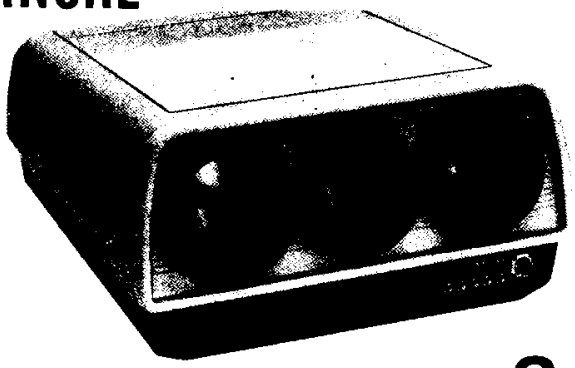
VPH-1040QM

SERVICE MANUAL

AEP Model

Chassis No. SCC-A65A-A



Super Bright

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	High-performance hybrid lenses F 1.0/130 mm
Projected picture size	72 – 250 inches measured 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	900 TV lines (RGB inputs) 550 TV lines (video input)
RGB inputs	Character display capacity: 2000 characters (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

VIDEO IN: BNC connector
Composite video input,
1 Vp-p ± 2 dB, sync negative,
75 ohms terminated
AUDIO IN: phono jack
0.5 Vrms
Impedance: more than
47 k ohms

RGB

R: BNC connector
Red input, 0.7 Vp-p ± 2dB,
75 ohms terminated, positive
G/G SYNC: BNC connector
Green input, 0.7 Vp-p ± 2 dB,
75 ohms terminated, positive
Positive/Green with sync input,
1 Vp-p ± 2 dB, 75 ohms terminated
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

– Continued on next page –

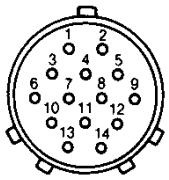
MICROFILM

COLOR VIDEO PROJECTOR

SONY®

MON

	VD: BNC connector Vertical sync input, 0.3 – 4 Vp-p, 75 ohms terminated, nagative AUDIO IN: phono jack 0.5 Vrms impedance: more than 47 k ohms
Output	VIDEO OUT: 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 VIDEO IN connector
TO VPR-722 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
5	Hue 3	12	Color
6	Video	13	Picture
7	Ground (video)	14	Power ON: 12V OFF: 0V

Power requirements	220 – 240 V AC, 50/60 Hz
Power consumption	210 W
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	Approx. 30 kg (66 lb 2 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-722
Projector pedestal SU-722
Projector suspension support PSS-722, PSS-10
Screen VPS-100F1 (100" flat)
VPS-72HG1 (72" curved)
VPS-100HG1 (100" curved)
Carrying case VLC-1040
CCQ 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.

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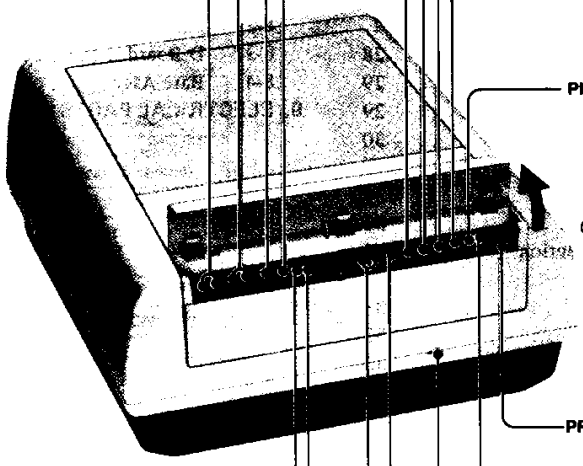
SECTION 1
GENERAL

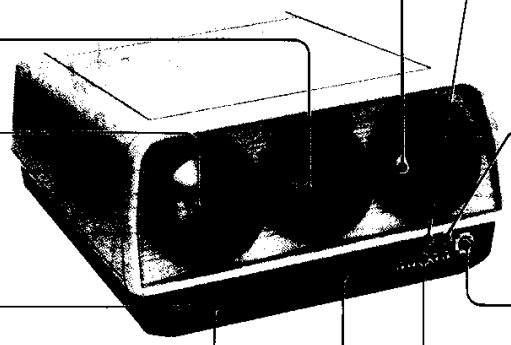
1-1. LOCATION AND FUNCTION OF CONTROLS

Control panel



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

Connector panel



Blue lens

Green lens

Red lens

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

AC IN socket

LINE input connectors
VIDEO IN (BNC), AUDIO IN (phono)

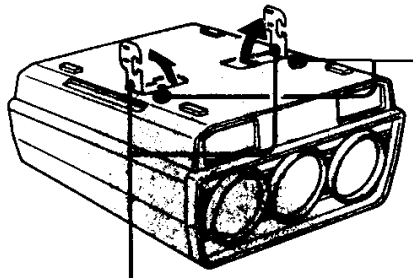
VIDEO OUT connector
(BNC)

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

RGB input connectors
R, G/G SYNC, B, SYNC H/D, VD (BNC),
AUDIO IN (phono)

Speaker

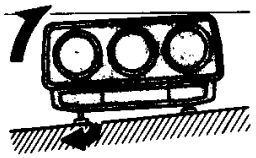
Bottom



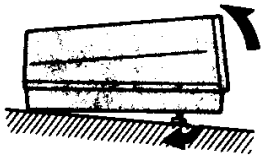
Brackets
For attaching the projector to the PSS-722 suspension support or the SU-722 pedestal.

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.



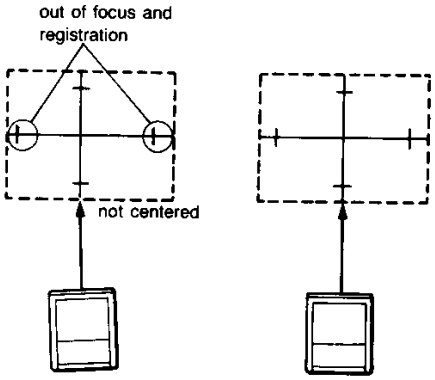
1-2. POSITION AND REGISTRATION ADJUSTMENTS

1 Depress the POWER switch (ON).

2 Depress the PROJECTOR switch (ON).

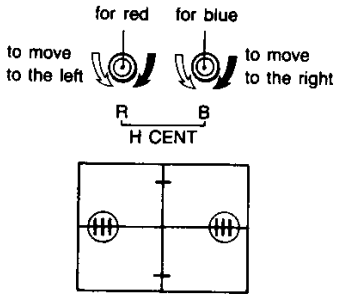
3 Set the NORM/TEST selector to TEST.
The built-in cross-hair test pattern will be displayed.

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.

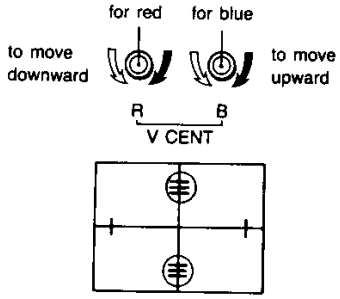


5 Check the convergence of red, green and blue.
If the red and blue lines do not converge with the green line, adjust the H CENT and V CENT controls so that the three lines converge and the pattern is seen as white.

To move the red and blue vertical lines

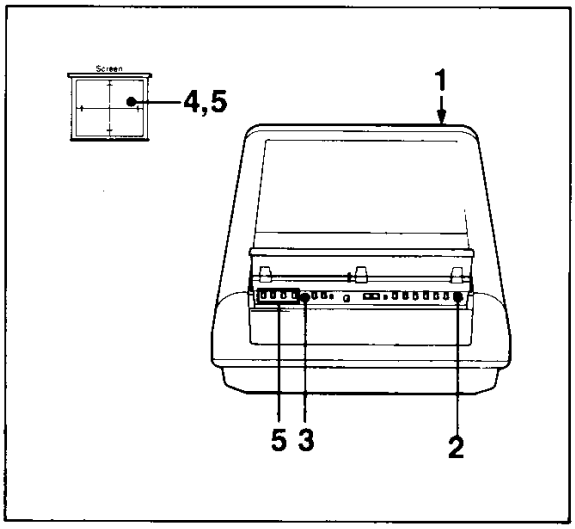


To move the red and blue horizontal lines

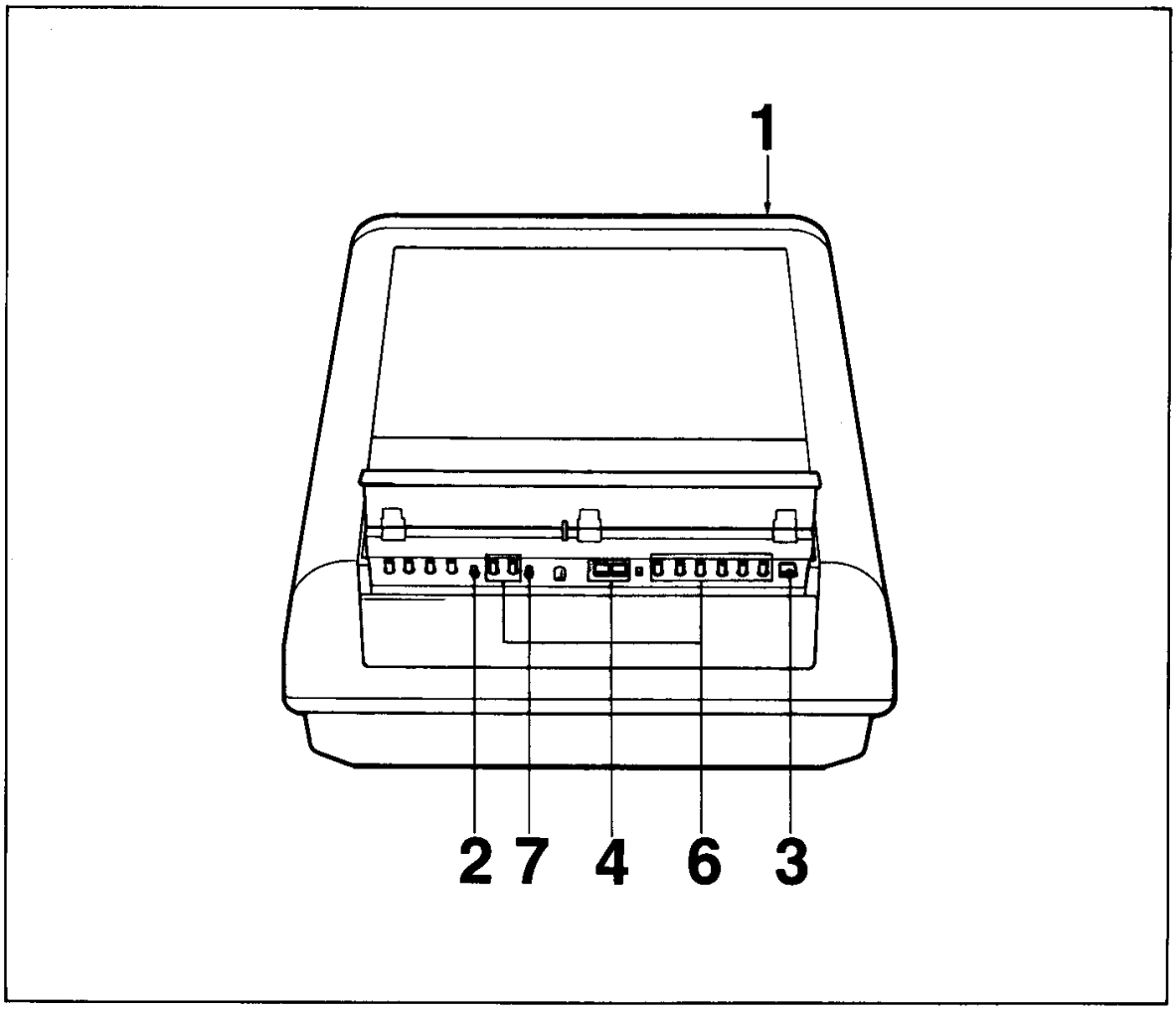


6 After the adjustment is complete, set the NORM/TEST selector to NORM.

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.



1-3. 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.

OPERATION USING THE REMOTE CONTROLLER

When the optional Sony VPR-722 remote controller is connected to the TO VPR-722 connector, keep the POWER switch on the projector at ON and perfom 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.

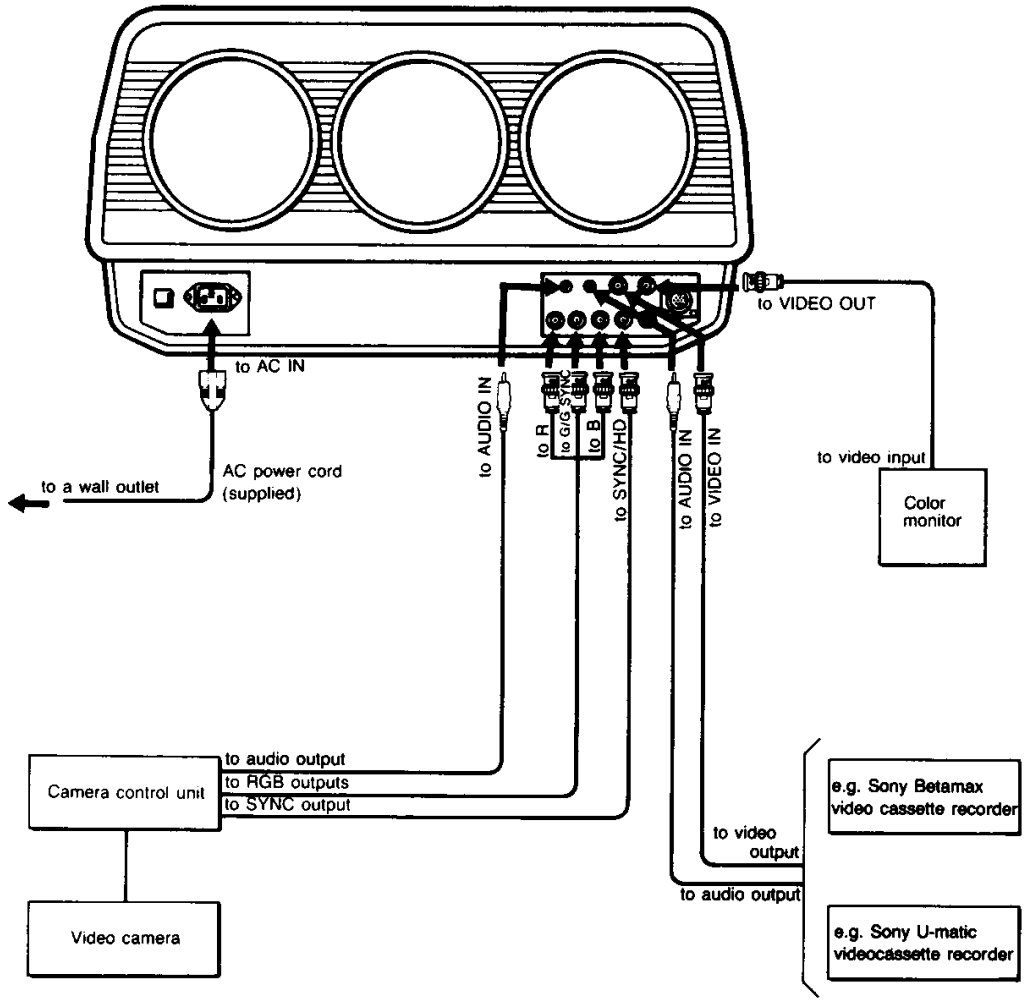
HUE	(Effective only for a program of the NTSC or NTSC4.43 color system) Turn clockwise to make the skin tones greenish, and counterclockwise to make them purplish.
V HOLD	If the picture rolls vertically, turn until the picture stabilizes.
RGB H SHIFT	(Effective only for RGB inputs) Turn to adjust the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

1-4. SYSTEM CONNECTIONS

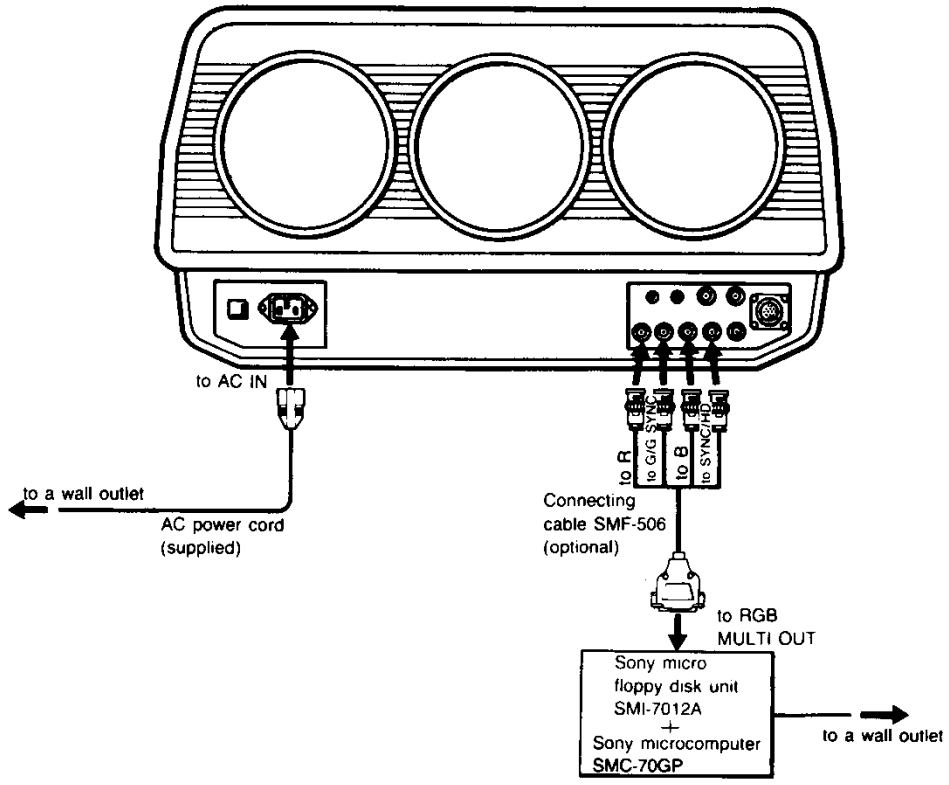
Connecting notes

- 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-722 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 VIDEO IN (LINE) connector on the projector.
- If necessary, connect an audio source to the RGB AUDIO IN jack.

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

BNC connector
● Turn clockwise.

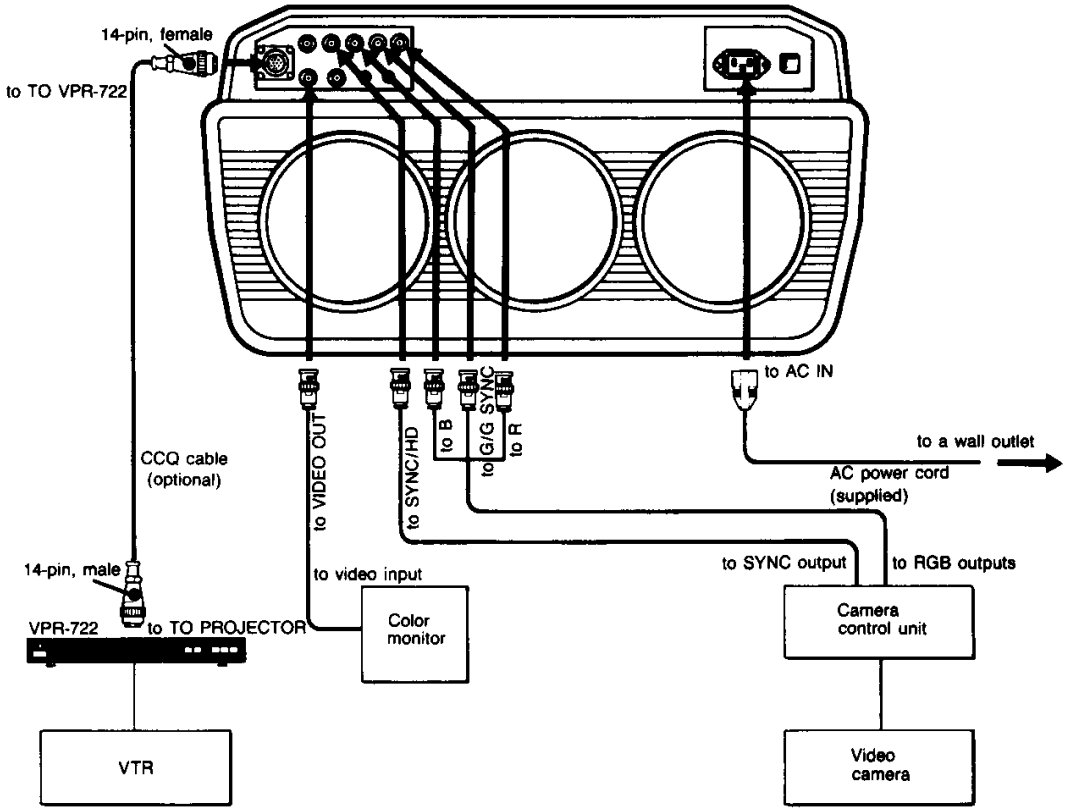
● Align and insert.

USING THE REMOTE CONTROLLER

Use the optional VPR-722 remote controller when the projector is installed on the ceiling or when you want to operate the projector at a distance from your seat.

Remote controllable operations

- Power on/off
- Program selection (LINE or RGB)
- Picture and sound adjustments
- RGB blue mode selection

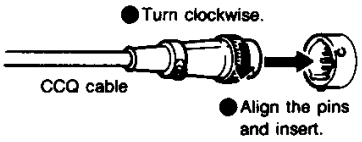


Notes

When the remote controller is connected to the TO VPR-722 connector:

- the VIDEO IN/AUDIO IN (LINE) connectors are disconnected automatically.
- the PROJECTOR switch, INPUT SELECT buttons, RGB BLUE MODE SELECT switch and the controls for picture and sound adjustments (except H SHIFT and V HOLD) do not function.

14-pin connector



1-5. INSTALLATION POSSIBILITIES

For 100" projection				
Installation place	Desk	Floor	Ceiling	
Screen to be used	VPS-100F1 flat screen	VPS-100HG1 curved screen	VPS-100F1 flat screen	VPS-100HG1 curved screen
Accessory for installation	—	SU-722 pedestal	PSS-722 suspension support	
Type of installation	1	2	3	4

For 72" projection				
Installation place	Desk	Floor	Ceiling	
Screen to be used	VPS-100F1 flat screen	VPS-72HG1 curved screen	VPS-100F1 flat screen	VPS-72HG1 curved screen
Accessory for installation	—	SU-722 pedestal	PSS-722 suspension support	
Type of installation	5	6	7	8

For 100" – 250" projection*		
Installation place	Floor	Ceiling
Screen to be used	100" – 250" flat screen	
Accessory for installation	—	PSS-722 suspension support
Type of installation	9	10

* For 150" – 250" projection, internal conversion is necessary. First perform conversion, referring to pages 26 and 27.

Types of installation:
The same numbers are used for the system installation procedure and the installation diagrams in this manual.

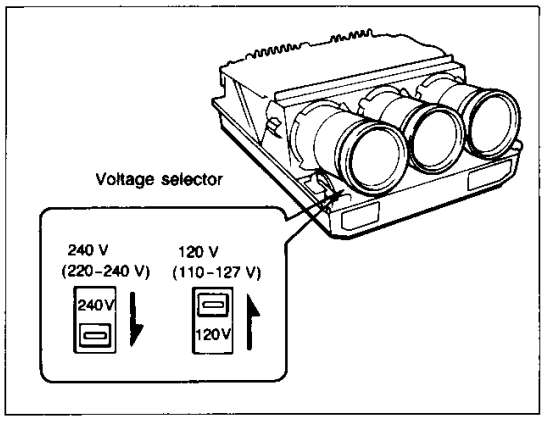
1-6. SYSTEM INSTALLATION PROCEDURE

		Type of installation									
		1	2	3	4	5	6	7	8	9	10
1	Install the screen. (See pages 14 to 19 and screen's installation manual.)	1	1	1	1	1	1	1	1	1	1
2	Place the projector on the desk. (See pages 14, 16 and 18.)	2				2				2	
3	Place the projector on the SU-722 pedestal. (See pages 14 and 16 and SU-722's installation manual.)		3				3				
4	Change the polarity. (See page 22.)			4	4			4	4		4
5	Install the PSS-722 suspension support to the ceiling and attach the projector to the PSS-722. (See pages 15, 17 and 18 and PSS-722's installation manual.)			5	5			5	5		5
6	Adjust the lens focus. (See page 23.)		6		6	6	6	6	6	6	6
7	Adjust the registration. (See page 24.)		7		7	7	7	7	7	7	7
8	Make the connections. (See the projector's instruction manual.)	8	8	8	8	8	8	8	8	8	8

1-7. BEFORE INSTALLING

OPERATING VOLTAGE SELECTION

The operating voltage of this unit is preset at the factory to 240 V (220 - 240 V) AC. The voltage can be set to 120 V (110 - 127 V) AC.
If adaptation to your local power line voltage is necessary, **before connecting the unit to the AC outlet**, open the cabinet and set the voltage selector to the appropriate position using a screwdriver. Make a note of your voltage setting.
For removing the cabinet, see page 21.



ILLUMINATION

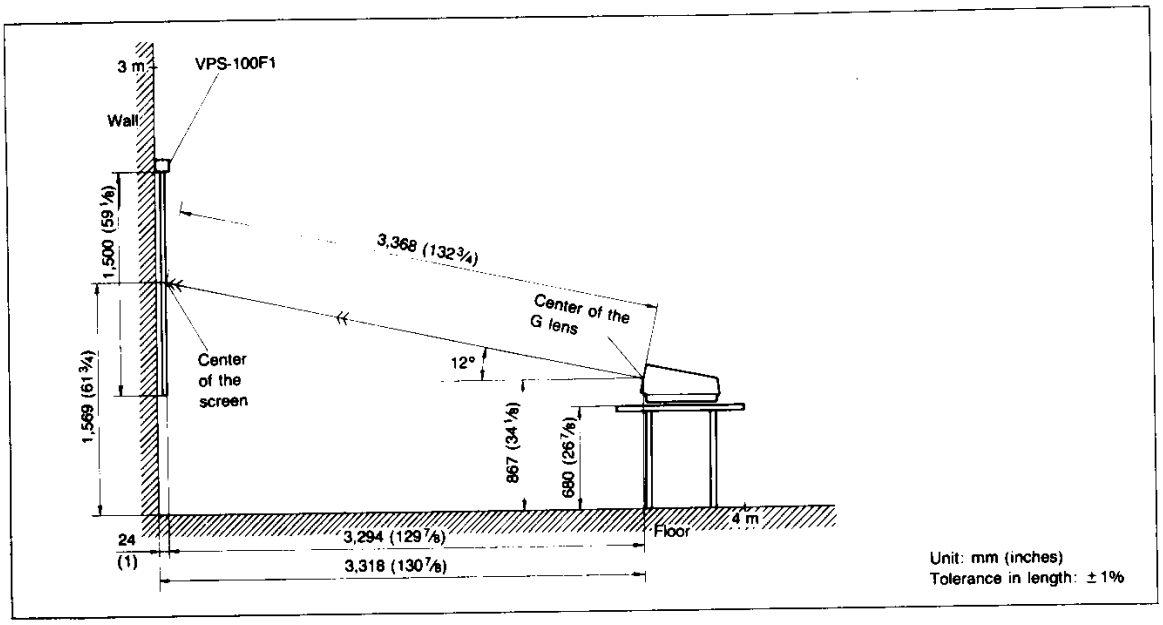
To obtain a clear picture, the screen should not be exposed to illumination or sunlight directly from the front.

- Ceiling mounted spot lighting is recommended. Use a construction over lightscattering illumination such as fluorescent lamps.
- Cover the windows that face the screen with opaque draperies.
- It is desirable to install the projector in a room whose floor and walls are not of light-reflecting material. If the floor and walls are of reflecting material, it would be desirable to change to a dark carpet and wall paper.

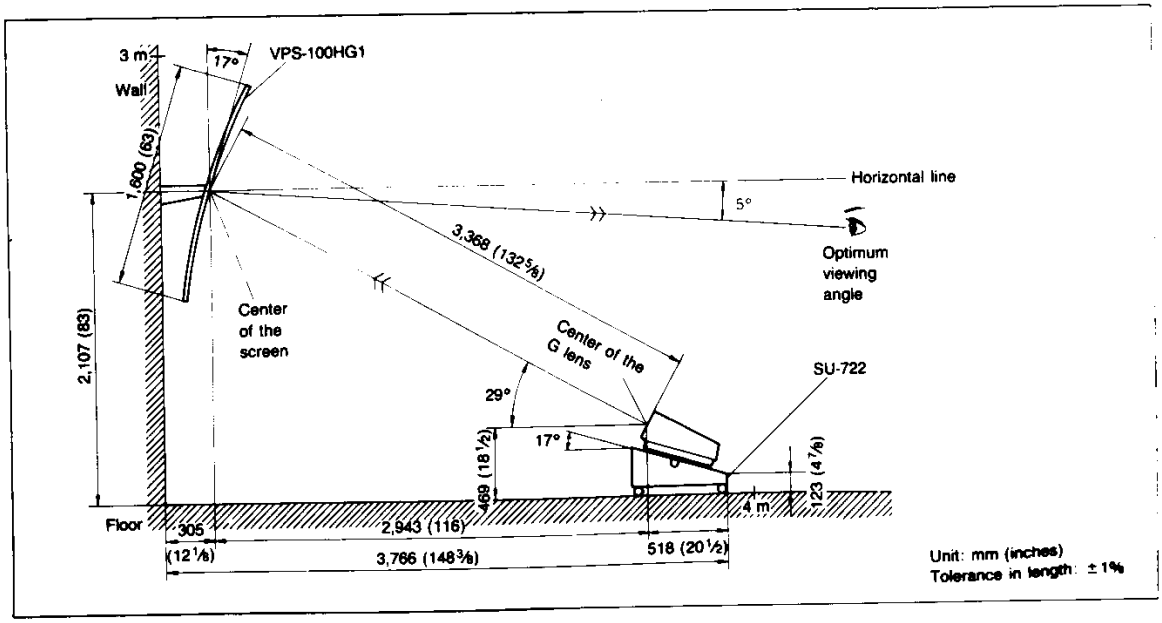
1-8. INSTALLATION DIAGRAMS

The following installation diagrams indicate the relative position of the projector, screen and ceiling/floor. The projector is preadjusted at the factory for the indicated throwing distance. If the throwing distance should be changed more than ±1% of the indicated value, lens focus and registration readjustments may be required for optimum projection.

Type 1 **100" projection**
Desk top
Flat screen

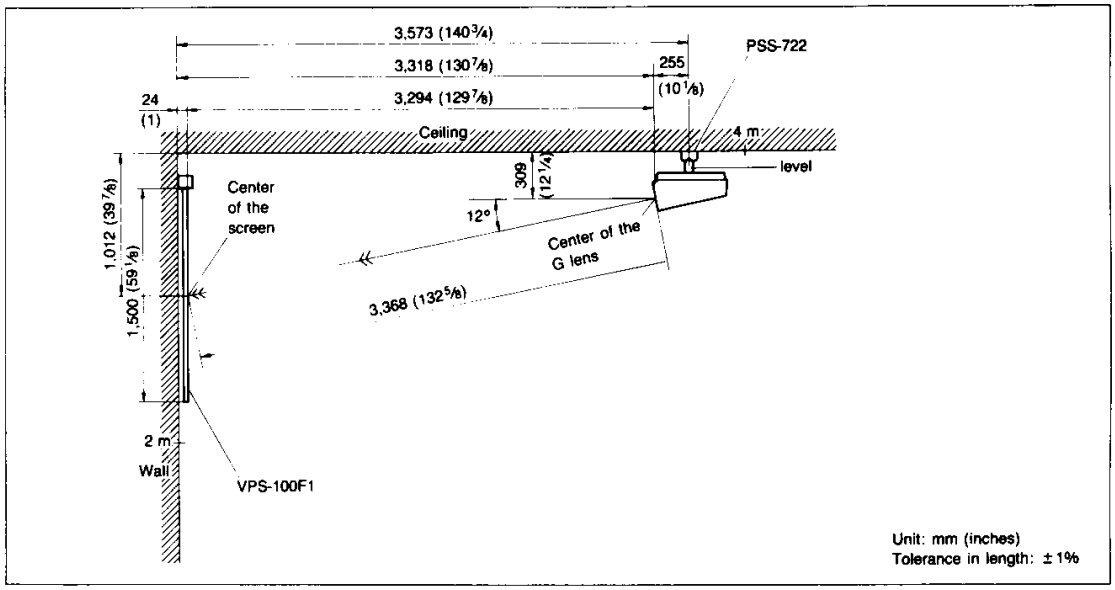


Type 2 **100" projection**
Floor
Curved screen



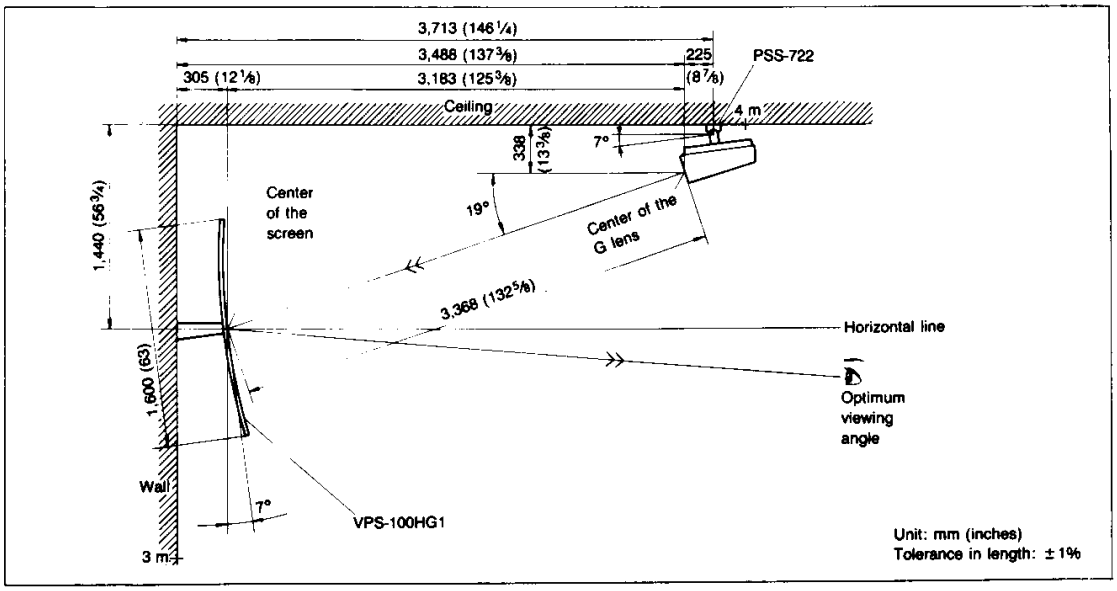
Type 3

100″ projection
Ceiling
Flat screen



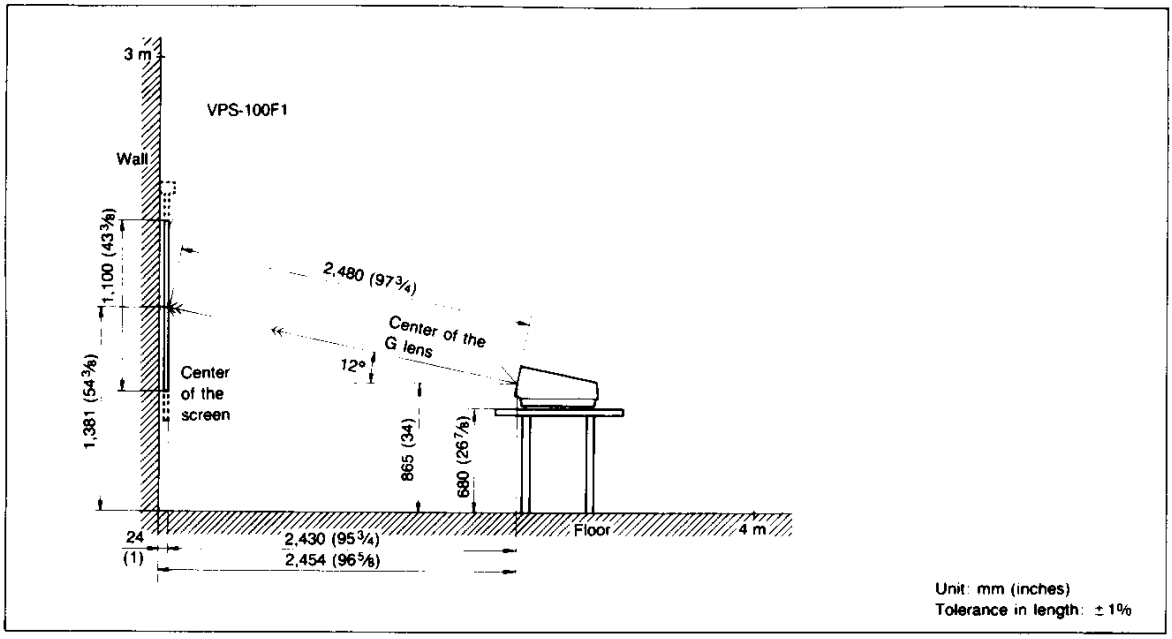
Type 4

100″ projection
Ceiling
Curved screen



Type 5

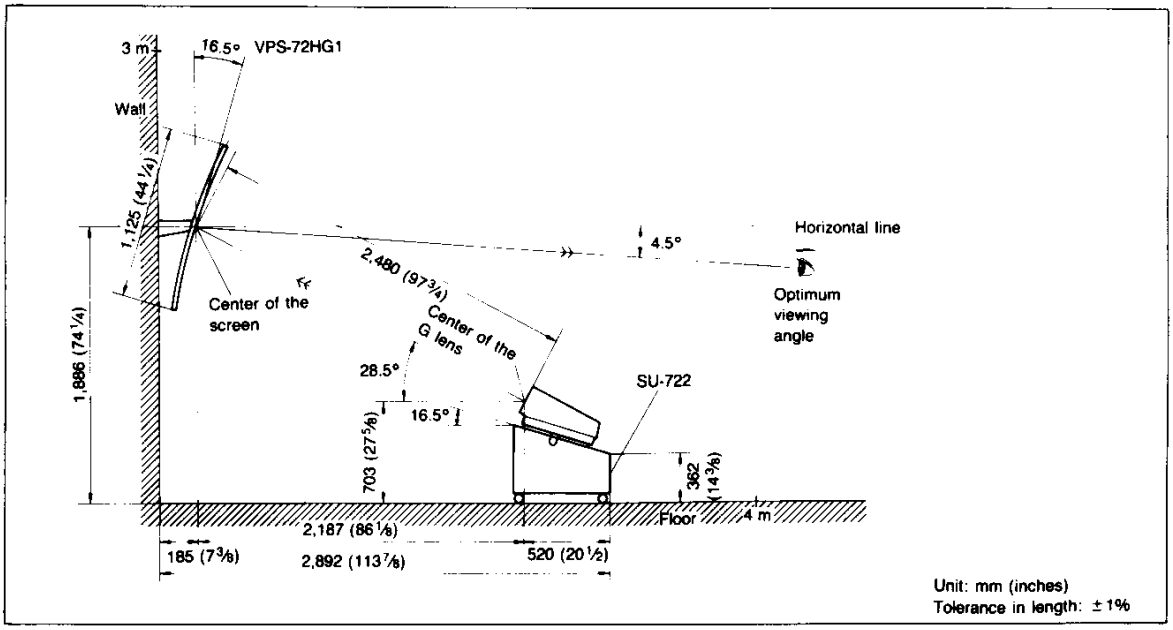
72″ projection
Desk top
Flat screen



Unit: mm (inches)
Tolerance in length: ±1%

Type 6

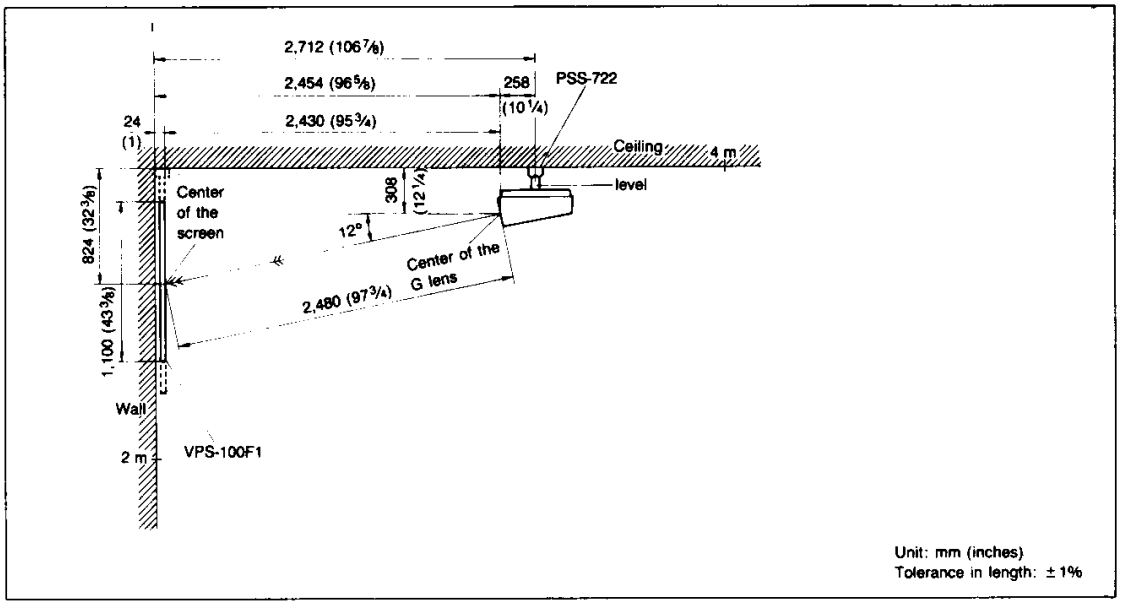
72″ projection
Floor
Curved screen



Unit: mm (inches)
Tolerance in length: ±1%

Type 7

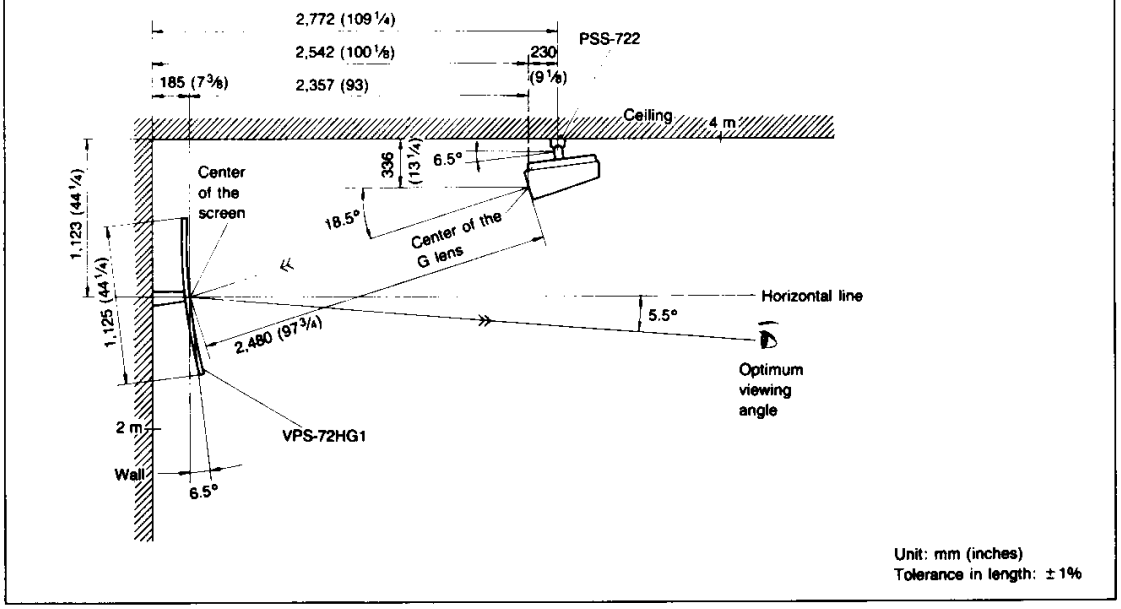
72″ projection
Ceiling
Flat screen



Unit: mm (inches)
Tolerance in length: ±1%

Type 8

72″ projection
Ceiling
Curved screen



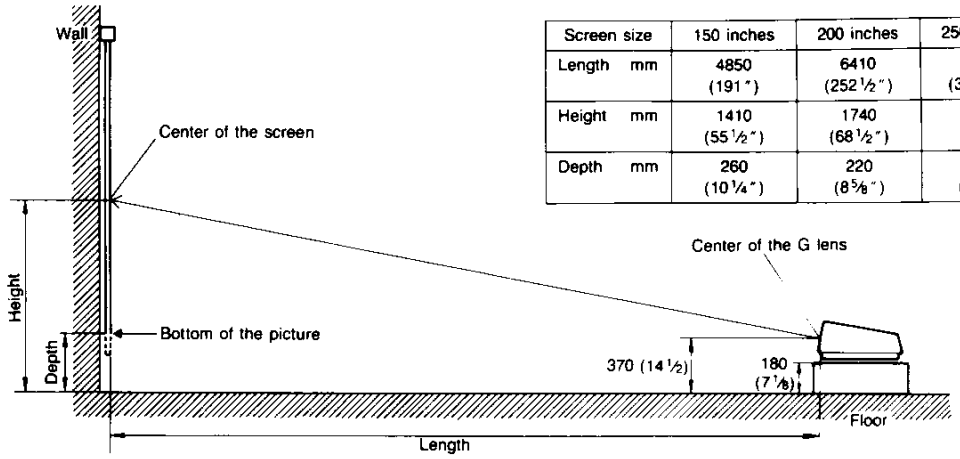
Unit: mm (inches)
Tolerance in length: ±1%

Type 9

100″ – 250″ projection
Floor
Flat screen

Decide the length, height, and depth according to the screen size to be used.

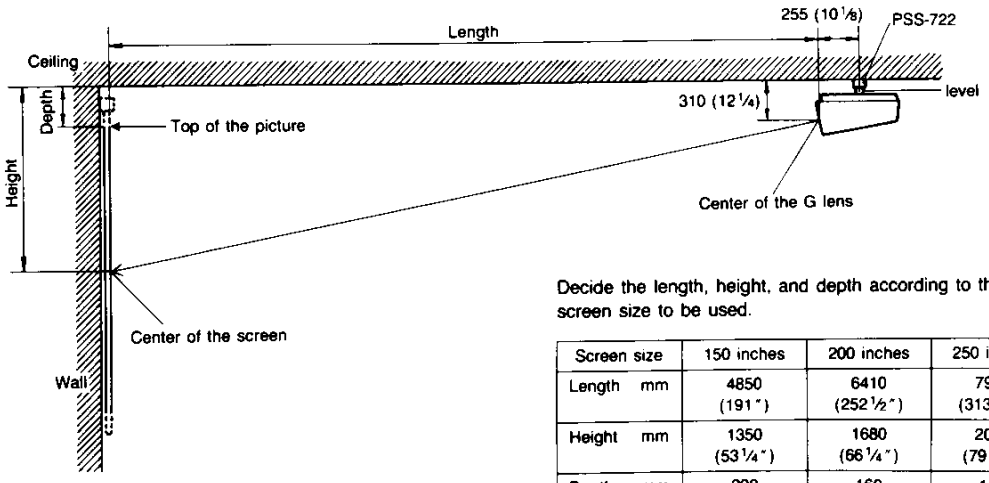
Screen size	150 inches	200 inches	250 inches
Length mm	4850 (191″)	6410 (252 1/2″)	7960 (313 1/2″)
Height mm	1410 (55 1/2″)	1740 (68 1/2″)	2080 (82″)
Depth mm	260 (10 1/4″)	220 (8 5/8″)	170 (6 3/4″)



Unit: mm (inches)
Tolerance in length: ±1%

Type 10

100″ – 250″ projection
Ceiling
Flat screen



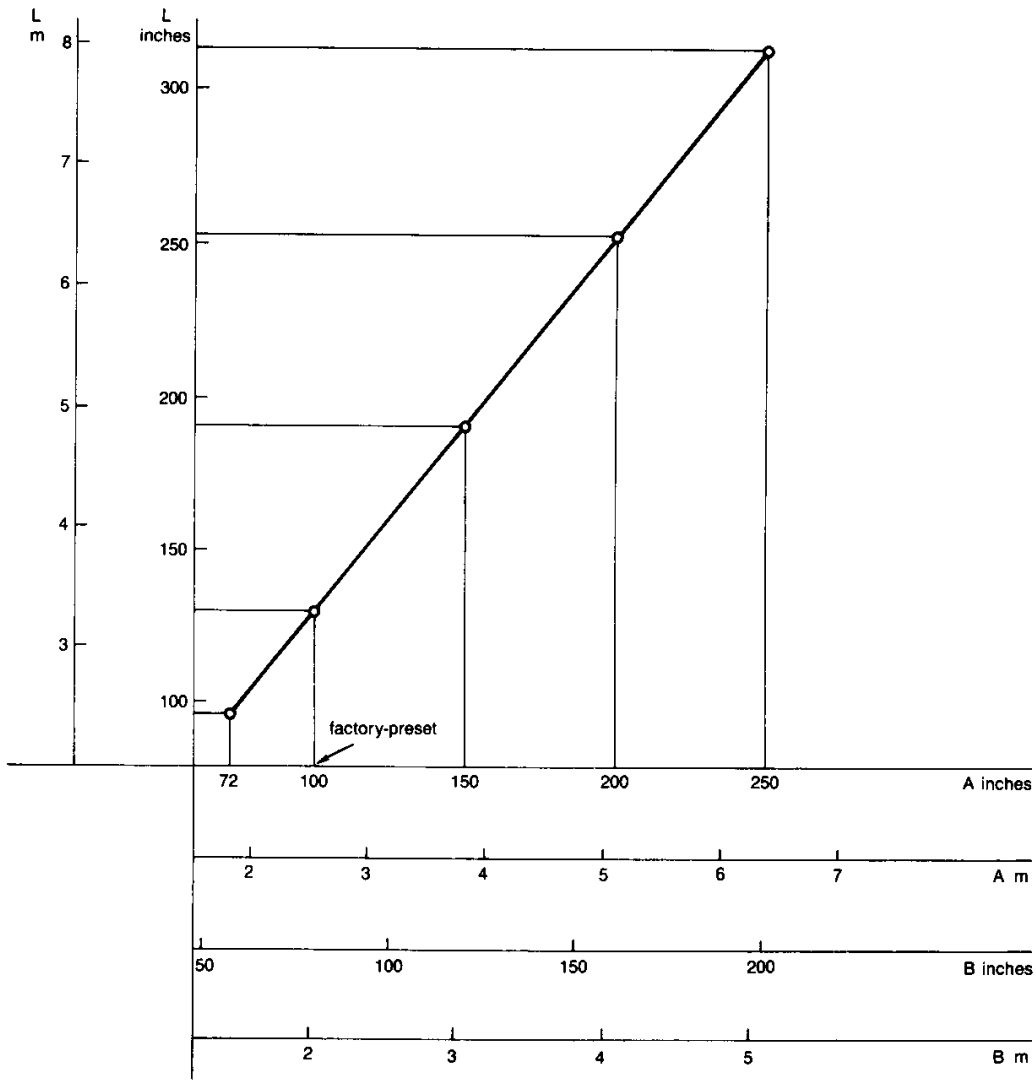
Decide the length, height, and depth according to the screen size to be used.

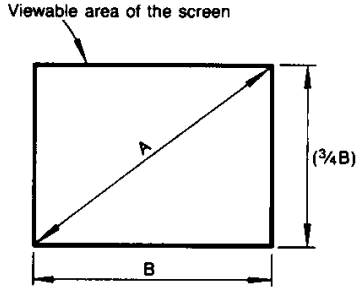
Screen size	150 inches	200 inches	250 inches
Length mm	4850 (191″)	6410 (252 1/2″)	7960 (313 1/2″)
Height mm	1350 (53 1/4″)	1680 (66 1/4″)	2020 (79 1/2″)
Depth mm	200 (7 7/8″)	160 (6 3/8″)	110 (4 3/8″)

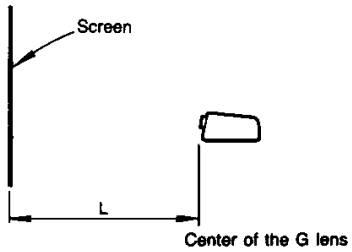
Unit: mm (inches)
Tolerance in length: ±1%

Type 9 and 10

100" – 250" projection
For screen not described on page 18, use the following graph to decide the length (L).



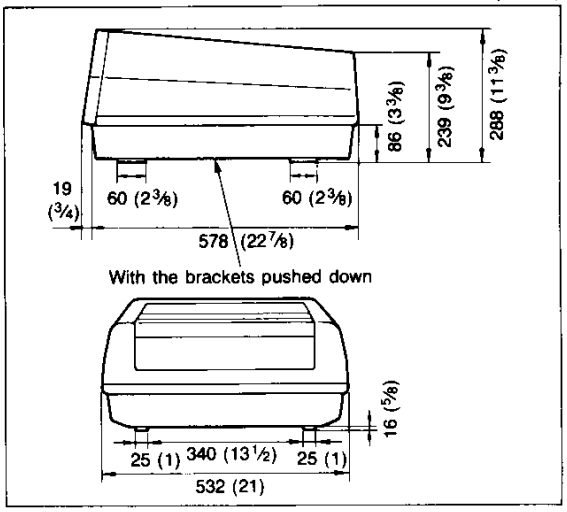




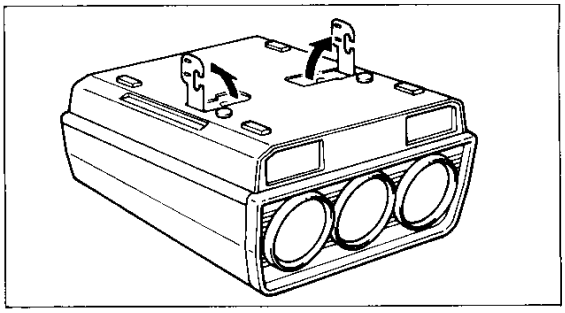
1-9. NOTES ON INSTALLATION

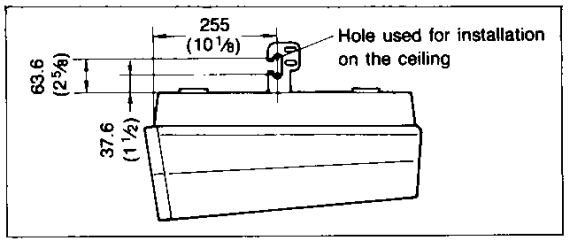
PROJECTOR'S DIMENSIONS

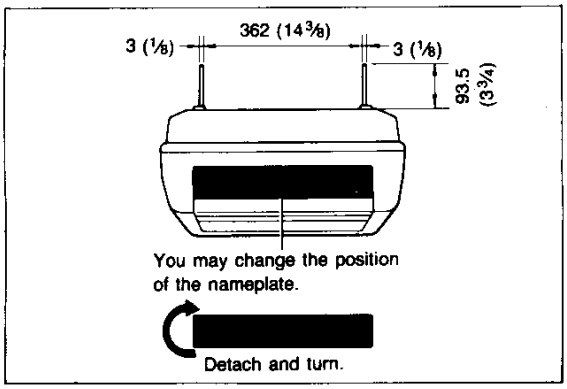
Unit: mm (inches)



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

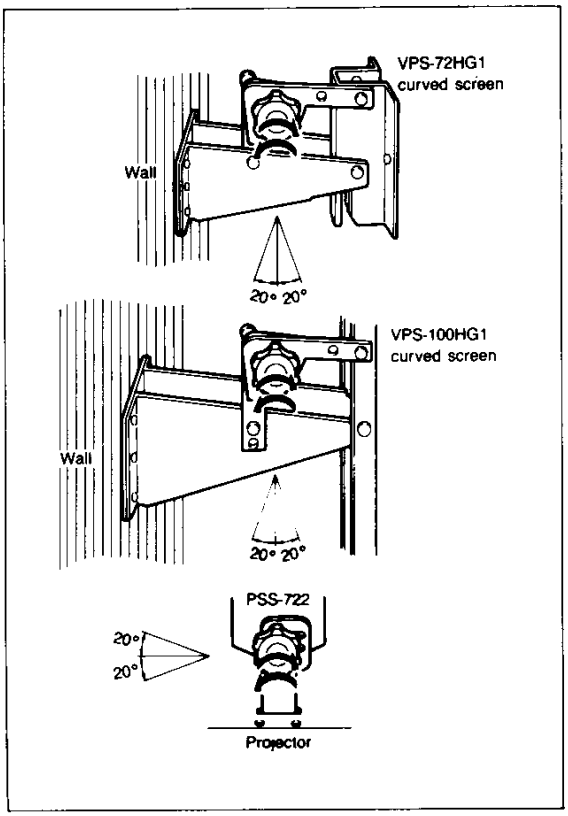






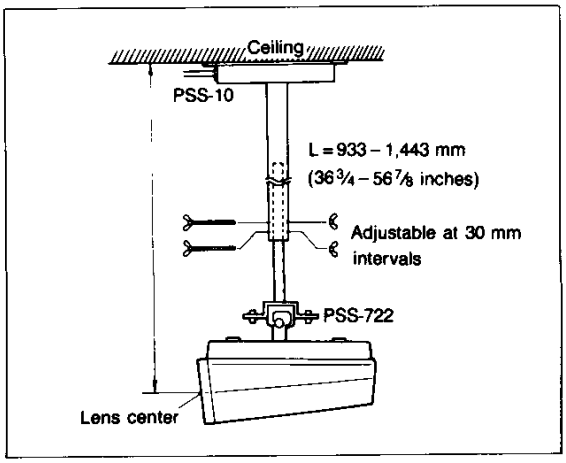
TO ADJUST THE ANGLE OF THE SCREEN/ PROJECTOR

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.

