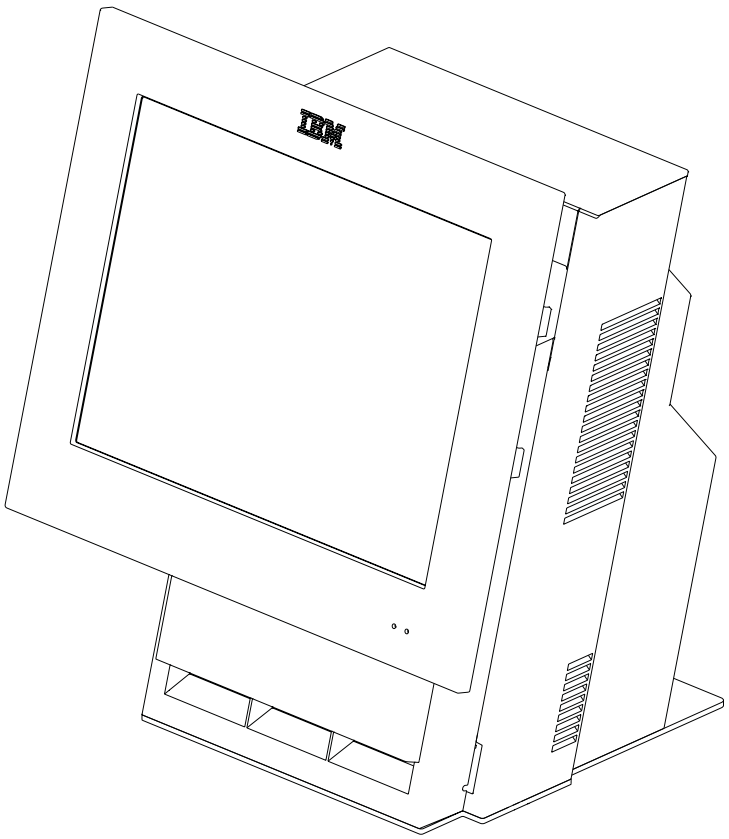
SurePOS 500 Series

Planning, Installation and Service Guide - Model 514



Updated June, 2006

GA27-4361-01

SurePOS 500 Series

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Note

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

Second Edition (June 2006)

This edition applies to the IBM SurePOS 500 Model 514 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 SurePOS 500 Model 514 and is organized as follows:

- Chapter 1, “Introducing the SurePOS 500 Model 514,” on page 1 provides an overview of the Model 514.
- Chapter 2, “Installing the IBM SurePOS 500 Model 514,” on page 5 provides an overview for installing the Model 514.
- Chapter 3, “Mounting the SurePOS 500 Model 514,” on page 17 describes the various mounting options.
- Chapter 4, “Troubleshooting common problems,” on page 49 provides scenarios and solutions for a trouble-free system.
- Chapter 5, “Removing and replacing FRUs,” on page 53 describes the steps involved in removing and replacing the field-replacement parts.
- Appendix A, “Field-replaceable units,” on page 87 contains detailed lists of all parts available for replacement.
- Appendix B, “System specifications and planning information,” on page 103 provides the dimensions and weights of the system unit and available peripherals.

Who should read this guide

Personnel responsible for installing, maintaining, and using the IBM Model 514 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 this page, click **Support**.

- *IBM SurePOS 500 Model 514 Operating System Installation Guide*, GA27-4362
- *IBM Point of Sale Options and I/O Devices Service Guide*, GC30-9737
- *IBM Safety Information*, GA27-4004

System software, touch drivers, and diagnostics

You can obtain the drivers and diagnostic software for your Model 514 from the IBM Retail Store Solutions Web site:www.ibm.com/solutions/retail/store/ (from this page, click **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 SurePOS 500 Model 514 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.

Summary of changes

GA27-4361-01 (June, 2006)

This update removes parts listings that have been moved to the *IBM Point of Sale Options and I/O Devices Service Guide*, GC30-9737

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

Web-only update for GA27-4361-00 (February, 2006)

This web-only update changes some of the part numbers and descriptions for existing products that are manufactured using updated methods or materials required in certain jurisdictions, such as the European Union. It also adds information about dimensions for the antenna enclosure, default serial port assignments, and other miscellaneous changes.

Chapter 1. Introducing the SurePOS 500 Model 514

The IBM SurePOS 4851, Model 514 enables you to provide fast, accurate customer service and to manage your restaurant or store efficiently. Designed for the food service specialties, the system supports a wide variety of both IBM and non-IBM input/output (I/O) devices– everything from standard serial-attached devices, such as the IBM Kitchen Subsystem or IBM 4610 SureMark® printer, to Universal Serial Bus (USB)-attached devices. System resources and the operating system may limit the use of ports.

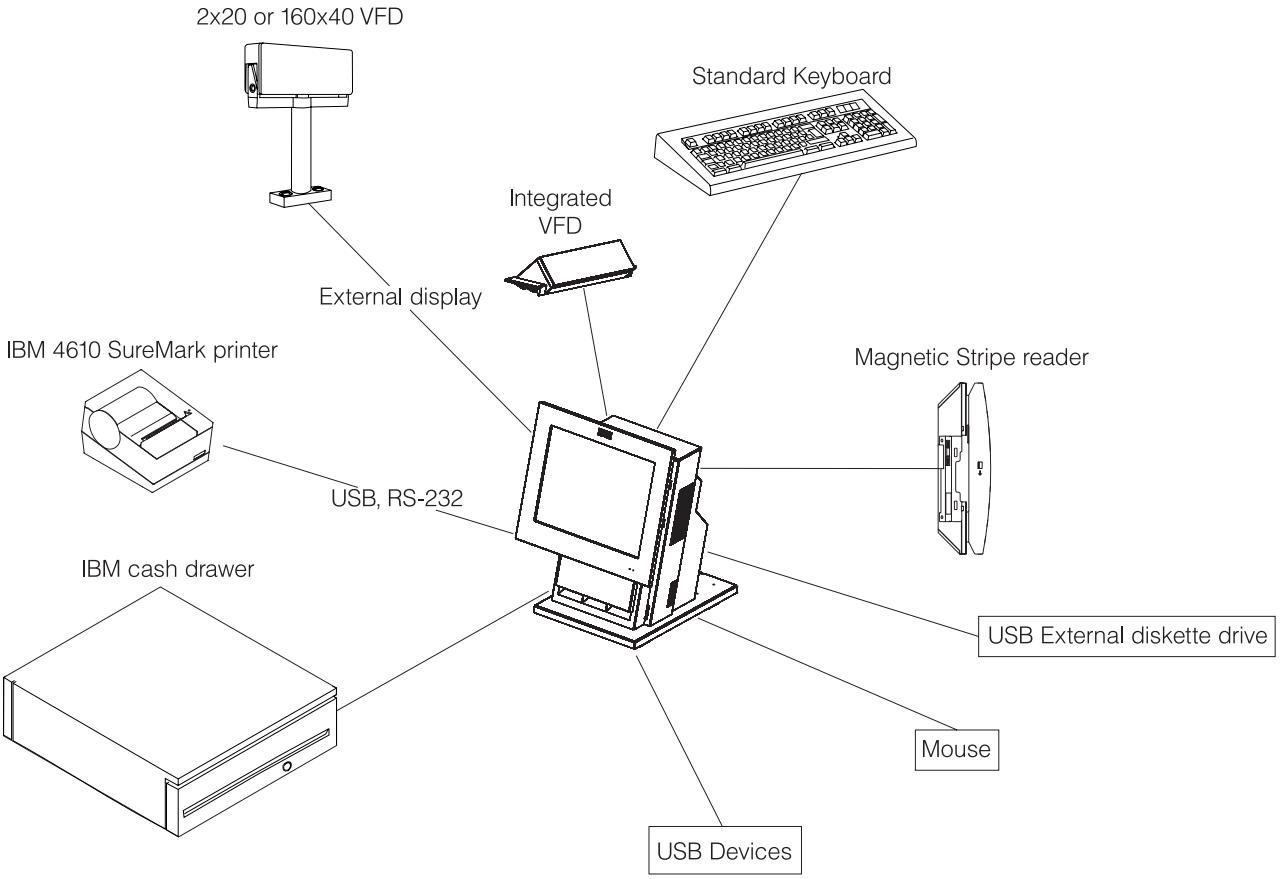


Figure 1. IBM SurePOS 500 Model 514 and supported devices.

Architectural attributes

Table 1 summarizes the architectural attributes of the IBM Model 514:

Table 1. Architecture summary

Attribute	Description
VIA C3 processor	1.2GHz, Via C3, X86 architecture
Graphics	Integrated S3 graphics with up to 64 MB of UMA video memory
Display	Dual bulb, 12.1 inch TFT (800x600)
Memory	256 MB DDR 266Mhz (PC2100) 512 MB DDR 266Mhz (PC2100) **Note:** The system has two DIMM slots and supports a total of up to 2 gigabytes.
LAN, wired	Integrated 10/100 mbps Ethernet
LAN, wireless	802.11 b, g, external USB 2.0 connection

Models and features

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

Table 2. Model 514 models

Model Number	Description
4851-514	System unit with VIA 1.2 GHz processor, 40 GB HDD and either 256 or 512 MB memory
4851-E14	System unit Model 514, preloaded with the Windows XP Embedded for Point of Service
4951-514	Express bundle; dependant upon country, could include: • Integrated MSR • Integrated customer display • 4610 printer and cash drawer

Optional features

Table 3. IBM Model 514 hardware options

Option	Description
Memory	• 256 MB DDR memory module • 512 MB DDR memory module
Disk Drive	Optional USB floppy disk drive (external)
CD ROM	Optional USB (external)
MSR	• ISO 3-track • JUCC
Display	• Integrated 2x20 • Distributed 2x20 • Distributed APA
Cash drawer	Standard or compact
Keyboard	Compact Alpha Numeric POS
Wireless enclosure	Plastic enclosure for external USB wireless adapter **Note:** Customer provides a wireless USB adapter.

Supported operating systems

The IBM SurePOS 500 Model 514 supports these operating systems:

- Windows™ XP, and 2000

  Note: Windows DBCS versions (Japanese/Korean/Chinese) are also supported.
- IBM Retail Environment for SUSE LINUX® (IRES)
- DOS 2000
- Windows Embedded Point of Service (WEPOS)

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

The serial number and model number are located on the right front. See **A** in Figure 2 on page 4.

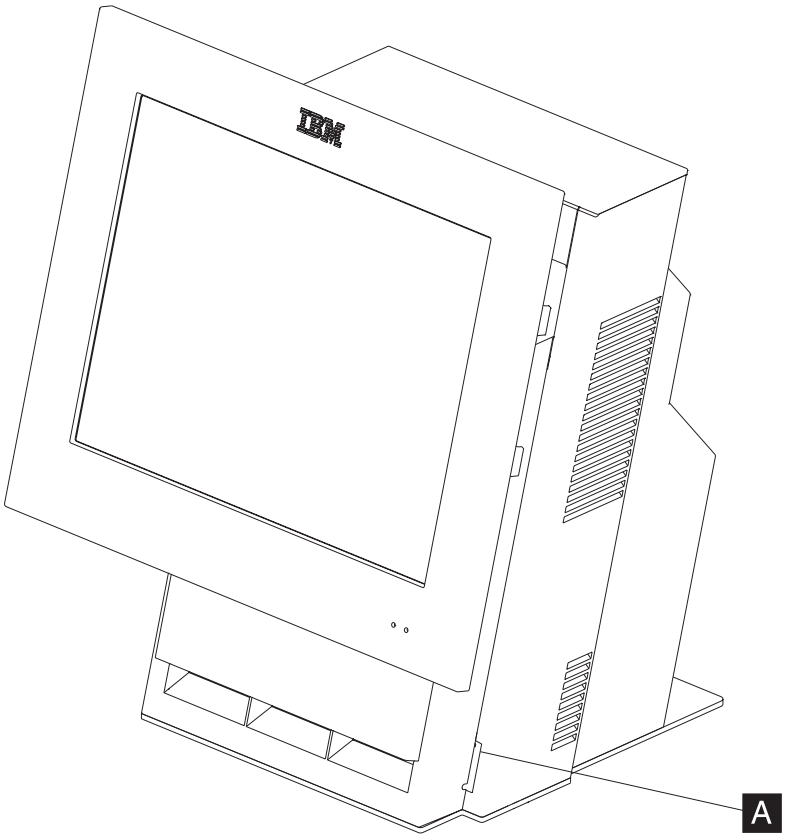


Figure 2. Serial number location

Chapter 2. Installing the IBM SurePOS 500 Model 514

This section describes procedures for setting up the SurePOS 500 Model 514 product. You should be familiar with the connectors of the IBM 4851 before you begin the installation steps.

Rear view and connectors

Figure 3 shows the SurePOS 500 Model 514 connectors.

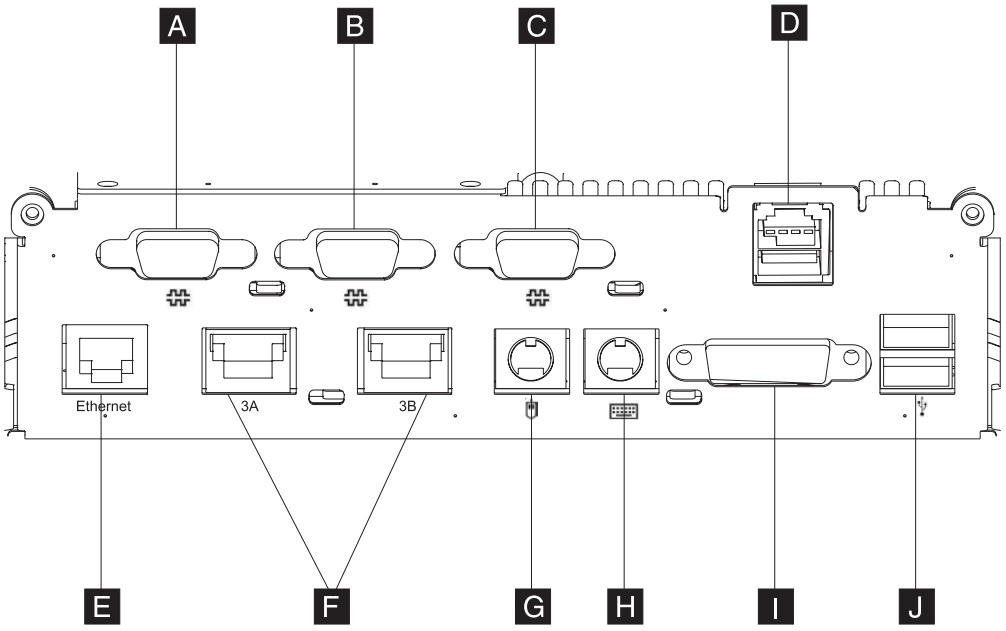


Figure 3. IBM 4851 connectors

Table 4. Rear view connectors and icons

Reference	Device Connector	Icon
A, B, C	Serial A, B, and C	
D	24 volt USB	

Table 4. Rear view connectors and icons (continued)

Reference	Device Connector	Icon
E	Ethernet local area network (LAN)	
F	Cash drawers	3A, 3B
G	Mouse	
H	IBM PS/2® compatible keyboard	
I	Powered serial port (5V/12V)	
J	USB	

Installation steps

Follow these steps to install the Model 514:

1. Install internal options, such as memory, and the external options. Go to "Installing the optional features."
2. Install the SurePOS 500 Model 514 on your mounting option (see Chapter 3, "Mounting the SurePOS 500 Model 514," on page 17).
3. Power on the system. See "Powering on and the LED states" on page 14.
4. If necessary, run the setup utility or calibrate your touch screen. See "Using the setup utility" on page 14 and "Calibrating the touch screen" on page 15.
5. Install your software. Refer to *IBM SurePOS Model 514 Operating System Installation Guide*.

Installing the optional features

Attention: Before you use the following procedures to install options, see the section titled Appendix E, "Safety information," on page 123.

Installing the memory modules

Attention: Establish personal grounding before touching this unit. Do not use any tools, except your hands to insert the DIMM. For more information, see "Electrostatic Discharge (ESD)" on page 119.

The system board provides two memory-module sockets and supports up to 1 GB in each socket. If you have only one module to install, it can be plugged into either socket (A in Figure 4 on page 7). If you have two modules to install, plug any size module into either socket. Install memory modules using the following procedure:

1. Remove the rear cover as described in "Rear cover – removing and replacing" on page 61
2. Remove the rear inner metal cover. See "Rear metal panel cover – removing and replacing" on page 62.
3. Before inserting a replacement module, note the alignment notches along the bottom of the module and where it plugs into the slot. One notch is located in the center of the gold connectors.

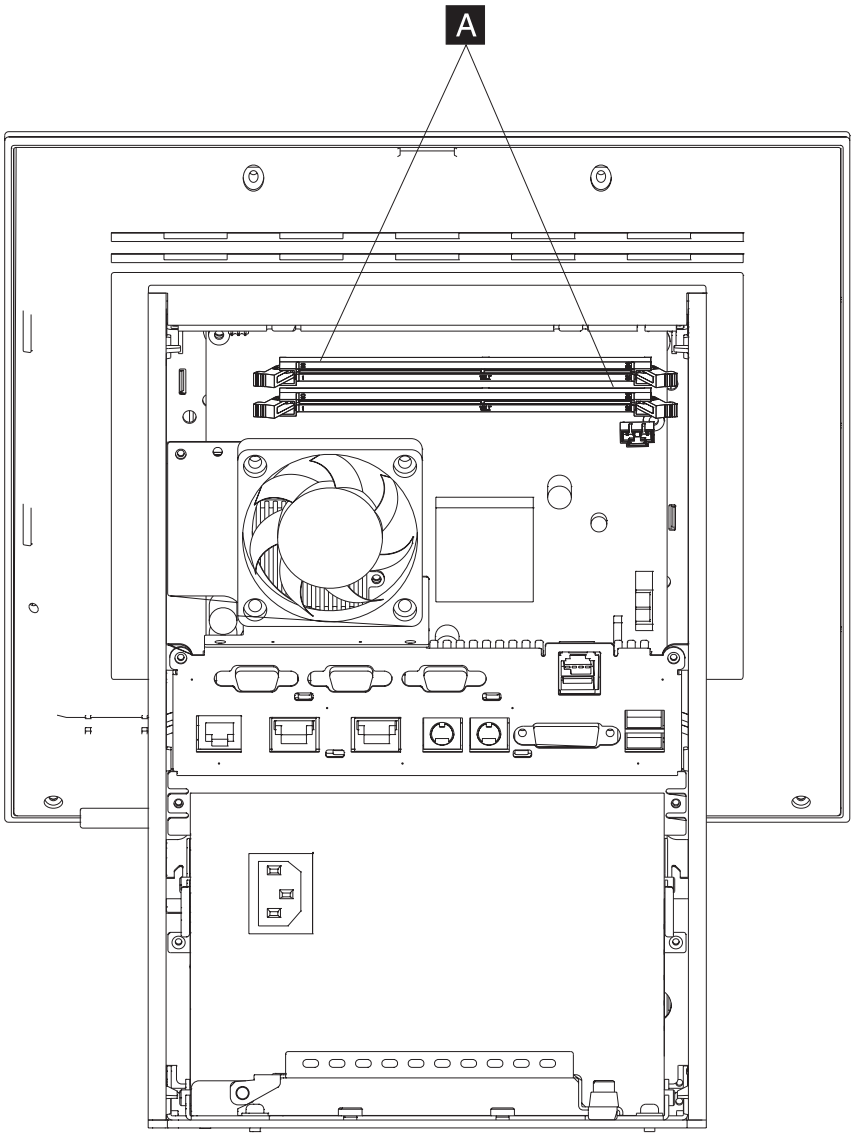


Figure 4. Memory module location

4. Touching only the top corners of the module, align the connector tabs and press the module down firmly. The white tabs at the ends of the socket will close as you insert the module. See Figure 5 on page 8.

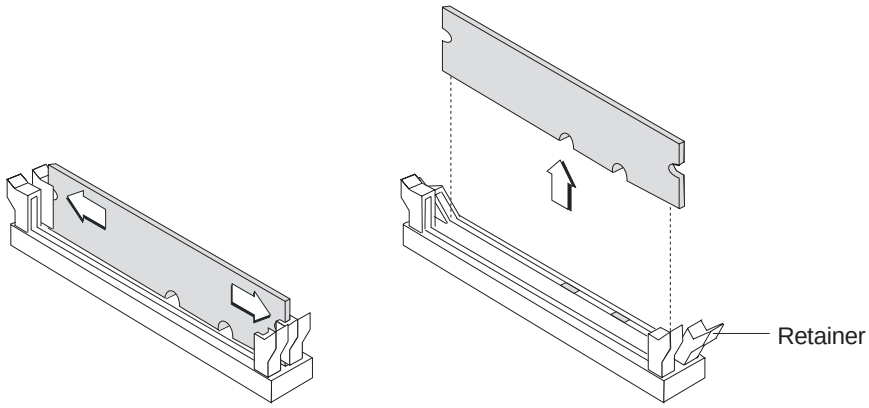


Figure 5. Memory module removal and insertion

5. Replace the rear inner metal cover.
6. Replace the rear cover (see “Rear cover – removing and replacing” on page 61).

Installing the MSR

Two types of MSRs can attach to the SurePOS 500 Series display:

Note: The installation of either MSR is identical.

- Dual-sided, single-track MSR (RS-232 interface only)
- Three-track MSR (RS-232 or keyboard interface)

Note: Before installing the three-track MSR, set the slide switch **D** in Figure 6 on page 9 that is located on the MSR to the correct setting for either RS-232 or keyboard interface. See Figure 6 on page 9.

1. Switch Off the power at the system unit.
2. Holding the MSR parallel to the side of the display, place the front edge of the MSR so that the recesses on the MSR fit onto the plastic tabs on the rear cover. Slide the MSR down to latch it into position. Be careful that you do not pinch the cable.
3. Install the screw provided with the MSR, as shown in Figure 6 on page 9. Use care not to overtighten the screw.

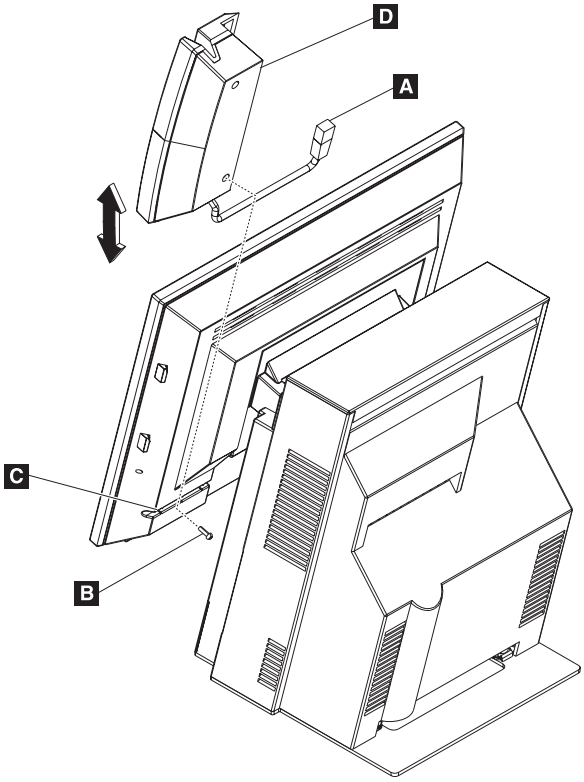


Figure 6. Installing the magnetic stripe reader (MSR)

4. Route the cable **A** in groove **C** and plug the cable connector to the rear panel of the tablet.

The MSR default baud rate is 19 200 bps, 8 data bits, no parity bit, and 1 stop bit (19200-8-N-1).

Installing the integrated customer display

Use the steps in this procedure to install the integrated customer display to the system.

1. Remove the rear cover. See “Rear cover – removing and replacing” on page 61.
2. Remove the rear inner metal cover. See “Rear metal panel cover – removing and replacing” on page 62.
3. Remove the top cover. See “Top cover – removing and replacing” on page 70.

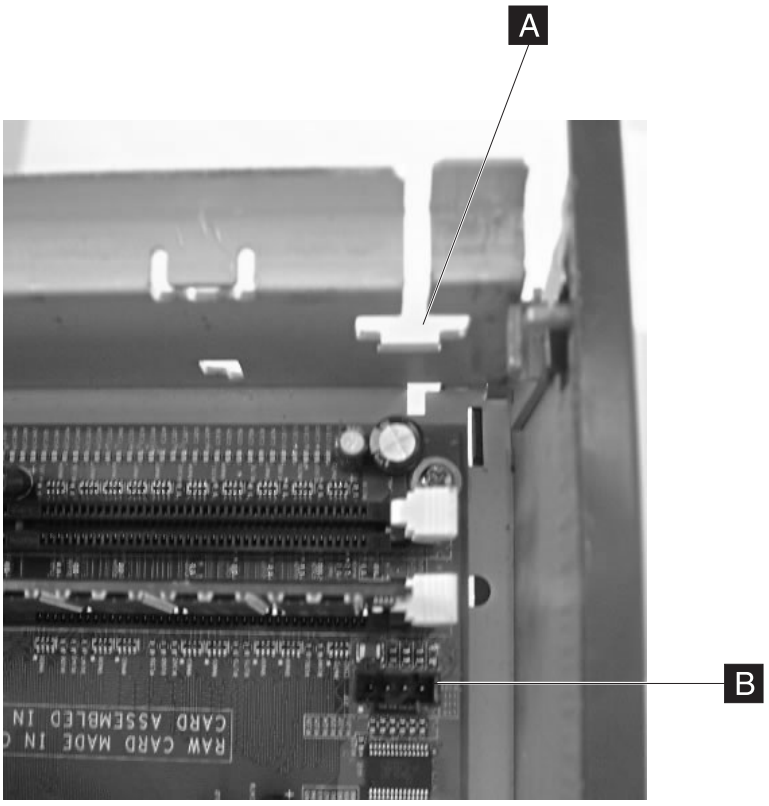


Figure 7. Routing the integrated display cables

4. See Figure 7. Insert the integrated customer display cable into the hole (**A**) in the top of the unit.
5. Connect the cable to the system board location (**B**) at the upper right.

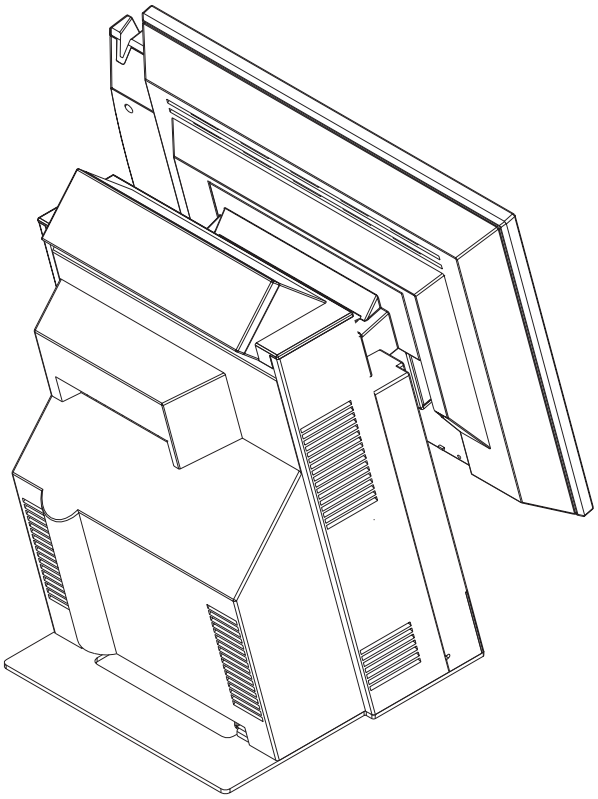


Figure 8. Installing the integrated customer display

6. Snap the integrated customer display onto the top of the system unit in place of the top cover.
7. Reinstall the rear inner metal cover and rear cover.

Installing the wireless adapter enclosure

To install the antenna enclosure to the display unit:

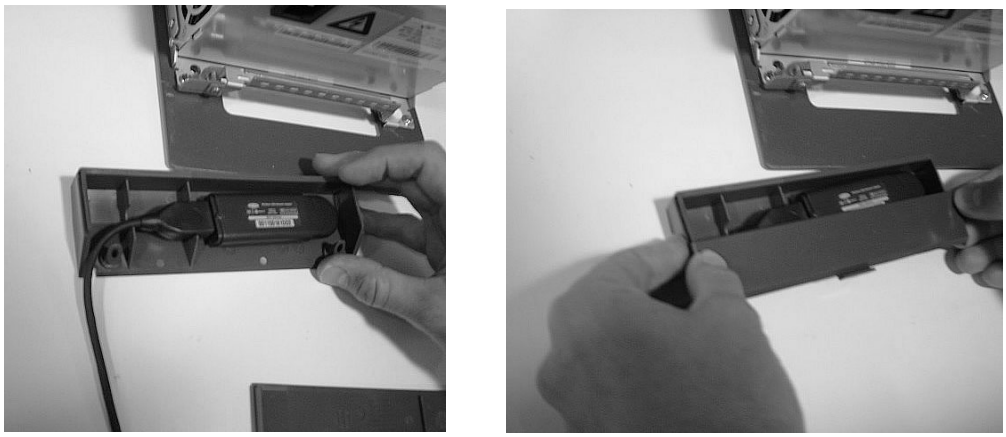


Figure 9. Assembling and installing the wireless adapter

1. First, assemble the antenna enclosure:

a. See **A** in Figure 9 on page 11. With the antenna enclosure face down, place the cable receptacle in the notches provided inside of the enclosure and route the cable to the end of the unit.
b. Place the wireless adapter into the enclosure and plug into the receptacle.
c. See **B** in Figure 9 on page 11. Slide the back cover on the antenna enclosure, ensuring that the cable is not pinched.

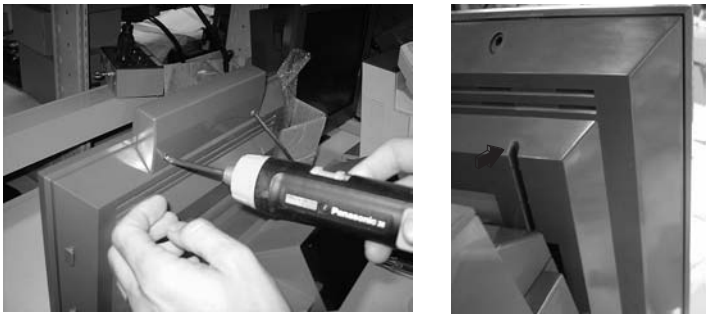


Figure 10. Installing the antenna enclosure

2. Locate the holes on the top of the display and align the bottom of the antenna-enclosure assembly with these holes.
3. See **C** in Figure 10. Insert the two screws into the back of the antenna-enclosure assembly and tighten to fasten the unit to the top of the display.
4. Route the cable down through the slot (**D**) provided on the back of the display and plug the end into one of the USB connectors at the rear of the tablet.

