AST Enhanced Graphics Diagnostics Manual

AST RESEARCH INC.

Diagnostics tests for AST Enhanced Graphics Products, to test resolution, color, and text capabilities

AST Enhanced Graphics Diagnostics

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SECTION 1
INTRODUCTION

A diagnostics program is provided with your AST Research graphics product. The program is on the diagnostics diskette that you received with your AST Research product. This program allows you to check the current graphics configuration of your product, and to determine if its graphics capabilities are working as they should be.

The diagnostics program consists of one configuration screen followed by a series of test screens for the different graphics capabilities of your AST product. There are three sets of tests. One set will be shown if you have a Monochrome Display (MD) attached to your AST product. A second set is shown if you have the Color Display (CD). A third set is shown if your AST product is attached to an Enhanced Color Display (ECD).

After the initial configuration screen, each screen presented tests a particular aspect of the product's graphics capabilities. At the bottom of each screen is a prompt telling you how to proceed to the next test. Generally, you should press the <Enter> key (shown as <CR> or < ↵ > in the diagnostics tests) to proceed to the next test, or <Esc> to quit the program.

If a labeled region on one of the test screens displays a different color or mode from its label, then proceed through the following steps:

- If two areas labeled with different intensities appear the same, adjust the brightness and contrast controls to see if this increases intensity differences.

- Check your graphics configuration switch settings and Monitor Selection jumper block settings to be sure they are set correctly. (Refer to the User's Manual for your AST Research product for information on switch settings.) Call AST Research Technical Support if there are still problems with the diagnostics displays.

1.1 Starting the Diagnostics Program

Before you begin using the diagnostics program, you should make a backup copy of the diagnostics diskette, using the DOS COPY command. You should then store the original diagnostics diskette in a safe place and use the copy to run the diagnostics program. This way, you will avoid any possibility of damaging your original diagnostics diskette while running the diagnostics program.

To start the diagnostics program, place the copy you have made of the diagnostics diskette in drive A: (after booting up with a DOS boot diskette) and type in the following command at the DOS prompt:

    A>**DIAG** <**Enter**>

After you enter this command, the diagnostics program presents either an error message indicating that no AST Research product is present, or a configuration screen listing the basic graphics configuration of the AST product.

1.2 Configuration Screen

For *all* AST Research product configurations, the diagnostics program presents as its first screen a configuration screen that allows you to check whether your AST product's graphics configuration is correct. A sample configuration screen for a monochrome monitor and AST product follows:

```
AST-3G ADAPTER DIAGNOSTICS, VERSION XX.X
            (C) AST RESEARCH, INC. 1986


Display attached to AST-3G is ...........................MONOCHROME

AST-3G switches on the board are set to ...................OFF OFF ON OFF

Available on board memory is............................256K

System board BIOS date is .............................10/27/82

AST-3G Plus Option......................................YES

Operating Mode.........................................Hercules




        Press <ESC> if the monitor type is incorrect, <CR> to proceed
```
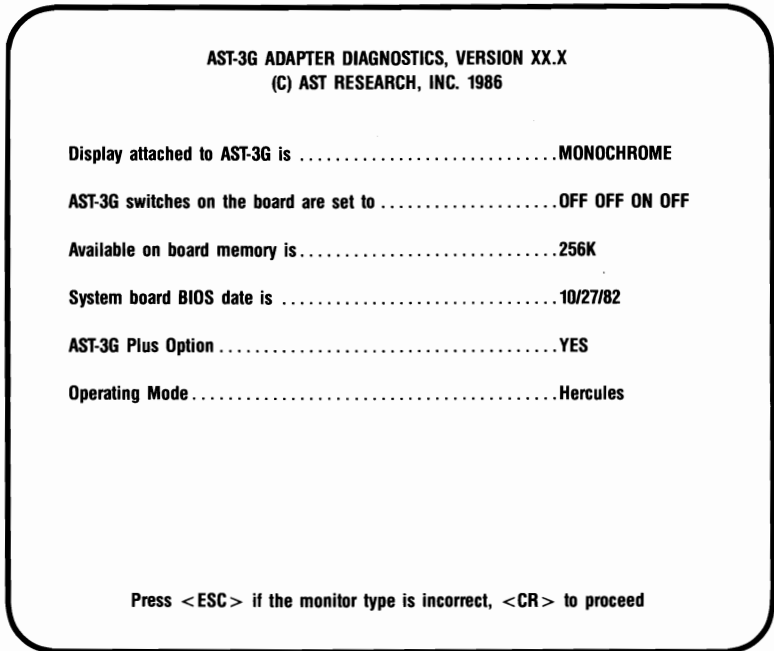
Figure 1-1. Configuration Screen.

