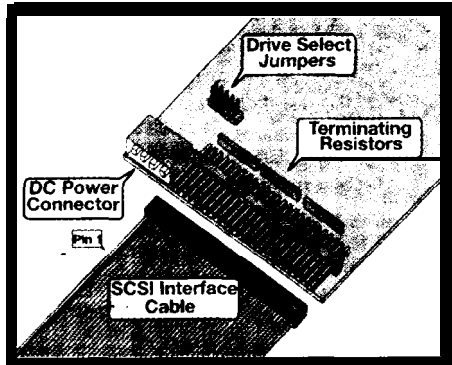


SCSI HARD DRIVE INSTALLATION

SCSI Disk Drive Architecture



DC Power Connector

This is the main power input for the drive. Your computer will have a plastic connector with four wires (usually two black, one yellow and one red) which will only fit one way as it has the corners 'cut' to shape. Do not force this connection, the plug will fit tightly but easily.

Drive Select Jumpers

These set various options such as drive identification and, on some drives, termination.

Important: Normally you should not need to adjust any other settings except the drive identification and termination as listed by the manual or indicated on the top of the drive.

- Ensure that the identification number is not the same as any other device on the same SCSI chain
- The first hard drive, or boot drive, should be configured as ID 0 - second and third hard drives should be ID 1, ID2 etc.

Interface Cable - 50 pin

The cable will have one wire, on the outside edge, which is either coloured or striped (usually red). This must connect to Pin 1 on the hard drive. Pin 1 is usually nearest to the DC Power Connector and is indicated by a 1 or A on the interface connector.

SCSI Hati Drive Configuration

Most SCSI controller cards can support up to seven devices. Each attaches to the same cable and has a unique ID number (from 0 to 7). The controller card is usually ID 7 and the first hard disk drive usually 0, other devices such as tape drives and removable drives should be between ID 2 and ID 6. When adding a hard disk drive to an existing SCSI chain ensure that it is ID 0; if this ID is already being used by a hard drive make the new drive ID 1 (if this is being used by a second hard drive use ID 2 and so on).

PC users please see over the page.

Important notes for Macintosh users:

- 1 Hard drives supplied by SMC Computers for Macintosh users are pre-formatted and are ready to use.
- 2 Please consult your Macintosh manual before attempting installation of an internal hard drive as warranties may be invalidated.
- 3 **For external drives please ensure the ID of the new drive is not the same as an existing SCSI device. Use the small number indicator at the back of the drive box.**

SCSI Hard Drive Configuration

Important notes for PC users:

- 1 SCSI drives do not need to be entered into the CMOS setup. If no IDE / EIDE drives are installed in your system then the CMOS should be set so that no hard drives are installed (See item 10 on Page 3).
- 2 If you are installing SCSI for the first time, or the first hard drive in an existing SCSI chain, the drive must be ID 0.
- 3 Both ends of a SCSI chain must be terminated and any device installed between the ends must have their termination removed. On hard drives, terminator resistor packs are usually running parallel with the interface and are often black, yellow or red. There can be one, two or three packs of terminators on the drive.
 - Note: Some hard drive termination is controlled by jumpers or switches - refer to the hard drive manual for details.
- 4 If you have internal and external devices you must disable termination on your controller card. Please refer to your controller card manual for details.
- 5 Check the hard drive manual or setup information for details on SCSI ID settings and terminator location.
- 6 Use FDISK.EXE and FORMAT.COM as described under EIDE Hard Drive Installation on Page 9.
 - Note: For more than two SCSI hard drives you may have to use special software for partitioning and formatting. Your controller card should come supplied with this software. Check your controller card manual or consult your supplier for details.

Notes for large hard drive owners:

- 1 The maximum partition size for MS DOS is 2Gb
- 2 Partition sizes may be governed by controller card limitations. If you experience problems defining or formatting partitions over 2Gb please refer to your controller card manual.

BASIC TROUBLESHOOTING

Q1: When I turn my PC on, the screen is blank.

A: This is usually because the ribbon (data) cable is not correctly attached. Check that the red wire connects to pin 1 on both the drive and the controller card and/or that the cable connectors are not misaligned on the drive or controller interface pins.

Q2: After installation the system gives an “HDD Controller Failure” message when I turn it on.

A: This is a common error and usually only happens when you first turn the system on as the CMOS has not been configured correctly yet. If the message continues, check all jumper settings, connections and CMOS configuration details.

