

Color Monitor



E54

Operating Instructions

English

IBM E54 Color Monitor Users Guide

6331-07N

6331-97N

6331-47N

6331-67N

Edition 1

This publication could contain technical inaccuracies or typographical errors. Changes are made periodically to the information herein; these changes will be made in later editions. IBM may make improvements and/or changes in the product(s) and/or program(s) at any time.

It is possible that this publication may contain reference to, or information about, IBM products (machines and programs), programming, or services that are not announced in your country.

Requests for copies of this publication and for technical information about IBM products should be made to your IBM Authorized Dealer or IBM Retailer.

No part of this publication may be reproduced or distributed in any form or by any means without prior permission in writing from the International Business Machines Corporation.

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 IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights or other legally protectable rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by IBM, are the user's responsibility.

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.

Trademarks

The following terms, used in this publication, are trademarks or service marks of the IBM Corporation in the United States or other countries:

IBM HelpCenter

- ENERGY STAR[®] is a U.S. registered mark.
- DDC[™] is a trademark of the Video Electronics Standard Association.
- VESA is a trademark of Video Electronics Standard Association.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies.
- Furthermore, “™” and “®” are not mentioned in each cases in this manual.

**© Copyright International Business Machines Corporation 2001.
All rights reserved.**

**International Business Machines Corporation
New Orchard Road, Armonk, NY 10504**

Note to U.S. Government Users--Documentation related to restricted rights--Use, duplication, or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

Table of Contents

Precautions	US-1
Installation	US-1
Maintenance	US-1
Transportation	US-1
Use of the Tilt-Swivel	US-1
Power Connection Information	US-1
Identifying Parts and Controls	US-2
Unpacking Procedure	US-3
Repacking	US-3
Setup	US-3
Step 1: Install the monitor	US-3
Step 2: Connect your monitor to your computer	US-3
Step 3: Connect the power cord	US-4
Step 4: Turn on the monitor and computer	US-4
Workplace Preparation	US-4
Using the On-Screen Menu	US-5
Individual Adjustment	US-6
Technical Features	US-8
Preset modes	US-8
Note for Windows users	US-8
Power saving function	US-8
Troubleshooting	US-8
Self-Diagnosis Function	US-9
Specifications	US-9
Service Information	US-11

PRECAUTIONS

Installation

Do not install the monitor in the following places:

- on surface (rugs, blankets, etc.) or near materials (curtains, draperies, etc.) that may block the ventilation holes.
- near heat sources such as radiators or air ducts, or in a place subject to direct sunlight.
- in a place subject to severe temperature changes.
- in a place subject to mechanical vibration or shock
- on an unstable surface.
- near equipment which generates magnetism, such as a transformer or high voltage power lines.
- near or on a magnetically charged metal surface.
- in a small space around the top, bottom and sides of the monitor that may block the ventilation holes.

Maintenance

- Clean the cabinet, panel and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent, such as alcohol or benzine.
- Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as a ballpoint pen or screwdriver. This type of contact may result in a scratched picture tube.
- Clean the screen with a soft cloth. If you use a glass cleaning liquid, do not use any type of cleaner containing an anti-static solution or similar additive as this may scratch the screen's coating.

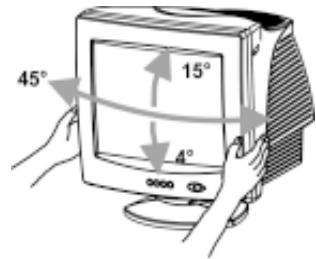
Transportation

When you transport this monitor for repair or shipment, use the original carton and packing materials.

Use of the Tilt-Swivel

This monitor can be adjusted within the angles shown below.

Hold the monitor at the bottom with both hands when you turn it horizontally or vertically. Be careful not to pinch your fingers at the back of the monitor when you tilt the monitor up vertically.



Note

Do not remove the tilt-swivel base from the monitor.

Power Connection Information

- Use an appropriate power cord for your local power supply.

