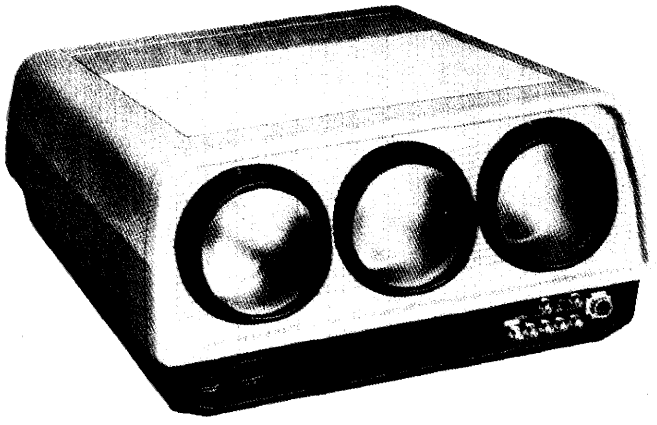
VPH-1041Q/1042Q

SERVICE MANUAL

US Model
Canadian Model

VPH-1041Q
Chassis No. SCC-B80A-A
VPH-1042Q
Chassis No. SCC-B83A-A



SPECIFICATIONS

Optical

Projection system
3 picture tubes, 3 lenses, direct projection system

Picture tube
5.5-inch high-brightness monochrome tubes, with coolant sealed

Projection lens
VPH-1041Q:
High-performance hybrid lenses
F1.0/130 mm
VPH-1042Q:
HACC (High Resolution Aspherical and Color Corrected) lenses
F1.0/135 mm

Projected picture size
70 – 250 inches measure diagonally
Factory-adjusted to 100 inches measured diagonally

Light output
600 lm

General

Color system
PAL, SECAM, NTSC and NTSC4.43 systems, switched automatically

Resolution
1,000 TV lines (RGB inputs)
650 TV lines (video input)

RGB inputs
Character display capacity:
2000 character
(80 letters × 25 lines)
Horizontal frequency: 15.75 kHz
Vertical frequency: 50/60 Hz

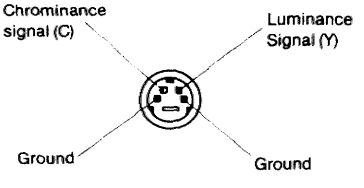
Test signal
Cross-hair test pattern generator is incorporated.

Speaker
5 × 9 cm (2 × 3½ inches) 1 unit, 3 W

Inputs

LINE IN

S VIDEO: 4-pin mini DIN connector
Y (luminance) signal: 1 Vp-p ±2 dB, sync negative, 75 ohms terminated
C (chrominance) signal: burst 0.286 Vp-p ±2dB, 75 ohms terminated



VIDEO: BNC connector
Composite video input,
1 Vp-p ±2 dB, sync negative,
75 ohms terminated
AUDIO: phono jack
VPH-1041Q/1042Q:
–5 dBs

RGB IN

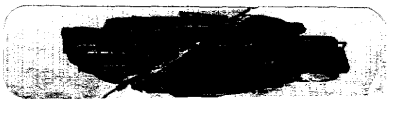
R: BNC connector
Red input, 0.7 Vp-p ±2 dB,
75 ohms terminated, positive
G/G SYNC: BNC connector
Green input, 0.7 Vp-p ±2 dB,
75 ohms terminated, positive
Green with sync input,
1 Vp-p ±2 dB, 75 ohms terminated, positive
B: BNC connector
Blue input, 0.7 Vp-p ±2 dB,
75 ohms terminated, positive
SYNC/HD: BNC connector
Composite sync input,
0.3 – 4 Vp-p,
75 ohms terminated, negative
Horizontal sync input,
0.3 – 4 Vp-p,
75 ohms terminated, negative
VD: BNC connector
Vertical sync inpout, 0.3 – 4 Vp-p,
75 ohms terminated, negative

– Continued on next page –

MICROFILM

COLOR VIDEO PROJECTOR

SONY®

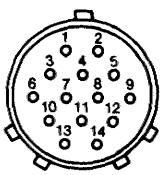


Output **MONITOR OUT**

VIDEO: BNC connector
Composite video output,
1 Vp-p ±2 dB, impedance
75 ohms, selected video output
With the remote controller:
video signal from the controller *
Without the remote controller:
video signal from the LINE IN connector *

* The separated Y and C signals input to the S VIDEO connector is output as a composite video signal.

TO VPR-722S connector
14-pin connector



Pin No.	Signal	Pin No.	Signal
1	Ground	8	Input select
2	+28V ⎓ 60mA	9	Audio (incl. volume control)
3	Hue 1	10	Brightness
4	Hue 2	11	Sharpness or chrominance signal
5	Hue 3	12	Color
6	Video or luminance signal	13	Picture
7	Ground (video)	14	Power ON: 12 V OFF: 0 V

Power requirements
VPH-1041Q/1042Q: 120 V AC, 50/60 Hz
Power consumption
VPH-1041Q/1042Q: 230 W max., 3.0 A max.
Dimensions Approx. 532 × 288 × 597 mm (w/h/d)
(21 × 11 3/8 × 23 5/8 inches)
With the brackets pushed down,
incl. projecting parts and controls
Weight VPH-1041Q : Approx. 30 kg (66 lb 2 oz)
VPH-1042Q : Approx. 38 kg (83 lb 12 oz)
Accessories supplied
AC power cord (1)
Spacer for 200" projection (4)

Design and specifications subject to change without notice.

Optional Accessories

Remote controller VPR-722S
Projector pedestal SU-722
Projector suspension support PSS-722, PSS-10
Screen VPS-100F1 (100" flat)
VPS-72HG1 (72" curved)
VPS-100HG1 (100" curved)
VPS-700R (70", rear projection)
Carrying case VLC-1040
CCQ BRS cables
Shielded cable SMF-506 (D-sub 25-pin ⟷ 4 BNC)

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

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!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.
LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ 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 IDENTIFIES 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 condition of the monopole antenna (if any).
   Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. 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.
9. 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 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive 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)

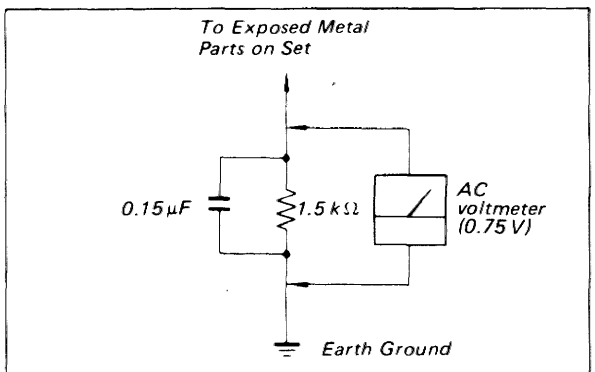


Fig. A. Using an AC voltmeter to check AC leakage.

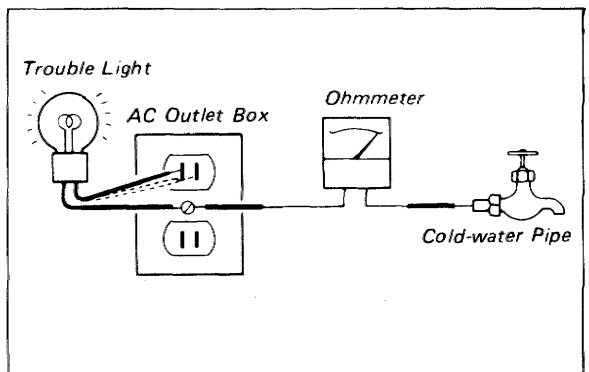


Fig. B. Checking for earth ground.

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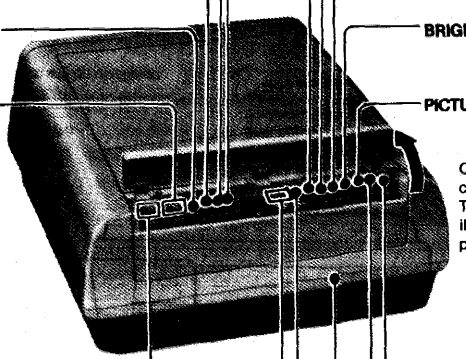
SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS

For details on the use of each control, refer to the pages in ●

Control panel



RGB BLUE MODE SELECT switch

RGB H SHIFT (horizontal shift) control

V HOLD (vertical hold) control

NORM/TEST (normal/test signal) selector

V CENT (vertical centering) controls

H CENT (horizontal centering) controls

INPUT SELECT buttons
Press to select the program source to be projected.
LINE: For inputs from the TO-VPR-722S connector or the LINE S VIDEO or VIDEO connector
RGB: For inputs from the RGB IN connectors

HUE control

COLOR control

SHARPNESS control

BRIGHT (brightness) control

PICTURE control

Open the panel cover.
The control panel is illuminated when the panel cover is open.

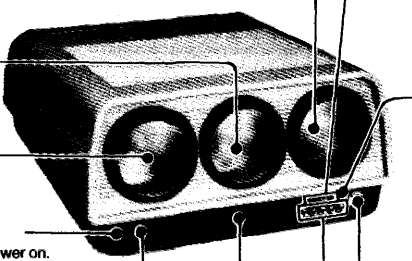
PROJECTOR switch

VOLUME control

POWER lamp

COLOR SYSTEM selector
Normally set to AUTO.
Set to SECAM when the color of a picture from SECAM color sources is disturbed.

Connector panel



Blue lens

Green lens

Red lens

POWER swtich
Depress to turn the power on.
When the remote controller is connected, power will be supplied to the controller.

AC IN socket

Speaker

RGB IN connectors (BNC)
R, G/G SYNC, B, SYNC/HD, VD connectors

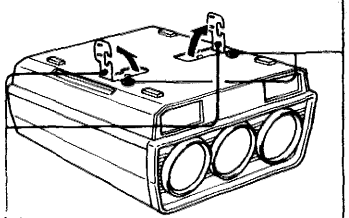
LINE IN (line input) connectors
S VIDEO (4-pin, mini DIN)
VIDEO (BNC)
AUDIO (phono)
Note
The VIDEO connector is disconnected automatically when a cable is connected to the S VIDEO connector.

MONITOR OUT (monitor output) connector (BNC)
The signal input to the TO VPR-722S, S VIDEO or VIDEO input connector is output from this connector.*
If signals are connected to each connector, the output signal is selected according to the following priority: TO VPR-722S, S VIDEO and VIDEO.

TO VPR-722S connector (14-pin, male)

* The separated Y (luminance) and C (chrominance) signals input to the S VIDEO connector is output as composite video signal.

Bottom

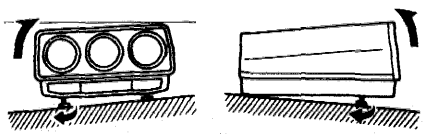


Brackets
For attaching the projector to the PSS-722 suspension support or the SU-722 pedestal.

Adjustable feet
The horizontal balance and angle of the projector can be adjusted with these feet.
The feet are factory-adjusted to the shortest length for a flat base.

Turn either foot to obtain horizontal balance.

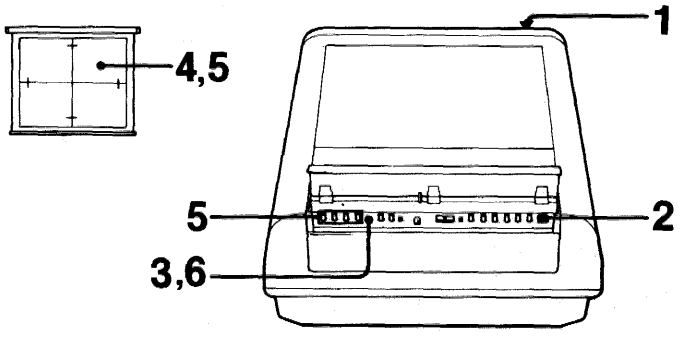
Turn both feet to adjust the angle.



1-2. POSITION AND REGISTRATION ADJUSTMENT

Installation and preliminary adjustments should be carried out by qualified Sony personnel.

When the projector is installed on a desk or on the floor using the pedestal, it can be easily moved but it may be necessary to readjust the registration.

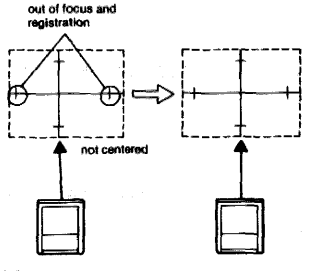


1 Depress the POWER switch (ON).

2 Depress the PROJECTOR switch (ON).

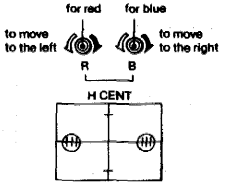
3 Set the NORM/TEST selector to TEST.
The built-in cross-hair test pattern will be displayed.

4 Check the focus and centering.
If the test pattern is not centered and focused on the screen, move the projector slightly so that the pattern is displayed clearly.

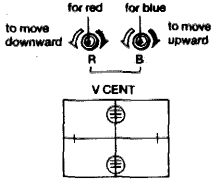


5 Check the convergence of red, green and blue.
If the red and blue lines do not converge with the green line, adjust the H CENT and V CENT controls so that the three lines converge and the pattern is seen as white.

To move the red and blue vertical lines



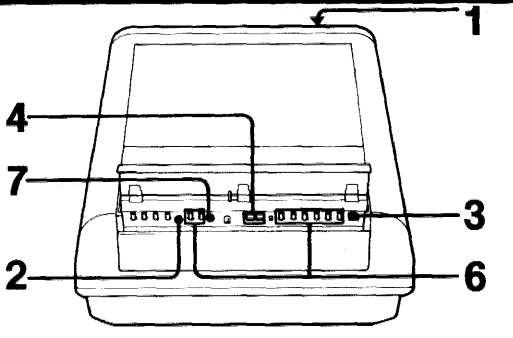
To move the red and blue horizontal lines



6 After the adjustment is complete, set the NORM/TEST selector to NORM.

1-3. PROJECTING

Operation



1 Depress the POWER switch (ON).

2 Make sure that the NORM/TEST selector is set to NORM.

3 Depress the PROJECTOR switch (ON).
The green POWER lamp will light.

4 Select the program to be projected by pressing the LINE or RGB INPUT SELECT button.

5 Turn on the connected equipment.
The picture will be projected on the screen and the sound will be heard from the speaker.

6 Adjust the picture and sound to your preference.
See below.

7 For RGB programs, select the position of the RGB BLUE MODE SELECT switch.
See "RGB BLUE MODE SELECT switch".

To turn off the projector
Press the PROJECTOR switch again (OFF).

To turn off the power
Press the POWER switch (OFF).

RGB BLUE MODE SELECT switch
This switch is effective only for RGB inputs. Select the position in which the display is easiest to view.

NORMAL	Normally set to this position.
BB	To change the black background to blue.
CB	To lighten the blue part of the display.

1-4. INSTALLATION DIAGRAMS (1)

Operation Using the Remote Controller

When the optional Sony VPR-722S remote controller is connected to the TO VPR-722S connector, keep the POWER switch on the projector at ON and perform steps 3, 4, 6 and 7 above on the controller. The controls on the projector do not function.

Note
V HOLD and H SHIFT adjustments cannot be operated with the controller.

Picture and Sound Adjustments

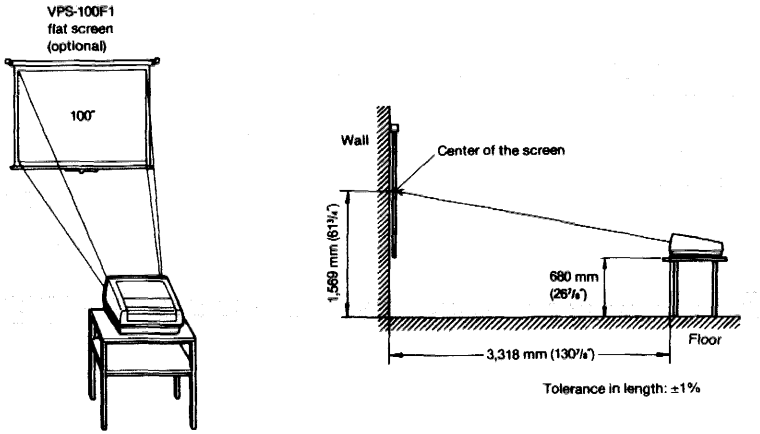
VOLUME	Turn toward MAX to increase volume, and toward MIN to decrease it.
PICTURE	Turn clockwise to increase picture contrast, color intensity and brightness in the proper ratio, and counterclockwise to decrease them.
BRIGHT	Turn clockwise for more brightness, and counterclockwise for less.
SHARPNESS	Turn clockwise for sharp picture, and counterclockwise for soft.
COLOR	Turn clockwise for more color intensity, and counterclockwise for less.

HUE	(Effective only for a program of the NTSC or NTSC4.43 color system) Turn clockwise to make the skin tones greenish, and counterclockwise to make them purplish.
RGB H SHIFT	(Effective only for RGB inputs) Turn to adjust the horizontal position of the picture.
V HOLD	If the picture rolls vertically, turn until the picture stabilizes.

For the same type of installation in another place, no readjustment is required, although the projector should be placed in the proper position.
The projector is preadjusted at the factory for 100" projection, and internal conversion is necessary for other projection sizes.

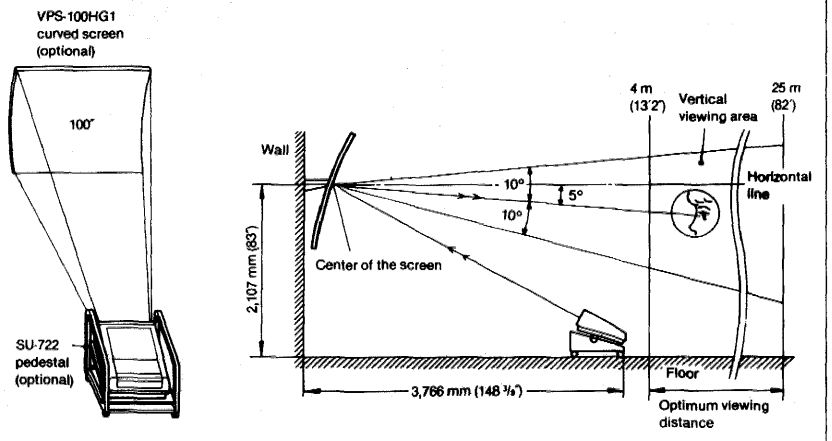
For 100" Projection

Desk



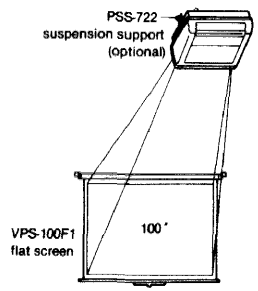
Tolerance in length: ±1%

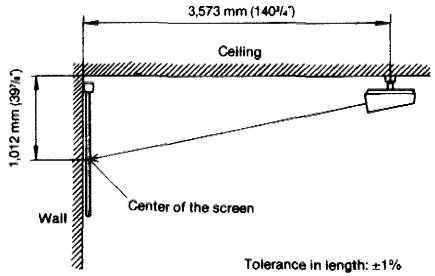
Floor



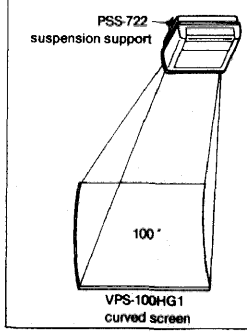
Tolerance length: ±1%

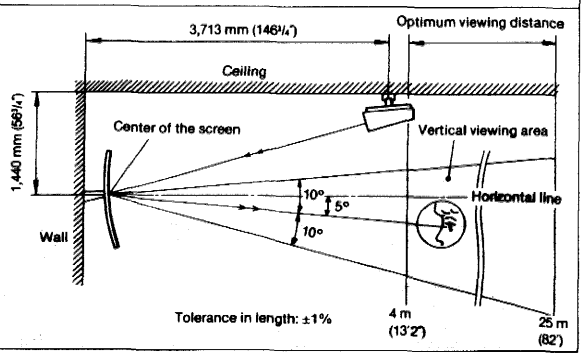
Ceiling



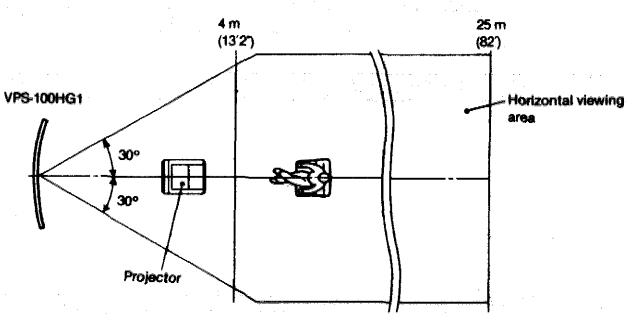


Tolerance in length: ±1%



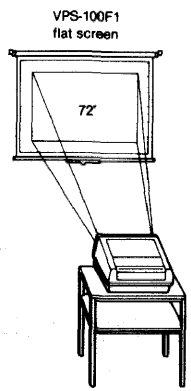


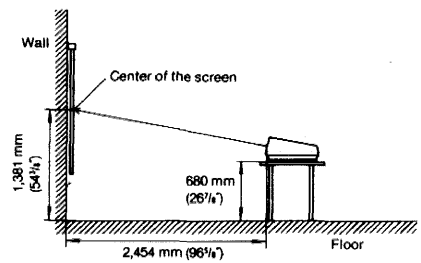
Horizontal viewing area for the VPS-100HG1



For 72″ Projection

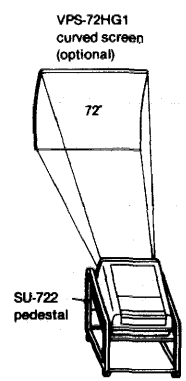
Desk

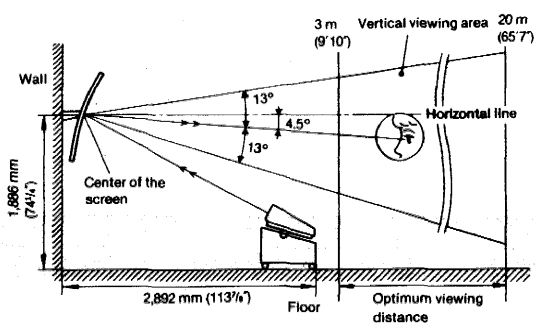




Tolerance in length: ±1%

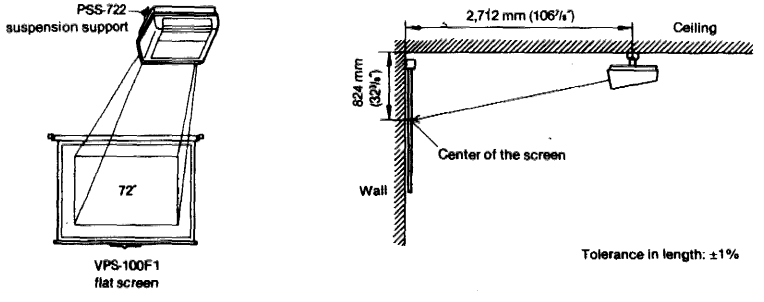
Floor

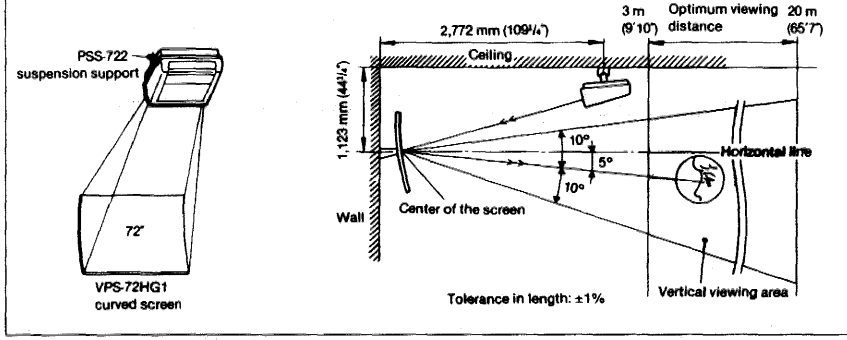




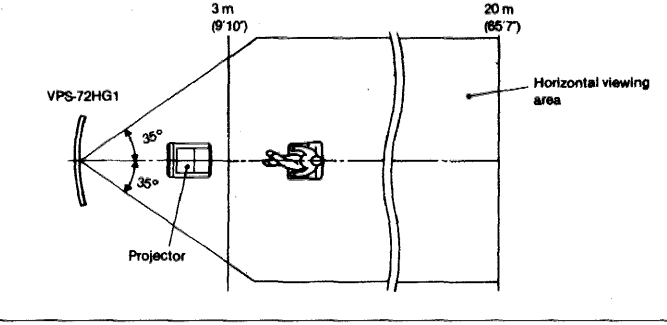
Tolerance in length: ±1%

Ceiling



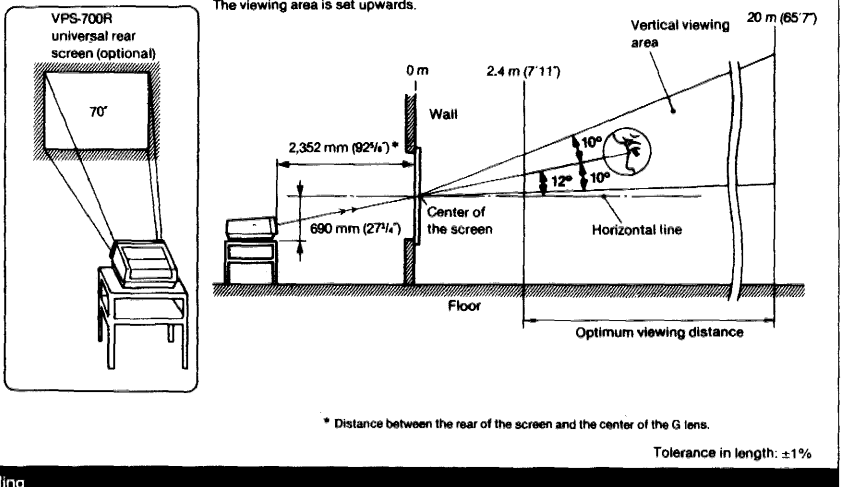


Horizontal viewing area for the VPS-72HG1

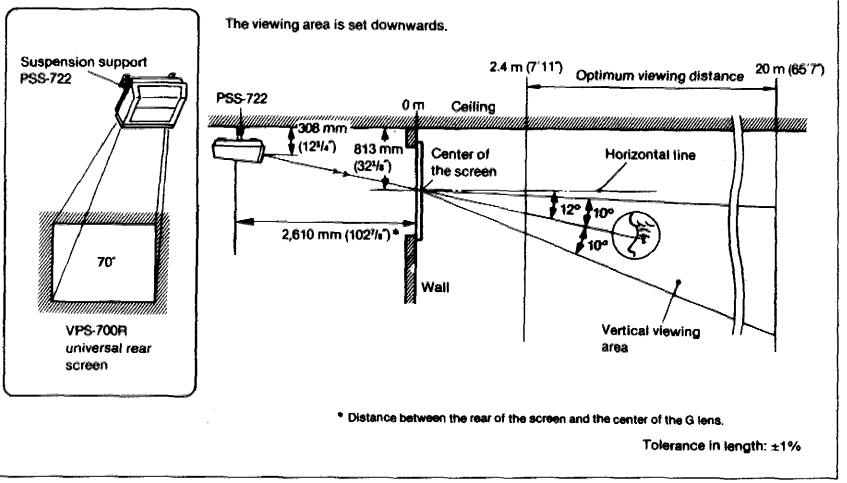


For 70" Rear Projection

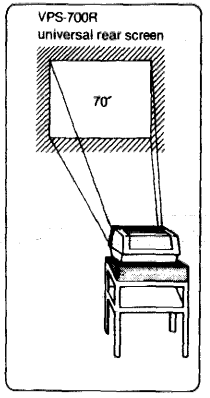
Desk



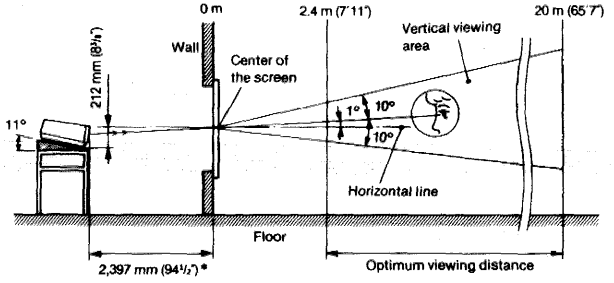
Ceiling



Level Projection



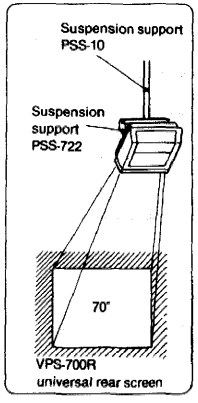
The viewing area is set approximately direct (approx. 1° upward).



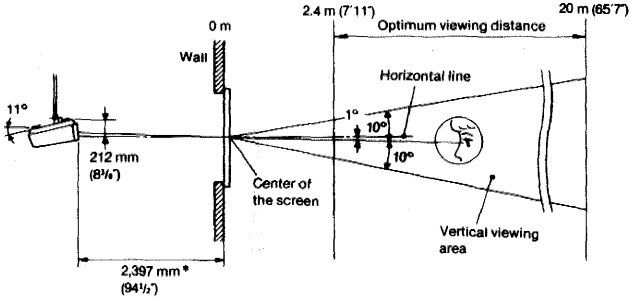
* Distance between the rear of the screen and the center of the G lens.

Tolerance in length: ±1%

Upturned Level Projection



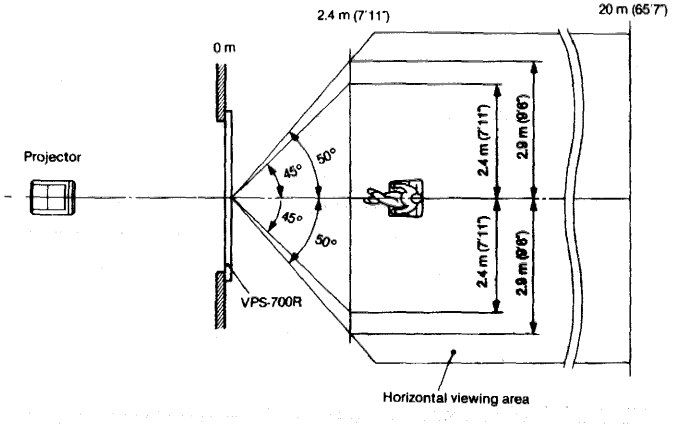
The viewing area is set approximately direct (approx. 1° downward).



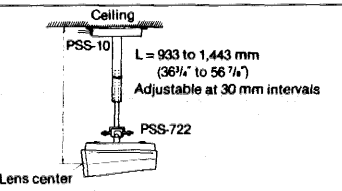
* Distance between the rear of the screen and the center of the G lens.

Tolerance in length: ±1%

Horizontal viewing area for the VPS-700R



To adjust the distance between the ceiling and the projector, use the optional PSS-10 projector suspension support in combination with the PSS-722.

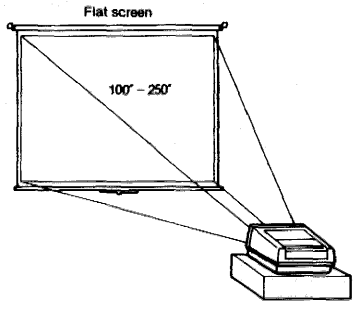


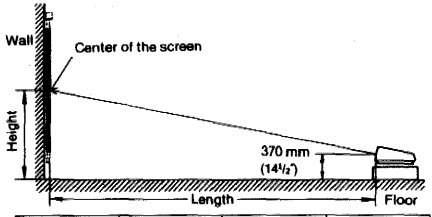
1-5. SYSTEM CONNECTIONS

For 100"–250" Projection

Decide the length and height according to the size of the screen to be used.
For a screen not described in the tables, set the length approximately 1.6 times screen width.

Floor

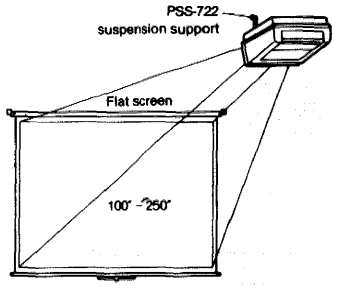


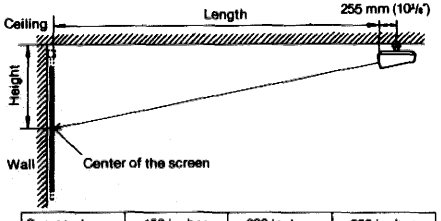


Screen size		150 inches	200 inches	250 inches
Length	mm	4850 (191")	6410 (252½")	7960 (313½")
Height	mm	1410 (55½")	1740 (68½")	2080 (82")

Tolerance in length: ±1%

Ceiling





Screen size		150 inches	200 inches	250 inches
Length	mm	4850 (191")	6410 (252½")	7960 (313½")
Height	mm	1350 (53¼")	1680 (66¼")	2020 (79½")

Tolerance in length: ±1%

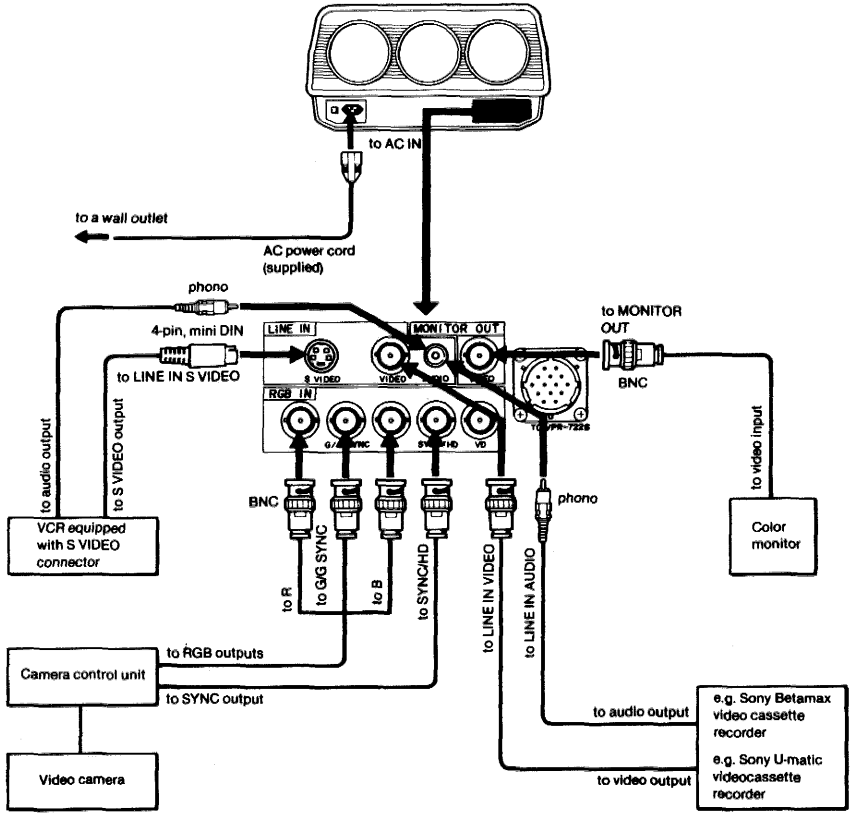
To use 150" to 250" screens, the projector should be converted for 200" projection. For conversion, consult the qualified Sony personnel.

To transport the projector, use the VLC-1040 carrying case (optional).

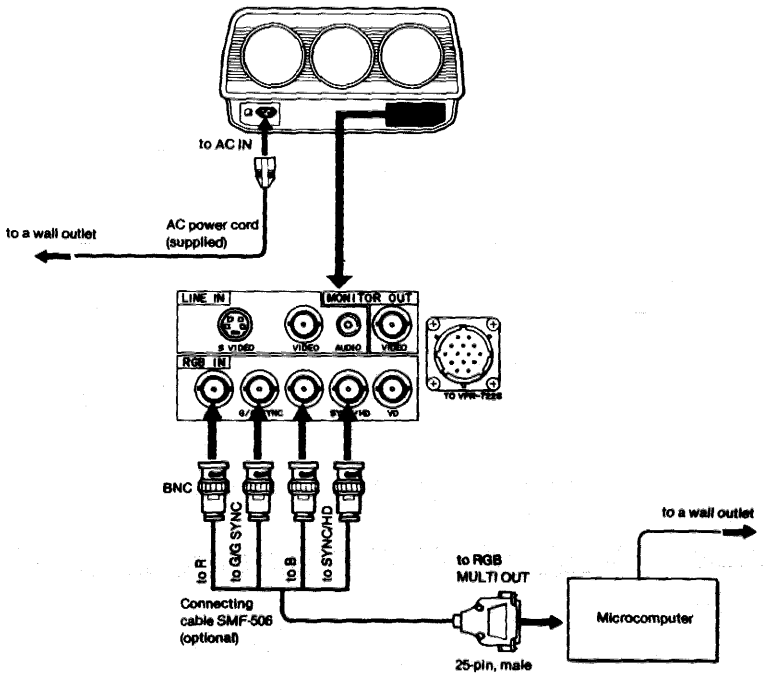
Connecting Notes

- First make sure that the power to each piece of equipment is turned off.
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- To disconnect the cable, pull it out by grasping the plug. Never pull the cable itself.
- Use suitable connecting cables according to the equipment to be connected.
- For connection to the VIDEO IN and TO VPR-722S connectors, the connecting cable may be extended to max. 50 m (164 feet ½ inch). If the connecting cable is longer than 50 m, picture quality may be impaired somewhat.
- Read the instruction manual of the equipment to be connected.

Without Using the Remote Controller



Connecting a Microcomputer



Sync Signal Connection for RGB Inputs

The connection differs according to the sync signal to be used.

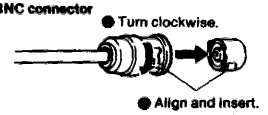
When a sync signal is input together with the green signal	Connection to the SYNC/HD and VD connectors is not necessary.
When using an external composite sync signal	Connect it to the SYNC/HD connector. (as illustrated above)
When using horizontal and vertical sync signals	Connect them to the SYNC/HD and VD connectors respectively.

* If your microcomputer is equipped with a composite video output, connect it to the LINE IN VIDEO connector on the projector.

Note

Do not leave a still picture from a microcomputer or video disc player projected for more than one hour.

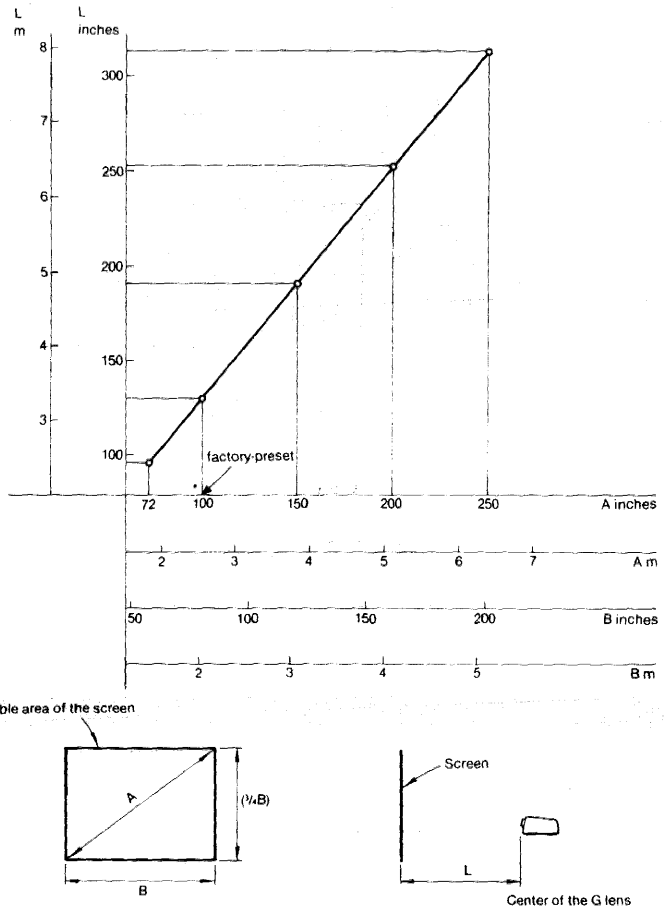
BNC connector



Type 13 and Type 14

100" - 250" projection

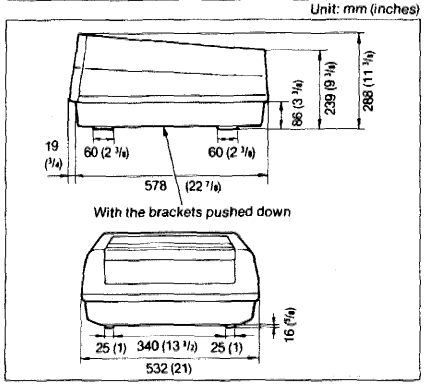
For a screen not described on page 10, use the following graph to decide the distance between the screen and projector (L).



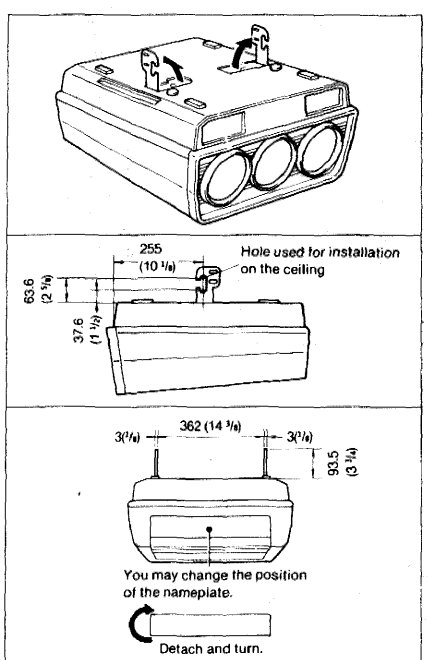
1-7. NOTES ON INSTALLATION

Projector's Dimensions

Unit: mm (inches)

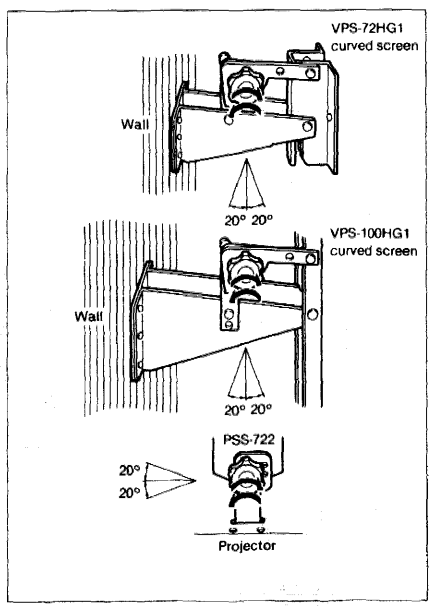


Raise the brackets when installing the projector on the ceiling or floor.



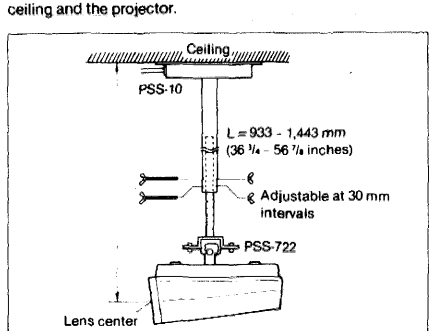
To Adjust the Angle of the Screen/ Projector

Loosen the knobs, adjust the angle, then tighten the knobs down firmly.



When the PSS-10 projector suspension support (optional) is used in combination with the PSS-722

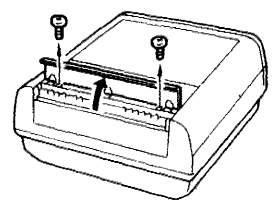
The PSS-10 allows you to adjust the distance between the ceiling and the projector.



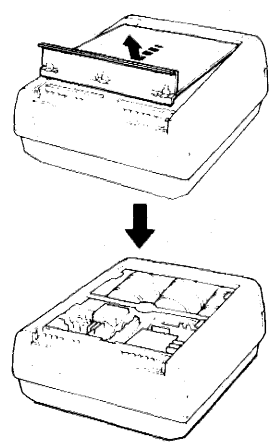
To Open the Top Panel

You will need a medium size Phillips head screwdriver.

1 Open the control panel cover.
2 Remove the two screws.



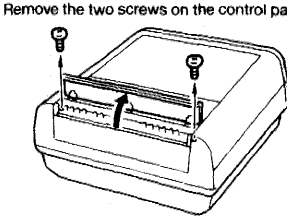
3 Pull the top panel slightly toward you and remove it.



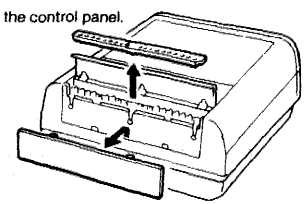
To Open the Cabinet

Open the cabinet when changing the voltage selector setting and when converting the unit for 200° projection.

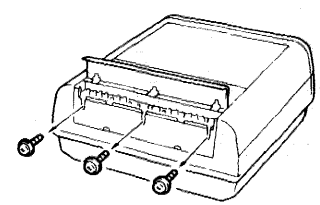
1 Open the control panel cover.
2 Remove the two screws on the control panel.



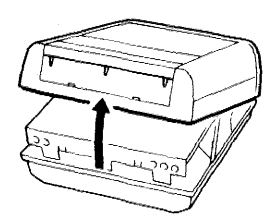
3 Slide the nameplate upward and pull it toward you to remove.
4 Remove the control panel.



5 Remove the three screws.



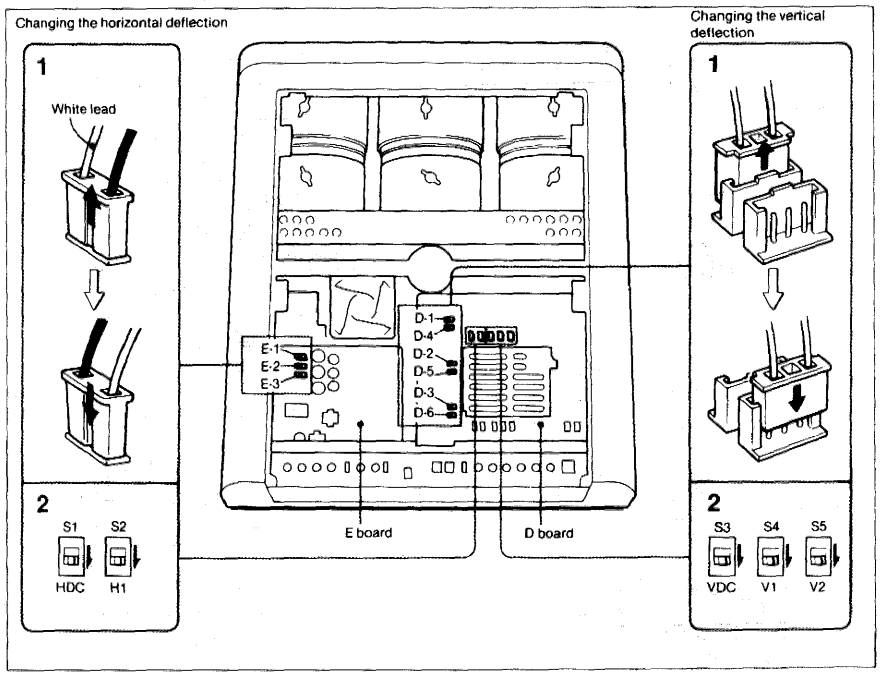
6 Raise the cabinet to remove.



1-8. POLARITY CHANGE

The projector is preadjusted at the factory for the front projection facing the screen, on desk or floor. When the projector is installed on the ceiling with the bracket side up or used for the rear projection, the polarity should be changed.
Horizontal and/or vertical deflection should be changed depending on the type of projection and installation location.

Projection type	Installation location	Type of installation	Horizontal deflection change	Vertical deflection change
Front projection	Ceiling	3 4 7 8 14	Necessary	Necessary
Rear projection	Desk, floor or level projection	9 11	Necessary	Unnecessary
	Ceiling or upturned level projection	10 12	Unnecessary	Necessary



Preparations

- Make sure that power is not connected.
- Open the top panel. (See page 13.)

To change the horizontal deflection

1 Reverse the polarity of connectors E-1, E-2 and E-3 on E board.
2 Set switches S1 and S2 on D board to the control panel side position.

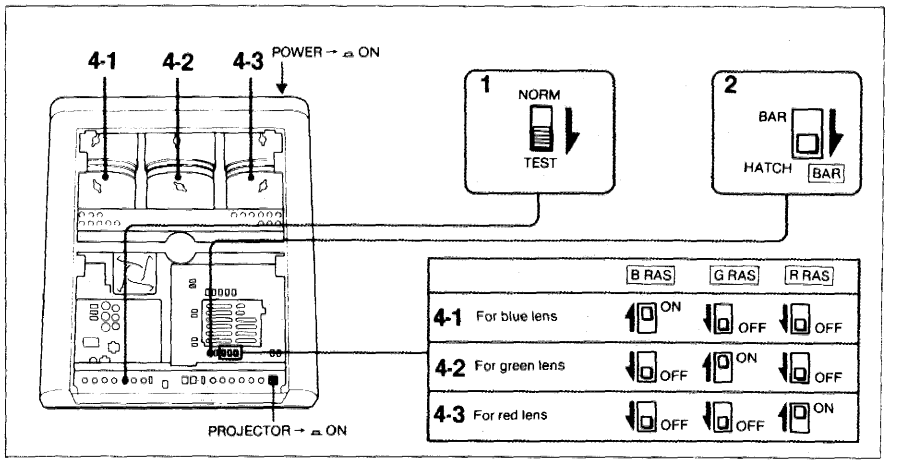
To change the vertical deflection

1 Move the connectors on D board from receptacles D-1, D-2 and D-3 to receptacles D-4, D-5 and D-6, respectively.
2 Set switches S3, S4 and S5 on D board to the control panel side position.

Note
Check that the connectors are inserted firmly, then proceed to lens focus adjustment with the projector's top panel removed.

1-9. LENS FOCUS ADJUSTMENT

The lens focus is preadjusted at the factory for 100" flat screen. For other type screens, the lens focus should be adjusted.

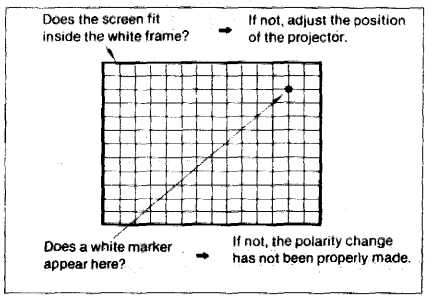


Preparations

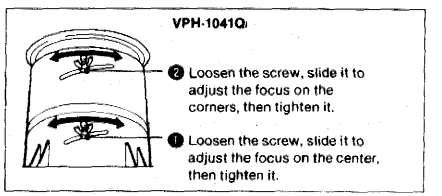
- Install the projector in the correct position on the floor or ceiling.
- Connect the supplied power cord to the AC IN socket and to an AC outlet, depress the POWER switch on the connector panel and the PROJECTOR switch. The green POWER lamp will light.
- Open the top panel. (See page 13.)

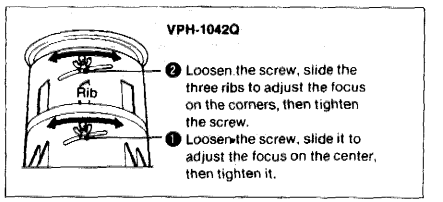
Adjustment

1 Set the NORM/TEST switch to TEST.
2 Set the BAR switch to HATCH.
3 A cross hatch pattern will be displayed. Check the following.



4 Adjust the lens focus.
For adjusting each lens, first set the B RAS, G RAS and R RAS switches as illustrated above, then adjust the lens as illustrated below.

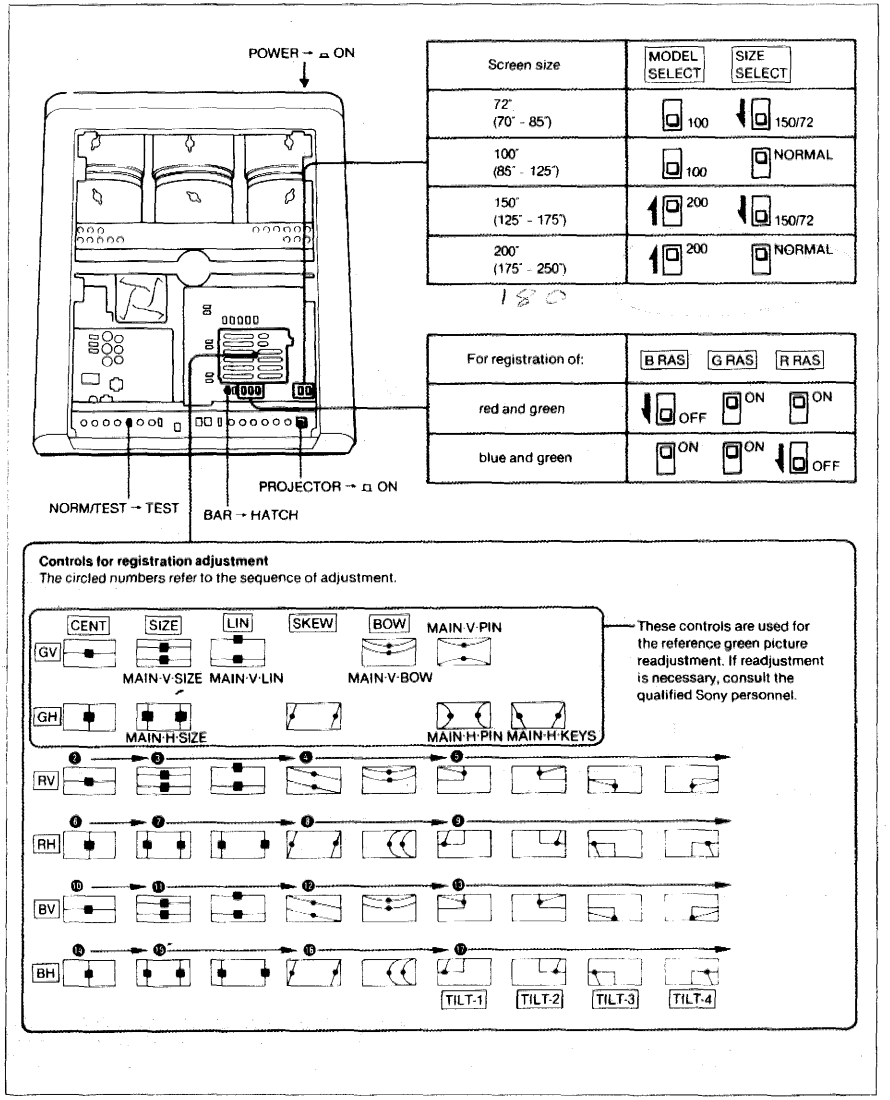




Proceed to registration adjustment.

1-10. REGISTRATION ADJUSTMENT

Use a small screwdriver to adjust the controls through the holes.

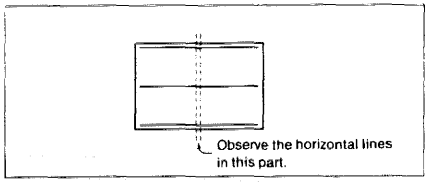


Preparations

- Keep the G RAS switch at ON and set the B RAS and R RAS switches to OFF. A green cross hatch pattern will be displayed.
- Check the position of the projector, polarity and lens focus referring to page 15.
- Set the MODEL SELECT and SIZE SELECT switches according to the screen size.
  Set the MODEL SELECT switch to 100 for 70" – 125" projection, and to 200 for 125" – 250" projection.
  Set the SIZE SELECT switch to NORMAL for 85" – 125" and 175" – 250" projection, and to 150/72 for 70" – 85" and 125" – 175" projection.

Vertical registration of the red and green pictures

❶ Set the B RAS switch to OFF and the G RAS and R RAS switches to ON.
❷ Adjust the RV CENT control so that the red horizontal lines and the green horizontal lines converge in the middle of the screen.
❸ Adjust the RV SIZE control (and the RV LIN control, if necessary) so that the red horizontal lines and the green horizontal lines coverge at the upper and lower sides of the screen.

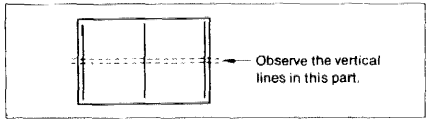


(Repeat steps ❷ and ❸ as necessary.)

❹ Adjust the RV SKEW and RV BOW controls if the red horizontal lines and the green horizontal lines do not converge in the middle of the screen.
❺ Adjust the RV TILT-1 through TILT-4 controls so that the red horizontal lines and the green horizontal lines converge in the corners of the screen.

Horizontal registration of the red and green pictures

❻ Adjust the RH CENT control so that the red vertical lines and the green vertical lines converge in the middle of the screen.
❼ Adjust the RH SIZE control (and the RH LIN control, if necessary) so that the red vertical lines and the green vertical lines converge at the right and left sides of the screen.



(Repeat steps ❻ and ❼ as necessary.)

❽ Adjust the RH SKEW and RH BOW controls so that the red vertical lines and the green vertical lines converge in the middle of the screen.
❾ Adjust the RH TILT-1 through TILT-4 controls so that the red vertical lines and the green vertical lines converge at the corners of the screen.

Proceed to the following adjustments in the same manner as with red and green registration, setting the R RAS switch to OFF and the B RAS and G RAS switches to ON.

Vertical registration of the blue and green pictures

❿ Adjust the BV CENT control.
⓫ Adjust the BV SIZE control, and BV LIN if necessary.
⓬ Adjust the BV SKEW and BV BOW controls, if necessary.
⓭ Adjust the TILT-1 through TILT-4 controls.

Horizontal registration of the blue and green pictures

⓮ Adjust the BH CENT control.
⓯ Adjust the BH SIZE control, and BH LIN if necessary.
⓰ Adjust the BH SKEW and BH BOW controls.
⓱ Adjust the BH TILT-1 through TILT-4 controls.

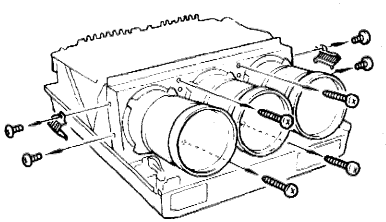
When registration is complete
Set the switches to the following positions.
R, G, B RAS switches →ON position
BAR switch →BAR
NORM/TEST switch →NORM

Replace the top panel. (Reverse the steps given on page 13.)

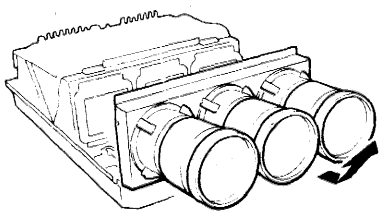
1-11. CONVERSION FOR 200" (150" – 250") PROJECTION

1 Separate the lens block from the main body.

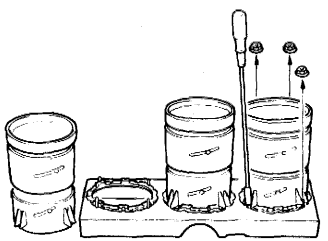
❶ Open the cabinet. (See page 13.)
❷ Remove the 4 screws from the sides of the projector.
❸ Remove the 4 screws from the lens base.



❹ Pull the lens block out.

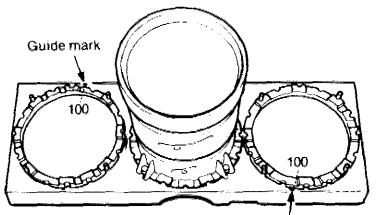


❺ Remove the 4 nuts and detach the red and blue lenses from the lens base.
Use an 8 mm nutdriver.

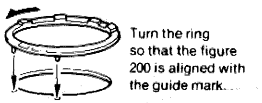


2 Change the positions of the lens rings.

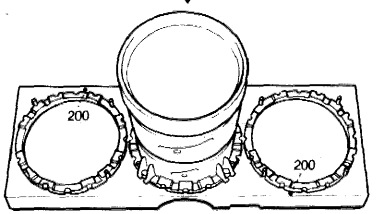
For 100˝ (and 72˝) projection



For 200˝ projection



Align and insert



3 Adjust the mounting angles of the CRTs.

Use an 8 mm nutdriver.

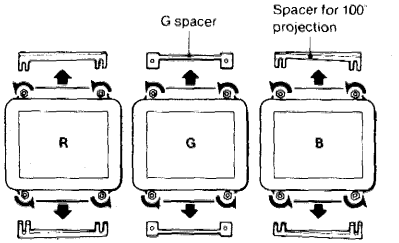
❶ Loosen the nuts and remove all the spacers from the top and bottom of each lens.

❷ Insert the supplied spacers for 200˝ projection, 0.3 mm spacers and G spacers as follows:
R and B lenses: A spacer for 200˝ and a 0.3 mm spacer for the top; a spacer for 200˝ for the bottom
G lens: A G spacer removed in step ❶ and a 0.3 mm spacer for the top; a G spacer removed in step ❶ for the bottom
Insert the spacers for 200˝ with the thinner end toward the center CRT.

