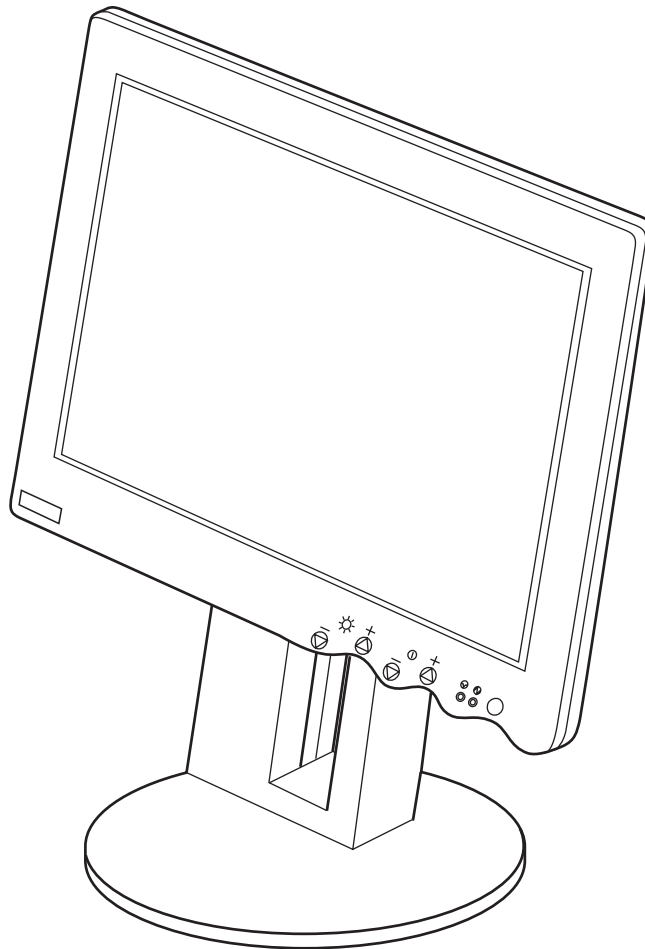IBM

9516-B03 or B13
Color LCD Monitor

Installation and Operation Guide

IBM

9516-B03 or B13
Color LCD Monitor

Installation and Operation Guide

> **Note**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page 89.

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications Compliance Statement

This equipment does not exceed Class A limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps are necessary to correct the interference.

Avis de conformité aux normes du ministère des Communications du Canada

Cet équipement ne dépasse pas les limites de Classe A d'émission de bruits radioélectriques pour les appareils numériques, telles que prescrites par le Règlement sur le brouillage radioélectrique établi par le ministère des Communications du Canada. L'exploitation faite en milieu résidentiel peut entraîner le brouillage des réceptions radio et télé, ce qui obligerait le propriétaire ou l'opérateur à prendre les dispositions nécessaires pour en éliminer les causes.

United Kingdom Office of Telecommunications Statement of Compliance

United Kingdom Telecommunications Act 1984. This apparatus is approved under number NS/G/1234/J/100003 for indirect connections to the public telecommunications systems in the United Kingdom.

Japan VCCI Notice

電波障害自主規制 届出装置の記述

```
注意
  この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準
に基づく第一種情報技術装置です．この装置を家庭環境で使用すると電波妨
害を引き起こすことがあります．この場合には使用者が適切な対策を講ずる
よう要求されることがあります．
```

Safety

 DANGER:

Electrical current from power, telephone, and communication cables
is hazardous. To avoid shock hazard, connect and disconnect cables
as shown below when installing, moving, or opening the covers of
this product or attached devices. The power cord must be used with
a properly grounded outlet.

To Connect	To Disconnect
Turn everything OFF.	Turn everything OFF.
Attach all cables to devices.[1]	First, remove the power cord from the outlet.[2]
Attach the signal cables to receptacles.	Remove signal cables from receptacles.
Attach the power cord to an outlet.	Remove all cables from devices.
Turn the device ON.	
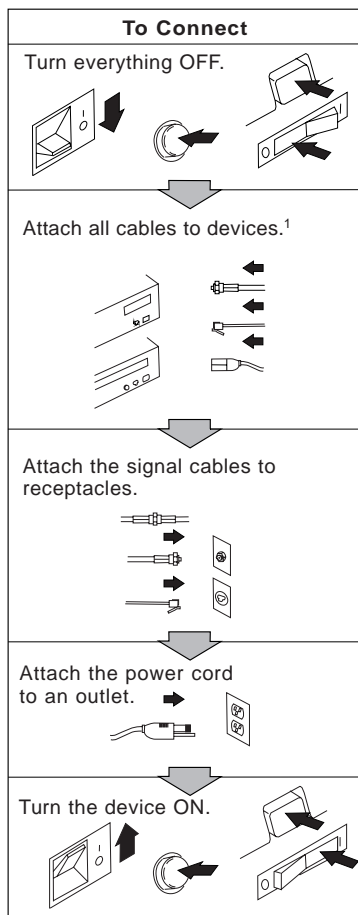
[1] In the U.K., by law, the telephone
line cable must be connected after
the power cord.
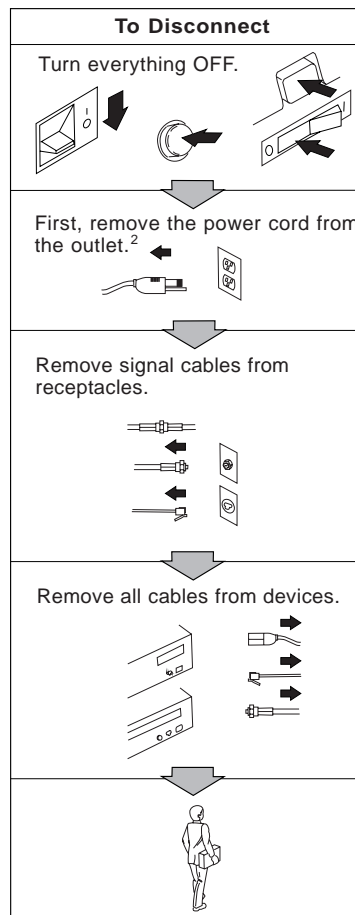
[2] In the U.K., by law, the power
cord must be disconnected after the
telephone line cable.

 DANGER

**Do not install or reconfigure the monitor during an electrical
storm or if lightning is occurring.**

CAUTION:

1. **This product is equipped with a grounded plug for the user's safety. It is to be used in conjunction with a properly grounded outlet to avoid electrical shock.**

2. **Do not open any covers on the equipment. No user-serviceable parts are inside.**

3. **An ac power switch is not incorporated in this equipment. The equipment should be installed near an easily accessible electrical outlet.**

4. **In an emergency, disconnect the ac power plug or completely turn off power supplied to the equipment.**

CAUTION:
The fluorescent lamp in the liquid crystal display (LCD) contains mercury (50 mg maximum). Do not place in trash that is disposed of in landfills. Dispose of it as required by local ordinances or regulations.

CAUTION:

1. **Do not remove and use the LCD panel separately from its stand.**

2. **Do not lay this monitor in a horizontal position when operating.**

CAUTION:
The liquid crystals in the display panel contain several irritants. If the panel is damaged or broken, do not let the liquid come in contact with your skin, eyes, or mouth. If you do come in contact with the liquid, flush the affected part with running water for at least 15 minutes, and then consult a doctor.

CAUTION:
Handle this device with care when moving it. See "Precautions" on page 1.

Contents

About This Book

This guide contains information on how to set up, operate, and configure the IBM 9516-B03 or B13 Color LCD Monitor (hereafter called *monitor*).

Chapter 1, "Setting Up Your Monitor," describes how to set up the monitor and attach it to the personal computer (hereafter called *PC*) or Workstation (including RS/6000 system).

Chapter 2, "Operating Your Monitor," describes how to handle and operate the monitor.

Chapter 3, "Configuring Your Monitor Using Automatic Monitor Setup," describes how to configure the monitor to attain the best quality.

There are eight appendixes with additional information.

x

Chapter 1. Setting Up Your Monitor

This chapter describes the following:

  Precautions before setting up the monitor
  How to prepare for setup
  The locations of the switches and indicators
  How to connect the cables and power cord

Precautions

Always use care when handling the monitor. The LCD screen is fragile and should not be bumped or dropped.

Lifting the Monitor

When lifting the monitor, carefully remove the monitor from its carton. Hold the bottom of the screen with both hands, as shown.
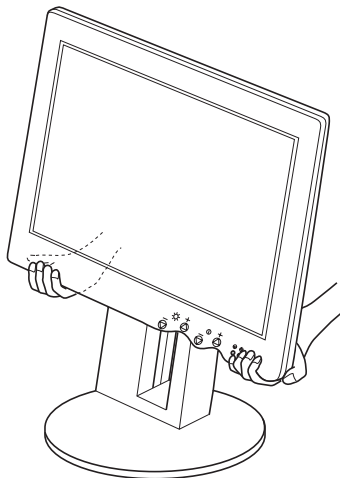
Before Setting Up

Check your box for the following items.

If any items are missing or damaged, contact your the Display Business Unit (DBU) helpline.
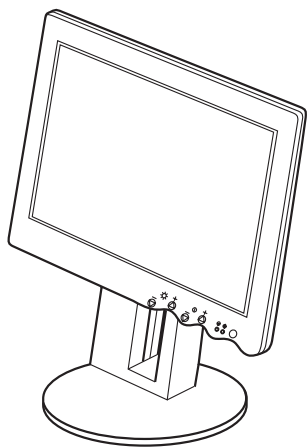
Monitor   **AC Adapter**
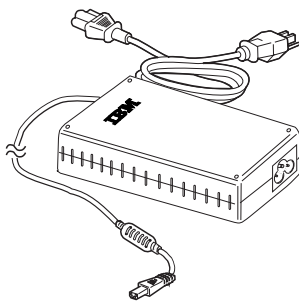
6 Setup Option Diskettes
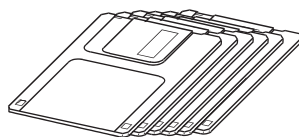
The application programs included in the setup option diskettes are only for displaying color-bar patterns. They are not for changing the display driver.

Video Cable (15-pin D-sub) P/N: 58F2901

Printed Matter

IBM 9516-B03 or B13 Color LCD Monitor: Installation and operation Guide (this book)
Warranty

Locations

LCD Screen

Brightness Control Buttons

Contrast Control Buttons

S/N Label

Standby Indicator

Stand

Power Switch

Power Indicator

R-Signal Input Connector

Vertical Sync Input Connector

G-Signal Input Connector

Keyboard Connector

B-Signal Input Connector

Mouse Connector

Horizontal Sync Input Connector

Keyboard/Mouse Y-Cable Connector

DC-IN Connector

Height Adjustment Button

Setup Switch

Connecting the Interface Cables

⚠️**DANGER**

Be sure to read "Safety" on page v before doing this procedure.

1 Turn off your PC or Workstation and all attached devices.

2 Remove the cable cover at the rear of the monitor.
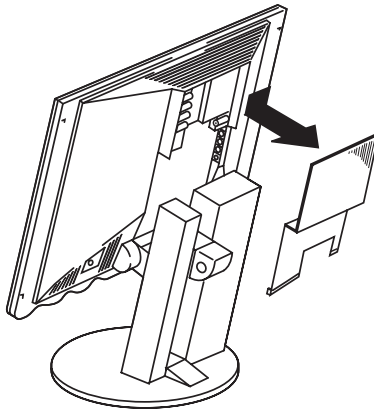
3 Connect the video interface cables of your PC or Workstation to the monitor. Connect red, green, and blue interface cables to the connectors of the same color, `1` , `2` , `3` on the monitor. Also, if your cable has 5 BNCs, connect the H-Sync interface cable to connector `4` and the V-Sync interface cable to connector `5` .

See Appendix G, "Video Cables" on page 87 for the part numbers and more information about the cables.

  a Position the ends of the cables in front of the connectors, as shown.

  b Plug in the cables to the connectors. Push and twist the ends of the cables until they are firmly locked to the connectors.
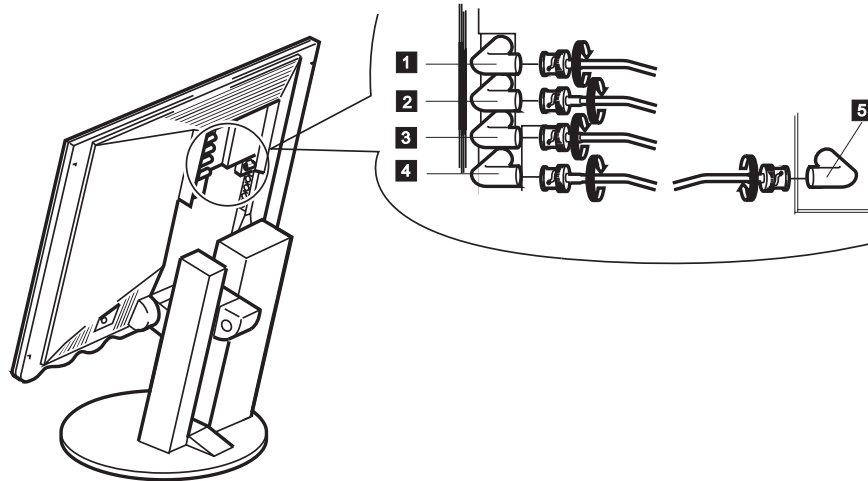
4 If you use standby mode and there is no power-saving function in your computer, you need to connect the optional keyboard/mouse Y-cable (P/N:82H8627), the keyboard, and the mouse, as shown below. If you use DPMS function, you do not need to connect the optional keyboard/mouse Y-cable.

Note: If your computer is a Sun or HP workstation, you cannot connect the optional keyboard/mouse Y-cable, and the power-saving function is not supported.

  a Disconnect the keyboard from your PC or RS/6000. Then connect it to the keyboard connector 1 at the rear of the monitor.

  b Disconnect the mouse from your PC or RS/6000. Then connect it to the mouse connector 2 at the rear of the monitor.

  c Connect the keyboard/mouse Y-cable (optional) to the Y-cable connector 3 at the rear of the monitor. Then connect each plug on the other end of the Y-cable to the PC or RS/6000 keyboard and mouse connectors.

