

TEN GOLDEN TIPS FOR HARD DISK REPLACEMENT OF A MACKIE D8B

Although most information is already available from Mackie or other sources these tips gives an integrated approach, which will help you to do the job in one work flow instead of working your way through emerging obstacles or confronting with the wrong sequence of activities.

Some additional information about jumper settings of the most current hard disk brands is included within this document.

Preparing before opening up your D8B computer unit

- 1) **Look for a less used or new (enhanced) IDE hard disk drive, an 80 GB Western Digital by example is very suitable.**

- 2) **Restrict the capacity of the drive to 32 GB by putting jumpers in the proper place.**

See the several settings of different brands as included within this document.

- 3) **Although advised by Mackie, don't use an already partitioned and formatted hard disk for a (Windows) PC:**

you have to 'feed' your D8B computer unit with a 'raw' disk. When using an already partitioned and formatted disk the BIOS of the motherboard from your D8B computer can get stuck in it's attempt to identify the disk,

if you have an already partitioned and formatted disk then use the disk maintenance-utility of Windows (XP, Vista, Windows 7), for deleting the partition, as part of the system- and computer-maintenance option within the configuration menu,

you can execute the above mentioned action by putting your IDE drive into a portable (3,5 inch) IDE-case with a USB interface connected to your desktop or laptop.

4) Make a boot-disk on a floppy disk which will contain MS-DOS 6.22 (the last available version of MS-DOS):

several internet sites offers for free several (image) versions of MS-DOS, download from <http://www.bootdisk.com> or <http://www.allbootdisks.com> for this particular version,

if you don't have an internal floppy drive anymore then there are several external drives (like Freecom) available with a USB-interface,

extract the downloaded file to a (pre) formatted floppy disk.

5) Make a back-up on floppies for all your important projects, snapshots, preset -patches, etc and get all your other Mackie floppies together:

take also a look in your documents for the keys and authorisation codes for your version of the Mackie software and the separate plug-ins (if you have already installed),

collecting all floppies for your current Mackie Operating System (like V5.1-Build 445) and for your Mackie's plug-ins Service Pack 3.

6) Type the Format:On statement in the Tools.ini file on the first floppy of your Mackie OS-version for the necessary and proprietary Mackie procedures;

you can open the Tools.ini file with Wordpad or another basic text-editor on your desktop or laptop when you have an internal or external floppy drive.

Replacing the disk within the D8B computer

7) Disconnect the old disk and connect the new IDE disk but leave the old drive temporarily in place:

you have first going to step 8 before you can replace the drive definitely, Mackie calls this the 'conditioning of the drive'.

- 8) Put the boot-disk with MS-DOS in the floppy drive of your D8B computer unit, power on and give respectively the MS-DOS commands `A:/ FDISK C:` and `A:/ FORMAT C:` on the keyboard connected to your Mackie D8B computer unit:**

the FDISK-command creates a master boot record with a partition-table where as default your new disk will be defined as the primary partition where the Mackie operating system will get placed during the regular Mackie installing procedure. Don't give any extra sub-commands with this command. By default the right characteristics of your drive will be taken into account,

the FORMAT-command will define the type of file system which will be used on the drive. By default it will be FAT-32 where this type will be written down into the before created partition-table, also the file allocation-table will be created for indexing purposes for the files those will be written later on the drive,

the internet sites <http://www.computerhope.com/msdos.htm> and <http://en.wikipedia.org/wiki/MS-DOS> gives detailed information about both commands and its function.

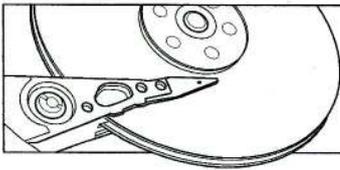
- 9) Change your new IDE drive definitely for the old drive by mounting it into the proper place.**

Installing the Mackie OS-version and the plug-ins (if you have any)

- 10) Follow the regular installing procedure of Mackie by starting up with the first floppy of your Mackie OS-version, eventually followed by the plug-in floppies if all OS-floppies are correctly loaded on your new disk.**

you can unlock the OS-version and the plug-ins with the keys and the authorisation codes you have already used on your old drive, it is not necessary to obtain new codes (as far you have documented these properly.....).

Have fun for many years with your reborn D8Babe!