   Note: You may need to place the Model 514 display face down on a steady surface to secure this connection.

Attaching the I/O cables

1. Remove the rear cover as described in “Rear cover – removing and replacing” on page 61.
2. See Figure 3 on page 5 to view the connectors and for information on routing. Connect the I/O cables.
3. Route the cables as instructed in “Routing and connecting cables to the rear connector panel.”

Routing and connecting cables to the rear connector panel

This section explains how to connect cables to the rear connector panel. Use cable ties if desired. Connect the cables in the lowest row first, then work upwards connecting any additional cables.

Attention: All cables in the rear should be routed to the right of the AC power cable, when facing the rear of the machine, as shown in Figure 11 on page 13.

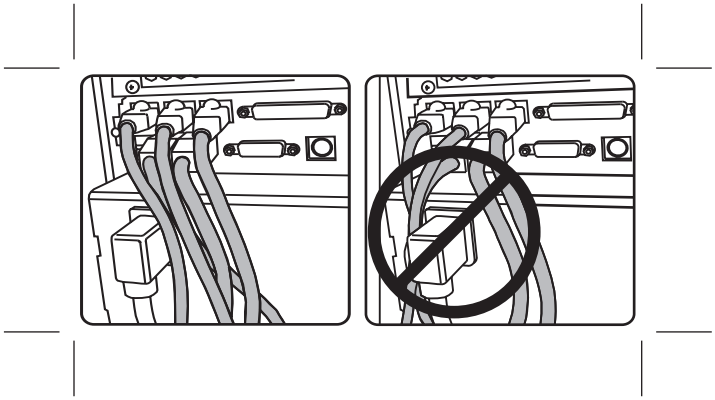


Figure 11. Cable routing label

1. Connect the cables as shown in as shown in “Rear view and connectors” on page 5. Signal cables must be routed to the right of the AC power cable, as shown in Figure 11.
2. Secure the cables to the cable-tie bar with tie-warps if desired. Cut the end of the tie-wraps flush so that no jagged edges are exposed.

   Attention: The rear cover will not close properly if signal cables are routed to the left of the AC power cable. See Figure 11 for routing.
3. For cables routed under the counter, install a cable tie around all rear connector panel cables exiting through the hole. Allow sufficient length for cleaning and servicing.

Powering on and the LED states

1. Plug the power cord into the SurePOS 500 Model 514 and then plug into an electrical outlet.

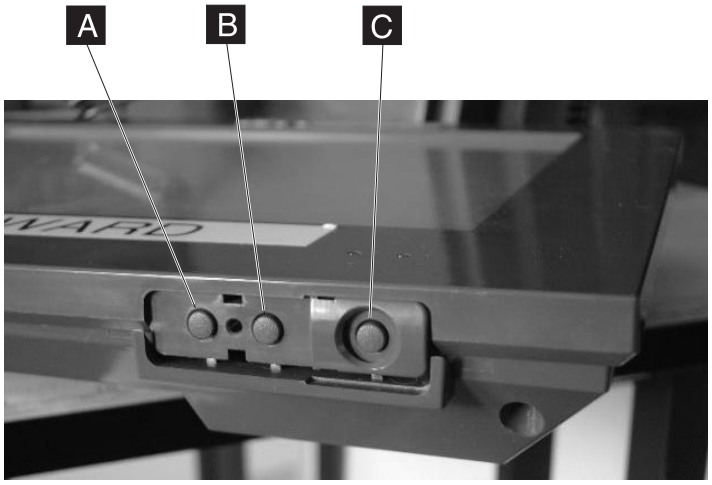


Figure 12. Location of power switch and screen brightness adjusting buttons

2. Power on the system using the power switch (**C** in Figure 12). The power light-emitting diode (LED) appears green.
3. Select the plus + (**A**) or minus – (**B**) buttons to adjust the screen brightness.
4. Verify that the system is operating correctly by checking the indicator lights (LEDs) on the front of the touch screen.

Status/power indicator	⏻	**On**: Logic working correctly. SourceACpower present and within tolerance. **Off**: The unit is powered off. **Blinking**: System is executing POST code
HDD indicator	🛢	**On** HDD is reading or writing **Off**: No HDD activity **Blinking**: HDD is reading or writing

Using the setup utility

Follow these steps to start the Setup Utility:

- Switch the power ON.
- Press Del during POST when prompted, or tap the touch screen two times. Use the keys listed in the legend bar at the bottom of the screen to make your selections or exit from the current menu. The help window on the right side of each menu displays the online help information for the currently selected item. You can use either a keyboard or the touch screen to make selections.

The Setup Utility allows you to observe information or make changes in following areas:

- Standard CMOS Features
- Advanced BIOS Features

- Integrated Peripherals
- Power Management
- PnP/PCI Configurations
- PC Health Status
- Load Optimized Defaults
- Set Password

Calibrating the touch screen

Note: Use procedure for the DOS and Linux operating systems. For Windows operating systems, use the Windows calibration utility. For additional information, see the *IBM SurePOS 500 Model 514 Operating System Installation Guide*.

To calibrate the touch screen:

1. Switch the power ON.
2. Touch the screen three times to enter the calibration mode.
3. Follow the instructions on the screen to calibrate the touch.
4. Exit and save your settings.

Chapter 3. Mounting the SurePOS 500 Model 514

Table 5 describes the various mounting configurations of the SurePOS 500 Model 514.

Table 5. Mounting configurations

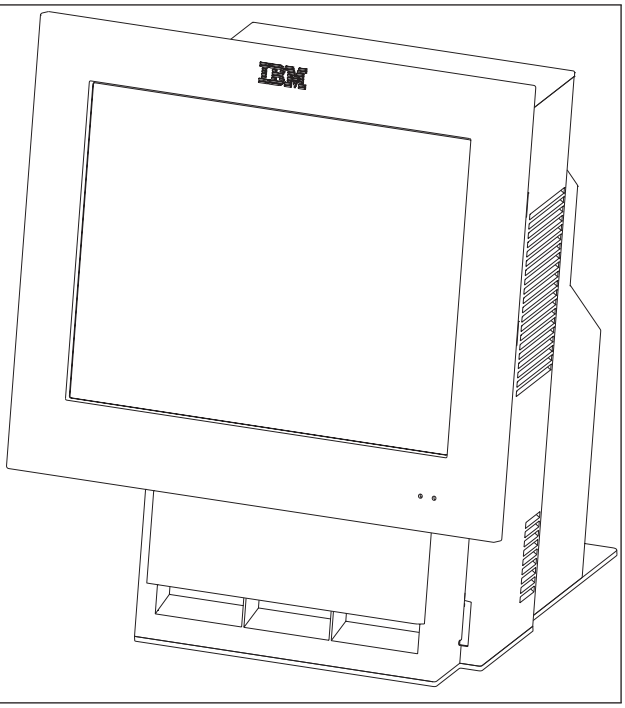
To mount using the base to the countertop, see “Mounting the base plate on a countertop” on page 20.	

Table 5. Mounting configurations (continued)

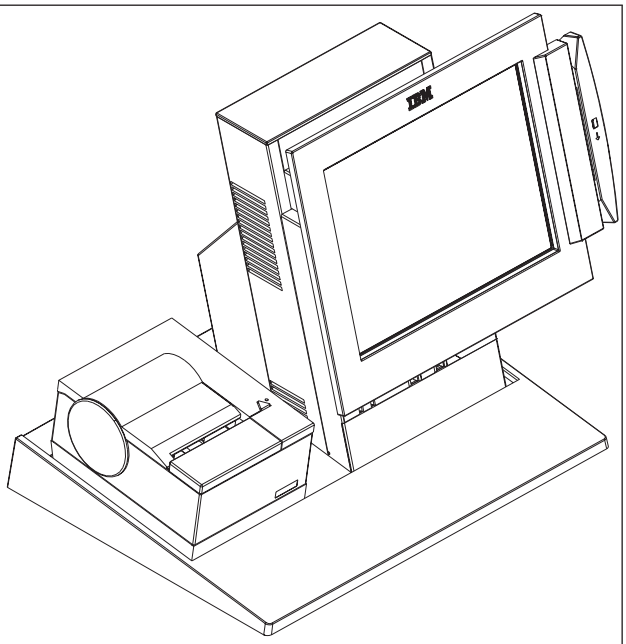
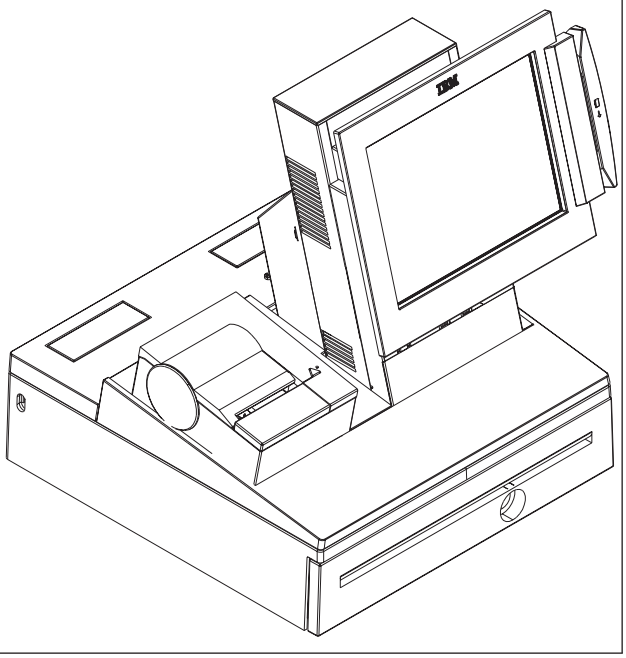
To mount to a countertop using the non-keyboard-integration tray, see “Countertop with non-keyboard-integration tray mounting” on page 23.	
To mount on a cash drawer using the non-keyboard-integration tray, see “Cash drawer” on page 28.	

Table 5. Mounting configurations (continued)

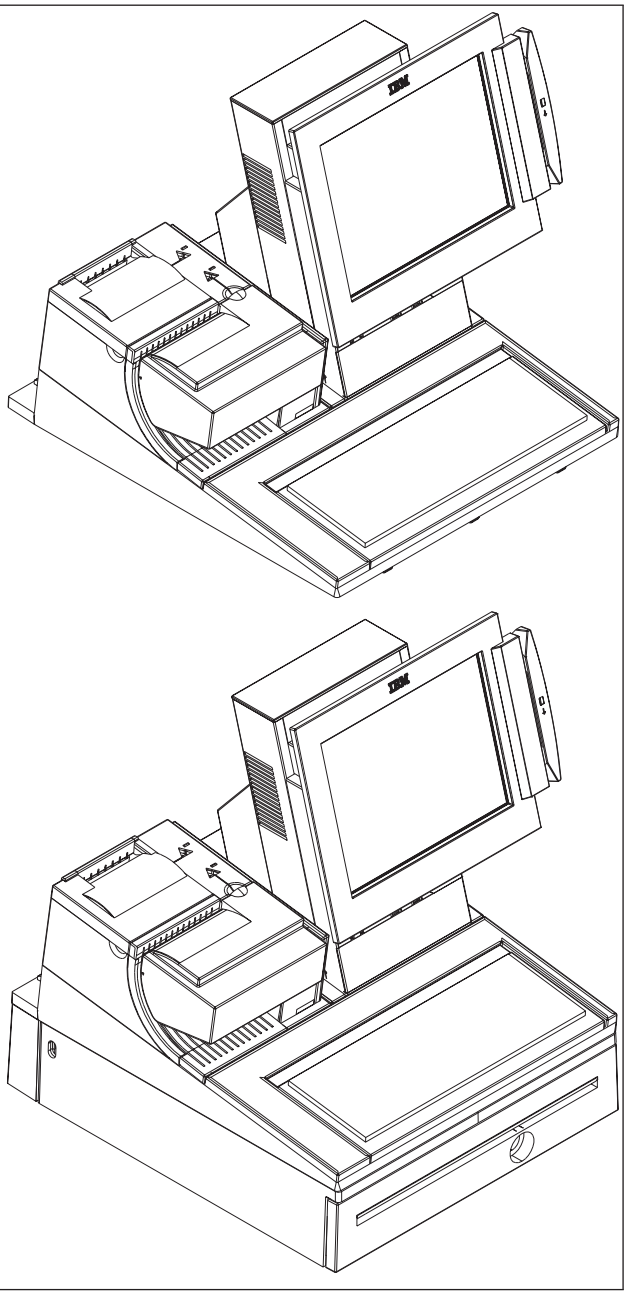
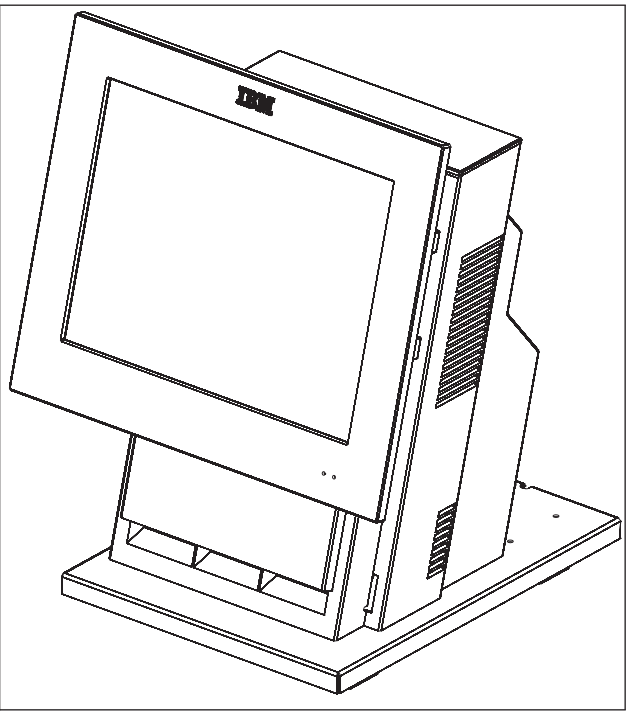
To mount on a countertop or cash drawer using the keyboard-integration tray, see “Countertop and full-size cash drawer” on page 33	

Table 5. Mounting configurations (continued)

You can also mount the Model 514 to the optional mounting foot and place on a cash drawer, see “Mounting foot- removal and replacement” on page 79.	

Before mounting your system, first install any internal and external devices on the unit. See “Installing the optional features” on page 6 for your installation configuration requirements.

Mounting the base plate on a countertop

You can mount the SurePOS 500 Series free-standing base plate to a countertop with two or four mounting screws. If you are routing the cables under the counter, you can use the base plate as a pattern to cut out your counter or use the specific mounting hole and cutout dimensions as shown in Figure 13 on page 21.

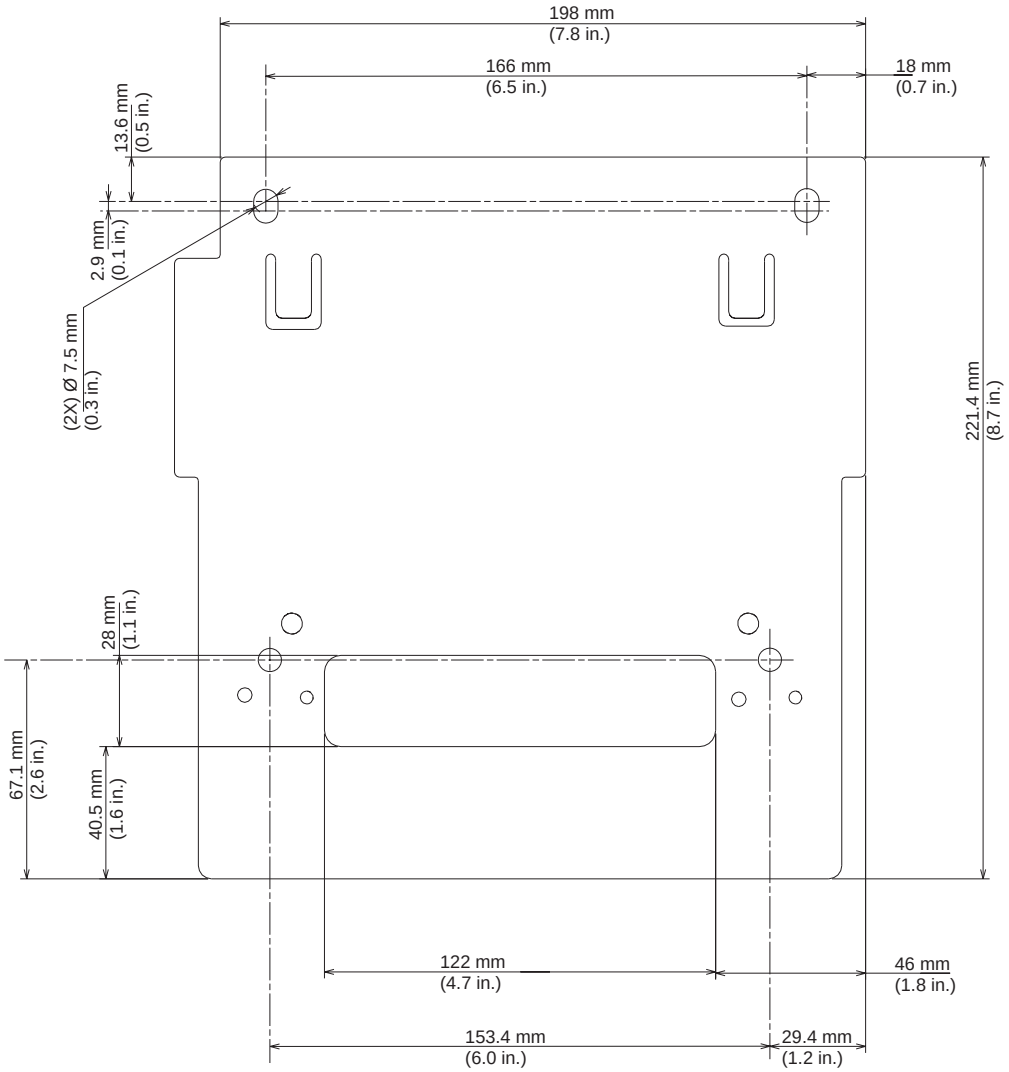


Figure 13. Base plate countertop dimensions

Route all cables (including the AC power cord) through the cable-access hole in the base plate. If you are routing the cables on top of the counter, route all cables out the rear of the system. Lay the cables flat along the countertop.

To mount the system directly on a countertop:

Note: Before you begin, acquire two mounting screws. These are not supplied.

1. Remove the rear cover.
2. Remove the cable-tie bar by loosening the thumbscrew.
3. Optionally, remove the power supply for easy access to the screws. See “Power supply – removing and replacing” on page 68.
4. Use the SurePOS 500 Model 514 base plate as a pattern for drilling two mounting-screw holes at location **A** in Figure 14. If you plan to route the cables underneath the counter, use the base plate as a pattern to drill the cable opening and for drilling the holes for the mounting screws.
5. Attach the system to the countertop with two mounting screws.

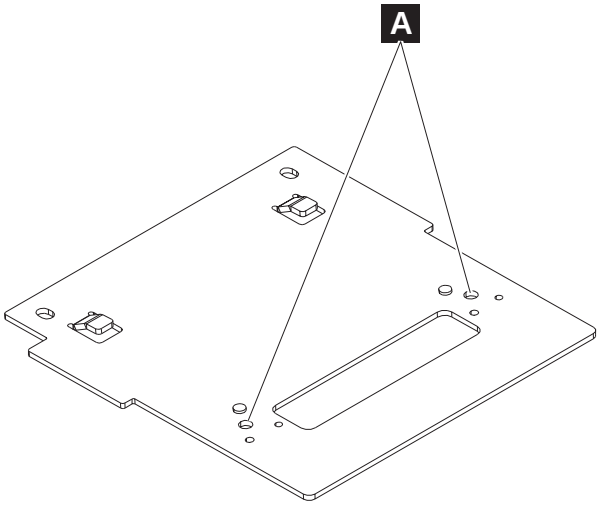


Figure 14. Attaching the base foot to the countertop

6. Swing out the cable-tie bar by loosening the thumbscrew.
7. Connect the power cable to the power supply.
8. Connect the peripheral device cables to the appropriate ports on the rear connector panel. Make the connections on the bottom row of the connector panel first and work upward. Ensure that the cables are routed to the right of the power cord.

   Note: For a diagram of the port layout, see “Routing and connecting cables to the rear connector panel” on page 12.
9. Rotate the cable-tie bar back into place and tighten the thumbscrew.
10. Use tie-wraps to secure cables to the cable-tie bar, if desired.
11. Replace the rear cover.
12. Plug the AC power cord into an AC outlet.
13. After your installation is complete, switch ON the power to the SurePOS 500 Model 514 and verify that the system is operating correctly by checking the indicator lights (LEDs) on the front of the touch screen. See “Powering on and the LED states” on page 14.
14. Install your software. Refer to *IBM SurePOS Model 514 Operating System Installation Guide*.

Non-keyboard-integration tray mounting

Some integration trays for countertop are designed to accommodate a keyboard and cash drawers, and some are not. The procedures in this section are for non-keyboard-integration tray mounting for the countertop and cash drawer. For keyboard-integration tray mounting, go to “Countertop and full-size cash drawer” on page 33.

Countertop with non-keyboard-integration tray mounting

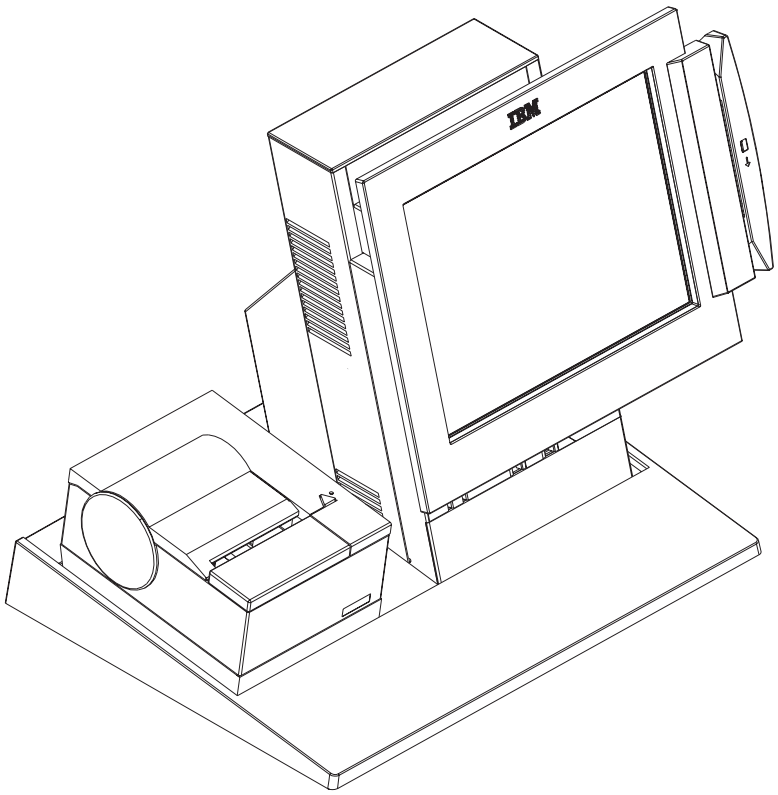


Figure 15. Countertop with non-keyboard-integration tray mounting

The countertop integration tray can be used as a free-standing unit or secured to a countertop using mounting screws. Use the countertop integration tray drawing that comes with it as a pattern for drilling the four mounting holes and for the cable opening, if you plan to route the cables through the countertop. Four screws (not provided) are required to mount the integration tray to a countertop. For specific mounting hole and cutout dimensions, see Figure 16 on page 24.

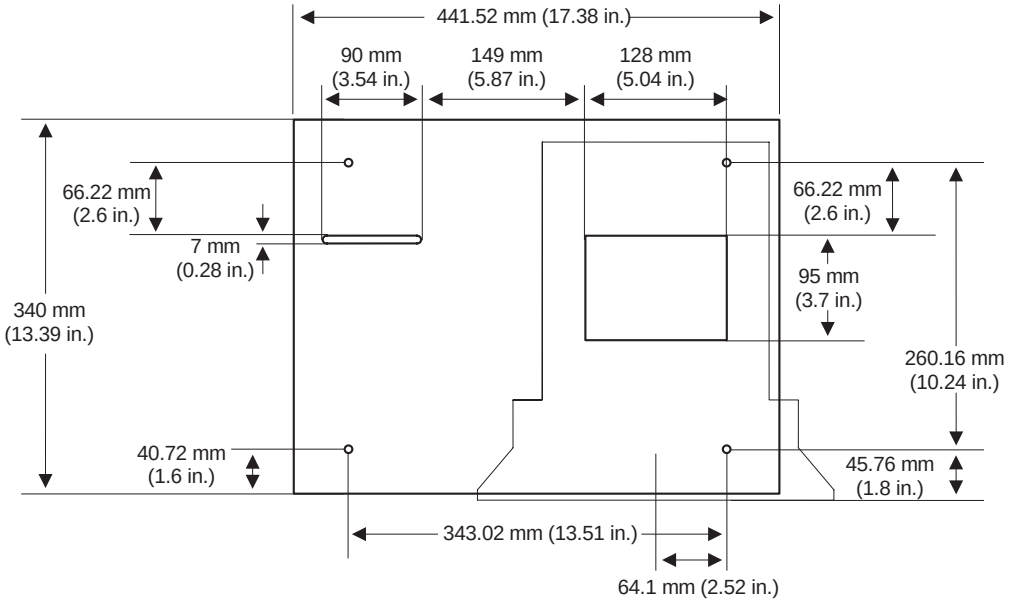


Figure 16. Countertop integration tray pattern with display and countertop cutout on right side

Note: Acquire the four mounting screws before you begin this installation.

1. For a free-standing unit, ensure that the four rubber feet **H** are installed on the bottom of the countertop integration tray (as shown in Figure 19 on page 26).
2. To secure the countertop integration tray to a countertop, perform the following steps:
   a. Detach the plastic fence from the countertop integration tray. To detach the plastic fence:
      1) Spread the rear sides away from the tray as shown in Figure 17.

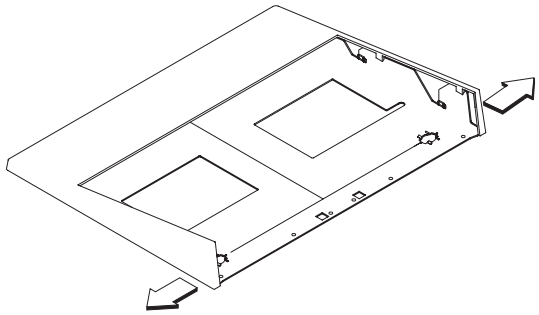


Figure 17. Detaching the fence from the tray

      2) Alternating from side to side, slide the plastic fence **B** about 7 mm (0.25 in.) until the plastic fence is detached from the metal integration tray **A**, as shown in Figure 18 on page 25.

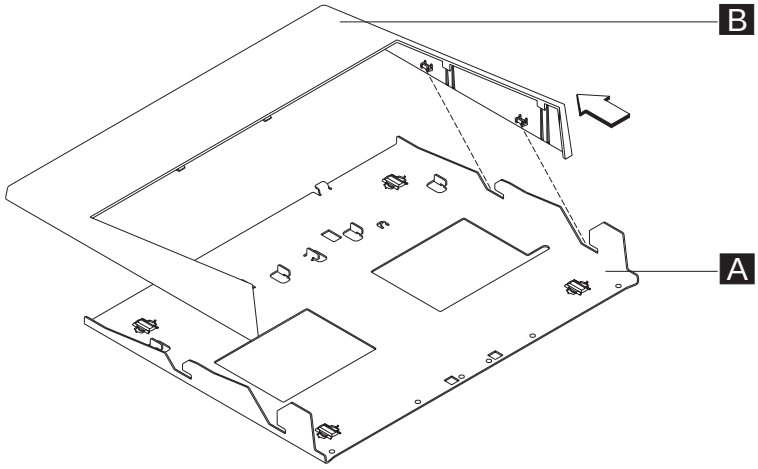


Figure 18. Sliding the fence off of the integration tray

b. Drill the four mounting holes and cut a hole in the countertop for cables, if needed. Use Figure 16 on page 24 or the openings in the integration tray as a pattern for drilling mounting holes and a cable opening in the counter. See Figure 19 on page 26 for reference.

c. Remove the four rubber feet located on the bottom of the integration tray. See Figure 19 on page 26 for the location of the feet.

d. Attach the integration tray to the countertop using four mounting screws, one at each corner of tray. The four mounting screws are *not* provided with the kit. Use 60-mm (0.25-in.), pan-head screws.

e. Reattach the fence to the integration tray.

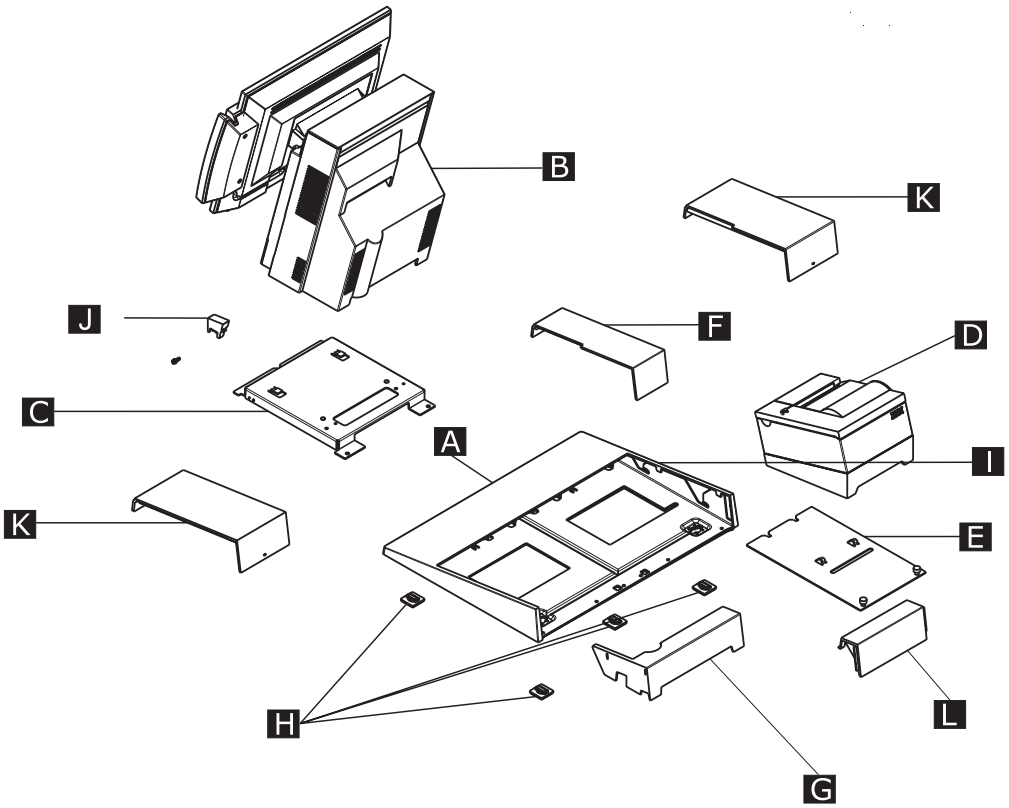


Figure 19. Overview of integration tray, SurePOS 500 Model 514, printer, and filler panels

Table 6. Countertop integration tray legend

A	Fence	G	System filler panel
B	SurePOS 500 Model 514	H	Four rubber feet
C	Mounting plate	I	Countertop integration tray
D	4610 SureMark Printer	J	Small filler panel
E	Mounting plate for 4610 SureMark printer	K	Filler panel used when printer is absent
F	Center filler panel	L	Filler panel used when printer is present

3. Remove the rear cover as shown in “Rear cover – removing and replacing” on page 61.
4. Attach small filler panel **J** to the mounting plate **C**.
5. Remove the base plate and place the unit on the mounting plate **C**.