Notes:

 a. You make these connections to resume operation from standby mode by operating the keyboard or mouse. If you do not need to resume operation from standby mode with the keyboard or mouse, you do not need to make the connections. You cannot use the keyboard speaker when you make these connections.

 b. Do not connect or disconnect the keyboard or mouse when the PC or RS/6000 is in operation.
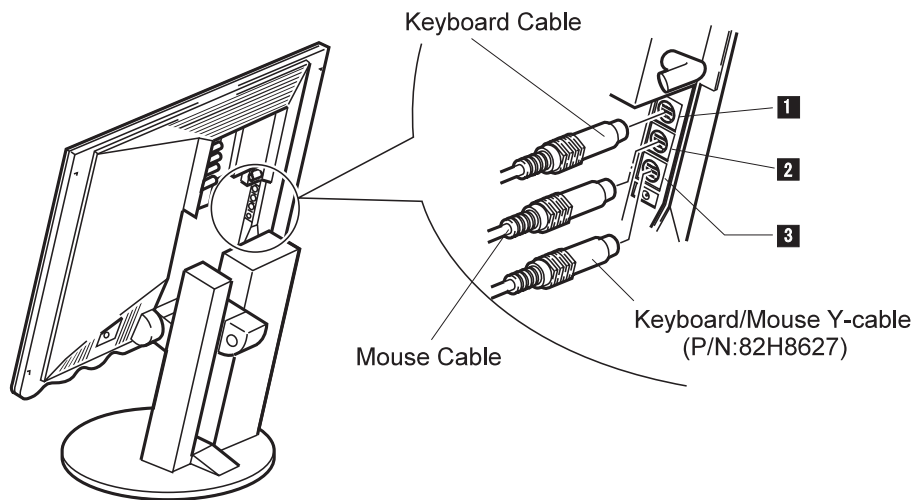
Refer to "Saving Power with Standby Mode" on page 73.

Connecting the Power Cord

⚠️ **DANGER**

> **Be sure to read "Safety" on page v before connecting the power cord.**

1 Connect the AC Adapter.
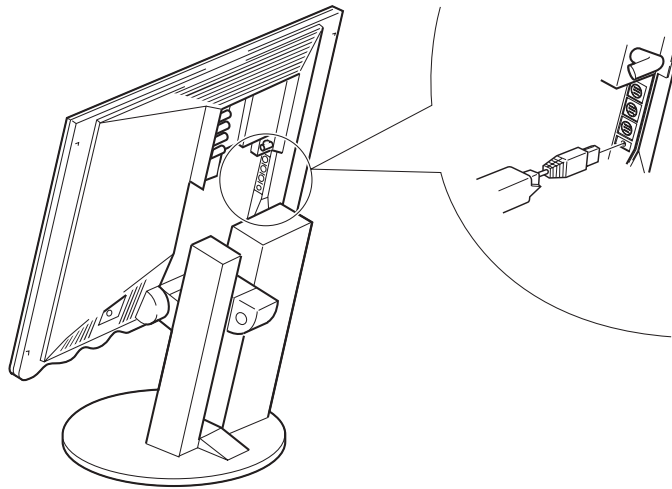
2 Slide up the cable cover to fit it into the monitor while depressing A parts, and make sure that they end up hooked at the monitor.

> **Note:** Be careful not to pinch the video signal cable into B or C between the rear cover and the cable cover.
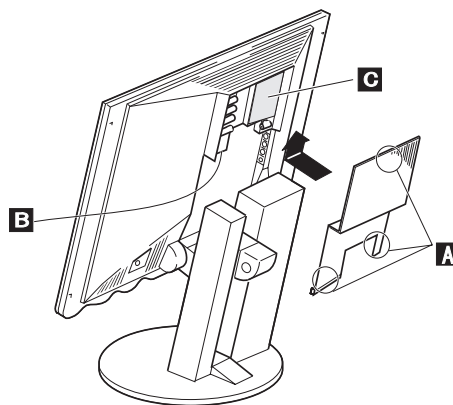
3 Connect the power cord to the AC Adapter.
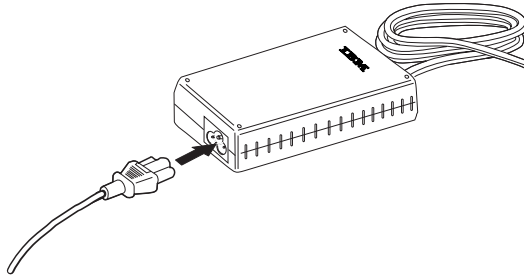
4 Connect the other end of the power cord to a correctly grounded ac power source.
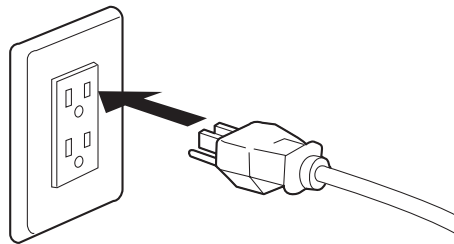
You have finished setting up your monitor.

Read the next chapter to learn how to operate your monitor. Then go on to Chapter 3 to configure your monitor.

Chapter 2. Operating Your Monitor

⚠️ **DANGER**

> **Be sure to read "Safety" on page v before connecting the power cord.**

This chapter describes the following:

Adjusting the monitor position
Turning on the monitor
Adjusting the brightness and contrast
Caring for your monitor

Adjusting the Monitor Position

Viewing Angle

You can tilt the screen 15° backward.

You can also rotate the monitor leftward or rightward, as shown in the figure, as far as 180° from the starting point marked on the bottom of the stand.
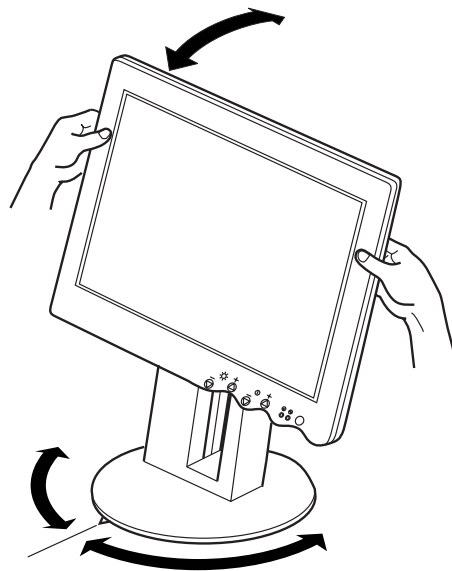
Height

To adjust the height of the screen, push and hold the height adjustment
button on the rear of the monitor with one hand, and raise or lower the screen
with the other hand.

CAUTION:
Do not insert your finger in the gap of the A **section. It might get**
nipped when you lift the monitor screen.
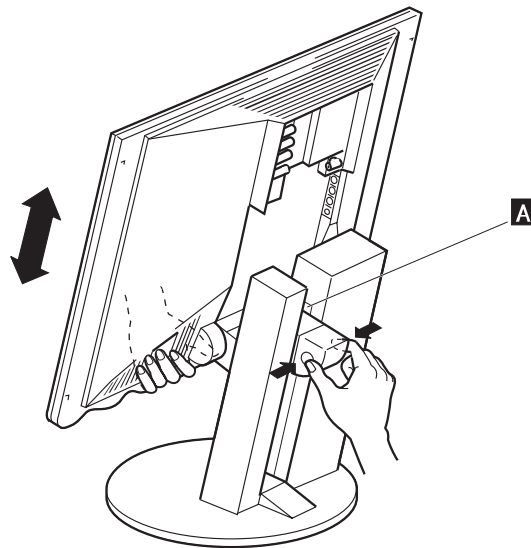
Turning On the Monitor

To turn on the monitor, push and release the power switch. To turn it off, push and release the switch again.

Note: When you turn off the monitor, wait at least 5 seconds before turning it back on again.
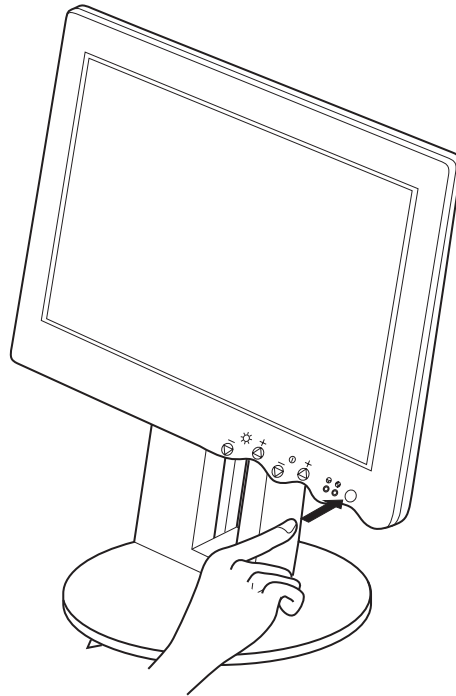
Adjusting the Brightness and Contrast

Brightness Control Buttons

Contrast Control Buttons
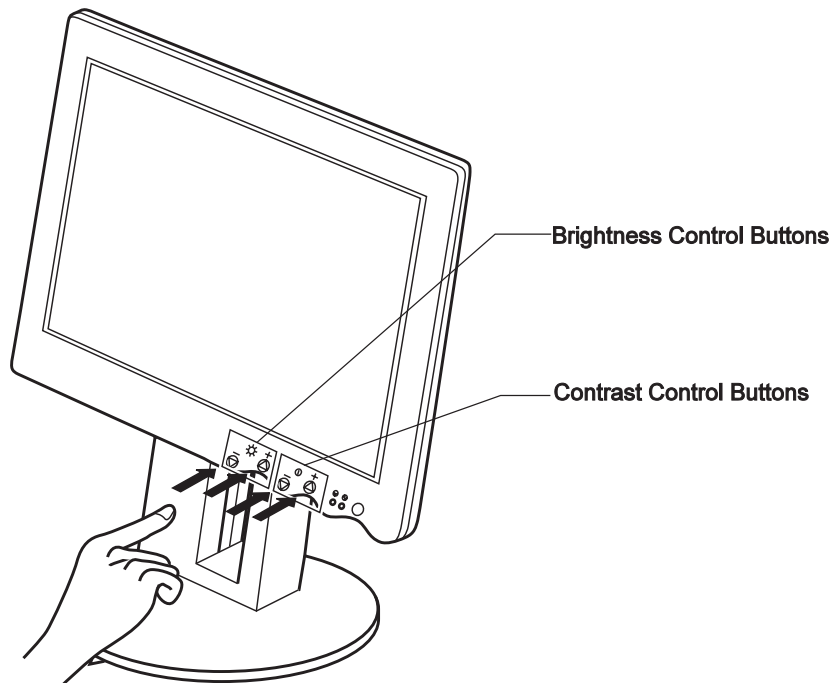
Brightness ☼ To adjust the brightness of the screen, push the control (+) button to make the screen brighter, or the control (−) button to make the screen dimmer. The brightness value appears on the screen when you push either of these buttons.

Contrast ◐ To adjust the clarity of the screen, push the control (+) button to increase the contrast, or the control (−) button to lower the contrast. The contrast value appears on the screen when you push either of these buttons.

Caring For Your Monitor

Be sure to turn off the power before you perform any maintenance on the monitor or before you clean it by doing the following:

Gently wipe the device covers and the screen with a soft cloth.

Do not use such chemicals as thinner or benzene. They may damage the surface coating.

Chapter 3. Configuring Your Monitor Using Automatic Monitor Setup

When you first use your monitor, or if you replace it, you must perform **automatic (auto) setup**. This procedure sets up your monitor to process the video signals from your computer without image discoloration or flicker. After you perform auto setup, the settings are stored and used each time you turn on the monitor.

Before you perform auto setup, vertical stripes could appear on the screen.

About refresh rate

On this monitor, unlike a CRT, a faster refresh rate does not improve screen quality. Using the monitor with a refresh rate of 60 Hz with noninterlace is recommended.

Before You Begin

Check the type of the computer the monitor is connected to.

Type of Computer	Configuring Method
PC	Go on to page 16.
RS/6000	Go on to page 28.
Sun workstation	Go on to page 56.
HP workstation	Go on to page 60.
Other systems	Go on to page 67.

Auto Setup for the PC

Check the operating system installed on your PC and go to the respective section.

If only **PC-DOS** is installed on your PC:

Perform the auto setup procedure for PC-DOS. (Go to page 17.)

If Microsoft **Windows 3.1** is installed on your PC as well as PC-DOS:

1. If you are going to use full-screen on your PC, perform the auto setup procedure for PC-DOS. (Go to page 17.)

2. Perform the auto setup procedure for Windows. (Go to page 20.)

If **Windows 95** or **Windows NT** is installed on your PC:

1. If you are going to use full-screen on your PC, perform the auto setup procedure for PC-DOS in full-screen mode. (Go to page 17.)

2. Perform the auto setup procedure for Windows. (Go to page 20.)

If **Operating System/2 (OS/2)** is installed on your computer:

1. If you are going to use full-screen on your PC, perform the auto setup procedure for PC-DOS. (Go to page 17.)

2. Perform the auto setup procedure for OS/2. (Go to page 24.)
   (You do not need to perform the auto setup procedure for Windows.)

Note

If your PC does not run with the setup option diskettes shipped with the monitor, refer to Appendix B, "Quick Setup" on page 67.

Before you begin the auto setup for your PC:

– Make a backup copy of the setup option diskettes shipped with the monitor.

– Make sure the PC's video mode is set in the range of the supported screen resolution shown in the table on page 82. If your PC's screen mode is not set in the range, adjust frequencies to put it in the scan range specified in the operating manuals for your PC or the operating system.

– Perform the auto setup for each screen mode you use.

Auto Setup for PC-DOS

This procedure using the setup option diskette, which displays a color-bar pattern before the setup main menu, is recommended for better image quality. If, however, something goes wrong and the diskette is stuck in the middle of this procedure, perform Appendix B, "Quick Setup" on page 67.

To perform auto setup for PC-DOS or PC-DOS/V:

1 Start with the monitor and the PC turned off.

2 Turn on the monitor first; then turn on the PC.

>   **Note:** The screen remains blue until the computer is ready. This is not a problem.

If an error message is displayed

If the message "UNSUPPORTED VIDEO" is displayed, or if nothing is displayed, check that:

>   The video interface cable is connected properly.
>   The correct video adapter card (see page Appendix F, "Graphic Adapters" on page 85) for your PC is installed.
>   The correct supported display mode is selected for your PC.