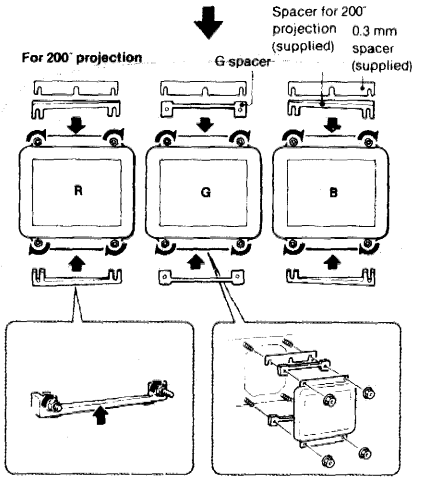
❸ Tighten, all the nuts completely for accurate angles of the lenses.

After adjsutment is complete, replace the lens block in the main body and close the cabinet.
(Reverse the steps given in section 1.)

For 100˝ (and 72˝) projection

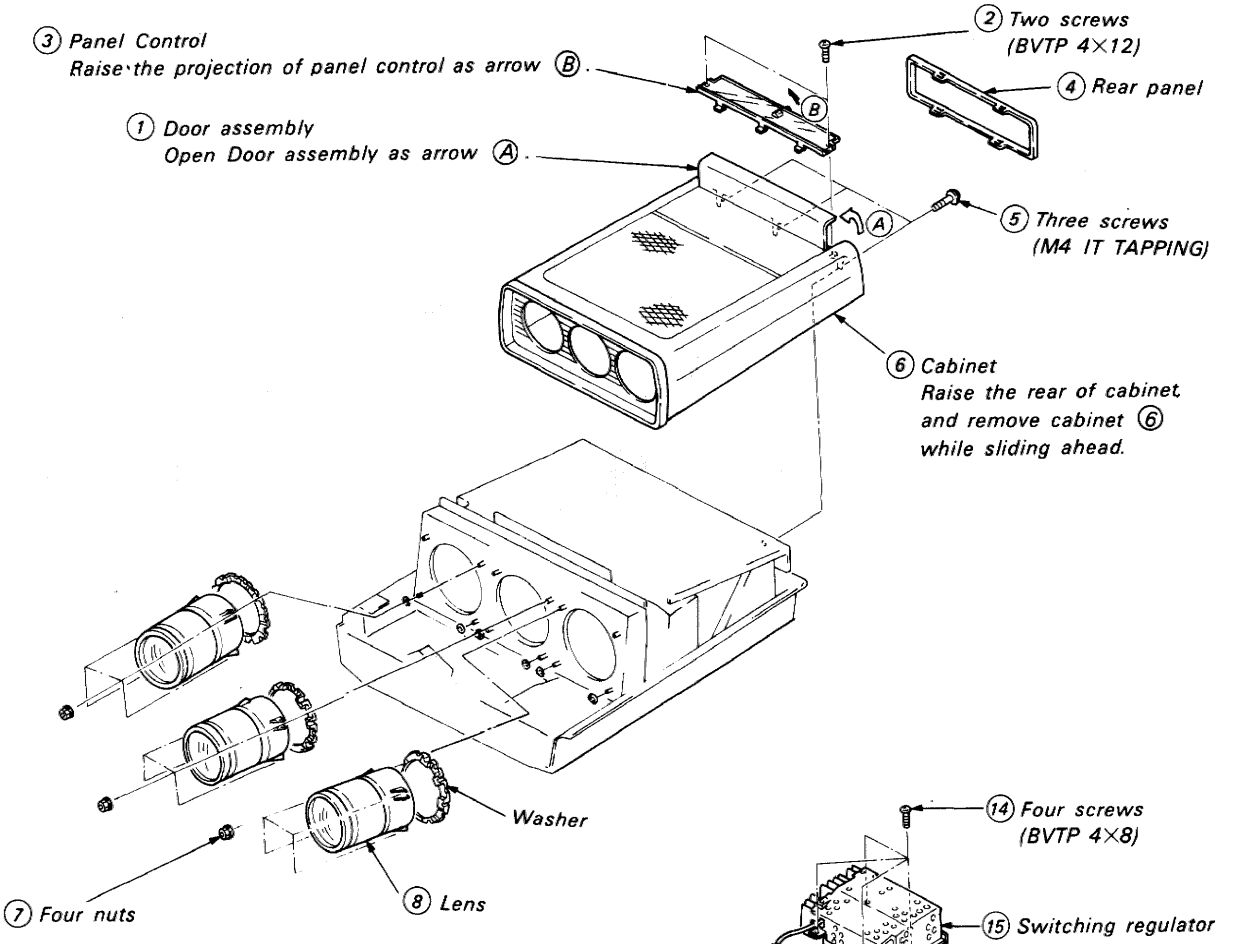


For 200˝ projection

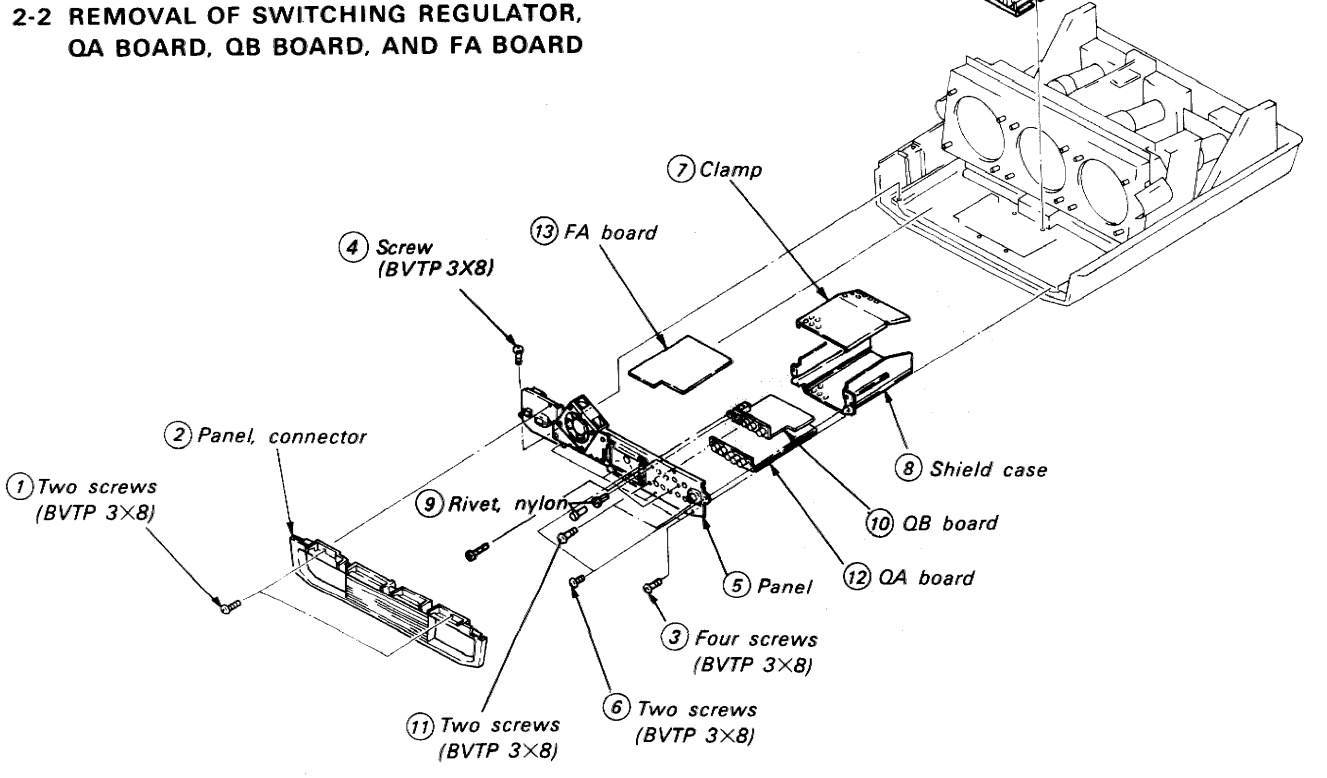


SECTION 2
DISASSEMBLY

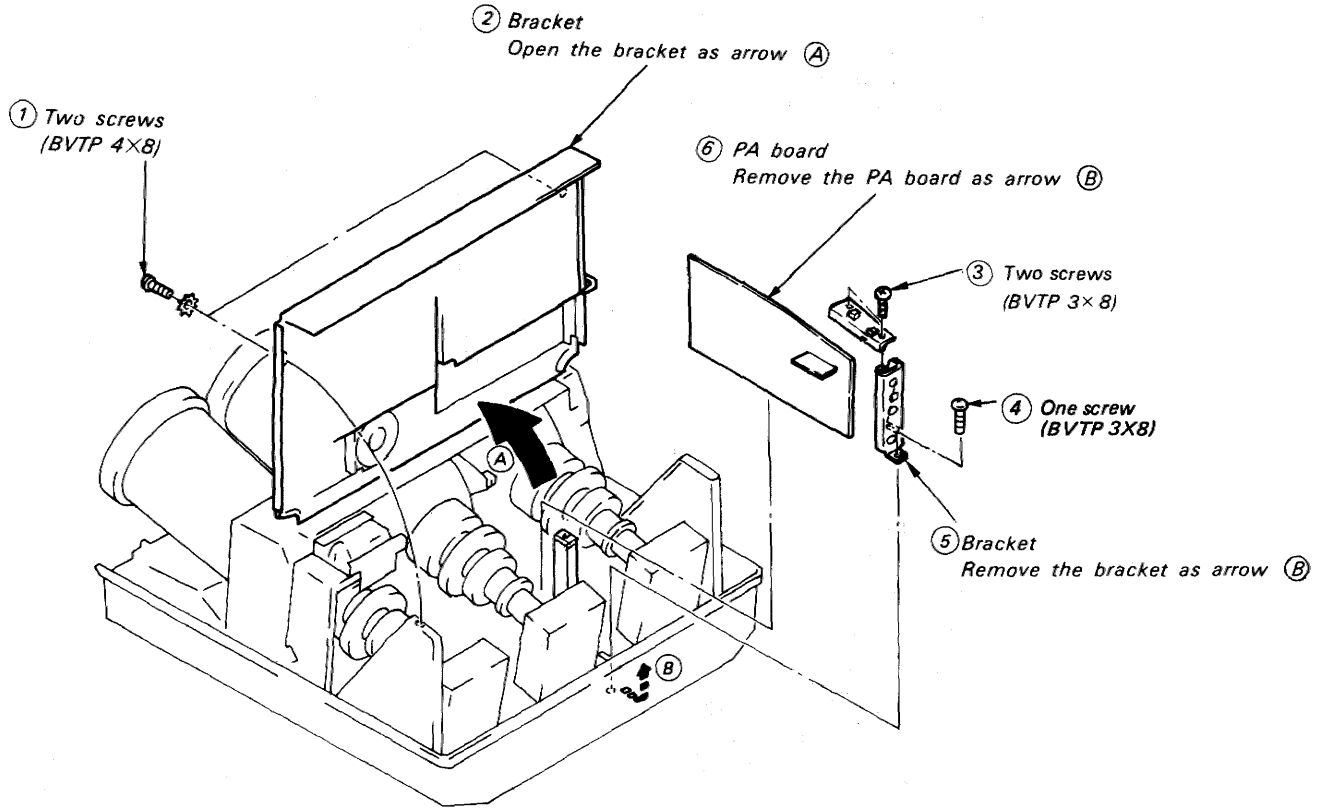
2-1. REMOVAL OF CABINET AND LENS



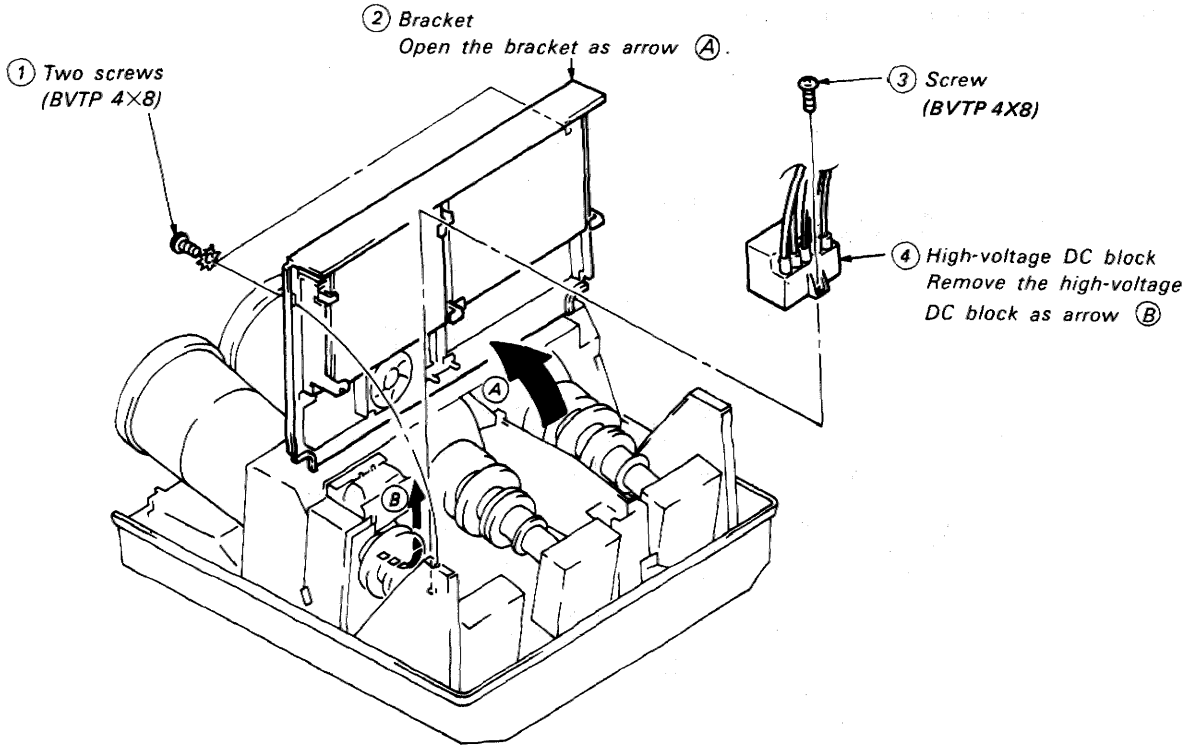
2-2 REMOVAL OF SWITCHING REGULATOR, QA BOARD, QB BOARD, AND FA BOARD



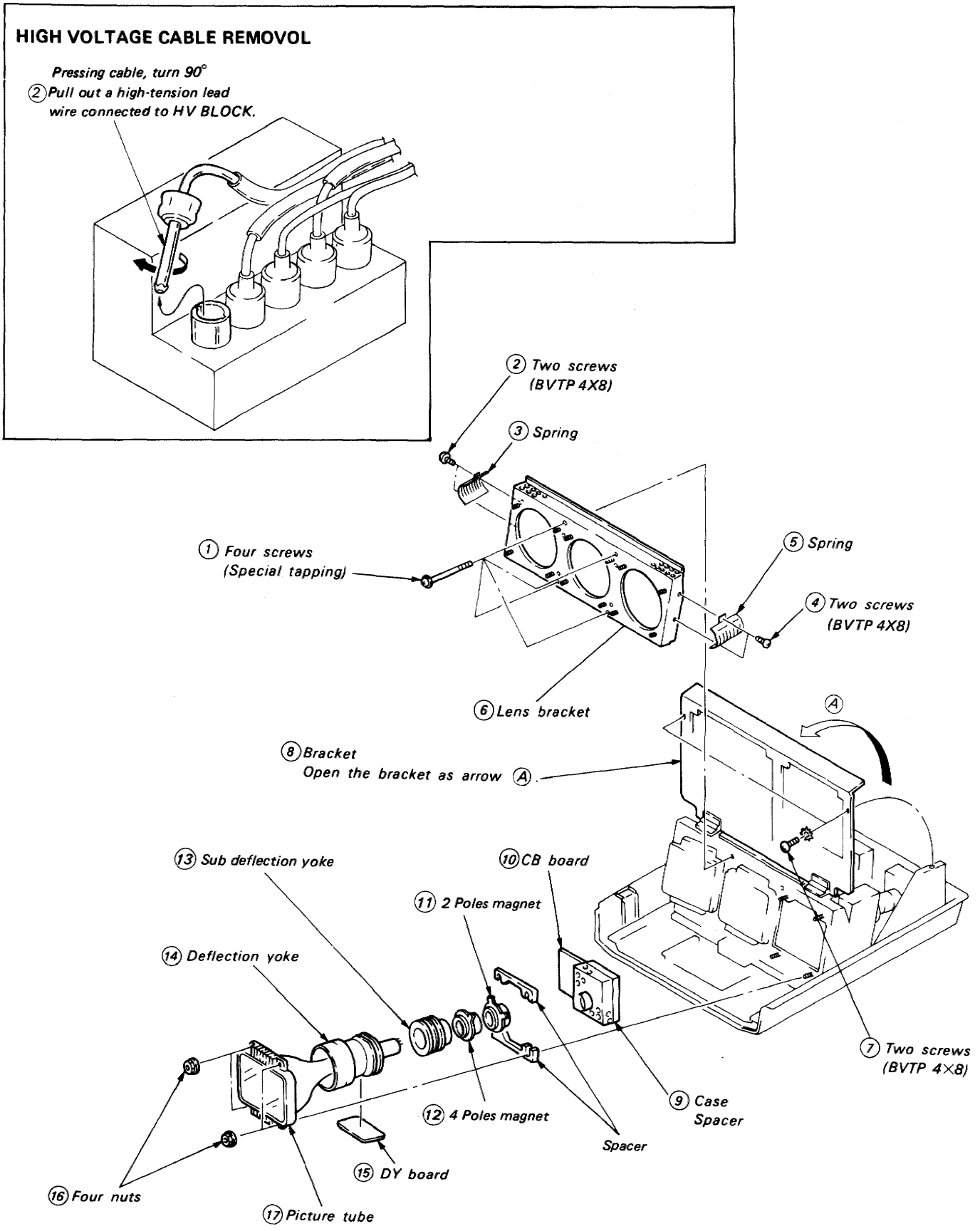
2-3 REMOVAL OF PA BOARD



2-4 REMOVAL OF HIGH-VOLTAGE DC BLOCK



2-5 REMOVAL OF PICTURE TUBE



SECTION 3
CIRCUIT DESCRIPTIONS

3-1. HV REGULATION CIRCUIT

Outline

Basic operation of the circuit is amplification of the high voltage output.
Corresponding to power-up of HV components, design of high efficiency circuit is adopted in the HV regulator section. With employing B+ chopper type HV regulator, the circuit efficiency was raised approx. 8% compared with conventional series-regulation circuit.
In result, as the efficiency of HV circuit, reducing 15 watts of power consumption was obtained.

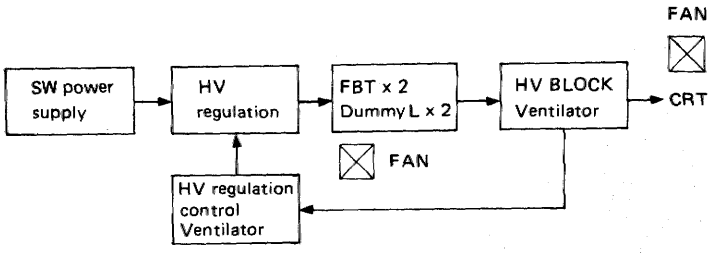
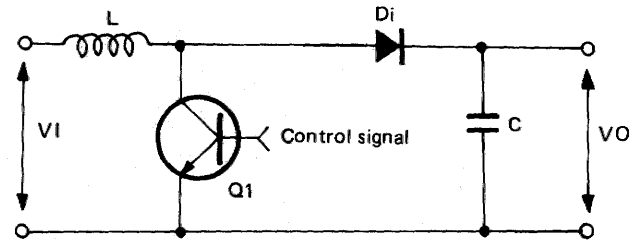


Fig. 1

3-1-1. HV REGULATION SECTION



$$VO = \frac{T\,ON + T\,OFF}{T\,OFF} \times VI$$

Fig. 2

Basic circuit is a voltage-boost type switching regulation circuit as shown in Fig. 2.
Energy stored in L during Q1 is ON, is added to the power supply input to deliver to the load during Q1 is OFF.
HV regulation is operated by controlling ON-period of Q1.

3-1-2. HV REGULATION CONTROL SECTION

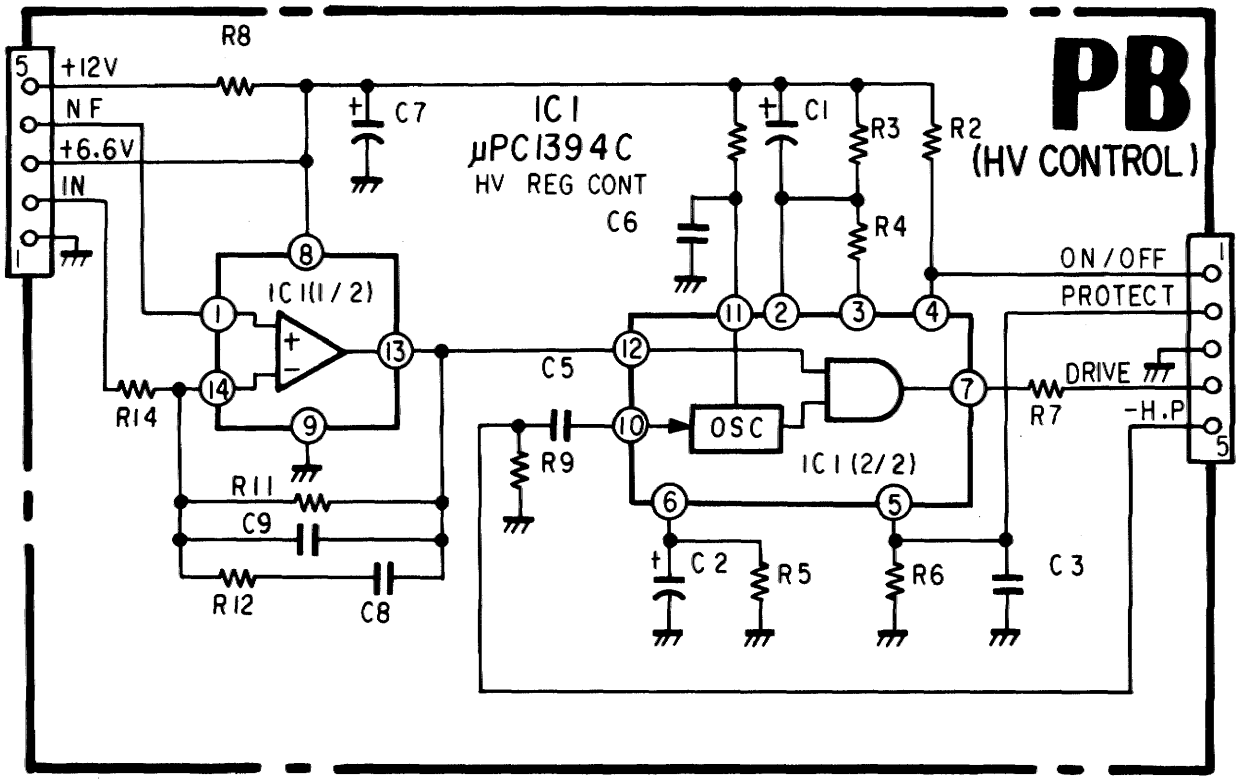


Fig. 3

Detected voltage from HV regulator is applied to pin ① of IC1 (μPC1394C), and reference voltage is input to pin ⑭.

If voltage of pin ① is lowered than that of pin ⑭ (decrease of HV), voltage of pin ⑬ is decreased. The output of pin ⑬ and sawtooth generated by pins ⑩ and ⑪ are voltage compared, and an output having pulse width corresponding to the voltage is delivered from pin ⑦.

In this case, the pulse width at pin ⑦ is widened. Pin ⑤ and ⑥ are cut-off circuit section which locks voltage of pin ⑦ in high level in case trouble is occurred in load.

Maximum duty time (period of ON) of output transistor is decided in pin ②.

SECTION 4
SET-UP ADJUSTMENTS

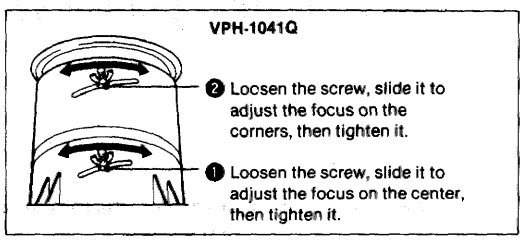
4-1. BASIC ADJUSTMENTS

Basic Adjustments
<Registration>

1) Degauss the entire chassis.
2) Set the variable resistor on the D board to mechanical center. Also, set the D board H CENT and V CENT to mechanical center.
3) Adjust the knobs and switches on the set as follows:
   BRIGHT: fully clockwise (maximum)
   PICTURE:maximum

4-2. GREEN FOCUS Adjustment

1) Receive a monoscope signal.
2) Cover the RED and BLUE lenses.
3) Set the GREEN lens SUB lens fully forward.
4) Rotate the MAIN lens and set for optimum focus on the screen.
5) Turn the GREEN focus VR on the focus pack and set for optimum conditions.
6) Rotate the MAIN lens for best focus in the center of the screen and temporarily tighten the lens screw.
7) Rotate the SUB lens for best focus in the center of the screen and tighten the lens screw.
8) Loosen the MAIN lens screw, fine adjust the focus, then tighten the MAIN lens screw.
9) Input a dot pattern.
10) Turn GREEN FOCUS VR (FOCUS PACK) slightly to clockwise so that focus will be off side.
11) Observe the center of screen and if dots are distorted, adjust the above two magnets for the finest round as Fig. 1-3.
12) Adjust GREEN FOCUS VR (FOCUS PACK) to the best focus.
13) Turn GREEN FOCUS VR (FOCUS PACK) slightly counterclockwise so to make out of focus a little bit.
14) Adjust by shifting the dipole magnet to make the dot out of focus equally centering around the core.
15) Confirm the items 11) and 14) by turning GREEN FOCUS VR (FOCUS PACK) clockwise and counterclockwise centering around the best point. When the dot moves, adjust the tracking by repeating items 10) to 14).
16) Set GREEN FOCUS VR (FOCUS PACK) to the best point.



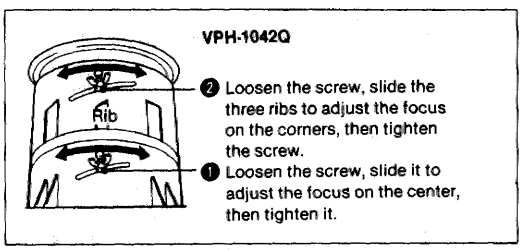


Figure 1-1

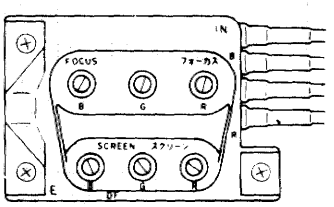


Figure 1-2

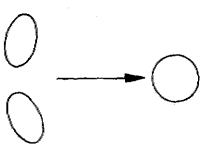


Figure 1-3

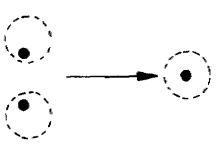


Figure 1-4

4-3. RED FOCUS Adjustment

1) Remove the RED lens cover and cover the GREEN and BLUE lenses.
2) Adjust in the same way as for GREEN FOCUS adjustment, steps 2) to 16).

4-4. BLUE FOCUS Adjustment

1) Remove the BLUE lens cover and cover the RED lens.
2) Adjust the same as GREEN FOCUS Adjustment items 2) to 16).
3) Receive the monoscope signal.
4) Turn BLUE VR slightly clockwise to make the upper one grid dark equally.

CAUTION FOR ADJUSTMENT
WHEN YOU PERFORM SET UP ADJUSTMENT, ELECTRIC ADJUSTMENT, AND ADJUSTMENT FOR REPLACED CRT, YOU SHOULD NOT KEEP ANY CLEARANCE BETWEEN PICTURE TUBE AND DY (DEFLECTION YOKE).

4-5. GREEN Picture Adjustment

1) Input a PAL monoscope signal.
2) Loosen the DY screw and adjust so that the center monoscope line is parallel to those at the left and right, then temporarily tighten the screw.
3) Loosen the SUB DY screw and adjust so that the signal moves parallel, to the left and right, when the D board GREEN H.CENT VR (RV10) is moved, then temporarily tighten the screw.
4) Adjust D board GREEN H.CENT VR (RV10) and GREEN V.CENT VR (RV5) so that the center of the monoscope signal is lined up to the screen center mark.

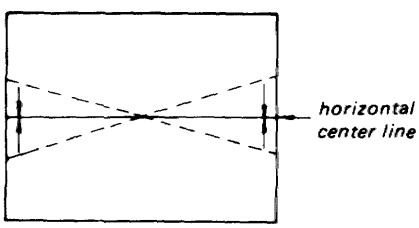


Figure 2

5) Tighten the screws after positioning the DY and SUB DY correctly.
6) Adjust D board MAIN H.SIZE VR (RV11) GREEN V.SIZE VR (RV6) and GREEN V.LIN (RV7) and perform rough size adjustment.

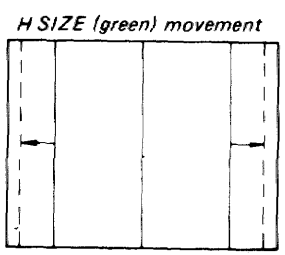


Figure 3

7) Adjust D board MIAN V.PIN VR (RV9) so that the lines at the top and bottom of the signal are almost parallel with the screen.

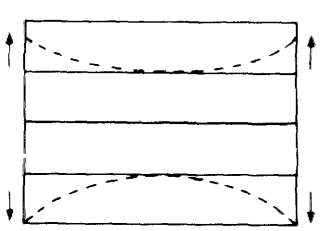


Figure 4

8) Receive an NTSC monoscope signal.
9) Adjust D board GREEN V.BOW (RV8) so that the monoscope signal horizontal center line is parallel with the screen horizontal center line, then adjust GREEN V.CENT VR (RV5) again to match up to the center line.

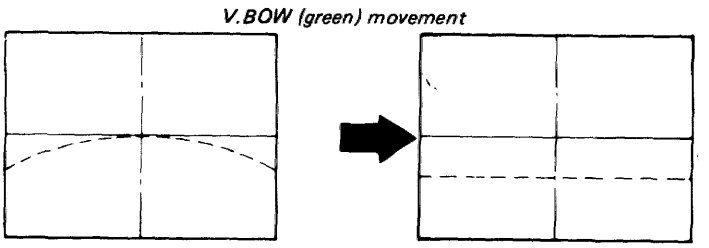


Figure 5

10) Receive a PAL monoscope signal.
11) Adjust D board GREEN V.LIN (RV7) so that the number of grids at the top and bottom of the signal are the same.

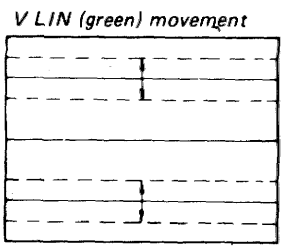


Figure 6

12) Adjust D board GREEN V.SIZE (RV6) so that there are about 11.0 grids at the top and bottom of the monoscope signal.

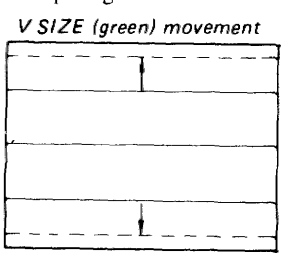


Figure 7

13) Adjust D board MAIN V.PIN (RV9) so that the top and bottom monoscope signal lines are parallel with the screen frame.
When the horizontal center line moves on turning RV9 from 0 to 100%, adjust again with PIN CENT (RV4) so to fix the horizontal center line.

14) Line up the monoscope signal center vertical line to the screen center vertical line by adjusting D board GREEN H.SKEW (RV13) and GREEN H.CENT (RV10).

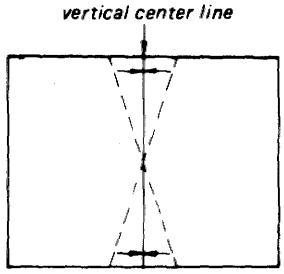


Figure 8

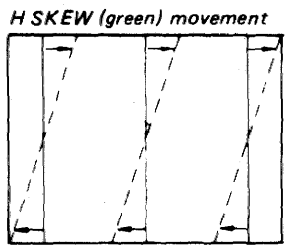


Figure 9

15) Adjust D board MAIN H.KEYS (RV15) and MAIN H.PIN (RV14) so that the monoscope signal left and right vertical lines are parallel with the screen.
16) Adjust D board MAIN H.SIZE (RV11) so that the number of grids to the left and right of the monoscope signal center vertical line is about 7.4 on each side.

4-6. RED DY Adjustment

1) Turn D board blue RAS SW (S10) off and project green and red.
2) Adjust D board RED V.CENT (RV16), RED V.LIM (RV18), RED H.CENT (RV25) and RED H.LIN (RV27) to line up the red and green monoscope centers.

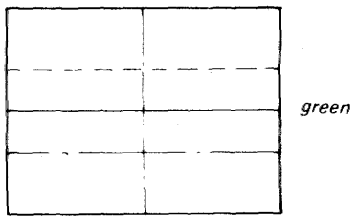


Figure 10

3) Loosen the RED DY screw.
4) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
5) Adjust D board RED V.BOW (RV20) so that the horizontal center line is straight.

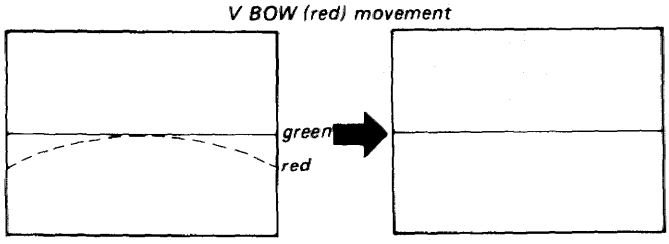


Figure 11

6) Rotate the RED DY until the horizontal center line is parallel with green, then tighten the screw.
7) Loosen the SUB DY screw, rotate the DY, and adjust so that the hatch moves parallel to the right and left, when the D board RED H.CENT VR (RV25) is moved, then tighten the screw.

4-7. TILT Adjustment

1) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
2) Line up the red horizontal center line center with the center of the green horizontal center line by adjusting D board RED V.CENT (RV16), RED V.BOW (RV20) and RED V.SKEW (RV19).
3) Line up the red top and bottom horizontal lines with the green top and bottom horizontal lines by adjusting D board RED V.SIZE (RV17) RED V.LIN (RV18) and RED V.SKEW (RV19).
4) Set the RED V.TILT VR's 1-4 as shown below.

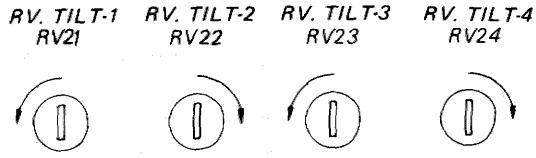


Figure 12

5) Set HA board NOR/TEST SW (S451) to NORMAL.
6) Receive an all-white signal.
7) Check that the red or green luminescent line can not be seen on the screen horizontal center line.
   If it is visible, adjust D board KEYS CENT VR (RV3) until it disappears.
8) Set the RED V.TILT VR's 1-4 to mechanical center.
9) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
10) Adjust RED and BLUE V.SKEW (RV19, RV37) until the top and bottom horizontal green and red lines match (minimum distortion balanced evenly at all four corners).

4-8. G-R H. REGISTRATION Adjustment

1) Adjust D board RED H.BOW (RV29) so that the RED vertical center line is straight.

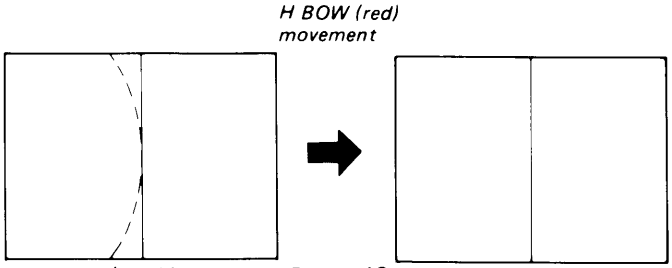


Figure 13

2) Adjust D board RED H.SKEW (RV28) so that the RED vertical center line is parallel to the green vertical center line.

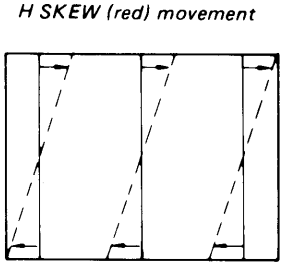


Figure 14

3) Adjust D board RED H.CENT (RV25) so that the RED and GREEN vertical center lines match up.

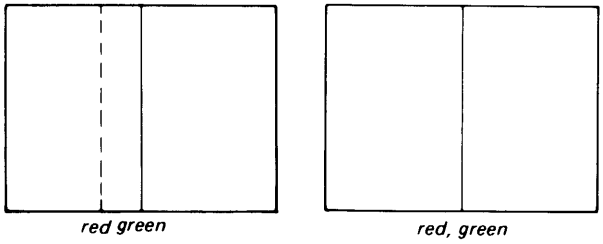


Figure 15

4) Adjust E board RED H.SIZE (L6) and D board RED H.LIN (RV27) so that the centers of the RED left and right vertical lines match up to the centers of the green left and right vertical lines.

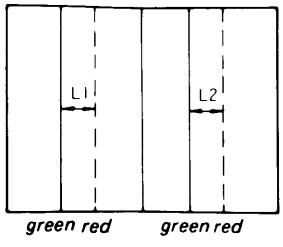


Figure 16

(1) Adjust L6 (H SIZE (R)) on E board so that the red and green vertical lines overlap at the left and right sides on the screen, or so that L1 and L2 are the same distances, and adjust RV27 (RED H LIN) so that the red and green vertical lines overlap at the left and right sides of the screen.

Note: Make the RV26 (H.SIZE) and RV44 (BLUE H.SIZE) to the mechanical center. Don't turn these volumes except for the actual installation.

4-9. G-R TILT Adjustment

1) Set D board HATCH SW (S8) to HATCH.
2) Adjust D board RED V.TILT-1 (RV21) and line up the RED upper left horizontal line to green.
3) Adjust D board RED V.TILT-2 (RV22) and line up the RED upper right horizontal line to green.
4) Adjust D board RED V.TILT-3 (RV23) and line up the RED lower left horizontal line to green.
5) Adjust D board RED V.TILT-4 (RV24) and line up the RED lower right horizontal line to green.
6) Adjust D board RED H.TILT-1 (RV30) and line up the RED upper left vertical line to green.
7) Adjust D board RED H.TILT-2 (RV31) and line up the RED upper right vertical line to green.
8) Adjust D board RED H.TILT-3 (RV32) and line up the RED lower left vertical line to green.
9) Adjust D board RED H.TILT-4 (RV33) and line up the RED lower right vertical line to green.

4-10. BLUE DY Adjustment

1) Set the HA board NOR/TEST SW (S451) to NORMAL and receive a monoscope signal.
2) Turn the D board RED RAS SW (S12) off and turn the BLUE RAS SW (S10) on.
3) Line up the BLUE monoscope signal center to green center by adjusting D board BLUE V.CENT (RV34), BLUE V.LIN (RV36), BLUE H.CENT (RV43) and BLUE H.LIN (RV45).
4) Loosen BLUE DY screw.
5) Set D board HATCH SW (S8) to HATCH.
6) Adjust D board BLUE V.BOW (RV38) so that the center horizontal line is straight.
7) Adjust BLUE DY so that the horizontal center line is parallel to green, then tighten the DY screw.
8) Loosen the SUB DY screw and rotate to adjust so that the hatch moves parallel to the left and right when D board BLUE H.CENT VR (RV43) is moved, then tighten the screw.

4-11. G-B V. REGISTRATION Adjustment

1) Line up the blue horizontal center line to the green horizontal center line by adjusting D board BLUE V.CENT (RV34), BLUE V.BOW (RV38) and BLUE V.SKEW (RV37).
2) Adjust D board BLUE V.SIZE (RV35) and BLUE V.LIN (RV36) so that the centers of the blue top and bottom horizontal lines match up to the centers of the green top and bottom horizontal lines.

4-12. G-B H. REGISTRATION Adjustment

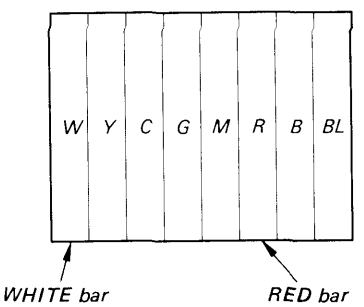
1) Adjust D board BLUE H.BOW (RV47) so that the blue vertical center line is straight.
2) Adjust D board BLUE H.SKEW (RV46) so that the *blue vertical center line is parallel to the green* vertical center line.
3) Adjust D board BLUE H.CENT (RV43) so that the blue vertical center line matches up to the green vertical center line.
4) Adjust E board BLUE H.SIZE (L8) and D board BLUE H.LIN (RV45) so that the centers of left and right blue vertical lines match up to the centers of the green left and right vertical lines.

4-13. G-B TILT Adjustment

1) Line up the top left BLUE horizontal line to green by adjusting D board BLUE V.TILT-1 (RV39).
2) Line up top right BLUE horizontal line to green by adjusting D board BLUE V.TILT-2 (RV40).
3) Line up bottom left BLUE horizontal line to green by adjusting D board BLUE V.TILT-3 (RV41).
4) Line up bottom right BLUE horizontal line to green by adjusting D board BLUE V.TILT-4 (RV42).
5) Line up top left BLUE vertical line to green by adjuting D board BLUE H.TILT-1 (RV48).
6) Line up to right BLUE vertical line to green *with D board BLUE H.TILT-2 (RV49).*
7) Line up bottom left BLUE vertical line to green with D board BLUE H.TILT-3 (RV50).
8) Line up bottom right BLUE vertical line to green with D board BLUE H.TILT-4 (RV51).

4-14. White Balance Adjustment

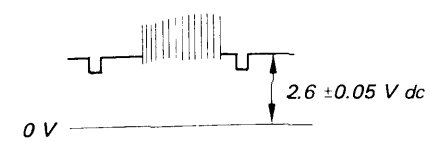
1) Receive the color bar signal from the pattern generator, and make the black and white screen by putting off the chroma off switch on the pattern generator.
2) ● R. DRIVE VR 80%
   ● G. DRIVE VR . . . . . MAX
   ● *B. DRIVE VR . . . . . MAX*
3) Turn the focus pack RED, GREEN and BLUE G2 (SCREEN) VR to minimum.
4) ● PICTURE VR . . . . . MIN
   ● BRIGHTNESS VR . . . mechanical center
5) Adjust the focus pack GREEN G2 (SCREEN) VR so that RED bar is bright dimly,
6) Set the BRIGHTNESS VR to minimum.
7) Adjust the white balance with the RED and BLUE G2 (SCREEN) VR.
   * Adjust WHITE bar position
8) Set the PICTURE VR and BRIGHTNESS VR to maximum.
9) Adjust the white balance by turning the RED DRIVE VR on the BB board.
   * Adjust WHITE bar position



10) Repeat items 3) to 9) when the white is not balanced.

4-15. SUB-BRIGHT Adjustment

1) Receive the cross hatch signal from the pattern generator.
2) Make the BRIGHT VR to the mechanical center.
3) Connect an oscilloscope to TP8 on BB board. (GND: Shield case.)
4) Adjust with RV4 (SUB BRIGHT) so that the black dc level becomes 2.6 ±0.05 V dc.



VPH-1041Q/1042Q

SECTION 5
SAFETY RELATED ADJUSTMENTS

5-1. PA AND PC BOARD ADJUSTMENTS

- *When replacing the following components, make the HV HOLD DOWN adjustment. (⊠ R38, R39)*
  PA board complete
  R15, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, C30, D16, D22, Q10, IC2 } *PA board*

- *When replacing the following components, make the HV REG adjustment. (⊠R48, R49)*
  PA board complete
  R31, R32, R33, R34, R46, R47, R48, R49, R82, R83, R84, C3, C39, C56, L2, D17, Q14, IC1 } *PA board*
  PB board mount
  R3, R4, R7, R14, IC1 } *PB board*

- *When replacing the following components, make the BEAM CURRENT PROTECTOR adjustment. (⊠R23)*
  PA board complete
  R16, R18, R19, R20, R21, R22, R23, R50, R51, R52, R53, R54, R69, D15, D20, Q9, Q11, Q12, IC3 } *PA board*

- *When replacing the following components, make the OVER VOLTAGE PROTECTOR adjustment. (⊠R88, R89)*
  PA board complete
  R18, R85, R86, R87, R88, R89, D18, IC1 . . . PA board.

(OTHER)
HVR, FBT1, FBT2, L1, L2, C1, C2

⊠ R38, R39 HV HOLD DOWN ADJUSTMENT

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED picture tube.*

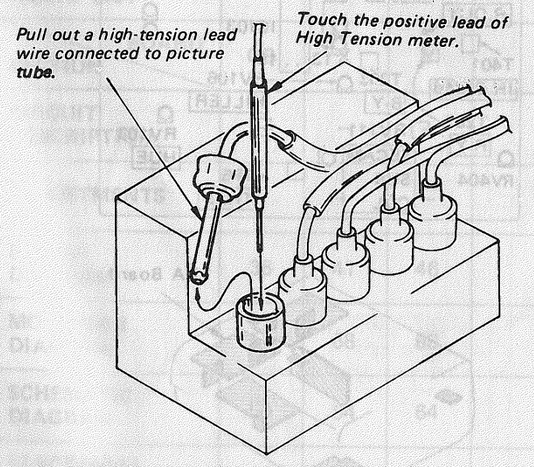
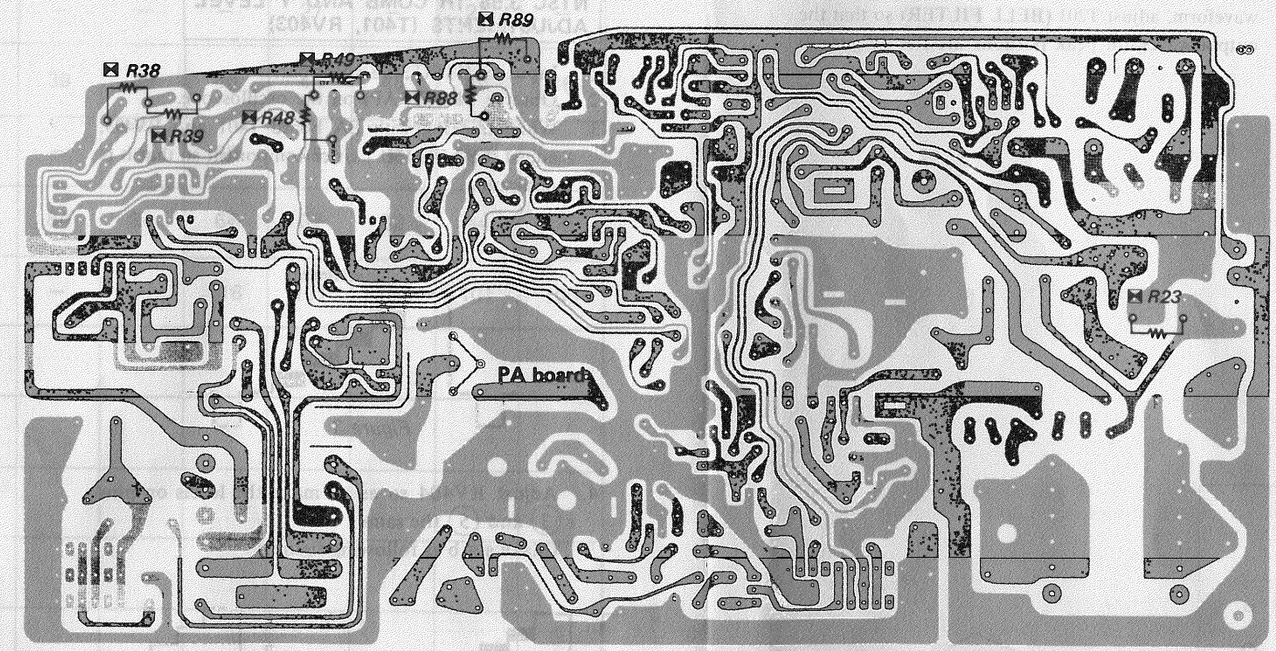


Fig. 1

3. *Feed in a monoscope pattern from a signal generator, and maximize PICTURE and BRIGHT.*
4. *Confirm AC power supply voltage to be 120V.*
5. *Confirm that HV HOLD DOWN circuit operates and raster disappears when reading of the electrostatic voltmeter is less than 34.30 kV.*

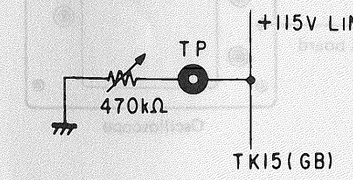
⊠ R48, R49, HV REG ADJUSTMENT

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Feed in a monoscope pattern from a signal generator, and power supply voltage AC120V.*
4. *Set the user's control R.G.B. RASTER SW to OFF and R.G.B G2 VR (Focus Pack) to minimum.*
5. *Confirm that reading of the high-tension meter is less than 33.30 kV when the power switch is turned on.*



⊠ R88, R89 O.V.P ADJUSTMENT

1. *Receive a monoscope signal and turn the BRIGHT and PICTURE controls for maximum.*
2. *Supply 120V ac to with variable auto-transformer.*
3. *Connect a 470 kΩ variable VR to one side of GB board TP and one side of ground.*



4. *Adjust VR (470kΩ) for B+ Line is less than 125V DC, the O.V.P circuit opeates and the raster disappears.*
5. *If the specification is not met, adjust R88, R89 and repeat steps 4 until satisfied.*

⊠ R23 BEAM CURRENT PROTECTOR ADJUSTMENT

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED picture tube.*
3. *Install the tool to the PC-1 connector on the PC board and connect an ammeter.*
4. *Short-circuit between emitter and collector of Q12 on PA board.*
5. *Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 μA.*
6. *Remove the short-circuit between emitter and collector of Q12 on PA board and instead short-circuit between emitter and collector of Q11 and make the adjustment of 5.*
7. *Remove the short-circuit between emitter and collector of Q11 on PA board.*

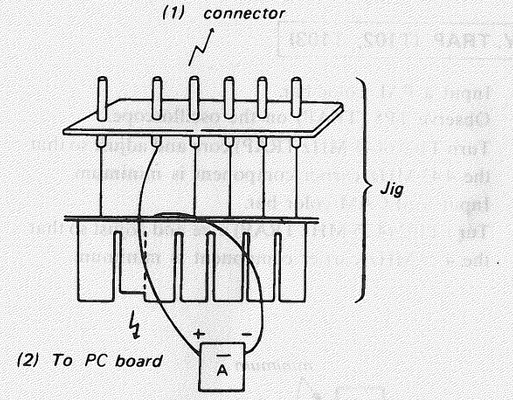
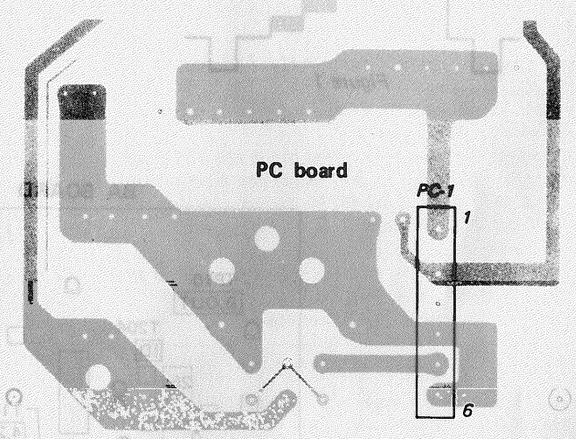


Fig. 2



5-2. WHEN NOT USING A HIGH-VOLTAGE METER (FOR H. PULSE MEASUREMENT)

HV HODD-DOWN CIRCUIT ADJUSTMENT (R38 AND R39)

1. Calibrate the detected voltage with a voltage dividing network as shown in Fig. 1.
   Connect V1 to the 115V line of the unit and read voltage at this point with a digital voltmeter. Then, connect the voltmeter as shown in Fig. 1 and adjust the voltmeter reading to 1/10 of the V1 reading with the variable resistor (VR).

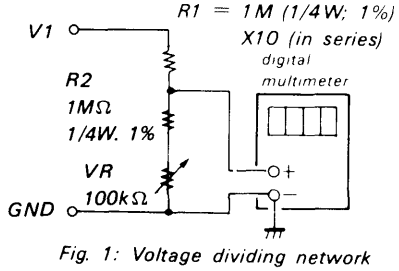
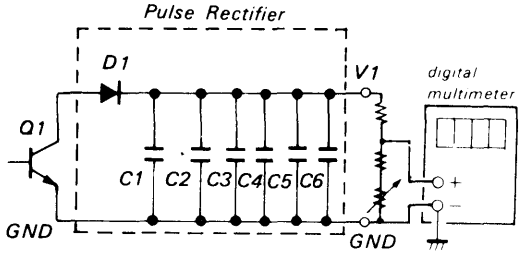


Fig. 1: Voltage dividing network

2. Connect a pulse rectifier between collector and emitter of the Q1 of the PC board. (2SC1548)



D1: V-11N (8-719-901-19)
C6~6: 20000PF/1.6KV (1-130-660-11)

Connect the resistance shunt adjusted in 1 to both ends of the pulse rectifier.

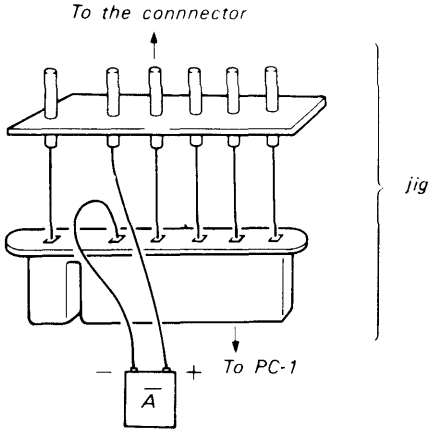
3. Input a video monoscope signal (NTSC) and set the unit to highlight state.
4. Connect an appropriate resistor or variable resistor to both ends of R48 and R49.
5. Turn power ON and confirm that the digital voltmeter reading is 114.5V ±0.5V just before the high-voltage drop caused by HV HOLD-DOWN circuit operation.
6. Select R38, R39 and repeat step 4. as necessary.
7. After confirmation, turn power OFF.
8. Remove the resistor or variable resistor connected to both ends of R48 and R49.
9. Proceed to HV Reg. circuit adjustment.

HV REG. CIRCUIT ADJUSTMENT (R48 AND R49)

1. The same measuring system of 2-(1) and (2) is used, but beam must be cut off.
2. Turn power ON and confirm that the digital voltmeter reading is 101.5V ±0.5V.
3. Select R48, R49 and repeat step 2. as necessary.
4. After confirmation, remove the pulse rectifier and the voltage dividing network.
   (* Unit input: AC120V/60 Hz)

CONFIRMATION OF BEAM CURRENT PROTECTOR (R23)

1. Input a video monoscope signal (NTSC) and set the unit to highlight state.
2. Turn all RGB RASTER switches ON.
3. Connect a jig to the PC-1 of the PC board as shown in figure the right.



4. Turn power ON.
5. Short-circuit between collector and emitter of the Q12 of the PA board.
6. Turn G2, PIC and BRT, and confirm that PROT drops at an ammeter reading below 3500 uA.
7. If the above condition is not achieved, adjust R23.
8. Remove short-circuit connection of Q12 of the PA board, short-circuit Q11 and perform the same confirmation on it.
9. Turn power OFF and remove the jig.

OVERVOLTAGE PROTECTOR ADJUSTMENT (R88 AND R89)

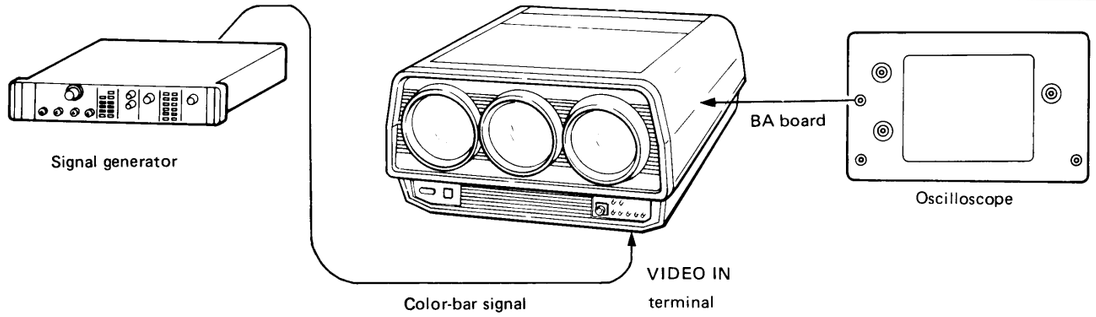
1. Confirm that power is OFF.
2. Connect a 470 k variable resistor between GND and the TP located in the GB board inside the switch power supply (TK-15).
   Note: Set the variable resistor to maximam resistance.
3. Input a video monoscope signal (NTSC) and set the unit to highlight mode.
4. Connect a digital voltmeter to the 115V line.
5. Connect an appropriate resistor or variable resistor to both ends of R88 and R89.
6. Turn power ON and gradually turn the variable resistor connected in 2 until the digital voltmeter reading becomes 124V ±1V.
7. Select R88, R89 and confirm that high voltage drops when the digital voltmeter reading is 124V ±1V.
8. Mount the values selected in 7. to R88 and R89.
9. Turn power OFF and remove the variable resistor and the digital voltmeter connected in 2.

SECTION 6
CIRCUIT ADJUSTMENTS

6-1. BA BOARD ADJUSTMENTS

• CONNECTION

CAUTION FOR ADJUSTMENT
WHEN YOU PERFORM SET UP ADJUSTMENT, ELECTRIC ADJUSTMENT, AND ADJUSTMENT FOR REPLACED PICTURE TUBE, YOU SHOULD NOT KEEP ANY CLEARANCE BETWEEN PICTURE TUBE AND DY (DEFLECTION YOKE).



Y. TRAP (T102, T103)

1. Input a PAL color bar.
2. Observe TP5 (TRAP) on the oscilloscope.
3. Turn T103 (4.43 MHz TRAP) core and adjust so that the 4.43 MHz carrier component is minimum.
4. Input a SECAM color bar.
5. Turn T102 (4.25 MHz TRAP) core and adjust so that the 4.25 MHz carrier component is minimum.

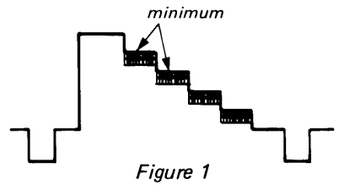
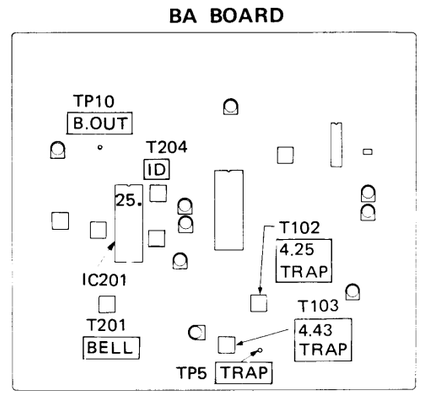
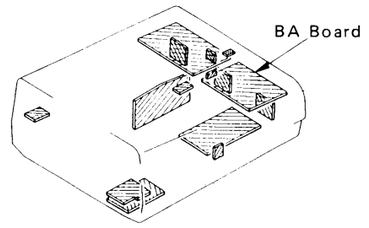


Figure 1

SECAM COLOR (T201, T204)

1. Receive a SECAM color bar signal.
2. Turn T204 (ID) core so that IC201 pin 25 DC level is maximum.
3. While observing the blue output TP10 (B.OUT) waveform, adjust T201 (BELL FILTER) so that the output waveform peak portions are flat. (Figure 2)





DISCRI ADJUSTMENT (T202, T203)

1. Adjust T203 (B-Y DISCRI) so that the blue output TP10 waveform valleys are the same level.
2. Adjust T202 (R-Y DISCRI) so that red output TP8 (R.OUT) waveform valleys are the same level. (Figure 2)
3. After completing 1 and 2, fine adjust so that color components do not appear in the color bar black portion and white portion.

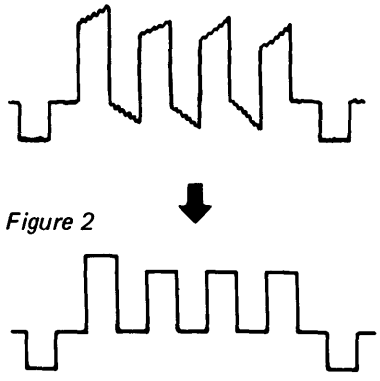


Figure 2

NTSC 3.58 1H COMB AND Y LEVEL ADJUSTMENTS (T401, RV403)

1. Input an NTSC 3.58 color bar.
2. Observe TP5 (TRAP) on the oscilloscope.
3. White tracking with BA board T401 and RV403, adjust the 3.58 MHz carrier component so that it is minimum.

