



# **Using the MBA**

---

## **on Your Hewlett-Packard Series 200/300 Computer**

**Lemain Inc. — Release 3**



# 1. INTRODUCTION

---

Your MBA comes with an easy-to-follow Tutorial and a comprehensive Reference Manual, but some of the information necessary to use the program on your HP computer can only be found in this booklet. For you to get the most from your MBA, we urge you to read this entire booklet carefully.

The information contained in this booklet includes the HP hardware configurations supported by the MBA, the complete boot-up procedures for the MBA on the Hewlett-Packard 216, 217, 220, 236, 237, and Series 300 computers, information about memory and workspace capacity, and descriptions of the keys unique to the HP computers.

**HP Computer Museum**  
**[www.hpmuseum.net](http://www.hpmuseum.net)**

**For research and education purposes only.**

# 2. YOUR HP HARDWARE CONFIGURATION

---

## Minimum Configurations

If you are using the HP 216, 217, 220, or 237, you'll need a mass storage device (from the list of Supported Peripherals below) and at least 512K of RAM. If you are using the HP 236, your computer has two built-in diskette drives, so you'll only need to make sure you have 512K of RAM. If you are using a Series 300 computer, you will need a mass storage device and 1M of memory.

## Supported Peripherals

The MBA supports the following mass storage devices:

- HP 82901M 5.25" Dual Drive
- HP 9121D 3.5" Dual Drive
- HP 9122D 3.5" Dual Drive
- HP 9133A 3.5" Drive with Segmented 4.6 MByte Winchester
- HP 9133B 3.5" Drive with 10 MByte Winchester
- HP 9133D 3.5" Drive with 15 MByte Winchester
- HP 9133V 3.5" Drive with 5 MByte Winchester
- HP 9133XV 3.5" Drive with 15 MByte Winchester

The MBA supports the following printers and plotters:

- HP 82905B Graphics Printer
- HP 82906A Low-cost Impact Printer
- HP 2225A "Thinkjet" Printer
- HP 2602A Daisy Wheel Printer
- HP 2631G Impact Graphics Printer
- HP 2671G Thermal Printer
- HP 2686A LaserJet Printer (Serial)
- HP 2932A Dot Matrix Printer
- HP 2934A Dot Matrix Printer
- HP 9876A Thermal Printer
  
- HP 7470A Low-cost Printer
- HP 7475A 6-pen Plotter
- HP 7550A Plotter
- HP 7580B D-size Plotter
- HP 7585B E-size Plotter
- HP 7586B Plotter
- HP 9872C/T 8-pen Plotter

The MBA supports the following modems:

- HP 13265A Modem
- HP 92205A Modem (Hayes Smartmodem)

---

## Serial Printing

From the above list of supported printers, you can see that the **2686A LaserJet** is a serial printer (not HP-IB). Many serial printers may work with the MBA, although any printer not on the list has not been tested and its performance is not guaranteed.

The MBA assumes that the **2686A LaserJet** is configured with the following protocols: 9600 baud, 8 data bits, no parity, 1 stop bit, and X-On/X-Off buffering.

The MBA assumes any other serial printer is configured with the following protocols: 1200 baud, 8 data bits, no parity, 1 stop bit, and X-On/X-Off buffering.

None of these parameters can be changed from within the MBA; refer to the Owner's Manual for your printer for information about how to verify and, if necessary, change these parameters.

The MBA supports the **HP 98644** and **HP 98626** serial cards. If your serial card is a **98644**, use the following cables to connect your computer to serial peripherals:

- an **HP 13242G** cable for a serial printer or plotter
- an **HP 13242N** cable for a modem

If your serial card is an **HP 98626**, use the following cables:

- an **HP 17255B** cable for a serial printer or plotter
- an **RS 232-C DTE** cable (**#5061-4215**) for a modem

After you have used the MBA to print to a serial printer, you must reboot the program before you can use the MBA to print to an HP-IB printer. Note, however, that you do not have to reboot the program to print to a serial printer after you have used the MBA with an HP-IB printer.

## Keyboards

The MBA supports three Hewlett-Packard keyboards: the **46020A** (called the **HP-HIL** keyboard), the **98203A** (called the **Small** keyboard), and the **98203B** (called the **Large** keyboard). The built-in keyboard on the HP 236 has the same format as the Large Keyboard.

The HP 217 and 237, and Series 300 computers support the HP-HIL keyboard, which differs significantly from the Large and Small keyboards. This booklet — along with the rest of the MBA documentation — has been written for the Large and Small keyboards, and therefore describes some keystrokes differently. If you are using the HP-HIL keyboard, refer to the table below for the correct equivalents to these keystrokes.

| When the documentation says to type:                                 | HP-HIL keyboard users can type:   |
|--|---|
| <ENTER> or the <b>ENTER</b> key                                      | <Return> (the <b>Return</b> key)<br>or <ENTER> (the <b>Enter</b> key)           |
| <SHIFT> and <EXECUTE><br>simultaneously;<br>abbreviated <SHIFT-EXEC> | <ESC> (the <b>Escape</b> key)   |
| <EXEC> or the <b>EXECUTE</b> key                                     | the <CTRL> key and the <b>C</b> key<br>simultaneously; or the <b>Select</b> key |
| <RUN> or the <b>RUN</b> key  | the <b>R</b> key  |

You'll find more information about the HP-HIL keyboard in section 7 of this booklet, "HP Keys and Commands."

## HPIB Addresses

Each of your peripheral devices has an HPIB (Hewlett-Packard Interface Bus) address. For example, if you are using one mass storage device, the recommended HPIB address for that device is 0; any additional mass storage device should be set to address 2. If you are using a printer, its address should be 1, and a plotter should be set to address 5.

The MBA will find printers, plotters, and storage devices at almost any address you assign, but be sure that no two peripherals are set to the same HPIB address. See the Owner's Manuals for your peripheral devices for more information about HPIB addresses.

## Unit Numbers

For some MBA procedures, it is useful to know the Unit numbers of the disk drives and hard disk volumes that are attached to your computer. The following tables list the most common unit numbers for HP Series 200 configurations; note that your Unit numbering scheme may differ.

| COMPUTER                           | MASS STORAGE DEVICE            | DRIVE TYPE OR ADDRESS  | UNIT NUMBER                    |
|------------------------------------|--------------------------------|--|--------------------------------|
| 216, 217,<br>220, 237,<br>310, 320 | 9121D, 9122D or<br>82901M      | Left-hand Drive<br>Right-hand Drive                                  | #3<br>#4                       |
| 216, 217,<br>220, 237,<br>310, 320 | 9133A<br>(segmented)           | Diskette Drive<br>Hard Disk (700,0)<br>(700,1)<br>(700,2)<br>(700,3) | #3<br>#11<br>#12<br>#13<br>#14 |
| 216, 217,<br>220, 237<br>310, 320  | 9133B, 9133V,<br>9133D, 9133XV | Diskette Drive<br>Hard Disk Volume                                   | #3<br>#11...#25<br>[see below] |
| 236                                | Any                            | Right-hand built-in<br>drive<br>Left-hand built-in<br>drive          | #3<br>#4                       |
| 236                                | 9121D, 9122D<br>82901M         | Left Peripheral Drive<br>Right Peripheral Drive                      | #7<br>#8                       |
| 236                                | 9133A<br>(segmented)           | Diskette Drive<br>Hard Disk (700,0)<br>(700,1)<br>(700,2)<br>(700,3) | #7<br>#11<br>#12<br>#13<br>#14 |
| 236                                | 9133B, 9133V,<br>9133D, 9133XV | Diskette Drive<br>Hard Disk Volume                                   | #7<br>#11...#25<br>[see below] |



---

When you initialize one of the unsegmented hard disks with the MBA, the MBA automatically divides the disk into 1-Megabyte sectors. The first sector is assigned unit number #11, and the remaining sectors are numbered sequentially; for example, an HP 9133V initialized by the MBA will consist of five 1-MByte sectors designated #11, #12, #13, #14, and #15.

If your configuration consists of more than one mass storage device, use the following guidelines to determine how the program will assign Unit numbers: (1) Hard disk volumes are assigned Unit numbers sequentially, starting with #11. (2) Diskette drives are assigned in pairs; one pair per device. The pairs are #3 and #4, #7 and #8, #9 and #10. (3) Unit numbers are assigned by select code; the device with the lowest select code is assigned its Unit numbers first.

As an example, suppose you're using an HP 9121D with select code 700 and an HP 9133A with select code 704; the two drives on the 9121D will be assigned #3 and #4, and the single diskette drive on the 9133A will be #7. Unit number #8 will not be used; the 9133A hard disk volumes will be #11 through #14.

