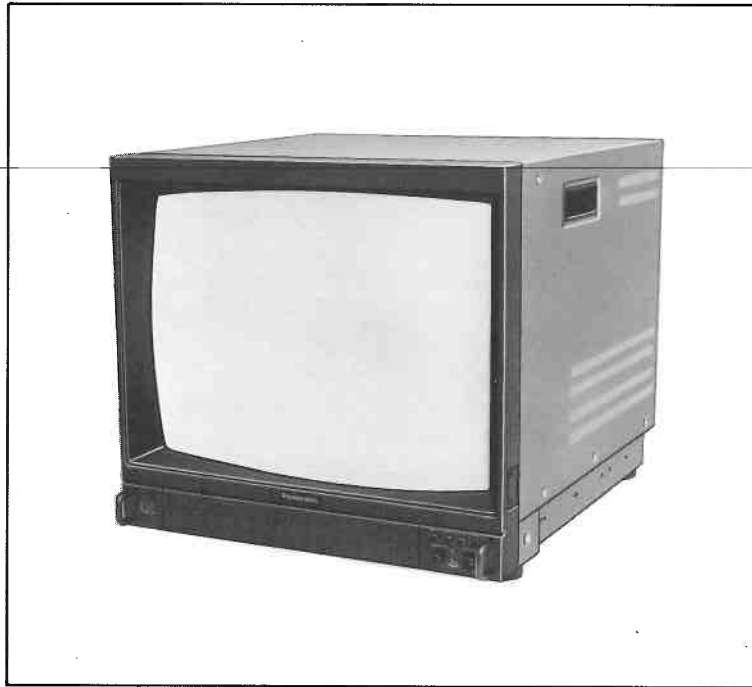


6258

Panasonic.

Color Video Monitor

Model No. **BT-D1910Y**



Operating Instruction & Service Manual

Read these instructions completely, before operating this set.

TQB810903

Operating Instruction

INTRODUCTION

Dear Panasonic Customer;

Welcome to our Panasonic family of customers. It is our desire that you have many years of enjoyment from your new Color Video Monitor. In keeping with the state of the art, we have built quality, reliability, and performance into your unit. However, for best performance, a Color Video Monitor should be suitably positioned in the viewing area and properly adjusted.

This instruction booklet provides all the necessary operating information. We hope it will help you to get the most enjoyment out of your new product, and that you will be pleased with your Panasonic Color Video Monitor.

Customer's Record

The serial number of this product may be found on its back cover. You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid in identification in the event of theft or loss.



Model number: BT-D1910Y _____

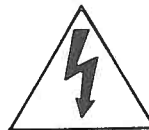
Serial number: _____

IMPORTANT SAFETY NOTICE

WARNING: To prevent damage which may result in fire or shock hazard, do not expose this Color Video Monitor to rain or moisture.

Power Supply: This Color Video Monitor is designed to operate on 120 volts/60Hz, AC house current only.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER (OR BACK) NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SPECIFICATIONS

CONTENTS

System: 525 lines per picture, 60 fields per second, interlaced, NTSC
 CRT: Medium Resolution CRT 0.55 mm Dot Pitch, 90-degree deflection, 29.1 mm in line gun.
 Effective Picture Size: 293 x 394 mm (h/w) (11-9/16" x 15-1/2" inch) picture measured diagonally

Input and Output:

Video: LINE A/B; BNC connector (4)
 1.0Vp-p composite video signal ± 2 dB positive, 75 ohm with automatic loop-through output.
 Sync: EXT. SYNC ; BNC connector (2)
 4.0Vp-p ± 6 dB negative, 75 ohm, with automatic loop-through output.
 Video Return Lose: More than 40 dB
 (0 ~ 5 MHz with 75 ohm termination)
 Sync Return Lose: More than 46 dB
 (0 ~ 5 MHz with 75 ohm termination)
 RGB: R; 0.7Vp-p ± 2 dB 75 ohm, with automatic loop-through output (BNC connector (2))
 G; 0.7Vp-p ± 2 dB 75 ohm, with automatic loop-through output. (BNC connector (2))
 B; 0.7Vp-p ± 2 dB 75 ohm, with automatic loop-through output (BNC connector (2))

S-Video Input: Y signal... 1Vp-p, C signal... 0.285Vp-p 75 Ω or HIGH impedance (Manual), MINIDIN4P type connector.
 Video Output: Y signal... 1Vp-p, C signal... 0.3Vp-p, 75 Ω or HIGH impedance (Manual), MINIDIN4P type connector.

Tally-remote Connector REMOTE: 3 terminal type (DC 24.0V \pm 1.0V input or switch) Connector (1)

Video Signal Performance

For NTSC Decoder Section

Differential Gain; Within 5%
 Differential Phase; Within 5°
 Frequency Response; Luminance; 100 Hz to 8MHz \pm 3dB

For RGB Input Section

Differential gain; Within 5%
 Differential phase; Within 5°
 Frequency response; 100 Hz to 8MHz \pm 3dB

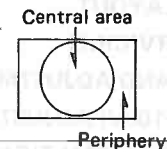
Synchronization Performance

AFC Time Constant: 0.4 msec; FAST
 1.6 msec; SLOW

Line Hold Range: More than ± 500 Hz
 Retrace Time: Horizontal retrace time Within 10 μ sec.
 Vertical retrace time Within 1 msec.
 Interace: Better than 40/60

Picture Performance

Overscan: 5% overscan of CRT effective screen area
 Underscan: 5% underscan of CRT effective screen area
 Linearity: Within a central area bounded by a circle whose diameter equals the picture height; within 5% Out of area; within 7%
 Color Temperature: 6500°K, adjustable to other color temperatures
 Convergence Error: Central area; Less than 0.5 mm
 Periphery; Less than 0.7 mm



Raster Size Stability: Less than 4% of picture height, (0 ~ 500 μ A Beam Current)
 Resolution: More than 550 TV lines (Center, at Preset luminance)
 Maximum Brightness: More than 60 fL
 Preset Contrast: 30 fL \pm 5 fL

Environment

Operating temperature range; 0°C to 40°C (32°F to 104°F)
 Humidity; 0% to 90%

General

Warm up; 30 minutes to meet specifications
 Anode voltage; Properly adjust HV 24.5 kV at zero beam current
 Power consumption; 105W
 Power Requirements: 120V AC \pm 10%, 60 Hz
 Dimensions: 448 x 414 x 511 mm (W x H x D)
 (17-21/32" x 16-5/16" x 20-1/8") inches
 Weight: 29 kg (63-7/8")
 Supplied Accessories: AC Power Cord (1)
 Operation and maintenance manual (1)
 Rack mounting Ass'y (4)

Specifications are subject to change without notice.
 Weight and dimensions shown are approximate.

CONTENTS

— Operating Instruction Section —

SPECIFICATIONS	2	CONTROLS	10 ~ 13
FEATURES	4, 5	FRONT CONTROLS AND INDICATORS	10 ~ 13
DIMENSIONS	6	BACK CONTROLS AND CONNECTORS	14 ~ 16
METHOD OF RACKMOUNT	7, 8	DAILY ADJUSTMENT	16
CONNECTIONS	9	GENERAL ADJUSTMENT	16
		PACKING	17

— Service Manual Section —

SAFETY PRECAUTIONS	18, 19	CRT CUT OFF ADJUSTMENT	30
CIRCUIT EXPLANATION	19	WHITE BALANCE ADJUSTMENT	31
DISASSEMBLY INSTRUCTIONS	20 ~ 23	H/V DELAY LOW LIGHT ADJUSTMENT	31
CIRCUIT BOARD LAYOUT	23	VERTICAL LINEARITY ADJUSTMENT	31
CAUTION FOR SERVICING	24	PINCUSHION ADJUSTMENT	31
MEASUREMENTS AND ADJUSTMENTS	24 ~ 33	H/V DELAY POSITION ADJUSTMENT	31
B+ VOLTAGE (+100V) ADJUSTMENT	24	A/B SPLIT POSITION ADJUSTMENT	32
B+ VOLTAGE CONFIRMATION	24	S-VHS CHROMA ADJUSTMENT	32
HIGH VOLTAGE CONFIRMATION	24, 25	PRESET ADJUSTMENT	32, 33
COMB/TRAP LEVEL ADJUSTMENT	25	FOCUS ADJUSTMENT	33
COMB FILTER ADJUSTMENT	25	LOCATION OF TEST POINT AND CONTROLS	33, 34
3.58 MHz TRAP FILTER ADJUSTMENT	25, 26	CIRCUIT BOARD	35 ~ 42
APERTURE BALANCE ADJUSTMENT	26	INTERCONNECTION SCHEMATIC DIAGRAM	43, 44
APERTURE LEVEL ADJUSTMENT	26	TERMINAL GUIDE OF IC'S,	
Y (LUMINANCE) LEVEL ADJUSTMENT	26	TRANSISTORS, DIODES	45
COLOR SYNCHRONIZING ADJUSTMENT	26, 27	EQUIVALENT CIRCUIT AND	
SUB CHROMA ADJUSTMENT	27	FUNCTION OF TERMINAL	46, 47
COLOR GAIN AND PHASE ADJUSTMENT	27	BLOCK DIAGRAM	48 ~ 50
SUB COLOR ADJUSTMENT	27, 28	SCHEMATIC DIAGRAM FOR MODEL	
R.G.B. BALANCE ADJUSTMENT	28	BT-D1910Y (CHASSIS NO. H01M)	51 ~ 57
H/V DELAY WHITE BALANCE ADJUSTMENT	28	WAVEFORM PATTERN TABLE	58
IC GAIN ADJUSTMENT	29	PARTS LOCATION	59 ~ 62
COLOR PURITY ADJUSTMENT	29	REPLACEMENT PARTS LIST	63 ~ 75
CONVERGENCE ADJUSTMENT	29, 30		
HORIZONTAL-HOLD AND VERTICAL			
HOLD ADJUSTMENT	30		

FEATURES

1. 19" DIAGONAL COLOR VIDEO MONITOR

The Panasonic BT-D1910Y is a precisely calibrated, high-quality 19" color monitor for composite NTSC, S-Video, and unencoded RGB inputs. It lets you monitor both conventional signals and the new S-Video - - featuring improved 1/2" picture quality - - for optimum video performance and accurate image measurement/analysis. In addition, multiple inputs and outputs permit connection of the BT-D1910Y to a broad range of equipment. With simple switch selection of the desired output conveniently available from the front panel.

2. LINE A/B/VCR/RGB INPUT SELECTABLE

The front panel features a convenient array of facilities for easy selection of inputs. You can switch among line A/B, RGB, or VCR input which is switchable itself between S-Video and conventional Video. Selection of loop-through or termination for the Line A/B and RGB signals is made automatically.

3. S-VIDEO COMPATIBLE

For complete, full-quality compatibility with S-Video format equipment, the BT-D1910Y has S-Video (Y/C) input and output connectors with bridging capability. The VCR input is switchable between conventional 8-pin and S-Video.

And because S-Video compatibility requires greater precision in circuit tolerances (than in previous Panasonic models), performance with conventional input signals is also improved.

4. VERSATILE FRONT PANEL CONTROLS

* Preset picture On/Off

The Preset Picture On/Off function lets you choose between manual picture adjustment or automatic setting. When the preset switch is off, you can adjust contrast, brightness, chroma, phase and aperture.

* Line A/B Split

Line A/B Split allows you to monitor both A and B video inputs simultaneously. The line A signal appears in the upper half of the screen, and the line B signal appears in the lower half. (This mode requires external sync. signal.)

* Set-Up Switch

Provides a set-up screen for white balance adjustment.

* Simple White Balance and CRT Cutoff Adjustment

The Cutoff switch lets you selectively switch the red, green and blue beams on and off. Screen controls allow white balance adjustment at low brightness. While drive controls enable white color temperature adjustment at high brightness levels.

* Switchable Time Constants

Select a fast time constant to correct for jitter during tape playback. Or switch to the slow position to reveal time base instability.

* Pulse-Cross Circuit

The Pulse-Cross Circuit function lets you observe vertical sync and horizontal sync separately or together.

* Normal/Underscan Switch

Underscanning can disclose skewing, deflection transients and other glitches. Switching back to the normal position lets you judge picture composition and detect intruding cameras and mike booms.

* Blue Signal-Only Switch

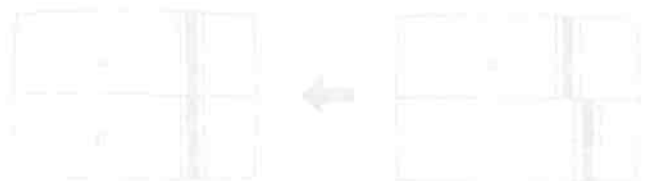
The Blue Signal-Only switch is convenient for phase adjustment using a color bar display, and for detecting playback noise.

* Color/Auto/Mono Mode Selectable

The viewing mode is switchable between color and monochrome. Or, you can set the switch for automatic color/mono selection, based on color burst detection.

* Comb/Trap Filter Selectable

Located conveniently on the front panel, the Comb/Trap Filter select switch lets you choose between a high-resolution comb filter and a trap filter, depending upon which will provide a more useful reference when adjusting reception from a particular video camera or other signal source.



5. COMPLETE ARRAY OF INPUTS AND OUTPUTS

- * S-Video (Y/C) input and output terminals (4-pin mini-DIN connectors) with 75 ohm/HIGH impedance selector.
- * Line A input/output terminals (BNC type) with automatic termination.
- * Line B input/output terminals (BNC type) with automatic termination.
- * External Sync input/output terminals (BNC type) with automatic termination.
- * R, G, B input/output terminals (BNC type) with automatic termination.
- * 8-pin VCR terminal (input and output).

6. RACK MOUNTABLE

Optional slides and brackets are available to enable easy rack mounting of the BT-D1910Y in standard EIA 19" racks.

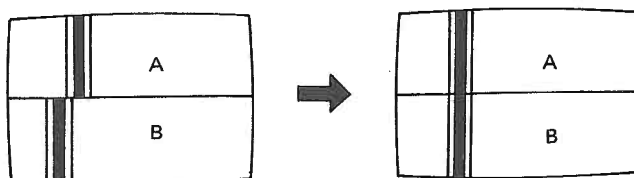
7. ADDITIONAL FEATURES

- * Front panel tally lamp.
- * Separate H/V-size controls for normal/underscanned pictures.
- * H and V centering controls.
- * V hold controls.
- * Rugged metal cabinet construction.
- * Convenient rack mounting handles.
- * Commercial UL listing; 3-pronged AC power cord.

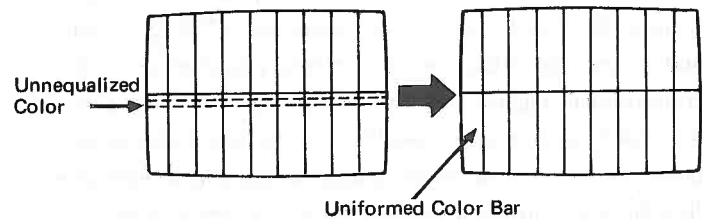
EXAMPLE OF LINE A/B SPLIT APPLICATION

The A/B split is used to adjust two sets of cameras concerning a simple color matching and so like.

- 1) Connect two cameras with LINE A terminal and LINE B terminal, respectively.
- 2) Supply black burst signals from the black burst signal generator to the two cameras and BT-D1910Y.
- 3) Output color bar signals from the two cameras.
- 4) Turn A/B split switch on.
- 5) After setting the H-delay by use of vertical delay switch (switch), adjust the H-phase of the objective camera with that of the reference camera through the H-phase control on the camera's side.

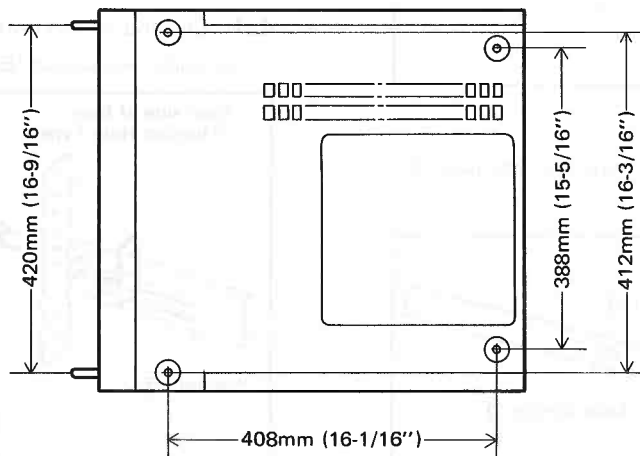
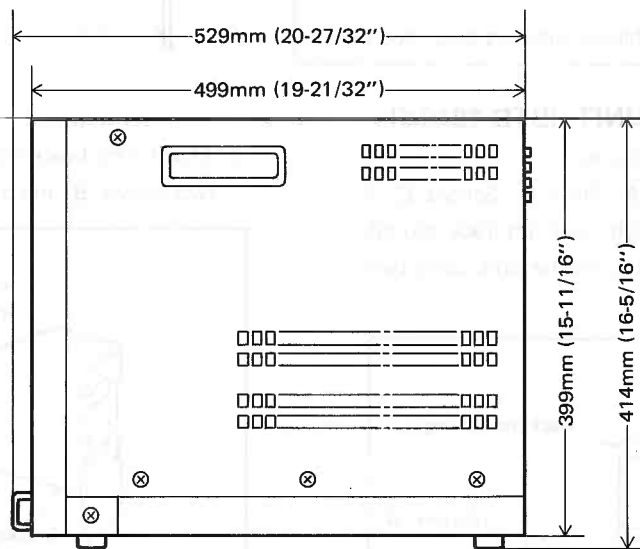
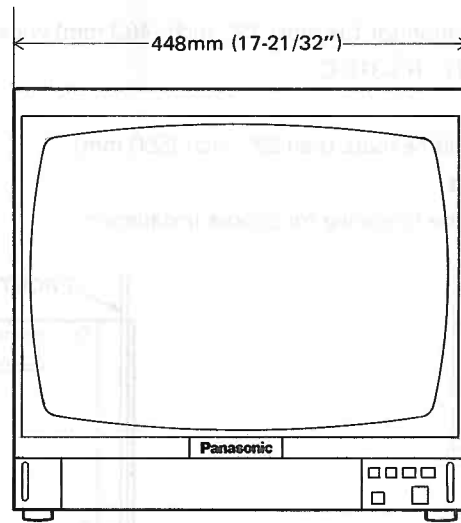


- 6) Press the switch again to put the screen into normal mode. Then, adjust the color of the upper B zone (screen center) through the sub carrier phase control on the camera's side so that the color may be unchanged.



- 7) Adjust the pedestal level, gain, color phase, color intensity, etc. of the cameras until screen A and screen B become much the same.
- 8) Take pictures of the same subject and confirm the two cameras looks alike.

DIMENSIONS



METHOD OF RACKMOUNT

DIMENSIONS

1. Rack Width

This color video monitor fits most 19" inch (483 mm) wide cabinet racks.

EIA STANDARD : RS-310-C

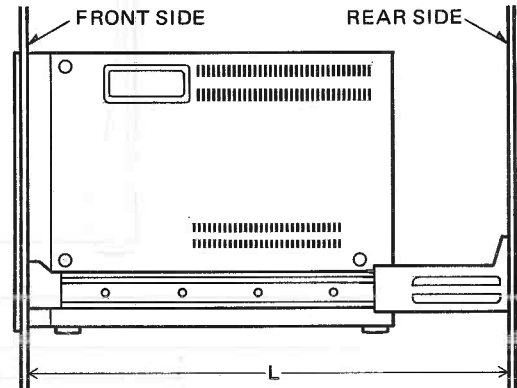
2. Rack Depth

Rack depth should be more than 22" inch (550 mm).

3. Slide and Bracket

We recommend the following for proper installation.

Chassis-Track's	
Distance : L	Slide
L = 490 ~ 590 mm	C-300-S-116
L = 540 ~ 640 mm	C-300-S-118



4. Slide and Bracket mounting.

NOTE:

The mounting using slide of the chassis-track's is described below.

ACCESORIES FOR THIS UNIT (BTD-1910Y)

(Bracket (A), Bracket (B), Screws (A),
Rack mount angles, Washers (A), Nuts (A), Screws (C).)

1. Mount and secure both the right and left rack mount angles (attached to BT-D1910Y) on the unit using two screws (A) each. (Fig. 1)

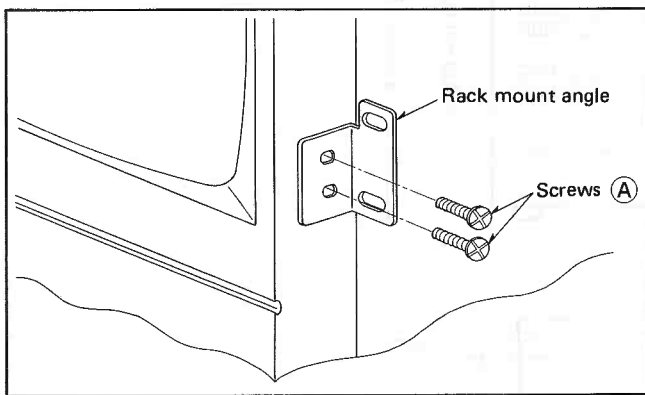


Fig. 1

2. While pressing the lock spring (1), pull out the rails (1). (Fig. 2)

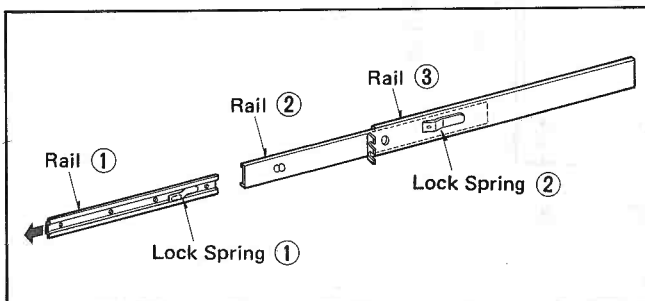


Fig. 2

3. Attach the brackets (A) at the tips of both rails with two screws (B) and one bar nut each. (Fig. 3)

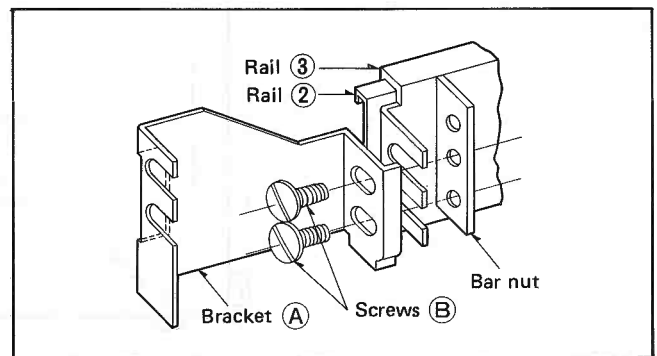


Fig. 3

4. Mount and secure both the right and left bracket (B) on the rack two screws (B) each. (Fig. 4)

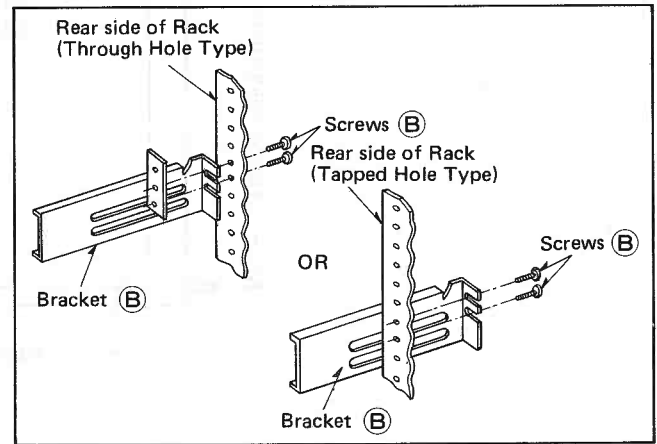


Fig. 4

5. Attach the bracket (A) at the location shown in Fig. 5.

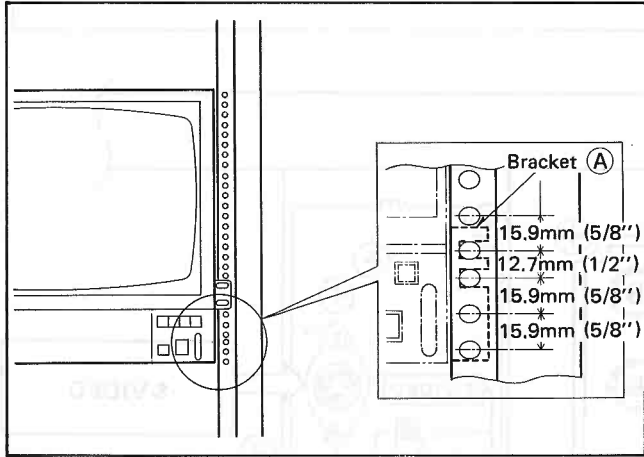


Fig. 5

6. Set the two screws (B) and bar nut temporarily, and insert the bracket (B) to the back of the rack. Fix the rail with two screws (C), two washers (A), two nuts (A). (Fig. 6)

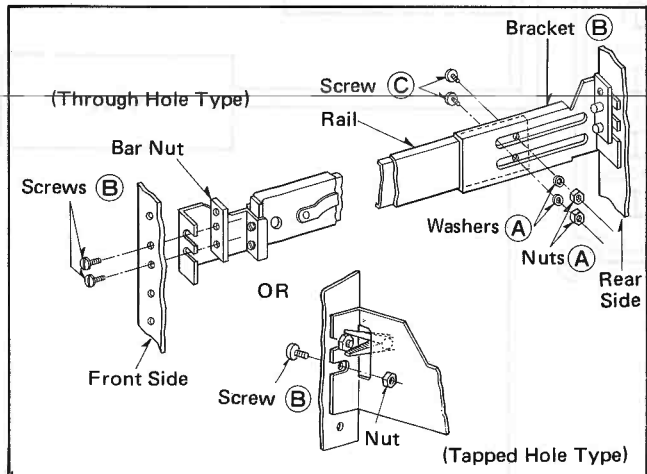


Fig. 6

7. Mount and secure both the right and left rails (1) on the unit using four screws (B) each. (Fig. 7)

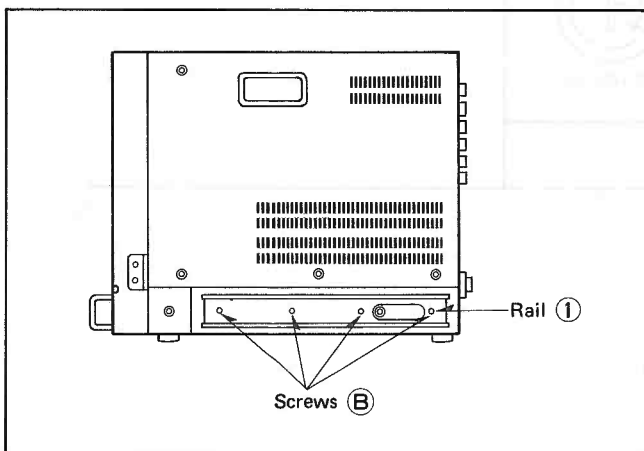


Fig. 7

8. Pull out the both rails (2) until they are locked. While pressing the lock spring (1) of the rails (1), insert the rail (2). The rails (1) and (2) are locked, press again the lock spring (1) to store the set into the rack. (Fig. 8)

