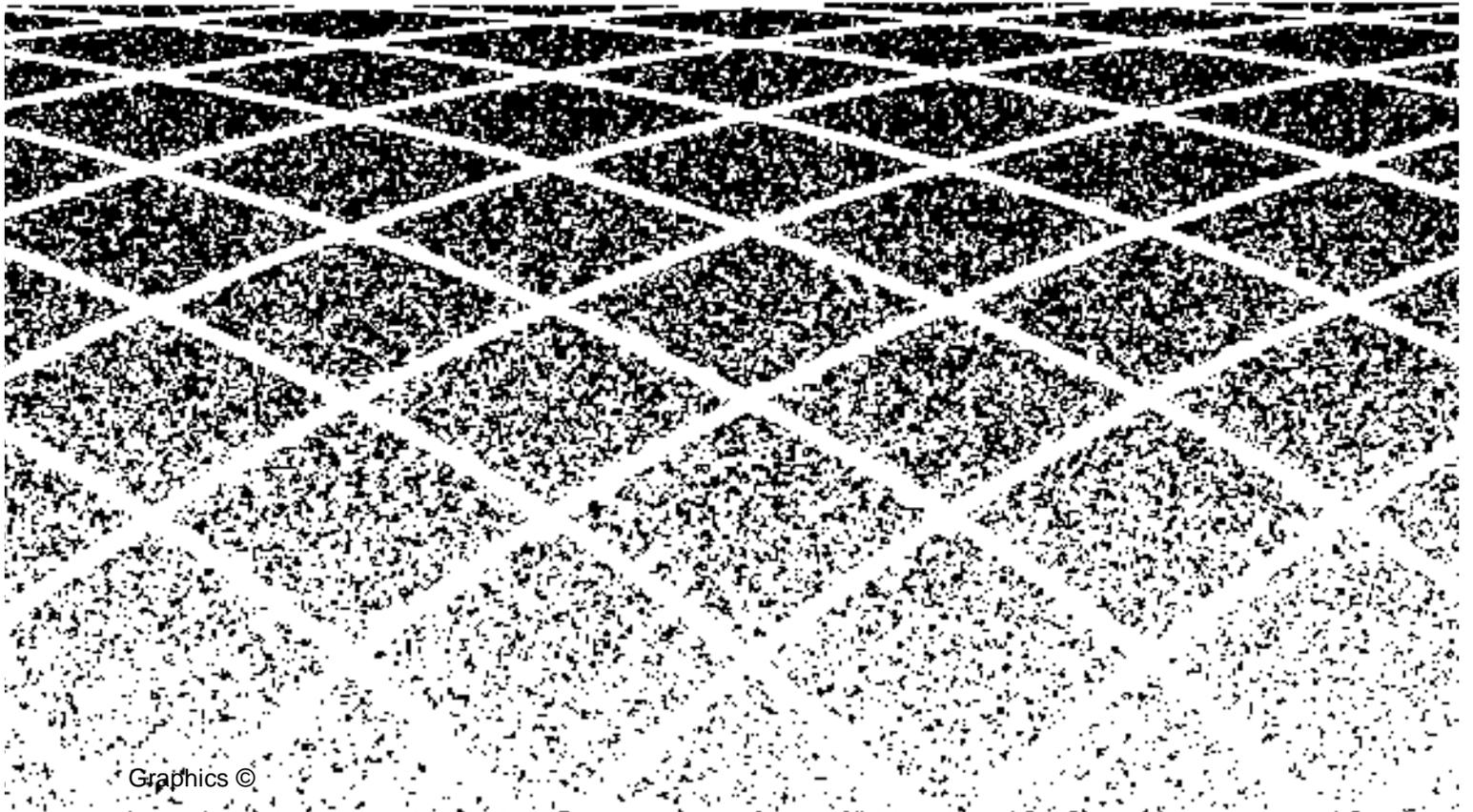




585-350-213
Issue 1
October, 1993

Upgrade Kit for Map/40



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About This Book

Purpose

This book, *Upgrade Kit for MAP/40*, 585-350-213, describes the procedures for upgrading both a MAP/40 from a 386 CPU to a 486 CPU, and from IDE to SCSI disk drive system.

Intended Audiences

This book is intended primarily for the technician. Secondary audiences include the following: customer, field support, customer support, and factory assemble, load, and test (ALT) personnel.

How This Book Is Organized

This book is organized into the following chapters:

- **About This Book**

This chapter is designed as a preface to the rest of the book, including such information as the book purpose, its intended audiences and organization, use, conventions, trademarks and service marks, security and safety requirements, and related resources. This chapter also explains how to make comments about the book.

- **Chapter 1, “Getting Started”**

This chapter describes warnings about the MAP/40, how to avoid electrostatic damage to hardware items, how to unpack the kit, the importance of saving packing materials, items in the kit, and tools you need.

- **Chapter 2, “Getting Inside the Platform”**

This chapter describes how to open the MAP/40 by removing the dress cover of the chassis, as well as how to access the peripheral bay and card cage.

- **Chapter 3, “Upgrading Circuit Cards”**

This chapter serves as an introduction to the circuit cards that you will be upgrading as part of this upgrade kit. This chapter also includes “General Steps for Circuit Card Installation” which applies to the installation of all circuit cards, though additional steps may be required for some.

- **Chapter 4, “Performing the Upgrade”**

This chapter describes the procedures to upgrade your system from 386 to 486 and from IDE to SCSI.

- **Index**

This section provides an alphabetical listing of principal subjects covered in this book.

Trademarks and Service Marks

The following trademarked products are mentioned in this book:

- CONVERSANT and AUDIX are registered trademarks of AT&T.
- Voice Power is a trademark of AT&T.
- UNIX is a registered trademark of UNIX System Laboratories, Inc.

Related Resources

The following books are expected to be used in conjunction with this book:

- *MAP/40 Voice Processing Hardware Installation*, 585-350-109
- *CONVERSANT Voice Information System Version 4.0 Maintenance*, 585-350-112

How to Make Comments About This Book

A reader comment card is behind the title page of this book. While we have tried to make this book fit your needs, we are interested in your suggestions for improving it and urge you to complete and return a reader comment card.

If the reader comment card has been removed, send your comments to:

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Denver, Colorado 80234

Please include the name and order number of this book.

What's in This Chapter

This chapter describes warnings about the MAP/40, how to avoid electrostatic damage to hardware items, how to unpack the kit, the importance of saving packing materials, items in the kit, and tools you need.

Heeding Warnings

Warnings and cautions appear throughout this book as needed when describing procedures. These admonishments let you know when the actions you are about to perform can harm you or the equipment unless you follow procedure steps as listed.

The warnings that occur within this book are listed here as well for your information.



WARNING:

There is a magnet on the back of 855A adapter. Be sure that you do not place this near the hard disk drive or new floppy diskettes.

⚠ WARNING:
*Notify the telephone company immediately if the MAP/100 is to be permanently or temporarily disconnected from its present line/trunk circuits (Digital circuits ONLY).
If you are turning off the power to the MAP/40 you are disconnecting from the line/trunk circuits.*

⚠ WARNING:
If you disconnect the MAP/40 from the telephone network on a continuing basis without letting the telephone company know, they can disconnect your service (Digital circuits ONLY).

⚠ WARNING:
If any of the telephone equipment is not operating properly, remove it immediately from the telephone lines. Malfunctioning equipment can harm the telephone network.

⚠ WARNING:
Shut power off before removing the dress cover or access panel of the MAP/40.

Perform a "soft" shutdown of the VIS operating system, if on-line, before shutting off power to the system. See CONVERSANT Voice Information System Version 3.1 Operations, 585-350-701, for information.

⚠ WARNING:
Observe proper electrostatic discharge precautions when handling computer components. Wear a ground wrist strap on your bare skin and connect to a ground.

⚠ WARNING:
The manufacturer(s) does not accept liability for a damaged unit if the unit is not returned in the original packing materials and carton. The carton has been designed to ensure product warranty and to prevent damage.

⚠ WARNING:
Do not use the dress cover of the MAP/40 as a way to lift it.

Avoiding Electrostatic Discharge Damage

The human body can collect thousands of volts of destructive static electricity from ordinary activities, for example, walking on a rug, handling synthetic materials, or wearing synthetic clothes. When this static electricity discharges onto another surface at a different voltage potential, it is called *electrostatic discharge* or *ESD*.

A person cannot feel ESD below approximately 3500 volts. However, only 30 volts is needed to damage ESD-sensitive electronic components.

Circuit cards and packaging materials that contain ESD-sensitive components are often marked with a yellow and black warning symbol. Proper grounding techniques prevent the discharge of damaging static electricity from your body into these ESD-sensitive components during handling.

There is no quick method of testing for ESD damage. Components that are damaged may simply fail after a brief period of normal operation.

To avoid damaging ESD-sensitive components, follow these rules:

- Handle ESD-sensitive circuit cards only after you have attached a wrist strap to the bare skin of your wrist. Attach the other end of the wrist strap to a ground that terminates at the system ground, such as any unpainted metallic chassis surface.
- Handle a circuit card by the faceplate or side edges only. Do *not* touch components, leads, or connector areas (gold finger pins).
- Hold a short circuit card by the faceplate only. See Figure 1-1.
- Hold a larger circuit card as shown in Figure 1-2. Ensure palm is not in contact with the board wiring side.
- Keep circuit cards away from plastics and other synthetic materials such as polyester clothing.
- Do *not* hand circuit cards to another person unless that person is grounded at the same potential level.
- Hold devices such as a hard disk, floppy drive, or cartridge tape drive as you would a large circuit card. The ESD sensitive area of these components is located on the bottom surface. Hold these drives on the areas recommended below.