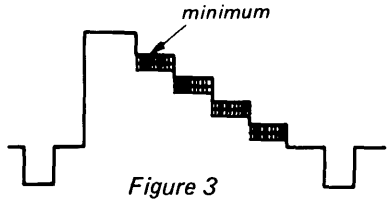
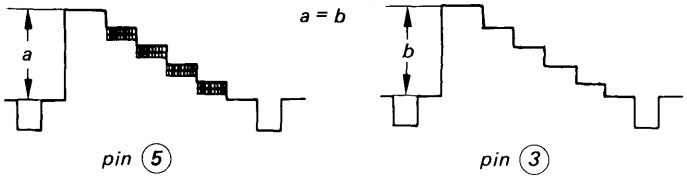


Figure 3

4. Adjust RV404 so as to make the levels on pins (3) and (5) the same.
(Make a = b as following figure.)



COLOR ADJUSTMENT (RV108, RV111)

1. Input a SECAM color bar.
2. Set the COLOR VR to center.
3. Adjsut RV111 (SECAM SUB COLOR) so that blue output TP10 (B.OUT) is as shown in Figure 4.
4. Input a PAL color bar and adjust RV108 (PAL SUB COLOR) so that blue output is as shown in Figure 4.
COLOR VR center=6V DC

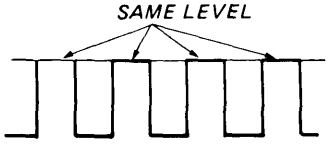
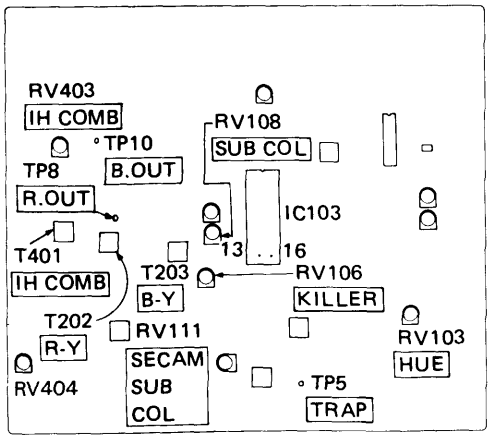


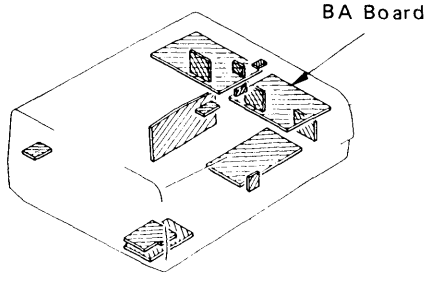
Figure 4

HUE CENTER (RV103)

1. Input a Color Pattern (SPCB).
2. Set COLOR VR to center.
3. Turn RV103 (HUE CENT) so that blue output and red output ANTI-PAL signals stop. At this time, confirm that there is almost no color in the picture ANTI-PAL signal portion.
4. Input an NTSC color bar, turn the HUE VR and confirm HUE optimum position and that there is sufficient HUE variable range.

BA BOARD





KILLER ADJUSTMENT (RV106)

1. Receive the NTSC black and white signal.
2. Cut the burst signal off by connecting the electrolytic capacitor 10 μF/16 V between pin (16) of IC103 and GND.
3. Adjust RV106 (KILLER) so that the voltage on pin (13) of IC103 becomes 8.0 ±0.1 V dc.

PAL COLOR SYNC ADJUSTMENT (RV104, RV105)

1. Input a PAL color bar.
2. Connect 100 kΩ resistor between IC103 pin (13) and ground and release killer.
3. Connect 10 μF/16V electrolytic capacitor between IC103 pin (16) and ground and cut the burst signal.
4. Connect IC104 pin (2) to the +12V line via a 2.2 kΩ resistor and get 4.43 MHz mode.
5. Adjust RV104 (APC-2 4.43 MHz) to get color sync. And adjust B.OUT. (Figure 5)
6. Remove the 2.2 kΩ resistor in step 4.
7. Input an NTSC color bar.
8. Ground Q144 base momentarily and get 3.58 MHz mode.
   (Repeat two or three times if it does not change the first time.)
9. Adjust RV105 (APC-1 3.58 MHz) to get color sync. And adjust B.OUT. (Figure 6)

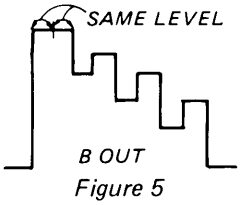


Figure 5

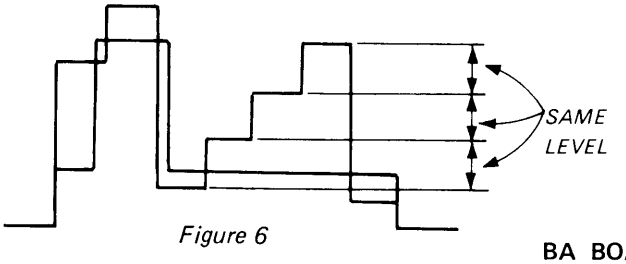


Figure 6

SUB PIC ADJUSTMENT (RV107)

1. Input a PAL color bar.
2. Set COLOR VR to minimum.
3. Adjust RV107 (SUB PIC) so that the blue output TP10 (B.OUT) is 0.85±0.05Vp-p. from the pedestal level.

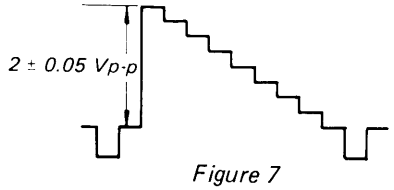


Figure 7

PAL MATRIX (T104, RV110)

1. Input a PAL color bar.
2. Observe blue output TP10 (B.OUT) and red output TP8 (R.OUT) waveforms.
3. Set COLOR VR to center.
4. While tracking with T104 (DAT) and RV110 (DELAY ADJ VR), adjust so that blue output TP10 (B.OUT) and red output TP8 (R.OUT) waveforms are both as shown in Figure 8.
5. Fine adjust 6. HUE CENTER after completing the adjustment.

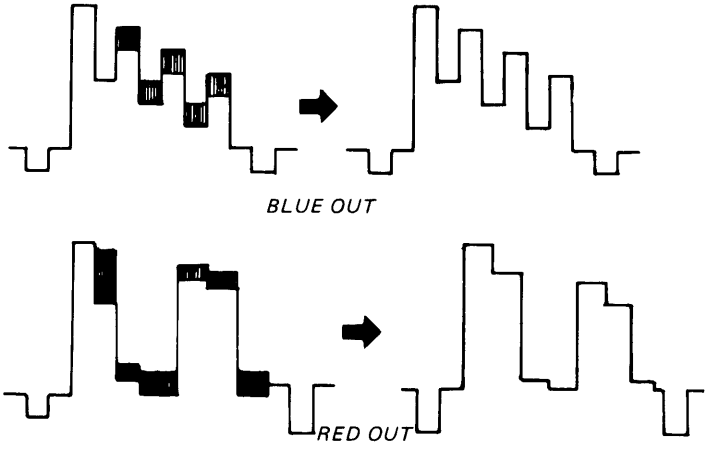
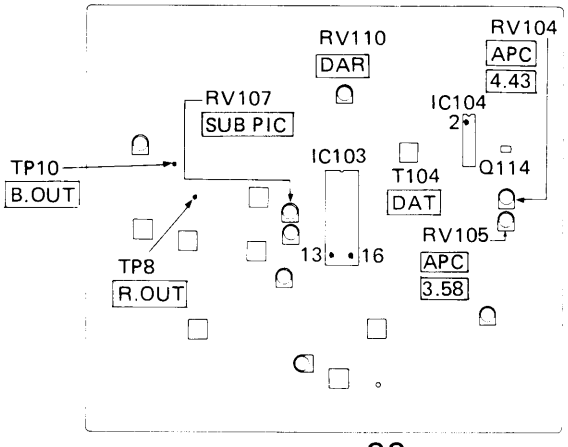
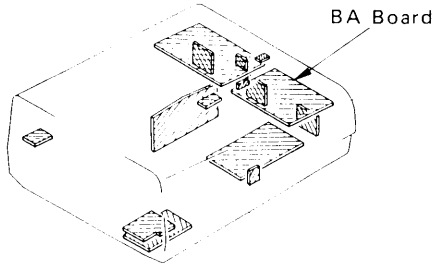


Figure 8

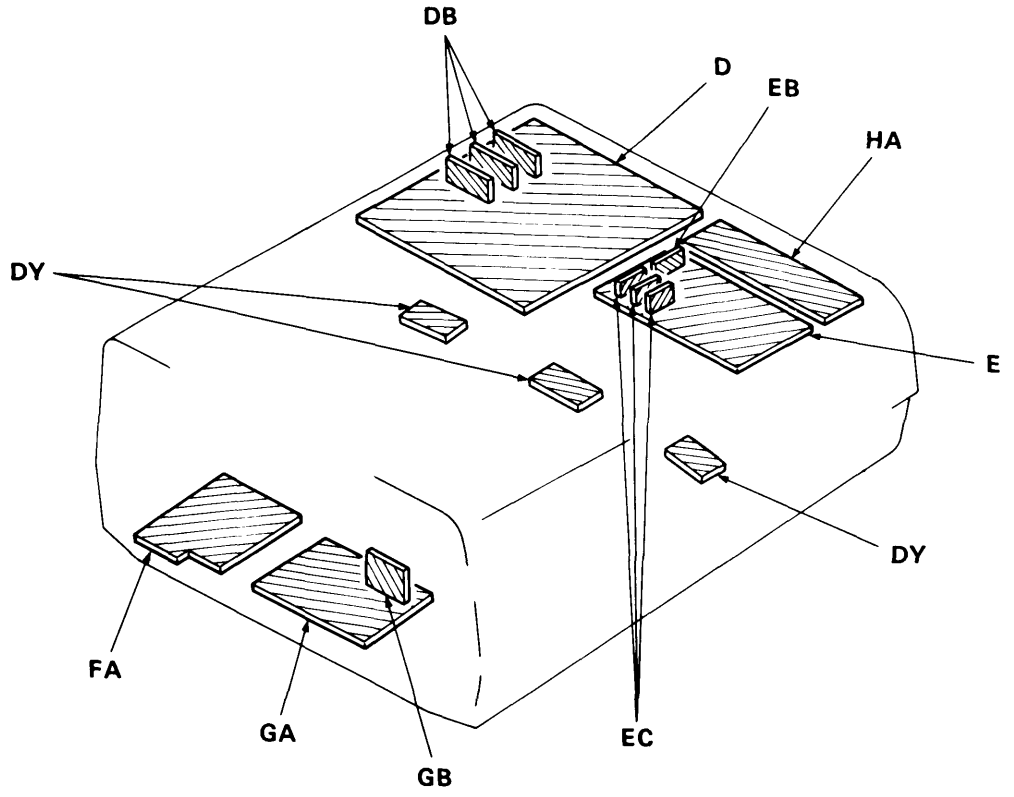
BA BOARD

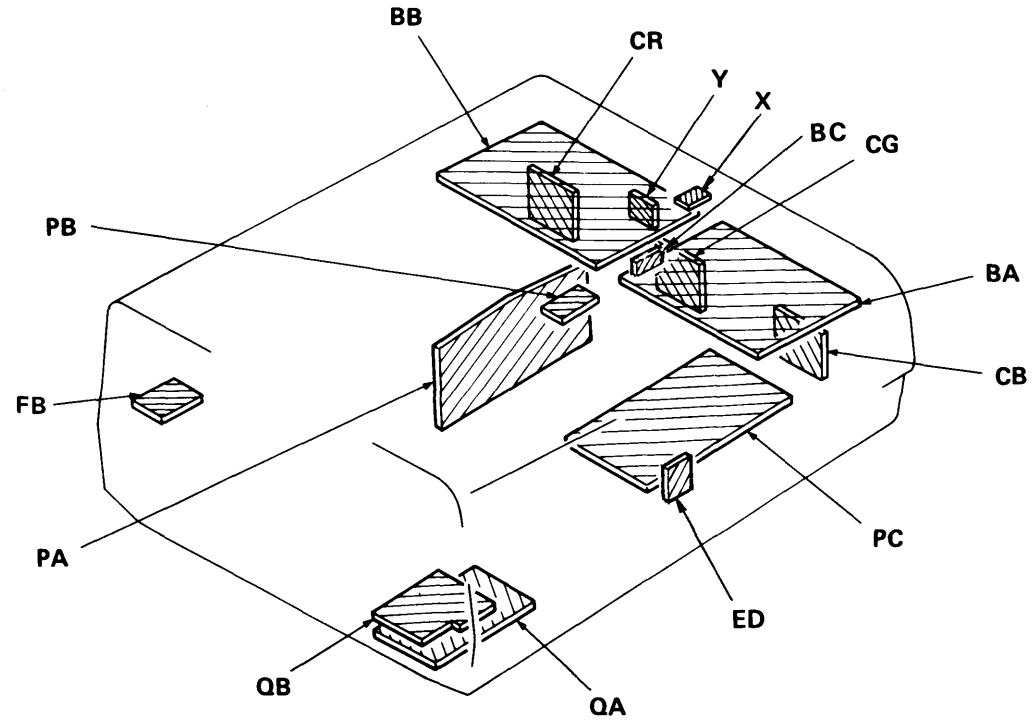




SECTION 7
DIAGRAMS

7-1. CIRCUIT BOARDS LOCATION



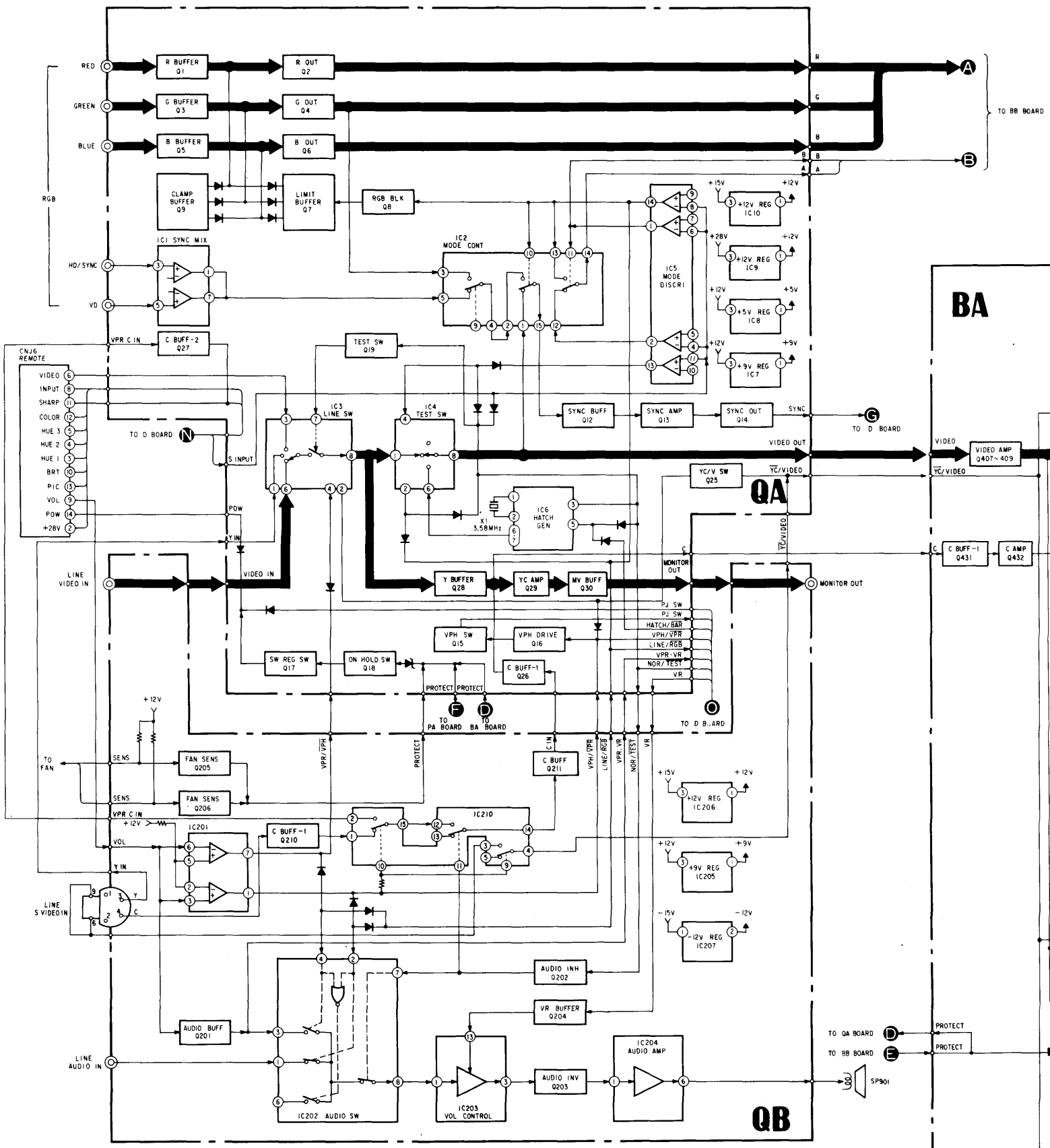


7-2. QUICK REFERENCE

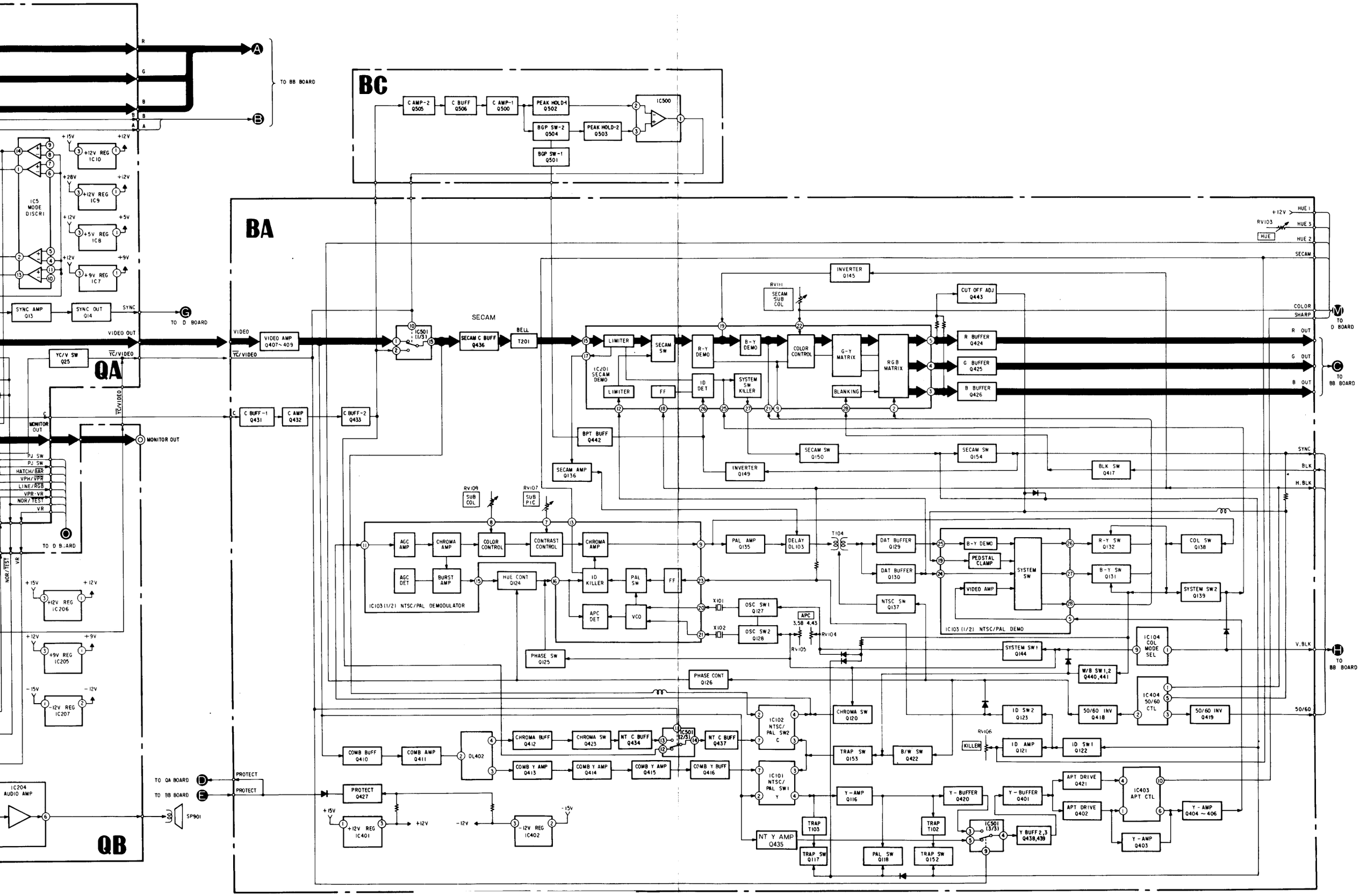
SECTION \ BOARD	BA	BB	BC	CB	CG	CR	D	DB	DY	E	EB
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	–	–	–	–
ADJUSTMENTS	31	–	–	–	–	–	22	–	–	–	–
BLOCK DIAGRAM	37	44	37	46	46	46	40	42	46	39	39
MOUNTING DIAGRAM	69	79	71	81	81	81	56	60	68	65	65
SCHEMATIC DIAGRAM	73	76	73	78	78	78	59	61	64	62	62
ELECTRICAL PARTS LIST	95	93	100	108	108	107	109	113	114	114	115

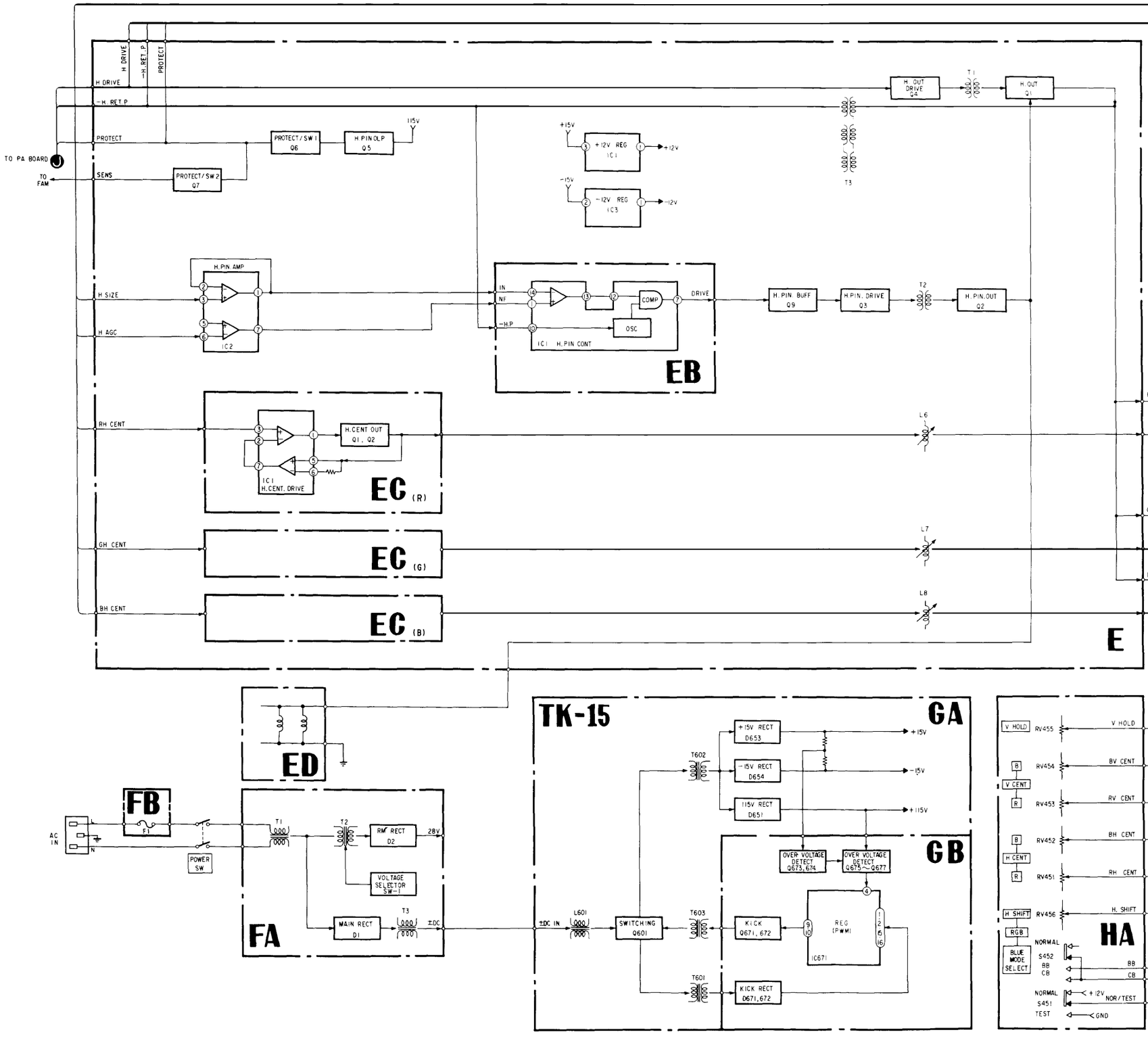
SECTION \ BOARD	EC	ED	FA	FB	GA	GB	HA	PA	PB	PC	QA
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	–	20	–	–
ADJUSTMENTS	–	–	–	–	–	–	–	27	–	27	–
BLOCK DIAGRAM	39	39	39	39	39	39	40	45	45	46	36
MOUNTING DIAGRAM	65	65	86	86	–	–	68	66	66	67	53
SCHEMATIC DIAGRAM	63	62	83	83	84	84	64	62	62	64	50
ELECTRICAL PARTS LIST	115	116	104	104	–	–	116	101	103	101	105

SECTION \ BOARD	QB	X	Y
CIRCUIT DESCRIPTION	–	–	–
ADJUSTMENTS	–	–	–
BLOCK DIAGRAM	36	41	46
MOUNTING DIAGRAM	54	68	68
SCHEMATIC DIAGRAM	50	64	64
ELECTRICAL PARTS LIST	106	116	116

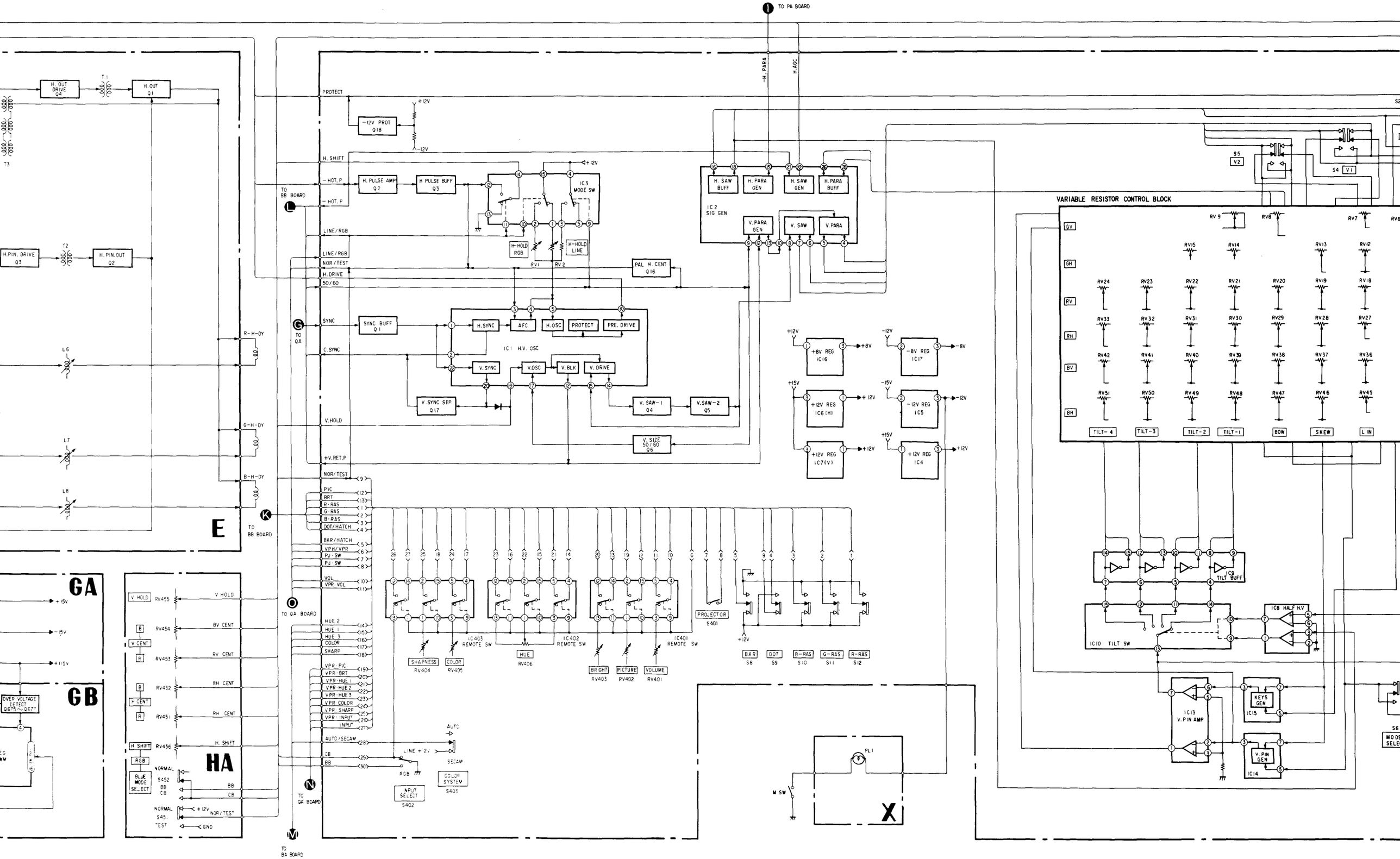


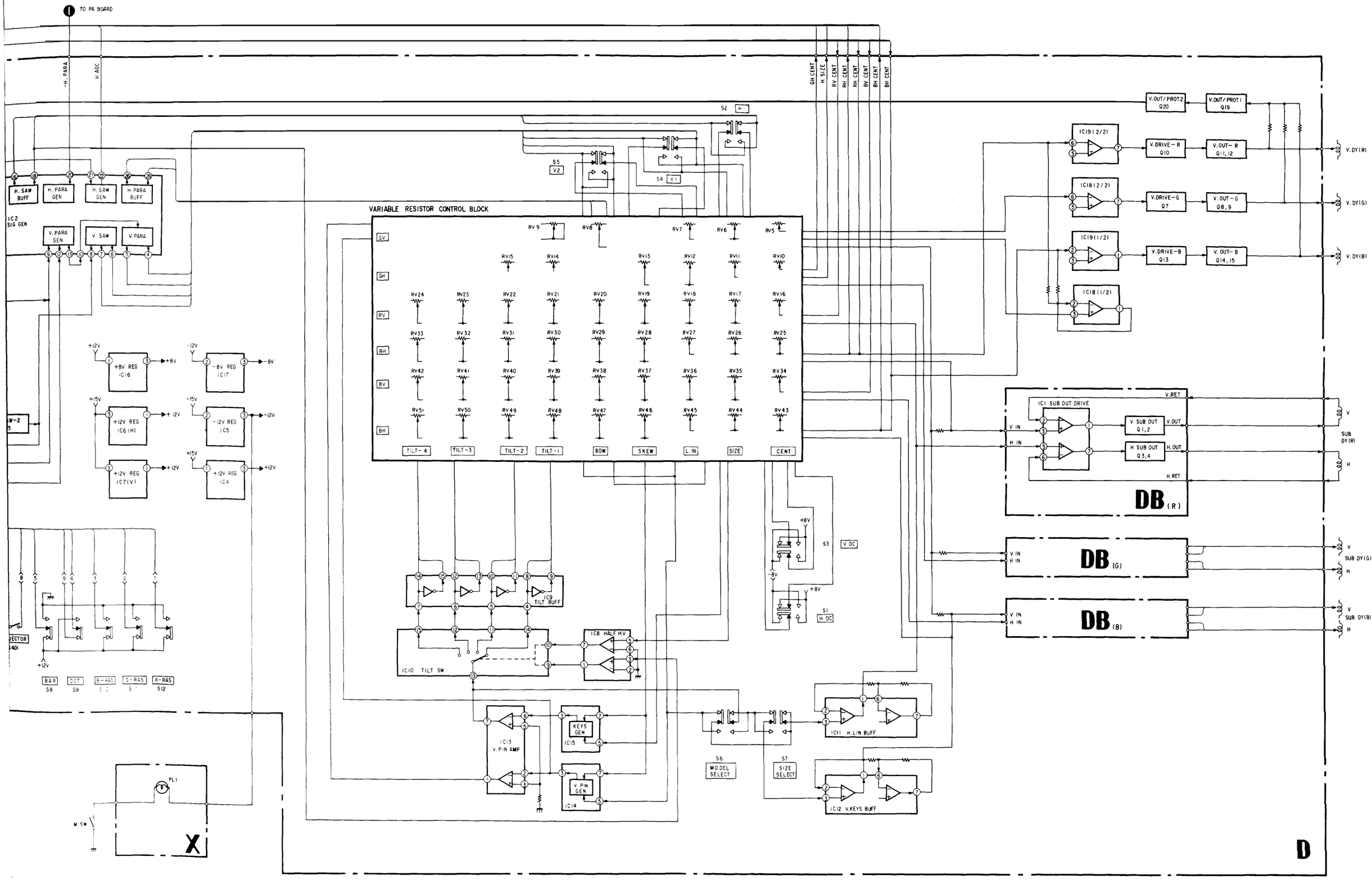
7-3. BLOCK DIAGRAMS

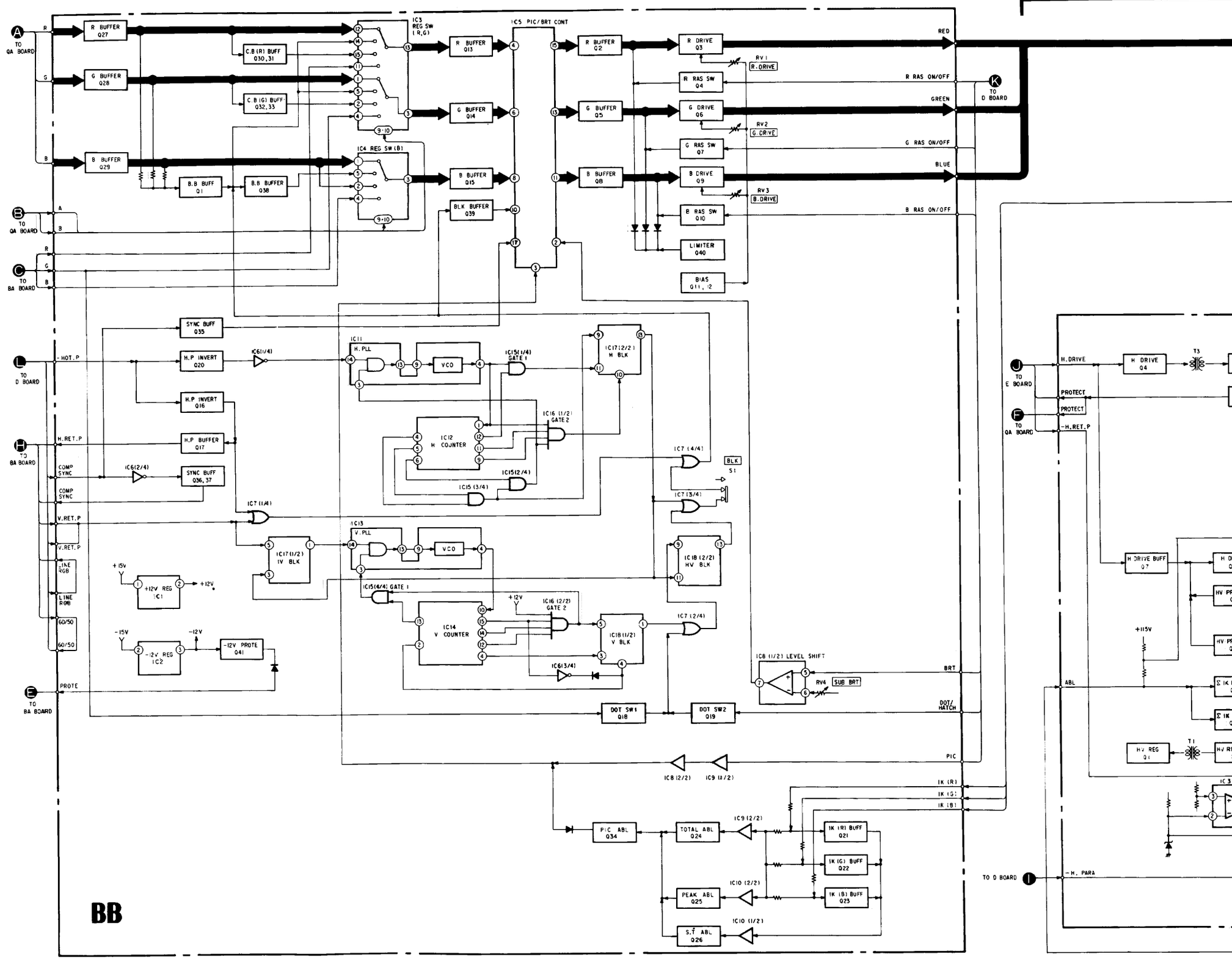

BC
BA
QA
QB
TO BB BOARD
C AMP-2 Q505
C BUFF Q506
C AMP-1 Q500
PEAK HOLD-1 Q502
BGP SW-2 Q504
PEAK HOLD-2 Q503
BGP SW-1 Q501
IC500
+12V REG IC10
+12V REG IC9
+5V REG IC8
+9V REG IC7
IC5 MODE DISCRI
SYNC AMP Q13
SYNC OUT Q14
SYNC
VIDEO OUT
YC/V SW Q25
VIDEO
VIDEO AMP Q407~409
YC/VIDEO
IC501 (1/3)
SECAM
SECAM C BUFF Q436
BELL T201
LIMITER
SECAM SW
R-Y DEMO
B-Y DEMO
COLOR CONTROL
G-Y MATRIX
RGB MATRIX
IC201 SECAM DEMO
ID DET
SYSTEM SW KILLER
BLANKING
FF
INVERTER Q145
SECAM SUB COL
CUT OFF ADJ Q443
R BUFFER Q424
G BUFFER Q425
B BUFFER Q426
COLOR
SHARP
R OUT
G OUT
B OUT
HUE 1
HUE 3
HUE 2
HUE
RV103
+12V
SECAM
MONITOR OUT
C BUFF-1 Q431
C AMP Q432
C BUFF-2 Q433
BPT BUFF Q442
SECAM AMP Q136
SECAM SW Q150
SECAM SW Q154
INVERTER Q149
BLK SW Q417
SYNC
BLK
H.BLK
V.BLK
50/60
RV109 SUB COL
RV107 SUB PIC
AGC AMP
CHROMA AMP
COLOR CONTROL
CONTRAST CONTROL
CHROMA AMP
AGC DET
BURST AMP
HUE CONT Q124
ID KILLER
PAL SW
FF
APC DET
VCO
IC103 (1/2) NTSC/PAL DEMODULATOR
PAL AMP Q135
DELAY DL103
T104
X101
X102
OSC SW1 Q127
OSC SW2 Q128
APC
3.58 4.43
RV104
RV105
PHASE SW Q125
PHASE CONT Q126
DAT BUFFER Q129
DAT BUFFER Q130
NTSC SW Q137
B-Y DEMO
PEDSTAL CLAMP
VIDEO AMP
SYSTEM SW
IC103 (1/2) NTSC/PAL DEMO
R-Y SW Q132
B-Y SW Q131
COL SW Q138
SYSTEM SW2 Q139
SYSTEM SW1 Q144
IC104 COL MODE SEL
W/B SW1,2 Q440,441
IC404 50/60 CTL
50/60 INV Q418
50/60 INV Q419
ID SW2 Q123
ID AMP Q121
ID SW1 Q122
KILLER
RV106
CHROMA SW Q120
TRAP SW Q153
B/W SW Q422
IC102 NTSC/PAL SW2 C
IC101 NTSC/PAL SW1 Y
Y-AMP Q116
Y-BUFFER Q420
Y-BUFFER Q401
APT DRIVE Q421
APT DRIVE Q402
IC403 APT CTL
Y-AMP Q404~406
Y-AMP Q403
IC501 (3/3)
Y BUFF 2,3 Q438,439
TRAP T102
TRAP T103
TRAP SW Q152
TRAP SW Q117
PAL SW Q118
NT Y AMP Q435
CHROMA BUFF Q412
CHROMA SW Q423
NT C BUFF Q434
NT C BUFF Q437
COMB BUFF Q410
COMB AMP Q411
DL402
COMB Y AMP Q413
COMB Y AMP Q414
COMB Y AMP Q415
COMB Y BUFF Q416
IC501 (2/3)
PROTECT Q427
PROTECT
+12V REG IC401
-12V REG IC402
+15V
-15V
-12V
TO D BOARD
TO QA BOARD
TO BB BOARD
IC204 AUDIO AMP
SP901
PJ SW
HATCH/BAR
VPH/VPR
LINE/RGB
VPR-VR
NOR/TEST
VR
+28V
+9V
-9V
IC206
IC205
IC207

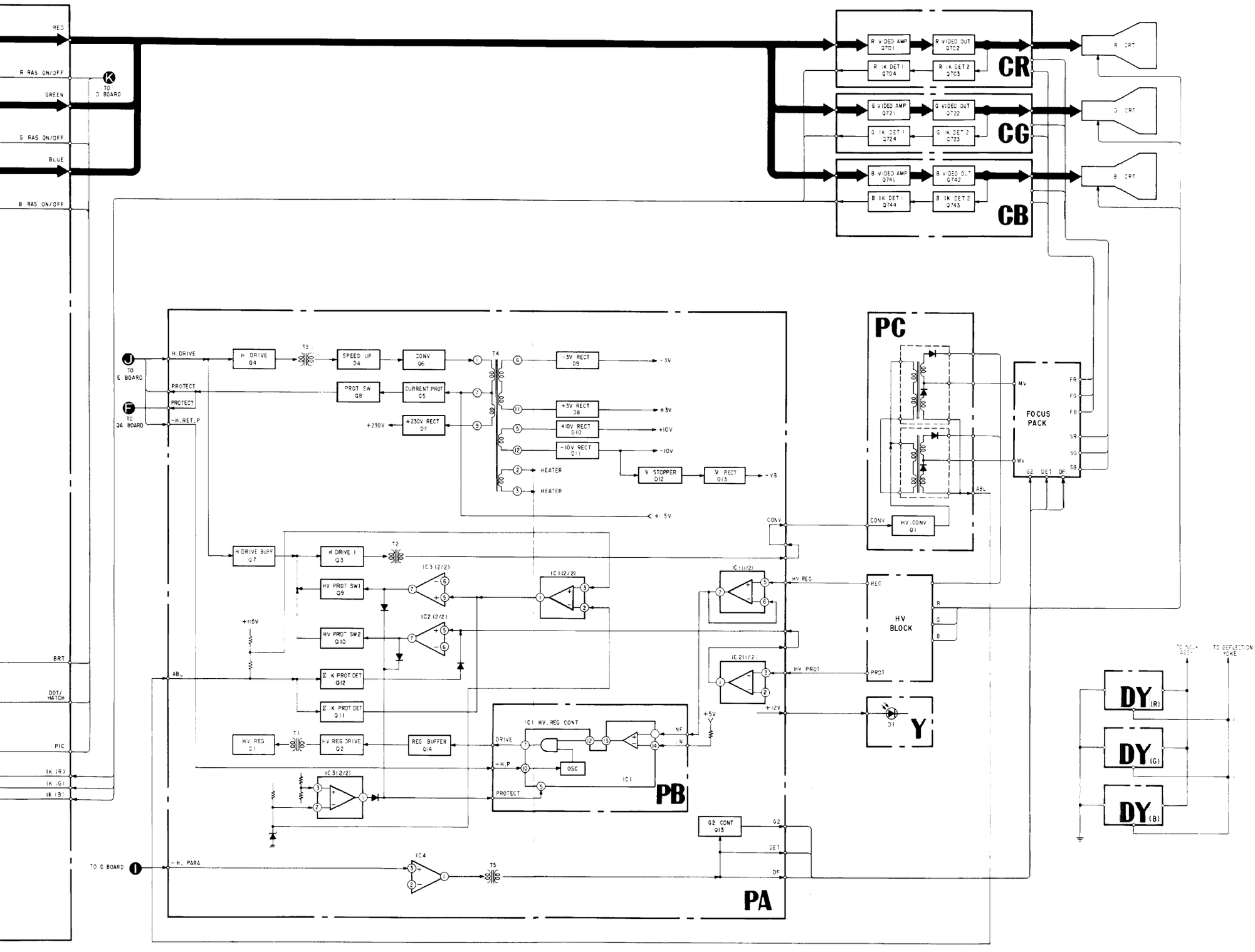

H. DRIVE
-H. RET. P
PROTECT
TO PA BOARD
TO FAM
SENS
PROTECT/SW1 Q6
PROTECT/SW2 Q7
H. PIN O.L.P Q5
115V
+15V
+12V REG IC1
+12V
-15V
-12V REG IC3
-12V
H. OUT DRIVE Q4
T1
H. OUT Q1
T3
H. PIN AMP
H. SIZE
H. AGC
IC2
IN
NF
-H.P
COMP
DRIVE
OSC
IC1 H. PIN CONT
EB
H. PIN BUFF Q9
H. PIN. DRIVE Q3
T2
H. PIN. OUT Q2
RH CENT
H. CENT OUT Q1, Q2
IC1 H. CENT. DRIVE
EC (R)
L6
R-H-DY
GH CENT
EC (G)
L7
G-H-DY
BH CENT
EC (B)
L8
B-H-DY
E
TO BB BOARD
ED
FB
AC IN
F1
N
POWER SW
T1
T2
RM RECT D2
28V
VOLTAGE SELECTOR SW-1
T3
MAIN RECT D1
±DC
FA
TK-15
GA
+15V RECT D653
-15V RECT D654
115V RECT D651
T602
+15V
-15V
+115V
GB
OVER VOLTAGE DETECT Q673, 674
OVER VOLTAGE DETECT Q675~Q677
±DC IN
L601
SWITCHING Q601
T603
T601
KICK Q671, 672
REG (PWM) IC671
KICK RECT D671, 672
V. HOLD
RV455
B V CENT R
RV454
RV453
B H CENT R
RV452
RV451
H. SHIFT
RV456
RGB
BLUE MODE SELECT
NORMAL
S452
BB
CB
NORMAL
S451
TEST
+12V
NOR/TEST
GND
HA
PROTECT
+12V
-12V PROT Q18
-12V
H. SHIFT
-HOT. P
H. PULSE AMP Q2
H. PULSE BUFF Q3
IC3 MODE SW
+12V
TO BB BOARD
-HOT. P
LINE/RGB
LINE/RGB
NOR/TEST
H. DRIVE
50/60
H-HOLD RGB
H-HOLD LINE
RV1
RV2
PAL H. CENT Q16
SYNC
SYNC BUFF Q1
H. SYNC
AFC
H. OSC
PROTECT
PRE. DRIVE
TO QA
C. SYNC
IC1 H.V. OSC
V. SYNC
V. OSC
V. BLK
V. DRIVE
V. SYNC SEP Q17
V. SAW-I Q4
V. HOLD
V. SIZE 50/60 Q6
+V. RET. P
NOR/TEST
9
PIC
BRT
R-RAS
G-RAS
B-RAS
DOT/HATCH
BAR/HATCH
VPH/VPR
PJ SW
PJ SW
VOL
VPR VOL
TO QA BOARD
HUE 2
HUE 1
HUE 3
COLOR
SHARP
VPR-PIC
VPR-BRT
VPR-HUE 1
VPR-HUE 2
VPR-HUE 3
VPR-COLOR
VPR-SHARP
VPR-INPUT
INPUT
AUTO/SECAM
CB
BB
TO QA BOARD
TO BA BOARD
AUTO
LINE +12V
SECAM
RGB
INPUT SELECT S402
COLOR SYSTEM S403
SHARPNESS RV404
COLOR RV405
HUE RV406
BRIGHT RV403
PICTURE RV402
VOLUME RV401
IC403 REMOTE SW
IC402 REMOTE SW
IC401 REMOTE SW

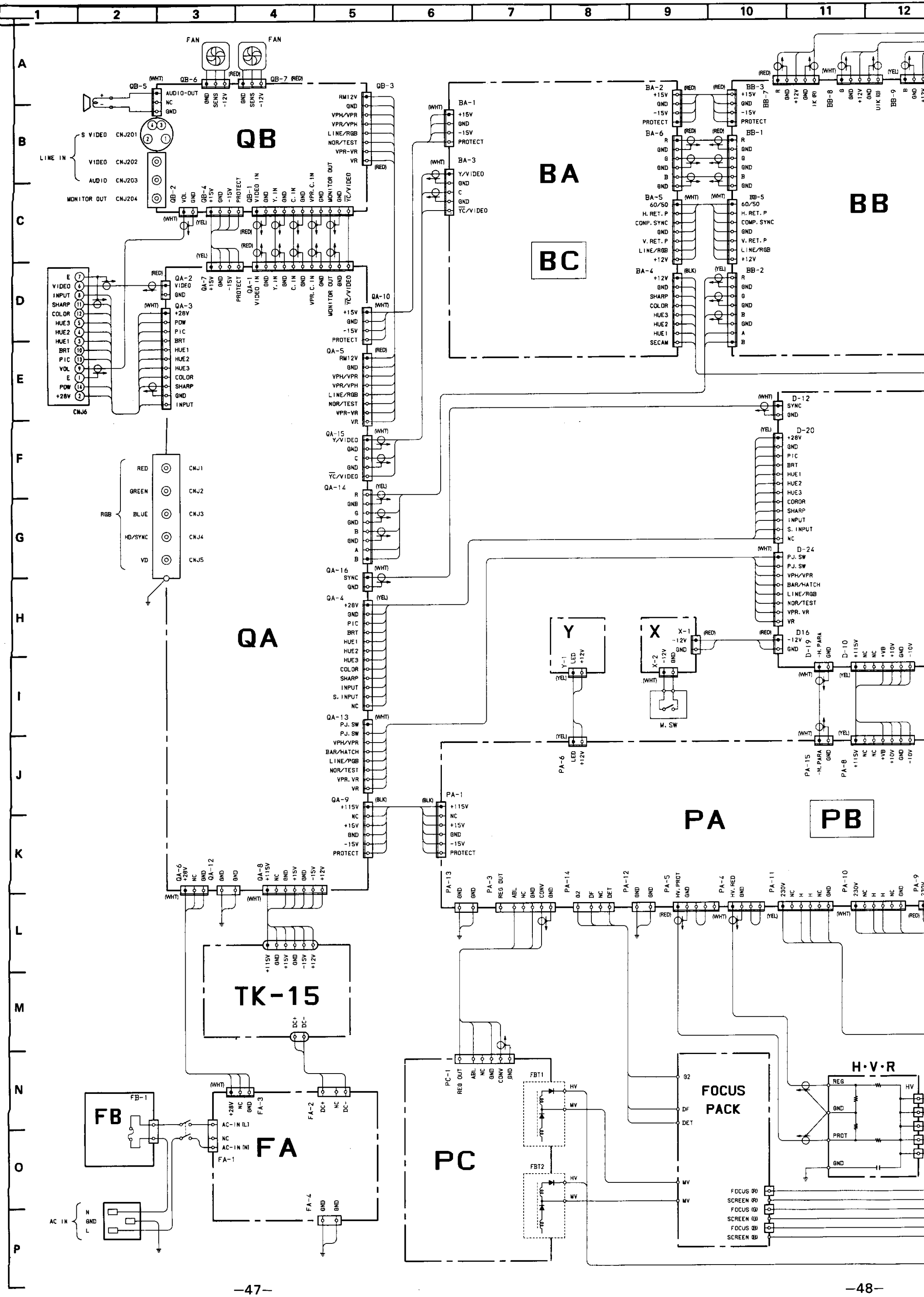
VPH-1041Q/1042Q

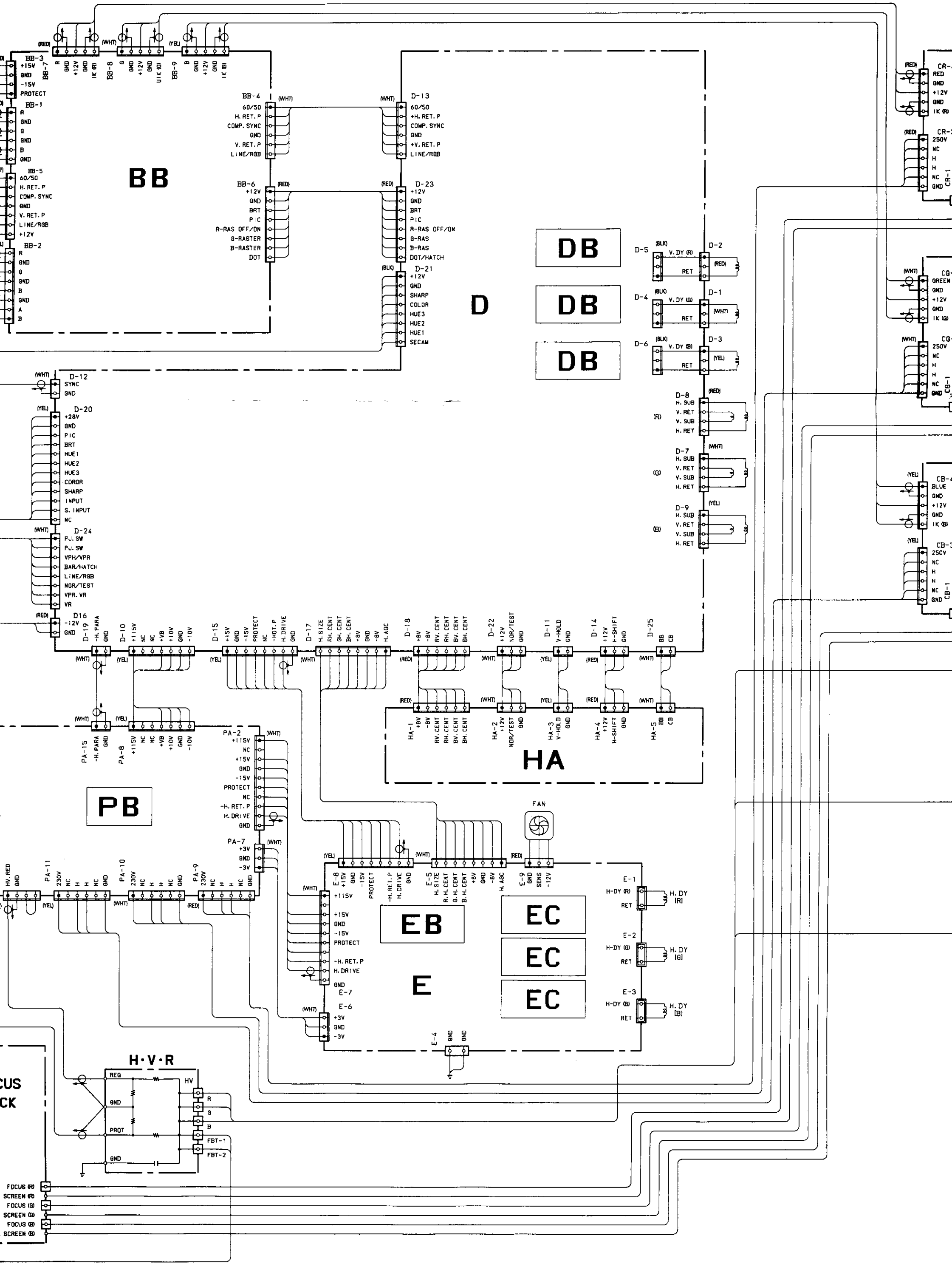


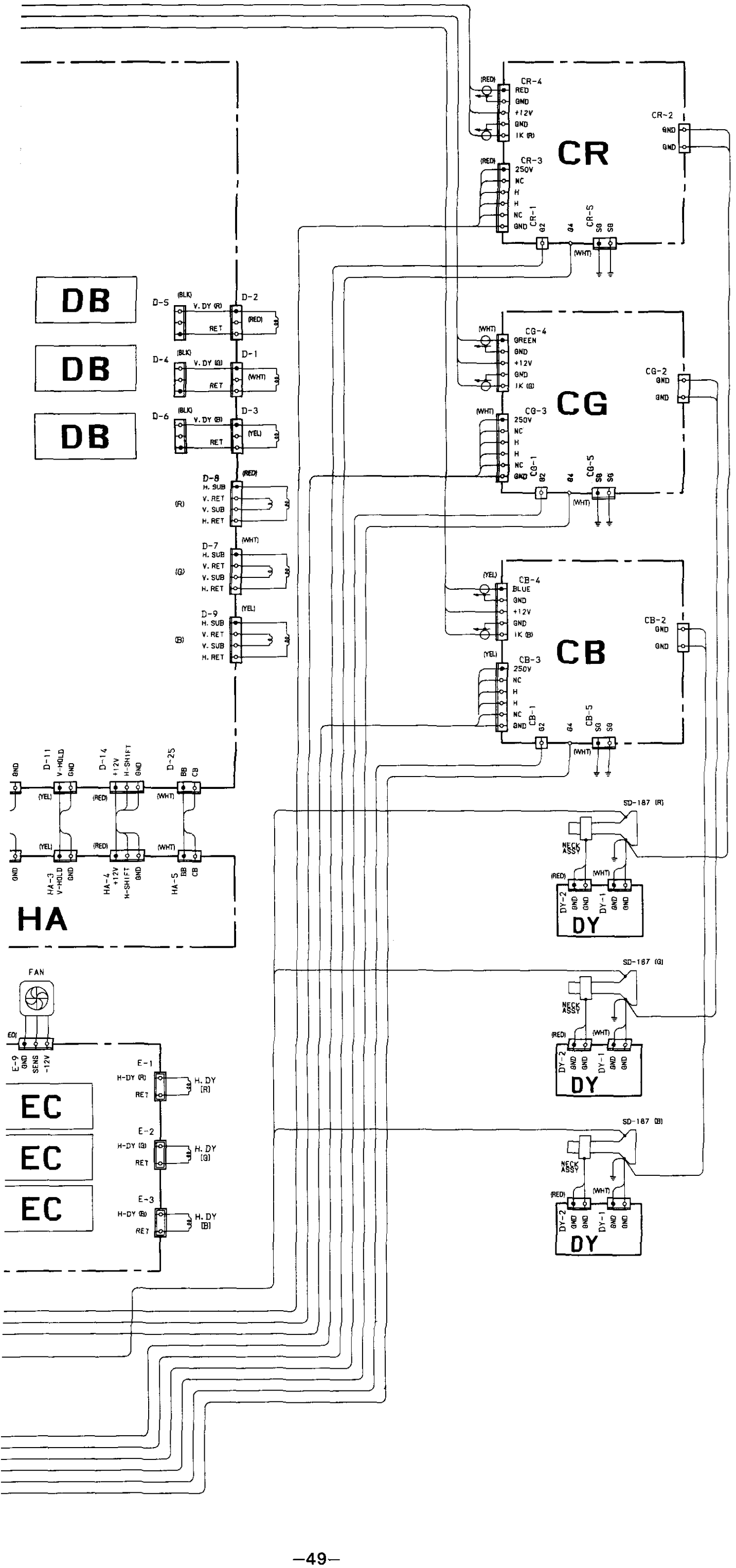

TO PA BOARD
H. PARA
H. AGC
GH CENT
H. SIZE
RV CENT
RH CENT
RH CENT
BV CENT
BH CENT
BH CENT
S2 H.
S5 V2
S4 V1
VARIABLE RESISTOR CONTROL BLOCK
GV
GH
RV
RH
BV
BH
RV9 RV8 RV7 RV6 RV5
RV15 RV14 RV13 RV12 RV11 RV10
RV24 RV23 RV22 RV21 RV20 RV19 RV18 RV17 RV16
RV33 RV32 RV31 RV30 RV29 RV28 RV27 RV26 RV25
RV42 RV41 RV40 RV39 RV38 RV37 RV36 RV35 RV34
RV51 RV50 RV49 RV48 RV47 RV46 RV45 RV44 RV43
TILT-4 TILT-3 TILT-2 TILT-1 BOW SKEW L IN SIZE CENT
H. SAW BUFF
H. PARA GEN
H. SAW GEN
H. PARA BUFF
IC2 SIG GEN
V. PARA GEN
V. SAW
V. PARA
+12V
-12V
+8V REG IC16
-8V REG IC17
+15V
-15V
+12V REG IC6 (H)
-12V REG IC5
+12V REG IC7 (V)
+12V REG IC4
IC9 TILT BUFF
IC8 HALF H.V
IC10 TILT SW
IC13 V.PIN AMP
KEYS GEN IC15
V.PIN GEN IC14
IC11 H.LIN BUFF
IC12 V.KEYS BUFF
S6 MODEL SELECT
S7 SIZE SELECT
S3 V.DC
S1 H.DC
+8V
-8V
BAR S8
DOT S9
B-RAS
G-RAS S11
R-RAS S12
PL1
M SW
X
IC19 (2/2)
IC18 (2/2)
IC19 (1/2)
IC18 (1/2)
V.OUT/PROT2 Q20
V.OUT/PROT1 Q19
V.DRIVE-R Q10
V.OUT-R Q11,12
V.DRIVE-G Q7
V.OUT-G Q8,9
V.DRIVE-B Q13
V.OUT-B Q14,15
V.DY(R)
V.DY(G)
V.DY(B)
IC1 SUB OUT DRIVE
V IN
H IN
V SUB OUT Q1,2
V.OUT
H SUB OUT Q3,4
H.OUT
V.RET
H.RET
DB (R)
DB (G)
DB (B)
V
H
SUB DY(R)
SUB DY(G)
SUB DY(B)
D