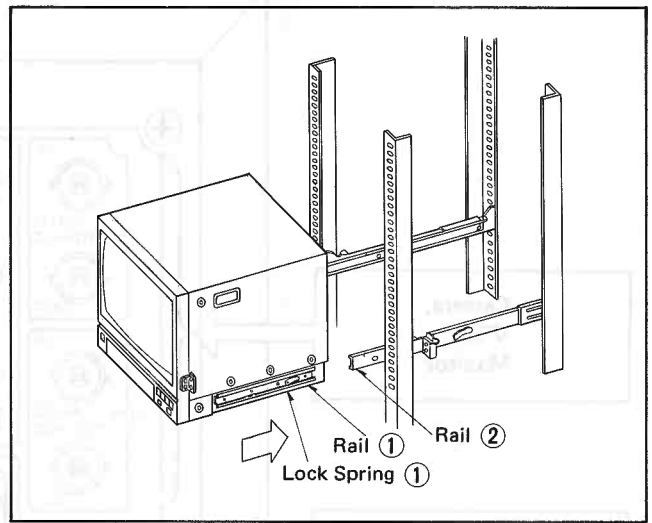


Fig. 8

9. Tighten the both rack mount brackets with two screws (D) to fix the set to the rack. (Fig. 9)

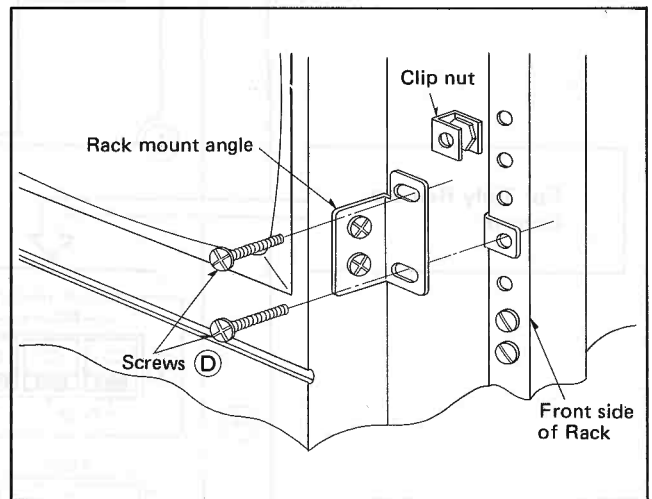
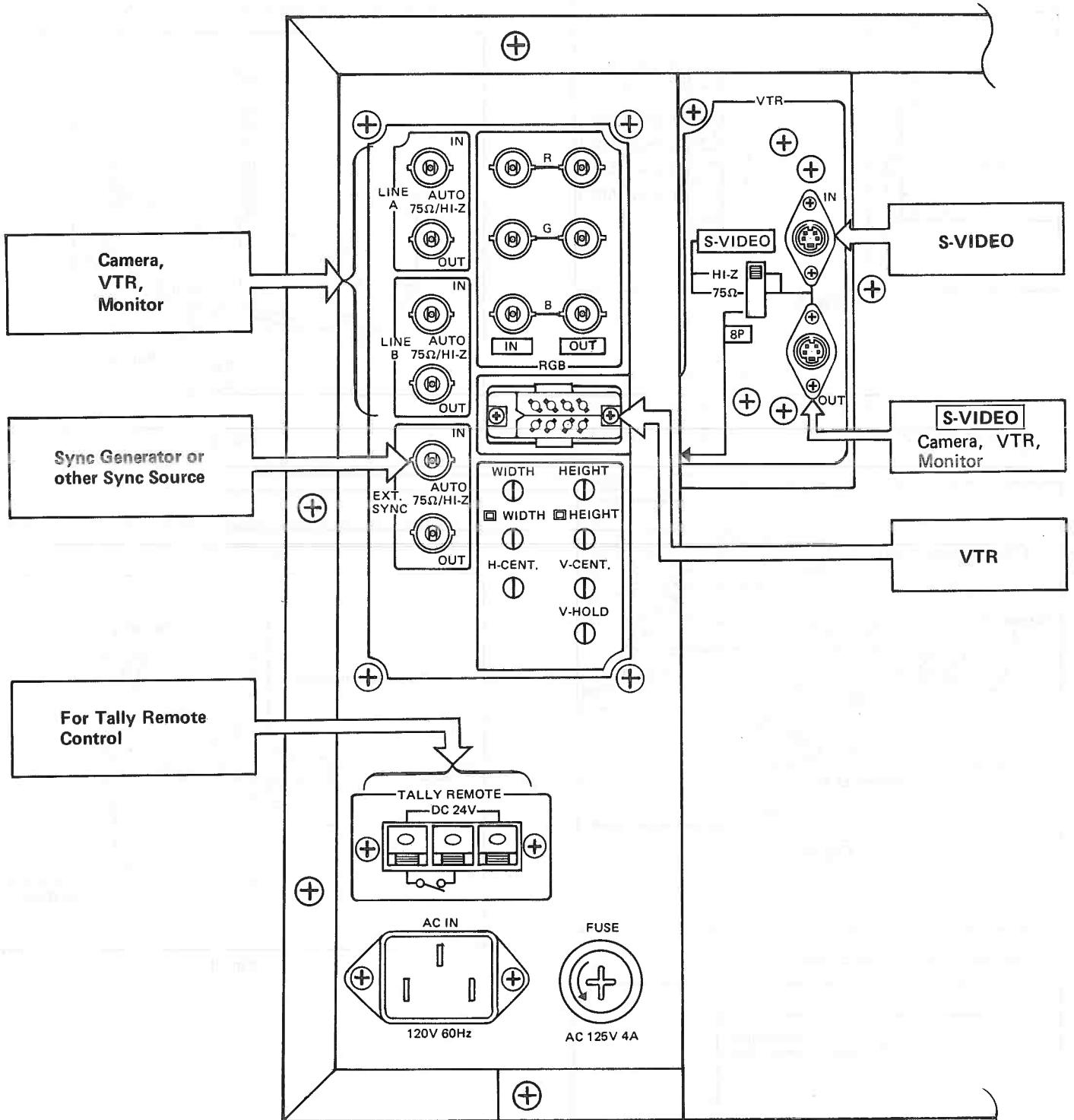


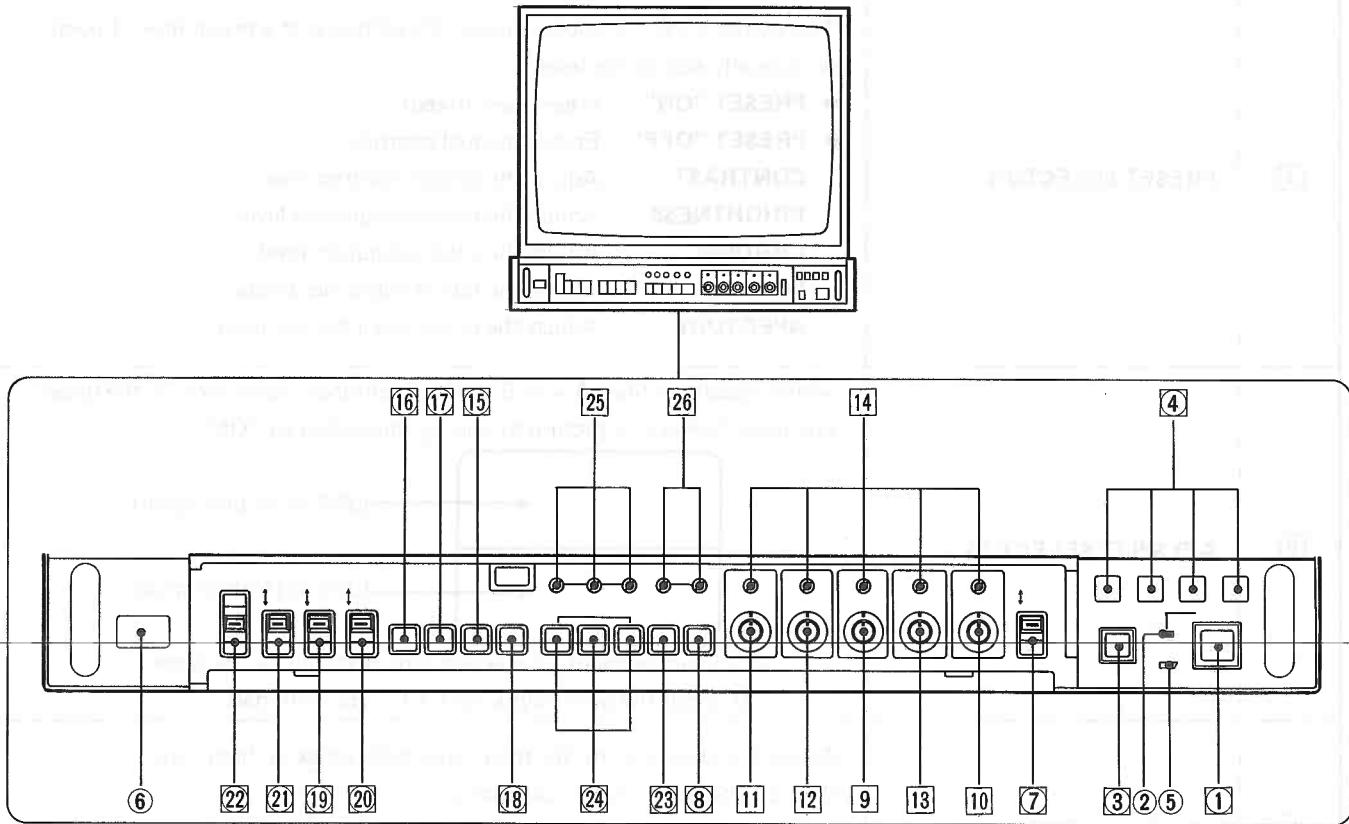
Fig. 9

CONNECTIONS



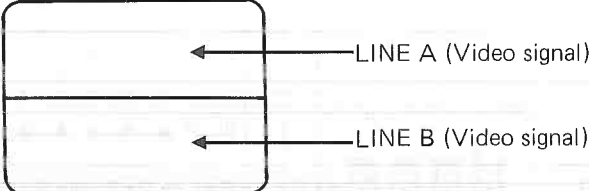





CONTROLS






FRONT CONTROLS AND INDICATORS

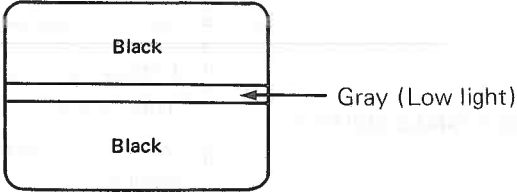


Note: □ Controls
 ○ Indicators
 ◐ Switches

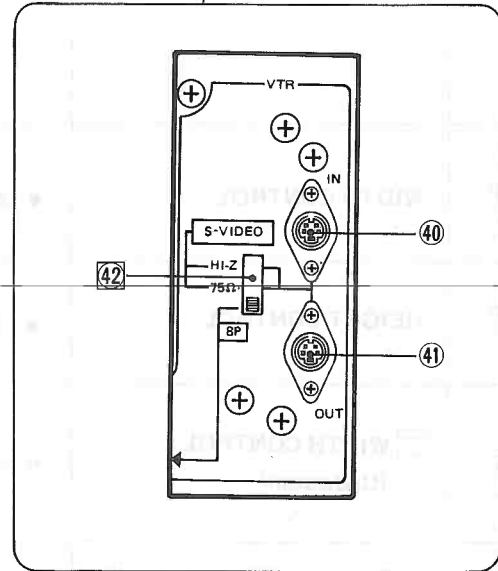
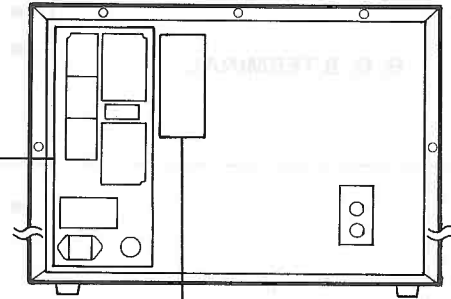
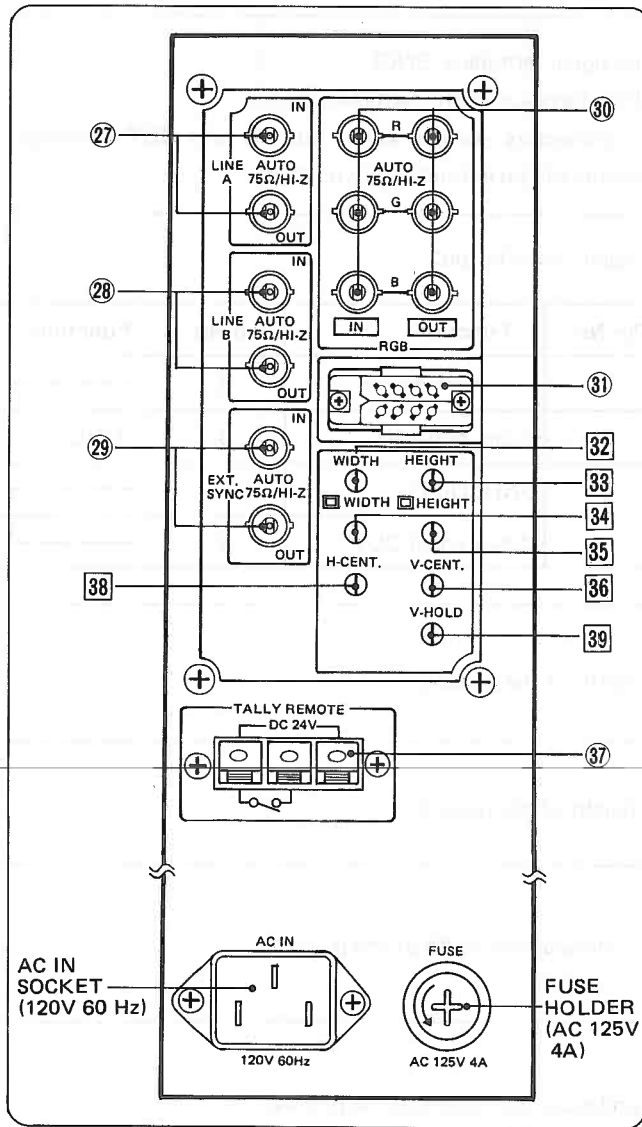
No.	CONTROL	PURPOSE
①	POWER SWITCH	Push this switch to turn the unit "ON".
②	POWER INDICATOR	<ul style="list-style-type: none"> ● Depress the power switch to turn "ON" the power. ● The power indicator will light (GREEN).
③	DEGAUSS SWITCH	<p>To demagnetize the screen, press this switch more than 10 sec. with the power turned on.</p> <p>Wait for 5 minutes or more before activating degaussing again.</p>
④	INPUT SELECTOR	<p>LINE A : Received video signal from the LINE A terminal.</p> <p>LINE B : Received video signal from the LINE B terminal.</p> <p>VTR : Received video signal from the VTR terminal. (8P and S-Video)</p> <p>RGB : Received RGB signal from the RGB terminal.</p>
⑤	PRESET INDICATOR	This is the preset "ON"/"OFF" indicator.

No.	CONTROL	PURPOSE
⑥	TALLY LAMP	The lamp lights when the terminals of the TALLY REMOTE connector on the rear panel are short circuited or supplied 24V DC.
⑦	PRESET SELECTOR	<p>This switch is used to select whether the picture is at a preset level (Fixed), or manually setting the level.</p> <ul style="list-style-type: none"> ● PRESET "ON" : Preset level (fixed) ● PRESET "OFF" : Enable manual controls. <p>CONTRAST : Adjust the picture contrast level. BRIGHTNESS : Adjust the picture brightness level. CHROMA : Adjust the color saturation level. PHASE : Adjust the hue or subcarrier phase. APERTURE : Adjust the picture to a sharper level.</p>
⑧	A/B SPLIT SELECTOR	<p>Video signals on lines A and B can be monitored respectively in the upper and lower halves of a picture by setting this switch to "ON".</p> <div style="text-align: center;">  </div> <ol style="list-style-type: none"> ① Sync. signal of Line A and Line B should be the same. ② Input the Sync. signal by EXT. Sync terminals.
⑨	PHASE CONTROL	<p>Adjust the phase control for the proper color phase or flesh tone. (PRESET Selector "OFF" position.)</p> <div style="text-align: center;">  </div>
⑩	BRIGHTNESS CONTROL	<p>Adjust the brightness level for the desired overall picture or display brightness. (PRESET Selector "OFF" position.)</p> <div style="text-align: center;">  </div>
⑪	APERTURE CONTROL	<ul style="list-style-type: none"> ● Turn clockwise to get a crisper picture. ● Turn counterclockwise to get a softer picture. <p>(PRESET Selector "OFF" position.)</p> <div style="text-align: center;">  </div>
⑫	CHROMA CONTROL	<p>Adjust the chroma control to set the color (saturation) level. (PRESET Selector "OFF" position.)</p> <div style="text-align: center;">  </div>
⑬	CONTRAST CONTROL	<p>Adjust the contrast level for the desired overall contrast.</p> <div style="text-align: center;">  </div>

No.	CONTROL	PURPOSE
14	PRESET CONTROLS (VR)	Each preset VRs which belong the manual controls are enabled at preset selector "ON" position. Preset levels are preadjusted at factory shipment.
15	HORIZONTAL DELAY SWITCH 	Depress this switch to observe the horizontal sync signal. The picture is delayed horizontal and the horizontal sync signal is displayed in the left size of the screen. Picture brightness is automatically increased for easy observation.
16	UNDERSCAN SWITCH 	Depress this switch for underscanning. The display size is reduced by approximately 5% so that four corners of the raster are visible.
17	VERTICAL DELAY SWITCH 	Depress this switch to observe the vertical sync signal. The picture is delayed vertically and the vertical sync signal is displayed near the center of the screen. Picture brightness is automatically increased for easy observation. ● A pulse cross is displayed by depressing both the  and  switches.
18	BLUE SIGNAL SWITCH	Depress this switch to observe BLUE SIGNAL in Black and White. This makes it easier to adjust chrominance and hue (using SMPTE color bar display) and increases visibility of video tape dropouts and playback noise.
19	FILTER (COMB/TRAP) SELECTOR	TRAP FILTER : This position is used when adjusting equipment connected to monitor. COMB FILTER : This position provides higher resolution than with the trap filter. This is the normal switch position.
20	SYNC (INT/EXT) SELECTOR	INT; The monitor operates on the sync signal from the displayed composite video signal . EXT; The monitor operates on an external sync signal supplied from the EXT. SYNC connector on the rear panel.
21	AFC SELECTOR	Selects the AFC time constant. ● FAST : This mode is fast enough to correct for VTR jitter. Use the position to obtain a stable playback picture from a VTR. ● SLOW : This mode is slow enough to display the time base instability introduced by mechanical jitter, in the VTR playback signal.

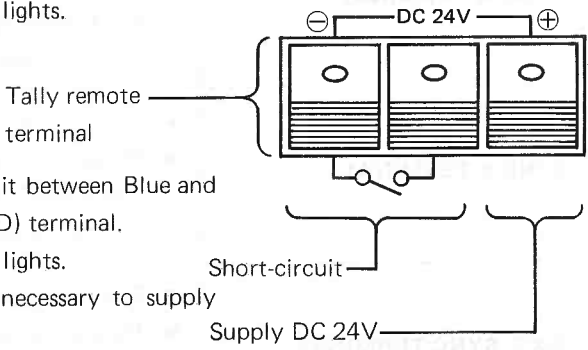
No.	CONTROL	PURPOSE
22	MODE SELECTOR	<ul style="list-style-type: none"> ● COLOR : Used when receiving only color signals out of input video signals. (Auto color control and Auto color killer in "OFF" mode.) ● AUTO : Normal position. (Auto color control and Auto color killer in "ON" mode.) <p>Color or monochrome mode is automatically selected according to the presence or absence of color burst.</p> <ul style="list-style-type: none"> ● MONO : Chroma channel is deactivated and the picture is displayed in monochrome mode.
23	SET-UP SWITCH	<ul style="list-style-type: none"> ● Depress this switch when adjusting the white balance. A horizontal white bar of approximately 1/4 ~ 1/5 of the screen height is displayed. ● After adjusting the white balance, press this switch again. <div style="text-align: center; margin-top: 20px;">  </div>
24	CUT OFF (R, G, B) SWITCH	<p>The R, G and B switches turn the red, green and blue beams respectively on and off. To turn off the beam, depress the switch. To turn it on, press the switch again.</p>
25	SCREEN (R, G, B) CONTROL	<p>These controls are used to adjust individual color screen bias. Used for white balance.</p>
26	DRIVE (R, B) CONTROL	<p>These controls are used to adjust individual color gain. Used for white balance.</p>

BACK CONTROLS AND CONNECTORS



Note: □ Controls
 ○ Terminals
 ◻ Switches

No.	CONTROL	PURPOSE
27	LINE A TERMINAL	<ul style="list-style-type: none"> Video signal input/output terminal (BNC). These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
28	LINE B TERMINAL	<ul style="list-style-type: none"> Video signal input/output terminal (BNC). These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
29	EXT. SYNC TERMINAL	<ul style="list-style-type: none"> Synchronize input/output terminal (BNC). These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.

No.	CONTROL	PURPOSE																				
30	R, G, B TERMINAL	<ul style="list-style-type: none"> R, G, B video signal terminals (BNC). These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals, 75Ω termination will be automatically opened. 																				
31	VTR (8 PIN) TERMINAL	<ul style="list-style-type: none"> VTR video signal input/output. <table border="1" data-bbox="794 533 1484 800"> <thead> <tr> <th>Pin No.</th> <th>Function</th> <th>Pin No.</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>_____</td> <td>5</td> <td>_____</td> </tr> <tr> <td>2</td> <td>Video signal IN</td> <td>6</td> <td>GND (IN)</td> </tr> <tr> <td>3</td> <td>GND (OUT)</td> <td>7</td> <td>_____</td> </tr> <tr> <td>4</td> <td>Video signal OUT</td> <td>8</td> <td>_____</td> </tr> </tbody> </table>	Pin No.	Function	Pin No.	Function	1	_____	5	_____	2	Video signal IN	6	GND (IN)	3	GND (OUT)	7	_____	4	Video signal OUT	8	_____
Pin No.	Function	Pin No.	Function																			
1	_____	5	_____																			
2	Video signal IN	6	GND (IN)																			
3	GND (OUT)	7	_____																			
4	Video signal OUT	8	_____																			
32	WIDTH CONTROL	<ul style="list-style-type: none"> Adjust the width of the picture. 																				
33	HEIGHT CONTROL	<ul style="list-style-type: none"> Adjust the height of the picture. 																				
34	<input type="checkbox"/> WIDTH CONTROL (Underscan)	<ul style="list-style-type: none"> Adjust the underscanned width of the picture. 																				
35	<input type="checkbox"/> HEIGHT CONTROL (Underscan)	<ul style="list-style-type: none"> Adjust the underscanned height of the picture. 																				
36	V-CENT. CONTROL	<ul style="list-style-type: none"> Adjust the vertical position of the picture. 																				
37	TALLY REMOTE TERMINAL	<p>Method A)</p> <ol style="list-style-type: none"> Supply 24V DC between Red and Black (GND) terminals. Tally lamp lights. <p>Method B)</p> <ol style="list-style-type: none"> Short-circuit between Blue and Black (GND) terminal. Tally lamp lights. <p>(It is not necessary to supply 24V DC)</p> 																				

No.	CONTROL	PURPOSE												
38	H. CENT. CONTROL	<ul style="list-style-type: none"> Adjust the horizontal position of the picture. 												
39	V-HOLD CONTROL	<ul style="list-style-type: none"> Adjust the vertical-hold control and set it at a point where vertical movement is stopped. 												
40	S-VIDEO INPUT TERMINAL Y/C INPUT TERMINAL	<ul style="list-style-type: none"> Luminance signal and chroma signal input terminal (4 pin). <table border="1"> <thead> <tr> <th>Pin No.</th> <th>Function</th> <th>Pin No.</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GND (Luminance)</td> <td>3</td> <td>Chroma</td> </tr> <tr> <td>2</td> <td>Luminance</td> <td>4</td> <td>GND (Chroma)</td> </tr> </tbody> </table>	Pin No.	Function	Pin No.	Function	1	GND (Luminance)	3	Chroma	2	Luminance	4	GND (Chroma)
Pin No.	Function	Pin No.	Function											
1	GND (Luminance)	3	Chroma											
2	Luminance	4	GND (Chroma)											
41	S-VIDEO OUTPUT TERMINAL Y/C OUTPUT TERMINAL	<ul style="list-style-type: none"> Luminance signal and chroma signal output terminal (4 pin). <table border="1"> <thead> <tr> <th>Pin No.</th> <th>Function</th> <th>Pin No.</th> <th>Function.</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GND (Luminance)</td> <td>3</td> <td>Chroma</td> </tr> <tr> <td>2</td> <td>Luminance</td> <td>4</td> <td>GND (Chroma)</td> </tr> </tbody> </table>	Pin No.	Function	Pin No.	Function.	1	GND (Luminance)	3	Chroma	2	Luminance	4	GND (Chroma)
Pin No.	Function	Pin No.	Function.											
1	GND (Luminance)	3	Chroma											
2	Luminance	4	GND (Chroma)											
42	8 PIN S-VIDEO SELECTOR INPEADANCE SELECTOR SWITCH	<ul style="list-style-type: none"> 8P (VTR) and S-Video terminal selector switch. When bridging or looping through the S-Video signals, set this switch at High position, and for other cases this switch should be set at 75Ω position. 												

DAILY ADJUSTMENT

Degaussing

Variation in the purity of the monitor due to the monitor is controlled as much as possible. If for any reason the monitor is moved, degauss the cathode-ray tube according to the procedure given below.

