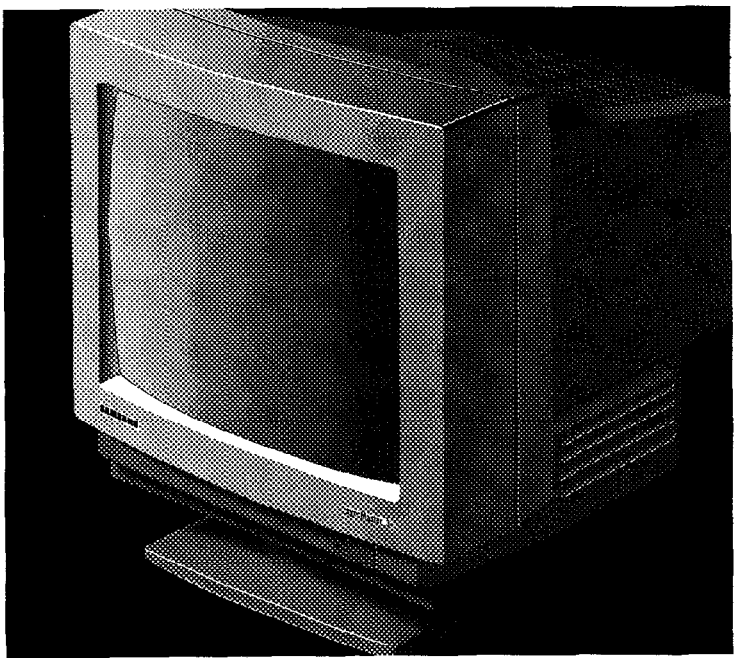
SAMSUNG

SyncMaster 3

36 Cm (14" Diagonal)

Basic:CQA4147
CQA4147L

User's Manual



COLOR DISPLAY UNIT

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Note

— IBM, VGA, XGA, XGA II and PS/2 are registered trademarks of International Business Machines Corporation

— Super-VGA(SVGA) and VESA are registered trademarks of the Video Electronics Standards Association.

INTRODUCTION

FOREWORD

First, we would like to thank you for your purchase of this monitor. This monitor is 14 inch, high resolution, color display monitor. This manual covers the use, and points of caution, when operating this monitor. Please take the time to read this manual so that you will obtain the best performance and most use from your monitor. After reading the manual, store it in a safe place for future reference.

The contents of your monitor carton should contain:

- CQA4147, CQA4147L monitor
- Tilt and swivel stand
- This manual
- Power cord
- 9-15 pin signal cable

MPR II compliance

Model numbers with a "L" suffix comply with SWEDAC (MPR **II)** recommendations for reduced electric and magnetic fields.

FEATURES

- 36 cm (14") [33.5 cm (13.2") visual] high performance CRT.
  -Available in 0.28 mm dot pitch
- Automatically scans frequencies from 31.47KHz / 70Hz, 31.47KHz / 60Hz, 35.52KHz / 87Hz, 37.86KHz / 72.8Hz, 35.16KHz / 56Hz, 37.88KHz / 60.3Hz. 37.50KHz / 75Hz.
- Compatible with a wide variety of video standards including VGA, IBM 8514/A (XGA), and Super-VGA.
- Supports VESA flicker-free modes.
- Size and position controls are located up front for easy and accurate adjustment.
- The optional tilt and swivel stand may be attached to provide a variety of viewing angles, or not attached if limited workspace is a consideration.
- Power supply operates on AC 100 - 240 Volt 60/50Hz for use all over the world.
- Your display has been designed to operate on all power systems, including "IT" power systems.
- **Power Management System**
  Power management circuit, when signaled by the computer system, will reduce power consumption when the computer system is not in use.

FCC, IC AND SAFETY INFORMATION

FCC INFORMATION

INSTRUCTIONS TO USER

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

INFORMATION TO USER

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet helpful, prepared by the Federal Communications Commission. "How to Identify and Resolve Radio/TV Interference Problems" This booklet is available from the U.S. Government Printing Office, Washington, D.C.20402, Stock number 004-000-00345-4.

