10. Did the following appear on your screen?

SELECT AN OPTION
0 - RUN DIAGNOSTIC ROUTINES
1 - FORMAT DISKETTE
2 - COPY DISKETTE
3 - PREPARE FIXED DISK FOR RELOCATION
9 - EXIT TO SYSTEM DISKETTE
ENTER THE ACTION DESIRED

YES - Go to Step 11.

NO - Remove the diskette and verify that it:

- Was the Diagnostics diskette.
- Was inserted correctly.

Correct any mistakes. If the Diagnostics diskette was inserted correctly, the system unit is probably at fault.

Note: If you are using your home television or non-IBM display, you could experience data errors while using your diskette drive. This interference is easily corrected by moving your television or display 12 inches away from your IBM Personal Computer.
11. Press \[ \text{I} \] to select \text{FORMAT DISKETTE} then \[ \text{J} \]
12. Did the following appear on your screen?

The IBM Personal Computer DIAGNOSTICS
Version XXX (C) Copyright IBM Corp XXXX

SELECT AN OPTION

0 - RUN DIAGNOSTIC ROUTINES
1 - FORMAT DISKETTE
2 - COPY DISKETTE
3 - PREPARE FIXED DISK FOR RELOCATION
9 - EXIT TO SYSTEM DISKETTE

ENTER THE ACTION DESIRED

? 1

WHICH DRIVE CONTAINS DISKETTE
TO BE FORMATTED?

YES - Go to Step 13.

NO  - Have your keyboard serviced.

13. Remove the Diagnostics diskette from drive A and insert a blank diskette.
14. Press \[ \text{key} \] then \[ \text{key} \].

The blank diskette will be formatted, and the in-use light will be on during formatting.

When the in-use light goes out, remove the formatted (scratch) diskette.

**Note:** A formatted diskette that has no data stored on it is called a *scratch* diskette.
15. Reinsert the Diagnostics diskette into drive A.

Did the following appear on your screen?

```
SELECT AN OPTION
0 - RUN DIAGNOSTIC ROUTINES
1 - FORMAT DISKETTE
2 - COPY DISKETTE
3 - PREPARE FIXED DISK FOR RELOCATION
9 - EXIT TO SYSTEM DISKETTE
ENTER THE ACTION DESIRED
```

**YES** - Press [0] then [J].

If you have one display option installed in your system go to Step 17. If you have an IBM Monochrome Display and Printer Adapter and a Color/Graphics Monitor Adapter installed in your system, go to Step 16.

**NO** - Remove the diskette and verify the following:

- It was a blank diskette.
- The diskettes were inserted in the correct order (blank diskette then Diagnostics diskette).

Try another blank diskette. If the problem still exists, have the system unit serviced.
16. Do you have a display attached to each display adapter installed in your system?

**IS A MONITOR ATTACHED TO EVERY DISPLAY ADAPTER (Y/N)?**

**YES** - Press then and go to Step 17.

**NO** - Press then and go to Step 17.
17. Complete the list of installed devices and options and indicate their location with a check mark. Enter the amount of memory installed in your system.

<table>
<thead>
<tr>
<th>System Unit</th>
<th>Expansion Unit</th>
<th>Installed Device/Option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>System Board</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expansion Option</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XXX K of Memory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Keyboard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monochrome and Printer Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X Diskette Drive(s) and Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Printer Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Async Communications Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Matrix Printer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X Fixed Disk Drive(s) and Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Game Control Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Color/Graphics Monitor Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SDLC Adapter</td>
</tr>
</tbody>
</table>

**Installed Devices, Options, and Memory**

**Note:** The IBM Communications Adapter Cable and Printer Adapter Cable will not appear on the list.
In the following sample “S” means the device is installed in the system unit, and “E” means the expansion unit.

18. Does your screen correctly list all your installed devices and options.

THE INSTALLED DEVICES ARE
S SYSTEM BOARD
S EXPANSION OPTION
S 256KB MEMORY
S KEYBOARD
S MONOCHROME & PRINTER ADAPTER
S COLOR/GRAPHICS MONITOR ADAPTER
S 2 DISKETTE DRIVE(S) AND ADAPTER
S GAME CONTROL ADAPTER
E 1 FIXED DISK DRIVE(S) & ADAPTER
S MATRIX PRINTER

IS THE LIST CORRECT (Y/N)?

YES - Press $\text{Y}$ then $\text{J}$ and go to Step 19.

NO - If the matrix printer was not listed, go to “Printer Problem Determination Procedures.” For all other devices or options incorrectly listed, if the option is installed in the system unit, have the system unit serviced. If the option is installed in the expansion unit, have the expansion unit serviced.
19. Press \( \text{button} \) to select **RUN TESTS ONE TIME**, then

<table>
<thead>
<tr>
<th>SYSTEM CHECKOUT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - RUN TESTS ONE TIME</td>
<td></td>
</tr>
<tr>
<td>1 - RUN TESTS MULTIPLE TIMES</td>
<td></td>
</tr>
<tr>
<td>2 - LOG UTILITIES</td>
<td></td>
</tr>
<tr>
<td>9 - EXIT DIAGNOSTIC ROUTINES</td>
<td></td>
</tr>
<tr>
<td>ENTER THE ACTION DESIRED</td>
<td></td>
</tr>
</tbody>
</table>

Is an expansion unit attached?

**YES** - Go to Step 20.

**NO** - Go to Step 27.
20. Did you receive an expansion unit error message (18XX)?

SYSTEM CHECKOUT
0 - RUN TESTS ONE TIME
1 - RUN TEST MULTIPLE TIMES
2 - LOG UTILITIES
9 - EXIT DIAGNOSTIC ROUTINES
ENTER THE ACTION DESIRED
? 0
SYSTEM UNIT 100
EXPANSION UNIT 1800
THIS TEST TAKES UP TO TWO MINUTES
PLEASE STAND BY

YES - Go to Step 21.

NO - Go to Step 27.
21. Did you receive an 1819 error message (see the following)?

SYSTEM UNIT 100
XX:XX:XX
ERROR EXPANSION UNIT 1819
PRESS ENTER TO CONTINUE

YES - Have the expansion unit serviced.

NO - Go to Step 22.
22. Did you receive an 1820 or 1821 error message?

SYSTEM UNIT 100  
XX:XX:XX 
ERROR EXPANSION UNIT 182X  
PRESS ENTER TO CONTINUE 
?

YES - Have the expansion unit and expansion unit cable serviced.

NO - a. Set the Power switches on the system unit and expansion unit to Off.  
b. Set all external power switches Off (printer, TV, etc.).  
c. Disconnect the expansion unit cable from the system unit.  
d. Set the system unit’s Power switch to On.  
e. Go to Step 23.
23. Press \[\text{button}\] to select **RUN DIAGNOSTIC ROUTINES**, then \[\text{button}\].

**THE IBM PERSONAL COMPUTER DIAGNOSTICS**  
**VERSION XXX (C) COPYRIGHT IBM CORP XXXX**

**SELECT AN OPTION**

0 - RUN DIAGNOSTIC ROUTINES  
1 - FORMAT DISKETTE  
2 - COPY DISKETTE  
3 - PREPARE FIXED DISK FOR RELOCATION  
9 - EXIT TO SYSTEM DISKETTE  

**ENTER THE ACTION DESIRED**

If you have one display option installed in your system, go to Step 25. If you have an IBM Monochrome Display and Printer Adapter and a Color/Graphics Monitor Adapter installed in your system, go to Step 24.
24. Do you have a display attached to each display adapter installed in your system?

**IS A MONITOR ATTACHED TO EVERY DISPLAY ADAPTER (Y/N)?**

**YES** - Press Y then J and go to Step 25.

**NO** - Press N then J and go to Step 25.
25. Are any of the options or devices installed in your expansion unit missing from the list?