Example of plug types:



for 100 to 120 V AC



for 200 to 240 V AC



for 240 V AC only

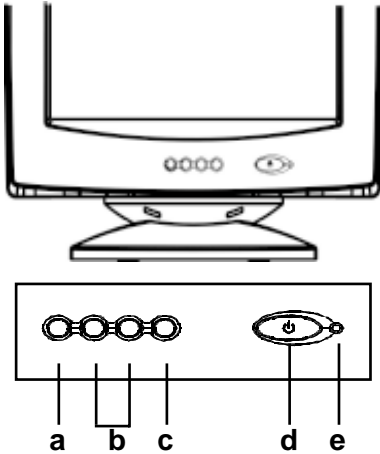
- Before disconnecting the power cord, wait at least 30 seconds after turning off the power to allow the static electricity on the CRT display surface to discharge.
- After the power has been turned on, the CRT is demagnetized (degaussed) for a few seconds. This generates a strong magnetic field around the metal frame, which may affect the data stored on magnetic tapes and disks near the bezel. Place magnetic recording equipment, tapes, and disks away from this monitor.

The equipment should be installed near an easily accessible electrical outlet.

IDENTIFYING PARTS AND CONTROLS

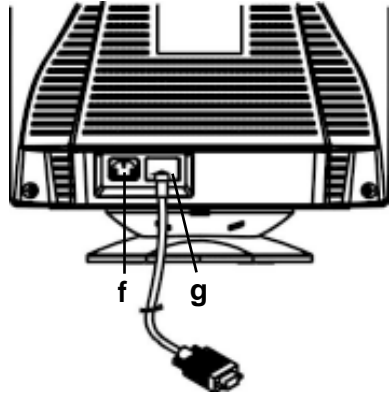
See the pages in parentheses for further detail.

Front

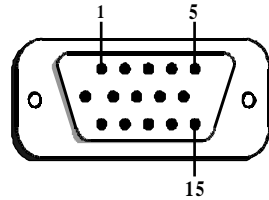


- a. Displays menu & exits menu
- b. Scrolls through menu to choose an icon for adjustment / Adjusts level of selected icon
- c. Confirms menu selection
- d. Power ON/OFF switch
- e. Power LED

Rear



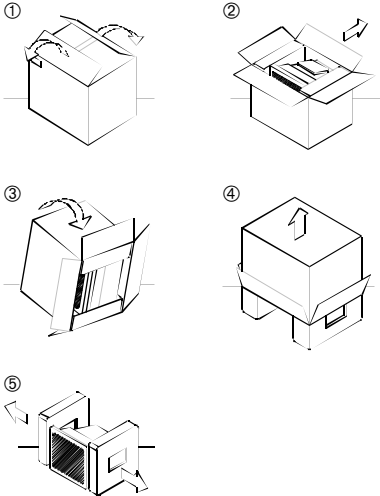
- f. AC input connector
This connector provides AC power to the monitor.
- g. Video input cable
Inputs RGB video signals (0.700 Vp-p, positive) and sync signals.



Pin	Function	Pin	Function
1	Red signal	9	+5V (from computer)
2	Green signal	10	Digital ground
3	Blue signal	11	Ground
4	Ground	12	SDA (DDC1/DDC2B)
5	NC (*NOTE)	13	Horizontal Synchronization
6	Red return	14	Vertical synchronization & VCLK (DDC1)
7	Green return	15	SCL (DDC 2B)
8	Blue return		

***NOTE:** This pin is used for self test detection; at MONITOR side, this pin has to be connected to ground.

UNPACKING PROCEDURE



REPACKING

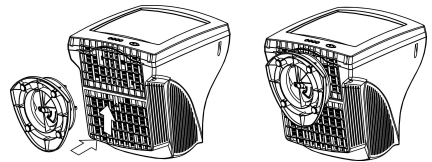
Save the original box and all packing material for future shipping needs.

SETUP

This monitor works with platforms running at horizontal frequencies between 30 and 69 kHz.

Step 1: Install the monitor

- To connect the tilt/swivel base to the monitor, align hooks with the sockets on bottom side of the monitor, and gently push the base towards the front of the monitor.
- Put monitor on a flat and stable working bench.



Step 2: Connect your monitor to your computer

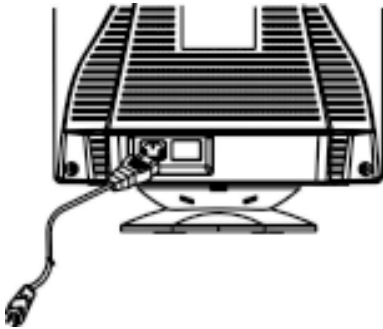
- Turn off the monitor and computer before connecting. Connect the video signal cable to the video output of your computer
- The 15-pin D-shell signal connector on the signal cable will connect easily to the video adapter output on your personal computer. Tighten both screws on the connector to ensure a firm connection.