6. Attach the SurePOS 500 Model 514 and its mounting plate **C** to the right side of the integration tray **I** as shown in Figure 19 on page 26. Slide the front of the mounting plate under the appropriate pair of tabs on the tray and secure the rear of the mounting plate to the tray with two thumbscrews.
7. Install the IBM 4610 SureMark Printer on the integration tray. Go to “Installing IBM 4610 SureMark Models TF6 or TF7 printers” on page 44 for detailed instructions on mounting plate installation and printer cable routing.
   a. Attach the printer to its mounting plate as shown in Figure 38 on page 46.
   b. Install the printer and the printer cables and route the cables as shown in Figure 37 on page 46.
8. Connect the peripheral device cables to the appropriate ports on the rear connector panel. Make the connections on the bottom row of the connector panel first and work upward. Ensure that the cables are routed to the right of the power cord.

   Note: For a diagram of the port layout, see “Routing and connecting cables to the rear connector panel” on page 12.
9. Use tie-wraps to secure cables to the cable-tie bar, if desired.
10. Replace the rear cover.
11. Plug the AC power cord into an AC outlet.
12. Replace the SurePOS 500 Model 514 rear cover.
13. Install the filler panels after you route all the cables to your system.
    a. Install the outer ends of the filler panels **B** into the integration tray. Notice that the printer filler panel, shown on the right, is narrower than the system filler panel. Also, the system filler panel has a bottom slot that allows you to route the cables out the back.
    b. Use the narrow filler panel **A** to lock the filler panels together between the system and the printer.

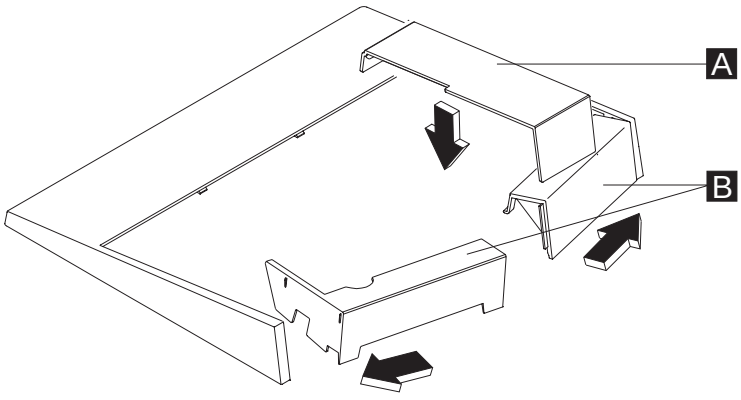


Figure 20. Connecting filler panels

Note: Depending on your desired configuration, you could have unused filler panels.

14. Plug the system and printer AC power cords into an AC outlet.
15. After your installation is complete, press the printer power switch under the printer cover to power On the printer.
16. Switch ON the power to the SurePOS 500 Model 514. Verify that the system is operating correctly by checking the indicator lights (LEDs) on the front of the touch screen. See “Powering on and the LED states” on page 14.

17. Install your software. Refer to *IBM SurePOS Model 514 Operating System Installation Guide*.

Installing filler panels without a printer

For systems without a printer:

1. Install the mounting plate in the ***center*** of the base using the removable thumbscrews. See Figure 19 on page 26.
2. Install printer panel **G** first and use filler panels **K** to lock in filler panel **G** onto the tray.

Cash drawer

You can mount the SurePOS 500 Model 514 on a full-size cash drawer by first installing an integration tray on the cash drawer. Follow these steps:

1. To mount the integration tray onto the cash drawer:
   a. Tilt the integration tray forward, and slide the tabs into the slots near the front of the drawer. Lay the tray down on the cash drawer.
   b. Attach the cash drawer integration tray to the cash drawer by tightening two M6x8 screws **A** at the rear of tray, as shown in Figure 21.

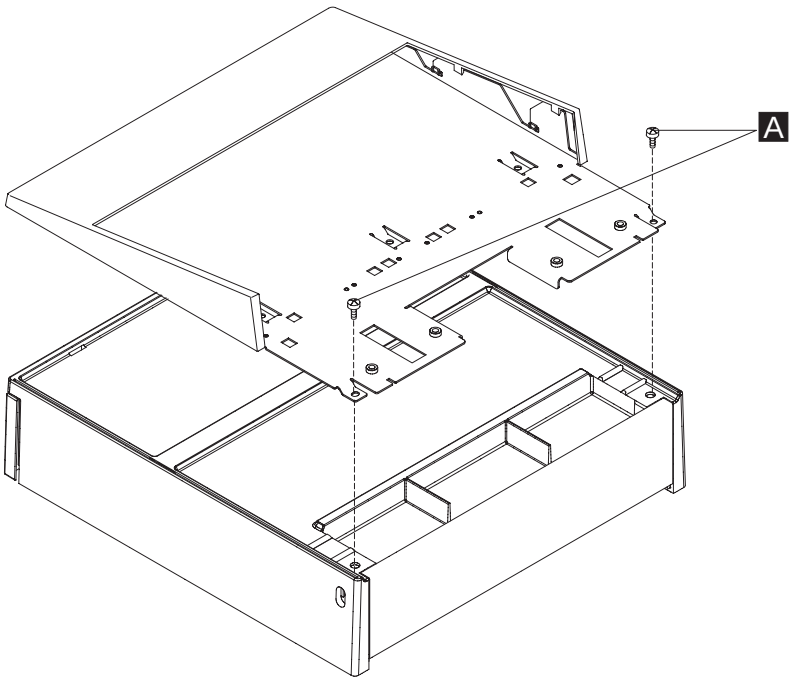


Figure 21. Attaching the integration tray to cash drawer

2. To install the SurePOS 500 Model 514 on an integration tray:
   a. Remove the rear cover.
   b. Remove the base plate. See “Base plate - removal and replacement” on page 77.
   c. Attach the system base to the mounting plate **B** with the screws **C**, as shown in Figure 22.
   d. Open the rear cash drawer cover **D** by pushing in the two buttons located on each side of the cash drawer. This provides access to the cash drawer connector for cabling it to the system. You will also route cables inside the cover through hole **E** and to the system.

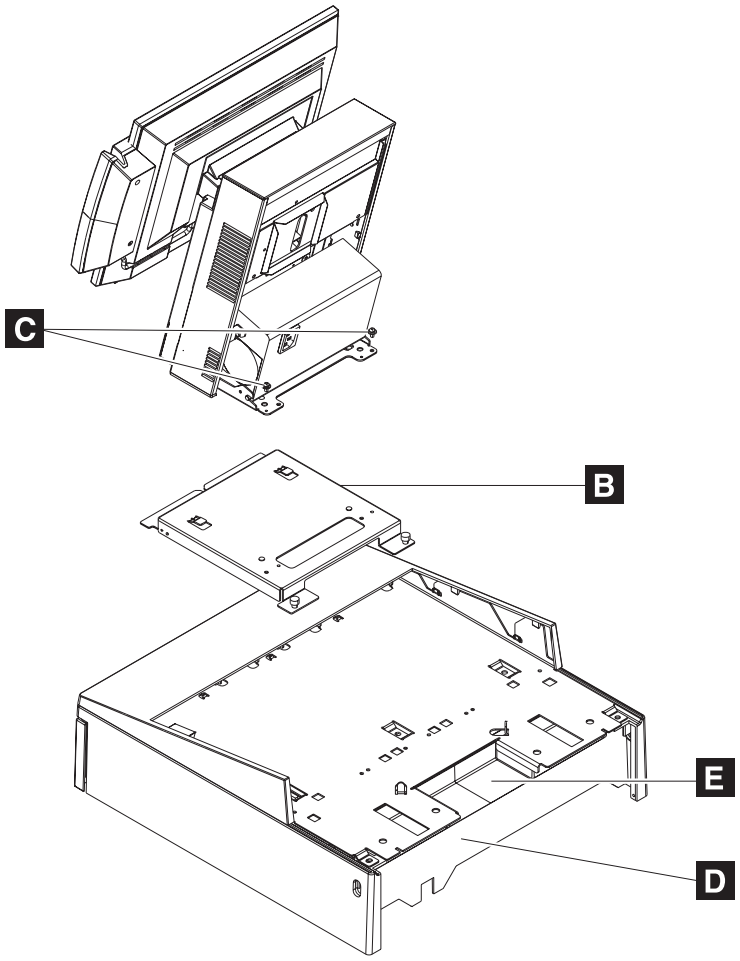


Figure 22. Attaching a mounting plate to center of cash-drawer integration tray

3. For installations **without a printer**, install the mounting plate in the *center* of the base using the removable thumbscrews. Place the filler panels on both sides. See Figure 19 on page 26. Install printer panel **G** first and use filler panels **K** to lock in filler panel **G** onto the tray.
4. Install the IBM 4610 SureMark printer on the integration tray with the SurePOS 500 Model 514. Go to “Installing IBM 4610 SureMark Models TF6 or TF7 printers” on page 44 for detailed instructions on printer cable routing, RS-232 printer switch settings, and mounting plate installation:
   a. Plug the data and power cables into the printer, routing the data cable toward the rear connector panel as shown in Figure 37 on page 46.

b. Attach the SurePOS 500 Series base mounting plate **A** to the right side of the integration tray. Slide the front of the plate under the appropriate pair of tabs on the integration tray. Secure the rear of the plate to the tray with two thumbscrews as shown in Figure 23.

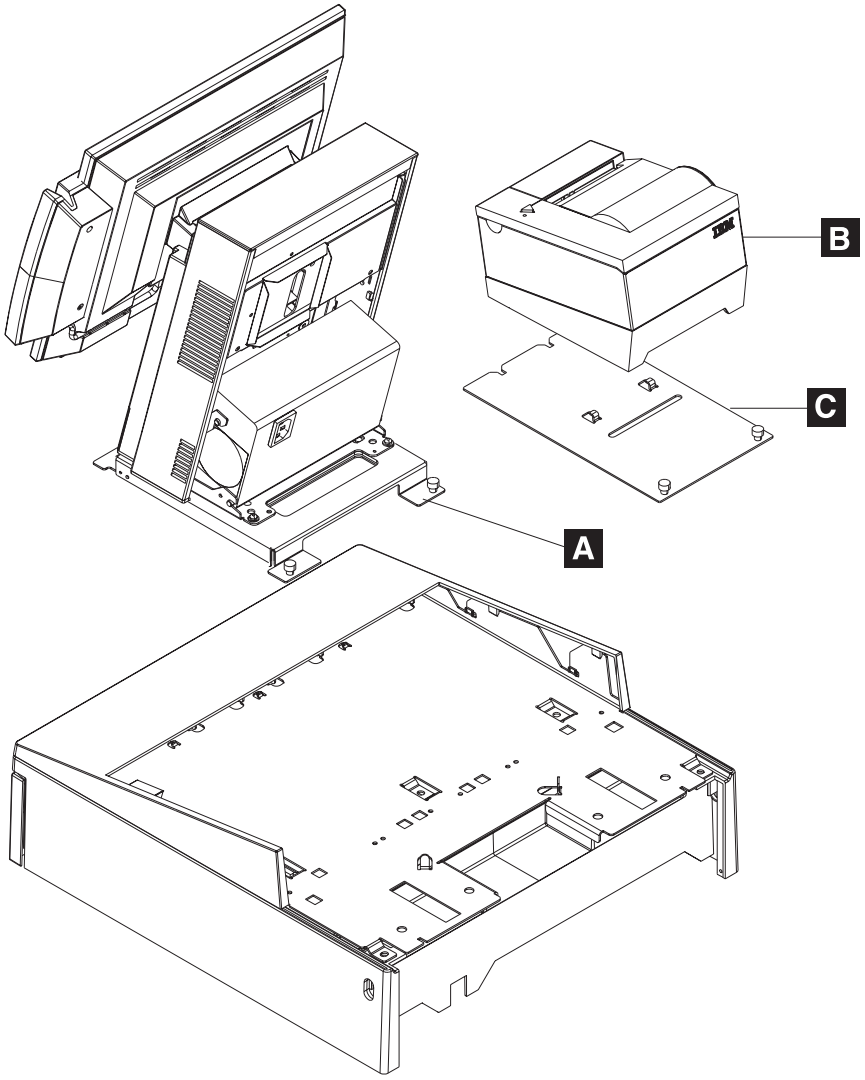


Figure 23. Attaching mounting plate to the cash drawer integration tray

c. Attach the printer base mounting plate **C** to the integration tray. Slide the front of the plate under the appropriate pair of tabs on the integration tray. Secure the rear of the plate to the tray with two thumbscrews.

d. Attach the printer **B** to the printer base mounting plate by sliding it onto the two tabs until it locks in place.

5. Plug the cash-drawer cable into the cash drawer and route it under the cable-tie bar to the rear connector panel.
6. Plug the data and power cables into the printer, routing the data cable toward the rear connector panel.
7. Route all cables through the hole at the center rear of the cash drawer. Then route the cables through the rear of the system, laying them flat on top of the cash-drawer integration tray.

8. If you are installing a distributed-character display or an all points addressable (APA) display, see “Mounting a distributed customer display and APA display to a cash drawer” on page 42.
9. Connect the peripheral cables to the appropriate ports on the rear connector panel. See “Routing and connecting cables to the rear connector panel” on page 12.

   Note: If you are installing a distributed-character display, route the cable through the unattached rear modesty panel **C** in Figure 24 on page 32.
10. Use tie-wraps to secure cables to the cable-tie bar. Be sure to run cables to the right of the power cable when viewed from the rear.
11. Replace the rear cover.
12. Install the filler panels after you route all the cables to your system. Note that filler panel **A** locks filler panels **B** onto the tray. Install the filler panels after you have routed all of the cables.
    a. Install the outer ends of the filler panels **B** into the integration tray. Notice that the printer filler panel, shown on the right, is narrower than the system filler panel. Also, the system filler panel has a bottom slot that allows you to route the cables out the back.
    b. Use the narrow filler panel **A** to lock the filler panels together between the system and the printer.

    Note: Depending upon your desired configuration, you could have unused filler panels.
13. Tilt the modesty cover **C** so the front hooks attach to the tray; then push down until the cover snaps into place.

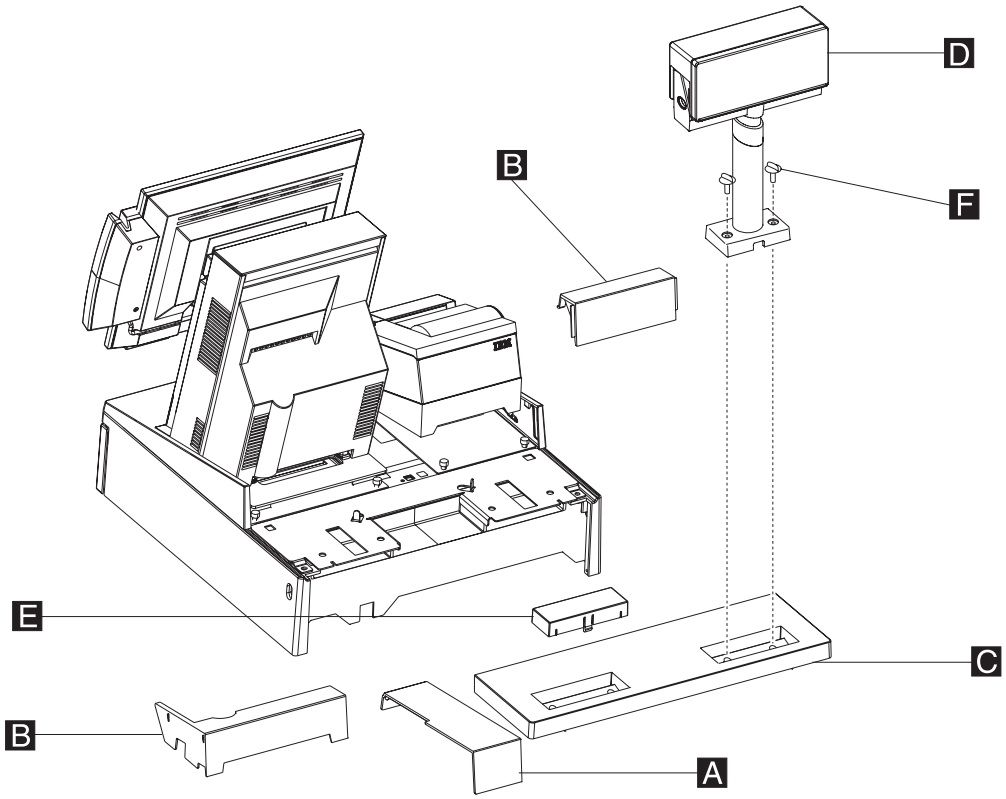


Figure 24. Attaching filler panels and the rear modesty cover

14. Attach the distributed customer display **D** to the cash drawer with two thumbscrews **F** and snap the entire unit into place at the rear of the tray.
15. Close the cash-drawer rear cover.
16. Plug the AC power cords for the printer and the system into an AC outlet.
17. After your installation is complete, press the printer power switch under the printer cover to power on the printer.
18. Switch ON the power to the SurePOS 500 Model 514. Verify that the system is operating correctly by checking the indicator lights (LEDs) on the front of the system. See “Powering on and the LED states” on page 14.
19. Install your software. Refer to *IBM SurePOS Model 514 Operating System Installation Guide*.

Keyboard-integration tray

This section describes how to install a keyboard tray with the SurePOS 500 Model 514 .

Countertop and full-size cash drawer

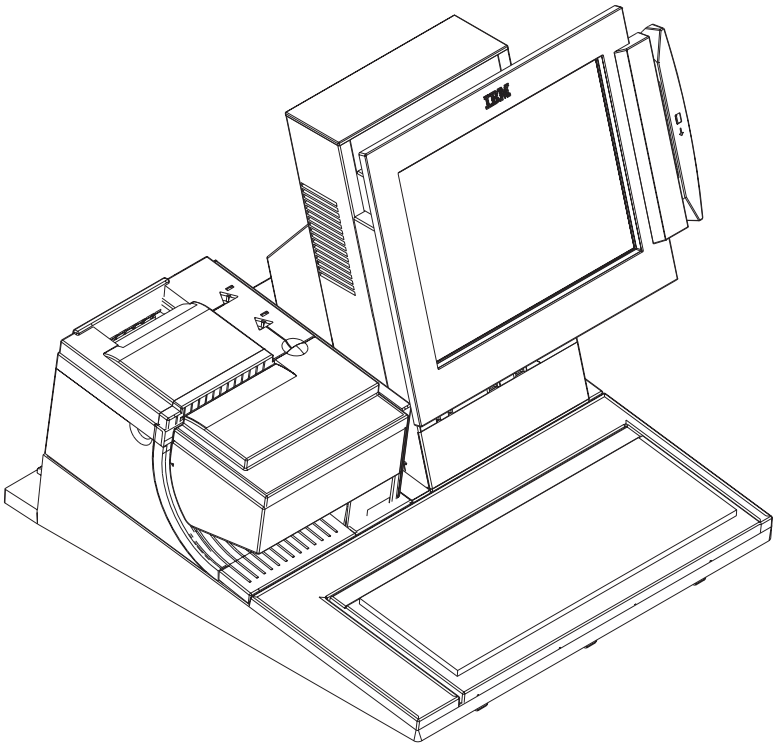


Figure 25. Full-size keyboard-integration tray on a countertop

The full-size keyboard-integration tray can be used as a free-standing unit, secured to a countertop using mounting screws or mounted to a cash drawer. The SurePOS 500 Model 514 is mounted with the 4610 SureMark printer using the full-size keyboard-integration tray.

Important

Devices such as the printer, integrated character display, and keyboard are mounted the same way when the full-size keyboard-integration tray is used for a countertop or cash drawer mount. Therefore, the instructions for the countertop and cash drawer mount have been combined.

Mounting the integration tray to a countertop

Use the countertop keyboard-integration tray as a pattern for drilling the four mounting holes and for the cable opening, if you plan to route the cables through the countertop.

Note: Four screws (not provided) are required to mount the integration tray to a countertop.

1. Prepare the SurePOS 500 Model 514 to mount to the keyboard-integration tray:

a. Remove the rear cover.

Notes:

1) If you are routing cables underneath the counter, route them through the cable-access hole in the counter.
2) If you are routing cables on top of the counter, route them out the back of the system. Lay them flat along the countertop.

2. For a free-standing unit, ensure that the four rubber feet **A** are installed on the bottom of the countertop keyboard integration tray (as shown in Figure 26 on page 35).
3. To secure the **full-size keyboard-integration tray to a countertop**, perform the following steps:
   a. Remove the fence **E** from the countertop keyboard-integration tray by removing the screws as shown in Figure 26 on page 35.
   b. Drill the four mounting holes and cut a hole in the countertop for cables if needed. Use the openings in the integration tray as a pattern for drilling mounting holes and a cable opening in the counter.
   c. Remove the rubber feet **A** located on the bottom of the integration tray. See Figure 26 on page 35 for location of feet.
   d. Attach the keyboard-integration tray to the countertop using four mounting screws, one at each corner of tray. The four mounting screws are not provided with the kit. Use 60-mm (0.25-in.) pan-head screws.
   e. Reattach the fence **E** to the tray with the six small screws.

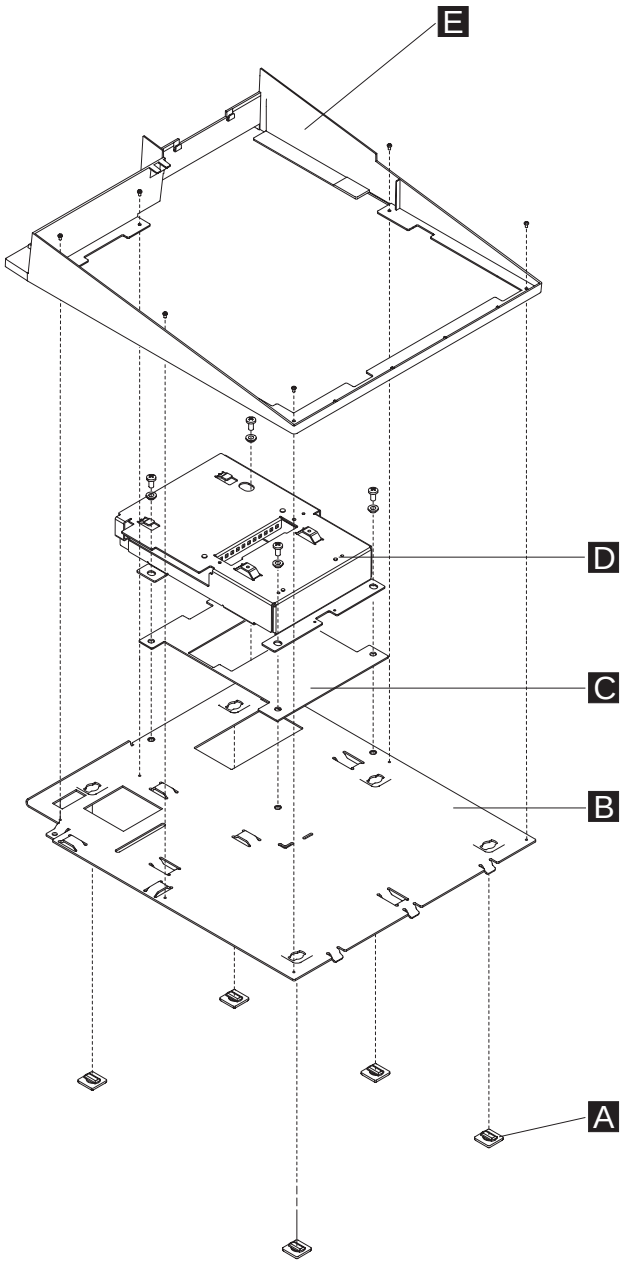


Figure 26. Countertop keyboard-integration tray assembly

Table 7. Countertop integration tray legend

A	Four rubber feet	D	Mounting plate
B	keyboard-integration tray	E	Fence
C	Insulator plate		

4. Prepare the SurePOS 500 Model 514 to mount to the keyboard-integration tray:
   a. Remove the rear cover.

      Notes:

      1) If you are routing cables underneath the counter, route them through the cable-access hole in the counter.

2) If you are routing cables on top of the counter, route them out the back of the system. Lay them flat along the countertop.

5. Remove the rear cover on the cash drawer. While pressing in on the two buttons located on the sides of the cash drawer, pull back on the rear cover back to remove it. Discard this rear cover. A new rear cover is used for installation of the keyboard integration kit.
6. Install the keyboard-integration tray on a cash drawer:

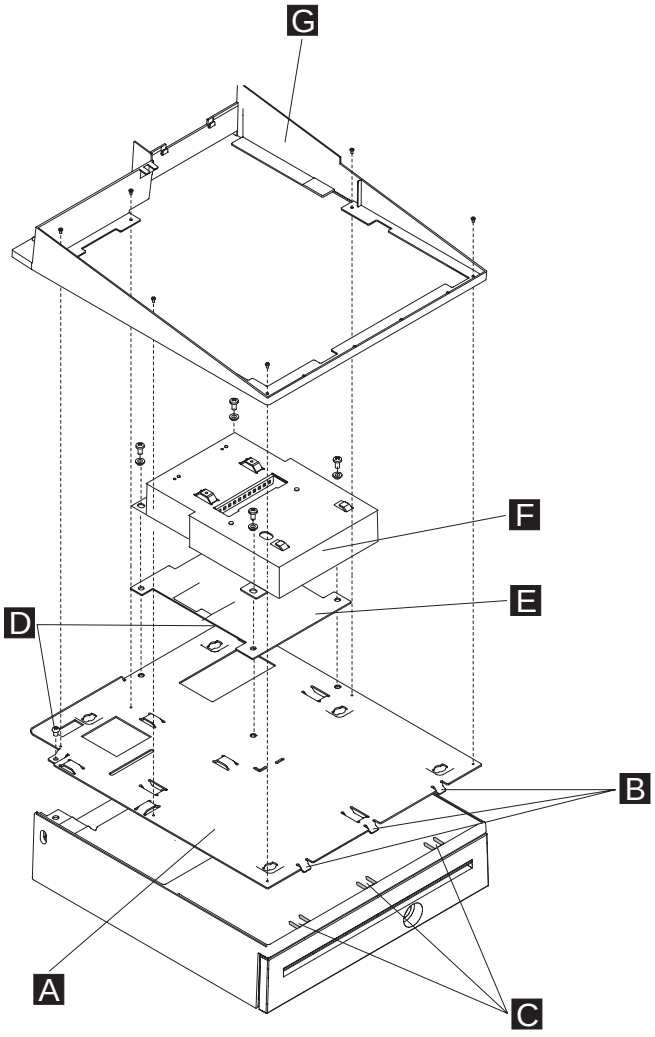


Figure 27. Installing the keyboard-integration tray on a cash drawer

   a. Tilt the integration tray down so the three tabs **B** align with the three tab holes **C** on the cash drawer as shown in Figure 27. Set the integration tray down on the cash drawer while aligning the screw holes **D** with holes on the cash drawer.
   b. Secure the integration tray to the cash drawer with two screws at location **D** .
7. Place the plastic insulator plate **E** on the integration tray while aligning the cutout and the four screw holes.
8. Attach the mounting plate **F** to the integration tray with four plastic washers and screws as shown in Figure 27.
9. Attach the fence **G** to the integration tray with six small screws.

10. Remove the base plate. See “Base plate - removal and replacement” on page 77.
11. Attach the SurePOS 500 Model 514 to the mounting plate as shown in Figure 28. Slide the unit from the back toward the front until the frame fits into the tabs **B**, and the screws **A** and mounting holes **C** are lined up. Tighten the two base-bracket screws.

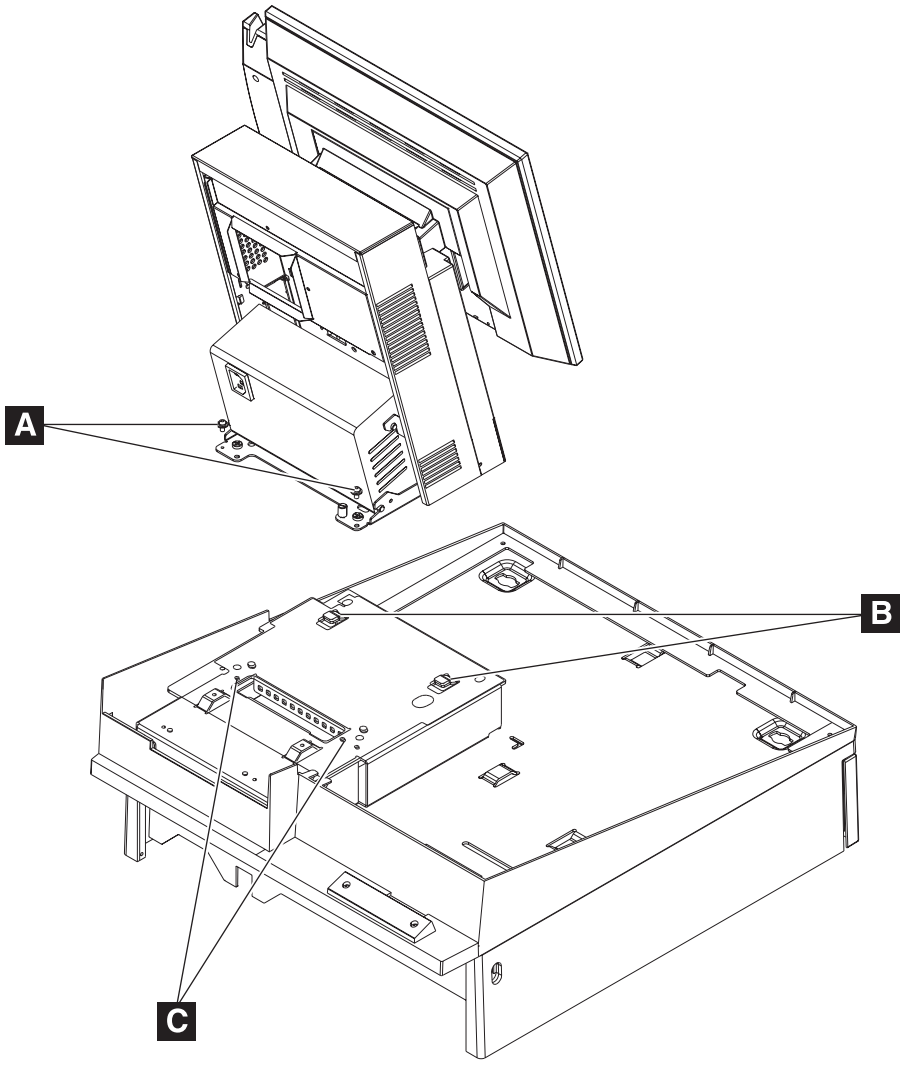


Figure 28. Installing the SurePOS 500 Model 514 onto the integration tray

12. Install the IBM 4610 SureMark printer on the integration tray, by performing the following steps:

    Note: See the *4610 SureMark Point-of-Sale Printers User's Guide* for detailed information about switch settings and cabling for the printer.