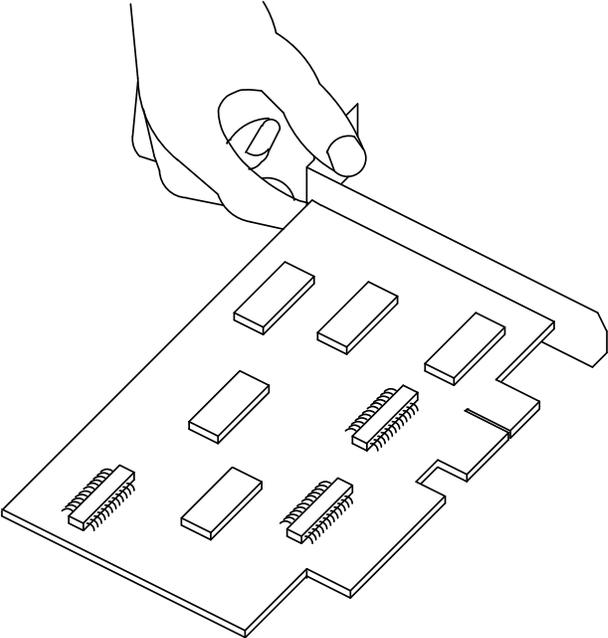


Figure 1-1. How to Hold a Short Circuit Card

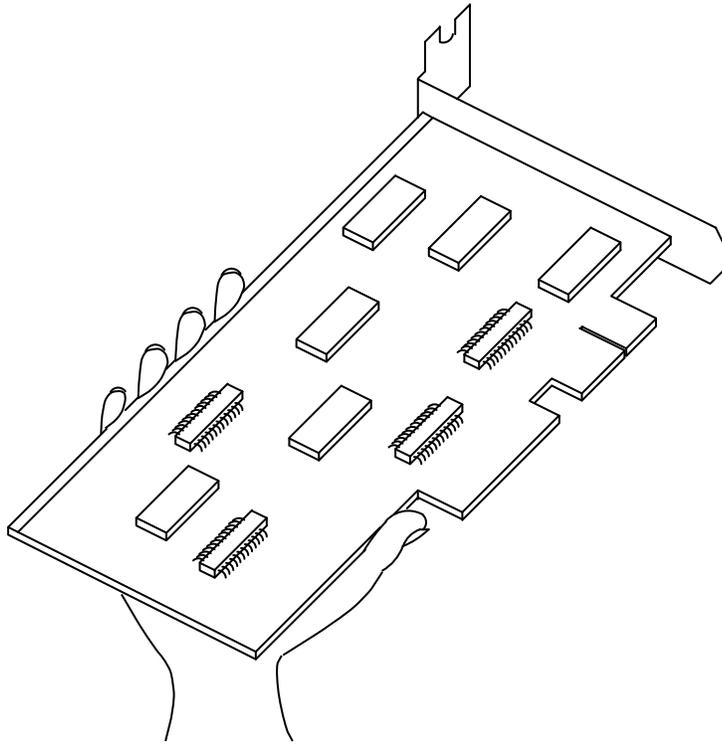


Figure 1-2. How to Hold a Long Circuit Card

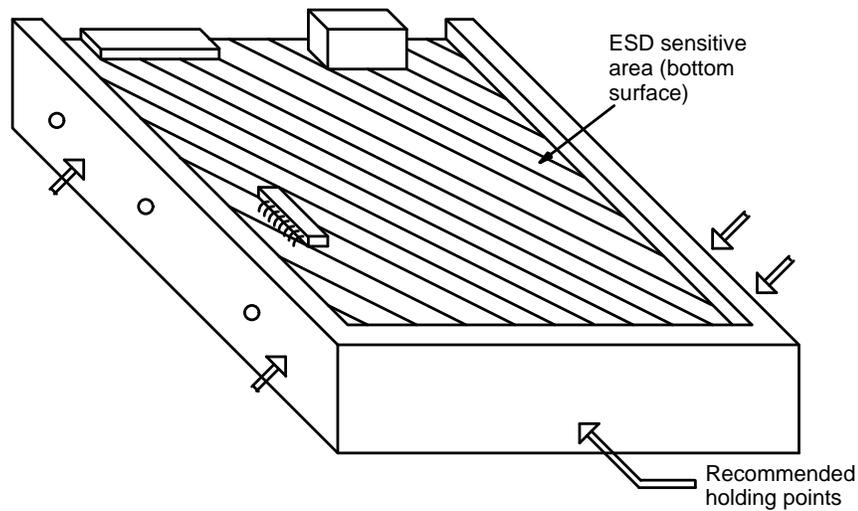


Figure 1-3. Electronic Component ESD Sensitive Area

Unpacking the Upgrade Kit

Save the shipping carton and all packing materials to use in the event the unit needs to be returned to the manufacturer. Packing materials include anti-static bags and bubble wrap as well as cardboard and foam inlays. If you have ordered multiple kits, saving one carton and packing materials should be sufficient.



CAUTION:

The manufacturer does not accept liability for a damaged unit if the unit is not returned in the original packing materials and carton. The carton has been designed to ensure product warranty and to prevent damage.

If you do need to return a kit, complete the yellow GBCS return repair tag and attach it to the unit. The factory information packet included in the kit carton contains the yellow return repair tag.

Follow the steps listed below to unpack the kit at the job site:

1. At the job site, cut open the top of the box.
2. Remove the top foam packing materials. Save all packing materials in case the kit items must be repacked and transported to a different location.
3. Remove and lay out each item in the container.
4. Use the list below to ensure that you received all the items in the kit.

Inventory of Upgrade Kit Items

The MAP/40 486 CPU/SCSI upgrade kit contains the following items:

- One D486SX/25-00-ATT CPU
- One 16 Mbyte SIMM
- One keyboard adapter cable (ED5P208-30, G29)
- One 486 reset cable (ED5P208-30, G31)
- One CPU extension cable (ED5P208-30, G35)
- One CPU/RMB keyboard adapter (407005255)
- One 1.2 Gbyte SCSI hard disk drive unit
- One 525 Mbyte SCSI cartridge tape drive unit
- One SCSI bus controller
- One 3.5 inch disk bracket kit (universal installation kit)
- One MAP/40 SCSI cable (ED5P208-30, G27)
- Four 403136583 connectors
- Three cable ties
- One copy of this book
- One Remote Maintenance (RMB) card
- One floppy cable (ED5P208-30, G26)

Gathering Tools and Test Equipment

To disassemble and reassemble the MAP/100 or MAP/100C hardware, you need the following tools:

- Medium width flat-blade screwdriver
- No. 2 Phillips screwdriver
- Small needle-nose pliers for moving jumpers
- Small wire cutters for cutting cable ties
- Antistatic grounded wrist strap
- Antistatic grounded work mat
- Flashlight or auxiliary lighting if in dimly lit area

Locating Key Components in the MAP/40

Use the following sections and diagrams to locate key components on the unit. For additional information describing the MAP/40 hardware, see the system description for your application.

The Front of the Chassis

See the table below for descriptions and functions of components on the front of the chassis that are important for this kit. Figure 1-4 shows the front view of the MAP/40.

Table 1-1. Chassis Front Components

Component	Location	Description	Function
bezel cover	upper bay		covers peripheral bay – disk drives
power/reset switch	center control panel	rocker switch	turns MAP/40 on and off
Power-On indicator	center control panel	LED	lights green when power is on
INT Drive indicator	center control panel	LED	lights green when hard disk is active
bezel cover	lower		covers air intake fan and holds air filter

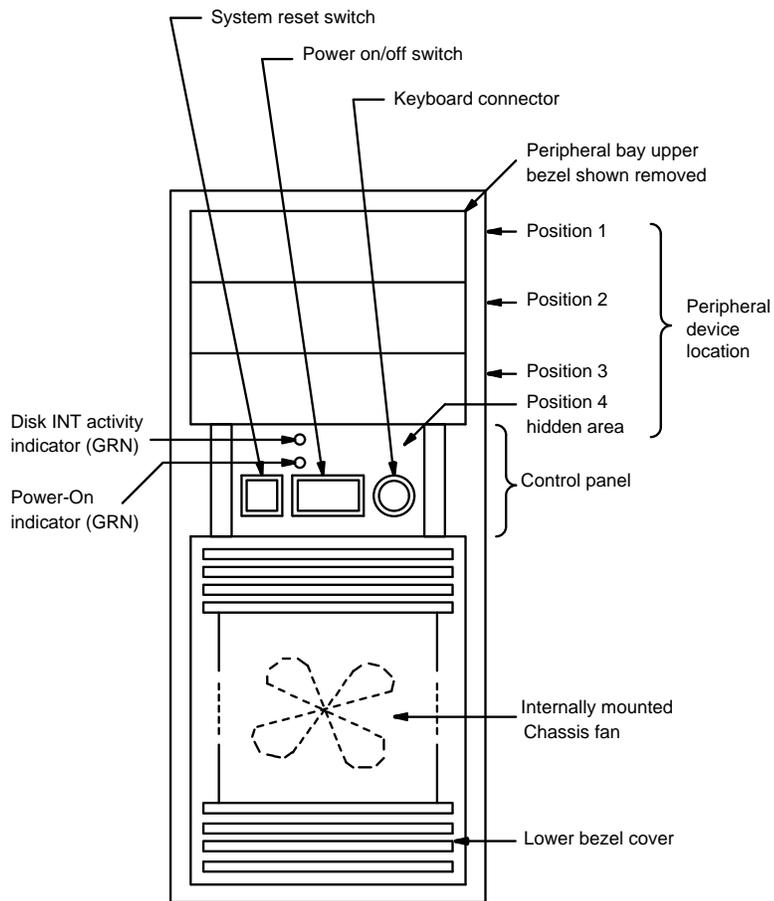


Figure 1-4. Front View of the MAP/40

Locating the Peripheral Drive Devices

Locate the various drives in the peripheral bay behind the upper bezel cover.

