CPD-201VS

SERVICE MANUAL
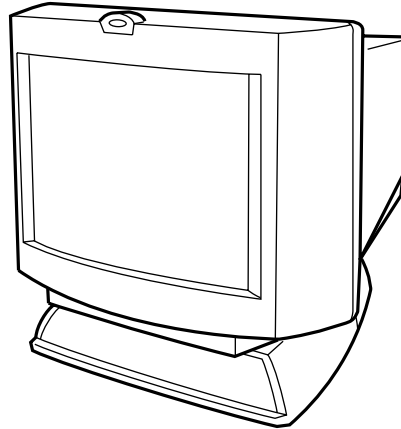
VAIO

V-3 CHASSIS

SPECIFICATIONS

Picture tube	0.25 mm aperture grille pitch, 17 inches measured diagonally (16.0" viewable), 90-degree deflection, AR coating
Viewable image size	Approx. 327×241 mm (w/h) ($12\,^7/_8 \times 9\,^1/_2$ inches) 16.0" viewing image (measured diagonally)
Max. resolution	Horizontal: Max. 1280 dots Vertical: Max. 1024 lines
VESA standards	640×480 at 85 Hz 800×600 at 85 Hz 1024×768 at 85 Hz 1280×1024 at 60 Hz
Deflection frequency	Horizontal: 30 to 70 kHz Vertical: 50 to 120 Hz
Speaker	Left, right: $3.0\,W \times 2$ 50 Hz – 20 kHz
Microphones	Uni-directional, electret condenser microphone
Microphones output	3.5 mm miniplug
Audio input	3.5 mm Stereo miniplug, input impedance 47 kΩ, input level 0.7 Vrms typical

Headphones output	Stereo minijack, 15 mW + 15 mW at 16 Ω
Subwoofer output	3.5 mm miniplug, volume variable
Controls	Front panel direct: Audio volume/Contrast/Audio mute/GPE (AUTO/off/mode 1/mode 2) OSD menu: Brightness/Contrast/Picture size/Picture zoom/Picture centering/Sceen moiré/Color temperature (5000K/6500K/9300K/11000K)/Rotation/Pincushion/Pin balance/Keystone/Key balance/Bass boost/Manual Degauss/OSD position/OSD language
AC input voltage/current	100 to 240 V, 50 – 60 Hz, 1.5 – 0.6 A
Power consumption	Max. 120 W
Dimensions	Approx. $415 \times 451 \times 423$ mm (w/h/d) ($16\,^3/_8 \times 17\,^5/_8 \times 16\,^3/_4$ inches)
Mass	Approx. 19.6 kg (43 lb 3 oz)

Design and specifications are subject to change without notice.

TRINITRON® MULTIMEDIA COMPUTER DISPLAY

SONY®

CPD-201VS

DIAGNOSIS

Failure	Power LED
+B Failure	Blink Amber (On 0.5 sec, Off 0.5 sec)
H Stop or V Stop Failure (Included S-Cap Failure)	Blink Amber (On 1.5 sec, Off 0.5 sec)
ABL Failure	Blink Amber (On 0.5 sec, Off 1.5 sec)
Aging/Self-Test	Blink Amber (On 0.5 sec, Off 0.5 sec) .... Blink Green (On 0.5 sec, Off 0.5 sec)
Out of Range	On Green (OSD Indication)

TIMING SPECIFICATION

PRIMARY MODE MODE AT PRODUCTION	MODE 1	MODE 2	MODE 3	PRIMARY MODE 4	MODE 5	MODE 6	MODE 7	MODE 8	MODE 9
RESOLUTION	640 X 480	800 X 600	800 X 600	1024 X 768	1024 X 768	1280 X 1024	640 X 400	640 X 480	1152 X 864
CLOCK	36.000 MHZ	40.000 MHZ	49.500 MHZ	78.750 MHZ	94.500 MHZ	108.500 MHZ	25.175 MHZ	25.175 MHZ	80.000 MHZ
— HORIZONTAL —									
H-FREQ	43.269 kHz	37.879 kHz	46.875 kHz	60.023 kHz	68.677 kHz	63.974 kHz	31.469 kHz	31.469 kHz	54.945 kHz
	usec	usec	usec	usec	usec	usec	usec	usec	usec
H. TOTAL	23.111	26.4	21.333	16.66	14.561	15.631	31.778	31.778	18.2
H. BLK	5.333	6.4	5.172	3.657	3.725	3.834	6.356	6.356	3.8
H. FP	1.556	1	0.323	0.203	0.508	0.59	0.636	0.636	0.8
H. SYNC	1.556	3.2	1.616	1.219	1.016	1.18	3.813	3.813	1.4
H. BP	2.222	2.2	3.232	2.235	2.201	2.065	1.907	1.907	1.6
H. ACTIV	17.778	20	16.162	13.003	10.836	11.797	25.422	25.422	14.4
— VERTICAL —									
V. FREQ(HZ)	85.008 Hz	60.317 Hz	75.000 Hz	75.029 Hz	84.997 Hz	60.013 Hz	70.086 Hz	59.940 Hz	59.984 Hz
	lines	lines	lines	lines	lines	lines	lines	lines	lines
V. TOTAL	509	628	625	800	808	1066	449	525	916
V. BLK	29	28	25	32	40	42	49	45	52
V. FP	1	1	1	1	1	1	12	10	6
V. SYNC	3	4	3	3	3	3	2	2	5
V. BP	25	23	21	28	36	38	35	33	41
V. ACTIV	480	600	600	768	768	1024	400	480	864
— SYNC —									
INT(G)	NO	NO	NO	NO	NO	NO	NO	NO	NO
EXT(H/V)/POLARITY	YES -/-	YES +/+	YES +/+	NO +/+	YES +/+	YES +/+	YES -/-	YES -/-	YES +/+
EXT(CS)/POLARITY	NO	NO	NO	NO	NO	NO	NO	NO	NO
INT/NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT

98.4.27 VER.

Power Saving Function

This display meets the power saving guidelines set by the International ENERGY STAR Program. It is capable of reduced power consumption when used with a computer equipped with Display Power Management Signaling (DPMS). By sensing the absence of the sync signal coming from the computer, it will reduce the power consumption as follows:

✔ **CAUTION**
The Power Saving function will automatically put the display into Deep Sleep mode if the power switch is turned on without any video signal input. Once the horizontal and vertical syncs are sensed, the display will automatically return to its Normal Operation mode.

Mode	Power consumption	Recovery time	① Power indicator
1 Normal Operation	CPD-101VS: 110 W (max) CPD-201VS: 120 W (max)	—	Green
2 Sleep	15 W (max)	Approx. 3 sec.	Green ↔ Orange
3 Deep Sleep	8 W (max)	Approx. 10 sec.	Orange
4 Power-off	0 W	—	Off

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.

2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.

3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.

4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.

5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.

6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.

7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.

8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC Leakage. Check leakage as described below.
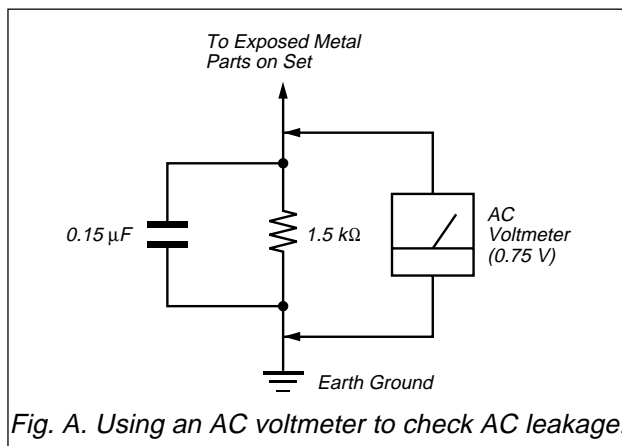
Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers).

Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOMs that are suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

WARNING!!
NEVER TURN ON THE POWER IN A CONDITION IN WHICH THE DEGAUSS COIL HAS BEEN REMOVED.

SAFETY-RELATED COMPONENT WARNING!!
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

AVERTISSEMENT!!
NE JAMAIS METTRE SOUS TENSION QUAND LA BOBINE DE DEMAGNETISATION EST ENLEVÉE.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!
LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SONT CRITIQUES POUR LA SÉCURITÉ. NE LES REMPLACER QUE PAR UNE PIÈCE PORTANT LE NUMÉRO SPECIFIÉ. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIÉS DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNE-MENT EST SUSPECTÉ.

