3001679

READ THIS FIRST

QUICK REFERENCE GUIDE

OMTI 5520A/B AND 5527A
DISK CONTROLLERS
FOR THE IBM PC XT

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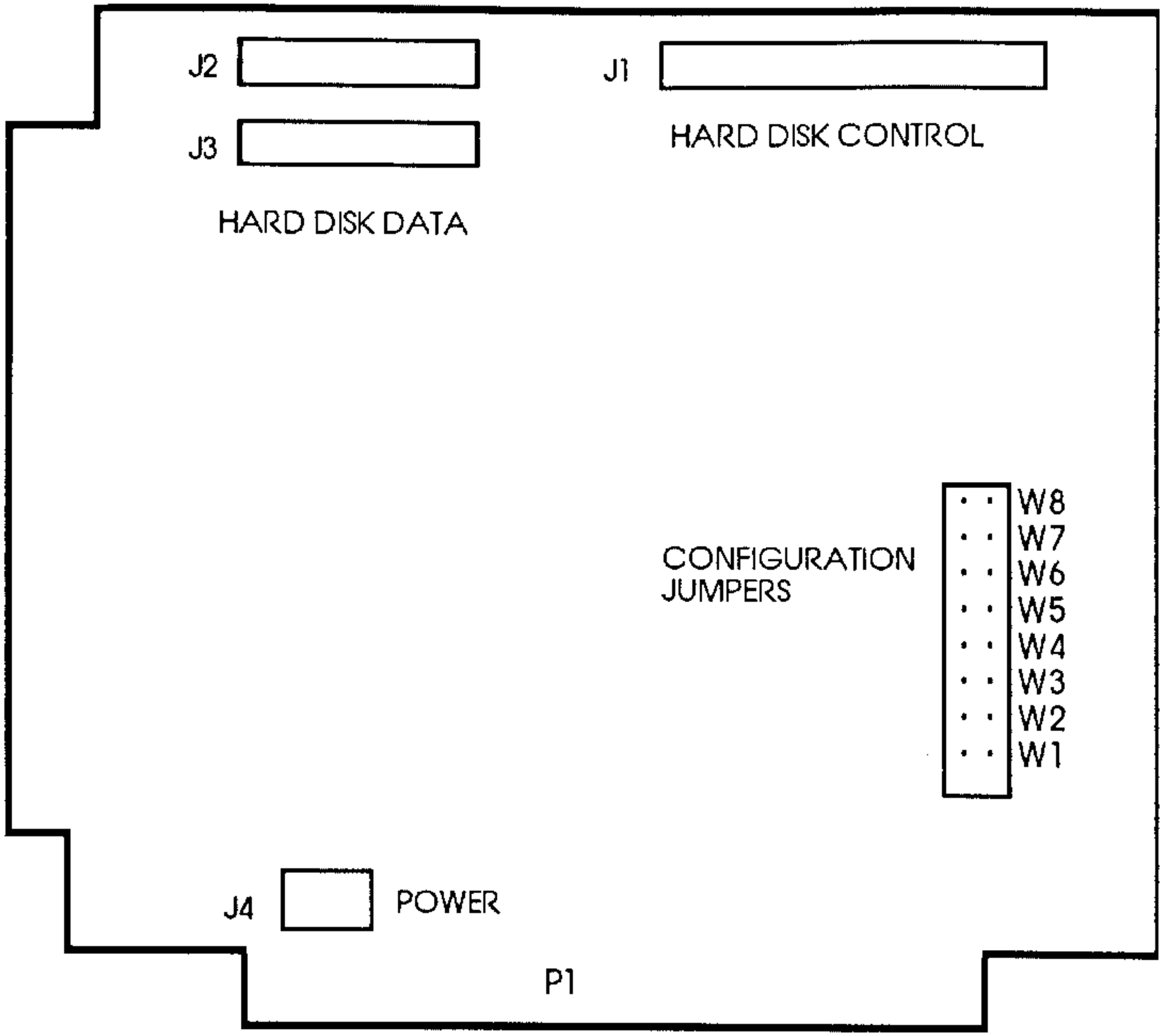
SECTION 1

INSTALLATION

CONTROLLER PREPARATION. Your first task is to set up the controller to operate with your disk drives. You do this by use of small shorting plugs, called jumpers, installed between various pin pairs numbered W1 through W8 (Figure 1-1). These configuration jumpers allow you to enter the controller's system address and the types of disk drives you are using. Refer to your disk drive manual for information about the drive interface, bytes per sector, sectors per track, number of heads and cylinders, and hard or soft-sectoring. You will need to compare the types of disk drives you have selected to the information contained in the next steps.

