

MODIFICATION HISTORY

MODEL NAME :HMD-A420

SERVICE MANUAL

PARTS No. : 9-978-686-02

* Blue characters are linking.

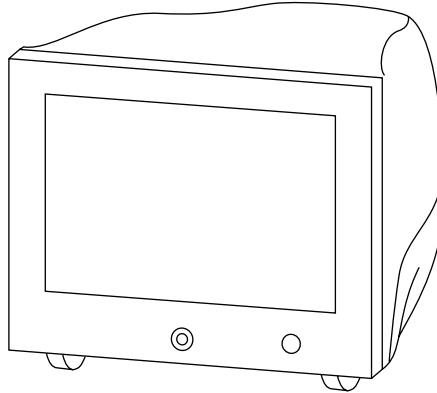
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HMD-A420

SERVICE MANUAL

AEP Model

Chassis No. SCC-L35A-A



H1

CHASSIS

SPECIFICATIONS

CRT	0.24 mm aperture grille pitch (center) 19 inches measured diagonally 90-degree deflection FD Trinitron
Viewable image size	Approx. 365 × 274 mm (w/h) (14 ³ / ₈ × 10 ⁷ / ₈ inches) 18.0" viewing image
Resolution	
Maximum	Horizontal: 1800 dots Vertical: 1440 lines
Recommended	Horizontal: 1280 dots Vertical: 1024 lines
Standard image area	Approx. 352 × 264 mm (w/h) (13 ⁷ / ₈ × 10 ¹ / ₂ inches)
Deflection frequency*	Horizontal: 30 to 96 kHz Vertical: 48 to 120 Hz
AC input voltage/current	100 – 240 V, 50 – 60 Hz, 2.3 – 1.0 A
Power consumption	Max. 150 W
Dimensions	Approx. 497 × 458 × 469 mm (w/h/d) (19 ⁵ / ₈ × 18 ¹ / ₈ × 18 ¹ / ₂ inches)
Mass	Approx. 26 kg (57 lb 5 oz)
Plug and Play	DDC1/DDC2B/DDC2Bi

* 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.

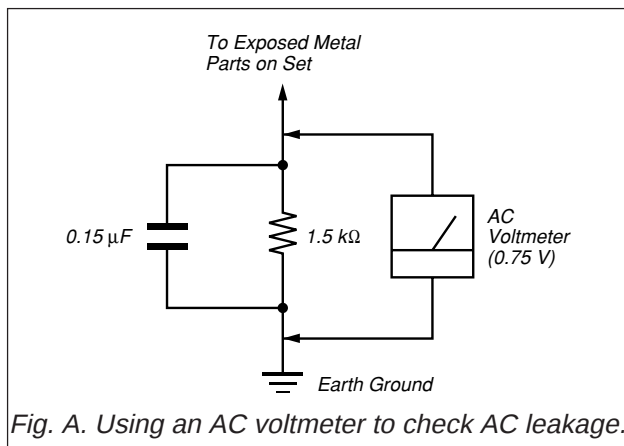
Design and specifications are subject to change without notice.

TRINITRON® COLOR COMPUTER DISPLAY
SONY®

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.



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 microamperes).

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 $\triangle$ 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 $\triangle$ 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.

POWER SAVING FUNCTION

This monitor meets the power-saving guidelines set by VESA, ENERGY STAR, and NUTEK. If no signal is received by the monitor from the connected computer, the monitor will automatically reduce power consumption as shown below.

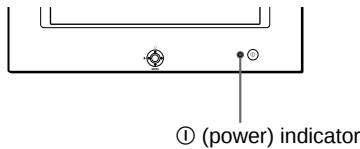
Power mode	Power consumption*	① (power) indicator
normal operation	≤ 150 W	green
active off**	≤ 3 W	orange
power off	0 W	off

* Figures reflect power consumption when no USB compatible peripherals are connected to the monitor.

** When your computer enters the “active off” mode, the input signal is cut and NO INPUT SIGNAL appears on the screen. After 20 seconds, the monitor enters the power saving mode.

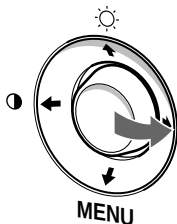
DIAGNOSIS

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 ① (power) indicator will either light up green or flash orange. If the ① (power) indicator is lit in orange, the computer is in power saving mode. Try pressing any key on the keyboard.



If the ① (power) indicator is green

- 1 **Disconnect the video input cable or turn off the connected computer.**
- 2 **Press the ① (power) button twice to turn the monitor off and then on.**
- 3 **Move the control 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 your authorized Sony dealer of the monitor's condition.

If the ① (power) indicator is flashing orange

Press the ① (power) button twice to turn the monitor off and then on.

If the ① (power) indicator lights up green, the monitor is working properly.

If the ① (power) indicator is still flashing, there is a potential monitor failure. Count the number of seconds between orange flashes of the ① (power) indicator and inform your authorized Sony dealer 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.

TIMING SPECIFICATION

MODE AT PRODUCTION	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5
RESOLUTION	640 X 480	640 X 480	720 X 400	800 X 600	832 X 624
CLOCK	25.175 MHz	36.000 MHz	28.321 MHz	56.250 MHz	57.283 MHz
— HORIZONTAL —					
H-FREQ	31.469 kHz	43.269 kHz	31.468 kHz	53.674 kHz	49.725 kHz
	usec	usec	usec	usec	usec
H. TOTAL	31.778	23.111	31.779	18.631	20.111
H. BLK	6.356	5.333	6.356	4.409	5.586
H. FP	0.636	1.556	0.636	0.569	0.559
H. SYNC	3.813	1.556	3.813	1.138	1.117
H. BP	1.907	2.222	1.907	2.702	3.910
H. ACTIV	25.422	17.778	25.423	14.222	14.524
— VERTICAL —					
V. FREQ(HZ)	59.940 Hz	85.008 Hz	70.084 Hz	85.061 Hz	74.550 Hz
	lines	lines	lines	lines	lines
V. TOTAL	525	509	449	631	667
V. BLK	45	29	49	31	43
V. FP	10	1	12	1	1
V. SYNC	2	3	2	3	3
V. BP	33	25	35	27	39
V. ACTIV	480	480	400	600	624
— SYNC —					
INT(G)	NO	NO	NO	NO	NO
EXT(H/V)/POLARITY	YES N/N	YES N/N	YES N/P	YES N/P	YES N/N
EXT(CS)/POLARITY	NO	NO	NO	NO	NO
INT/NON INT	NON INT	NON INT	NON INT	NON INT	NON INT

MODE AT PRODUCTION	MODE 6	MODE 7	MODE 8	MODE 9	MODE 10
RESOLUTION	1024 X 768	1152 X 870	1280 X 1024	1280 X 1024	1600 X 1200
CLOCK	94.500 MHz	100.000 MHz	135.000 MHz	157.500 MHz	202.500 MHz
— HORIZONTAL —					
H-FREQ	68.677 kHz	68.681 kHz	79.976 kHz	91.146 kHz	93.750 kHz
	usec	usec	usec	usec	usec
H. TOTAL	14.561	14.560	12.504	10.971	10.667
H. BLK	3.725	3.040	3.022	2.844	2.765
H. FP	0.508	0.320	0.119	0.406	0.316
H. SYNC	1.016	1.280	1.067	1.016	0.948
H. BP	2.201	1.440	1.837	1.422	1.501
H. ACTIV	10.836	11.520	9.481	8.127	7.901
— VERTICAL —					
V. FREQ(HZ)	84.997 Hz	75.062 Hz	75.025 Hz	85.024 Hz	75.000 Hz
	lines	lines	lines	lines	lines
V. TOTAL	808	915	1066	1072	1250
V. BLK	40	45	42	48	50
V. FP	1	3	1	1	1
V. SYNC	3	3	2	3	3
V. BP	36	39	38	44	46
V. ACTIV	768	870	1024	1024	1200
— SYNC —					
INT(G)	NO	NO	NO	NO	NO
EXT(H/V)/POLARITY	YES P/P	YES N/N	YES P/P	YES P/P	YES P/P
EXT(CS)/POLARITY	NO	NO	NO	NO	NO
INT/NON INT	NON INT	NON INT	NON INT	NON INT	NON INT

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1. GENERAL		1-1
2. DISASSEMBLY		
2-1.	Bucket Assembly Removal	2-1
2-2.	A Board Removal	2-1
2-3.	D Board Removal	2-2
2-4.	Service Position	2-3
2-5.	H Board Removal	2-4
2-6.	Picture Tube Removal	2-4
2-7.	Harness Location	2-5
3. SAFETY RELATED ADJUSTMENT		3-1
4. ADJUSTMENTS		4-1
5. DIAGRAMS		
5-1.	Block Diagrams	5-1
5-2.	Frame Schematic Diagram	5-5
5-3.	Circuit Boards Location	5-6
5-4.	Schematic Diagrams and Printed Wiring Boards ..	5-7
(1)	Schematic Diagram of H Board	5-8
(2)	Schematic Diagram of A Board	5-9
(3)	Schematic Diagrams of D (a, b, c, d, e, f) Board	5-11
5-5.	Semiconductors	5-23
6. EXPLODED VIEWS		
6-1.	Chassis	6-1
6-2.	Picture Tube	6-2
6-3.	Packing Materials	6-3
7. ELECTRICAL PARTS LIST		7-1

SECTION 1 GENERAL

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

Precautions

Warning on power connections

- Use the supplied power cord. If you use a different power cord, be sure that it is compatible with your local power supply.

For the customers in the UK

If you use the monitor in the UK, be sure to use the supplied UK power cable.

Example of plug types



- Before disconnecting the power cord, wait at least 30 seconds after turning off the power to allow the static electricity on the screen's surface to discharge.
- After the power is turned on, the screen is demagnetized (degaussed) for about 5 seconds. This generates a strong magnetic field around the screen which may affect data stored on magnetic tapes and disks placed near the monitor. Be sure to keep magnetic recording equipment, tapes, and disks away from the monitor.

The equipment should be installed near an easily accessible outlet.

Installation

Do not install the monitor in the following places:

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

Maintenance

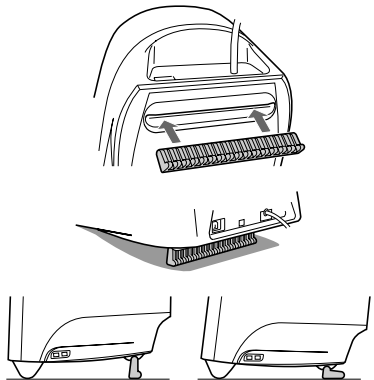
- Clean the screen with a soft cloth. If you use a glass cleaning liquid, do not use any type of cleaner containing an anti-static solution or similar additive as this may scratch the screen's coating.
- Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as a ballpoint pen or screwdriver. This type of contact may result in a scratched picture tube.
- Clean the 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 benzene.

Transportation

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

Use of the stand

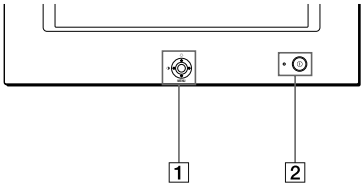
Insert the supplied stand into the groove to adjust the angle of the monitor. You can use the stand in either the vertical or horizontal position. If you do not need the stand for this purpose, you can use it as a convenient CD rack.



Identifying parts and controls

See the pages in parentheses for further details.

Front



1 Control button (page 9)

The control button is used to display the menu and make adjustments to the monitor, including brightness and contrast adjustments.

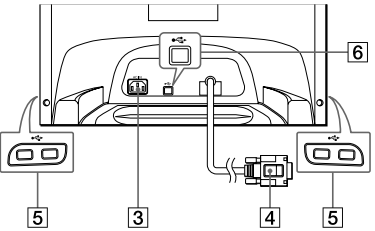
2 ① (power) switch and indicator (pages 6, 12, 15)

This button turns the monitor on and 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.

3 AC IN connector (page 6)

This connector provides AC power to the monitor.

Rear



4 Video input connector (HD15) (page 6)

This connector inputs RGB video signals (0.700 Vp-p, positive) and sync signals.



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

* DDC (Display Data Channel) is a standard of VESA.

5 USB (universal serial bus) downstream connectors (page 7)

Use these connectors to link USB peripheral devices to the monitor.

6 USB (universal serial bus) upstream connector (page 7)

Use this connector to link the monitor to a USB compliant computer.

GB

Setup

Before using your monitor, check that the following accessories are included in your carton:

- Power cord (1)
- USB cable (1)
- Monitor stand (1)
- Warranty card (1)
- Notes on cleaning the screen's surface (1)
- This instruction manual (1)

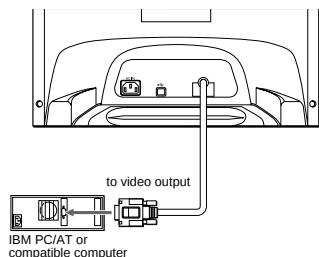
Step 1: Connect your monitor to your computer

Turn off the monitor and computer before connecting.

Note

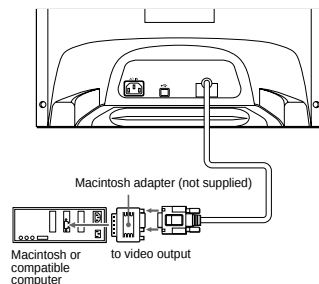
Do not touch the pins of the video cable connector as this might bend the pins.

■ Connecting to an IBM PC/AT or compatible computer



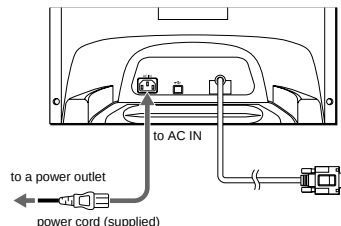
■ Connecting to a Macintosh or compatible computer

You will need a Macintosh adapter (not supplied).



Step 2: Connect the power cord

With the monitor and computer switched off, first connect the power cord to the monitor, then connect it to a power outlet.



Step 3: Turn on the monitor and computer

First turn on the monitor, then turn on the computer.



The installation of your monitor is complete. If necessary, use the monitor's controls to adjust the picture.

If no picture appears on your screen

- Check that the monitor is correctly connected to the computer.
- If NO INPUT SIGNAL appears on the screen, confirm that your computer's graphic board is completely seated in the correct bus slot.
- If you are replacing an old monitor with this model and OUT OF SCAN RANGE appears on the screen, reconnect the old monitor. Then adjust the computer's graphic board so that the horizontal frequency is between 30 – 96 kHz, and the vertical frequency is between 48 – 120 Hz.

For more information about the on-screen messages, see "Trouble symptoms and remedies" on page 13.

Setup on various OS (Operating System)

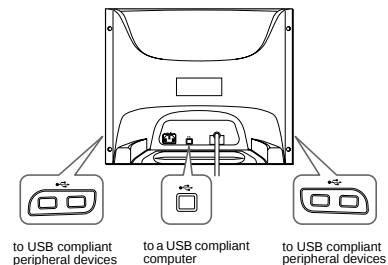
This monitor complies with the "DDC" Plug & Play standard and automatically detects all the monitor's information. No specific driver needs to be installed to the computer. If you connect the monitor to your PC, and then boot your PC for the first time, the setup Wizard may be displayed on the screen. Click on "Next" several times according to the instructions from the Wizard until the Plug & Play Monitor is automatically selected so that you can use this monitor.

For customers using Windows NT4.0

Monitor setup in Windows NT4.0 does not use the display driver. Refer to the Windows NT4.0 instruction manual for further details on adjusting the resolution, refresh rate, and number of colors.

Connecting Universal Serial Bus (USB) compliant peripherals

Your monitor has one upstream USB connector (on the rear panel) and four downstream USB connectors (two on both the left and right sides). They provide a fast and easy way to connect USB compliant peripheral devices (such as keyboards, mice, printers and scanners) to your computer using a standardized USB cable. To use your monitor as a hub for your peripheral devices, connect the USBs as illustrated below.



1 Turn on the monitor and computer.

2 Connect your computer to the square upstream USB connector using the supplied USB cable.

For customers using Windows

If a message appears on your screen, follow the on-screen instructions and select Generic USB Hub as the default setting.

3 Connect your USB compliant peripheral devices to the rectangular downstream USB connectors.

Notes

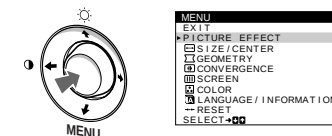
- Not all computers and/or operating systems support USB configurations. Check your computer's instruction manual to see if you can connect USB devices.
- In most cases, USB driver software needs to be installed on the host computer. Refer to the peripheral device's instruction manual for further details.
- The monitor functions as a USB hub as long as the monitor is either "on" or in power saving mode.
- If you connect a keyboard or mouse to the USB connectors and then boot your computer for the first time, the peripheral devices may not function. First connect the keyboard and mouse directly to the computer and set up the USB compliant devices. Then connect them to this monitor.
- Do not lean on the monitor when plugging in the USB cables. The monitor may suddenly shift and cause injury.

Selecting the on-screen menu language (LANGUAGE/ INFORMATION)

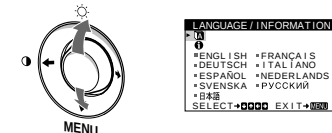
English, French, German, Italian, Spanish, Dutch, Swedish, Russian and Japanese versions of the on-screen menus are available. The default setting is English.

1 Press the center of the control button.

See page 9 for more information on using the control button.



2 Move the control button up/down to highlight LANGUAGE/INFORMATION and press the center of the control button again.



3 Move the control button up/down to select a language. Then move the control button left/right to select a language.

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

To close the menu

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

To reset to English

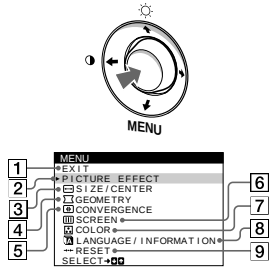
See "Resetting the adjustments (RESET)" on page 11.

Customizing Your Monitor

You can make numerous adjustments to your monitor using the on-screen menu.

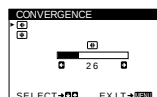
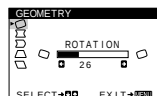
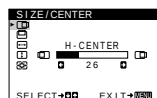
Navigating the menu

Press the center of the control button to display the main MENU on your screen. See page 9 for more information on using the control button.

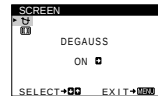


Use the control button to select one of the following menus.

- 1 EXIT**
Select EXIT to close the menu.
- 2 PICTURE EFFECT (page 9)**
Selects the PICTURE EFFECT menu to choose the most appropriate preset picture mode.
- 3 SIZE/CENTER (page 10)**
Selects the SIZE/CENTER menu to adjust the picture's centering, size or zoom.
- 4 GEOMETRY (page 10)**
Select the GEOMETRY menu to adjust the picture's rotation and shape.
- 5 CONVERGENCE (page 10)**
Selects the CONVERGENCE menu to adjust the picture's horizontal and vertical convergence.



- 6 SCREEN (page 11)**
Select the SCREEN menu to degauss the screen and adjust the moire cancellation level.



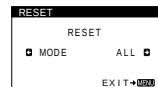
- 7 COLOR (page 11)**
Select the COLOR menu to adjust the picture's color temperature. You can use this to match the monitor's colors to a printed picture's colors.



- 8 LANGUAGE/ INFORMATION (page 7, 14)**
Select the LANGUAGE/ INFORMATION menu to choose the on-screen menu's language and display this monitor's information box.

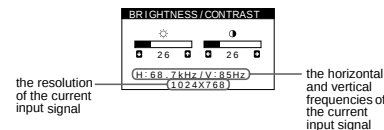


- 9 RESET (page 11)**
Select the RESET menu to reset the adjustments.



■ Displaying the current input signal

The horizontal and vertical frequencies of the current input signal are displayed under the BRIGHTNESS/CONTRAST menu. If the signal matches one of this monitor's factory preset modes, the resolution is also displayed.

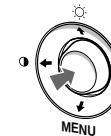


the resolution of the current input signal

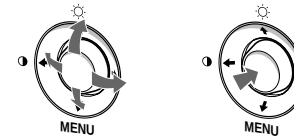
the horizontal and vertical frequencies of the current input signal

■ Using the control button

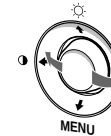
- 1 Display the main MENU.**
Press the center of the control button to display the main MENU on your screen.



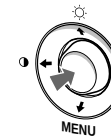
- 2 Select the menu you want to adjust.**
Highlight the desired menu by moving the control button up (↑), down (↓), and left (←) or right (→).



- 3 Adjust the menu.**
Move the control button left (←) or right (→) to make the adjustment.



- 4 Close the menu.**
Press the center of the control button once to return to the main MENU, and twice to return to normal viewing. If no buttons are pressed, the menu closes automatically after about 30 seconds.



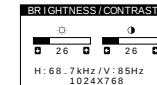
■ Resetting the adjustments

You can reset the adjustments using the RESET menu. See page 11 for more information on resetting the adjustments.

Adjusting the brightness and contrast

Brightness and contrast adjustments are made using a separate BRIGHTNESS/CONTRAST menu. These settings are stored in memory for all input signals.

- 1 Move the control button in any direction.**
The BRIGHTNESS/CONTRAST menu appears on the screen.



- 2 Move the control button ↑/↓ to adjust the brightness (☀), and ←/→ to adjust the contrast (⦿).**

The menu automatically disappears after about 3 seconds.

Adjusting the picture quality (PICTURE EFFECT)

The PICTURE EFFECT feature allows you to select the most appropriate picture mode from among two preset modes maximum performance.

- 1 Press the center of the control button.**
The main MENU appears on the screen.
- 2 Move the control button to highlight PICTURE EFFECT and press the center of the control button again.**
The PICTURE EFFECT menu appears on the screen.
- 3 Move the control button ↑/↓ to select the desired picture mode.**

Select	For
STANDARD	images with high contrast and brightness. Choose this mode for commonly used applications, such as spreadsheets, word processing, E-mail, or WEB surfing.
DYNAMIC	extremely vivid and photo-realistic images. Brighter than "STANDARD" mode, choose this for intense graphic applications such as games, DVD playback, or entertainment software.

Adjusting the centering of the picture (CENTER)

This setting is stored in memory for the current input signal.

- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ SIZE/CENTER and press the center of the control button again.**
The SIZE/CENTER menu appears on the screen.
- 3 **First move the control button $\downarrow/\uparrow$ to select $\square$ (H-CENTER) for horizontal adjustment, or $\square$ (V-CENTER) for vertical adjustment. Then move the control button $\leftarrow/\rightarrow$ to adjust the centering.**

Adjusting the size of the picture (SIZE)

This setting is stored in memory for the current input signal.

- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ SIZE/CENTER and press the center of the control button again.**
The SIZE/CENTER menu appears on the screen.
- 3 **First move the control button $\downarrow/\uparrow$ to select $\square$ (H-SIZE) for horizontal adjustment, or $\square$ (V-SIZE) for vertical adjustment. Then move the control button $\leftarrow/\rightarrow$ to adjust the size.**

Enlarging or reducing the picture (ZOOM)

This setting is stored in memory for the current input signal.

- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ SIZE/CENTER and press the center of the control button again.**
The SIZE/CENTER menu appears on the screen.
- 3 **Move the control button $\downarrow/\uparrow$ to select $\square$ (ZOOM), and move $\leftarrow/\rightarrow$ to enlarge or reduce the picture.**

Adjusting the shape of the picture (GEOMETRY)

The GEOMETRY settings allow you to adjust the rotation and shape of the picture.
The $\square$ (ROTATION) setting is stored in memory for all input signals. All other settings are stored in memory for the current input signal.

- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ GEOMETRY and press the center of the control button again.**
The GEOMETRY menu appears on the screen.
- 3 **First move the control button $\downarrow/\uparrow$ to select the desired adjustment item. Then move the control button $\leftarrow/\rightarrow$ to make the adjustment.**

Select	To
$\square$ (ROTATION)	rotate the picture
$\square$ (PIN)	expand or contract the picture sides
$\square$ (PIN BALANCE)	shift the picture sides to the left or right
$\square$ (KEY)	adjust the picture width at the top of the screen
$\square$ (KEY BALANCE)	shift the picture to the left or right at the top of the screen

Adjusting the convergence (CONVERGENCE)

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.
These settings are stored in memory for all input signals.

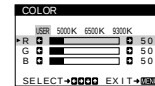
- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ CONVERGENCE and press the center of the control button again.**
The CONVERGENCE menu appears on the screen.
- 3 **First move the control button $\downarrow/\uparrow$ to select the desired adjustment item. Then move the control button $\leftarrow/\rightarrow$ to make the adjustment.**

Select	To
$\square$	horizontally shift red or blue shadows
$\square$	vertically shift red or blue shadows

Adjusting the color of the picture (COLOR)

The COLOR settings allow you to adjust the picture's color temperature by changing the color level of the white color field. Colors appear reddish if the temperature is low, and bluish if the temperature is high. This adjustment is useful for matching the monitor's colors to a printed picture's colors.
This setting is stored in memory for all input signals.

- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ COLOR and press the center of the control button again.**
The COLOR menu appears on the screen.
- 3 **Move the control button $\leftarrow/\rightarrow$ to select a color temperature.**
The preset color temperatures are 5000K, 6500K, and 9300K. Since the default setting is 9300K, the whites will change from a bluish hue to a reddish hue as the temperature is lowered to 6500K and 5000K.
- 4 **If necessary, fine tune the color temperature.**
First move the control button $\leftarrow/\rightarrow$ to select USER. Then move the control button $\downarrow/\uparrow$ to select R (red), G (green), or B (blue) and move the control button $\leftarrow/\rightarrow$ to make the adjustment.



If you fine tune the color temperature, the new color settings are stored in memory and recalled whenever you select USER.

Additional settings (SCREEN)

You can manually degauss (demagnetize) the screen, and adjust the moire cancellation level.

- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ SCREEN and press the center of the control button again.**
The SCREEN menu appears on the screen.
- 3 **Move the control button $\downarrow/\uparrow$ to select the desired adjustment item.**
Adjust the selected item according to the following instructions.

■ Degaussing the screen

The monitor is automatically demagnetized when the power is turned on.

To manually degauss the monitor, first move the control button $\downarrow/\uparrow$ to select $\square$ (DEGAUSS). Then move the control button $\rightarrow$.

The screen is degaussed for about 5 seconds. If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result.

■ Adjusting the moire*

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

To adjust the amount of moire cancellation, first move the control button $\downarrow/\uparrow$ to select $\square$ (CANCEL MOIRE). Then move the control button $\leftarrow/\rightarrow$ 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



GB

Resetting the adjustments (RESET)

This monitor has the following two reset methods. Use the RESET menu to reset the adjustments.

- 1 **Press the center of the control button.**
The main MENU appears on the screen.
- 2 **Move the control button $\downarrow/\uparrow$ to highlight $\square$ RESET and press the center of the control button again.**
The RESET menu appears on the screen.
Reset the settings according to the following instructions.

Resetting all of the adjustment data for the current input signal (MODE)

Move the control button $\leftarrow$.

The MODE item is selected. All of the adjustment data for the current input signal is reset.

Note that the following items are not reset by this method.

- on-screen menu language (page 7)
- picture's rotation (page 10)

Resetting all of the adjustment data to factory preset levels (ALL)

Move the control button $\rightarrow$.

The ALL item is selected. All of the adjustment data for the current input signal is reset. All of the adjustment data (except for the USER settings in the COLOR menu) is reset to the factory preset levels.

Note

The monitor's buttons will not operate for about 5 seconds when ALL is selected.

Technical Features

Preset and user modes

When the monitor receives an input signal, it automatically matches the signal to one of the factory preset modes stored in the monitor's memory to provide a high quality picture at the center of the screen. (See Appendix for a list of the factory preset modes.) For input signals that do not match one of the factory preset modes, the digital Multiscan technology of this monitor ensures that a clear picture appears on the screen for any timing in the monitor's frequency range (horizontal: 30 – 96 kHz, vertical: 48 – 120 Hz). If the picture is adjusted, the adjustment data is stored as a user mode and automatically recalled whenever the same input signal is received.

Note for Windows users

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

Power saving function

This monitor meets the power-saving guidelines set by VESA, ENERGY STAR, and NUTEK. If no signal is received by the monitor from the connected computer, the monitor will automatically reduce power consumption as shown below.

Power mode	Power consumption*	ⓘ (power) indicator
normal operation	≤ 150 W	green
active off**	≤ 3 W	orange
power off	0 W	off

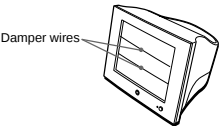
* Figures reflect power consumption when no USB compatible peripherals are connected to the monitor.
** When your computer enters the "active off" mode, the input signal is cut and NO INPUT SIGNAL appears on the screen. After 20 seconds, the monitor enters the power saving mode.

Troubleshooting

Before contacting technical support, refer to this section.

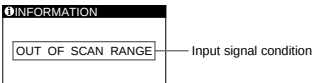
If thin lines appear on your screen (damper wires)

The visible lines on your screen especially when the background screen color is light (usually white), are normal for the Trinitron monitor. This is not a malfunction. These are shadows from the damper wires used to stabilize the aperture grille. The aperture grille is the essential element that makes a Trinitron picture tube unique by allowing more light to reach the screen, resulting in a brighter, more detailed picture.



On-screen messages

If there is something wrong with the input signal, one of the following messages appears on the screen. To solve the problem, see "Trouble symptoms and remedies" on page 13.



The input signal condition
OUT OF SCAN RANGE
indicates that the input signal is not supported by the monitor's specifications.
NO INPUT SIGNAL
indicates that no signal is being input to the monitor.

Trouble symptoms and remedies

If the problem is caused by the connected computer or other equipment, please refer to the connected equipment's instruction manual. Use the self-diagnosis function (page 15) if the following recommendations do not resolve the problem.

Symptom	Check these items
No picture	
If the ⓘ (power) indicator is not lit	• Check that the power cord is properly connected. • Check that the ⓘ (power) switch is in the "on" position.
If the NO INPUT SIGNAL message appears on the screen, or if the ⓘ (power) indicator is orange	• Check that the video signal cable is properly connected and all plugs are firmly seated in their sockets (page 6). • Check that the HD15 video input connector's pins are not bent or pushed in. ■ Problems caused by the connected computer or other equipment • The computer is in power saving mode. Try pressing any key on the computer keyboard or moving the mouse. • Check that the computer's power is "on." • Check that the graphic board is completely seated in the proper bus slot.
If the OUT OF SCAN RANGE message appears on the screen	■ Problems caused by the connected computer or other equipment • Check that the video frequency range is within that specified for the monitor. If you replaced an old monitor with this monitor, reconnect the old monitor and adjust the frequency range to the following. Horizontal: 30 – 96 kHz Vertical: 48 – 120 Hz
If no message is displayed and the ⓘ (power) indicator is green or flashing orange	• Use the Self-diagnosis function (page 15).
If using a Macintosh system	• Check that the Macintosh adapter (not supplied) and the video signal cable are properly connected (page 6).
Picture flickers, bounces, oscillates, or is scrambled	• Isolate and eliminate any potential sources of electric or magnetic fields such as other monitors, laser printers, electric fans, fluorescent lighting, or televisions. • Move the monitor away from power lines or place a magnetic shield near the monitor. • Try plugging the monitor into a different AC outlet, preferably on a different circuit. • Try turning the monitor 90° to the left or right. ■ Problems caused by the connected computer or other equipment • Check your graphics board manual for the proper monitor setting. • Confirm that the graphics mode (VESA, etc.) and the frequency of the input signal are supported by this monitor (Appendix). Even if the frequency is within the proper range, some video boards may have a sync pulse that is too narrow for the monitor to sync correctly. • Adjust the computer's refresh rate (vertical frequency) to obtain the best possible picture.
Picture is fuzzy	• Adjust the brightness and contrast (page 9). • Degauss the monitor* (page 11). • Select CANCEL MOIRE and adjust the moire cancellation effect (page 11).
Picture is ghosting	• Eliminate the use of video cable extensions and/or video switch boxes. • Check that all plugs are firmly seated in their sockets.
Picture is not centered or sized properly	• Adjust the size (page 10) or centering (page 10). Note that some video modes do not fill the screen to the edges.
Edges of the image are curved	• Adjust the geometry (page 10).
Wavy or elliptical pattern (moire) is visible	• Select CANCEL MOIRE and adjust the moire cancellation effect (page 11). ■ Problems caused by the connected computer or other equipment • Change your desktop pattern.

(Continued)

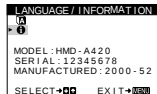
Symptom	Check these items
Color is not uniform	Degauss the monitor* (page 11). If you place equipment that generates a magnetic field, such as a speaker, near the monitor, or if you change the direction the monitor faces, color may lose uniformity.
White does not look white	Adjust the color temperature (page 11).
Letters and lines show red or blue shadows at the edges	Adjust the convergence (page 10).
USB peripherals do not function	- Check that the appropriate USB connectors are securely connected (page 7). - Check that the ① (power) switch is in the "on" position. ■Problems caused by the connected computer or other equipment - Check that the power of any self-powered USB compliant peripheral devices is "on." - Install the latest version of the device driver on your computer. Contact your device's manufacturer for information about the appropriate device driver. - If your USB compliant keyboard or mouse does not function, connect them directly to your computer, reboot your computer, and make any necessary adjustments to the USB settings. Then reconnect the keyboard or mouse to the monitor. If you connect a keyboard or mouse to the USB connectors and then boot your computer for the first time, the peripheral devices may not function. - For customers using Windows 95 - Right-click on My Computer and select Properties. - Click on the Device Manager tab. Scroll down and select Universal Serial Bus Controller. If Universal Serial Bus Controller does not appear, you need to load a USB supplement disk. Contact your computer's manufacturer for more information about obtaining a USB supplement disk. - Select Generic USB Device from the USB controller list and click on Properties. - If there is a check in the box next to "Disable in this hardware profile," remove the check. - Click on Refresh.
A hum is heard right after the power is turned on	This is the sound of the auto-degauss cycle. When the power is turned on, the monitor is automatically degaussed for five seconds.

* If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result. A humming noise may be heard, but this is not a malfunction.

Displaying this monitor's name, serial number, and date of manufacture

- Press the center of the control button.**
The main MENU appears on the screen.
- Move the control button ↓/↑ to highlight LANGUAGE/INFORMATION and press the center of the control button.**
The LANGUAGE/INFORMATION menu appears on the screen.
- Move the control button ↓/↑ to select ①.**
This monitor's information menu appears on the screen.

Example

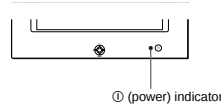


If the problem persists, call your authorized Sony dealer and give the following information.

- Model name: HMD-A420
- Serial number
- Name and specifications of your computer and graphics board.

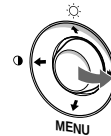
Self-diagnosis function

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 ① (power) indicator will either light up green or flash orange. If the ① (power) indicator is lit in orange, the computer is in power saving mode. Try pressing any key on the keyboard.



If the ① (power) indicator is green

- Disconnect the video input cable or turn off the connected computer.**
- Press the ① (power) button twice to turn the monitor off and then on.**
- Move the control 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 your authorized Sony dealer of the monitor's condition.

If the ① (power) indicator is flashing orange

Press the ① (power) button twice to turn the monitor off and then on.
If the ① (power) indicator lights up green, the monitor is working properly.

If the ① (power) indicator is still flashing, there is a potential monitor failure. Count the number of seconds between orange flashes of the ① (power) indicator and inform your authorized Sony dealer 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

CRT	0.24 mm aperture grille pitch (center) 19 inches measured diagonally 90-degree deflection FD Trinitron
Viewable image size	Approx. 365 × 274 mm (w/h) (14 3/8 × 10 7/8 inches) 18.0" viewing image
Resolution	Maximum Horizontal: 1800 dots Vertical: 1440 lines Recommended Horizontal: 1280 dots Vertical: 1024 lines
Standard image area	Approx. 352 × 264 mm (w/h) (13 7/8 × 10 1/2 inches)
Deflection frequency*	Horizontal: 30 to 96 kHz Vertical: 48 to 120 Hz
AC input voltage/current	100 – 240 V, 50 – 60 Hz, 2.3 – 1.0 A
Power consumption	Max. 150 W
Dimensions	Approx. 497 × 458 × 469 mm (w/h/d) (19 5/8 × 18 1/8 × 18 1/2 inches)
Mass	Approx. 26 kg (57 lb 5 oz)
Plug and Play	DDC1/DDC2B/DDC2Bi

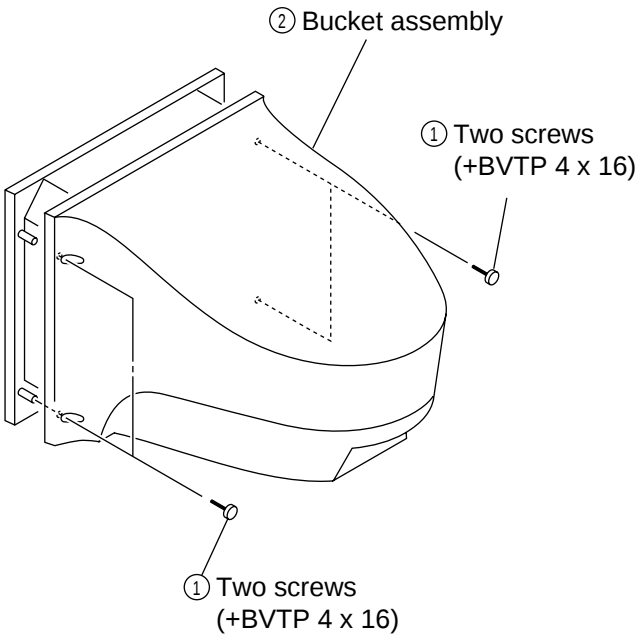
- * Recommended horizontal and vertical timing condition
- Horizontal sync width should be more than 1.0 μsec.
 - Horizontal blanking width should be more than 3.0 μsec.
 - Vertical blanking width should be more than 500 μsec.

Design and specifications are subject to change without notice.

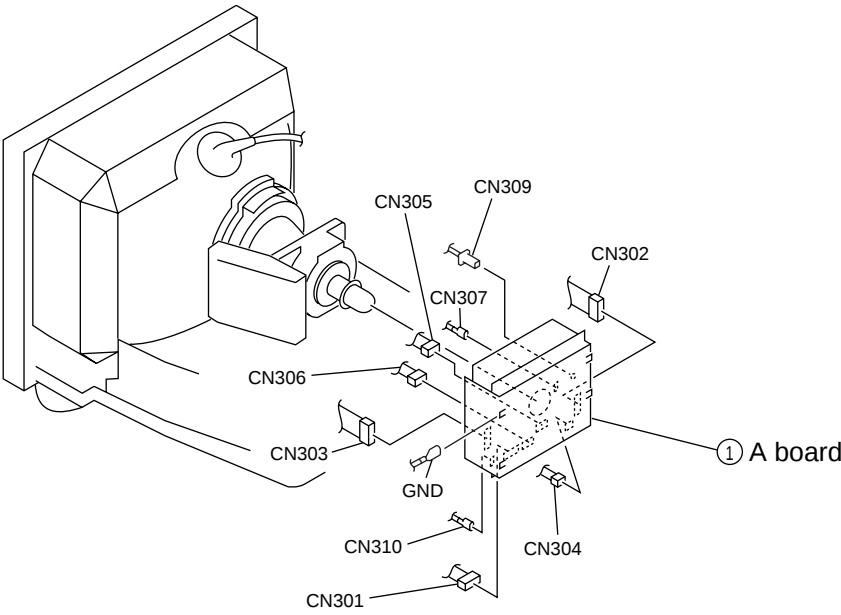
GB

SECTION 2
DISASSEMBLY

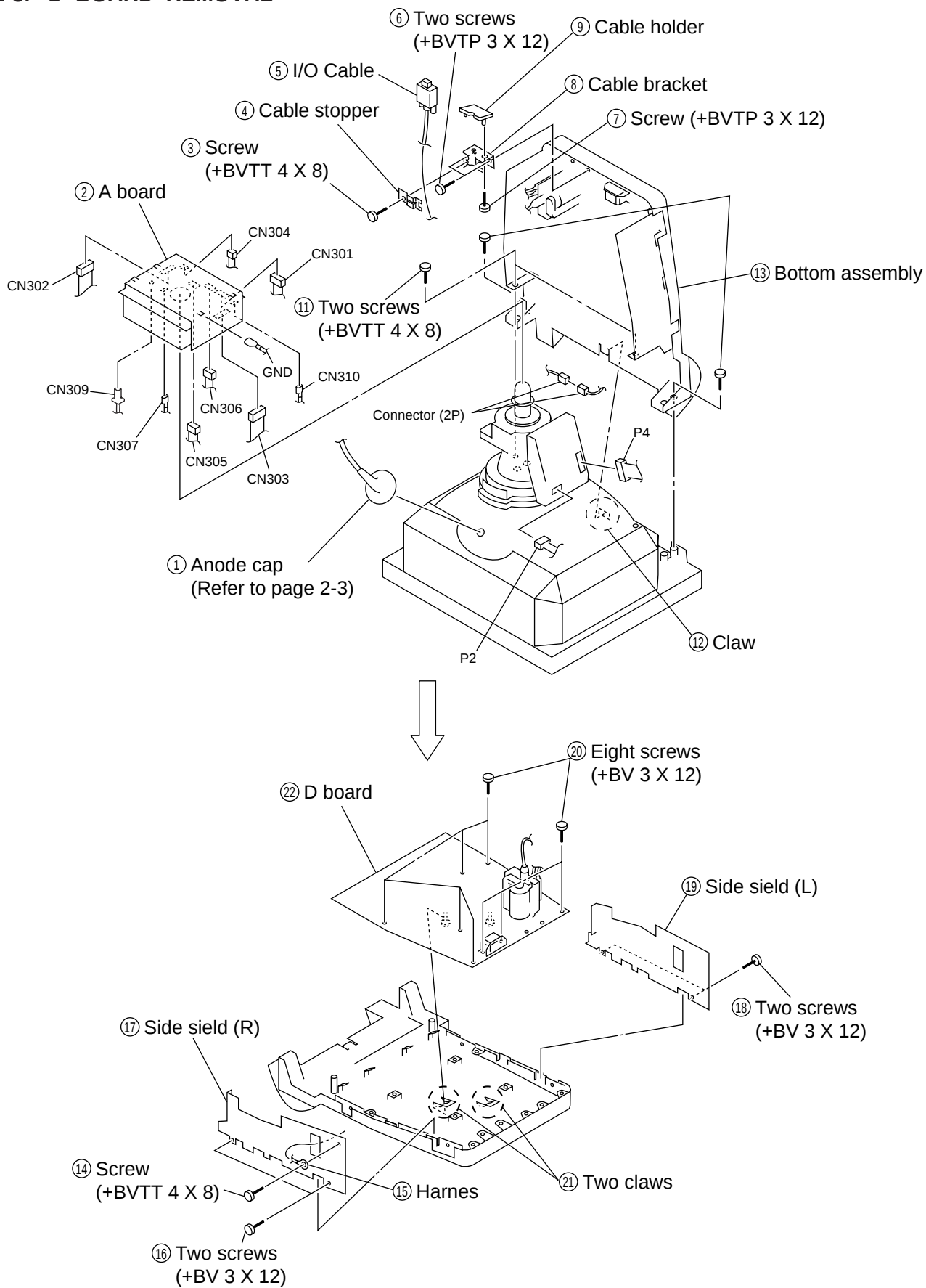
2-1. BUCKET ASSEMBLY REMOVAL



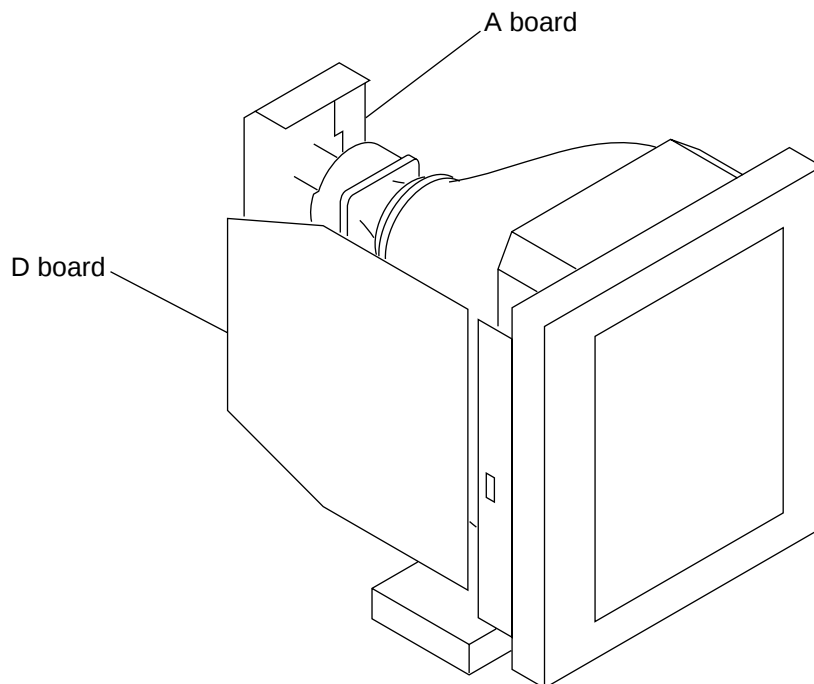
2-2. A BOARD REMOVAL



2-3. D BOARD REMOVAL



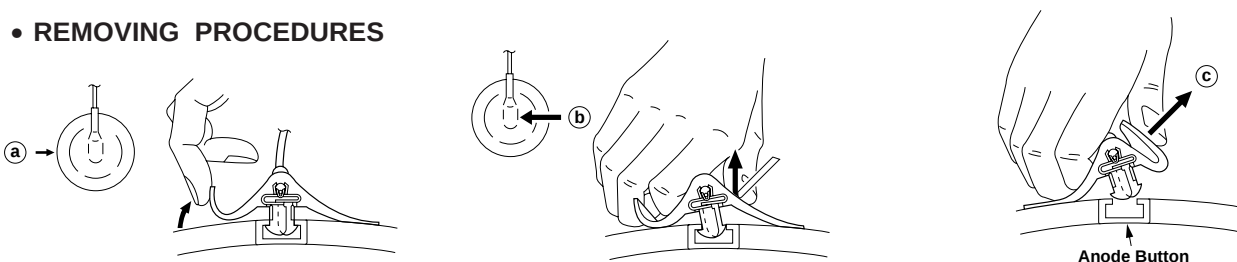
2-4. SERVICE POSITION



• 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.