CPD-201VS

TABLE OF CONTENTS

SECTION 1
GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remein as in the manual.

Introduction

Congratulations on your purchase of a Sony Multimedia CPD-101VS/201VS display!

This display incorporates over 25 years of Sony experience with Trinitron display technology, ensuring excellent performance and outstanding reliability.

This display's wide scan range (30 – 70 kHz), together with Digital Multiscan Technology, allows it to sync to any video mode from standard VGA through VESA 1024 × 768 at 85 Hz (VESA 1280 × 1024 at 60 Hz).

In addition, its four factory-preset color modes give you unprecedented flexibility in matching on-screen colors to hard copy printouts.

Furthermore, it features:

- Graphic Picture Enhancement function
  improves monitor performance to match the application that you are running.
  With the GPE AUTO MODE, you can use "IntelliLight" compatible software which will maximize the color and brightness of a window running a multimedia presentation without affecting the brightness and contrast of text based applications.
- Integrated stereo speakers with Bass Boost
  enables you to enjoy excellent sound reproduction via 3.0 W stereo speakers.

All together, CPD-101VS/201VS delivers incredible performance with the quality and support you can expect from Sony.

Plug and play

This display complies with DDC™1 and DDC2B which are the Display Data Channel (DDC) standards of VESA.

When a DDC1 host system is connected, the display synchronizes with the V. CLK in accordance with the VESA standards and outputs the EDID (Extended Display Identification Data) to the data line.

When a DDC2B host system is connected, the display automatically switches to DDC2B communication.

DDC™ is a trademark of Video Electronics Standard Association.

Precautions

Installation

- Prevent internal heat build-up by allowing adequate air circulation. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit near heat sources such as radiators or air ducts, nor in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Do not place the unit near equipment which generates magnetism, such as a converter or high voltage power lines.

Maintenance

- Clean the cabinet, glass 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, like a ball point pen or a screwdriver, as this type of contact may result in a scratched picture tube.
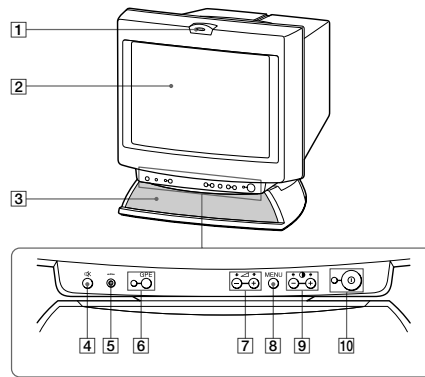
Transportation

- Do not discard the carton and packing materials. When transporting the unit, use these packing materials so that the unit is properly packaged.
- When carrying the unit, be careful not to get your hands caught between the display and the tilt-swivel.

Warning on Power Connection

- Use the supplied power cord.
  For the customers in U.S.A.
  If you do not do this, this display will not conform to mandatory FCC standards.
  For the customers in UK.
  If you use the display in the UK, please use the supplied UK cable with the UK plug.

| for 100 to 120 V AC | for 220 to 240 V AC | for 240 V AC only |

- Before disconnecting the power cord, wait at least 30 seconds after turning off the power switch to discharge static electricity from the CRT display surface.
- After the power has been turned on, the CRT is demagnetized for approximately 5 seconds. This generates a strong magnetic field around the bezel which may affect the data stored on magnetic tape or disks near the bezel. Place such magnetic recording equipment and tapes/disks at a distance from this unit.

The socket-outlet shall be installed near the equipment and shall be easily accessible.

Functions of Controls

CPD-101VS is used for illustration purposes throughout this manual.

Front

1	**Microphone**	—
2	**Screen**	—
3	**Stereo speakers**	—
4	⚡ **Mute button**	Mutes sound (page 20).
5	•••• **Reset switch**	Resets adjustments to factory setting (page 30).
6	**GPE button and indicator**	Sets GPE mode (page 31).
7	◢ **Volume +/− buttons**	Adjust speaker volume (page 19). Use to select items in an OSD.
8	**MENU button**	Displays the OSD menu.
9	◑ **+/− Contrast buttons**	Adjust picture contrast (page 21). Use to adjust items in an OSD.
10	① **Power switch and indicator**	Turns the display on and off.

Rear
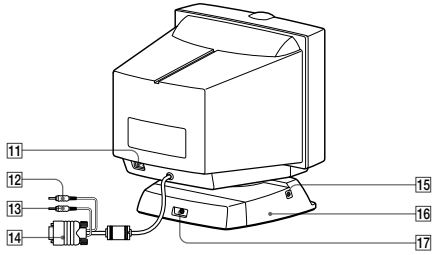
11	**AC IN connector**	Connect the supplied power cord (page 13).
12	∩ **Audio plug (green)**	Connect to the computer's audio output (page 12).
13	✎ **MIC plug (red)**	Connect to the computer's microphone input (page 12).
14	▭ **Video signal cable (blue)**	Connect to the computer's video output (page 12).
15	∩ **Headphones jack**	Connect standard mini-plug headphones (not supplied). The speakers are turned off when headphones are connected.
16	**Tilt-Swivel**	Adjusts the angle of the display (page 15).
17	**Subwoofer output jack**	Connect to a subwoofer's input (not supplied).

Getting Started

Before using this display, please make sure that the following items are included in your package:
• Multimedia computer display (1)
• Power cord (1)
• Warranty card (1)
• Operating instructions manual (1)
• Windows Monitor Information Disk and its instruction manual (1)

✎ **Tip**
This display will sync with any IBM or compatible system equipped with VGA[1] or greater graphics capability. Although this display will sync to other platforms running at horizontal frequencies between 30 and 70 kHz, including Macintosh[2] and Power Macintosh systems, a cable adapter is required. Please consult Sony Technical Support for advice on which adapter is suitable for your needs.
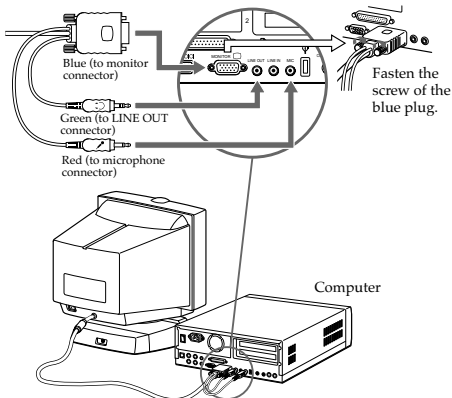
1) VGA is a trademark of IBM Corporation.
2) Macintosh is a trademark of Apple Computer Inc.

Installation

■ Step 1: Connect the computer

With the computer switched off, connect the video signal cable to the display (VGA) connector on your computer. If your computer supports the DDC plug-and-play standard, this connection will enable DDC communication between the display and the computer.
The video signal cable is combined with audio and microphone cables. If your computer is equipped with sound capability, connect the audio (green) and microphone (red) plugs to appropriate jacks located on your computer.

Blue (to monitor connector)

Green (to LINE OUT connector)

Red (to microphone connector)

Fasten the screw of the blue plug.

Computer

✔ **Note on handling the video signal cable**
Do not touch the pins of the video signal cable.

■ Step 2: Connect the power cord

With the display switched off, connect the power cord to the display and the other end to a power outlet.

to a power outlet

Power cord (supplied)
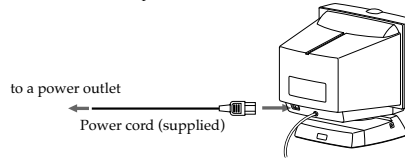
■ Step 3: Turn on the display, and then your computer.

For proper Plug and Play recognition, turn on the display before you turn on your computer.

✔ **Note on Warning Messages**
If there is something wrong with the input signal, one of the following messages appears.

"OUT OF SCAN RANGE"
This indicates that the input signal is not supported by the display's specifications.

"NO INPUT SIGNAL"
This indicates that video signal is missing.

To solve these problems, see "Troubleshooting" on page 36.

■ Step 4: If necessary...

Adjust the user controls according to your personal preference.

The installation of your display is complete. Enjoy your display.

Using Your Display

Preset and user modes

The Multimedia CPD-101VS/201VS display has factory preset modes for the 9 most popular industry standards for true "plug and play" capability.
For less common modes, its Digital Multiscan Technology will perform all of the complex adjustments necessary to ensure a high quality picture for any timing between 30 and 70kHz.