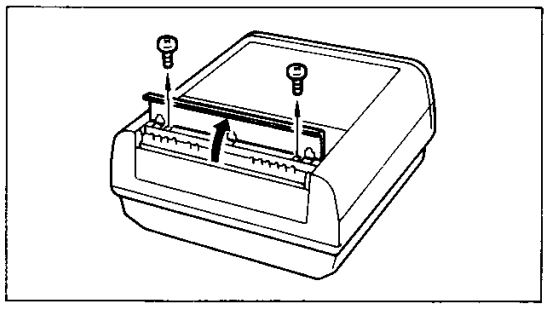


TO OPEN THE TOP PANEL

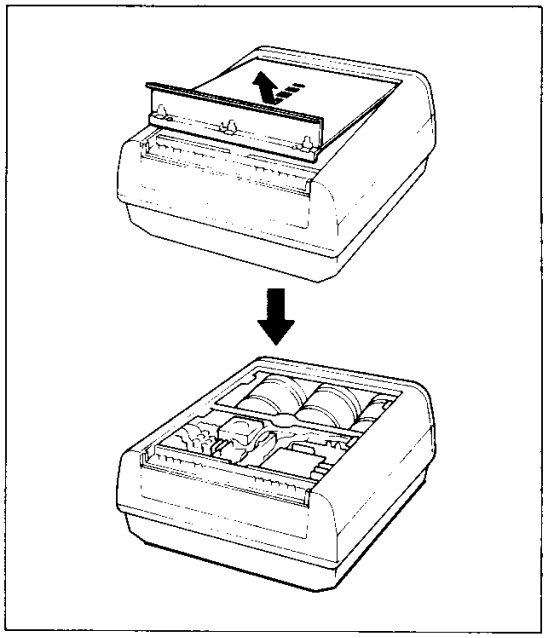
You will need a medium size Phillips head screwdriver.

1 Open the control panel cover.

2 Remove the two screws.



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

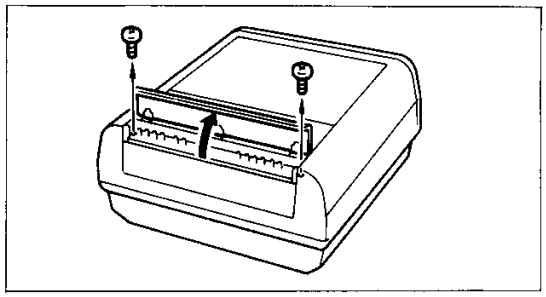


TO OPEN THE CABINET

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

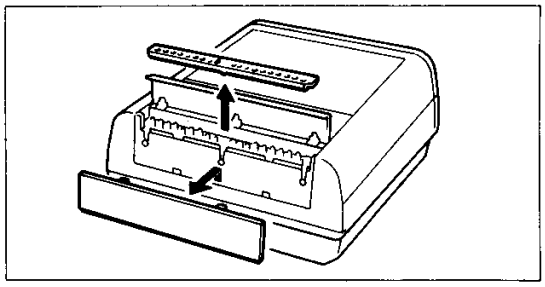
1 Open the control panel cover.

2 Remove the two screws on the control panel.

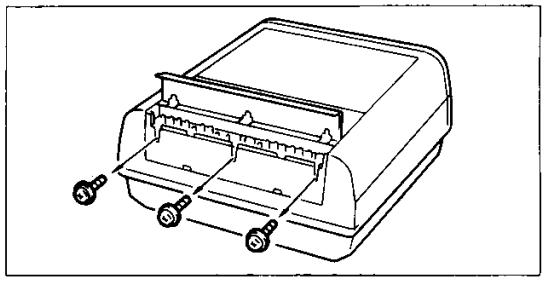


3 Slide the nameplate upward and pull it toward you to remove.

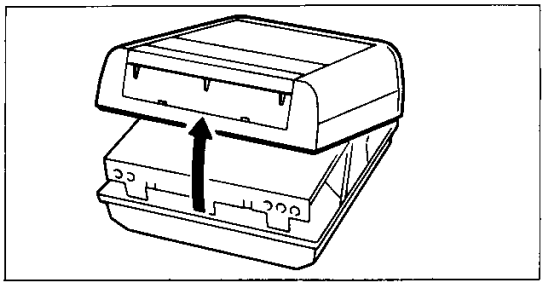
4 Remove the control panel.



5 Remove the three screws.

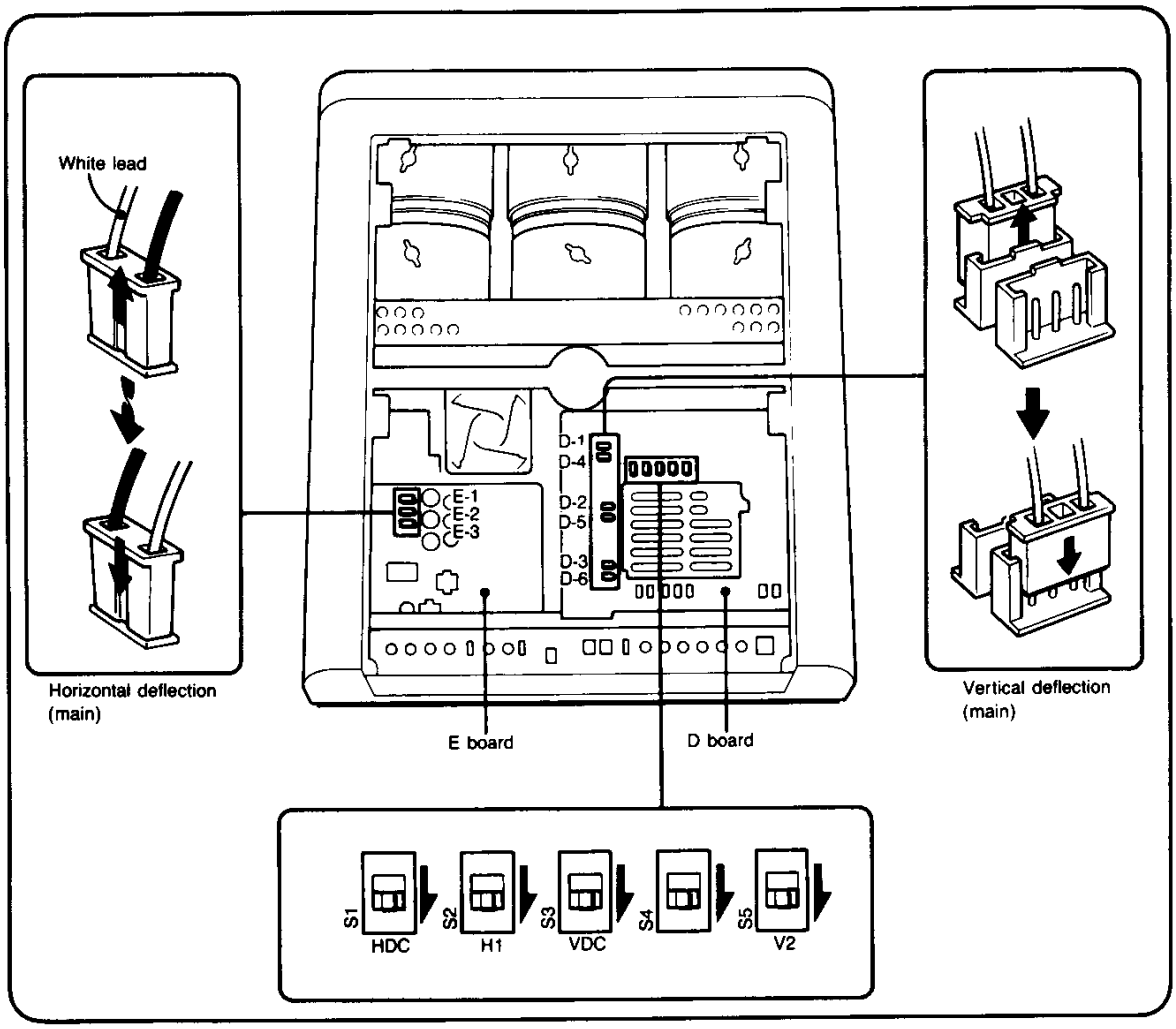


6 Raise the cabinet to remove.



1-10. POLARITY CHANGE

The projector is preadjusted at the factory for use on desk or floor with the bracket side down.
When the projector is installed on the ceiling with the bracket side up, the polarity should be changed.

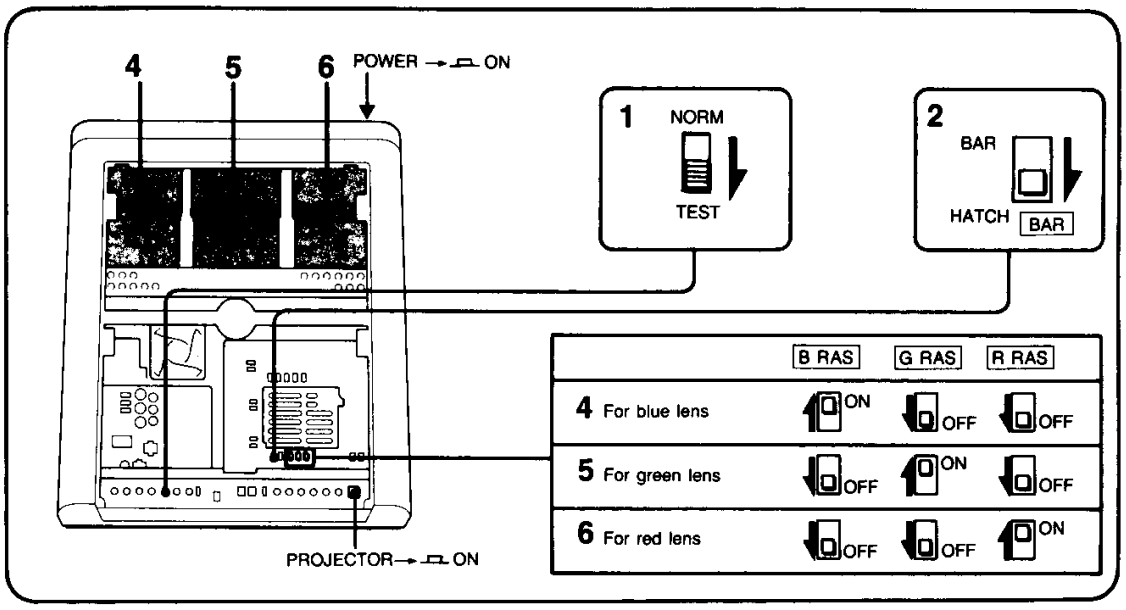


1 Make sure that power is not connected.
2 Open the top panel. (See page 21.)
3 Reverse the polarity of connectors E-1, 2 and 3.
4 Move the connectors from receptacles D-1, 2 and 3 to receptacles D-4, 5 and 6, respectively.
5 Set switches S1, 2, 3, 4 and 5 to the control panel side position.

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

1-11. 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

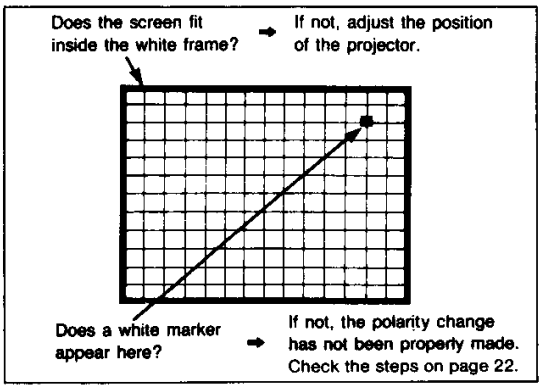
- Install the projector in the correct position on the floor or ceiling.
- Connect the supplied power cord to the AC IN socket and to an AC outlet, depress the POWER switch on the connector panel and the PROJECTOR switch. The green POWER lamp will light.
- Open the top panel. (See page 21.)

Adjustment

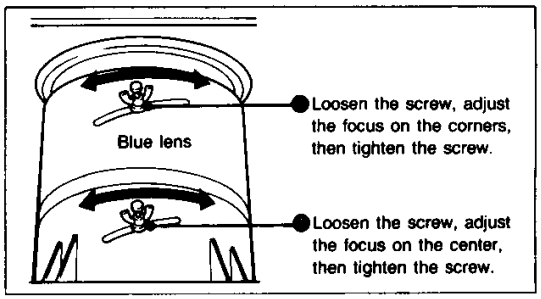
1 Set the NORM/TEST switch to TEST.

2 Set the BAR switch to HATCH.

3 A cross hatch pattern will be displayed. Check the following.



4 Set the B RAS (blue raster) switch to ON, and the G RAS (green) and R RAS (red) switches to OFF, then adjust the focus of the blue lens.



5 Set only the G RAS switch to ON, and the R RAS and B RAS switches to OFF, then adjust the focus of the green lens.

6 Set only the R RAS switch to ON, and the G RAS and B RAS switches to OFF, then adjust the focus of the red lens.

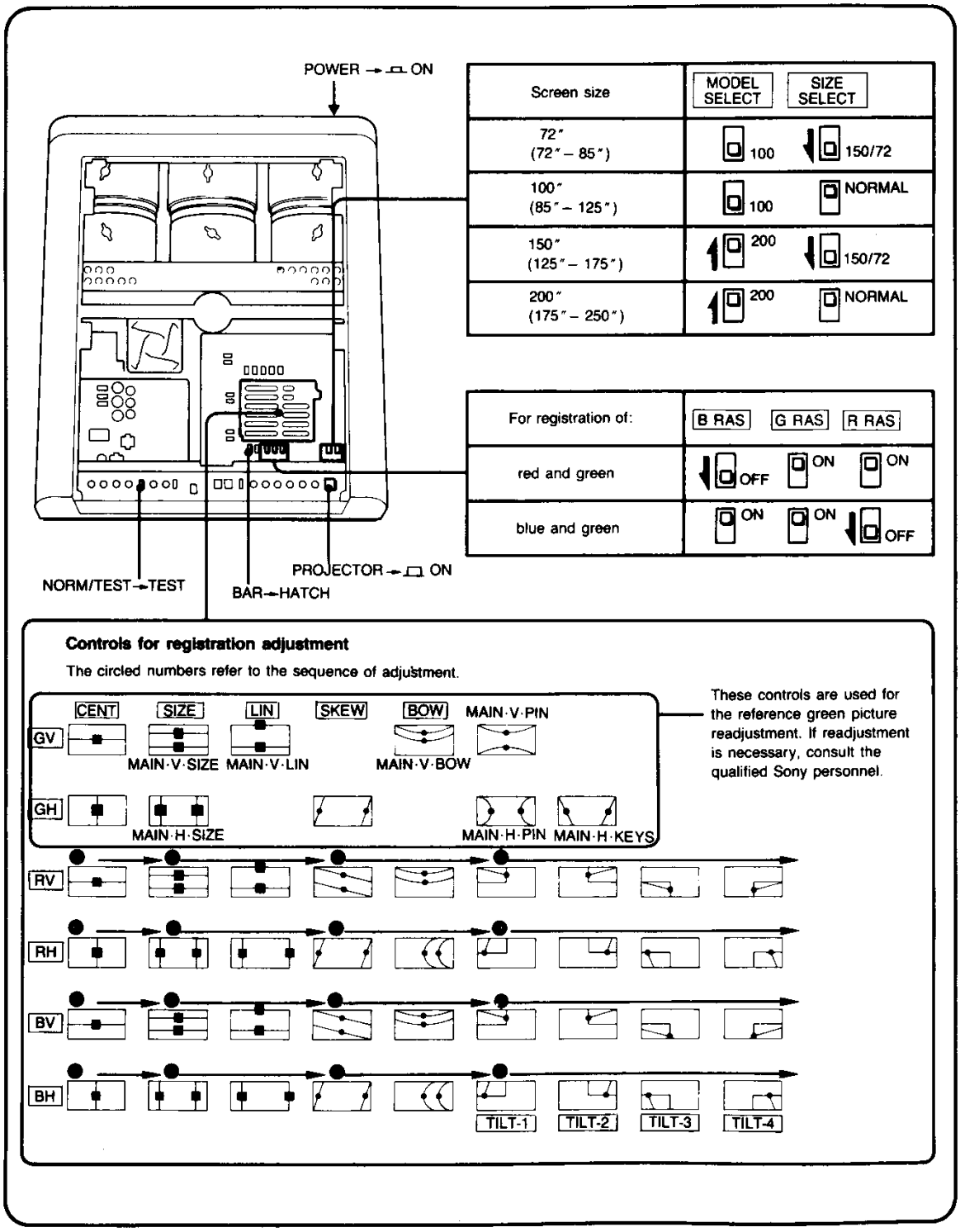
7 Replace the top panel. (Reverse the steps given on page 21.)

Proceed to registration adjustment.

Caution
Take care not to touch portions of the projector other than those indicated above because dangerous high voltages are present. To change the polarity, first turn the POWER switch off.

1-12. REGISTRATION ADJUSTMENT

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

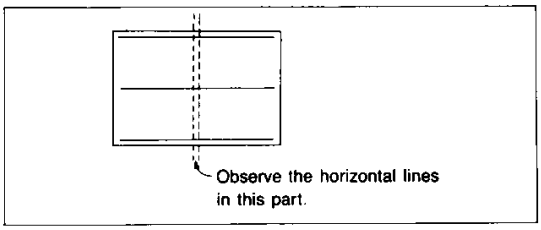


Preparations

- 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 23.
- Set the MODEL SELECT and SIZE SELECT switches according to the screen size.
  Set the MODEL SELECT switch to 100 for 72″– 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 72″– 85″ and 125″– 175″ projection.

Vertical registration of the red and green pictures

- Set the B RAS switch to OFF and the G RAS and R RAS switches to ON.
- Adjust the RV CENT control so that the red horizontal lines and the green horizontal lines converge in the middle of the screen.
- 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.

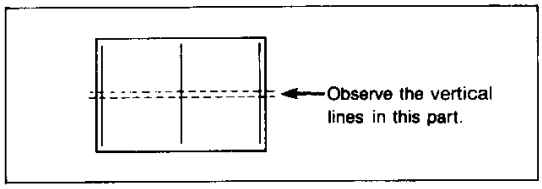


(Repeat steps ● and ● as necessary.)

- 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.
- 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

- Adjust the RH CENT control so that the red vertical lines and the green vertical lines converge in the middle of the screen.
- 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 ● and ● as necessary.)

- 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.
- 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

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

Horizontal registration of the blue and green pictures

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

When registration is complete

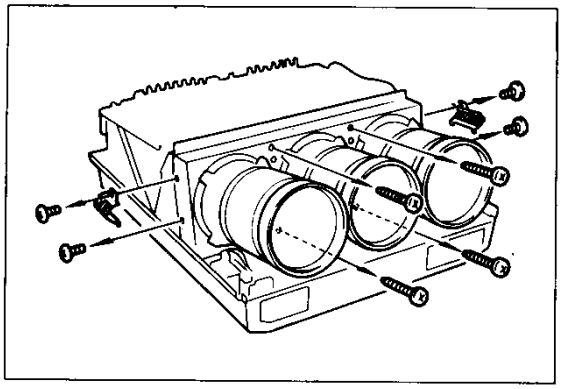
Set the switches to the following positions.
R, G, B RAS switches → ON position
BAR switch → BAR
NORM/TEST switch → NORM

Replace the top panel. (Reverse the steps given on page 21.)

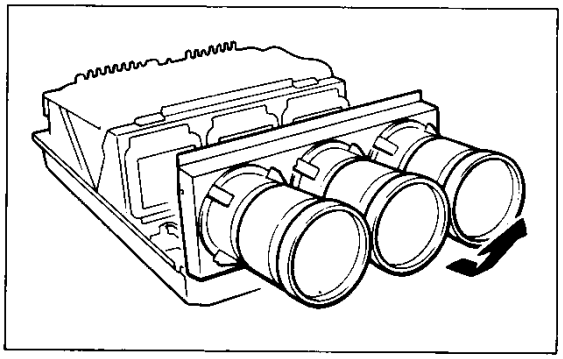
1-13. CONVERSION FOR 200" (150" – 250") PROJECTION

1 Separate the lens block from the main body.

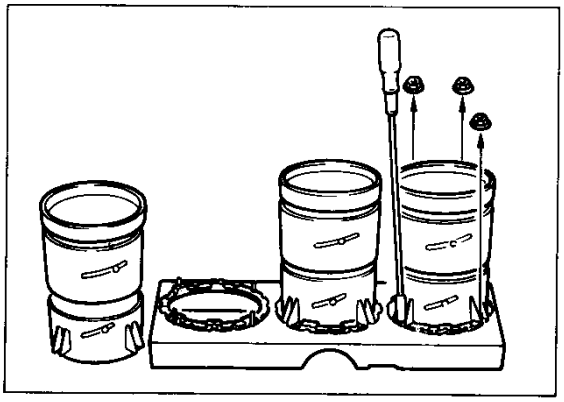
- Open the cabinet. (See page 21.)
- Remove the 4 screws from the sides of the projector.
- Remove the 4 black screws from the lens base.



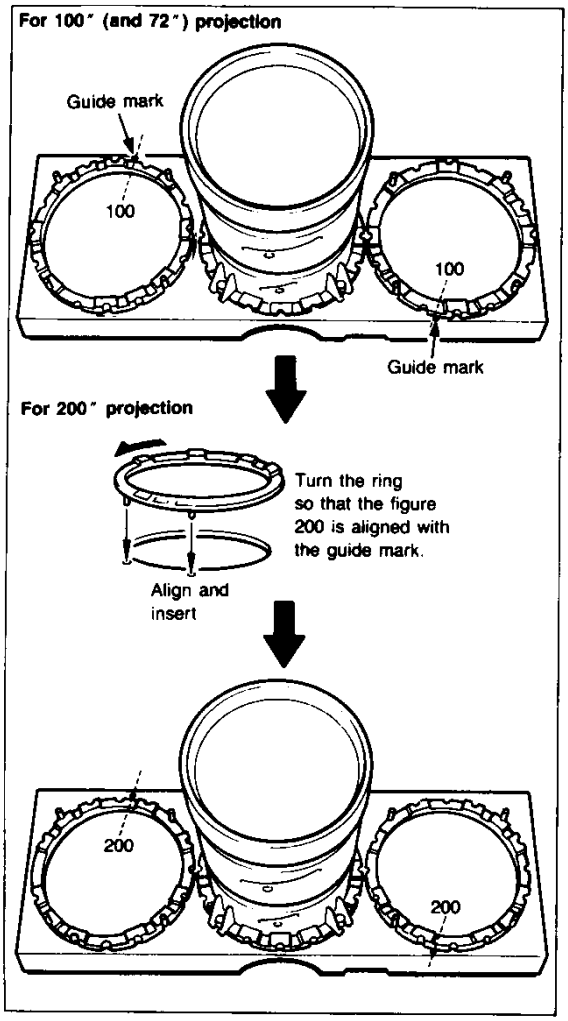
- Pull the lens block out.



- 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.

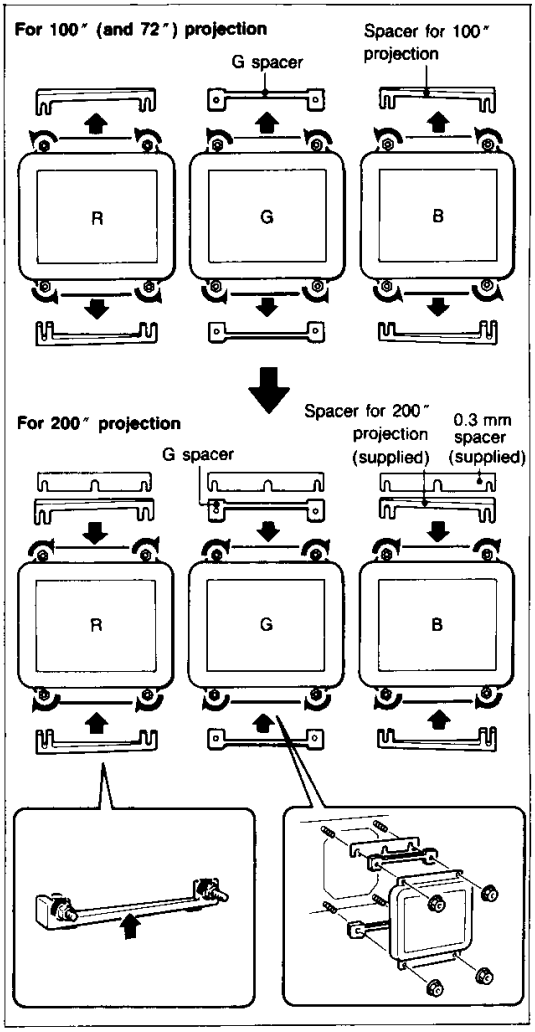


3 Adjust the mounting angles of the CRTs.

Use an 8 mm nutdriver.

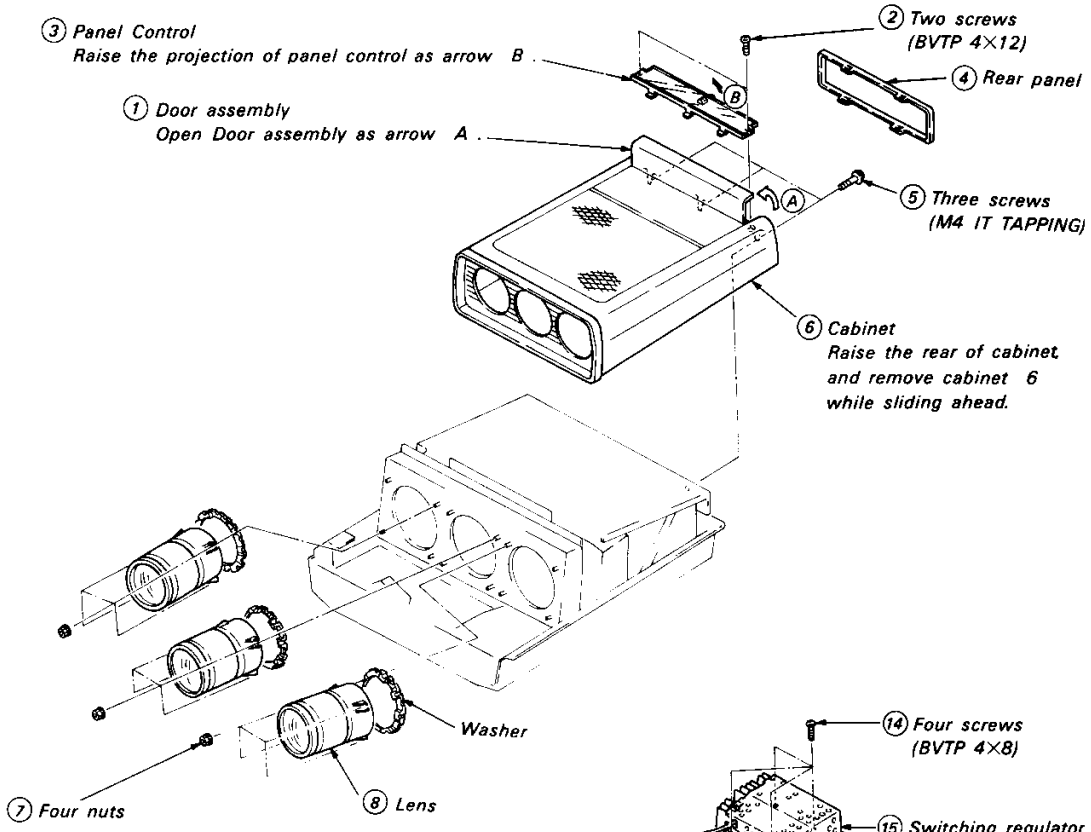
- Loosen the nuts and remove all the spacers from the top and bottom of each lens.
- Insert the supplied spacers for 200″ projection, 0.3 mm spacers and G spacers as follows:
  R and B lenses: A spacer for 200″ and a 0.3 mm spacer for the top; a spacer for 200″ for the bottom
  G lens: A G spacer removed in step ● and a 0.3 mm spacer for the top; a G spacer removed in step ● for the bottom
  Insert the spacers for 200″ with the thinner end toward the center CRT.
- Tighten all the nuts completely for accurate angles of the lenses.

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

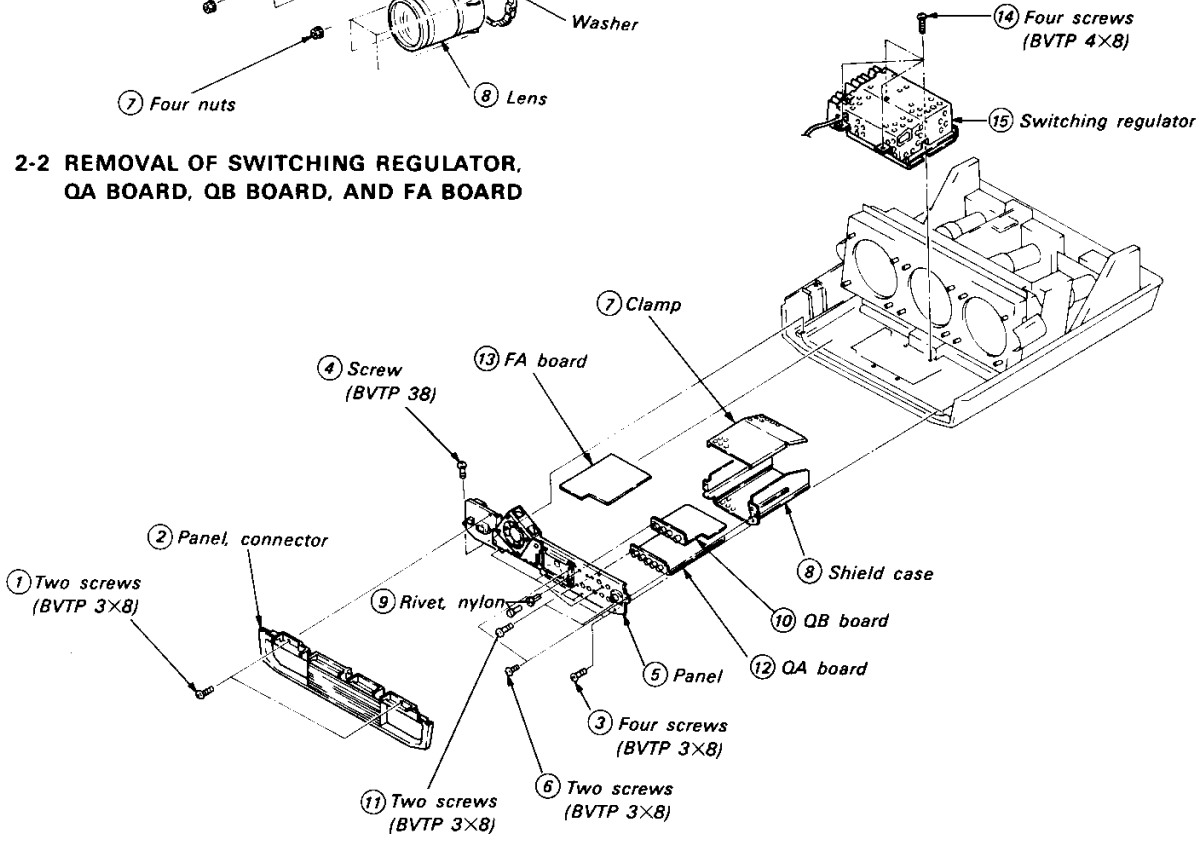


SECTION 2
DISASSEMBLY

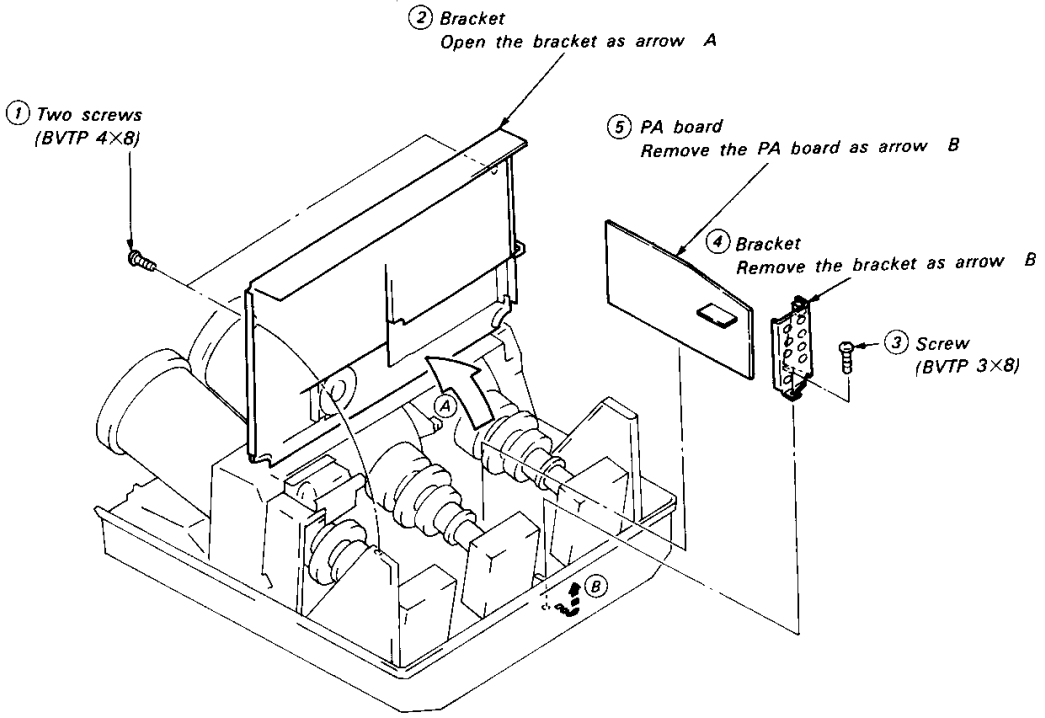
2-1 REMOVAL OF LENS



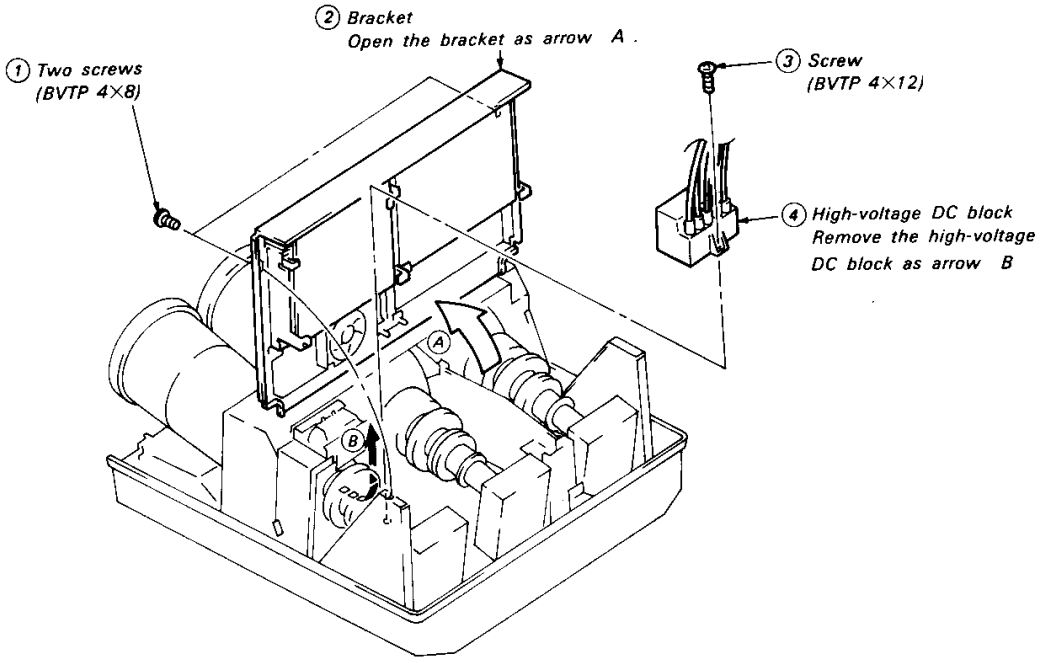
2-2 REMOVAL OF SWITCHING REGULATOR, QA BOARD, QB BOARD, AND FA BOARD



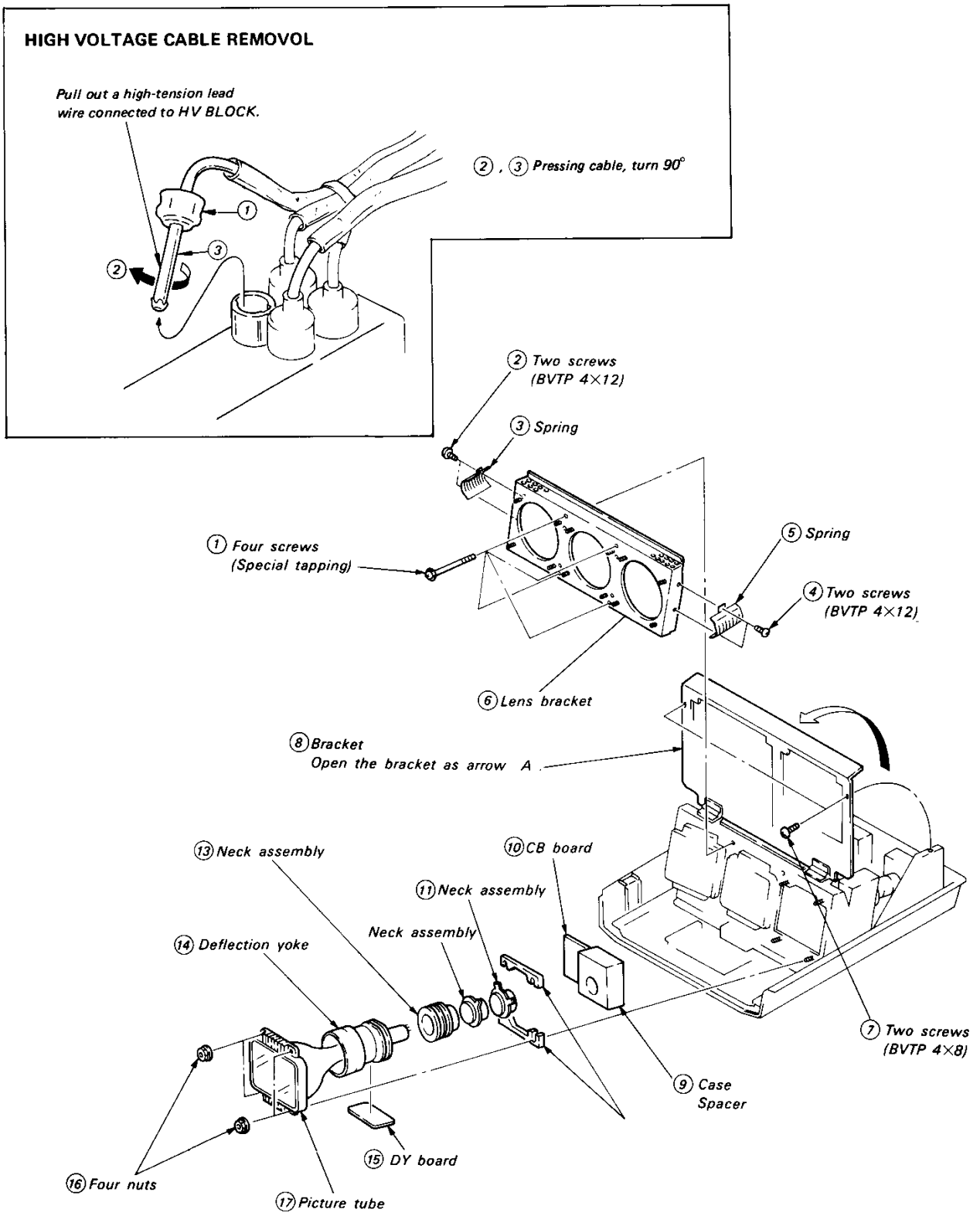
2-3 REMOVAL OF PA BOARD



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.

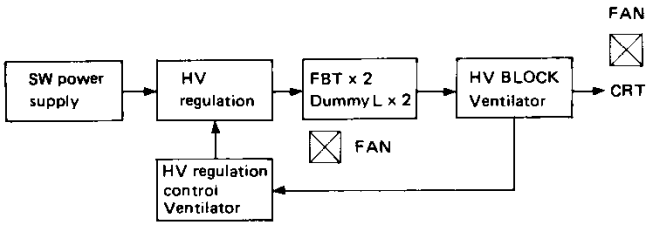
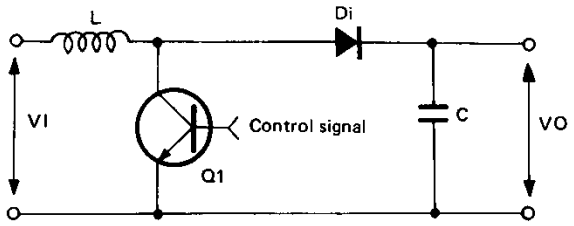


Fig. 1

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

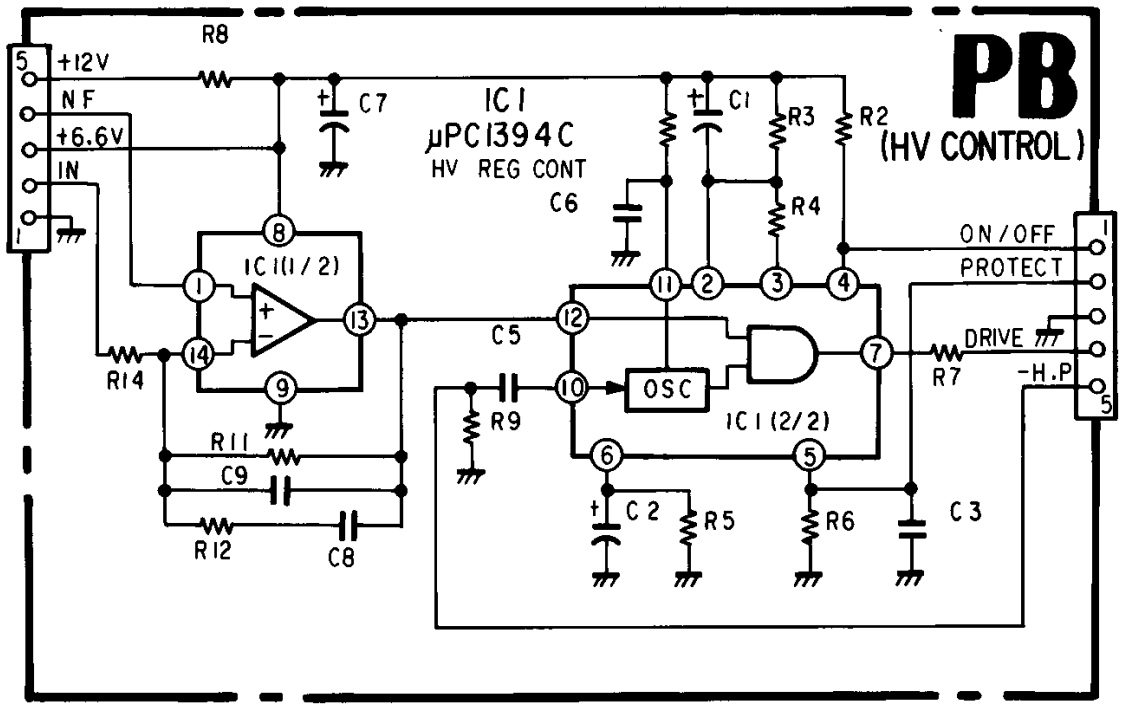


Fig. 3

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) Turn GREEN FOCUS VR (FOCUS PACK) slightly to clockwise so that focus will be off side.
10) Input a dot pattern.
11) As shown in Fig. 1-3, put the before and behind magnets upon each other on 4-pole magnet.
12) Observe the center of screen and if dots are distorted, adjust the above two magnets for the finest round as Fig. 1-4.
13) Adjust GREEN FOCUS VR (FOCUS PACK) to the best focus.

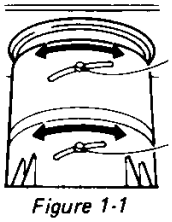


Figure 1-1

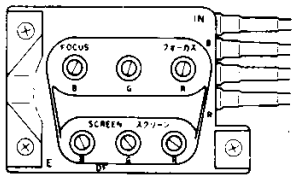


Figure 1-2

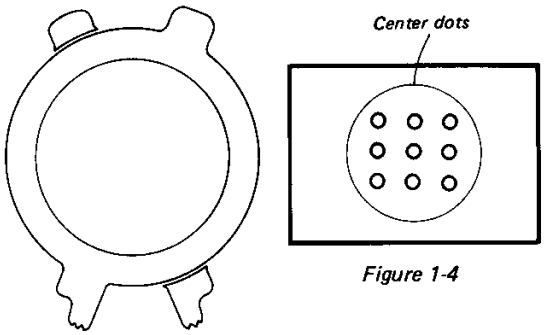


Figure 1-4

Figure 1-3

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 2-13.

4-4. BLUE FOCUS Adjustment

1) Remove the BLUE lens cover and cover the RED lens.
2) Put the CRT NECK ASS'Y (BLUE ring magnet) lever (A) and lever (B) together at the top of the CRT neck.
3) Rotate the MAIN lens for best focus on the screen.
4) Turn the focus pack BLUE focus VR for best focus.
5) Rotate the MAIN lens and set for best focus in the center of the screen, and temporarily tighten the lens screw.
6) Rotate the SUB lens and set for best focus in the center of the screen, then tighten the lens screw.
7) Loosen the MAIN lens screw, fine adjust focus, then tighten the MAIN lens screw.

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.

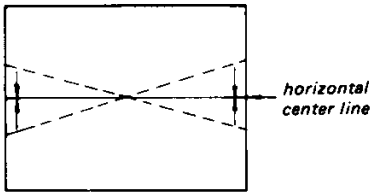


Figure 2

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.

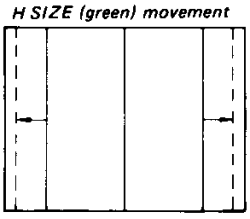


Figure 3

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.

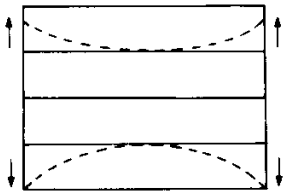


Figure 4

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.

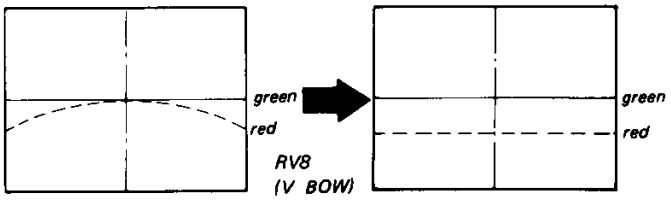


Figure 5

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.

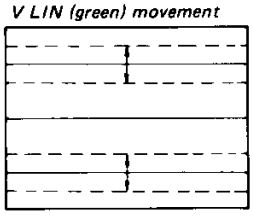


Figure 6

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.

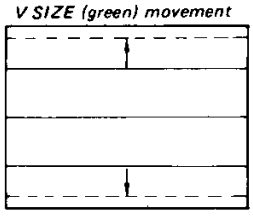


Figure 7

13) Adjust D board MAIN V.PIN (RV9) so that the top and bottom monoscope signal lines are parallel with the screen frame.
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).

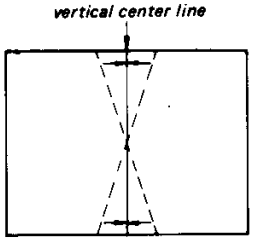


Figure 8

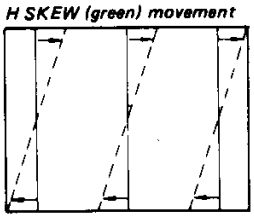


Figure 9

15) Adjust D board MAIN H.KES (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.

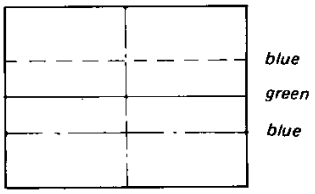


Figure 10

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.

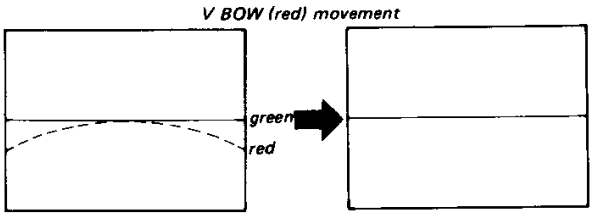


Figure 11

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.

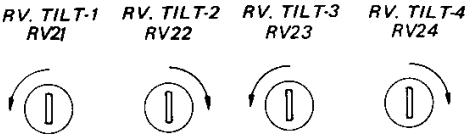


Figure 12

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 straight.

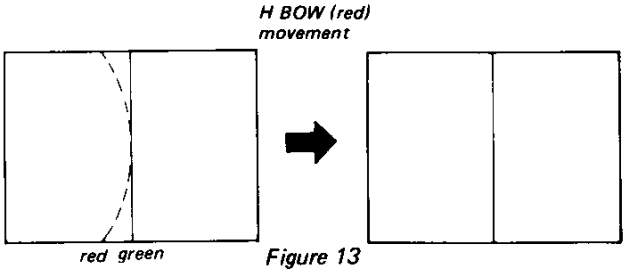


Figure 13

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

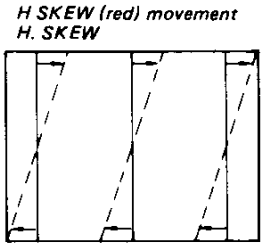


Figure 14

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

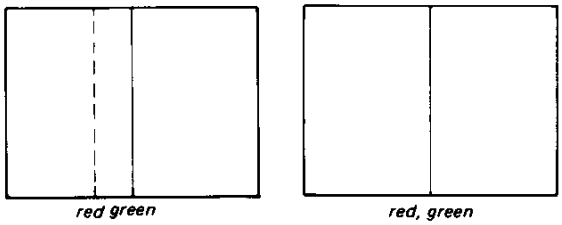
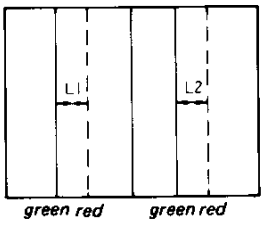


Figure 15

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.



(1) Adjust RV26 (H SIZE (R)) so that the red and green vertical lines overlap at the left and right sides of the screen, or so that L1 and L2 are the same distances.

Figure 16

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 (S8) 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 RED H.LIN (RV27) 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) Set up a stair step signal. (When using a color bar signal, turn off the color signal and the burst signal.) (G.DRIVE VR, B.DRIVE VR . . . MAX R.DRIVE VR . . . 80%)
2) Turn the focus pack RED, GREEN, and BLUE G2 VRs to their mechanical center.
3) Set the PICTURE VR and BRIGHTNESS VR to mechanical center.
4) Adjust the focus pack GREEN G2 VR so that red bar glows faintly.
5) Adjust the white balance with the RED and BLUE G2 VRs.
6) Set the PICTURE VR and BRIGHTNESS VR to maximum.
7) Adjust the white balance by turning the R DRIVE VR on the BB board. (Make sure not to touch the B DRIVE VR and G DRIVE VR.)

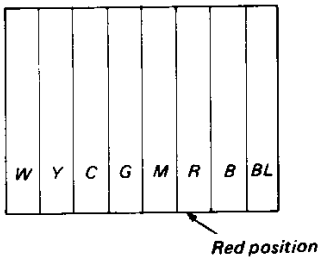


Figure 17

SECTION 5
SAFETY RELATED ADJUSTMENTS

5-1. PA AND PC BOARD ADJUSTMENTS

- *When replacing the following components, make the HV HOLD DOWN adjustment.*
  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.*
  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.*
  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.*
  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 CRT.*

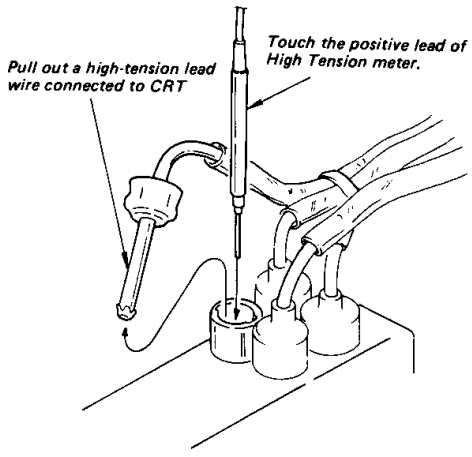
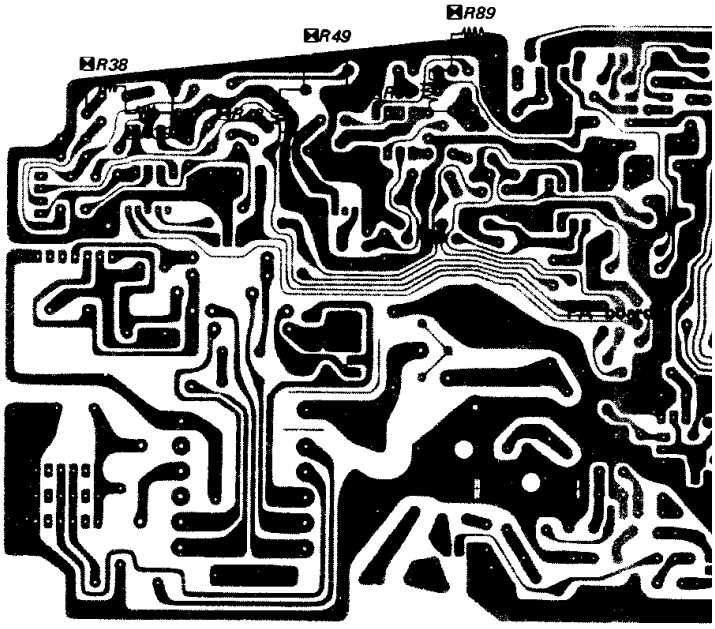


Fig. 1

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.*

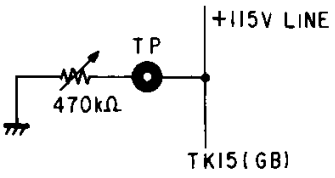
■ R48, R49, HV REG ADJUSTMENT

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.*

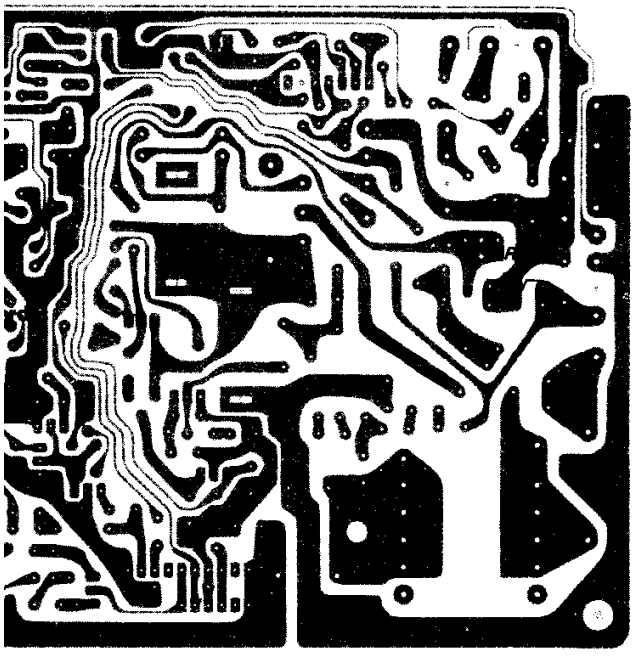


R88, R89 O.V.P ADJUSTMENT

1. Feed in monoscope pattern from a signal generator 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 CRT.
3. Install the tool to the PC-1 connector on the PC board and connect an ammeter.
4. 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.

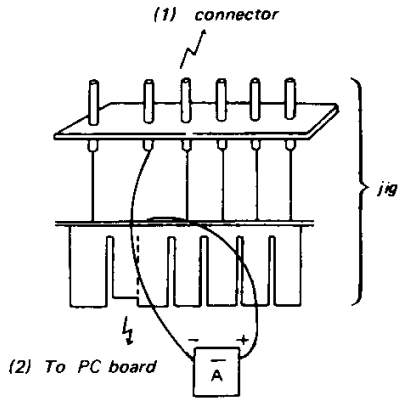
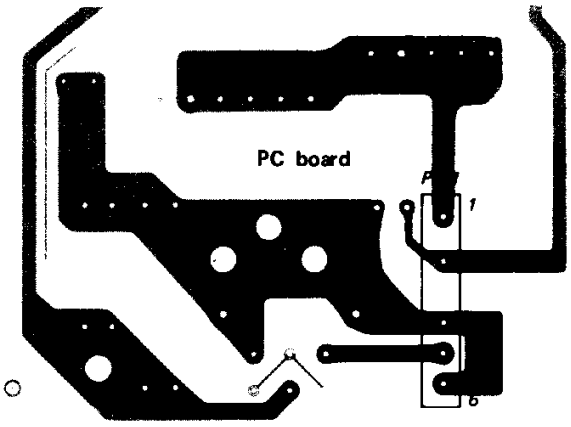
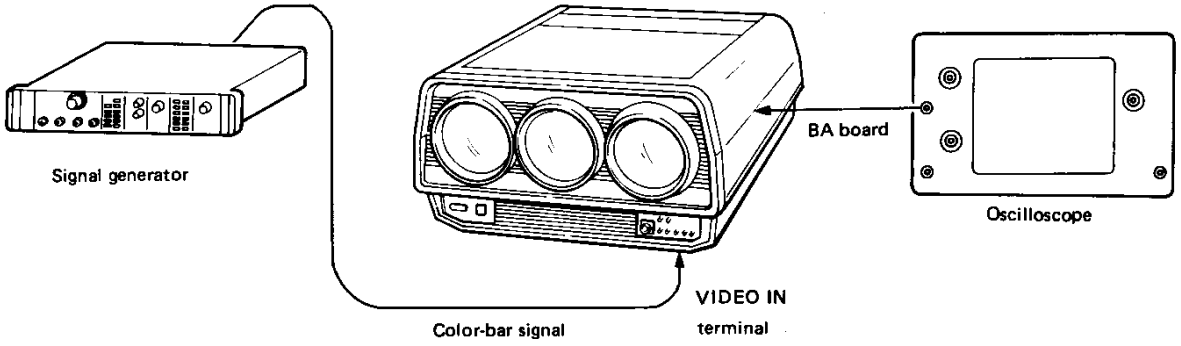


Fig. 2



SECTION 6
CIRCUIT ADJUSTMENTS

• **CONNECTION**



1. Y.TRAP

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.

