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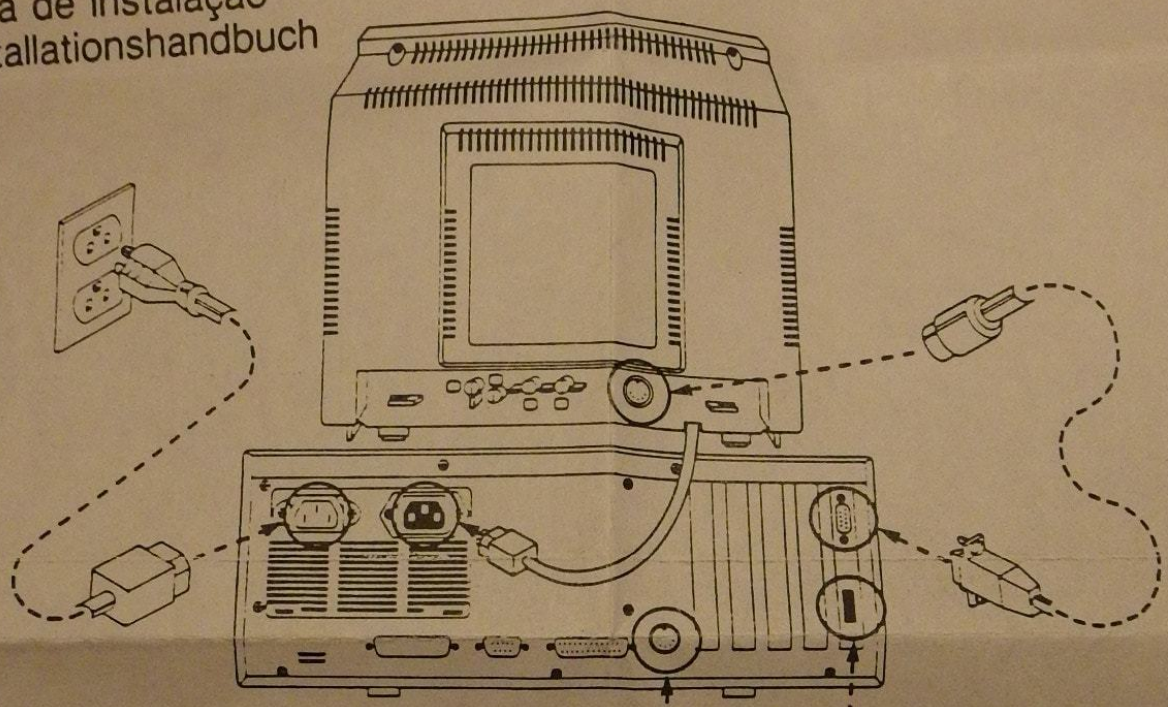
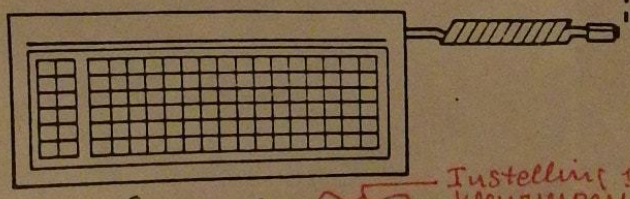
Installation guide
Guide d'installation
Installatie Handleiding
Guida per l'installazione
Guía de instalacíon
Guia de instalação
Installationshandbuch





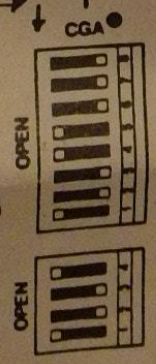
kan ook voor monochr.

nu ingesteld; geeft mooiere en kleinere letter bij WP gebruik

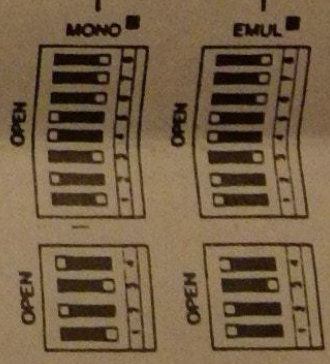
Instelling voor kleurmonitor.

kan ook

- If you have a color monitor
- Si vous avez un moniteur couleur
- Als u een kleurenbeeldscherm hebt
- Se avete un monitor a colori
- Si posee un monitor a color
- Se tiver um monitor a cores
- Wenn Sie einen Farbbildschirm haben



- If you have a monochrome monitor
- Si vous avez un moniteur monochrome
- Als u een monochroom monitor hebt
- Se avete un monitor monocromatico
- Si posee un monitor monocromo
- Se tiver um monitor monocromático
- Wenn Sie einen Monochrom-Bildschirm haben



PHILIPS

WHAT'S IN THIS BOOK?

Chapter 1 - Getting started
How to use your PC, including descriptions of the switches, sockets, and how to use diskettes.

Chapter 2 - An introduction to MS-DOS
A description of MS-DOS concepts - how to enter commands to erase and copy files, how to use your keyboard, and much more. The end of the chapter describes what's on the diskettes supplied with your PC, how to use them, and how to set up your fixed disk (if you have one).

Chapter 3 - MS-DOS quick reference
Once you've learned how to use MS-DOS and your PC, you might like to experiment with a few commands. Alternatively, you might already be an experienced MS-DOS user and want to know what features MS-DOS 3.21 has to offer. In either case, refer to this chapter.

Chapter 4 - EDLIN
EDLIN is the MS-DOS line editor (you could describe it as an unsophisticated word processor). This chapter shows you how to use it to create, edit, and save your own text files.

