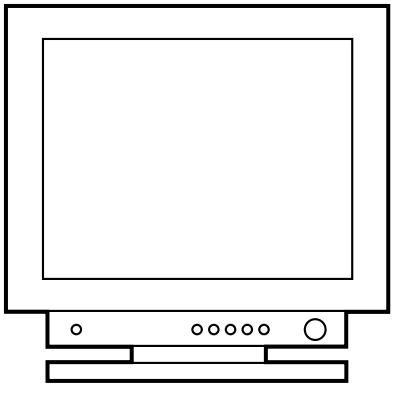
6550-23N/23S/33N/63N/63S/73N

SERVICE MANUAL

6550-23N/63N

US Model

Canadian Model



D99 CHASSIS

SPECIFICATIONS

Picture tube	0.24 mm aperture grille pitch 17 inches measured diagonally 90-degree deflection
Viewable image size	Approx. 327 × 243 mm (w/h) ($12\,^{7}/_{8} \times 9\,^{5}/_{8}$ inches) 16.0″ viewable diagonal
Resolution	Horizontal: Max. 1600 dots Vertical: Max. 1200 lines
Standard image area	Approx. 312 × 234 mm (w/h) ($12\,^{3}/_{8} \times 9\,^{1}/_{4}$ inches)
Deflection frequency	Horizontal: 30 to 94 kHz Vertical: 48 to 120 Hz 300 < Total Line < 1700
AC input voltage/current	100 to 240 V, 50 – 60 Hz, Max. 1.7 A
Power consumption	Max. 130 W
Dimensions	Approx. 406 × 416 × 431 mm (w/h/d) ($16 \times 16\,^{1}/_{2} \times 17$ inches)
Mass	Approx. 20 kg (44 lb 1 oz)

* Recommended horizontal and vertical timing condition
- Horizontal sync width should be more than 1.0 µsec.
- Horizontal blanking width should be more than 3.0 µsec.
- Vertical blanking width should be more than 500 µsec.

Design and specifications are subject to change without notice.

MODEL	SPEC.	
	BODY COLOR	DEST.
6550-23N	WHITE TYPE	US, CND, AEP
6550-23S		SH
6550-33N		J
6550-63N	BLACK TYPE	US, CND, AEP
6550-63S		SH
6550-73N		J

COLOR MONITOR

IBM®

DIAGNOSIS

Failure	Power LED
HV/+B Failure	Blink Amber (On 0.5 sec, Off 0.5 sec)
H Stop or V Stop (Included S-Cap)	Blink Amber (On 0.5 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)

TIMING SPECIFICATION

PRIMARY MODE							PRIMARY			
MODE AT PRODUCTION	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7	MODE 8	MODE 9	MODE 10
RESOLUTION	640 X 480	640 X 480	640 X 480	800 X 600	800 X 600	1024 X 768	1024 X 768	1280 X 1024	1280 X 1024	1600 X 1200
CLOCK	25.175 MHz	31.500 MHz	36.000 MHz	49.500 MHz	56.250 MHz	78.750 MHz	94.500 MHz	135.000 MHz	157.500 MHz	202.500 MHz
— HORIZONTAL —										
H-FREQ	31.469 kHz	37.500 kHz	43.269 kHz	46.875 kHz	53.674 kHz	60.023 kHz	68.677 kHz	79.976 kHz	91.146 kHz	93.750 kHz
	usec	usec	usec	usec	usec	usec	usec	usec	usec	usec
H. TOTAL	31.778	26.667	23.111	21.333	18.631	16.660	14.561	12.504	10.971	10.667
H. BLK	6.356	6.349	5.333	5.172	4.409	3.657	3.725	3.022	2.844	2.765
H. FP	0.636	0.508	1.556	0.323	0.569	0.203	0.508	0.119	0.406	0.316
H. SYNC	3.813	2.032	1.556	1.616	1.138	1.219	1.016	1.067	1.016	0.948
H. BP	1.907	3.810	2.222	3.232	2.702	2.235	2.201	1.837	1.422	1.501
H. ACTIV	25.422	20.317	17.778	16.162	14.222	13.003	10.836	9.481	8.127	7.901
— VERTICAL —										
V. FREQ(HZ)	59.940 Hz	75.000 Hz	85.008 Hz	75.000 Hz	85.061 Hz	75.029 Hz	84.997 Hz	75.025 Hz	85.024 Hz	75.000 Hz
	lines	lines	lines	lines	lines	lines	lines	lines	lines	lines
V. TOTAL	525	500	509	625	631	800	808	1066	1072	1250
V. BLK	45	20	29	25	31	32	40	42	48	50
V. FP	10	1	1	1	1	1	1	1	1	1
V. SYNC	2	3	3	3	3	3	3	3	3	3
V. BP	33	16	25	21	27	28	36	38	44	46
V. ACTIV	480	480	480	600	600	768	768	1024	1024	1200
— SYNC —										
INT(G)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
EXT(H/V)/POLARITY	YES -/-	YES -/-	YES +/+	YES +/+	YES +/+	YES +/+	YES +/+	YES +/+	YES +/+	YES +/+
EXT(CS)/POLARITY	NO	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	NON INT

99.5.18 VER.

Power Saving Function

This monitor meets the power-saving guidelines set by VESA and ENERGY STAR, as well as the more stringent NUTEK .
If the monitor is connected to a computer or video graphics board that is VESA DPMS (Display Power Management Signaling) compliant, the monitor will automatically reduce power consumption in three stages as shown below.

Notes

When your computer is in a power saving mode, MONITOR IS IN POWER SAVE MODE appears on the screen if you press any button on the monitor (page 15). After a few seconds, the monitor enters the power saving mode again. Once the horizontal and vertical sync signals are detected, the monitor automatically resumes its normal operation mode.

	Power consumption mode	Screen	Horizontal sync signal	Vertical sync signal	Power consumption	Recovery time	⏻ indicator
1	Normal operation	active	present	present	≤ 130 W	—	Green
2	Standby (1st mode)	blank	absent	present	≤ 15 W	Approx. 5 sec.	Green and orange alternate
3	Suspend (2nd mode) (sleep)*	blank	present	absent	≤ 15 W	Approx. 5 sec.	Green and orange alternate
4	Active-off (3rd mode) (deep sleep)*	blank	absent	absent	≤ 3 W	Approx. 15 sec.	Orange
5	Power-off	—	—	—	≤ 0.5 W	—	Off

SAFETY CHECK-OUT

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.

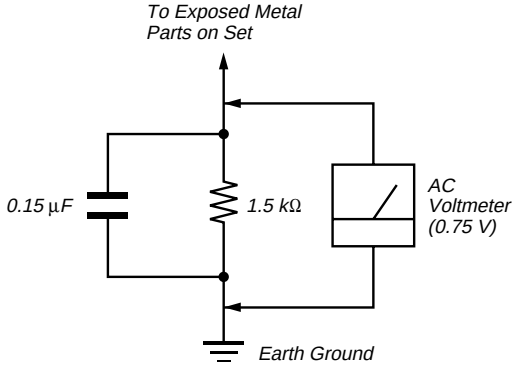


Fig. A. Using an AC voltmeter to check AC leakage.

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 FONCTIONNEMENT EST SUSPECTÉ.

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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.

Precautions

Installation

- Prevent internal heat build-up by allowing adequate air circulation. Do not place the monitor on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the monitor near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration, or shock.
- Do not place the monitor near equipment which generates magnetism, such as a transformer or high voltage power lines.

Maintenance

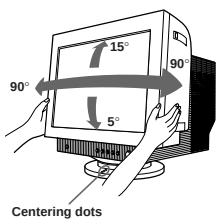
- Clean the cabinet, panel and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent, such as alcohol or benzine.
- Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as a ballpoint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

Transportation

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

Use of the Tilt-Swivel

This monitor can be adjusted within the angles shown below. To find the center of the monitor's turning radius, align the center of the monitor's screen with the centering dots on the stand.
Hold the monitor at the bottom with both hands when you turn it horizontally or vertically. Be careful not to pinch your fingers at the back of the monitor when you tilt the monitor up vertically.

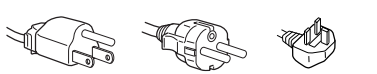


Note
Do not remove the tilt-swivel base from the monitor.

Warning on power connection

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

Examples of plug types:



for 100 to 120 V AC **for 200 to 240 V AC** **for 240 V AC only**

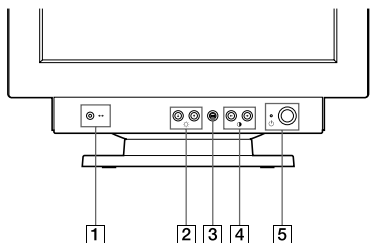
- Before disconnecting the power cord, wait at least 30 seconds after turning off the power to allow the static electricity on the CRT display surface to discharge.
- After the power has been turned on, the CRT is demagnetized (degaussed) for about 5 seconds. This generates a strong magnetic field around the metal frame, which may affect the data stored on magnetic tapes and disks near the bezel. Place magnetic recording equipment, tapes, and disks away from this monitor.

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

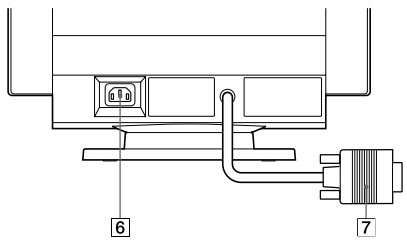
Identifying Parts and Controls

See the pages in parentheses for further details.

Front



Rear



1 ⇢ (reset) button (page 13)
Resets the adjustments to the factory settings.

2 ☼ (brightness) down and up (🡻/🡹) buttons (pages 5 – 13)
Adjust the picture brightness.

Function as the (🡻/🡹) buttons when adjusting other items.

3 ⛀ (menu) button (pages 5 – 13, 15)
Displays the MENU OSD.

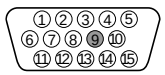
4 ◑ (contrast) left and right (⬅/➡) buttons (pages 5 – 13, 18)
Adjust the contrast.

Function as the (⬅/➡) buttons when adjusting other items.

5 ⏻ (power) switch and indicator (pages 14, 18)
Turns the monitor on or off.
The power indicator lights up in green when the monitor is turned on, and either flashes in green and orange, or lights up in orange when the monitor is in power saving mode.

6 AC IN connector (page 4)
Provides AC power to the monitor.

7 Video input connector (HD15) (page 4)
Inputs RGB video signals (0.700 Vp-p, positive) and SYNC signals.



Pin No.	Signal	Pin No.	Signal
1	Red	8	Blue Ground
2	Green (Sync on Green)	9	—
		10	Ground
3	Blue	11	ID (Ground)
4	ID (Ground)	12	Bi-Directional Data (SDA)*
5	DDC Ground*		
6	Red Ground	13	H. Sync
7	Green Ground	14	V. Sync
		15	Data Clock(SCL)*

* Display Data Channel (DDC) Standard of VESA

EN

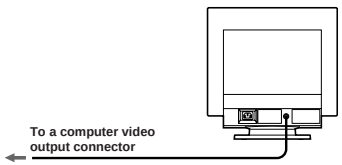
Setup

This monitor works with platforms running at horizontal frequencies between 30 and 94 kHz.

Step 1: Make sure the computer and monitor are switched off

Step 2: Connect the monitor to the computer

Connect the video signal cable to the video output of the computer.

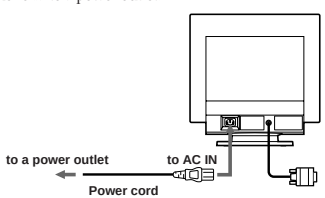


Note

Do not short the pins of the video signal cable.

Step 3: Connect the power cord

With the monitor switched off, connect one end of the proper power cord for your local supply to the monitor and the other end to a power outlet.



Step 4: Turn on the monitor and computer

Step 5: Adjust the monitor's controls according to your personal preference

The installation of your monitor is complete.

Note

If no picture appears on the screen and "MONITOR IS WORKING" or "MONITOR IS IN POWER SAVE MODE" appears on the screen, see "Warning Messages" on page 15.

Workplace Preparation

Positioning the Monitor

Choose a suitable place to position the monitor where it is not near fluorescent desk lighting or any equipment that produces magnetic fields that could cause interference. Ensure that the furniture or equipment can support the weight of the monitor. Allow at least 2 inches (50mm) ventilation space around the monitor.

Height

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

Orientation

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

Working Practices

Rest

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

Back

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

Hands

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

Eyesight

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

Screen settings

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

Before adjusting

- Connect the monitor and the computer, and turn them on.

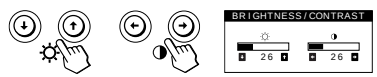
Selecting the On-screen Display Language

If you need to change the OSD language, see "Using the LANGUAGE 🅰 On-screen Display" on page 10.
The default setting is English.

Adjusting the Picture Brightness and Contrast

Once the setting is adjusted , it will be stored in memory for all input signals received.

1 Press the ☼ (brightness) ↓/↑ or ◑ (contrast) ←/→ buttons.
The BRIGHTNESS/CONTRAST OSD appears.



2 For brightness adjustment
Press the ☼↓/↑ buttons.

↑ . . . for more brightness
↓ . . . for less brightness

For contrast adjustment
Press the ◑←/→ buttons.

→ . . . for more contrast
← . . . for less contrast

The OSD automatically disappears after about 3 seconds.

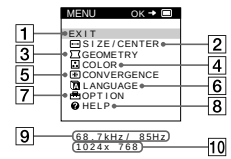
To reset, press the ⇢ (reset) button while the OSD is on. The brightness and contrast are both reset to the factory settings.

Introducing the On-screen Display System

Most adjustments are made using the MENU OSD.

MENU OSD

Press the ▭ button to display the MENU OSD.
This MENU OSD contains links to the other OSDs described below.



1 EXIT
Closes the MENU OSD.

2 ▭ SIZE/CENTER
Displays the SIZE/CENTER OSD for adjusting the picture's size, centering, or zoom.

3 GEOMETRY
Displays the GEOMETRY OSD for adjusting the picture rotation and pincushion, etc.

4 COLOR
Displays the COLOR OSD for adjusting the color temperature.

5 CONVERGENCE
Displays the CONVERGENCE OSD for adjusting the picture's horizontal and vertical convergence.

6 🅰 LANGUAGE
Displays the LANGUAGE OSD for selecting the language.

7 OPTION
Displays the OPTION OSD for adjusting the OSD position, degaussing the screen, etc.

8 ? HELP
Displays the HELP OSD for viewing helpful hints and information about this monitor.

9 The horizontal and vertical frequencies of the current input signal
The horizontal and vertical frequencies of the current input signal are displayed.

10 The resolution of the current input signal
If the signal matches one of this monitor's factory preset modes, the resolution is displayed.

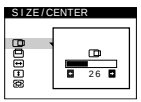
EN

Using the SIZE/CENTER ⟷ On-screen Display

The SIZE/CENTER settings allow you to adjust the picture's size, centering, or zoom.
Once the setting is adjusted, it will be stored in memory for the current input signal.

1 Press the ⊖ button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "⟷ SIZE/CENTER" and press the ⊖ button again.
The SIZE/CENTER OSD appears.



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

Select	To
(Horizontal Centering)	adjust the horizontal centering of the picture
(Vertical Centering)	adjust the vertical centering of the picture
(Horizontal Sizing)	adjust the horizontal size of the picture
(Vertical Sizing)	adjust the vertical size of the picture
(Zoom)	enlarge or reduce the picture

4 Press the ←/→ buttons to adjust the settings.

Select	To
(Horizontal Centering)	→ . . . to move the picture right ← . . . to move the picture left
(Vertical Centering)	→ . . . to move the picture up ← . . . to move the picture down
(Horizontal Sizing)	→ . . . to increase picture width ← . . . to decrease picture width
(Vertical Sizing)	→ . . . to increase picture height ← . . . to decrease picture height
(Zoom)	→ . . . to enlarge the picture ← . . . to reduce the picture

Press the ⊖ button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

To reset, press the ⋯ (reset) button while the OSD is on. The selected item is reset to the factory setting.

Notes

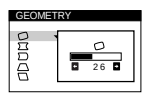
The ⊞ (Zoom) adjustment stops when the horizontal or vertical size reaches its maximum or minimum value. The horizontal adjustment value is not displayed in the menu.

Using the GEOMETRY ⌓ On-screen Display

The GEOMETRY settings allow you to adjust the shape and orientation of the picture.
Once the ▱ (Rotation) is adjusted, it will be stored in memory for all input signals received. All other adjustments will be stored in memory for the current input signal.

1 Press the ⊖ button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "⌓ GEOMETRY" and press the ⊖ button again.
The GEOMETRY OSD appears.



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

Select	To
▱ (Rotation)	adjust the picture rotation
⌓ (Pincushion)	adjust the picture sides
▱ (Pin Balance)	adjust the picture side balance
△ (Keystone)	adjust the picture width
▱ (Key Balance)	adjust the picture shape balance

4 Press the ←/→ buttons to adjust the settings.

For	Press
▱ (Rotation)	→ . . . to rotate the picture clockwise ← . . . to rotate the picture counterclockwise
⌓ (Pincushion)	→ . . . to expand the picture sides ← . . . to contract the picture sides
▱ (Pin Balance)	→ . . . to move the picture sides to the right ← . . . to move the picture sides to the left
△ (Keystone)	→ . . . to increase the picture width at the top ← . . . to decrease the picture width at the top
▱ (Key Balance)	→ . . . to move the top of the picture to the right ← . . . to move the top of the picture to the left

Press the ⊖ button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

To reset, press the ⋯ (reset) button while the OSD is on. The selected item is reset to the factory setting.

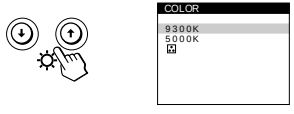
EN

Using the COLOR On-screen Display

You can change the monitor's color temperature. For example, you can adjust or change the colors of a picture on the screen to match the actual colors of a printed picture. Once the setting is adjusted, it will be stored in memory for all input signals received.

1 Press the button.
The MENU OSD appears.

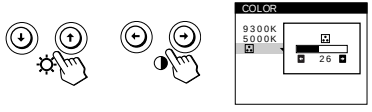
2 Press the ↓/↑ buttons to select "COLOR" and press the button again.
The COLOR OSD appears.



3 Press the ↓/↑ buttons to select the color temperature.

There are two color temperature modes in the OSD. The preset adjustments are 9,300K and 5,000K.

Selecting your own color temperature between 9,300K and 5,000K
Press the ↓/↑ buttons to select "(Variable)" and adjust by pressing the ←/→ buttons.



→ . . . for a higher temperature (bluish)
← . . . for a lower temperature (reddish)

Press the button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

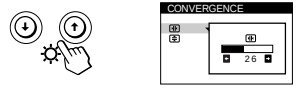
To reset, press the (reset) button while the OSD is on. The selected color temperature is reset to the factory settings.

Using the CONVERGENCE On-screen Display

The CONVERGENCE settings allow you to adjust the quality of the picture by controlling the convergence.
The convergence refers to the alignment of the red, green, and blue color signals.
If you see red or blue shadows around letters or lines, adjust the convergence.
Once the setting is adjusted, it will be stored in memory for all input signals received.

1 Press the button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "CONVERGENCE" and press the button again.
The CONVERGENCE OSD appears.



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

Select	To
(Horizontal Convergence)	adjust the horizontal convergence
(Vertical Convergence)	adjust the vertical convergence

4 Press the ←/→ buttons to adjust the settings.

For	Press
(Horizontal Convergence)	→ . . . to shift red shadows to the right and blue shadows to the left ← . . . to shift red shadows to the left and blue shadows to the right
(Vertical Convergence)	→ . . . to shift red shadows up and blue shadows down ← . . . to shift red shadows down and blue shadows up

Press the button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

To reset, press the (reset) button while the OSD is on. The selected item is reset to the factory setting.

EN

Using the LANGUAGE On-screen Display

English, French, German, Spanish, Italian, Dutch, Swedish, Russian, and Japanese versions of the OSDs are available.

1 Press the button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "LANGUAGE" and press the button again.
The LANGUAGE OSD appears.

3 Press the ↓/↑ buttons to select the desired language.

- ENGLISH
- FRANÇAIS: French
- DEUTSCH: German
- ESPAÑOL: Spanish
- ITALIANO: Italian
- NEDERLANDS: Dutch
- SVENSKA: Swedish
- РУССКИЙ: Russian
- 日本語: Japanese

Press the button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

To reset to English, press the (reset) button while the OSD is on.

Using the OPTION On-screen Display

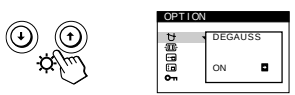
The OPTION OSD allows you to manually degauss the screen, adjust the moire cancellation level, and adjust the OSD position. It also allows you to lock the controls.

Degaussing the screen

The monitor screen is automatically degaussed (demagnetized) when the power is turned on.
You can also manually degauss the monitor.

1 Press the button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "OPTION" and press the button again.
The OPTION OSD appears.



3 Press the ↓/↑ buttons to select "(DEGAUSS)."

4 Press the → button.
The screen is degaussed for about 5 seconds.

If you need to degauss the screen a second time, wait for at least 20 minutes before repeating the steps above.

Press the button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

Adjusting the moire

If elliptical or wavy patterns appear on the screen, adjust the moire cancellation level.

1 Press the button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "OPTION" and press the button again.
The OPTION OSD appears.

3 Press the ↓/↑ buttons to select "MOIRE* ADJUST."

4 Press the ←/→ buttons to adjust the amount of moire cancellation until the moire effect is at a minimum.

* Moire is a type of natural interference which produces soft, wavy lines on your screen. It may appear due to interference between the pattern of the picture on the screen and the phosphor pitch pattern of the monitor.

Example of moire:

Press the button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

To reset, press the (reset) button while the OSD is on.

Changing the on-screen display position

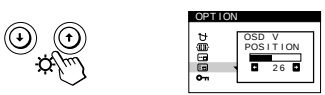
You can change the OSD position (for example, when you want to adjust the picture behind the OSD).

1 Press the button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "OPTION" and press the button again.
The OPTION OSD appears.

