AT&T

User's Guide

AT&T Personal
Computer 6300

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Introduction

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Welcome

Your AT&T Personal Computer 6300 enables you to enter a new world of increased productivity, a world where you have the power to handle large, complicated tasks easily and quickly.

Both your AT&T Personal Computer 6300 and the User's Guide are designed to be easy-to-use. Together they provide you with the tools you want and need to get up and running fast.

After using this guide you may choose to either explore MS$_{\text{TM}}$-DOS further in the MS-DOS Guide or begin to run a software application program.

MS$_{\text{TM}}$-DOS is a registered trademark of Microsoft$_{®}$

Organization of the User's Guide

Your User's Guide is organized into two parts. The first part, called Getting Started, continues the installation of your computer. It starts where the Installation Pamphlet left off and provides hands-on instructions and examples showing you exactly what to do. It gets you started quickly with very little extraneous conceptual information.

This first part is separated into two independent sections: one for Dual Floppy users, the other for Hard Disk users. You will only use the section appropriate for your computer.

To get a better grasp of computer concepts, turn to the second part of the manual. It's designed to answer many of the questions that every user asks. It explains how to adjust your computer to suit your individual needs and how to handle and care for your diskettes. It also introduces more advanced concepts on disk file storage.

What You Will See and What You Should Do

In the examples in this book, the indented text represents what you see on your display screen. The boldface text is what you should type on your keyboard. For example, if you see:

```
Type:
A>dir
```

only type the boldfaced **dir**. The A> prompt is shown to help you follow what is happening on your display screen.

Which computer do you have?

Do you have the Dual Floppy version which looks like this?
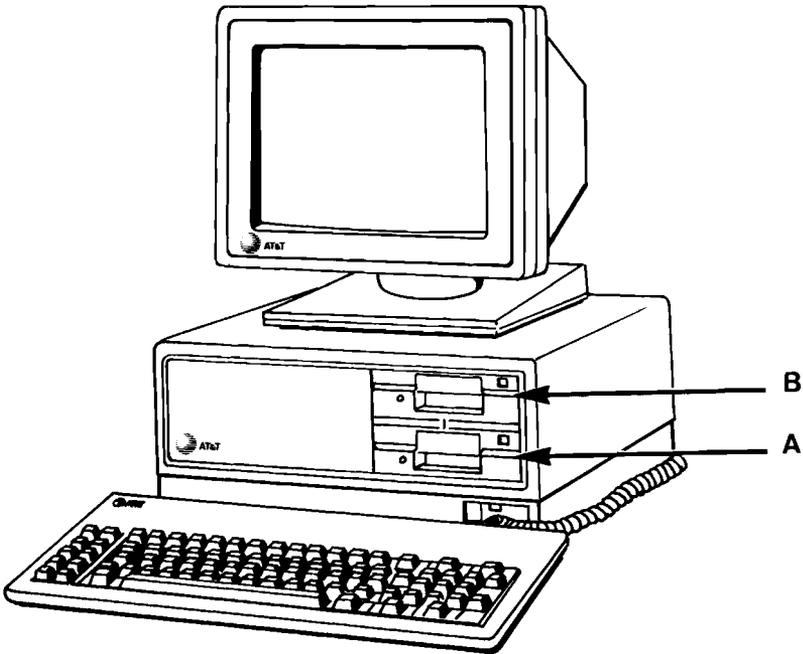
Then turn to the appropriate tab to continue the installation of your computer.

Do you have the Hard Disk version which looks like
this?
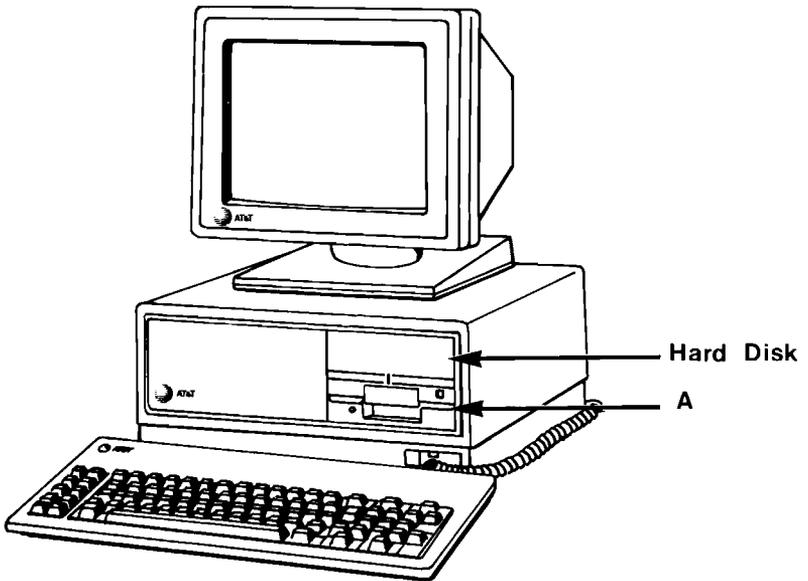
Then turn to the appropriate tab to continue the
installation of your computer.

Getting Started
Dual Floppy
Users

2

- What you will need

- Inserting a diskette

- Seeing what is on your diskette

- Correcting typing mistakes

- Preparing a new diskette for use

- Copying files

- Selecting a different disk drive

- Starting the computer using the copied diskette

- The benefit of copying your diskettes

- Points to remember

What you will need

- Your computer completely set up as directed in the Installation Pamphlet

- The MS™-DOS/GW BASIC System Diskette which is enclosed in the MS™-DOS User's Guide

- A new blank diskette

Inserting a diskette

1 Take out the diskette labelled "MS-DOS/GW BASIC
System Diskette" from its pocket in the back of the
MS-DOS User's Guide. Note how the diskette is
stored in its envelope so that you can replace it the
same way later.
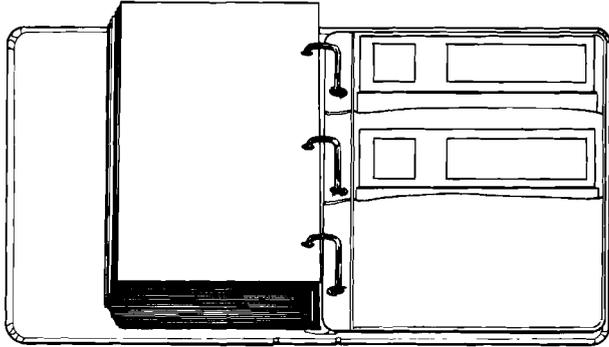
From now on the MS-DOS/GW BASIC System Disk-
ette will be referred to as the DOS diskette. DOS
(Disk Operating System) is the program that runs
your computer. It is read from the DOS diskette
when the computer is turned on. It also contains
commands that allow you to perform many tasks
with your computer.

2 Remove the DOS diskette from its protective jacket. This jacket is designed to protect the diskette from dust and dirt.
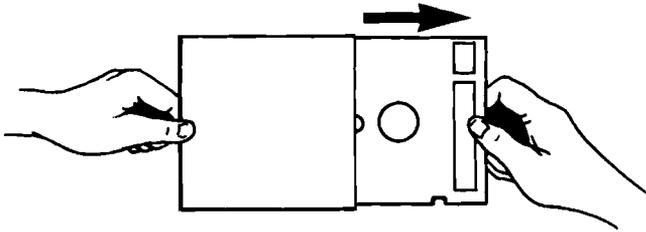
Letters (e.g., A, B, C) are used to identify the diskette drives on your computer. The lower drive is drive A; the upper one is drive B.

3 Open the diskette drive door. If the drive door is locked, a red square appears to the right of the lock switch. You unlock the drive door by sliding the lock switch to the right.

NOTE: Your computer may be equipped with diskette drives that do not have locking doors. If your drives don't have locks, continue to step 4.
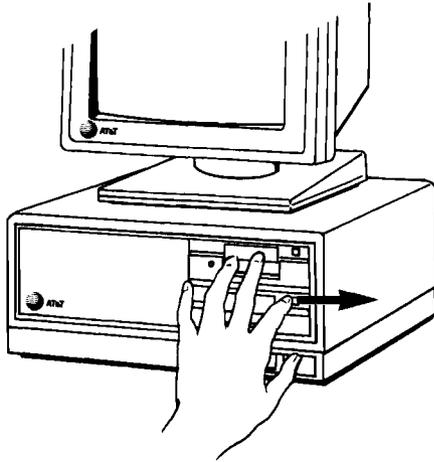
4   Hold the diskette by the side that has the label. Gen-
    tly insert the diskette with its label facing up into
    disk drive A. Drive A is the lower one.
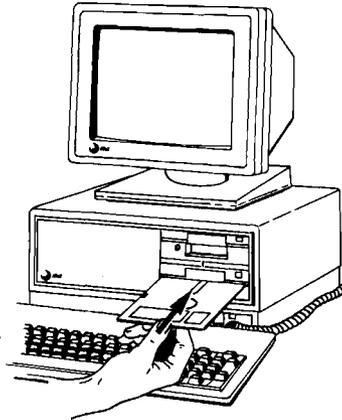
When the diskette is all the way in, you will hear a
click.

5   Close the disk drive door.

6   If you need to, turn on your computer.
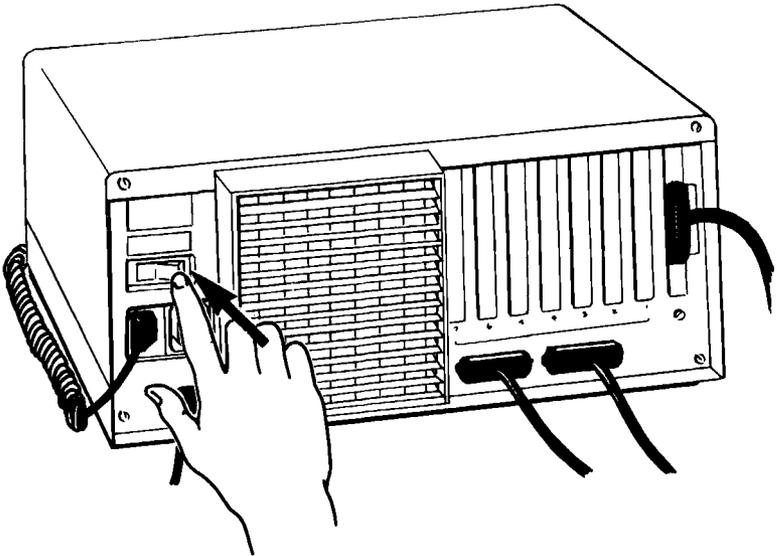
For about five seconds after your computer is turned on, it runs a self check to make sure that it is working properly.

NOTE: It is extremely important that you never remove a diskette while it is being read from or written to by the computer. Doing so can destroy the information on the diskette. You can tell if the computer is accessing a diskette by looking at the indicator light on the drive that the diskette is in.

IF THE DRIVE INDICATOR LIGHT IS ON, DON'T REMOVE THE DISKETTE

When it is done, the results on your screen should look like this:

```
Resident Diagnostics
Rev 1.0 May 1984

CPU (i8086)          Pass
ROM Module           Pass
DMA Timer            Pass
DMA Control          Pass
Interrupts           Pass
128 Kb RAM           Pass
RT Clock             Pass
Fixed Disk           Not Present
Floppy (A:)          Ready

Primary Boot-strap...

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Copyright (c) 1984 by AT&T, all rights reserved

Compatibility Software Copyright (c) 1984 by
Phoenix Software Associates, Ltd.

Microsoft MS-DOS version 2.11
Copyright 1981, 82, 83 Microsoft Corp.

Command v. 2.11

A>
A>
```

If you don't get this screen or one very similar to it, contact your AT&T Personal Computer Dealer or your AT&T Service Center.

The A> on your display screen is a prompt telling you that the computer is ready, and waiting for you to give it a command.

Seeing what is on your diskette

Your DOS diskette contains information. This information is stored in files on the diskette.

In the following example, only type **dir**. The A> prompt is provided to illustrate what appears on your screen.

1 To display on your screen a list of the files on your DOS diskette type:

   A>**dir**

   Dir is short for directory. It displays a list or directory of all the files on a diskette.

2 Since the computer can't tell by itself when you have finished typing a command, it waits until you press the RETURN key before reading what you have typed. Therefore, always press RETURN to enter what you have typed into the computer.

   Press the **RETURN** key now.
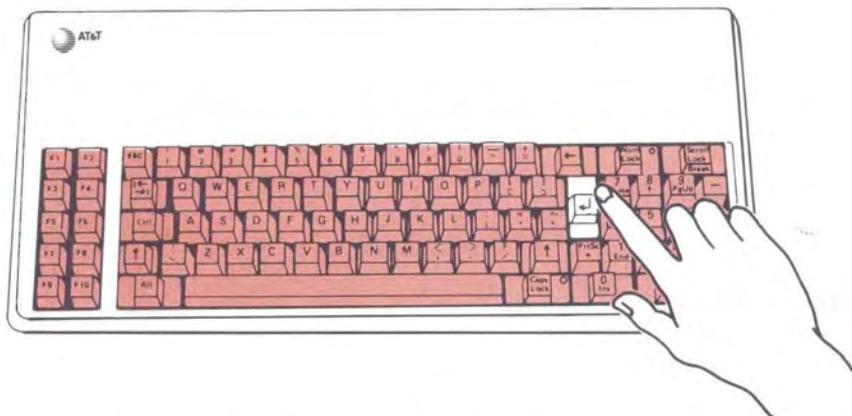
The RETURN key is the one that looks like this.

Your screen should look similar to this:

```
FC          EXE      2585      4-12-84      9:00a
FDISK       COM      4640      4-12-84      9:00a
FIND        EXE      6331      4-12-84      9:00a
FORMAT      COM      5776      4-12-84      9:00a
  .
  .
  .

RESTORE     COM      4043      4-12-84      9:00a
      33 File(s)               150528 bytes free


A>
```

Correcting typing mistakes

At some time you will probably make a typing mistake. If you do, don't worry. It's easy to correct. Simply press the **BACKSPACE** key to erase any mistyped characters.Then re-type them correctly. If you do not notice your mistake and press **RETURN**, MS-DOS prompts you for another command.
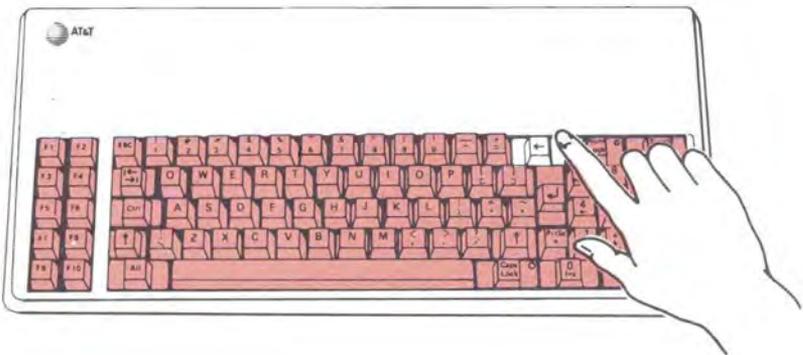
1 Try it now by intentionally mistyping DIR, first type:

   A>**dri**

   If you press the RETURN key before correcting dri, the message shown below is displayed:

   Bad command or file name

2 Press the **BACKSPACE** key twice to erase the i and the r.

3 Re-type: **ir**

4 Press the **RETURN** key.

Preparing a new diskette for use

Before you can use a new diskette, it must first be prepared to accept data. This is called formatting the diskette. Formatting a diskette is like putting a file folder frame and empty file folders into a new filing cabinet because it provides a framework for your documents to be stored on the diskette.

As a test, see what happens when you try to use an unformatted diskette.

1 Insert a new blank disk into the upper disk drive on your computer. This is called drive B.

2 Close the drive door.

3 Type the following command, making sure to include the space between the r and b:

A>**dir b:**

The b: tells the computer to use the diskette in drive B. You type a colon (:) by holding down the SHIFT key and simultaneously pressing the colon key.
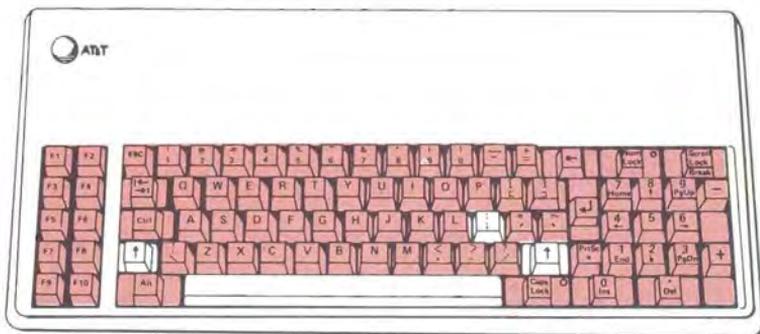
4 Press the **RETURN** key.

