

Series 9x8LX/RX/SX Family and Model 800 x Class

# Disk Upgrade Manual

for A2444A, A2445A, A2446A, A2958A, A3087A, and A3191A



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## Printing History

New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The dates on the title page change only when a new edition or a new update is published. No information is incorporated into a reprinting unless it appears as a prior update: the edition does not change when an update is incorporated.

Many product updates and fixes do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one-to-one correspondence between product updates and manual updates.

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## List of Effective Pages

The List of Effective Pages gives the date of the current edition and of any pages changed in updates to that edition. Within the manual, any page changed since the last edition is indicated by printing the date the changes were made on the bottom of the page. No information is incorporated into a reprinting unless it appears as a prior update.

All ..... February 1994



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## Safety and Regulatory Information

For your protection this product has been tested to various national and international regulations and standards. The scope of this regulatory testing includes electrical/mechanical safety, radio frequency interference, ergonomics, acoustics, and hazardous materials. Where required, approvals obtained from third-party test agencies are shown on the product label. In addition, various regulatory bodies require some information under the following headings.

### Safety Considerations

This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation. The following figure shows some of the safety symbols used on the product to indicate various safety considerations.



Instruction manual symbol: the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual in order to protect the product against damage.



Indicates hazardous voltages.



Indicates earth (ground) terminal (sometimes used in manual to indicate circuit common connected to grounded chassis).

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### Warning



The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, of the like, which if not done correctly or adhered to, could result in injury. Do not proceed beyond a **WARNING** sign until the indicated conditions are fully understood and met.

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### Caution



The **CAUTION** sign denotes a hazard. It calls attention to an operating procedure, practice, of the like, which if not done correctly or adhered to, could damage or destroy part or all of the product. Do not proceed beyond a **CAUTION** sign until the indicated conditions are fully understood and met.

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## Disk Upgrade Procedure

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1. Review the configuration information in “5.25-inch Hard Disk Drive (A2446A) Configuration”, “3.5-inch Hard Disk Drive (A2444A and A2445A) Configuration”, “3.5-inch Hard Disk Drive (A3087A) Configuration”, “3.5-inch Hard Disk Drive (A2958A) Configuration”, and “3.5-inch Hard Disk Drive (A3191A) Configuration”.
2. Be sure the following tasks are done:
  - a. system operation stopped.
  - b. complete system backed up.
  - c. system powered down and power cord(s) unplugged.

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**Warning**      To prevent an electrical shock, make sure the power cord(s) is unplugged.

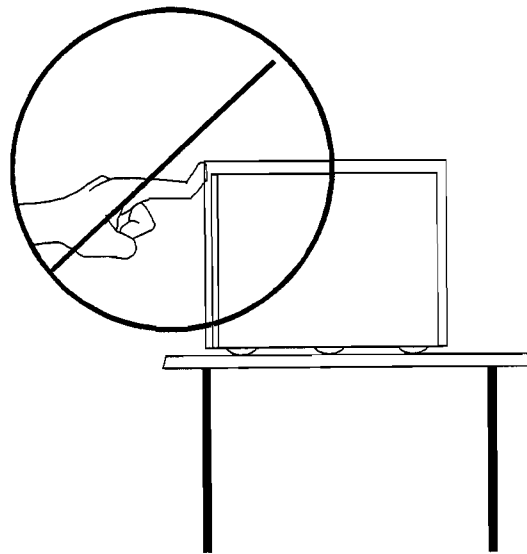


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- d. all system-external peripherals turned off.
  3. Refer to the most recent edition of the *HP 3000 and HP 9000 PA-RISC Computer Systems CE Handbook, Series 9x7 Family, Model 8x7S Family, and Model 800 X Class, Part Number A1707-90016* or the *HP 3000 and HP 9000 PA-RISC Computer Systems CE Handbook, Series 9x8LX/RX Family and Model 800 E Class, Part Number A2051-90003* for detailed information about the following steps.
    - a. Remove front bezel.
    - b. Remove the peripheral tray.
    - c. Remove the disk to be upgraded, if necessary.
    - d. Replace with the disk from the upgrade kit.
    - e. Replace the peripheral tray and front bezel.
  4. Plug in power cord(s).
  5. Perform a power-on selftest.
  6. Install software patches, if necessary.
  7. Reboot system.
  8. Verify system operation.

