

Anyplace Kiosk 4836



Planning, Installation and Service Guide

Anyplace Kiosk 4836



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Note

Before using this information and the product it supports, be sure to read the Appendix D, "Safety information," and the general information under Appendix C, "Notices."

First Edition (January 2005)

This edition applies to the IBM Anyplace Kiosk and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this guide

This guide provides information on installing and servicing the IBM Anyplace Kiosk and is organized as follows:

- Chapter 1, “Introducing the IBM Anyplace Kiosk,” describes the features and available options for the 4836.
- Chapter 2, “Installing the IBM Anyplace Kiosk” provides the installation steps for the 4836.
- Chapter 3, “Mounting the IBM Anyplace Kiosk to the wall” describes the procedures for mounting the 4836 to the wall.
- Chapter 4, “Removing and replacing FRUs” provides removal and replacement procedures for the field-replaceable parts.
- Chapter 5, “Troubleshooting problems” describes steps for diagnosing minor problems.
- Appendix A, “Field-replaceable units” describes the available FRU part numbers.
- Appendix C, “Notices” provides legal, emission, and country-specific information.
- Appendix D, “Safety information” provides safety information for all common languages.

Throughout this guide, the term *4836* and *IBM 4836* refer to the IBM Anyplace Kiosk.

Who should read this guide

Personnel responsible for installing, maintaining, and using the IBM Anyplace Kiosk should read this guide. Some chapters provide information that is intended for trained, technical personnel.

Related publications

The following IBM publications, drivers, and service diskette information are available from the IBM Retail Store Solutions Web site at:

www.ibm.com/solutions/retail/store/. From the store page, click **Support**.

- *IBM Safety Information*, GA27–4004
- *IBM Anyplace Kiosk System Reference*, Available only from the web.

System software, touch drivers, and diagnostics

You can obtain the drivers and diagnostic software for your Anyplace Kiosk from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store/ (from the store page, click on **Support**).

Tell us what you think

Your feedback is important in helping to provide the most accurate and high-quality information. Please take a few moments to tell us what you think about this book. The only way for us to know if you are satisfied with our books, or how we might improve their quality is through feedback from customers like you. If you have any comments about this book, fill out one of the forms at the back of this book and return it by mail or by giving it to an IBM representative.

If applicable, include a reference to the specific location of the text on which you are commenting. For instance, include the page or table number.

Between major revisions of this guide we may make minor technical updates. The latest softcopy version of this guide is available on the Publications Web page: www.ibm.com/solutions/retail/store/. Click **Support**, then **Publications**.

Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use the Anyplace Kiosk successfully. The following is a high-level list of the accessibility features:

- All controls are located on the front of the machine, in easy reach.
- Industry-standard serial and USB ports allow alternative I/O devices.
- Manuals are available in .PDF format and can be downloaded from the Web. See “Related publications” on page ix for the Web address.
- Displays are driven at 60 Hz to eliminate problems caused by screen flicker.

End of life disposal

IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of programs and services to assist equipment owners in recycling their IT products. Information about these product recycling offerings can be found on IBM's internet site at the following URL:

www.ibm.com/ibm/environment/products/prp.shtml

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

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

Chapter 1. Introducing the IBM Anyplace Kiosk

The IBM Anyplace Kiosk (see Figure 1) is a comprehensive and compact, touch screen terminal for self-service applications. The rugged aspect of the 4836 makes the product suitable for a wide variety of uses, such as retrieving information, listening to music, or watching multi-media presentations.

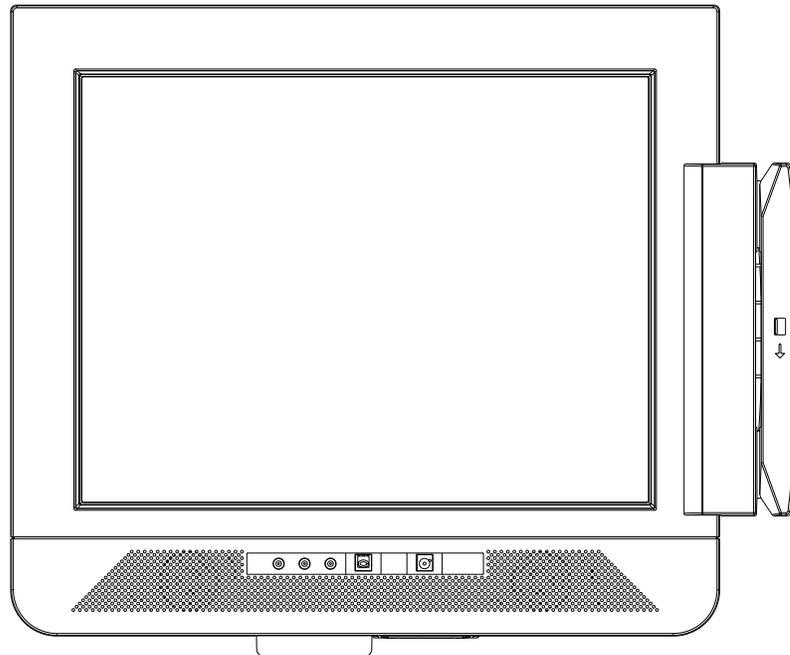


Figure 1. IBM Anyplace Kiosk Model 132

To view the model dimensions, see Appendix B, “Product dimensions,” on page 57.

Architecture and attributes

The IBM Anyplace Kiosk uses standard mobile technology within the design of a customer service terminal. The typical configuration does not contain a keyboard or mouse because all input is through the touch screen.

The IBM 4836 contains the following key attributes:

- 12" (800 x 600) or 15" (1024 x 768) dual-bulb backlit TFT display (250 nits brightness)
- Infrared touch-screen system
- Presence detector
- Sealed display face that allows cleaning without the risk of fluids damaging the chassis
- Intel® Celeron® M Processor 320 (1.3 GHz)
- Intel 855GME mobile chip set
- 2 SO-DIMM DDR memory sockets. Base memory size is 256 Megabytes, with 2 Gigabytes maximum memory
- External, universal 16V dc, 120 W power brick. Only use power bricks supplied by IBM specifically for use with the Anyplace kiosk.

- Two, 35 mm integrated speakers in specially-designed acoustically ported enclosures to maximize both the volume and frequency response (except Model 13V)
- Headphone and microphone jack
- Hidden and optionally tamper-proof controls through a snap-on cover for power on/off, brightness, and contrast
- Ethernet support (10/100 UTP)
- 2 PC USB 2.0 ports for attached input/output (I/O). (Each port can provide 500mA at +5V to external devices). Third party USB hubs can be connected for additional USB ports.
- 1, 9-pin, non-powered RS-232 port
- Mounting holes providing 75 x 75 and 100 x 100 mm spacing, which is compatible with the VESA standard

Note: Power is not provided for any other external devices.

Table 1. Summary of characteristics and weight by model

Characteristics	Model 132 and 13V	Model 135	Options
Height	295 mm (11.6 in.)	340 mm (13.4 in.)	Scanner: 13 mm (.5 in.)
Width	319 mm (12.5 in.)	383 mm (15.1 in.)	MSR: 45 mm (1.8 in.)
Depth	72 mm (2.8 in.)	72 mm (2.8 in.)	N/A
Weight	4.5 kg (10 lbs.)	5.5 kg (12 lbs.)	

Models and features

Table 2 describes some of the common 4836 models. Administrative models and other models that represent different service repair options are not listed. See your IBM representative for a complete list.

Note: These models do not include the HDD, scanner, or MSR.

Table 2. IBM Anyplace Kiosk models

Model Number	Description
12 inch Models with 256 Megabytes	
4836-132	Includes <i>depot maintenance agreement</i> , which allows you to return the product to an authorized IBM repair center.
4836-13V	Includes depot maintenance agreement, without speakers, but with volume control
15 inch Models with 256 Megabytes	
4836-135	Includes depot maintenance agreement.

Optional features

Table 3. IBM Anyplace Kiosk hardware options

Option	Description
Hard disk drive	2.5 in., 40 Gigabyte
Memory	Two SO-DIMM DDR memory sockets: Base memory size is 256 Megabyte, with 2 Gigabyte maximum memory
MSR	ISO 3-track
Bar code scanner	Non-laser based, suitable for decoding labels held up to 5 cm. - 13 cm. (2 in. - 5 in.) away.
Wireless LAN: 802.11 b/g wireless support through mini-PCI adapter	A factory-only feature. Note: The wireless solution is certified for use only in certain countries. See Appendix C, "Notices," on page 59.

Configurations

Your sales representative can provide the latest available configurations.

Mounting options

These are the mounting options for the Anyplace Kiosk:

Wall mount

This mount minimizes protrusion from the wall, but does not have any tilt or swivel capability.

Table mount

This mount allows the monitor to tilt up and down and rest on a table top. The screw hole allows you to secure it to the table.

Compatible with VESA standard

This mount is compatible with any third-party mount with 75 x 75 mm or 100 x 100 mm mounting holes.

System software, touch drivers, and diagnostics

The IBM Anyplace Kiosk supports all standard PC-function drivers and provides interfaces for the following I/O:

Touch screen

- Native mouse emulation
- JavaPOS compatible, OPOS

MSR

- Virtual RS-232
- JavaPOS, OPOS

Scanner

- Virtual RS-232
- JavaPOS, OPOS

Presence detector

JavaPOS, OPOS

The MSR and scanners are internally connected using the integrated USB channel. However, to maximize compatibility with existing applications, the API provided to applications is a virtual RS-232 type of interface. For details, see the technical references available at the IBM Retail Store Solutions Web site.

You can obtain the appropriate software for your Anyplace Kiosk from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store/ (from the store page, click on **Support**).

Supported operating systems

The IBM Anyplace Kiosk supports these operating systems:

- Windows™ XP, XPe, and 2000
- IBM Retail Store Solutions Linux® (IRES)

Environmental requirements

Table 4 shows the humidity and temperature limits for the Anyplace Kiosk.

Table 4. Environmental requirements

	Temperature (dry bulb)	Maximum temperature (wet bulb)	Relative humidity
Operating	5 to 40°C (41° to 104° F)	27° C (81° F)	8 to 80%
Power disconnected	0 to 52°C (32° to 126° F)	27° C (81° F)	5 to 95%
Storage	0 to 60°C (-32° to 140° F)	29° C (84° F)	5 to 80 %
Shipment	-40 to 60°C (-40° to 140° F)	29° C (84° F)	5 to 100 %

Small, variable-speed fans are used for processor and hard drive cooling when temperatures exceed certain values. Ensure that the cooling vents are not blocked by papers, signs, or other items.

Power usage

Table 5 shows the power consumption for the Anyplace Kiosk:

Table 5. Power usage

Description	Amounts
Power consumption	Off: 3W
Heat dissipation:	Standby: 18W
	On (idle/typical): 50W
	On (maximum): 120W
Input voltage and current	100–240 V 50–60 Hz 1.4A max: Input to power supply

Calling for service

When you call IBM for warranty information or service, be sure to have the following information available:

- Machine type/model
- Serial number

You can locate this information on the lower-left edge at the rear of the machine.

Chapter 2. Installing the IBM Anyplace Kiosk

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This section describes procedures for setting up the Anyplace Kiosk product.

You should be familiar with the rear doors and connectors of the IBM 4836 before you begin the installation steps.

Rear view and connectors

Figure 2 shows the rear view of the IBM 4836.

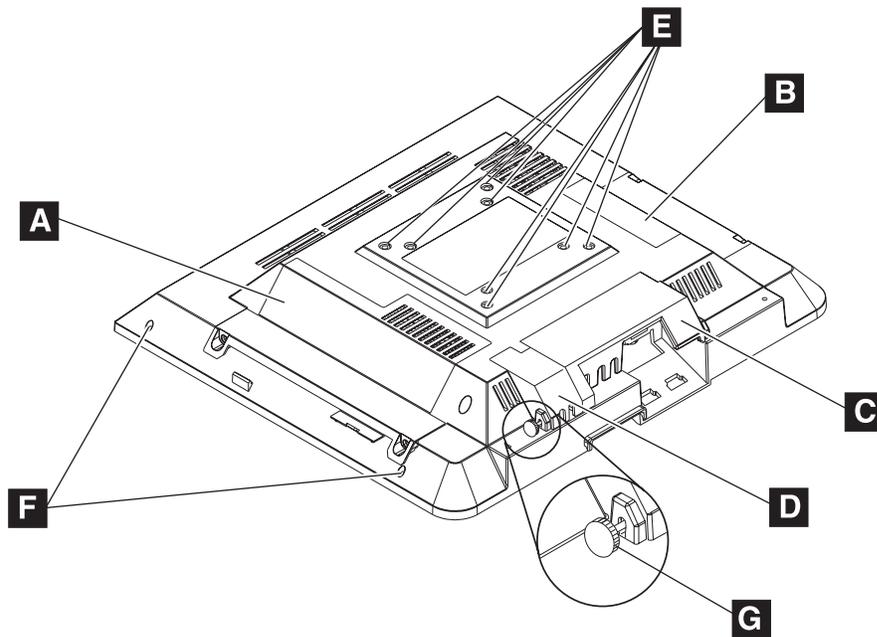


Figure 2. Rear view showing access doors, mounting holes, attachment holes

- A** Hard drive door
- B** Memory door
- C** Cable cover
- D** USB cover
- E** Holes that allow for the following standard mounting screws:
 - 100 mm x 100 mm (3.93 in. x 3.93 in.)
 - 75 mm x 75 mm (2.75 in. x 2.75 in.)

Note: These holes allow for the standard M4 X 10 mm screws specified by the VESA standard.

- F** Tapped holes that allow the attachment and display of marques, announcements, sales promotions and other information.

Note: These holes allow for M3 screws that cannot protrude into the machine more than 10 mm.

- G** Close up of cable cover thumbscrews

Figure 3 on page 9 shows the IBM 4836 connections.

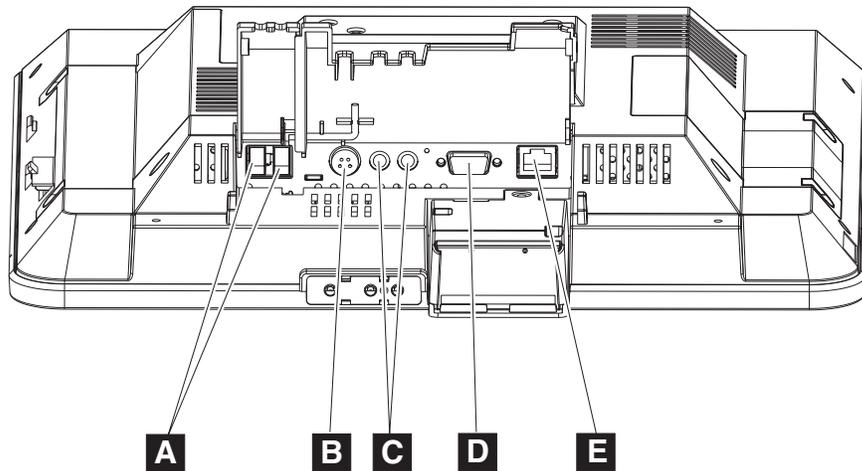


Figure 3. IBM 4836 connectors

Table 6. Connector location

A	USB
B	Power
C	Headphone/microphone
D	RS 232
E	Ethernet

Installation steps

Follow these steps to install the IBM 4836:

1. Install your options (except the MSR).
2. Route, connect and retain the cables. See “Retaining the cables” on page 10. Be sure to route the cables through the mounting stand before connecting to the unit.
3. Install the IBM 4836 on your mounting option: table top (see “Table-top mount” on page 15) or wall (see “Wall mount” on page 15 or the third-party mount instructions).
4. Install the optional MSR.
5. Power on the IBM 4836. See “Powering on” on page 16.

Opening the cable covers

The cable covers provide security and protection to the IBM 4836 cable and connections.

Note: You can use a screwdriver, if required, during these steps. The USB cover can be opened independently of the cable cover.

1. Unscrew the USB cover thumbscrew.
2. Unscrew the cable cover thumbscrew.
3. Open both cable covers.

Retaining the cables

The RS-232 cable is retained to the system unit with screws. The Ethernet cable is retained by a snap on the connector. When closed, the cable cover retains the power cable. See Figure 4.

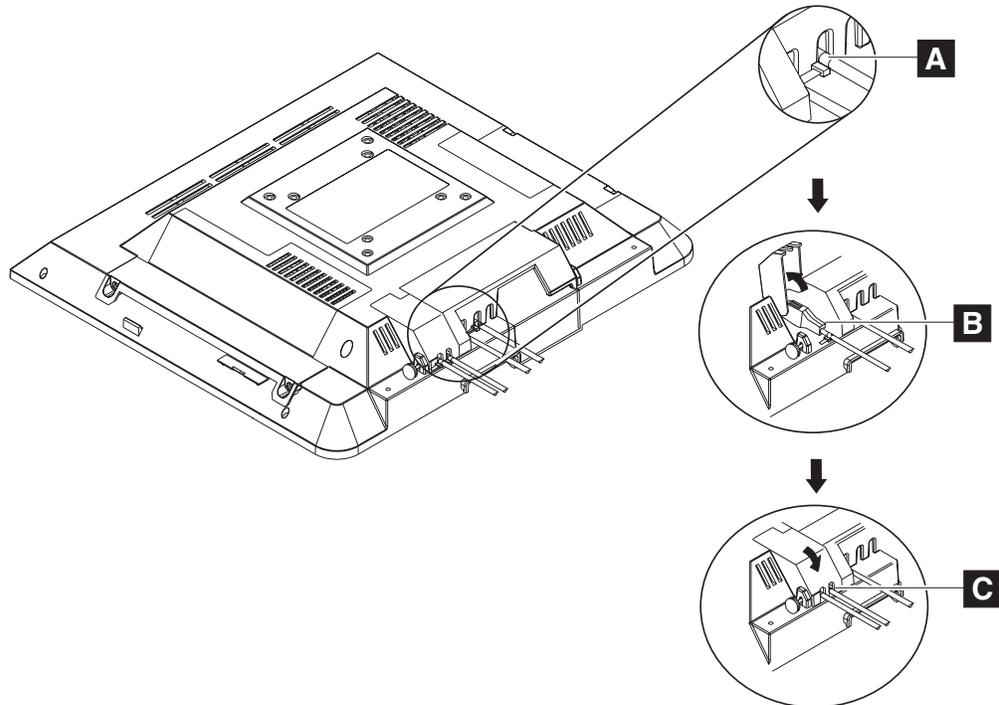


Figure 4. Retaining the cables using cable ties

You can retain the audio cables and USB cables by placing cable ties¹ on the outside of the covers. The slots in the cable covers retain the ties. Install the cable ties as follows:

1. Plug each cable into its respective connector.
2. Install the cable ties to the cable just outside the cable cover as shown in **A** in Figure 4.

Note: Ensure that the cable tie is tight and does not move.

3. Open the cable covers (**B** in Figure 4).
4. Place the cables with the cable ties inside of the cable covers.
5. Close and secure the cable covers with the cable ties inside of the covers (**C** in Figure 4).

Installing the options

The design of the IBM 4836 allows you to install the hard drive, scanner and MSR without removing the external cover. Many upgrade features are factory-installed. See Figure 2 on page 8 to identify the access doors.

1. The cable ties are 5 mm (.2 in.) wide.

Installing the scanner

1. As shown in Figure 5, place the IBM 4836 face down on a sturdy surface.

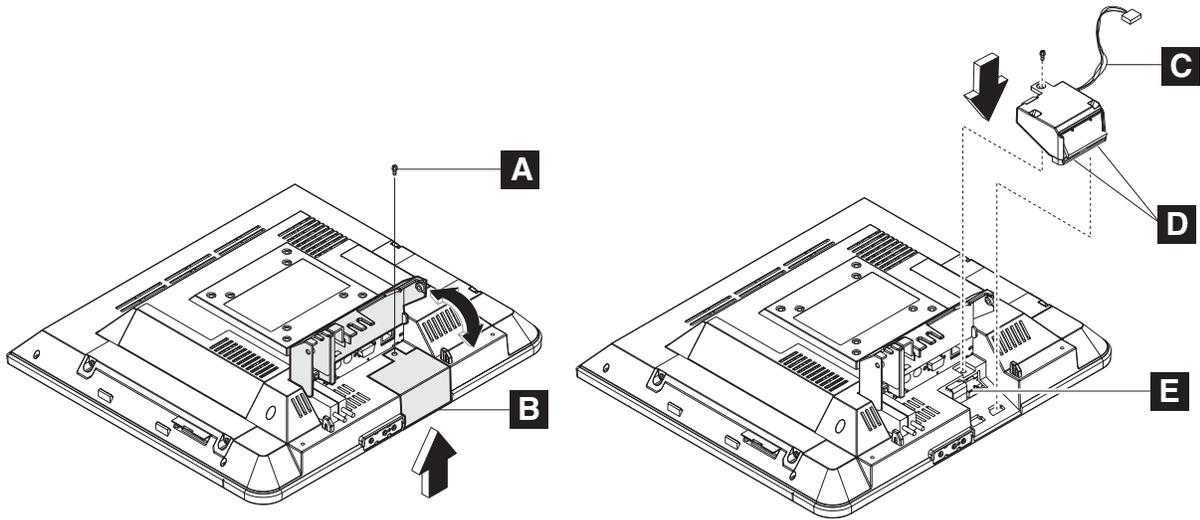


Figure 5. Installing the scanner

2. Lift the cable covers as described in “Opening the cable covers” on page 9.
3. Unfasten the screw (**A**) holding the scanner bay cover (**B**). Discard the cover, but retain the screw for step 6.
4. Connect the scanner cable (**C**) to the connector (**E**).
5. Align the tabs (**D**) on the scanner with the adjacent slots on the cover and slide into position.
6. Secure in place by inserting the screw (**A**).