Since the new diskette is not formatted, your computer cannot read it and displays the message:

    Sector not found error reading drive B:
    Abort, Retry, Ignore?

5 To return to the A> prompt, type: **a**

The following steps show you how to prepare a new diskette for use.

1 Format the new disk in drive B by typing:

    A>**format/s b:**

2 Press the **RETURN** key.

The following message is displayed:

    Insert new diskette for drive B:
    and strike any key when ready

3 Since the new diskette is already in drive B, press the **RETURN** key or any other key.

As the diskette is being formatted, your screen displays the message:

    Formatting...

When formatting is complete, your screen will display a message similar to this:

```
Formatting... Format Complete
System transferred

    362496 bytes total disk space
     43008 bytes used by system
    319488 bytes available on disk

Format another (Y/N)?
```

Don't be concerned if the numbers on your screen don't exactly match those shown here.

4   Type: **n**

You have successfully formatted the diskette and it is ready for use.

Copying files

As you use your computer for various applications such as word processing, financial modeling, storing information, etc. you will need to copy files from one diskette to another.

The following example shows you how to do this.

1 Copy the files from the DOS diskette to the diskette in drive B by typing:

A>**copy a:*.* b:**

The *.* copies all of the files from your SYSTEM DISKETTE to the diskette in drive B without you having to separately type in each file's name.

2 Press the **RETURN** key.

As each file is being copied from the diskette in Drive A to the diskette in Drive B, the name of that file is displayed on your screen, similar to the following:

```
A>copy a:*.* b:
 A:COMMAND.COM
 A:ANSI.SYS
 A:ASSIGN.COM
 A:AUTOEXEC.BAT
 A:BASIC.COM
 .
 .
 .
 .
 A:RESTORE.COM
          33 File(s) copied

A>
```

When the lights on your disk drives go out and the A> prompt is displayed, the copy is completed.

3 To verify that the files were copied, check the directory of the diskette in drive B. Type:

A>**dir b:**

4 Press the **RETURN** key.

Displayed are the names of the files that you just copied from the DOS diskette in drive A. The time and date to the right of each file name are the date and time that the file was created.

5 Now make a copy of your MS-DOS Supplemental Programs Diskette using the same procedure.

Selecting a different disk drive

Have you noticed that each time the computer completes a task (such as DIR or COPY) your computer displays the A> prompt again?

This is because your computer always returns to the disk drive it began on after it completes its task.

The letter beginning the screen prompt indicates which drive is the current or default drive. For example, A> means that the default or current drive is A. B> indicates that the default drive is drive B.

Remember, before you turned on the computer, you put the DOS diskette in drive A. This is because when your computer is turned on, it makes drive A the default drive.

However, you can change the default drive. To do so:

1 Type:

    A>**b:**

Don't forget the colon.

2 Press the **RETURN** key.

Your screen looks like this:

    A>b:
    B>

You are now using drive B.

Starting the computer
using the copied diskette

1 Remove the DOS diskette from drive A.

2 Insert the DOS diskette into its envelope.

3 Remove the copy that you made of your DOS diskette from drive B.

4 Turn your computer off.

5 Insert the copy of your DOS diskette into drive A and close the disk drive door.

6 Wait 5 seconds, then turn the computer back on again.

   When the A> prompt appears, notice that your screen looks just the same as it did when you started your computer with the original DOS diskette in drive A.

   It makes no difference whether you start your computer using the original diskette or the copy.

The benefit of copying your diskettes

Starting up the computer from the copy of the DOS diskette illustrates an important point. Since diskettes can wear out or get damaged:

ALWAYS USE WORKING COPIES OF YOUR PROGRAM DISKETTES.

From now on, use only copies of your DOS diskette like the one that you just made. Put your original DOS diskette away in a safe place and only use it to make new "working" copies when you need them.

You should make working copies of your other diskettes as well and then only use the copies. Doing this insures that you will always have a good original diskette.

Your computer is now ready to use.

Points to remember

1. Always hold your diskette by the side with label.

2. Always insert your diskettes with the label up.

3. Drive A is the lower disk drive.

4. Drive B is the upper disk drive.

5. Always press the **RETURN** key after typing in a command such as **DIR** or **COPY** to execute that command.

6. Before a new diskette can be used it must be formatted.

7. If you want to copy all of the files from one diskette to another, use the *.* option.

To get some more hands-on practice and to learn more about your computer and what it can do, use the Tutorial Diskette that comes with this guide.

Getting Started
Hard Disk
Users

3

- What you will need

- Inserting a diskette

- Seeing what is on your diskette

- Correcting typing mistakes

- Preparing your hard disk for use

- Starting up your computer from the hard disk

- Selecting a different disk drive

- Copying files

- The benefit of copying your diskettes

- Points to remember

What you will need

- Your computer completely set up as directed in the Installation Pamphlet

- The MS™-DOS/GW BASIC System Diskette which is enclosed in the MS™-DOS User's Guide

Inserting a diskette

1 Take out the diskette labelled "MS-DOS/GW BASIC
  System Diskette" from its pocket in the back of the
  MS-DOS User's Guide. Note how it is stored in its
  jacket so that you can replace it the same way later.
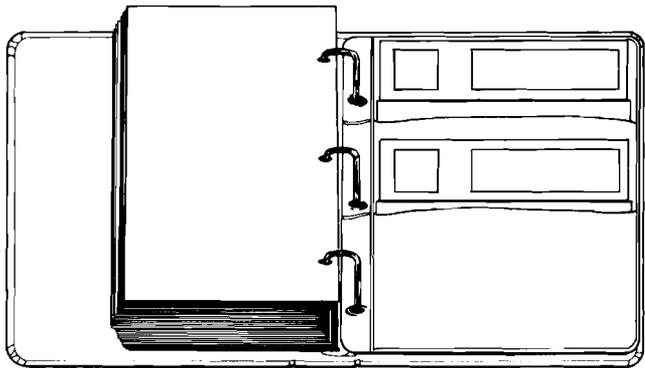
From now on the MS-DOS/GW BASIC System Disk-
ette will be referred to as the DOS diskette. DOS
(Disk Operating System) is the program that runs
your computer. It is read from the DOS diskette
when the computer is turned on. It also contains
commands that allow you to perform many tasks
with your computer.

2   Remove the DOS diskette from its protective jacket.
    The jacket is designed to protect the diskette from
    dust and dirt.
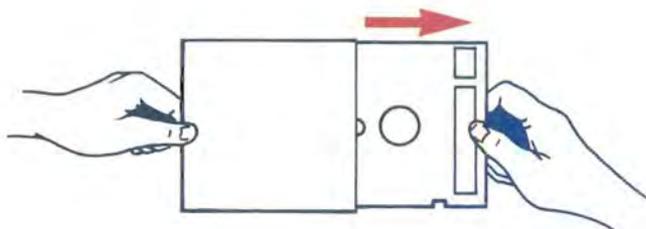
Letters (e.g., A, B, C) are used to identify the disk
drives on your computer. The diskette drive on your
computer is disk drive A. The hard disk drive is
drive C.

3   Open the diskette drive door. If the drive door is
    locked, a red square appears to the right of the lock.
    You unlock the drive door by sliding the lock switch
    to the right. Your computer may not be equipped
    with a locking door. If so, just continue to step 4.
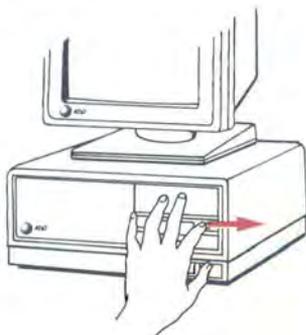
4   Holding the diskette by the side that has the label,
    gently insert it with its label facing up into your
    computer's diskette drive.

When the diskette is all the way in, you will hear a
click.

5   Close the disk drive door.
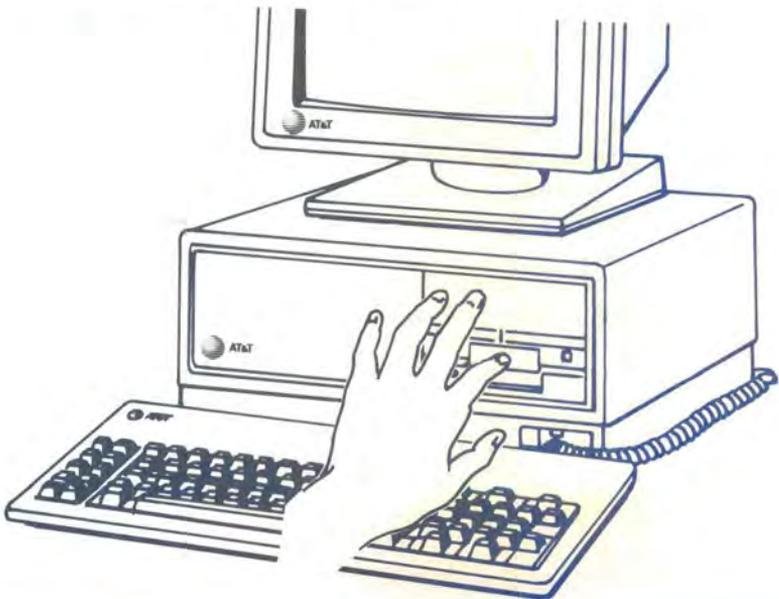
6 If you need to, turn on your computer.
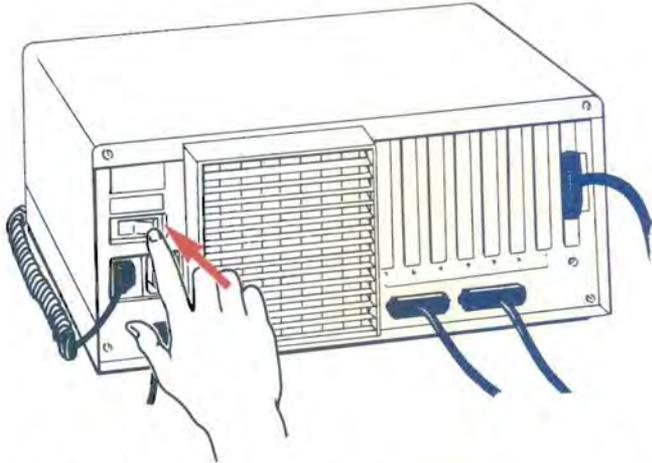
For about 5 seconds after you turn your computer on, it runs a self check to make sure that it is working properly.

NOTE: It is extremely important that you never remove a diskette while it is being read from or written to by the computer. Doing so can destroy the information on the diskette. You can tell if the computer is accessing a diskette by looking at the indicator light on the drive that the diskette is in.

IF THE DRIVE INDICATOR LIGHT IS ON, DON'T REMOVE THE DISKETTE

When the self check is done, the results on your screen should look similar to this:

```
Resident Diagnostics
Rev 1.0 May 1984

CPU (i8086)      Pass
ROM Module       Pass
DMA Timer        Pass
DMA Control      Pass
Interrupts       Pass
256Kb RAM        Pass
RT Clock         Pass
Fixed Disk       1 Ready
Floppy (A:)      Ready

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Copyright (c) 1984 by AT&T, all rights reserved

Compatibility Software Copyright (c) 1984 by
Phoenix Software Associates, Ltd.

Microsoft MS-DOS Version 2.11
Copyright 1981, 82, 83 Microsoft Corp.

Command v. 2.11

A>
A>
```

If you don't see a screen like this or very similar to it, contact your AT&T Personal Computer Dealer or your AT&T Service Center.

The A> on your display screen is a prompt telling you that the computer is ready, and waiting for you to give it a command.

Seeing what is on your diskette

Your DOS diskette contains information. This information is stored on the diskette in files.

In the following example, only type **dir**. The A> prompt is provided to illustrate what appears on your screen.

1   To display on your screen a list of the files on your DOS diskette, type:

    A>**dir**

Dir is short for directory. It displays a list or directory of all the files on a diskette.

Since the computer can't tell by itself when you have finished typing a command, it waits until you press the RETURN key before reading what you have typed. Therefore, always press RETURN to enter what you have typed into the computer.

2   Press the **RETURN** key now.
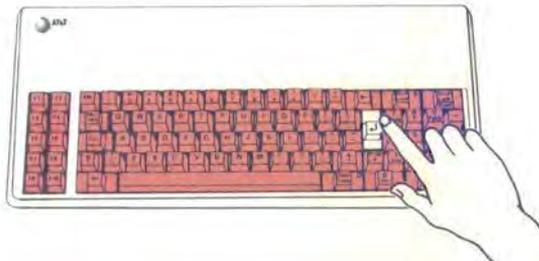
The RETURN key is the one that looks like this.

Your screen should look similar to this:

```
FC          EXE      2585    4-12-84    9:00a
FDISK       COM      4640    4-12-84    9:00a
FIND        EXE      6331    4-12-84    9:00a
FORMAT      COM      5776    4-12-84    9:00a
    .
    .
    .
    .
RESTORE     COM      4043    4-12-84    9:00a

          33 File(s)            150528 bytes free

A>
```

Correcting typing mistakes

Some time you will probably make a typing mistake. If you do, don't worry, it is easy to correct. Simply press the **BACKSPACE** key to erase the mistake. Then re-type it correctly. If you do not notice your mistake and press **RETURN**, MS-DOS prompts you for another command.
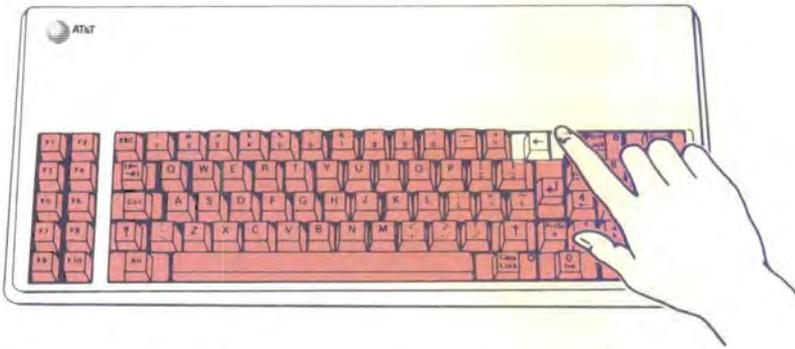
1 Try it now by intentionally mistyping DIR. Type:

   A>**dri**

   If you press the RETURN key before correcting dri, the following message is displayed:

   Bad command or file name

2 Press the **BACKSPACE** key twice to erase the i and the r.

3 Re-type: **ir**

4 Press the **RETURN** key.

Preparing your hard disk for use

Before you can use your hard disk, it must first be prepared to accept data. This is called formatting the disk. Formatting the disk is like putting a file folder frame and empty file folders into a new filing cabinet because it provides a framework for your documents to be stored on the hard disk.

This initial one time preparation is done in two steps and takes about 5 minutes. Step 1 is to partition the hard disk. Step 2 is to format it.

As a test, see what happens when you try to list the directory of your unformatted hard disk.

1 Type:

   A>**dir c:**

The c: identifies the hard disk to the computer. It tells the computer to display the hard disk's directory. To type a colon, hold down the SHIFT key and simultaneously press the colon.
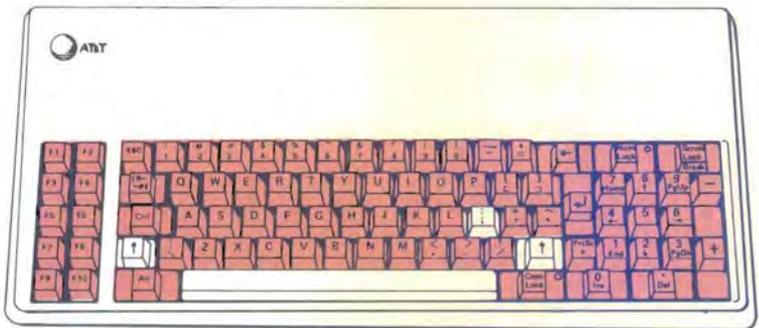
2 Press the **RETURN** key.

Since the hard disk is not formatted, your computer
cannot read it and displays the message:

Disk error reading drive C
Abort, Retry, Ignore?

3 To return to the A> prompt, type: **a**

The following steps show you how to prepare your
hard disk for use.

Partitioning Your Hard Disk

Partitioning the hard disk is like installing the frame
that holds file folders in the filing cabinet's drawers.

1 To partition the hard disk, type:

A>**fdisk**

2 Press the **RETURN** key.

The screen below is displayed.

```
Fixed Disk Setup Program

FDISK Options

Choose one of the following:

   1 Create MS-DOS Partition
   2 Change Active Partition
   3 Delete MS-DOS Partition
   4 Display Partition Information

Enter Choice ......................................................................... [ 1 ]

Press Esc to return to DOS...................................................... (  )
```

3 Option 1 has been pre-selected. To create the parti-
tion, press the **RETURN** key.

If you wanted to select a different option, you would
first type its number and then press RETURN.