---

3 Insert the diskette labeled "Setup Option Diskette (for DOS/Windows)" into the diskette drive.

>   **Note:** The application programs included in the setup option diskettes are used only for displaying the color-bar patterns. They are not for changing the display driver.

Wait about 15 minutes until the monitor warms up.

>   **Note:** If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

4 Display the command prompt screen of the PC-DOS full-screen display by pressing **Enter** while pressing **Alt**.

>   If Windows is installed, open the PC-DOS prompt from the Program Manager to display the PC-DOS full-screen.
>
>   If OS/2 is installed, open the PC-DOS full-screen display from the command prompt of OS/2.
>
>   If only PC-DOS is installed, the command prompt is displayed when the system is started.

5 If you are using PC-DOS/V, change to U.S. mode by typing CHEV US and pressing **Enter** at the command prompt.

6 At the command prompt, type A: and press **Enter**.

7 Type TESTPATD and press **Enter**. The following color-bar pattern appears:

If, after a few seconds, the setup main menu appears and starts automatically, go to step 11 on page 19. If it does not appear and start automatically, go to the next step.

8 Push the setup switch on the back of the monitor.

The setup main menu appears:

```
    MENU1/8    MAIN_1
◑CONTRAST 20 ‖‖‖‖‖‖‖‖‖‖‖-------
☼BRIGHT   30 ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

 AUTO SETUP    OFF
 AUTO DETECT   ON
 BLACKSETUP    OFF

 (i)  |-  ☼  +|-  ◑  +
Quit |◉Select◉| Start
```
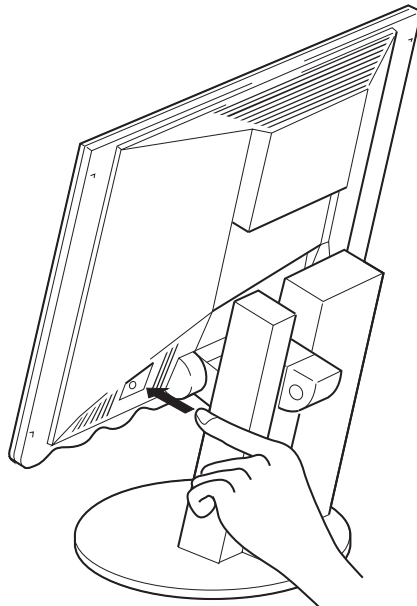
9 Push one of the brightness control (☼) buttons to select AUTO SETUP.

10 Push one of the contrast control (◑) buttons. The AUTO SETUP line changes to "START" and auto setup starts.

11 Wait until the "PRESS [ENTER] KEY" message is displayed (after 10 to 20 seconds).

12 Press **Enter** to continue the auto setup procedure.

The AUTO SETUP line changes to "COMPLETED" when auto setup is complete.

The screen might be distorted during setup. This is not a problem.

If the screen flickers, go back to step 8 and redo the setup several times until the flicker is minimized, or adjust it manually by doing manual setup (see Appendix A).

If "AUTO SETUP COMPLETED" is not displayed

If the setup main menu is on the screen, go back to step 9. Otherwise, return to step 8. Repeat the auto setup procedure. If the "AUTO SETUP FAILED" message appears, repeat the auto setup procedure several times.

If you still cannot complete the setup, adjust it manually by using manual setup (see page 65), or contact the Display Business Unit (DBU) helpline.

---

13 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto Setup for Windows 3.1, Windows 95, or Windows NT

This procedure, using the setup option diskette, which displays a color-bar pattern before the setup main menu, is recommended for better image quality. If, however, something goes wrong and the diskette is stuck in the middle of this procedure, perform Appendix B, "Quick Setup" on page 67.

To perform auto setup for Windows:

1 Start with the monitor and the PC turned off.

2 Turn on the monitor first; then turn on the PC.

> **Note:** The screen remains blue until the computer is ready. This is not a problem.

> ┌─ **If an error message is displayed** ──────────────
> │
> │ If the message "UNSUPPORTED VIDEO" is displayed, or if nothing
> │ is displayed, check that:
> │
> │   The video interface cable is connected properly.
> │   Your PC's screen setting is in the range of the supported
> │   screen resolutions shown in the table on page 82.
> │
> └───

3 Insert the diskette labeled "Setup Option Diskette (for DOS/Windows)" into the diskette drive.

> **Note:** The application programs included in the setup option diskettes are used only for displaying the color-bar patterns. They are not for changing the display driver.

Wait about 15 minutes, until the monitor warms up.

> **Note:** If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

4 For Windows 3.1 or Windows NT 3.5, open **Program Manager** and click on **File Manager**.

For Windows 95 or Windows NT 4.0, click on **Start**, **Programs**, and **Explorer**.

5 Click on the **drive A:** icon.

6 Double-click on the **TESTPAT.EXE** file name.
(Some settings on the PC do not show the file extension .EXE in the file name.)

After about 20 seconds, the following color-bar pattern appears. If the screen resolution is smaller than 1280×1024, the color-bar pattern is a bit different from the following one.
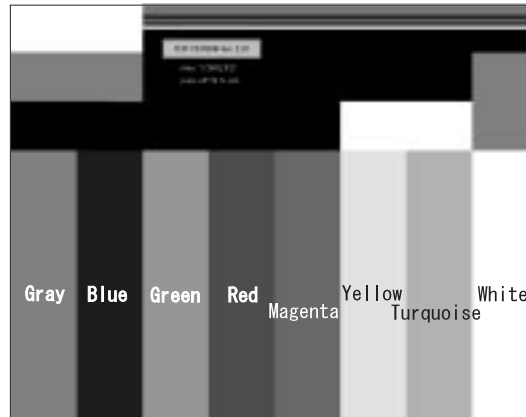
Move the mouse pointer (and the icon bar and tool bar if they are displayed) to the bottom center of the screen. Otherwise, setup might not run properly.

If, after a few seconds, the setup main menu appears and starts automatically, go to step 10. If it does not appear and start automatically, go to the next step.

7 Push the setup switch on the back of the monitor.

The setup main menu appears:

```
_MENU1/8____MAIN_1_
◑CONTRAST 20 ‖‖‖‖‖‖‖‖‖‖‖‖‖-------
☼BRIGHT   30 ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

  AUTO SETUP    OFF
  AUTO DETECT   ON
  BLACKSETUP    OFF
─────────────────────────────
 (i) |-  ☼  +|-  ◑  +
Quit|♥Select◉| Start
```
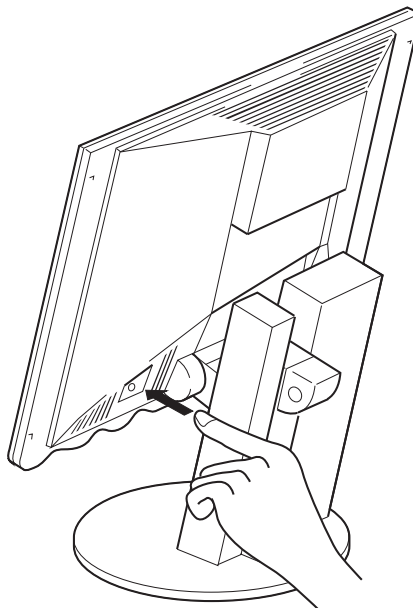
8 Push one of the brightness control (☼) buttons to select AUTO SETUP.

9 Push one of the contrast control (◑) buttons. The "AUTO SETUP" line changes to "START," and auto setup starts.

10 Wait 10 to 20 seconds. The "AUTO SETUP" line changes to "COMPLETED" when auto setup is complete.

If the screen flickers, go back to step 7 and redo setup several times until the flicker is minimized, or adjust it manually by using the manual-adjust menu.

The screen might be distorted during setup. This is not a problem.

"If AUTO SETUP COMPLETED" is not displayed

If the "COMPLETED" message is not displayed after 1 minute, make sure that the PC's screen setting is one of the supported screen resolutions in the table on page 82.

If the setup main menu is on the screen, go back to step 8. Otherwise, go back to step 7. If the setup procedure does not complete successfully, an "AUTO SETUP FAILED" message appears. In that case, repeat the auto setup procedure three times.

If you still cannot complete the setup, adjust manually by doing manual setup (see page 65), or contact the Display Business Unit (DBU) helpline.

If, after you perform auto setup, the display is still distorted, perform the manual setup described in Appendix A.

11 Press **Alt+F4** to exit auto setup.

Note: If you change the resolution or the number of colors, repeat auto setup from step 4.

12 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto Setup for OS/2

This procedure, using the setup option diskette, which displays a color-bar pattern before the setup main menu, is recommended for better image quality. If, however, something goes wrong and the diskette is stuck in the middle of this procedure, perform Appendix B, "Quick Setup" on page 67.

To perform auto setup for OS/2:

1 Start with the monitor and the PC turned off.

2 Turn on the monitor first; then turn on the PC.

Note: The screen remains blue until the computer is ready. This is not a problem.

If an error message is displayed

If the message "UNSUPPORTED VIDEO" is displayed, or if nothing is displayed, check that:

  The video interface cable is connected properly.
  The PC's screen setting is in the supported screen resolution shown in the table on page 82.

---

3 Insert the diskette labeled "Setup Option Diskette (for OS/2)" into the diskette drive.

Note: The application programs included in the setup option diskettes are used only for displaying the color-bar patterns. They are not for changing the display driver.

Wait about 15 minutes until the monitor warms up.

Note: If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

4 Open the OS/2 full-screen window or an OS/2 window.

5 At the command prompt, type A: and press **Enter**.

6 Type TESTPATS and press **Enter**.

After about 1 minute, the following color-bar pattern appears. The size of the pattern varies with the resolution.
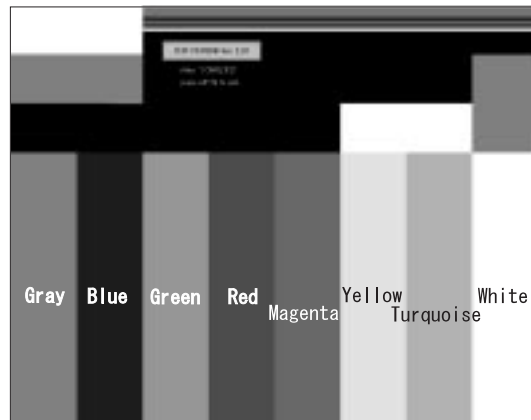
Gray Blue Green Red Magenta Yellow Turquoise White

Move the mouse pointer (and the icon bar and tool bar if they are displayed) to the bottom center of the screen. Otherwise, setup might not run properly.

If, after a few seconds, the setup main menu appears and starts automatically, go to step 9 on page 26. If it does not appear and start automatically, go to the next step.

7 Push the setup switch on the back of the monitor.

The setup main menu appears:

```
__MENU1/8_____MAIN_1__
◑CONTRAST 20 ▐▐▐▐▐▐▐▐▐▐▐▐▐▐----
☼BRIGHT   30 ▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐

  AUTO SETUP    OFF
  AUTO DETECT   ON
  BLACKSETUP    OFF

  (i) |-  ☼  +|-  ◑  +
  Quit|↑Select↓| Start
```
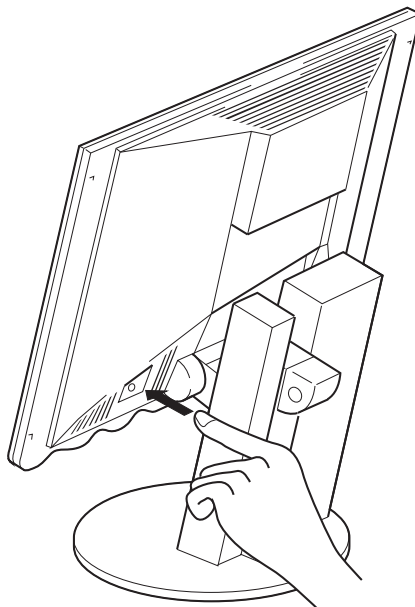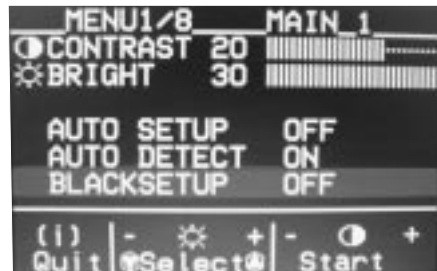
8 Push one of the brightness control (☼) buttons to select AUTO SETUP.

9 Push one of the contrast control (◑) buttons. The "AUTO SETUP" line changes to "START," and auto setup starts.

Wait 10 to 20 seconds.

The "AUTO SETUP" line changes to "COMPLETED" when auto setup is complete.

If the screen flickers, go back to step 7 and redo the setup several times until the flicker is minimized, or adjust it manually by doing manual setup (see Appendix A).

The screen might be distorted during setup. This is not a problem.

If "AUTO SETUP COMPLETED" is not displayed

If the "COMPLETED" message is not displayed after 1 minute, make sure that the PC's screen setting is one of the supported screen resolutions in the table on page 82.

When the setup main menu is on the screen, go back to step 8. Otherwise, go back to step 7. Repeat the auto setup procedure. If the setup procedure does not complete successfully, an "AUTO SETUP FAILED" message appears. In that case, repeat the auto setup procedure three times.

If you still cannot complete the setup, adjust manually by using manual setup (see page 65), or contact the Display Business Unit (DBU) helpline.

If, after you perform auto setup, the display is still distorted, perform the manual setup described in Appendix A.

10 Press **Alt+F4** to exit auto setup.

Note: If you change the resolution or the number of colors, repeat auto setup from step 4 on page 24.

11 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto Setup for the RS/6000

This procedure, using the setup option diskette, which displays a color-bar pattern before the setup main menu, is recommended for better image quality. If, however, something goes wrong and the diskette is stuck in the middle of this procedure, perform Appendix B, "Quick Setup" on page 67.

If you are running AIXwindows on the RS/6000, go to page 29.

Otherwise, check the type of the graphic adapter used with the RS/6000:

Graphic Adapter Type	Auto Setup Procedure
GXT150P (RS/6000 Model 43P)	Go to page 29.
GXT1000	The auto setup procedure is the same as AIXwindows.
E15/S15	
Gt3i, GXT150, GXT150L	Go to page 33.
GXT150M (for AIX 3.2 Version 3.2.5.1 and later)	Go to page 40.
GT4 (24bit), GT4X (8bit), GT4X (24bit), GT4I (24bit), GT4XI (8bit), GT4XI (24bit)	Go to page 45.
GXT150P (RS/6000 Model 40P)	Go to page 52.