THE INSTALLED DEVICES ARE
S  SYSTEM BOARD
S  EXPANSION OPTION
S  256KB MEMORY
S  KEYBOARD
S  MONOCROME & PRINTER ADAPTER
S  COLOR/GRAPHICS MONITOR ADAPTER
S  2 DISKETTE DRIVE(S) AND ADAPTER
S  GAME CONTROL ADAPTER
E 1 FIXED DISK DRIVE(S) & ADAPTER
S  MATRIX PRINTER
IS THE LIST CORRECT (Y/N) ?

YES - Press ⏖️ then ⏎️ and go to Step 26.

NO  - Have the system unit serviced.
26. Press  to select RUN TESTS ONE TIME then .

SYSTEM CHECKOUT
0 - RUN TESTS ONE TIME
1 - RUN TESTS MULTIPLE TIMES
2 - LOG UTILITIES
9 - EXIT DIAGNOSTIC ROUTINES
ENTER THE ACTION DESIRED
?

Did you get an 1820 error message?

YES - Have the expansion unit and expansion unit cable serviced.

NO - Have the system unit serviced.
27. Did the following appear on your screen?

SYSTEM UNIT  100
THIS TEST TAKES UP TO TWO MINUTES
PLEASE STAND BY

YES - Go to Step 28.

NO  - Have the system unit serviced.
28. Did the following appear on your screen?

PRESS EACH KEY, HOLD FOR TYPEMATIC TEST
IF OK PRESS "Y ENTER"
IF NOT OK PRESS "N ENTER"

**YES** - Press each key once, then go to Step 29.

**NO** - Press ⬇️ then ⌃. Record the error message. Have the system unit serviced.

Problem Determination 4-34
29. Did the following appear on your screen?

```
1 2 1 2 3 4 5 6 7 8 9 0 - = ➪ NS
3 4 L Q W E R T Y U I O P { } 7 8 9
5 6 C A S D F G H J K L ; ' ' R 4 5 6
7 8 S \ Z X C V B N M , . / S * 1 2 3 +
9 0 A S C O .
```

PRESS EACH KEY HOLD FOR TYPEMATIC TEST
IF OK PRESS "Y ENTER"
IF NOT OK PRESS "N ENTER"

YES - Press and hold any key. The corresponding character on the screen will flash. This is the typematic test.

If the typematic test works correctly, press

![Image of a key being pressed]

then ![Image of a key being pressed] and go to Step 30. If the typematic test failed, press ![Image of a key being pressed] then ![Image of a key being pressed].

Record the error message. Have the keyboard serviced.

NO - If any block did not change to a character, have the keyboard serviced.
30. Do you have an IBM Monochrome Display attached to your system?

**NO** - Go to Step 33.

**YES** - Did the following appear on your screen?

**DISPLAY ATTRIBUTES**

*This line is at normal intensity.*

*This line is intensified.*

*This line is in reverse video.*

*This line is blinking*

*This line is underlined*

**IS THE SCREEN CORRECT? (Y/N)**

**YES** - Press [Y] then [J] and go to Step 31.

**NO** - Press [N] then [J]. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**

**ERROR - SYSTEM UNIT XXXX**

(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**

**ERROR - EXPANSION UNIT XXXX**

(X can be any character)
31. Did the following appear on your screen?

**CHARACTER SET**

IS THE SCREEN CORRECT? (Y/N)

**YES** - Press [Y] then [J] and go to Step 32.

**NO** - Press [N] then [J]. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**
**ERROR - SYSTEM UNIT** XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**
**ERROR - EXPANSION UNIT** XXXX
(X can be any character)
32. Did the following appear on your screen?

**IS THE SCREEN CORRECT? (Y/N)**

**YES** - Do you have a Color/Graphics Monitor Adapter installed in your system with a display attached to it?

**NO** - Press **[ ]** then **[ ]** and go to Step 43.

**YES** - Press **[ ]** then **[ ]** and go to Step 33.

**NO** - Press **[ ]** then **[ ]**. Record the error message.

If the error message is 432, go to "Printer Problem Determination Procedures."

Problem Determination 4-38
If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**
**ERROR - SYSTEM UNIT**  XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**
**ERROR - EXPANSION UNIT**  XXXX
(X can be any character)
33. Did the following appear on your color display?

DISPLAY ATTRIBUTES
THIS LINE IS AT NORMAL INTENSITY.
THIS LINE IS INTENSIFIED.
THIS LINE IS IN REVERSE VIDEO.
THIS LINE IS BLINKING.

BLUE  GREEN  CYAN  RED  MAGENTA  YELLOW  WHITE

IS THE SCREEN CORRECT? (Y/N)

YES - Press \[ \text{↑} \] then \[ \text{↓} \] and go to Step 34.

NO - Press \[ \text{↑} \] then \[ \text{↓} \]. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

XX:XX:XX
ERROR - SYSTEM UNIT XXXX
(\( X \) can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

XX:XX:XX
ERROR - EXPANSION UNIT XXXX
(\( X \) can be any character)
34. Did the following appear on your screen?

**CHARACTER SET**

- YES - Press □ then ▼ and go to Step 35.

- NO - Press □ then ▼. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**
**ERROR - SYSTEM UNIT XXXX**
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**
**ERROR - EXPANSION UNIT XXXX**
(X can be any character)
35. Did the following appear on your screen?

**BOX25 DISPLAY**

IS THE SCREEN CORRECT? (Y/N)

YES - Press [Y] then [J] and go to Step 36.

NO - Press [N] then [J]. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

XX:XX:XX
ERROR - SYSTEM UNIT XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

XX:XX:XX
ERROR - EXPANSION UNIT XXXX
(X can be any character)
36. Did the following appear on your screen?

40X25 DISPLAY

+,-/0123456789;<>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
+,-/0123456789;<>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
+,-/0123456789;<>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
+,-/0123456789;<>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ

IS THE SCREEN CORRECT? (Y/N)

**YES** - Press [ ] then [ ] and go to Step 37.

**NO** - Press [ ] then [ ]. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

XX:XX:XX
ERROR - SYSTEM UNIT XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

XX:XX:XX
ERROR - EXPANSION UNIT XXXX
(X can be any character)
37. Did the following appear on your screen?

320X200 GRAPHICS
COLOR SET 0

IS THE SCREEN CORRECT? (Y/N)

YES - Press \[Y\] then \[J\] and go to Step 38.

NO - Press \[N\] then \[J\]. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

XX:XX:XX
ERROR - SYSTEM UNIT \[XXXX\]
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

XX:XX:XX
ERROR - EXPANSION UNIT \[XXXX\]
(X can be any character)
38. Did the following appear on your screen?

**320X200 GRAPHICS**
**COLOR SET 1**

**IS THE SCREEN CORRECT? (Y/N)**

YES - Press  then and go to Step 39.

NO - Press  then . Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**
**ERROR - SYSTEM UNIT XXXX**
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**
**ERROR - EXPANSION UNIT XXXX**
(X can be any character)
Did the following appear on your screen?

**640x200 Graphics**

*Is the screen correct? (Y/N)*

**YES** - Press \( \text{Y} \) then \( \text{J} \) and go to Step 40.

**NO** - Press \( \text{N} \) then \( \text{J} \). Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

\[
XX:XX:XX  
ERROR - SYSTEM UNIT \quad XXXX  
\]

(\( X \) can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

\[
XX:XX:XX  
ERROR - EXPANSION UNIT \quad XXXX  
\]

(\( X \) can be any character)
40. Did the following appear on your screen?