Note: For best scanning results, hold the object to be scanned 2 to 4 inches away from the scanner.

Installing the MSR

Note: Install the MSR after you mount the IBM 4836. See “Mounting instructions” on page 14.

1. See Figure 6 on page 12. Remove the hard drive door by unfastening the two screws located on the door and discard.
2. With the IBM 4836 mounted onto the desired stand, locate the mounting features for the MSR on the right side of the machine.

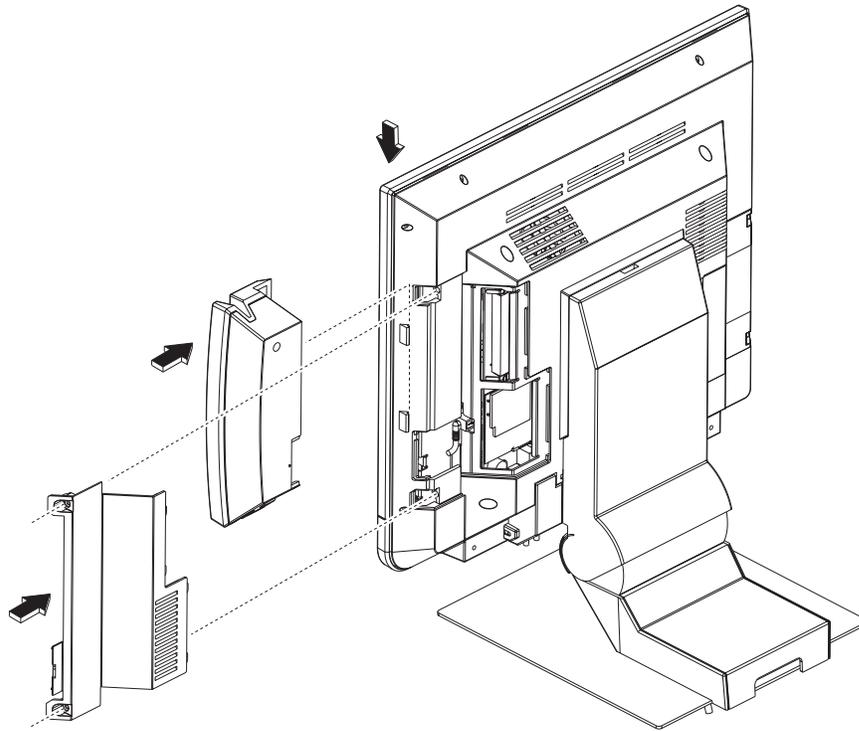


Figure 6. Installing the MSR

3. Align the MSR such that the connectors are slightly above their matching slots on the 4836. Slide the MSR downward into position, being careful not to pinch the MSR cable.
4. Plug the USB cable into the connector.

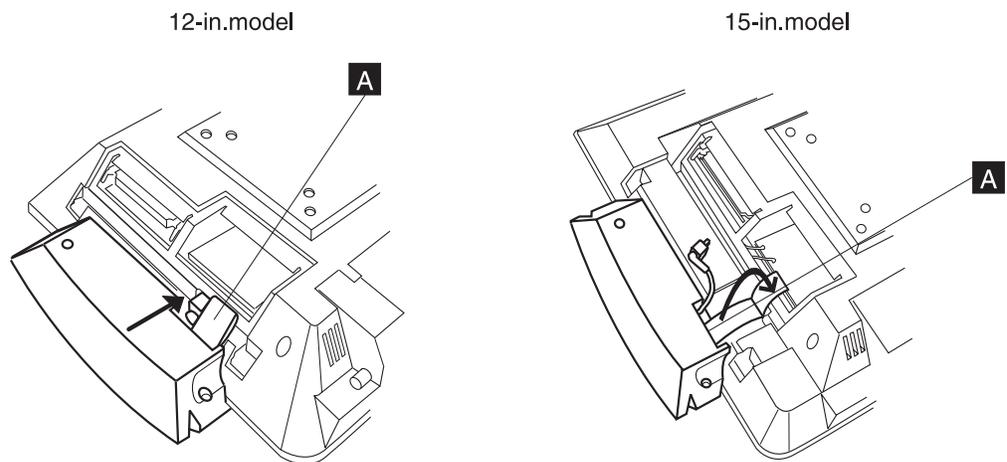


Figure 7. Placing the grounding strap

5. Lay the grounding strap against the bottom of the opening in the metal shield; the door will then clamp the strap into place.

Note: **A** in Figure 7 shows the grounding strap, which is folded for the 12 inch unit, unfolded for the 15 inch unit.

6. Install the hard drive door with MSR latching tab and secure the two screws.

Installing the upgrade options

Note: Most internal upgrade options are ordered and arrive pre-installed. This section is provided for technical personnel only.

Installing a hard drive

See Figure 2 on page 8 to identify the hard drive access door.

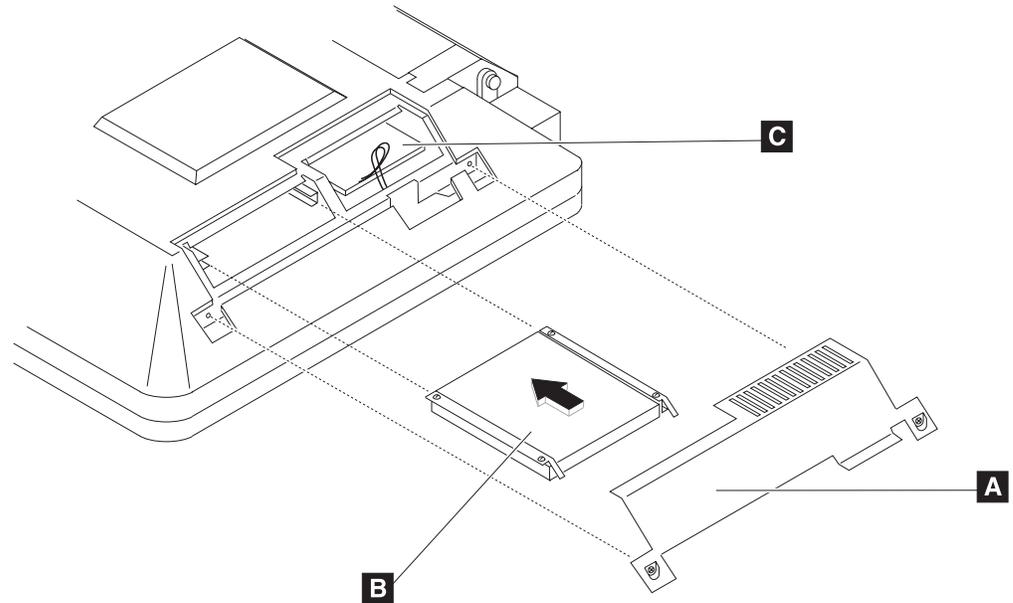


Figure 8. Removing the hard drive cover

1. Place the IBM 4836 face down on a sturdy surface.
2. Unfasten the two captured screws to remove the HDD door (**A**). See Figure 8.
3. Locate the slot and brackets and insert the hard drive (**B**).

Note: Note the optional wireless card (**C**). If ordered, this card is installed at the factory. For removal and replacement procedures, see “Removing the wireless card” on page 31.

Installing additional memory

To install additional memory refer to Figure 2 on page 8. This figure identifies the memory access door.

1. Place the 4836 face down on a sturdy surface.

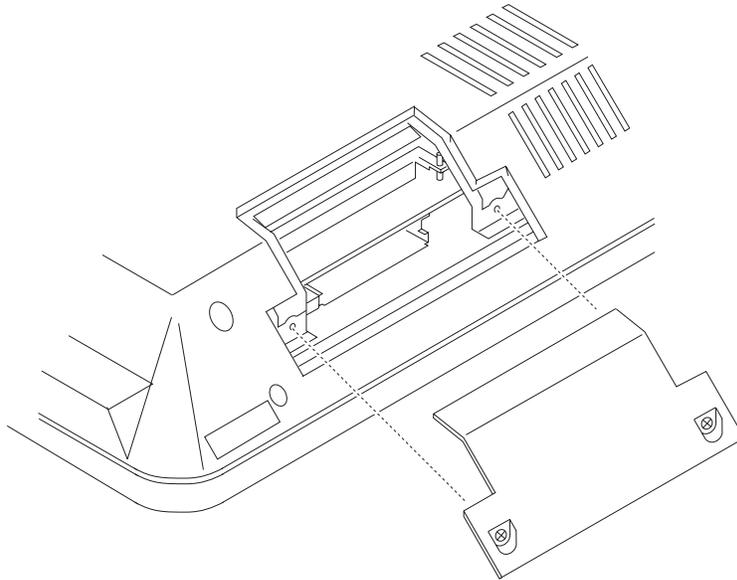


Figure 9. Installing additional memory

2. See Figure 9. Remove the two captured screws on each side of the memory door and pull to remove.
3. Insert the memory card into the brackets at an angle with the connector end down.
4. Rotate the outer edge of the memory card downward until it snaps into place.

Note: You must remove the back cover if you are replacing both memory modules.

Mounting instructions

You can choose between a table-top, wall mount, or a third party mount.

Table-top mount

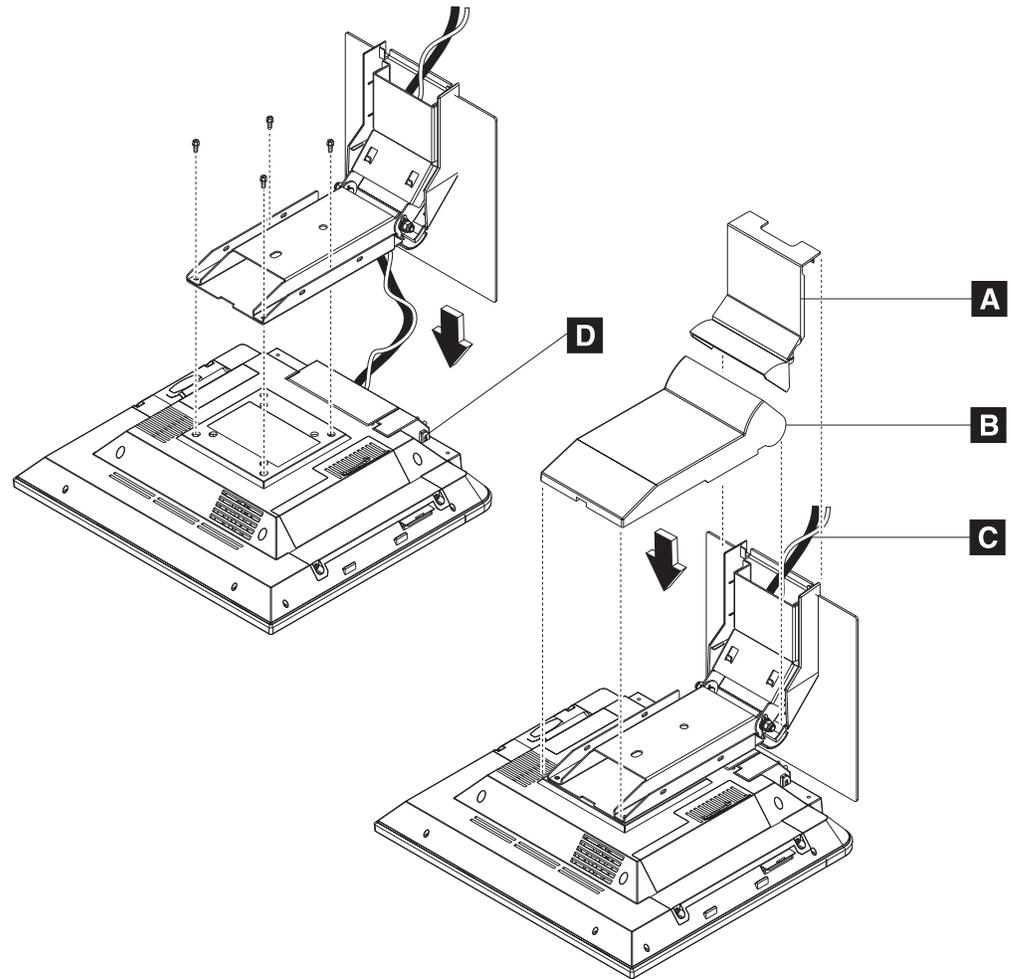


Figure 10. Installing table-top mount

1. Remove the base cover (**A**) and arm cover (**B**).
2. Route and connect the cables (**C**) to the IBM 4836.
3. Close cable cover and tighten thumbscrew (**D**) on the cover.
4. Close USB cover (optional).
5. Attach the mount to the unit with the four screws.
6. Install the base cover (**A**) and the arm cover (**B**).
7. Place the IBM 4836 unit in the desired location and retain the cables (see “Retaining the cables” on page 10).

Note: You can bolt the unit to the counter top, using the hole provided in the mount.

Wall mount

Follow the procedures described in Chapter 3, “Mounting the IBM Anyplace Kiosk to the wall,” on page 17.

Powering on

Notes:

1. Your new IBM 4836 ships with a control cover. If you want the buttons covered, install this part after you power on and adjust the image.
2. A small hole (**E** in Figure 11) under the control cover allows you access to the reset switch. Use a paperclip or other small tool to activate the switch.
3. A screwdriver is required to pry off the cover.

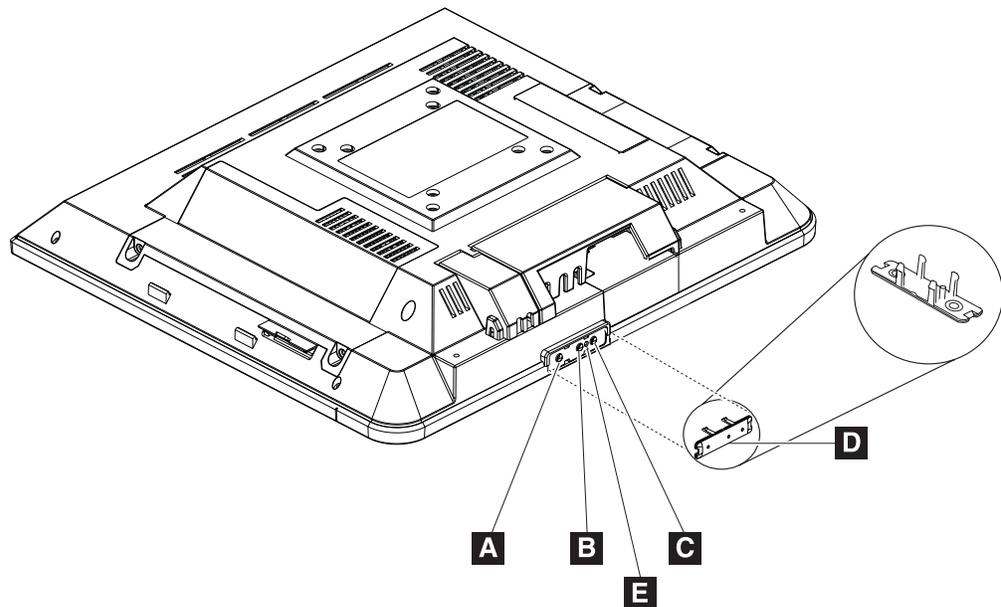


Figure 11. IBM 4836 controls and installing the control cover

1. Plug the power adapter into the 4836.
2. Plug the power adapter into an electrical outlet.
3. Power on the IBM 4836 using the power switch (see **A** in Figure 11). The 4836 power light-emitting diode (LED) will initially appear green.
4. To adjust the brightness, select the plus + (**B**) or minus - (**C**) keys.

Installing the control button cover

See Figure 11. To install the control button cover (**D**), follow these steps:

1. Match the alignment pins on the button cover with the hole between the buttons.
2. Snap into place.

Chapter 3. Mounting the IBM Anyplace Kiosk to the wall

Follow these procedures to mount the IBM 4836 to the wall.

Mounting the wall mount plate

The mounting adapter **A** is secured to a metal wall-mount plate **B**, that can be installed on wood, drywall surface over studs, or a solid concrete or brick wall.

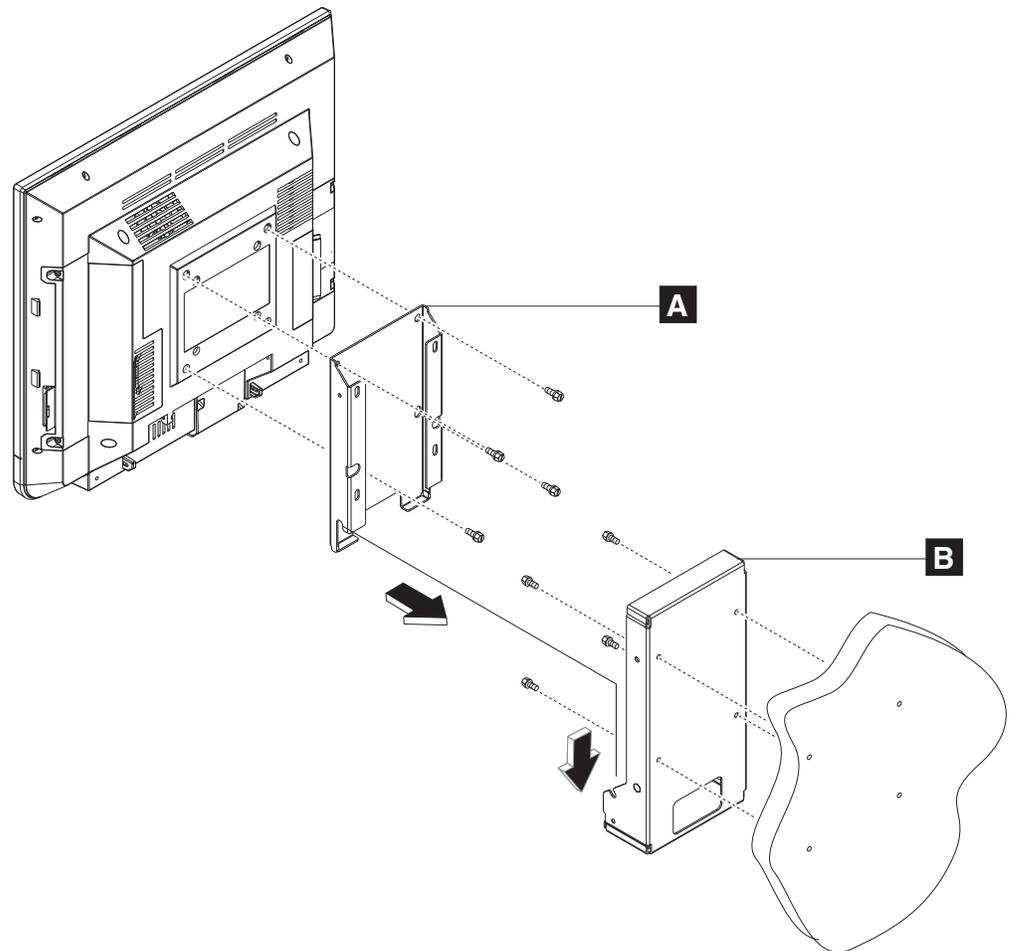


Figure 12. System and wall mount plate

Wall mounting requirements

Note: Before mounting the wall mount plate, ensure that you are following all applicable building and electric codes.

When mounting, ensure that you have enough room for adequate viewing, ventilation, and access to an AC power outlet. The method of mounting must be able to support the combined weight of the IBM 4836 plus the suspended weight of all the cables to be attached to the system. Use the following methods for mounting your system:

Mounting to hollow walls

- **Method 1: Wood surface** — A minimum wood thickness—38 mm (1.5 in.) by 28 cm (11 in.)— of high, construction-grade wood is recommended.

Note: This method provides the most reliable attachment of the unit with little risk that the unit will come loose or require ongoing maintenance.