Table 1-2. Peripheral Bay Drives

Drive	Description	Function	Peripheral Bay Location
Cartridge tape	WANGTEK 125MB	Backup & restore load system	1
	After upgrade: WANGTEK 525MB		After upgrade: 2
Floppy	3.5 inch 1.44 Mbyte high density	System config diagnostic testing	2
Hard disk (optional)	200 Mbyte IDE	Additional storage	3
Hard disk	200 Mbyte IDE	Stores operating system application software speech data	4

Chassis Cooling System

One cooling fan is located in front of the circuit card cage area, behind the lower front bezel cover. An air filter is located inside the bezel cover. An additional cooling fan is located within the power supply and exhausts air to the rear of the unit.

The fans maintain air flow in the unit to prevent components from overheating. Overheating can cause a component to malfunction. Air flows from the front through the vents of the bezel cover and exits through vents in the back of the unit. Maintain clearance around the unit so that air can circulate.

The Back of the Chassis

Figure 1-5 shows the back view of the MAP/40. See the table below for the location and description of components on the back of the MAP/40 chassis that are important for this kit.

Table 1-3. Chassis Back Components

Component	Location	Description	Function
Video connector	Video circuit card faceplate in slot #10	15-pin female D-subminiature	Connects MAP/40 to monitor
AC power outlet connector	Top left corner	3-prong 1.5 AMP 120/230V	Connects MAP/40 to monitor via 6-foot monitor power cord
AC power inlet receptacle	Top left corner below monitor outlet	3-prong 5/10 AMP 110/230V	Connects the MAP40 with 9-foot power cord

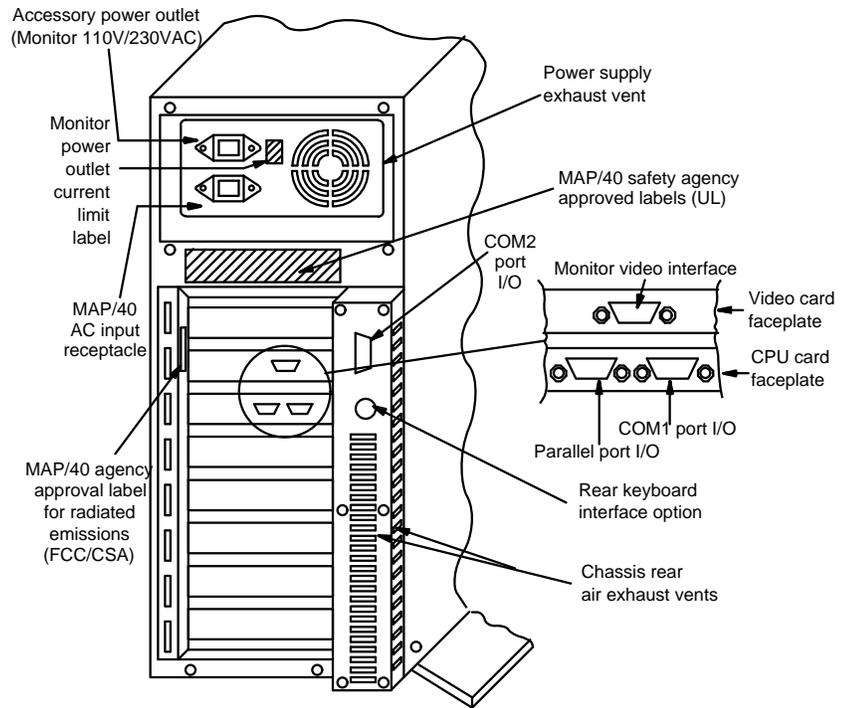


Figure 1-5. Back View of the MAP/40

What's in This Chapter

This chapter describes how to open the MAP/40 by removing the dress cover over the chassis and by removing the access panel to the circuit card cage. This chapter also describes how to replace both the dress cover and the access panel.



WARNING:

Shut power off before removing the dress cover or access panel of the MAP/40.

Perform a "soft" shutdown of your software operating system, if on-line, before shutting off power.



WARNING:

Notify the telephone company immediately if the MAP/40 is to be permanently or temporarily disconnected from its present line/trunk circuits. (Digital Circuits ONLY)

Removing Power from the Platform

Remove power from the system as follows:

1. Notify the telephone company that you are taking down the system if you are currently connected to the telephone network. They will ask you which extensions will be affected.



WARNING:

If you take down the system on a continuing basis without notifying the telephone company, they can shut your operation down.

2. If you are working on an operating VIS, follow these steps to shutdown the system:
 - a. Stop the voice system by following the procedure, "Stopping Voice System" found in Chapter 4, "Common Maintenance Procedures," of *CONVERSANT Voice Information System Maintenance*, 585-350-112.
 - b. Shut the system by following the procedure, "Shutting Down the Operating System" found in Chapter 4, "Common Maintenance Procedures," of the maintenance book.
3. Turn OFF both the front panel power switch and the circuit breaker(s) on the rear of the unit.
4. Remove the incoming power line. Also disconnect keyboard and video cords.
5. Tag the power plugs with a note indicating that nobody other than yourself should reconnect power to this equipment.

Removing the Dress Cover

Use a Phillips #2 screwdriver to remove the dress cover from the chassis as follows (see Figure 2-1):

1. In a tower configuration, keep the MAP/40 in an upright, vertical position on the support base.
2. Locate two screws on the bottom, left side and right side corners of the chassis cover.
3. Remove the two screws on the right side of the chassis and remove the two screws on the left side of the chassis.
4. Place one hand on each side of the chassis, palm down towards the top edge.
5. Press inward slightly with your palms on both sides of the chassis and lift up.

6. Be aware that, as more of the dress cover is removed, it may begin to collapse inward from the pressure of your hands. Move your hands downward on the dress panel to reduce the pressure as you lift.
7. Remove the dress cover.

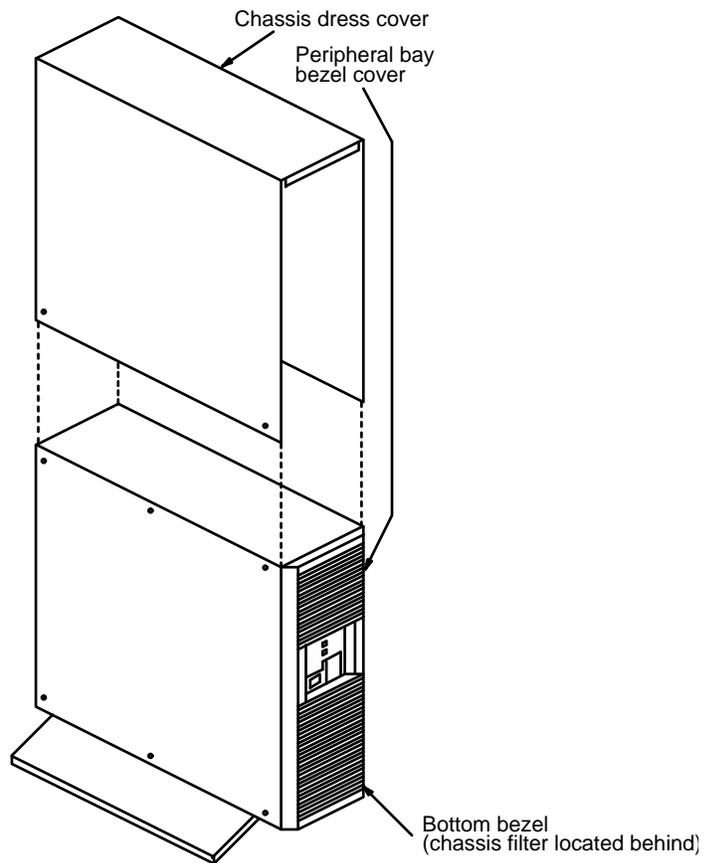


Figure 2-1. Removing the Dress Cover

Removing the Card Cage Access Panel

Use a Phillips #2 screwdriver to remove the left access panel in order to reach the circuit card cage as follows (see Figure 2-2):

1. Place the MAP/40 on its side using one of the two methods below if you intend to work inside the computer.

The circuit card cage area is more accessible if the tower configuration is on its side when you work inside the computer.

- a. If you have cables attached to the MAP/40 and want to leave the computer on the floor:
 - i. Place two books, similar in size to large phone books, or a similar form of support on the floor.
 - ii. Turn the MAP/40 on its side, resting the side of the computer opposite from the support base on the two books. See Figure 2-3.
 - b. If you do not have cables attached to the MAP/40 or currently have it placed on a table: Place the MAP/40 (tower configuration) on its side with the support base over the edge of the table. See Figure 2-2.
2. Loosen the flat-head 1/4 inch length screws by two turns only with the Phillips screwdriver. You are to provide adequate clearance only. It is *not* necessary to remove the screws.
 3. Apply pressure gently with your hands, palms down on the access cover.
 4. Push into the chassis with your palms and slide the access cover back toward the chassis area.
 5. Lift up and remove the cover once you have cleared the Phillips screw heads.