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**Warning**

- A wheel is located in the center of the expanded-chassis system so it can be easily positioned.
- Use care when moving the system on a cart. Do not allow the system to move or roll off the cart.
- The system is designed as a floor standing product. It could be used on a table top if precautions are taken:
  - Make sure the table will support the weight, and
  - Make sure the table is stable (will not tip over), and
  - Do not allow the system to move on the table, and
  - Do not push the system when it is on the table.



- Failure to follow these procedures may result in personal injury.
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## Configuration

### Disk Part Numbers

Table 1-1 lists the product and part numbers associated with the 5.25-inch and 3.5-inch disk drives introduced with the HP 3000 9x7LX/RX/SX Family, HP 3000 9x8LX/RX Family, HP 9000 Model 800 X Class, and HP 9000 Model 800 E Class systems.

**Table 1-1. Disk Numbers**

Disk Size Capacity	Product Number	Manufacturing Product Number	Part Number on Disk	Exchange Part Number
3.5-inch 566MB	A2444A	C2244	0959-2363	C2244-69365
3.5-inch 1GB	A2445A	C2247	0950-2362	C2247-69365
5.25-inch 2GB	A2446A	C3010	0950-2364	C3010-69365
3.5-inch 535MB	A2958A	ST3610N	0950-2433	A2958-69001
3.5-inch 2GB	A3087A	C2490	0950-2473	C2490-69635
3.5-inch 2GB	A3191A	ST12400N	5063-5399	A3191-69001

### 5.25-inch Hard Disk Drive (A2446A) Configuration

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#### Caution



- The Drive configuration is set for the system it is installed in. Changing the configuration may cause the drive to malfunction.
- Devices outside the system will be configured differently.
- The connector jumpers are not interchangeable from one connector to another. Interchanging the jumpers may damage the connectors.