The following paragraphs describe the items on the configuration screen.

Display attached to AST-3G

The choices for the display type are MONOCHROME, COLOR, and ENHANCED (corresponding to the MD, CD, or ECD monitor). *If the value shown is not accurate, then your graphics switch settings are probably wrong.* Check the User's Manual for your product for the available graphics switch settings and their corresponding configurations.

AST-3G switches on the board

The current values for the four graphics configuration switches are shown. If they are not set correctly, then change your switch settings and reboot.

Available on board memory

Available on-board memory displays the amount of graphics memory available on the AST product. This should be either 64 or 256 kilobytes (KB).

System Board BIOS date

The system board Read Only Memory (ROM) Basic Input/Output System (BIOS) date for your system is shown. *If this date is earlier than 10/27/82*, you need to have the new ROM BIOS installed in your PC system. The date is displayed even if the AST product is not present in the system. Thus you can check the BIOS date *before* you install the AST product.

AST-3G Plus Option

If the Plus option is present, this line will show YES. Otherwise it will show NO. Several products (such as AST-3G Pak™) have the Plus option as standard equipment.

Operating Mode

If the Plus option is present, then the operating mode is shown, as in Figure 1-1. The operating mode will be one of the following: EGA, CGA, or Hercules. Several products have the Plus option as standard equipment.

1.3 Test Screens

Different sets of screens are displayed for different types of monitors. One set is displayed for each type of monitor — the Monochrome Display (MD), the Color Display (CD), and the Enhanced Color Display (ECD). In the following sections, a description of each test is given, followed by a sample screen. If the display is malfunctioning, it may be due to incorrect graphics configuration switch settings or jumper settings. If your switch and jumper settings are correct, then your product may need repairs.

SECTION 2

MONOCHROME DISPLAY TESTS

If you are using a Monochrome Display (MD), you will be presented with a set of tests designed for this configuration, as follows.

Figure 2-1 shows a monochrome text attributes test. Sixteen background text attributes and sixteen foreground text attributes are shown in labeled rectangles. The attributes labeled blinking can also be displayed as intensified. To switch to the intensified attributes, press the <**Space**> bar.

```
                    TEST M1: TEXT ATTRIBUTES

        BACKGROUND SHADES              TEXT SHADES
           (Black text)             (Black background)

                                    Normal Underlined
                                         Normal
                                         Normal
                                         Normal
                                         Normal
                                         Normal
                                         Normal

            Blinking                Intensified Underlined
            Blinking                     Intensified
            Blinking                     Intensified
            Blinking                     Intensified
            Blinking                     Intensified
            Blinking                     Intensified
            Blinking                     Intensified

  Press <CR> for next test, <ESC> to quit, <SPACE> to toggle blink/intensify
```

Figure 2-1. Monochrome Text Attributes Test (Blinking).

2-1

Figure 2-2 shows a monochrome text attributes test. Sixteen background text attributes and sixteen foreground text attributes are shown in labeled rectangles. Some of the attributes labeled intensified can also be displayed as blinking. To switch to the blinking attributes, press the <**Space**> bar.

TEST M1: TEXT ATTRIBUTES

BACKGROUND SHADES
(Black text)

TEXT SHADES
(Black background)

Normal Underlined
Normal
Normal
Normal
Normal
Normal
Normal

Intensified
Intensified
Intensified
Intensified
Intensified
Intensified
Intensified

Intensified Underlined
Intensified
Intensified
Intensified
Intensified
Intensified
Intensified

Press <CR> for next test, <ESC> to quit, <SPACE> to toggle blink/intensify

Figure 2-2. Monochrome Text Attributes Test
(Intensified).

