

4404F05 INSTRUCTION

WARNING

THE FOLLOWING INSTALLATION INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL ONLY. TO AVOID PERSONAL INJURY, DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.

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MANUAL REVISION STATUS

PRODUCT: 4404F05 Installation Instructions

This manual supports the following versions of this product: Serial Numbers B010100 and up.

REV DATE	DESCRIPTION
MAY 1986	

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Section 1

INTRODUCTION

OVERVIEW

INSTALLATION RESPONSIBILITIES

To make this conversion as easy as possible, the customer should make back up copies of files as described in Appendix A of this manual prior to the arrival of the service technician. The installer of the 4404F05 is responsible for converting the existing system to a factory standard 4405 system with the addition of the old password file containing user accounts and blank user directories.

WARNING

This procedure should be performed by a competent service technician. It requires removing the top cover from the 4404 Display/CPU unit and can expose an untrained person to lethal voltages. If you are not a trained technician, do NOT attempt to perform this procedure.

Installation of the 4404F05 kit effectively converts a 4404 to a 4405. It replaces the 4404 CPU, Power supply, and (optionally) additional memory boards with the 4405 equivalents. The software is replaced with 4405 software. After conversion, the customer should install future 4405 software and hardware options only.

CAUTION

If the customer has Option 10 (Ethernet) installed, they MUST have either upgraded (version 2.0) or 4405 Ethernet software. This software does NOT function with the 4404 Version 1.5 operating system. If the customer has Ethernet working with the 4404 Version 2.0 or greater, the Ethernet software will function.

NOTE

If the customer has the 4404 Option 20, it will function with the 4405 operating system after the 4404F05 kit is installed. The disk access times will be identical to that experienced with the 4404. If auxiliary disk access times are important, an different hard format can give a slight increase in disk access time.

USING THIS MANUAL

CAUTION

The installation sequence described in Sections 2, 3, and 4 of this manual must be followed or all user files will be lost during the installation process. The installation requires reformatting of the hard disk and consequently the loss of any information on the hard disk.

The manual is organized as follows:

- Section 2 tells how to prepare the 4405 SYSREFORMAT diskette and save the password file.
- Section 3 gives the procedures for installing the hardware modifications and packing of the parts to be returned.
- Section 4 gives the detailed procedures for installing the new software and restoring the password file and user accounts.
- Appendix A gives the customer detailed instructions on what to back up and what not to back up.
- Appendix B gives the customer instructions on how to restore the files that were backed up.

GENERAL INFORMATION

UNPACKING THE 4404F05

Before unpacking check both shipping cartons for signs of damage. Report any damage to the carrier and your Tektronix sales representative immediately.

To unpack the 4404F05, you will need a carton opener (a small stout-bladed knife will do), a small, flat-bladed screwdriver and a small POZIDRIVE® screwdriver.

CAUTION

Do not damage or destroy any of the shipping containers or packaging. They are to be used for returning all components that are replaced during installation.

NOTE

All components removed from the existing 4404 system are to be placed in the 4404F05 packages (specific packaging and shipping instructions are in Section 3) and returned to Tektronix.

Table 1-1 shows what the 4404F05 and the options consist of and the components that they replace.

Table 1-1
4404F05 CONFIGURATIONS

PRODUCT	DESCRIPTION
4404F05 (with no options)	Includes a 4405 Manuals Set, operating system software, a 4405 power supply, a 4405 CPU board, and a SCSI chip (NCR/5385E). This kit requires the return of the 4404 CPU board and power supply (and the NCR/5385E SCSI chip if not used).
4404F05 with Opt. 2	Adds a 2-Mbyte memory board with mounting bracket, fan and speaker (requires the return of a 4404 Opt. 1 memory board).
4404F05 with Opt. 4A	Adds a 4-Mbyte memory board with mounting bracket, fan and speaker (requires the return of a 4404 Opt. 1 memory board).
4404F05 with Opt. 4B	Adds a 4-Mbyte memory board with mounting bracket, fan and speaker (requires the return of a 4404 Opt. 3 memory board).