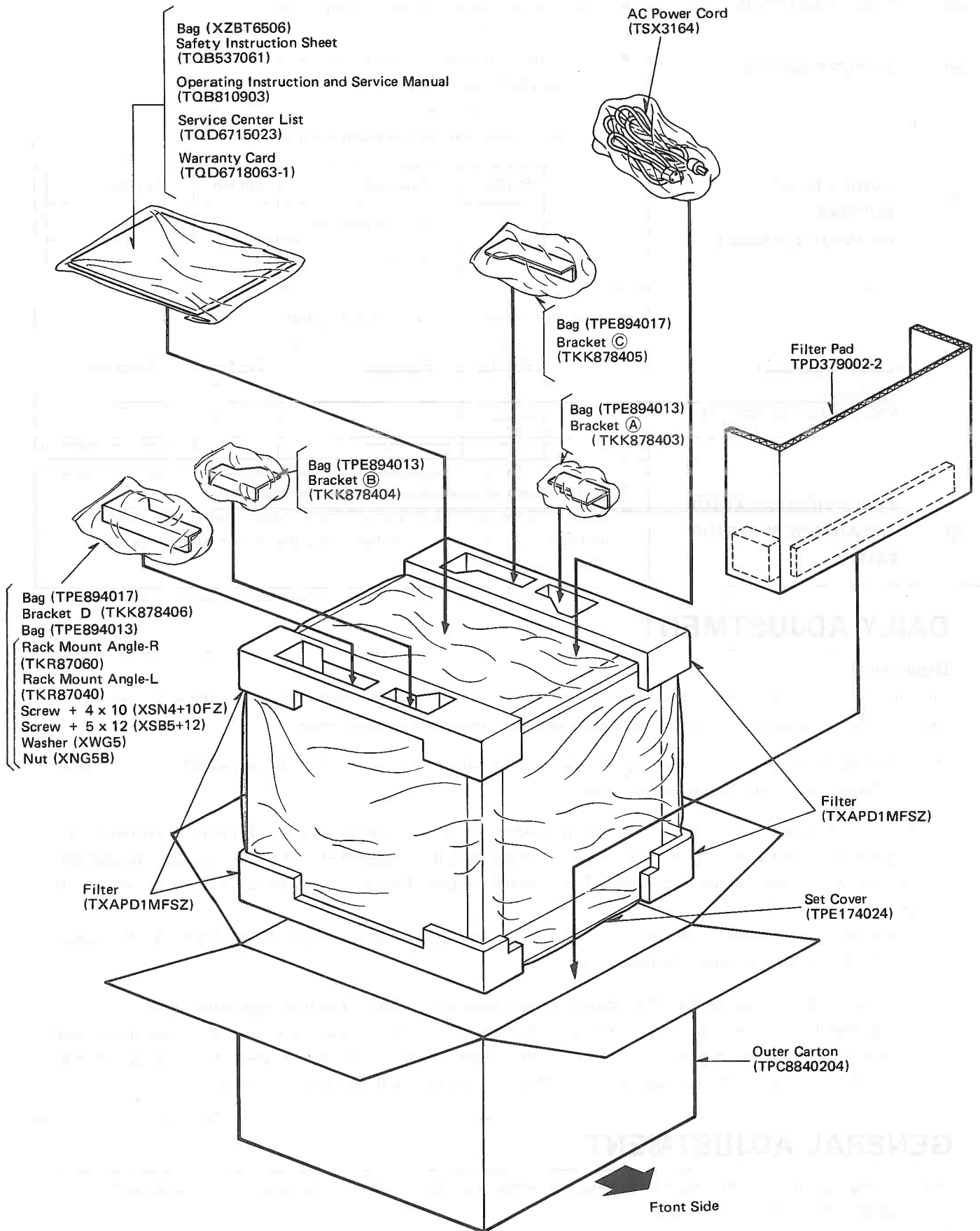
- The power supply is on as soon as the power switch is turned on. The light emitting diode located above the power switch light to indicate that the power supply is on.
- Push the degaussing switch located on the front panel for not less than 10 seconds. During this operation, the magnetization of the cathode-ray tube disappear. If the switch is released before 10 seconds elapse, the cathode-ray tube will become magnetized instead of becoming degaussed. Be sure to keep the switch down longer than 10 seconds.
If the switch is released before 10 seconds elapse, no degaussing is possible even if the switch is pushed again. Wait for 2 or 3 minutes before degaussing again.
- If the facility has its own separate degaussing coil (degausser), use it. This is the ideal degaussing operation. In this operation, line voltage of AC is applied to the degausser. It should be moved close to the screen and moved in a circle two or three times directly in front of the screen. Then the degausser is slowly moved away from the screen and the power to the degausser is turned off when it is over 2m (6 feet) from the screen.

GENERAL ADJUSTMENT

Under normal operating conditions, the specified performance of the monitor can be obtained by operating the controls located on the front of the monitor.

In case specified performance is not obtainable, refer to Measurements and adjustments.

PACKING



— Service Manual —

Color Video Monitor

BT-D1910Y

H01M chassis



CAUTION

This installation should be made by a qualified service person and should conform to all local codes.

- **PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J IN EFFECT AS OF DATE OF MANUFACTURE.**

IMPORTANT SAFETY NOTICE

There are special components used in Panasonic Monitor sets which are important for safety. These parts are shaded on the schematic diagram. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of PANASONIC INDUSTRIAL COMPANY.

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. It is advisable to insert an isolation transformer in the AC supply before servicing a hot chassis.
2. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations, are properly installed.
4. Before turning the monitor on, measure the resistance between B+ line and cold side chassis ground. Connect the \ominus side of an ohmmeter to the B+ lines, and the \oplus side to chassis ground. Each line should have more resistance than specified, as follows:

B+ Line	Minimum Resistance
1kV (TPD4)	3k Ω
160V (TPD120)	4k Ω
102V (TPD91)	3k Ω
24V (TPD24)	400 Ω
17V (IC801 ① pin)	400 Ω
12V (TPD12)	400 Ω

5. When the monitor is not used for a long period of time, unplug the power cord from the AC outlet.
6. Potentials, as high as 26.0 kV are present when this monitor is in operation. Operation of the monitor without the rear cover involves the danger of a shock hazard from the monitor power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to chassis ground before handling the tube.
7. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Turn on the monitor's power switch.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the monitor, such as screwheads, connectors, control shafts, etc.

When the exposed metallic part has a return path to the chassis, the reading should be more than 1M Ω .

When the exposed metal does not have a return path to the chassis, the reading must be ∞ .

LEAKAGE CURRENT HOT CHECK (See Fig. 10)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5 k Ω , 10 watt resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Fig. 10.
3. Use a high impedance AC voltage meter (VTVM) to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 500 μ A. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the monitor should be repaired and rechecked before it is returned to the customer.

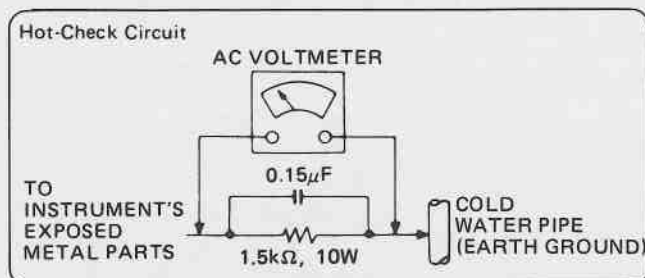


Fig. 10

X-RADIATION

- WARNING:** 1. The potential source of X-Radiation in Monitor set is the High Voltage section and picture tube.
2. When using a picture tube test jig for service, make sure that the jig is capable of handling 26.0 kV without causing X-Radiation.

NOTE: It is important to use an accurate, periodically calibrated high voltage meter.

1. Turn the Set-up switch (SW5806) and Under scan switch to the ON position.
2. Turn the Brightness control (R5824) fully counter-clockwise.
3. Set the SERVICE switch (S401) to the SERVICE position.
4. Measure the High Voltage. The meter (electrostatic type) reading should indicate $24.5 \text{ kV} \pm 1.5 \text{ kV}$. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
5. To prevent an X-Radiation possibility, it is essential to use the specified picture tube.

HORIZONTAL OSC. DISABLE CIRCUIT TEST

This test must be made as a final check before the set is returned to the customer.

1. With the rear cover removed, supply a nominal 120V AC to the set, turn on the power switch.
2. Set the customer controls to their normal operating position.
3. Make short circuit TPD91 and pin ④ of IC551 with a $3\text{k}\Omega$ resistor.
4. If this does not occur, the Horizontal Osc. Disable Circuit is not operating. Follow the Horizontal Oscillator Disable Circuit Repair Procedures before the set is returned to customer.

REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

1. Connect a DC voltmeter between capacitor C573 \oplus on the A-board and chassis ground. If nearly +24.7V is not present on that point, find the cause. Check R570, C573 and D557.
2. Connect a DC voltmeter between pin ⑫ of IC501 on the A-board and chassis ground. If nearly +2.1V is not present on that point, check R5631, R511, R512, R513, D510, IC551 and IC501.
3. Carefully check the above specified parts and related circuits and parts. When the circuit is repaired, the Horizontal Oscillator Disable Circuit Test must be made again.

CIRCUIT EXPLANATION

HORIZONTAL OSCILLATOR DISABLE CIRCUIT

The positive DC voltage supplied from the cathode of D557 for monitoring the high voltage is applied to pin ④ of IC551 through R570 and to the base of Q903 through R909.

The voltage at the emitter of Q903 is regulated by Zener Diode D901. Under normal conditions, the voltage applied across the base and emitter of Q903 is not sufficient to cause emitter current to flow and holds the transistor cut off.

If the high voltage exceeds the specified level, the positive DC voltage supplied from the cathode of D557 increases. The voltage through D557 is dividing by R909 and R908, and applied to the base of Q903. If V_{be} is nearly more than +0.7V, the transistor Q903 turns on, and the collector voltage of Q903 lowers which is connected to the base of Q902.

Therefore Q902 turns on, and the collector voltage of Q902 increases, which is connected to the base of Q901. Consequently Q901 turns on, and collector current of Q901, which is connected to the pin ⑫ of IC501, begins to flow simultaneously. This causes the horizontal oscillator frequency to increase, and also causes loss of horizontal synchronization. (Fig. 11)

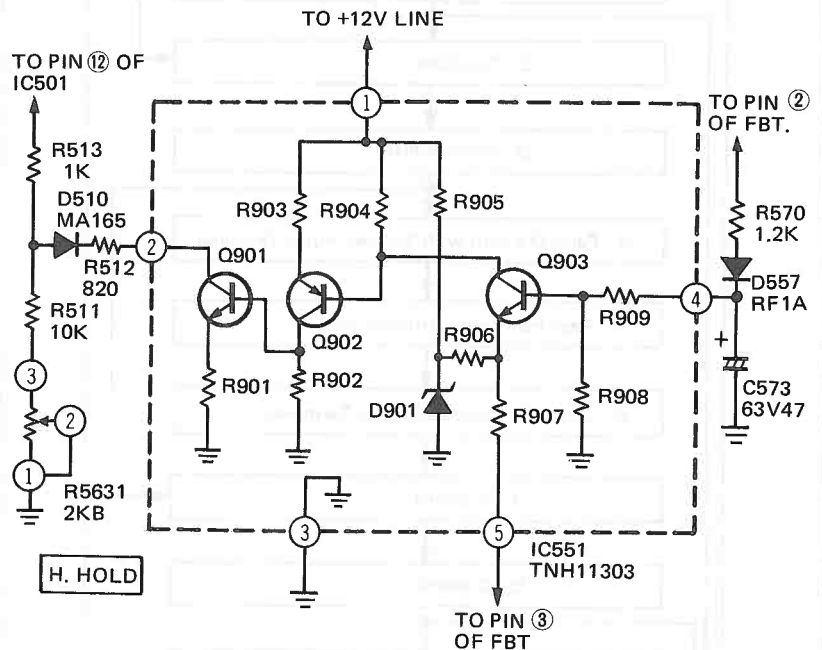


Fig. 11

DISASSEMBLY INSTRUCTIONS

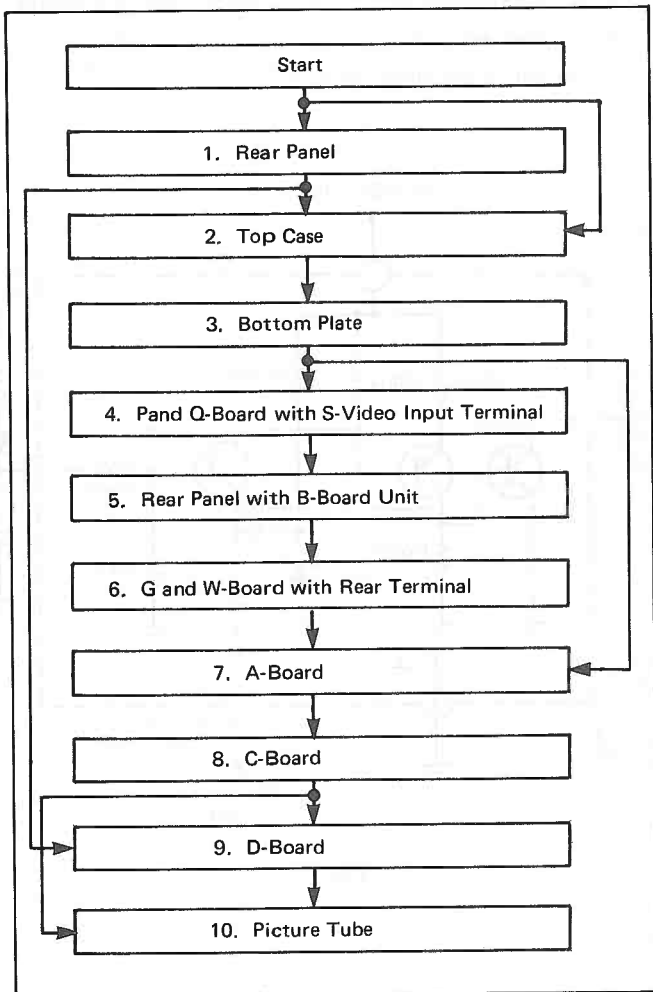
WARNING:

1. When turning over a P.C. Board to adjust it, be sure to lay on insulating material under it in order to prevent shorting.
2. P.C. Boards and wires should not be pulled forcibly, but be handled carefully.
3. Before disassembly, remove the AC plug from the wall outlet.
4. When removing the back over take care not to damage the neck of the CRT.
5. Printed boards and connectors should be handled with care-avoid handling them forcibly!
6. When handling the A-Board with the power ON, there is a risk of an Electric shock if you use the COLD side heat sink while working on the HOT side of the chassis.

DISASSEMBLY FLOWCHART

This flowchart indicates disassembly items of the cabinet parts and Circuit Boards in order to find the item(s) necessary for servicing.

When reassembling, perform the step(s) in the reverse order.



1. REMOVAL OF REAR PANEL

Unscrew 8 screws (A). Then carefully lift the Rear Panel to remove.

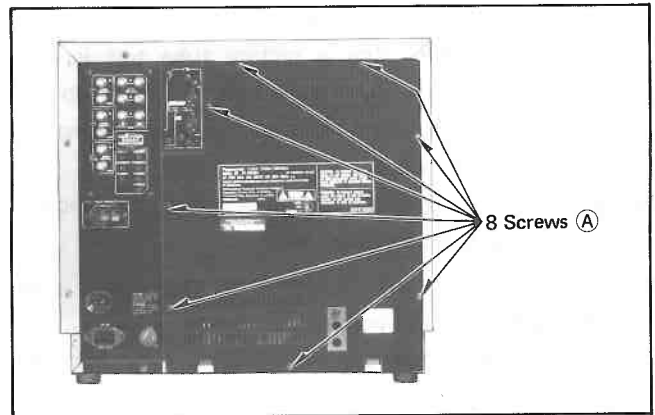


Fig. 12

2. REMOVAL OF TOP CASE

1. Remove the rear panel.
2. Unscrew 8 screws (B).

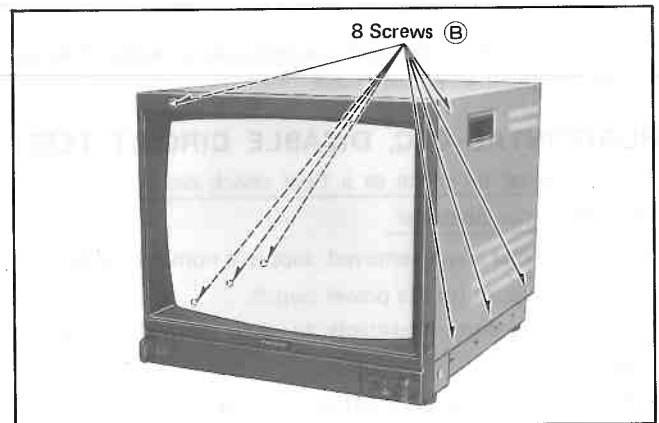


Fig. 13

3. Unscrew 3 screws (C). Then carefully lift the rear of the Top Case to remove.

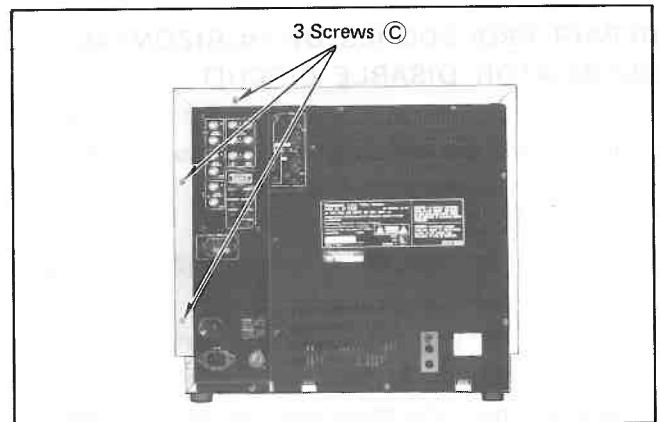


Fig. 14

3. REMOVAL OF BOTTOM PLATE

Unscrew 2 screws (D). Then carefully remove the Bottom Plate.

Note: Please the cushion under the set for not damaged the Front portion of the set.

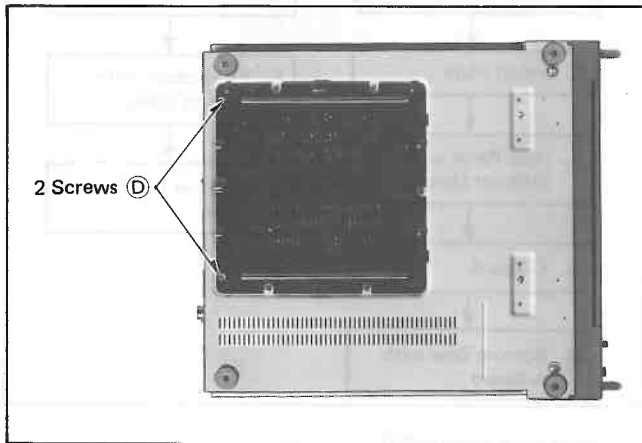


Fig. 15

4. REMOVAL OF P AND Q-BOARD WITH S-VIDEO INPUT TERMINAL (COLD).

Unscrew 2 screws (E). Then carefully remove the P and Q-Board with S-Video Input Terminal.

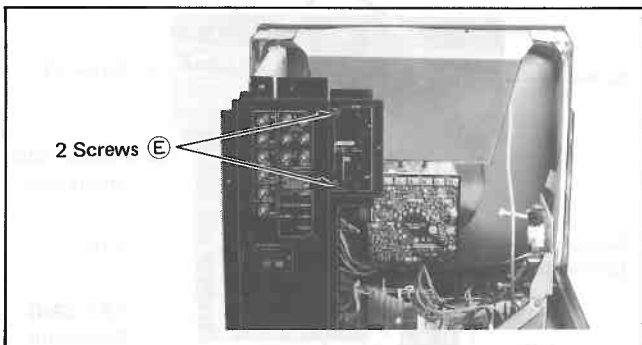


Fig. 16

5. REMOVAL OF REAR PANEL WITH B-BBOARD UNIT (HOT AND COLD)

1. Unscrew 2 screws (F).

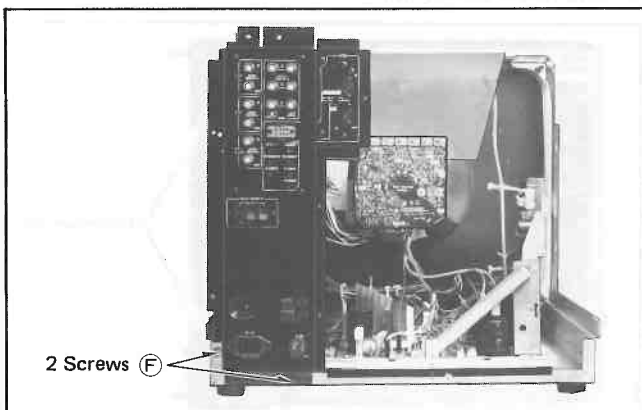


Fig. 17

2. Unscrew 2 screws (G) and unlock the 2 locking portions. Then carefully lift off the Rear Panel with B-Board Unit to remove.

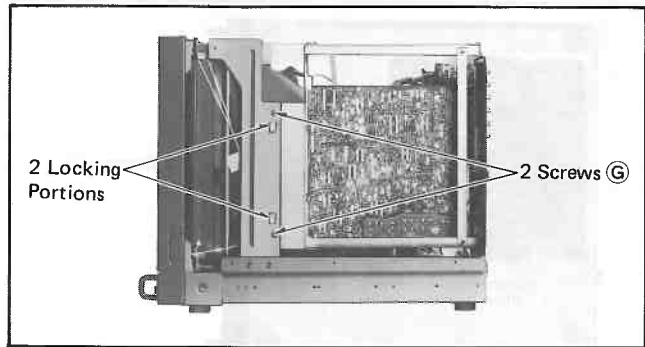


Fig. 18

6. REMOVAL OF G AND W-BOARD WITH REAR TERMINAL (COLD)

Remove the P and Q-Board with S-Video input terminal. Unscrew 6 screws (H). Then carefully remove the G and W-Board with rear terminal.

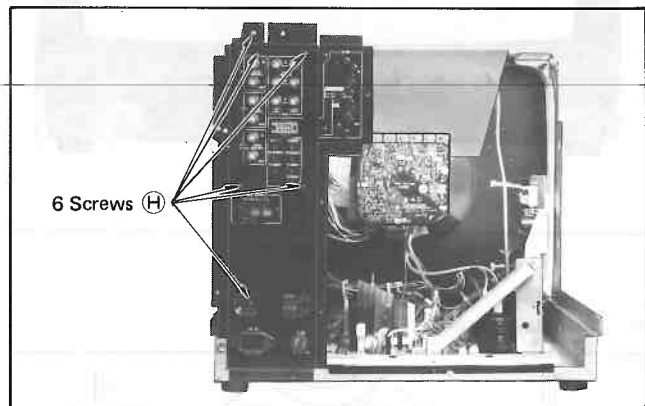


Fig. 19

7. OPENING OF A-BOARD (HOT AND COLD)

1. Unscrew 5 screws (I), and remove the reinforcing angle and A-Board holder.
2. Carefully slide the board toward you and opening the A-Board.

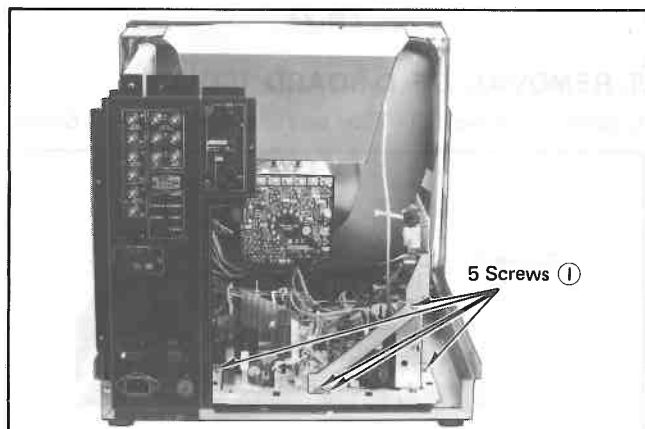


Fig. 20

8. REMOVAL OF C-BOARD (COLD)

1. Remove the A-Board.
2. Unscrew 2 screws (J).

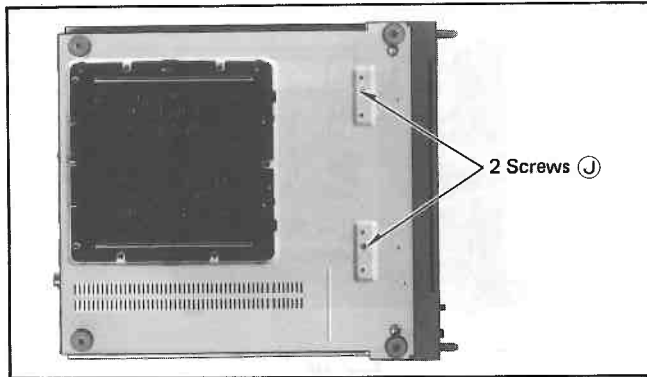


Fig. 21

3. Remove 5 control knob.

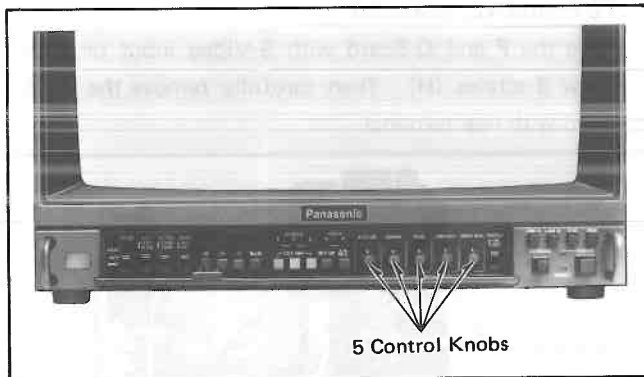


Fig. 22

4. Unscrew 3 screws (K).

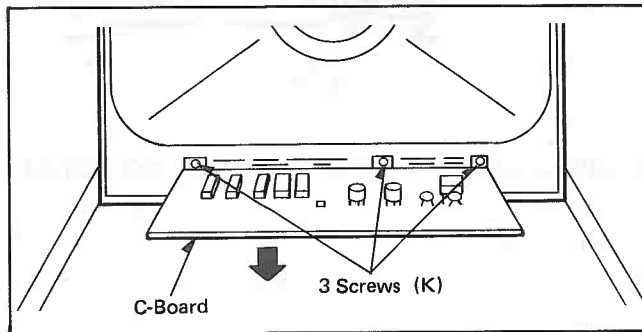


Fig. 23

9. REMOVAL OF D-BOARD (COLD)

Unscrew 2 screws (L). Then carefully remove the D-Board.

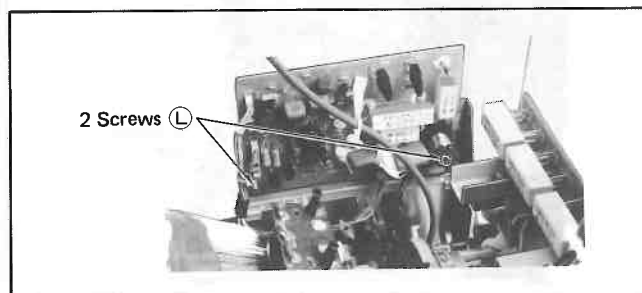
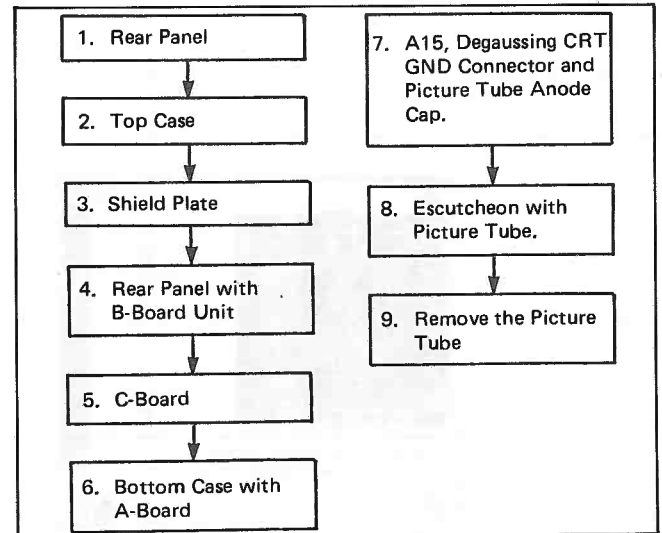


Fig. 24

10. REMOVE OF PICTURE TUBE



1. Unscrew 4 screws (M).
2. Unscrew 2 screws (N) and remove the shield plate.
3. Then carefully remove the L (CRT)-Board.
4. Disconnect A15, Degaussing Connector and Picture Tube Anode Cap, and CRT GND connector.