Chapter 5 - CONFIG.SYS
CONFIG.SYS is a very special file used by MS-DOS to allow you to set up your PC to suit your own requirements. This chapter tells you what CONFIG.SYS is, and how to make the most of it.

Chapter 6 - On-line help
A description of HELP, the program that provides you with immediate help on MS-DOS commands at the touch of a key.

Chapter 7 - Using your video card
The video card supplied with your PC has many useful facilities and functions which allow you to use the graphics features of most popular PC programs. This chapter describes how to use the video card software to make sure those programs work in the best possible way.

Appendix A - Inside the PC
This appendix is only of interest to those of you who are more technically-minded. It describes the main board DIP switch settings, the serial and parallel port pin-outs, and the function of various main board components.

Appendix B - GW-BASIC command summary
A quick summary of the command syntax of GW-BASIC 3.11, the version of BASIC supplied with your PC.

Appendix C - MS-DOS error messages
From time to time, if you make a mistake, MS-DOS will display an error message. This section explains the more common messages, and provides possible solutions.

A clock and calendar
Because your PC has a built-in permanent clock and calendar, you should never have to enter the date and time. The clock/calendar chip makes sure the date and time are always correct (see CLOCK in Chapter 3).

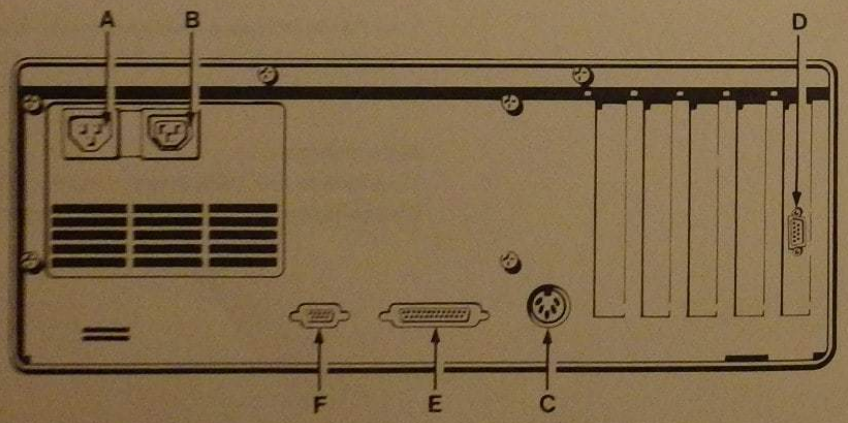
Variable speed
You can, by pressing certain keys, make your PC go faster or slower (see *Using the keyboard* in the next chapter for details).

The video card
The video card supplied with your PC (the *Graphics Solution* from ATI Technologies, Inc.) offers more functions than a *normal* monochrome or color video card. For example, it allows you to run software intended for color graphics monitors (such as games) on monochrome monitors. See Chapter 7 for details.

THE REAR OF THE PC

This section describes what you can see at the rear of the PC.

(1)



Power-in socket (Figure 1,A)
This must be connected to a grounded power supply, using the cable supplied (see the installation guide for details).

Position the PC so that you can easily access the power cable (in the event of an emergency, for example).

Power-out socket (Figure 1,B)
You are recommended to use this socket to power your monitor (if it has a suitable plug). The power to this socket is switched off when the PC is switched off. Connecting the monitor is described in the installation guide.

Keyboard socket (Figure 1,C)
The keyboard socket is a 5-pin standard DIN socket. Your keyboard is supplied with a cable to plug into this socket (see the installation guide for details).

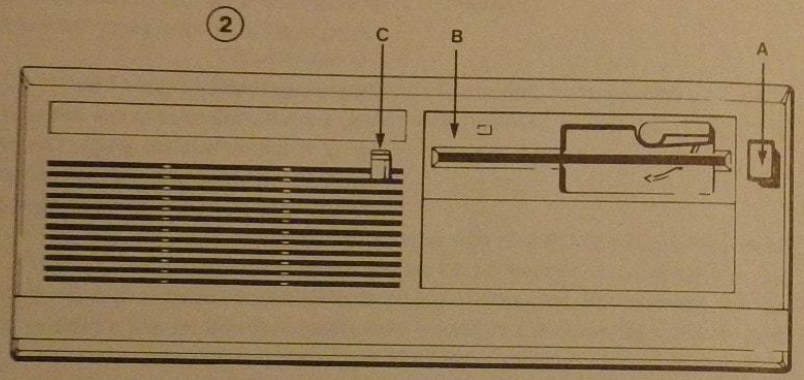
Video socket (Figure 1,D)
Your PC comes supplied with a video card fitted as standard. The procedures for checking the video card and connecting the monitor to the video socket are described in the installation guide.

Parallel port (Figure 1,E)
This port is intended for use with Centronics-compatible parallel printers. Suitable printers and printer cables can be ordered from your local dealer. The pin-outs of the parallel port are described in Appendix A.

Serial port (Figure 1,F)
You can connect any one of a number of devices to the RS-232-C serial port - such as a modem, a printer, or a mouse (contact your local dealer for details). The pin-outs of the serial port are described in Appendix A.

THE FRONT OF THE PC

This section describes what you can see at the front of the PC.



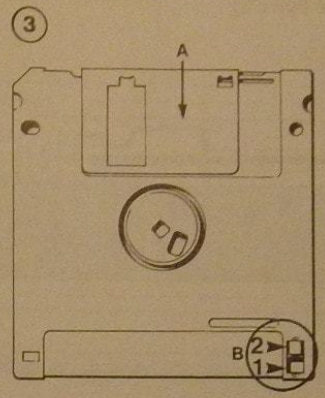
Power button (Figure 2,A)
This button switches your PC on or off (and also the monitor, if it is plugged into the power out socket at the rear of the PC).