R BUFFER Q27
G BUFFER Q28
B BUFFER Q29
C.B (R) BUFF Q30, 31
C.B (G) BUFF Q32, 33
B.B BUFF Q1
B.B BUFFER Q38
IC3 REG SW (R,G)
IC4 REG SW (B)
R BUFFER Q13
G BUFFER Q14
B BUFFER Q15
BLK BUFFER Q39
IC5 PIC/BRT CONT
R BUFFER Q2
G BUFFER Q5
B BUFFER Q8
R DRIVE Q3
G DRIVE Q6
B DRIVE Q9
RV1 R.DRIVE
RV2 G.DRIVE
RV3 B.DRIVE
R RAS SW Q4
G RAS SW Q7
B RAS SW Q10
LIMITER Q40
BIAS Q11, 12
RED
GREEN
BLUE
R RAS ON/OFF
G RAS ON/OFF
B RAS ON/OFF
TO QA BOARD
TO D BOARD
TO BA BOARD
SYNC BUFF Q35
H.P INVERT Q20
H.P INVERT Q16
H.P BUFFER Q17
SYNC BUFF Q36, 37
- HOT.P
H.RET.P
COMP SYNC
V.RET.P
LINE RGB
60/50
PROTE
IC11 H.PLL
IC12 H COUNTER
IC13 V.PLL
IC14 V COUNTER
IC15 (1/4) GATE 1
IC16 (1/2) GATE 2
IC17 (2/2) H BLK
IC17 (1/2) V BLK
IC18 (2/2) HV BLK
IC18 (1/2) V BLK
IC7 (1/4)
IC7 (4/4)
IC7 (3/4)
IC7 (2/4)
IC15 (2/4)
IC15 (3/4)
IC15 (4/4) GATE 1
IC16 (2/2) GATE 2
IC6 (1/4)
IC6 (2/4)
IC6 (3/4)
BLK
S1
+12V REG IC1
-12V REG IC2
-12V PROTE Q41
IC8 (1/2) LEVEL SHIFT
RV4 SUB BRT
BRT
DOT SW1 Q18
DOT SW2 Q19
DOT/ HATCH
PIC
IC8 (2/2)
IC9 (1/2)
PIC ABL Q34
TOTAL ABL Q24
PEAK ABL Q25
S.T ABL Q26
IC9 (2/2)
IC10 (2/2)
IC10 (1/2)
IK (R) BUFF Q21
IK (G) BUFF Q22
IK (B) BUFF Q23
IK (R)
IK (G)
IK (B)
TO E BOARD
TO QA BOARD
TO D BOARD
H.DRIVE
H DRIVE Q4
H DRIVE BUFF Q7
PROTECT
-H.RET.P
-H. PARA
HV REG Q1
T1
T3
ABL
+115V
BB


RED
R RAS ON/OFF
GREEN
G RAS ON/OFF
BLUE
B RAS ON/OFF
TO D BOARD
R VIDEO AMP Q701
R VIDEO OUT Q702
R IK DET 1 Q704
R IK DET 2 Q703
CR
G VIDEO AMP Q721
G VIDEO OUT Q722
G IK DET 1 Q724
G IK DET 2 Q723
CG
B VIDEO AMP Q741
B VIDEO OUT Q742
B IK DET 1 Q744
B IK DET 2 Q743
CB
R CRT
G CRT
B CRT
PC
FOCUS PACK
HV CONV Q1
HV BLOCK
REC
PROT
Y
D1
DY (R)
DY (G)
DY (B)
TO DEFLECTION YOKE
TO E BOARD
TO QA BOARD
H. DRIVE
PROTECT
-H. RET. P
H DRIVE Q4
SPEED UP D4
CONV Q6
PROT SW Q8
CURRENT PROT Q5
+230V RECT D7
-3V RECT D9
+3V RECT D8
+10V RECT D10
-10V RECT D11
V STOPPER D12
V RECT D13
HEATER
HEATER
-3V
+3V
+10V
-10V
-VB
+5V
+230V
H DRIVE BUFF Q7
H DRIVE I Q3
HV PROT SW1 Q9
HV PROT SW2 Q10
Σ IK PROT DET Q12
Σ IK PROT DET Q11
HV REG Q1
HV REG DRIVE Q2
REG BUFFER Q14
IC3 (2/2)
IC2 (2/2)
IC1 (2/2)
IC1 (1/2)
IC2 (1/2)
IC1 HV. REG CONT
DRIVE
-H.P
PROTECT
OSC
IC1
PB
+115V
+5V
+12V
HV. REG
HV. PROT
CONV
ABL
G2 CONT Q13
G2
DET
DF
IC4
T1
T2
T3
T4
T5
TO C BOARD
-H. PARA
PA
BRT
DOT/ HATCH
PIC
IK (R)
IK (G)
IK (B)


QB
QA
BA
BB
BC
PA
PB
PC
TK-15
FB
FA
FOCUS PACK
H·V·R
FAN
FAN
QB-5
QB-6
QB-7 (RED)
QB-3
AUDIO-OUT
NC
GND
S VIDEO CNJ201
LINE IN
VIDEO CNJ202
AUDIO CNJ203
MONITOR OUT CNJ204
QB-2
QB-4
QB-1
QA-2
QA-3
QA-7
QA-1
QA-10
QA-5
QA-15
QA-14
QA-16
QA-4
QA-13
QA-9
CNJ6
RED CNJ1
GREEN CNJ2
BLUE CNJ3
HD/SYNC CNJ4
VD CNJ5
RGB
BA-1
BA-3
BA-2
BA-6
BA-5
BA-4
BB-3
BB-7
BB-8
BB-9
BB-1
BB-5
BB-2
D-12
D-20
D-24
D16
D-19
D-10
Y
X
M. SW
PA-6
PA-15
PA-8
PA-1
PA-13
PA-3
PA-14
PA-12
PA-5
PA-4
PA-11
PA-10
PA-9
PC-1
FBT1
FBT2
FB-1
FA-1
FA-2
FA-3
FA-4
AC IN
FOCUS (R)
SCREEN (R)
FOCUS (G)
SCREEN (G)
FOCUS (B)
SCREEN (B)
REG
GND
PROT
HV


BB
BB-3
+15V
GND
-15V
PROTECT
BB-1
R
GND
G
GND
B
GND
BB-5
60/50
H. RET. P
COMP. SYNC
GND
V. RET. P
LINE/RGB
+12V
BB-2
R
GND
G
GND
B
GND
A
B
BB-7
R
GND
+12V
GND
IK (R)
BB-8
G
GND
+12V
GND
U/K (G)
BB-9
B
GND
+12V
GND
IK (B)
BB-4
60/50
H. RET. P
COMP. SYNC
GND
V. RET. P
LINE/RGB
BB-6
+12V
GND
BRT
PIC
R-RAS OFF/ON
G-RASTER
B-RASTER
DOT
D-13
60/50
+H. RET. P
COMP. SYNC
GND
+V. RET. P
LINE/RGB
D-23
+12V
GND
BRT
PIC
R-RAS OFF/ON
G-RAS
B-RAS
DOT/HATCH
D-21
+12V
GND
SHARP
COLOR
HUE3
HUE2
HUE1
SECAM
D
DB
DB
DB
D-5
V. DY (R)
RET
D-2
D-4
V. DY (G)
RET
D-1
D-6
V. DY (B)
RET
D-3
D-8
H. SUB
V. RET
V. SUB
H. RET
(R)
D-7
H. SUB
V. RET
V. SUB
H. RET
(G)
D-9
H. SUB
V. RET
V. SUB
H. RET
(B)
CR-1
RED
GND
+12V
GND
IK (R)
CR-3
250V
NC
H
H
NC
GND
CG-1
GREEN
GND
+12V
GND
IK (G)
CG-3
250V
NC
H
H
NC
GND
CB-1
BLUE
GND
+12V
GND
IK (B)
CB-3
250V
NC
H
H
NC
GND
D-12
SYNC
GND
D-20
+28V
GND
PIC
BRT
HUE1
HUE2
HUE3
CORDR
SHARP
INPUT
S. INPUT
NC
D-24
PJ. SW
PJ. SW
VPH/VPR
BAR/HATCH
LINE/RGB
NOR/TEST
VPR. VR
VR
D16
-12V
GND
D-19
-H. PARA
GND
D-10
+115V
NC
NC
+VB
+10V
GND
-10V
D-15
+15V
GND
-15V
PROTECT
NC
-HOT. P
H. DRIVE
GND
D-17
H. SIZE
RH. CENT
GH. CENT
BH. CENT
+8V
GND
-8V
H. AGC
D-18
+8V
-8V
RV. CENT
RH. CENT
BV. CENT
BH. CENT
D-22
+12V
NOR/TEST
GND
D-11
V-HOLD
GND
D-14
+12V
H-SHIFT
GND
D-25
BB
CB
HA-1
+8V
-8V
RV. CENT
RH. CENT
BV. CENT
BH. CENT
HA-2
+12V
NOR/TEST
GND
HA-3
V-HOLD
GND
HA-4
+12V
H-SHIFT
GND
HA-5
BB
CB
HA
PA-15
-H. PARA
GND
PA-8
+115V
NC
NC
+VB
+10V
GND
-10V
PA-2
+115V
NC
+15V
GND
-15V
PROTECT
NC
-H. RET. P
H. DRIVE
GND
PA-7
+3V
GND
-3V
PA-11
HV. RED
GND
230V
NC
H
H
NC
GND
PA-10
230V
NC
H
H
NC
GND
PA-9
230V
NC
H
H
NC
GND
PB
FAN
E-8
+115V
GND
-15V
PROTECT
-H. RET. P
H. DRIVE
GND
E-5
H. SIZE
R. H. CENT
G. H. CENT
B. H. CENT
+8V
GND
-8V
H. AGC
E-9
GND
SENS
-12V
E-1
H-DY (R)
RET
H. DY (R)
E-2
H-DY (G)
RET
H. DY (G)
E-3
H-DY (B)
RET
H. DY (B)
E-4
GND
GND
E-7
+115V
+15V
GND
-15V
PROTECT
-H. RET. P
H. DRIVE
GND
E-6
+3V
GND
-3V
EB
E
EC
EC
EC
H·V·R
REG
GND
PROT
GND
HV
R
G
B
FBT-1
FBT-2
FOCUS (R)
SCREEN (R)
FOCUS (G)
SCREEN (G)
FOCUS (B)
SCREEN (B)


DB
DB
DB
D-5
(BLK)
V. DY (R)
RET
D-2
(RED)
D-4
(BLK)
V. DY (G)
RET
D-1
(WHT)
D-6
(BLK)
V. DY (B)
RET
D-3
(YEL)
D-8
(RED)
H. SUB
V. RET
V. SUB
H. RET
(R)
D-7
(WHT)
(G)
D-9
(YEL)
(B)
GND
D-11
V-HOLD
GND
D-14
+12V
H-SHIFT
GND
D-25
BB
CB
(YEL)
(RED)
(WHT)
HA-3
V-HOLD
GND
HA-4
+12V
H-SHIFT
GND
HA-5
BB
CB
HA
FAN
E-9
GND
SENS
-12V
EC
EC
EC
E-1
H-DY (R)
RET
H. DY (R)
E-2
H-DY (G)
RET
H. DY (G)
E-3
H-DY (B)
RET
H. DY (B)
(RED)
CR-4
RED
GND
+12V
GND
IK (R)
CR-3
250V
NC
H
H
NC
GND
CR-1
G2
G4
CR-5
SG
SB
(WHT)
CR
CR-2
GND
GND
(WHT)
CG-4
GREEN
GND
+12V
GND
IK (G)
CG-3
250V
NC
H
H
NC
GND
CG-1
G2
G4
CG-5
SG
SG
(WHT)
CG
CG-2
GND
GND
(YEL)
CB-4
BLUE
GND
+12V
GND
IK (B)
CB-3
250V
NC
H
H
NC
GND
CB-1
G2
G4
CB-5
SG
SG
(WHT)
CB
CB-2
GND
GND
SD-187 (R)
NECK ASSY
(RED)
(WHT)
DY-2
GND
GND
DY-1
GND
GND
DY
SD-187 (G)
NECK ASSY
(RED)
(WHT)
DY-2
GND
GND
DY-1
GND
GND
DY
SD-187 (B)
NECK ASSY
(RED)
(WHT)
DY-2
GND
GND
DY-1
GND
GND
DY

Note :

- All capacitors are in μF unless otherwise noted. pF : μμF 50 WV or less are not indicated except for electrolytics.
- Indication of resistance, which does not have one for rating electrical power is as follows.

Pitch : 5 mm Rating electrical power 1/4W

- All resistors are in ohms.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- △ : internal component.
- ▭ : panel designation.
- The components identified by ⊠ in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪, make the necessary adjustments indicated. 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 R23, R38, R39, R48, R49, R88 and R89 adjust on page 27 29.)
- When replacing the part in below table be sure to perform the related adjustment.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

Part replaced (◪)	Adjustment (⊠)
C30, D16, D22, IC2, Q10, R15, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44 PA board complete	HV HOLD DOWN (R38, R39)
C3, C39, C56, D17, IC1, L2, Q14, R31, R32, R33, R34, R46, R47, R48, R49, R82, R83, R84 PA board complete IC1, R3, R4, R7, R14 PB board mount	HV REG (R48, R49)
D15, D20, IC3, Q9, Q11, Q12, R16, R18, R19, R20, R21, R22, R23, R50, R51, R52, R53, R54, R69 PA board complete	BEAM CURRENT PROTECTOR (R23)
D18, IC1, R18, R85, R86, R87, R88, R89 PA board complete	OVER VOLTAGE PROTECTOR (R88, R89)

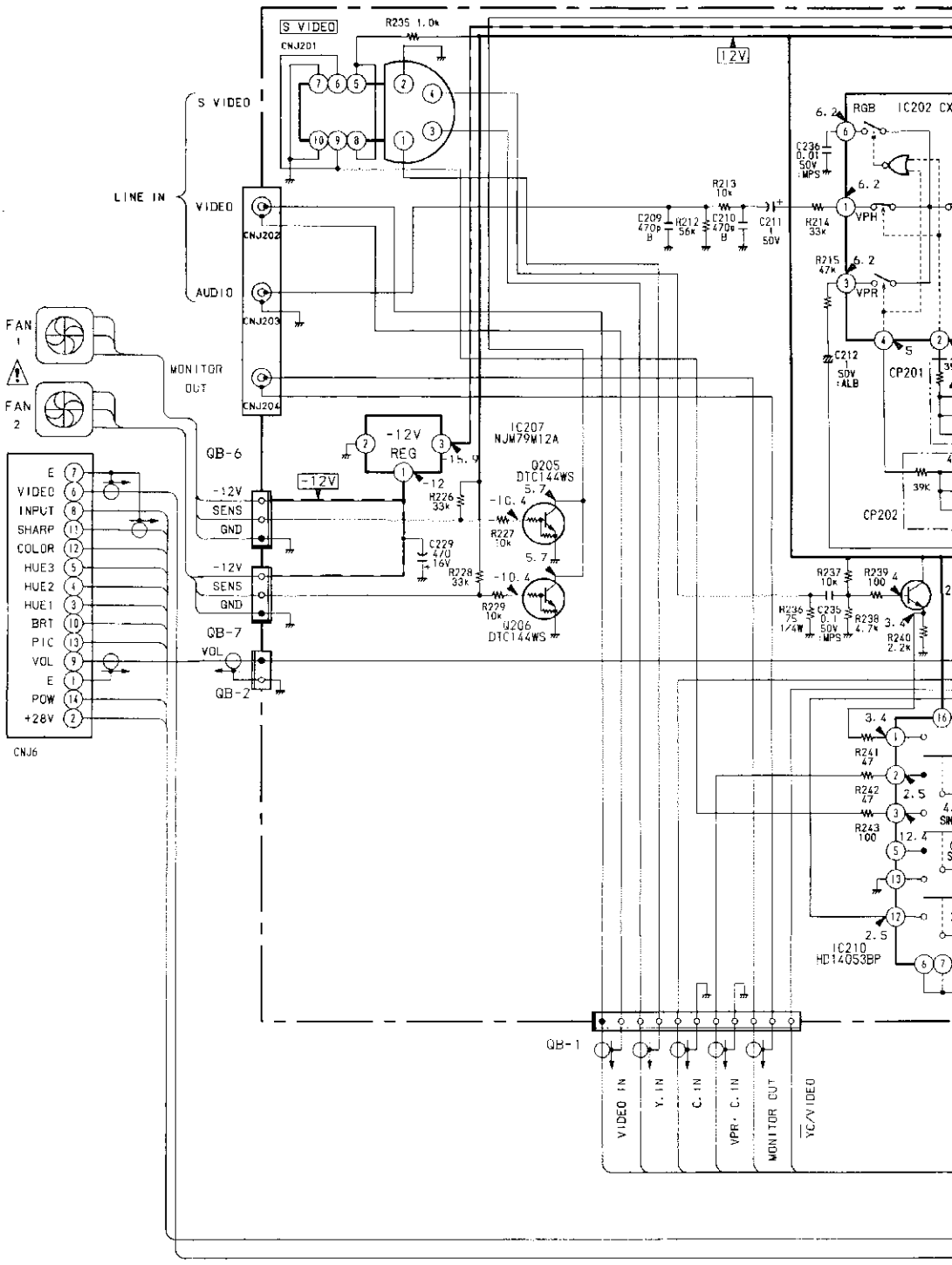
- All voltages are in V.
- Voltage are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a PAL color-bar signal input.
- ▭ : adjustment for repair.
- Voltage variations may be noted due to normal production tolerance.
- No mark : PAL mode.
- ( ) : SECAM mode.
- ⟨ ⟩ : NTSC 3.58 mode.
- ⟪ ⟫ : NTSC 4.43 mode.
- ═══ : B+ bus.
- ═ ═ ═ : B− bus.

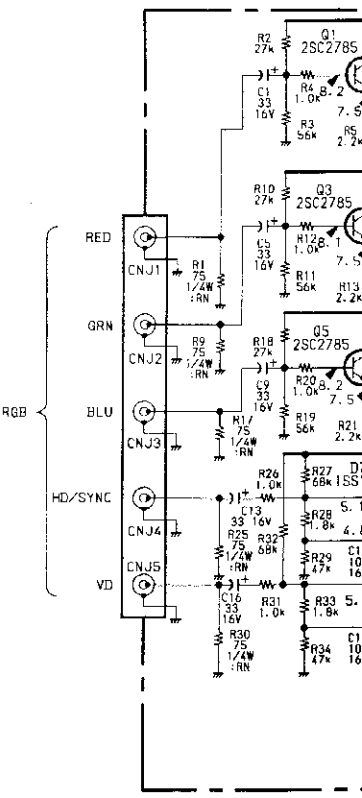
Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE WIREWOUND
	: RB	NONFLAMMABLE CEMENT
COIL	: LF-8L	MICRO INDUCTOIR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED PORYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

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.





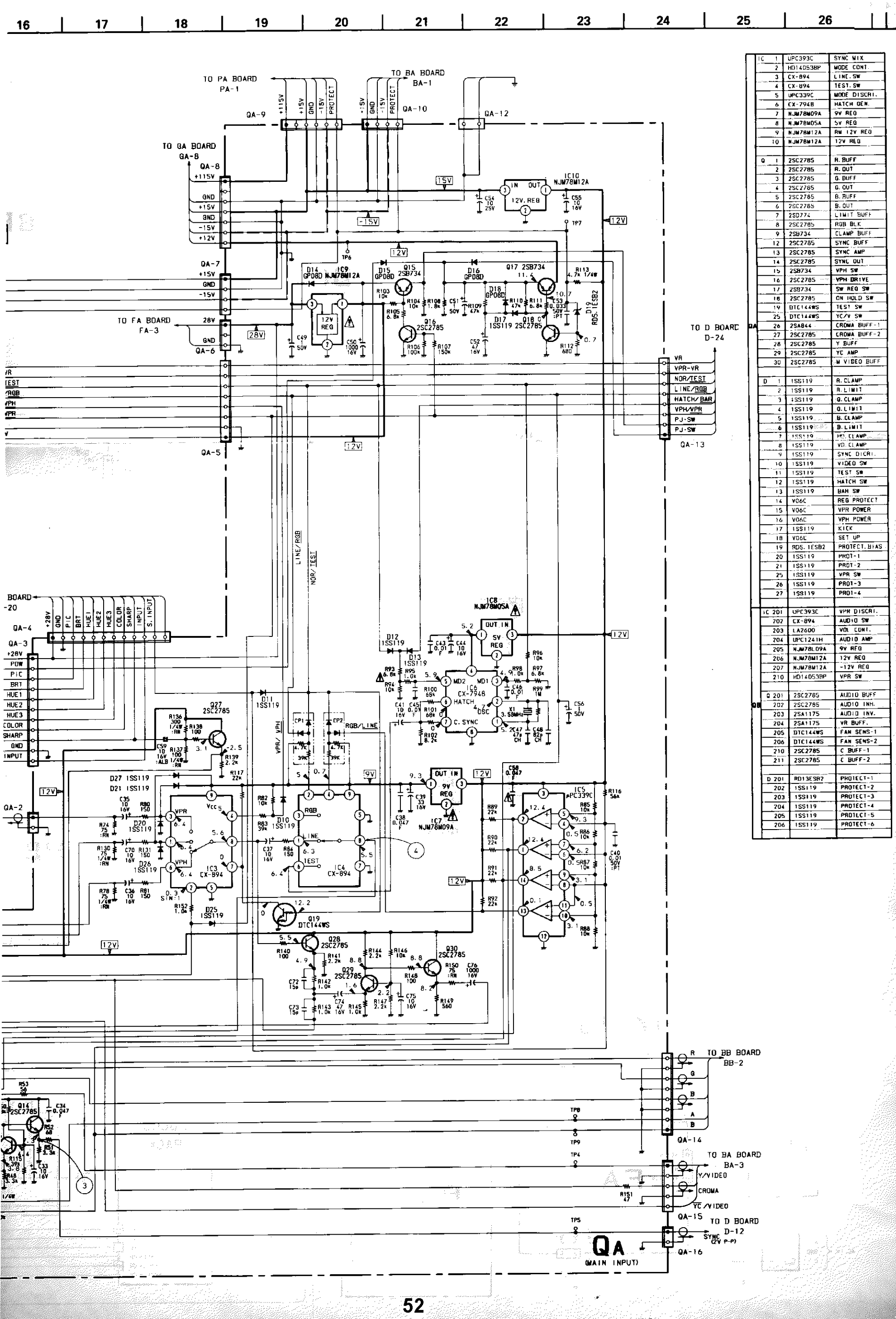
QA Board

② S IN 0.6Vp-p (H)	③ PAL, NTSC 3.58 NTSC 4.43 2.5Vp-p (H)	③ SECAM 2.5Vp-p (H)	④ PAL, NTSC 3.58 NTSC 4.43 1.0Vp-p (H)
④ SECAM 1.0Vp-p (H)			

QB

(AUDIO AMP)

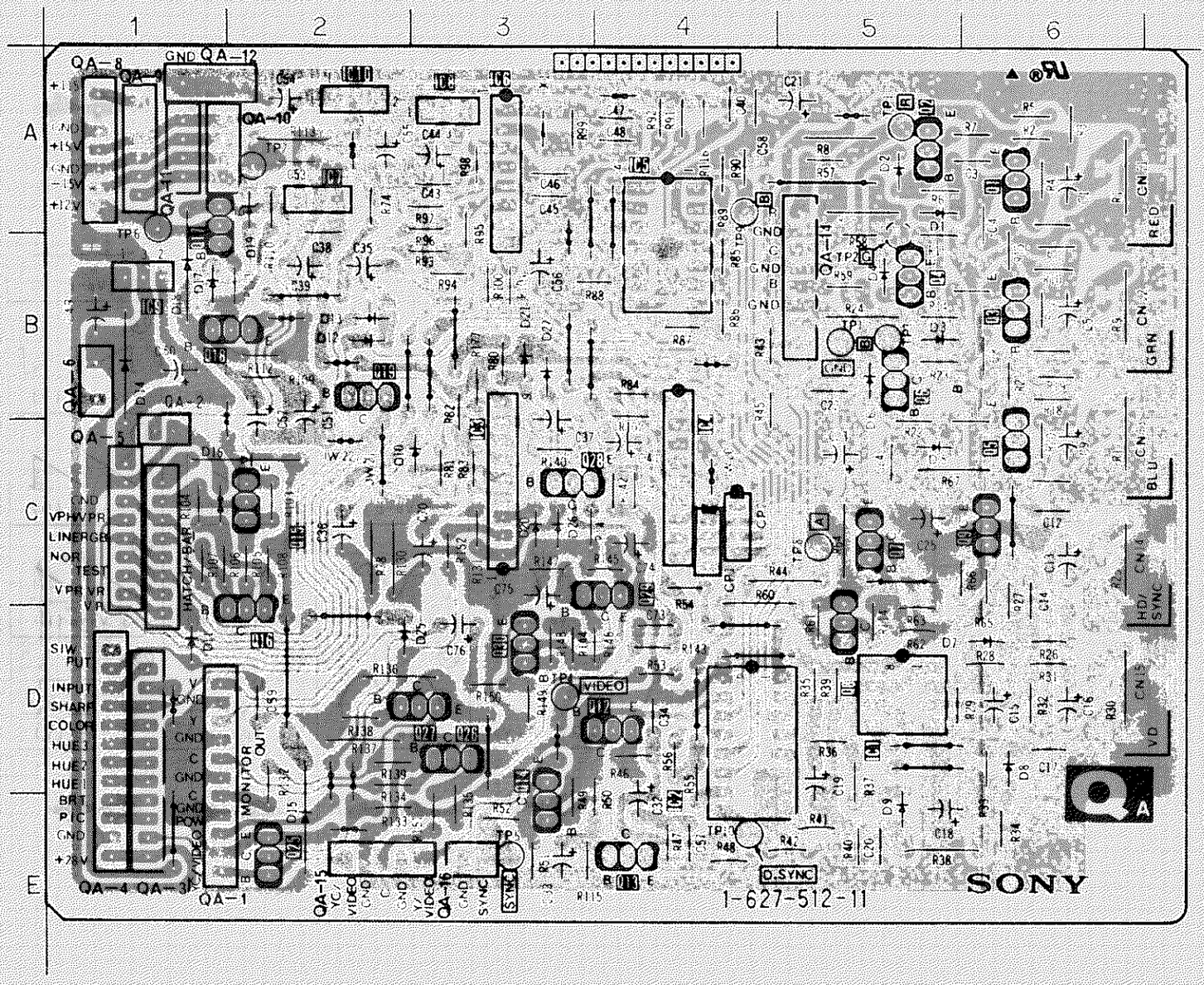
S-VIDEO IN: 0 V
VIDEO IN: 10 V



IC	1	UPC393C	SYNC MIX
	2	HD14053BP	MODE CONT.
	3	CX-894	LINE SW
	4	CX-894	TEST SW
	5	UPC339C	MODE DISCRI.
	6	CX-7948	HATCH GEN.
	7	NJM78M09A	9V REG
	8	NJM78M05A	5V REG
	9	NJM78M12A	RM 12V REG
	10	NJM78M12A	12V REG
Q	1	2SC2785	R. BUFF
	2	2SC2785	R. OUT
	3	2SC2785	G. BUFF
	4	2SC2785	G. OUT
	5	2SC2785	B. BUFF
	6	2SC2785	B. OUT
	7	2SD774	LIMIT BUFF
	8	2SC2785	RGB BLK
	9	2SB734	CLAMP BUFF
	12	2SC2785	SYNC BUFF
	13	2SC2785	SYNC AMP
	14	2SC2785	SYNC OUT
	15	2SB734	VPH SW
	16	2SC2785	VPH DRIVE
	17	2SB734	SW REG SW
	18	2SC2785	ON HOLD SW
	19	DTC144WS	TEST SW
	25	DTC144WS	YC/V SW
QA	26	2SA844	CROMA BUFF-1
	27	2SC2785	CROMA BUFF-2
	28	2SC2785	Y BUFF
	29	2SC2785	YC AMP
	30	2SC2785	M VIDEO BUFF
D	1	1SS119	R. CLAMP
	2	1SS119	R. LIMIT
	3	1SS119	G. CLAMP
	4	1SS119	G. LIMIT
	5	1SS119	B. CLAMP
	6	1SS119	B. LIMIT
	7	1SS119	H. CLAMP
	8	1SS119	V. CLAMP
	9	1SS119	SYNC DISCRI.
	10	1SS119	VIDEO SW
	11	1SS119	TEST SW
	12	1SS119	HATCH SW
	13	1SS119	BAR SW
	14	V06C	REG PROTECT
	15	V06C	VPR POWER
	16	V06C	VPH POWER
	17	1SS119	KICK
	18	V06C	SET UP
	19	RDS.1ESB2	PROTECT.BIAS
	20	1SS119	PROT-1
	21	1SS119	PROT-2
	25	1SS119	VPR SW
	26	1SS119	PROT-3
	27	1SS119	PROT-4
IC	201	UPC393C	VPH DISCRI.
	202	CX-894	AUDIO SW
	203	LA2600	VOL CONT.
	204	UPC1241H	AUDIO AMP
	205	NJM78L09A	9V REG
	206	NJM78M12A	12V REG
	207	NJM78M12A	-12V REG
	210	HD14053BP	VPR SW
Q	201	2SC2785	AUDIO BUFF
QB	202	2SC2785	AUDIO INH.
	203	2SA1175	AUDIO INV.
	204	2SA1175	VR BUFF.
	205	DTC144WS	FAN SENS-1
	206	DTC144WS	FAN SENS-2
	210	2SC2785	C BUFF-1
	211	2SC2785	C BUFF-2
D	201	RD13ESB2	PROTECT-1
	202	1SS119	PROTECT-2
	203	1SS119	PROTECT-3
	204	1SS119	PROTECT-4
	205	1SS119	PROTECT-5
	206	1SS119	PROTECT-6

QA [REG, MAIN INPUT] **QB** [AUDIO AMP]

– QA Board –



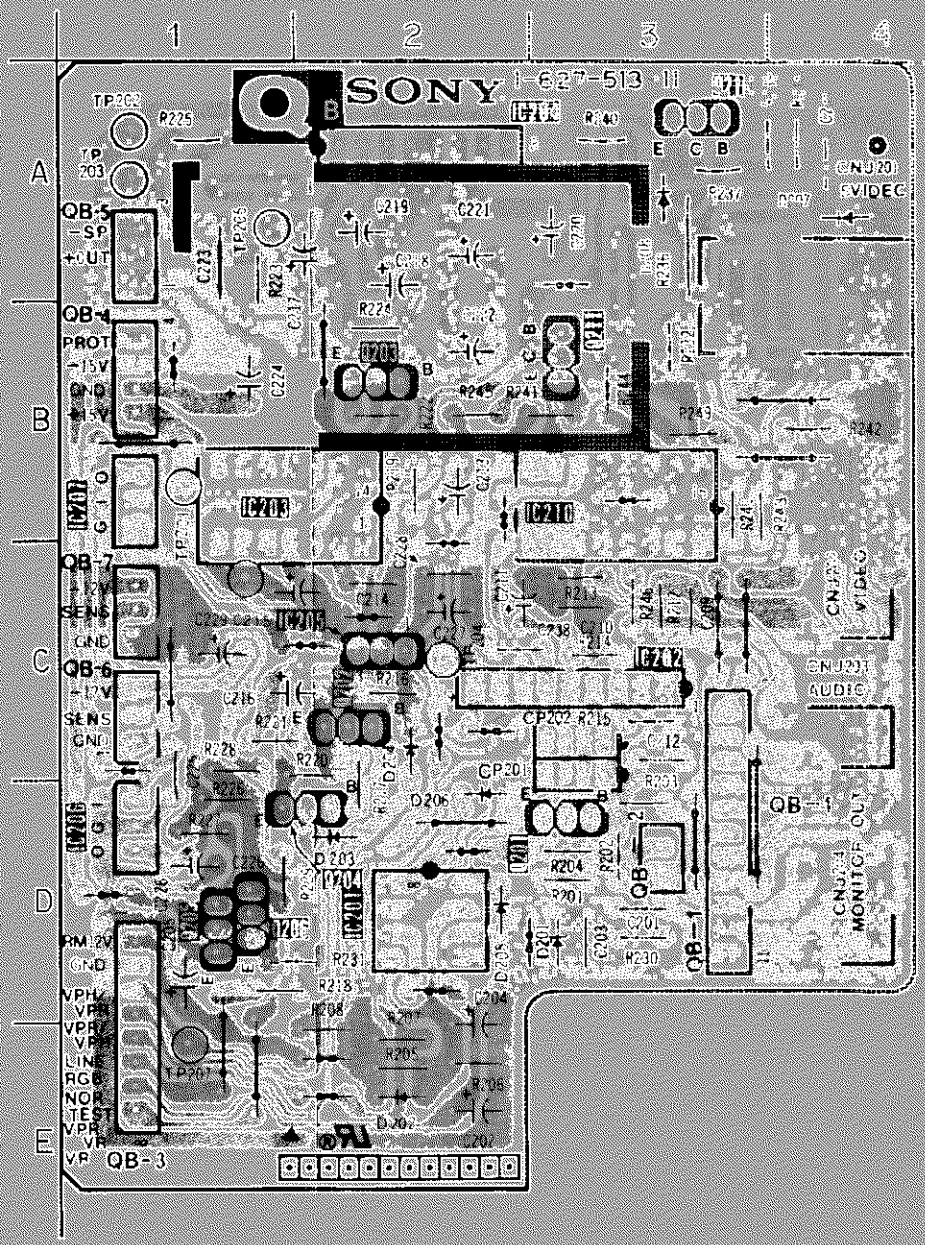
QA Board

IC		IC	
IC1	D-5	D11	D-1
IC2	D-4	D12	B-2
IC3	C-3	D13	B-2
IC4	C-4	D14	B-1
IC5	B-4	D15	E-2
IC6	A-3	D16	C-2
IC7	A-2	D17	B-1
IC8	A-3	D18	B-1
IC9	B-1	D19	A-2
IC10	A-2	D20	C-3
		D21	D-2
		D25	C-3
		D26	B-3
		D27	C-3

TRANSISTOR	
Q1	A-6
Q2	A-5
Q3	B-6
Q4	B-5
Q5	C-6
Q6	B-5
Q7	C-5
Q8	D-5
Q9	C-6
Q12	D-4
Q13	E-4
Q14	E-3
Q15	C-2
Q16	D-2
Q17	A-1
Q18	B-1
Q19	B-2
Q25	E-2
Q26	D-3
Q27	D-3
Q28	C-3
Q29	C-4
Q30	D-3

DIODE	
D1	A-5
D2	A-5
D3	B-5
D4	B-5
D5	C-5
D6	B-5
D7	D-6
D8	D-6
D9	E-5
D10	C-2

— QB Board —



QB Board

IC	
IC201	D-2
IC202	C-3
IC203	B-1
IC204	A-2
IC205	C-2
IC206	D-1
IC207	B-1
IC210	B-3

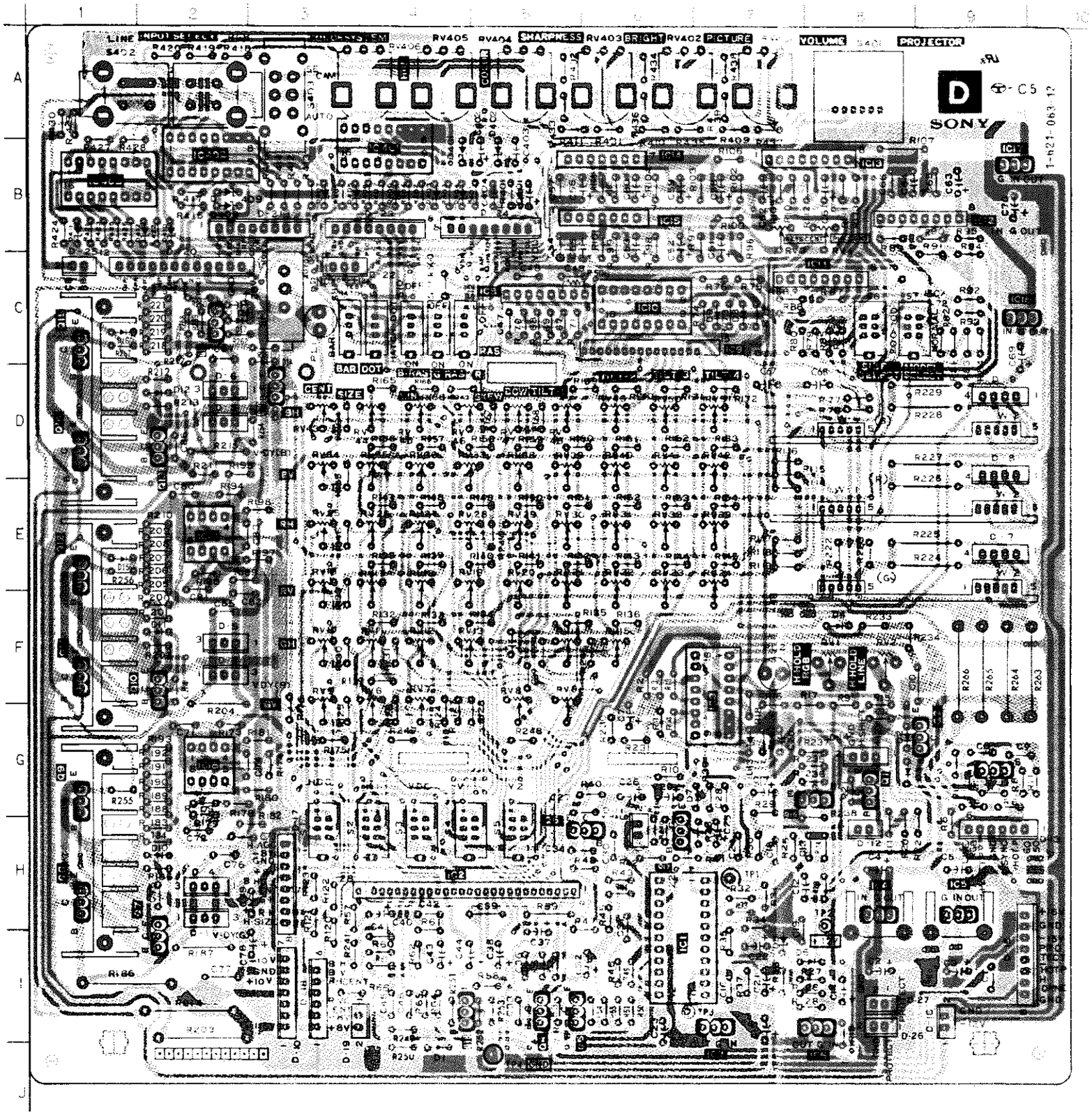
TRANSISTOR	
Q201	D-3
Q202	C-2
Q203	B-2
Q204	D-2
Q205	D-1
Q206	D-1
Q210	A-3
Q211	B-3

DIODE	
D201	D-3
D202	E-2
D203	D-2
D204	C-2
D205	D-2
D206	D-2
D207	A-4
D208	A-3

VPH-1041Q/1042Q

D [R·G·B PROCESSOR
H·V BLK, ABL

– D Board –



D Board

IC		D2	G-8
		D3	G-8
IC1	I-6	D4	F-8
IC2	H-4	D5	I-7
IC3	F-7	D6	I-8
IC4	H-8	D7	G-7
IC5	H-9	D8	C-7
IC6	I-8	D9	C-7
IC7	I-7	D10	H-2
IC8	C-5	D11	F-2
IC9	C-6	D12	D-2
IC10	C-6	D13	G-7
IC11	C-8	D14	C-3
IC12	B-9	D15	E-1
IC13	B-8	D16	C-1
IC14	B-6	D17	C-2
IC15	B-6	D401	B-4
IC16	C-9	D402	B-5
IC17	B-9	D403	B-4
IC18	G-2	D404	B-4
IC19	E-2	D405	B-3
IC401	B-4	D406	B-4
IC402	B-2	D407	B-3
IC403	B-1	D408	B-2
		D409	B-2
		D410	B-2
		D411	B-1
		D412	B-2

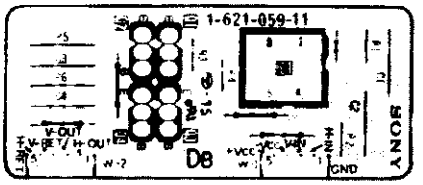
TRANSISTOR	
Q1	G-8
Q2	G-9
Q3	G-9
Q4	I-5
Q5	I-5
Q6	H-6
Q7	I-2
Q8	H-1
Q9	G-1
Q10	F-2
Q11	F-1
Q12	E-1
Q13	D-2
Q14	D-1
Q15	C-1
Q16	G-8
Q17	H-6
Q18	I-4
Q19	C-2
Q20	D-3

DIODE	
D1	J-4

VARIABLE RESISTOR	
RV1	F-8
RV2	F-8

DB [SUB OUT]

– DB Board –



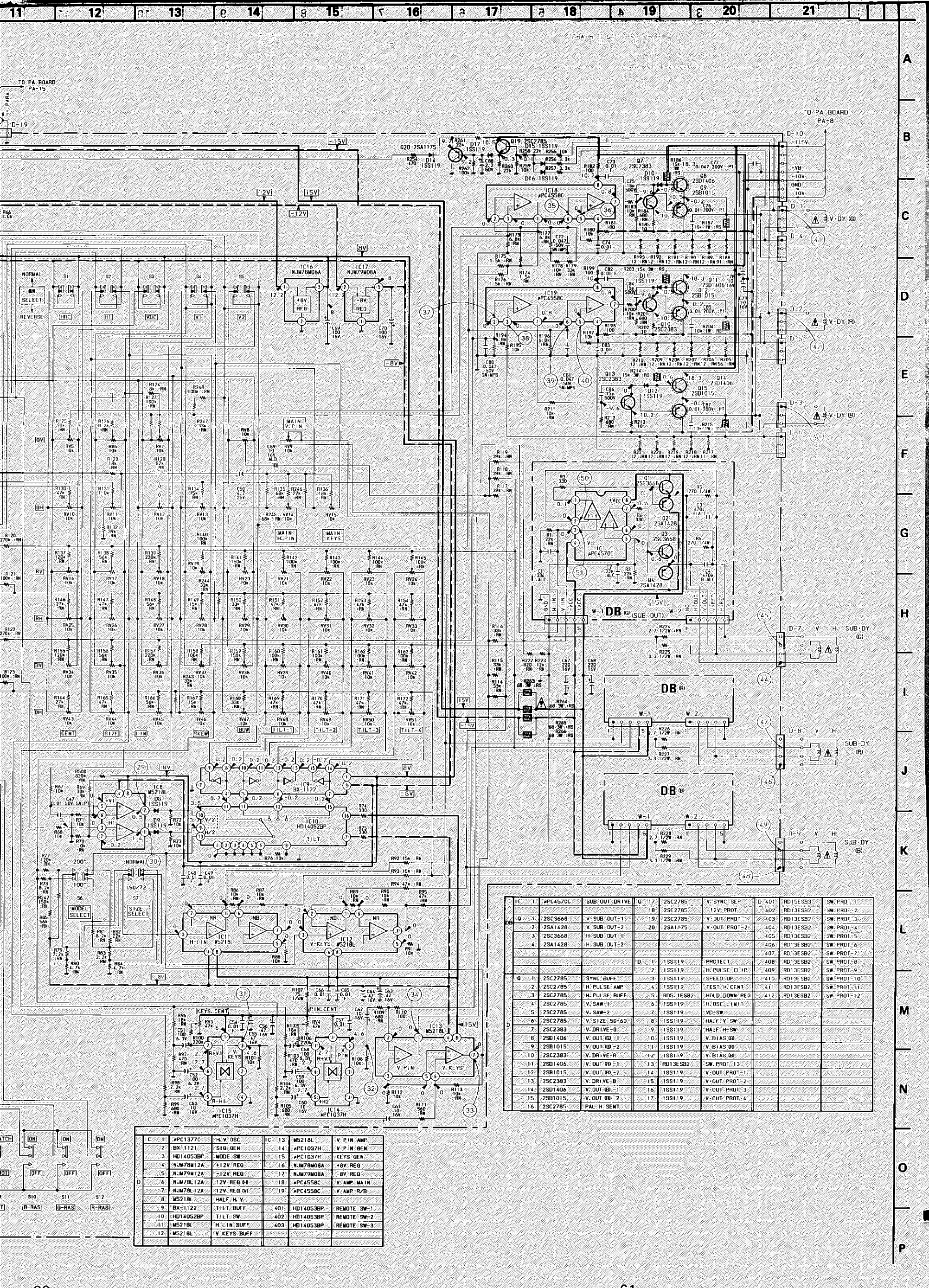
DB Board

⑤0 0.4Vp-p (V)	⑤1 0.4Vp-p (V)

D Board

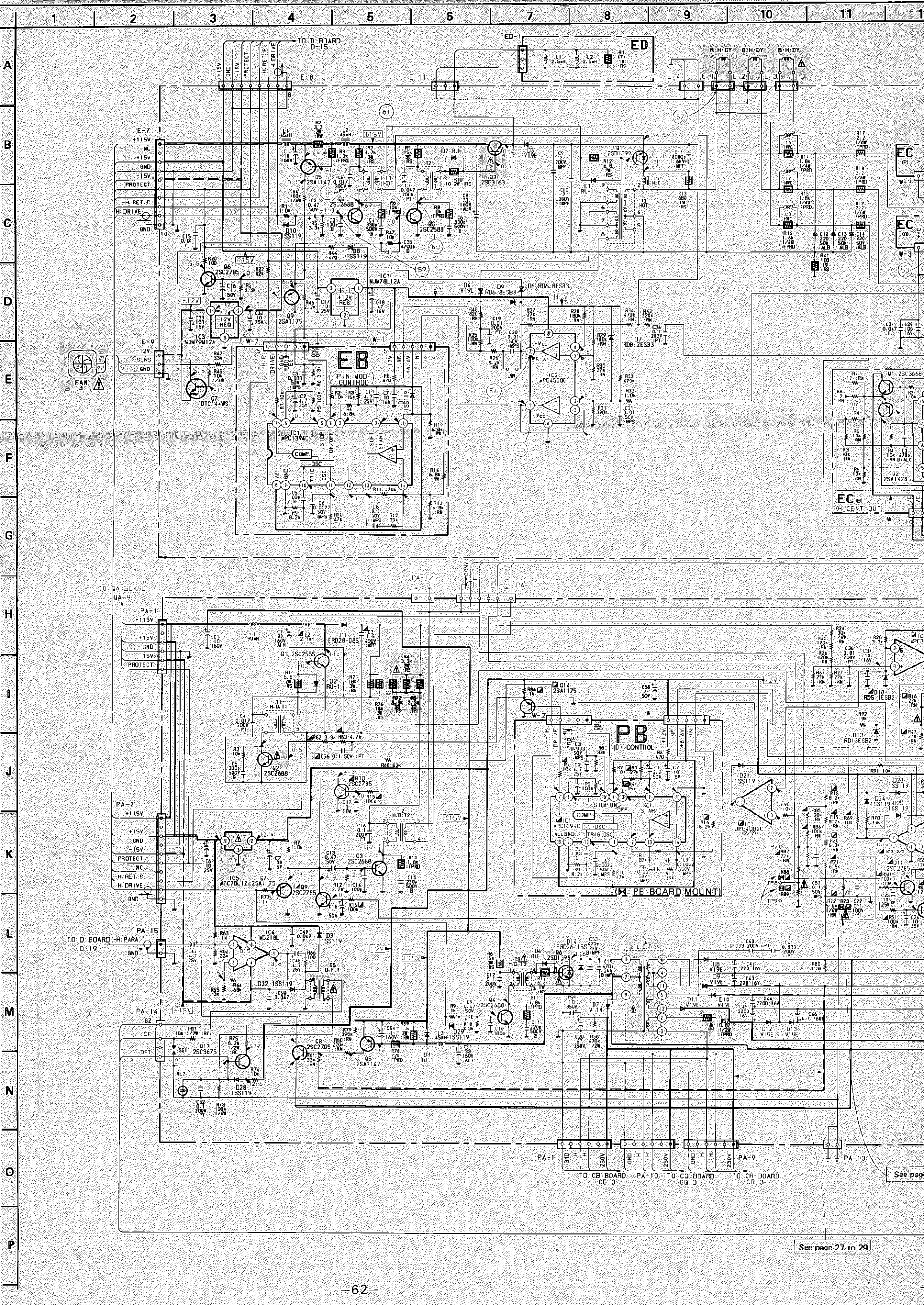
⑤ 2 Vp-p (H)	⑥ 12Vp-p (H)	⑦ 1.2 Vp-p (H)	⑧ 1.2Vp-p (V)	⑨ 3.2Vp-p (V)
⑩ 4 Vp-p (H)	⑪ 6.5Vp-p (H)	⑫ 10 Vp-p (V)	⑬ 0.36 Vp-p (V)	⑭ 1.4Vp-p (V)
⑮ 2.4Vp-p (V)	⑯ 2.4Vp-p (V)	⑰ 1.5 Vp-p (H)	⑱ 3.6 Vp-p (H)	⑲ 3.6 Vp-p (H)
⑳ 3.6Vp-p (H)	㉑ 3 Vp-p (H)	㉒ 3 Vp-p (H)	㉓ 3 Vp-p (H)	㉔ 3 Vp-p (H)
㉕ 3.2 Vp-p (V)	㉖ 3.2Vp-p (V)	㉗ 3 Vp-p (V)	㉘ 3.2 Vp-p (V)	㉙ 15 Vp-p (V)
㉚ 15 Vp-p (H)	㉛ 0.36 Vp-p (V)	㉜ 0.42 Vp-p (V)	㉝ 6 Vp-p (V)	㉞ 3.8 Vp-p (V)
㉟ 1.4 Vp-p (V)	㊱ 1.4Vp-p (V)	㊲ 1.4 Vp-p (V)	㊳ 1.4 Vp-p (V)	㊴ 1.4 Vp-p (V)
㊵ 1.4 Vp-p (V)	㊶ 20 Vp-p (V)	㊷ 20 Vp-p (V)	㊸ 20 Vp-p (V)	㊹ 6 Vp-p (H)
㊺ 17.5Vp-p (V)	㊻ 3 Vp-p (H)	㊼ 5Vp-p (V)	㊽ 8Vp-p (H)	㊾ 10Vp-p (V)

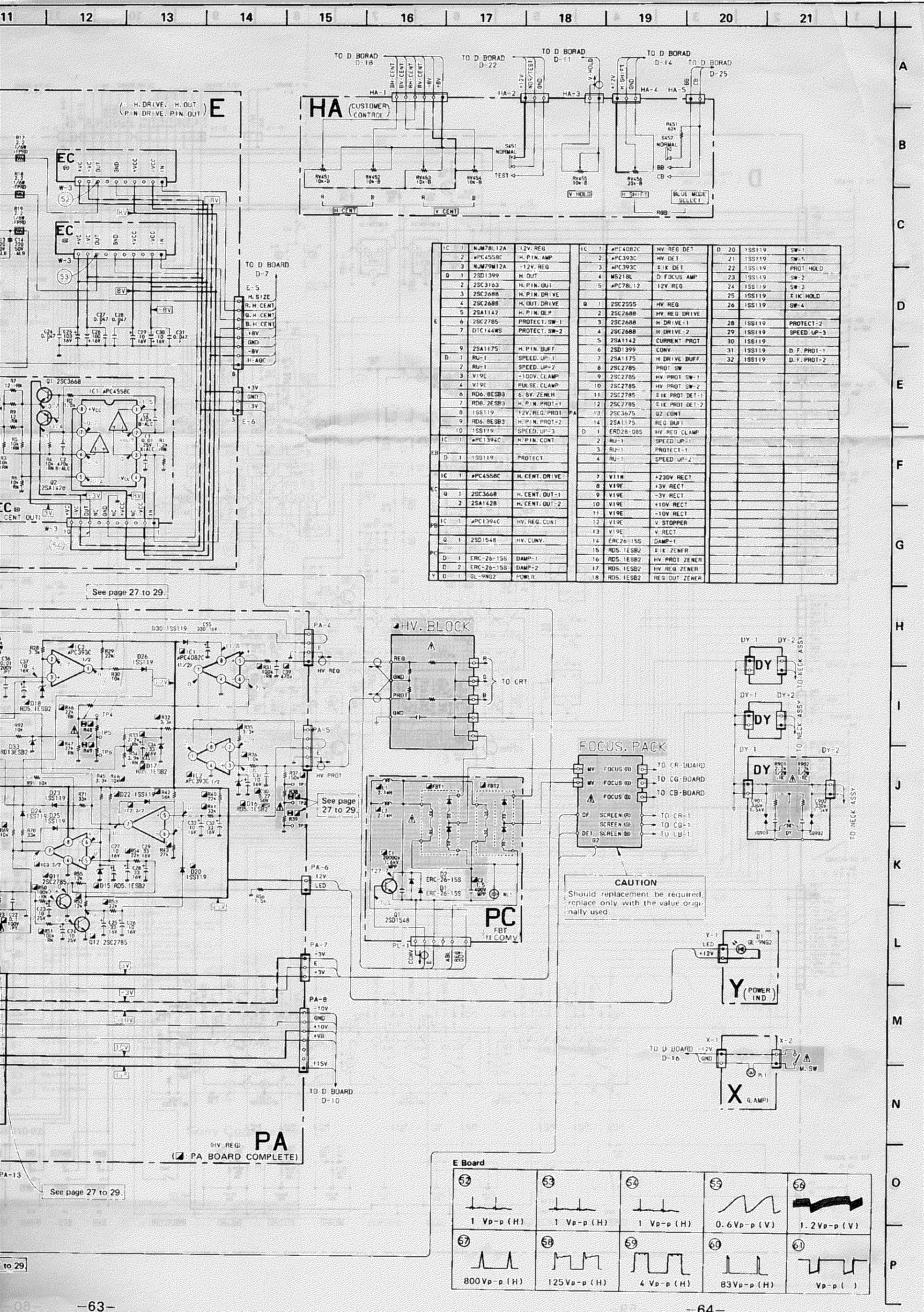
D (RGB PROCESSOR, H. V. BLK. ABL)



IC	1	#PC1377C	H, V OSC
	2	BX-1121	SIG GEN
	3	HD14053BP	MODE SW
	4	NJM78M12A	+12V REG
	5	NJM79M12A	-12V REG
	6	NJM78L12A	12V REG (B)
	7	NJM78L12A	12V REG (V)
	8	M5218L	HALF H, V
	9	BX-1122	TILT BUFF
	10	HD14052BP	TILT SW
	11	M5218L	H-IN BUFF
	12	M5218L	V-KEYS BUFF
IC	13	M5218L	V-PIN AMP
	14	#PC1037H	V-PIN GEN
	15	#PC1037H	KEYS GEN
	16	NJM78M08A	+8V REG
	17	NJM79M08A	-8V REG
	18	#PC4558C	V AMP MAIN
	19	#PC4558C	V AMP R/B
	401	HD14053BP	REMOTE SW-1
	402	HD14053BP	REMOTE SW-2
	403	HD14053BP	REMOTE SW-3

DB	IC	1	#PC4570C	SUB OUT DRIVE
	Q	1	2SC3668	V SUB OUT-1
		2	2SA1428	V SUB OUT-2
		3	2SC3668	H SUB OUT-1
		4	2SA1428	H SUB OUT-2
D	Q	1	2SC2785	SYNC BUFF
		2	2SC2785	H PULSE AMP
		3	2SC2785	H PULSE BUFF
		4	2SC2785	V SAW-1
		5	2SC2785	V SAW-2
		6	2SC2785	V SIZE 50-60
		7	2SC2383	V DRIVE-G
		8	2SD1406	V OUT (G)-1
		9	2SB1015	V OUT (G)-2
		10	2SC2383	V DRIVE-R
		11	2SD1406	V OUT (R)-1
		12	2SB1015	V OUT (R)-2
		13	2SC2383	V DRIVE-B
		14	2SD1406	V OUT (B)-1
		15	2SB1015	V OUT (B)-2
		16	2SC2785	PAL H SENT
		17	2SC2785	V SYNC SEP
		18	2SC2785	-12V PROT
		19	2SC2785	V OUT PROT-1
		20	2SA1175	V OUT PROT-2
	D	1	1SS119	PROTECT
		2	1SS119	H PULSE CLIP
		3	1SS119	SPEED UP
		4	1SS119	TEST H CENT
		5	RD5.1ES82	HOLD DOWN REG
		6	1SS119	H OSC LIMIT
		7	1SS119	VD-SW
		8	1SS119	HALF V-SW
		9	1SS119	HALF H-SW
		10	1SS119	V BIAS (G)
		11	1SS119	V BIAS (B)
		12	1SS119	V BIAS (R)
		13	RD13ES82	SW PROT-13
		14	1SS119	V OUT PROT-1
		15	1SS119	V OUT PROT-2
		16	1SS119	V OUT PROT-3
		17	1SS119	V OUT PROT-4
	D	401	RD15ES83	SW PROT-1
		402	RD13ES82	SW PROT-2
		403	RD13ES82	SW PROT-3
		404	RD13ES82	SW PROT-4
		405	RD13ES82	SW PROT-5
		406	RD13ES82	SW PROT-6
		407	RD13ES82	SW PROT-7
		408	RD13ES82	SW PROT-8
		409	RD13ES82	SW PROT-9
		410	RD13ES82	SW PROT-10
		411	RD13ES82	SW PROT-11
		412	RD13ES82	SW PROT-12


TO D BOARD D-15
ED
EB
(PIN MOD CONTROL)
PB
(B+ CONTROL)
(PB BOARD MOUNT)
EC
EC
(H CENT OUT)
TO QA BOARD QA-9
PA-1
PA-2
PA-14
PA-15
PA-11
PA-12
PA-13
PA-9
PA-10
TO CB BOARD CB-3
TO CG BOARD CG-3
TO CR BOARD CR-3
TO D BOARD D 19
See page 27 to 29