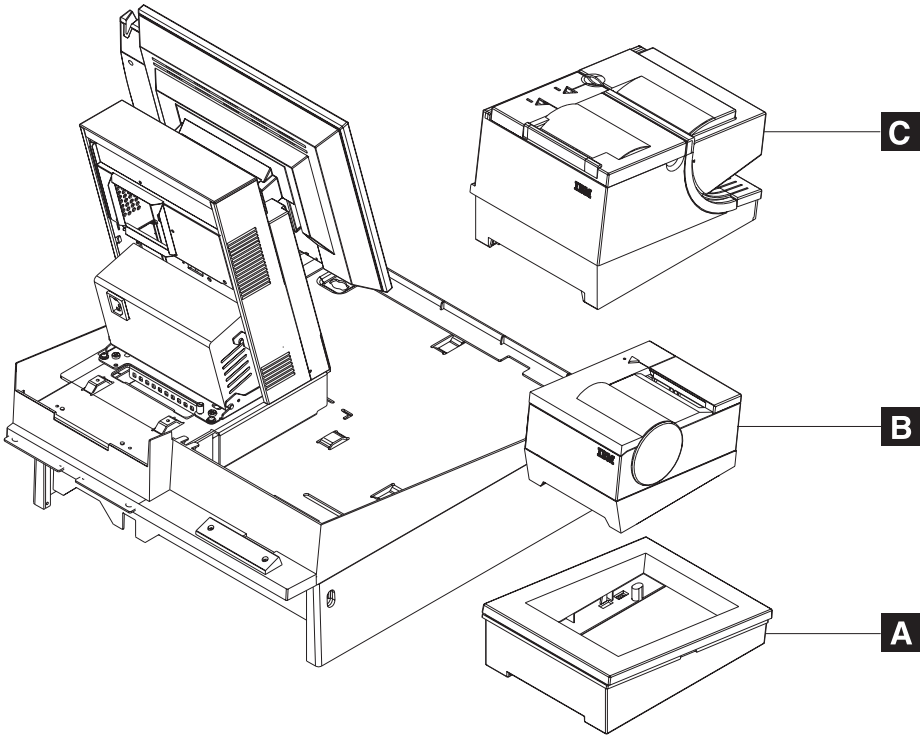


Figure 29. Installing the 4610 printer onto the integration tray

Table 8. 4610 SureMark printer on a full-size keyboard-integration tray legend

A	Printer stand for the 4610 Models TF6 and TF7 printers
B	4610 Models TF6 and TF7 printers (small footprint)
C	4610 Models TG3, TG4 and TG5 printers

a. Install the printer cables and route the cables as shown in Figure 37 on page 46.
   - For the small-footprint 4610 SureMark Models TG3, TG4 and TG5 printers B , first insert the plastic printer base A onto the integration tray and then place the printer into the printer base.
   - For the large-footprint 4610 SureMark Model TG3 and TG4 printers, place the printer directly onto the integration tray.

13. To install the keyboard, perform the following steps. See Figure 30 on page 39 for callout locations:

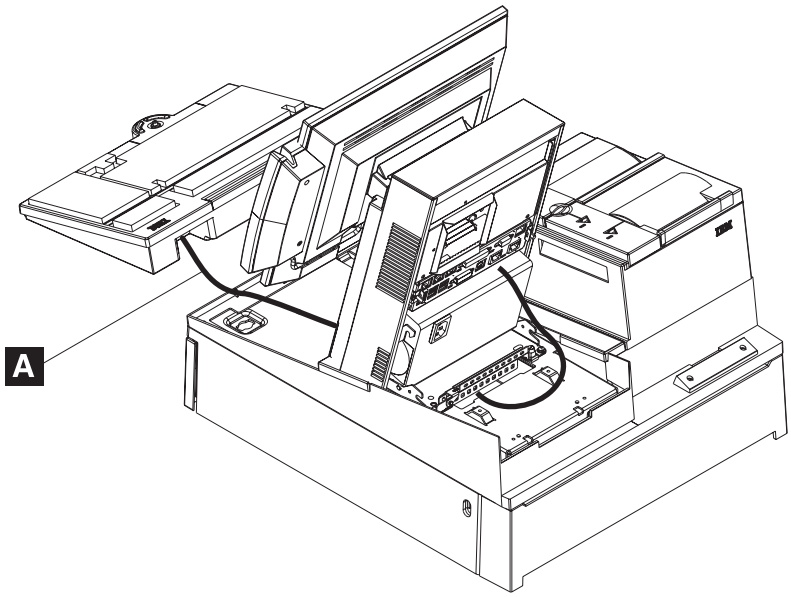


Figure 30. Installing the keyboard onto the integration tray

a. Attach the keyboard cable **A** to the IBM PS/2® port on the rear connector panel.
b. Place the keyboard on the integration tray while pushing the excess keyboard cable back under the filler panel.

14. Prepare the distributed customer display to be installed on an integration tray.
    a. Route the distributed customer display cable through the mounting post (and post extension, if used) and plug the cable into the display.

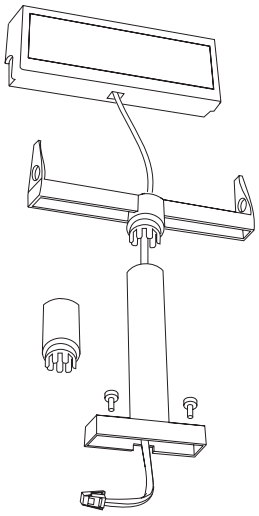


Figure 31. Attaching the distributed customer display cable

b. Attach the character display's top to its post by pressing the display down on the post until it snaps into place.

15. To install a distributed customer display or an APA display, perform the following steps:

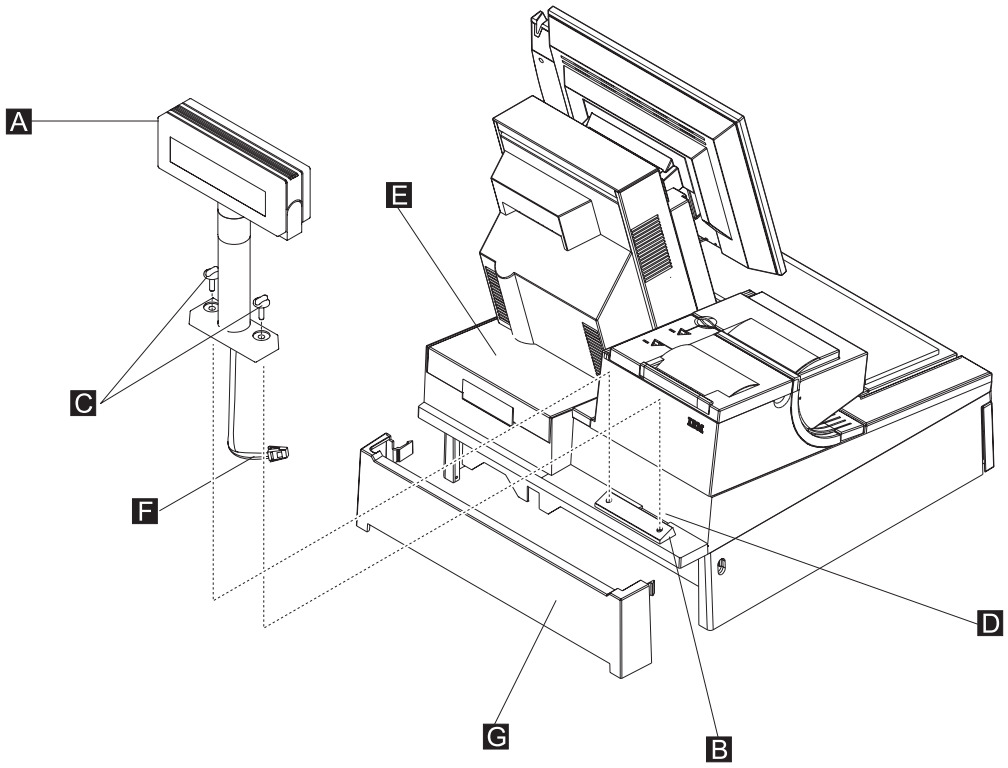


Figure 32. Installing the distributed customer display onto the integration tray

a. Route the display cable **F** through hole **D**, as shown in Figure 32. You might need to place the display on its side to connect the display cable to the system unit rear connector panel.

b. Route the display cable to the rear connector panel, passing it under the cable-tie bar, and plug it into the 15-pin serial connector, as shown in “Rear view and connectors” on page 5.

c. Attach the distributed customer display **A** to the cash drawer at location **B** with two thumbscrews **C**.

16. Plug the AC power cord to the power supply.
17. Connect the peripheral cables to the appropriate ports on the SurePOS 500 Model 514 rear connector panel. Make the connections on the bottom row of the panel first and work upward. See “Routing and connecting cables to the rear connector panel” on page 12.

    Notes:

    a. If you are routing the cables under the counter, route all cables (including the AC power cord) through the cable-access hole.

    b. If you are routing the cables on top of the counter, route all cables out the rear of the system. Lay the cables flat along the countertop.

18. Use tie-wraps to secure cables to the integration tray.
19. Replace the rear cover and install the rear filler panel.
20. Attach the cash-drawer rear cover by aligning the tabs with the buttons, and push in on the cover.
21. Plug the system and printer AC power cords into an AC outlet.
22. After your installation is complete, press the printer power switch under the printer cover to power on the printer.

23. Switch ON the power and verify that the system is operating correctly by checking the indicator lights (LEDs) on the front of the touch screen. See “Powering on and the LED states” on page 14.
24. Install your software. Refer to *IBM SurePOS Model 514 Operating System Installation Guide*.

Installing additional peripheral devices

Attention: Before you use the following procedures to install additional peripheral devices, see Appendix E, “Safety information,” on page 123.

Mounting a distributed customer display and APA display to a cash drawer

The SurePOS 500 Series provides a powered, 15-pin, serial port for attaching a distributed customer display, APA character-graphic display, or other device requiring a powered serial connection. The SurePOS 500 Series distributed customer display is mounted behind the cash-drawer modesty panel. It can also be mounted to a countertop with customer-provided hardware. Use these instructions to mount a character display to a cash drawer.

1. Prepare the system for installation of the distributed customer display.
   a. Switch OFF the power at the system unit.
   b. Remove the SurePOS 500 Series rear cover (see “Rear cover – removing and replacing” on page 61) to access the rear connector panel.
2. Prepare the distributed customer display to be installed on an integration tray.
   a. Route the distributed customer display cable through the mounting post (and post extension, if used) and plug the cable into the display, as shown in Figure 33.

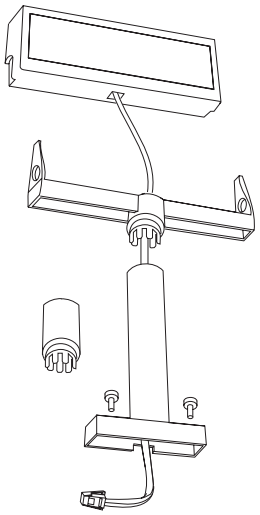


Figure 33. Attaching the distributed customer display cable

   b. Attach the character display top to its post by pressing the display down on the post until it snaps into place.
3. Go to the appropriate procedure for a non-keyboard integration tray or keyboard integration tray to complete the installation of the distributed customer display:
   - For installation of a distributed customer display on a non-keyboard integration tray, go to Step 4 on page 43.
   - For installation of a distributed customer display on a keyboard integration tray, go to Step 5 on page 44.

4. To install a distributed customer display **D** on a non-keyboard integration tray, perform the following steps:
   a. Remove the filler panels **A** and **B** (two) and the rear modesty panel **C** from the integration tray, as shown in Figure 34.

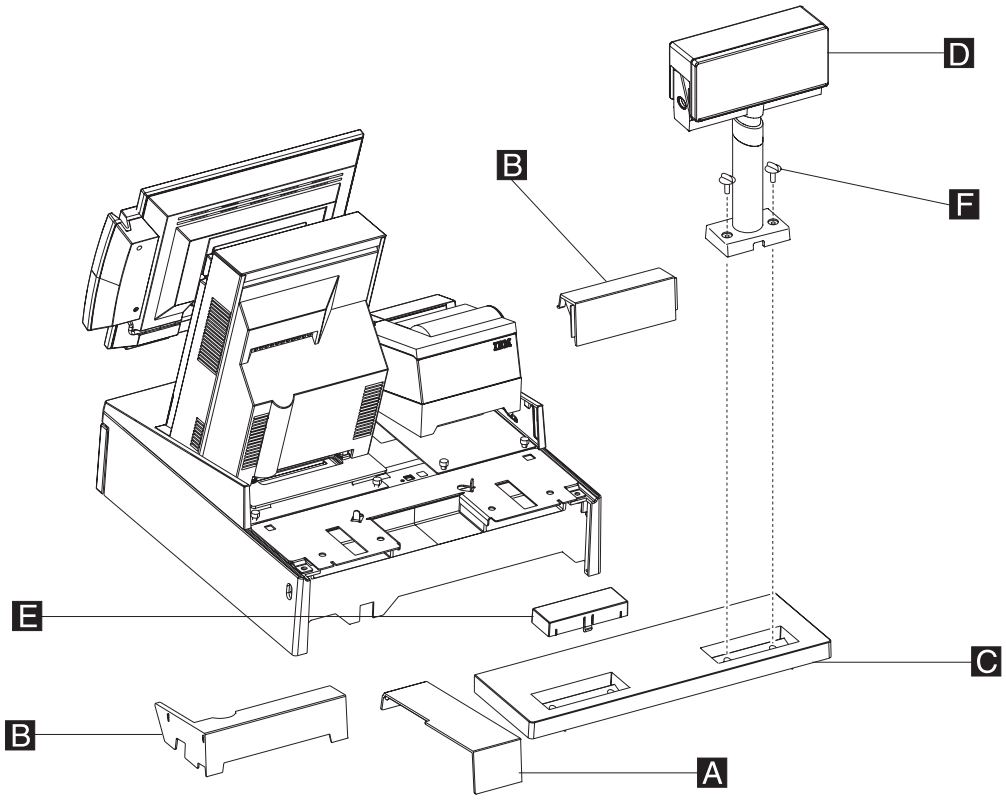


Figure 34. Attaching the distributed customer display to the system unit

   b. Remove one of the two plugs **E** in the rear modesty panel. Figure 34 shows one plug removed.
   c. Route the character display cable through the hole in the modesty panel. You may need to lay the display on its side to connect the display cable to the rear connector panel.
   d. Route the character display cable to the rear connector panel. Plug it into the 15-pin serial connector, as shown in "Rear view and connectors" on page 5.
   e. Reinstall the rear cover of the SurePOS 500 Model 514 (see "Rear cover – removing and replacing" on page 61).
   f. Reinstall the filler panels **B**, and then install **A**, as shown in Figure 34.
   g. Attach the post, through the modesty cover **C** to the cash drawer with 2 thumbscrews **F**. Snap the entire unit into place at the rear of the tray.

5. To install a distributed customer display on a keyboard integration tray, perform the following steps:
   a. Route the character display cable through the hole behind mounting post as shown in Figure 35. You might need to lay the display on its side to connect the display cable to the system unit rear connector panel.

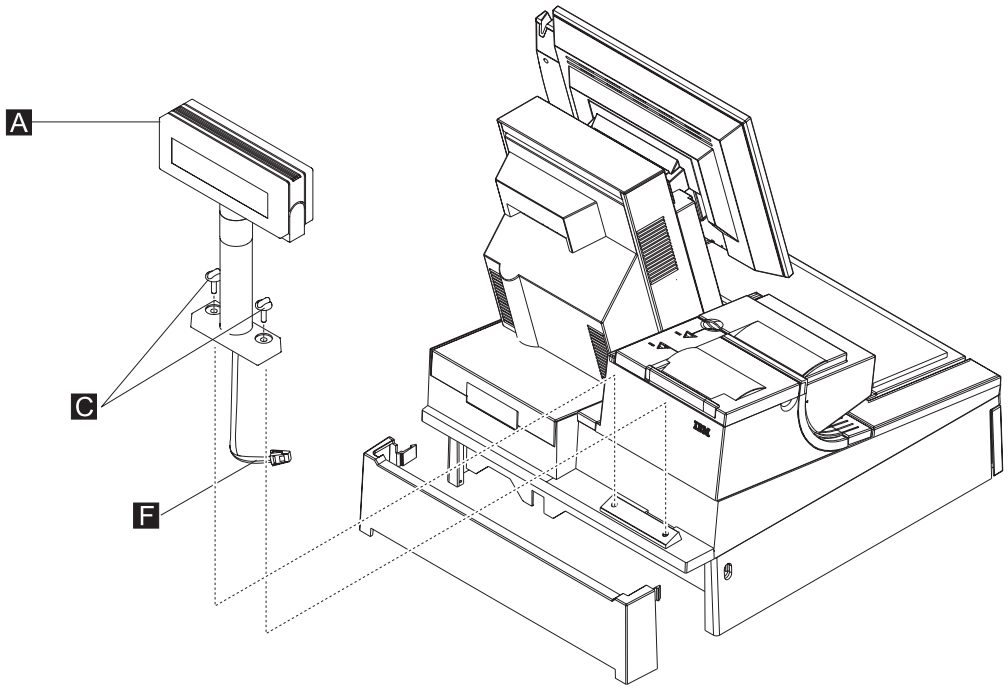


Figure 35. Installing the distributed customer display onto the keyboard integration tray

   b. Route the distributed customer display cable **F** to the rear connector panel, passing it under the cable-tie bar. Plug it into the 15-pin serial connector, as shown in “Rear view and connectors” on page 5.
   c. Attach the distributed customer display **A** to the cash drawer mounting post with two thumbscrews **C**. Snap the entire unit into place at the rear of the tray, as shown in Figure 35.

Installing IBM 4610 SureMark Models TF6 or TF7 printers

Note: Service for the IBM SurePOS Model 4951, Model 514 includes the IBM 4610 SureMark printer.

The IBM 4610 SureMark Model TF6 and TF7 (4610 TF6 or TF7) are the smaller 4610 models that contain only a thermal customer receipt station. These models do not support document printing. For detailed information about these printers, see the *IBM 4610 SureMark Point-of-Sale Printers User’s Guide*.

The 4610 TF6 or TF7 can be installed as a freestanding unit, attached to a countertop integration tray, or attached to a cash drawer integration tray. Attaching the 4610 TF6 or TF7 to a non-keyboard integration tray is different than attaching it to a keyboard integration tray:

- For the non-keyboard integration tray, the 4610 TF6 or TF7 is attached to a mounting plate and then attached to the non-keyboard integration tray.

- For the keyboard integration tray, the 4610 TF6 or TF7 is set into a plastic printer base and then set on the keyboard integration tray.

Figure 36 shows the 4610 TF6 or TF7 printer connectors.

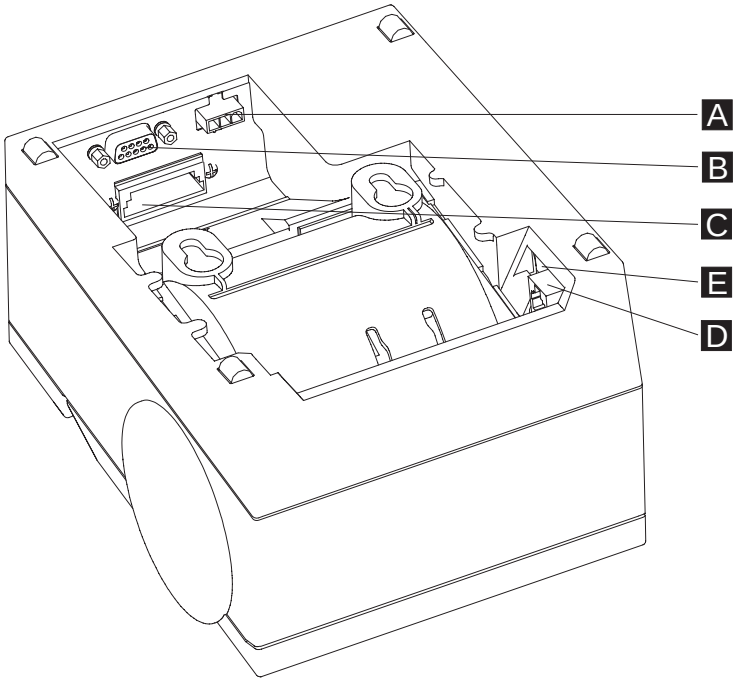


Figure 36. 4610 TF6 or TF7 printer connector locations

A	Power supply port (RS-232 only)	**D**	Cash drawer connector
B	RS-232 port or Powered USB port	**E**	RS-232 mode switch
C	(Not used on the SurePOS 500 Series)		

To install the 4610 TF6 or TF7 printer, perform the following steps:

1. Switch OFF the power at the system unit.
2. Remove the SurePOS 500 Model 514 rear cover (see “Rear cover – removing and replacing” on page 61).
3. Remove the SurePOS 500 Model 514 power supply (see “Power supply – removing and replacing” on page 68) to get access to the SurePOS 500 Model 514 rear connector panel. See “Rear view and connectors” on page 5 for rear connector port assignment.
4. Check the printer RS-232 mode-switch setting for the printer. It is near the rear cable connections. See **E** in Figure 36 for switch location. For switch settings, see the *IBM 4610 SureMark Point-of-Sale Printers User’s Guide*.
5. Connect and route the RS-232 communication cable or Powered USB cable **A** and the power supply cable **B** as shown in Figure 37 on page 46.

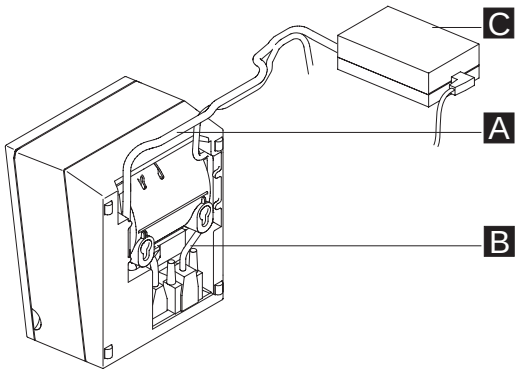


Figure 37. Attaching and routing the cables to the printer.

6. Connect any other signal cables for I/O devices to the correct ports.
7. If you are installing a freestanding printer, route the cables to the rear connector panel on the SurePOS 500 Series system unit. Pass the cables under the cable-tie bar, and plug it into one of the three standard serial ports, as shown in “Rear view and connectors” on page 5.
8. Go to the appropriate procedure for non-keyboard integration tray or keyboard integration tray mounting of the 4610 TF6 or TF7 printer:
   - If you are installing a 4610 TF6 or TF7 printer on a non-keyboard integration tray, continue with Step 9.
   - If installing a 4610 TF6 or TF7 printer on a keyboard integration tray, continue with Step 12 on page 37.
9. To install a 4610 TF6 or TF7 printer on a non-keyboard integration tray, perform the following steps:
   a. Attach the printer mounting plate to the bottom of the printer. The mounting plate slides into the two bottom slots of the printer.

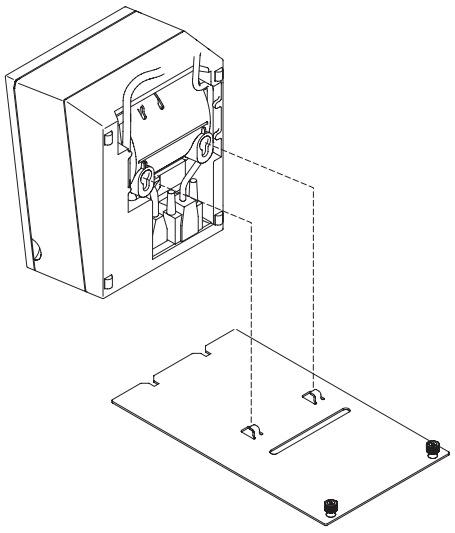


Figure 38. Attaching the 4610 TF6 or TF7 printer mounting plate for a non-keyboard integration tray

   b. The procedure for mounting the printer to a non-keyboard integration tray is the same for countertop or cash drawer. With the mounting plate attached to the printer, slide the front of the printer mounting plate into the slots located

toward the front of the integration tray. Secure the printer by tightening the two thumbscrews on the mounting plate to the tray.

c. Route the RS-232 cable **A** to the rear connector panel of the system unit as shown in Figure 39. Plug it into one of the three standard serial ports on the system unit.

d. Route the printer power cord **B** toward the system and out through the hole in the integration tray, as shown in Figure 39.

Note: When routing the printer and power cables, make sure that the cables are routed inside the mounting plate screws to enable correct installation of the filler panels.

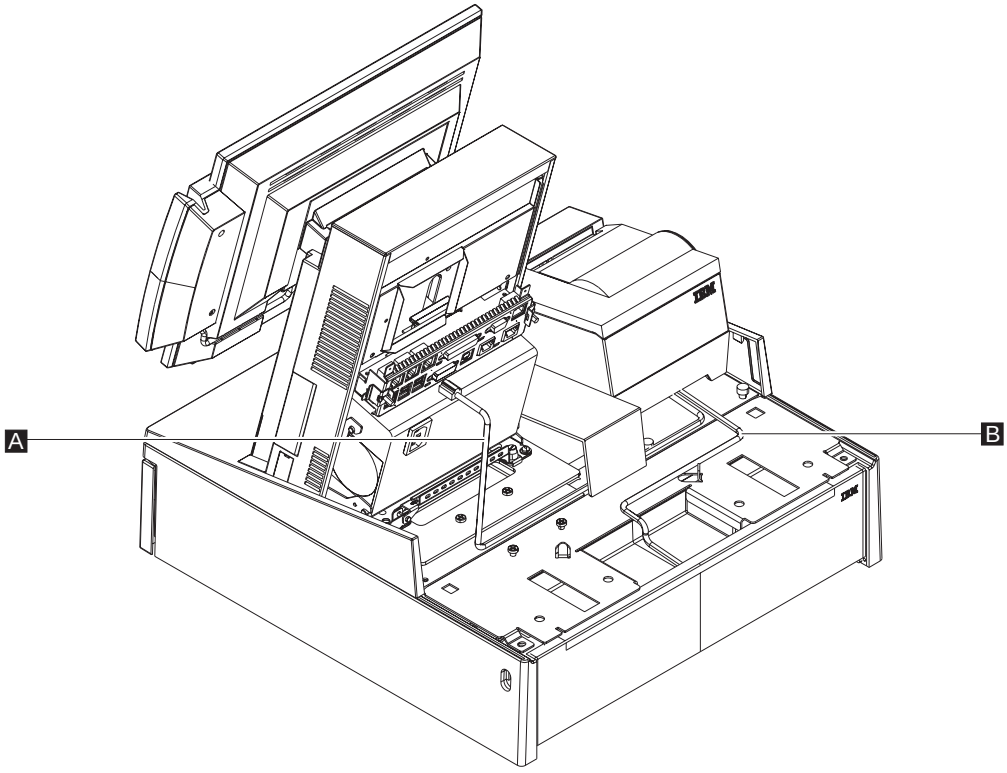


Figure 39. 4610 TF6 or TF7 cable routing

Chapter 4. Troubleshooting common problems

This section describes several common problems and explains what to do.

Table 9. Symptoms and actions

If the problem is...	Here's what to do.
No green power light on the tower unit.	1. Ensure that the system unit is plugged into a working electrical outlet and replug the power cable at the power supply. 2. Verify that the display cable is plugged properly into the display and into the system board. 3. Verify the power cable is plugged into the system board connectors P1 and P2. 4. Replace the power supply. See "Power supply – removing and replacing" on page 68. 5. Replace the system board. See "System board – removing and replacing" on page 66.
Operator display exhibits the following conditions (with the green LED on): • Blank screen • No cursor available • Screen is unreadable • Other display problems	1. Adjust the brightness control at the bottom right side of the display. 2. Ensure that the operator display cable is securely connected. 3. Switch unit off and back on. 4. Run the operator display test using the diagnostic USB memory key. 5. Open the tablet and check that all of the cable connections are secure. 6. Replace the LCD assembly. See "LCD assembly - removal and replacement" on page 59. 7. If condition persists, replace the tablet card. See "Control card - removal and replacement" on page 57. 8. If condition persists, replace the system board. See "System board – removing and replacing" on page 66.
Operator display backlight: dark, dim, or partially lit.	1. Adjust the brightness using the button located on the front of the display. 2. Ensure operator display cable is securely attached under display tablet and at system board. 3. Open the tablet and check that all of the cable connections are secure. Reboot the system. 4. If only half of the display is lit, replace the LCD assembly. See "LCD assembly - removal and replacement" on page 59. 5. If condition persists, replace the system board. See "System board – removing and replacing" on page 66. 6. If condition persists (the operator display backlight is dark dim or partially lit); however, the HDD light shows activity; and the POST bleeps completion upon reboot, replace the LCD assembly. See "LCD assembly - removal and replacement" on page 59.