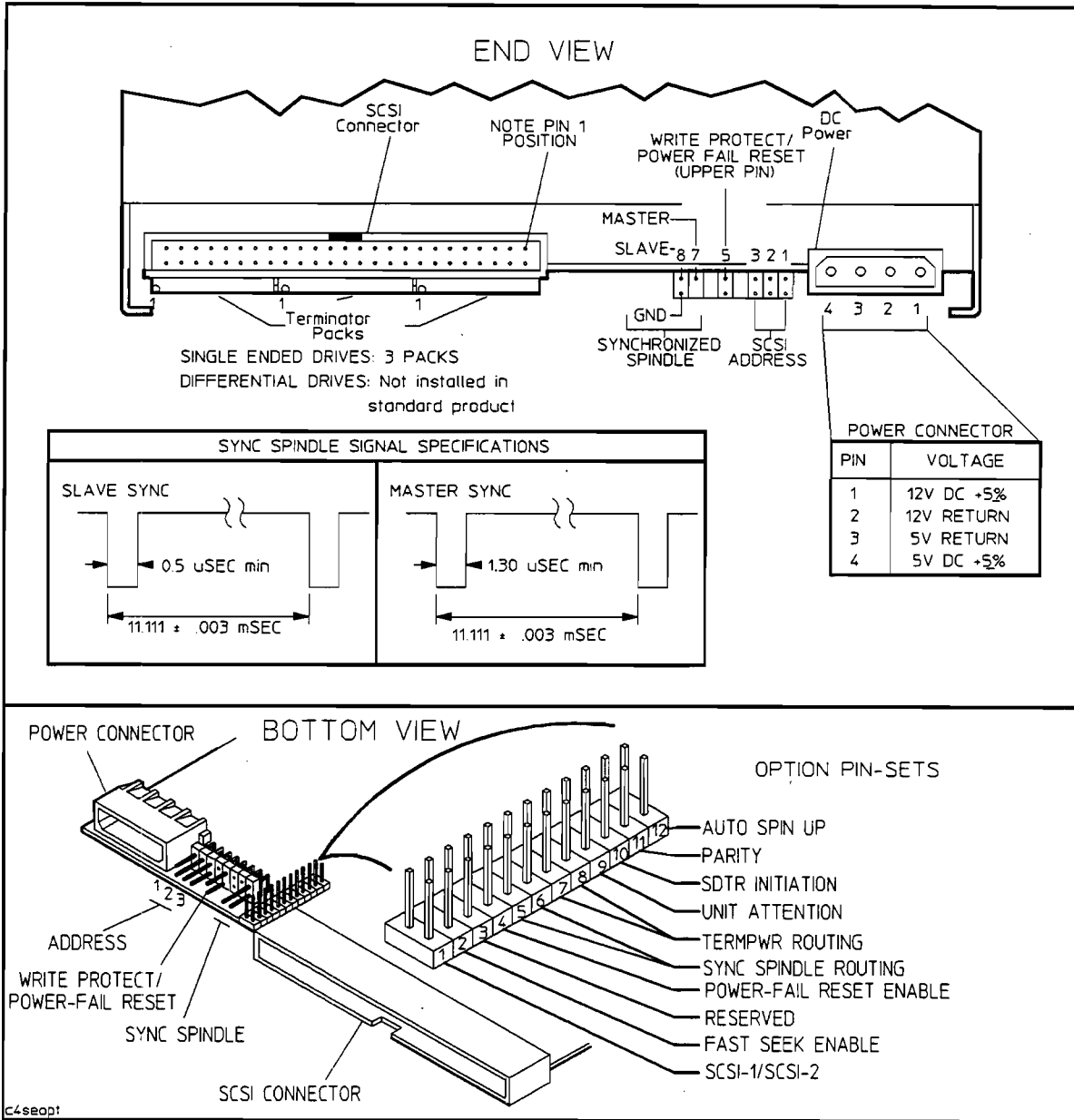
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The drive configuration is set with jumpers on the address/option connector and option connector (see Figure 1-1). A pin-set is shorted with a jumper installed, or open without a jumper. Table 1-2 shows how the option pin-sets for the 5.25-inch hard disk drives (A2446A) in the HP 3000 9x7LX/RX/SX Family and HP 9000 Model 800 X Class systems should be set. Table 1-3 and Table 1-4 list pin-set functions.



**Table 1-2. Option Settings for 5.25-inch Hard Disk Drives (A2446A)**

<b>Function</b>	<b>Pin-set</b>	<b>Setting</b>
SCSI-1/SCSI-2	1	Open
Fast Seek Enable	2	Open
Reserved	3	Open
Power-Fail Reset Enable	4	Open
Sync Spindle Routing	5	Jumpered
Sync Spindle Routing	6	Open
Term Power Routing	7	Open
Term Power Routing	8	Jumpered
Unit Attention	9	Open
SDTR Initiation	10	Jumpered
Parity	11	Jumpered
Auto Spin-up	12	Jumpered
Address	1 - 3	Device address
Write Protect/ Power-Fail Reset	5	Open
Sync Spindle	7,8	Open



