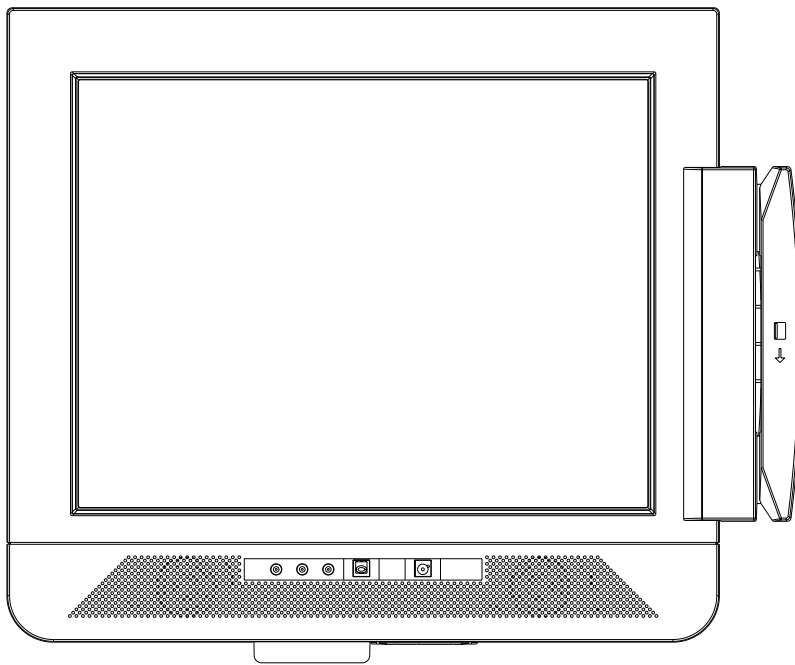


Anyplace Kiosk 4836/4838



Planning, Installation, and Service Guide



Anyplace Kiosk 4836/4838



Planning, Installation, and Service Guide

Note

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

Second Edition (June 2006)

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

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

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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 4836/4838.
- Chapter 2, "Installing the IBM Anyplace Kiosk," provides the installation steps for the 4836/4838.
- Chapter 3, "Mounting the IBM Anyplace Kiosk to the wall," describes the procedures for mounting the 4836/4838 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 B, "Product dimensions," provides precise product size information for all models.
- 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 terms *4836/4838* and *IBM 4836/4838* 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: <http://www.ibm.com/solutions/retail/store/support/>.

- *IBM Safety Information – Read This First*, GA27-4004
- *IBM Anyplace Kiosk System Reference*, available only on the web site.

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 xi for the Web address.
- Displays are driven at 60 Hz to eliminate problems caused by screen flicker.

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: <http://www.ibm.com/solutions/retail/store/support/>. Click **Publications**.

Summary of changes

Update to GA27-4347-01 (January, 2007)

Revised information related to the wireless card installation, parts, and regulations.

Update to GA27-4347-01 (August, 2006)

Added information for Windows® XP Professional for Embedded Systems (WEPOS) models W2D, W5D, and W7D.

GA27-4347-01 (June, 2006)

This edition adds or changes the following information:

- IBM Anyplace Kiosk 4838 Model 137 and E37
- Mercury-added statement
- New part numbers for existing products that are manufactured using updated methods or materials required in certain jurisdictions, such as the European Union.
- Other edits based on user feedback.

Changed or new information is indicated by a revision bar (|) in the left margin.

Update to GA27-4347-00 (June, 2005)

This update adds the following information:

- IBM Anyplace Kiosk 4838 Models E32 and E35
- End of life disposal of the unit in accordance with the European WEEE Directive and new Class 2 laser safety information
- Part numbers for several new field-replaceable units
- Chinese Class A warning statement

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 4836/4838 makes the product suitable for a wide variety of uses, such as retrieving information, listening to music, or watching multimedia presentations.

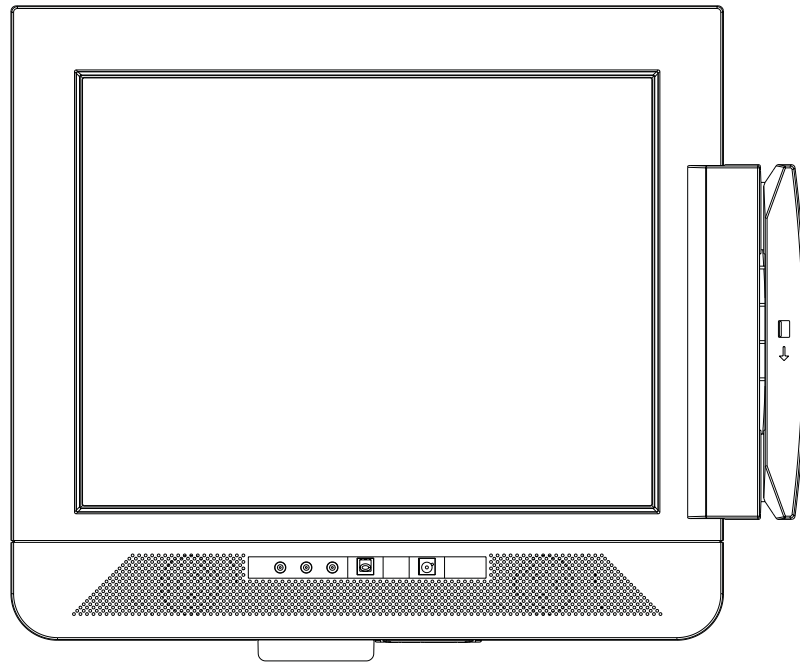


Figure 1. IBM Anyplace Kiosk Model 132

To view the model dimensions, see Appendix B, "Product dimensions," on page 61.

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 4836/4838 contains the following key attributes:

- A 12 inch (800 x 600) or 15 inch (1024 x 768) dual-bulb backlit thin film transistor (TFT) display *or* a 17 inch (1280 x 1024) quad-bulb backlit TFT display
- 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 16 VDC, 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 EIA-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, E32, 13V, W2D	Model 135, E35, W5D	Model 137, E37, W7D	Options
Height	295 mm (11.6 in.)	340 mm (13.4 in.)	399 mm (15.7 in.)	Scanner: 13 mm (.5 in.)
Width	319 mm (12.5 in.)	383 mm (15.1 in.)	427 mm (16.8 in.)	MSR: 45 mm (1.8 in.)
Depth	72 mm (2.8 in.)	72 mm (2.8 in.)	80 mm (3.1 in.)	n/a
Weight	4.5 kg (10 lbs.)	5.5 kg (12 lbs.)	7.3 kg (16 lbs.)	

Models and features

Table 2 describes some of the common 4836/4838 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	Includes depot maintenance agreement, which allows you to return the product to an authorized IBM repair center.	Microsoft® Windows® Embedded Point of Service preloaded.	Microsoft® Windows® XP Professional for Embedded Systems
12 inch Models 256 Megabytes				
132		x		
13V	Without speakers. With volume control.	x		
E32	Same as Model 132		x	
W2D	Same as Model 132			x
15 inch Models 256 Megabytes				
135		x		
E35	Same as Model 135		x	
W5D	Same as Model 135			x
17 inch Models 256 Megabytes				
137		x		
E37	Same as Model 137		x	
W7D	Same as Model 137			x

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

Table 3. IBM Anyplace Kiosk hardware options (continued)

Option	Description
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 65.

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 EIA-232
- JavaPOS, OPOS

Scanner

- Virtual EIA-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 EIA-232 type of interface. For details, see the technical references available at the IBM Retail Store Solutions Web site.

You can obtain software for your Anyplace Kiosk from the IBM Retail Store Solutions Web site: <http://www.ibm.com/solutions/retail/store/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 1.4 A 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 4836/4838 before you begin the installation steps.

Rear view

Figure 2 shows the rear view of the IBM 4836/4838.