3 Press the ↓/↑ buttons to select "(OSD H POSITION)" or "(OSD V POSITION)."
Select "(OSD H POSITION)" to adjust the horizontal position.

Select "(OSD V POSITION)" to adjust the vertical position.



4 Press the ←/→ buttons to move the OSD to the desired position.

Press the button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

To reset, press the (reset) button while the OSD is on.

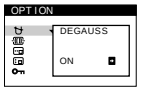
EN

Locking the controls

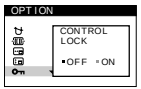
You can protect adjustment data by locking the controls.

1 Press the ⊖ button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "OPTION" and press the ⊖ button again.
The OPTION OSD appears.



3 Press the ↓/↑ buttons to select "🔑 (CONTROL LOCK)."



4 Press the → button to select "ON."

Press the ⊖ button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

Only the ⏻ (power) switch, EXIT, and "🔑 (CONTROL LOCK)" of the "OPTION" OSD will operate. If any other items are selected, the 🔑 mark appears on the screen.

To cancel the control lock

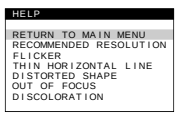
Repeat steps 1 through 3 above and press the ← button to select "OFF."

Using the HELP ❷ On-screen Display

The HELP OSD contains helpful hints and information about this monitor. If your monitor is displaying symptoms that match those listed in the HELP OSD, follow the on-screen instructions to resolve the problem. If the symptoms do not match those listed in the HELP OSD or if the problem persists, see "Troubleshooting" on page 16.

1 Press the ⊖ button.
The MENU OSD appears.

2 Press the ↓/↑ buttons to select "❷ HELP" and press the ⊖ button again.
The HELP OSD appears.



3 Press the ↓/↑ buttons to select a HELP menu item and press the ⊖ button again.
Instructions or information to resolve the problem appears on the screen. An explanation of each menu item is given below.

RECOMMENDED RESOLUTION
If the picture does not fill the screen to the edges or if the picture appears too large for the screen, adjust the resolution to the figures shown in the OSD using your computer. If the input signal matches one of this monitor's factory preset modes, the resolution and refresh rate of the current input signal are displayed.

FLICKER
If the picture is flickering, adjust the refresh rate to figures shown in the OSD. If the input signal matches one of this monitor's factory preset modes, the refresh rate of the current input signal is displayed.

THIN HORIZONTAL LINE
The lines that appear on your screen are damper wires. See page 14 for more information about the damper wires.

DISTORTED SHAPE
If the shape of the picture on the screen seems distorted, try adjusting the picture's geometry. Press the → button to jump directly to the GEOMETRY OSD.

OUT OF FOCUS
The picture may seem to be out of focus when the red and blue color signals are not aligned properly, causing red or blue shadows to appear around letters and lines. Try adjusting the picture's convergence to make the shadows disappear. Press the → button to jump directly to the CONVERGENCE OSD. When the CONVERGENCE OSD is displayed, the contrast, brightness, and moire adjustment settings are automatically reset for all input signals.

DISCOLORATION
If the picture's color appears abnormal in certain areas of the screen, first check for any loose signal cables. After you have checked the cables, try degaussing (demagnetizing) the screen manually. Press the → button to jump directly to the OPTION OSD, then select (DEGAUSS).

Press the ⊖ button once to return to the MENU OSD, and twice to return to normal viewing. If no buttons are pressed, the OSD closes automatically after about 30 seconds.

Resetting the Adjustments

Resetting an adjustment item

1 Press the ⊖ and ↓/↑ buttons to select the OSD containing the item you want to reset, and press the ⊖ button again.

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

3 Press the ⇢ (reset) button.

Resetting all of the adjustment data for the current input signal

When there is no OSD displayed, press the ⇢ (reset) button.
All of the adjustment data for the current input signal is reset to the factory settings.
Note that adjustment data not affected by changes in input signal (OSD language , OSD position, and the control lock function) is not reset to the factory settings.

Resetting all of the adjustment data for all input signals

Press and hold the ⇢ (reset) button for more than two seconds.
All of the adjustment data, including the brightness and contrast, is reset to the factory settings.

Note
The ⇢ (reset) button does not function when 🔑 (CONTROL LOCK) is set to ON.

EN

Power Saving Function

This monitor meets the power-saving guidelines set by VESA and ENERGY STAR, as well as the more stringent NUTEK .
If the monitor is connected to a computer or video graphics board that is VESA DPMS (Display Power Management Signaling) compliant, the monitor will automatically reduce power consumption in three stages as shown below.

Notes

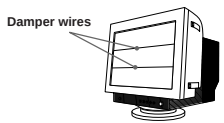
- When your computer is in a power saving mode, MONITOR IS IN POWER SAVE MODE appears on the screen if you press any button on the monitor (page 15). After a few seconds, the monitor enters the power saving mode again. Once the horizontal and vertical sync signals are detected, the monitor automatically resumes its normal operation mode.
- The power management feature is invoked when the computer recognizes that you have not used your mouse or keyboard for a user-definable period of time.
- IBM recommends that you switch off your monitor at the end of each working day, or whenever you expect to leave it unused for long periods during the day.

	Power consumption mode	Screen	Horizontal sync signal	Vertical sync signal	Power consumption	Recovery time	⏻ indicator
1	Normal operation	active	present	present	≤ 130 W	—	Green
2	Standby (1st mode)	blank	absent	present	≤ 15 W	Approx. 5 sec.	Green and orange alternate
3	Suspend (2nd mode) (sleep)*	blank	present	absent	≤ 15 W	Approx. 5 sec.	Green and orange alternate
4	Active-off (3rd mode) (deep sleep)*	blank	absent	absent	≤ 3 W	Approx. 15 sec.	Orange
5	Power-off	—	—	—	≤ 0.5 W	—	Off

* "Sleep" and "deep sleep" are power saving modes defined by the Environmental Protection Agency.

Damper Wires

When viewing a white background, very thin horizontal lines may be visible on the screen as shown below. These lines are the shadows of the damper wires and are characteristic of CRTs that use aperture grilles. The wires are attached to the aperture grille on the inside of the Trinitron tube and prevent the vibration of the aperture grille.



Plug & Play

This monitor complies with the DDC1, DDC2B and DDC2Bi Display Data Channel (DDC) standards of VESA.
When a DDC1 host system is connected, the monitor 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 or DDC2Bi host system is connected, the monitor automatically switches to the appropriate standard.

Preset Modes

No.	Resolution (dots × lines)	Horizontal Frequency	Vertical Frequency	Graphics Mode
1	640 × 480	31.5 kHz	60 Hz	VGA
2	640 × 480	37.5 kHz	75 Hz	VESA
3	640 × 480	43.3 kHz	85 Hz	VESA
4	800 × 600	46.9 kHz	75 Hz	VESA
5	800 × 600	53.7 kHz	85 Hz	VESA
6	1024 × 768	60.0 kHz	75 Hz	VESA
7	1024 × 768	68.7 kHz	85 Hz	VESA
8	1280 × 1024	80.0 kHz	75 Hz	VESA
9	1280 × 1024	91.1 kHz	85 Hz	VESA
10	1600 × 1200	93.8 kHz	75 Hz	VESA

Displaying the Monitor's Information

You can display the model name, serial number and year of manufacture using the monitor's INFORMATION OSD.

Press and hold the ⊖ button for 5 seconds.
The INFORMATION OSD appears.

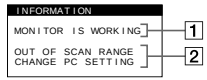
Example:

The INFORMATION OSD includes the model name, serial number, and manufactured year.

The OSD automatically disappears after about 30 seconds.

Warning Messages

If no pictures appears on the screen, one of the following messages appears on the screen.



MONITOR IS WORKING or MONITOR IS IN POWER SAVE MODE appears in the row 1.

If MONITOR IS WORKING appears on the screen

1 **The monitor's condition**
MONITOR IS WORKING
This indicates that the monitor is working properly.

2 **The input signal condition and the remedies**
CHECK SIGNAL CABLE
This indicates that no signal is input. Check that the video signal cable is properly connected and all plugs are firmly seated in their sockets.
OUT OF SCAN RANGE and **CHANGE PC SETTING**
These indicate that the input signal is not supported by the monitor's specifications. Check that the video frequency range is within that specified for the monitor. (Horizontal: 30 – 94 kHz, Vertical: 48 –120 Hz)

If MONITOR IS IN POWER SAVE MODE appears on the screen

1 **The monitor's condition**
MONITOR IS IN POWER SAVE MODE
This indicates that the computer is in power saving mode. This message is displayed only when your computer is in a power saving mode and you press any of the buttons on the monitor.

2 **The remedies**
ACTIVATE USING PC
Try pressing any key on the computer keyboard or moving the mouse, and confirm that your computer's graphic board is completely seated in the correct bus slot.

For more information, see "Troubleshooting" on page 16.

EN

Troubleshooting

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

Symptom	Check these items
No picture	
If the ⏻ indicator is not lit	• Check that the power cord is properly connected. • Check that the ⏻ (power) switch is in the "on" position.
If the "CHECK SIGNAL CABLE" message appears on the screen, or if the ⏻ indicator is either orange or alternating between green and orange	• 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 video input connector. • Check that the graphic board is completely seated in the proper bus slot.
If the "MONITOR IS IN POWER SAVE MODE" message appears on the screen, or if the ⏻ indicator is either orange or alternating between green and orange	• The computer is in power saving mode. Try pressing any key on the computer keyboard, or moving the mouse. • Check that your computer power switch is in the "on" position. • Check that the graphic board is completely seated in the proper bus slot.
If the "OUT OF SCAN RANGE" message appears on the screen	• Check that the video frequency range is within that specified for the monitor. (Horizontal: 30 – 94 kHz, Vertical: 48 – 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 ⏻ indicator is green or flashing orange	• See "Self-diagnosis Function" (page 18).
Picture is scrambled	• Check your graphics board manual for the proper monitor setting. • Check this manual and confirm that the graphics mode and the frequency you are trying to operate at is supported. Even if the frequency is within the proper range, some graphic boards may have a sync pulse that is too narrow for the monitor to sync correctly.
Color is not uniform	• Degauss the monitor (page 10). If you place equipment which generates a magnetic field, such as a loudspeaker, near the monitor, or you change the direction of the monitor, 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.
You cannot adjust the monitor with the buttons on the front panel	• If the control lock function is set to ON, set it to OFF using the OPTION OSD (page12).

Additional Information

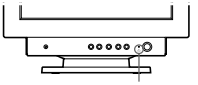
Symptom	Check these items
Screen image is not centered or sized properly	• Adjust the size or centering (page 6). Some video modes do not fill the screen to the edges. This problem tends to occur with certain graphic boards.
Edges of the image are curved	• Adjust the geometry (page 7).
White lines show red or blue shadows at edges	• Adjust the convergence (page 9).
Picture is fuzzy	• Adjust the contrast and brightness (page 5). • Degauss the monitor (page 10). If you place equipment which generates a magnetic field, such as a loudspeaker, near the monitor, or you change the direction of the monitor, 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 red or blue shadows appear along the edges of images, adjust the convergence (page9). • Select MOIRE ADJUST and adjust the moire cancellation effect (page 11).
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, or laser printers. • If you have another monitor close to this monitor, increase the distance between them to reduce the interference. • Try plugging the monitor into a different AC outlet, preferably on a different circuit. • Try the monitor on a different computer in a different room.
Picture is flickering	• Set the refresh rate on the computer to obtain the best possible picture by referring to your computer's manual.
Picture appears to be ghosting	• Eliminate the use of video cable extensions and/or video switch boxes if this symptom occurs. Excessive cable length or a weak connection can produce this symptom.
Wavy or elliptical (moire) pattern is visible	• Select MOIRE ADJUST and adjust the moire cancellation effect (page 11). The moire may be modified depending on the connected computer. • Due to the relationship between resolution, monitor dot pitch and the pitch of some image patterns, certain screen backgrounds sometimes show moire. Change your desktop pattern.
Two fine horizontal lines (wires) are visible	• These wires stabilize the vertically striped aperture grille (page 14). 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 monitor is manually degaussed. This is not a malfunction.

- If the problem persists, call the IBM HelpCenter.
  In the US. call 1-800-772-2227
  In Canada call 1-800-565-3344
- Note the model name and the serial number of your monitor. Also note the make and name of your computer and graphic board.

EN

Self-diagnosis Function

This monitor is equipped with a self-diagnosis function. If there is a problem with your monitor or computer, the screen will go blank and the ⏻ indicator will either light up green or flash orange.



If the ⏻ indicator is green

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

2 **Press the ⏻ button twice to turn the monitor off and then on.**

3 **Press and hold the ➡ button for 2 seconds before the monitor enters power saving mode.**

If all four color bars appear (white, red, green, blue), the monitor is working properly. Reconnect the video input cable and check the condition of your computer.

If the color bars do not appear, there is a potential monitor failure. Inform the IBM HelpCenter of the monitor's condition.

If the ⏻ indicator is flashing orange

Press the ⏻ button twice to turn the monitor off and then on.

If the ⏻ indicator lights up green, the monitor is working properly.

If the ⏻ indicator is still flashing, there is a potential monitor failure. Inform the IBM HelpCenter of the monitor's condition. Be sure to note the model name and serial number of your monitor. Also note the make and model of your computer and video board.

Specifications

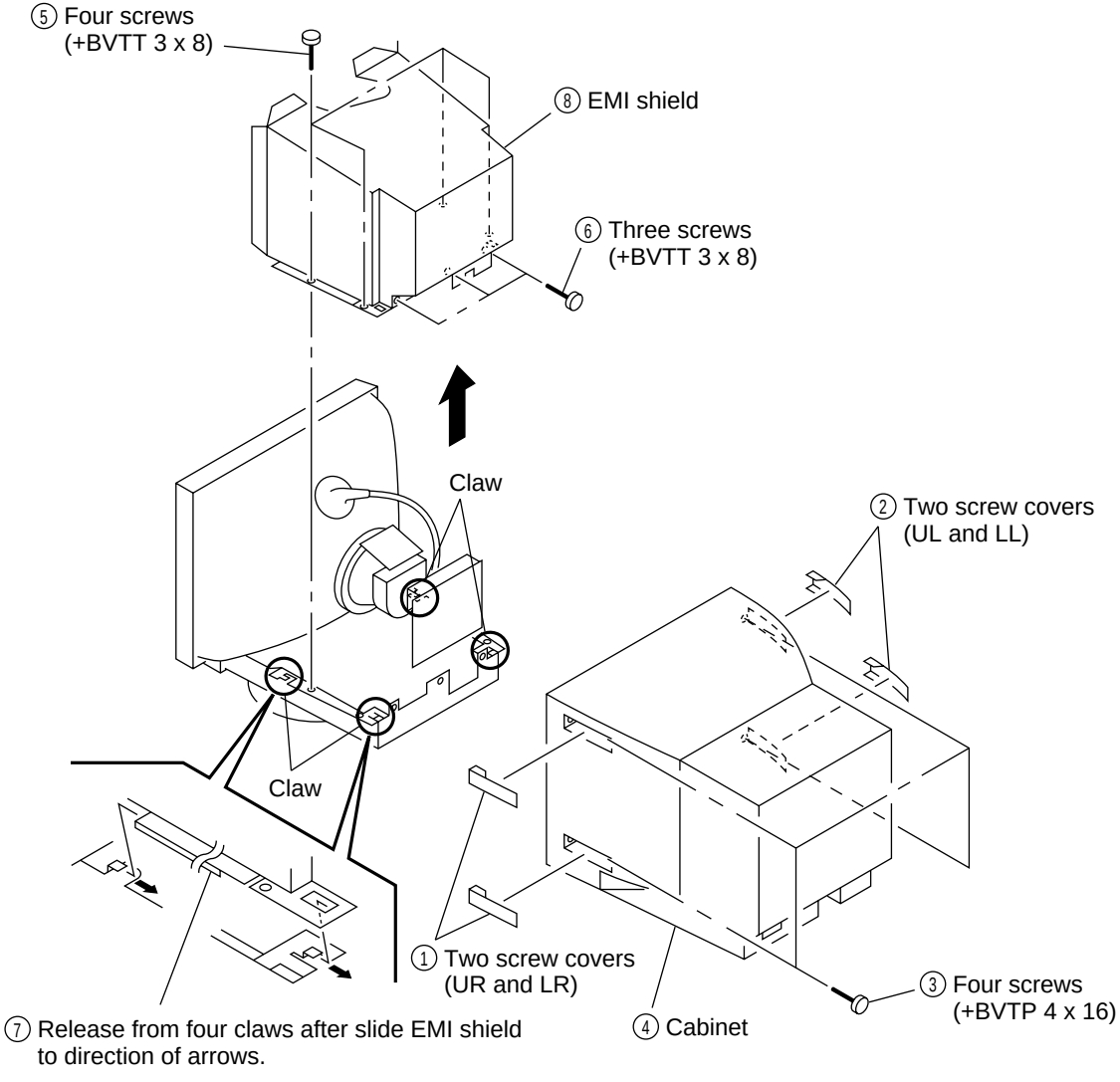
Picture tube	0.24 mm aperture grille pitch 17 inches measured diagonally 90-degree deflection
Viewable image size	Approx. 327 × 243 mm (w/h) ($12\,^{7}/_{8} \times 9\,^{5}/_{8}$ inches) 16.0" viewable diagonal
Resolution	Horizontal: Max. 1600 dots Vertical: Max. 1200 lines
Standard image area	Approx. 312 × 234 mm (w/h) ($12\,^{3}/_{8} \times 9\,^{1}/_{4}$ inches)
Deflection frequency	Horizontal: 30 to 94 kHz Vertical: 48 to 120 Hz 300 < Total Line < 1700
AC input voltage/current	100 to 240 V, 50 – 60 Hz, Max. 1.7 A
Power consumption	Max. 130 W
Dimensions	Approx. 406 × 416 × 431 mm (w/h/d) ($16 \times 16\,^{1}/_{2} \times 17$ inches)
Mass	Approx. 20 kg (44 lb 1 oz)

* Recommended horizontal and vertical timing condition
- Horizontal sync width should be more than 1.0 μsec.
- Horizontal blanking width should be more than 3.0μsec.
- Vertical blanking width should be more than 500 μsec.

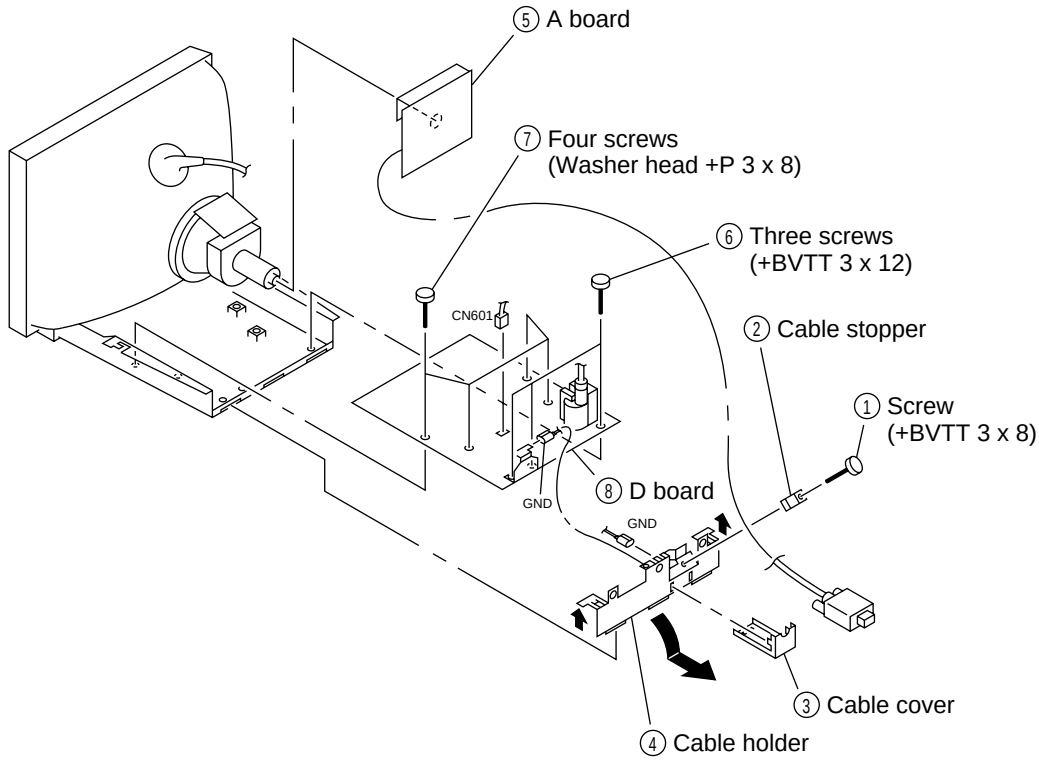
Design and specifications are subject to change without notice.