Q3: I have connected my hard drive and set the parameters correctly but my system still does not recognise it.

A: The drive needs to be partitioned and formatted, see page 8 for details.

Q4: I have followed the instructions and checked that all the connections and settings are correct but my computer does still not recognise my new hard drive.

A: If you are installing your new drive alongside an existing drive then they may be incompatible. You can check for this by installing your new drive as a single drive. If this works then the two drives are incompatible.

More troubleshooting tips over the page.....

BASIC TROUBLESHOOTING

Q5: My CMOS setup has an 'Auto Configure' option but does not give me the full capacity of the drive when formatted.

A: Your BIOS does not support translation. See pages 6/7.

Q6: When formatted the hard drive's capacity is different from that shown in the CMOS setup.

A: The CMOS and MS DOS have different methods for computing hard drive sizes and this situation is normal.

Q7: I cannot get 32-bit disk access in Windows.

A: You need to install the 32-bit disk access driver. Read the 'Important Information' or 'Windows support' section of the hard drive setup utility supplied with your hard drive.

If you have a problem, recheck your steps as described in this guide.

If the problem still exists and you need to call our Technical Support Line, please have the following available if possible:

- 1 Your invoice.
 - 2 Manuals for your PC system and / or motherboard.
 - 3 Manuals for your controller card
 - 3 Any documentation supplied with the hard drive.
 - 4 As much information as possible on any existing hard drives fitted.
- Important telephone numbers can be found on the back of this booklet.

CREATING A BOOTABLE FLOPPY DISK

To enable installation of a primary hard drive (C:) you will need a bootable floppy disk with some utility programs on them. You can either use your original MS DOS installation disk 1 or create a new disk by doing the following from a working hard drive system.

- 1 Insert floppy disk into drive.
- 2 Enter "FORMAT A:/S" - the /s option will transfer system files.
- 3 Enter "COPY C:\DOS\FDISK.EXE A:" - be sure to specify the correct drive and directory name if different.
- 4 Enter "COPY C:\DOS\FORMAT.COM A:" - be sure to specify the correct drive and directory name if different.

Windows 95 users:

To enable installation of Windows 95 onto a new primary drive you will require a CD ROM driver to install at boot up. Copy your CD ROM driver to the new boot disk and create a CONFIG.SYS file to install the driver eg: From drive A:

- 1 Enter "COPY CON CONFIG.SYS"
- 2 Enter "DEVICE=CD ROM.DVR"
- 3 Press 'F6'
- 4 Press 'Enter'

BEFORE YOU BEGIN

IMPORTANT!

If you are installing a hard drive that will be used to boot the PC (C:) you must have a bootable floppy diskette available. See Page 15 for details.

If you have a hard drive-fitted which has data stored on it, you should make a full backup now!

Before you start your hard drive installation you should ensure you have the following available:

- 1 Crosshead screwdriver.
- 2 PC System and/or motherboard manual.
- 3 Operating System manual.
- 4 Four screws - found on the back of this guide.
- 5 If you are fitting a 3.5" drive into a 5.25" bay then you must have a mounting bracket.
- 6 Some systems also require 'slide rails' to mount devices. Please contact your PC manufacturer or dealer for these items.