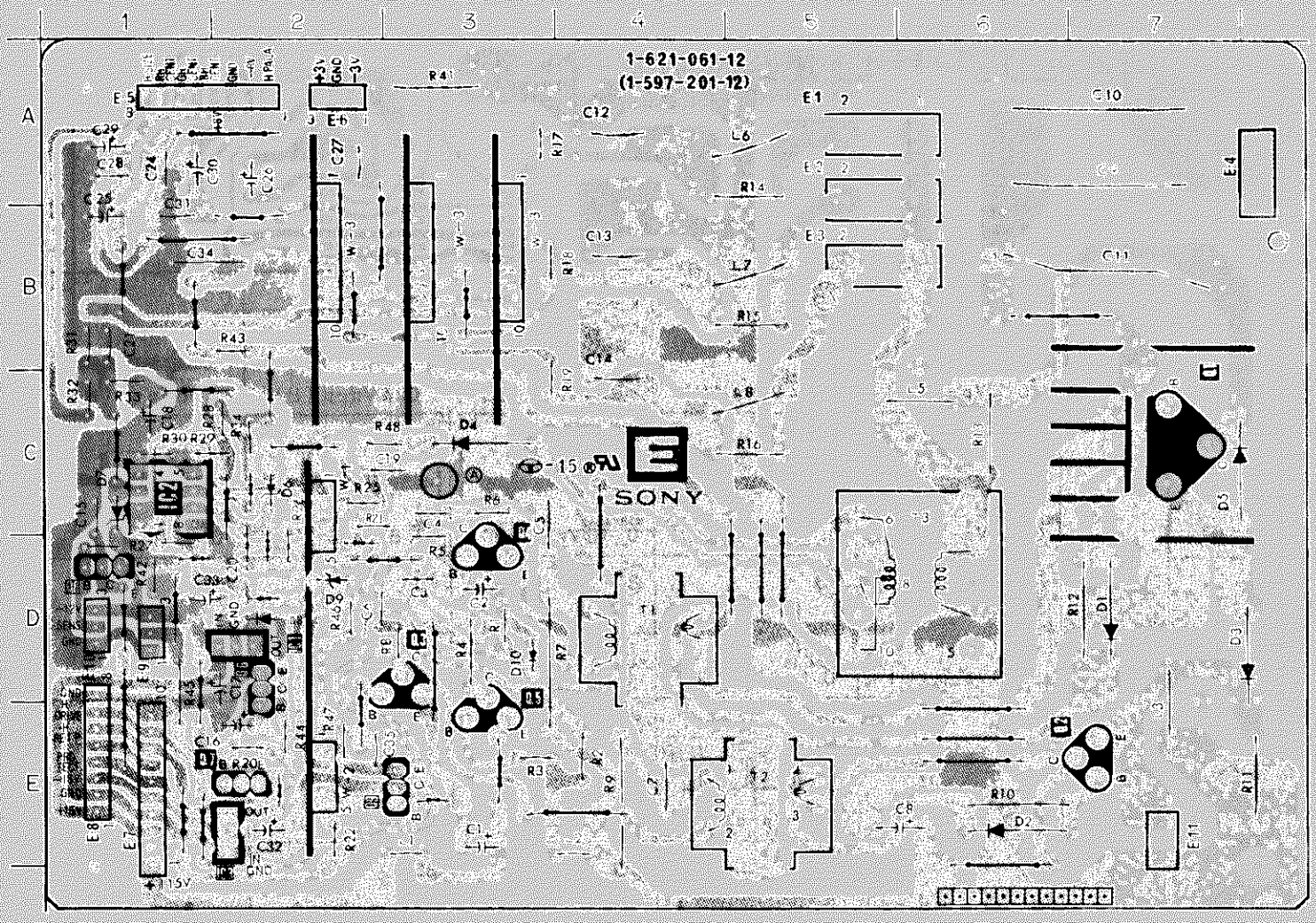
	IC 1	NJM78L12A	12V REG	IC 1	μPC4082C	HV REG DET	D 20	1SS119	SW-1
	2	μPC4558C	H. P.I.N. AMP	2	μPC393C	HV DET	21	1SS119	SW-5
	3	NJM79M12A	-12V REG	3	μPC393C	E.I.K DET	22	1SS119	PROT HOLD
	Q 1	2SD1399	H. OUT	4	M5218L	D. FOCUS AMP	23	1SS119	SW-2
	2	2SC3163	H. P.I.N. OUT	5	μPC78L12	12V REG	24	1SS119	SW-3
	3	2SC2688	H. P.I.N. DRIVE				25	1SS119	E.I.K HOLD
	4	2SC2688	H. OUT DRIVE	Q 1	2SC2555	HV REG	26	1SS119	SW-4
	5	2SA1142	H. P.I.N. OLP	2	2SC2688	HV REG DRIVE			
	6	2SC2785	PROTECT SW-1	3	2SC2688	H. DRIVE-1	28	1SS119	PROTECT-2
	7	DTC144WS	PROTECT SW-2	4	2SC2688	H. DRIVE-2	29	1SS119	SPEED UP-3
				5	2SA1142	CURRENT PROT	30	1SS119	
	9	2SA1175	H. P.I.N. BUFF	6	2SD1399	CONV	31	1SS119	D.F. PROT-1
	D 1	RU-1	SPEED UP-1	7	2SA1175	H. DRIVE BUFF	32	1SS119	D.F. PROT-2
	2	RU-1	SPEED UP-2	8	2SC2785	PROT SW			
	3	V19E	-100V CLAMP	9	2SC2785	HV PROT SW-1			
	4	V19E	PULSE CLAMP	10	2SC2785	HV PROT SW-2			
	6	RD6.8ESB3	6.8V ZENER	11	2SC2785	E.I.K PROT DET-1			
	7	RD8.2ESB3	H. P.I.N. PROT-1	12	2SC2785	E.I.K PROT DET-2			
	8	1SS119	12V REG PROT	13	2SC3675	Q2 CONT			
	9	RD6.8ESB3	H. P.I.N. PROT-2	14	2SA1175	REG BUFF			
	10	1SS119	SPEED UP-3	D 1	ERD28-08S	HV REG CLAMP			
	IC 1	μPC1394C	H. P.I.N. CONT	2	RU-1	SPEED UP-1			
				3	RU-1	PROTECT-1			
	D 1	1SS119	PROTECT	4	RU-1	SPEED UP-2			
	IC 1	μPC4558C	H. CENT. DRIVE	7	V11N	+23DV RECT			
	Q 1	2SC3668	H. CENT. OUT-1	8	V19E	+3V RECT			
	2	2SA1428	H. CENT. OUT-2	9	V19E	-3V RECT			
				10	V19E	+10V RECT			
	IC 1	μPC1394C	HV REG. CONT	11	V19E	-10V RECT			
				12	V19E	V. STOPPER			
	Q 1	2SD1548	HV. CONV.	13	V19E	V. RECT			
				14	ERC26-15S	DAMP-1			
	D 1	ERC-26-15S	DAMP-1	15	RD5.1ESB2	E.I.K ZENER			
	D 2	ERC-26-15S	DAMP-2	16	RD5.1ESB2	HV PROT ZENER			
	D 1	GL-9NG2	POWER	17	RD5.1ESB2	HV REG ZENER			
				18	RD5.1ESB2	REG OUT ZENER			

E Board

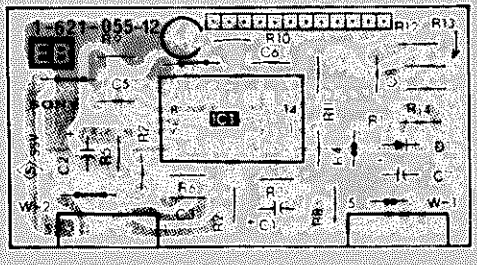
52 1 Vp-p (H)	53 1 Vp-p (H)	54 1 Vp-p (H)	55 0.6Vp-p (V)	56 1.2Vp-p (V)
57 800Vp-p (H)	58 125Vp-p (H)	59 4 Vp-p (H)	60 83Vp-p (H)	61 Vp-p ( )

E [H DRIVE, H OUT / PIN DRIVE, PIN OUT] **EB** [PIN MOD CONTROL] **EC** [H CENT OUT] **ED**

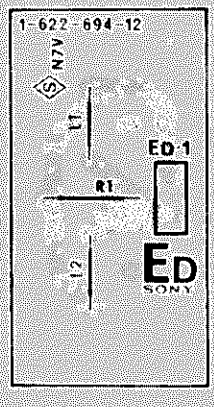
— E Board —



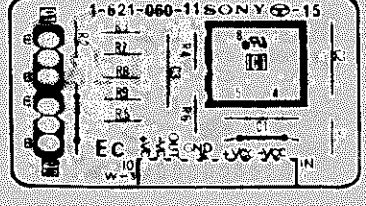
— EB Board —



— ED Board —



— EC Board —



PA [HV REG] **PB** [HV CONTROL] **PC** [FBT, H CONV]

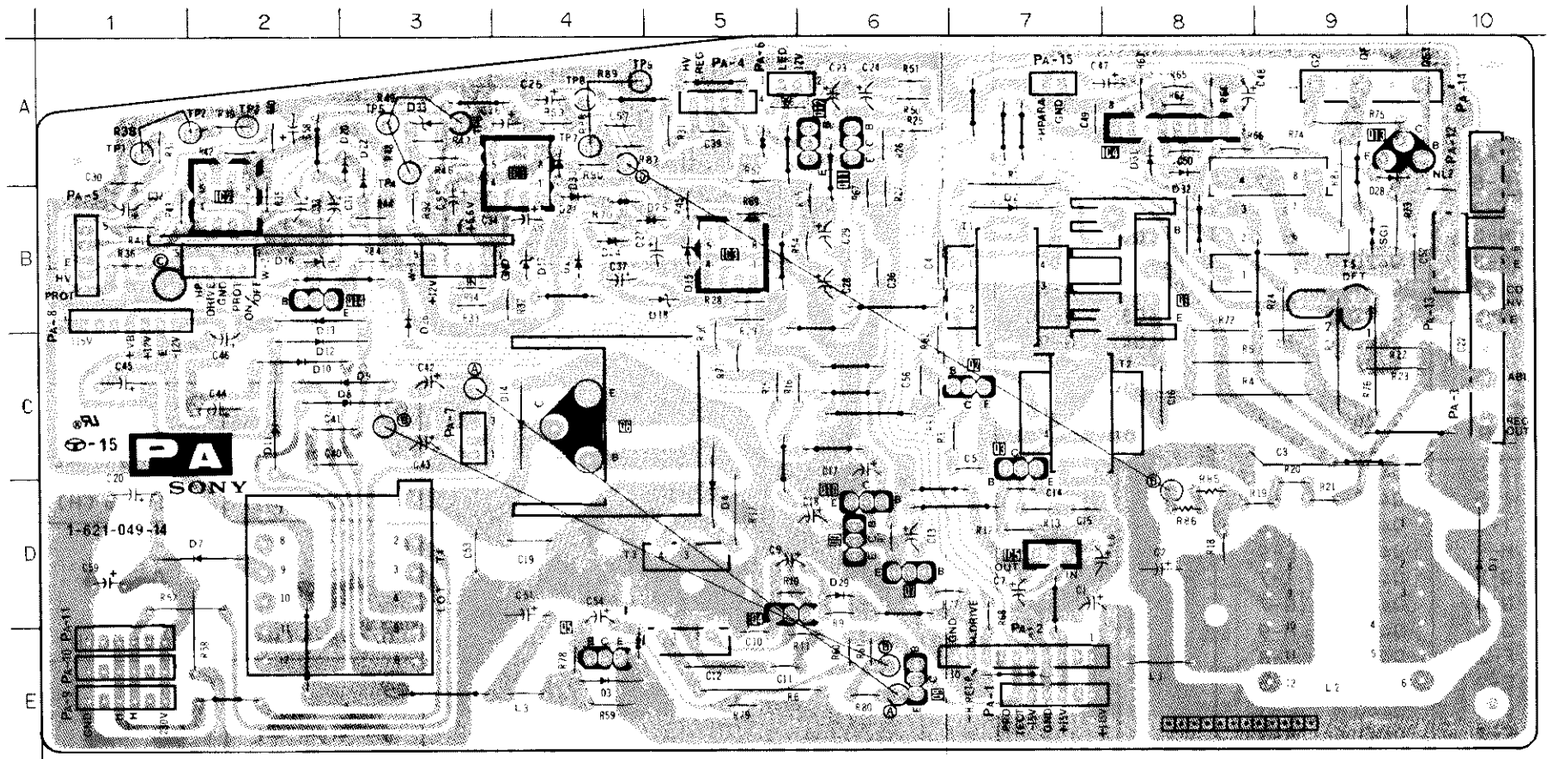
E Board

IC	
IC1	D-2
IC2	C-1
IC3	E-2

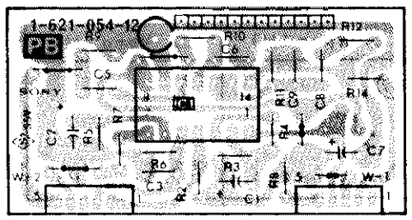
TRANSISTOR	
Q1	C-7
Q2	E-7
Q3	D-3
Q4	D-3
Q5	E-3
Q6	D-2
Q7	E-2
Q8	D-1
Q9	E-3

DIODE	
D1	D-7
D2	E-6
D3	D-8
D4	C-3
D5	C-8
D6	C-2
D7	C-1
D8	D-2
D9	D-2
D10	D-3

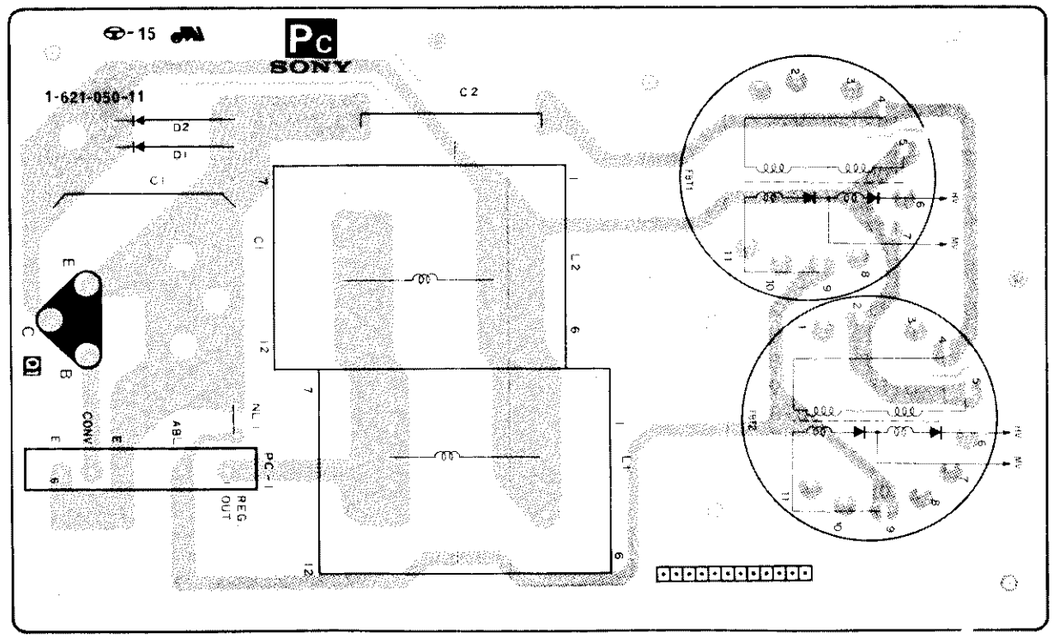
— PA Board —



— PB Board —



— PC Board —



PA Board

IC	
IC1	A-4
IC2	B-2
IC3	B-5
IC4	A-8
IC5	D-7

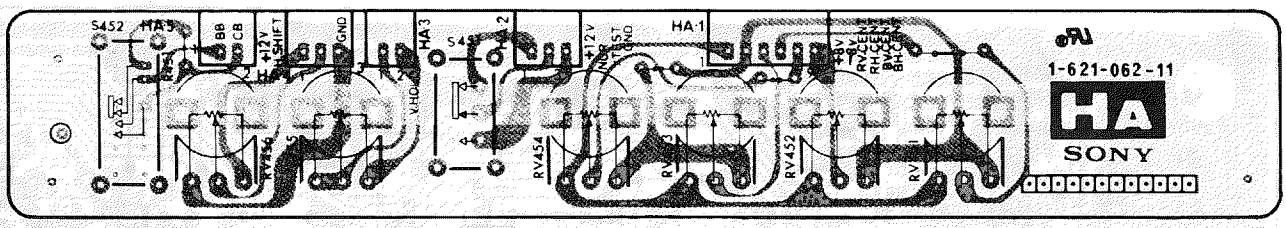
TRANSISTOR	
Q1	B-8
Q2	C-7
Q3	C-7
Q4	E-5
Q5	E-4
Q6	C-4
Q7	D-6
Q8	E-6
Q9	D-6
Q10	D-6
Q11	A-6
Q12	A-6
Q13	A-10
Q14	B-2

DIODE	
D1	D-10
D2	B-7
D3	E-4
D4	D-5
D7	D-2
D8	C-3
D9	C-3
D10	C-2
D11	C-2
D12	C-2
D13	B-2
D14	C-4
D15	B-5
D16	B-2
D17	B-4
D18	B-5
D20	A-3
D21	B-4
D22	B-3
D23	B-4
D24	B-4
D25	B-5
D26	B-3
D28	B-9
D29	D-6
D30	A-4
D31	A-8
D32	A-8
D33	A-3

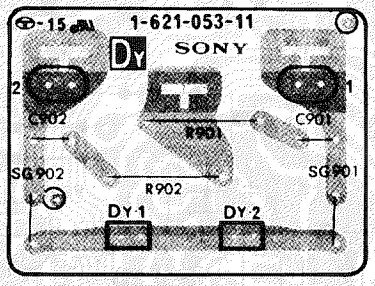
TEST POINT	
TP1	A-1
TP2	A-2
TP3	A-2
TP4	A-3
TP5	A-3
TP6	A-3
TP7	A-4
TP8	A-4
TP9	A-5

HA [CUSTOMER CONTROL] **X** [LAMP] **Y** [POWER IND] **DY** [DY]

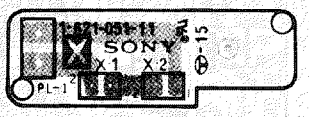
– HA Board –



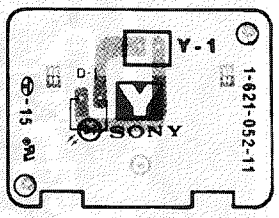
– DY Board –



– X Board –

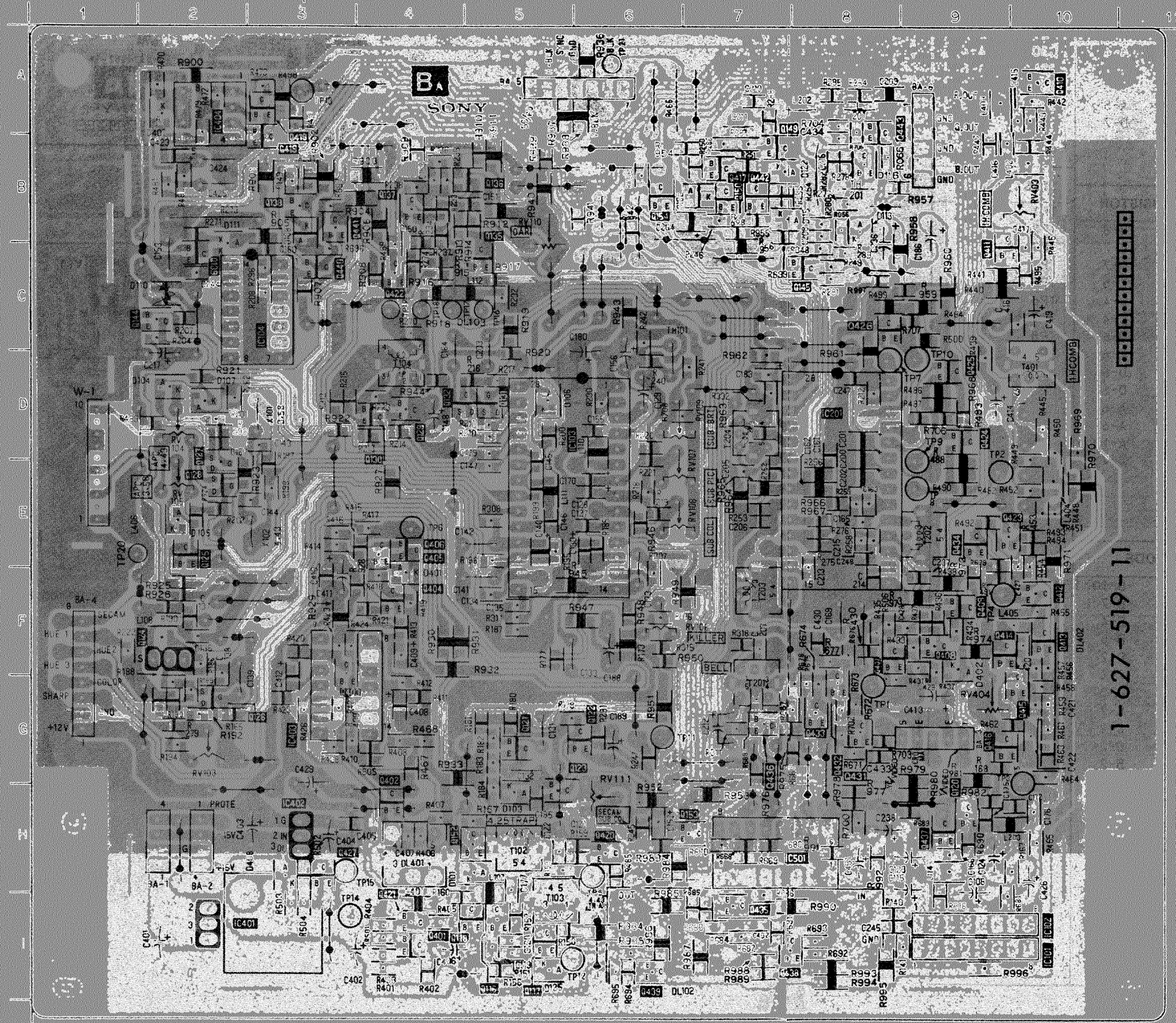


– Y Board –



BA [PAL, SECAM, NTSC, DECORDER]

— BA Board —

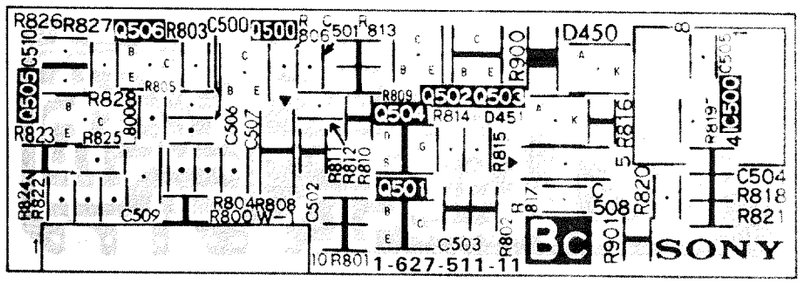


BA Board

IC					
IC101	I-9	Q411	C-10	VARIABLE RESISTOR	
IC102	I-9	Q412	F-10	RV103	G-2
IC103	D-6	Q413	F-10	RV104	D-2
IC104	C-3	Q414	F-10	RV105	E-2
IC201	E-8	Q415	G-10	RV106	F-6
IC401	I-2	Q416	G-10	RV107	E-7
IC402	H-3	Q417	B-7	RV108	E-7
IC403	G-3	Q418	A-3	RV109	D-7
IC404	A-2	Q419	B-3	RV110	B-5
IC501	H-8	Q420	H-6	RV111	H-6
		Q421	I-4	RV403	B-10
		Q422	C-4	RV404	G-9
TRANSISTOR		Q423	E-10		
Q116	I-5	Q424	D-9		
Q117	I-5	Q425	D-9		
Q118	I-5	Q426	C-8		
Q120	H-9	Q427	H-3		
Q121	G-5	Q431	G-8		
Q122	G-6	Q432	G-8		
Q123	G-6	Q433	G-8		
Q124	F-2	Q434	E-9		
Q125	E-2	Q435	I-7		
Q126	G-2	Q436	G-7		
Q127	E-2	Q437	H-9		
Q128	E-2	Q438	I-8		
Q129	D-4	Q439	I-6		
Q130	D-4	Q440	C-3		
Q131	D-5	Q441	B-3		
Q132	D-5	Q442	B-7		
Q135	C-5	Q443	A-8		
Q136	B-5	DIODE			
Q137	B-4	D101	H-3		
Q138	B-3	D102	B-5		
Q139	C-2	D103	H-5		
Q144	C-2	D104	D-2		
Q145	C-8	D105	E-2		
Q149	B-7	D106	D-5		
Q150	B-7	D107	D-2		
Q152	H-5	D108	B-3		
Q153	H-7	D110	C-2		
Q154	B-6	D111	C-2		
Q401	I-4	D113	B-8		
Q402	H-4	D115	B-8		
Q403	G-3	D116	B-9		
Q404	F-4	D122	B-8		
Q405	E-4	D125	I-5		
Q406	E-4	D401	F-4		
Q407	F-9	D402	F-9		
Q408	F-9	D407	A-2		
Q409	F-9	D408	H-3		
Q410	A-10				

Bc (YC/VIDEO AUTO DET WHEN VPR-722S CONNECT)

– BC Board –



BA Board (1/2)

(62) PAL 1.4Vp-p (H)	(62) NTSC3.58 1.3Vp-p (H)	(62) NTSC4.43 1.5 Vp-p (H)	(62) SECAM 1.3 Vp-p (H)	(63) PAL 0.6 Vp-p (H)
(63) NTSC3.58 0.6Vp-p (H)	(63) NTSC4.43 0.6Vp-p (H)	(63) SECAM 0.5 Vp-p (H)	(64) PAL 1 Vp-p (H)	(64) NTSC3.58 0.8Vp-p (H)
(64) NTSC4.43 1 Vp-p (H)	(64) SECAM 0.8 Vp-p (H)	(65) PAL 2 Vp-p (H)	(65) NTSC3.58 1.6Vp-p (H)	(65) NTSC4.43 2 Vp-p (H)
(65) SECAM 1.5Vp-p (H)	(66) PAL 2 Vp-p (H)	(66) NTSC4.43 2 Vp-p (H)	(66) SECAM 1.5Vp-p (H)	(66) NTSC3.58 1.5 Vp-p (H)
(67) PAL 0.4Vp-p (H)	(67) NTSC3.58 0.4Vp-p (H)	(67) NTSC4.43 0.4Vp-p (H)	(67) SECAM 0.4Vp-p (H)	(68) 0.18Vp-p (H)
(69) 0.6Vp-p (H)	(70) 0.1Vp-p (H)	(71) 0.05Vp-p (H)	(72) 0.15Vp-p (H)	(73) 0.06Vp-p (H)
(74) PAL 1.5 Vp-p (H)	(74) SECAM 1.3 Vp-p (H)	(74) NTSC3.58 0.25Vp-p (H)	(74) NTSC4.43 0.25Vp-p (H)	(75) 1.75Vp-p (H)
(76) 0.08Vp-p (H)	(77) PAL 0.1Vp-p (H)	(77) SECAM 0.1Vp-p (H)	(77) NTSC3.58 0.15Vp-p (H)	(77) NTSC4.43 0.15Vp-p (H)

BA Board (2/2)

(78) PAL 0.4Vp-p (H)	(78) NTSC3.58 0.4Vp-p (H)	(78) NTSC4.43 0.4Vp-p (H)	(78) SECAM 0.4Vp-p (H)	(79) PAL 0.08Vp-p (H)
(79) SECAM 0.06Vp-p (H)	(79) NTSC3.58 0.15Vp-p (H)	(79) NTSC4.43 0.15Vp-p (H)	(80) PAL 0.8 Vp-p (H)	(80) SECAM 0.8 Vp-p (H)
(80) NTSC3.58 0.8Vp-p (H)	(80) NTSC4.43 0.8 Vp-p (H)	(81) PAL 0.1 Vp-p (H)	(81) SECAM 0.1 Vp-p (H)	(81) NTSC3.58 0.1 Vp-p (H)
(81) NTSC4.43 0.1Vp-p (H)	(82) 8 Vp-p (H)	(83) 0.1Vp-p (H)	(84) PAL 0.1Vp-p (H)	(84) NTSC3.58 0.1Vp-p (H)
(84) NTSC4.43 0.1Vp-p (H)	(84) SECAM 0.1Vp-p (H)	(85) PAL 2.5 Vp-p (H)	(85) SECAM 2.5 Vp-p (H)	(85) NTSC3.58 1.8 Vp-p (H)
(85) NTSC4.43 1.7Vp-p (H)	(86) PAL 0.05Vp-p (H)	(86) SECAM 0.05Vp-p (H)	(86) NTSC4.43 0.05 Vp-p (H)	(86) NTSC3.58 0 Vp-p (H)
(87) 9.5 Vp-p (H)	(88) PAL 2 Vp-p (H)	(88) SECAM 2 Vp-p (H)	(88) NTSC3.58 2.5 Vp-p (H)	(88) NTSC4.43 1.8Vp-p (H)
(89) PAL 2 Vp-p (H)	(89) SECAM 2 Vp-p (H)	(89) NTSC3.58 2.5 Vp-p (H)	(89) NTSC4.43 1.8Vp-p (H)	(99) PAL 2 Vp-p (H)
(99) SECAM 2 Vp-p (H)	(99) NTSC3.58 2.5 Vp-p (H)	(99) NTSC4.43 1.8Vp-p (H)		


TO BB BOARD
BB-3
BA-2
PROTE
-15V
GND
+15V
BA-1
+15V
GND
-15V
PROTE
TO QA BOARD
QA-10
TO D BOARD
D-21
BA-4
SECAM
HUE1
HUE2
HUE3
COLOR
SHARP
GND
+12V
IC401 μPC78M12H
IC402 NJM79L12A
IC403 MC1496P
IC501 HD14053 (1/3)
IC502 HD14053 (2/3)
IC103 μPC1365C
Q401 2SA812
Q421 2SC1623
Q402 2SC1623
Q403 2SC1623
Q404 2SA812
Q405 2SC1623
Q406 2SA612
Q407 2SC1623
Q408 2SA812
Q409 2SC1623
Q410 2SC1623
Q411 2SC1623
Q412 2SC1623
Q413 2SC1623
Q414 2SC1623
Q415 2SC1623
Q416 2SC1623
Q417 DTC144WK
Q418 DTC144WK
Q152 DTC144WK
Q153 DTC144WK
Q420 2SC1623
Q422 DTC144WK
Q423 2SC1623
Q427 DTC144WK
Q431 2SC1623
Q432 2SC1623
Q433 2SC1623
Q434 2SC1623
Q435 2SC1623
Q436 2SC1623
Q437 2SC1623
Q439 2SC1623
Q438 2SC1623
Q120 DTC144WK
Q116 2SA812
Q117 2SA812
Q503 2SC1623
Q502 2SC1623
Q501 2SC1623
Q500 2SC1623
Q506 2SC1623
Q505 2SA812
Q504 2SK160
Q176 2SK160
Q177 2SK160
Q178 2SK160
Q124 2SK105A-20
Q175 DTC144WK
Q441 DTC144WK
Q440 DTC144WK
D104 1S2837
D105 1S2835
D106 1S2835
D408 1S2835 (2/2)
D408 1S2835 (2/2)
D401 1S2837
D402 1S2835
D403 1S2835
D450 1S2837
D451 1S2837
D175 1S2835
D101 1S2835
TO QA BOARD
QA-15
S-VIDEO IN: 0V
VIDEO IN: 10V
Bc (YC/VIDEO AUTO DET WHEN VPR-722S CONNECT)
Y/VIDEO
CHROMA
YC/VIDEO
BA-3
W-1
+12V
+15V
-15V
APC
TRAP
HUE
SECAM
SUB
COL
BELL
LIMITER
SYSTEM SW
PAL SW
ID KILLER
BURST AMP
CHROMA AMP
COLOR CONTROL
CONTRAST
AGC DET
AGC
CHROMA OUT
Y AMP
H/V DELAY
APC DET
VCO
KILLER
SUB COL
SUB PIC
Y/COMB
1H COMB
DL401
DL402
DL403
DL404
T401
T201
T107
T103
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP11
TP12
TP14
TP15
73
74

IC 101	CX-20061	NT PAL SW1	Q 419	DTC144WK	60/50 INV
102	CX-20061	NT PAL SW2	420	2SC1623	Y BUFF 1
103	μPC1365C	NT PAL DEM	421	2SC1623	APT DRIVE 1
104	UPD4024BC	COL MODE SEL	422	DTC144WK	B/W SW
			423	2SC1623	CHROMA SW
201	μPC1364C2	SECAM DEM	424	2SC1623	R BUFF
			425	2SC1623	G BUFF
401	μPC78M12H	+12VREG	426	2SC1623	B BUFF
402	NJM79L12A	-12VREG	427	DTC144WK	PROTECTOR
403	MC1496P	APT CTL			
404	CX-7916	50/60CTL	431	2SC1623	CROMA BUFF 1
			432	2SC1623	CROMA AMP
501	HD14053BP	S/W SW	433	2SC1623	CROMA BUFF 2
			434	2SC1623	NT C BUFF
Q 116	2SA812	Y AMP 5	435	2SC1623	NT Y AMP
117	DTC144WK	TRAP SW 1	436	2SC1623	SECAM C BUFF
118	DTC144WK	PAL SW 1	437	2SC1623	NT C BUFF
120	DTC144WK	CHROMA SW	438	2SC1623	Y BUFF 2
121	2SA812	ID AMP	439	2SC1623	Y BUFF 3
122	DTC144WK	ID SW 1	440	DTC144WK	W/B SW 1
123	2SC1623	ID SW 2	441	DTC144WK	W/B SW 2
124	2SK105A-20	HUE CONT	442	2SC1623	BPT BUFF
125	DTC144WK	PHASE SW 2	443	2SC1623	CUT OFF ADJ
126	2SK160	PHASE CONT 1			
127	2SK160	OSC SW 1			
128	2SK160	OSC SW 2			
129	2SC1623	DAT BUFF 1	D 101	1S2835	SW 2
130	2SC1623	DAT BUFF 2	102	1S2837	LEVEL SHIFT 1
131	2SK160	B-Y SW	103	1S2835	SLICE
132	2SK160	R-Y SW	104	1S2837	APC SW 1
			105	1S2835	APC SW 2
135	2SA812	PAL AMP	106	1S2835	PPOL 3
136	2SA812	SECAM AMP	107	1S2837	TRAP SW 2
137	2SA812	NTSC SW	108	1S2837	LEVEL SHIFT 2
138	2SA812	COL SW	110	1SS123	PROT 1
139	DTC144WK	SYSTEM SW 2	111	1S2835	SYSTEM SW
			113	1S2835	SW 1
Q 144	DTC144WK	SYSTEM SW 1	115	1S2835	GATE 1
145	2SC1623	INV 1	116	1SS123	GATE 3/CL
149	2SA812	INV 2	122	1S2835	GATE 2
150	2SA812	SECAM SW 1	125	1S2835	TRAP SW 1
152	DTC144WK	TRAP SW 2			
153	DTC144WK	TRAP SW 3	401	1S2837	LEVEL SHIFT 3
154	DTC144WK	SECAM SW 2	402	1S2835	LEVEL SHIFT 4
401	2SA812	Y BUFF 4			
402	2SC1623	APT DRIVE 1			
403	2SC1623	Y AMP 1			
404	2SA812	Y AMP 2	407	RD5.1M	50/60 VCC
405	2SC1623	Y AMP 3	408	1S2835	PROTE
406	2SA812	Y AMP 4			
407	2SC1623	VIDEO AMP 1			
408	2SA812	VIDEO AMP 2			
409	2SC1623	VIDEO BUFF			
410	2SC1623	COMB BUFF			
411	2SC1623	COMB AMP			
412	2SC1623	CHROMA BUFF			
413	2SC1623	COMB Y AMP 1			
414	2SC1623	COMB Y AMP 2			
415	2SC1623	COMB Y AMP 3			
416	2SC1623	COMB Y BUFF			
417	DTC144WK	BLK SW			
418	DTC144WK	50/60 INV			

IC 500	UPC393C	S/V SW	
Q 500	2SC1623	C AMP 1	
501	2SC1623	BGP SW 1	
502	2SC1623	PEAK HOLD 1	
503	2SC1623	PEAK HOLD 2	
504	2SK160	BGP SW 2	
505	2SA812	C AMP 2	
506	2SC1623	C BUFF	
D 450	1S2837	PEAK HOLD 1	
451	1S2837	PEAK HOLD 2	

IC501

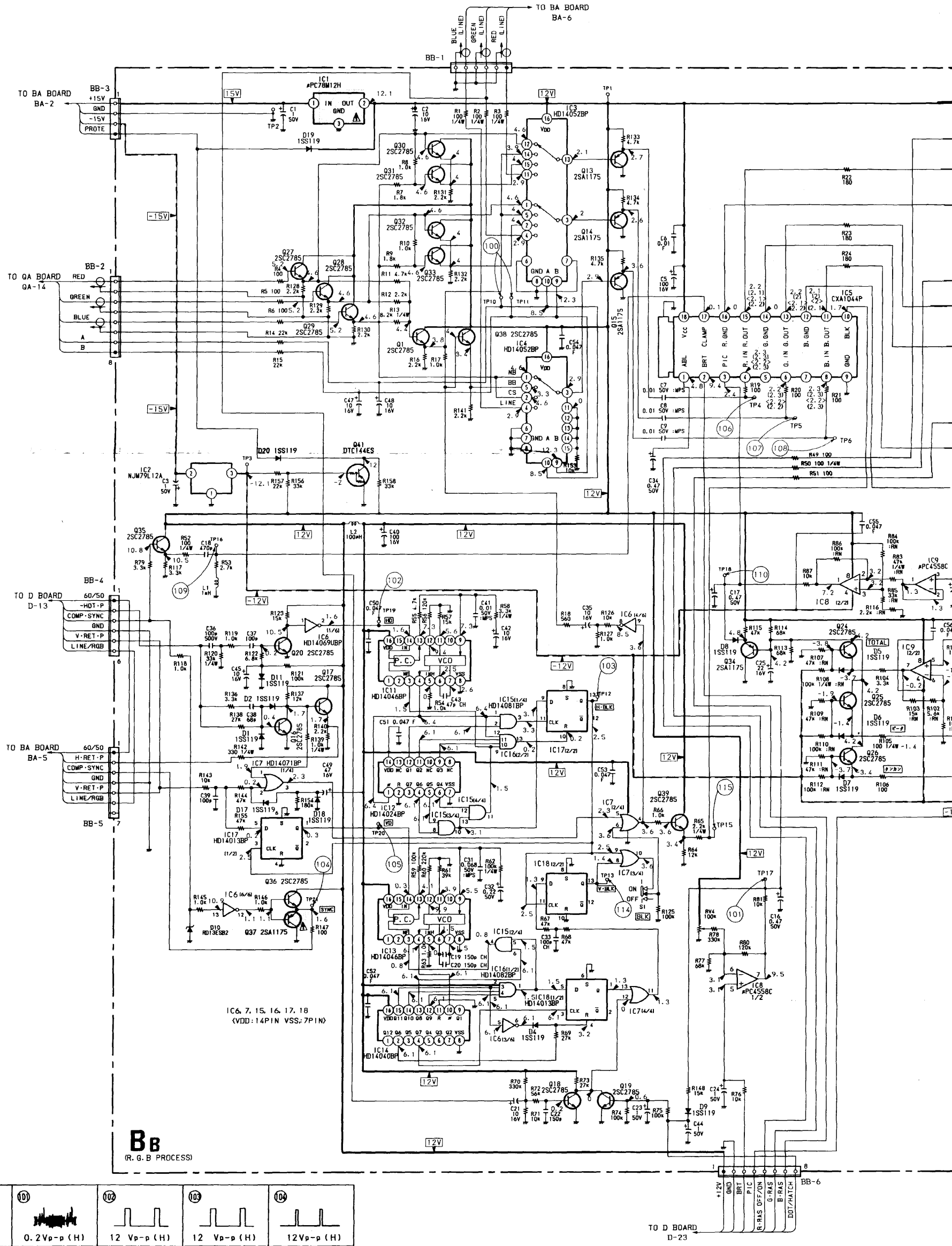
INPUT SIGNAL	CONTROL ⑨	CONTROL ⑩	CONTROL ⑪	ON SWITCH		
VIDEO IN	H	H	H	③–④	①–⑮	⑬–⑭
S-VIDEO IN	L	L	L	⑤–④	②–⑮	⑫–⑭

IC101,102

INPUT SIGNAL	CONTROL ③	ON SWITCH
PAL SECAM NTSC4.43 NTSC3.58 (BLACK & WHITE)	H	②–④
NTSC3.58 COLOR	L	⑦–④

BA

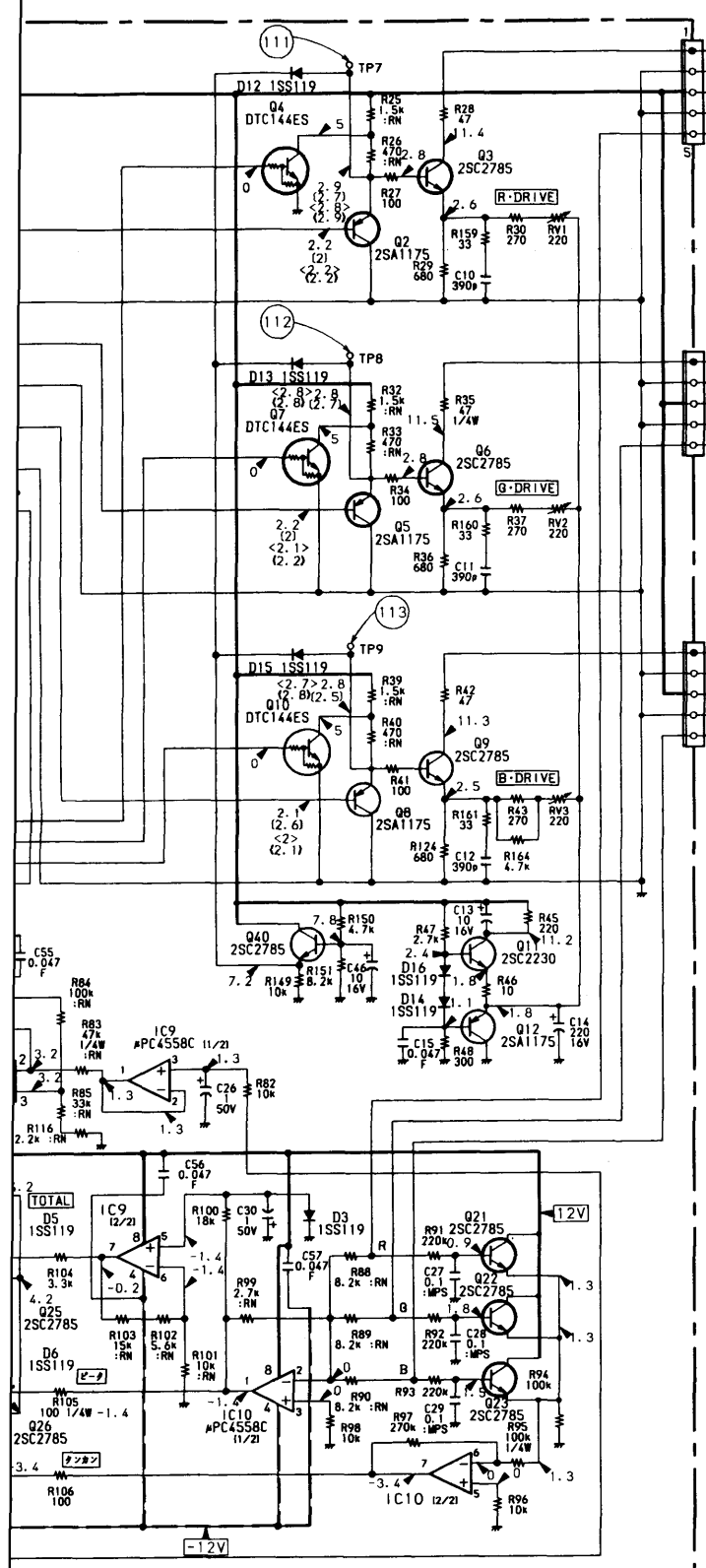
(PAL, SECAM, NTSC DECORDER)

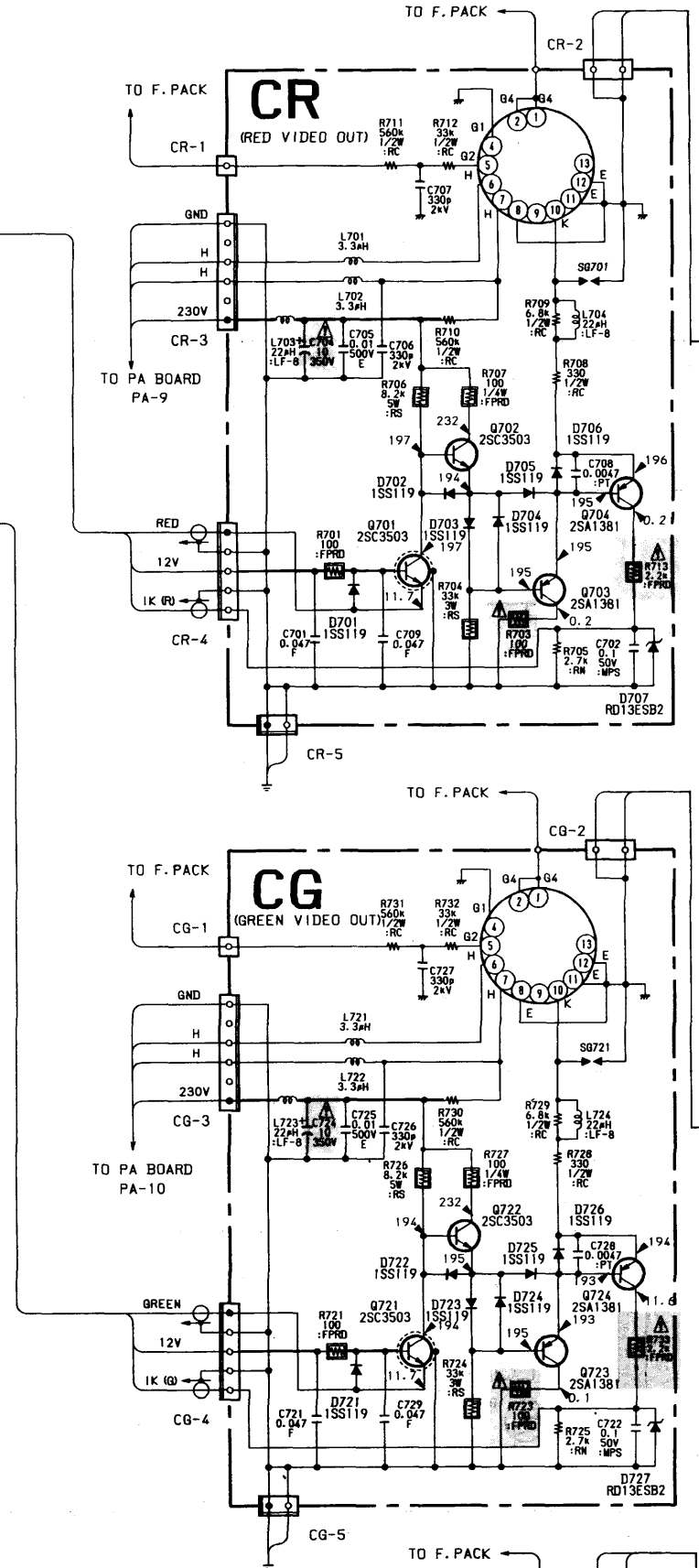


BB Board

(100) 0.2Vp-p (H)	(101) 0.2Vp-p (H)	(102) 12 Vp-p (H)	(103) 12 Vp-p (H)	(104) 12Vp-p (H)
(105) 0.2Vp-p (H)	(106) 2.5Vp-p (H)	(107) 2.5Vp-p (H)	(108) 2.5Vp-p (H)	(109) 7 Vp-p (H)
(110) 0.42Vp-p (H)	(111) PAL NTSC3.58 NTSC4.43 5 Vp-p (H)	(111) 5 Vp-p (H)	(112) PAL NTSC3.58 NTSC4.43 5 Vp-p (H)	(112) 5 Vp-p (H)
(113) PAL NTSC3.58 NTSC4.43 5 Vp-p (H)	(113) 5 Vp-p (H)	(114) 15Vp-p (V)	(115) 6Vp-p (V)	

BB	IC 1	UPC78M12H	+12V REG	IC 15	HD14081BP	GATE-1	Q 9	2SC2785	B·DRIVE	Q 23	2SC2785	IK (B) BUFF
	2	NJM79L12A	-12V REG	16	HD14082BP	GATE-2	10	DTC144ES	B·RAS SW	24	2SC2785	TOTAL ABL
	3	HD14052BP	REG SW (R·G)	17	HD14013BP	H·V BLK-1	11	2SC2230	BAIAS-1	25	2SC2785	PEAK ABL
	4	HD14052BP	REG SW (B)	18	HD14013BP	H·V BLK-2	12	2SA1175	BAIAS-2	26	2SC2785	S·T ABL
	5	CXA1044P	PIC/BRT CONT				13	2SA1175	R·BUFF-2	27	2SC2785	R·BUFF-1
	6	HD14069UBP	INV				14	2SA1175	G·BUFF-2	28	2SC2785	G·BUFF-1
	7	HD14071BP	V·BLK	Q 1	2SC2785	B·B BUFF-1	15	2SA1175	B·BUFF-2	29	2SC2785	B·BUFF-1
	8	#PC4558C	LEVEL SHIFT	2	2SA1175	R·BUFF-3	16	2SC2785	H·P INV-1	30	2SC2785	C·B (R) BUFF
	9	#PC4558C	PIC BUFF	3	2SC2785	R·DRIVE	17	2SC2785	H·P BUFF	31	2SC2785	C·B (G) BUFF
	10	#PC4558C	ABL	4	DTC144ES	R·RAS SW	18	2SC2785	DOT SW-1	32	2SC2785	C·B (B) BUFF
	11	HD14046BP	H·PLL	5	2SA1175	G·BUFF-3	19	2SC2785	DOT SW-2	33	2SC2785	C·B (B) BUFF
	12	HD14024BP	H·COUNTER	6	2SC2785	G·DRIVE	20	2SC2785	H·P INV	34	2SA1175	PIC ABL
	13	HD14046BP	V·PLL	7	DTC144ES	G·RAS SW	21	2SC2785	IK (R) BUFF	35	2SC2785	SYNC BUFF-1
	14	HD14040BP	V·COUNTER	8	2SA1175	B·BUFF-3	22	2SC2785	IK (G) BUFF	36	2SC2785	SINC BUFF-2



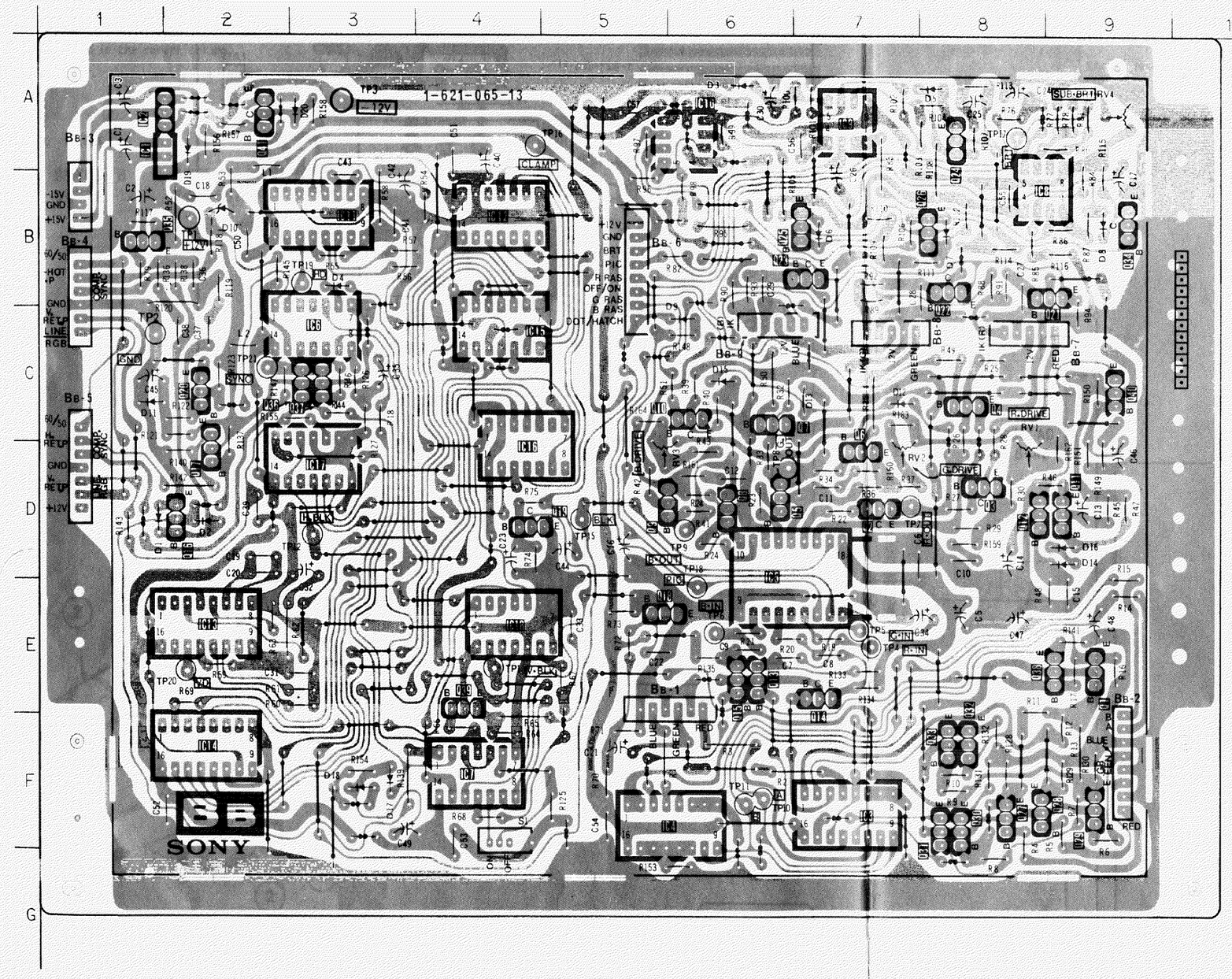


CAUTION
Should replacement be required, replace only with the value originally used.

2SC2785	IK (B) BUFF	Q 37	2SA1175	SYNC BUFF-3	D 10	RD13ESB2	PROTECTOR		Q 701	2SC3503	R-VIDEO AMP		Q 721	2SC3503	G-VIDEO AMP		Q 741	2SC3503	B-VIDEO AMP
2SC2785	TOTAL ABL	38	2SC2785	B·B BUFF-2	11	1SS119	CLAMP-2		702	2SC3503	R-VIDEO OUT		722	2SC3503	G-VIDEO OUT		742	2SC3503	B-VIDEO OUT
2SC2785	PEAK ABL	39	2SC2785	BLK BUFF	12	1SS119	R·LIMIT		703	2SA1381	R-IK DET-1		723	2SA1381	G-IK DET-1		743	2SA1381	B-IK DET-1
2SC2785	S·T ABL	40	2SC2785	LIMITER	13	1SS119	G·LIMIT		704	2SA1381	R-IK DET-2		724	2SA1381	G-IK DET-2		744	2SA1381	B-IK DET-2
2SC2785	R·BUFF-1	41	DTC144ES	-12V PROTE	14	1SS119	BAIAS-1		D 701	1SS119	R-PROTECT-1		D 721	1SS119	G-PROTECT-1		D 741	1SS119	B-PROTECT-1
2SC2785	G·BUFF-1	D 1	1SS119	H·P SUP-1	15	1SS119	B·LIMIT	CR	702	1SS119	R-PROTECT-2	CG	722	1SS119	G-PROTECT-2	CB	742	1SS119	B-PROTECT-2
2SC2785	B·BUFF-1	2	1SS119	H·P SUP-2	16	1SS119	BAIAS-2		703	1SS119	R-BIAS		723	1SS119	G-BIAS		743	1SS119	B-BIAS
2SC2785	C·B (R) BUFF-1	3	1SS119	CLAMP-1	17	1SS119	V·P DL-1		704	1SS119	R-PROTECT-3		724	1SS119	G-PROTECT-3		744	1SS119	B-PROTECT-3
2SC2785	C·B (R) BUFF-2	4	1SS119	V·RESET SW	18	1SS119	V·P DL-2		705	1SS119	R-PROTECT-4		725	1SS119	G-PROTECT-4		745	1SS119	B-PROTECT-4
2SC2785	C·B (G) BUFF-1	5	1SS119	TOTAL ABL	19	1SS119	PROTE-1		706	1SS119	R-PROTECT-5		726	1SS119	G-PROTECT-5		746	1SS119	B-PROTECT-5
2SC2785	C·B (G) BUFF-2	6	1SS119	PEAK ABL	20	1SS119	PROTE-2		707	RD13ESB2	R-PROTECT-6		727	RD13ESB2	G-PROTECT-6		747	RD13ESB2	B-PROTECT-6
2SA1175	PIC ABL	7	1SS119	S.T ABL															
2SC2785	SYNC BUFF-1	8	1SS119	PIC ABL															
2SC2785	SINC BUFF-2	9	1SS119	BRT SW															

BB [R·G·B PROCESS]

– BB Board –



BB Board

IC	
IC1	A-2
IC2	A-2
IC3	F-7
IC4	F-6
IC5	E-7
IC6	C-3
IC7	F-4
IC8	B-9
IC9	A-7
IC10	A-6
IC11	B-3
IC12	B-4
IC13	E-2
IC14	F-2
IC15	C-4
IC16	D-4
IC17	D-3
IC18	E-4

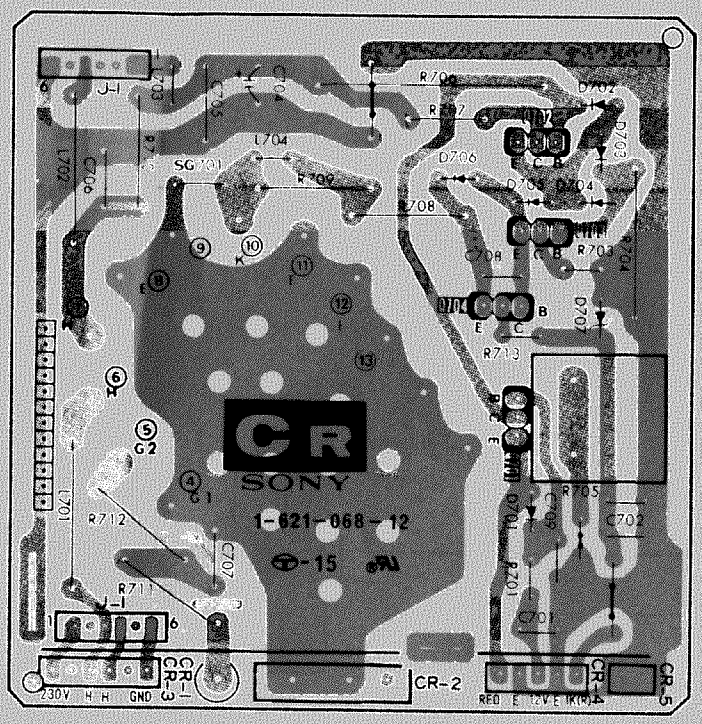
TRANSISTOR	
Q1	E-9
Q2	D-7
Q3	D-8
Q4	C-8
Q5	D-6
Q6	D-7
Q7	C-6
Q8	D-6
Q9	D-6
Q10	C-6
Q11	D-9
Q12	D-9
Q13	E-6
Q14	E-7
Q15	E-6
Q16	D-2
Q17	D-2
Q18	E-6
Q19	D-4
Q20	C-2
Q21	B-9
Q22	B-8
Q23	B-7
Q24	A-8
Q25	B-7
Q26	B-8
Q27	F-8
Q28	F-9
Q29	F-9
Q30	F-8
Q31	F-8
Q32	F-8
Q33	F-8
Q34	B-9
Q35	B-1
Q36	C-3
Q37	C-3
Q38	E-9
Q39	E-4
Q40	C-9
Q41	A-2

DIODE	
D1	D-1
D2	D-2
D3	A-6
D4	B-3
D5	A-8
D6	B-7
D7	B-8
D8	B-9
D9	C-6
D10	B-2
D11	C-1
D12	C-7
D13	C-7
D14	D-9
D15	C-6
D16	D-9
D17	F-3
D18	F-3
D19	A-2
D20	A-3

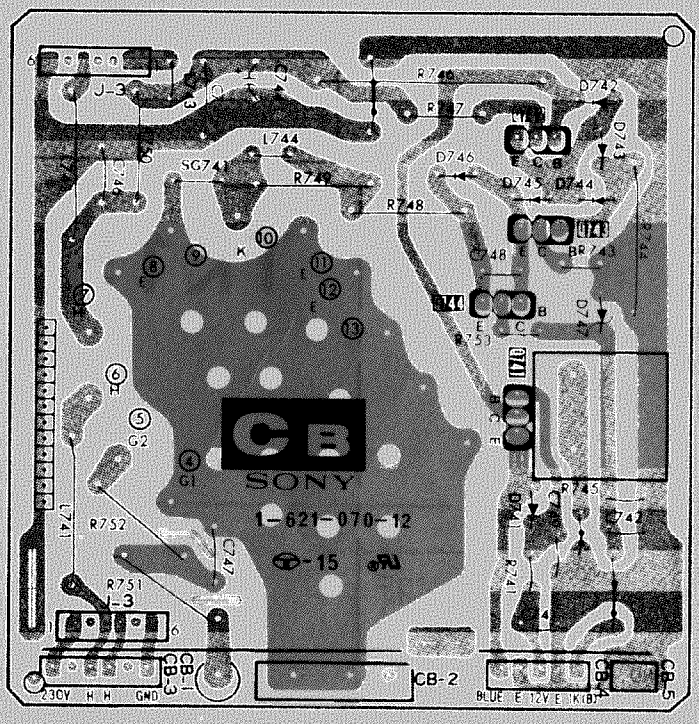
VARIABLE RESISTOR	
RV1	D-8
RV2	D-7
RV3	D-6
RV4	A-9

CR [RED VIDEO OUT] **CG** [GREEN VIDEO OUT] **CB** [BLUE VIDEO OUT]

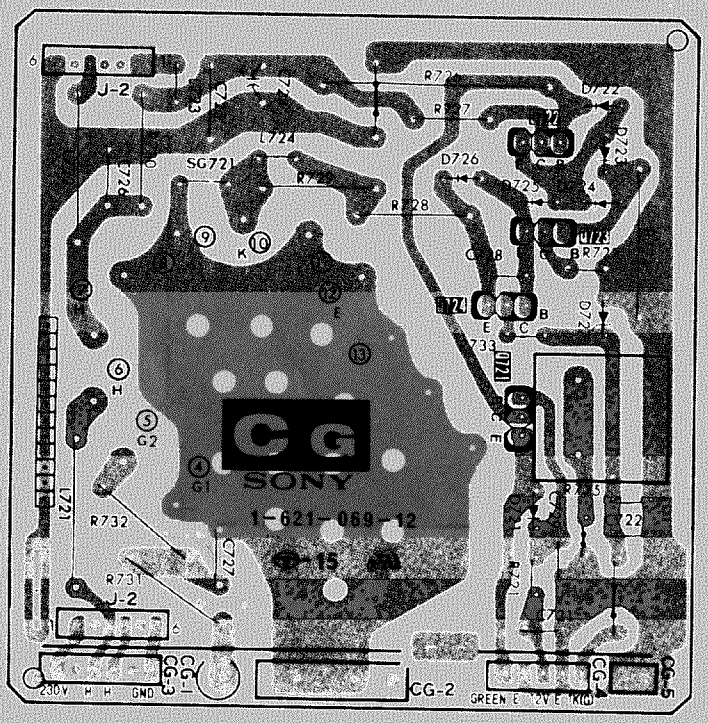
— CR Board —



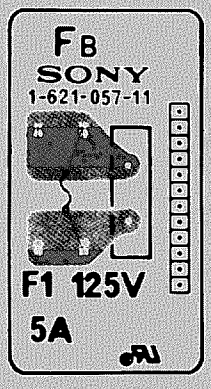
— CB Board —



— CG Board —

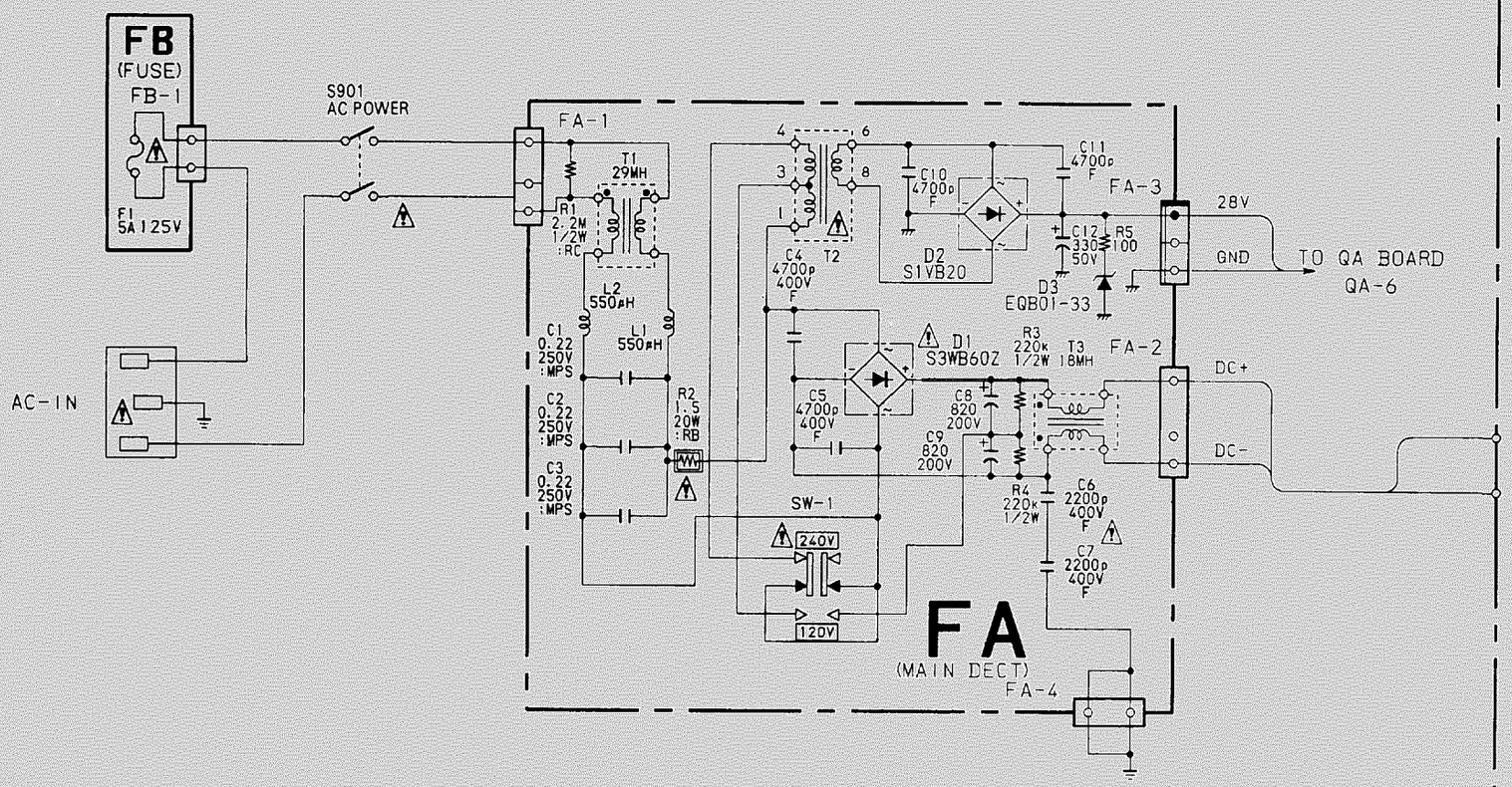


— FB Board —



CAUTION
Should replacement be required, replace only with the value originally used.