2. SECAM COLOR

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)

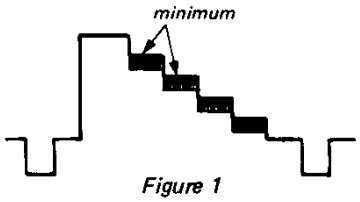
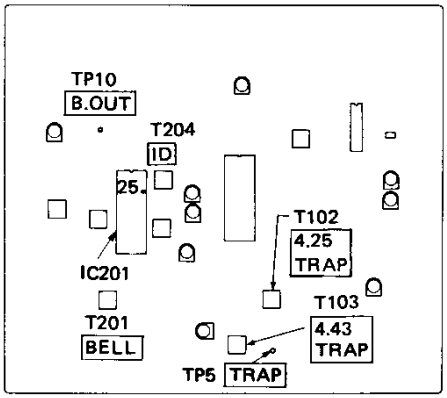
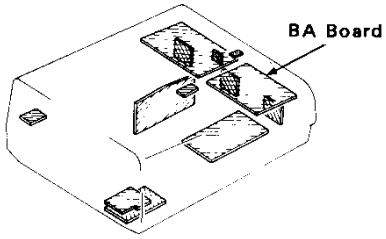


Figure 1

BA BOARD





4. DISCRI Adjustment
   (1) Adjust T203 (B-Y DISCRI) so that the blue output 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.

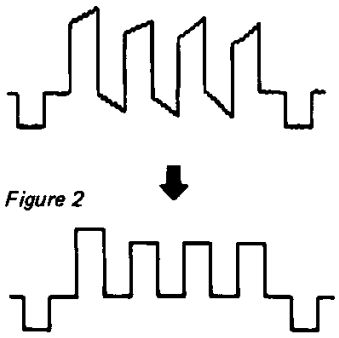


Figure 2

3. 1H COMB ADJUSTMENT

1. Input an NTSC 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.

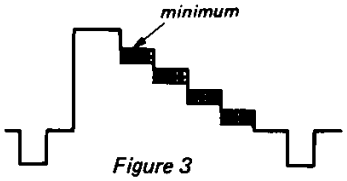


Figure 3

4. COLOR ADJUSTMENT

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

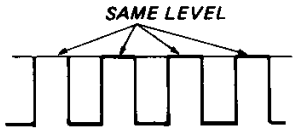


Figure 4

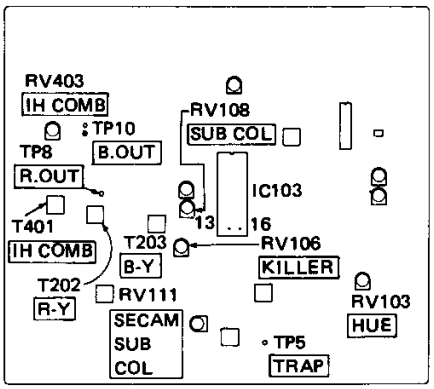
5. KILLER ADJUSTMENT

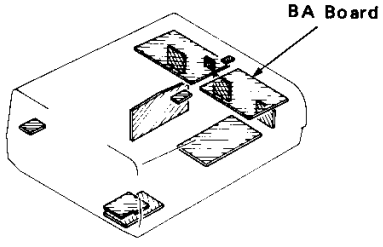
1. Receive a NTSC monochrome signal and turn on the power switch.
2. Connect an electrolytic capacitor (10 μF/16V) as shown, then barst signal cut.
3. Adjust RV106 for voltage value of IC103 pin (13) is 8.0±0.1Vdc.

6. HUE CENTER

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 th 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





7. PAL COLOR SYNC FINE ADJSUTMENT

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 so that the blue output waveforms are both as shown in Figure 5.

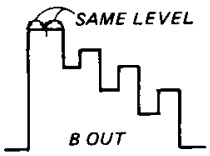


Figure 5

8. PAL COLOR SYNC ADJUSTMENT

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.
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.

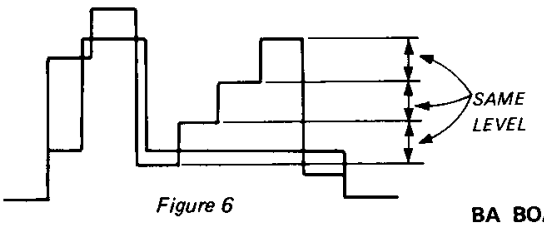


Figure 6

9. SUB PIC ADJUSTMENT

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.

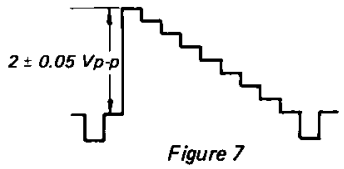


Figure 7

10. PAL MATRIX

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 ANTI-PAL after completing the adjustment.

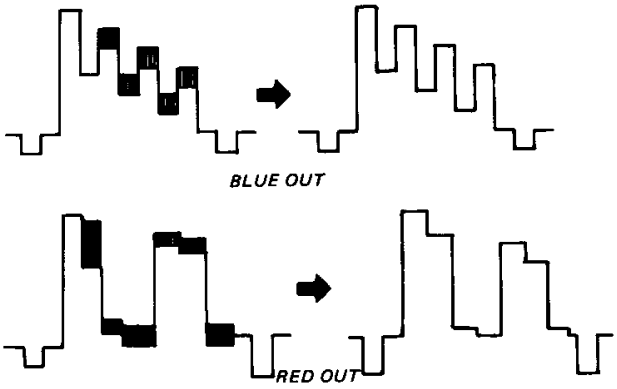
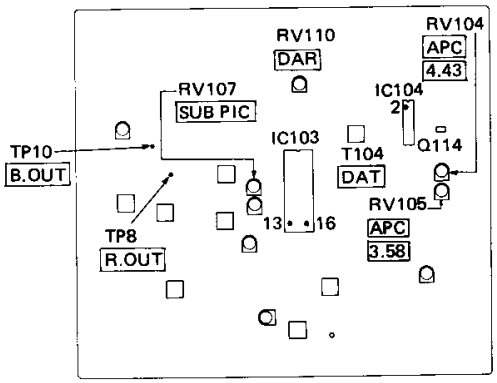
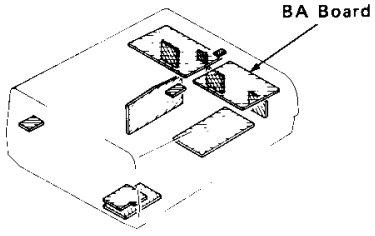


Figure 8

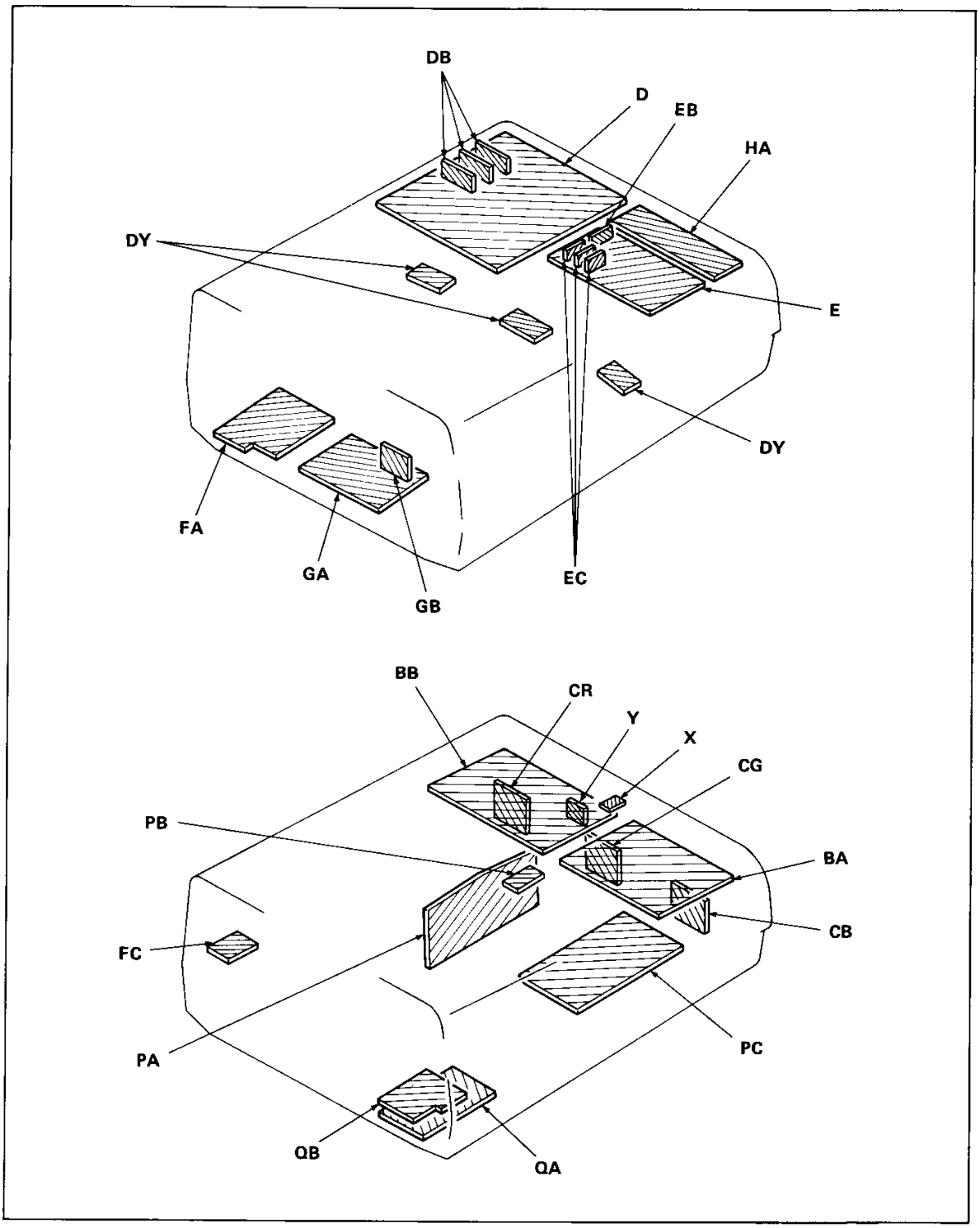
BA BOARD





SECTION 7
DIAGRAMS

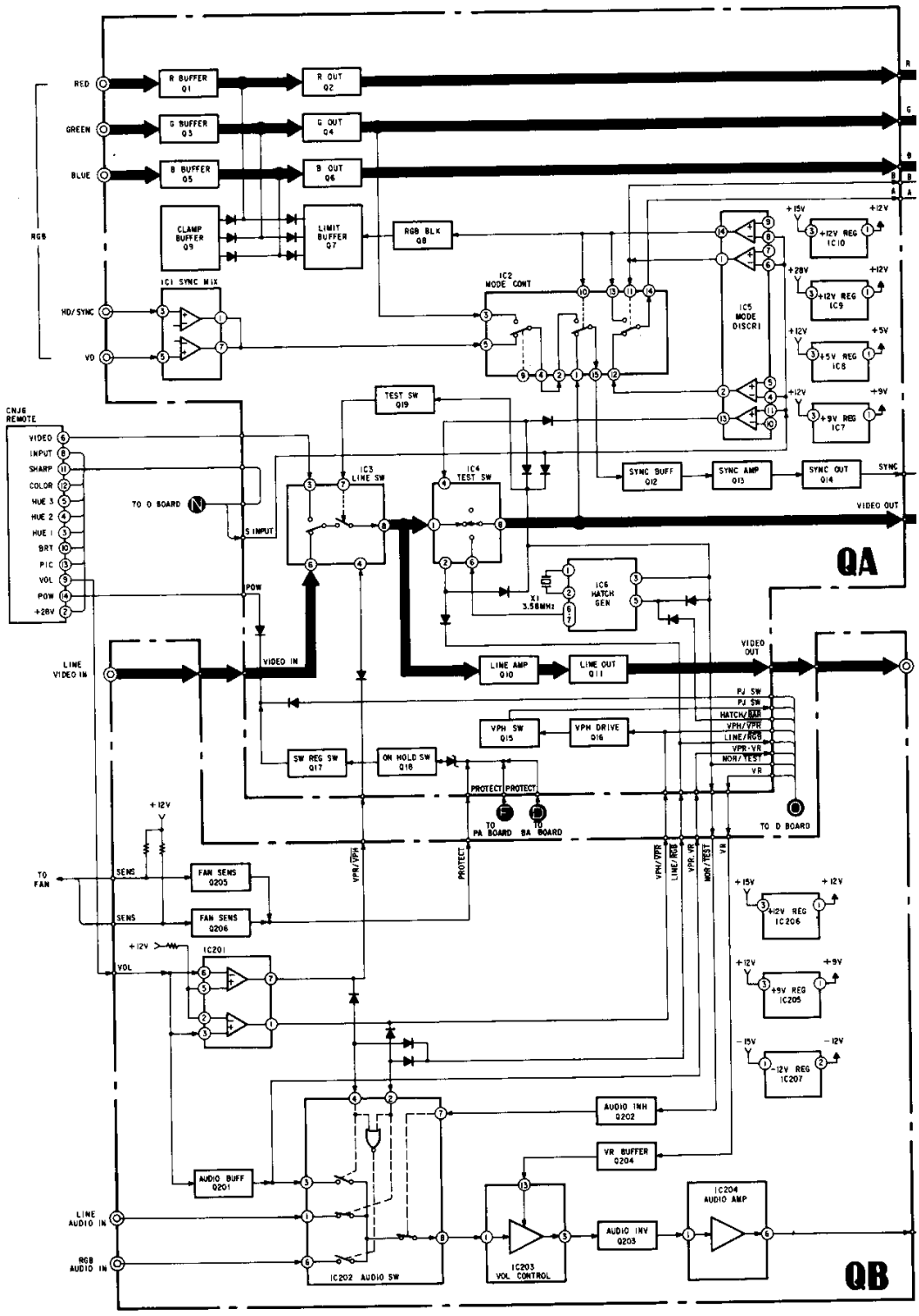
7-1. CIRCUIT BOARDS LOCATION

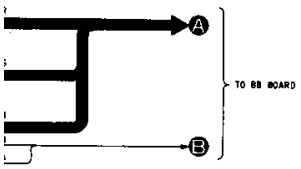


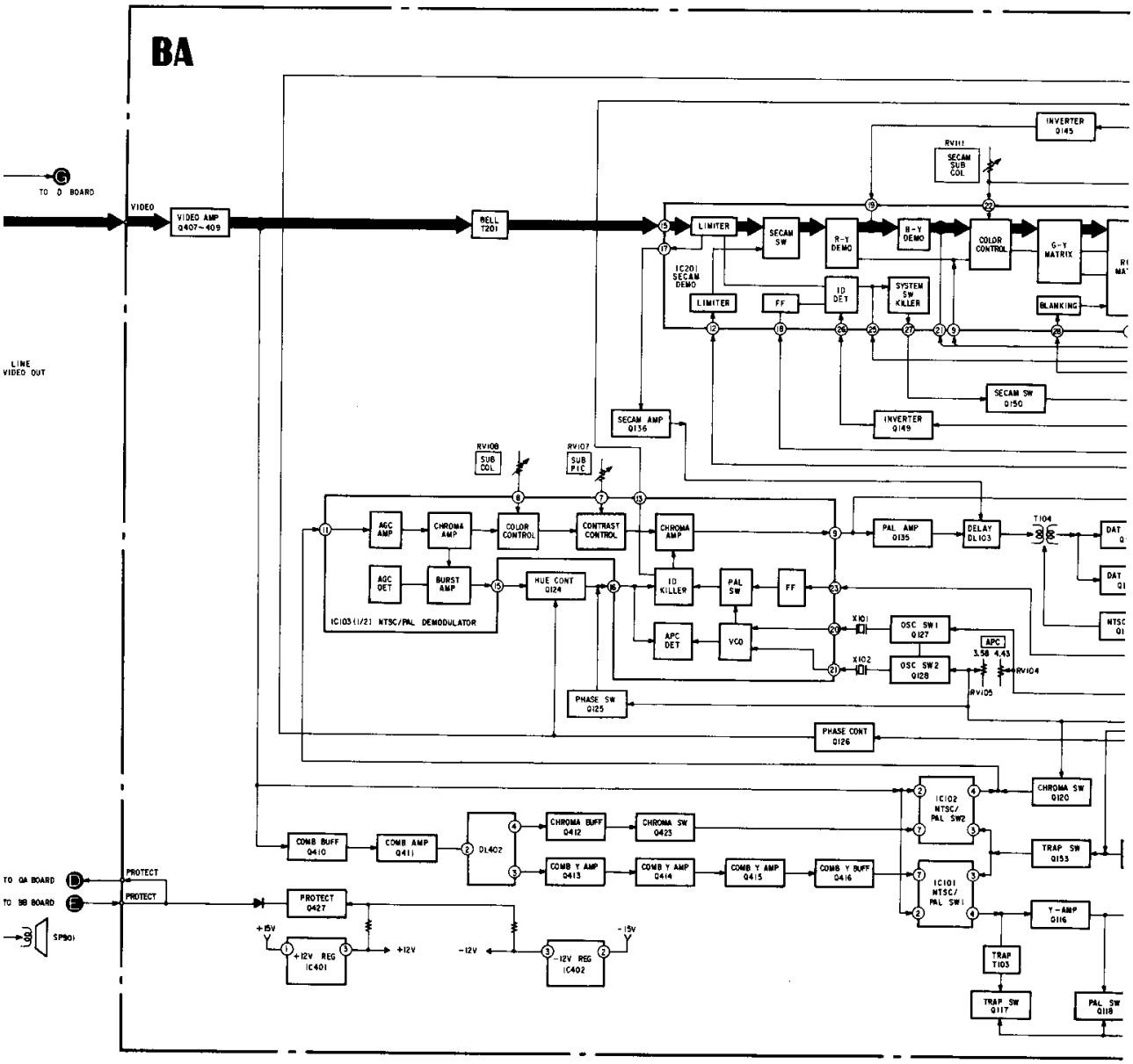
7-2. QUICK REFERENCE

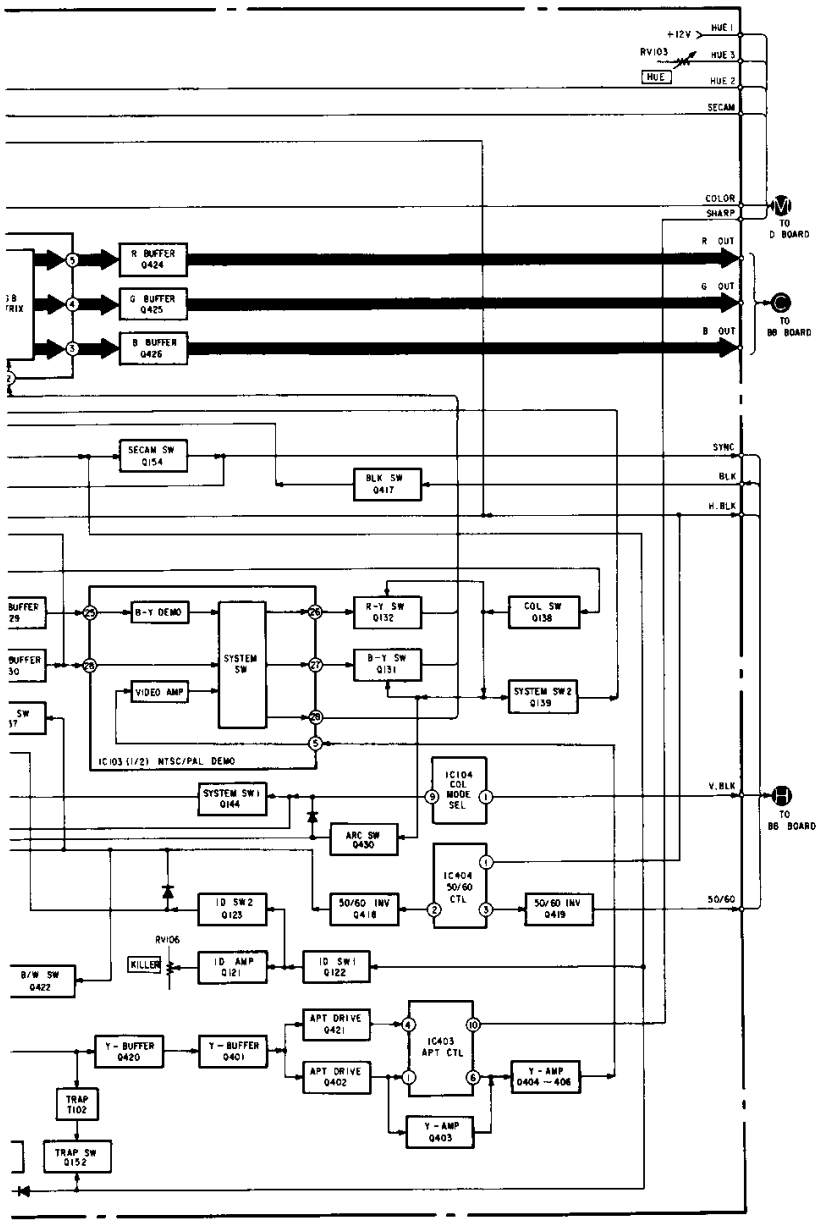
BOARD / SECTION	BA	BB	CB	CG	CR	D	DB	DY	E	EB	EC
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	–	–	–	–
ADJUSTMENTS	40	–	–	–	–	–	–	–	–	–	–
BLOCK DIAGRAM	46	53	55	55	55	50	52	–	49	49	49
MOUNTING DIAGRAM	75	80	98	97	96	87	88	98	95	96	97
SCHEMATIC DIAGRAM	72	77	94	94	94	83	86	94	91	91	91
ELECTRICAL PARTS LIST	118	115	131	130	129	131	137	137	137	138	139
BOARD / SECTION	F	FA	FC	GA	GB	HA	PA	PB	PC	QA	QB
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	32	–	–	–
ADJUSTMENTS	–	–	–	–	–	–	38	–	39	–	–
BLOCK DIAGRAM	49	–	49	49	49	50	54	54	55	45	45
MOUNTING DIAGRAM	–	71	71	–	–	88	100	98	98	69	70
SCHEMATIC DIAGRAM	–	65	65	65	66	83	92	92	93	66	65
ELECTRICAL PARTS LIST	–	125	126	140	140	139	122	125	125	126	128
BOARD / SECTION	X	Y									
CIRCUIT DESCRIPTION	–	–									
ADJUSTMENTS	–	–									
BLOCK DIAGRAM	–	55									
MOUNTING DIAGRAM	89	99									
SCHEMATIC DIAGRAM	83	93									
ELECTRICAL PARTS LIST	139	139									

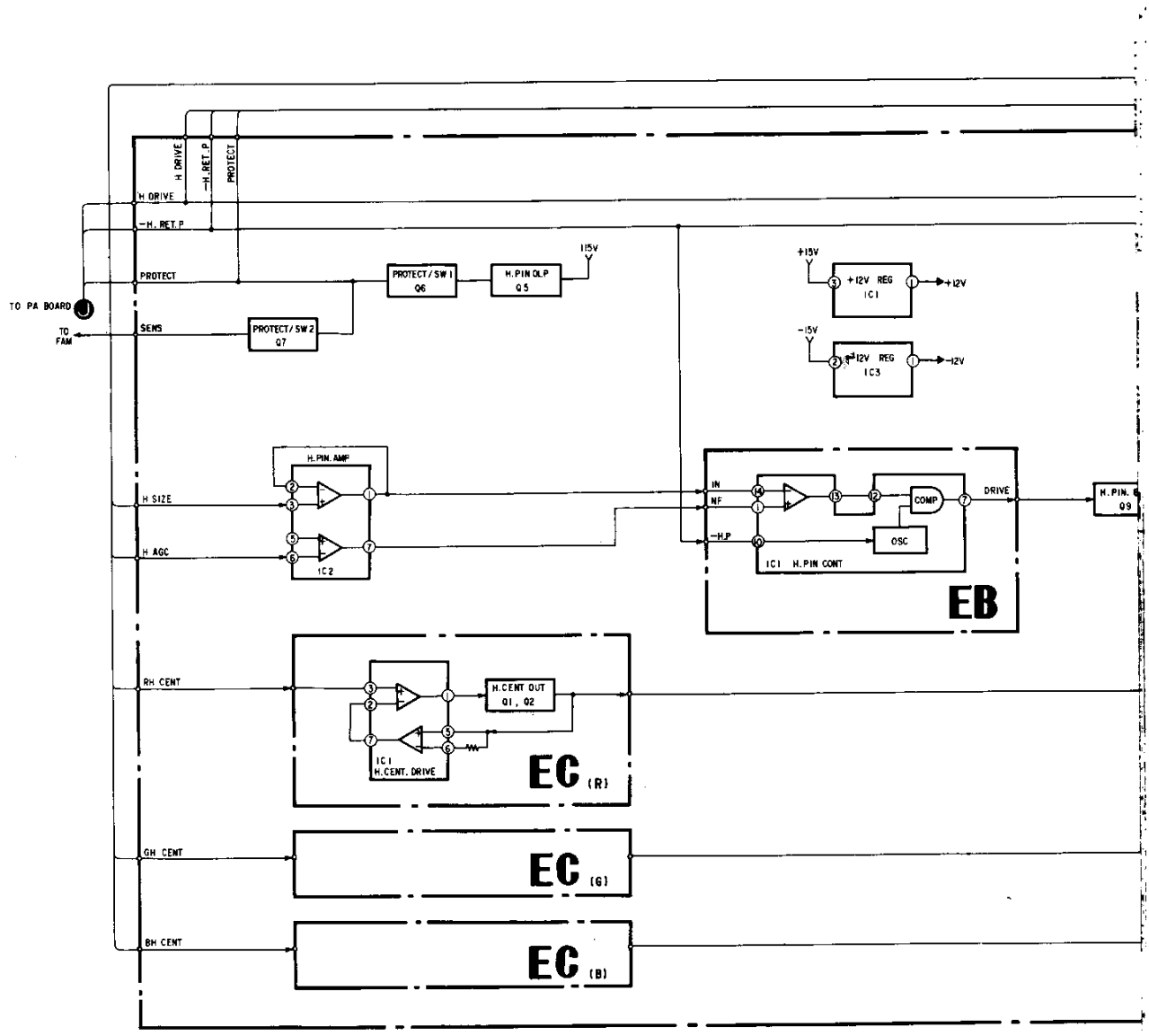
7-3. BLOCK DIAGRAMS

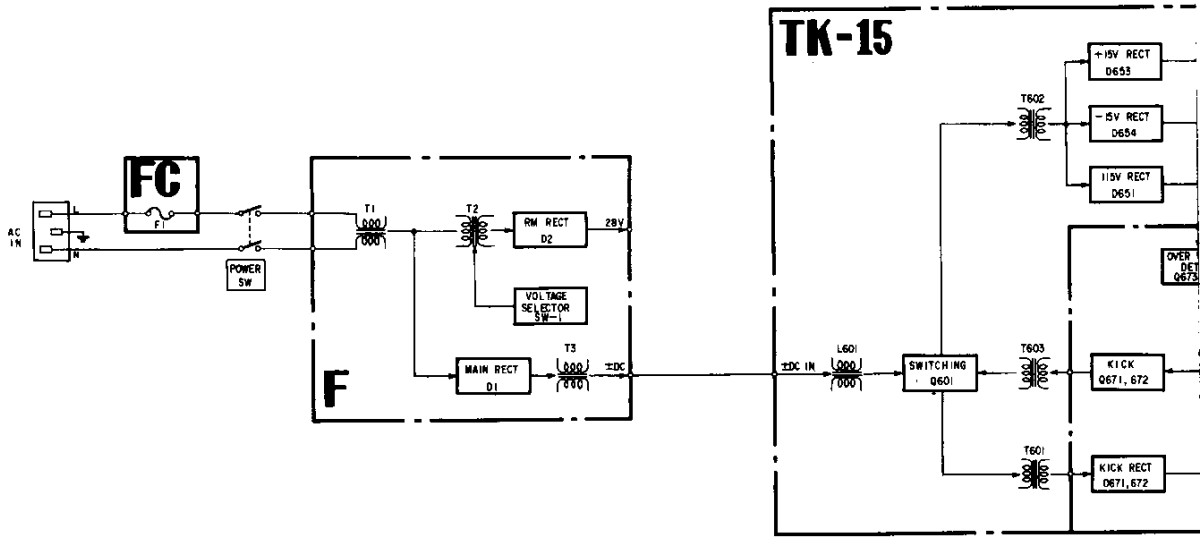


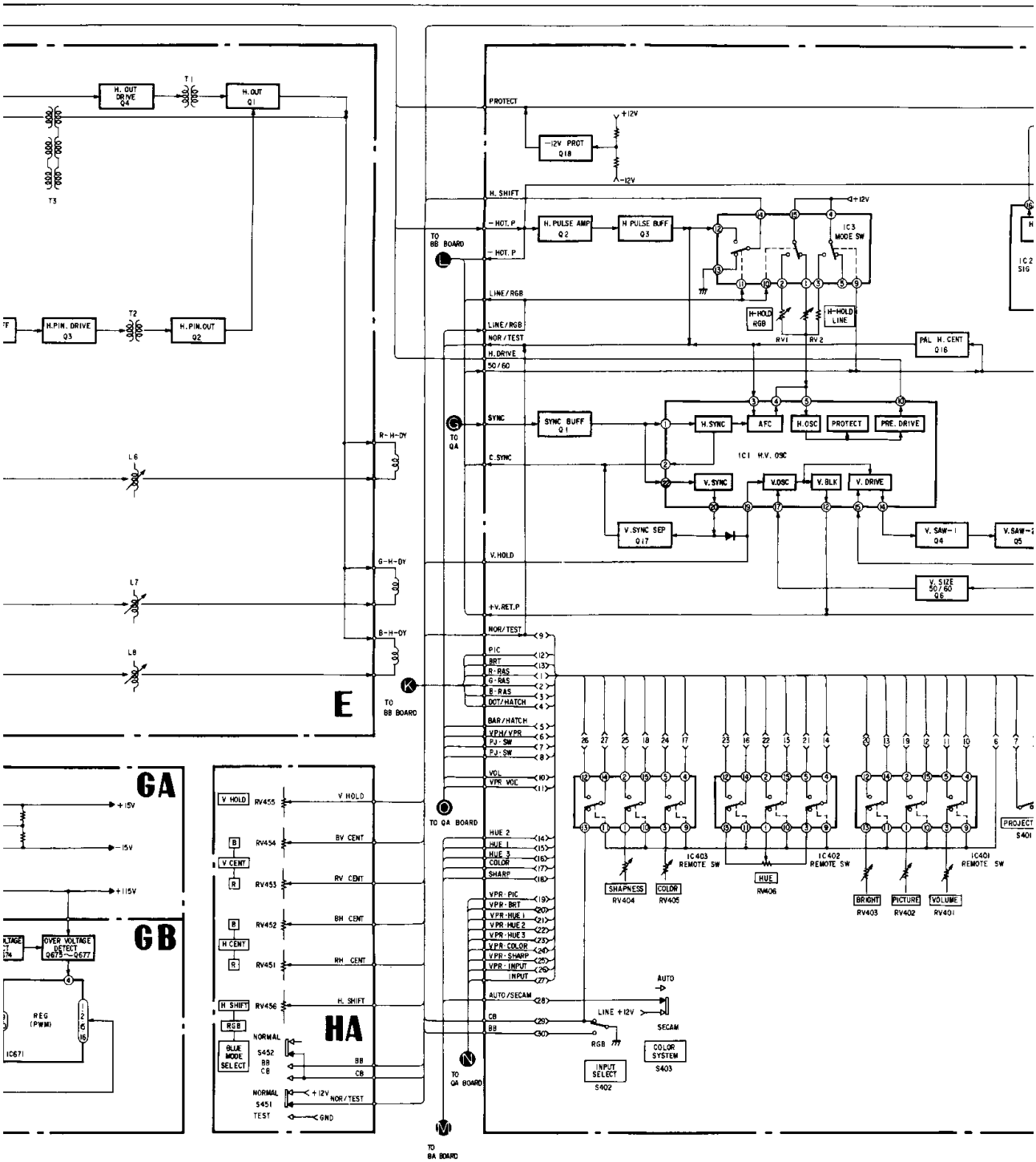

A
B
TO BB BOARD

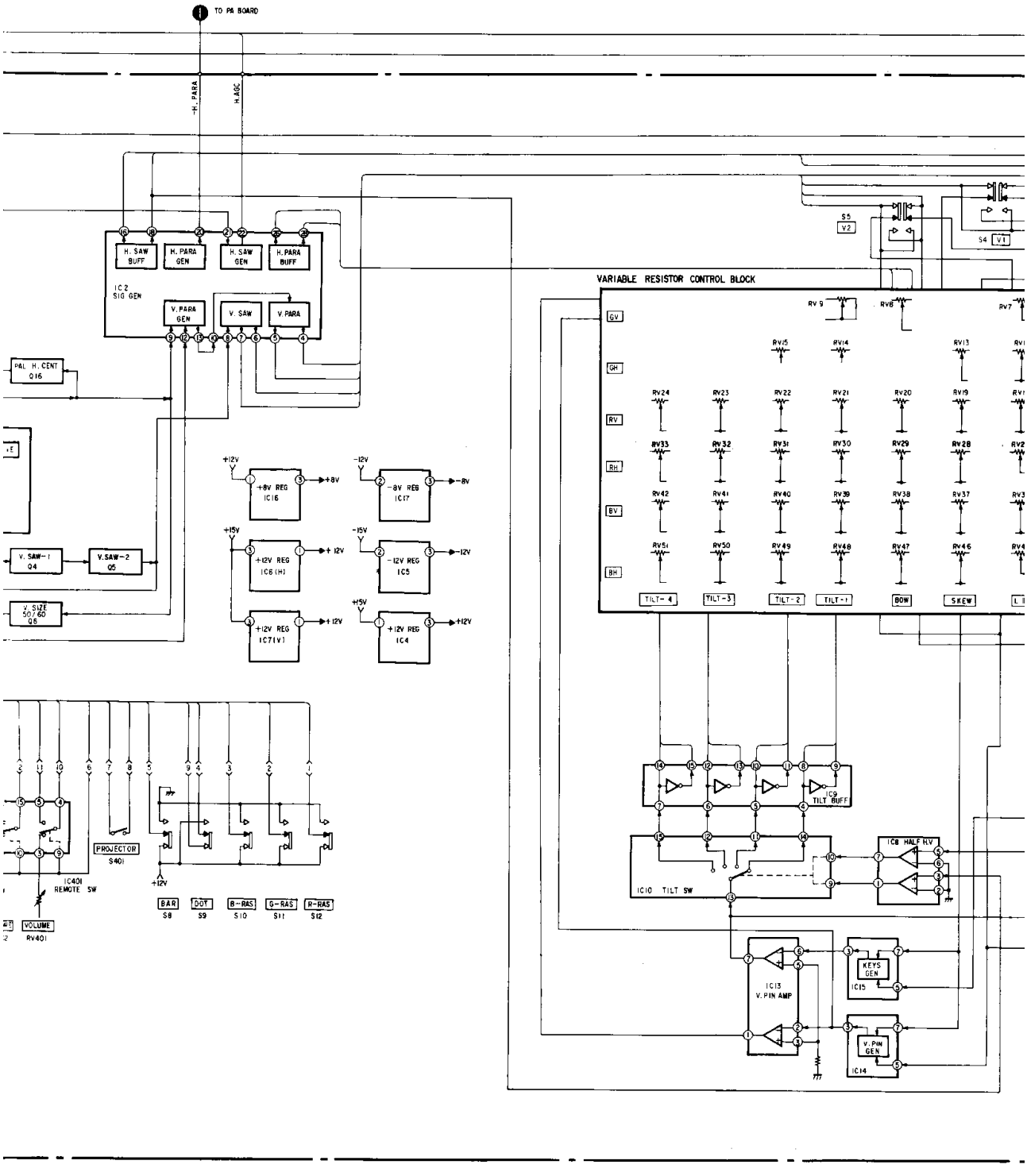

BA
TO D BOARD
VIDEO
VIDEO AMP Q407~409
LINE VIDEO OUT
BELL T201
LIMITER
SECAM SW
R-Y DEMO
B-Y DEMO
COLOR CONTROL
G-Y MATRIX
INVERTER Q145
SECAM SUB COL
IC201 SECAM DEMO
ID DET
SYSTEM SW KILLER
BLANKING
SECAM SW Q150
SECAM AMP Q136
INVERTER Q149
SUB COL
SUB PIC
AGC AMP
CHROMA AMP
COLOR CONTROL
CONTRAST CONTROL
PAL AMP Q135
DELAY DL103
AGC DET
BURST AMP
HUE CONT Q124
ID KILLER
PAL SW
FF
IC103 (1/2) NTSC/PAL DEMODULATOR
APC DET
VCO
OSC SW1 Q127
OSC SW2 Q128
APC 3.58 4.43
PHASE SW Q125
PHASE CONT Q126
CHROMA SW Q120
COMB BUFF Q410
COMB AMP Q411
DL402
CHROMA BUFF Q412
CHROMA SW Q425
COMB Y AMP Q413
COMB Y AMP Q414
COMB Y AMP Q415
COMB Y BUFF Q416
IC102 NTSC/PAL SW2
IC101 NTSC/PAL SW1
TRAP SW Q153
Y-AMP Q116
TRAP T103
TRAP SW Q117
PAL SW Q118
TO QA BOARD
TO BB BOARD
PROTECT
PROTECT Q427
SP901
+15V
+12V REG IC401
+12V
-12V
-12V REG IC402
-15V

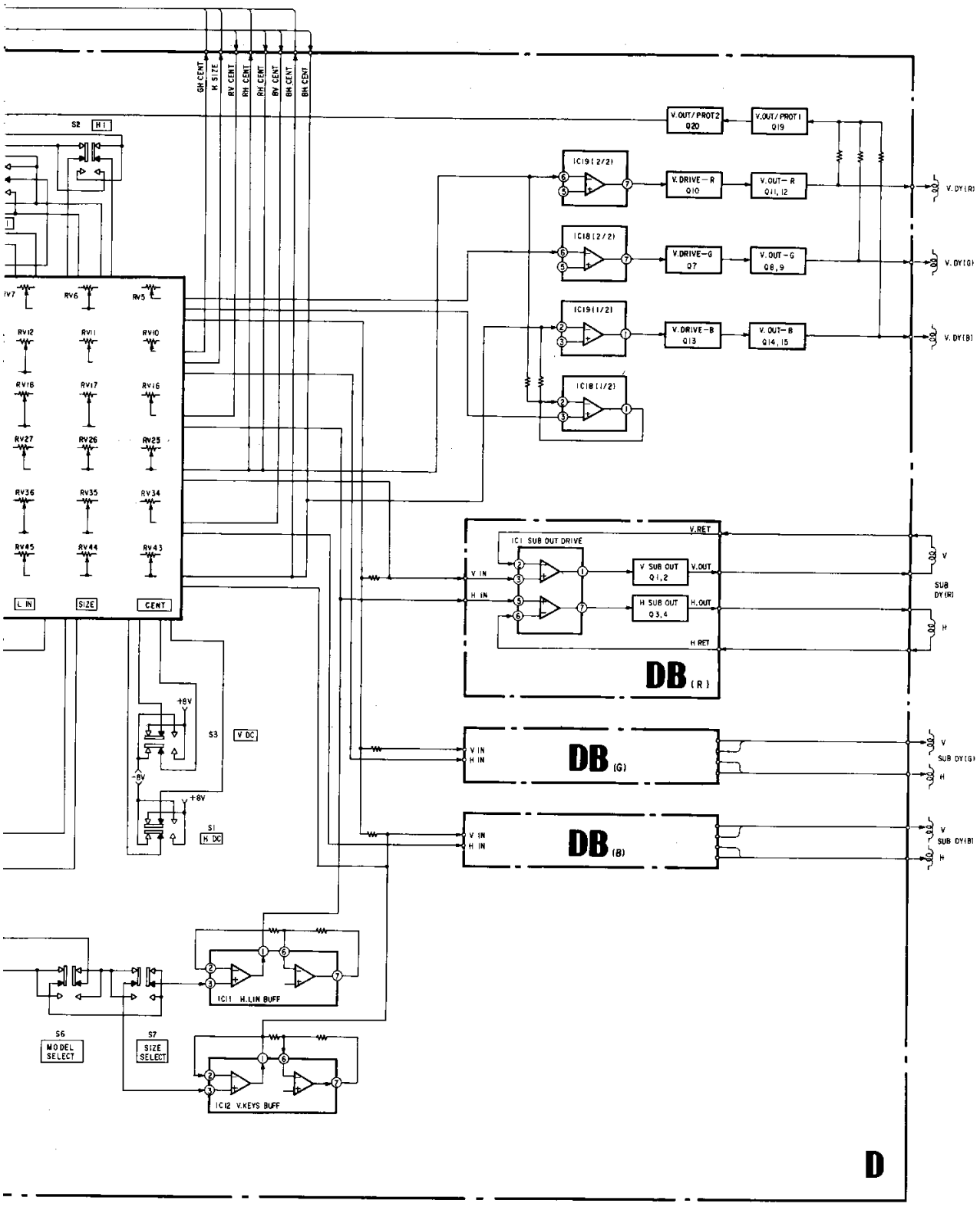

+12V
HUE 1
RV103
HUE 3
HUE
HUE 2
SECAM
COLOR
SHARP
TO D BOARD
R BUFFER Q424
G BUFFER Q425
B BUFFER Q426
R OUT
G OUT
B OUT
TO BB BOARD
SECAM SW Q154
BLK SW Q417
SYNC
BLK
H.BLK
B-Y DEMO
SYSTEM SW
VIDEO AMP
R-Y SW Q132
B-Y SW Q131
COL SW Q138
SYSTEM SW2 Q139
IC103 (1/2) NTSC/PAL DEMO
SYSTEM SW1 Q144
IC104 COL MODE SEL
ARC SW Q430
V.BLK
TO BB BOARD
IC404 50/60 CTL
ID SW2 Q123
50/60 INV Q418
50/60 INV Q419
50/60
RV106
KILLER
ID AMP Q121
ID SW1 Q122
B/W SW Q422
APT DRIVE Q421
APT DRIVE Q402
IC403 APT CTL
Y-BUFFER Q420
Y-BUFFER Q401
Y-AMP Q403
Y-AMP Q404 ~ 406
TRAP T102
TRAP SW Q152

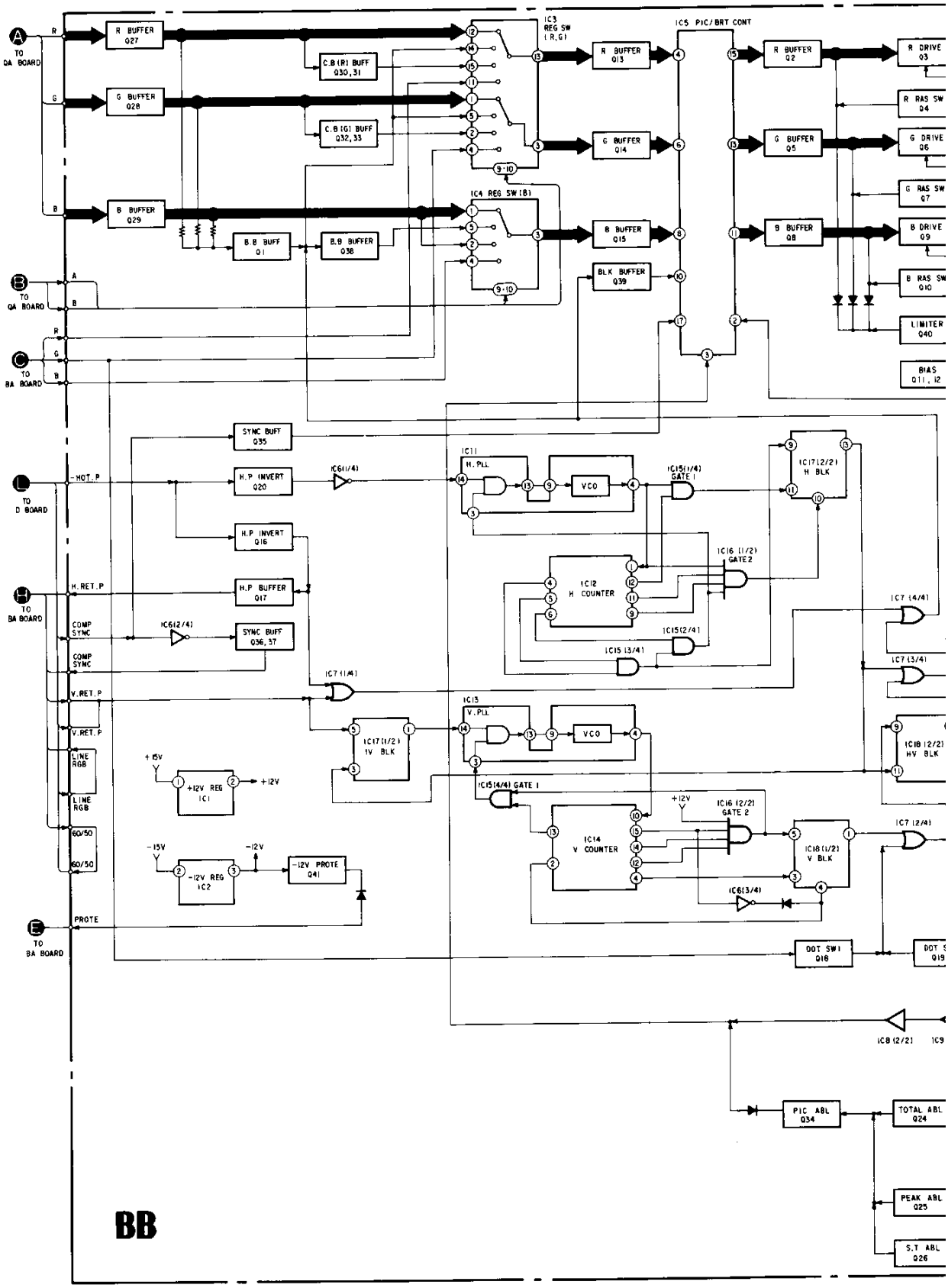

H DRIVE
-H. RET. P
PROTECT
TO PA BOARD
TO FAM
SENS
PROTECT/SW1 Q6
H.PIN OLP Q5
PROTECT/SW2 Q7
115V
+15V
+12V REG IC1
+12V
-15V
-12V REG IC3
-12V
H.PIN. AMP
H SIZE
H AGC
IC2
IN
NF
-H.P
COMP
OSC
DRIVE
IC1 H.PIN CONT
EB
RH CENT
H.CENT OUT Q1, Q2
IC1 H.CENT. DRIVE
EC (R)
GH CENT
EC (G)
BH CENT
EC (B)

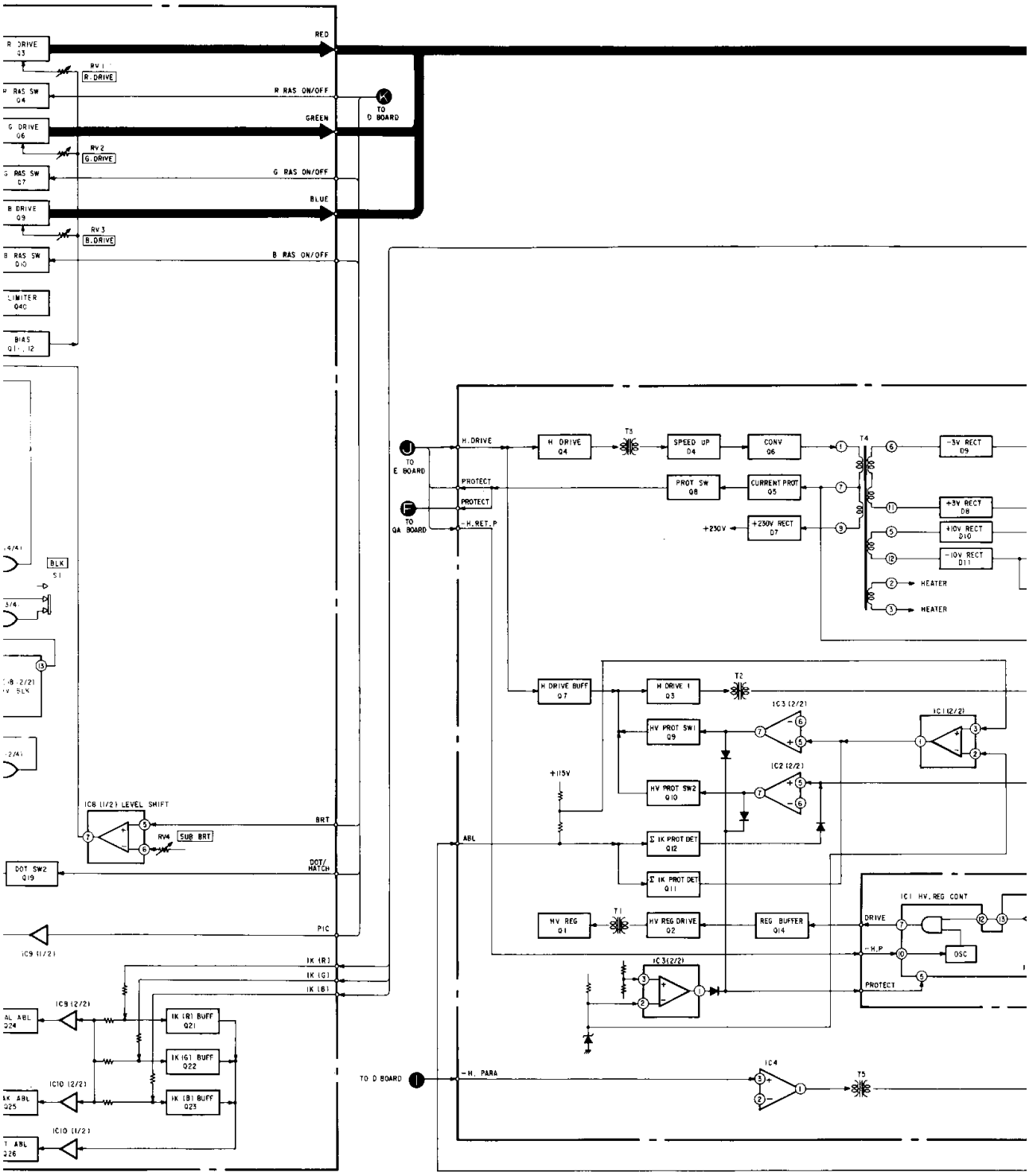

TK-15
FC
AC IN
F1
POWER SW
T1
T2
RM RECT D2
28V
VOLTAGE SELECTOR SW-1
T3
MAIN RECT D1
±DC
F
±DC IN
L601
SWITCHING Q601
T602
+15V RECT D653
-15V RECT D654
115V RECT D651
T603
KICK Q671, 672
T601
KICK RECT D671, 672

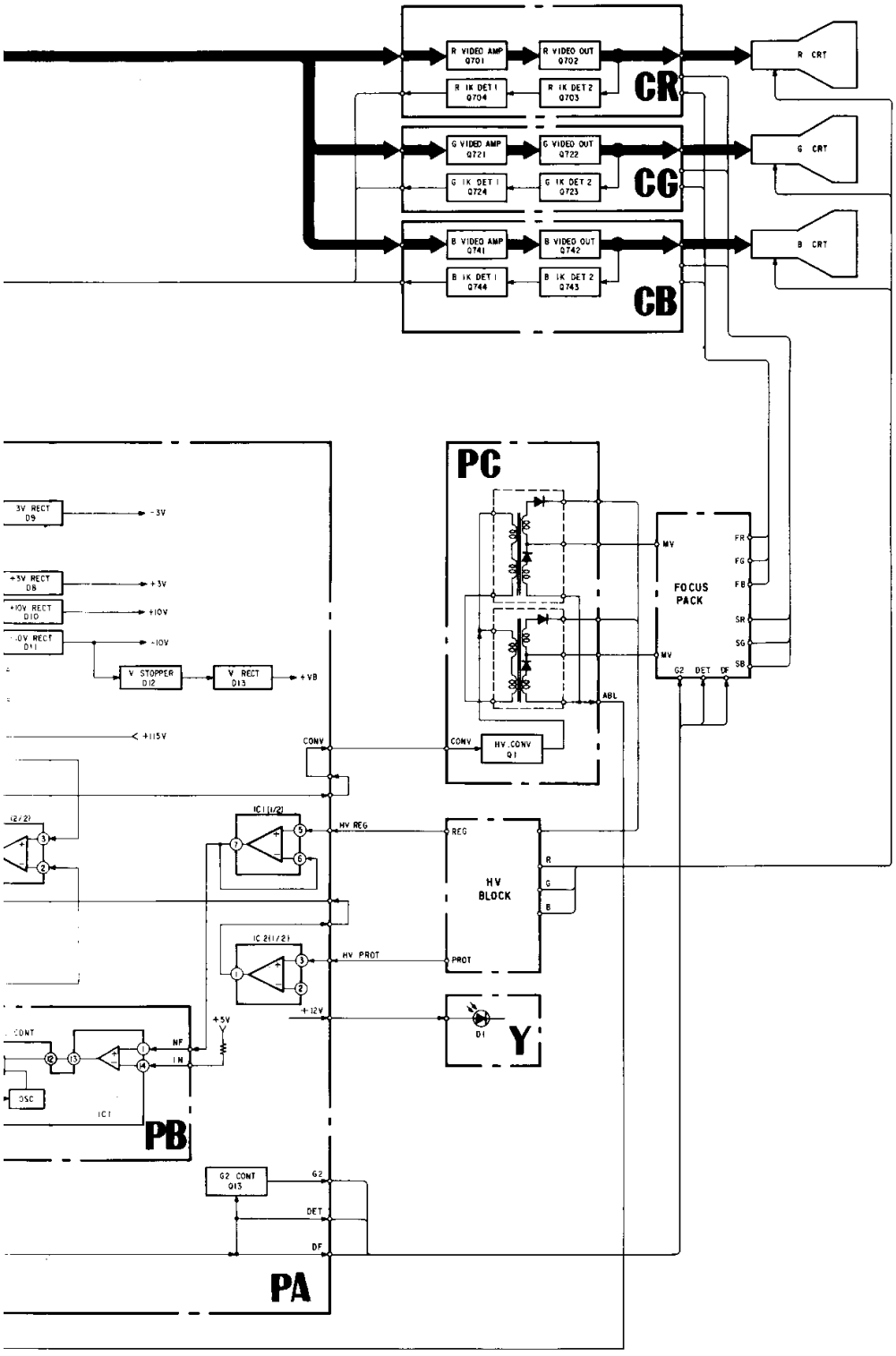

H. OUT DRIVE Q4
T1
H. OUT Q1
T3
H.PIN. DRIVE Q3
T2
H.PIN.OUT Q2
E
GA
GB
HA
PROTECT
+12V
-12V PROT Q18
H. SHIFT
-HOT. P
H. PULSE AMP Q2
H PULSE BUFF Q3
TO BB BOARD
IC3 MODE SW
H-HOLD RGB
H-HOLD LINE
RV1
RV2
LINE/RGB
NOR/TEST
H. DRIVE
50/60
PAL H. CENT Q16
SYNC
SYNC BUFF Q1
TO QA
C.SYNC
H.SYNC
AFC
H.OSC
PROTECT
PRE. DRIVE
IC1 H.V. OSC
V.SYNC
V.OSC
V. BLK
V. DRIVE
V.SYNC SEP Q17
V. SAW-1 Q4
V. SAW-2 Q5
V. SIZE 50/60 Q6
V.HOLD
+V.RET.P
R-H-DY
G-H-DY
B-H-DY
L6
L7
L8
TO BB BOARD
PIC
BRT
R-BAS
G-BAS
B-BAS
DOT/HATCH
BAR/HATCH
VPH/VPR
PJ-SW
VOL
VPR VOL
TO QA BOARD
HUE 2
HUE 1
HUE 3
COLOR
SHARP
VPR-PIC
VPR-BRT
VPR-HUE1
VPR-HUE2
VPR-HUE3
VPR-COLOR
VPR-SHARP
VPR-INPUT
INPUT
AUTO/SECAM
CB
BB
TO QA BOARD
TO BA BOARD
IC403 REMOTE SW
IC402 REMOTE SW
IC401 REMOTE SW
SHAPNESS RV404
COLOR RV405
HUE RV406
BRIGHT RV403
PICTURE RV402
VOLUME RV401
PROJECT S401
AUTO
LINE +12V
SECAM
RGB
INPUT SELECT S402
COLOR SYSTEM S403
+15V
-15V
+115V
OVER VOLTAGE DETECT Q675~Q677
REG (PWM)
IC671
V HOLD RV455
V. HOLD
B
V CENT
R
RV454
BV CENT
RV453
RV CENT
RV452
BH CENT
H CENT
RV451
RH CENT
H SHIFT RV456
H. SHIFT
RGB
BLUE MODE SELECT
NORMAL
S452
BB
CB
NORMAL
S451
TEST
+12V
GND
NOR/TEST


TO PA BOARD
-H. PARA
H.AGC
H. SAW BUFF
H. PARA GEN
H. SAW GEN
H. PARA BUFF
IC2 SIG GEN
V. PARA GEN
V. SAW
V. PARA
PAL H. CENT Q16
V. SAW-1 Q4
V. SAW-2 Q5
V. SIZE 50/60 Q6
+8V REG IC16
-8V REG IC17
+12V REG IC6(H)
-12V REG IC5
+12V REG IC7(V)
+12V REG IC4
VARIABLE RESISTOR CONTROL BLOCK
GV
GH
RV
RH
BV
BH
TILT-4
TILT-3
TILT-2
TILT-1
BOW
SKEW
IC9 TILT BUFF
IC8 HALF H.V
IC10 TILT SW
IC13 V. PIN AMP
KEYS GEN IC15
V. PIN GEN IC14
PROJECTOR S401
IC401 REMOTE SW
VOLUME RV401
BAR S8
DOT S9
B-RAS S10
G-RAS S11
R-RAS S12