It will be necessary to move configuration jumpers on the controller circuit board before you install the controller in your PC XT. A configuration jumper connector is I N when it connects a pair fo jumper pins and is OUT when they remain open. **NOTE: Your 5520A/B or 5527A is shipped with all jumpers OUT.** Connect pin pairs with a jumper when your configuration requires that a jumper be IN. For storage purposes, unused jumper plugs may be stored on the board by pushing them on only one pin.



NOTE: Jumpers W9 through W30 are not used.

Fig. 1-1 Configuration Jumper and Drive Connector Locations

5520A/B HARD DISK DRIVE TYPE. 5520A/B jumpers W1 through W4 (Figure 1-1) define a specific type of hard disk drive to be connected as DS0 or DS1. **If** your single drive is listed in Table 1-1, **then** install jumpers W1 through W4 as shown. **If** both drives of a two-drive system are the same model and **if** the drives are listed in Table 1-1, **then** install jumpers W1 through W4 as shown. **If** your drive is not listed in Table 1-1, **do not** install jumpers W1 through W4.

TABLE 1-1

5520A/B HARD DISK DRIVE TYPE JUMPERS (BIOS 1002570)
MFM DATA ENCODING

Jumper designators				Drive Model or compatible	No.of Cyls.	No. of Heads	Write Pre-comp Cyl. No.
W1	W2	W3	W4				
IN	IN	IN	IN	Maxtor XT1140	918	15	n/a
IN	IN	IN	OUT	CMI 6426	640	4	256
IN	IN	OUT	IN	Rodime 352	306	4	n/a
				Microscience HH	312		
IN	IN	OUT	OUT	Seagate ST4026	615	4	300
IN	OUT	IN	IN	Cynthia 570	987	7	n/a
				Vertex V170			
IN	OUT	IN	OUT	DMA/RICOH	612	2	400
				(Removable 10mb)			
IN	OUT	OUT	IN	Seagate ST4038	733	5	300

TABLE 1-1 (CONT.)

5520A/B HARD DISK DRIVE TYPE JUMPERS (BIOS 1002570)
MFM DATA ENCODING

Jumper designators				Drive Model or compatible	No. of Cyls.	No. of Heads	Write Pre-comp Cyl. No.
W1	W2	W3	W4				
IN	OUT	OUT	OUT	Seagate ST213	612	2	256
OUT	IN	IN	IN	Miniscribe 3425	612	4	128
OUT	IN	IN	OUT	Quantum Q540	512	8	256
OUT	IN	OUT	IN	Seagate ST4051	977	5	300
OUT	IN	OUT	OUT	CMI 342 Seagate ST255	612	4	256
OUT	OUT	IN	IN	CDC 9415-36	697	5	256
OUT	OUT	IN	OUT	CMI 3212 Miniscribe 3012/3212	612	2	128
OUT	OUT	OUT	IN	CMI 6640 Tulin 240	640	6	256
OUT	OUT	OUT	OUT	CMI 5412 Lapine 3522 Otari 514 Seagate ST412/ST212 Shugart 712	306	4	128

5527A HARD DISK DRIVE TYPE. 5527A jumpers W1 through W4 (Figure 1-1) define a specific type of hard disk drive to be connected as DS0 or DS1. If your single drive is listed in Table 1-2, **then** install jumpers W1 through W4 as shown. **If** both drives of a two-drive system are the same model and **if** the drives are listed in Table 1-2, **then** install jumpers W1 through W4 as shown. **If** your drive is not listed in Table 1-2, **do not** install jumpers W1 through W4.