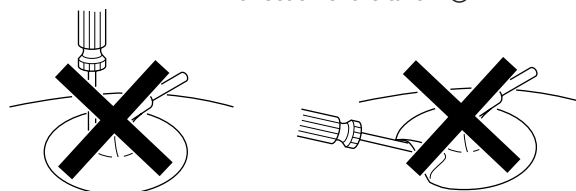
• REMOVING PROCEDURES



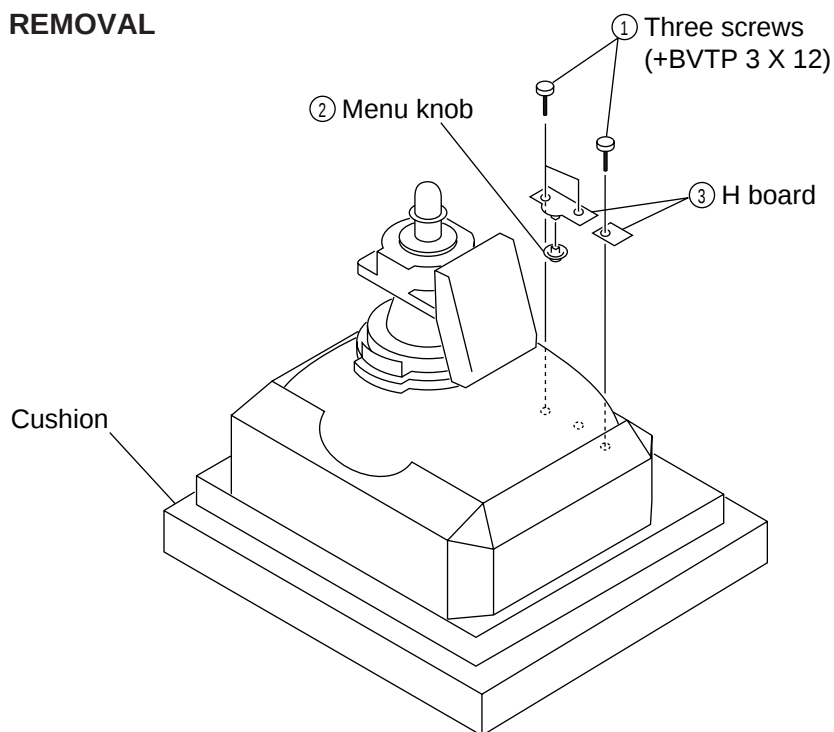
- ① Turn up one side of the rubber cap in the direction indicated by the arrow (A).
- ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow (B).
- ③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow (C).

• HOW TO HANDLE AN ANODE-CAP

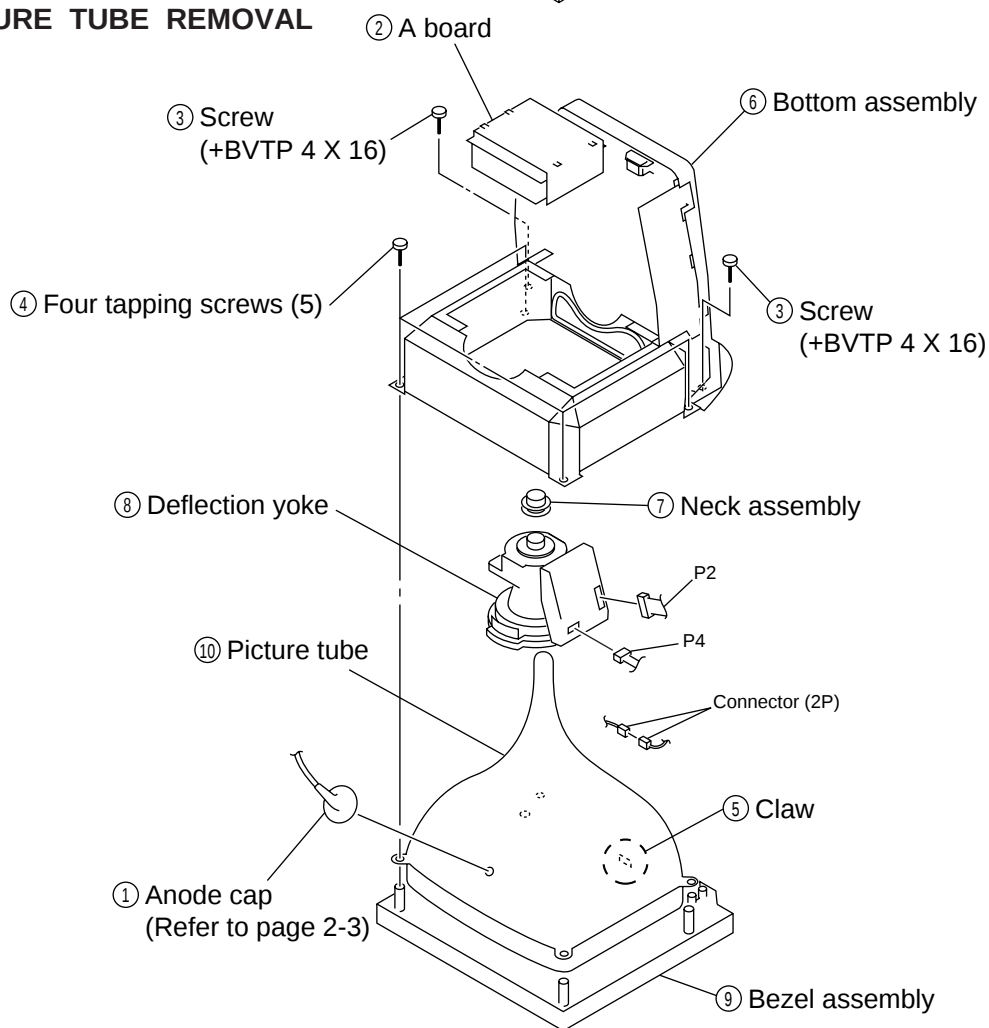
- ① Don't scratch the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to damage inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick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



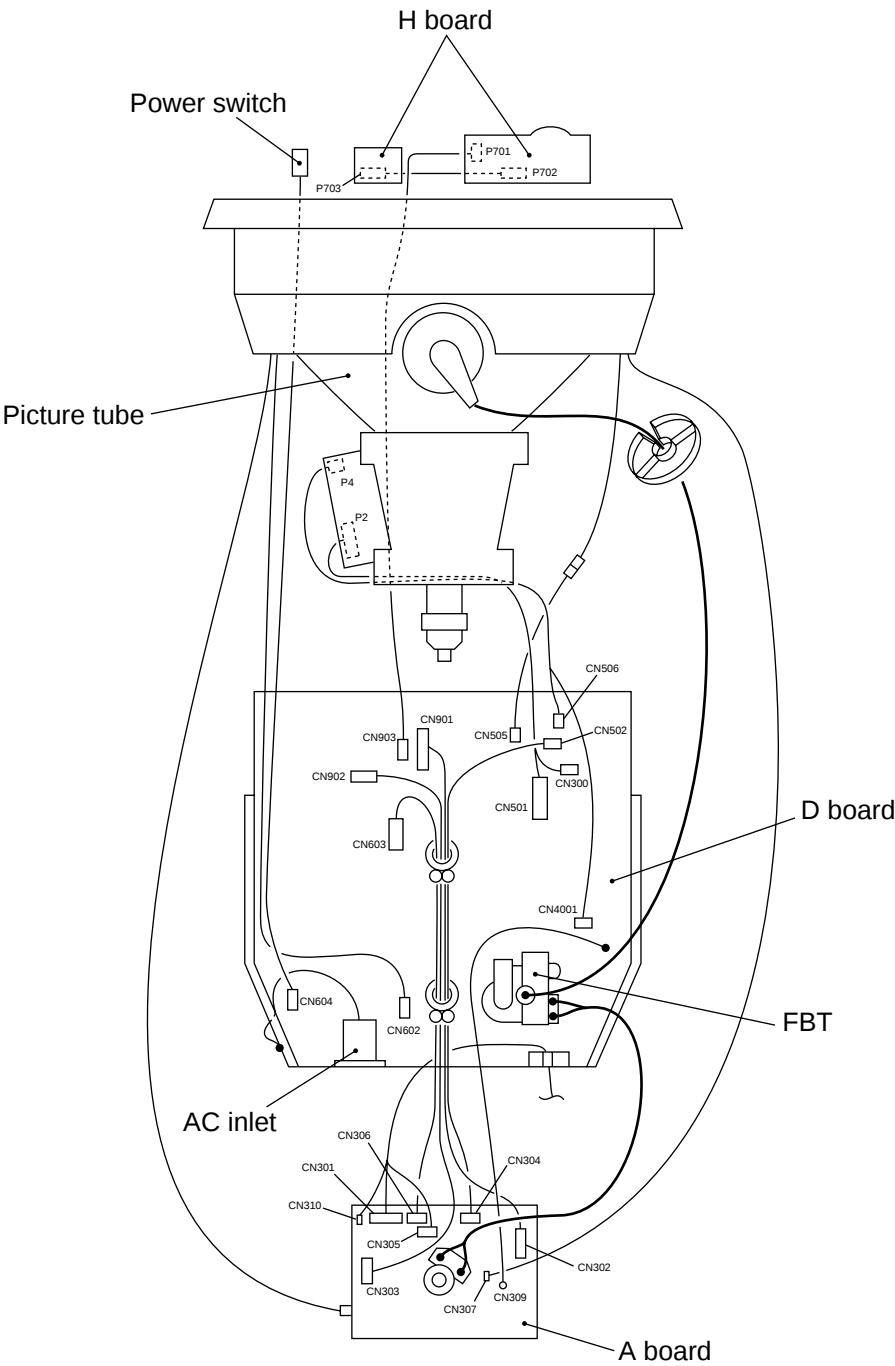
2-5. H BOARD REMOVAL



2-6. PICTURE TUBE REMOVAL



2-7. HARNESS LOCATION



SAFETY RELATED ADJUSTMENT

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

	Part Replaced ()	
HV Regulator Circuit	D board	IC502, R515, T501 (FBT) • Mounted D Board
HV HOLD DOWN Circuit	D board	D538, IC901, Q534, R521, R551, R552, R598, R599, T501 (FBT) • Mounted D Board
Beam Current Protector Circuit	D board	IC901, R911, R949, R950, T501 (FBT) • Mounted D Board

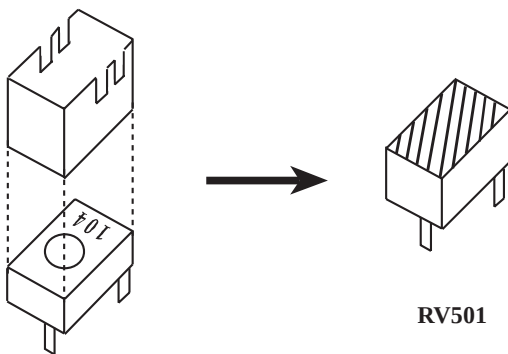
※ Allow the unit to warm up for one minute prior to checking the following conditions:

a) HV Regulator Check

- 1) Input white cross hatch signal. (fH = 69 kHz)
- 2) CONT maximum and BRT center
- 3) Cut off Screen VR (G2).
- 4) Input voltage: 120 ± 2 VAC
- 5) Confirm that the voltage is within the voltage range shown below.

Standard voltage: $26.9 \text{ KV} \pm 0.4 \text{ KV}$

- 6) When replacing components identified by , make sure to recheck the High Voltage.
- 7) Verify the High Voltage as shown above ($26.9 \text{ KV} \pm 0.4 \text{ KV}$) is within specification. If not, set H. SIZE data at minimum (-127) and then adjust RV501 on "D" Board.



- 8) After adjusting the High Voltage within specification, put the RV cover on RV501 as shown below and apply sufficient amount of RTV around RV501.

b) HV Protector Circuit Check

- 1) Confirm that the voltage between cathode of D517 and GND is more than 27.5 VDC.
- 2) Using an external DC Power supply, apply the voltage shown below between cathode of D517 on "D" and GND, and confirm that the HV Hold-Down circuit works. (Raster disappears) Apply DC Voltage: Less than 35.8 VDC.

Check Condition

- Input voltage : 120 ± 2 VAC
- Input signal : (fH = 69 kHz), White Cross Hatch
- Controls : CONT (max) & BRT (center)
- B+ Voltage : 179 ± 3.0 VDC

c) Beam Protector Check (Software logic)

- 1) Using an external current source, apply $< 1.55 \text{ mA}$ between pin ⑪ of FBT (T501) and GND, and confirm that the raster fades out.

Check Condition

- Input voltage : 120 ± 2 VAC
- Input signal : (fH = 69 kHz), White Cross Hatch
- Controls : CONT (max) & BRT (center)

d) B+ Voltage Check

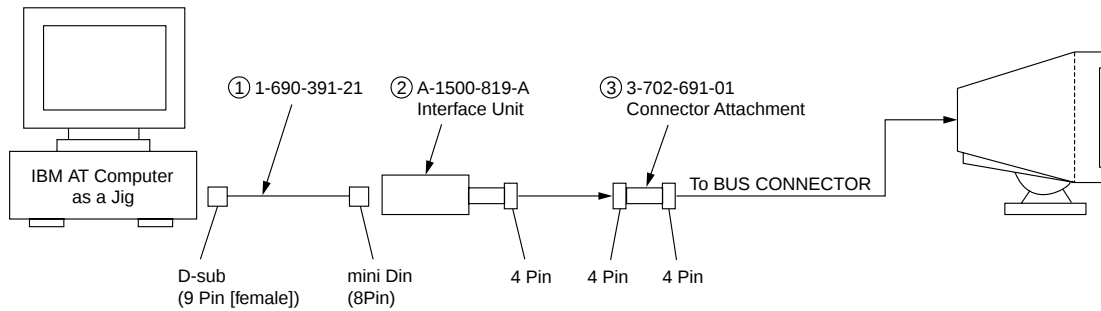
- 1) Input white cross hatch (fH = 69 kHz) signal.
- 2) CONT (max) & BRT (center)
- 3) Input voltage: 120 ± 2 VAC
Note: Use NF power supply or make sure that distortion factor is 3% or less.
- 4) Confirm that the voltage is within the voltage range shown below.

Standard voltage: 179 ± 3.0 VDC

SECTION 4

ADJUSTMENTS

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



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

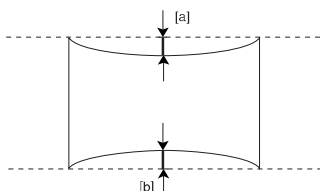
※ Allow a 30 minute warm-up period prior to making the following adjustments:

4-1. Landing Rough Adjustment

1. Display the all white pattern.
2. Adjust the contrast to maximum value.
3. Display the plain green pattern.
4. Slide the DY back and roughly adjust the plain green pattern with the purity magnet so that it is centered on the screen.
5. Moving the DY forward, adjust so that an entire screen becomes pure green.
6. Adjust the tilt of DY and tighten lightly with a clamp.

4-2. Landing Fine Adjustment

1. Place the monitor in the Helmholtz coil.
2. Set TLH plate to zero position.
3. Display plain green pattern.
4. Degauss CRT face and iron parts with degauss equipment or hand-degausser.
5. Perform auto degauss.
6. Attach a wobbling coil to the specified position of CRT neck.
7. Put the sensor of landing checker to CRT face.
8. Adjust purity, DY position and DY tilt.
9. Tighten DY screw.
10. Perform auto degauss.
11. Adjust top and bottom pin by pitching DY up and down with two wedges so that [a] is equal to [b].

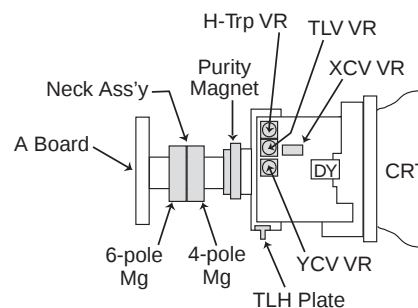


12. If the corner landing is out of specification, use a disk magnet for the landing correction.
13. If disk magnets were used, perform an auto degauss.
14. Remove the wobbling coil and sensor.
15. Fix the purity magnet on DY with white paint.

4-3. Convergence Rough Adjustment

1. Enter the white crosshatch signal.
2. Roughly adjust the horizontal (H.STAT) and vertical (V.STAT) convergence at four-pole magnet.
3. Roughly adjust HMC and VMC at six-pole magnet.

4-4. Convergence and V. Key (H. Trp) Fine Adjustment



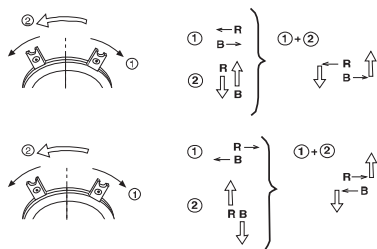
1. Display crosshatch pattern with green lines and black field.
2. Adjust V. Key (=H. Trapezoid) with H-Trp VR so that [a] is equal to [b].



3. Change "CONV_OFF_NDX" to "7".

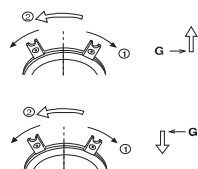
4. Display crosshatch pattern with red and blue lines and black field.
5. Adjust H.STAT and V.STAT with 4 pole magnet. Use 4 pole magnet, not "HSTAT" and "VSTAT".

4 Pole Magnet



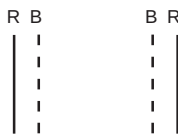
6. Display crosshatch pattern with white lines and black field.
7. Adjust HMC and VMC with 6 pole magnet.

6 Pole Magnet



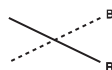
8. Display crosshatch pattern with red and blue lines and black field.
9. If necessary, repeat steps 5-8.
10. Change "CONV_OFF_NDX" to "3".
11. Adjust H.TILT with TLH plate.

TLH movement



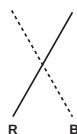
12. Adjust XCV with XCV VR.

XCV movement



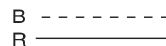
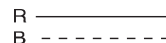
13. Adjust YCH with YCH VR.

YCH movement



14. Adjust V.TILT with TLV VR.

TLV movement



15. If necessary, repeat steps 3-14 to make the optimum condition for the entire screen.

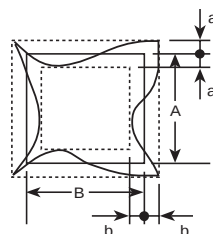
16. Fix 4-pole magnet, 6-pole magnet and XCV VR with white paint.