Now suppose you're using an HP 9133A with select code 700 and an HP 9121D with select code 704; the single diskette drive on the 9133A will be #3, and the dual drives on the 9121D will be #7 and #8. Unit number #4 will not be used; the 9133A hard disk volumes will be #11 through #14.

Finally, suppose your system consists of an HP 9133A with select code 700, an HP 9121D with select code 704, and an HP 9133B with select code 705. The single diskette drive on the 9133A will be #3; the dual drives on the 9121D will be #7 and #8; the single diskette drive on the 9133B will be #9. Unit numbers #4 and #10 will not be used; the hard disk volumes on the 9133A will be #11 through #14, and the hard disk volumes on the 9133B will begin with #15.

# 3. BACKING UP YOUR MBA DISKETTES

---

It is important that you have functional backup copies of all 3 MBA diskettes. Diskettes can become damaged or worn out, and ordering new copies will take time.

You can make backup copies of MBA1 and MBA2 with the CHANGE option of the shell program. This procedure is described in section 5 of this booklet under the heading "Making Backup Copies of MBA1 and MBA2."

MBA3 is copy-protected; therefore, please complete and mail your registration card to receive a backup for MBA3.

# 4. BOOTING THE MBA

---

MBA1 for the Series 300 machines is divided into Part 1 and Part 2. MBA1, Part 1 contains the system code files necessary to boot the system, while MBA1, Part 2 contains the Help and Change programs as well as MBA's LIBRARY and Configuration file. The Series 200 MBA1 is a single diskette.

If you use the Series 200 MBA1 to boot a Series 300 machine, the MBA will stop after writing a copyright line. You will get the same results if you try to boot a series 200 machine with a Series 300 MBA1, Part 1 diskette. You must reboot with the correct MBA1 diskette or use the Pascal Workstation system to run the MBA.

## Booting the MBA With Dual Drives

Power up the computer and, if applicable, the mass storage device. Put your **MBA1** diskette or your **MBA1 Part 1** diskette in one drive and your **MBA2** diskette in the other drive.

The first prompt asks you to specify a system date. Type in a new date or press **<ENTER>** to use the existing date. The system date identifies the date of creation of files and folders.

Before the MBA spreadsheet appears on the screen, you will see the MBA shell program; the first shell program prompt reads

**Type MBA HELP, CHANGE, INIT**

To continue loading the MBA, replace **MBA1, Part 1** with **MBA1, Part 2** if you are using a Series 300 computer, type **MBA <ENTER>** or simply press the **ENTER** key.

At the next prompt, remove the **MBA1** disk and replace it with the **MBA3** disk. **DO NOT SWAP THESE DISKS UNTIL YOU SEE THE PROMPT.** At this time, you may also remove the **MBA2** disk and replace it with your own data storage disk. To continue, press the **ENTER** key.

In a few seconds, you will see the MBA workspace, as shown on page 5 of the MBA Tutorial. Now you are ready to begin using the program.

---

## Booting the MBA Without Dual Drives

If you have only one diskette drive with which to boot the MBA, you must move the MBA program onto the hard disk as part of the initial boot-up procedure. Once you have transferred the MBA to a hard disk, you should follow the bootup procedure described below: "Booting the MBA After You've Moved the Program to a Hard Disk."

The recommended HPIB address for the flexible disk at the front of the 9133A is 2, and the recommended HPIB address for the hard disk is 0; be sure that the two drives are set to different HPIB addresses.

With a segmented HP 9133A, the flexible drive is Unit #3, and the hard disk adds four new volumes: Unit numbers #11, #12, #13, and #14.

With the other hard disks (9133B, 9133D, 9133V, 9133XV), the flexible drive is Unit #3 and the hard disk volume is automatically divided onto 1-MByte sectors when the hard disk is initialized by the MBA; the first sector is designated #11 and the other sectors follow sequentially. (For example, the ten 1-MByte sectors on an initialized HP 9133B will be #11 through #20.) You may refer to these volumes by their Unit numbers.

To boot the MBA with a single diskette drive, begin by placing **MBA1** or **MBA1, Part 1** on the Series 300 machines, in the diskette drive; power up the computer and the hard disk. If you already have systems and files stored on your hard disk, press the **space bar** several times and you'll see a list of the systems you have on-line. Type

**1 M**

to specify the MBA.

If your hard disk has never been used with your Series 200 or 300 computer, you will only need to power up your computer and hard disk; the program will automatically begin to boot.

While the program is loading, you'll be asked to enter a system date. Type in a new date or press **<ENTER>** to use the existing date. The system date identifies the date of creation of files and folders.

Next, you'll see the shell program prompt

**Type MBA HELP, CHANGE, INIT**

**Note:** If your hard disk has never been used, you must initialize the volumes on the disk before you can move the program there. The procedure for initializing a volume is described under the heading "Moving the MBA Program to a Hard Disk" in section 5 of this booklet, "Changing Your Configuration."

---

When you have an initialized volume on your hard disk and you are ready to continue booting the MBA, replace **MBA1, Part 1** with **MBA1, Part 2** if you are using a Series 300 computer, and type

**CHANGE <ENTER>**

in response to the shell program prompt. You must use the CHANGE routine to move the boot code volume (MBA1), the main program volume (MBA2), the swap code volume (MBA3), and the utility code volume (MBA4) to your hard disk.

The procedure for moving MBA1, MBA2, MBA3, and MBA4 is described under the heading "Moving the MBA Program to a Hard Disk" in section 5 of this booklet, "Changing Your Configuration."

When the Contents of MBA1, MBA2, MBA3, and MBA4 are on the hard disk, and you have pressed the RUN key, the boot procedure will continue. In a few seconds, you will see the MBA workspace, as shown on page 5 of the MBA Tutorial.

#### **Booting the MBA After You've Moved the Program to a Hard Disk**

Begin the boot-up sequence by first turning on the hard disk unit, and then turning on the computer. While the computer is testing its memory, type

**1M**

to load the MBA.

---

## Booting the MBA Without MBA1

You may use MBA without booting your computer with MBA1 since MBA version 3.0 is made to run under Pascal Workstation 3.0 and its compatibles. In order to run MBA without MBA1, you will need to make the following changes to your Pascal Workstation system.

**WARNING:** Be sure to have backups of your INITLIB and LIBRARY before attempting the changes described in this section. An error in creating your INITLIB may make it necessary to use another Pascal BOOT diskette in order to repair the damage.

You must add the modules contained in the files SEGMENTER and UIO to your INITLIB in order to run the MBA. If you wish to use the Communications capabilities of the MBA, you must add the module RS232 to your INITLIB. SEGMENTER, UIO and RS232 are on your Pascal library diskettes. Please carefully follow the directions in your Pascal Workstation manual for adding modules to your INITLIB.

In addition to modifying your INITLIB, some changes to your LIBRARY are also necessary. You will need to add the modules in the file GRAPHICS to your LIBRARY. Again, GRAPHICS is a part of your Pascal Workstation system. Alternatively, you may use the Pascal What command to change the LIBRARY shown in your system file table to GRAPHICS. When you have finished running the MBA, remember to change the LIBRARY if you are going to run another program using a different LIBRARY.

Finally, be sure to copy MBACNFG from your MBA1 or MBA1, Part 2 disk to your boot volume.

To run the MBA execute MBA. To modify your MBACNFG file execute MBACHG.

You will be asked to enter a system date. Type in a new date or press <ENTER> to use the existing date.

---

Next, the shell program will load, and you'll see the prompt

**Type MBA HELP, CHANGE, INIT**

Press <ENTER>. You may be asked to put **MBA3** on-line to verify that you are using a valid copy of the program.

When the MBA workspace appears, you can begin to use the program.

If there was not enough room on your hard disk for the entire MBA, then the minimum portion that you could have moved is **MBA2**. To boot with only **MBA2** on the hard disk, begin by inserting **MBA1** or **MBA1, Part 1** for Series 300 in unit #3. Power up your computer, press the **space bar** several times, and type

**1M**

Enter a system date when prompted, or type <ENTER>. When you see the prompt

**Type MBA HELP, CHANGE, INIT**

replace **MBA1, Part1** with **MBA1, Part 2** for Series 300, and press <ENTER>. Wait for the next prompt and then remove the **MBA1** diskette from unit #3 and replace it with the **MBA3** diskette. **DO NOT SWAP THESE DISKS UNTIL YOU SEE THE PROMPT.** To continue, press the **ENTER** key.

**IMPORTANT NOTE:** While using the MBA, you will occasionally be prompted to insert the **MBA3** diskette. Even if you have moved the entire MBA program onto a hard disk, the **MBA3** diskette will have to be physically present in any on-line disk drive at these times.

