ℒℒ Seagate

. . . .

Medalist 1080sl

. . . .

SCSI Interface Drive

. . . .

. . . .

. . . .

Installation Guide

. . . .

Contents

Introduction

Thank you for choosing a Seagate drive. The purpose of this guide is to assist you with installing your new hard drive. Its organization outlines the complete installation process from handling the drive and drive application in Before you begin... to offering troubleshooting suggestions and technical support information. The topics discussed are:

- Handling your drive (see Before you begin...)
- Configuring the drive
- Attaching cables to the drive
- Mounting the drive
- Configuring the computer
- Troubleshooting
- Where to call for Seagate technical support

We hope your installation goes smoothly, but if complications arise, a list of common symptoms and solutions is provided in the troubleshooting section. If the problem persists, contact your dealer first. Your dealer is familiar with system integration and the conflicts that arise. If you need additional help or information about Seagate products, Seagate technical support numbers are provided.

Drive features

Formatted Capacity (Mbytes)	1080.23
Total sectors	2,109,840
Cylinders	4,826
Physical heads	4
Sectors per track (average)	109
Bytes per sector	512
Spindle speed	5,376 RPM
Average seek time (msec)	12.5 msec
Cache (segmented)	128 Kbytes
Internal transfer rate (Mbits per second max)	33 MHz to 65 MHz
External transfer rate (Mbytes per second max) Asynchronous Synchronous	5.0 10.0
Power on to Ready	20 sec
Seek power (typical)	7.11W
Drive acoustics, Idle mode	30 dBA

Read before you begin...

Note. Throughout this manual the Medalist 1080sl SCSI is referred to by its model number, ST51080N.

Application. Your Seagate® drive is designed for IBM and IBM-compatible personal computers, Macintosh and other systems using the SCSI interface.

Turn off the system power before attempting any installation.

Static discharge. Observe the following precautions:

- Keep the drive in its static-shielded bag until you are ready to complete the installation. Do not attach any cables to the drive while it is in its static-shielded bag.

- Handle the drive by its edges or frame, and do not touch the I/O connector pins or the circuit board.

- Before handling any components, put on a grounded wrist strap, or ground yourself frequently by touching the metal chassis of a computer that is plugged into a grounded outlet.

- Use antistatic padding on all work surfaces.

- Avoid static-inducing carpeted areas.

Drive handling. The drive is extremely fragile—handle it with care. Do not attach labels to any part of the drive.

Inspection. After you are familiar with the handling precautions listed above, inspect the drive. If it appears to be damaged, call your distributor or dealer immediately.

Warranty. See your authorized Seagate distributor or dealer.

Maintenance and repair. Seagate drives do not require maintenance. The head/disc assembly is sealed; if you break the seal,

you void the warranty. Seagate customer service centers are the only facilities authorized to repair Seagate drives. Seagate does not sanction any third-party repair facilities.

Shipping. Keep your original box and packing materials for transporting or shipping your drive. The box has a *Seagate Approved Package* label. Shipping a drive in a nonapproved container voids the warranty. Call your authorized Seagate distributor to purchase additional boxes.

Radio and television interference. This product complies with Class B limits for radio noise emissions from computer equipment as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique néémet pas de bruits radioélectriques depassant les limites applicable aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique edicté par le Ministère des Communications du Canada.

Sicherheitsanleitung

1. Das Gerrät ist ein Einbaugerät, das für eine maximale Umgebungstemperatur von 55°C vorgesehen ist.

2. Zur Befestigung des Laufwerks werden 4 Schrauben 6-32 UNC-2A benötigt. Bei seitlicher Befestigung darf die maximale Länge der Schrauben im Chassis nicht mehr als 5,08 mm und bei Befestigung an der Unterseite nicht mehr als 5,08 mm betragen.

3. Als Versorgungsspannugen werden benötigt:
   +5V æ 5% 0,65A
   +12V æ 5% 0,45A (1,9A fur ca. 10 Sek. fur æ 10%)
4. Die Versorgungsspannung mub SELV entsprechen.
5. Alle Arbeiten auf dem Festplatte dürfen nur von Ausgebilde-
   tem Servicepersonal durchgeführt werden. Bitte schaffen Sie
   Festplatteetiketten nicht weg.
6. Der Einbau des Drives mub den Anforderungen gemäb DIN
   IEC 950V DC 0805/05.90 entsprechen.