Figure 2-3 shows the character set test. The available character set is shown. Each character is 9 pixels wide by 14 pixels high. The characters should show up clearly.

**Figure 2-3. Monochrome Character Set Test
(9 x 14 Pixel Character Box).**

Figure 2-4 shows the character set test. The available character set is shown; each character is 8 pixels wide by 8 pixels high. The characters should show up clearly.

Figure 2-4 Monochrome Character Set Test (8 x 8 Pixel Character Box).

Figure 2-5 shows the memory pages test. Four pages should be available if you have 64 kilobytes (KB) of memory, and eight pages if you have 256 KB of memory. You can move through the pages by pressing the <Space> bar. The background of the screen is made up of the number of the page, from 1 to 8.

```
                    TEST M4: DISPLAY 8 MEMORY PAGES
8888888888888888888888888888888888888888888888888888888888888888888888888888888888888888
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    Press<CR> for next test, <ESC> to quit, <SPACE> to see next page.
```

Figure 2-5. Monochrome Memory Pages Test.

Figure 2-6 shows the monochrome graphics intensity test for graphics with a resolution of 640 x 350 pixels. This screen shows four different intensities available for graphics with an AST product: black, normal, intensified, or blinking. If normal and intensified appear the same, adjust the contrast on your monitor. The intensities should all appear different.
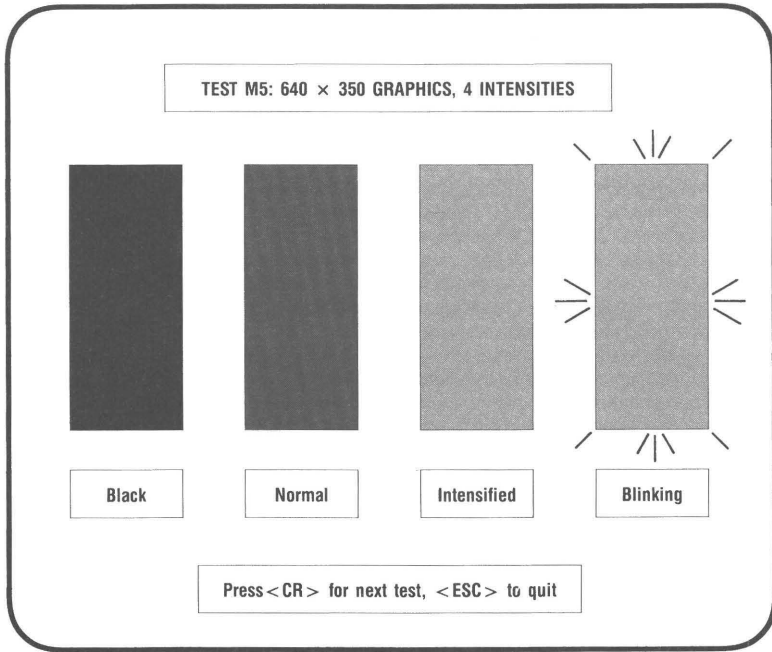
Figure 2-6. Monochrome Intensity Test.

Figure 2-7 shows the test for 720 x 348 pixel, Hercules-emulation graphics. A black square and a white square are shown.