SECTION 2
DISASSEMBLY

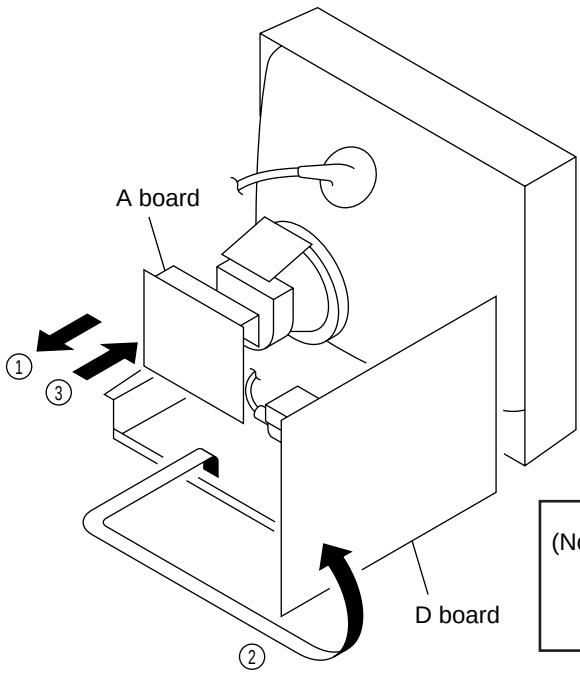
2-1. CABINET AND EMI SHIELD REMOVAL



2-2. A AND D BOARDS REMOVAL

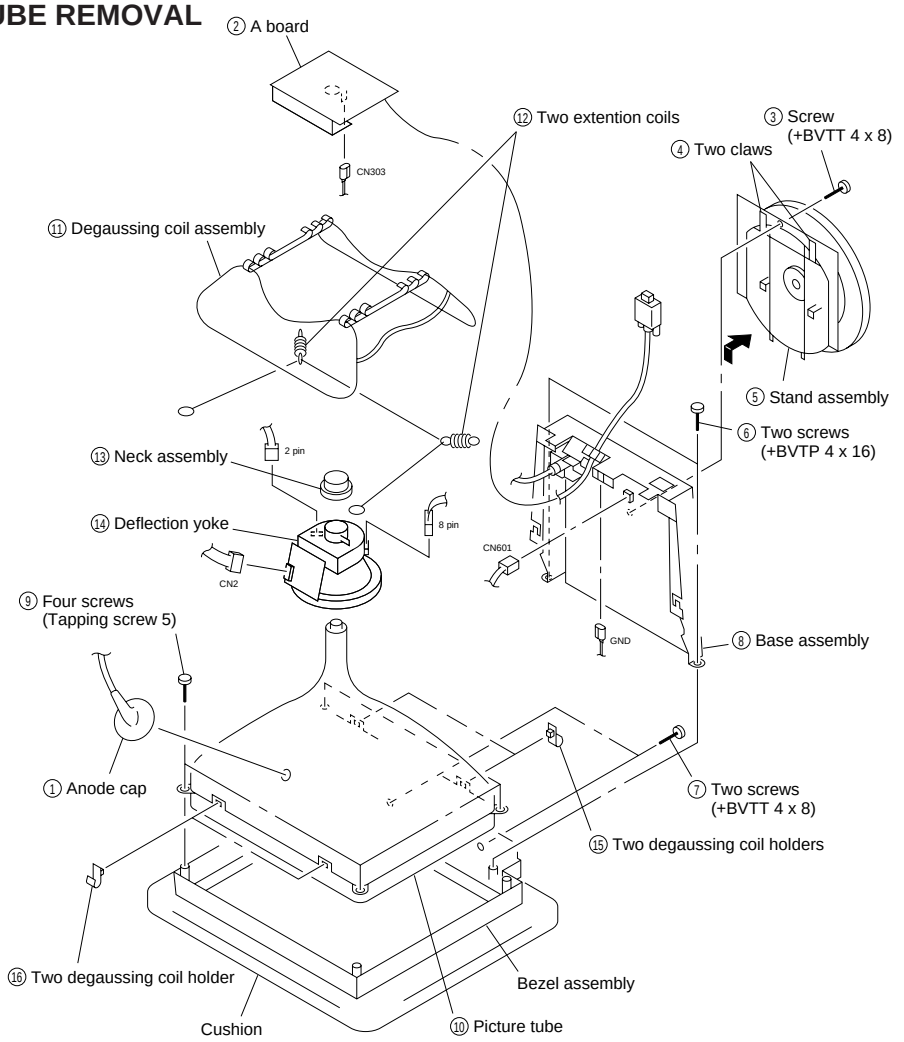


2-3. SERVICE POSITION



(Note) The electric potential of heat sink of IC401 is not GND. So please do not touch it absolutely to the base chassis and etc., which make an ultimate cause of the bad movement or break.

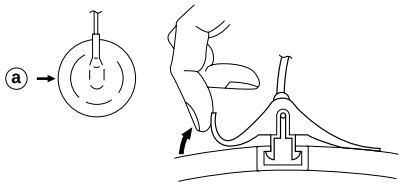
2-4. PICTURE TUBE REMOVAL



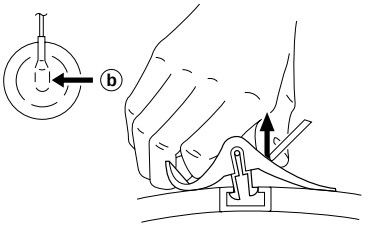
• REMOVAL OF ANODE-CAP

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.

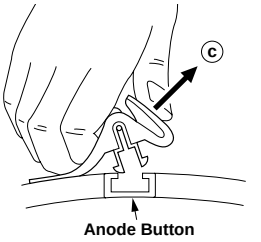
• REMOVING PROCEDURES



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



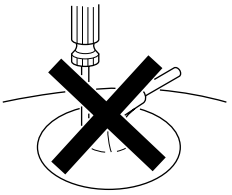
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

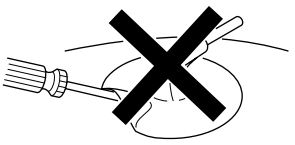


③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

• HOW TO HANDLE AN ANODE-CAP

① Don't scratch the surface of anode-caps with shartp shaped material!
② Don't press the rubber hardly not to damege 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 damage the rubber.





SECTION 3
SAFETY RELATED ADJUSTMENT

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, C532, C534, C539, C553, C554, C555, C556, C558, C561, R540, R541, R542, R544, R564, R567, R568, RV501, T501 (FBT)
HV Protector Circuit Check	D board IC607, IC901, D515, D517, C540, C542, C544, R510, R543 R547, R549, R552, R595, T501 (FBT)
Beam Current Protector Circuit Check	D board IC605, IC607, IC901, C535, C541, R545, R546, R548, R550, R596, R934, T501 (FBT)

* Confirm one minute later turning on the power.

- **HV Protector Circuit Check**

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

Standard voltage : 35.80 $^{+0.00}_{-0.10}$ V DC

Check Condition

- Input voltage : 120 ± 2 V AC
- Input signal : Cross hatch (White lines on Black back ground) at 68.7kHz / 85Hz (Mode 7)
- Beam control : CONT : 0 (min), BRT : 0 (min)

- **Beam Current Protector Check**

An ammeter in series between FBT pin ⑪ on D board and GND, then, 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 : 1.55 $^{+0.00}_{-0.10}$ mA

Check Condition

- Input voltage : 120 ± 2 V AC
- Input signal : Cross hatch (Black lines on white) at 31.5kHz / 60Hz (Mode 1)
- Beam control : CONT : 0 (min), BRT : 0 (min)

- **B+ Voltage Check**

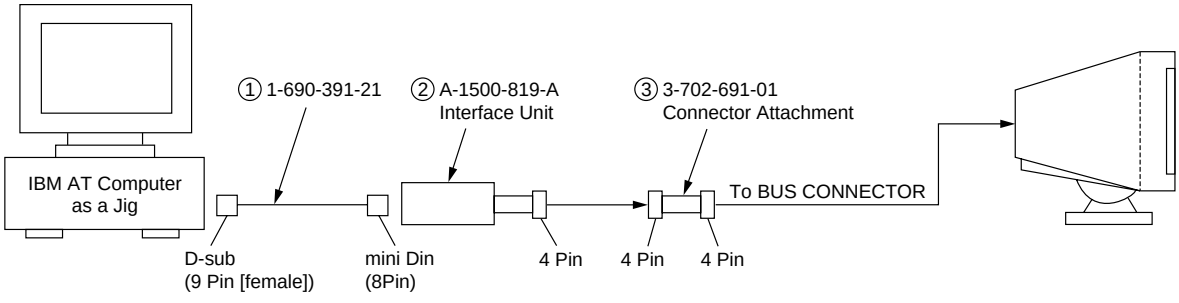
Standard voltage : 179.0 ± 3.0 V DC

Check Condition

- Input voltage : 120 V AC
  Note : Use NF power supply or make sure that distortion factor is 3% or less.
- Input signal : Cross hatch (White lines on black) at 68.7 kHz / 85Hz (Mode 7)
- Beam control : CONT : 255 (max), BRT : 255 (max)

SECTION 4
ADJUSTMENTS

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.



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

- **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.

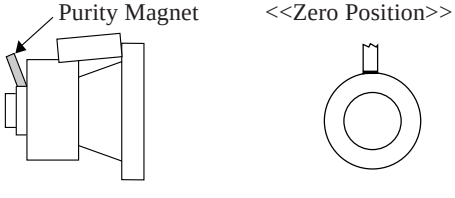
Note: Off the outputs from R ch and B ch of SG.

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.

Note: "TILT" shall be set at 0

- **Landing Fine Adjustment**

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

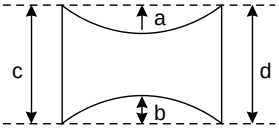
L/D control specification

±5	±7	±5
±5	±7	±5
±5	±7	±5

6. Adjust the DY position and purity, and the DY tilt.
7. Fasten DY with screw.

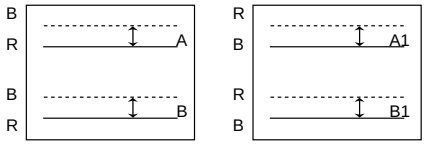
Note: Torque 22 ±2kgcm (2.2 ± 0.2 Nm)
Perform auto degaussing.

8. Adjust each top and bottom pins by two wedges and then not swing DY neck right and left. Adjust H. Trap to become horizontal trapezoid(c = d).
(When fixing DY with wedges, insert wedges completely so that the DY does not shake.)



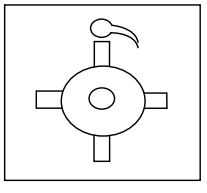
“a” and “b” must be equal, and “c” and “d” must be equal.

Signal : Inverted crosshatch (Make the monogreen)



“A” and “B”, “A1” and “B1” must be equal.

<How to drive in wedges>



9. If the L/D is not within the standards adjust purity magnet and in front and behind of DY to satisfy L/D adjustment standards. If the corner is not within the standards, adjust disc magnet to satisfy L/D adjustment standards.

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.

- **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.

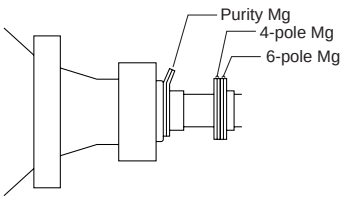
- **Convergence Adjustment**

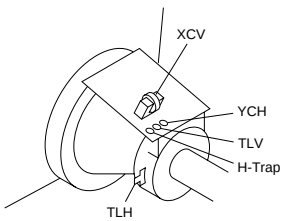
Static convergence

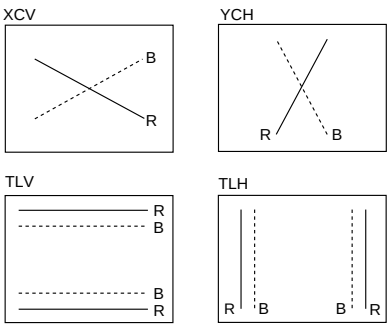
1. Receive the crosshatch of R and B.
2. Recieve H. STAT and V. STAT by 4 pole magnet.
3. Recieve the white crosshatch signal.
4. Recieve HMC and VMC by 6 pole magnet.
5. Recieve the crosshatch of R and B.

Note: Adjust H. STAT and V. STAT in the beggining by 4 pole magnet not adjuust them by register immediately.

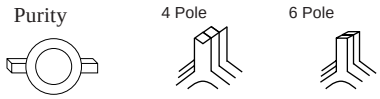
6. Insert to TLH correction board and correct H. TILT.
7. Correct XCV by XCV core.
8. Correct V. TILT bu TLV-VR.
9. Adjust Y cross by YCH-VR.
10. Correct to get the most suitable convergence pattern. When necessary, adjust above mentioned from step 1 to step 10 reiterate.
11. Paint lock TLH corection board, neck assy 4 and 6 pole magnet.



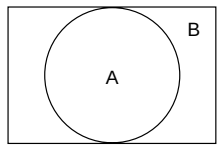




<<Neck Assy's Zero Position>>



- **Convergence Specification**



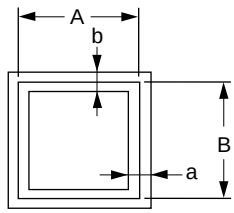
MODE	All mode
A	0.20 mm
B	0.24 mm

- **White Balance Adjustment Specification**

(1) 9300K
x = 0.283 ± 0.005
y = 0.298 ± 0.005

(2) 5000K
x = 0.346 ± 0.005
y = 0.359 ± 0.005

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

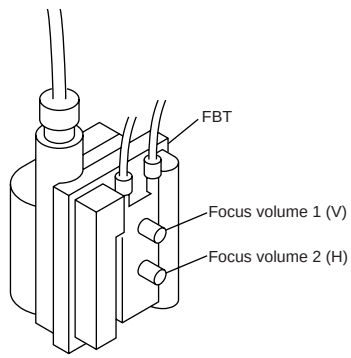


MODE	All mode
A	312 mm
B	234 mm

a ≦ 1.8 mm
b ≦ 1.8 mm

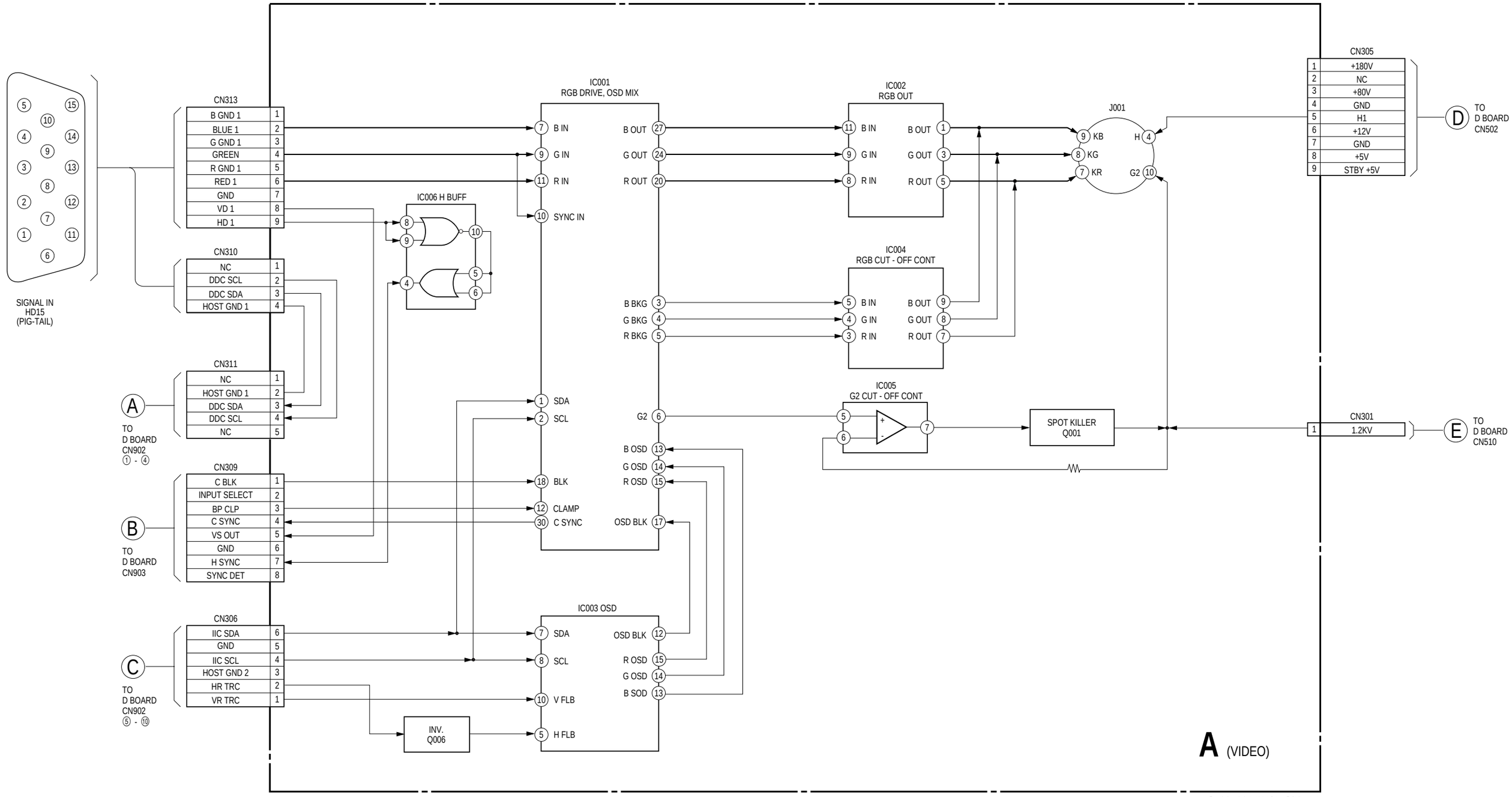
- **Focus adjustment**

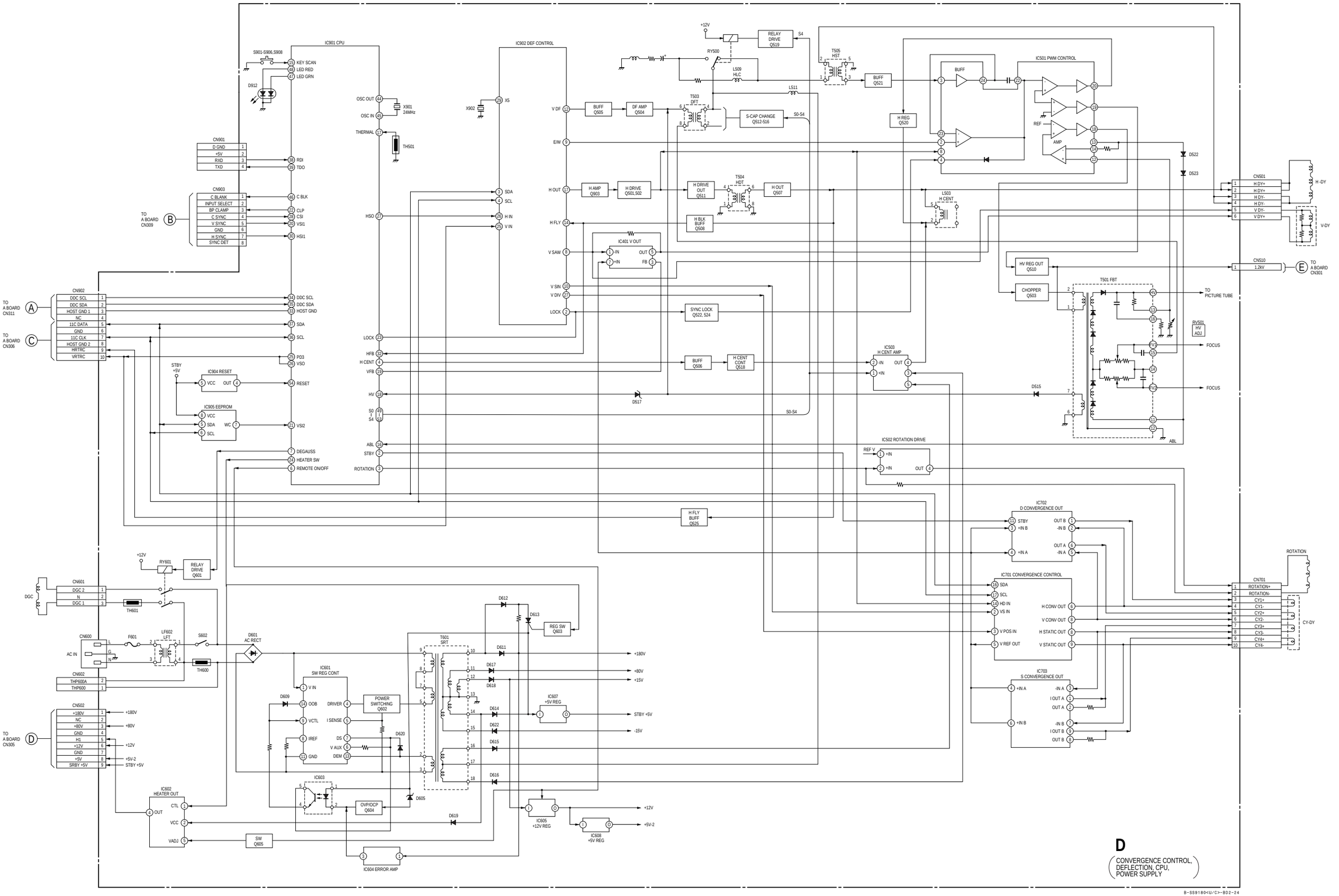
Adjust the focus volume 1 and 2 for the optimum focus.
Standard: HMC, VMC ± 0.1 mm (In the center of screen)



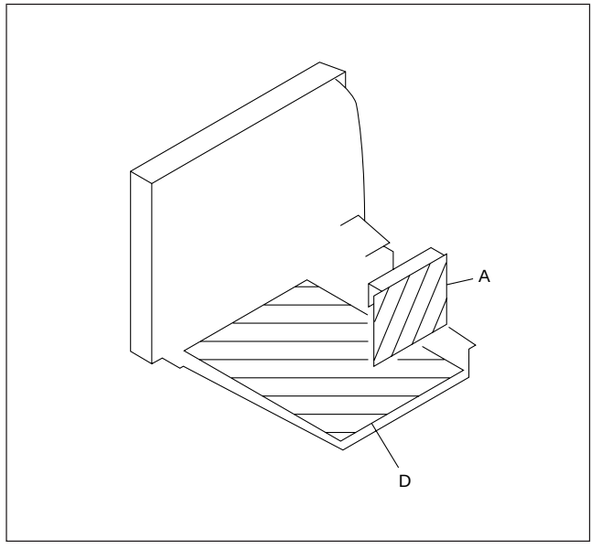
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAMS




IC901 CPU
S901-S906,S908
KEY SCAN
LED RED
LED GRN
D912
OSC OUT
OSC IN
X901 24MHz
THERMAL
TH501
CN901
D GND
+5V
RXD
TXD
RDI
TDO
CN903
C BLANK
INPUT SELECT
BP CLAMP
C SYNC
V SYNC
GND
H SYNC
SYNC DET
C BLK
CLP
CSI
VSI1
HSI1
TO A BOARD CN309
CN902
DDC SCL
DDC SDA
HOST GND 1
NC
11C DATA
GND
11C CLK
HOST GND 2
HRTRC
VRTRC
TO A BOARD CN311
TO A BOARD CN306
DDC SCL
DDC SDA
HOST GND
SDA
SCL
PD3
VSO
STBY +5V
IC904 RESET
VCC
OUT
RESET
IC905 EEPROM
VCC
SDA
SCL
WC
VSI2
DEGAUSS
HEATER SW
REMOTE ON/OFF
HSO
LOCK
HFB
H CENT
VFB
HV
S0 S4
ABL
STBY
ROTATION
IC902 DEF CONTROL
X902
X5
SDA
SCL
H IN
V IN
V DF
E/W
H OUT
H FLY
V SAW
V SIN
V DIV
LOCK
IC401 V OUT
-IN
+IN
OUT
FB
SYNC LOCK Q522, 524
BUFF Q506
H CENT CONT Q518
D517
S0-S4
+12V
RELAY DRIVE Q519
S4
RY500
L509 HLC
L511
T505 HST
BUFF Q521
H REG Q520
T503 DFT
BUFF Q505
DF AMP Q504
S-CAP CHANGE Q512-S16
S0-S4
H AMP Q903
H DRIVE Q501,502
H DRIVE OUT Q511
T504 HDT
H OUT Q507
H BLK BUFF Q508
IC501 PWM CONTROL
BUFF
REF
AMP
D522
D523
L503 H CENT
CN501
H DY+
H DY+
H DY-
H DY-
V DY-
V DY+
H-DY
V-DY
HV REG OUT Q510
CHOPPER Q503
CN510
1.2kV
TO A BOARD CN301
T501 FBT
TO PICTURE TUBE
RV501 HV ADJ
FOCUS
FOCUS
D515
ABL
IC503 H CENT AMP
IC502 ROTATION DRIVE
REF V
+IN
+IN
OUT
H FLY BUFF Q525
IC702 D CONVERGENCE OUT
STBY
+IN B
+IN A
OUT B
-IN B
OUT A
-IN A
IC701 CONVERGENCE CONTROL
SDA
SCL
HD IN
VS IN
V POS IN
V REF OUT
H CONV OUT
V CONV OUT
H STATIC OUT
V STATIC OUT
IC703 S CONVERGENCE OUT
+IN A
+IN B
-IN A
I OUT A
OUT A
-IN B
I OUT B
OUT B
ROTATION
CN701
ROTATION+
ROTATION-
CY1+
CY1-
CY2+
CY2-
CY3+
CY3-
CY4+
CY4-
CY-DY
+12V
RY601
RELAY DRIVE Q601
DGC
CN601
DGC 2
N
DGC 1
TH601
CN600
AC IN
F601
LF602 LFT
S602
TH600
CN602
THP600A
THP600
D601 AC RECT
IC601 SW REG CONT
V IN
OOB
VCTL
IREF
GND
DRIVER
I SENSE
DS
V AUX
DEM
POWER SWITCHING Q602
D609
D620
T601 SRT
D612
D613
REG SW Q603
D611
D617
D618
D614
D622
D615
D616
+180V
+80V
+15V
STBY +5V
-15V
IC607 +5V REG
CN502
+180V
NC
+80V
GND
H1
+12V
GND
+5V
SRBY +5V
TO A BOARD CN305
+5V-2
IC602 HEATER OUT
CTL
VCC
VADJ
OUT
SW Q605
IC603
OVP/OCP Q604
D605
D619
IC605 +12V REG
IC608 +5V REG
IC604 ERROR AMP
D
CONVERGENCE CONTROL, DEFLECTION, CPU, POWER SUPPLY

5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted. (pF: μμF) Capacitors without voltage indication are all 50 V.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

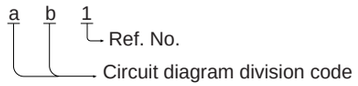
  Pitch: 5 mm
  Rating electrical power 1/4 W (CHIP : 1/10 W)

- All resistors are in ohms.
- : nonflammable resistor.
- : fusible resistor.
- △ : internal component.
- : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-ground.
- : earth-chassis.
- All voltages are in V.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- ∗ : Can not be measured.
- Circled numbers are waveform references.
- : B + bus.
- : B – bus.
- The components identified by ⧓ in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.
  Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪, make the necessary adjustments indicated. (See page 3-1)
- When replacing the part in below table, be sure to perform the related adjustment.

	Part Replaced (⧓)
HV ADJ	RV501

	Part Replaced (◪)
HV Regulator Circuit Check	D board IC501, C532, C534, C539, C553, C554, C555, C556, C558, C561, R540, R541, R542, R544, R564, R567, R568, RV501, T501 (FBT)
HV Protector Circuit Check	D board IC607, IC901, D515, D517, C540, C542, C544, R510, R543 R547, R549, R552, R595, T501 (FBT)
Beam Current Protector Circuit Check	D board IC605, IC607, IC901, C535, C541, R545, R546, R548, R550, R596, R934, T501 (FBT)

- Divided circuit diagram
  One sheet of D board circuit diagram is divided into four sheets, each having the code D-ⓐ to D-ⓓ . For example, the destination ab1 on the D-ⓐ sheet is connected to ab1 on the D-ⓑ sheet.



Terminal name of semiconductors in silk screen printed circuit (∗)

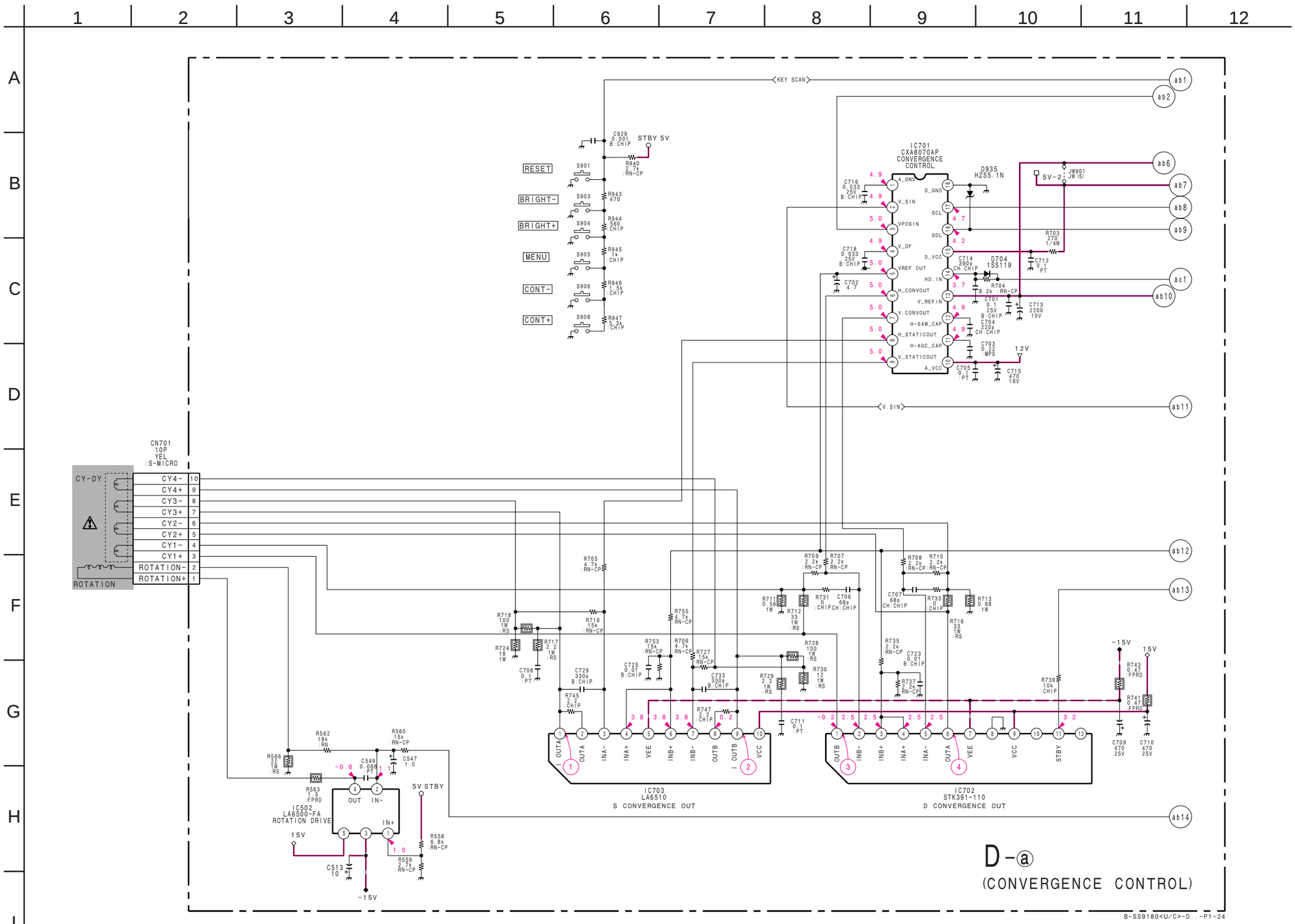
	Device	Printed symbol	Terminal name	Circuit
①	Transistor	T	Collector / Base T Emitter	
②	Transistor	—	Collector / Base Emitter	
③	Diode	⊓	Cathode — Anode	
④	Diode	T	Cathode / Anode T (NC)	
⑤	Diode	—	Cathode / Anode (NC)	
⑥	Diode	T	Common / Anode T Cathode	
⑦	Diode	—	Common / Anode Cathode	
⑧	Diode	T	Common / Anode T Anode	
⑨	Diode	—	Common / Anode Anode	
⑩	Diode	T	Common / Cathode T Cathode	
⑪	Diode	—	Common / Cathode Cathode	
⑫	Diode	∥	Anode Anode Cathode / Cathode Anode Anode	
⑬	Transistor (FET)	∥	Drain / Source Gate	
⑭	Transistor (FET)	⊢	Drain / Source Gate	
⑮	Transistor (FET)	∥	□ Source □ Drain □ Gate	
⑯	Transistor	∥	□ Emitter □ Collector □ Base	
–	Discrete semiconductot			

(Chip semiconductors that are not actually used are included.)

Ver.1.6

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

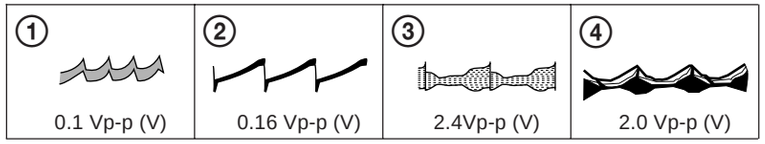


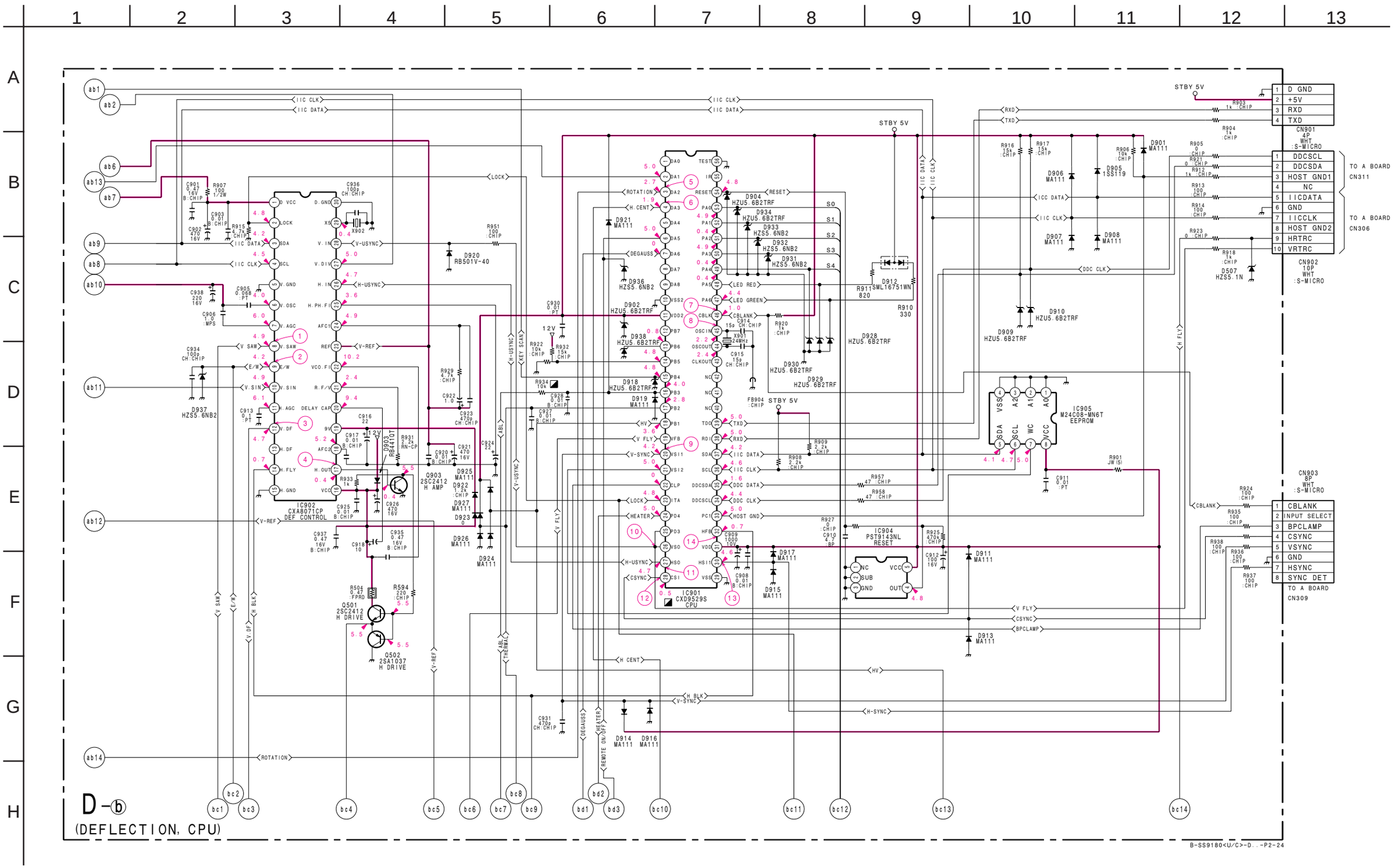
- Divided circuit diagram
  One sheet of D board circuit diagram is divided into four sheets, each having the code D-ⓐ to D-ⓓ . For example, the destination ab1 on the D-ⓐ sheet is connected to ab1 on the D-ⓑ sheet.

a b 1
- 1 — Ref. No.
- a b — Circuit diagram division code

Schematic diagram

- **D - ⓐ BOARD WAVEFORMS**



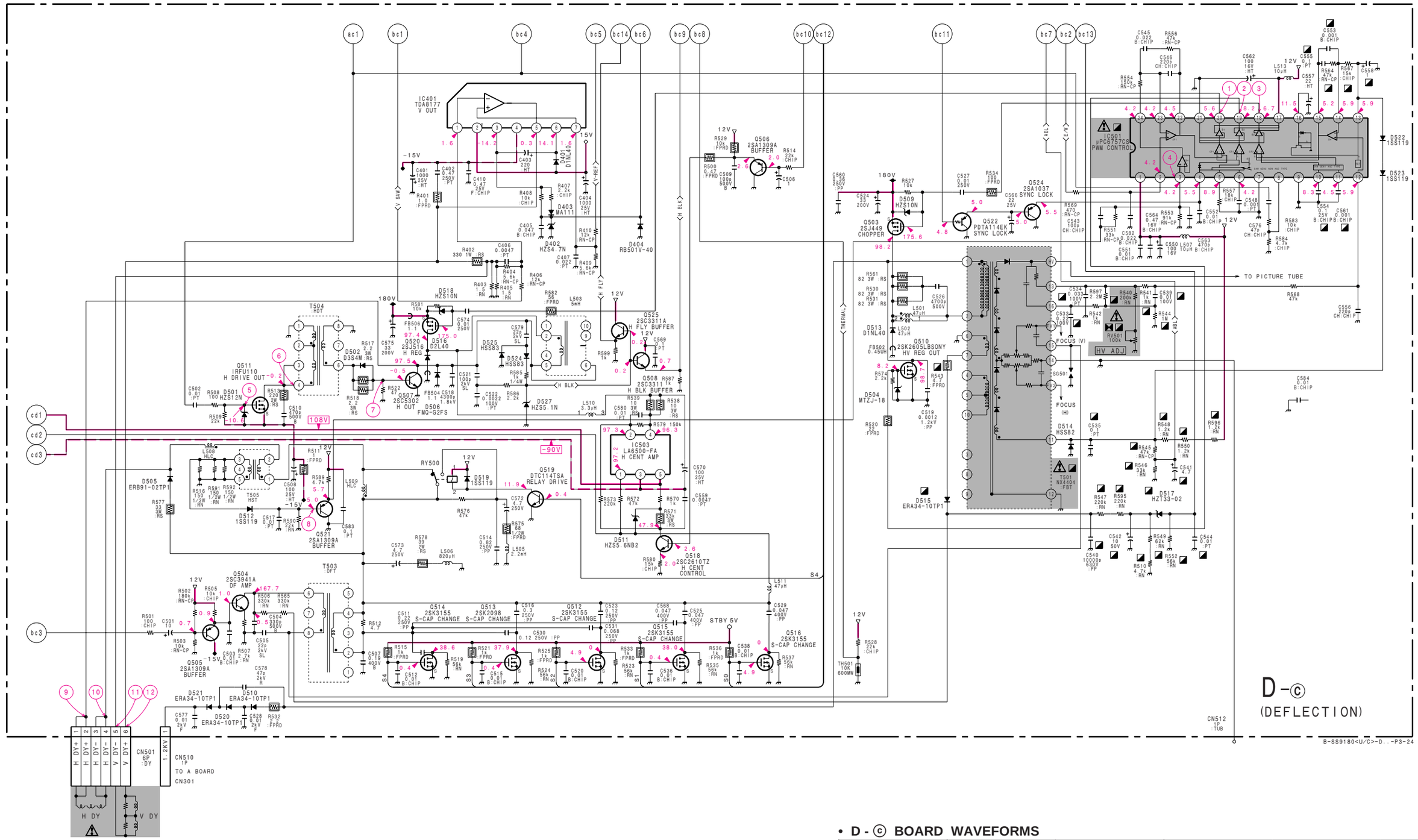


- Divided circuit diagram
  One sheet of D board circuit diagram is divided into four sheets, each having the code D-ⓐ to D-ⓓ . For example, the destination (ab1) on the D-ⓐ sheet is connected to (ab1) on the D-ⓑ sheet.

  a b 1
  - 1 → Ref. No.
  - a b → Circuit diagram division code

- **D - ⓑ BOARD WAVEFORMS**

① 2.6 Vp-p (V)	② 0.3 Vp-p (V)	③ 1.0 Vp-p (V)	④ 0.7 Vp-p (H)	⑤ 5.0 Vp-p (H)	⑥ 5.0 Vp-p (H)	⑦ 4.0 Vp-p (H)
⑧ 3.2 Vp-p (24NHz)	⑨ 4.0 Vp-p (V)	⑩ 5.0 Vp-p (V)	⑪ 5.0 Vp-p (H)	⑫ 4.0 Vp-p (H)	⑬ 5.0 Vp-p (H)	⑭ 4.6 Vp-p (H)



- Divided circuit diagram
  One sheet of D board circuit diagram is divided into four sheets, each having the code D-ⓐ to D-ⓓ . For example, the destination (ab1) on the D-ⓐ sheet is connected to (ab1) on the D-ⓑ sheet.