Jumper Settings WD SATA and EIDE Hard Drives

Jumper settings determine the order in which EIDE hard drives and other devices attached to a single interface cable are detected by a computer system. On SATA hard drives, jumper settings enable or disable enterprise-level features.

Setting the jumpers correctly on a hard drive requires the proper placement of a plastic-encased, metal jumper shunt over two pins on the hard drive jumper block, as shown in Figure 1.

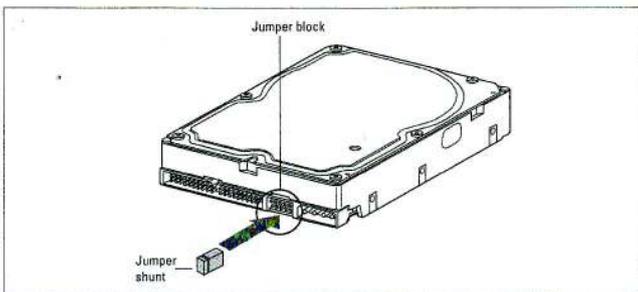


Figure 1. Jumper Block Location

SATA Hard Drive Jumper Settings

WD SATA hard drives are factory set for workstation/desktop use. For enterprise storage requirements, the jumpers can be set to enable spread spectrum clocking or power-up in standby modes.

WD SATA drives are shipped from the factory either with or without a jumper shunt in the spread spectrum clocking (SSC) enable/disable position (on pins 1 and 2). It is not necessary to add or remove the jumper shunt on the drive for workstation/desktop use. For enterprise storage environments, use the following advanced settings:

SSC Mode (Default 1): spread spectrum clocking feature enabled or disabled. Default 1 setting is disabled or jumper shunt placed on pins 1-2. Removing the jumper enables the spread spectrum clocking feature.

SSC Mode (Default 2): spread spectrum clocking feature enabled or disabled. Default 2 setting is disabled or no jumper shunt placed on pins 1-2. Adding the jumper to pins 1-2 enables the spread spectrum clocking feature.

PM2 Enabled Mode: to enable power-up in standby (power management 2 or PM2) mode, place a jumper on pins 3-4. This mode enables controlled spinup by spinup command in accordance with ATA standard and is mainly for server/workstation environments operating in multiple-drive configurations.

Note: The PM2 feature is not available on all WD SATA drives.

Important: PM2 mode requires a compatible BIOS that supports this feature. If PM2 is enabled and not supported by BIOS, the drive does not spin up and therefore is not detected by the system.

OPT1: 150 MB/s data transfer speed enabled or disabled. Default setting is disabled. To enable 150 MB/s data transfer speed, place a jumper on pins 5-6.

OPT2: reserved for factory use (pins 7-8).

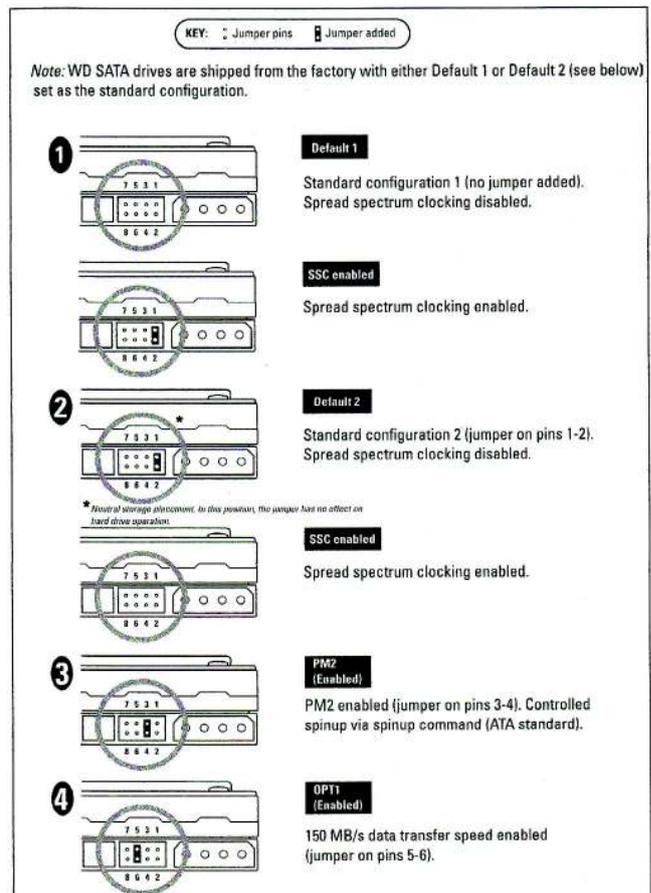


Figure 2. SATA Hard Drive Jumper Settings

EIDE Hard Drive Jumper Settings

WD EIDE hard drives are factory set with Cable Select (CSEL) jumper settings. The CSEL jumper setting protocol requires the use of a special interface cable. All hard drives in a CSEL-compliant system have the jumpers set in the same position.