Table 1-2
4404F05 SHIPPING CARTON CONTENTS

CARTON	CONTENTS
Shipping carton	4405 Manuals Box with software and three numbered boxes
Box 1	CPU Board and NCR/5385E SCSI chip.
Box 2	Empty with the basic F05 kit (used for return shipment only). Contains the optional memory board when Option 2 or 4 is ordered.
Box 3	Power Supply

Manuals Carton Contents

The Manuals Carton contains the following items:

- A 4405 User's Manual with the following:
 - A new *SYSREFORMAT* Diskette
 - A new *SYSINSTALL* Diskette
- A new *DISKREPAIR* Diskette
- A 4400 Series Operating System Reference
- A 4400 Series Assembly Language Programmer's Reference
- A 4400 Series C Language Reference
- A 4400 Series Introduction To Smalltalk
- 39 Operating System and Smalltalk-80 Distribution Diskettes

These items replace the original 4404 equivalents and are the same as are distributed with a 4405 system.

SYSTEM OVERVIEW

The 4404F05 CPU Board and memory options incorporate the same components that are used in the 4405. The CPU is a 16 MHz Motorola 68020 32-bit microprocessor. The microprocessor has a 32 megabyte address range and a 32-bit data bus. Direct memory access by peripherals is supported on the physical address bus for fast IO and mass storage access.

Arithmetic operations are performed by a Motorola 68881 coprocessor. This microprocessor supports the IEEE floating point standard. It is accessed by the CPU using the M68000 coprocessor-processor interface standard.

Memory management recognizes a 32-Mbyte logical address space which it maps into the 1-Mbyte physical address space. There are 2048 map entries, one for each logical page. A page represents 2K bytes of address space. Memory management provides interprocess and write protection on a page by page basis. Virtual memory is provided by demand paging when a bus fault occurs.

The 68020 facilitates demand-paged virtual memory, giving the user a 32-Mbyte logical address space for program development. This means that program segmentation and overlays are unnecessary. The 1-Mbyte physical memory on the CPU board (an additional 2 or 4-Mbytes of memory is optional) minimizes page swapping for increased performance in the virtual memory environment.

The 4404F05 uses the existing 4404 I/O Board, Video Display Module, housing and I/O Board.

The standard 4404F05 upgrade features the following:

- A Motorola 68020 32-bit microprocessor
- A Motorola 68881 coprocessor for handling standard (32-bit) and long (64-bit) arithmetic operations

- 1-Mbyte RAM memory
- Operating system with multi-tasking and a hierarchical file system
- Virtual memory management for 32-Mbyte address space
- Meets the requirements of UL 478, UL 114, CSA 154, and IEC 435

OPTIONS

Table 1-1 lists the 4404F05 options in numerical order.

Table 1-3
OPTIONS

Option	Description
Option 02	Additional 2-Mbyte Memory (requires a 4404 1-Mbyte RAM trade-in)
Option 04A	Additional 4-Mbyte Memory (requires a 4404 1-Mbyte RAM trade-in)
Option 04B	Additional 4-Mbyte Memory (requires a 4404 3-Mbyte RAM trade-in)

ACCESSORIES

The 4405 accessories are listed in the replaceable parts list (Section 7) of the 4405 Field Service Manual where part numbers are given for each item. Standard accessories are supplied with each 440X system, and optional accessories may be ordered separately, and in addition to, standard accessories.

Section 2

Saving Files

GENERAL

WHAT THE INSTALLER IS RESPONSIBLE FOR

You are responsible for transferring the bad block information from the old 4404 SYSREFORMAT diskette onto the new 4405 SYSREFORMAT diskette, and saving the customer's password file. When complete, you will return the customer a factory standard 4405 system with the addition of their old password file, containing user accounts, and blank user directories.

This section details how to prepare the new 4405 SYSREFORMAT diskette for use with the new system and how to save the password file for installation on the new system. Section 4 tells how to build the new system, restore the password file, and create the blank user directories.

WHAT THE CUSTOMER IS RESPONSIBLE FOR

The customer is responsible for saving any other files off the 4404 system that they might wish to re-install on the new system. Appendix A of this manual gives detailed instructions as to what the customer should and should not save. Give the customer Appendixes A and B from this manual and do not continue until they have saved all files that they wish to retain. When the customer has their final backups of system files completed to their satisfaction, continue.

