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FCC Warning

Class B Computing Device

Information to the User

This equipment has been tested and found to comply with the limits for a class B digital device pursuant to part 15 of 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 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 and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful: "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 No. 004-000-00345-4.

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

NOTE: In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables must be used.

Introduction

Thank you for purchasing a high resolution monitor. It will give you high resolution performance and convenient reliable operation in a variety of video operating modes.

Features

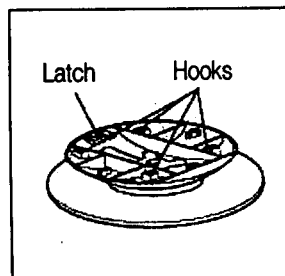
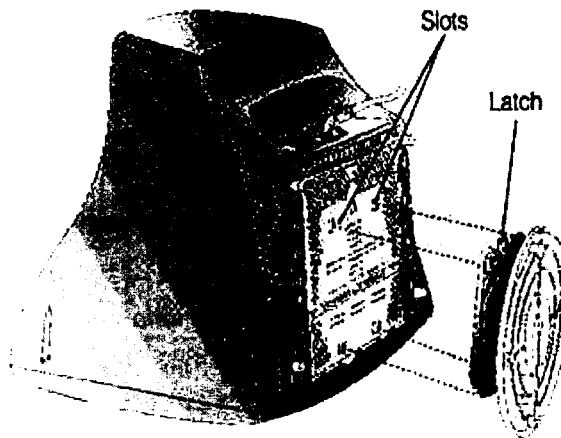
- The monitor is a 15 inches (13.8 inches viewable) intelligent, micro-processor based monitor compatible with most analog RGB (Red, Green, Blue) display standards, including IBM PC®, PS/2®, Apple®, Macintosh®, Centris®, Quadra®, and Macintosh II family.
- The monitor provides crisp text and vivid color graphics with VGA, SVGA, XGA, and VESA Ergonomic modes (non-interlaced), and most Macintosh compatible color video cards when used with the appropriate adaptor. The monitor's wide compatibility makes it possible to upgrade video cards or software without purchasing a new monitor.
- Digitally controlled auto-scanning is done with the microprocessor for horizontal scan frequencies between 30 and 70kHz, and vertical scan frequencies between 50 – 160Hz.
- This monitor is capable of producing a maximum horizontal resolution of 1280 dots and a maximum vertical resolution of 1024 lines.
- The microprocessor-based digital controls allow you to adjust conveniently a variety of image controls by using the OSD (On Screen Display).
- On Screen Display (OSD) adjustments in seven languages: English, German, French, Spanish, Italian, Portuguese, Korean for ease of setup and screen optimization.
- Plug and play capability if supported by your system.
- This monitor has DDC 2B function. *
- Compliant with the following regulated specifications: *
 - EPA Energy Star
 - MPR II

** For detailed information, please refer to the Reference Guide provided.*

Connecting the Monitor

Installation the monitor

- Turn off the equipment and all attached options.
 - Carefully set the monitor face-down with the underside facing you.
1. Align the hooks on the tilt/swivel stand with the matching slots in the base of the monitor.
 2. Insert the hooks into slots.
 3. Slide the tilt/swivel stand toward the front of the monitor until the latches click into the locked position.



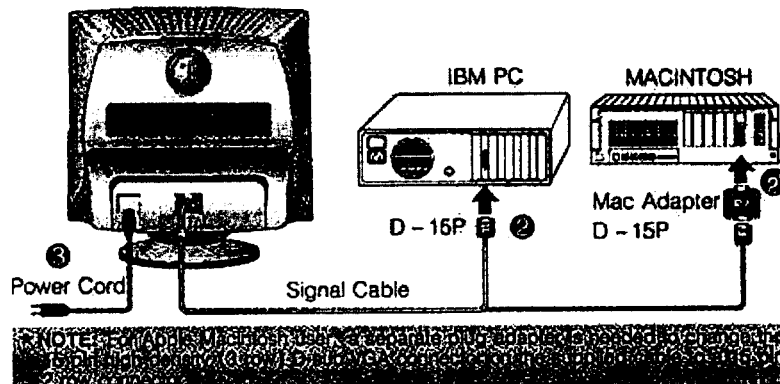
Connecting the Monitor

On the back of the monitor are two plug-in connections; one for the AC power cord, and the other for the signal cable from the video card.

