

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Epson MX-80 parallel printer	A none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) Parallel Printer Ready Signal Polarity: HIGH Z89-11 LPT Selection: PARALLEL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-15
Printers with Z89-11 Interface
(continued from preceding page)

6. CONFIGUR should now display the selection menu labelled “CP/M Configuration”. Respond to the selection prompt in this menu by typing **Y**. CP/M will display the “A>” system prompt.

You have just completed your customization procedure. If you correctly followed your entire customization procedure, your System Disk should contain a copy of the CP/M Operating System that controls all components of your hardware environment.

To combine this customized operating system with an application program, proceed to the “Working Disk Procedures”.

NOTE: If you have any hardware devices that are **not** listed in these tables and are still not working with your System Disk, then use the instructions in Volume II: The CP/M Reference Guide to perform the CONFIGUR activity.

If you have devices that are listed in these tables and they still don't function properly with your System Disk, then the devices themselves might have been set with characteristics that this text could not anticipate. Therefore you should refer to your hardware manual(s) for hardware settings instructions, and to Volume II: The CP/M Reference Guide for CONFIGUR instructions.

Customizing Procedure Three

An H/Z67 (Winchester Disk) Drive and No Secondary Drives

or

One 96 TPI, 5.25-Inch and One or Two 48 TPI, 5.25-Inch Primary Drives and No Secondary Drives

This procedure will help you to customize a copy of the CP/M Operating System that resides on your Backup Partition or Disk. If you have a Backup Partition, this procedure will refer to it as a "System Partition". If you have a Backup Disk, this procedure will refer to it as a "System Disk".

PROCEDURE SYNOPSIS

This procedure requires you to perform the following activities in sequence:

```
bootstrap  
CONFIGUR  
MOVCPM*  
SYSGEN  
bootup  
CONFIGUR
```

If you have a System Partition, begin Customizing Procedure Three, by booting up with the System Partition. When the CONFIGUR utility is automatically invoked, wait for the "Standard system" prompt and type Y. Then proceed to the MOVCPM activity (MOVCPM67).

If you have a System Disk, begin Customizing Procedure Three, by inserting the System Disk in the 96 TPI drive and booting up with the System Disk. When the CONFIGUR utility is automatically invoked, wait for the "Standard system" prompt and type N. Then proceed to the CONFIGUR activity.

* Use either MOVCPM67 or MOVCPM37.

CONFIGUR

This CONFIGUR activity enables you to record software on your 96 TPI System Disk.

1. When the CONFIGUR activity is automatically invoked, it will display several messages. Wait for CONFIGUR to display the following message:

```
STANDARD SYSTEM (Y OR N)? >Y<:
```

2. Type **N** at the "STANDARD SYSTEM" prompt. CONFIGUR will display the "CP/M CONFIGURATION" menu.
3. Type **B** at the "SELECTION" prompt beneath the "CP/M CONFIGURATION" menu. CONFIGUR will display the disk parameters menu (submenu B), showing the status of your 5.25-inch drive units.
4. Select the "SOFT SECTORED UNIT" that corresponds to your 96 TPI primary drive. CONFIGUR will prompt you to enter a "STEP RATE".
5. Type **6** for the step rate of your 96 TPI primary drive. (This entry is necessary to change the 30 ms default step rate.) CONFIGUR will prompt you to enter a "TRACK DENSITY".
6. Type **96** for the track density of your 96 TPI primary drive. (This entry is necessary to change the 48 TPI default track density.) CONFIGUR will display the changed status of your 96 TPI drive.
7. Type **Y** at the "SELECTION" prompt beneath the drive disk parameters menu (submenu B). CONFIGUR will redisplay the "CP/M CONFIGURATION" menu.
8. Type **Y** at the "SELECTION" prompt beneath the "CP/M CONFIGURATION" menu. CP/M will display the system prompt.

Proceed to the MOVCPM activity.

MOVCPM

The MOVCPM utilities enable you to adjust the amount of memory space that the CP/M Operating System will occupy in your microcomputer. Your computer has a memory limit of either 32K, 48K, or 64K. However, the operating system on your System Partition is preset to occupy only 32K. ("K" stands for kilobyte, a unit of data storage space.)

MOVCPM67 makes a copy of the operation system from the System Partition, puts this copy at a special location in computer memory, and allows it to expand until it fills the computer's entire memory area.

When you perform bootstrap, CP/M displays its own memory limit. When the CONFIGUR utility is invoked, it displays your computer's memory limit. Compare these two limits.

If the memory limit of CP/M and your computer are the same, then skip this MOVCPM activity. and proceed to the next CONFIGUR activity.

If the memory limit of CP/M and your computer are different, then perform this MOVCPM activity.

1. If you have a System Partition, type **MOVCPM67 RETURN**.

If you have a System Disk, type **MOVCPM37 RETURN**.

2. Wait for the MOVCPM utility to display a message in the following form:

```
MOVCPMxx Version 2.2.04
```

```
CONSTRUCTING nnk CP/M vers 2.2
```

```
READY FOR "SYSGEN" OR
```

```
"SAVE 38 CPMnn.COM"
```

Proceed immediately to the SYSGEN activity.

SYSGEN

The SYSGEN utility puts a modified copy of the CP/M Operation System on the System Partition or System Disk. SYSGEN from a special location in computer memory. (A MOVCPM activity put the operating system in this special memory location.)

1. At the A> prompt, type **SYSGEN** and press **RETURN**. This entry invokes the SYSGEN utility, which displays a message in the form:

```
SYSGEN VERSION 2.0.04
SOURCE DRIVE NAME (OR RETURN TO SKIP):
```

2. Press **RETURN** SYSGEN will display:

```
DESTINATION DRIVE NAME (OR RETURN TO REBOOT):
```

3. Type **A**. SYSGEN will display:

```
DESTINATION ON A, THEN TYPE RETURN
```

4. Press **RETURN**. SYSGEN will display:

```
FUNCTION COMPLETE.
DESTINATION DRIVE NAME (OR RETURN TO REBOOT):
```

5. Reset the computer by holding down the **SHIFT** key and pressing the **RESET** key. Do **not** enter a carriage return at this prompt.
6. Boot up with the System Partition or with the System Disk in the 96 TPI drive.

Proceed to the CONFIGUR activity.

CONFIGUR

The CONFIGUR utility customizes the operating system on your System Partition or System Disk to match several characteristics of your hardware environment. This procedure will show you how to use CONFIGUR to customize the system for essential hardware characteristics. (Use the CONFIGUR instructions in the Volume II: The CP/M Reference Guide if you want more detailed instructions on using CONFIGUR.)

1. Type **CONFIGUR RETURN** at the system prompt. This entry invokes CONFIGUR, which will present a display that begins with an identification message in the following form:

```
Heath/Zenith Configuration Program
Version 2.2.04
Serial Number: sss-sssss
```

Note your version number. CONFIGUR will continue to display messages, ending with the following prompt:

```
STANDARD SYSTEM (Y OR N)? <Y>:
```

2. Type **N**. CONFIGUR will display a selection menu labelled "CP/M Configuration".
3. Refer to Table 1-16 if you have a Z89-3 interface card, and to Table 1-17 if you have a Z89-11 interface card. Using the appropriate table, type the keyboard entries listed for your terminal. To the right of each entry is an excerpt or description of part of the display that should appear immediately **after** you type the entry. If the excerpted or described display in the table does not appear on your terminal, repeat the entry.

NOTE: Type only the capital letters or numbers featured in bold faced type beneath the heading "Keyboard Entries". Do not change the order of the entries listed. If you type an incorrect entry at a prompt, CONFIGUR will either ignore your mistake, or display it. If a mistake is ignored, simply answer the prompt again. If CONFIGUR displays your mistake, you can usually change it by typing **Z** and repeating a few entries.