TABLE 1-2

5527A HARD DISK DRIVE TYPE JUMPERS (BIOS 1002571)
2,7 RLL DATA ENCODING

Jumper designators				Drive Model or compatible	No. of Cyls.	No. of Heads
W1	**W2**	**W3**	**W4**			
IN	IN	IN	IN	Atasi 3085	1024	8
IN	IN	IN	OUT	Seagate ST251R	820	4
IN	IN	OUT	IN	Priam V170	987	7
IN	IN	OUT	OUT	Toshiba MK53FB	830	5
IN	OUT	IN	IN	Peripheral Tech 357R	615	6
IN	OUT	IN	OUT	Seagate ST4077R	1024	5

TABLE 1-2 (CONT.)

5527A HARD DISK DRIVE TYPE JUMPERS (BIOS 1002571)
2,7 RLL DATA ENCODING

Jumper designators				Drive Model or compatible	No. of Cyls.	No. of Heads
W1	**W2**	**W3**	**W4**			
IN	OUT	OUT	IN	Priam 514	1224	11
IN	OUT	OUT	OUT	Toshiba MK56FB	830	10
OUT	IN	IN	IN	Miniscribe 8438 Microscience HH330 Microscience HH738	612	4
OUT	IN	IN	OUT	Seagate ST277	1166	7
OUT	IN	OUT	OUT	Toshiba MK54FB	830	7
OUT	OUT	IN	IN	Lapine LT300	616	4
OUT	OUT	IN	OUT	Seagate ST4144R	1024	9
OUT	OUT	OUT	IN	Priam 519	1224	15
OUT	OUT	OUT	OUT	Seagate ST238R Miniscribe 3438	615	4

5520A/B/5527A SYSTEM DEFINITION JUMPERS. System definition jumper pins W5 through W8 (Figure 1-1) determine your 5520A/B or 5527A BIOS address and the hard disk I/O port base addresss. Jumper terminal functions are described in Table 1-3.

TABLE 1-3

5520A/B/5527A SYSTEM JUMPER FUNCTIONS

Jumper designation	Jumper setting, function, or procedure
The base address of the hard disk I/O port is set by jumpers W5 and W6 in combination. *The address set at the factory is 0320 Hex.*	
W5 W6	**Hard disk I/O port base address:**
OUT OUT	0320Hex.
IN OUT	0324Hex.
OUT IN	0328Hex.
IN IN	032CHex.
W7	OUT: Enable controller BIOS. IN: Disable controller BIOS. (Controller will not recognize hard disk drive).
W8	OUT: Controller BIOS address is C8000Hex. IN: Controller BIOS address is CA000Hex.

DRIVE PREPARATION. Your hard disk drives will need to be prepared for installation in your system. *Refer to your disk drive manual for instructions fonthe disk drive internal jumpers , switches , and termination resistors.*

CONTROLLER INSTALLATION. Install your 5520A/B or 5527A disk controller in your PC by performing the following steps:

1. Set your PC power switch to OFF.

2. Refer to your PC owner's manual. Open the PC case to expose the main computer board and the expansion slots.

3. Refer to Figure 1-3. Remove the screw and shield strip from the rear panel behind the expansion connector you are going to use. Slide the 5520A /B or 5527A controller board downward and press the PC XT BUS edge connector into the connector slot of the PC. Reinstall the screw in the controller mounting bracket.