Zero Position NECK Ass'y

Purity 4-Pole Mg 6-Pole Mg



4-5. Vertical and Horizontal Position and Size Specification

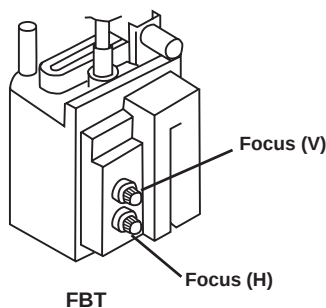


$a < 3.0 \text{ mm}$
 $b < 3.0 \text{ mm}$

A	B
234	312

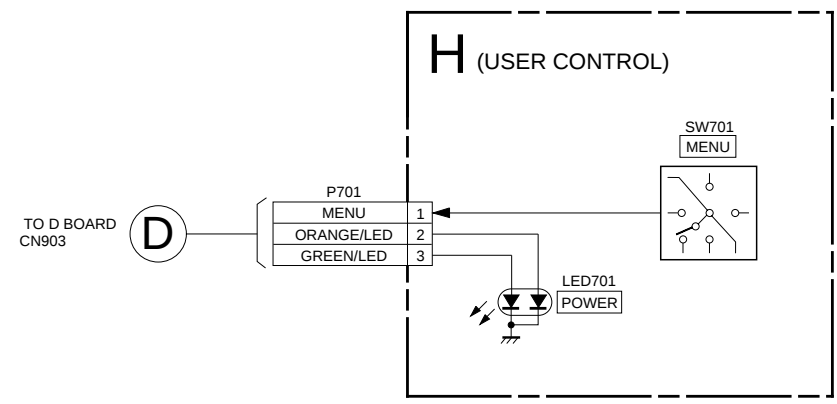
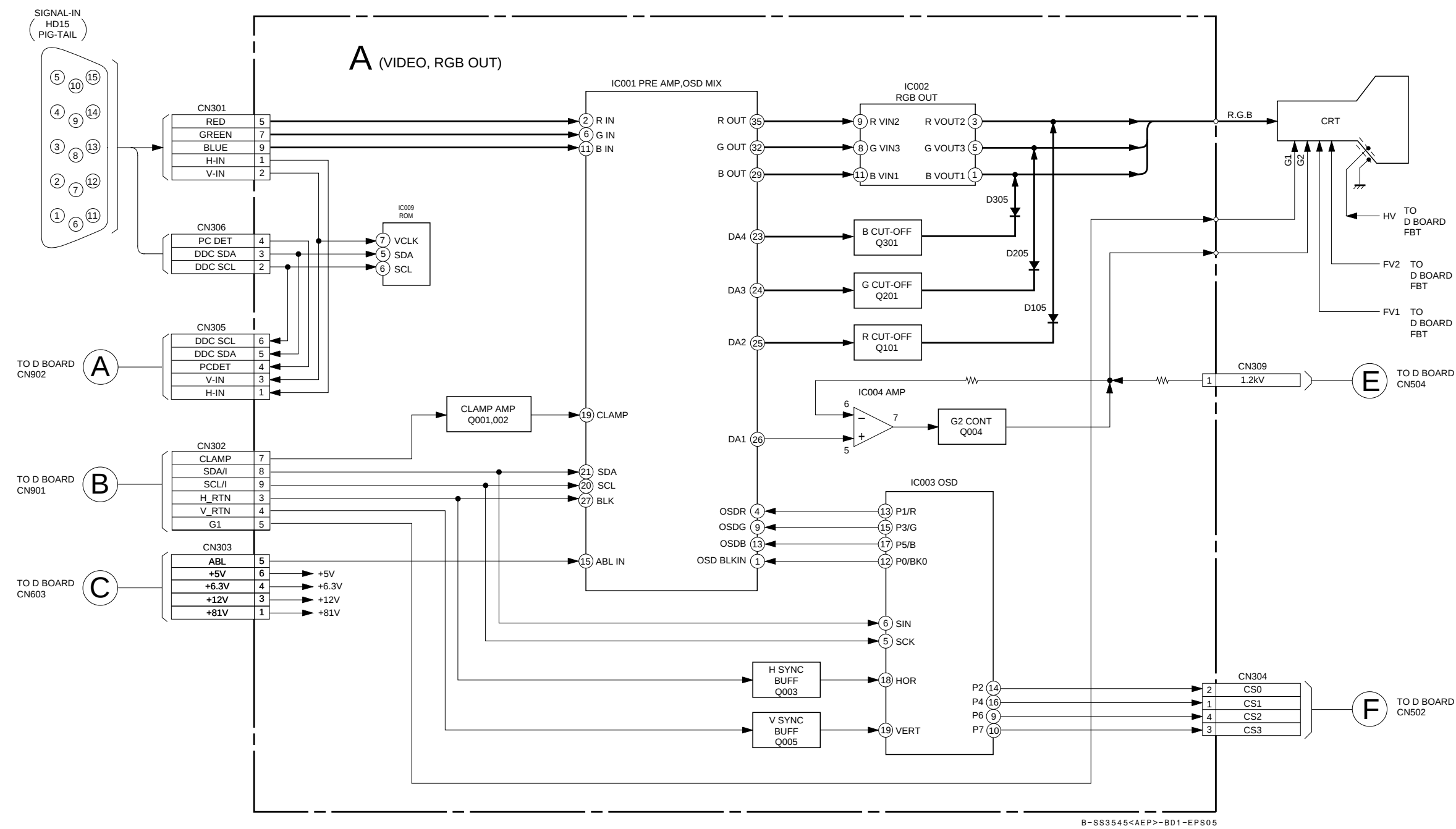
4-6. Focus adjustment

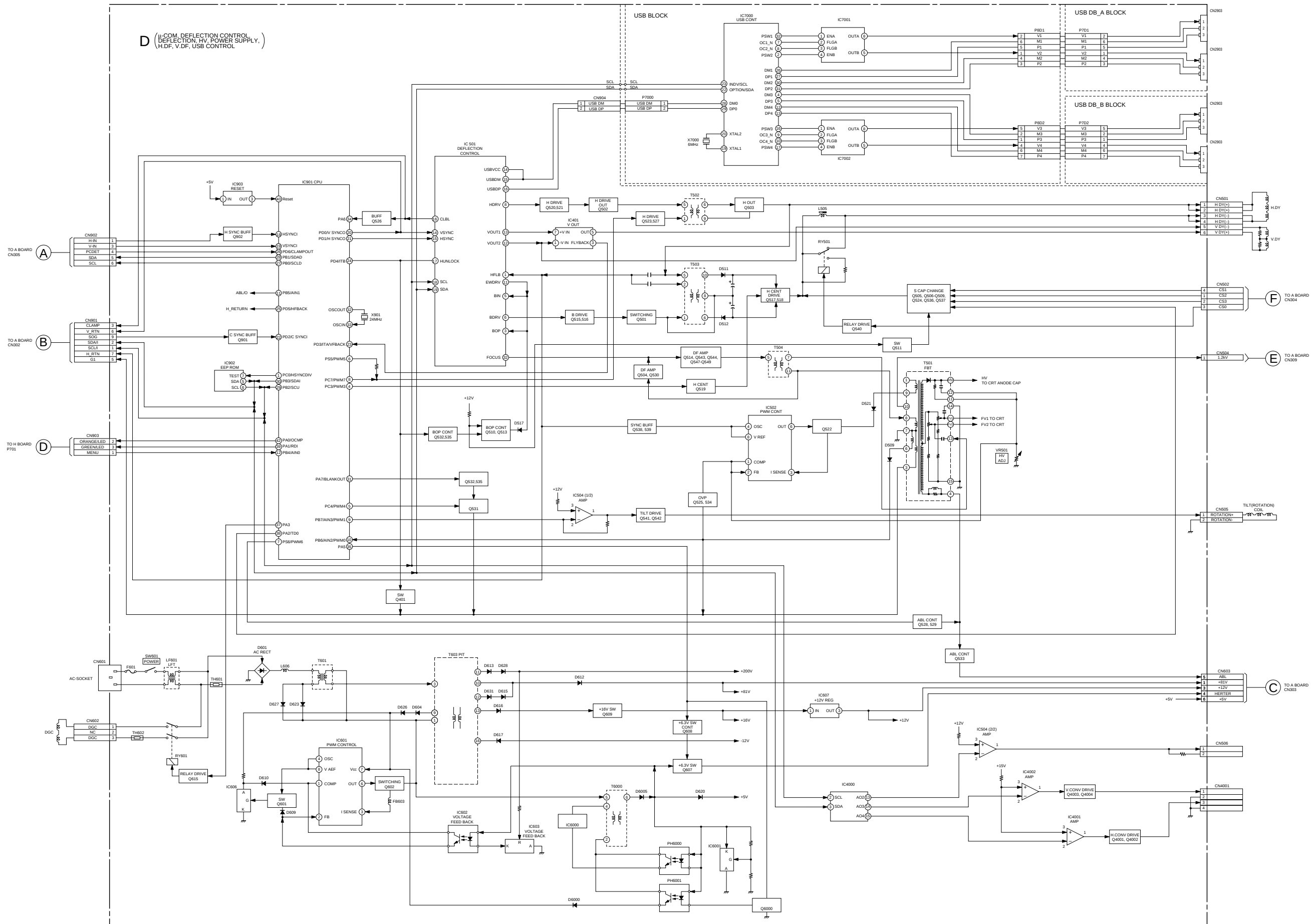
Adjust focus (V) and focus (H) for optimum focus.



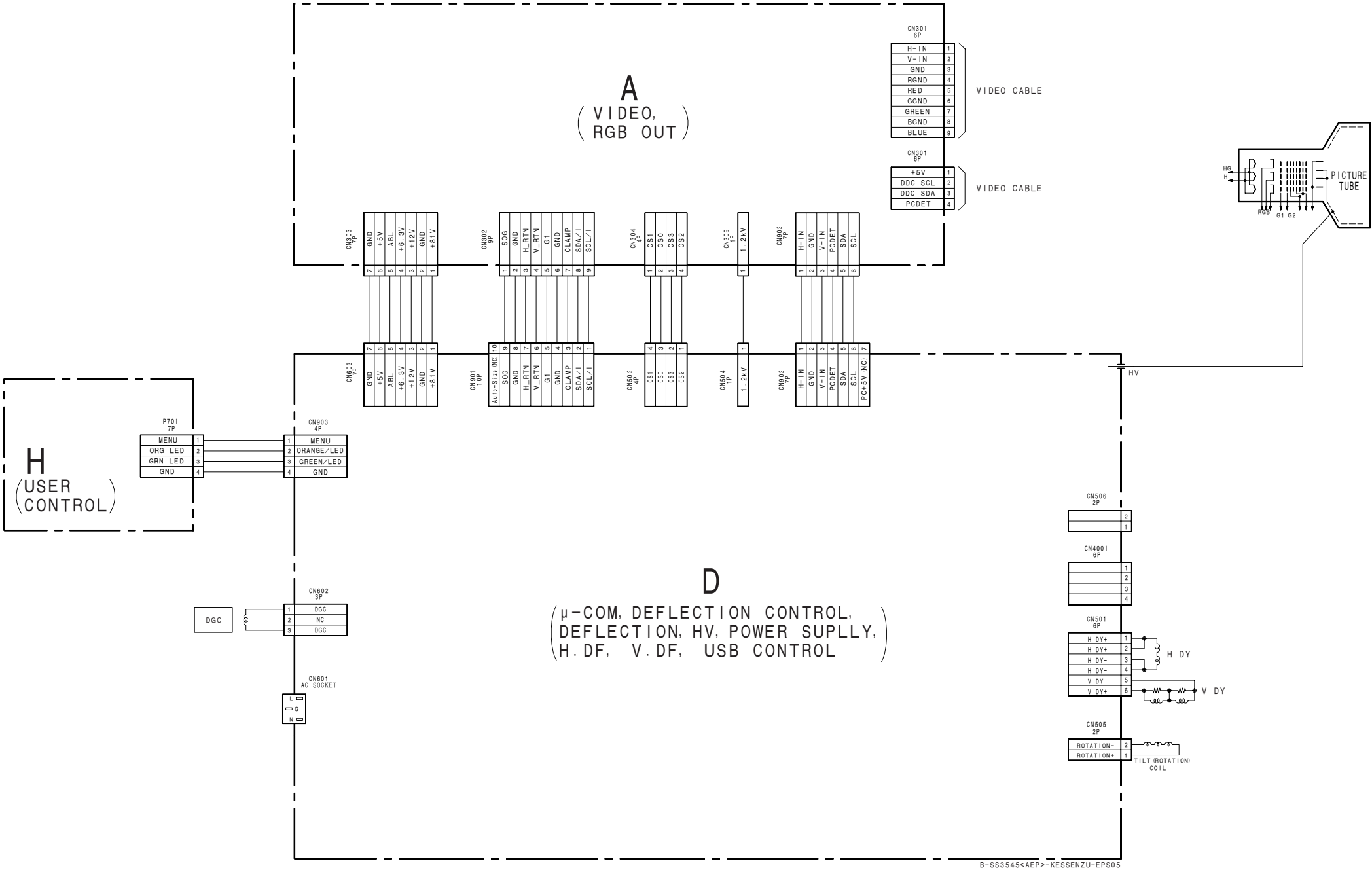
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAMS

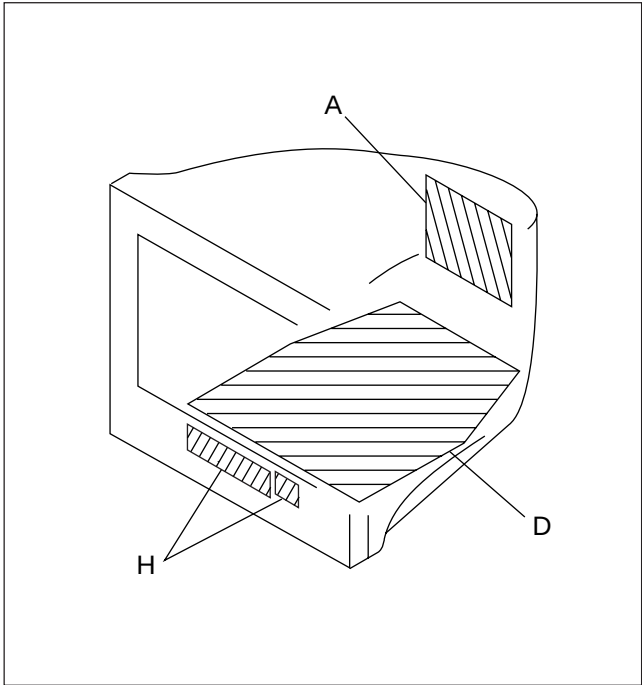




5-2. FRAME SCHEMATIC DIAGRAM



5-3. CIRCUIT BOARDS LOCATION



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

- Note:**
- All capacitors are in μF unless otherwise noted. (pF: μF) 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 M Ω 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.
 - 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 Regulator Circuit Check	D board IC502, R515, T501 (FBT) • Mounted D board
HV Hold-down Circuit Check	D board D538, IC901, Q534, R521, R551, R552, R598, R599, T501 (FBT) • Mounted D board
Beam Current Protector Circuit Check	D board IC901, R911, R949, R950, T501 (FBT) • Mounted D board

- Divided circuit diagram
One sheet of D board circuit diagram is divided into six sheets, each having the code D-Ⓐ to D-Ⓘ. For example, the destination(Ⓐb1)on the D- a sheet is connected to(Ⓐb1)on the D-Ⓓ sheet.
- a

b

1

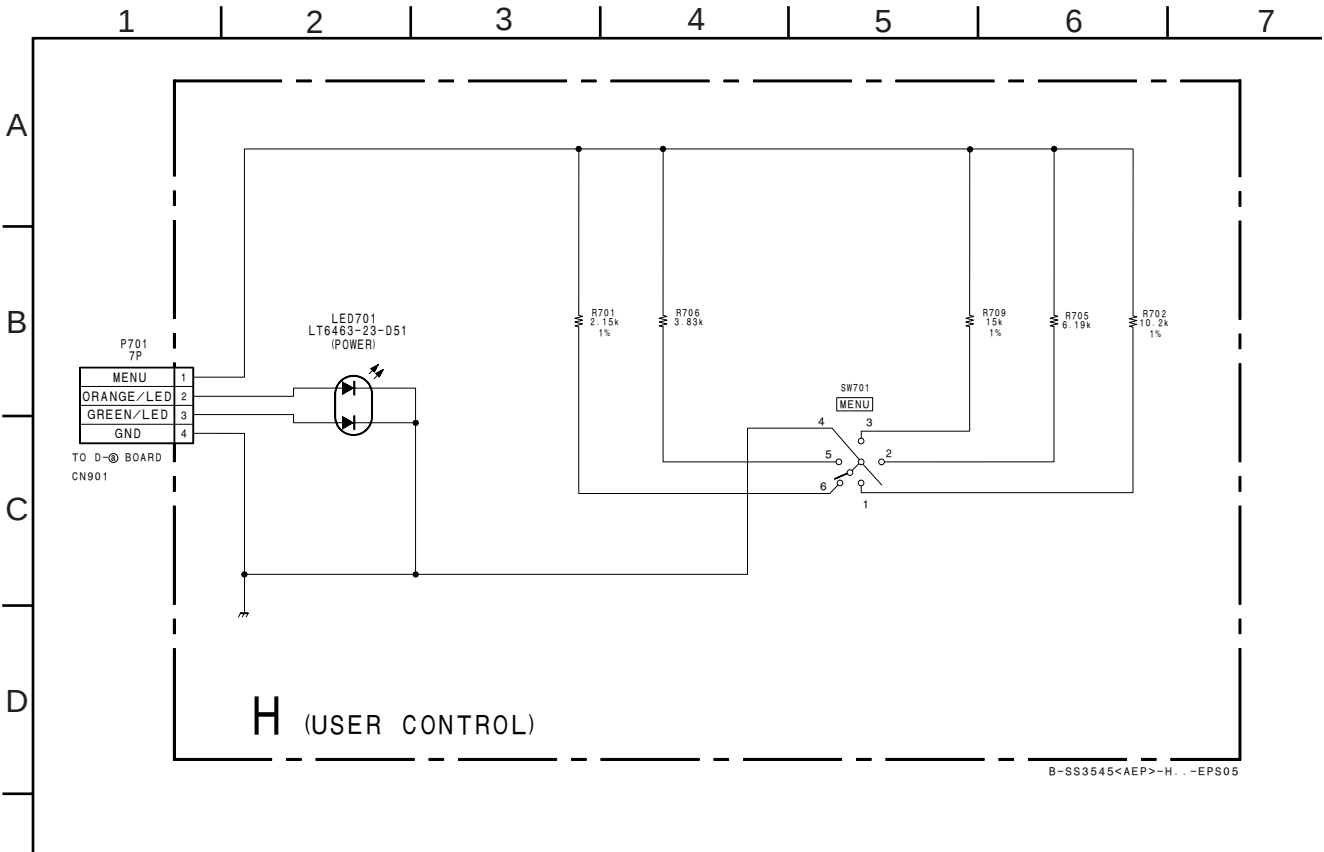
Ref. No.

Circuit diagram division code

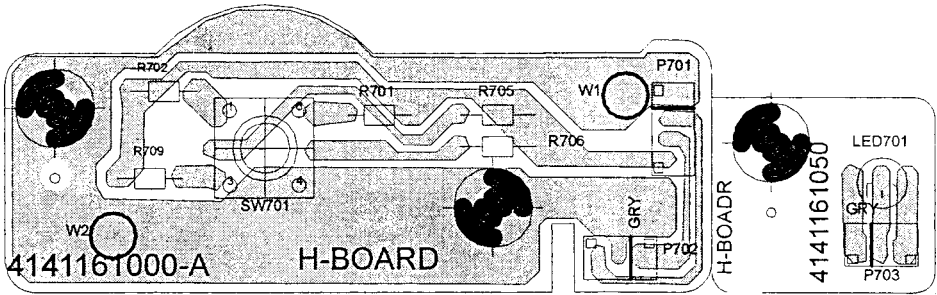
Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

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.