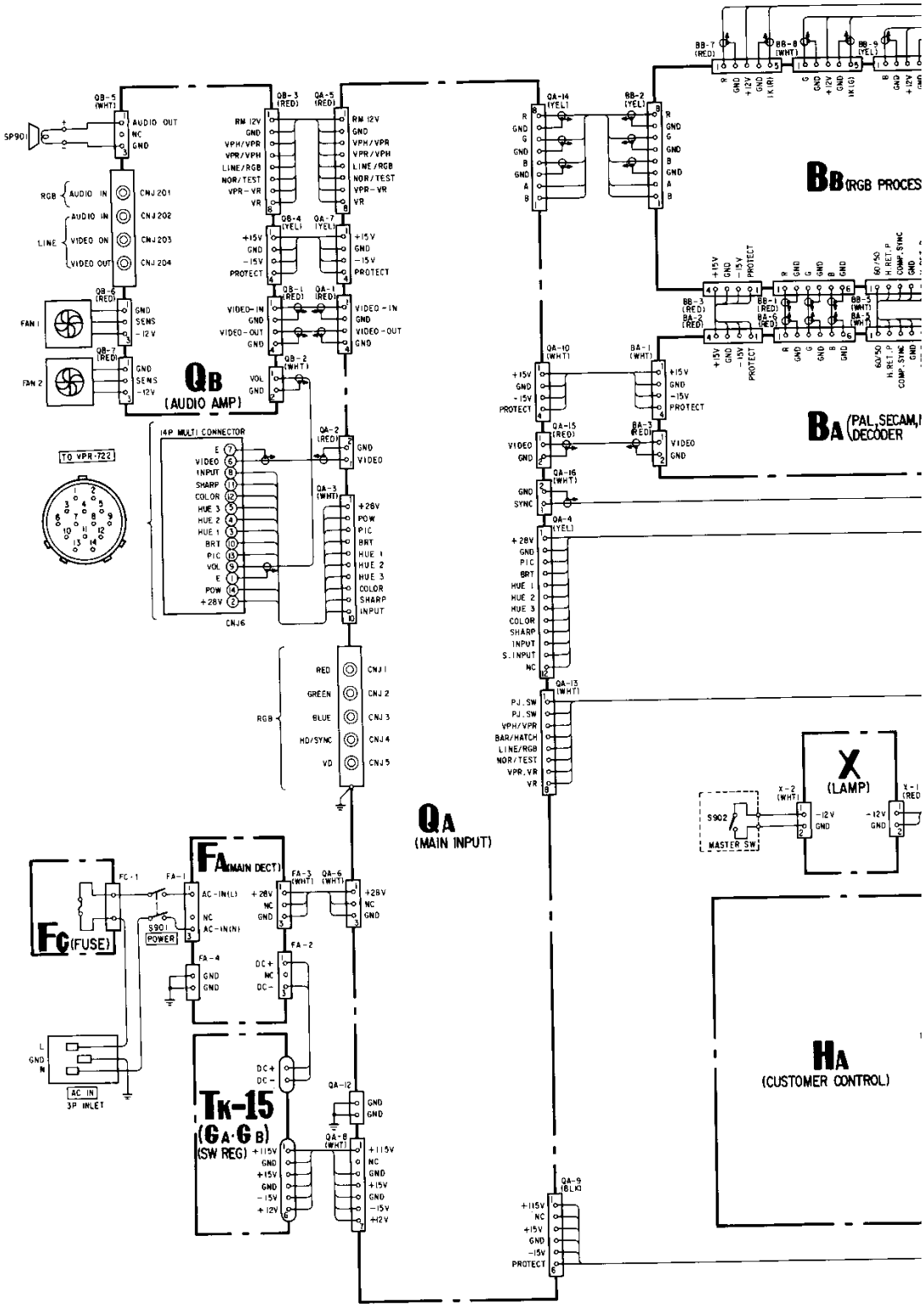

GM CENT
H SIZE
RV CENT
RH CENT
RH CENT
RV CENT
BM CENT
BH CENT
S2
H1
RV7
RV6
RV5
RV12
RV11
RV10
RV18
RV17
RV16
RV27
RV26
RV25
RV36
RV35
RV34
RV45
RV44
RV43
L IN
SIZE
CENT
+8V
S3
V DC
-8V
+8V
S1
H DC
S6
MODEL SELECT
S7
SIZE SELECT
IC11 H.LIN BUFF
IC12 V.KEYS BUFF
V.OUT/PROT2 Q20
V.OUT/PROT1 Q19
IC19(2/2)
V.DRIVE-R Q10
V.OUT-R Q11,12
V.DY(R)
IC18(2/2)
V.DRIVE-G Q7
V.OUT-G Q8,9
V.DY(G)
IC19(1/2)
V.DRIVE-B Q13
V.OUT-B Q14,15
V.DY(B)
IC18(1/2)
V.RET
IC1 SUB OUT DRIVE
V IN
H IN
V SUB OUT Q1,2
V.OUT
H SUB OUT Q3,4
H.OUT
H RET
DB (R)
V
SUB DY(R)
H
DB (G)
V
SUB DY(G)
H
DB (B)
V
SUB DY(B)
H
D

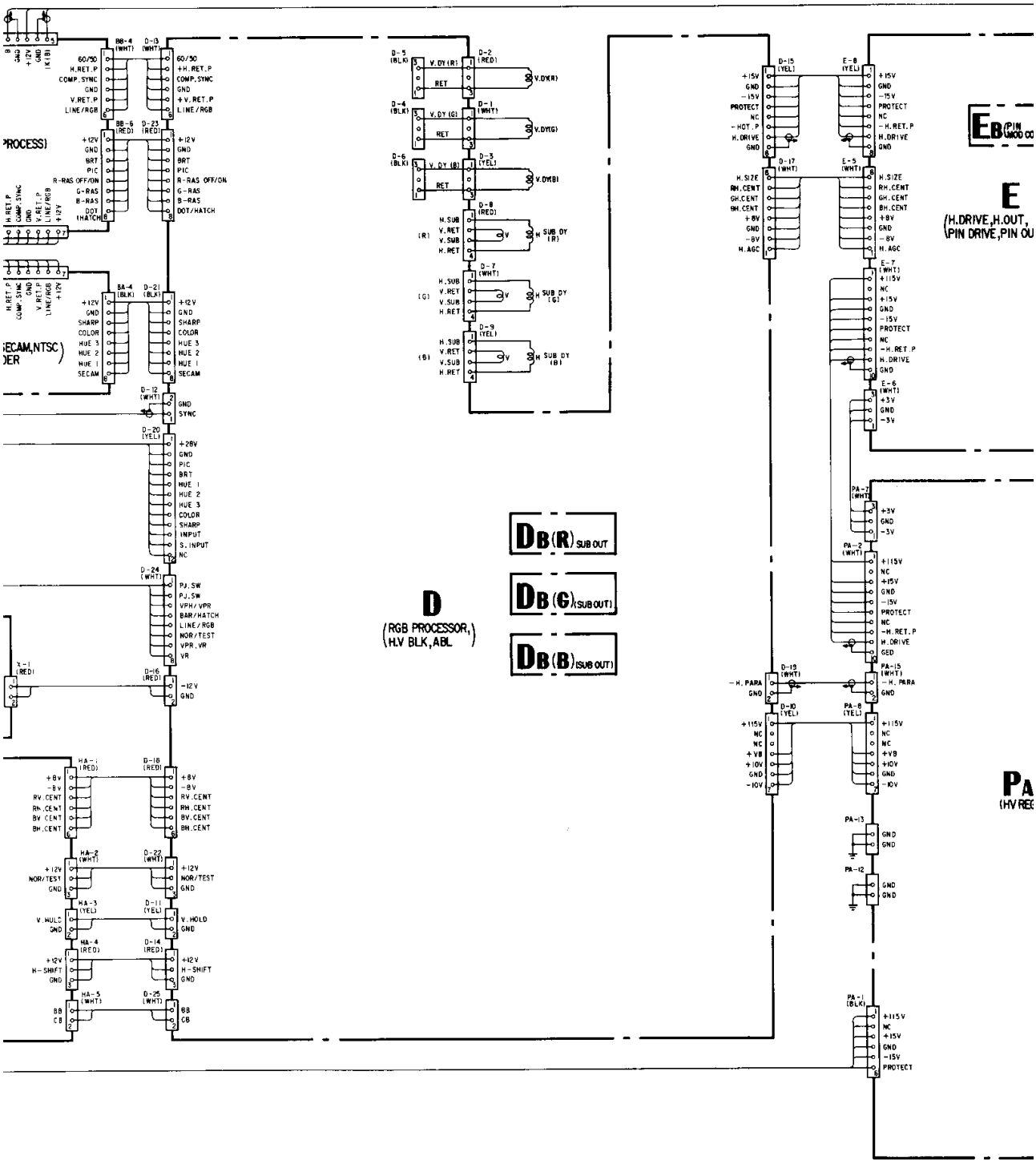

R BUFFER Q27
G BUFFER Q28
B BUFFER Q29
C.B (R) BUFF Q30, 31
C.B (G) BUFF Q32, 33
B.B BUFF Q1
B.B BUFFER Q38
IC3 REG SW (R, G)
IC4 REG SW (B)
R BUFFER Q13
G BUFFER Q14
B BUFFER Q15
BLK BUFFER Q39
IC5 PIC/BRT CONT
R BUFFER Q2
G BUFFER Q5
B BUFFER Q8
R DRIVE Q3
R RAS SW Q4
G DRIVE Q6
G RAS SW Q7
B DRIVE Q9
B RAS SW Q10
LIMITER Q40
BIAS Q11, 12
TO QA BOARD
TO QA BOARD
TO BA BOARD
TO D BOARD
TO BA 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
COMP SYNC
V.RET.P
V.RET.P
LINE RGB
LINE RGB
60/50
60/50
PROTE
IC11 H.PLL
VCO
IC12 H COUNTER
IC13 V.PLL
VCO
IC14 V COUNTER
IC15(1/4) GATE 1
IC15(2/4)
IC15(3/4)
IC15(4/4) GATE 1
IC16 (1/2) GATE 2
IC16 (2/2) GATE 2
IC17 (1/2) H BLK
IC17 (1/2) 1V BLK
IC18 (1/2) V BLK
IC18 (2/2) HV BLK
IC6(1/4)
IC6(2/4)
IC6(3/4)
IC7 (1/4)
IC7 (3/4)
IC7 (4/4)
IC7 (2/4)
IC8 (2/2)
+15V
+12V REG IC1
+12V
-15V
-12V REG IC2
-12V
-12V PROTE Q41
DOT SW1 Q18
PIC ABL Q34
TOTAL ABL Q24
PEAK ABL Q25
S.T ABL Q26
BB

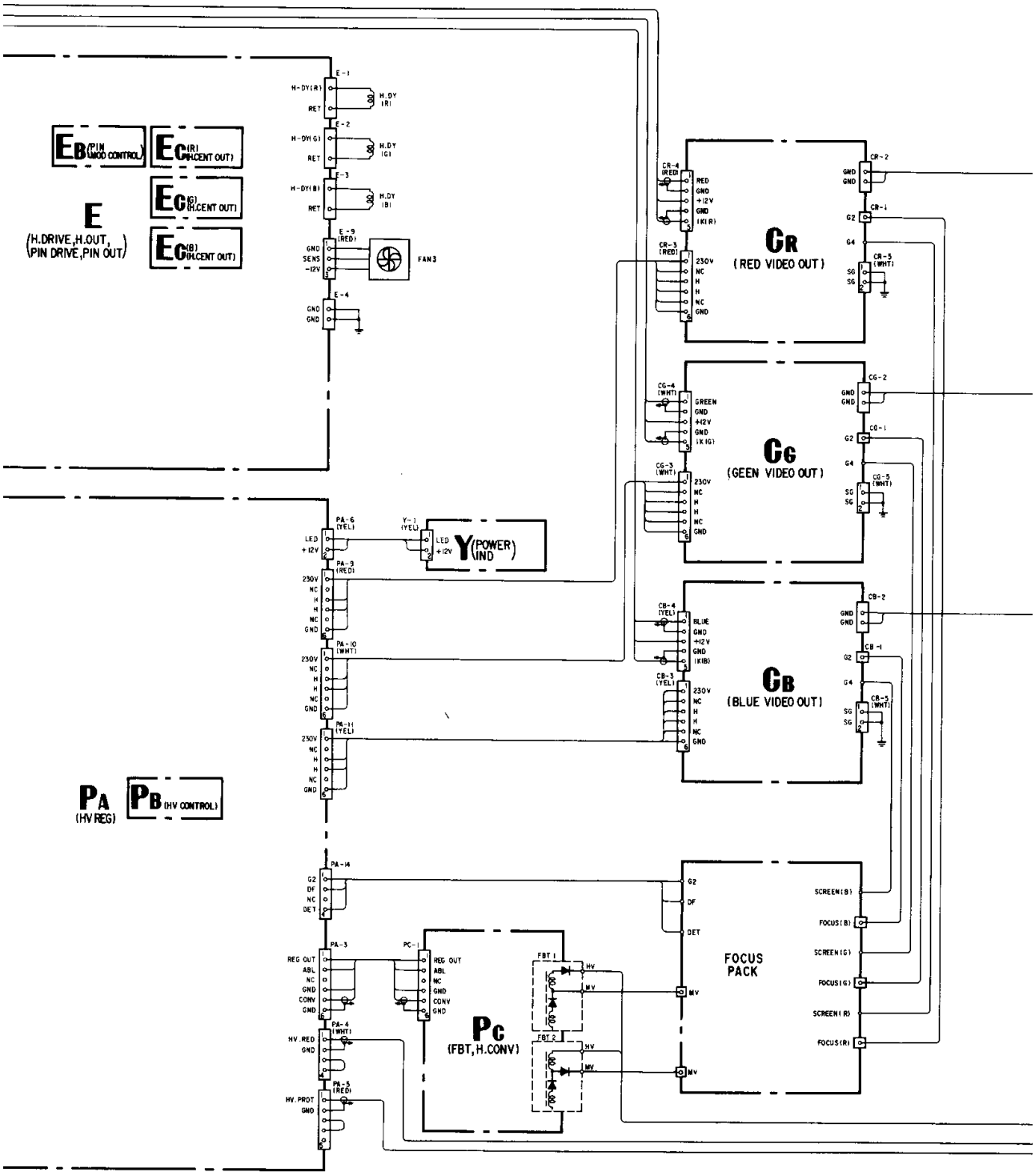

RED
GREEN
BLUE
R RAS ON/OFF
G RAS ON/OFF
B RAS ON/OFF
TO D BOARD
R DRIVE Q3
RV1 R.DRIVE
R RAS SW Q4
G DRIVE Q6
RV2 G.DRIVE
G RAS SW Q7
B DRIVE Q9
RV3 B.DRIVE
B RAS SW Q10
LIMITER Q40
BIAS
BLK
IC8 (1/2) LEVEL SHIFT
RV4 SUB BRT
BRT
DOT SW2 Q19
DOT/ HATCH
PIC
IC9 (1/2)
IK (R)
IK (G)
IK (B)
IC9 (2/2)
IK (R) BUFF Q21
IK (G) BUFF Q22
IK (B) BUFF Q23
IC10 (2/2)
IC10 (1/2)
H.DRIVE
TO E BOARD
PROTECT
TO QA BOARD
-H.RET.P
H DRIVE Q4
T3
SPEED UP Q4
CONV Q6
PROT SW Q8
CURRENT PROT Q5
+230V
+230V RECT D7
T4
-3V RECT D9
+3V RECT D8
+10V RECT D10
-10V RECT D11
HEATER
HEATER
H DRIVE BUFF Q7
H DRIVE 1 Q3
T2
IC3 (2/2)
HV PROT SW1 Q9
IC1 (2/2)
+115V
IC2 (2/2)
HV PROT SW2 Q10
ABL
Σ IK PROT DET Q12
Σ IK PROT DET Q11
HV REG Q1
T1
HV REG DRIVE Q2
REG BUFFER Q14
IC1 HV.REG CONT
DRIVE
-H.P
OSC
PROTECT
IC3 (2/2)
TO D BOARD
-H. PARA
IC4
T5

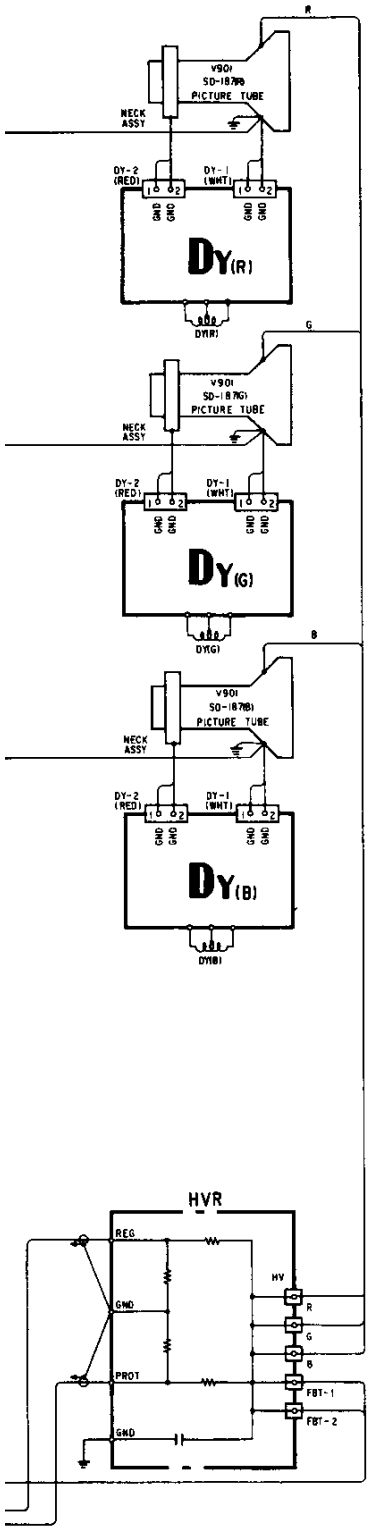

R VIDEO AMP Q701
R VIDEO OUT Q702
R IK DET 1 Q704
R IK DET 2 Q703
CR
R CRT
G VIDEO AMP Q721
G VIDEO OUT Q722
G IK DET 1 Q724
G IK DET 2 Q723
CG
G CRT
B VIDEO AMP Q741
B VIDEO OUT Q742
B IK DET 1 Q744
B IK DET 2 Q743
CB
B CRT
PC
FOCUS PACK
MV
FR
FG
FB
SR
SG
SB
G2
DET
DF
ABL
CONV
HV CONV Q1
HV REG
REG
HV BLOCK
R
G
B
HV PROT
PROT
D1
Y
-3V
+3V
+10V
-10V
V STOPPER D12
V RECT D13
+VB
+115V
+12V
+5V
OSC
PB
G2 CONT Q13
G2
DET
DF
PA

7-4. FRAME SCHEMATIC DIAGRAM




D
(RGB PROCESSOR,
H.V BLK,ABL
DB(R)SUB OUT
DB(G)SUB OUT
DB(B)SUB OUT
E
(H.DRIVE,H.OUT,
PIN DRIVE,PIN OU
PA
(H.V REC

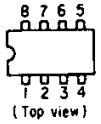

EB (PIN MOD CONTROL)
EC (R) (H.CENT OUT)
EG (G) (H.CENT OUT)
EC (B) (H.CENT OUT)
E (H.DRIVE, H.OUT, PIN DRIVE, PIN OUT)
H.DY (R)
H.DY (G)
H.DY (B)
FAN3
CR (RED VIDEO OUT)
CG (GEEN VIDEO OUT)
CB (BLUE VIDEO OUT)
Y (POWER IND)
PA (HV REG)
PB (HV CONTROL)
PC (FBT, H.CONV)
FOCUS PACK
FBT 1
FBT 2


R
V901
SD-187R
PICTURE TUBE
NECK ASSY
DY-2 (RED)
DY-1 (WHT)
GND
DY(R)
G
V901
SD-187G
PICTURE TUBE
DY(G)
B
V901
SD-187B
PICTURE TUBE
DY(B)
HVR
REG
GND
PROT
HV
FBT-1
FBT-2

7-5. SEMICONDUCTORS

BX-1121
BX-1122

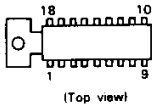
CX-7916
HA17558
NJM2903D
NJM4558D
TL082CP
μPC393C
μPC4082C
μPC4558C
μPC4570C



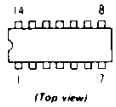
CX-7948
CX20061
M5218L

CX-894

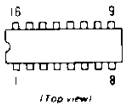
CXA1044P



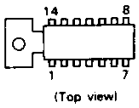
HD14013BP
HD14024BP
HD14069UBP
HD14071BP
HD14081BP
HD14082BP
MB84013B
MC14024BCP
MC1496P
TC4024BP
TC4069UBP
TC4071BP
TC4081BP
TC4082BP
μPC1394C
μPC339C
μPD4024BC



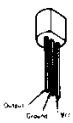
HD14040BP
HD14046BP
HD14052BP
HD14053BP
MB84052B
MC14052BCP
MC14053BCP
TC4040BP
TC4052BP
TC4053BP



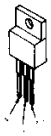
LA2600



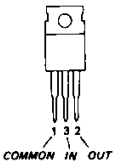
NJM78L09A
NJM78L12A
TA78L009AP



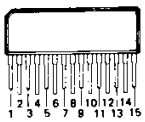
NJM78M05A
NJM78M09A
NJM78M12A
μPC78M05H
μPC78M08H
μPC78M12H



NJM79M08A
NJM79M12A
μPC79M12A
μPC79M12H

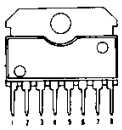


TC504013BP

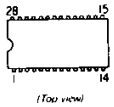


μPC1037H
μPC1037HA

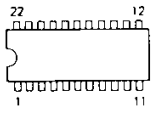
μPC1241H



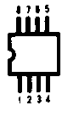
μPC1364C2
μPC1365C



μPC1377C

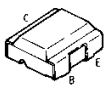


μPC393G2



μPC78L12

2SA1037

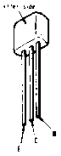


2SA1048
2SA1115
2SC2458
2SC2603
2SC403SP
DTC144ES
DTC144WS

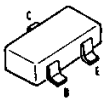
2SA1142
2SA1381
2SC2688
2SC3503

2SA1162

2SA1175
2SC2785



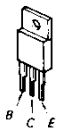
2SA1179M
2SA812
2SC1623
2SC2412
2SC2712
2SC2812
2SC3052
DTC144TK
DTC144WK



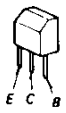
2SA1428
2SC3668

2SA933S
2SC1740

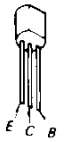
2SB1015
2SC3163
2SC3675
2SD1399
2SD1399-CA
2SD1406



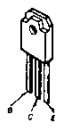
2SB734
2SC2959
2SD774



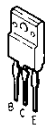
2SB740
2SC2230A
2SC2383
2SD789



2SC2555



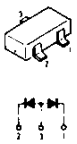
2SD1548



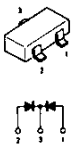
2SK105A
2SK105A-30
2SK107

2SK160-K4
2SK160-K5
2SK160-K6

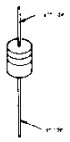
1S2835
DAN202K
MA151WA



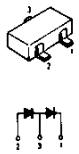
1S2837
MA151WK



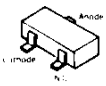
1SS119
1SS133T
1SS148
HZS13NB
HZS13NB2
HZS15NB3
HZS6.8NB3
HZS8.2NB2
MTZJ-T-73-6.8C
MTZJ-T-73-8.2C
MTZJ-T-77-13B
MTZJ-T-77-15C
MTZJ-T-77-5.1B
RD13ES-B2
RD15ES-B3
RD8.2ES-B3



1SS123
DA204K
MA153

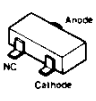


1SS187
1SS190

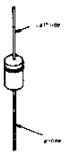


1SS193
RD5.1M-B1
RD5.1M-B2
RD5.1M-B3

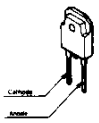
1SS196



EQB01-33
RU-1
RU-1A
SIB01-02V1

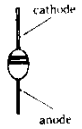


ERC26-15S
V06C
V09C
V19E

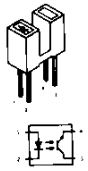


ERD28-08S
GP08DPKG23
HZS8.2NB2TD
RD5.1ES-T1B1
RD6.8ES-B3

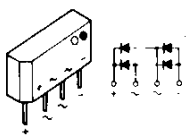
GH3F
V11N



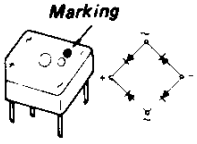
HZS5.1NB2
RD5.1ES-B2



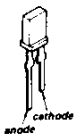
S1VB20



S3WB60Z



GL-9NG2



7-6. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

– Conductor Side –

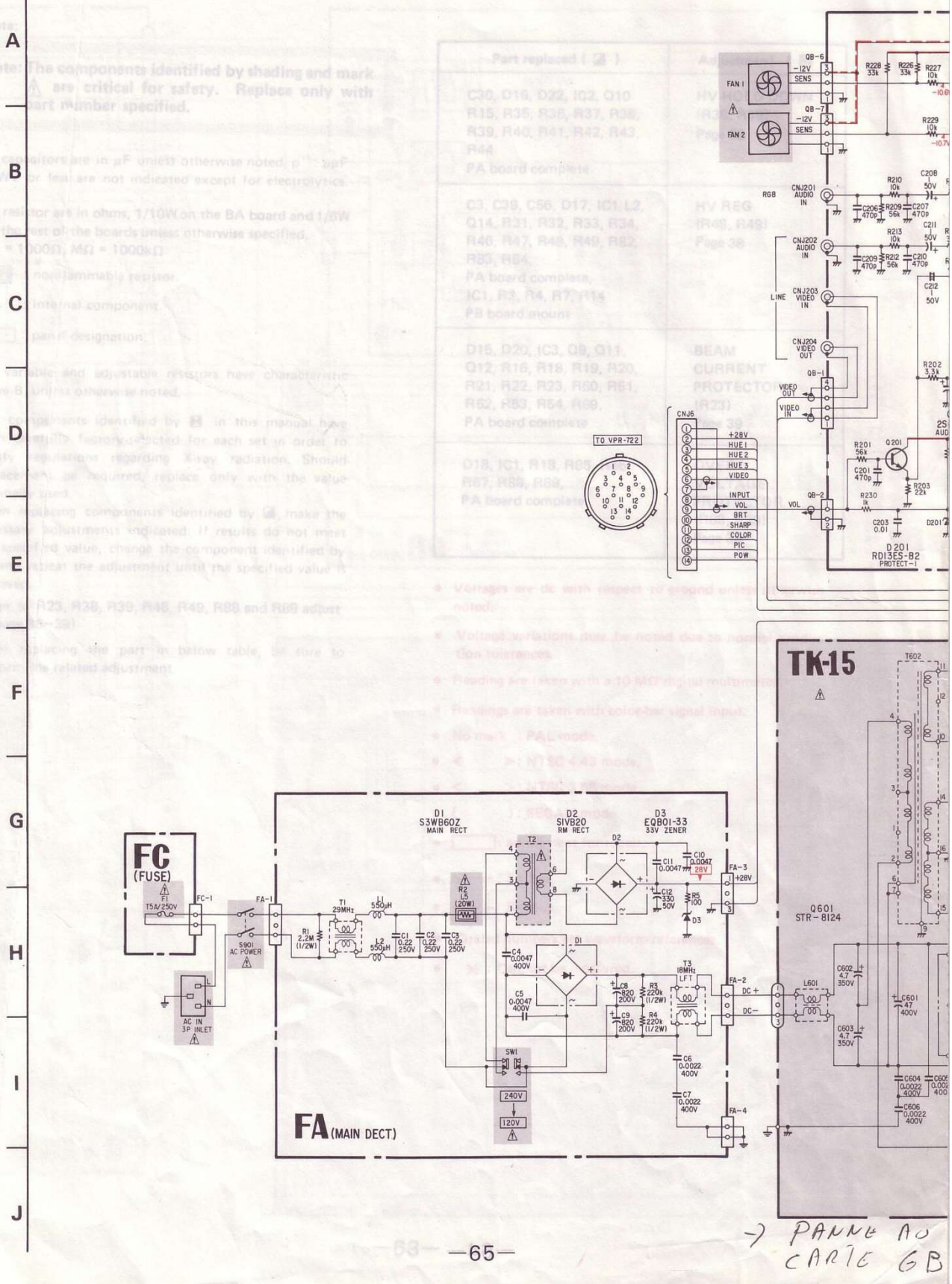
Note:

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

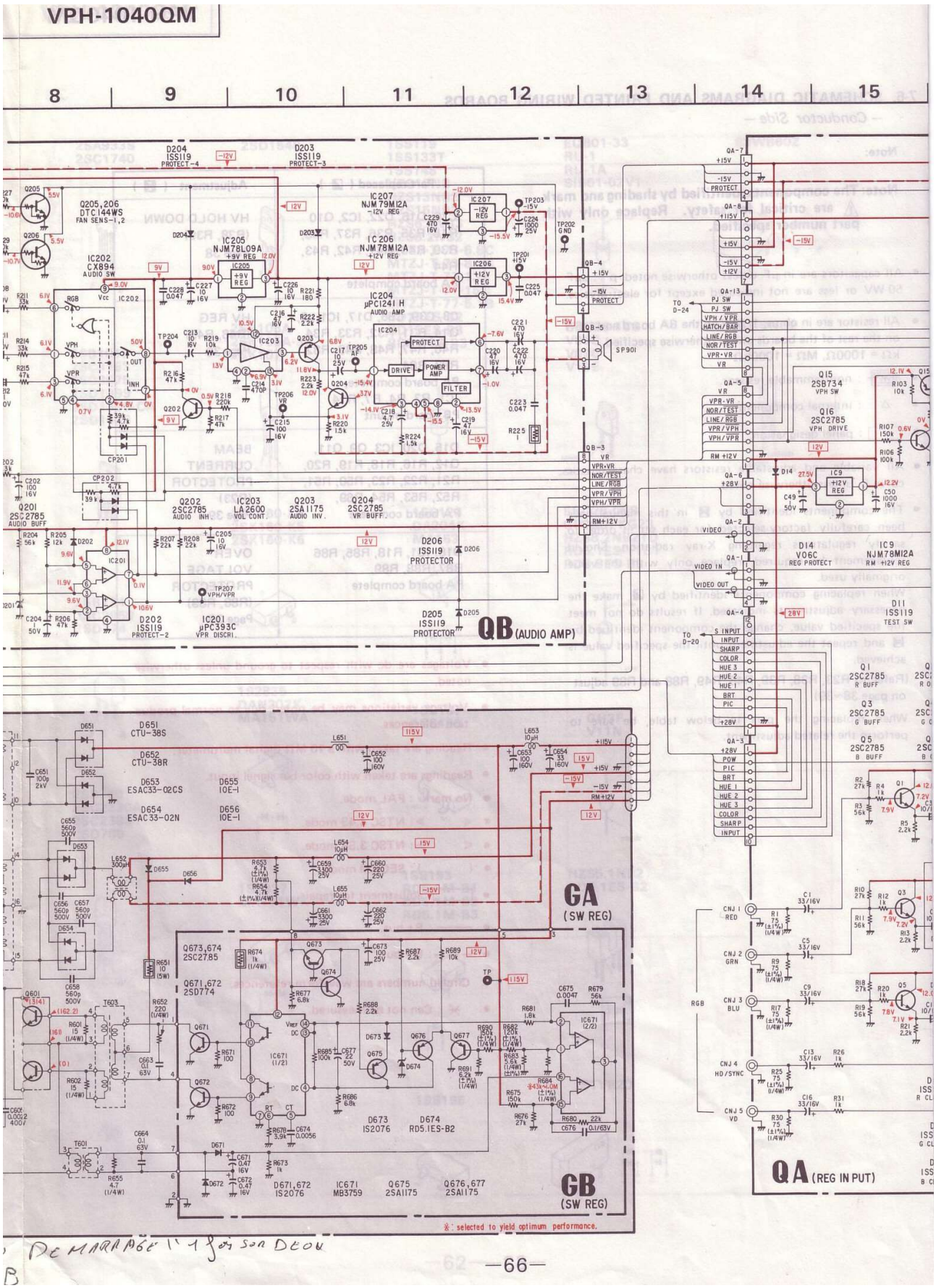
- All capacitors are in μF unless otherwise noted. p : μμF 50 WV or less are not indicated except for electrolytics.
- All resistor are in ohms, 1/10W on the BA board and 1/6W on the rest of the boards unless otherwise specified. kΩ = 1000Ω, MΩ = 1000kΩ
- : nonflammable resistor.
- △ : internal component.
- : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- 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.
  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 38~39)
  When replacing the part in below table, be sure to perform the related adjustment.

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) Page 38
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) Page 38
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) Page 39
D18, IC1, R18, R85, R86 R87, R88, R89, PA board complete	OVER VOLTAGE PROTECTOR (R88, R89) Page 39

- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- Reading are taken with a 10 MΩ digital multimeter.
- Readings are taken with color-bar signal input.
- No mark : PAL mode.
- ≪ ≫: NTSC 4.43 mode.
- < >: NTSC 3.58 mode.
- ( ) : SECAM mode.
- : adjustment for repair.
- ——— : B+ bus.
- – – – : B– bus.
- Circled numbers are waveform references.
- ✳ : Can not be measured.

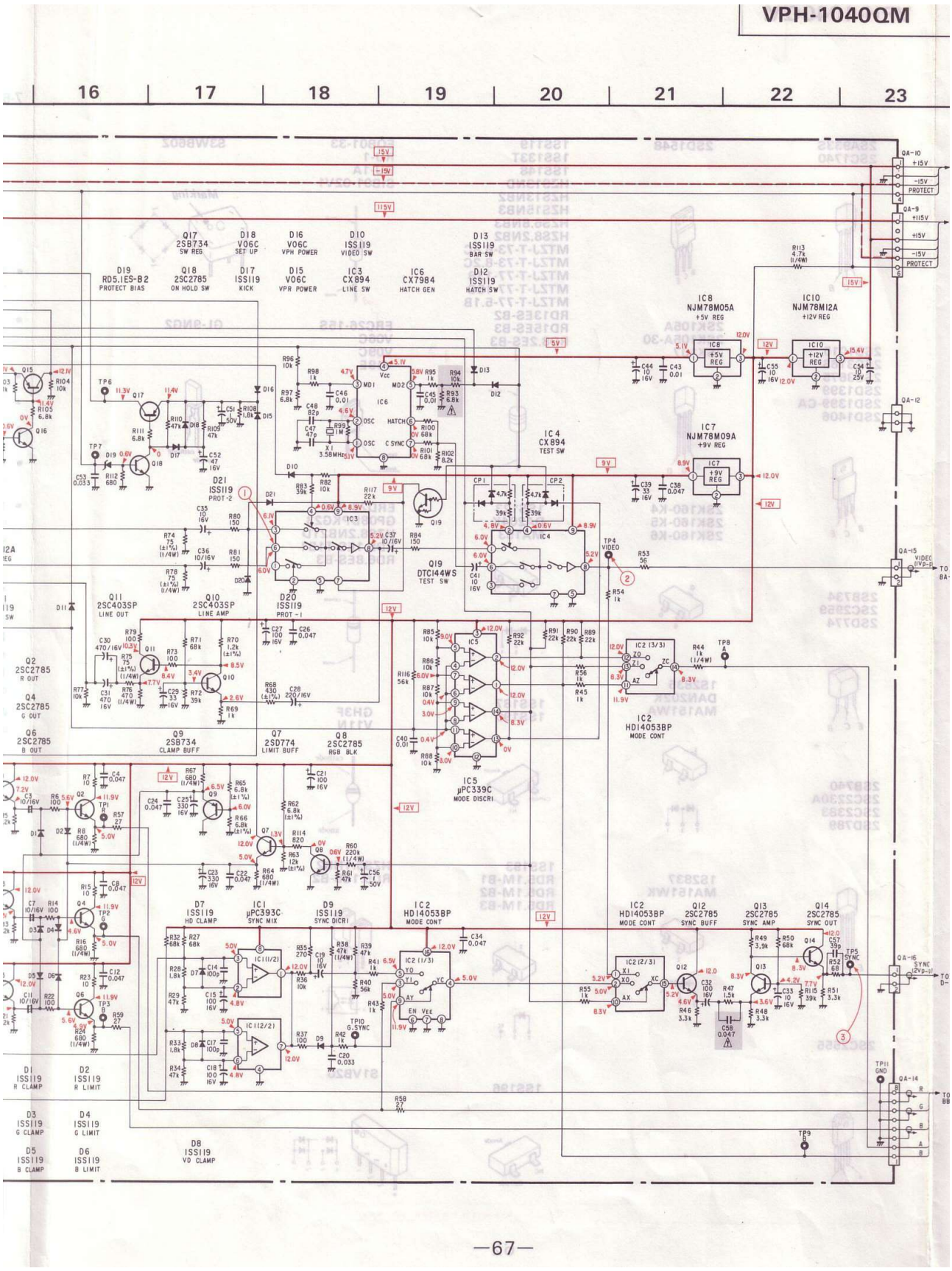


→ PANNE AU CARTE GB



DEMARRAGE 1 1 fois sur DEUX

B

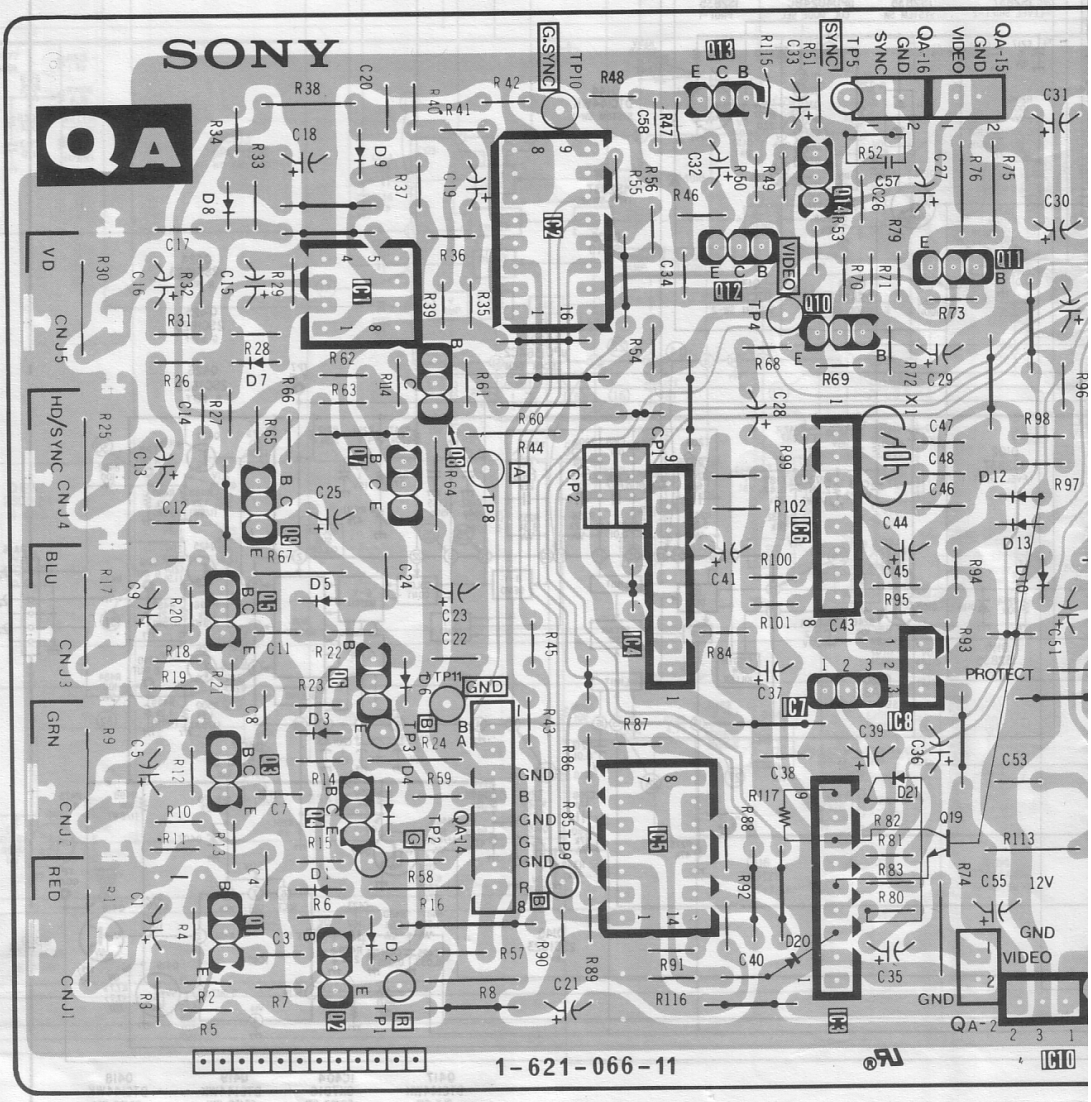

16
17
18
19
20
21
22
23
Q17 2SB734 SW REG
D18 V06C SET UP
D16 V06C VPH POWER
D10 ISS119 VIDEO SW
D13 ISS119 BAR SW
D19 RD5.1ES-B2 PROTECT BIAS
Q18 2SC2785 ON HOLD SW
D17 ISS119 KICK
D15 V06C VPR POWER
IC3 CX894 LINE SW
IC6 CX7984 HATCH GEN
D12 ISS119 HATCH SW
IC8 NJM78M05A +5V REG
IC10 NJM78M12A +12V REG
IC7 NJM78M09A +9V REG
IC4 CX894 TEST SW
D21 ISS119 PROT-2
D20 ISS119 PROT-1
Q11 2SC403SP LINE OUT
Q10 2SC403SP LINE AMP
Q19 DTC144WS TEST SW
Q2 2SC2785 R OUT
Q4 2SC2785 G OUT
Q6 2SC2785 B OUT
Q9 2SB734 CLAMP BUFF
Q7 2SD774 LIMIT BUFF
Q8 2SC2785 RGB BLK
IC2 HD14053BP MODE CONT
IC5 μPC339C MODE DISCRI
D7 ISS119 HD CLAMP
IC1 μPC393C SYNC MIX
D9 ISS119 SYNC DICRI
Q12 2SC2785 SYNC BUFF
Q13 2SC2785 SYNC AMP
Q14 2SC2785 SYNC OUT
D1 ISS119 R CLAMP
D2 ISS119 R LIMIT
D3 ISS119 G CLAMP
D4 ISS119 G LIMIT
D5 ISS119 B CLAMP
D6 ISS119 B LIMIT
D8 ISS119 VD CLAMP
QA-10
QA-9
QA-12
QA-15
QA-16
QA-14
TP4 VIDEO
TP5 SYNC
TP8 A
TP9 B
TP10 G.SYNC
TP11 GND

QA

[REG IN PUT]

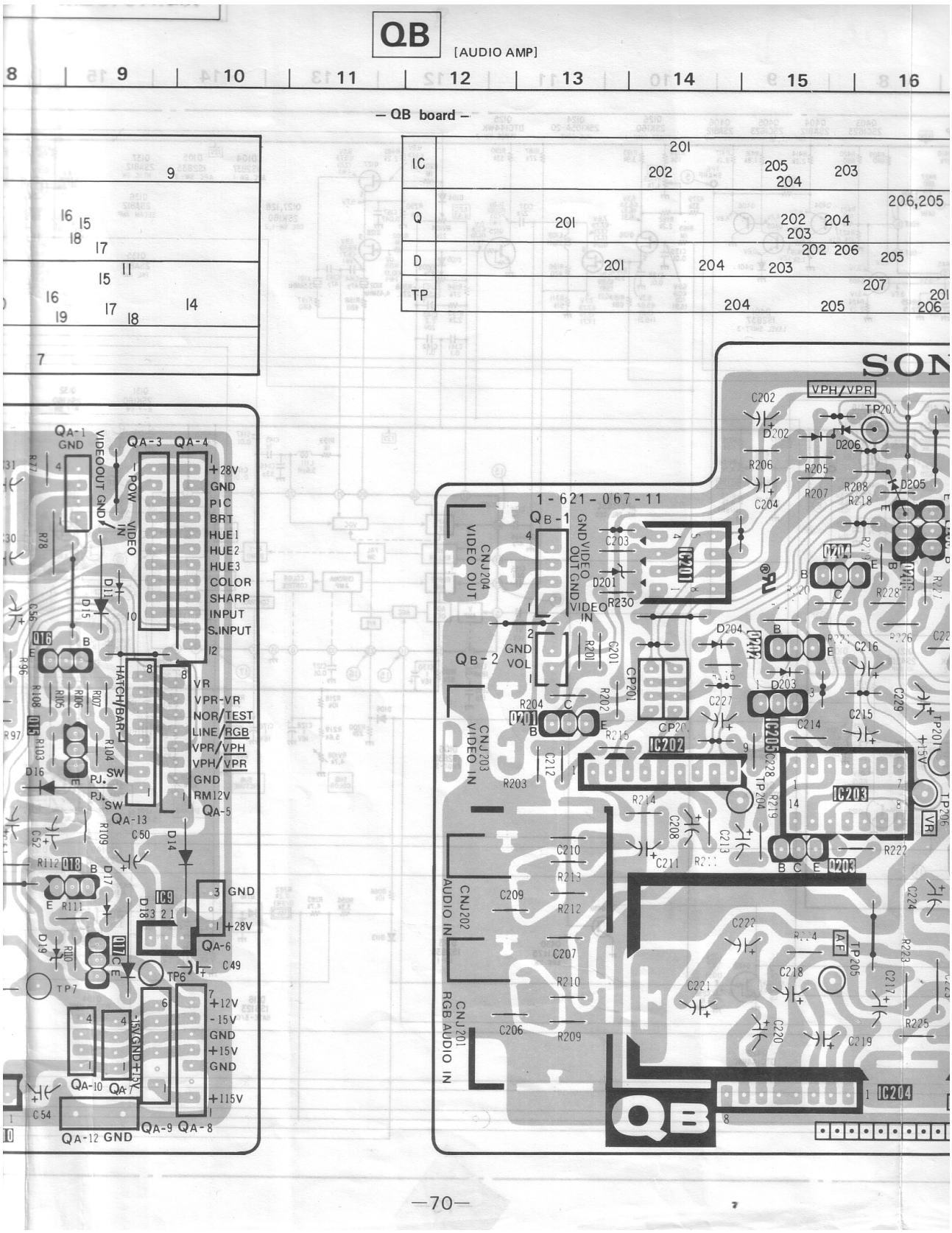
– QA board –

IC	1 2 3 4 5 6 7 8 10
Q	1 2 3 4 5 6 7 8 9 10 11 12 13 14 19
D	1 2 3 4 5 6 7 8 9 10 12 13 20 21
TP	1 2 4 5 8 9 10 11



QB [AUDIO AMP]

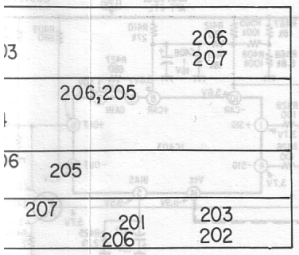
– QB board –

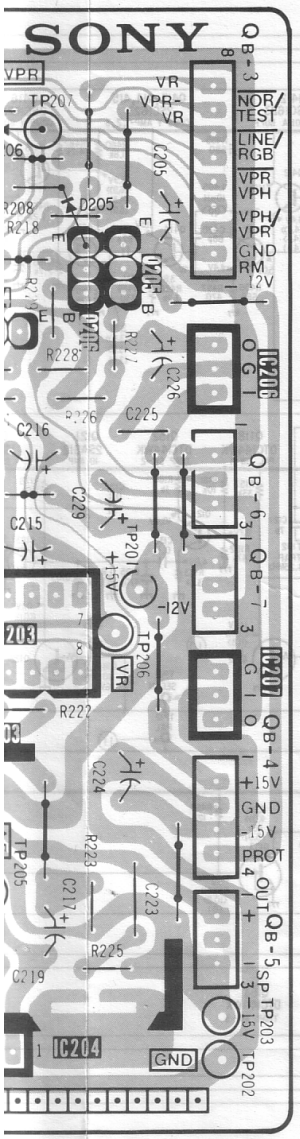


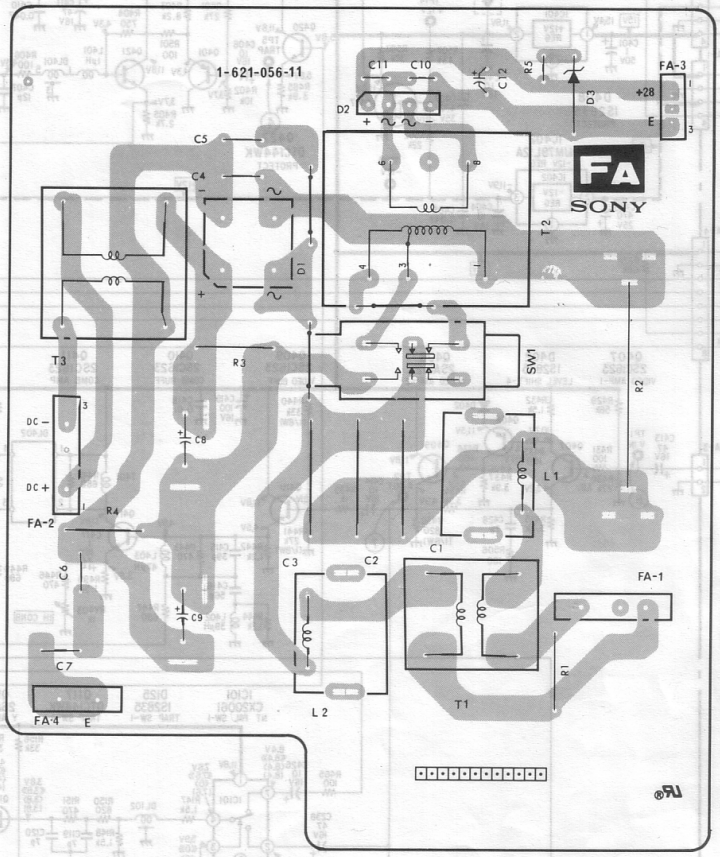
FA [MAIN DECT] FC [FUSE]

16 17 18 19 20 21 22 23

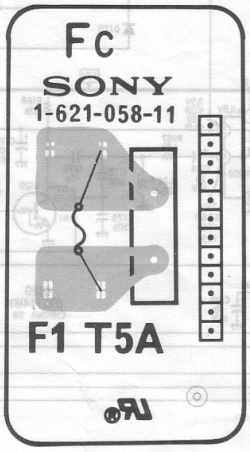
– FA board –

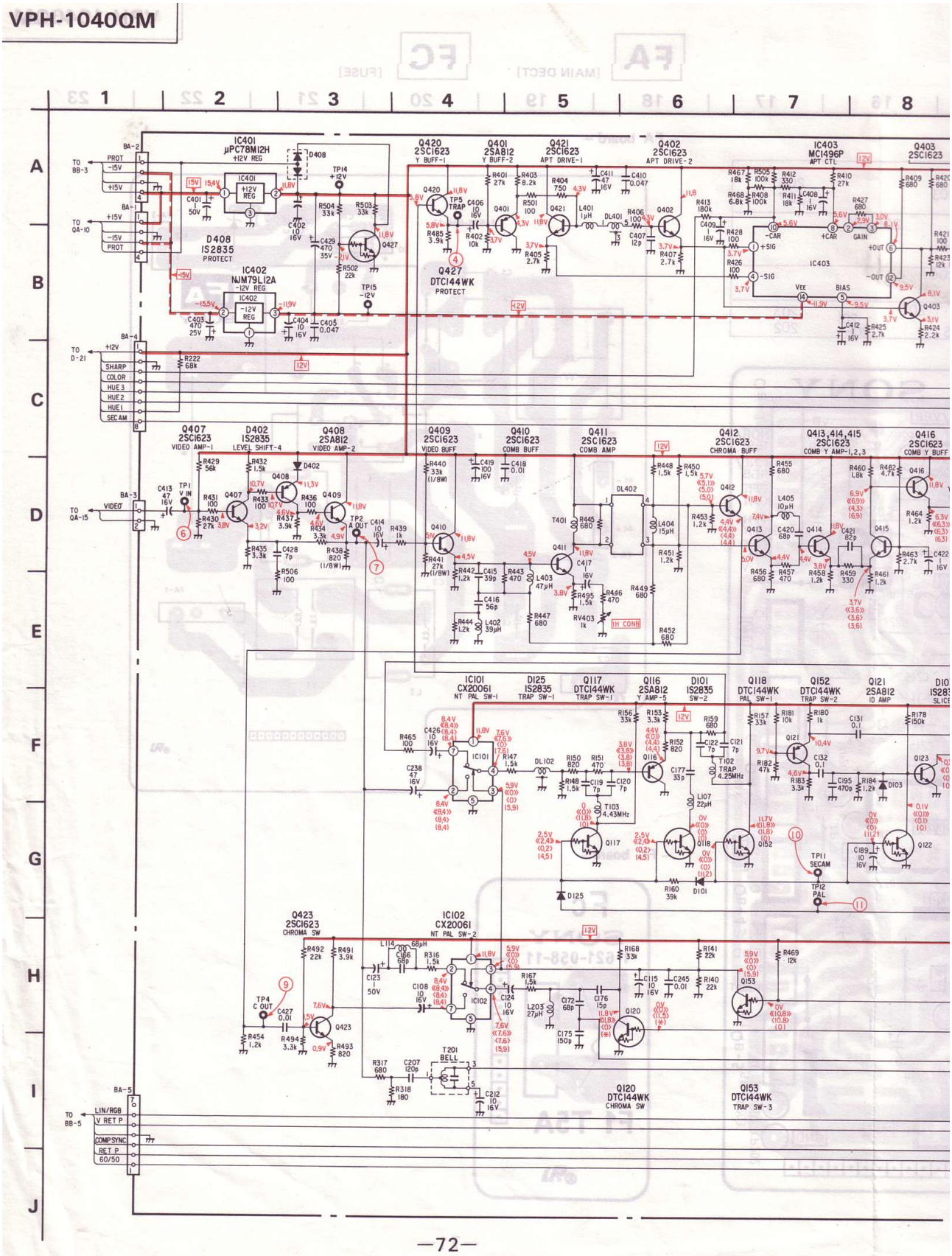






– FC board –




1
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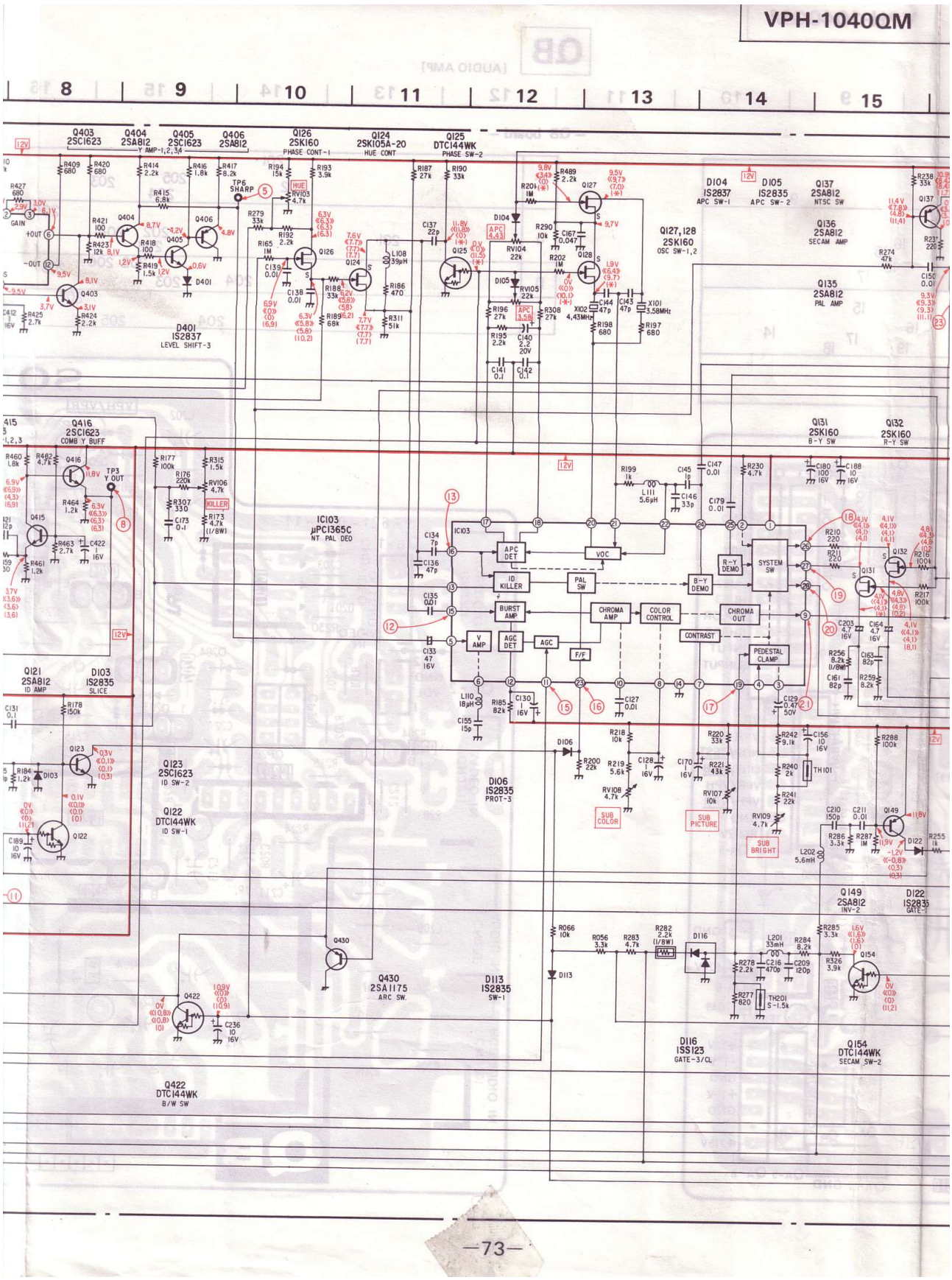
8
A
B
C
D
E
F
G
H
I
J
IC401
μPC78M12H
+12V REG
D408
IS2835
PROTECT
IC402
NJM79L12A
-12V REG
Q427
DTC144WK
PROTECT
Q420
2SC1623
Y BUFF-1
Q401
2SA812
Y BUFF-2
Q421
2SC1623
APT DRIVE-1
Q402
2SC1623
APT DRIVE-2
IC403
MC1496P
APT CTL
Q403
2SC1623
Q407
2SC1623
VIDEO AMP-1
D402
IS2835
LEVEL SHIFT-4
Q408
2SA812
VIDEO AMP-2
Q409
2SC1623
VIDEO BUFF
Q410
2SC1623
COMB BUFF
Q411
2SC1623
COMB AMP
Q412
2SC1623
CHROMA BUFF
Q413,414,415
2SC1623
COMB Y AMP-1,2,3
Q416
2SC1623
COMB Y BUFF
IC101
CX20061
NT PAL SW-1
D125
IS2835
TRAP SW-1
Q117
DTC144WK
TRAP SW-1
Q116
2SA812
Y AMP-5
D101
IS2835
SW-2
Q118
DTC144WK
PAL SW-1
Q152
DTC144WK
TRAP SW-2
Q121
2SA812
ID AMP
IC102
CX20061
NT PAL SW-2
Q423
2SC1623
CHROMA SW
Q120
DTC144WK
CHROMA SW
Q153
DTC144WK
TRAP SW-3
T201
BELL
TO BB-3
TO QA-10
TO D-21
TO QA-15
TO BB-5
PROT
-15V
+15V
+12V
SHARP
COLOR
HUE 3
HUE 2
HUE 1
SEC AM
VIDEO
LIN/RGB
V RET P
COMP SYNC
RET P
60/50
TP1 V IN
TP2 A OUT
TP4 C OUT
TP11 SECAM
TP12 PAL
TP14 +12V
TP15 -12V
IH CONB