In response to the prompt:

Do you want to use the entire fixed disk
for MS-DOS (Y/N)... [Y]

4 Select Yes by pressing the **RETURN** key.

The screen displays the message:

Total fixed disk space is 305 cyls.
The current active partition is 1

5 Return to the A> prompt by pressing the **ESC** key
twice.

Your hard disk is partitioned. Now, to the second
part of this one time preparation.

Formatting the Hard Disk

Formatting the hard disk is like hanging empty file
folders in the folder frame.

For convenience, you can set up your hard disk so
that when you turn on your computer, it starts up
using the hard disk instead of the DOS diskette.

1 To do this type:

A>**format/s c:**

2 Press the **RETURN** key.

The following message is displayed:

Press any key to begin formatting C:

3 Press the **RETURN** key or any other key.

Your screen displays the message:

Formatting...

After about 3 minutes, your screen looks like this:

```
A>format/s c:
Press any key to begin formatting C:

 Formatting...Format Complete
 System transferred

  10592256 bytes total disk space
    42496 bytes used by system
  10549760 bytes available on disk

A>
```

Don't be concerned if the numbers on your screen don't exactly match the numbers shown above. They will vary depending on the specific disk installed in your computer.

You have successfully completed the preparation process. Your hard disk is ready for use.

Starting up your computer from the hard disk

Remember, before you turned on your computer, you put the DOS diskette in drive A. This is because when your computer is turned on, it first looks for the programs it needs to run on drive A.

Since you formatted your hard disk using the /s option, you can start up your computer directly from the hard disk.

1 Try it now. Leave the diskette drive door OPEN.

2 Turn the computer off and then back on.

Notice that your screen looks much the same as it did when you first turned on your computer with the DOS diskette in drive A. Except that the prompt is now C> instead of A>.

Now that your hard disk is set up, the computer will switch to drive C if it doesn't find the MS-DOS programs it needs in drive A. When you start up the computer using the hard disk, the C drive becomes the default drive.

Selecting a different disk drive

The letter beginning the screen prompt indicates
which drive is the current drive. For example, A>
means that the current drive is A. C> indicates that
the current drive is drive C.

You can change from one drive to another whenever
you want. To do so:

1 Type:

   C>**a:**

   Don't forget the colon.

2 Press the **RETURN** key.

   Your screen looks like this:

   C>a:
   A>

   You are now on drive A.

   Unless you change drives, your computer always re-
   turns to the drive it was using after it completes a
   task.

Copying files

As you use your computer for various applications such as word processing, financial modeling, storing information, etc. you will need to copy files from one diskette to another.

For convenience and safety, you should copy all of the files from your DOS diskette to the hard disk. The following example shows you how to do this.

1 Close the drive door.

2 Copy the files from the DOS diskette to the hard disk by typing:

    A>**copy a:*.* c:**

The *.* copies all of the files from your SYSTEM DISKETTE to the hard disk without you having to separately type in each file's name.

3 Press the **RETURN** key.

As each file is being copied from the diskette in Drive A to the hard disk, the name of that file is displayed on your screen, similar to the following:

```
A>copy a:*.* c:

A:COMMAND.COM
A:ANSI.SYS
A:ASSIGN.COM
etc...
A:RESTORE.COM
           33 File(s) copied
A>
```

4   When the light on drive A goes out and the A>
prompt is displayed, remove the DOS diskette from
drive A.

5   Insert the DOS diskette into its envelope.

Since there are several useful programs on your
MS-DOS Supplemental Programs Diskette, you
should also copy the files from this diskette over to
the hard disk.

6   Insert the Supplemental Programs Diskette into
drive A.

Pressing the F3 key re-displays the last command
that you typed into your computer.

7   Press the **F3** key now.

The copy command appears on the screen just as you
typed it last time.

     A>copy a:*.* c:

8 Copy the diskette by pressing the **RETURN** key.

The files on the Supplemental Programs Diskette are copied onto the hard disk.

9 To verify that the files were copied, check the directory of drive C against that of drive A. Type:

A>**dir**

10 Press the **RETURN** key.

11 Type:

A>**C:**

12 Press the **RETURN** key.

This makes drive C the current drive.

13 Type:

C>**dir**

14 Press the **RETURN** key.

Notice that you didn't have to type the C: after DIR this time because C was the current drive.

The directory of drive C lists the files copied from both DOS diskettes.

The benefit of copying your diskettes

Since diskettes can wear out or get damaged:

**ALWAYS USE WORKING COPIES OF YOUR
PROGRAM DISKETTES.**

From now on, use only copies of your programs. Put
the originals away in a safe place and only use them
to make new "working" copies when you need them.

Using only working copies of your program diskettes
insures that you will always have good original pro-
gram diskettes.

It is best to put your original MS-DOS SYSTEM
DISKETTE away in a safe place and use the hard
disk to start your computer each time.

Your computer is NOW ready to use.

You can copy many of your application programs
onto your hard disk just as you did your MS-DOS
SYSTEM DISKETTE and then run them all from the
hard disk. This is not only safer than using your
original diskettes, but your hard disk can read and
write information faster than a floppy diskette.

Points to remember

1. Always hold your diskettes by the side with the label.

2. Always insert your diskettes with the label up.

3. Always press the RETURN key after typing in a command such as DIR or COPY to execute the command.

4. When specifying a drive letter, don't forget to include the colon. (e.g., A: or C:)

5. When starting the computer from the hard drive, leave the diskette drive door open.

6. If you want to copy all of the files on a diskette, use the *.* option.

To get some more hands on practice and to learn more about your computer and what it can do, use the Tutorial Diskette that comes with this guide.

What Every User Should Know

4

- The parts of your computer
- All about diskettes
- Diskette drives
- All about files
- File maintenance
- Points to remember

The parts of your computer

The Main Unit

The main unit of your computer is the large box that
contains the two diskette drives or a single diskette
drive and a hard disk. Besides the drives, it contains
the computer's memory and the electronic board
that does the processing. This is the heart of your
computer.

The diskette drives have a drive door, drive door
lock, and an indicator light which lights up when the
drive is in use.
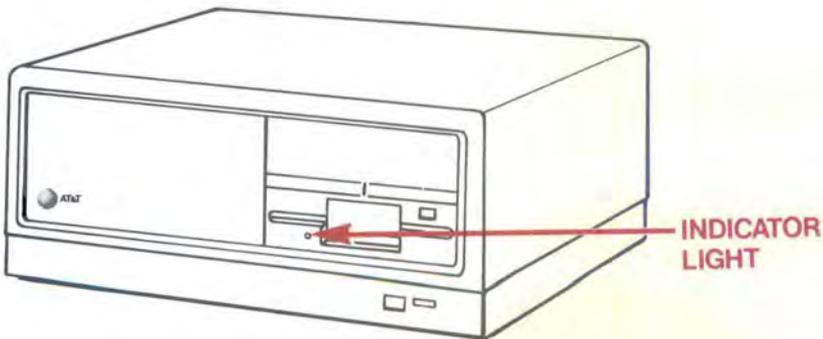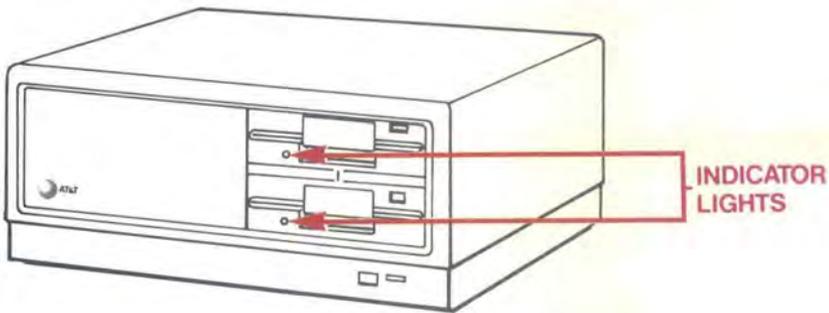
On the back of the Main Unit are several connectors often called ports (e.g., parallel port or serial port). These enable you to connect the computer to many other devices such as printers, communications equipment, or other computers.
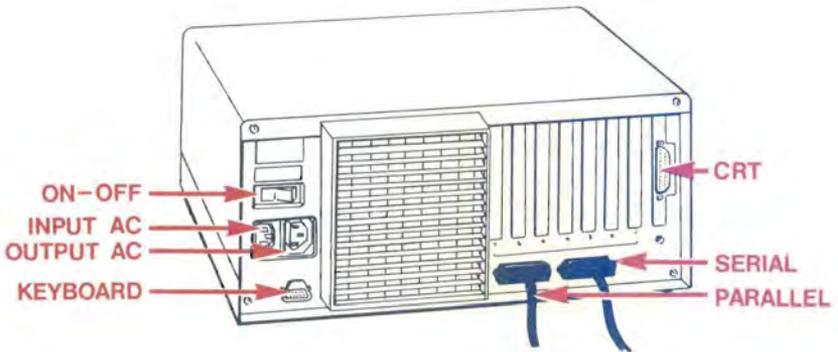
The Display Screen

Your computer comes with a high resolution anti-glare display screen capable of displaying text or graphics. The display can be adjusted to suit your individual preference for brightness, contrast, and viewing position.

Adjusting the Display Screen

Your display screen is fully adjustable for viewing comfort. It can be tilted up or down and swivelled left or right to change the viewing angle. The tilt and swivel are controlled by a simple continuous friction joint providing an infinite range of adjustment.

Adjusting the display screen is easy; simply position the screen the way you want it.
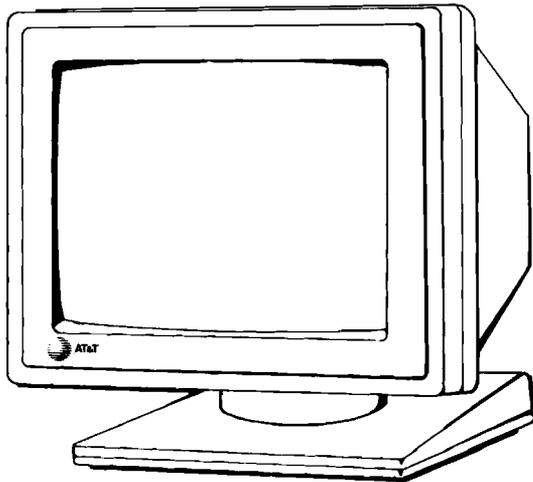
To adjust the screen's brightness:

1   Facing the screen, reach underneath the screen's case to the knob on the left.

2   To increase the brightness, turn the knob forward. To decrease the brightness, turn the knob backward.

To adjust the screen's contrast:

1   Facing the screen, reach underneath the screen's case to the knob on the right.

2   At times text on your screen may be highlighted. The intensity of that highlighting is controlled by the contrast knob found on the lower left side of the monitor.

BRIGHTNESS   **CONTRAST**
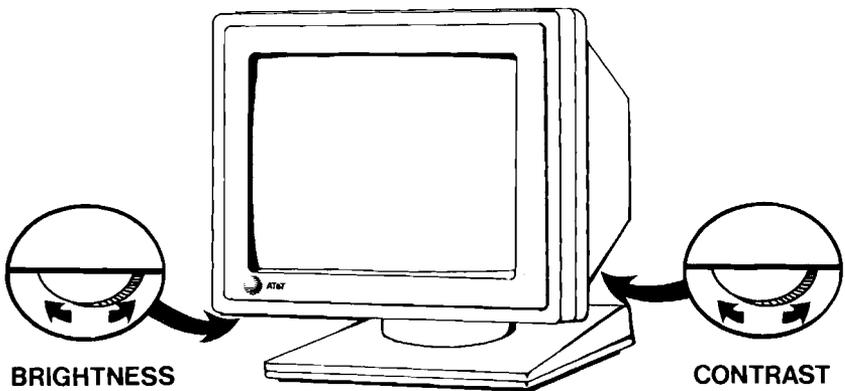
The Keyboard

The keyboard on your computer can be divided into four sections:

- a typewriter section - similar in function to a normal typewriter keyboard

- special feature keys - used primarily in conjunction with the typewriter keys

- a numeric keypad - similar to the keypad on a calculator and doubling as a cursor control keypad

- a block of ten function keys - that can be set up so that with only one keystroke you can perform tasks that would normally require several keystrokes
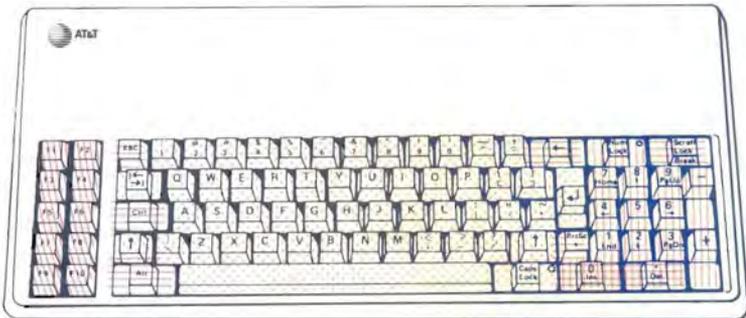

On the following pages, the function of the keys when using DOS is given. When running your application programs, these keys may perform other functions under the control of those programs.

Typewriter Section Keys

The keys in this section are similar to keys on a nor-
mal typewriter.
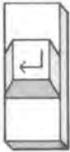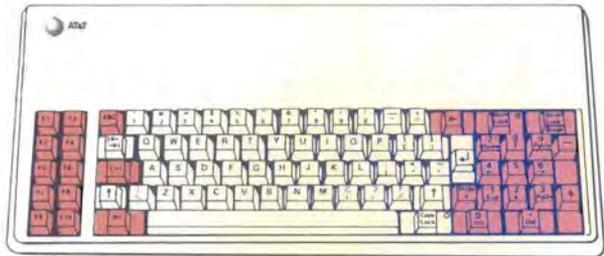
— Return performs a function similar to the carriage
return key on typewriters. Pressing it lets the
computer know that you are finished typing a
command. This key is often called the ENTER
key.
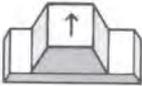
— Shift pressed in conjunction with typing a letter
gives you a capital letter. Pressing a shifted punc-
tuation key gives you the upper symbol on the
key.

— Tab moves the cursor to right on the screen. It is
similar to the tab key on a typewriter.

— Caps Lock locks the keyboard in the shifted mode.
It only affects the letters. You still have to use
the shift key to get the upper characters on non-
letter keys. When the CAPS LOCK is "on" the
indicator light on the key is lit.

— Space Bar inserts spaces into the text.
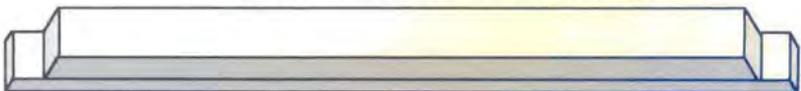
Special Feature Keys

The special feature keys work with the typewriter keys.
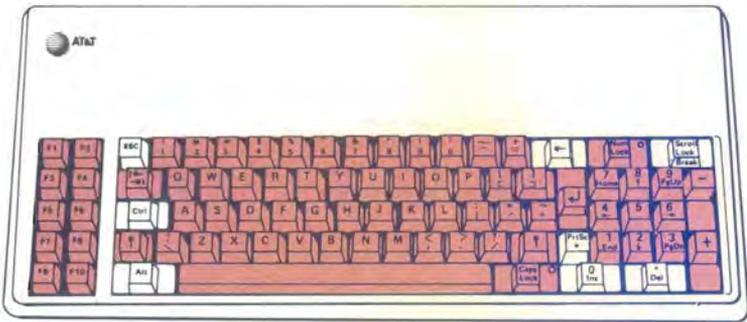
ESC — Escape cancels the current entry and waits for a new one.

CTRL — Control is used with other keys to perform a function or command. For example, CTRL S will stop text from scrolling off the screen.

ALT — Alternate is used with other keys to perform a function or command. Combined with the numeric keypad, it displays special characters on the screen.

← — Backspace moves the cursor to the left one character, erasing the last character typed.

DEL — Delete erases the character where the cursor is positioned. It is used with the function keys to edit previously entered commands.

— Print Screen prints an * when unshifted. When shifted, it sends whatever is displayed on the screen to the printer.

— SCROLL LOCK is not used by DOS.

— Insert places the computer in the insert mode. When in the insert mode, whatever you type is inserted into text on the screen at the cursor's position. All data to the right of the cursor will be moved to the right. Pressing the INS key a second time turns off the insert mode.