TRANSFERRING BADBLOCK FILES TO THE NEW 4405 SYSREFORMAT

CAUTION

*Verify that the HDA number of the 4404 SYSREFORMAT diskette matches that of the MSU with which it was used. (Check under the bezel of the MSU for the HDA number.) The badblock information is unique to each hard disk and **MUST** be present to physically format the hard disk. If this number is not present, do not proceed — see the 4404 or 4405 Field Service Manual for instructions on how to generate this file.*

In order to use the new 4405 SYSREFORMAT diskette with the existing hard disk, you **MUST** transfer the bad block information from the old 4404 SYSREFORMAT diskette to the new 4405 SYSREFORMAT diskette. This information (stored as the file *badblks*) contains the hard disk defect list that is used by the disk controller to avoid defective areas on the hard disk. To transfer this information:

1. Login as user *system*.
2. Insert the **OLD** SYSREFORMAT diskette into the floppy drive
3. Mount the floppy drive onto the directory *floppy*.
4. Copy the file */floppy/badblks* to the root directory.
5. Dismount the floppy drive and remove the old SYSREFORMAT diskette from the drive.
6. Insert the **NEW** SYSREFORMAT diskette into the floppy drive.
7. Mount the floppy drive onto the directory *floppy*.
8. Copy the file */badblks* onto the new SYSREFORMAT diskette.
9. Dismount the floppy drive and remove the new SYSREFORMAT diskette from the drive.

The following example shows the commands and responses you should see on your screen.

```
++ login system
sys++ path
/
  (insert the old SYSREFORMAT diskette into the floppy drive)
sys++ mount /dev/floppy /floppy
sys++ copy /floppy/badblks .
sys++ dismount /dev/floppy
sys++
  (remove the old SYSREFORMAT diskette and insert the new)
sys++ mount /dev/floppy /floppy
sys++ copy /badblks /floppy
sys++ dismount /dev/floppy
sys++
```

Example 2-1. Copying *badblks* onto the new SYSREFORMAT diskette.

BACK UP THE PASSWORD FILE

The password file contains the system user account names, numbers, and passwords. You will need to put it on your new system in order to be sure each set of user files has the proper owner. File ownership is determined by user number, not name.

Change to the root directory and backup the file */etc/log/password*. To do so, type:

```
sys++ chd
sys++ backup /etc/log/password
```

Insert a formatted diskette and label it with the file name. If the backup was successful (check with *restore +C*) proceed to the hardware installation in the next section.

Section 3

HARDWARE INSTALLATION

GENERAL

This section contains the disassembly of the 4404 and reassembly procedures required for installing the 4404F05 components.

SAFETY CONSIDERATIONS

Before performing any of the maintenance procedures listed in this section, carefully read the Service Safety Summary at the front of this manual.

INSPECTION

During this procedure you should inspect the system for such defects as broken connections, damaged circuit boards, loose connectors, heat damaged parts, broken structural foam mounting features, (circuit board retainers), and general mechanical fitness. Pay particular attention to connectors, cable strain relief, and the CRT mounting bracket. Refer to the field service manual for any corrective action.

Unless a specific reassembly procedure is given, reassemble the system parts by following the disassembly procedures in reverse order.

NOTE

Unless otherwise stated, all screws mentioned in these procedures are POZIDRIVE®.

ELECTROSTATIC DISCHARGE PRECAUTIONS

This product contains components that are highly sensitive to electrostatic discharge. To prevent damage to such components and to maintain product reliability, do NOT touch or remove the circuit boards or components from the terminal until the following conditions are met.

Handling Static-Sensitive Components

Handle all static-sensitive components (such as ROMs, EPROMS, custom logic chips, etc.) in a static-safeguarded work area. A static-safe area is any area capable of controlling static charge on conductive and nonconductive materials, and people.

Transporting Static-Sensitive Components

Transport all static-sensitive components in static-shielded containers. A static-shielded container will protect its contents from static discharge as well as static fields.

INSTALLATION PROCEDURES

DISPLAY/CRT

Top Cover Removal

The Display/CPU's top cover is fastened by two screws in the rear, and retainer tabs in the front. See Figure 3-1. To remove the two screws, first elevate the rear of the terminal or slide it so that it extends slightly over the edge of the table. Then, pull back and up on the cover piece. This will release the retainer tabs in front. Now, lift off the cover.

