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Handbook for Your IBM PC
Includes XT Version

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Handbook
For Your
IBM PC

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By
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and
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Preface

This book is written for anyone who owns or uses an IBM Personal Computer (PC). It is also written for those considering the purchase of an IBM PC. It doesn't matter whether you are an experienced computer user or a beginner.

For experienced users, the book will serve as a handy reference to all of the most important information about the machine. It is a concise and refreshing summary of all of the key operational information scattered throughout the various IBM instruction manuals. Further, it is a source book of information about non-IBM accessories.

For beginners, the book is a step-by-step guide to using the computer. But in addition to telling you specifically what to do and how to do it, the book will also tell you how the PC operates. You will learn how and why the computer does various things and, as a result, you will become computer literate.

The main objective of this book is to help you get maximum benefit and value from your PC. It does this in several ways.

First, the book will show you how to define your needs and applications and, then, how to configure and purchase an IBM PC, software, and peripherals to fulfill those needs.

Second, the book will show you how to use the computer. Both hardware and software are covered.

And third, the book will outline the broad range of hardware and software accessories available for the Personal Computer and where to get them.

But the real question is, why is such a book necessary or desirable if every IBM PC comes with some of the best instruction manuals and documentation available in the industry? The answer to that question lies in the fact that while the IBM documentation for the PC is good, it was not designed for learning. Instead, the IBM manuals are primarily reference volumes. While there are scattered exceptions to this, for the most part, the IBM documentation is simply too voluminous and complex for the average and beginning user. Even experienced individuals have a difficult time wading through the mass of information provided. This book is witness to the fact that "less is more."

The IBM documentation appears to assume that the user has some previous experience in the use of computers. It is not written for beginners. There is a lot of basic information missing. In some instances, the manuals raise more questions than they answer. And the manuals often tell you more than you want or need to know about the subject.

The purpose of this book is not to replace the IBM instruction manuals, but to support, enhance, and expand them. It extracts the most useful information, simplifies it, and organizes it for more efficient usage. We have sorted out all of the basic most useful information and presented here the most practical data that you need to operate the system. And the book tells you a lot of interesting things that aren't in the manuals. With this book, you can get your IBM PC system up and running fast and easy with little or no reference to the IBM manuals that come with it.

This book can also replace formal training courses on the IBM PC. As a result, this book is designed to be instructional. It will teach you how to operate the computer plus it will give you a lot of useful information on the make-up of the IBM PC and how it operates. As you learn how to use the system, you will learn how and why it works as it does. The book is a brief course in computer literacy as it applies to the IBM PC. One way to look at this book is as a personal tutor that will spoon feed you with the most pertinent information and provide the "hand-holding" often necessary when learning to use a microcomputer.

Finally, the book attempts to summarize all of the available hardware, software, accessories, services, and support sources available for the IBM PC. In the very brief time since the IBM PC was introduced, a billion-dollar secondary market has been created to develop and supply software, peripherals, accessories, informational sources and services of all descriptions. While it is a nearly impossible task to list all of these, we will summarize all of the most popular here and show you how to learn about the others.

In summary, then, this book will teach you everything you need to know about how to choose and use your IBM PC. It will ensure that you get the greatest value from your investment. And best of all, it will eliminate or, at least, minimize the frustration often associated with purchasing, learning and using a microcomputer.

In our opinion, the IBM PC is just about the best microcomputer available today. There are few things that it won't do. It is a satisfying machine that is readily mastered, but also a challenge to keep up with. The PC is a moving target and the rich spectrum of accessories is broad and growing. You will never be bored and almost always pleased.

We hope you enjoy this book as much as you will the PC.

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Lou Frenzel, Jr.

Lou Frenzel, III

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DEDICATION:
TO
JOAN REE
WITH LOVE

Contents

CHAPTER 12

APPENDIX

Quick-Start: How to Get Your IBM PC Up and Running Fast

The purpose of this chapter is to help you begin using your IBM PC immediately with little or no reference to the IBM manuals. Almost everyone hates to read instruction manuals. When most people purchase a piece of new equipment—whether it is a cordless telephone, a programmable microwave oven, or a VCR—they want to begin using it immediately. It is simply human nature to want this instant gratification. Yet, many products like those just mentioned are high tech appliances that require some knowledge and skill to use. Most manufacturers supply an instruction manual that gives the technical information on operation and usage. However, manuals are typically long and detailed and usually boring. This is particularly true of the IBM documentation. While the IBM PC documentation is thorough and extensive, it is designed primarily for reference. And even though it is the best documentation available in the industry, it still doesn't get the job done to help you use the computer immediately.

In this first chapter, you will be given a concise list of instructions that will allow you to use the computer immediately. Each is a short step-by-step procedure that will permit you to do some useful thing. They are listed in the order of their importance and most likely usage.

USING YOUR IBM PC

There are three basic ways that you will use your IBM PC. Regardless of what operation you do, it will fall into one of these three categories.