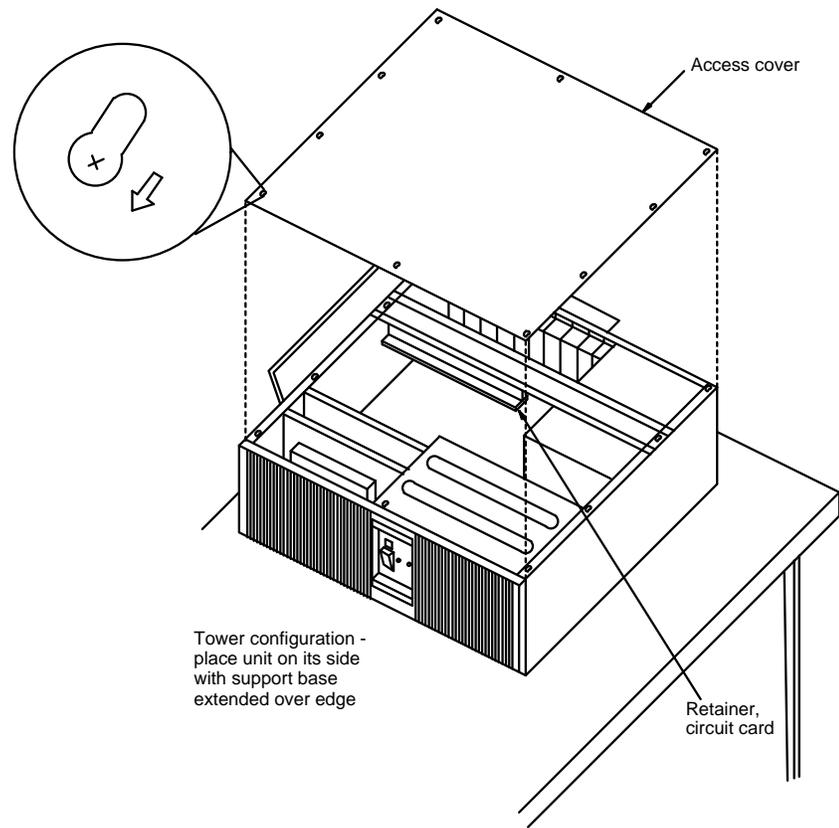


Figure 2-2. Removing the Card Cage Access Cover

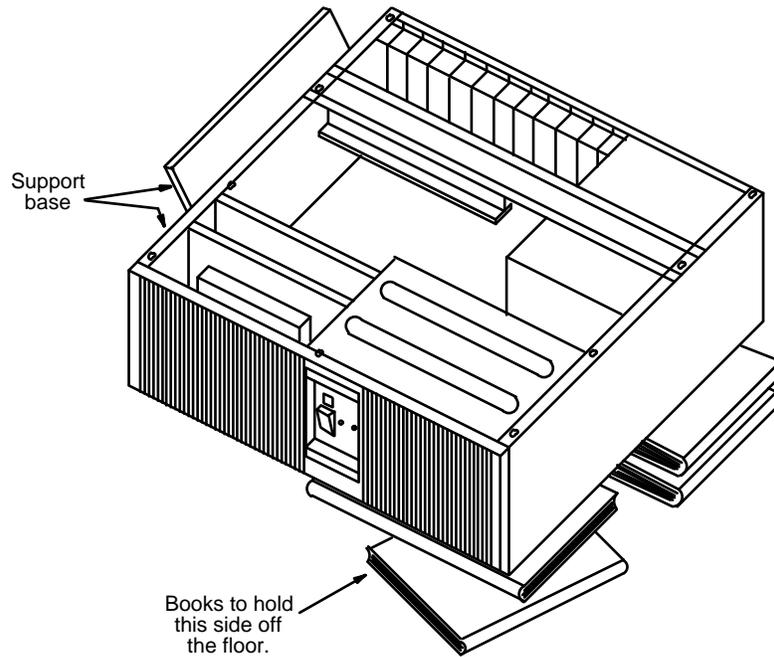


Figure 2-3. Working within the Card Cage - Floor Position

Removing the Card Cage Retaining Bracket

The manufacturer equips the MAP/40 card cage area with a retainer to reduce shipping and environmental vibrations that could damage the circuit cards. Use a Phillips #2 screwdriver to remove the two hold-down screws in the retaining bracket. See Figure 2-4.

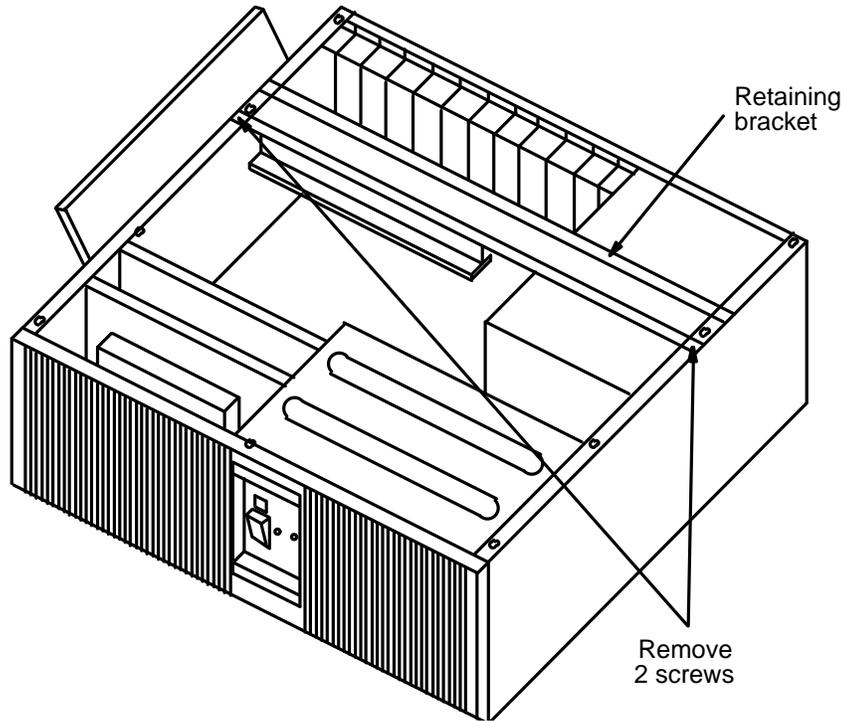


Figure 2-4. Removing Screws in the Retaining Bracket

Replacing the Card Cage Access Panel and Dress Cover

Replace the circuit card cage access panel and dress cover as follows:

1. Remount the circuit card cage retaining bracket, leaving the two Phillips screws only partially mounted to provide adequate access cover clearance.
2. Mount the 8 Phillips screws but ensure the screws are only partially set to provide adequate clearance for assembling the access cover.
3. Reset the access cover over top the mounted screws.
4. Apply pressure gently with your hands, palms down on the access cover.
5. Push in with palms and slide the access cover back into place.
6. Firmly secure the ten screws.
7. Slide the exterior dress cover over the unit.
Again, use the palms of your hands.
8. Replace the four Phillips retaining screws that you removed originally.

Upgrading Circuit Cards

3

What's in This Chapter

This chapter serves as an introduction to the circuit cards that you will be upgrading as part of this upgrade kit. This chapter also includes “General Steps for Circuit Card Installation” which applies to the installation of all circuit cards, though additional steps may be required for some.

General Steps for Circuit Card Installation



WARNING:

Observe proper ESD precautions when handling computer components. Wear a ground wrist strap on your bare skin and connect to a ground. See Chapter 1, “Getting Started”, for more details.

Follow the procedure below whenever you install a circuit card of any kind. You can then follow the specific procedure for cable connection or special settings for that card type in the following chapters.

Installing a Circuit Card in the MAP/40

NOTE:

Read Chapter 4, "Running the Configuration Program," of your *MAP/40 Voice Processing Hardware Installation* book and run the configuration software program before installing any card, unless you are replacing a card. You will need the output from the configuration program in order to install your hardware. Your system arrived with output from this program in the shipping carton.

Refer to this configuration data sheet in order to check addresses of existing cards. Also, when removing a card, set address switches and jumpers of the new card matching to the old card.

Follow the steps below to install any circuit card. Get specifics for each card in following chapters.

1. Verify that the new or replacement card is on site and appears to be in usable condition, that is, no obvious shipping damage, etc.
2. Refer to the output from the configuration program for this system to confirm that it is the correct type of card for that slot.

This is not necessary if you are replacing a card and not adding one.

3. If you are currently connected to the telephone network, notify the telephone company that you are disconnecting. They will ask you which extensions are affected.

WARNING:

If you disconnect the MAP/40 from the telephone network on a continuing basis without letting the telephone company know, they can disconnect you permanently (Digital Circuits ONLY).

4. Perform a "soft" shutdown of the system, if you have been operating the MAP/40 as a fully loaded system.

Remove the configuration floppy diskette, if you have had the MAP/40 only operating in order to run the configuration program.

5. Turn *off* the MAP/40 front panel main power switch and remove the incoming AC power cord.

Also disconnect keyboard and video cords from the MAP/40.

6. Tag the power cord plugs with a note indicating that nobody other than yourself should reconnect power to this equipment.
7. Remove the exterior chassis cover.

8. Remove the circuit card access panel and circuit card retaining bracket. Do not lose the bracket screws, place them where you can relocate them.

See Chapter 2, "Getting Inside the Platform", for more information.

9. Place the MAP/40 on its side to more easily work within the circuit card cage. Use one of the following two methods:
 - a. If you can disconnect incoming lines/trunks, place the MAP/40 on its side on a work table with the support base over the table edge.
 - b. If you cannot disconnect incoming lines/trunks to the MAP/40, place the MAP/40 on its side and rest the end opposite the support base on large telephone books or similar supports.
10. Carefully remove any internal connecting cables attached to the circuit card or peripheral to be replaced or installed. Use pull tabs when available to reduce damage to the circuit card connector pin fields.
11. If a new card is being installed, remove the filler for the appropriate slot and save the retaining screw.
12. Align the circuit card face plate and edge of the circuit card with the circuit card guide and the backplane slot position.

The card is now over the expansion slot.

13. Lower the card until it touches the slot.
14. Place your thumbs flat on the edge of the card over the connector and push it into the backplane slot.
15. Firmly push on the card until it is completely seated.
16. Re-install any internal and/or external cable assemblies that were previously removed, making sure the cable connector pin 1 indicator is mated to the circuit card or pin header.