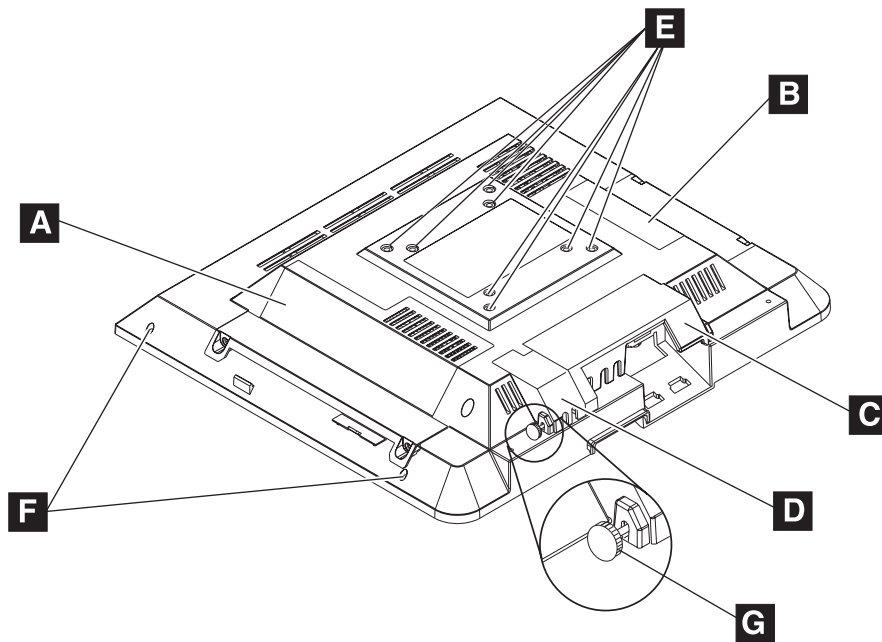


Figure 2. Rear view showing access doors, mounting holes, attachment holes

- 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

Connectors

Figure 3 shows the IBM 4836/4838 connectors.

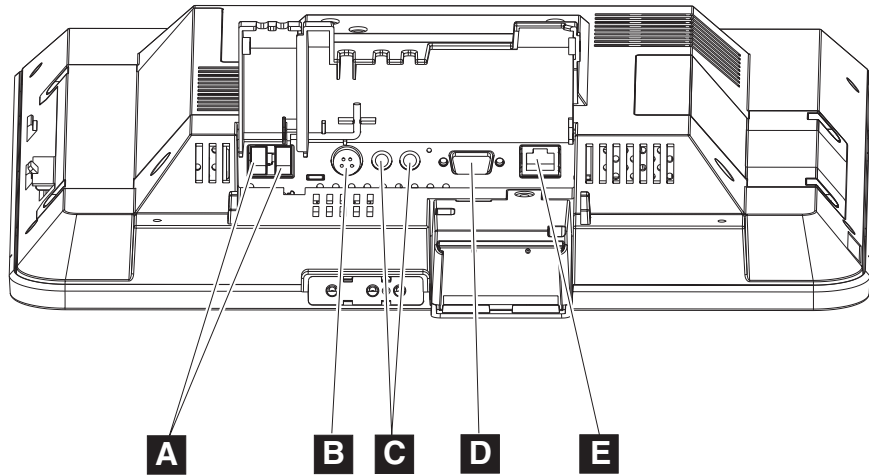


Figure 3. IBM 4836/4838 connectors

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 4836/4838:

1. Install your options (except the MSR).
2. Route, connect and retain the cables. See “Retaining the cables” on page 11. Be sure to route the cables through the mounting stand before connecting to the unit.
3. Install the IBM 4836/4838 on your mounting option: table-top (see “Table-top mount” on page 18) or wall (see “Wall mount” on page 19 or the third-party mount instructions).
4. Install the optional MSR.
5. Power On the IBM 4836/4838. See “Powering on” on page 19.

Opening the cable covers

The cable covers provide security and protection to the IBM 4836/4838 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 EIA-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.

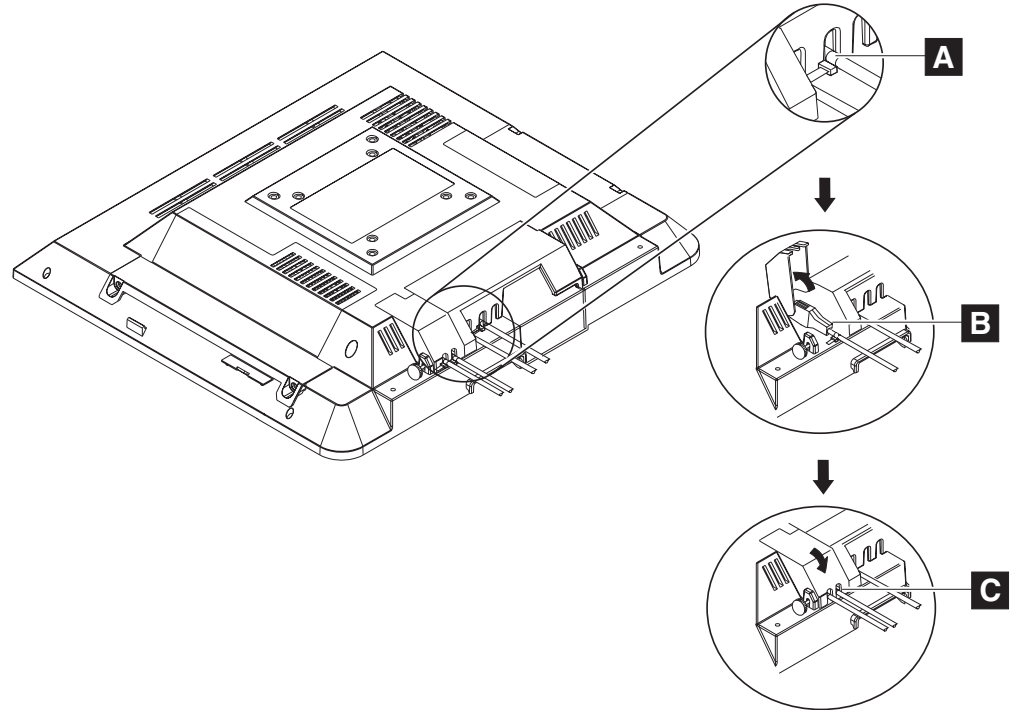


Figure 4. Retaining the cables using cable ties

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).

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

Installing the options

The design of the IBM 4836/4838 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.

Installing the scanner

1. As shown in Figure 5, place the IBM 4836/4838 face down on a sturdy surface.

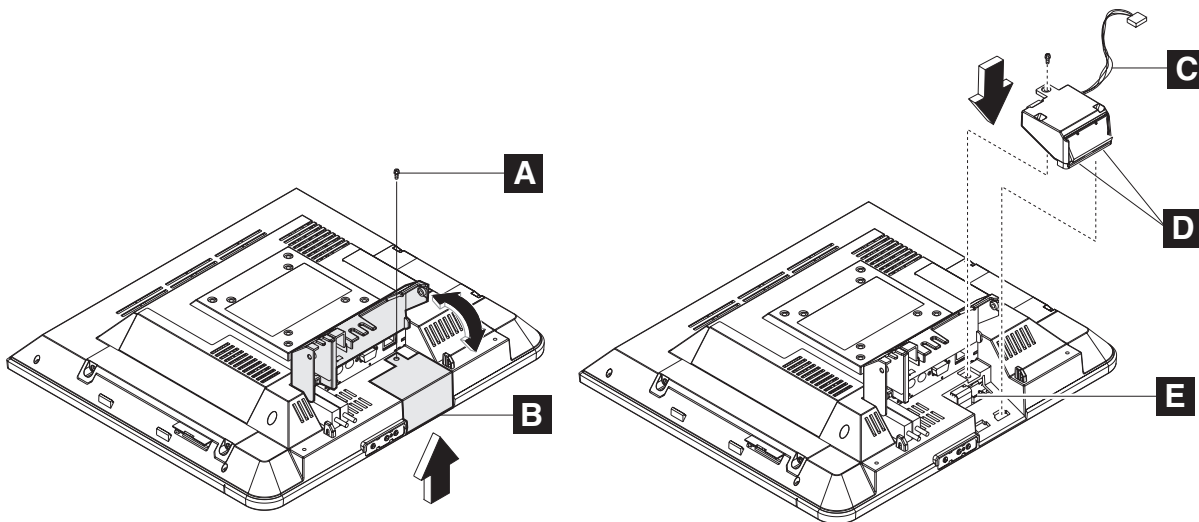


Figure 5. Installing the scanner

2. Lift the cable covers as described in “Opening the cable covers” on page 10.
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.