Numeric Keypad

The numeric keypad has two functions depending on whether the NUM LOCK key is "on" or "off." When the light is on, the Numeric keypad is activated. When the light is off, the Cursor keys are activated.
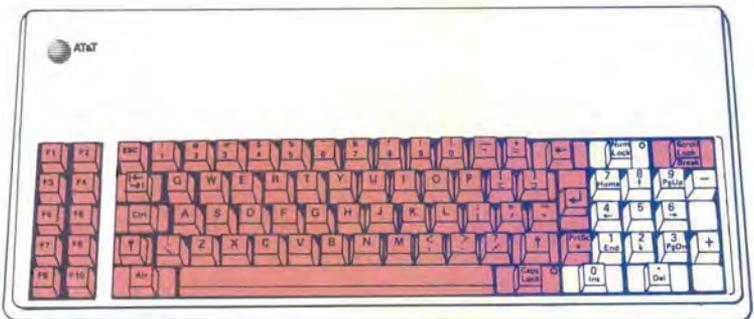
When the NUM LOCK key is on, the numeric keypad is operational. The keys labeled 1 - 9 give you the digits on them.

.DEL = the decimal point

0INS = the digit 0

- = minus sign

+ = plus sign

A Warning About Numbers

Numbers appear both in the typewriter section and the numeric keypad. Numbers can be keyed in from either. The computer is not concerned where the numbers come from, providing that it gets a number when a number is required.

When using a typewriter, you can use a lowercase l or an uppercase I for the digit one. Similarly, you can use the letter O for the digit zero. If you do this with a computer, the results are unpredictable. Therefore:

ALWAYS USE NUMERIC KEYS FOR ONE AND ZERO.

Cursor Control Keypad

When the NUM LOCK key is off, the keypad acts as a cursor control keypad.

- HOME is not used by DOS.

- Up Arrow is not used by DOS.

- Left Arrow moves the cursor one character left, erasing the last character typed.

- Right Arrow re-types one character at a time from the previously entered command.

- The Down Arrow is not used by DOS. However, the Down Arrow moves the cursor down one line on the screen.

- END is not used by DOS. However, END moves the cursor to the first character on the last line on the screen.

- The Page Up is not used by DOS. However, Page Up is used by many programs to scroll upward the information on the screen.

- The Page Down is not used by DOS. However, Page Down is used by many programs to scroll downward the information on the screen.

Function Keys

The function keys perform different tasks according to the software being used. In different application programs, these keys usually perform different operations. The meaning of the function keys is dependent on the program that you are currently running. For example, in one program F9 positions the cursor at the beginning of a file and F10 positions the cursor at the end of the file.

DOS only uses F1 through F5; these keys act as described below:

F1   – Re-types the previously displayed command one character at a time.

F2   – Re-types the previously displayed line up to the first time a character you specify occurs. Type F2, then the character.

F3   – Re-displays the previously entered line.

F4   – Deletes the previously typed line from memory up to the first time a character you specify occurs. Type F4 and then the character. Now type F3 to see the remainder of the line.

F5   – Allows you to edit the currently displayed line using the right and left arrow keys and the INS and DEL keys.

Resetting the Computer

You can re-load a diskette in drive A or re-start your computer by pressing the reset button on the front of the computer.

Pressing the reset button stops all computer activity. It has an effect similar to switching the power off and back on again, but is less stressing on the power supply's electronics.

Executing a reset returns the computer to its initial startup status. Any information currently in the computer's memory is lost when reset is executed, so this facility should be used with care.

CTRL/ALT/DEL = Reset the Computer

Holding down the CTRL key and the ALT key simultaneously and then pressing the DEL key will also reset the computer.
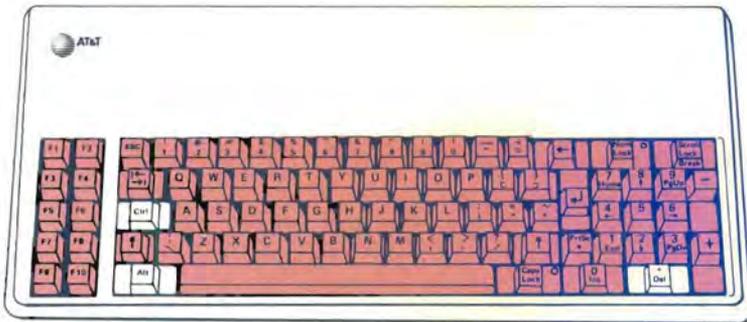
All about diskettes

What Is a Diskette?

Diskettes are flexible magnetic disks used for storing information. The diskettes that your computer uses are 5 1/4 inch and double sided. Each diskette holds about 250 pages of typewritten text.
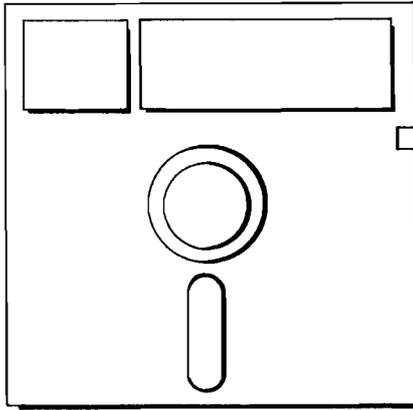
Why Do I Need Diskettes?

Your computer needs programs in order to work, and programs come on diskettes. Perhaps the most important diskette is the DOS diskette. Without it your computer won't work because this diskette contains the program, called DOS, that runs the computer.

Additionally, application software such as word processing, filing programs, or accounting programs is distributed on diskettes.

The most frequent use that you will have for diskettes is to save the data, text, files, etc. that you create. You use diskettes to store your data between sessions on the computer. This is because everytime you turn off your computer, it loses whatever is in its memory.

If you have a hard disk, don't confuse your hard disk with the computer's memory. The hard disk is a storage device, turning the computer off and on will not cause a loss of data saved on the hard disk.

How Diskettes Work

Diskettes are magnetic media, like cassette tape, protected inside of a cardboard jacket. The diskette spins inside its jacket similar to a phonograph record. As the diskette spins, the computer can read information from it or write information onto it.

The surface of the diskette is divided into tracks (concentric circles around the center hole) and sectors (parts of a track). The tracks and sectors are numbered. This enables the computer to store information on the diskette at specific locations (e.g., track 3 sector 4 or track 23 sector 7). Later, by going back to the same location the computer can locate the information and read it back into the computer.
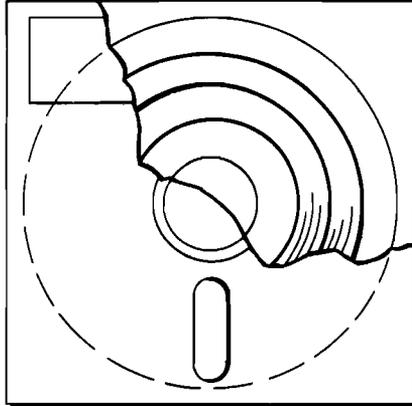
Information is read from or written onto the diskette through the slot in its jacket. When the computer writes information onto the diskette, it does so in unused space. You can also instruct the computer to write over information that is already on a diskette. You might do this to update an inventory file for instance. Note however, if you write new information over old information, the old information is erased — you cannot get it back.

Care and Handling of Diskettes

Although diskettes are not particularly fragile, careful handling will minimize the risk of damaging them.

DO:

● Keep diskettes in their envelopes when not in use.
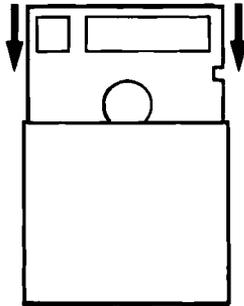
DON'T:

- Don't touch the exposed surface of a diskette. This can scratch its surface.

- Don't expose the diskette to dust or dirt.

- Don't place heavy objects, such as books, on diskettes.

- Don't attach anything to diskettes with paper clips or rubber bands.

- Don't bend diskettes. They are flexible but, if bent too far, the diskette surface can crease permanently.
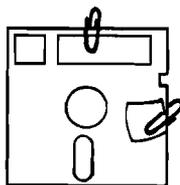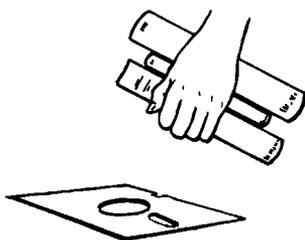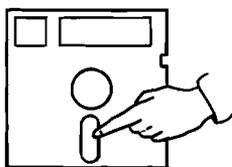
Labeling Diskettes

All diskettes look pretty much alike. Although you can display a directory of what's on a diskette, it is not always very practical. Imagine the time wasted trying to find a specific file quickly if you have ten unlabeled diskettes on your desk. Labeling your diskettes is like labeling your files. It facilitates finding what you want quickly.
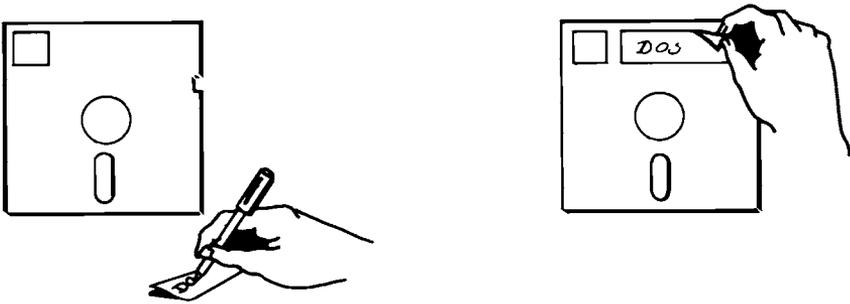
Here are some suggestions about labeling your diskettes:

- Avoid writing on a label that is already attached to a diskette. If you must do so, don't use a pen or pencil with a hard or sharp point which might damage the diskette's surface. Only use felt tipped pens.

- Include on the label the date when the copy was made or updated. This is helpful when reviewing backups or locating the latest version of a file.

- Don't stick labels on top of old labels. Peel off the old one before applying the new one. The best way to remove and apply labels is with the diskette resting on a flat surface and inside its cardboard envelope.

Write-Protecting Diskettes

Protecting your diskettes against unintentional erasure is called write-protection. Write-protection prevents the contents of a diskette from being altered. A write-protected diskette can only be read by the computer. It cannot be written on. This security stops you from inadvertently destroying important information stored on a diskette.

If you want to write-protect a diskette, peel a write-protect sticker off the sheet supplied with each new carton of diskettes. Then wrap it around the write-protect notch on the edge of the diskette.
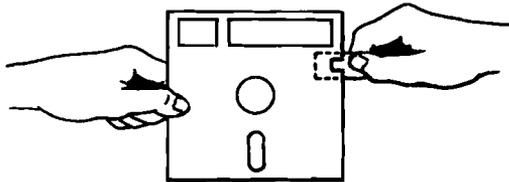
If you want to remove the write-protection, to add or change some information on the diskette, just peel off the write-protect sticker. With the sticker off, the computer can write on the diskette.

Of course, there is no need to write-protect a diskette until it contains some worthwhile information. One diskette that already does is your DOS diskette. For this reason, if it isn't write-protected already, you should do so now.

Diskette drives

Diskette Drive Letters

The drives on your computer are assigned letters to identify them.

- The lower diskette drive is drive A.

- The upper diskette drive, if present, is drive B.

- The hard disk drive, if present, is drive C.

The Default Drive

The letter beginning the screen prompt is the current or default drive. This means that unless you tell the computer to look somewhere else for a file or diskette, the computer assumes that the file is on the diskette in the drive with the same letter as the prompt.

For example, when the screen displays the A> prompt, typing DIR lists the files on the diskette in drive A. If the prompt is B>, then entering DIR will list the files on the diskette in drive B.

Your computer is set up to make drive A the default drive when you turn on the computer. That is why you must always insert your DOS diskette into drive A when you turn the computer on. Computers with hard disks perform an extra step. If there is no diskette in drive A when the computer is turned on, the computer will look for DOS on the hard disk. The hard disk drive then becomes the default drive.

To read information from or write information to a diskette other than the default drive, you must

specify the drive letter followed by a colon (:) in
which the diskette is loaded. For example, to load the
file SORT.BAS from drive B when the A> prompt is
displayed, type:

A>**B:SORT.BAS**

Then press the **RETURN** key.

Remember that the drive letter must be followed by
a colon as in the example above. You always have to
include the colon immediately after the drive letter,
or you will get an error message.

Changing the Default Drive

You can change the default drive if you want. To do
so, type:

A>**B:**

Then press the **RETURN** key.

Of course, any drive letter can be substituted for the
B in the above example. For instance, if you have a
hard disk and you want it to be the default drive,
type:

A>**C:**

Then press the **RETURN** key.

How to Insert a Diskette

1 Open the diskette drive door.

2 Hold the diskette by the side that has the label.

3 Gently insert the diskette with its label facing up
   into the diskette drive. When you hear a click, the
   diskette is all the way in.

4 Close the drive door.

   NOTE: If the computer is on, a diskette may safely
   be inserted into the diskette drive if the drive indica-
   tor light is off.
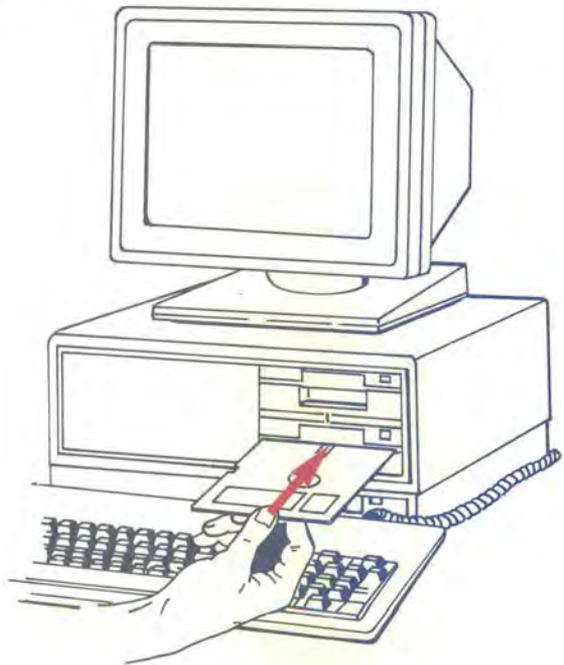
How to Remove a Diskette

1 Lift the drive door. The diskette is automatically pushed out far enough so that it can be easily removed.

2 Remove the diskette and insert it into its envelope.

A diskette can safely be removed with the computer turned on if the drive indicator light is off.
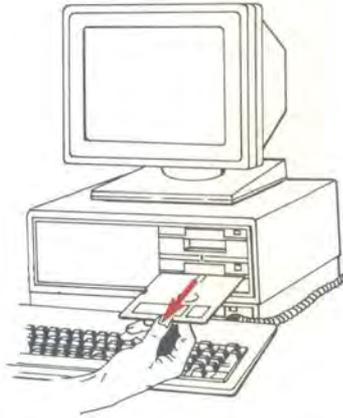
NOTE: It is extremely important that you never remove a diskette while it is being read from or written to by the computer. Doing so can destroy the information on the diskette. You can tell if the computer is accessing a diskette by looking at the indicator light on the drive that the diskette is in.

IF THE DRIVE INDICATOR LIGHT IS ON, DON'T REMOVE THE DISKETTE.

All about files

What Is a File?

Your computer groups related information on a diskette into files, similar to the way you put related information into file folders stored in a filing cabinet in your office.

Separating the information into files enables you to quickly retrieve the exact information that you want on a diskette without having to retrieve everything on the diskette.

File Names

All the files on a diskette must have a different file name so that they are uniquely identified. You wouldn't have two files with the same name in one filing cabinet in your office.

However, on different diskettes two files can use the same file name. You may have a file in your office with the same name as a file in another company office. The two files may or may not be duplicates of each other.

The file names that your computer can recognize follow certain rules.

A file name can be up to eight characters long. To this name can be added an extension. Extensions always begin with a period (.) and are followed by 1, 2 or 3 characters.

File names can be entered in either upper or lower case, but are always displayed on the screen in upper case.
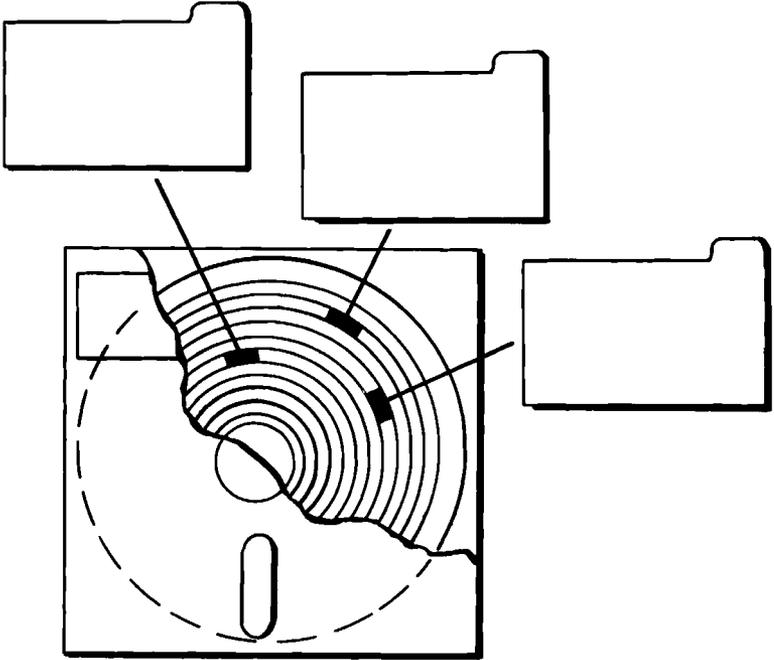
Valid characters for file names are:

- the letters A to Z

- the numbers 0 to 9

- the characters ! @ # $ % ˆ & ( ) - { } ' _

Examples of Valid File Names

The following four file names are valid file names
because they are not too long and use valid
characters.