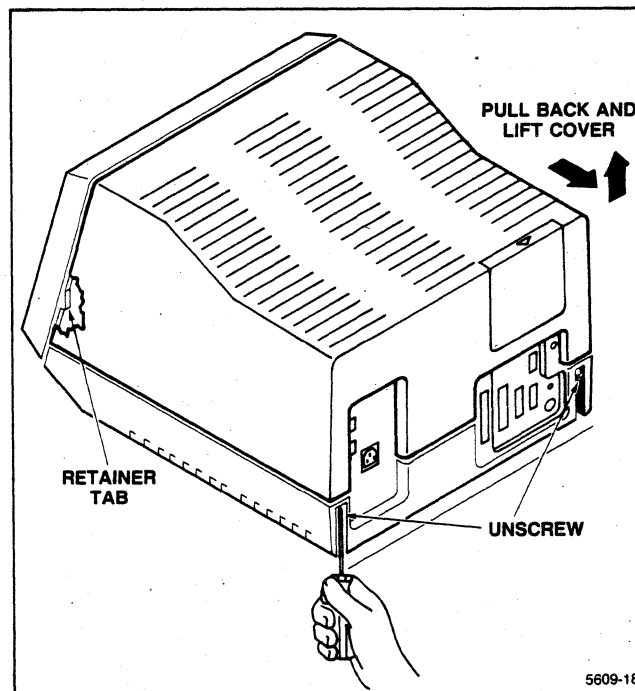


Figure 3-1. Removing The Top Cover.

CPU, I/O and Memory Board Removal

CAUTION

Read "Safe Handling of Static-Sensitive Components" before performing this and the following procedures.

The CPU and I/O circuit boards are mounted across the side and back of the Display/CPU (instead of in a card cage). The CPU board is ahead of the I/O board. Either board may be removed first. Refer to Figure 3-2, when performing the following procedure.

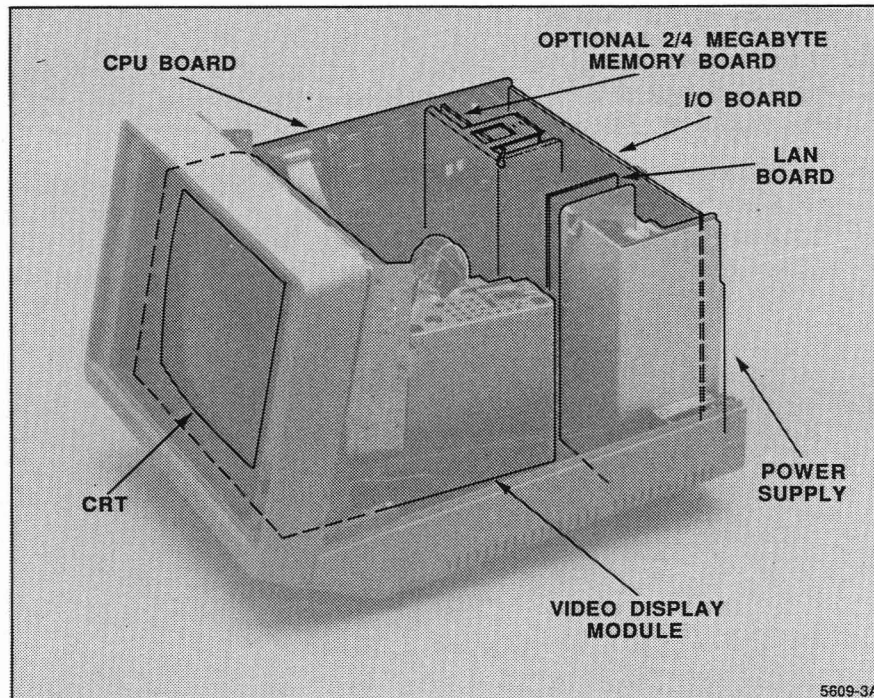


Figure 3-2. Circuit Board Location and Identification.

NOTE

If you are installing an option 2/4 memory board it will be necessary to remove the existing speaker from the chassis.

1. Unplug the ribbon cable that connects the CPU board to the video display interface.
2. Unplug the audio speaker cable from the CPU board.
3. Pull the CPU board away from the I/O board, and if so equipped, the optional memory board at the point where they attach (via a 3-row edge connector). This physically separates the boards.

4. Lift the CPU board up out of its retainer slots, and remove from the terminal.
5. If present, lift the optional 4404 memory board up out of its retainer slots, and remove from the chassis.
6. The I/O board's ground wire attaches to the Power Supply chassis with a pinch-connector. Pull this ground connector off of the chassis.
7. The I/O board attaches to the power supply via a 10-pin connector on the upper-left extension of the board. Unplug the board from this connector by gently springing it away from the power supply.
8. Physically separate the I/O board from the optional LAN board (if so equipped) by pulling the LAN board away from the I/O board at the point where they attach (via a 3-row edge connector) and remove it from the chassis.
9. With the connectors unplugged, remove the I/O board by lifting it straight up and out of the terminal. (The rear connector panel is mounted to this board, and slides in vertical grooves that secure it to the back of the display cabinet.)
10. Check the SCSI chip to make sure it is Rev E. This 48-pin chip is located on the I/O Board at grid location U644 (between the LAN Board connector and the rear connector panel of the I/O Board. (The printing should read NCR/5385E.) If not, replace the chip with the one supplied in this kit. Be sure to observe the Static Handling Procedures while replacing the chip.

