Seagate

Cheetah 36ES Installation Guide

Model ST336706LW/LC and ST318406LW/LC
SCSI interface disc drive

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Handling precautions/electrostatic discharge protection

- Disc drives are fragile. Do not drop or jar the drive and handle the drive only by the edges or frame.
- Drive electronics are extremely sensitive to static electricity. Keep the drive in its antistatic container until you are ready to install it. Wear a wrist strap and cable connected to ground. Discharge static from all items near or that will contact the drive. Never use an ohmmeter on any circuit boards.
- Turn off the power to the host system during installation.
- Always use forced-air ventilation when operating the drive.
- Use caution when troubleshooting a unit that has voltages present.
- Do not disassemble the drive; doing so voids the warranty.
- Return the entire drive for depot service if any part is defective.
- Do not apply pressure or attach labels to circuit board or drive top.

Electromagnetic compliance

See Safety and Regulatory Agency Specifications, p/n 75789512.

Drive characteristics

	ST336706 LW/LC	ST318406 LW/LC
Formatted capacity	36.704 Gbytes	18.352 Gbytes
Total # of data blocks	71,687,370 (445DCCAh)	35,843,670 (222EE56h)
Cylinders (user accessible)	26,302	26,302
Heads (user accessible)	4	2
Disc rotation +/- 5%	10,028 rpm	10,028 rpm
Operating voltages	+5V +12V	+5V +12V
Typical operating current	0.77 A 0.74 A	0.77 A 0.74 A

What you need

- Phillips screwdriver and four 6-32 UNC drive mounting screws
- Forced-air ventilation to provide adequate drive cooling
- An unused drive power connector (not applicable to LC models)

To operate at LVD transfer rates, you also need an LVD-capable SCSI host adapter, LVD I/O cable and active negation external terminator.

Multimode interface

This drive can operate in single-ended (SE) or low voltage differential (LVD) mode. This multimode capability provides backwards compatibility so you can use it with or without an LVD-capable host adapter. The primary benefits of LVD technology include faster transfer rates, reduced power consumption, increased allowable cable lengths, and improved device connectivity.

You can configure the drive to switch between SE and LVD modes automatically or force it to operate in SE mode only. To configure this option, see Figure 2.

Note. To operate in LVD mode, all devices on the same bus (cable) must be running in LVD mode. If you add any SE devices to the bus, all devices on that bus will operate in SE mode.

Note. Some LVD host adapters provide an LVD connector and an SE connector on the same host adapter to allow you to run SE and LVD drives concurrently at their maximum capabilities. Check your SCSI host adapter documentation. See Figure 3.

Caution. Do not mix LVD drives on the same bus (cable) with high voltage differential (HVD) devices—drive damage may occur.

Installation instructions

1. Set the SCSI ID

Determine which SCSI IDs are already being used in the system and then assign this disc drive a SCSI ID that isn't already being used. Use the J6 connector located on the front of the drive to set the SCSI ID (see Figure 1).

- Most Cheetah 36ES drives are factory set with the SCSI ID set at 0. If this is the only SCSI drive in your system and there are no other SCSI devices on the bus (cable), you can leave this drive's SCSI ID set to 0 and proceed to the next step.
- The host system's SCSI controller usually uses SCSI ID 7.
- If you have an LW model drive, the ID may be set using either J6 or J5 (located on the rear of the drive).
- If you have an LC model drive, the host normally sets the ID over the I/O interface, so this step may be skipped.
- Some systems provide a cable designed to connect to the J5 jumper block on the drive to remotely set the ID. You can connect this cable to J5 and use the host-provided remote switch to set the SCSI ID.