Note: For EIA-232 modes, the scanner may need to be configured. Refer to the IBM Knowledge Base at the IBM Retail Store Solutions Web site (<http://www.ibm.com/store/support/>) for details on configuring the scanner.

Installing the MSR (12 inch models)

Note: Install the MSR after you mount the IBM 4836/4838. See “Mounting instructions” on page 18.

1. Remove the hard drive door by unfastening the two screws located on the door and discard.
2. With the IBM 4836/4838 mounted onto the desired stand, locate the mounting features for the MSR on the right side of the machine.
3. Align the MSR such that the connectors are slightly above their matching slots on the 4836/4838. The ground strap should lie in the top of the rear cover

opening. Slide the MSR downward into position, being careful not to pinch the MSR cable. The ground strap should be on top of the main shield flange. See **1** in Figure 6.

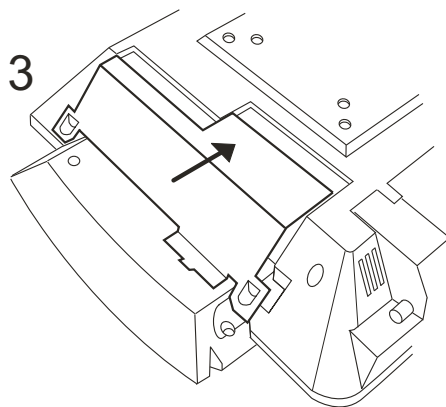
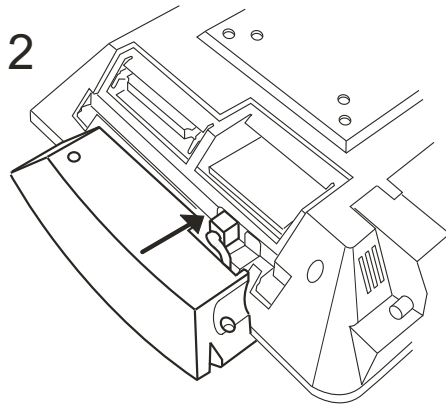
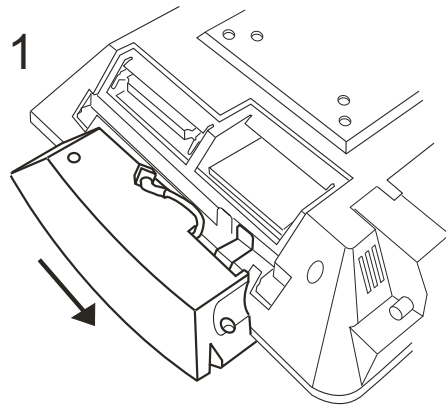


Figure 6. Installing the MSR (12 inch models)

4. Plug the USB cable into the connector. See **2** in Figure 6.
5. Install the hard drive door with MSR latching tab and secure the two screws. See **3** in Figure 6.

| Installing the MSR (15 and 17 inch models)

| **Note:** Install the MSR after you mount the IBM 4836/4838. See “Mounting
| instructions” on page 18.

- | 1. Remove the hard drive door by unfastening the two screws located on the door
| and discard.
- | 2. With the IBM 4836/4838 mounted onto the desired stand, locate the mounting
| features for the MSR on the right side of the machine.
- | 3. Align the MSR such that the connectors are slightly above their matching slots
| on the 4836/4838. The ground strap should lie in the top of the rear cover
| opening. Slide the MSR downward into position, being careful not to pinch the
| MSR cable. The ground strap should slide under the pressure clip. See **1** in
| Figure 7 on page 15.

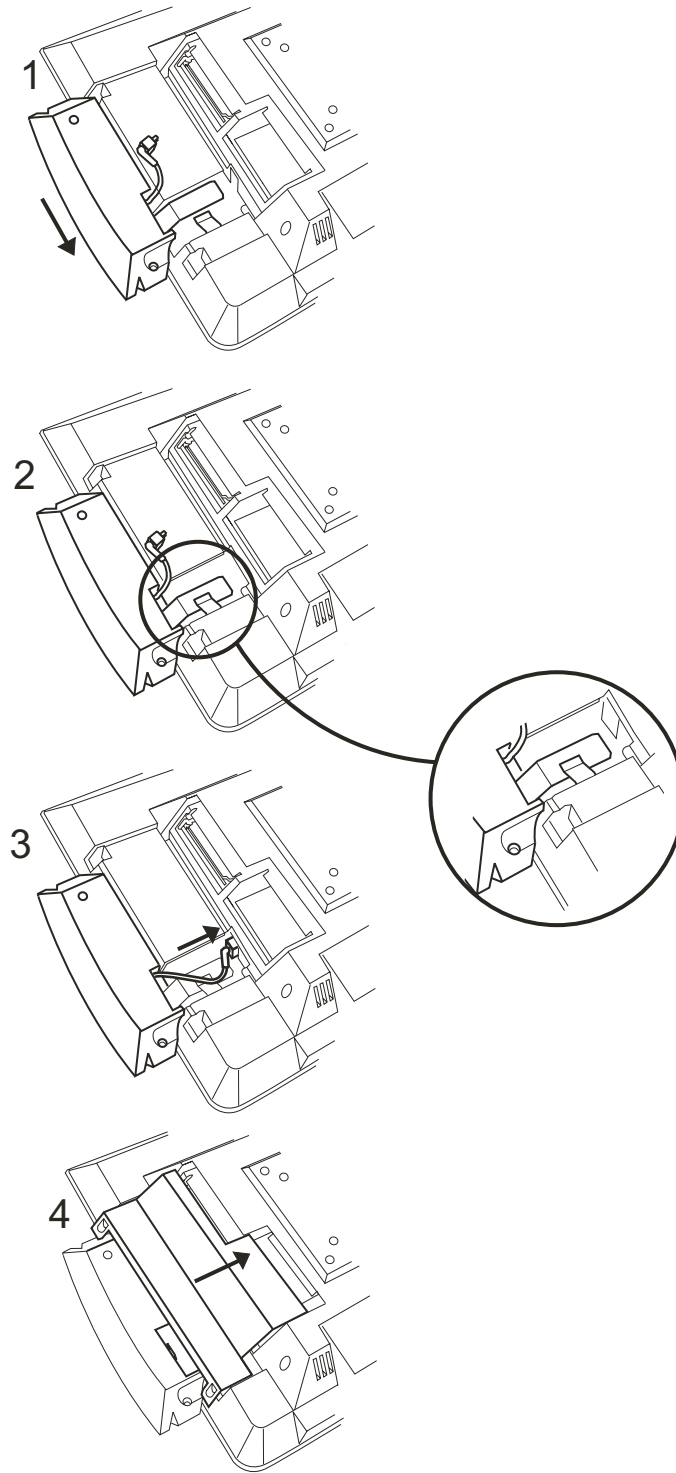


Figure 7. Installing the MSR (15 and 17 inch models)

4. Slide the grounding strap under the grounding clip. See **2** in Figure 7.
5. Plug the USB cable into the connector. See **3** in Figure 7.
6. Install the hard drive door with MSR latching tab and secure the two screws. See **4** in Figure 7.