- ① Power off both the monitor and PC.
- ② Connect the 15 pin VGA connector of the supplied signal cable to the output VGA video connector on the PC and the matching input connector on the rear of the monitor. The connectors will mate only one way. If you cannot attach the cable easily, turn the connector upside down and try again. When mated, tighten the thumbscrews to secure the connection.
- ③ Locate the appropriate MAC to VGA adapter block at your local computer store. This adapter changes the high density 3 row 15 pin VGA connector to the correct 15 pin 2 row connection to mate with your MAC. Attach the other end of the signal cable to the side of the adapter block with 3 rows.

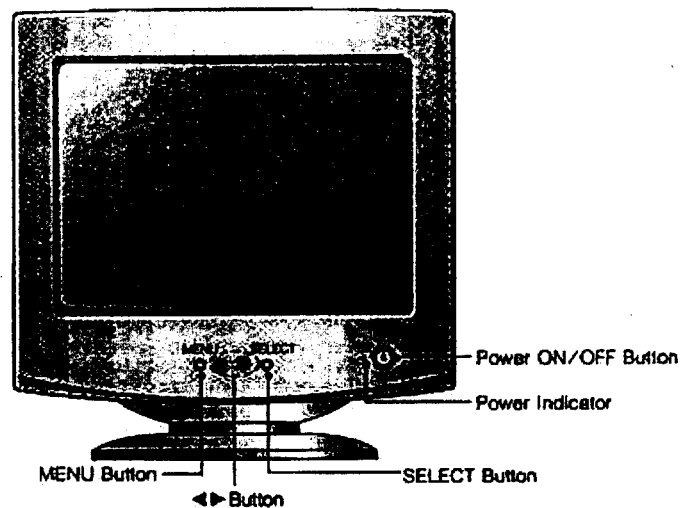
Connect the attached adapter block/signal cable to the video output on your MAC.

- ④ One end of the AC power cord is connected into the AC power connector on the back of the monitor. The other end is plugged into a properly grounded three-prong AC outlet.
- ⑤ Power ON the PC, then the monitor.
- ⑥ If you see the **SELF DIAGNOSTICS** message, check the signal cable and connectors.
- ⑦ After using the system, power OFF the monitor, then the PC.