TEST M6: 720 × 348 HERCULES EMULATION

BLACK   WHITE

Press <CR> for next test, <ESC> to quit
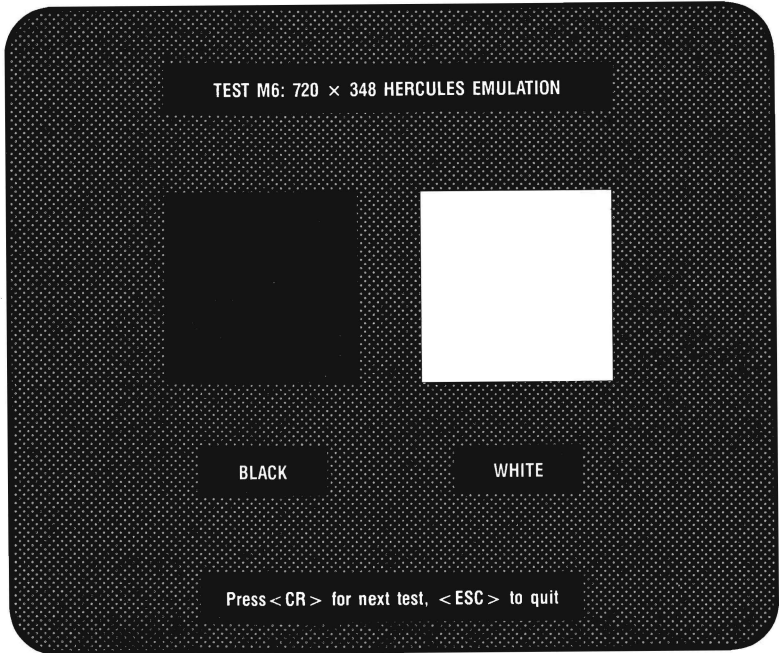
Figure 2-7. 720 x 348 Hercules Emulation Graphics Test.

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SECTION 3

COLOR DISPLAY TESTS

If you are using a Color Display (CD), you will be presented with a set of tests designed for this configuration, as follows.

Figure 3-1 shows the color text attributes test. This test displays text and background using 16 different colors. Each field is labeled with the name of the color meant to appear there. The 16 text colors are shown on the right, and the 16 background colors are shown on the left. The second half of the background colors can be either intensified or blinking. To switch from blinking to intensified, press the <**Space**> bar.
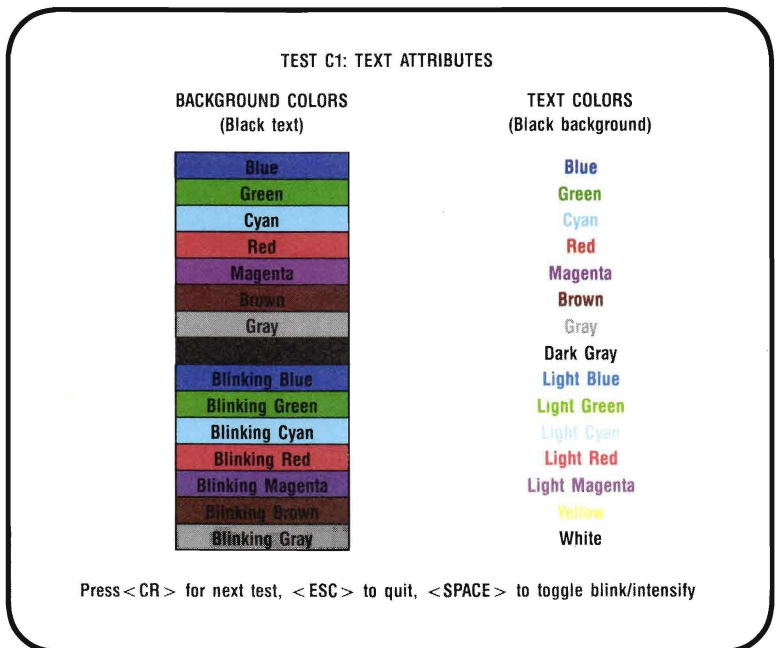
Figure 3-1. Color Text Attributes Test (Blinking).

Figure 3-2 shows the color text attributes test. This test displays text and background using 16 different colors. Each field is labeled with the name of the color meant to appear there. The 16 text colors are shown on the right, and the 16 background colors are shown on the left. The second half of the background colors can be either intensified or blinking. To switch from intensified to blinking, press the <**Space**> bar.

TEST C1: TEXT ATTRIBUTES

BACKGROUND COLORS	TEXT COLORS
(Black text)	(Black background)

Background	Text
Blue	Blue
Green	Green
Cyan	Cyan
Red	Red
Magenta	Magenta
	Brown
Gray	Gray
	Dark Gray
Light Blue	Light Blue
Light Green	Light Green
Light Cyan	Light Cyan
Light Red	Light Red
Light Magenta	Light Magenta
Yellow	Yellow
white	White

Press <CR> for next test, <ESC> to quit, <SPACE> to toggle blink/intensify

---

Figure 3-2. Color Text Attributes Test
(Intensified).