Your Terminal	Keyboard Entries	Excerpt or Description of Desired Display
Zenith or Heath Z-19, H-19, Z-88, H-88, Z-89, H-89, or Z-90 terminal	A A 9 350 Y C A CRT Y	(Terminal and Printer Characteristics – Submenu A) CRT: baud rate: CRT: baudrate: 9600 port: CRT: baud rate: 9600 port: 0E8H = 350Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CRT: = CON: = CRT: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 terminal	A B 30 320 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 300 port: TTY: baud rate: 300 port: 0D0H = 320Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)
Diablo KSR 1640 terminal	A B 12 320 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 1200 port: TTY: baud rate: 1200 port: 0D0H = 320Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)

Table 1-16
Terminals with Z89-3 Interface

Your Terminal	Keyboard Entries	Excerpt or Description of Desired Display
Zenith or Heath Z-19, H-19, Z-88, H-88, Z-89, H-89, or Z-90 terminal	A A 9 350 Y C A CRT Y	(Terminal and Printer Characteristics – Submenu A) CRT: baud rate: CRT: baudrate: 9600 port: CRT: baud rate: 9600 port: 0E8H = 350Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CRT: = CON: = CRT: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 terminal	A B 30 330 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 300 port: TTY: baud rate: 300 port: 0D8H = 330Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)
Diablo KSR 1640 terminal	A B 12 330 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 1200 port: TTY: baud rate: 1200 port: 0D8H = 330Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)

Table 1-17
Terminals with Z89-11 Interface

- Refer to Table 1-18 if you have a Z89-3 interface card, and to Table 1-19 if you have a Z89-11 interface card. Using the appropriate table, type the keyboard entries listed for your printer. To the right of each entry is an excerpt or description of part of the display that should appear immediately **after** you type the entry. If the excerpted or described display in the table does not appear, repeat the entry.

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Diablo 630, 1640, or 1650 printer	A C 12 340 none none Y C D UL1 Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 1200 port: LST: baud rate: 1200 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = UL1: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 printer	A C 30 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 300 port: LST: baud rate: 300 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Heath H-14 printer	A C 4 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-18
Printers with Z89-3 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Texas Instruments TI-810 printer	A C 4 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Zenith or Heath Z-25 or H-25 printer	A C 4 340 M none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Epson MX-80 serial printer	A C 4 340 M N Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: DTR (Pin 20) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-18
 Printers with Z89-3 Interface
 (continued from preceding page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Diablo 630, 1640, or 1650 printer	A C 12 340 none none Y C D UL1 Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 1200 port: LST: baud rate: 1200 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = UL1: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 printer	A C 30 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 300 port: LST: baud rate: 300 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Heath H-14 printer	A C 4 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-19
Printers with Z89-11 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Texas Instruments TI-810 printer	A C 4 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0EOH = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Zenith or Heath Z-25 or H-25 printer	A C 4 340 M none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0EOH = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Epson MX-80 serial printer	A C 4 340 M N P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0EOH = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Singal: DTR (Pin 20) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-19
Printers with Z89-11 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Epson MX-80 parallel printer	A none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) Parallel Printer Ready Signal Polarity: HIGH Z89-11 LPT Selection: PARALLEL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-19

Printers with Z89-11 Interface
 (continued from preceding page)

5. CONFIGUR should now display the selection menu labelled “CP/M Configuration”.

If you have a System Partition (instead of a System Disk), then respond to the selection prompt beneath the “CP/M Configuration” menu by typing **Y**. CP/M will display the “A>” system prompt. You have just completed your customizing procedure.

If you have a System Disk (instead of a System Partition), then respond to the selection prompt beneath the “CP/M Configuration” menu by typing **B**. CONFIGUR will display the disk parameters menu (submenu B), showing the status of your 5.25-inch drive units. Proceed to Step 6.

6. Select the “Soft-Sectored Unit” that corresponds to your 96 TPI primary drive. CONFIGUR will prompt you to enter a “Step Rate”.
7. Type **6** for the step rate of your 96 TPI primary drive. (This entry is necessary to change the 30 ms default step rate.) CONFIGUR will prompt you to enter a “Track Density”.
8. Type **96** for the track density of your 96 TPI primary drive. (This entry is necessary to change the 48 TPI default track density.) CONFIGUR will display the changed status of your 96 TPI drive.

9. Type **Y** at the “Selection” prompt beneath the drive disk parameters menu (submenu B). CONFIGUR will redisplay the “CP/M Configuration” menu.
10. Type **Y** at the “Selection” prompt beneath the “CP/M Configuration” menu. CP/M will display the system prompt.

You have just completed your customizing procedure. If you correctly followed your entire customizing procedure, your System Partition or System Disk should contain a copy of the CP/M Operating System that controls all components of your hardware environment.

To combine this customized operating system with an application program, proceed to the text titled “Working Disk Procedures”.

NOTE: If you have any hardware devices that are **not** listed in these tables, then carefully read the instructions in Volume II: The CP/M Reference Guide to perform the CONFIGUR activity.

If you have devices that still don't function properly with your System Partition or System Disk, then the devices themselves might have been set with characteristics that this text could not anticipate. Therefore you should refer to your hardware manual(s) for hardware settings instructions, and to Volume II: The CP/M Reference Guide for CONFIGUR instructions.

Customizing Procedure Four

One Primary 5.25-Inch Floppy Disk Drive Slot, and One or More Secondary Disk Drives

This procedure will help you to customize a copy of the CP/M Operating System taken from the Backup Disk (or Backup Disk I), and put this customized system copy on a blank disk. The blank disk must contain the same type of media as the Backup Disk. Label the blank disk "System Disk".

The disks you use during this procedure must **not** have tabs covering their write-protect notches.

PROCEDURE SYNOPSIS

This procedure requires you to perform the following activities in sequence:

```
bootup
CONFIGUR
FORMAT
MAKEBIOS
MOVCPM*
SYSGEN
bootup
PIP
CONFIGUR
ERA
```

To begin Customizing Procedure Four, insert the Backup Disk (or Backup Disk I) into the primary disk drive. Boot up to the primary disk drive. The CONFIGUR utility will be invoked automatically. Proceed to the CONFIGUR activity.

* Use MOVCPM17 or MOVCPM37.

CONFIGUR

This CONFIGUR activity customizes the operating system that you placed in memory when you performed bootstrap so that you can copy data to your backup disk(s). There are two methods for performing this CONFIGUR activity, so use **ONLY** the method specified below for your primary drive group.

If your primary drive (the one used for bootstrap) is a 48 TPI drive, then use Method A for this CONFIGUR activity.

If your primary drive (the one used for bootstrap) is a 96 TPI drive, then use Method B for this CONFIGUR activity.

Method A

When the CONFIGUR utility is automatically invoked, it will display several messages. When CONFIGUR displays the message:

```
STANDARD SYSTEM (Y OR N)? <Y>:
```

type **Y**. The CONFIGUR activity will end, and CP/M will display the A> system prompt.

Proceed to the FORMAT activity.

Method B

When the CONFIGUR utility is automatically invoked, it will display several messages. When CONFIGUR displays the message:

```
STANDARD SYSTEM (Y OR N)? <Y>:
```

type the sequence of keyboard entries listed in Table 1-20. To the right of each entry is an excerpt or description of the part of the display that should appear immediately **after** your entry.

Entries	Keyboard Excerpt or Description of Desired Display
N B A 6 RETURN 96 RETURN Y Y	CP/M CONFIGURATION (Main Menu) 5.25 INCH SOFT-SECTORED UNIT 0 STEP RATE: 30MS TRACK DENSITY: 48TPI SOFT-SECTOR UNIT 0 STEP RATE ? SOFT-SECTOR UNIT 0 STEP RATE ? 6 SOFT-SECTOR UNIT 0 TRACK DENSITY ? SOFT-SECTOR UNIT 0 TRACK DENSITY ? 96 5.25 INCH SOFT-SECTORED UNIT 0 STEP RATE: 6MS TRACK DENSITY: 96TPI CP/M CONFIGURATION (Main Menu) A> (CP/M system prompt)

Table 1-20
CONFIGUR Entries for One 96 TPI Drive

When the A> system prompt appears, proceed to the FORMAT activity.