Note: If you are using a graphic adapter other than those in this table, the setup option diskettes do not run on your RS/6000, or the screen resolution in the video signal on your RS/6000 is not 1280×1024, see Appendix B, "Quick Setup" on page 67.

Auto Setup for AIXwindows

To perform auto setup for AIXwindows:

1 Turn on the monitor.

2 Turn on the RS/6000. The screen remains blue until the RS/6000 is
ready. This is not a problem.

> ┌─ **If an error message is displayed** ────────────────
> │
> │ If the message "UNSUPPORTED VIDEO" is displayed or nothing is
> │ displayed at all, check that:
> │
> │   The video interface cable is connected properly.
> │
> │   The screen resolution and the vertical frequency of RS/6000 are
> │   within the supported screen resolutions in the table on page 82.
> │   If not, refer to your RS/6000 manuals, AIXwindows manuals, or
> │   online help to set the resolution and frequency to the values of
> │   the table.

3 When the AIX desktop login screen is displayed, log in as the root user,
and start the common desktop environment (CDE) from the AIX
command prompt. Type `xinit` and press **Enter**.

Wait for about 15 minutes, until the monitor warms up.

Note: If the monitor is in standby mode ("STANDBY ON"), it might
automatically turn off while you are waiting for it to warm up.
Exit standby mode (refer to the explanation of **STANDBY** on
page 72).

If the terminal emulator has already started, go to step 5.

4 Start the terminal emulator. To start, click on the subpanel button

(▁▲▁) on the text editor control (◨) on the front panel, and then select
terminal emulator.

5 Type `cd /` from the command prompt of the terminal emulator, and
press **Enter**.

6 Type `df -k` and press **Enter**.
Make sure that there is at least 60 KB of free space in the root
directory.

7 Insert the diskette labeled "Setup Option Diskette (for AIXwindows)" into
the diskette drive A. Type `tar -xvf /dev/fd` and press **Enter**.

The application programs included in the setup option diskettes are only
for displaying color-bar patterns. They are not for changing the display
driver.

8 Type `./xcolorbar` and press **Enter**.

9 If "Can't allocate color" is displayed:

   a. Stop other programs.
   b. Enter the commands in step 7 again.
   c. Type `./xcolorbar` and press **Enter**.

   If, after a few seconds, the setup main menu appears and starts automatically, go to step 12. If it does not appear and start automatically, go to the next step.

10 When the color-bar pattern appears, push the setup switch on the back of the monitor.

The setup main menu appears in front of the color-bar pattern.

11 Push one of the contrast (◑) control buttons.

12 The messages are automatically displayed in the following sequence:
"OFF"→"READY"→ "START"→"COMPLETED"

and auto setup is complete.

If the screen flickers, go back to step 10 and redo the setup several times until flickering is minimized. If the problem persists, perform manual setup (see page 65).

The screen might be distorted during setup. This is not a problem.

"If AUTO SETUP COMPLETED" is not displayed

If the setup main menu is on the screen, go back to step 11. Otherwise, go back to step 10. If the setup procedure does not complete successfully, an "AUTO SETUP FAILED" message appears. If this message appears, repeat the auto setup procedure up to three times.

If after retrying three times, you are unable to complete the setup, adjust manually by doing manual setup (see page 65), or contact the Display Business Unit (DBU) helpline.

If, after you perform auto setup, the display is still distorted, perform manual setup described in Appendix A.

13 Check the following for the color-bar pattern. If there is anything wrong, go back to step 10 and redo the setup.

The color bars appear as in the following figure. The colors must be bright and clear.
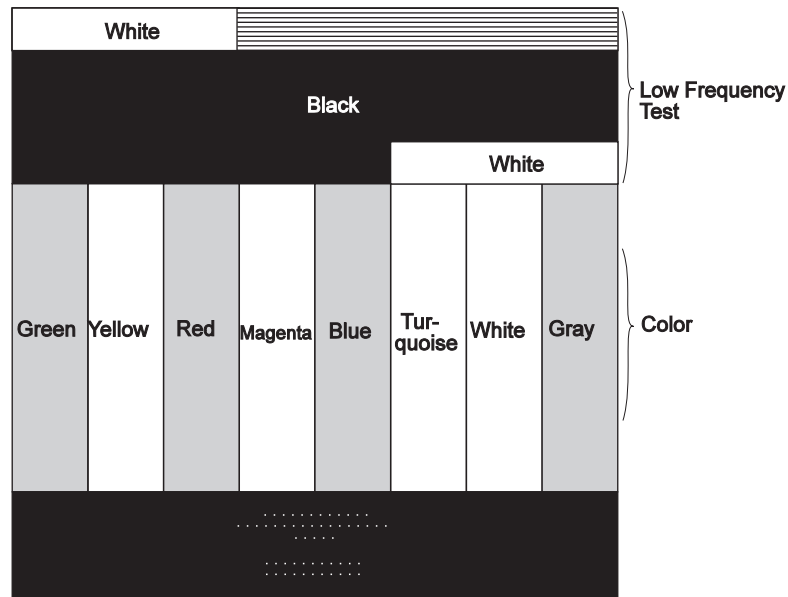
There is no interference in the upper low frequency section, and the boundary between black and white is clear.

14 Set the power management mode whenever necessary. (See "The Setup Main Menu" on page 71.)

15 Press **F3** to exit the color-bar pattern.

16 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto Setup for the Gt3i, GXT150, or GXT150L Adapter

To perform auto setup for the Gt3i, GXT150, or GXT150L Adapter:

1 Turn on the monitor.

2 Turn on the RS/6000. The screen remains blue until the RS/6000 is ready. This is not a problem.

> **If an error message is displayed**
>
> If the message "UNSUPPORTED VIDEO" is displayed or nothing is displayed at all, check that:
>
> The video interface cable is connected properly.
>
> The screen resolution and the vertical frequency of RS/6000 are within the supported screen resolutions in the table on page 82. If not, refer to your RS/6000 manuals, AIXwindows manuals, or online help to set the resolution and frequency to the values of the table.

3 When the AIX desktop login screen is displayed, log in as the root user, type `diag` from the AIX command prompt, and press **Enter**. If you cannot see the login prompt, adjust the brightness and contrast.

Wait for about 15 minutes, until the monitor warms up.

Note: If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

> **About the panels**
>
> The RS/6000 panels differ according to the diagnostic software level. The following details about the panels are only examples.

The system diagnostic panel (number 801001) is displayed. The number is displayed on the upper right corner of the screen.

```
IBM RISC System/6    POWERstation and POWERserver                8 1  1
DIAGNOSTICS VERSION 1.
LICENSED MATERIAL and LICENSED INTERNAL CODE - PROPERTY OF IBM.
(C) COPYRIGHTS BY IBM AND BY OTHERS 1982,1993.
ALL RIGHTS RESERVED.
DIAGNOSTIC OPERATING INSTRUCTIONS


These programs contain diagnostic and service aids for the system.
These procedures should be used whenever problems with the system occur
which have not been corrected by any software application procedures
available.

In general, the procedures will run automatically. However, sometimes
you will be required to select options,inform the system when to
continue, do simple tasks, and exchange diskettes.

Several keys are used to control the procedures:
    -- The Enter key continues the procedure or performs an action.
    -- The Backspace key allows keying errors to be corrected.
    -- The cursor keys are used to select an option.
Press the F3 key to exit or press Enter to continue.
```

4 Press **Enter** to display the Function Selection menu (number 801002).
Move the cursor to **Service Aid**.

```
FUNCTION SELECTION                                       8 1  2


 Move cursor to selection, then press Enter.

 Diagnostic Routines
         This selection will test the machine hardware and detect any hardware
         problems. A problem will be indicated by a SRN (Service Request Number).
         The SRN will allow a service representative to quickly determine what
         parts are required to repair the machine.

  Service Aid
         This selection will look at the machine configuration, exercise
         external interfaces, format media, look at past diagnostic results,
         control what resources are tested, check out media, etc.

 Advanced Diagnostic Routines
         This selection will normally be used only by the service
         representative.



 F3=Cancel        F1 =Exit
```

5 Press **Enter**. The Service Aids Selection menu (number 802001)
appears:

```
SERVICE AIDS SELECTION                                    8 2  1


Move cursor to selection and press Enter.

(TOP)

 Service Hints
        This selection displays service hints and errata information about
        the maintenance package.

Display Previous Diagnostic Results
        This selection displays the results of previous diagnostic runs.

Display or Change Configuration or Vital Product Data(VPD)
        This selection displays or changes the configuration or VPD.

Display or Change Diagnostic Test List
        This selection displays the resources tested by Diagnostics and
        allows the resources to be added or deleted from the Diagnostic Test
        List.

Disk Media
        This selection provides the format disk and certify disk service
        aids.

Diskette Media
        This selection provides a tool for checking out a diskette.

Service Aids for Use With Ethernet
        (Ethernet is a trademark of Xerox Corp.)

(MORE...13)

F3=Cancel F1 =Exit
```

6 Press **PageDown** to display the second page of the menu. Move the
cursor to **Display Test Patterns**.

```
SERVICE AIDS SELECTION                                    8 2  1

Move cursor to selection and press Enter.

(MORE...13)

This selection provides a tool for checking out a diskette.

Service Aids for Use with Ethernet
        (Ethernet is a trademark of Xerox Corp.) This selection provides
        a tool for diagnosing Ethernet problems.

SCSI Bus
        This selection provides a tool for diagnosing SCSI bus problems.

 Display Test Patterns
        This selection displays patterns required to adjust the IBM 5 81 and
        IBM 6 91 displays.

Microcode Download
        This selection provides a tool for downloading microcode from a
        diskette to a fixed disk.

Product Topology
        This selection updates the system Product Topology information.
        It should be run whenever the system is installed, when a MES of FCSI
        is installed and when a FRU is exchanged.

(BOTTOM)

F3=Cancel F1 =Exit
```

7 Press **Enter** to display panel 802081. Move the cursor and select the connected video adapter.

```
DISPLAY SERVICE AID                                    8 2 81

Which of the following displays do you want to test?

Move cursor to selection, then press Enter.

 The color display attached to the GXT 15  Graphics Adapter
    in Location   - J.

Return to the Service Aids Selection Menu.

F3=Cancel F1 =Exit
```

8 Press **Enter** to display panel 802087. Move the cursor to **The color-bar pattern**.

```
DISPLAY SERVICE AID                                    8 2 87

Which of the following displays do you want to test?

Move cursor to selection, then press Enter.

   The red full screen pattern.
   The green full screen pattern.
   The blue full screen pattern.
   The black full screen pattern.
   The white full screen pattern.
   The 9 à: 7 grid pattern.
   The 9 à: 11 grid pattern.
    The colorbar pattern.
   The 5 mm box pattern.
   Return to the Display Selection menu.
   Return to the Service Aids Selection menu.

F3=Cancel F1 =Exit
```

9 Press **Enter**, and panel 802084 is displayed:

```
DISPLAY SERVICE AID                                    8 2 84

The Pattern you selected will be displayed on the next screen.

REMEMBER .....to use 'Cancel' to exit the screen.

To display the pattern, press Enter.

F3=Cancel F1 =Exit
```

10 Press **Enter**. The color-bar pattern is displayed on the screen.

White							Low Frequency Test
Black							
					White		

Green	Yellow	Red	Magenta	Blue	Tur-quoise	Black	White	Color

Gray Scale (by Stages)

Burst Pattern

11 Push the setup switch on the back of the monitor:

The setup main menu appears in front of the color-bar pattern:

```
___MENU1/8_____MAIN_1____
◑CONTRAST 20 |||||||||||||||-------
☼BRIGHT    30 ||||||||||||||||||||||

AUTO SETUP    OFF
AUTO DETECT   ON
BLACKSETUP    OFF

(i) |-   ☼   +|-   ◑   +
Quit|❤Select❤| Start
```

12 Push one of the contrast (◑) control buttons.

The messages are automatically displayed in the following sequence:
"OFF"→"READY"→"START"→"COMPLETED"
and auto setup is complete.

If the screen flickers, go back to step 11 and redo the setup several
times until flickering is minimized. If the problem persists, adjust
manually by doing manual setup (see Appendix A).

The screen might be distorted during setup. This is not a problem.

┌─── **If "AUTO SETUP COMPLETED" is not displayed** ───┐

Go back to step 11 and redo auto setup. If the setup procedure
does not complete successfully, an "AUTO SETUP FAILED"
message appears. If this message appears, repeat the auto setup
procedure up to three times.

If after retrying three times, you are unable to complete the setup,
perform manual setup (see page 65), or contact the Display
Business Unit (DBU) helpline.

└──┘

If, after you perform auto setup, the display is still distorted, perform
manual setup described in Appendix A.

13 Check the following for the color-bar pattern. If there is anything wrong,
push one of the contrast (◑) control buttons and repeat the auto setup
procedure.

The color bars appear as in the following figure. The colors must
be bright and clear.

There is no interference in the upper low frequency section, and the boundary between black and white is clear.

14 Set the power management mode settings whenever necessary. (See "The Setup Main Menu" on page 71.)

15 Press **F3** to exit the color-bar pattern.

16 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto Setup for the GXT150M Adapter (for AIX 3.2 Version 3.2.5.1 and Later)

To perform auto setup for the XT150M Adapter (for AIX 3.2 Version 3.2.5.1 and later):

1 Turn on the monitor.

2 Turn on the RS/6000. The screen remains blue until the RS/6000 is ready. This is not a problem.

> **If an error message is displayed**
>
> If the message "UNSUPPORTED VIDEO" is displayed or nothing is displayed at all, check that:
>
> The video interface cable is connected properly.
>
> The screen resolution and the vertical frequency of RS/6000 are within the supported screen resolutions in the table on page 82. If not, refer to your RS/6000 manuals, AIXwindows manuals, or online help to set the resolution and frequency to the values of the table.

3 When the AIX desktop login screen is displayed, log in as the root user. From the AIX command prompt, type:

```
lslpp -h > /tmp/ptfcheck
```

Press **Enter**.

4 Open the **/tmp/ptfcheck** file with an editor or other tools. In the **/tmp/ptfcheck** file, decide whether to apply the newest GXT150M PTF, based on the following conditions:

If the file does not include lines **a**, **b**, or **c** (not counting XX):
→ Do not apply the PTF.