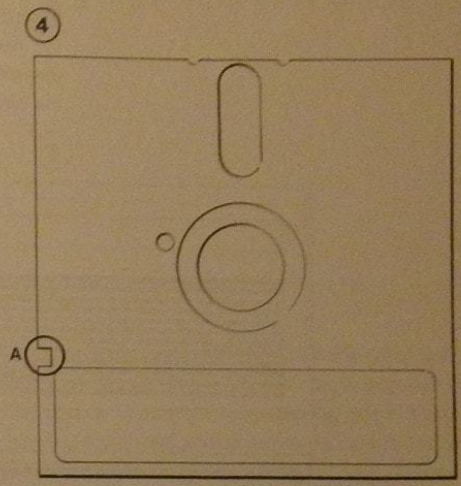
Diskette drive (Figure 2,B)
Your PC is supplied with at least one diskette drive. See *Using diskettes* below for information about how to use and care for your diskettes.

Power indicator (Figure2,C)
This lamp lights when the hard disk is used.

USING DISKETTES

Before you continue, you should learn a little about how diskettes can be handled, cared for, and used properly. Figure 3 shows a 3.5 inch diskette, and figure 4 shows a 5.25 inch diskette.





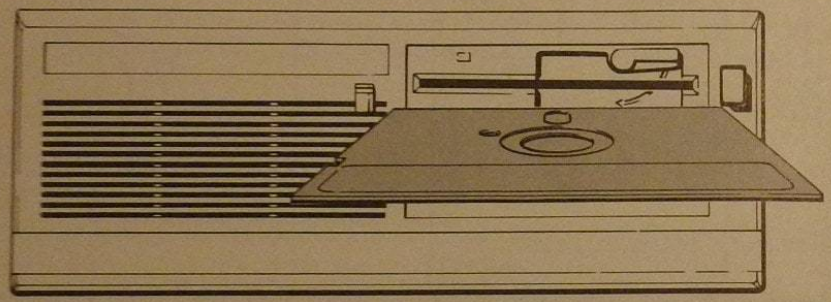
Handling diskettes
If you always follow the few simple rules outlined below, your diskettes should provide you with years of trouble-free service:

- never try to bend a diskette
- never leave a diskette in the vicinity of a large magnetic field (for example, near a telephone, loudspeaker or electric motor); it could erase your files
- (3.5 inch diskettes only) the sliding cover (see figure 3,A) protects the diskette surface, and automatically slides back when the diskette is inserted in a drive. Do not slide it back yourself!
- store your diskettes at a temperature of between 10°C and 52°C (room temperature is usually between 20°C and 25°C)
- store your diskettes in a dry place - excessive humidity will damage them.

Inserting and removing diskettes

To insert a diskette in a drive, hold it with its label facing upwards and towards you, and gently push the diskette into the drive slot (see figure 5).

5



When you press the drive button (3.5 inch drives), or turn the latch (5.25 inch drives), the diskette will pop out a short distance and you will be able to remove it.

Write protecting diskettes

You can make a diskette read-only (which means you can neither copy files to it nor delete any of its files). How this is accomplished depends on the type of diskettes (3.5 inch or 5.25 inch).

3.5 INCH DISKETTES

The diskettes is write protected by means of a switch (see figure 3,B). When the switch is in position 1, the diskette is write protected. When the switch is in position 2, you can copy files to the diskette or delete any part of it.

5.25 INCH DISKETTES

If you place a sticker over the notch shown in figure 4,A, the diskette is write protected.

TWO AN INTRODUCTION TO MS-DOS

INTRODUCTION

This chapter explains how to use MS-DOS, the operating system supplied on diskette with this book, and how to start using your PC. The chapter starts off by explaining some basic ideas such as what a program and an operating system are. If you already know about these, start reading at *Using the keyboard* to find out what special key sequences your PC understands. If you are already familiar with PCs in general, and MS-DOS in particular, you may wish to skip the introductory part of this chapter and start reading at *Setting up your system.*

If you've never used a PC before, read the whole chapter carefully; it explains some basic concepts that you'll need to understand if you are to get the most out of your computer.

Several of the examples used in this chapter refer to commands that you can give to the PC. For a full explanation of these commands, see Chapter 3.

WHAT IS A PROGRAM?

A program is a list of instructions that tells your PC what to do. The program is stored in the PC's memory and the computer looks at each instruction in turn to find out what to do next. The PC is said to be *executing* or *running* the program, and because this happens at a rate of several hundred thousand instructions every second, the computer can do certain jobs very quickly. The list of tasks that you can use your PC for is endless — word processing, accounts, graphics, and computer games to name but a few — and they're all handled by a program.

Besides having a list of instructions to tell it what to do, the PC needs some information to work on. This information could be anything from a letter you're writing, to a set of statistics from a research project of some kind. Information that your PC stores and works with is called *data*.

WHAT IS AN OPERATING SYSTEM?

There are certain tasks that a computer must do over and over again. These include jobs like writing characters on the screen, deciding which keys have been pressed, and loading programs into memory. You need these facilities no matter what you use the PC for, so it is useful to have a special program, called an *operating system*, to take care of them. The operating system is loaded into the PC's memory each time the computer is switched on, and stays in memory until you stop using the PC; other programs are loaded into memory as they are needed.

The operating system used by your PC is called MS-DOS. This operating system is used by the vast majority of PCs and it works with a huge number of programs.

USING THE KEYBOARD

You use the keyboard to communicate with the computer. This includes giving commands to MS-DOS as well as working with programs such as word processors. To give the computer a command, you type the name of the command and press the RETURN key.

