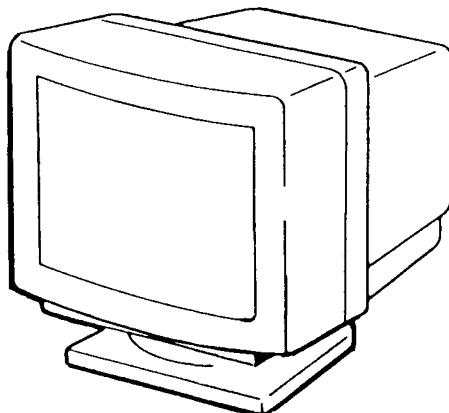


CPD-1604S/1604SA

SERVICE MANUAL REVISED

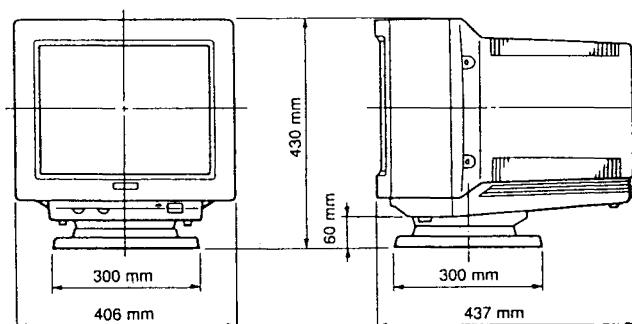
US Model
Canadian Model
Chassis No. SCC-E72A-A



Multiscan

SPECIFICATIONS

Picture tube	Super Fine Pitch Trinitron color tube 17-inch (16 V) picture tube measured diagonally 90 degree deflection Anti-glare dark screen Phosphor P22 0.25 mm Aperture Grille Pitch	Dimensions	430(H) x 406(W) x 437(D) mm (17 x 16 x 17 1/4 inches)
Viewable pixels	1024 x 768		
Scanning frequency	Vertical sync signal frequency: 50 - 87 Hz Horizontal sync signal frequency: 28 - 57 kHz		
Video input signal	Analog RGB positive 0.714 Vp-p/75Ω terminated		
Sync input	TTL level. Polarity free. Composite sync is acceptable at Pin # 8. Sync on green is acceptable.		
Power requirements	100-120 V AC, Max. 2.0 A, 50-60 Hz 220-240 V AC, 1.0 A, 50-60 Hz	Weight	Approx. 20 kg Including the tilt-swivel
		Supplied accessory	AC power cord (1)



Design and specification subject to change without notice.

MULTISCAN®
COLOR COMPUTER DISPLAY
SONY®



MICROFILM

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

Dangerously high voltage is present inside the unit. Do not open the cabinet. Refer servicing to qualified personnel only.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

"You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment."

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SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO 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 TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDICÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. 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.

SAFETY CHECK-OUT (US Model Only)

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 cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.

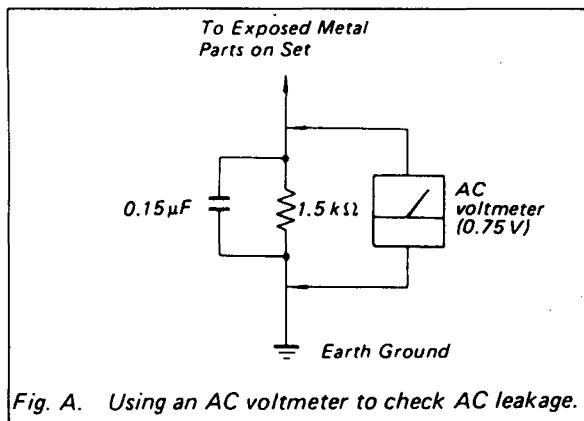


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 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 VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A.)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B.)

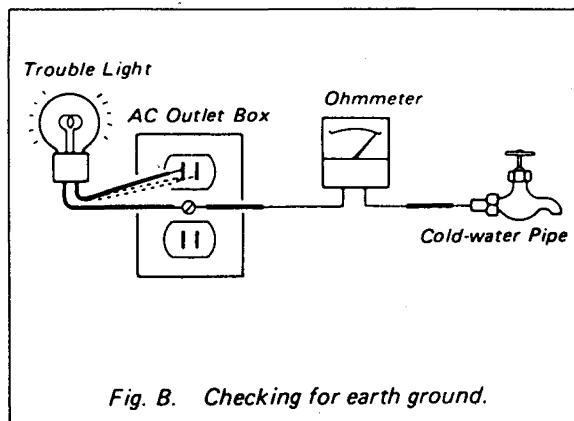
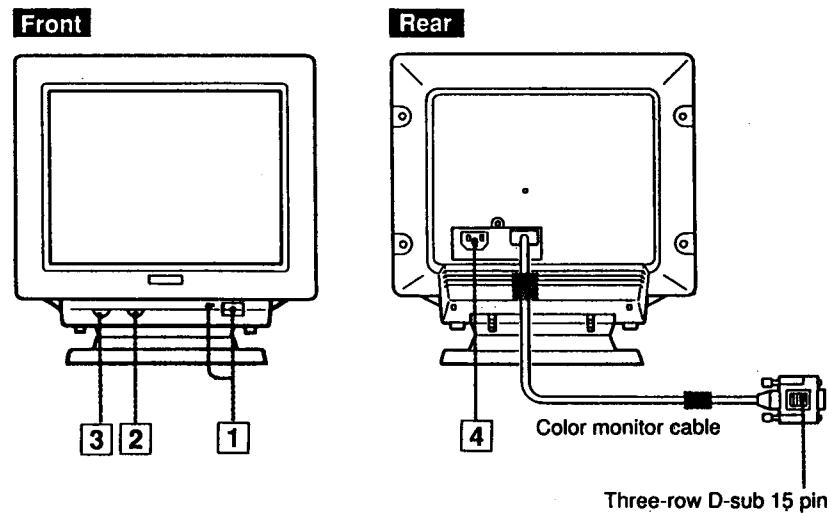


Fig. B. Checking for earth ground.

SECTION 1 GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS



[1] POWER switch and indicator

To turn on the power of the unit, press this switch. The indicator will light up. To turn off the unit, press it again.

[2] CONTRAST control (○)

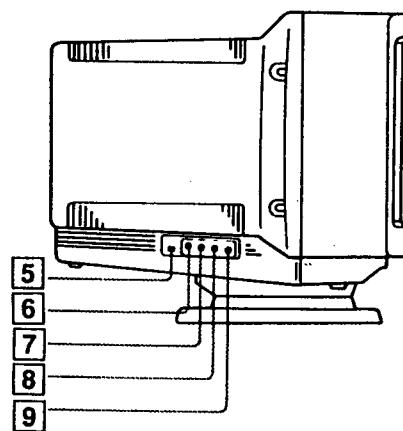
Turn clockwise to increase contrast, or counterclockwise to decrease contrast.

[3] BRIGHTNESS control (○)

Turn clockwise for a brighter display, or turn counterclockwise for a darker display.

[4] AC IN connector

Connect to an AC outlet with the supplied AC power cord.



[5] AUTO SIZE switch

Depending on the microcomputer connected to the display, set this switch to the appropriate position.

LOCK: For the IBM PS/2 microcomputer using the VGA mode.

When this switch is set to LOCK, the timing is automatically adjusted to the VGA mode, and the H SIZE, H SHIFT, V SIZE and V CENT controls will have no effect.

ADJ: For other microcomputers having analog RGB output.

When this switch is set to ADJ, adjust the display with the H SIZE, H SHIFT, V SIZE and V CENT controls.

[6] H SIZE (horizontal size) control

Turn this control to adjust the horizontal size of the display.

[7] H SHIFT (horizontal shift) control

Turn this control to adjust the center of the display horizontally.

[8] V SIZE (vertical size) control

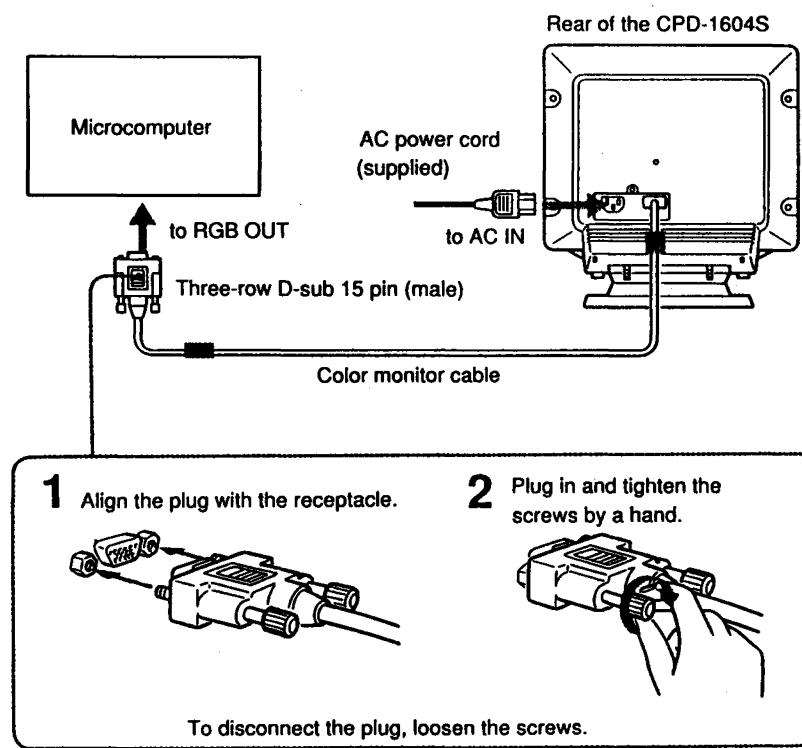
Turn this control to adjust the vertical size of the display.

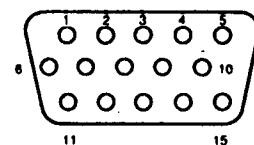
[9] V CENT (vertical center) control

Turn this control to adjust the center of the display vertically.

1-2. CONNECTIONS

Connect the power cord and the color monitor cable.
Be sure to turn the power of the unit off before making the connection.

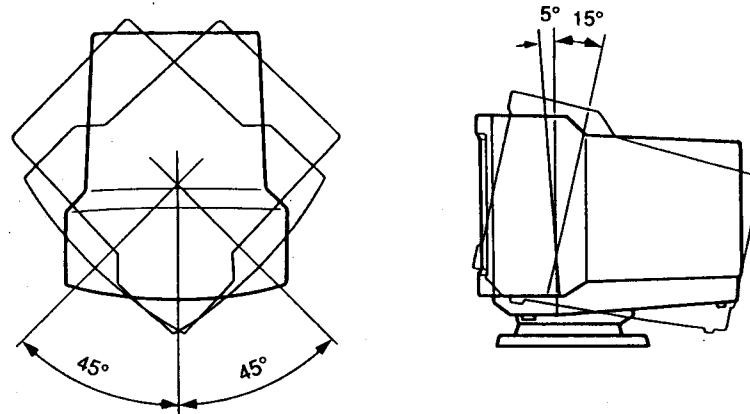


RGB Input Pin Assignment

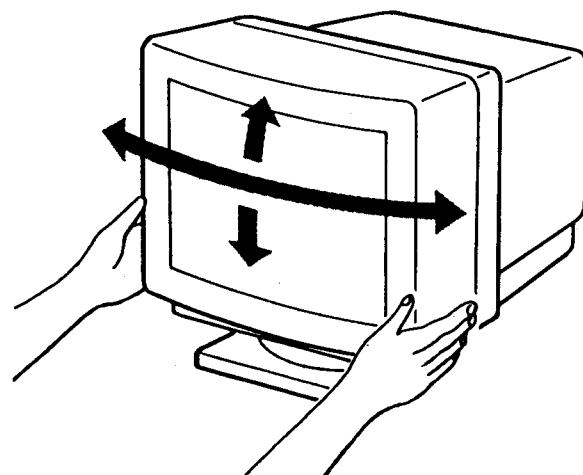
1	2	3	4	5	6	7	8	9
R	G	B	GND	FLG	GND	GND	GND	-
10	11	12	13	14	15			
GND	GND	-	H SYNC	V SYNC	-			

1-3. USE OF THE TILT-SWIVEL

With the tilt-swivel, this unit can be adjusted to be viewed at your desired angle within 90° horizontally and 20° vertically.



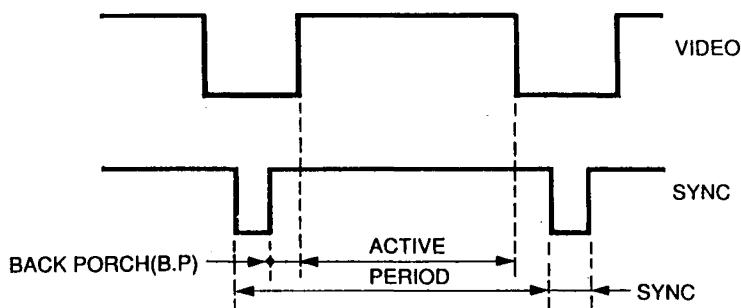
To turn the unit horizontally, hold it at its bottom with both hands as illustrated below.



1-4. TIMING CHART

The following timing chart shows approximate values.

MONITOR ACCEPTABLE TIMING EXAMPLE



① VGA

		1	2	3
FREQ.	H (kHz)	31.47	31.47	31.47
	V (Hz)	70.1	70.1	59.9
H	PERIOD (μS)	31.78	→	→
	SYNC	3.81		
	B.P.	1.91		
	ACTIVE	25.42		
V	PERIOD (H)	449	449	525
	SYNC	2	2	2
	B.P.	34	59	32
	ACTIVE	400	350	480
SYNC POLARITY	H	NEGA	POSI	NEGA
	V	POSI	NEGA	NEGA
CLOCK FREQ.	(MHz)	25.175	25.175	25.175

② 1024 × 768 interface (fh = 35.52 kHz/fv = 87 Hz)

FREQ.	H (kHz)	35.52
	V (Hz)	87.0
H	PERIOD (μS)	28.15
	SYNC	3.92
	B.P.	1.25
	ACTIVE	22.81
V	PERIOD (H)	408.5
	SYNC	4
	B.P.	20/20.5
	ACTIVE	384
SYNC POLARITY	H	POSI
	V	POSI
CLOCK FREQ.	(MHz)	44.900

①, ②: When the AUTO SIZE SW is in the LOCKED position, picture size is automatically adjusted for the above listed video modes (①, ②).

All sizing controls on the left side of the monitor are therefore ineffective.

To adjust sizing for other video modes, change the SW to ADJ and adjust the controls.

Polarity free with the timing ①, ② if the AUTO SIZE SW is not used.

- [3] 35 kHz non-interlace (example)
800 × 600

FREQ.	H (kHz)	35.16
	V (Hz)	56.0
H	PERIOD (μS)	28.44
	SYNC	3.11
	B.P	2.67
	DISPLAY	22.22
	CLOCK FREQ.	(MHz) 36.000

- [4] 48 kHz non-interlace (example)
1024 × 768

FREQ.	H (kHz)	48.780
	V (Hz)	60.00
H	PERIOD (μS)	20.500
	SYNC	1.500
	B.P	2.000
	DISPLAY	16.000
	CLOCK FREQ.	(MHz) 64.000

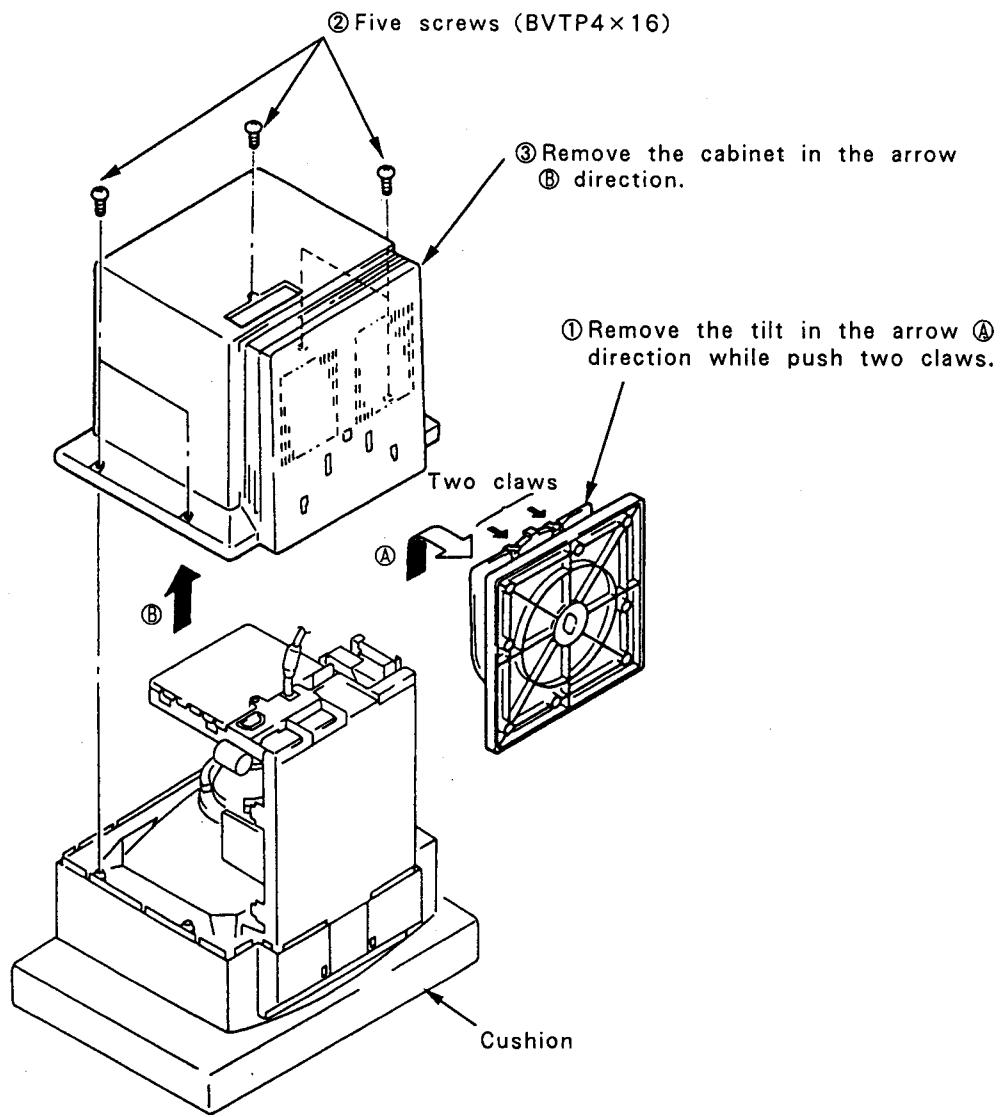
[3], [4]: SYNC POLARITY FREE

- [5] 57 kHz non-interlace
1024 × 768

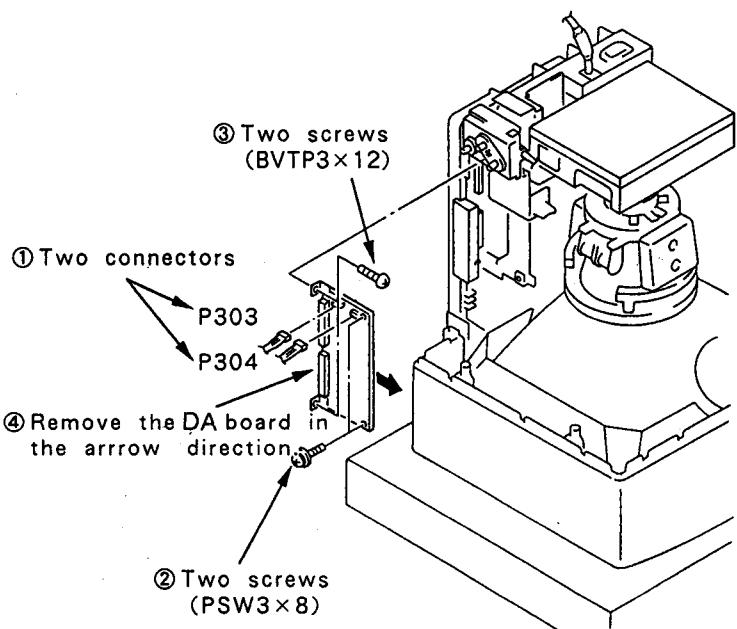
FREQ.	H (kHz)	56.476
	V (Hz)	70.069
H	PERIOD (μS)	17.707
	SYNC	1.813
	B.P	1.920
	ACTIVE	13.653
	CLOCK FREQ.	(MHz) 75.000