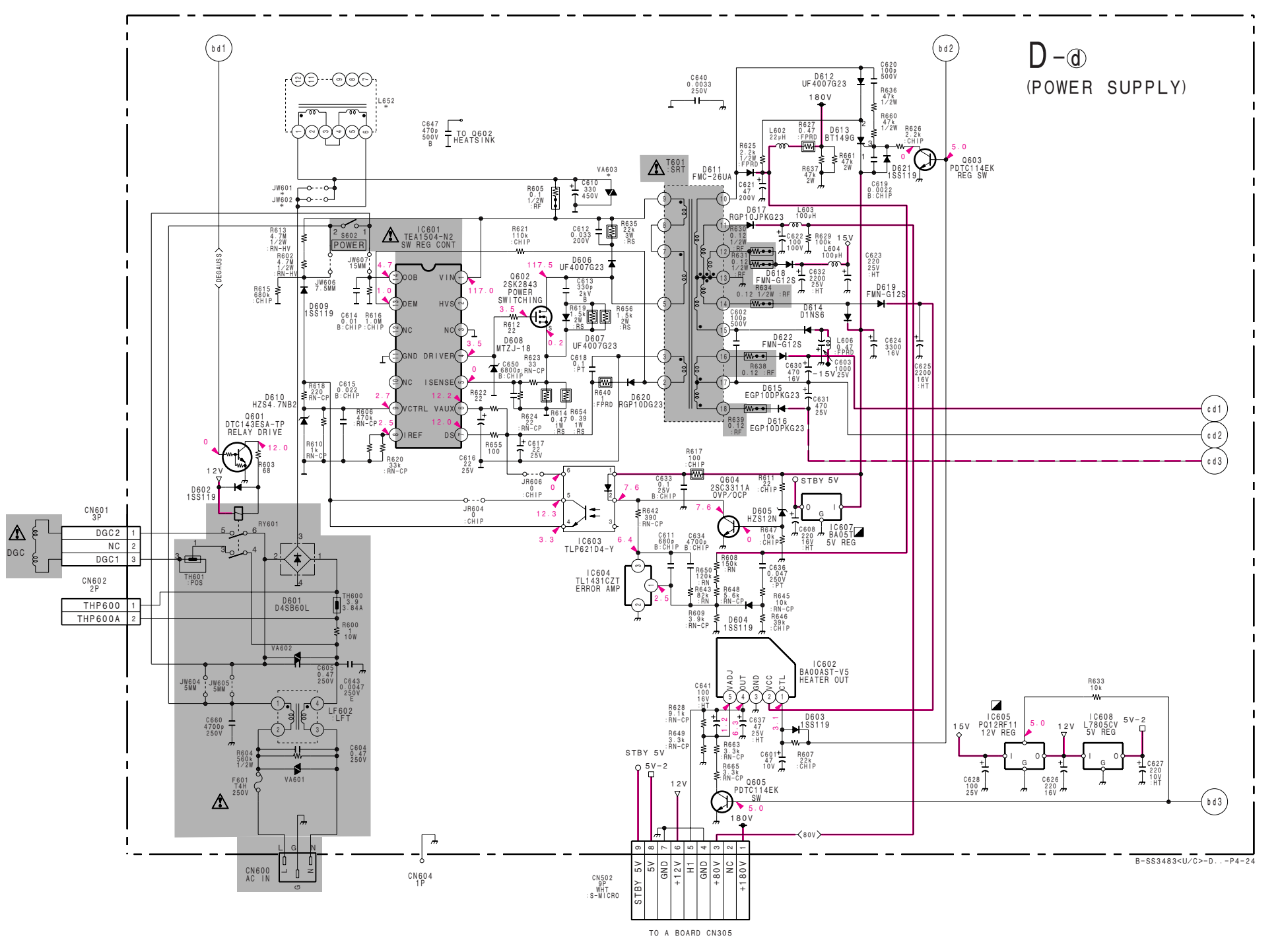
a b 1
- 1 — Ref. No.
- a b — Circuit diagram division code

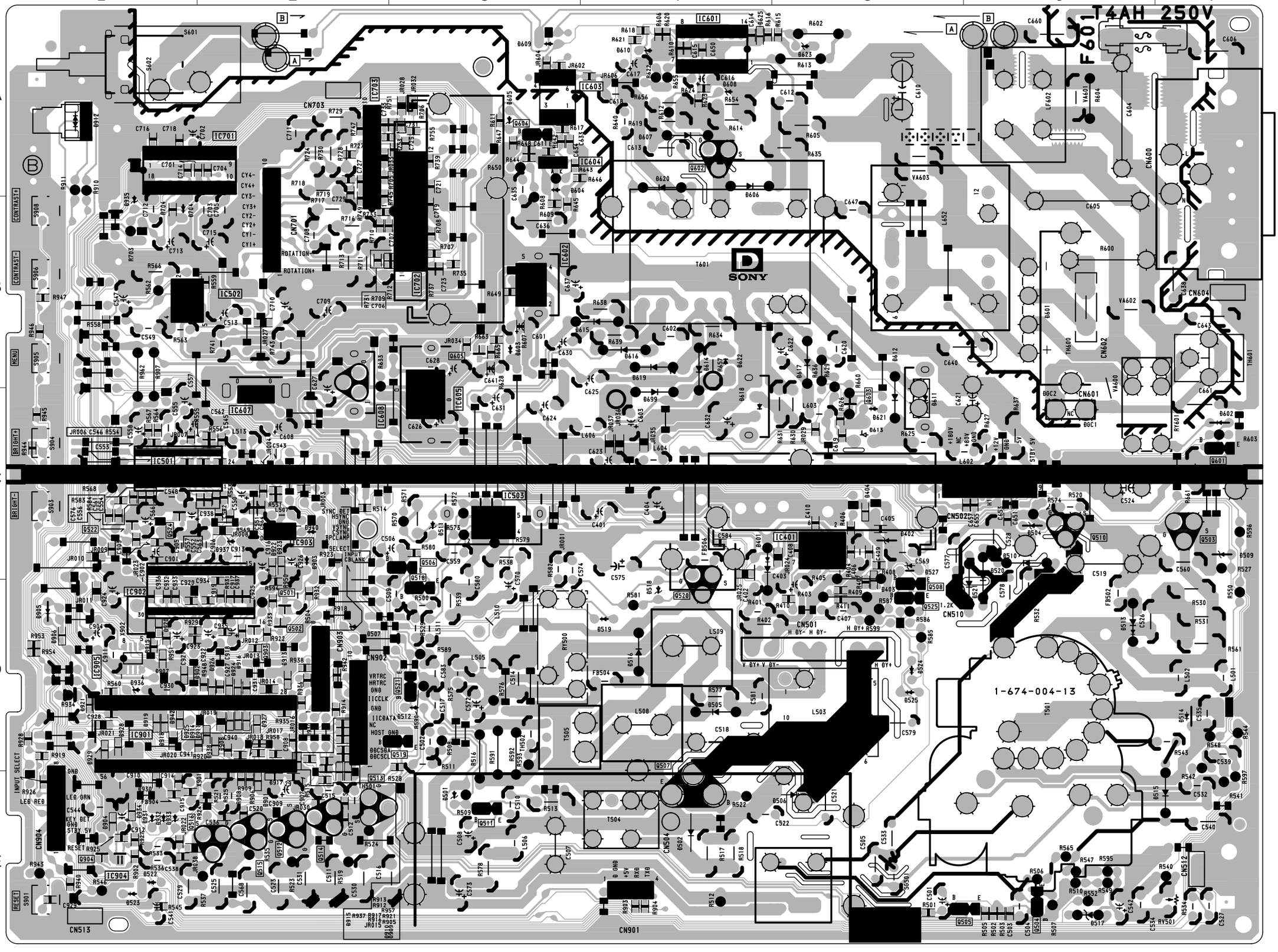
• D - ⓒ BOARD WAVEFORMS

① 10.0 Vp-p (H)	② 14.0 Vp-p (H)	③ 12.0 Vp-p (H)	④ 0.3 Vp-p (V)	⑤ 10.0 Vp-p (H)	⑥ 28.0 Vp-p (H)
⑦ 13.0 Vp-p (H)	⑧ 0.7 Vp-p (V)	⑨ 1000 Vp-p (H)	⑩ 60.0 Vp-p (H)	⑪ 1.4 Vp-p (V)	⑫ 60.0 Vp-p (V)

Schematic diagram

Schematic diagram


D-ⓓ
(POWER SUPPLY)
bd1
bd2
bd3
cd1
cd2
cd3
L652
C647 470p 500V B
TO Q602 HEATSINK
JW601
JW602
S602 POWER
IC601 TEA1504-N2 SW REG CONT
OOB
DEM
NC
GND
VCTRL
IREF
VIN
HVS
DRIVER
ISENSE
VAUX
DS
JW607 15MM
JW606 7.5MM
R613 4.7M 1/2W :RN-HV
R602 4.7M 1/2W :RN-HV
R615 680k :CHIP
D609 1SS119
C614 0.01 B:CHIP
R616 1.0M :CHIP
D610 HZS4.7NB2
Q601 DTC143ESA-TP RELAY DRIVE
R603 68
D602 1SS119
12V
CN601 3P
DGC2
NC
DGC1
DGC
CN602 2P
THP600
THP600A
RY601
TH601 :POS
D601 D4SB60L
TH600 3.9 3.84A
R600 1 10W
VA602
C605 0.47 250V
C643 0.0047 250V E
JW604 5MM
JW605 5MM
C660 4700p 250V
LF602 :LFT
R604 560k 1/2W
C604 0.47 250V
VA601
F601 T4H 250V
CN600 AC IN
CN604 1P
DEGAUSS
R605 0.1 1/2W :RF
C610 330 450V
VA603
R621 110k :CHIP
C612 0.033 200V
R635 22k 3W :RS
D606 UF4007G23
Q602 2SK2843 POWER SWITCHING
C613 330p 2kV B
R619 1.5k 2W :RS
R656 1.5k 2W :RS
R612 22
D608 MTZJ-18
D607 UF4007G23
C650 6800p B:CHIP
R623 33 :RN-CP
C618 0.1 :PT
R640 1 :FPRD
D620 RGP10DG23
R622 22
R624 22 :RN-CP
R614 0.47 1W :RS
R654 0.39 1W :RS
R655 100
C617 22 25V
C616 22 25V
R618 220 :RN-CP
C615 0.022 B:CHIP
R606 470k :RN-CP
R610 1k :RN-CP
R620 33k :RN-CP
JR606 0 :CHIP
JR604 0 :CHIP
IC603 TLP621D4-Y
C640 0.0033 250V
T601 :SRT
D611 FMC-26UA
D612 UF4007G23
180V
C620 100p 500V
R636 47k 1/2W
R660 47k 1/2W
R626 2.2k :CHIP
Q603 PDTC114EK REG SW
D621 1SS119
C619 0.0022 B:CHIP
L602 22μH
R627 0.47 :FPRD
D613 BT149G
R625 2.2k 1/2W :FPRD
R661 47k 2W
R637 47k 2W
C621 47 200V
D617 RGP10JPKG23
L603 100μH
R630 0.12 1/2W :RF
R631 0.12 1/2W :RF
C622 100 100V
R629 100k
L604 100μH
15V
C623 220 25V :HT
D618 FMN-G12S
C632 2200 25V :HT
R634 0.12 1/2W :RF
D619 FMN-G12S
D614 D1NS6
C602 100p 500V
D622 FMN-G12S
L606 0.47 :FPRD
C624 3300 16V
C625 2200 16V :HT
R638 0.12 :RF
C630 470 16V
C603 1000 25V
-15V
D615 EGP10DPKG23
C631 470 25V
R639 0.12 :RF
D616 EGP10DPKG23
R617 100 :CHIP
C633 0.1 25V B:CHIP
Q604 2SC3311A OVP/OCP
R611 22 :CHIP
STBY 5V
D605 HZS12N
R647 10k :CHIP
C608 220 16V :HT
IC607 BA05T 5V REG
R642 390 :RN-CP
C611 680p B:CHIP
C634 4700p B:CHIP
IC604 TL1431CZT ERROR AMP
R608 150k :RN
R650 120k :RN
R643 82k :RN
R648 5.6k :RN-CP
C636 0.047 250V :PT
R645 10k :RN-CP
R646 39k :CHIP
R609 3.9k :RN-CP
D604 1SS119
IC602 BA00AST-V5 HEATER OUT
VADJ
OUT
GND
VCC
CTL
C641 100 16V :HT
R628 9.1k :RN-CP
R649 3.3k :RN-CP
C637 47 25V :HT
D603 1SS119
R663 3.3k :RN-CP
R665 3.3k :RN-CP
C601 47 10V
R607 22k :CHIP
STBY 5V
5V-2
12V
Q605 PDTC114EK SW
180V
80V
R633 10k
IC605 PQ12RF11 12V REG
IC608 L7805CV 5V REG
C628 100 25V
C626 220 16V
C627 220 10V :HT
CN502 9P WHT :S-MICRO
STBY 5V
5V
GND
+12V
H1
GND
+80V
NC
+180V
TO A BOARD CN305
B-SS3483<U/C>-D..-P4-24


T4AH 250V
F601
SONY
1-674-004-13
CONTRAST+
CONTRAST-
MENU
BRIGHT+
BRIGHT-
INPUT SELECT
RESET
ROTATION-
ROTATION+

• D BOARD
SEMICONDUCTOR LOCATION

IC		
IC401	C-5	
IC501	C-1	
IC502	B-1	
IC503	C-3	
IC601	A-4	
IC602	B-3	
IC603	A-3	
IC604	A-3	
IC605	C-3	
IC607	C-2	
IC608	C-2	
IC701	A-2	
IC702	B-3	
IC703	A-2	
IC901	D-1	
IC902	D-1	
IC904	E-1	
IC905	D-1	

TRANSISTOR		
		*
Q501	D-2	①
Q502	D-2	①
Q503	C-7	–
Q504	E-6	–
Q505	E-6	–
Q506	C-3	–
Q507	D-4	–
Q508	D-5	–
Q510	C-6	–
Q511	E-3	–
Q512	E-2	–
Q513	E-2	–
Q514	E-2	–
Q515	E-2	–
Q516	E-2	–
Q518	D-3	–
Q519	D-3	–
Q520	D-4	–
Q521	D-3	–
Q522	C-1	①
Q524	C-1	①
Q525	D-5	–
Q601	C-7	–
Q602	A-4	–
Q603	C-5	①
Q604	A-3	–
Q605	B-3	①
Q903	D-2	①

DIODE		
		*
D401	C-4	–
D402	C-5	–
D403	D-5	③
D404	C-5	③
D501	E-3	–
D502	E-4	–
D504	C-6	–
D505	D-4	–
D506	E-5	–
D507	D-2	–
D509	C-7	–
D510	C-6	–
D511	C-3	–
D512	D-3	–
D513	D-6	–
D514	D-7	–
D515	E-7	–
D516	D-4	–
D517	E-6	–
D518	D-4	–
D519	D-4	–
D520	C-6	–
D521	C-6	–
D522	E-1	–
D523	E-1	–
D524	D-5	–
D525	D-5	–
D527	C-5	–
D601	B-6	–
D602	C-7	–
D603	B-3	–
D604	A-3	–
D605	A-3	–
D606	A-4	–
D607	A-4	–
D608	A-4	–
D609	A-3	–
D610	A-4	–
D611	C-5	–
D612	B-5	–
D613	C-5	–
D614	B-4	–
D615	B-4	–
D616	B-4	–
D617	B-5	–
D618	C-4	–
D619	B-4	–
D620	A-4	–
D621	C-5	–
D622	B-4	–
D704	B-1	–
D901	E-2	③
D902	D-1	③
D903	C-2	–
D904	E-1	③
D905	D-1	–
D906	D-1	③
D907	D-1	③
D908	D-2	③
D909	D-2	③
D910	D-2	③
D911	D-2	③
D912	A-1	–
D913	D-2	③
D914	D-2	③
D915	D-2	③
D916	D-2	③
D917	E-2	③
D918	D-1	③
D919	D-1	③
D920	D-1	③
D921	D-1	③
D924	D-2	③
D925	D-2	③
D926	D-2	③
D927	D-2	③
D928	D-1	③
D929	D-1	③
D930	E-1	③
D931	E-1	–
D932	E-1	–
D933	E-1	–
D934	E-1	③
D935	B-1	–
D936	D-1	–
D937	C-2	–
D938	D-2	③

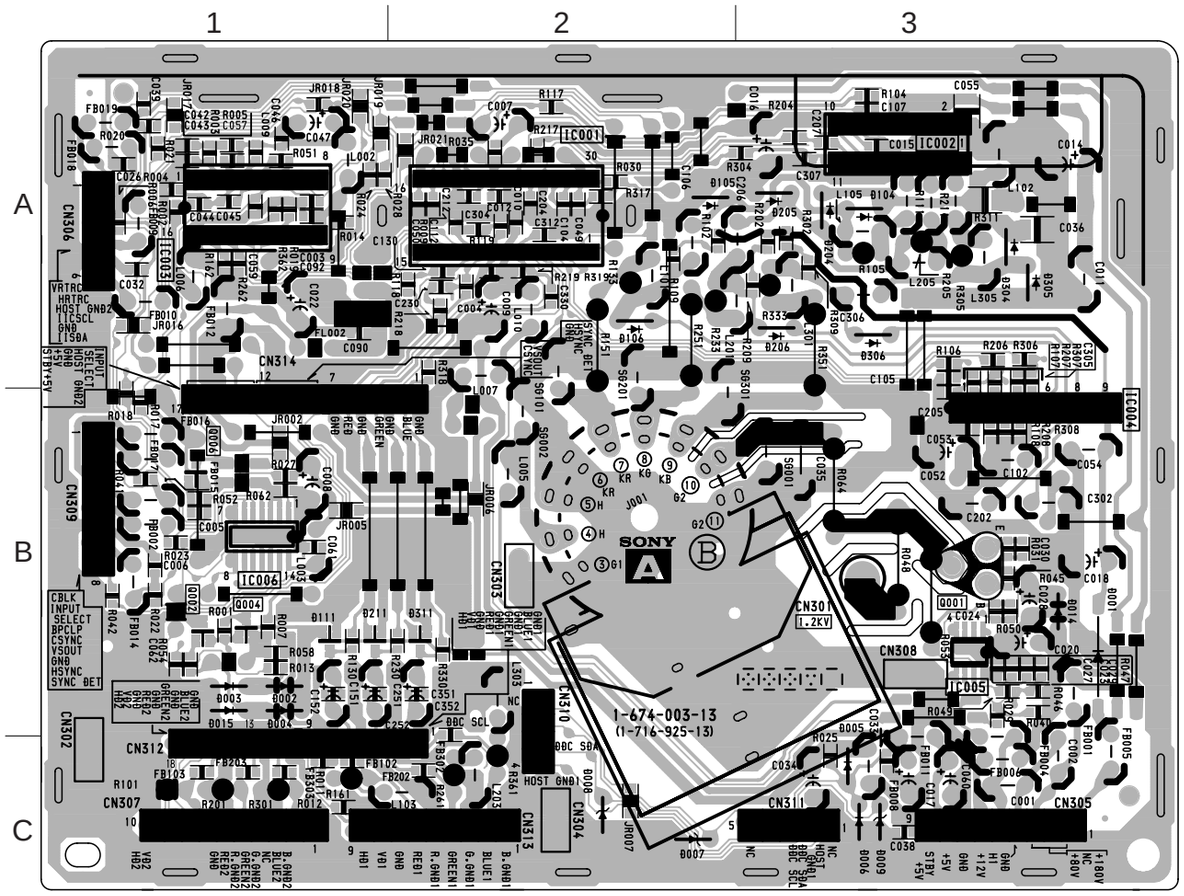
VARIABLE RESISTOR	
RV501	E-7

CRYSTAL	
X901	E-1
X902	D-1

∗: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 5-6)

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

— A BOARD —



• A BOARD
SEMICONDUCTOR LOCATION

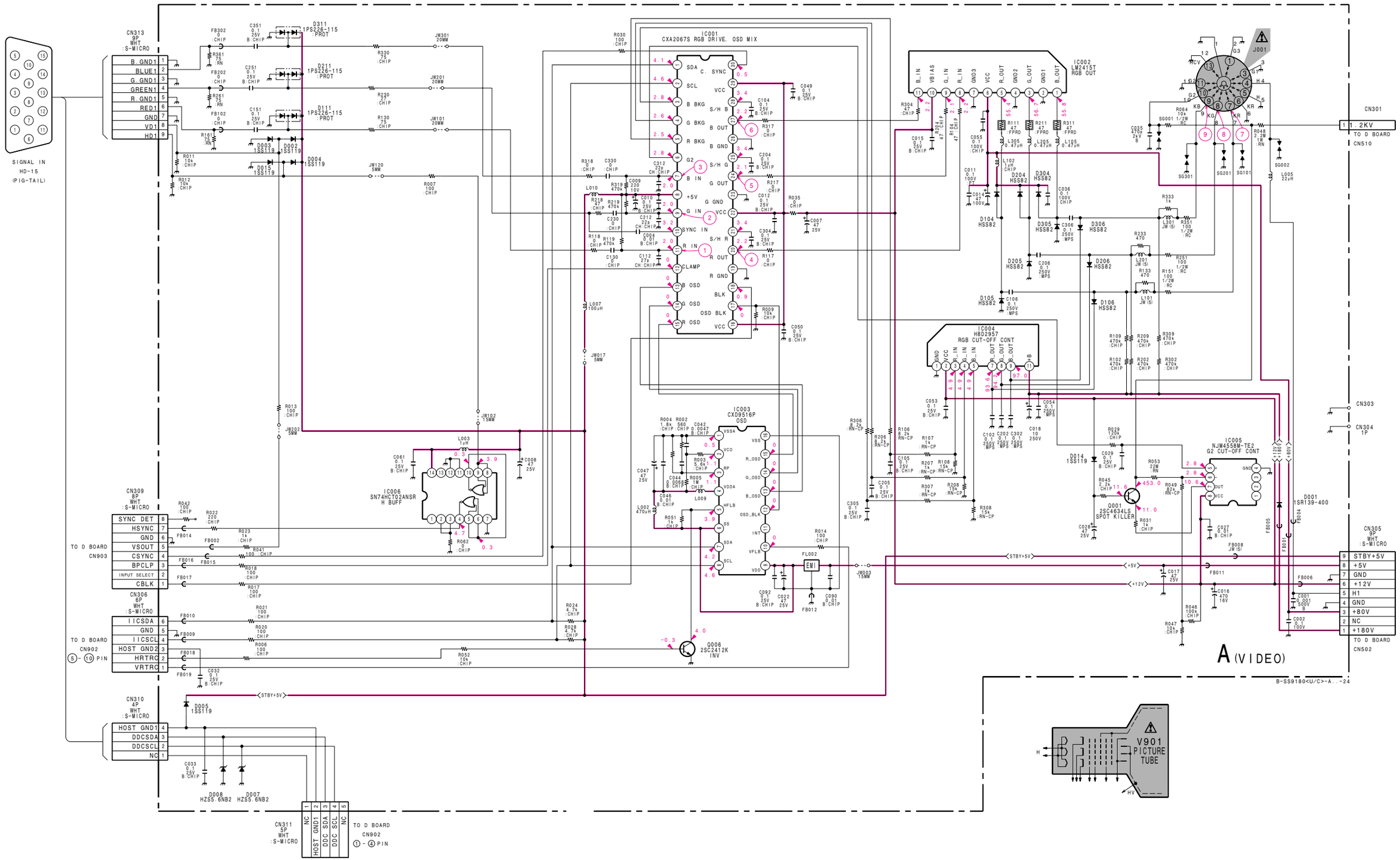
IC		
IC001	A–2	
IC002	A–3	
IC003	A–1	
IC004	B–3	
IC005	B–3	
IC006	B–1	

TRANSISTOR		
		*
Q001	B-3	–
Q006	B-1	①

DIODE		
		*
D001	B-3	–
D002	B-1	–
D003	B-1	–
D004	B-1	–
D005	C-3	–
D007	C-2	–
D008	C-2	–
D014	B-3	–
D015	B-1	–
D104	A-3	–
D105	A-2	–
D106	A-2	–
D111	B-1	⑥
D204	A-3	–
D205	A-3	–
D206	A-3	–
D211	B-1	⑥
D304	A-3	–
D305	A-3	–
D306	A-3	–
D311	B-2	⑥

∗: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 5-6)

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.