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.

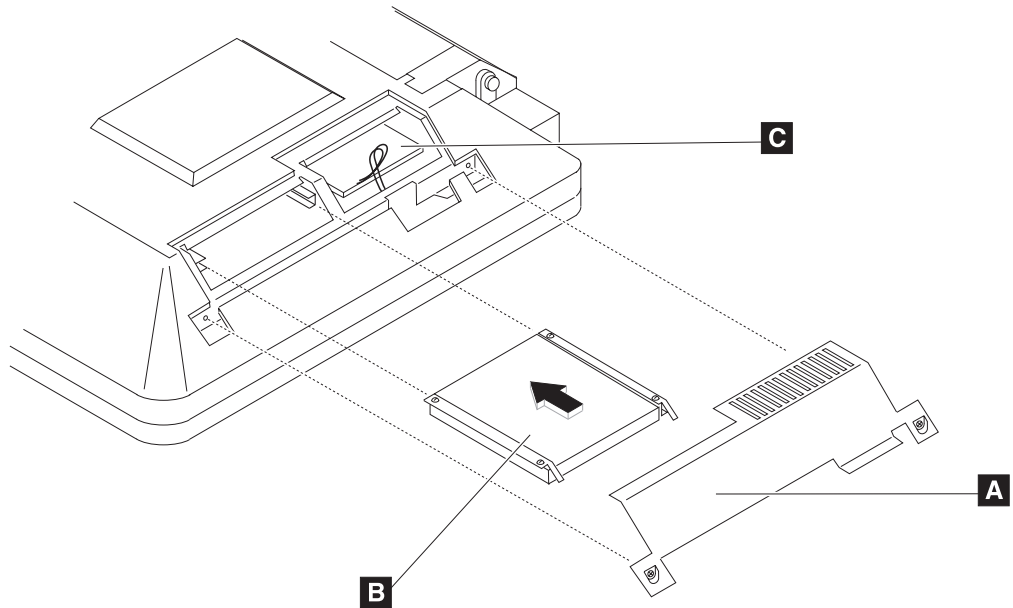


Figure 8. Removing the hard drive cover

1. Place the IBM 4836/4838 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 33.

Installing additional memory

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

1. Place the 4836/4838 face down on a sturdy surface.

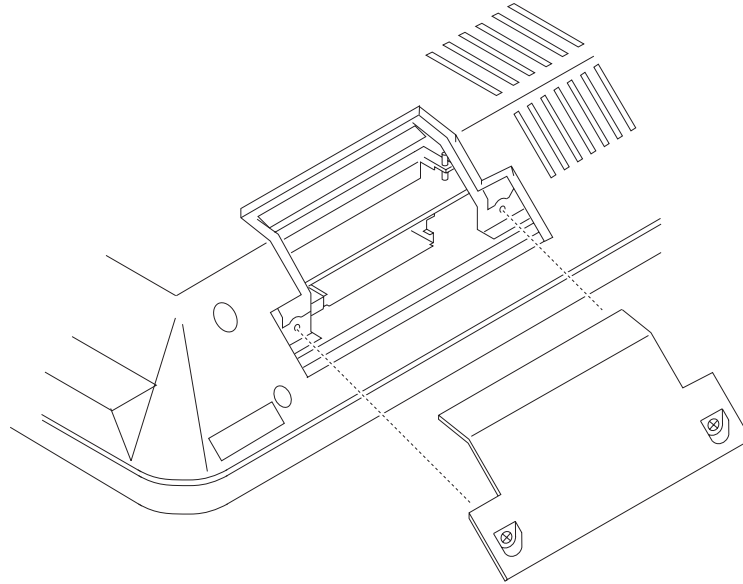


Figure 9. Installing additional memory

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

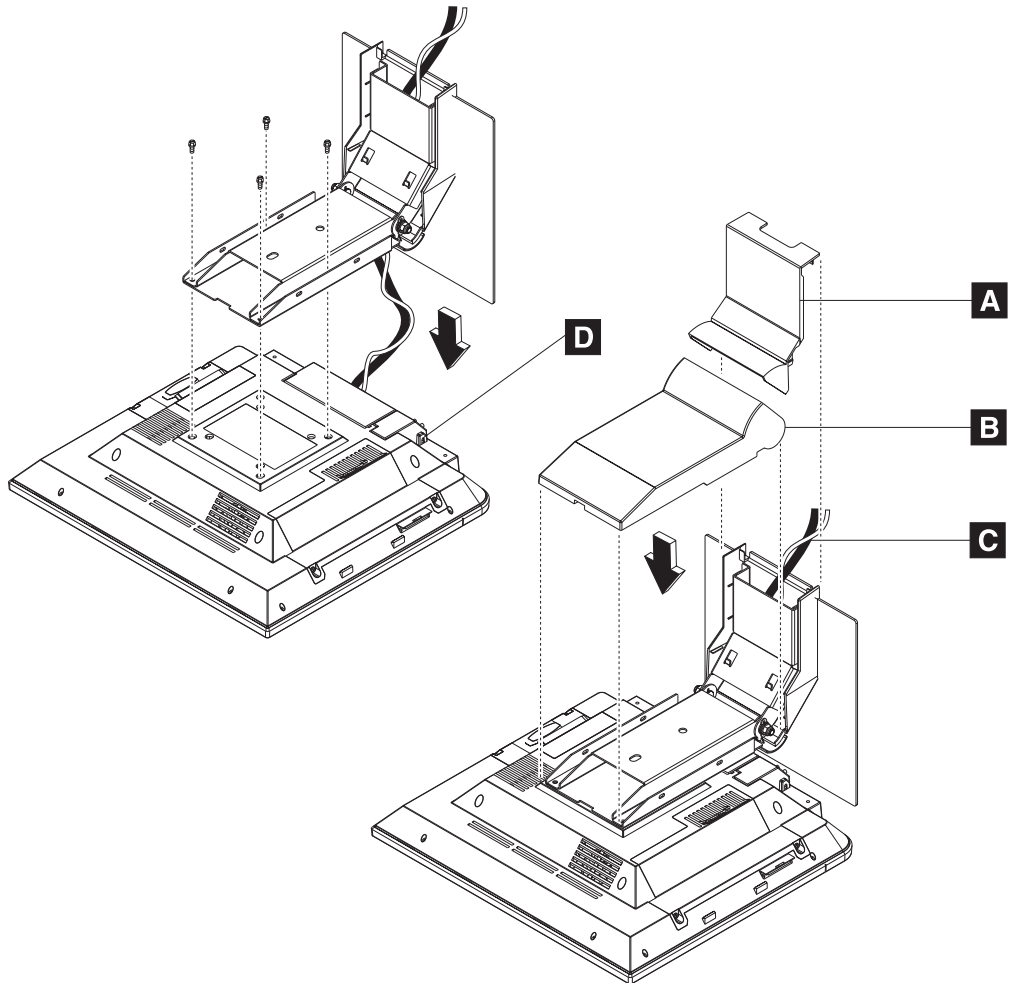


Figure 10. Installing table-top mount

CAUTION:

The illustration above shows the table-top mount for a 12 inch or 15 inch model. The 17 inch models (137, E37) use a different table-top mount than the one shown above (see “Assembly 4: Table-top stand and wall mount” on page 58), though the instructions below are the same. **Do not** attempt to mount a 17 inch model onto the table-top mount for a 12 inch or 15 inch model.

1. Remove the base cover (**A**) and arm cover (**B**).
2. Route and connect the cables (**C**) to the IBM 4836/4838.
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 4836/4838 unit in the desired location and retain the cables (see “Retaining the cables” on page 11).

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 21.