Figure 3-3 shows the available character set in a 40-column wide screen.

Figure 3-3. Color Character Set Test
(40-Column Format).

Figure 3-4 shows the available character set in an 80-column wide screen.

Figure 3-4. Color Character Set Test (80-Column Format).

Figure 3-5 shows the memory pages test. Four pages should be available when you have 64 kilobytes (KB) of memory, and eight pages when you have 256 KB. You can move through the pages by pressing the space bar. The background of the screen is made up of the number of the page, from 1 to 8.

```
                    TEST C4: DISPLAY 8 MEMORY PAGES

1111111111111111111111111111111111111111111111111111111111111111111111111111111111
1111111111111111111111111111111111111111111111111111111111111111111111111111111111
1111111111111111111111111111111111111111111111111111111111111111111111111111111111
1111111111111111111111111111111111111111111111111111111111111111111111111111111111
1111111111111111111111111111111111111111111111111111111111111111111111111111111111
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1111111111111111111111111111111111111111  PAGE 1  11111111111111111111111111111111111
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1111111111111111111111111111111111111111111111111111111111111111111111111111111111

   Press < CR > for next test, < ESC > to quit, < SPACE > to see next page
```

Figure 3-5. Color Memory Pages Test.

Figure 3-6 shows the test for 320 × 200 pixel resolution graphics. This screen shows the four basic color components that provide the colors for this configuration: black, blue, green, and red. These colors are shown in four rectangluar boxes. The colors of the boxes should match their labels.
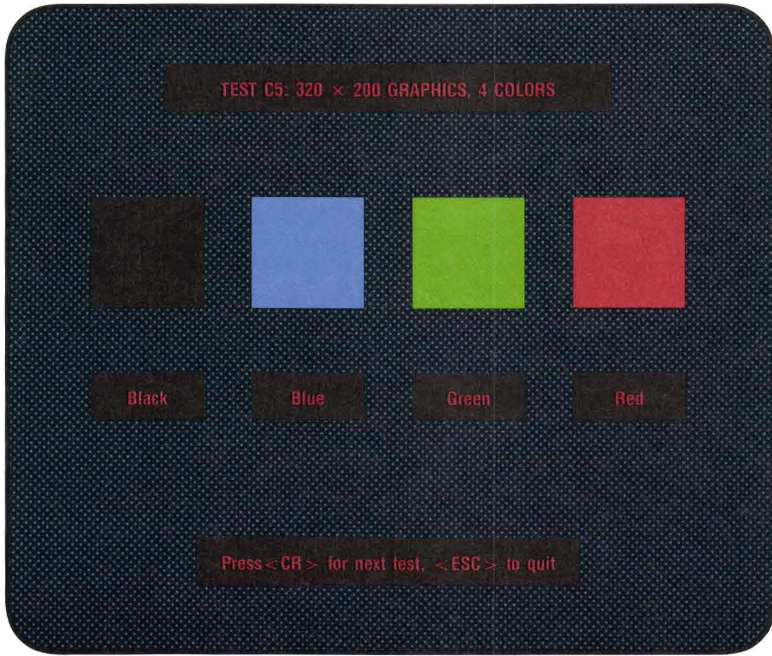

Figure 3-6. 320 × 200 Graphics Test (Four-Color).