- **Method 2: Drywall walls** — Drywall over wood studs is acceptable.

Mounting to a solid concrete or brick wall — Mounts on a flat smooth surface.

Selecting the location

Plan the mounting location thoroughly. Locations such as walkway areas, hallways, and crowded areas are **not** recommended. Mount the unit to a flat, sturdy, structurally sound column or wall surface.

The best mounting surface is a standard countertop, cabinet, table, or other structure that is minimally the width and length of the unit. This recommendation reduces the risk that someone may accidentally walk into and damage the device. Local laws governing the safety of individuals might require this type of consideration.

Determining the mounting height of wall mount plate

For users in a standing position, the typical height is approximately **122 cm (48 in.)** from the floor to the center of the touch display. The height used should be appropriate and comfortable for a large portion of the users. Additionally, you should adjust the display's initial angle of tilt to provide adequate and comfortable viewing by the users for the tasks that they perform.

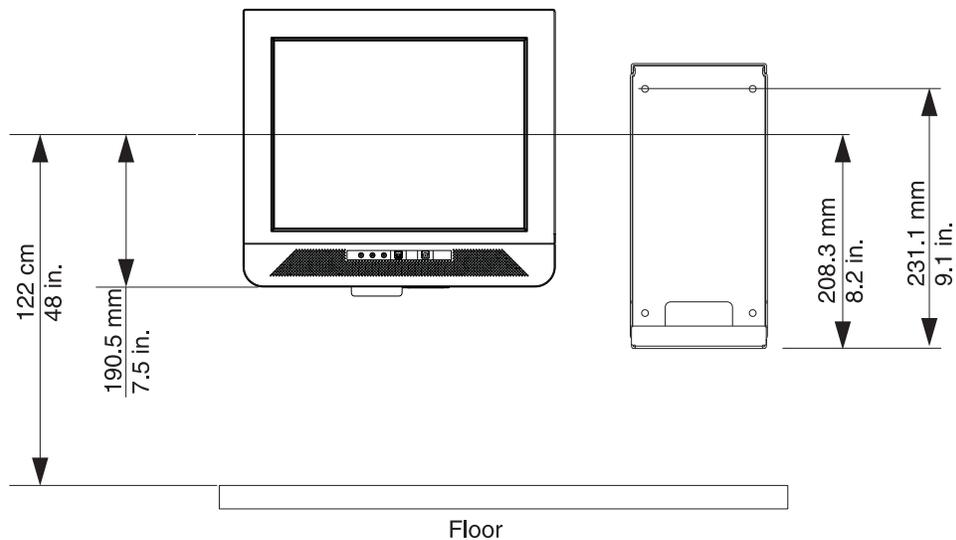


Figure 13. IBM 4836 mounting height

Wall mount plate mounting options

The wall mount plate and wall cutout dimensions are shown in Figure 14. The I/O and power cables for the unit can be routed either through the wall behind the unit, or out the bottom of the rear cover.

Note: Wall mount plate is not drawn to scale.

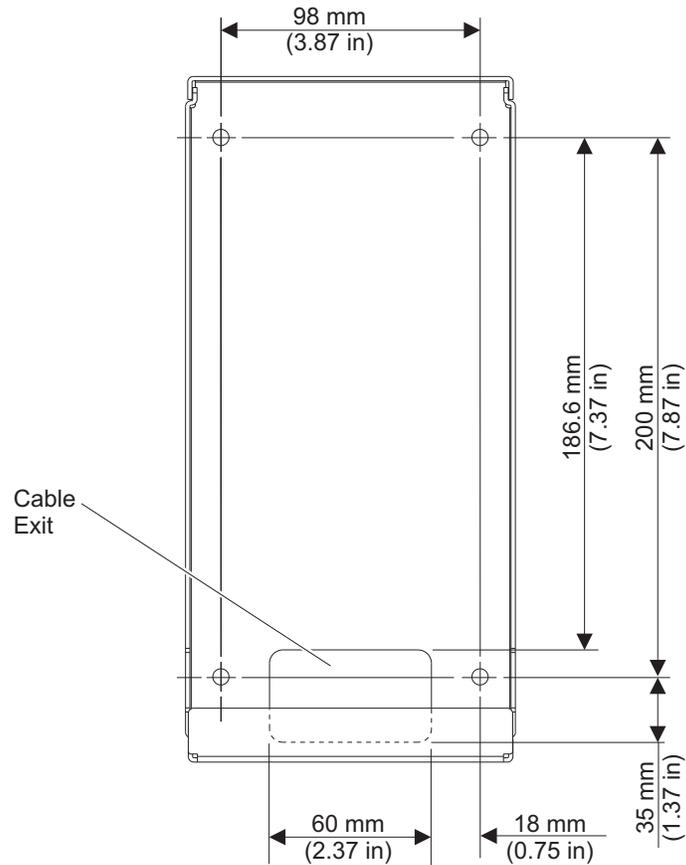


Figure 14. Wall mount plate dimensions

Attaching the wall mount plate

Attention: The wall mount plate must be installed by an insured, qualified, professional installer who is familiar with building construction methods, building materials, building codes, electrical codes, fire codes, and local laws governing public access areas.

It is imperative that the wall mount plate is attached securely and permanently to the wall. The 4836 weighs approximately 6.4 Kg (14 lb.), and its weight is centered approximately 75 mm (3 in.) away from the wall. In addition to this weight, the wall mount plate must maintain secure and permanent attachment in the event the unit is knocked, bumped, or otherwise abused. If the wall mount plate is not securely attached to the wall, the unit might fall and be damaged, and may cause injury to others.

There is a wide variation of types of wall construction, age and condition. After reviewing the conditions on site, the installer must make the final judgment as to the suitability of the existing wall material to determine if additional bracing or supports are required.

Attaching the wall mount plate involves making minor modifications to the building construction. Be sure to observe proper safety precautions to prevent injury. Unforeseen hazards, for example, natural gas and power lines, can exist when drilling and cutting into walls.

Note: Compliance with local building codes, electrical codes and the governing laws should take precedence over this set of instructions.

Fasteners are not included with the unit, and must be supplied by the installer. The types of fasteners required are dependent on the type of wall construction. See "Fastener types" on page 24 for detailed descriptions and pictures of the fasteners discussed below. If the recommended size is not available, choose the next longer or larger size. Choose fasteners that are rated either "Medium Duty" or "Heavy Duty." To assure proper fastener selection and installation, follow the fastener manufacturer's recommendations.

Mounting to hollow walls

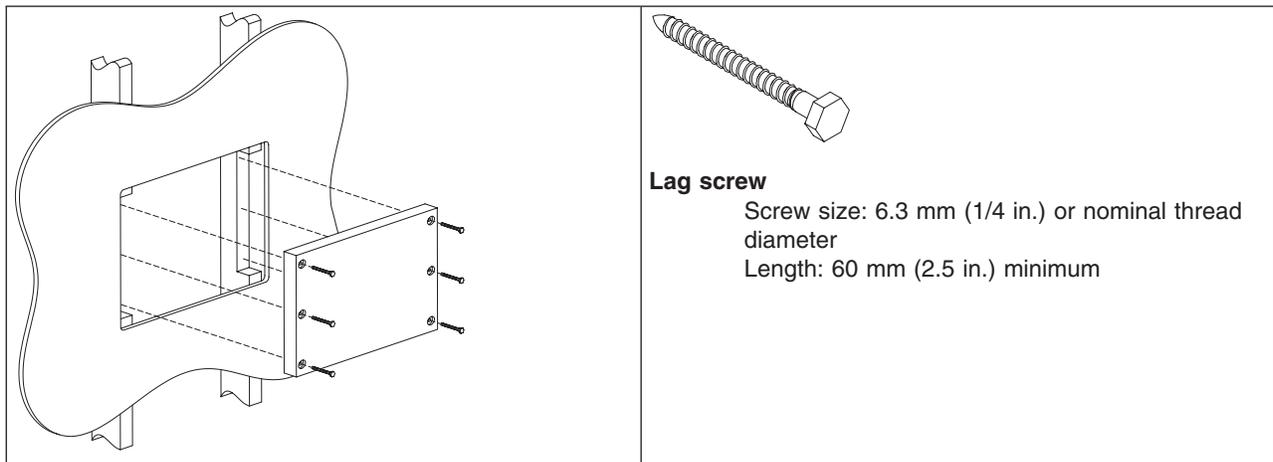
Hollow walls include walls that are constructed of drywall board that is securely fastened to wood studs. The studs must make up the main structure and strength of the wall.

Method 1: Wood surface

Use this method if construction changes to the wall are permitted. This method will provide the most reliable attachment of the unit to the wall with little risk that the unit will ever come loose or require ongoing maintenance.

The drywall board is removed in an area approximately 30 cm (12 in.) high that spans the space between two studs. The two wood studs can be cut back approximately 38-mm (1.5-in.) by 28-cm (11-in.) high. A 38-mm (1.5-in.) thick by 28-cm (11-in.) high construction grade wood support is attached to the two wall studs with six lag screws as shown in Table 7. Install the Lag Screws directly into the center of the studs without pre-drilling a hole. Do not use soap or other lubricant on the screws during installation. The wood support material should be either solid wood or plywood. After installation of the support, you can replace and prepare the drywall board for final finishing.

Table 7. Securing the wood support to the wood studs using lag screws



Use a bubble level to assure that the wall mount plate is mounted squarely. Use six wood screws to attach the wall mount plate to the wall. Center the wall mount plate vertically on the wood support. Install the wood screws directly into the wood support without pre-drilling a hole. Do not use soap or other lubricant on the screws during installation. See “Fastener types” on page 24 for more information.

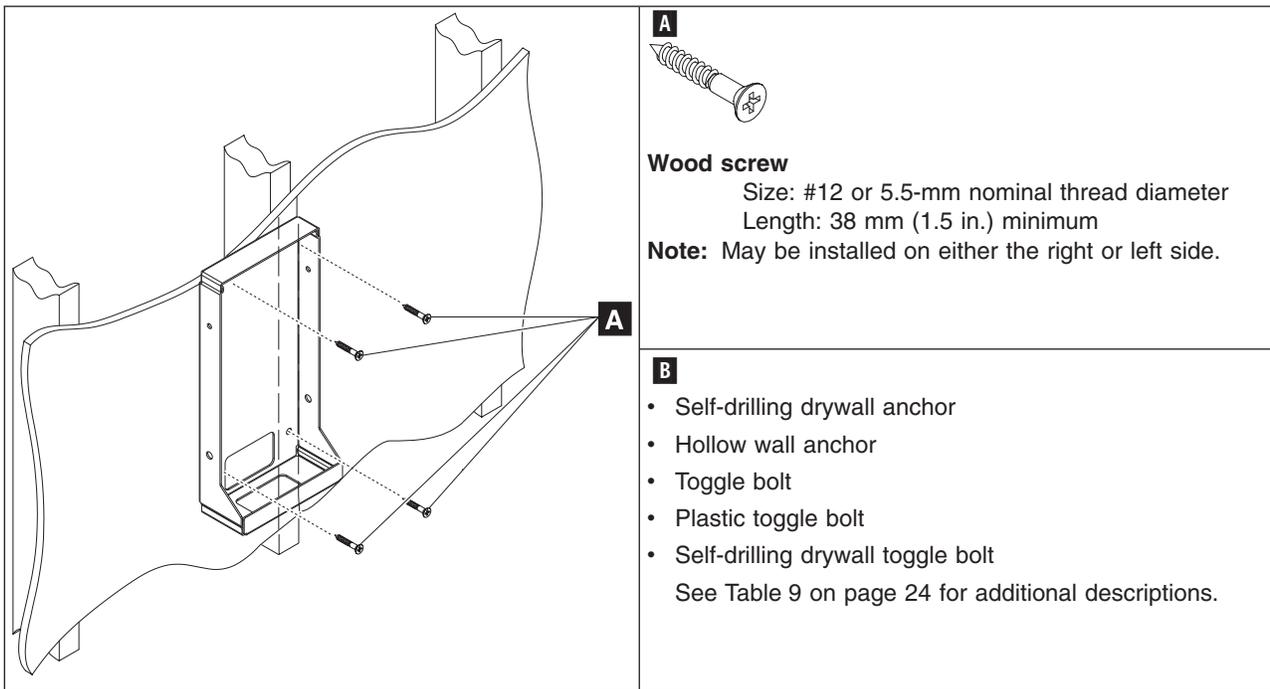
After installation, make sure that the screw heads are flush or below the outer surface of the wall mount plate. Check to make sure that you firmly and securely attach the wall mount plate to the wall.

Method 2: Drywall surface

Use this method if you cannot make construction changes to the wall. This method provides a safe attachment of the unit to the wall. However, there is risk that the wall mount plate and unit might become loose if it is struck with a high force. The drywall must be at least 12.7-mm (0.5-in.) thick to use this method. Use a bubble level to assure that you mount the wall mount plate squarely.

Install two "Medium Duty" or "Heavy Duty" fasteners. Use fasteners, which are designed for drywall, in one side of the wall mounting plate **B**, as shown in Table 8. Depending on the type of fastener, portions of the fastener may need to be installed into the wall first. You may possibly thread them through the screw holes in the wall mount plate. The recommended types of drywall fasteners are: self-drilling drywall anchor, hollow wall anchor, toggle bolt, self-drilling drywall toggle bolt, and plastic toggle bolt. Use two wood screws **A**, as shown in Table 8, to attach the wall mount plate to the stud. Install the Wood Screws directly into the center of the stud without predrilling a hole. Do not use soap or other lubricant on the screws during installation. See "Fastener types" on page 24 fastener descriptions and pictures at the end of this section for more information.

Table 8. Securing the wall mounting plate to a drywall surface. This figure shows wood screws (**A**); however, other types of screws (**B**) can be used.



After installation, make sure the screw heads are flush or below the outer surface of the wall mount plate. Check to make sure you firmly and securely attach the wall mount plate to the wall.

Mounting to a concrete or brick wall

This mounting surface includes walls that are constructed of either brick wall and mortar or solid concrete.

Due to the variable nature of laying bricks, and the variation in types of mortar joints, most brick walls have an uneven surface. If possible, select a location on the wall that allows all four corner screw holes to remain flat without warping the wall mount plate. If this location is not possible, add a metal washer or other type of shim under one or more screw holes. This addition allows the wall mount plate to be mounted without warping it.

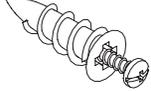
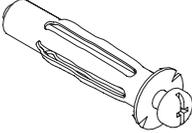
Use a bubble level to assure that you mount the wall mount plate squarely. Use four concrete anchors to attach the wall mount plate to the wall. Use one concrete anchor in each corner of the wall mount plate. See “Fastener types” on page 24 for detailed fastener information to determine the types of fasteners that are suggested.

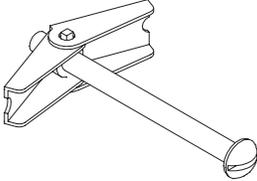
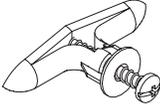
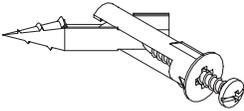
After installation, make sure that the screw heads are flush or below the outer surface of the wall mount plate. Check to make sure that you attached the wall mount plate firmly and securely to the wall.

Fastener types

Table 9 lists the different fasteners that you can use to mount the wall mount plate. The fasteners are not drawn to actual size.

Table 9. Fastener types

 <p>Wood screw Size: #12 or 5.5-mm nominal thread diameter Length: 38-mm (1.5-in.) minimum</p>	 <p>Concrete Anchor Size: 5-mm (3/16-in.) nominal thread diameter Length: 32-mm (1.25-in.) minimum Note: Fastener has a high/low thread that cuts its own threads</p>
 <p>Self-Drilling Drywall Anchor Screw size: #8 or 4-mm nominal thread diameter Types: E-Z Anchor 50# (22 kg) pullout rating or Cobra WallDriller</p>	 <p>Hollow Wall Anchor Screw size: 5-mm (3/16-in.) nominal thread diameter Note: Metal casing size is dependent on wall board thickness. During installation, grip head of metal casing with pliers when initially tightening the screw to flare the legs. "No drill" or "drive" types are not recommended.</p>

 <p>Toggle Bolt Screw size: 5-mm (3/16-in.) nominal thread diameter</p>	 <p>Plastic Toggle Bolt Screw size: #8 or 4-mm nominal thread diameter Note: Toggle size is dependent on wall board thickness</p>
 <p>Lag screw Screw size: 6.3 mm (1/4-in.) or nominal thread diameter Length: 2.5 in. or 60 mm minimum</p>	 <p>Self-Drilling Drywall Toggle Bolt Screw size: #8 or 4-mm nominal thread diameter</p>

Chapter 4. Removing and replacing FRUs

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Note: Procedures in this section should be performed by qualified service personnel.

Reviewing the IBM 4836 assembly

Figure 15 on page 28 summarizes the field replaceable parts of the IBM 4836 assembly. The part number associated with each FRU is located in Appendix A, “Field-replaceable units.”

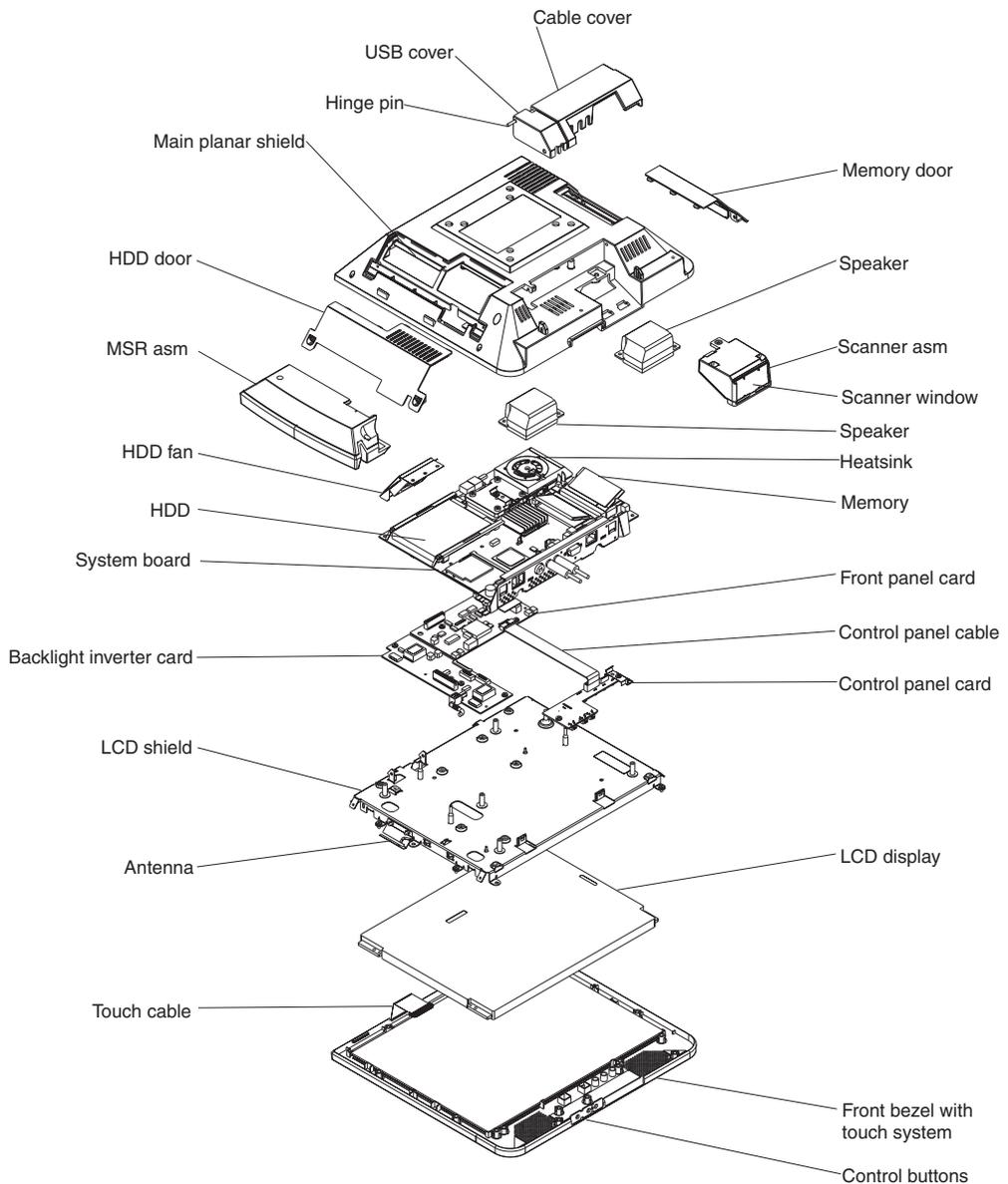


Figure 15. Exploded view of the IBM 4836 assembly

Before you begin

Always practice safety first. Before removing the back cover (or performing any removal procedures), follow these steps:

1. Turn off power.
2. Remove the power cable.
3. Place the unit on a sturdy surface.

Removing the back cover

Follow these steps to remove the back cover:

1. Place the IBM 4836 face down on a sturdy surface.
2. If installed, remove the MSR and scanner.

3. If installed, remove the button cover by prying under one end with a small screwdriver.
4. Locate and unfasten the five captured screws (see Figure 16) securing the back cover.