If the file does include lines **a**, **b**, or **c** (not counting XX), but there is also an added line:
→ Do not apply the PTF.

If the file includes lines **a**, **b**, or **c** (not counting XX), and if there is no added line:
→Apply the PTF.

a

```
nep.ddx
        1. 1.    3.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root

nep.mcx
        1. 1.    3.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root

nep.vdd
        1. 1.    3.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root
```

b

```
nep.ddx
        1. 1.    2.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root

nep.mcx
        1. 1.    2.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root

nep.vdd
        1. 1.    2.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root
```

c

```
nep.ddx
        1. 1.    2.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root
  U43534  1. 1.   2.      COMPLETE  APPLY     xx-xx-xx   xx:xx:xx root

nep.mcx
        1. 1.    2.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root
  U435333 1. 1.   2.      COMPLETE  APPLY     xx-xx-xx   xx:xx:xx root

nep.vdd
        1. 1.    2.      COMPLETE  COMMIT    xx-xx-xx   xx:xx:xx root
  U435334 1. 1.   2.      COMPLETE  APPLY     xx-xx-xx   xx:xx:xx root
```

5 Type rm -f /tmp/ptfcheck and press **Enter**.

If you are using more than one GXT150M graphic adapter

Select the display with the following AIX commands, and then perform steps 6 through 16. The x indicates the number of the adapter that displays the test pattern.

```
chdisp -tx
dhdisp -dx
```

---

6 Type cd / and press **Enter**.

7 Type df and press **Enter**. Make sure that there is at least 60 KB of free space in the root directory.

8 Insert the diskette for GXT150M, shipped with your monitor, into the drive and type:

```
tar -xvf /dev/rfd
```

Press **Enter**.

9 Type ./colorbar and press **Enter**. Panel 802084 is displayed:

```
DISPLAY SERVICE AID                                        8 2 84

The Pattern you selected will be displayed on the next screen.

REMEMBER .....to use 'Cancel' to exit the screen.

To display the pattern, press Enter.

F3=Cancel F1 =Exit
```
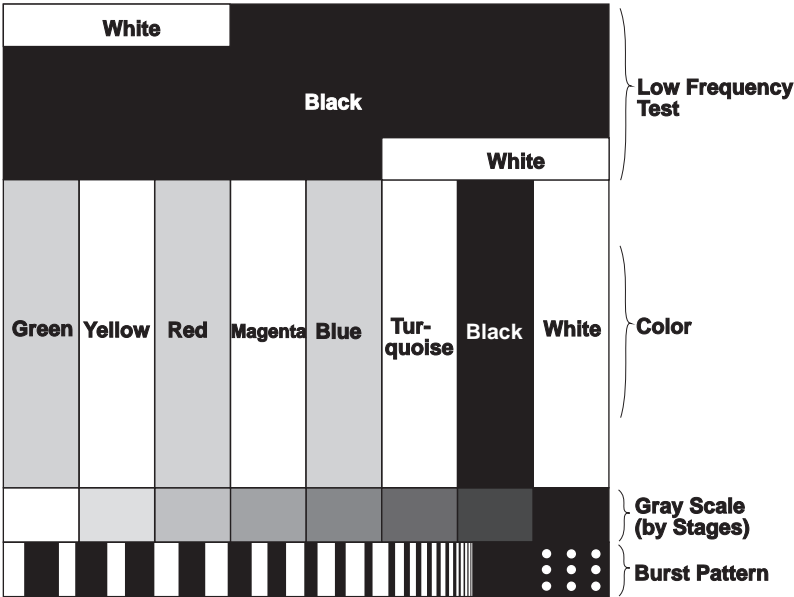
10 Press **Enter**. The color-bar pattern is displayed on the screen:

Make sure that the monitor warms up (or more than 15 minutes have passed since you turned on the monitor).

Note: If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

11 Push the setup switch on the back of the monitor:
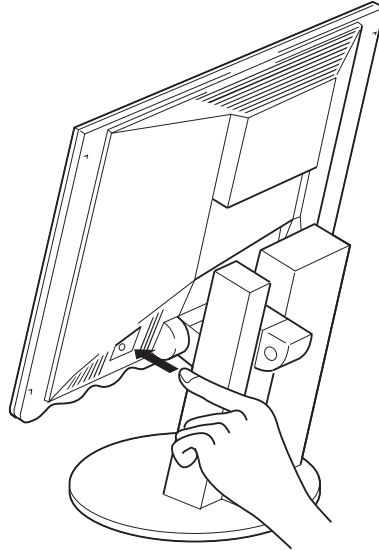
The setup main menu appears on top of the color-bar pattern:

12 Push one of the contrast ( ) control buttons.

The messages are automatically displayed in the following sequence:
"OFF"→"READY"→"START"→"COMPLETED"
and auto setup is complete.

If the screen flickers, go back to step 11 and redo the setup several times until flickering is minimized. If the problem persists, adjust manually by using the manual-adjust menu.

The screen might be distorted during setup. This is not a problem.

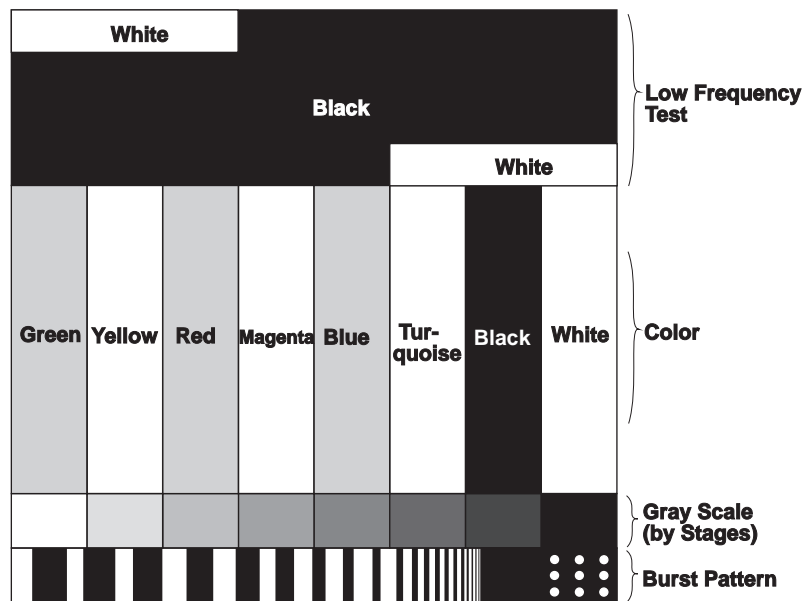**If "AUTO SETUP COMPLETED" is not displayed**

Go back to step 11 and redo auto setup. If the setup procedure does not complete successfully, an "AUTO SETUP FAILED" message appears. If this message appears, repeat the auto setup procedure up to three times.

If after retrying three times, you are unable to complete the setup, adjust manually by doing manual setup (see page 65), or contact the Display Business Unit (DBU) helpline.

If, after you perform the auto setup, the display is still distorted, adjust by doing manual setup described in Appendix A.

13 Check the following for the color-bar pattern. If there is anything wrong, go back to step 11 and repeat auto setup procedure.

The color bars appear as in the following figure. The colors must be bright and clear.

There is no interference in the upper low frequency section, and the boundary between black and white is clear.

14 Set the power management mode whenever necessary. (See "The Setup Main Menu" on page 71.)

15 Press **F3** to exit the color-bar pattern.

16 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto Setup for the GT4, GT4X, GT4I, or GT4XI Adapter

To perform auto setup for the GT4, GT4X, GT4I, or GT4XI Adapter:

1 Turn on the monitor.

2 Turn on the RS/6000. The screen remains blue until the RS/6000 is ready. This is not a problem.

> **If an error message is displayed**
>
> If the message "UNSUPPORTED VIDEO" is displayed or nothing is displayed at all, check that:
>
>   The video interface cable is connected properly.
>
>   The screen resolution and the vertical frequency of RS/6000 are within the supported screen resolutions in the table on page 82. If not, refer to your RS/6000 manuals, AIXwindows manuals, or online help to set the resolution and frequency to the values of the table.

3 When the AIX desktop login screen is displayed, log in as the root user, type `diag` from the AIX command prompt, and press **Enter**. If you cannot see the login prompt, adjust the brightness and contrast.

Wait for about 15 minutes, until the monitor warms up.

Note: If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

> **About the panels**
>
> The RS/6000 panels differ according to the diagnostic software level. The following details about the panels are only examples.

The system diagnostic panel (number 801001) is displayed. The number is displayed on the upper right corner of the screen.

```
IBM RISC System/6    POWERstation and POWERserver              8 1  1
DIAGNOSTICS VERSION 1.
LICENSED MATERIAL and LICENSED INTERNAL CODE - PROPERTY OF IBM.
(C) COPYRIGHTS BY IBM AND BY OTHERS 1982,1993.
ALL RIGHTS RESERVED.
DIAGNOSTIC OPERATING INSTRUCTIONS

These programs contain diagnostic and service aids for the system.
These procedures should be used whenever problems with the system occur
which have not been corrected by any software application procedures
available.

In general, the procedures will run automatically. However, sometimes
you will be required to select options,inform the system when to
continue, do simple tasks, and exchange diskettes.

Several keys are used to control the procedures:
    -- The Enter key continues the procedure or performs an action.
    -- The Backspace key allows keying errors to be corrected.
    -- The cursor keys are used to select an option.
Press the F3 key to exit or press Enter to continue.
```

4 Press **Enter** to display the Function Selection menu (number 801002).
Move the cursor to **Service Aid**.

```
FUNCTION SELECTION                                        8 1  2


Move cursor to selection, then press Enter.

Diagnostic Routines
        This selection will test the machine hardware and detect any hardware
        problems. A problem will be indicated by a SRN (Service Request Number).
        The SRN will allow a service representative to quickly determine what
        parts are required to repair the machine.

 Service Aid
        This selection will look at the machine configuration, exercise
        external interfaces, format media, look at past diagnostic results,
        control what resources are tested, check out media, etc.

Advanced Diagnostic Routines
        This selection will normally be used only by the service
        representative.



F3=Cancel       F1 =Exit
```

5 Press **Enter**. The Service Aids Selection menu (number 802001)
appears:

46

```
SERVICE AIDS SELECTION                                      8 2  1


Move cursor to selection and press Enter.

(TOP)

 Service Hints
        This selection displays service hints and errata information about
        the maintenance package.

Display Previous Diagnostic Results
        This selection displays the results of previous diagnostic runs.

Display or Change Configuration or Vital Product Data(VPD)
        This selection displays or changes the configuration or VPD.

Display or Change Diagnostic Test List
        This selection displays the resources tested by Diagnostics and
        allows the resources to be added or deleted from the Diagnostic Test
        List.

Disk Media
        This selection provides the format disk and certify disk service
        aids.

Diskette Media
       This selection provides a tool for checking out a diskette.

Service Aids for Use With Ethernet
       (Ethernet is a trademark of Xerox Corp.)

(MORE...13)

F3=Cancel F1 =Exit
```

6 Press **PageDown** to display the second page of the menu. Move the
cursor to **Display Test Patterns**.

```
SERVICE AIDS SELECTION                                      8 2  1

Move cursor to selection and press Enter.

(MORE...13)

This selection provides a tool for checking out a diskette.

Service Aids for Use with Ethernet
        (Ethernet is a trademark of Xerox Corp.) This selection provides
        a tool for diagnosing Ethernet problems.

SCSI Bus
        This selection provides a tool for diagnosing SCSI bus problems.

 Display Test Patterns
        This selection displays patterns required to adjust the IBM 5 81 and
        IBM 6 91 displays.

Microcode Download
        This selection provides a tool for downloading microcode from a
        diskette to a fixed disk.

Product Topology
        This selection updates the system Product Topology information.
        It should be run whenever the system is installed, when a MES of FCSI
        is installed and when a FRU is exchanged.

(BOTTOM)

F3=Cancel F1 =Exit
```

7 Press **Enter** to display panel 802081. Move the cursor and select the connected video adapter.

```
DISPLAY SERVICE AID                                          8 2 81

Which of the following displays do you want to test?

Move cursor to selection, then press Enter.

 The color display attached to the GXT 15  Graphics Adapter
    in Location   - J.

Return to the Service Aids Selection Menu.

F3=Cancel F1 =Exit
```
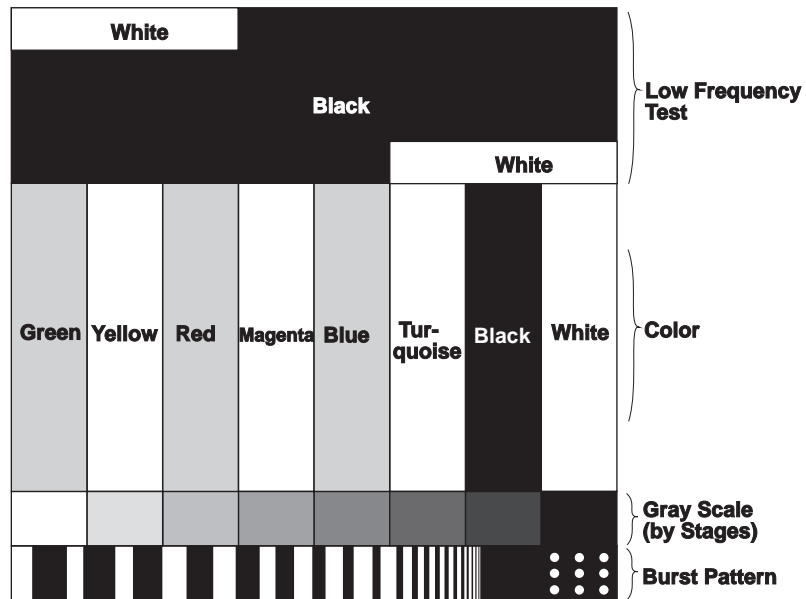
8 Press **Enter** to display panel 802087. Move the cursor to **The color-bar pattern**.

```
DISPLAY SERVICE AID                                          8 2 87

Which of the following displays do you want to test?

Move cursor to selection, then press Enter.

   The red full screen pattern.
   The green full screen pattern.
   The blue full screen pattern.
   The black full screen pattern.
   The white full screen pattern.
   The 9 à: 7 grid pattern.
   The 9 à: 11 grid pattern.
    The colorbar pattern.
   The 5 mm box pattern.
   Return to the Display Selection menu.
   Return to the Service Aids Selection menu.

F3=Cancel F1 =Exit
```
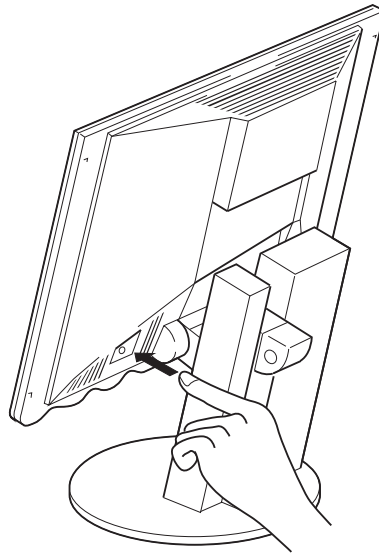
9 Press **Enter**. Panel 802084 is displayed.

```
DISPLAY SERVICE AID                                          8 2 84

The Pattern you selected will be displayed on the next screen.

REMEMBER .....to use 'Cancel' to exit the screen.

To display the pattern, press Enter.

F3=Cancel F1 =Exit
```
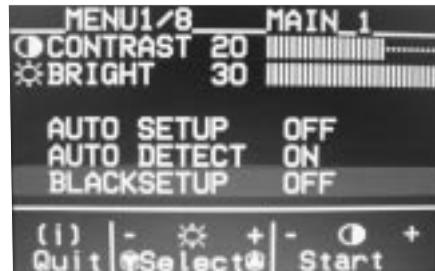
10 Press **Enter**. The color-bar pattern is displayed on the screen.