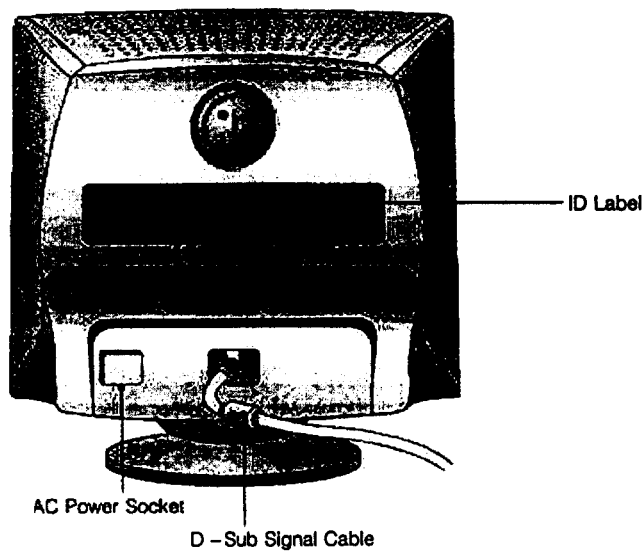


Location and Function of Controls

Front View

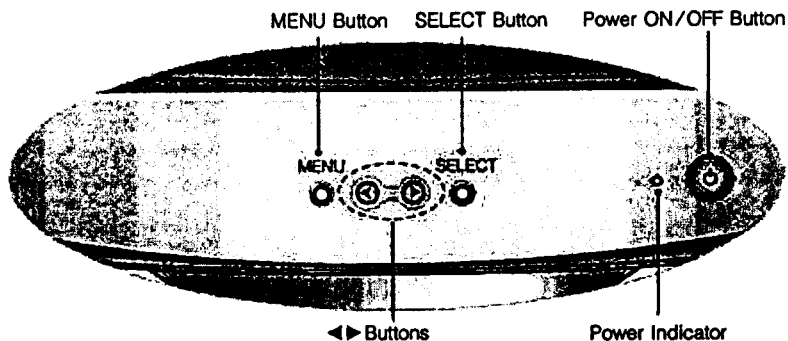


Rear View



Control Panel Function

Front Panel Controls



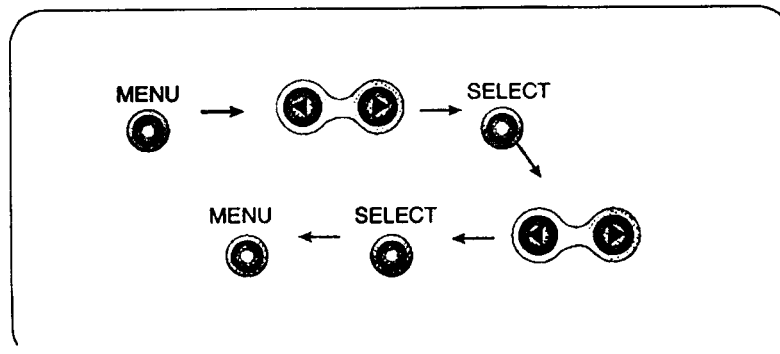
Control	Function
 MENU Button	Use this button to enter or exit the on screen display.
 ◀▶ Button	Use these buttons to choose or adjust items in the on screen display.
 SELECT Button	Use this button to enter a selection in the on screen display.
 Power ON/OFF Button	Use this button to turn the monitor on or off.
 Power Indicator	This Indicator lights up green when the monitor operates normally. If the monitor is in DPM(Energy Saving) mode (standby/suspend/power off), this indicator color changes to amber.

On Screen Display (OSD) Control Adjustment

Making adjustments to the image size, position and operating parameters of the monitor are quick and easy with the On Screen Display Control system. A quick example is given below to familiarize you with the use of the controls. Following section is an outline of the available adjustments and selections you can make using the OSD.

* **Note:** Allow the monitor to stabilize for at least 30 minutes before making image adjustment.

To make adjustments in the On Screen Display, follow these steps:

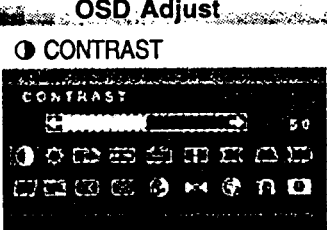
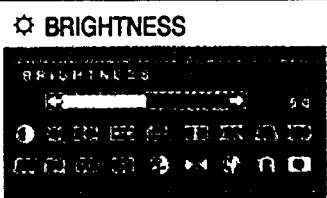
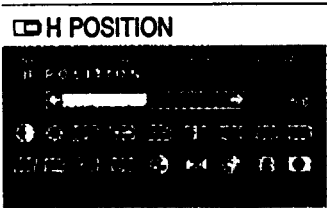
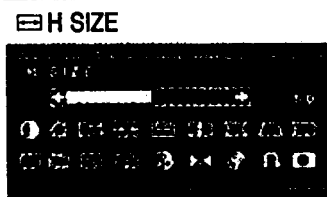
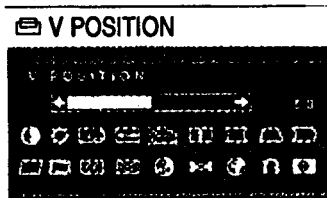