NOTE: If the display excerpted or described in the table does not appear, read the CONFIGUR text in "Volume II: The CP/M Reference Guide".

FORMAT

The FORMAT utility helps you to prepare the System Disk for data storage. The method you use to operate FORMAT depends on the type of disk you are preparing. Use only one of the two FORMAT methods specified below:

If your System Disk is hard-sectored, then use Method A to FORMAT and follow the numbered steps preceded by the letter A.

If your System Disk is soft-sectored (either 48 TPI or 96 TPI), then use Method B to FORMAT and follow the numbered steps preceded by the letter B.

Method A:

- A1. At the A> system prompt, type **FORMAT** and press **RETURN**. This entry invokes **FORMAT**, which displays a message in the following form:

```
Format Version 2.04
This program is used to initialize a disk.
All information currently on the disk will be destroyed.
Is that what you want? (y/n):
```

- A2. Type **Y**. **FORMAT** will display:

```
Which drive do you wish to use for this operation?
```

- A3. Type **A**. **FORMAT** will display:

```
Put the disk you wish to be formatted in drive A.
Press RETURN to begin, anything else to abort.
```

- A4. Remove Backup Disk I, and insert the System Disk. Then close the drive and press **RETURN**.

- A5. The light on the disk drive will glow for several seconds. Then **FORMAT** will display:

```
Do you have more disks to format? (y/n):
```

- A6. Type **N** and **FORMAT** will display:

```
Place a bootable disk in drive A and press any character:
```

- A7. Remove the System Disk and insert Backup Disk I in the drive. Then type any character. **CP/M** will display:

```
A>
```

Leave Backup Disk I in the drive and proceed to the **MAKEBIOS** activity.

Method B:

- B1. At the A> System Prompt, type **FORMAT** and press **RETURN**. This entry invokes FORMAT, which displays the following:

```
Format Version 2.04
This program is used to initialize a disk.
All information currently on the disk will be destroyed.
Is that what you want? (y/n):
```

- B2. Type **Y**. FORMAT will display:

```
Which drive do you wish to use for this operation?
```

- B3. Type **A**. FORMAT will display:

```
Which density? (S=single, D=double):
```

- B4. If your System Disk is a single-density disk, type **S**.

If your System Disk is a double-density disk, type **D**.

After you respond to the density prompt, FORMAT will display:

```
Number of sides? (1=single, 2=double):
```

- B5. If your System Disk is a single-sided disk, type **1**.

If your System Disk is a double-sided disk, type **2**.

After you respond to the side quantity prompt, FORMAT will display one of the following two messages:

```
48 TPI drive -- 40 tracks will be formatted
```

or

```
96 TPI drive -- 80 tracks will be formatted
```

(If the type of TPI drive specified here does not match your drives, repeat the previous CONFIGUR activity.) FORMAT will also display the following prompt:

```
Put the disk you wish to be formatted in drive A.
Press RETURN to begin, anything else to abort.
```

B6. Immediately remove the Backup Disk (or Backup Disk I), insert the System Disk, and close the disk drive. Then press **RETURN**.

B7. The light on the disk drive will glow for several seconds. Then FORMAT will display:

Do you have more disks to format? (y/n):

B8. Type **N**, and FORMAT will display:

Place a bootable disk in drive A and press any character:

B9. Remove the System Disk and insert the Backup Disk (or Backup Disk I). Then type any character. CP/M will display:

A>

With the Backup Disk (or Backup Disk I) in the drive, proceed to the PIP activity.

PIP

This PIP activity helps you to copy the file "CONFIGUR.COM" to your System Disk. Begin this activity with Backup Disk I in the drive.

1. At the A> prompt, type the following command line:

A>**PIP B: = A:CONFIGUR.COM RETURN**

2. Assign the following identities to your disks:

"DISK A" is Backup Disk I; and
"DISK B" is the System Disk.

4. When prompted, insert the appropriate disk in the drive, close the drive, and press **RETURN**.

When the file CONFIGUR.COM has been copied, CP/M will display the A> system prompt. You should end up with Backup Disk I in the drive.

Proceed to the MAKEBIOS activity.

MAKEBIOS

The MAKEBIOS activity helps you to modify the CP/M Operating System so that it can control your secondary drive group. The method you use to operate MAKEBIOS depends on the type of CP/M backup media you have. Use only one of the two MAKEBIOS methods specified below:

If you have three CP/M Backup Disks recorded on 48 TPI disks (hard-sectored or soft-sectored), then use Method A to MAKEBIOS and follow the numbered steps preceded by the letter A.

If you have a single CP/M Backup Disk recorded on a soft-sectored 96 TPI disks, then use Method B to MAKEBIOS and follow the numbered steps preceded by the letter B.

Method A

- A1. At the A> system prompt, type the following command line to run MAKEBIOS:

A>SUBMIT B:MAKEBIOS C: B: RETURN

The MAKEBIOS utility will display the following:

PUT DISK B IN DRIVE A: AND PRESS RETURN

NOTE: The Method A MAKEBIOS activity requires many disk switches and several minutes of execution time. Be patient, keep track of disk identities, and watch the prompts carefully!

You will be prompted to insert three different disks into the drive alternately. The prompts will request your disks by the following names:

Backup Disk I is "DISK A";
Backup Disk III is "DISK B"; and
the System Disk is "DISK C".

- A2. As prompted, insert Backup Disk III ("DISK B") and press **RETURN**. MAKEBIOS will now display the prompt:

PUT DISK A IN DRIVE A: AND PRESS RETURN

- A3. Insert Backup Disk I ("DISK A") in the drive, close the drive, and press **RETURN**. MAKEBIOS will display the following command line and prompt:

```
A>B:MAKEBIOS B:1 C:  
PUT DISK B IN DRIVE A: AND PRESS RETURN
```

- A4. Insert Backup Disk III ("DISK B") in the drive and press **RETURN**. MAKEBIOS will display:

```
PUT DISK C IN DRIVE A: AND PRESS RETURN
```

- A5. Insert the System Disk ("DISK C") and press **RETURN**. MAKEBIOS will display:

```
PUT DISK A IN DRIVE A: AND PRESS RETURN
```

- A6. Insert Backup Disk I ("DISK A") in the drive and press **RETURN**. MAKEBIOS will display:

```
PUT DISK B IN DRIVE A: AND PRESS RETURN
```

- A7. Insert Backup Disk III ("DISK B") in the drive and press **RETURN**. MAKEBIOS will now display the following menu:

```
BIOS SELECTION MENU
```

```
A -- H17 ONLY  
B -- H37 ONLY  
C -- H47 ONLY  
D -- H67 ONLY  
E -- H17 AND H37  
F -- H17 AND H47  
G -- H17 AND H67  
H -- H37 AND H47  
I -- H37 AND H67  
J -- H47 AND H67
```

```
ENTER SELECTION?
```

A8. At the "ENTER SELECTION?" prompt, type a selection letter as advised below:

- If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and 5.25-inch soft-sectored disks, type **E RETURN**.
- If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and 8-inch disks, type **F RETURN**.
- If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and the H/Z67 Winchester drive model, type **G RETURN**.
- If you have two different kinds of disk drive, accommodating both 5.25-inch soft-sectored disks and 8-inch disks, type **H RETURN**.
- If you have two different kinds of disk drive, accommodating both 5.25-inch soft-sectored disks and the H/Z67 Winchester drive model, type **I RETURN**.

Type a selection letter, and switch disks as instructed.

A9. Insert "DISK A" or "DISK B" or "DISK C" as indicated, whenever MAKEBIOS displays a prompt in the form:

PUT DISK C IN DRIVE A: AND PRESS RETURN

NOTE: In between these prompts, you will notice that seven command lines are displayed at the terminal. When the execution of these command lines is complete, MAKEBIOS displays the message:

MAKEBIOS FUNCTION COMPLETE

PUT DISK A IN DRIVE A: AND PRESS RETURN

Insert Backup Disk I ("DISK A") in the drive and press return. CP/M will display the A> system prompt. Proceed to the MOVCPM activity.