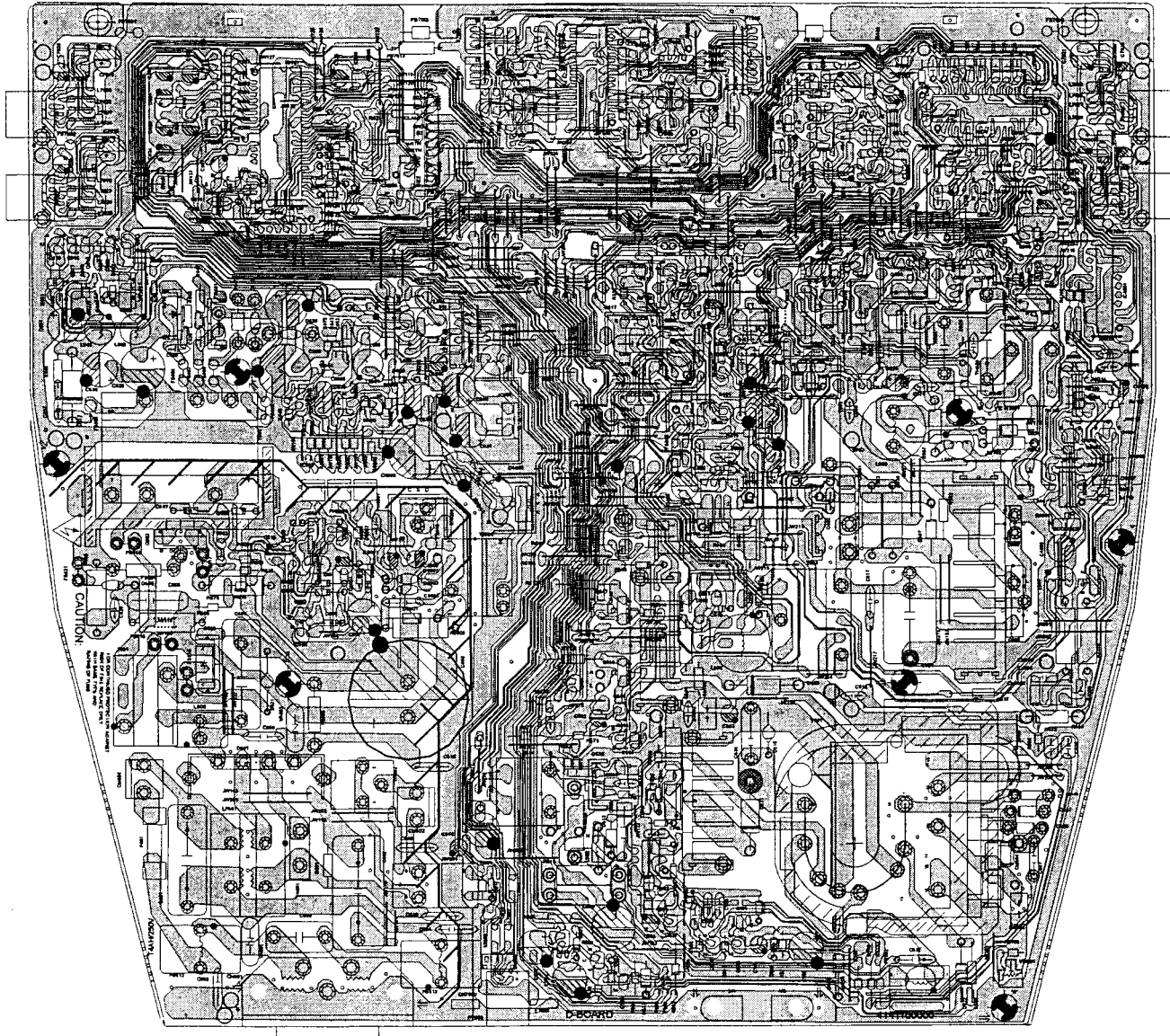
(1) Schematic Diagram of H Board



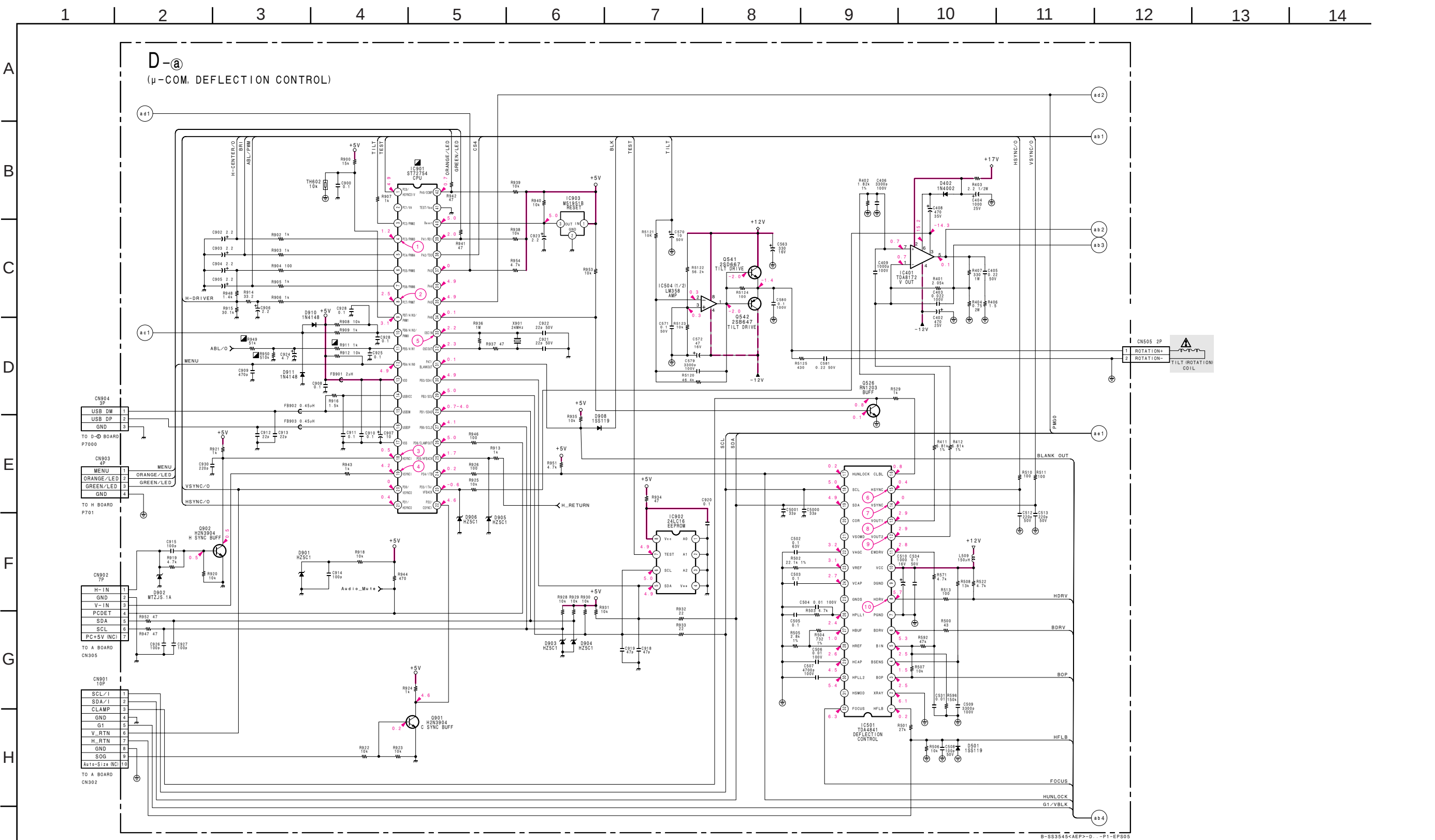
#2  [USER CONTROL]



— D BOARD —



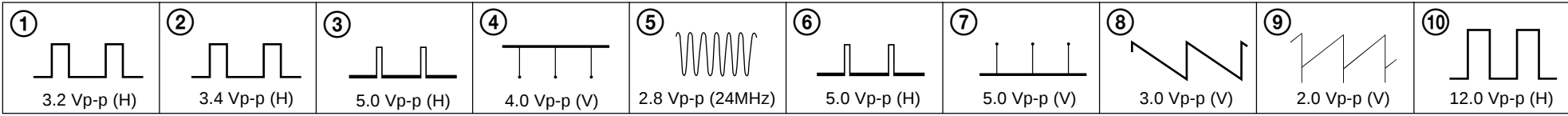
(3) Schematic Diagrams of D (Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ, Ⓕ) Board



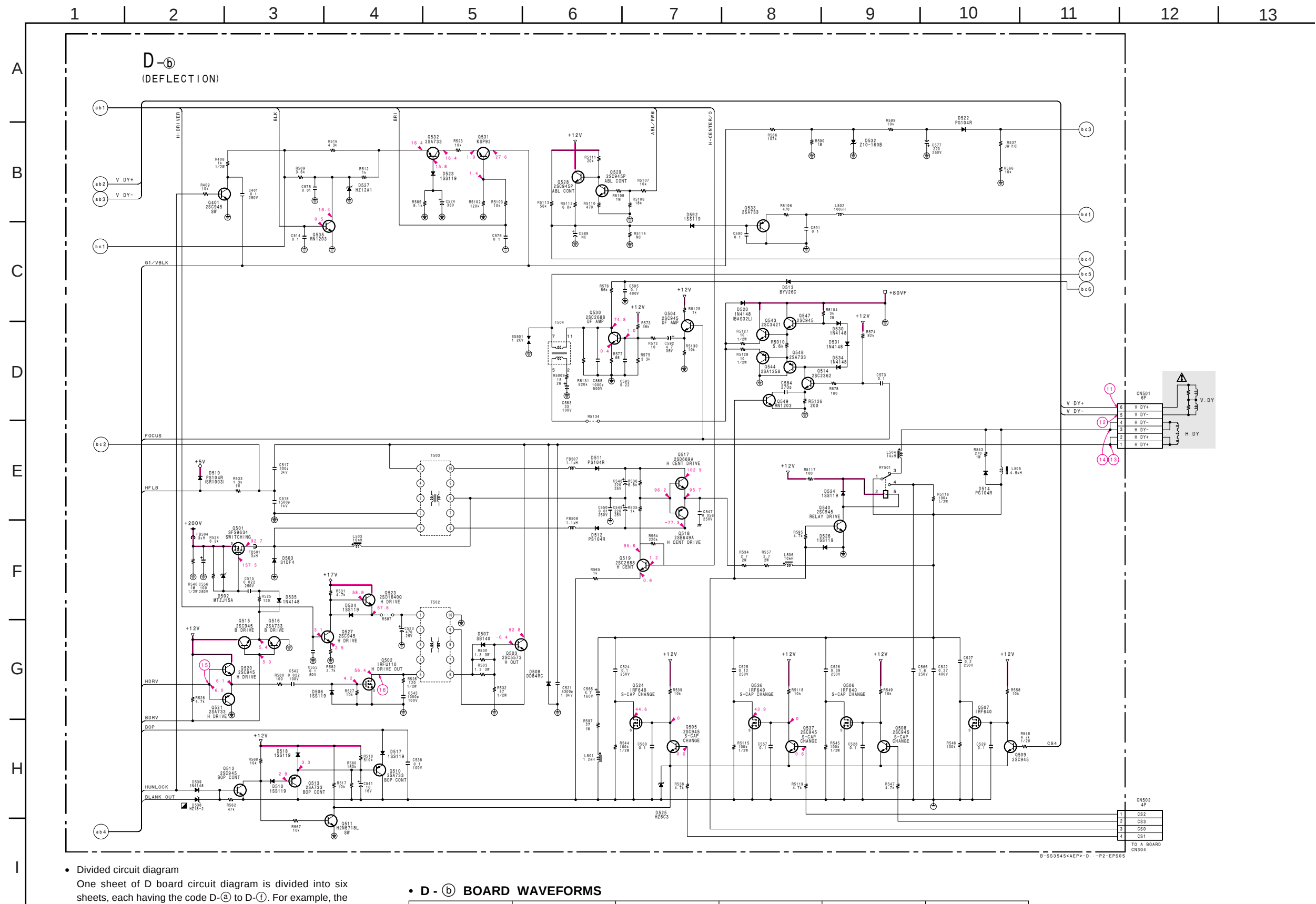
• Divided circuit diagram
One sheet of D board circuit diagram is divided into six sheets, each having the code D-Ⓐ to D-Ⓕ. For example, the destination (ab1) on the D-Ⓐ sheet is connected to (ab1) on the D-Ⓑ sheet.