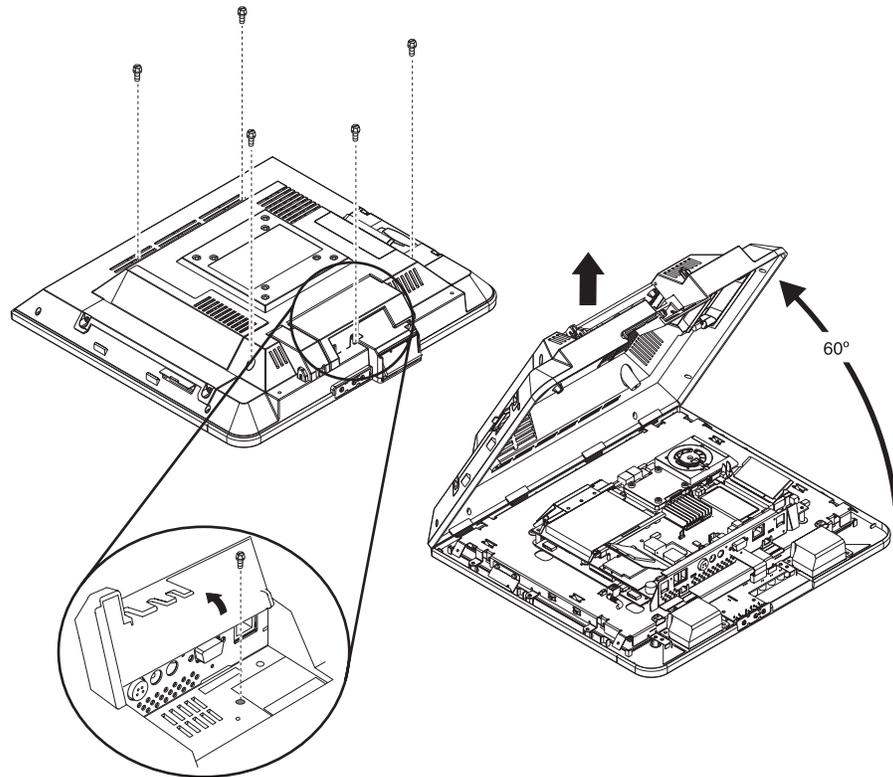


Figure 16. Removing the back covers

5. Lift the cover to approximately a 60-degree angle (see Figure 16) to release the hooks and reveal the main planar assembly.

Removing the scanner and scanner window

To remove the scanner, reverse the steps described in “Installing the scanner” on page 11.

To remove the scanner window:

1. Using a small screwdriver, pry out the scanner window.
2. To replace, place the window in the correct position and snap into place.

Removing the cable covers

Follow these steps to remove and replace the cable covers:

1. Open the covers as described in “Opening the cable covers” on page 9.
2. Remove the hinge pin (see Figure 15 on page 28) and lift to remove the covers.
3. To replace, reverse these steps.

Removing the main shield

1. Remove the cover as described in “Removing the back cover” on page 28.

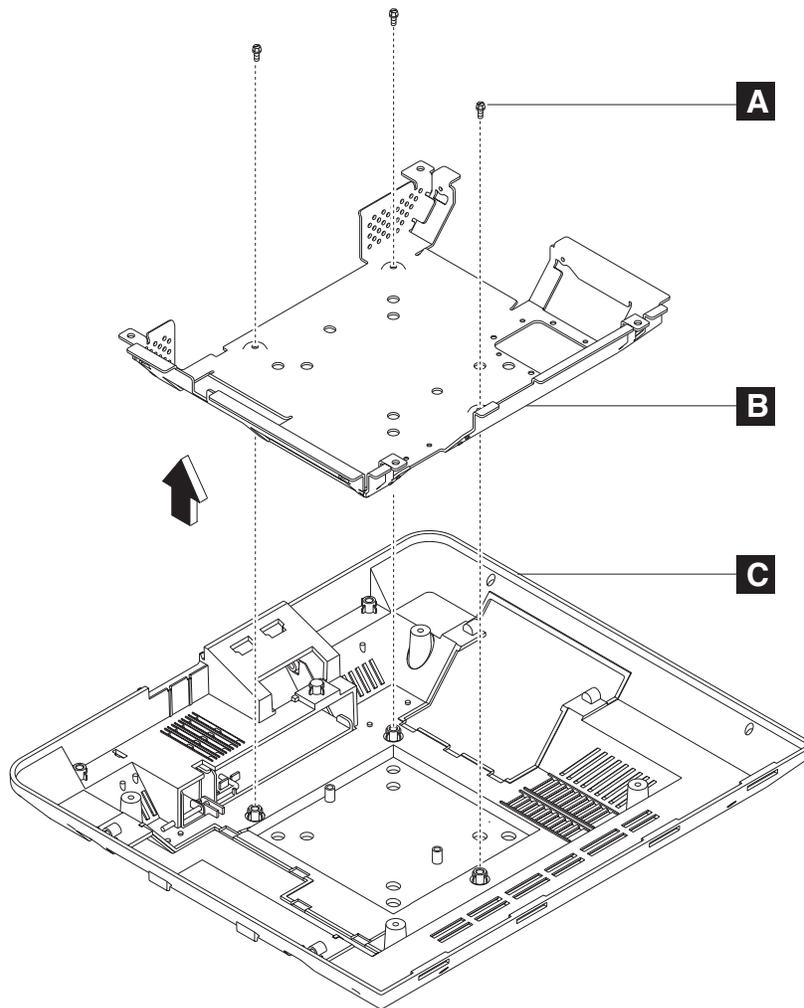


Figure 17. Removing the main shield

2. See Figure 17 and locate the main shield (**B**) that is attached to the back cover (**C**).
3. Remove the three screws (**A**) holding the shield and lift to remove.
4. To replace, reverse these procedures.

Removing the wireless card

Follow these steps to remove the wireless card:

Note: You do not have to remove the back cover to remove the wireless card.

1. Place the 4836 face down on a sturdy surface.

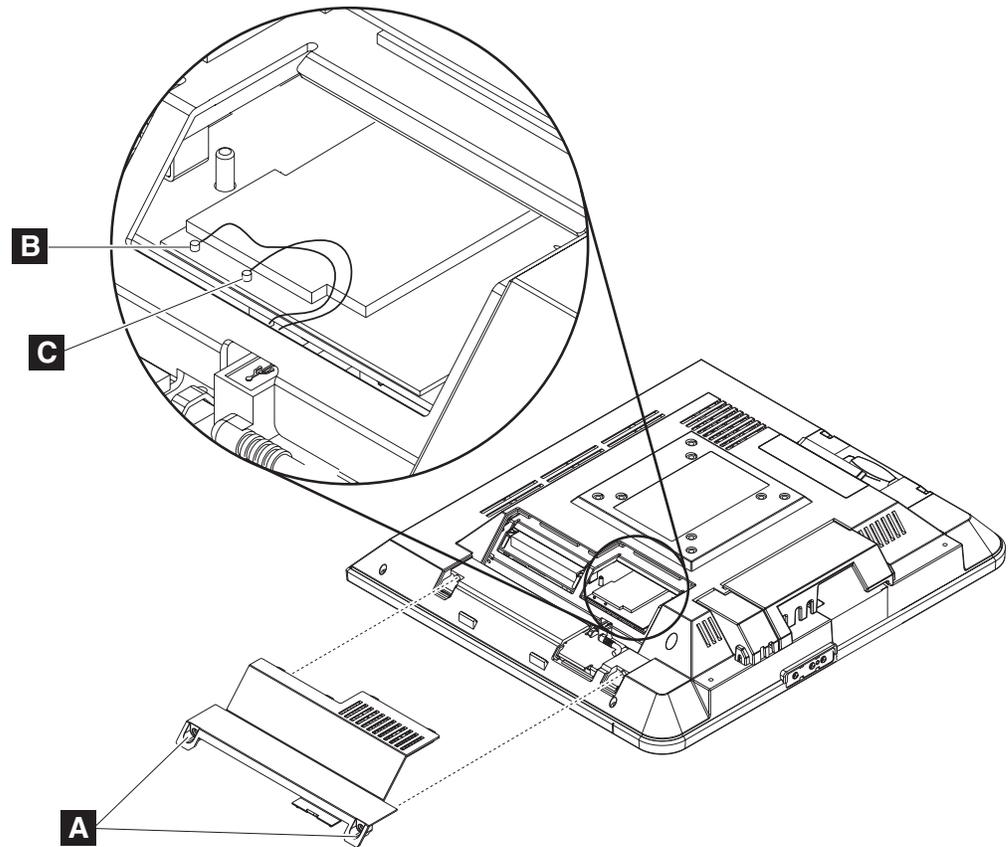


Figure 18. Removing the wireless card

2. Remove the two captured screws and lift to remove the hard drive door (see **A** in Figure 18). This door allows you access to the optional wireless card.
3. Rotate the antenna connectors upward to disconnect, noting the AUX and MAIN labels (**B** and **C**) on the cables.

Note: Take care not to crimp these cables.

4. Locate and press outward on the card brackets to unlock.
5. Lift out the wireless card.
6. To replace, angle the card downward, then rotate the opposite end down until it latches into place.
7. Reconnect the antenna, ensuring that the AUX and MAIN antenna correctly match the connectors.
8. Replace the hard drive door and secure the screws.

Locating and resetting the CMOS jumper

Follow these steps to locate and reset the CMOS jumper:

1. Remove the cover as described in “Removing the back cover” on page 28.

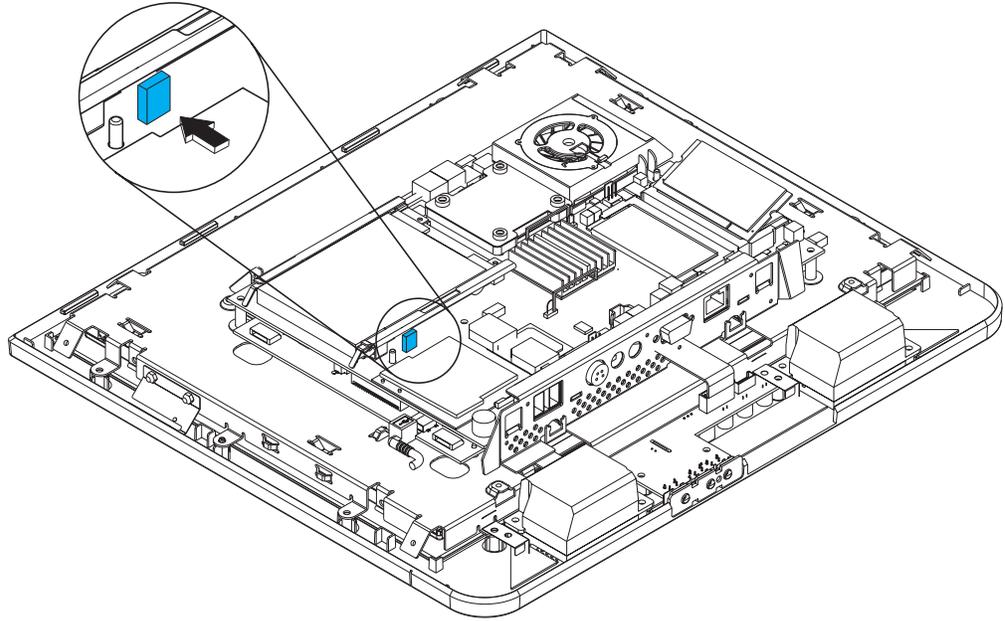


Figure 19. Location of the CMOS jumper

2. Locate the blue CMOS jumper on the main planar assembly. See Figure 19. The jumper is located near the hard drive and beside the radio card.
3. Remove the jumper from the board and wait several seconds.
4. Reinstall jumper to reset defaults.

Removing the memory card

To remove the optional memory card, reverse the steps listed in “Installing additional memory” on page 13. To remove the factory-installed memory, follow these steps:

1. Remove the back cover as described in “Removing the back cover” on page 28.
2. Remove the memory card from its slot.
3. To replace the memory card, reverse these steps.

Removing the hard drive fan

To remove and replace the hard drive fan, follow these steps:

1. Remove the back cover as described in “Removing the back cover” on page 28.
2. Detach the fan connector (**C** in Figure 20) from the system board.

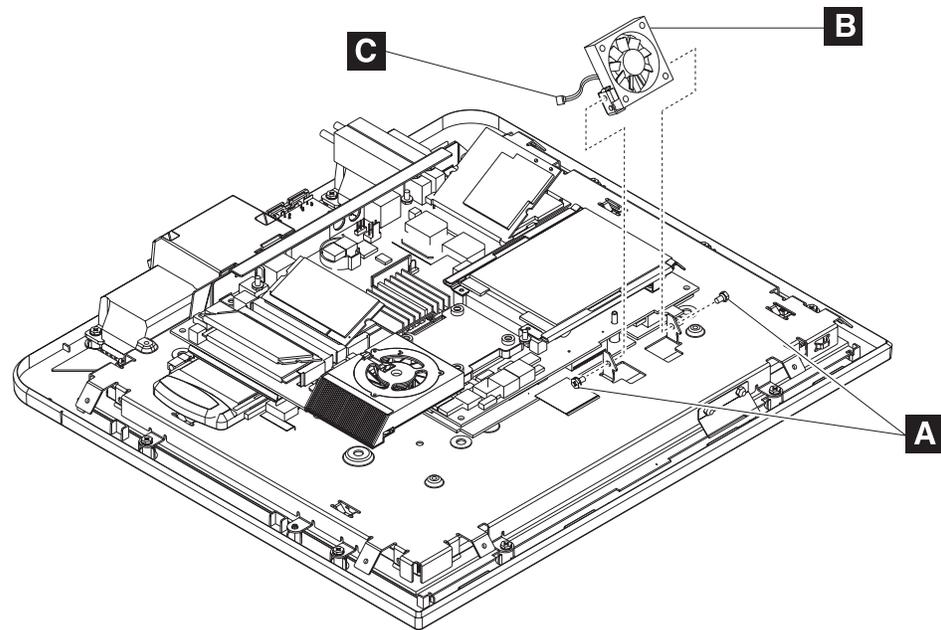


Figure 20. Removing the hard drive fan

3. Using a Philips screwdriver, remove the two screws located on each side of the hard drive fan (**A** in Figure 20).
4. Lift the fan (**B**) from its housing.
5. To replace the hard drive fan, arrange the notches on the fan brackets under the hooks of the mounting tabs. Then rotate the fan into place.
6. Replace the two screws.
7. Plug the fan connector (**C**) back into the system board.

Changing the battery

1. Remove the back cover as described in “Removing the back cover” on page 28.

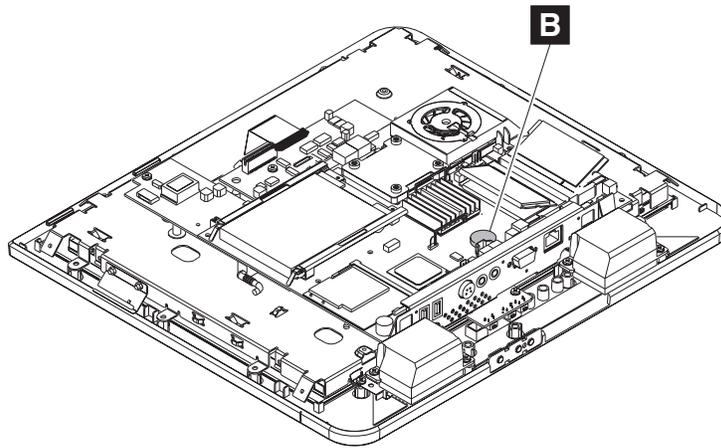


Figure 21. View of battery and heatsink,

2. Locate the battery on the main planar assembly (**B** in Figure 21).
3. Using your finger, press on one of the tabs holding the battery coin and the battery pops out.
4. To replace the battery, align the battery underneath the tabs and press down.

Removing the heat sink

Attention: To avoid damage to the unit, establish personal grounding before touching this unit.

To remove the heat sink and processor:

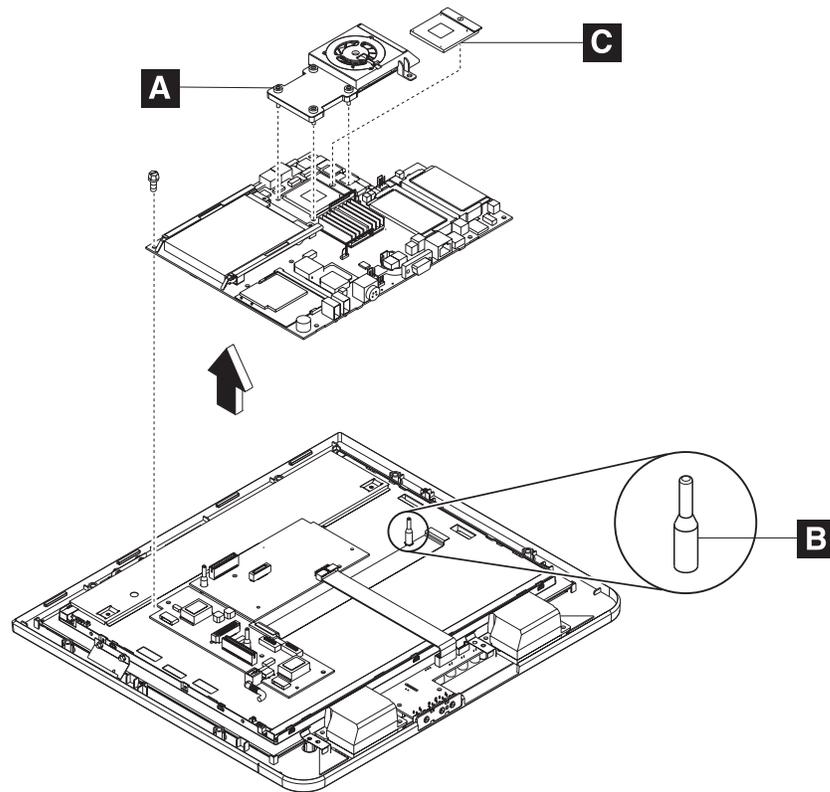


Figure 22. Heat sink and processor

1. Unplug the fan connector, which is shown as **C** in Figure 20 on page 33.
2. See Figure 22 and loosen the 4 screws (**A** in Figure 22) retaining the heat sink and remove.

Note: To replace the processor, go to “Removing the processor” on page 36.

To replace the heat sink, follow these steps:

1. Place the heat sink on the alignment pin (**B**) such that it aligns the heat sink screws with the matching holes on the heat sink bracket.
2. Tighten the four retainer screws (**A**) by securing them to the bottom, but **do not** overtighten.
3. Re-plug the fan connector.

Removing the processor

Note: See figure Figure 22 on page 35. Locate the processor (**C**) after you remove the heat sink.

To remove the processor, follow these steps:

1. Turn the screw holding the processor 180 degrees to release.
2. Lift out the processor, carefully keeping your fingers on each side of the module.
3. To replace, reverse these procedures.

Removing the hard disk drive and bracket

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

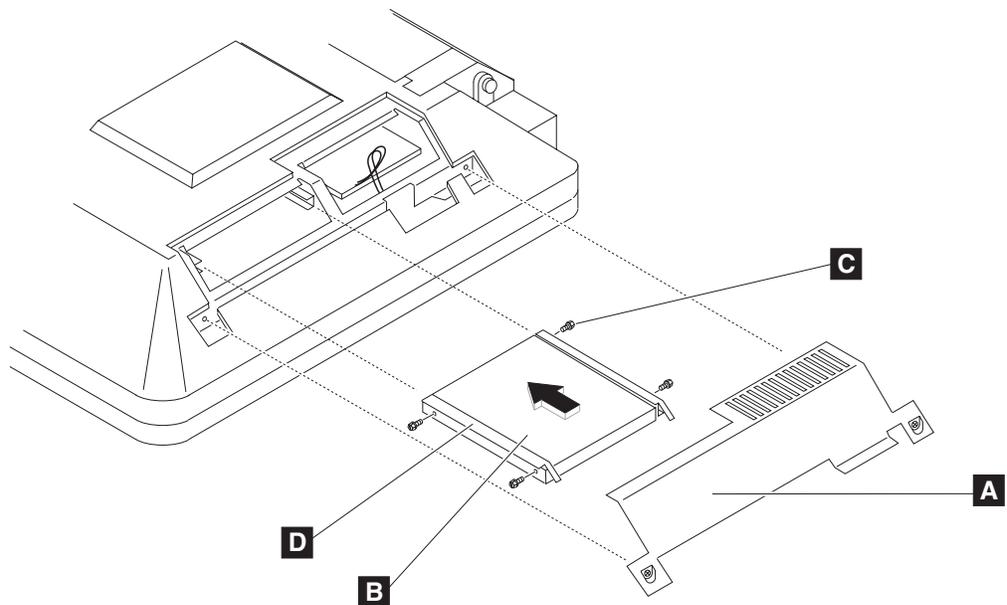


Figure 23. Removing the hard disk drive and bracket

1. Open the hard drive door (**A** in Figure 23).
2. Remove the hard disk drive (**B**) by sliding the drive outward.
3. Remove the four screws (**C**) holding the hard disk drive bracket (**D**) and lift to remove.
4. To replace, locate the right and left side rails with the correct side of the rails upward.
5. Replace the 4 screws.
6. Reinstall the hard disk drive and door.