Not all computer systems support Cable Select. The Master/Slave jumper setting protocol must be used if a system does not support CSEL or if CSEL support cannot be determined. The Master/Slave protocol works regardless of whether or not the system, devices, or cable selects CSEL.

Some systems with legacy BIOSs lock up on initial boot or report a smaller drive capacity than the actual capacity of the hard drive. In such cases, alternate jumper settings must be used in conjunction with WD's Data Lifeguard Tools software.

Three common jumper setting configuration protocols are used for EIDE drives:

- **Single:** the hard drive is the only device on the IDE interface cable.
- **Master/Slave:** the hard drive is either a Master (C:/) drive or a Slave drive in a multiple-drive system.
- **Cable Select (CSEL/CS):** jumper settings are the same on all hard drives in a system (both single- and multiple-drive systems); however, a special CSEL cable must be used, and the host system must support CSEL. WD EIDE hard drives are factory set for Cable Select configuration.

Note: Not all computer systems and motherboards support the CSEL option.

Cable Select System Support

Consult the system documentation or contact the system manufacturer to determine whether a computer supports CSEL.

Checking the jumper position on an existing hard drive or other EIDE device (such as a CD-ROM drive) is another method to determine whether a system supports CSEL. If a diagram or explanation of jumper settings on top of the hard drive or IDE device verifies that it is jumpered for Cable Select, then the system supports CSEL protocol.

The Master/Slave configuration protocol must be used when a system does not support CSEL or when CSEL support cannot be determined.

Note: Even when the system, devices, and cable support CSEL, using jumpers on the hard drive(s) for Master/Slave protocol still works.

Single Hard Drive Installations

To install your new WD hard drive as the only hard drive in your system, use jumpers as shown in Figure 3.

Cable Select Installations: Connect the hard drive to the black connector at the end of the IDE interface cable.

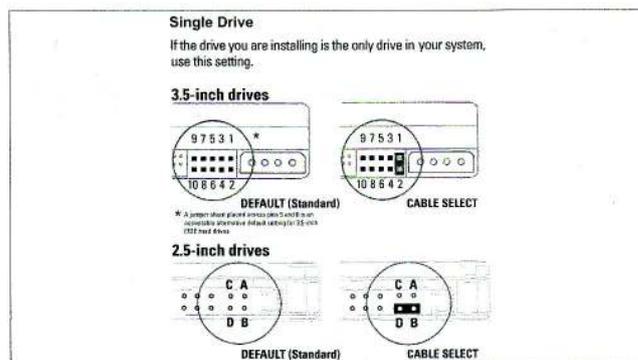


Figure 3. EIDE Single Hard Drive Jumper Settings

Dual Hard Drive Installations

To install your new WD EIDE hard drive with an existing hard drive or CD-ROM on the same interface cable, be sure all drives are jumpered as shown in Figure 4.

Note: Not all hard drive manufacturers use the same jumper configurations. To install a new WD hard drive on the same interface cable with a non-WD hard drive, obtain jumper setting information from the manufacturer of the non-WD hard drive.

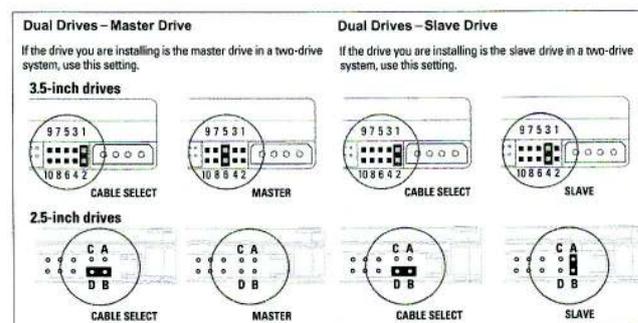


Figure 4. EIDE Dual Hard Drive Jumper Settings

Cable Select Installations: connect the intended boot drive (the first hard drive to be detected) to the black or end connector of the IDE interface cable. Connect the storage drive (the second hard drive to be detected) to the gray or middle connector of the IDE interface cable.