a b 1
Ref. No.
Circuit diagram division code

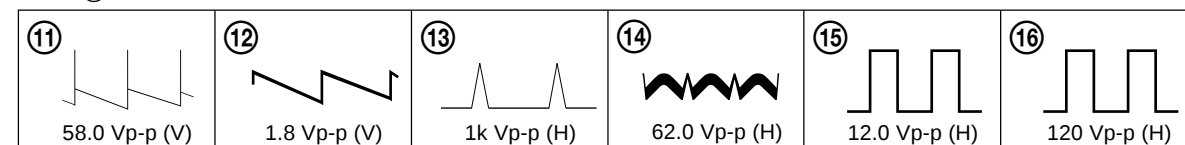
• D - Ⓐ BOARD WAVEFORMS

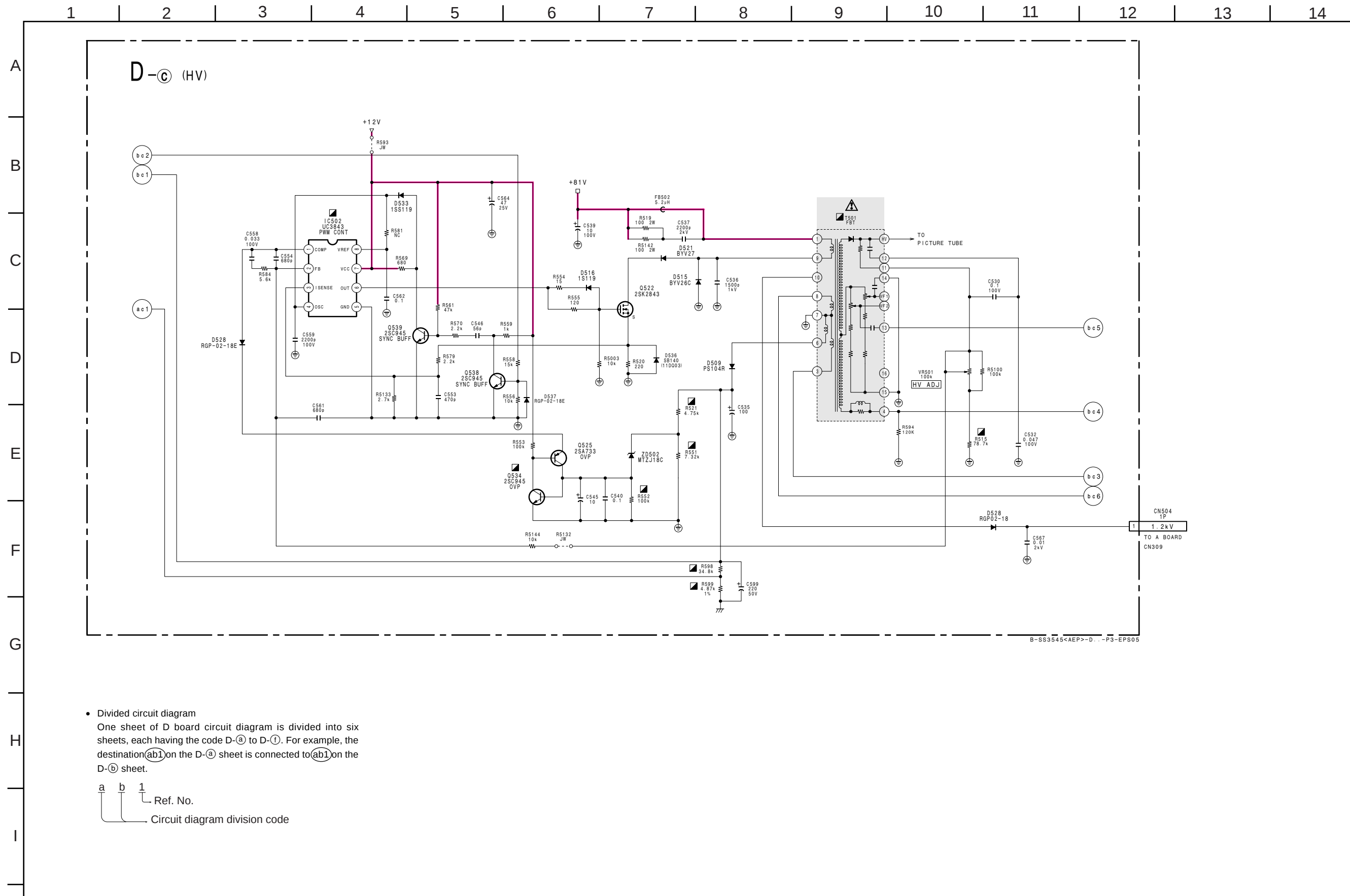


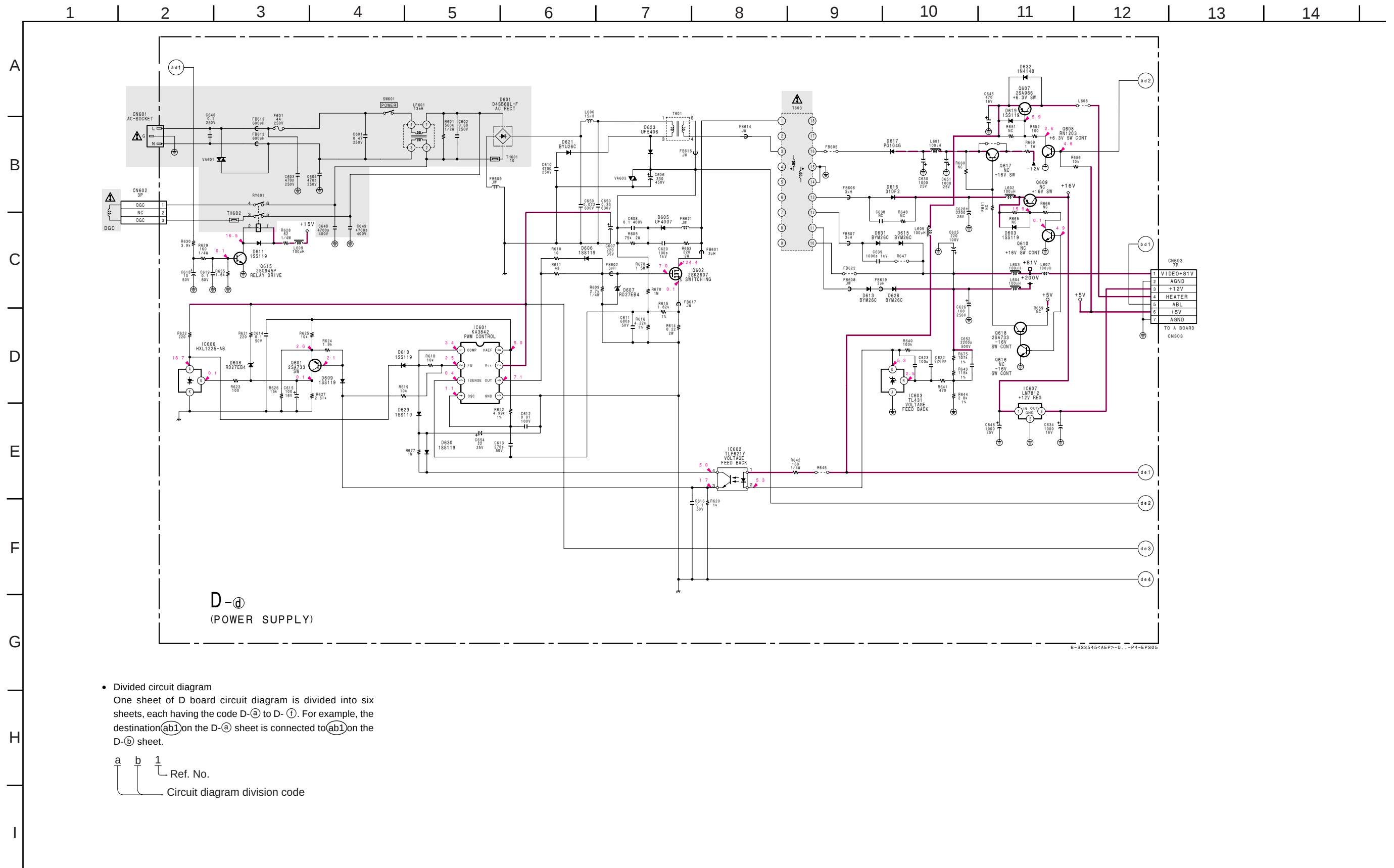
Schematic diagram
D - Ⓐ board →

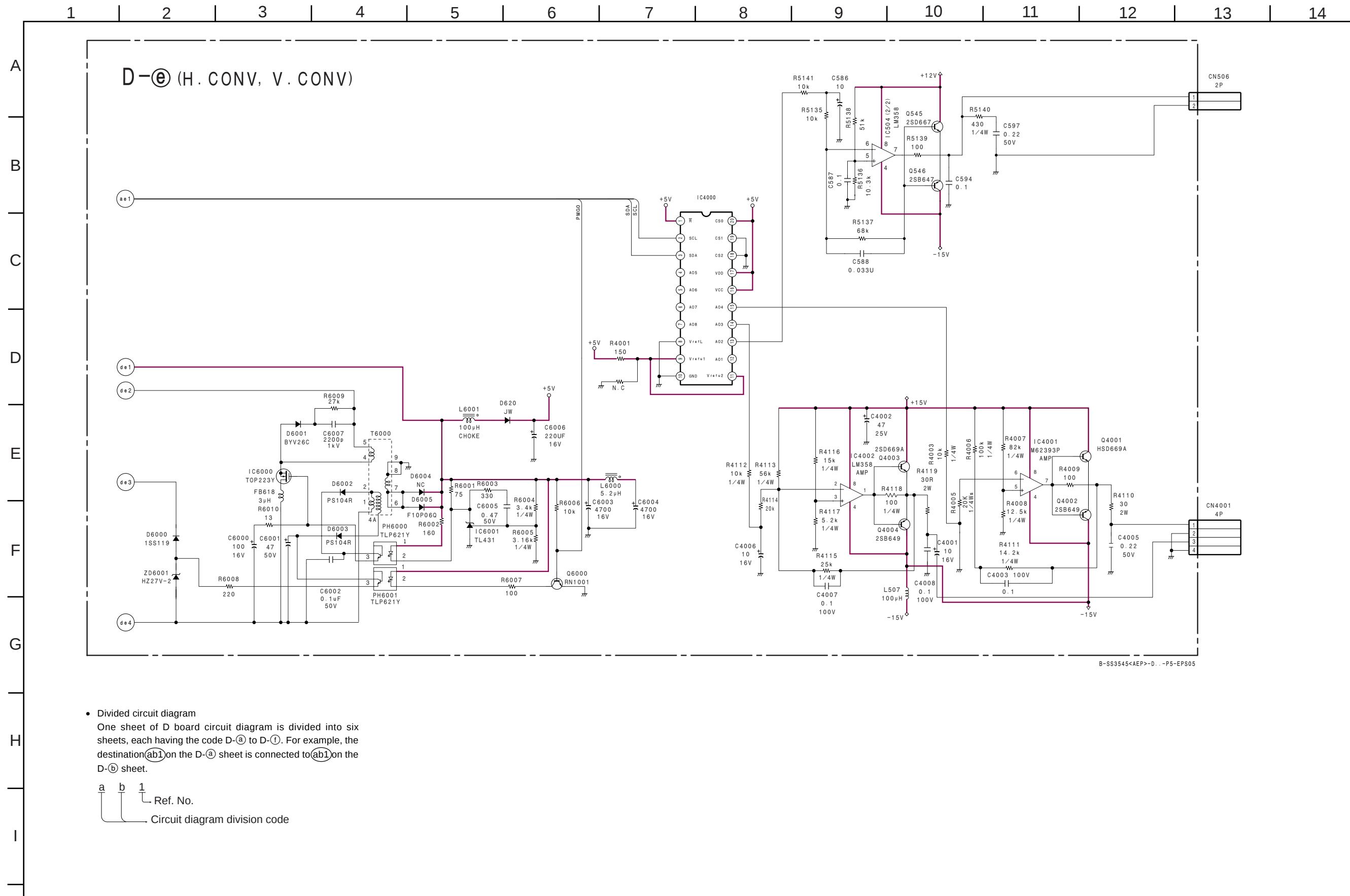


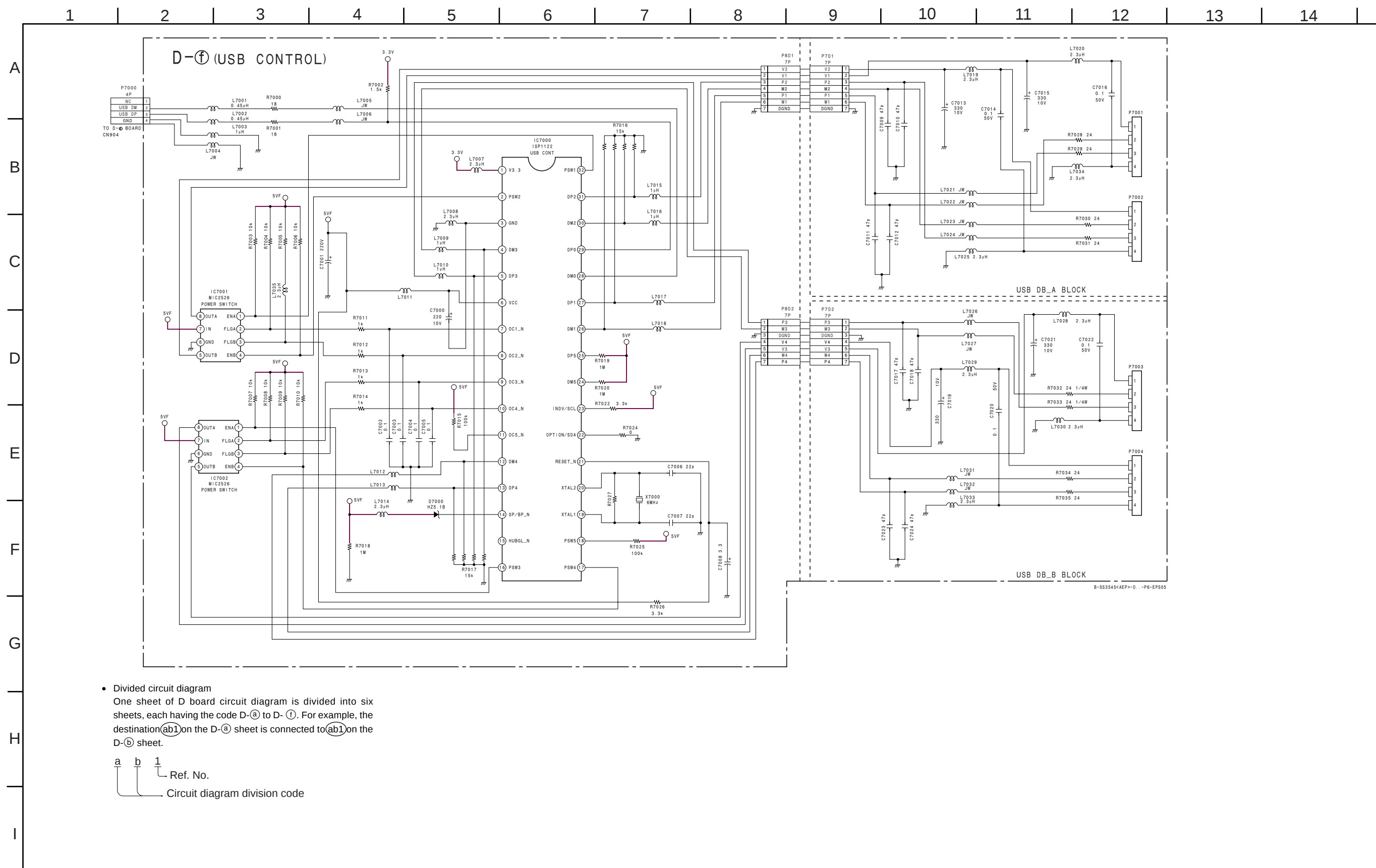
• D - ⑥ BOARD WAVEFORMS





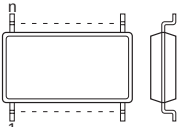






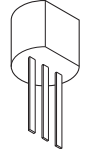
5-5. SEMICONDUCTORS

BH3863F
BH3863F-E2

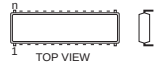


TOP VIEW
24 pin SOP

M5195BSL

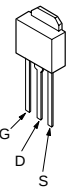


M52743BSP

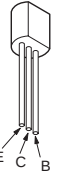


TOP VIEW
36 pin DIP

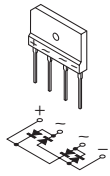
IRFU110
IRFU110A



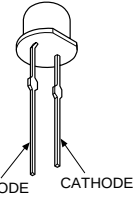
2SA733-QP
2SA733TP-QP
2SA966-Y
2SB647A-C
2SC2655
2SC945-P
2SD669AVC



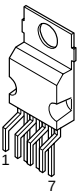
D4SB60L
D4SB60L-F



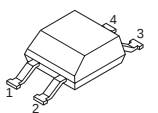
MAA3371X



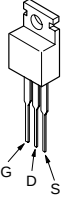
LA78040



PC123F2



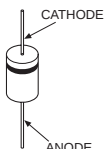
IRF640



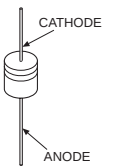
2SB649-C
2SB649
2SC2688-LK



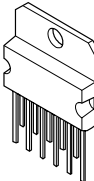
D2L40-TA
ER106
HSS82
HZ12
HZ5C1
HZ5C2
MTZJ-T-73-15A
PS104R
RD27EB4
SB140-6339
UF4007G23
UF5402G
UF5404G
UF5406
10E2
1N4002
1N4004
1N4148



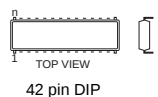
MTZJ-15A
MTZJ-5.1A
MTZJ-5.1B
RD15ES-B1
RD5.1ESB2
1SS119-25
1SS119-25TD



LM2415T

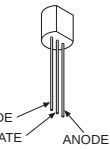


ST72774



TOP VIEW
42 pin DIP

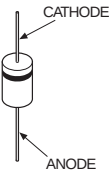
MCR100-6



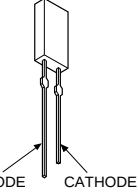
2SC2655-Y



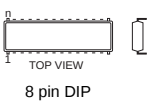
EGP10D



SEL4225R-D



LM358N
M24C16BN6
UC3842A
UC3843A
24LC21/P



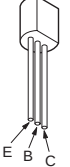
TOP VIEW
8 pin DIP

TDA4841

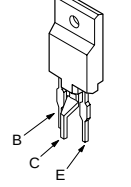


TOP VIEW
32 pin DIP

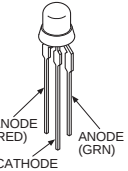
2N3904



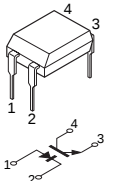
2SC4632LS-CB7



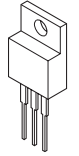
LT6463-23-D51



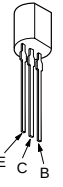
TLP621D4-Y-LF2



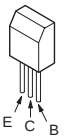
MCT7812CT
TA7805S



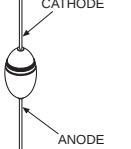
BF420



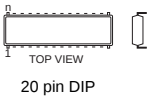
2SA1221-L



BYV26C
U05G

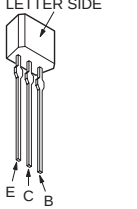


M35047



TOP VIEW
20 pin DIP

DTC124ESA
RN1203
2SC3400



SECTION 6
EXPLODED VIEWS

NOTE:

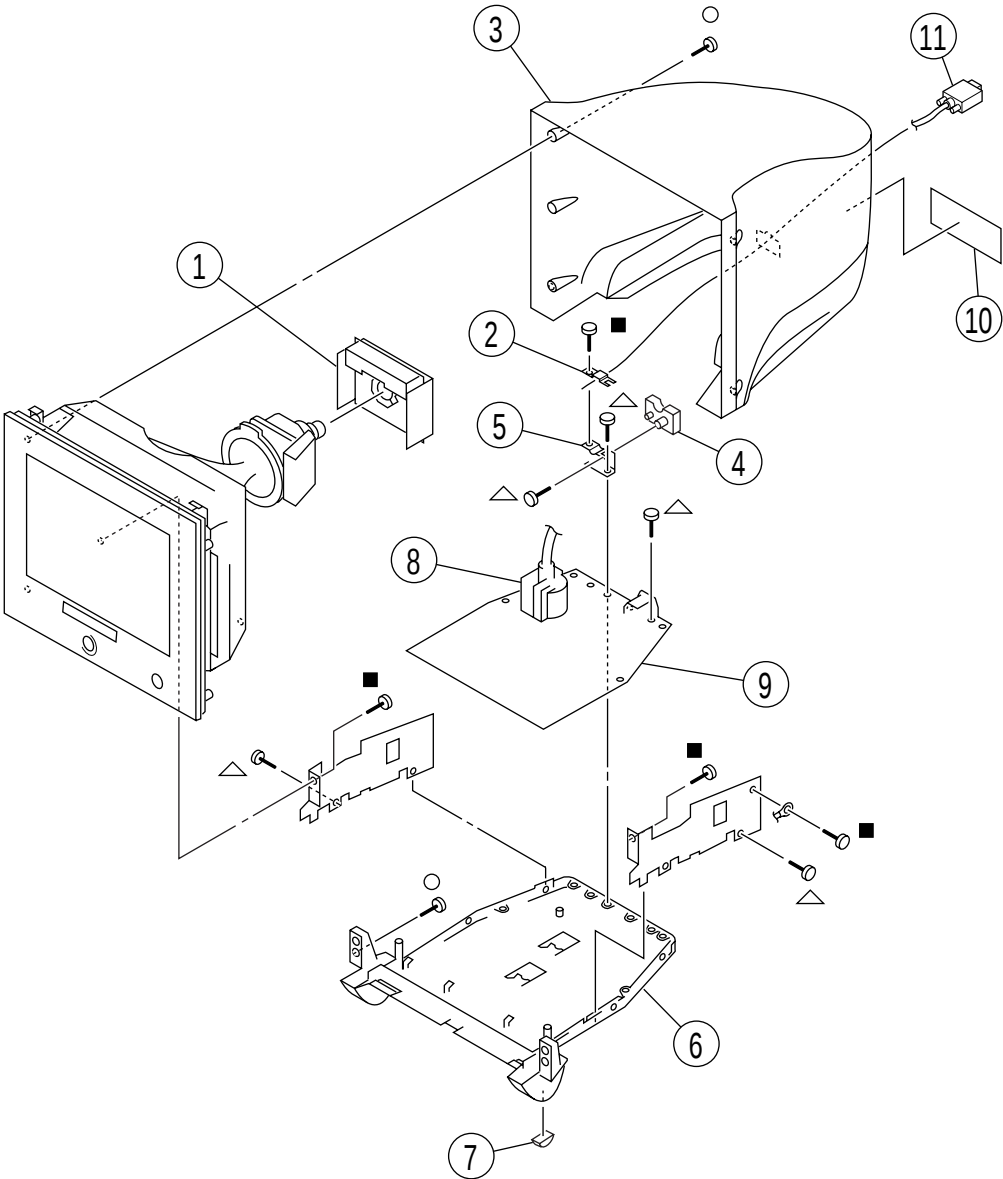
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine 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

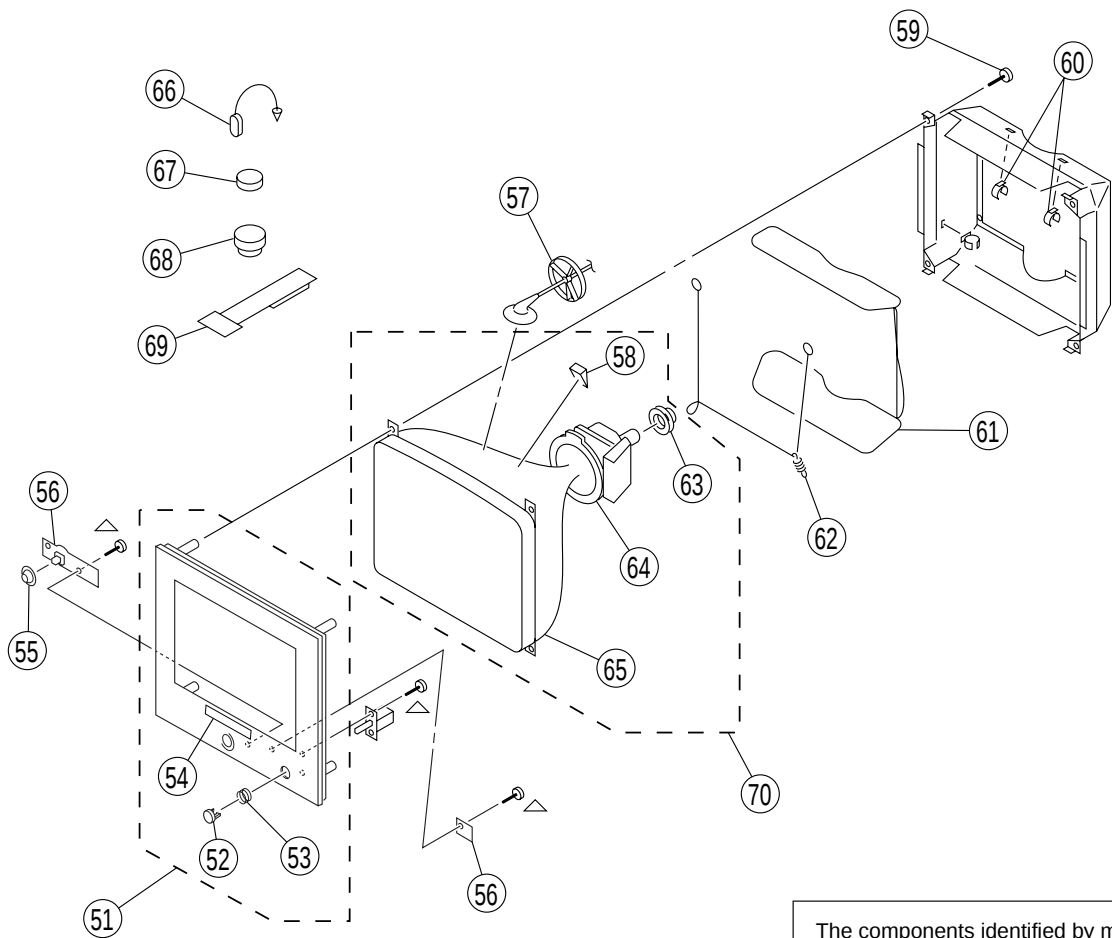
- 7-685-663-71 +BVTP 4X16 8026114012
- 7-685-881-09 +BVTT 4X8
- △ 7-685-648-79 +BVTP 3X12 8418113010



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
1	* A-1272-267-A	A BOARD, COMPLETE	TU9R6E0242	7	4-080-740-01	FOOT, RUBBER	9006099R6E
2	* 4-060-151-01	STOPPER, CABLE		8	△ 1-453-362-11	TRANSFORMER ASSY, FLYBACK	7050309R00
3	X-4038-554-1	BUCKET ASSY	IQ02039R6E	9	* A-1333-032-A	D BOARD, COMPLETE	TU9R6E0412
4	4-080-736-01	HOLDER, CABLE	IQ500H9R6E	10	* 4-080-068-01	LABEL, INFORMATION	9011099R6E
5	* 4-060-150-01	BRACKET, CABLE		11	1-757-540-11	CABLE, I/O	C7107C2U11
6	X-4038-555-1	COVER ASSY, BOTTOM	IQ03039R6E				

6-2. PICTURE TUBE

△ 7-685-648-79 +BVTP 3X12 8418113010

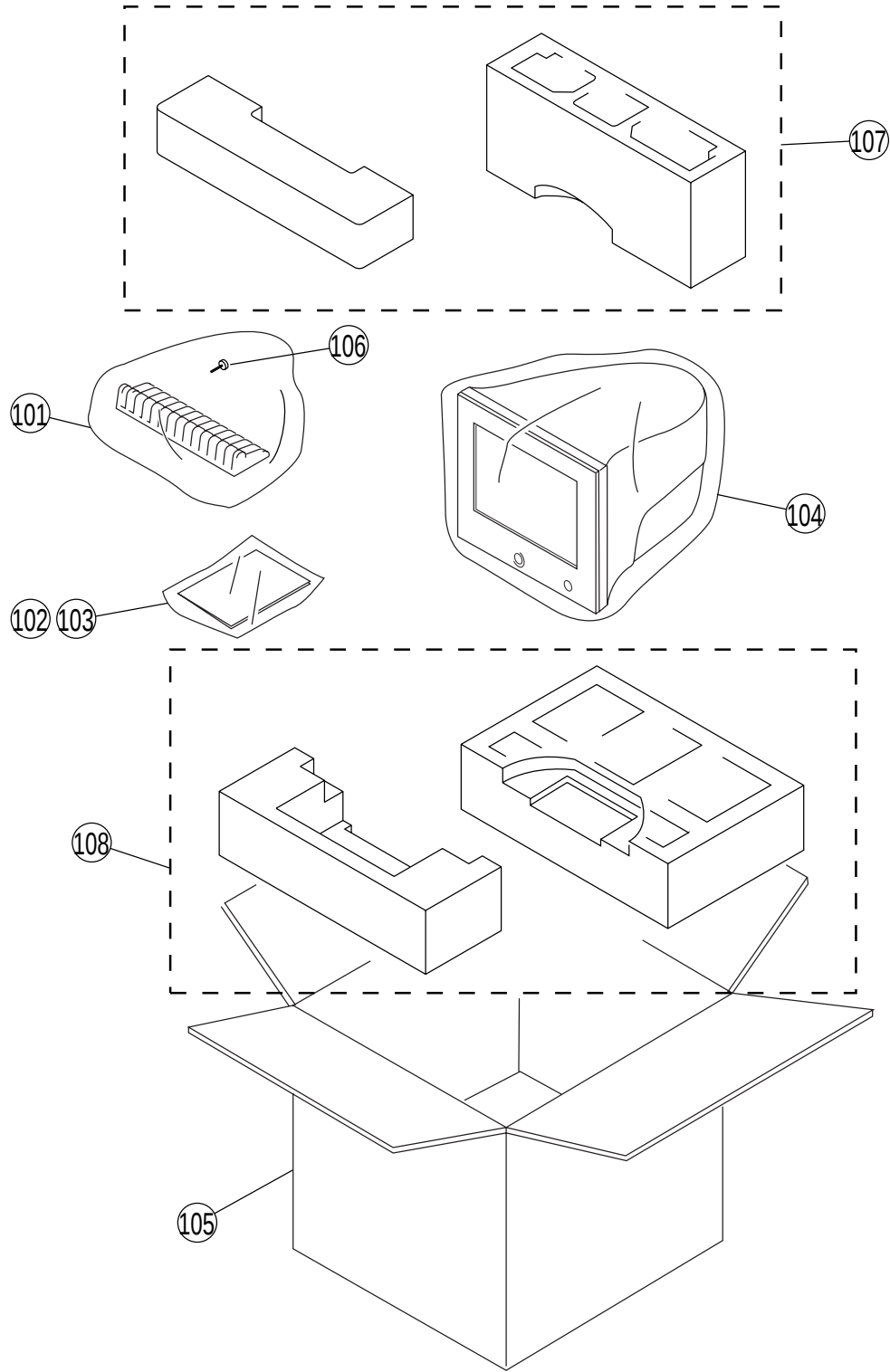


The components identified by mark △ are critical for safety.
Replace only with part number specified.

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	REF.NO.	PART NO.	DESCRIPTION	REMARK
51	X-4038-553-1	BEZEL ASSY	SS9R6E0420	62	4-060-603-01	SPRING, TENSION	
52	4-080-737-01	KNOB, POWER	IQA76R9R6E	63	△ 1-452-912-11	NECK ASSEMBLY	
53	4-060-162-01	SPRING, COMPRESSION	2011097M10	64	△ 8-451-520-11	DEFLECTION YOKE (Y19TKK3-M)	
54	4-044-932-11	EMBLEM (NO.8), SONY		65	△ 8-736-407-05	PICTURE TUBE 19TKC	
55	4-073-619-21	KNOB, MENU	1QAO035R51	66	4-038-870-00	CLIP, LEAD WIRE	
56	* A-1372-920-A	H BOARD, COMPLETE	TU9R6E0344	67	1-452-032-00	MAGNET, DISK; 10mm ø	
57	4-060-155-01	HOLDER, HV CABLE		68	1-452-094-00	MAGNET, ROTATABLE DISK; 15mm ø	
58	4-060-166-01	SPACER, DEFLECTION YOKE		69	4-051-736-21	PIECE A (90), CONV. CORRECT	
59	4-365-808-01	SCREW (5), TAPPING		70	8-734-028-06	ITC ASSY (19TKC-R2) (SDP)	
60	4-041-021-11	HOLDER, DEGAUSE COIL					
61	△ 1-416-282-21	COIL, DEGAUSSING					

6-3. PACKING MATERIALS



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
101	X-4038-556-1	STAND ASSY	SS9R6E0320	106	7-685-663-71	SCREW +BVTP 4X16 TYPE2 IT-3	
102	1-792-032-11	CABLE, USB	C7117R1010				8026114012
103	4-079-363-11	MANUAL, INSTRUCTION	9012099R6E	#1 107	4-079-900-01	CUSHION (UPPER) (ASSY)	9002099R6E
104	* 4-060-620-01	BAG, POLYETHYLENE	9008095R51	#1 108	4-079-901-01	CUSHION (LOWER) (ASSY)	9003099R6E
105	* 4-079-388-01	INDIVIDUAL CARTON	9001099R6E				

SECTION 7

ELECTRICAL PARTS LIST



NOTE:

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

Les composants identifiés par une marque Δ 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.