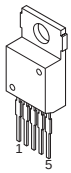
• A BOARD WAVEFORMS

①	②	③	④	⑤	⑥	⑦	⑧	⑨
0.7 Vp-p (H)	1.1 Vp-p (H)	0.7 Vp-p (H)	4.0 Vp-p (H)	4.0 Vp-p (H)	4.0 Vp-p (H)	50.0 Vp-p (H)	50.0 Vp-p (H)	50.0 Vp-p (H)

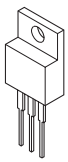
Schematic diagram

5-4. SEMICONDUCTORS

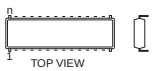
BA00AST
LA6500FA



BA05T
L7805CV
TA7805S

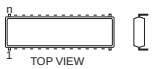


CXA2067S
CXA8071CP



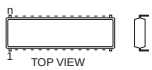
30 pin DIP

CXA8070AP



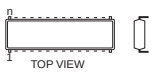
18 pin DIP

CXD9516P



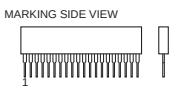
16 pin DIP

CXD9529S



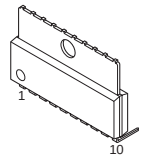
56 pin DIP

H8D2957

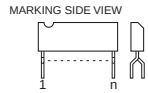


11 pin SIP

LA6510

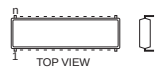


LM2415T



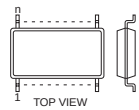
11 pin ZIP

M24C08-MN6T



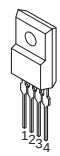
8 pin DIP

NJM4558M
UPC4558G2

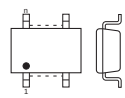


8 pin SOP

PQ12RF11

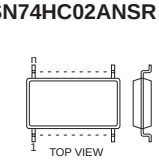


PST9143N6



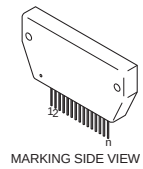
5 pin CHIP

SN74HC02ANSR



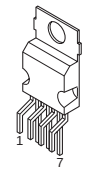
14 pin SOP

STK391-110

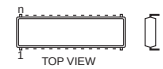


MARKING SIDE VIEW

TDA8177

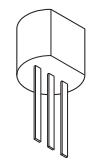


TEA1504-N2

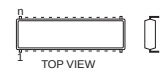


14 pin DIP

TL1431CZ

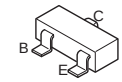


UPC6757CS

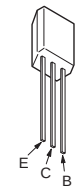


24 pin DIP

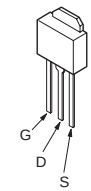
DTC114TSA
PETA114EK-115
PDTC114EK-115
2SA1037AK-T146-QR
2SA1037AK-T146-R
2SC1623-L5L6
2SC2412K-T-146-QR



DTC143ESA



IRFU110
IRFU110A



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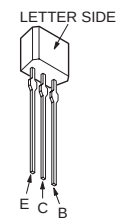
2SA1309A-QRSTA
2SC2785-HFE
2SC3311A-QRSTA



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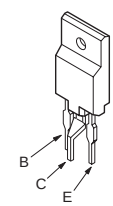
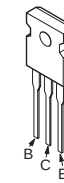


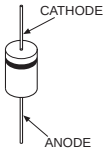
2SC5302-SONY-CC



2SC2610
2SC3941A-Q

2SK2098-01MR-F119
2SK2605LBSONY

D1NL40-TA
D2L40-TA
ERA34-10
ERB91-02
HSS82
HSS83TD
HZS5.1NB2
HZT33-02
RGP02-20EL-6394
RGP10DG23
RL3Z-LF014-302



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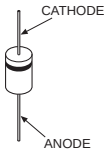
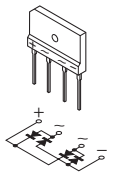
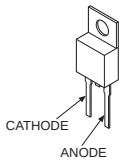
EGP10D
ERC81-004
RH-1A
RGP10JPKG23



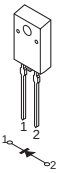
D4SB60L



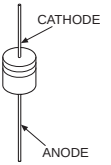
FMC-26UA
FMN-G12S



FMQ-G2FS



HZS10NB2
HZS12NB2
HZS4.7NB2
HZS5.6NB2
MTZJ-T-77-18
RB4410QT-77
RD10ES-B2
RD12ES-B2
RD18ES-B2
RD5.1ES-B2
RD5.6ES-B2
1SR139-400
1SS119-25



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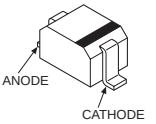
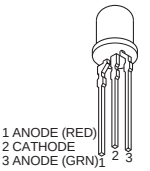


SPR-325MVW



SECTION 6
EXPLODED VIEWS

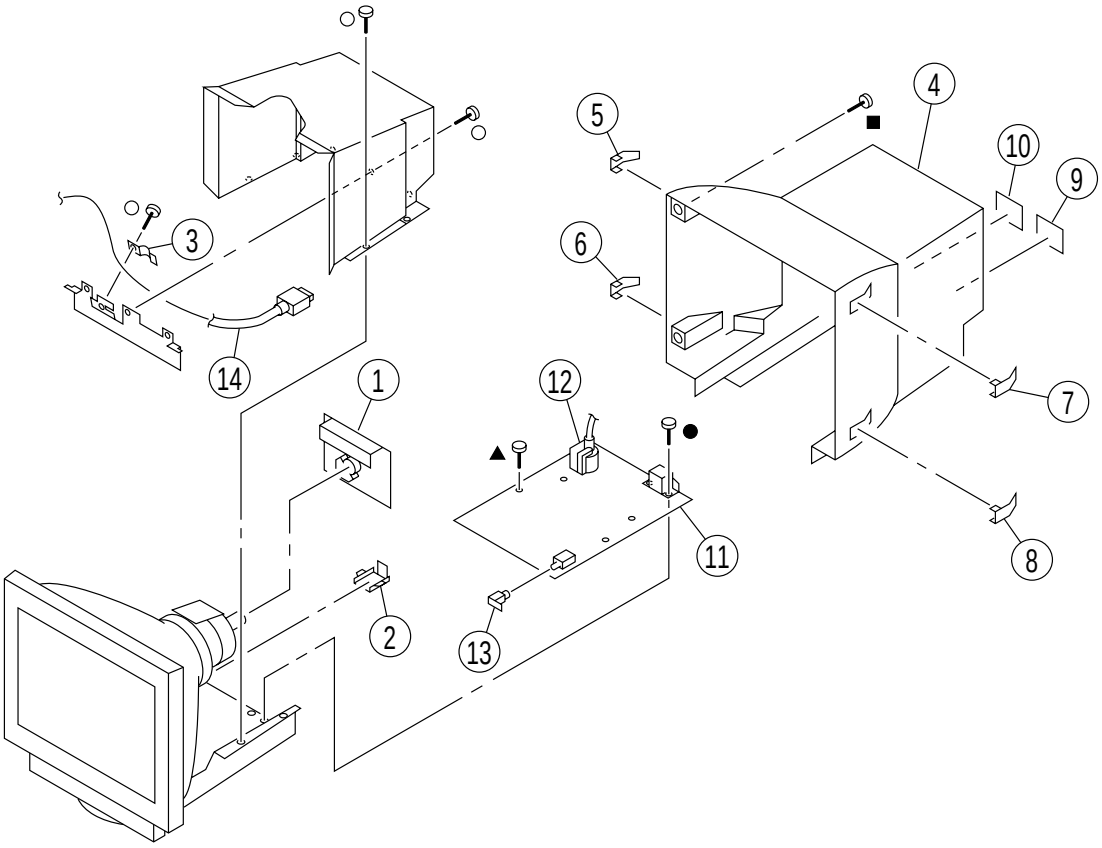
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. CHASSIS

● 7-685-874-09 +BVTT 3X12
○ 7-685-872-09 +BVTT 3X8
▲ 7-685-646-79 Screw (washer head) +P3X8
■ 7-685-663-71 +BVTP 4X16



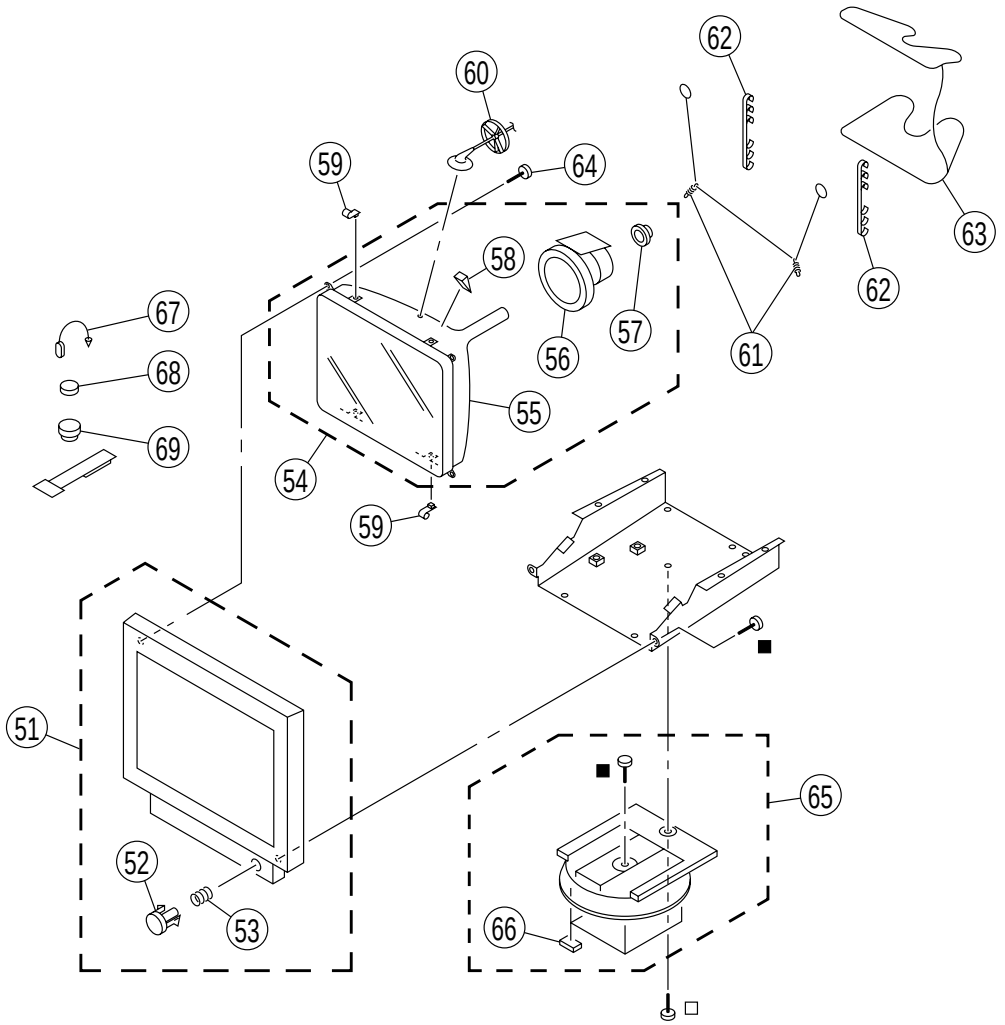
REF.NO.	PART NO.	DESCRIPTION	REMARK
1	* A-1294-732-A	A BOARD, COMPLETE	
2	4-071-262-01	COVER, CABLE [23N, 23S, 33N]	
2	4-071-262-11	COVER, CABLE [63N, 63S, 73N]	
3	* 4-045-131-01	STOPPER, CABLE	
4	X-4036-915-1	CABINET ASSY [23N, 23S, 33N]	
4	X-4036-917-1	CABINET ASSY [63N, 63S, 73N]	
5	4-071-263-01	COVER (UL), SCREW [23N, 23S, 33N]	
5	4-071-263-11	COVER (UL), SCREW [63N, 63S, 73N]	
6	4-071-265-01	COVER (LL), SCREW [23N, 23S, 33N]	
6	4-071-265-11	COVER (LL), SCREW [63N, 63S, 73N]	
7	4-071-264-01	COVER (UR), SCREW [23N, 23S, 33N]	
7	4-071-264-11	COVER (UR), SCREW [63N, 63S, 73N]	
8	4-071-266-01	COVER (LR), SCREW [23N, 23S, 33N]	
8	4-071-266-11	COVER (LR), SCREW [63N, 63S, 73N]	
9	4-071-454-11	LABEL (A), INFORMATION [63N, 63S, 73N]	
9	* 4-071-454-01	LABEL (A), INFORMATION [23N, 23S, 33N]	
10	* 4-071-456-01	LABEL (B), INFORMATION [23N]	
10	* 4-071-456-11	LABEL (B), INFORMATION [23S]	
10	* 4-071-456-21	LABEL (B), INFORMATION [33N]	
10	4-071-456-31	LABEL (B), INFORMATION [63N]	
10	* 4-071-456-41	LABEL (B), INFORMATION [63S]	
10	* 4-071-456-51	LABEL (B), INFORMATION [73N]	
11	* A-1346-856-A	D BOARD, COMPLETE [23N, 23S, 63N, 63S]	12
11	* A-1346-864-A	D BOARD, COMPLETE [33N, 73N]	12
12	⚠ X-4560-154-1	TRANSFORMER ASSY, FLY BACK (NX-4404//J1L4)	
13	* 4-394-972-31	CAP, POWER	
14	1-791-491-11	CABLE ASSY (15P D-SUB CONNECTOR) [23N, 23S, 33N]	
14	1-791-491-21	CABLE ASSY (15P D-SUB CONNECTOR) [63N, 63S, 73N]	

6-2. PICTURE TUBE

■ 7-685-663-71 +BVTP 4X16
□ 7-685-881-09 +BVTT 4X8

The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



REF.NO.	PART NO.	DESCRIPTION	REMARK
51	X-4036-871-1	BEZEL ASSY [23N, 23S, 33N]	52,53
51	X-4036-916-1	BEZEL ASSY [63N, 63S, 73N]	52,53
52	4-071-258-01	BUTTON, POWER [23N, 23S, 33N]	
52	4-071-258-11	BUTTON, POWER [63N, 63S, 73N]	
53	3-653-339-01	SPRING, COMPRESSION	
54	⚠8-738-550-61	ITC ASSY (17TKB-R1)	55-58
55	⚠8-738-549-05	PICTURE TUBE 17TKB (SOUTH) [23S, 63S]	
55	⚠8-738-550-00	PICTURE TUBE 17TKB(NORTH) [33N, 73N]	
55	⚠8-738-550-05	PICTURE TUBE 17TKB(NORTH) [23N, 63N]	
56	⚠8-451-435-12	DEFLECTION YOKE (Y17TKJ-M)	
57	⚠1-452-923-41	NECK ASSEMBLY (NA-2915)	
58	2-162-100-21	SPACER, DY	
59	4-045-123-01	HOLDER, DEGAUSSING COIL	
60	3-704-372-01	HOLDER, HV CABLE	
61	*4-047-316-01	SPRING, EXTENSION	
62	*4-369-319-00	BAND, COIL	
63	1-419-255-21	COIL, DEMAGNETIC	
64	4-365-808-01	SCREW (5), TAPPING	
65	X-4036-872-1	STAND ASSY [23N, 23S, 33N]	66
65	X-4036-918-1	STAND ASSY [63N, 63S, 73N]	66
66	*4-061-996-01	CUSHION	
67	4-308-870-00	CLIP, LEAD WIRE	
68	1-452-032-00	MAGNET, DISK ; 10mmø	
69	1-452-094-00	MAGNET, ROTATABLE DISK ; 15mmø	

SECTION 7
ELECTRICAL PARTS LIST

A

NOTE:

The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS
  MF : μF
- COILS
  UH : μH

REF.NO.	PART NO.	DESCRIPTION			REMARK
	*A-1294-732-A	A BOARD, COMPLETE			
		**********			
	4-382-854-11	SCREW (M3X10), P, SW (+) (IC002)			
		<CAPACITOR>			
C001	1-162-318-11	CERAMIC	0.001MF	10% 500V	
C002	1-106-220-00	MYLAR	0.1MF	10% 100V	
C004	1-163-021-91	CERAMIC CHIP	0.01MF	10% 50V	
C007	1-107-888-11	ELECT	47MF	20% 25V	
C008	1-104-664-11	ELECT	47MF	20% 25V	
C009	1-107-889-11	ELECT	220MF	20% 10V	
C010	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C011	1-106-220-00	MYLAR	0.1MF	10% 100V	
C012	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C014	1-107-932-11	ELECT	47MF	20% 100V	
C015	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C016	1-128-528-11	ELECT	470MF	20% 16V	
C017	1-104-664-11	ELECT	47MF	20% 25V	
C018	1-107-961-91	ELECT	10MF	20% 250V	
C022	1-104-664-11	ELECT	47MF	20% 25V	
C027	1-163-021-91	CERAMIC CHIP	0.01MF	10% 50V	
C028	1-104-664-11	ELECT	47MF	20% 25V	
C029	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C032	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C033	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C035	1-162-134-11	CERAMIC	470PF	10% 2KV	
C036	1-104-503-12	CERAMIC CHIP	0.1MF	10% 100V	
C042	1-163-017-00	CERAMIC CHIP	0.0047MF	10% 50V	
C044	1-163-019-00	CERAMIC CHIP	0.0068MF	10% 50V	
C046	1-163-021-91	CERAMIC CHIP	0.01MF	10% 50V	
C047	1-107-888-11	ELECT	47MF	20% 25V	
C049	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C050	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C053	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C054	1-137-528-11	FILM	0.1MF	10% 250V	
C055	1-104-503-12	CERAMIC CHIP	0.1MF	10% 100V	
C061	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C090	1-163-021-91	CERAMIC CHIP	0.01MF	10% 50V	
C092	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C102	1-137-528-11	FILM	0.1MF	10% 250V	
C104	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C105	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C106	1-137-528-11	FILM	0.1MF	10% 250V	
C112	1-163-237-11	CERAMIC CHIP	27PF	5% 50V	
C130	1-216-295-91	SHORT	0		
C151	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C202	1-137-528-11	FILM	0.1MF	10% 250V	
C204	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C205	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C206	1-137-528-11	FILM	0.1MF	10% 250V	
C212	1-163-235-11	CERAMIC CHIP	22PF	5% 50V	
C230	1-216-295-91	SHORT	0		
C251	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C302	1-137-528-11	FILM	0.1MF	10% 250V	
C304	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C305	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C306	1-137-528-11	FILM	0.1MF	10% 250V	
C312	1-163-235-11	CERAMIC CHIP	22PF	5% 50V	
C330	1-216-295-91	SHORT	0		
C351	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
		<CONNECTOR>			
CN301	1-506-108-41	PIN, CONNECTOR (TERMINAL PIN)			
CN303	1-695-915-11	TAB (CONTACT)			
CN304	1-695-915-11	TAB (CONTACT)			
CN305*	1-564-512-11	PLUG, CONNECTOR 9P			
CN306*	1-564-509-11	PLUG, CONNECTOR 6P			
CN309*	1-564-511-11	PLUG, CONNECTOR 8P			
CN310*	1-564-507-11	PLUG, CONNECTOR 4P			
CN311*	1-564-508-11	PLUG, CONNECTOR 5P			
CN313*	1-564-512-11	PLUG, CONNECTOR 9P			
		<DIODE>			
D001	8-719-970-02	DIODE 1SR139-400T31			
D002	8-719-911-19	DIODE 1SS119-25			
D003	8-719-911-19	DIODE 1SS119-25			
D004	8-719-911-19	DIODE 1SS119-25			
D005	8-719-911-19	DIODE 1SS119-25			
D007	8-719-109-89	ZENER DIODE RD5.6ESB2			
D008	8-719-109-89	ZENER DIODE RD5.6ESB2			
D014	8-719-911-19	DIODE 1SS119-25			
D015	8-719-911-19	DIODE 1SS119-25			
D104	8-719-970-83	DIODE HSS82			