Most Common Ways of Using Your PC

Utility Operations—Utilities are general housekeeping functions that are usually necessary in operating a computer. These include turning the

power off and on, resetting the system, loading and storing programs, copying information from one source to another, and a variety of other similar operations. Utilities are usually functions that support some of the other ways of using your computer.

Running Applications Programs—An application program is a piece of software that performs some useful function. When you purchase your IBM PC, you will no doubt have in mind some specific thing to do, such as word processing or financial analysis. The software package you buy will cause the IBM hardware to do what you want it to do. This applications program supplied on diskette is usually used in conjunction with the IBM PC Disk Operating System (DOS) software. In any case, you will put the diskette into your computer, call up the applications software, and use it. The application software makes your IBM PC into a dedicated piece of hardware for performing that specific function. The result is somewhat analogous to driving a car. You don't need to know how the internal combustion engine operates in order for you to drive a car for the purpose of transporting yourself and others from one place to another. In the same way, you don't have to know how the IBM PC works, how to write programs, or even need to understand how the applications software package was put together. All you have to do is plug it in and use it. For most IBM PC users, the greatest percentage of computer operations with the IBM PC will be this way.

Developing Programs—Developing programs refers to the process of using the operating system and one or more computer languages to write your own programs. Many of you will want to create new software for your IBM PC. Most likely you will want to create a special piece of applications software. There are many cases where specific software packages are simply not available to perform the specialized functions you need. As a result, you will need to write the program. To do this, you usually define your problem, design the program, and then code it in one of the many available languages. The main language of the IBM PC, as well as most other personal and microcomputers, is BASIC. BASIC is also the resident language of the IBM PC. It is extremely easy to use and most of your programming will likely be done in BASIC. Many other languages are available, however, including the 8088 assembly language, the native language of your computer. Other higher level languages include Pascal, FORTRAN, COBOL, C, FORTH, ADA, and more.

Fourteen Useful Things You Should Be Able to Do With Your IBM PC

Now let's get to some specifics. In the remainder of this chapter, we list fourteen important operations you should be able to perform on your IBM

PC. Each procedure is a simple step-by-step format with an explanation and, in some cases, an example. These are listed generally in the order most people will use them. If you haven't started using your IBM PC yet, the procedures performed in this sequence can be your first introduction to the IBM PC. In fact, the remainder of this chapter is a concise self-instructional course in IBM PC operation. If you want, sit down in front of your computer and simply work through each one of them. It's a good way to introduce yourself to the operation of the computer and at the same time, verify that all of the main hardware and software components of your system are functioning properly. Just follow the directions at each step, working the examples when given. If you spot a word that is unfamiliar to you, refer to the glossary at the end of this chapter.

Assumptions

To perform and learn the following functions we have made these assumptions:

1. You have a basic IBM PC system consisting of one or more disk drives, a video monitor, keyboard, printer, and the IBM PC DOS operating system software. See Fig. 1-1.

2. Your IBM PC system has already been physically interconnected, that is, the keyboard, monitor, and printer have been cabled to the computer control unit and all of the various parts of the system have been plugged into appropriate ac outlets.

3. You have on hand a box of unformatted blank diskettes. You can buy these at any computer store. Be sure to get the kind made for double-density recording. Two types are available: those for single-side recording and those for double-side recording. Buy the kind that fit the disk drives you have (160 KB drives—single side, 320 KB drives—double side).

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1. POWERING UP

Applying power to your IBM PC is relatively easy as there is only a single off-on switch. It is a large, red-handled switch located on the right-hand side of the main system unit near the rear. To turn the computer on, all you have to do is flip the switch to its up position.
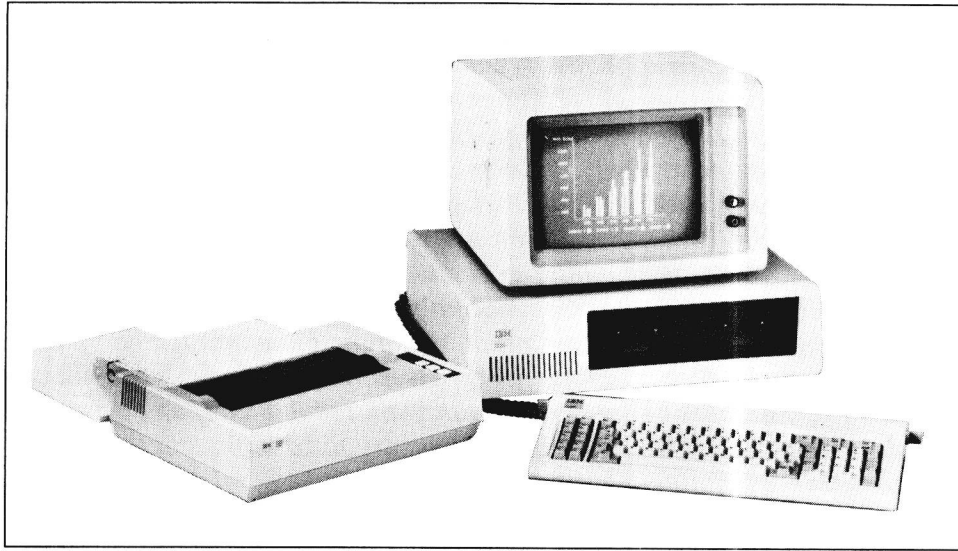
Fig. 1-1. Main components of an IBM Personal Computer system.