Configuring the drive

Required materials:

2-mm jumper connector (supplied as spare jumpers)

Your Seagate drive is configured for operation using the options
jumper block (J8) shown in Figure 1 on page 6. The settings for
the available configurations are shown in Figure 2 on page 7. The
options jumper block (J8) allows you to:

- Set the SCSI ID
- Connect a remote LED
- Enable or disable parity
- Enable or disable the drive's terminator
- Select the termination power source

SCSI ID settings. Each device on the SCSI bus must be as-
signed a unique SCSI ID. The drive uses pin-pairs 1 and 2, 3 and
4, and 5 and 6 on the options jumper block (J8) for assigning the
ID. The chart in Figure 2 shows you how to place the jumpers to
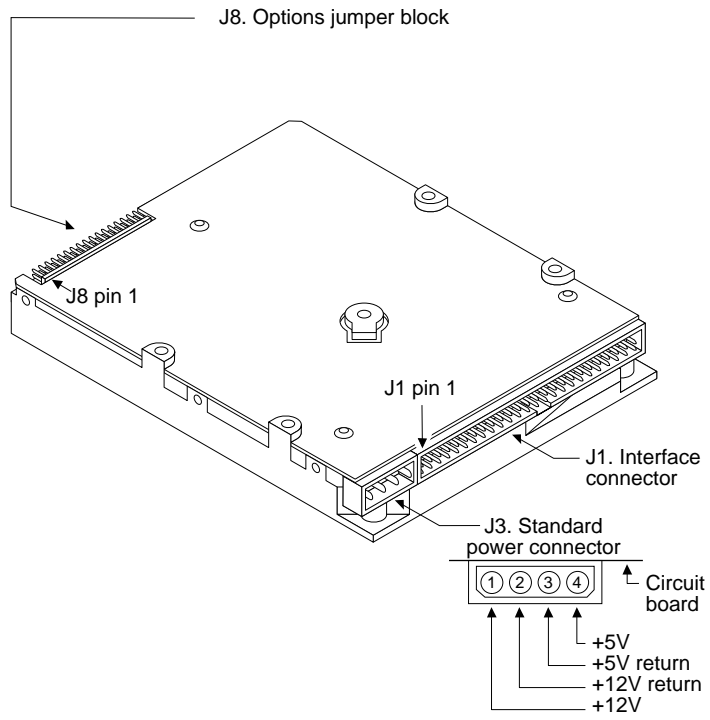
J8. Options jumper block

J8 pin 1

J1 pin 1

J1. Interface connector

J3. Standard power connector

① ② ③ ④   Circuit board

+5V
+5V return
+12V return
+12V

Figure 1. Connector and jumper block locations

J8. Options jumper block

				Spares
				SCSI ID 0
				SCSI ID 1
				SCSI ID 2
				SCSI ID 3 (default)
				SCSI ID 4
				SCSI ID 5
				SCSI ID 6
				SCSI ID 7
				Reserved Do not use
				Remote LED connection
				Remote start
				Enable parity (default)
				Disable terminator (default is enable)
				Power to drive terminator only
				Power from bus, drive terminator disabled
				Power to drive terminator and to SCSI bus (default)
				Power to SCSI bus only

Note.
1. All other pins are reserved. Do not use them.
2. Jumpers on pins 28 and 30 and 32 and 34 are spares; these pins do not require jumpers.

Figure 2. Options jumper settings

assign ID values 0 through 7. Be sure that the ID you choose is not used by another device on the SCSI bus.

Your Seagate drive is shipped by the factory configured as SCSI ID 3—jumpers are attached to pins 3 and 4 and pin 5 and 6. You must reconfigure the SCSI ID if another device is assigned SCSI ID 3 or if you are making the drive the bootable drive. The bootable drive must be Drive C. It must be assigned the ID number your SCSI adapter recognizes as the first position on the bus. Usually, this is SCSI ID 0 (refer to your SCSI host adapter documentation).

If installing your new drive puts more than two drives on the bus, your SCSI adapter may require that you install a device driver or that you reconfigure its onboard BIOS. Refer to your SCSI adapter's user guide for instructions on how to install the third drive. If a device driver is required, it will be provided by the SCSI adapter manufacturer.