Sometimes you have to hold down one key while you press another key. This is represented in this manual as follows:

SHIFT–A

which tells you to hold down the SHIFT key while you type the letter A.

There are a number of keys that make the computer treat the characters you type in a special way:

CTRL Used with another key to carry out a special function. You hold CTRL down and then press the other key.

ALT Similar to CTRL.

ALT–SHIFT–SHIFT If you press ALT, and the left and right SHIFT keys together, you can change the speed of your PC from 4.77MHz to 8MHz or vice versa.

CAPS LOCK Switches the letter keys between upper and lower case.

When the light on the CAPS LOCK key is off, the letter keys produce lower case characters.

When the light is on, the letter keys produce upper case characters.

NUM LOCK Switches the keypad at the right of the keyboard between its numeric and cursor modes.

When the light on the NUM LOCK key is off, the keypad performs cursor functions. The use of the cursor keys depends on the program you're running; one example would be to move the cursor around a word processor document.

When the light is on, the keypad generates numbers. Because of this, it is sometimes called the *numeric* keypad.

SHIFT Used with another key to generate an alternative character. You hold SHIFT down and then press the other key. For example, pressing SHIFT with one of the number keys on the top row of the keyboard generates one of the special symbols marked on the keys. You can also use SHIFT to override (reverse) the CAPS LOCK setting if used with a letter key, and the NUM LOCK setting if used with a key on the numeric keypad.

BACKSPACE Moves the cursor one character to the left. When working with MS-DOS, or with most text editing programs, it also erases the character over which the cursor moves, so it can be used to correct typing mistakes.

SCROLL LOCK When used with the CTRL key, it stops the currently executing program. The effect of pressing SCROLL LOCK by itself depends on the application program that you're running.

CTRL—ALT—DEL Restarts (or *reboots)* the system and makes it run at 4.77MHz.

CTRL—ALT—INS Restarts the system and makes it run at 8MHz.

CTRL—BREAK Stops the current program.

CTRL—PRTSC Anything that the PC writes on the screen is also sent to the printer. Stop printing by pressing CTRL—PRTSC again.

CTRL—S Stops the screen from scrolling. Press any key to resume scrolling.

SHIFT—PRTSC Prints the current screen.

RUNNING COMMANDS

When you give the computer a command, MS-DOS looks at what you typed and tries to carry out your instructions. If all goes well, the results of your command are displayed on the screen. Each command that MS-DOS understands has a name; to run a command you type its name, followed by any extra information that the command will need. When you have finished typing the command, press the RETURN key.

Switches

You can often use one command to do several slightly different jobs. The way you do this is to specify a *switch* in the command line — the switch modifies the way the command acts. A switch usually begins with a ' / ' character. For example, because of the ' /W ', the following two commands display their results in a slightly different way (see DIR in Chapter 3 to find out how they differ):

DIR RETURN
DIR /W RETURN

Parameters

You often need to give a command some information to work on. You give this information on the command line (along with any switches that you specify). For example, the ECHO command writes (echoes) its parameters to the screen. You might use this command by typing:

ECHO THIS COMMAND DISPLAYS MESSAGES RETURN

MS-DOS uses the fact that a switch begins with a ' / ' character to distinguish it from parameters.

Error messages

When MS-DOS can't understand one of your commands, it displays an error message on the screen. For example, if you mistype the name of a command, you will see this message:

```
Bad command or file name
```

because MS-DOS didn't recognize what you typed.

As your experience of using your PC grows, you will begin to understand what these error messages mean, and you will learn what to do to correct them. For the time being, you could have a look at the error explanations in Appendix C to see what the messages mean.

DISKS

As we've seen, programs are stored in the PC's memory while they are being run. Although your PC is equipped with a large memory, there isn't enough space to hold all the programs you might wish to run. Also, programs stored in the PC's memory are lost when you switch the computer off. Fortunately, programs and data can be stored on *diskettes*. See Chapter 1 for information about how to use and handle diskettes.

You can use a diskette to store any information — both programs and data — that your PC can use. Both diskettes supplied with your system contain important programs that you'll need when using your PC.

This will ensure that you don't accidentally erase it. See the description of the DISKCOPY command in Chapter 3 to find out how to make a copy of the system if you want to.

NOTE The other diskettes should not be write protected.

The diskettes contain:

- MS-DOS
- the video card software
- an MS-DOS tutor (this is automatically loaded if you boot from the tutor diskette)
- the on-line help program (which is automatically loaded if you boot from the help diskette)
- GW-BASIC.

Starting your system

The first thing to do is to get your system running. To do this, place your MS-DOS system diskette in drive A: and switch the computer on. The system should start up and you should see the following prompt:

A:\>

which tells you that you're working with drive A: (See Chapter 1 for information about switching the computer on and handling diskettes).

NOTE If you want to start your system and get more help at the same time, insert the help diskette and switch the PC on — this will automatically load the HELP program.

Diskette systems

If you don't have a fixed disk, you can start using your PC straight away. Continue reading from *Starting the Tutor*.

Fixed disk systems

If you have a fixed disk, you need to copy the MS-DOS diskette files onto it so that you can use it to boot your PC. This process is handled automatically by a batch file called INSTALL1.BAT. Run this batch file by typing:

INSTALL1 [RETURN]

Wait while all the system files are copied from your working diskette to your fixed disk. To copy the other diskette files to the fixed disk, insert each one in the drive and type:

INSTALL2 [RETURN] to install the supplemental diskette

INSTALL3 [RETURN] to install the tutor diskette

INSTALL4 [RETURN] to install the help/GWBASIC diskette.

Now you are ready to boot from your fixed disk. You shouldn't need the diskettes again, so put them in a safe place.