SECTION 2 DISASSEMBLY

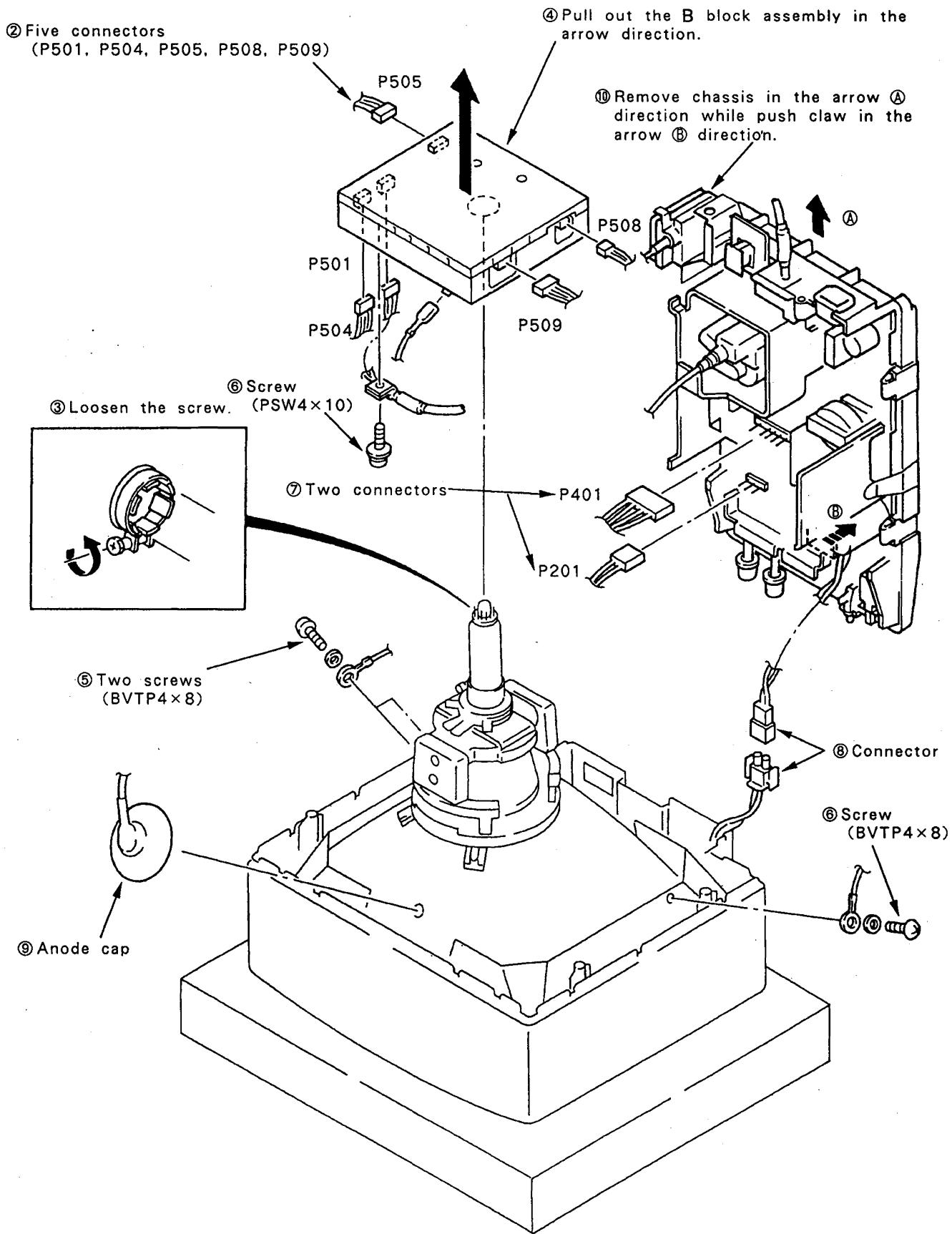
2-1. TILT AND CABINET REMOVAL



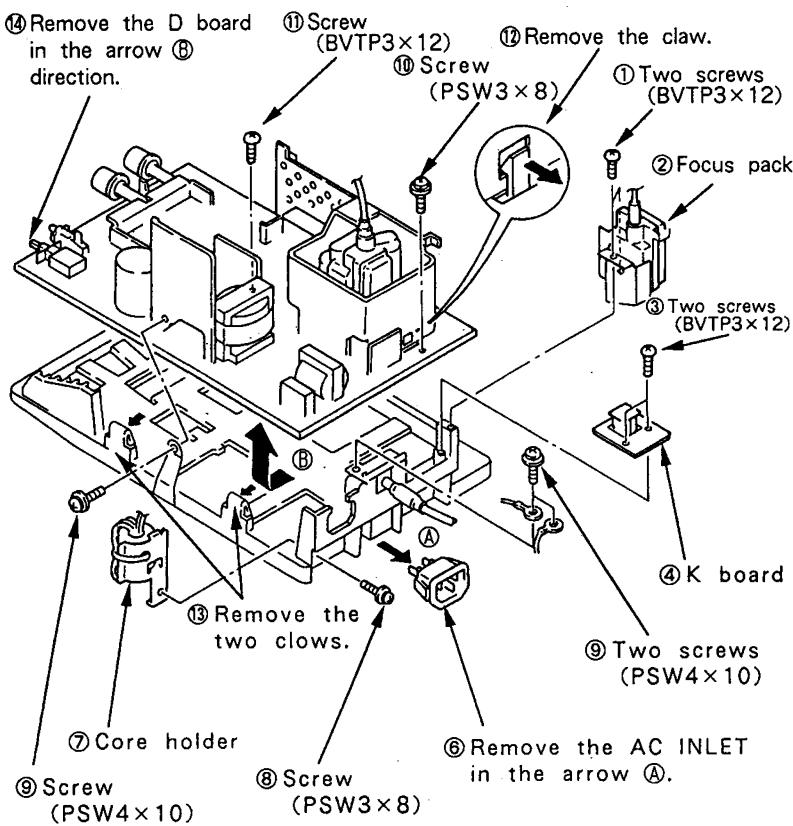
2-2. DA BOARD REMOVAL



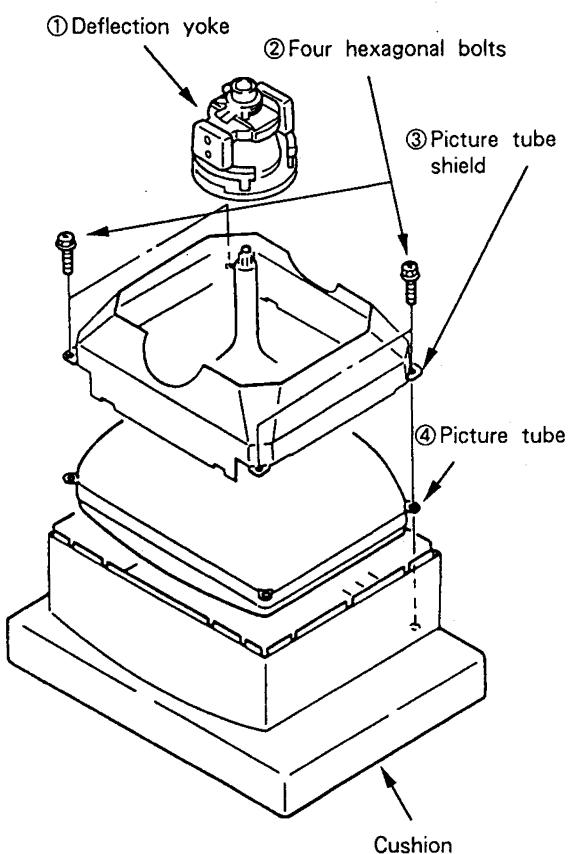
2-3. CHASSIS AND B BLOCK ASSEMBLY REMOVAL



2-4. D BOARD REMOVAL



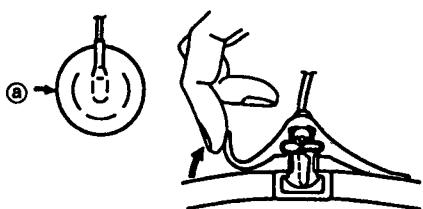
2-5. PICTURE TUBE REMOVAL



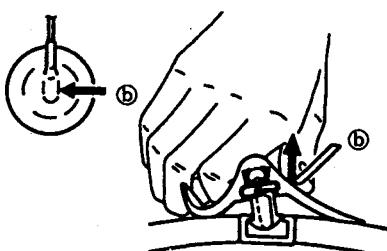
• REMOVAL OF ANODE-CAP

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

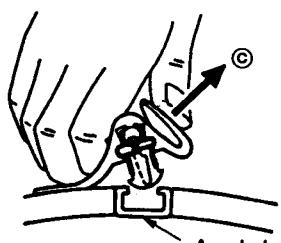
• REMOVING PROCEDURES



- ① Turn up one side of the rubber cap in the direction indicated by the arrow ④.



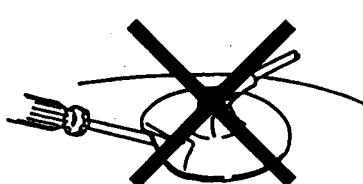
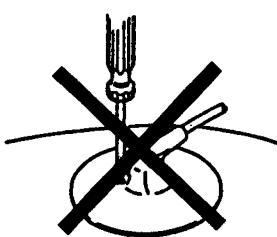
- ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⑤.



- 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 ⑥.

• HOW TO HANDLE AN ANODE-CAP

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



SECTION 3

SET-UP ADJUSTMENT

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

The control and switch below should be set as follows unless otherwise noted :

CONTRAST control 80%
BRIGHTNESS control 50%

Perform the adjustments in order as follows :

3-1. Beam Landing

3-2. Convergence

3-3. Focus

3-4. White Balance

Note : Test Equipment Required.

- Signal generator : VG807, VG809 ... etc
(Astro Design)
- Color Analyzer
- Degausser

Preparation

- Face the PICTURE TUBE to east or west so as not to be influenced by magnetic force.
- Turn ON the POWER switch, and degauss the entire screen with degausser.

3-1. BEAM LANDING

1. Receive a signal of 480 LINE ($f_H=31$ kHz) with signal generator.
2. Adjust the white balance, convergence and focus coarsely, and then set purity controls to center position as shown in Fig. 3-1.
3. Switch over the signal generator to green.
4. Move the deflection yoke backward, and adjust purity magnet so that the green on the screen to become in the center of screen as shown in Fig. 3-2.
5. Move the deflection yoke forward, and adjust with so that the entire screen to become green entirely.
6. Switch over the signal to blue and green, and confirm the condition.
7. When landing at the corners is not right, correct by using the magnet (Fig. 3-3).

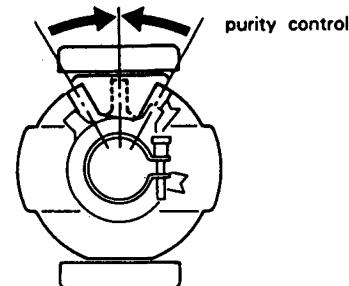


Fig. 3-1

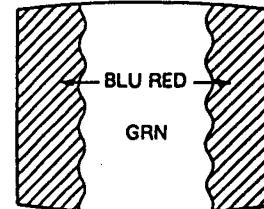


Fig. 3-2

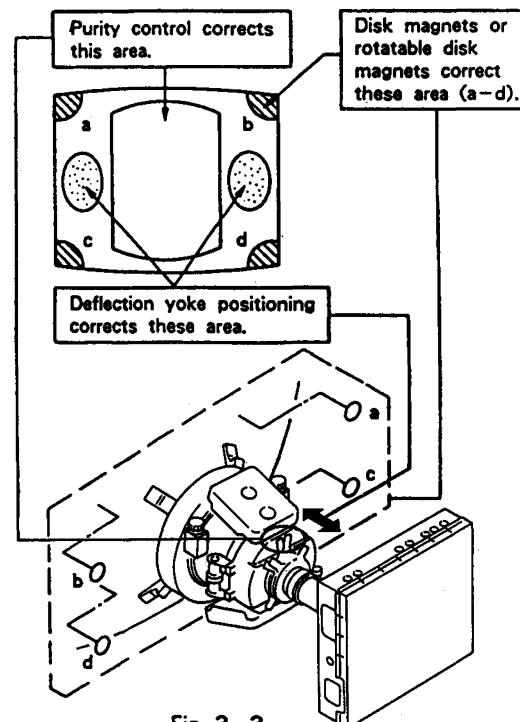
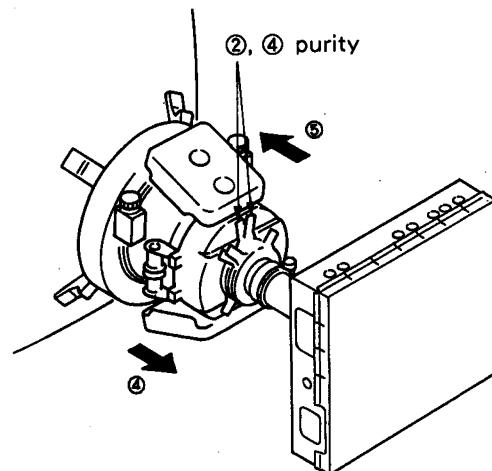


Fig. 3-3

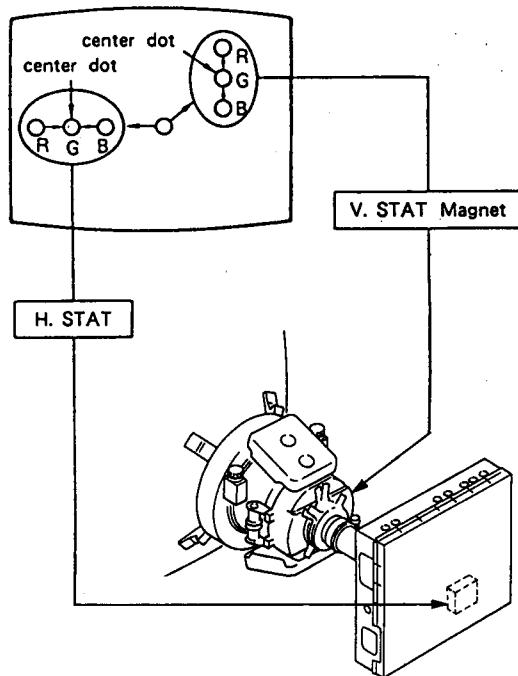


3-2. CONVERGENCE

(1) Horizontal and Vertical Static Convergence Adjustment on the Center of Screen.

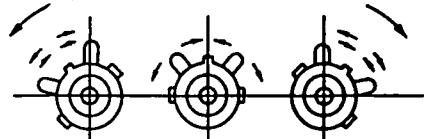
- Before starting, perform V. SIZE, V. CENT, H. SIZE, H. CENT and Screen Distortion adjustment rightly.
- (Static Convergence Adjustment)**

 - Receive a dot signal and Set CONTRAST to normal. (48kHz)
 - Adjust H. STAT VR to coincide red, green and blue dots on the center of screen. (Horizontal movement)
 - Adjust V. STAT magnet to coincide red, green and blue dots on the center of screen. (Vertical movement)



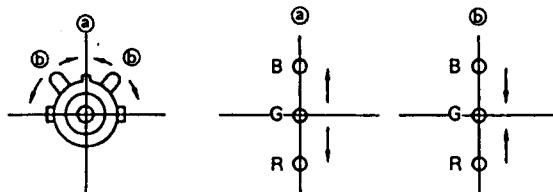
※ If the red, green and blue dots do not coincide on the center of screen with H. STAT VR, perform adjustment using V. STAT at the same time while tracking.

(Tilt the V. STAT magnet and adjust static convergence to open or close the V. STAT magnet.)