REPORT

FOSDICK.LTR

MEMO.JUN

MAYSALES.$&%

These file names are invalid file names. The reasons
are listed to the right of each name.

4THQUARTER	Too long (it will be truncated to 8 chars)
LETTER/4	Illegal character in name
NEW MEMO.JUN	Spaces in the name

Types of Files

There are two basic types of files:

• program files

• data files

Program files are files that do something; they per-
form a task. Data files are files that contain the in-
formation (data) used by program files.

For example, the file you use for word processing is a
program file. The files that run your computer are

program files. A list of names and addresses would be a data file. The two types of files are interrelated. The file containing the names and addresses can't do anything by itself. But a program file that is designed to sort a list of names alphabetically can't do so without a list of names.

Program file names always have a .COM, .EXE, or .BAT file name extension. These three file name extensions are reserved exclusively for program files. Data file names may or may not have file name extensions.

File maintenance

Seeing What's On a Diskette

You can display the names of files stored on a diskette using the DIR (i.e. Directory) command. The directory of a diskette is like a table of contents in a book. This command also gives you information about the amount of space occupied by each file and the amount of space still available on the diskette.

To see what is stored on a diskette. Type:

A>**dir**

Then press the **RETURN** key.

A>**dir**

```
Volume in drive is DOCUMENTS Directory of A:

COMMAND     COM     15957   4-12-84     9:01a
AUTOEXEC    BAT       128   5-01-84    11:34a
AGORA       DOC     11008   5-28-84     2:34p
AGORA       BAK      9716   5-27-84    10:28a
MODE        COM      1882   4-12-84     9:00a
PROPOSAL    DOC     29056   6-05-84     3:30p
FOSDICK     LET      3607   6-07-84     5:00p
SALES       APR     15877   5-14-84    10:56a
SALES       MAY     16384   6-14-84    11:23a
SALES       JUN     16384   7-14-84     1:43p
      10 File(s)              235,688 bytes free
```

Preparing a New Diskette for Use

Before you can use a new diskette, it must be prepared to accept data. This is called formatting the diskette.

In order for a diskette to be able to start up the computer, it must have special files on it called DOS

system files. These files can be put on the diskette either when it is being formatted or by the SYS command. The system files take up about 12% of the storage space on a diskette.

Typically, if a diskette is going to contain a program, you should write the system files on it. However, if the diskette is going to be used only for data, leave the system files off and take advantage of the extra storage space available.

To format the new disk with the system files:

1   Insert your DOS diskette in drive A.

2   Type:

   A>**format/s**

   Notice the **/s** (for system) following the command format.

3   Press the **RETURN** key.

   The following message is displayed:

   Insert new diskette for drive A:
   and strike any key when ready

4   Insert the new diskette into drive A and press the **RETURN** key or any other key.

   As the diskette is being formatted, your screen displays the message:

   Formatting...

After the lights on the disk drives go out, your screen displays the message:

```
Formatting...Format Complete
System transferred
        362496 bytes total disk space
         43008 bytes used by system
        319488 bytes available on disk

Format another (Y/N)?
```

The message indicates that 43008 bytes were used by the system files.

5   If you want to format more diskettes, type: **y**

If you are done formatting diskettes, type: **n**

The diskette is ready for use and can be used to start up your computer.

To format the new disk without the system files:

1   Insert your DOS diskette in drive A.

2   Type:

A>**format**

This time the **/s** is left off.

3   Press the **RETURN** key.

The following message is displayed:

```
Insert new diskette for drive A:
and strike any key when ready
```

4 Insert the new diskette into drive A and press the **RETURN** key or any other key.

As the diskette is being formatted, your screen displays the message:

Formatting...

After the lights on the disk drives go out, your screen displays a message similar to:

Formatting...Format Complete

362496 bytes total disk space
362496 bytes available on disk

Format another (Y/N)?

Note that the total capacity of the disk is available for data storage.

5 If you want to format more diskettes, type: **y**

If you are done formatting diskettes, type: **n**

The diskette is ready to receive data.

NOTE: You may format a diskette in the B drive. To do this, type A >**B:FORMAT/S.** With a hard disk, you type C>**A:FORMAT/S** to format a diskette in drive A.

WARNING: Keep a supply of formatted diskettes readily available. When you need a new diskette, you may not have the opportunity to format one.

Copying Files

As you use your computer, you will need to copy files. There are many reasons for this. Sometimes you may want to make copies of files for someone else to use. Other times it may be to have an extra copy for safety.
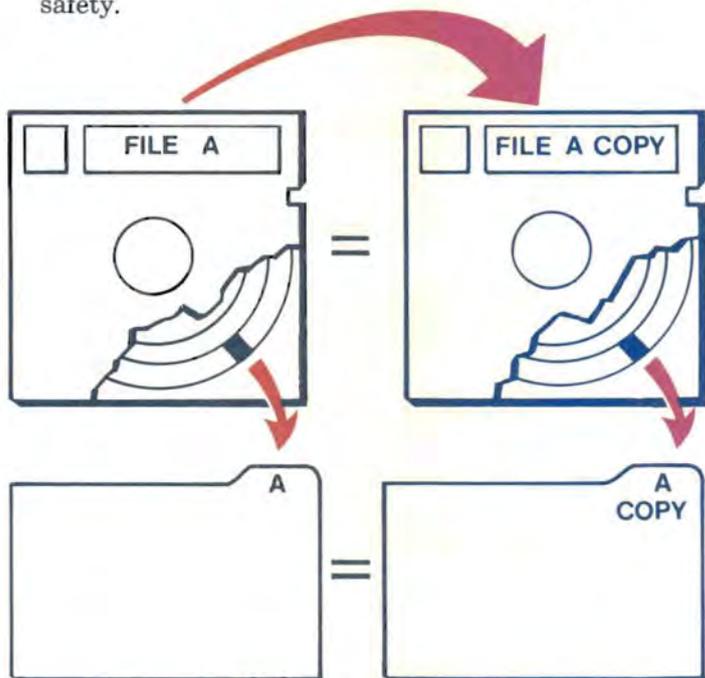
To copy a file from one diskette to another:

1 Place the original diskette in drive A (the lower drive).

2 Place the diskette that the file will be copied to in drive B (the upper drive).

3 Type:

A>copy a:filename b:

Substitute the name of the file that you want to copy for **filename**.

4 Press the **RETURN** key.

When the A> returns, the file has been copied onto the diskette in drive B.

NOTE: You don't always have to copy from A to B. You can copy from B to A. If you have a hard disk, you can copy from A to C and also from C back to A.

To make a copy of a file on the same diskette:

Files are usually copied from one diskette to another. But if a new file name is substituted, a copy of a file can be made on the same diskette.

1 Place the diskette in drive A (the lower drive).

2 Type:

A>copy oldname newname

Substitute the current name of the file that you want to rename for **oldname** and the new name for **newname** in the example above.

3   Press the **RETURN** key.

A copy of the file with the new file name is copied
onto the diskette in the drive A. The original file is
still intact.

The Value of Backing Up Your Diskettes

You should make "backups" or extra copies of your
diskettes that contain important information and
keep them in reserve for an emergency.
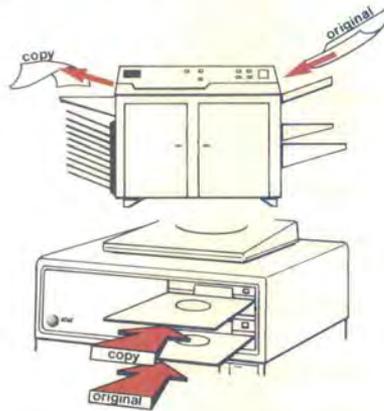
Then if a diskette is lost or damaged, you haven't
lost any valuable time or information. Just take out
your backup diskette, make a new copy of it, put the
backup away again and then continue with your
work.

Many computer users make backup copies of files
that have been updated at the end of each day.

Backing Up a Diskette

There are two ways that you can back up diskettes. The first uses the DISKCOPY command. The second uses the COPY command discussed above. If you have a hard disk, the backup command is also available to you.

Making a Backup Using DISKCOPY

DISKCOPY is a quick way to backup your diskettes. It also formats the diskette for you.

To use DISKCOPY:

1   Insert the DOS diskette in drive A and turn on the computer.

2   With the A> prompt displayed, type:

    A>**diskcopy a: b:**

3   Press the **RETURN** key.

4   In response to the prompt:

    Insert source disk in drive A
    Insert target disk in drive B
    Strike any key when ready

5   Remove the DOS diskette from drive A.

6   Insert the original diskette (source) in drive A, and the diskette that will become the backup copy (target) in drive B.

7   Press the **RETURN** key or any other key.

The following message is displayed:

Copying 2 side(s), 9 sectors per track

When DISKCOPY is finished, the screen will display the message:

Copy complete

Copy another diskette (Y/N)?

8   If you want to make another copy, type: **y**

If you are done, type: **n**

Making a Backup Using COPY

To back up a diskette using COPY:

1   Insert the DOS diskette in drive A and turn on the computer.

2   When the A> prompt is displayed, insert the original diskette in drive A.

3   Insert the diskette that the file will be copied to in drive B.

4   Type:

A>**copy a:*.* b:**

You can back up files on the hard disk using COPY too. Just substitute c: for a: and a: for b: in the above example.

5 Press the **RETURN** key.

As each file is copied from the diskette in drive A to the diskette in drive B, its file name is displayed on the screen.

When the A> prompt is displayed, the backup is complete.

The Difference Between DISKCOPY and COPY

Although both DISKCOPY and COPY backup your diskettes, there is an important difference. DISKCOPY copies a diskette from beginning to end without regard to what is on the diskette. It produces a mirror image of the original diskette.

COPY, when used with the *.* option, copies all the files on a diskette file by file.

To illustrate what happens, consider a file named REPORT.

If you add more information to REPORT, the file needs more room on the diskette. DOS begins writing REPORT on the diskette in the same space from which it was read. However, since REPORT will no longer fit in the same amount of space (the file is larger than it used to be), the revised version of RE-PORT must be broken up on the diskette. Report is written back onto the diskette in the original space until the original space is full and then the remaining data is written in the next available space on the diskette.

As you can see, after a while your files can have parts spread over the entire diskette. There is nothing wrong with this, but it is inefficient.

You might think of the difference as piecing together a report with parts inserted randomly in different file folders vs finding the report complete in one file folder.
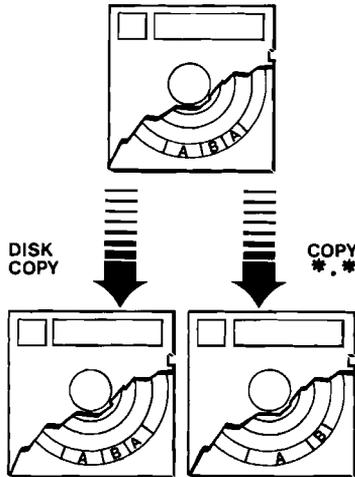

DISKCOPY transfers the files to the new diskette just as broken up as they are on the original diskette. COPY, on the other hand, copies each file individually. It locates all of the separate parts of each file and then writes them as one continuous file. Thus your disk is reorganized for you automatically when you use COPY to back up your diskettes and is therefore the recommended procedure.

Deleting Files

Eventually you will want to erase old unwanted files to free up space for new files on a diskette.

It is a good idea to periodically review your diskettes for old or duplicate files. A diskette with many versions of a file can be confusing.
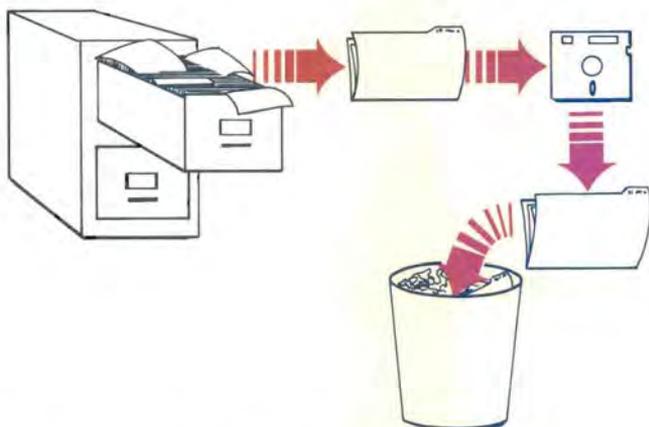
To delete a file from a diskette:

1 Insert the diskette that contains the file to be deleted in drive A.

2 With the A> prompt displayed, type:

A>**Del filename**

Substitute the name of the file that you want to delete for **filename** in the example above.

3   Press the **RETURN** key.

To delete files from the hard disk, first make your hard disk the current drive. Then follow steps 2 and 3 above.

You can delete all of the files on a diskette with one command. This is a quick way to free up an old diskette for new files, but it can be dangerous.

ONCE INFORMATION IS DELETED USING THIS METHOD, IT CANNOT BE RESTORED. THE INFORMATION IS GONE.

If you don't have a backup of this diskette, all of the information is lost.

To delete all of the files from a diskette:

1   Insert the diskette containing the files to be deleted in drive A.

2   With the A> prompt displayed, type:

A>**Del** *.*

3   Press the **RETURN** key.

4   In response to the prompt:

Are you sure (y/n)

Type: **y**

5   Press the **RETURN** key.

Points to remember

1. Press the RETURN key after you enter a command to execute it.

2. If you get numbers when you expect the cursor to move or vice versa, press the NUM LOCK key.

3. The system files that make a diskette able to start up the computer can only be written on a diskette when it is being formatted. The command looks like this: A>format/s.

4. Always use the numbers 1 and 0. Don't use the capital letters I and O in place of 1 or 0.

5. Don't forget to add the colon following drive letters (e.g., A: or B:).

The MS-DOS User's Guide

In this guide, you have learned how to set up and use your computer. And you have learned the MS-DOS commands you'll need on a daily basis.

However, MS-DOS has many more commands. Your MS-DOS User's Guide explores these in greater detail. Use it both as a resource to learn MS-DOS and as a reference manual whenever you want to review MS-DOS.

MS-DOS is a powerful and flexible tool. Take the time to learn it well. The rewards enable you to get the most from your computer.

5

What to Do if Something Doesn't Work

- Introduction

- What is "diagnostics?"

- How to use diagnostics

- Automatic vs. nonautomatic mode

- Testing options

- What each test does

- Selecting a test

- Logging errors

Introduction

Your computer is engineered to work trouble free, but at some point a problem may still occur. For example, consider the following:

One day while a program that you use regularly is running, your screen displays the message: disk error occurs. There are many possible causes, the two most obvious being a damaged diskette or a faulty drive. If the program works successfully when run from another copy of the original diskette, the problem is almost surely a damaged diskette. If, however, the error recurs when a back up diskette is used, a faulty drive is the probable cause. Note that this is a probable cause -- not a certainty.

To help isolate the cause of hardware problems, a set of diagnostic routines is provided.

This section provides an overview of the diagnostic routines.

What is "diagnostics"?

"Diagnostics" is the name of a collection of diagnostic routines that are used to test the correct functioning of the various components of the AT&T Personal Computer 6300. The program is supplied on the diskette labeled CUSTOMER TEST DIAGNOSTIC DISKETTE that comes with your computer. It contains routines to test the following components.

• Main Board

• Computer's Memory

• Keyboard

• Display

• Parallel Interface

• Serial Interface

• Disk Drives

After each test is run, a TEST RESULTS summary screen is displayed.

The easy-to-use program lists testing options in a menu, and instructions are displayed on the screen.

How to use diagnostics

Diagnostics should be used whenever a faulty compo-
nent is suspected. Messages issued by Diagnostics
are self-explanatory, and the information you collect
— and pass along — by running the package can re-
duce repair time.