TK15 ⚠



FA	D 1	S3WB60Z	MAIN RECT
	2	S1VB-20	RM RECT
	3	EQB01-33	33V ZENER

page 82 blank

VPH-1041Q/1042Q

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

CAUTION
Should replacement be required, replace only with the value originally used.

TK15 ⚠

GA
(SW REG)

GB
(SW REG)

28V
GND
TO QA BOARD QA-6

DC+
DC-

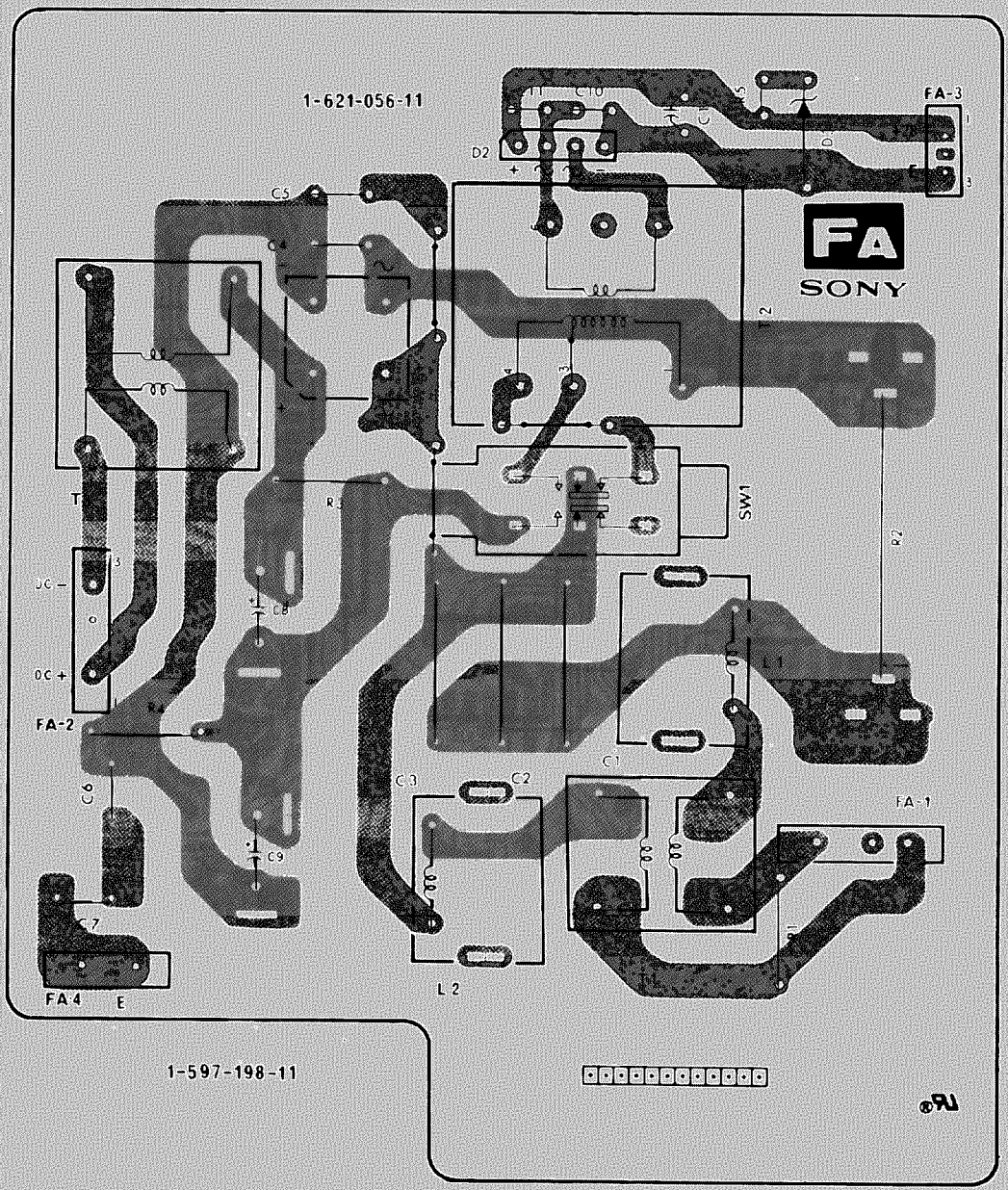
TO QA BOARD QA-8

GA: 5, 8, 2, 3, 1, 4, 7, 6, 2

GB: 5, 8, 2, 3, 1, 4, 7, 6, 2

FA [RECT] **FB** [FUSE]

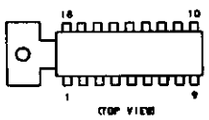
— FA Board —



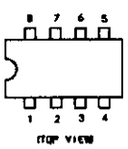
7-6. SEMICONDUCTORS

BX-1121
BX1122

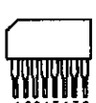
CXA1044AP



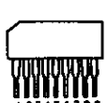
CX-7916
NJM4558D
TL082CP
μPC393C
μPC4558C
μPC4570C



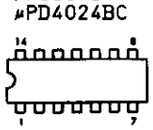
CX-7948
CX20061
M5218L



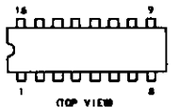
CX-894



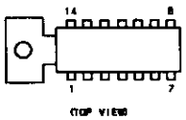
HD14069UBP
MC1496P
TC4024BP
TC4071BP
TC4081BP
TC4082BP
μPC1394C
μPC339C
μPD4024BC



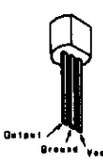
HD14046BP
HD14052BP
HD14053BP
MC14052BCP
TC4040BP



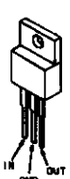
LA2600



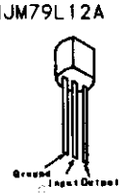
NJM78L09A
NJM78L12A



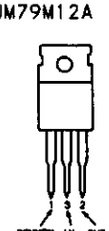
NJM78M05A
NJM78M09A
NJM78M12A
μPC78M08H
μPC78M12H



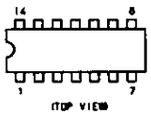
NJM79L12A



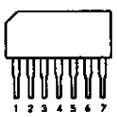
NJM79M08A
NJM79M12A



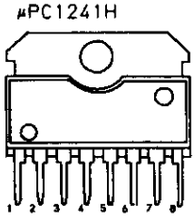
TC504013BP



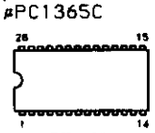
μPC1037HA



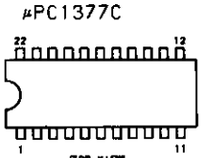
μPC1241H



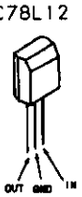
μPC1364C2
μPC1365C



μPC1377C

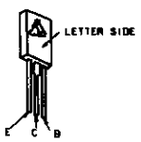


μPC78L12



DTC144ES
DTC144WS

2SA1142
2SA1381
2SA1381-D
2SC2688
2SC3503



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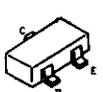
2SC2785

2SA812
2SC1623
DTC144WK



2SA1428-O
2SA1428-Y
2SC3668

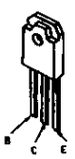
2SA844

2SB1015
2SC3163
2SC3675
2SD1399-CA
2SD1406

2SB734
2SD774

2SC2230A
2SC2383
2SD789

2SC2555



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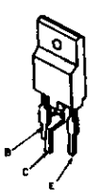
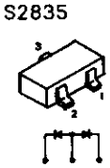


2SK105A
2SK105A-20

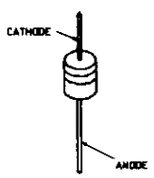
2SK160-K5

1S2835

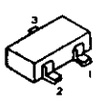


1S2837

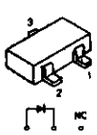
1SS119
1SS133T
1SS148
RD5.1ES-B2
RD13ES-B2
RD15ES-B3
RD8.2ES-B3



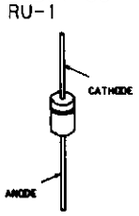
1SS123



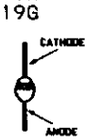
RD5.1M-B3



EQB01-33
RU-1



ERC26-15S
GH3F
V11N
V19G



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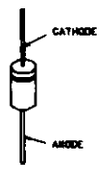
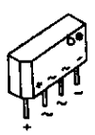
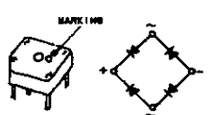
GP08DPKG23
RD5.1ES-B2
RD6.8ES-B3



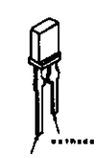
S1VB20



S3WB60Z



GL-9NG2



SECTION 8
EXPLODED VIEWS

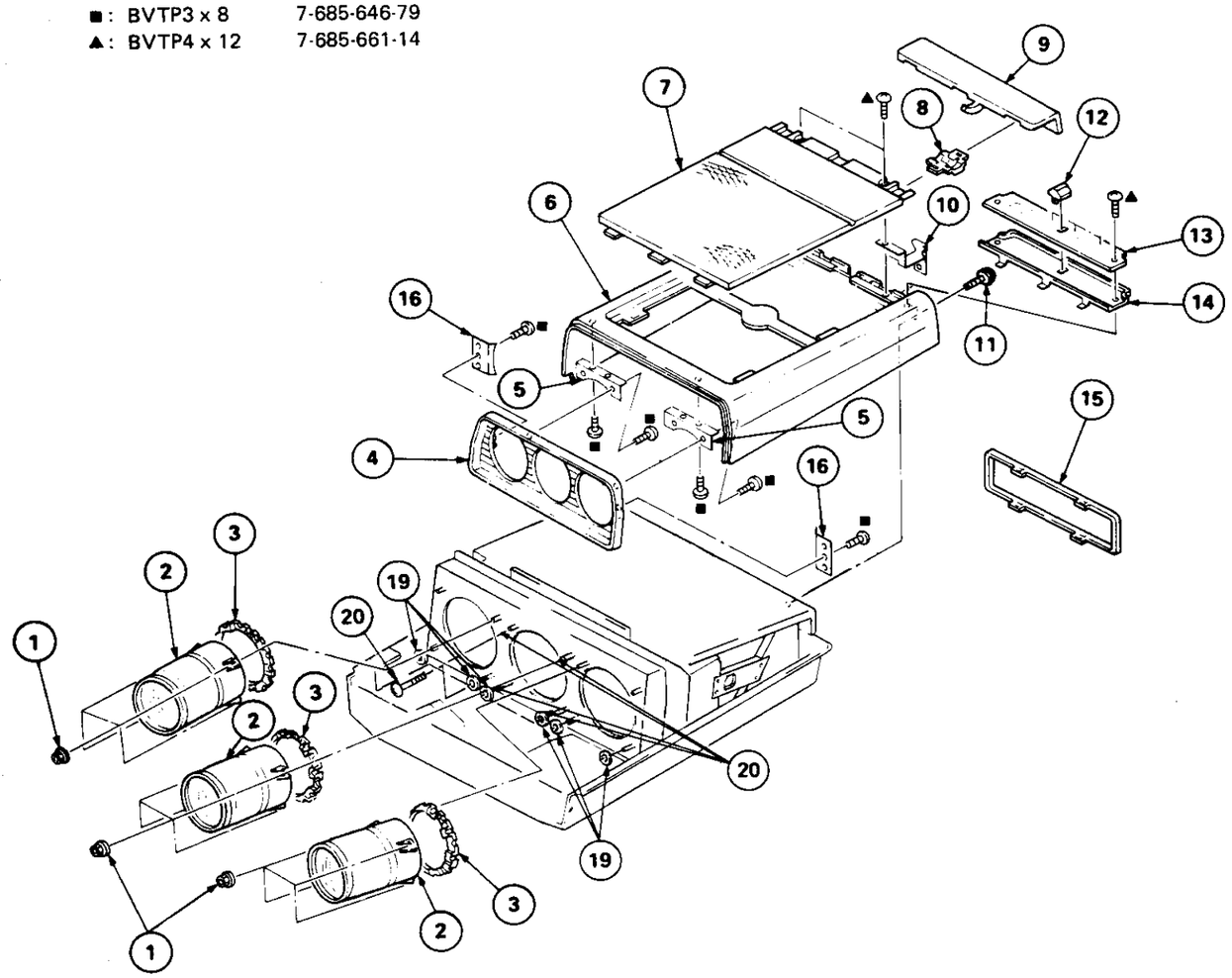
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " ★ " are not stocked since they are seldom required for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

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

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

8-1. LENS

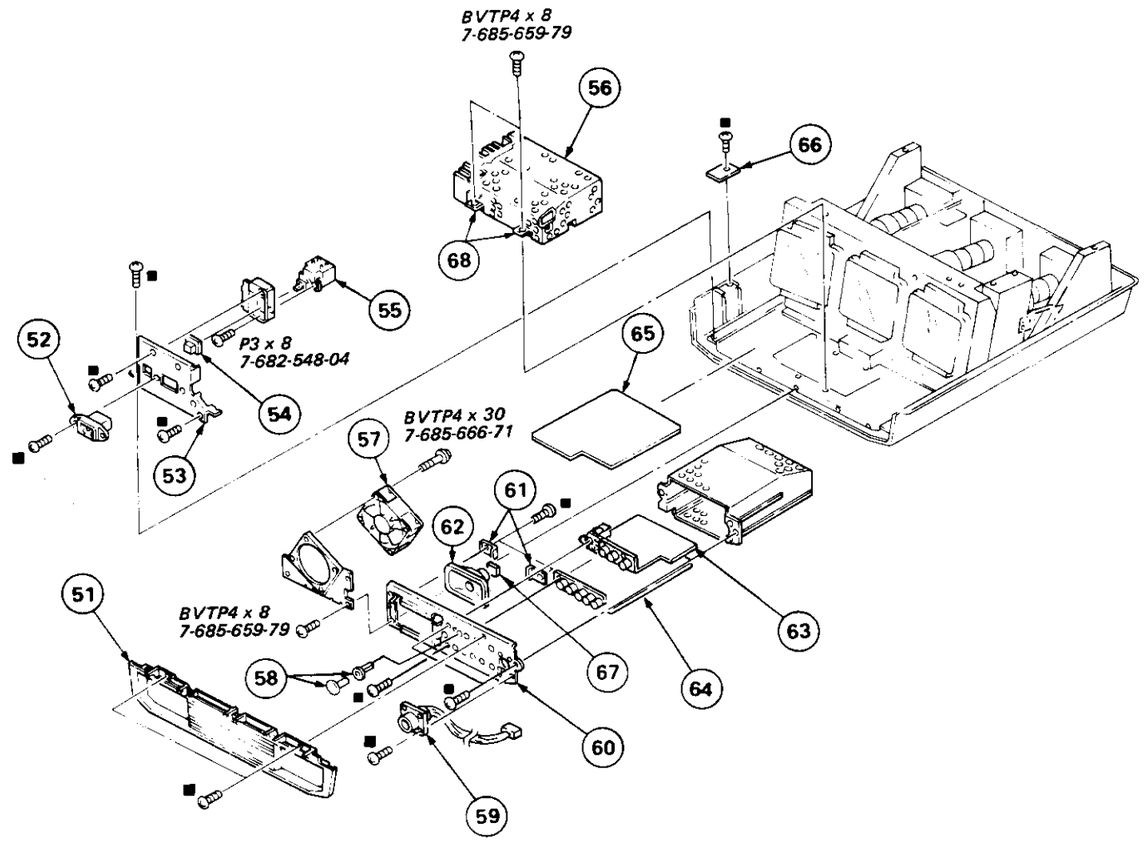
■: BVTP3 x 8 7-685-646-79
▲: BVTP4 x 12 7-685-661-14



No.	Part No.	Description	Remark
1	4-304-749-00	NUT, FLANGE	
2	4-383-018-02	LENS (DELTA) (TAC-3)(VPH-1041Q ONLY)	
	4-383-089-01	LENS, DELTA HD6 (VPH-1042Q ONLY)	
3	*4-378-642-01	WASHER, LENS	
4	4-383-064-01	PANEL, LENS	
5	*4-383-021-01	BRACKET, LENS PANEL	
6	4-378-655-01	CABINET	
7	X-4378-625-1	BOARD ASSY, TOP	8,9
8	3-659-618-00	HINGE, SPRING	
9	X-4378-603-1	DOOR ASSY	
10	*4-378-670-01	BRACKET, MESH EARTH	
11	3-703-251-00	SCREW (+M4), IT TAPPING	
12	4-378-613-01	CAP, LAMP	
13	4-383-050-01	PLATE, ORNAMENTAL, CONTROL	
14	4-383-056-01	PANEL, CONTROL	
15	4-383-053-01	PANEL, REAR	
16	*4-383-038-01	BRACKET (B), LENS PANEL	
19	3-639-647-00	WASHER	
20	4-383-072-01	SCREW (4X45) (G), TAPPING, + BV	

8-2. PANEL

■: BVTP3 x 8 7-685-646-79



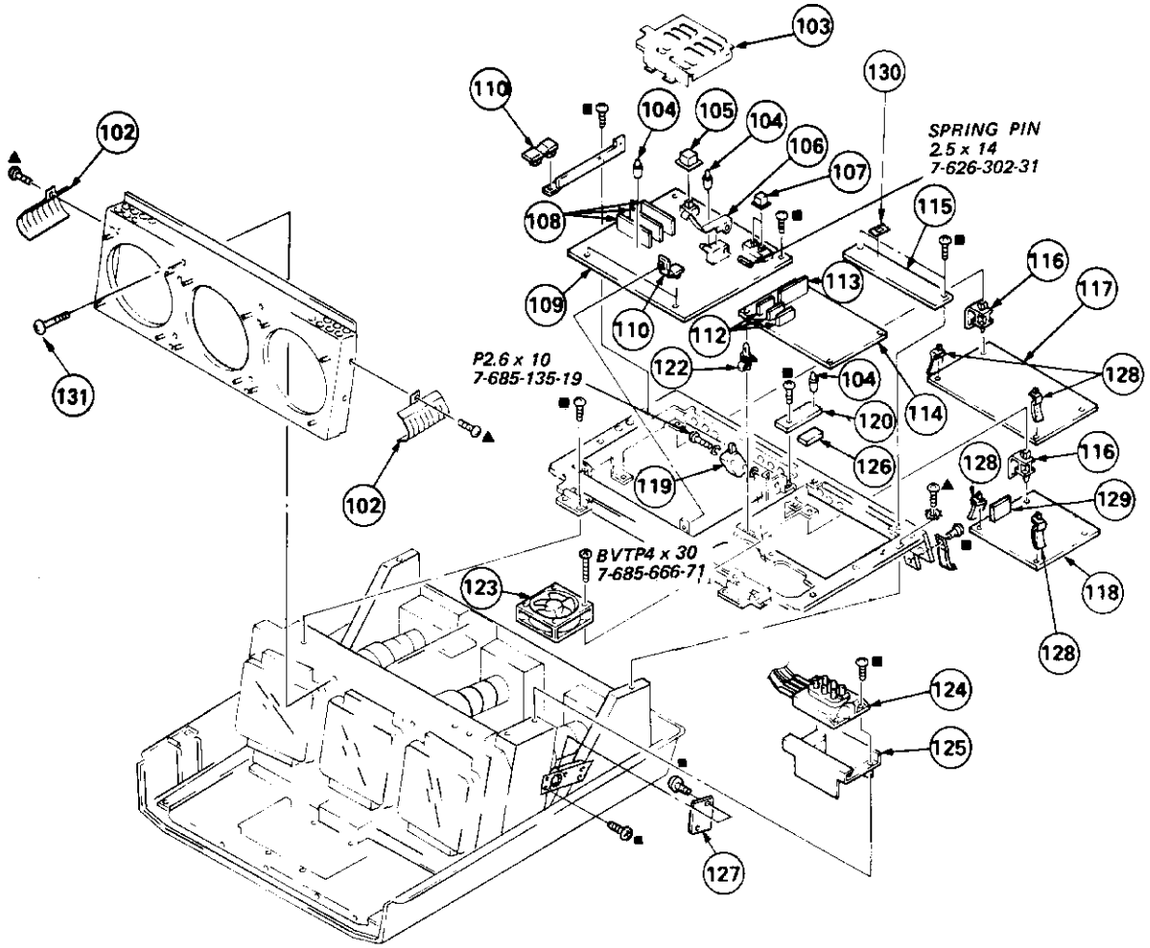
No.	Part No.	Description	Remark
51	4-383-063-01	PANEL, CONNECTOR	
52 ⚠	.1-509-547-11	3P INLET	
53	4-383-049-01	PANEL (F), CONNECTOR	
54	4-362-811-00	BUTTON, MAIN POWER	
55 ⚠	.1-570-052-12	SWITCH, PUSH (AC POWER)(1 KEY)	
56 ⚠	.1-413-289-11	REGULATOR, SWITCHING (TK-15)	
57 ⚠	.1-541-449-11	FAN, DC (WITH SENSOR)	
58	4-374-303-01	RIVET, NYLON	
59	1-559-088-21	CONNECTOR ASSY, ROUND TYPE 14P	
60	*4-387-729-01	CHASSIS (R), FRONT	
61	4-383-026-01	SPRING	
62	1-503-255-00	SPEAKER	
63	*A-1270-238-A	QB BOARD, COMPLETE	
64	*A-1270-237-A	QA BOARD, COMPLETE	
65	*1-621-056-11	FA BOARD	
66	*1-621-057-11	FB BOARD	
67	4-383-088-01	CUSHION, RUBBER	
68	*2-277-426-01	CLAMP	

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

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

8-3. D BOARD

▲: BVTP4 x 8 7-685-659-79
■: BVTP3 x 8 7-685-646-79



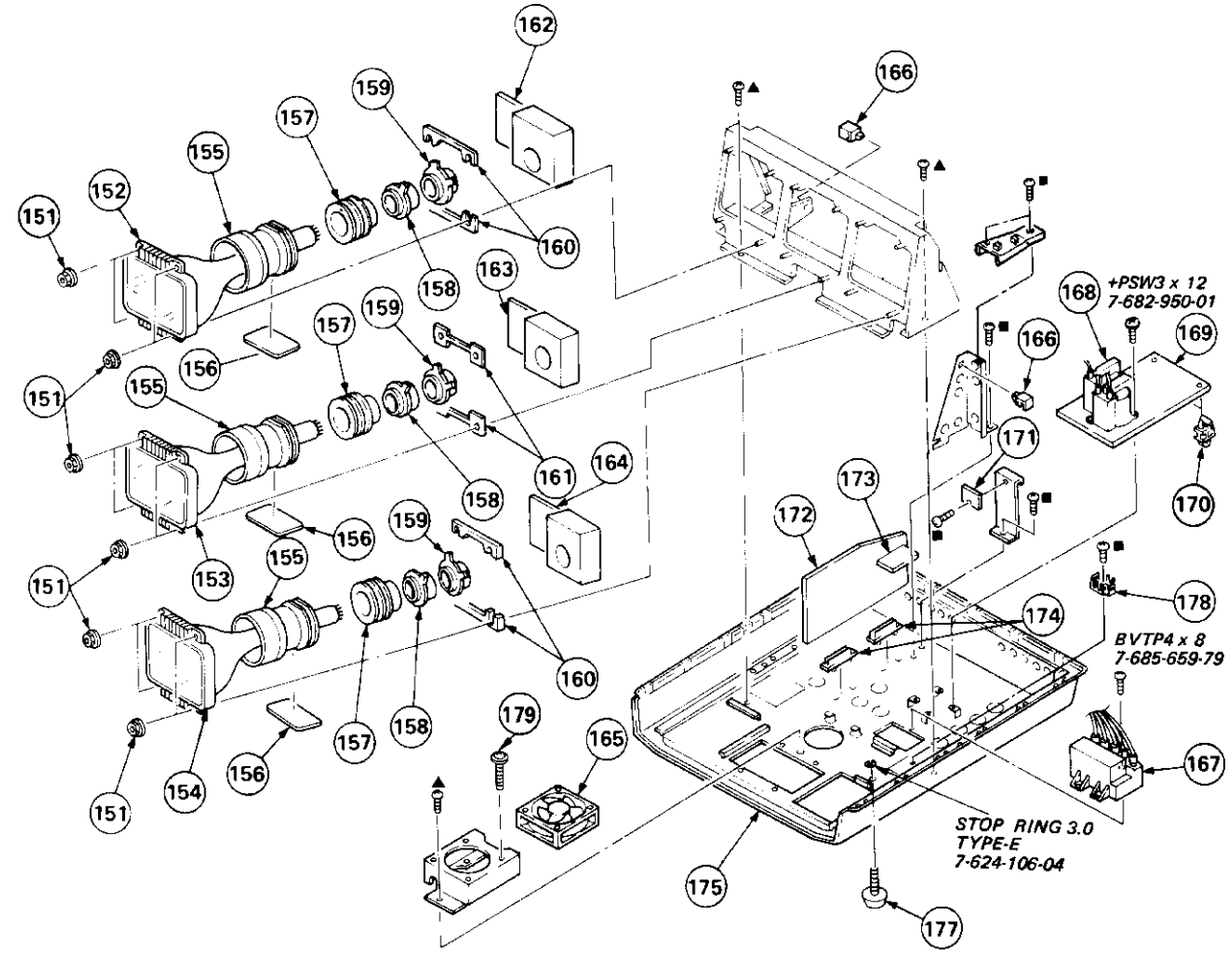
No.	Part No.	Description	Remark
102	*4-378-671-01	SPRING	
103	*4-383-047-01	COVER, REGISTRATION ADJUSTMENT	
104	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
105	4-362-808-00	BUTTON, POWER	
106	*4-378-608-01	ACTUATOR	
107	4-362-809-00	BUTTON, SELECT	
108	*1-621-059-11	DB BOARD	
109	*A-1340-919-A	D BOARD, COMPLETE	108
110	*4-313-732-00	CLIP, HINGE, CIRCUIT BOARD	
112	*1-621-060-11	EC BOARD	
113	*1-621-055-11	EB BOARD	
114	*A-1340-922-A	E BOARD, COMPLETE	112,113
115	*1-621-062-11	HA BOARD	
116	*3-680-721-00	HOLDER, CHASSIS	
117	*A-1130-546-A	BB BOARD, COMPLETE	
118	*A-1135-520-A	BA BOARD, COMPLETE	
119	⚠1-552-437-11	SWITCH, LEVER	
120	*1-621-051-11	X BOARD	
122	*3-703-353-02	SUPPORT, PC BOARD	
123	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
124	⚠1-237-582-11	RESISTOR ASSY, HIGH-VOLTAGE	
125	*4-383-037-01	COVER, FOCUS PACK	
126	9-911-840-XX	CUSHION	
127	*1-622-694-11	ED BOARD	
128	*3-703-141-00	HOLDER, PCB	
129	*A-1130-718-A	BC BOARD, COMPLETE	
130	*4-337-847-00	INSULATOR, SLIDE SWITCH	
131	4-383-072-01	SCREW (4X45) (G), TAPPING, +BV	

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

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

8-4. BASE ASSY

▲: BVTP4 x 12 7-685-661-14
■: BVTP3 x 8 7-685-646-79



No.	Part No.	Description	Remark
151	4-304-749-00	NUT, FLANGE	
152	⚠8-733-023-05	PICTURE TUBE (SD-187 (R))	
153	⚠8-733-021-05	PICTURE TUBE (SD-187 (G))	
154	⚠8-733-022-05	PICTURE TUBE (SD-187 (B))	
155	⚠1-451-243-12	DEFLECTION YOKE (SY-130A)	
156	*1-621-053-11	DY BOARD	
157	⚠1-452-302-11	PICTURE TUBE NECK ASSEMBLY	
158	⚠1-452-261-41	PICTURE TUBE NECK ASSY (362)	
159	⚠1-452-261-32	PICTURE TUBE NECK ASSY (362)	
160	*4-378-603-01	SPACER (100"), PICTURE TUBE	
161	*4-383-025-01	SPACER (G), PICTURE TUBE	
162	*1-621-068-11	CR BOARD	
163	*1-621-069-11	CG BOARD	
164	*1-621-070-11	CB BOARD	
165	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
166	*3-701-903-00	HOLDER, PC BOARD	
167	⚠1-453-108-11	DC BLOCK, HIGH-VOLTAGE	
168	⚠1-439-408-11	TRANSFORMER ASSY, FLYBACK	
169	*1-621-050-11	PC BOARD	
170	*3-680-721-00	HOLDER, CHASSIS	
171	*1-621-052-11	Y BOARD	
172	*A-1190-113-A	PA BOARD, COMPLETE	173
173	*1-621-054-11	PB BOARD	
174	*3-680-613-01	SUPPORT, PC BOARD	
175	X-4378-628-1	BASE ASSY	177
177	4-378-622-01	ADJUSTOR	
178	*4-309-624-00	TERMINAL, EARTH	
179	4-306-021-00	HEAD, WASHER, TAPPING SCREW	

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

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

SECTION 9

ELECTRICAL PARTS LIST

BB BB

NOTE:

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

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

- 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
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

- 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 resistors of the reference number coded from 900 are used as jumper wires. Therefore, they are not mentioned on the schematic diagram.
- 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
	*A-1130-546-A	BB BOARD, COMPLETE				
		**********				
		CONNECTOR				
BB1	*1-566-058-11	PIN, CONNECTOR 6P				
BB2	*1-566-060-11	PIN, CONNECTOR 8P				
BB3	*1-566-056-11	PIN, CONNECTOR 4P				
BB4	*1-566-058-11	PIN, CONNECTOR 6P				
BB5	*1-566-059-11	PIN, CONNECTOR 7P				
BB6	*1-566-060-11	PIN, CONNECTOR 8P				
BB7	*1-566-057-11	PIN, CONNECTOR 5P				
BB8	*1-566-057-11	PIN, CONNECTOR 5P				
BB9	*1-566-057-11	PIN, CONNECTOR 5P				
		CAPACITOR				
C1	1-123-380-00	ELECT	1MF	20%	50V	
C2	1-123-356-00	ELECT	10MF	20%	16V	
C3	1-123-380-00	ELECT	1MF	20%	50V	
C5	1-123-333-00	ELECT	100MF	20%	16V	
C6	1-101-004-00	CERAMIC	0.01MF		50V	
C7	1-136-153-00	FILM	0.01MF	5%	50V	
C8	1-136-153-00	FILM	0.01MF	5%	50V	
C9	1-136-153-00	FILM	0.01MF	5%	50V	
C10	1-102-822-00	CERAMIC	390PF	5%	50V	
C11	1-102-822-00	CERAMIC	390PF	5%	50V	
C12	1-102-822-00	CERAMIC	390PF	5%	50V	
C13	1-123-356-00	ELECT	10MF	20%	16V	
C14	1-123-321-00	ELECT	220MF	20%	16V	
C15	1-101-006-00	CERAMIC	0.047MF		50V	
C16	1-123-379-00	ELECT	0.47MF	20%	50V	
C17	1-123-379-00	ELECT	0.47MF	20%	50V	
C18	1-102-824-00	CERAMIC	470PF	5%	50V	
C19	1-101-361-00	CERAMIC	150PF	5%	50V	
C20	1-101-361-00	CERAMIC	150PF	5%	50V	
C21	1-123-356-00	ELECT	10MF	20%	16V	
C22	1-101-361-00	CERAMIC	150PF	5%	50V	
C23	1-123-380-00	ELECT	1MF	20%	50V	
C24	1-123-380-00	ELECT	1MF	20%	50V	
C25	1-123-330-00	ELECT	22MF	20%	16V	
C26	1-123-380-00	ELECT	1MF	20%	50V	
C27	1-136-165-00	FILM	0.1MF	5%	50V	
C28	1-136-165-00	FILM	0.1MF	5%	50V	
C29	1-136-165-00	FILM	0.1MF	5%	50V	
C30	1-123-380-00	ELECT	1MF	20%	50V	
C31	1-136-163-00	FILM	0.068MF	5%	50V	
C32	1-124-464-11	ELECT	0.22MF	20%	50V	
C33	1-102-973-00	CERAMIC	100PF	5%	50V	
C34	1-123-379-00	ELECT	0.47MF	20%	50V	
C35	1-123-356-00	ELECT	10MF	20%	16V	
C36	1-101-810-00	CERAMIC	100PF	5%	500V	
C37	1-102-973-00	CERAMIC	100PF	5%	50V	
C38	1-101-888-00	CERAMIC	68PF	5%	50V	
C39	1-102-973-00	CERAMIC	100PF	5%	50V	
C40	1-123-333-00	ELECT	100MF	20%	16V	
C41	1-136-153-00	FILM	0.01MF	5%	50V	
C42	1-123-356-00	ELECT	10MF	20%	16V	
C43	1-101-880-00	CERAMIC	47PF	5%	50V	
C44	1-123-380-00	ELECT	1MF	20%	50V	
C45	1-123-356-00	ELECT	10MF	20%	16V	
C46	1-123-356-00	ELECT	10MF	20%	16V	
C47	1-123-356-00	ELECT	10MF	20%	16V	
C48	1-123-356-00	ELECT	10MF	20%	16V	
C49	1-123-332-00	ELECT	47MF	20%	16V	
C50	1-101-006-00	CERAMIC	0.047MF		50V	
C51	1-101-006-00	CERAMIC	0.047MF		50V	
C52	1-101-006-00	CERAMIC	0.047MF		50V	
C53	1-101-006-00	CERAMIC	0.047MF		50V	
C54	1-101-006-00	CERAMIC	0.047MF		50V	
C55	1-101-006-00	CERAMIC	0.047MF		50V	
C56	1-101-006-00	CERAMIC	0.047MF		50V	
C57	1-101-006-00	CERAMIC	0.047MF		50V	
		DIODE				
D1	8-719-911-19	DIODE 1SS119				
D2	8-719-911-19	DIODE 1SS119				
D3	8-719-911-19	DIODE 1SS119				
D4	8-719-911-19	DIODE 1SS119				
D5	8-719-911-19	DIODE 1SS119				
D6	8-719-911-19	DIODE 1SS119				
D7	8-719-911-19	DIODE 1SS119				
D8	8-719-911-19	DIODE 1SS119				
D9	8-719-911-19	DIODE 1SS119				
D10	8-719-110-36	DIODE RD13ES-B2				
D11	8-719-911-19	DIODE 1SS119				
D12	8-719-911-19	DIODE 1SS119				
D13	8-719-911-19	DIODE 1SS119				
D14	8-719-911-19	DIODE 1SS119				
D15	8-719-911-19	DIODE 1SS119				
D16	8-719-911-19	DIODE 1SS119				
D17	8-719-911-19	DIODE 1SS119				
D18	8-719-911-19	DIODE 1SS119				
D19	8-719-911-19	DIODE 1SS119				
D20	8-719-911-19	DIODE 1SS119				
		IC				
IC1 ⚠	8-759-170-12	IC UPC78M12H				
IC2	8-759-700-69	IC NJM79L12A				
IC3	8-759-340-52	IC HD14052BP				
IC4	8-759-340-52	IC HD14052BP				
IC5	8-752-033-27	IC CXA1044AP				
IC6	8-759-240-69	IC TC4069UBP				
IC7	8-759-240-71	IC TC4071BP				
IC8	8-759-145-58	IC UPC4558C				
IC9	8-759-145-58	IC UPC4558C				
IC10	8-759-145-58	IC UPC4558C				
IC11	8-759-340-46	IC HD14046BP				
IC12	8-759-240-24	IC TC4024BP				
IC13	8-759-340-46	IC HD14046BP				
IC14	8-759-240-40	IC TC4040BP				
IC15	8-759-240-81	IC TC4081BP				
IC16	8-759-240-82	IC TC4082BP				
IC17	8-759-205-76	IC TC504013BP				
IC18	8-759-205-76	IC TC504013BP				
		COIL				
L1	1-410-494-11	INDUCTOR	1MMH			
L2	1-410-482-41	INDUCTOR	100UH			
		TRANSISTOR				
Q1	8-729-178-54	TRANSISTOR 2SC2785				
Q2	8-729-117-54	TRANSISTOR 2SA1175				
Q3	8-729-178-54	TRANSISTOR 2SC2785				
Q4	8-729-900-89	TRANSISTOR DTC144ES				
Q5	8-729-117-54	TRANSISTOR 2SA1175				
Q6	8-729-178-54	TRANSISTOR 2SC2785				
Q7	8-729-900-89	TRANSISTOR DTC144ES				
Q8	8-729-117-54	TRANSISTOR 2SA1175				
Q9	8-729-178-54	TRANSISTOR 2SC2785				
Q10	8-729-900-89	TRANSISTOR DTC144ES				
Q11	8-729-213-12	TRANSISTOR 2SC2230A				
Q12	8-729-117-54	TRANSISTOR 2SA1175				
Q13	8-729-117-54	TRANSISTOR 2SA1175				
Q14	8-729-117-54	TRANSISTOR 2SA1175				
Q15	8-729-117-54	TRANSISTOR 2SA1175				
Q16	8-729-178-54	TRANSISTOR 2SC2785				
Q17	8-729-178-54	TRANSISTOR 2SC2785				
Q18	8-729-178-54	TRANSISTOR 2SC2785				
Q19	8-729-178-54	TRANSISTOR 2SC2785				
Q20	8-729-178-54	TRANSISTOR 2SC2785				
Q21	8-729-178-54	TRANSISTOR 2SC2785				
Q22	8-729-178-54	TRANSISTOR 2SC2785				
Q23	8-729-178-54	TRANSISTOR 2SC2785				
Q24	8-729-178-54	TRANSISTOR 2SC2785				
Q25	8-729-178-54	TRANSISTOR 2SC2785				
Q26	8-729-178-54	TRANSISTOR 2SC2785				
Q27	8-729-178-54	TRANSISTOR 2SC2785				
Q28	8-729-178-54	TRANSISTOR 2SC2785				
Q29	8-729-178-54	TRANSISTOR 2SC2785				
Q30	8-729-178-54	TRANSISTOR 2SC2785				
Q31	8-729-178-54	TRANSISTOR 2SC2785				
Q32	8-729-178-54	TRANSISTOR 2SC2785				
Q33	8-729-178-54	TRANSISTOR 2SC2785				
Q34	8-729-117-54	TRANSISTOR 2SA1175				
Q35	8-729-178-54	TRANSISTOR 2SC2785				
Q36	8-729-178-54	TRANSISTOR 2SC2785				
Q37 ⚠	8-729-117-54	TRANSISTOR 2SA1175				
Q38	8-729-178-54	TRANSISTOR 2SC2785				
Q39	8-729-178-54	TRANSISTOR 2SC2785				
Q40	8-729-178-54	TRANSISTOR 2SC2785				
Q41	8-729-900-89	TRANSISTOR DTC144ES				
		RESISTOR				
R1	1-247-700-11	CARBON	100	5%	1/4W	
R2	1-247-700-11	CARBON	100	5%	1/4W	
R3	1-247-700-11	CARBON	100	5%	1/4W	
R4	1-249-405-11	CARBON	100	5%	1/4W	
R5	1-249-405-11	CARBON	100	5%	1/4W	
R6	1-249-405-11	CARBON	100	5%	1/4W	
R7	1-249-420-11	CARBON	1.8K	5%	1/4W	
R8	1-249-417-11	CARBON	1K	5%	1/4W	
R9	1-249-420-11	CARBON	1.8K	5%	1/4W	
R10	1-249-417-11	CARBON	1K	5%	1/4W	
R11	1-249-425-11	CARBON	4.7K	5%	1/4W	
R12	1-249-421-11	CARBON	2.2K	5%	1/4W	
R13	1-247-724-11	CARBON	8.2K	5%	1/4W	
R14	1-249-433-11	CARBON	22K	5%	1/4W	
R15	1-249-433-11	CARBON	22K	5%	1/4W	
R16	1-249-421-11	CARBON	2.2K	5%	1/4W	
R17	1-249-417-11	CARBON	1K	5%	1/4W	
R18	1-249-414-11	CARBON	560	5%	1/4W	
R19	1-249-405-11	CARBON	100	5%	1/4W	
R20	1-249-405-11	CARBON	100	5%	1/4W	
R21	1-249-405-11	CARBON	100	5%	1/4W	
R22	1-249-408-11	CARBON	180	5%	1/4W	
R23	1-249-408-11	CARBON	180	5%	1/4W	
R24	1-249-408-11	CARBON	180	5%	1/4W	
R25	1-215-425-00	METAL	1.5K	1%	1/6W	
R26	1-215-413-00	METAL	470	1%	1/6W	
R27	1-249-405-11	CARBON	100	5%	1/4W	
R28	1-249-401-11	CARBON	47	5%	1/4W	
R29	1-249-415-11	CARBON	680	5%	1/4W	
R30	1-249-410-11	CARBON	270	5%	1/4W	
R32	1-215-425-00	METAL	1.5K	1%	1/6W	
R33	1-215-413-00	METAL	470	1%	1/6W	
R34	1-249-405-11	CARBON	100	5%	1/4W	
R35	1-247-696-11	CARBON	47	5%	1/4W	
R36	1-249-415-11	CARBON	680	5%	1/4W	
R37	1-249-410-11	CARBON	270	5%	1/4W	
R39	1-215-425-00	METAL	1.5K	1%	1/6W	
R40	1-215-413-00	METAL	470	1%	1/6W	
R41	1-249-405-11	CARBON	100	5%	1/4W	
R42	1-249-401-11	CARBON	47	5%	1/4W	
R43	1-249-410-11	CARBON	270	5%	1/4W	
R45	1-249-409-11	CARBON	220	5%	1/4W	
R46	1-249-393-11	CARBON	10	5%	1/4W	
R47	1-249-422-11	CARBON	2.7K	5%	1/4W	
R48	1-247-818-11	CARBON	300	5%	1/4W	
R49	1-249-405-11	CARBON	100	5%	1/4W	
R50	1-247-700-11	CARBON	100	5%	1/4W	
R51	1-249-405-11	CARBON	100	5%	1/4W	
R52	1-247-700-11	CARBON	100	5%	1/4W	
R53	1-249-422-11	CARBON	2.7K	5%	1/4W	
R54	1-249-417-11	CARBON	1K	5%	1/4W	
R55	1-249-425-11	CARBON	4.7K	5%	1/4W	
R56	1-247-881-00	CARBON	120K	5%	1/4W	
R57	1-249-431-11	CARBON	15K	5%	1/4W	
R58	1-247-719-11	CARBON	3.3K	5%	1/4W	
R59	1-249-441-11	CARBON	100K	5%	1/4W	
R60	1-247-887-00	CARBON	220K	5%	1/4W	
R61	1-249-436-11	CARBON	39K	5%	1/4W	
R62	1-249-469-11	CARBON	100K	5%	1/4W	
R63	1-249-417-11	CARBON	1K	5%	1/4W	
R64	1-249-430-11	CARBON	12K	5%	1/4W	
R65	1-247-717-11	CARBON	2.2K	5%	1/4W	
R66	1-249-417-11	CARBON	1K	5%	1/4W	
R67	1-249-437-11	CARBON	47K	5%	1/4W	
R68	1-249-437-11	CARBON	47K	5%	1/4W	
R69	1-249-434-11	CARBON	27K	5%	1/4W	
R70	1-247-891-00	CARBON	330K	5%	1/4W	
R71	1-249-429-11	CARBON	10K	5%	1/4W	

BB BA

Ref.No.	Part No.	Description				Remark
R72	1-249-438-11	CARBON	56K	5%	1/4W	
R73	1-249-434-11	CARBON	27K	5%	1/4W	
R74	1-249-441-11	CARBON	100K	5%	1/4W	
R75	1-249-441-11	CARBON	100K	5%	1/4W	
R76	1-249-429-11	CARBON	10K	5%	1/4W	
R77	1-249-439-11	CARBON	68K	5%	1/4W	
R78	1-247-891-00	CARBON	330K	5%	1/4W	
R79	1-249-423-11	CARBON	3.3K	5%	1/4W	
R80	1-247-881-00	CARBON	120K	5%	1/4W	
R81	1-249-429-11	CARBON	10K	5%	1/4W	
R82	1-249-429-11	CARBON	10K	5%	1/4W	
R83	1-214-769-00	METAL	47K	1%	1/4W	
R84	1-215-469-00	METAL	100K	1%	1/6W	
R85	1-215-457-00	METAL	33K	1%	1/6W	
R86	1-215-469-00	METAL	100K	1%	1/6W	
R87	1-249-429-11	CARBON	10K	5%	1/4W	
R88	1-215-443-00	METAL	8.2K	1%	1/6W	
R89	1-215-443-00	METAL	8.2K	1%	1/6W	
R90	1-215-443-00	METAL	8.2K	1%	1/6W	
R91	1-247-887-00	CARBON	220K	5%	1/4W	
R92	1-247-887-00	CARBON	220K	5%	1/4W	
R93	1-247-887-00	CARBON	220K	5%	1/4W	
R94	1-249-441-11	CARBON	100K	5%	1/4W	
R95	1-249-469-11	CARBON	100K	5%	1/4W	
R96	1-249-429-11	CARBON	10K	5%	1/4W	
R97	1-247-889-00	CARBON	270K	5%	1/4W	
R98	1-249-429-11	CARBON	10K	5%	1/4W	
R99	1-215-431-00	METAL	2.7K	1%	1/6W	
R100	1-249-432-11	CARBON	18K	5%	1/4W	
R101	1-215-445-00	METAL	10K	1%	1/6W	
R102	1-215-439-00	METAL	5.6K	1%	1/6W	
R103	1-215-449-00	METAL	15K	1%	1/6W	
R104	1-249-423-11	CARBON	3.3K	5%	1/4W	
R105	1-247-700-11	CARBON	100	5%	1/4W	
R106	1-249-405-11	CARBON	100	5%	1/4W	
R107	1-215-461-00	METAL	47K	1%	1/6W	
R108	1-214-777-00	METAL	100K	1%	1/4W	
R109	1-215-461-00	METAL	47K	1%	1/6W	
R110	1-215-469-00	METAL	100K	1%	1/6W	
R111	1-215-461-00	METAL	47K	1%	1/6W	
R112	1-215-469-00	METAL	100K	1%	1/6W	
R113	1-249-439-11	CARBON	68K	5%	1/4W	
R114	1-249-439-11	CARBON	68K	5%	1/4W	
R115	1-249-437-11	CARBON	47K	5%	1/4W	
R116	1-215-429-00	METAL	2.2K	1%	1/6W	
R117	1-249-423-11	CARBON	3.3K	5%	1/4W	
R118	1-249-417-11	CARBON	1K	5%	1/4W	
R119	1-249-417-11	CARBON	1K	5%	1/4W	
R120	1-247-726-11	CARBON	33K	5%	1/4W	
R121	1-249-441-11	CARBON	100K	5%	1/4W	
R122	1-249-427-11	CARBON	6.8K	5%	1/4W	
R123	1-249-431-11	CARBON	15K	5%	1/4W	
R124	1-249-415-11	CARBON	680	5%	1/4W	
R125	1-249-441-11	CARBON	100K	5%	1/4W	
R126	1-249-429-11	CARBON	10K	5%	1/4W	
R127	1-249-417-11	CARBON	1K	5%	1/4W	
R128	1-249-421-11	CARBON	2.2K	5%	1/4W	
R129	1-249-421-11	CARBON	2.2K	5%	1/4W	
R130	1-249-421-11	CARBON	2.2K	5%	1/4W	
R131	1-249-421-11	CARBON	2.2K	5%	1/4W	
R132	1-249-421-11	CARBON	2.2K	5%	1/4W	
R133	1-249-425-11	CARBON	4.7K	5%	1/4W	
R134	1-249-425-11	CARBON	4.7K	5%	1/4W	
R135	1-249-425-11	CARBON	4.7K	5%	1/4W	
R136	1-249-423-11	CARBON	3.3K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R137	1-249-430-11	CARBON	12K	5%	1/4W	
R138	1-249-434-11	CARBON	27K	5%	1/4W	
R139	1-247-713-11	CARBON	1K	5%	1/4W	
R140	1-249-421-11	CARBON	2.2K	5%	1/4W	
R141	1-249-421-11	CARBON	2.2K	5%	1/4W	
R142	1-247-706-11	CARBON	330	5%	1/4W	
R143	1-249-429-11	CARBON	10K	5%	1/4W	
R144	1-249-437-11	CARBON	47K	5%	1/4W	
R145	1-249-417-11	CARBON	1K	5%	1/4W	
R146	1-249-417-11	CARBON	1K	5%	1/4W	
R147	1-249-405-11	CARBON	100	5%	1/4W	
R148	1-249-431-11	CARBON	15K	5%	1/4W	
R149	1-249-429-11	CARBON	10K	5%	1/4W	
R150	1-249-425-11	CARBON	4.7K	5%	1/4W	
R151	1-249-428-11	CARBON	8.2K	5%	1/4W	
R153	1-249-429-11	CARBON	10K	5%	1/4W	
R154	1-247-885-00	CARBON	180K	5%	1/4W	
R155	1-249-437-11	CARBON	47K	5%	1/4W	
R156	1-249-435-11	CARBON	33K	5%	1/4W	
R157	1-249-433-11	CARBON	22K	5%	1/4W	
R158	1-249-435-11	CARBON	33K	5%	1/4W	
R159	1-249-399-11	CARBON	33	5%	1/4W	
R160	1-249-399-11	CARBON	33	5%	1/4W	
R161	1-249-399-11	CARBON	33	5%	1/4W	
R164	1-249-425-11	CARBON	4.7K	5%	1/4W	

VARIABLE RESISTOR

RV1	1-230-504-11	RES, ADJ, CARBON 220	
RV2	1-230-504-11	RES, ADJ, CARBON 220	
RV3	1-230-504-11	RES, ADJ, CARBON 220	
RV4	1-228-997-00	RES, ADJ, CARBON 100K	

SWITCH

S1	1-553-716-00	SWITCH, SLIDE	

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	*A-1135-520-A	BA BOARD, COMPLETE	
		**********	
	4-027-606-01	HEAT SINK (TO-220 TYPE)	

CONNECTOR

BA1	*1-566-056-11	PIN, CONNECTOR 4P	
BA2	*1-566-056-11	PIN, CONNECTOR 4P	
BA3	*1-566-057-11	PIN, CONNECTOR 5P	
BA4	*1-566-060-11	PIN, CONNECTOR 8P	
BA5	*1-566-059-11	PIN, CONNECTOR 7P	
BA6	*1-566-058-11	PIN, CONNECTOR 6P	

CAPACITOR

C108	1-123-356-00	ELECT	10MF	20%	16V
C115	1-123-356-00	ELECT	10MF	20%	16V
C119	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C120	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C121	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C122	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C123	1-123-380-00	ELECT	1MF	20%	50V
C124	1-123-356-00	ELECT	10MF	20%	16V
C127	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C128	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C129	1-123-379-00	ELECT	0.47MF	20%	50V

BA

Ref.No.	Part No.	Description		Remark
C130	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C131	1-136-165-00	FILM 0.1MF	5% 50V	
C132	1-136-165-00	FILM 0.1MF	5% 50V	
C133	1-124-631-11	ELECT 47MF	20% 16V	
C134	1-163-090-00	CERAMIC CHIP 7PF	0.25PF 50V	
C135	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C136	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	
C137	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	
C138	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C139	1-136-153-00	FILM 0.01MF	5% 50V	
C140	1-135-088-21	TANTAL. CHIP 2.2MF	10% 20V	
C141	1-136-165-00	FILM 0.1MF	5% 50V	
C142	1-136-165-00	FILM 0.1MF	5% 50V	
C143	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	
C144	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	
C145	1-163-083-00	CERAMIC CHIP 1PF	0.25PF 50V	
C146	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	
C147	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C148	1-123-356-00	ELECT 10MF	20% 16V	
C149	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C150	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C151	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C152	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C153	1-136-157-00	FILM 0.022MF	5% 50V	
C155	1-163-097-00	CERAMIC CHIP 15PF	5% 50V	
C156	1-123-356-00	ELECT 10MF	20% 16V	
C157	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C160	1-163-135-00	CERAMIC CHIP 560PF	10% 50V	
C161	1-163-115-00	CERAMIC CHIP 82PF	5% 50V	
C162	1-163-185-00	CERAMIC CHIP 150PF	5% 50V	
C163	1-163-115-00	CERAMIC CHIP 82PF	5% 50V	
C164	1-126-151-11	ELECT 4.7MF	20% 16V	
C165	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	
C166	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	
C167	1-163-035-00	CERAMIC CHIP 0.047MF	50V	
C169	1-136-165-00	FILM 0.1MF	5% 50V	
C170	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C172	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	
C173	1-136-165-00	FILM 0.1MF	5% 50V	
C175	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	
C176	1-163-097-00	CERAMIC CHIP 15PF	5% 50V	
C177	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	
C179	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C180	1-126-101-11	ELECT 100MF	20% 16V	
C183	1-135-145-11	TANTAL. CHIP 0.47MF	10% 25V	
C186	1-124-360-00	ELECT 1000MF	20% 16V	
C188	1-123-356-00	ELECT 10MF	20% 16V	
C189	1-123-356-00	ELECT 10MF	20% 16V	
C195	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	
C200	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C201	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C202	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C203	1-126-151-11	ELECT 4.7MF	20% 16V	
C204	1-135-088-21	TANTAL. CHIP 2.2MF	10% 20V	
C205	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	
C206	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	
C207	1-163-379-11	CERAMIC CHIP 120PF	5% 50V	
C208	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	
C209	1-163-183-00	CERAMIC CHIP 120PF	5% 50V	
C210	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	
C211	1-136-153-00	FILM 0.01MF	5% 50V	
C212	1-123-356-00	ELECT 10MF	20% 16V	
C213	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C214	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C215	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	
C216	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	
C217	1-123-356-00	ELECT 10MF	20% 16V	
C236	1-123-356-00	ELECT 10MF	20% 16V	
C237	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C238	1-123-332-00	ELECT 47MF	20% 16V	
C244	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C245	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C247	1-163-035-00	CERAMIC CHIP 0.047MF	50V	
C248	1-163-035-00	CERAMIC CHIP 0.047MF	50V	
C401	1-124-499-11	ELECT 1MF	20% 50V	
C402	1-123-356-00	ELECT 10MF	20% 16V	
C403	1-124-480-11	ELECT 470MF	20% 25V	
C404	1-123-356-00	ELECT 10MF	20% 16V	
C405	1-163-035-00	CERAMIC CHIP 0.047MF	50V	
C406	1-123-356-00	ELECT 10MF	20% 16V	
C407	1-163-095-00	CERAMIC CHIP 12PF	5% 50V	
C408	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C409	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C410	1-163-035-00	CERAMIC CHIP 0.047MF	50V	
C411	1-123-332-00	ELECT 47MF	20% 16V	
C412	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C413	1-123-332-00	ELECT 47MF	20% 16V	
C414	1-123-356-00	ELECT 10MF	20% 16V	
C415	1-163-107-00	CERAMIC CHIP 39PF	5% 50V	
C416	1-163-111-00	CERAMIC CHIP 56PF	5% 50V	
C417	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C418	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C419	1-126-101-11	ELECT 100MF	20% 16V	
C420	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	
C421	1-163-115-00	CERAMIC CHIP 82PF	5% 50V	
C422	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C423	1-135-091-00	TANTAL. CHIP 1MF	10% 16V	
C424	1-136-160-00	FILM 0.039MF	5% 50V	
C425	1-136-159-00	FILM 0.033MF	5% 50V	
C426	1-123-356-00	ELECT 10MF	20% 16V	
C427	1-163-021-00	CERAMIC CHIP 0.01MF	50V	
C428	1-163-090-00	CERAMIC CHIP 7PF	0.25PF 50V	
C429	1-126-104-11	ELECT 470MF	20% 35V	
C431	1-123-356-00	ELECT 10MF	20% 16V	
C432	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	
C433	1-163-038-00	CERAMIC CHIP 0.1MF	25V	
C434	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	

DIODE

D101	8-719-100-03	DIODE 1S2835
D102	8-719-100-05	DIODE 1S2837
D103	8-719-100-03	DIODE 1S2835
D104	8-719-100-05	DIODE 1S2837
D105	8-719-100-03	DIODE 1S2835
D106	8-719-100-03	DIODE 1S2835
D107	8-719-100-05	DIODE 1S2837
D108	8-719-100-05	DIODE 1S2837
D110	8-719-101-23	DIODE 1SS123
D111	8-719-100-03	DIODE 1S2835
D113	8-719-100-03	DIODE 1S2835
D115	8-719-100-03	DIODE 1S2835
D116	8-719-101-23	DIODE 1SS123
D122	8-719-100-03	DIODE 1S2835
D125	8-719-100-03	DIODE 1S2835
D401	8-719-100-05	DIODE 1S2837
D402	8-719-100-03	DIODE 1S2835
D407	8-719-105-83	DIODE RD5.1M-B3
D408	8-719-100-03	DIODE 1S2835