- 1 Press the **MENU Button**, then the main menu of the OSD appears.
- 2 To access a control, use the **◀ or ▶ Buttons**. When the icon you want becomes highlighted, press the **SELECT Button**.
- 3 Use the **◀▶ Buttons** to adjust the item to the desired level.
- 4 Accept the changes by pressing the **SELECT Button**.
- 5 Exit the OSD by Pressing the **MENU Button**.

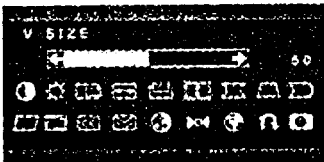
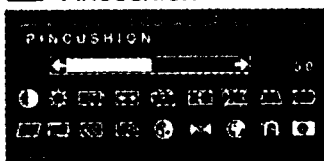
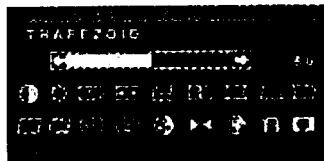
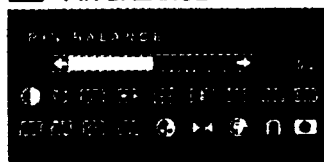
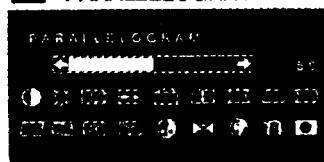
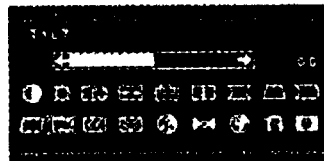
On Screen Display (OSD) Selection and Adjustment

You were introduced to the procedure of selection and adjusting an item using the OSD system.

Listed below are the icons, icon names, and icon descriptions of the items that are shown on the Menu.

OSD Adjust	Description
 The image shows the OSD menu for Contrast. At the top, the word 'CONTRAST' is displayed. Below it is a horizontal slider bar with a central arrow pointing to the right, and the number '50' is shown to its right. At the bottom, there is a row of 16 navigation icons: a circle with a dot, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, and a double right arrow.	Adjust the display to the contrast desired.
 The image shows the OSD menu for Brightness. At the top, the word 'BRIGHTNESS' is displayed. Below it is a horizontal slider bar with a central arrow pointing to the right, and the number '50' is shown to its right. At the bottom, there is a row of 16 navigation icons: a circle with a dot, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, and a double right arrow.	Used to adjust the brightness of the screen.
 The image shows the OSD menu for H Position. At the top, the words 'H POSITION' are displayed. Below it is a horizontal slider bar with a central arrow pointing to the right, and the number '50' is shown to its right. At the bottom, there is a row of 16 navigation icons: a circle with a dot, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, and a double right arrow.	To move picture image left and right. ◀ Moves the screen image left. ▶ Moves the screen image right.
 The image shows the OSD menu for H Size. At the top, the words 'H SIZE' are displayed. Below it is a horizontal slider bar with a central arrow pointing to the right, and the number '50' is shown to its right. At the bottom, there is a row of 16 navigation icons: a circle with a dot, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, and a double right arrow.	To adjust image width. ◀ Decreases the size of the screen image. ▶ Increases the size of the screen image.
 The image shows the OSD menu for V Position. At the top, the words 'V POSITION' are displayed. Below it is a horizontal slider bar with a central arrow pointing to the right, and the number '50' is shown to its right. At the bottom, there is a row of 16 navigation icons: a circle with a dot, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, a double right arrow, a square with a dot, a left arrow, a right arrow, a double left arrow, and a double right arrow.	To move image up and down. ◀ Moves the screen image down. ▶ Moves the screen image up.