Refer to the appropriate circuit card chapter for additional information on cabling and connections specific to the type of card you are installing.

17. Replace the retaining screw by placing it through the card faceplate opening that is similar to the cover plate previously removed.
18. Replace the circuit card cage retaining bracket *if you have completed work within the card cage*.
19. Replace the access panel, relocate in an upright position, and remount the chassis cover if you have completed work on the MAP/40.
20. Replace the network line/trunk connections as well as monitor, keyboard, and power cords to the MAP/40.
21. Power up the MAP/40.

The 486 CPU Circuit Card – 50MHz or 25MHz

In Version V4.0, there are two supported CPU options: 386 and 486. This hardware upgrade kit is designed for MAP/40 customers upgrading from 386 to 486. The information in this chapter pertains to the 486 CPU card *only*. For information about the 386 CPU, refer to *MAP/40 Voice Processing Hardware Installation, 585-350-109*.



WARNING:

Observe proper electrostatic discharge precautions when handling computer components. Wear a ground wrist strap against your bare skin and connect to an earth ground.

Either a 486 50MHz or 486 25MHz CPU circuit can be used in the MAP/40 platform. You must use a 486 50MHz if you are using the Graphical Speech Editor feature package. See the next figure to locate where the 486 is labeled to indicate 50MHz or 25MHz.

The manufacturer packages the central processing unit (CPU) on a single PC/AT compatible circuit card that plugs into the passive backplane. The 486 supports a 16 MB SIMM which is located in the bottom socket on the left side of the card.

To install the 486 CPU, complete the following:

- Verify jumpers that enable or disable the serial and parallel ports.
- Verify switch settings.
- Refer to “General Steps for Circuit Card Installation” found in this chapter to install the 486 card.
- Connect keyboard and serial port ribbon cables.
- Complete the 486 setup as described in “System Setup” in Chapter 3, “Connecting Peripherals and Powering Up,” of *MAP/40 Voice Processing Hardware Installation, 585-350-109*.

Refer to the figure on the next page for location of jumpers and switches.

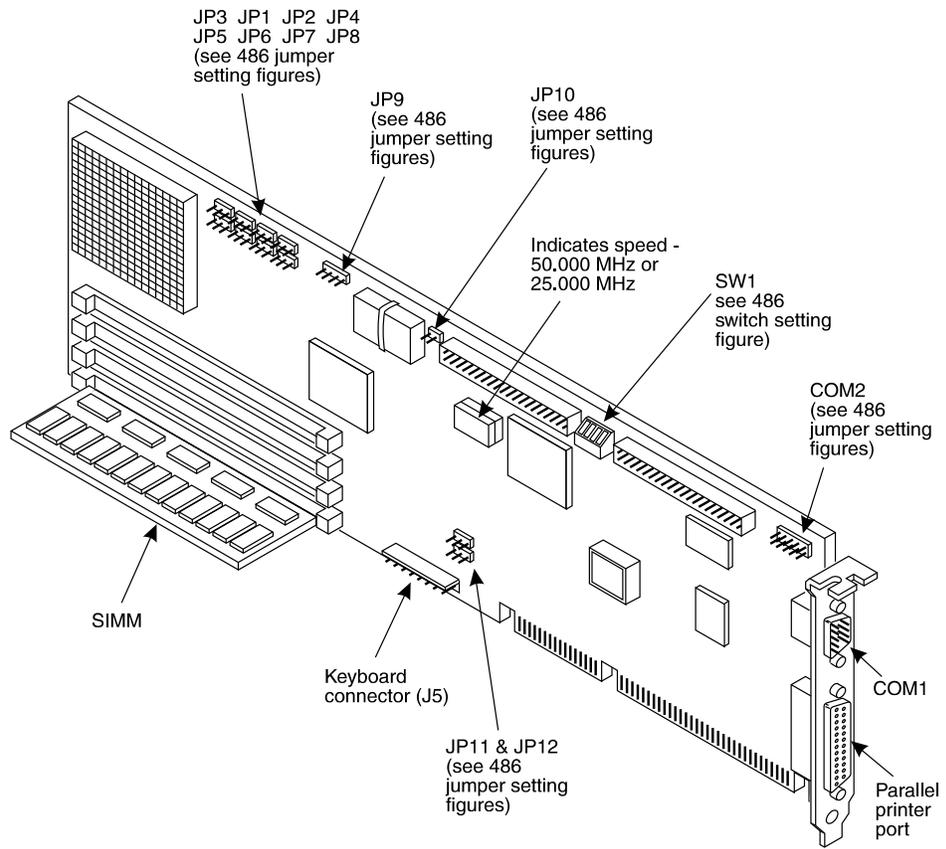


Figure 3-1. 486 CPU Circuit Card and Jumper Locations

Verifying Jumpers on the 486 50MHz CPU

Jumpers on the 486 50MHz should be set as indicated in the figure below.

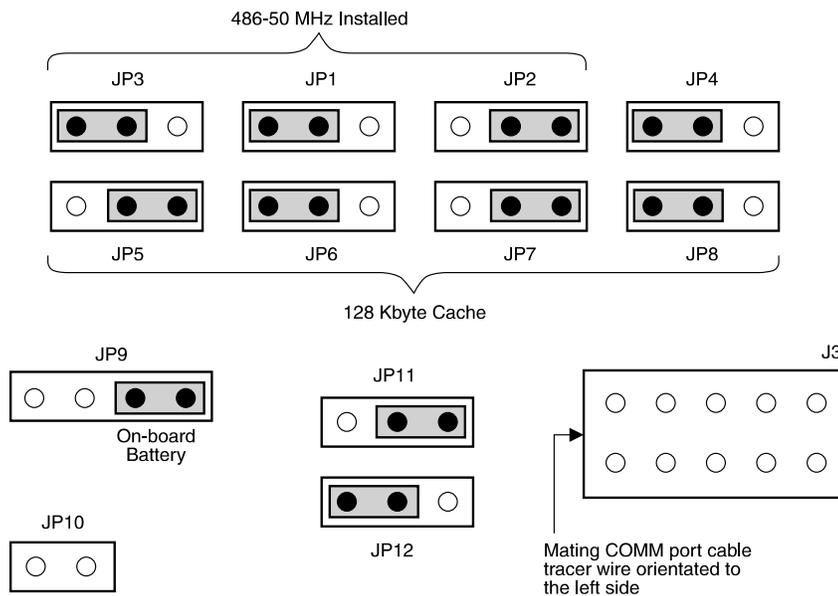


Figure 3-2. Jumper Settings for the 486 50MHz CPU Card

Verify the Jumpers on the 486 25MHz CPU

Jumpers on the 486 25MHz should be set as indicated in the figure below.

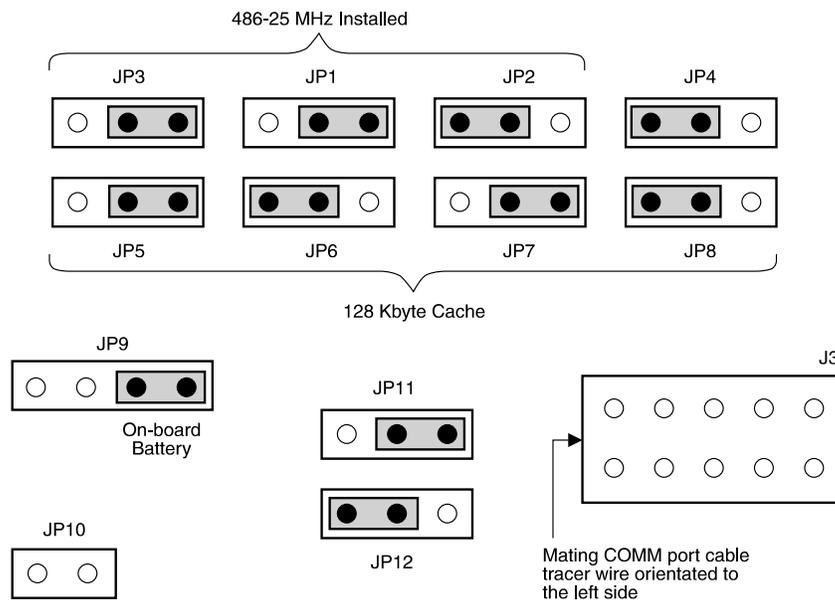


Figure 3-3. Jumpers Settings for the 486 MHz CPU Card

Verifying Switch Settings on the 486 CPU

Switches are set by the manufacturer. Use the figure below to verify correct switch settings on the 486. These switch settings are correct for either the 486 50MHz or 25MHz.

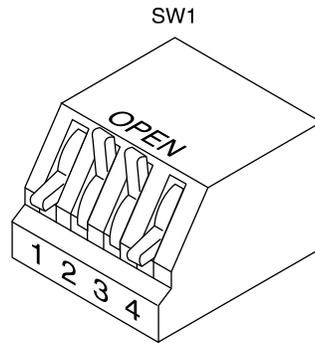


Figure 3-4. Switch Settings for the 486 CPU Card

Making Header Connections for Keyboard and Serial Ports

The platform includes cables that connect to the 486 CPU circuit card. These cables connect to the keyboard port, bottom center, and the second asynchronous port (COM2), top far right. Locate the two pin header connectors on the CPU card. Locate the keyboard and COM2 cables inside the platform. Make these connections after the CPU card is installed.

⇒ NOTE:
The COM1 port is hard wired to the faceplate connector.

The header connector numbers are written on the circuit card on the right side of the pin connectors. The header connectors are numbered as follows:

- COM1 – J4 keyed for connection
- COM2 – J3 user red tracer for connection
- Keyboard – J5 keyed for connection
- Parallel port – J6 keyed for connection

 **NOTE:**

The top two pins connectors on the card that are labeled for the hard disk and the floppy controller are not used on the CPU card. Make these connections on the SCSI host adapter controller card.