**VIDEO PAGE 0**

_TYPE ANY KEY TO DISPLAY NEXT PAGE_

**YES** - Go to Step 41.

**NO** - Press \( \text{N} \) then \( \text{J} \). Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

\[
\text{XX:XX:XX} \\
\text{ERROR - SYSTEM UNIT } \text{XXXX}
\]

(\( X \) can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

\[
\text{XX:XX:XX} \\
\text{ERROR - EXPANSION UNIT } \text{XXXX}
\]

(\( X \) can be any character)
41. Press any key, video page 1 will be displayed. Continue to press any key until video page 0 is displayed.

42. Were all 8 pages displayed?

**VIDEO PAGE 0**

Were all 8 pages displayed?

**YES** - Press \[\text{Y}\] then \[\text{J}\] and go to Step 43.

**NO** - Press \[\text{N}\] then \[\text{J}\]. Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**

**ERROR - SYSTEM UNIT** XXXX

(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**

**ERROR - EXPANSION UNIT** XXXX

(X can be any character)
43. Remove the Diagnostics diskette.

Your screen will match the figure below.

XXX will be either 400 or 500.

**SYSTEM UNIT XXX**

**** WARNING ****
DATA WILL BE DESTROYED
INSERT SCRATCH DISKETTE IN DRIVE A
PRESS ENTER WHEN READY
?

**YES** - Go to Step 44.

**NO** - Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**
ERROR - SYSTEM UNIT XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**
ERROR - EXPANSION UNIT XXXX
(X can be any character)
44. Insert a scratch diskette in drive A and press 
Did the following appear on your screen?

**DISKETTE A IS A XXX K DRIVE**
**IS THE DRIVE SIZE CORRECT Y/N ?**

If your diskette drive is a 160K drive, XXX will be 160.

If your diskette drive is a 320K drive, XXX will be 320.

**YES** - Press \[ y \] then \[ j \]. If you don't have two diskette drives installed in your system, go to Step 47.

**NO** - Have the system unit serviced.
45. Did the following appear on your screen?

*** WARNING ***
DATA WILL BE DESTROYED
INSERT SCRATCH DISKETTE IN DRIVE B
PRESS ENTER WHEN READY
?

Remove the scratch diskette from drive A, place it in drive B, and press .
46. Did the following appear on your screen?

**DISKETTE B IS A XXX K DRIVE**
**IS THE DRIVE SIZE CORRECT Y/N?**

If your diskette drive is a 160K drive, XXX will be 160.

If your diskette drive is a 320K drive, XXX will be 320.

**YES** - Press \[ v \] then \[ l \] and go to Step 47.

**NO** - Have the system unit serviced.
47. Did any of the following errors appear on your screen (X can be any character).

XX:XX:XX
ERROR - SYSTEM UNIT  9XX

XX:XX:XX
ERROR - SYSTEM UNIT  11XX

XX:XX:XX
ERROR - SYSTEM UNIT  12XX

NO - Go to Step 48.

YES - Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

XX:XX:XX
ERROR - SYSTEM UNIT  XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

XX:XX:XX
ERROR - EXPANSION UNIT  XXXX
(X can be any character)
48. Did the following appear on your screen?

DO YOU HAVE JOY STICKS, PADDLES, OR NOTHING ATTACHED (J  P  N)?

YES - For joy sticks press [J] and go to Step 49.
For paddles press [P] and go to Step 52.
For nothing press [N] and go to Step 56.

NO  - Go to Step 56.
49. Press then .

50. Correct operation of your joy sticks is checked in the following manner:
   a. Press each button and watch the word RELEASED change to PRESSED.
   b. Move each joy stick and watch the character, A or B, move inside the box.

51. Did all buttons and joy sticks operate correctly?

HOW MANY BUTTONS DO YOU HAVE (2/4)? 2

BUTTON A
RELEASED
***********  BUTTON B
RELEASED
***********

*  *  
*  *  
*  A  *
*  *  
*  *  
***********  ***********

PRESS AND RELEASE ALL BUTTONS,
EXERCISE ALL JOY STICKS/PADDLES
AND PRESS ANY KEY WHEN DONE

YES - Press any key and go to Step 56.

NO - If the game control adapter is installed in the system unit, have the joy sticks and the system unit serviced. If the game control adapter is installed in the expansion unit, have the joy sticks and the expansion unit serviced.
52. Enter the number of paddles attached to your game control adapter (2/4) and press \[ \text{[ ]} \].

53. Enter the same number for the number of buttons and press \[ \text{[ ]} \].

54. Correct operation of your paddles is checked in the following manner:
   a. Press each button and watch the word RELEASED change to PRESSED.
   b. Turn each paddle control and watch the character, A, B, C, or D move inside the box.

55. Did all buttons and paddle controls operate correctly?

```
HOW MANY BUTTONS DO YOU HAVE (2/4)?
BUTTON A   BUTTON B   BUTTON C   BUTTON D
RELEASED   RELEASED   RELEASED   RELEASED

*******
* A *
*******
* C *

*******
* B *
*******
* D *

PRESS AND RELEASE ALL BUTTONS,
EXERCISE ALL JOY STICKS/PADDLES
AND PRESS ANY KEY WHEN DONE
```

YES - Press any key and go to Step 56.

NO - If the game control adapter is installed in the system unit, have the paddles and the system unit serviced. If the game control adapter is installed in the expansion unit, have the paddles and the expansion unit serviced.
56. Did an error appear on your screen?

**XX:XX:XX**
**ERROR - SYSTEM UNIT** 15XX

**NO** - Go to Step 57.

**YES** - Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**
**ERROR - SYSTEM UNIT** XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**
**ERROR - EXPANSION UNIT** XXXX
(X can be any character)
57. Do you have a fixed disk drive installed in your system?

**NO** - Go to Step 61.

**YES** - The following will appear on your screen.

```plaintext
*** WARNING ***
DATA ON CYLINDER 305 WILL BE
OVERWRITTEN BY FIXED DISK WRITE TESTS
DO YOU WANT TO INCLUDE FIXED DISK
WRITE TESTS ON DRIVE C: (Y/N) ?
```

Press [Y] then [J] and go to Step 58.
**WARNING**
DATA ON CYLINDER 305 WILL BE
OVERWRITTEN BY FIXED DISK WRITE TESTS
DO YOU WANT TO INCLUDE FIXED DISK
WRITE TESTS ON DRIVE C: (Y/N) ? y
PERFORMING SEEK TEST
PERFORMING WRITE TEST
PERFORMING TRACK ZERO TEST
PERFORMING SURFACE SCAN
PLEASE STAND BY

**YES** - For one fixed disk drive installed in your system, go to Step 61. If you have a second fixed disk drive installed in your system, go to Step 59.

**NO** - Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

**XX:XX:XX**
ERROR - SYSTEM UNIT <XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

**XX:XX:XX**
ERROR - EXPANSION UNIT <XXXX
(X can be any character)
59. Did the following appear on your screen?

*** WARNING ***
DATA ON CYLINDER 305 WILL BE
OVERWRITTEN BY FIXED DISK WRITE TESTS
DO YOU WANT TO INCLUDE FIXED DISK
WRITE TESTS ON DRIVE D: (Y/N) ?

YES - Press \[\text{[ ]}\] then \[\text{[ ]}\] and go to Step 60.

NO - Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

\[\text{XX:XX:XX}\]
**ERROR - SYSTEM UNIT** XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

\[\text{XX:XX:XX}\]
**ERROR - EXPANSION UNIT** XXXX
(X can be any character)
60. Did the following appear on your screen?

DO YOU WANT TO INCLUDE FIXED DISK WRIT TESTS ON DRIVE D: (Y/N) ? y
PERFORMING SEEK TEST
PERFORMING WRITE TEST
PERFORMING TRACK ZERO TEST
PERFORMING SURFACE SCAN
PLEASE STAND BY

YES - Go to Step 61.