Method B

- B1. At the A> system prompt, type the following command line to run MAKEBIOS:

A>**SUBMIT MAKEBIOS B: RETURN**

The MAKEBIOS utility will display prompts in the following form:

PUT DISK B IN DRIVE A: AND PRESS RETURN

NOTE: The Method B MAKEBIOS activity requires many disk switches and several minutes of execution time. Be patient, keep track of disk identities, and watch the prompts carefully!

You will be prompted to insert two different disks into the drive alternately. The prompts will request your disks by the following names:

the Backup Disk is "DISK A"; and
the System Disk is "DISK B".

- B2. When prompted to "PUT DISK B", insert the System Disk in the drive and press **RETURN**.

When prompted to "PUT DISK A", insert the Backup Disk in the drive and press **RETURN**.

Eventually, MAKEBIOS will now display the following menu:

BIOS SELECTION MENU

A -- H17 ONLY
B -- H37 ONLY
C -- H47 ONLY
D -- H67 ONLY
E -- H17 AND H37
F -- H17 AND H47
G -- H17 AND H67
H -- H37 AND H47
I -- H37 AND H67
J -- H47 AND H67

ENTER SELECTION?

- B3. At the “ENTER SELECTION?” prompt, type a selection letter as advised below:
- If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and 5.25-inch soft-sectored disks, then type **E RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and 8-inch disks, then type **F RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and the H/Z67 Winchester drive model, then type **G RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch soft-sectored disks and 8-inch disks, then type **H RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch soft-sectored disks and the H/Z67 Winchester drive model, then type **I RETURN**.

MAKEBIOS will again display the “PUT DISK A” and “PUT DISK B” prompts. MAKEBIOS will also cause the automatic display of several other messages. Until the MAKEBIOS function is complete, ignore all displays other than the “PUT DISK” prompts.

- B4. When prompted to “PUT DISK B”, insert the System Disk in the drive and press **RETURN**.

When prompted to “PUT DISK A”, insert the Backup Disk in the drive and press **RETURN**.

After you swap the Backup and System Disks several times, MAKEBIOS will display the message “MAKEBIOS FUNCTION COMPLETE” and a “PUT DISK A” prompt as shown:

MAKEBIOS FUNCTION COMPLETE

PUT DISK A IN DRIVE A: AND PRESS RETURN

- B5. Insert the Backup Disk (“DISK A”) in the drive and press **RETURN**. CPM will display the A> system prompt.

Proceed to the MOVCPM activity.

MOVCPM

The MOVCPM utilities enable you to adjust the amount of memory space that your CP/M Operating System will occupy in your microcomputer. Your computer has a memory limit of either 32K, 48K, or 64K. However, your operating system is preset to occupy only 32K. ("K" stands for kilobyte, a unit of computer storage space.)

MOVCPM loads part of the operating system into a special location in computer memory, and allows it to expand until it fills the computer's entire memory capacity.

1. If your System Disk is hard-sectored, then enter the following command in response to the system prompt:

```
A>MOVCPM17 * C:
```

If your System Disk is soft-sectored, then enter the following command in response to the system prompt:

```
A>MOVCPM37 * C:
```

After one of these commands, MOVCPM will display a message in the following form:

```
MOVCPM17 VERSION 2.2.04
```

```
CONSTRUCTING nnK CP/M VERS 2.2
PUT DISK C IN DRIVE A: AND PRESS RETURN
```

2. Insert the System Disk ("DISK C") and press **RETURN**. MOVCPM will display a message in the form:

```
READY FOR "SYSGEN" OR
! "SAVE 38 CPMnn.COM"
PUT DISK A IN DRIVE A: AND PRESS RETURN
```

3. Insert Backup Disk I ("DISK A") and press **RETURN**. This entry exits you from the MOVCPM utility. CP/M now displays the system prompt:

```
A>
```

Proceed immediately to the SYSGEN activity.

SYSGEN

The SYSGEN utility copies part of the CP/M Operating System onto your System Disk. SYSGEN will get this operating system copy from a special location in computer memory. (A MOVCPM activity put part of the operating system in this special memory location.) Backup Disk I should be in the drive to begin this activity.

1. At the A> prompt, type **SYSGEN** and press **RETURN**. This entry invokes the SYSGEN utility, which displays the message:

```
SYSGEN VER 2.0.04
SOURCE DRIVE NAME (OR RETURN TO SKIP):
```

2. Press **RETURN** as shown above. SYSGEN will display:

```
DESTINATION DRIVE NAME (OR RETURN TO REBOOT):
```

3. Type **C**. SYSGEN will display:

```
DESTINATION ON C, THEN TYPE RETURN
```

4. Type **RETURN**. SYSGEN will display the following prompt:

```
PUT DISK C IN DRIVE A: AND PRESS RETURN
```

5. Remove Backup Disk I and insert your System Disk. Then press **RETURN**. SYSGEN will display:

```
FUNCTION COMPLETE.
DESTINATION DRIVE NAME (OR RETURN TO REBOOT):
```

6. Reset the computer. Do **not** press **RETURN** at this prompt.

Proceed to the CONFIGUR activity.

CONFIGUR

This CONFIGUR activity customizes the operating system on your System Disk to match several characteristics of your hardware environment. This procedure will show you how to use CONFIGUR to customize the system only for essential hardware characteristics. (Use the CONFIGUR instructions in the Volume II: The CP/M Reference Guide if you want more detailed instructions on using CONFIGUR.)

To prepare for this activity, insert your System Disk in the drive slot.

1. Perform bootstrap. The CONFIGUR utility should be invoked automatically. It will present a display that begins with a message in the following form:

```
Heath/Zenith Configuration Program
Version 2.2.04
Serial Number: sss-sssss
```

CONFIGUR will continue to display messages, ending with the following prompt:

```
Standard system (Y or N)? <Y>:
```

2. Type **N**. CONFIGUR will display a selection menu labelled "CP/M Configuration".
3. Refer to Table 1-21 if you have a Z89-3 interface card, and to Table 1-22 if you have a Z89-11 interface card. Using the appropriate table, type the keyboard entries listed for your terminal. To the right of each entry is an excerpt or description of part of the display that should appear immediately **after** you type the entry. If the excerpted or described display in the table does not appear on your terminal, repeat the entry.

NOTE: Type only the capital letters or numbers featured in bold faced type beneath the heading "Keyboard Entries". Do not change the order of the entries listed. If you type an incorrect entry at a prompt, CONFIGUR will either ignore your mistake, or display it. If a mistake is ignored, simply answer the prompt again. If CONFIGUR displays your mistake, you can usually change it by typing **Z** and repeating a few entries.

Your Terminal	Keyboard Entries	Excerpt or Description of Desired Display
Zenith or Heath Z-19, H-19, Z-88, H-88, Z-89, H-89, or Z-90 terminal	A A 9 350 Y C A CRT Y	(Terminal and Printer Characteristics – Submenu A) CRT: baud rate: CRT: baud rate: 9600 port: CRT: baud rate: 9600 port: 0E8H = 350Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CRT: = CON: = CRT: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 terminal	A B 30 320 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 300 port: TTY: baud rate: 300 port: 0D0H = 320Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)
Diablo KSR 1640 terminal	A B 12 320 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 1200 port: TTY: baud rate: 1200 port: 0D0H = 320Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)

Table 1-21
Terminals with Z89-3 Interface

Your Terminal	Keyboard Entries	Excerpt or Description of Desired Display
Zenith or Heath Z-19, H-19, Z-88, H-88, Z-89, H-89, or Z-90 terminal	A A 9 350 Y C A CRT Y	(Terminal and Printer Characteristics – Submenu A) CRT: baud rate: CRT: baud rate: 9600 port: CRT: baud rate: 9600 port: 0E8H = 350Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CRT: = CON: = CRT: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 terminal	A B 30 330 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 300 port: TTY: baud rate: 300 port: 0D8H = 330Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)
Diablo KSR 1640 terminal	A B 12 330 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 1200 port: TTY: baud rate: 1200 port: 0D8H = 330Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)

Table 1-22
Terminals with Z89-11 Interface

- Refer to Table 1-23 if you have a Z89-3 interface card, and to Table 1-24 if you have a Z89-11 interface card. Using the appropriate table, type the keyboard entries listed for your printer. To the right of each entry is an excerpt or description of part of the display that should appear immediately **after** you type the entry. If the excerpted or described display in the table does not appear, repeat the entry.