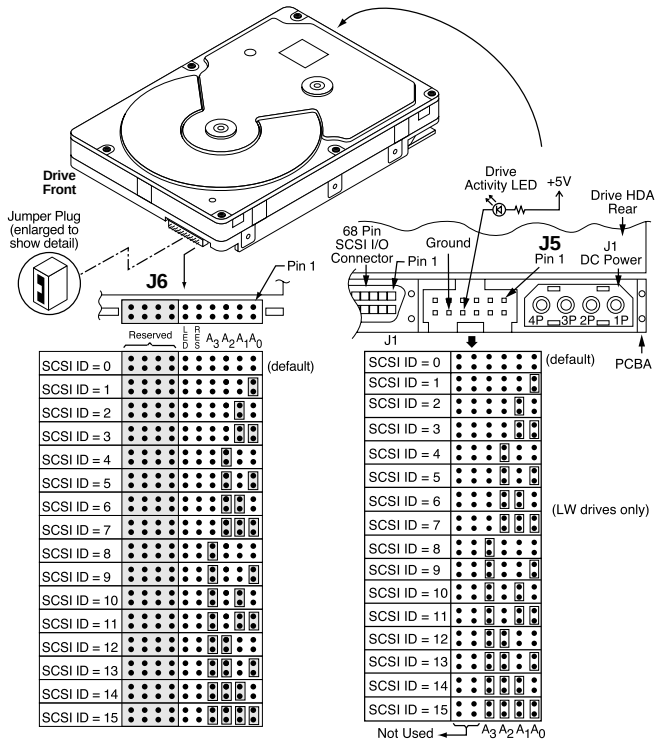

Figure 1. Setting the SCSI ID

2. Configure termination

If you are installing the drive in a system that has other SCSI devices installed, terminate only the end devices on the SCSI bus (cable). This drive does not have internal terminators or any other way of adding internal termination on the drive. You must provide external termination when termination is required. This is normally done by adding an inline terminator on the end of the cable. See Figure 3 for an illustration showing a system configuration that uses a external terminator.

- Use active (ANSI SCSI-2 Alternative 2) single-ended terminators when terminating a bus operating in single-ended mode.
- Use SPI-2-compliant active low voltage differential terminators when terminating a SCSI Ultra2 bus operating in LVD mode.
- The host adapter is normally on the other end of the bus and internally terminated. You can configure your bus with another device on the other end if you remove termination from the host adapter.

3. Configure terminator power

Terminators have to get power from some source. The default configuration results in the drive not supplying termination power to the bus. You should normally leave this drive set at this default unless your host system requires the drive to supply termination power to the bus. To configure this drive to supply termination power to the bus, place a jumper on J2 pins 1 and 2 as shown in Figure 2.

- Host systems designed to use LC drives normally provide termination power from the host adapter or other source. For this reason, LC model drives cannot be configured to provide termination power to the bus.

4. Connect the drive activity LED (optional)

Connect an external Drive Activity LED to J6 pins 11 and 12 (see Figure 2), or to J5 pin 8 (see Figure 1) and the drives +5V power source, through an appropriately sized current limiting resistor. The drive provides an internal 150 ohm current limiting resistor for the J6 connection.

5. Check the other available jumper settings

Select other options on J2 as illustrated in Figure 2. Do not change these unless instructed to do so by the host system documentation.

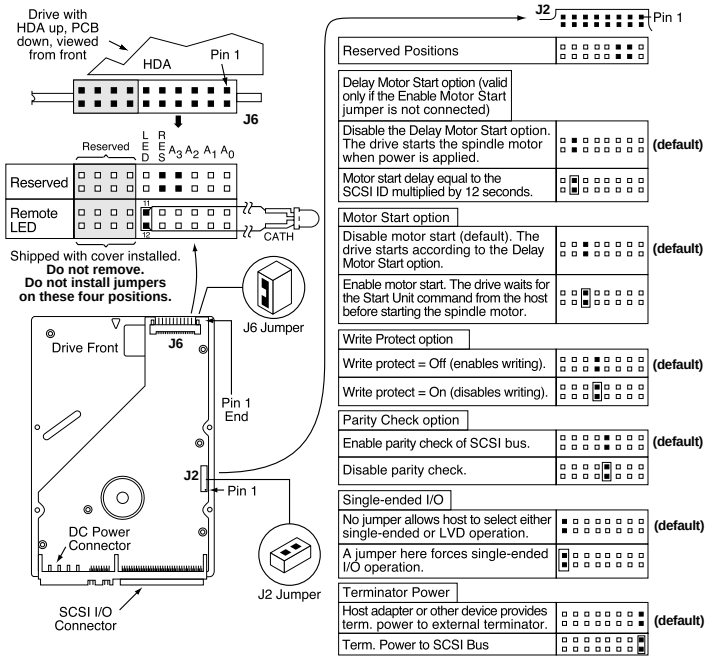

Figure 2. Option select jumpers.

6. Mount the drive in the host system and connect cables

Note. LC drives are designed to be attached to a carrier or tray and inserted into the host system without I/O or power cables.

a. Mount LW model drives to the host system's chassis using four 6-32 UNC screws. Two mounting holes are in each side of the drive and there are four mounting holes in the bottom of the drive. Do not over-tighten or force the screws. You can mount the drive in any orientation.

b. Connect the SCSI I/O cable into the drive's SCSI connector. Take care not to stretch or crimp this cable, and do not block the system's cooling air flow with the cable.

Note. For Ultra2 and faster operation, special twisted pair LVD cables are *required*.

c. Connect the DC power cable to the drive. See Figure 3.