Figure 3-7 shows the test for two-color graphics with a resolution of 640 × 200 pixels. This screen displays the colors black and white in two rectangular boxes. The colors of the boxes should match their labels.
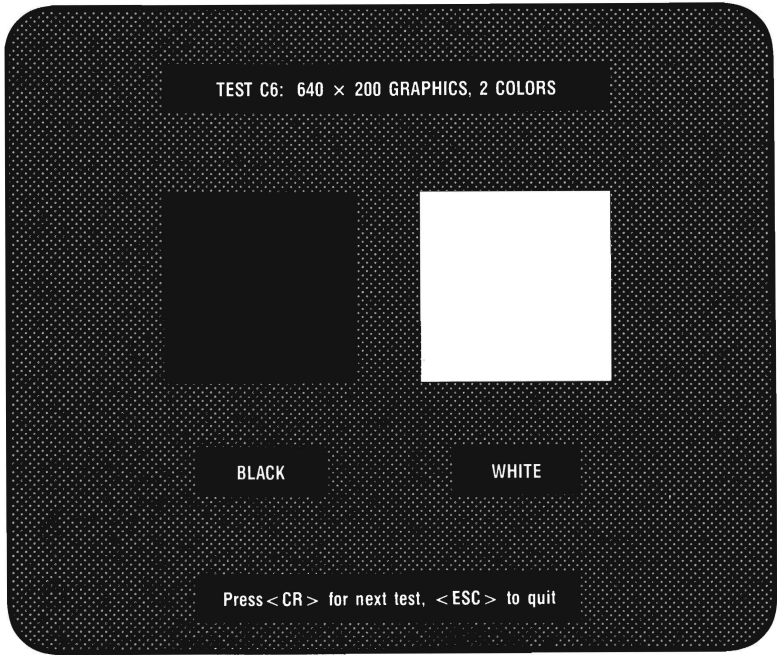

Figure 3-7. 640 x 200 Graphics Test (Two-Color).

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SECTION 4

ENHANCED COLOR DISPLAY TESTS

If you are using an Enhanced Color Display (ECD), you will be presented with a set of tests designed for this configuration, as follows.

Figure 4-1 shows the enhanced color text attributes test. This screen displays text and background using 16 different colors. Each field is labeled with the name of the color meant to appear there. The 16 text colors are shown on the right. On the left, the 16 background colors are shown. The second half of the background colors can be either intensified or blinking. To switch from blinking to intensified, press the <**Space**> bar.

```
                    TEST E1: TEXT ATTRIBUTES

         BACKGROUND COLORS                 TEXT COLORS
            (Black text)                (Black background)

              Blue                          Blue
              Green                         Green
              Cyan                          Cyan
              Red                           Red
              Magenta                       Magenta
              Brown                         Brown
              Gray                          Gray
                                          Dark Gray
          Blinking Blue                   Light Blue
          Blinking Green                  Light Green
          Blinking Cyan                   Light Cyan
          Blinking Red                    Light Red
          Blinking Magenta                Light Magenta
          Blinking Brown                    Yellow
          Blinking Gray                     White

  Press<CR> for next test, <ESC> to quit, <SPACE> to toggle blink/intensify
```

Figure 4-1. Enhanced Text Attributes Test (Blinking).

Figure 4-2 shows the enhanced color text attributes test. This screen displays text and background using 16 different colors. Each field is labeled with the name of the color meant to appear there. The 16 text colors are shown on the right. On the left, the 16 background colors are shown. The second half of the background colors can be either intensified or blinking. To switch from intensified to blinking, press the < **Space** > bar.

Figure 4-2. Enhanced Text Attributes Test (Intensified).

Figure 4-3 shows an enhanced color character set test. This screen shows the available character set with each character 8 pixels wide by 8 pixels high. The screen is 40 columns wide.

Figure 4-3. Enhanced Character Set Test (8 x 8 Pixel Characters, 40 Columns).

Figure 4-4 shows an enhanced color character set test. This screen shows the available character set. Each character is 8 pixels wide and 14 pixels high. The screen is 80 columns wide.

Figure 4-4. Enhanced Character Set Test (8 × 14 Pixel Characters, 80 Columns).