NO - Record the error message.

If the following error message appears, the system unit is at fault. Have the system unit serviced.

XX:XX:XX
ERROR - SYSTEM UNIT XXXX
(X can be any character)

If the following error message appears, the expansion unit is at fault. Have the expansion unit serviced.

XX:XX:XX
ERROR - EXPANSION UNIT XXXX
(X can be any character)
6. If an IBM printer is attached, one of the following printer test patterns should result:

IBM 80 CPS Matrix Printer

IBM Graphics Printer
62. Did the printer test run error free and the printer test pattern print correctly?

**YES** - Go to Step 63.

**NO** - Record any error message. Go to “Printer Problem Determination Procedures.”

63. You have completed the Problem Determination Procedures with no failures. Remove the Diagnostics diskette and return it to the back of this manual. Your IBM Personal Computer should be ready to load your operating system.

If you should encounter further problems, contact your place of purchase for additional information.
IBM Printer Problem Determination Procedures

Before you proceed, follow these preliminary steps:

1. Check your wall outlet for proper operation (use a working lamp).

2. Verify that your printer cable is properly connected.

3. Verify that the printer is plugged into the wall outlet and is turned on.

Did you find any problem while following the above steps?

YES - Correct the problem and run the Diagnostics again.

NO - Go to Step 4.

4. Set the Power switches on the printer, system unit (and expansion unit, if attached) to Off.

5. Disconnect the printer cable from the printer.

6. Run the printer self-test.

   If you need help in doing this, refer to Section 3, “Operations,” for the procedure.

Did the self-test run without failures?

YES - Go to Step 12.

NO - Go to Step 7.
7. Check that your ribbon is installed properly.

8. Check that your forms are inserted properly.

9. Check that there are no obstructions in the forms path.

10. Check that the tractors are adjusted properly.

    If you need help with any of the above, refer to Section 3, "Operations."

    Did you find any problem while following the above steps?

    **YES** - Correct the problem.

    **NO** - Go to Step 11.

11. Do you have any of these problems?
    a. Your printer beeps even though the paper is installed properly.
    b. Your printer does not beep when it is out of paper.
    c. Some of the lights on the control panel do not work.
    d. Your printer continues to print when it is out of paper.

    **YES** - Have your printer serviced.

    **NO** - Go to Step 15.
12. Did you receive any of the following error messages?

199

432

901

1401

**YES** - Go to Step 13.

**NO** - Go to Step 15.

13. Leave the printer cable disconnected from the printer and run the Diagnostics again.

**Note:** "Matrix Printer" will be missing from the menu of installed devices when you run Diagnostics this time. Verify your installed devices correctly (without the printer).

14. Did you receive the same error message when you ran Diagnostics this time?

**YES** - The problem is probably in the unit (system or expansion) that has the card your printer was attached to.

**NO** - Have the printer and cable serviced.

15. Your printer is also controlled by program commands from the system unit. If you have a printer problem only while running a particular program, examine the program thoroughly for commands being sent to the printer causing it to produce undesired results.
IBM Color Display Problem Determination Procedures

If your IBM Color Display requires service, it must be returned with the power cord.

1. Set the Power control to On.

2. Is the Power-On indicator lit?

   YES - Go to Step 3.

   NO - Check that the power cord is plugged into a functioning wall outlet and the rear of the display. If it is, have the display serviced.
3. Set the Power switch on the system unit (and expansion unit, if attached) to Off.

4. Set the Brightness and Contrast controls fully clockwise.

5. Turn the Vertical Size control fully counterclockwise. A black area should appear across the top and the bottom of the screen.
6. Does a black area appear across the top and the bottom of the screen?

YES - Go to Step 7.

NO - Have the display serviced.

7. Are the black areas at the top and bottom of the screen approximately equal in size?

YES - Go to Step 8.

NO - Have the display serviced.
8. Turn the Vertical Size control clockwise until the black areas at the top and bottom of the screen just disappear. If one of the black areas disappears before the other, continue to turn the control until the second black area is gone.

9. Is the screen all white?

**YES** - Go to Step 14.

**NO** - Go to Step 10.
10. Set the Power control to Off.

11. Disconnect the display's signal cable from the Color/Graphics Monitor Adapter.

12. Set the Power control to On.

13. Is the screen white?

   **YES** - Have the unit serviced that contains the Color/Graphics Monitor Adapter.

   **NO** - Have the display serviced.

14. While watching the screen, set the Power switch on the expansion unit (if attached) and the system unit to On.
15. Did the screen change from white to black as soon as the Power switch on the unit having the Color/Graphics Monitor Adapter was set to On? (This totally black condition may last only 3 seconds before the display changes again.)

**YES** - Go to Step 16.

**NO** - Have the display serviced.

16. Wait for the Power-on self test (POST) to complete. The IBM Personal Computer BASIC message will appear (if a diskette is not loaded or an operating system is not booted from the fixed disk drive) with a blinking cursor.

```
The IBM Personal Computer Basic Version
GX.XX Copyright IBM Corp. XXXX
***** Bytes free
OK

1LIST 2RUN 3LOAD’4SAVE 5CONT 6LPT1 ‘7TRON 8STOFF 9KEY 0SCREEN
```

17. Is your screen blank?

**YES** - Have the unit serviced that contains the Color/Graphics Monitor Adapter.

**NO** - Go to Step 18.

18. Is your screen stable?

**YES** - Go to Step 21.

**NO** - Go to Step 19.
19. Turn the Vertical Hold control clockwise as far as it will go, then turn it counterclockwise until the screen stops rolling and is stable.

20. Were you able to make the screen stable?

   YES - Go to Step 21.

   NO  - Have the display serviced.

21. Look at the screen. Does it have white characters on a dark background?

   YES - Go to Step 27.

   NO   - Go to Step 22.
22. Set the Power switch on the system unit (and expansion unit, if attached) to Off.

23. Set the display's Power control to Off.

24. Disconnect the display's signal cable from the Color/Graphics Monitor Adapter.

25. Set the display's Power control to On.

26. Is the screen white?

   YES - Have the unit serviced that contains the Color/Graphics Monitor Adapter.

   NO  - Have the display serviced.

27. Turn the Brightness control fully counterclockwise.

28. Does the intensity of the characters decrease?

   YES - Go to Step 29.

   NO  - Have the display serviced.
29. Turn the Brightness control fully clockwise. Turn the Contrast control fully counterclockwise.

30. Does the intensity of the characters decrease?

   **YES** - Go to Step 31.

   **NO** - Have the display serviced.
31. Turn the Contrast control fully clockwise. Look at the following examples.

Too Dim

Too Wide

Too Narrow

Out of Focus

Shrunken

Characters shifted left or right or up and down off the display area

Tilted

32. Is your problem similar to one of the examples?

**YES** - Have the display serviced.

**NO** - Go to “Diagnostic Testing” in this section.
SECTION 5. OPTIONS

Introduction

This section has been provided to contain the option installation instructions for the options you purchased for your IBM Personal Computer. After your option has been installed, file the installation instructions under the appropriate bleeder tab, as shown in the figure below.
SECTION 5. OPTIONS

Contents

Introduction
IBM Monochrome Display
IBM Monochrome Display and Printer Adapter
Color/Graphics Monitor Adapter
IBM Color Display
IBM Printers
Printer Adapter
5¼ Inch Diskette Drive
5¼ Inch Diskette Drive Adapter
16KB Memory Module Kit
64KB Memory Module Kit
64/256KB Memory Expansion
Game Control Adapter
Asynchronous Communications Adapter
Prototype Card
Synchronous Data Link Control (SDLC) Communications Adapter
IBM Communications Adapter Cable
IBM Personal Computer Expansion Unit

Options 5-2
Synchronous Data Link Control (SDLC) Communications Adapter

IBM Communications Adapter Cable
Switch Setting Charts

Use the illustrations below to determine which system board is in your system unit.