Table 9. Symptoms and actions (continued)

Cash drawer does not open when cash drawer key is turned to the open position.	1. Replace the keylock insert if the lock does not turn with the key. See “Removing and replacing the keylock insert” on page 84. 2. Gently pull the drawer open while holding the key turned to the open position to determine if the slide assembly is binding. Look for items that may cause binds, such as pens or paper clips. Replace the slide assembly if necessary. 3. Replace the cam, pawl, and spring kit. See “Removing and replacing components of the latch and sensor assembly” on page 83. 4. Check for a bent actuator rod. Replace the actuator rod if necessary.
Cash drawer does not stay closed.	1. Make sure that the keylock is not bound in the open position. Replace the keylock if necessary. See “Removing and replacing the keylock assembly” on page 82. 2. Replace the cam, pawl, and spring kit. See “Removing and replacing components of the latch and sensor assembly” on page 83. 3. Replace the latch and the sensor assembly. See “Removing and replacing the latch and sensor assembly” on page 83. 4. Replace the cash drawer. See “Removing and replacing a full-size drawer” on page 79. 5. Replace the system board. See “System board – removing and replacing” on page 66.
Cash drawer does not open or close smoothly, or appears to be binding.	1. Look for items that could cause binding. Pens or paper clips trapped between the drawer and cover or the drawer and base could cause binding. 2. Compact drawer only: Remove the drawer and the rollers at the rear of the drawer and at the front of the base. Replace the rollers if necessary. 3. Determine if the slide assembly in the base is binding. Replace the slide assembly if necessary.
Cash drawer not opening	1. Run the Setup Utility to make sure that IBM cash drawer setting is enabled. 2. Ensure that the cash drawer cable is securely connected. 3. Replace the cash drawer cable. 4. Replace the latch and sensor assembly. See “Removing and replacing the latch and sensor assembly” on page 83. 5. Replace the system board. See “System board – removing and replacing” on page 66.
Cash drawer does not open when performing store transactions or running cash drawer tests, but it opens when the cash drawer key is turned to the open position.	1. Replace the latch and the sensor assembly. See “Removing and replacing the latch and sensor assembly” on page 83. 2. Replace the cash drawer cable. 3. Replace the system board. See “System board – removing and replacing” on page 66.

Table 9. Symptoms and actions (continued)

The status displayed by the cash drawer tests does not match the physical status of the cash drawer being tested. For example, the test indicates that cash drawer A is closed when cash drawer A is actually open.	1. Replace cable. 2. Replace the latch and the sensor assembly. See “Removing and replacing the latch and sensor assembly” on page 83. 3. Replace the planar board. See “System board – removing and replacing” on page 66.
Touch screen not working.	1. Ensure operator display cable is securely attached under display tablet and at system board. 2. Run the touch screen test using the diagnostic USB memory key. 3. Reinstall touch driver. 4. Before you replace any components, check the cables connectors inside of the display tablet. Reboot and exercise the touch screen action. 5. Replace the tablet touch card. See “Tablet touch card - removal and replacement” on page 58. 6. If condition persists, replace the front bezel assembly (touch screen assembly). See “Front bezel assembly - removing and replacing” on page 60. 7. If condition persists, replace the system board. See “System board – removing and replacing” on page 66.
PS/2 keyboard does not work or only some keys work.	1. Ensure that only one keyboard is attached to either side or rear connectors. 2. Ensure that the keyboard cable is securely connected. 3. Move your fingers across the keys, making sure that no keys are stuck. 4. Ensure that you are on a screen that allows typing. Some screens do not allow you to type on them. 5. Run the keyboard test from the diagnostic USB memory key. 6. Replace the keyboard.
Magnetic stripe reader (MSR) not reading.	1. Check the three-track MSR dip switch settings for either RS232 or keyboard interface. 2. Run Setup and check the setting in the MSR serial port. 3. Ensure that the MSR cable is securely connected. 4. Run the MSR test using the diagnostic USB memory key. 5. Reset to factory defaults by pressing the Reset button with a paper clip. The MSR must be removed temporarily from the side of the tablet to access the reset button. Leave the MSR cable connected, and the unit powered ON when pressing the Reset button. 6. Replace the MSR.
Fan continues running after system has been powered Off.	This is normal operation with power supplies.

Obtaining diagnostic and service information

Depending upon your model, you can obtain service and diagnostic information from the support Web site: www.ibm.com/solutions/retail/store. Then click **Support**.

Chapter 5. Removing and replacing FRUs

This chapter contains the FRU removal and replacement procedures and is organized by component location.

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.
4. Review the Appendix E, “Safety information,” on page 123.

Handling static-sensitive devices

Attention: Static electricity can damage electronic devices and your system. To avoid damage, keep static-sensitive devices in their static protective bags until you are ready to install them.

To reduce the possibility of electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the device is still in its anti-static bag, touch it and your finger to an unpainted metal part of the system unit for at least 2 seconds. (This action removes static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your system, without putting it down. If it is necessary to put the device down, place it onto its static-protective bag. (If your device is an adapter, place it component side up.) Do not place the device onto the cover of the system or onto a metal table.
- Take additional care when handling devices during cold weather because heating reduces indoor humidity and increases static electricity.

Display tablet components

This section describes how to remove the display tablet and its FRU components.

Note: Components of the tablet are available for field replacement, but the entire tablet is not a FRU.

Display tablet – removing and replacing

Refer to Figure 40.

1. Tilt the tablet back and loosen the two thumbscrews (**A** in Figure 40 and Figure 41 on page 56) under the tablet.
2. Disconnect the cable (by squeezing on either side) from the bottom rear.
3. Lift the tablet off the base.

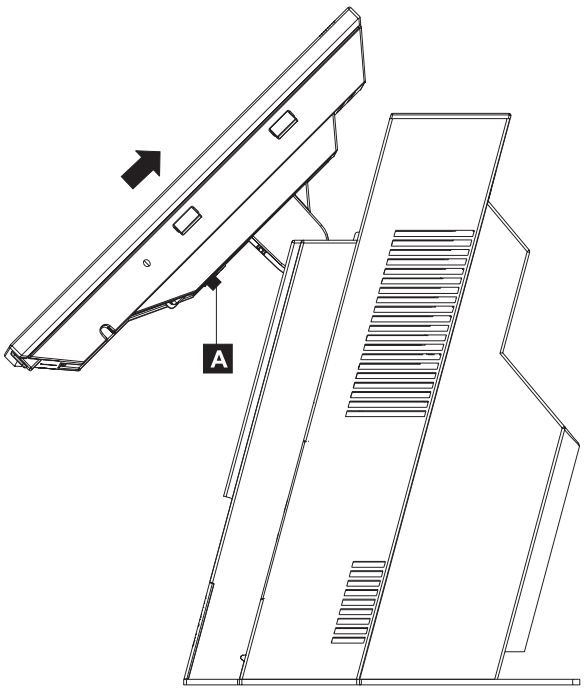


Figure 40. Display tablet, remove and replace

To replace, reverse this procedure.

Display tablet back cover

1. Remove the tablet from the base as described above in “Display tablet – removing and replacing.”

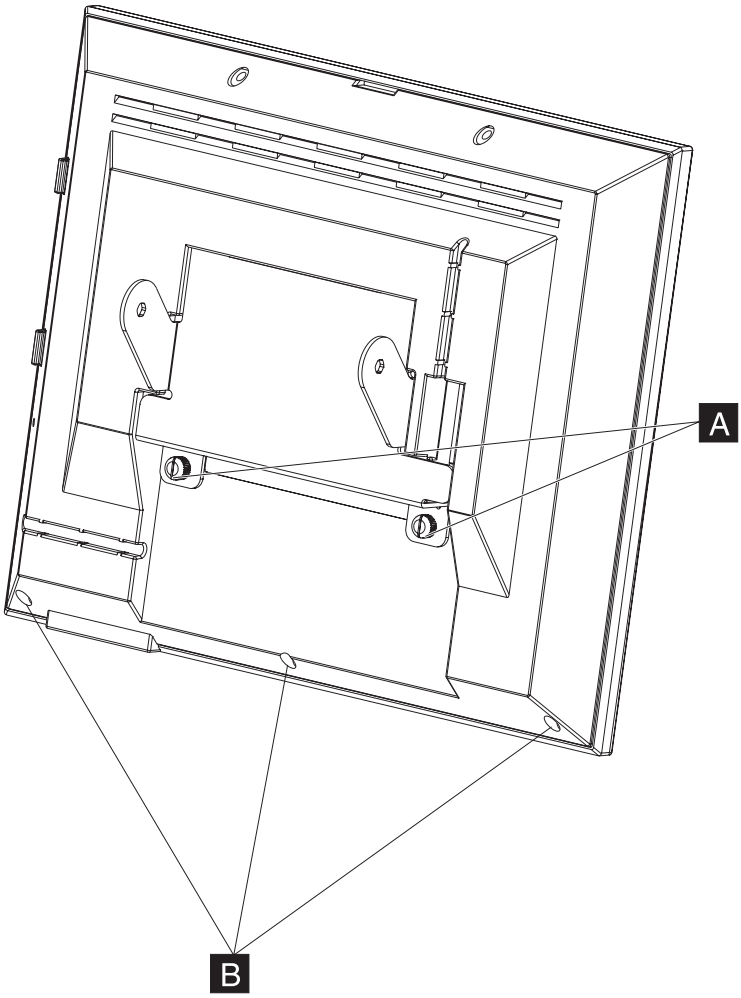


Figure 41. Removing the tablet back cover

2. With the tablet face down on a sturdy surface, loosen the three screws along the bottom edge of the tablet. See **B** in Figure 41.
3. If installed, remove the antenna cover.
4. Using both hands, lift the base rear upward and tilt it at an angle to remove.

Display tablet cable – removing and replacing

1. Remove the tablet. See “Display tablet – removing and replacing” on page 55.
2. Disconnect the cable from the bottom rear of the tablet.
3. Remove the HDD front cover as described at “HDD cover – removing and replacing” on page 73.
4. Disconnect the cable clamps holding the tablet cable.
5. Remove the rear cover as described at “Rear cover – removing and replacing” on page 61.
6. Remove the power supply as described at “Power supply – removing and replacing” on page 68.
7. Disconnect the connector from the system board.
8. Remove the base plate. See “Base plate - removal and replacement” on page 77.
9. Pull the cable free from the plastic guide in the frame.

To replace, reverse this procedure.

Control card - removal and replacement

1. Remove the tablet as described in “Display tablet – removing and replacing” on page 55.
2. Remove the tablet rear as described in “Display tablet back cover” on page 55.
3. Remove the screws securing the control (button) card (**B** in Figure 42).
4. Carefully lift the card from beneath the tab and lift it from the button post.
5. Disconnect the cable from the control card.

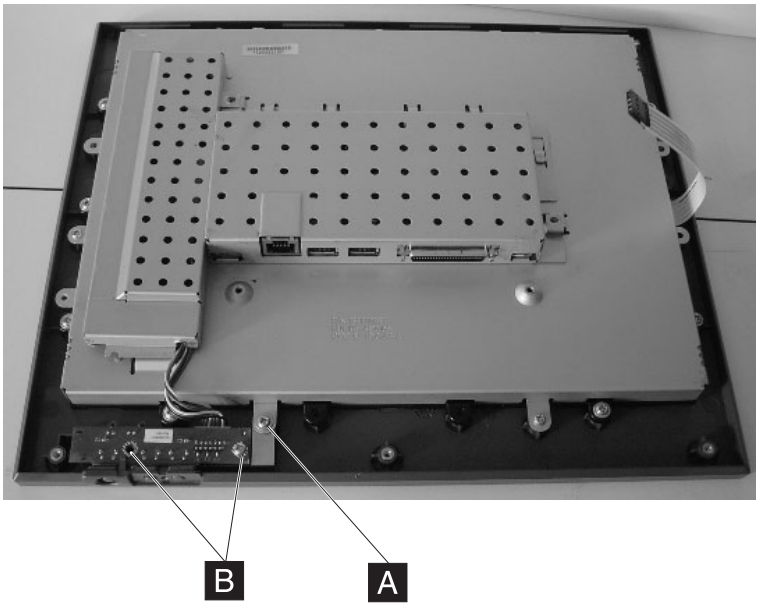


Figure 42. Removing the control card

6. To replace, reverse these procedures, noting to position the card on the alignment pin and align with metal EMC shield.

Control card EMC shield - removal and replacement

1. Remove the control card as described in “Control card - removal and replacement.”
2. Remove the screw holding the control card EMC shield (**A** in Figure 42).
3. Slide the control card EMC shield to the right and lift to remove.
4. To replace, reverse these procedures.

Control card button protector - removal and replacement

1. Remove the tablet rear as described in “Display tablet back cover” on page 55.
2. Using a flat-bladed screwdriver, press inward on one end-button and lift outward to remove.
3. To replace, reverse these procedures, noting to angle the assembly such that the control buttons match the button holes.

Backlight card - removal and replacement

1. Remove the tablet as described in “Display tablet – removing and replacing” on page 55.
2. Remove the tablet rear as described in “Display tablet back cover” on page 55.

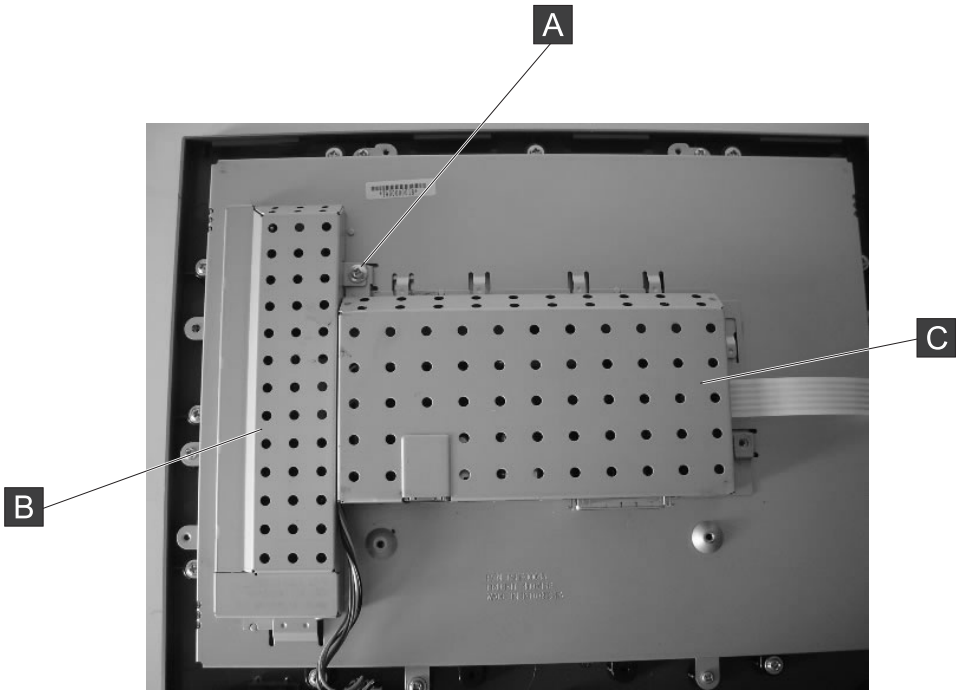


Figure 43. Location of EMC shields and common screw

3. Remove the backlight EMC shield (**B** in Figure 43) by removing the common screw (**A**) securing both the backlight and touch card EMC shield.
4. Slide the shield forward and lift to remove.
5. Disconnect the cables from the backlight card.
6. Remove the two screws holding the card and lift to remove.
7. To replace, reverse these procedures.

Tablet touch card - removal and replacement

1. Remove the tablet as described in “Display tablet – removing and replacing” on page 55.
2. Remove the tablet rear as described in “Display tablet back cover” on page 55.
3. Remove the common screw (see **A** in Figure 43) securing both the backlight EMC shield and the tablet touch EMC shield.

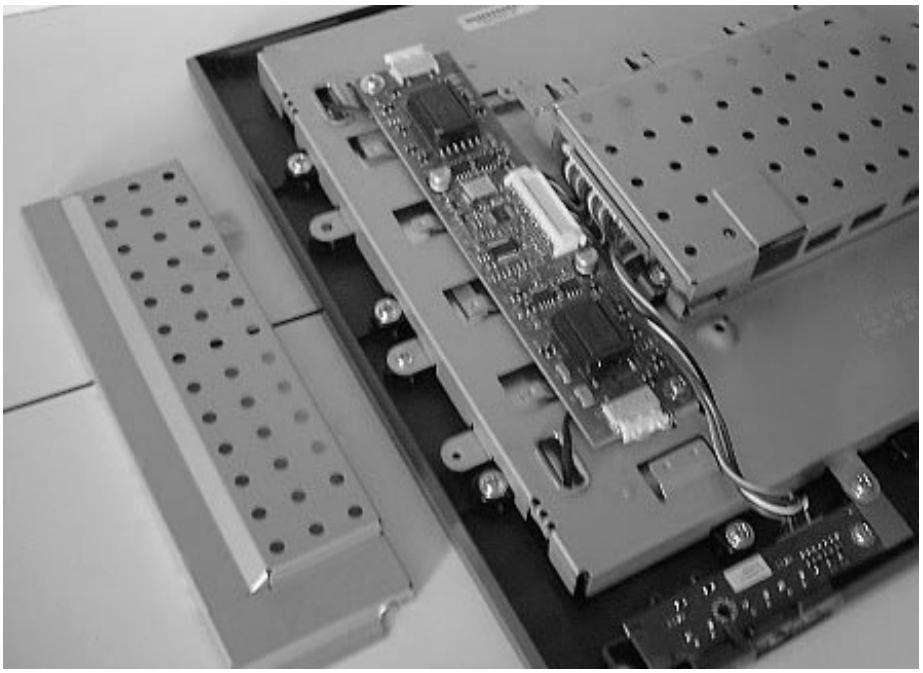


Figure 44. Removing the tablet touch card

4. See Figure 44. Lift off the backlight card EMC shield and set aside.
5. Disconnect the tablet touch card connector.
6. Remove the tablet EMC shield (C in Figure 43 on page 58) by removing the remaining screw.
7. Slide the tablet EMC shield downward and lift to remove.
8. Disconnect the remaining cables attached to the card.
9. Remove the four captured screws and lift out the tablet touch card.
10. To replace, reverse these procedures.

LCD assembly - removal and replacement

1. Remove the tablet as described in “Display tablet – removing and replacing” on page 55.
2. Remove the tablet rear as described in “Display tablet back cover” on page 55.
3. Unplug the connector from the control card.

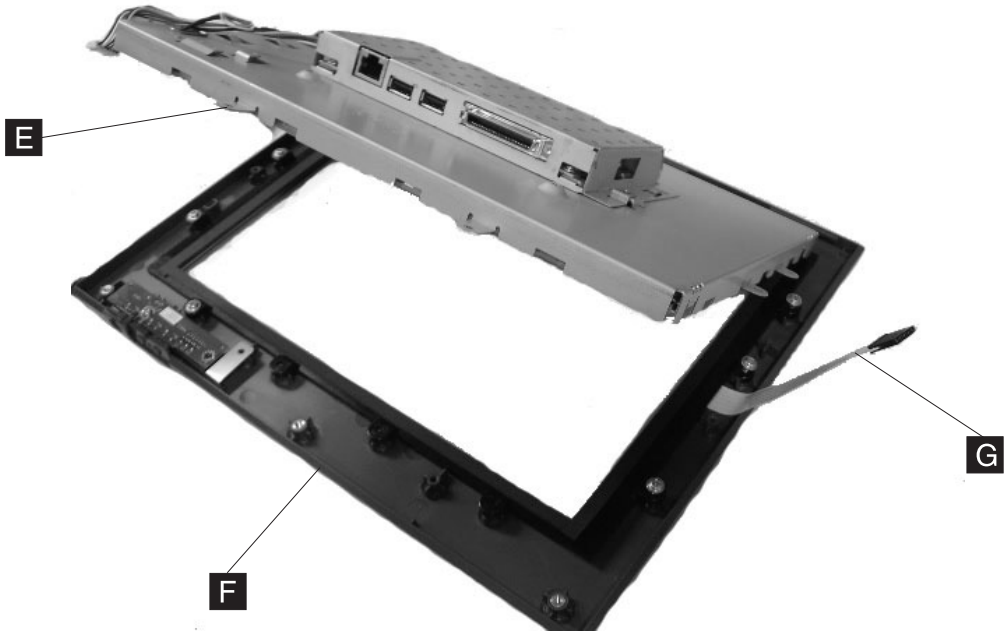


Figure 45. Removing the LCD assembly

4. Remove the EMC shields covering the backlight card and the tablet touch card. See Figure 42 on page 57.
5. Disconnect and remove the backlight card and the tablet touch card and set aside for use with the new LCD assembly.
6. Remove the six screws holding the LCD assembly (**E** in Figure 45) and lift to remove.
7. To replace, reverse these steps.

Front bezel assembly - removing and replacing

Follow these instructions to replace the front bezel assembly:

1. Remove the tablet as described in “Display tablet – removing and replacing” on page 55.
2. Remove the tablet rear as described in “Display tablet back cover” on page 55.
3. Disconnect the front-bezel-assembly cable (**G** in Figure 45).
4. Remove the six screws holding the LCD assembly and lift to remove.
5. Remove the front bezel assembly (**F** in Figure 45).
6. To replace, reverse these steps.

Rear tower components

This section describes how to remove and replace components that are viewed and accessed from the rear of the tower.

Rear cover – removing and replacing

1. Facing the rear of the system, press in on both sides **A**, and lift upward **B**, as shown in Figure 47 on page 62 and Figure 46, rotating the bottom of the cover toward the back **C**.
2. Lift outward to remove.

To replace, reverse the removal procedure.

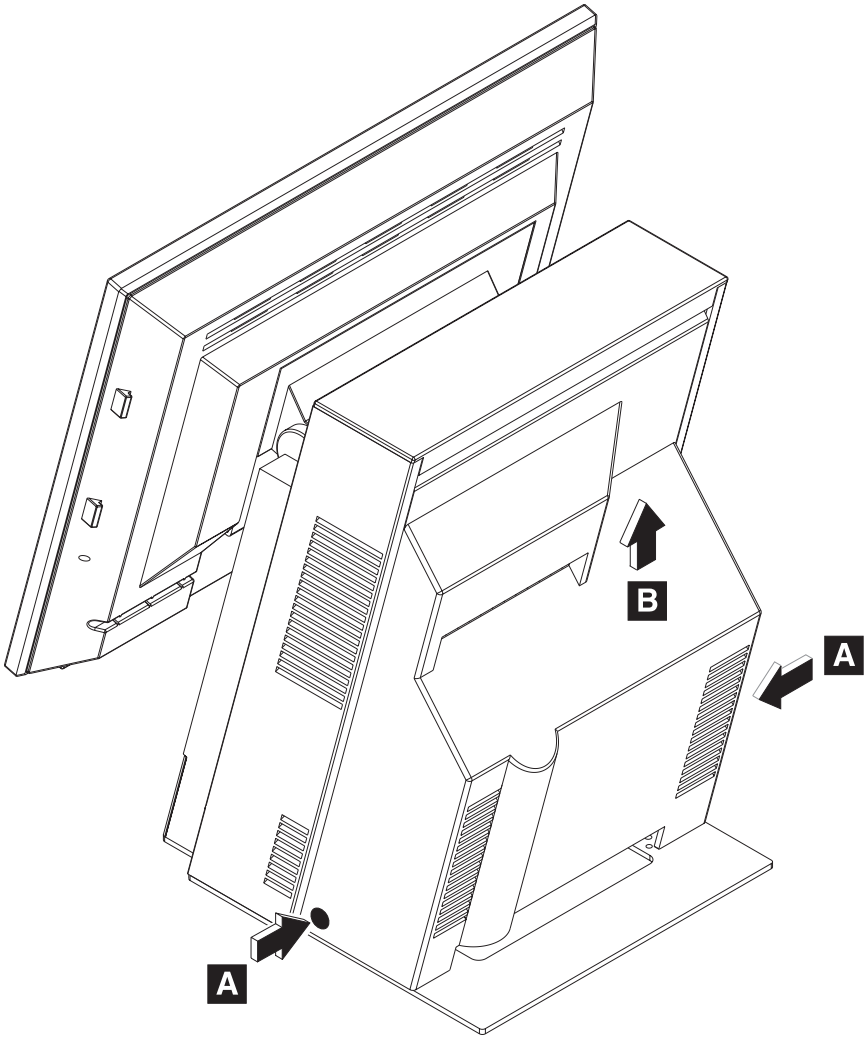


Figure 46. Rear cover removal

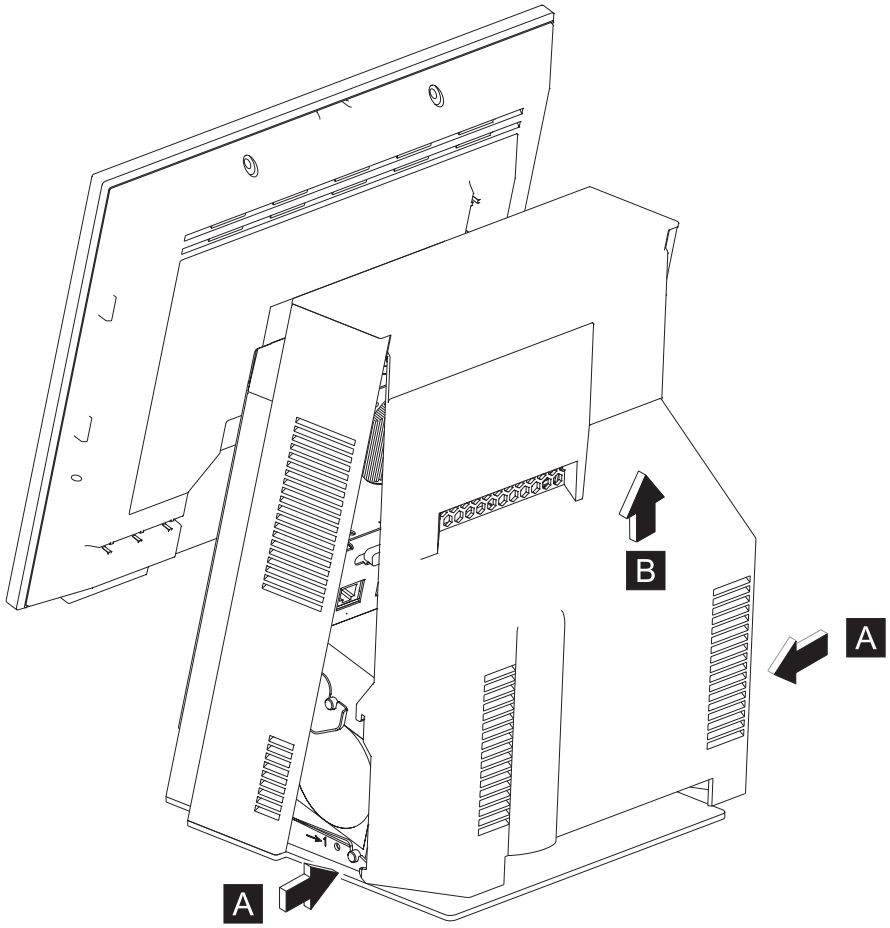


Figure 47. Unlatching rear cover

Rear metal panel cover – removing and replacing

1. Remove the rear cover as described at “Rear cover – removing and replacing” on page 61.

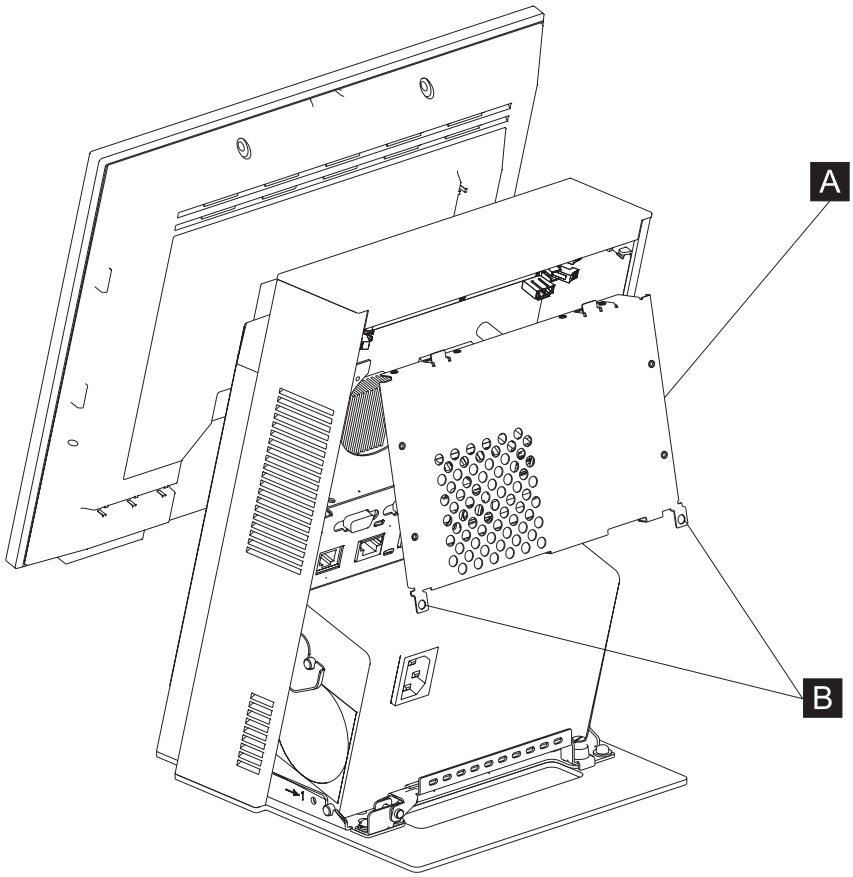


Figure 48. Removing the rear metal panel cover

2. Locate the rear metal panel cover (**A** in Figure 48).
3. Loosen the two captive screws shown as **B** in Figure 48 and carefully slide the cover from the top hinges to remove.

Cable-tie bar – removing and replacing

1. Remove the rear cover as shown at “Rear cover – removing and replacing” on page 61.

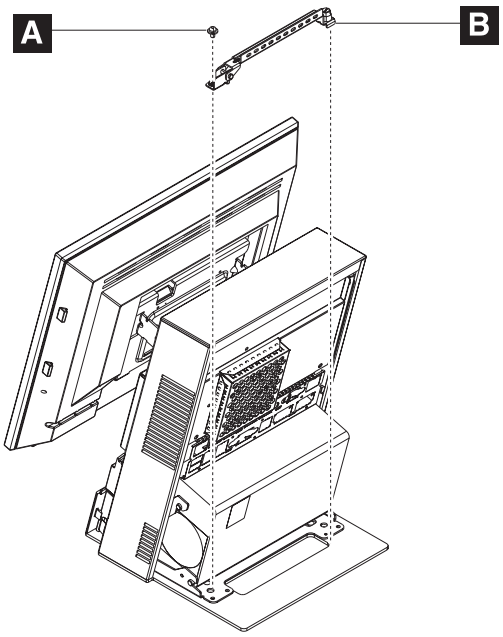


Figure 49. Cable-tie bar remove and replace

2. Remove the screw **A** and thumbscrew **B**, as shown in Figure 49.
3. Disconnect all cables from the tie bar by cutting the cable ties.

To replace the cable-tie bar, reverse this procedure.

Rear connector panel (tailgate) with fan – removing and replacing

1. Remove the rear cover as described at “Rear cover – removing and replacing” on page 61.
2. Disconnect all cables from the tailgate connector. See Figure 3 on page 5 for the SurePOS 500 Model 514 connectors.