The SCSI Host Adapter Circuit Card

The Small Computer System Interface (SCSI) Host Adapter controller card controls the hard disk drives, the floppy disk drive, the cartridge tape drive, as well as the SCSI Bus LED front chassis panel indicators for these drives. In this upgrade procedure, you will be replacing your system's existing hard disk controller card (and possibly a cartridge tape controller card) with the SCSI host adapter controller card.



WARNING:

Observe proper electrostatic discharge precautions when handling computer components. Wear a ground wrist strap against your bare skin and connect to an earth ground.

To install the SCSI circuit card, complete the following:

- Verify jumpers
- Verify switch settings
- Verify that the 3 terminating resistor SIPs are installed. The first and last peripheral devices on the SCSI cable must have terminating resistors installed. All other SCSI devices must have terminators removed.
- Refer to "General Steps for Circuit Card Installation", found in this chapter to install the SCSI card.
- Connect cables

Refer to the figure on the next page for location of jumpers and switches.

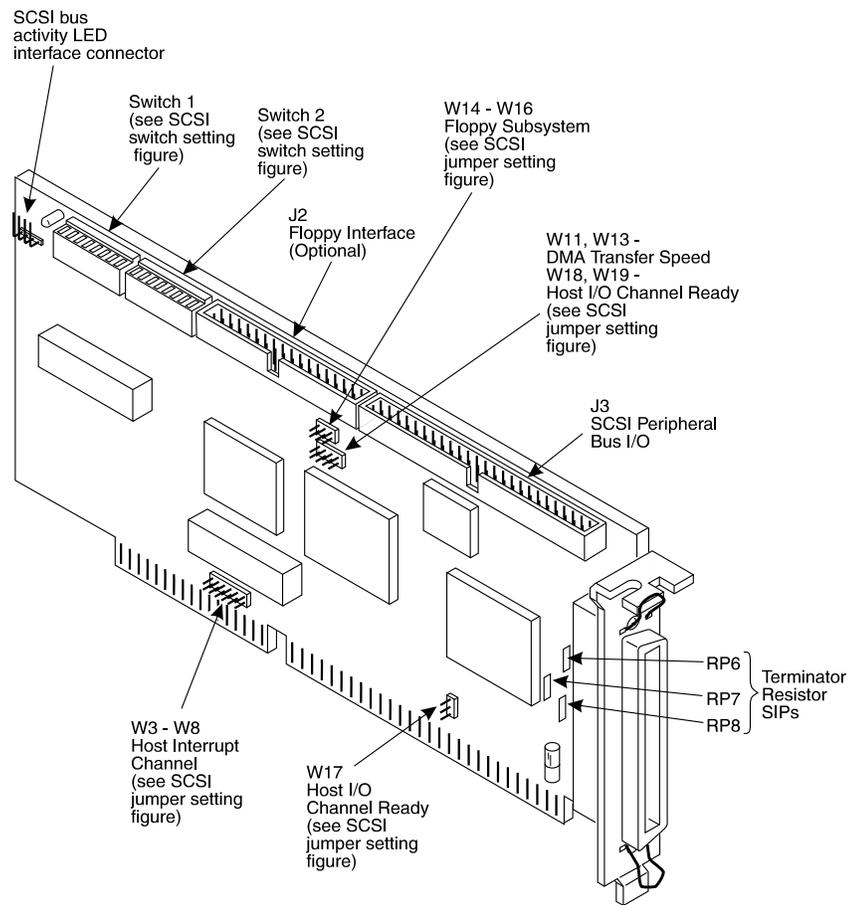


Figure 3-5. SCSI Host Adapter Controller Circuit Card

Verify the Jumpers on the SCSI Circuit Card

Jumpers on the SCSI circuit card should be set as indicated in the figure below.

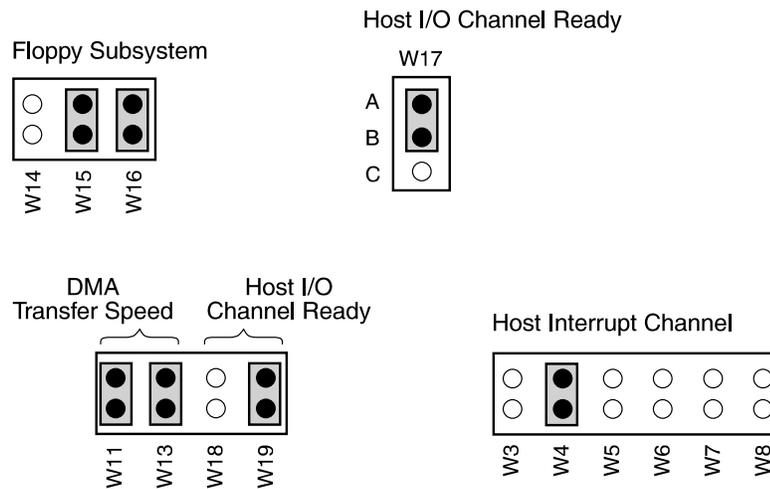


Figure 3-6. Jumper Settings for the SCSI Circuit Card

Verifying Switch Settings on the SCSI Circuit Card

Switches are set by the manufacturer. Use the figure below to verify correct switch settings.

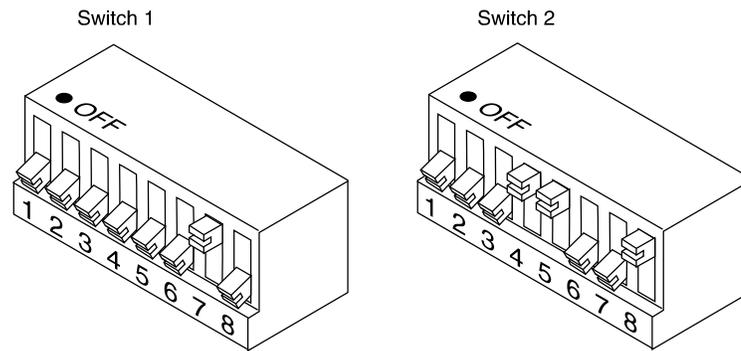


Figure 3-7. Switch Settings for the SCSI Circuit Card

The Remote Maintenance Card

The Remote Maintenance (RMB) card is PC-AT based. It draws its power from the PC host bus. An optional external AC power adapter is available that plugs into the faceplate of the RMB card. This adapter provides power to operate the RMB card in situations where the power supply in the system fails.

Performing the Upgrade

4

What's in This Chapter

This chapter describes the procedures to upgrade your system from 386 to 486, and from IDE to SCSI.

Before You Start the Upgrade



WARNING:

Observe proper electrostatic discharge precautions when handling computer components. Wear a ground strap against your bare skin and connect to an earth ground.

Gather the appropriate tools, the components of the upgrade kit, and a space to place the old components you remove from the MAP/40 (hint: have an empty box to place old components in to avoid mixing them in with the new kit components).

Upgrading the MAP/40 Hardware

Use the following procedures to upgrade your CPU card, hard disk drive system, and install the RMB card. These procedures are separated into sections that are meaningful if perform sequentially, but with experience, you can save time by performing some sections simultaneously.

Removing Old Circuit Cards

1. Follow the procedures in Chapter 2 to power down the MAP/40, remove the MAP/40 dress cover, card cage access panel, and card retaining bracket.
2. Remove the keyboard/reset and communications port cables from the headers of the 386 CPU. Note that the keyboard/reset cable is marked "P303" and the communication port cable is marked "P302" on the 386 CPU card. If for some reason your cables are NOT identified, you should mark your communication port cable at this time.
3. Remove the 386 CPU card from slot #9 in the MAP/40 following the standard removal procedure found in Chapter 10 of *MAP/40 Voice Processing Hardware Installation*, 585-350-109.
4. Remove the video card in slot #10 to allow ease of assembly for the other parts of this kit. Take note of any external connections. You will need to reassemble those connections at the completion of this upgrade.
5. Since you will upgrade this MAP/40 to SCSI, remove the tape and IDE controllers cards at this time.
 - a. Locate the IDE disk controller in slot #12.
 - b. Locate the tape controller card in slot #11.
 - c. Disconnect the cables from each and separate the floppy drive and disk activity cables from the IDE cables. The floppy cable has a 34-pin conductor ribbon attached to the connector nearest the faceplate, and the disk activity cable is attached to the 4-pin header on the opposite side of the card.
 - d. The disk activity cable will be connected to the new SCSI controller card after it is installed. Should this cable become accidentally disconnected from the backplane, it can be reconnected to J19. See Figure 4-2.
 - e. Discard the floppy cable since a new, longer cable is provided as part of the kit.
 - f. Remove the circuit card retaining screws on top of each card's faceplate and save the screws.
 - g. Remove the tape controller card and place it in a safe area.
 - h. Remove the IDE controller card. It is small and may be hard to grasp.



WARNING:

Be careful when removing this card. Although it is difficult to grasp, you do NOT want to damage your platform in your attempts to remove it!

Installing the 486 CPU Card and Remote Maintenance Card

1. Pick up the CPU/RMB keyboard adapter and plug the new keyboard/reset extension cable connector onto J2 of this adapter. Refer to Figure 4-1 to see the proper orientation.
2. Plug the new 486 keyboard cable onto J4. Plug the RMB reset cable onto J3. Refer to Figure 4-1 for the proper orientation.