NO.	Resolution (dots × lines)	Horizontal Frequency	Vertical Frequency
1	640 × 400	31.5 kHz	70 Hz
2	640 × 480	31.5 kHz	60 Hz
3	640 × 480	43.3 kHz	85 Hz
4	800 × 600	37.9 kHz	60 Hz
5	800 × 600	46.9 kHz	75 Hz
6	1024 × 768	60.0 kHz	75 Hz
7	1024 × 768	68.7 kHz	85 Hz
8	1152 × 864	54.8 kHz	60 Hz
9	1280 × 1024	64.0 kHz	60 Hz

✔ **Note for Windows® 95/98 users**
To maximize the potential of your display, install the new model information file from the supplied Windows® Monitor Information Disk onto your PC.

This display complies with the "VESA DDC" Plug & Play standard. If your PC/graphics board complies with DDC, select "Plug & Play Monitor (VESA DDC)" or this display's model name as the monitor type in the "Control Panel" of Windows® 95/98. If your PC/graphics board has difficulty communicating with this display, load the Windows® Monitor Information Disk and select this display's model name as the monitor type.

Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.

✔ **Note on recommended horizontal timing conditions**
Horizontal sync width should be more than 1.0 μsec.
Horizontal blanking width should be more than 3.6 μsec.

Damper wire

Using a white background, a very thin horizontal line on the screen may be visible as shown below. This line is the damper wire.
The Trinitron tube has a vertically striped Aperture Grille inside. The Aperture Grille allows more light to pass through to the screen giving the Trinitron CRT more color and brightness.
The damper wire is attached to the Aperture Grille to prevent vibration of the Aperture Grille wire so that the screen image is constantly stable.

Approx. 6 cm (2 3/8 inches) (CPD-201VS only)

Damper wires

Approx. 6 cm (2 3/8 inches)

■ To enter new timings
When using a video mode that is not one of the 9 factory preset modes, some fine tuning may be required to optimize the display to your preferences. Simply adjust the display according to the adjustment instructions. The adjustments will be stored automatically and recalled whenever that mode is used.
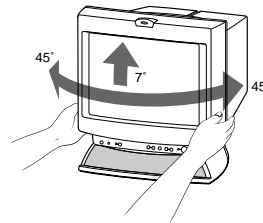A total of 16 user-defined modes can be stored in memory. If a 17th mode is entered, it will replace the first.

Using the tilt-swivel

With the tilt-swivel, this unit can be adjusted to be viewed at your desired angle within 90° horizontally and 7° vertically.
To turn the unit vertically and horizontally, hold it at its bottom with both hands.
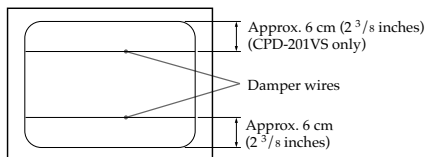Be careful not to get your hands caught between the display and the tilt-swivel.

Adjustments

When one of the preset-type signals is input, no picture adjustment is necessary.
You can, however, adjust the picture to your preference by following the procedure described below.
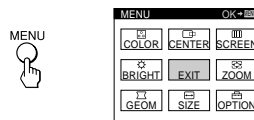
To adjust the display, turn on the display and computer.
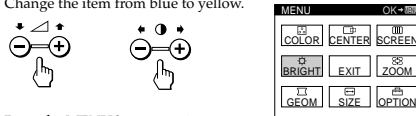
Introducing the On-Screen Display

Beyond sound volume and picture contrast adjustment, most adjustments are made using the OSD menu system.
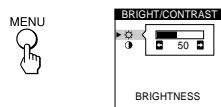
Using the OSD menu
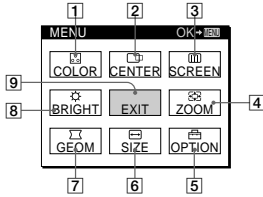
1. Press the MENU button to display the MENU OSD.

2. Use the the four arrow (↑/↓/←/→) buttons (⊿ +/− and ◑ +/− buttons) to select the item you want to adjust.
Change the item from blue to yellow.

3. Press the MENU button again.
The item is selected and the item's OSD appears.

Summary of each item

1 **COLOR**
Selects the color temperature.

2 **CENTER**
Adjusts the picture centering.

3 **SCREEN**
Reduces the moiré pattern.

4 **ZOOM**
Adjusts the picture size in horizontal and vertical direction proportionally.

5 **OPTION**
Activates bass-boost and screen degauss, changes the OSD position and selects the OSD language.

6 **SIZE**
Adjusts the picture size. You can adjust the size in horizontal or vertical direction individually.

7 **GEOM**
Adjusts the picture rotation, pincushion, etc.

8 **BRIGHT**
Adjusts the picture brightness and contrast.

9 **EXIT**
Closes the OSD menu.

Adjusting the sound volume

1. Press the ⊿ + or – button.
The VOLUME/CONTRAST OSD appears.
The horizontal and vertical frequencies for each input signal received appear.
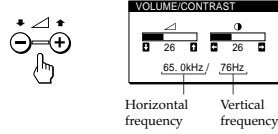
2. Press the ⊿ **+/–** buttons to adjust volume.
+ to increase volume
– to decrease volume

The VOLUME/CONTRAST OSD disappears three seconds after you release the buttons.

✎ **Tips**
• Adjust the volume while listening to the sound.
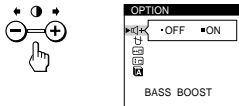• Excessively high volume may cause howling.

■ To activate Bass Boost for rich bass sound

1. Select OPTION in the MENU OSD and press the MENU button.
The OPTION OSD appears.
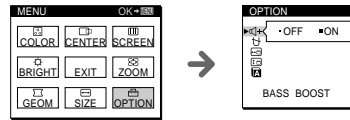
2. Select BASS BOOST with the ↑/↓ buttons.

3. Press the ➡ button to select ON.
To cancel bass boost, press the ⬅ button to select OFF.

To exit the OSD
Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

■ To mute the sound
Press the ⊠ button. The ⊠ indicator appears while the sound is muted.

Press again to cancel muting.
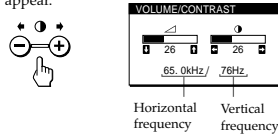You can cancel muting also by pressing the ⊿ + button.

✎ **Tip**
⊠ appears instead of ⊿ on the VOLUME/CONTRAST OSD while the sound is muted.

Adjusting the picture contrast

The adjustment data becomes the common setting for all input signals.

1. Press the ◑ + or – button.
The VOLUME/CONTRAST OSD appears.
The horizontal and vertical frequencies for each input signal received appear.

2. Press the ◑ **+/–** buttons to adjust the picture contrast.
+ for more contrast
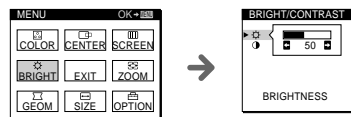– for less contrast

The VOLUME/CONTRAST OSD disappears three seconds after you release the buttons.

Adjusting the picture brightness

The adjustment data becomes the common setting for all input signals.

1. Select BRIGHT in the MENU OSD and press the MENU button.
The BRIGHT/CONTRAST OSD appears.

2. Press the ←/→ buttons to adjust the picture brightness.
　→ for more brightness
　← for less brightness

To exit the OSD
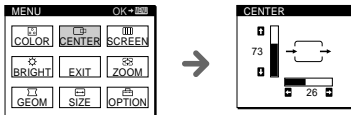Press the MENU button again.

✎ **Tip**
If you don't touch any buttons the OSD automatically disappears after 30 seconds.

Adjusting the picture centering

The adjustment data becomes the individual setting for each input signal received.

1. Select CENTER in the MENU OSD and press the MENU button.
The CENTER OSD appears.

2. **For vertical adjustment**　　**For horizontal adjustment**
Press the ↑/↓ buttons.　　　　Press the ←/→ buttons.
↑ to move up　　　　　　　　→ to move right
↓ to move down　　　　　　　← to move left

To exit the OSD
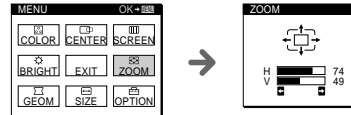Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

Adjusting the picture size

The adjustment data becomes the individual setting for each input signal received.