- A 64KB-256KB system board has a “B” stamped on the rear panel and 64KB-256KB CPU printed on the system board. If you have this system board, go to page 5-28.

- A 16KB-64KB system board has no identification on the rear panel and 16KB-64KB CPU is printed on the system board. If you have this system board, go to page 5-2.

Rear Panel

64KB-256KB CPU Stamp

No “B” stamp indicates a 16KB-64KB CPU.

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System Board
(Top View)

Switch Settings 1
16K-64K System Board

To use the following switch setting charts, your system should have no "B" stamped on the rear panel and the system board should have 16KB-64KB CPU printed on the side.
Switch Setting Charts

System Board Switches

WARNING: Before you change any switch settings, make a note of how the switches are presently set.

Switch Block 1

<table>
<thead>
<tr>
<th>Switch</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,7,8</td>
<td>Number of 5-1/4 inch diskette drives installed</td>
</tr>
<tr>
<td>2</td>
<td>Coprocessor</td>
</tr>
<tr>
<td>3,4</td>
<td>System board memory switches</td>
</tr>
<tr>
<td>5,6</td>
<td>Type(s) of display(s) connected</td>
</tr>
</tbody>
</table>

Switch Block 2

<table>
<thead>
<tr>
<th>Switch</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3,4,5</td>
<td>Amount of memory options installed</td>
</tr>
<tr>
<td>6,7,8</td>
<td>Always in the Off position</td>
</tr>
</tbody>
</table>
Number of 5-1/4 Inch Diskette Drives Installed

<table>
<thead>
<tr>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - Drives</td>
<td></td>
</tr>
<tr>
<td>1 - Drive</td>
<td></td>
</tr>
<tr>
<td>2 - Drives</td>
<td></td>
</tr>
</tbody>
</table>

Type(s) of Display(s) Connected

**WARNING:** If an IBM Monochrome Display is connected to your system, Switch Block 1, switches 5 and 6, must always be Off. Damage to your display can result with any other switch settings.

IBM Monochrome Display (or IBM Monochrome Display plus another display)

<table>
<thead>
<tr>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color Display (Do not use if an IBM Monochrome Display is connected)

<table>
<thead>
<tr>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The 40x25 mode means there will be 40 characters across the screen and 25 lines down the screen. The 40x25 is normally used with a home television. The 80x25 mode means there will be 80 characters across the screen and 25 lines down the screen. The 80x25 mode, when used with home televisions and various displays, can cause loss of character quality.

Switch Settings 4

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Math Coprocessor

With Math Coprocessor

Without Math Coprocessor

Switch Block 1

Switch Block 2

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Switch Settings 5
Memory Switch Settings
(16KB-64KB CPU) System Board

16K Total Memory
Switch Block 1
System Board Switches

32K Total Memory
Switch Block 1
System Board Switches

48K Total Memory
Switch Block 1
System Board Switches

64K Total Memory
Switch Block 1
System Board Switches

Switch Settings 6

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96K Total Memory
32K + (64K on System Board)

System Board Switches

Switch Block 1

Switch Block 2

64/256K Option Card Switches

64K Option Card Switches

32K Option Card Switches

1 - 32K option

Switch Settings

Switch Settings 7
### Switch Settings

**128K Total Memory**
64K + (64K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

#### 64/256K Option Card Switches

<table>
<thead>
<tr>
<th>1 - 64/256K option with 64K installed</th>
</tr>
</thead>
</table>

#### 64K Option Card Switches

<table>
<thead>
<tr>
<th>1 - 64K option</th>
</tr>
</thead>
</table>

#### 32K Option Card Switches

<table>
<thead>
<tr>
<th>2 - 32K options</th>
</tr>
</thead>
</table>
160K Total Memory
96K + (64K on System Board)

Switch Settings

System Board Switches

Switch Block 1

Switch Block 2

64/256K Option Card Switches

64K Option Card Switches

32K Option Card Switches

1 - 64/256K option with 64K installed
1 - 32K option

1 - 64K option
1 - 32K option

3 - 32K options
<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>192K Total Memory</strong></td>
<td>128K + (64K on System Board)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 64K installed</td>
<td>1 - 64K option</td>
<td></td>
</tr>
<tr>
<td>2 - 64K options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 64/256K option with 64K installed</td>
<td>2 - 32K options</td>
<td></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td>2 - 32K options</td>
<td></td>
</tr>
<tr>
<td>1 - 64/256K option with 128K installed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Switch Settings 10

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### 224K Total Memory
160K + (64K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 64K installed 1 - 64K option 1 - 32K option</td>
<td><img src="#" alt="Switch Block 1" /></td>
<td><img src="#" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>2 - 64K options 1 - 32K option</td>
<td><img src="#" alt="Switch Block 1" /></td>
<td><img src="#" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>1 - 64/256K option with 128K installed 1 - 32K option</td>
<td><img src="#" alt="Switch Block 1" /></td>
<td><img src="#" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>

**64/256K Option Card Switches**

**64K Option Card Switches**

**32K Option Card Switches**

---

*Switch Settings 11*
# 256K Total Memory
192K + (64K on System Board)

## System Board Switches

### Switch Block 1

<table>
<thead>
<tr>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 64/256K option with 128K installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 64/256K option with 64K installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 64K options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - 64K options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 64/256K option with 128K installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 32K options</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

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## Switch Settings

### 288K Total Memory

224K + (64K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>64/256K Option</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Card Switches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>1 - 32K option</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **64K Option**        |                |                |
| Card Switches         |                |                |
| 1 - 64/256K option with 128K installed | 1 2 3 4 5 6 7 8 | 1 2 3 4 5 6 7 8 |
| 1 - 64K option        |                |                |
| 1 - 32K option        |                |                |

<p>| <strong>32K Option</strong>        |                |                |
| Card Switches         |                |                |
| 1 - 64/256K option with 192K installed | 1 2 3 4 5 6 7 8 | 1 2 3 4 5 6 7 8 |
| 1 - 32K option        |                |                |</p>
<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>64/256K Option Card Switches</td>
<td>64K Option Card Switches</td>
<td>32K Option Card Switches</td>
</tr>
</tbody>
</table>

1 - 64/256K option with 128K installed
2 - 64K options

1 - 64/256K option with 192K installed
1 - 64K option

1 - 64/256K option with 192K installed
2 - 32K options

1 - 64/256K option with 256K installed
### 352K Total Memory
288K + (64K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>64/256K Option</strong></td>
<td><strong>Card Switches</strong></td>
<td><strong>Card Switches</strong></td>
</tr>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td><img src="image1" alt="Switch Block 1" /></td>
<td><img src="image2" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td><img src="image3" alt="Switch Block 1" /></td>
<td><img src="image4" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>1 - 32K option</td>
<td><img src="image5" alt="Switch Block 1" /></td>
<td><img src="image6" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>64K Option</strong> Card Switches</th>
<th><strong>32K Option</strong> Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 256K installed</td>
<td><img src="image7" alt="Switch Block 1" /></td>
</tr>
<tr>
<td>1 - 32K option</td>
<td><img src="image9" alt="Switch Block 1" /></td>
</tr>
<tr>
<td>Switch Block 2</td>
<td>32K Option Card Switches</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Switch Block 1</td>
<td>64K Option Card Switches</td>
</tr>
<tr>
<td>System Board Switches</td>
<td>64/256K Option Card Switches</td>
</tr>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td>1 - 64/256K option with 256K installed</td>
</tr>
<tr>
<td>2 - 64K options</td>
<td>1 - 64/256K option with 256K installed</td>
</tr>
<tr>
<td>1 - 64K option</td>
<td>1 - 64/256K option with 256K installed</td>
</tr>
<tr>
<td>1 - 64/256K option</td>
<td>2 - 32K options</td>
</tr>
</tbody>
</table>
416K Total Memory
352K + (64K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 256K installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 64/256K option with 64K installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 32K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System Board Switches</td>
<td>64K Option Card Switches</td>
<td>64/256K Option Card Switches</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>1 - 64/256K option with 256K installed</td>
<td>1 - 64/256K option with 64K installed</td>
<td>1 - 64/256K option with 64K installed</td>
</tr>
<tr>
<td>1 - 64K option</td>
<td>1 - 64K option</td>
<td>2 - 64K options</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Switch Block 1 Image]</td>
<td>![Switch Block 2 Image]</td>
</tr>
</tbody>
</table>