Remote LED. You can connect a remote LED to the drive using pins 9 and 10 on jumper block J8. Connect the LED ground wire (usually the black wire) to pin 9.

Remote start. This setting causes the drive to wait for a specific command from the host before it starts or stops the spindle motor.

Parity enable. Parity is a method that is sometimes used for error detection. The drive is shipped with parity enabled.

Terminators. The drive is designed with single-ended drivers and receivers and must be used with other SCSI devices that use single-ended drivers and receivers. These systems require that terminators be used at both ends of the SCSI bus to ensure the integrity of the signal. The drive has built-in terminators that can be enabled or disabled as required. It is shipped with the termi-

nators enabled. If you are positioning the drive at the end of the cable, you must enable the drive's internal terminators or attach an external terminator to the end of the cable. Terminators on the devices between the bus ends must be disabled or removed.

- To enable the drive's terminators, leave the pin-pair 19 and 20 on jumper block J8 open.
- To disable the terminators, place a jumper on pins 19 and 20 of jumper block J8.

Terminator power. The terminators must have a 5 volt power source to be active. In general, the device that provides the terminator also provides power for its terminator. Power for the terminator may also be supplied through the SCSI cable (this is usually done for external terminators). The Seagate drive provides settings for four implementations of terminator power:

- Terminator power to the drive terminator and the SCSI bus—install jumpers on pins 21 and 23 and on pins 22 and 24 of J8. This is the default.
- Terminator power to the drive terminators only—install a jumper on pins 23 and 24 of J8.
- Terminator power from another device to the bus and the drive's terminator disabled—install a jumper on pins 21 and 23 of J8.
- Terminator power to the bus only and the drive terminator disabled—install a jumper on pins 22 and 24 of J8.

Attaching cables

Required materials:

A four-conductor power-supply cable

A fifty-conductor, nonshielded interface cable with a 50-pin, female connector attached for each SCSI device that is to be connected to the SCSI bus. The maximum cable length for asynchronous operation is 19.5 feet (6 meters). The maximum cable length for synchronous operation is 9.75 feet (3 meters).

Figure 1 on page 6 shows connector and jumper block locations.

1. **Turn off the system power and put on a grounded wrist strap before proceeding.**

2. **Attach the 50-pin SCSI interface cable.** Pin 1 on the drive must align with pin 1 of the other SCSI devices attached to the bus. Use the edge-stripe on the cable to denote pin 1. Pin 1 on the drive is located next to the four-pin power connector.

2. **Connecting a remote LED.** (Optional) Connect a remote LED to pins 9 and 10 of jumper block J8. Pin 9 is ground.

3. **Attach an available power cable to the drive.**

Mounting the drive

Required materials:

- Four 6-32 UNC-2A screws (not included)

The drive fits in the standard 3.5-inch bay and can be mounted in any orientation. Position the drive so that the cables are not strained or crimped. Secure it with four mounting screws not more than 6 full turns (0.20 inches) into the drive frame (see Figure 3).

Caution. To prevent drive mounting-hole damage, use only the type of screws specified.
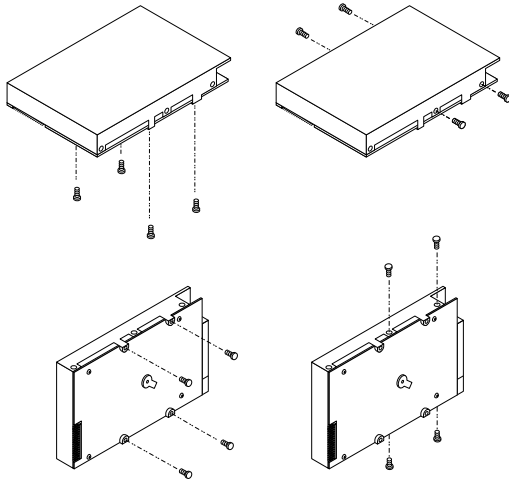
Figure 3. Mounting hole locations

Configuring the drive and computer

Once the drive is physically installed, the drive and computer must be configured to work with each other. This involves partitioning and formatting the drive and may require a special device driver or installation software depending on the operating system you are using and your SCSI adapter. Refer to your SCSI adapter's documentation for specific information on how to configure your drive.