To adjust the picture size in horizontal and vertical direction proportionally

1. Select ZOOM in the MENU OSD and press the MENU button.
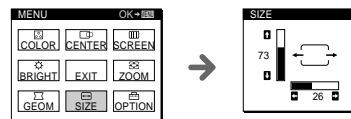The ZOOM OSD appears.

2. Press the ←/→ buttons for the best size.

To adjust the picture size in horizontal or vertical direction

1. Select SIZE in the MENU OSD and press the MENU button.
The SIZE OSD appears.

---

2. **For vertical adjustment**　　**For horizontal adjustment**
Press the ↑/↓ buttons.　　　　Press the ←/→ buttons.
↑ to increase　　　　　　　　→ to increase
↓ to decrease　　　　　　　　← to decrease

**To exit the OSD**
Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

Adjusting the geometry

The rotation adjustment data becomes the common setting for all input signals. All other data becomes the individual setting for each input signal received.

1. Select GEOM in the MENU OSD and press the MENU button.
The GEOMETRY OSD appears.

2. Press the ↑/↓ buttons to select the item you want to adjust.

---
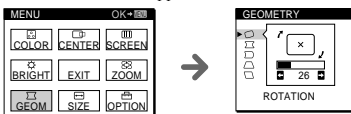
3. Press the ←/→ buttons to adjust.

ROTATION	→ to rotate the picture clockwise	← to rotate counterclockwise
PINCUSHION	→ to bend both sides outward	← to bend inward
PIN BALANCE	→ to bend both sides to the right	← to the left
KEYSTONE	→ to widen the top	← to shrink the top
KEY BALANCE	→ to move the top to the right	← to the left.

To exit the OSD
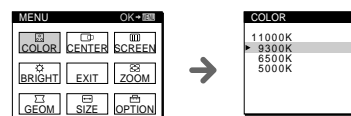Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

Selecting the color temperature

The selected color temperature becomes the common setting for all input signals.

1. Select COLOR in the MENU OSD and press the MENU button.
The COLOR OSD appears.

2. Select the desired color temperature with the ↑/↓ buttons.

11000K for the brightest white
9300K for TV white
6500K for video monitor white
5000K for printing paper white

To exit the OSD
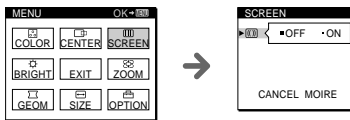Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

Adjusting the screen moiré

This adjustment is to eliminate wavy or elliptical lines that may appear on the screen.
The adjustment data becomes the common setting for all input signals.

1. Select SCREEN in the MENU OSD and press the MENU button.
The SCREEN OSD appears.

MENU OK→
COLOR CENTER SCREEN
BRIGHT EXIT ZOOM
GEOM SIZE OPTION

→

SCREEN
∎OFF ·ON
CANCEL MOIRE

2. Press the ➡ button to select ON.
The MOIRE ADJUST icon appears under the CANCEL MOIRE icon.

SCREEN
·OFF ∎ON
CANCEL MOIRE
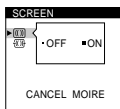
3. Press the ↓ button to select MOIRE ADJUST.

SCREEN
26
MOIRE ADJUST
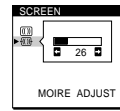
4. Press the ←/➡ buttons to tune the moiré cancellation effect.

To exit the OSD
Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

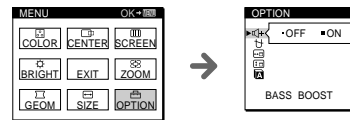✔ **Note on the moiré cancellation effect**
When CANCEL MOIRE is set to ON, the picture may appear fuzzy. If you set CANCEL MOIRE to OFF, the picture may be clearer, but the moiré will reappear.

Activating screen degauss

The display screen is automatically degaussed (demagnetized) when the power is turned on.
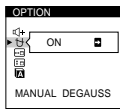To manually degauss the screen, do as follows. If you need to degauss the screen a second time, wait at least 20 minutes for the best result.

1. Select OPTION in the MENU OSD and press the MENU button.
The OPTION OSD appears.

MENU OK→
COLOR CENTER SCREEN
BRIGHT EXIT ZOOM
GEOM SIZE OPTION

→

OPTION
·OFF ∎ON
BASS BOOST

2. Select MANUAL DEGAUSS with the ↑/↓ buttons.

OPTION
ON
MANUAL DEGAUSS

3. Press the ➡ button to activate the degauss cycle.
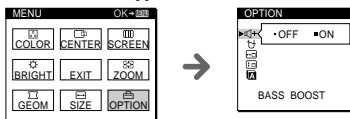
To exit the OSD
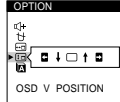Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

Changing the OSD position

1. Select OPTION in the MENU OSD and press the MENU button.
The OPTION OSD appears.

MENU OK→
COLOR CENTER SCREEN
BRIGHT EXIT ZOOM
GEOM SIZE OPTION

→

OPTION
·OFF ∎ON
BASS BOOST

2. Select OSD H (horizontal) POSITION or OSD V (vertical) POSITION with the ↑/↓ buttons.

OPTION
OSD H POSITION

OPTION
OSD V POSITION

3. Press the ←/➡ buttons to move the OPTION OSD to the desired position.

To exit the OSD
Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

Selecting the OSD language

English, French, German, Spanish and Japanese version of the OSDs are available.

1. Select OPTION in the MENU OSD and press the MENU button.
The OPTION OSD appears.

MENU OK→
COLOR CENTER SCREEN
BRIGHT EXIT ZOOM
GEOM SIZE OPTION

→

OPTION
·OFF ∎ON
BASS BOOST

2. Select LANGUAGE with the ↑/↓ buttons.

OPTION
∎ENG ·FRA ·DEU
·ESP ·日本語
LANGUAGE

3. Press the ◄/► buttons to select the desired language.

To exit the OSD
Press the MENU button again.

✎ **Tip**
If you don't touch any buttons, the OSD automatically disappears after 30 seconds.

Resetting

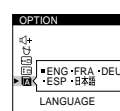### ■ To recall the factory settings for an individual adjustment item
1. Select the item you want to reset.
First select the OSD containing the item in the MENU OSD, and then select the item in the OSD.

2. Press the ••• button while the OSD of the item is on.
Only the item highlighted in yellow returns to the factory setting.

■ To recall the factory settings for the current video mode
Press the ••• button while no OSD is displayed.

■ To recall the factory settings for all modes
Press and hold the ••• button for more than two seconds.
All adjustments return to the factory settings.

■ MODE 2
Higher contrast and sharpness is applied across the entire screen. MODE 2 is designed to enhance graphic games and movie/video presentations.

✔ **Note on MODE 2**
Whenever the screen resolution is changed, power saving activated, or power turned off, MODE 2 is cancelled and GPE returns to the AUTO mode.

✎ **Tip**
MODE 2 may produce ghost images when displaying text oriented applications. In this case, select the AUTO or OFF mode.

■ GPE OFF mode
Screen sharpness and brightness are set to standard quality without any additional enhancements. This mode is suited for text-based applications.

✔ **Note on the GPE OFF mode**
Once OFF mode is selected, GPE status stays in the OFF mode until you manually select other GPE modes.

Selecting the GPE mode

Press the GPE button repeatedly until the screen message of the desired mode is displayed.
Each time you press the GPE button, the GPE mode changes as follows:

AUTO → GPE OFF → MODE 1 → MODE 2

AUTO ———— Appears for three seconds

The GPE indicator lights up when AUTO, MODE 1 or MODE 2 is selected.
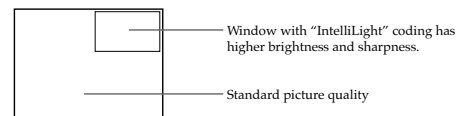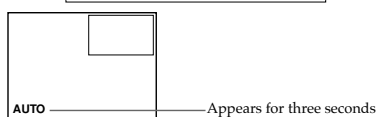
Graphic Picture Enhancement (GPE)

Available GPE modes

Graphic Picture Enhancement is a function designed for your viewing comfort.
There are four GPE modes: AUTO, MODE 1, MODE 2 and OFF.
The default setting is "AUTO."

■ AUTO mode
This mode is effective only with "IntelliLight™" compatible applications. When an image playback window with "IntelliLight" coding appears on the screen, the display senses the exact location and size of the window and applies a higher brightness and sharpness effect to images inside the window, while the rest of the screen remains at standard picture quality. For inquiries about "IntelliLight" and compatible software, check Sony's web site (www.ita.sel.sony.com) or call Sony Technical Support (1-888-4SONYPC).
"IntelliLight™" is a trademark of Sony Electronics Inc.