Powering on

Notes:

1. Your new IBM 4836/4838 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.

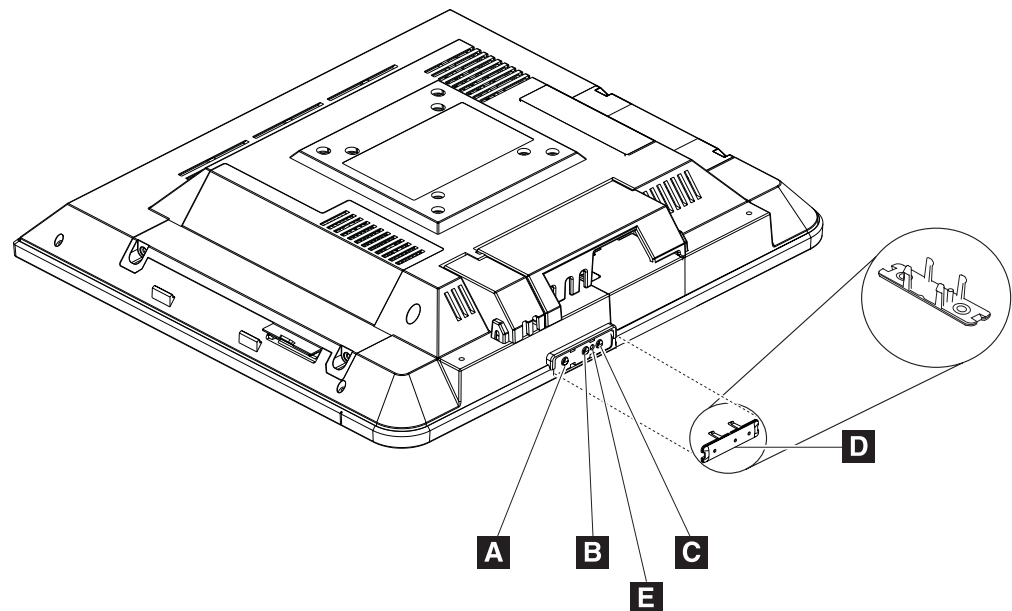


Figure 11. IBM 4836/4838 controls and installing the control cover

1. Plug the power adapter into the 4836/4838.
2. Plug the power adapter into an electrical outlet.
3. Power on the IBM 4836/4838 using the power switch (see **A** in Figure 11). The 4836/4838 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 4836/4838 to the wall.

Mounting the wall mount plate

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

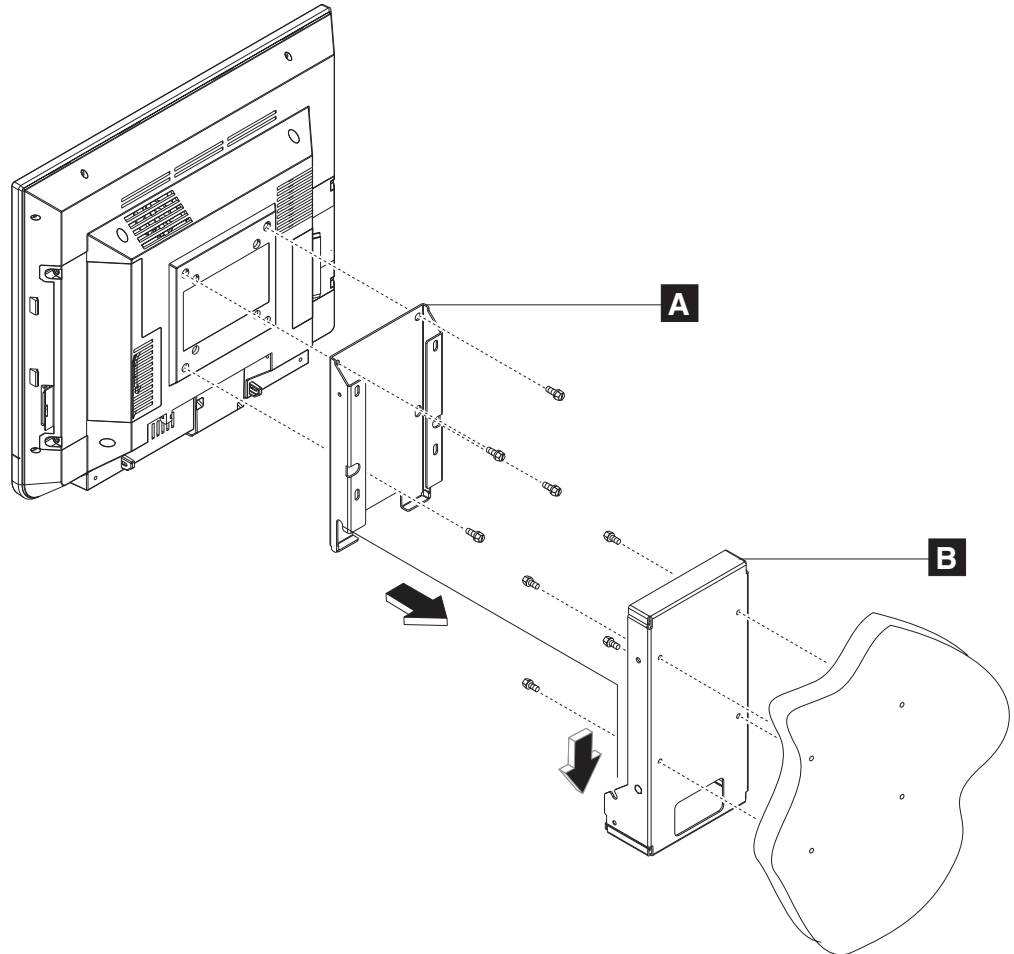


Figure 12. System and wall mount plate

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 4836/4838 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.

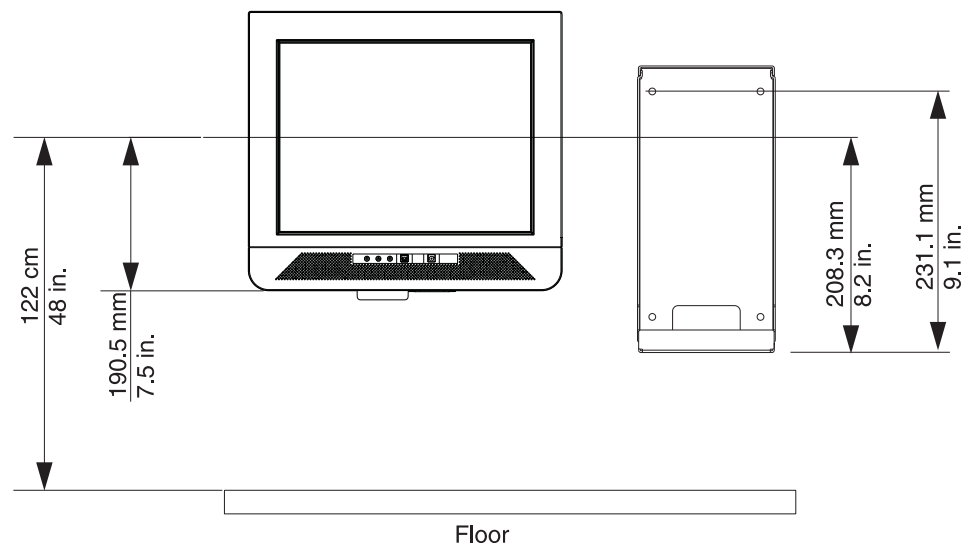


Figure 13. IBM 4836/4838 mounting height

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.