This guide describes a typical configuration for a PC using DOS and one or two SCSI drives only.

System setup configuration

Required materials:

- A bootable diskette with the Format and FDISK command

If you are replacing the ATA (IDE) drive or drives in your computer with SCSI, you must reset the drive-type configuration listed in System Setup to *Not Installed*.

1. Turn the computer on.
2. Enter the System Setup routine. (Refer to your computer's user guide. System Setup may be called Setup, BIOS Setup or CMOS Setup.)
3. Find the hard disc configuration in the System Setup screen.
4. Change the drive-type status to *Not Installed*.
5. Save the changes and exit System Setup.

Low-level formatting

Your drive was low-level formatted at the factory to 512 bytes per sector. You do not need to low-level format it again. If you choose

to low-level format the drive, use the format routine supplied with your SCSI adapter. Refer to the SCSI adapter's documentation for instructions on how to low-level format the drive.

Partitioning

You must partition the drive into one or more logical drives before you can use it.

Caution. Partitioning or formatting a drive at any level erases all data on it. Make a backup copy of your existing files on another drive before you repartition or reformat. Seagate assumes no liability if you erase your data.

To partition the drive:

1. Insert a bootable diskette into Drive A. Turn the computer on.

2. After the computer has completed booting, remove the boot diskette from Drive A. Insert a diskette that has the FDISK utility into Drive A and type **fdisk**. Press ENTER.

   Note. If you have two or more drives in your system, the menu displays five options. Option five allows you to select the drive you want to partition. Make sure you select the correct drive.

3. Select *create DOS partition or logical DOS drive*. Press ENTER.

4. Select *create primary DOS partition*. Use the maximum available size for your primary partition and make the partition active for Drive C. This puts the entire drive on one partition and allows you to load the DOS boot information on the drive. Press ENTER for each subsequent selection.

After all of the appropriate selections are made, the computer restarts itself. You must place a bootable diskette into Drive A.

High-level formatting

High-level formatting verifies the information written by the low-level format and builds the file allocation table (FAT) used by DOS to access files on the drive. If you put more than one partition on the drive, you must high-level format each partition. Refer to your DOS reference guide for instructions. Use the DOS FORMAT utility to high-level format the drive as follows:

1. Type the following command at the DOS prompt:

   format *drive:* /v /s

   drive: designates the drive you are formatting. If you are formatting the boot drive or if your system contains only one drive, type **c:**. To format a second drive, type **d:**.

   /v tells the computer to create a volume label for the partition after it is formatted. Labeling can prevent someone from accidentally deleting the partition and losing your data.

   /s tells the computer to copy the necessary system files to the drive to make it bootable.

2. When the computer prompts you for a volume label, you can assign a name to the drive volume of up to eleven characters or leave it blank. Press ENTER.

NonDOS operating systems

If you are installing the drive in a system that is using an operating system other than DOS, you may need a device driver or installation software. The device driver is provided by your SCSI adapter manufacturer and is operating-system specific. It is provided on a diskette that comes with the adapter. Refer to the SCSI adapter's documentation for instructions on how to install the device driver. If you do not have a device driver for the operating system you want to install, contact the SCSI adapter manufacturer.

Installation software may be required to install the drive in some systems. There are many reputable third-party installation software packages available. Consult your dealer to determine the best package for your needs.

Some operating systems require that you low-level format the drive. A low-level format routine is usually supplied on the SCSI adapter. Refer to your SCSI adapter's documentation for instructions on using the low-level format routine.

Network installation

If you are installing the drive in a network environment, you may need to configure your SCSI host adapter for network operation. Refer to your SCSI adapter's user guide for assistance preparing the SCSI adapter and installing the drive.

If you have trouble installing the drive with the network software, try installing it with DOS to ensure that the drive is working correctly.

Basic troubleshooting

Warning. Always turn off the system before changing jumpers or unplugging cables and cards.

If your drive does not respond or function properly when you turn the power on following the hardware installation, perform these basic checks:

- **Check all cards.** Make sure all cards are seated securely in their slots on the motherboard.

- **Check all cables.** Make sure all cables are securely connected. A damaged ribbon cable or connector strain relief can cause the SCSI bus to fail.

  Verify that the pins 1 of each device on the cable are aligned. Use the edge-stripe on the cable to denote pin 1.