Starting the system from your fixed disk

Now that you have MS-DOS installed on your fixed disk, you can boot the system without the working diskette. Remove any diskettes from your system's disk drives (if you leave the diskette inserted, your system will boot from that instead of the fixed disk) and press [CTRL]—[ALT]—[DEL] (for 4.77MHz operation) or [CTRL]—[ALT]—[INS] (for 8MHz operation). The system should start up and prompt you with:

C:\>

showing that it's using the fixed disk drive.

If the system doesn't boot, and you can't solve the problem yourself, contact your local dealer. See Appendix C for an explanation of any error messages that might be displayed.

MODE only sets the characters per line and lines per inch for EPSON printers.

Video mode
MODE n or MODE [n],m[,T]

NOTE The video display can best be controlled using the special video card software — see Chapter 7 for details.

The following table defines the characters in each parameter.

Character	Description
n	40, 80, BW40, BW80, CO40, CO80, or MONO
m	Shifts display: R(ight) or L(eft)
T	Requests test pattern to align display

If *R* or *L* is specified for m, the image on the screen is shifted one character to the right or left if in 40-column mode, and two characters to the right or left if in 80-column mode.

If *T* is specified, a line of numerals beginning with *0* is displayed, and you are asked if the line ends with a certain numeral. If you answer *N*, the display is shifted again in the direction you specified with *R* or *L* and you are asked if the display is aligned.

The effects of the n parameter are as follows:

n	Description
40	Sets display width to 40 characters per line for a color/graphics adapter
80	As above, but 80 characters per line
BW40	Sets display to 40 characters per line black and white for color/graphics adapter
BW80	As above, but 80 characters per line
CO40	Switches to color/graphics adapter at 40 characters/line
CO80	As above, but 80 characters per line
MONO	Switches to monochrome display adapter

Communications mode
MODE COMy:baud[,parity[,databits[,stopbits [,P]]]]

The following table defines the characters and parameters:

Character	Description
y	Serial port number 1 or 2
baud	110, 150, 300, 600, 1200, 2400, 4800, or 9600
parity	N(none), O(odd), or E(even) (default)
databits	7 (default) or 8
stopbits	1 or 2
P	Continuous retry on time-out errors.

This command establishes the communications protocol. When using this command, you must at least specify a baud rate. All other parameters can be omitted and their defaults entered by using commas.

Only the first two numbers of the baud rate need to be entered.

Printer reassignment
MODE LPTx:=COMy

The following table defines the characters in each parameter.

Character	Description
x	Printer number: 1, 2, or 3
y	Serial port number: 1 or 2

This command format directs printer output to the serial port.

Before using this format, you must initialize the serial port using the format for communications mode. If the serial device is a printer, the *P* parameter must be entered.

MORE

‹command› | MORE

This command causes the display to scroll one screen at a time, pausing with the --MORE-- message between each screen.

Pressing any key causes the next screen of information to be written to the display. This process continues until all the data has been written. For example, the following command will display the file MYFILES.ASM, one screen at a time:

TYPE MYFILES.ASM | MORE RETURN

PARK

PARK

If you have a fixed disk, you should NEVER move your PC without first using the PARK command to move the disk read/write heads to a safety location. If you don't, the heads could crash and cause your fixed disk irreparable damage.

After entering the following:

PARK RETURN

you will be asked if you wish to continue. Enter *Y* or *y* and switch your PC off.

PATH

PATH [‹directory›[;‹directory›]...]

This command sets a command path.

Unless you specify otherwise, MS-DOS only searches for a command in the working directory. PATH allows you to tell MS-DOS which directories should be searched for commands after MS-DOS has searched your working directory. The command need only be entered once, so place it in your AUTOEXEC.BAT file.

You can tell MS-DOS to search more than one path by specifying several directories, separated by semicolons. For example:

PATH \BIN\USER\JOE;\BIN\USER\SUE;\BIN\DEV RETURN

tells MS-DOS to search the directories specified by the pathname list to find any external command.

MS-DOS searches the directories in the order specified by the PATH command.

If you enter PATH with no options, the current path will be displayed.

SORT

SORT [/R] [/+n]

This command alphabetically sorts information before displaying it on the screen. The parameters are as follows:

Parameter	Description
/+n	Sorts from column n (default=1)
/R	Reverses the sort (from Z to A)

Examples

SORT /R ‹UNSORT.TXT ›SORT.TXT RETURN

reads UNSORT.TXT, sorts it from Z to A, and writes the result to SORT.TXT.

DIR ¦ SORT /+14 RETURN

lists the directory, but sorted by column 14 (the file size).

SPEED

SPEED [STANDARD or TURBO]

This command changes the system clock frequency (and therefore the speed of your PC) from 4.77MHz to 8MHz and vice versa.

To change the frequency to 8MHz, type the following:

SPEED TURBO RETURN

To change the frequency to 4.77MHz, type:

SPEED STANDARD RETURN

To display the current setting, type:

SPEED RETURN

The frequency defaults to 4.77MHz when you first switch the PC on. To get the most from your PC, you should run it at 8MHz, unless you want to load a program that is unusable at that speed (an arcade game for example).

NOTE You can also change the speed by typing

ALT—LEFT SHIFT—RIGHT SHIFT .

SUBST

SUBST [‹d:›] [‹pathname›] [/D]

This command substitutes a drive letter for a directory.

Many older applications do not recognize directories, or they expect certain files to be on specific drives. This sometimes results in a program accessing a drive that doesn't have a diskette inserted. SUBST overcomes this problem by allowing a directory to be accessed via a drive letter.

Enter the command without parameters to display the current substitutions.

The /D parameter removes a substitution.