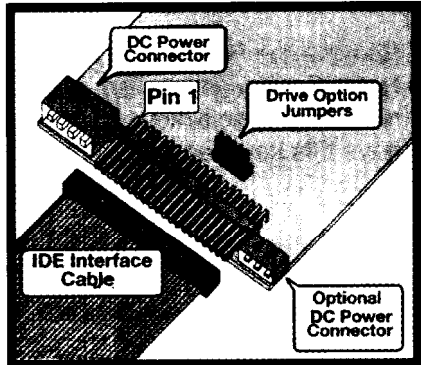
STARTING INSTALLATION

- 1 Remove the PC cover.
 - Note: Some systems are fitted with a security cover lock. This requires a special key as supplied with your system. If you do not have this key please consult your PC dealer or manufacturer.
- 2 Identify the existing hard drive if fitted.
- 3 Locate the mounting position for the new hard drive.
 - Note: You may have to remove other devices first.
- 4 If the new drive is to connect to an existing IDE or SCSI cable then ensure that the data cable has a spare connector. Also ensure that there is a spare 5v DC power connector available.
- 5 Make any configuration (Jumper) changes necessary (see Drive Option Jumpers section on Page 4 for IDE / EIDE drives or Page 10 for SCSI drives.
- 6 Mount the new drive using the supplied screws - using screws of *an incorrect size could invalidate any warranties.*
- 7 Connect the drive to the data and power cable - see diagram on page 4 for IDE / EIDE drives or page 9 for SCSI drives.
- 8 Replace any other devices that may have been removed
- 9 Reconnect the system power cables,
- 10 Switch on the PC and run the CMOS setup.
 - Note: To enter the CMOS setup you may need to press a particular key, or combination of keys, at startup or run a special setup program from DOS. Please read any messages when starting or refer to your system or motherboard manual if necessary.

The CMOS (the BIOS setup utility) needs to be configured for your new drive. For IDE / EIDE drives turn to page 4, for SCSI drives turn to page 10.

IDE HARD DRIVE INSTALLATION

IDE Disk Drive Architecture



DC Power Connector

This is the main power input for the drive. Your computer will have a plastic connector with four wires (usually two black, one yellow and one red) which will only fit one way as it has the corners 'cut' to shape. Do not force this connection, the plug will fit tightly but easily.

Drive Option Jumpers

These set various options such as drive identification - Master or Slave. *Important: Do not adjust any other settings except the drive identification as listed by the manual or indicated on the top of the drive.*

- When installing two drives on the same cable one must be the Master drive and one the Slave.
- It is recommended that the Master drive be fitted at the end of the cable and the Slave drive on the second connector.
- The Master drive is configured as Drive C: in the BIOS, the Slave as Drive D:

Interface Cable - 40 pin

The cable will have one wire, on the outside edge, which is either coloured or striped (usually red). This must connect to Pin 1 on the hard drive. Pin 1 is usually nearest to the DC Power Connector and is indicated by a 1 or A on the interface connector.

CMOS configuration for IDE / EIDE drives

Note: BIOSs and CMOS setup utilities vary from system to system. This guide is not intended to cover every system but to be a guideline to assist you. for more details on how to access your particular BIOS and how it works, please consult the manual for your PC system or motherboard or contact your supplier.

Drives over 528Mb require:

- a) BIOS support for large hard drives - this is known as LBA support (Logical Block Addressing) or Translation BIOS.
 - b) Translating software - supplied with drives over 528Mb
- BIOSs dated 1995 or after (check your screen when starting the system for BIOS dates) have support for drives over 528Mb - Go to page 8.

If your BIOS is dated before 1995 it may have LBA support. To check this follow these steps:

- 1 Enter the CMOS setup: See item 10 on Page 3.
- 2 Go to the Advanced Options section - Note: headings may vary.
- 3 Use arrow keys to scroll through the listing (or read instructions shown on screen) to locate an option that contains 'LBA', 'Translation' or 'Large Disk Access'. Note: option listings may vary but the meaning is still the same.
- 4 If an option as indicated above is found ensure it is enabled if necessary. Go to Page 8
- 5 If these options cannot be found your BIOS does not support drives over 528Mb. Go to Page 6.

Drives under 528Mb:

- Check your BIOS type (LBA or non-LBA supporting) as above
- For non-LBA supporting BIOSs go to Page 6, for LBA supporting

See Page 4 for important information on hard drive configuration for multiple drive systems.

Installing into a system WITHOUT a translating BIOS.

If you are installing your new, drive as a 3rd or 4th drive please refer to your controller card manual or supplier for instructions. If you are installing your new drive as the primary drive and your existing drive as the second drive make sure that you note the BIOS settings for your existing drive before proceeding.

Drives under 528Mb

- 1 Unless you are replacing a faulty hard drive it is advisable to backup all your existing data before starting installation.
- 2 Enter your BIOS (see item 10 on Page 3 or refer to your system manual if necessary).
- 3 If you have an existing drive make a note of the parameters set (Heads, Sectors, Cylinders etc)
- 4 Select a 'User Definable' or 'Custom' setting and enter the parameters shown in the drives manual or printed on the top of the drive itself - Some non-translating BIOSs have an Auto Detect option which you may select.
 - **Note for two drive systems:** Ensure you enter the correct settings for each drive. The Master drive is C: and the Slave drive is D: (see Drive Option Jumpers on Page 4)
- 5 If you do not have such an option then select a drive type that is close to - but not over - the size of the drive (Eg: For a 360Mb drive choose a setting of 350Mb, not 370Mb. You will lose the drive capacity 'left over' by the type option. This is a limitation of the BIOS, not the hard drive).
- 6 Exit BIOS saving configuration and reboot system. If new hard drive is C: boot from floppy, otherwise boot as normal.
- 7 Continue with the FDISK.EXE and FORMAT.COM setup as listed on Page 9 under MS DOS / Windows 3.x or Windows 95 as necessary.