  Caution. Improperly aligning or reverse-plugging pin 1 of one device with the other devices on the cable can damage that device or other devices.

- **Check the SCSI ID**. Make sure the drive's SCSI ID does not conflict with that of another device.

- **Check the terminator configuration.** If the drive is at the end of the bus and external termination is not used, the drive's terminator must be enabled. Disable or remove termination on all devices between the drive and the device at the other end of the bus.

  If the drive is not the last device on the bus or if external termination is used, be sure to remove the jumper that enables the drive's termination.

Make sure that the drive is running. Listen carefully for the drive motor spinning. Also, the drive-activity LED flashes when the power is turned on. If the LED stays on after power-on, make sure the interface cable is properly connected and that no other device on the bus is using the same SCSI ID.

- **Verify your host adapter configuration.** Make sure the address configurations your host adapter is using do not conflict with the addresses other devices in your system use. Refer to your host adapter's user guide for assistance. Many host adapters have a diagnostic utility that can help you determine whether such conflicts exist.

  Verify that the drive works when your host adapter is set with the factory-default configuration. Refer to your host adapter's user guide for assistance determining the factory-default settings.

- **Check the CMOS drive type.** If you have an AT system, the CMOS drive-type parameter values must be set to zero or *Not Installed* in AT systems.

- **Check the power supply specifications.** The output of your power supply may not meet the requirements of the new devices you are installing. If you are not sure whether your power supply meets your needs, consult your dealer.

- **Check for viruses.** Before you load new software, scan the diskette for viruses.

- **Isolate the drive.** If there is more than one drive in your system, configure and install the drive for single drive operation. If you are installing the drive in a network, verify that the drive works with DOS.

Advanced troubleshooting

If you have performed the preceding basic checks but the problem has not been solved, follow these guidelines for analyzing specific cases:

The system does not recognize the presence of the drive or system error message, "No Drives Found," appears.

- Check all cables. Make sure they are properly connected and that the pins 1 are aligned. Make sure the cable is not crimped or damaged.

- Check all cards for proper seating.

- Check your host adapter's BIOS memory address setting. Make sure that it does not conflict with another device that sets a BIOS memory address.

- Check the drive type in AT systems. The drive type must be set to Not Installed or all of the drive-type parameters set to zero.

- Check the Drive C partition with the FDISK utility. The partition must be active.

- Check the bus termination. The bus must be terminated at both ends. Disable or remove all terminators between the termination at the ends of the bus.

- Check the terminator power source jumper settings.

- Check the power-supply specifications.

- Reboot and make sure the drive comes up to rotating speed. (It may be difficult to hear the discs spin.) If the drive's disc does not spin, check all drive cables.

- If the drive is at least the third drive in your system, you may need to configure the BIOS for three or more drives or install a device driver. Refer to your host adapter's user guide for assistance. Contact the host adapter manufacturer for the device driver if one is required.

System error message, "Drive not Ready," appears.

- Check all cables. For each ribbon cable, verify that pin 1 of the cable is aligned with pin 1 of the connector. Pin 1 is usually denoted by a stripe on the side of the ribbon cable.
- Check the power supply specifications.
- Turn off the system and wait 20 seconds. Turn it back on and make sure the drive spins up. If the drive does not spin up, check the drive power cable.

The screen stays blank when you power up the system.

- Make sure the monitor is plugged in and turned on.
- Check all cards. Make sure the video card is seated in its slot and secured with mounting screws.
- Check all cables. Make sure the video card cables are securely attached.
- Turn off the computer and remove all cards except the video card. Boot the computer. Power down the computer and add another card. Reboot. Repeat these steps until a failure occurs.

The system hangs in FDISK or fails to create or save the partition record.

- Check all cables.

- The DOS utilities diskette may be corrupted. Try your backup DOS diskette.
- If you have DOS Version 4.0 or earlier, make the drive partitions smaller.
- Check for media defects at the beginning of the drive. Use a third-party surface scan utility.

The FDISK error message, "No Fixed Disk Present," appears.

- Check all cables.
- Check the power supply specifications.
- Make sure the drive spins up when you turn on the system.
- In AT systems, check the drive type. The drive type must be set to Not Installed or the drive-type values set to zero.
- Check for I/O address conflicts.