WARNING

User must use properly shielded power supply cord and interface cables to comply with the requirements of the FCC.

Provided with this monitor is a detachable power supply cord with IEC320 style terminations. It may be suitable for connection to any UL Listed personal computer with similar configuration. Before making the connection insure that the voltage rating of the computer convenience outlet is the same as the monitor and that the ampere rating of the computer convenience outlet is equal to or exceeds the monitor current rating.

For 120 Volt applications use only UL Listed Detachable Power cord with NEMA configuration 5-15P type (parallel blades) plug cap. For 240 Volt applications use only UL Listed Detachable power supply cord with NEMA configuration 6-15P type (tandem blades) plug cap.

IC COMPLIANCE NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations of ICES-003.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement ICES-003 sur le Matériel brouilleur du Canada.

WARNING AND CAUTIONS

The lightning flash and arrowhead within the triangle is a warning sign alerting you of “dangerous voltage” inside the product.

The exclamation point within the triangle is a warning sign alerting you of important instructions accompanying the product.

CAUTION

RISK OF ELECTRIC SHOCK.
DO NOT OPEN

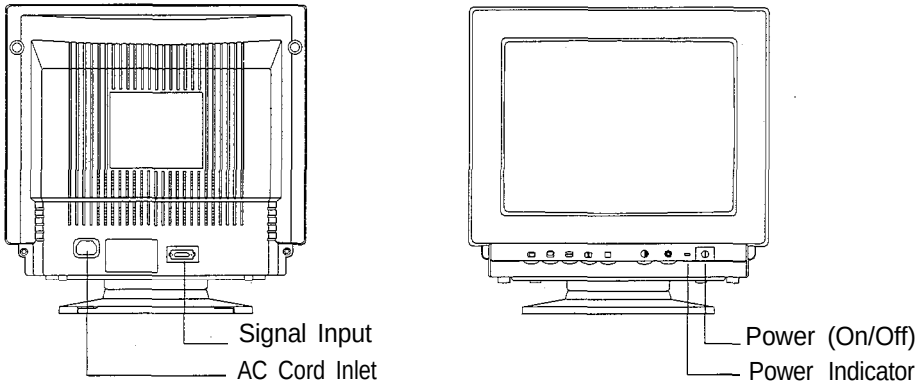
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

SAFETY TIPS

1. Make sure the voltage designation on your monitor corresponds to local electrical supply before connecting the AC power cord to an outlet.
2. To avoid electric shock, never touch the inside of the monitor. Only a qualified technician should open the monitor's case.
3. Never use your monitor if the power cord has been damaged. Do not allow anything to rest on the power cord, and keep the cord away from where people will walk on it.
4. Be sure to hold the plug, not the cord, when disconnecting the monitor from an electric socket.
5. Openings in the monitor cabinet are provided for ventilation. To prevent overheating, these openings should not be blocked or covered. Also, avoid using the monitor on a bed, sofa, rug, or other soft surface, because doing so may block the ventilation openings in the bottom of the cabinet. If you put the monitor in a bookcase or some other enclosed space, be sure that adequate ventilation is provided.
6. Never insert anything metallic into the monitor openings. Doing so may create a danger of electric shock.
7. Put your monitor in a location with low humidity and a minimum of dust. Avoid places like damp basements or dusty hallways.
8. Do not expose the monitor to rain or use it near water (in kitchens, next to swimming pools, etc.). If the monitor accidentally gets wet, unplug it and contact an authorized dealer immediately. You can clean the monitor with a damp cloth when necessary, but be sure to unplug the monitor first.
9. Place the monitor on a solid surface, and treat it gently. The screen is made of glass and can be damaged if dropped or hit sharply.
10. If your monitor does not operate normally; in particular, if there are any unusual sounds or smells coming from it, immediately unplug it and contact an authorized dealer.
11. High temperatures can cause trouble. Don't try to use your monitor in direct sunlight, and keep it away from heaters, stoves, fireplaces and other sources of heat.
12. Unplug the monitor when it is going to be left unused for an extended period of time.
13. Unplug your monitor from the AC outlet before any service.
14. Install your AC outlet near the monitor and be sure to be easily accessible.