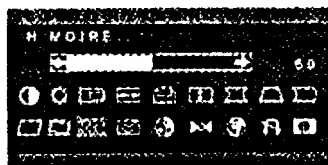
On Screen Display (OSD) Selection and Adjustment

OSD Adjust	Description
 V SIZE 	To adjust image height. ◀Decreases the size of the screen image. ▶Increases the size of the screen image.
 PINCUSHION 	To correct the bowing in and out of the image. ◀Curves the image's edges inwards. ▶Curves the image's edges outwards.
 TRAPEZOID 	To correct geometric distortion. ◀Makes the screen image narrower at the top. ▶Moves the screen image wider at the top.
 PIN BALANCE 	To correct the balance of both sides bowing. ◀Curvature of the sides to the right. ▶Curvature of the sides to the left.
 PARALLELOGRAM 	This control adjusts for a skewing of the screen image. ◀Tilts the screen image leftward. ▶Tilts the screen image rightward.
 TILT 	To correct image rotation. ◀Tilts the screen image left. ▶Tilts the screen image right.

On Screen Display (OSD) Selection and Adjustment

OSD Adjust

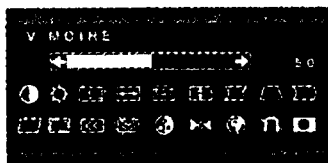
◀ H MOIRE



Description

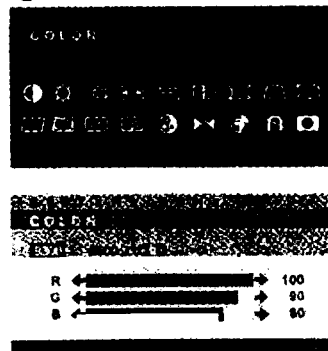
Reduce horizontal moire when interference patterns of dark steady wavy lines appear on your screen. The moire adjustments may affect the focus of the screen.

☑ V MOIRE



Reduce vertical moire when interference patterns of dark steady wavy lines appear on your screen. The moire adjustments may affect the focus of the screen.

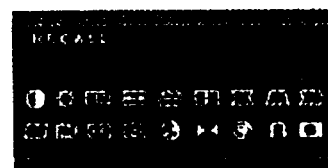
⚙ COLOR



Select the desired color temperature (9300k, 6500k) or select user to set your own color levels(R/G/B).

- 9300 : Slightly bluish white.
- 6500 : Slightly reddish white.
- : To adjust RGB, select the RGB menu and press the SELECT button. Allow for specific adjustments to Red, Green, Blue (R/G/B).
- : To exit the COLOR OSD.

⏮ RECALL



You can use this function when you want to go back to the screen display of the time you purchased the product after adjusting to modify it in the Preset Mode.

If you want more information on the Preset Mode, refer to A11 page.

On Screen Display (OSD) Selection and Adjustment

OSD Adjust

Description

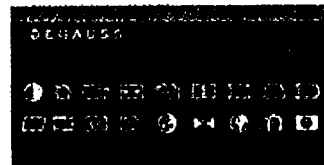
④ LANGUAGE



To choose the language in which the control names are displayed.

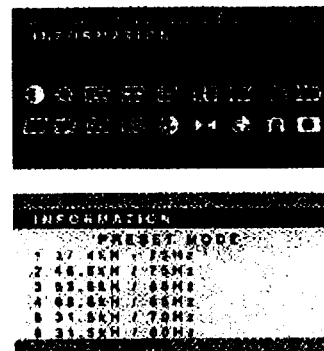
OSD Menus are available in seven languages: English, German, French, Spanish, Italian, Portuguese and Korean.

Ⓜ DEGAUSS



Used to demagnetize the picture to give a more accurate image and color.

① INFORMATION



To inform users of preset and user mode data.

Video Memory Modes

The monitor has 16 memory locations for display modes, 7 of which are factory preset to popular video modes.