**480K Total Memory**

**416K + (64K on System Board)**

<table>
<thead>
<tr>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 256K installed</td>
<td>1 - 64/256K option with 128K installed</td>
<td>1 - 32K option</td>
</tr>
<tr>
<td>![64/256K Switches Image]</td>
<td>![64K Switches Image]</td>
<td>![32K Switches Image]</td>
</tr>
</tbody>
</table>

**Switch Settings**

19
544K Total Memory
480K + (64K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Switch Block 1 Diagram]</td>
<td>![Switch Block 2 Diagram]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 256K installed</td>
<td>1 - 64/256K option with 192K installed</td>
<td>1 - 32K option</td>
</tr>
</tbody>
</table>

Switch Settings 21
### Switch Settings 22

**576K Total Memory**

**512K + (64K on System Board)**

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

#### Option Configuration

- **64/256K Option Card Switches**
- **64K Option Card Switches**
- **32K Option Card Switches**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 256K installed</td>
<td><img src="image1" alt="Switch Configuration" /></td>
<td><img src="image2" alt="Switch Configuration" /></td>
<td><img src="image3" alt="Switch Configuration" /></td>
</tr>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td><img src="image1" alt="Switch Configuration" /></td>
<td><img src="image2" alt="Switch Configuration" /></td>
<td><img src="image3" alt="Switch Configuration" /></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td><img src="image1" alt="Switch Configuration" /></td>
<td><img src="image2" alt="Switch Configuration" /></td>
<td><img src="image3" alt="Switch Configuration" /></td>
</tr>
<tr>
<td>2 - 64/256K option with 256K installed</td>
<td><img src="image1" alt="Switch Configuration" /></td>
<td><img src="image2" alt="Switch Configuration" /></td>
<td><img src="image3" alt="Switch Configuration" /></td>
</tr>
</tbody>
</table>
### Switch Settings

#### System Board Switches

- **Switch Block 1**
  - **64/256K Option Card Switches**
    - 2 - 64/256K option with 256K installed
    - 1 - 32K option

- **Switch Block 2**
  - **64K Option Card Switches**
  - **32K Option Card Switches**

---

**608K Total Memory**

544K + (64K on System Board)
### 640K Total Memory
576K + (64K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

#### 64/256K Option Card Switches

<table>
<thead>
<tr>
<th>Switch Block 1</th>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 64/256K option with 256K installed</td>
<td>1 - 64K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 64/256K option with 256K installed</td>
<td>1 - 64/256K option with 64K installed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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# Extender Card Switch Settings

<table>
<thead>
<tr>
<th>System Memory</th>
<th>Extender Card Switch Block</th>
<th>Memory Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>16K to 64K</td>
<td>![Block Diagram]</td>
<td>1</td>
</tr>
<tr>
<td>96K to 128K</td>
<td>![Block Diagram]</td>
<td>2</td>
</tr>
<tr>
<td>160K to 192K</td>
<td>![Block Diagram]</td>
<td>3</td>
</tr>
<tr>
<td>224K to 256K</td>
<td>![Block Diagram]</td>
<td>4</td>
</tr>
<tr>
<td>288K to 320K</td>
<td>![Block Diagram]</td>
<td>5</td>
</tr>
<tr>
<td>352K to 384K</td>
<td>![Block Diagram]</td>
<td>6</td>
</tr>
<tr>
<td>416K to 448K</td>
<td>![Block Diagram]</td>
<td>7</td>
</tr>
<tr>
<td>480K to 512K</td>
<td>![Block Diagram]</td>
<td>8</td>
</tr>
<tr>
<td>544K to 576K</td>
<td>![Block Diagram]</td>
<td>9</td>
</tr>
<tr>
<td>608K to 640K</td>
<td>![Block Diagram]</td>
<td>A</td>
</tr>
</tbody>
</table>
64K-256K System Board

To use the following switch setting charts, your system should have a "B" stamped on the rear panel and the system board should have 64KB-256KB CPU printed on the side.
Switch Setting Charts

System Board Switches

WARNING: Before you change any switch settings, make a note of how the switches are presently set.

Switch Block 1

<table>
<thead>
<tr>
<th>Switch</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,7,8</td>
<td>Number of 5-1/4 inch diskette drives installed</td>
</tr>
<tr>
<td>2</td>
<td>Coprocessor</td>
</tr>
<tr>
<td>3,4</td>
<td>System board memory switches</td>
</tr>
<tr>
<td>5,6</td>
<td>Type(s) of display(s) connected</td>
</tr>
</tbody>
</table>

Switch Block 2

<table>
<thead>
<tr>
<th>Switch</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3,4,5</td>
<td>Amount of memory options installed</td>
</tr>
<tr>
<td>6,7,8</td>
<td>Always in the Off position</td>
</tr>
</tbody>
</table>
Number of 5-1/4 Inch Diskette Drives Installed

<table>
<thead>
<tr>
<th>Number of Drives</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - Drives</td>
<td>![Switch Block 1 Diagram]</td>
<td>![Switch Block 2 Diagram]</td>
</tr>
<tr>
<td>1 - Drive</td>
<td>![Switch Block 1 Diagram]</td>
<td>![Switch Block 2 Diagram]</td>
</tr>
<tr>
<td>2 - Drives</td>
<td>![Switch Block 1 Diagram]</td>
<td>![Switch Block 2 Diagram]</td>
</tr>
</tbody>
</table>

**Type(s) of Display(s) Connected**

**WARNING:** If an IBM Monochrome Display is connected to your system, Switch Block 1, switches 5 and 6, must always be Off. Damage to your display can result with any other switch settings.

<table>
<thead>
<tr>
<th>Display Type</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Monochrome Display (or IBM Monochrome Display plus another display)</td>
<td>![Switch Block 1 Diagram]</td>
<td>![Switch Block 2 Diagram]</td>
</tr>
<tr>
<td>Color Display (Do not use if an IBM Monochrome Display is connected)</td>
<td>![Switch Block 1 Diagram]</td>
<td>![Switch Block 2 Diagram]</td>
</tr>
<tr>
<td>40x25 Mode</td>
<td></td>
<td>40x25 Mode</td>
</tr>
<tr>
<td>80x25 Mode</td>
<td></td>
<td>80x25 Mode</td>
</tr>
</tbody>
</table>

**Note:** The 40x25 mode means there will be 40 characters across the screen and 25 lines down the screen. The 40x25 is normally used with a home television. The 80x25 mode means there will be 80 characters across the screen and 25 lines down the screen. The 80x25 mode, when used with home televisions and various displays, can cause loss of character quality.