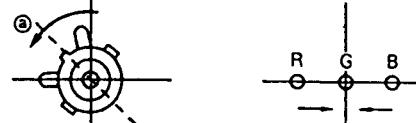


- When the V. STAT magnet is moved in the direction of arrow ④ and ⑤, red, green and blue dots move as shown below.

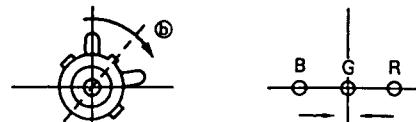
- ① When moving the V. STAT Magnet open or close.



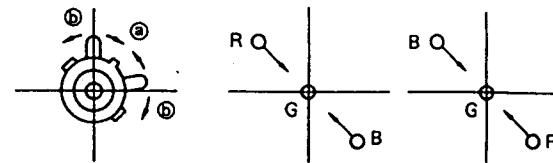
- ② When moving the V. STAT magnet counterclockwise.



- ③ When moving the V. STAT magnet clockwise.



- ④ When tilt the V. STAT magnet and open or close.

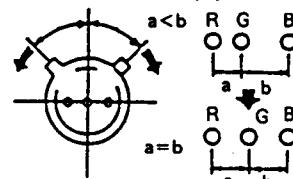


※ If the red and green dots do not coincide with blue dot, adjustment with BMC (6-poles) magnet.

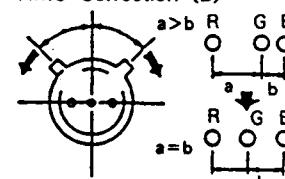
- HMC and VMC correction for BMC (6-Poles) magnet.

1. HMC (Horizontal Misconvergence) correction and motion of the Electron Beam with the BMC (6-poles) magnet.

HMC Correction (A)

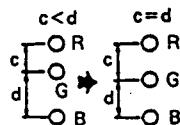
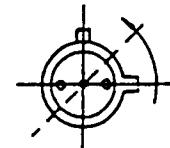


HMC Correction (B)

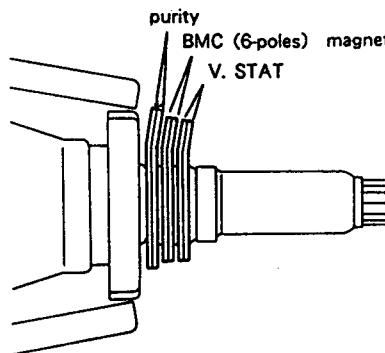
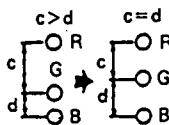
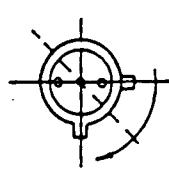


2. VMC (Vertical Misconvergence) correction and motion of the Electron Beam with the BMC (6-poles) magnet.

VMC Correction (A)



VMC Correction (B)



- Adjust XBV misconvergence with XBV reactor (the one on the right and front as seen from the CRT funnel).
- Adjust XCV misconvergence with XCV reactor (the one on the right and rear as seen from the CRT funnel).

Note :

- * When XCV is too large to correct, adjust with the deflection yoke vertical neck swing.
- * For XBV correction, re-adjust H. SIZE.
- Adjust H. AMP with APH reactor (the one on the left and front as seen from the CRT funnel).
- Adjust H. TILT with TLH reactor (the one on the left and rear as seen from the CRT funnel).

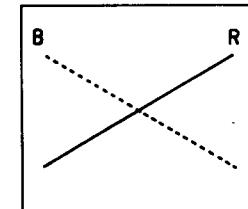
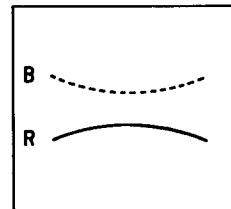
Note :

- Re-adjust H. STAT tool. If there is still horizontal tilt, adjust it by swinging the neck right and left.
For H. AMP correction, re-adjust H. SIZE.
- Adjust YCH misconvergence with VR YH on the deflection yoke (the one on the top and rear as seen from the CRT funnel).
 - Adjust the upper and lower TLV with VR YY on the deflection yoke (the one on the top and front as seen from the CRT funnel).

XCV misconvergence
When turning it clockwise, lines move as shown in the figure.

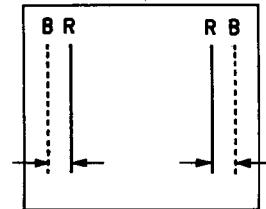
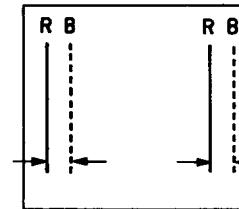
When turning it counter-clockwise, the contrary misconvergence appears.

XBV misconvergence

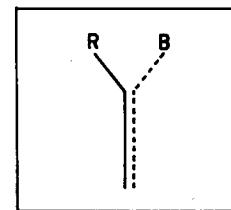


- H. TILT misconvergence
When turning it clockwise, lines move as shown in the figure.
When turning it counter-clockwise, the contrary misconvergence appears.

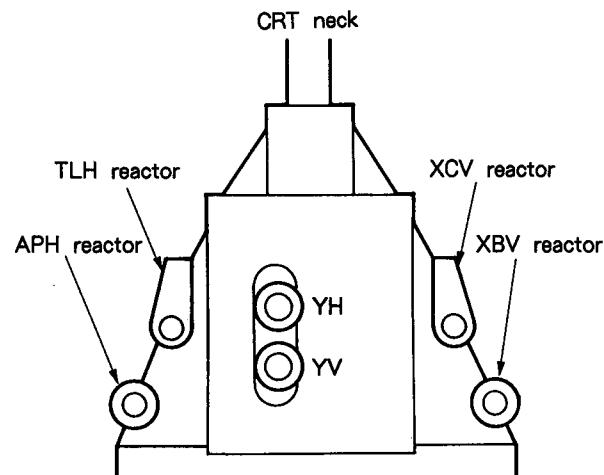
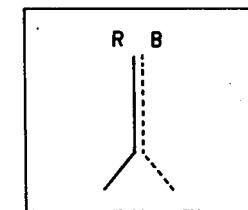
H. AMP misconvergence



YBH (TOP) misconvergence



YBH (BOTTOM) misconvergence

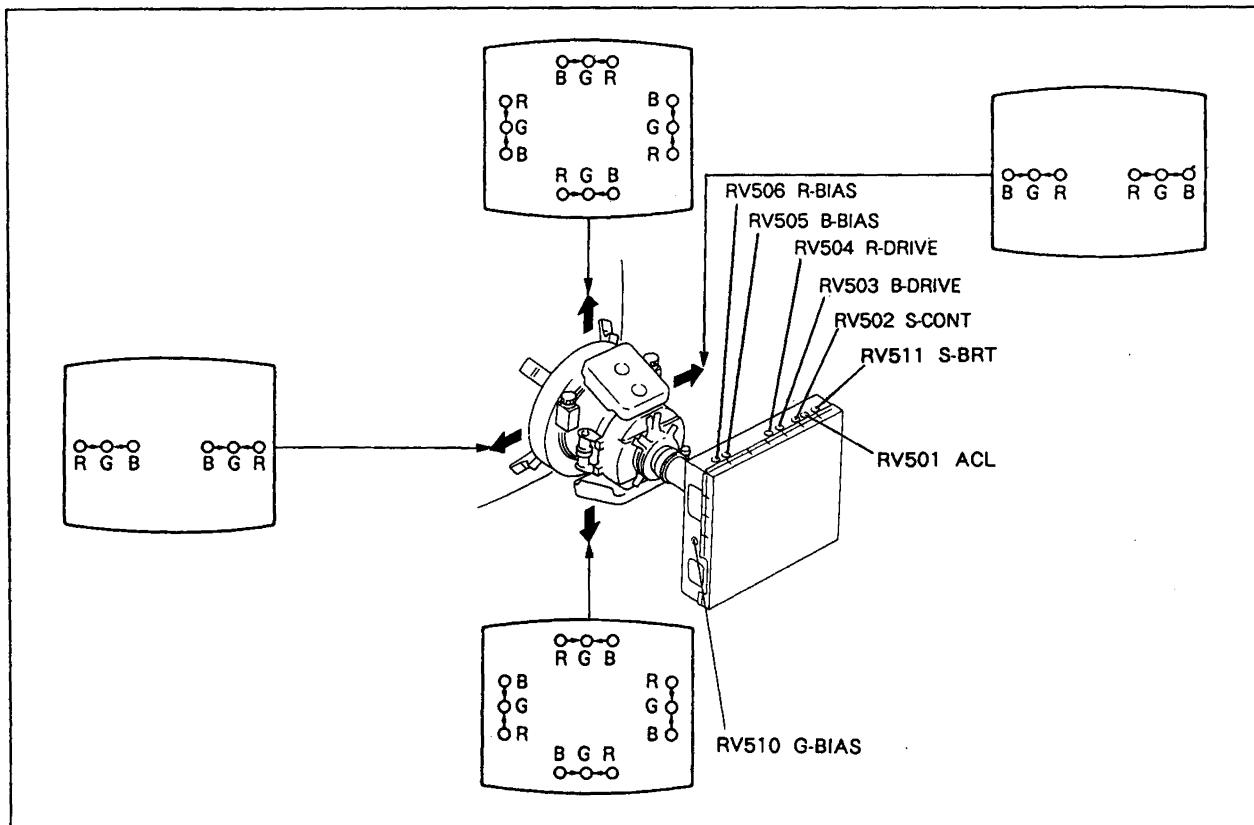
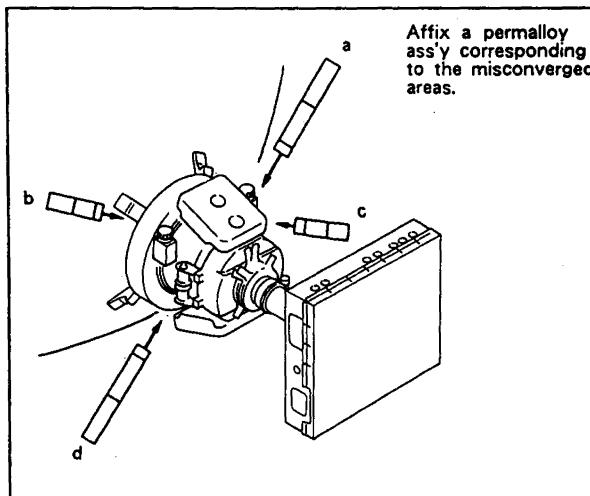
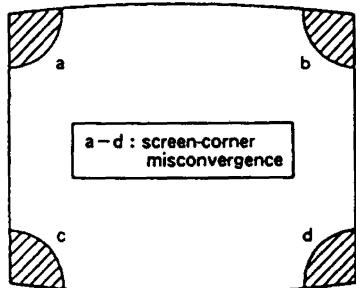


(2) Horizontal and Vertical Dynamic Convergence

Adjustment the environs of the Screen

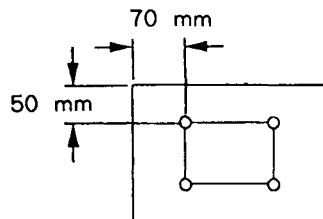
(Dynamic Convergence Adjustment)

1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

**(3) Screen-corner Convergence**

3-3. FOCUS ADJUSTMENT

1. Turn the signal to 48kHz MODE.
2. Receive a dot signal.
3. Adjust FOCUS VR so that the following figure point for best focus. (H. V tracking)



3-4. WHITE BALANCE

Check that the size, position, distortion, and convergence have been adjusted, and that aging has been carried out for more than thirty minutes.

1. Receive the VGA GRAPHICS MODE ($f_H = 31.5$ kHz, 480 LINE).
2. Set the VRs as follows.

BRT	RV205	CENT
CONT	RV204	MAX
SUB-CONT	RV502	CENT
SUB-BRT	RV511	CENT
R-DRIVE	RV504	CENT
B-DRIVE	RV503	CENT
R-BIAS	RV506	MIN
G-BIAS	RV510	MIN
B-BIAS	RV505	MIN
ACL	RV501	MAX

3. Check that the size is as specified. After checking, change the VIDEO to a non signal.
Horizontal 300 mm
Vertical 225 mm
4. Use the SCREEN VR (attached to the FOCUS PACK) to display raster.
Use R,G,B-BIAS VR to adjust any 1 ch VR to MIN, and adjust so that it becomes almost white ($X = 0.283$, $Y = 0.298$ approx. ± 0.05).
5. Use the SCREEN VR to adjust the raster to 3 unit at CONT MAX and BRT MAX.
6. Receive the VGA 31.5 kHz, 480 LINE, VIDEO 0.714 Vp-p ± 0.002 .
7. Receive the white 6% output image rate, adjust the R, B-DRIVE VR so that the white balance becomes $X = 0.283$, $Y = 0.298$ and adjust the SUB-CONT VR so that the luminance becomes 135 nit.

8. Adjust the CONTRAST VR to MIN, and obtain the white balance at luminance 5 nit using R, G, B-BIAS VR.

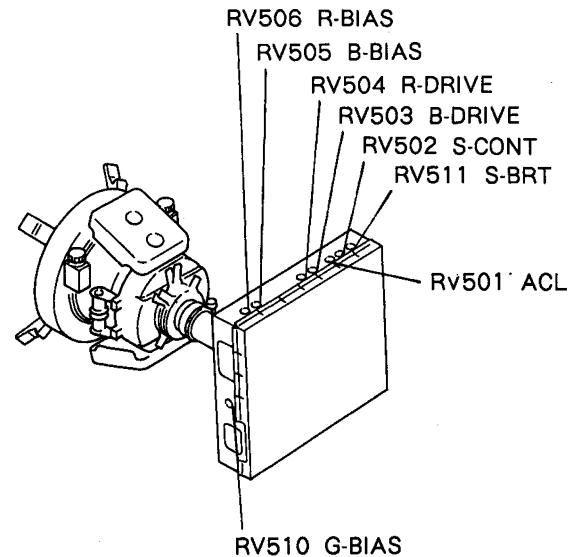
$$X = 0.283, Y = 0.298$$

(Decrease it using the BRIGHT VR if luminance 10 nit cannot be obtained.)

9. Repeat steps 7 to 8, and obtain the white balances at 135 nit and 5 nit.
10. Receive the VIDEO non-signal, check that the raster is CUT-OFF with BRT CENTER, CONT MAX.
11. Receive the all white signal (VGA 31.5 Hz, 480 LINE), and adjust ACL VR (RV501) so that the luminance becomes 95 ± 10 nit at both BRT MAX and CONT MAX.

3-5. BRIGHT CONTROLLABLE CONFIRMATION

1. Input a signal of 480 LINE ($f_H = 31.5$ kHz, entire-white, 0.714 Vp-p).
2. CONTRAST control maximum
3. Confirm the variation of luminance signal when controlling BRIGHT volume as follows.
 - 1) Confirm the difference of luminance signal on maximum position as compared with the center click position is more than +10 NIT.
 - 2) Confirm the difference of luminance signal on minimum position as compared with the center click position is less than -10 NIT.



**■ RV402, HV REGULATOR, HV HOLD-DOWN AND BEAM
LIMIT CIRCUIT CONFIRMATION**

When replacing the following components (marked with on the schematic diagram), make this confirmation.

D BOARD IC901, IC902, IC401, D930, C408, C409, C410, C411, C412, C414, C415, C422, R414, R434, R435, R441, T402 (FBT), T901, RV402, DY (Deflection Yoke)

DA (DC-1)

BOARD IC101, IC301, D303, R327, R388

1. HV REGULATOR CIRCUIT CONFIRMATION

- 1) Receive a signal of $f_n=48\text{kHz}$.
- 2) Set the CONT and BRIGHT controls to minimum. (Cut-Off condition).
- 3) Connect a digital multimeter to pin ② of P402 on D board.
- 4) Confirm the voltage is less than 6.48V DC.
- 5) If step 4) is not satisfied, adjust them with RV402.

2. HV HOLD-DOWN CIRCUIT CONFIRMATION

- 1) Receive a signal of $f_n=48\text{kHz}$.
- 2) Set the CONT and BRIGHT controls to minimum. (Cut-Off Condition).
- 3) Apply an external DC voltage gradually to pin ② of P402 on D board, confirm that the minimum voltage is less than 7.40 V DC whereby the HOLD-DOWN circuit operates immediately and raster disappears.

3. BEAM LIMITER CIRCUIT CONFIRMATION

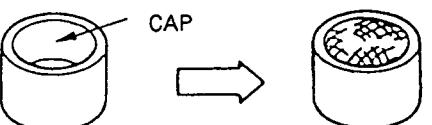
- 1) Receive a signal of $f_n=48\text{kHz}$.
- 2) Adjust CONT and BRIGHT controls so that the screen luminance to become 100 NIT.

(CONT control.....maximum
BRIGHT control.....center)

- 3) Connect a digital multimeter to pin ① of P402 on D board.
- 4) Confirm that the voltage is -2.80 ± 1.00 VDC
- 5) Apply an external DC voltage gradually to pin ① of P402 on D board, and when the voltage becomes more than -11.30V, confirm the BEAM-LIMITER circuit operates and raster disappears.

NOTE : After adjustment, cover on RV402 with seal cap as follows.

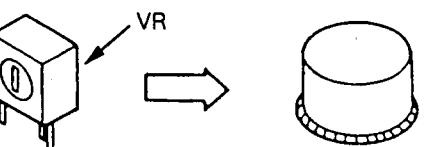
① Insert in seal cap with RTV (silicone) as follows.



• seal cap (3-710-578-01)

• RTV (KE-490, 7-322-065-19)

- ② Cover the seal cap on RV402, and make paste together silicone and printed board.



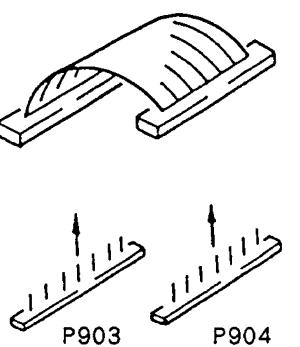
WARNING :
IF RV402 (sealed variable resistor) replacement is required, federal regulations require that after adjustment the control is to be sealed so no further adjustment can be made to this resistor.