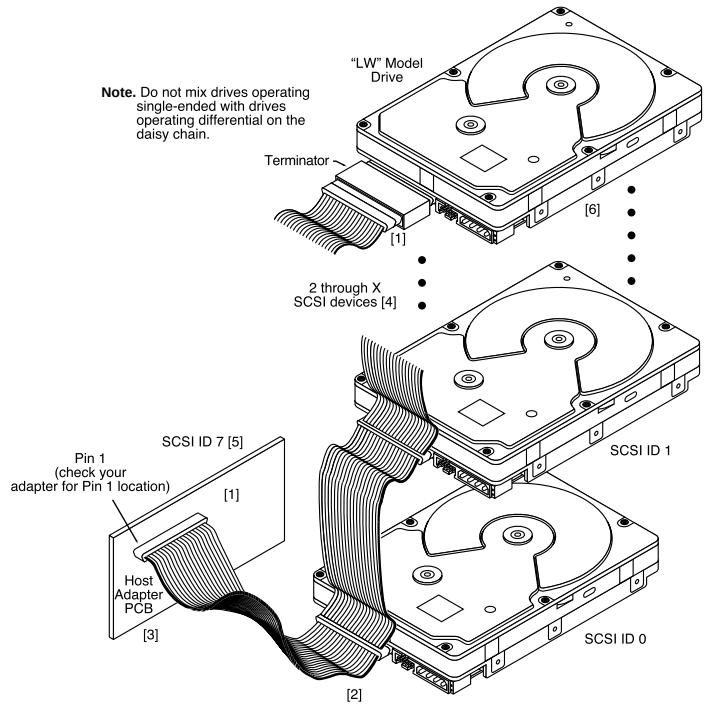

Figure 3. Cable connections and external termination

7. Format the drive

The drive has been *low level* formatted at the factory. You do not need to perform another low level format on this drive unless you decide to perform certain diagnostics through the host adapter. If you do decide to perform a low level format, do not abort during the format as this is likely to make the drive inoperable. A low level format, with verification, will typically take two hours.

Protect against power failure or other power interruptions during the format.

a. Turn on DC power to the host system.

b. Boot the system from a system floppy, CD, or from a previously installed hard disc drive if there is one.

c. Format the drive.

Caution. Formatting a drive erases all user data. Be sure that you understand this principle before formatting any hard disc drive. It is not necessary to format a drive that previously has been used to store data, unless your intention is to erase all user data. Seagate is not responsible for lost user data.

Cheetah disc drives are designed to operate with a variety of operating systems. Please refer to your system or SCSI controller manual for information about formatting and setting up the drive. Some quick desktop system notes are provided below.

- **Microsoft™.** Set the drive type in CMOS to "*Zero,*" "*None,*" or "*No hard drive installed*." Use FDISK.EXE and FORMAT.EXE. Systems using Windows 98 or later can create one single partition (drive letter) on the drive.
- **Macintosh™.** Use a third-party drive utility (most revisions of Apple's HD Setup utility only work with drives having special Apple firmware).

Troubleshooting

- **Drive does not spin up.** Check cables and all jumper settings. Make sure cable pin 1 (edge stripe) matches PCB pin 1.
- **Drive spins, but no LED on/off activity.** Check SCSI ID setting. Set the ID so that each device on the SCSI chain has its own unique ID. The host I/O controller is usually ID7.
- **Computer does not seem to recognize the drive.** Verify that the drive is enabled by the SCSI host adapter setup utility.
- **FDISK does not detect the drive.** Run the FDISK program located on your Windows startup diskette. Type fdisk/status to verify that your hard drive is present.

Seagate support services

For online information about Seagate products, visit www.seagate.com or e-mail your disc questions to DiscSupport@Seagate.com.

If you need help installing your drive, consult your dealer first. If you need additional help, call a Seagate technical support specialist. Before calling, note your system configuration and drive model number (for example, *ST336706LW).*

Africa	+31-20-316-7222	Norway	800-113 91
Australia	1800-14-7201	Poland	00 800-311 12 38
Austria	0 800-20 12 90	Spain	900-98 31 24
Belgium	0 800-74 876	Sweden	0 207 90 073
Denmark	80 88 12 66	Switzerland	0 800-83 84 11
France	0 800-90 90 52	Singapore	800-1101-150
Germany	0 800-182 6831	Taiwan	+886-2-2514-2237
Hong Kong	800-90-0474	Thailand	001-800-11-0032165
Indonesia	001-803-1-003-2165	Turkey	00 800-31 92 91 40
Ireland	1 800-55 21 22	United Kingdom	0 800-783 5177
Italy	800-790695	USA/Canada/	1-800 SEAGATE or
Malaysia	1-800-80-2335	Latin America	+1-405-936-1234
Middle East	+31-20-316-7222	Other European	
Netherlands	0 800-732-4283	countries	+31-20-316-7222
New Zealand	0800-443988		

Warranty. Contact your place of purchase or our web site (above).

Return Merchandise Authorization (RMA). Before returning the drive, verify that it is defective. Seagate Worldwide customer service centers are the only facilities authorized to service Seagate drives. Contact nearest center for return procedures and trade regulations.

Shipping the drive

Caution. Back up the data before shipping. Seagate assumes no responsibility for data lost during shipping or service. Shipping drive in an unapproved container voids the warranty. Pack the drive with original box and packing materials. Use no other materials. This prevents electrical and physical damage in transit.

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