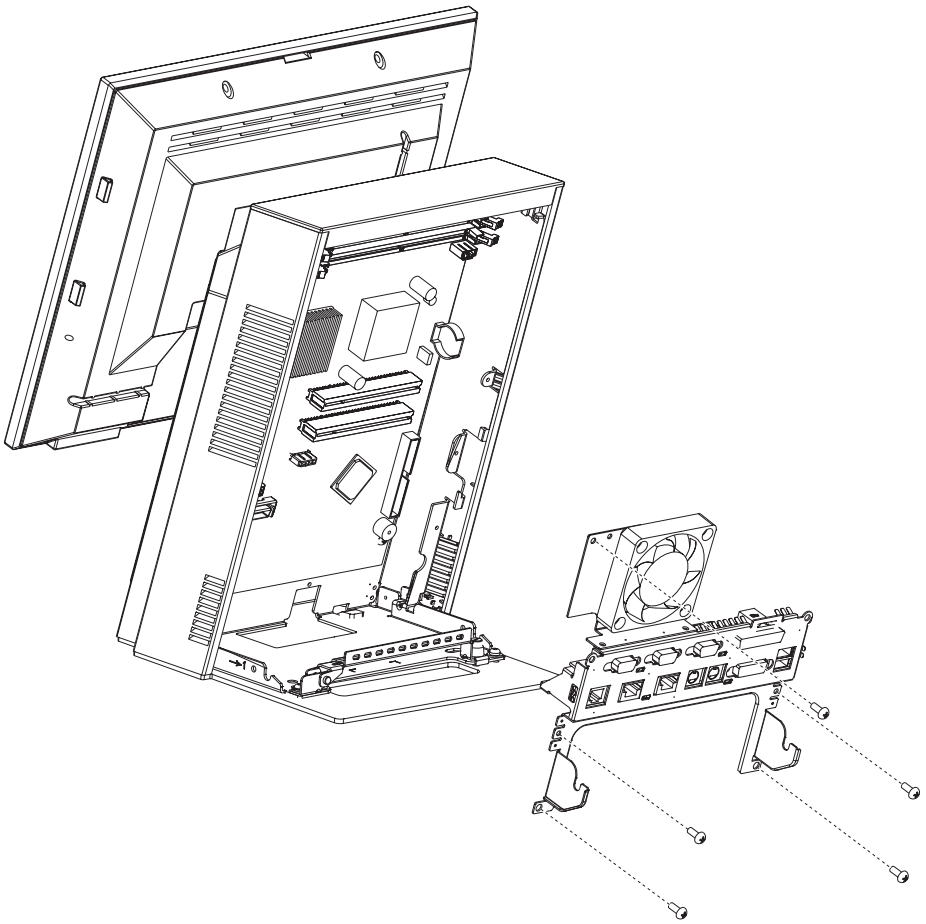


Figure 50. Tailgate remove and replace. This figure shows the screws removed for illustration purposes only.

3. Remove the rear inner metal cover. See “Rear metal panel cover – removing and replacing” on page 62.
4. Remove the power supply. See “Power supply – removing and replacing” on page 68.
5. See Figure 50. Loosen the five screws, but **do not remove** them.
6. Pull the connector panel out and disconnect the fan cable from the system board.

Reverse the steps to reassemble. Make sure the two connectors on the back of the tailgate line up with the connectors on the system board.

Removing the fan

To remove and replace the fan:

1. Remove the rear cover as described at “Rear cover – removing and replacing” on page 61.
2. Remove the rear inner metal cover. See “Rear metal panel cover – removing and replacing” on page 62.
3. Disconnect the fan cable from the system board.
4. Loosen the two screws holding the fan and remove.
5. To replace, align the fan with the two screw holes, insert and tighten screws.
6. Connect the fan cable to the system board.

7. Replace the rear inner metal cover and rear cover.

System board – removing and replacing

Attention: Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 119.

Notes:

1. The system board comes with factory default CMOS settings. When replacing the system board, you can usually save the CMOS settings by running the SaveCMOS utility before replacing the old system board. Then, run LoadCMOS after the installation of the new system board.

1. Remove the back cover as described at “Rear cover – removing and replacing” on page 61.
2. Remove the power supply. See “Power supply – removing and replacing” on page 68.
3. Remove the inner back metal cover. See “Rear metal panel cover – removing and replacing” on page 62.
4. Remove the rear connector panel (tailgate). See “Rear connector panel (tailgate) with fan – removing and replacing” on page 64.
5. Disconnect all cables from the system board.
6. Remove the memory modules. See “Memory modules – removing and replacing” on page 68.

   Note: Save the modules for transfer to the new system board.

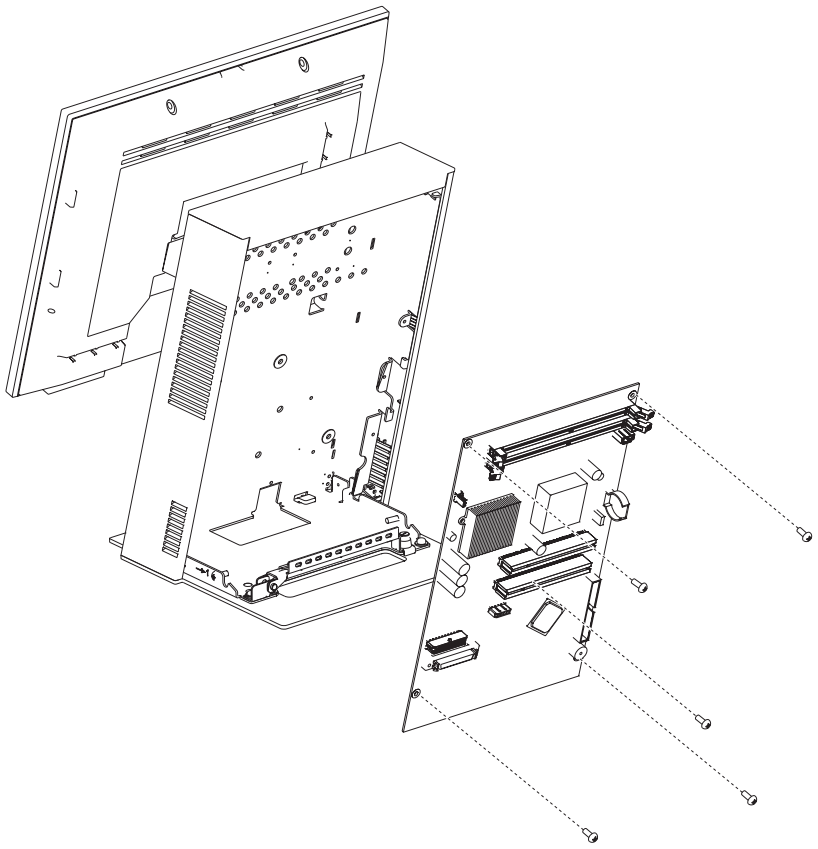


Figure 51. Removing the system board

7. Remove the five screws, as shown in Figure 51 on page 66.
8. To install the new system board, reverse these steps. The new system board comes with all required jumpers and with a new battery.

Update system software

1. Ensure system BIOS is equal to or greater than that from the old system board.
2. Reprogram the Vital Product Data (VPD).
   a. Boot the service diskette.
   b. Choose **POS System Test**.
   c. Choose **Utilities**.
   d. Choose **Vital Product Data Utility**.
   e. Choose **Update VPD**.
   f. Choose the model and press **Enter**.
   g. Choose **Update VPD** again.
   h. Enter the machine serial number and press **Enter**.
   i. Exit.

System-board jumper location and settings

Figure 52 shows the system-board jumper location (**A**).

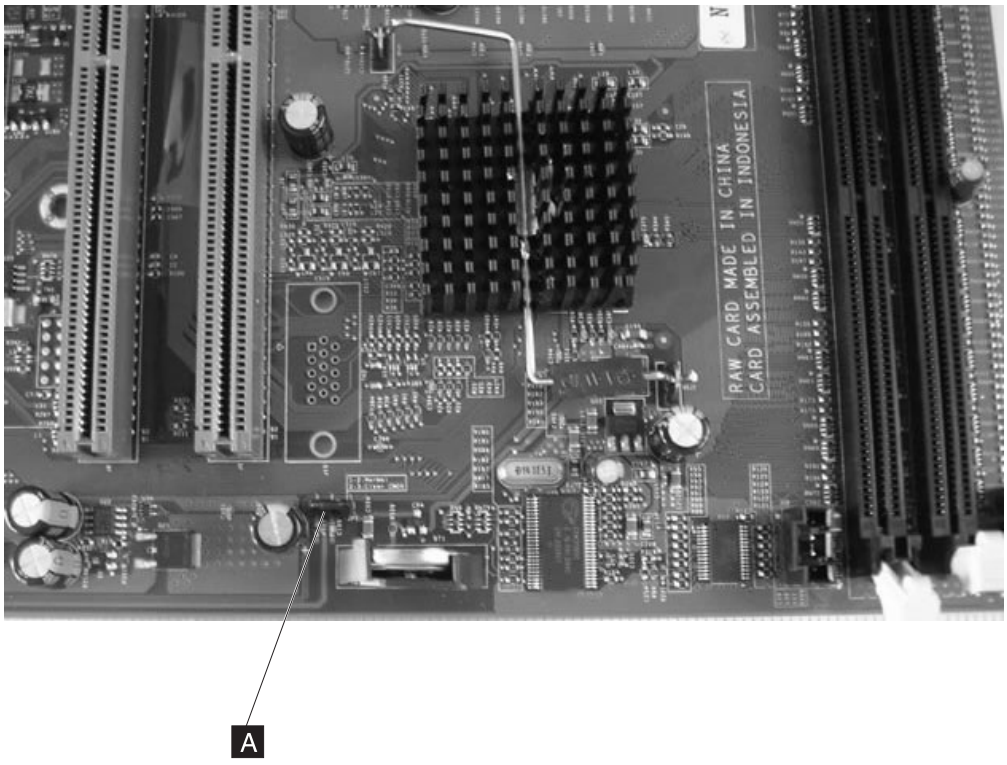


Figure 52. System board jumper location

Table 10 on page 68 lists the system board jumper settings. All jumper pins have the pin number printed on the system board for easy identification.

Table 10. System board jumper settings

Jumper	Default pin location:	Description
JP1	Pins 1, 2, and 3	(Located beside battery A) CMOS Memory clear. To clear CMOS, momentarily place the jumper on pins 2-3

Note: Pin 1 is indicated on all jumpers by a small white circle.

System-board battery – removing and replacing

1. Switch OFF the power to the SurePOS 500 Model 514. Unplug the power cord from the external power source.
2. Remove the back cover as described at “Rear cover – removing and replacing” on page 61.
3. Remove the rear inner metal cover. See “Rear metal panel cover – removing and replacing” on page 62.

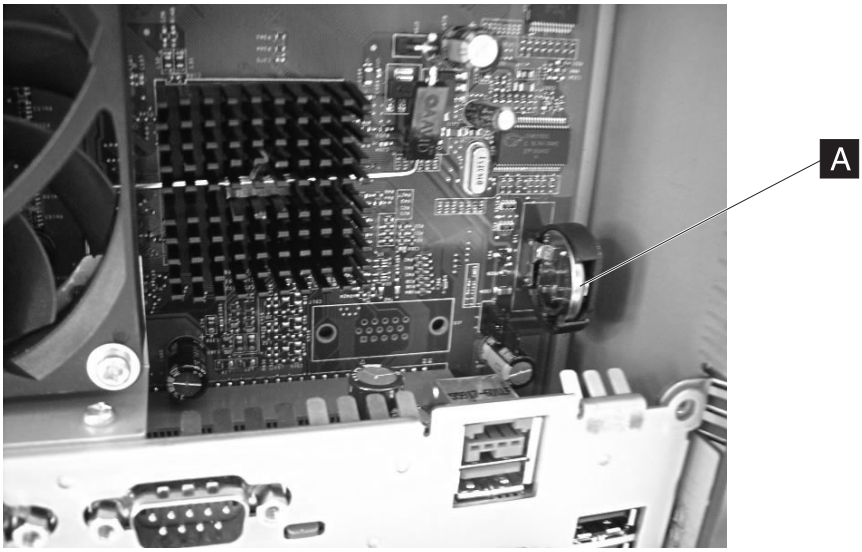


Figure 53. Battery location

4. See Figure 53 and locate the system battery (**A**) on the system board. Using a flat-bladed screwdriver, carefully pry the battery from its housing.
5. To replace, align the battery with the housing and push into place

Memory modules – removing and replacing

See “Installing the memory modules” on page 6 and reverse the procedures to remove.

Power supply – removing and replacing

1. Switch OFF the power to the SurePOS 500 Model 514. Unplug the power cord from the external power source.

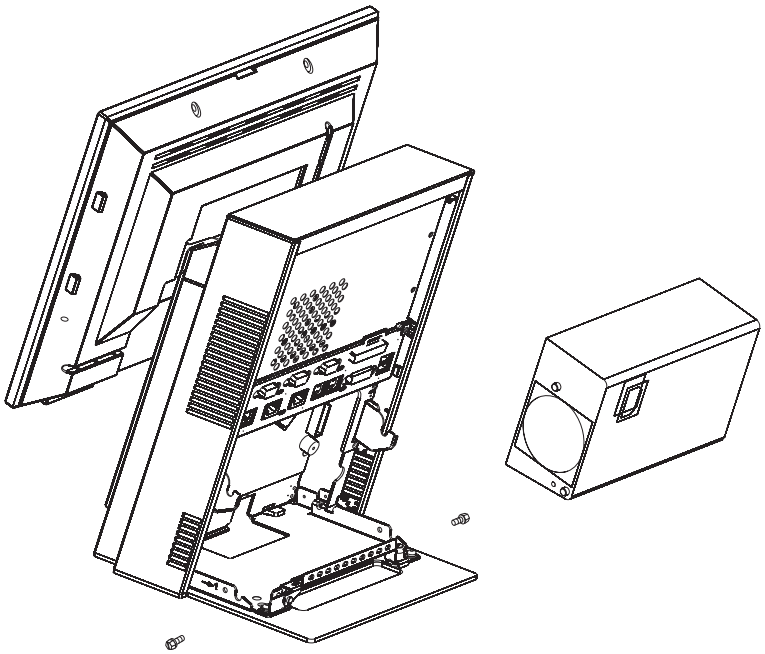


Figure 54. Power supply remove/replace

2. Remove the back cover as described at “Rear cover – removing and replacing” on page 61.
3. See Figure 54. Remove the two screws located at the base of the power supply.

Figure 55. Placement of the screwdriver to remove the power supply

4. If necessary, use a flat-head screwdriver as a lever to lift upward on either side of the power supply.
5. Then, lift the power supply upward and outward to remove.

6. Disconnect the three power supply cables.

To replace the power supply, reverse this procedure.

Top cover – removing and replacing

1. Remove the rear cover, following the procedure in “Rear cover – removing and replacing” on page 61.
2. Place the unit on a steady surface with the display-face down.
3. Using a screwdriver, press to lift the tab **A** while pulling the top cover forward (or toward the rear). See Figure 57 on page 71 and Figure 56.
4. Repeat for the tab on the other side.

To replace, slide the top cover on from the rear.

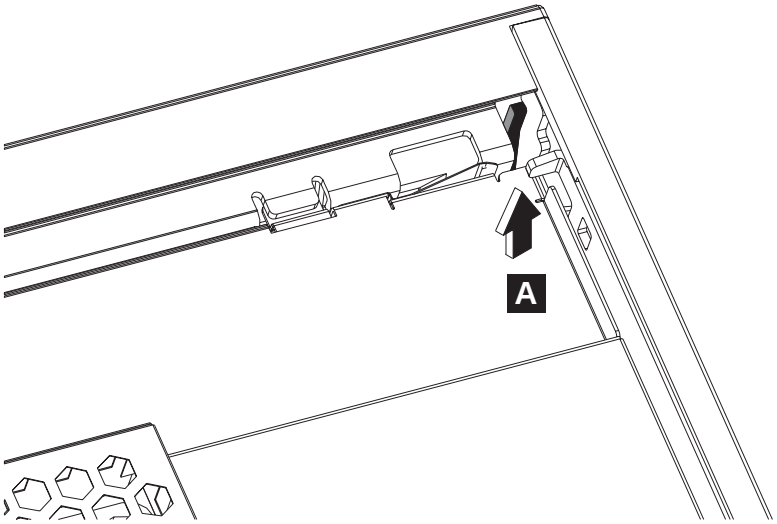


Figure 56. Removing the top cover

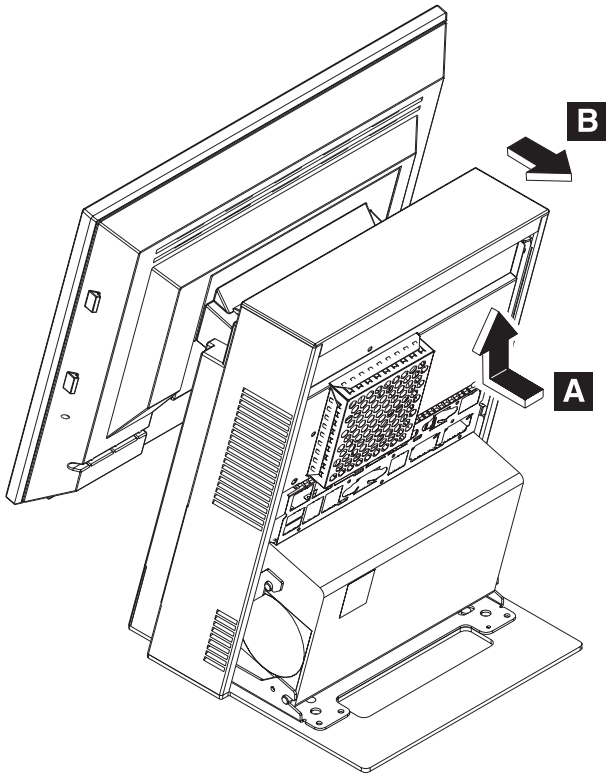


Figure 57. Releasing the top cover

Tower center cover – removing and replacing

1. Remove the top cover. See “Top cover – removing and replacing” on page 70.
2. Place the unit upright. Lift the tower center cover to remove.

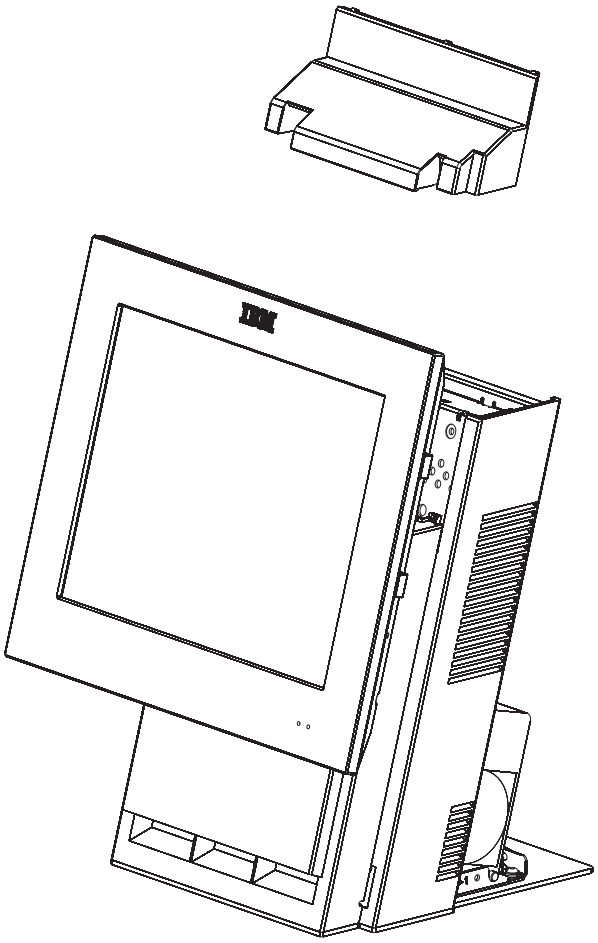


Figure 58. Removing tower center cover

To replace, reverse the removal procedure.

Side covers – removing and replacing

1. Remove the tablet. See “Display tablet – removing and replacing” on page 55.
2. Remove the HDD front cover. See “HDD cover – removing and replacing” on page 73.
3. Remove the top cover. See “Top cover – removing and replacing” on page 70.
4. Remove the center cover “Tower center cover – removing and replacing” on page 71.
5. From the front of the system, use a flat-bladed screwdriver to pry open four latches on the front of each side cover **A**, as shown in Figure 59 on page 73.
6. Pull the side cover toward the rear and remove.

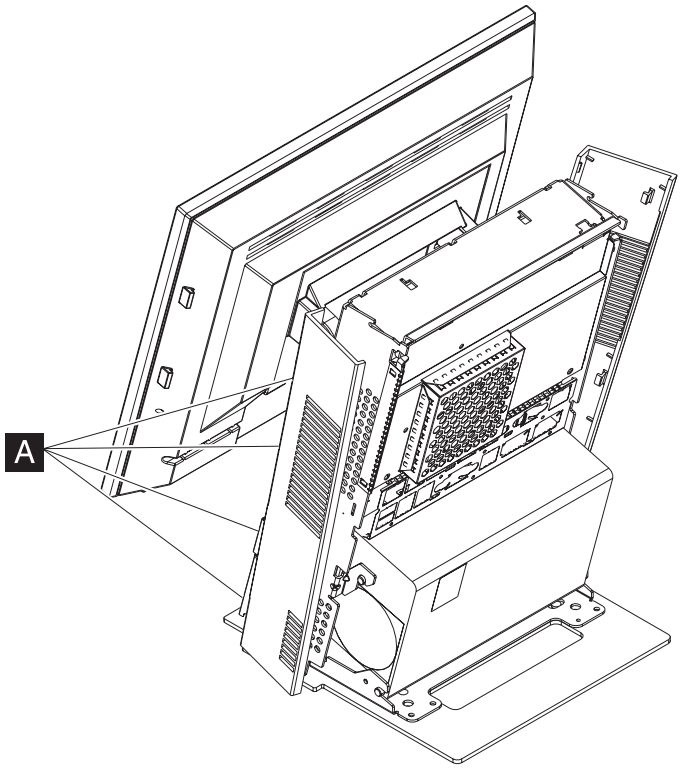


Figure 59. Removing side covers

To replace, reverse the removal procedure.

Front tower components

This section describes how to remove and replace components that are viewed and removed from the front of the tower.

HDD cover – removing and replacing

1. Tilt the top of the display tablet back.
2. On one side, insert a paper clip to release the tab **A**, and pull the HDD cover slightly forward.

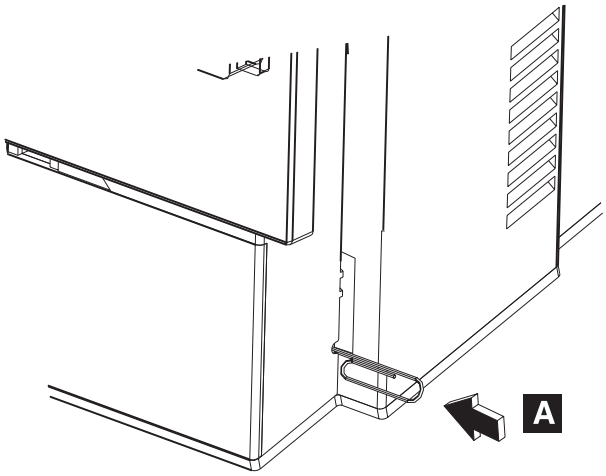


Figure 60. Unlatching front cover

3. Repeat step 2 on page 73 on the other side.
4. Pull the cover forward and away from the HDD.

To replace, slide the cover into place over the HDD and snap in place.

HDD cover clips – removing and replacing

1. Remove the HDD cover. See “HDD cover – removing and replacing” on page 73.
2. For each clip, remove the two screws. See Figure 61 on page 75.

To replace the HDD cover clips, reverse this procedure.

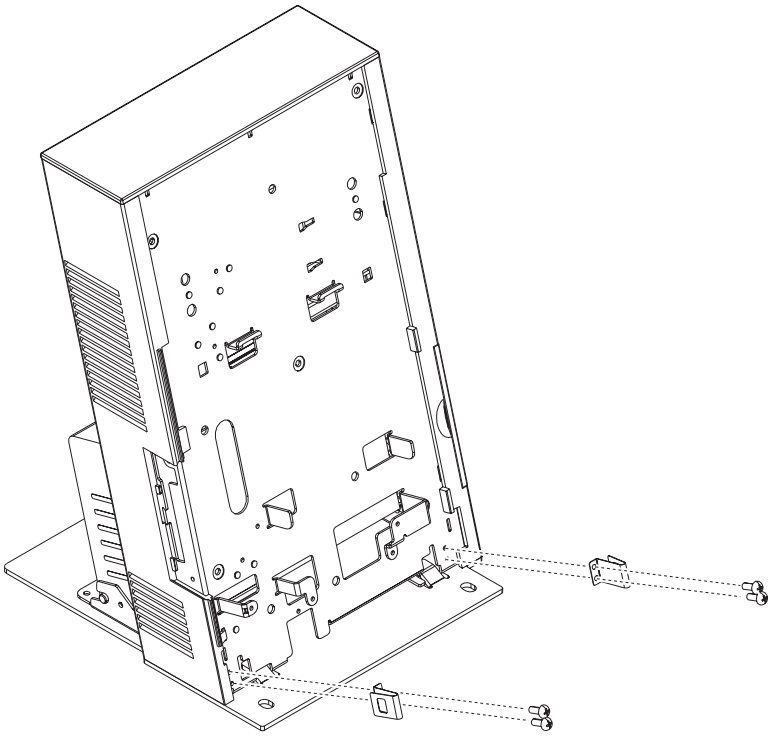


Figure 61. Removing HDD cover clips

Hinge assembly – removing and replacing

1. Remove the tablet. See “Display tablet – removing and replacing” on page 55.
2. Remove the HDD front cover. See “HDD cover – removing and replacing” on page 73.
3. Remove the top cover. See “Top cover – removing and replacing” on page 70.
4. Remove the center cover. See “Tower center cover – removing and replacing” on page 71.
5. Remove the four screws shown in Figure 62 on page 76.

Reverse the steps to replace.

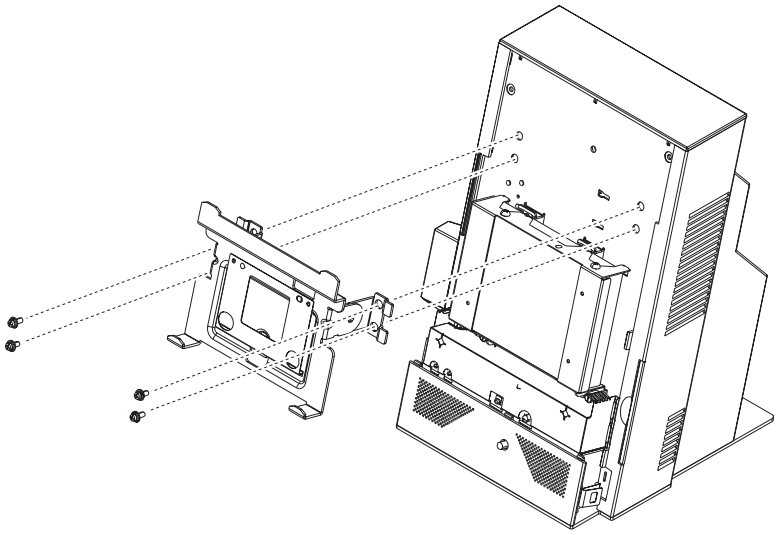


Figure 62. Hinge assembly

HDD and bracket – removing and replacing

Attention: The HDD is a static-sensitive device. See “Handling static-sensitive devices” on page 54.

1. Tilt back the tablet.
2. Remove the HDD front cover as described at “HDD cover – removing and replacing” on page 73.
3. Remove the HDD power connector and data cable connector.
4. Remove the HDD and bracket assembly by loosening the two thumbscrews **A** in Figure 63 and rotate the bottom of the HDD away from the frame.

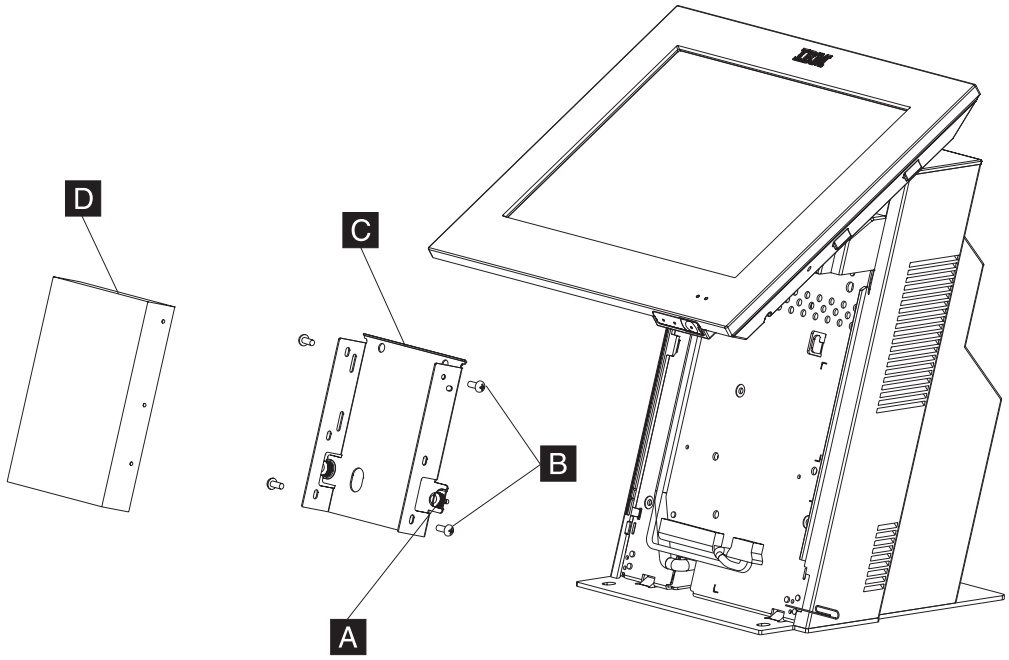


Figure 63. HDD replacement

5. Remove the HDD **D** from the bracket **C** by removing four screws **B**.

Attention: Avoid dropping or shocking the HDD.

6. To replace the HDD, reverse this procedure. Be careful not to scrape the cable when replacing the back cover.
7. Power ON the system and use the Setup Utility to verify that the system recognizes the new HDD.

Note: If the system fails to recognize the new HDD, verify that all HDD cables are seated and then verify that the address jumper is correctly installed. If the HDD requires that a jumper is recognized as Drive 0, the correct position is indicated on a label on the top of the HDD.

HDD cables – removing and replacing

1. Remove the HDD front cover as described at “HDD cover – removing and replacing” on page 73.
2. Remove the HDD power connector and data cable connector from the side of the HDD.
3. Cut any cable ties on the cables.
4. Remove the power supply. See “Power supply – removing and replacing” on page 68.
5. Disconnect the power cable from the power supply and the data cable from the system board.
6. Remove the base plate. See “Base plate - removal and replacement.”
7. Pull the power cable free from the plastic guide in the frame.