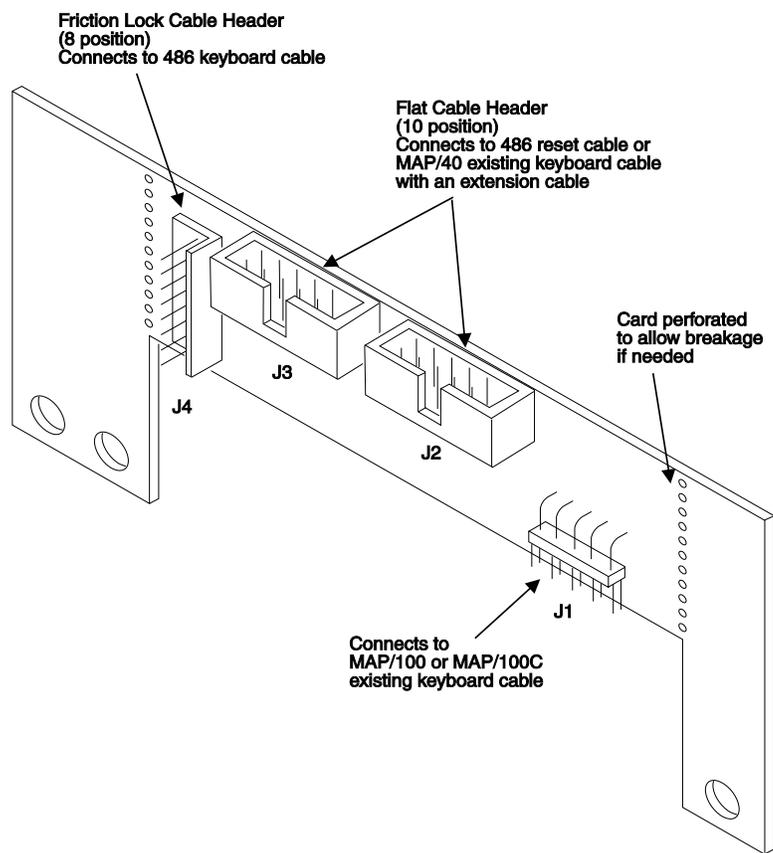


Figure 4-1. CPU/RMB Keyboard Adapter

3. Install the CPU/RMB keyboard adapter with assembled cables onto the backplane. The adapter must have the headers facing away; the adapter should form the shape of a “U.” See Figure 4-2.
4. Plug the new keyboard/reset extension cable onto the existing keyboard/reset cable removed earlier from the 386 CPU. Align the tracer wires of the two cables since the connectors are not keyed or polarized at this end.
5. Refer to Chapter 3 to verify all the jumpers and switches are set correctly. Familiarize yourself with the location and types of connectors (headers).
6. Identify the reset cable for the RMB, and the new keyboard cable for the 486 CPU.
7. Insert the RMB into slot #11 and attach the cable. Secure the card with by inserting a screw through the faceplate. Refer to “General Steps for Circuit Card Installation” in Chapter 3 for more information about the correct way to install a circuit card.
8. Partially insert the CPU card into slot #9 and attach the new keyboard cable. Complete the insertion, attach the communications port cable and secure the card with a screw through the faceplate.
9. Recheck all cable routing and connections.

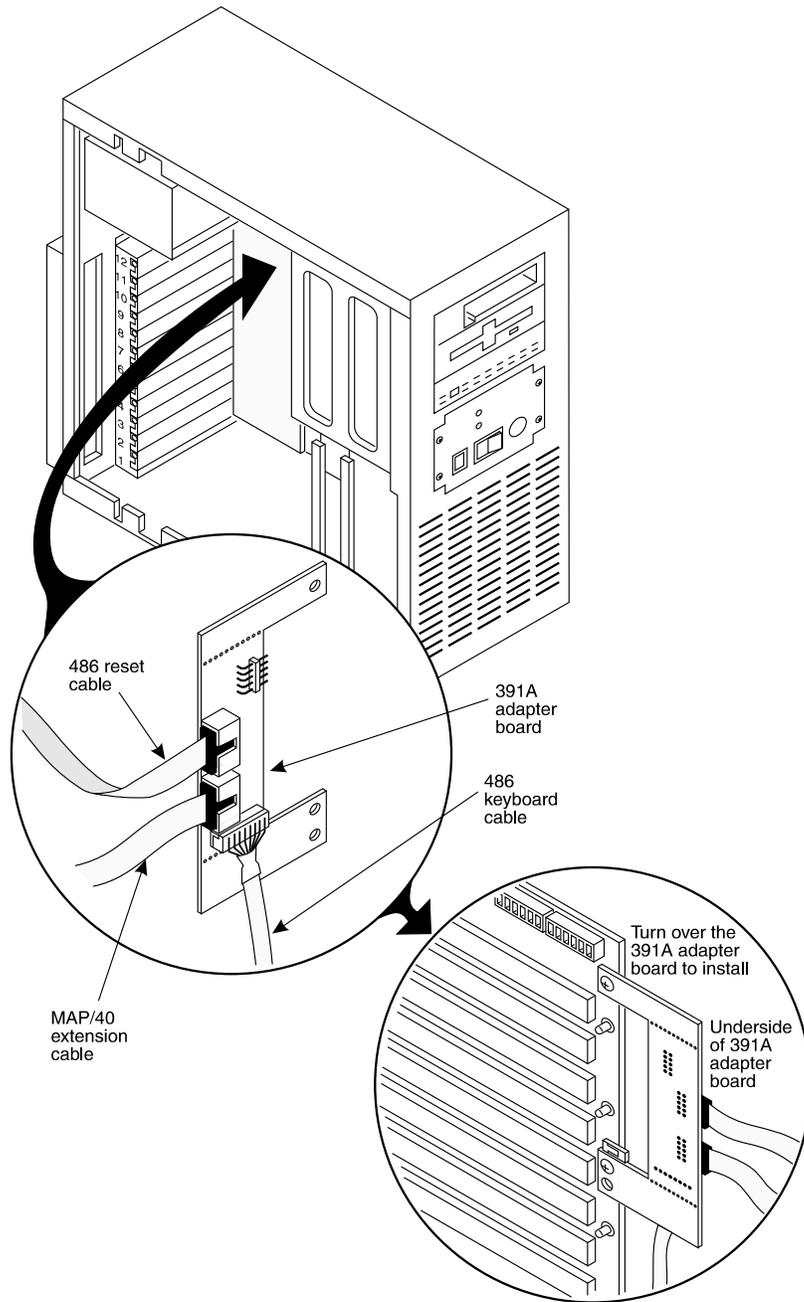


Figure 4-2. CPU/RMB Keyboard Adapter Installed in the MAP/40

Removing the Old Drive Units

1. Locate the IDE disk drive unit in the peripheral bay, position 4 (left most when the unit is laying on it's side). Refer to the figure of the front of the platform in Chapter 1.
2. Locate the cartridge tape drive unit in the peripheral bay, position 1 (right most).
3. Use caution and disconnect the ribbon and power cables (4 conductor discrete wire). Set the ribbon cables aside.
4. From either side of the peripheral bay, locate the two screws on each side of the drive units. Remove these screws (8 screws total) and save.
5. Slide each unit out through the front of the MAP/40.
6. Because the SCSI cable connects to both the disk and tape units, the floppy drive needs to be removed from position 1. A new, longer cable is supplied in the upgrade kit for this repositioning.
 - a. Disconnect any cables connected to the floppy drive at this time.
 - b. From either side of the peripheral bay, locate the two screws on each side of the drive unit. Remove these screws (4 screws total) and save.
 - c. Slide the unit out through the front of the MAP/40.

Installing the SCSI Hard Disk Drive

1. Remove the installation kit and bag of screws from the top of the hard disk carton. Open the box containing the hard disk drive.

Cut the top seams so that the box can be use again should you need to return the hard disk drive to the factory.



WARNING:

Return any piece of equipment in the original shipping carton and packing materials to ensure warranty.

2. Remove the hard disk from the anti-static bag; keep the bag with the shipping carton.
3. Place the disk on its back, a black solid metallic case, circuitry up on an ESD safe surface.
4. Verify that all jumpers are correctly positioned as shown in Figure 4-3.
5. Remove the two Phillips head screws holding the small black faceplate. Discard all 3 items. See Figure 4-3.

- Remove the terminating resistors, RN1 and RN2, using needle nose pliers. Discard the resistors. See Figure 4-3.

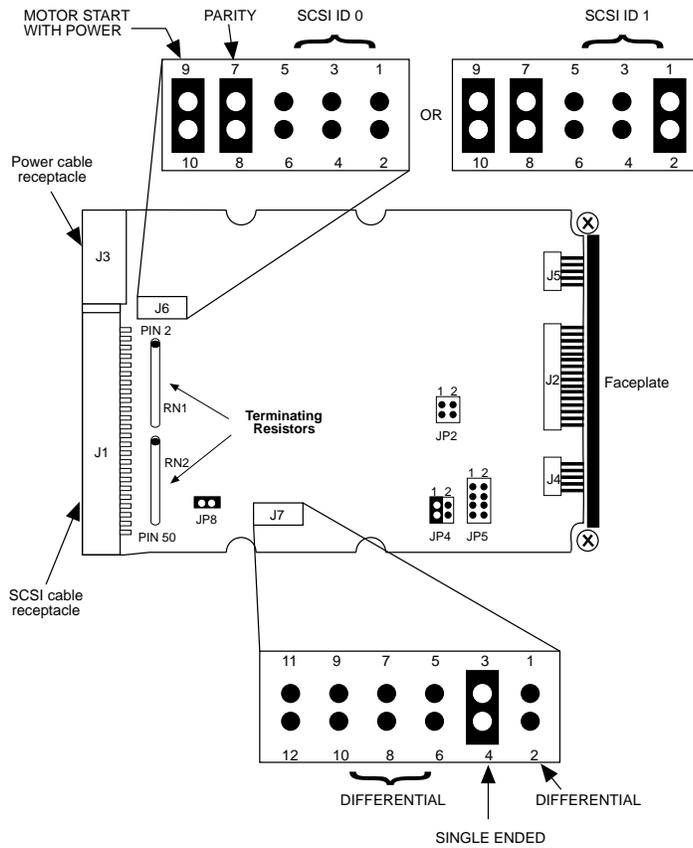


Figure 4-3. SCSI Hard Disk Drive



NOTE:

SCSI ID 0 is the first drive. SCSI ID 1 is the second drive.