CAUTION

The operating system may not Boot, or system crashes may occur if the SCSI chip is not Rev E.

Power Supply Module Removal/Installation

This procedure assumes that the I/O board has been removed.

Removal

A 9-conductor connector provides power from the main Power Supply Module to the power supply section of the Video Display Module and connects the voltage select switches of the power supply to the Video Display Module Power Supply. Remove the power supply in the following manner.

1. Grasp the top and bottom ears on the square connector (9-conductor in the Power Supply Module), and squeeze. This releases the retainer snaps.

NOTE

The lower ear is difficult to reach, but it is accessible.

2. While squeezing these ears together, pull the connector away from the mating receptacle on the circuit board.

3. Remove the 2-conductor voltage select cable from the Video Display Power Supply.
4. Remove the arm that connects the power switch (mounted on the power supply) to the power button (on the front of the display). This arm attaches to the switch via a fork that straddles the switch plunger. Pull forward and the fork will release from the switch.

CAUTION

Be careful not to twist or move the arm in any other direction that might result in breakage of the fork.

5. Unscrew the two power supply mounting screws, along the outside edge of the lower part of the display cabinet. See Figure 6-3.
6. Lift the Power Supply Module out of the display.

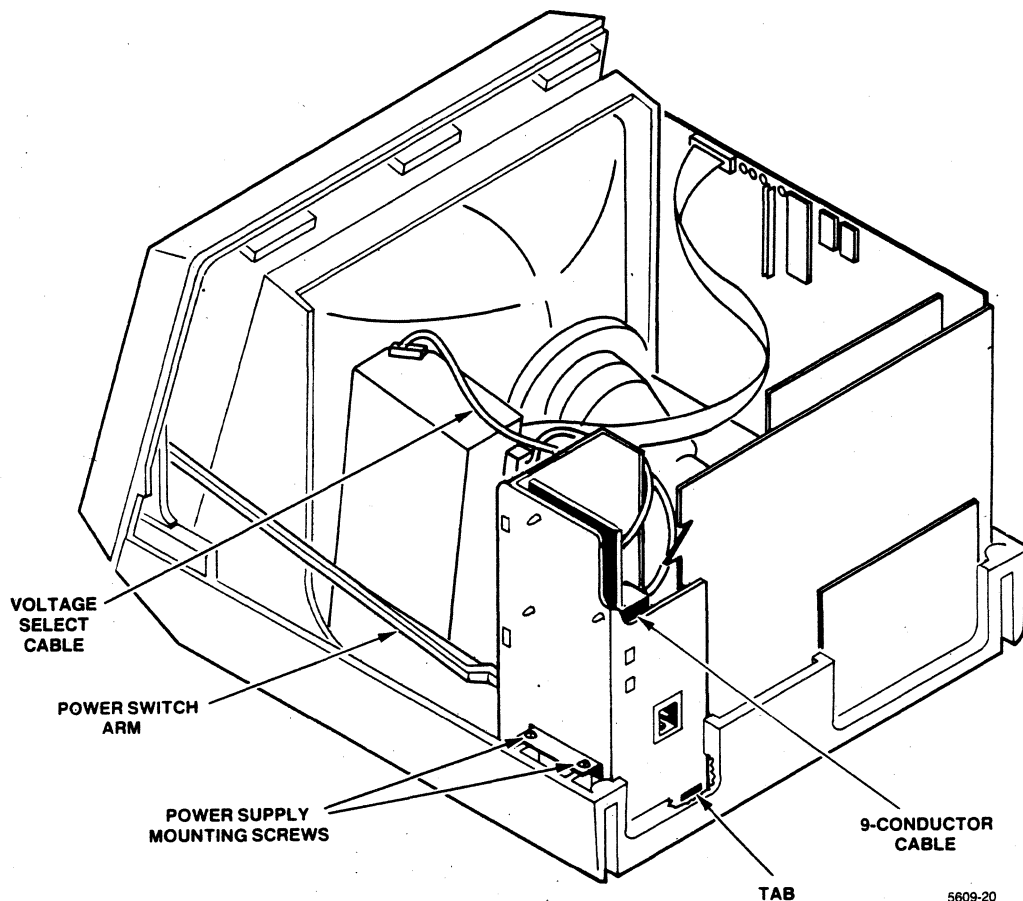


Figure 3-3. Power Supply Mounting Screws.