4. Connect hard disk drive cables to the controller board connectors.

5. Close the PC case. Your controller installation is complete. Proceed to Section 2 for operating instructions.

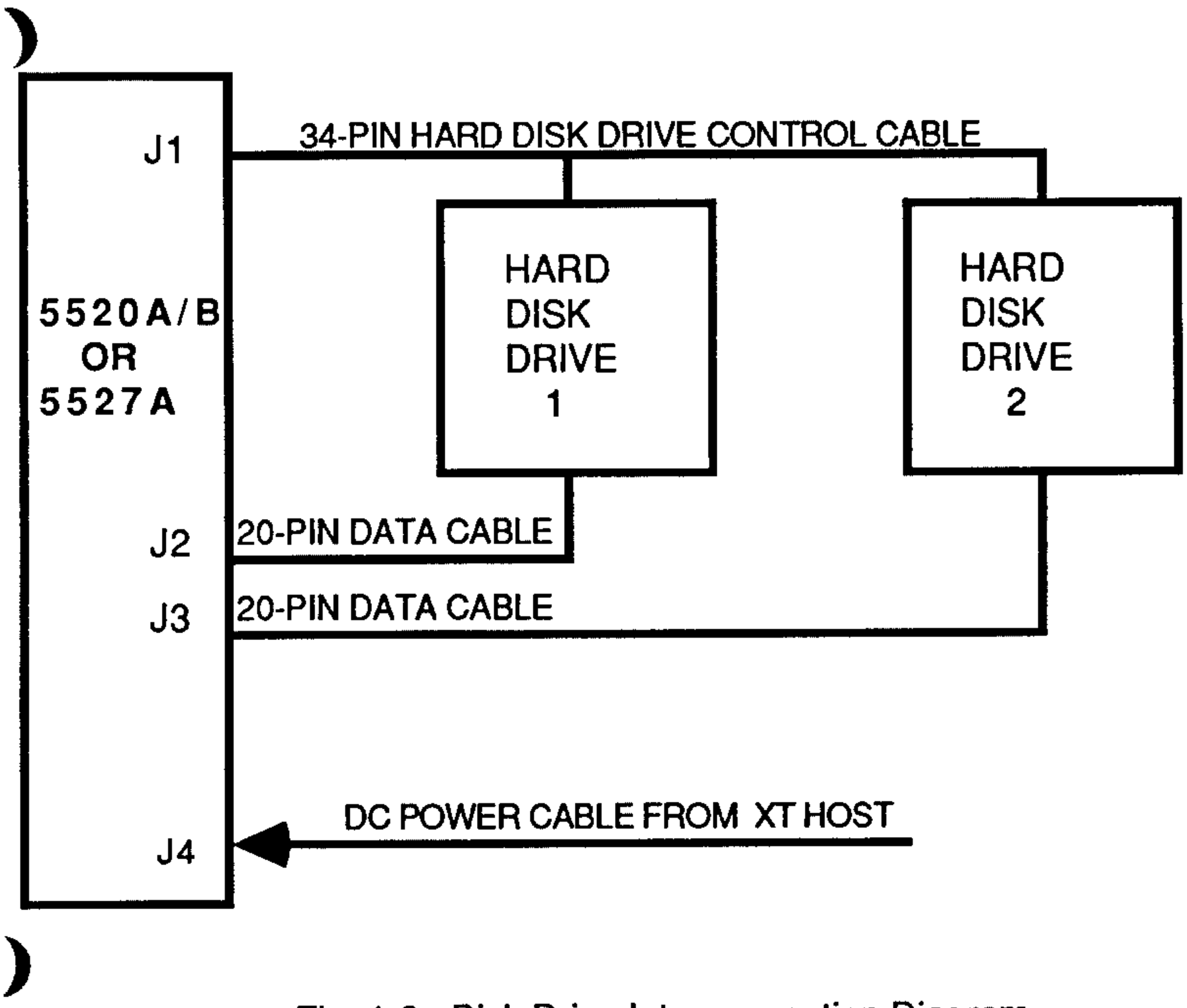


Fig. 1-2 Disk Drive Interconnection Diagram

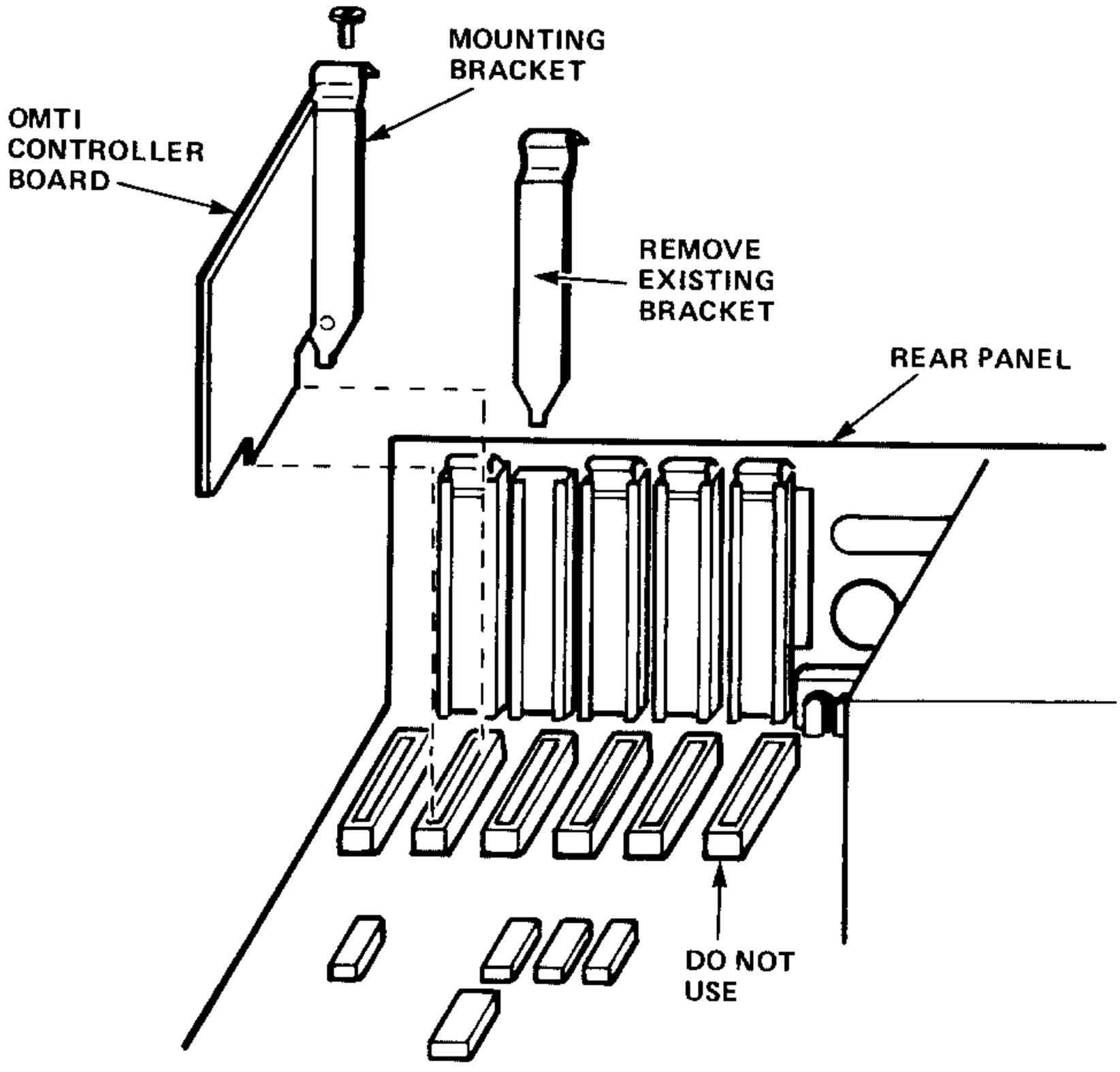


Figure 1-3. Controller Installation

SECTION 2

OPERATION

This section takes you from the completion of installation of your controller board to initializing, formatting and partitioning your hard disk drives.

INITIALIZING YOUR HARD DISK

Perform the following procedure to initialize and format your hard disk(s):

1. Apply power to the PC. Place DOS diskette in drive A (floppy disk). If a 1701 error code is immediately returned, refer to Table 2-1 for the error description. Wait for the **A>** prompt.

2. Type: **debug<ENTER>**

3. Type: **g=c800:6<ENTER>**

4. At the prompt **Enter drive # (0 or 1),** type: **0<ENTER>** to initialize Drive C or: **1<ENTER>** to initialize Drive D.

5. The prompt: **Use default parameters (Y/N)?** will appear. If your hard disk drive is listed in Tables 1-1 or 1-2, then type: **Y<ENTER>** (and go to step 7), otherwise type: **N<ENTER>.**

6. The prompt: **Enter drive parameters:** will appear followed by

   Total CYLS:
   Total HEADS:
   Write Precomp CYL# (RET for none):

   As each prompt appears, type the number of cylinders, number of heads, and the precompensation cylinder number (if required) as shown in your hard disk drive manual. Press **<ENTER>** after each entry.