OVP CIRCUIT CONFIRMATION

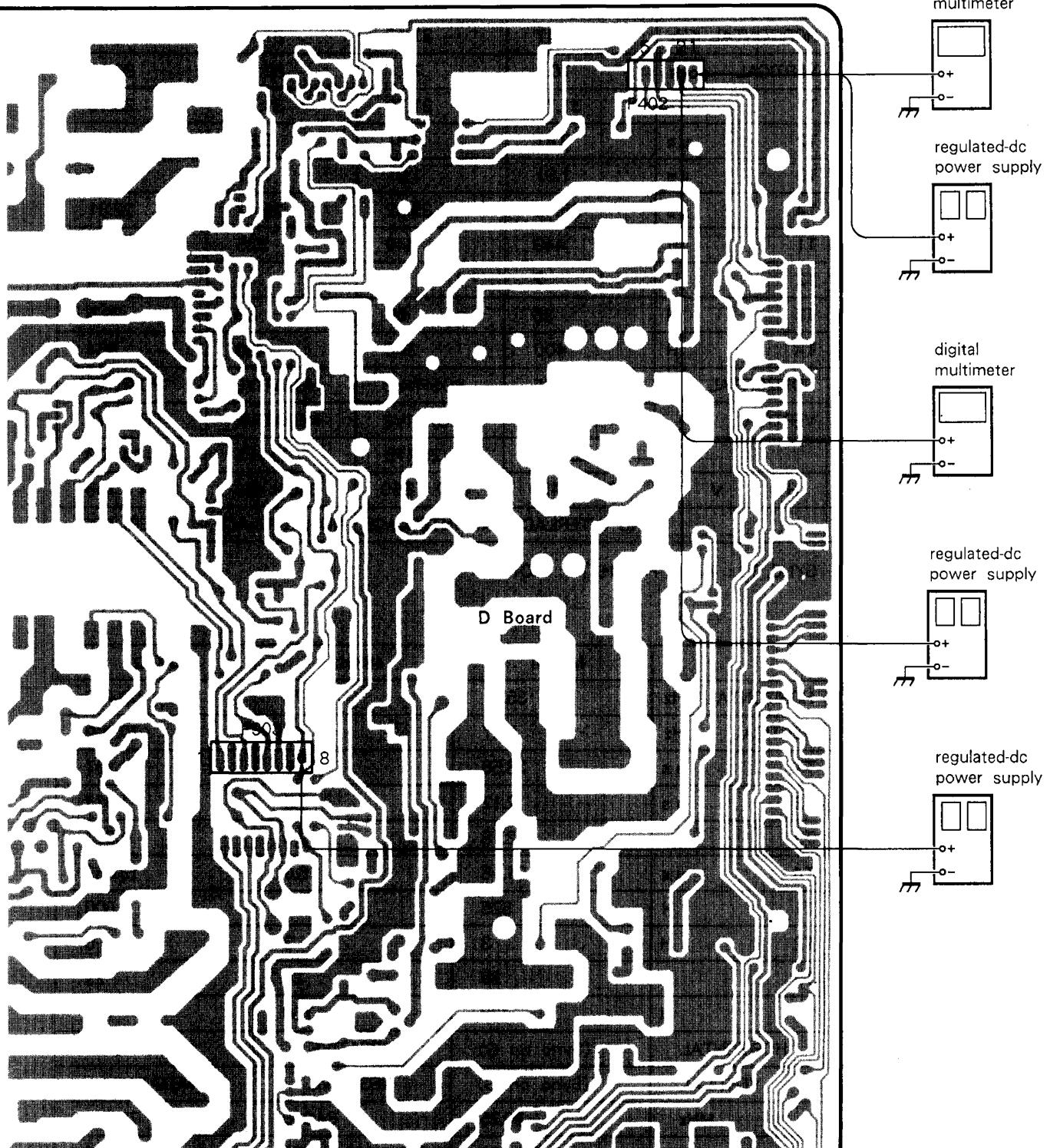
When replacing following components, perform this confirmation.

D BOARD Q901, R922, R923, D927, D928, D929

1. Turn OFF the POWER switch.
2. Remove P903 and P904 connectors from D board.



3. Apply an external DC voltage of less than 216.00V DC (SET UP THE CURRENT LIMITER TO 0.2 A) to pin ⑧ of P903 on D board for two second.
4. At the moment (item 3), confirm the OVP circuit operates immediately and an external DC voltage is drop by limiter operation.
5. If OVP circuit is not operate, check up Q901, R913, R914 and L906.



SECTION 5
CIRCUIT ADJUSTMENTS

		VGA 1	VGA 2	VGA 3	8514
FREQUENCY	HORIZONTAL KHz	31.47	31.47	31.47	35.5
	VERTICAL Hz	70.1	70.1	59.94	86.96
HORIZONTAL	T1 μs	31.78	31.78	31.78	28.15
	T2 μs	3.81	3.81	3.81	3.92
	T3 μs	1.91	1.91	1.91	1.25
	T4 μs	25.42	25.42	25.42	22.81
VERTICAL	T1 H	449	449	525	408.5
	T2 H	2	2	2	4
	T3 H	35	60	33	20.5
	T4 H	400	350	480	384
SYNC POLARITY	HORIZONTAL	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE
	VERTICAL	POSITIVE	NEGATIVE	NEGATIVE	POSITIVE
CLOCK	MHz	25.175	25.175	25.175	44.900
RESOLUTION	H × V	640 × 400	640 × 350	640 × 480	1024 × 768
MODE		NO INTERLACE	NO INTERLACE	NO INTERLACE	INTERLACE

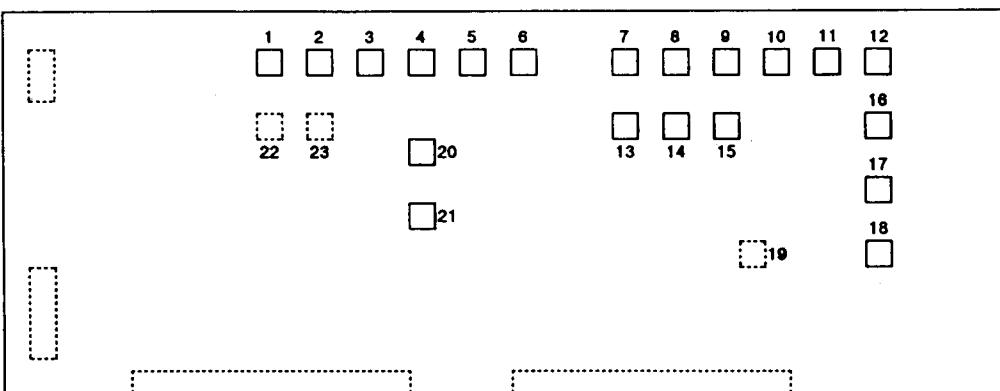
T1 : PERIODE, T2 : SYNC, T3 : BACK PORCH, T4 : ACTIVE

		Mac II	48KHz	57KHz
FREQUENCY	HORIZONTAL KHz	35.01	48.78	56.476
	VERTICAL Hz	66.7	60	70.069
HORIZONTAL	T1 μs	28.56	20.5	17.707
	T2 μs	2.12	1.5	1.813
	T3 μs	3.16	2.0	1.920
	T4 μs	21.16	16.0	13.653
VERTICAL	T1 H	525	813	806
	T2 H	3	3	6
	T3 H	39	39	29
	T4 H	480	768	768
SYNC POLARITY	HORIZONTAL	(Sync on G)	NEGATIVE	NEGATIVE
	VERTICAL	(Sync on G)	NEGATIVE	NEGATIVE
CLOCK	MHz	30.25	64.000	75.000
RESOLUTION	H × V	640 × 480	1024 × 768	1024 × 768
MODE		NO INTERLACE	NO INTERLACE	NO INTERLACE

T1 : PERIODE, T2 : SYNC, T3 : BACK PORCH, T4 : ACTIVE

5-1. DA (DC-1) VR POSITION

DA (DC-1) VR POSITION



No.	Adjustment	Reference	Settings during VGA switch locked
1	SIDE PIN (L)	RV307	
2	SIDE PIN (H)	RV310	
3	PARA CORE	RV308	
4	PIN PHASE	RV309	
5	PIN UP	RV313	
6	PIN BAL	RV311	
7	HORIZONTAL POSITION (L)	RV304	(LOCK)
8	HORIZONTAL SIZE (L)	RV306	(LOCK)
9	VERTICAL SIZE (L ₁)	RV252	480 LINE (LOCK)
10	VERTICAL SIZE (L ₂)	RV253	400 LINE (LOCK)
11	VERTICAL SIZE (L ₃)	RV254	350 LINE (LOCK)
12	VERTICAL POSITION	RV255	
13	HORIZONTAL POSITION (M)	RV303	during receiving 8514 (LOCK)
14	HORIZONTAL SIZE (M)	RV305	during receiving 8514 (LOCK)
15	VERTICAL SIZE (M)	RV251	during receiving 8514 (LOCK)
16	User VR setting (1)	RV257	
17	User VR setting (2)	RV256	
18	User VR H size maximum value setting	RV312	
19	20V setting	RV314 (*)	
20	F ₀ setting (FH = Max)	RV301	
21	F ₀ setting (FH = Min deviation correction)	RV302	
22	F-V conversion voltage setting (6V during FH = Max)	RV601 (*)	
23	Frequency setting of relay switchover signal (40 kHz)	RV602 (*)	

(*) indicate DA (DC-1) board manufacturer adjustment

H fo ADJUSTMENT (RV301, RV302)

(57 kHz)

1. Receive a signal of 57 kHz.
2. Short circuit between pin ① and pin ③ of TP301 with a jumper wire.
3. Connect a frequency counter across collector of Q402 and ground.
4. Adjust RV301 (FX MAX) 56.47 Hz ± 500 Hz on the frequency counter.

(31 kHz)

1. Receive a signal of 31 kHz.
2. Short circuit between pin ① and pin ③ of TP301 with a jumper wire.
3. Connect a frequency counter across collector of Q402 and ground.
4. Adjust RV302 (FH MIN) for 31.47 kHz ± 500 Hz on the frequency counter.

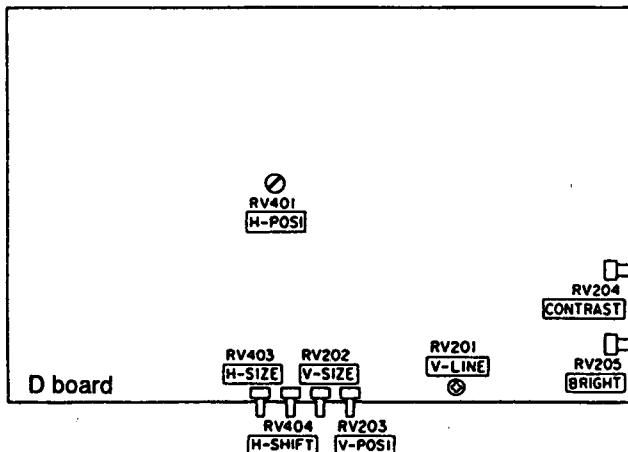
NOTE :

H Fo ADJUSTMENT

If there is not frequency counter :

It has to short No. 1. 3 of TP301, and adjust RV301 with 31.47kHz mode. It doesn't have to strem monitor. also RV302 adjust with 57kHz mode.

The all white signal correspond easier.

5-2. D AND DA (DC-1) BOARD ADJUSTMENT**H. POSITION (RV401, SW401)**

1. Input a cross-hatch signal of 57 kHz.
2. Display a back-raster on the screen with G2 VR.
3. Adjust RV401 (H. POSI) so that the back-raster position to come center.
4. In case of the back-raster is not move till center, using SW401 (H. POSI TAP SW).

V. LINE, V. SIZE, V. POSI (RV201, RV202, RV203)

1. Input a cross-hatch signal of 48 kHz.
2. Adjust RV203 (V. POSI) so that the vertical position to come center.
3. Adjust vertical linearity with RV201 (V. LINE).
4. Adjust vertical size with RV202 (V. SIZE).

H. SIZE, LIMITER (RV403, RV312)

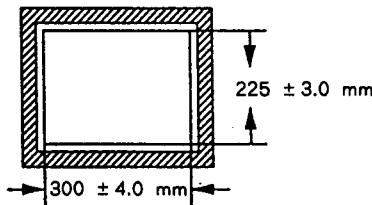
1. Input a cross-hatch signal of 57 kHz MODE.
2. Switch over AUTO SIZE SW (SW402) to LOCK position.
3. Set RV403 (H. SIZE) of user volume to minimum.
4. Adjust RV312 (HS LIMIT) so that the horizontal size to become 298 ± 1 mm.

48 kHz, DEFLECTION SYSTEM ADJUSTMENT

* Input a cross-hatch signal of 48 kHz as following adjustment.

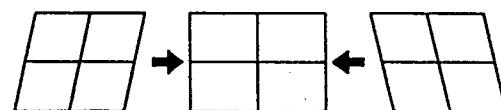
- H. SIZE (RV403)

Adjust RV403 (H. SIZE) on D board so that the horizontal size to become 300 ± 4.0 mm.



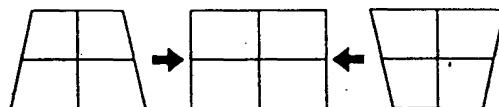
- PARA CORE (RV308)

Adjust direct association and parallelogram strain with RV308 (PARA CORE) on DA (DC-1) board.



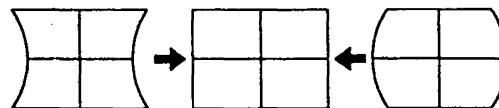
- PIN PHASE (RV309)

Adjust trapezoidal strain with RV309 (PIN PHASE) on DA (DC-1) board.



- SIDE PIN (RV310)

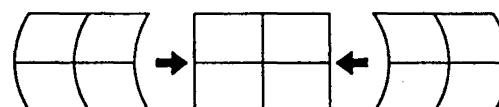
Adjust pin cushion strain about right and left with RV310 (SIDE PIN) on DA (DC-1) board.



NOTE: In case of pin cushion strain of right and left rate is differ, correct them with RV311 (PIN BAL) too.

- PIN BAL (RV311)

Adjust PIN balance strain with RV311 (PIN BAL) on DA (DC-1) board.



- PIN UP (RV313)

Adjust upper PIN strain with RV313 (PIN UP) on DA (DC-1) board.



<GRAPHIC MODE>

31 kHz, H. PHASE, H. SIZE (RV304, RV305)

Switch over AUTO SIZE SW to LOCK position.

1. Input a cross-hatch signal of GRAPHIC mode (31 kHz, 480 LINE).
2. Adjust RV304 (H. PHASE (L)) so that the horizontal direction of screen to come center.
3. Adjust RV306 (H. SIZE (L)) so that the horizontal size to become 300 ± 4.00 mm.

<GRAPHIC MODE>

31 kHz, V POSI, V SIZE (RV255, RV252)

Switch over AUTO SIZE SW to LOCK position.

1. Input a cross-hatch signal of GRAPHIC mode (31 kHz, 480 LINE).

2. Adjust RV255 (V. POSI (L)) so that the vertical direction of screen to come center.
3. Adjust RV252 (V. SIZE (L1)) so that the vertical size to become 225 ± 3.00 mm.

<GRAPHIC MODE>

31 kHz, PIN AMP (RV307)

1. Input a cross-hatch signal of GRAPHIC mode (31 kHz, 480 LINE).
2. Adjust RV307 (SIDE PIN (LOW)) so that the right and left becomes straight line.
3. Correct the H. SIZE with RV305 (H. SIZE (L)), confirm they have not strain.

31 kHz AND 48 kHz, STRAIN CORRECTION (RV308, RV309, RV311, RV313)

1. Adjust RV308 (PARA CORE), RV309 (PIN PHASE), RV311 (PIN BAL) and RV313 (PIN UP) to become best condition about both 31 kHz (480 LINE) mode and 48 kHz mode.

TEXT MODE (31 kHz, 400 LINE) V. SIZE (RV253)

Switch over AUTO SIZE SW to LOCK position.

1. Input a cross-hatch signal of 31 kHz (400 LINE).
 2. Adjust RV253 (V. SIZE (L2)) so that the vertical size to become 225 ± 3.00 mm.
- * Regarding V. POSI adjustment, GRAPHIC mode (31 kHz, 480 LINE) adjustment take priority of another adjustment, and perform adjustment only V. SIZE.

EGA EMULATE MODE (31 kHz, 350 LINE) V. SIZE (RV254)

Switch over AUTO SIZE SW to LOCK position.

1. Input a cross-hatch signal of 31 kHz (350 LINE).
 2. Adjust RV254 (V. SIZE (L3)) so that the vertical size to become 225 ± 3.00 mm.
- * Regarding V. POSI adjustment, GRAPHIC mode (31 kHz, 480 LINE) adjustment take priority of another adjustment, and perform adjustment only V. SIZE.

8514 MODE (35 kHz) H. PHASE, H. SIZE (RV303, RV306)

Switch over AUTO SIZE SW to LOCK position.

1. Input a cross-hatch signal of 35 kHz (8514).
2. Adjust H. PHASE and H. SIZE with RV303 (H. PHASE (M)) and RV305 (H. SIZE (M)).

8514 MODE (35 kHz) V. SIZE (RV251)

Switch over AUTO SIZE SW to LOCK position.

1. Input a cross-hatch signal of 35 kHz (8514).
 2. Adjust RV251 (V. SIZE (M)) so that the vertical size to become 225 ± 3.00 mm.
- * Regarding V. POSI adjustment, GRAPHIC mode (31 kHz, 480 LINE) adjustment take priority of another adjustment, and perform adjustment only V. SIZE.

EACH FREQUENCY (MODE) CONFIRMATION

Confirm screen size and position strain are not sliding, and confirm each mode about TEXT (31 kHz, 400 LINE), EGA emulate (31 kHz, 350 LINE), GRAPHIC (31 kHz, 480 LINE), 8514 (35 kHz) and 48 kHz, 57 kHz.