NOTE If you attempt to substitute a drive letter higher than the LASTDRIVE value in CONFIG.SYS, the message *Invalid parameter* will be displayed.

Examples

To allow the directory WP\FILES on drive C: to be accessed as drive F, type:

SUBST F: C:\WP\FILES RETURN

To subsequently remove this substitution:

SUBST F: /D RETURN

VERIFY

VERIFY [ON or OFF]

VERIFY ON tells MS-DOS to verify all file writes to disk. This slows down disk access, but may be needed from time to time if you want to confirm that data has been written to disk properly.

VERIFY OFF turns off this feature.

VERIFY with no options, informs you whether VERIFY is ON or OFF.

VOL

VOL [⟨d:⟩]

VOL displays the volume label of the disk specified by d: (the current drive is the default). Use the LABEL command to change a volume label.

WDHDINIT

WDHDINIT

This command initializes your fixed disk (erasing all its files in the process).

WARNING! Do not use this command unless you are sure you want to initialize your fixed disk, and you have made a backup of your files.

Once you start WDHDINIT, a menu is displayed with four options:

1 Drive Number
Enter 1 or D to change the drive number.

2 Interleaving Factor
Do not change this value.

3 Execute Hard Disk Initialization
Enter 3 or E to start initialization.

4 eXit without Initializing
Enter 4 or X to abandon WDHDINIT.

After initializing a disk, you must use FDISK to partition it.

XCOPY

XCOPY ⟨pathname⟩ [⟨pathname⟩] [/M][/P][/S][/E]

This command copies directories, subdirectories, and files.

This command works in the same way as COPY but offers a number of extra features. The most useful ones are described below.

Parameter	Description
/M	Copies files that have been modified or created since the last BACKUP or XCOPY. This parameter is useful for maintaining copies of your most important files in between your regular backups.
/P	Prompts you to confirm copying for each file.
/S	Copies all subdirectories unless they are empty.
/S/E	Copies all subdirectories including those which are empty. This makes an exact copy of any directory structure.

Example
To copy all files from drive B, including subdirectories, to the MAIL directory on C, type the following:

XCOPY B:\ C:\MAIL /S/E RETURN

INTRODUCTION

Included in the \VIDEO directory of the supplemental diskette are a number of programs for the *ATI Graphics Solution* (your video card) that allow you to switch between video modes, run a graphics demo or even perform video card diagnostics. The following files are described in this chapter (don't worry if some of the descriptions seem very technical — you don't have to understand all of them to use your video card properly):

- MS.COM performs mode switching
- ALLTEST.COM performs a diagnostics test on the video card
- ATIGSHA1.DRV, ATIGSMB1.DRV, ATIGSMC1.DRV, ATIGSME1.DRV, and PREDRIVE.EXE are certified drivers and utilities for Lotus Symphony (1.1) and 1-2-3 (2.0) for 132 columns and high resolution color
- FWSETUP and SOLUTION.SC are driver and installation programs for Ashton Tate Framework in 16 colors 640 x 200 resolution
- I0X.ASM, GSDEMO1.C, GSDEM01.COM are sample programs and utilities for 640 x 200 16 color mode
- FIXST.COM is a program for patching PC StoryTeller.

MODE SWITCHING — MS

MS allows you to switch the video card between modes. You can either enter the command without specifying a video mode (and a selection menu will be displayed) or you can enter all of the parameters on the command line using the following syntax:

MS [keyword] [NOWAIT] [NONRESIDENT]

All of the parameters are optional, can be entered in any order, and are as follows:

- [keyword] is one of MT, L25, L44, MG1, MG2, E80, and C80, and is used to specify the video mode selected. These are described fully below.

- [NOWAIT] specifies that the mode should change immediately, without waiting for the monitor to be changed. If this is omitted, MS defaults to waiting for a monitor change.

- [NONRESIDENT] specifies that MS should not remain memory-resident (see *Rules for loading MS*). If this is omitted, MS remains memory-resident.

Therefore, if you enter the following, the menu will be displayed:

MS NONRESIDENT RETURN

and if you enter the following, the menu will not be displayed:

MS MT NONRESIDENT RETURN

Using the menu

If you don't specify a video mode on the command line when you start MS, a menu similar to the following will be displayed (the actual options displayed depend on how your video card is set up):

Graphics Solution Mode Selection Menu	Keywords
1. Monochrome mode in Color Monitor	- MT
2. Monochrome Graphics 1 page	- MG1
3. Monochrome Graphics 2 pages	- MG2
4. Color Text 80 x 25	- C80
5. 132 x 25	- L25
6. Change to TTL Monitor	
0. Exit to DOS	
7. 132 columns screen adjustment	

Current Mode is: Color Text 80 x 25 (C80)

Enter Option:

Select the video mode you require by entering the relevant number.

IMPORTANT

If you are switching from a monochrome monitor or mode to a color monitor or mode, or vice versa, the program will remind you to check that you have the correct type of monitor attached. Follow these directions carefully — in some cases it is possible to damage a monitor by selecting an unsuitable mode.

The different modes

MONOCHROME TEXT

(Keyword: MT) This disables graphics, making the video card function identical to the IBM Monochrome Adapter. It can be used with either a monochrome or a color monitor (in which case, shades of green will be displayed).

MONOCHROME GRAPHICS

(Keywords: MG1 and MG2) MG1 and MG2 are equivalent to the Hercules graphics HALF and FULL utilities. MG1 allocates memory for single page graphics and allows your video card to co-exist with a color video card. MG2 allows two page graphics, which can be used with most popular monochrome graphics

programs (such as Lotus 1-2-3 or Microsoft Windows). If you are not using software that requires Hercules graphics, use the emulation mode to drive your monitor. Again, if this option is used with a color monitor, shades of green will be displayed.