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Diablo 630, 1640, or 1650 printer	A C 12 340 none none Y C D UL1 Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 1200 port: LST: baud rate: 1200 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = UL1: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 printer	A C 30 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 300 port: LST: baud rate: 300 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Heath H-14 printer	A C 4 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-23

Printers with Z89-3 Interface

(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Texas Instruments TI-810 printer	A C 4 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Zenith or Heath Z-25 or H-25 printer	A C 4 340 M none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Epson MX-80 serial printer	A C 4 340 M N Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: DTR (Pin 20) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-23
Printers with Z89-3 Interface
(continued from preceding page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Diablo 630, 1640, or 1650 printer	A C 12 340 none none Y C D UL1 Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 1200 port: LST: baud rate: 1200 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = UL1: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 printer	A C 30 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 300 port: LST: baud rate: 300 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Heath H-14 printer	A C 4 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-24
Printers with Z89-11 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Texas Instruments TI-810 printer	A C 4 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Zenith or Heath Z-25 or H-25 printer	A C 4 340 M none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Epson MX-80 serial printer	A C 4 340 M N P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: DTR (Pin 20) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-24
Printers with Z89-11 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Epson MX-80 parallel printer	A none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) Parallel Printer Ready Signal Polarity: HIGH Z89-11 LPT Selection: PARALLEL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: != LPT: CP/M Configuration (Main Menu)

Table 1-24

Printers with Z89-11 Interface
(continued from preceding page)

5. If your primary drive group consists of a 96 TPI drive, type the sequence of keyboard entries listed in Table 1-25. To the right of each entry is an excerpt or description of the part of the display that should appear immediately **after** you type the entry.

Keyboard Entries	Excerpt or Description of Desired Display
B	5.25 Inch Soft Sector Unit 0 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft Sector Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi
A	Soft Sector Unit 0 Step Rate ?
6	Soft Sector Unit 0 Step Rate ? 6
RETURN	Soft Sector Unit 0 Track Density ?
96	Soft Sector Unit 0 Track Density ? 96
RETURN	5.25 Inch Soft Sector Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft Sector Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi
Y	CP/M Configuration (Main Menu)

Table 1-25

CONFIGUR Entries for One Primary 96 TPI Drive

If your primary drive group consists of a 48 TPI drive, then proceed to step 6.

6. If your secondary drive group consists of any 96 TPI drives, type the sequence of keyboard entries listed in Table 1-26. To the right of each entry is an excerpt or description of the part of the display that should appear immediately **after** you type the entry.

Keyboard Entries	Excerpt or Description of Desired Display
<p>B</p> <p>A</p> <p>6</p> <p>RETURN</p> <p>96</p> <p>RETURN</p> <p>B</p> <p>6</p> <p>RETURN</p> <p>96</p> <p>RETURN</p> <p>C</p> <p>6</p> <p>RETURN</p> <p>96</p> <p>RETURN</p> <p>Y</p>	<p>5.25 Inch Soft Sector Unit 0 Step Rate: 30ms Track Density: 48tpi</p> <p>5.25 Inch Soft Sector Unit 1 Step Rate: 30ms Track Density: 48tpi</p> <p>5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi</p> <p>Soft Sector Unit 0 Step Rate ?</p> <p>Soft Sector Unit 0 Step Rate ? 6</p> <p>Soft Sector Unit 0 Track Density ?</p> <p>Soft Sector Unit 0 Track Density ? 96</p> <p>5.25 Inch Soft Sector Unit 0 Step Rate: 6ms Track Density: 96tpi</p> <p>5.25 Inch Soft Sector Unit 1 Step Rate: 30ms Track Density: 48tpi</p> <p>5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi</p> <p>Soft Sector Unit 1 Step Rate ?</p> <p>Soft Sector Unit 1 Step Rate ? 6</p> <p>Soft Sector Unit 1 Track Density ?</p> <p>Soft Sector Unit 1 Track Density ? 96</p> <p>5.25 Inch Soft Sector Unit 0 Step Rate: 6ms Track Density: 96tpi</p> <p>5.25 Inch Soft Sector Unit 1 Step Rate: 6ms Track Density: 96tpi</p> <p>5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi</p> <p>Soft Sector Unit 2 Step Rate ?</p> <p>Soft Sector Unit 2 Step Rate ? 6</p> <p>Soft Sector Unit 2 Track Density ?</p> <p>Soft Sector Unit 2 Track Density ? 96</p> <p>5.25 Inch Soft Sector Unit 0 Step Rate: 6ms Track Density: 96tpi</p> <p>5.25 Inch Soft Sector Unit 1 Step Rate: 6ms Track Density: 96tpi</p> <p>5.25 Inch Soft Sector Unit 2 Step Rate: 6ms Track Density: 96tpi</p> <p>CP/M Configuration (Main Menu)</p>

Table 1-26
CONFIGUR Entries for Secondary 96 TPI Drive

If your secondary drive group does not consist of any 96 TPI drives, then proceed to Step 7.

7. CONFIGUR should now display the selection menu labelled "CP/M Configuration". Respond to the selection prompt in this menu by typing **Y**. CP/M will display the "A>" system prompt.
8. We suggest that you now test the operating system on your System Disk to make sure that it properly controls your terminal, printer, modem, drives, etc. (For instance, you can test a printer by holding down the **CTRL** key while pressing the **P** key, and then entering a **RETURN**. A properly adjusted system will cause the printer to print an A> system prompt.)

If the operating system on your System Disk proves to be adequate, proceed to the ERA activity.

NOTE: If you have any hardware devices that are **not** listed in these tables and are still not working with your System Disk, then use the instructions in Volume II: The CP/M Reference Guide to perform the CONFIGUR activity.

If you have devices that are listed in these tables and they still don't function properly with your System Disk, then the devices themselves might have been set with characteristics that this text could not anticipate. Therefore you should refer to your hardware manual(s) for hardware settings instructions, and to Volume II: The CP/M Reference Guide for CONFIGUR instructions.

ERA

This activity helps you to erase the CONFIGUR utility from your System Disk to allow you more space to record useful application programs. However, this activity is optional. If you wish to perform the CONFIGUR activity again or if you would prefer to keep CONFIGUR recorded on your System Disk, then skip this activity.

To perform the ERA activity, the System Disk should be in the drive, and the A> system prompt should be displayed on the terminal. At the A> system prompt, type the following command:

```
A>ERA CONFIGUR.COM RETURN
```

You have just completed the last step of the last activity of your customization procedure.

If you correctly followed your entire customization procedure, your System Disk should contain a copy of the CP/M Operating System that controls all components of your hardware environment.

To combine this customized operating system with an application program, proceed to the "Working Disk Procedures".

Customizing Procedure Five

Two or Three Primary Floppy Drives, and One or More Secondary Drives

This procedure will help you to customize a copy of the CP/M Operating System taken from your Backup Disk (or Backup Disk I), and put this customized system copy on a blank disk. The blank disk must be manufactured the same type as the Backup Disk, although you can FORMAT the blank to any density or number of sides that the FORMAT utility allows. Label this blank disk "System Disk".

All disks must be write-enabled during this procedure.