Note

- Do not touch the pins of the video signal cable connector as this might bend the pins.
- When connecting the video signal cable, check the alignment of the video input connector. Do not force the video input connector in the wrong way or the pins might bend.

Step 3: Connect the power cord

With the monitor and computer turned off, first connect the proper power cord for your local supply to the monitor, then connect it to a properly grounded power outlet.



Step 4: Turn on the monitor and computer

- Turn the monitor power switch ON. Then turn the MONITOR power switch ON, by pressing the switch inward. The green power indicator will light up.
- Allow about 30 seconds for the CRT tube to warm up. Data will be displayed on the screen.
- If your display fails to function properly, please first refer to the section "Troubleshooting" in this manual.



Workplace Preparation

Positioning the Monitor

Choose a suitable place to position the monitor where it is not near fluorescent desk lighting or any equipment that produces magnetic field that could cause interference.

Ensure that the furniture or equipment can support the weight of the monitor. Allow at least 2 inches (50 mm) ventilation space around the monitor.

Height

The monitor should be positioned so that the top of the screen is slightly below your eye level when you sit at your workstation.

Orientation

Choose a position that gives the least reflection from lights and windows, usually at a right angle to any windows. The monitor should be positioned directly in front of you so that you do not have to twist your body. Tilt the monitor to a comfortable viewing angle.

Working Practices

Rest

Take regular breaks. Vary your posture, and stand up and stretch occasionally as prolonged use of computer workstations can be tiring.

Back

You should sit back in the chair and use the backrest.

Hands

Use a light touch on the keyboard, keeping your hands and fingers relaxed. Allow a space in front of the keyboard to rest your wrists when not typing. Consider using a wristpad.

Eyesight

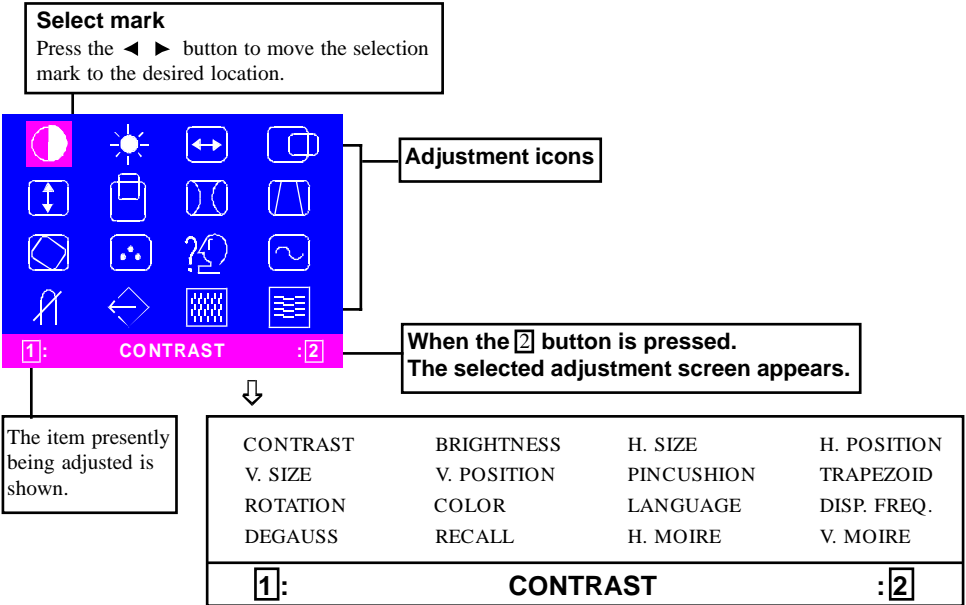
Working with monitor, in common with any kind of prolonged close work, can be visually demanding. Look away from the screen periodically and have your eyesight checked regularly.

Screen settings

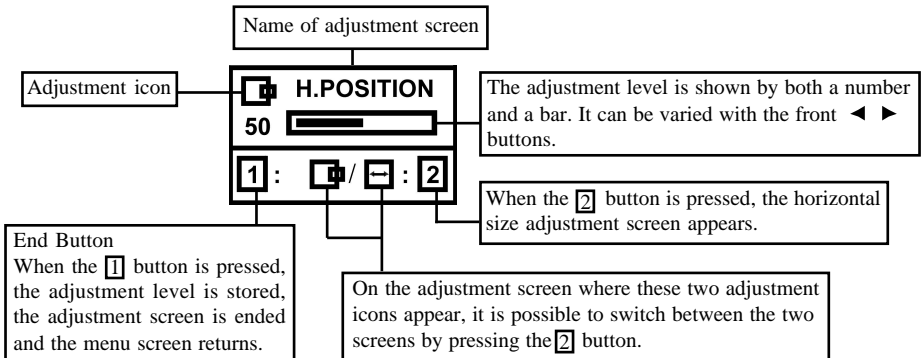
Set the screen brightness and contrast to a comfortable level. You may have to adjust this as the lighting changes during the day. Many application programs let you select color combinations which can help you to view in comfort.