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## Math Coprocessor

<table>
<thead>
<tr>
<th>With Math Coprocessor</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="Switch Block 1" /></td>
<td><img src="image2" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>Without Math Coprocessor</td>
<td><img src="image1" alt="Switch Block 1" /></td>
<td><img src="image2" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>
Memory Switch Settings
(64KB-256KB CPU) System Board

64K Total Memory

Switch Block 2

128K Total Memory

Switch Block 1

192K Total Memory

Switch Block 1

256K Total Memory

Switch Block 1

System Board Switches

System Board Switches

System Board Switches

System Board Switches

Switch Settings 32

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### Switch Settings

**288K Total Memory**

32K + (256K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 32K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>352K Total Memory</td>
<td>32K Option Card Switches</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td>96K + (256K on System Board)</td>
<td>64K Option Card Switches</td>
<td></td>
</tr>
<tr>
<td>Switch Block 1</td>
<td>64/256K Option Card Switches</td>
<td></td>
</tr>
<tr>
<td>System Board Switches</td>
<td>1 - 64/256K option 1 - 32K option</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 - 64K option 1 - 32K option</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 - 32K options</td>
<td></td>
</tr>
</tbody>
</table>
## 384K Total Memory
### 128K + (256K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

### 64/256K Option Card Switches

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 64K installed</td>
<td><img src="image1" alt="Switch Block 1" /></td>
<td><img src="image2" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td><img src="image3" alt="Switch Block 1" /></td>
<td><img src="image4" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 64K options</td>
<td><img src="image3" alt="Switch Block 1" /></td>
<td><img src="image4" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 64K installed</td>
<td><img src="image1" alt="Switch Block 1" /></td>
<td><img src="image2" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>2 - 32K options</td>
<td><img src="image3" alt="Switch Block 1" /></td>
<td><img src="image4" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64K option</td>
<td><img src="image3" alt="Switch Block 1" /></td>
<td><img src="image4" alt="Switch Block 2" /></td>
</tr>
<tr>
<td>2 - 32K options</td>
<td><img src="image3" alt="Switch Block 1" /></td>
<td><img src="image4" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 128K installed</td>
<td><img src="image1" alt="Switch Block 1" /></td>
<td><img src="image2" alt="Switch Block 2" /></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>416K Total Memory</th>
<th>160K + (256K on System Board)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Switch Block 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Switch Block 2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>System Board Switches</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>64K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64K option</td>
</tr>
<tr>
<td>1 - 32K option</td>
</tr>
<tr>
<td>2 - 64K options</td>
</tr>
<tr>
<td>1 - 32K option</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 32K option</td>
</tr>
<tr>
<td>1 - 32K option</td>
</tr>
<tr>
<td>1 - 32K option</td>
</tr>
<tr>
<td>1 - 32K option</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>64K/256K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64K/256K option with 64K installed</td>
</tr>
<tr>
<td>1 - 64K/256K option with 128K installed</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>System Board Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 192K installed</td>
</tr>
<tr>
<td>1 - 64/256K option</td>
</tr>
<tr>
<td>1 - 64K option</td>
</tr>
<tr>
<td>1 - 64/256K option with 128K installed</td>
</tr>
<tr>
<td>2 - 64K options</td>
</tr>
<tr>
<td>3 - 64K options</td>
</tr>
<tr>
<td>1 - 64/256K option with 128 installed</td>
</tr>
<tr>
<td>2 - 32K options</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>192K + (256K on System Board)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch Block 1</td>
</tr>
<tr>
<td>64/256K Option Card Switches</td>
</tr>
<tr>
<td>1 - 64/256K option</td>
</tr>
<tr>
<td>2 - 64K options</td>
</tr>
<tr>
<td>3 - 64K options</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>48K Total Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch Block 2</td>
</tr>
<tr>
<td>32K Option Card Switches</td>
</tr>
<tr>
<td>1 - 64/256K option</td>
</tr>
<tr>
<td>2 - 32K options</td>
</tr>
</tbody>
</table>
### 480K Total Memory
**224K + (256K on System Board)**

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

#### 64/256K Option Card Switches

<table>
<thead>
<tr>
<th>Setting</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td><img src="image1" alt="Switch Setting" /></td>
<td><img src="image2" alt="Switch Setting" /></td>
</tr>
<tr>
<td>1 - 32K option</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 128K installed</td>
<td><img src="image3" alt="Switch Setting" /></td>
<td><img src="image4" alt="Switch Setting" /></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 32K option</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 64K Option Card Switches

<table>
<thead>
<tr>
<th>Setting</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td><img src="image5" alt="Switch Setting" /></td>
<td><img src="image6" alt="Switch Setting" /></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 32K option</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 32K Option Card Switches

<table>
<thead>
<tr>
<th>Setting</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 192K installed</td>
<td><img src="image7" alt="Switch Setting" /></td>
<td><img src="image8" alt="Switch Setting" /></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 32K option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>512K Total Memory 256K + (256K on System Board)</td>
<td>Switch Block 2</td>
<td>Switch Block 1</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>32K Option Card Switches</td>
<td>64K Option Card Switches</td>
</tr>
<tr>
<td></td>
<td>1 - 64/256K option with 128K installed 2 - 64K options</td>
<td>1 - 64/256K option with 192K installed 1 - 64K option</td>
</tr>
</tbody>
</table>

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### 544K Total Memory
288K + (256K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

#### 64/256K Option Card Switches
- 1 - 64/256K option with 192K installed
- 1 - 64K option
- 1 - 32K option

#### 64K Option Card Switches

#### 32K Option Card Switches

**Switch Settings 41**
### 576K Total Memory
#### 320K + (256K on System Board)

<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>64/256K Option Card Switches</th>
<th>64K Option Card Switches</th>
<th>32K Option Card Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 192K installed&lt;br&gt;2 - 64K options</td>
<td><img src="image1" alt="Switch Setting" /></td>
<td><img src="image2" alt="Switch Setting" /></td>
</tr>
<tr>
<td><img src="image3" alt="Switch Setting" /></td>
<td><img src="image4" alt="Switch Setting" /></td>
<td><img src="image5" alt="Switch Setting" /></td>
</tr>
<tr>
<td>1 - 64/256K option with 256K installed&lt;br&gt;1 - 64/256K option with 64K installed</td>
<td><img src="image6" alt="Switch Setting" /></td>
<td><img src="image7" alt="Switch Setting" /></td>
</tr>
<tr>
<td><img src="image8" alt="Switch Setting" /></td>
<td><img src="image9" alt="Switch Setting" /></td>
<td><img src="image10" alt="Switch Setting" /></td>
</tr>
<tr>
<td>1 - 64/256K option with 256K installed&lt;br&gt;1 - 64K option</td>
<td><img src="image11" alt="Switch Setting" /></td>
<td><img src="image12" alt="Switch Setting" /></td>
</tr>
<tr>
<td><img src="image13" alt="Switch Setting" /></td>
<td><img src="image14" alt="Switch Setting" /></td>
<td><img src="image15" alt="Switch Setting" /></td>
</tr>
<tr>
<td>1 - 64/256K option with 256K installed&lt;br&gt;2 - 32K options</td>
<td><img src="image16" alt="Switch Setting" /></td>
<td><img src="image17" alt="Switch Setting" /></td>
</tr>
<tr>
<td><img src="image18" alt="Switch Setting" /></td>
<td><img src="image19" alt="Switch Setting" /></td>
<td><img src="image20" alt="Switch Setting" /></td>
</tr>
<tr>
<td>System Board Switches</td>
<td>Switch Block 1</td>
<td>Switch Block 2</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
</tbody>
</table>

### 608K Total Memory
352K + (256K on System Board)

### Switch Settings

#### 64/256K Option Card Switches
- 1 - 64/256K option with 256K installed
- 1 - 64/256K option with 64K installed
- 1 - 32K option