Master/Slave Installations: to install your new WD hard drive with an existing drive on separate IDE interface cables, leave the jumper(s) in default positions for possible future use. The system recognizes each drive as a single, stand-alone drive. Master/slave jumper settings are used only when there are two devices on the same IDE interface cable.

Reduced Power Spinup (RPS)[™] Mode

Implementation of RPS requires a jumper on the 4-pin jumper block of a WD 2.5-inch EIDE drive. To configure the drive for RPS mode, place a jumper shunt on pins B-C as shown in Figure 5. A 2.54 mm mini jumper shunt (low profile) is required.

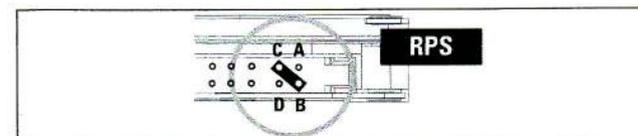


Figure 5. EIDE Reduced Power Spinup (RPS) Jumper Setting

Alternate Jumper Settings (EIDE Drives—Windows® 98/98SE/Me)

Important: Alternate jumper settings DO NOT work with Windows NT/2000/XP, Novell® NetWare®, or UNIX® systems.

Hard drive capacities continue to increase at a phenomenal rate. As a result, some legacy computer BIOSs have compatibility issues with large capacity hard drives. A system BIOS displays this limitation in the following situations:

- The operating system shows a much smaller drive capacity than the actual drive capacity.
- The computer system locks up on initial boot, preventing access to the CMOS setup.

Four capacity points are identified as BIOS barriers that may cause a system BIOS to lock up on initial boot: 2.1 GB, 8.4 GB, 32 GB, and 137 GB. Alternate jumper settings are provided on WD hard drives to overcome system BIOS limitations. These jumper settings cause the drive to report a smaller capacity to work around BIOS limitations.

CAUTION: Use the jumper settings in Figure 6 only if you encounter the specific BIOS limitation (system locks up) described in this section. These jumper settings cause the drive to report 4092 cylinders (2.1 GB) rather than the actual drive capacity. If you use these jumper settings, you MUST use Data Lifeguard Tools™ to partition and format your hard drive to access the full capacity of your new drive.

System Locks Up on Initial Boot

If you cannot access the CMOS setup because your system locks up on initial boot, follow these steps:

1. Turn off your system power and check the IDE interface cable and power supply cable.
2. Check jumper settings (see Figures 3 and 4).
3. Turn on your system power.
4. Try to enter your CMOS setup and set the drive type to **auto config**.

If your system still does not respond, your system BIOS may not support drives with more than 4095 cylinders. If this is the case, consider the following solutions:

- Use **Data Lifeguard Tools** to partition and format your hard drive to access the full capacity of the drive.
- Upgrade your system BIOS to support the full capacity of your hard drive.
- Install an EIDE controller card with an onboard BIOS that supports hard drives larger than 2.1 GB. For 8.4 GB or larger hard drives, the EIDE controller card must support extended BIOS functions.
- Rejumper the hard drive as shown in Figure 6 and install Data Lifeguard Tools which MUST be used with these alternate jumper settings. If you move this hard drive to another system, you must replace the jumper in the standard position.

Note for Windows NT Users: If your system locks up, do not use these alternate jumper settings. Use the standard jumper settings

and select a user defined drive type in CMOS setup or upgrade your system BIOS to support the full capacity of your new hard drive.

Important: CSEL jumper settings cannot be used when alternate jumpers are selected. Use the jumper settings illustrated in Figure 3 or 4 for CSEL. Alternate jumper settings are not intended for systems other than Windows 98/98SE/Me.