USING THE ON-SCREEN MENU

1) Menu screen-press the [1] button to display the menu below and exit menus



2) Adjustment screen (example: horizontal position adjustment)



NOTE: The amount of adjustment depends upon how long you depress the adjustment button. You may have to tap the button to obtain the desired results.

INDIVIDUAL ADJUSTMENT



CONTRAST adjustment

Adjust the screen contrast to match your personal preference.

Press the ◀ button to decrease contrast and press the ▶ button to increase it.

Direct operation: You can access the

CONTRAST adjustment screen by pressing the ◀ or ▶ before entering the menu screen.

Press the [2] key toggles between CONTRAST and BRIGHTNESS.



BRIGHTNESS adjustment

Adjusts the brightness to get the desired background level.

Press the ▶ button to make the background lighter, the ◀ button to make it darker.

Press the [2] key toggles between CONTRAST and BRIGHTNESS.



HORIZONTAL SIZE adjustment

Fills the viewable area horizontally.

Press the ◀ button to make the image narrower, or press the ▶ button to make it wider.

Press the [2] key toggles between HORIZONTAL SIZE and HORIZONTAL POSITION.



HORIZONTAL POSITION adjustment

Shifts the image on the screen horizontally.

Press the ◀ button to move the screen image to the left, or press the ▶ button to move it to the right.

Press the [2] key toggles between HORIZONTAL SIZE and HORIZONTAL POSITION.



VERTICAL SIZE adjustment

Fills the viewable area vertically.

Press the ◀ button to make the image smaller, or press the ▶ button to make it larger. Press the [2] key toggles between VERTICAL SIZE and VERTICAL POSITION.



VERTICAL POSITION adjustment

Shifts the image on the screen vertically.

Press the ◀ button to move it downward, or press the ▶ button to move it upward.

Press the [2] key toggles between VERTICAL SIZE and VERTICAL POSITION.



PINCUSHION adjustment

The image can be corrected for barrel distortion.

Press the ◀ button or the ▶ button to eliminate curved vertical lines.

Press the [2] key toggles between PINCUSHION and TRAPEZOID correction.



TRAPEZOID adjustment

The image can be corrected for the trapezoidal distortion.

Press the ◀ button to narrow the top edge, or press the ▶ button to make the top edge wider.

Press the [2] key toggles between PINCUSHION and TRAPEZOID correction.



ROTATION adjustment

The image can be corrected for tilted picture.

Press the ◀ button to tilt the image to the left, or press the ▶ button to tilt the image to the right.

**COLOR selection**

The white of the image can be adjusted.

- 1) Use the ◀▶ button to select: (1)9300°K, (2)6500°K or (3)User color.
- 2) If the (3):the user's color is selected, "2" appears in the lower right of the On-Screen Menu.

Press the [2] button to display the USER COLOR adjustment screen.

USER COLOR

The white of the video image can be adjusted to the user's preferred color.

- 1) Use the [2] button to select R (red), G (green) or B (blue).
- 2) Use the ◀▶ button to adjust the color as desired.

IMPORTANT-Memory recall of the user's color is not possible, so take note of the initial setting before adjusting.

When the monitor is turned OFF, user color keeps the last adjustment.

**LANGUAGE selection**

The language of the On-Screen Menu can be selected among English, French, German, Italian and Spanish. Select with the ◀▶ buttons.

**DISP. FREQ (Input frequency display)**

This displays the input synchronization signal frequency.

It identifies the horizontal and vertical frequency sent to the monitor from the video card currently in use.

**MANUAL DEGAUSSING**

After moving the selector to the degauss icon, press the [2] button. The degaussing action takes place a few seconds later.

Note: A sharp snap noise may be heard when degaussing occurs. This is normal.

**MEMORY RECALL**

It is possible to restore adjustments to the original factory settings. If the monitor is operating in a user defined mode, this control has no effect.

**HORIZONTAL MOIRE**

Reduce the dark wavy line Moire pattern on the screen.

Press the ◀ or ▶ button to minimize the horizontal moire image on the screen.

