

# TOSHIBA

# TECHNICAL BULLETIN

Date: 9/23/82 /Number: 021A

## T250 SYSTEMS DISK VERSION 2.20

Effective immediately -- T250 System Disk is available. Attached you will find all the necessary information to help you use Version 2.20 effectively.

Version 2.20 requires a hardware change. A new EPROM must be installed in the T250 before Version 2.20 can be used. See Appendix A for EPROM installation procedures.

All new T250's will be shipped with the new Version 2.20 and the EPROM installed. Existing T250 installations must be upgraded with the new EPROM and a new T250 Systems Disk Version 2.20.

NOTE: T250 System Disk Version 1.2 will not operate with the new EPROM upgrade.

PK4:050A

**T250**

**BIOS VERSION 2.20**

**TABLE OF CONTENTS**

	<b>PAGE</b>
<b>BIOS 2.20 SUMMARY OF CHANGES</b>	<b>1</b>
Disk Operation	
Screen Console	
Keyboard	
Printer Operation	
Communications	
User Program Space	
Directory Size	
<b>DISTRIBUTED MATERIALS</b>	<b>1</b>
EPROM	
System Diskette	
.FORMAT.COM	
.COPY.COM	
.PATCH.COM	
.DIR128.COM	
<b>SETTING UP NEW DISKS</b>	<b>2.1</b>
<b>COPYING DISKS</b>	<b>3.1</b>
<b>CONVERSION FROM SINGLE SIDED/SINGLE DENSITY TO DOUBLE SIDED/DOUBLE DENSITY</b>	<b>3.3</b>
<b>ERROR CONDITIONS</b>	<b>4</b>
<b>CHANGING PARAMETERS IN YOUR CP/M SYSTEM</b>	<b>5.1</b>
<b>HAZELTINE 1500 SUMMARY OF CURSOR COMMANDS</b>	<b>6</b>
BIOS 2.20 Upgrade	Appendix A
EPROM Installation Instructions	Attachment

## T250

### BIOS VERSION 2.20

#### BIOS 2.20 SUMMARY OF CHANGES

##### DISK OPERATION

- Faster
- Can run 1S/2D in B: without previously "setting up" the system for one or the other. Thus, copying between 1S/2D is simplified and can be done with PIP.

##### SCREEN CONSOLE

- Faster
- Auto linefeed no longer applied at each CR.

##### KEYBOARD

- A 30 character keyboard buffer is now installed.

##### PRINTER OPERATION

- No need for printer patch such as D12PRIN or F-10.
- LST: can be assigned to the serial port via STAT LST:=COM:

##### COMMUNICATIONS

- With the release of BIOS 2.20, WHIZ version will operate without patching.

##### USER PROGRAM SPACE

- Larger TPA. 64K BIOS 2.20 allows 1K more space for user programs than earlier releases.

##### DIRECTORY SIZE

- Larger Directory. We now have space for 256 entries in the 2D directory. If the user wants to read a disk created under BIOS 1.XX then he should first run DIR128. IPL restores the system to 256 directory entry operation.

##### DISTRIBUTED MATERIALS

EPROM. A new EPROM must be installed in order to load CP/M with BIOS 2.20.

- System diskette. BIOS 2.20 is distributed in loadable form in its normal location on the system tracts.
- In addition, certain utilities accompany BIOS 2.20. These are included on the system diskette:

.FORMAT.COM  
.COPY.COM

.PATCH.COM  
.DIR128.COM

**T250**

**BIOS VERSION 2.20**

**SETTING UP NEW DISKS**

New disks must be formatted before use by CP/M. In addition, old disks may be reused by following this procedure.

- o Place a system disk containing the program UTIL.COM in drive A.
- o Press the (break) key. CP/M will display the A> prompt.
- o Type UTIL and press <ENTER>. The following menu will appear on the screen:

TOSHIBA Disk Utilities Version 1.0

Selection?--

Copy options are:

- <1> Copy entire disk from Drive A to Drive B
- <2> Copy CP/M system tracks only! A to B
- <3> Copy disk in Drive A using one Drive only
- <F> Go to Format Menu
- <X> Exit this program and return to CP/M

- o Type F and press <Enter>. The following menu will appear on the screen:

Format options are:

- <1> Format the disk in Drive B as a 256 Sector Double-Sided, Double-Density Disk
- <2> Format the disk in Drive B as a Single-Sided, Single-Density Disk
- <C> Go to Copy Menu
- <X> Exit this program and return to CP/M

Disk to be formatted is in Drive B.