The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

A

REF.NO.	PART NO.	DESCRIPTION	REMARK
D105	8-719-970-83	DIODE HSS82	
D106	8-719-970-83	DIODE HSS82	
D111	8-719-062-51	DIODE 1PS226-115	
D204	8-719-970-83	DIODE HSS82	
D205	8-719-970-83	DIODE HSS82	
D206	8-719-970-83	DIODE HSS82	
D211	8-719-062-51	DIODE 1PS226-115	
D304	8-719-970-83	DIODE HSS82	
D305	8-719-970-83	DIODE HSS82	
D306	8-719-970-83	DIODE HSS82	
D311	8-719-062-51	DIODE 1PS226-115	
		<FERRITE BEAD>	
FB001	1-412-911-11	FERRITE	
FB002	1-412-911-11	FERRITE	
FB004	1-412-911-11	FERRITE	
FB005	1-412-911-11	FERRITE	
FB006	1-412-911-11	FERRITE	
FB009	1-412-911-11	FERRITE	
FB010	1-412-911-11	FERRITE	
FB011	1-412-911-11	FERRITE	
FB012	1-412-911-11	FERRITE	
FB014	1-412-911-11	FERRITE	
FB015	1-412-911-11	FERRITE	
FB016	1-412-911-11	FERRITE	
FB017	1-412-911-11	FERRITE	
FB018	1-412-911-11	FERRITE	
FB019	1-412-911-11	FERRITE	
FB102	1-216-295-91	SHORT 0	
FB202	1-216-295-91	SHORT 0	
FB302	1-216-295-91	SHORT 0	
		<FILTER>	
FL002	1-412-911-11	FERRITE	
		<IC>	
IC001	8-752-090-63	IC CXA2067S	
IC002	8-759-593-11	IC LM2415	
IC003	8-759-589-35	IC CXD9516P	
IC004	8-749-016-27	IC H8D2957	
IC005	8-759-100-96	IC uPC4558G2	
IC006	8-759-269-07	IC SN74HCT02ANSR	
		<JACK>	
J001 ⚠	1-451-499-11	SOCKET, PICTURE TUBE	
		<CHIP CONDUCTOR>	
JR002	1-216-296-91	SHORT 0	
JR005	1-216-296-91	SHORT 0	
JR006	1-216-296-91	SHORT 0	
JR007	1-216-296-91	SHORT 0	
JR016	1-216-296-91	SHORT 0	
JR017	1-216-296-91	SHORT 0	
JR018	1-216-295-91	SHORT 0	
JR019	1-216-296-91	SHORT 0	
JR020	1-216-296-91	SHORT 0	
JR021	1-216-296-91	SHORT 0	
		<COIL>	
L002	1-410-682-31	INDUCTOR 470UH	
L003	1-408-397-00	INDUCTOR 1UH	
L005	1-412-529-11	INDUCTOR 22UH	
L007	1-410-482-31	INDUCTOR 100UH	
L009	1-216-295-91	SHORT 0	
L010	1-412-911-11	FERRITE	
L102	1-412-052-21	INDUCTOR CHIP 1UH	
L103	1-414-137-31	INDUCTOR 0.22UH	
L105	1-410-750-41	INDUCTOR 0.47UH	
L203	1-414-137-31	INDUCTOR 0.22UH	
L205	1-410-750-41	INDUCTOR 0.47UH	
L303	1-414-137-31	INDUCTOR 0.22UH	
L305	1-410-750-41	INDUCTOR 0.47UH	
		<TRANSISTOR>	
Q001	8-729-046-80	TRANSISTOR 2SC4634LS-CB11	
Q006	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		<RESISTOR>	
R002	1-216-043-91	RES,CHIP 560 5% 1/10W	
R003	1-216-067-00	RES,CHIP 5.6K 5% 1/10W	
R004	1-216-055-00	RES,CHIP 1.8K 5% 1/10W	
R005	1-216-121-91	RES,CHIP 1M 5% 1/10W	
R006	1-216-025-91	RES,CHIP 100 5% 1/10W	
R007	1-216-025-91	RES,CHIP 100 5% 1/10W	
R009	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R011	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R012	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R013	1-216-025-91	RES,CHIP 100 5% 1/10W	
R014	1-216-025-91	RES,CHIP 100 5% 1/10W	
R017	1-216-025-91	RES,CHIP 100 5% 1/10W	
R018	1-216-025-91	RES,CHIP 100 5% 1/10W	
R020	1-216-025-91	RES,CHIP 100 5% 1/10W	
R021	1-216-025-91	RES,CHIP 100 5% 1/10W	
R022	1-216-033-00	RES,CHIP 220 5% 1/10W	
R023	1-216-049-91	RES,CHIP 1K 5% 1/10W	
R024	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R028	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R029	1-216-099-00	RES,CHIP 120K 5% 1/10W	
R030	1-216-025-91	RES,CHIP 100 5% 1/10W	
R031	1-216-049-91	RES,CHIP 1K 5% 1/10W	
R035	1-216-295-91	SHORT 0	
R041	1-216-025-91	RES,CHIP 100 5% 1/10W	
R042	1-216-025-91	RES,CHIP 100 5% 1/10W	
R045	1-216-057-00	RES,CHIP 2.2K 5% 1/10W	

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REF.NO.	PART NO.	DESCRIPTION			REMARK
R046	1-216-097-91	RES,CHIP	100K	5%	1/10W
R047	1-216-073-00	RES,CHIP	10K	5%	1/10W
R048	1-211-885-21	METAL	2.2M	5%	1W
R049	1-216-697-91	METAL CHIP	82K	0.50%	1/10W
R051	1-216-049-91	RES,CHIP	1K	5%	1/10W
R052	1-216-073-00	RES,CHIP	10K	5%	1/10W
R053	1-219-621-91	METAL	22M	10%	1/4W
R062	1-216-295-91	SHORT	0		
R064	1-202-830-00	SOLID	10K	20%	1/2W
R102	1-216-113-00	RES,CHIP	470K	5%	1/10W
R104	1-216-017-91	RES,CHIP	47	5%	1/10W
R106	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W
R107	1-216-651-11	METAL CHIP	1K	0.50%	1/10W
R108	1-216-679-11	METAL CHIP	15K	0.50%	1/10W
R109	1-216-113-00	RES,CHIP	470K	5%	1/10W
R111	1-249-401-11	CARBON	47	5%	1/4W F
R117	1-216-295-91	SHORT	0		
R118	1-216-295-91	SHORT	0		
R119	1-216-113-00	RES,CHIP	470K	5%	1/10W
R130	1-216-022-00	RES,CHIP	75	5%	1/10W
R133	1-249-413-11	CARBON	470	5%	1/4W
R151	1-202-549-00	SOLID	100	20%	1/2W
R161	1-215-394-00	METAL	75	1%	1/4W
R202	1-216-113-00	RES,CHIP	470K	5%	1/10W
R204	1-216-017-91	RES,CHIP	47	5%	1/10W
R206	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W
R207	1-216-651-11	METAL CHIP	1K	0.50%	1/10W
R208	1-216-679-11	METAL CHIP	15K	0.50%	1/10W
R209	1-216-113-00	RES,CHIP	470K	5%	1/10W
R211	1-249-401-11	CARBON	47	5%	1/4W F
R217	1-216-295-91	SHORT	0		
R218	1-216-017-91	RES,CHIP	47	5%	1/10W
R219	1-216-113-00	RES,CHIP	470K	5%	1/10W
R230	1-216-011-00	RES,CHIP	27	5%	1/10W
R233	1-249-413-11	CARBON	470	5%	1/4W
R251	1-202-549-00	SOLID	100	20%	1/2W
R261	1-215-394-00	METAL	75	1%	1/4W
R302	1-216-113-00	RES,CHIP	470K	5%	1/10W
R304	1-216-017-91	RES,CHIP	47	5%	1/10W
R306	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W
R307	1-216-651-11	METAL CHIP	1K	0.50%	1/10W
R308	1-216-679-11	METAL CHIP	15K	0.50%	1/10W
R309	1-216-113-00	RES,CHIP	470K	5%	1/10W
R311	1-249-401-11	CARBON	47	5%	1/4W F
R317	1-216-295-91	SHORT	0		
R318	1-216-295-91	SHORT	0		
R319	1-216-113-00	RES,CHIP	470K	5%	1/10W
R330	1-216-022-00	RES,CHIP	75	5%	1/10W
R333	1-249-417-11	CARBON	1K	5%	1/4W
R351	1-202-549-00	SOLID	100	20%	1/2W
R361	1-215-394-00	METAL	75	1%	1/4W

<SPARK GAP>

SG001	1-519-422-11	GAP, SPARK	
SG002	1-517-499-21	GAP, SPARK	
SG101	1-517-499-21	GAP, SPARK	
SG201	1-517-499-21	GAP, SPARK	
SG301	1-517-499-21	GAP, SPARK	

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A-1346-856-A D BOARD, COMPLETE
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(23N, 23S, 63N, 63S)

A-1346-864-A D BOARD, COMPLETE (33N, 73N)
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3-710-578-01 COVER, VOLUME, 6 MOLD (RV501)
4-072-322-01 HOLDER, LED (D912)
4-382-854-01 SCREW (M3X8), P, SW (+) (IC401, IC503, IC602, IC605, IC607, IC608, Q503, Q510, Q520, Q602, D601, D611, D618)
4-382-854-11 SCREW (M3X10), P, SW (+) (D506, Q507)
4-382-854-21 SCREW (M3X14), P, SW (+) (IC702)

<CAPACITOR>

C401	1-107-914-11	ELECT	1000MF	20%	25V
C402	1-117-667-31	FILM	0.47MF	5%	250V
C403	1-107-911-11	ELECT	220MF	20%	50V
C404	1-107-914-11	ELECT	1000MF	20%	25V
C405	1-104-760-11	CERAMIC CHIP	0.047MF	10%	50V
C406	1-137-368-11	FILM	0.0047MF	5%	50V
C407	1-137-372-11	FILM	0.022MF	5%	50V
C410	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C501	1-126-964-11	ELECT	10MF	20%	50V
C502	1-137-370-11	FILM	0.01MF	5%	50V
C503	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C504	1-102-030-00	CERAMIC	330PF	10%	500V
C505	1-109-879-11	CERAMIC	22PF	5%	2KV
C506	1-126-960-11	ELECT	1MF	20%	50V
C507	1-131-653-11	FILM	0.19MF	5%	400V
C508	1-128-526-11	ELECT	100MF	20%	25V
C509	1-162-117-00	CERAMIC	100PF	10%	500V
C510	1-102-228-00	CERAMIC	470PF	10%	500V
C511	1-117-663-11	FILM	0.22MF	5%	250V
C512	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C513	1-107-906-11	ELECT	10MF	20%	50V
C514	1-115-521-11	FILM	0.82MF	5%	250V
C515	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C516	1-119-862-11	FILM	0.3MF	5%	250V
C517	1-137-370-11	FILM	0.01MF	5%	50V
C518	1-117-954-11	FILM	4300PF	3%	1.8KV
C519	1-117-621-11	FILM	1200PF	3%	1.2KV
C520	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C521	1-107-444-11	CERAMIC	100PF	5%	2KV
C522	1-136-684-51	MYLAR	0.0022MF	10%	100V
C523	1-117-660-21	FILM	0.12MF	5%	250V
C524	1-110-641-51	ELECT	33MF	20%	200V
C525	1-136-060-91	FILM	0.047MF	5%	400V
C526	1-165-137-41	CERAMIC	4700PF	10%	500V
C527	1-117-879-91	CAPACITOR	0.01MF	10%	250V

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REF.NO.	PART NO.	DESCRIPTION			REMARK
C528	1-115-349-51	CERAMIC	0.01MF		2KV
C529	1-136-060-91	FILM	0.047MF	5%	400V
C530	1-117-660-21	FILM	0.12MF	5%	250V
C531	1-119-858-11	FILM	0.068MF	5%	250V
C532	1-137-401-11	FILM	0.22MF	10%	100V
C534	1-137-419-11	FILM	0.033MF	10%	100V
C535	1-130-495-00	FILM	0.1MF	5%	50V
C536	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C538	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C539	1-137-150-11	FILM	0.01MF	10%	100V
C540	1-136-203-11	FILM	10000PF	5%	630V
C541	1-126-963-11	ELECT	4.7MF	20%	50V
C542	1-126-964-11	ELECT	10MF	20%	50V
C543	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C544	1-137-370-11	FILM	0.01MF	5%	50V
C545	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C546	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C547	1-107-902-11	ELECT	1MF	20%	50V
C548	1-130-471-00	FILM	0.001MF	5%	50V
C549	1-137-375-11	FILM	0.068MF	5%	50V
C550	1-126-933-11	ELECT	100MF	20%	16V
C551	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C552	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C553	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C554	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C555	1-130-495-00	FILM	0.1MF	5%	50V
C556	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C557	1-107-907-11	ELECT	22MF	20%	50V
C558	1-126-960-11	ELECT	1MF	20%	50V
C559	1-137-368-11	FILM	0.0047MF	5%	50V
C560	1-119-859-71	FILM	0.36MF	5%	250V
C561	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C562	1-128-526-11	ELECT	100MF	20%	16V
C563	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C564	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C566	1-128-551-11	ELECT	22MF	20%	25V
C568	1-136-060-91	FILM	0.047MF	5%	400V
C569	1-130-495-00	FILM	0.1MF	5%	50V
C570	1-128-526-11	ELECT	100MF	20%	25V
C572	1-107-960-11	ELECT	4.7MF	20%	250V
C573	1-107-651-11	ELECT	4.7MF	20%	250V
C574	1-117-879-91	CAPACITOR	0.01MF	10%	250V
C575	1-110-641-51	ELECT	33MF	20%	200V
C576	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C577	1-115-349-51	CERAMIC	0.01MF		2KV
C578	1-107-974-11	CERAMIC	47PF	5%	2KV
C579	1-109-879-11	CERAMIC	22PF	5%	2KV
C580	1-137-370-11	FILM	0.01MF	5%	50V
C582	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C583	1-130-495-00	FILM	0.1MF	5%	50V
C584	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C601	1-104-664-11	ELECT	47MF	20%	10V
C602	1-162-117-00	CERAMIC	100PF	10%	500V
C603	1-107-914-11	ELECT	1000MF	20%	25V
C604 ⚠	1-104-708-51	FILM	0.47MF	20%	250V
C605 ⚠	1-104-708-51	FILM	0.47MF	20%	250V
C608	1-104-653-11	ELECT	220MF	20%	16V
C610	1-117-752-11	ELECT (BLOCK)	330MF	20%	450V
C611	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C612	1-106-379-12	MYLAR	0.033MF	10%	200V
C613	1-162-115-00	CERAMIC	330PF	10%	2KV
C614	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C615	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C616	1-107-907-11	ELECT	22MF	20%	25V
C617	1-107-907-11	ELECT	22MF	20%	25V
C618	1-130-495-00	FILM	0.1MF	5%	50V
C619	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C620	1-162-117-00	CERAMIC	100PF	10%	500V
C621	1-104-712-11	ELECT	47MF	0	200V
C622	1-107-933-11	ELECT	100MF	20%	100V
C623	1-107-889-11	ELECT	220MF	20%	25V
C624	1-107-885-11	ELECT	3300MF	20%	16V
C625	1-128-339-11	ELECT	2200MF	20%	16V
C626	1-104-653-11	ELECT	220MF	20%	16V
C627	1-107-889-11	ELECT	220MF	20%	10V
C628	1-128-526-11	ELECT	100MF	20%	25V
C630	1-128-528-11	ELECT	470MF	20%	16V
C631	1-128-528-11	ELECT	470MF	20%	25V
C632	1-111-070-51	ELECT	0.0022F	20%	25V
C633	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C634	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C636	1-113-979-51	FILM	0.047MF	10%	1.5KV
C637	1-107-888-11	ELECT	47MF	20%	25V
C640	1-117-701-51	CERAMIC	0.0033MF		250V
C641	1-128-526-11	ELECT	100MF	20%	16V
C643 ⚠	1-117-703-51	CERAMIC	0.0047MF	20%	250V
C647	1-102-228-00	CERAMIC	470PF	10%	500V
C650	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C660 ⚠	1-117-703-51	CERAMIC	0.0047MF	20%	250V
C701	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C702	1-126-963-11	ELECT	4.7MF	20%	50V
C703	1-136-169-00	FILM	0.22MF	5%	50V
C704	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C705	1-130-495-00	FILM	0.1MF	5%	50V
C706	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C707	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C708	1-130-495-00	FILM	0.1MF	5%	50V
C709	1-126-941-11	ELECT	470MF	20%	25V
C710	1-126-941-11	ELECT	470MF	20%	25V
C711	1-130-495-00	FILM	0.1MF	5%	50V
C712	1-130-495-00	FILM	0.1MF	5%	50V
C713	1-126-927-11	ELECT	2200MF	20%	10V
C714	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C715	1-126-935-11	ELECT	470MF	20%	16V
C716	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C718	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C723	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C725	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C729	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C733	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C901	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C902	1-126-935-11	ELECT	470MF	20%	16V

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REF.NO.	PART NO.	DESCRIPTION	REMARK
C903	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C905	1-137-375-11	FILM 0.068MF 5% 50V	
C906	1-136-177-00	FILM 1MF 5% 50V	
C908	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C909	1-126-926-11	ELECT 1000MF 20% 10V	
C910	1-107-713-11	ELECT 4.7MF 20% 50V	
C911	1-137-370-11	FILM 0.01MF 5% 50V	
C912	1-126-933-11	ELECT 100MF 20% 16V	
C913	1-130-495-00	FILM 0.1MF 5% 50V	
C914	1-163-231-11	CERAMIC CHIP 15PF 5% 50V	
C915	1-163-231-11	CERAMIC CHIP 15PF 5% 50V	
C916	1-107-907-11	ELECT 22MF 20% 50V	
C917	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C918	1-126-964-11	ELECT 10MF 20% 50V	
C920	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C921	1-126-935-11	ELECT 470MF 20% 16V	
C922	1-109-889-11	ELECT 1MF 20% 50V	
C923	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C924	1-126-965-11	ELECT 22MF 20% 50V	
C925	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C926	1-126-935-11	ELECT 470MF 20% 16V	
C927	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C928	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C929	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C930	1-137-370-11	FILM 0.01MF 5% 50V	
C931	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C934	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C935	1-107-823-11	CERAMIC CHIP 0.47MF 10% 16V	
C936	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C937	1-107-823-11	CERAMIC CHIP 0.47MF 10% 16V	
C938	1-104-653-11	ELECT 220MF 20% 16V	
		<CONNECTOR>	
CN501*	1-580-798-11	CONNECTOR PIN (DY) 6P	
CN502*	1-564-512-11	PLUG, CONNECTOR 9P	
CN512	1-695-915-11	TAB (CONTACT)	
CN600⚠	1-251-644-11	INLET,AC 3P (WITH NOISE FILTER)	
CN601*	1-691-960-11	PIN, CONNECTOR (PC BOARD) 3P	
CN602*	1-506-371-00	PIN, CONNECTOR 2P	
CN604	1-695-915-11	TAB (CONTACT)	
CN701*	1-564-513-11	PLUG, CONNECTOR 10P	
CN901*	1-508-879-11	BASE POST	
CN902*	1-564-513-11	PLUG, CONNECTOR 10P	
CN903*	1-564-511-11	PLUG, CONNECTOR 8P	
		<DIODE>	
D401	8-719-052-90	DIODE D1NL40-TA2	
D402	8-719-928-85	ZENER DIODE HZS4.7NB2	
D403	8-719-073-01	DIODE MA111-(K8).S0	
D404	8-719-058-24	DIODE RB501V-40TE-17	
D501	8-719-110-31	ZENER DIODE RD12ESB2	
D502	8-719-981-00	DIODE ERC81-004	
D504	8-719-110-49	ZENER DIODE RD18ESB2	
D505	8-719-941-74	DIODE ERB91-02	
D506	8-719-075-18	DIODE FMQ-G2FS	
D507	8-719-109-85	ZENER DIODE RD5.1ESB2	
D509	8-719-110-17	ZENER DIODE RD10ESB2	
D510	8-719-018-82	DIODE RGP02-20EL-6394	
D511	8-719-109-89	ZENER DIODE RD5.6ESB2	
D512	8-719-911-19	DIODE 1SS119-25	
D513	8-719-052-90	DIODE D1NL40-TA2	
D514	8-719-970-83	DIODE HSS82	
D515	8-719-018-82	DIODE RGP02-20EL-6394	
D516	8-719-052-86	DIODE D2L40-TA	
D517	8-759-157-40	IC uPC574J	
D518	8-719-110-17	ZENER DIODE RD10ESB2	
D519	8-719-911-19	DIODE 1SS119-25	
D520	8-719-018-82	DIODE RGP02-20EL-6394	
D521	8-719-018-82	DIODE RGP02-20EL-6394	
D522	8-719-911-19	DIODE 1SS119-25	
D523	8-719-911-19	DIODE 1SS119-25	
D524	8-719-051-85	DIODE HSS83TD	
D525	8-719-051-85	DIODE HSS83TD	
D527	8-719-109-85	ZENER DIODE RD5.1ESB2	
D601⚠	8-719-510-63	DIODE D4SB60L-F	
D602	8-719-911-19	DIODE 1SS119-25	
D603	8-719-911-19	DIODE 1SS119-25	
D604	8-719-911-19	DIODE 1SS119-25	
D605	8-719-110-31	ZENER DIODE RD12ESB2	
D606	8-719-053-19	DIODE UF4007G23	
D607	8-719-053-19	DIODE UF4007G23	
D608	8-719-110-49	ZENER DIODE RD18ESB2	
D609	8-719-911-19	DIODE 1SS119-25	
D610	8-719-928-85	ZENER DIODE HZS4.7NB2	
D611	8-719-067-68	DIODE FMC-26UA	
D612	8-719-053-19	DIODE UF4007G23	
D613	8-719-076-20	DIODE BT149G-412-OT359	
D614	8-719-032-12	DIODE D1NS6	
D615	8-719-979-58	DIODE EGP10D	
D616	8-719-979-58	DIODE EGP10D	
D617	8-719-947-06	DIODE RGP10JPKG23	
D618	8-719-058-38	DIODE FMN-G12S	
D619	8-719-058-38	DIODE FMN-G12S	
D620	8-719-300-76	DIODE RH-1A	
D621	8-719-911-19	DIODE 1SS119-25	
D622	8-719-058-38	DIODE FMN-G12S	
D704	8-719-911-19	DIODE 1SS119-25	
D901	8-719-073-01	DIODE MA111-(K8).S0	
D902	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D903	8-719-050-84	DIODE RB441Q-40T-77	
D904	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D905	8-719-911-19	DIODE 1SS119-25	
D906	8-719-073-01	DIODE MA111-(K8).S0	
D907	8-719-073-01	DIODE MA111-(K8).S0	
D908	8-719-073-01	DIODE MA111-(K8).S0	
D909	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D910	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D911	8-719-073-01	DIODE MA111-(K8).S0	
D912	8-719-075-53	DIODE SML16751WN	
D913	8-719-073-01	DIODE MA111-(K8).S0	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
D914	8-719-073-01	DIODE MA111-(K8).S0	
D915	8-719-073-01	DIODE MA111-(K8).S0	
D916	8-719-073-01	DIODE MA111-(K8).S0	
D917	8-719-073-01	DIODE MA111-(K8).S0	
D918	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D919	8-719-073-01	DIODE MA111-(K8).S0	
D920	8-719-058-24	DIODE RB501V-40TE-17	
D921	8-719-073-01	DIODE MA111-(K8).S0	
D922	1-216-051-00	RES,CHIP 1.2K 5%	1/10W
D923	1-216-295-91	SHORT 0	
D924	8-719-073-01	DIODE MA111-(K8).S0	
D925	8-719-073-01	DIODE MA111-(K8).S0	
D926	8-719-073-01	DIODE MA111-(K8).S0	
D927	8-719-073-01	DIODE MA111-(K8).S0	
D928	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D929	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D930	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D931	8-719-109-89	ZENER DIODE RD5.6ESB2	
D932	8-719-109-89	ZENER DIODE RD5.6ESB2	
D933	8-719-109-89	ZENER DIODE RD5.6ESB2	
D934	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
D935	8-719-109-85	ZENER DIODE RD5.1ESB2	
D936	8-719-109-89	ZENER DIODE RD5.6ESB2	
D937	8-719-109-89	ZENER DIODE RD5.6ESB2	
D938	8-719-047-98	ZENER DIODE HZU5.6B2TRF	
		<FUSE>	
F601 ⚠	1-576-231-11	FUSE (H.B.C.) 4A/250V	
	1-533-223-11	CLIP, FUSE ; F601	
		<FERRITE BEAD>	
FB502	1-410-396-41	FERRITE 0.45UH	
FB504	1-412-911-11	FERRITE	
FB506	1-412-911-11	FERRITE	
FB904	1-543-961-22	FERRITE	
		<IC>	
IC401	8-759-339-59	IC TDA8177	
IC501⚠	8-759-570-29	IC uPC6757CS	
IC502	8-759-803-42	IC LA6500-FA	
IC503	8-759-803-42	IC LA6500-FA	
IC601⚠	8-759-594-75	IC TEA1504-N2	
IC602	8-759-592-79	IC BA00AST-V5	
IC603	8-749-016-36	IC TLP621D4-YLF2	
IC604	8-759-586-17	IC TL1431CZT	
IC605	8-759-513-72	IC PQ12RF11	
IC607	8-759-450-47	IC BA05T	
IC608	8-759-231-53	IC TA7805S	
IC701	8-759-595-52	IC CXA8070AP	
IC702	8-749-015-00	IC STK391-110	
IC703	8-759-822-38	IC LA6510	
IC901	8-759-640-86	IC CXD9529S-LHX	
IC902	8-759-594-40	IC CXA8071CP	
IC904	8-759-352-91	IC PST9143NL	
IC905	8-759-527-76	IC M24C08-MN6T	
		<CHIP CONDUCTOR>	
JR001	1-216-296-91	SHORT 0	
JR003	1-216-295-91	SHORT 0	
JR004	1-216-295-91	SHORT 0	
JR006	1-216-295-91	SHORT 0	
JR007	1-216-295-91	SHORT 0	
JR008	1-216-296-91	SHORT 0	
JR009	1-216-295-91	SHORT 0	
JR010	1-216-296-91	SHORT 0	
JR011	1-216-296-91	SHORT 0	
JR012	1-216-295-91	SHORT 0	
JR013	1-216-295-91	SHORT 0	
JR014	1-216-296-91	SHORT 0	
JR015	1-216-295-91	SHORT 0	
JR016	1-216-295-91	SHORT 0	
JR017	1-216-295-91	SHORT 0	
JR018	1-216-295-91	SHORT 0	
JR019	1-216-296-91	SHORT 0	
JR020	1-216-296-91	SHORT 0	
JR021	1-216-296-91	SHORT 0	
JR022	1-216-295-91	SHORT 0	
JR023	1-216-295-91	SHORT 0	
JR024	1-216-296-91	SHORT 0	
JR025	1-216-296-91	SHORT 0	
JR027	1-216-296-91	SHORT 0	
JR028	1-216-296-91	SHORT 0	
JR029	1-216-295-91	SHORT 0	
JR030	1-216-295-91	SHORT 0	
JR032	1-216-296-91	SHORT 0	
JR033	1-216-296-91	SHORT 0	
JR034	1-216-295-91	SHORT 0	
JR038	1-216-296-91	SHORT 0	
JR604	1-216-295-91	SHORT 0	
JR606	1-216-295-91	SHORT 0	
		<COIL>	
L501	1-406-663-21	INDUCTOR 47UH	
L502	1-406-663-21	INDUCTOR 47UH	
L503	1-411-594-41	INDUCTOR 5mH	
L505	1-412-552-11	INDUCTOR 2.2mH	
L506	1-412-548-31	INDUCTOR 820UH	
L507	1-414-856-11	INDUCTOR 10UH	
L508	1-419-198-21	COIL, HORIZONTAL LINEARITY	
L509	1-419-198-21	COIL, HORIZONTAL LINEARITY	
L510	1-416-367-11	COIL, HORIZONTAL CENTER	
L511	1-414-187-11	INDUCTOR 47UH	
L513	1-414-856-11	INDUCTOR 10UH	
L602	1-412-529-11	INDUCTOR 22UH	
L603	1-412-537-31	INDUCTOR 100UH	
L604	1-406-665-11	INDUCTOR 100UH	
L606	1-249-377-11	CARBON 0.47 5%	1/4W F