During the DOS high-level format, the drive keeps retrying hard errors and reporting the following message. "Attempting to recover allocation units. . ."

- This is normal with DOS Version 4.0 or later.

DOS messages, "Disk Boot Failure," "Non-System Disk," or "No ROM Basic - SYSTEM HALTED," appear.

- Remove the diskette from the diskette drive.
- Check all cables.
- Use the same version of DOS throughout your system.
- Reinstall the DOS system files using the DOS SYS utility.
- Make sure the primary partition is active in FDISK.
- Check for viruses.

Technical support services

If you need assistance installing your drive, consult your dealer. Your dealer is familiar with system configurations and can help you with system conflicts and other technical issues.

If you need additional assistance with your Seagate drive or other Seagate products, you can call SeaBOARD™, SeaFAX™, Seagate Technical Support FAX, SeaFONE™ or SeaTDD™. Seagate technical support information is also available on CompuServe and through the Internet.

SeaBOARD

Using a modem, you can access documentation, drive specifications and jumper settings for Seagate's entire product line. You can also download software for installing and analyzing your drive.

SeaBOARD is available 24 hours daily. It supports communications up to 9,600 baud. Set your communications software to eight data bits, no parity and one stop bit (8-N-1). SeaBOARD phone numbers are listed in the following table.

Location	Modem number
United States	408-438-8771
England	44-1-62-847-8011
France	(+33 1) 48 25 35 95
Germany	49-89-140-9331
Singapore	65-292-6973

Location	Modem number
Thailand	662-531-8111
Australia	61-2-756-2359
Korea	82-2-556-7294

SeaFAX

You can use a touch-tone telephone to access Seagate's automated FAX system to receive technical support information by return FAX. This service is available 24 hours daily.

Location	Telephone number
United States	408-438-2620
England	44-1-62-847-7080

Seagate Technical Support FAX. 408/438-8137

You can FAX questions or comments to technical support specialists 24 hours daily. Responses are sent between 8:00 A.M. and 5:00 P.M. (Pacific time) Monday through Friday.

SeaFONE. 408/438-8222

You can talk to a technical support specialist between 8:00 A.M. and 5:00 P.M. (Pacific time) Monday through Friday. SeaFONE provides recorded technical information on selected Seagate products while you are on hold. You can access the recordings 24 hours daily. Before calling, note your system configuration and drive model number (ST*xxxx*).

SeaTDD. 408/438-5382

Using a telecommunications device for the deaf (TDD), you can send questions or comments 24 hours daily and exchange messages with a technical support specialist between 8:00 A.M. and 5:00 P.M. (Pacific time) Monday through Friday.

Seagate CompuServe forum

Online technical support for Seagate products is available on CompuServe. To access our technical support forum, type **go seagate**. This forum provides information similar to that found on SeaBOARD.

Seagate's Internet connections

Technical information for Seagate drives is available on the internet from Seagate's World Wide Web home page (http://www.seagate.com) or Seagate's ftp server (ftp://ftp.seagate.com). The ftp server contains information similar to that found on SeaBOARD.

Storing and shipping your drive

Keep your original box and packing materials for storing or shipping your drive. The box has a *Seagate Approved Package* label. Shipping a drive in an unapproved container voids the warranty. Call your authorized Seagate distributor to purchase additional boxes.

Figure 4 shows how to pack a drive in an approved single-pack box. Please use the original packing materials as shown.
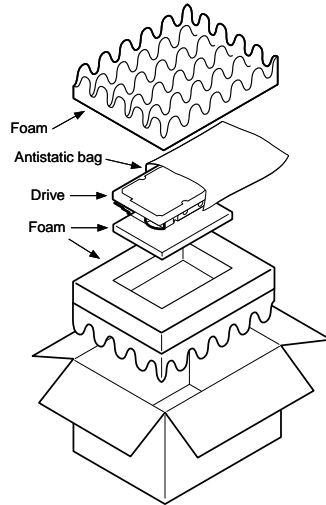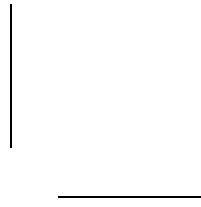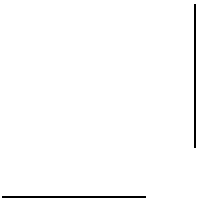

Figure 4. A drive in an approved package