Removing the speakers

Follow these steps to remove the speakers:

1. Remove the back cover as described in “Removing the back cover” on page 28.
2. Detach each speaker cable (**A** in Figure 24) from the adjacent circuit board.

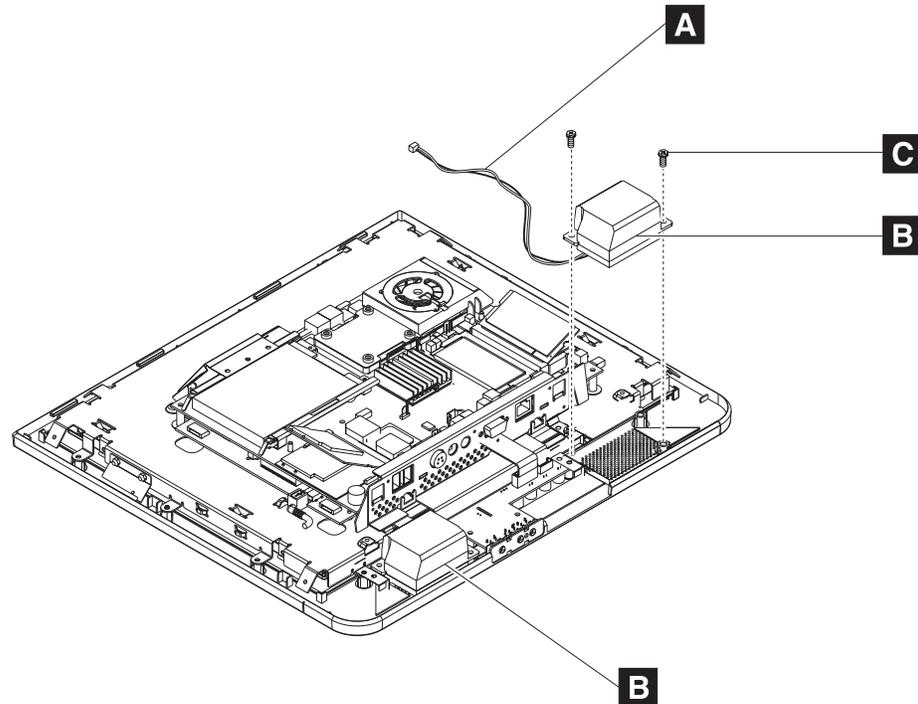


Figure 24. Removing the speakers

3. See Figure 24. Remove the two screws (**C**) holding each speaker (**B**) and lift to remove.
4. To replace, reverse these steps.

Removing the system board

Attention: Establish personal grounding before touching this unit

1. Remove the back cover as described in “Removing the back cover” on page 28.
2. Remove the hard drive fan as described in Figure 20 on page 33.
3. If installed, detach the wireless card connections, being careful not to crimp or bend the antenna.

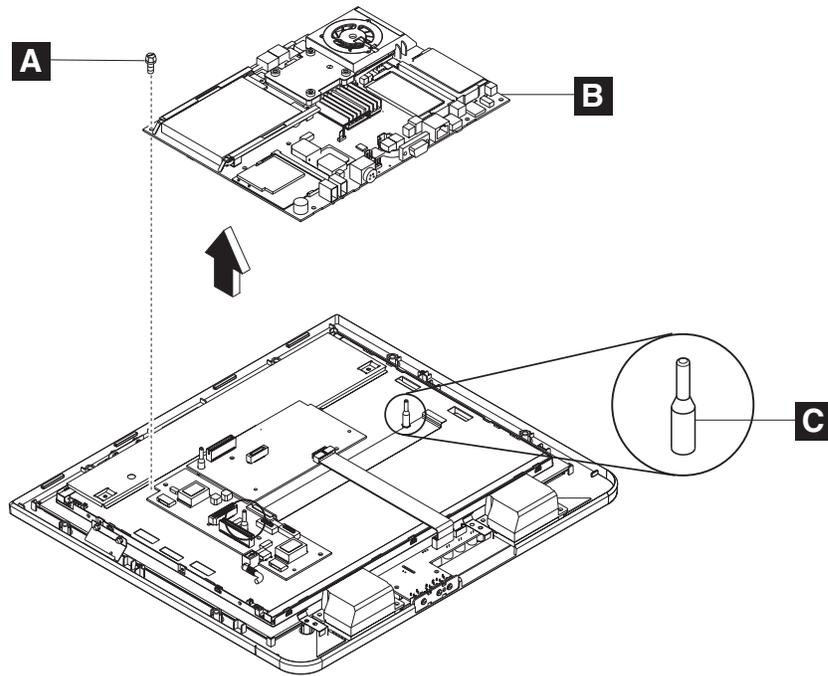


Figure 25. Removing the system board

4. See Figure 25 and remove the 5 screws (**A**) holding the system board (**B**).

Note: The alignment pins (**C**) assist you in replacing the system board.

5. Carefully lift to remove.
6. To replace, reverse these procedures noting to align the board with the three pins for the correct positioning.

Note: Be sure the board is fully seated on the connectors along the top and sides.

Removing the control card

1. Remove the back cover as described in “Removing the back cover” on page 28.

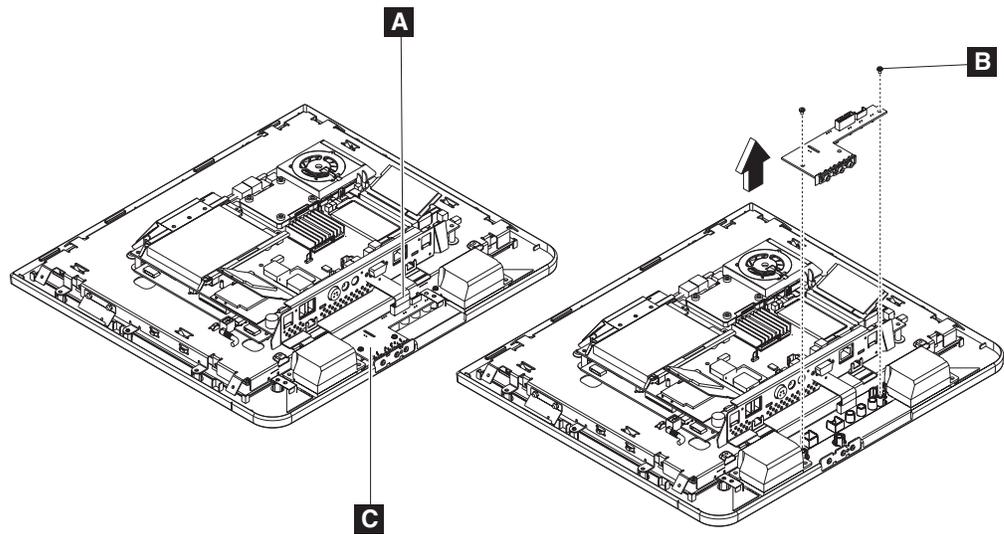


Figure 26. Removing the control card

2. See Figure 26. Disconnect the control panel cable (**A**).
3. Remove the two screws (**B**) holding the control card (**C**) in place and lift out the card
4. To replace, reverse these procedures, noting to angle the card such that the control buttons match the button holes.

Note: Be sure to reinstall the grounding clip.

Removing the control buttons

To remove the control buttons:

1. Remove the control card as described in “Removing the control card.”
2. Press inward on one end button and lift upward on that end of the button frame.
3. Then, press the center button and continue to lift upward on the frame.
4. Press on the opposite end button to freely lift the button assembly.

Removing the front panel card

1. Remove the back cover as described in “Removing the back cover” on page 28.
2. Remove the system board assembly as described in “Removing the system board” on page 38.

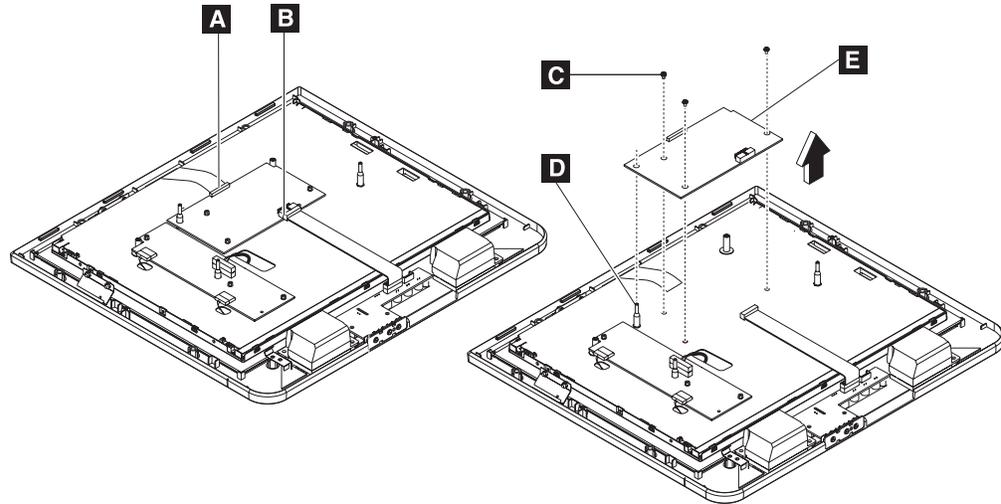


Figure 27. Removing the front panel card

3. See Figure 27. Disconnect the speaker connections from the card (**E**).
4. Remove the touch cable (**A**) as follows:
 - a. Locate the gray latches on either side of the cable.
 - b. Pull backward on the latches to release.
 - c. Slip the cable out of the slots.
5. Remove the control card cable (**B**) by pulling it out from the card.
6. Unfasten the three screws (**C**) to remove the card.
7. To replace, locate the alignment pin (**D**) and hole and lower the front panel card onto the pin.
8. Replace the three screws.

Removing the backlight inverter card

1. Remove the back cover as described in “Removing the back cover” on page 28.
2. Disconnect and remove the hard drive fan as described in “Removing the hard drive fan” on page 33.
3. Remove the system board in “Removing the system board” on page 38.

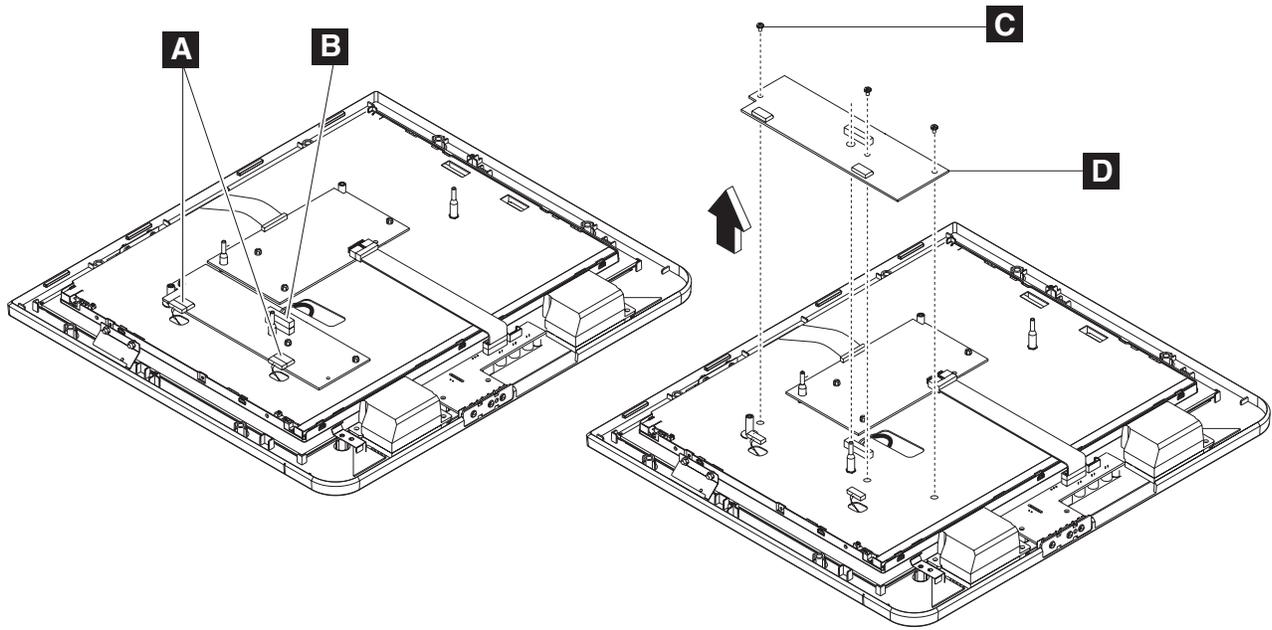


Figure 28. Removing the backlight inverter card

4. See Figure 28. Disconnect the following from the card:
 - Back light cables (2) (**A**)
 - Video cable (**B**)
5. Remove the three screws (**C**) holding the backlight inverter card (**D**).
6. Lift upward to remove the card.
7. To replace, reverse these procedures.

Note: The alignment pin and corresponding hole in the card assist you in replacing the card.

Removing the LCD

1. Remove the covers as described in “Removing the back cover” on page 28.

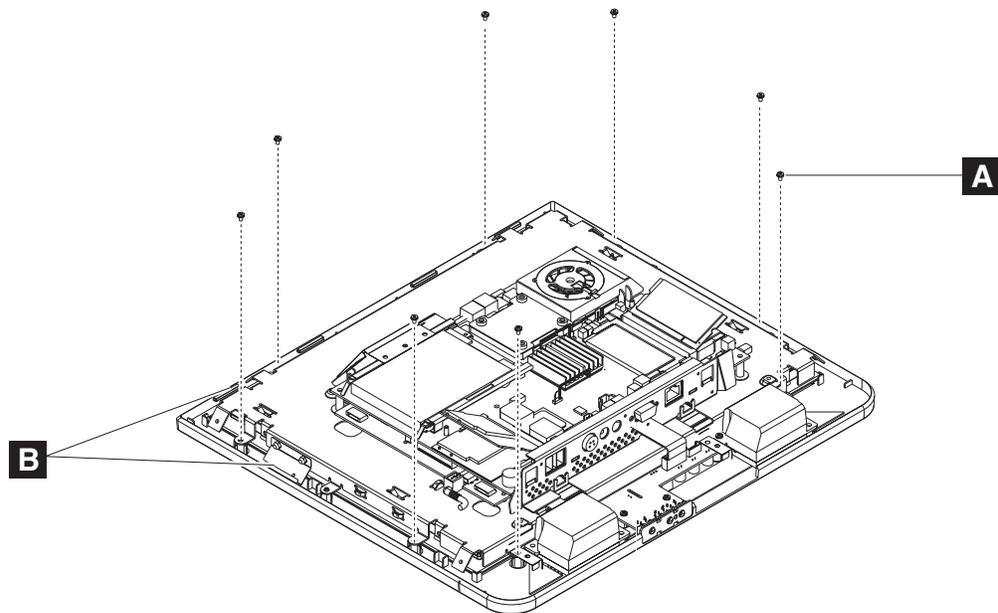


Figure 29. Removing the LCD

2. Remove the eight screws (**A**) holding the system board (main planar) and LCD assembly to the front bezel.

Note: You do not need to remove the system board from the LCD assembly to remove the LCD.

3. Disconnect the following cables and connectors:
 - Touch cable (see **A** in Figure 27 on page 40)
 - Speakers (see **B** in Figure 24 on page 37)
 - Control card cable (see **B** in Figure 27 on page 40)
 - LCD backlight connectors (2) (see **A** in Figure 28 on page 41)
4. Remove the LCD assembly (includes system board).

Note: Take care not to bend the metal antenna (**B** in Figure 29).

5. Turn the LCD assembly over to locate and remove the four screws holding the LCD to the back of the LCD assembly. Remove the LCD.
6. Disconnect the main signal cable from the back of the LCD.

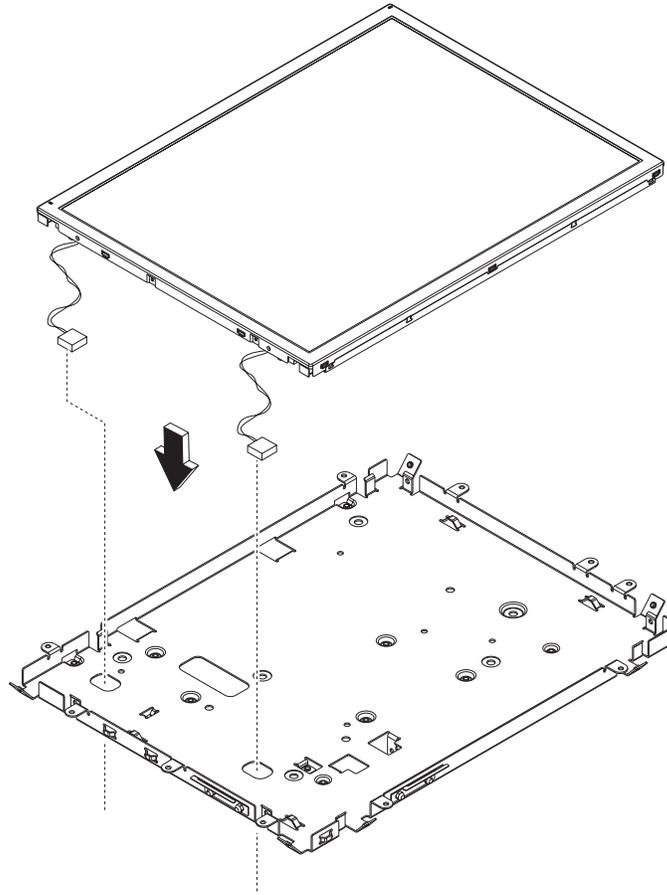


Figure 30. Replacing the LED assembly

7. To replace, see Figure 30 and follow these steps:
 - a. Plug the signal cable to LCD.
 - b. Place the assembly face up on a steady surface.
 - c. Align the LCD with the LCD shield and thread the backlight cables through the holes.
 - d. Replace the four screws holding the LCD.
 - e. Turn the LCD assembly over. Replace the bezel and install the eight screws.
 - f. Connect the backlight cables into the backlight inverter card.

Replacing the front bezel

1. Remove the cover as described in “Removing the back cover” on page 28.

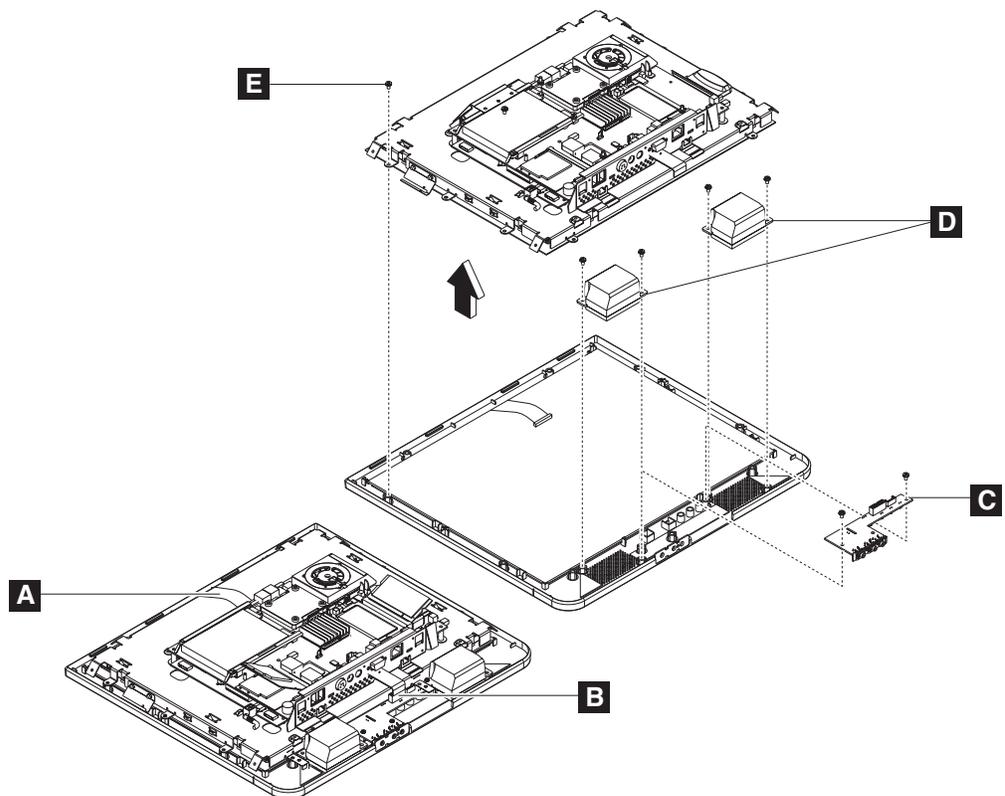


Figure 31. Replacing the front bezel

2. Disconnect the touch cable (**A**) and control card cable (**B**).
3. Remove the control card **C** .
4. Disconnect the speakers (**D**) and lift to remove
5. Remove the eight screws (**E**) holding the LCD assembly (includes the system board) to the front bezel.
6. Lift out the LCD assembly from the front bezel, being careful not to bend the antenna.
7. To replace the front bezel, reverse these procedures.