Will be formatted with 256 bytes/sector on all tracks.

The data on selected tracks of this disk will be destroyed.

Press any key to format, BREAK to abort the function.

## T250

### BIOS VERSION 2.20

- o Press any key to start the formatting. During the format process, F's will display as each track is formatted. At the end of the disk format process, the original menu will be displayed again. Examine the status of F's on the format status lines. If there were errors, they will be noted with E's instead. This means that the disk cannot be used. Either reformat the disk until there are no errors, or discard the disk.
- o When finished formatting, enter an X as a command to the first menu. You will return to CP/M. Be sure to replace your standard system disk in drive A before using this command. More disks may be formatted by selecting command 1 or 2 again until all disks are formatted. Also you can go between formatting disks and copying disks by selecting C command in FORMAT and F command in COPY as will be discussed below.
- o C selects the copy menu to allow disk copying. This will be discussed below under the COPY utility.

## T250

### BIOS VERSION 2.20

#### COPYING DISKS

It is desirable to make an exact copy of regular working disks on a periodic basis. This is done to try to prevent problems that can occur if a disk is destroyed or if valuable data is erased or destroyed. The importance of backing up (or archiving) disks cannot be overemphasized and should be part of the regular working procedure of any computerized activity.

- o Place a system disk (or a disk containing the program UTIL.COM) in Drive A.
- o Press the (BREAK) key. CP/M should display the A prompt.
- o Type UTIL and press <ENTER>. The following menu will be displayed:

```
TOSHIBA Disk Utilities Version 1.0  
Selection ?--
```

Copy options are:

- <1> Copy entire disk from Drive A to Drive B
- <2> Copy CP/M system tracks only! A to B
- <3> Copy disk in Drive A using one Drive only
- <F> Go to FORMAT Menu
- <X> Exit this program and return to CP/M

Place the disk to copied in Drive A. Place the archive or backup disk in Drive B. Enter the command for the desired operation. The following screen will be displayed.

The information in disk A will be copied to disk B on all tracks.

All of the old information on selected tracks of disk B will be destroyed.

Press any key to copy, BREAK will abort the copy.

## T250

### BIOS VERSION 2.20

- o Press any key to start the copying. During the copy process, R's will display as each track is read. Then W's will display as each track is written. At the end of the disk copy process, the original menu will be displayed again. Examine the status of W's on the copy status lines. If there were errors, they will be noted with E's instead. This means that the disk has not been copied correctly. Either recopy the disk until there are no errors or discard the disk and use another one.
- o When finished copying, enter an X as the command to the first menu. You will be returned to CP/M. Be sure to replace your standard system disk in drive A before using this command. More disks may be copied by selecting command 1 or 2 or 3 again until all disks are copied. Also, you can go between copying disks and formatting disks by selecting the F command in COPY and the C command in FORMAT.

**CONVERSION FROM SINGLE-SIDED/SINGLE-DENSITY  
TO DOUBLE-SIDED/DOUBLE-DENSITY VERSION 2.20**

- STEP 1 Disk Drive Set-up:  
Drive A = System Diskette Version 2.20  
Drive B = Blank Double-Sided/Double-Density Disk  
Format the double-sided/double-density disk in Drive B  
using UTIL.COM Format Option #1.
- STEP 2 Copy **the System tracks** on this formatted disk using  
UTIL.COM Copy Option #2.
- STEP 3 Pip "PIP.COM" onto this newly formatted diskette in  
Drive B.
- STEP 4 Place this disk in Drive A and press the (BREAK) key.
- STEP 5 Insert the single-sided/single-density diskette in  
Drive B.
- STEP 6 Type PIP A:=B:\*.\*
- STEP 7 Wait for A>.

## T250

### BIOS VERSION 2.20

#### ERROR CONDITIONS

At times the program will detect situations which it does not know how to handle. It will display an error message and wait for your next response. These messages are discussed below.

#### **"THE COMMAND MUST BE ONE OF THOSE ON THE MENU LIST"**

This message indicates that you entered a command that was not one of the legal commands on the menu. Select a command that is on the list.