48kHz mode Adjustment

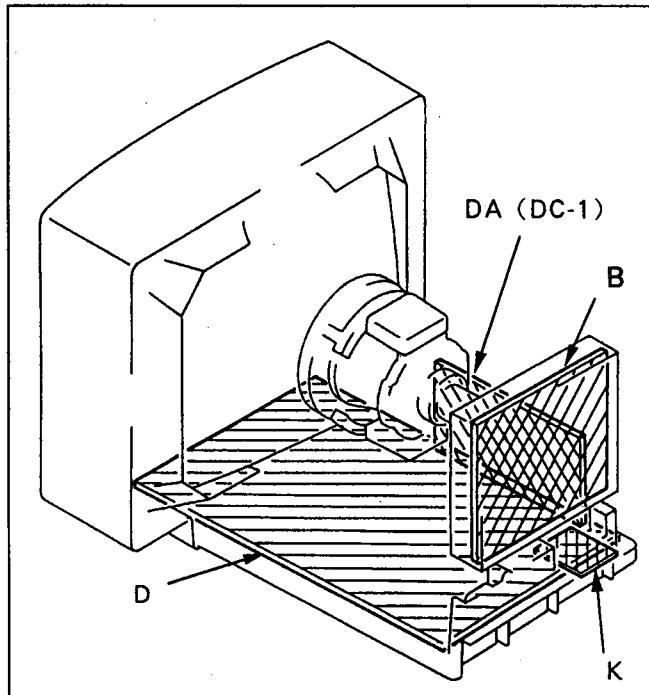
1. It receives 48kHz mode.
2. H. SIZE (RV403) adjust to keep 300 mm.
3. H. SHIFT (RV404) adjust to be center the horizontal position.
4. V. SIZE (RV202) adjust to become 225 mm the vertical size.
5. V. CENT (RV203) move to center click.
6. SUB-POSI 1 (RV256) and SUB-POSI 2 (RV257) adjust for the vertical screen position become center.

In this time, the variable extence have to be ± 5 mm.

(If you move RV256 and RV257, then the V. CENT's [RV203's] variable extence changes.)

SECTION 6 DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



6-2. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

- All resistors are in ohms. 1/4W unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μF unless otherwise noted. pF : $\mu\mu F$ 50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation and adjustment for repair.
- Δ : internal component.
- The components identified by in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by and repeat the adjustment until the specified value is achieved. (Refer to RV402 adjustments on page 17.) When replacing the part in below table, be sure to perform the related adjustment.

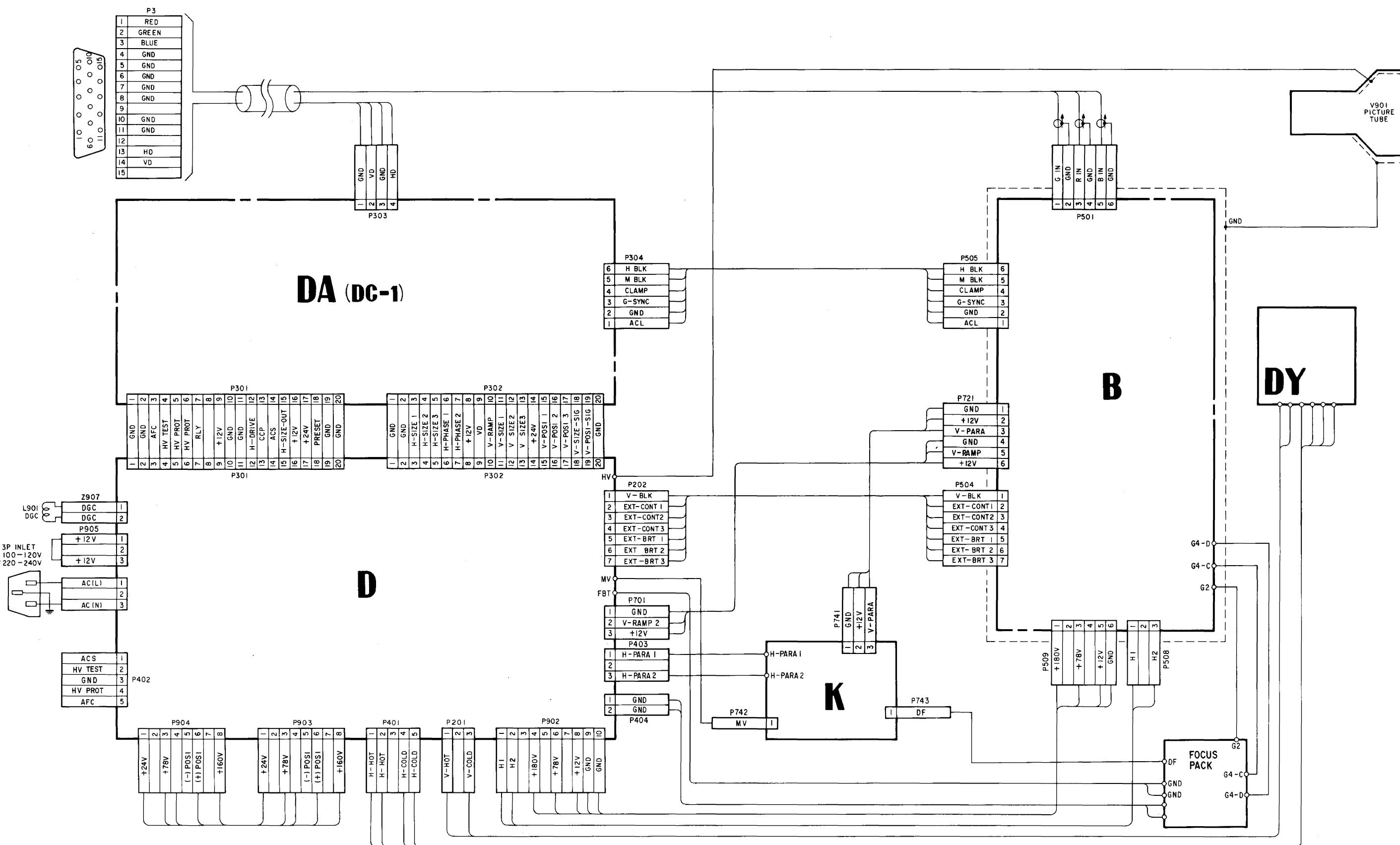
Part replaced (Adjustment (
IC901, IC902, IC401, D930, C408, C409, C410, C411, C412, C414, C415, C422, R414, R434, R435, R441, T402 (FBT), T901, RV402, DY (Deflection Yoke).....D board	RV402
IC101, IC301, D303, R327, R388.....DA (DC-1) board	

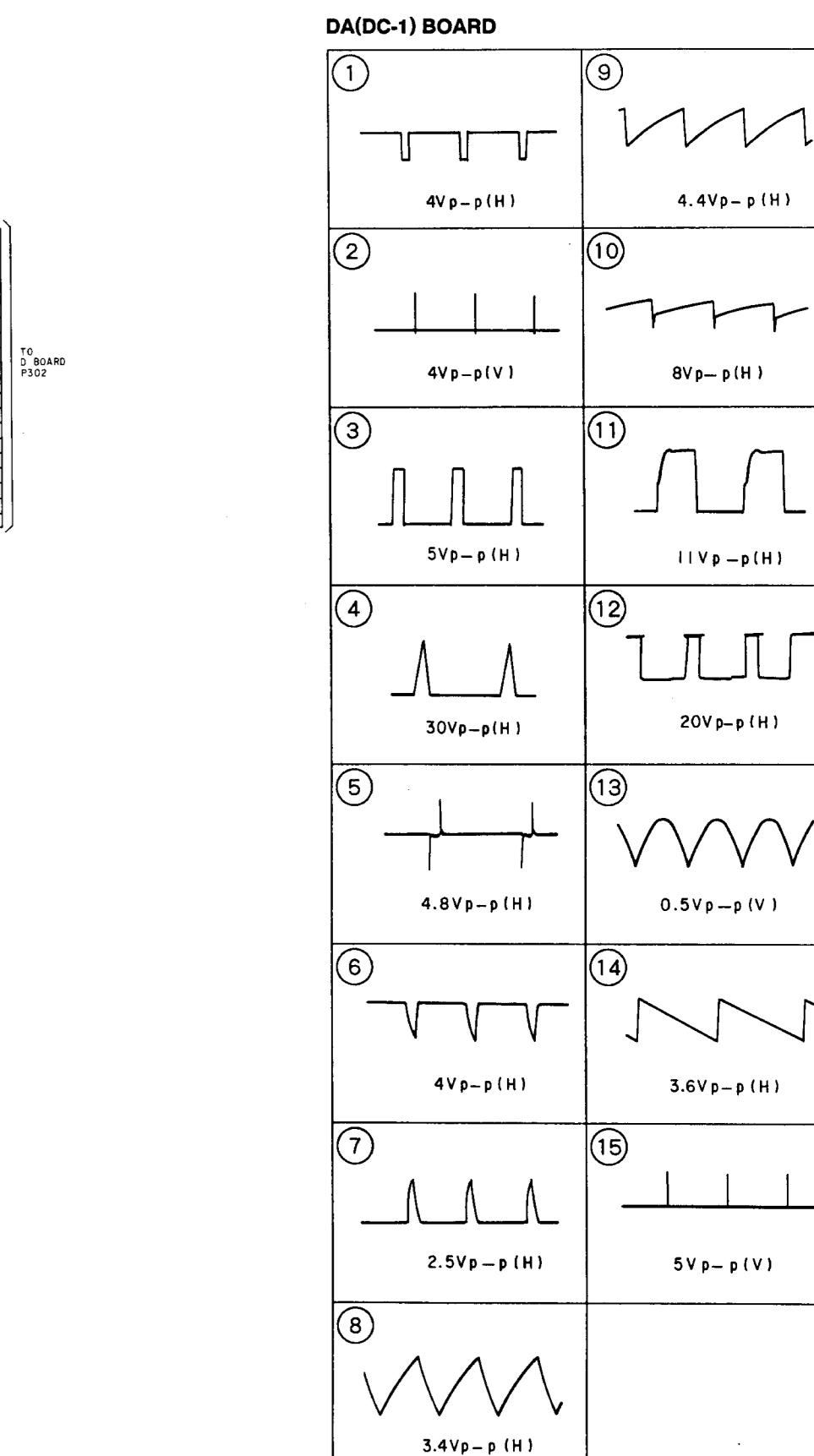
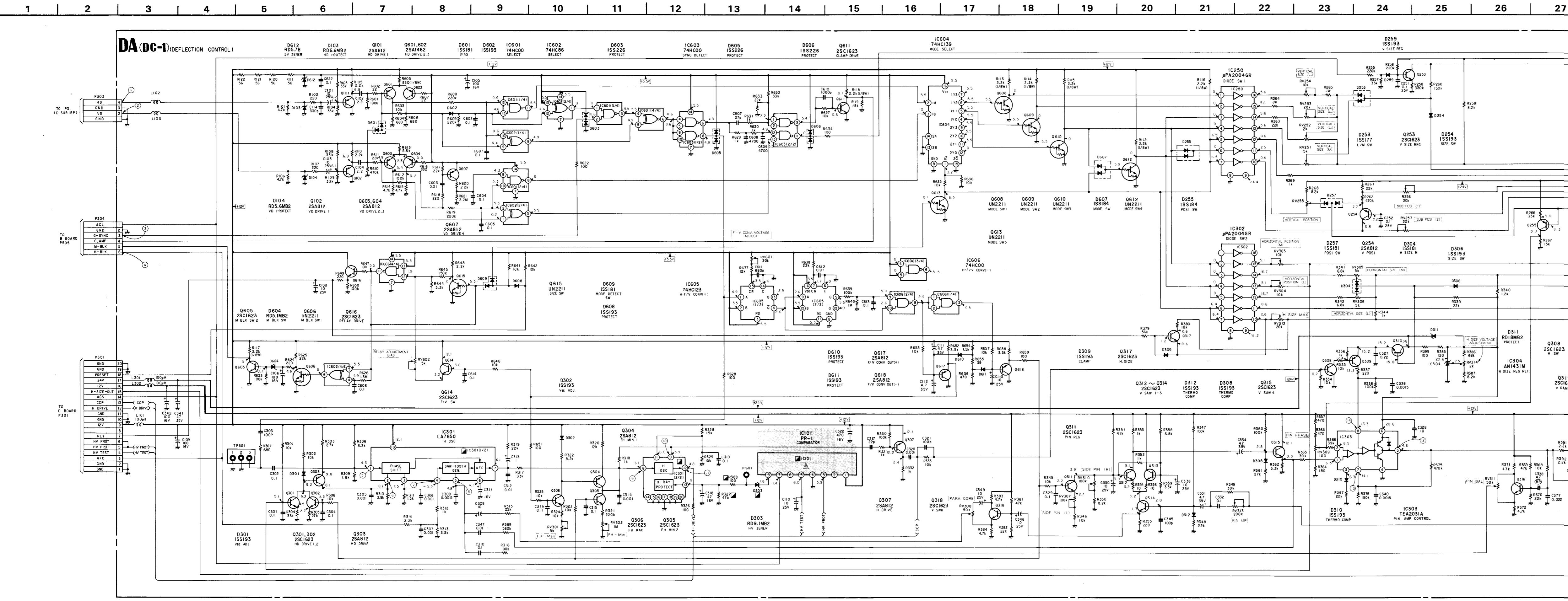
- Circled numbers refer to waveforms.
- All voltages are in V.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
(DIGITAL VIDEO GENERATOR H : 31.47kHz, V : 70.1Hz)
- Readings are taken with a 10M Ω digital multimeter.
- Voltage variations may be noted due to normal production tolerances.
- Can not be measured.
- : B+line.
- : B-line.

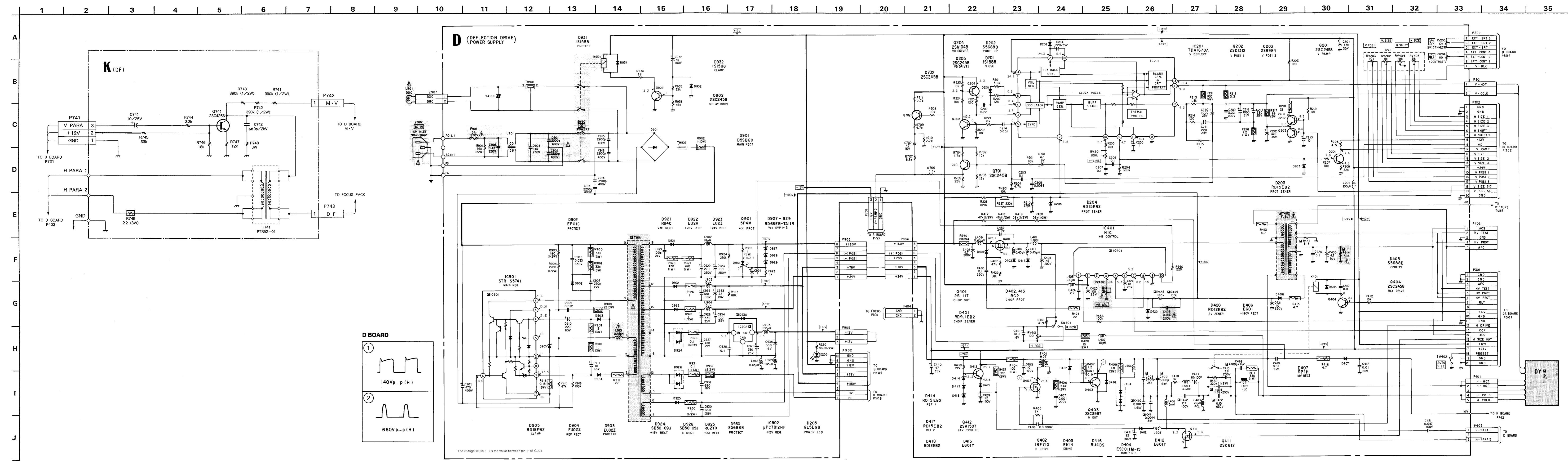
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

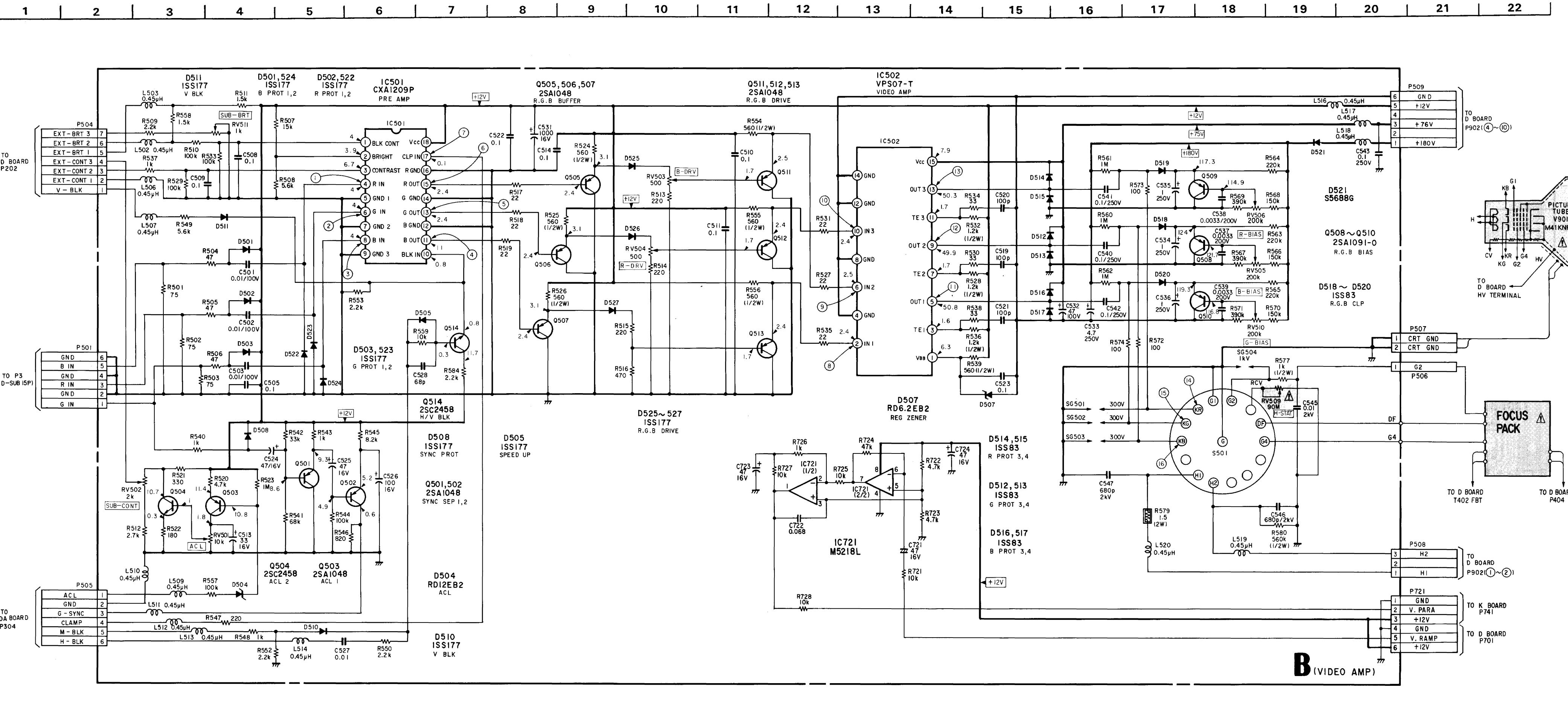
Note: Les composants identifiés par une trame et par une marque sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