———— Window with "IntelliLight" coding has higher brightness and sharpness.

———— Standard picture quality

✔ **Note on the AUTO mode**
If one of the four corners of the "IntelliLight" window is covered or if the window goes beyond the screen border, the GPE effect turns off.

✎ **Tip**
You can adjust the picture contrast or brightness of the screen outside of the "IntelliLight" window. The "IntelliLight" window always remains clear and sharp regardless of the adjustments made to the rest of the screen.

■ MODE 1
Higher contrast is applied across the entire screen. MODE 1 is designed to enhance still image presentations.

✔ **Note on MODE 1**
Whenever the screen resolution is changed, power saving activated, or power turned off, MODE 1 is cancelled and GPE returns to the AUTO mode.

Power Saving Function

This display meets the power saving guidelines set by the International ENERGY STAR Program. It is capable of reduced power consumption when used with a computer equipped with Display Power Management Signaling (DPMS). By sensing the absence of the sync signal coming from the computer, it will reduce the power consumption as follows:

✔ **CAUTION**
The Power Saving function will automatically put the display into Deep Sleep mode if the power switch is turned on without any video signal input. Once the horizontal and vertical syncs are sensed, the display will automatically return to its Normal Operation mode.

	Mode	Power consumption	Recovery time	① Power indicator
1	Normal Operation	CPD-101VS: 110 W (max) CPD-201VS: 120 W (max)	—	Green
2	Sleep	15 W (max)	Approx. 3 sec.	Green ↔ Orange
3	Deep Sleep	8 W (max)	Approx. 10 sec.	Orange
4	Power-off	0 W	—	Off

Troubleshooting

This section may help you isolate a problem and as a result, eliminate the need to contact technical support, allowing continued productivity.

No picture

If the ① indicator is not lit
→ Check that the power cord is properly connected.
→ Check that the ① switch is in the "on" position.

If the "NO INPUT SIGNAL" message appears on the screen, or if the ① indicator is either orange or alternating between green and orange
→ Try pressing any key on the computer keyboard.
→ Check that your computer power switch is in the "on" position.
→ Check that the video signal cable is properly connected and all plugs are firmly seated in their sockets.
→ Ensure that no pins are bent or pushed in the HD15 video input connector.

If the "OUT OF SCAN RANGE" message appears on the screen
→ Check that the video frequency is within that specified for the display.
  Horizontal: 30 – 70 kHz
  Vertical: 50 – 120 Hz
  Refer to your computer's instruction manual to adjust the video frequency range.
→ If you are using a video signal cable adapter, check that it is the correct one.

If no message is displayed and the ① indicator is green or flashing orange
→ See "Self-diagnosis function" (page 39).

No sound from speaker

If the ✕ indicator is displayed
→ Press the ✕ button to cancel muting.

→ Check that the audio plug is properly connected.
→ Adjust the volume with ⊿ +/– buttons.
→ Check that the headphones are not connected.
→ Check the volume control, muting, sound selector, etc. of the sound board. (See the computer's manual.)

Microphone mixing is not possible

→ Check that the MIC plug is properly connected.
→ Check the microphone control, sound selector, etc. of the sound board. (See the computer's manual.)

Howling (feedback) is heard

→ Decrease the volume with ⊿ +/– buttons, or turn down the microphone input volume of the sound board.

Picture is scrambled

→ Check your computer manual for the proper display setting.
→ Check this manual and confirm that the graphic mode and the frequency you are trying to operate is supported. Even if the frequency is within the proper range, some video boards may have a sync pulse that is too narrow for the display to sync correctly.

Color is not uniform

→ Degauss the display (page 27).
  If you place equipment which generates a magnetic field, such as a speaker, near the display, or you change the direction of the display, color may lose uniformity. The degauss function demagnetizes the metal frame of the CRT to obtain a neutral field for uniform color reproduction. If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result.

Screen image is not centered or sized properly

→ Adjust the size or centering (pages 22, 23).
→ Some video modes do not fill the screen to the edge. This problem tends to occur with certain video boards.

Edges of the image are curved

→ Adjust the geometry (page 24).

Picture is fuzzy

→ Adjust the contrast and brightness (page 21). Some brands of video boards have an excessive video output level which creates a fuzzy picture at maximum contrast.
→ Degauss the display (page 27).
  If you place equipment which generates a magnetic field, such as a speaker, near the display, or you change the direction of the display, color may lose uniformity. The degauss function demagnetizes the metal frame of the CRT to obtain a neutral field for uniform color reproduction. If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result.
→ If moiré is cancelled, the picture may become fuzzy. Decrease the moiré cancellation effect (page 26).
→ If the GPE mode is set to AUTO, change it to OFF (page 32).

Picture bounces or has wavy oscillations

→ Isolate and eliminate any potential sources of electric or magnetic fields. Common causes for this symptom are electric fans, fluorescent lighting, laser printers, etc.
→ If you have another display close to this display, increase the distance between them to reduce interference.
→ Try plugging the display into a different AC outlet, preferably on a different circuit.

Picture is flickering

→ Set the refresh rate on the computer to obtain the best possible picture by referring to your computer's manual.
→ If the GPE mode is set to AUTO, change it to OFF (page 32).

Picture appears to be ghosting

→ Eliminate the use of video extensions and/or video switch boxes if this symptom occurs. Excessive cable length or weak connections can produce this symptom.
→ If the GPE mode is set to AUTO, change it to OFF (page 32).
→ If the GPE mode is set to MODE 2, the picture may appear to be ghosting. Set to another GPE mode (page 32).

Wavy or elliptical (moiré) pattern is visible

→ Cancel the moiré (page 26).
  The moiré may be modified depending on the connected computer.
→ Due to the relationship between resolution, display dot pitch and the pitch of some image patterns, certain screen backgrounds sometimes show moiré. Change your desktop pattern.

IntelliLight does not work

→ Check that all four corners of the "IntelliLight" window are clearly displayed and are not covered by another window.
→ Check that the GPE mode is set to AUTO (page 32).
→ Leave the display's power "on" and reboot your computer.
→ IntelliLight does not work correctly with an interlaced video mode. Check the vertical refresh rate in the Properties window of Windows 95/98 and select a non-interlaced mode.

Tiny color bars appear in the corners of the IntelliLight window

→ Set the GPE mode to AUTO (page 32).
→ Check that all four corners of the "IntelliLight" window are clearly displayed and are not covered by another window.

A fine horizontal line (wire) is visible

→ This wire stabilizes the vertically striped Aperture Grille (page 16). This Aperture Grille allows more light to pass through to the screen giving the Trinitron CRT more color and brightness.

Hum is heard right after the power is turned on

→ When the power is turned on, the Auto-degauss cycle is activated. While the Auto-degauss cycle is activated, a hum may be heard. The same hum is heard when the display is manually degaussed. This is not a malfunction.

• If the problem persists, call your authorized Sony dealer from a location near you, or call Sony Technical Support at 1-888-4SONYPC (1-888-476-6972).
• Note the model name and the serial number of your display. Also note the make and name of your computer and video board.

Self-diagnosis function

This display is equipped with a self-diagnosis function. Use this function if there is a problem with your display or computer.

1. Disconnect the video input cable or turn off the connected computer.

2. Turn the display off and on.

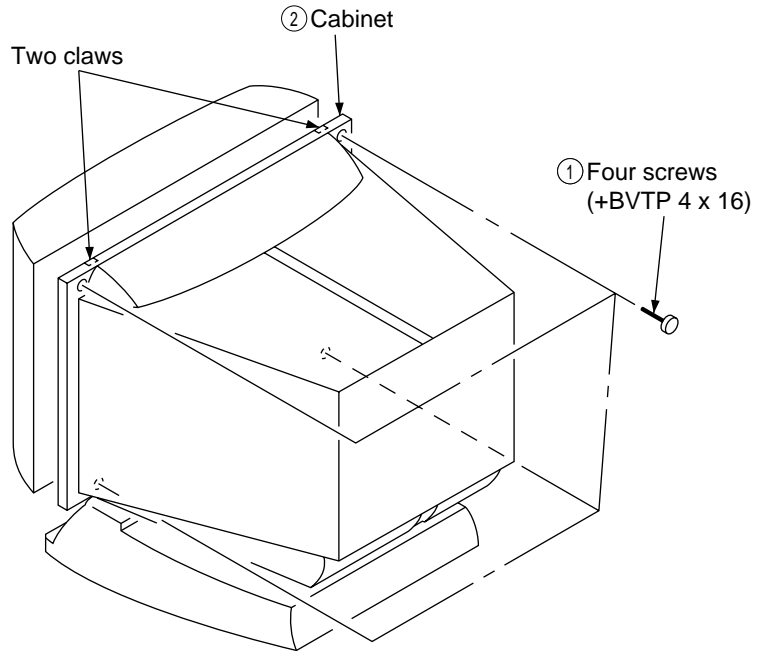**3.** Press and hold the ①➡ button for more than 2 seconds.