To replace, reverse this procedure.

Base plate - removal and replacement

Note: The base plate is not present when a mounting foot is used.

1. Remove the back cover as described at “Rear cover – removing and replacing” on page 61.
2. Remove the two screws **A** attaching the base plate **B** to the frame.
3. Remove the cable-tie bar. See “Cable-tie bar – removing and replacing” on page 63.
4. Slide the tower toward the rear and lift it off the base.

To replace, reverse this procedure.

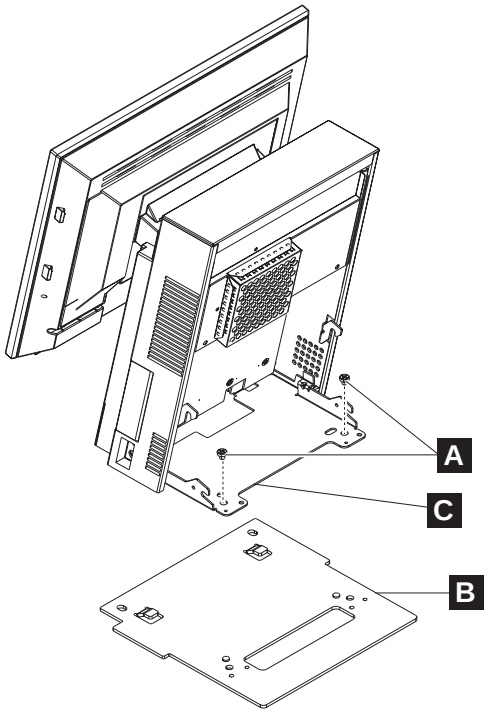


Figure 64. Base plate

Mounting foot- removal and replacement

Note: The base plate is not present when a mounting foot is used.

The mounting foot allows you to sit Model 514 on a cash drawer without an integration tray.

1. Remove the base plate, see “Base plate - removal and replacement” on page 77.
2. Install the mounting foot.

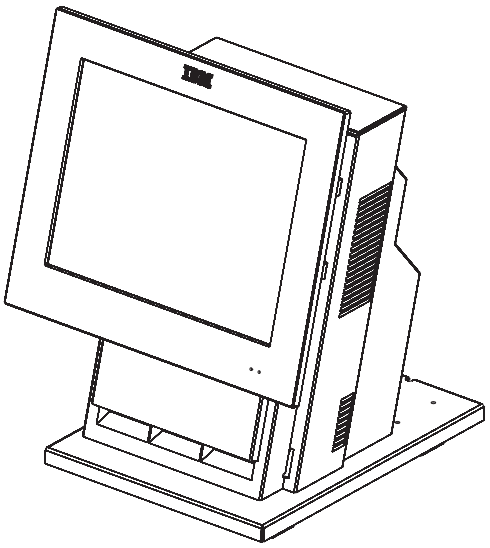


Figure 65. Mounting foot

Integrated customer display – removing and replacing

See “Installing the integrated customer display” on page 9 and reverse the procedures to remove.

Cash drawer FRUs – removing and replacing

This section describes how to remove and replace both full-size and compact cash drawer-related FRUs. It also contains removal and replacement procedures that are common to both cash drawers.

Full-size cash drawer FRUs – removing and replacing

This section describes how to remove and replace full-size cash drawer-related FRUs.

Removing and replacing a full-size drawer

To remove a full size cash drawer:

1. If the cash drawer is mounted to the underside of a counter, refer to the instructions that came with the mounting brackets.
2. Switch OFF the power to the SurePOS 500 Model 514. Unplug the system power cord from the external power source.
3. Open the cash-drawer rear cover.
4. Unplug the cable from the rear of the cash drawer.

5. Remove the integration tray.
6. Open the cash drawer and pull it all the way out.
7. Remove the till.
8. Push in on the buttons in the rails, as shown in Figure 66, and pull up on the front of the drawer until the drawer is free from the slides. Pull the drawer forward out of the base.

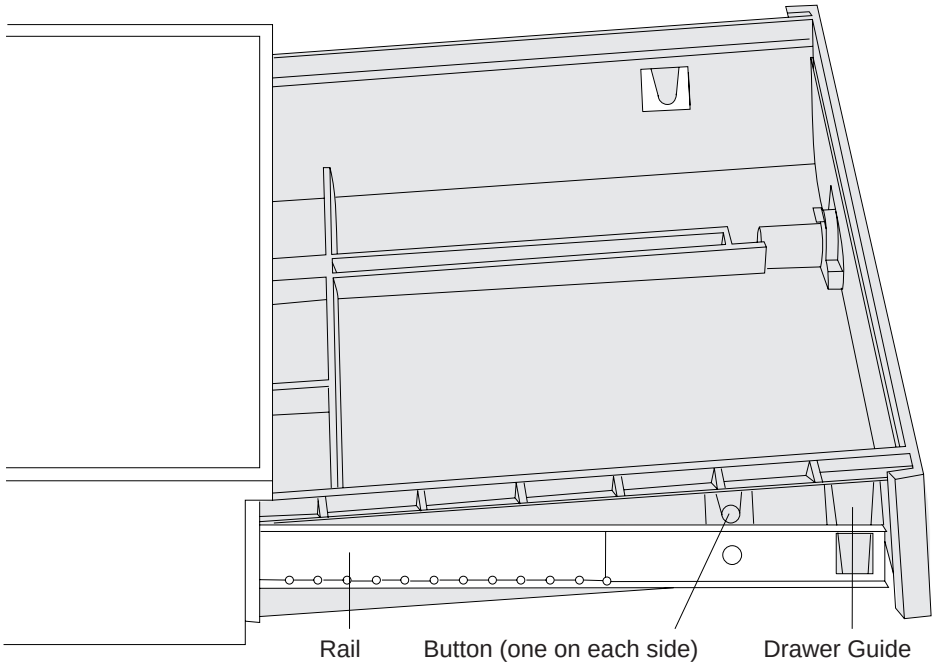


Figure 66. Removing and replacing a full size cash drawer

To replace a cash drawer:

1. Make sure that the latch assembly is unlatched; otherwise, the drawer will not close properly.
2. Pull both slides all the way out.
3. Position the rear of the drawer into the slides so that the drawer guide on each side of the drawer aligns with the corresponding opening on each side, as shown in Figure 66.
4. Pivot the front of the drawer downward until it is positioned fully into the slides.
5. Close the drawer to make sure it closes correctly and remains closed.

Removing and replacing a full-size slide assembly

To remove a cash-drawer slide assembly:

1. Disconnect the cash drawer cable.
2. Remove the drawer as described at “Removing and replacing a full-size drawer” on page 79).
3. Remove the latch and sensor assembly (see “Removing and replacing the latch and sensor assembly” on page 83).
4. Remove the three screws that secure the slide to the base and lift out the slide assembly, as shown in Figure 67 on page 81.
5. If necessary, remove the top cover from the base (see “Removing and replacing the top cover” on page 81).

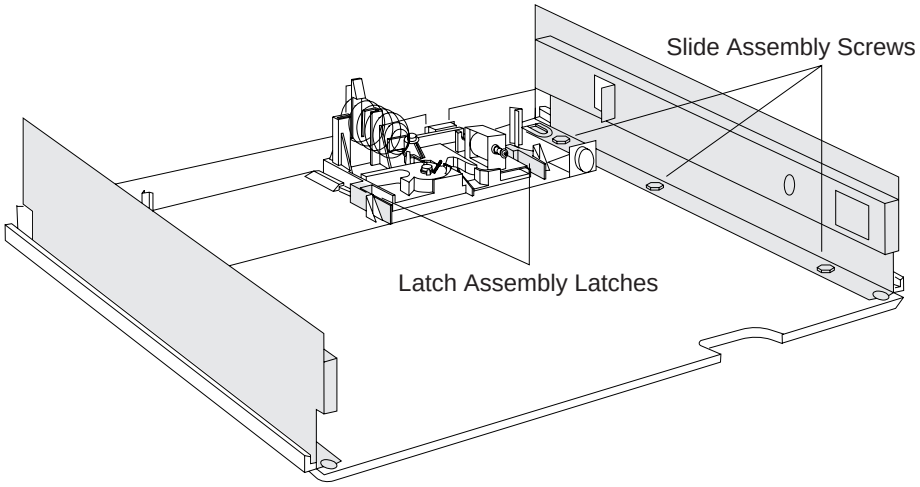


Figure 67. Removing cash-drawer slide assembly

To replace the cash-drawer slide assembly:

1. Place the slide assembly into the base so that the screw holes are aligned.
2. Insert the screws that secure the slides into the base.
3. Reinstall the latch and sensor assembly.
4. Reinstall the top cover if it was removed.
5. Reinstall the drawer.

Common cash-drawer FRUs – removing and replacing

This section describes how to remove and replace compact cash-drawer-related FRUs that are common to both the full-size and compact cash drawers.

Removing and replacing the top cover

To remove the top cover of a cash drawer:

1. Disconnect the cash drawer cable from the rear of the cash drawer. (Other cables could be routed through the rear of the top cover.) Remove the rear panel by releasing it at the pivots. Separate the top cover and base without disturbing these cables. Disconnect cables from the terminal unit when necessary.
2. Open the rear panel by pushing the buttons at the upper rear corners of the cover.
3. Set the devices mounted on the top cover to the side.
4. Remove the drawer (see “Removing and replacing a full-size drawer” on page 79.
5. To separate the top cover from the base, reach in from the front and push the cover latches outward while pushing them to the rear. The cover slides off toward the rear (see Figure 68 on page 82).

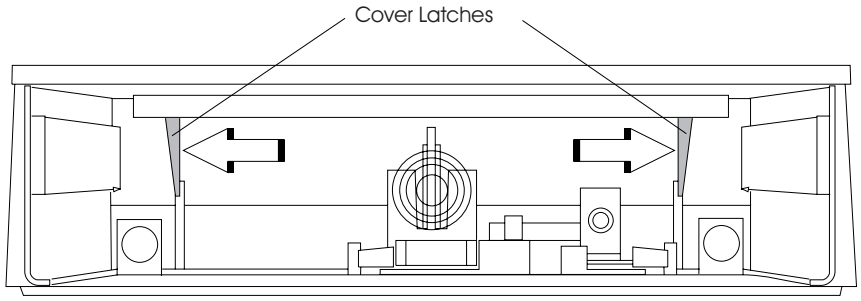


Figure 68. Removing and replacing the top cover

Removing and replacing the keylock assembly

To remove the keylock assembly:

1. Remove the cash drawer “Removing and replacing a full-size drawer” on page 79).
2. Remove the lock retainer clip holding the keylock assembly on the inside of the drawer (see Figure 69).
3. Slide the keylock assembly out of the front of the drawer.

   Note: It might require some force to free the keylock assembly.

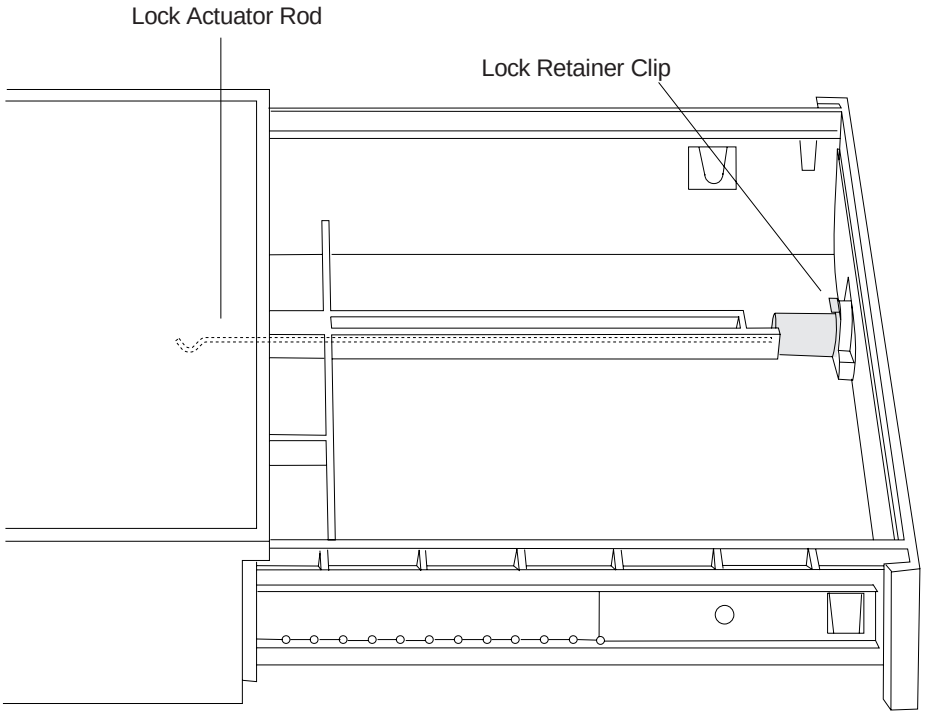


Figure 69. Keylock assembly

To replace the keylock assembly:

1. Ensure that the lock actuator rod is in the position shown in Figure 69.
2. Slide the lock assembly all the way into the opening in the front of the drawer, making sure that the end of the lock actuator rod is interlocked with the rear of the lock.

3. Reinstall the lock retainer clip.
4. Reinstall the drawer.

Removing and replacing the latch and sensor assembly

To remove the latch and sensor assembly:

1. Disconnect the cash-drawer cable from the connector at the rear of the cash drawer.
2. Remove the cash drawer (see “Removing and replacing a full-size drawer” on page 79).
3. Reach in from the front and push the latch on each side of the latch assembly inward while pulling the assembly toward the front (see Figure 67 on page 81).
4. Slide the assembly out of the base.

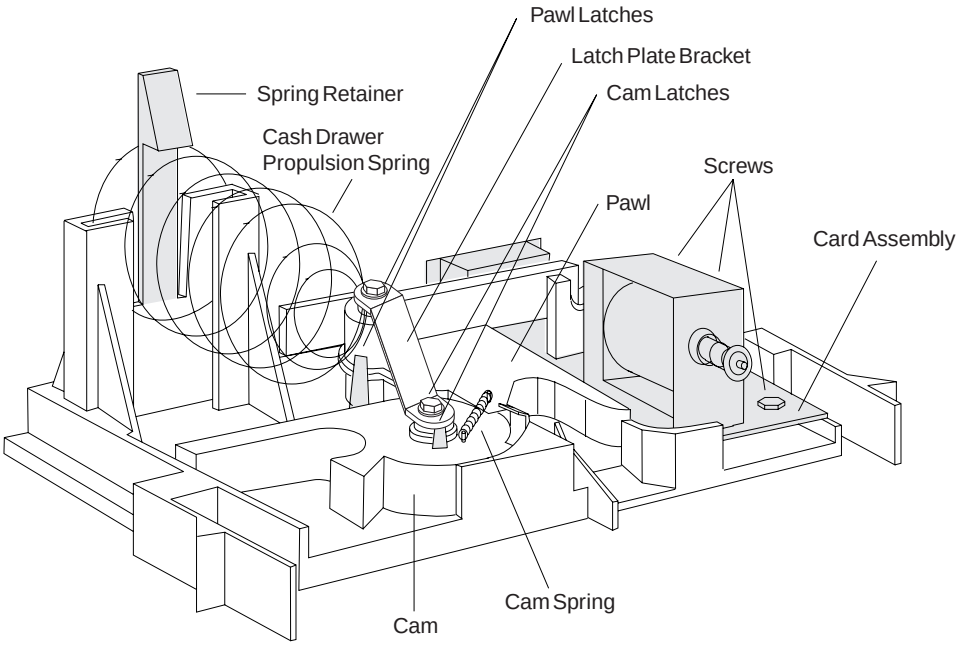


Figure 70. Cash-drawer latch and sensor assembly

To replace the latch and sensor assembly:

1. Slide the assembly into the base from the front and align it with the slots in the base. Push the assembly to the rear until it locks into place.
2. Make sure that the latching mechanism is unlatched.
3. Reinstall the drawer.
4. Reconnect the cash-drawer cable.

Removing and replacing components of the latch and sensor assembly

To remove the individual components of the latch and sensor assembly:

1. Disconnect the cash-drawer cable.
2. Remove the cash drawer (see “Removing and replacing a full-size drawer” on page 79).
3. Remove the latch and sensor assembly (see “Removing and replacing the latch and sensor assembly”).

4. Remove the cash-drawer propulsion spring by pushing the spring retainer back, and then slide the spring up and out of its mounting slots (see Figure 70 on page 83).
5. Remove the latch plate bracket by removing the screw in the cam pivot post and the screw in the pawl pivot post (see Figure 70 on page 83).
6. Remove the cam spring by lifting the ends of the small posts on the cam and the pawl (see Figure 70 on page 83).
7. Spread apart the two pawl latches that hold the pawl on the pivot post, while lifting the pawl off the post (see Figure 70 on page 83).
8. Spread apart the two cam latches that hold the cam on the pivot post, while lifting the cam off the post (see Figure 70 on page 83).
9. Remove the three screws that retain the card assembly and remove the card assembly (see Figure 70 on page 83).

To replace the components of the latch and sensor assembly, reverse this procedure.

Removing and replacing the keylock insert

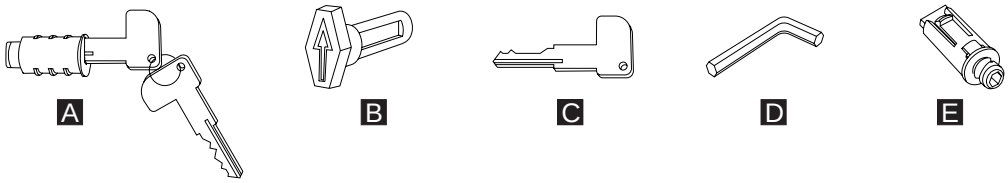


Figure 71. Lock accessories

A Lock insert and keys.
B Aligner. This tool is used to ensure that the slot at the bottom of the lock cylinder aligns with the lock insert being installed. For the cash drawer, the arrow on the aligner should point up. (The arrow points in different directions for other types of devices.)
C Brass installation-removal key.
D Blank lock installation handle.
E Blank lock insert.

To remove the keylock insert:

1. The lock must be in the unlocked position.
2. Insert the brass installation-removal key fully into the lock until it clicks into place.
3. Pivot the brass key slightly downward while pulling the lock insert out of the cylinder until the insert is disengaged from the cylinder.

   Note: The brass key and the lock insert come out of the lock cylinder together. Pressing downward or sideways on the brass key as you pull makes it easier for the lock insert to come out along with the brass key.
4. Remove the brass key.

To replace the keylock insert:

1. The lock insert fits all the way into the lock cylinder only when the slot in the bottom of the cylinder and the lug on the end of the insert are aligned. If necessary, insert the aligner tool (see Figure 71) into the lock cylinder and

rotate it until you feel it engage the slot at the bottom of the cylinder; then turn the aligner tool until the arrow points up.

2. Remove the key that came with the new lock insert.
3. Push the brass installation-removal key into the lock insert. Be sure the key is fully inserted.
4. With the brass installation-removal key still in the lock insert, push the lock insert fully into the lock cylinder.
5. While holding the lock insert in place with your finger, remove the installation-removal key.
6. Test the lock using the keys that came with the insert to be sure that the lock operates correctly.

Removing and replacing the blank lock insert

To remove the blank lock insert:

1. Insert the blank lock-insert handle into the blank keylock cylinder (see Figure 71 on page 84).
2. Using the blank insert handle, turn the locking screw counterclockwise until the insert can be removed from the cylinder.
3. When replacing the blank lock insert, the lug on one end of the insert must be aligned with the slot in the bottom of the lock cylinder. Hold the blank lock insert so that the lug is aligned with the slot.
4. Push the blank lock insert into the empty lock cylinder until it is flush with the top of the lock cylinder.
5. Use the blank lock-insert handle to turn the locking screw clockwise until it reaches the bottom of the hole. Do not overtighten.

To replace the blank lock insert, reverse this procedure.

Appendix A. Field-replaceable units

How to use the parts catalog

This parts listing contains reference drawings and a corresponding index for all field replaceable parts. The index provides the part number, the quantity required (units), and a description of the part.

Listed below is additional information about the parts assembly index.

SIMILAR ASSEMBLIES

If two assemblies contain a majority of identical parts, they are broken down on the same list. Common parts are shown by one index number. Parts specific to one or the other of the assemblies are listed separately and identified by description.

AR (As Required) in the Units column indicates that the quantity is not the same for all machines.

NP (Non-Procurable) in the Units column indicates that the part is non-procurable and that the individual parts or the next higher assembly should be ordered.

NR (Not Recommended) in the Units column indicates that the part is procurable, but not recommended for field replacement, and that the next higher assembly should be ordered.

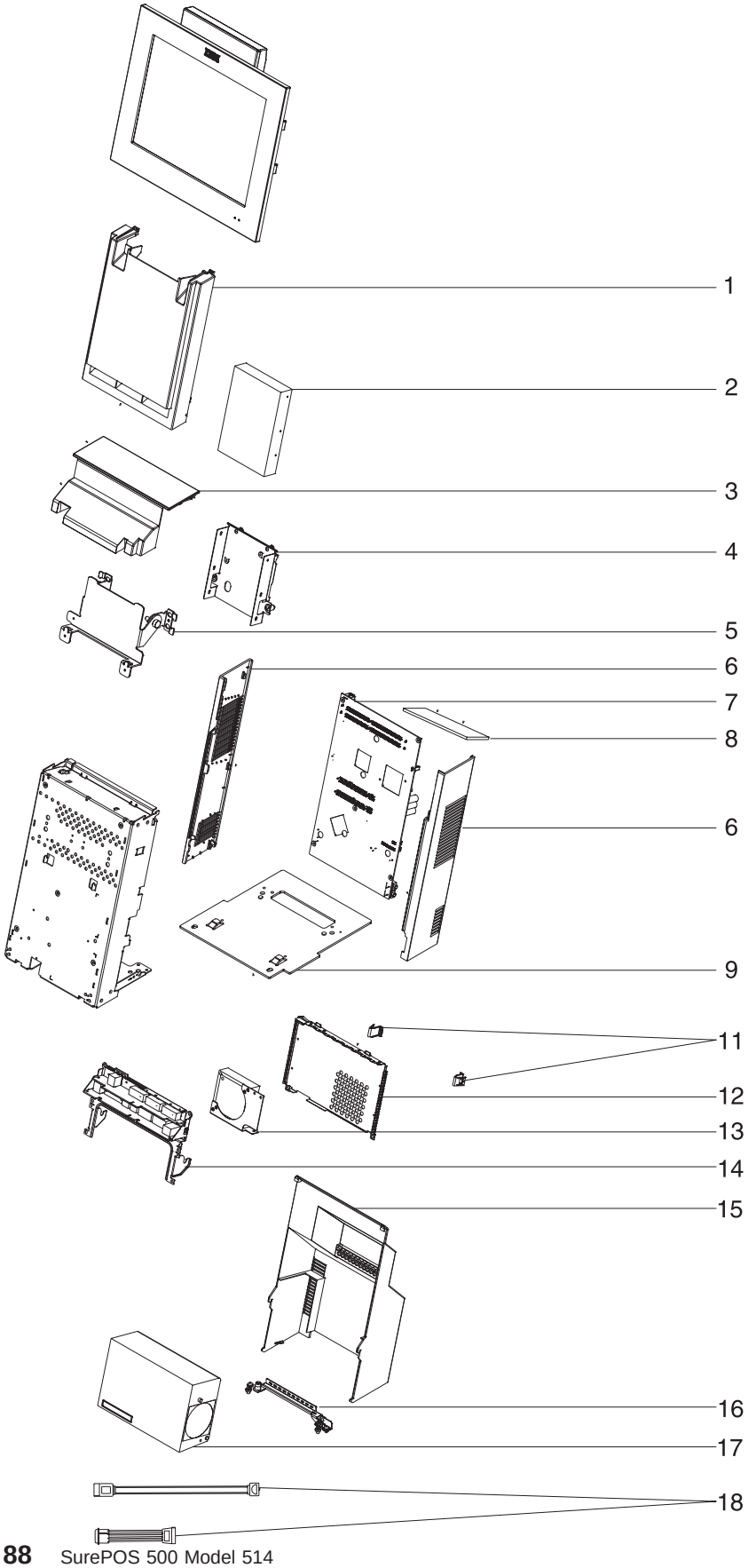
R (Restricted) in the Units column indicates the part has a restricted availability.

INDENTURE

The indenture is marked by a series of dots located before the parts description. The indenture indicates the relationship of a part to the next higher assembly.

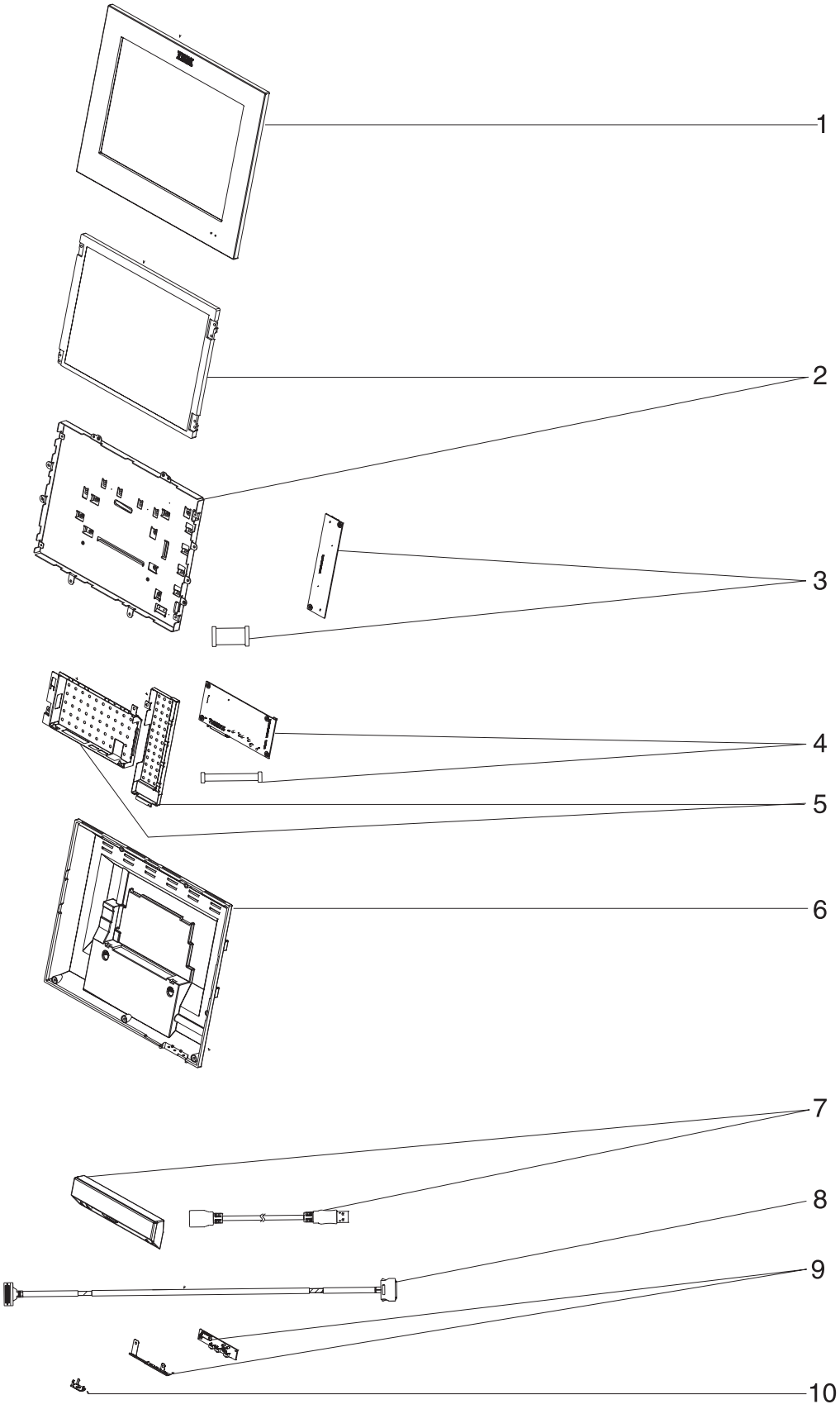
No Dot	Main assembly
One Dot	Detail parts of a main assembly
One Dot	Subassembly of the main assembly
Two dots	Detail part of a one-dot subassembly
Two dots	Subassembly of a one-dot subassembly
Three dots	Detail part of a two-dot subassembly

Assembly 1: SurePOS 500 (4851) Model 514



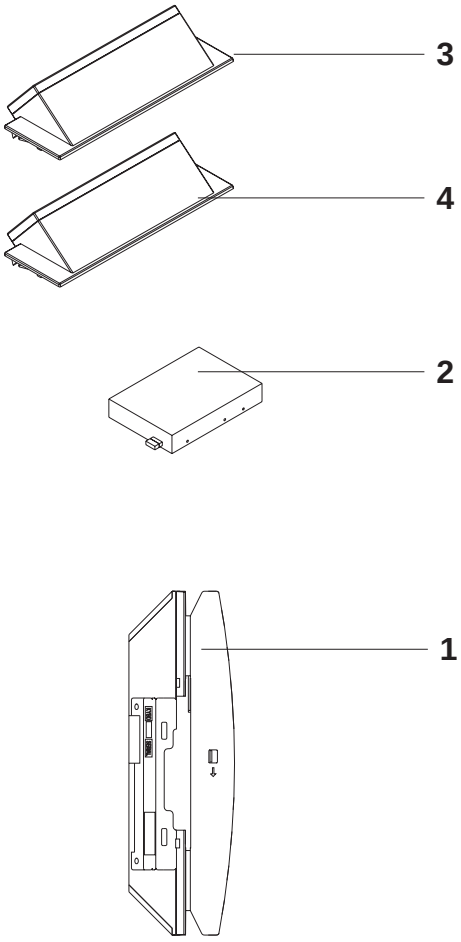
Asm–Index	Part Number	Units	Description
1–1	41D0129	1	HDD cover assembly
–2	41D0147	1	HDD - 40 GB SATA
–3	41D0127	1	Cover kit, top, center
–4	41D0143	1	HDD bracket with screws
–5	41D0155	1	Hinge assembly
–6	41D0131	1	Side cover kit
–7	41D0134	1	System board
–8	41D0141	1	Memory, 256 MB
–8	41D0142	1	Memory, 512 MB
–9	41D0153	1	Base Plate
–11	41D0136	1	HDD cover latch
–12	41D0132	1	Rear EMC shield assembly
–13	41D0154	1	Cooling fan
–14	41D0133	1	Tailgate assembly
–15	41D0128	1	Tower rear cover
–16	41D0148	1	cable-tie bar assembly
–17	41D0146	1	Power supply
–18	41D0140	1	HDD cable
–	41D0145	1	Screw kit
–	41D0149	1	Integrated VFD
–	14R0029	1	Integrated VFD cover kit
–	41D0161	1	Distributed VFD
–	41D0163	1	APA VFD
–	42M5663	1	Cable, distributed display, 3.8m
–	42M5626	1	Cable, distributed display, 0.8m