Installation

To install the new power supply module, follow the previous steps in reverse order.

CPU, I/O and Memory Board Installation

CAUTION

Before installing the CPU, I/O, optional LAN, and optional Memory boards observe the following. First, see that all pins on the connectors are straight. Then, while placing the boards in the Display/CPU, carefully align the connectors and push them together. Carelessness can easily result in bent pins, which may cause damage to the system.

If an F02 or F05 memory option is being installed remove the 4404 speaker from the bottom case and discard it before proceeding with the following.

Refer to Figure 3-2 for board locations and Figure 3-4 for cable connections.

1. If you are installing an Option F02/04 board first align the 150-pin connector on the memory board with the matching connector on the CPU board (connector number P135) and push them together. Next, connect the fan power lead to the CPU board at connector number J975 and connect the speaker wires to connector number J59 on the CPU board.

If you are not installing an optional memory board, proceed to the next step.

CAUTION

While installing the memory and CPU boards, make sure that the fan and speaker wires are not pinched beneath them.

2. Position the CPU board (and the memory board mounting bracket, if so equipped) in the appropriate alignment slots in the bottom case.

NOTE

The F02/04 memory board mounting bracket will fit into the original 4404 memory board alignment slots.

3. Connect the video ribbon cable to the CPU board at connector number J12 and the speaker wires to connector number J59 on the CPU board if not previously installed as described in Step 1 above.

NOTE

The 96-pin connector, number J55 on the CPU board is not used.

4. (Attach the LAN board to the I/O board if so equipped.) Place the I/O board (and LAN board) into the alignment slots in the lower case while holding the CPU board away to prevent bending of any pins.

NOTE

Be sure the rear connector panel is properly aligned in its slots.

5. Align the 96-pin connector on the I/O board with connector number P97 on the CPU board and push them together. Next, align the 10-pin connector on the I/O board with power supply connector and push them together.
6. Connect the ground wire from the power supply to the rear connector panel on the I/O Board.