EMULATION MODE

(Keyword: E80. Monochrome monitors only) This is called an emulation mode because it makes the video card drive a monochrome monitor yet appear to your PC as a color/graphics adapter. It runs all color software (CGA or Plantronics) without modification on a monochrome monitor by automatically converting the color signal into shades of gray. If an application gives you a choice between CGA and Plantronics drivers, it is recommended that you select Plantronics (it gives better results). Emulation mode is the default setting of the video card — it's the best setting for monochrome monitors so don't change it unless you really have to.

COLOR MODES

(Keyword: C80) This mode allows for graphics up to 16 colors in 320 x 200 resolution or 4 colors in 640 x 200 resolution. It allows you to run all normal color/graphics programs. Again, if an application gives you a choice of drivers, select Plantronics rather than CGA.

WIDE SCREEN MODES

(Keywords: L25 and L44). L25 allows you to display 132 x 25 text, and L44 allows you to display 132 x 44 text. These modes can only be used if they are supported by your monitor or a particular application (see below for information about setting up WordPerfect to run in 132 column mode).

SCREEN ADJUST

The screen adjust option creates a file to save the adjustment information. Therefore, make sure the disk from which you are running MS is not write protected.

Rules for loading MS

MS defaults to remaining memory-resident, which means that it will stay in memory even when it is finished. In some cases, MS may conflict with other stay resident programs (for example, a keyboard driver). MS has, therefore, the option of allowing you to switch to a different video mode without staying resident by using the *NONRESIDENT* option.

If you want to place the MS command in AUTOEXEC.BAT, make sure you place it AFTER the command to load a keyboard driver, or any memory-resident program.

There will only be one copy of MS in memory. If you run it more than once, it will know that a copy already exists in memory and will not reload itself.

If you want to run an application program in 132-column mode, you must make sure the program itself supports 132 columns. A section below shows you how you can set up certain popular PC programs to use 132 columns.

There is some software on the market which requires a configuration or installation program to be run before your first run of the program. Examples are Lotus 1-2-3, Sidekick, and Superkey. Part of their installation procedure is to define the type of graphics adapter that is being used in the system. After installation, the program will only run with the graphics adapter that was specified during the installation process. Therefore, when you use the MS program to switch to a different mode and then run your application program, the program may not run. You may have to re-configure your application software for the new mode.

THE DEMO PROGRAM — GSDEMO1

If you have a color monitor, you can run the simple demo program, GSDEMO1.COM, which shows you the full range of color and resolution your video card is capable of. To start the demo, type the following:

GSDEMO1 RETURN

Press any key when the demo is finished.

NOTE

If you have any programming experience, you will find the two source files, GSDEMO1.C and I0X.ASM, useful. They show you how to program your video card to run in 640 x 200 16 color mode.

THE DIAGNOSTICS PROGRAM — ALLTEST

The video card diagnostics program ALLTEST.COM, contains video, parallel port, and serial port tests.

ALLTEST is completely menu-driven (that is, it requires no special explanation) and is started as follows:

ALLTEST [RETURN]

You select all the options using the numbered menus. From time to time the video card may be reset and your screen will go blank for a moment. Don't worry about this, it is normal procedure for the video test.

NOTE

You need special loopback connectors in order to use the serial and parallel port tests. The following is the wiring diagram for the parallel loopback connector:

From pin	To pin
1	13
2	15
10	16
11	17
12	14

The following is the wiring diagram for the serial loopback connector:

From pin	To pin
2	3
4	6
7	8

CONFIGURING YOUR APPLICATIONS

The rest of this chapter shows you how to re-configure or set up a number of popular PC applications. It is quite technical, but there's no need for you to read it unless you want to configure one of the following programs:

- Lotus 1-2-3
- Lotus Symphony
- Framework II
- PC Paintbrush
- WordPerfect
- IBM StoryTeller

Description of Lotus Drivers

The following four drivers are compatible with Lotus 1-2-3 version 2.0 and Symphony version 1.1 and are officially certified by Lotus Development Corporation. They support the standard IBM character set but do not support the following non-IBM standard LICS characters:

131,147,149,164,168,169,179,180,184,185,192,193,194,195, 200,202,203,204,205,206,207,208,211,213,215,210,212,217, 218,219,221,222,227,240,245,247,254.

- ATIGSHA1.DRV INSTALL name: *ATI/GS mono, (132x44) — Separate*

Used to display text on a TTL monochrome monitor, with 132 columns and 44 rows. The corresponding graphics driver with Symphony is *Hercules Card — Separate*. With 1-2-3, the corresponding graphics driver is *Hercules Card (80x25)*. If you are using two monitors with Symphony, the video card must be connected to the monochrome monitor and you must install the Symphony *dual* graphics driver.

- ATIGSMC1.DRV INSTALL name: *ATI/GS Hi-Res — Separate*

Used to display graphics on a color monitor, separately from text, at a density of 640x200 pixels. The corresponding text driver in Symphony is *IBM Color Card or Compaq — Separate* or the

Universal Text Display — Separate driver. For 1-2-3, the corresponding text driver is *IBM Color Card, color monitor* or *Universal Text Display.*

– ATIGSME1.DRV INSTALL name: *ATI/GS Hi-Res — Combined*

Used to display graphs on a color monitor at a density of 640x200 pixels. The graphics may be displayed on the screen at the same time as text. This driver may be used with Symphony only and the corresponding text driver must be *ATI/GS color (80x25) — Combined.*

– ATIGSMB1.DRV INSTALL name: *ATI/GS color (80x25) — Combined*

Used to display text on a color monitor. This driver may be used with Symphony only and the corresponding graphics driver must be *ATI/GS Hi-Res — Combined.*

Installation of Lotus Drivers

1 Make sure you have configured the video card correctly. It must be in monochrome mode (MG2) for the 132 column driver and it must be in color mode (C80) to use the high resolution color drivers.