OPERATING GUIDE

CONNECTING TO YOUR COMPUTER



This monitor can be connected to any IBM compatible analog display adapter.
Such adapters include VGA, 8514/A, XGA, and the built-in video system of IBM PS/2 computers and compatibles.

To attach the monitor to your system, use the following instructions:

1. Turn off the power to the computer.
2. Insert the AC power cord into monitor and then into an AC power outlet.
3. Connect the 9-pin side of the signal cable to the 9-pin D-SUB connector on the rear side of the monitor.
4. Connect the 15-pin side of the signal cable to the video output port of your video controller.

Note: Please see the connector pin assignment chart for the video controller (video controller manual) and the connector pin assignment chart for the monitor (Page 10 this manual) if the video controller does not have a standard 15 pin D-SUB connector.

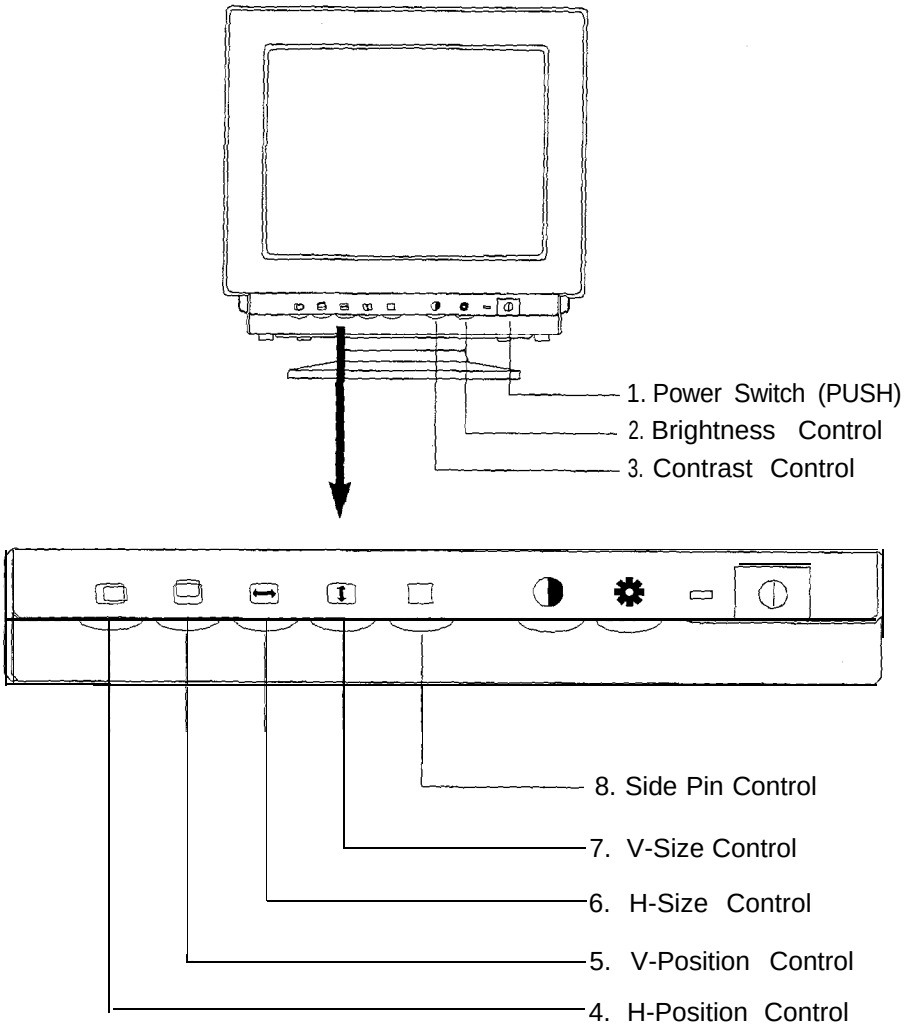
5. Before turning on the power to the monitor and computer, check your computer's owner's manual for instructions about turning on equipment connected to the computer. Also, check for any instructions for your video system when using a multi-sync monitor. In some cases, jumper or switch settings may be required for the video board to output extended resolution modes.
6. To turn on the monitor, push the power switch. The power indicator LED will light. To turn the monitor off, push the power switch once again. The power indicator LED will also turn off.