#### 64K Option Card Switches

#### 32K Option Card Switches

---

**Switch Settings**

---
<table>
<thead>
<tr>
<th>System Board Switches</th>
<th>Switch Block 1</th>
<th>Switch Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>640K Total Memory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>384K + (256K on System Board)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>64/256K Option Card Switches</strong></th>
<th><strong>64K Option Card Switches</strong></th>
<th><strong>32K Option Card Switches</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 64/256K option with 256K installed</td>
<td><img src="image" alt="Switch Settings" /></td>
<td><img src="image" alt="Switch Settings" /></td>
</tr>
<tr>
<td>1 - 64/256K option with 64K installed</td>
<td><img src="image" alt="Switch Settings" /></td>
<td><img src="image" alt="Switch Settings" /></td>
</tr>
<tr>
<td>1 - 64K option</td>
<td><img src="image" alt="Switch Settings" /></td>
<td><img src="image" alt="Switch Settings" /></td>
</tr>
</tbody>
</table>

| 1 - 64/256K option with 256K installed | ![Switch Settings](image) | ![Switch Settings](image) |
| 2 - 64K options | ![Switch Settings](image) | ![Switch Settings](image) |

| 1 - 64/256K option with 256K installed | ![Switch Settings](image) | ![Switch Settings](image) |
| 1 - 64/256K option with 128K installed | ![Switch Settings](image) | ![Switch Settings](image) |
# Extender Card Switch Settings

<table>
<thead>
<tr>
<th>System Memory</th>
<th>Extender Card Switch Block</th>
<th>Memory Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>16K to 64K</td>
<td><img src="image" alt="Switch Block" /></td>
<td>1</td>
</tr>
<tr>
<td>96K to 128K</td>
<td><img src="image" alt="Switch Block" /></td>
<td>2</td>
</tr>
<tr>
<td>160K to 192K</td>
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<td>352K to 384K</td>
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<tr>
<td>416K to 448K</td>
<td><img src="image" alt="Switch Block" /></td>
<td>7</td>
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<tr>
<td>480K to 512K</td>
<td><img src="image" alt="Switch Block" /></td>
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</tr>
<tr>
<td>544K to 576K</td>
<td><img src="image" alt="Switch Block" /></td>
<td>9</td>
</tr>
<tr>
<td>608K to 640K</td>
<td><img src="image" alt="Switch Block" /></td>
<td>A</td>
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</tbody>
</table>

April 1983  
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SECTION 6. RELOCATE

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Physical Preparation of the System

If you have an expansion unit with a fixed disk drive installed, use the following procedure to prevent damage to the fixed disk during relocation.

**WARNING:** Normal shipping and handling can result in a permanent loss of all data on the fixed disk drive(s). It is recommended that all files be backed up onto diskettes before continuing with this procedure.

Depending on the amount of data stored, you may require as many as 64 diskettes to backup each fixed disk drive. Refer to the *IBM Disk Operating System* manual for a description of the BACKUP command.

1. Insert Diagnostics diskette.
2. Set the Power switch on the expansion unit (if attached) and system unit to ON.
3. The following message should appear on your screen.

```
SELECT AN OPTION
0 - RUN DIAGNOSTIC ROUTINES
1 - FORMAT DISKETTE
2 - COPY DISKETTE
3 - PREPARE FIXED DISK FOR RELOCATION
9 - EXIT TO SYSTEM DISKETTE
ENTER THE ACTION DESIRED
? 
```
4. Press then press .

This step moves the disk head over track 305 which is the position designated for moving your system.

5. The following message should appear on your screen.

SELECT AN OPTION
0 - RUN DIAGNOSTIC ROUTINES
1 - FORMAT DISKETTE
2 - COPY DISKETTE
3 - PREPARE FIXED DISK FOR RELOCATION
9 - EXIT TO SYSTEM DISKETTE
ENTER THE ACTION DESIRED
? 3

FIXED DISK(S) READY FOR SHIPPING
6. Remove diskettes from diskette drive unit.

7. Position power switches to OFF on all units (System Unit, Printer, etc.).
8. Unplug the system unit's (and expansion unit's) power cord from the wall outlet. Disconnect all cables from the rear of the unit(s).
9. Coil the cables to protect the connectors.

10. Tape coiled cables to system unit (and expansion unit) so the unit(s) may be carried safely. (IBM recommends filament or masking tape.)
Short Distance Relocate

By short distance, we mean any distance where trucking is not involved. For example, moving from one office or floor to another. We recommend each unit be moved separately.

Note: A second person may be helpful (doors, stairs, etc.).

System Unit

IBM Monochrome Display

Keyboard

IBM 80 CPS Matrix/Graphics Printer

Relocate 6-8
Long Distance Relocate for System and Expansion Unit(s)

If you have saved the original cartons and packing material that your IBM Personal Computer units were shipped in, use them to pack your units.

If you are using different cartons, cushion well to avoid damage.

1. 

2. 

3.
Long Distance Relocate for Keyboard

If you have saved the original cartons and packing material that your IBM Personal Computer units were shipped in, use them to pack your units.

If you are using different cartons, cushion well to avoid damage.
Long Distance Relocate for IBM Monochrome or Color Display

If you have saved the original cartons and packing material that your IBM Personal Computer units were shipped in, use them to pack your units.

If you are using different cartons, cushion well to avoid damage.

1.

2.

Then
Long Distance Relocate for IBM 80 CPS Matrix/Graphics Printer

If you have saved the original cartons and packing material that your IBM Personal Computer units were shipped in, use them to pack your units.

If you are using different cartons, cushion well to avoid damage.

1.

2.

3.

Relocate 6-12
Setup At New Location

When your system arrives at the new location, carefully unpack the system.

For setting up and cabling your IBM Personal Computer, refer to “Setup,” Section 2 of this manual.
GLOSSARY

ASCII: American Standard Code for Information Interchange. The standard code using a coded character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange among data processing systems, data communications systems and associated equipment. The ASCII set consists of control characters and graphic characters.

BASIC: Beginner's All-purpose Symbolic Instruction Code. A programming language which uses common English words.

backup: Duplicating data from a fixed disk drive or diskette to a diskette which ensures availability of data in the event of loss or damage to the original.

CPS: Characters per second. Used to measure the printing speed of a printer.

cursor: A bar of light that indicates where data entered from the keyboard will appear on the display.

data: All information entered into or used by the computer.

diskette: A storage device consisting of a flexible magnetic disk inside a protective plastic jacket.

diskette drive: A device which uses diskettes for mass storage and retrieval of data.

DOS: Disk Operating System. A program which interacts with the processor and the disk or diskette drive to control the flow of data.
**echo**: A DOS function that sends data to be displayed to the printer as well as the screen.

**fixed disk**: A disk of rigid material with a magnetic coating, used for mass storage and retrieval of data.

**formatting**: The preparation of a disk or diskette for use by the computer.

**formatted disk/diskette**: A disk/diskette which can be used by the computer for the storage of data.

**joy stick**: A user supplied device that connects to the Game Control Adapter.

**KB**: Kilobyte. A kilobyte equals 1024 bytes of information.

**MB**: Megabyte. A megabyte equals 1,048,576 bytes of information.

**modem**: A device that allows information to be exchanged between computers, using telephone lines.

**operating system**: A program that supervises the execution of user programs by the computer.

**POST**: Power-On Self Test. A series of diagnostics which are executed each time the IBM Personal Computer’s power is turned on.

**prototype card**: A blank circuit card which can be used to create custom adapters.

**SDLC**: Synchronous Data Link Control.

**typematic**: Keyboard buttons that will repeat when held depressed.
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