# 5. CHANGING YOUR CONFIGURATION

---

## The Shell Program

While you are booting the MBA, you are in the shell program. You can use the shell program to move the program to hard disk, back up your MBA1, MBA2 and MBA4 diskettes, change the location and size of your workspace, specify a default volume prefix, name a default printer, and enter your own default printing and communications formulas.

When you see the shell program prompt

**Type MBA, HELP, CHANGE, INIT**

type **C**<ENTER> or type **CHANGE** <ENTER>. A version of the following message will appear on your screen.

**Choose a variable to change (knob selects, enter chooses)**

|                            |               |
|----------------------------|---------------|
| <b>Boot code volume</b>    | <b>MBA1:</b>  |
| <b>Main program volume</b> | <b>MBA2:</b>  |
| <b>Swap code volume</b>    | <b>MBA3:</b>  |
| <b>Utility code volume</b> | <b>MBA4:</b>  |
| <b>Workspace volume</b>    | <b>RAM:</b>   |
| <b>Default prefix</b>      | <b>#4:</b>    |
| <b>Printer type</b>        | <b>82906A</b> |
| <b>Workspace size</b>      | <b>200</b>    |

**Default printing formula**

**Default communications formula**

**Make back ups of MBA1;, MBA2: and MBA4: from any source**

**<RUN> saves changes and runs MBA**

**<SHIFT-EXECUTE> throws away changes, returns to shell**

The first column lists the variables you may change; the second column displays their current values except for the default printing and communications formulas. The last entry allows you to make backup copies of MBA1, MBA2 and MBA4. Use the up and down arrow keys to move the pointer (>) to the variable you want to change.

The balance of section 5 describes how to change each variable on this list.



---

## Moving the MBA Program to a Hard Disk (Including Hard Disk Initialization)

From the tables in section 2 of this booklet, you know that the Unit numbers for the hard disk volumes start with #11. Before you transfer the MBA to one of these, it is recommended that you clear one entire volume to ensure that there will be enough space for the program and your MBA folders. This will require initializing the volume.

If your hard disk has never been used, then you must initialize a volume before you can move the MBA there.

You can initialize a hard disk volume from the MBA shell program. If your hard disk is a Segmented 9133A, you must initialize each segmented volume individually to use it with the MBA; if your hard disk is a 9133B, 9133D, 9133V, or 9133XV, you'll only need to initialize the first volume (#11) and the MBA will automatically initialize the rest of the disk.

**NOTE:** If you intend to use the volume on your hard disk for both MBA and BASIC applications, then you should initialize the volume with BASIC rather than using the **INIT** option or the **/SIV** command.

Follow the boot-up instructions in section 4, "Bootting the MBA," until you see the shell program prompt

**Type MBA, HELP, CHANGE, INIT**

Make sure **MBA2** is on-line, then type **I<ENTER>** or **INIT <ENTER>**. You'll see the prompt

**Unit number:**

Type the number of the volume (for example, #11) that you want to initialize, then press the **ENTER** key.

The next prompt reads

**Volume name:**

Type a Volume name (6 characters is the maximum length). To avoid confusion, do not name the volume **MBA1**, **MBA2**, **MBA3** or **MBA4**. Press the **ENTER** key.

The final prompt asks

**Destroy volume? (Y/N)**

Type **Y** for Yes; any existing files on the volume will be destroyed, and the initialization will begin. Once the volume is initialized, you'll see the shell program prompt

**Type MBA, HELP, CHANGE, INIT**

Make sure **MBA1** or **MBA1, Part 1** for Series 300 is on-line, then type **C<ENTER>** or **CHANGE <ENTER>**. You'll see the list of **CHANGE** variables shown on page 13. The first column lists the variables you may change; the second column names their current values. The pointer on the far left of the screen (**>**) lets you select the variable you want to change.

As an example, suppose you want to move the contents of the **MBA1** disk (currently located in drive #3) to Unit #11 on your hard disk. Use the up and down arrow keys to move the pointer next to "**Boot code volume.**" Press **<ENTER>**. The next screen lists the possible locations for **MBA1**, given your hardware configuration: for instance, if your hard disk is a 9133A, you'll see a version of the following screen:

**Selected variable is —> Boot volume (MBA1)**

|                       |                          |
|-----------------------|--------------------------|
| <b>&gt; *# 3 MBA1</b> | <b>HP9121 or HP8290X</b> |
| <b>#11 V11</b>        | <b>HP913XA</b>           |
| <b>#12 V12</b>        | <b>HP913XA</b>           |
| <b>#13 V13</b>        | <b>HP913XA</b>           |
| <b>#14 V14</b>        | <b>HP913XA</b>           |

-----**Any other volume or ID#**

The asterisk (\*) denotes the current location of **MBA1**. Again, use the arrow keys to move the pointer to specify the new location; in this example, the new location is **#11**. Press **<ENTER>**. You'll see the prompt

**Do you want to transfer MBA disc contents to V11:?**

Type **Y** and the transfer will begin; a message will appear on the screen listing each file on **MBA1** and describing its transfer to **#11**. If you are using the Series 300 **MBA1** diskettes, you will see separate prompts for **MBA1, Part 1** and **MBA1, Part 2**. When the transfer has been completed, an updated list of the **CHANGE** variables will reappear on your screen.

(To specify a location not on the list, move the pointer to the bottom choice, "Any other volume ID#," and press <ENTER>. You'll be prompted to type the name or number of the location.)

If you want to throw away your changes, hold down the **SHIFT** key and press the **EXECUTE** key (<SHIFT-EXEC>); the changes will be disregarded and you'll return to the shell program.

If you are booting the program for the first time—and, therefore, moving the contents of MBA1, MBA2, MBA3, and MBA4 to hard disk as part of the boot procedure—then you should use the same procedure for moving MBA2 (the Main program volume) MBA3 (the Swap code volume) and MBA4 (the Utility Code volume) that you used for moving MBA1. Be sure that the MBA2, MBA3, and MBA4 diskettes are on-line before you answer Y to the "Do you want to transfer MBA disc contents?" prompt.

When you are satisfied with your changes, press the **RUN** key to continue booting the MBA.

### Disk Initialization on the HP 9122D

Release 3.0 of the MBA for the HP Series 200 and 300 computers supports the **HP 9122D** or **9133D double-sided disk drive**. When you initialize disks on a 9122D or 9133D (either with the MBA's /S I V command or the **INIT** option of the shell program), the final prompt asks

**Formatting option? (defaults to 0)**

You can use the following table to help answer the prompt

| <b>FORMATTING<br/>OPTION</b> | <b>BYTES/SEGMENT</b> | <b>SIDES</b> | <b>NO. OF<br/>256-BYTE<br/>BLOCKS</b> | <b>TOTAL<br/>BYTES</b> |
|------------------------------|----------------------|--------------|---------------------------------------|------------------------|
| 0                            | 256                  | 2            | 2452                                  | 627,712                |
| 1                            | 256                  | 2            | 2452                                  | 627,712                |
| 2                            | 512                  | 2            | 2760                                  | 706,650                |
| 3                            | 1024                 | 2            | 3068                                  | 785,408                |
| 4                            | 256                  | 1            | 1044                                  | 267,264                |

If you type **0** or **1**, your disk will be formatted to contain up to 627,712 bytes; formatting **option 2** will format your disk to contain up to 706,650 bytes; formatting **option 3** will format your disk to contain up to 785,408 bytes. Note that formatting **option 4** formats only one side of the disk; if you plan to use the initialized disk with any single-sided drives (such as the HP 9121D), then you should choose formatting option 4. The default option is 0.

## Making Backup Copies of MBA1, MBA2, and MBA4

You can use the change program to make backup copies of your MBA1, MBA2, and MBA4 diskettes. Make sure you have three initialized diskettes onto which MBA1, MBA2, and MBA4 can be copied. If you are using the Series 300 MBA1 you will need a total of four initialized diskettes. In the following examples, these diskettes have been named BACK1 and BACK2.

**IMPORTANT:** Make sure that your backup diskettes do not have the names MBA1, MBA2, and MBA4.

If your system includes dual drives, you can back up the program by copying the code from one disk drive to the other. If your system includes a hard disk, but only one drive, you must first copy MBA1, MBA2, and MBA4 to your hard disk, and then copy the code from the hard disk to a pair of blank, initialized diskettes. (The procedure for copying the program to a hard disk is described in this section under the heading "Moving the MBA Program to a Hard Disk.")

Begin with MBA1. If your system has dual drives, place the **MBA1** diskette in drive **#3** and place **BACK1** in drive **#4**; if you only have one drive, place **BACK1** in that drive. Power up your computer. When you see the shell program prompt

**Type MBA HELP, CHANGE, INIT**

type **C** or **CHANGE**<ENTER>. You'll see the list of **CHANGE** variables shown at the beginning of this section. Use the arrow keys to move the pointer (>) next to the line "**Make back ups of MBA1: MBA2:, and MBA4: from any source.**" Press <ENTER>.