**Figure 1-1. Single-Ended Drive Connectors (A2446A)**

**Table 1-3. 12-Pin-Set Option Connector Configurations (A2446A)**

Pin-set	Function		Configuration
	Left Pin <sup>1</sup>	Right Pin <sup>1</sup>	
12 (rear)	Auto Spin-Up	Gnd	<b>Open:</b> Drive will not spin up until Initiator sends Start Unit Command. <b>Shorted:</b> Drive will spin up automatically at Power-On.
11	Parity	Gnd	<b>Open:</b> Inhibit parity checking. <b>Shorted:</b> Enable parity checking.
10	SDTR	Gnd	<b>Open:</b> Inhibit drive initiation of SDTR message. <b>Shorted:</b> Enable drive initiation of SDTR message at Power-On and Reset.
9	Unit Attention	Gnd	<b>Open:</b> Enable Unit Attention. <b>Shorted:</b> Inhibit Unit Attention.
8	SCSI pin 26	Term Resistors	<b>8 Open, 7 Open:</b> <i>Not Allowed.</i> In order to minimize data line noise, at least one of the TermPwr pin-sets <i>must</i> be shorted at all times.
7	Drive TermPwr	Term Resistors	<b>8 Open, 7 Shorted:</b> Connects drive TermPwr to on-board terminators. <b>8 Shorted, 7 Open:</b> Connects initiator supplied TermPwr to on-board terminators. <b>8 Shorted, 7 Shorted:</b> Connects drive TermPwr to on-board terminators and to SCSI pin 26.
6	Sync Spindle	SCSI pin 29	<b>6 Open, 5 Open:</b> <i>Not Allowed.</i> <b>6 Open, 5 Shorted:</b> Connects SCSI pin 29 to ground. When pin-set 5 is shorted, pin-set 6 <i>must</i> be open.
5	Gnd	SCSI pin 29	<b>6 Shorted, 5 Open:</b> Connects Sync Spindle line to SCSI pin 29. When pin-set 6 is shorted, pin-set 5 <i>must</i> be open. <b>6 Shorted, 5 Shorted:</b> <i>Not Allowed.</i>
4	Power-Fail Reset Enable	Gnd	<b>Shorted:</b> Reset enabled. Used in multiuser systems to provide fault tolerance. <b>Open:</b> Reset disabled (also reverts pin-set 1 to Write Protect function).
3	n/a	n/a	Reserved.
2	Fast Seek	Gnd	<b>Open:</b> Inhibit Fast Seek function. <b>Shorted:</b> Enable Fast Seek function.
1 (front)	SCSI-1/SCSI-2	Gnd	<b>Open:</b> Default = SCSI-2. <b>Shorted:</b> Drive is forced to respond as a SCSI-1 device.

<sup>1</sup> Refers to the pin's orientation when the disk drive is viewed in the upside-down position (see Figure 1-1, "BOTTOM VIEW").

**Table 1-4. 8-Pin-Set Address/Option Connector Configurations (A2446A)**

Pin-set	Function		Configuration
	Upper Pin <sup>1</sup>	Lower Pin <sup>1</sup>	
1	Unit Select 1	Gnd	0 = Open, S = Shorted  SCSI Address 0: 1 = 0, 2 = 0, 3 = 0 SCSI Address 1: 1 = S, 2 = 0, 3 = 0 SCSI Address 2: 1 = 0, 2 = S, 3 = 0 SCSI Address 3: 1 = S, 2 = S, 3 = 0 SCSI Address 4: 1 = 0, 2 = 0, 3 = S SCSI Address 5: 1 = S, 2 = 0, 3 = S SCSI Address 6: 1 = 0, 2 = S, 3 = S SCSI Address 7: 1 = S, 2 = S, 3 = S
2	Unit Select 2	Gnd	
3	Unit Select 3	Gnd	
4	Key: No pins.		
5	Power-Fail Reset/Write Protect	Not Used	Used in multiuser systems to provide fault tolerance. <i>Do not</i> short this pin-set.
6	Key: No pins.		
7	Master Sync	Key: No pin.	Output line for Master Sync signal.
8	Slave Sync	Gnd	Input line for Slave Sync signal. Note: <i>Do Not</i> short this pin-set.

<sup>1</sup> Refers to the pin's orientation when the disk drive is viewed in the right-side-up position (see Figure 1-1, "END VIEW").



## 3.5-inch Hard Disk Drive (A2444A and A2445A) Configuration

### Caution



- The drive configuration is set for the system it is installed in. Changing the configuration may cause the drive to malfunction.
- Devices outside the system will be configured differently.
- The connector jumpers are not interchangeable from one connector to another. Interchanging the jumpers may damage the connectors.