If all four color bars appear (white, red, green, blue) after a few seconds, the display is working properly, but there might be a problem with your computer. Contact your computer's manufacturer.
If the color bars do not appear, there might be a problem with the display. Contact your local authorized Sony dealer, or call Sony Technical Support at 1-888-4SONYPC (1-888-476-6972).
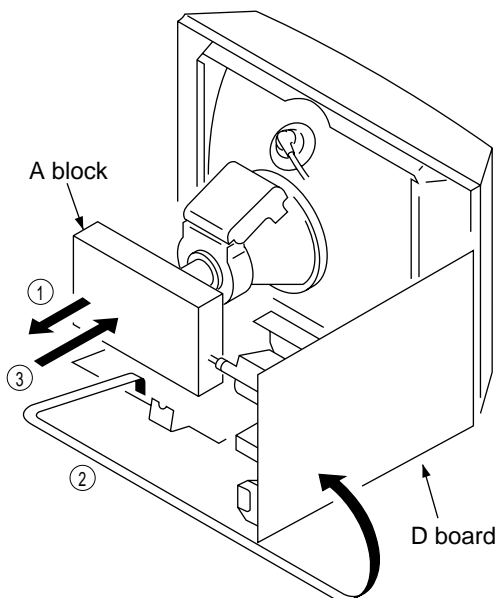
2-1. CABINET REMOVAL

② Cabinet
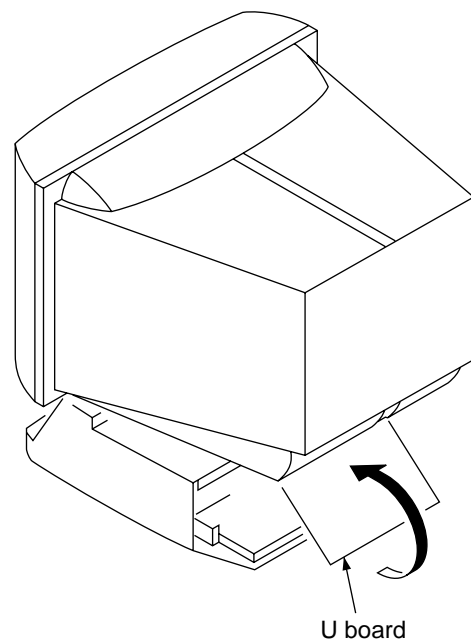
Two claws

① Four screws
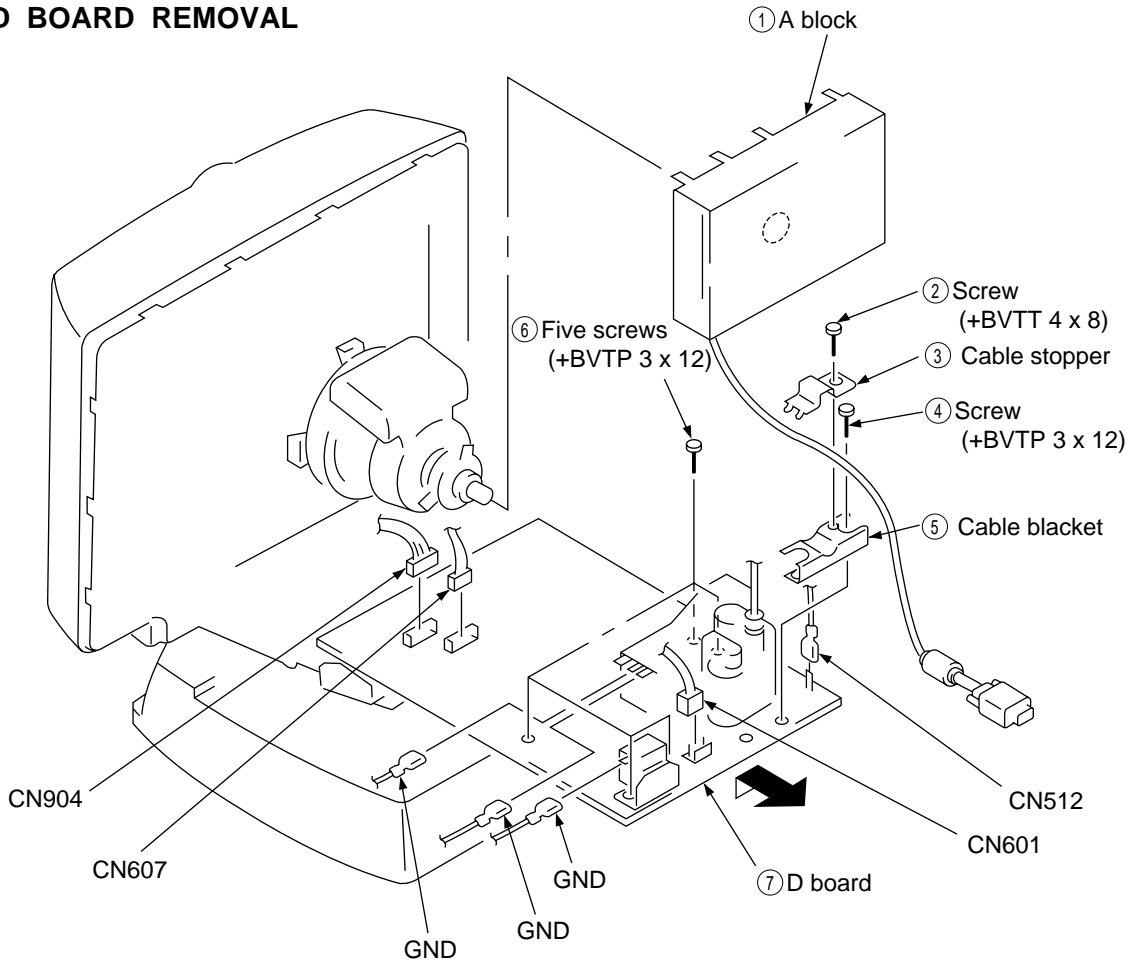(+BVTP 4 x 16)

2-2. SERVICE POSITION
(1) D board

(2) U board

A block

①

③

②

D board

U board

2-3. D BOARD REMOVAL

① A block

② Screw (+BVTT 4 x 8)

⑥ Five screws (+BVTP 3 x 12)

③ Cable stopper

④ Screw (+BVTP 3 x 12)

⑤ Cable blacket

CN904

CN607

GND

GND

GND

⑦ D board

CN512

CN601

2-4. U BOARD REMOVAL

CN5204

CN5200

CN5202

CN5605

CN5606

④ U board

CN5601

CN5607

③ Two claws

② Stand base (Rear)

① Two screws (+BVTP 4 x 16)

2-5. J BOARD REMOVAL

① Two screws
(+BVTP 4 x 16)

⑤ J board

④ Screw
(+BVTP 3 x 12)

② Seven screws
(+BVTP 4 x 16)

③ Stand base (Lower)

2-6. PICTURE TUBE REMOVAL

④Four screws
(+BVTT 4 x 8)

CN601

②A block

③Two screws
(+BVTP 4 x 16)

CN314

CN303   CN304

⑥Neck assy

⑦Deflection yoke

⑤Stand assy

CN512

GND

⑧Four screws
(Tapping screw 5)

CN701   CN501

GND

2P

①Anode cap

⑨Picture tube shield

⑩Picture tube

Cushion

• REMOVAL OF ANODE-CAP

NOTE: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.
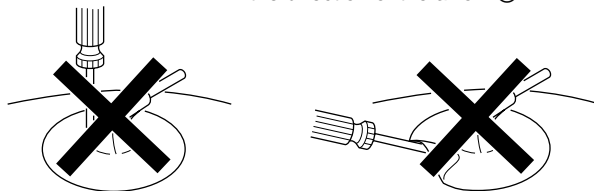
• REMOVING PROCEDURES