You'll see the prompt

**Do you want to backup the contents of MBA1:? (Y or N)**

Type **Y** and you'll see the prompt

**Source volume>**

Enter the name or unit number of the volume that contains MBA1. For example,

**MBA1 or #3 or #11**

Type <ENTER>, then you'll see the prompt

**Destination volume>**

Enter the name or number of the volume that contains BACK1. (Remember to make sure your source volume and destination volume do not have the same name.) For example,

**BACK1 or #3 or #4**

---

Type **<ENTER>** and the transfer will begin. If you are using the Series 300 MBA1, you will be prompted for MBA1, Part1 and MBA1, Part2. When the transfer has been completed, you'll see the prompt

**Do you want to backup the contents of MBA2: (Y or N)**

Type **Y**. At this point, dual-drive users should replace **MBA1** with **MBA2** and replace **BACK1** with **BACK2**; single-drive users should replace **BACK1** with **BACK2**. The procedure for backing up MBA2 is like the procedure just described for backing up MBA1. The backup process will be repeated one more time for MBA4. When the transfer has been completed, you'll return to the shell program list of **CHANGE** variables.

When your backups have been made, test them by using **BACK1** and **BACK2** to boot the program. If they are okay, store them in a safe place and continue to use your original MBA1 and MBA2 diskettes to run the program.

### **Moving the MBA Workspace**

Your MBA will perform best if the workspace is kept in RAM, but you may create an extremely large model that requires moving the workspace to a hard disk. Note that this will always result in slower program performance; you should only move your workspace to a hard disk when that is the only way you can use a particularly large MBA model.

The procedure for moving the workspace follows the procedure described above for moving the program. When you see the shell program prompt

**Type MBA, HELP, CHANGE, INIT**

type **C** or **CHANGE <ENTER>**. You'll see the list of **CHANGE** variables and their current values. Use the up and down arrow keys to move the pointer at the far left of the screen (**>**) next to "**Workspace volume.**" Press **<ENTER>**.

You'll see a screen listing possible workspace locations, with an asterisk (**\***) denoting the current location. Use the arrows again to point to the location you want and type **<ENTER>**.

When the list of variables reappears on your screen, notice that your new workspace location has replaced the old value. When you are satisfied with the change, press the **RUN** key and continue loading the MBA.

---

## Changing the Size of Your Workspace

You can also use the CHANGE procedure to change the size of your workspace. Notice that the last item on the list of CHANGE variables is “**Workspace size**,” followed by a number of blocks (1 block 512 bytes).

Changing the workspace size is similar to changing your workspace location: Type **C** or **CHANGE** <ENTER>; select “**Workspace size**” on the list of CHANGE variables and press <ENTER>; specify a new size followed by <ENTER>; press <RUN>.

The program will then attempt to boot with the workspace size you have entered. If the number of blocks you typed is larger than the amount of available space on the disk that contains your workspace, you’ll get an error; type <SHIFT-EXEC> and enter a smaller value followed by <ENTER>. The program will try again with the new size. Follow this procedure until the program loads successfully and the MBA workspace is visible on your screen.

**Note:** The list of CHANGE variables is not updated when you have to enter smaller values for workspace size. For example, suppose you originally specified a 1000-block workspace; the value on the CHANGE list will be 1000. Then, suppose you have to decrease this number to 600 blocks in order for the program to boot successfully. Even though your workspace is 600 blocks, the value on the list of CHANGE variables is still 1000 blocks. Remember to update this value the next time you boot up, or the program will attempt to boot next time with a 1000-block workspace.

If your workspace is in RAM, the program will ignore “Workspace size” and automatically provide the biggest workspace possible given the available memory.

## Specifying a Default Prefix

The Default Prefix is the Volume name or Unit number of the Volume that the program will look for whenever it accesses a Volume (for example, when Saving or Loading a Document, Accessing a Database, or executing @CPY functions). While the MBA is running, you can specify a default volume with the /SP command (this command is explained in Section 2.15 of the MBA Reference Manual). You can also specify a default volume from the shell program, as described here.

**Note:** Always make sure that the drive you are about to specify as the default is empty. If the drive you choose as the default contains a diskette when you press <RUN>, the volume name of the diskette — not the unit number of the drive — will become the default prefix.

---

When you see the prompt

**Type MBA, HELP, CHANGE, INIT**

type **C** or **CHANGE** <ENTER>. You'll see the list of **CHANGE** variables and their current values. Use the up and down arrow keys to move the pointer at the far left of the screen (>) next to "**Default prefix.**" Press <ENTER>.

You'll see a screen listing possible default prefixes, with an asterisk (\*) denoting the current value. Use the arrow keys to point to a value and type <ENTER>. To specify a value not on the list, move the pointer to "**Any other volume or ID#**" and press <ENTER>. You'll be prompted to enter a "**New value.**" Type the new value, followed by an **ENTER** key.

When the list of variables reappears on your screen, notice that your new default prefix has replaced the old value. When you are satisfied with the change, press the **RUN** key and continue loading the **MBA**.

**Specifying a Default Printer Type**

You can use the shell program to tell the **MBA** which **HP** printer you intend to use. This can save you the trouble of writing an **@PRINTER** formula each time you print.

When you see the prompt

**Type MBA, HELP, CHANGE, INIT**

type **CHANGE** <ENTER>. You'll see the list of **CHANGE** variables and their current values. Use the arrow keys to move the pointer at the far left of the screen (>) next to "**Printer type.**" Press <ENTER>.

You'll see a screen that lists a number of **HP** printers, with an asterisk (\*) denoting the current default. Use the arrow keys to point to the model number of your printer and press <ENTER>.

When the list of variables reappears on your screen, notice that your new **Printer type** has replaced the old value. When you are satisfied with the change, press the **RUN** key and continue loading the **MBA**.

---

## Specifying Default Printing and Communications Formulas

You may specify default printing and communications formulas for use with the MBA. Your default formulas override applicable MBA defaults for printing and communications. In turn, printing and communications formulas you enter in your spreadsheets override your default formulas.

To enter a printing or communications formula, select the appropriate item in the change menu. Your current default formula is displayed followed by the prompt

**Do you want to enter a new default formula (Y/N)?**

Type **Y** for yes which brings up another prompt for a new default formula.

**NEW DEFAULT FORMULA --->**

A carriage return terminates your entry and returns you to the main change menu. If you enter a formula longer than 80 characters, the change program automatically shortens it at the 81st character. However, the change program will not correct or signal errors in the formula. An incorrect default formula causes an error when used.

## Another Way to Change the Configuration

You may change the configuration used by the MBA using the Pascal Workstation Editor or similar program to modify the file **MBACNFG.TEST**. Enter the items in the same order as they are displayed in the change program. A colon must follow volume names. Errors in the configuration file will return the MBA to the default configuration.



# 6. MEMORY AND WORK— SPACE CAPACITY

---

When the MBA workspace is visible on your screen, a number in the upper right corner indicates the amount of workspace memory (RAM) currently available to you. This value is expressed in blocks; one block equals 512 bytes. To figure how many kilobytes of RAM you have available, divide the number in the upper-right corner by 2.

## Figuring the Size of Your Models

The following formula will approximate the size of an MBA model

$$(\text{Number of columns}) (\text{Number of rows}) 13.5 = \text{Amount of Memory Required (in bytes)}$$

As an example, suppose you have a budget 26 columns wide and 45 rows long. Perform the calculation

$$26 \text{ columns} \times 45 \text{ rows} \times 13.5 = 15,795 \text{ bytes}$$

The budget will require approximately 16K bytes (or 32 blocks) of RAM. If your model contains stored formulas, you should increase this result using the following table

| <b>If your model contains:</b> | <b>Then you should add:</b>      |
|--------------------------------|----------------------------------|
| 5% to 10% formulas             | 5% to Amount of Memory Required  |
| 10% to 15% formulas            | 10% to Amount of Memory Required |
| 15% to 20% formulas            | 14% to Amount of Memory Required |

If your model contains Word Processing cells, you should increase the total using the following formula

$$(\text{Number of W.P. cells}) \times (\text{Number of pages per cell}) \times 3,000$$

As an example, suppose that the budget model from the above example contains formulas in about 12% of its cells; the model also includes 3 Word Processing cells of 2 pages each. First, calculate the 10% increase in memory required by the formulas:

$$15,795 \text{ bytes} \times 1.10 = 17,374.5 \text{ bytes}$$

---

The RAM requirement for the model has grown to about 17.4 Kilobytes of memory. Now calculate additional memory requirements for the Word Processing cells:

$$3 \text{ cells} \times 2 \text{ pages/cell} \times 3,000 = 18,000 \text{ bytes}$$

and add this to the above figure

$$17,374.5 \text{ bytes} + 18,000 \text{ bytes} = 35,374.5 \text{ bytes}$$

The budget model will require about 35.4 Kilobytes of memory, or about 71 blocks. This is a medium-sized model. A very small model (one which fits on 1 screen) might occupy about 6 blocks; a very large model (including thousands of cells, hundreds of formulas, graphs, and Word Processing cells) might occupy more than 150 blocks.