11 Push the setup switch on the back of the monitor:

The setup main menu appears on top of the color-bar pattern:


```
__MENU1/8____MAIN_1__
◑CONTRAST 20 ▐▌▌▌▌▌▌▌▌▌▌▌▌-------
☼BRIGHT    30 ▐▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌

  AUTO SETUP   OFF
  AUTO DETECT  ON
  BLACKSETUP   OFF

  (i) |-  ☼  +|-  ◑  +
  Quit|◗Select◙| Start
```

12 Push one of the contrast (◑) control buttons.

The messages are automatically displayed in the following sequence: "OFF"→"READY"→ "START"→"COMPLETED" and auto setup is complete.

If the screen flickers, go back to the beginning of this step and redo the setup several times until flickering is minimized. If the problem persists, perform manual setup (see Appendix A).

The screen might be distorted during setup. This is not a problem.

┌─── **If "AUTO SETUP COMPLETED" is not displayed** ───┐

Go back to step 11 and redo auto setup. If the setup procedure does not complete successfully, an "AUTO SETUP FAILED" message appears. If this message appears, repeat the auto setup procedure up to three times.

If after retrying three times, you are unable to complete the setup, adjust manually by doing manual setup (see page 65), or contact the Display Business Unit (DBU) helpline.

└──┘

If, after you perform auto setup, the display is still distorted, adjust by doing manual setup described in Appendix A.

13 Press **F3** to exit the color-bar pattern.

14 Type `clear` at the AIX command prompt and press **Enter** to perform setup on black level.

15 Push one of the brightness (☼) control buttons and select the item **BLACK SETUP**.

16 Push one of the contrast (◑) control buttons. After about 10 seconds, the message "Save parameters?" is displayed.

17 To save the settings for the monitor, push a contrast control button. To discard the settings, push one of the brightness (☼) control button.

```
┌─ If "BLACK SETUP FAILED" is displayed ─────────────┐
│                                                     │
│  If the message "Save parameters?" is not displayed or BLACK │
│  SETUP does not start, do the following:            │
│                                                     │
│   1. Confirm that the screen is completely black except for the │
│      command prompt.  If not, type clear and press Enter. │
│                                                     │
│   2. Go back to step 15 and redo black setup.       │
│                                                     │
│   3. If black setup is not completed after several tries, adjust │
│      OFFSET R, OFFSET G, OFFSET B in the manual-adjust menu │
│      (see page 75).                                 │
│                                                     │
└─────────────────────────────────────────────────────┘
```

18 Set the power management mode whenever necessary. (See "The Setup Main Menu" on page 71 for power management mode.)

19 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto Setup for the GXT150P (RS/6000 Model 40P) Adapter

To perform auto setup for the GXT150P (RS/6000 Model 40P) Adapter:

1 Insert the "IBM RISC System/6000 Model 40P, System Management Service Diskette" into drive A of the RS/6000 Model 40P Adapter. Turn on the power.

2 When the Power Personal System panel is displayed, press **F4**. The screen remains blue until the RS/6000 is ready. This is not a problem.

> **If an error message is displayed**
>
> If the message "UNSUPPORTED VIDEO" is displayed or nothing is displayed at all, check that:
>
> The video interface cable is connected properly.
>
> The screen resolution and the vertical frequency of RS/6000 are within the supported screen resolutions in the table on page 82. If not, refer to your RS/6000 manuals, AIXwindows manuals, or online help to set the resolution and frequency to the values of the table.

3 From the main menu of System Management Service, select **3. Test The Computer**. Then press **Enter**.

Wait for about 15 minutes, until the monitor warms up.

Note: If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

> **About the panels**
>
> The RS/6000 panels differ according to the diagnostic software level.

4 In the Select Device Test menu, push the spacebar to erase the mark displayed with **Test All Subsystems**. Use the ↓ key to place the cursor on **GTP150P**. Push the spacebar to select **GXT150P**. Then press **F6**.

5 Use the ↓ key to select **2. Run Monitor Service Aids** in the IBM GXT150P Graphic Adapter menu. Press **Enter**.

6 When **GXT150P Information** is displayed, press **Enter**.

7 When the color-bar pattern is displayed, push the setup switch on the back of the monitor:

The setup main menu appears on top of the color-bar pattern:


```
    MENU1/8      MAIN 1
◑CONTRAST  20  ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖·········
☼BRIGHT     30  ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

  AUTO SETUP    OFF
  AUTO DETECT   ON
  BLACKSETUP    OFF

(i) |-  ☼  +|-  ◑  +
Quit|↕Select◉| Start
```
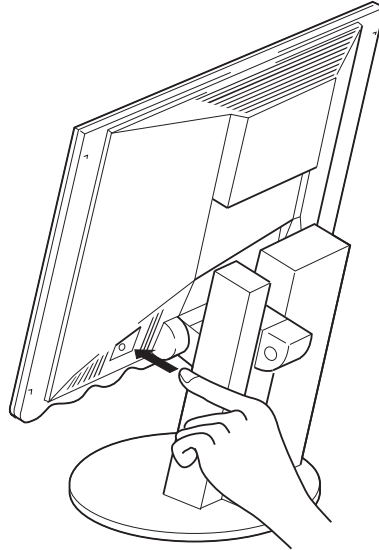
8 Push one of the contrast (◑) arrow buttons.

9 The messages are automatically displayed in the following sequence:
"OFF"→"READY"→ "START"→"COMPLETED"
and auto setup is complete.

If the screen flickers, go back to step 7 on page 52 and redo the setup
several times until flickering is minimized. If the problem persists,
adjust manually by doing manual setup (see Appendix A).

The screen might be distorted during setup. This is not a problem.

If, after you perform the auto setup, the display is still distorted, perform the manual setup described in Appendix A.

10 Check the following for the color-bar pattern. If there is anything wrong, push one of the contrast (◑) control buttons and repeat the auto setup procedure.

The color bars appear as in the following figure. The colors must be bright and clear.
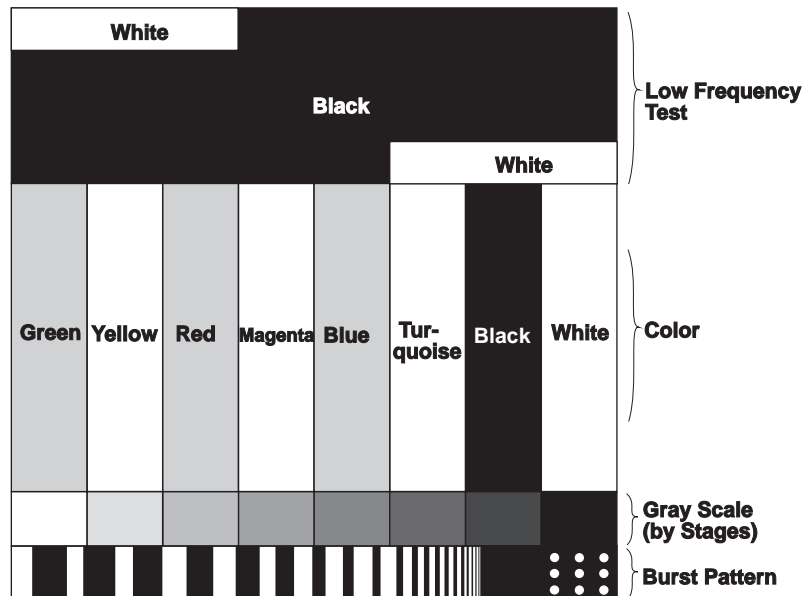
There is no interference in the upper low frequency section, and the boundary between black and white is clear.

11 Set the power management mode whenever necessary. (See "The Setup Main Menu" on page 71.)

12 Push the setup switch on the back of the monitor to turn off the setup main menu.

13 Press **Enter** to exit the color-bar pattern. **GXT150P Information** is displayed again.

14 Press **Enter**. The entire screen is displayed in red.

15 Press **Enter**.

16 Press **Enter** six times. Make sure the entire screen is displayed in the
following sequence:
Green → blue → white → black → *8×6 grid pattern* → *8×10 grid
pattern*.

17 When **GXT150P Information** is displayed, press **Enter**.

18 When the IBM GXT150P Graphic Adapter menu is displayed, press
Esc.

19 When the "Test Completed" message is displayed, press **Enter**.

20 When **Select Device to Test** is displayed, press **Esc** to exit.

21 When the System Management Service panel is displayed, press **F3**.

22 Select **Reboot**.

23 Remove the diskette from drive A.

24 When "Do you want to restart the computer?" is displayed, select **Yes**
and press **Enter**.

You have completed the monitor setup.

Auto Setup for the Sun Workstation

This procedure, using the setup option diskette, which displays a color-bar pattern before the setup main menu, is recommended for better image quality. If, however, something goes wrong and the diskette is stuck in the middle of this procedure, perform Appendix B, "Quick Setup" on page 67.

Notes:

 1. The screen resolution 1280 ×1024 is available in some Sun video cards. When you use such a card, change the standard screen resolution from 1152×900 to 1280×1024 on the workstation.

 2. If you use OpenWindows with the screen resolution 1280×1024, perform auto setup as follows. Otherwise, perform quick setup (see page 67).

To perform auto setup for the Sun workstation:

 1 Set the screen resolution to 1280×1024. Refer to your Sun workstation manuals, Open Windows manuals, or online help to set the mode.

> **How to set the screen resolution (for your reference)**
>
> 1. Connect the CRT monitor.
>
> 2. Power on the Sun workstation.
>
> 3. Press the **STOP** key and **A** key simultaneously during the system boot. The "OK" prompt is displayed.
>
> 4. Type `setenv output-device screen:r128 ×1 24×67` and press **Return**.
>
> 5. Type `reset` and press **Return**.
>
> The resolution is set to 1280×1024, and the vertical frequency is set to 67 Hz.

 2 Turn on the monitor.

 3 Turn on the Sun workstation. The screen remains blue until the Sun workstation is ready. This is not a problem.

> **If an error message is displayed**
>
> If the message "UNSUPPORTED VIDEO" is displayed or nothing is displayed at all, check that:
>
> The video interface cable is connected properly.
>
> The screen resolution and the vertical frequency of Sun workstation are within the supported screen resolutions in the table on page 82. If not, refer to your Sun workstation manuals, Windows manuals, or online help to set the resolution and frequency to the values of the table.

4 Log in as the root user. If you start the system from the command prompt, start the Open Windows after login.

Wait for about 15 minutes, until the monitor warms up.

Note: If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72). The power management function is not supported on Sun workstations.

5 If the terminal emulator in the command prompt window has not started yet, start the emulator.

6 Type `cd /` from the command prompt of the terminal emulator, and press **Enter**.

7 Insert the diskette labeled "Setup Option Diskette (for Solaris)" into the Sun workstation's diskette drive A. Type `tar -xvf /dev/fd` and press **Enter**.

The application programs included in the setup option diskettes are only for displaying color-bar patterns. They are not for changing the display driver.

8 Type `./xcolorbar` and press **Enter**.

9 If "Can't allocate color" is displayed:

 a. Stop other programs.
 b. Enter the commands in step 7 again.
 c. Type `./xcolorbar` and press **Enter**.

If, after a few seconds, the setup main menu appears and starts automatically, go to step 12. If it does not appear and start automatically, go to the next step.

10 When the color-bar pattern appears, push the setup switch on the back of the monitor:

The setup main menu appears on top of the color-bar pattern:

11 Push one of the contrast (◑) control buttons.

12 The messages are automatically displayed in the following sequence:
"OFF"→"READY"→"START"→"COMPLETED"
and auto setup is complete.

If the screen flickers, go back to step 10 and redo the setup several times until flickering is minimized. If the problem persists, adjust manually by doing manual setup (see page 65).

The screen might be distorted during setup. This is not a problem.

```
┌─── If "AUTO SETUP COMPLETED" is not displayed ───┐
│                                                              │
│  When the setup main menu is still on the screen, go back to step │
│  11.  Otherwise, go back to step 10 and repeat the auto setup     │
│  procedure.  If the setup procedure does not complete successfully, │
│  an "AUTO SETUP FAILED" message appears.  If this message         │
│  appears, repeat the auto setup procedure up to three times.     │
│                                                              │
│  If after retrying three times, you are unable to complete the setup, │
│  perform manual setup (see page 65), or contact the Display      │
│  Business Unit (DBU) helpline.                                  │
│                                                              │
└──────────────────────────────────────────────────┘
```

If, after you perform auto setup, the display is still distorted, perform the manual setup described in Appendix A.