#### **"BOTH DISKS MUST HAVE THE SAME SECTOR SIZE TO COPY. THE SOURCE DISK HAS 256 BYTES/SECTOR. PLEASE MOUNT OR FORMAT TO MATCH"**

This message indicates that the sector sizes of the source disk and destination disk in a COPY are not the same. They need to be the same to copy disks. You can either mount a destination disk with the same format as the source disk or select the FORMAT menu and format the destination disk in the same format as the source disk. The message gives the sector size of the source disk.

#### **"DRIVE B NOT READY OR DISK ERROR"**

This message usually indicates the door to the disk drive is open when the program accesses the disk for the first time. Usually all you need to do is insert a disk and close the door. Otherwise, there may be more serious problems. You should seek other help then.

#### **"INSERT SOURCE DISK IN DRIVE A ENTER CR TO CONTINUE, BREAK TO ABORT":**

This message is output when COPYING and using the <3> command. The program is ready to read data from your source disk which should be placed in the drive selected for copying.

#### **"INSERT DESTINATION DISK IN DRIVE A ENTER CR TO CONTINUE, BREAK TO ABORT":**

This message is output when COPYING and using the <3> command. The program is ready to write data on you destination disk which should be placed in the drive selected for copying.

## T250

### BIOS VERSION 2.20

#### CHANGING PARAMETERS IN YOUR CP/M SYSTEM

The CP/M system is delivered with a series of default operating parameters for normal operation. However, special circumstances may dictate the use of some options provided in the operating system. This utility (PATCH) allows the user the ability to "patch" these options to suit special circumstances.

-To execute the PATCH utility, perform the following steps:

- . Place a system disk (or a disk containing the program PATCH) in drive A.
- . Press the (BREAK) key. CP/M should display the A> prompt.
- . Type PATCH <ENTER> . The following menu should display.

TOSHIBA BIOS Patch Utility  
Command?

Patch commands:

- <0> Return to CP/M
- <1> Change read after write
- <2> Change cursor shape
- <3> Change baud rate
- <4> Change parity, # stop/data bits
- <5> Change communications command
- <6> Change patch flag

All entries are 1 or 2 hexadecimal BYTES as indicated by prompt.

- . Enter one of the commands. The following sections explain the prompts to each command and their legal values.
- . If you do not want to modify a parameter, just enter RETURN to the prompt for data for that command. You will be returned to the main menu for another command.

## T250

### BIOS VERSION 2.20

#### CHANGING CP/M PARAMETERS CONTINUED

Enter read after write flag (1):

<0> is DEFAULT no read after write

<1> is read after write (disk I/O is slower)

- . This prompt is in response to the <1> command. It allows you to set or reset the read after write option. Normally, data is written to the disk without any special verification. This is because the disk is a highly reliable component. In the early days, the disk was not so reliable so that disk writes were "verified" to make sure the data was written out correctly.. An option exists to perform this read after write verification. Its effect is to slow down applications that do alot of disk writes.

Enter cursor shape (1):

<49> is DEFAULT blinking underscore cursor

<40> is blinking box shaped cursor

<69> is slow blinking underscore cursor

<60> is slow blinking box shaped cursor

<29> is stationary underscore cursor

<20> is stationary box shaped cursor

Other values may produce odd results, use with caution.

- . This prompt is in response to the <2> command. It allows you to change the cursor shape. The standard cursor is a winking underline. However, some users may be used to a box shaped cursor or to a non-winking cursor or may wish a slower wink rate. All of these are available. If the cursor seems to disappear when using this option, do not panic. It is still there even if invisible. Reselect option <2> and enter <49> RETURN in response to the prompt. Your standard cursor should reappear.

Enter baud rate (2):

01A0 is DEFAULT 300 BAUD

00D0 is 600 BAUD

0068 is 1200 BAUD

0034 is 2400 BAUD

001A is 4800 BAUD

000D is 9600 BAUD

- . This prompt is in response to the <3> command. It allows you to change the baud rate of the communications channel. The communications channel is set up for 300 baud, no parity and 2 stop bits. Normally, only the baud rate needs to be changed but the other parameters may be changed by referring to pages 117 and 118 of the Toshiba Users Manual.

## T250

### BIOS VERSION 2.20

#### CHANGING CP/M PARAMETERS CONTINUED

Enter parity, # stop/data bits (1):

Refer to page 117 of the users guide for the definition of this field

- . This prompt is in response to the <4> command. It allows you to change the number of data and stop (terminating) bits for each character, whether there is parity and whether it is odd or even. Page 117 of the Users Manual has the detail definition of this field. The default value for this field is 6E.