The drive configuration is set with jumpers on the address/option connector (see Figure 1-2). Table 1-5 shows how the option pin-sets for the 3.5-inch hard disk drives (A2444A and A2445A) should be set. A pin-set is shorted with a jumper installed or open without a jumper. Table 1-6 lists pin-set functions

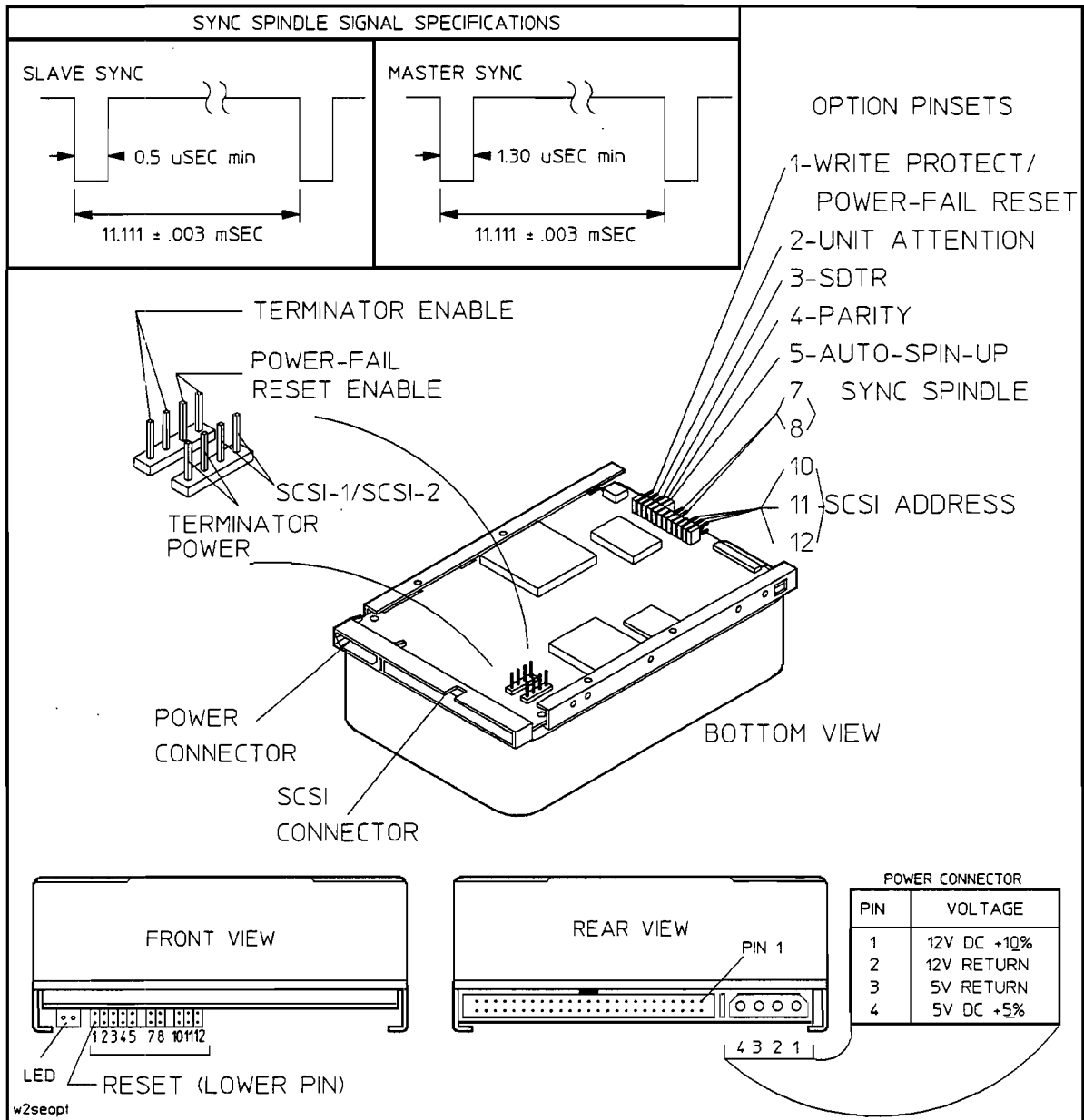
**Table 1-5.**  
**Option Settings for 3.5-inch Hard Disk Drives (A2444A and A2445A)**

Function	Pin-set	Setting
Write Protect/ Power-Fail Reset	1	Open
Unit Attention	2	Open
SDTR	3	Jumpered
Parity	4	Jumpered
Auto Spin-up	5	Jumpered
Sync Spindle	7,8	Jumpered, Open
SCSI Address	10,11,12	Device address
SCSI-1/SCSI-2		Open
Power-Fail Reset Enable		Open
Terminator Power		See Note below.
Terminator Enable		See Note below. Jumpered-Terminated Open-No Termination

### Note



Terminator Power and Terminator Enable must both be set open or must both be jumpered. They must be jumpered if the disk is connected to the last connector on the bus.