All of the tests follow similar procedures. Once you
have learned to run one test, you can run them all.
Following is a guide to using Diagnostics. It does not
cover every test, but instead provides instructions for
a sample test that will enable you to choose and run
whichever test you wish.

In order to work through these tests, you will need to
know the following information about your computer:

- the amount of memory that your computer has

- whether you have 1 or 2 diskette drives

- if you have a hard disk

- if a printer is connected to the computer's parallel
  port

- if a printer is connected to the computer's serial port

- whether you have a monochrome or color video dis-
  play

To start the program from the MS-DOS A> prompt:

1   Insert the diskette labeled CUSTOMER TEST DIAG-
    NOSTICS into drive A.

2   Type: **Customer**

3   Press the **RETURN** key.

The screen shown below is displayed:

```
•••CUSTOMER TEST PROGRAM•••
VERSION 1.03 (MARCH 18, 1984)

DO YOU WISH TO RUN THE TESTS IN AUTOMATIC
MODE?
('0' = NO, '1' = YES)
ENTER DESIRED ACTION -
```

Automatic vs. nonautomatic mode

The automatic mode checks your computer's parts one at a time, according to a prearranged checklist. Any errors detected are displayed on the screen.

In nonautomatic mode, you can either run a specific test once or repeatedly test any combination of your computer's components. Detected errors are displayed on the screen.

If you are concerned only about the functioning of a specific component, select the nonautomatic mode and run the appropriate test.

You select a mode by entering a 1 for automatic mode or a 0 for nonautomatic mode.

1 Type: **0** for nonautomatic.

2 Press the **RETURN** key.

Testing options

Selecting the nonautomatic mode displays the following screen. Automatic mode skips over it.

```
TESTING OPTIONS

  0 - EXECUTE TESTS ONCE
  1 - EXECUTE TESTS MULTIPLE TIMES
  2 - ERROR LOGGING UTILITIES
  3 - EXIT DIAGNOSTICS PROGRAM
ENTER DESIRED ACTION-
```

The first two options enable you to select whether tests are run one time or repeatedly. If you select option 1, you are prompted to enter the number of times that the test(s) should be run.

Option 2, ERROR LOGGING UTILITIES, lets you record the test results. Using option 2, test results can be saved on a diskette or sent to either the serial or the parallel printer port. For directions on how to use option 2, see the section **LOGGING ERRORS**.

Option 3 returns you to the A> prompt in DOS.

You shouldn't need to run tests multiple times, unless the symptoms indicate an intermittent problem.

To run test(s) once,

1   Type: **o**

2   Press the **RETURN** key.

A list of your computer's hardware is displayed.

```
THE INSTALLED HARDWARE IS:

1 - MAIN BOARD
3 - 128 KB MEMORY
4 - KEYBOARD
5 - MONOCHROME VIDEO SYSTEM
6 - 1 PARALLEL PORT
7 - 1 SERIAL PORT (USING 8250)
8 - 48 TPI FLOPPY DISK DRIVES
9 - 10 MB HDU DRIVE AND CONTROLLER

IS THE LIST OF HARDWARE CORRECT?
('0' = NO, '1' = YES)
ENTER DESIRED ACTION -
```

Check the list to verify that it matches your
computer system. The list will vary according to the
set up that you have. For example, the amount of
memory indicated in option 3 should correspond to
the amount of memory in your computer.

If the list is incorrect,

1 Type: **0**

2 Press the **RETURN** key.

The message shown below is displayed:

```
ERROR - HARDWARE DOES NOT AGREE WITH
CONFIGURATION TESTS
= > Record any difference(s) between the list of hard-
ware on the screen and the hardware that should be
listed.
PROGRAM TERMINATED !!!
```

Write down any differences and contact your AT&T
Personal Computer Dealer or your AT&T Service
Center.

If the list is correct,

1 Type: **1**

2 Press the **RETURN** key.

A screen similar to the one below is displayed. It is
similar to the previous one and is used to select the
test(s) that you want to run.

```
1 - MAIN BOARD
3 - 128 KB MEMORY
4 - KEYBOARD
5 - MONOCHROME VIDEO SYSTEM
6 - 1 PARALLEL PORT
7 - 1 SERIAL PORT (USING 8250)
8 - 48 TPI FLOPPY DISK DRIVES
9 - 10 MBU DRIVE AND CONTROLLER
```

To test all listed hardware, press "ENTER" key only.
To test individual hardware functions, enter the de-
sired test number(s), with spaces between the num-
bers, and then press the "ENTER" key.

ENTER is another name for the **RETURN** key.

What each test does

1 – MAIN BOARD Test

The term Main Board refers to the main electronic
board inside your computer. This test verifies that
the computer's main circuit board is working
correctly.

3 – 128 KB MEMORY Test

This test checks your computer's memory. The
number indicating the amount of memory in your
computer may be different than the amount shown
above. The number on your screen should correspond
to the amount of memory in your computer.

4 – KEYBOARD Test

The Keyboard Test, using a facsimile of the keyboard
drawn on the display screen, enables you to verify
the proper functioning of each key. Your computer
has the 83 key keyboard.

5 – MONOCHROME VIDEO SYSTEM Test

The Video System Test runs through a complete
check out of the video display. It tests graphic and
text characters, and 40 and 80 column mode.

6 – 1 PARALLEL PORT Test

The Parallel Port Test verifies that the parallel port
is working correctly.

7 – 1 SERIAL PORT Test

The Serial Port Test verifies that the serial port is working correctly.

8 – 48 TPI FLOPPY DISK DRIVES Test

The Disk Drives test verifies that your computer's drive(s) are functioning correctly. It takes about 15 minutes for each drive tested.

To perform this test, you will need a formatted blank diskette for each drive to be tested.

9 – 10 MBU DRIVE AND CONTROLLER Test

This test verifies that your computer's hard disk drive is functioning correctly.

The hard disk does not have to be newly formatted, nor need it be blank. On the hard disk, the test routines use a reserved area of the disk; no programs or data files will be damaged.

Selecting a test

You select which test(s) you want to run from the
menu screen shown below:

```
1 - MAIN BOARD
3 - 128 KB MEMORY
4 - KEYBOARD
5 - MONOCHROME VIDEO SYSTEM
6 - 1 PARALLEL PORT
7 - 1 SERIAL PORT (USING 8250)
8 - 48 TPI FLOPPY DISK DRIVES
9 - 10 MBU DRIVE AND CONTROLLER
```

To test all listed hardware, press "ENTER" key only.
To test individual hardware functions, enter the de-
sired test number(s), with spaces between the num-
bers, and then press the "ENTER" key.

Although there are some differences between the
testing procedures for each test, they are all very
similar. As an example on how to run a test, the
Main Board will be tested.

Sample test procedure:

1 To select the Main Board test,

Type: **1**

If you wanted to run more than one test, you would
enter the numbers of each test separated by a space.
For example, 1 4 6 7.

2 Press the **RETURN** key.

In response to the prompt:

```
PAUSE ON ERROR? ('0' = NO, '1' = YES)
ENTER DESIRED ACTION -
```

3 Type: **0**

If you want the test to stop if an error is detected,
enter a 1. By selecting 0, the test proceeds
uninterrupted. In either case, all errors detected by
Diagnostics are indicated on the TEST RESULTS
summary screen.

4 Press the **RETURN** key.

The test is run. Depending on the test that is run-
ning, additional messages or instructions may appear
on your screen. Just follow the directions.

Upon completion of the Main Board test, the com-
puter beeps and the message below flashes briefly on
the screen:

TEST 100 - MAIN BOARD
0 ERRORS IN MAIN BOARD TESTS (LOOP #1)

Then the message:

Tests completed. Number of test loops = 1
Total errors during testing = 0

PRESS "ENTER" KEY TO CONTINUE -

5   Press the **RETURN** key.

Remember that ENTER is just another name for the
RETURN key.

A test results summary is displayed on the screen.

```
TESTING RESULTS:

TEST #   ERRORS   PASSES   TEST TITLE
|------------|--------------|-------------|--------------------
100      0        1        MAIN BOARD

PRESS 'ENTER' KEY TO CONTINUE -
```

To return to the initial diagnostics screen:

6   Press the **RETURN** key.

If an error occurs, run the test(s) a second time. If
the error occurs again, write it down and contact
your AT&T Personal Computer Dealer or your
AT&T Service Center.

If you want to test another component, repeat the
previous steps substituting the appropriate test
number when the test menu is displayed.

Logging errors

"Diagnostics" includes an ERROR LOGGING UTILI-
TIES option that will keep track of any errors de-
tected during a diagnostic test and then print them
on a printer or save them on diskette. It is especially
useful when running a multiple automatic mode test
to try to catch an intermittent problem.

The option, listed in the TESTING OPTIONS menu,
must be selected prior to running a diagnostic test.
The TESTING OPTIONS menu is shown below.

```
TESTING OPTIONS

  0 - EXECUTE TESTS ONCE
  1 - EXECUTE TESTS MULTIPLE TIMES
  2 - ERROR LOGGING UTILITIES
  3 - EXIT DIAGNOSTICS PROGRAM
ENTER DESIRED ACTION -
```

If you want an error log of a test:

1 Select the ERROR LOGGING UTILITIES option
from the TESTING OPTIONS menu by typing: **2**

2 Press the **RETURN** key.

The screen below is displayed:

```
ERROR LOGGING UTILITIES

  0 - INITIALIZE ERROR LOG
  1 - DISPLAY ERROR LOG
  2 - STOP ERROR LOG
  3 - SET TIME TO 00:00:00
  4 - DISPLAY TIME
  5 - EXIT ( TO TEST OPTIONS MENU )
ENTER DESIRED ACTION -
```

To activate the log,

3 Type: **0**

4 Press the **RETURN** key.

The screen below is displayed:

```
CURRENT LOGGING DEVICE = nul:

CHOOSE ERROR OUTPUT DEVICE:

0 - DISK
1 - PARALLEL PRINTER (PRN:)
2 - SERIAL PORT (AUX:)
3 - NO CHANGE
ENTER DESIRED ACTION -
```

Select the device on which you want the log recorded. In the following example, a diskette is used.

5 Type: **0**

6 Press the **RETURN** key.

You are prompted to select the drive where the error log will reside.

```
SELECT ERROR LOG DEVICE :

0 - drive 'A'
1 - drive 'B'
2 - drive 'C'
ENTER DESIRED ACTION -
```

7 If you have dual floppy drives, type: **1**. Then insert a blank formatted diskette into drive B.

If you have a hard disk, type **2.**

8 Press the **RETURN** key.

Your diskette log is activated, and you are returned to the ERROR LOGGING UTILITIES menu.

```
ERROR LOGGING UTILITIES

  0 - INITIALIZE ERROR LOG
  1 - DISPLAY ERROR LOG
  2 - STOP ERROR LOG
  3 - SET TIME TO 00:00:00
  4 - DISPLAY TIME
  5 - EXIT [ TO TEST OPTIONS MENU ]
ENTER DESIRED ACTION -
```

To aid in keeping the log, you can set the time to 00:00:00. This lets you know how far into a test an error occurred. It is especially useful when running multiple tests in automatic mode to try and catch an intermittent error. To do so:

9 Type: **3**

10 Press the **RETURN** key.

Return to the TEST OPTIONS menu.

11 Type: **5**

12 Press the **RETURN** key.

The menu shown below is displayed.

```
TESTING OPTIONS

  0 - EXECUTE TESTS ONCE
  1 - EXECUTE TESTS MULTIPLE TIMES
  2 - ERROR LOGGING UTILITIES
  3 - EXIT DIAGNOSTICS PROGRAM
ENTER DESIRED ACTION -
```

Proceed with your diagnostic testing as you normally would. A permanent record of the test results will be saved on the diskette.   ·

When the test(s) is finished, return to the ERROR LOGGING UTILITIES.

When the ERROR LOGGING UTILITIES menu is displayed,

13 Select option 2 STOP ERROR LOG by typing: 2

14 Press the **RETURN** key.

The log can be viewed on the display screen by selecting option 1 DISPLAY ERROR LOG from the ERROR LOGGING UTILITIES menu.

Glossary

Application Software: Programs commercially distributed on diskettes. Word Processing is an example of application software.

Backup: The process of making copies of important files to protect them from accidental erasure.

Boot: The operation that loads the operating system into a computer--shortened from "bootstrap load."

Break: To stop processing.

Byte: Used to specify size of a file or amount of memory that a computer has. Each character of information is stored as one byte.

COM Files: Files with the type extension .COM are command programs in machine language.

Commands: Entries that tell the computer what functions to perform.

Computer Program: The computer does nothing by itself. It needs electronic instructions to perform calculations, print reports, etc. These instructions are called a program.

Cursor: The symbol, often an illuminated box or blinking underline, that indicates where the next data entry will appear on the screen.

Data: Items of information.

Data File: A file in which information is kept. An alternate file type is a program file, in which instructions, rather than data, are stored.

Default: The option or device used unless a different option or device is specifically selected. The default drive is the one that the computer returns to after completing a task.

Directory: A list of the files currently on a diskette or hard disk.

Diagnostics: A collection of routines that are used to test the correct functioning of the parts of a computer.

Diskette: A flexible magnetic medium used for storing information.

Display Screen: An electronic picture tube, such as a television picture tube, that can be used to display text and graphic images.

DOS: Disk Operating System. The program that runs the computer.

Drive Letters: The letters assigned to each drive to enable the computer to identify them. You can tell the computer to use a specific drive by specifying its drive letter.

File: A collection of information stored on disk under a specific name. This may be a program or a data file.

File Maintenance: The "housekeeping" tasks associated with caring for or organizing files.

File Name: A specific name given to a file in order to uniquely identify it.

File Type Extension: The three-character suffix added to a file name to identify the type of file. For example, command files are given the extension .COM in DOS.

Floppy: Another name for a diskette.

Format: The procedure for preparing a diskette or the hard disk for use. Formatting arranges the storage space in a form that allows DOS to use the disk.

Function Keys: Special keys that can be set up to perform with only one keystroke tasks that would normally require several keystrokes.

Hard Disk: A high capacity storage device on which data is written on and read from the surfaces of a stack of revolving record-like disks which have been coated with magnetic material.

Indicator Light: A light that illuminates when a particular condition occurs in the system. For example, an indicator light is illuminated when the CAPS LOCK key is set for all caps.

Interface: The parts of a computer that provide connection between other parts of the computer. An interface may consist of ports, cables, connectors, etc., or the software that operates the hardware, or both.

Main Unit: The central unit of the computer. It houses the drives, memory, and electronic processing board.

Memory: The internal "working" memory of the computer. It is not the hard disk or floppy diskettes, but an internal storage area where programs and data are processed. Information remains in memory only as long as the computer is turned on.

Menu: A list of options or functions displayed in a form similar to a restaurant menu from which the user chooses what task he/she wants the computer to perform.

Mode: Refers to how a function, which can be set up several different ways, is set up. For example, diagnostics can operate in automatic or nonautomatic mode.

MS-DOS: The program that provides the routines that perform the most basic functions of the computer. Such things as reading the keyboard and loading and saving files are MS-DOS functions.

Parallel Port: A port on the back of the computer used to connect a parallel printer.

Partition the Hard Disk: The procedure which identifies the hard disk to the computer. It is the first of two steps used to prepare a hard disk for use.

Port: The connection by which a computer communicates with another device, such as a printer or communications device.

Program: A set of instructions that instructs the computer to perform a useful task. Programs, collectively, are called software.

Program Files: Files that contain "program" instructions as opposed to data files that contain "raw" information.

Prompt: The symbol displayed on the screen which indicates that the computer is ready to receive an instruction.

Processor Board: The electronic circuits that form the "brain" of a computer system -- often abbreviated CPU for Central Processing Unit. This term is often used loosely to refer to larger parts of a computer system that include the CPU.

Reset: The procedure of restarting the computer without turning the power switch off and on again. There is a reset button on the front of your computer.

Screen: (See Display Screen)

Sector: A part of a track on a diskette or hard disk. DOS divides each track into nine sectors.

Self-Check: The initial test that the computer runs on itself to verify that the computer is working properly.

Serial Port: The connector used to send and receive data by a serial communications method.

Software: The programs which instruct or control computer operations. The DOS diskette is software.

Storage Capacity: The total amount of data that can be stored on a diskette or hard disk.

Toggle: A function that is switched either on or off depending on its current status. The INS (Insert) key on the keyboard is a toggle.

Track: The path on magnetic media along which information is recorded. Tracks are broken up into sectors.

Working Copy: A copy of a diskette which is used instead of the original. This prevents the original from being accidentally damaged.

Write-protect: Protecting the information on a diskette from accidental erasure by placing a write-protect tab over the write-protect notch on the side of the diskette.