Figure 4-5 shows an enhanced color character set test. This screen shows the available character set with each character shown in an 8 x 8 pixel matrix, with a screen 80 columns wide and 43 lines high.
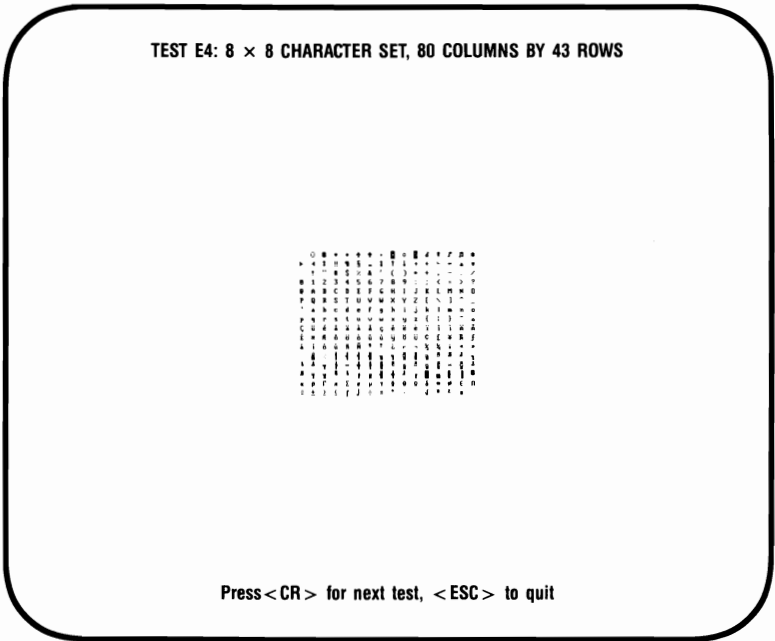

Figure 4-5. Enhanced Character Set Test (8 × 8 Pixel Characters, 80 Columns × 43 Rows).

Figure 4-6 shows the memory pages test, which shows how many pages of memory are available in your PC. Four pages should display when 64 kilobytes (KB) are available, and eight pages when 256 KB are available. You can move through the pages by pressing the <Space> bar. The background of the screen is made up of the number of the page, from 1 to 8.

```
                      TEST E5: DISPLAY 8 MEMORY PAGES
11111111111111111111111111111111111111111111111111111111111111111111111111111
11111111111111111111111111111111111111111111111111111111111111111111111111111
11111111111111111111111111111111111111111111111111111111111111111111111111111
11111111111111111111111111111111111111111111111111111111111111111111111111111
11111111111111111111111111111111111111111111111111111111111111111111111111111
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11111111111111111111111111111111111111111111111111111111111111111111111111111

       Press<CR> for next test, <ESC> to quit, <SPACE> to see next page
```

Figure 4-6. Enhanced Memory Pages Test.

Figure 4-7 shows the test for four-color, 320 × 200 pixel resolution graphics. This screen shows the four basic color components that provide the colors for this configuration: black, blue, green, and red. The colors should match their labels.
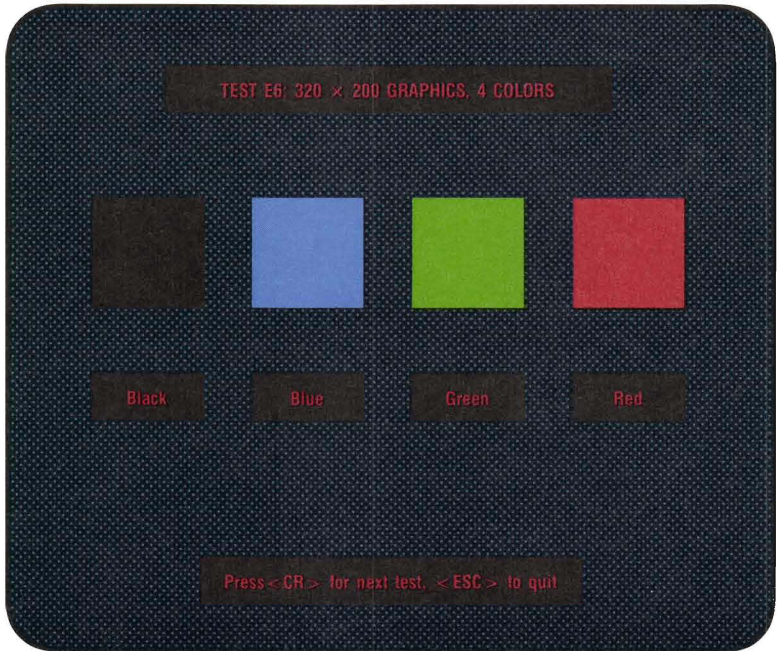

Figure 4-7. Enhanced 320 x 200 Graphics Test (Four-Color).