### **Storage Limitations**

MBA workspaces are stored on volumes (diskettes and hard disks) as Documents; a number of Documents make up a Folder. A Folder is equivalent to 1 Pascal file and can vary in size from 17 blocks (the minimum) up to the maximum capacity of the volume. You may store as many as 28 Documents in a single Folder, or 1 Document may occupy an entire Folder.

# 7. HP KEYS AND COMMANDS

---

This version of the MBA supports both the Large and Small Series 200 key boards, as well as the HP-HIL keyboard. To minimize confusion, we have made clear distinctions between keys supported on the HP-HIL keyboard and keys supported on the Large and Small keyboards. In the MBA package you will find a function key reference card which is designed to fit above the function keys on your keyboard.

## The HP-HIL Keyboard: Special Keys

The MBA currently uses the following programmed function keys:

- f1** Pressing this key is the same as typing **/WXY** (the Window Expand command), or **/WXN** (the Window Unexpand command) if window has already been expanded.
- f2** Pressing this key is the same as typing **/EE** (the Word Processing Edit command).
- f3** Pressing this key enters Macro Record mode. Pressing the key a second time exits Macro Record mode.
- f4** Pressing this key enters Macro Execute mode.
- f5** Pressing this key is the same as typing **!** (the Recalculation command).
- f6** Pressing this key is the same as typing **?** (the Help command).
- f7** Pressing this key is the same as typing the back slash symbol (**\**), used for specifying graph patterns.
- f8** Pressing this key generates a tilde (**~**), used for control codes in Printing and Communications.

The MBA currently uses the following special keys:

**Stop** Press **<Stop>** to stop a current MBA print or plot operation without ending the MBA session. **CAUTION:** Be sure never to press **<Stop>** while you are scrolling across the MBA workspace on an HP 237 or Series 300 with a high-resolution display; this can cause your entire system to stop and may result in a loss of work.

**Insert char** When you are editing cell contents, formulas, or Word Processing text, you may press **<Insert char>** to begin inserting new text.

---

**Delete char** When you are editing cell contents, formulas, or Word Processing text, you may press <Delete char> to begin deleting new text.

**Prev** On the spreadsheet, press <Prev> to move the cursor up the workspace in half-screen increments; in Word Processing, press <Prev> to move up one screen.

**Next** On the spreadsheet, press <Next> to move the cursor down the workspace in half-screen increments; in Word Processing, press <Next> to move down one screen.

**Home** The **Home** key on the **HP-HIL** keyboard is labeled with a diagonally-pointed arrow and is located directly above the arrow keys. Pressing <Home> will move the cursor to Cell A1 on the spreadsheet, to the beginning of a Word Processing cell, or to the first character in a line you're editing with the /E <ENTER> command.

On the HP-HIL keyboard, press <Menu> to see the programmed function keys.

### **The Large and Small Keyboards: The Knob and Arrow Keys**

You can use the round knob on your Large or Small keyboard to move the cursor around the MBA workspace. To move the cursor vertically, hold down the **SHIFT** key and turn the knob; to move the cursor horizontally, turn the knob by itself. You can also use the arrow keys to move the cursor around the workspace.

If you turn the knob quickly, the cursor may temporarily disappear from the workspace. You can always keep track of the location of the cursor by checking the cell address (for example, >AC200) in the upper-right corner of the screen.

---

## The Large and Small Keyboards: Special Keys

The MBA currently uses the following programmed function keys:

- k0** Pressing this key is the same as typing **/WXY** (the Window Expand command), or **/WXN** (the Window Unexpand command) if the window has already been expanded.
- k1** Pressing this key is the same as typing **/EE** (the Word Processing Edit command).
- k2** Not Used
- k3** Pressing this key enters Macro Record mode. Pressing the key a second time exits Macro Record mode.
- k4** Pressing this key enters Macro Execute mode.
- k5** Pressing this key is the same as typing **!** (the Recalculation command).
- k6** Pressing this key is the same as typing **?** (the Help command).
- k7** Pressing this key generates the back slash symbol (**\**), used for specifying graph patterns.
- k8** Pressing this key generates a tilde (**~**), used for control codes in Printing and Communications.
- k9** Pressing this key will move the cursor to Cell A1 on the spreadsheet, to the beginning of a Word Processing cell, or to the first character in a line you're editing with the **/E <ENTER>** command.

These keys also have functions specific to the MBA:

**DEL L, DEL LN, DEL C, or DEL CHR** If you are editing text, a formula, or the contents of a cell, pressing one of these keys is the same as pressing **D**.

**INS L, INS LN, INS C, or INS CHR** If you are editing text, a formula, or the contents of a cell, pressing one of these keys is the same as pressing **I**.

**RUN** Pressing this key returns the character **R**.

**EDIT** Pressing this key returns the character **E**.

**STOP, C I/O, or CLR I/O** Pressing one of these keys will stop a current MBA printing or plotting operation without ending your MBA session. (If the program also stops, type **<SHIFT-EXEC>** to restore it.) **CAUTION:** Be sure never to press **<STOP>** key while you are scrolling across the MBA workspace on an HP 237; this can cause your entire system to stop and may result in a loss of work.

---

## All Keyboards: Special Keys

The **Reset (RST)** key can be used to end an MBA session and return to the boot-up sequence. **CAUTION:** Inadvertently pressing the **Reset** key will result in the loss of everything in your workspace; you should always use this key carefully.

The following keys on the Series 200/300 keyboards are not used by the MBA:

**RCL** or **RECALL**  
**SET T** or **SET TAB**  
**CLR T** or **CLR TAB**  
**CLR S** or **CLR SCR**  
**CLR L** or **CLR LN**  
**STEP**  
**PSE** or **PAUSE**  
**CONT** or **CONTINUE**  
**PRT ALL**  
**CLR>END**  
**RESULT**  
**Extend char**  
**Clear line**  
**Clear display**

## Alpha and Graphics

The HP 216, 217, 220, and 236 screen displays have an Alpha (text and numbers) mode, a Graphics (graphs and inverse video) mode, and an Alpha-Graphics mode. If you encounter an error which mixes up the image on your screen, you may need to get back into Alpha-Graphics mode before you can repaint the screen.

On the **Large** keyboard, press the <**ALPHA**> key to return to the Alpha-Graphics mode; on the **Small** keyboard, press the <**SHIFT**> key and the <**RCL**> key simultaneously. On the **HP-HIL** keyboard, press <**Menu**> to display the programmed function keys: <**f6**> is the **Alpha** key and <**f7**> is the **Graphics** key. Once you have returned to the Alpha-Graphics mode, use the \* key to repaint the screen.

The HP 237 and Series 300 computers use a single bit-mapped display for alpha and graphics. The above instructions do not apply to these screen displays.

## All Series 200 and 300 Displays: Different Sizes

The Series 200 and 300 computers use three screen sizes which are all supported by MBA version 3.0. Consequently, different amounts of the workspace are visible as shown in the table below.

| COMPUTER                           | DISPLAY COLS | SIZES ROWS |
|------------------------------------|--------------|------------|
| 216, 217, 236                      | A - K        | 1 - 20     |
| Series 300<br>Medium Resolution    | A - K        | 1 - 21     |
| 237, Series 300<br>High Resolution | A - R        | 1 - 43     |

When you load a model onto your larger-screen computer that was created on a smaller-screen Series 200 or 300 computer, the model will be automatically adjusted to the new screen size. All windows are maintained. However, when you load a model that was created on a larger-screen computer on a smaller-screen computer, you will find the model displayed as a single window. (Unlike version 2.4, MBA version 3.0 does not have a manual window reset, /WR, command.)

Note that models created on either of the Series 300 screens or the HP 237 using version 2.4 or 2.5 are not usable with version 2.3 of the MBA. Models created on the HP 216, 217 and 236 are fully usable with version 2.3 of the MBA. You may use your version 3.0 models with version 2.4 by adjusting the display of your model using the /WR, window reset command available in version 2.4.

If you are using any of the Series 300 computers or the HP 237 with an 82905B printer, you will not be able to make screen prints.