There are two basic ways to apply power:
—With no disk inserted in the drive
—With a program diskette in the left-hand (A) drive
You will probably use both methods at one time or another, depending upon what you plan to do. Either method will work satisfactorily, however. Powering up after you insert the program diskette that you are going to use is usually faster and easier, since it saves the time you would normally spend entering the desired keystrokes to access your program. When you power up with a disk in the system, the IBM PC is ready to use immediately. Some video monitors may have to be turned on separately.
—Power On – No Diskette
—With doors to disk drives either open or closed
When the power switch is first turned on, you will first begin to hear the internal cooling fans coming up to speed. Within 10 to 12 seconds, (up to 2 minutes, depending upon how much RAM you have) you will see the red indicator light on the left-hand side (A) disk drive come on and hear the drive beginning to make noise. You will also hear a beep from the internal speaker. The light on the drive will stay on for a few seconds and the drive will continue to make noises. Within 20 seconds, the light and the noises should stop and you will see the following on the monitor crt screen.

```
The IBM Personal Computer BASIC
Conversion C1.00 Copyright IBM Corp. 1981
61404 Bytes Free
0k
```

At the bottom of the screen you will see:

```
1. LIST  2. RUN  3. LOAD''  4. SAVE''  5. CONT
6. ,''LPT1  7. TRON  8. TROFF  9. KEY 0
0. SCREEN
```

At this time, you are ready to load, execute, or write BASIC language programs.

—Power On – With Diskette

First, insert the desired program diskette (usually DOS, initially) into the left-hand (A) disk drive. To do this, open the door and slip the diskette in with the label side up. Push the diskette all the way in and then close the door.

Turn on the power switch. You will hear the internal cooling fans coming up to speed. Within 10 to 12 seconds, the red light on the A drive will come on and you will hear a beep. The drive will begin making sounds as it seeks out the information on the diskette and loads it into the computer memory. Within 20 seconds, you will see a message on the screen. For example, if you load the disk operating system (DOS), a message such as that shown here will initially appear:

```
Current Date Is -TUE 1-01-1980
Enter New Date:
```

2.   ENTERING DATA

To use the IBM PC, you will be typing on the keyboard to give it commands that tell it what to do. You will also use the keyboard just as you would any typewriter keyboard to enter data. Each of the key functions are clearly described in the IBM documentation (Guide to Operations, Section 3. Operations, pages 3-1 to 3-10.) and, therefore, they will not be repeated here. There are several key points, however, that you should remember when using the keyboard. These are:

1. Information must be entered exactly as indicated, otherwise the computer will not function properly. This is particularly true when giving the computer various commands. There should be no misspellings and all numbers should be accurately entered. Just as important are the spaces and punctuation marks which must be precise.

2. The IBM PC is designed so that you may use either upper or lower-case letters. When a command or other information is written in upper-case letters, you may go ahead and use the shift key on the keyboard along with the regular letter key to enter the information in all capital letters. However, you may also use lower-case letters

and save yourself the time and inconvenience of having to use the shift key. You may also use the Caps Lock key to put the keyboard into the upper-case mode when entering a considerable amount of information in capital letters. Just be sure to turn this feature off by depressing the Caps Lock key again when you are finished.

3. To enter information into the computer after you have typed it, you must press the "Enter" key. This is the large key with the left pointing arrow that is positioned to the left of the 4 and 7 keys on the keypad at the right side of the keyboard. When you depress the "Enter" key after you have typed in some information, the computer will accept the information. The cursor on the screen then moves all the way to the far left and skips to the next line. This prepares you to enter new information on the next line.

4. Information will be entered on the screen beginning at the point of the flashing cursor. The cursor is the blinking dash that appears at the left-hand side of the screen after you have applied power.

5. If you make an error while typing in commands or data, you can correct them by using the backspace key. This is the key with the left-pointing arrow directly above the Enter key. Pressing the backspace key erases the previously entered character and moves the cursor back one position. You can then enter the correct character. You can backspace as many times as you need to.

You can also correct errors by using the cursor control keys which are on Keys 2, 4, 8, and 6 on the numerical keypad to the right of the Enter key. Pressing 4 will cause a backspace and erase the previously entered character. You can then type in a new character.

3. SYSTEM RESET

System reset is a condition that stops the computer from whatever it may be doing and clears it and prepares it to perform some new function. The system reset function can be performed regardless of what you are doing or what software you are using. You can perform a system reset when you are using DOS, BASIC, or in an application program. It will terminate whatever you are doing and start you all over again.

Procedure for System Reset

Hold down the control (Ctrl) and alternate (Alt) keys and then depress the delete (Del) key. Then release all three keys.

When you perform a system reset, it immediately clears the crt screen and the cursor moves to its home position in the upper left-hand corner of the screen. You will also hear a beep from the speaker and the red indicator light on the left disk drive will illuminate.