- 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.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
	* A-1272-267-A	A BOARD, COMPLETE *****		C102	1-126-964-11	ELECT 10 μ F 50V	5156100T50
	4-382-854-01	SCREW (M3X8), P, SW (+) (IC002)	8504113008	C103	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
	<CAPACITOR>			C104	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C001	1-126-964-11	ELECT 10 μ F 50V	5156100T50	C105	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C002	1-126-934-11	ELECT 220 μ F 16V	5156221S16	C106	1-135-383-11	METALIZED FILM 0.1 μ F 100V	5075104501
C004	1-164-489-11	CERAMIC CHIP 0.22 μ F 16V	7144224106	C107	1-136-497-11	METALIZED FILM 0.1 μ F 50V	5134104452
C005	1-135-397-11	ELECT 47 μ F 16V	515X470T16	C108	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C006	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C109	1-163-259-91	CERAMIC CHIP 220pF 50V	7183221556
C008	1-136-497-11	METALIZED FILM 0.1 μ F 50V	5134104452	C110	1-137-971-11	METALIZED FILM 0.1 μ F 100V	5077104501
C009	1-104-664-11	ELECT 47 μ F 16V	5156470T16	C201		CERAMIC CHIP 33pF 50V	7183330556
C010	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C202	1-126-964-11	ELECT 10 μ F 50V	5156100T50
C011	1-128-582-11	ELECT 10 μ F 100V	5156100T01	C203	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C012	1-137-971-11	METALIZED FILM 0.1 μ F 100V	5077104501	C204	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C013	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C206	1-135-383-11	METALIZED FILM 0.1 μ F 100V	5075104501
C014	1-137-877-11	CERAMIC 1000pF 2KV	51011021C3	C207	1-136-497-11	METALIZED FILM 0.1 μ F 50V	5134104452
C015	1-107-823-11	CERAMIC CHIP 0.47 μ F 16V	7144474106	C301		CERAMIC CHIP 33pF 50V	7183330556
C016	1-163-009-11	CERAMIC CHIP 1000pF 50V	7144102256	C302	1-126-964-11	ELECT 10 μ F 50V	5156100T50
C017	1-137-871-11	METALIZED FILM 0.1 μ F 100V	5074104111	C303	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C019		METALIZED FILM 0.1 μ F 100V	5116104111	C304	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C022	1-163-131-00	CERAMIC CHIP 390pF 50V	7183391556	C306	1-135-383-11	METALIZED FILM 0.1 μ F 100V	5075104501
C023	1-135-393-11	ELECT 100 μ F 10V	5156101T10	C307	1-136-497-11	METALIZED FILM 0.1 μ F 50V	5134104452
C025	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456		<CONNECTOR>		
C026	1-164-161-11	CERAMIC CHIP 2200pF 50V	7144222156	CN300		TAB (CONTACT)	4490100209
C028	1-163-263-11	CERAMIC CHIP 330pF 50V	7183331556	CN301*	1-564-512-11	PLUG, CONNECTOR 9P	4490900330
C029	1-137-872-11	CERAMIC 1000pF 50V	5101102152	CN302*	1-564-512-11	PLUG, CONNECTOR 9P	4490900330
C032	1-135-398-11	ELECT 1 μ F 50V	5156109T50	CN303*	1-564-510-11	PLUG, CONNECTOR 7P	4490700330
C033	1-163-017-00	CERAMIC CHIP 4700pF 50V	7144472156	CN304*	1-564-507-11	PLUG, CONNECTOR 4P	4490400330
C034	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	CN305		PLUG, CONNECTOR 4P	4490411330
C035	1-135-393-11	ELECT 100 μ F 10V	5156101T10	CN306*	1-564-509-11	PLUG, CONNECTOR 6P	4490600330
C037	1-164-489-11	CERAMIC CHIP 0.22 μ F 16V	7144224106	CN309	1-506-108-41	PIN, CONNECTOR (TERMINAL PIN)	3340236016
C038	1-104-664-11	ELECT 47 μ F 16V	5156470T16		<DIODE>		
C039	1-126-933-11	ELECT 100 μ F 16V	5156101T16	D001	8-719-911-19	DIODE 1SS119-25	4120511900
C040	1-137-970-11	METALIZED FILM 0.01 μ F 100V	5077103501	D002	8-719-070-90	DIODE 1N4148	412014148T
C041	1-163-259-91	CERAMIC CHIP 220pF 50V	7183221556	D003	8-719-994-52	ZENER DIODE HZ5C2	41205005C2
C042	1-163-239-11	CERAMIC CHIP 33pF 50V	7183330556	D004	8-719-911-19	DIODE 1SS119-25	4120511900
C043	1-135-404-11	ELECT 4.7 μ F 35V	5162479T35	D008	8-719-070-90	DIODE 1N4148	412014148T
C044	1-137-399-11	MYLAR 0.1 μ F 100V	5116104111				
C045		CERAMIC 0.01 μ F 1.5KV	5104103463	D009	8-719-070-90	DIODE 1N4148	412014148T
C049	1-137-970-11	METALIZED FILM 0.01 μ F 100V	5077103501	D010	8-719-070-90	DIODE 1N4148	412014148T
C101		CERAMIC CHIP 33pF 50V	7183330556	D011	8-719-070-90	DIODE 1N4148	412014148T

A

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

7-2

7-3



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

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

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C555	1-136-497-11	METALIZED FILM 0.1 μ F 50V	5134104452	C618	1-126-964-11	ELECT 10 μ F 50V	5156100T50
C556	1-107-656-11	ELECT 100 μ F 250V	5156101S03	C619	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C557	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C620	1-135-389-11	CERAMIC 100pF 1KV	510H101132
C558	1-137-419-11	MYLAR 0.033 μ F 100V	5116333111	C622		CERAMIC 2200pF 50V	5101222152
C559	1-136-684-51	MYLAR 2200pF 100V	5116222111	C623	1-163-251-11	CERAMIC CHIP 100pF 50V	7183101556
C560	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456				
C561		680pF 50V	7144681156	C625	1-128-564-11	ELECT 220 μ F 100V	5156221S01
C562	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C626	1-107-656-11	ELECT 100 μ F 250V	5156101S03
C563	1-104-661-91	ELECT 330 μ F 16V	5156331T16	C628	1-126-942-61	ELECT 1000 μ F 25V	5153102S25
C564	1-104-664-11	ELECT 47 μ F 25V	5156470T25	C630	1-126-942-61	ELECT 1000 μ F 25V	5153102S25
C565		ELECT 4.7 μ F 160V	5156479T02	C634	1-126-767-11	ELECT 1000 μ F 16V	5156102S16
C566		METAL FILM 1.6 μ F 250V	5198165583	C640 Δ		FILM 0.1 μ F 250V	5067104425
C567		CERAMIC 0.01 μ F 2KV	51041034C3	C645	1-126-935-11	ELECT 470 μ F 16V	5156471T16
C568	1-126-964-11	ELECT 10 μ F 50V	5156100T50	C646	1-126-942-61	ELECT 1000 μ F 25V	5153102S25
C570	1-126-964-11	ELECT 10 μ F 50V	5156100T50	C648 Δ		CERAMIC 4700pF 400V	5061472440
C571	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C649 Δ		CERAMIC 4700pF 400V	5061472440
C572	1-104-664-11	ELECT 47 μ F 16V	5156470T16	C650		METALIZED FILM 0.022 μ F 630V	5074223106
C573	1-135-404-11	ELECT 4.7 μ F 35V	5162479T35	C651	1-126-942-61	ELECT 1000 μ F 25V	5153102S25
C574	1-106-970-11	ELECT 330 μ F 50V	5156331S50	C652		METALIZED FILM 0.22 μ F 250V	5077224102
C575		CERAMIC CHIP 0.01 μ F 50V	7146103456	C654	1-128-551-11	ELECT 22 μ F 25V	5156220T25
C576	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C655		ELECT 10 μ F 160V	5156100T02
C577		ELECT 220 μ F 250V	5156221S03	C902	1-126-961-11	ELECT 2.2 μ F 50V	5156229T50
C579	1-137-413-11	MYLAR 3300pF 100V	5116332111	C903	1-126-961-11	ELECT 2.2 μ F 50V	5156229T50
C580	1-137-378-11	MYLAR 0.22 μ F 50V	5110224550	C904	1-126-961-11	ELECT 2.2 μ F 50V	5156229T50
C581	1-137-378-11	MYLAR 0.22 μ F 50V	5110224550	C905	1-126-961-11	ELECT 2.2 μ F 50V	5156229T50
C583	1-128-561-91	ELECT 33 μ F 100V	5156330T01	C906	1-126-961-11	ELECT 2.2 μ F 50V	5156229T50
C584	1-164-161-11	CERAMIC CHIP 2200pF 50V	7144222156	C907	1-126-964-11	ELECT 10 μ F 50V	5156100T50
C585		CERAMIC 1000pF 500V	5101102142	C908	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C586	1-126-964-11	ELECT 10 μ F 50V	5156100T50	C909	1-163-133-00	CERAMIC CHIP 470pF 50V	7183471556
C587		CERAMIC 0.1 μ F 50V	5101104152	C910	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C588	1-137-413-11	MYLAR 3300pF 100V	5116332111	C911	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C589	1-135-398-11	ELECT 1 μ F 50V	5156109T50	C912	1-163-235-11	CERAMIC CHIP 22pF 50V	7183220556
C590	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C913	1-163-235-11	CERAMIC CHIP 22pF 50V	7183220556
C591	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C914	1-163-251-11	CERAMIC CHIP 100pF 50V	7183101556
C592	1-135-404-11	ELECT 4.7 μ F 35V	5162479T35	C915	1-137-879-11	CERAMIC 100pF 50V	5128101552
C593	1-137-378-11	MYLAR 0.22 μ F 50V	5113224150	C918	1-163-243-11	CERAMIC 47pF 50V	7183470556
C594	1-137-378-11	MYLAR 0.22 μ F 50V	5113224150	C919	1-163-243-11	CERAMIC 47pF 50V	7183470556
C595	1-137-871-11	METALIZED FILM 0.1 μ F 400V	5074104104	C920	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C597	1-137-378-11	MYLAR 0.22 μ F 50V	5113224150	C921	1-163-235-11	CERAMIC CHIP 22pF 50V	7183220556
C598		CERAMIC 0.1 μ F 50V	5101104152	C922	1-163-235-11	CERAMIC CHIP 22pF 50V	7183220556
C599	1-126-969-11	ELECT 220 μ F 50V	5156221T50	C923	1-126-961-11	ELECT 2.2 μ F 50V	5156229T50
C601 Δ		FILM 0.47 μ F 250V	5067474425	C924	1-135-395-11	ELECT 4.7 μ F 50V	5156479T50
C602 Δ		FILM 0.68 μ F 250V	5067684425	C925	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456
C603 Δ	1-135-380-11	CERAMIC 470pF 250V	5063471325	C926	1-163-251-11	CERAMIC CHIP 100pF 50V	7183101556
C604 Δ	1-135-380-11	CERAMIC 470pF 250V	5063471325	C927	1-163-251-11	CERAMIC CHIP 100pF 50V	7183101556
C606		ELECT 330 μ F 450V	515P331545	C930	1-163-259-91	CERAMIC CHIP 220pF 50V	7183221556
C607	1-126-949-11	ELECT 220 μ F 35V	5156221T35	C4001		ELRCT 10 μ F 16V	5156100T16
C608	1-137-871-11	METALIZED FILM 0.1 μ F 400V	5074104104	C4002	1-104-664-11	ELECT 47 μ F 25V	5156470T25
C609	1-137-963-11	METALIZED FILM 0.33 μ F 630V	5074334106	C4003	1-137-399-11	MYLAR 0.1 μ F 100V	5116104111
C610	1-135-351-11	CERAMIC 4700pF 250V	5063472425	C4005	1-137-399-11	MYLAR 0.1 μ F 100V	5116104111
C611	1-163-007-11	CERAMIC CHIP 680pF 50V	7144681156	C4006		ELRCT 10 μ F 16V	5156100T16
C612		FILM 0.1 μ F 100V	5092103615	C4007	1-137-399-11	MYLAR 0.1 μ F 100V	5116104111
C613		CERAMIC 270pF 50V	7144271156	C4008	1-137-399-11	MYLAR 0.1 μ F 100V	5116104111
C614	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C6000	1-126-933-11	ELECT 100 μ F 16V	5156101T16
C615	1-126-933-11	ELECT 100 μ F 16V	5156101T16	C6001	1-126-967-11	ELECT 47 μ F 16V	5156470T50
C616	1-115-339-11	CERAMIC CHIP 0.1 μ F 50V	7146104456	C6002		CERAMIC 0.1 μ F 50V	5101104152

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Ne les remplacer que par une pièce portant le numéro spécifié.

HMD-A420



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C6003	1-126-768-11	ELECT 2200μF 16V	5156222S16	D509		DIODE PS104R	4130101040
C6004		ELECT 470μF 16V	5156471S16	D510	8-719-911-19	DIODE 1SS119-25	4120511900
C6005	1-137-960-11	METALIZED FILM 0.47μF 50V	5074474105	D511		DIODE PS104R	4130101040
C6006	1-126-934-11	ELECT 220μF 16V	5156221S16	D512		DIODE PS104R	4130101040
C6007	1-137-928-11	CERAMIC 2200pF 1KV	510H222138				
C6008	1-164-161-11	CERAMIC CHIP 2200pF 50V	7144222156	D513	8-719-074-13	DIODE BYV26C	413010426C
C7000		ELECT 220μF 10V	5152221T10	D514	8-719-074-25	DIODE PG104R	4130101041
C7001		ELECT 220μF 10V	5152221T10	D515	8-719-074-13	DIODE BYV26C	413010426C
C7002	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D516	8-719-911-19	DIODE 1SS119-25	4120511900
C7003	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D517	8-719-911-19	DIODE 1SS119-25	4120511900
C7004	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D518	8-719-911-19	DIODE 1SS119-25	4120511900
C7005	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D519		DIODE PS104R	4130101040
C7006	1-163-235-11	CERAMIC CHIP 22pF 50V	7183220556	D520	8-719-074-25	DIODE PG104R	4130101041
C7007	1-163-235-11	CERAMIC CHIP 22pF 50V	7183220556	D521		DIODE BYV27	4130204270
C7008		ELECT 3.3μF 50V	5152339T50	D522	8-719-074-25	DIODE PG104R	4130101041
C7009	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D523	8-719-911-19	DIODE 1SS119-25	4120511900
C7010	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D524	8-719-911-19	DIODE 1SS119-25	4120511900
C7011	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D525		ZENER DIODE HZ6C-3	41205006C3
C7012	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D526	8-719-911-19	DIODE 1SS119-25	4120511900
C7013	1-126-924-11	ELECT 330μF 10V	5156331T10	D527		ZENER DIODE HZ12	4120501202
C7014	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D528	8-719-074-16	DIODE RGP02-18	4130100218
C7015	1-126-924-11	ELECT 330μF 10V	5156331T10	D530	8-719-911-19	DIODE 1SS119-25	4120511900
C7016	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D532	8-719-077-81	ZENER DIODE 1M160Z	4120510160
C7017	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D533	8-719-911-19	DIODE 1SS119-25	4120511900
C7018	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D534	8-719-070-90	DIODE 1N4148	4120141480
C7019	1-126-924-11	ELECT 330μF 10V	5156331T10	D538		ZENER DIODE HZ18-2	4120501802
C7020	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D592	8-719-911-19	DIODE 1SS119-25	4120511900
C7021	1-126-924-11	ELECT 330μF 10V	5156331T10	D601 $\triangle$	8-719-510-63	DIODE D4SB60L-F	4130400600
C7022	1-115-339-11	CERAMIC CHIP 0.1μF 50V	7146104456	D603	8-719-911-19	DIODE 1SS119-25	4120511900
C7023	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D605	8-719-053-19	DIODE UF4007	4130104007
C7024	1-163-243-11	CERAMIC CHIP 47pF 50V	7183470556	D606	8-719-911-19	DIODE 1SS119-25	4120511900
<CONNECTOR>				D607		ZENER DIODE RD27EB4	4120502705
CN601 $\triangle$	1-251-444-11	AC SOCKET	4570707C00	D608		ZENER DIODE RD27EB4	4120502705
CN602	1-815-267-11	PLUG, CONNECTOR 2P	4490301100	D609	8-719-911-19	DIODE 1SS119-25	4120511900
CN604		PIN, CONNECTOR 3P	4490300190	D610	8-719-911-19	DIODE 1SS119-25	4120511900
P7000	1-815-478-11	CONNECTOR, USB (B)	4490400343	D611	8-719-911-19	DIODE 1SS119-25	4120511900
P7001	1-815-477-11	CONNECTOR, USB (A)	4490400342	D612		DIODE 1N4004	4120104004
P7002	1-815-477-11	CONNECTOR, USB (A)	4490400342	D613		DIODE BYM26C	413020426C
P7003	1-815-477-11	CONNECTOR, USB (A)	4490400342	D615		DIODE BYM26C	413020426C
P7004	1-815-477-11	CONNECTOR, USB (A)	4490400342	D616	8-719-074-19	DIODE UF5402G	4130305402
<DIODE>				D617	8-719-074-19	DIODE UF5402G	4130305402
D402		DIODE 1N4002	4120104002	D618		DIODE EGP10D	413010110D
D403	8-719-911-19	DIODE 1SS119-25	4120511900	D619	8-719-911-19	DIODE 1SS119-25	4120511900
D404	8-719-911-19	DIODE 1SS119-25	4120511900	D620		DIODE 11DQ03	41301011Q3
D405		ZENER DIODE MTZJ9.1C	41295091C0	D621	8-719-074-13	DIODE BYV26C	413010426C
D501	8-719-911-19	DIODE 1SS119-25	4120511900	D623	8-719-979-80	DIODE UF5406	4130305406
D502		ZENER DIODE MTZJ-15A	41205015AU	D627	8-719-979-80	DIODE UF5406	4130305406
D503		DIODE D2L40	4130152400	D628		DIODE BYM26C	413020426C
D504	8-719-911-19	DIODE 1SS119-25	4120511900	D629	8-719-911-19	DIODE 1SS119-25	4120511900
D506	8-719-911-19	DIODE 1SS119-25	4120511900	D630	8-719-911-19	DIODE 1SS119-25	4120511900
D507		DIODE SB140	4130104140	D631		DIODE BYM26C	413010426C
D508		DIODE FMQ-G1FS	41305001F0	D632	8-719-070-90	DIODE 1N4148	4120141480
				D901		ZENER DIODE HZ5C1	41205005C1
				D902		ZENER DIODE HZ5C1	41205005C1
				D903		ZENER DIODE HZ5C1	41205005C1
				D904		ZENER DIODE HZ5C1	41205005C1
				D905		ZENER DIODE HZ5C1	41205005C1



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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
D906		ZENER DIODE HZ5C1	41205005C1	<COIL>			
D908	8-719-911-19	DIODE 1SS119-25	4120511900				
D6000	8-719-911-19	DIODE 1SS119-25	4120511900	L501	1-412-550-11	INDUCTOR 1.2mH	4323122003
				L502	1-469-994-11	INDUCTOR 100 μ H	4321101006
D6001	8-719-074-13	DIODE BYV26C	413010426C	L503	1-459-104-00	COIL, CHOKE 10mH	4323103003
D6002		DIODE PS104R	4130101040	L504		COIL, CHOKE 14 μ H	4323140003
D6003		DIODE PS104R	4130101040	L505	1-424-738-11	COIL, LINEARITY	7085219R00
D6004		DIODE SB360	4130300360				
D6005		DIODE SB360	4130300360	L506	1-459-104-00	COIL, CHOKE 10mH	4323103003
				L509	1-469-995-11	INDUCTOR 150 μ H	4321151006
D7000		ZENER DIODE HZ5C1	41205005C1	L601	1-412-537-31	INDUCTOR 100 μ H	4323101303
				L602	1-412-537-31	INDUCTOR 100 μ H	4323101303
ZD6000		ZENER DIODE P6KE	4120561600	L603	1-412-537-31	INDUCTOR 100 μ H	4323101303
ZD6001		ZENER DIODE HZ27	4120502702				
ZD6003		ZENER DIODE P6KE	4120561600	L604	1-412-537-31	INDUCTOR 100 μ H	4323101303
				L605	1-412-537-31	INDUCTOR 100 μ H	4323101303
<FUSE>				L606		COIL, CHOKE 5.2 μ H	4233529003
F601	Δ 1-576-231-11	FUSE (H.B.C.) (4A/250V)	5268400052	L607	1-410-645-31	INDUCTOR 100 μ H	4326101005
				L609	1-412-537-31	INDUCTOR 100 μ H	4323101303
<FERRITE BEAD>							
FB501	1-469-402-11	INDUCTOR 3 μ H	4322309006	L6000	1-424-739-11	COIL, CHOKE 5.2 μ H	4323529003
FB502	1-424-740-11	COIL, CHOKE 5.2 μ H	7065R00509	L6001	1-412-537-31	INDUCTOR 100 μ H	4323101303
FB504	1-469-402-11	INDUCTOR 3 μ H	4322309006	L7001		FERRITE 0.45 μ H	7099458250
FB507	1-412-911-11	FERRITE 1.1 μ H	7099159250	L7002		FERRITE 0.45 μ H	7099458250
FB508	1-412-911-11	FERRITE 1.1 μ H	7099159250	L7003	1-469-807-11	INDUCTOR	4322502006
FB601	1-469-402-11	INDUCTOR 3 μ H	4322309006	L7007	1-412-911-11	FERRITE 1.1 μ H	7099159250
FB602	1-469-402-11	INDUCTOR 3 μ H	4322309006	L7008	1-412-911-11	FERRITE 1.1 μ H	7099159250
FB603	1-469-402-11	INDUCTOR 3 μ H	4322309006	L7009	1-469-807-11	INDUCTOR	4322502006
FB612	1-419-445-11	COIL, CHOKE 300 μ H	7065R10301	L7010	1-469-807-11	INDUCTOR	4322502006
FB613	1-419-445-11	COIL, CHOKE 300 μ H	7065R10301	L7011	1-419-626-11	COIL, CHOKE	5560070017
FB901	1-469-403-11	INDUCTOR 2 μ H	4322209046	L7012	1-469-807-11	INDUCTOR	4322502006
FB902		FERRITE 0.45 μ H	7099458250	L7013	1-469-807-11	INDUCTOR	4322502006
FB903		FERRITE 0.45 μ H	7099458250	L7014	1-412-911-11	FERRITE 1.1 μ H	7099159250
				L7015	1-469-807-11	INDUCTOR	4322502006
<IC>				L7016	1-469-807-11	INDUCTOR	4322502006
IC401	8-759-593-28	IC LA78040	4159780400				
IC501		IC TDA4841	4159484100	L7017	1-469-807-11	INDUCTOR	4322502006
IC502		IC UC3843A	4159384300	L7018	1-469-807-11	INDUCTOR	4322502006
IC504		IC LM358	4159358000	L7019		FERRITE 2.3 μ H	7099159250
IC601	8-759-582-09	IC UC3842A	4159384200	L7020		FERRITE 2.3 μ H	7099159250
				L7025		FERRITE 2.3 μ H	7099159250
IC602		IC TLP6214-YLF2	4159621000				
IC606		TRANSISTOR MCR100-6	4114501006	L7028		FERRITE 2.3 μ H	7099159250
IC607	8-759-279-76	IC MCT7812CT	4159781201	L7029		FERRITE 2.3 μ H	7099159250
IC901		IC ST72774	4159727751	L7030		FERRITE 2.3 μ H	7099159250
IC902	8-759-650-44	IC M24C16BN6	415924C160	L7033		FERRITE 2.3 μ H	7099159250
				L7034		FERRITE 2.3 μ H	7099159250
IC903	8-759-605-05	IC M51951BSL	4159519510				
IC4001		IC M62393P	4159623930	PH6000		IC TLP621-YLF2	4159621000
IC4002		IC LM358	4159358000	PH6001		IC TLP621-YLF2	4159621000
IC6000		TRANSISTOR TOP223Y	4100502230				
IC7000		IC ISP1122A	4159112210	<PHOTO COUPLER>			
IC7001		IC MIC2526-2BN	4159252602				
IC7002		IC MIC2526-2BN	4159252602				
<FILTER>							
				LF601	Δ 1-433-798-11	COIL, CHOKE 13mH	7069R00133
<TRANSISTOR>							
				Q401	8-729-194-57	TRANSISTOR 2SC945-P	411020945P