**CAUTION:** Be sure never to press the **Stop** key while you are scrolling across the MBA workspace on an HP 237 or a Series 300 with a high-resolution display. This can cause your entire system to stop and may result in a loss of work. Pressing **Stop** while scrolling on any Series 200 or 300 computer may cause an incomplete screen to be displayed. To correct this condition, press \* to repair the entire display.

## Color Selection for the HP 238C or Series 300 Color Displays

If you have an HP 236C or a Series 300 color display computer, you can display MBA graphs in color on your screen. Use the same procedure for specifying background and pattern colors that you would use for pen selection on HP plotters (see section 4.4 of the Reference Manual).

The format for 236C or Series 300 color specification is

<background color><pattern symbol><pattern color>

The following table lists each pattern symbol and its description:

|   |                      |                             |
|---|----------------------|-----------------------------|
| / | (slash)              | diagonal lines from right   |
| \ | (back slash)         | diagonal lines from left    |
| — | (dash)               | horizontal lines            |
| I | (capital I)          | vertical lines              |
| = | (plus)               | perpendicular crosshatching |
| X | (capital X)          | diagonal crosshatching      |
| B | (capital B or blank) | blank; no pattern           |

(On the **Small** keyboard, you will have to press the **K7** function key to generate a back slash.)

Use integers to specify the colors; the following table shows each number and the color it represents:

| Number | Color        |
|--------|--------------|
| 0      | Black        |
| 1      | White        |
| 2      | Red          |
| 3      | Yellow       |
| 4      | Green        |
| 5      | Cyan         |
| 6      | Blue         |
| 7      | Magenta      |
| 8      | Black        |
| 9      | Olive green  |
| 10     | Aqua         |
| 11     | Royal blue   |
| 12     | Violet       |
| 13     | Brick red    |
| 14     | Burnt orange |
| 15     | Grey brown   |



---

**Note:** some variations in the colors actually displayed may occur on the Series 300 color displays. Numbers not listed in the above table are displayed as white on the 236C or Series 300 color display.

For example, **3X9** specifies yellow for the background color, diagonal crosshatching for the pattern, and olive green for the pattern color.

Enter your color specifications in a cell or range of cells on the workspace. In the same way that you specify plotter pen information, use the following @DATA function to refer to the location of the cells which contain the color information

**@DATA (<R/C>,<range>,<legend>,<236C/Series 300 color information>)**

Graphs are fully explained in section 4 of the MBA Reference Manual.

# 8. MORE ABOUT HP PRINTERS AND PLOTTERS

---

## Printer Control Characters

The MBA supports underlining, double strike, subscripts, and other special modes on many HP printers. To specify any of these modes in MBA word processing text, simply insert the relevant control code—one or more characters preceded by a tilde (~)—before the first word or character you wish to print in that mode; then insert the code to turn off the mode (if one is needed) at the point where normal printing is to resume. For example, on an **HP 82906B** printer, the line

**The graveyards**

**are~[&d10Ufull~[&d10@of~[&k1Sindispensable~[&k0Smen.**

would be printed

The graveyards are full of **i n d i s p e n s a b l e** men.

In this example, the ~[&d10U turned on underlining, and ~[&d10@ turned it off; the ~[&k1S turned on the enlarged type mode, and ~[&k0S restored normal type. Note that because control codes are neither printed nor counted as characters, you should not leave any extra space before or after them.

You can also enter a control code in an @PSETUP function in a print format. This function is described in section 2.12 of the MBA Reference Manual, and an example is provided below under the heading "Some Sample Print Formats."

You can find the complete list of control characters for your printer in the Owner's Manual that came with your printer.

---

## Sample Print Formats

The following print formats are specific examples of printing operations with different HP peripherals. Even if your printer or plotter is not one of the machines mentioned, you can extrapolate from the given information to apply the examples to your own printing tasks and hardware configuration.

Printing and print formats are fully described in section 2.12 of the MBA Reference Manual.

You can use the following print format to print word processing cells on an **HP 2602A** printer:

```
@PRINTER (2602A, HPIB, #701) =@PFORMAT (EXPAND,  
NOPAGENUM)
```

The **@PRINTER** function tells the program which printer you are using; the **@PFORMAT** function tells the program that you want to print in expanded mode, without page numbers.

You can use the following print format to print a graph on an **HP plotter**:

```
@PRINTER (PLOTA, HPIB, #701) =@PFORMAT (EXPAND)
```

Note that **@PRINTER** functions are used for both printers and plotters. In this example, **PLOTA** refers to the paper size: the model number of a supported HP plotter (for example, 7470A or 9872C) could be used instead of **PLOTA**. The **@PFORMAT** function specifies expanded mode.

You can use the following print format to print a portion of a spreadsheet horizontally across an 8-½" x 11" sheet of paper with an **HP 2686A LaserJet** printer:

```
@PRINTER (2886A SERIAL #9) =@PFORMAT (SPREAD, ADDR)  
=@PSETUP ('~[&I10') =@PPAPER (51, 45)
```

Note that this **@PRINTER** function specifies a serial printer with a different select code than the previous examples. The **@PFORMAT** function specifies spreadsheet mode; the **ADDR** parameter tells the program that you want the cell addresses (that is, the column letters and row numbers) to appear. The **@PSETUP** function contains a control code for the 2686A that will print the data with "landscape" (horizontal) orientation. Finally, the **@PPAPER** function specifies a page length of 51 lines (about 8-½ inches), with 45 lines (about 7-½ inches) per page.

---

## Table of Control Characters

ASCII characters 0 through 31 are **control characters**; they are transmitted in order to signal to or otherwise control hardware, rather than as printable data. In the MBA, you can represent any control character as text by prefixing the equivalent character in the range 64 through 95 (@, the capital letters A through Z, [, \, ], and ≅ with a tilde (~).

The ASCII value of a control character is always 64 less than that of the equivalent printable character used to represent it. For example, the letter M has the ASCII value 77; Ctrl-M (~M) has the ASCII value 13 (77-64).

The following control characters may be used to specify print modes; they may also be transmitted (for example, in the @DATA function) to a remote computer during a telecommunications session. (See section 8 of the MBA Reference Manual for more information.)

| ASCII Value | Character | Standard Name          | Type |
|-------------|-----------|------------------------|------|
| 0           | Ctrl-@    | Null                   | ~@   |
| 1           | Ctrl-A    | Start of heading       | ~A   |
| 2           | Ctrl-B    | Start of text          | ~B   |
| 3           | Ctrl-C    | End of text (Accept)   | ~C   |
| 4           | Ctrl-D    | End of transmission    | ~D   |
| 5           | Ctrl-E    | Enquire                | ~E   |
| 6           | Ctrl-F    | Acknowledge            | ~F   |
| 7           | Ctrl-G    | Bell                   | ~G   |
| 8           | Ctrl-H    | Backspace              | ~H   |
| 9           | Ctrl-I    | Horizontal tab         | ~I   |
| 10          | Ctrl-J    | Line feed              | ~J   |
| 11          | Ctrl-K    | Vertical tab           | ~K   |
| 12          | Ctrl-L    | Form feed              | ~L   |
| 13          | Ctrl-M    | Carriage return        | ~M   |
| 14          | Ctrl-N    | Shift out              | ~N   |
| 15          | Ctrl-O    | Shift in               | ~O   |
| 16          | Ctrl-P    | Data link escape       | ~P   |
| 17          | Ctrl-Q    | X-on                   | ~Q   |
| 18          | Ctrl-R    |                        | ~R   |
| 19          | Ctrl-S    | X-off                  | ~S   |
| 20          | Ctrl-T    |                        | ~T   |
| 21          | Ctrl-U    | Not acknowledged       | ~U   |
| 22          | Ctrl-V    | Synchronize            | ~V   |
| 23          | Ctrl-W    | End transmission block | ~W   |
| 24          | Ctrl-X    | Cancel character       | ~X   |
| 25          | Ctrl-Y    | End of medium          | ~Y   |

|    |        |                       |    |
|----|--------|-----------------------|----|
| 26 | Ctrl-Z | Substitute            | ~Z |
| 27 | Ctrl-[ | Escape                | ~[ |
| 28 | Ctrl-\ | File separator        | ~\ |
| 29 | Ctrl-] | Group separator       | ~] |
| 30 | Ctrl-^ | Record separator      | ~> |
| 31 | Ctrl-_ | Information separator | ~_ |

### Escape Sequences

Many printers use escape sequences to control special print modes. This is the escape character (~[ or ASCII 27), followed by one or more other characters, either printable or control characters.