CONTROL LOCATIONS AND FUNCTIONS

BEFORE OPERATING THE MONITOR

Please take the time to familiarize yourself with the locations and functions of all the monitor's controls so that you can adjust it for the optimum display.

Front View



1. Power Switch

Use to turn monitor power on and off. Push switch once to turn monitor power on. LED power on indicator will also turn on. Push switch once again to turn monitor power off.

2. Brightness Control

Use to adjust the overall brightness of the displayed image.

3. Contrast Control

Use to adjust the contrast level of the displayed image. Contrast controls the difference between dark and light areas of the displayed image.

4. H-Position Control

Adjust this the control for the proper horizontal position (centering) of the display.

5. V-Position Control

Adjust this control for the proper vertical position (centering) of the display.

6. H-Size Control

Adjust this control for the desired horizontal size (width) of the display.

7. V-Size Control

Adjust this control for the desired vertical size of the display.

8. Side Pin Control

Adjust this control, to correct the vertical sides of the display from bowing out (barrel distortion) or bowing in (pincushion distortion).

POWER MANAGEMENT SYSTEM (POWER SAVING FUNCTION)

If your computer system features a display power management function, this monitor, when signaled, will enter power savings modes. The purpose of power management is to automatically reduce power consumption when the computer system is inactive. This monitor can enter 3 different power savings modes as described below.

This monitor is energy star compliant when used with a computer equipped with DPMS (VESA).. If your computer system can not support a display power management function, you may purchase a optional DPMS software program to have power saving function. Please contact SAMSUNG or your dealer for detail information.

Table : Display Power Management Signaling (DPMS) Standard

[redacted]	Normal operation	Power saving function mode	
		Suspend Mode	Power-off Mode
Horizontal Vertical Video	Active Active Active	Active/Inactive Inactive/Active Blanked	Inactive Inactive Blanked
Remark (LED Color)	Green	Orange	Orange, Green Blinking (1 sec interval)
Power Consumption	70W (Max.)	Less than 15W	Less than 8W

Note: This monitor automatically returns to normal operation state when horizontal and vertical sync returns.
When you turn power off in power-off mode, LED indicator may continuously blink on-off about for 2 to 15 seconds.
When power off mode is changed to normal mode in this monitor it takes about 10 seconds until all function of the image operate completely normal.

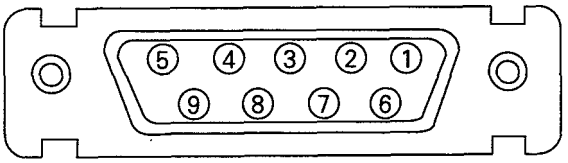
SIGNAL CONNECTIONS AND PIN ASSIGNMENTS

D-SUB CONNECTOR

The 9 pin D-SUB connector can be used with the supplied 9-15 pin cable.
The 15 pin side connects to any IBM compatible VGA video port, the 9 pin side to the monitor's connector.

D-SUB Signal Input (Female Type : Figure)

PIN ASSIGNMENT	SIGNALS
1	RED
2	GREEN
3	BLUE
4	H-SYNC
5	V-SYNC
6	GND-R
7	GND-G
8	GND-B
9	GND-SYNC



[Figure]

TROUBLESHOOTING

Before calling an authorized service center, please check this troubleshooting chart. Many of the problems that can occur are easily corrected without the need of a technician.