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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R536	1-216-069-00	RES-CHIP 6.8K 1/10W	4010168252	R601 Δ 1-260-132-91	CARBON 560K 1/2W	4050156455	
R537	1-260-113-11	CARBON 15K 1/2W	4050115355	R605	1-227-382-11	METAL OXIDE 75K 2W	4172075353
R538	1-216-065-91	RES-CHIP 4.7K 1/10W	4010147252				
R539	1-216-073-00	RES-CHIP 10K 1/10W	4010110352	R609	1-216-059-00	RES-CHIP 2.7K 1/10W	4010127252
R540	1-260-135-11	CARBON 1M 1/2W	4050110555	R610	1-216-001-00	RES-CHIP 10 1/10W	4010110052
R543	1-244-266-11	METAL OXIDE 270 1W	4177127153	R611		RES-CHIP 43 1/10W	4010143052
R544	1-260-123-11	CARBON 100K 1/2W	4050110455	R612	1-227-377-11	METAL CHIP 4.99K 1/10W	419A149912
R545	1-260-123-11	CARBON 100K 1/2W	4050110455	R614		METAL OXIDE 0.22 2W	4172022855
R546	1-260-123-11	CARBON 100K 1/2W	4050110455	R615	1-244-176-11	METAL 1.82K 1/4W	4257041821
R547	1-249-425-11	CARBON 4.7K 1/4W	4050547255	R616	1-244-250-11	METAL 4.22K 1/4W	4257044221
R548		CARBON 4.7K 1/2W	4050147255	R618	1-216-073-00	RES-CHIP 10K 1/10W	4010110352
R549	1-216-073-00	RES-CHIP 10K 1/10W	4010110352	R619	1-216-073-00	RES-CHIP 10K 1/10W	4010110352
R550	1-216-073-00	RES-CHIP 10K 1/10W	4010110352	R620	1-216-049-11	RES-CHIP 1K 1/10W	4010110252
R551	1-227-380-11	METAL CHIP 7.32K 1/10W	419A173212	R621	1-216-182-00	RES-CHIP 220 1/8W	4010822152
R552	1-216-097-11	RES-CHIP 100K 1/10W	4010110402	R622	1-216-182-00	RES-CHIP 220 1/8W	4010822152
R553	1-249-441-11	CARBON 100K 1/4W	4050510455	R623	1-216-025-11	RES-CHIP 100 1/10W	4010110152
R554	1-216-154-00	RES-CHIP 15 1/8W	4010815052	R624		RES-CHIP 1.9K 1/10W	4010191252
R555	1-247-804-11	CARBON 75 1/4W	4050575055	R625	1-216-073-00	RES-CHIP 10K 1/10W	4010110352
R556	1-216-073-00	RES-CHIP 10K 1/10W	4010110352	R626		RES-CHIP 15K 1/10W	4010115352
R557	1-244-255-11	METAL OXIDE 2.7 2W	4172027953	R627	1-227-373-11	RES-CHIP 2.61K 1/10W	419A126122
R558	1-249-429-11	CARBON 10K 1/4W	4050510355	R628	1-247-802-11	CARBON 62 1/4W	4050562055
R559	1-249-417-11	CARBON 1K 1/4W	4050510255	R629	1-216-049-11	RES-CHIP 1K 1/10W	4010110252
R560	1-216-101-00	RES-CHIP 150K 1/10W	4010115452	R630	1-216-063-91	RES-CHIP 3.9K 1/10W	4010139252
R561	1-249-437-11	CARBON 47K 1/4W	4050547355	R640	1-249-441-11	CARBON 100K 1/4W	4050510455
R562	1-216-089-11	RES-CHIP 47K 1/10W	4010147352	R641	1-249-413-11	CARBON 470 1/4W	4050547155
R563	1-249-437-11	CARBON 47K 1/4W	4050547355	R642	1-249-409-11	CARBON 220 1/4W	4050522155
R565	1-216-049-11	RES-CHIP 1K 1/10W	4010110252	R643		METAL 115K 1/4W	4257041153
R566	1-249-429-11	CARBON 10K 1/4W	4050510355	R644		METAL 2.8K 1/4W	4257042801
R567	1-216-073-00	RES-CHIP 10K 1/10W	4010110352	R651	1-216-073-00	RES-CHIP 10K 1/10W	4010110352
R568	1-249-429-11	CARBON 10K 1/4W	4050510355	R652	1-247-807-31	CARBON 100 1/4W	4050510155
R569	1-260-097-11	CARBON 680 1/2W	4050168155	R653		METAL OXIDE 220 2W	4172022155
R570	1-216-057-00	RES-CHIP 2.2K 1/10W	4010122252	R655		RES-CHIP 1.6K 1/10W	4010116252
R571	1-249-425-11	CARBON 4.7K 1/4W	4050547255	R656	1-249-429-11	CARBON 10K 1/4W	4050510355
R572	1-249-393-11	CARBON 10 1/4W	4050510055	R658	1-249-429-11	CARBON 10K 1/4W	4050510355
R573	1-247-868-11	CARBON 36K 1/4W	4050536355	R659	1-249-417-11	CARBON 1K 1/4W	4050510255
R574		RES-CHIP 82K 1/10W	4010182352	R660	1-249-429-11	CARBON 10K 1/4W	4050510355
R575	1-216-060-00	RES-CHIP 3K 1/10W	4010130252	R661	1-249-419-11	CARBON 1.5K 1/4W	4050515255
R576	1-244-260-11	METAL OXIDE 56K	4172056356	R665	1-249-429-11	CARBON 10K 1/4W	4050510355
R577		CARBON 68 1/4W	4050568055	R666	1-249-419-11	CARBON 1.5K 1/4W	4050515255
R578		CARBON 180 1/4W	4050518155	R669		RES, FUSIBLE 1 1/2W	4050110955
R579	1-216-057-00	RES-CHIP 2.2K 1/10W	4010122252	R670	1-259-878-11	CARBON 1.5M 1/4W	4050515555
R580	1-216-025-11	RES-CHIP 100 1/10W	4010110152	R675	1-244-183-11	METAL 107K 1/4W	4257041073
R581		CARBON 33K 1/4W	4050533355	R676		RES-CHIP 0 1/8W	4010800052
R582		CARBON 2.7K 1/4W	4050527255	R677	1-216-121-11	RES-CHIP 1M 1/10W	4010110552
R583	1-244-275-11	METAL OXIDE 1.3	417721395A	R678	1-259-878-11	CARBON 1.5M 1/4W	4050515555
R584	1-216-067-00	RES-CHIP 5.6K 1/10W	4010156252	R7B3	1-216-121-11	RES-CHIP 1M 1/10W	4010110552
R585	1-216-066-00	RES-CHIP 5.1K 1/10W	4010151252	R900	1-249-431-11	CARBON 15K 1/4W	4050515355
R586	1-244-280-11	METAL 107K	4257141073	R902	1-249-417-11	CARBON 1K 1/4W	4050510255
R589	1-249-429-11	CARBON 10K 1/4W	4050510355	R903	1-249-417-11	CARBON 1K 1/4W	4050510255
R590	1-247-903-00	CARBON 1M 1/4W	4050510555	R904	1-247-807-31	CARBON 100 1/4W	4050510155
R592	1-216-089-11	RES-CHIP 47K 1/10W	4010147352	R905	1-249-417-11	CARBON 1K 1/4W	4050510255
R595	1-216-065-91	RES-CHIP 4.7K 1/10W	4010147252	R906	1-249-417-11	CARBON 1K 1/4W	4050510255
R596		RES-CHIP 120K 1/10W	419A112032	R907	1-249-417-11	CARBON 1K 1/4W	4050510255
R597	1-244-266-11	METAL OXIDE 27 1W	4177127053	R908	1-216-073-00	RES-CHIP 10K 1/10W	4010110352
R598	1-244-298-11	METAL CHIP 34.8K 1/4W	419A134822	R909	1-249-417-11	CARBON 1K 1/4W	4050510255
R599		RES-CHIP 4.87K 1/10W	419A148712	R910	1-216-073-00	RES-CHIP 10K 1/10W	4010110352
				R911	1-249-417-11	CARBON 1K 1/4W	4050510255



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R912	1-216-222-00	RES-CHIP	10K 1/8W	4010810352	R4115	1-249-433-11	CARBON 22K 1/4W 4050522355
R913	1-249-417-11	CARBON	1K 1/4W	4050510255	R4116	1-249-431-11	CARBON 15K 1/4W 4050515355
R914	1-244-247-11	METAL	33.2 1/4W	4257043329	R4117	1-247-842-11	CARBON 3K 1/4W 4050530255
R915	1-240-907-11	METAL	30.1K 1/4W	4257043012	R4118	1-247-807-31	CARBON 100 1/4W 4050510155
R916	1-216-053-00	RES-CHIP	1.5K 1/10W	4010115252	R4119	1-244-257-11	METAL OXIDE 30 2W 4172030053
R918	1-216-073-00	RES-CHIP	10K 1/10W	4010110352	R5001	1-244-196-11	METAL OXIDE 30K 4172010156
R919	1-249-425-11	CARBON	4.7K 1/4W	4050547255	R5009	1-244-256-11	METAL OXIDE 15 2W 4172015053
R920	1-216-073-00	RES-CHIP	10K 1/10W	4010110352	R5100	CARBON	76.8K 1/4W 4257047682
R921	1-216-049-11	RES-CHIP	1K 1/10W	4010110252	R5102	RES-CHIP	120K 1/10W 4010113352
R922	1-216-073-00	RES-CHIP	10K 1/10W	4010110352	R5103	1-216-073-00	RES-CHIP 10K 1/10W 4010110352
R923	1-216-073-00	RES-CHIP	10K 1/10W	4010110352	R5104	1-244-276-11	METAL OXIDE 3K 2W 4177230256
R924	1-216-049-11	RES-CHIP	1K 1/10W	4010110252	R5106	1-249-413-11	CARBON 470 1/4W 4050547155
R925	1-249-429-11	CARBON	10K 1/4W	4050510355	R5107	1-249-429-11	CARBON 10K 1/4W 4050510355
R926	1-216-025-11	RES-CHIP	100 1/10W	4010110152	R5108	RES-CHIP	18K 1/10W 4010118302
R927		RES-CHIP	4.7K 1/10W	4010147252	R5109	1-216-121-11	RES-CHIP 1M 1/10W 4010110552
R928	1-216-073-00	RES-CHIP	10K 1/10W	4010110352	R5110	1-216-041-00	RES-CHIP 470 1/10W 4010147152
R929	1-216-222-00	RES-CHIP	10K 1/8W	4010810352	R5111	1-216-080-00	RES-CHIP 20K 1/10W 4010120352
R930	1-216-222-00	RES-CHIP	10K 1/8W	4010810352	R5112	RES-CHIP	6.8K 1/8W 4010868252
R931	1-216-222-00	RES-CHIP	10K 1/8W	4010810352	R5113	1-216-239-00	RES-CHIP 51K 1/8W 4010851352
R932	1-247-791-91	CARBON	22 1/4W	4050522055	R5114	1-216-099-00	RES-CHIP 120K 1/10W 4010112452
R933	1-247-791-91	CARBON	22 1/4W	4050522055	R5115	1-260-123-11	CARBON 100K 1/2W 4050110455
R934	1-216-166-00	RES-CHIP	47 1/8W	4010847052	R5116	1-260-123-11	CARBON 100K 1/2W 4050110455
R935	1-216-222-00	RES-CHIP	10K 1/8W	4010810352	R5117	1-247-807-31	CARBON 100 1/4W 4050510155
R936	1-216-121-11	RES-CHIP	1M 1/10W	4010110552	R5118	1-216-073-00	RES-CHIP 10K 1/10W 4010110352
R937	1-216-017-91	RES-CHIP	47 1/10W	4010147052	R5119	1-249-425-11	CARBON 4.7K 1/4W 4050547255
R938	1-216-190-00	RES-CHIP	470 1/8W	4010847152	R5120		RES-CHIP 46.4K 1/10W 419A150222
R939	1-216-190-00	RES-CHIP	470 1/8W	4010847152	R5121	1-249-429-11	CARBON 10K 1/4W 4050510355
R940	1-216-222-00	RES-CHIP	10K 1/8W	4010810352	R5122	1-227-378-11	METAL CHIP 56.2K 1/10W 419A156222
R941	1-216-166-00	RES-CHIP	47 1/8W	4010847052	R5123	1-216-073-00	RES-CHIP 10K 1/10W 4010110202
R942	1-216-166-00	RES-CHIP	47 1/8W	4010847052	R5124	1-247-807-31	CARBON 100 1/4W 4050510155
R943	1-249-417-11	CARBON	1K 1/4W	4050510255	R5125	1-247-822-11	CARBON 430 1/4W 4050543155
R944	1-216-190-00	RES-CHIP	470 1/8W	4010847152	R5126		RES-CHIP 200 1/8W 4010820152
R945	1-249-401-11	CARBON	47 1/4W	4050547055	R5127	1-260-076-11	CARBON 10 1/2W 4050110055
R946	1-216-174-00	RES-CHIP	100 1/8W	4010810152	R5128	1-260-076-11	CARBON 10 1/2W 4050110055
R947	1-216-017-91	RES-CHIP	47 1/10W	4010147052	R5129	1-249-417-11	CARBON 1K 1/4W 4050510255
R948		RES-CHIP	1.4 1/10W	4010114202	R5130	1-216-073-00	RES-CHIP 10K 1/10W 4010110352
R949		CARBON	51K 1/4W	4050551355	R5131	1-216-268-00	RES-CHIP 820K 1/8W 4010882452
R950	1-216-114-00	RES-CHIP	510K 1/10W	4010151452	R5132	1-249-429-11	CARBON 10K 1/4W 4050510355
R951	1-249-425-11	CARBON	4.7K 1/4W	4050547255	R5133	1-216-059-00	RES-CHIP 2.7K 1/10W 4010127252
R952	1-216-017-91	RES-CHIP	47 1/10W	4010147052	R5134		METAL OXIDE 4.7 1W 4171247956
R953	1-216-073-00	RES-CHIP	10K 1/10W	4010110352	R5135	1-249-429-11	CARBON 10K 1/4W 4050510355
R954	1-216-065-91	RES-CHIP	4.7K 1/10W	4010147252	R5136	1-216-073-00	RES-CHIP 10K 1/10W 4010110352
R955	1-249-429-11	CARBON	10K 1/4W	4050510355	R5137	1-216-089-11	RES-CHIP 47K 1/10W 4010147352
R956	1-249-429-11	CARBON	10K 1/4W	4050510355	R5138	1-216-089-11	RES-CHIP 47K 1/10W 4010147352
R4001	1-216-029-00	RES-CHIP	150 1/10W	4010115152	R5139	1-216-025-11	RES-CHIP 100 1/10W 4010110152
R4003	1-249-429-11	CARBON	10K 1/4W	4050510355	R5140	1-247-822-11	CARBON 430 1/4W 4050543155
R4005	1-247-862-11	CARBON	20K 1/4W	4050520355	R5141	1-249-429-11	CARBON 10K 1/4W 4050510355
R4006	1-249-441-11	CARBON	100K 1/4W	4050510455	R5142	1-244-258-11	METAL OXIDE 100 2W 4172010153
R4007	1-249-440-11	CARBON	82K 1/4W	4050582355	R6001	1-247-804-11	CARBON 75 1/4W 4050510155
R4008	1-247-844-11	CARBON	3.6K 1/4W	4050536255	R6002	1-247-812-11	CARBON 160 1/4W 4050516155
R4009	1-216-025-11	RES-CHIP	100 1/10W	4010110152	R6003	1-249-411-11	CARBON 330 1/4W 4050533155
R4110	1-244-257-11	METAL OXIDE 30	2W	4172030053	R6004	1-244-249-11	METAL 3.4K 1/4W 4257043401
R4111	1-247-860-11	CARBON	16K 1/4W	4050516355	R6005	1-244-248-11	METAL 3.16K 1/4W 4257043161
R4112	1-249-429-11	CARBON	10K 1/4W	4050510355	R6006	1-249-429-11	CARBON 10K 1/4W 4050510355
R4113	1-249-438-11	CARBON	56K 1/4W	4050556355	R6007	1-247-807-31	CARBON 100 1/4W 4050510155
R4114	1-216-080-00	RES-CHIP	20K 1/10W	4010120352	R6008	1-249-409-11	CARBON 220 1/4W 4050522155



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

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

REF.NO.	PART NO.	DESCRIPTION	REMARK
R6009	1-244-259-11	METAL OXIDE 27K	4172027353
R6010	1-216-606-11	RES-CHIP 13 1/10W	4010113052
R6011	1-216-097-11	RES-CHIP 100K 1/10W	4010110402
R7000		RES-CHIP 18 1/10W	4010118052
R7001		RES-CHIP 18 1/10W	4010118052
R7002	1-249-419-11	CARBON 1.5K 1/4W	4050515255
R7003	1-216-073-00	RES-CHIP 10K 1/10W	4010110202
R7004	1-216-073-00	RES-CHIP 10K 1/10W	4010110202
R7005	1-216-073-00	RES-CHIP 10K 1/10W	4010110202
R7006	1-216-073-00	RES-CHIP 10K 1/10W	4010110352
R7007	1-216-073-00	RES-CHIP 10K 1/10W	4010110202
R7008	1-216-073-00	RES-CHIP 10K 1/10W	4010110202
R7009	1-216-073-00	RES-CHIP 10K 1/10W	4010110202
R7010	1-216-073-00	RES-CHIP 10K 1/10W	4010110202
R7011	1-216-049-11	RES-CHIP 1K 1/10W	4010110252
R7012	1-216-049-11	RES-CHIP 1K 1/10W	4010110252
R7013	1-216-049-11	RES-CHIP 1K 1/10W	4010110252
R7014	1-216-049-11	RES-CHIP 1K 1/10W	4010110252
R7015	1-216-097-11	RES-CHIP 100K 1/10W	4010110402
R7016	1-234-471-11	RES, NETWORK15k	4082071535
R7017	1-234-472-11	RES, NETWORK15k	4082081535
R7018	1-216-121-11	RES-CHIP 1M 1/10W	4010110552
R7019	1-216-121-11	RES-CHIP 1M 1/10W	4010110552
R7020	1-216-121-11	RES-CHIP 1M 1/10W	4010110552
R7022	1-216-061-00	RES-CHIP 3.3K 1/10W	4010133252
R7024		RES-CHIP 0 1/10W	4010100052
R7025	1-216-097-11	RES-CHIP 100K 1/10W	4010110402
R7026	1-216-061-00	RES-CHIP 3.3K 1/10W	4010133252
R7028	1-216-612-11	RES-CHIP 24 1/10W	4010124052
R7029	1-216-612-11	RES-CHIP 24 1/10W	4010124052
R7030	1-216-612-11	RES-CHIP 24 1/10W	4010124052
R7031	1-216-612-11	RES-CHIP 24 1/10W	4010124052
R7032	1-216-612-11	RES-CHIP 24 1/10W	4010124052
R7033	1-216-612-11	RES-CHIP 24 1/10W	4010124052
R7034	1-216-612-11	RES-CHIP 24 1/10W	4010124052
R7035	1-216-612-11	RES-CHIP 24 1/10W	4010124052
<RELAY>			
RY501	1-755-423-11	RELAY	4420412017
RY601	Δ 1-775-031-11	RELAY	4420612014
<SWITCH>			
SW601		POWER SWITCH (POWER)	4410202010
<SPARK GAP>			
SG501	1-519-422-11	GAP, SPARK	5106152204
<TRANSFORMER>			
T501	Δ 1-453-362-11	TRANSFORMER, FLYBACK	7050309R00

REF.NO.	PART NO.	DESCRIPTION	REMARK
T502	1-435-986-11	DRIVER TRANSFORMER	7050209A20
T503	1-435-984-11	TRANSFORMER, O/P	7050909R00
T504		FOCUS TRANSFORMER	7050509R6E
T601	Δ 1-435-985-11	TRANSFORMER, DRIVER	7051329R00
T603	Δ 1-435-987-11	POWER TRANSFORMER	7050109R00
T6000		USB POWER TRANSFORMER	7050159R00
<THERMISTOR>			
TH601	Δ	THERMISTOR	7108010038
TH602	Δ 1-803-963-11	THERMISTOR, PTC	7106070027
<VARISTOR>			
VA601	Δ 1-804-303-11	VARISTOR	7112604710
VA603	Δ 1-804-303-11	VARISTOR	
<VARIABLE RESISTOR>			
VR501	Δ	RES, ADJ, CERMET 100K (HV ADJ)	52241104E4
<CRYSTAL>			
X901	1-781-365-11	VIBRATOR, CRYSTAL (24MHz)	7152400010
X7000	1-433-799-11	VIBRATOR, CRYSTAL (6MHz)	7156000014

* A-1372-920-A H BOARD, COMPLETE *****			
<LED>			
LED701		DIODE LT6463-23-D51 (POWER)	4120664630
<RESISTOR>			
R701	1-244-177-11	METAL 2.15K	4257042151
R702	1-244-253-11	METAL 10.2K	4257041022
R705	1-244-180-11	METAL 6.19K	4257046191
R706	1-244-178-11	METAL 3.83K	4257043831
R707	1-249-413-11	CARBON 470 1/4W	4050547155
R708	1-249-413-11	CARBON 470 1/4W	4050547155
R709	1-249-431-11	CARBON 15K 1/4W	4050515355
<SWITCH>			
SW701	1-771-734-11	SWITCH, TACTILE (MENU)	4410606000