**VERTICAL MOIRE**

Reduce the dark wavy line Moire pattern on the screen.

Press the ◀ or ▶ button to minimize the vertical moire image on the screen.

TECHNICAL FEATURES

Preset modes

Mode	Resolution (H x V)	V. Freq. (Hz)
1	640 x 480	60 (VESA)
2	640 x 480	75 (VESA)
3	640 x 480	85 (VESA)
4	720 x 400	70 (Ind. Standard)
5	800 x 600	60 (VESA)
6	800 x 600	75 (VESA)
7	800 x 600	85 (VESA)
8	1024 x 768	60 (VESA)
9	1024 x 768	75 (VESA)
10	1024 x 768	85 (VESA)

Note for Windows users

For Windows users, check your graphics board manual or the utility program which comes with graphics board and select the highest available refresh rate to maximize monitor performance.

Power Saving Function

The monitor will be driven into "Power Saving" mode by the control signal from the display controller, as indicated by the amber-color power LED.

State	Power Consumption	LED Light
ON	Normal	Green
Active OFF	< 5 W	Amber

The power saving states will be kept until a control signal has been detected or the keyboard or mouse is activated. The recovery time from Active OFF state back to ON state is around 10 seconds.

TROUBLESHOOTING

Before contacting technical support, refer to this section.

Problem	Check & Adjust
Blank screen	<ul style="list-style-type: none"> • Monitor power switch, power cord, signal cable, or connector • Computer power switch • Brightness & contrast controls
Display position off-center	<ul style="list-style-type: none"> • Vertical centering & horizontal phase controls
Display too small or too large	<ul style="list-style-type: none"> • Vertical & horizontal size controls
Display too bright or too dim	<ul style="list-style-type: none"> • Brightness & contrast controls

Refer to the operation instructions of your computer/video adapter to ensure that you have the correct signal output source for the monitor. Ensure that the switches on the video adapter are set correctly for operation with this monitor.

If the above steps fail to correct the problem contact your dealer for servicing by qualified service personnel.

SELF-DIAGNOSIS FUNCTION

This monitor is equipped with a self-diagnosis function. You can easily distinguish if the problem is on the monitor or on the computer by using the monitor's built-in selftest function. With the monitor power ON, disconnect the signal cable from computer. If you see a "NO SIGNAL" image on the screen, the monitor is functioning properly, and the problem is with the MONITOR side or signal cable.



SPECIFICATIONS

Screen Size	15 in. visual diagonal Viewable screen size 13.75 in. Anti-Glare, Anti-Reflective Coating*
Dot Pitch	0.28 mm diagonal 0.24 mm horizontal
Display Area Default	262 x 196 mm (10.31 x 7.72 in.), typical
Full Scan (H x W)	282 x 211 mm (11.1 x 8.31 in.), depends on signal timing
Display Colors	Infinite
Max. Resolution	1280 Dots x 1024 Lines
Compatibility	Graphic modes with horizontal frequencies between 30 KHz to 69 KHz
Synchronization	
Horizontal:	30 to 69 KHz
Vertical:	50 to 120Hz
Bandwidth	110 MHz
Input Signal	Video: RGB Analog Sync.: TTL Separate
Signal Cable	15-pin D-sub connector

US-10

Power Input	
Voltage/	90 to 264 V AC
Frequency	50 - 60 Hz
Current Rating	1.5 A
Power Consumption	75 W (MAX.)
Dimension	370 x 387 x 390 mm
(W x H x D)	(14.6 x 15.2 x 15.4 in.)
Weight	12 kg
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-40°C to 65°C (-40°F to 149°F)
Humidity	20% to 80% (non-condensing)
Altitude	Up to 10000ft

* TCO version has a different surface treatment.

SERVICE INFORMATION

The following parts are for use by IBM services, or IBM authorized dealers, to support customer warranty. Parts are for service use only.

Monitor Information

PART NUMBER	DESCRIPTION	M/T	MODEL	COLOR
22P7922	E54 Monitor MPR-II, NH	6331	07N	Pearl White
22P7923	E54 Monitor TCO-99, NH	6331	97N	Pearl White
22P7924	E54 Monitor MPR-II, NH	6331	47N	Stealth Black
22P7925	E54 Monitor TCO-95, NH	6331	67N	Stealth Black
22P7926	E54 FRU - Tilt/Swivel	- - -	- - -	Pearl White
22P7927	E54 FRU - Tilt/Swivel	- - -	- - -	Stealth Black