ⓐ

ⓑ

ⓒ
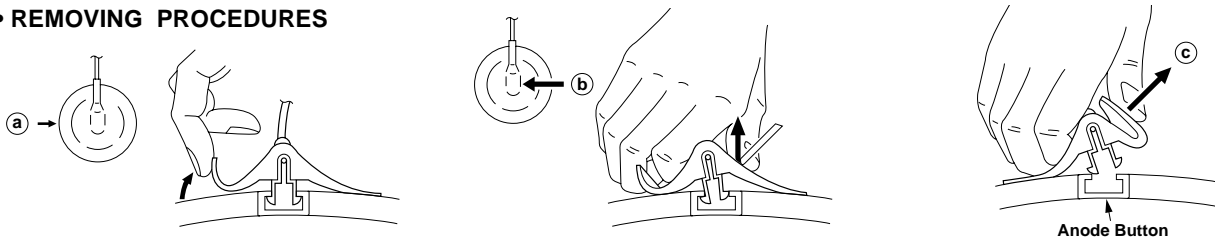
Anode Button

① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.
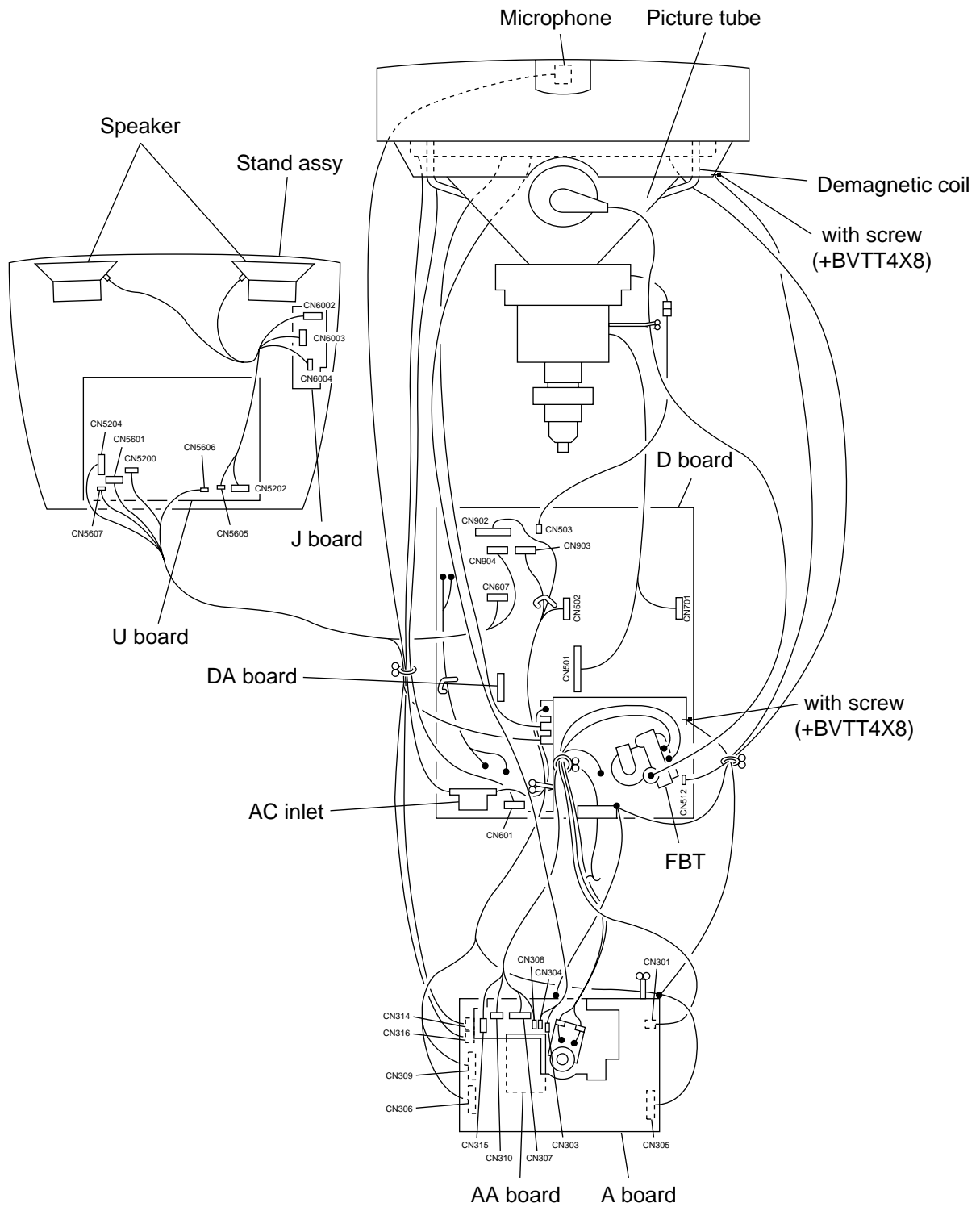
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with shartp shaped material!
② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.
③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.

2-7. HARNESS LOCATION

Microphone
Picture tube
Speaker
Stand assy
Demagnetic coil
with screw (+BVTT4X8)
CN6002
CN6003
CN6004
CN5204
CN5601
CN5606
CN5200
CN5202
CN5607
CN5605
J board
D board
CN902
CN503
CN903
CN904
CN607
CN502
CN701
U board
CN501
DA board
with screw (+BVTT4X8)
AC inlet
CN512
CN601
FBT
CN308
CN304
CN301
CN314
CN316
CN309
CN306
CN315
CN303
CN305
CN310
CN307
AA board
A board

When replacing or repairing the shown below table, the following operational checks must be performed as a safety precaution against X-rays emissions from the unit.

	Part Replaced (✖)
HV ADJ	RV501

	Part Replaced (◢)
HV Regulator Circuit Check	D board IC501, C553, C554, C555, C558, C561, R540, R564, R567, RV501, T501 (FBT)
HV Hold-down Circuit Check	D board IC603, IC901, D515, D517, C540, C542, C544, R543, R547, R549, R552, T501 (FBT)
Beam Current Protector Circuit Check	D board IC603, IC604, IC901, C535, C541, R515, R545, R546, R548, R550, R934, T501 (FBT)

∗ Confirm one minute later turning on the power.

● **HV Protector Circuit Check**

Confirm that the voltage between cathode of D517 on D board and GND is more than 28.5 V DC and Using external DC Power Supply, apply the voltage shown below between cathode of D517 and GND, and confirm that the HV HOLD DOWN circuite works. (TV Rester disappears)

Standard voltage : Less than 31.70 V DC

Check Condition
- Input voltage : 100 – 120 V AC
- Input signal : White Cross hatch at Max fH
- Beam control : CONT : 255, BRT : 80

● **Beam Current Protector Check**

Connect a variable resistor (20 kΩ or more) and an ammeter in series between FBT pin ⑪ on D board and –15 V line. Decrease gradually the resistance of the variable resistor from maximum to minimum, and confirm that the Beam Current Protector Circuite works (TV Rester disappears). The current must be within the range shown below.

- Standard current : Less than 1.50 mA

Check Condition
- Input voltage : 100 – 120 V AC
- Input signal : White Cross hatch at Max fH
- Beam control : CONT : 255, BRT : 80

● **B+ Voltage Check**

Standard voltage : 150.0 ± 3.0 V DC

Check Condition
- Input voltage : 100 – 120 V AC
  Note : Use NF power supply or make sure that distortion factor is 3% or less.
- Input signal : White Cross hatch at 64.0 kHz
- Beam control : CONT : 255, BRT : 80

- **Landing Rough Adjustment**

1. Enter the full white signal. (or the full black dots signal)
2. Set the contrast to " CONT"=MAX.
3. Make the screen monogreen.

Note: Off the outputs from R ch and B ch of SG.

4. Reverse the DY, and adjust coarsely the purity magnet so that a green raster positions in the center of screen.
5. Moving the DY forward, adjust so that an entire screen becomes monogreen.
6. Adjust the tilt of DY, and fix lightly with a clamp.