8
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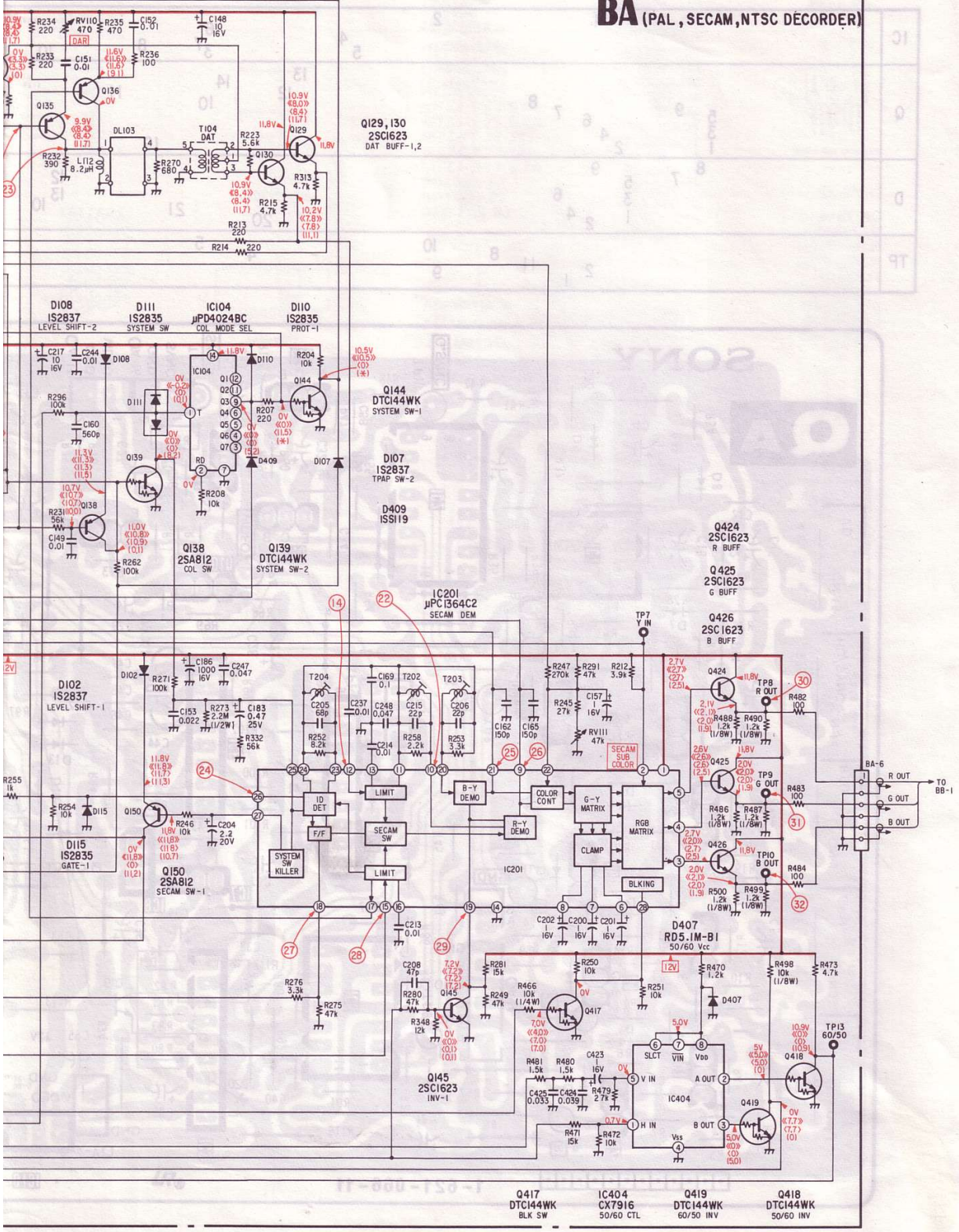
15
Q403 2SC1623
Q404 2SA812
Q405 2SC1623
Q406 2SA812
Y AMP-1,2,3
Q126 2SK160
PHASE CONT-1
Q124 2SK105A-20
HUE CONT
Q125 DTC144WK
PHASE SW-2
D401 IS2837
LEVEL SHIFT-3
Q127,128 2SK160
OSC SW-1,2
D104 IS2837
APC SW-1
D105 IS2835
APC SW-2
Q137 2SA812
NTSC SW
Q136 2SA812
SECAM AMP
Q135 2SA812
PAL AMP
Q131 2SK160
B-Y SW
Q132 2SK160
R-Y SW
Q416 2SC1623
COMB Y BUFF
IC103 μPC1365C
NT PAL DEO
APC DET
VCO
ID KILLER
PAL SW
B-Y DEMO
R-Y DEMO
SYSTEM SW
BURST AMP
CHROMA AMP
COLOR CONTROL
CHROMA OUT
V AMP
AGC DET
AGC
F/F
CONTRAST
PEDESTAL CLAMP
Q121 2SA812
ID AMP
D103 IS2835
SLICE
Q123 2SC1623
ID SW-2
Q122 DTC144WK
ID SW-1
D106 IS2835
PROT-3
SUB COLOR
SUB PICTURE
SUB BRIGHT
Q149 2SA812
INV-2
D122 IS2835
GATE-1
Q430 2SA1175
ARC SW.
D113 IS2835
SW-1
D116 1SS123
GATE-3/CL
Q154 DTC144WK
SECAM SW-2
Q422 DTC144WK
B/W SW
12V
TP6 SHARP
TP3 Y OUT
KILLER
HUE

16 | 17 | 18 | 19 | 20 | 21 | 22 | 23

BA (PAL, SECAM, NTSC DECORDER)



BA

[PAL, SECAM, NTSC DECORDER]

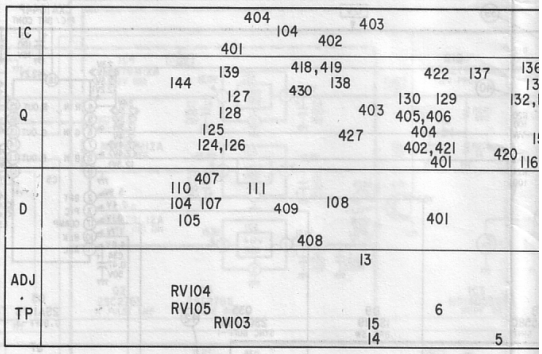
- Voltage table of IC103

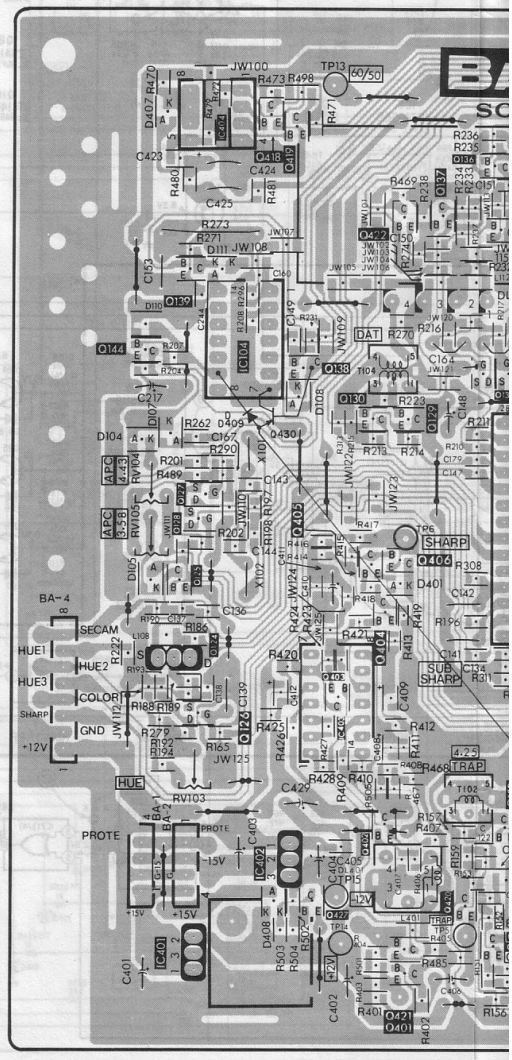
Pin \ Mode	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	11.8	11.8	11.8	11.8
2	11.8	11.8	11.8	11.8
3	8.6	8.6	8.6	8.6
4	8.6	8.6	8.6	8.6
5	2.6	2.6	2.6	2.6
6	1.9	1.9	1.9	1.9
7	6.9	6.9	6.9	6.9
8	5.5	5.5	5.5	5.5
9	9.3	9.3	9.3	11.0
10	1.9	1.9	1.9	2.0
11	1.2	1.2	1.2	1.2
12	9.2	9.3	9.3	9.3
13	6.0	6.1	0	8.1
14	0	0	0	0
15	7.7	7.7	7.7	7.7
16	4.4	0	4.4	4.4
17	7.8	7.7	7.9	7.8
18	7.7	7.7	7.9	7.8
19	0.3	0.3	0.3	0.3
20	9.4	9.3	9.4	9.3
21	3.2	3.2	3.2	3.2
22	3.2	3.2	3.2	3.2
23	0.2	0	0	0.2
24	2.8	2.8	2.8	2.8
25	2.8	2.8	2.8	2.8
26	4.1	4.0	4.1	4.0
27	4.1	4.1	4.1	4.0
28	10.0	10.0	10.0	10.0

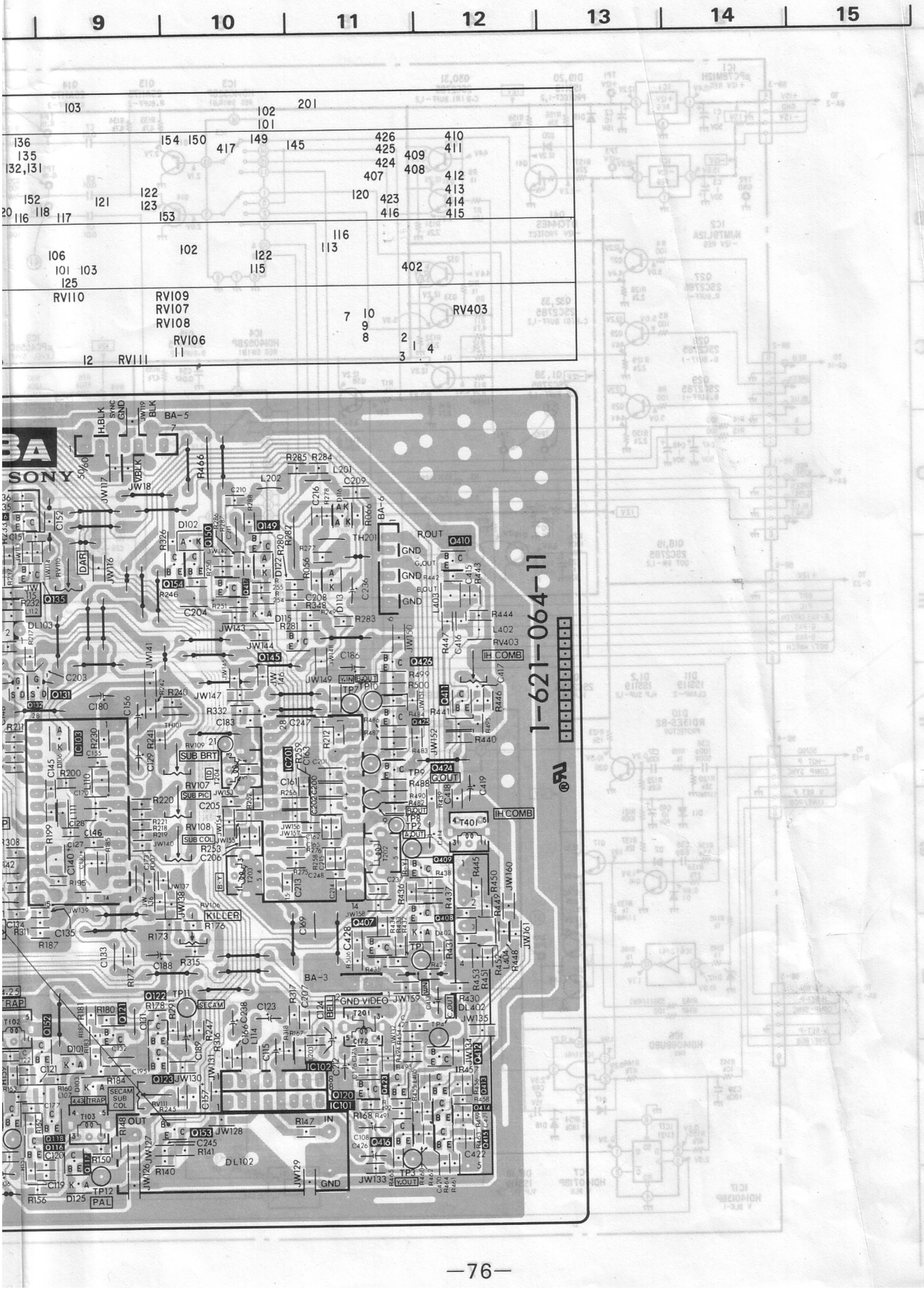
- Voltage table of IC201

Pin \ Mode	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	11.8	11.8	11.8	11.8
2	10.0	10.0	10.0	10.0
3	2.7	2.7	2.7	2.5
4	2.6	2.6	2.6	2.5
5	2.7	2.7	2.7	2.5
6	1.6	1.6	1.6	1.6
7	1.2	1.2	1.1	.12
8	1.6	1.6	1.6	1.6
9	9.5	9.5	9.5	9.4
10	2.2	2.2	2.3	2.3
11	2.2	2.2	2.2	2.3
12	2.2	2.2	2.2	2.3
13	2.3	2.2	2.2	2.3
14	0	0	0	0
15	2.2	2.2	2.2	2.3
16	2.3	2.2	2.2	2.2
17	11.1	11.0	11.1	8.4
18	0.5	0.3	0.3	0.5
19	7.2	7.2	7.2	7.2
20	2.2	2.2	2.3	2.3
21	9.4	9.4	9.4	9.4
22	6.3	6.3	6.3	6.3
23	2.2	2.2	2.2	2.2
24	2.2	0	2.2	2.2
25	6.2	6.2	6.2	8.3
26	0.4	0.4	0.4	0.4
27	11.8	11.8	11.8	10.1
28	0	0	0	0

– BA board –






9
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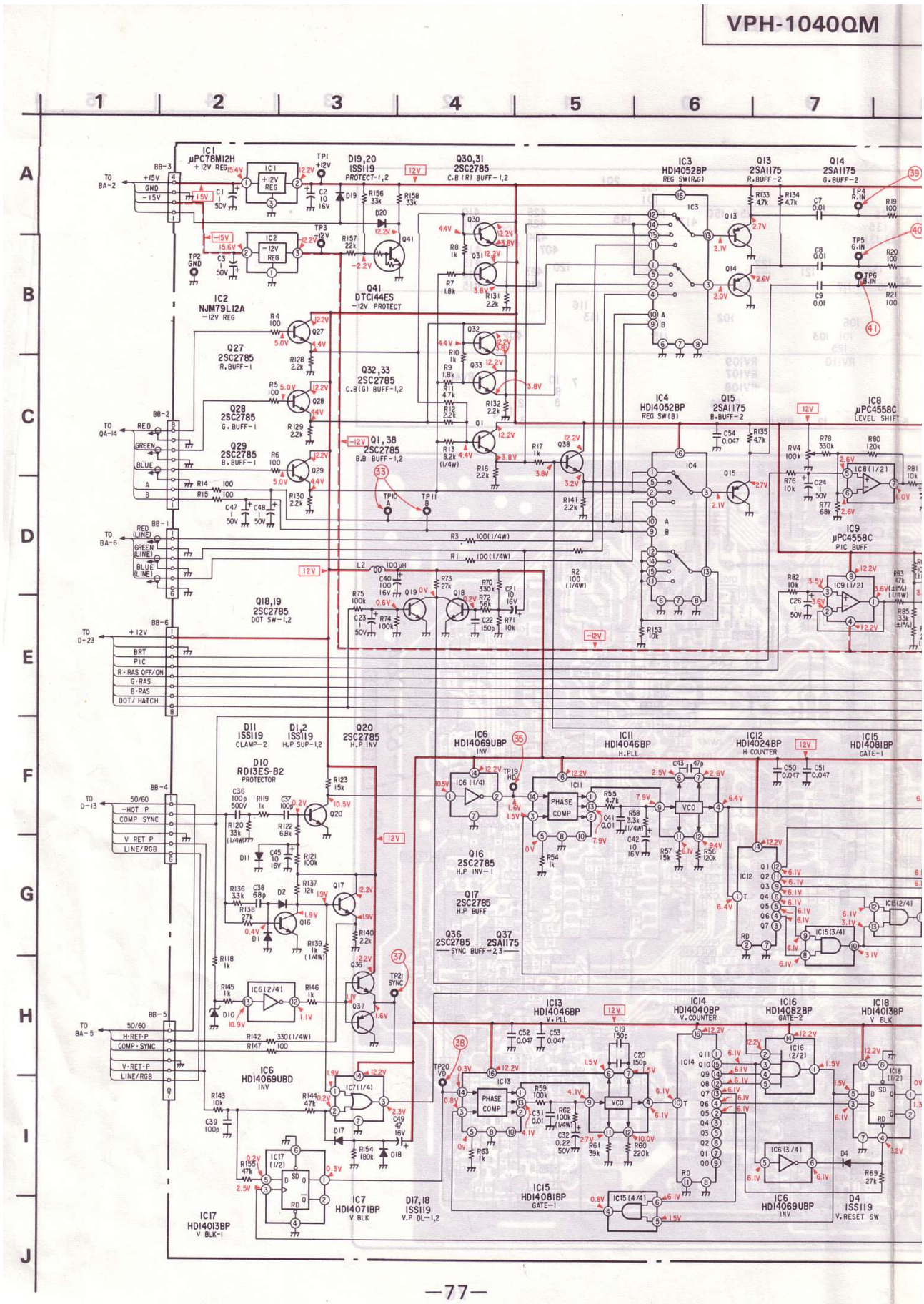
BA-5
SONY
1-621-064-11
BA-3


1
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D
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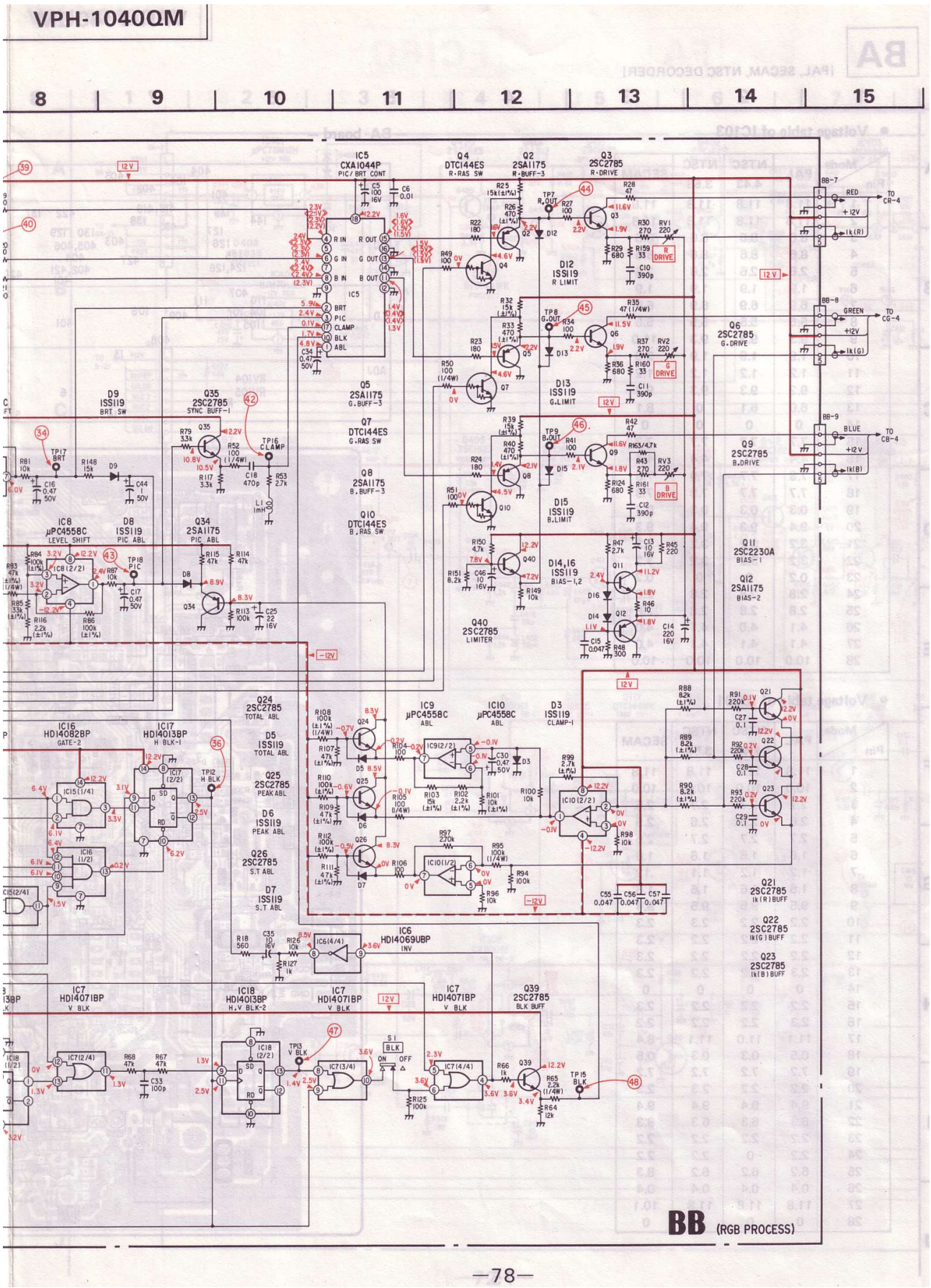
F
G
H
I
J
IC1 μPC78M12H +12V REG
IC2 NJM79L12A -12V REG
Q41 DTC144ES -12V PROTECT
D19,20 1SS119 PROTECT-1,2
Q30,31 2SC2785 C.B (R) BUFF-1,2
Q32,33 2SC2785 C.B(G) BUFF-1,2
Q27 2SC2785 R.BUFF-1
Q28 2SC2785 G.BUFF-1
Q29 2SC2785 B.BUFF-1
Q1,38 2SC2785 B.B BUFF-1,2
Q18,19 2SC2785 DOT SW-1,2
IC3 HD14052BP REG SW(R,G)
IC4 HD14052BP REG SW(B)
Q13 2SA1175 R.BUFF-2
Q14 2SA1175 G.BUFF-2
Q15 2SA1175 B.BUFF-2
IC8 μPC4558C LEVEL SHIFT
IC9 μPC4558C PIC BUFF
D11,12 1SS119 CLAMP-2, H.P SUP-1,2
Q20 2SC2785 H.P INV
D10 RD13ES-B2 PROTECTOR
IC6 HD14069UBP INV
IC11 HD14046BP H.PLL
IC12 HD14024BP H COUNTER
IC15 HD14081BP GATE-1
Q16 2SC2785 H.P INV-1
Q17 2SC2785 H.P BUFF
Q36 2SC2785 Q37 2SA1175 SYNC BUFF-2,3
IC13 HD14046BP V.PLL
IC14 HD14040BP V.COUNTER
IC16 HD14082BP GATE-2
IC18 HD14013BP V BLK
IC6 HD14069UBD INV
IC7 HD14071BP V BLK
D17,18 1SS119 V.P DL-1,2
IC15 HD14081BP GATE-1
IC6 HD14069UBP INV
D4 1SS119 V.RESET SW
IC17 HD14013BP V BLK-1
TO BA-2
TO QA-14
TO BA-6
TO D-23
TO D-13
TO BA-5
+15V
GND
-15V
RED
GREEN
BLUE
BRT
PIC
R-RAS OFF/ON
G-RAS
B-RAS
DOT/HATCH
50/60
-HOT P
COMP SYNC
V RET P
LINE/RGB
H-RET-P
COMP-SYNC
V-RET-P
TP1 +12V
TP2 GND
TP3 -12V
TP4 R-IN
TP5 G-IN
TP6 B-IN
TP10 A
TP11 B
TP19 HD
TP20 VD
TP21 SYNC
PHASE COMP
VCO


8
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15
IC5 CXA1044P PIC/BRT CONT
Q4 DTC144ES R-RAS SW
Q2 2SA1175 R-BUFF-3
Q3 2SC2785 R-DRIVE
D12 ISS119 R LIMIT
Q5 2SA1175 G.BUFF-3
Q7 DTC144ES G-RAS SW
Q6 2SC2785 G.DRIVE
D13 ISS119 G.LIMIT
Q8 2SA1175 B.BUFF-3
Q10 DTC144ES B.RAS SW
Q9 2SC2785 B.DRIVE
D15 ISS119 B.LIMIT
D9 ISS119 BRT SW
Q35 2SC2785 SYNC BUFF-1
D8 ISS119 PIC ABL
Q34 2SA1175 PIC ABL
IC8 μPC4558C LEVEL SHIFT
Q40 2SC2785 LIMITER
D14,16 ISS119 BIAS-1,2
Q11 2SC2230A BIAS-1
Q12 2SA1175 BIAS-2
IC16 HD14082BP GATE-2
IC17 HD14013BP H BLK-1
IC9 μPC4558C ABL
IC10 μPC4558C ABL
D3 ISS119 CLAMP-1
Q24 2SC2785 TOTAL ABL
D5 ISS119 TOTAL ABL
Q25 2SC2785 PEAK ABL
D6 ISS119 PEAK ABL
Q26 2SC2785 S.T ABL
D7 ISS119 S.T ABL
IC6 HD14069UBP INV
IC7 HD14071BP V BLK
IC18 HD14013BP H.V BLK-2
Q39 2SC2785 BLK BUFF
Q21 2SC2785 Ik(R) BUFF
Q22 2SC2785 Ik(G) BUFF
Q23 2SC2785 Ik(B) BUFF
BB-7 RED TO CR-4 +12V Ik(R)
BB-8 GREEN TO CG-4 +12V Ik(G)
BB-9 BLUE TO CB-4 +12V Ik(B)
R DRIVE
G DRIVE
B DRIVE
BB (RGB PROCESS)

- Voltage table of IC3

Pin \ Mode	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	4.4	4.4	4.3	4.4
2	3.8	3.7	3.7	3.7
3	2.0	2.0	1.9	1.9
4	2.0	2.0	1.9	1.9
5	3.8	3.7	3.7	3.7
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	12.0	11.9	12.0	11.9
10	8.3	8.3	8.3	8.3
11	2.1	2.1	2.0	1.9
12	4.4	4.4	4.4	4.4
13	2.1	2.1	2.0	1.9
14	3.8	3.7	3.7	3.7
15	3.8	3.7	3.7	3.7
16	12.2	12.2	12.2	12.2

- Voltage table of IC4

Pin \ Mode	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3
3	2.1	2.1	2.0	1.9
4	2.1	2.1	2.0	1.9
5	3.1	3.1	3.1	3.1
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	12.0	11.9	12.0	11.9
10	8.3	8.3	8.3	8.3
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	12.2	12.2	12.2	12.2

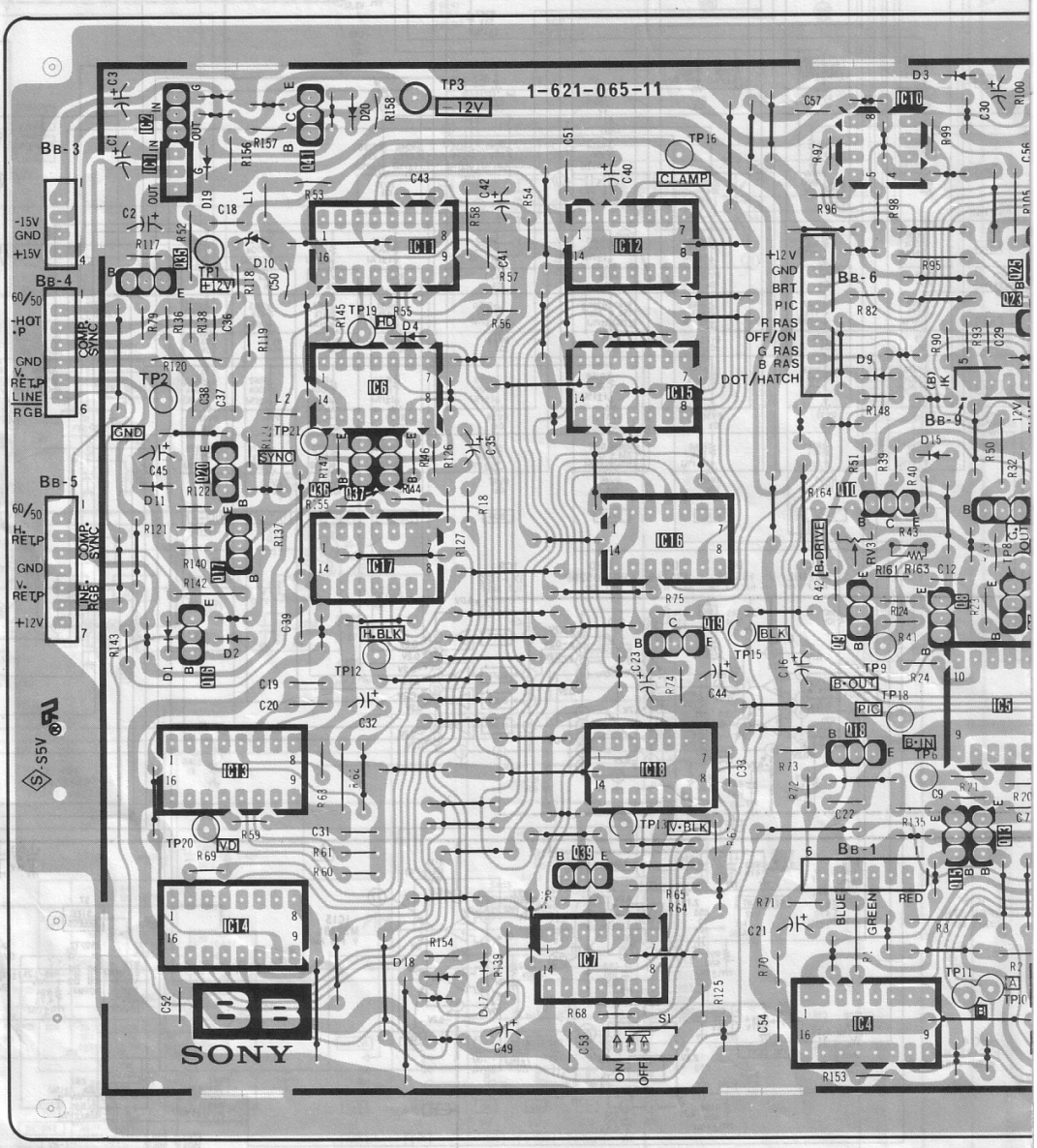
BB

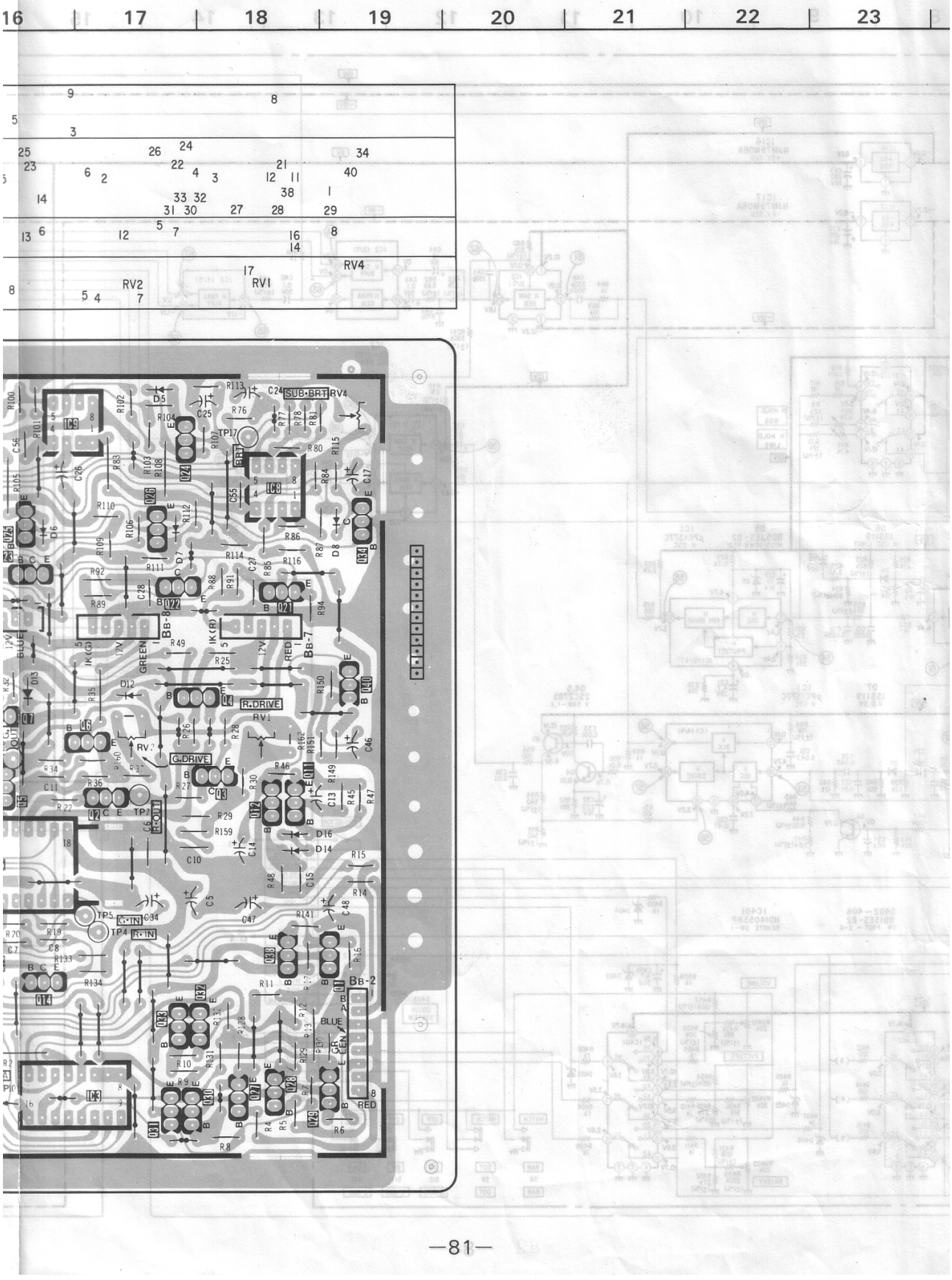
[RGB PROCESS]

9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

— BB board —

IC	2 1 11 6 17 13 14 12 15 16 18 7 10 4 5
Q	41 35 16 20 17 36 37 39 19 9 18 10 8 7 5 15 13
D	19 11 1 2 10 20 4 18 17 3 9 15 3
ADJ TP	2 1 20 21 19 12 13 16 15 RV3 9 18 6 11,10 8




16
17
18
19
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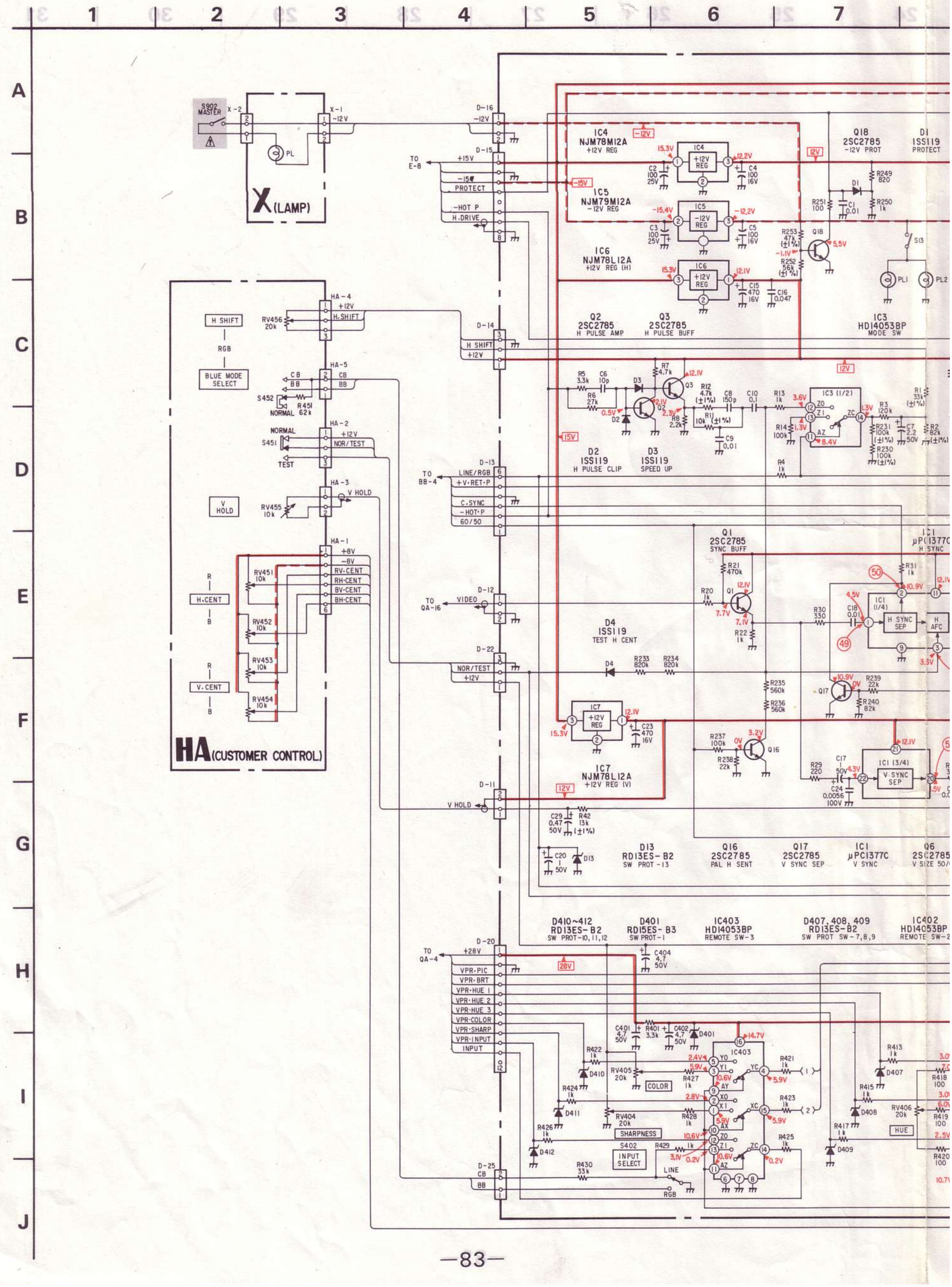
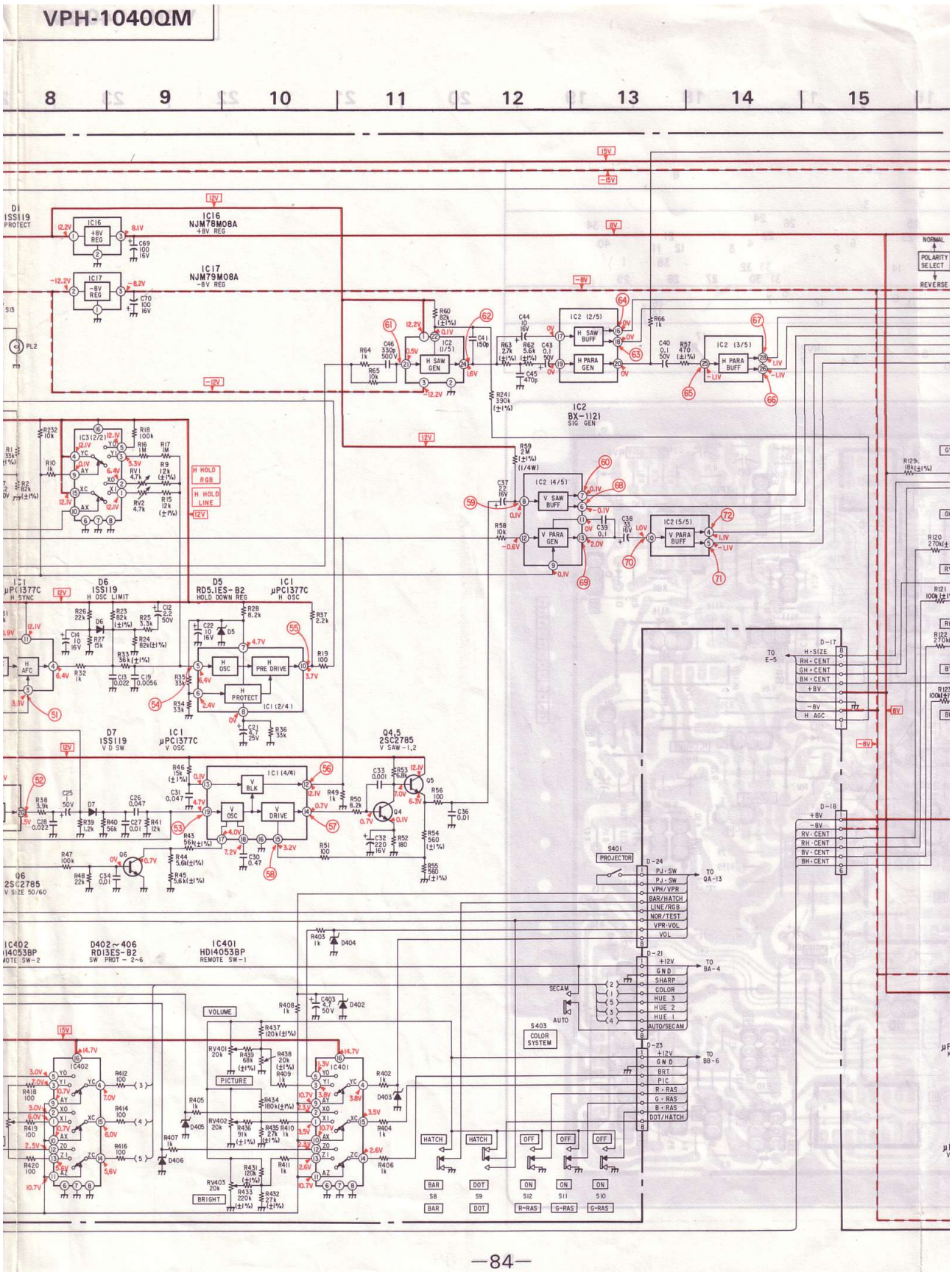
21
22
23
SUB·BRT
RV4
RV2
RV1
R·DRIVE
G·DRIVE
BB-8
BB-7
BB-2
BLUE
GREEN
RED
TP5
G·IN
TP4
R·IN
TP7
R·OUT


X (LAMP)
HA (CUSTOMER CONTROL)
IC4 NJM78M12A +12V REG
IC5 NJM79M12A -12V REG
IC6 NJM78L12A +12V REG (H)
IC7 NJM78L12A +12V REG (V)
Q18 2SC2785 -12V PROT
D1 1SS119 PROTECT
IC3 HD14053BP MODE SW
Q2 2SC2785 H PULSE AMP
Q3 2SC2785 H PULSE BUFF
D2 1SS119 H PULSE CLIP
D3 1SS119 SPEED UP
Q1 2SC2785 SYNC BUFF
D4 1SS119 TEST H CENT
D13 RD13ES-B2 SW PROT-13
Q16 2SC2785 PAL H SENT
Q17 2SC2785 V SYNC SEP
IC1 μPC1377C V SYNC
D410~412 RD13ES-B2 SW PROT-10, 11, 12
D401 RD15ES-B3 SW PROT-1
IC403 HD14053BP REMOTE SW-3
D407, 408, 409 RD13ES-B2 SW PROT SW-7, 8, 9
IC402 HD14053BP REMOTE SW-2
H SHIFT
BLUE MODE SELECT
V HOLD
H-CENT
V-CENT
COLOR
SHARPNESS
INPUT SELECT
HUE


8
9
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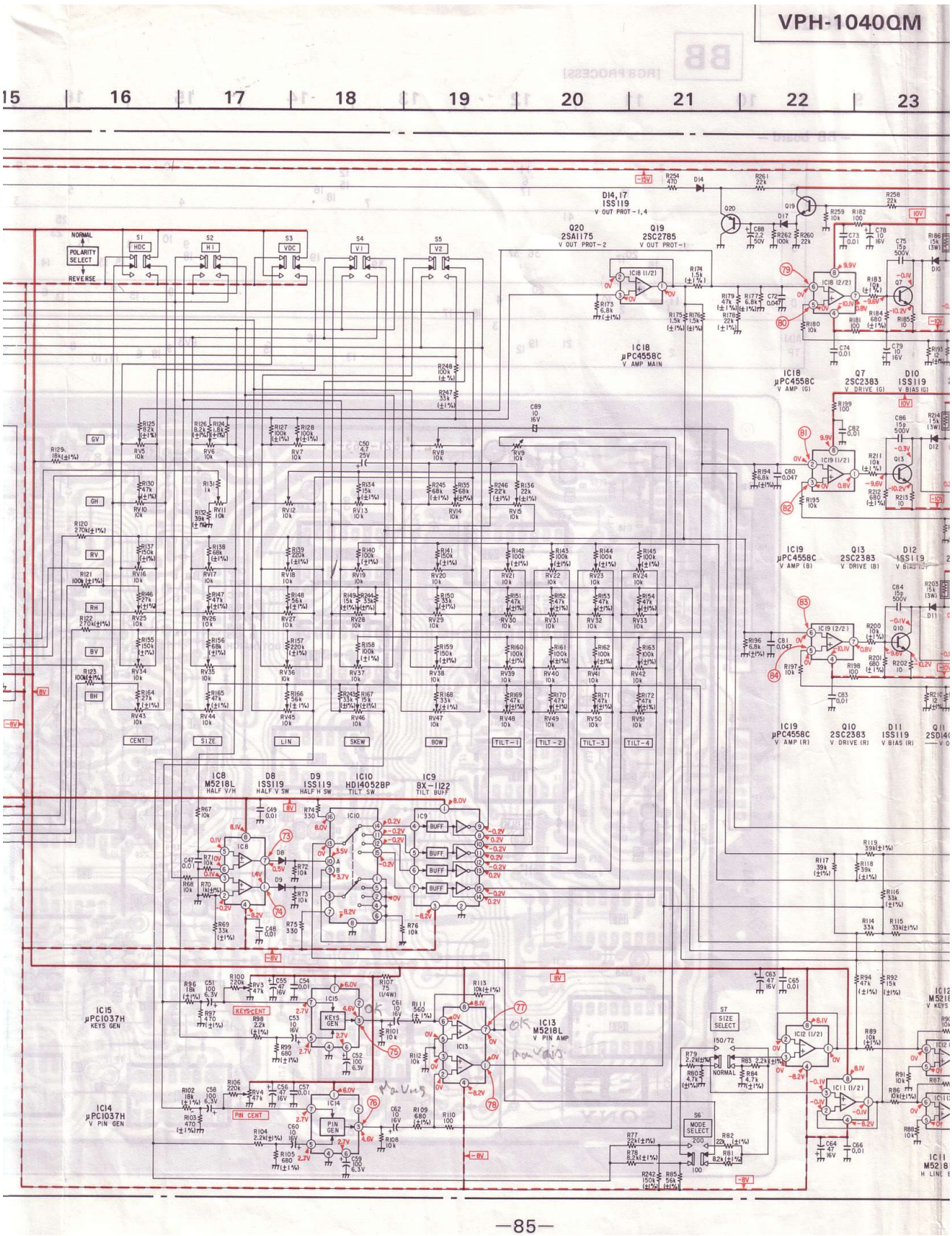
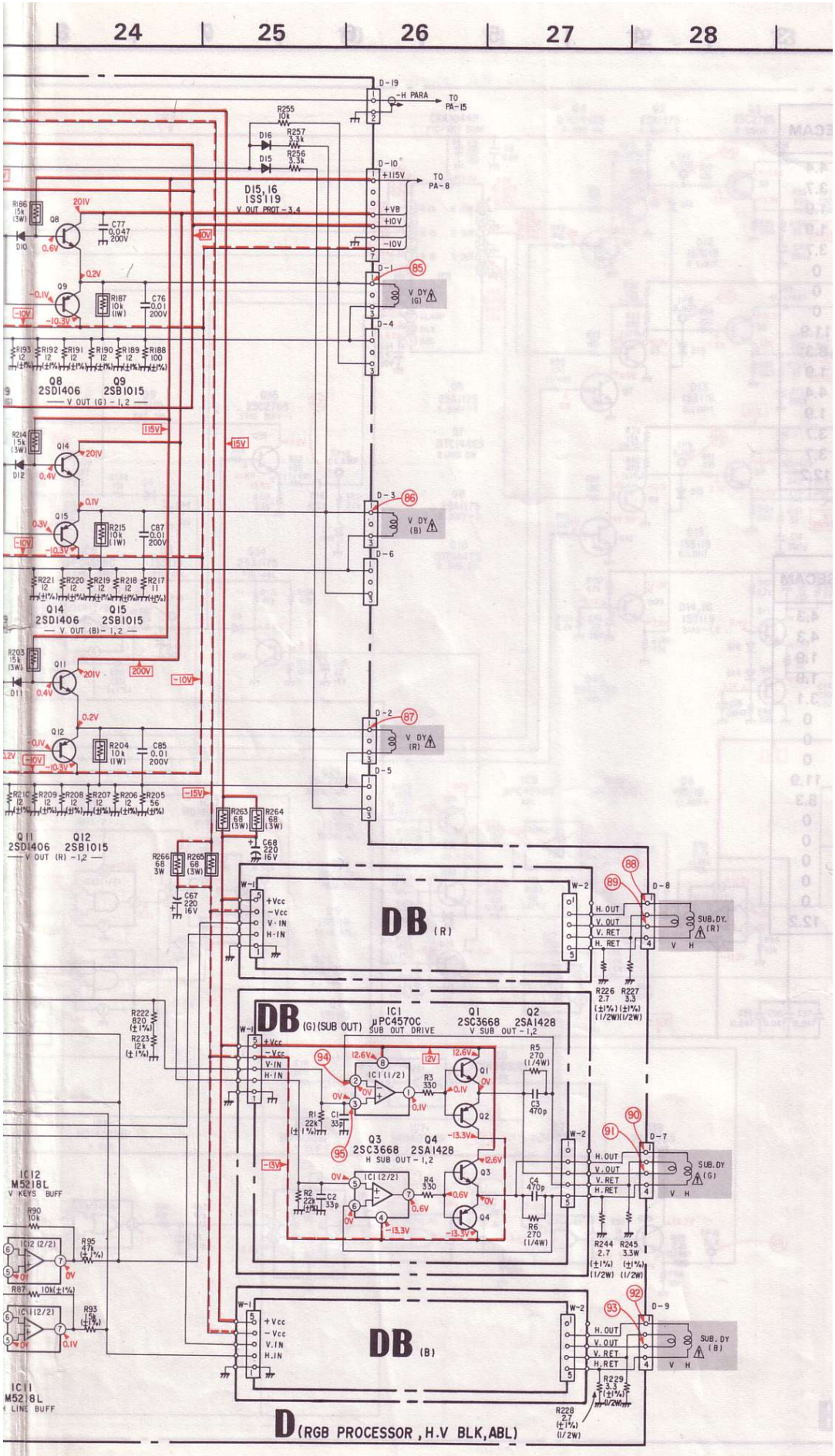
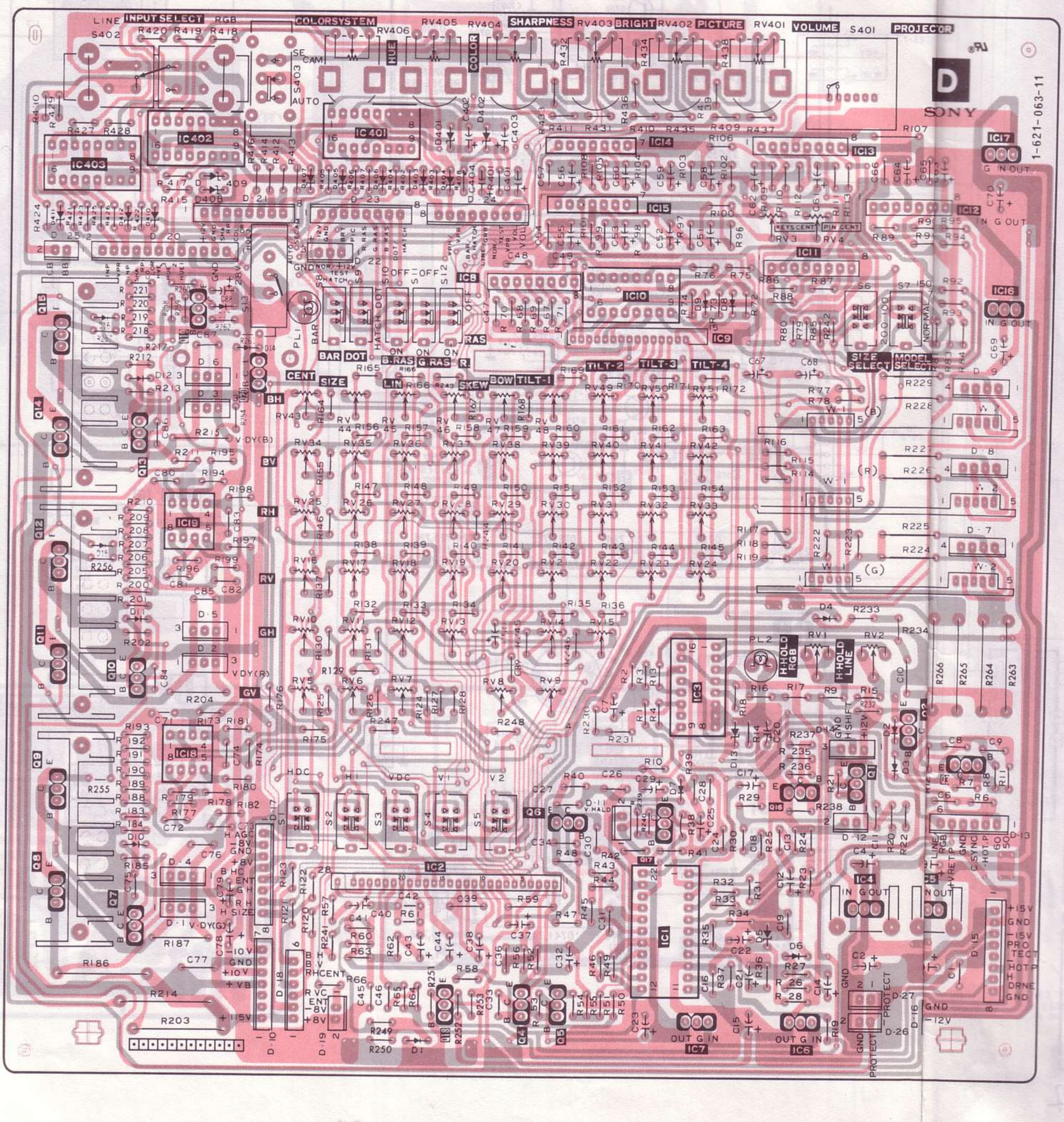
15
IC16
NJM78M08A
+8V REG
IC17
NJM79M08A
-8V REG
IC2
BX-1121
SIG GEN
IC2 (1/5)
H SAW GEN
IC2 (2/5)
H SAW BUFF
H PARA GEN
IC2 (3/5)
H PARA BUFF
IC2 (4/5)
V SAW BUFF
V PARA GEN
IC2 (5/5)
V PARA BUFF
IC3 (2/2)
H HOLD
RGB
H HOLD
LINE
IC1
μPC1377C
H SYNC
H OSC
H AFC
H PRE DRIVE
H PROTECT
IC1 (2/4)
D6
ISS119
H OSC LIMIT
D5
RD5.1ES-B2
HOLD DOWN REG
D7
ISS119
V D SW
IC1
μPC1377C
V OSC
IC1 (4/6)
V BLK
V OSC
V DRIVE
Q4,5
2SC2785
V SAW-1,2
Q6
2SC2785
V SIZE 50/60
IC402
HD14053BP
REMOTE SW-2
D402~406
RD13ES-B2
SW PROT - 2~6
IC401
HD14053BP
REMOTE SW-1
VOLUME
PICTURE
BRIGHT
S401
PROJECTOR
D-24
PJ·SW
VPH/VPR
BAR/HATCH
LINE/RGB
NOR/TEST
VPR·VOL
VOL
D-21
+12V
GND
SHARP
COLOR
HUE 3
HUE 2
HUE 1
AUTO/SECAM
D-23
+12V
GND
BRT
PIC
R·RAS
G·RAS
B·RAS
DOT/HATCH
S403
COLOR SYSTEM
SECAM
AUTO
D-17
H·SIZE
RH·CENT
GH·CENT
BH·CENT
+8V
-8V
H AGC
D-18
+8V
-8V
RV·CENT
RH·CENT
BV·CENT
BH·CENT
TO E-5
TO QA-13
TO BA-4
TO BB-6
HATCH
HATCH
OFF
OFF
OFF
BAR
DOT
ON
ON
ON
S8
S9
S12
S11
S10
R-RAS
G-RAS
G-RAS
NORMAL
POLARITY SELECT
REVERSE