TROUBLE CONDITION	POSSIBLE CAUSE	CORRECTIVE MEASURE
Image is not displayed.	Is the power cord connected? Is the power switch ON? Is the signal cable properly connected? Is the Brightness or Contrast adjustment knob turned all the way to one side?	Connect the power cord. Turn on the power switch. Connect the signal cable correctly. Adjust the Brightness and Contrast to the middle position of their range.
Color of image on screen is abnormal.	Is there a magnetized item near? Is the pin arrangement of the signal connector correct? Is the signal cable connected properly?	Move the magnetized item away. Use a signal connector which matches the pin arrangement. Connect the signal cable correctly.
Picture is unstable. (The displayed image is tearing or rolling)	Are there signals, which are outside of the required frequency range? Is the pin arrangement of the signal connector correct? Is the signal cable correctly connected?	Input signals which are within the frequency range of the monitor. Use the signal connector which matches the pin arrangement. Connect the signal cable correctly.
The displayed image is too small or shifted, and the controls can't adjust properly.	Are there signals, which are outside of the required frequency range?	Input signals which are within the frequency range of the monitor.

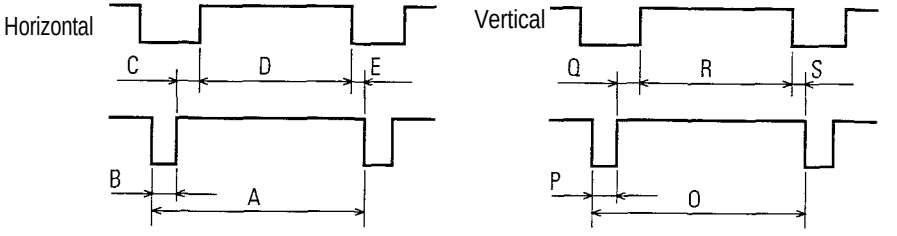
SPECIFICATIONS

- CRT Size ..... 36 cm (14") [33.5 cm (13.2") visual], 90° Deflection
- CRT Screen ..... Non-Glare
- Dot Pitch ..... 0.28 mm
- Scanning Frequency ..... 31.47KHz / 70Hz, 31.47KHz / 60Hz, 35.52KHz / 87Hz. 37.86KHz / 72.8Hz, 35.16KHz / 56Hz, 37.88KHz / 60.3 Hz, 37.50KHz / 75Hz
- Display Colors
  - Analog Input ..... Unlimited Colors
- Maximum Resolution (Interlaced Mode)
  - Horizontal ..... 1024 Dots
  - Vertical ..... 768 Lines
- Input Signal
  - Video Signal ..... Analog (0.7 Vp-p), Positive 75 Ω Terminated
  - Separate Sync ..... TTL level Positive or Negative
  - Video Band Width (Pixel Time) ..... Max. 45MHz
- Power Supply ..... AC 100 - 240Volt ± 10%, 60 / 50Hz ± 3Hz
  - Power consumption ..... 70 Watts (Max.)
- Dimensions/Weight (Approximately)
  - Unit ..... 14.5 x 14.0 x 15.0 inches (H x W x D)/ 23 lbs 2.4 oz (368 x 356 x 379.5 mm / 10.5 kg)
  - Carton ..... 18.2 x 18.0 x 15.7 inches (H x W x D) / 27 lbs 8.9 oz (462 x 457 x 398 mm / 12.5 kg)
- Environmental Considerations
  - Operating Temperature ..... 32°F to 104°F (0°C to 40°C)
    - Humidity ..... 10% to 80%
  - Storage Temperature ..... -4°F to 113°F (-20°C to 45°C)
    - Humidity ..... 5% to 95%

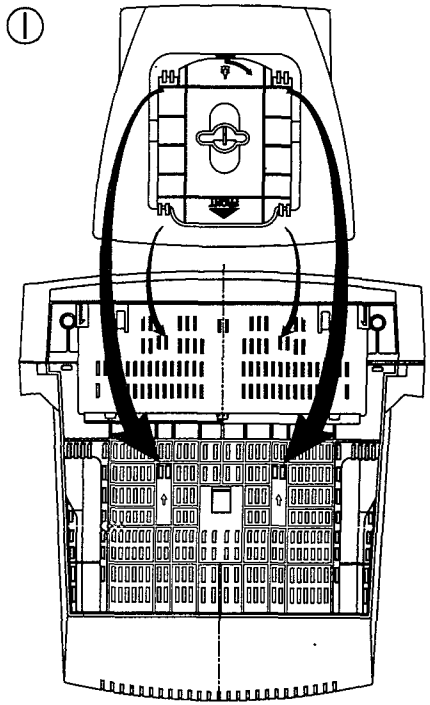
Design and specifications are subject to change without prior notice.