D

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REF.NO.	PART NO.	DESCRIPTION				REMARK
L652	1-419-177-11	INDUCTOR (33N, 73N)				
		<FILTER>				
LF602⚠	1-429-180-41	TRANSFORMER, LINE FILTER				
		<TRANSISTOR>				
Q501	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q502	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R				
Q503	8-729-048-61	TRANSISTOR 2SK2843LBS2SONY				
Q504	8-729-031-89	TRANSISTOR 2SC3941A-Q(TA)				
Q505	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q506	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q507	8-729-049-17	TRANSISTOR 2SC5302-SONY-CC				
Q508	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q510	8-729-046-60	TRANSISTOR 2SK2605LBSONY				
Q511	8-729-042-34	TRANSISTOR IRFU110A				
Q512	8-729-047-72	TRANSISTOR 2SK3155-01				
Q513	8-729-043-41	TRANSISTOR 2SK2098-01MR-F119				
Q514	8-729-047-72	TRANSISTOR 2SK3155-01				
Q515	8-729-047-72	TRANSISTOR 2SK3155-01				
Q516	8-729-047-72	TRANSISTOR 2SK3155-01				
Q518	8-729-301-46	TRANSISTOR 2SC2610				
Q519	8-729-029-68	TRANSISTOR DTC114TSA				
Q520	8-729-048-51	TRANSISTOR 2SJ516LBS2SONY				
Q521	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q522	8-729-043-32	TRANSISTOR PDTA114EK-115				
Q524	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R				
Q525	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q601	8-729-029-92	TRANSISTOR DTC143ESA				
Q602	8-729-048-61	TRANSISTOR 2SK2843LBS2SONY				
Q603	8-729-043-27	TRANSISTOR PDTC114EK-115				
Q604	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q605	8-729-043-27	TRANSISTOR PDTC114EK-115				
Q903	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
		<RESISTOR>				
R401	1-249-381-11	CARBON	1	5%	1/4W	F
R402	1-215-866-11	METAL OXIDE	330	5%	1W	F
R403	1-214-661-21	METAL	1.5	1%	1/4W	
R404	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W	
R405	1-214-661-21	METAL	1.5	1%	1/4W	
R406	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	
R407	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R408	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R409	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W	
R410	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	
R500	1-249-377-11	CARBON	0.47	5%	1/4W	F
R501	1-216-025-91	RES,CHIP	100	5%	1/10W	
R502	1-218-758-11	METAL CHIP	180K	0.50%	1/10W	
R503	1-216-675-91	METAL CHIP	10K	0.50%	1/10W	
R504	1-249-377-11	CARBON	0.47	5%	1/4W	F
R505	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R506	1-215-481-00	METAL	330K	1%	1/4W	
R507	1-215-431-00	METAL	2.7K	1%	1/4W	
R508	1-247-807-31	CARBON	100	5%	1/4W	
R509	1-247-863-91	CARBON	22K	5%	1/4W	
R510	1-215-437-00	METAL	4.7K	1%	1/4W	
R511	1-249-381-11	CARBON	1	5%	1/4W	F
R512	1-249-389-11	CARBON	4.7	5%	1/4W	
R513	1-215-888-00	METAL OXIDE	220	5%	2W	F
R514	1-216-081-00	RES,CHIP	22K	5%	1/10W	
R515	1-249-417-11	CARBON	1K	5%	1/4W	F
R516	1-214-844-81	METAL	150	1%	1/2W	
R517	1-216-393-00	METAL OXIDE	2.2	5%	3W	F
R518	1-216-393-00	METAL OXIDE	2.2	5%	3W	F
R519	1-215-463-00	METAL	56K	1%	1/4W	
R520	1-249-397-11	CARBON	22	5%	1/4W	F
R521	1-249-417-11	CARBON	1K	5%	1/4W	F
R522	1-249-401-11	CARBON	47	5%	1/4W	
R523	1-215-463-00	METAL	56K	1%	1/4W	
R524	1-215-463-00	METAL	56K	1%	1/4W	
R525	1-249-417-11	CARBON	1K	5%	1/4W	F
R527	1-249-429-11	CARBON	10K	5%	1/4W	
R528	1-216-081-00	RES,CHIP	22K	5%	1/10W	
R529	1-249-429-11	CARBON	10K	5%	1/4W	F
R530	1-216-474-11	METAL OXIDE	82	5%	3W	F
R531	1-216-474-11	METAL OXIDE	82	5%	3W	F
R532	1-249-385-11	CARBON	2.2	5%	1/4W	F
R533	1-249-417-11	CARBON	1K	5%	1/4W	F
R534	1-249-405-11	CARBON	100	5%	1/4W	F
R535	1-215-463-00	METAL	56K	1%	1/4W	
R536	1-249-417-11	CARBON	1K	5%	1/4W	F
R537	1-215-463-00	METAL	56K	1%	1/4W	
R538	1-215-905-11	METAL OXIDE	10	5%	3W	F
R539	1-215-905-11	METAL OXIDE	10	5%	3W	F
R540 ⚠	1-215-476-91	METAL	200K	1%	1/4W	
R541	1-215-421-00	METAL	1K	1%	1/4W	
R542	1-215-421-00	METAL	1K	1%	1/4W	
R543	1-249-389-11	CARBON	4.7	5%	1/4W	F
R544	1-247-903-00	CARBON	1M	5%	1/4W	
R545	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R546	1-215-457-00	METAL	33K	1%	1/4W	
R547	1-215-477-00	METAL	220K	1%	1/4W	
R548	1-215-423-00	METAL	1.2K	1%	1/4W	
R549	1-215-464-00	METAL	62K	1%	1/4W	
R550	1-215-423-00	METAL	1.2K	1%	1/4W	
R551	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	
R552	1-215-463-00	METAL	56K	1%	1/4W	
R553	1-216-698-11	METAL CHIP	91K	0.50%	1/10W	
R554	1-218-756-11	METAL CHIP	150K	0.50%	1/10W	
R556	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R557	1-216-079-00	RES,CHIP	18K	5%	1/10W	
R558	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R559	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	
R560	1-216-679-11	METAL CHIP	15K	0.50%	1/10W	
R561	1-216-474-11	METAL OXIDE	82	5%	3W	F
R562	1-215-451-00	METAL	18K	1%	1/4W	
R563	1-249-383-11	CARBON	1.5	5%	1/4W	F
R564	1-216-089-91	RES,CHIP	47K	5%	1/10W	

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D

REF.NO.	PART NO.	DESCRIPTION				REMARK
R565	1-215-481-00	METAL	330K	1%	1/4W	
R566	1-215-859-00	METAL OXIDE	22	5%	1W	F
R567	1-216-077-91	RES,CHIP	15K	5%	1/10W	
R568	1-249-437-11	CARBON	47K	5%	1/4W	
R569	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R570	1-249-417-11	CARBON	1K	5%	1/4W	
R571	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R572	1-249-437-11	CARBON	47K	5%	1/4W	
R573	1-247-887-00	CARBON	220K	5%	1/4W	
R574	1-249-421-11	CARBON	2.2K	5%	1/4W	
R575	1-260-314-11	CARBON	68	5%	1/2W	
R576	1-249-437-11	CARBON	47K	5%	1/4W	
R577	1-215-908-00	METAL OXIDE	33	5%	3W	F
R578	1-216-448-11	METAL OXIDE	39	5%	2W	F
R579	1-247-883-00	CARBON	150K	5%	1/4W	
R580	1-216-077-91	RES,CHIP	15K	5%	1/10W	
R581	1-249-429-11	CARBON	10K	5%	1/4W	
R582	1-249-402-11	CARBON	56	5%	1/4W	F
R583	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R584	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R585	1-249-417-11	CARBON	1K	5%	1/4W	
R586	1-249-421-11	CARBON	2.2K	5%	1/4W	
R587	1-249-417-11	CARBON	1K	5%	1/4W	
R589	1-249-425-11	CARBON	4.7K	5%	1/4W	
R590	1-215-453-00	METAL	22K	1%	1/4W	
R591	1-214-844-81	METAL	150	1%	1/2W	
R592	1-214-844-81	METAL	150	1%	1/2W	
R594	1-216-033-00	RES,CHIP	220	5%	1/10W	
R595	1-215-477-00	METAL	220K	1%	1/4W	
R596	1-215-423-00	METAL	1.2K	1%	1/4W	
R597	1-259-880-11	CARBON	2.2M	5%	1/4W	
R599	1-249-417-11	CARBON	1K	5%	1/4W	
R600 ⚠	1-205-998-11	CEMENTED	1	5%	10W	
R602	1-219-513-11	CARBON	4.7M	5%	1/2W	
R603	1-249-403-11	CARBON	68	5%	1/4W	
R604 ⚠	1-220-827-91	REGISTER	560K	5%	1/2W	
R605	1-220-778-81	FUSIBLE	0.1	10%	1/2W	
R606	1-218-768-11	METAL CHIP	470K	0.50%	1/10W	
R607	1-216-081-00	RES,CHIP	22K	5%	1/10W	
R608	1-215-473-00	METAL	150K	1%	1/4W	
R609	1-216-665-11	METAL CHIP	3.9K	0.50%	1/10W	
R610	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R611	1-216-009-91	RES,CHIP	22	5%	1/10W	
R612	1-247-791-91	CARBON	22	5%	1/4W	
R613	1-219-513-11	CARBON	4.7M	5%	1/2W	
R614	1-216-345-11	METAL OXIDE	0.47	5%	1W	F
R615	1-216-117-00	RES,CHIP	680K	5%	1/10W	
R616	1-216-121-91	RES,CHIP	1M	5%	1/10W	
R617	1-216-025-91	RES,CHIP	100	5%	1/10W	
R618	1-216-635-11	METAL CHIP	220	0.50%	1/10W	
R619	1-215-893-11	METAL OXIDE	1.5K	5%	2W	F
R620	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	
R621	1-216-098-00	RES,CHIP	110K	5%	1/10W	
R622	1-247-791-91	CARBON	22	5%	1/4W	
R623	1-216-615-91	METAL CHIP	33	0.50%	1/10W	
R624	1-216-611-11	METAL CHIP	22	0.50%	1/10W	
R625	1-260-332-51	CARBON	2.2K	5%	1/2W	
R626	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R627	1-249-377-11	CARBON	0.47	5%	1/4W	F
R628	1-216-674-11	METAL CHIP	9.1K	0.50%	1/10W	
R629	1-249-441-11	CARBON	100K	5%	1/4W	
R630 ⚠	1-211-874-71	FUSIBLE MELF	0.12	10%	1/2W	
R631 ⚠	1-211-874-71	FUSIBLE MELF	0.12	10%	1/2W	
R633	1-249-429-11	CARBON	10K	5%	1/4W	
R634 ⚠	1-211-874-71	FUSIBLE MELF	0.12	10%	1/2W	
R635	1-215-925-11	METAL OXIDE	22K	5%	3W	F
R636	1-260-119-11	CARBON	47K	5%	1/2W	
R637	1-215-902-11	METAL OXIDE	47K	5%	2W	F
R638 ⚠	1-211-874-71	FUSIBLE MELF	0.12	10%	1/2W	
R639 ⚠	1-211-874-71	FUSIBLE MELF	0.12	10%	1/2W	
R640	1-249-381-11	CARBON	1	5%	1/4W	F
R642	1-216-641-11	METAL CHIP	390	0.50%	1/10W	
R643	1-215-467-00	METAL	82K	1%	1/4W	
R645	1-216-675-91	METAL CHIP	10K	0.50%	1/10W	
R646	1-216-689-11	RES,CHIP	39K	5%	1/10W	
R647	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R648	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W	
R649	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W	
R650	1-215-471-00	METAL	120K	1%	1/4W	
R654	1-216-344-00	METAL OXIDE	0.39	5%	1W	F
R655	1-247-807-31	CARBON	100	5%	1/4W	
R656	1-215-893-11	METAL OXIDE	1.5K	5%	2W	F
R660	1-260-119-11	CARBON	47K	5%	1/2W	
R661	1-215-902-11	METAL OXIDE	47K	5%	2W	F
R663	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W	
R665	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W	
R703	1-249-410-11	CARBON	270	5%	1/4W	
R704	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W	
R705	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R706	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R707	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R708	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R709	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R710	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R711	1-216-346-00	METAL OXIDE	0.56	5%	1W	F
R712	1-215-860-11	METAL OXIDE	33	5%	1W	F
R713	1-216-347-11	METAL OXIDE	0.68	5%	1W	F
R716	1-215-860-11	METAL OXIDE	33	5%	1W	F
R717	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R718	1-215-863-11	METAL OXIDE	100	5%	1W	F
R719	1-216-679-11	METAL CHIP	15K	0.50%	1/10W	
R724	1-216-422-11	METAL OXIDE	18	5%	1W	F
R727	1-216-679-11	METAL CHIP	15K	0.50%	1/10W	
R728	1-215-863-11	METAL OXIDE	100	5%	1W	F
R729	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R730	1-216-421-11	METAL OXIDE	12	5%	1W	F
R731	1-216-295-91	SHORT	0			
R733	1-216-295-91	SHORT	0			
R735	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R737	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R739	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R741	1-249-377-11	CARBON	0.47	5%	1/4W	F

D

The components identified by ⋈ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by mark ⚠ are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION			REMARK
R743	1-249-377-11	CARBON	0.47	5%	1/4W F
R745	1-216-298-00	RES,CHIP	2.2	5%	1/10W
R747	1-216-298-00	RES,CHIP	2.2	5%	1/10W
R753	1-216-679-11	METAL CHIP	15K	0.50%	1/10W
R755	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W
R903	1-216-049-91	RES,CHIP	1K	5%	1/10W
R904	1-216-049-91	RES,CHIP	1K	5%	1/10W
R905	1-216-295-91	SHORT	0		
R906	1-216-073-00	RES,CHIP	10K	5%	1/10W
R907	1-260-087-81	CARBON	100	5%	1/2W
R908	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R909	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R910	1-249-411-11	CARBON	330	5%	1/4W
R911	1-249-416-11	CARBON	820	5%	1/4W
R912	1-216-049-91	RES,CHIP	1K	5%	1/10W
R913	1-216-025-91	RES,CHIP	100	5%	1/10W
R914	1-216-025-91	RES,CHIP	100	5%	1/10W
R915	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R916	1-216-077-91	RES,CHIP	15K	5%	1/10W
R917	1-216-077-91	RES,CHIP	15K	5%	1/10W
R918	1-216-049-91	RES,CHIP	1K	5%	1/10W
R920	1-216-049-91	RES,CHIP	1K	5%	1/10W
R921	1-216-295-91	SHORT	0		
R922	1-216-073-00	RES,CHIP	10K	5%	1/10W
R923	1-216-295-91	SHORT	0		
R924	1-216-025-91	RES,CHIP	100	5%	1/10W
R925	1-216-113-00	RES,CHIP	470K	5%	1/10W
R927	1-216-295-91	SHORT	0		
R929	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R931	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W
R932	1-216-077-91	RES,CHIP	15K	5%	1/10W
R933	1-249-417-11	CARBON	1K	5%	1/4W
R934	1-249-429-11	CARBON	10K	5%	1/4W
R935	1-216-025-91	RES,CHIP	100	5%	1/10W
R936	1-216-025-91	RES,CHIP	100	5%	1/10W
R937	1-216-025-91	RES,CHIP	100	5%	1/10W
R938	1-216-025-91	RES,CHIP	100	5%	1/10W
R940	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W
R943	1-249-413-11	CARBON	470	5%	1/4W
R944	1-216-043-91	RES,CHIP	560	5%	1/10W
R945	1-216-049-91	RES,CHIP	1K	5%	1/10W
R946	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R947	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R951	1-216-025-91	RES,CHIP	100	5%	1/10W
R957	1-216-017-91	RES,CHIP	47	5%	1/10W
R958	1-216-017-91	RES,CHIP	47	5%	1/10W

<VARIABLE RESISTOR>

⋈ RV501⚠1-241-767-21 RES, ADJ, CERMET 100K (HV ADJ)

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<RELAY>	
RY500	1-515-669-21	RELAY	
RY601⚠	1-755-279-11	RELAY	
		<SWITCH>	
S602 ⚠	1-771-757-11	SWITCH, PUSH (1 KEY) (POWER)	
S901	1-692-431-21	SWITCH, TACTILE (RESET)	
S903	1-692-431-21	SWITCH, TACTILE (BRIGHT -)	
S904	1-692-431-21	SWITCH, TACTILE (BRIGHT +)	
S905	1-692-431-21	SWITCH, TACTILE (MENU)	
S906	1-692-431-21	SWITCH, TACTILE (CONT -)	
S908	1-692-431-21	SWITCH, TACTILE (CONT +)	
		<SPARK GAP>	
SG501	1-519-422-11	GAP, SPARK	
		<TRANSFORMER>	
T501 ⚠	X-4560-154-1	TRANSFORMER ASSY, FLY BACK	(NX-4404//J1L4)
T503	1-433-979-11	TRANSFORMER, FERRITE (DFT)	
T504	1-433-978-11	TRANSFORMER, HORIZONTAL DRIVE	
T505	1-431-413-11	TRANSFORMER, FERRITE (HST)	
T601 ⚠	1-433-847-14	TRANSFORMER, CONVERTER (SRT)	
		<THERMISTOR>	
TH501	1-807-796-11	THERMISTOR	
TH600⚠	1-803-339-11	THERMISTOR, NTC	
TH601⚠	1-803-540-11	THERMISTOR	
		<VARISTOR>	
VA601⚠	1-801-268-51	VARISTOR ERZV14D471	
VA602⚠	1-801-268-51	VARISTOR ERZV14D471	
VA603	1-801-268-51	VARISTOR ERZV14D471	(23N, 23S, 63N, 63S)
		<CRYSTAL>	
X901	1-767-641-11	VIBRATOR, CRYSTAL	
X902 ⚠	1-767-933-11	OSCILLATOR, CERAMIC	

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