Installins into a system WITHOUT a translating BIOS.

Drives over 528Mb.

MS DOS / Windows 3.x / Windows 95 users:

- 1 Unless you are replacing a faulty hard drive it is advisable to backup all your existing data before starting installation.
- 2 Enter your BIOS (refer to your system manual if necessary).
- 3 Set the hard drive type to number 1 for C: or D: drive as required.
- 4 Reboot the system. If new hard drive is C: boot from floppy, otherwise boot as normal. **Windows 95 users note:** If new drive is being installed as a second drive, reboot in DOS mode.
- 5 Run the hard drive configuration from supplied floppy disc in drive A: - Note: most configuration programs will NOT run from a floppy drive designated B:.
- 6 Most configuration programs have an 'Easy Install'-type option which will automatically configure your drive. Only select other options if you are confident of the results.

7 **YOUR DATA MAY BE AT RISK IF YOU DO NOT READ THIS!**
Read all sections headed 'Important Information' as this contains instructions for booting from floppy discs and Windows support. The installation disks contain full instructions an you are advised to read these as they may contain information relating to your system.

When booting from floppy do not use standard DOS methods. You should let the system start from the hard drive then you will need to press a key (your screen will prompt you) which will then boot the system from the floppy disc.

- 8 Remove all diskettes and reboot.
- 9 Your drive is now ready for use.

UNIX, NETWARE, OS/2 2.x, OS/2 WARP, WINDOWS NT USERS PLEASE NOTE: Most drive support software programs do not support these operating systems. Please read any supplied manuals for more information or contact SMC Technical Support.

Installing an IDE / EIDE drive into a system WITH a translatihs BIOS.

If you are installing your new drive as a 3rd or 4th drive please refer to your controller card manual or supplier for instructions.

All operatina systems:

- 1 Unless you are replacing a faulty hard drive it is advisable to backup all your existing data before starting installation.
- 2 Enter your BIOS (refer to your system manual if necessary).
- 3 Ensure options such as 'LBA', 'Large Disk Access' or 'Translation' are enabled if necessary.
- 4 Select Auto Configure.
 - Note: The drive parameters shown may vary from those supplied with the drive. This is acceptable as the BIOS is translating the information to allow you the full capacity of the drive.
- 5 Exit BIOS saving configuration and reboot system. If new hard drive is C: boot from floppy, otherwise boot as normal.
 - Note: If booting from a floppy disc use either your original MS DOS 'Disk 1' (which will automatically format the new drive and install DOS) or see Page 15 for instructions on creating a bootable floppy diskette and refer to the instructions opposite.

**Do not use the software
supplied with your hard drive.**

Installing an IDE / EIDE drive into a system WITH a translating BIOS.

MS DOS / Windows 3.x:

- 1 Run the program FDISK.EXE **at** the DOS prompt by typing "FDISK" and pressing enter.
- 2 If the new drive is not the primary drive (C:) select option 5 and choose the new drive.
- 3 Create a new partiion by selecting option 1 and follow the prompts on the screen, Note: It is advisable to select the default answers by pressing 'Enter' at the prompts.
- 4 When complete reboot the system - if you have booted from a floppy disk, leave it in the drive.
- 5 For new C: drive enter "FORMAT C: /S" - the /S option will make the drive bootable by transferring system files onto it.
- 6 For other drives enter "FORMAT D:" (or specify correct drive letter if 3rd or 4th drive is being installed).
- 7 Remove the floppy disk and reboot the PC. **The new drive is now ready for use.**

Windows 95:

Full details on installation are covered in the manuals supplied with this operating system.

- **CD Version:** If you are installing a new C: drive and have created a 'Rescue Boot Disk' use this to boot. If this is the first installation of Windows 95 you will need a boot disk with drivers to install your CD ROM drive as D: - see notes on bootable floppy disks on page 15.
- **Floppy version: Boot from Disk 1.**