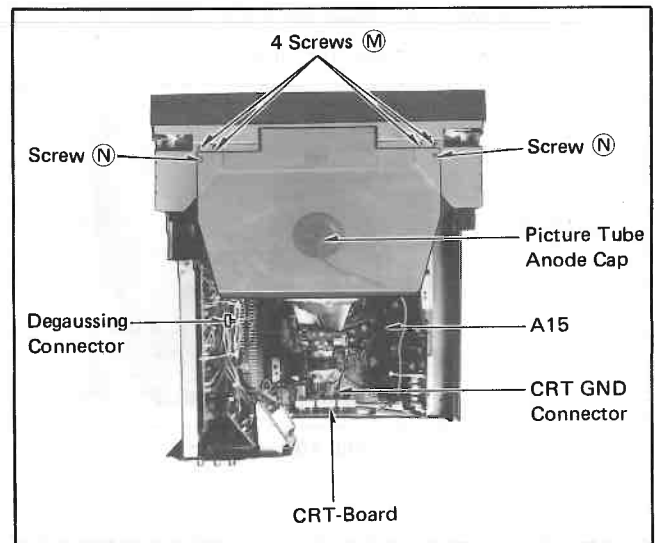


Fig. 25

5. Unscrew 4 screws (O).

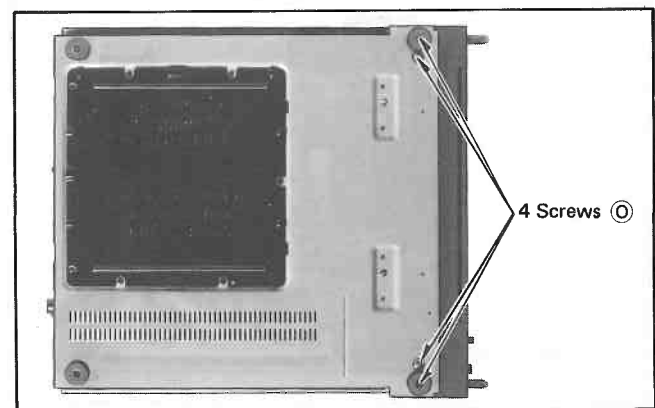


Fig. 26

6. Unscrew 2 screws (P).
Then carefully remove the Escutcheon with Picture Tube.

7. Unscrew 4 screws (Q). Then carefully lift top of Picture Tube to remove.

Note: Place the cushion under the picture tube for not being damaged the CRT of the picture tube.

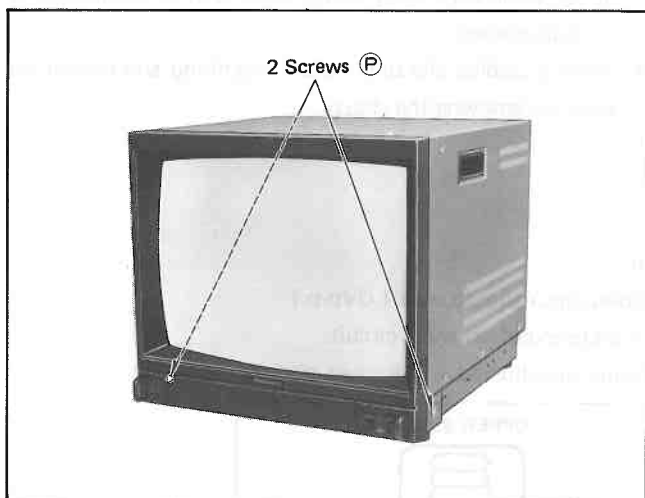


Fig. 27

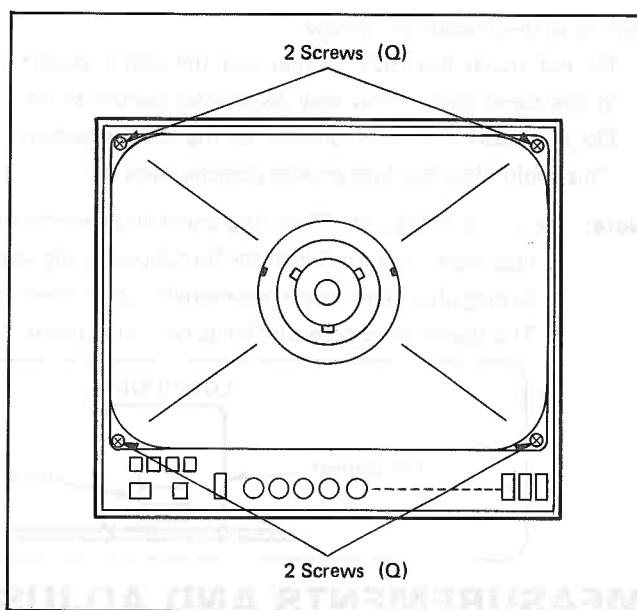


Fig. 28

CIRCUIT BOARD LAYOUT

B-BOARD :

SIGNAL DISPOSITION CIRCUIT

W-BOARD :

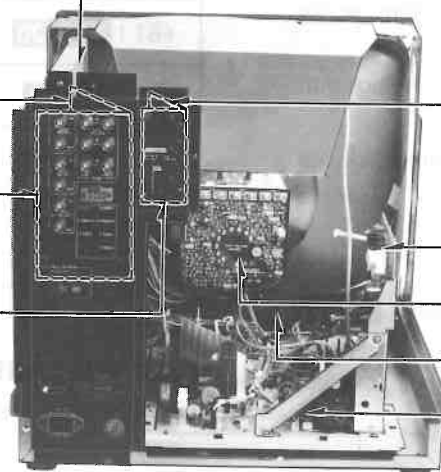
SIGNAL OUT CIRCUIT

G-BOARD :

REAR TERMINAL CIRCUIT

P-BOARD :

S-VIDEO TERMINAL CIRCUIT



Q-BOARD :

S-VIDEO SIGNAL OUT CIRCUIT

D-BOARD :

PINCUSHION CIRCUIT

L-BOARD :

CRT DRIVE CIRCUIT

C-BOARD :

OPERATION CIRCUIT

A-BOARD :

MAIN CIRCUIT

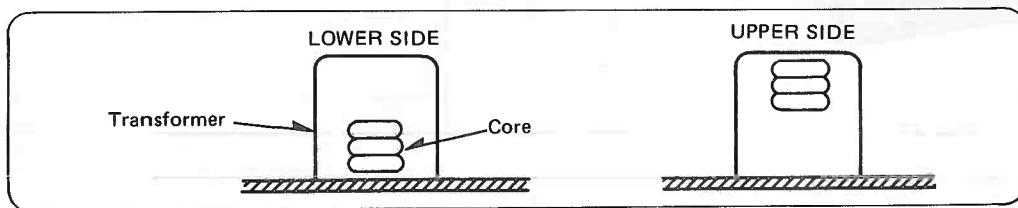
CAUTION FOR SERVICING

This model has a section that does not share a common sections are referred to as the HOT section and the ground with the power supply section. The different COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may receive an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or even damage parts.

Note: (Application for both Field Alignment and General Alignment)

1. Use Video pattern Generator for following alignments. (Video input should read 1.0Vp-p.)
2. During alignment, use a non-metallic screwdriver to prevent an unexpected short circuit.
3. The transformer core which has two tuning peak points, should be adjusted at the lower position as below:



MEASUREMENTS AND ADJUSTMENTS

B+ VOLTAGE (+100V) ADJUSTMENT

1. Connect an digital voltmeter between **TPD91** and **TPD5** (GND).
2. Apply a Full Field color bar signal.
3. Adjust the R5631 (H-Hold) set it at a point where horizontal movement is stopped.
4. Adjust the R5633 (V-Hold) set it at a point where vertical movement is stopped.
5. Set the following controls and switches to the position indicated.
 - Brightness VR (R5824) fully counterclockwise
 - Service switch (S401) service
 - Set-up switch (SW5806) ON
 - Preset switch (SW5815) OFF
6. Adjust R806 (+B2 Adj.) so that the voltage **TPD91** becomes $102.0V \pm 0.5V$.
7. Return the controls and switches to their original position.

B+ VOLTAGE CONFIRMATION

1. Apply a Full Field color bar signal.
2. Adjust the R5631 (H-Hold) set it at point where horizontal movement is stopped.
3. Adjust the R5633 (V-Hold) set it at a point where vertical movement stopped.
4. Set the following controls and switches to the position indicated.
 - Brightness VR (R5824) fully counterclockwise
 - Service switch (S401) service
 - Set-up switch (SW5806) ON
 - Preset switch (SW5815) OFF

3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.

5. Connect an digital voltmeter between each test point as follows.
6. Confirm the indicated test point for the specified voltage.

Test Point	Voltage
+B1 (TPD120 — TPD5 (GND))	$160V \pm 10V$
+B3 (TPD24 — TPD5 (GND))	$25.0V \pm 2.0V$
+B4 (TPB10 — TPD5 (GND))	$15.5V \pm 1.0V$
+B5 (TPD12 — TPD5 (GND))	$12.0V \pm 0.5V$

7. Return the controls and switches to their original position.

HIGH VOLTAGE CONFIRMATION

1. Set the following controls and switches to the position indicated.
 - Set-up switch (SW5806) ON
 - Preset switch (SW5815) OFF
 - Brightness VR (R5824) fully counterclockwise
2. Apply a Full Field color bar signal.
3. Adjust the R5631 (H-Hold) set it at a point where horizontal movement is stopped.
4. Adjust the R5633 (V-Hold) set it at a point where vertical movement is stopped.
5. Connect a High voltage meter (electrostatic type) to the anode for the picture tube.

6. Confirm the indicated for the specified voltage.

Switch Position <input type="checkbox"/>	Voltage
ON (Over Scan)	24.5 kV \pm 1.5 kV - 1.2 kV
OFF (Under Scan)	24.5 kV \pm 1.5 kV - 1.2 kV

COMB/TRAP LEVEL ADJUSTMENT

1. Apply a Full Field color bar signal.
2. Connect an oscilloscope to **TPB7** and GND.
3. Set the following switches to the position indicated.
Filter selector switch (SW5808) TRAP
Color mode selector switch (S5810) AUTO
4. Then keep recoded of the (X)Vp-p on the waveform as shown in Fig. 29.
5. Set Filter selector switch (SW5808) to COMB position.
6. Adjust R5997 (COMB Gain) so that the amplitude becomes equal to that recorded in Step (4).
7. Set Filter selector switch (SW5808) to TRAP position.
8. Confirm that the difference in the amplitude compared with that recorded in step (4) is within the range of $\pm 15mVp-p$.

Note: If the difference is not within the range of $\pm 15mVp-p$ repeat the adjustments described in step (4) through (8).

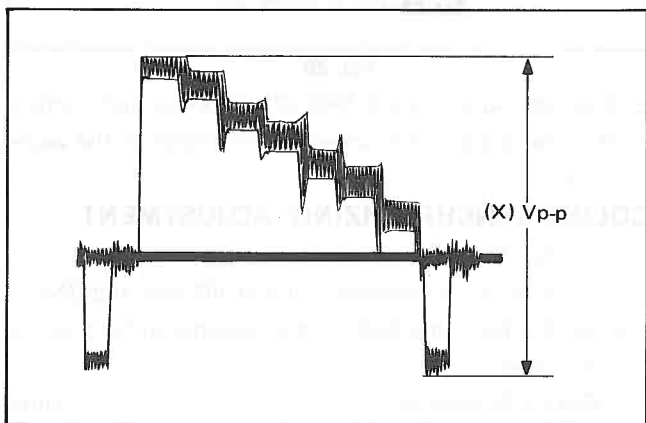


Fig. 29

COMB FILTER ADJUSTMENT

1. Apply a Full Field color bar signal.
2. Connect an oscilloscope to **TPB23** and GND.
3. Set the following switches to the position indicated.
Filter selector switch (SW5808) COMB
Color mode selector switch (S5810) AUTO
4. Adjust R5002 (COMB Level) to set 3.58 MHz sub carrier at the minimum amplitude.
5. Adjust L5002 to set 3.58 MHz sub carrier at the minimum amplitude as shown in Fig. 30.

6. Confirm that 3.58 MHz sub carrier portion of the magenta is less than 20mVp-p as shown in Fig. 30.

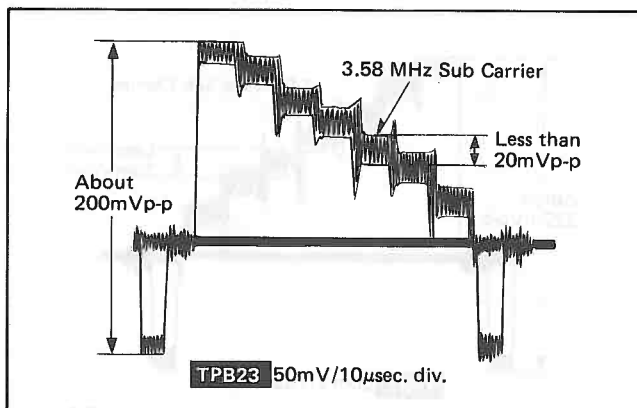


Fig. 30

7. If the amplitude is more than 20mVp-p repeat the adjustments described in step (4) through (6).
8. Disconnect an oscilloscope from **TPB23** and connect an oscilloscope to **TPB7**.
9. Adjust R5040 (CW. Level) to set 3.58 MHz sub carrier at the minimum amplitude.
10. Adjust C5010 to set 3.58 MHz sub carrier at the minimum amplitude.
11. Confirm that 3.58 MHz sub carrier portion of the magenta is less than 20mVp-p as shown in Fig. 31.

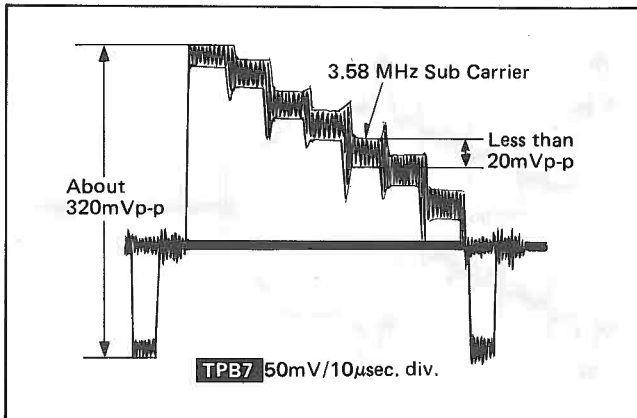


Fig. 31

12. If the amplitude is more than 20mVp-p repeat the adjustments described in step (9) through (11).

3.58 MHz TRAP FILTER ADJUSTMENT

1. Apply a Full Field color bar signal.
2. Connect an oscilloscope to **TPB7** and GND.
3. Set the following switches to the position indicated.
Filter selector switch (SW5808) TRAP
Color mode selector switch (S5810) AUTO
4. Adjust L5004 to set 3.58 MHz sub carrier at the minimum amplitude as shown in Fig. 32.

5. Confirm that 3.58 MHz sub carrier portion of the magenta is less than 30mVp-p as shown in Fig. 32.

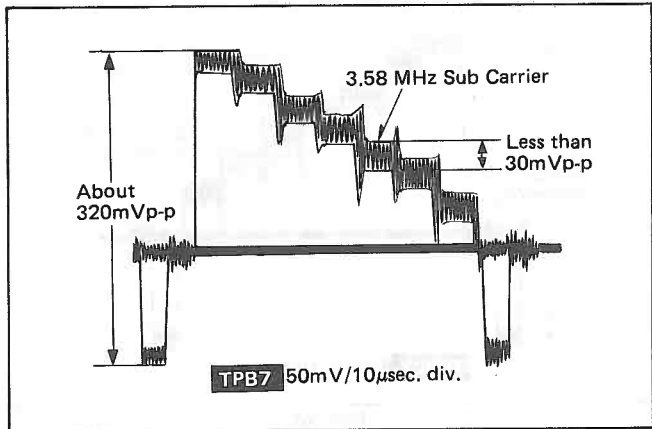


Fig. 32

APERTURE BALANCE ADJUSTMENT

1. Apply a Black and White signal.
2. Connect an oscilloscope to **TPB8** and GND.
3. Set the following controls and switches to the position indicated.

Filter selector switch (SW5808) COMB

Color mode selector switch (S5810) AUTO

4. Adjust R326 (APERTURE Balance) so that the waveform **TPB8** becomes as shown in Fig. 33.

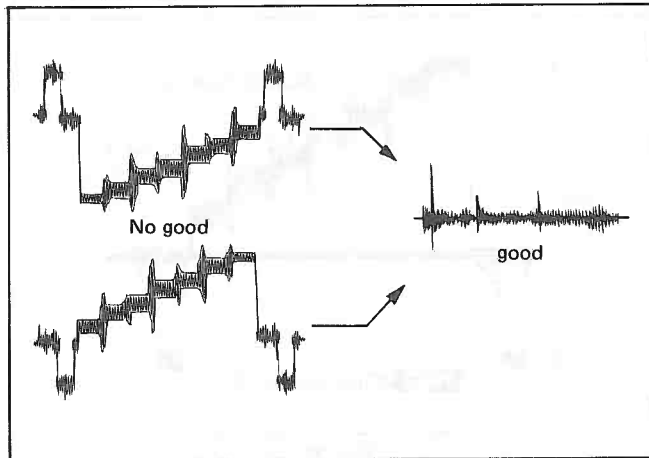


Fig. 33

APERTURE LEVEL ADJUSTMENT

1. Apply a CROSS-HATCH pattern signal.
2. Connect an oscilloscope to **TPB8** and GND.
3. Set the following control and switches to the position indicated.

Aperture VR(R5812). fully counterclockwise

Filter selector switch (SW5808) COMB

Color mode selector switch (S5810) AUTO

Preset switch (SW5815) OFF

4. Adjust R329 (APERTURE Adj.) so that the **TPB8** becomes 350mVp-p \pm 20mVp-p as shown in Fig. 34.

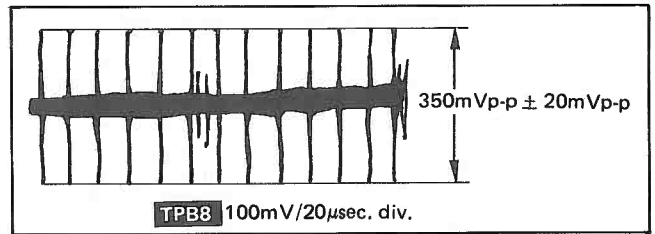


Fig. 34

Y (LUMINANCE) LEVEL ADJUSTMENT

1. Apply a Full Field color bar signal.
2. Connect an oscilloscope to **TPB9** and GND.
3. Set the following controls and switches to the position indicated.

Aperture VR (R5812) fully counterclockwise

Filter selector switch (SW5810) COMB

Color mode selector switch (S5810) AUTO

Preset switch (SW5815) OFF

4. Adjust R324 (Y-Level) so that the **TPB9** becomes 1.00Vp-p \pm 0.05Vp-p as shown in Fig. 35.

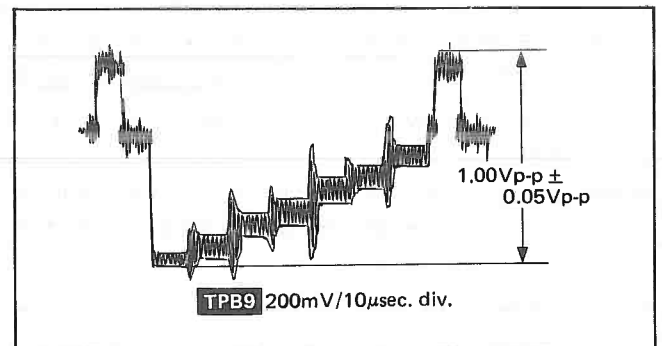


Fig. 35

5. Turn the Aperture VR (R5812) clockwise and confirm that the spike moves smoothly onto edge of the waveform.

COLOR SYNCHRONIZING ADJUSTMENT

1. Apply a Fully Field color bar signal.
 2. Connect an oscilloscope to IC601 (12 pin) and GND.
 3. Set the following controls and switches to the position indicated.
- Phase VR (R5809). center
- Chorma VR (R5804) fully clockwise
- Filter selector switch (SW5801) COMB
- Color mode selector switch (S5810) AUTO
- Preset switch (SW5815) OFF
4. Confirm that the color bar signal is preset. If it is not, adjust R626 (COLOR Sync) so that the color bar signal appears.
 5. Measure and record the voltage of IC601 (12 pin) at this moment.
 6. Turn the color bar signal to black and white signal.
 7. Adjust R626 (COLOR Sync) so that the difference between the voltage of IC601 (12 pin) at this moment

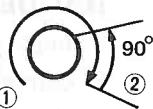
and the voltage recorded in Step (4) is within the range of $\pm 0.020V$.

8. Turn the color bar output to the color signal.
9. Turn Phase VR (R5809) both ways to confirm that the color does not disappear.
10. Confirm that the color is put on without delay when the color bar output is switched-over from the black and white signal to the color signal.

SUB CHROMA ADJUSTMENT

1. Apply a Full Field color bar signal.
2. Connect an oscilloscope to **TPB14** and GND.
3. Set the following controls and switches to the position indicated.

Phase VR (R5809) center

Chroma VR (R5804) Step ①→② 

Filter selector switch (SW5801) COMB
 Color mode selector switch (S5810) AUTO
 Preset switch (SW5815) OFF
 H-Delay switch OFF
 V-Delay switch OFF

4. Adjust Phase VR (R5809) and Chroma VR (R5804) so that the waveform **TPB14** becomes as shown in Fig. 36.

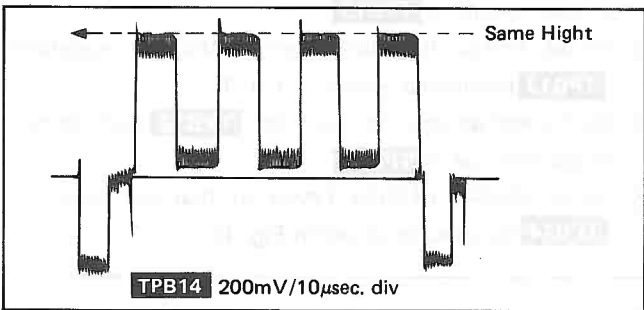


Fig. 36

5. Disconnect an oscilloscope from **TPB14** and connect an oscilloscope to **TPB6**.
6. Adjust R619 (SUB. Chroma) so that the **TPB6** becomes $400mVp-p \pm 25mVp-p$ as shown in Fig. 37.

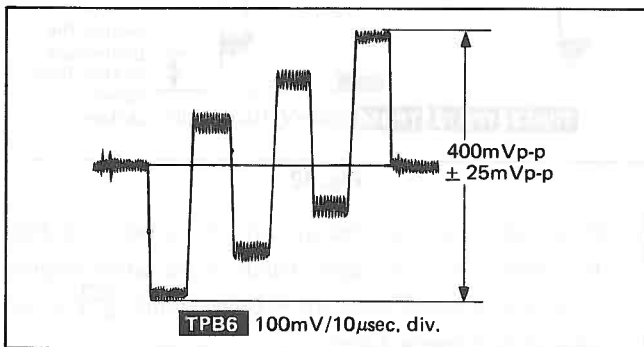


Fig. 37

COLOR GAIN AND PHASE ADJUSTMENT

1. Apply a Full Field color bar signal.
2. Connect an oscilloscope to **TPB6** and GND.

3. Set the following controls and switches to the position indicated.

Phase VR (R5809) center

Chroma VR (R5804) Step ①→② 

Preset switch (SW5815) OFF

4. Set color mode selector switch (S5810) to the AUTO position.
5. Record the waveform **TPB6**.
6. Set color mode selector switch (S5810) to the COLOR position.
7. Adjust R621 (CHROMA Gain) and R623 (TINT Comp) so that the waveform at this point of time becomes equal to that recorded in Step (5) as shown in Fig. 38.
8. Set color mode selector switch (S5810) to the AUTO position.
9. Confirm that the waveform at this point of time is equal to the waveform recorded in Step (7).

NOTE: In case a difference in the waveform is observed, repeat the adjustment described in Step (5) through (9).

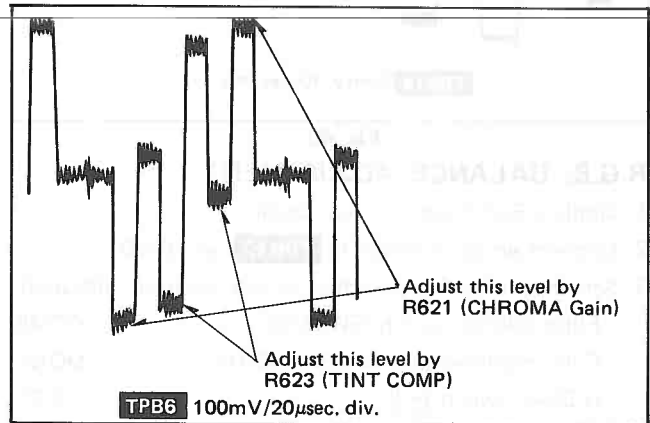


Fig. 38

10. Disconnect an oscilloscope from **TPB6** and connect an oscilloscope to **TPB5**.
11. Turn the color mode switch (S5810) to AUTO and COLOR several times. Confirm that there is no difference in waveform at each position. Also, while watching the display on the screen, confirm that there is no change in hue and saturation.

SUB COLOR ADJUSTMENT

1. Apply a Full Field color bar signal.
2. Connect an oscilloscope to **TPB14** and GND.
3. Set the following switches to the position indicated.
 Filter selector switch (SW5801) COMB
 Color mode selector switch (S5810) AUTO
 Preset switch (SW5815) OFF
 H-Delay switch OFF
 V-Delay switch OFF

- Adjust Chroma VR (R5804) and Phase VR (R5809) so that the waveform **TPB14** becomes as shown in Fig. 39.

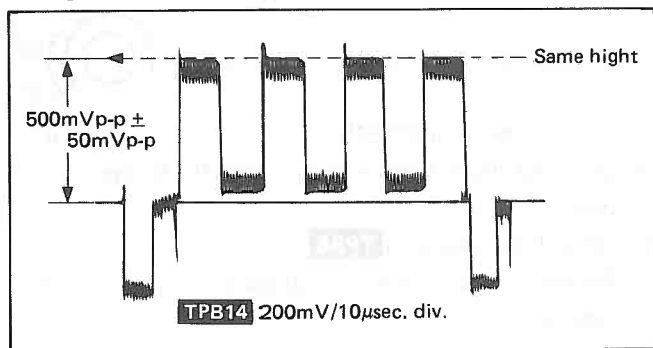


Fig. 39

- Set Chroma VR (R5804) to fully clockwise position.
- Adjust R5106 (Sub. Color) so that the waveform **TPB14** becomes $1.05Vp-p \pm 0.05V$ as shown in Fig. 40.