Figure 4-8 shows the test for two-color, 640 × 200 pixel resolution graphics. This screen displays the colors black and white in labeled, rectangular boxes.
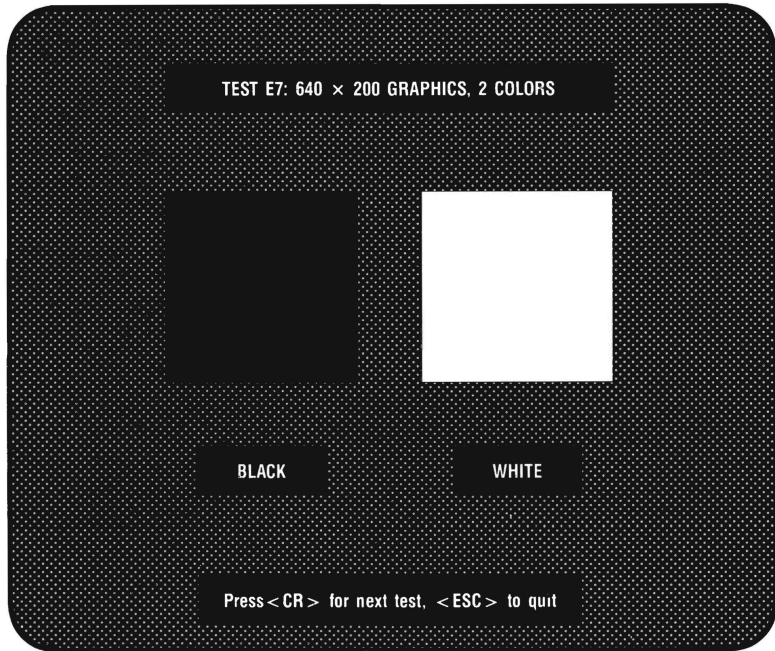

Figure 4-8. Enhanced 640 x 200 Graphics Test (Two-Color).

Figure 4-9 shows the test for different intensities of four colors with 640 × 350 pixel resolution graphics. Blue, green, red and gray are shown in four intensities each. A total of 16 boxes are shown. Except for the first column, each box should appear slightly different. If the last two red boxes are the same, even after your contrast and brightness controls are checked, then the Monitor Selection jumper may be set wrong.
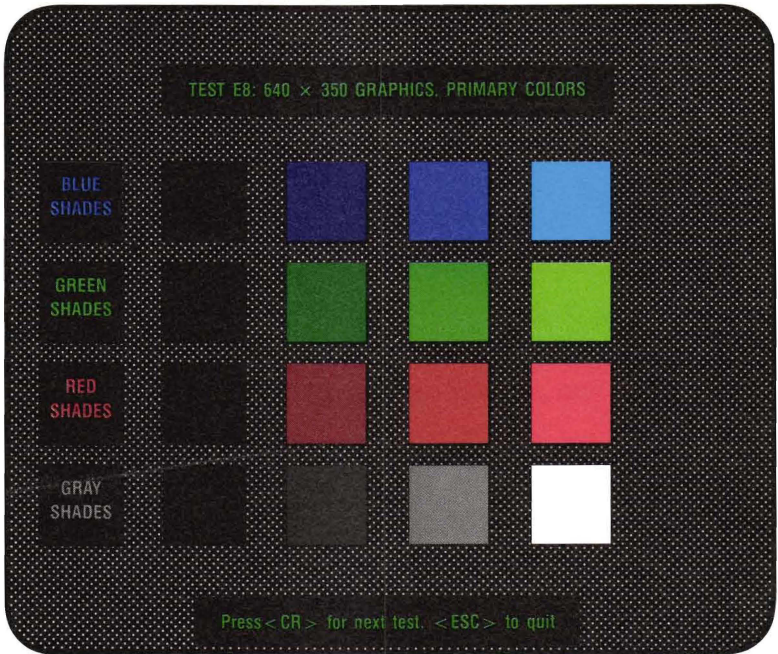

Figure 4-9. Enhanced 640 × 350, Primary Colors Test.

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