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AT&T

INSTALLATION
GUIDE

AT&T
PERSONAL COMPUTER
6300

MEMORY EXPANSION

MEMORY EXPANSION INSTALLATION

INTRODUCTION

This Installation Guide describes how to upgrade the AT&T Personal Computer 6300.
It gives step by step instructions enabling you to insert RAM (Random Access Memory) integrated circuits on the Motherboard and on the Memory Expansion Board.
It also describes how to install a Memory Expansion Board. The following table summarizes the various Memory upgrades. The procedures for all the Memory upgrades on the Motherboard are nearly the same.
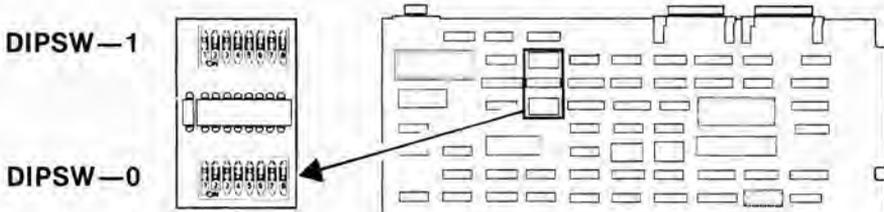
DIPSW—1

DIPSW—0

MEMORY CAPACITY BEFORE INSTALLATION	DIP SWITCH SETTINGS ON MOTHERBOARD BEFORE OPTION INSTALLATION	AMOUNT OF MEMORY TO BE INSTALLED	MATERIALS REQUIRED FOR INSTALLATION	LOCATION OF WHERE UPGRADE IS TO TAKE PLACE	DIP SWITCH SETTINGS AFTER OPTION INSTALLATION	TOTAL MEMORY AFTER INSTALLATION
128 KB on motherboard	ON 1 2 3 4	128 KB	Motherboard with 128 KB, Screwdriver, 18 64K bit RAMs	Bank 1 on motherboard	ON 1 2 3 4	256 KB
256 KB on motherboard	ON 1 2 3 4	256 KB	Motherboard with 256 KB, Expansion Board with 256 KB, Screwdriver	Insert memory expansion board in first free slot on bus converter	ON 1 2 3 4	512 KB
256 KB on motherboard 256 KB on expansion board	ON 1 2 3 4	128 KB	Motherboard with 256 KB, Expansion Board with 256 KB, 18 64K bit RAMs, Screwdriver	Bank 2 on expansion board	ON 1 2 3 4	640 KB

1

MEMORY UPGRADES ON MOTHERBOARD

1. Set the power switch on the Basic Module (and Expansion Unit, if attached) to OFF.

2. Set all the external power switches to OFF (printer etc.).

3. Unplug the Basic Module (and Expansion Unit's) power cable from the wall outlet.

4. Remove the Basic Module bottom covers. See figure 1.
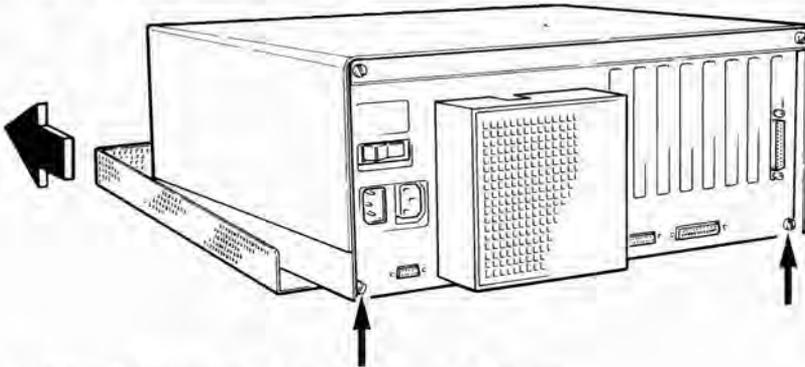
Figure 1   Removal of Basic Module's Cover.

5. Place the Basic Module in a convenient position so as to have easy access to the Motherboard. See figure 2.
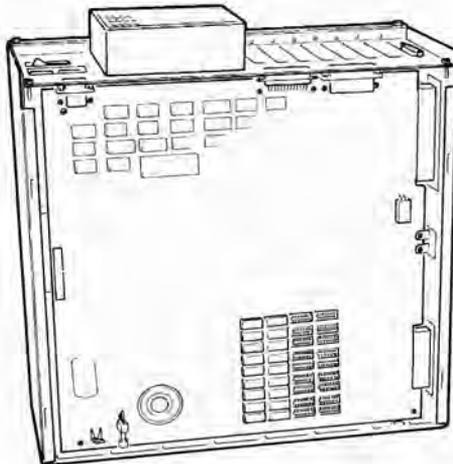
Figure 2   Positioning of System Module.

6. Locate Bank 1 on the Motherboard. See figure 3.
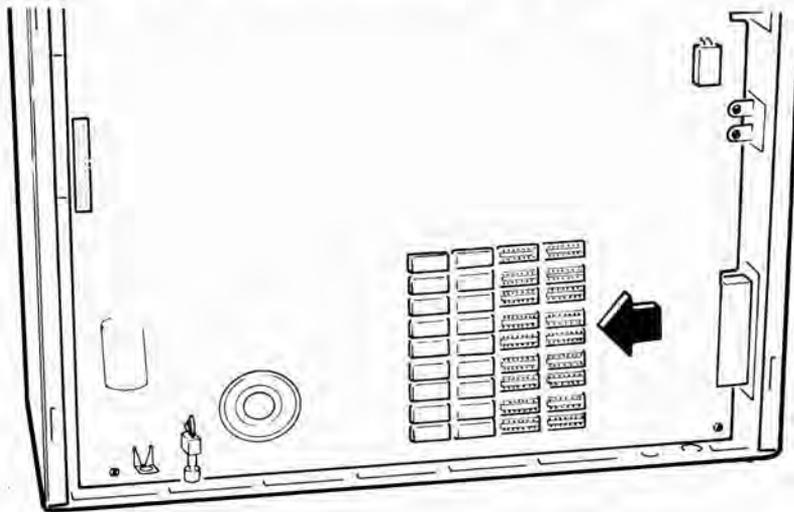
Figure 3   Location of Bank 1 on Motherboard.

7. When installing the RAM Memory chips in the sockets, ensure that pin 1 in the chip is located in the same direction of the Memory chips already installed in Bank 0. See figure 4.

BANK 0

BANK 1
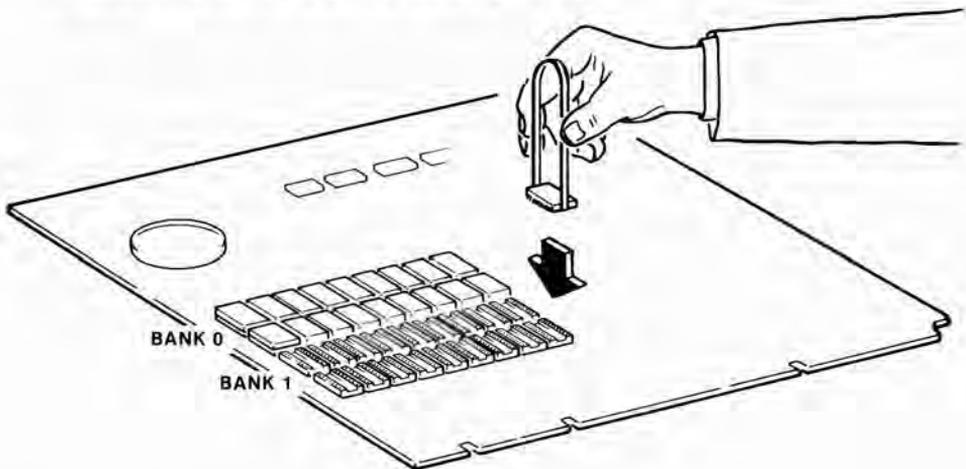
Figure 4   Pin Location.

8. Align the RAM pins (A) with the socket (B) and gently insert the RAM chips into the socket. Notch (C) on the chip should be aligned with the notch in the socket. See figure 5.
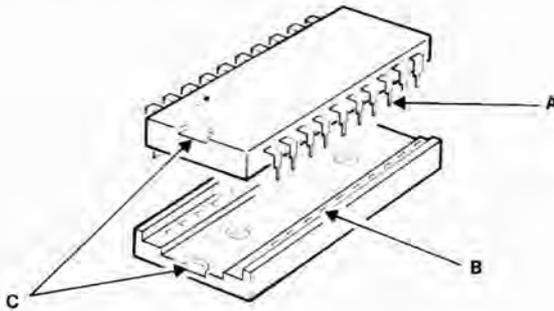
Figure 5   Chip Insertion.

9. Repeat step 8 for the remaining 17 sockets in Bank 1 on the Motherboard.

10. Set dip switches 1, 2, 3, and 4 of DIPSW0 on Motherboard. For the proper setting of these switches refer to the table.

11. Replace the Basic Module cover.

12. Recable the System.

MEMORY UPGRADES ON MEMORY EXPANSION BOARD

1. Set the power switch on the Basic Module (and Expansion Unit, if attached) to OFF.

2. Set all the external power switches to OFF (printer etc.).

3. Unplug the Basic Module (and Expansion Unit's) power cable from the wall outlet.

4. Remove the Basic Module covers. See figure 6.
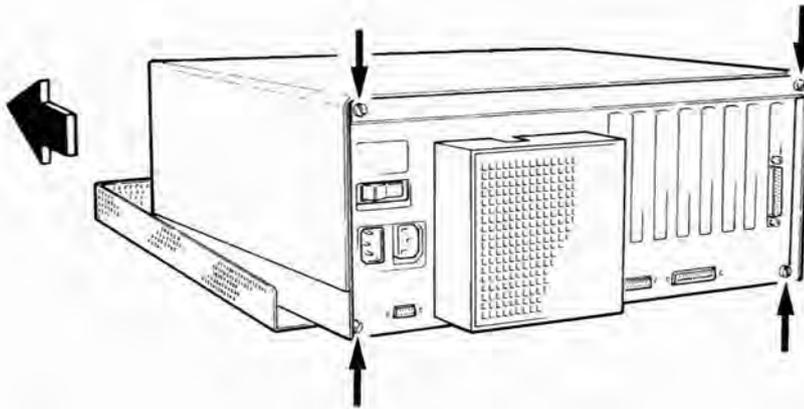
Figure 6   Removal of Basic Module Covers.

5. Remove the Memory Expansion Board from the Bus Converter.
   See figure 7.
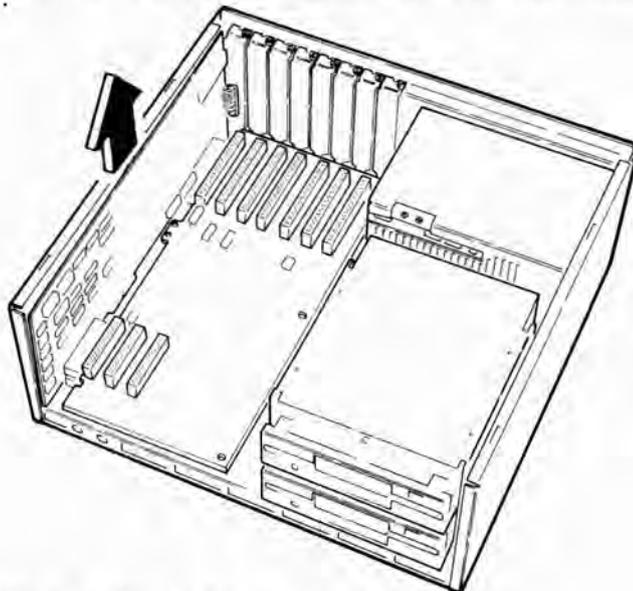
Figure 7   Removal of Memory Expansion Board.

6. Locate the Bank where the Memory chips are to be installed. See figure 8.
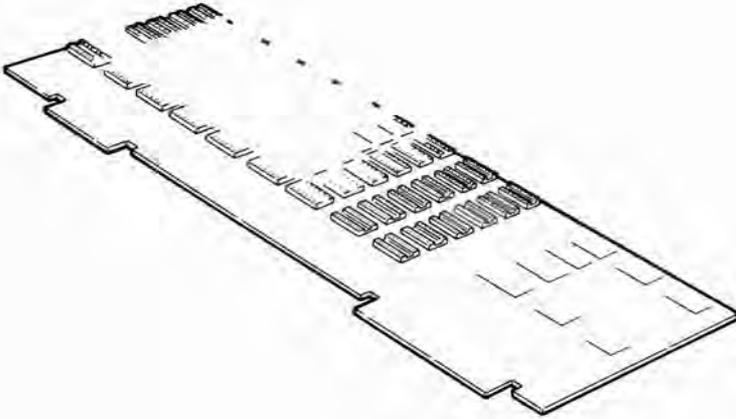
Figure 8   Location of Bank.

7. When installing the RAM chips in the sockets, ensure that pin 1 of the chip is located in the same direction as the memory chips already installed in Bank 0. See figure 9.

BANK 0
BANK 1
BANK 2
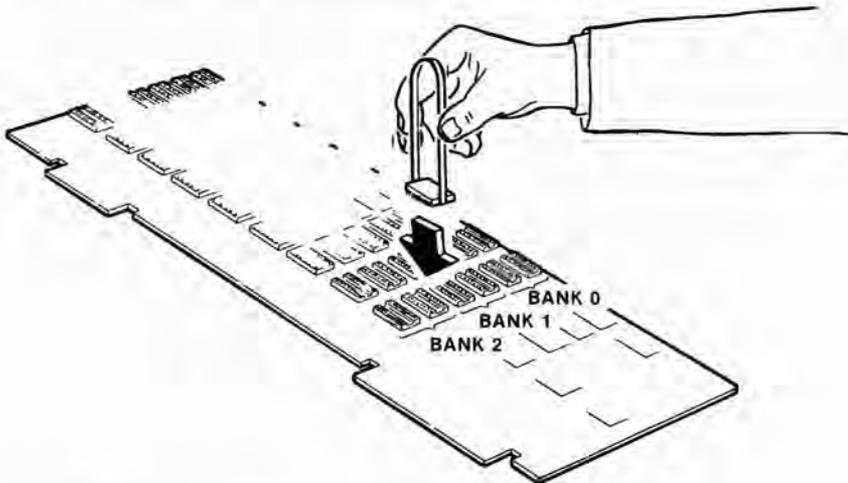
Figure 9   Pin 1 Location.

8. Align the RAM pins (A) with the socket (B) and gently insert the RAM chips into the socket. Notch (C) on the chip should be aligned with the notch in the socket. See figure 10.
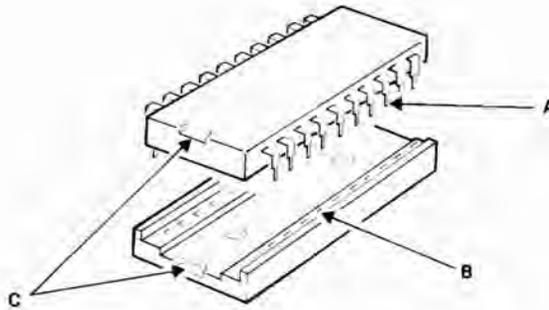
Figure 10   Chip Insertion.

9. Repeat step 8 for the remaining 17 sockets on the same Bank.

10. Set dip switches 1, 2, 3, and 4, of DIPSW0 on Motherboard. For the correct settings of these switches, refer to the table.

11. Replace the Expansion Memory Board.

12. Replace the Basic Module covers.

13. Recable the System.

INSTALLING A MEMORY EXPANSION BOARD

1. Set the power switch on the Basic Module (and Expansion Unit, if attached) to OFF.

2. Set all the external power switches to OFF (printer etc.)

3. Unplug the Basic Module (and Expansion Unit's) power cable from the wall outlet.

4. Remove the Basic Module covers. See figure 11.
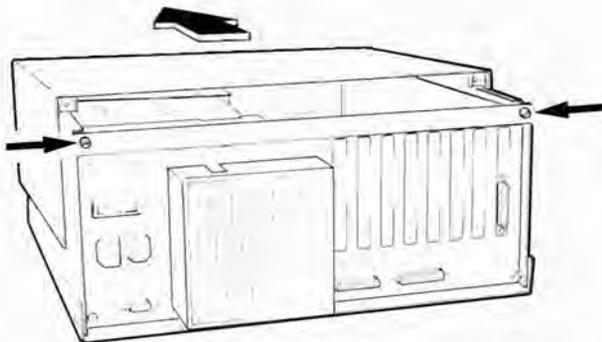
Figure 11   Removal of Basic Module's Covers.