Frame Schematic Diagram

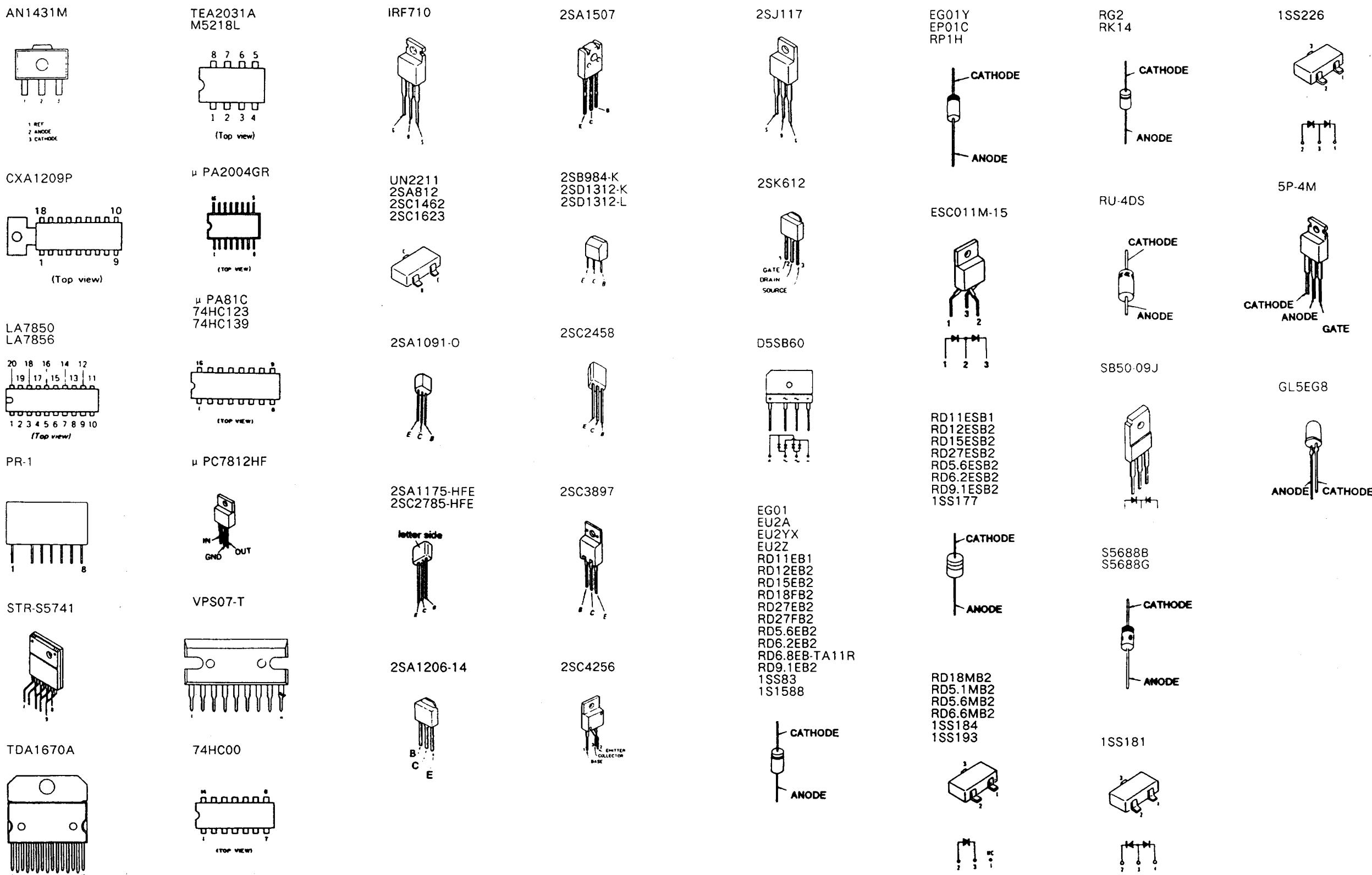








6-3. SEMICONDUCTORS



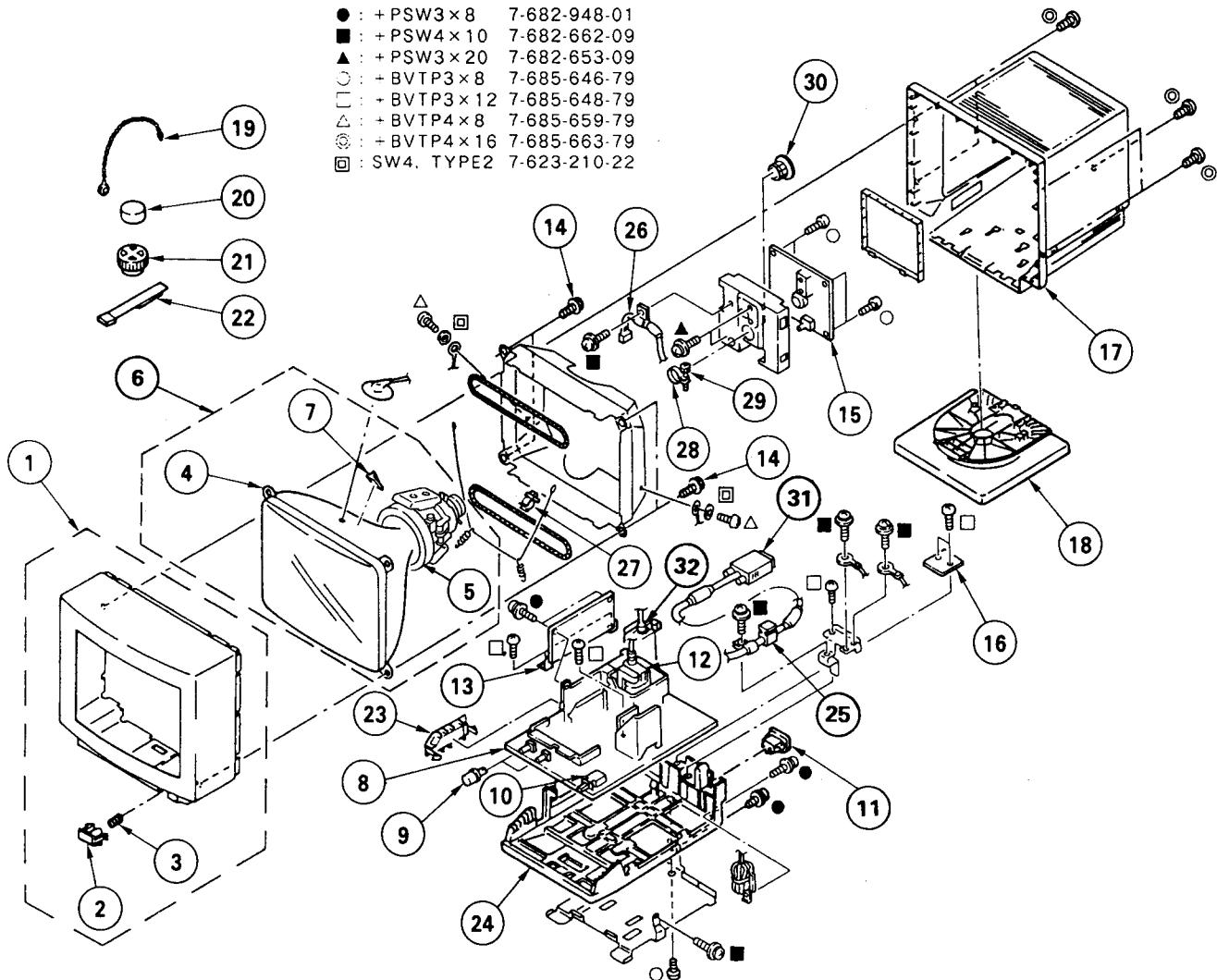
SECTION 7 EXPLODED VIEWS

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 shading and mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ 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
1	X-4029-957-1	BEZEL ASSY	2, 3	16	*A-1380-375-A	K BOARD, COMPLETE	
2	4-392-708-01	BUTTON, POWER		17	4-033-290-01	CABINET	
3	3-509-046-01	SPRING, COMPRESSION		18	X-4029-956-1	STAND ASSY	
4	Δ 8-738-577-05	PICTURE TUBE 17P06	4, 5, 7	19	4-308-870-00	CLIP, LEAD WIRE	
5	Δ 1-451-408-11	DEFLECTION YOKE (TCD-12501)		20	1-452-032-00	MAGNET, DISK ;10MM ϕ	
6	Δ 738-577-81	ITC		21	1-452-094-00	MAGNET, ROTATABLE DISK ;15MM ϕ	
7	3-703-003-00	SPACER, DY		22	X-4309-608-0	PERMALLOY ASSY, CONVERGENCE	
8	*A-1346-006-A	D BOARD, COMPLETE		23	4-033-288-01	SPACER	
9	4-392-705-01	KNOB, VR		24	4-033-292-01	BRACKET	
10	Δ 1-571-433-11	SWITCH, PUSH (AC POWER)		25	4-033-624-01	CONTACT, CABLE	
11	Δ 1-526-954-11	INLET AC		26	4-033-624-11	CONTACT, CABLE	
12	Δ 1-453-129-11	TRANSFORMER ASSY, FLYBACK		27	*4-395-824-01	HOLDER, DEGAUSSING COIL	
13	*A-1346-069-A	DA BOARD, COMPLETE		28	X-4029-951-1	BAND ASSY, FASTENING	
14	4-307-249-00	SCREW (5), TAPPING		29	*2-101-802-01	SCREW, FASTENING, SEPARATOR	
15	*A-1335-029-A	B BOARD, COMPLETE		30	4-033-634-01	HOLDER, PWB	
				31	1-941-843-17	CABLE	
				32	Δ 1-223-208-11	FOCUS PACK	

SECTION 8

ELECTRICAL PARTS LIST

B

NOTE:

The components identified by shading and mark **A** are critical for safety.

Replace only with part number specified.

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

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

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

RESISTORS

- All resistors are in ohms
- F : nonflammable

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

CAPACITORS

COILS

MF : μ F, PF : μ H, MMH : mH, UH : μ H

- The components identified by **B** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- * : Selected to yield optimum performance.
- There are some cases the reference number on one board overlaps on the other board. Therefore, when ordering parts by the reference number, please include the board name.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
	*A-1335-029-A	B BOARD, COMPLETE	*****	D505	8-719-820-58	DIODE ISS177		
<CAPACITOR>								
C501	1-102-129-91	MYLAR	0.01MF	10%	50V	D507	8-719-109-93	DIODE RD6.2ES-B2
C502	1-102-129-91	MYLAR	0.01MF	10%	50V	D508	8-719-820-58	DIODE ISS177
C503	1-102-129-91	MYLAR	0.01MF	10%	50V	D510	8-719-820-58	DIODE ISS177
C505	1-162-901-91	CERAMIC	0.1MF	10%	50V	D511	8-719-820-58	DIODE ISS177
C508	1-162-901-91	CERAMIC	0.1MF	10%	50V	D512	8-719-901-83	DIODE ISS83
C509	1-162-901-91	CERAMIC	0.1MF	10%	50V	D513	8-719-901-83	DIODE ISS83
C510	1-162-901-91	CERAMIC	0.1MF	10%	50V	D514	8-719-901-83	DIODE ISS83
C511	1-162-901-91	CERAMIC	0.1MF	10%	50V	D515	8-719-901-83	DIODE ISS83
C513	1-124-034-51	ELECT	33MF	20%	16V	D516	8-719-901-83	DIODE ISS83
C514	1-162-901-91	CERAMIC	0.1MF	10%	50V	D517	8-719-901-83	DIODE ISS83
C519	1-102-973-00	CERAMIC	100PF	5%	50V	D518	8-719-901-83	DIODE ISS83
C520	1-102-973-00	CERAMIC	100PF	5%	50V	D519	8-719-901-83	DIODE ISS83
C521	1-102-973-00	CERAMIC	100PF	5%	50V	D520	8-719-901-83	DIODE ISS83
C522	1-161-772-11	CERAMIC	0.1MF	10%	25V	D521	8-719-820-57	DIODE S5688G
C523	1-161-772-11	CERAMIC	0.1MF	10%	25V	D522	8-719-820-58	DIODE ISS177
C524	1-124-477-11	ELECT	47MF	20%	16V	D523	8-719-820-58	DIODE ISS177
C525	1-124-477-11	ELECT	47MF	20%	16V	D524	8-719-820-58	DIODE ISS177
C526	1-126-101-11	ELECT	100MF	20%	16V	D525	8-719-820-58	DIODE ISS177
C527	1-130-483-00	MYLAR	0.01MF	5%	50V	D526	8-719-820-58	DIODE ISS177
C528	1-102-525-11	CERAMIC	68PF	5%	50V	D527	8-719-820-58	DIODE ISS177
C531	1-124-119-00	ELECT	330MF	20%	16V	IC501	8-752-052-83	IC CXA1209P
C532	1-124-931-11	ELECT	47MF	20%	100V	IC502	8-749-922-81	IC VPS07T
C533	1-124-666-11	ELECT	4.7MF	20%	250V	IC721	8-759-634-50	IC M5218AL
C534	1-126-772-11	ELECT	1MF	20%	250V	<IC>		
C535	1-126-772-11	ELECT	1MF	20%	250V	<COIL>		
C536	1-126-772-11	ELECT	1MF	20%	250V	L503	1-410-396-41	INDUCTOR 0.45UH
C537	1-108-686-11	MYLAR	0.0033MF	10%	200V	L506	1-410-396-41	INDUCTOR 0.45UH
C538	1-108-686-11	MYLAR	0.0033MF	10%	200V	L516	1-410-396-41	INDUCTOR 0.45UH
C539	1-108-686-11	MYLAR	0.0033MF	10%	200V	L517	1-410-396-41	INDUCTOR 0.45UH
C540	1-136-209-11	FILM	0.1MF	10%	250V	L519	1-410-396-41	INDUCTOR 0.45UH
C541	1-136-209-11	FILM	0.1MF	10%	250V	L520	1-410-396-41	INDUCTOR 0.45UH
C542	1-136-209-11	FILM	0.1MF	10%	250V	<CONNECTOR>		
C543	1-136-209-11	FILM	0.1MF	10%	250V	P501	*1-560-894-00	PIN, CONNECTOR 6P
C544	1-162-978-11	CERAMIC	0.01MF		2KV	P504	*1-560-895-00	PIN, CONNECTOR 7P
C545	1-162-116-00	CBRAMIC	680PF	10%	2KV	P505	*1-564-031-00	PIN, CONNECTOR 6P
C546	1-162-116-00	CBRAMIC	680PF	10%	2KV	P508	*1-564-028-00	PIN, CONNECTOR 4P
C547	1-162-116-00	CERAMIC	680PF	10%	2KV	P509	*1-564-031-00	PIN, CONNECTOR 6P
C721	1-104-498-11	ELECT	47MF	20%	16V	P721	*1-564-031-00	PIN, CONNECTOR 6P
C722	1-161-772-11	CERAMIC	0.1MF	20%	25V	<TRANSISTOR>		
C723	1-124-477-11	ELECT	47MF	20%	16V	Q501	8-729-119-76	TRANSISTOR 2SA1175-HFE
C724	1-124-477-11	ELECT	47MF	20%	16V	Q502	8-729-119-76	TRANSISTOR 2SA1175-HFE
						Q503	8-729-119-76	TRANSISTOR 2SA1175-HFE
<DIODE>								
D501	8-719-820-58	DIODE ISS177						
D502	8-719-820-58	DIODE ISS177						
D503	8-719-820-58	DIODE ISS177						
D504	8-719-110-31	DIODE RD12ES-B2						