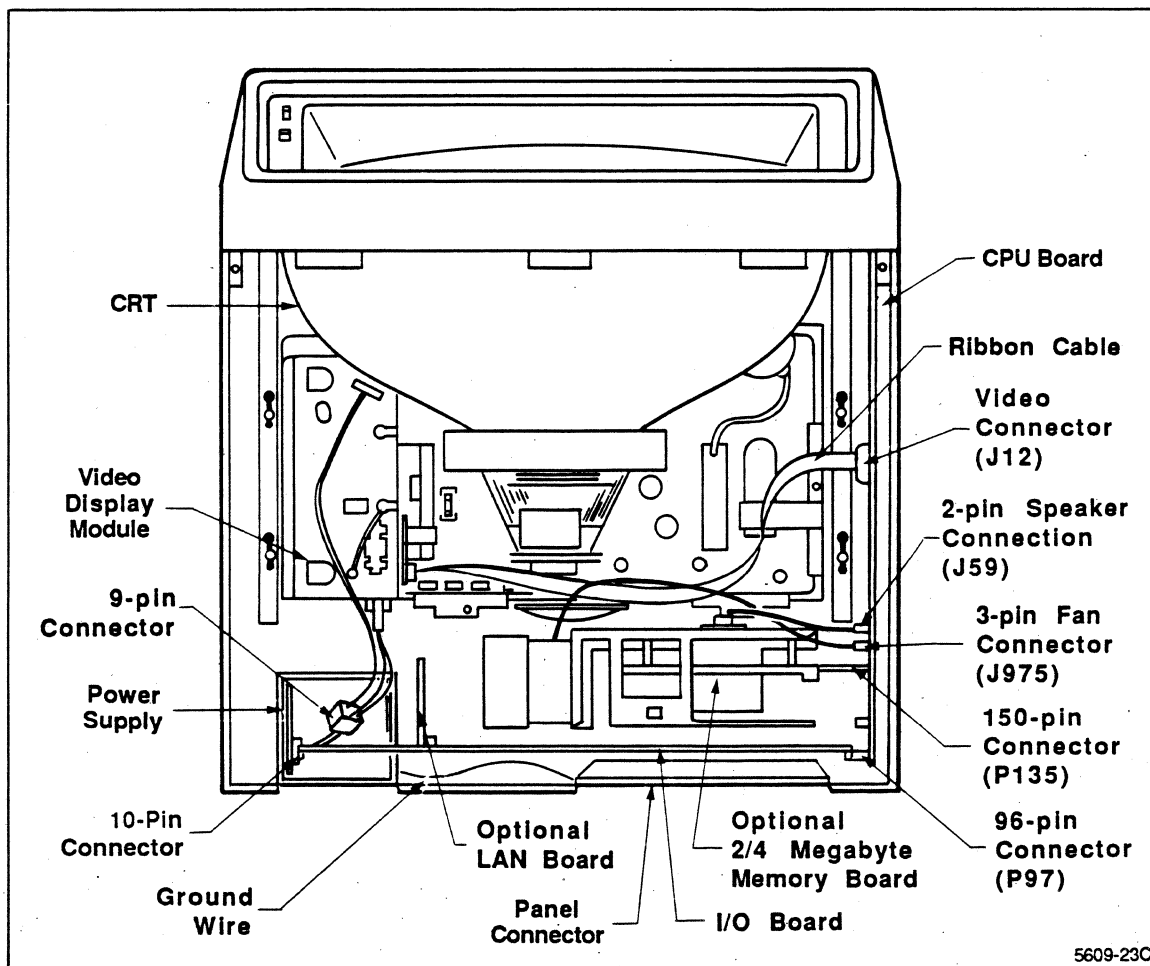


Figure 3-4. Display/CPU Cable Connections.

Display/CPU Assembly

To install the Display/CPU top cover, follow the removal instructions in reverse order.

Now connect the cables that were previously removed to the Display/CPU rear connector panel.

Install the 4404F05 Option Identification Label on the rear of the Display/CPU below the Serial Number Plate.

PACKING INSTRUCTIONS

The original 4404 components that have been removed are to be placed in Boxes #1 and #2 as listed in Table 3-1 and returned to Tektronix. The return boxes already have return shipping labels on them.

Table 3-1
4404 RETURN SHIPPING CARTONS

CARTON	CONTENTS
Box 1	4404 CPU Board, NCR/5385E SCSI chip (if not used), and 4404 Option 01 or 03 Memory Board.
Box 2	Box No. 3 and the 4404 Power Supply.
Box 3	4404 Power supply (place the power supply in Box No. 3 and then inside Box No.2)

Section 4

Software Installation

OVERVIEW

When you have completed the hardware installation, you are ready to install the new 4405 system software. The system software comes on a set of partitioned diskettes similar to those of the 4404. When you have finished, you will have constructed a system identical to that of a factory-installed 4405.

Installing the new 4405 software system is a simple process. It is:

1. Format the hard disk with the new 4405 SYSREFORMAT diskette.
2. Build the 4405 system software from the distribution diskettes. (This discussion is taken from the *4405 Users Manual*.)
3. Restore the password file from the 4404 system.
4. Leave the 4405 system software distribution diskettes and special diskettes with the customer for use with their system.

BUILDING THE 4405 SOFTWARE

For an overview of rebuilding 4400 Series system software, read the *4405 Users Manual, Section 5, Recovery and Rebuild*. The discussion in this manual contains much of the same information given in the *Complete System Rebuild Procedure*.

STEP 1 — FORMAT THE HARD DISK WITH SYSREFORMAT

CAUTION

You MUST have transferred the bad block file from your old SYSREFORMAT diskette to the new one before you proceed. If you do not, the system will be unreliable or unusable.

The physical format (interleaf factor) has been changed from the 4404 to the 4405. This change in format allows faster disk access. To take advantage of this increase in performance, you must physically reformat the hard disk. The names of some of the system rebuilding utilities have changed from the old 4404 names as well.

A — Boot the SYSREFORMAT Diskette

1. Insert the SYSREFORMAT diskette into the floppy disk drive and power on the system.
2. Invoke the *Interactive Boot/Self-Test Menu*. You can either:
 - A. Press and release the Reset Button twice. Hold the Reset Button down briefly each time. The Reset Button is located on the rear panel of the Display/CPU unit.
 - B. Hold the left *Shift* key down and press and hold the *Break* key for several seconds after the screen clears and the machine type (*Tektronix 4405*) appears.
3. When the *Interactive Boot/Self Test Menu* appears, press function key **f1** (Interactive Menu).
4. When the *Interactive Boot Menu* appears, press function key **f2** (Boot system_4405.boot from Floppy).
5. Wait for the system to successfully boot from the floppy disk. (This takes about a minute.)

B — Format the Hard Disk

Determine the size of the disk and swap space you are using. If you are using a 45Mb hard disk (standard on the 4404) and want 8Mb of swap space (recommended), type:

```
++ physicalFormat-45-8  
++
```

The physical format will take five to ten minutes to complete. Do not disturb the system while it is formatting.