Terminating resistors, RN1 and RN2, should be installed if the SCSI disk drive is the last component on the TDM bus cable. If it is not the last component, then the resistors should be removed.

7. Set the disk aside and open the Universal Installation Kit which contains the installation hardware.

The kit contains two bags. One bag contains the LED lenses, the LED with the connector cable assembly, and the faceplate. The second bag contains the mounting rails, spacer bar, and a bag of screws needed for assembly and mounting.

8. Discard the LED lenses and the LED connector cable assembly. These items are not needed to assemble the hard disk.
9. Assemble the installation kit according to the directions in the box. See Figure 4-4.
10. Place the mounting rails parallel to each other with the smaller of the two flanges of the rails on the inside.
11. Assemble the spacer bar and faceplate to form a rectangle using the 6-32 x 3/16 inch screws.
12. Turn the drive over so the circuit side is down.
13. Locate the drive between the rails; the J1, J3 connector end of the drive unit should be flush with the spacer bar as illustrated in Figure 4-4.
14. Find the two mounting holes on each side of the drive farthest apart. Then, while holding the 6-32 x 3/16 inch screw with needle nose pliers, start the screw through the mounting kit rails. Repeat this for the other screw.
15. Tighten the screws while keeping the J1, J3 connector edge of the drive flush with the spacer bar.
16. Remove the screws holding the spacer bar and discard all 3 items.

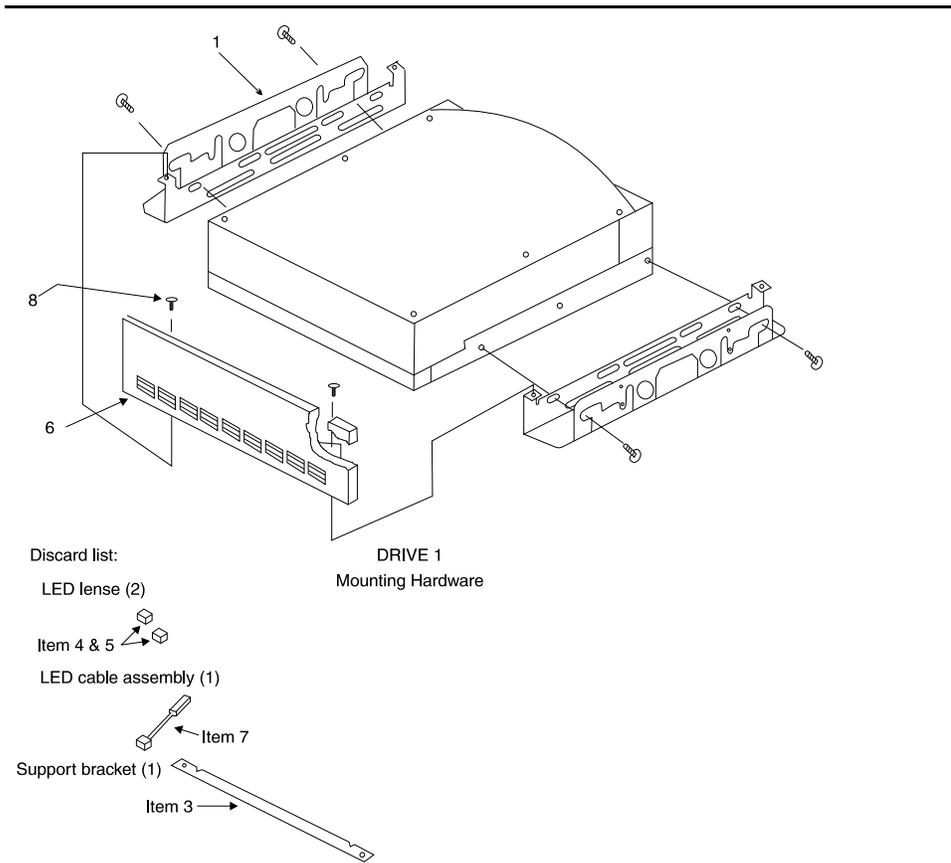


Figure 4-4. Universal Installation Kit

17. Position the drive for installation in slot 4 (left most). The black metallic backing of the drive should be face up. The mounting rails prevent the circuitry from touching the work table and adjacent chassis components once the disk is mounted in the MAP/40.
18. Locate on either side of the MAP/40 the bottom fourth set of slots just behind the front of the peripheral bay. Screws provided with the bracket will be used through the bottom slot to secure the drive to the MAP/40 peripheral bay area.

⇒ NOTE:

Even though, there are two threaded holes located just above each other, use only the bottom position to secure the disk drive/mounting brackets inside the MAP/40.

19. Place the drive in the MAP/40, sliding it through the front entry area. Hold the drive unit from inside the peripheral bay area when aligning the bracket with the holes.
20. Insert two screws on each side of the disk in the first bottom mounting hole. Lock screw in place, but do not tighten.
21. Lift up the drive from the back and position so you can see the back bottom mounting holds through the bottom slot position.
22. Lock screws in place on either side, but do not tighten.
23. Adjust the bracket depth so the face plate is even with back edge of the bezel or flush with the adjacent floppy disk drive bezel. Loosen the two front side screws if necessary. The face plate should have a flushed appearance, similar to the floppy drive and cartridge tape unit.
24. Lock screws in firmly in place.
25. Attach the SCSI cable by aligning it with the 50 pin cable receptacle and pushing it on. All connectors are "keyed" to prevent incorrect installation (see Figure 4-5).
26. Attach the power cable to the hard disk, ensuring the connector is fully inserted.
27. "Dress" the excess power cable wiring down and against the power supply rear area. Place at least one twist in the cable prior to plugging it into the peripheral.

Installing the SCSI Cartridge Tape Drive

1. See Figure 4-5 and verify the jumper settings and that the terminating resistors are installed.
2. Slide the cartridge tape drive into position 2 of the peripheral bay, and secure it with the 4 screws (two on each side) saved from the removal of the old tape drive.
3. Connect the controller cable and power cable to the cartridge tape drive. Use the last connector on the SCSI cable.



NOTE:

There are some SCSI cartridge tape drive compatibility issues of which you need to be aware. You can find this information in the "Disk Operations" section of Appendix A, "FACE Features" in *CONVERSANT VIS Version 4.0 Operations*, 585-350-703.

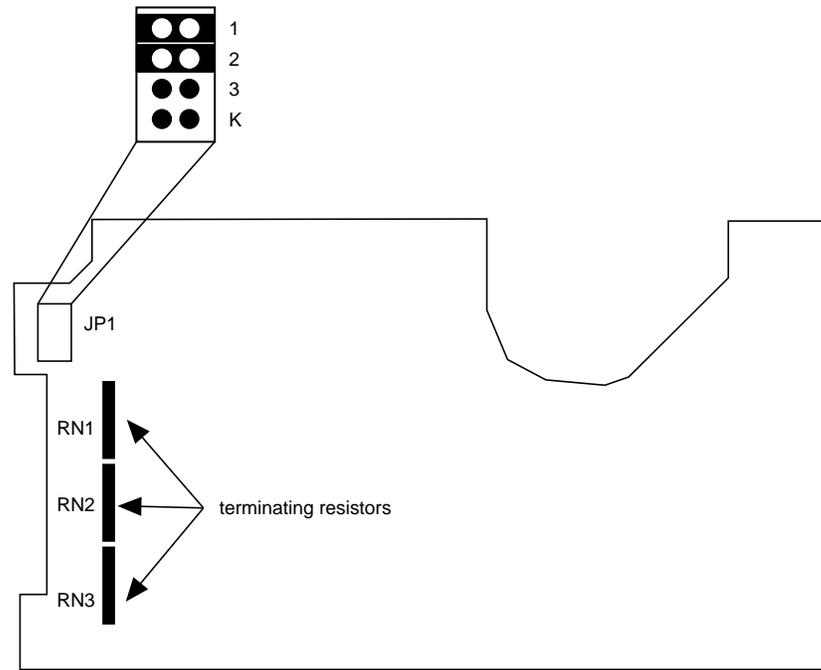


Figure 4-5. Jumper Settings for SCSI Cartridge Tape Drive

Installing the SCSI Host Adapter Circuit Card

⇒ NOTE:

Follow instructions to install this card as shown here. Do *NOT* use the instructions shipped by the manufacturer with the card.

1. Follow the steps under “General Steps for Circuit Card Installation” in Chapter 3. Refer to Chapter 3 also for proper jumper and switch settings for the SCSI circuit card.
2. With the MAP/40 SCSI cable in hand notice that there is a single connector located approximately 12 inches from the next nearest. Attach this connector to the SCSI controller card and dress the cable neatly down the side and rear of the power supply.
3. With the new floppy drive cable in hand route it similarly. Note at the SCSI controller end the SCSI cable should be under the floppy cable for best routing.
4. Connect the disk activity cable to SCSI controller card with the two populated receptacles, of the four, toward the short end of the card.

Installing the Floppy Disk Drive

1. Slide the floppy disk through the front of the MAP/40 in position 1 (right most).
2. Re-attach any cables to the floppy drive at this time.
3. From either side of the peripheral bay, insert the two screws on each side of the drive unit. Tighten these screws (4 screws total).

Finishing Up

Reinstall the video card in slot #10 using the step outlined in “Installing a Circuit Card in the MAP/40” in Chapter 3 of this book.

Go to Chapter 2 and reverse the process you used to get into the MAP/40. There are also procedures there to replace the dress panel and left cover.

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