Display Modes (Resolution)

Mode	Display Modes (Resolution)	Horizontal Freq. (kHz)	Vertical Freq. (Hz)
1	VESA 640 × 480	37.50	75
2	VGA 720 × 400	31.47	70
3	VESA 800 × 600	46.88	75
4	VESA 800 × 600	53.67	85
5	VESA 1024 × 768	68.677	85
6	VESA 1280 × 1024	63.98	60

User Modes

- Modes 7 – 16 are empty and can accept new video data. If the monitor detects a new video mode that has not been present before or is not one of the preset modes, it stores the new mode automatically in one of the empty modes starting with mode 7.

If you use up the 10 blank modes and still have more new video modes, the monitor replaces the information in the user modes starting with mode 7.

Recalling Display Modes

- When your monitor detects a mode it has seen before, it automatically recalls the image settings you may have made the last time you used that mode.

You may, however, manually force a recall of each of the 6 preset modes by pressing the Recall button.

Troubleshooting

Check the following before calling for service.

SELF DIAGNOSTICS message.

- The signal cable is not connected, or is loose. Check and secure the connection.

OUT OF FREQUENCY message appears.

- The frequency of the signal from the video card is outside the operating range of the monitor.

*Horizontal Frequency: 30 – 70kHz

*Vertical Frequency: 50 – 160Hz

Use the graphics board's utility software to change the frequency setting (Refer to the manual for graphics board).

The power LED is illuminated amber.

- Display power management mode.
- There is no active signal coming from the PC.
- The signal cable is not fastened securely.
- Check the computer power and graphics adapter configuration.

The image on the SCREEN is not centered, or too small, or not a rectangle shape.

- Image adjustment not been done yet in the current operating mode. Use the **MENU**, **SELECT** and **◀▶** buttons to set the image to your liking.

The monitor doesn't enter the power saving off mode (Amber).

- Computer video signal is not VESA DPMS standard. Either the PC or the video controller card is not using the VESA DPMS power management function.

An abnormal picture is displayed on the screen. For example, the upper part of the picture may be missing or dark.

- If using certain non-VESA Standard video card, an abnormal picture may be displayed. Try setting it to one of the factory preset modes, or selecting to a resolution and refresh rate within the specification limits of the monitor.

NOTE

- If the power indicator (LED) light is blinking amber, may result in abnormal condition of the monitor.
- Then press a power ON/OFF button on the front panel control and call your service technician for more information.

Specifications

Picture Tube	15 inch (13.8 inches viewable)
	90 degree deflection
	0.28mm Slot pitch
	ARAS(Anti-Reflective Anti-Static) coating
Sync Input	Horizontal Freq. 30 - 70kHz(Automatic)
	Vertical Freq. 50 - 160Hz(Automatic)
	Input Form Separate TTL, Positive/Negative
Video Input	Signal Input 15 pin D-Sub Connector
	Input Form Separate, RGB Analog, 0.7Vp-p/75 ohm, Positive
	Resolution(Max.) 1280 x 1024@ 60Hz
	Normal(Max.) $\leq 90W$
	Stand-by/Suspend $\leq 15W$
	Power Off $\leq 5W$
	Width 35.6cm/14.02 inches
	Height 37.1cm/14.6 inches
	Depth 39.5cm/15.5 inches
	AC 100-240V 50/60Hz 1.5A
	Net 12.6kg(27.77 lbs)
Operating Condition	
	Temperature 10°C to 40°C
	Humidity 10% to 90% non-Condensing
Storage Condition	
	Temperature 0°C to 60°C
	Humidity 5% to 90% non-Condensing

NOTE

- Information in this document is subject to change without notice and does not represent a commitment on the part of LG Electronics Inc.

DESCRIPTION OF BLOCK DIAGRAM

1. Line Filter & Associated Circuit.

This is used for suppressing noise of power input line flowing into the monitor and/or some noise generated in this monitor flowing out through the power input line. That is to say, this circuit prevents interference between the monitor and other electric appliances.