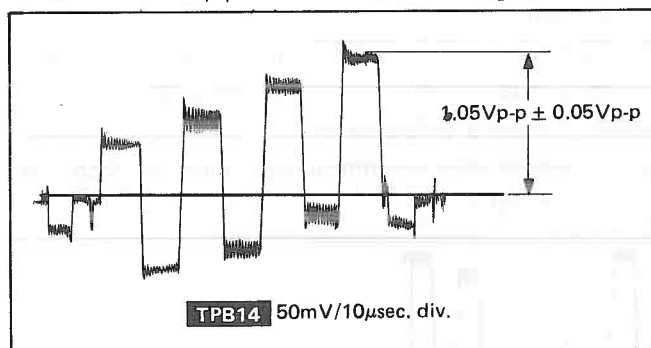


Fig. 40

R.G.B. BALANCE ADJUSTMENT

- Apply a Full Field color bar signal.
- Connect an oscilloscope to **TPB12** and GND.
- Set the following switches to the position indicated.

Filter selector switch (SW5810)	.....	COMB	
Color mode selector switch (S5810)	.....	MONO	
H-Delay switch	<input type="checkbox"/>	OFF
V-Delay switch	<input type="checkbox"/>	OFF
- Measure and record the amplitude of the waveform **TPB12** as shown in Fig. 41.

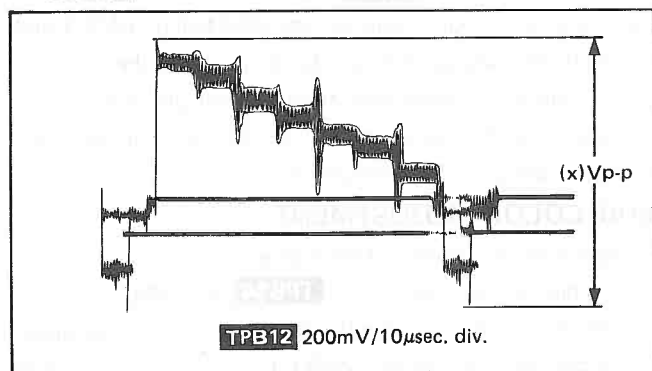


Fig. 41

- Disconnect an oscilloscope from **TPB12** and connect an oscilloscope to **TPB13**.

- Adjust R5115 (G-Level) so that the amplitude of **TPB13** becomes equal to the amplitude (**TPB12**) recorded in Step (4).
- Disconnect an oscilloscope from **TPB13** and connect and oscilloscope to **TPB14**.
- Adjust R5116 (B-Level) so that the amplitude of **TPB14** becomes equal to the amplitude (**TPB12**) recorded in Step (4).
- Confirm that the difference in amplitude among **TPB12**, **TPB13** and **TPB14** is within the range of $\pm 0.02Vp-p$.

NOTE: If the difference in amplitude is more than $\pm 0.02Vp-p$ repeat the adjustments of Step (4) through (9).

H/V DELAY WHITE BALANCE ADJUSTMENT

- Apply a Full Field color bar signal.
- Connect an oscilloscope to **TPB12** and GND.
- Set the following switches to the position indicated.

Filter selector switch (SW5808)	.....	COMB
Color mode selector switch (S5810)	.....	MONO
H-Delay switch	<input type="checkbox"/>	ON
- Adjust R5143 (R-Pulse Level) so that the waveform **TPB12** becomes as shown in Fig. 42.
- Disconnect an oscilloscope from **TPB12** and connect an oscilloscope to **TPB13**.
- Adjust R5142 (G-Pulse Level) so that the waveform **TPB13** becomes as shown in Fig. 42.
- Disconnect an oscilloscope from **TPB13** and connect an oscilloscope to **TPB14**.
- Adjust R5144 (B-Pulse Level) so that the waveform **TPB14** becomes as shown in Fig. 42.

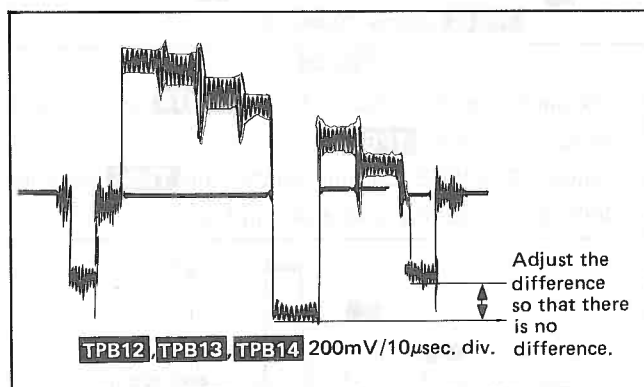


Fig. 42

- While watching the display on the screen, confirm that there is no significant change in the white balance on the entire screen when the H-Delay switch is turn ON and OFF several times.

IC GAIN ADJUSTMENT

1. Apply a window pattern signal.
2. Connect a CH-A of oscilloscope to **TPB13** and GND.
3. Connect a CH-B of oscilloscope to **TPB12** and GND.
4. Set the following controls switches to the position indicated:
 Contrast VR (R5819). Center
 Preset switch (SW5815) OFF
 Blue signal only switch (SW5809). ON
 H/V Delay switch OFF
5. Confirm that amplitude of waveform **TPB12**, **TPB13** and **TPB14** is the same.
6. Disconnect an oscilloscope from **TPB12** and **TPB13**, and connect an oscilloscope to **TPB47G** and **TPB47R**.
7. Adjust R5542 (R. IC BIAS) so that amplitude of waveform **TPB47G** and **TPB47R** is the same ($\pm 10\text{mVp-p}$).
8. Set Contrast VR (R5819) to fully clockwise position.
9. Adjust R5577 (R. IC GAIN) so that amplitude of waveform **TPB47G** and **TPB47R** is the same ($\pm 10\text{mVp-p}$).
10. Set Contrast VR (R5819) to center position, and then confirm that amplitude of waveform **TPB47G** and **TPB47R** is the same ($\pm 10\text{mVp-p}$).
11. Set Contrast VR (R5819) to fully counterclockwise position, and then confirm that amplitude of waveform **TPB47G** and **TPB47R** is the same.
12. If the same amplitude cannot be obtained in step 10 or step 11, than repeat step 7 through 11.
13. Connect a CH-B of oscilloscope to **TPB47B** and GND.
14. Set Contrast VR (R5819) to center position.
15. Adjust R5546 (B. IC BIAS) so that amplitude of waveform **TPB47G** and **TPB47B** is the same ($\pm 10\text{mVp-p}$).
16. Set Contrast VR (R5819) to fully clockwise position.
17. Adjust R5579 (B. IC GAIN) so that amplitude of waveform **TPB47G** and **TPB47B** is the same ($\pm 10\text{mVp-p}$).
18. Set Contrast VR (R5819) to center position, and then confirm that amplitude of waveform **TPB47G** and **TPB47B** is the same ($\pm 10\text{mVp-p}$).
19. Set Contrast VR (R5819) to fully counterclockwise position, and then confirm that amplitude of waveform **TPB47G** and **TPB47B** is the same.
20. If the same amplitude cannot be obtained in step 18 or step 19, then repeat step 14 through 19.

COLOR PURITY ADJUSTMENT

1. Operate the monitor over 30 minutes.
2. Fully degauss the picture tube by using an external degaussing coil.
3. Apply a crosshatch pattern signal and adjust roughly the static convergence magnets.
4. Apply a video signal of white full-field.
5. Set R-Cut OFF switch and B-Cut OFF switch to ON position.

6. Loosen the deflection yoke clamp screw and move the deflection yoke as close to the purity magnets as possible.
7. Remove the silicone sealer and adjust the purity magnets so that a green field is obtained at the center of the screen as shown in Fig. 43.

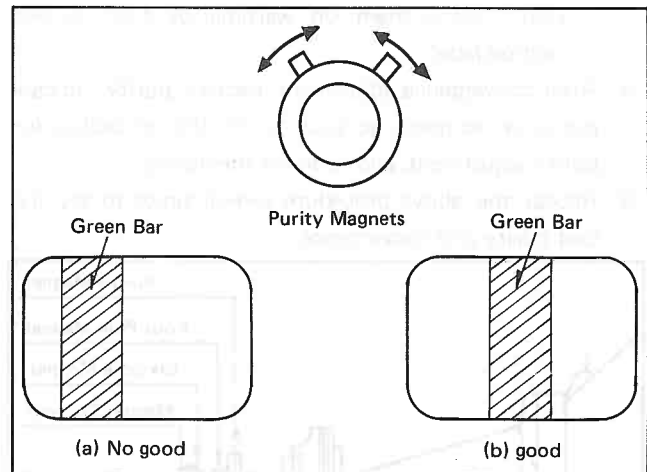


Fig. 43

8. Slowly position the deflection yoke and set it where a uniform green field is obtained.
9. Set R-Cut OFF switch and B-Cut OFF switch to OFF position.
10. Adjust roughly the Low Light controls (on the CRT P.W.B) and make sure that a uniform white field is obtained.
11. Tighten the deflection yoke clamp screw.

CONVERGENCE ADJUSTMENT

1. Fully degauss the picture tube by using an external degaussing coil.
2. Input the cross hatch pattern of R and B with the signal generator.
3. Match the R and B at screen center with four pole magnet. (Rotate the two ring magnets to move the red, blue dots circularly in the opposite direction.)
4. Input the cross hatch pattern of R.G.B. with the signal generator.
5. At the screen center, match R and B to G with the six-pole magnet.
6. Fine tune the D:Y. location to get good convergence on the whole screen.

- If the convergence on the fringe area is bad, attach small magnets at the four corners of D.Y. to improve the convergence.

Note: Caution for installing small magnets.

Keep more than 20 mm distance from anode cap.

Don't put them on top of one another.

Don't place them on warning or high voltage caution label.

- After convergence adjustment, recheck purity. In case purity is no good, go back to (7) the procedure for purity adjustment, and re-adjust the purity.
- Repeat the above procedure several times to try the best purity and convergence.

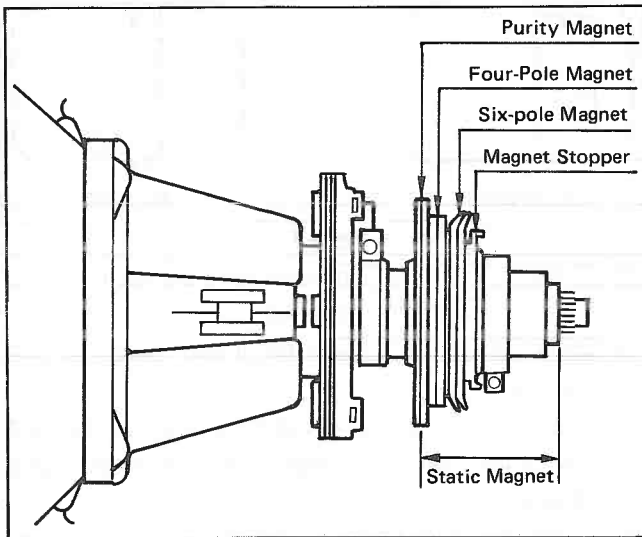


Fig. 45

HORIZONTAL-HOLD AND VERTICAL HOLD ADJUSTMENT

- Apply a mono scope pattern signal.
- Connect **TPD5** and **TP33** together using clip lead jumper.
- Adjust the R5631 (H-Hold) and set it at a point where horizontal movement is stopped.
- Remove the clip lead jumper.
- Remove the coupler A17 from A-Board and confirm that V-Hold runs.
- Apply a frequency counter to TP82 .
- Adjust the R5633 (V-Hold) and set it a point where indicates the 55.5 Hz.
- Insert the coupler A17 to A-Board and confirm that V-Hold does not run.

CRT CUT OFF ADJUSTMENT

- Apply Full Field color bar signal.
- Set the following controls and switches to the position indicated.

R-Drive (R5827)	} (On the Front Panel)	Center
B-Drive (R5835)		
R-Screen (R5829)		
G-Screen (R5833)		
B-Screen (R5837)		

R363 (R-Sub. Screen) . . . Step ①→②	} (bottom view)	
R364 (G-Sub. Screen) . . . Step ①→②		
R365 (B-Sub. Screen) . . . Step ①→②		

R5544 (Max. Brightness)	} Center
R5864 (Max. Contrast)	

R5595 (R-Sub. Drive)	} Center	
R5597 (B-Sub. Drive)		

(top view)

- | | |
|---------------------------|---------------------------|
| Brightness VR (R5824) | Center |
| Screen VR (On the F.B.T.) | fully clockwise |
| Set-up switch (SW5806) | ON |
| Preset switch (SW5815) | OFF |
| Service switch (S401) | SERVICE |
- Slowly turn the screen(on the F.B.T.) control counter-clockwise to the point where one of the R,G,B beams just appears on the picture tube.
 - Connect a test point (**TPL1** , **TPL2** or **TPL3**) corresponding to the color emitted in Step (3) with the oscilloscope.
 - Adjust Brightness VR (R5824) so that the Test Point becomes 110V as shown in Fig. 46.

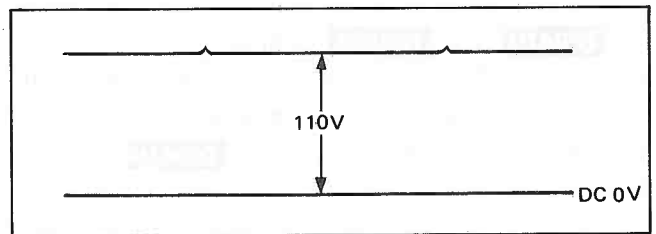


Fig. 46

- Adjust Screen VR (on the F.B.T.) so that the color adjusted to 110V can shine faintly.
- Slowly rotate the semi-fixed VR corresponding to the residual non-luminous colors clockwise until the line turns white. (from the bottom side)

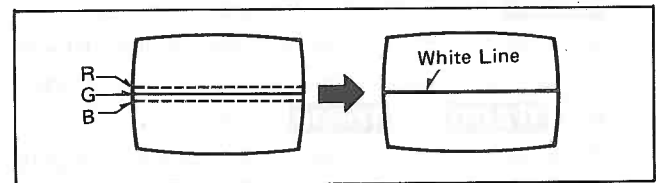


Fig. 47

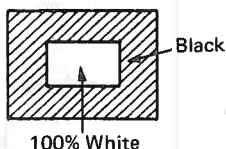
- Set the following switches to the position indicated.

Set-up switch (SW5806)	. . . . . OFF
Service switch (S401)	. . . . . NORMAL
Color Mode switch (S5810)	. . . . . MONO
- Confirm that no remarkable gap of white tone balance is found in a black-and-white signal.

WHITE BALANCE ADJUSTMENT

- Operate the monitor over 30 minutes.
- Apply a window pattern signal.
- Set the following controls and switches to the position indicated.

Contrast VR (R5819)	fully clockwise
R5864 (Max. Contrast)	Center
Brightness VR (R5824)	fully clockwise
H/V Delay switch	OFF
- Fully degauss the picture tube by using an external degaussing coil.
- Secure the light receiving part of a TV-color analyzer (MINOLTA) at the screen center.
- Turn Set-Up Switch ON.
- Adjust R5544 (Max. Brightness) to set the Max. Brightness to 3.0 ± 0.1 ft-L.
- Adjust R363 (R. Sub. Screen), R365 (B. Sub. Screen) to set the $x = 0.315 \pm 0.02$, $y = 0.325 \pm 0.02$,
Temperature of adjusted color = 6500°K .
- Turn Set-Up Switch OFF.
- Apply a window pattern signal.
- Adjust R5864 (Max. Contrast VR) to set the luminance to 62.5 ± 1.0 ft-L.
- Adjust R5595 (R. Sub. Drive), R5597 (B. Sub. Drive) to set the $x = 0.315 \pm 0.02$, $y = 0.325 \pm 0.02$.



Note: Since the adjustments of Steps (7) through (11) have mutual influences, be sure to repeat the follow-up adjustment.

H/V DELAY LOW LIGHT ADJUSTMENT

- Operate the monitor over 30 minutes.
- Apply a Black signal.
- Set the following controls and switches to the position indicated.

Contrast VR (R5819)	fully clockwise
H/V Delay switch	OFF
Preset switch (SW5815)	OFF
- Fully degauss the picture tube by using an external degaussing coil.
- Secure the light receiving part of a TV-color analyzer (MINOLTA) at the screen center.
- Adjust Brightness VR (R5824) to set the liminance (Low Light) to 1.5 ± 0.1 ft-L.
- Confirm that the $x = 0.315 \pm 0.02$, $y = 0.325 \pm 0.02$.
- Set V-Delay switch to ON position.
- Adjust R5142 (G-Pulse Level), R5143 (R-Pulse Level), R5144 (B-Pulse Level) to set the $x = 0.315 \pm 0.02$, $y = 0.325 \pm 0.02$.

VERTICAL LINEARITY ADJUSTMENT

- Apply a CROSS-HATCH pattern signal.
- Set Scan Size switch to OFF position.
- Adjust the R453 (Vertical Lineality Control) to each line is the same distance as shown in Fig. 48.

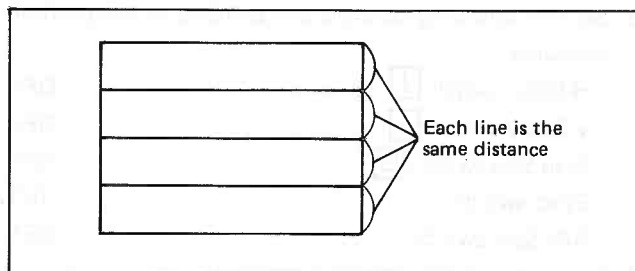


Fig. 48

PINCUSHION ADJUSTMENT

- Apply a CROSS-HATCH pattern signal.
- Set Scan Size switch to ON position.
- Adjust the R768 (Side Pincushion Control) so that the both of the Side Vertical lines are straight as shown in Fig. 49.

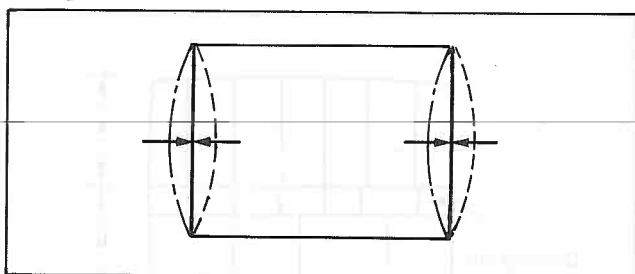


Fig. 49

H/V DELAY POSITION ADJUSTMENT

- Apply a Full Field color bar signal.
- Set the following switches to the position indicated.

Scan Size switch <input type="checkbox"/>	OFF
H-Delay switch <input type="checkbox"/>	ON
V-Delay switch <input type="checkbox"/>	ON
- Adjust R5429 (H-Delay Position), R5440 (V-Delay Position) so that the displayed on the screen becomes as shown in Fig. 50.

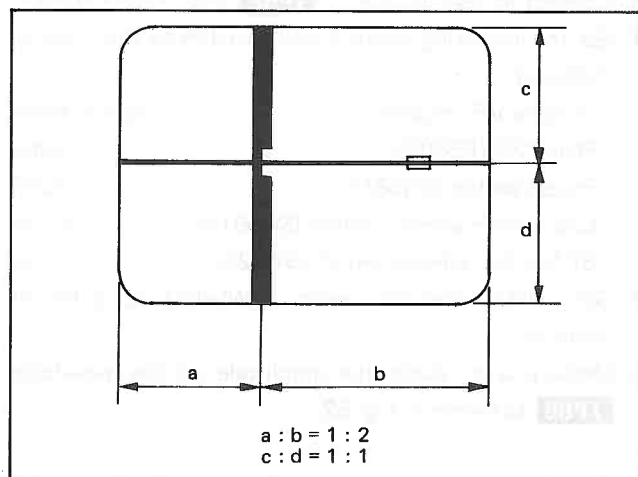


Fig. 50

A/B SPLIT POSITION ADJUSTMENT

1. Apply a Full Field color bar signal to the LINE A IN terminal on the rear panel.
2. Apply a Full Field color bar signal to the LINE B IN terminal on the rear panel.
3. Set the following controls and switches to the position indicated.

H-Delay switch <input type="checkbox"/>	OFF
V-Delay switch <input type="checkbox"/>	OFF
Scan Size switch <input checked="" type="checkbox"/>	OFF
Sync. switch	.....	INT
A/B Split switch	.....	OFF
4. Set sync. switch to the EXT. position.
5. Confirm that there is no difference in screen.
6. Set sync. switch to the INT. position.
7. Set A/B split switch (SW5805) to ON position.
8. Adjust R5991 (A/B split position) so that the dividing line on the screen becomes a half and half as shown in Fig. 51.

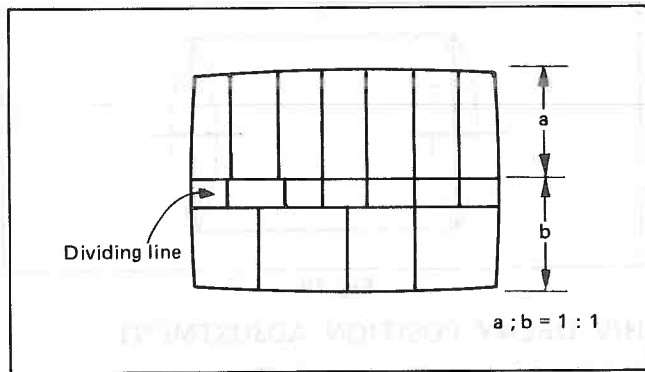


Fig. 51

S-VIDEO CHROMA ADJUSTMENT

1. Apply a Full Field color bar signal to the LINE A IN terminal on the rear panel.
2. Apply a Y/C signal (Full Field color bar) to the S-Video IN terminal on the rear panel.
3. Connect an oscilloscope to **TPB6** and TPB11 (GND).
4. Set the following controls and switches to the position indicated.

Chroma VR (R5804)	.....	fully clockwise
Phase VR (R5809)	.....	center
Pre-set switch (SW5815)	.....	OFF
Color mode selector switch (SW5815)	.....	COLOR
8P S-Video selector switch (SW5201)	.....	.75Ω
5. Set INPUT selector switch (SW5801) to LINE A position.
6. Measure and record the amplitude of the waveform **TPB6** as shown in Fig. 52.

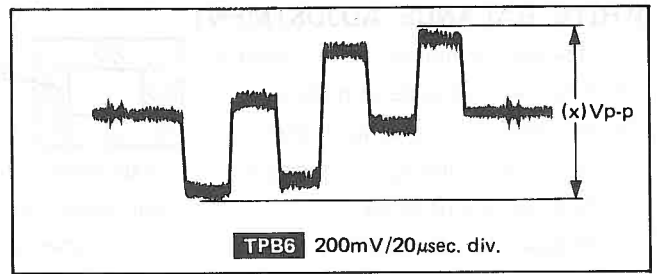
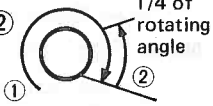


Fig. 52

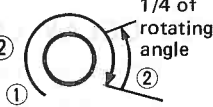
7. Set INPUT selector switch (SW5801) to VTR position.
8. Adjust R5216 (S-VHS Chroma) so that the amplitude of **TPB6** becomes equal to that of Step (6).
9. Turn INPUT selector switch (SW5801) to LINE A and VTR several times. Confirm that there is no difference in waveform at each position, also, while watching the display on the screen, confirm that there is no change in Chroma.

PRESET ADJUSTMENT

1. Apply a SMPTE color bar signal.
2. Fully degauss the picture tube by using an external degaussing coil.
3. Set Preset switch (SW5815) to ON position.

Preset Contrast (R5817) .. Step ① → ② 

Preset Brightness (R5822) .. Center

Preset Chroma (R5802) .. Step ① → ② 

- Preset Phase (R5807) .. Center
- Preset Aperture (R5812) .. fully counterclockwise
- Blue signal/Only switch (SW5809) .. ON
- Scan Size switch .. OFF (Over Scan)
5. Adjust Preset Chroma (R5802), Preset Phase (R5807) so that the luminance at SMPTE Color bar pattern (on the displayed) becomes Fig. 53.