Removing the mounting stand cover set

To remove the cover set for the table-top mounting stand, follow these steps:

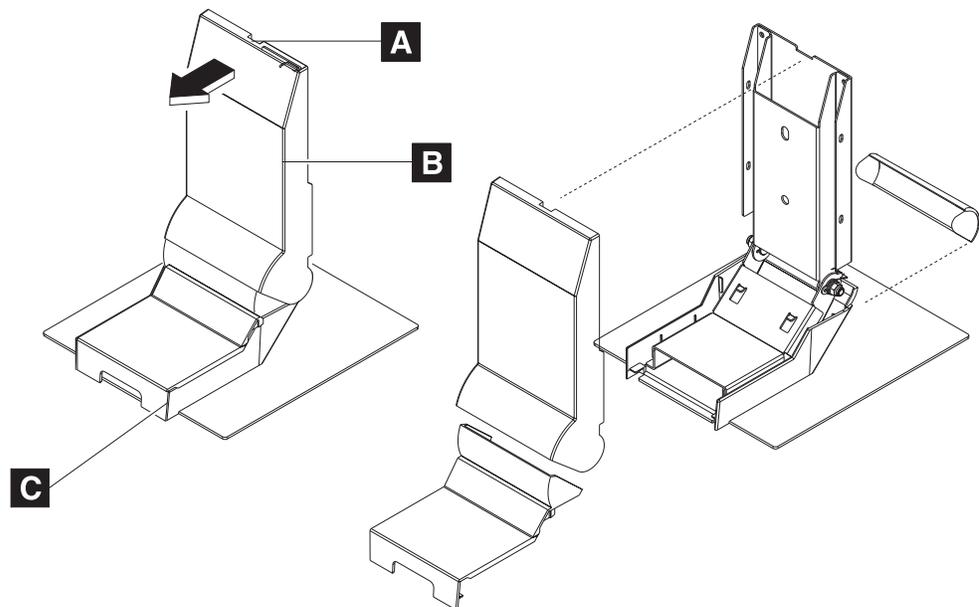


Figure 32. Removing the stand cover set

1. Remove the arm cover (**B**) by pulling on the finger recess (**A** in Figure 32) located on the top of the cover.

Note: Extra pressure may be necessary.

2. Remove the base cover (**C**) by pulling the cover away from the display.
3. Snap out the cable shield.
4. To remove the plastic base housing, unfasten the four screws.

Removing the volume control card (Model 13V only)

1. Removing the cover as described in “Removing the back cover” on page 28.
2. Unplug the cable connected to the volume control card.

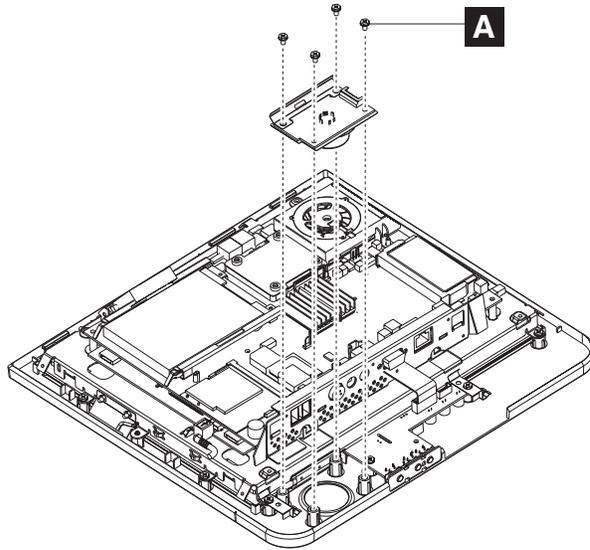


Figure 33. Removing the volume control card (Model 13V)

3. Remove the four screws holding the volume control card and lift out.
4. To replace, reverse these procedures.

Chapter 5. Troubleshooting problems

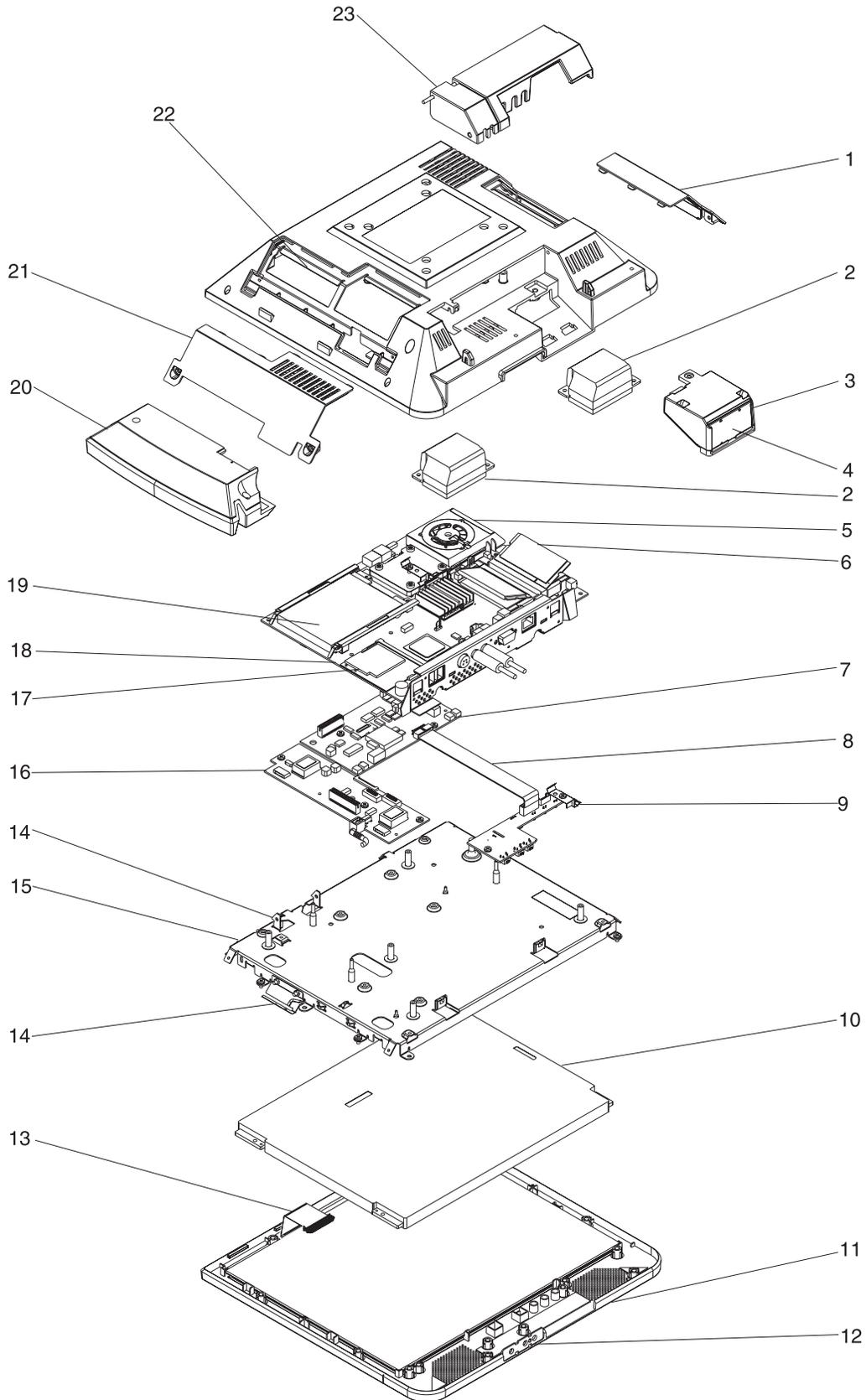
This section describes several problems and explains what to do.

Condition description	Resolution
The power indicator on the terminal is off	<ul style="list-style-type: none"> • Ensure that the 4836 is powered on by depressing the power button on the terminal. • Check that you have power at the outlet. • Check that the ac cord is connected to the power supply. • Check that the power supply is properly plugged into the power port of the display. • Remove the ac power from the power supply for 10 seconds. Reconnect the ac power cord to the power brick and try powering up again. <p>If the condition persists, follow these steps:</p> <ul style="list-style-type: none"> • Ensure that the power supply is supplying voltage, if not, replace the power supply. • If the power supply is operating, remove the back cover and ensure that all cables and circuit boards are fully seated in the connectors. • Replace the control panel card (the card that contains the power buttons) • Replace the front panel card (the card that connects to the control panel card) • Replace the system board.
Touch display not responding to touch	<ul style="list-style-type: none"> • Make sure that you use an object approximately the width of your finger to touch the screen. • Check to ensure that the cables internal to the unit are correctly attached to the 4836 and to the system. • Run the service diagnostic diskette. • Check the cable connections and replace the cables, if necessary. • Replace the front panel card. • If condition, persists, replace the front bezel and touch assembly.
Totally blank display	<ul style="list-style-type: none"> • Check that the power indicator for the display is ON. If not, go to the first condition listed in this table. • Check the brightness controls. • Check the cable connections, and replace the cables, if necessary. • Replace the front panel card. • If condition persists, replace the LCD panel.

Condition description	Resolution
Unacceptable image quality	<ul style="list-style-type: none"> • Ensure that the video mode is set for 800 x 600 (12-inch models) or 1024 x 768 (15-inch model). • Run the service diskette.
Magnetic stripe reader (MSR) malfunctioning	<ul style="list-style-type: none"> • Check that the cable is securely connected. • Run the MSR test using the service diskette. • Replace the MSR.
Table-top mount tilts too easily	<ol style="list-style-type: none"> 1. Remove the arm cover and base top cover from the stand. 2. Tighten the two nuts at the joint until you obtain the desired friction. 3. Reinstall the covers.

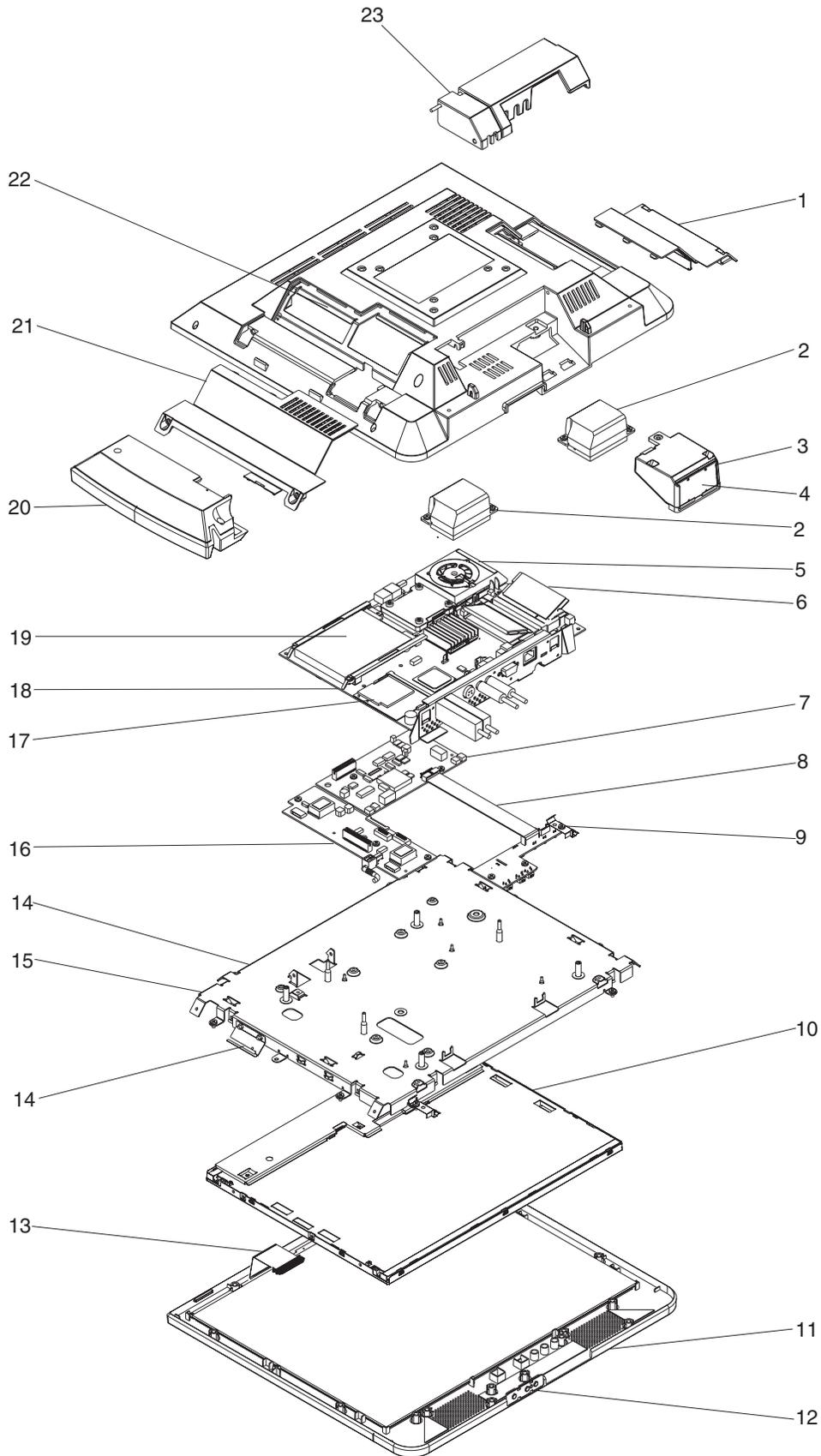
Appendix A. Field-replaceable units

Assembly 1: 4836 Models 132 and 13V - 12 inch



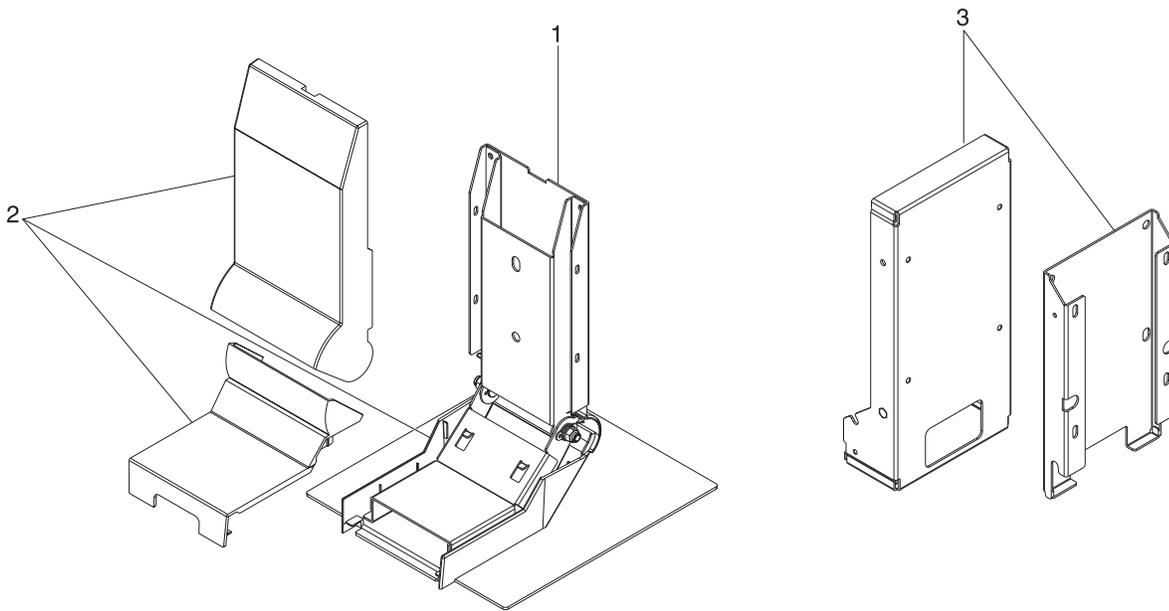
Asm-Index	Part Number	Units	Description
1-1	57P4174		Memory door
-2	57P4182		Speaker (Model 132 only)
-	57P4220		Cable-speaker extension (Model 132 only)
-3	61P5704		Scanner assembly (option)
-4	57P4211		Scanner window
-	57P4212		Scanner blank
-5	57P4189		Processor
-5	57P4188		Fansink with thermal interface and base
-6	57P4186		Memory, 256 Mega bytes
-6	57P4187		Memory, 512 Mega bytes
-7	57P4179		Front panel card
-8	57P4196		Cable, control panel
-9	57P4183		Control panel card
-10	57P4197		LCD display
-11	57P4170		Front bezel with touch system (Model 132 only)
-11	57P4218		Front bezel and touch system (Model 13V only)
-12	57P4199		Buttons, control
-12	66P0404		Button cover
-13	57P4192		Touch cable
-14	57P4200		Antenna (one only — optional)
-15	57P4204		LCD shield
-16	57P4180		Backlight inverter card
-17	93P3475		Wireless card (optional)
-18	57P4178		System board
-19	24P3879		HDD (optional on Models 132 and 13V)
-19	39R5280		HDD brackets
-	57P4208		HDD fan with mounts
-20	61P5695		MSR assembly (optional)
-21	57P4175		HDD door
-21	61P5696		HDD door for MSR (optional)
-22	57P4209		Main planar shield (metal shield only)
-23	57P4203		Cable covers with hinge pin
-	57P4194		Cable, video
-	42L0098		Cable, LAN
-	57P4217		Clip-CPC card grounding
-	57P4191		Misc screws, cable guides and ties
-	02K7094		Power supply
-	45P6222		Battery
-	39K5358		External CD ROM (optional)
-	57P4215		Volume control card with knob (Model 13V only)
-	57P4216		Volume control cable (Model 13V only)
-	90X9640		MSR test card

Assembly 2: 4836 Models 135 - 15 inch



Asm-Index	Part Number	Units	Description
2-1	57P4176		Memory door – 15 inch
-2	57P4182		Speaker
-3	61P5704		Scanner assembly (option)
-4	57P4211		Scanner window
-	57P4212		Scanner blank
-5	57P4189		Processor
-5	57P4188		Fansink with thermal interface and base
-6	57P4186		Memory, 256 Mega bytes
-6	57P4187		Memory, 512 Mega bytes
-7	57P4179		Front panel card
-8	57P4196		Cable, control panel
-9	57P4183		Control panel card
-10	57P4198		LCD display, 15-inch
-11	57P4171		Front bezel with touch system
-12	57P4199		Buttons, control
-12	66P0404		Button cover
-13	57P4193		Touch cable
-14	57P4200		Antenna (optional — one antenna only)
-15	57P4205		LCD shield, 15-inch
-16	57P4181		Backlight inverter card, 15-inch
-17	93P3475		Wireless card (optional)
-18	57P4178		System board
-19	24P3879		HDD
-19	39R5280		HDD brackets
-	57P4208		HDD fan with mounts
-20	61P5695		MSR assembly (optional)
-21	57P4177		HDD door, 15-inch
-21	61P5697		HDD door for MSR
-22	57P4209		Main planar shield (metal only)
-23	57P4203		Cable doors with hinge pin
-	57P4217		Clip-CPC card grounding
-	02K7094		Power supply
-	45P6222		Battery
-	57P4191		Miscellaneous hardware
-	57P4194		Cable – video
-	57P4220		Cable - speaker extension
-	42L0098		Cable, LAN
-	39K5358		External CD ROM (optional)
-	90X9640		MSR test card

Assembly 3: Mounting — Table-top stand



Assembly 3: (continued)

Asm- Index	Part Number	Units	Description
3-1	57P4465		Table-top stand (with covers)
-2	57P4210		Stand cover kit
-3	57P4466		Wall mount

Power cords

Table 10. Power Cords. Unless otherwise indicated, all cords are 2.5M

FRU P/N	Country
49P2061	Chile
49P2052	Argentina, Paraguay, Uruguay
49P2059	Australia, New Zealand, Papua, New Guinea
49P2051	China (PR)
49P2061	European plug, Albania, Austria, Belgium, Chile, bulgaria, Croatia, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Israel, Indonesia, Macedonia, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Switzerland, Yugoslavia, Spain, Sweden, Turkey, Suriname, Guyana
49P2066	Korea
49P2067	Hong Kong, Ireland, Malaysia, singapore, UK, Trinidad (West Indies)
49P2063	Japan
49P2060	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, Saudi Arabia, Taiwan, Thailand, US (except Chicago), Venezuela,
49P2102	Brazil
49P2058	India, Bangladesh, Pakistan, South Africa, Sri Lanka
75H8989 (1.8 M)	US — required in Chicago
49P2068	Liechtenstein
49P2062	Denmark

Appendix B. Product dimensions

12-inch models

Note: Dimensions are shown in millimeters.