APPENDIX

SIGNAL TIMING CHART



Mode / Timing	IBM				VESA			
	VGA1/7OHz	VGA2/70Hz	VGA3/60Hz	XGA/87iHz	640/72Hz	800/56Hz	800/60Hz	640/75Hz
	640x350	720x400	640x480	1024x768	640x480	800x600	800x600	640x480
fH (kHz)	31 469	31 469	31 469	35 522	37 861	35 156	37 879	37.500
A µsec	31.778	31.777	31.778	28.151	26.413	28.444	26.400	26.667
B µsec	3.813	3.813	3.813	3.920	1.270	2.000	3.200	2.032
C µsec	1.907	1.907	1.907	1.247	4.064	3.556	2.200	3.810
D µsec	25.422	25.422	25.422	22.806	20.317	22.222	20.000	20.317
E µsec	0.636	0.636	0.636	0.178	0.762	0.667	1.000	0.508
fv (Hz)	70.086	70 087	59.940	86 958	72.809	58 250	60 317	75.000
O msec	14.268	14.268	16.683	11.500	13.735	17.778	16.579	13.333
P msec	0.064	0.064	0.064	0.113	0.079	0 057	0.106	0.080
Q msec	1.907	1.080	1.048	0.563	0.739	0.626	0 607	0.427
R msec	11.122	12.711	15.253	10.810	12.678	17.067	15.840	12.800
S msec	1.176	0.413	0.318	0.014	0.237	0.028	0.026	0.027
Clock Fre. (MHz)	25.175	28.322	25.175	44.900	31.500	36.000	40.000	31.500
Polarity								
H. Sync.	Positive	Negative	Negative	Positive	Negative	Pos./Neg.	Positive	Negative
V Sync.	Negative	Positive	Negative	Positive	Negative	Pos./Neg.	Positive	Negative
Remark	—	—	—	Interlaced	—	—	—	—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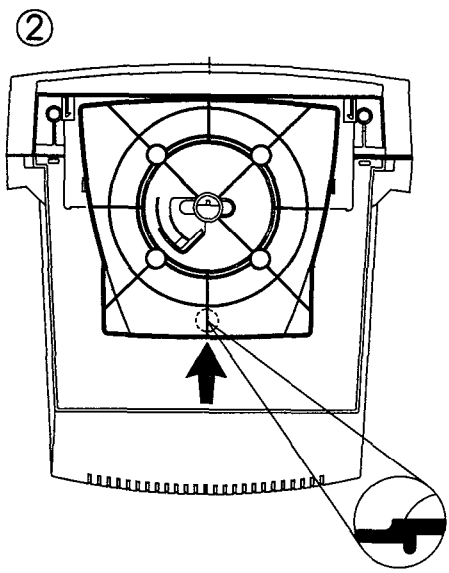
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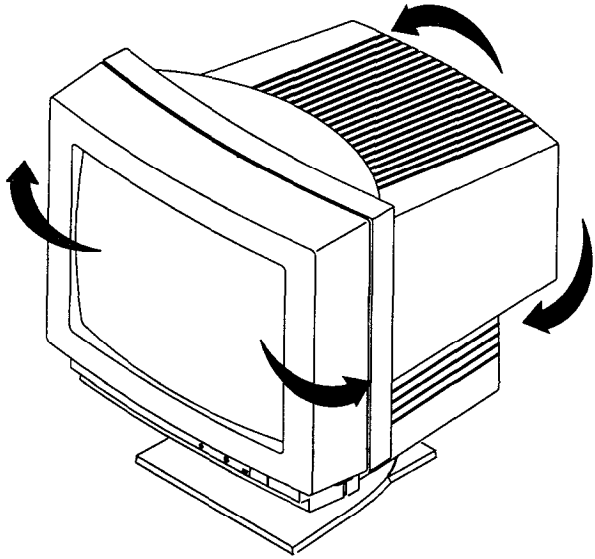

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