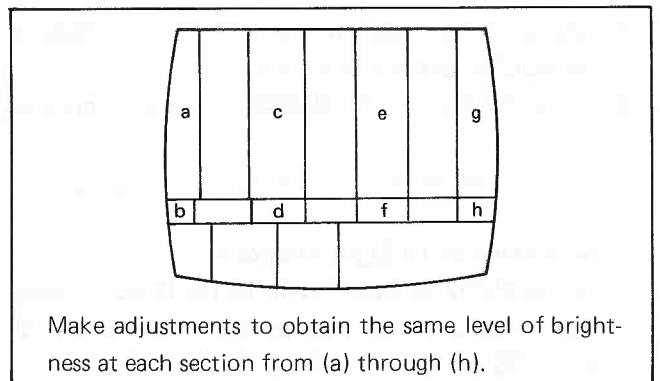


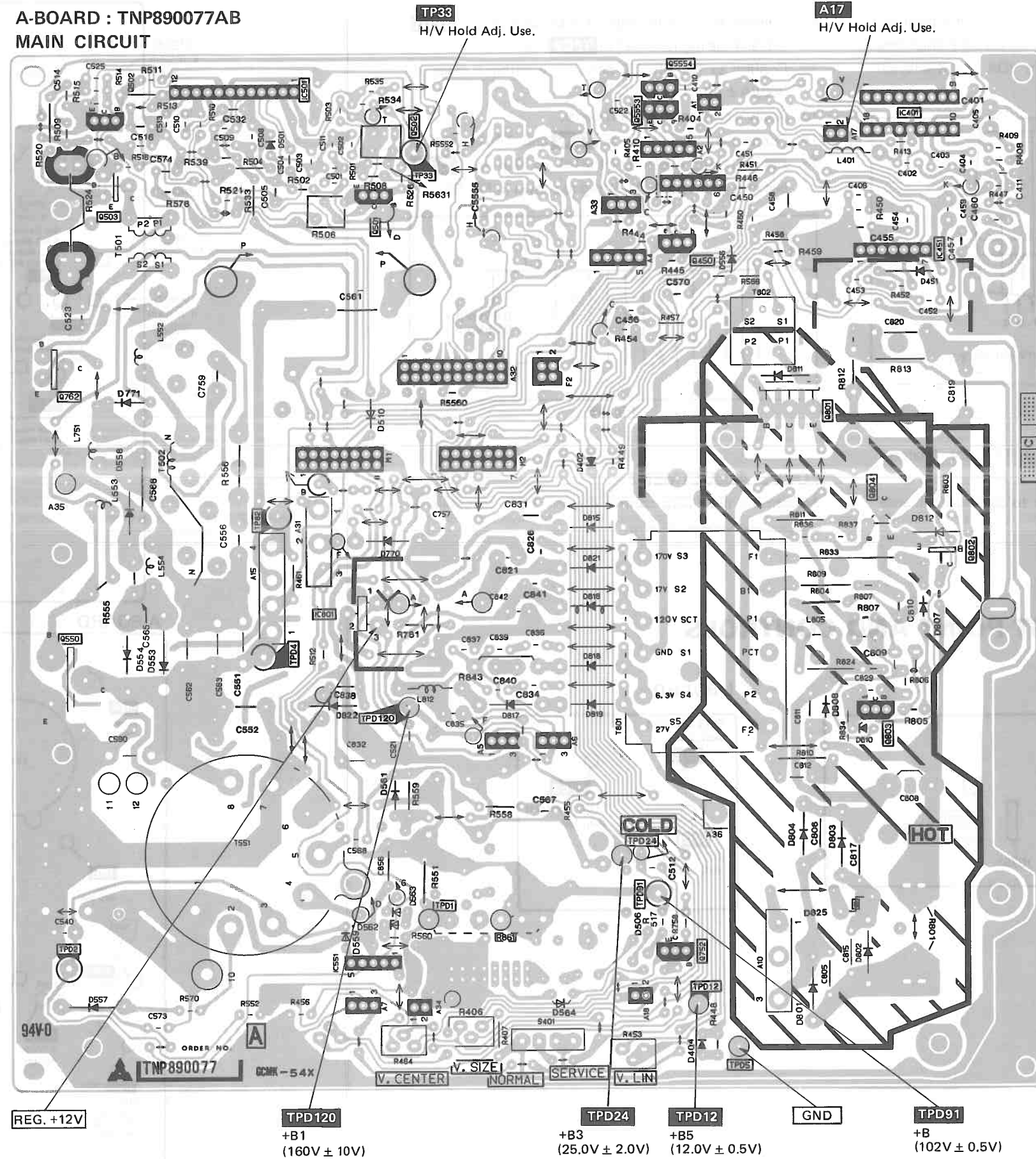
Fig. 53

CIRCUIT BOARD

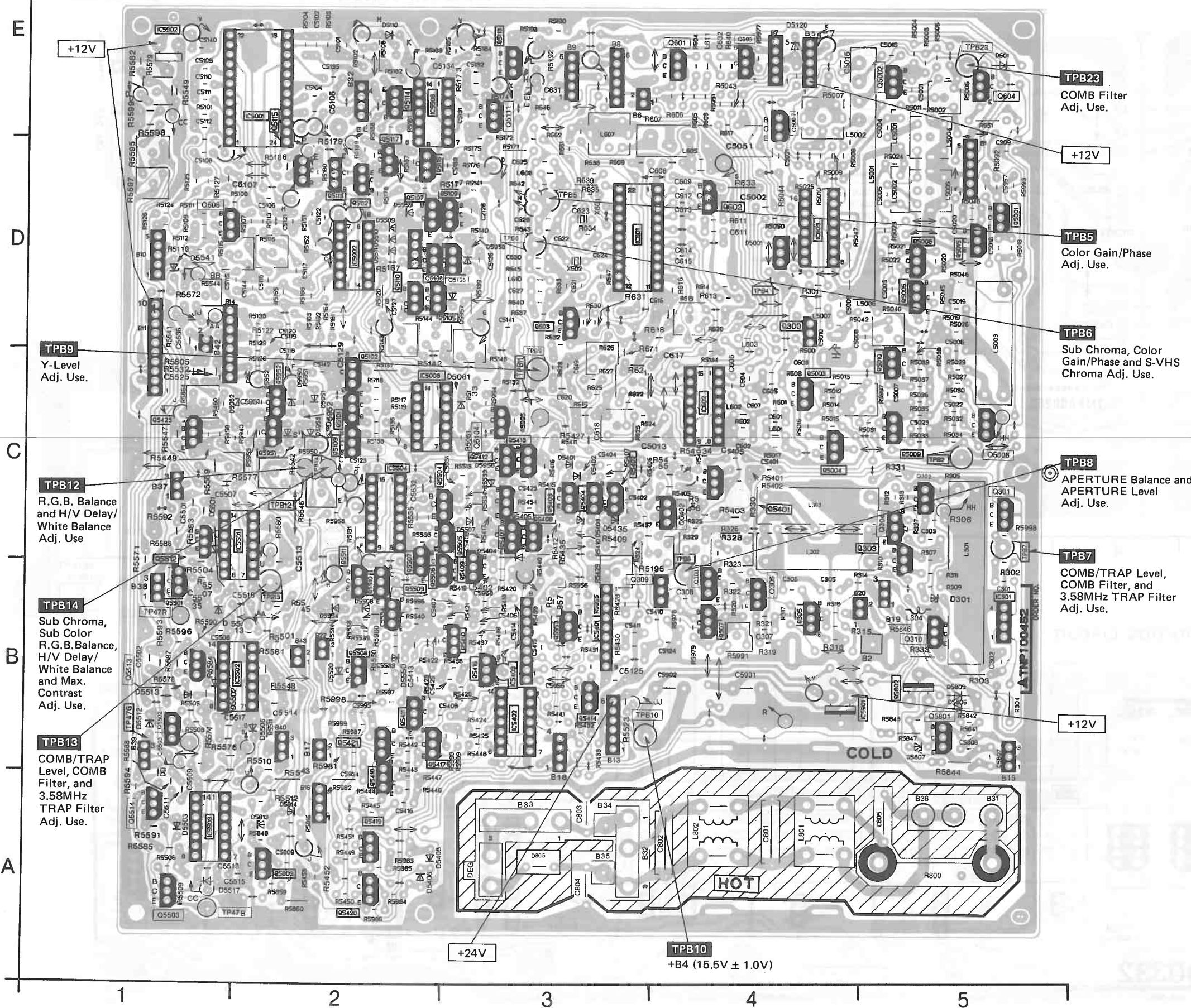
A-BOARD : TNP890077AB MAIN CIRCUIT

A-BOARD	
Integrated Circuit	
IC401	E-1
IC451	D-1
IC501	E-4
IC551	A-4
IC801	C-4
Transistor	
Q450	D-2
Q501	E-4
Q503	E-5
Q505	E-5
Q550	C-5
Q762	D-5
Q801	D-2
Q802	C-1
Q803	B-2
Q804	C-2
Q5553	E-3
Q5554	E-3
VR	
R453	A-3
R506	E-4
R806	C-1
R5631	E-4
TP	
TPD1	A-4
TPD2	A-5
TPD4	C-4
TPD5	A-2
TPD12	A-2
TPD24	B-3
TPD91	B-3
TPD120	B-4
TP33	E-4
TP82	C-4

ADDRESS INFORMATION



**B-BOARD : TNP100462ZA
SIGNAL DISPOSITION CIRCUIT**



B-BOARD					
Integrated Circuit		Q5108	D-3	VR	
IC301	B-5	Q5109	D-2	R324	C
IC601	D-3	Q5110	D-2	R326	C
IC602	C-4	Q5111	E-3	R329	C
IC603	D-4	Q5112	D-2	R612	B
IC5001	E-2	Q5113	D-2	R619	D
IC5002	D-2	Q5114	E-2	R621	C
IC5003	C-2	Q5115	D-2	R623	C
IC5401	B-3	Q5116	D-2	R626	C
IC5402	B-3	Q5117	D-2	R5002	D
IC5403	B-3	Q5118	E-3	R5040	D
IC5501	B-2	Q5401	C-4	R5106	E
IC5502	B-1	Q5402	C-3	R5115	D
IC5503	A-1	Q5403	C-3	R5116	D
IC5504	C-2	Q5404	C-3	R5142	C
IC5506	E-3	Q5406	C-3	R5143	D
IC5901	B-4	Q5407	B-3	R5144	D
IC5902	E-1	Q5408	C-3	R5429	B
		Q5409	B-3	R5440	B
		Q5410	B-3	R5444	C
		Q5411	B-2	R5445	D
		Q5412	C-3	R5446	C
		Q5413	C-3	R5864	C
		Q5414	B-3	R5991	B
		Q5416	B-3	R5997	C
		Q5417	B-2	C5010	E
		Q5418	A-2	L5002	E
		Q5419	A-2		
		Q5420	A-2		
		Q5421	B-2		
		Q5422	C-4		
		Q5423	C-1		
		Q5501	B-1		
		Q5502	B-1		
		Q5503	A-1		
		Q5504	C-3		
		Q5505	C-3		
		Q5506	B-2		
		Q5507	B-2		
		Q5508	B-2		
		Q5509	B-2		
		Q5510	B-2		
		Q5511	B-2		
		Q5801	B-5		
		Q5802	B-5		
		Q5803	A-2		
		Q5951	C-2		
		Q5952	C-2		
		Q5953	B-3		

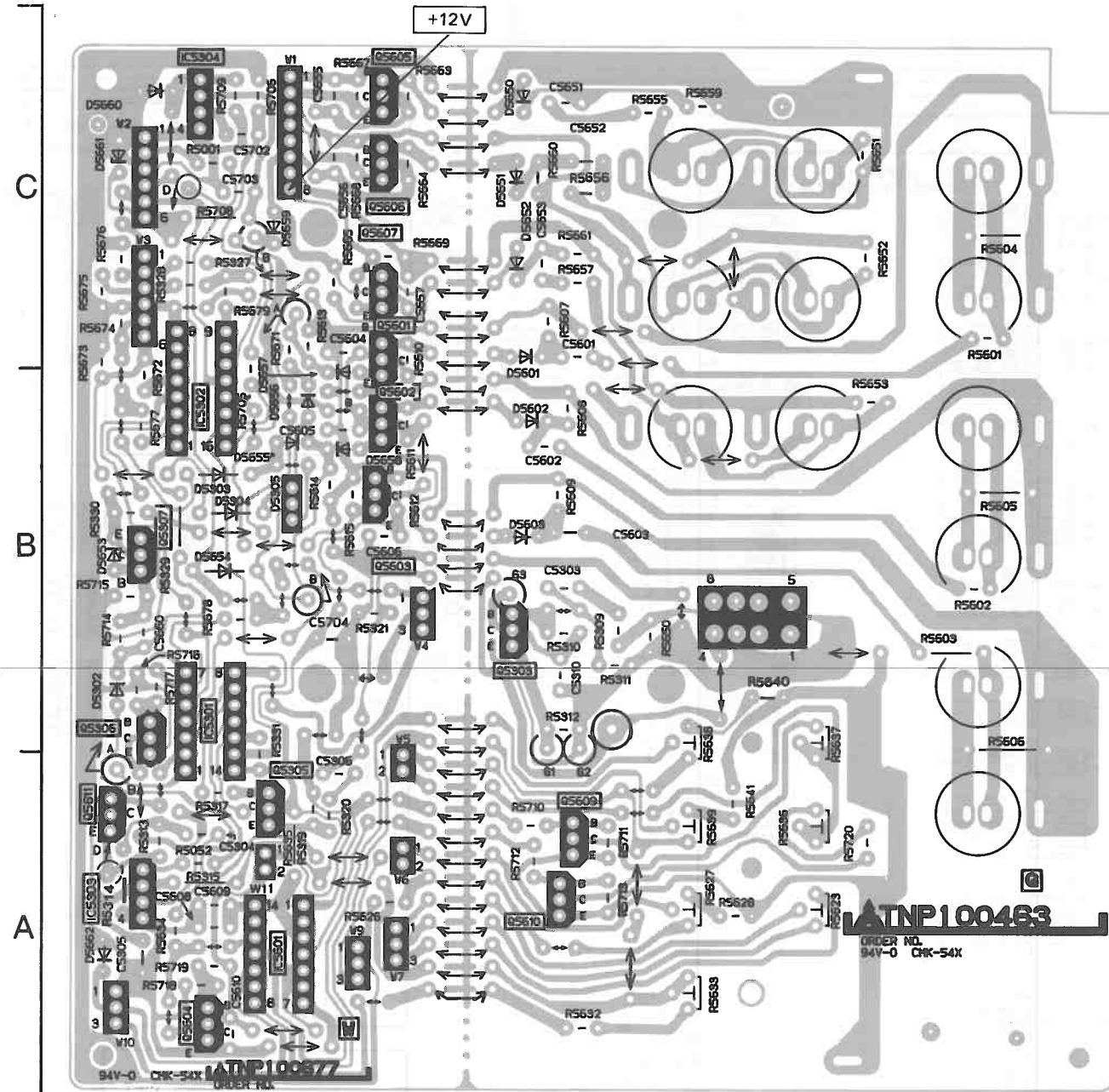
ADDRESS INFORMATION

TP		
TPB2	C	
TPB4	D	
TPB5	D	
TPB6	C	
TPB7	D	
TPB8	B	
TPB9	B	
TPB10	B	
TPB11	C	
TPB12	B	
TPB13	C	
TPB14	C	
TPB15	C	
TPB16	B	
TPB23	E	
TPB47B	A	
TPB47G	B	
TPB47R	B	

W-BBOARD : TNP100677ZA
SIGNAL OUT CIRCUIT

G-BBOARD : TNP100463ZA
REAR TERMINAL CIRCUIT

L-BBOARD : TNP800280ZA CRT DRIVE CIRCUIT



C
B
A

1 2 3

W-BBOARD	
Integrated Circuit	
IC5301	B-1
IC5302	C-1
IC5303	A-1
IC5304	C-1
IC5601	A-1
Transistor	
Q5305	A-1
Q5306	B-1
Q5601	C-2
Q5602	B-2
Q5603	B-2
Q5604	A-1
Q5605	C-2
Q5606	C-2
Q5607	C-2
Q5611	A-1

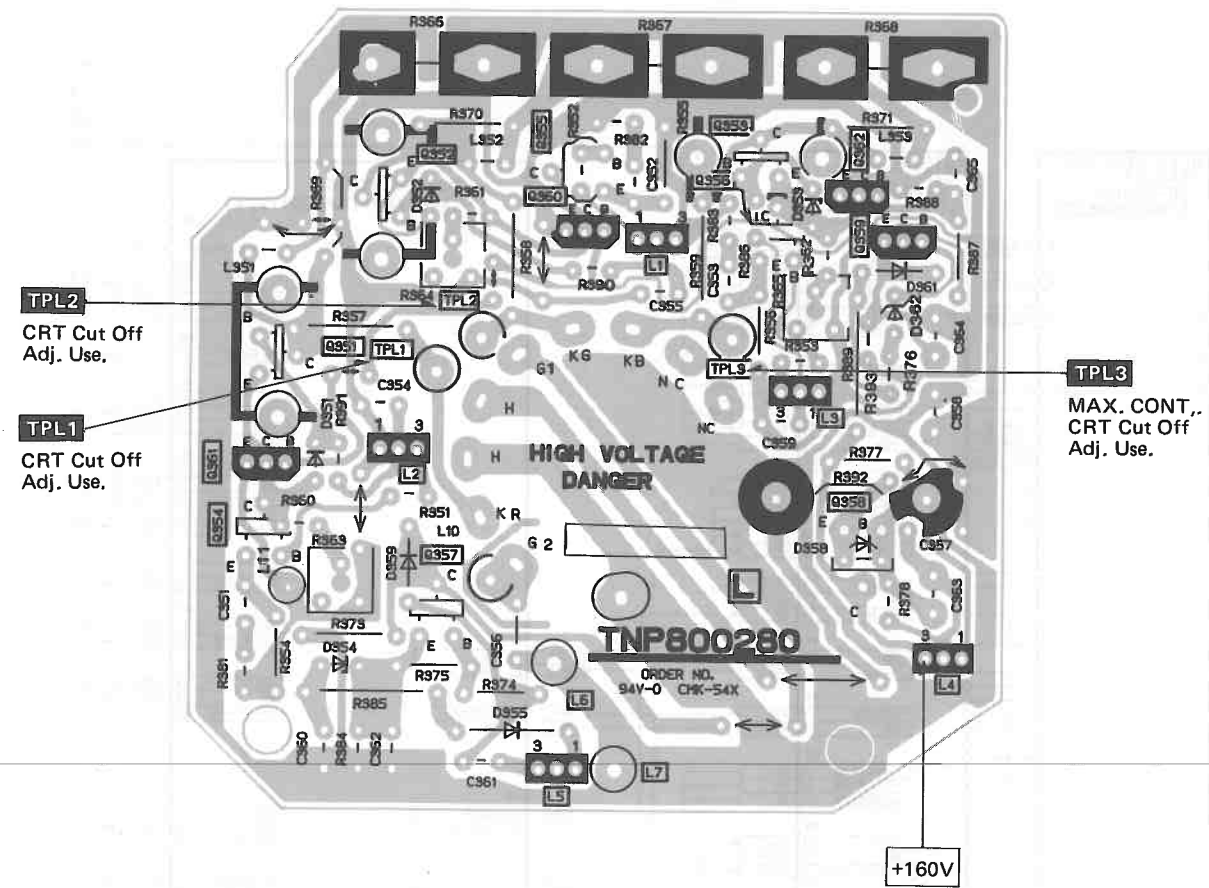
ADDRESS INFORMATION

G-BBOARD	
Transistor	
Q5303	B-2
Q5609	A-2
Q5610	A-2
VR	
R5623	A-3
R5627	A-2
R5633	A-2
R5636	A-3
R5637	B-3
R5638	B-2
R5639	A-2

ADDRESS INFORMATION

D-BBOARD	
Integrated Circuit	
IC761	A-2
Transistor	
Q580	B-1
Q581	B-2
Q751	B-2
Q755	A-3
Q756	A-3
Q757	B-3
Q758	A-3
VR	
R768	A-2
TP	
TPM1	B-2
TPM2	A-3

ADDRESS INFORMATION

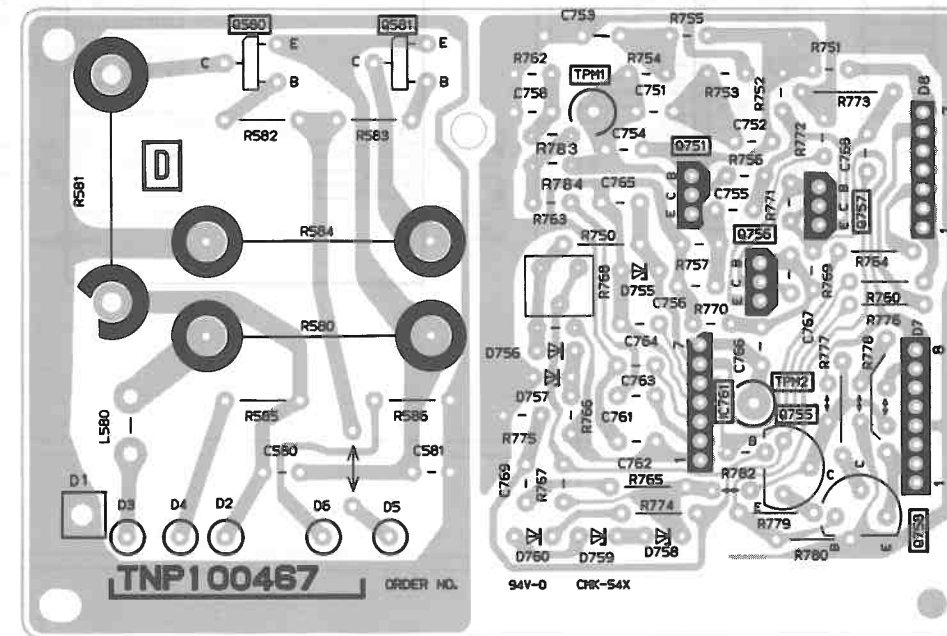


TPL2
CRT Cut Off
Adj. Use.

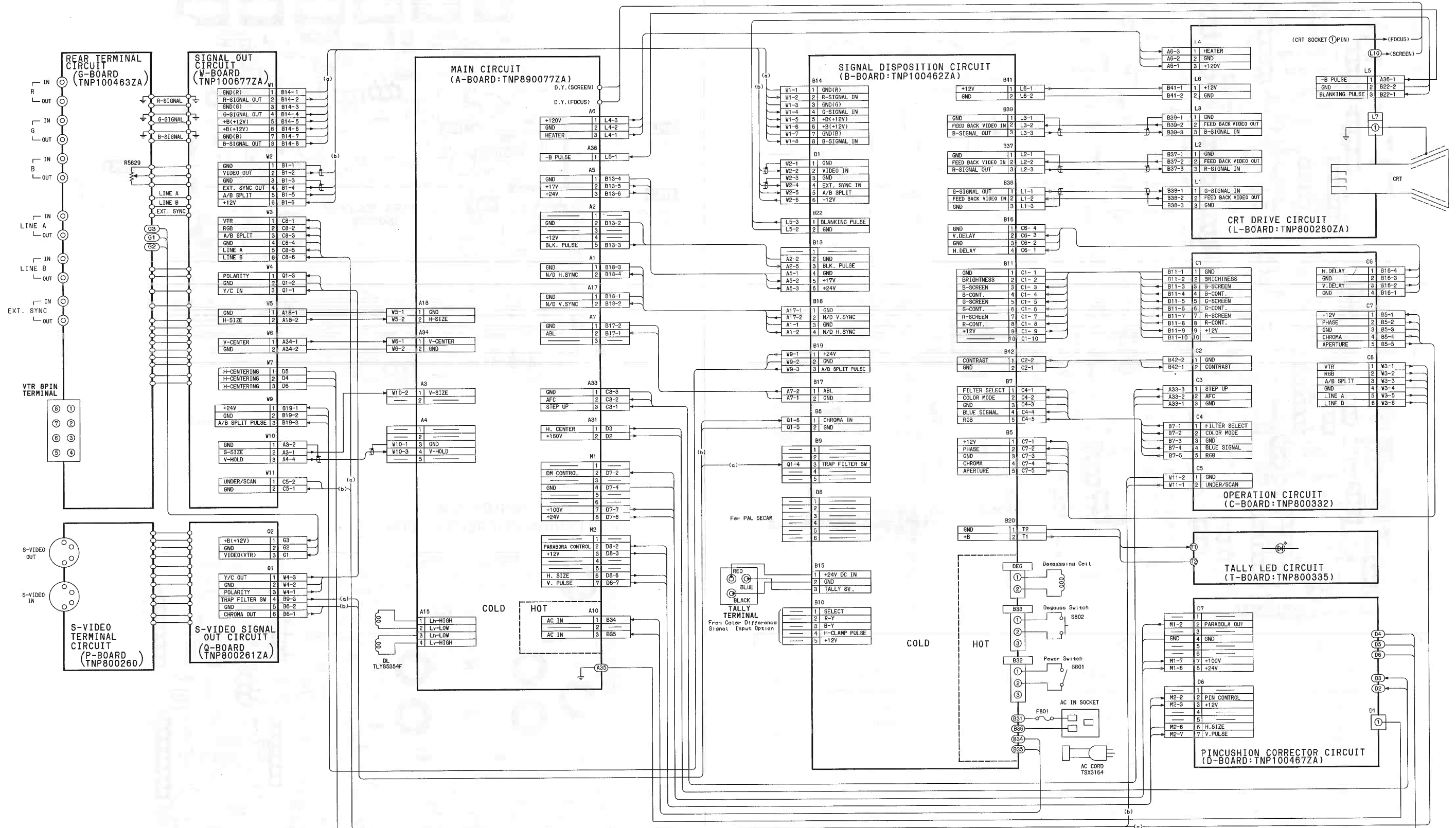
TPL1
CRT Cut Off
Adj. Use.

TPL3
MAX. CONT.,
CRT Cut Off
Adj. Use.

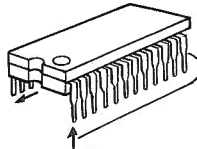
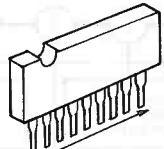
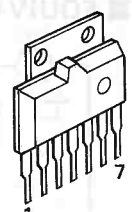
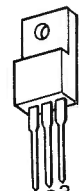
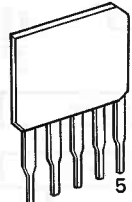





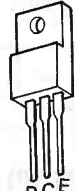
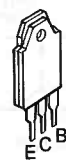

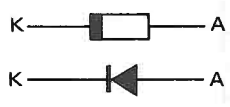
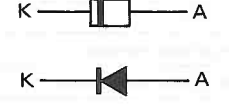
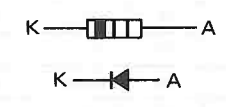
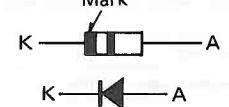

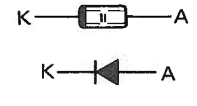
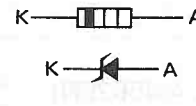
D-BBOARD : TNP100467ZA
PINCUSHION CORRECTOR CIRCUIT



INTERCONNECTION SCHEMATIC DIAGRAM

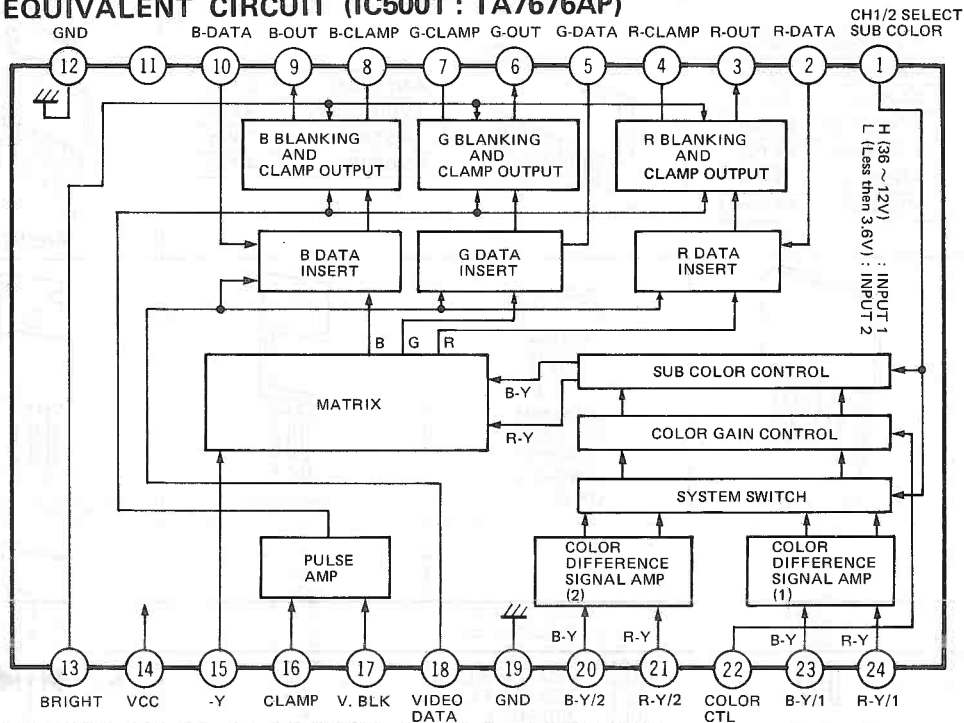


TERMINAL GUIDE OF IC'S, TRANSISTORS, DIODES

 <p>No. 1</p>	<table border="1"> <tr><td>TA7676AP</td><td>24 Pin</td></tr> <tr><td>AN5625N</td><td>22 Pin</td></tr> <tr><td>AN5435</td><td>18 Pin</td></tr> <tr><td>TC4053BP</td><td>16 pin</td></tr> <tr><td>TC4066BP</td><td>14 Pin</td></tr> <tr><td>AN5860</td><td>14 Pin</td></tr> <tr><td>M51392P</td><td>14 Pin</td></tr> </table>	TA7676AP	24 Pin	AN5625N	22 Pin	AN5435	18 Pin	TC4053BP	16 pin	TC4066BP	14 Pin	AN5860	14 Pin	M51392P	14 Pin	 <p>No. 1</p>	<table border="1"> <tr><td>AN5790N</td><td>12 Pin</td></tr> <tr><td>TVSBA236B</td><td>9 Pin</td></tr> <tr><td>AN614</td><td>7 Pin</td></tr> <tr><td>AN608P</td><td>4 Pin</td></tr> </table>	AN5790N	12 Pin	TVSBA236B	9 Pin	AN614	7 Pin	AN608P	4 Pin	 <p>AN5521</p>
TA7676AP	24 Pin																									
AN5625N	22 Pin																									
AN5435	18 Pin																									
TC4053BP	16 pin																									
TC4066BP	14 Pin																									
AN5860	14 Pin																									
M51392P	14 Pin																									
AN5790N	12 Pin																									
TVSBA236B	9 Pin																									
AN614	7 Pin																									
AN608P	4 Pin																									
 <p>M5F7812</p>	 <p>TNH11303</p>	 <p>E C B 2SD636R 2SD637R 2SB641R 2SB642Q UN1212</p>	 <p>BCE 2SD638R</p>	 <p>BCE 2SC1683Q, 2SB750</p>																						
 <p>ECB 2SC7846Q 2SA900R 2SC3503LB</p>	 <p>BCE 2SC1383NC 2SC1573ANC 2SC1215S</p>	 <p>BCE 2SC3944LB 2SC2834AM 2SD1264Q 2SD1264AQLB 2SD1264PLB 2SB940Q</p>	 <p>ECB 2SD1732RL</p>	 <p>K A K A MA154WA</p>																						
 <p>TVS11DQ03C</p>	 <p>TVSRU1, RH4F TVSRU2AM, TVSEM1Z TVSEU1A, TVSES1Z TVSES1, TVSEH1Z RF1A, TVSRD20FB1</p>	 <p>MA4030M MA4030</p>	 <p>Mark MA4120H</p>	 <p>LN31CPHLUGS</p>																						
	<p>MA165, MA27WB MA166, MA150 MA161, MA162 MA27, OA90G OA90AM, OA90AG MA182, MA150 MA170, MA154WA</p>		<p>MA4180 MA4200 MA4091M MA4043M MA4068M MA4082M</p>																							