13 Check the following for the color-bar pattern. If there is anything wrong, go back to step 10 and redo the setup.

The color-bar pattern appears as follows. The colors must be bright and clear.
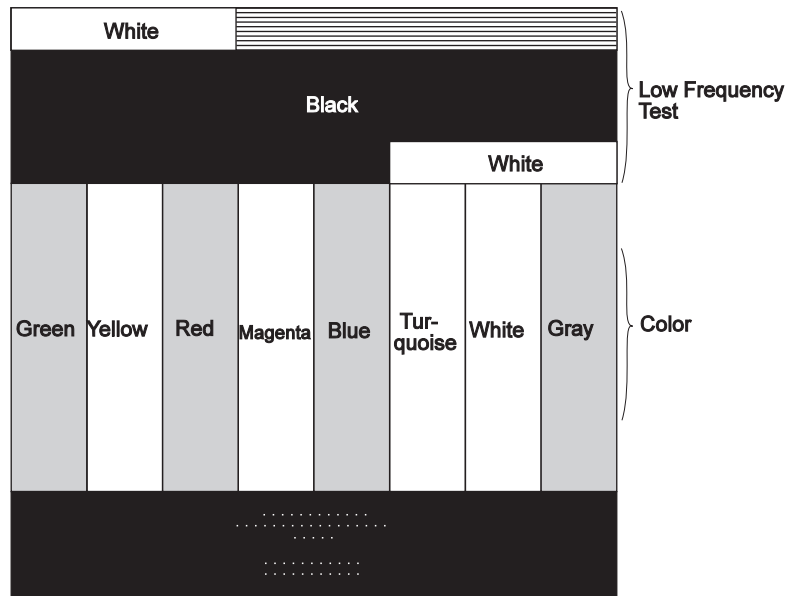
There is no interference in the upper low frequency section, and the boundary between black and white is clear.

14 Press any key to exit the color-bar pattern.

15 Push the setup switch on the back of the monitor to turn off the setup main menu.

You have completed the monitor setup.

Auto setup for HP Workstation

This procedure using the setup option diskette, which displays a color-bar pattern before the setup main menu, is recommended for better image quality. If, however, something goes wrong and the diskette is stuck in the middle of this procedure, perform Appendix B, "Quick Setup" on page 67.

Perform auto setup as follows, when setting the screen resolution to 1280×1024. Otherwise, perform Appendix B, "Quick Setup" on page 67.

1 Turn on the power of the monitor, then the workstation.

2 Log in as a route user.

Wait about 15 minutes until the workstation reaches the normal operating temperature.

> **Note:** If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of **STANDBY** on page 72).

3 If the terminal emulator (command prompt window) has not yet started, start it now.

4 Type `cd \` at the terminal emulator command prompt and then press **Return**. You can use any current directory.

5 Insert the diskette labeled "Setup Option Diskette (For HP)," shipped with the monitor, into the diskette drive. Type `tar -xvf /dev/fd` and press **Return**.

The device names `fd` may vary by workstation model. You can list the device names by typing `ls /dev/floppy/` and pressing **Return**.

> **Note:** The program contained in the setup option diskette is used only to change the color of the color-bar pattern. It does not change the display driver.

6 Type `./xcolorbar` and press **Return**. The color-bar pattern appears.

> **Note:** The standard commands of **uncompress** and **xwud** are needed to run this shell script.

7 Press the setup switch on the back of the monitor.
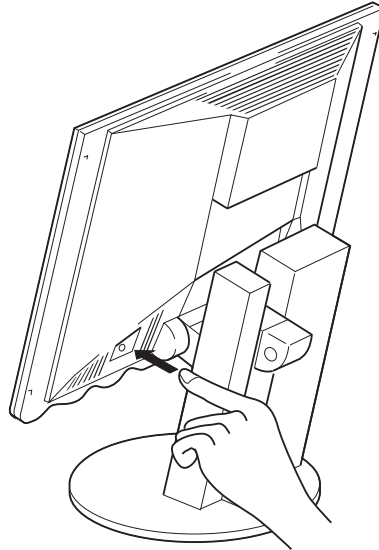
The setup main menu appears in front of the color-bar pattern:

Note:

If the screen becomes distorted momentarily during setup, do not worry. This is not a problem.

If the distortion continues, go back to the beginning of this step.

If it still persists, perform manual setup (see page 65).

8 Select AUTO SETUP and press the contrast button (◑). "OFF" automatically changes to "READY" and then to "COMPLETED," and setup ends automatically.

If the screen flickers, go back to step 7 and redo the setup several times until flickering is minimized. If the problem persists, perform manual setup on page 65

The screen might be distorted during setup. This is not a problem.

If "AUTO SETUP COMPLETED" is not displayed

Go back to the beginning of this step and repeat the auto setup procedure. If the setup procedure does not complete successfully, an "AUTO SETUP FAILED" message appears. If this message appears, repeat the auto setup procedure up to three times.

If after retrying three times, you are unable to complete the setup, perform manual setup on page 65 or contact the Display Business Unit (DBU) helpline.

If, after you perform the auto setup, the display is still distorted, perform manual setup on page 65.

9 Press the setup switch on the back of the monitor to exit the setup main menu.

10 Make sure that the color-bar pattern is as follows:

The color-bar pattern appears as in the following figure. The colors must be bright and clear.

There is no interference in the upper low frequency section, and the boundary between black and white is clear.
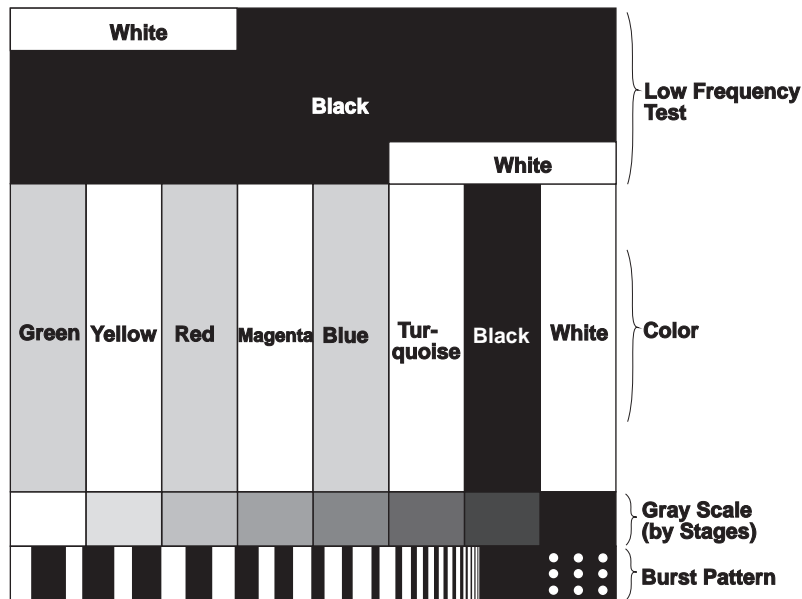
11 Press **q** to end the color pattern.

12 Push the setup switch on the back of the monitor to turn off the setup main menu.

13 Enter the following if you no longer need the files in the hard disk:

```
rm xbar.xwd
rm xcolorbar
```

You have completed the monitor setup.

Appendix A. Manual Setup

Normally, you can complete the setup procedure using auto setup. However, if your screen image is still distorted after you perform auto setup, perform manual setup.

1 Wait for about 15 minutes, until the monitor warms up.

  Note: If the monitor is in standby mode ("STANDBY ON"), it might automatically turn off while you are waiting for it to warm up. Exit standby mode (refer to the explanation of STANDBY function on page 72) by setting STANDBY OFF.

2 Display the image you most frequently use on the screen.

3 Push the setup switch on the back of the monitor.

4 Push one of the brightness (☼) control buttons and select the item CLOCK in the manual-adjust menu (see page 75). Then push one of the contrast (◐) control buttons to reduce the number of vertical lines on the screen.

5 Push one of the brightness (☼) control buttons, and select the item H-POSI to adjust the horizontal display position. Likewise, select the item V-POSI to adjust the vertical display position.

6 Push one of the brightness (☼) control buttons and select the item PHASE, and adjust the contrast to reduce the distortion on the screen.

7 Select SAVE. Then push one of the contrast (◐) control buttons to save the settings. The color of the characters "SAVE" changes from red to yellow, and back to red again.

8 Push the setup switch on the back of the monitor to exit the menu.

65

Appendix B. Quick Setup

This procedure does not display a color-bar pattern before the setup main menu. To obtain better image quality, you should perform auto setup according to the procedures on the preceding pages with the setup option diskettes for PC-DOS, Window 3.1, Windows 95, Windows NT, OS/2, RS/6000, AIXWindows, or OpenWindows on Sun Workstation (if the diskettes do not run, perform this quick setup).

For the HP Workstaion, if you are unable to perform auto-setup with the diskettes, perform the quick setup without them.

For other systems, use this quick setup procedure.

1 Turn on the monitor and the PC and wait for about 15 minutes until the machines warm up.

> **Note:** Check that the screen resolution and the frequencies are within the supported screen resolutions on page 82. If not, change the settings on the computer to set them within the range.

2 Start the operating system on your PC.

3 Display a full-screen image.

> **A full-screen image is needed**
>
> Auto setup of the monitor involves detecting the conditions at the vertical and horizontal edges of the screen. Therefore, you need a full screen image to perform proper auto setup. You also need a clear contrast between the brightest part of the screen and the darkest for correct adjustment. Otherwise, the screen may flicker. If necessary, try to display some other full-screen image.
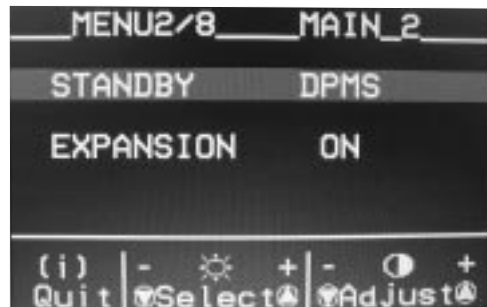
4 Push the setup switch on the back of the monitor.
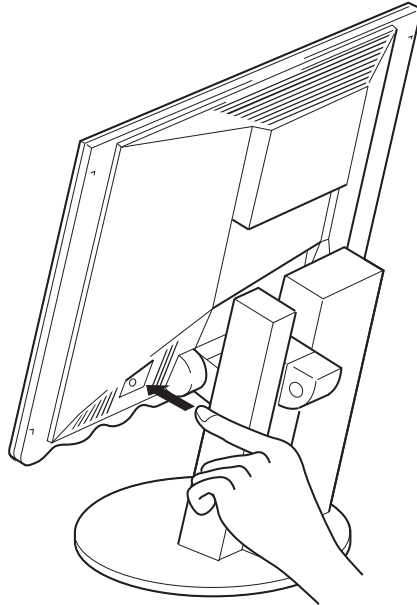
The setup main menu appears:

5 Push one of the brightness control (☼) buttons to select AUTO SETUP.

6 Push one of the contrast control (◑) buttons. After about 10 seconds, the message "Save parameters?" is displayed.

7 To save the settings for the monitor, push a contrast control button. To discard the settings (because some problem such as a screen flicker occurs), push a brightness control button.

> **If the "Save Parameters?" message is not displayed**
>
> If the "Save Parameters?" message is not displayed or the auto setup value "START" does not change, push the contrast control button to exit auto setup and go back to step 4. Display another full-screen image and redo auto setup. If auto setup is not completed after several tries, perform manual setup (see page 65).

If, after you save the settings, the display is still distorted, adjust "PHASE" and "CLOCK" on manual setup described on page 65.

┌─ **If you are using a workstation** ──────────────┐

If you are using a workstation, the screen appears greenish because the black level is shifted due to the difference of the voltage level of the video signals. If this happens, adjust OFFSET G in the manual-adjust menu (see page 75).

└──┘

8 Push the setup switch on the back of the monitor to turn off the setup main menu.

Appendix C. The Setup Menus

The setup menus provide the functions to optimize the monitor status and to set the standby (power-management) mode. This appendix describes the contents of the menus and explains how to use them.

There are eight pages in the menus:

The setup main menu (2 pages)
The manual-adjust menu (4 pages) (See page 75.)
The system reset menu (1 page) (See page 77.)
The information menu (1 page) (See page 78.)

The Setup Main Menu

Use the setup main menu to set the following functions:

Auto setup Adjusts the monitor to conform with your PC characteristics and optimizes the monitor status.

Power saving
Saves power by automatically turning off the screen when it is not used.

Screen size Selects the screen size.

Brightness control ☼
Adjusts the brightness of the screen.

Contrast control ◑
Adjusts the contrast of the screen.

Using the Main Menu

1 Push the setup switch on the back of the monitor.

The following menu is displayed:

```
   MENU1/8      MAIN_1
◑CONTRAST 20 ||||||||||||||------
☼BRIGHT    30 |||||||||||||||||||||

  AUTO SETUP    OFF
  AUTO DETECT   ON
  BLACKSETUP    OFF

  (i) | -  ☼  + | -  ◑  +
 Quit |▼Select▲|  Start
```

2 Push one of the brightness control (☼) buttons to select an item to set.

If you push and hold the (−) brightness control button, the second page of the main menu is displayed.

```
___MENU2/8_____MAIN_2___

STANDBY       DPMS

EXPANSION     ON

(i)   |-  ☼  +|-  ◑  +
Quit |▼Select▲|▼Adjust▲
```

Function   ***Explanation***

CONTRAST: Adjust contrast. This parameter works the same as the contrast adjustment described in "Adjusting the Brightness and Contrast" on page 12. You can set values from 0 to 30.

BRIGHT: Adjust brightness. This parameter works the same as the brightness adjustment described in "Adjusting the Brightness and Contrast" on page 12. You can set values from 0 to 30.

AUTO SETUP: To start auto setup, select this item and push one of the contrast (◑) buttons.
("START"→"COMPLETED" are displayed in sequence until auto setup is complete.)

AUTO DETECT: For DOS, Windows, OS/2, or AIX windows, to enable auto setup to start automatically, specify ON. This is the normal setting.

BLACK SETUP: To adjust the black level of the screen during auto setup if the monitor is used with the RS/6000 and GT4 Adapter, select this item. This only works with the screen resolution 1280×1024.

STANDBY: Set the number of minutes without any input from keyboard, mouse, brightness (☼) buttons, or contrast (◑) buttons before the monitor enters power-saving mode. Specify OFF if you do not use this function. See "Saving Power with Standby Mode" on page 73 for more details.

You can set the following values: OFF, 5, 10, ..., 60, DPMS.

72

EXPANSION:	To display a screen with resolution less than 1280×1024 (the resolution of the monitor), select the size you want by specifying one of the following:	
	ON:	Displays a full screen. This is the normal selection.
	OFF:	Displays the screen specified by your PC.
	USER:	Enables you to set the screen size by specifying H-size and V-size in the manual-adjust menu (see page 75).
	This setting can be set and saved for each screen resolution.	