- **Landing Fine Adjustment**

< Measurement condition >

Brightness : ΣIk (819μA)
Magnetic field : BH=0, BV=45μT
CRT size : 312×234
Measurement point : 296×220
Temperature : 25ºC

After aging for 9 minutes and more than 3 hours, adjust so that it is exactly this value.

a1	a4	a7	[μm]
a2	a5	a8
a3	a6	a9

< Adjustment target>

After aging for 1 minute and more than 3 hours, adjust so that it is exactly this value.

$-\dfrac{a1}{2}$	$-\dfrac{a4}{2}$	$-\dfrac{a7}{2}$
$-\dfrac{a2}{2}$	$-\dfrac{a5}{2}$	$-\dfrac{a8}{2}$
$-\dfrac{a3}{2}$	$-\dfrac{a6}{2}$	$-\dfrac{a9}{2}$

$+\dfrac{a1}{2}$	$+\dfrac{a4}{2}$	$+\dfrac{a7}{2}$
$+\dfrac{a2}{2}$	$+\dfrac{a5}{2}$	$+\dfrac{a8}{2}$
$+\dfrac{a3}{2}$	$+\dfrac{a6}{2}$	$+\dfrac{a9}{2}$

1 minute   3 hours
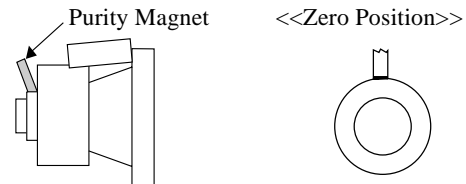
L/D [μm]

L/D Drift Curve

1. Put the set inside the Helmholtz coil.
2. Input the single green signal.
3. Demagnetize the CRT surface with the hand degausser , and perform auto degaussing.
4. Attach the wobbling coil to the designated part of the CRT neck.

5. Attach the sensor of the landing adjustment unit on the CRT surface.
Purity magnet position

Purity Magnet   <<Zero Position>>

6. Adjust the DY position and purity, and the DY tilt.

L/D control specification

± 5	± 7	± 5
± 5	± 7	± 5
± 5	± 7	± 5

7. Fasten DY with screw.

Note: Torque 22 ±2kgcm (2.2 ± 0.2 Nm)
    Perform auto degaussing.

8. Adjust each top and bottom pins by two wedges, and also adjust swinging DY neck right-left by H.TILT and horizontal trapezoid, and then fix with two wedges.
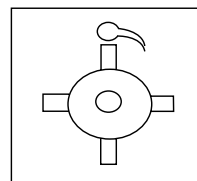(When fixing DY with wedges, insert wedges completely so that the DY does not shake.)
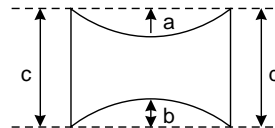
" a" and " b" must be equal, and " c" and " d" must be equal.

Signal : Inverted crosshatch (Make the monogreen)
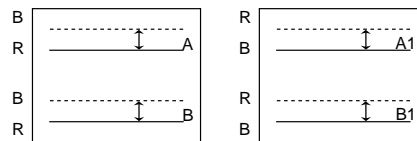
" A" and " B",
" A1" and " B1"
must be equal.

<How to drive in wedges>

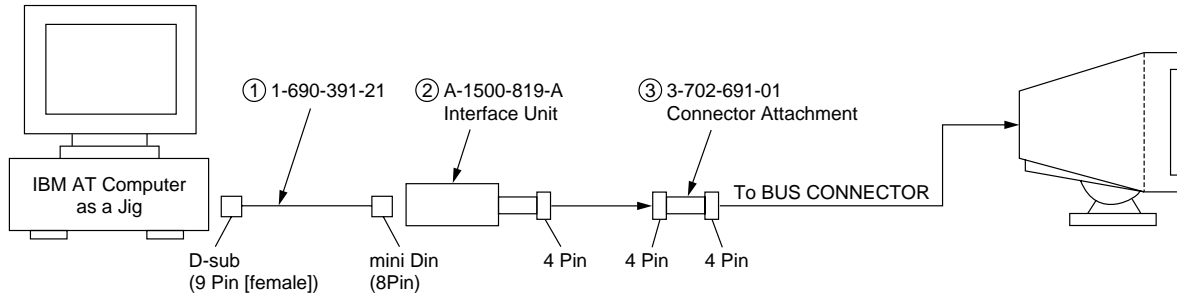9. Check the landing of each corner, and if they do not satisfy the specification, paste a Disk-Mg onto the funnel and adjust.

Note:

(1) When necessary to paste magnets more than 2 pieces, be careful that the convergence and the distortion would be alterable.

(2) Paste within 80 to 120 mm from the DY on the diagonal line of the magnet.

10. If using the magnet, be sure to demagnetize with the degausser and check.
11. Remove the sensor and wobbling coil.
12. Check that the DY is not tilting.

CPD-201VS

Connect the communication cable of the computer to the connector located on the D board on the monitor. Run the service software and then follow the instruction.

① 1-690-391-21 ② A-1500-819-A Interface Unit ③ 3-702-691-01 Connector Attachment

IBM AT Computer as a Jig

D-sub (9 Pin [female]) mini Din (8Pin) 4 Pin 4 Pin 4 Pin

To BUS CONNECTOR

*The parts above (①~③) are necessary for DAS adjustment.

- **Convergence Rough Adjustment**
1. Enter the white crosshatch signal (white lines on black).
2. Adjust roughly the horizontal and vertical convergence at four-pole magnet.
3. Adjust roughly HMC and VMC at six-pole magnet.
   Standard: ± 0.1mm (In the center of screen)

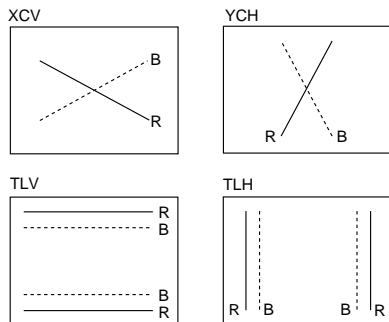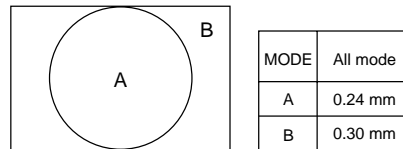Purity Mg

4-pole Mg
4-pole Mg
6-pole Mg

Fig. 1

XCV
YCH
TLV
TLH

Fig. 2

XCV

YCH

TLV

TLH

<6 Pole Magnet>

Tab A
Tab B

Fig. 3

Adjust HMC
Fig. 4

Adjust VMC
Fig. 5
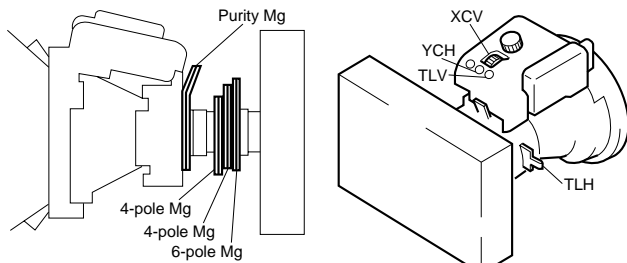
- **Convergence Specification**

MODE	All mode
A	0.24 mm
B	0.30 mm

- **White Balance Adjustment Specification**

(1) 11000K
  $x = 0.274 \pm 0.008$
  $y = 0.287 \pm 0.008$

(2) 9300K
  $x = 0.283 \pm 0.008$
  $y = 0.298 \pm 0.008$

(3) 5000K
  $x = 0.345 \pm 0.008$
  $y = 0.358 \pm 0.008$

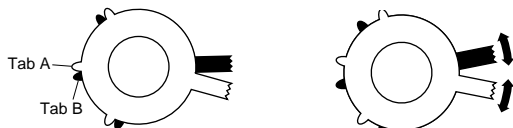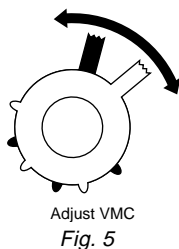- **Vertical and Horizontal Position and Size Specification**

MODE	All mode
A	312 mm
B	234 mm

a ≦ 1.8 mm
b ≦ 1.8 mm

- **Focus adjustment**
  Adjust the focus volume 1 and 2 for the optimum focus.
  Standard: HMC, VMC ± 0.1 mm (In the center of screen)

FBT

Focus volume 1 (V)

Focus volume 2 (H)