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

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

B D

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
Q504	8-729-119-78	TRANSISTOR 2SC2785-HFE		R552	1-249-421-11	CARBON	2.2K 5% 1/4W
Q505	8-729-119-76	TRANSISTOR 2SA1175-HFE		R553	1-249-421-11	CARBON	2.2K 5% 1/4W
Q506	8-729-119-76	TRANSISTOR 2SA1175-HFE		R554	1-247-749-11	CARBON	560 5% 1/2W
Q507	8-729-119-76	TRANSISTOR 2SA1175-HFE		R555	1-247-749-11	CARBON	560 5% 1/2W
Q508	8-729-200-17	TRANSISTOR 2SA1091-0		R556	1-247-749-11	CARBON	560 5% 1/2W
Q509	8-729-200-17	TRANSISTOR 2SA1091-0		R557	1-249-441-11	CARBON	100K 5% 1/4W
Q510	8-729-200-17	TRANSISTOR 2SA1091-0		R558	1-249-419-11	CARBON	1.5K 5% 1/4W
Q511	8-729-119-76	TRANSISTOR 2SA1175-HFE		R559	1-249-429-11	CARBON	10K 5% 1/4W
Q512	8-729-119-76	TRANSISTOR 2SA1175-HFE		R560	1-214-964-00	RES, HIGH MEG OHM 1M	
Q513	8-729-119-76	TRANSISTOR 2SA1175-HFE		R561	1-214-964-00	RES, HIGH MEG OHM 1M	
Q514	8-729-119-78	TRANSISTOR 2SC2785-HFE		R562	1-214-964-00	RES, HIGH MEG OHM 1M	
<RESISTOR>				R563	1-247-887-00	CARBON	220K 5% 1/4W
R501	1-214-702-00	METAL	75 1% 1/4W	R564	1-247-887-00	CARBON	220K 5% 1/4W
R502	1-214-702-00	METAL	75 1% 1/4W	R565	1-247-887-00	CARBON	220K 5% 1/4W
R503	1-214-702-00	METAL	75 1% 1/4W	R566	1-247-883-00	CARBON	150K 5% 1/4W
R504	1-249-401-11	CARBON	47 5% 1/4W	R567	1-247-893-00	CARBON	390K 5% 1/4W
R505	1-249-401-11	CARBON	47 5% 1/4W	R568	1-247-883-00	CARBON	150K 5% 1/4W
R506	1-249-401-11	CARBON	47 5% 1/4W	R569	1-247-893-00	CARBON	390K 5% 1/4W
R507	1-249-431-11	CARBON	15K 5% 1/4W	R570	1-247-883-00	CARBON	150K 5% 1/4W
R508	1-249-246-11	CARBON	5.6K 5% 1/4W	R571	1-247-893-00	CARBON	390K 5% 1/4W
R509	1-249-421-11	CARBON	2.2K 5% 1/4W	R572	1-247-700-11	SOLID	100 5% 1/4W
R510	1-249-441-11	CARBON	100K 5% 1/4W	R573	1-247-700-11	SOLID	100 5% 1/4W
R511	1-249-419-11	CARBON	1.5K 5% 1/4W	R574	1-247-700-11	SOLID	100 5% 1/4W
R512	1-249-422-11	CARBON	2.7K 5% 1/4W	R577	1-247-713-11	SOLID	1K 10% 1/4W
R513	1-249-409-11	CARBON	220 5% 1/4W	R579	1-216-370-00	METAL OXIDE	1.5 5% 2W
R514	1-249-409-11	CARBON	220 5% 1/4W	R580	1-202-847-00	SOLID	560K 10% 1/2W
R515	1-249-409-11	CARBON	220 5% 1/4W	R584	1-249-421-11	CARBON	2.2K 5% 1/4W
R516	1-249-413-11	CARBON	470 5% 1/4W	R721	1-249-429-11	CARBON(SMALL)	10K 5% 1/4W
R517	1-249-397-11	CARBON	22 5% 1/4W	R722	1-249-425-11	CARBON(SMALL)	4.7K 5% 1/4W
R518	1-249-397-11	CARBON	22 5% 1/4W	R723	1-249-425-11	CARBON(SMALL)	4.7K 5% 1/4W
R519	1-249-397-11	CARBON	22 5% 1/4W	R724	1-249-437-11	CARBON	47K 5% 1/4W
R520	1-249-452-11	CARBON	4.7K 5% 1/4W	R725	1-249-429-11	CARBON(SMALL)	10K 5% 1/4W
R521	1-247-706-11	CARBON	330 5% 1/4W	R726	1-249-417-11	CARBON(SMALL)	1K 5% 1/4W
R522	1-249-408-11	CARBON	180 5% 1/4W	R727	1-249-429-11	CARBON(SMALL)	10K 5% 1/4W
R523	1-247-903-00	CARBON	1M 5% 1/4W	<VARIABLE RESISTOR>			
R524	1-247-749-11	CARBON	560 5% 1/2W	RV501	1-228-994-00	RBS, ADJ, METAL GLAZE 10K	
R525	1-247-749-11	CARBON	560 5% 1/2W	RV502	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	
R526	1-247-749-11	CARBON	560 5% 1/2W	RV503	1-237-499-21	RES, ADJ, CERMET 500	
R527	1-249-397-11	CARBON	22 5% 1/4W	RV504	1-237-499-21	RES, ADJ, CERMET 500	
R528	1-260-100-11	CARBON	1.2K 5% 1/2W	RV505	1-237-507-21	RES, ADJ, CERMET 200K	
R529	1-249-441-11	CARBON	100K 5% 1/4W	RV506	1-238-707-11	RBS, ADJ, CERMET 200K	
R530	1-249-399-11	CARBON	33 5% 1/4W	RV509	1-230-798-21	RES, ADJ, METAL GLAZE 90M	
R531	1-249-397-11	CARBON	22 5% 1/4W	RV510	1-237-507-21	RES, ADJ, CERMET 200K	
R532	1-260-100-11	CARBON	1.2K 5% 1/2W	<SOCKET>			
R533	1-249-441-11	CARBON	100K 5% 1/4W	S501	1-526-866-11	SOCKET, PICTURE TUBE	
R534	1-249-399-11	CARBON	33 5% 1/4W	<SPARK GAP>			
R535	1-249-397-11	CARBON	22 5% 1/4W	SG501	1-519-421-11	GAP, DISCHARGE	
R536	1-260-100-11	CARBON	1.2K 5% 1/2W	SG502	1-519-421-11	GAP, DISCHARGE	
R537	1-249-417-11	CARBON	1K 5% 1/4W	SG503	1-519-421-11	GAP, DISCHARGE	
R538	1-249-399-11	CARBON	33 5% 1/4W	SG504	1-519-030-00	DISCHARGE ELEMENT	
R539	1-247-749-11	CARBON	560 5% 1/2W	*****			
R540	1-249-417-11	CARBON	1K 5% 1/4W	*A-1346-006-A	D BOARD, COMPLETE		
R541	1-249-439-11	CARBON	68K 5% 1/4W	*****			
R542	1-249-435-11	CARBON	33K 5% 1/4W	(DA BOARD INCLUDING)			
R543	1-249-417-11	CARBON	1K 5% 1/4W	*****			
R544	1-249-441-11	CARBON	100K 5% 1/4W	*****			
R545	1-249-428-11	CARBON	8.2K 5% 1/4W	*****			
R546	1-249-416-11	CARBON	820 5% 1/4W	*****			
R547	1-249-409-11	CARBON	220 5% 1/4W	*****			
R548	1-249-417-11	CARBON	1K 5% 1/4W	*****			
R549	1-249-421-11	CARBON	5.6K 5% 1/4W	*****			
R550	1-249-421-11	CARBON	2.2K 5% 1/4W	*****			

A 1-526-954-11 INLET AC : Z902

*4-030-202-01 HOLDER (TR)

D

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

Les composants identifiés par une trame et une marque Δ 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	
*4-030-211-01	HOLDER (TR)			C910	1-124-919-11	ELECT	220MF 20%	
*4-030-212-01	HOLDER (TR)			C911	1-124-915-11	ELECT	10MF 20%	
4-314-225-00	HEAT SINK, (A) (FN401)			C913	1-161-742-00	CERAMIC	0.0022MF 20%	
*4-380-083-01	HOLDER (E), LED ; Z201			C914	1-161-742-00	CERAMIC	0.0022MF 20%	
4-392-771-01	CAP, SEAL			C915	1-161-742-00	CERAMIC	0.0022MF 20%	
<CAPACITOR>								
C201	1-126-104-11	ELECT	470MF 20%	35V	C923	1-104-499-11	ELECT	100MF 250V
C202	1-136-169-00	FILM	0.22MF 5%	50V	C924	1-124-903-11	MYLAR	1MF 5% 50V
C203	1-108-816-11	MYLAR	0.1MF 5%	50V	C925	1-123-605-00	ELECT	100MF 20% 100V
C204	1-124-484-11	ELECT	220MF 20%	35V	C926	1-124-485-11	ELECT	330MF 20% 35V
C205	1-124-903-11	ELECT	1MF 20%	50V	C927	1-126-376-11	ELECT	470MF 20% 25V
C206	1-136-165-00	FILM	0.1MF 5%	50V	C928	1-161-772-11	CERAMIC	0.1MF 25V
C207	1-136-165-00	FILM	0.1MF 5%	50V	C929	1-124-479-11	ELECT	330MF 20% 25V
C208	1-108-802-11	MYLAR	0.0068MF 5%	50V	C930	1-124-485-11	ELECT	330MF 20% 35V
C209	1-130-781-00	FILM	0.22MF 10%	100V	C931	1-126-220-51	ELECT	680MF 20% 16V
C210	1-124-557-11	ELECT	1000MF 20%	25V	C932	1-124-477-11	ELECT	47MF 20% 25V
C211	1-124-120-11	ELECT	220MF 20%	25V	C933	1-124-929-11	ELECT	22MF 20% 100V
C212	1-126-104-11	ELECT	470MF 20%	35V		<DIODE>		
C213	1-124-907-11	ELECT	10MF 20%	50V	D201	8-719-820-59	DIODE 1S1588	
C214	1-108-792-11	MYLAR	0.001MF 5%	50V	D202	8-719-820-56	DIODE S5688B	
C216	1-124-557-11	ELECT	1000MF 20%	25V	D203	8-719-110-41	DIODE RD15ES-B2	
C217	1-124-479-11	ELECT	330MF 20%	25V	D204	8-719-110-41	DIODE RD15ES-B2	
C401	1-126-103-11	ELECT	470MF 20%	16V	D205	8-719-941-64	DIODE GL5BG8	
C402	1-124-666-11	ELECT	4.7MF 20%	200V		<DIODE>		
C403	1-136-209-11	FILM	0.1MF 10%	250V	D401	8-719-110-13	DIODE RD9.1ES-B2	
C404	1-126-527-11	ELECT	47MF 200V		D402	8-719-301-86	DIODE RG2	
C405	1-124-667-11	ELECT	10MF 20%	100V	D403	8-719-981-00	DIODE ERC81-004	
C406	1-108-626-11	MYLAR	0.01MF 10%	100V	D404	8-719-991-68	DIODE ESC011M-15	
C407	1-106-345-00	MYLAR	0.001MF 10%	200V	D405	8-719-820-56	DIODE S5688B	
C408	1-136-071-00	FILM	0.0057MF 3%	2KV		<DIODE>		
C409	1-136-220-00	FILM	0.0039MF 3%	2KV	D406	8-719-312-26	DIODE EG01	
C410	1-136-079-00	FILM	0.01MF 3%	2KV	D407	8-719-312-11	DIODE RP1H	
C411	1-136-069-00	FILM	0.0044MF 3%	2KV	D412	8-719-311-16	DIODE EG01Y	
C413	1-124-667-11	ELECT	10MF 20%	100V	D413	8-719-301-86	DIODE RG2	
C414	1-136-540-11	FILM	0.82MF 5%	200V	D414	8-719-110-41	DIODE RD15EB2TN	
C416	1-162-114-11	CERAMIC	0.0047MF 10%	2KV		<DIODE>		
C417	1-130-483-00	MYLAR	0.01MF 5%	50V	D415	8-719-311-16	DIODE BG01Y	
C418	1-162-978-11	CERAMIC	0.01MF 2%	2KV	D416	8-719-301-64	DIODE RU4DS	
C419	1-162-978-11	CERAMIC	0.01MF 2%	2KV	D417	8-719-110-41	DIODE RD15ES-B2	
C420	1-108-816-11	MYLAR	0.1MF 5%	50V	D418	8-719-110-31	DIODE RD12EB2TN	
C421	1-126-326-51	ELECT	10MF 20%	250V	D420	8-719-110-31	DIODE RD12EB2TN	
C422	1-129-955-00	ELECT	0.15MF 2%	630V		<DIODE>		
C424	1-129-925-11	ELECT	2.2MF 5%	50V	D901	8-719-500-16	DIODE D5SB60	
C425	1-124-478-11	ELECT	100MF 20%	25V	D902	8-719-312-24	DIODE EPO1C	
C427	1-124-907-11	ELECT	10MF 20%	50V	D903	8-719-302-21	DIODE EU2Z	
C429	1-124-929-11	ELECT	22MF 20%	100V	D904	8-719-302-21	DIODE EU2Z	
C430	1-124-927-11	ELECT	4.7MF 20%	50V	D905	8-719-160-68	DIODE RD18FB2	
C431	1-124-929-11	ELECT	22MF 20%	100V		<DIODE>		
C440	1-124-910-11	ELECT	47MF 20%	35V	D921	8-719-301-64	DIODE RU4DS	
C451	1-136-060-00	ELECT	0.047MF 400V		D922	8-719-302-06	DIODE EU2A	
C701	1-124-477-11	ELECT	47MF 16V		D923	8-719-302-21	DIODE EU2Z	
C702	1-104-498-11	ELECT	47MF 16V		D924	8-719-023-68	DIODE 5DL2CZ41A	
C901	Δ 1-161-742-51	CERAMIC	0.0022MF 20%	400V	D925	8-719-312-27	DIODE EU2YX	
C902	Δ 1-161-742-51	CERAMIC	0.0022MF 20%	400V		<DIODE>		
C903	Δ 1-136-527-12	FILM	0.17MF 20%	250V	D926	8-719-023-68	DIODE 5DL2CZ41A	
C904	Δ 1-136-527-12	FILM	0.47MF 20%	250V	D927	8-719-023-66	DIODE RD68EB	
C905	1-125-541-11	ELECT(BLOCK)	470MF 20%	400V	D928	8-719-023-66	DIODE RD68EB	
C906	1-136-206-11	FILM	0.033MF 10%	600V	D929	8-719-023-66	DIODE RD68EB	
C907	1-162-131-11	CERAMIC	220PF 10%	2KV	D930	8-719-820-56	DIODE S5688B	
C909	1-108-808-11	MYLAR	0.022MF 10%	50V		<DIODE>		
					D931	8-719-820-59	DIODE 1S1588	
					D932	8-719-820-59	DIODE 1S1588	

D

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

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
P901 Δ 1-532-747-11 FUSE, GLASS TUBE (5A/125V)							
	*1-533-146-00	HOLDER, FUSE; FH901		Q411	8-729-119-00	TRANSISTOR 2SK612	
<IC>							
IC201 8-759-049-07 IC TDA1670A IC401 8-749-923-63 HIC CHO-3 IC901 8-749-923-21 IC STR-S5741 IC902 8-759-143-02 IC UPC7812HF							
<RELAY>							
K401	1-515-753-11	RELAY		R201	1-247-722-11	CARBON	5.6K 5% 1/4W
K901	1-515-911-11	RELAY		R202	1-249-459-11	CARBON	12K 5% 1/4W
<COIL>							
L201	1-408-080-00	INDUCTOR 100UH		R203	1-247-725-11	CARBON	10K 5% 1/4W
L401	1-459-996-11	COIL, CHOKER 2.0MH		R204	1-247-721-11	CARBON	4.7K 5% 1/4W
L402	1-402-717-11	COIL, CHOKER 5.0MH		R205	1-249-464-11	CARBON	39K 5% 1/4W
L403	1-402-718-11	COIL, CHOKER 70UH		R206	1-246-535-00	CARBON	390K 5% 1/4W
L404	1-407-948-00	INDUCTOR 3.3MF		R207	1-247-725-11	CARBON	10K 5% 1/4W
L405	1-402-726-11	COIL, HORIZONTAL LINEARITY		R208	1-247-721-11	CARBON	4.7K 5% 1/4W
L406	1-421-329-00	COIL, CHOKER		R209	1-249-462-11	CARBON	22K 5% 1/4W
L407	1-459-111-00	DRAM CORE 10UH		R210	1-246-531-00	CARBON	270K 5% 1/4W
L408	1-408-080-00	INDUCTOR 100UH		R211	1-215-863-11	METAL OXIDE	100 5% 1W F
L409	1-410-396-41	INDUCTOR 0.45UH		R212	1-249-453-11	CARBON	3.3 5% 1/4W F
L901	1-423-333-11	COIL, LINE FILTER		R213	1-247-716-11	CARBON	1.8K 5% 1/4W
L902	1-459-999-11	COIL, CHOKER 18UH		R214	1-247-701-11	CARBON	120 5% 1/4W
L903	1-408-119-00	INDUCTOR 15UH		R215	1-247-713-11	CARBON	1K 5% 1/4W
L904	1-408-119-00	INDUCTOR 15UH		R216	1-216-348-00	METAL OXIDE	0.82 5% 1W F
L905	1-459-998-11	COIL, CHOKER 150UH		R217	1-215-885-00	METAL OXIDE	68 5% 2W F
L906	1-535-303-00	INDUCTOR 0.45UH		R218	1-212-865-00	FUSIBLE	22 5% 1/4W F
L908	1-410-396-41	INDUCTOR 0.45UH		R219	1-247-725-11	CARBON	10K 5% 1/4W
L909	1-410-396-41	INDUCTOR 0.45UH		R220	1-247-749-11	CARBON	560 1/2W
L912	1-410-396-41	INDUCTOR 0.45UH		R221	1-247-725-11	CARBON	10K 5% 1/4W
<CONNECTOR>							
P201	1-506-348-XX	PIN, CONNECTOR 3P		R222	1-247-725-11	CARBON	10K 5% 1/4W
P202	*1-560-895-00	PIN, CONNECTOR 7P		R223	1-247-725-11	CARBON	10K 5% 1/4W
P301	*1-566-226-11	PIN, CONNECTOR 20P		R224	1-247-725-11	CARBON	10K 5% 1/4W
P302	*1-566-226-11	PIN, CONNECTOR 20P		R225	1-247-701-11	CARBON	120 5% 1/4W
P401	1-506-348-XX	PIN, CONNECTOR 5P		R226	1-246-543-00	CARBON	820K 5% 1/4W
P402	*1-560-893-00	PIN, CONNECTOR 5P		R227	1-247-887-00	CARBON	220K 5% 1/4W
P403	1-506-348-XX	PIN, CONNECTOR 3P		R401	1-247-721-11	CARBON	4.7K 5% 1/4W
P404	1-508-786-00	PIN, CONNECTOR 2P		R402	1-249-465-11	CARBON	47K 5% 1/4W
P701	*1-560-891-00	PIN, CONNECTOR 3P		R404	1-217-493-00	FUSIBLE	100 5% 1W F
P902	*1-560-898-00	PIN, CONNECTOR 10P		R405	1-247-713-11	CARBON	1K 5% 1/4W
P903	*1-560-896-00	PIN, CONNECTOR 8P		R406	1-216-461-00	METAL OXIDE	5.6K 5% 2W F
P904	*1-560-896-00	PIN, CONNECTOR 8P		R407	1-216-390-11	METAL OXIDE	1.2 5% 3W F
P905	*1-560-891-00	PIN, CONNECTOR 3P		R408	1-215-880-00	METAL OXIDE	10 5% 2W F
<TRANSISTOR>							
Q201	8-729-119-78	TRANSISTOR 2SC2785-HFE		R409	1-216-392-11	METAL OXIDE	1.8 5% 3W F
Q202	8-729-111-54	TRANSISTOR 2SD1312-L		R410	1-212-873-11	CARBON	47 1/4W F
Q203	8-729-111-52	TRANSISTOR 2SB984-K		R411	1-213-096-00	FUSIBLE	330 5% 1W
Q204	8-729-119-76	TRANSISTOR 2SA1175-HFE		R412	1-247-725-11	CARBON	10K 5% 1/4W
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE		R413	1-212-849-00	FUSIBLE	4.7 5% 1/4W F
Q401	8-729-927-10	TRANSISTOR IRF9630		R414 Δ 1-214-746-00	METAL OXIDE	5.1K 1% 1/4W	
Q402	8-729-012-56	TRANSISTOR IRF710		R415	1-212-849-00	FUSIBLE	4.7 5% 1/4W F
Q403	8-729-821-07	TRANSISTOR 2SC3997		R416	1-212-849-00	FUSIBLE	4.7 5% 1/4W F
Q404	8-729-119-78	TRANSISTOR 2SC2785-HFE		R417	1-260-119-11	CARBON	47K 5% 1/2W
				R418	1-260-119-11	CARBON	47K 5% 1/2W
				R419	1-260-120-11	CARBON	56K 5% 1/2W
				R420	1-260-120-11	CARBON	56K 5% 1/2W
				R421	1-212-865-00	FUSIBLE	22 5% 1/4W F
				R422	1-249-466-11	CARBON	56K 5% 1/4W
				R434	1-247-883-00	CARBON	150K 5% 1/4W
				R435	1-247-885-00	CARBON	180K 5% 1/4W
				R436	1-249-469-11	CARBON	100K 5% 1/4W
				R437	1-216-480-11	METAL OXIDE	820 5% 3W F
				R438	1-249-462-11	CARBON	22K 5% 1/4W
				R439	1-214-921-55	METAL	220K 5% 1/2W
				R440	1-247-704-11	CARBON	220 5% 1/4W