When the format is complete, the system will shut itself down. Remove the SYSREFORMAT disk when the following message appears.

```
"... System shutdown complete ..."
```

STEP 2 — RESTORE THE SYSTEM WITH THE *SYSINSTALL* DISK

A — Boot the *SYSINSTALL* Disk

The *SYSINSTALL* disk contains a minimal bootable operating system that can restore your system software. To boot this disk, simply:

1. Insert the *SYSINSTALL* diskette into the floppy disk drive and power on the system.
2. Press and release the Reset Button twice. Hold the Reset Button down briefly each time. The Reset Button is located on the rear panel of the Display/CPU unit.
3. When the *Interactive Boot/Self Test Menu* appears, press function key f1 (Interactive Menu).
4. When the *Interactive Boot Menu* appears, press function key f2 (Boot *system_4405.boot* from Floppy).
5. Wait for the system to successfully boot from the floppy. (This takes about a minute.)

B — Restore Files from the Distribution Diskettes

You now have a system that was booted from the floppy disk and is running from the hard disk. This system is capable of reading the system software from the distribution diskettes that hold the 4405 software. To restore your system, type:

```
++ fileRestore
```

Now, relax and wait a few minutes. During this time, the *backup* program is moved to the hard disk, then *fileRestore* invokes *restore* to install the first partition of the system.

When the system prompts you with the message:

```
"Insert next volume -- Hit C/R to continue:"
```

Remove the *SYSINSTALL* disk and insert the first disk of your standard operating system diskettes. Press the *Return* key, and if everything is correct, the system will restore the files from that diskette.

As each diskette is restored to the system, the system will prompt you to insert the next disk with the message:

```
"Insert next volume -- Hit C/R to continue:"
```

After each group of files has been restored, the system will prompt you to insert the next group of diskettes. When the system restoration is complete, the system will return a message to that effect.

C — Stop the System and Reboot

The *fileRestore* script automatically shuts down the system when it has completed. When the message:

```
"... System shutdown complete ..."
```

appears, you can reboot by simply pressing the Reset Button. On the first reboot, the system will go through a normal boot-up sequence, run *diskrepair* (to verify the file structure), do a CRC check, then shut down the system again. Reboot again, and the system will run *diskrepair* and do a CRC check again, then log you in as user *public*.

RESTORE THE 4404 PASSWORD FILE AND USERS

RESTORING THE PASSWORD FILE

Login as user *system* (you won't need a password yet), and restore the password file:

```
++ login system
sys++ restore +l /etc/log/password
```

Insert the diskette with the password file when the system calls for it. When this file is restored the user structure should be the same as on your original 4404 system.

RESTORING THE USER DIRECTORIES

After the password file is restored, the user accounts on the system are active. However, these users cannot log in because they have no assigned home directories. To find what files are necessary to create, look at the password file. The stock system has entries for users *system*, *stop*, and *public*, any other entries are users that have been added. The entry before the final colon in each line is the home directory of that user. The following example shows how to create directories for each user account.

```
sys++ path
/
sys++ list /etc/log/password
system:njqgnholubnphzl:0:/:
stop::0:/:stop
public::10:/public:
phils:alatyuimezdrskfj:11:/phils:
tomr:jjdierortatqwfsh:12:/tomr:
yvonne:l:uudhghlehgaryuqgg:13:/yvonne:
sys++
```

The three directories you must create are */phils*, */tomr*, and */yvonne*.

```
sys++ crdir /phils /tomr /yvonne
sys++
```

Check that these directories are indeed created, and the system is complete.

THE FINAL STEPS

Only two steps remain to complete the 4404F05 installation. First, run several cycles of self-test to verify that everything is working well, then turn the system over to the customer.

RUN SELF TEST TO VERIFY THE SYSTEM

Stop the system (type *stop* and wait until the system shuts down), and press the reset button twice. When the menu appears, press function key **f9** to enter continuous self test.

After you have successfully rebuilt the software and the system has run at least two complete cycles of self test, you can be sure that the hardware installation is reliable. Press function key **f12** and the system will boot up and log you in as user *public*.

GIVE THE CUSTOMER THE INSTALLATION DISKETTES

You should now turn the working system back over to the customer. Give the customer the 4405 manuals set and the 4405 software distribution diskettes. Remind them that they now must restore the files they saved off the 4404 system. Caution them not to restore any system files that might overwrite any of their new utilities and your task is complete.