Enter communications command (1):

Refer to page 118 of the Users Manual for the definition of this field.

- . This prompt is in response to the <5> command. It allows you to change the initial communications command given to the communications channel. There normally is no reason to change the default value for this which is B6.

Enter patched flag (1):

<0> sets drive B back to normal status

<1> sets drive B to patched status

(normally do not use this)

Do not use this option unless you know what you are doing.

- . This prompt is in response to the <6> command. It allows you to change the disk patched flag. This option would normally only be used after using the utility DIR128 to force disk B to use 128 directory entries that the old disks used. If the option is set to <0>, CP/M uses the disk normally. However, if the option is set to <1> (which is done by DIR128), the disk is forced into just one format, determined by the last disk placed in the drive.

Function must be 0 - 6

- . This message says you entered a command that was not a number in the range of 0-6. These are the only commands that PATCH recognizes.

"TOSHIBA BIOS Patch Utility Operation Completed"

- . This message is output in response to the <0> command. The CP/M prompt A> should appear on the next line.

**HAZELTINE 1500  
SUMMARY OF CURSOR COMMANDS  
SUPPORTED BY TOSHIBA**

X = Column  
Y = Row

The cursor off set for Y is:  $Y = Y + 96$

The cursor off set for X is: If  $0 < X < 32$ ,  
then  $X = X + 96$   
else  $X = X$

<u>CURSOR COMMANDS</u>	<u>DECIMAL LEAD-IN REQ'D. (X) *</u>	<u>KEY STROKE **</u>	<u>ASCII CODE</u>	<u>DECIMAL</u>
Home Cursor	126	Control-R	DC2	18
Up Cursor	126	Shift-Line Feed	FF	12
Down Cursor	126	Control-K	VT	11
Left Cursor		Back Space	BS	8
Right Cursor		Shift-Backspace	DLE	16
Address Cursor	126	Control-Q	DC1,X,Y	17,X,Y
Clear Screen	126	Control/Shift-L	FS	28
Clear to End-of-Line	126	Control-O	SI	15
Clear to End-of-Screen	126	Control-X	CAN	24
Reverse Video (Toggle)	126	Control/Shift-O	US	31
Delete Line	126	Control-S	DC3	19
Insert Line	126	Control-Z	SUB	26
Keyboard Lock	126	Control-U	NAK	21
Keyboard Unlock	126	Control-F	ACK	6
Audible Alarm		control-G	BEL	7
TAB		TAB	HT	9

\* Lead-in Code = ASCII ~, column 7, row 14 - DECIMAL 126

\*\* Control-"Key" is generated by depressing the control key and striking the character  
Shift-"Key" is generated by depressing the shift key and striking the character  
Control/shift-"Key" is generated by simultaneously depressing the control and shift keys and striking the character

## APPENDIX A

- . New T250 System Disk required -- BIOS Version 2.20
- . New EPROM required -- see Attachment for EPROM Installation

**A > CURSOR POSITIONING TEST FOR CBASIC**

```
10 POKE 0100H,0
20 CONSOLE
30 STOP% = 1
40 DEF FN.PC$(X%,Y%)
50 IF 0 < X% < 32 THEN X% = X% + 96
60 Y% = Y% + 96
70 FN.PC$ = CHR$(126) + CHR$(17) + CHR$(X%) + CHR$(Y%)
80 RETURN
90 FEND
100 WHILE STOP%
105 PRINT CHR$(126) + CHR$(28)
110 INPUT "CURSOR POSITION?(X - COORDINATE)";X%
120 IF X% > 80 THEN GOTO 200
130 INPUT "CURSOR POSITION?(Y - COORDINATE)";Y%
140 IF Y% > 23 THEN GOTO 250
150 PRINT CHR$(126) + CHR$(28)
160 PRINT FN.PC$(X%,Y%); "HERE WE ARE"
170 PRINT X%,Y%
180 INPUT "DO YOU WANT TO STOP?(0=YES,1=NO)" STOP%
190 WEND
200 GOTO 300
210 PRINT CHR$(126) + CHR$(28)
220 PRINT FN.PC$(0,12); "ERROR - X CANNOT BE GREATER THAN 80"
230 GOTO 110
240 PRINT CHR$(126) + CHR$(28)
250 PRINT FN.PC$(0,12); "ERROR - Y CANNOT BE LESS 23"
260 GOTO 120
290 GOTO 100
300 END
```