15
16
17
18
19
20
21
22
23
NORMAL
POLARITY SELECT
REVERSE
S1 HDC
S2 HI
S3 VDC
S4 VI
S5 V2
D14, I7 1SS119 V OUT PROT-1, 4
Q20 2SA1175 V OUT PROT-2
Q19 2SC2785 V OUT PROT-1
IC18 µPC4558C V AMP MAIN
IC18 µPC4558C V AMP (G)
Q7 2SC2383 V DRIVE (G)
D10 1SS119 V BIAS (G)
IC19 µPC4558C V AMP (B)
Q13 2SC2383 V DRIVE (B)
D12 1SS119 V BIAS (B)
IC19 µPC4558C V AMP (R)
Q10 2SC2383 V DRIVE (R)
D11 1SS119 V BIAS (R)
GV
GH
RV
RH
BV
BH
CENT
SIZE
LIN
SKEW
BOW
TILT-1
TILT-2
TILT-3
TILT-4
IC8 M5218L HALF V/H
D8 1SS119 HALF V SW
D9 1SS119 HALF H SW
IC10 HD14052BP TILT SW
IC9 BX-1122 TILT BUFF
IC15 µPC1037H KEYS GEN
IC14 µPC1037H V PIN GEN
IC13 M5218L V PIN AMP
S7 SIZE SELECT
S6 MODE SELECT
NORMAL
150/72
KEYS CENT
PIN CENT
KEYS GEN
PIN GEN
BUFF

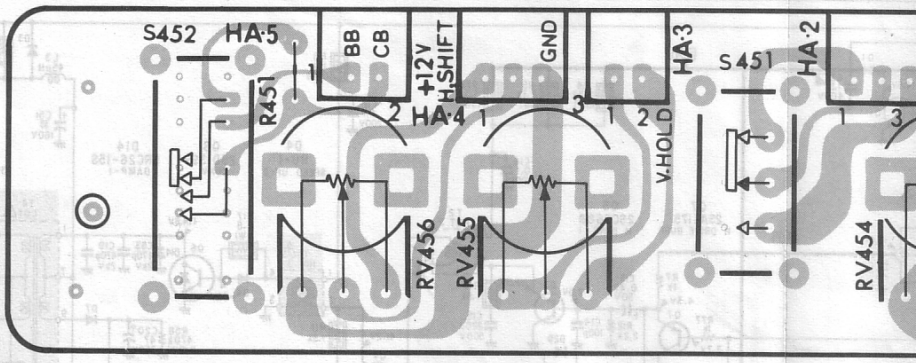

24
25
26
27
28
D-19
-H PARA
TO PA-15
R255 10k
D16
R257 3.3k
D15
R256 3.3k
D-10
+115V
TO PA-8
D15, 16 1SS119
V OUT PROT - 3,4
+V8
+10V
-10V
D-1
85
V DY (G)
D-4
R186 15k (5W)
Q8
D10
C77 0.047 200V
R193 12 (±1%)
R192 12 (±1%)
R191 12 (±1%)
R190 12 (±1%)
R189 12 (±1%)
R188 100 (±1%)
Q8 2SD1406
Q9 2SB1015
— V OUT (G) - 1, 2 —
R214 15k (3W)
Q14
D12
Q15
R215 10k (1W)
C87 0.01 200V
D-3
86
V DY (B)
D-6
R221 12 (±1%)
R220 12 (±1%)
R219 12 (±1%)
R218 12 (±1%)
R217 11 (±1%)
Q14 2SD1406
Q15 2SB1015
— V OUT (B) - 1, 2 —
R203 15k (3W)
Q11
D11
Q12
R204 10k (1W)
C85 0.01 200V
D-2
87
V DY (R)
D-5
R210 12 (±1%)
R209 12 (±1%)
R208 12 (±1%)
R207 12 (±1%)
R206 12 (±1%)
R205 56 (±1%)
Q11 2SD1406
Q12 2SB1015
— V OUT (R) - 1, 2 —
R263 68 (5W)
R264 68 (3W)
C68 220 16V
R266 68 3W
R265 68 (3W)
C67 220 16V
DB (R)
W-1
W-2
+Vcc
-Vcc
V·IN
H·IN
H. OUT
V. OUT
V. RET
H. RET
88
89
D-8
SUB. DY. (R)
R226 2.7 (±1%) (1/2W)
R227 3.3 (±1%) (1/2W)
DB (G) (SUB OUT)
IC1 μPC4570C
SUB OUT DRIVE
Q1 2SC3668
Q2 2SA1428
V SUB OUT - 1, 2
R222 820 (±1%)
R223 12k (±1%)
94
12.6V
12V
IC1 (1/2)
R3 330
R1 22k (±1%)
C1 33p
Q3 2SC3668
Q4 2SA1428
H SUB OUT - 1, 2
95
R5 270 (1/4W)
C3 470p
R4 330
R2 22k (±1%)
C2 33p
C4 470p
R6 270 (1/4W)
90
91
D-7
SUB. DY (G)
R244 2.7 (±1%) (1/2W)
R245 3.3 (±1%) (1/2W)
IC12 M5218L
V KEYS BUFF
R90 10k
R95 47k (±1%)
R87 10M (±1%)
R93 15k (±1%)
IC11 M5218L
LINE BUFF
DB (B)
92
93
D-9
SUB. DY (B)
R229 3.3 (±1%) (1/2W)
R228 2.7 (±1%) (1/2W)
D (RGB PROCESSOR, H.V BLK, ABL)

– D board –

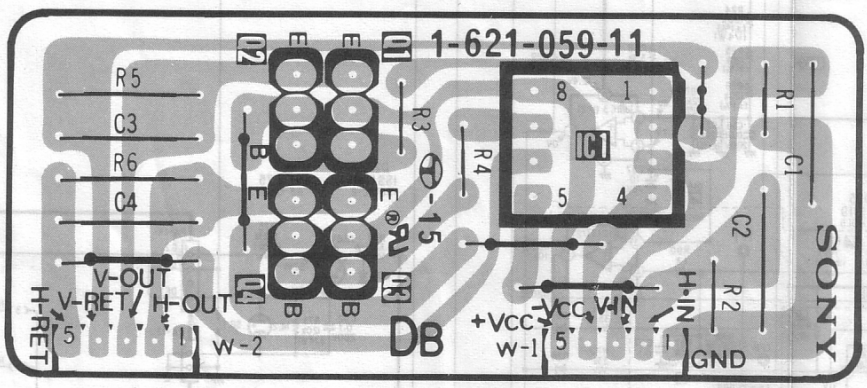
	2	3	4	5	6	7	8	9
IC	403	402, 19, 18	401	2, 8	14, 15, 10, 9, 1	3, 7, 13, 11,6	4, 12, 5	17,16
Q	15, 14, 12, 11, 9, 8	13, 10, 7, 19, 20		18, 4	6, 5, 17	16	1, 2	3
D	411, 16, 15, 412	12, 11, 10, 410, 409, 408, 17, 14	407, 405, 406	403, 1, 401, 402, 404	7	9, 8, 13, 5, 6, 4	2, 3	
ADJ			43, 34, 25, 16, 10, 5, 44, 35, 26, 17, 11, 6, 406, 45, 36, 27, 18, 12, 7	405, 46, 37, 28, 19, 13, 404, 47, 38, 29, 20, 8, 48, 39, 30, 21, 14, 9	403, 49, 40, 31, 22, 15, 50, 41, 32, 23, 402	51, 42, 33, 24, 401, 3, 4, 1	2	



– HA board –



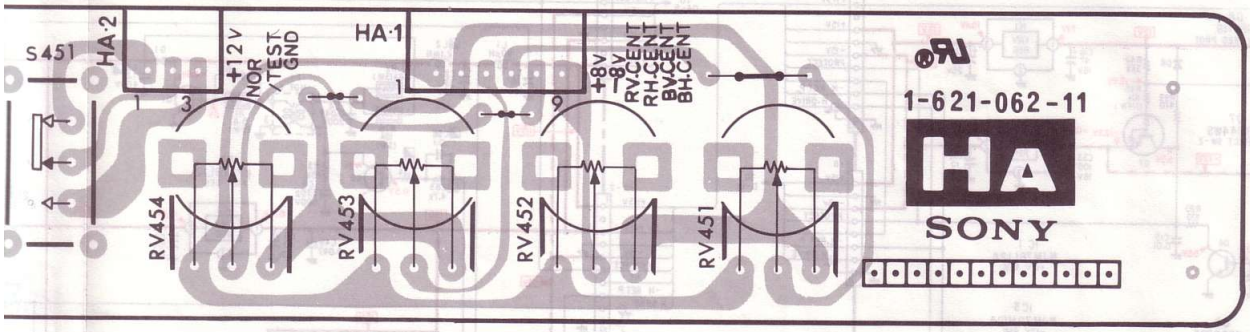
– DB board –



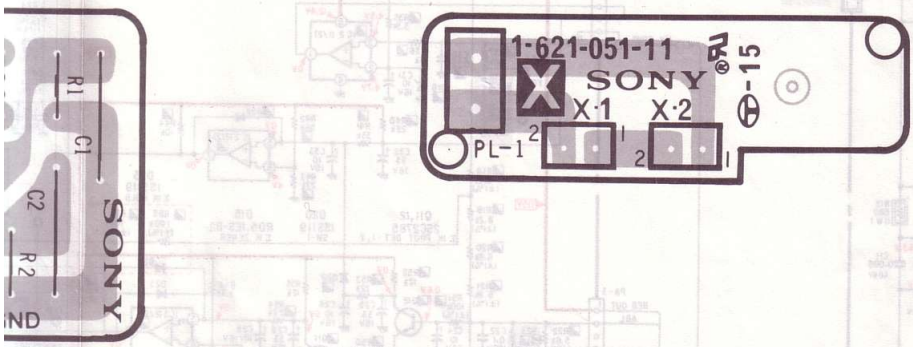
● : Conductor side pattern
● : Component side pattern

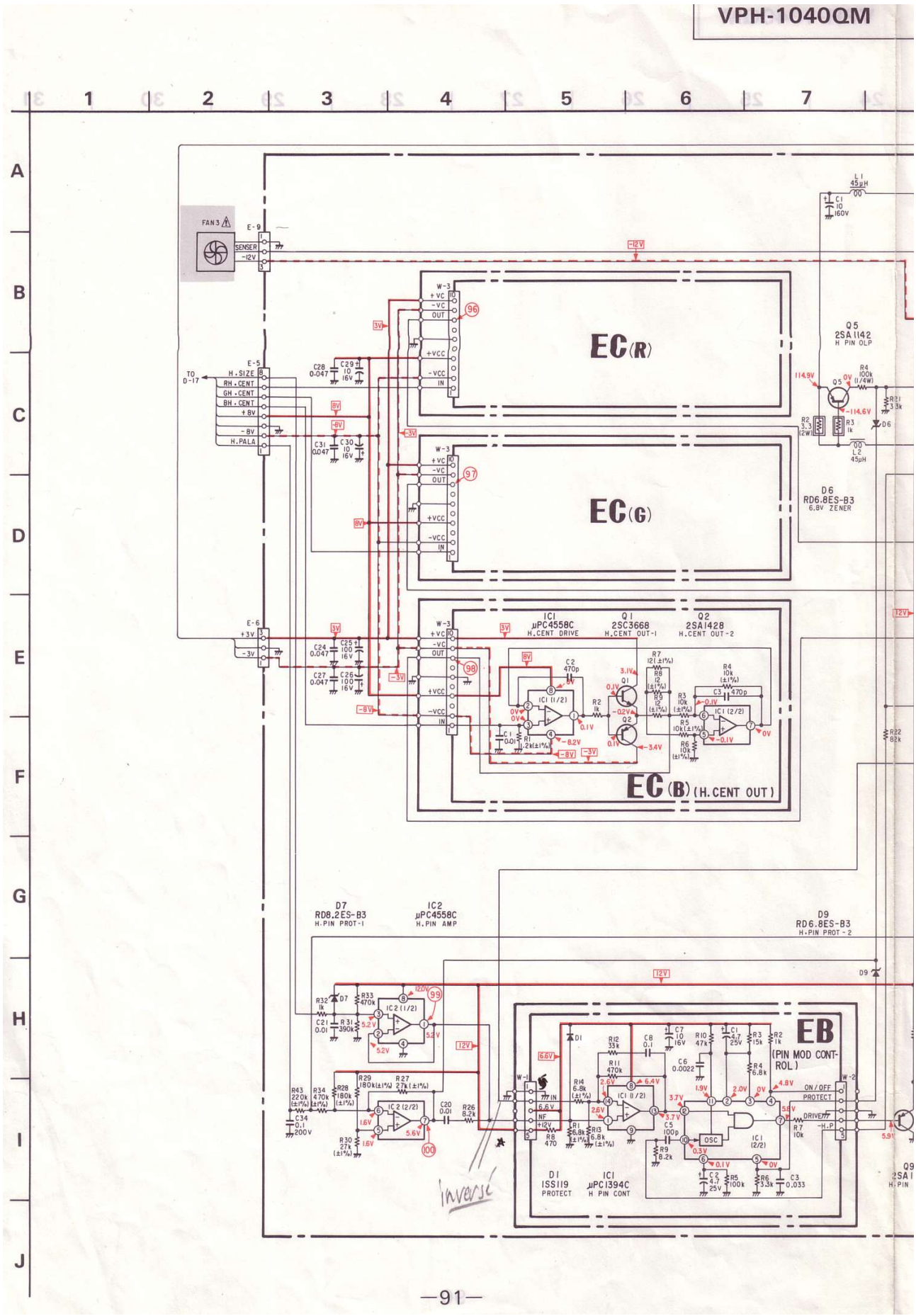
X [LAMP]

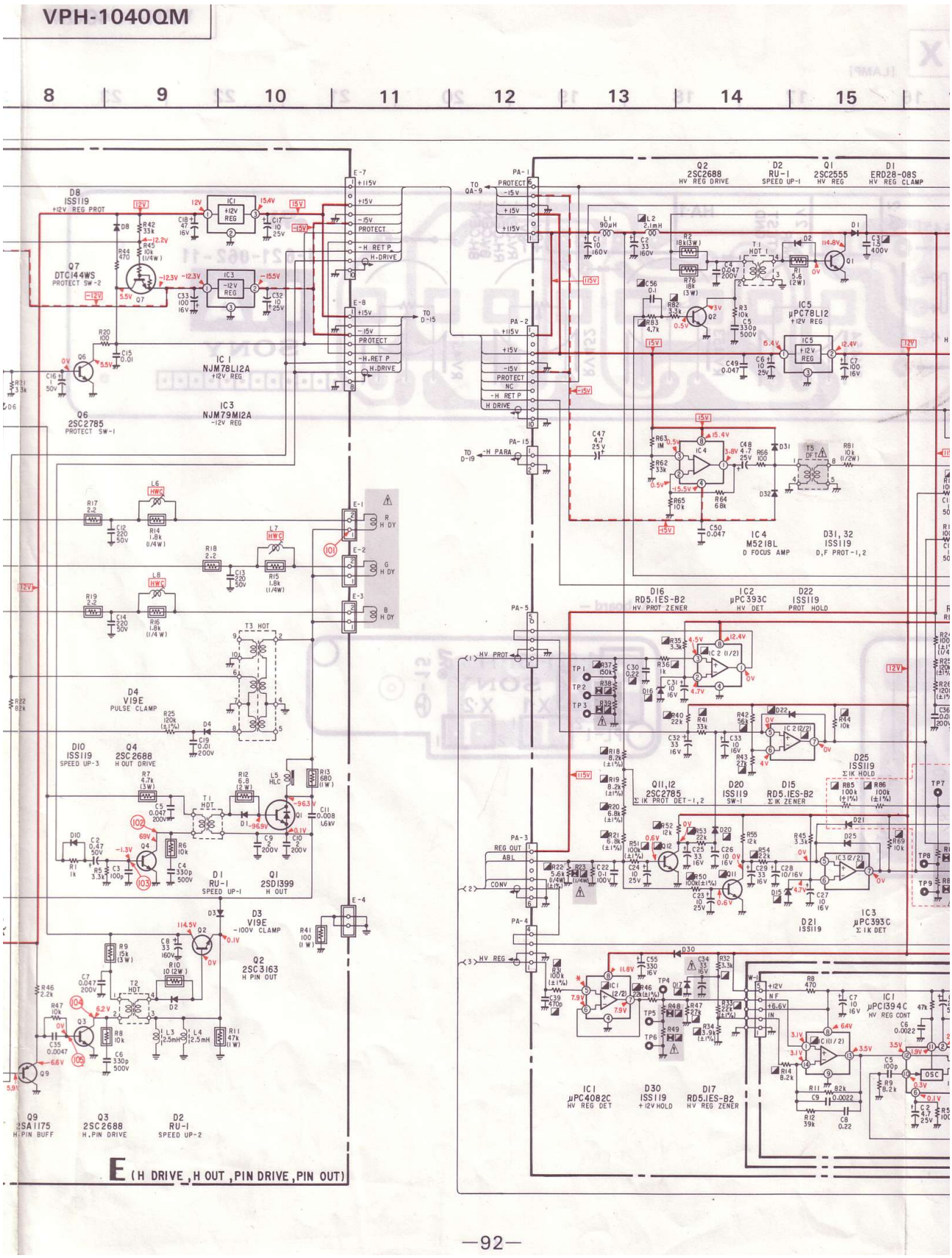
16 17 18 19 20 21 22 23

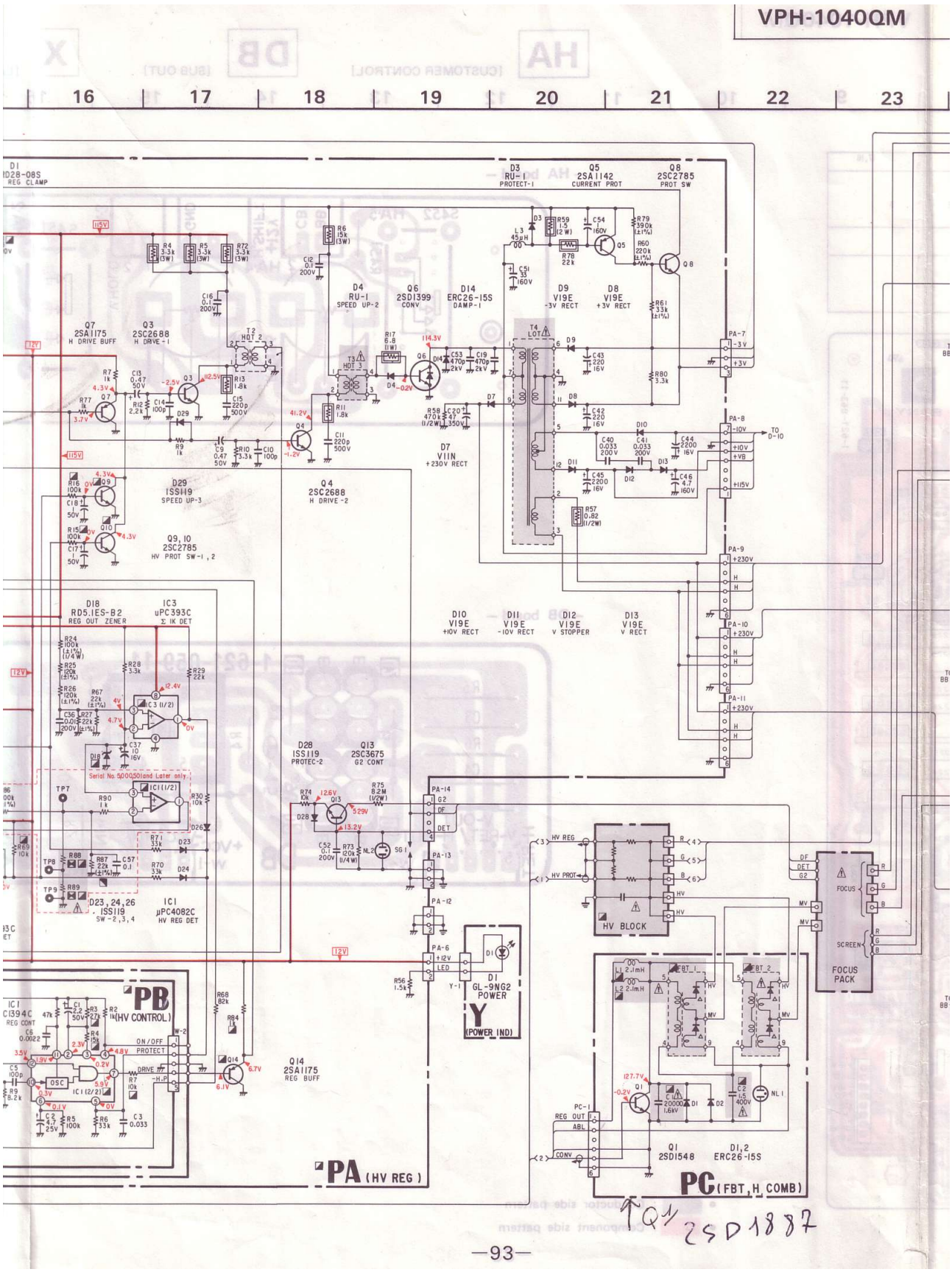


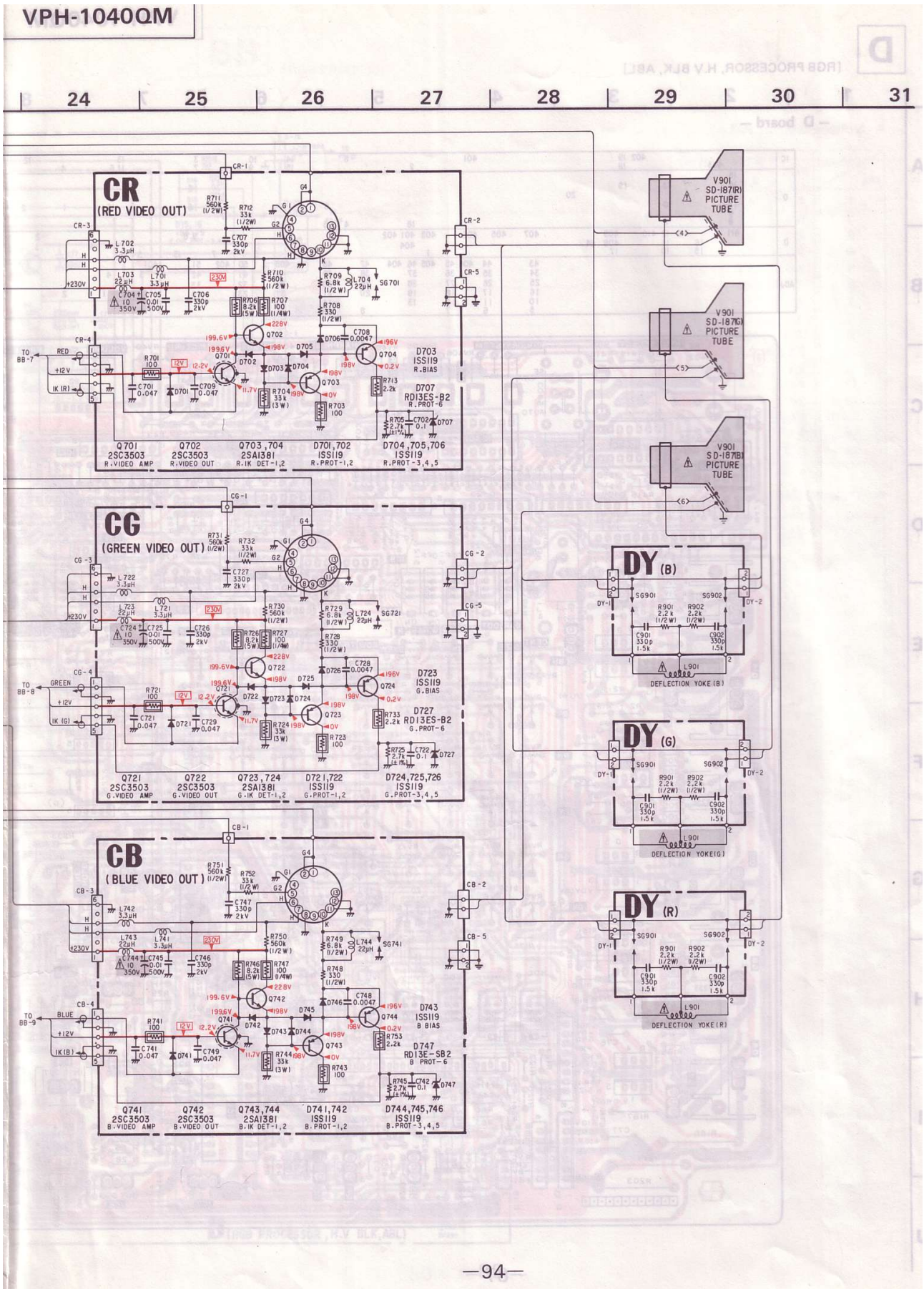
– X board –




1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
FAN3
E-9
SENSER
-12V
L1
45μH
C1
10
160V
EC(R)
EC(G)
EC(B) (H.CENT OUT)
W-3
+VC
-VC
OUT
+VCC
-VCC
IN
E-5
H.SIZE
RH.CENT
GH.CENT
BH.CENT
+8V
-8V
H.PALA
TO D-17
E-6
+3V
-3V
C28 0.047
C29 10 16V
C30 10 16V
C31 0.047
C24 0.047
C25 100 16V
C26 100 16V
C27 0.047
IC1
μPC4558C
H.CENT DRIVE
Q1
2SC3668
H.CENT OUT-1
Q2
2SA1428
H.CENT OUT-2
IC1 (1/2)
IC1 (2/2)
C2 470p
R1 1.2k(±1%)
R2 1k
R3 10k(±1%)
R4 10k
R5 10k(±1%)
R6 10k(±1%)
R7 12(±1%)
R8 12(±1%)
R9 12(±1%)
C3 470p
C1 0.01
Q5
2SA1142
H.PIN OLP
R4 100k (1/4W)
R21 3.3k
R2 3.3 (2W)
R3 1k
D6
L2
45μH
D6
RD6.8ES-B3
6.8V ZENER
R22 82k
D7
RD8.2ES-B3
H.PIN PROT-1
IC2
μPC4558C
H.PIN AMP
D9
RD6.8ES-B3
H.PIN PROT-2
R32 1k
R33 470k
R31 390k
C21 0.01
IC2 (1/2)
IC2 (2/2)
R43 220k (±1%)
R34 470k (±1%)
R28 180k (±1%)
R29 180k(±1%)
R27 27k(±1%)
C34 0.1 200V
R30 271 (±1%)
C20 0.01
R26 8.2k
EB
(PIN MOD CONTROL)
D1
IS5119
PROTECT
IC1
μPC1394C
H PIN CONT
R12 33k
R11 470k
R14 6.8k (±1%)
R13 6.8k (±1%)
R8 470
C8 0.1
C7 10 16V
C6 0.0022
R10 47k
C1 4.7 25V
R3 15k
R2 1k
R4 6.8k
C5 100p
R9 8.2k
OSC
C2 4.7 25V
R5 100k
R6 3.3k
C3 0.033
R7 10k
ON/OFF PROTECT
DRIVE
-H.P
W-1
W-2
Inverse


8
9
10
11
12
13
14
15
E (H DRIVE, H OUT, PIN DRIVE, PIN OUT)
Q9 2SA1175 H.PIN BUFF
Q3 2SC2688 H.PIN DRIVE
D2 RU-1 SPEED UP-2
Q4 2SC2688 H OUT DRIVE
D1 RU-1 SPEED UP-1
Q1 2SD1399 H OUT
D3 V19E -100V CLAMP
Q2 2SC3163 H PIN OUT
D4 V19E PULSE CLAMP
D10 ISS119 SPEED UP-3
D8 ISS119 +12V REG PROT
Q7 DTC144WS PROTECT SW-2
Q6 2SC2785 PROTECT SW-1
IC1 NJM78L12A +12V REG
IC3 NJM79M12A -12V REG
T1 HOT
T2 HOT
T3 HOT
Q2 2SC2688 HV REG DRIVE
D2 RU-1 SPEED UP-1
Q1 2SC2555 HV REG
D1 ERD28-08S HV REG CLAMP
IC5 μPC78L12 +12V REG
IC4 M5218L D FOCUS AMP
D31,32 ISS119 D.F PROT-1,2
D16 RD5.1ES-B2 HV PROT ZENER
IC2 μPC393C HV DET
D22 ISS119 PROT HOLD
Q11,12 2SC2785 ΣIK PROT DET-1,2
D20 ISS119 SW-1
D15 RD5.1ES-B2 ΣIK ZENER
D25 ISS119 ΣIK HOLD
D21 ISS119
IC3 μPC393C ΣIK DET
IC1 μPC4082C HV REG DET
D30 ISS119 +12V HOLD
D17 RD5.1ES-B2 HV REG ZENER
IC1 μPC1394C HV REG CONT
TO QA-9
TO D-15
TO D-19
H PARA
HV PROT
REG OUT
ABL
CONV
HV REG


16
17
18
19
20
21
22
23
D1 RD28-08S REG CLAMP
D3 RU-1 PROTECT-1
Q5 2SA1142 CURRENT PROT
Q8 2SC2785 PROT SW
Q7 2SA1175 H DRIVE BUFF
Q3 2SC2688 H DRIVE-1
D4 RU-1 SPEED UP-2
Q6 2SD1399 CONV
D14 ERC26-15S DAMP-1
D9 V19E -3V RECT
D8 V19E +3V RECT
D29 1SS119 SPEED UP-3
Q4 2SC2688 H DRIVE-2
Q9, 10 2SC2785 HV PROT SW-1, 2
D7 V11N +230V RECT
D10 V19E +10V RECT
D11 V19E -10V RECT
D12 V19E V STOPPER
D13 V19E V RECT
D18 RD5.1ES-B2 REG OUT ZENER
IC3 uPC393C Σ IK DET
D28 1SS119 PROTEC-2
Q13 2SC3675 G2 CONT
D23, 24, 26 1SS119 SW-2, 3, 4
IC1 μPC4082C HV REG DET
PB (HV CONTROL)
PA (HV REG)
PC (FBT, H COMB)
HV BLOCK
FOCUS PACK
D1 GL-9NG2 POWER
Y (POWER IND)
Q14 2SA1175 REG BUFF
Q1 2SD1548
D1, 2 ERC26-15S
TO D-10
Q1 2SD1887

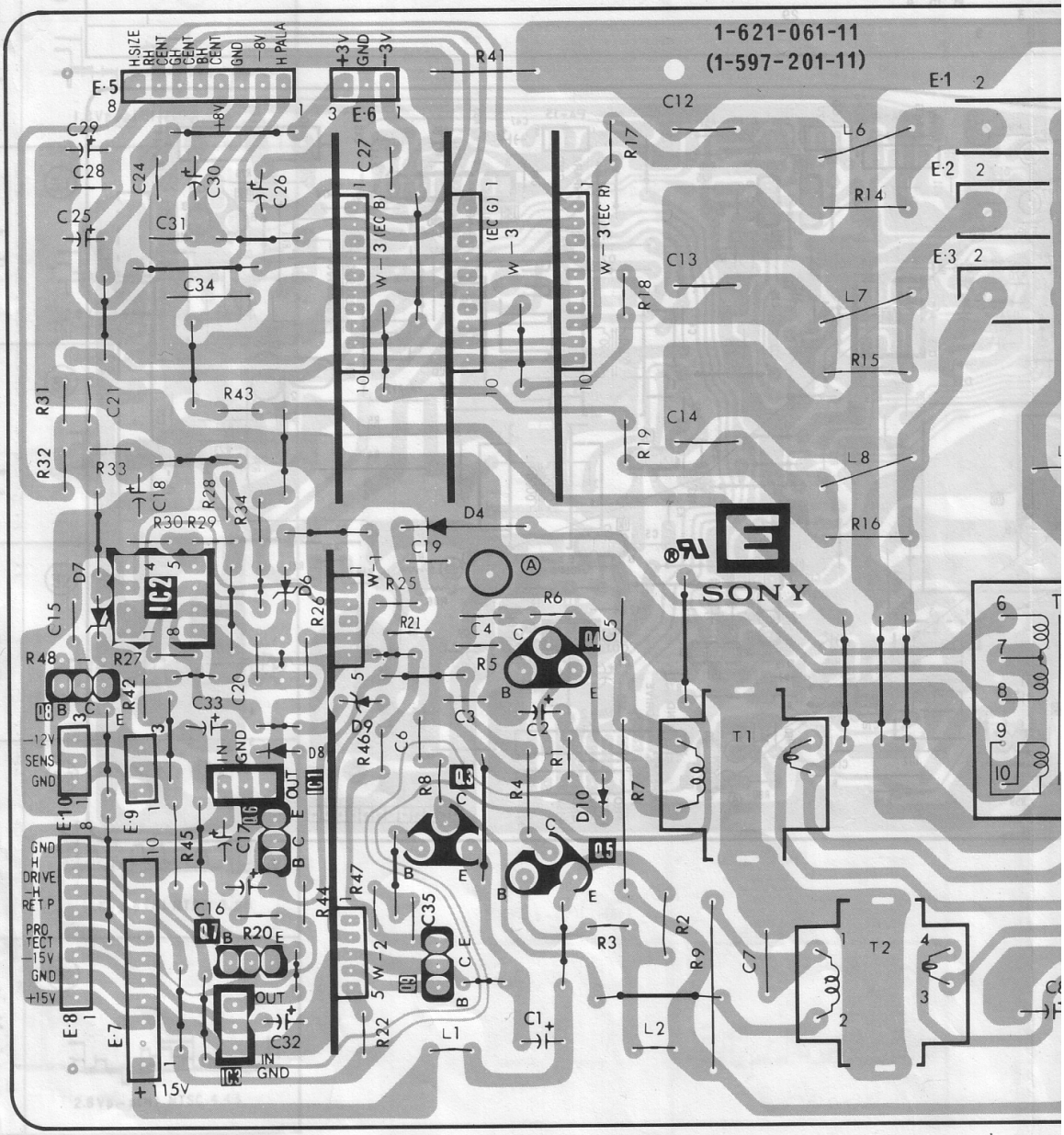

24
25
26
27
28
29
30
31
CR
(RED VIDEO OUT)
CG
(GREEN VIDEO OUT)
CB
(BLUE VIDEO OUT)
V901
SD-187(R)
PICTURE
TUBE
V901
SD-187(G)
PICTURE
TUBE
V901
SD-187(B)
PICTURE
TUBE
DY (B)
DY (G)
DY (R)
DEFLECTION YOKE (B)
DEFLECTION YOKE(G)
DEFLECTION YOKE(R)
Q701
2SC3503
R.VIDEO AMP
Q702
2SC3503
R.VIDEO OUT
Q703,704
2SAI38I
R.IK DET-1,2
D701,702
ISSII9
R.PROT-1,2
D704,705,706
ISSII9
R.PROT-3,4,5
D703
ISSII9
R.BIAS
D707
RD13ES-B2
R.PROT-6
Q721
2SC3503
G.VIDEO AMP
Q722
2SC3503
G.VIDEO OUT
Q723,724
2SAI38I
G.IK DET-1,2
D721,722
ISSII9
G.PROT-1,2
D724,725,726
ISSII9
G.PROT-3,4,5
D723
ISSII9
G.BIAS
D727
RD13ES-B2
G.PROT-6
Q741
2SC3503
B.VIDEO AMP
Q742
2SC3503
B.VIDEO OUT
Q743,744
2SAI38I
B.IK DET-1,2
D741,742
ISSII9
B.PROT-1,2
D744,745,746
ISSII9
B.PROT-3,4,5
D743
ISSII9
B BIAS
D747
RD13E-SB2
B PROT-6

E

[H. DRIVE, H. OUT, PIN DRIVE, PIN OUT]

– E board –

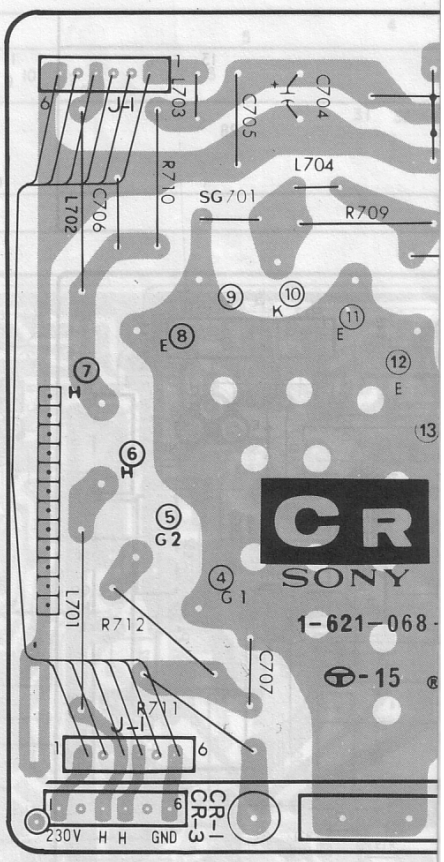
IC	2 1 3	
Q	7 6	3 4 9 5
D	7 6 8	4 9 10



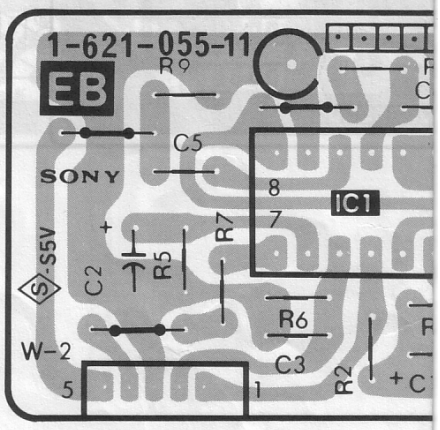
CR [RED VIDEO OUT] EB

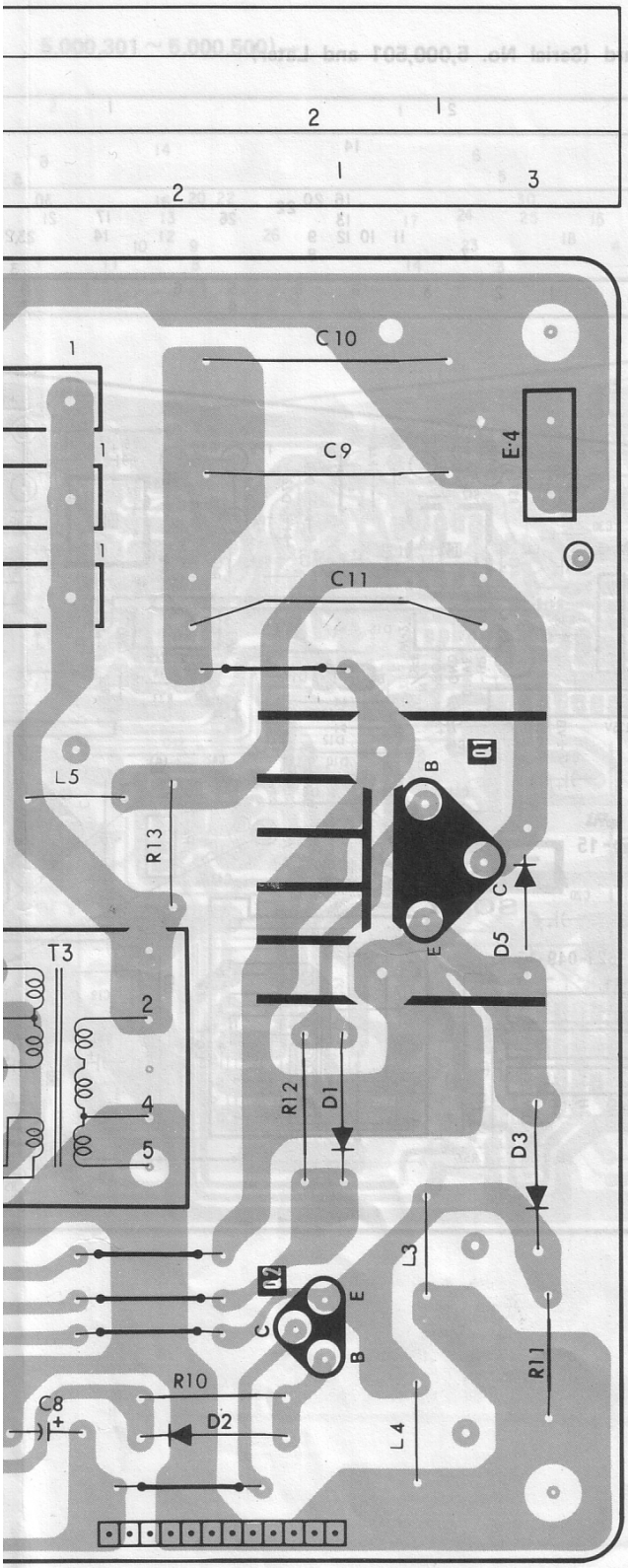
9 10 11 12 13 14 15

– CR board –



– EB board –

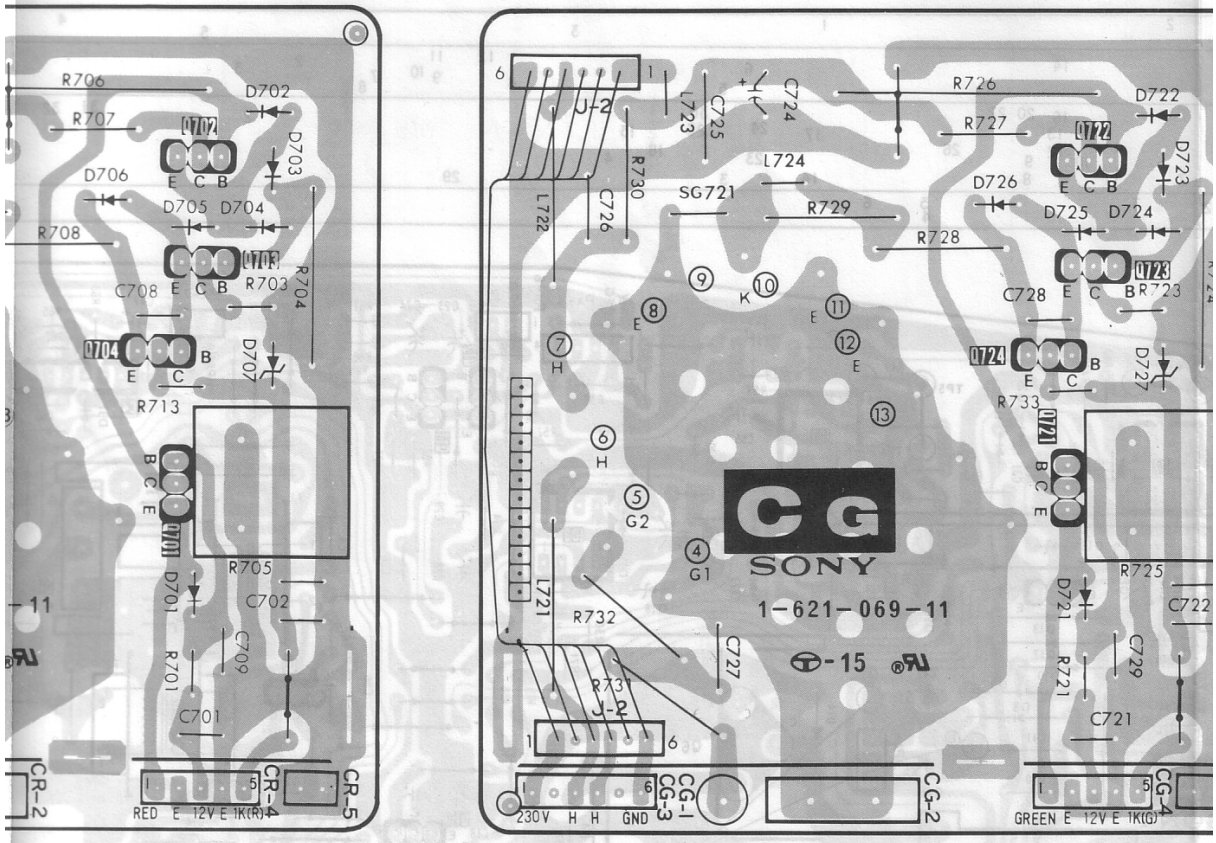




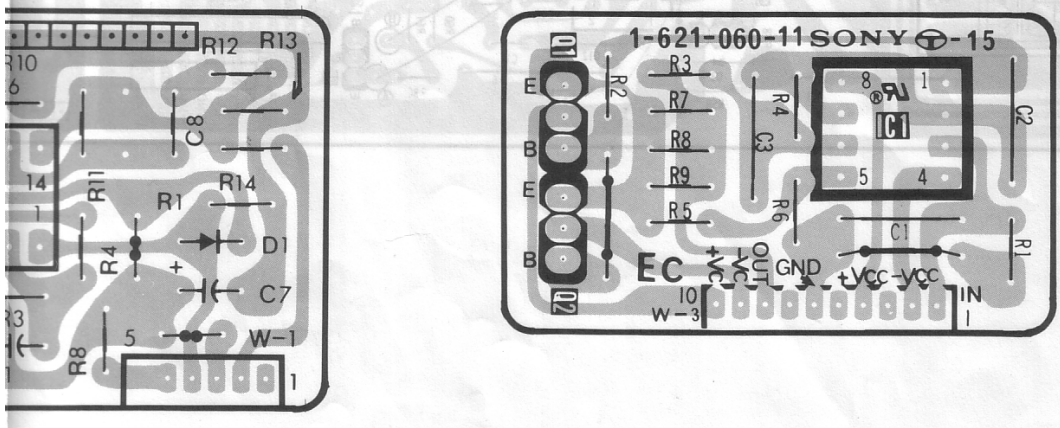
[PIN MOD CONTROL] **CG** [GREEN VIDEO OUT] **EC** [H. CENT OUT]

16 17 18 19 20 21 22

— CG board —



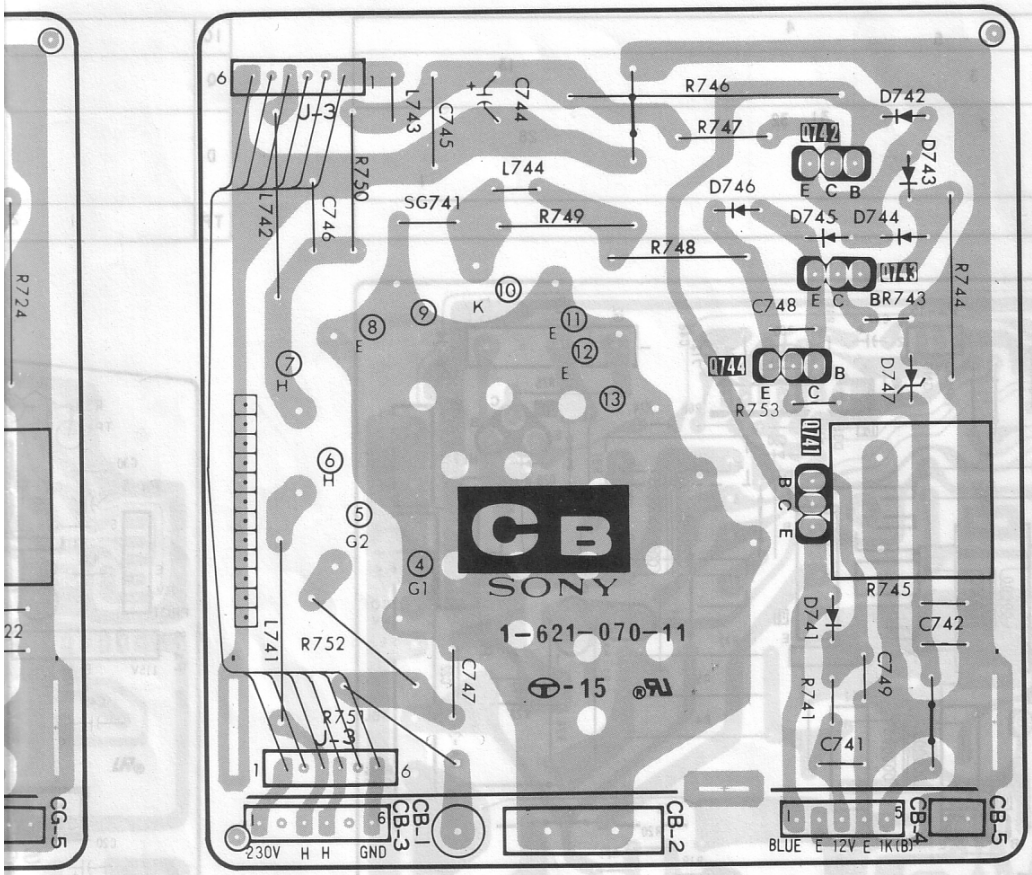
— EC board —



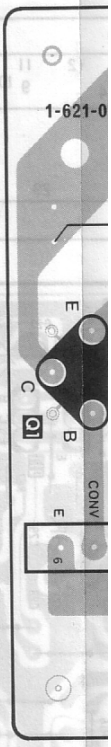
CB [BLUE VIDEO OUT] **DY** [DY] **PC** [FBT, H COMB]

23 24 25 26 27 28 29

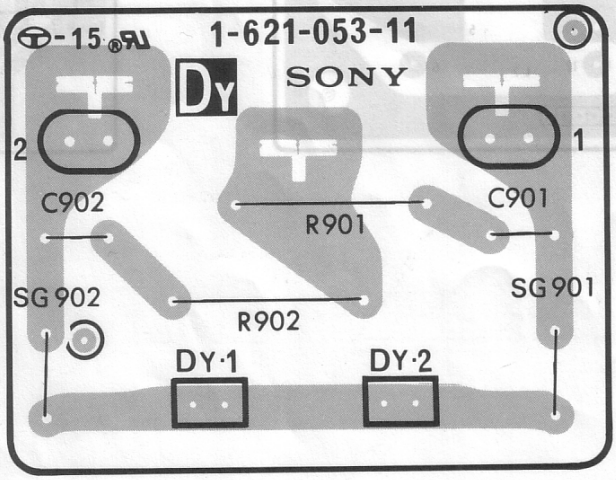
— CB board —



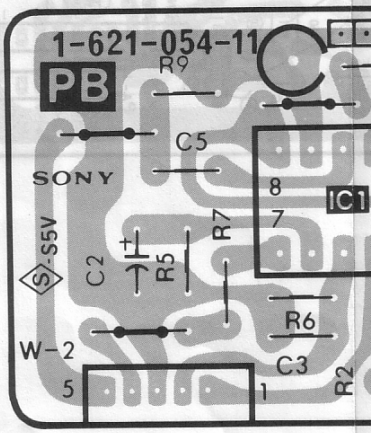
— PC board —



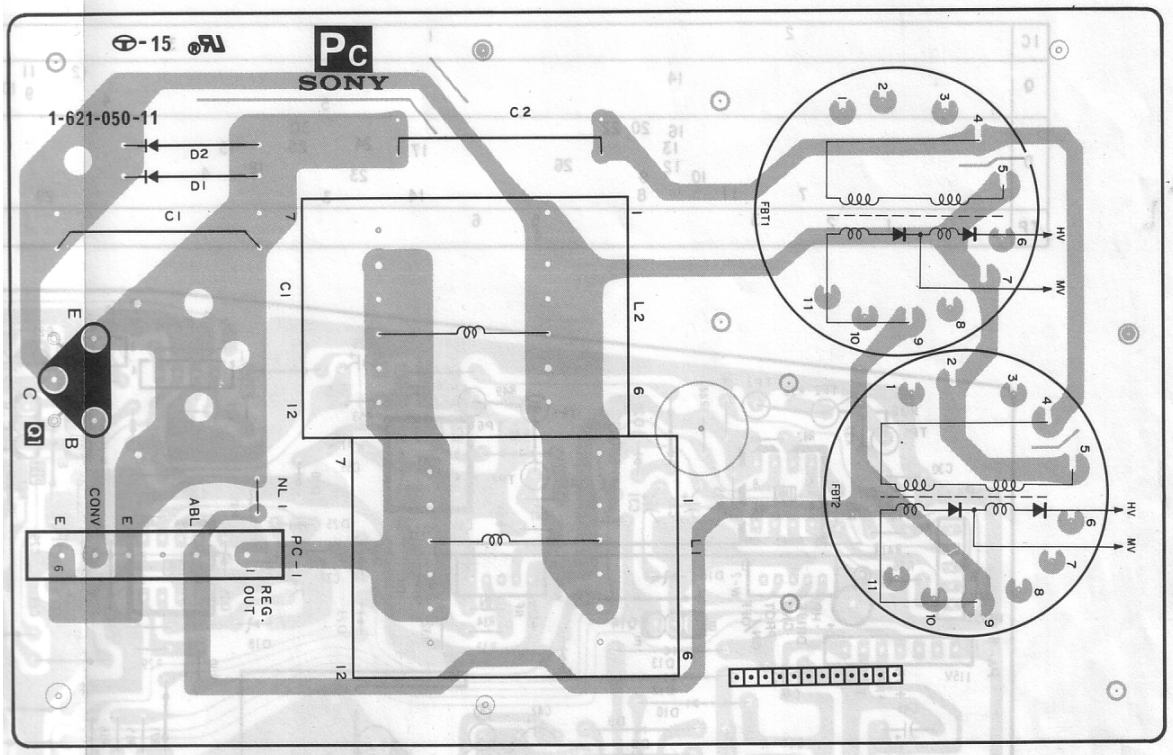
— DY board —



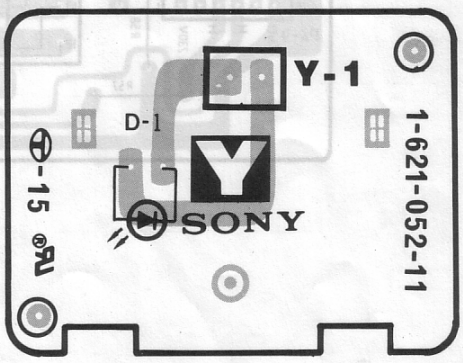
— PB board —

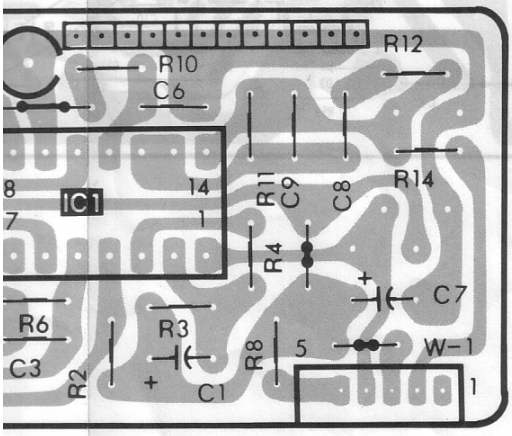


– PC board –



– Y board –

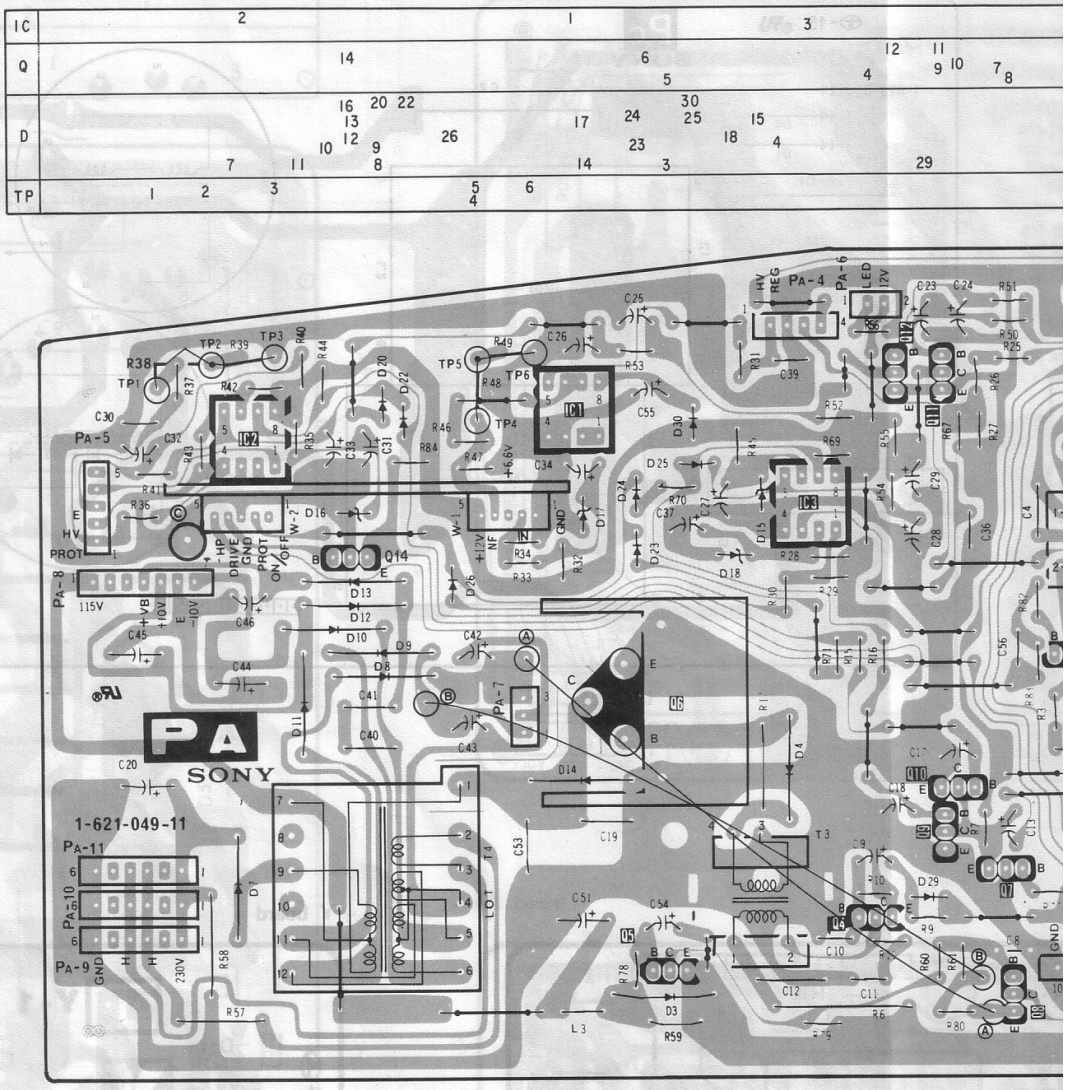




PA

[HV REG]