2. Degauss Circuit & Coil.

The degauss circuit consists of the degaussing coil, the PTC(Positive Temperature Coefficient) thermistor(TH901), and the relay(RL901). This circuit eliminates abnormal color of the screen automatically by degaussing the shadow mask in the CRT during turning on the power switch. When you need to degauss in using the monitor, select DEGAUSS on the OSD menu.

3. SMPS(Switching Mode Power Supply).

This circuit is working of 90~264V AC(50/60Hz).

The operation procedure is as follows:

- 1) AC input voltage is rectified and smoothed by the bridge diodes (D900) and the capacitor (C908).
- 2) The rectified voltage(DC) is applied to the primary coil of the transformer(T901).
- 3) The control IC(IC901) generates switching pulse to turn on and off the primary coil of the transformer (T901) repeatedly.
- 4) Depending on turn ratio of the transformer, the secondary voltages appear at the secondary coils of the transformer(T901).
- 5) These secondary voltages are rectified by each diode(D941, D942, D951, D961, D962, D971) and operate other circuit. (horizontal and vertical deflection, video amplifier, ...etc.)

4. X-ray Protection.

If the high voltage of the FBT reaches up to 29kV (abnormal state), Q807 operates and IC401(MICOM) pin 41 come to low level. Then MICOM control IC701 (Deflection controller) to stop Horizontal drive pulse and stop Horizontal Deflection.

5. Micom(Microprocessor) Circuit.

The operating procedure of Micom(Microprocessor) and its associated circuit is as follows:

- 1) H and V sync signal is supplied from the signal cable.
- 2) The Micom(IC401) distinguishes polarity and frequency of H and V sync.
- 3) The Micom sets operating mode and offers the controlled data. (H-size, H-position, V-size, ... etc.)
- 4) The controlled data of each mode is stored in itself.
- 5) User can adjust screen condition by each OSD function. The data of the adjusted condition is stored in EEPROM(IC402).

6. Horizontal and Vertical Oscillation.

This circuit generates the horizontal pulse and the vertical pulse by taking the H and V sync signal.

This circuit consists of the TDA4841(IC701) and the associated circuit.

7. D/D(DC to DC) Converter.

This circuit supplies DC voltage to the horizontal deflection output circuit by increasing DC 50V which is the secondary voltage of the SMPS in accordance with the input horizontal sync signal.

8. Horizontal Deflection Output Circuit.

This circuit makes the horizontal deflection by supplying the saw-tooth current to the horizontal deflection yoke.

9. High Voltage Output & FBT(Flyback Transformer).

The high voltage output circuit is used for generating pulse to the primary coil of the FBT(Flyback Transformer (T701)). A boosted voltage(about 25.5kV) appears at the secondary of the FBT and it is supplied to the anode, focus, and screen voltage of the CRT.

10. H-Linearity Correction Circuit.

This circuit corrects the horizontal linearity for each horizontal sync frequency.

11. Vertical Output Circuit.

This circuit inputs the vertical ramp wave from the IC701(TDA4841) to the IC601(TDA4866) and amplifies, supplies the saw-tooth current to the vertical deflection yoke(V-DY).

12. H & V Blanking and Brightness Control.

Blanking circuit eliminates retrace line by supplying negative pulse to the G1 of the CRT. And Brightness circuit is used for control of the screen brightness by changing DC level of the G1.

13. Image Rotation (Tilt) Circuit.

This circuit corrects the tilt of the screen by supplying the image rotation signal to the tilt coil which is attached near the deflection yoke of the CRT.

14. Video Pre-Amp Circuit.

This circuit amplifies the analog video signal from 0-0.7V to 0-4V. It is operated by taking the clamp, R, G, B drive and contrast signal from the Micom(IC401).

15. Video Output Amp Circuit.

This circuit amplifies the video signal which comes from the video pre-amp circuit and amplified it to applied the CRT cathode.