2 Delete the file SINGLE.LBR from your Lotus directory (if present) UNLESS you have a version of 1-2-3 which is newer than 2.0 or a version of Symphony which is newer than 1.1.

3 If you plan on using the Lotus 132 column monochrome driver, you must do the following (after starting MS):

– Choose the option for 132 Column Screen Adjustment

– Adjust the screen so that all numbers are visible and none overlap

– Press RETURN

– Type the following:

MS MG2 RETURN

– Change to the \VIDEO directory and type the following:

PREDRIVE ATIGSHA1.DRV M25.TRP ATIGSHA1.DRV RETURN

NOTE M25.TRP is a data file created by MS when you selected the option to adjust the screen.

– Copy all the video card drivers (*.DRV) to your Lotus directory

4 Run the Lotus INSTALL program

– Select ADVANCED OPTIONS

– Select ADD NEW DRIVERS TO LIBRARY

5 Select MODIFY CURRENT DRIVER SET.

6 Select TEXT DISPLAY.

7 Select the desired driver:

– 132 Columns. Select *ATI/GS mono, (132x44) — Separate*

– Color Monitor with 1-2-3. Select *IBM Color (80x25)*

– Color Monitor with Symphony. Select *ATI/GS Color (80x25) Combined*

8 Select GRAPH DISPLAY

9 Select the desired driver:

– 132 Columns. Select *Hercules (80x25)*

– Color Monitor with 1-2-3. Select *ATI/GS Hi-Res — Separate*

– Color Monitor with Symphony. Select *ATI/GS Hi-Res — Combined*

10 Select RETURN TO MAIN MENU

11 Select SAVE CHANGES

12 Exit INSTALL

13 Run Lotus

For more details on installing drivers with Lotus, see your Lotus Operations Manual.

Description of Ashton-Tate Framework II Drivers

The video card runs 16 colors in 640x200 high resolution on Framework II. The enclosed driver draws 4 colors in 640x200 resolution directly to the desktop and users can determine the parameters of the foreground and background colors. During a zoom on a graphics frame, up to 16 colors in 640x200 resolution are displayed.

Installation of Framework II Drivers

FIXED DISK INSTALLATION

A program (FWSETUP) has been included in the \VIDEO directory to install the high resolution color/graphics drivers on your fixed disk (if you have one). To use it, copy it to the directory which contains Framework.

If you wish to modify the foreground and/or background colors, you can do so using the SETUP program included with Framework II. Simply follow the instructions for diskette installation.

DISKETTE INSTALLATION

You must install your Framework driver by using the SETUP program included with Framework II.

1 Copy the SOLUTION.SC driver from the \VIDEO directory to the same disk that SETUP is in.

2 Run SETUP.

3 Select OPTION 2 — ALL OTHER USES OF THE SETUP PROGRAM

4 Select either Floppy or Hard Disk System as appropriate.

5 Select OPTION 2 — CONFIGURATION

6 Select OPTION 1 — PRIMARY HARDWARE

7 Select OPTION 1 — SCREEN DRIVER

8 Select OPTION 7 — I WANT TO ENTER MY OWN DRIVER FILE NAME

9 Enter: SOLUTION.SC RETURN

10 Press M

11 Select OPTION 2 — CONFIGURATION

12 Select OPTION 2 — SECONDARY HARDWARE

13 Select OPTION 1 — SCREEN COLOR (foreground)

14 Select OPTION 2 — ANOTHER COLOR I CHOOSE

15 Enter either 0 or 1

16 Select OPTION 2 — SCREEN COLOR (background)

17 Select OPTION 2 — ANOTHER OPTION I CHOOSE

18 Enter any number from 0 to 7

19 Press M

20 Select OPTION 7- SAVE ALL NEW SETTINGS

21 Follow SETUP instructions as appropriate

For more information on the operation of SETUP and Framework II, see your Framework Operations Manual.

PC Paintbrush

PC Paintbrush by Z-Soft supports the ATI 640x200 16 color high resolution mode. Drivers for this capability are included with PC Paintbrush and are installed as outlined in the PC Paintbrush Operation's Manual.

WordPerfect

WordPerfect version 4.0 supports the 132 column mode. To install WordPerfect in 132 columns bring up the WordPerfect setup menu and set the screen size. With WordPerfect in the default drive, the setup menu is called up by typing:

WP/S RETURN

When the setup menu appears, choose the option SET SCREEN SIZE. Then enter a screen size of either 132x44 or 132x25.

Remember that before you can run WordPerfect in 132 columns, you must first change the video mode to 132 column mode using the MS program.

IBM StoryTeller

The program ST.EXE has to be patched in order for it to run in the emulation mode with your video card. To do so, the program FIXST.COM is provided. Copy FIXST.COM to the drive and directory that contains ST.EXE (or vice versa) and type the following:

FIXST.COM RETURN

THE MAIN BOARD

The main board is shown in figure 6. To gain access to some parts of the board, you may have to remove the power supply and disk drives.

The important parts of the board are as follows:

A — DIP switch bank (SW1)
B — IPL source (W4)
C — Battery (BAT1)
D — RAM
E — Expansion slots (J1-J5)
F — Parallel port (J7)
G — Serial port (J8)
H — Keyboard port (J6)
I — Fixed disk drive interface (P1)
J — Speaker (SPK1)
K — Floppy disk drive interface (P3)