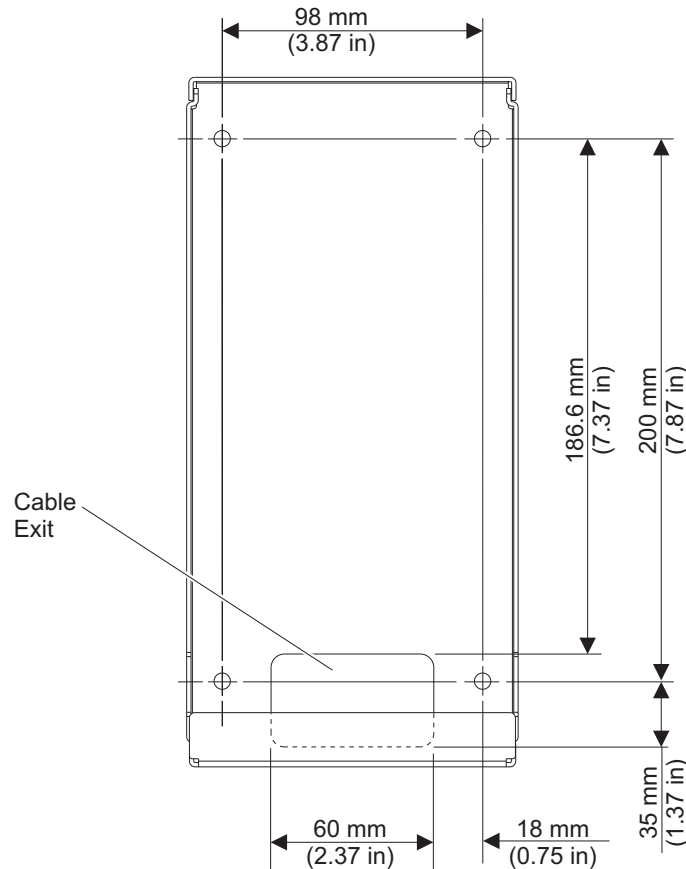


Figure 14. Wall mount plate and wall cutout dimensions

Attaching the wall mount plate

CAUTION:

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 4836/4838 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 27 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

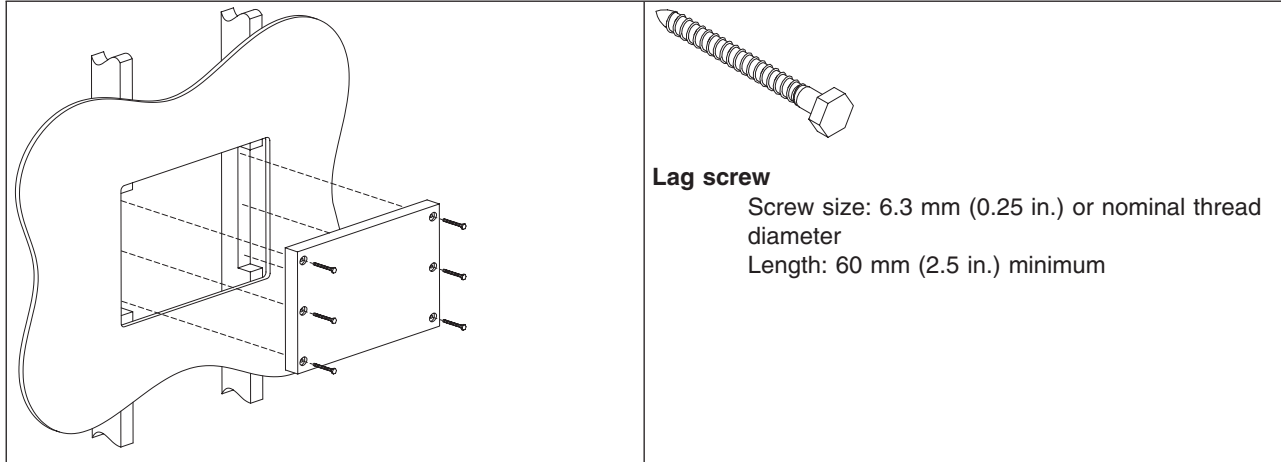
Hollow walls include walls that are constructed of drywall board that is securely fastened to wood studs. The studs must make up the main structure and strength of the wall.

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 on page 25. 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



Lag screw

Screw size: 6.3 mm (0.25 in.) or nominal thread diameter

Length: 60 mm (2.5 in.) minimum

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 27 for more information.

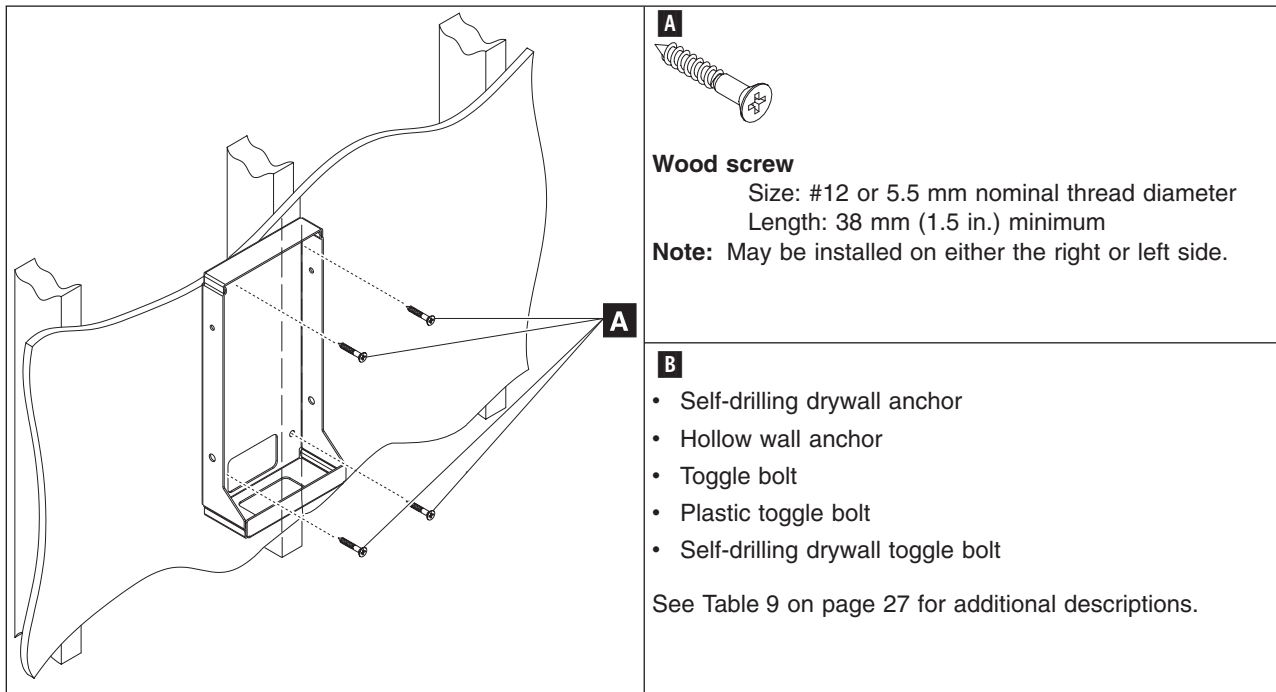
After installation, make sure that the screw heads are flush or below the outer surface of the wall mount plate. Check to make sure that you firmly and securely attach the wall mount plate to the wall.

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 on page 26. 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 on page 26, to attach the wall mount plate to the stud. Install the Wood Screws directly into the center of the stud without pre-drilling a hole. Do not use soap or other lubricant on the screws during installation. See “Fastener types” on page 27 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.

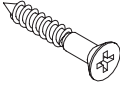
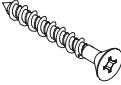
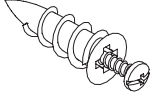
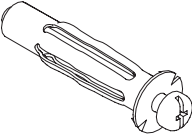
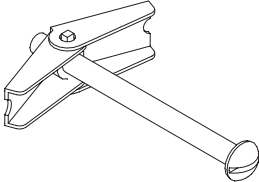
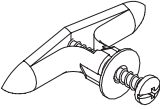
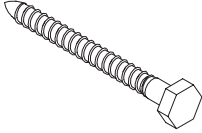
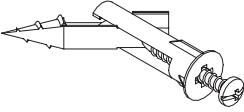
Use a bubble level to assure that you mount the wall mount plate squarely. Use four concrete anchors to attach the wall mount plate to the wall. Use one concrete anchor in each corner of the wall mount plate. See “Fastener types” on page 27 for detailed fastener information to determine the types of 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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Removing the control card	41
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Note: Procedures in this section should be performed by qualified service personnel.