PROCEDURE SYNOPSIS

This procedure requires you to perform the following activities in sequence:

```
bootstrap
CONFIGUR
FORMAT
MAKEBIOS
MOVCPM*
SYSGEN
bootstrap
CONFIGUR
```

To begin Customizing Procedure Five, insert the Backup Disk (or Backup Disk I) in drive A and the System Disk in drive B. Perform bootstrap. The CONFIGUR utility will be invoked automatically. Proceed to the CONFIGUR activity.

* Use either MOVCPM17 or MOVCPM37 or MOVCPM47.

CONFIGUR

This CONFIGUR activity customizes the operating system that you placed in memory when you performed bootstrap so that you can copy data to your backup disk(s). There are two methods for performing this CONFIGUR activity, so use **ONLY** the method specified below for your primary drive group (the group containing your bootstrap drive).

If your primary drives are 48 TPI drives, then use Method A for this CONFIGUR activity.

If your primary drives are 96 TPI drives, then use Method B for this CONFIGUR activity.

Method A

When the CONFIGUR utility is automatically invoked, it will display several messages. When CONFIGUR displays the message:

```
STANDARD SYSTEM (Y OR N)? <Y>:
```

type **Y**. The CONFIGUR activity will end, and CP/M will display the A> system prompt.

Proceed to the FORMAT activity.

Method B

When the CONFIGUR utility is automatically invoked, it will display several messages. When CONFIGUR displays the message:

```
STANDARD SYSTEM (Y OR N)? <Y>:
```

type the sequence of keyboard entries listed in Table 1-27. To the right of each entry is an excerpt or description of the part of the display that should appear immediately **after** your entry.

Keyboard Entries	Excerpt or Description of Desired Display
N B A 6 RETURN 96 RETURN B 6 RETURN 96 RETURN C 6 RETURN 96 RETURN Y Y	CP/M Configuration (Main Menu) 5.25 Inch Soft Sector Unit 0 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft Sector Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi Soft Sector Unit 0 Step Rate ? Soft Sector Unit 0 Step Rate ? 6 Soft Sector Unit 0 Track Density ? Soft Sector Unit 0 Track Density ? 96 5.25 Inch Soft Sector Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft Sector Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi Soft Sector Unit 1 Step Rate ? Soft Sector Unit 1 Step Rate ? 6 Soft Sector Unit 1 Track Density ? Soft Sector Unit 1 Track Density ? 96 5.25 Inch Soft Sector Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft Sector Unit 1 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft Sector Unit 2 Step Rate: 30ms Track Density: 48tpi Soft Sector Unit 2 Step Rate ? Soft Sector Unit 2 Step Rate ? 6 Soft Sector Unit 2 Track Density ? Soft Sector Unit 2 Track Density ? 96 5.25 Inch Soft Sector Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft Sector Unit 1 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft Sector Unit 2 Step Rate: 6ms Track Density: 96tpi CP/M Configuration (Main Menu) A> (CP/M system prompt)

Table 1-27

CONFIGUR Entries for 96 TPI Drive

When the A> system prompt appears, proceed to the FORMAT activity.

NOTE: If the display excerpted or described in the table does not appear, read the CONFIGUR text in "Volume II: The CP/M Reference Guide".

FORMAT

The FORMAT utility prepares your System Disk for data storage. However, FORMAT works differently depending on the type of disk you are using. Therefore, use the FORMAT method specified below:

If your System Disk is hard-sectored, use Method A to FORMAT and follow the numbered steps preceded by the letter A.

If your System Disk is soft-sectored, use Method B to FORMAT and follow the numbered steps preceded by the letter B.

Method A:

- A1. At the A> system prompt, type **FORMAT** and press **RETURN**. This entry invokes FORMAT, which displays the message:

```
Format Version 2.04
This program is used to initialize a disk.
All information currently on the disk will be destroyed.
Is that what you want? (y/n):
```

- A2. Type **Y**. FORMAT will display:

```
Which drive do you wish to use for this operation?
```

- A3. Type **B**. FORMAT will display:

```
Put the disk you wish to be formatted in drive B.
Press RETURN to begin, anything else to abort.
```

- A4. Make sure that the System Disk is properly situated in drive B, and press **RETURN**. The light on the disk drive will glow for several seconds. Then FORMAT will display:

```
Do you have more disks to format? (y/n):
```

- A5. Type **N**. CP/M will display:

```
A>
```

Proceed to the MAKEBIOS activity.

Method B:

- B1. At the CP/M prompt **A>**, type **FORMAT** and press **RETURN**. This entry invokes **FORMAT**, which displays the following:

```
Format Version 2.04
This program is used to initialize a disk.
All information currently on the disk will be destroyed.
Is that what you want? (y/n):
```

- B2. Type **Y**. **FORMAT** will display:

```
Which drive do you wish to use for this operation?
```

- B3. Type **B**. **FORMAT** will display one of the following two messages:

```
Which density? (S=single, D=double):
```

or

```
Which density? (S=single, D=double, E=extended):
```

- B4. If your System Disk is a single-density disk, type **S**.

If your System Disk is a double-density disk, type **D**.

- B5. After you respond to the density prompt, **FORMAT** will operate differently, depending on the physical size of your System Disk.

If your System Disk is an 8-inch disk, proceed immediately to Step B7.

If your System Disk is a 5.25 inch soft-sectored disk, **FORMAT** will now display:

```
Number of sides? (1=single, 2=double):
```

B6. If your System Disk is a single-sided disk, type **1**.

If your System Disk is a double-sided disk, type **2**.

After you respond to the side quantity prompt, FORMAT will display one of the following two messages:

48 TPI drive -- 40 tracks will be formatted

or

96 TPI drive -- 80 tracks will be formatted

(If the type of TPI drive specified here does not match your drives, repeat the previous CONFIGUR activity.)

B6. After you have specified either the density or number of sides for your System Disk, FORMAT will display the following prompt:

Put the disk you wish to be formatted in drive B.
Press RETURN to begin, anything else to abort.

B7. Make sure that the System Disk is properly situated in drive B, and press **RETURN**. The light on the disk drive will glow for several seconds. Then FORMAT will display:

Do you have more disks to format? (y/n):

B8. Type **N**. CP/M will display:

A>

Proceed to the MAKEBIOS activity.

MAKEBIOS

The MAKEBIOS utility helps you to modify the CP/M Operating System so that it can control your secondary drive group.

1. If your System Disk is a 48 TPI, 5.25-inch disk and you have three 48 TPI, 5.25-inch drives, then insert Backup Disk I into drive A:, the System Disk into drive B:, and Backup Disk III into drive C:. Then at the "A>" system prompt, type the following command line to run MAKEBIOS:

A>SUBMIT C:MAKEBIOS B: C: RETURN

If your System Disk is a 48 TPI, 5.25-inch disk and you have two 48 TPI, 5.25-inch drives, then insert Backup Disk I into drive A, and the System Disk into drive B. Throughout this activity, you will be prompted to switch Backup Disk I and Backup Disk III in and out of the same drive slot alternately. When prompted to switch disks, insert Backup Disk I as "DISK A" and Backup Disk III will be "DISK C". At the "A>" system prompt, type the following command line to run MAKEBIOS:

A>SUBMIT C:MAKEBIOS B: C: RETURN

If your System Disk is an 8-inch disk or a 96 TPI, 5.25-inch disk, insert the Backup Disk into drive A: and the System Disk into drive B: Then, at the A> system prompt, type the following command line to run MAKEBIOS:

A>SUBMIT MAKEBIOS B: RETURN

The MAKEBIOS utility will display a menu in the following form:

BIOS SELECTION MENU

```
A -- H17 ONLY
B -- H37 ONLY
C -- H47 ONLY
D -- H67 ONLY
E -- H17 AND H37
F -- H17 AND H47
G -- H17 AND H67
H -- H37 AND H47
I -- H37 AND H67
J -- H47 AND H67
```

ENTER SELECTION:

2. At the “ENTER SELECTION:” prompt, type a selection letter based on the following criteria:
 - If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and 5.25-inch soft-sectored disks, type **E RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and 8-inch disks, type **F RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch hard-sectored disks and the H/Z67 Winchester drive model, type **G RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch soft-sectored disks and 8-inch disks, type **H RETURN**.
 - If you have two different kinds of disk drive, accommodating both 5.25-inch soft-sectored disks and the H/Z67 Winchester drive model, type **I RETURN**.
 - If you have two different kinds of disk drive, accommodating 8-inch disks in the H/Z47 drive model and H/Z67 Winchester drive model, type **J RETURN**.