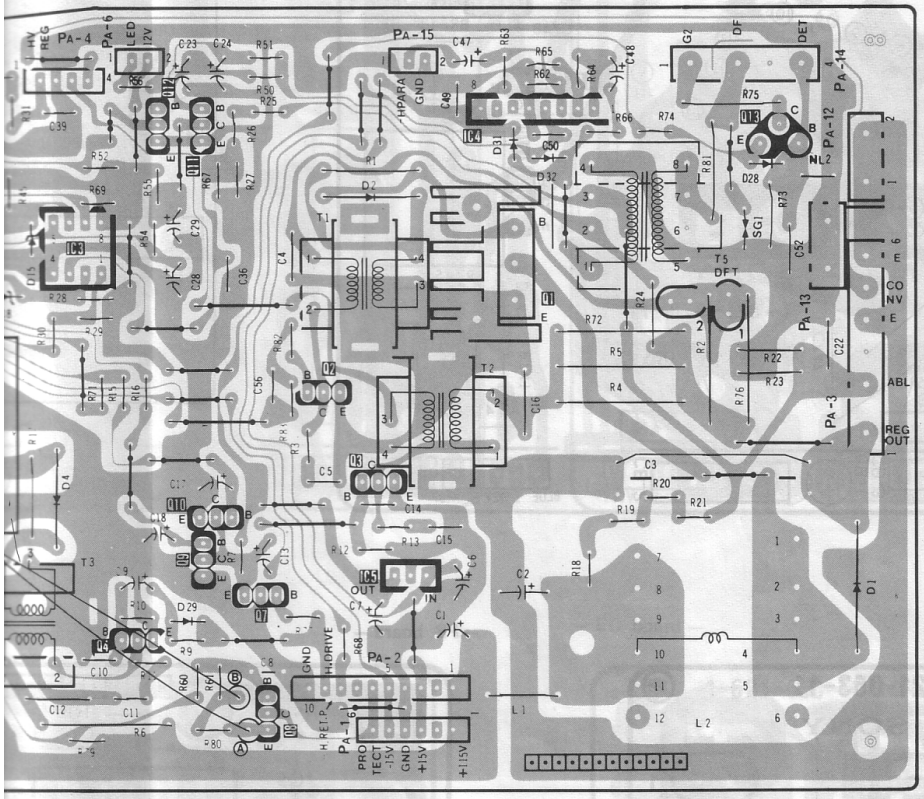
– PA board (Serial No. 5,000,001 ~ 5,000,300) –



6 | 7 | 8 | 9 | 10 | 11 | 12 | 13

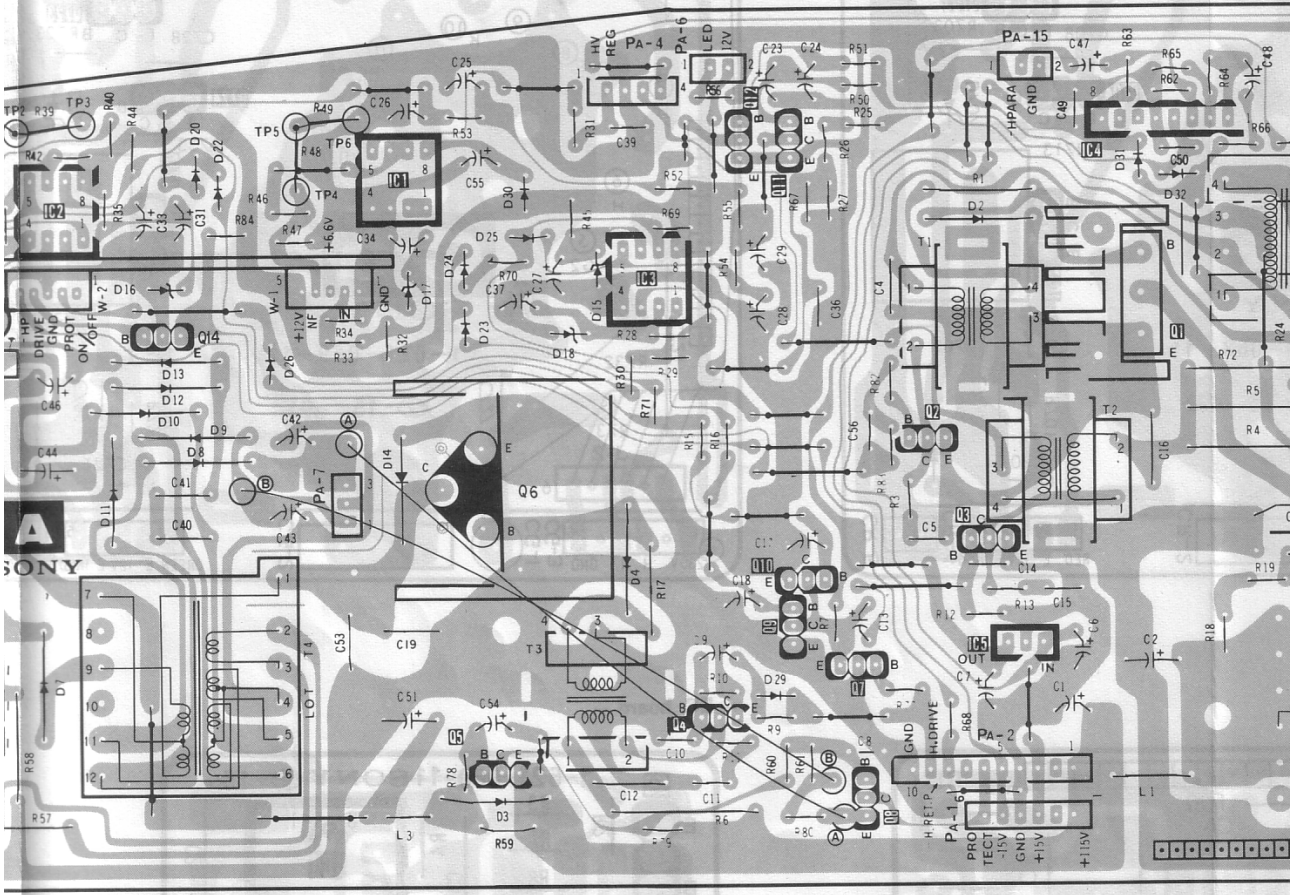
— PA board (Serial No

IC	
Q	
D	
TP	1 2



14 | 15 | 16 | 17 | 18 | 19 | 20 | 21

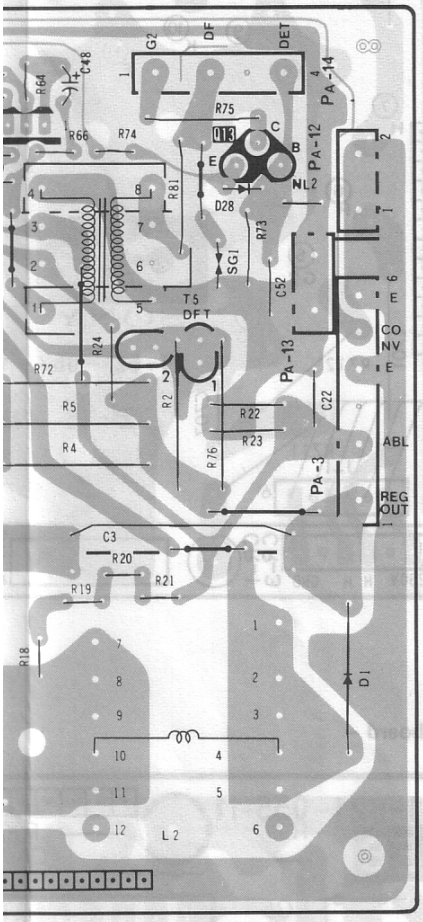
o. 5,000,301 ~ 5,000,500) –

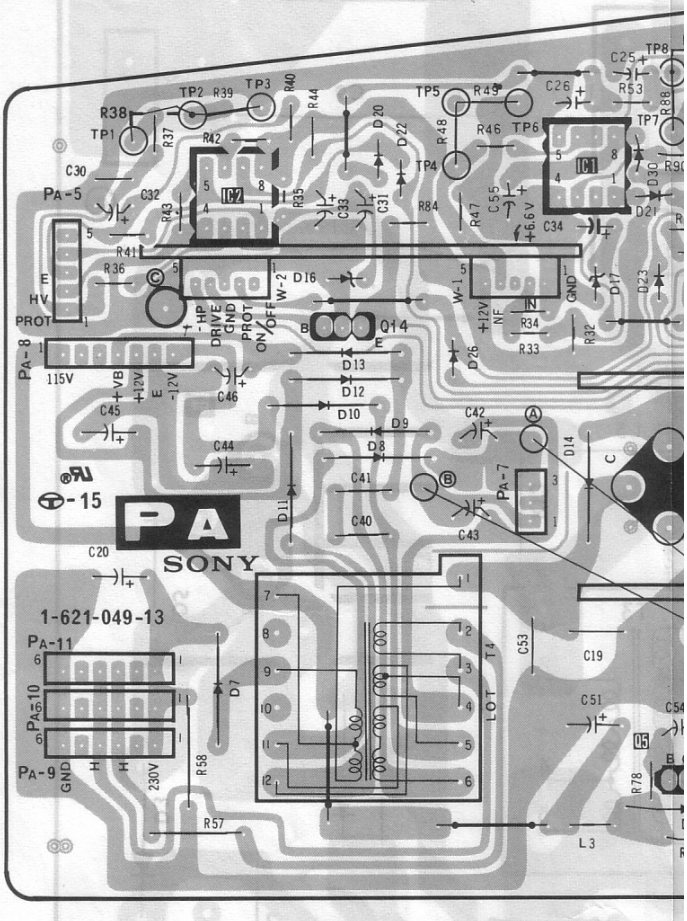


21 | 22 | 23 | 24 | 25 | 26 | 27

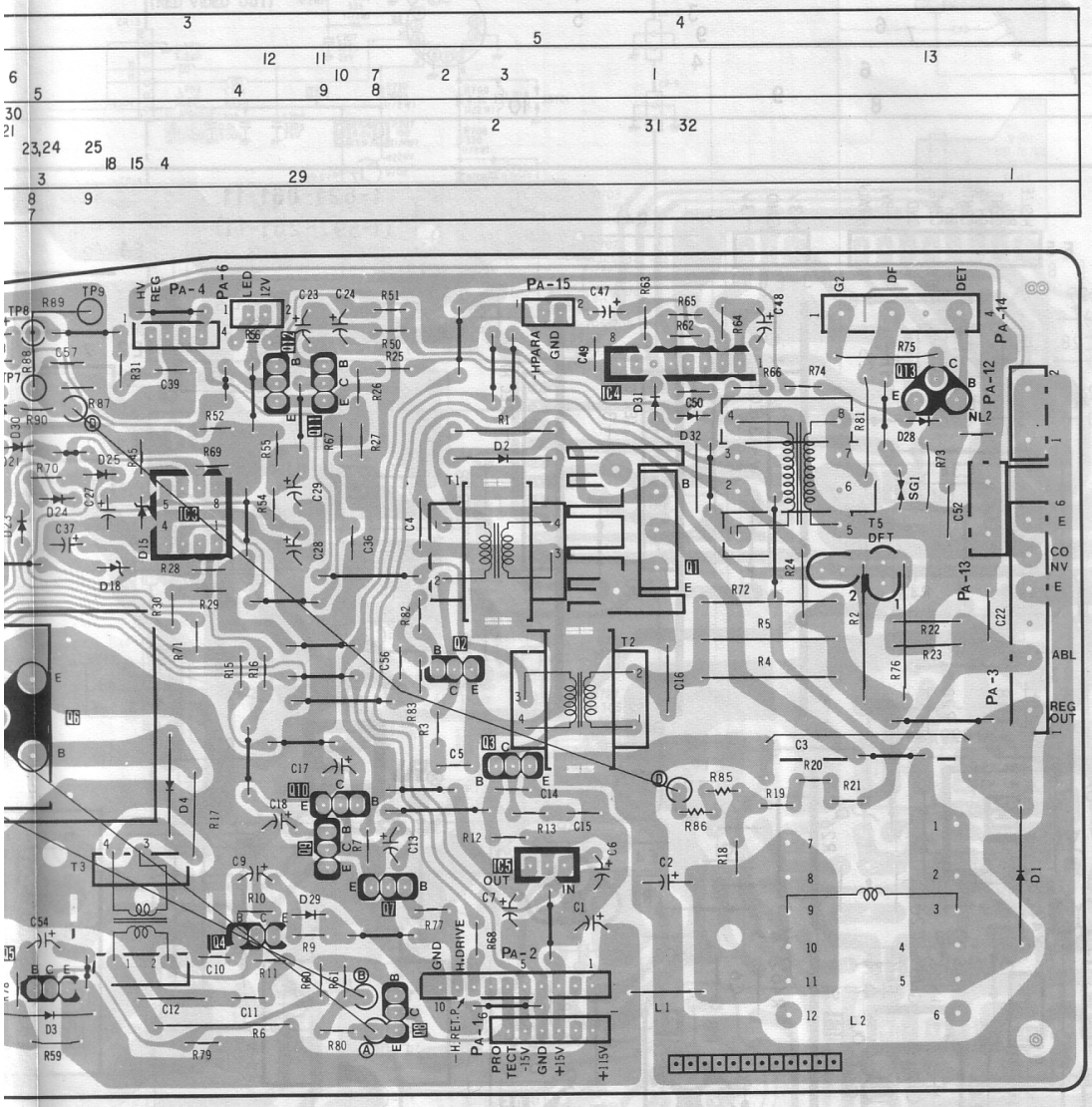
– PA board (Serial No. 5,000,501 and Later) –

IC	2, 1
Q	14, 6, 5
D	16, 20, 22, 13, 26, 30, 17, 21, 14, 23, 11, 10, 12, 9, 8, 7
TP	1, 2, 3, 5, 4, 6, 8, 7



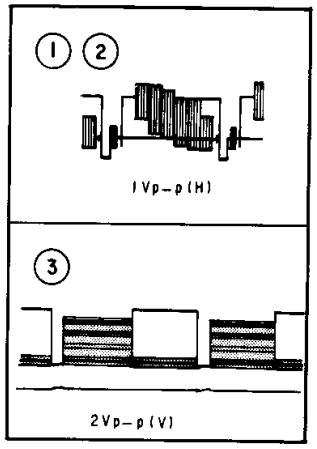


28 | 29 | 30 | 31 | 32 | 33 | 34 | 35

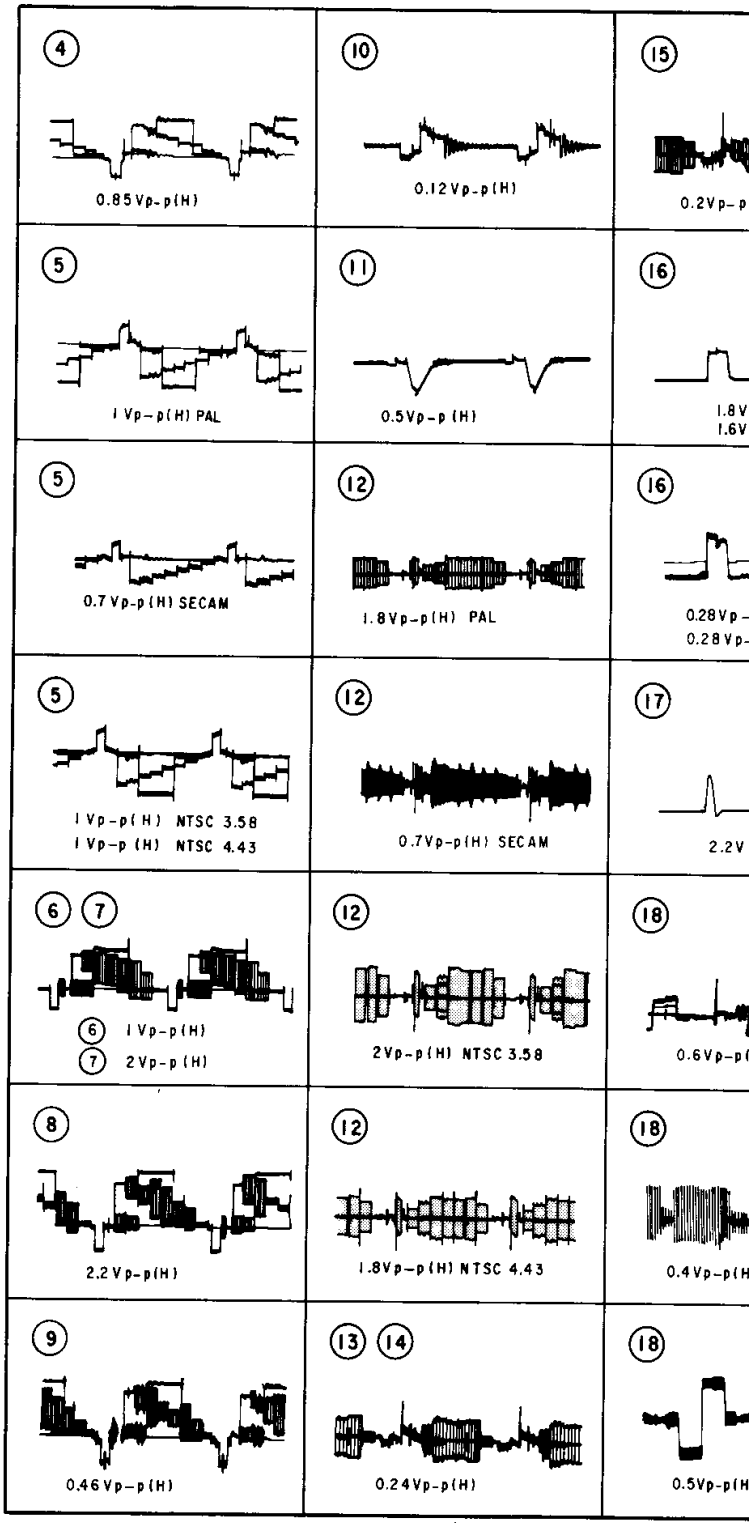


7-7. WAVEFORMS

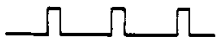
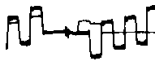
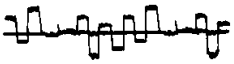
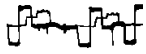
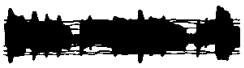
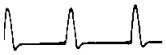
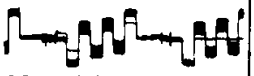
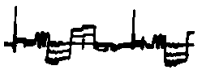
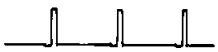
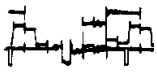
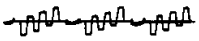
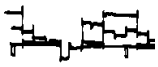
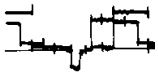
QA board

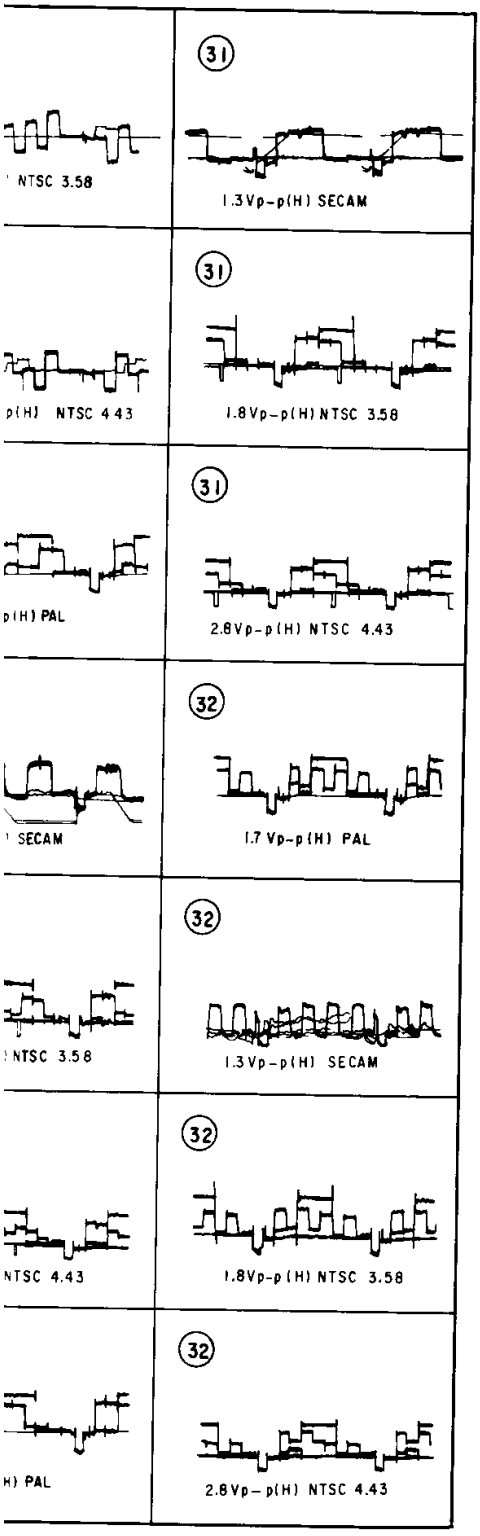


BA board

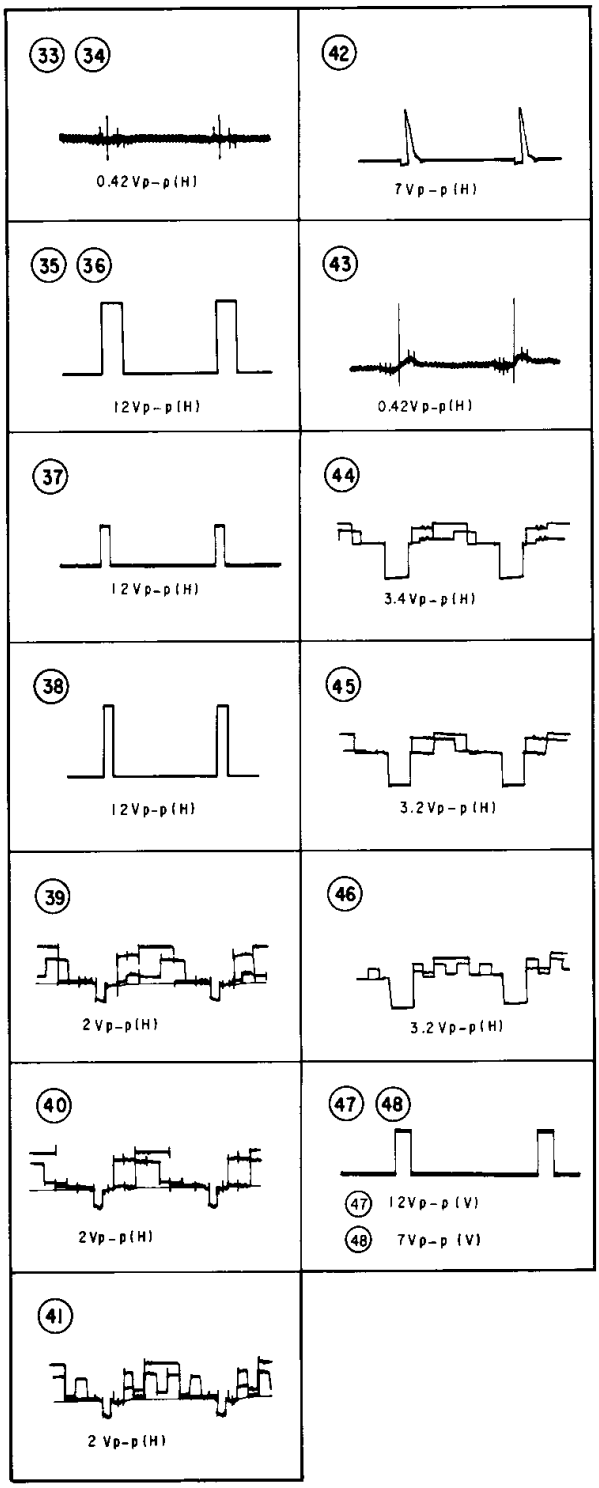


VPH-1040QM

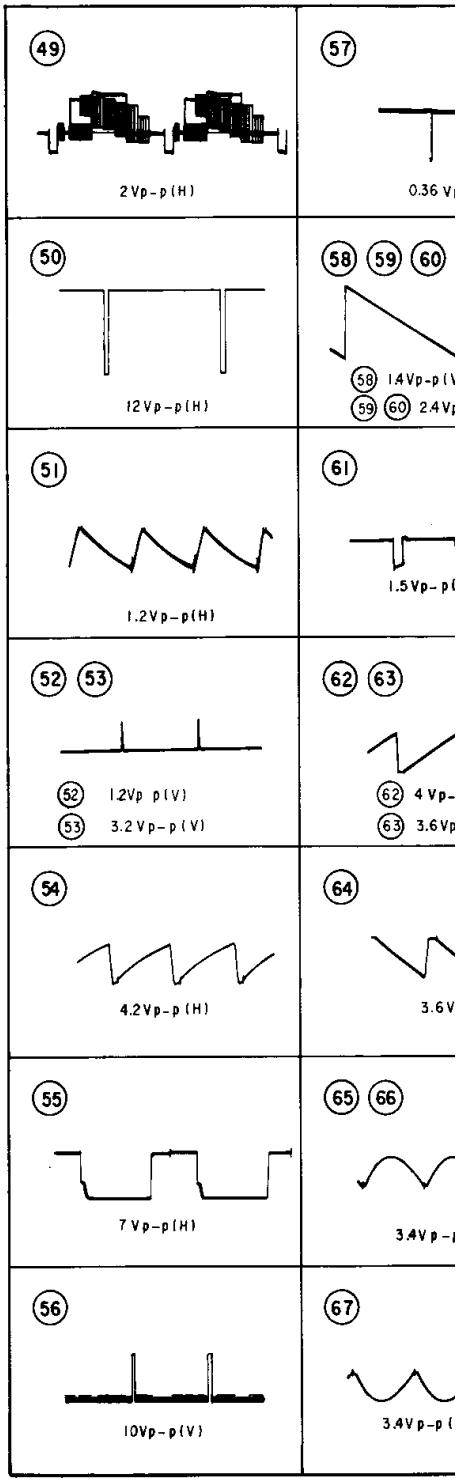
/p-p(H)	(18)  0.42Vp-p(H) NTSC 4.43	(20)  0.42Vp-p(H) NTSC 3.58	(27)  3.6Vp-p(H)	(29)  1Vp-p(H) NTSC
 1.8Vp-p(H) PAL 1.6Vp-p(H) SECAM	(19)  0.8Vp-p(H) PAL	(20)  0.5Vp-p(H) NTSC 4.43	(28)  0.5Vp-p(H) PAL	(29)  0.5Vp-p(H)
 8Vp-p(H)NTSC 3.58 8Vp-p(H)NTSC 4.43	(19)  0.7Vp-p(H) SECAM	(21) (22)  (21) 0.28Vp-p(H) (22) 0.7Vp-p(H)	(28)  0.4Vp-p(H) SECAM	(30)  1.8Vp-p(H) P
 2.2Vp-p(H)	(19)  0.8Vp-p(H) NTSC 3.58	(23)  0.4Vp-p(H)	(28)  0.28Vp-p(H) NTSC 3.58	(30)  1.4Vp-p(H) SEC
 Vp-p(H) PAL	(19)  0.6Vp-p(H) NTSC 4.43	(24)  9.5Vp-p(H)	(28)  0.7Vp-p(H) NTSC 4.43	(30)  1.8Vp-p(H) NTSC
 p-p(H) SECAM	(20)  0.8Vp-p(H) PAL	(25)  0.85Vp-p(H)	(29)  10Vp-p(H) PAL	(30)  2.8Vp-p(H) NTSC
 p-p(H) NTSC 3.58	(20)  0.36Vp-p(H) SECAM	(26)  0.9Vp-p(H)	(29)  1Vp-p(H) SECAM	(31)  1.8Vp-p(H) PA


NTSC 3.58
31
1.3Vp-p(H) SECAM
p(H) NTSC 4.43
31
1.8Vp-p(H) NTSC 3.58
p(H) PAL
31
2.8Vp-p(H) NTSC 4.43
SECAM
32
1.7 Vp-p(H) PAL
NTSC 3.58
32
1.3Vp-p(H) SECAM
NTSC 4.43
32
1.8Vp-p(H) NTSC 3.58
H) PAL
32
2.8Vp-p(H) NTSC 4.43

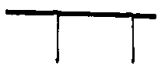
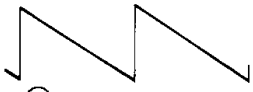
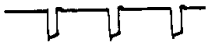
BB board



D board



DB boa

(57)  0.36 Vp-p(V)	(68)  3 Vp-p(H)	(77)  6 Vp-p(V)	(91)  5.6Vp-p (V)
(58) (59) (60)  (58) 1.4Vp-p(V) (59) (60) 2.4Vp-p(V)	(69) (70) (71)  (69) (70) 3.6Vp-p(V) (71) 2.9Vp-p(V)	(78)  3.8 Vp-p(V)	(92)  9.6Vp-p(H)
(61)  1.5Vp-p(H)	(72)  3.6Vp-p(V)	(79) ~ (84)  1.4Vp-p(V)	(93)  24 Vp-p(V)
(62) (63)  (62) 4 Vp-p(H) (63) 3.6Vp-p(H)	(73)  15Vp-p(V)	(85) (86) (87)  20Vp-p(V)	
(64)  3.6Vp-p(H)	(74)  15Vp-p(H)	(88)  6 Vp-p(H)	
(65) (66)  3.4Vp-p(H)	(75)  0.36Vp-p(V)	(89)  26Vp-p(V)	
(67)  3.4Vp-p(H)	(76)  0.42Vp-p(V)	(90)  2 Vp-p(H)	

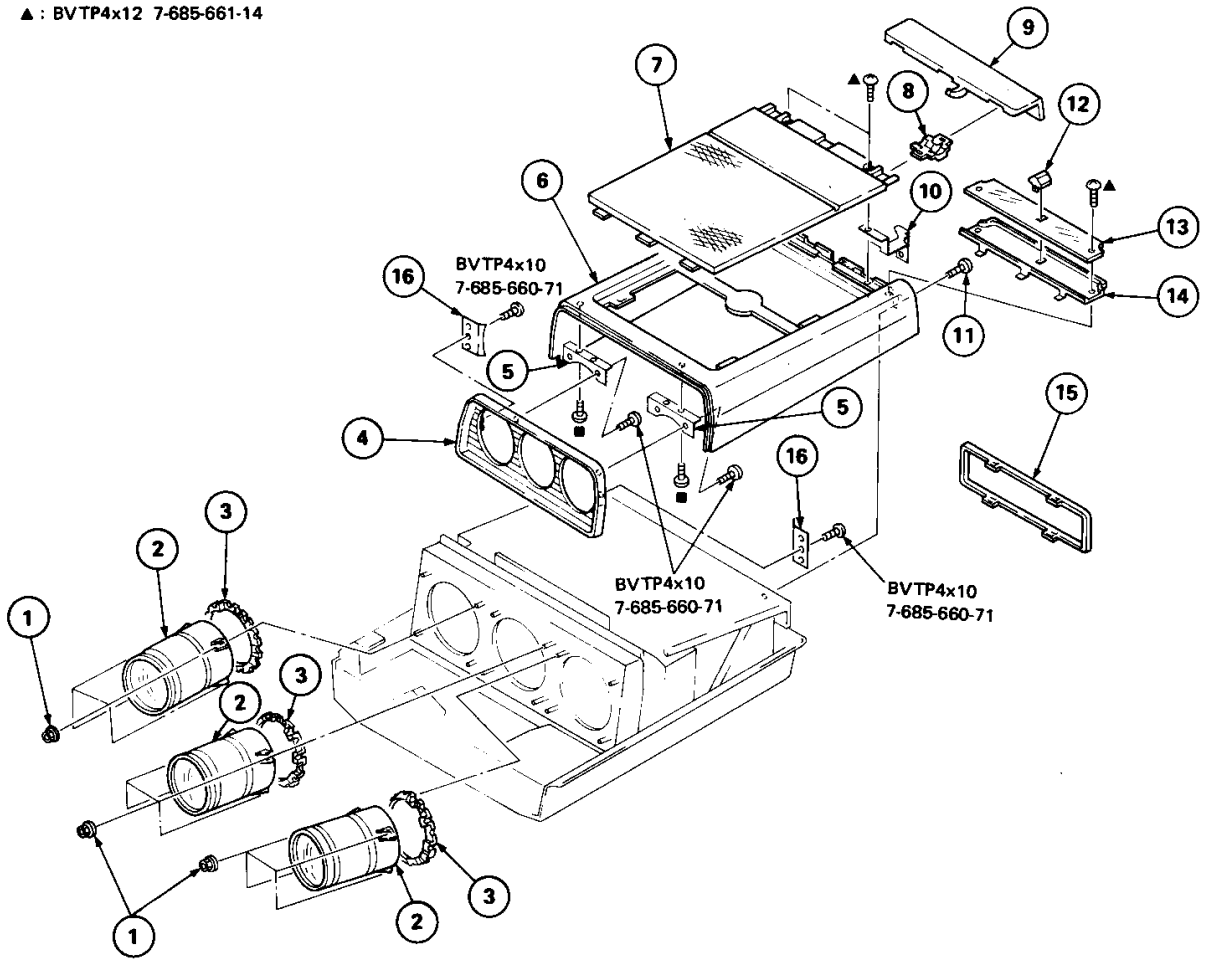
SECTION 8
EXPLODED VIEWS

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.

8-1. LENS

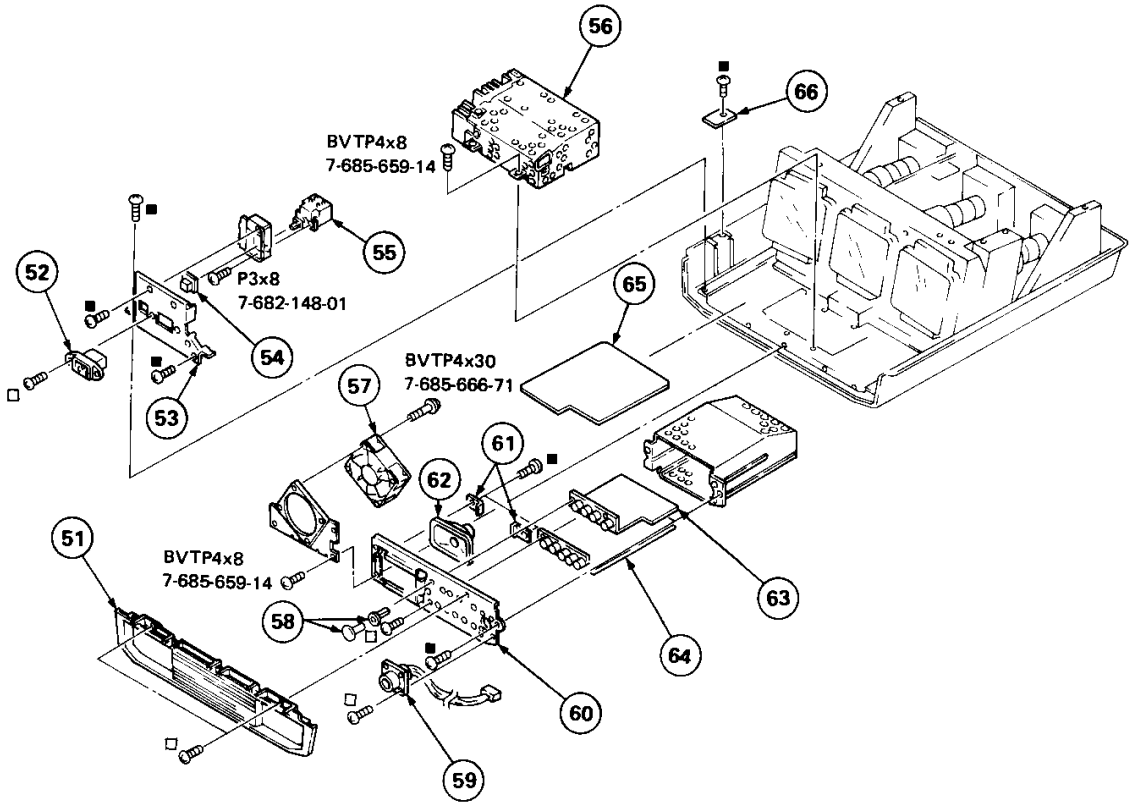
■ : BVTP3x8 7-685-646-79
▲ : BVTP4x12 7-685-661-14



No.	Part No.	Description	Remark
1	4-304-749-00	NUT, FLANGE	
2	4-383-018-01	LENS (DELTA) (TAC-3)	
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	

8-2. PANEL

■ : BVTP3x8 7-685-646-79
□ : BVTP3x8 7-685-646-79

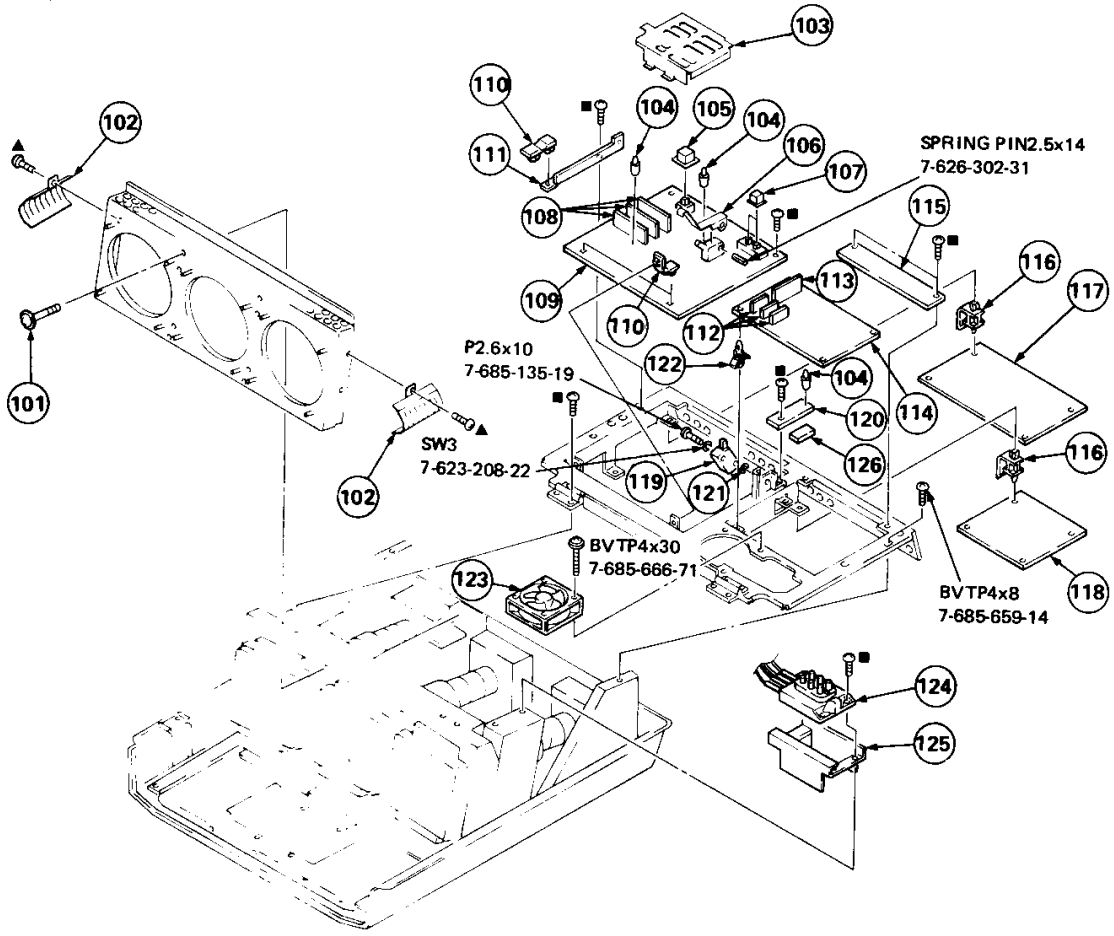


No.	Part No.	Description	Remark
51	4-383-063-01	PANEL, CONNECTOR	
52	⚠1-509-547-11	3P INLET	
53	4-383-049-01	PANEL (F), CONNECTOR	
54	4-362-811-00	BUTTON, MAIN POWER	
55	⚠1-570-052-12	SWITCH, PUSH (AC POWER)(1 KEY)	
56	⚠1-413-289-11	REGULATOR, SWITCHING (TK-15)	
57	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
58	4-374-303-01	RIVET, NYLON	
59	1-559-088-11	CONNECTOR ASSY, ROUND TYPE 14P	
60	*4-383-051-01	CHASSIS (R), FRONT	
61	4-383-026-01	SPRING	
62	1-503-255-00	SPEAKER	
63	*A-1270-202-A	QB BOARD, COMPLETE	
64	*A-1270-201-A	QA BOARD, COMPLETE	
65	*1-621-056-11	FA BOARD	
66	*1-621-058-11	FC BOARD	

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

8-3. D BOARD

▲ : BVTP4x12 7-685-661-14
■ : BVTP3x8 7-685-646-79

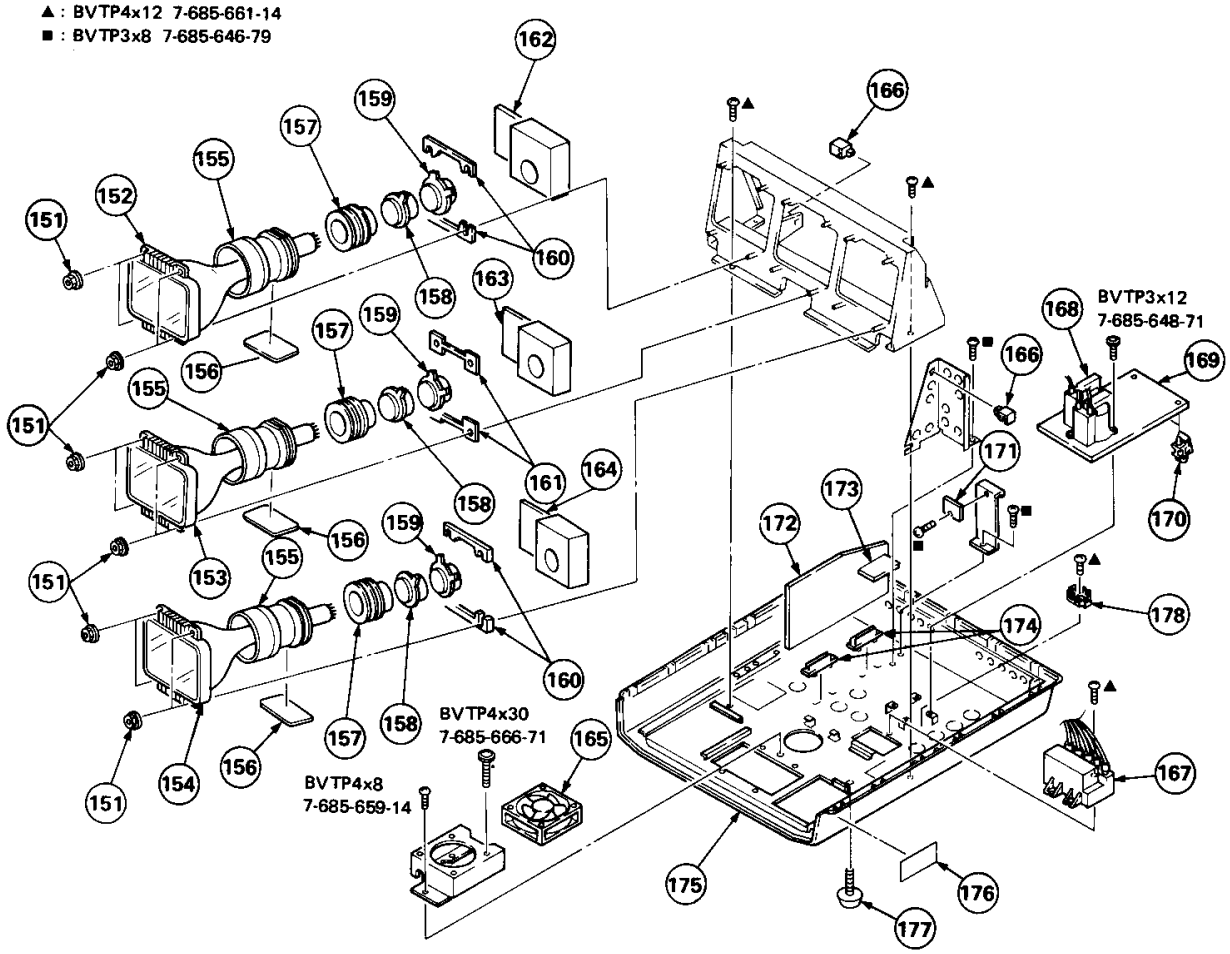


No.	Part No.	Description	Remark
101	4-361-723-01	SCREW, TAPPING, SPECIAL	
102	*4-378-671-01	SPRING	
103	*4-383-047-01	COVER, REGISTRATION ADJUSTMENT	
104	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
105	4-362-808-00	BUTTON, POWER	
106	*4-378-608-01	ACTUATOR	
107	4-362-809-00	BUTTON, SELECT	
108	*1-621-059-11	DB BOARD	
109	*A-1340-919-A	D BOARD, COMPLETE	108
110	*4-313-732-00	CLIP, HINGE, CIRCUIT BOARD	
111	*4-378-624-01	STOPPER, DB PC 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-1135-432-A	BA BOARD, COMPLETE	
119	⚠1-552-437-11	SWITCH, LEVER	
120	*1-621-051-11	X BOARD	
121	*4-309-378-00	SPACER	
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	

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

8-4. BASE ASSY

▲ : BVTP4x12 7-685-661-14
■ : BVTP3x8 7-685-646-79



No.	Part No.	Description	Remark
151	4-304-749-00	NUT, FLANGE	
152	⚠1-533-023-05	CRT (SD-187 (R))	
153	⚠1-533-021-05	CRT (SD-187 (G))	
154	⚠1-533-022-05	CRT (SD-187 (B))	
155	⚠1-451-243-12	DEFLECTION YOKE (SY-130A)	
156	*1-621-053-11	DY BOARD	
157	⚠1-452-302-11	CRT NECK ASSEMBLY	
158	⚠1-452-261-41	CRT NECK ASSY (362)	
159	⚠1-452-261-32	CRT NECK ASSY (362)	
160	*4-378-603-01	SPACER (100), CRT	
161	*4-383-025-01	SPACER (G), CRT	
162	*1-621-068-11	CR BOARD	
163	*1-621-069-11	CG BOARD	
164	*1-621-070-11	CB BOARD	

No.	Part No.	Description	Remark
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	⚠1-439-400-11	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-1190-110-A	PA BOARD, COMPLETE	173
	*A-1190-113-A	PA BOARD, COMPLETE (Serial No. 5000501 and Later)	
173	*1-621-054-11	PB BOARD	
174	*3-680-613-01	SUPPORT, PC BOARD	
175	X-4378-628-1	BASE ASSY	177
176	*4-383-042-01	LABEL, MODEL NUMBER	
177	4-378-622-01	ADJUSTOR	
178	*4-309-624-00	TERMINAL, EARTH	

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

SECTION 9
ELECTRICAL PARTS LIST

BB

NOTE:

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

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

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

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

CAPACITORS
• MF : μF, PF : μμF

RESISTORS
• All resistors are in ohms
• F : nonflammable

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.**

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	1-123-379-00	ELECT	0.47MF	20% 50V	
C31	1-136-153-00	FILM	0.01MF	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	1-123-380-00	ELECT	1MF	20% 50V	
C48	1-123-380-00	ELECT	1MF	20% 50V	
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	8-752-030-45	IC CXA1044P			
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			

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Ref.No.	Part No.	Description	Remark
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	8-759-340-13	IC HD14013BP	
IC18	8-759-340-13	IC HD14013BP	
		COIL	
L1	1-410-494-11	MICRO INDUCTOR 1MMH	
L2	1-410-482-41	MICRO 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	

Ref.No.	Part No.	Description				Remark
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%	1/6W	
R5	1-249-405-11	CARBON	100	5%	1/6W	
R6	1-249-405-11	CARBON	100	5%	1/6W	
R7	1-249-420-11	CARBON	1.8K	5%	1/6W	
R8	1-249-417-11	CARBON	1K	5%	1/6W	
R9	1-249-420-11	CARBON	1.8K	5%	1/6W	
R10	1-249-417-11	CARBON	1K	5%	1/6W	
R11	1-249-425-11	CARBON	4.7K	5%	1/6W	
R12	1-249-421-11	CARBON	2.2K	5%	1/6W	
R13	1-247-724-11	CARBON	8.2K	5%	1/4W	
R14	1-249-405-11	CARBON	100	5%	1/6W	
R15	1-249-405-11	CARBON	100	5%	1/6W	
R16	1-249-421-11	CARBON	2.2K	5%	1/6W	
R17	1-249-417-11	CARBON	1K	5%	1/6W	
R18	1-249-414-11	CARBON	560	5%	1/6W	
R19	1-249-405-11	CARBON	100	5%	1/6W	
R20	1-249-405-11	CARBON	100	5%	1/6W	
R21	1-249-405-11	CARBON	100	5%	1/6W	
R22	1-247-813-00	CARBON	180	5%	1/6W	
R23	1-247-813-00	CARBON	180	5%	1/6W	
R24	1-247-813-00	CARBON	180	5%	1/6W	
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%	1/6W	
R28	1-249-401-11	CARBON	47	5%	1/6W	
R29	1-249-415-11	CARBON	680	5%	1/6W	
R30	1-249-410-11	CARBON	270	5%	1/6W	
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%	1/6W	
R35	1-247-696-11	CARBON	47	5%	1/4W	
R36	1-249-415-11	CARBON	680	5%	1/6W	
R37	1-249-410-11	CARBON	270	5%	1/6W	
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%	1/6W	
R42	1-249-401-11	CARBON	47	5%	1/6W	
R43	1-249-410-11	CARBON	270	5%	1/6W	
R45	1-249-409-11	CARBON	220	5%	1/6W	
R46	1-249-393-11	CARBON	10	5%	1/6W	
R47	1-249-422-11	CARBON	2.7K	5%	1/6W	
R48	1-247-818-00	CARBON	300	5%	1/6W	
R49	1-249-405-11	CARBON	100	5%	1/6W	
R50	1-247-700-11	CARBON	100	5%	1/4W	
R51	1-249-405-11	CARBON	100	5%	1/6W	
R52	1-247-700-11	CARBON	100	5%	1/4W	
R53	1-249-422-11	CARBON	2.7K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R54	1-249-417-11	CARBON	1K	5%	1/6W	
R55	1-249-425-11	CARBON	4.7K	5%	1/6W	
R56	1-247-881-00	CARBON	120K	5%	1/6W	
R57	1-249-431-11	CARBON	15K	5%	1/6W	
R58	1-247-719-11	CARBON	3.3K	5%	1/4W	
R59	1-249-441-11	CARBON	100K	5%	1/6W	
R60	1-215-477-00	CARBON	220K	5%	1/6W	
R61	1-249-436-11	CARBON	39K	5%	1/6W	
R62	1-249-469-11	CARBON	100K	5%	1/4W	
R63	1-249-417-11	CARBON	1K	5%	1/6W	
R64	1-249-430-11	CARBON	12K	5%	1/6W	
R65	1-247-717-11	CARBON	2.2K	5%	1/4W	
R66	1-249-417-11	CARBON	1K	5%	1/6W	
R67	1-249-437-11	CARBON	47K	5%	1/6W	
R68	1-249-437-11	CARBON	47K	5%	1/6W	
R69	1-249-434-11	CARBON	27K	5%	1/6W	
R70	1-215-481-00	CARBON	330K	5%	1/6W	
R71	1-249-429-11	CARBON	10K	5%	1/6W	
R72	1-249-438-11	CARBON	56K	5%	1/6W	
R73	1-249-434-11	CARBON	27K	5%	1/6W	
R74	1-249-441-11	CARBON	100K	5%	1/6W	
R75	1-249-441-11	CARBON	100K	5%	1/6W	
R76	1-249-429-11	CARBON	10K	5%	1/6W	
R77	1-249-439-11	CARBON	68K	5%	1/6W	
R78	1-215-481-00	CARBON	330K	5%	1/6W	
R79	1-249-423-11	CARBON	3.3K	5%	1/6W	
R80	1-247-881-00	CARBON	120K	5%	1/6W	
R81	1-249-429-11	CARBON	10K	5%	1/6W	
R82	1-249-429-11	CARBON	10K	5%	1/6W	
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%	1/6W	
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	1-215-477-00	CARBON	220K	5%	1/6W	
R92	1-215-477-00	CARBON	220K	5%	1/6W	
R93	1-215-477-00	CARBON	220K	5%	1/6W	
R94	1-249-441-11	CARBON	100K	5%	1/6W	
R95	1-249-469-11	CARBON	100K	5%	1/4W	
R96	1-249-429-11	CARBON	10K	5%	1/6W	
R97	1-215-479-00	CARBON	270K	5%	1/6W	
R98	1-249-429-11	CARBON	10K	5%	1/6W	
R99	1-215-431-00	METAL	2.7K	1%	1/6W	
R100	1-249-429-11	CARBON	10K	5%	1/6W	
R101	1-215-445-00	METAL	10K	1%	1/6W	
R102	1-215-429-00	METAL	2.2K	1%	1/6W	
R103	1-215-449-00	METAL	15K	1%	1/6W	
R104	1-249-405-11	CARBON	100	5%	1/6W	
R105	1-247-700-11	CARBON	100	5%	1/4W	
R106	1-249-405-11	CARBON	100	5%	1/6W	
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	1-249-441-11	CARBON	100K	5%	1/6W	
R114	1-249-437-11	CARBON	47K	5%	1/6W	
R115	1-249-437-11	CARBON	47K	5%	1/6W	
R116	1-215-429-00	METAL	2.2K	1%	1/6W	
R117	1-249-423-11	CARBON	3.3K	5%	1/6W	
R118	1-249-417-11	CARBON	1K	5%	1/6W	
R119	1-249-417-11	CARBON	1K	5%	1/6W	
R120	1-247-726-11	CARBON	33K	5%	1/4W	
R121	1-249-441-11	CARBON	100K	5%	1/6W	
R122	1-249-427-11	CARBON	6.8K	5%	1/6W	
R123	1-249-431-11	CARBON	15K	5%	1/6W	
R124	1-249-415-11	CARBON	680	5%	1/6W	
R125	1-249-441-11	CARBON	100K	5%	1/6W	
R126	1-249-429-11	CARBON	10K	5%	1/6W	
R127	1-249-417-11	CARBON	1K	5%	1/6W	
R128	1-249-421-11	CARBON	2.2K	5%	1/6W	
R129	1-249-421-11	CARBON	2.2K	5%	1/6W	
R130	1-249-421-11	CARBON	2.2K	5%	1/6W	
R131	1-249-421-11	CARBON	2.2K	5%	1/6W	
R132	1-249-421-11	CARBON	2.2K	5%	1/6W	
R133	1-249-425-11	CARBON	4.7K	5%	1/6W	
R134	1-249-425-11	CARBON	4.7K	5%	1/6W	
R135	1-249-425-11	CARBON	4.7K	5%	1/6W	
R136	1-249-423-11	CARBON	3.3K	5%	1/6W	
R137	1-249-430-11	CARBON	12K	5%	1/6W	
R138	1-249-434-11	CARBON	27K	5%	1/6W	
R139	1-247-713-11	CARBON	1K	5%	1/4W	
R140	1-249-421-11	CARBON	2.2K	5%	1/6W	
R141	1-249-421-11	CARBON	2.2K	5%	1/6W	
R142	1-247-706-11	CARBON	330	5%	1/4W	
R143	1-249-429-11	CARBON	10K	5%	1/6W	
R144	1-249-437-11	CARBON	47K	5%	1/6W	
R145	1-249-417-11	CARBON	1K	5%	1/6W	
R146	1-249-417-11	CARBON	1K	5%	1/6W	
R147	1-249-405-11	CARBON	100	5%	1/6W	
R148	1-249-431-11	CARBON	15K	5%	1/6W	
R149	1-249-429-11	CARBON	10K	5%	1/6W	
R150	1-249-425-11	CARBON	4.7K	5%	1/6W	
R151	1-249-428-11	CARBON	8.2K	5%	1/6W	
R153	1-249-429-11	CARBON	10K	5%	1/6W	
R154	1-247-885-00	CARBON	180K	5%	1/6W	
R155	1-249-437-11	CARBON	47K	5%	1/6W	
R156	1-249-435-11	CARBON	33K	5%	1/6W	
R157	1-249-433-11	CARBON	22K	5%	1/6W	
R158	1-249-435-11	CARBON	33K	5%	1/6W	
R159	1-247-795-00	CARBON	33	5%	1/6W	
R160	1-247-795-00	CARBON	33	5%	1/6W	

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Ref.No.	Part No.	Description				Remark
R161	1-247-795-00	CARBON	33	5%	1/6W	
R163	1-249-425-11	CARBON	4.7K	5%	1/6W	
		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				
**********						
	*A-1135-432-A	BA BOARD, COMPLETE **********				
		CONNECTOR				
BA1	*1-566-056-11	PIN, CONNECTOR 4P				
BA2	*1-566-056-11	PIN, CONNECTOR 4P				
BA3	*1-566-054-11	PIN, CONNECTOR 2P				
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	
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	