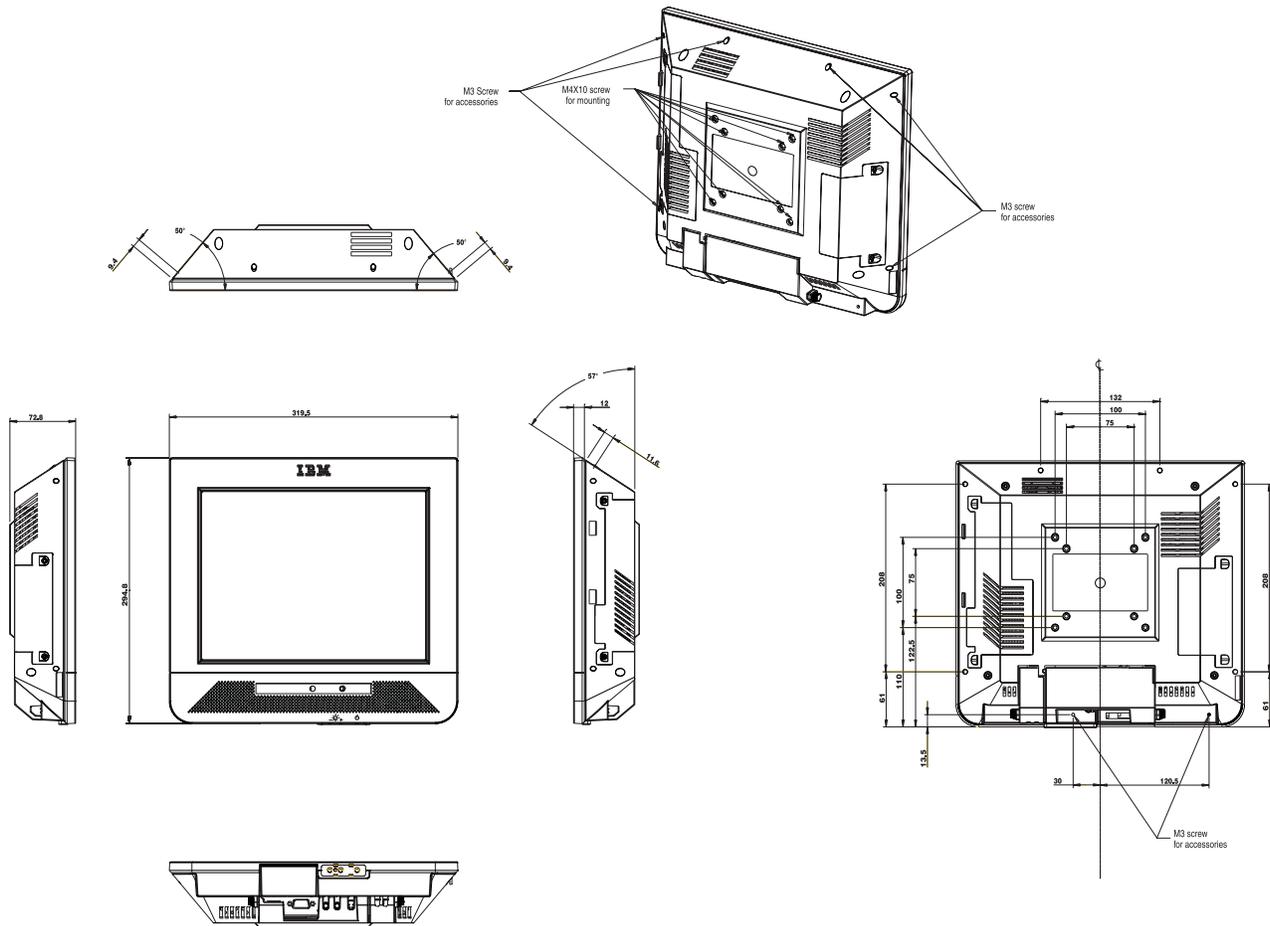


Figure 34. Dimensions for 12-inch models

15-inch models

Note: Dimensions are shown in millimeters.

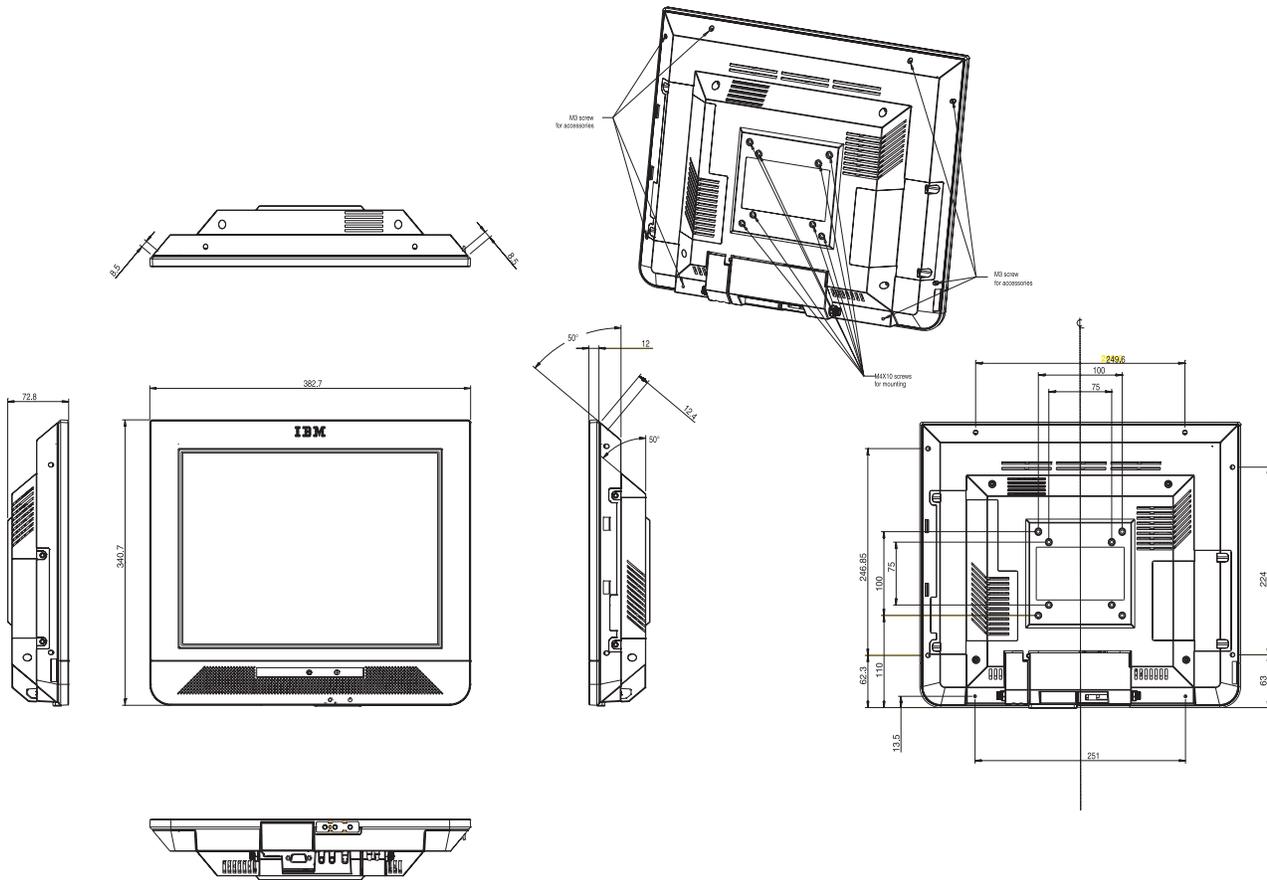


Figure 35. Dimensions for 15-inch models

Appendix C. Notices

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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.

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.

European Community (CE) mark of conformity statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC 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.

Warning: 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.

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 / 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.

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

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

As this equipment has undergone EMC registration for business purpose, the seller and/or buyer is asked to be aware of this point and in case an incorrect sale or purchase has been made, it is asked that a change to household use be made.

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 판매 또는 구입하였을 때에는 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。

Taiwanese battery recycling statement



Waste batteries, please recycle.

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.

Regulatory notice for T60H786 IBM 11bg wireless LAN mini PCI adapter

The IBM Wireless LAN Mini PCI Adapter must be installed and used in strict accordance with the following instructions. This product complies with the following radio frequency standards.

USA – Federal Communications Commission (FCC)

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.

Exposure to radio frequency energy

The radiated output power of the Wireless LAN Mini-PCI Card authorized for use in the IBM 4836 Anyplace Kiosk is far below the FCC radio frequency exposure limits. Nevertheless, the IBM 4836 Anyplace Kiosk shall be used in such a manner that the potential for human contact during normal operations is minimized.

- **CAUTION:**

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm (8 inches) must be maintained between the antenna for the integrated Wireless LAN Mini-PCI Card built in to the display section and all persons.

- The antenna(s) must not be co-located (within 20cm) or operating in conjunction with any other antenna or transmitter during customer usage.

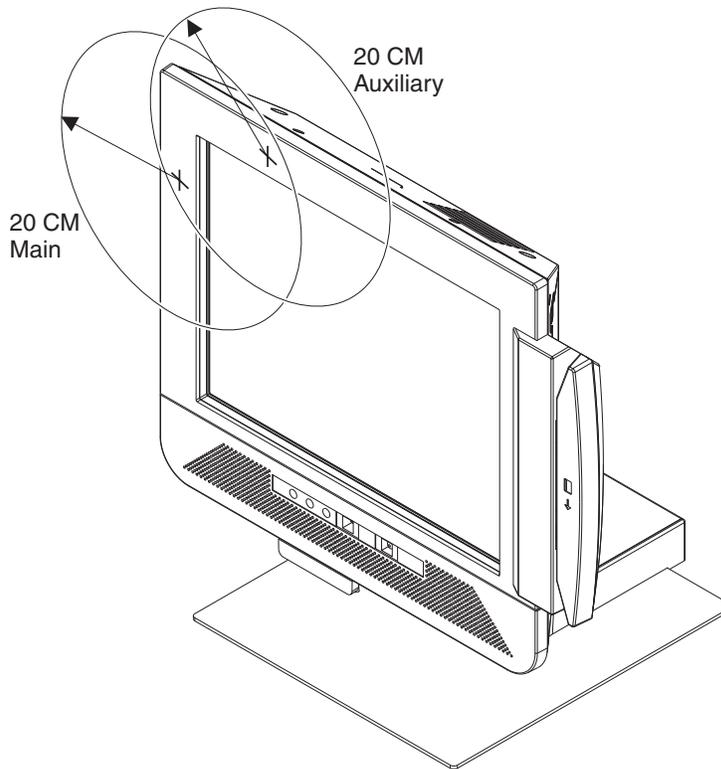


Figure 36. Antenna operating range

Wireless card access: To access the wireless card adapter, refer to “Removing the wireless card” on page 31.

Interference Statement

An improper installation or unauthorized use may cause harmful interference to radio communications. Also, any tampering with the internal antenna will void the FCC certification and your warranty. Refer to the Appendix: Electronic Emission notices in the User Manual for more detail.

Canada – Industry Canada (IC) Low Power License-Exempt Radio Communication Devices (RSS-210)

Operation is subject to the following two conditions:

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

Permis d’émission à faible puissance – Cas des appareils de communications radio (CNR-210)

L’utilisation de ce dispositif est autorisée seulement aux conditions suivantes:

1. il ne doit pas produire de brouillage et
2. l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

Exposure of humans to RF fields (RSS-102)

IBM Anyplace Kiosk 4836 computers employ low gain integral antennas that do not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's web site at www.hc-sc.gc.ca/rpb

Exposition des êtes humains aux champs radioélectriques (RF) (CNR-102)

Le IBM Anyplace Kiosk 4836 computers utilise des antennes intégrales à faible gain qui n'émettent pas un champ électromagnétique supérieur aux normes imposées par le Ministère de la santé canadien pour la population. Consultez le Safety Code 6 sur le site Web du Ministère de la santé canadien à l'adresse "www.hc-sc.gc.ca/rpb".

Europe — EU declaration of conformity for IBM 11 b/g wireless LAN mini PCI adapter



Products intended for sale within the European Union are marked with the Conformité Européenne (CE) Marking, which indicates compliance with the applicable Directives and European Norms, and amendments, identified below.

- Hereby, AMBIT MICROSYSTEMS CORPORATION, declares that this IBM 11b/g Wireless LAN Mini PCI Adapter is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. This device is intended for indoor use.
- AMBIT MICROSYSTEMS CORPORATION vakuuttaa täten että IBM 11b/g Wireless LAN Mini PCI Adapter tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen. Tämä laite on tarkoitettu käytettäväksi vain sisätiloissa.
- Hierbij verklaart AMBIT MICROSYSTEMS CORPORATION dat het toestel IBM 11b/g Wireless LAN Mini PCI Adapter in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG. Dit apparaat is bedoeld voor gebruik binnenshuis.
- Bij deze verklaart AMBIT MICROSYSTEMS CORPORATION dat deze IBM 11b/g Wireless LAN Mini PCI Adapter voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC. Dit apparaat is bedoeld voor gebruik binnenshuis.
- Par la présente AMBIT MICROSYSTEMS CORPORATION déclare que l'appareil IBM 11b/g Wireless LAN Mini PCI Adapter est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE. Ce périphérique est destiné à être utilisé à l'intérieur.
- Par la présente, AMBIT MICROSYSTEMS CORPORATION déclare que ce IBM 11b/g Wireless LAN Mini PCI Adapter est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables. Ce périphérique est destiné à être utilisé à l'intérieur.
- Härmed intygar AMBIT MICROSYSTEMS CORPORATION att denna IBM 11b/g Wireless LAN Mini PCI Adapter står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG. Enheten är avsedd för inomhusbruk.

- Undertegnede AMBIT MICROSYSTEMS CORPORATION erklærer herved, at følgende udstyr IBM 11b/g Wireless LAN Mini PCI Adapter overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF. Dette udstyr er beregnet til indendørs brug.
- Hiermit erklärt AMBIT MICROSYSTEMS CORPORATION, dass sich dieser/diese/dieses IBM 11b/g Wireless LAN Mini PCI Adapter in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet. Diese Einheit ist für den Betrieb in Innenräumen vorgesehen. (BMW)
- Hiermit erklärt AMBIT MICROSYSTEMS CORPORATION die Übereinstimmung des Gerätes IBM 11b/g Wireless LAN Mini PCI Adapter mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. Diese Einheit ist für den Betrieb in Innenräumen vorgesehen. (Wien)
- *ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ AMBIT MICROSYSTEMS CORPORATION ΔΗΛΩΝΕΙ ΟΤΙ ΙΒΜ 11b/g Wireless LAN Mini PCI Adapter ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ*
Η συσκευή αυτή προορίζεται για εσωτερική χρήση.
- Con la presente AMBIT MICROSYSTEMS CORPORATION dichiara che questo IBM 11b/g Wireless LAN Mini PCI Adapter è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE. Questo dispositivo è stato progettato per l'utilizzo in uno spazio interno.
- Por medio de la presente AMBIT MICROSYSTEMS CORPORATION declara que el IBM 11b/g Wireless LAN Mini PCI Adapter cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE. Este dispositivo no está pensado para ser utilizado en el exterior.
- AMBIT MICROSYSTEMS CORPORATION declara que este IBM 11b/g Wireless LAN Mini PCI Adapter está conforme com os requisitos essenciais e outras provisões da Directiva 1999/5/CE. Este dispositivo destina-se a ser utilizado apenas em espaços fechados.
- AMBIT MICROSYSTEMS CORPORATION declara ca aparatul IBM 11b/g Wireless LAN Mini PCI Adapter este in conformitate cu cerintele esentiale si cu alte prevederi relevante ale Hotararii Guvernului nr. 88/2003 (Directiva 1999/5/EC)
- Ambit Microsystems Corporation tímto prohlašuje, že IBM 11b/g Wireless LAN Mini PCI Adapter je ve shodě se základními požadavky a s dalšími příslušnými ustanoveními Nařízení 1999/5/ES.

Zařízení je určeno pro použití uvnitř budov.

- Käesolevaga kinnitab Ambit Microsystems Corporation seadme IBM 11b/g Wireless LAN Mini PCI Adapter vastavust direktiivi 1999/5/EU põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Seade on mõeldud siseruumides kasutamiseks.
- Ambit Microsystems Corporation ezennel kijelenti, hogy ez a IBM 11b/g Wireless LAN Mini PCI Adapter termék megfelel az alapvető követelményeknek és az 1999/5/EC irányelv más vonatkozó rendelkezéseinek.
Az eszköz beltéri használatra készült.
- Ambit Microsystems Corporation lýsir her með yfir að thessi búnaður, IBM 11b/g Wireless LAN Mini PCI Adapter uppfyllir allar grunnkröfur, sem gerðar eru í R&TTE tilskipun ESB nr 1999/5/EC
Tæki þetta er ætlað til notkunar innanhúss.
- Ar šo Ambit Microsystems Corporation deklarē, ka IBM 11b/g Wireless LAN Mini PCI Adapter atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Šī ierīce ir paredzēta lietošanai telpās.
- Ambit Microsystems Corporation deklaruoja, kad irenginys IBM 11b/g Wireless LAN Mini PCI Adapter tenkina 1999/5/EB Direktyvos esminius reikalavimus ir kitas šios direktyvos nuostatas
Šis prietaisas skirtas naudojimui patalpoje.
- Ambit Microsystems Corporation , deklarujemy z pełną odpowiedzialnością, że wyrób IBM 11b/g Wireless LAN Mini PCI Adapter spełnia podstawowe wymagania i odpowiada warunkom zawartym w dyrektywie 1999/5/EC.
Urządzenie jest przeznaczone do używania wewnątrz budynków.
- Ambit Microsystems Corporation týmto vyhlasuje, že tento IBM 11b/g Wireless LAN Mini PCI Adapter vyhovuje technickým požiadavkám a ďalším ustanoveniam smernice 1999/5/ES, ktoré sa na tento výrobok vzťahujú.
Toto zariadenie je určené pre používanie vo vnútornom prostredí.
- S tem dokumentom Ambit Microsystems Corporation, izjavlja, da je ta IBM 11b/g Wireless LAN Mini PCI Adapter v skladu z bistvenimi zahtevami in z drugimi ustreznimi določili Direktive 1999/5/EC
Ta naprava je namenjena uporabi v zaprtih prostorih.



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Declaration of Conformity

We,

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Herewith declare that the product:

Equipment: Wireless LAN 802.11b/g Mini-PCI card

Model: T60H786

Is in conformity with the provisions of the following EC directive(s)

meets the requirements of the council of the European communities relating to and.

*(NB name; telefication and address: Edisonstraat 12A, 6902 PK Zevenaar,
The Netherlands) identified by the mark (ID number: 0560)*

Reference NO. Title

1999/5/EC Radio & Telecommunications Terminal Equipment Directive (R&TTE)
Standard : EN 300-328-2 Version 1.2.1

73/23/EEC Low Voltage Directive (LVD)
Standard: EN60950 Third edition 2000

89/336/EEC Electromagnetic Compatibility (EMC-Directive)
Standard: EN 301 489-17 version 1.1.1

and that standards and/or technical specifications referenced above have been applied.

Rio Chen

Deputy Manager, Compliance

Ambit Microsystems Corporation

Date: Dec., 2, 2003

Notice for users in Korea

당해 무선설비는 운용중 전파혼신 가능성이 있음.

The wireless device may cause radio wave interference during operation.