5. Place the Basic Module in a convenient position so as to have easy access to the Motherboard. See figure 12.
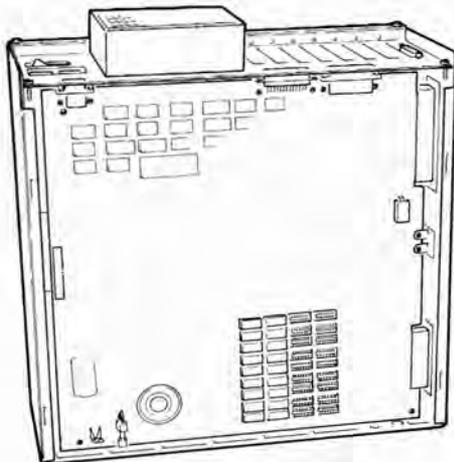
Figure 12   Positioning of Basic Module.

6. Set the Dip Switches on the Motherboard for the correct configuration. See table for the correct switch settings.

7. Look at the Bus Converter Board. There are 7 expansion connectors. You can install the Memory Expansion Board in any one of the three dual row connectors. See figure 13.
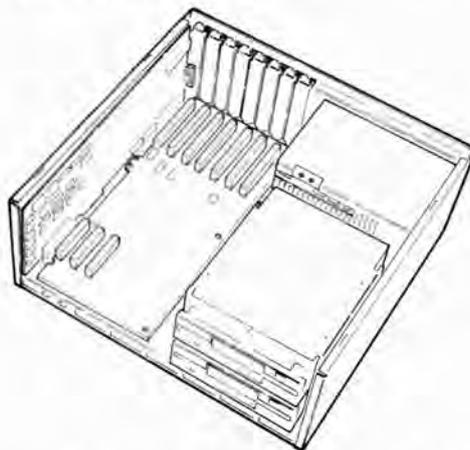
Figure 13 Connectors where Memory Expansion Board can be inserted.

8. Use a flat blade screwdriver and remove the screw that holds the System Expansion Slot cover in place by turning it counterclockwise (CCW). See figure 14.
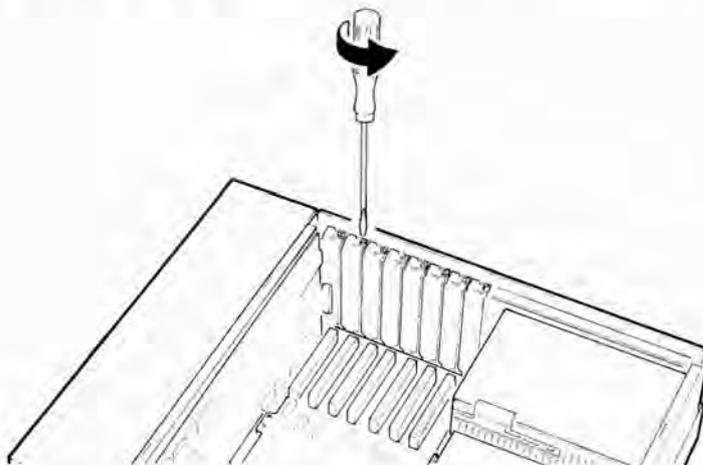
Figure 14 Removal of System Expansion Slot Cover.

9. Hold the Memory Expansion Board by the top corners and firmly press it into one of the unused dual row connectors. See figure 15.
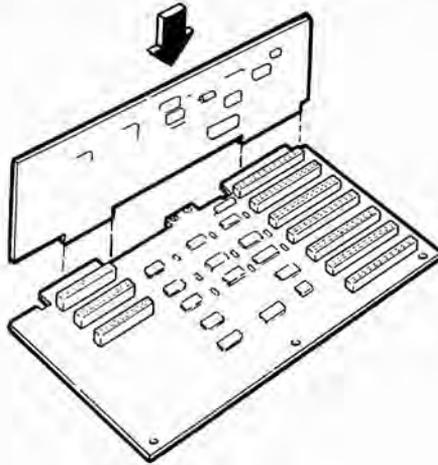
Figure 15   Insertion of Memory Expansion Board.

10. Align the hole in the option retaining bracket with the hole in the rear panel. Start turning the screw clockwise (CW) and then tighten with a flat blade screwdriver. See figure 16.

Figure 16   Hole Alignement.

11. Replace the Basic Module covers.

12. Recable the System.

AT&T

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MEMORY EXPANSION

INTRODUCTION

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It also describes how to install a Memory Expansion Board. The following table summarizes the various Memory upgrades. The procedures for all the Memory upgrades on the Motherboard are nearly the same.

DIPSW—1

DIPSW—0

MEMORY CAPACITY BEFORE OPTION INSTALLATION	DIP SWITCH SETTINGS ON MOTHERBOARD BEFORE OPTION INSTALLATION	AMOUNT OF MEMORY TO BE INSTALLED	MATERIALS REQUIRED FOR INSTALLATION	LOCATION OF WHERE UPGRADE IS TO TAKE PLACE	DIPSWITCH SETTINGS AFTER OPTION INSTALLATION	TOTAL MEMORY AFTER INSTALLATION
128KB on motherboard	ON 1 2 3 4	128KB	Motherboard with 128KB screwdriver 18 64K bit RAM s	Bank 1 on motherboard	ON 1 2 3 4	256KB
256KB on motherboard	ON 1 2 3 4	256KB	Motherboard with 256KB Expansion board with 256KB screwdriver	Insert memory expansion board in first free slot bus converter	ON 1 2 3 4	512KB
256KB on motherboard 256KB on expansion board	ON 1 2 3 4	128KB	Motherboard with 256KB expansion board with 256KB screwdriver 18 64K bit RAM s	Bank 2 on expansion board	ON 1 2 3 4	640KB

1

MEMORY UPGRADES ON MOTHERBOARD
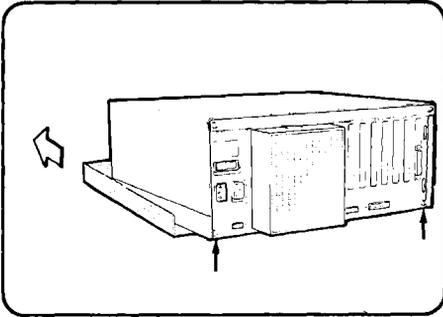
Figure 1 Removal of System
          Module's Cover

1. Set the power switch on the System Module (and expansion unit, if attached) to OFF.

2. Set all the external power switches to OFF (printer etc.).

3. Unplug the System Module (and expansion unit's) power cable from the wall outlet.

4. Remove the System Module bottom covers. See figure 1.
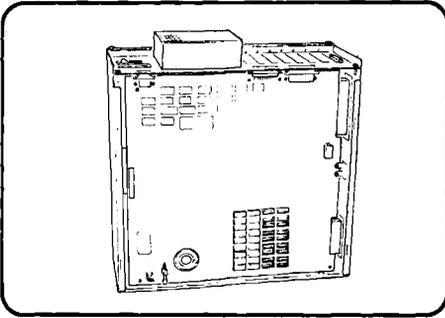
Figure 2 Positioning of System
          Module

5. Place the System Module in a convenient position so as to have easy access to the Motherboard. See figure 2.
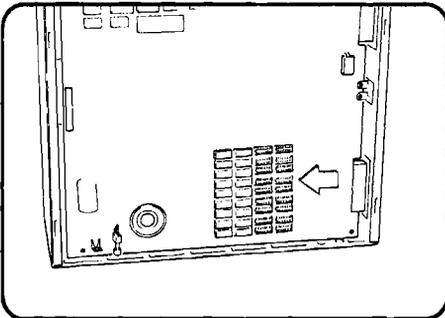
Figure 3 Location of Bank 1 on
          Motherboard

6. Locate Bank 1 on the Motherboard. See figure 3.
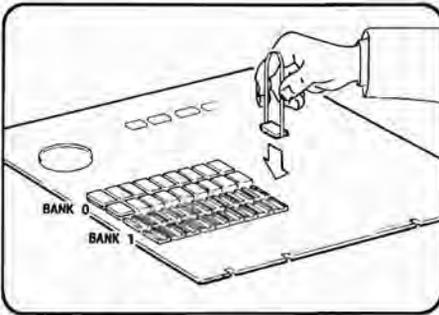
Figure 4 Pin Location
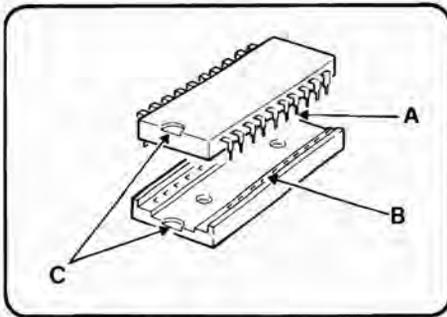
Figure 5 Chip Insertion

7. When installing the RAM Memory chips in the sockets, ensure that pin 1 in the chip is located in the same direction of the Memory chips already installed in Bank 0. See figure 4.

8. Align the RAM pins (A) with the socket (B) and gently insert the RAM chips into the socket. Notch (C) on the chip should be aligned with the notch in the socket. See figure 5.

9. Repeat step 8 for the remaining 17 sockets in Bank 1 on the Motherboard.

10. Set dip switches 1, 2, 3, and 4 of DIPSW0 on Motherboard. For the proper setting of these switches refer to the table.

11. Replace the System Module cover.

12. Recable the System.

MEMORY UPGRADES ON MEMORY EXPANSION BOARD
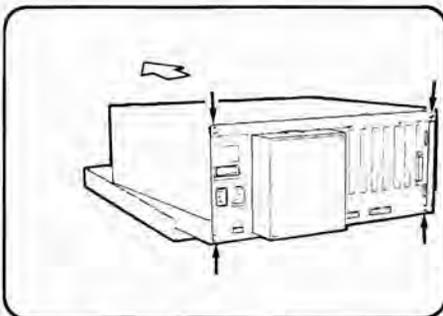
Figure 6 Removal of System Module Covers

1. Set the power switch on the System Module (and expansion unit, if attached) to OFF.

2. Set all the external power switches to OFF (printer etc.).

3. Unplug the System Module (and expansion unit's) power cable from the wall outlet.

4. Remove the System Module covers. See figure 6.

3
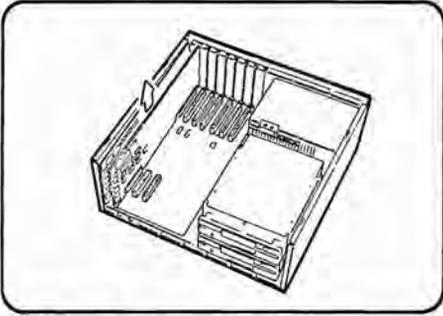
Figure 7   Removal of Memory
           Expansion Board

5. Remove the Memory Expansion Board
   from the bus converter. See figure 7.
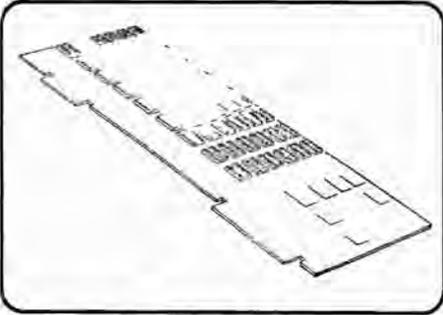
Figure 8   Location of Bank

6. Locate the Bank where the Memory
   chips are to be installed. See
    figure 8.
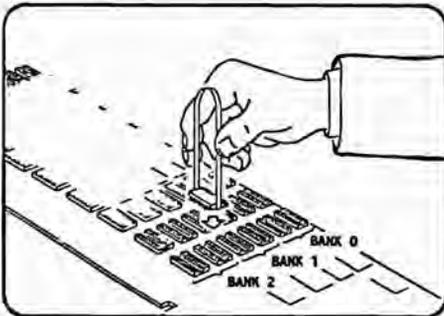
Figure 9   Pin 1 Location

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    chip is located in the same direc-
    tion as the memory chips already in-
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4
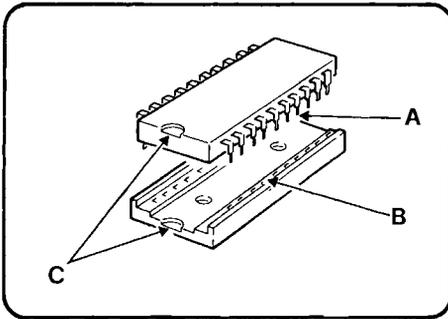
Figure 10 Chip Insertion

8. Align the RAM pins (A) with the socket (B) and gently insert the RAM chips into the socket. Notch (C) on the chip should be aligned with the notch in the socket. See figure 10.

9. Repeat step 8 for the remaining 17 sockets on the same Bank.

10. Set dip switches 1, 2, 3, 4, of DIPSW0 on Motherboard. For the correct settings of these switches refer to the table.

11. Replace the Expansion Memory Board.

12. Replace the System Module Covers.

13. Recable the system.

INSTALLING A MEMORY EXPANSION BOARD
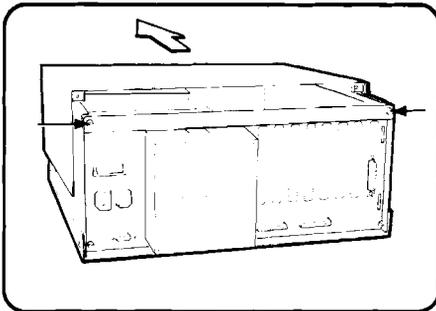
Figure 11 Removal of System Module's Covers

1. Set the power switch on the System Module (and expansion unit, if attached) to OFF.

2. Set all the external power switches to OFF (printer etc.)

3. Unplug the System Module (and expansion unit's) power cable from the wall outlet.

4. Remove the System Module covers. See figure 11.
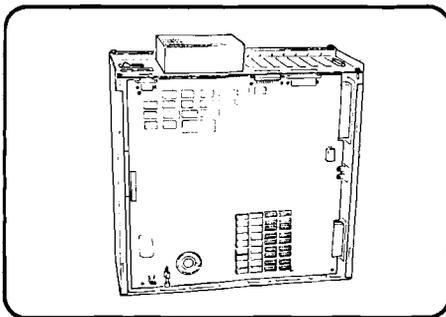
Figure 12 Positioning of System Module

5. Place the System Module in a convenient position so as to have easy access to the Motherboard. See figure 12.

5
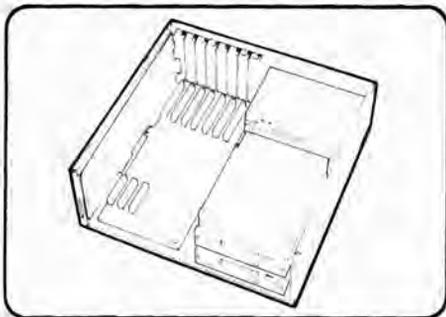
Figure 13 Connectors where Memory
Expansion Board can be
inserted

6. Set the Dip Switches on the Mother-
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There are 7 expansion connectors.
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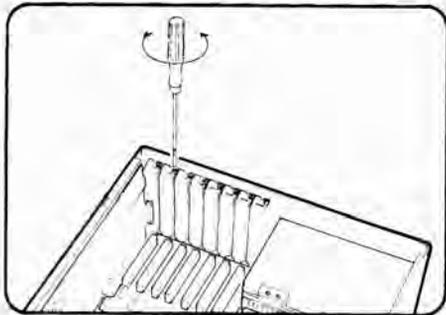
Figure 14 Removal of System
Expansion Slot Cover

8. Use a flat blade screwdriver and
remove the screw that holds the Sys-
tem Expansion Slot Cover in place by
turning it counterclockwise (CCW).
See figure 14.
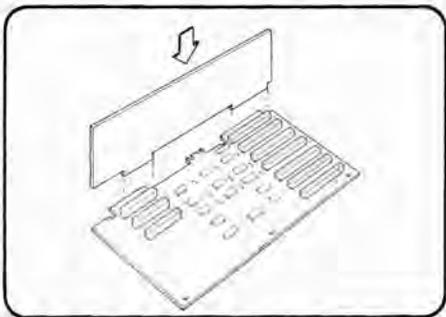
Figure 15 Insertion of Memory
Expansion Board

9. Hold the Memory Expansion Board by
the top corners and firmly press it
into one of the unused dual row
connectors. See figure 15.

6

NOT ALIGNED   PROPERLY
                   ALIGNED
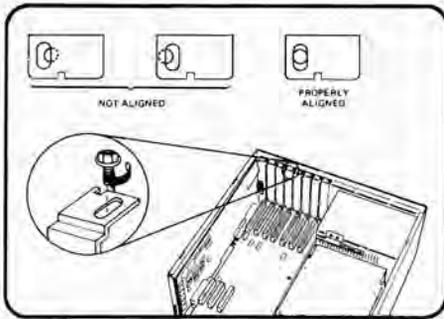
Figure 16 Hole Alignement

10. Align the hole in the option retaining bracket with the hole in the rear panel. Start turning the screw clockwise (CW) and then tighten with a flat balde screwdriver. See figure 16.

11. Replace the System Module Covers.

12. Recable the System.