EQUIVALENT CIRCUIT AND FUNCTION OF TERMINAL

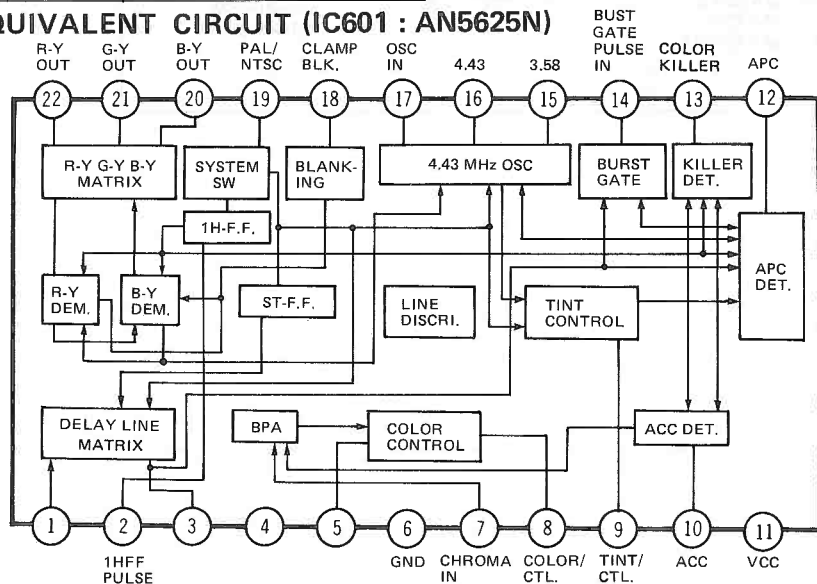
■ EQUIVALENT CIRCUIT (IC5001 : TA7676AP)



■ FUNCTION OF TERMINAL (IC5001 : TA7676AP)

Pin No.	Mark	Function	Pin No.	Mark	Function
1	CH1/CH2 SELECT SUB COLOR	CH1/CH2 select pulse input terminal.	13	BRIGHT	Not used.
2	R-DATA	Not used.	14	VCC	Apply +12V.
3	R-OUT	R-signal output terminal.	15	-Y	-Y signal input terminal.
4	R-CLAMP	R-signal clamping terminal.	16	CLAMP	Blanking pulse input terminal.
5	G-DATA	Not used.	17	V. BLK	Not used.
6	G-OUT	G-signal output terminal.	18	VIDEO/DATA	GND terminal.
7	G-CLAMP	G-signal clamping terminal.	19	GND	GND terminal.
8	B-CLAMP	B-signal clamping terminal.	20	B-Y/2	Difference signal (B-Y/2) input terminal.
9	B-OUT	B-signal output terminal.	21	R-Y/2	Difference signal (R-Y/2) input terminal.
10	B-DATA	Not used.	22	COLOR/CTL	Color control voltage input terminal.
11	NC	Not used.	23	B-Y/1	Difference signal (B-Y/1) input terminal.
12	GND	GND terminal.	24	R-Y/1	Difference signal (R-Y/1) input terminal.

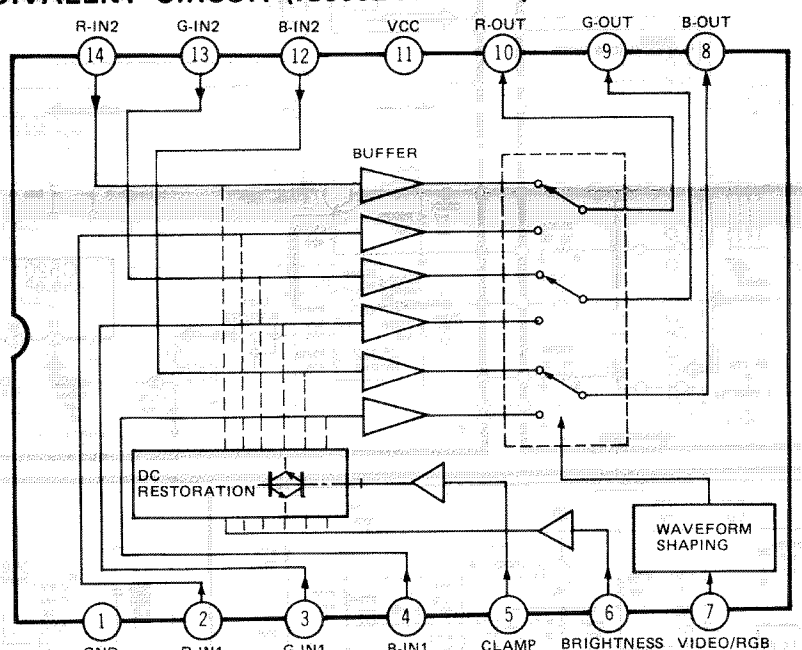
■ EQUIVALENT CIRCUIT (IC601 : AN5625N)



FUNCTION OF TERMINAL (IC601 : AN5625N)

Pin No.	Mark	Function	Pin No.	Mark	Function
1		Not used.	13	COLOR KILLER	Color killer filter terminal.
2	LHFF PULSE	H. Pulse input terminal.	14	BURST GATE PULSE IN	Burst gate pulse input terminal.
3		Not used.	15	3.58 MHz	3.58 MHz sub carrier oscillation output terminal.
4		Not used.	16	4.43 MHz	Not used.
5		Not used.	17	OSC IN	3.58 MHz sub carrier oscillation input terminal.
6	GND	GND terminal.	18	CLAMP BLK.	Blanking pulse input terminal.
7	CHROMA IN	Chroma signal input terminal.	19	PAL/NTSC	PAL/NTSC selecting pulse input terminal.
8	COLOR/CTL	Color control voltage input terminal.	20	B-Y OUT	Difference signal (B-Y) output terminal.
9	TNT/CTL	Phase control voltage input terminal.	21	G-Y OUT	Not used.
10	ACC	ACC filter terminal.	22	R-Y OUT	Difference signal (R-Y) output terminal.
11	VCC	Apply +12V.			
12	APC	Phase detection terminal.			

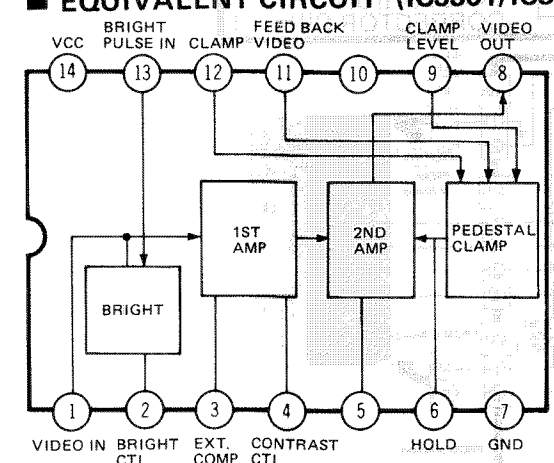
EQUIVALENT CIRCUIT (IC5002 : AN5860)



FUNCTION OF TERMINAL (IC5002 : AN5860)

Pin No.	Mark	Function	Pin No.	Mark	Function
1	GND	GND terminal.	8	R-OUT	R-signal output terminal.
2	R-IN 1	R(1)-signal input terminal.	9	G-OUT	G-signal output terminal.
3	G-IN 1	G(1)-signal input terminal.	10	B-OUT	B-signal output terminal.
4	B-IN1	B(1)-signal input terminal.	11	VCC	Apply +12V.
5	CLAMP	DC restoration input terminal.	12	B-IN 2	B(2)-signal input terminal.
6	BRIGHTNESS	Brightness control voltage input terminal.	13	G-IN 2	G(2)-signal input terminal.
7	VIDEO/RGB	VIDEO/RGB selecting pulse input terminal.	14	R-IN 2	R(2)-signal input terminal.

EQUIVALENT CIRCUIT (IC5501/IC5502/IC5503 : M51392P)



FUNCTION OF TERMINAL (IC5501 : R DRIVE)

Pin No.	Mark	Function	Pin No.	Mark	Function
1	VIDEO IN	R-signal input terminal.	9	CLAMP LEVEL	Clamping pulse level input terminal.
2	BRIGHT CTL	GND terminal.	10	NC	Not used.
3	EXT. COMP	Not used.	11	FEEDBACK VIDEO	Feedback R-signal input terminal.
4	CONTRAST CTL	R-sig... driving voltage input terminal.	12	CLAMP	R-signal clamping pulse input terminal.
5	NC	Not used.	13	BRIGHT PULSE IN	Not used.
6	HOLD	Hold voltage input terminal.	14	VCC	Apply +12V.
7	GND	GND terminal.			
8	VIDEO OUT	R-signal output terminal.			

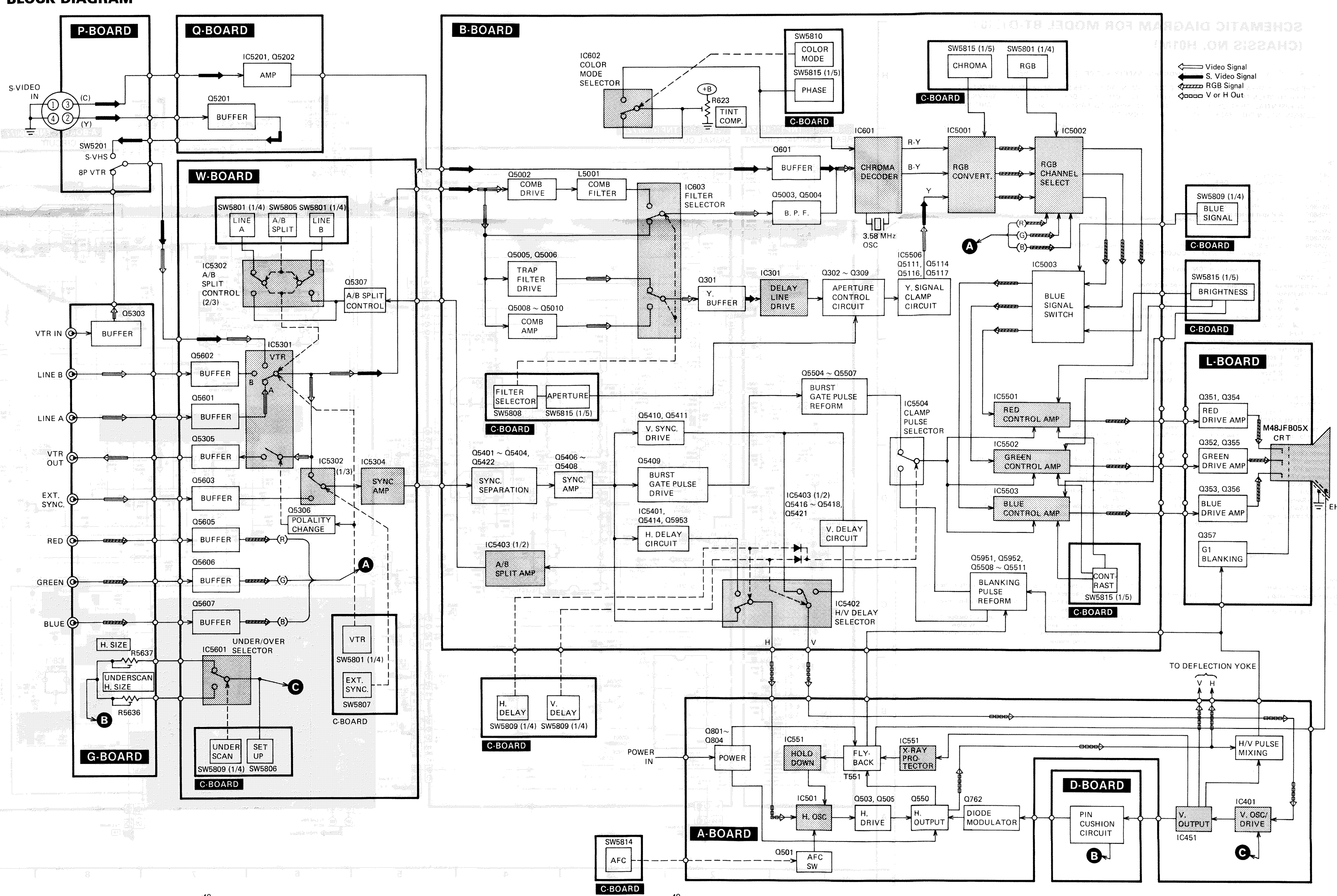
FUNCTION OF TERMINAL (IC5502 : G DRIVE)

Pin No.	Mark	Function	Pin No.	Mark	Function
1	VIDEO IN	G-signal input terminal.	9	CLAMP LEVEL	Clamping pulse level input terminal.
2	BRIGHT CTL	GND terminal.	10	NC	Not used.
3	EXT. COMP	Not used.	11	FEEDBACK VIDEO	Feedback G-signal input terminal.
4	CONTRAST CTL	G-signal driving voltage input terminal.	12	CLAMP	G-signal clamping pulse input terminal.
5	NC	Not used.	13	BRIGHT PULSE IN	Not used.
6	HOLD	Hold voltage input terminal.	14	VCC	Apply +12V.
7	GND	GND terminal.			
8	VIDEO OUT	G-signal output terminal.			

FUNCTION OF TERMINAL (IC5502 : B DRIVE)

Pin No.	Mark	Function	Pin No.	Mark	Function
1	VIDEO IN	B-signal input terminal.	9	CLAMP LEVEL	Clamping pulse level input terminal.
2	BRIGHT CTL	GND terminal.	10	NC	Not used.
3	EXT. COMP	Not used.	11	FEEDBACK VIDEO	Feedback B-signal input terminal.
4	CONTRAST CTL	B-signal driving voltage input terminal.	12	CLAMP	B-signal clamping pulse input terminal.
5	NC	Not used.	13	BRIGHT PULSE IN	Not used.
6	HOLD	Hold voltage input terminal.	14	VCC	Apply +12V.
7	GND	GND terminal.			
8	VIDEO OUT	B-signal output terminal.			

BLOCK DIAGRAM



Video Signal
S. Video Signal
RGB Signal
V or H Out

SCHEMATIC DIAGRAM FOR MODEL BT-D1910Y (CHASSIS NO. H01M)

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING, IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

NOTE:

- S401 : Service switch in "NORMAL" position.
- S801 : Power switch in "OFF" position.
- S802 : Degauss switch in "OFF" position.
- SW5201 : 8P Y/C selector switch in "S. VHS, 75Ω" position.
- SW5802 : Cut off (R.G.B.) switch.
- SW5805 : A/B split switch in "OFF" position.
- SW5806 : Set-up switch in "NORMAL (OFF)" position.
- SW5807 : Sync selector switch in "EXT" position.
- SW5808 : Filter selector switch in "COMB" position.
- SW5809 : BLUE Signal/Under scan /H. Delay /V. Delay switch in "OFF" position.
- SW5810 : Color mode selector switch in "COLOR" position.
- SW5814 : AFC switch in "FAST" position.
- SW5815 : Preset selector switch in "ON" position.

RESISTOR

All resistors are carbon 1/4W resistor, unless marked as follows:
Unit of resistance is OHM (Ω), (K = 1,000, M = 1,000,000).
△ : Solid resistor
○ : Metal Oxide
□ : Non flammable
⊞ : Wire Wound (non flammable)
⊕ : Lead Less Type
⊙ : Fixed Metal Film

CAPACITOR

All capacitors are ceramic 50V capacitor, unless marked as follows:
Unit of capacitance is μF, unless otherwise noted.
-E- : Electrolytic
-B- : Bipolar
-Z- : Z Type
-L- : Lead Less Type
-P- : Polyester
-M- : Polypropylene
-T- : Temperature Compensation
-D- : Dipped Tantalum

COIL

Unit of inductance is μH.

TEST POINT

○ : Test point position.

VOLTAGE MEASUREMENT

Voltage is measured by an electronic voltmeter receiving Full Field color bar signal.

19. Set the following controls and switch (on the Front Panel) to the position indicated.

Drive Control (R/B)	Center	Color Mode Selector Switch	AUTO
Screen Control (R/G/B)	Center	AFC Selector Switch	FAST
Contrast VR	Center	Filter Selector Switch	COMB
Chroma VR	Center	Sync Selector Switch	INT
Aperture VR	Center	H-Delay Switch	OFF
Brightness VR	Center	V-Delay Switch	OFF
Phase VR	Center	Blue Signal Only Switch	OFF
Set-Up Switch	OFF	Preset Switch	ON
Cut Off Switch	OFF	A/B Split Selector Switch	OFF

20. This schematic diagram is the latest at the time of printing and subject to change without notice.

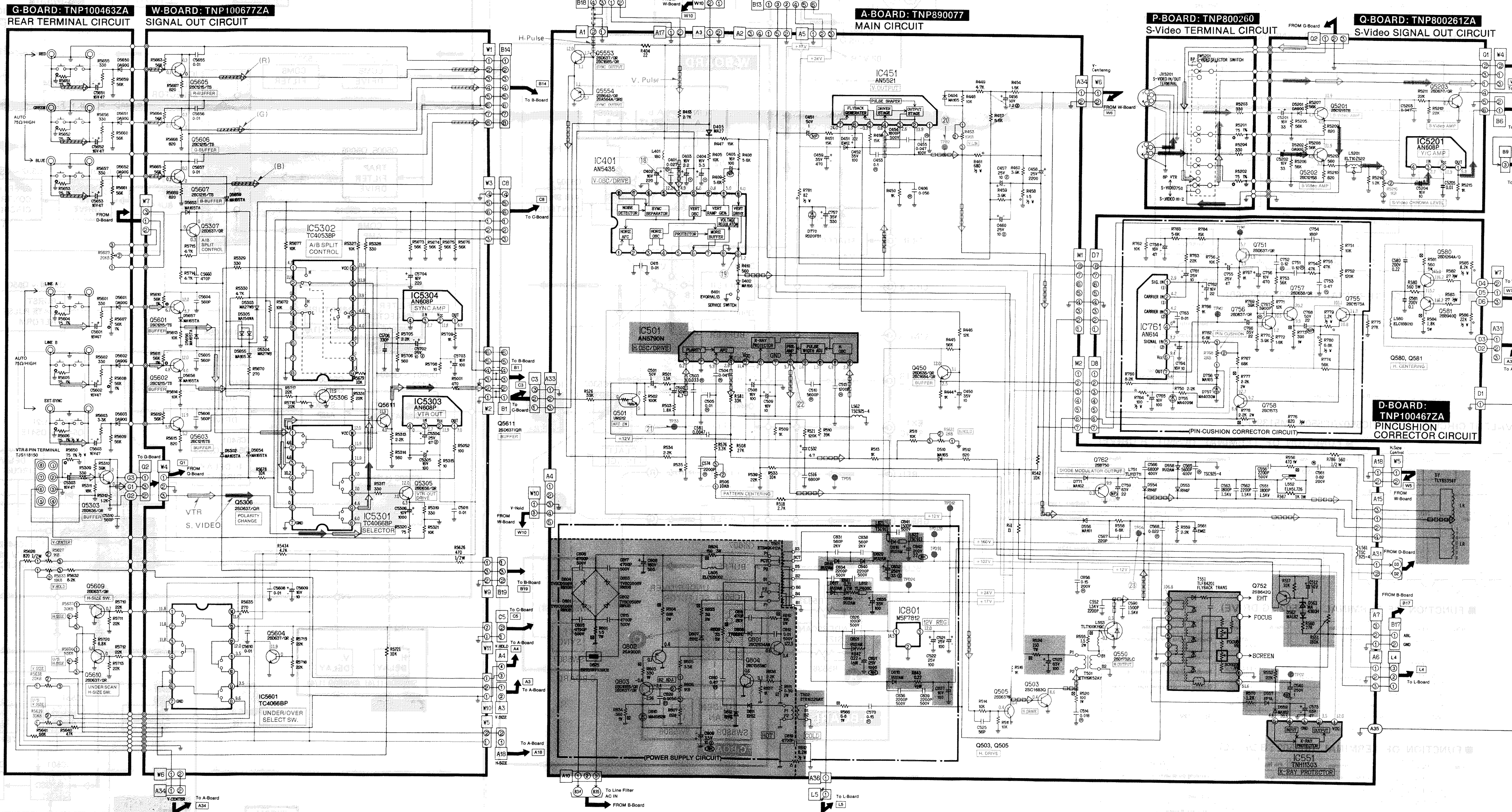
- Positive and negative voltage lines.
- Video signal
- S. Video signal
- V or H Out
- RGB signal

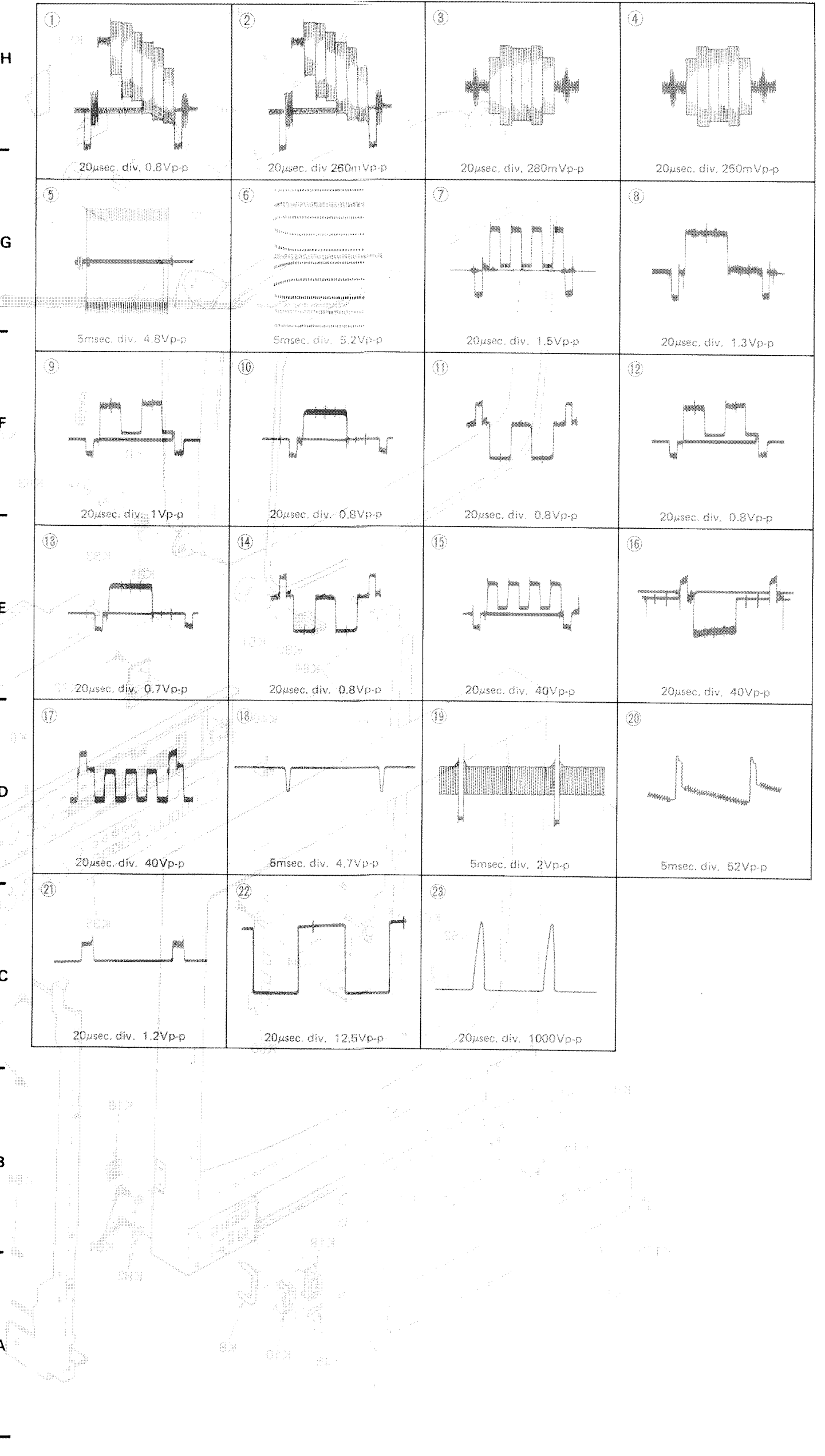
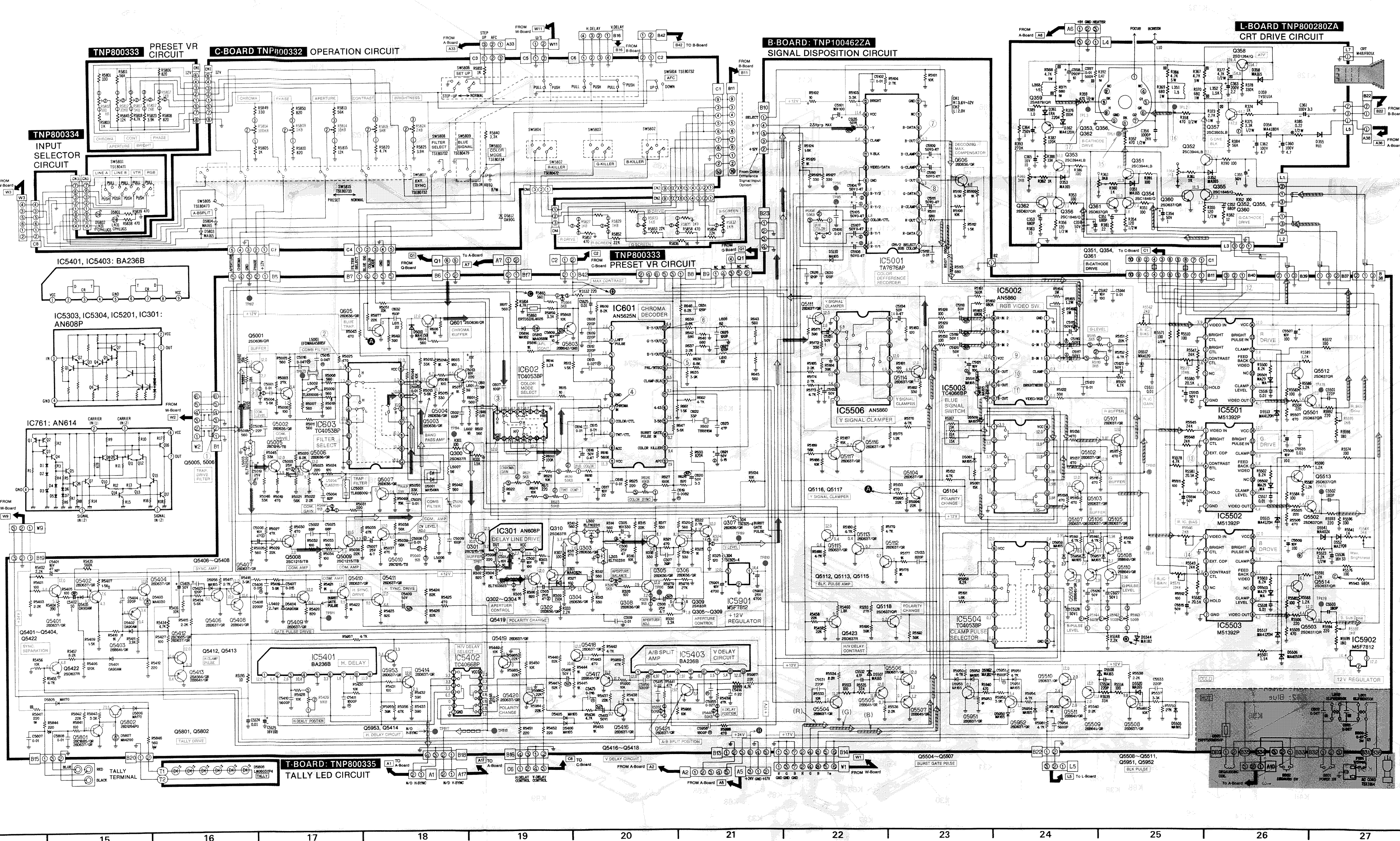
PRECAUTIONS

The Power Circuit board contains a circuit area which uses a separate power supply to isolate the ground connection. The circuit is defined by HOT and COLD indications in the schematic diagram. Take the following precautions.