Notice for users in Singapore

Operating conditions under which the radiocommunication equipment are exempted from licensing

To maximize frequency sharing while minimizing radio interference, the following operating conditions are imposed to confine the propagation of radio signals within a building or at a localised site:

- The radiocommunication equipment shall be used for in-building or localised on-site operations
- The radiocommunication equipment shall operate at frequencies or frequency bands designated by IDA on non-exclusive basis
- The radiocommunication equipment shall not operate beyond the maximum permissible output power designated by IDA to confine the propagation of radio signals to a small localised area
- For an on-site localised operation with little obstruction by the nearby buildings or terrain, height of any external antenna, if installation approved by IDA, shall not be more than 10 metres above ground level to limit the radio wave propagation
- No repeater station shall be used to extend the radio coverage.

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Appendix D. 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 product, 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 što 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.

危險：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
الحمية 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 инсталлировать 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。

Glossary

This glossary includes terms and definitions from:

- *American National Standard Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies may be purchased from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036. Definitions are identified by the symbol (A) after the definition.
- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.

A

active. (1) Able to communicate on the network. A token-ring network adapter is active if it is able to transmit and receive on the network (2) Operational. (3) Pertaining to a node or device that is connected or is available for connection to another node or device. (4) Currently transmitting or receiving.

adapter. (1) In the point-of-sale terminal, a circuit card that, with its associated software, enables the terminal to use a function or feature. (2) In a LAN, within a communicating device, a circuit card that, with its associated software and/or microcode, enables the device to communicate over the network.

address. (1) In data communication, the IEEE-assigned unique code or the unique locally administered code assigned to each device or workstation connected to a network. (2) A character or group of characters that identifies a register, a particular part of storage, or some other data source or destination. (A) (3) To refer to a device or an item of data by its address. (I) (A) (4) The location in the storage of a computer where data is stored.

addressing. (1) The assignment of addresses to the instructions of a program. (2) In data communication, the way in which a station selects the station to which it is to send data.

alphanumeric. Pertaining to data consisting of letters, digits, and usually other characters, such as punctuation marks. (T) (A)

analog. (1) Pertaining to data consisting of continuously variable physical quantities. (A) (2) Contrast with *digital*.

application. (1) A collection of one or more programs that work together to accomplish goals for a business. (2) A set of executable files and data files required to perform a desired function, which can consist of multiple programs running on different workstations.

architecture. A logical structure that encompasses operating principles including services, functions, and protocols. See *network architecture*.

attach. (1) To connect a device physically. (2) To make a device a part of a network logically. Compare with *connect*.

attaching device. Any device that is physically connected to a network and can communicate over the network.

B

bit. Either of the digits 0 or 1 when used in the binary numeration system. Synonymous with binary digit. (T)

bus. (1) In a processor, a physical facility on which data is transferred to all destinations, but from which only addressed destinations may read in accordance with appropriate conventions. (2) A network configuration in which nodes are interconnected through a bidirectional transmission medium. (3) One or more conductors used for transmitting signals or power. (A)

C

cash drawer. An optional I/O device attached to a point-of-sale terminal. The cash drawer contains a till. The cash drawer will open upon receiving a command. See *till*.

circuit. (1) A logic device. (2) One or more conductors through which an electric current can flow.

cluster. (1) A station that consists of a control unit (a cluster controller) and the terminals attached to it. (2) A group of APPN nodes that have the same network ID and the same topology database. A cluster is a subset of a NETID subnetwork. (3) In high-availability cluster multiprocessing (HACMP), a set of independent systems (called nodes) that are organized into a network for the purpose of sharing resources and communicating with each other.

collision. (1) An unwanted condition that results from concurrent transmissions on a channel. (T) (2) When a frame from a transmitting adapter encounters any other signal in its path (frame, noise, or another type of signal), the adapter stops transmitting and a collision is registered.

command. (1) A request for performance of an operation or execution of a program. (2) A character string from a source external to a system that represents a request for system action.

component. (1) Any part of a network other than an attaching device, such as an IBM 8228 Multistation Access Unit. (2) Hardware or software that is part of a functional unit.

configuration. (1) The devices and programs that make up a system, subsystem, or network. (A) See also *system configuration*. (2) In the IBM StorePlace Distributed Data Services for OS/2, program options that are initially set at installation, and that can be changed later. Changing these options requires an IPL. These changes must be performed by a programmer or store operations personnel. These options are used to tune the product's use of the operating system and machine resources.

connect. In a LAN, to physically join a cable from a station to an access unit or network connection point. Contrast with *attach*.

controller. A unit that controls input/output operations for one or more devices.

cursor. A movable point of light (or a short line) that indicates where the next character is to be entered on the display screen.

D

data. (1) A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by human or automatic means. (I) (A) (2) Any representations such as characters or analog quantities to which meaning is or might be assigned. (A)

data file. A collection of related data records organized in a specific manner; for example, a payroll file (one record for each employee, showing such information as rate of pay and deductions) or an inventory file (one record for each inventory item, showing such information as cost, selling price, and number in stock.) See also *data set, file*.

data processing system. A system, including computer systems and associated personnel, that performs input, processing, storage, output, and control functions to accomplish a sequence of operations on data. (A) (I)

data set. Logically related records treated as a single unit. See also *file*.

DBCS. See *double-byte character set*.

device. (1) A mechanical, electrical, or electronic contrivance with a specific purpose. (2) An input/output unit such as a terminal, display, or printer. See also *attaching device*.

diagnostic diskette. A diskette containing diagnostic modules or tests used by computer users and service personnel to diagnose hardware problems.

diagnostics. Modules or tests used by computer users and service personnel to diagnose hardware problems.

digital. (1) Pertaining to data in the form of digits. (A) Contrast with *analog*. (2) Pertaining to data consisting of numerical values or discrete units.

DIP switch. A two-position switch on a circuit board that is preset to control certain functions. The user can change the position of a DIP switch to satisfy special requirements.

disk. A round, flat, data medium that is rotated in order to read or write data. (T) See also *diskette, hard-disk drive*.

disk operating system (DOS). A computer operating system that can perform only one task at a time.

diskette. A thin, flexible magnetic disk permanently enclosed in a protective jacket. A diskette is used to store information for processing.

diskette drive. The mechanism used to seek, read, and write data on diskettes.

display. (1) A visual presentation of data. (2) A device that presents visual information to the point-of-sale terminal operator and to the customer.

distributed. Physically separate but connected by cables.

DOS. See *disk operating system*.

double-byte character set (DBCS). A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets. Because each character requires 2 bytes, the typing, display, and printing of DBCS characters requires hardware and programs that support DBCS. Contrast with *single-byte character set*.

DRAM. Dynamic RAM. See *RAM*.

driver. A software component that controls a device.

dump. (1) To record, at a particular instant, the contents of all or part of one storage device in another storage device. Dumping is usually for the purpose of debugging. (T) (2) Data that has been dumped. (T)

DVD-ROM. Digital-video-disk read-only memory.

E

error message. A message that is issued because an error has been detected.

F

FCC. See *Federal Communications Commission*.

feature. A part of an IBM product that may be ordered separately by the customer.

Federal Communications Commission (FCC). A board of commissioners appointed by the President under the Communications Act of 1934, having the power to regulate all interstate and foreign communications by wire and radio originating in the United States.

field. On a data medium or a storage medium, a specified area used for a particular category of data; for example, a group of character positions used to enter or display wage rates on a panel. (T)

file. A named set of records stored or processed as a unit. (T) For example, an invoice may form a record and the complete set of such records may form a file. See also *data set*.

flash memory. A data-storage device that is programmable, erasable, and does not require continuous power. The chief benefit of flash memory over other programmable and erasable data storage devices is that it can be reprogrammed without being removed from the circuit board.

formatted diskette. A diskette on which track and sector control information has been written and that can be used by the computer to store data. **Note:** A diskette must be formatted before it can receive data.

frame . (1) The unit of transmission in some LANs, including the IBM Token-Ring Network and the IBM PC Network. It includes delimiters, control characters, information, and checking characters. On a token-ring network, a frame is created from a token when the token has data appended to it. On a token-bus network (IBM PC Network), all frames including the token frame contain a preamble, start delimiter, control address, optional data and checking characters, end delimiter, and are followed by a minimum silence period. (2) A housing for machine elements. (3) In synchronous data link control (SDLC), the vehicle for every command,

every response, and all information that is transmitted using SDLC procedures. Each frame begins and ends with a flag.

function. (1) A specific purpose of an entity, or its characteristic action. (A) (2) In data communications, a machine action such as a carriage return or line feed. (A)

H

hard-disk drive. In a personal computer system unit, a disk storage device that reads and writes on rigid magnetic disks. It is faster and has a larger storage capacity than a diskette and is permanently installed. Synonymous with *fixed disk*.

HID. See *human interface devices*.

hot pluggable. Refers to a hardware component that can be installed or removed without disturbing the operation of any other resource that is not connected to, or dependent on, this component.

human interface devices (HID). Devices which allow humans to interact and communicate with a computer. Examples are a keyboard or a mouse.

hot plugging. Process of installing connections to the serial bus while the system is running and without powering down.

hot unplugging. Process of removing connections from the serial bus while the system is running and without powering down.

hypertext. (1) A method of presenting text in discrete units, or nodes, that are connected by links for navigation. (2) Text designed to be read or accessed in a nonlinear manner using nodes that are connected by links for navigation.

I

I/O. See *input/output*.

I/O device. A device in a data processing system by means of which data can be entered into the system, received from the system, or both. (I) (A)

IBM Disk Operating System (DOS) . A disk operating system based on MS-DOS that operates with all IBM-compatible personal computers.

IEEE. Institute of Electrical and Electronics Engineers.

input/output (I/O). (1) Pertaining to a device whose parts can perform an input process and an output process at the same time. (I) (2) Pertaining to a functional unit or channel involved in an input process, output process, or both, concurrently or not, and to the data involved in such a process.

integrated. Arranged together as one unit.

interference. (1) The prevention of clear reception of broadcast signals. (2) The distorted portion of a received signal.

interrupt. (1) A suspension of a process, such as execution of a computer program, caused by an external event and performed in such a way that the process can be resumed. (A) (2) To stop a process in such a way that it can be resumed. (3) A means of passing processing control from one software or microcode module or routine to another, or of requesting a particular software, microcode, or hardware function.

J

jabber. Transmission by a data station beyond the time interval allowed by the protocol. (T)

K

K. When referring to storage capacity, a symbol that represents two to the tenth power, or 1024.

keyboard. A group of numeric keys, alphabetic keys, special character keys, or function keys used for entering information into the terminal and into the system.

L

LAN. See *local area network*.

LAN adapter. The circuit card within a communicating device (such as a personal computer) that, together with its associated software, enables the device to be attached to a LAN.

LCD. Liquid crystal display

LED. Light-emitting diode.

light-emitting diode (LED). A semiconductor chip that gives off visible or infrared light when activated.

line. On a terminal, one or more characters entered before a return to the first printing or display position.

link. (1) The logical connection between nodes including the end-to-end link control procedures. (2) The combination of physical media, protocols, and programming that connects devices on a network. (3) In computer programming, the part of a program, in some cases a single instruction or an address, that passes control and parameters between separate portions of the computer program. (4) To interconnect items of data or portions of one or more computer programs. (5) In SNA, the combination of the link connection and link stations joining network nodes. See also *link connection*. **Note:** A link connection is the physical

medium of transmission; for example, a telephone wire or a microwave beam. A link includes the physical medium of transmission, the protocol, and associated devices and programming; it is both logical and physical.

link connection. (1) All physical components and protocol machines that lie between the communicating link stations of a link. The link connection may include a switched or leased physical data circuit, a LAN, or an X.25 virtual circuit. (2) In SNA, the physical equipment providing two-way communication and error correction and detection between one link station and one or more other link stations. (3) In the IBM Store System, the logical link providing two-way communication of data from one network node to one or more other network nodes.

load. In computer programming, to enter data into memory or working registers.

local area network (LAN). A computer network located on a user's premises within a limited geographical area. **Note:** Communication within a LAN is not subject to external regulations; however, communication across the LAN boundary may be subject to some form of regulation.

logon. The procedure for starting up a point-of-sale terminal or store controller for normal sales operations by sequentially entering the correct security number and transaction number. Synonymous with *sign-on*.

M

magnetic ink character reader (MICR). An input unit that reads characters by magnetic ink character recognition. (A)

magnetic ink character recognition. (1) MICR. Character recognition of magnetic ink characters. (T) (2) The identification of characters through the use of magnetic ink.

MB. See *megabyte*.

Mbps. One million bits per second.

megabyte (MB). A unit of measure for data. 1 megabyte = 1 048 576 bytes.

memory. Program-addressable storage from which instructions and other data can be loaded directly into registers for subsequent execution or processing.

message. (1) An arbitrary amount of information whose beginning and end are defined or implied. (2) A group of characters and control bit sequences transferred as an entity. (3) In telecommunication, a combination of characters and symbols transmitted from one point to another. (4) A logical partition of the user

device's data stream to and from the adapter. See also *error message*, *operator message*.

MICR. See magnetic ink character reader and magnetic ink character recognition.

module. A program unit that is discrete and identifiable with respect to compiling, combining with other units, and load; for example, the input to, or output from, an assembler, compiler, linkage editor, or executive routine.

N

network. (1) A configuration of data processing devices and software connected for information interchange. (2) An arrangement of nodes and connecting branches. Connections are made between data stations.

network architecture. The logical structure and operating principles of a computer network. **Note:** The operating principles of a network include those of services, functions, and protocols.

nit. A nit is a unit of luminance equal to one candela per square meter. It is often used to quote the brightness of computer displays.

noise. (1) A disturbance that affects a signal and that can distort the information carried by the signal. (2) Random variations of one or more characteristics of any entity, such as voltage, current, or data. (3) Loosely, any disturbance tending to interfere with normal operation of a device or system.

nonvolatile random access memory (NVRAM) . Random access memory that retains its contents after electrical power is shut off. Contrast with *volatile memory*.

NVRAM. See nonvolatile random access memory.

O

operating system. Software that controls the execution of programs and that may provide services such as resource allocation, scheduling, input/output control, and data management. Although operating systems are predominantly software, partial hardware implementations are possible. (T)

Operating System/2[®] (OS/2[®]). A set of programs that control the operation of high-speed large-memory IBM Personal Computers providing multitasking. Contrast with *Disk Operating System (DOS)*.

operator. A person who operates a machine.

operator message. A message from the operating system or a program telling the operator to perform a specific function or informing the operator of a specific condition within the system, such as an error condition.

option. (1) A specification in a statement, a selection from a menu, or a setting of a switch, that can be used to influence the execution of a program. (2) A hardware or software function that can be selected or enabled as part of a configuration process. (3) A piece of hardware (such as a network adapter) that can be installed in a device to modify or enhance device function.

OS. Operating system.

OS/2. Operating System/2.

P

page. The information displayed at the same time on the screen of a display device.

panel. (1) A thin flat sheet, usually (a) of pressed metal and carrying controls and indicators, (b) of glass, or (c) of plastic. (2) A formatted display of information that appears on a display screen.

parallel port. A port that transmits the bits of a byte in parallel along the lines of the bus, one byte at a time, to an I/O device. On a personal computer, it is used to connect a device that uses a parallel interface, such as a dot matrix printer, to the computer. Contrast with *serial port*.

PC. See *personal computer*.

personal computer (PC). A desk-top, free-standing, or portable microcomputer that usually consists of a system unit, a display, a keyboard, one or more diskette drives, internal fixed-disk storage, and an optional printer. PCs are designed primarily to give independent computing power to a single user and are inexpensively priced for purchase by individuals or small businesses. Examples include the various models of the IBM Personal Computers.

plug. (1) A connector for attaching wires from a device to a cable, such as a store loop. A plug is inserted into a receptacle or plug. (2) To insert a connector into a receptacle or socket.

Plug and Play (PnP). Pertaining to the capability of a hardware or software component to be installed on a system with minimal effort and to be available for use immediately thereafter.

PnP. See *Plug and Play*.

point-of-sale (POS). A method of providing information to support sales and of collecting the resulting sales information from retail devices located in stores.

port. (1) An access point for data entry or exit. (2) A connector on a device to which cables for other devices such as display stations and printers are attached. Synonymous with *socket*.

POS. See *point-of-sale*.

POST . Power-on self-test.

power-on self-test (POST) . A series of diagnostic tests that are run automatically each time the computer's power is switched on.

problem determination. The process of determining the source of a problem; for example, a program component, machine failure, telecommunication facilities, user or contractor-installed programs or equipment, environmental failure such as a power loss, or user error.

procedure. (1) A set of related control statements that cause one or more programs to be performed. (2) A set of instructions that gives a service representative a step-by-step procedure for tracing a symptom to the cause of failure.

processor. In a computer, a functional unit that interprets and executes instructions. (A) (I)

protocol. (1) A set of semantic and syntactic rules that determine the behavior of functional units in achieving communication. (I) (2) A specification for the format and relative timing of information exchanged between communicating parties.

R

RAM. See *random access memory*.

random access memory (RAM). A computer's or adapter's volatile memory, which can be accessed nonsequentially.

read. To acquire or to interpret data from a storage device, from a data medium, or from another source. (I) (A)

real-time. (1) Pertaining to the actual time during which a physical process occurs. (2) Pertaining to data collected concurrently with physical events, so that the results of the collection operation may be used to influence the sequence of events.

receive. To obtain and store information transmitted from a device.

record. A collection of related items of data, treated as a unit; for example, in stock control, each invoice could constitute one record. A complete set of such records may form a file.

repeater. A device that amplifies or regenerates data signals in order to extend the range of transmission between devices in a network.

S

SBCS. See *single-byte character set*.

scanner. A device that examines the bar code on merchandise tickets, credit cards, and employee badges and generates analog or digital signals corresponding to the bar code.

serial port. On personal computers, a port used to attach devices such as display devices, letter-quality printers, modems, plotters, and pointing devices such as light pens and mice; it transmits data one bit at a time. Contrast with *parallel port*.

signal. A variation of a physical attribute, used to convey data. (A)

single-byte character set (SBCS). Single-byte character set. A character set in which each character is represented by a one-byte code. Contrast with *double-byte character set*.

socket. (1) An opening that holds something. (2) Synonym for *port*.

source. The origin of any data involved in a data transfer.

subsystem. A secondary or subordinate system, usually capable of operating independently of, or asynchronously with, a controlling system. (T)

switch. (1) A device for making and breaking electrical connections, for making a selection, or for requesting a function or operation. (2) On an adapter, a mechanism used to select a value for, enable, or disable a configurable option or feature.

system. (1) In data processing, a collection of people, machines, and methods organized to accomplish a set of specific functions. (I) (A) See also *data processing system*, *operating system*, and *system unit*. (2) In the IBM StorePlace Distributed Data Services for OS/2, a group of nodes for which files are managed.

system board. In a system unit, the main circuit board that supports a variety of basic system devices, such as a keyboard or a mouse, and provides other basic system functions.

system configuration. A process that specifies the devices and programs that form a particular data processing system.

system unit. (1) A part of a computer that contains the processing unit and may contain devices such as disk and diskette drives. (2) In an IBM Personal Computer, the unit that contains the processor circuitry, read-only memory (ROM), random access memory (RAM), and the I/O channel. It may have one or more disk or diskette drives. (3) In an IBM Store System terminal, the

part of the terminal that contains the processing unit, ROM, RAM, disk and diskette drives, and the I/O channel.

T

terminal. In data communication, a device, usually equipped with a keyboard and a display, that is capable of sending and receiving information.

till. A tray in the cash drawer of the point-of-sale terminal, used to keep the different denominations of bills and coins separated and easily accessible.

transmit. To send information from one place for reception elsewhere. (A)

twisted pair. A transmission medium that consists of two insulated electrical conductors twisted together. (A)

typematic. The ability of a key on a keyboard to repeatedly type a character as long as it is held down.

U

Universal Serial Bus (USB). A serial interface standard for telephony and multimedia connections to personal computers.

Universal Serial Bus (USB), powered. A powered-USB connector provides additional power from the host system. A powered-USB receptacle consists of two connectors stacked vertically inside the common housing. The upper connector contains four contacts that are used for powering the attached device.

unshielded twisted pair (UTP). One or more twisted pairs of copper wire in the unshielded voice-grade cable commonly used to connect a telephone to its wall jack.

user. (1) A category of identification defined for file access protection. (2) A person using a program or system.

USB. See *Universal Serial Bus*.

V

version . A separately licensed program that usually has significant new code or new function.

vital product data (VPD). Information about the computer, such as machine type and model or serial number, stored in the BIOS.

volatile memory. Memory that loses its contents when power is turned off.

VPD. See *vital product data*.

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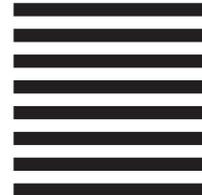
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