Assembly 2: Display tablet components



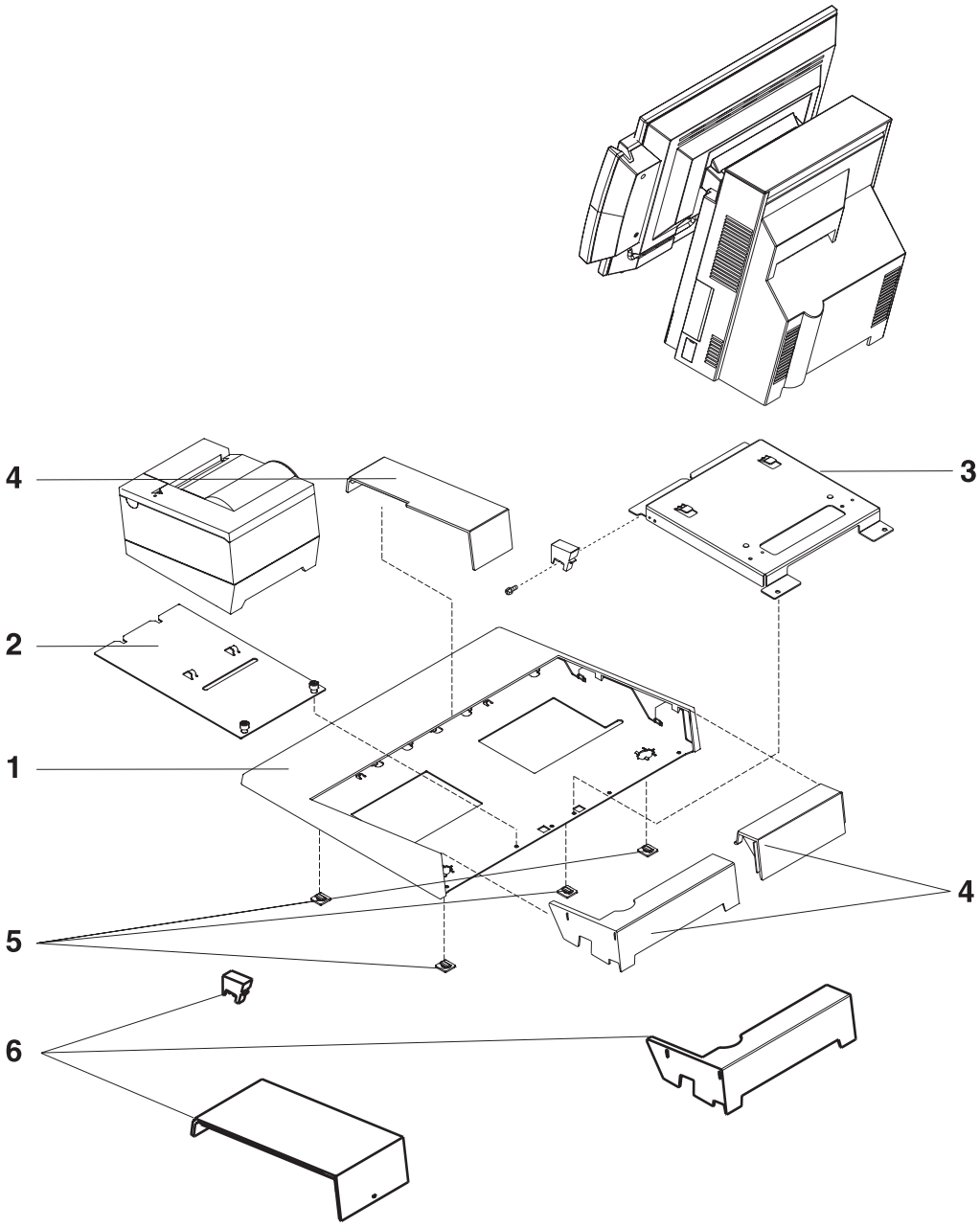
Asm–Index	Part Number	Units	Description
2–1	41D0165	1	Front bezel assembly
–2	41D0166	1	LCD assembly
–3	41D0167	1	Backlight card
–4	41D0168	1	Tablet touch card
–5	41D0169	1	Tablet EMC shield
–6	41D0170	1	Tablet rear cover
–7	41D0130	1	Antenna cover kit
–8	41D0126	1	Tablet cable
–9	41D0189	1	Button card, EMC shield, and cable
–10	41D0171	1	Power button protector

Assembly 3: Optional features



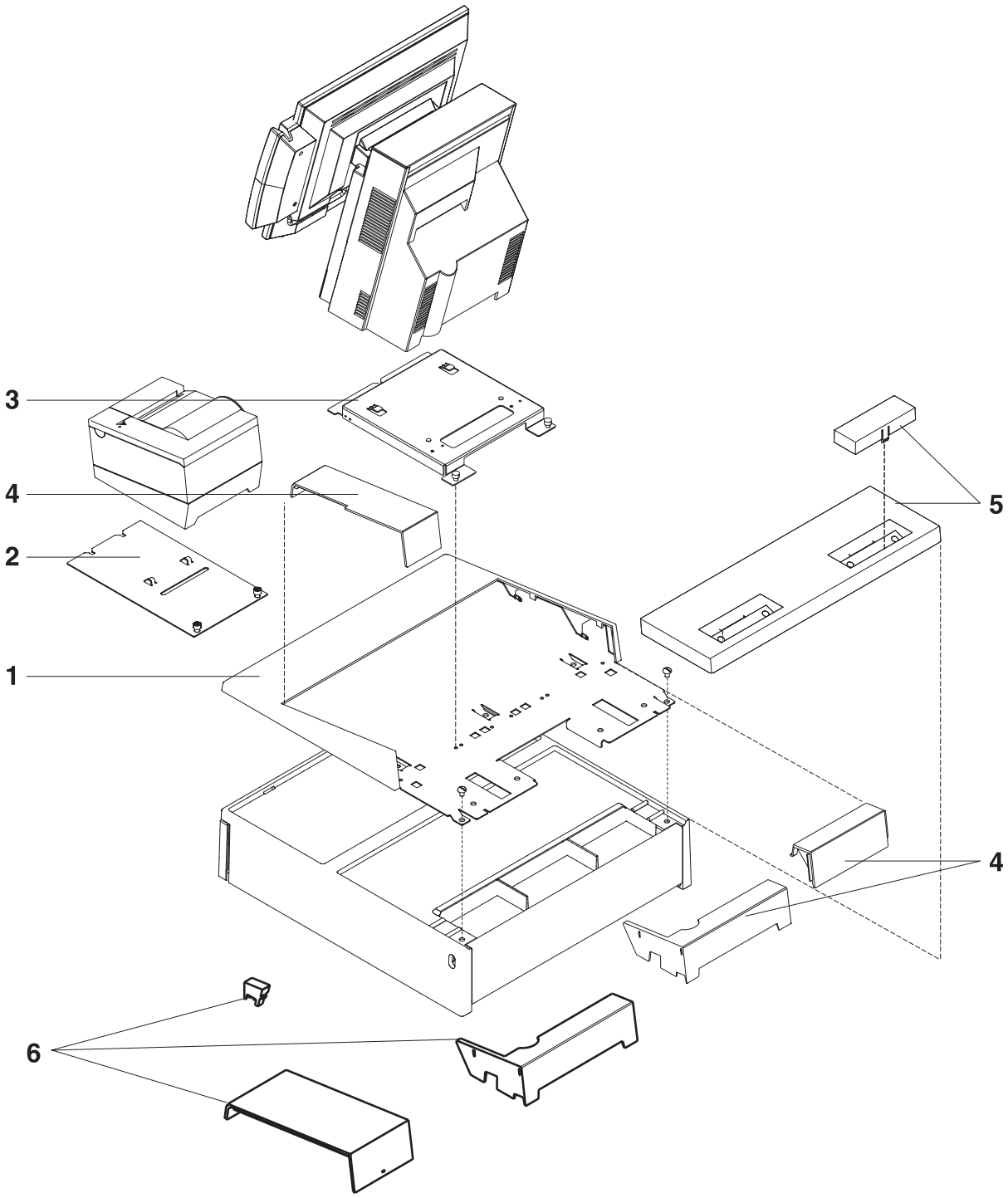
Asm–Index	Part Number	Units	Description
3–			Optional features
–1	41D0151	1	MSR - 3 track
–1	41D0152	1	MSR - JUCC
–2	06P5223	1	Diskette drive, external, USB
–3	41D0149	1	Display assembly, integrated customer (2x20) (includes cover kit, item 4)
–4	14R0029	1	Cover kit, integrated (2x20) (cover only, does not include display)
–	14R0157	1	Wide keyboard filler panel (not illustrated)

Assembly 4: Countertop non-keyboard integration tray and filler panels



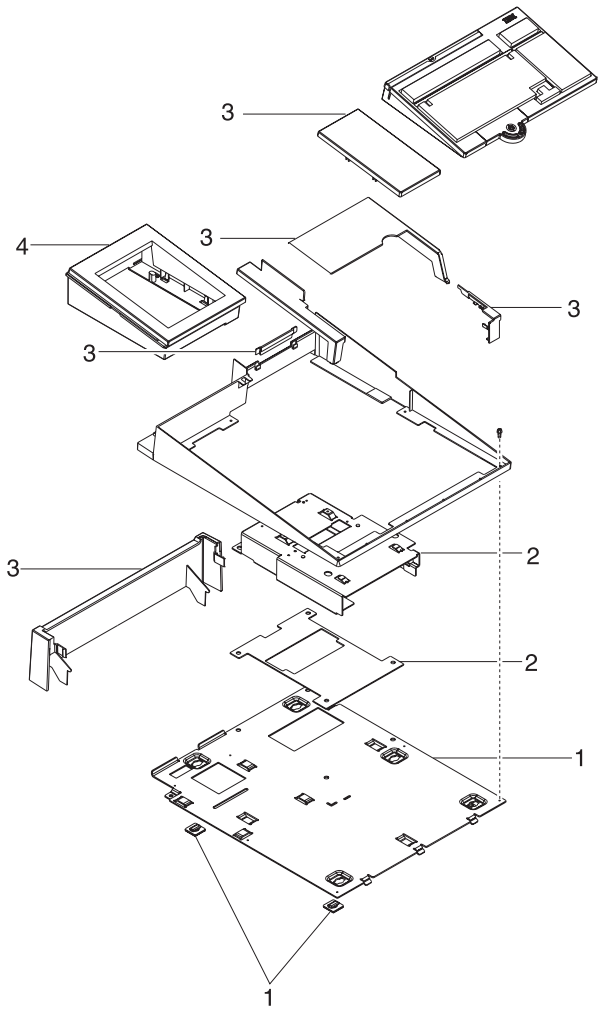
Asm–Index	Part Number	Units	Description
4–			Countertop non-keyboard integration tray and filler panels
–1	41D0261	1	Plate and fence, countertop mount
–1	41D0213	1	Plate and fence, countertop mount, fits filler panel for non-printer use
–2	41D0211	1	Plate, printer mounting
–3	41D0207	1	Plate, terminal mounting (includes screws)
–4	14R1998	1	Panels, filler
–	41D0212	1	Hardware, non-keyboard integration tray (kit - includes feet and screws, not illustrated)
–5	93F0663	1	Feet, rubber (5)
–6	41D0209	1	Printer filler panel kit, non-keyboard

Assembly 5: Cash drawer non-keyboard integration tray and filler panels



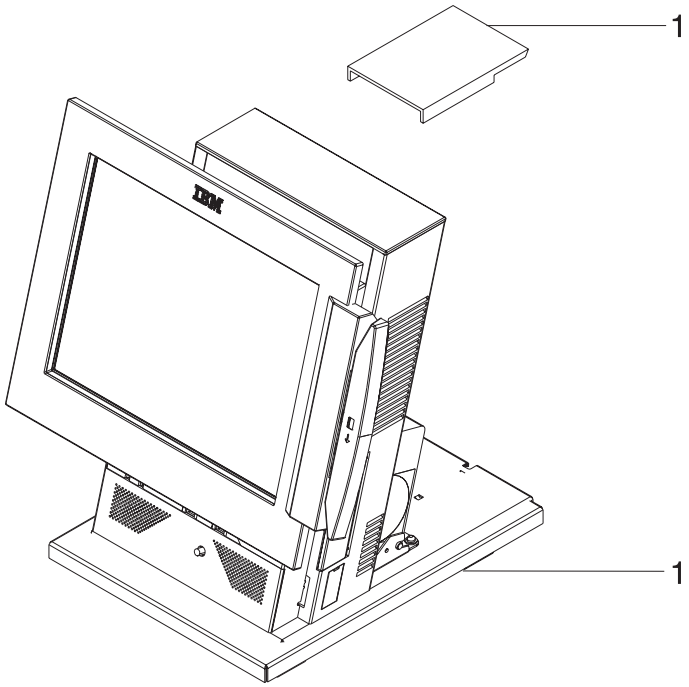
Asm–Index	Part Number	Units	Description
5–			Cash drawer non-keyboard integration tray and filler panels
–1	41D0210	1	Plate and fence, cash drawer mount
–2	41D0211	1	Plate, printer mounting
–3	41D0207	1	Plate, terminal mounting
–4	14R1998	1	Panels, filler
–5	20P0308	1	Cover, modesty
–6	41D0209	1	Printer filler panel kit, non-keyboard
–	41D0212	1	Hardware, non-keyboard integration tray (kit - includes screws, not illustrated)

Assembly 6: Countertop and cash drawer keyboard integration tray and filler panels



Asm–Index	Part Number	Units	Description
6–			**Countertop and cash drawer keyboard integration tray and filler panels**
–1	41D0214	1	FRU, plate/fence ASM, wide cash drawer or countertop (includes hardware)
–		1	• ASM, wide cash drawer plate (includes hardware)
–		1	• - M6X8 screws, cash drawer mount
–		1	• - Fence, wide
–		1	• - M3X5 screws, fence mounting
–		1	• - Feet, rubber
–2	41D0208	1	FRU, plate ASM, terminal mounting
–		1	• ASM, terminal mount
–		1	• - Plate, terminal mount insulator
–		1	• - Washer, insulating
–		1	• - M6X12 screws, terminal mount
–3	14R0024	5	FRU, filler panels, wide and countertop
–		1	• Cover, keyboard filler, retail keyboard
–		1	• Cover, terminal filler, wide tray and countertop
–		1	• Cover, wide CD rear curtain
–		1	• Fence, plug
–4	47P9273	1	FRU, iron gray printer footprint adapter, SST to 4610
–		1	• ASM, iron gray printer footprint adapter
–		1	• - Base, SST to 4610 footprint, iron gray
–		1	• - Panel, SST to 4610 footprint, iron gray
–		1	• - Feet, printer base
–	41D0216	1	FRU, retail integration, installation hardware kit (not shown)
–		1	• Hardware kit, retail integration
–		1	• - M3X5 screws, fence mounting (6)
–		1	• - M5X10 screws, system unit mounting (4)
–		1	• - M6X12 screws, terminal mounting (4)
–		1	• - Washer, insulation (for terminal mount screws) (4)
–		1	• - M6X8 screws, CD plate mounting (4)
–		1	• - Feet, CD plate countertop mounting (5)

Assembly 7: Mounting foot



Asm–Index	Part Number	Units	Description
7–			Mounting hardware and covers
–1	41D0217	1	Mounting foot assembly
–		1	• Base
–		1	• Cover

Line cord assemblies

Table 11. Power cords

Part number	Length	Country
39M5065	2.8M Non-locking	Argentina
39M5100	4.3M Non-locking	Australia, New Zealand
39M5093	4.3M Non-locking	Bermuda, Bahamas, Central America, South America
39M5238	4.3M Non-locking	Brazil
39M5162	2.8M Non-locking	Chile
39M5163	2.3M	Chile
39M5204	4.3M Non-locking	China
39M5077	1.8M Non-locking	Colombia, Venezuela, Peru, Ecuador, Brazil
39M5078	2.8M Non-locking	Colombia, Venezuela, Peru, Ecuador, Brazil
39M5128	4.3M Non-locking	Denmark
39M5121	4.3M Non-locking	Euro/Korea
39M5149	4.3M Non-locking	Hong Kong, Ireland, Malaysia, Singapore, U.K.
39M5142	4.3M	Bangladesh, Pakistan, South Africa, Sri Lanka
39M5224	4.3M	India
39M5170	4.3M Non-locking	Israel
39M5163	4.3M Non-locking	Italy
39M5135	4.3M Locking	Japan
39M5197	4.3M Non-locking	Japan
39M5149	4.3M Non-locking	Kenya, Nigeria
39M5217	4.3M Non-locking	Korea
39M5099	2.8M Non-locking	Paraguay, Uruguay
39M5066	4.3M Non-locking	Paraguay, Uruguay
39M5156	4.3M Non-locking	Switzerland
39M5252	4.3M Non-locking, high voltage	Taiwan
39M5245	4.3M Non-locking, low voltage	Taiwan
39M5077	1.8M Non-locking	U.S. (Required in Chicago), Canada, Latin America
39M5079	4.3M Non-locking	U.S.
39M5107	4.3M Locking	U.S.

Appendix B. System specifications and planning information

This appendix provides information on physical specifications, power subsystems, and environmental requirements.

Physical specifications and dimensions

The SurePOS 500 Model 514 physical specifications are described in Table 12 and Table 13.

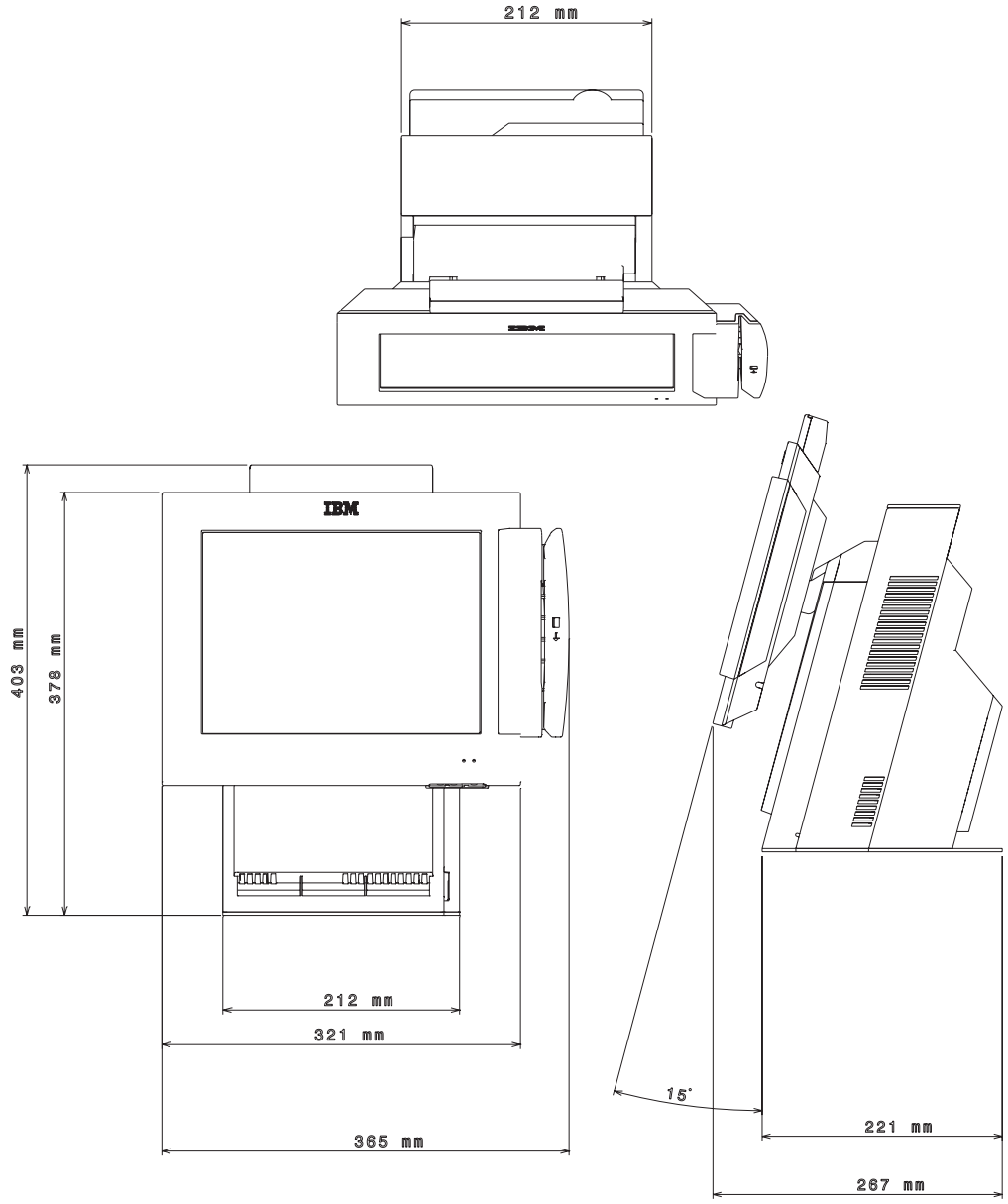
Table 12. SurePOS 500 Model 514 dimensions

Height (mm)	**Counter with 12 in. Tablet**
Tablet at 15°	14.88 in. (378 mm)
Tablet max.	15.12 in. (384 mm)
Cash drawer mounting plate	Add 0.67 in. (17 mm)
Width (mm)	
Tablet	12.64 in. (321 mm)
Tablet with MSR	14.37 in. (365 mm)
Base	8.35 in. (212 mm)
Depth (mm)	
Base	8.70 in. (221 mm)
Cash drawer mounting plate	21.56 in. (548 mm)
Total front to rear tablet at 15°	10.51 in. (267 mm)
Total front to rear tablet at 60°	12.91 in. (328 mm)

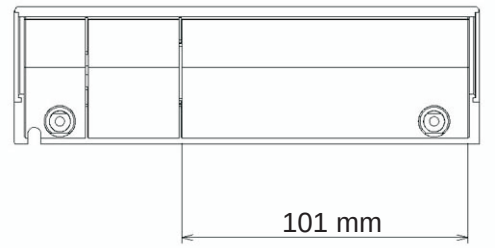
Table 13. SurePOS 500 Model 514 weights

Component	**Weight**
Tower and 12-in. tablet	9.5 kg (21 lbs)
Integrated 2x20 display	0.21 kg (0.38 lbs)
Distributed 2x20 display	0.55 kg (1.2 lbs)
Distributed APA display	0.73 kg (1.6 lbs)
MSR (three-track or JUCC)	0.16 kg (0.41 lbs)

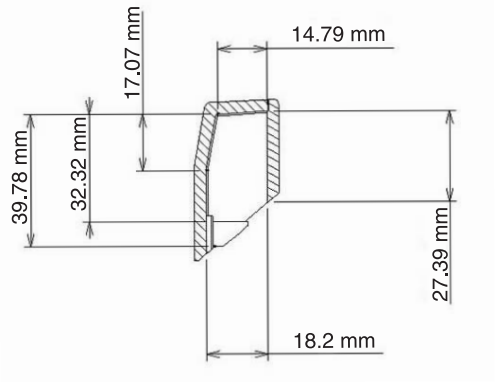
Dimensions of unit with 12-inch display



Dimensions of antenna enclosure



Back view



Cross section from side

Power requirements and consumption

This section describes the power requirements and power consumption of the SurePOS 500 Model 514 .

Power

Table 14. Input voltage, frequency

Input	Frequency
100–127 V AC	50 or 60 Hz
200–240 V AC	50 or 60 Hz

Table 15. SurePOS 500 Model 514 power supply

Nominal output voltage	Tolerance	Continuous current (indefinite)	Maximum current
+5.0 V AUX	±5%	1.0 A	2.0 A
+5.0 V MAIN	±5%	7.0 A	12.0 A
+12.0 V	±5%	5.0 A	9.0 A
+3.3 V	±5%	4.0 A	9.0 A
-12.0 V	±10%	0.3 A	0.3 A
+25.3 V	±4%	0.5 A	3.0 A

Table 16. Power consumption

State:	Usage:
Off	3.5 W
Standby	40 W
On (idle, no I/O)	60 W
On (maximum)	90 W

Output connectors

To meet the 8-A current limit on outputs per IEC 950, Clause 2.11 regarding Limited Power circuits requirements, the following output ports are dedicated PTCs:

- +5 V keyboard/mouse
- +5 V/+12 V internal and external customer display
- 5 V USB
- 12 V powered USB
- +12 V external speaker
- +5 V MSR

Notes:

1. The 24 V cash drawer and printer output is limited to 8 A by the main switching power supply.
2. Two printers cannot be attached to the system simultaneously.

Connector-pin assignments

This following sections list the connector-pin assignments for the external and internal connectors.

External connectors

The following sections show the connector-pin assignments for external connectors.

MSR connector

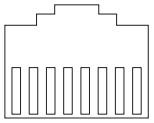


Table 17. MSR connector-pin assignments

Pin	Connector
1	+5 V dc
2	Serial data out
3	Serial data in
4	Ground
5	KBD enable
6	Keyboard data
7	Keyboard clock
8	Ground

USB port connectors

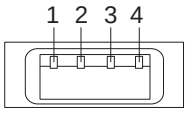


Table 18. USB port connector-pin assignments

Unpowered USB	
Pin	**Connector**
1	5 V bus
2	−Data
3	+Data
4	Ground

Table 19. USB port connector-pin assignments

Powered USB	
Pin	**Connector**
Shell	Shield
1	5 V Vbus
2	−Data
3	+Data
4	Ground
5	Ground
6	Vplus (12 V or 24 V)
7	Vplus (12 V or 24 V)
8	Ground

Keyboard and mouse connector

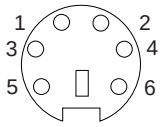


Table 20. Keyboard and mouse connector-pin assignments

Pin	Signal	I/O	Pin	Signal	I/O
1	Keyboard data	I/O	4	+5 V dc	
2	Mouse data	I/O	5	Keyboard clock	I/O
3	Ground		6	Mouse clock	

Serial connectors

9-pin serial connector (3): The 9-pin serial connector is a male connector.

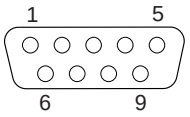


Table 21. Assignment for 9-pin serial connector

Pin	Signal	I/O	Pin	Signal	I/O
1	Carrier detect	I	6	Data set ready	I
2	Receive data	I	7	Request to send	O
3	Transmit data	O	8	Clear to send	I
4	Data terminal ready	O	9	Ring indicator	I
5	Signal ground				

15-pin serial connector: The 15-pin serial connector is a female connector.

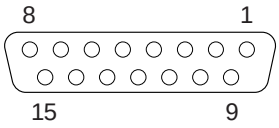


Table 22. Assignments for 15-pin serial connector

Pin	Connector	Pin	Connector
1	Carrier detect	8, 9	+12 V dc at 0.5 A maximum
2	Receive data	11	Distributed display present
3	Transmit data	12	Data set ready
4	Data terminal ready	13	Request to send
5	Ground	14	Clear to send
6	Ground	15	Ring indicate
7, 10	+5 V dc at 0.5 A maximum		

Ethernet connector

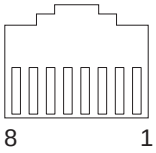


Table 23. Ethernet connector-pin assignments

Pin	Signal	I/O	Pin	Signal	I/O
1	TxD+	O	5	Ground	
2	TxD−	O	6	RxD−	I
3	RxD+	I	7	Ground	
4	Ground		8	Ground	

Cash drawer connector (2)

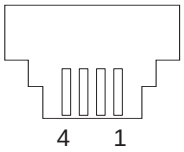


Table 24. Assignment of cash drawer connector pins

Pin	Connector
1	Ground
2	Sensor
3	Open signal
4	+24 V dc

Integrated customer display connector

To access this connector, you must remove the rear cover.

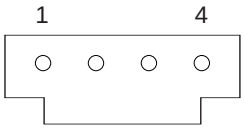


Table 25. Assignment of integrated customer-display connector pins

Pin	Connector
1	+5 V dc at 0.5 A maximum
2	Transmit data
3	Integrated customer display present
4	Ground

Temperature, humidity, and altitude limits

Table 26. Temperature and humidity limits

Condition	Temperature limits (dry bulb)	Relative Humidity	Maximum wet bulb temperature
Operating	5 to 40° C.	8 to 80 %	27° C.
Power Off	0 to 52° C.	5 to 95 %	27° C.
Storage	0 to 60°	5 to 100%	29° C.

This product is designed to operate up to 3050 m (10,000 ft.).

Serial port assignments

Table 27. Default serial port assignments

Device port	DOS name	Linux device name	I/O address default	IRQ default
Serial A	COM1	ttyS0	3F8	4
Serial B	COM2	ttyS1	2F8	3
Serial C	COM6	ttyS5	2A0	11
MSR	COM3	ttyS2	3E8	5
Serial D/VFD	COM4	ttyS3	2E8	6
Touch	COM5	ttyS4	3A0	7

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高調波ガイドライン適合品

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

A급 기기(업무용)

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

Chinese Class A warning statement

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

中华人民共和国“A 类”警告声明

声　明

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

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。

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.

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Appendix D. End of life disposal

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

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

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

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

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

Appendix E. Safety information

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

Gevaar:
Voordat u begint met de installatie van dit produkt, moet u eerst de veiligheidsinstructies lezen in de brochure *Veiligheidsinstructies—Lees dit eerst*, GA27-4004. Hierin wordt beschreven hoe u electrische 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 Seguranaça—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—Lœs 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 appratuur.

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 Anschlie*ß*en elektrischer Geräte.

Vigyázat

Mielôtt 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 sequridad para cablear y enchufar equipos eléctricos.

Varning—livsfara

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

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

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

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

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

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

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

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

خطـــر: قبـــل عمـــلية بـــدء تركيـــب هذا المنتـــج، قم بقراءة معلومـــات
الحمـــاية الموجودة في التحذيـــر: معلومـــات الحمـــاية – Read This First،
GA27-4004 . يقـــوم هذا الكتيـــب بوصـــف اجـــراءات الآمـــان
لتوصـــيل الأدوات الكـــهربائية بالكـــابلات والمقبـــس الكـــهربائـــي.

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

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

危險：

開始安裝此產品之前，請先閱讀安全資訊。

注意：

請先閱讀 - 安全資訊 GA27-4004

此冊子說明插接電器設備之電纜線的安全程序。

危险：
在开始安装本产品之前，请阅读
IBM Safety Information - Read This First，
GA27-4004 中的安全信息。
此手册描述了如何安全地连接和插拔电气设备。

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 iindependent 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*.

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 wihtout 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)

G

gigabyte. Approximately one billion bytes or 1,024 megabytes. Gigabyte is often abbreviated as G or GB.

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 infared 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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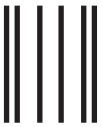

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