D**DA(DC-1)**

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

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

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
R441	1-214-752-00	CARBON	9.1K 5%	1/4W			
R701	1-247-725-11	CARBON	10K 5%	1/4W	F		
R702	1-249-460-11	CARBON	15K 5%	1/4W	F		
R703	1-249-460-11	CARBON	15K 5%	1/4W	F		
R704	1-247-721-11	CARBON	4.7K 5%	1/4W	F		
R705	1-249-462-11	CARBON	22K 5%	1/4W	F		
R706	1-247-719-11	CARBON	3.3K 5%	1/4W	F		
R707	1-247-723-11	CARBON	6.8K 5%	1/4W	F		
R708	1-247-725-11	CARBON	10K 5%	1/4W	F		
R709	1-247-721-11	CARBON	4.7K 5%	1/4W	F		
R710	1-247-718-11	CARBON	2.7K 5%	1/4W	F		
R711	1-247-718-11	CARBON	2.7K 5%	1/4W	F		
R901	1-214-931-00	METAL GLAZE	560K 5%	1/2W			
R902	1-205-779-11	WIREWOUND	1 5%	10W	F		
R903	1-214-919-00	METAL GLAZE	180K 5%	1/2W			
R904	1-214-921-55	METAL	220K 5%	1/2W			
R905	1-215-926-00	METAL OXIDE	33K 5%	3W	F		
R906	1-215-926-00	METAL OXIDE	33K 5%	3W	F		
R908	1-215-907-11	METAL OXIDE	22 5%	3W	F		
R909	1-216-469-11	METAL OXIDE	12 5%	3W	F		
R910	1-215-906-11	METAL OXIDE	15 5%	3W	F		
R911	1-212-865-00	FUSIBLE	22 5%	1/4W	F		
R913	1-205-956-11	WIREWOUND	0.15 10%	3W			
R915	1-214-769-00	METAL	47K 1%	1/4W			
R916	1-214-777-00	METAL	100K 1%	1/4W			
R920	1-217-501-00	FUSIBLE	470 5%	1W	F		
R921	1-217-501-00	FUSIBLE	470 5%	1W	F		
R922	1-205-616-00	WIREWOUND	1 5%	5W	F		
R923	1-247-713-11	CARBON	1K 5%	1/4W			
R924	1-214-785-55	METAL	220K 5%	1/4W			
R926	1-216-349-00	METAL OXIDE	1 5%	1W	F		
R927	1-249-467-11	CARBON	68K 5%	1/4W			
R928	1-212-934-00	FUSIBLE	1 5%	1/2W	F		
R929	1-207-451-00	WIRE	0.1	1/6W			
R930	1-212-934-00	FUSIBLE	1.2 5%	2W			
R931	1-207-451-00	WIRE	0.1	1/6W			
R932	1-216-370-11	METAL OXIDE	1 5%	1W	F		
R934	1-247-698-11	CARBON	68 5%	1/4W			
R935	1-247-726-11	CARBON	33K 5%	1/4W			
R936	1-249-465-11	CARBON	47K 5%	1/4W			
<VARIABLE RESISTOR>							
RV201	1-228-997-00	RES, ADJ, CERMET	100K				
RV204	1-238-723-11	RES, VAR, CARBON	10K				
RV205	1-238-722-11	RES, VAR, CARBON	10K				
RV401	1-238-688-11	RES, VAR, WIREWOUND	100				
■RV402▲							
<VOLUME>							
RVB1	1-238-721-11	VOLUME (4 GANG)	5K/10K/5K/10K				
<SWITCH>							
SW401	1-571-427-11	SWITCH, SLIDE					
SW402	1-572-022-11	SWITCH, SLIDE					
■SW901▲ 1-571-433-11							
<TRANSFORMER>							
T401	1-423-344-11	TRANSFORMER, HORIZONTAL DRIVE (HDT)					
T402	▲ 1-453-129-11	TRANSFORMER ASS'Y, FLYBACK					
1901	▲ 1-423-346-11	TRANSFORMER CONVERTER					
R1234567890							

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DA(DC-1)

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
C334	1-126-398-11	ELECT CHIP	4.7MF	20%	35V	IC250	8-759-064-06	IC UPA2004GR
C336	1-126-399-11	ELECT CHIP	10MF	20%	35V	IC301	8-759-822-53	IC LA7850
C337	1-163-033-00	CERAMIC CHIP	0.022MF		50V	IC302	8-759-064-06	IC UPA2004GR
C338	1-124-277-11	ELECT CHIP	4.7MF	20%	50V	IC303	8-759-942-16	IC TBA2031A
C340	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V	IC304	8-759-710-88	IC NJM431U
C341	1-124-910-11	ELECT	47MF	20%	35V	IC601	8-759-032-01	IC MC74HC00AF
C342	1-126-101-11	ELECT	100MF	20%	16V	IC602	8-759-239-23	IC TC74HC86AF
C343	1-453-105-11	CR PACK, HIGH-VOLTAGE				IC603	8-759-032-01	IC MC74HC00AF
C345	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	IC604	8-759-926-12	IC SN74HC139ANS
C346	1-126-399-11	ELECT CHIP	10MF	20%	35V	IC605	8-759-239-55	IC TC74HC123F
C347	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	IC606	8-759-032-01	IC MC74HC00AF
C349	1-126-399-11	ELECT CHIP	10MF	20%	35V			<COIL>
C350	1-163-193-00	CERAMIC CHIP	330PF	5%	50V	L101	1-408-080-00	INDUCTOR
C601	1-163-077-00	CERAMIC CHIP	0.1MF		50V	L102	1-412-390-21	INDUCTOR
C602	1-163-077-00	CERAMIC CHIP	0.1MF		50V	L103	1-412-390-21	INDUCTOR
C603	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	L250	1-408-080-00	INDUCTOR
C604	1-163-077-00	CERAMIC CHIP	0.1MF		50V	L301	1-408-080-00	INDUCTOR
C605	1-163-077-00	CERAMIC CHIP	0.1MF		50V	L302	1-408-080-00	INDUCTOR
C606	1-163-077-00	CERAMIC CHIP	0.1MF		50V			100UH
C607	1-163-237-11	CERAMIC CHIP	27PF	5%	50V			100UH
C608	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V			100UH
C609	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V			<CONNECTOR>
C610	1-163-205-00	CERAMIC CHIP	0.001MF	5%	50V	P301	*1-563-226-11	CONNECTOR, INTERNATIONAL
C611	1-163-137-00	CERAMIC CHIP	680PF	5%	50V	P302	*1-563-226-11	CONNECTOR, INTERNATIONAL
C612	1-126-301-11	CERAMIC CHIP	1MF	5%	50V	P303	*1-560-892-00	PIN, CONNECTOR 4P
C613	1-163-077-00	CERAMIC CHIP	0.1MF		50V	P304	*1-560-894-00	PIN, CONNECTOR 6P
C614	1-163-038-00	CERAMIC CHIP	0.1MF		25V	TP301	*1-560-891-00	PIN, CONNECTOR 3P
C622	1-163-038-00	CERAMIC CHIP	0.1MF		25V			
<DIODE>								
D103	8-719-105-91	DIODE RD5.6M-B2			Q101	8-729-216-22	TRANSISTOR 2SA1162-G	
D104	8-719-105-91	DIODE RD5.6M-B2			Q102	8-729-216-22	TRANSISTOR 2SA1162-G	
D253	8-719-820-05	DIODE ISS181			Q253	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D254	8-719-801-48	DIODE ISS193			Q254	8-729-216-22	TRANSISTOR 2SA1162-G	
D255	8-719-801-78	DIODE ISS184			Q255	8-729-216-22	TRANSISTOR 2SA1162-G	
D257	8-719-820-05	DIODE ISS181			Q301	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D259	8-719-801-48	DIODE ISS193			Q302	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D301	8-719-801-48	DIODE ISS193			Q303	8-729-216-22	TRANSISTOR 2SA1162-G	
D302	8-719-801-48	DIODE ISS193			Q304	8-729-216-22	TRANSISTOR 2SA1162-G	
D303	8-719-106-44	DIODE RD9.1M-B2			Q305	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D304	8-719-820-05	DIODE ISS181			Q306	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D306	8-719-801-48	DIODE ISS193			Q307	8-729-216-22	TRANSISTOR 2SA1162-G	
D308	8-719-801-48	DIODE ISS193			Q308	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D309	8-719-801-48	DIODE ISS193			Q309	8-729-216-22	TRANSISTOR 2SA1162-G	
D310	8-719-801-48	DIODE ISS193			Q310	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D311	8-719-107-15	DIODE RD18M-B2			Q311	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D312	8-719-801-48	DIODE ISS193			Q312	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D601	8-719-820-05	DIODE ISS181			Q313	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D602	8-719-801-48	DIODE ISS193			Q314	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D603	8-719-800-76	DIODE ISS226			Q315	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D604	8-719-105-82	DIODE RD5.1ES-B2			Q316	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D605	8-719-800-76	DIODE ISS226			Q317	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D606	8-719-800-76	DIODE ISS226			Q318	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D607	8-719-801-78	DIODE ISS184			Q319	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D608	8-719-801-48	DIODE ISS193			Q320	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
D609	8-719-820-05	DIODE ISS181			Q321	8-729-216-22	TRANSISTOR 2SA1162-G	
D610	8-719-801-48	DIODE ISS193			Q601	8-729-112-65	TRANSISTOR 2SA1462-Y33	
D611	8-719-801-48	DIODE ISS193			Q602	8-729-112-65	TRANSISTOR 2SA1462-Y33	
D612	8-719-026-17	DIODE RD5.1PB			Q603	8-729-216-22	TRANSISTOR 2SA1162-G	
					Q604	8-729-216-22	TRANSISTOR 2SA1162-G	
<IC>								
IC101 Δ 8-749-923-30 IC PR-1								
					Q605	8-729-120-28	TRANSISTOR 2SC1623-T2L6	
					Q606	8-729-421-22	TRANSISTOR UN2211-TX	
					Q607	8-729-216-22	TRANSISTOR 2SA1162-G	

DA(DC-1)

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
Q608	8-729-421-22	TRANSISTOR UN2211-TX		R319	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
Q609	8-729-421-22	TRANSISTOR UN2211-TX		R320	1-216-075-00	METAL GLAZE	12K 5% 1/10W
Q610	8-729-421-22	TRANSISTOR UN2211-TX		R321	1-216-105-00	METAL GLAZE	220K 5% 1/10W
Q611	8-729-120-28	TRANSISTOR 2SC1623-T2L6		R322	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W
Q612	8-729-421-22	TRANSISTOR UN2211-TX		R323	1-216-073-00	METAL GLAZE	10K 5% 1/10W
Q613	8-729-421-22	TRANSISTOR UN2211-TX		R324	1-216-073-00	METAL GLAZE	10K 5% 1/10W
Q614	8-729-120-28	TRANSISTOR 2SC1623-T2L6		R325	1-216-073-00	METAL GLAZE	10K 5% 1/10W
Q615	8-729-421-22	TRANSISTOR UN2211-TX		R326	1-216-025-00	METAL GLAZE	100 5% 1/10W
Q616	8-729-120-28	TRANSISTOR 2SC1623-T2L6		R327	1-216-089-00	METAL GLAZE	47K 5% 1/10W
Q617	8-729-216-22	TRANSISTOR 2SA1162-G		R328	1-216-077-00	METAL GLAZE	15K 5% 1/10W
Q618	8-729-216-22	TRANSISTOR 2SA1162-G		R329	1-216-077-00	METAL GLAZE	15K 5% 1/10W
<RESISTOR>							
R101	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R330	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R102	1-216-033-00	METAL GLAZE 220 5%	1/10W	R331	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R103	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R332	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R104	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R333	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R105	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R334	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R106	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R335	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R107	1-216-033-00	METAL GLAZE 220 5%	1/10W	R336	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R108	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R337	1-216-033-00	METAL GLAZE	220 5% 1/10W
R109	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R338	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R110	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R339	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R111	1-216-019-00	METAL GLAZE 56 5%	1/10W	R340	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R112	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W	R341	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R113	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W	R342	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R114	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W	R344	1-216-019-00	METAL GLAZE	56 5% 1/10W
R115	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W	R345	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R116	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W	R346	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R117	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W	R347	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R118	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W	R348	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R119	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W	R349	1-216-689-11	METAL GLAZE	39K 5% 1/10W
R255	1-216-105-00	METAL GLAZE 220K 5%	1/10W	R350	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W
R256	1-216-105-00	METAL GLAZE 220K 5%	1/10W	R351	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R257	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R352	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R258	1-216-109-00	METAL GLAZE 330K 5%	1/10W	R353	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R259	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R354	1-216-001-00	METAL GLAZE	10 5% 1/10W
R260	1-216-101-00	METAL GLAZE 150K 5%	1/10W	R355	1-216-033-00	METAL GLAZE	220 5% 1/10W
R261	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R356	1-216-001-00	METAL GLAZE	10 5% 1/10W
R262	1-216-113-00	METAL GLAZE 470K 5%	1/10W	R357	1-216-041-00	METAL GLAZE	470 5% 1/10W
R263	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R358	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R264	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R359	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R265	1-216-077-00	METAL GLAZE 15K 5%	1/10W	R360	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R266	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R361	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R267	1-216-077-00	METAL GLAZE 15K 5%	1/10W	R362	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R268	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R363	1-216-041-00	METAL GLAZE	470 5% 1/10W
R269	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R364	1-216-031-00	METAL GLAZE	180 5% 1/10W
R301	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R365	1-216-689-11	METAL GLAZE	39K 5% 1/10W
R302	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R366	1-216-689-11	METAL GLAZE	39K 5% 1/10W
R303	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	R367	1-216-080-00	METAL GLAZE	20K 5% 1/10W
R304	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R368	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R305	1-216-083-00	METAL GLAZE 27K 5%	1/10W	R369	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R306	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R370	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R307	1-216-045-00	METAL GLAZE 680 5%	1/10W	R371	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R308	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R372	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R309	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W	R375	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R310	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W	R376	1-216-101-00	METAL GLAZE	150K 5% 1/10W
R311	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W	R379	1-216-091-00	METAL GLAZE	56K 5% 1/10W
R312	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R380	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R313	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R381	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R314	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R382	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R315	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R383	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R316	1-216-097-00	METAL GLAZE 100K 5%	1/10W	R384	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R317	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R385	1-216-027-00	METAL GLAZE	120 5% 1/10W
R318	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R386	1-216-093-00	METAL GLAZE	68K 5% 1/10W

K

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

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

REF. NO. PART NO.	DESCRIPTION	REMARK
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T741 1-423-347-11 TRANSFORMER, FOCUS DYNAMIC

MISCELLANEOUS

Δ 1-451-408-11	DEFLECTION YOKE (TCD-12501)
V901 Δ 8-738-577-05	PICTURE TUBE 17FQ6
Δ 738-577-81	PICTURE TUBE, ITC (17FQ6)

ACCESSORIES & PACKING MATERIALS

PART NO.	DESCRIPTION	REMARK
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Δ 1-534-827-14	CORD, POWER
3-754-167-22	MANUAL, INSTRUCTION
*4-033-922-01	INDIVIDUAL CARTON
*4-033-923-01	CUSHION (UPPER) (ASS'Y)
*4-033-924-01	CUSHION (LOWER) (ASS'Y)
*4-033-925-01	SPACER
*4-377-015-01	BAG, PROTECTION