7. At the prompt: **Control Byte:2** type:
   <ENTER>

8. The prompt: **Press <RETURN> to proceed or <ESC> to cancel** will appear. Press **<ENTER>**

9. The prompt: **Logical partitioning desired (Y/N)?** will appear. If logical partitioning is desired, type: **Y<ENTER>**. If logical partitioning is not desired, type: **N<ENTER>** and go to step 11.

10. The prompt: **Total CYLS in 1st logical unit?__** will appear. Type the number of cylinders you want to be in the first logical unit. Press **<ENTER>**

11. The prompt **Any defects (Y/N)?** will appear. Type: **Y<ENTER>** and the prompts
    CYLINDER__
    HEAD__
    will appear. Type the defective cylinder and head numbers from the defect list on your disk drive defect list label, press **<ENTER>** after each number. Continue until all defective cylinders and heads have been entered. Press: **<ENTER>** at the CYLINDER prompt when you have completed the defect list. The prompt: **More entries (Y/N)?** will appear. Type:
    N<ENTER>.

12. The prompt **Press return to proceed or ESC to cancel** will appear. Press **<ENTER>.** At the prompt: **Interleave (1-15)**, type: **1<ENTER>**

13. At the prompt:

Are you SURE you want to format (Y/N)?

type: **Y<ENTER>** if you want to format the disk drive. Screen messages will appear in the following order:

Formatting....
Format complete
Processing defects
Parameters saved
Press any key to reboot

Press the space key and wait for the PC to reboot.

14. At the **A>** prompt, type: **fdisk<ENTER>**. A screen message will appear:

FDISK Options
Current fixed disk drive 1 (**2** if drive D)
Choose one of the following:

1. Create DOS partition
2. Change active partition
3. Delete DOS partition
4. Display partition data
5. Select next fixed disk drive (This choice will not appear unless two hard disk drives are installed.)

Type: **1<ENTER>**

15. At the prompt: **Do you wish to use the entire fixed disk for DOS (Y/N)?** type: **Y<ENTER>**. The messages
    System will now restart
    Insert DOS diskette in drive A
    Press any key when ready
    will appear.

16. At the **A>** prompt, type: **FORMAT C:/S** to format disk and install system files on drive C. A messages will appear:
    WARNING: All data on non removable disk drive C will be LOST!
    Proceed with Format (Y/N)?

17. Type: **Y<ENTER>** to proceed with formatting. The screen messages will appear in succession:
    Formatting....
    Format complete
    System transferred

18. Your installation of drive C is complete. Proceed to Step 19 if drive D is installed.

19. Repeat steps 1 through 15 for drive D, if installed.

20. At the **A>** prompt, type: **FORMAT D:** to format disk on drive D. A messages will appear:

    WARNING: All data on non removable disk drive D will be LOST!
    Proceed with Format (Y/N)?

21. Type: **Y<ENTER>** to proceed with formatting. The following messages will appear in succession:

    Formatting....
    Format complete
    System transferred

22. Your installation of drive D is complete.

TABLE 2-1

CONTROLLER 1701 ERROR CODE SUMMARY

ERROR CODE	DESCRIPTION
1701-A	Failed **RAM Diagnostic** command. This command performs a pettern test on the internal controller buffer. Remove power from PC and recheck your installation.
1701-B	Failed **Controller Internal Diagnostics** command. This command causes the controller to perform internal diagnostics including ROM checksum and sequencer self-test. Remove power from PC and re-start.
1701-C	Failed **Test Drive Ready Command**. This command selects the logical units and returns a zero status during the status state to indicate that the unit is selected. Check your drive installation and drive cables.

TABLE 2-1

CONTROLLER 1701 ERROR CODE SUMMARY (CONT.)

ERROR CODE	DESCRIPTION
1701-D	Failed **Recalibrate** command. The drive is stepped toward the outside cylinder until either (1) track 0 is detected, or (2) more steps have been issued than available cylinders for the device type. Check your drive installation and drive cables.
1701-E	Failed **Initialize Drive Characteristics** command. This command sends a parameter list of all characteristics of the drive to the controller. There is no access to the drive during execution of this command. Applies to ESDI hard disk drives. Check your drive installation and drive cables.
1701-F	Failed **Read Capacity** command. This command returns to the PC the ESDI drive physical parameters available directly from the drive interface. Check your drive installation and drive cables.