After you type one of the selection letters and a carriage return, your terminal will automatically display seven command lines and other messages. These displays will appear for the next few minutes.

If your System Disk is a 48 TPI, 5.25-inch disk and you have two 48 TPI, 5.25-inch drives, then prompts in the following form will be displayed throughout this activity:

PUT DISK C IN DRIVE A: AND PRESS RETURN

When a “PUT DISK C” prompt appears, insert Backup Disk III. When a “PUT DISK A” prompt appears, insert Backup Disk I. Remember that “DRIVE A:” is the drive slot you used to boot up. If these prompts appear, watch them carefully and keep track of disk identities as you insert the disks alternately.

Regardless of what kind of System Disk or hardware you have, your MAKEBIOS activity will be finished when CP/M displays the system prompt:

A>

With the Backup Disk (or Backup Disk I) in drive A and the System Disk in drive B:, proceed immediately to the MOVCPM activity.

MOVCPM

The MOVCPM utilities load part of the operating system into a special location in computer memory, where adjustments are made to it. You must follow a MOVCPM activity with a SYSGEN activity. Begin this activity with the Backup Disk (or Backup Disk I) in drive A:, and the System Disk in drive B:.

1. If you are customizing a 5.25-inch hard-sectored System Disk, then enter the following command in response to the system prompt:

A>**MOVCPM17 * B:**

If you are customizing a 5.25-inch soft-sectored System Disk, then enter the following command in response to the system prompt:

A>**MOVCPM37 * B:**

If you are customizing an 8-inch System Disk, then enter the following command in response to the system prompt:

A>**MOVCPM47 * B:**

2. Wait for the MOVCPM utility to display a message in the following form:

```
MOVCPMxx VERSION 2.2.04
```

```
CONSTRUCTING nnK CP/M vers 2.2
READY FOR "SYSGEN" OR
"SAVE 38 CPMnn.COM"
```

Proceed immediately to the SYSGEN activity.

SYSGEN

The SYSGEN utility puts a copy of the CP/M Operating System on your System Disk. SYSGEN will get this operating system copy from a special location in computer memory. (MOVCPM activities put the operating system in this special memory location.) Begin this activity with Backup Disk I in drive A: and the System Disk in drive B:.

1. At the A> prompt, type **SYSGEN** and press **RETURN**. This entry invokes the SYSGEN utility, which displays a message in the form:

```
SYSGEN VER 2.0.04  
SOURCE DRIVE NAME (OR RETURN TO SKIP): RETURN
```

2. Press **RETURN** as shown above. The computer will print:

```
DESTINATION DRIVE NAME (OR RETURN TO REBOOT):
```

3. Type **B**. CP/M will respond:

```
DESTINATION ON B, THEN TYPE RETURN
```

4. Press **RETURN**. CP/M will print:

```
FUNCTION COMPLETE.  
DESTINATION DRIVE NAME (OR RETURN TO REBOOT):
```

5. Reset the computer. (Do not enter a carriage return at this prompt.)
6. Remove the Backup Disk (or Backup Disk I) from drive A:, and insert the System Disk in drive A:. Then insert the Backup Disk (or Backup Disk I) into drive B:.
7. Perform bootstrap. CP/M will display the system prompt:

```
A>
```

Proceed to the CONFIGUR activity.

CONFIGUR

The CONFIGUR utility customizes the operating system on your System Disk to match several characteristics of your hardware environment. This procedure will show you how to use CONFIGUR to customize the system only for essential hardware characteristics. (Use the CONFIGUR instructions in the Volume II: The CP/M Reference Guide if you want more detailed instructions on using CONFIGUR.)

To begin this activity, you should have your System Disk in drive A, and your Backup Disk (or Backup Disk I) in drive B.

1. Type the command **B:CONFIGUR RETURN** at the system prompt. This entry invokes CONFIGUR, which will present a display that begins with an identification message in the following form:

```
Heath/Zenith Configuration Program
Version 2.2.04
Serial Number: sss-sssss
```

CONFIGUR will continue to display messages, ending with the following prompt:

```
Standard system (Y or N)? <Y>:
```

2. Type **N**. CONFIGUR will display a selection menu labelled "CP/M Configuration".
3. Refer to Table 1-28 if you have a Z89-3 interface card, and to Table 1-29 if you have a Z89-11 interface card. Using the appropriate table, type the keyboard entries listed for your terminal. To the right of each entry is an excerpt or description of part of the display that should appear immediately **after** you type the entry. If the excerpted or described display in the table does not appear on your terminal, repeat the entry.

NOTE: Type only the capital letters or numbers featured in bold faced type beneath the heading "Keyboard Entries". Do not change the order of the entries listed. If you type an incorrect entry at a prompt, CONFIGUR will either ignore your mistake, or display it. If a mistake is ignored, simply answer the prompt again. If CONFIGUR displays your mistake, you can usually change it by typing **Z** and repeating a few entries.

Your Terminal	Keyboard Entries	Excerpt or Description of Desired Display
Zenith or Heath Z-19, H-19, Z-88, H-88, Z-89, H-89, or Z-90 terminal	A A 9 350 Y C A CRT Y	(Terminal and Printer Characteristics – Submenu A) CRT: baud rate: CRT: baud rate: 9600 port: CRT: baud rate: 9600 port: 0E8H = 350Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CRT: = CON: = CRT: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 terminal	A B 30 320 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 300 port: TTY: baud rate: 300 port: 0D0H = 320Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)
Diablo KSR 1640 terminal	A B 12 320 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 1200 port: TTY: baud rate: 1200 port: 0D0H = 320Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)

Table 1-28
Terminals with Z89-3 Interface

Your Terminal	Keyboard Entries	Excerpt or Description of Desired Display
Zenith or Heath Z-19, H-19, Z-88, H-88, Z-89, H-89, or Z-90 terminal	A A 9 350 Y C A CRT Y	(Terminal and Printer Characteristics – Submenu A) CRT: baud rate: CRT: baud rate: 9600 port: CRT: baud rate: 9600 port: 0E8H = 350Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CRT: = CON: = CRT: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 terminal	A B 30 330 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 300 port: TTY: baud rate: 300 port: 0D8H = 330Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)
Diablo KSR 1640 terminal	A B 12 330 Y C A TTY Y	(Terminal and Printer Characteristics – Submenu A) TTY: baud rate: TTY: baud rate: 1200 port: TTY: baud rate: 1200 port: 0D8H = 330Q CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) CON: = CON: = TTY: CP/M Configuration (Main Menu)

Table 1-29
Terminals with Z89-11 Interface

- Refer to Table 1-30 if you have a Z89-3 interface card, and to Table 1-31 if you have a Z89-11 interface card. Using the appropriate table, type the keyboard entries listed for your printer. To the right of each entry is an excerpt or description of part of the display that should appear immediately **after** you type the entry. If the excerpted or described display in the table does not appear, repeat the entry.