Ref.No.	Part No.	Description	Remark
		DELAY LINE	
DL103	1-415-122-31	DELAY LINE, 1H (PAL)	
DL401	1-415-494-11	DELAY LINE, Y	
DL402	1-415-356-11	DELAY LINE, 1H	
		IC	
IC101	8-752-006-10	IC CX20061	
IC102	8-752-006-10	IC CX20061	
IC103	8-759-113-65	IC UPC1365C	
IC104	8-759-240-24	IC TC4024BP	
IC201	8-759-100-15	IC UPC1364C	
IC401	8-759-170-12	IC UPC78M12H	
IC402	8-759-700-69	IC NJM79L12A	
IC403	8-759-014-96	IC MC1496P	
IC404	8-759-979-16	IC CX7916	
IC501	8-759-340-53	IC HD14053BP	
		COIL	
L107	1-410-208-41	INDUCTOR CHIP 22UH	
L108	1-410-211-51	INDUCTOR CHIP 39UH	
L110	1-410-207-51	INDUCTOR CHIP 18UH	
L111	1-410-201-51	INDUCTOR CHIP 5.6UH	
L112	1-410-203-51	INDUCTOR CHIP 8.2UH	
L114	1-410-214-31	INDUCTOR CHIP 68UH	
L201	1-410-091-31	INDUCTOR 22MMH	
L202	1-410-068-11	INDUCTOR 5.6MMH	
L203	1-410-209-51	INDUCTOR CHIP 27UH	
L401	1-410-192-51	INDUCTOR CHIP 1UH	
L402	1-410-211-51	INDUCTOR CHIP 39UH	
L403	1-410-212-51	INDUCTOR CHIP 47UH	
L404	1-410-206-51	INDUCTOR CHIP 15UH	
L405	1-410-204-31	INDUCTOR CHIP 10UH	
		TRANSISTOR	
Q116	8-729-100-76	TRANSISTOR 2SA812	
Q117	8-729-901-03	TRANSISTOR DTC144WK	
Q118	8-729-901-03	TRANSISTOR DTC144WK	
Q120	8-729-901-03	TRANSISTOR DTC144WK	
Q121	8-729-100-76	TRANSISTOR 2SA812	
Q122	8-729-901-03	TRANSISTOR DTC144WK	
Q123	8-729-100-66	TRANSISTOR 2SC1623	
Q124	8-729-115-30	TRANSISTOR 2SK105A-30	
Q125	8-729-901-03	TRANSISTOR DTC144WK	
Q126	8-729-116-05	TRANSISTOR 2SK160-K5	
Q127	8-729-116-05	TRANSISTOR 2SK160-K5	
Q128	8-729-116-05	TRANSISTOR 2SK160-K5	
Q129	8-729-100-66	TRANSISTOR 2SC1623	
Q130	8-729-100-66	TRANSISTOR 2SC1623	
Q131	8-729-116-05	TRANSISTOR 2SK160-K5	
Q132	8-729-116-05	TRANSISTOR 2SK160-K5	
Q135	8-729-100-76	TRANSISTOR 2SA812	
Q136	8-729-100-76	TRANSISTOR 2SA812	
Q137	8-729-100-76	TRANSISTOR 2SA812	
Q138	8-729-100-76	TRANSISTOR 2SA812	
Q139	8-729-901-03	TRANSISTOR DTC144WK	
Q144	8-729-901-03	TRANSISTOR DTC144WK	
Q145	8-729-100-66	TRANSISTOR 2SC1623	
Q149	8-729-100-76	TRANSISTOR 2SA812	
Q150	8-729-100-76	TRANSISTOR 2SA812	
Q152	8-729-901-03	TRANSISTOR DTC144WK	
Q153	8-729-901-03	TRANSISTOR DTC144WK	
Q154	8-729-901-03	TRANSISTOR DTC144WK	
Q401	8-729-100-76	TRANSISTOR 2SA812	
Q402	8-729-100-66	TRANSISTOR 2SC1623	
Q403	8-729-100-66	TRANSISTOR 2SC1623	
Q404	8-729-100-76	TRANSISTOR 2SA812	
Q405	8-729-100-66	TRANSISTOR 2SC1623	
Q406	8-729-100-76	TRANSISTOR 2SA812	
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q408	8-729-100-76	TRANSISTOR 2SA812	
Q409	8-729-100-66	TRANSISTOR 2SC1623	
Q410	8-729-100-66	TRANSISTOR 2SC1623	
Q411	8-729-100-66	TRANSISTOR 2SC1623	
Q412	8-729-100-66	TRANSISTOR 2SC1623	
Q413	8-729-100-66	TRANSISTOR 2SC1623	
Q414	8-729-100-66	TRANSISTOR 2SC1623	
Q415	8-729-100-66	TRANSISTOR 2SC1623	
Q416	8-729-100-66	TRANSISTOR 2SC1623	
Q417	8-729-901-03	TRANSISTOR DTC144WK	
Q418	8-729-901-03	TRANSISTOR DTC144WK	
Q419	8-729-901-03	TRANSISTOR DTC144WK	
Q420	8-729-100-66	TRANSISTOR 2SC1623	
Q421	8-729-100-66	TRANSISTOR 2SC1623	
Q422	8-729-901-03	TRANSISTOR DTC144WK	
Q423	8-729-100-66	TRANSISTOR 2SC1623	
Q424	8-729-100-66	TRANSISTOR 2SC1623	
Q425	8-729-100-66	TRANSISTOR 2SC1623	
Q426	8-729-100-66	TRANSISTOR 2SC1623	
Q427	8-729-901-03	TRANSISTOR DTC144WK	
Q431	8-729-100-66	TRANSISTOR 2SC1623	
Q432	8-729-100-66	TRANSISTOR 2SC1623	
Q433	8-729-100-66	TRANSISTOR 2SC1623	
Q434	8-729-100-66	TRANSISTOR 2SC1623	
Q435	8-729-100-66	TRANSISTOR 2SC1623	
Q436	8-729-100-66	TRANSISTOR 2SC1623	
Q437	8-729-100-66	TRANSISTOR 2SC1623	
Q438	8-729-100-66	TRANSISTOR 2SC1623	
Q439	8-729-100-66	TRANSISTOR 2SC1623	
Q440	8-729-901-03	TRANSISTOR DTC144WK	
Q441	8-729-901-03	TRANSISTOR DTC144WK	
Q442	8-729-100-66	TRANSISTOR 2SC1623	
Q443	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R056	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R066	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R140	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R141	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R150	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R151	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R152	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R153	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R156	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R157	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R159	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R160	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R165	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R167	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R168	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R173	1-216-214-00	METAL GLAZE 4.7K 5% 1/8W	
R176	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R177	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R178	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R180	1-216-049-00	METAL GLAZE 1K 5% 1/10W	

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Ref.No.	Part No.	Description				Remark
R181	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R182	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R183	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R184	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R185	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R186	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R187	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R188	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R189	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R190	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R192	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R193	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R194	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R195	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R196	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R197	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R198	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R199	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R200	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R201	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R202	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R204	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R207	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R208	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R210	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R211	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R212	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R213	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R214	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R215	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R216	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R217	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R218	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R219	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R220	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R221	1-216-088-00	METAL GLAZE	43K	5%	1/10W	
R222	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R223	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R230	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R231	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R232	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R233	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R234	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R235	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R236	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R237	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R238	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R240	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R241	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R242	1-216-072-00	METAL GLAZE	9.1K	5%	1/10W	
R245	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R246	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R247	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R249	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R250	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R251	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R252	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R253	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R254	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R255	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R256	1-216-220-00	METAL GLAZE	8.2K	5%	1/8W	
R258	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R259	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R262	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R270	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R271	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R273	1-202-723-00	SOLID	2.2M	10%	1/2W	
R274	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R275	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R276	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R277	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R278	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R279	1-216-084-00	METAL GLAZE	30K	5%	1/10W	
R280	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R281	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R282	1-249-421-11	CARBON	2.2K	5%	1/8W	F
R283	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R284	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R285	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R286	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R287	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R288	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R290	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R291	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R296	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R307	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R308	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R311	1-216-090-00	METAL GLAZE	51K	5%	1/10W	
R313	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R315	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R316	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R317	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R318	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R326	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R332	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R348	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R401	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R402	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R403	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R404	1-216-046-00	METAL GLAZE	750	5%	1/10W	
R405	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R406	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R407	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R408	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R409	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R410	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R411	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R412	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R413	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R414	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R415	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R416	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R417	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R418	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R419	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R420	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R421	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R423	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R424	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R425	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R426	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R427	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R428	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R429	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R430	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R431	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R432	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R433	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R434	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R435	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	

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Ref.No.	Part No.	Description				Remark
R436	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R437	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R438	1-216-196-00	METAL GLAZE	820	5%	1/8W	
R439	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R440	1-216-234-00	METAL GLAZE	33K	5%	1/8W	
R441	1-216-232-00	METAL GLAZE	27K	5%	1/8W	
R442	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R443	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R444	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R445	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R446	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R447	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R448	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R449	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R450	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R451	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R452	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R453	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R454	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R455	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R456	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R457	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R458	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R459	1-216-640-11	METAL CHIP	360	0.50%	1/10W	
R461	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R462	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R463	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R464	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R465	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R466	1-247-725-11	CARBON	10K	5%	1/4W	
R467	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R468	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R469	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R470	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R471	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R472	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R473	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R479	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R480	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R481	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R482	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R483	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R484	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R485	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R486	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R487	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R488	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R489	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R490	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R491	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R492	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R493	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R494	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R495	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R498	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R499	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R500	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R501	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R502	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R503	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R504	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R505	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R506	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R667	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R668	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R669	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R670	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R671	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R672	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R673	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R674	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R675	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R676	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R678	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R679	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R680	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R681	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R682	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R683	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	
R684	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R685	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R686	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R687	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R688	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R689	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R690	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R691	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R692	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R693	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R694	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R695	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R696	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R697	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R698	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R699	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R700	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R702	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R703	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R704	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R705	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R706	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R707	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R708	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R900	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R901	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R902	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R903	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R904	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R905	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R906	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R907	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R908	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R909	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R910	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R911	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R912	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R913	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R914	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R915	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R916	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R917	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R918	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R919	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R920	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R921	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R922	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R923	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R924	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R925	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R926	1-216-295-00	METAL GLAZE	0	5%	1/10W	

BA **BC**

Ref.No.	Part No.	Description				Remark
R927	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R928	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R929	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R930	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R931	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R932	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R933	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R934	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R935	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R936	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R937	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R938	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R939	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R940	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R941	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R942	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R943	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R944	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R945	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R946	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R947	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R948	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R949	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R950	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R951	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R952	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R953	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R954	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R955	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R956	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R957	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R958	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R959	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R960	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R961	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R962	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R963	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R964	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R965	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R966	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R967	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R968	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R969	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R970	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R971	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R972	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R973	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R974	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R975	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R976	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R977	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R978	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R979	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R980	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R981	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R982	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R983	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R984	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R985	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R986	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R987	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R988	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R989	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R990	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R991	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R992	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R993	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R994	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R995	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R996	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R997	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R998	1-216-295-00	METAL GLAZE	0	5%	1/10W	

VARIABLE RESISTOR

RV103	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV104	1-228-995-00	RES, ADJ, CARBON 22K	
RV105	1-228-995-00	RES, ADJ, CARBON 22K	
RV106	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV107	1-228-994-00	RES, ADJ, CARBON 10K	
RV108	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV110	1-228-989-00	RES, ADJ, CARBON 470	
RV111	1-228-996-00	RES, ADJ, CARBON 47K	
RV403	1-228-990-00	RES, ADJ, CARBON 1K	
RV404	1-228-993-00	RES, ADJ, CARBON 4.7K	

TRANSFORMER

T102	1-404-495-00	COIL
T103	1-404-495-00	COIL
T104	1-404-524-11	DAT
T201	1-404-584-11	COIL
T202	1-408-532-00	COIL, VARIABLE
T203	1-408-532-00	COIL, VARIABLE
T204	1-408-513-00	COIL (VARIABLE)
T401	1-404-540-11	COIL

THERMISTOR

TH101	1-800-071-XX	THERMISTER THO.35K
TH201	1-800-626-00	THERMISTOR

CRYSTAL

X101	1-567-505-11	OSCILLATOR, CRYSTAL
X102	1-567-504-11	OSCILLATOR, CRYSTAL

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*A-1130-718-A BC BOARD, COMPLETE

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CAPACITOR

C500	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C501	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C502	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C503	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C504	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V
C505	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C506	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C507	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C508	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C509	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C510	1-163-021-00	CERAMIC CHIP 0.01MF		50V

DIODE

D450	8-719-100-05	DIODE 1S2837
D451	8-719-100-05	DIODE 1S2837

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Ne les remplacer que par une piece portant le numero specifie.

Bc **Pc** **PA**

Ref.No.	Part No.	Description	Remark
		IC	
IC500	8-759-103-93	IC UPC393C	
		COIL	
L800	1-410-209-51	INDUCTOR CHIP 27UH	
		TRANSISTOR	
Q500	8-729-100-66	TRANSISTOR 2SC1623	
Q501	8-729-100-66	TRANSISTOR 2SC1623	
Q502	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-100-66	TRANSISTOR 2SC1623	
Q504	8-729-116-05	TRANSISTOR 2SK160-K5	
Q505	8-729-100-76	TRANSISTOR 2SA812	
Q506	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R800	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R801	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R802	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R803	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R804	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R805	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R806	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R808	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R809	1-216-689-11	METAL CHIP 39K 0.50% 1/10W	
R810	1-216-653-11	METAL CHIP 2.2K 0.50% 1/10W	
R811	1-216-691-11	METAL CHIP 47K 0.50% 1/10W	
R812	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R813	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R814	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R815	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R816	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R817	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R818	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R819	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R820	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R821	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R822	1-216-017-00	METAL GLAZE 47 5% 1/10W	
R823	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R824	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R825	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R826	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R827	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R828	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R900	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R901	1-216-295-00	METAL GLAZE 0 5% 1/10W	
		CONNECTOR	
W1	*1-506-603-11	PLUG, L TYPE (2.0MM PITCH) 10P	
**********			
	*1-621-050-11	PC BOARD ********	
		CAPACITOR	
C1 ⚠	.1-130-660-11	FILM 20000PF 3% 1.6KV	
C2 ⚠	.1-136-134-11	FILM 1.5MF 5% 400V	

Ref.No.	Part No.	Description	Remark
		DIODE	
D1	8-719-305-15	DIODE GH3F	
D2	8-719-305-15	DIODE GH3F	
		TRANSFORMER	
FBT1 ⚠	.1-439-408-11	TRANSFORMER ASSY, FLYBACK	
FBT2 ⚠	.1-439-408-11	TRANSFORMER ASSY, FLYBACK	
		COIL	
L1 ⚠	.1-459-700-11	COIL, CHOKE 2.1MMH	
L2 ⚠	.1-459-700-11	COIL, CHOKE 2.1MMH	
		NEON LAMP	
NL1	1-519-237-11	LAMP, NEON	
		CONNECTOR	
PC1	*1-508-768-00	6P PLUG	
		TRANSISTOR	
Q1	8-729-208-10	TRANSISTOR 2SD1548	
**********			
	*A-1190-113-A	PA BOARD, COMPLETE **********	
	*4-363-146-00	HEAT SINK, V.OUT	
	4-383-022-01	SPACER, MICA	
	4-383-023-01	SPACER, MICA	
		CAPACITOR	
C1	1-123-933-00	ELECT 10MF 20% 160V	
C2	1-123-024-00	ELECT 33MF 160V	
C3	1-136-134-00	FILM 1.5MF 5% 400V	
C4	1-108-700-11	MYLAR 0.047MF 10% 200V	
C5	1-102-030-00	CERAMIC 330PF 10% 500V	
C6	1-123-356-00	ELECT 10MF 20% 25V	
C7	1-123-333-00	ELECT 100MF 20% 16V	
C9	1-123-379-00	ELECT 0.47MF 20% 50V	
C10	1-102-973-00	CERAMIC 100PF 5% 50V	
C11	1-102-244-00	CERAMIC 220PF 10% 500V	
C12	1-102-244-00	MYLAR 0.1MF 10% 200V	
C13	1-123-379-00	ELECT 0.47MF 20% 50V	
C14	1-102-973-00	CERAMIC 100PF 5% 50V	
C15	1-102-244-00	CERAMIC 220PF 10% 500V	
C16	1-108-704-11	MYLAR 0.1MF 10% 200V	
C17	1-123-380-00	ELECT 1MF 20% 50V	
C18	1-123-380-00	ELECT 1MF 20% 50V	
C19	1-162-134-11	CERAMIC 470PF 10% 2KV	
C20	1-126-150-11	ELECT 47MF 20% 350V	
C22	1-108-638-11	MYLAR 0.1MF 10% 100V	
C25	1-124-963-11	ELECT 33MF 20% 16V	
C26	1-123-356-00	ELECT 10MF 20% 16V	
C27	1-123-356-00	ELECT 10MF 20% 16V	
C28	1-124-963-11	ELECT 33MF 20% 16V	
C29	1-124-963-11	ELECT 33MF 20% 16V	
C30	1-136-169-00	FILM 0.22MF 5% 50V	
C31	1-123-356-00	ELECT 10MF 20% 16V	
C32	1-124-963-11	ELECT 33MF 20% 16V	

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Ref.No.	Part No.	Description			Remark
C33	1-123-356-00	ELECT	10MF	20%	16V
C34 ⚠	1-123-318-91	ELECT	33MF	20%	16V
C36	1-108-692-81	MYLAR	0.01MF	10%	200V
C37	1-123-356-00	ELECT	10MF	20%	16V
C39	1-102-824-00	CERAMIC	470PF	5%	50V
C40	1-108-698-11	MYLAR	0.033MF	10%	200V
C41	1-108-698-11	MYLAR	0.033MF	10%	200V
C42	1-123-321-00	ELECT	220MF	20%	16V
C43	1-123-321-00	ELECT	220MF	20%	16V
C44	1-126-234-11	ELECT	2200MF	20%	16V
C45	1-126-234-11	ELECT	2200MF	20%	16V
C46	1-123-932-00	ELECT	4.7MF	20%	160V
C47	1-123-369-00	ELECT	4.7MF	20%	25V
C48	1-123-369-00	ELECT	4.7MF	20%	25V
C49	1-101-006-00	CERAMIC	0.047MF		50V
C50	1-101-006-00	CERAMIC	0.047MF		50V
C51	1-123-024-00	ELECT	33MF		160V
C52	1-108-704-11	MYLAR	0.1MF	10%	200V
C53	1-162-134-11	CERAMIC	470PF	10%	2KV
C54	1-123-929-00	ELECT	1MF	20%	160V
C55	1-124-036-00	ELECT	330MF	20%	16V
C56	1-136-165-00	FILM	0.1MF	5%	50V
C57	1-136-165-00	FILM	0.1MF	5%	50V
C58	1-123-380-00	ELECT	1MF	20%	50V
C59	1-126-174-51	ELECT	10MF	20%	350V

DIODE

D1	8-719-928-08	DIODE ERD28-08S
D2	8-719-300-80	DIODE RU-1C
D3	8-719-300-80	DIODE RU-1C
D4	8-719-300-80	DIODE RU-1C
D7	8-719-901-19	DIODE V11N
D8	8-719-918-77	DIODE V19G
D9	8-719-918-77	DIODE V19G
D10	8-719-918-77	DIODE V19G
D11	8-719-918-77	DIODE V19G
D12	8-719-918-77	DIODE V19G
D13	8-719-918-77	DIODE V19G
D14	8-719-305-15	DIODE GH3F
D15	8-719-109-85	DIODE RD5.1ES-B2
D16	8-719-109-85	DIODE RD5.1ES-B2
D17	8-719-109-85	DIODE RD5.1ES-B2
D18	8-719-109-85	DIODE RD5.1ES-B2
D20	8-719-911-19	DIODE 1SS119
D21	8-719-911-19	DIODE 1SS119
D22	8-719-911-19	DIODE 1SS119
D23	8-719-911-19	DIODE 1SS119
D24	8-719-911-19	DIODE 1SS119
D25	8-719-911-19	DIODE 1SS119
D26	8-719-911-19	DIODE 1SS119
D28	8-719-911-19	DIODE 1SS119
D29	8-719-911-19	DIODE 1SS119
D30	8-719-911-19	DIODE 1SS119
D31	8-719-911-19	DIODE 1SS119
D32	8-719-911-19	DIODE 1SS119
D33	8-719-110-36	DIODE RD13ES-B2

IC

IC1	8-759-990-82	IC TL082CP
IC2	8-759-103-93	IC UPC393C
IC3	8-759-103-93	IC UPC393C
IC4	8-759-600-02	IC M5218L
IC5 ⚠	8-759-178-12	IC UPC78L12

Ref.No.	Part No.	Description	Remark

COIL

L1	1-459-614-11	COIL, CHOKE 90UH
L2	1-459-700-11	COIL, CHOKE 2.1MMH
L3	1-459-155-00	COIL (WITH CORE) 45UH

NEON LAMP

NL2	1-519-237-11	LAMP, NEON

CONNECTOR

PA1	*1-566-058-11	PIN, CONNECTOR 6P
PA2	*1-566-062-11	PIN, CONNECTOR 10P
PA3	*1-508-768-00	6P PLUG
PA4	*1-566-056-11	PIN, CONNECTOR 4P
PA5	*1-566-057-11	PIN, CONNECTOR 5P
PA6	*1-566-054-11	PIN, CONNECTOR 2P
PA7	*1-566-055-11	PIN, CONNECTOR 3P
PA8	*1-566-059-11	PIN, CONNECTOR 7P
PA9	*1-566-058-11	PIN, CONNECTOR 6P
PA10	*1-566-058-11	PIN, CONNECTOR 6P
PA11	*1-566-058-11	PIN, CONNECTOR 6P
PA12	*1-508-786-00	2P PLUG (M)
PA13	*1-508-786-00	2P PLUG (M)
PA14	*1-508-766-00	4P PLUG (M)
PA15	*1-566-054-11	PIN, CONNECTOR 2P

TRANSISTOR

Q1	8-729-201-62	TRANSISTOR 2SC2555
Q2 ⚠	8-729-168-82	TRANSISTOR 2SC2688
Q3	8-729-168-82	TRANSISTOR 2SC2688
Q4	8-729-168-82	TRANSISTOR 2SC2688
Q5	8-729-114-22	TRANSISTOR 2SA1142
Q6 ⚠	8-729-800-80	TRANSISTOR 2SD1399-CA
Q7	8-729-117-54	TRANSISTOR 2SA1175
Q8	8-729-178-54	TRANSISTOR 2SC2785
Q9	8-729-178-54	TRANSISTOR 2SC2785
Q10	8-729-178-54	TRANSISTOR 2SC2785
Q11	8-729-178-54	TRANSISTOR 2SC2785
Q12	8-729-178-54	TRANSISTOR 2SC2785
Q13	8-729-804-48	TRANSISTOR 2SC3675
Q14	8-729-117-54	TRANSISTOR 2SA1175

RESISTOR

R1	1-216-378-11	METAL OXIDE	5.6	5%	2W	F
R2	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R3	1-249-429-11	CARBON	10K	5%	1/4W	
R4 ⚠	1-215-920-51	METAL OXIDE	3.3K	5%	3W	F
R5 ⚠	1-215-920-51	METAL OXIDE	3.3K	5%	3W	F
R6	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R7	1-249-417-11	CARBON	1K	5%	1/4W	
R9	1-249-417-11	CARBON	1K	5%	1/4W	
R10	1-249-423-11	CARBON	3.3K	5%	1/4W	
R11	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R12	1-249-421-11	CARBON	2.2K	5%	1/4W	
R13	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R15	1-249-441-11	CARBON	100K	5%	1/4W	
R16	1-249-441-11	CARBON	100K	5%	1/4W	
R17	1-216-359-00	METAL OXIDE	6.8	5%	1W	F
R18	1-215-443-00	METAL	8.2K	1%	1/6W	
R19	1-215-443-00	METAL	8.2K	1%	1/6W	
R20	1-215-441-00	METAL	6.8K	1%	1/6W	

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

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

• 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.

PA **PB**

Ref.No.	Part No.	Description				Remark
R21	1-215-441-00	METAL	6.8K	1%	1/6W	
R22	1-214-747-00	METAL	5.6K	1%	1/4W	
⊠R23 ⚠	.	METAL			1/4W	
R24	1-214-777-00	METAL	100K	1%	1/4W	
R25	1-215-471-00	METAL	120K	1%	1/6W	
R26	1-215-471-00	METAL	120K	1%	1/6W	
R27	1-215-453-00	METAL	22K	1%	1/6W	
R28	1-249-423-11	CARBON	3.3K	5%	1/4W	
R29	1-249-433-11	CARBON	22K	5%	1/4W	
R30	1-249-429-11	CARBON	10K	5%	1/4W	
R31	1-215-469-00	METAL	100K	1%	1/6W	
R32	1-249-423-11	CARBON	3.3K	5%	1/4W	
R33	1-215-429-00	METAL	2.2K	1%	1/6W	
R34	1-215-435-00	METAL	3.9K	1%	1/6W	
R35	1-249-423-11	CARBON	3.3K	5%	1/4W	
R36	1-249-417-11	CARBON	1K	5%	1/4W	
R37	1-247-883-00	CARBON	150K	5%	1/4W	
⊠R38 ⚠	.	CARBON			1/4W	
⊠R39 ⚠	.	CARBON			1/4W	
R40	1-249-433-11	CARBON	22K	5%	1/4W	
R41	1-249-435-11	CARBON	33K	5%	1/4W	
R42	1-249-438-11	CARBON	56K	5%	1/4W	
R43	1-249-434-11	CARBON	27K	5%	1/4W	
R44	1-249-429-11	CARBON	10K	5%	1/4W	
R45	1-249-423-11	CARBON	3.3K	5%	1/4W	
R46	1-215-453-00	METAL	22K	1%	1/6W	
R47	1-215-455-00	METAL	27K	1%	1/6W	
⊠R48 ⚠	.	CARBON			1/4W	
⊠R49 ⚠	.	CARBON			1/4W	
R50	1-215-469-00	METAL	100K	1%	1/6W	
R51	1-215-469-00	METAL	100K	1%	1/6W	
R52	1-249-430-11	CARBON	12K	5%	1/4W	
R53	1-249-433-11	CARBON	22K	5%	1/4W	
R54	1-249-433-11	CARBON	22K	5%	1/4W	
R55	1-249-430-11	CARBON	12K	5%	1/4W	
R56	1-249-419-11	CARBON	1.5K	5%	1/4W	
R57 ⚠	1-249-473-91	CARBON	0.82	5%	1/2W	F
R58	1-244-937-00	CARBON	470K	5%	1/2W	
R59	1-217-202-11	WIREWOUND	1.5	10%	2W	F
R60	1-215-477-00	METAL	220K	1%	1/6W	
R61	1-215-457-00	METAL	33K	1%	1/6W	
R62	1-249-435-11	CARBON	33K	5%	1/4W	
R63	1-247-903-00	CARBON	1M	5%	1/4W	
R64	1-249-439-11	CARBON	68K	5%	1/4W	
R65	1-249-429-11	CARBON	10K	5%	1/4W	
R66	1-249-405-11	CARBON	100	5%	1/4W	
R67	1-215-453-00	METAL	22K	1%	1/6W	
R68	1-249-440-11	CARBON	82K	5%	1/4W	
R69	1-249-429-11	CARBON	10K	5%	1/4W	
R70	1-249-435-11	CARBON	33K	5%	1/4W	
R71	1-249-435-11	CARBON	33K	5%	1/4W	
R72 ⚠	1-215-920-51	METAL OXIDE	3.3K	5%	3W	F
R73	1-246-523-00	CARBON	120K	5%	1/4W	
R74	1-249-429-11	CARBON	10K	5%	1/4W	
R75	1-202-730-00	SOLID	8.2M	10%	1/2W	
R76	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R77	1-249-417-11	CARBON	1K	5%	1/4W	
R78	1-249-433-11	CARBON	22K	5%	1/4W	F
R79	1-215-483-00	METAL	390K	1%	1/6W	
R80	1-249-423-11	CARBON	3.3K	5%	1/4W	
R81	1-202-597-91	SOLID	10K	5%	1/2W	
R82	1-249-423-11	CARBON	3.3K	5%	1/4W	
R83	1-249-425-11	CARBON	4.7K	5%	1/4W	
R84	1-249-417-11	CARBON	1K	5%	1/4W	
R85	1-215-469-00	METAL	100K	1%	1/6W	
R86	1-215-469-00	METAL	100K	1%	1/6W	
R87	1-215-453-00	METAL	22K	1%	1/6W	
⊠R88 ⚠	.	CARBON			1/4W	
⊠R89 ⚠	.	CARBON			1/4W	
R90	1-249-417-11	CARBON	1K	5%	1/4W	
R91	1-249-429-11	CARBON	10K	5%	1/4W	
R92	1-249-429-11	CARBON	10K	5%	1/4W	

SPARK GAP

SG1	1-519-063-XX	DISCHARGING GAP	

TRANSFORMER

T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE	
T2	1-437-090-00	HDT	
T3 ⚠	.1-437-078-11	TRANSFORMER, HORIZONTAL DRIVE	
T4 ⚠	.1-439-409-11	LOT	
T5 ⚠	.1-413-059-11	TRANSFORMER, FERRITE (DFT)	

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*1-621-054-11 PB BOARD
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CAPACITOR

C1	1-124-257-00	ELECT	2.2MF	20%	50V
C2	1-126-094-11	ELECT	4.7MF	20%	25V
C3	1-136-159-00	FILM	0.033MF	5%	50V
C5	1-102-106-00	CERAMIC	100PF	10%	50V
C6	1-130-475-00	MYLAR	0.0022MF	5%	50V
C7	1-126-157-11	ELECT	10MF	20%	16V
C8	1-136-169-00	FILM	0.22MF	5%	50V
C9	1-130-475-00	MYLAR	0.0022MF	5%	50V

IC

IC1	8-759-100-75	IC UPC1394C

RESISTOR

R2	1-249-417-11	CARBON	1K	5%	1/4W
R3	1-249-434-11	CARBON	27K	5%	1/4W
R4	1-249-431-11	CARBON	15K	5%	1/4W
R5	1-249-441-11	CARBON	100K	5%	1/4W
R6	1-249-435-11	CARBON	33K	5%	1/4W
R7	1-249-429-11	CARBON	10K	5%	1/4W
R8	1-249-413-11	CARBON	470	5%	1/4W
R9	1-249-428-11	CARBON	8.2K	5%	1/4W
R10	1-249-437-11	CARBON	47K	5%	1/4W
R11	1-249-440-11	CARBON	82K	5%	1/4W
R12	1-249-436-11	CARBON	39K	5%	1/4W
R14	1-249-428-11	CARBON	8.2K	5%	1/4W

CONNECTOR

W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P

FA **FB** **QA**

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Ref.No.	Part No.	Description			Remark
	*1-621-056-11	FA BOARD			
		********			
		CAPACITOR			
C1 ⚠	1-136-360-51	FILM	0.22MF	20%	250V
C2 ⚠	1-136-360-51	FILM	0.22MF	20%	250V
C3 ⚠	1-136-360-51	FILM	0.22MF	20%	250V
C4	1-162-599-12	CERAMIC	0.0047MF	20%	400V
C5	1-162-599-12	CERAMIC	0.0047MF	20%	400V
C6 ⚠	1-161-742-51	CERAMIC	0.0022MF	20%	400V
C7 ⚠	1-161-742-51	CERAMIC	0.0022MF	20%	400V
C8	1-125-469-11	ELECT(BLOCK)	820MF	20%	200V
C9	1-125-469-11	ELECT(BLOCK)	820MF	20%	200V
C10	1-101-003-00	CERAMIC	0.0047MF		50V
C11	1-101-003-00	CERAMIC	0.0047MF		50V
C12	1-123-362-00	ELECT	330MF	20%	50V
		DIODE			
D1 ⚠	8-719-503-06	DIODE S3WB60Z			
D2	8-719-511-40	DIODE SIVB40			
D3	8-719-931-33	DIODE EQB01-33			
		CONNECTOR			
FA1	*1-508-765-00	3P PLUG (M)			
FA2	*1-508-765-00	3P PLUG (M)			
FA3	*1-566-055-11	PIN, CONNECTOR 3P			
FA4	*1-508-786-00	2P PLUG (M)			
		COIL			
L1 ⚠	1-459-595-11	COIL, CHOKE			
L2 ⚠	1-459-595-11	COIL, CHOKE			
		RESISTOR			
R1	1-202-723-00	SOLID	2.2M	10%	1/2W
R2 ⚠	1-205-798-11	WIREWOUND	1.5	5%	20W F
R3	1-214-921-00	CARBON	220K	5%	1/2W
R4	1-214-921-00	CARBON	220K	5%	1/2W
R5	1-249-405-11	CARBON	100	5%	1/4W
		SWITCH			
SW1 ⚠	1-570-971-11	SWITCH, SLIDE			
		TRANSFORMER			
T1 ⚠	1-421-944-11	TRANSFORMER, LINE FILTER			
T2 ⚠	1-448-374-11	TRANSFORMER, POWER			
T3	1-421-776-11	LFT			
**********					
	*1-621-057-11	FB BOARD			
		********			
	*1-533-146-00	HOLDER, FUSE			
		FUSE			
F1 ⚠	1-532-747-11	FUSE, GLASS TUBE 5A/125V			

Ref.No.	Part No.	Description			Remark
		CONNECTOR			
FB1	*1-508-786-00	2P PLUG (M)			
**********					
	*A-1270-237-A	QA BOARD, COMPLETE			
		******************			
	1-537-062-11	TERMINAL BOARD, INPUT/OUTPUT			
	*3-683-631-01	CLAMP			
		CAPACITOR			
C1	1-124-963-11	ELECT	33MF	20%	16V
C3	1-124-284-00	ELECT	10MF	20%	16V
C4	1-101-006-00	CERAMIC	0.047MF		50V
C5	1-124-963-11	ELECT	33MF	20%	16V
C7	1-124-284-00	ELECT	10MF	20%	16V
C8	1-101-006-00	CERAMIC	0.047MF		50V
C9	1-124-963-11	ELECT	33MF	20%	16V
C11	1-124-284-00	ELECT	10MF	20%	16V
C12	1-101-006-00	CERAMIC	0.047MF		50V
C13	1-124-963-11	ELECT	33MF	20%	16V
C14	1-102-973-00	CERAMIC	100PF	5%	50V
C15	1-126-101-11	ELECT	100MF	20%	16V
C16	1-124-963-11	ELECT	33MF	20%	16V
C17	1-102-973-00	CERAMIC	100PF	5%	50V
C18	1-126-101-11	ELECT	100MF	20%	16V
C19	1-123-356-00	ELECT	10MF	20%	16V
C20	1-108-843-11	MYLAR	0.033MF	10%	50V
C21	1-126-101-11	ELECT	100MF	20%	16V
C22	1-101-006-00	CERAMIC	0.047MF		50V
C23	1-124-119-00	ELECT	330MF	20%	16V
C24	1-101-006-00	CERAMIC	0.047MF		50V
C25	1-124-119-00	ELECT	330MF	20%	16V
C32	1-126-101-11	ELECT	100MF	20%	16V
C33	1-123-356-00	ELECT	10MF	20%	16V
C34	1-101-006-00	CERAMIC	0.047MF		50V
C35	1-123-356-00	ELECT	10MF	20%	16V
C36	1-123-356-00	ELECT	10MF	20%	16V
C37	1-123-356-00	ELECT	10MF	20%	16V
C38	1-101-006-00	CERAMIC	0.047MF		50V
C39	1-124-963-11	ELECT	33MF	20%	16V
C40	1-130-483-00	MYLAR	0.01MF	10%	50V
C41	1-123-356-00	ELECT	10MF	20%	16V
C43	1-101-004-00	CERAMIC	0.01MF		50V
C44	1-123-356-00	ELECT	10MF	20%	16V
C45	1-101-004-00	CERAMIC	0.01MF		50V
C46	1-101-004-00	CERAMIC	0.01MF		50V
C47	1-101-880-00	CERAMIC	47PF	5%	50V
C48	1-102-971-00	CERAMIC	82PF	5%	50V
C49	1-123-380-00	ELECT	1MF	20%	50V
C50	1-124-360-00	ELECT	1000MF	20%	16V
C51	1-123-380-00	ELECT	1MF	20%	50V
C52	1-123-332-00	ELECT	47MF	20%	16V
C53	1-108-843-11	MYLAR	0.033MF	10%	50V
C54	1-123-356-00	ELECT	10MF	20%	25V
C55	1-123-356-00	ELECT	10MF	20%	16V
C56	1-123-380-00	ELECT	1MF	20%	50V
C57	1-102-965-00	CERAMIC	39PF	5%	50V
C58 ⚠	1-101-006-91	CERAMIC	0.047MF		50V
C59	1-124-284-00	ELECT	10MF	20%	16V
C70	1-123-356-00	ELECT	10MF	20%	16V
C72	1-102-951-00	CERAMIC	15PF	5%	50V

The components identified by shading and mark ⚠ are critical for safety.
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Ne les remplacer que par une piece portant le numero specifie.

Ref.No.	Part No.	Description				Remark
C73	1-102-951-00	CERAMIC	15PF	5%	50V	
C74	1-123-332-00	ELECT	47MF	20%	16V	
C75	1-123-356-00	ELECT	10MF	20%	16V	
C76	1-124-360-00	ELECT	1000MF	20%	16V	
		DIODE				
D1	8-719-911-19	DIODE 1SS119				
D2	8-719-911-19	DIODE 1SS119				
D3	8-719-911-19	DIODE 1SS119				
D4	8-719-911-19	DIODE 1SS119				
D5	8-719-911-19	DIODE 1SS119				
D6	8-719-911-19	DIODE 1SS119				
D7	8-719-911-19	DIODE 1SS119				
D8	8-719-911-19	DIODE 1SS119				
D9	8-719-911-19	DIODE 1SS119				
D10	8-719-911-19	DIODE 1SS119				
D11	8-719-911-19	DIODE 1SS119				
D12	8-719-911-19	DIODE 1SS119				
D13	8-719-911-19	DIODE 1SS119				
D14	8-719-911-55	DIODE U05G				
D15	8-719-911-55	DIODE U05G				
D16	8-719-911-55	DIODE U05G				
D17	8-719-911-19	DIODE 1SS119				
D18	8-719-911-55	DIODE U05G				
D19	8-719-109-85	DIODE RD5.1ES-B2				
D20	8-719-911-19	DIODE 1SS119				
D21	8-719-911-19	DIODE 1SS119				
D25	8-719-911-19	DIODE 1SS119				
D26	8-719-911-19	DIODE 1SS119				
D27	8-719-911-19	DIODE 1SS119				
		IC				
IC1	8-759-103-93	IC UPC393C				
IC2	8-759-340-53	IC HD14053BP				
IC3	8-759-208-94	IC CX894				
IC4	8-759-208-94	IC CX894				
IC5	8-759-133-90	IC UPC339C				
IC6	8-757-948-00	IC CX7948				
IC7 ⚠	8-759-700-14	IC NJM78M09A				
IC8 ⚠	8-759-700-11	IC NJM78M05A				
IC9 ⚠	8-759-700-15	IC NJM78M12A				
IC10	8-759-170-12	IC UPC78M12H				
		TRANSISTOR				
Q1	8-729-178-54	TRANSISTOR 2SC2785				
Q2	8-729-178-54	TRANSISTOR 2SC2785				
Q3	8-729-178-54	TRANSISTOR 2SC2785				
Q4	8-729-178-54	TRANSISTOR 2SC2785				
Q5	8-729-178-54	TRANSISTOR 2SC2785				
Q6	8-729-178-54	TRANSISTOR 2SC2785				
Q7	8-729-177-43	TRANSISTOR 2SD774				
Q8	8-729-178-54	TRANSISTOR 2SC2785				
Q9	8-729-103-43	TRANSISTOR 2SB734				
Q12	8-729-178-54	TRANSISTOR 2SC2785				
Q13	8-729-178-54	TRANSISTOR 2SC2785				
Q14	8-729-178-54	TRANSISTOR 2SC2785				
Q15	8-729-103-43	TRANSISTOR 2SB734				
Q16	8-729-178-54	TRANSISTOR 2SC2785				
Q17	8-729-103-43	TRANSISTOR 2SB734				
Q18	8-729-178-54	TRANSISTOR 2SC2785				
Q19	8-729-900-85	TRANSISTOR DTC144WS				
Q25	8-729-900-85	TRANSISTOR DTC144WS				
Q26	8-729-384-48	TRANSISTOR 2SA844				
Q27	8-729-178-54	TRANSISTOR 2SC2785				
Q28	8-729-178-54	TRANSISTOR 2SC2785				
Q29	8-729-178-54	TRANSISTOR 2SC2785				
Q30	8-729-178-54	TRANSISTOR 2SC2785				
		CONNECTOR				
QA1	*1-566-063-11	PIN, CONNECTOR 11P				
QA2	*1-566-054-11	PIN, CONNECTOR 2P				
QA3	*1-566-063-11	PIN, CONNECTOR 11P				
QA4	*1-566-064-11	PIN, CONNECTOR 12P				
QA5	*1-566-060-11	PIN, CONNECTOR 8P				
QA6	*1-566-055-11	PIN, CONNECTOR 3P				
QA7	*1-566-056-11	PIN, CONNECTOR 4P				
QA8	*1-566-059-11	PIN, CONNECTOR 7P				
QA9	*1-566-058-11	PIN, CONNECTOR 6P				
QA10	*1-566-056-11	PIN, CONNECTOR 4P				
QA12	*1-508-786-00	2P PLUG (M)				
QA13	*1-566-060-11	PIN, CONNECTOR 8P				
QA14	*1-566-060-11	PIN, CONNECTOR 8P				
QA15	*1-566-057-11	PIN, CONNECTOR 5P				
QA16	*1-566-054-11	PIN, CONNECTOR 2P				
		RESISTOR				
R1	1-214-702-00	METAL	75	1%	1/4W	
R2	1-249-434-11	CARBON	27K	5%	1/4W	
R3	1-249-438-11	CARBON	56K	5%	1/4W	
R4	1-249-417-11	CARBON	1K	5%	1/4W	
R5	1-249-421-11	CARBON	2.2K	5%	1/4W	
R6	1-249-405-11	CARBON	100	5%	1/4W	
R7	1-249-393-11	CARBON	10	5%	1/4W	
R8	1-247-711-11	CARBON	680	5%	1/4W	
R9	1-214-702-00	METAL	75	1%	1/4W	
R10	1-249-434-11	CARBON	27K	5%	1/4W	
R11	1-249-438-11	CARBON	56K	5%	1/4W	
R12	1-249-417-11	CARBON	1K	5%	1/4W	
R13	1-249-421-11	CARBON	2.2K	5%	1/4W	
R14	1-249-405-11	CARBON	100	5%	1/4W	
R15	1-249-393-11	CARBON	10	5%	1/4W	
R16	1-247-711-11	CARBON	680	5%	1/4W	
R17	1-214-702-00	METAL	75	1%	1/4W	
R18	1-249-434-11	CARBON	27K	5%	1/4W	
R19	1-249-438-11	CARBON	56K	5%	1/4W	
R20	1-249-417-11	CARBON	1K	5%	1/4W	
R21	1-249-421-11	CARBON	2.2K	5%	1/4W	
R22	1-249-405-11	CARBON	100	5%	1/4W	
R23	1-249-393-11	CARBON	10	5%	1/4W	
R24	1-247-711-11	CARBON	680	5%	1/4W	
R25	1-214-702-00	METAL	75	1%	1/4W	
R26	1-249-417-11	CARBON	1K	5%	1/4W	
R27	1-249-439-11	CARBON	68K	5%	1/4W	
R28	1-249-420-11	CARBON	1.8K	5%	1/4W	
R29	1-249-437-11	CARBON	47K	5%	1/4W	
R30	1-214-702-00	METAL	75	1%	1/4W	
R31	1-249-417-11	CARBON	1K	5%	1/4W	
R32	1-249-439-11	CARBON	68K	5%	1/4W	
R33	1-249-420-11	CARBON	1.8K	5%	1/4W	
R34	1-249-437-11	CARBON	47K	5%	1/4W	
R35	1-249-410-11	CARBON	270	5%	1/4W	
R36	1-249-429-11	CARBON	10K	5%	1/4W	
R37	1-249-405-11	CARBON	100	5%	1/4W	
R38	1-249-465-11	CARBON	47K	5%	1/4W	
R39	1-249-437-11	CARBON	47K	5%	1/4W	
R40	1-249-438-11	CARBON	56K	5%	1/4W	

QA **QB**

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

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

Ref.No.	Part No.	Description				Remark
R41	1-249-417-11	CARBON	1K	5%	1/4W	
R42	1-249-417-11	CARBON	1K	5%	1/4W	
R43	1-249-417-11	CARBON	1K	5%	1/4W	
R44	1-247-713-11	CARBON	1K	5%	1/4W	
R45	1-249-417-11	CARBON	1K	5%	1/4W	
R46	1-249-423-11	CARBON	3.3K	5%	1/4W	
R47	1-249-419-11	CARBON	1.5K	5%	1/4W	
R48	1-249-423-11	CARBON	3.3K	5%	1/4W	
R49	1-249-424-11	CARBON	3.9K	5%	1/4W	
R50	1-249-439-11	CARBON	68K	5%	1/4W	
R51	1-249-423-11	CARBON	3.3K	5%	1/4W	
R52	1-249-403-11	CARBON	68	5%	1/4W	
R53	1-249-402-11	CARBON	56	5%	1/4W	
R54	1-249-417-11	CARBON	1K	5%	1/4W	
R55	1-249-417-11	CARBON	1K	5%	1/4W	
R56	1-249-417-11	CARBON	1K	5%	1/4W	
R57	1-249-398-11	CARBON	27	5%	1/4W	
R58	1-249-398-11	CARBON	27	5%	1/4W	
R59	1-249-398-11	CARBON	27	5%	1/4W	
R60	1-246-529-00	CARBON	220K	5%	1/4W	
R61	1-249-437-11	CARBON	47K	5%	1/4W	
R62	1-215-441-00	METAL	6.8K	1%	1/6W	
R63	1-215-447-00	METAL	12K	1%	1/6W	
R64	1-247-711-11	CARBON	680	5%	1/4W	
R65	1-215-441-00	METAL	6.8K	1%	1/6W	
R66	1-215-441-00	METAL	6.8K	1%	1/6W	
R67	1-247-711-11	CARBON	680	5%	1/4W	
R74	1-215-394-00	METAL	75	1%	1/6W	
R78	1-214-702-00	METAL	75	1%	1/4W	
R80	1-249-407-11	CARBON	150	5%	1/4W	
R81	1-249-407-11	CARBON	150	5%	1/4W	
R82	1-249-429-11	CARBON	10K	5%	1/4W	
R83	1-249-436-11	CARBON	39K	5%	1/4W	
R84	1-249-407-11	CARBON	150	5%	1/4W	
R85	1-249-429-11	CARBON	10K	5%	1/4W	
R86	1-249-429-11	CARBON	10K	5%	1/4W	
R87	1-249-429-11	CARBON	10K	5%	1/4W	
R88	1-249-429-11	CARBON	10K	5%	1/4W	
R89	1-249-433-11	CARBON	22K	5%	1/4W	
R90	1-249-433-11	CARBON	22K	5%	1/4W	
R91	1-249-433-11	CARBON	22K	5%	1/4W	
R92	1-249-433-11	CARBON	22K	5%	1/4W	
R93 ⚠	1-247-851-91	CARBON	6.8K	5%	1/4W	
R94 ⚠	1-247-855-91	CARBON	10K	5%	1/4W	
R95	1-249-417-11	CARBON	1K	5%	1/4W	
R96	1-249-429-11	CARBON	10K	5%	1/4W	
R97	1-249-427-11	CARBON	6.8K	5%	1/4W	
R98	1-249-417-11	CARBON	1K	5%	1/4W	
R99	1-247-903-00	CARBON	1M	5%	1/4W	
R100	1-249-439-11	CARBON	68K	5%	1/4W	
R101	1-249-439-11	CARBON	68K	5%	1/4W	
R102	1-249-428-11	CARBON	8.2K	5%	1/4W	
R103	1-249-429-11	CARBON	10K	5%	1/4W	
R104	1-249-429-11	CARBON	10K	5%	1/4W	
R105	1-249-427-11	CARBON	6.8K	5%	1/4W	
R106	1-249-441-11	CARBON	100K	5%	1/4W	
R107	1-247-883-00	CARBON	150K	5%	1/4W	
R108	1-249-420-11	CARBON	1.8K	5%	1/4W	
R109	1-249-437-11	CARBON	47K	5%	1/4W	
R110	1-249-437-11	CARBON	47K	5%	1/4W	
R111	1-249-427-11	CARBON	6.8K	5%	1/4W	
R112	1-249-415-11	CARBON	680	5%	1/4W	
R113	1-247-721-11	CARBON	4.7K	5%	1/4W	
R114	1-249-416-11	CARBON	820	5%	1/4W	
R115	1-249-436-11	CARBON	39K	5%	1/4W	
R116	1-249-438-11	CARBON	56K	5%	1/4W	
R117	1-249-433-11	CARBON	22K	5%	1/4W	
R130	1-214-702-00	METAL	75	1%	1/4W	
R131	1-249-407-11	CARBON	150	5%	1/4W	
R132	1-249-402-11	CARBON	56	5%	1/4W	
R133	1-249-417-11	CARBON	1K	5%	1/4W	
R134	1-249-402-11	CARBON	56	5%	1/4W	
R135	1-249-421-11	CARBON	2.2K	5%	1/4W	
R136	1-214-716-00	METAL	300	1%	1/4W	
R137	1-214-705-00	METAL	100	1%	1/4W	
R138	1-249-405-11	CARBON	100	5%	1/4W	
R139	1-249-421-11	CARBON	2.2K	5%	1/4W	
R140	1-249-405-11	CARBON	100	5%	1/4W	
R141	1-249-421-11	CARBON	2.2K	5%	1/4W	
R142	1-249-417-11	CARBON	1K	5%	1/4W	
R143	1-249-417-11	CARBON	1K	5%	1/4W	
R144	1-249-421-11	CARBON	2.2K	5%	1/4W	
R145	1-249-417-11	CARBON	1K	5%	1/4W	
R146	1-249-429-11	CARBON	10K	5%	1/4W	
R147	1-249-421-11	CARBON	2.2K	5%	1/4W	
R148	1-249-405-11	CARBON	100	5%	1/4W	
R149	1-249-414-11	CARBON	560	5%	1/4W	
R150	1-215-394-00	METAL	75	1%	1/6W	
R151	1-249-401-11	CARBON	47	5%	1/4W	
R152	1-249-417-11	CARBON	1K	5%	1/4W	

CRYSTAL

X1	1-567-505-11	OSCILLATOR, CRYSTAL				

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*A-1270-238-A QB BOARD, COMPLETE
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1-537-167-11 TERMINAL BOARD, INPUT/OUTPUT

CAPACITOR

C201	1-102-114-00	CERAMIC	470PF	10%	50V
C202	1-124-927-11	ELECT	4.7MF	20%	50V
C203	1-101-004-00	CERAMIC	0.01MF		50V
C204	1-123-380-00	ELECT	1MF	20%	50V
C205	1-123-356-00	ELECT	10MF	20%	16V
C209	1-102-114-00	CERAMIC	470PF	10%	50V
C210	1-102-114-00	CERAMIC	470PF	10%	50V
C211	1-123-380-00	ELECT	1MF	20%	50V
C212	1-124-499-11	ELECT	1MF	20%	50V
C213	1-123-356-00	ELECT	10MF	20%	16V
C214	1-102-114-00	CERAMIC	470PF	10%	50V
C215	1-126-101-11	ELECT	100MF	20%	16V
C216	1-123-332-00	ELECT	47MF	20%	16V
C217	1-123-356-00	ELECT	10MF	20%	25V
C218	1-123-369-00	ELECT	4.7MF	20%	25V
C219	1-123-332-00	ELECT	47MF	20%	16V
C220	1-123-332-00	ELECT	47MF	20%	16V
C221	1-126-103-11	ELECT	470MF	20%	16V
C222	1-126-103-11	ELECT	470MF	20%	16V
C223	1-108-845-00	MYLAR	0.047MF	10%	50V
C224	1-124-557-11	ELECT	1000MF	20%	25V
C225	1-101-006-00	CERAMIC	0.047MF		50V
C226	1-123-356-00	ELECT	10MF	20%	16V
C227	1-123-356-00	ELECT	10MF	20%	16V
C228	1-101-006-00	CERAMIC	0.047MF		50V
C229	1-126-103-11	ELECT	470MF	20%	16V
C235	1-136-165-00	FILM	0.1MF	5%	50V

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

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Ne les remplacer que par une piece portant le numero specifie.