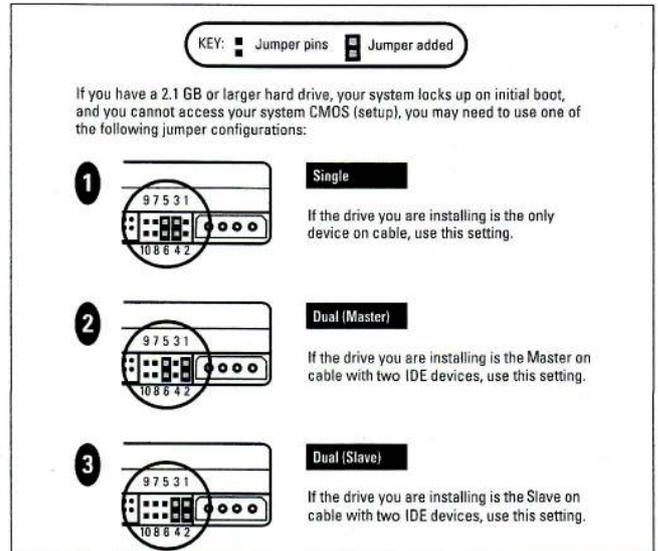


Figure 6. Alternate Jumper Settings for Hard Drives

Apple Installations and Jumper Settings

Some Power Mac® G3 and all Power Mac G4 computers support the Master/Slave configuration. If your system does not support the Master/Slave configuration, you are limited to installing one IDE device per channel (and a maximum of two IDE devices).

You can install two IDE devices on the same cable with the Master/Slave configuration on the following Apple Computers:

- Power Mac G4 and higher
- Power Mac G3 (blue and white, some configurations)
- Power Mac G3 All-in-One

A Power Mac G3 with a U-shaped mounting bracket installed in the rear drive bay is capable of supporting multiple IDE devices. For more information on determining the capability of your Power Mac G3, see Technical Article 24342, *Power Macintosh G3 and G4: IDE Master and Slave Support and Configuration*, at www.apple.com/support.

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Western Digital
20511 Lake Forest Drive
Lake Forest, CA 92630
U.S.A.

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ATA Jumper Settings

Jumper Illustrations

Seagate® Products

[Jumper settings for Seagate ATA hard drives.](#)

Maxtor®/Quantum Products

[Jumper settings for Maxtor ATA hard drives.](#)

Note: This figure depicts the jumper settings for recent Seagate ATA drive families above 20 GBytes.

Setting the Jumpers

Cable Select. The drive is configured at the factory for a cable select setting. This allows the drive to assume the proper role of master or slave based on the connector used on the cable (see the [UltraATA cable figure](#) below). For the cable select setting to work properly, the cables you are using must support the cable select feature. Current UltraATA cables with the 3 colored connectors do support this feature.

Master or single drive. If you are installing your Seagate hard drive as the only drive in the system or if it will be the primary boot drive for the system, the jumper should be set on pins 7 and 8.

Drive as slave. If you are installing the drive as an additional drive in your system, the drive should be set as slave by removing all jumpers. Remember to confirm that the original drive is set to a master position (If the limit capacity jumper is required for your installation it will need to remain in place).

Drive as master with a non-ATA-compatible slave (Seagate® drives only). Set a jumper on pins 5 and 6 and a jumper on pins 7 and 8. Use this jumper setting only if the drive does not work as a master.

Limit drive capacity/Capacity Limitation Jumper (CLJ). Use this when either you start up your computer and see the message, "Hard disc drive controller failure", your computer does not recognize your newly installed hard drive, or your system stops responding during the boot process after installing this new drive. If this jumper is required, your system cannot support a drive this large and can be updated with a PCI controller card.

Additional information for Seagate products

These are the different jumper setting configurations you may encounter using the Limit Capacity Jumper Setting:

Single Master with Limit Capacity

[:] : : [:]

Slave with Limit Capacity

: : : [:]

Master with Non-ATA Compatible Slave

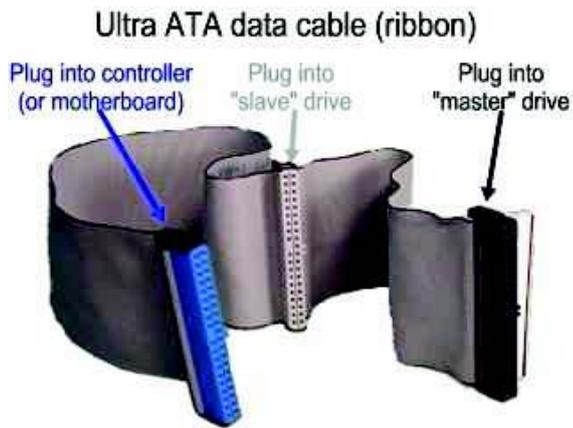
This is usually ATAPI devices like CD-ROMs plus Limit Capacity

[:] [:] : [:]

This occurs in some computers that do not support high-capacity drives. To address this problem, install the capacity-limiting jumper on your new hard drive, as shown in the [jumper setting illustrations above](#) (this will not affect the storage capacity of your drive).