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Diablo 630, 1640, or 1650 printer	A C 12 340 none none Y C D UL1 Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 1200 port: LST: baud rate: 1200 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = UL1: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 printer	A C 30 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 300 port: LST: baud rate: 300 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Heath H-14 printer	A C 4 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-30
Printers with Z89-3 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Texas Instruments TI-810 printer	A C 4 340 none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Zenith or Heath Z-25 or H-25 printer	A C 4 340 M none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Epson MX-80 serial printer	A C 4 340 M N Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: DTR (Pin 20) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-30
Printers with Z89-3 Interface
(continued from preceding page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Diablo 630, 1640, or 1650 printer	A C 12 340 none none Y C D UL1 Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 1200 port: LST: baud rate: 1200 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = UL1: CP/M Configuration (Main Menu)
DECwriter LA-34 or LA-36 printer	A C 30 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 300 port: LST: baud rate: 300 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Heath H-14 printer	A C 4 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: 0E0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-31

Printers with Z89-11 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Texas Instruments TI-810 printer	A C 4 340 none none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: LOW Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Zenith or Heath Z-25 or H-25 printer	A C 4 340 M none P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: RTS (Pin 4) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)
Epson MX-80 serial printer	A C 4 340 M N P Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) LST: baud rate: LST: baud rate: 4800 port: LST: baud rate: 4800 port: OE0H = 340Q Serial Printer Ready Signal Polarity: HIGH Serial Printer Ready Signal: DTR (Pin 20) Z89-11 LPT Selection: SERIAL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-31
Printers with Z89-11 Interface
(continued on next page)

Your Printer	Keyboard Entries	Excerpt or Description of Desired Display
Epson MX-80 parallel printer	A none none Y C D LPT Y	(Terminal and Printer Characteristics – Submenu A) Parallel Printer Ready Signal Polarity: HIGH Z89-11 LPT Selection: PARALLEL CP/M Configuration (Main Menu) (Default I/O Configuration – Submenu C) LST: = LST: = LPT: CP/M Configuration (Main Menu)

Table 1-31

Printers with Z89-11 Interface
 (continued from preceding page)

5. If your primary drive group consists of 96 TPI drives, type the sequence of keyboard entries listed in Table 1-32. To the right of each entry is an excerpt or description of the part of the display that should appear immediately **after** you type the entry.

Keyboard Entries	Excerpt or Description of Desired Display
B A 6 RETURN 96 RETURN B 6 RETURN 96 RETURN C 6 RETURN 96 RETURN Y	5.25 Inch Soft-Sectored Unit 0 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft-Sectored Unit 2 Step Rate: 30ms Track Density: 48tpi Soft-Sector Unit 0 Step Rate ? Soft-Sector Unit 0 Step Rate ? 6 Soft-Sector Unit 0 Track Density ? Soft-Sector Unit 0 Track Density ? 96 5.25 Inch Soft-Sectored Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft-Sectored Unit 2 Step Rate: 30ms Track Density: 48tpi Soft-Sector Unit 1 Step Rate ? Soft-Sector Unit 1 Step Rate ? 6 Soft-Sector Unit 1 Track Density ? Soft-Sector Unit 1 Track Density ? 96 5.25 Inch Soft-Sectored Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 2 Step Rate: 30ms Track Density: 48tpi Soft-Sector Unit 2 Step Rate ? Soft-Sector Unit 2 Step Rate ? 6 Soft-Sector Unit 2 Track Density ? Soft-Sector Unit 2 Track Density ? 96 5.25 Inch Soft-Sectored Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 2 Step Rate: 6ms Track Density: 96tpi CP/M Configuration (Main Menu)

Table 1-32
CONFIGUR Entries for Primary 96 TPI Drives

If your primary drive group consists of 48 TPI 5.25-inch drives or 8-inch drives, then proceed to Step 6.

6. If your secondary drive group consists of any 96 TPI drives, type the sequence of keyboard entries listed in Table 1-33. To the right of each entry is an excerpt or description of the part of the display that should appear immediately **after** you type the entry.

Keyboard Entries	Excerpt or Description of Desired Display
<p>B</p>	<p>5.25 Inch Soft-Sectored Unit 0 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft-Sectored Unit 2 Step Rate: 30ms Track Density: 48tpi</p>
<p>A</p>	<p>Soft-Sector Unit 0 Step Rate ?</p>
<p>6</p>	<p>Soft-Sector Unit 0 Step Rate ? 6</p>
<p>RETURN</p>	<p>Soft-Sector Unit 0 Track Density ?</p>
<p>96</p>	<p>Soft-Sector Unit 0 Track Density ? 96</p>
<p>RETURN</p>	<p>5.25 Inch Soft-Sectored Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 30ms Track Density: 48tpi 5.25 Inch Soft-Sectored Unit 2 Step Rate: 30ms Track Density: 48tpi</p>
<p>B</p>	<p>Soft-Sector Unit 1 Step Rate ?</p>
<p>6</p>	<p>Soft-Sector Unit 1 Step Rate ? 6</p>
<p>RETURN</p>	<p>Soft-Sector Unit 1 Track Density ?</p>
<p>96</p>	<p>Soft-Sector Unit 1 Track Density ? 96</p>
<p>RETURN</p>	<p>5.25 Inch Soft-Sectored Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 2 Step Rate: 30ms Track Density: 48tpi</p>
<p>C</p>	<p>Soft-Sector Unit 2 Step Rate ?</p>
<p>6</p>	<p>Soft-Sector Unit 2 Step Rate ? 6</p>
<p>RETURN</p>	<p>Soft-Sector Unit 2 Track Density ?</p>
<p>96</p>	<p>Soft-Sector Unit 2 Track Density ? 96</p>
<p>RETURN</p>	<p>5.25 Inch Soft-Sectored Unit 0 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 6ms Track Density: 96tpi 5.25 Inch Soft-Sectored Unit 1 Step Rate: 6ms Track Density: 96tpi</p>
<p>Y</p>	<p>CP/M Configuration (Main Menu)</p>

Table 1-33
 CONFIGUR Entries for Secondary 96 TPI Drives

If your secondary drive group does not consist of any 96 TPI drives, then proceed to step 7.

7. CONFIGUR should now display the selection menu labelled "CP/M Configuration". Respond to the selection prompt in this menu by typing **Y**. CP/M will display the "A>" system prompt.

You have just completed your customization procedure. If you correctly followed your entire customization procedure, your System Disk should contain a copy of the CP/M Operating System that controls all components of your hardware environment.

To combine this customized operating system with an application program, proceed to the "Working Disk Procedures".

NOTE: If you have any hardware devices that are **not** listed in these tables and are still not working with your System Disk, then use the instructions in Volume II: Reference Guide to perform the CONFIGUR activity.

If you have devices that are listed in these tables and they still don't function properly with your System Disk, then the devices themselves might have been set with characteristics that this text could not anticipate. Therefore you should refer to your hardware manual(s) for hardware settings instructions, and to Volume II: The CP/M Reference Guide for CONFIGUR instructions.

Customizing Procedure Six

An H/Z67 (Winchester Disk) Drive and Some Secondary Drives

OR

One 96 TPI, 5.25-Inch and One or Two 48 TPI, 5.25-Inch Primary Drives and Some Secondary Drives

This procedure will help you to customize the copy of the CP/M Operating System that resides on your Backup Partition or Disk. If you have a Backup Partition, this procedure will refer to it as a "System Partition". If you have a Backup Disk, this procedure will refer to it as a "System Disk".

If you have an H/Z-67, then write-protect switch 0 should be pressed down to write enable the Winchester Disk.

PROCEDURE SYNOPSIS

This procedure requires you to perform the following activities in sequence:

```
bootup
CONFIGUR
MAKEBIOS
MOVCPM*
SYSGEN
bootup
CONFIGUR
```

If you have a System Partition, begin Customizing Procedure Six by booting up with the System Partition. When the CONFIGUR utility is automatically invoked, wait for the "Standard system" prompt and type Y. Then proceed to the MAKEBIOS activity.

If you have a System Disk, begin Customizing Procedure Six by inserting the System Disk in the 96 TPI drive and booting up with the System Disk. When the CONFIGUR utility is automatically invoked, wait for the "Standard system" prompt and type Y. Then proceed to the CONFIGUR activity.

* Use either MOVCPM67 or MOVCPM37.