## A > CURSOR POSITIONING TEST FOR MBASIC

```
1 PRINT CHR$(126) + CHR$(28) :REM CLEAR screen
5 DEF FN PC$ = CHR$(126) + CHR$(17) + CHR$(X) + CHR$(Y)
10 INPUT "CURSOR POSITION?(X - COORDINATION)";X
20 INPUT "CURSOR POSITION?(Y - COORDINATION)";Y
30 GOSUB 100
40 PRINT FNPC$:"HERE WE ARE":":":X:"(X)":":Y:"(Y)":REM CURSOR
   POSITIONING
50 STOP
100 REM:::::::::::::CURSOR ADDRESS SUBROUTINE:::::::::::::
110 REM INPUT VARIABLE ARE X - x coord
120 REM           Y - y coord
130 REM
140 REM routine ends by positioning cursor at defined screen
   addr.
190 A1$ = ""
200 IF X < 80 GOTO 230
210 PRINT "CUR.ADDR.*****VALUE > 79 ENTERED AS X COORD";X
220 A1$ = "ERROR"
230 IF Y < 24 GOTO 260
240 PRINT "CUR.ADDR.*****VALUE > 23 ENTERED AS Y COORD";Y
250 A1$ = "ERROR"
260 IF A1$ = "ERROR" GOTO 350
270 C1 = X
280 C2 = Y
290 IF X > 30 GOTO 310
300 IF 0 < X% < 32 THEN X% = X% + 96
310 Y = Y + 96
320 X = C1
330 Y = C2
340 RETURN
350 PRINT A1$
360 STOP
```

64KB BETA TEST  
INSTRUCTIONS

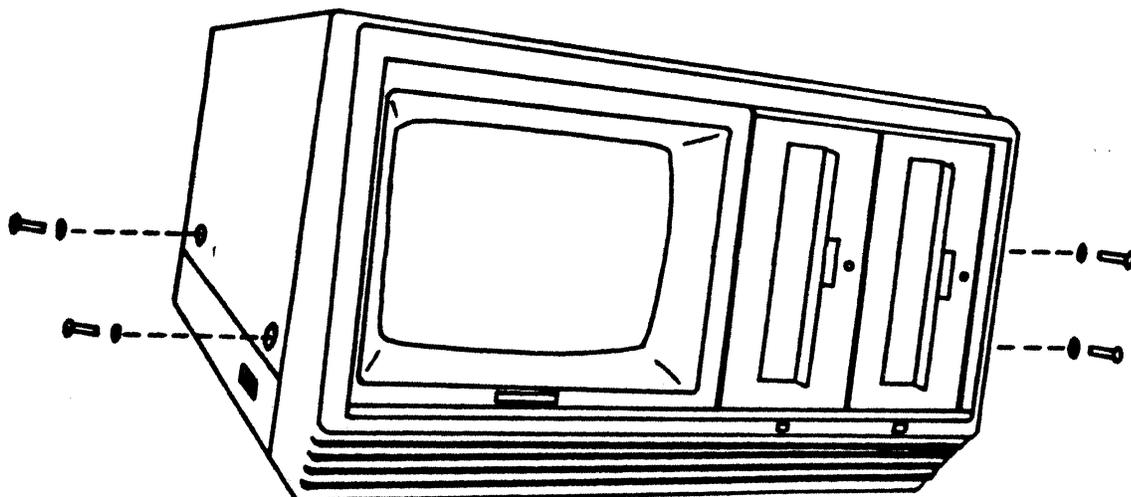
1. DATA STATION COVER

REMOVAL

- 1-1. Power off.
- 1-2. Disconnect the AC power cord.
- 1-3. Remove the four cover screws.
- 1-4. Slightly slide the cover backward, then lift it up.