3 Push one of the contrast (◐) buttons to change the function or value for that item.

4 Push the setup switch to exit from the main menu. The values you set are automatically stored.

Saving Power with Standby Mode

Case A

To use the power-saving function of your PC, set STANDBY in the main menu to DPMS. The monitor then enters standby mode by receiving signals from your PC.

Case B

If there is no power-saving function in your computer, you can set the time before the monitor enters standby mode with the STANDBY parameter in the setup main menu. You must connect the keyboard, mouse, and the optional keyboard/mouse cable (P/N:83H7859) to the connectors at the rear of the monitor.

The following table shows the power dissipation and the state of indicators when the monitor is in standby mode:

Mode	Power Dissipation	Case A (DPMS Mode)	Standby Indicator	Power Indicator	Case B
Normal operation	55 W (Max)		Off	On	
Standby mode	18 W	No horizontal sync signal input	On	On	Set time (5 to 60 minutes)
Power-off mode	8 W	No vertical sync signal input	On	On	10 minutes after entering standby mode
Notes:					

Notes:

1. When the monitor status changes from standby mode to normal operation, the standby indicator blinks.

2. For the time in case A, see the manuals of your computer.
   In case B, the monitor automatically enters power-off mode if there is no input for 10 minutes after entering standby mode.

The Manual-Adjust Menu

You can run the following functions from the manual-adjust menu:

Decreasing the noise, such as the noise on the screen
Adjusting the hue
Adjusting the display position and size on the screen

If the message "Quit without saving?" is displayed

The message "Quit without saving?" is displayed if you specify the
settings in the manual-adjust menu and try to exit the menu. Select
SAVE VALUES to store the values and exit, or select **Quit** to exit without
saving them.

Function	*Explanation*
PHASE:	When there are visual noises on the edges of characters and graphics, adjust this parameter to suppress the noise. You can set values from 0 to 23.
CLOCK:	Adjust this parameter to suppress the display of vertical stripes. (This parameter adjusts the frequency of the sampling analog video signal from your PC.)
SHARP:	Adjust to eliminate some of the high frequency composition in the video signal. You can set values from 0 to 255. (Do not set this normally.)
RED:	Adjust this parameter to change the red hue level of the screen. You can set values from 0 to 255.
GREEN:	Adjust this parameter to change the green hue level of the screen. You can set values from 0 to 255.
BLUE:	Adjust this parameter to change the blue hue level of the screen. You can set values from 0 to 255.
OFFSET R:	When there are red noises on the black part of the screen, adjust this parameter to suppress it. You can set values from 0 to 255.
OFFSET G:	When there are green noises on the black part of the screen, adjust this parameter to suppress it. You can set values from 0 to 255.
OFFSET B:	When there are blue noises on the black part of the screen, adjust this parameter to suppress it. You can set values from 0 to 255.

H-POSI: Adjust this parameter to change the horizontal position of the screen. The values you can set depend on your PC.

V-POSI: Adjust this parameter to change the vertical position of the screen. The values you can set depend on your PC.

H-SIZE: If the screen resolution is less than 1280×1024 (the resolution of the monitor), adjust the horizontal size.

                 The value you can set varies with the resolution.

V-SIZE: If the screen resolution is less than 1280×1024 (the resolution of the monitor), adjust the vertical size.

                 The value you can set varies with the resolution.

SAVE VALUES:
                 Use this parameter to store the values you set in the manual-adjust menu. Otherwise, the values you set are erased when you exit the menu.

LOAD DEFAULT VALUES:
                 Use this parameter to restore all the values in the manual-adjust menu to the settings of auto setup. (If auto setup was not performed, the values are restored to the original settings when the monitor was shipped.)

System Reset Menu

SYSTEM RESET: Use this parameter to restore all the values to the original settings when the monitor was shipped.

Information Menu

You can display the following in the information menu:

The frequency and the polarity of the video signal from your PC
The screen resolution of the video signal from your PC
The version number of the control program installed in the monitor

You can see this information, but you cannot change the values.

To display the information menu, push and hold one of the brightness control
(⛭) buttons.

The following is an example of the information displayed:

```
MENU8/8     INFORMATION
H-FREQUENCY    64.26 KHz
V-FREQUENCY    60.28 Hz
SYNC POLARITY  H:-  V:-
SYNC TYPE       SEPERATE
RESOLUTION     1280x1024
SOFTWARE VERSION  4.04

(i)  | -  ☼  + | -  ◑  +
Quit |▼Select▲
```
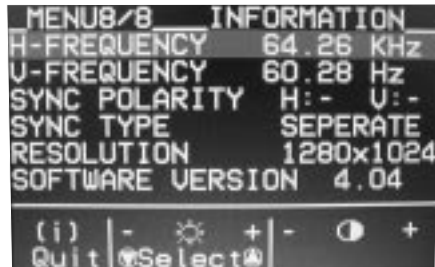
Function   ***Explanation***

H-FREQUENCY: The frequency of the video signal (horizontal sync signal) from your PC.

V-FREQUENCY: The frequency of the video signal (vertical sync signal, or refresh rate) from your PC.

SYNC POLARITY:
The polarity of the video signal from your PC.
H stands for the horizontal sync signal, and V stands for the vertical sync signal.

SYNC TYPE: The type of the video signal from your PC.

RESOLUTION: The resolution of the video signal from your PC.

SOFTWARE VERSION:
The version number of the control program installed in the monitor.

Appendix D. Troubleshooting

About the LCD

The LCD contains over 3,900,000 thin-film transistors (TFTs). A small number of missing, discolored, or lighted dots may be present on the screen, which is an intrinsic characteristic of the TFT LCD technology and is not an LCD defect. If there is a problem with the LCD, contact the DBU helpline.

Appendix E. Specifications

RGB input connector	BNC jack
Video input impedance (RGB)	75 ohms
Video amplification	$0.7V_{p-p}$, $1.0V_{p-p}$(composite)
Input voltage (AC Adapter)	100 to 127 V rms 50/60 Hz 200 to 240 V rms 50/60 Hz
Power dissipation (max)	55 W
Power dissipation (in power-off mode)	8 W

Sync Signal Type

The following Sync signal types are supported:

Separate sync (TTL level)

Sync on green

Composite sync (TTL level)

Note: Some types of composite sync signals are not supported.

Supported Screen Resolutions

The following table shows the supported screen resolutions:

Type	Screen Resolution (H × V)	Hsync (KHz)	Vsync (Hz)
VGA	640 × 350 (NI)	30 – 40	69 – 88
	640 × 400 (NI)	30 – 40	55 – 88
	640 × 480 (NI)	30 – 66	59 – 120
	720 × 350 (NI)	30 – 40	69 – 88
	720 × 400 (NI)	30 – 40	55 – 88
SVGA	800 × 600 (NI)	34 – 76	55 – 120
	800 × 600 (I)	30 – 40	43 – 50
832 mode	832 × 624 (NI)	48 – 50	73 – 75
XGA	1024 × 768 (NI)	48 – 80	59 – 100
	1024 × 768 (I)	30 – 40	40 – 50
SUN and others	**1152 × 864** (I)	40 – 60	45 – 50
	1152 × 882 (I)	40 – 60	45 – 50
	1152 × 864 (NI)	60 – 90	60 – 90
	1152 × 870 (NI)	60 – 90	60 – 90
	1152 × 882 (NI)	60 – 90	60 – 90
	1152 × 900 (NI)	60 – 90	60 – 90
SXGA	1280 ×1024 (I)	40 – 60	40 – 50
	1280 × 1024 (NI)	64 – 80	60 – 75

Notes

NI: Noninterlaced   I: Interlaced

The resolutions shown in bold characters (1152×864, 870, 882) are displayed with 1152×900.

All values in this table assume a the video frequency of 135 MHz or less.

Note: The input video signal to this monitor should correspond with the screen resolutions, Hsync frequencies and Vsync frequencies shown in the table.

Default Preset Timing

The monitor retains the following timing parameters for "Clock," "Hsync," "Vsync," and "Total Dots" as default values. The monitor automatically selects the corresponding values to the video signal from your PC.

Screen Resolution (Horiz. × Vert.)	Timing			
	Clock (MHz)	Hsync (KHz)	Vsync (Hz)	Total Dots (Horiz. × Vert.)
640 × 400	25.18	31.47	70.09	800 × 449
640 × 480	25.18	31.47	59.94	800 × 525
720 × 400	28.32	31.47	70.09	900 × 449
640 × 480	31.50	37.86	72.81	832 × 520
640 × 480	31.50	37.50	75.00	840 × 500
640 × 480	30.24	35.00	66.67	864 × 525
800 × 600	36.00	35.16	56.25	1024 × 625
800 × 600	40.00	37.88	60.32	1056 × 628
800 × 600	50.00	48.08	72.19	1040 × 666
800 × 600	49.50	46.88	75.00	1056 × 625
832 × 624	57.28	49.73	74.55	1152 × 667
1024 × 768 (I)	44.90	35.52	43.48	1264 × 817
1024 × 768	65.00	48.36	60.00	1344 × 806
1024 × 768	75.00	56.48	70.07	1328 × 806
1024 × 768	78.75	60.02	75.03	1312 × 800
1024 × 768	80.00	58.14	72.00	1376 × 808
1024 × 768	80.00	60.24	74.93	1328 × 804
1152 × 864 (I)	64.99	44.88	47.34	1448 × 9470
1152 × 864	80.00	59.94	59.98	1456 × 916
1152 × 864	107.67	67.29	74.77	1600 × 900
1152 × 870	100.13	68.77	75.00	1456 × 915
1152 × 900	94.50	61.85	66.00	1528 × 937
1152 × 900	108.00	71.81	76.64	1504 × 937
1280 × 1024	111.52	63.17	59.77	1765 × 1057
1280 × 1024	112.00	63.45	60.02	1765 × 1057
1280 × 1024	112.00	63.63	60.26	1760 × 1056
1280 × 1024	120.00	70.75	67.00	1760 × 1056
1280 × 1024	135.00	79.98	75.03	1688 × 1066
1280 × 1024 (I)	79.92	49.95	43.43	1600 × 1149
1280 × 1024	117.00	71.69	67.19	1632 × 1067
1280 × 1024	135.00	81.13	76.11	1664 × 1066
(I): Interlace mode				

Note: The Hsync and Vsync frequencies in this table are not the only ones to be displayed. Refer to the table on page 82 for the supported frequencies. The parameters that you set through AUTO SETUP on the main menu or through the manual-adjust menu are saved in the monitor memory. Up to 25 settings can be stored.

Appendix F. Graphic Adapters

The monitor supports the screen resolutions shown in the table on page 82.

Adapters for RS/6000

The following are examples of graphic adapters for RS/6000:

POWER Gt3i Graphic Adapter

POWER Gt4, POWER Gt4x, POWER Gt4e, POWER Gt4i, POWER Gt4xi Graphic Adapters

POWER GXT150, POWER GXT150M, POWER GXT150L, POWER GXT150P Graphic Adapters

POWER GXT500, POWER GXT500D Graphic Adapters

POWER GXT1000 Graphic Adapter

POWER GXT110P Graphic Adapter

POWER GXT250P, POWER GXT255P Graphic Adapters

POWER GXT500P, POWER GXT550P Graphic Adapters

POWER GXT800P Graphic Adapter

E15/S15 Graphic Adapter

Adapters for Other PCs

The following are examples of graphic adapters for other PCs:

#9 FX Motion 771 Graphic Adapter (Number Nine Visual Tec. Co.)

#9 Imagine 128 Pro Series 1 (Number Nine Visual Tec. Co.)

ATI 3D EXPRESSION

MGA Millenium 4 MB VRAM (Matrox Graphics Inc.)

MGA Mystique (Matrox Graphics Inc.)

PC750, PC720, PC330, Aptiva series, or other IBM PCs that have installed the following video chips or the Millenium video cards manufactured by Matrox Graphics Inc.

- ATI 3D RAGE
- Cirrus GD5436
- Cirrus GD5446
- S3 Vision 864
- S3 Trio 64V+
- Trident 9680XGI

NEC PC-98 series only, which supports the mode of the 640×400 screen resolution and the 31.5 KHz horizontal frequency.

Appendix G. Video Cables

For PC and Sun workstations:

System	Part Number	Connector to System	Connector to 9516 Monitor
PC	58F2901	15 pin D-Sub	5×BNC
Sun workstation	Video cable for Sun	For Sun	5×BNC or 4×BNC

For RS/6000:

Graphic Adapter	Part Number	Feature Number	Connector to System	Connector to 9516 Monitor
E15	58F2901	4217	15-D	5×BNC
GT3/GT4 series	58F2903	N/A	13W3	3×BNC
GXT110P	58F2901	4217	15-D	5×BNC
GXT150 series	09G3539	4214	13W3	3×BNC
GXT150M	09G3539	4214	13W3	3×BNC
GXT250P/255P	39H8682	4239	15-D	3×BNC
GXT500/500D	09G3539	4214	13W3	3×BNC
GXT500P/550P	09G3539	4214	13W3	3×BNC
GXT800P	58F2901	4217	15-D	5×BNC
GXT1000	09G3539	4214	13W3	3×BNC
S15	58F2901	4217	15-D	5×BNC

Appendix H. Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of the intellectual property rights of IBM may be used instead of the IBM product, program, or service. The evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, are the responsibility of the user.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
500 Columbus Avenue
Thornwood, NY 10594
U.S.A.

Trademarks

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

IBM	Operating System/2
AIXwindows	OS/2
GXT150	RS/6000
GXT1000	

The following terms are trademarks or service marks of other companies:

HP is a trademark of Hewlett-Packard Company.

Microsoft   Microsoft Corporation

Sun, Solaris, and Open Windows are trademarks of Sun Microsystems Corporation.

VESA   Video Electronics Standards Association

Windows, Windows NT, and the Windows 95 flag logo are trademarks or registered trademarks of the Microsoft Corporation.

Other company, product, and service names, which may be denoted by a double asterisk (**), may be trademarks or service marks of others.

Energy Saving

IBM participates in the International Energy Star Program, a U.S. program that promotes power saving on computer monitors. IBM has determined that IBM 9516-B03 or B13 Color LCD Monitor's built-in power-saving function conforms to the program standards.

IBM