You can include escape sequences in MBA word processing text by typing the equivalent characters in the correct order, without any spaces between. For example, most HP printers use

**<ESC>S<Ctrl-A>**

to turn on subscript mode. Referring to the table above, you can type this sequence as

**~[S~A**

If a printer manual had specified the same sequence using the ASCII values

**27 83 1**

you could refer to the numbers in the left column to find the same information.

# PRESENTING THE CONTEXT MBA

Hewlett-Packard Series 200/300 Edition



## 'Where Do I Start?'

We suggest you follow these steps in getting to know the MBA:

1. Read this card.
2. Fill out and return the registration card to receive your backup and information on any new releases.
3. Refer to the "Using..." manual for hardware information.
4. The booklet "Demo Models" and the sample data on the diskette DDISK will provide some example of what the MBA can do for you.
5. The MBA Tutorial provides a systematic tour through the MBA.
6. Commands are fully documented in the Reference Manual. For a quick description, see the Desktop Reference.

## "Do I Have the Correct Configuration?"

The MBA comes on 2 different configurations.

### **If you have...**

### **Then you need...**

3-½ disk drives

Option 630

HP236 with built in  
5-¼ drives

Option 655

### **"Do I Have Everything I Need?"**

As you unpack your program, check off the following items (applies to full system, not upgrade kits):

- MBA Tutorial and MBA Reference Manual (two texts)
- MBA Desktop Reference
- "Using the MBA on Your HP Series 200/300 Computer" booklet\*
- "Demo Models for the MBA" booklet
- "Addenda and Corrections for the MBA Documentation" addenda sheets\*
- License Agreement
- Registration Card

And in the diskette package:

- Context MBA Disks MBA1, MBA2, MBA3, and MBA4 for all Series 200 and 300 computers; MBA1, Part 1 and MBA1, Part 2 for Series 300 only.\*
- DDISK (demo models)
- Function key reference card

It's very unlikely that any part of the package will be missing or defective. If you have any problems, call (818) 706-3141

\* Upgrade Kit items

### **"What about Backups?"**

Program disks MBA1, MBA2 and MBA4 are not copy-protected. You can make backups using the MBA's CHANGE program. See "Using..."

MBA3 is copy-protected. You receive one backup when you return your registration card. If you damage this, an additional backup may be ordered by calling (818) 706-3141. There is a nominal charge.

### **"Who Can I Call for Help?"**

We will be pleased to try to help you with your technical questions. You may leave a message at any time at (818) 706-3141. Your call will be returned as soon as possible. There is a charge for this service, on a per call basis. This service is provided free for 3 months from date of purchase for release 3.0.

# Addenda and Corrections for the MBA Documentation

## **Hewlett-Packard Series 200 and Series 300 - Release 3.0**

The following items are additional information to help you get the most from your MBA. Each item has been referenced by publication; you may want to transcribe these addenda on the appropriate pages, or simply keep these notes in a prominent place in your binder.

### **REFERENCE MANUAL**

#### **RM, page 11 USING THE KNOB FOR CURSOR MOVEMENT**

If you turn the knob on your HP keyboard quickly, the cursor may temporarily disappear from the workspace. You can always keep track of the location of the cursor by checking the cell address (for example, **AZ200**) in the upper-right corner of the screen.

#### **RM, page 34 USING /E TO EDIT A LINE**

If you are using the /E command to edit a formula that is more than 1 line long, the right arrow key will not move the cursor past the end of a line. You must press the **ENTER** key or a down arrow to move to the next line. You may also edit the formula with the word processor by typing the command /EE.

#### **RM, Pages 10, 58, 67 STOPPING A PLOTTER OPERATION**

When you are drawing a graph on the HP plotter, You can stop the plotter by pressing the **STOP** key. Typing **SHIFT-EXEC** will not stop a plot operation until the frame, axes, and legends of the graph have been plotted.

#### **RM, pages 60, 64 PRINTING DEFAULTS FOR THE HP 9836**

If you have an HP 9836 computer and either an HP 2631G or HP 82906A printer, then the Default Printer Format will specify **HDOUBLE** (instead of **BDOUBLE**) in the **@PFORMAT** function. For normally-proportioned printed graphs, specify **VDOUBLE** in your **@PFORMAT** function.

**RM, page 58 (paragraph 9, line 2)** For "Pascal text file," read "ASCII text file."

**RM, page 64** If you have an HP 236 and either an HP 2631G or HP 82906A printer, then the Default Printer Format will specify **HDOUBLE** (instead of **BDOUBLE**) in the **@PFORMAT** function. For normally-proportioned printed graphs, specify **VDOUBLE** in your **@PFORMAT** function.



## **RM, page 68 PRINTING TO DISK**

When you are printing to disk, only the Volume should be Initialized; do not Initialize any Folders on the disk.

**RM, page 76 (paragraphs 2 and 3)** The Folder name should be FORECAST (maximum length is 8 characters).

## **RM, page 79 STORING A DOCUMENT AND ERROR 515**

While Storing a Document you may see the Error message

### **515: Too few free blocks in folder specified**

At this point, the old version of your Document has already been erased from the disk. In order to save your work, you must use the /SIF command to Initialize a new Folder on either the current volume or a new one, then use the /SS command to store the Document now in memory as part of the new Folder.

**RM, page 81 (paragraph 1)** When transferring a Folder the back-up Volume must have a different name from the original.

## **RM, page 84 SORT CRITERIA AND ERROR 646**

You may get the following Error message:

### **Error 646: Sort criteria missing or in error**

Note that the MBA will not recognize Sort criteria that have been entered in formatted cells. You can either use /IR to Insert a new Row just for the criteria, or use /BR to Blank the entire Row (including any formats) before reentering the criteria.

**RM, page 86** Once you have fixed vertical or horizontal titles with /T, entering /WXY to expand a window will unfix those titles. You must use the /T command again if you want fixed titles after using /WXN to de-expand the window.

## **RM, page 92 THE WINDOW RESET COMMAND**

There is a new option for /W:/WR, the **Window Reset** command. On any Series 200 computer, /WR automatically merges all horizontal and vertical windows to return the workspace to a single window.

On an HP 237, /WR Resets a model that was created on a smaller-screen Series 200 computer to fill (and take advantage of) the 237's large screen. On other Series 200 computers, /WR Resets a model that was created on an HP 237 so that the model is fully usable with the smaller screen.

**RM, page 104** The results in the Arccosine examples should be as follows:

@ACS(.25) = 1.3181

@ACS(-.95) = 2.824

**RM, page 106 (paragraph 3, lines 56)** Delete the reference to Box names; the @CPY function accepts only Marker names.

### **RM, page 145 PLOTTING LINE GRAPHS IN COLOR**

If you are plotting multiple-line graphs on an HP plotter, you can use pattern specifications and the @DATA function to specify a different color for each line. Pattern specifications for plotting graphs are described in section 4.4, "Patterns and Legends."

When specifying colors for lines, make sure that (1) You enter the same integers (i.e., pen numbers) for background color and pattern color; and (2) You choose a non-blank pattern from the list on page 135. For example, 3X3, 2=2, and 111 are all valid color specifications.

Specify a color for every line in the graph. Enter each specification in a cell adjacent to the row or column of data from which that line will be plotted; refer to the starting cell with the pattern parameter of the @DATA function.

**RM, page 165 (paragraphs 1 and 2)** An exclamation mark (!) at the right margin indicates overlong text. To correct this, you can type M to Marginate the paragraph; you can also move the cursor to a point before the ! and type IENTER.

### **RM, page 185 SAVING YOUR TEXT AND STORING A DOCUMENT**

Note that typing QS only saves your text to the workspace. You must use the /SS command to store your work to a disk.

### **RM, page 210 ENHANCED @PROTOCOL FUNCTION**

Starting with release 2.4, the MBA has an enhanced @PROTOCOL function. The new syntax is

**@PROTOCOL (buffering type, character set, duplex, echo)**

Buffering type, character set, and duplex work as described in section 8.2. Echo checking is a method of assuring the accuracy of communicated data; it may be specified in two ways:

**H** Echo of characters is controlled by the **Host** computer

**L** Characters are echoed **Locally**, regardless of whether the host computer is echoing them

The default is

**@PROTOCOL (N, A, H, H)**

**RM, page 206** The @PROTOCOL function offers 4 buffering conventions: X-On/X-Off, Hardware, ENQ/ACK, and None. To specify X-On/X-Off, enter **X** in your @PROTOCOL function; for Hardware, enter **H**; for ENQ/ACK, enter **E**; for None, enter **N**.

If you choose ENQ/ACK, the MBA will regulate data transmission using X-On/X-Off characters. When you type SHIFT-EXEC to enter command mode, or if your buffer becomes full, the MBA will automatically send an X-Off to halt transmission; when you re-enter terminal mode or change cells, the program will send an X-On to resume transmission.