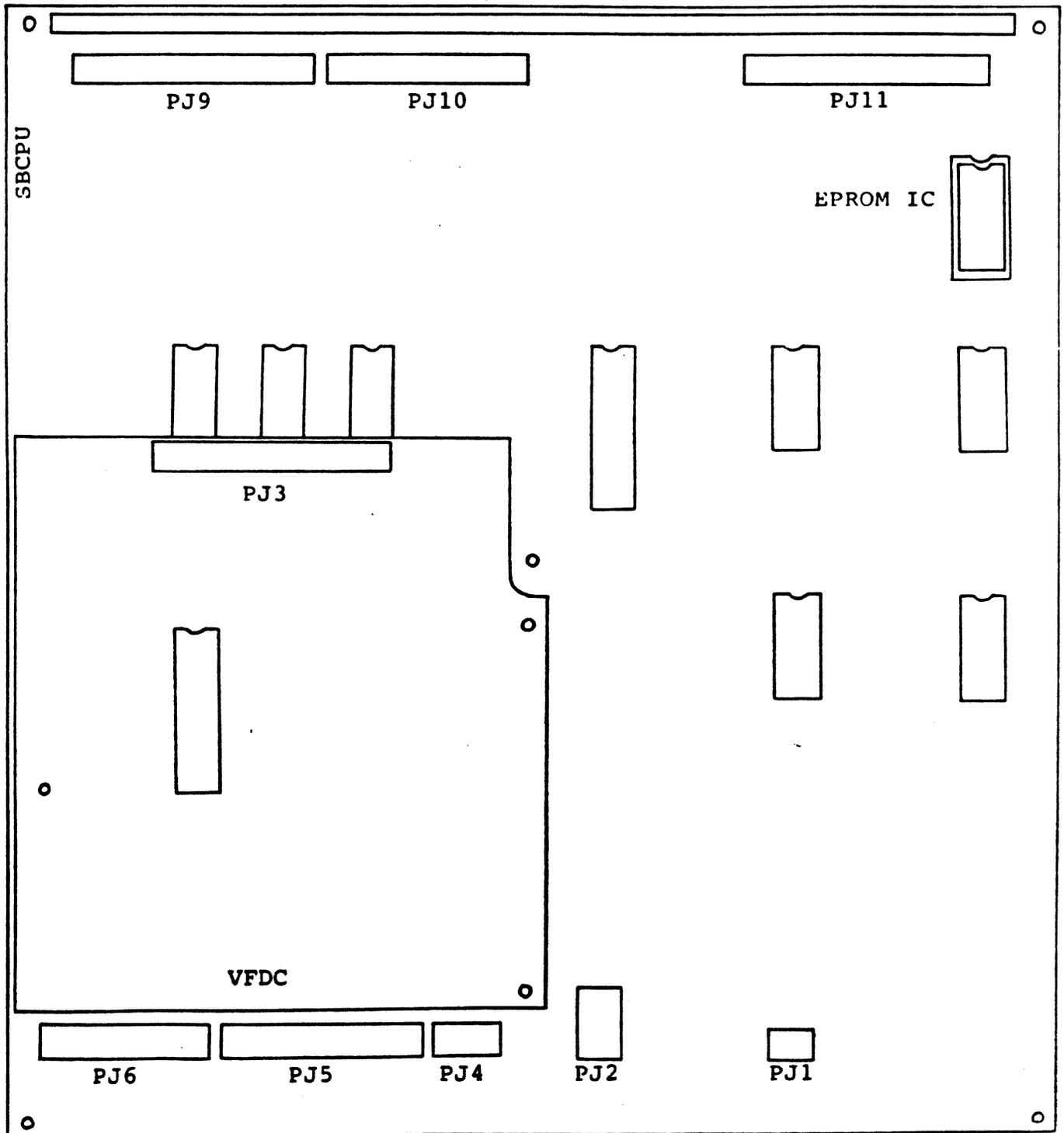
REPLACEMENT

Reverse the steps in the removal procedure.  
When installing the cover, gently place the cover onto the data station base, then slide it forward so that the edge of the cover should slide into the front mask.



2. EPROM IC

The EPROM is located at (1W) on an IC socket.



## REMOVAL

- 2-1. Pry the EPROM IC gently from its IC socket with a small flat blade (-) screwdriver placed into the gap between the IC and the top surface of the IC socket.

## REPLACEMENT

- 2-2. Touch the chassis so that any static electricity charge will be discharged to ground.
- 2-3. Put the leads of the EPROM IC (BT 1) on the chassis.
- 2-4. Adjust the width of lead pins of the EPROM IC to easily insert them into the IC socket.
- 2-5. Insert the EPROM IC into the socket gently with the IC oriented as shown below.