Reviewing the IBM 4836/4838 assembly

Figure 15 summarizes the field replaceable parts of the IBM 4836/4838 assembly. The part number associated with each FRU is located in Appendix A, "Field-replaceable units."

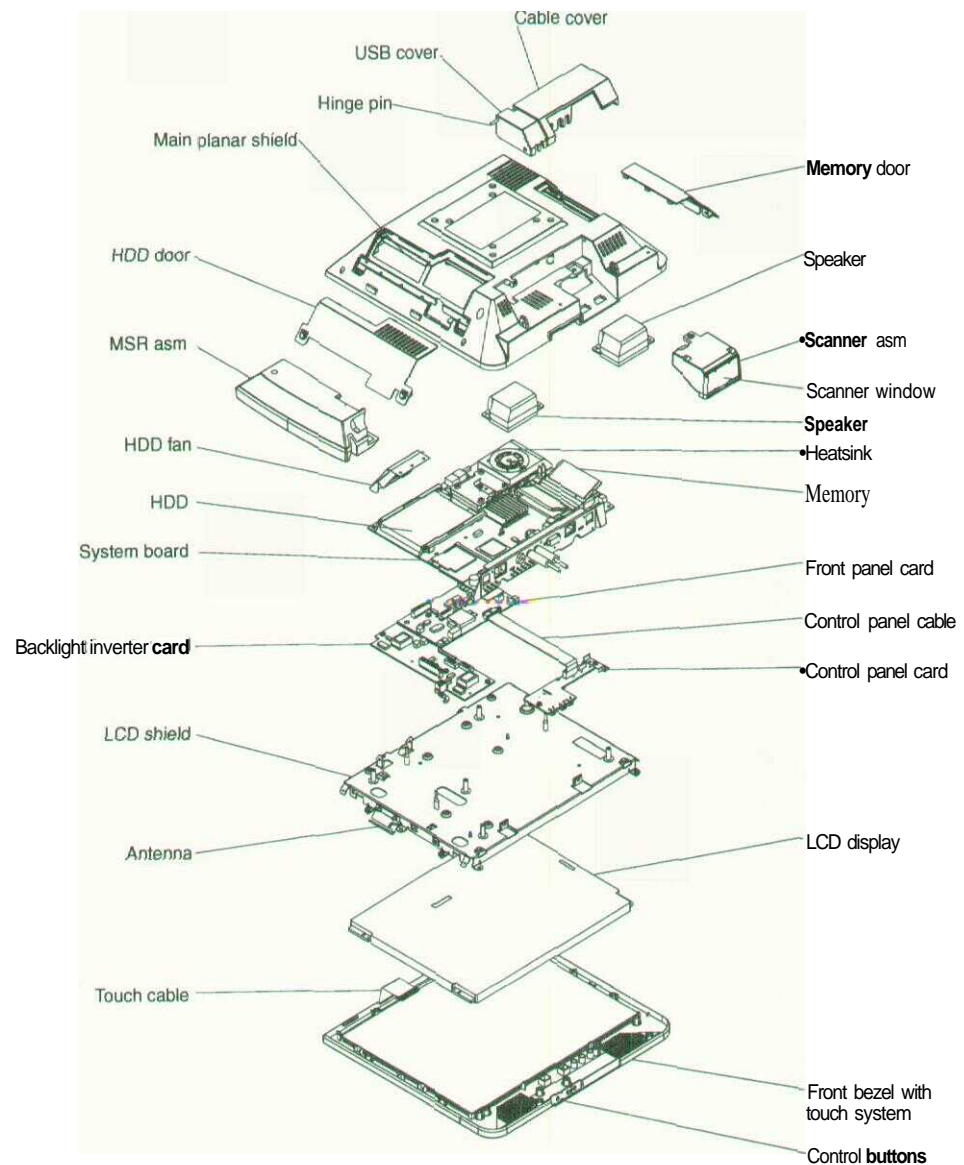


Figure 15. Exploded view of the IBM 4836/4838 assembly

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 4836/4838 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) that secure the back cover.

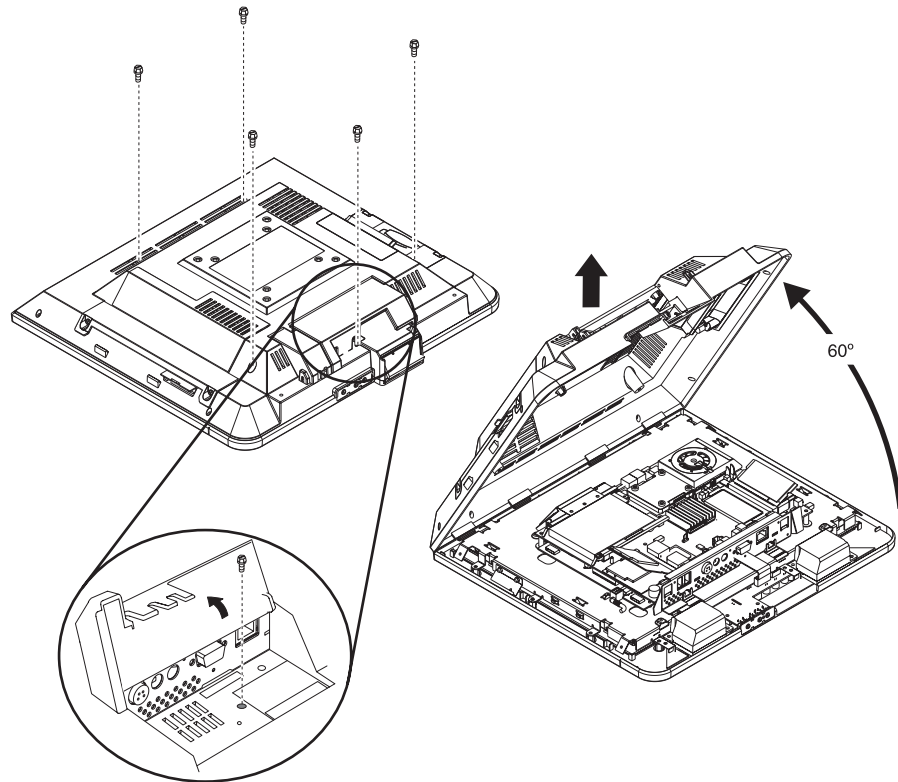


Figure 16. Removing the back covers

5. Lift the cover to approximately a 60° 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 12.

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 10.
2. Remove the hinge pin (see Figure 15 on page 30) 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 31.