QB CR

Ref.No.	Part No.	Description				Remark
C236	1-136-153-00	FILM	0.01MF	5%	50V	
		CONNECTOR				
CNJ201	*1-566-980-11	CONNECTOR, ROUND TYPE 4P				
QB1	*1-566-063-11	PIN, CONNECTOR 11P				
QB2	*1-566-054-11	PIN, CONNECTOR 2P				
QB3	*1-566-060-11	PIN, CONNECTOR 8P				
QB4	*1-566-056-11	PIN, CONNECTOR 4P				
QB5	*1-566-055-11	PIN, CONNECTOR 3P				
QB6	*1-566-055-11	PIN, CONNECTOR 3P				
QB7	*1-566-055-11	PIN, CONNECTOR 3P				
		DIODE				
D201	8-719-110-36	DIODE RD13ES-B2				
D202	8-719-911-19	DIODE 1SS119				
D203	8-719-911-19	DIODE 1SS119				
D204	8-719-911-19	DIODE 1SS119				
D205	8-719-911-19	DIODE 1SS119				
D206	8-719-911-19	DIODE 1SS119				
		IC				
IC201	8-759-103-93	IC UPC393C				
IC202	8-759-208-94	IC CX894				
IC203	8-759-800-59	IC LA2600				
IC204⚠	8-759-101-77	IC UPC1241H				
IC205	8-759-708-09	IC NJM78L09A				
IC206	8-759-170-12	IC UPC78M12H				
IC207	8-759-700-24	IC NJM79M12A				
IC210	8-759-340-53	IC HD14053BP				
		TRANSISTOR				
Q201	8-729-178-54	TRANSISTOR 2SC2785				
Q202	8-729-178-54	TRANSISTOR 2SC2785				
Q203	8-729-117-54	TRANSISTOR 2SA1175				
Q204	8-729-178-54	TRANSISTOR 2SC2785				
Q205	8-729-900-85	TRANSISTOR DTC144WS				
Q206	8-729-900-85	TRANSISTOR DTC144WS				
Q210	8-729-178-54	TRANSISTOR 2SC2785				
Q211	8-729-178-54	TRANSISTOR 2SC2785				
		RESISTOR				
R201	1-249-438-11	CARBON	56K	5%	1/4W	
R202	1-249-435-11	CARBON	33K	5%	1/4W	
R203	1-249-423-11	CARBON	3.3K	5%	1/4W	
R204	1-249-438-11	CARBON	56K	5%	1/4W	
R205	1-249-430-11	CARBON	12K	5%	1/4W	
R206	1-249-437-11	CARBON	47K	5%	1/4W	
R207	1-249-433-11	CARBON	22K	5%	1/4W	
R208	1-249-433-11	CARBON	22K	5%	1/4W	
R212	1-249-438-11	CARBON	56K	5%	1/4W	
R213	1-249-429-11	CARBON	10K	5%	1/4W	
R214	1-249-435-11	CARBON	33K	5%	1/4W	
R215	1-249-437-11	CARBON	47K	5%	1/4W	
R216	1-249-429-11	CARBON	10K	5%	1/4W	
R217	1-249-437-11	CARBON	47K	5%	1/4W	
R218	1-247-887-00	CARBON	220K	5%	1/4W	
R219	1-249-429-11	CARBON	10K	5%	1/4W	
R220	1-249-419-11	CARBON	1.5K	5%	1/4W	
R221	1-249-408-11	CARBON	180	5%	1/4W	
R222	1-249-421-11	CARBON	2.2K	5%	1/4W	
R223	1-249-421-11	CARBON	2.2K	5%	1/4W	
R224	1-249-419-11	CARBON	1.5K	5%	1/4W	
R225	1-249-381-11	CARBON	1	5%	1/4W	F
R226	1-249-435-11	CARBON	33K	5%	1/4W	
R227	1-249-429-11	CARBON	10K	5%	1/4W	
R228	1-249-435-11	CARBON	33K	5%	1/4W	
R229	1-249-429-11	CARBON	10K	5%	1/4W	
R230	1-249-417-11	CARBON	1K	5%	1/4W	
R231	1-249-411-11	CARBON	330	5%	1/4W	
R235	1-249-417-11	CARBON	1K	5%	1/4W	
R236	1-247-104-00	CARBON	75	5%	1/4W	
R237	1-249-429-11	CARBON	10K	5%	1/4W	
R238	1-249-425-11	CARBON	4.7K	5%	1/4W	
R239	1-249-405-11	CARBON	100	5%	1/4W	
R240	1-249-421-11	CARBON	2.2K	5%	1/4W	
R241	1-249-401-11	CARBON	47	5%	1/4W	
R242	1-249-401-11	CARBON	47	5%	1/4W	
R243	1-249-405-11	CARBON	100	5%	1/4W	
R244	1-249-401-11	CARBON	47	5%	1/4W	
R245	1-249-417-11	CARBON	1K	5%	1/4W	
R246	1-249-417-11	CARBON	1K	5%	1/4W	
R248	1-249-421-11	CARBON	2.2K	5%	1/4W	
R249	1-249-401-11	CARBON	47	5%	1/4W	

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*1-621-068-11 CR BOARD
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	1-526-812-11	SOCKET, PICTURE TUBE				
	1-556-880-81	LEAD ASSY, HIGH-VOLTAGE				
	4-371-837-01	SPACER (TO-126), BN				
	*4-383-071-01	BRACKET, TRANSISTOR				
		CAPACITOR				
C701	1-101-006-00	CERAMIC	0.047MF		50V	
C702	1-136-165-00	FILM	0.1MF	5%	50V	
C704⚠	1-126-174-51	ELECT	10MF	20%	350V	
C705	1-102-050-00	CERAMIC	0.01MF		500V	
C706	1-162-115-00	CERAMIC	330PF	10%	2KV	
C707	1-162-115-00	CERAMIC	330PF	10%	2KV	
C708	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C709	1-101-006-00	CERAMIC	0.047MF		50V	
		CONNECTOR				
CR1	*1-508-784-00	1P PLUG				
CR2	*1-508-786-00	2P PLUG (M)				
CR3	*1-566-058-11	PIN, CONNECTOR 6P				
CR4	*1-566-057-11	PIN, CONNECTOR 5P				
CR5	*1-566-054-11	PIN, CONNECTOR 2P				
		DIODE				
D701	8-719-911-19	DIODE 1SS119				
D702	8-719-911-19	DIODE 1SS119				
D703	8-719-911-19	DIODE 1SS119				
D704	8-719-911-19	DIODE 1SS119				
D705	8-719-911-19	DIODE 1SS119				
D706	8-719-911-19	DIODE 1SS119				
D707	8-719-110-36	DIODE RD13ES-B2				

CR **CG** **CB**

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Ref.No.	Part No.	Description				Remark
		COIL				
L701	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L702	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L703	1-410-474-41	INDUCTOR 22UH				
L704	1-410-474-41	INDUCTOR 22UH				
		TRANSISTOR				
Q701	8-729-801-97	TRANSISTOR 2SC3503				
Q702	8-729-801-97	TRANSISTOR 2SC3503				
Q703	8-729-801-87	TRANSISTOR 2SA1381-D				
Q704	8-729-801-87	TRANSISTOR 2SA1381-D				
		RESISTOR				
R701	1-249-405-11	CARBON	100	5%	1/4W	F
R703 ⚠	1-249-405-91	CARBON	100	5%	1/4W	F
R704	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R705	1-215-431-00	METAL	2.7K	1%	1/6W	
R706	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R707	1-247-700-11	CARBON	100	5%	1/4W	F
R708	1-202-561-00	SOLID	330	10%	1/2W	
R709	1-202-828-11	SOLID	6.8K	10%	1/2W	
R710	1-202-847-00	SOLID	560K	10%	1/2W	
R711	1-202-847-00	SOLID	560K	10%	1/2W	
R712	1-202-814-11	SOLID	33K	10%	1/2W	
R713 ⚠	1-249-421-91	CARBON	2.2K	5%	1/4W	F
		SPARK GAP				
SG701	1-519-063-XX	DISCHARGING GAP				
**********						
	*1-621-069-11	CG BOARD ********				
	1-526-812-11	SOCKET, PICTURE TUBE				
	1-556-880-51	LEAD ASSY, HIGH-VOLTAGE				
	4-371-837-01	SPACER (TO-126), BN				
	*4-383-071-01	BRACKET, TRANSISTOR				
		CAPACITOR				
C721	1-101-006-00	CERAMIC	0.047MF		50V	
C722	1-136-165-00	FILM	0.1MF	5%	50V	
C724 ⚠	1-126-174-51	ELECT	10MF	20%	350V	
C725	1-102-050-00	CERAMIC	0.01MF		500V	
C726	1-162-115-00	CERAMIC	330PF	10%	2KV	
C727	1-162-115-00	CERAMIC	330PF	10%	2KV	
C728	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C729	1-101-006-00	CERAMIC	0.047MF		50V	
		CONNECTOR				
CG1	*1-508-784-00	1P PLUG				
CG2	*1-508-786-00	2P PLUG (M)				
CG3	*1-566-058-11	PIN, CONNECTOR 6P				
CG4	*1-566-057-11	PIN, CONNECTOR 5P				
CG5	*1-566-054-11	PIN, CONNECTOR 2P				
		DIODE				
D721	8-719-911-19	DIODE 1SS119				
D722	8-719-911-19	DIODE 1SS119				
D723	8-719-911-19	DIODE 1SS119				
D724	8-719-911-19	DIODE 1SS119				
D725	8-719-911-19	DIODE 1SS119				
D726	8-719-911-19	DIODE 1SS119				
D727	8-719-110-36	DIODE RD13ES-B2				
		COIL				
L721	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L722	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L723	1-410-474-41	INDUCTOR 22UH				
L724	1-410-474-41	INDUCTOR 22UH				
		TRANSISTOR				
Q721	8-729-801-97	TRANSISTOR 2SC3503				
Q722	8-729-801-97	TRANSISTOR 2SC3503				
Q723	8-729-801-87	TRANSISTOR 2SA1381-D				
Q724	8-729-801-87	TRANSISTOR 2SA1381-D				
		RESISTOR				
R721	1-249-405-11	CARBON	100	5%	1/4W	F
R723 ⚠	1-249-405-91	CARBON	100	5%	1/4W	F
R724	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R725	1-215-431-00	METAL	2.7K	1%	1/6W	
R726	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R727	1-247-700-11	CARBON	100	5%	1/4W	F
R728	1-202-561-00	SOLID	330	10%	1/2W	
R729	1-202-828-11	SOLID	6.8K	10%	1/2W	
R730	1-202-847-00	SOLID	560K	10%	1/2W	
R731	1-202-847-00	SOLID	560K	10%	1/2W	
R732	1-202-814-11	SOLID	33K	10%	1/2W	
R733 ⚠	1-249-421-91	CARBON	2.2K	5%	1/4W	F
		SPARK GAP				
SG721	1-519-063-XX	DISCHARGING GAP				
**********						
	*1-621-070-11	CB BOARD ********				
	1-526-812-11	SOCKET, PICTURE TUBE				
	1-556-880-51	LEAD ASSY, HIGH-VOLTAGE				
	4-371-837-01	SPACER (TO-126), BN				
	*4-383-071-01	BRACKET, TRANSISTOR				
		CAPACITOR				
C741	1-101-006-00	CERAMIC	0.047MF		50V	
C742	1-136-165-00	FILM	0.1MF	5%	50V	
C744 ⚠	1-126-174-51	ELECT	10MF	20%	350V	
C745	1-102-050-00	CERAMIC	0.01MF		500V	
C746	1-162-115-00	CERAMIC	330PF	10%	2KV	
C747	1-162-115-00	CERAMIC	330PF	10%	2KV	
C748	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C749	1-101-006-00	CERAMIC	0.047MF		50V	
		CONNECTOR				
CB1	*1-508-784-00	1P PLUG				
CB2	*1-508-786-00	2P PLUG (M)				
CB3	*1-566-058-11	PIN, CONNECTOR 6P				
CB4	*1-566-057-11	PIN, CONNECTOR 5P				
CB5	*1-566-054-11	PIN, CONNECTOR 2P				

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

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

CB D

Ref.No.	Part No.	Description				Remark
		DIODE				
D741	8-719-911-19	DIODE 1SS119				
D742	8-719-911-19	DIODE 1SS119				
D743	8-719-911-19	DIODE 1SS119				
D744	8-719-911-19	DIODE 1SS119				
D745	8-719-911-19	DIODE 1SS119				
D746	8-719-911-19	DIODE 1SS119				
D747	8-719-110-36	DIODE RD13ES-B2				
		COIL				
L741	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L742	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L743	1-410-474-41	INDUCTOR 22UH				
L744	1-410-474-41	INDUCTOR 22UH				
		TRANSISTOR				
Q741	8-729-801-97	TRANSISTOR 2SC3503				
Q742	8-729-801-97	TRANSISTOR 2SC3503				
Q743	8-729-801-87	TRANSISTOR 2SA1381-D				
Q744	8-729-801-87	TRANSISTOR 2SA1381-D				
		RESISTOR				
R741	1-249-405-91	CARBON	100	5%	1/4W	F
R743 ⚠	1-249-405-11	CARBON	100	5%	1/4W	F
R744	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R745	1-215-431-00	METAL	2.7K	1%	1/6W	
R746	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R747	1-247-700-11	CARBON	100	5%	1/4W	F
R748	1-202-561-00	SOLID	330	10%	1/2W	
R749	1-202-828-11	SOLID	6.8K	10%	1/2W	
R750	1-202-847-00	SOLID	560K	10%	1/2W	
R751	1-202-847-00	SOLID	560K	10%	1/2W	
R752	1-202-814-11	SOLID	33K	10%	1/2W	
R753 ⚠	1-249-421-91	CARBON	2.2K	5%	1/4W	F
		SPARK GAP				
SG741	1-519-063-XX	DISCHARGING GAP				
		**********				
	*A-1340-919-A	D BOARD, COMPLETE				
		**********				
	*1-535-615-11	TERMINAL (LAMP SOCKET)				
	*4-378-621-01	RETAINER, TR				
		CAPACITOR				
C1	1-101-004-00	CERAMIC	0.01MF		50V	
C2	1-123-333-00	ELECT	100MF	20%	25V	
C3	1-123-333-00	ELECT	100MF	20%	25V	
C4	1-123-333-00	ELECT	100MF	20%	16V	
C5	1-123-333-00	ELECT	100MF	20%	16V	
C6	1-102-947-00	CERAMIC	10PF	0.5PF	50V	
C7	1-123-381-00	ELECT	2.2MF	20%	50V	
C8	1-101-361-00	CERAMIC	150PF	5%	50V	
C9	1-130-483-00	MYLAR	0.01MF	5%	50V	
C10	1-130-495-00	MYLAR	0.1MF	5%	50V	
C12	1-123-381-00	ELECT	2.2MF	20%	50V	
C13	1-108-808-11	MYLAR	0.022MF	5%	50V	
C14	1-123-356-00	ELECT	10MF	20%	16V	
C15	1-126-103-11	ELECT	470MF	20%	16V	
C16	1-101-006-00	CERAMIC	0.047MF		50V	
C17	1-123-380-00	ELECT	1MF	20%	50V	
C18	1-130-483-00	MYLAR	0.01MF	5%	50V	
C19	1-130-868-00	FILM	0.0056MF	5%	50V	
C20	1-123-380-00	ELECT	1MF	20%	50V	
C21	1-123-369-00	ELECT	4.7MF	20%	25V	
C22	1-123-356-00	ELECT	10MF	20%	16V	
C23	1-126-103-11	ELECT	470MF	20%	16V	
C24	1-106-361-00	MYLAR	0.0056MF	10%	100V	
C25	1-123-380-00	ELECT	1MF	20%	50V	
C26	1-108-812-11	MYLAR	0.047MF	5%	50V	
C27	1-130-483-00	MYLAR	0.01MF	5%	50V	
C28	1-108-808-11	MYLAR	0.022MF	5%	50V	
C29	1-123-379-00	ELECT	0.47MF	20%	50V	
C30	1-136-173-00	FILM	0.47MF	5%	50V	
C31	1-108-812-11	MYLAR	0.047MF	5%	50V	
C32	1-123-321-00	ELECT	220MF	20%	16V	
C33	1-108-792-11	MYLAR	0.001MF	5%	50V	
C34	1-101-004-00	CERAMIC	0.01MF		50V	
C36	1-130-483-00	MYLAR	0.01MF	5%	50V	
C37	1-131-373-00	TANTALUM	22MF	10%	16V	
C38	1-124-963-11	ELECT	33MF	20%	16V	
C39	1-130-495-00	MYLAR	0.1MF	5%	50V	
C40	1-124-463-00	ELECT	0.1MF	20%	50V	
C41	1-101-361-00	CERAMIC	150PF	5%	50V	
C43	1-124-463-00	ELECT	0.1MF	20%	50V	
C44	1-123-356-00	ELECT	10MF	20%	16V	
C45	1-102-824-00	CERAMIC	470PF	5%	50V	
C46	1-102-030-00	CERAMIC	330PF	10%	500V	
C47	1-130-483-00	MYLAR	0.01MF	5%	50V	
C48	1-101-004-00	CERAMIC	0.01MF		50V	
C49	1-101-004-00	CERAMIC	0.01MF		50V	
C50	1-123-369-00	ELECT	4.7MF	20%	25V	
C51	1-123-661-00	ELECT	100MF	20%	6.3V	
C52	1-123-661-00	ELECT	100MF	20%	6.3V	
C53	1-126-157-11	ELECT	10MF	20%	16V	
C54	1-101-004-00	CERAMIC	0.01MF		50V	
C55	1-124-589-11	ELECT	47MF	20%	16V	
C56	1-124-589-11	ELECT	47MF	20%	16V	
C57	1-101-004-00	CERAMIC	0.01MF		50V	
C58	1-123-661-00	ELECT	100MF	20%	6.3V	
C59	1-123-661-00	ELECT	100MF	20%	6.3V	
C60	1-126-157-11	ELECT	10MF	20%	16V	
C61	1-126-157-11	ELECT	10MF	20%	16V	
C62	1-126-157-11	ELECT	10MF	20%	16V	
C63	1-124-589-11	ELECT	47MF	20%	16V	
C64	1-124-589-11	ELECT	47MF	20%	16V	
C65	1-101-004-00	CERAMIC	0.01MF		50V	
C66	1-101-004-00	CERAMIC	0.01MF		50V	
C67	1-123-321-00	ELECT	220MF	20%	16V	
C68	1-123-321-00	ELECT	220MF	20%	16V	
C69	1-123-333-00	ELECT	100MF	20%	16V	
C70	1-123-333-00	ELECT	100MF	20%	16V	
C72	1-136-161-00	FILM	0.047MF	5%	50V	
C73	1-101-004-00	CERAMIC	0.01MF		50V	
C74	1-101-004-00	CERAMIC	0.01MF		50V	
C75	1-102-316-00	CERAMIC	15PF	5%	500V	
C76	1-108-692-81	MYLAR	0.01MF	10%	200V	
C77	1-108-700-11	MYLAR	0.047MF	10%	200V	
C78	1-123-356-00	ELECT	10MF	20%	16V	
C79	1-123-356-00	ELECT	10MF	20%	16V	
C80	1-136-161-00	FILM	0.047MF	5%	50V	
C81	1-136-161-00	FILM	0.047MF	5%	50V	
C82	1-101-004-00	CERAMIC	0.01MF		50V	

D

Ref.No.	Part No.	Description			Remark
C83	1-101-004-00	CERAMIC	0.01MF		50V
C84	1-102-316-00	CERAMIC	15PF	5%	500V
C85	1-108-692-81	MYLAR	0.01MF	10%	200V
C86	1-102-316-00	CERAMIC	15PF	5%	500V
C87	1-108-692-81	MYLAR	0.01MF	10%	200V
C88	1-123-381-00	ELECT	2.2MF	20%	50V
C89	1-124-284-00	ELECT	10MF	20%	16V
C401	1-126-163-11	ELECT	4.7MF	20%	50V
C402	1-126-163-11	ELECT	4.7MF	20%	50V
C403	1-126-163-11	ELECT	4.7MF	20%	50V
C404	1-126-163-11	ELECT	4.7MF	20%	50V
		CONNECTOR			
D1	*1-566-055-11	PIN, CONNECTOR 3P			
D2	*1-566-055-11	PIN, CONNECTOR 3P			
D3	*1-566-055-11	PIN, CONNECTOR 3P			
D4	*1-566-055-11	PIN, CONNECTOR 3P			
D5	*1-566-055-11	PIN, CONNECTOR 3P			
D6	*1-566-055-11	PIN, CONNECTOR 3P			
D7	*1-566-056-11	PIN, CONNECTOR 4P			
D8	*1-566-056-11	PIN, CONNECTOR 4P			
D9	*1-566-056-11	PIN, CONNECTOR 4P			
D10	*1-566-059-11	PIN, CONNECTOR 7P			
D11	*1-566-054-11	PIN, CONNECTOR 2P			
D12	*1-566-054-11	PIN, CONNECTOR 2P			
D13	*1-566-058-11	PIN, CONNECTOR 6P			
D14	*1-566-055-11	PIN, CONNECTOR 3P			
D15	*1-566-060-11	PIN, CONNECTOR 8P			
D16	*1-566-054-11	PIN, CONNECTOR 2P			
D17	*1-566-060-11	PIN, CONNECTOR 8P			
D18	*1-566-058-11	PIN, CONNECTOR 6P			
D19	*1-566-054-11	PIN, CONNECTOR 2P			
D20	*1-566-064-11	PIN, CONNECTOR 12P			
D21	*1-566-060-11	PIN, CONNECTOR 8P			
D22	*1-566-055-11	PIN, CONNECTOR 3P			
D23	*1-566-060-11	PIN, CONNECTOR 8P			
D24	*1-566-060-11	PIN, CONNECTOR 8P			
D25	*1-566-054-11	PIN, CONNECTOR 2P			
		DIODE			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			
D3	8-719-911-19	DIODE 1SS119			
D4	8-719-911-19	DIODE 1SS119			
D5	8-719-109-85	DIODE RD5.1ES-B2			
D6	8-719-911-19	DIODE 1SS119			
D7	8-719-911-19	DIODE 1SS119			
D8	8-719-911-19	DIODE 1SS119			
D9	8-719-911-19	DIODE 1SS119			
D10	8-719-911-19	DIODE 1SS119			
D11	8-719-911-19	DIODE 1SS119			
D12	8-719-911-19	DIODE 1SS119			
D13	8-719-110-36	DIODE RD13ES-B2			
D14	8-719-911-19	DIODE 1SS119			
D15	8-719-911-19	DIODE 1SS119			
D16	8-719-911-19	DIODE 1SS119			
D17	8-719-911-19	DIODE 1SS119			
D401	8-719-110-42	DIODE RD15ES-B3			
D402	8-719-110-36	DIODE RD13ES-B2			
D403	8-719-110-36	DIODE RD13ES-B2			
D404	8-719-110-36	DIODE RD13ES-B2			
D405	8-719-110-36	DIODE RD13ES-B2			
D406	8-719-110-36	DIODE RD13ES-B2			

Ref.No.	Part No.	Description	Remark
D407	8-719-110-36	DIODE RD13ES-B2	
D408	8-719-110-36	DIODE RD13ES-B2	
D409	8-719-110-36	DIODE RD13ES-B2	
D410	8-719-110-36	DIODE RD13ES-B2	
D411	8-719-110-36	DIODE RD13ES-B2	
D412	8-719-110-36	DIODE RD13ES-B2	
		IC	
IC1	8-759-100-60	IC UPC1377C	
IC2	8-749-911-21	IC BX1121	
IC3	8-759-340-53	IC HD14053BP	
IC4	8-759-170-12	IC UPC78M12H	
IC5	8-759-700-24	IC NJM79M12A	
IC6	8-759-178-12	IC UPC78L12	
IC7	8-759-178-12	IC UPC78L12	
IC8	8-759-600-02	IC M5218L	
IC9	8-741-112-20	IC BX1122	
IC10	8-759-240-52	IC TC4052BP	
IC11	8-759-600-02	IC M5218L	
IC12	8-759-600-02	IC M5218L	
IC13	8-759-600-02	IC M5218L	
IC14	8-759-111-69	IC UPC1037HA	
IC15	8-759-111-69	IC UPC1037HA	
IC16	8-759-170-08	IC UPC78M08H	
IC17	8-759-700-22	IC NJM79M08A	
IC18	8-759-145-58	IC UPC4558C	
IC19	8-759-145-58	IC UPC4558C	
IC401	8-759-340-53	IC HD14053BP	
IC402	8-759-340-53	IC HD14053BP	
IC403	8-759-340-53	IC HD14053BP	
		PILOT LAMP	
PL1	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
PL2	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
		TRANSISTOR	
Q1	8-729-178-54	TRANSISTOR 2SC2785	
Q2	8-729-178-54	TRANSISTOR 2SC2785	
Q3	8-729-178-54	TRANSISTOR 2SC2785	
Q4	8-729-178-54	TRANSISTOR 2SC2785	
Q5	8-729-178-54	TRANSISTOR 2SC2785	
Q6	8-729-178-54	TRANSISTOR 2SC2785	
Q7	8-729-238-32	TRANSISTOR 2SC2383	
Q8	8-729-201-78	TRANSISTOR 2SD1406	
Q9	8-729-202-02	TRANSISTOR 2SB1015	
Q10	8-729-238-32	TRANSISTOR 2SC2383	
Q11	8-729-201-78	TRANSISTOR 2SD1406	
Q12	8-729-202-02	TRANSISTOR 2SB1015	
Q13	8-729-238-32	TRANSISTOR 2SC2383	
Q14	8-729-201-78	TRANSISTOR 2SD1406	
Q15	8-729-202-02	TRANSISTOR 2SB1015	
Q16	8-729-178-54	TRANSISTOR 2SC2785	
Q17	8-729-178-54	TRANSISTOR 2SC2785	
Q18	8-729-178-54	TRANSISTOR 2SC2785	
Q19	8-729-178-54	TRANSISTOR 2SC2785	
Q20	8-729-117-54	TRANSISTOR 2SA1175	
		RESISTOR	
R1	1-215-457-00	METAL 33K 1%	1/6W
R2	1-215-467-00	METAL 82K 1%	1/6W
R3	1-247-881-00	CARBON 120K 5%	1/4W

Ref.No.	Part No.	Description				Remark
R4	1-249-417-11	CARBON	1K	5%	1/4W	
R5	1-249-423-11	CARBON	3.3K	5%	1/4W	
R6	1-249-434-11	CARBON	27K	5%	1/4W	
R7	1-249-425-11	CARBON	4.7K	5%	1/4W	
R8	1-249-421-11	CARBON	2.2K	5%	1/4W	
R9	1-215-447-00	METAL	12K	1%	1/6W	
R10	1-249-417-11	CARBON	1K	5%	1/4W	
R11	1-215-445-00	METAL	10K	1%	1/6W	
R12	1-215-447-00	METAL	12K	1%	1/6W	
R13	1-249-417-11	CARBON	1K	5%	1/4W	
R14	1-249-441-11	CARBON	100K	5%	1/4W	
R15	1-215-447-00	METAL	12K	1%	1/6W	
R16	1-247-903-00	CARBON	1M	5%	1/4W	
R17	1-247-903-00	CARBON	1M	5%	1/4W	
R18	1-249-441-11	CARBON	100K	5%	1/4W	
R19	1-249-405-11	CARBON	100	5%	1/4W	
R20	1-249-417-11	CARBON	1K	5%	1/4W	
R21	1-247-895-00	CARBON	470K	5%	1/4W	
R22	1-249-417-11	CARBON	1K	5%	1/4W	
R23	1-215-467-00	METAL	82K	1%	1/6W	
R24	1-215-467-00	METAL	82K	1%	1/6W	
R25	1-249-423-11	CARBON	3.3K	5%	1/4W	
R26	1-249-433-11	CARBON	22K	5%	1/4W	
R27	1-249-431-11	CARBON	15K	5%	1/4W	
R28	1-249-428-11	CARBON	8.2K	5%	1/4W	
R29	1-249-409-11	CARBON	220	5%	1/4W	
R30	1-249-411-11	CARBON	330	5%	1/4W	
R31	1-249-417-11	CARBON	1K	5%	1/4W	
R32	1-249-417-11	CARBON	1K	5%	1/4W	
R33	1-215-458-00	METAL	36K	1%	1/6W	
R34	1-249-435-11	CARBON	33K	5%	1/4W	
R35	1-249-435-11	CARBON	33K	5%	1/4W	
R36	1-249-435-11	CARBON	33K	5%	1/4W	
R37	1-249-421-11	CARBON	2.2K	5%	1/4W	
R38	1-249-424-11	CARBON	3.9K	5%	1/4W	
R39	1-249-418-11	CARBON	1.2K	5%	1/4W	
R40	1-249-438-11	CARBON	56K	5%	1/4W	
R41	1-215-446-00	METAL	11K	1%	1/6W	
R42	1-215-447-00	METAL	12K	1%	1/6W	
R43	1-215-463-00	METAL	56K	1%	1/6W	
R44	1-215-439-00	METAL	5.6K	1%	1/6W	
R45	1-215-439-00	METAL	5.6K	1%	1/6W	
R46	1-215-449-00	METAL	15K	1%	1/6W	
R47	1-249-441-11	CARBON	100K	5%	1/4W	
R48	1-249-433-11	CARBON	22K	5%	1/4W	
R49	1-249-417-11	CARBON	1K	5%	1/4W	
R50	1-249-428-11	CARBON	8.2K	5%	1/4W	
R51	1-249-405-11	CARBON	100	5%	1/4W	
R52	1-249-408-11	CARBON	180	5%	1/4W	
R53	1-249-427-11	CARBON	6.8K	5%	1/4W	
R54	1-215-415-00	METAL	560	1%	1/6W	
R55	1-215-415-00	METAL	560	1%	1/6W	
R56	1-249-405-11	CARBON	100	5%	1/4W	
R57	1-215-413-00	METAL	470	1%	1/6W	
R58	1-249-429-11	CARBON	10K	5%	1/4W	
R59	1-214-971-00	METAL	2M	1%	1/4W	
R60	1-215-467-00	METAL	82K	1%	1/6W	
R62	1-215-439-00	METAL	5.6K	1%	1/6W	
R63	1-215-431-00	METAL	2.7K	1%	1/6W	
R64	1-249-417-11	CARBON	1K	5%	1/4W	
R65	1-249-429-11	CARBON	10K	5%	1/4W	
R66	1-249-417-11	CARBON	1K	5%	1/4W	
R67	1-249-429-11	CARBON	10K	5%	1/4W	
R68	1-249-429-11	CARBON	10K	5%	1/4W	
R69	1-215-457-00	METAL	33K	1%	1/6W	
R70	1-215-421-00	METAL	1K	1%	1/6W	
R71	1-249-429-11	CARBON	10K	5%	1/4W	
R72	1-249-429-11	CARBON	10K	5%	1/4W	
R73	1-249-429-11	CARBON	10K	5%	1/4W	
R74	1-249-411-11	CARBON	330	5%	1/4W	
R75	1-249-411-11	CARBON	330	5%	1/4W	
R76	1-249-429-11	CARBON	10K	5%	1/4W	
R77	1-215-471-00	METAL	120K	1%	1/6W	
R78	1-215-443-00	METAL	8.2K	1%	1/6W	
R79	1-215-429-00	METAL	2.2K	1%	1/6W	
R80	1-215-437-00	METAL	4.7K	1%	1/6W	
R81	1-215-443-00	METAL	8.2K	1%	1/6W	
R82	1-215-453-00	METAL	22K	1%	1/6W	
R83	1-215-429-00	METAL	2.2K	1%	1/6W	
R84	1-215-437-00	METAL	4.7K	1%	1/6W	
R85	1-215-463-00	METAL	56K	1%	1/6W	
R86	1-215-445-00	METAL	10K	1%	1/6W	
R87	1-215-445-00	METAL	10K	1%	1/6W	
R88	1-249-429-11	CARBON	10K	5%	1/4W	
R89	1-215-445-00	METAL	10K	1%	1/6W	
R90	1-215-445-00	METAL	10K	1%	1/6W	
R91	1-249-429-11	CARBON	10K	5%	1/4W	
R92	1-215-449-00	METAL	15K	1%	1/6W	
R93	1-215-449-00	METAL	15K	1%	1/6W	
R94	1-215-461-00	METAL	47K	1%	1/6W	
R95	1-215-461-00	METAL	47K	1%	1/6W	
R96	1-215-451-00	METAL	18K	1%	1/6W	
R97	1-215-413-00	METAL	470	1%	1/6W	
R98	1-215-429-00	METAL	2.2K	1%	1/6W	
R99	1-215-417-00	METAL	680	1%	1/6W	
R100	1-247-887-00	CARBON	220K	5%	1/4W	
R101	1-249-429-11	CARBON	10K	5%	1/4W	
R102	1-215-451-00	METAL	18K	1%	1/6W	
R103	1-215-413-00	METAL	470	1%	1/6W	
R104	1-215-429-00	METAL	2.2K	1%	1/6W	
R105	1-215-417-00	METAL	680	1%	1/6W	
R106	1-247-887-00	CARBON	220K	5%	1/4W	
R107	1-247-104-00	CARBON	75	5%	1/4W	
R108	1-249-429-11	CARBON	10K	5%	1/4W	
R109	1-215-417-00	METAL	680	1%	1/6W	
R110	1-249-405-11	CARBON	100	5%	1/4W	
R111	1-215-415-00	METAL	560	1%	1/6W	
R112	1-249-429-11	CARBON	10K	5%	1/4W	
R113	1-215-445-00	METAL	10K	1%	1/6W	
R114	1-215-457-00	METAL	33K	1%	1/6W	
R115	1-215-457-00	METAL	33K	1%	1/6W	
R116	1-215-457-00	METAL	33K	1%	1/6W	
R117	1-215-459-00	METAL	39K	1%	1/6W	
R118	1-215-459-00	METAL	39K	1%	1/6W	
R119	1-215-459-00	METAL	39K	1%	1/6W	
R120	1-215-479-00	METAL	270K	1%	1/6W	
R121	1-215-469-00	METAL	100K	1%	1/6W	
R122	1-215-479-00	METAL	270K	1%	1/6W	
R123	1-215-469-00	METAL	100K	1%	1/6W	
R124	1-215-427-00	METAL	1.8K	1%	1/6W	
R125	1-215-468-00	METAL	91K	1%	1/6W	
R126	1-215-443-00	METAL	8.2K	1%	1/6W	
R127	1-215-469-00	METAL	100K	1%	1/6W	
R128	1-215-467-00	METAL	82K	1%	1/6W	
R129	1-215-451-00	METAL	18K	1%	1/6W	
R130	1-215-461-00	METAL	47K	1%	1/6W	
R131	1-249-417-11	CARBON	1K	5%	1/4W	
R132	1-215-459-00	METAL	39K	1%	1/6W	
R134	1-215-449-00	METAL	15K	1%	1/6W	
R135	1-215-465-00	METAL	68K	1%	1/6W	

D

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

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

Ref.No.	Part No.	Description				Remark
R136	1-215-451-00	METAL	18K	1%	1/6W	
R137	1-215-471-00	METAL	120K	1%	1/6W	
R138	1-215-463-00	METAL	56K	1%	1/6W	
R139	1-215-477-00	METAL	220K	1%	1/6W	
R140	1-215-469-00	METAL	100K	1%	1/6W	
R141	1-215-473-00	METAL	150K	1%	1/6W	
R142	1-215-469-00	METAL	100K	1%	1/6W	
R143	1-215-469-00	METAL	100K	1%	1/6W	
R144	1-215-469-00	METAL	100K	1%	1/6W	
R145	1-215-469-00	METAL	100K	1%	1/6W	
R146	1-215-455-00	METAL	27K	1%	1/6W	
R147	1-215-461-00	METAL	47K	1%	1/6W	
R148	1-215-463-00	METAL	56K	1%	1/6W	
R149	1-215-449-00	METAL	15K	1%	1/6W	
R150	1-215-457-00	METAL	33K	1%	1/6W	
R151	1-215-461-00	METAL	47K	1%	1/6W	
R152	1-215-461-00	METAL	47K	1%	1/6W	
R153	1-215-461-00	METAL	47K	1%	1/6W	
R154	1-215-461-00	METAL	47K	1%	1/6W	
R155	1-215-471-00	METAL	120K	1%	1/6W	
R156	1-215-463-00	METAL	56K	1%	1/6W	
R157	1-215-477-00	METAL	220K	1%	1/6W	
R158	1-215-469-00	METAL	100K	1%	1/6W	
R159	1-215-473-00	METAL	150K	1%	1/6W	
R160	1-215-469-00	METAL	100K	1%	1/6W	
R161	1-215-469-00	METAL	100K	1%	1/6W	
R162	1-215-469-00	METAL	100K	1%	1/6W	
R163	1-215-469-00	METAL	100K	1%	1/6W	
R164	1-215-455-00	METAL	27K	1%	1/6W	
R165	1-215-461-00	METAL	47K	1%	1/6W	
R166	1-215-463-00	METAL	56K	1%	1/6W	
R167	1-215-449-00	METAL	15K	1%	1/6W	
R168	1-215-457-00	METAL	33K	1%	1/6W	
R169	1-215-461-00	METAL	47K	1%	1/6W	
R170	1-215-461-00	METAL	47K	1%	1/6W	
R171	1-215-461-00	METAL	47K	1%	1/6W	
R172	1-215-461-00	METAL	47K	1%	1/6W	
R173	1-215-441-00	METAL	6.8K	1%	1/6W	
R174	1-215-425-00	METAL	1.5K	1%	1/6W	
R175	1-215-425-00	METAL	1.5K	1%	1/6W	
R176	1-215-425-00	METAL	1.5K	1%	1/6W	
R177	1-215-441-00	METAL	6.8K	1%	1/6W	
R178	1-215-445-00	METAL	10K	1%	1/6W	
R179	1-215-457-00	METAL	33K	1%	1/6W	
R180	1-249-429-11	CARBON	10K	5%	1/4W	
R181	1-249-405-11	CARBON	100	5%	1/4W	
R182	1-249-405-11	CARBON	100	5%	1/4W	
R183	1-215-445-00	METAL	10K	1%	1/6W	
R184	1-215-417-00	METAL	680	1%	1/6W	
R185	1-249-393-11	CARBON	10	5%	1/4W	
R186	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R187	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R188	1-215-396-00	METAL	91	1%	1/6W	
R189	1-215-375-00	METAL	12	1%	1/6W	
R190	1-215-375-00	METAL	12	1%	1/6W	
R191	1-215-375-00	METAL	12	1%	1/6W	
R192	1-215-375-00	METAL	12	1%	1/6W	
R193	1-215-375-00	METAL	12	1%	1/6W	
R194	1-215-441-00	METAL	6.8K	1%	1/6W	
R195	1-249-429-11	CARBON	10K	5%	1/4W	
R196	1-215-441-00	METAL	6.8K	1%	1/6W	
R197	1-249-429-11	CARBON	10K	5%	1/4W	
R198	1-249-405-11	CARBON	100	5%	1/4W	
R199	1-249-405-11	CARBON	100	5%	1/4W	
R200	1-215-445-00	METAL	10K	1%	1/6W	
R201	1-215-417-00	METAL	680	1%	1/6W	
R202	1-249-393-11	CARBON	10	5%	1/4W	
R203	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R204	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R205	1-215-391-00	METAL	56	1%	1/6W	
R206	1-215-375-00	METAL	12	1%	1/6W	
R207	1-215-375-00	METAL	12	1%	1/6W	
R208	1-215-375-00	METAL	12	1%	1/6W	
R209	1-215-375-00	METAL	12	1%	1/6W	
R210	1-215-375-00	METAL	12	1%	1/6W	
R211	1-215-445-00	METAL	10K	1%	1/6W	
R212	1-215-417-00	METAL	680	1%	1/6W	
R213	1-249-393-11	CARBON	10	5%	1/4W	
R214	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R215	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R217	1-215-374-00	METAL	11	1%	1/6W	
R218	1-215-375-00	METAL	12	1%	1/6W	
R219	1-215-375-00	METAL	12	1%	1/6W	
R220	1-215-375-00	METAL	12	1%	1/6W	
R221	1-215-375-00	METAL	12	1%	1/6W	
R222	1-215-419-00	METAL	820	1%	1/6W	
R223	1-215-447-00	METAL	12K	1%	1/6W	
R224	1-214-802-00	METAL	2.7	1%	1/2W	
R225	1-214-804-11	METAL	3.3	1%	1/2W	
R226	1-214-802-00	METAL	2.7	1%	1/2W	
R227	1-214-804-11	METAL	3.3	1%	1/2W	
R228	1-214-802-00	METAL	2.7	1%	1/2W	
R229	1-214-804-11	METAL	3.3	1%	1/2W	
R230	1-215-469-00	METAL	100K	1%	1/6W	
R231	1-215-469-00	METAL	100K	1%	1/6W	
R232	1-249-429-11	CARBON	10K	5%	1/4W	
R233	1-247-901-11	CARBON	820K	5%	1/4W	
R234	1-247-901-11	CARBON	820K	5%	1/4W	
R235	1-247-897-11	CARBON	560K	5%	1/4W	
R236	1-247-897-11	CARBON	560K	5%	1/4W	
R237	1-249-441-11	CARBON	100K	5%	1/4W	
R238	1-249-433-11	CARBON	22K	5%	1/4W	
R239	1-249-433-11	CARBON	22K	5%	1/4W	
R240	1-249-440-11	CARBON	82K	5%	1/4W	
R241	1-215-483-00	METAL	390K	1%	1/6W	
R242	1-215-473-00	METAL	150K	1%	1/6W	
R243	1-215-457-00	METAL	33K	1%	1/6W	
R244	1-215-457-00	METAL	33K	1%	1/6W	
R245	1-215-465-00	METAL	68K	1%	1/6W	
R246	1-215-453-00	METAL	22K	1%	1/6W	
R247	1-215-457-00	METAL	33K	1%	1/6W	
R248	1-215-469-00	METAL	100K	1%	1/6W	
R249	1-249-416-11	CARBON	820	5%	1/4W	
R250	1-249-417-11	CARBON	1K	5%	1/4W	
R251	1-249-405-11	CARBON	100	5%	1/4W	
R252	1-215-463-00	METAL	56K	1%	1/6W	
R253	1-215-461-00	METAL	47K	1%	1/6W	
R254	1-249-413-11	CARBON	470	5%	1/4W	
R255	1-249-429-11	CARBON	10K	5%	1/4W	
R256	1-249-423-11	CARBON	3.3K	5%	1/4W	
R257	1-249-423-11	CARBON	3.3K	5%	1/4W	
R258	1-249-433-11	CARBON	22K	5%	1/4W	
R259	1-249-429-11	CARBON	10K	5%	1/4W	
R260	1-249-433-11	CARBON	22K	5%	1/4W	
R261	1-249-433-11	CARBON	22K	5%	1/4W	
R262	1-249-441-11	CARBON	100K	5%	1/4W	
R263 ⚠	1-215-910-51	METAL OXIDE	68	5%	3W	F
R264 ⚠	1-215-910-51	METAL OXIDE	68	5%	3W	F
R265 ⚠	1-215-910-51	METAL OXIDE	68	5%	3W	F
R266 ⚠	1-215-910-51	METAL OXIDE	68	5%	3W	F

Ref.No.	Part No.	Description				Remark
R401	1-249-423-11	CARBON	3.3K	5%	1/4W	
R402	1-249-417-11	CARBON	1K	5%	1/4W	
R403	1-249-417-11	CARBON	1K	5%	1/4W	
R404	1-249-417-11	CARBON	1K	5%	1/4W	
R405	1-249-417-11	CARBON	1K	5%	1/4W	
R406	1-249-417-11	CARBON	1K	5%	1/4W	
R407	1-249-417-11	CARBON	1K	5%	1/4W	
R408	1-249-417-11	CARBON	1K	5%	1/4W	
R409	1-249-417-11	CARBON	1K	5%	1/4W	
R410	1-249-417-11	CARBON	1K	5%	1/4W	
R411	1-249-417-11	CARBON	1K	5%	1/4W	
R412	1-249-405-11	CARBON	100	5%	1/4W	
R413	1-249-417-11	CARBON	1K	5%	1/4W	
R414	1-249-405-11	CARBON	100	5%	1/4W	
R415	1-249-417-11	CARBON	1K	5%	1/4W	
R416	1-249-405-11	CARBON	100	5%	1/4W	
R417	1-249-417-11	CARBON	1K	5%	1/4W	
R418	1-249-405-11	CARBON	100	5%	1/4W	
R419	1-249-405-11	CARBON	100	5%	1/4W	
R420	1-249-405-11	CARBON	100	5%	1/4W	
R421	1-249-417-11	CARBON	1K	5%	1/4W	
R422	1-249-417-11	CARBON	1K	5%	1/4W	
R423	1-249-417-11	CARBON	1K	5%	1/4W	
R424	1-249-417-11	CARBON	1K	5%	1/4W	
R425	1-249-417-11	CARBON	1K	5%	1/4W	
R426	1-249-417-11	CARBON	1K	5%	1/4W	
R427	1-249-417-11	CARBON	1K	5%	1/4W	
R428	1-249-417-11	CARBON	1K	5%	1/4W	
R429	1-249-417-11	CARBON	1K	5%	1/4W	
R430	1-249-435-11	CARBON	33K	5%	1/4W	
R431	1-215-471-00	METAL	120K	1%	1/6W	
R432	1-215-455-00	METAL	27K	1%	1/6W	
R433	1-215-477-00	METAL	220K	1%	1/6W	
R434	1-215-475-00	METAL	180K	1%	1/6W	
R435	1-215-455-00	METAL	27K	1%	1/6W	
R436	1-215-468-00	METAL	91K	1%	1/6W	
R437	1-215-471-00	METAL	120K	1%	1/6W	
R438	1-215-452-00	METAL	20K	1%	1/6W	
R439	1-215-465-00	METAL	68K	1%	1/6W	
R500	1-215-491-00	METAL	820K	1%	1/6W	

VARIABLE RESISTOR

RV1	1-224-251-XX	RES, ADJ, METAL GLAZE 4.7K	
RV2	1-224-251-XX	RES, ADJ, METAL GLAZE 4.7K	
RV3	1-230-633-41	RES, ADJ, CARBON 47K	
RV4	1-230-633-41	RES, ADJ, CARBON 47K	
RV5	1-230-630-11	RES, ADJ, CARBON 10K	
RV6	1-230-630-11	RES, ADJ, CARBON 10K	
RV7	1-230-630-11	RES, ADJ, CARBON 10K	
RV8	1-230-630-11	RES, ADJ, CARBON 10K	
RV9	1-230-630-11	RES, ADJ, CARBON 10K	
RV10	1-230-630-11	RES, ADJ, CARBON 10K	
RV11	1-230-630-11	RES, ADJ, CARBON 10K	
RV12	1-230-630-11	RES, ADJ, CARBON 10K	
RV13	1-230-630-11	RES, ADJ, CARBON 10K	
RV14	1-230-630-11	RES, ADJ, CARBON 10K	
RV15	1-230-630-11	RES, ADJ, CARBON 10K	
RV16	1-230-630-11	RES, ADJ, CARBON 10K	
RV17	1-230-630-11	RES, ADJ, CARBON 10K	
RV18	1-230-630-11	RES, ADJ, CARBON 10K	
RV19	1-230-630-11	RES, ADJ, CARBON 10K	
RV20	1-230-630-11	RES, ADJ, CARBON 10K	
RV21	1-230-630-11	RES, ADJ, CARBON 10K	
RV22	1-230-630-11	RES, ADJ, CARBON 10K	
RV23	1-230-630-11	RES, ADJ, CARBON 10K	
RV24	1-230-630-11	RES, ADJ, CARBON 10K	
RV25	1-230-630-11	RES, ADJ, CARBON 10K	
RV26	1-230-630-11	RES, ADJ, CARBON 10K	
RV27	1-230-630-11	RES, ADJ, CARBON 10K	
RV28	1-230-630-11	RES, ADJ, CARBON 10K	
RV29	1-230-630-11	RES, ADJ, CARBON 10K	
RV30	1-230-630-11	RES, ADJ, CARBON 10K	
RV31	1-230-630-11	RES, ADJ, CARBON 10K	
RV32	1-230-630-11	RES, ADJ, CARBON 10K	
RV33	1-230-630-11	RES, ADJ, CARBON 10K	
RV34	1-230-630-11	RES, ADJ, CARBON 10K	
RV35	1-230-630-11	RES, ADJ, CARBON 10K	
RV36	1-230-630-11	RES, ADJ, CARBON 10K	
RV37	1-230-630-11	RES, ADJ, CARBON 10K	
RV38	1-230-630-11	RES, ADJ, CARBON 10K	
RV39	1-230-630-11	RES, ADJ, CARBON 10K	
RV40	1-230-630-11	RES, ADJ, CARBON 10K	
RV41	1-230-630-11	RES, ADJ, CARBON 10K	
RV42	1-230-630-11	RES, ADJ, CARBON 10K	
RV43	1-230-630-11	RES, ADJ, CARBON 10K	
RV44	1-230-630-11	RES, ADJ, CARBON 10K	
RV45	1-230-630-11	RES, ADJ, CARBON 10K	
RV46	1-230-630-11	RES, ADJ, CARBON 10K	
RV47	1-230-630-11	RES, ADJ, CARBON 10K	
RV48	1-230-630-11	RES, ADJ, CARBON 10K	
RV49	1-230-630-11	RES, ADJ, CARBON 10K	
RV50	1-230-630-11	RES, ADJ, CARBON 10K	
RV51	1-230-630-11	RES, ADJ, CARBON 10K	
RV401	1-228-938-00	RES, VAR, CARBON 20K	
RV402	1-228-938-00	RES, VAR, CARBON 20K	
RV403	1-228-937-00	RES, VAR, CARBON 20K	
RV404	1-228-937-00	RES, VAR, CARBON 20K	
RV405	1-228-937-00	RES, VAR, CARBON 20K	
RV406	1-228-938-00	RES, VAR, CARBON 20K	

SWITCH

S1	1-553-755-00	SWITCH, SLIDE
S2	1-553-755-00	SWITCH, SLIDE
S3	1-553-755-00	SWITCH, SLIDE
S4	1-553-755-00	SWITCH, SLIDE
S5	1-553-755-00	SWITCH, SLIDE
S6	1-553-755-00	SWITCH, SLIDE
S7	1-553-755-00	SWITCH, SLIDE
S8	1-553-716-00	SWITCH, SLIDE
S9	1-553-716-00	SWITCH, SLIDE
S10	1-553-716-00	SWITCH, SLIDE
S11	1-553-716-00	SWITCH, SLIDE
S12	1-553-716-00	SWITCH, SLIDE
S13	1-552-437-00	SWITCH, LEVER
S401	1-552-737-00	SWITCH, PUSH
S402	1-554-499-00	SWITCH, PUSH (2 KEY)
S403	1-516-970-00	SWITCH, SLIDE

****

*1-621-059-11 DB BOARD

****

CAPACITOR

C1	1-161-265-00	CERAMIC	33PF	5%	50V
C2	1-161-265-00	CERAMIC	33PF	5%	50V
C3	1-161-319-00	CERAMIC	470PF	10%	50V
C4	1-161-319-00	CERAMIC	470PF	10%	50V

DB **DY** **E**

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Ref.No.	Part No.	Description			Remark
		IC			
IC1	8-759-106-41	IC UPC4570C			
		TRANSISTOR			
Q1	8-729-205-96	TRANSISTOR 2SC3668			
Q2	8-729-205-95	TRANSISTOR 2SA1428-Y			
Q3	8-729-205-96	TRANSISTOR 2SC3668			
Q4	8-729-205-95	TRANSISTOR 2SA1428-Y			
		RESISTOR			
R1	1-215-453-00	METAL	22K	1% 1/6W	
R2	1-215-453-00	METAL	22K	1% 1/6W	
R3	1-249-411-11	CARBON	330	5% 1/4W	
R4	1-249-411-11	CARBON	330	5% 1/4W	
R5	1-247-705-11	CARBON	270	5% 1/4W	
R6	1-247-705-11	CARBON	270	5% 1/4W	
		CONNECTOR			
W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P			
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P			
**********					
	*1-621-053-11	DY BOARD ********			
		CAPACITOR			
C901	1-102-327-00	CERAMIC	330PF	15% 1.5KV	
C902	1-102-327-00	CERAMIC	330PF	15% 1.5KV	
		CONNECTOR			
DY1	*1-566-041-11	PIN, CONNECTOR 2P			
DY2	*1-566-041-11	PIN, CONNECTOR 2P			
		RESISTOR			
R901 ⚠	1-202-822-51	SOLID	2.2K	10% 1/2W	
R902 ⚠	1-202-822-51	SOLID	2.2K	10% 1/2W	
		SPARK GAP			
SG901	1-519-063-XX	DISCHARGING GAP			
SG902	1-519-063-XX	DISCHARGING GAP			
**********					
	*A-1340-922-A	E BOARD, COMPLETE **********			
	4-383-022-01	SPACER, MICA			
		CAPACITOR			
C1	1-123-933-00	ELECT	10MF	20% 160V	
C2	1-123-379-00	ELECT	0.47MF	20% 50V	
C3	1-102-106-00	CERAMIC	100PF	10% 50V	
C4	1-102-030-00	CERAMIC	330PF	10% 500V	
C5	1-108-700-11	MYLAR	0.047MF	10% 200V	
C6	1-102-030-00	CERAMIC	330PF	10% 500V	
C7	1-108-700-11	MYLAR	0.047MF	10% 200V	
C8	1-123-024-00	ELECT	33MF	160V	
C9	1-136-113-00	FILM	2MF	5% 200V	
C10	1-136-113-00	FILM	2MF	5% 200V	
C11	1-130-706-00	FILM	0.008MF	3% 1.6KV	
C12	1-124-662-11	ELECT	220MF	20% 50V	
C13	1-124-662-11	ELECT	220MF	20% 50V	
C14	1-124-662-11	ELECT	220MF	20% 50V	
C15	1-101-004-00	CERAMIC	0.01MF	50V	
C16	1-123-380-00	ELECT	1MF	20% 50V	
C17	1-123-356-00	ELECT	10MF	20% 25V	
C18	1-124-589-11	ELECT	47MF	20% 16V	
C19	1-108-692-81	MYLAR	0.01MF	10% 200V	
C20	1-136-153-00	FILM	0.01MF	5% 50V	
C21	1-136-153-00	FILM	0.01MF	5% 50V	
C24	1-101-006-00	CERAMIC	0.047MF	50V	
C25	1-123-333-00	ELECT	100MF	20% 16V	
C26	1-123-333-00	ELECT	100MF	20% 16V	
C27	1-101-006-00	CERAMIC	0.047MF	50V	
C28	1-101-006-00	CERAMIC	0.047MF	50V	
C29	1-123-356-00	ELECT	10MF	20% 16V	
C30	1-123-356-00	ELECT	10MF	20% 16V	
C31	1-101-006-00	CERAMIC	0.047MF	50V	
C32	1-123-356-00	ELECT	10MF	20% 25V	
C33	1-123-333-00	ELECT	100MF	20% 16V	
C34	1-108-704-11	MYLAR	0.1MF	10% 200V	
C35	1-102-125-00	CERAMIC	0.0047MF	10% 50V	
		DIODE			
D1	8-719-300-80	DIODE RU-1C			
D2	8-719-300-80	DIODE RU-1C			
D3	8-719-918-77	DIODE V19G			
D4	8-719-918-77	DIODE V19G			
D6	8-719-109-98	DIODE RD6.8ES-B3			
D7	8-719-110-09	DIODE RD8.2ES-B3			
D8	8-719-911-19	DIODE 1SS119			
D9	8-719-109-98	DIODE RD6.8ES-B3			
D10	8-719-911-19	DIODE 1SS119			
		CONNECTOR			
E1	*1-506-371-00	2P PLUG (L)			
E2	*1-506-371-00	2P PLUG (L)			
E3	*1-506-371-00	2P PLUG (L)			
E4	*1-508-786-00	2P PLUG (M)			
E5	*1-566-060-11	PIN, CONNECTOR 8P			
E6	*1-566-055-11	PIN, CONNECTOR 3P			
E7	*1-566-062-11	PIN, CONNECTOR 10P			
E8	*1-566-060-11	PIN, CONNECTOR 8P			
E9	*1-566-055-11	PIN, CONNECTOR 3P			
E11	*1-566-055-11	PIN, CONNECTOR 3P			
		IC			
IC1	8-759-178-12	IC UPC78L12			
IC2	8-759-145-58	IC UPC4558C			
IC3	8-759-700-24	IC NJM79M12A			
		COIL			
L1	1-459-155-00	COIL (WITH CORE) 45UH			
L2	1-459-155-00	COIL (WITH CORE) 45UH			
L5	1-459-241-12	COIL, HORIZONTAL LINIALITY			
L6	1-459-348-00	COIL, VAR, FERRITE (HWC)			
L7	1-459-348-00	COIL, VAR, FERRITE (HWC)			

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E **EB** **EC**

Ref.No.	Part No.	Description				Remark
L8	1-459-348-00	COIL, VAR, FERRITE (HWC)				
		TRANSISTOR				
Q1	8-729-800-80	TRANSISTOR 2SD1399-CA				
Q2 ⚠	8-729-902-00	TRANSISTOR 2SC3163				
Q3	8-729-168-82	TRANSISTOR 2SC2688				
Q4	8-729-168-82	TRANSISTOR 2SC2688				
Q5	8-729-114-22	TRANSISTOR 2SA1142				
Q6	8-729-178-54	TRANSISTOR 2SC2785				
Q7	8-729-900-85	TRANSISTOR DTC144WS				
Q9	8-729-117-54	TRANSISTOR 2SA1175				
		RESISTOR				
R1	1-249-417-11	CARBON	1K	5%	1/4W	
R2	1-216-395-00	WIREWOUND	3.3	10%	2W	F
R3	1-249-417-11	CARBON	1K	5%	1/4W	F
R4	1-249-469-11	CARBON	100K	5%	1/4W	
R5	1-249-423-11	CARBON	3.3K	5%	1/4W	
R6	1-249-429-11	CARBON	10K	5%	1/4W	F
R7	1-215-921-11	METAL OXIDE	4.7K	5%	3W	F
R8	1-249-429-11	CARBON	10K	5%	1/4W	F
R9	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R10	1-215-880-00	METAL OXIDE	10	5%	2W	F
R12	1-216-379-11	METAL OXIDE	6.8	5%	2W	F
R13	1-215-868-00	METAL OXIDE	680	5%	1W	F
R14	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R15	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R16	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R17	1-249-385-11	CARBON	2.2	5%	1/4W	F
R18	1-249-385-11	CARBON	2.2	5%	1/4W	F
R19	1-249-385-11	CARBON	2.2	5%	1/4W	F
R20	1-249-405-11	CARBON	100	5%	1/4W	
R21	1-249-423-11	CARBON	3.3K	5%	1/4W	
R22	1-249-440-11	CARBON	82K	5%	1/4W	
R25	1-215-469-00	METAL	100K	1%	1/6W	
R26	1-215-443-00	METAL	8.2K	1%	1/6W	
R27	1-215-455-00	METAL	27K	1%	1/6W	
R28	1-215-475-00	METAL	180K	1%	1/6W	
R29	1-215-475-00	METAL	180K	1%	1/6W	
R30	1-215-455-00	METAL	27K	1%	1/6W	
R31	1-247-893-11	CARBON	390K	5%	1/4W	
R32	1-249-417-11	CARBON	1K	5%	1/4W	
R33	1-247-895-00	CARBON	470K	5%	1/4W	
R34	1-215-485-00	METAL	470K	1%	1/6W	
R41	1-215-863-11	METAL OXIDE	100	5%	1W	F
R42	1-249-435-11	CARBON	33K	5%	1/4W	
R43	1-215-477-00	METAL	220K	1%	1/6W	
R44	1-249-413-11	CARBON	470	5%	1/4W	
R45	1-247-725-11	CARBON	10K	5%	1/4W	
R46	1-249-421-11	CARBON	2.2K	5%	1/4W	
R47	1-249-429-11	CARBON	10K	5%	1/4W	
R48	1-215-419-00	METAL	820	1%	1/6W	
		TRANSFORMER				
T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE				
T2	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE				
T3	1-439-320-00	TRANSFORMER, FERRITE (HOT)				

Ref.No.	Part No.	Description				Remark
	*1-621-055-11	EB BOARD ********				
		CAPACITOR				
C1	1-126-094-11	ELECT	4.7MF	20%	25V	
C2	1-126-094-11	ELECT	4.7MF	20%	25V	
C3	1-136-159-00	FILM	0.033MF	5%	50V	
C5	1-102-106-00	CERAMIC	100PF	10%	50V	
C6	1-130-475-00	MYLAR	0.0022MF	5%	50V	
C7	1-126-157-11	ELECT	10MF	20%	16V	
C8	1-136-165-00	FILM	0.1MF	5%	50V	
		DIODE				
D1	8-719-911-19	DIODE 1SS119				
		IC				
IC1	8-759-100-75	IC UPC1394C				
		RESISTOR				
R1	1-215-441-00	METAL	6.8K	1%	1/6W	
R2	1-249-417-11	CARBON	1K	5%	1/4W	
R3	1-249-431-11	CARBON	15K	5%	1/4W	
R4	1-249-427-11	CARBON	6.8K	5%	1/4W	
R5	1-249-441-11	CARBON	100K	5%	1/4W	
R6	1-249-423-11	CARBON	3.3K	5%	1/4W	
R7	1-249-429-11	CARBON	10K	5%	1/4W	
R8	1-249-413-11	CARBON	470	5%	1/4W	
R9	1-249-428-11	CARBON	8.2K	5%	1/4W	
R10	1-249-437-11	CARBON	47K	5%	1/4W	
R11	1-247-895-00	CARBON	470K	5%	1/4W	
R12	1-249-435-11	CARBON	33K	5%	1/4W	
R13	1-215-441-00	METAL	6.8K	1%	1/6W	
R14	1-215-441-00	METAL	6.8K	1%	1/6W	
		CONNECTOR				
W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P				
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P				
**********						
	*1-621-060-11	EC BOARD ********				
		CAPACITOR				
C1	1-161-330-00	CERAMIC	0.01MF	30%	25V	
C2	1-161-319-00	CERAMIC	470PF	10%	50V	
C3	1-161-319-00	CERAMIC	470PF	10%	50V	
		IC				
IC1	8-759-145-58	IC UPC4558C				
		TRANSISTOR				
Q1	8-729-205-96	TRANSISTOR 2SC3668				
Q2	8-729-205-95	TRANSISTOR 2SA1428-Y				

EC **ED** **HA** **X** **Y**

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Ref.No.	Part No.	Description				Remark
		RESISTOR				
R1	1-215-423-00	METAL	1.2K	1%	1/6W	
R2	1-249-417-11	CARBON	1K	5%	1/4W	
R3	1-215-445-00	METAL	10K	1%	1/6W	
R4	1-215-445-00	METAL	10K	1%	1/6W	
R5	1-215-445-00	METAL	10K	1%	1/6W	
R6	1-215-445-00	METAL	10K	1%	1/6W	
R7	1-215-375-00	METAL	12	1%	1/6W	
R8	1-215-375-00	METAL	12	1%	1/6W	
R9	1-215-375-00	METAL	12	1%	1/6W	
		CONNECTOR				
W3	*1-506-603-11	PLUG, L TYPE (2.0MM PITCH) 10P				
		**********				
	*1-622-694-11	ED BOARD ********				
		CONNECTOR				
ED1	*1-566-055-11	PIN, CONNECTOR 3P				
		COIL				
L1	1-459-109-00	COIL, DUST CORE				
L2	1-459-109-00	COIL, DUST CORE				
		RESISTOR				
R1	1-215-879-51	METAL OXIDE	47K	5%	1W F	
		**********				
	*1-621-062-11	HA BOARD ********				
		CONNECTOR				
HA1	*1-566-045-11	PIN, CONNECTOR 6P				
HA2	*1-566-042-11	PIN, CONNECTOR 3P				
HA3	*1-566-041-11	PIN, CONNECTOR 2P				
HA4	*1-566-042-11	PIN, CONNECTOR 3P				
HA5	*1-566-041-11	PIN, CONNECTOR 2P				
		RESISTOR				
R451	1-215-464-00	CARBON	62K	5%	1/4W	
		VARIABLE RESISTOR				
RV451	1-228-936-00	RES, VAR, CARBON 10K				
RV452	1-228-936-00	RES, VAR, CARBON 10K				
RV453	1-228-936-00	RES, VAR, CARBON 10K				
RV454	1-228-936-00	RES, VAR, CARBON 10K				
RV455	1-228-936-00	RES, VAR, CARBON 10K				
RV456	1-228-937-00	RES, VAR, CARBON 20K				
		SWITCH				
S451	1-516-970-00	SWITCH, SLIDE				
S452	1-514-633-00	SLIDE SWITCH				

Ref.No.	Part No.	Description	Remark
	*1-621-051-11	X BOARD *******	
		TERMINAL	
PL1	*1-535-615-11	TERMINAL (LAMP SOCKET)	
		CONNECTOR	
X1	*1-566-041-11	PIN, CONNECTOR 2P	
X2	*1-566-041-11	PIN, CONNECTOR 2P	
		**********	
	*1-621-052-11	Y BOARD *******	
	*4-365-850-00	HOLDER, LED	
		DIODE	
D1	8-719-909-20	DIODE GL-9NG2	
		CONNECTOR	
Y1	*1-566-041-11	PIN, CONNECTOR 2P	
		**********	
		MISCELLANEOUS **********	
	⚠1-237-582-11	RESISTOR ASSY, HIGH-VOLTAGE	
	⚠1-413-289-11	REGULATOR, SWITCHING (TK-15)	
	⚠1-451-243-12	DEFLECTION YOKE (SY-130A)	
	⚠1-452-261-32	PICTURE TUBE NECK ASSY (362)	
	⚠1-452-261-41	PICTURE TUBE NECK ASSY (362)	
	⚠1-452-302-11	PICTURE TUBE NECK ASSEMBLY	
	⚠1-453-108-11	DC BLOCK, HIGH-VOLTAGE	
	⚠1-509-547-11	3P INLET	
	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
	⚠1-552-437-11	SWITH, LEVER	
CNJ6	1-559-088-21	CONNECTOR ASSY, ROUND TYPE 14P	
FAN1	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
FAN2	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
FAN3	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
S901	⚠1-570-052-12	SWITCH, PUSH (AC POWER) (1 KEY)	
SP1	1-503-255-00	SPEAKER	
V901	⚠8-733-023-05	PICTURE TUBE (SD-187 (R))	
V902	⚠8-733-021-05	PICTURE TUBE (SD-187 (G))	
V903	⚠8-733-022-05	PICTURE TUBE (SD-187 (B))	

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ACCESSORIES AND PACKING MATERIALS

Part No.	Description	Remark
⚠ 1-558-377-11	CORD, POWER	
3-786-226-21	INSTRUCTION	
3-786-227-21	MANUAL, INSTRUCTION	
*4-310-638-00	BAG, PROTECTION	
*4-378-674-01	CUSHION (UPPER) (ASSY)	
*4-378-681-01	CUSHION (LOWER) (ASSY)	
*4-378-685-01	SPACER (200")	
*4-378-686-01	SPACER (200"), PICTURE TUBE	
*4-383-076-02	SPACER (VPH-1041Q ONLY)	
*4-383-085-01	CUSHION (A)	
*4-387-724-01	INDIVIDUAL CARTON (VPH-1041Q ONLY)	
*4-387-730-01	INDIVIDUAL CARTON (VPH-1042Q ONLY)	
*4-387-735-01	SPACER (VPH-1042Q ONLY)	

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VPH-1041Q/1042Q

SONY

SERVICE MANUAL

US Model
Canadian Model

VPH-1041Q
Chassis No. SCC-B80A-A

VPH-1042Q
Chassis No. SCC-B83A-A

SUPPLEMENT-1

File this supplement with the service manual.

INTRODUCTION

1.Part Number change for NECK ASSY.

2.BA Circut Board added part.

SECTION 7 DIAGRAMS
7-5.SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARD

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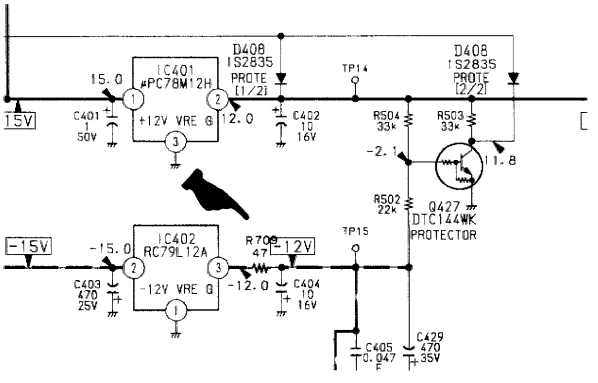

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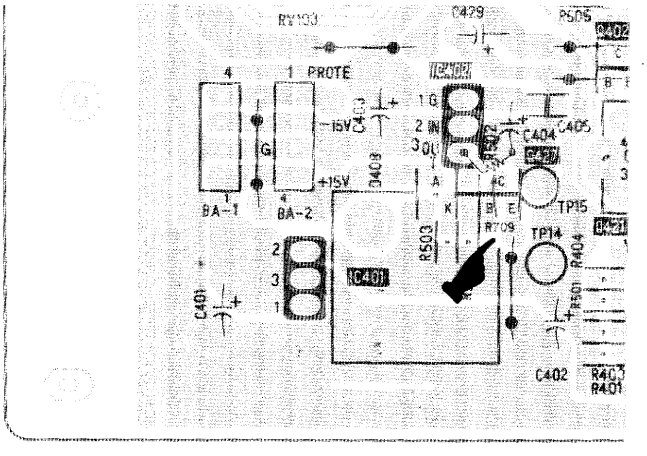

SECTION 8 EXPLODED VIEWS
8-4 BASE ASSY

	NO	Part No	Description
92	158	1-452-443-13	PICTURE TUBE NECK ASSEMBLY

MICROFILM
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