**Figure 1-2. Single-Ended Drive Connectors (A2444A and A2445A)**

**Table 1-6. Address/Option Connector Configurations (A2444A and A2445A)**

Pin-set	Function		Configuration
	Upper Pin <sup>1</sup>	Lower Pin <sup>1</sup>	
1	Not Used	Power-Fail Reset/Write Protect	Used in multiuser systems to provide fault tolerance. <i>Do not</i> short this pin-set.
2	Gnd	Unit Attention	<b>Open:</b> Enable Unit Attention. <b>Shorted:</b> Inhibit Unit Attention.
3	Gnd	SDTR	<b>Open:</b> Inhibit drive initiation of SDTR message. <b>Shorted:</b> Enable drive initiation of SDTR message at Power-On and Reset.
4	Gnd	Parity	<b>Open:</b> Inhibit parity checking. <b>Shorted:</b> Enable parity checking.
5	Gnd	Auto Spin-Up	<b>Open:</b> Drive will not spin up until Initiator sends Start Unit Command. <b>Shorted:</b> Drive will spin up automatically at Power-On.
6	Key: No pins.		
7	Gnd	SCSI pin 29	<p><b>Note:</b> Pin-sets 7 and 8 have no effect if Sync Spindle Mode is disabled.</p> <p><b>7 Open, 8 Open:</b> <i>Not Allowed.</i></p> <p><b>7 Open, 8 Shorted:</b> Connects Sync Spindle line to SCSI pin 29. When pin-set 8 is shorted, pin-set 7 <i>must</i> be open.</p> <p><b>7 Shorted, 8 Open:</b> Connects SCSI pin 29 to ground. Upper pin of pin-set 8 is sync output in Master mode, or sync input in Slave mode. When pin-set 7 is shorted, pin-set 8 <i>must</i> be open.</p> <p><b>7 Shorted, 8 Shorted:</b> <i>Not Allowed.</i></p>
8	SCSI pin 29	Sync Spindle	
9	Key: No pins.		

<sup>1</sup> Refers to the pin's orientation when the disk drive is viewed in the right-side-up position (see Figure 1-2, "FRONT VIEW").

**Table 1-6.  
Address/Option Connector Configurations (A2444A and A2445A) (continued)**

Pin-set	Function		Configuration
	Upper Pin <sup>1</sup>	Lower Pin <sup>1</sup>	
10	Gnd	Unit Select 1	<b>0 = Open, S = Shorted</b>  <b>SCSI Address 0:</b> 10 = 0, 11 = 0, 12 = 0 <b>SCSI Address 1:</b> 10 = 0, 11 = 0, 12 = S <b>SCSI Address 2:</b> 10 = 0, 11 = S, 12 = 0 <b>SCSI Address 3:</b> 10 = 0, 11 = S, 12 = S <b>SCSI Address 4:</b> 10 = S, 11 = 0, 12 = 0 <b>SCSI Address 5:</b> 10 = S, 11 = 0, 12 = S <b>SCSI Address 6:</b> 10 = S, 11 = S, 12 = 0 <b>SCSI Address 7:</b> 10 = S, 11 = S, 12 = S
11	Gnd	Unit Select 2	
12	Gnd	Unit Select 3	
SCSI-1/SCSI-2			<b>Open:</b> Default = SCSI-2. <b>Shorted:</b> Drive is forced to respond as a SCSI-1 device.
Power-Fail Reset Enable			<b>Shorted:</b> Reset enabled. Used in multiuser systems to provide fault tolerance. A Reset signal from the power supply is routed to pin-set 1 (see pin-set 1 description) to warn of impending power loss; the drive finishes writing the current sector then resets. <b>Open:</b> Reset disabled (also reverts pin-set 1 to Write Protect function).