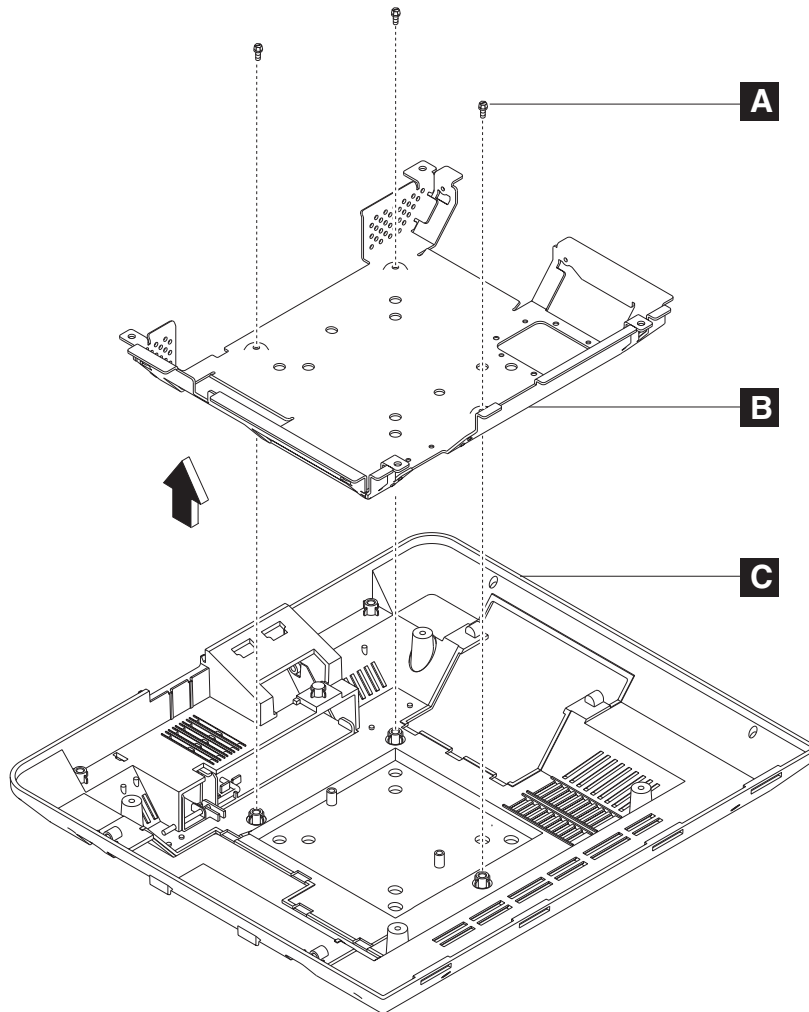


Figure 17. Removing the main shield

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

Removing the wireless card

| Removal and replacement procedure for the wireless card (for service personnel
| only), are included in hard copy format with the wireless card FRU.

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 31.

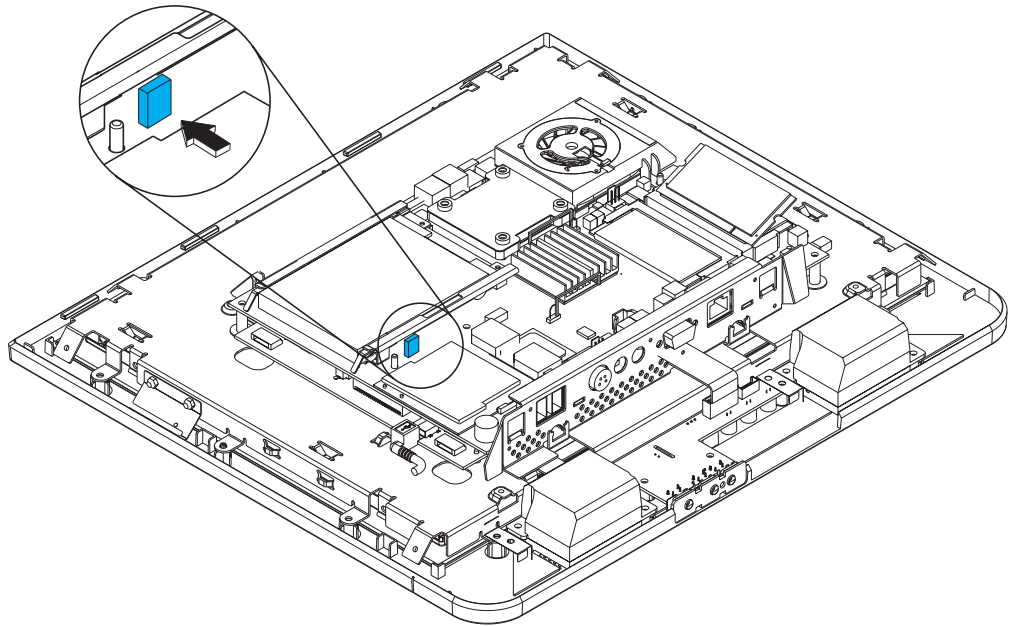


Figure 18. Location of the CMOS jumper

2. Locate the blue CMOS jumper on the main planar assembly. See Figure 18. 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 17. To remove the factory-installed memory, follow these steps:

1. Remove the back cover as described in “Removing the back cover” on page 31.
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 31.
2. Detach the fan connector (**C** in Figure 19) from the system board.

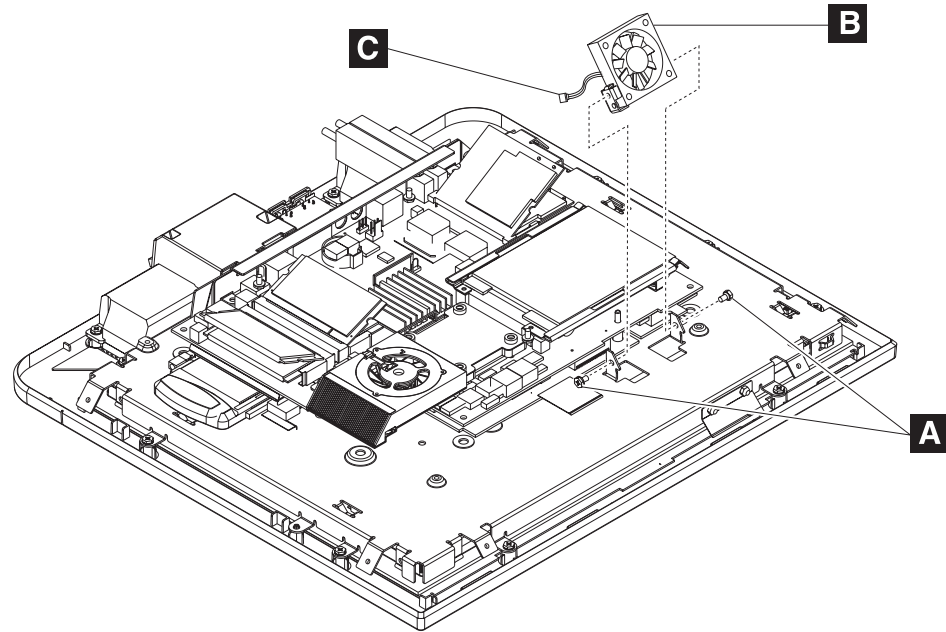


Figure 19. Removing the hard drive fan

3. Using a Phillips screwdriver, remove the two screws located on each side of the hard drive fan (**A** in Figure 19).
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 31.

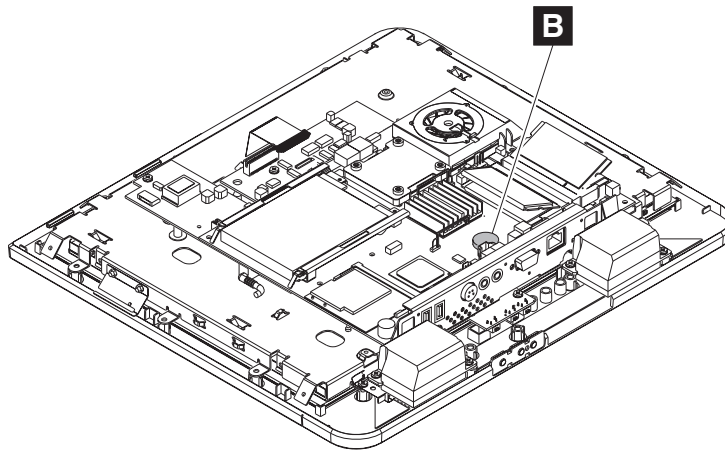


Figure 20. View of battery and heatsink

2. Locate the battery on the main planar assembly (**B** in Figure 20).
3. Using your finger, press on one of the tabs holding the coin battery, and the battery pops out.
4. To replace the battery, align the battery underneath the tabs and press down.