UltraATA Cables

We recommend the use of newer UltraATA 66/100 cables to achieve the best performance from your new Seagate hard drive. These UltraATA cables have 3 colored connectors, each connector has a specific purpose. Be sure to plug the correct connector into the correct device.



- The **blue** connector is for your host bus adapter (using a connector on your motherboard).
- The **black** connector at the other end is for your master device, usually the hard drive you boot from.
- The **gray** connector is for an optional slave device if you have a second hard drive.

Other devices like CD-ROM drives, tape drives and CD burners are usually plugged into a separate cable which also connects to the motherboard.

Maxtor

If your drive came with two jumpers and you settings only require one, you can place the extra jumper horizontally across the top row for storage.

<p>CrystalMax CrystalMax 1080 Fireball 531 DX Ultra ATA 100</p> <p>DiamondMax Drives</p> <table border="0"> <tr> <td>16</td> <td>36 ATA 66</td> <td>D540X-4G</td> </tr> <tr> <td>1750 Ultra ATA 33</td> <td>40 ATA 66</td> <td>Plus 2500 Ultra ATA</td> </tr> <tr> <td>1750 Ultra ATA</td> <td>40 VL Ultra ATA 100</td> <td>Plus 40 Ultra ATA 100</td> </tr> <tr> <td>17 VL Ultra ATA 66</td> <td>4320 Ultra ATA</td> <td>Plus 40 Ultra ATA 66</td> </tr> <tr> <td>20 VL Ultra ATA 66</td> <td>536 DX</td> <td>Plus 45 Ultra ATA 100</td> </tr> <tr> <td>2160 Ultra ATA</td> <td>60 ATA 100</td> <td>Plus 5120 Ultra ATA 33</td> </tr> <tr> <td>2680 Ultra ATA</td> <td>60 ATA 66</td> <td>Plus 5120 Ultra ATA 66</td> </tr> <tr> <td>30 VL Ultra ATA 100</td> <td>6800 Ultra ATA</td> <td>Plus 60 Ultra ATA 100</td> </tr> <tr> <td>30 VL Ultra ATA 66</td> <td>80 ATA 100</td> <td>Plus 6800 Ultra ATA 66</td> </tr> <tr> <td>3400 Ultra ATA</td> <td>D540X-4D</td> <td>Ultra ATA</td> </tr> </table>	16	36 ATA 66	D540X-4G	1750 Ultra ATA 33	40 ATA 66	Plus 2500 Ultra ATA	1750 Ultra ATA	40 VL Ultra ATA 100	Plus 40 Ultra ATA 100	17 VL Ultra ATA 66	4320 Ultra ATA	Plus 40 Ultra ATA 66	20 VL Ultra ATA 66	536 DX	Plus 45 Ultra ATA 100	2160 Ultra ATA	60 ATA 100	Plus 5120 Ultra ATA 33	2680 Ultra ATA	60 ATA 66	Plus 5120 Ultra ATA 66	30 VL Ultra ATA 100	6800 Ultra ATA	Plus 60 Ultra ATA 100	30 VL Ultra ATA 66	80 ATA 100	Plus 6800 Ultra ATA 66	3400 Ultra ATA	D540X-4D	Ultra ATA	<p>DiamondMax Drives</p> <table border="0"> <tr> <td>Master</td> <td>Master with CLJ</td> </tr> <tr> <td>Slave</td> <td>Slave with CLJ</td> </tr> <tr> <td>Cable Select</td> <td>CS with CLJ</td> </tr> </table>	Master	Master with CLJ	Slave	Slave with CLJ	Cable Select	CS with CLJ	<p>DiamondMax Drives</p> <p>Plus 8 D540X-4K D540X-4L D740X</p>	<p>Fireball Drives</p> <p>541DX LCT 20 CR (Quantum) CX (Quantum) EL (Quantum) EX (Quantum) LCT06 (Quantum) LCT10 (Quantum)</p> <p>LCT15 (Quantum) Plus KA (Quantum) Plus KX (Quantum) SE (Quantum) ST (Quantum) LM (Quantum) AS (Quantum)</p>
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