Ref.No.	Part No.	Description			Remark
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	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C163	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C164	1-124-283-00	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	1-124-445-00	ELECT	100MF	20%	16V
C183	1-135-083-00	TANTAL. CHIP	0.47MF	10%	25V
C186	1-123-324-00	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	1-124-283-00	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

Ref.No.	Part No.	Description			Remark
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	1-124-791-11	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	1-124-445-00	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	1-124-900-11	ELECT	470MF	20%	35V

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	8-719-100-03	DIODE 1S2835	
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	

Ref.No.	Part No.	Description	Remark
D401	8-719-100-05	DIODE 1S2837	
D402	8-719-100-03	DIODE 1S2835	
D407	8-719-105-82	DIODE RD5.1M-B2	
D408	8-719-100-03	DIODE 1S2835	
D409	8-719-911-19	DIODE 1SS119	

DELAY LINE

DL102	1-415-188-00	DELAY LINE	
DL103	1-415-122-31	DELAY LINE, 1H (PAL)	
DL401	1-415-494-11	DELAY LINE, Y	
DL402	1-415-356-11	DELYA 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	8-759-140-24	IC UPD4024BC	
IC201	8-759-100-15	IC UPC1364C2	
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	

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	1-407-510-00	MICRO INDUCTOR	33MMH
L202	1-410-068-11	MICRO 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	1-410-204-41	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	

BA

Ref.No.	Part No.	Description	Remark
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	
Q430	8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

JW100	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW101	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW102	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW103	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW120	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW124	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW131	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW132	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW133	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW134	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW135	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW136	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW137	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW138	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW139	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW140	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW141	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW142	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW143	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW157	1-216-295-00	METAL CHIP	0	5%	1/10W	
R056	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R066	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R141	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R147	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R148	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R150	1-216-047-00	METAL CHIP	820	5%	1/10W	
R151	1-216-041-00	METAL CHIP	470	5%	1/10W	
R152	1-216-047-00	METAL CHIP	820	5%	1/10W	
R153	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R156	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R157	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R159	1-216-045-00	METAL CHIP	680	5%	1/10W	
R160	1-216-748-11	METAL CHIP	39K	5%	1/10W	
R165	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R167	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R168	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R173	1-216-214-00	METAL CHIP	4.7K	5%	1/8W	
R176	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R177	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R178	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R180	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R182	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R183	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R184	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R185	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R186	1-216-041-00	METAL CHIP	470	5%	1/10W	
R187	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R188	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R189	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R190	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R192	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R193	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R194	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R195	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R196	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R197	1-216-045-00	METAL CHIP	680	5%	1/10W	
R198	1-216-045-00	METAL CHIP	680	5%	1/10W	
R199	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R200	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R201	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R202	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R207	1-216-033-00	METAL CHIP	220	5%	1/10W	
R208	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R210	1-216-033-00	METAL CHIP	220	5%	1/10W	
R211	1-216-033-00	METAL CHIP	220	5%	1/10W	
R212	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R213	1-216-033-00	METAL CHIP	220	5%	1/10W	
R214	1-216-033-00	METAL CHIP	220	5%	1/10W	
R215	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R216	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R217	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R218	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R219	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R220	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R221	1-216-088-00	METAL CHIP	43K	5%	1/10W	
R222	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R223	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R230	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R231	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R232	1-216-039-00	METAL CHIP	390	5%	1/10W	
R233	1-216-033-00	METAL CHIP	220	5%	1/10W	
R234	1-216-033-00	METAL CHIP	220	5%	1/10W	
R235	1-216-041-00	METAL CHIP	470	5%	1/10W	
R236	1-216-025-00	METAL CHIP	100	5%	1/10W	
R237	1-216-033-00	METAL CHIP	220	5%	1/10W	
R238	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R240	1-216-056-00	METAL CHIP	2K	5%	1/10W	
R241	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R242	1-216-072-00	METAL CHIP	9.1K	5%	1/10W	
R245	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R246	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R247	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R249	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R250	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R251	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R252	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R253	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R254	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R255	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R256	1-216-220-00	METAL CHIP	8.2K	5%	1/8W	
R258	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R259	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R262	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R270	1-216-045-00	METAL CHIP	680	5%	1/10W	
R271	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R273	1-202-723-00	SOLID	2.2M	10%	1/2W	
R274	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R275	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R276	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R277	1-216-047-00	METAL CHIP	820	5%	1/10W	
R278	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R279	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R280	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R281	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R282	1-249-421-11	CARBON	2.2K	5%	1/8W	F
R283	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R284	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R285	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R286	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R287	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R288	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R290	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R291	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R296	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R307	1-216-037-00	METAL CHIP	330	5%	1/10W	
R308	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R311	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R313	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R315	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R316	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R317	1-216-045-00	METAL CHIP	680	5%	1/10W	
R318	1-216-031-00	METAL CHIP	180	5%	1/10W	
R326	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R332	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R348	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R401	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R402	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R403	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R404	1-216-046-00	METAL CHIP	750	5%	1/10W	
R405	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R406	1-216-025-00	METAL CHIP	100	5%	1/10W	
R407	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R408	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R409	1-216-045-00	METAL CHIP	680	5%	1/10W	
R410	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R411	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R412	1-216-037-00	METAL CHIP	330	5%	1/10W	
R413	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R414	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R415	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R416	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R417	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R418	1-216-025-00	METAL CHIP	100	5%	1/10W	
R419	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R420	1-216-045-00	METAL CHIP	680	5%	1/10W	
R421	1-216-025-00	METAL CHIP	100	5%	1/10W	
R423	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R424	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R425	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R426	1-216-025-00	METAL CHIP	100	5%	1/10W	
R427	1-216-045-00	METAL CHIP	680	5%	1/10W	
R428	1-216-025-00	METAL CHIP	100	5%	1/10W	
R429	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R430	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R431	1-216-025-00	METAL CHIP	100	5%	1/10W	
R432	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R433	1-216-025-00	METAL CHIP	100	5%	1/10W	

BA PA

Ref.No.	Part No.	Description				Remark
R434	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R435	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R436	1-216-025-00	METAL CHIP	100	5%	1/10W	
R437	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R438	1-216-196-00	METAL CHIP	820	5%	1/8W	
R439	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R440	1-216-234-00	METAL CHIP	33K	5%	1/8W	
R441	1-216-232-00	METAL CHIP	27K	5%	1/8W	
R442	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R443	1-216-041-00	METAL CHIP	470	5%	1/10W	
R444	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R445	1-216-045-00	METAL CHIP	680	5%	1/10W	
R446	1-216-041-00	METAL CHIP	470	5%	1/10W	
R447	1-216-045-00	METAL CHIP	680	5%	1/10W	
R448	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R449	1-216-045-00	METAL CHIP	680	5%	1/10W	
R450	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R451	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R452	1-216-045-00	METAL CHIP	680	5%	1/10W	
R453	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R454	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R455	1-216-045-00	METAL CHIP	680	5%	1/10W	
R456	1-216-045-00	METAL CHIP	680	5%	1/10W	
R457	1-216-041-00	METAL CHIP	470	5%	1/10W	
R458	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R459	1-216-037-00	METAL CHIP	330	5%	1/10W	
R460	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R461	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R462	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R463	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R464	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R465	1-216-025-00	METAL CHIP	100	5%	1/10W	
R466	1-247-725-11	CARBON	10K	5%	1/4W	
R467	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R468	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R469	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R470	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R471	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R472	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R473	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R479	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R480	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R481	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R482	1-216-025-00	METAL CHIP	100	5%	1/10W	
R483	1-216-025-00	METAL CHIP	100	5%	1/10W	
R484	1-216-025-00	METAL CHIP	100	5%	1/10W	
R485	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R486	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R487	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R488	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R489	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R490	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R491	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R492	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R493	1-216-047-00	METAL CHIP	820	5%	1/10W	
R494	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R495	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R498	1-216-222-00	METAL CHIP	10K	5%	1/8W	
R499	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R500	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R501	1-216-025-00	METAL CHIP	100	5%	1/10W	
R502	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R503	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R504	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R505	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R506	1-216-025-00	METAL CHIP	100	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	1-230-630-11	RES, ADJ, CARBON	10K
RV108	1-228-993-00	RES, ADJ, CARBON	4.7K
RV109	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

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 TH0.35K
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-1190-110-A	PA BOARD, COMPLETE	
	**********	
*A-1190-113-A	PA BOARD, COMPLETE	
	(Serial No. 5000501 and Later)	
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*4-363-146-00	HEAT SINK, V.OUT	
4-383-022-01	SPACER, MICA	
4-383-023-01	SPACER, MICA	

PA

Ref.No.	Part No.	Description			Remark
		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	1-106-383-00	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	1-106-387-00	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	1-106-387-00	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	1-106-220-00	MYLAR	0.1MF	10%	100V
C23	1-123-356-00	ELECT	10MF	20%	25V
C24	1-123-356-00	ELECT	10MF	20%	25V
C25	1-123-318-00	ELECT	33MF	20%	16V
C26	1-123-356-00	ELECT	10MF	20%	16V
C27	1-123-356-00	ELECT	10MF	20%	16V
C28	1-123-356-00	ELECT	10MF	20%	16V
C29	1-123-318-00	ELECT	33MF	20%	16V
C30	1-136-169-00	FILM	0.22MF	5%	50V
C31	1-123-356-00	ELECT	10MF	20%	16V
C32	1-123-318-00	ELECT	33MF	20%	16V
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	1-108-427-00	MYLAR	0.033MF	10%	200V
C41	1-108-427-00	MYLAR	0.033MF	10%	200V
C42	1-123-321-00	ELECT	220MF	20%	16V
C43	1-123-321-00	ELECT	220MF	20%	16V
C44	1-123-325-00	ELECT	2200MF	20%	16V
C45	1-123-325-00	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	1-106-387-00	MYLAR	0.1MF	10%	200V
C53	1-162-134-11	CERAMIC	470PF	10%	2KV
C54	1-123-929-00	ELECT	1MF	20%	160V
C55	1-123-322-00	ELECT	330MF	20%	16V
C56	1-136-165-00	FILM	0.1MF	5%	50V
C57	1-136-165-00	FILM (Serial No. 5000501 and Later)	0.1MF	5%	50V
		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 (Serial No. 5000501 and Later)			
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			
		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			
		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			

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

PA

Ref.No.	Part No.	Description				Remark
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%	1/6W	
R4	1-215-920-11	METAL OXIDE	3.3K	5%	3W	F
R5	1-215-920-11	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%	1/6W	
R9	1-249-417-11	CARBON	1K	5%	1/6W	
R10	1-249-423-11	CARBON	3.3K	5%	1/6W	
R11	1-249-420-11	CARBON	1.8K	5%	1/6W	F
R12	1-249-421-11	CARBON	2.2K	5%	1/6W	
R13	1-249-420-11	CARBON	1.8K	5%	1/6W	F
R15	1-249-441-11	CARBON	100K	5%	1/6W	
R16	1-249-441-11	CARBON	100K	5%	1/6W	
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	
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%	1/6W	
R29	1-249-433-11	CARBON	22K	5%	1/6W	
R30	1-249-429-11	CARBON	10K	5%	1/6W	
R31	1-215-469-00	METAL	100K	1%	1/6W	
R32	1-249-423-11	CARBON	3.3K	5%	1/6W	
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%	1/6W	
R36	1-249-417-11	CARBON	1K	5%	1/6W	
R37	1-215-473-00	CARBON	150K	5%	1/6W	
⚠ R38	⚠.	CARBON			1/6W	
⚠ R39	⚠.	CARBON			1/6W	
R40	1-249-433-11	CARBON	22K	5%	1/6W	
R41	1-249-435-11	CARBON	33K	5%	1/6W	
R42	1-249-438-11	CARBON	56K	5%	1/6W	
R43	1-249-434-11	CARBON	27K	5%	1/6W	
R44	1-249-429-11	CARBON	10K	5%	1/6W	
R45	1-249-423-11	CARBON	3.3K	5%	1/6W	
R46	1-215-453-00	METAL	22K	1%	1/6W	
R47	1-215-455-00	METAL	27K	1%	1/6W	
⚠ R48	⚠.	CARBON			1/6W	
⚠ R49	⚠.	CARBON			1/6W	
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%	1/6W	
R53	1-249-433-11	CARBON	22K	5%	1/6W	
R54	1-249-433-11	CARBON	22K	5%	1/6W	
R55	1-249-430-11	CARBON	12K	5%	1/6W	
R56	1-249-419-11	CARBON	1.5K	5%	1/6W	
R57	1-249-473-11	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%	1/6W	
R63	1-215-493-00	CARBON	1M	5%	1/6W	
R64	1-249-439-11	CARBON	68K	5%	1/6W	
R65	1-249-429-11	CARBON	10K	5%	1/6W	
R66	1-249-405-11	CARBON	100	5%	1/6W	
R67	1-215-453-00	METAL	22K	1%	1/6W	
R68	1-249-440-11	CARBON	82K	5%	1/6W	
R69	1-249-429-11	CARBON	10K	5%	1/6W	
R70	1-249-435-11	CARBON	33K	5%	1/6W	
R71	1-249-435-11	CARBON	33K	5%	1/6W	
R72	1-215-920-11	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%	1/6W	
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%	1/6W	
R78	1-249-433-11	CARBON	22K	5%	1/6W	F
R79	1-215-483-00	METAL	390K	1%	1/6W	
R80	1-249-423-11	CARBON	3.3K	5%	1/6W	

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PA PB PC FA

Ref.No.	Part No.	Description				Remark
R81	1-202-597-91	SOLID	10K	5%	1/2W	
R82	1-249-423-11	CARBON	3.3K	5%	1/6W	
R83	1-249-425-11	CARBON	4.7K	5%	1/6W	
R84	1-249-417-11	CARBON	1K	5%	1/6W	
R85	1-215-469-00	METAL	100K	1%	1/6W	
		(Serial No. 5000501 and Later)				
R86	1-215-469-00	METAL	100K	1%	1/6W	
		(Serial No. 5000501 and Later)				
R87	1-215-453-00	METAL	22K	1%	1/6W	
		(Serial No. 5000501 and Later)				
■R88	⚠	CARBON			1/6W	
		(Serial No. 5000501 and Later)				
■R89	⚠	CARBON			1/6W	
		(Serial No. 5000501 and Later)				
R90	1-249-417-11	CARBON	1K	5%	1/6W	
		(Serial No. 5000501 and Later)				
		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)				
**********						
	*1-621-054-11	PB BOARD ********				
		CAPACITOR				
C1	1-124-257-00	ELECT	2.2MF	20%	50V	
C2	1-124-245-00	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	1-123-617-00	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%	1/6W	
R3	1-249-434-11	CARBON	27K	5%	1/6W	
R4	1-249-431-11	CARBON	15K	5%	1/6W	
R5	1-249-441-11	CARBON	100K	5%	1/6W	
R6	1-249-435-11	CARBON	33K	5%	1/6W	
R7	1-249-429-11	CARBON	10K	5%	1/6W	
R8	1-249-413-11	CARBON	470	5%	1/6W	
R9	1-249-428-11	CARBON	8.2K	5%	1/6W	
R10	1-249-437-11	CARBON	47K	5%	1/6W	
R11	1-249-440-11	CARBON	82K	5%	1/6W	
R12	1-249-436-11	CARBON	39K	5%	1/6W	
R14	1-249-428-11	CARBON	8.2K	5%	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				

Ref.No.	Part No.	Description				Remark
	*1-621-050-11	PC BOARD ********				
		CAPACITOR				
C1	⚠1-130-660-11	FILM	20000MF	3%	1.6KV	
C2	⚠1-136-134-11	FILM	1.5MF	5%	400V	
		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 2SD~~1548~~ 2SD 1847 REF: 8 729 805 07				
**********						
	*1-621-056-11	FA BOARD ********				
		CAPACITOR				
C1	1-136-360-00	FILM	0.22MF	20%	250V	
C2	1-136-360-00	FILM	0.22MF	20%	250V	
C3	1-136-360-00	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	1-161-742-00	CERAMIC	0.0022MF	20%	400V	
C7	1-161-742-00	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 S1VB40				
D3	8-719-931-33	DIODE EQB01-33				

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FA FC QA

Ref.No.	Part No.	Description				Remark
		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	CEMENTED	1.5	5%	20W	
R3	1-244-929-00	CARBON	220K	5%	1/2W	
R4	1-244-929-00	CARBON	220K	5%	1/2W	
R5	1-249-405-11	CARBON	100	5%	1/6W	
		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				
**********						
	*1-621-058-11	FC BOARD ********				
	*1-533-146-00	HOLDER, FUSE				
		FUSE				
F1	⚠1-532-299-11	FUSE, TIME-LAG 5A/250V				
		CONNECTOR				
FC1	*1-508-786-00	2P PLUG (M)				
**********						
	*A-1270-201-A	QA BOARD, COMPLETE **********				
	1-537-062-11	TERMINAL BOARD, INPUT/OUTPUT				
		CAPACITOR				
C1	1-124-963-11	ELECT	33MF	20%	16V	
C3	1-124-645-11	ELECT	10MF	20%	16V	
C4	1-101-006-00	CERAMIC	0.047MF		50V	
C5	1-124-963-11	ELECT	33MF	20%	16V	
C7	1-124-645-11	ELECT	10MF	20%	16V	
C8	1-101-006-00	CERAMIC	0.047MF		50V	
C9	1-124-963-11	ELECT	33MF	20%	16V	
C11	1-124-645-11	ELECT	10MF	20%	16V	

Ref.No.	Part No.	Description			Remark
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	1-124-445-00	ELECT	100MF	20%	16V
C16	1-124-963-11	ELECT	33MF	20%	16V
C17	1-102-973-00	CERAMIC	100PF	5%	50V
C18	1-124-445-00	ELECT	100MF	20%	16V
C19	1-123-356-00	ELECT	10MF	20%	16V
C20	1-108-843-91	MYLAR	0.033MF	10%	50V
C21	1-124-445-00	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
C26	1-101-006-00	CERAMIC	0.047MF		50V
C27	1-124-445-00	ELECT	100MF	20%	16V
C28	1-123-321-00	ELECT	220MF	20%	16V
C29	1-124-963-11	ELECT	33MF	20%	16V
C30	1-124-475-11	ELECT	470MF	20%	16V
C31	1-124-475-11	ELECT	470MF	20%	16V
C32	1-124-445-00	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	1-108-837-00	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	1-102-527-00	CERAMIC	82PF	5%	50V
C49	1-123-380-00	ELECT	1MF	20%	50V
C50	1-124-555-00	ELECT	1000MF	20%	16V
C51	1-123-380-00	ELECT	1MF	20%	50V
C52	1-123-332-00	ELECT	47MF	20%	16V
C53	1-108-843-91	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
		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			

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Ref.No.	Part No.	Description	Remark
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	8-719-900-95	DIODE V09G	
D15	8-719-900-95	DIODE V09G	
D16	8-719-900-95	DIODE V09G	
D17	8-719-911-19	DIODE 1SS119	
D18	8-719-900-95	DIODE V09G	
D19	8-719-109-85	DIODE RD5.1ES-B2	
D20	8-719-911-19	DIODE 1SS119	
D21	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	8-759-170-12	IC UPC78M12H	
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	
Q10	8-729-603-50	TRANSISTOR 2SC403SP	
Q11	8-729-603-50	TRANSISTOR 2SC403SP	
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	
		CONNECTOR	
QA1	*1-566-056-11	PIN, CONNECTOR 4P	
QA2	*1-566-054-11	PIN, CONNECTOR 2P	
QA3	*1-566-062-11	PIN, CONNECTOR 10P	
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	*1-566-054-11	PIN, CONNECTOR 2P	
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% 1/6W
R3	1-249-438-11	CARBON	56K 5% 1/6W
R4	1-249-417-11	CARBON	1K 5% 1/6W
R5	1-249-421-11	CARBON	2.2K 5% 1/6W
R6	1-249-405-11	CARBON	100 5% 1/6W
R7	1-249-393-11	CARBON	10 5% 1/6W
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% 1/6W
R11	1-249-438-11	CARBON	56K 5% 1/6W
R12	1-249-417-11	CARBON	1K 5% 1/6W
R13	1-249-421-11	CARBON	2.2K 5% 1/6W
R14	1-249-405-11	CARBON	100 5% 1/6W
R15	1-249-393-11	CARBON	10 5% 1/6W
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% 1/6W
R19	1-249-438-11	CARBON	56K 5% 1/6W
R20	1-249-417-11	CARBON	1K 5% 1/6W
R21	1-249-421-11	CARBON	2.2K 5% 1/6W
R22	1-249-405-11	CARBON	100 5% 1/6W
R23	1-249-393-11	CARBON	10 5% 1/6W
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% 1/6W
R27	1-249-439-11	CARBON	68K 5% 1/6W
R28	1-249-420-11	CARBON	1.8K 5% 1/6W
R29	1-249-437-11	CARBON	47K 5% 1/6W
R30	1-214-702-00	METAL	75 1% 1/4W
R31	1-249-417-11	CARBON	1K 5% 1/6W
R32	1-249-439-11	CARBON	68K 5% 1/6W
R33	1-249-420-11	CARBON	1.8K 5% 1/6W
R34	1-249-437-11	CARBON	47K 5% 1/6W
R35	1-249-410-11	CARBON	270 5% 1/6W
R36	1-249-429-11	CARBON	10K 5% 1/6W
R37	1-249-405-11	CARBON	100 5% 1/6W
R38	1-249-465-11	CARBON	47K 5% 1/4W

QA QB

Ref.No.	Part No.	Description				Remark
R39	1-249-437-11	CARBON	47K	5%	1/6W	
R40	1-249-438-11	CARBON	56K	5%	1/6W	
R41	1-249-417-11	CARBON	1K	5%	1/6W	
R42	1-249-417-11	CARBON	1K	5%	1/6W	
R43	1-249-417-11	CARBON	1K	5%	1/6W	
R44	1-247-713-11	CARBON	1K	5%	1/4W	
R45	1-249-417-11	CARBON	1K	5%	1/6W	
R46	1-249-423-11	CARBON	3.3K	5%	1/6W	
R47	1-249-419-11	CARBON	1.5K	5%	1/6W	
R48	1-249-423-11	CARBON	3.3K	5%	1/6W	
R49	1-249-424-11	CARBON	3.9K	5%	1/6W	
R50	1-249-439-11	CARBON	68K	5%	1/6W	
R51	1-249-423-11	CARBON	3.3K	5%	1/6W	
R52	1-249-403-11	CARBON	68	5%	1/6W	
R53	1-247-801-00	CARBON	56	5%	1/6W	
R54	1-249-417-11	CARBON	1K	5%	1/6W	
R55	1-249-417-11	CARBON	1K	5%	1/6W	
R56	1-249-417-11	CARBON	1K	5%	1/6W	
R57	1-247-793-00	CARBON	27	5%	1/6W	
R58	1-247-793-00	CARBON	27	5%	1/6W	
R59	1-247-793-00	CARBON	27	5%	1/6W	
R60	1-246-529-00	CARBON	220K	5%	1/4W	
R61	1-249-437-11	CARBON	47K	5%	1/6W	
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	
R68	1-215-412-00	METAL	430	1%	1/6W	
R69	1-249-417-11	CARBON	1K	5%	1/6W	
R70	1-215-423-00	METAL	1.2K	1%	1/6W	
R71	1-249-439-11	CARBON	68K	5%	1/6W	
R72	1-249-436-11	CARBON	39K	5%	1/6W	
R73	1-249-405-11	CARBON	100	5%	1/6W	
R74	1-214-702-00	METAL	75	1%	1/4W	
R75	1-214-702-00	METAL	75	1%	1/4W	
R76	1-247-708-11	CARBON	470	5%	1/4W	
R77	1-249-429-11	CARBON	10K	5%	1/6W	
R78	1-214-702-00	METAL	75	1%	1/4W	
R79	1-249-405-11	CARBON	100	5%	1/6W	
R80	1-249-407-11	CARBON	150	5%	1/6W	
R81	1-249-407-11	CARBON	150	5%	1/6W	
R82	1-249-429-11	CARBON	10K	5%	1/6W	
R83	1-249-436-11	CARBON	39K	5%	1/6W	
R84	1-249-407-11	CARBON	150	5%	1/6W	
R85	1-249-429-11	CARBON	10K	5%	1/6W	
R86	1-249-429-11	CARBON	10K	5%	1/6W	
R87	1-249-429-11	CARBON	10K	5%	1/6W	
R88	1-249-429-11	CARBON	10K	5%	1/6W	
R89	1-249-433-11	CARBON	22K	5%	1/6W	
R90	1-249-433-11	CARBON	22K	5%	1/6W	
R91	1-249-433-11	CARBON	22K	5%	1/6W	
R92	1-249-433-11	CARBON	22K	5%	1/6W	
R93	**⚠1-247-851-91**	**CARBON**	**6.8K**	**5%**	**1/6W**	
R94	**⚠1-247-855-91**	**CARBON**	**10K**	**5%**	**1/6W**	
R95	1-249-417-11	CARBON	1K	5%	1/6W	
R96	1-249-429-11	CARBON	10K	5%	1/6W	
R97	1-249-427-11	CARBON	6.8K	5%	1/6W	
R98	1-249-417-11	CARBON	1K	5%	1/6W	
R99	1-215-493-00	CARBON	1M	5%	1/6W	
R100	1-249-439-11	CARBON	68K	5%	1/6W	
R101	1-249-439-11	CARBON	68K	5%	1/6W	
R102	1-249-428-11	CARBON	8.2K	5%	1/6W	
R103	1-249-429-11	CARBON	10K	5%	1/6W	
R104	1-249-429-11	CARBON	10K	5%	1/6W	
R105	1-249-427-11	CARBON	6.8K	5%	1/6W	
R106	1-249-441-11	CARBON	100K	5%	1/6W	
R107	1-247-883-00	CARBON	150K	5%	1/6W	
R108	1-249-420-11	CARBON	1.8K	5%	1/6W	
R109	1-249-437-11	CARBON	47K	5%	1/6W	
R110	1-249-437-11	CARBON	47K	5%	1/6W	
R111	1-249-427-11	CARBON	6.8K	5%	1/6W	
R112	1-249-415-11	CARBON	680	5%	1/6W	
R113	1-247-721-11	CARBON	4.7K	5%	1/4W	
R114	1-249-416-11	CARBON	820	5%	1/6W	
R115	1-249-436-11	CARBON	39K	5%	1/6W	
R116	1-249-438-11	CARBON	56K	5%	1/6W	
R117	1-249-433-11	CARBON	22K	5%	1/6W	

CRYSTAL

X1	1-567-505-11	OSCILLATOR, CRYSTAL	

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	*A-1270-202-A	QB BOARD, COMPLETE			
		**********			
	1-536-991-11	TERMINAL BOARD, INPUT/OUTPUT			

CAPACITOR

C201	1-102-114-00	CERAMIC	470PF	10%	50V
C202	1-124-445-00	ELECT	100MF	20%	16V
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
C206	1-102-114-00	CERAMIC	470PF	10%	50V
C207	1-102-114-00	CERAMIC	470PF	10%	50V
C208	1-123-380-00	ELECT	1MF	20%	50V
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	1-124-002-11	ELECT	1MF	20%	50V
C213	1-123-356-00	ELECT	10MF	20%	16V
C214	1-102-114-00	CERAMIC	470PF	10%	50V
C215	1-124-445-00	ELECT	100MF	20%	16V

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

QB CR

Ref.No.	Part No.	Description				Remark
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	1-124-475-11	ELECT	470MF	20%	16V	
C222	1-124-475-11	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	1-124-475-11	ELECT	470MF	20%	16V	
		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				
		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				
		CONNECTOR				
QB1	*1-566-056-11	PIN, CONNECTOR 4P				
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				
		RESISTOR				
R201	1-249-438-11	CARBON	56K	5%	1/6W	
R202	1-249-423-11	CARBON	3.3K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R203	1-249-433-11	CARBON	22K	5%	1/6W	
R204	1-249-438-11	CARBON	56K	5%	1/6W	
R205	1-249-430-11	CARBON	12K	5%	1/6W	
R206	1-249-437-11	CARBON	47K	5%	1/6W	
R207	1-249-433-11	CARBON	22K	5%	1/6W	
R208	1-249-433-11	CARBON	22K	5%	1/6W	
R209	1-249-438-11	CARBON	56K	5%	1/6W	
R210	1-249-429-11	CARBON	10K	5%	1/6W	
R211	1-249-435-11	CARBON	33K	5%	1/6W	
R212	1-249-438-11	CARBON	56K	5%	1/6W	
R213	1-249-429-11	CARBON	10K	5%	1/6W	
R214	1-249-435-11	CARBON	33K	5%	1/6W	
R215	1-249-437-11	CARBON	47K	5%	1/6W	
R216	1-249-437-11	CARBON	47K	5%	1/6W	
R217	1-249-437-11	CARBON	47K	5%	1/6W	
R218	1-247-887-00	CARBON	220K	5%	1/6W	
R219	1-249-429-11	CARBON	10K	5%	1/6W	
R220	1-249-419-11	CARBON	1.5K	5%	1/6W	
R221	1-247-813-00	CARBON	180	5%	1/6W	
R222	1-249-421-11	CARBON	2.2K	5%	1/6W	
R223	1-249-421-11	CARBON	2.2K	5%	1/6W	
R224	1-249-419-11	CARBON	1.5K	5%	1/6W	
R225	1-249-381-11	CARBON	1	5%	1/6W	F
R226	1-249-435-11	CARBON	33K	5%	1/6W	
R227	1-249-429-11	CARBON	10K	5%	1/6W	
R228	1-249-435-11	CARBON	33K	5%	1/6W	
R229	1-249-429-11	CARBON	10K	5%	1/6W	
R230	1-249-417-11	CARBON	1K	5%	1/6W	

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*1-621-068-11 CR BOARD
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1-526-812-11 SOCKET, CRT
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

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

CR CG

Ref.No.	Part No.	Description				Remark
		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				
		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	MICRO INDUCTOR 22UH				
L704	1-410-474-41	MICRO INDUCTOR 22UH				
		TRANSISTOR				
Q701	8-729-801-97	TRANSISTOR 2SC3503				
Q702	8-729-801-97	TRANSISTOR 2SC3503				
Q703	8-729-801-88	TRANSISTOR 2SA1381				
Q704	8-729-801-88	TRANSISTOR 2SA1381				
		RESISTOR				
R701	1-249-405-11	CARBON	100	5%	1/6W	F
R703	1-249-405-11	CARBON	100	5%	1/6W	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		1/2W	
R710	1-202-847-00	SOLID	560K		1/2W	
R711	1-202-847-00	SOLID	560K		1/2W	
R712	1-202-814-11	SOLID	33K		1/2W	
R713	1-249-421-11	CARBON	2.2K	5%	1/6W	F
		SPARK GAP				
SG701	1-519-063-XX	DISCHARGING GAP				
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	*1-621-069-11	CG BOARD				
		********				
	1-526-812-11	SOCKET, CRT				
	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	MICRO INDUCTOR 22UH				
L724	1-410-474-41	MICRO INDUCTOR 22UH				
		TRANSISTOR				
Q721	8-729-801-97	TRANSISTOR 2SC3503				
Q722	8-729-801-97	TRANSISTOR 2SC3503				
Q723	8-729-801-88	TRANSISTOR 2SA1381				
Q724	8-729-801-88	TRANSISTOR 2SA1381				
		RESISTOR				
R721	1-249-405-11	CARBON	100	5%	1/6W	F
R723	1-249-405-11	CARBON	100	5%	1/6W	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		1/2W	
R730	1-202-847-00	SOLID	560K		1/2W	
R731	1-202-847-00	SOLID	560K		1/2W	
R732	1-202-814-11	SOLID	33K		1/2W	
R733	1-249-421-11	CARBON	2.2K	5%	1/6W	F
		SPARK GAP				
SG721	1-519-063-XX	DISCHARGING GAP				

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

Ref.No.	Part No.	Description			Remark
	*1-621-070-11	CB BOARD			
		********			
	1-526-812-11	SOCKET, CRT			
	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			
		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	MICRO INDUCTOR 22UH			
L744	1-410-474-41	MICRO INDUCTOR 22UH			
		TRANSISTOR			
Q741	8-729-801-97	TRANSISTOR 2SC3503			
Q742	8-729-801-97	TRANSISTOR 2SC3503			
Q743	8-729-801-88	TRANSISTOR 2SA1381			
Q744	8-729-801-88	TRANSISTOR 2SA1381			
		RESISTOR			
R741	1-249-405-11	CARBON	100	5% 1/6W	F
R743	1-249-405-11	CARBON	100	5% 1/6W	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	1/2W	
R750	1-202-847-00	SOLID	560K	1/2W	
R751	1-202-847-00	SOLID	560K	1/2W	
R752	1-202-814-11	SOLID	33K	1/2W	
R753	1-249-421-11	CARBON	2.2K	5% 1/6W	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	5%	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	1-130-487-00	MYLAR	0.022MF	5%	50V
C14	1-123-356-00	ELECT	10MF	20%	16V
C15	1-123-323-00	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	1-123-323-00	ELECT	470MF	20%	16V
C24	1-106-361-00	MYLAR	0.0056MF	10%	100V
C25	1-123-380-00	ELECT	1MF	20%	50V
C26	1-108-812-91	MYLAR	0.047MF	5%	50V
C27	1-130-483-00	MYLAR	0.01MF	5%	50V
C28	1-130-487-00	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	1-108-812-91	MYLAR	0.047MF	5%	50V
C32	1-123-321-00	ELECT	220MF	20%	16V
C33	1-106-172-00	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	1-123-318-00	ELECT	33MF	20%	16V

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

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Ref.No.	Part No.	Description			Remark
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	1-123-617-00	ELECT	10MF	20%	16V
C54	1-101-004-00	CERAMIC	0.01MF		50V
C55	1-124-236-00	ELECT	47MF	20%	16V
C56	1-124-236-00	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	1-123-617-00	ELECT	10MF	20%	16V
C61	1-123-617-00	ELECT	10MF	20%	16V
C62	1-123-617-00	ELECT	10MF	20%	16V
C63	1-124-236-00	ELECT	47MF	20%	16V
C64	1-124-236-00	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	1-106-383-00	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
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	1-124-645-11	ELECT	10MF	20%	16V
C401	1-123-619-00	ELECT	4.7MF	20%	50V
C402	1-123-619-00	ELECT	4.7MF	20%	50V
C403	1-123-619-00	ELECT	4.7MF	20%	50V
C404	1-123-619-00	ELECT	4.7MF	20%	50V

Ref.No.	Part No.	Description	Remark
		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	
D407	8-719-110-36	DIODE RD13ES-B2	
D408	8-719-110-36	DIODE RD13ES-B2	

Ref.No.	Part No.	Description	Remark
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	8-759-340-52	IC HD14052BP	
IC11	8-759-600-02	IC M5218L	
IC12	8-759-600-02	IC M5218L	
IC13	8-759-600-02	IC M5218L	
IC14	8-759-110-37	IC UPC1037H	
IC15	8-759-110-37	IC UPC1037H	
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% 1/6W
R4	1-249-417-11	CARBON	1K 5% 1/6W
R5	1-249-423-11	CARBON	3.3K 5% 1/6W
R6	1-249-434-11	CARBON	27K 5% 1/6W
R7	1-249-425-11	CARBON	4.7K 5% 1/6W
R8	1-249-421-11	CARBON	2.2K 5% 1/6W
R9	1-215-447-00	METAL	12K 1% 1/6W
R10	1-249-417-11	CARBON	1K 5% 1/6W
R11	1-215-445-00	METAL	10K 1% 1/6W
R12	1-215-437-00	METAL	4.7K 1% 1/6W
R13	1-249-417-11	CARBON	1K 5% 1/6W
R14	1-249-441-11	CARBON	100K 5% 1/6W
R15	1-215-447-00	METAL	12K 1% 1/6W
R16	1-215-493-00	CARBON	1M 5% 1/6W
R17	1-215-493-00	CARBON	1M 5% 1/6W
R18	1-249-441-11	CARBON	100K 5% 1/6W
R19	1-249-405-11	CARBON	100 5% 1/6W
R20	1-249-417-11	CARBON	1K 5% 1/6W
R21	1-247-895-00	CARBON	470K 5% 1/6W
R22	1-249-417-11	CARBON	1K 5% 1/6W
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% 1/6W
R26	1-249-433-11	CARBON	22K 5% 1/6W
R27	1-249-431-11	CARBON	15K 5% 1/6W
R28	1-249-428-11	CARBON	8.2K 5% 1/6W
R29	1-249-409-11	CARBON	220 5% 1/6W
R30	1-249-411-11	CARBON	330 5% 1/6W
R31	1-249-417-11	CARBON	1K 5% 1/6W
R32	1-249-417-11	CARBON	1K 5% 1/6W
R33	1-215-458-00	METAL	36K 1% 1/6W
R34	1-249-435-11	CARBON	33K 5% 1/6W
R35	1-249-435-11	CARBON	33K 5% 1/6W
R36	1-249-435-11	CARBON	33K 5% 1/6W
R37	1-249-421-11	CARBON	2.2K 5% 1/6W
R38	1-249-424-11	CARBON	3.9K 5% 1/6W
R39	1-249-418-11	CARBON	1.2K 5% 1/6W
R40	1-249-438-11	CARBON	56K 5% 1/6W
R41	1-249-430-11	CARBON	12K 5% 1/6W
R42	1-215-448-00	METAL	13K 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% 1/6W
R48	1-249-433-11	CARBON	22K 5% 1/6W
R49	1-249-417-11	CARBON	1K 5% 1/6W
R50	1-249-428-11	CARBON	8.2K 5% 1/6W

D

Ref.No.	Part No.	Description				Remark
R51	1-249-405-11	CARBON	100	5%	1/6W	
R52	1-247-813-00	CARBON	180	5%	1/6W	
R53	1-249-427-11	CARBON	6.8K	5%	1/6W	
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%	1/6W	
R57	1-215-413-00	METAL	470	1%	1/6W	
R58	1-249-429-11	CARBON	10K	5%	1/6W	
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%	1/6W	
R65	1-249-429-11	CARBON	10K	5%	1/6W	
R66	1-249-417-11	CARBON	1K	5%	1/6W	
R67	1-249-429-11	CARBON	10K	5%	1/6W	
R68	1-249-429-11	CARBON	10K	5%	1/6W	
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%	1/6W	
R72	1-249-429-11	CARBON	10K	5%	1/6W	
R73	1-249-429-11	CARBON	10K	5%	1/6W	
R74	1-249-411-11	CARBON	330	5%	1/6W	
R75	1-249-411-11	CARBON	330	5%	1/6W	
R76	1-249-429-11	CARBON	10K	5%	1/6W	
R77	1-215-453-00	METAL	22K	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%	1/6W	
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%	1/6W	
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%	1/6W	
R101	1-249-429-11	CARBON	10K	5%	1/6W	
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%	1/6W	
R107	1-247-104-00	CARBON	75	5%	1/4W	
R108	1-249-429-11	CARBON	10K	5%	1/6W	
R109	1-215-417-00	METAL	680	1%	1/6W	
R110	1-249-405-11	CARBON	100	5%	1/6W	
R111	1-215-415-00	METAL	560	1%	1/6W	
R112	1-249-429-11	CARBON	10K	5%	1/6W	
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	1-215-467-00	METAL	82K	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	1-215-469-00	METAL	100K	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%	1/6W	
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	
R136	1-215-453-00	METAL	22K	1%	1/6W	
R137	1-215-473-00	METAL	150K	1%	1/6W	
R138	1-215-465-00	METAL	68K	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	1-215-473-00	METAL	150K	1%	1/6W	
R156	1-215-465-00	METAL	68K	1%	1/6W	
R157	1-215-477-00	METAL	220K	1%	1/6W	

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Ref.No.	Part No.	Description				Remark
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	1-215-453-00	METAL	22K	1%	1/6W	
R179	1-215-461-00	METAL	47K	1%	1/6W	
R180	1-249-429-11	CARBON	10K	5%	1/6W	
R181	1-249-405-11	CARBON	100	5%	1/6W	
R182	1-249-405-11	CARBON	100	5%	1/6W	
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%	1/6W	
R186	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R187	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R188	1-215-397-00	METAL	100	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%	1/6W	
R196	1-215-441-00	METAL	6.8K	1%	1/6W	
R197	1-249-429-11	CARBON	10K	5%	1/6W	
R198	1-249-405-11	CARBON	100	5%	1/6W	
R199	1-249-405-11	CARBON	100	5%	1/6W	
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%	1/6W	
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%	1/6W	
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%	1/6W	
R233	1-247-901-00	CARBON	820K	5%	1/6W	
R234	1-247-901-00	CARBON	820K	5%	1/6W	
R235	1-247-897-00	CARBON	560K	5%	1/6W	
R236	1-247-897-00	CARBON	560K	5%	1/6W	
R237	1-249-441-11	CARBON	100K	5%	1/6W	
R238	1-249-433-11	CARBON	22K	5%	1/6W	
R239	1-249-433-11	CARBON	22K	5%	1/6W	
R240	1-249-440-11	CARBON	82K	5%	1/6W	
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%	1/6W	
R250	1-249-417-11	CARBON	1K	5%	1/6W	
R251	1-249-405-11	CARBON	100	5%	1/6W	
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%	1/6W	
R255	1-249-429-11	CARBON	10K	5%	1/6W	
R256	1-249-423-11	CARBON	3.3K	5%	1/6W	
R257	1-249-423-11	CARBON	3.3K	5%	1/6W	
R258	1-249-433-11	CARBON	22K	5%	1/6W	
R259	1-249-429-11	CARBON	10K	5%	1/6W	
R260	1-249-433-11	CARBON	22K	5%	1/6W	
R261	1-249-433-11	CARBON	22K	5%	1/6W	
R262	1-249-441-11	CARBON	100K	5%	1/6W	
R263	1-215-910-00	METAL OXIDE	68	5%	3W	F
R264	1-215-910-00	METAL OXIDE	68	5%	3W	F

D DB DY E

Ref.No.	Part No.	Description			Remark
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
		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%	1/6W
R4	1-249-411-11	CARBON	330	5%	1/6W
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

Ref.No.	Part No.	Description			Remark
		CONNECTOR			
DY1	*1-566-041-11	PIN, CONNECTOR 2P			
DY2	*1-566-041-11	PIN, CONNECTOR 2P			
		RESISTOR			
R901	1-202-822-00	SOLID	2.2K	1/2W	
R902	1-202-822-00	SOLID	2.2K	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	1-106-383-00	MYLAR	0.047MF	10%	200V
C6	1-102-030-00	CERAMIC	330PF	10%	500V
C7	1-106-383-00	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	1-124-236-00	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	1-106-387-00	MYLAR	0.1MF	10%	200V
C35	1-102-125-00	CERAMIC	0.0047MF	10%	50V

E EB

Ref.No.	Part No.	Description				Remark
		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				
		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				
L3	1-459-109-00	COIL, DUST CORE				
L4	1-459-109-00	COIL, DUST CORE				
L5	1-459-241-00	COIL, HORIZONTAL LINIALITY				
L6	1-459-348-00	COIL, VAR, FERRITE (HWC)				
L7	1-459-348-00	COIL, VAR, FERRITE (HWC)				
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%	1/6W	
R2	1-216-395-00	WIREWOUND	3.3	10%	2W	F
R3	1-249-417-11	CARBON	1K	5%	1/6W	F
R4	1-249-469-11	CARBON	100K	5%	1/4W	
R5	1-249-423-11	CARBON	3.3K	5%	1/6W	
R6	1-249-429-11	CARBON	10K	5%	1/6W	F
R7	1-215-921-11	METAL OXIDE	4.7K	5%	3W	F
R8	1-249-429-11	CARBON	10K	5%	1/6W	F
R9	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R10	1-215-880-00	METAL OXIDE	10	5%	2W	F
R11	1-215-879-51	METAL OXIDE	47K	5%	1W	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%	1/6W	F
R18	1-249-385-11	CARBON	2.2	5%	1/6W	F
R19	1-249-385-11	CARBON	2.2	5%	1/6W	F
R20	1-249-405-11	CARBON	100	5%	1/6W	
R21	1-249-423-11	CARBON	3.3K	5%	1/6W	
R22	1-249-440-11	CARBON	82K	5%	1/6W	
R25	1-215-471-00	METAL	120K	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	1-247-893-00	CARBON	390K	5%	1/6W	
R32	1-249-417-11	CARBON	1K	5%	1/6W	
R33	1-247-895-00	CARBON	470K	5%	1/6W	
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%	1/6W	
R43	1-215-477-00	METAL	220K	1%	1/6W	
R44	1-249-413-11	CARBON	470	5%	1/6W	
R45	1-247-725-11	CARBON	10K	5%	1/4W	
R46	1-249-421-11	CARBON	2.2K	5%	1/6W	
R47	1-249-429-11	CARBON	10K	5%	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)				

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*1-621-055-11 EB BOARD
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	CAPACITOR				
C1	1-124-245-00	ELECT	4.7MF	20%	25V
C2	1-124-245-00	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	1-123-617-00	ELECT	10MF	20%	16V
C8	1-136-165-00	FILM	0.1MF	5%	50V

EB EC HA X Y

Ref.No.	Part No.	Description				Remark
		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%	1/6W	
R3	1-249-431-11	CARBON	15K	5%	1/6W	
R4	1-249-427-11	CARBON	6.8K	5%	1/6W	
R5	1-249-441-11	CARBON	100K	5%	1/6W	
R6	1-249-423-11	CARBON	3.3K	5%	1/6W	
R7	1-249-429-11	CARBON	10K	5%	1/6W	
R8	1-249-413-11	CARBON	470	5%	1/6W	
R9	1-249-428-11	CARBON	8.2K	5%	1/6W	
R10	1-249-437-11	CARBON	47K	5%	1/6W	
R11	1-247-895-00	CARBON	470K	5%	1/6W	
R12	1-249-435-11	CARBON	33K	5%	1/6W	
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				
		RESISTOR				
R1	1-215-423-00	METAL	1.2K	1%	1/6W	
R2	1-249-417-11	CARBON	1K	5%	1/6W	
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				
**********						
	*1-621-062-11	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	1-247-874-00	CARBON	62K	5%	1/6W	
		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				
**********						
	*1-621-051-11	X BOARD *******				
		TERMINAL				
P1	*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				

Y GA GB

Ref.No.	Part No.	Description	Remark
		CONNECTOR	
Y1	*1-566-041-11	PIN, CONNECTOR 2P	
		**********	
	⚠1-413-289-11	GA BOARD	
		********	
	*2-430-205-00	COVER, U-14	
	*2-430-297-01	SHEET (TK-03), INSULATING	
	2-430-308-01	INSULATOR (TK-03), TR	
	2-430-318-01	SD-TK03	
	*2-430-742-00	BRACKET-RIGHT (SR-12), L	
	*2-430-743-01	BRACKET-LEFT (SR-12)	
	*2-430-746-01	DP-SR12	
	2-430-773-01	+PSW 3X6	
	2-431-616-01	RUBBER (ST-TK15), RADIATION	
	2-434-060-01	+PSW 3X18	
		CAPACITOR	
C601	⚠1-125-341-11	ELECT 47MF 20% 400V	
C602	⚠1-124-024-51	ELECT 4.7MF 20% 350V	
C603	⚠1-124-024-51	ELECT 4.7MF 20% 350V	
C604	⚠1-161-742-51	CERAMIC 2200PF 20% 400V	
C605	⚠1-161-742-51	CERAMIC 2200PF 20% 400V	
C606	⚠1-161-742-51	CERAMIC 2200PF 20% 400V	
C651	⚠1-161-963-11	CERAMIC 100PF 20% 2KV	
C652	⚠1-123-575-51	ELECT 100MF 160V	
C653	⚠1-123-575-51	ELECT 100MF 160V	
C654	⚠1-123-935-51	ELECT 33MF 20% 160V	
C655	⚠1-161-912-11	CERAMIC 560PF 10% 500V	
C656	⚠1-161-912-11	CERAMIC 560PF 10% 500V	
C657	⚠1-161-912-11	CERAMIC 560PF 10% 500V	
C658	⚠1-161-912-11	CERAMIC 560PF 10% 500V	
C659	⚠1-124-636-51	ELECT 3300MF 20% 25V	
C660	⚠1-124-120-51	ELECT 220MF 20% 25V	
C661	⚠1-124-636-51	ELECT 3300MF 20% 25V	
C662	⚠1-124-120-51	ELECT 220MF 20% 25V	
C663	⚠1-130-768-21	FILM 0.1MF 10% 63V	
C664	⚠1-130-768-21	FILM 0.1MF 10% 63V	
		DIODE	
D651	⚠8-719-300-53	DIODE CTU-30S	
D652	⚠8-719-300-52	DIODE CTU-30R	
D653	⚠8-719-908-00	DIODE ESAC33-02CS	
D654	⚠8-719-901-90	DIODE ESAC33-02N	
D655	⚠8-719-200-01	DIODE 10E1	
D656	⚠8-719-200-01	DIODE 10E1	
		COIL	
L601	⚠1-421-606-11	TRANSFORMER, LINE FILTER	
L651	⚠A-4935-022-A	COIL, CHOKE	
L652	⚠1-410-244-11	COIL, CHOKE 300UH	
L653	⚠1-408-933-11	COIL, CHOKE	
L654	⚠1-408-933-11	COIL, CHOKE	
L655	⚠1-408-933-11	COIL, CHOKE	

Ref.No.	Part No.	Description	Remark
		TRANSISTOR	
Q601	⚠8-729-301-77	TRANSISTOR STR8124-0	
		RESISTOR	
R601	⚠1-246-429-25	CARBON 15 5% 1/4W	
R602	⚠1-246-429-25	CARBON 15 5% 1/4W	
R651	⚠0-906-252-01	CEMENTED 10 5W	
R652	⚠1-246-457-25	CARBON 220 5% 1/4W	
R653	⚠1-214-745-51	METAL 4.7K 1% 1/4W	
R654	⚠1-214-745-51	METAL 4.7K 1% 1/4W	
R655	⚠1-246-417-25	CARBON 4.7 5% 1/4W	
		TRANSFORMER	
T601	⚠1-421-460-31	TRANSFORMER, CURRENT	
T602	⚠A-4935-007-A	TRANSFORMER, CONVERTER	
T603	⚠1-447-106-11	TRANSFORMER, DRIVE	
		**********	
	⚠1-620-978-11	GB BOARD	
		********	
		CAPACITOR	
C671	⚠1-131-455-51	TANTALUM 0.47MF 20% 16V	
C672	⚠1-131-455-51	TANTALUM 0.47MF 20% 16V	
C673	⚠1-124-478-51	ELECT 100MF 20% 25V	
C674	⚠1-130-027-51	FILM 5600PF 5% 50V	
C675	⚠1-130-512-51	FILM 4700PF 10% 50V	
C676	⚠1-130-768-21	FILM 0.1MF 10% 63V	
C677	⚠1-124-908-51	ELECT 22MF 20% 50V	
		CONNECTOR	
CN671	⚠*1-564-165-11	PIN, CONNECTOR 8P	
		DIODE	
D671	⚠8-719-923-76	DIODE 1S2076A	
D672	⚠8-719-923-76	DIODE 1S2076A	
D673	⚠8-719-923-76	DIODE 1S2076A	
D674	⚠8-719-109-85	DIODE RD5.1ES-B2	
		IC	
IC671	⚠8-759-906-62	IC MB3759-SNY	
		TRANSISTOR	
Q671	⚠8-729-177-42	TRANSISTOR 2SD774-3	
Q672	⚠8-729-177-42	TRANSISTOR 2SD774-3	
Q673	⚠8-729-178-52	TRANSISTOR 2SC2785-J	
Q674	⚠8-729-178-52	TRANSISTOR 2SC2785-J	
Q675	⚠8-729-117-52	TRANSISTOR 2SA1175-J	
Q676	⚠8-729-117-52	TRANSISTOR 2SA1175-J	
Q677	⚠8-729-117-52	TRANSISTOR 2SA1175-J	

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

Ref.No.	Part No.	Description				Remark
		RESISTOR				
R671	⚠1-247-807-31	CARBON	100	5%	1/6W	
R672	⚠1-247-807-31	CARBON	100	5%	1/6W	
R673	⚠1-247-831-31	CARBON	1.0K	5%	1/6W	
R674	⚠1-247-713-51	CARBON	1.0K	5%	1/4W	F
R675	⚠1-247-883-31	CARBON	150K	5%	1/6W	
R676	⚠1-247-865-31	CARBON	27K	5%	1/6W	
R677	⚠1-247-851-31	CARBON	6.8K	5%	1/6W	
R678	⚠1-247-845-31	CARBON	3.9K	5%	1/6W	
R679	⚠1-247-873-31	CARBON	56K	5%	1/6W	
R680	⚠1-247-863-31	CARBON	22K	5%	1/6W	
R681	⚠1-247-837-31	CARBON	1.8K	5%	1/6W	
R682	⚠1-214-779-51	METAL	120K	1%	1/4W	
R683	⚠1-214-747-51	METAL	5.6K	1%	1/4W	
✣ R684	⚠1-214-768-51	METAL	43K	1%	1/4W	
✣ R684	⚠1-214-769-51	METAL	47K	1%	1/4W	
✣ R684	⚠1-214-770-51	METAL	51K	1%	1/4W	
✣ R684	⚠1-214-771-51	METAL	56K	1%	1/4W	
✣ R684	⚠1-214-772-51	METAL	62K	1%	1/4W	
✣ R684	⚠1-214-773-51	METAL	68K	1%	1/4W	
✣ R684	⚠1-214-774-51	METAL	75K	1%	1/4W	
✣ R684	⚠1-214-775-51	METAL	82K	1%	1/4W	
✣ R684	⚠1-214-776-51	METAL	91K	1%	1/4W	
✣ R684	⚠1-214-777-51	METAL	100K	1%	1/4W	
✣ R684	⚠1-214-778-51	METAL	110K	1%	1/4W	
✣ R684	⚠1-214-779-51	METAL	120K	1%	1/4W	
✣ R684	⚠1-214-780-51	METAL	130K	1%	1/4W	
✣ R684	⚠1-214-781-51	METAL	150K	1%	1/4W	
✣ R684	⚠1-214-782-51	METAL	160K	1%	1/4W	
✣ R684	⚠1-214-783-51	METAL	180K	1%	1/4W	
✣ R684	⚠1-214-784-51	METAL	200K	1%	1/4W	
✣ R684	⚠1-214-785-51	METAL	220K	1%	1/4W	
✣ R684	⚠1-214-786-51	METAL	240K	1%	1/4W	
✣ R684	⚠1-214-787-51	METAL	270K	1%	1/4W	
✣ R684	⚠1-214-788-51	METAL	300K	1%	1/4W	
✣ R684	⚠1-214-952-51	METAL	330K	1%	1/4W	
✣ R684	⚠1-214-753-51	METAL	360K	1%	1/4W	
✣ R684	⚠1-214-954-51	METAL	390K	1%	1/4W	
✣ R684	⚠1-214-955-51	METAL	430K	1%	1/4W	
✣ R684	⚠1-214-956-51	METAL	470K	1%	1/4W	
✣ R684	⚠1-214-957-51	METAL	510K	1%	1/4W	
✣ R684	⚠1-214-958-51	METAL	560K	1%	1/4W	
✣ R684	⚠1-214-959-51	METAL	620K	1%	1/4W	
✣ R684	⚠1-214-960-51	METAL	680K	1%	1/4W	
✣ R684	⚠1-214-961-51	METAL	750K	1%	1/4W	
✣ R684	⚠1-214-962-51	METAL	820K	1%	1/4W	
✣ R684	⚠1-214-963-51	METAL	910K	1%	1/4W	
✣ R684	⚠1-214-964-51	METAL	1.0M	1%	1/4W	
R685	⚠1-247-879-31	CARBON	100K	5%	1/6W	
R686	⚠1-247-851-31	CARBON	6.8K	5%	1/6W	
R687	⚠1-247-839-31	CARBON	2.2K	5%	1/6W	
R688	⚠1-247-839-31	CARBON	2.2K	5%	1/6W	
R689	⚠1-247-855-31	CARBON	10K	5%	1/6W	
R690	⚠1-214-781-51	METAL	150K	1%	1/4W	
R691	⚠1-214-748-51	METAL	6.2K	1%	1/4W	

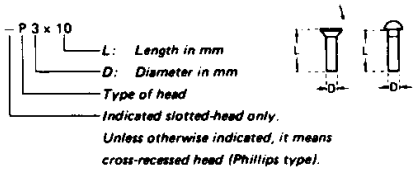
Ref.No.	Part No.	Description	Remark
		MISCELLANEOUS	
	⚠1-237-582-11	RESISTOR ASSY, HIGH-VOLTAGE	
	⚠1-413-289-11	REGULATOR, SWITCHING (TK-15)	
	⚠1-451-243-12	DEFLECTION YOKE (SY-130A)	
	⚠1-452-261-32	CRT NECK ASSY (362)	
	⚠1-452-261-41	CRT NECK ASSY (362)	
	⚠1-452-302-11	CRT NECK ASSEMBLY	
	⚠1-453-108-11	DC BLOCK, HIGH-VOLTAGE	
SP901	1-503-255-00	SPEAKER	
	⚠1-509-547-11	3P INLET	
	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
	1-559-088-11	CONNECTOR ASSY, ROUND TYPE 14P	
	⚠1-570-052-12	SWITCH, PUSH (AC POWER)(1 KEY)	
CNJ6	1-559-088-11	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)	
S902	⚠1-552-437-11	SWITCH, LEVER	
V901	⚠8-733-021-05	CRT (SD-187 (R))	
V901	⚠8-733-022-05	CRT (SD-187 (G))	
V901	⚠8-733-023-01	CRT (SD-187 (B))	
		ACCESSORIES AND PACKING MATERIALS	
	⚠1-556-760-11	CORD, POWER (3 CORE)	
	*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), CRT	
	*4-383-076-01	SPACER	
	*4-383-077-01	INDIVIDUAL CARTON	
	*4-383-085-01	CUSHION (A)	
	4-482-360-11	MANUAL, INSTRUCTION	
	4-490-245-11	MANUAL, INSTRUCTION, DEALER	

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

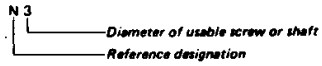
• ✣ : Selected to yield optimum performance.

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

9-963-782-01

Sony Corporation
TV Group

English
87BE0914-1
Printed in Japan