**RM, page 219** The correct Dow Jones log-on formula should read

```
@DIAL (A1) +@PROTOCOL (,,F) +@WAIT (5) +@RECEIVE  
( 'identifier' )  
+@DATA (A6) +@WAIT (5) +@RECEIVE ( 'in:' ) +@DATA (A2)  
+@WAIT (5)  
+@RECEIVE (A4) +@DATA (A3) +@WAIT (5) +@RECEIVE  
( 'password' )  
+@DATA (A4) +@WAIT (5) +@RECEIVE ( 'query' ) +@DATA  
(A5)
```

## **TUTORIAL**

**Tutorial, page 34 (paragraph 4, line 3)** The disk drive number should be **#11:** (with a colon).

**Tutorial, page 49 (paragraph 7)** The complete formula should read

```
+B20*1.08 ENTER
```

**Tutorial, page 92 (paragraphs 13 and 15)** The correct escape sequences for the HP 82905B printer are

```
~[&k1S to turn on expanded mode  
~[&k0S to return to normal printing
```

On the **Small** keyboard, press the **k8** function key to generate a tilde (~). An escape sequence can be included in an @PSETUP function as part of the printer formula; for example

```
@PSETUP ( '~[&k1S' )
```

**Tutorial, page 97 NUMBERS FOR CALCULATIONS AND NUMBERS-AS-TEXT**

Numbers that may be used in calculations (e.g. salaries ages, percentages, statistics) should not be preceded by quotation marks when entered into the database. Numbers-as-text (e.g. dates telephone numbers addresses, ranks) should be preceded by quotes so that they will not be subject to recalculation. The database commands can Retrieve or Sort either kind of number.

**Tutorial page 108 NO SORT CRITERIA IN FORMATTED CELLS**

Note that the MBA will not recognize Sort criteria that have been entered in formatted cells. You can either use the /IR command to Insert a new Row just for the criteria, or use /BR to Blank the entire Row (including any formats) before entering the criteria.

**Tutorial, page 112** You may edit formulas in addition to text.

**Tutorial, page 129 (paragraph 12)** The page length specified in a word processing Ruler will be superseded by any page length specified in an @PPAPER function.

**Tutorial, page 146** Ignore the last instruction on the page ("De-expand the window..."); the window should remain expanded while you edit the formula, add the x-axis labels, and watch the graph redraw.

**Tutorial, page 148** Note that every line in a multiple-line graph must have the same number of data points.

**Tutorial, page 168** Adjust the following locations:

Paragraph 1, line 4 Enter the number 4 in cell E3 (not E2)

Paragraph 3, line 2 Enter the date in cell F3 (not F2)

Paragraph 5, line 2 Make sure the cursor is in row 3 (not row 2)

Paragraph 7, line 1 The Form is named CONTACTS (not CONTRACTS)

**Tutorial, page 82 FIXING TITLES WITH /T**

Once you have fixed vertical or horizontal titles on the spreadsheet with the /T command, entering /WXY to expand a window will unfix those titles. You must use the /T command again if you want fixed titles after using /WXN to de-expand the window

## **Tutorial, pages 22, 67 USING /E TO EDIT A LINE**

If you are using the /E command to edit a formula that is more than 1 line long, the right arrow key will not move the cursor past the end of a line. You must press the **ENTER** key or a down arrow to move to the next line.

## **Tutorial, page 90 PRINTING DEFAULTS FOR THE HP 9836**

If you have an HP 9836 computer and either an HP 2631G or HP 82906A printer, then the Default Printer Format will specify **HDOUBLE** (instead of **BDOUBLE**) in the **@PFORMAT** function. For normally-proportioned printed graphs, specify **VDOUBLE** in your **@PFORMAT** function.

## **DESKTOP REFERENCE**

**Desktop Reference, card 13, side 1 (“Functions”)** The correct form for the **@CPY** function is

**@CPY (folder, document, marker 1...marker 2)**

—where the folder name can have the forms

volume name:folder           (e.g., SALES:SPRING85)  
device number:folder       (e.g., #4:SPRING85)

**Desktop Reference, card 13, side 2 (“HP Information”)** The full list of supported peripherals can be found in “Using the MBA on Your HP Series 200 Computer.” A description of the HP-HIL keyboard (available with the HP 217, 237, and Series 300 Computers) can also be found in “Using the MBA.”

## **DEMO MODELS FOR THE MBA**

**“Demo Models,” page 2** Since you may be modifying and storing new versions of some of the demo models on the diskette DDISK, you should make a backup copy of the original DDISK. You can do this by using the MBA's /ST command to Transfer the Folder DEMOS to a blank initialized diskette.

**“Demo Models,” page 18** MBA Sort criteria should be entered in a blank, unformatted row. You can ensure this either by using the /IR command to Insert a new Row, or by using /BR to Blank an entire existing Row, including the formats, before entering the criteria.

**“Demo Models,” page 18** The quotation mark ( ' or" ) preceding the Sort criteria as text; the quote will not be displayed in the workspace.

**“Demo Models,” page 43 (paragraph 1, line 2)** The Print formula using the Form INVOICE is in cell **H3** (not H2).

**“Demo Models,” page 43-44** The Print formula for the HP plotter is located in cell **S5**; the graph formula to be plotted is located in cell **S6** (not S5.)



## **ADDENDA AND CORRECTIONS FOR THE MBA DOCUMENTATION**

### **Hewlett-Packard Series 200—Release 2.4**

*The following items are additional information to help you get the most from your MBA. Each item has been referenced by publication; you may want to transcribe these addenda on the appropriate pages, or simply keep this card in a prominent place in your binder.*

*We have also included a number of correction pages for your MBA Tutorial and Reference Manual. Note that these are NOT replacement pages, but rather provide supplemental material. Insert them in your binder at the locations specified on the individual pages; for example, Tutorial page 97a should be inserted next to page 97 in your MBA Tutorial.*

### **REFERENCE MANUAL**

**RM, page 58 (paragraph 9, line 2)** For "Pascal text file," read "ASCII text file."

**RM page 64** If you have an HP 236 and either an HP 2631G or HP 82906A printer, then the Default Printer Format will specify HDOUBLE (instead of BDOUBLE) in the @PFORMAT function. For normally-proportioned printed graphs, specify VDOUBLE in your @PFORMAT function.

**RM, page 76 (paragraphs 2 and 3)** The Folder name should be **FORECAST** (maximum length is 8 characters).

**RM, page 81 (paragraph 1)** When transferring a Folder, the back-up Volume must have a different name from the original.

**RM, page 86** Once you have fixed vertical or horizontal titles with /T, entering /WXY to expand a window will unfix those titles. You must use the /T command again if you want fixed titles after using /WXN to de-expand the window.

**RM, page 106 (paragraph 3, lines 5-6)** Delete the reference to Box names; the @CPY function accepts only Marker names.

**RM, page 165 (paragraphs 1 and 2)** An exclamation mark (!) at the right margin indicates overlong text. To correct this, you can type **M** to Marginate the paragraph; you can also move the cursor to a point before the ! and type **<ENTER>**.



## DESKTOP REFERENCE

**Desktop Reference, card 13, side 1 ("Functions")** The correct form for the @CPY function is

**@CPY (folder, document, marker 1 . . . marker 2)**

—where the folder name can have the forms

|                      |                        |
|----------------------|------------------------|
| volume name:folder   | (e.g., SALES:SPRING85) |
| device number:folder | (e.g., #4:SPRING85)    |

**Desktop Reference, card 13, side 2 ("HP Information")** The full list of supported peripherals can be found in "Using the MBA on Your HP Series 200 Computer." A description of the HP-HIL keyboard (available with the HP 217 and 237 computers) can also be found in "Using the MBA."

## DEMO MODELS FOR THE MBA

**"Demo Models," page 2** Since you may be modifying and storing new versions of some of the demo models on the diskette DDISK, you should make a backup copy of the original DDISK. You can do this by using the MBA's /ST command to Transfer the Folder DEMOS to a blank initialized diskette.

**"Demo Models," page 18** MBA Sort criteria should be entered in a blank, unformatted row. You can ensure this either by using the /IR command to Insert a new Row, or by using /BR to Blank an entire existing Row, including the formats, before entering the criteria.

**"Demo Models," page 18** The quotation mark (' or ") preceding the Sort criteria as text; the quote will not be displayed in the workspace.

**"Demo Models," page 43 (paragraph 1, line 2)** The Print formula using the Form INVOICE is in cell H3 (not H2).

**"Demo Models," page 43-44** The Print formula for the HP plotter is located in cell S5; the graph formula to be plotted is located in cell S6 (not S5.)