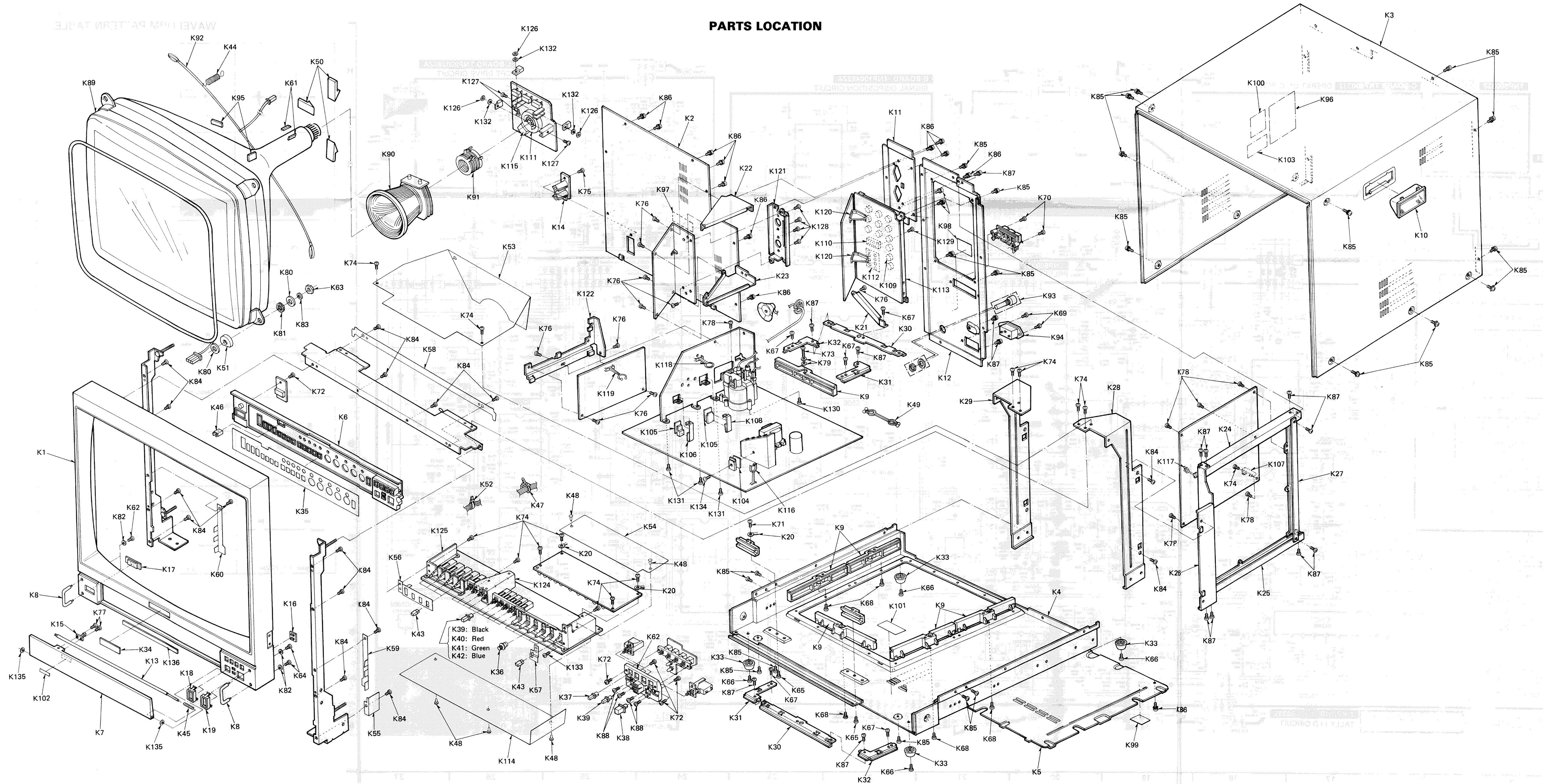
PRECAUTIONS

- Do not touch the hot part or the hot and cold parts at the same time or you may receive a shock.
- Do not short-circuit the hot and cold circuits or a fuse may blow and parts may break.
- Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow. Connect the ground of instruments to the ground connection of the circuit being measured.
- Make sure to disconnect the power plug before removing the chassis.





PARTS LOCATION



REPLACEMENT PARTS LIST

Important Safety Notice

Components identified by the International symbol Δ have special characteristics important for safety. When replacing any of these components use only manufacture's specified Parts.

Abbreviation of Part Name and Description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W
TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Carbon	F : $\pm 1\%$
F : Fuse	G : $\pm 2\%$
M : Metal Oxide Metal Film	J : $\pm 5\%$
S : Solid	K : $\pm 10\%$
W : Wire Wound	M : $\pm 20\%$

2. Capacitor

Example:

ECKF1H103ZF C 0.01PF, Z, 50V
TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Ceramic	C : ± 0.25 pF
E : Electrolytic	D : ± 0.5 pF
P : Polyester	F : ± 1 pF
PP : Polypropylene	J : $\pm 5\%$
S : Styrol	K : $\pm 10\%$
T : Tantalum	L : $\pm 15\%$
	M : $\pm 20\%$
	P : $\pm 100\%$, -0%
	Z : $\pm 80\%$, -20%

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
CABINET & MAIN PARTS			K29	TUX87502	CRT BRACKET(L)
	K1	TKE8705A ESCUTCHEON	K30	TUX87505	RAIL BRACKET(A)
	K2	TKU835700 REAR COVER	K31	TUX87506	RAIL BRACKET(B)
	K3	TKC871102 TRUNK PLATE	K32	TUX87507	RAIL BRACKET(C)
	K4	TKC871302 BOTTOM PLATE	K33	TBL131303	SET LEG
	K5	TKC879901 BOTTOM PLATE COVER	K34	TBM17448	PANASONIC BADGE
	K6	TKP8710021-1 CONTROL PANEL	K35	TBM879005	LABEL SHEET(PANEL)
	K7	TKP8750031 DOOR	K36	TBX8750200	KNOB(VOLUME)
		TKR87040 BRACKET(L)(MAUNTO)	K37	TBX8780400	PUSH BUTTON(B)
	K8	TKR87050 HANDLE	K38	TBX8780500	POWER BUTTON
		TKR87060 BRACKET(R)(MAUNTO)	K39	TBX8780600	DEGAUSS BUTTON
	K9	TKX853101 PC BOARD HOLDER(BIG)	K40	TBX8780601	PUSH BUTTON(RED)
	K10	TKK69248-5 HANDLE(BLACK)	K41	TBX8780602	PUSH BUTTON(GREEN)
	K11	TKK870406-1 TERMINAL BOARD BRACKET	K42	TBX8780603	PUSH BUTTON(BLUE)
	K12	TKK870407 TERMINAL BOARD BRACKET	K43	TBX8790300	LEVER KNOB
	K13	TKK870408 DOOR HOLDER SHAFT	K44	TES4211	COIL SPRING
	K14	TKK870504 FBT VOLUME HOLDER	K45	TES8298	SPRING
	K15	TKK870505-2 DOOR CATCH	K46	TEK17918	SWITCH
		TKK878403 RAIL BRACKET(A)	K47	TMM1455	BEADS BAND
		TKK878404 RAIL BRACKET(B)	K48	TMM1459	CLIP
		TKK878405 RAIL BRACKET(C)	K49	TMM17474	DOUBLE CLAMPER
		TKK878406 RAIL BRACKET(D)	K50	TMM17553	DY WEDGE
	K16	TKK878805 PANELIGHT	K51	TMM407-4	CRT RUBBER
	K17	TKK878806 HOLDER	K52	TMM81416	CORD BAND(SMALL)
	K18	VGK1512 DEGAUSS BUTTON GUIDE	K53	TMK87511	ANODE BARRIER
	K19	VGK1595 POWER BUTTON GUIDE	K54	TMK87512	VOLUME PCB BARRIER
	K20	TUX80971 CORD BRACKET	K55	TMK87515	POWER SWITCH BARRIER
	K21	TUX87107 CHASSIS BRACKET	K56	TMK87516-1	KNOB COVER(A)
	K22	TUX87409 PC BOARD BRACKET(UPPER)	K57	TMK87517	KNOB COVER(B)
	K23	TUX87411 PC BOARD BRACKET(BOTTOM)	K58	TMK87518	DEGAUSS COIL BARRIER(U)
	K24	TUX87413 PC BOARD BRACKET(UPPER)	K59	TMK87519	DEGAUSS COIL BARRIER(R)
	K25	TUX87414 PC BOARD BRACKET(BOTTOM)	K60	TMK87520	DEGAUSS COIL BARRIER(L)
	K26	TUX87415-1 PC BOARD BRACKET(FRONT)	K61	TXFMK01H55	PARMALLOY
	K27	TUX87416 PC BOARD BRACKET(REAR)	K62	TMM87302	POWER BRACKET
	K28	TUX87501 CRT BRACKET(R)	K63	XNG5BS	NUT
				XSN4+10FZ	SCREW
			K64	XSN4+16FZ	SCREW

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
K65	XTB4+12B	SCREW		TQD6715023	SERVICE CENTER LIST
K66	XTB4+14BFZ	SCREW	△ K96	TQD6718063-1	WARRANTY CARD
K67	XTB4+15A	SCREW		TQF14279	TOTAL WARNING LABEL
K68	XTB4+15AFZ	SCREW	△ K97	TQF80720	NHW LABEL
K69	XTS3+10BFZ	SCREW	△ K98	TQF85763	FUSE LABEL
K70	XTV3+10AFZ	SCREW	△ K99	TQF85775	UL MARK LABEL
K71	XTV3+10G	SCREW	△ K100	TQF87248	X.LABEL
K72	XTV3+12G	SCREW	K101	TQF87256	WARNING LABEL
K73	XTV3+25B	SCREW			
K74	XTV3+6J	SCREW	△ K102	TQF87257	PUSH OPEN LABEL
K75	XTV3+6JFZ	SCREW	K103	TQF87259	CRT PART NO LABEL
K76	XTV3+8J	SCREW	I. C		
K77	XTV3+8JFZ	SCREW			
K78	XTW3+8T	SCREW	IC301	AN608P	INTEGRATED CIRCUIT
K79	XWA3B	WASHER	IC401	AN5435	INTEGRATED CIRCUIT
K80	XWA5B	WASHER	IC451	AN5521	INTEGRATED CIRCUIT
K81	XWC5C	WASHER	△ IC501	AN5790N	INTEGRATED CIRCUIT
K82	XWG4	WASHER	△ IC551	TNH11303	CIRCUIT BOARD(HIC)
K83	XWG5H14	WASHER			
K84	XYA4+EF8	SCREW	IC601	AN5625N	INTEGRATED CIRCUIT
K85	XYA4+EF8FC	SCREW	IC602	TC4053BP	INTEGRATED CIRCUIT
K86	XYA4+EJ12FZ	SCREW	IC603	TC4053BP	INTEGRATED CIRCUIT
K87	XYE3+EF8	SCREW	IC761	AN614	INTEGRATED CIRCUIT
K88	XYN3+C8	SCREW	IC801	M5F7812	INTEGRATED CIRCUIT
△ K89	M48JFB05X	PICTURE TUBE	IC5001	TA7676AP	INTEGRATED CIRCUIT
	TNP100462ZA	PC BOARD W/COMPONENT(B)	IC5002	AN5860	INTEGRATED CIRCUIT
	TNP100463ZA	PC BOARD W/COMPONENT(W)	IC5003	TVSTC4066BP	INTEGRATED CIRCUIT
	TNP100467ZA	PC BOARD W/COMPONENT(PIN)	IC5201	AN608P	INTEGRATED CIRCUIT
	TNP100677ZA	PC BOARD W/COMPONENT(REAR)	IC5301	TVSTC4066BP	INTEGRATED CIRCUIT
	TNP800260	PC BOARD W/COMPONENT(P)	IC5302	TC4053BP	INTEGRATED CIRCUIT
	TNP800261ZA	PC BOARD W/COMPONENT(Q)	IC5303	AN608P	INTEGRATED CIRCUIT
	TNP800280ZA	PC BOARD W/COMPONENT(D)	IC5304	AN608P	INTEGRATED CIRCUIT
	TNP800332ZA	PC BOARD W/COMPONENT(C)	IC5401	TVSBA236B	DIODE.SI
	TNP800333ZA	PC BOARD W/COMPONENT(VR)	IC5402	TVSTC4066BP	INTEGRATED CIRCUIT
	TNP800334ZA	PC BOARD W/COMPONENT(IN)	IC5403	TVSBA236B	DIODE.SI
	TNP800335ZA	PC BOARD W/COMPONENT(TA)	IC5501	M51392P	INTEGRATED CIRCUIT
	TNP890077AB	PC BOARD W/COMPONENT(A)	IC5502	M51392P	INTEGRATED CIRCUIT
△ K90	TLY85354F	DEFLECTION YOKE	IC5503	M51392P	INTEGRATED CIRCUIT
K91	TLC2024-2S	CONVERGENCE COIL	IC5504	TC4053BP	INTEGRATED CIRCUIT
△ K92	TLK159093-1	DEGAUSS COIL	IC5506	AN5860	INTEGRATED CIRCUIT
△ TSX3164		POWER CORD	IC5601	TVSTC4066BP	INTEGRATED CIRCUIT
△ TJB80924		FUSE HOLDER	IC5901	M5F7812	INTEGRATED CIRCUIT
△ TJS8A8461		3P PUSH TERMINAL	IC5902	M5F7812	INTEGRATED CIRCUIT
△ K94	TJS828661	AC SOCKET	TRANSISTORS		
	TXAJTT3P1154	3P CONNECTOR ASSY(B32)	Q300	2SD637R	TRANSISTOR
	TXAJTT3P1155	3P CONNECTOR ASSY(B33)	Q301	2SC1215S	TRANSISTOR
	TXAJTV3P1153	3P CONNECTOR ASSY(B15)	Q302	2SD636R	TRANSISTOR
△ S802	ESB8259V	SWITCH	Q303	2SD636R	TRANSISTOR
△ S801	ESB99724V	POWER SWITCH	Q304	2SD636R	TRANSISTOR
△ F801	XBA1F40NU100	FUSE(4A)	Q305	2SD636R	TRANSISTOR
K95	TSN85511	MAGNET	Q306	2SD636R	TRANSISTOR
	T4F72425Q	COTTON TAPE 55M	Q307	2SD636R	TRANSISTOR
	T4F90219-1	MAIRA TAPE 20M	Q308	2SD636R	TRANSISTOR
	TPC8840204	OUTER CARTON	Q309	2SK83R	TRANSISTOR
	TPD379002-2	FILLER	Q310	2SD637R	TRANSISTOR
	TXAPD1MFSZ	FILLER	Q351	2SC3944LB	TRANSISTOR
	TPE174024	SET COVER	Q352	2SC3944LB	TRANSISTOR
	TPE894013	SET COVER	Q353	2SC3944LB	TRANSISTOR
	TQB537061	SAFETY INSTRUCTION SHEET	Q354	2SC1846Q	TRANSISTOR
	TPE894017	RACK COVER			
	TQB810903	INSTRUCTION BOOK	Q355	2SC1846Q	TRANSISTOR
			Q356	2SC1846Q	TRANSISTOR

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
D358	MA165	DIODE	D5508	MA165	DIODE
D361	ERA22-O4	DIODE.SI	D5509	MA165	DIODE
D362	MA4120M	DIODE.SI	D5510	MA165	DIODE
D402	MA166	DIODE.SI	D5511	MA165	DIODE
D404	MA165	DIODE	D5512	MA4120H	DIODE.SI
D451	TVSEM1Z	DIODE.SI	D5513	MA4120H	DIODE.SI
D510	MA150	DIODE	D5515	MA4120H	DIODE.SI
△ D553	RH4F	DIODE.SI	D5517	MA4120H	DIODE.SI
△ D554	RH4F	DIODE.SI	D5520	MA165	DIODE
D556	MA161	DIODE	D5541	MA4024H	DIODE.SI
△ D557	TVSRF1A	DIODE.SI	D5601	OA90AG	DIODE.SI
△ D558	TVSRU2AM	DIODE	D5602	OA90AG	DIODE.SI
△ D559	MA182	DIODE	D5603	OA90AG	DIODE.SI
D561	TVSEM1Z	DIODE.SI	D5650	OA90AG	DIODE.SI
D562	MA182	DIODE	D5651	OA90AG	DIODE.SI
D563	MA4360H	DIODE.SI	D5652	OA90AG	DIODE.SI
D755	MA4091M	DIODE.SI	D5653	MA165	DIODE
D756	MA165	DIODE	D5654	MA150	DIODE
D757	MA4030M	DIODE.SI	D5655	MA165	DIODE
D770	TVSRD20FB1	DIODE.SI	D5656	MA165	DIODE
D771	MA162	DIODE	D5657	MA165	DIODE
△ D801	TVSC0508	DIODE.SI	D5658	MA165	DIODE
△ D802	TVSC0508	DIODE.SI	D5659	MA165	DIODE
△ D803	TVSC0508	DIODE.SI	D5801	LN31CPHLUGS	DIODE(LED)
△ D804	TVSC0508	DIODE.SI	D5802	LN31CPHLUGS	DIODE(LED)
△ D805	ERPF5BOMO50F	POSISTOR	D5803	MA165	DIODE
△ D807	TVSES1Z	DIODE.SI	D5804	MA165	DIODE
△ D808	TVSES1	DIODE	D5805	MA170	DIODE
△ D810	MA4082M	DIODE	D5806	MA170	DIODE
△ D811	TVSEH1Z	DIODE.SI	D5807	MA4200	DIODE.SI
△ D812	TVSEH1Z	DIODE.SI	D5808	LNO603YP4	DIODE(LED)
△ D815	TVSRU2AM	DIODE	D5812	OA90G	DIODE
△ D816	TSC911	FERRITE CORE	D5813	MA4068M	DIODE.SI
△ D817	TVSRU2AM	DIODE	D5950	MA165	DIODE
△ D818	TVSRU2AM	DIODE	D5951	MA165	DIODE
△ D819	TVSRU2AM	DIODE	D5952	MA165	DIODE
△ D822	TVSRU2AM	DIODE	D5953	MA165	DIODE
△ D825	ERTD7FFK8ROX	THERMISTOR	D5954	MA165	DIODE
D5001	MA154WA	DIODE	D5956	MA165	DIODE
D5010	MA4150M	DIODE.SI	D5957	MA165	DIODE
D5061	MA165	DIODE	D5958	MA165	DIODE
D5110	MA165	DIODE	D5959	MA165	DIODE
D5120	MA4150H	DIODE.SI	D5962	MA182	DIODE
D5201	OA90AG	DIODE.SI	COIL & TRANSFORMERS		
D5202	OA90AG	DIODE.SI	L301	ELT10Z623	COIL TRANS
D5302	MA165	DIODE	L302	ELT10Z511	COIL TRANS
D5303	MA27WB	DIODE	L303	ELT10Z511	COIL TRANS
D5304	MA27WB	DIODE	L304	TSC925-4	FERRITE CORE
D5305	MA154WA	DIODE	L351	TLT1R5J991	PEAKING COIL
D5401	OA90AM	DIODE.SI	L352	TLT1R5J991	PEAKING COIL
D5402	OA90AM	DIODE.SI	L353	TLT1R5J991	PEAKING COIL
D5403	MA4030	DIODE.SI	L401	TLQ181K126	PEAKING COIL
D5404	OA90AM	DIODE.SI	L552	ELH5L726	COIL
D5405	MA165	DIODE	L553	TLT100K119C	PEAKING COIL
D5406	MA165	DIODE	L580	ELC18B010	CHOKO COIL
D5435	OA90AG	DIODE.SI	L601	TLT390J991	PEAKING COIL
D5501	MA29WA	DIODE	L602	TLT180J991K	PEAKING COIL
D5502	MA29WA	DIODE	L608	TLT820J991K	PEAKING COIL
D5503	MA29WA	DIODE	L610	TLT820J991K	PEAKING COIL
D5505	MA165	DIODE	L611	TLT220J991K	PEAKING COIL
D5506	MA4051M	DIODE			
D5507	MA165	DIODE			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
△ L751	TLH13711	CHOKE COIL	C503	ECQM1H473JZ	P 0.047UF J 50V
L801	ELF18D650K	LINE FILTER	C504	ECQM1H473JZ	P 0.047UF J 50V
△ L802	ELF18D650K	LINE FILTER	C505	ECQM1H103JZ	P 0.01UF J 50V
△ L805	ELC12B002	CHOKE COIL	C508	ECEA1CU101	E 100UF 16V
L5001	EFDMA645B85F	DELAY LINE	C509	ECEA1CU100	E 10UF 16V
L5002	TLK61008-1	DEGAUSS COIL	C510	ECQM1H682JZ	P 6800PF J 50V
L5003	ELT10Z522	COIL TRANS	C512	ECEA1HU010	E 1UF 50V
L5004	TLK63111-1	DEGAUSS COIL	C513	ECQM1H122JZ	P 1200PF J 50V
L5006	TLT180J991K	PEAKING COIL	C514	ECQM1H183JZ	P 0.018UF J 50V
L5007	TLT560J991	PEAKING COIL	C516	ECQM1H682JZ	P 6800PF J 50V
L5201	ELT10Z522	COIL TRANS	C521	ECEA1EU101	E 100UF 25V
L5402	TLT272K991K	PEAKING COIL	C522	ECEA1EU101	E 100UF 25V
LC5001	TLK66009-1	DEGAUSS COIL	△ C523	ECEA1JU101	E 100UF 63V
T501	ETH19K52AY	TRANS	C525	ECCF1H560J	C 56PF J 50V
△ T551	TLF84202B	FLYBACK TRANS	C532	ECEA1EU4R7	E 4.7UF 25V
△ T801	ETS49K412A	TRANS(CONVER TOR)	△ C540	ECEA2ENO10	E 1UF 250V
△ T802	ETE16Z29AY	TRANS	△ C551	ECWH15H182JD	PP 1800PF J 1.5KV
CAPACITORS			C552	ECWH15H222JD	PP 2200PF J 1.5KV
C301	ECEA16Z10	E 10UF 16V	C556	ECKD2H222KB2	C 2200PF K 500V
C302	ECEA1CU101	E 100UF 16V	C561	ECWF2H824JZ	PP 0.82UF J 500V
C303	ECEA50Z2R2	E 2.2UF 50V	△ C562	ECWH15H222JD	PP 2200PF J 1.5KV
C305	ECEA1CU331	E 330UF 16V	△ C563	ECWH15H182JD	PP 1800PF J 1.5KV
C306	ECEA16Z47	E 47UF 16V	△ C565	ECQM4562KZ	P 5600PF K 400V
C307	ECCF1H390JC	C 39PF J 50V	△ C566	ECQM4682KZ	P 6800PF K 400V
C308	ECEA1EN4R7S	E 4.7UF 25V	C567	ECCF1H221JC	C 220PF J 50V
C309	ECKF1H103ZF	C 0.01UF Z 50V	C568	ECQM1H223JZ	P 0.022UF J 50V
C351	ECCF1H681J	C 680PF J 50V	C570	ECQM1H154JZ	P 0.15UF J 50V
C352	ECCF1H681J	C 680PF J 50V	△ C573	ECEA1JU470	E 47UF 63V
C353	ECCF1H681J	C 680PF J 50V	C574	ECQM1H222JZ	P 2200PF J 50V
C354	ECEA1HU010	E 1UF 50V	C580	ECQM2224JZ	P 0.22UF J 200V
C355	ECEA1HU010	E 1UF 50V	C590	ECWH15H182JD	PP 1800PF J 1.5KV
C356	ECKC3D102JBN	C 1000PF J 2KV	C601	ECCF1H560JC	C 56PF J 50V
C357	ECKD2H103PU2	C 0.01UF P 500V	C602	ECCF1H101JC	C 100PF J 50V
C358	ECEA2DS100	E 10UF 200V	C606	ECKF1H103KB	C 0.01UF K 50V
C359	ECEA1HU010	E 1UF 50V	C607	ECCF1H101JC	C 100PF J 50V
C360	ECEA2AU4R7	E 4.7UF 100V	C608	ECCF1H221JC	C 220PF J 50V
C361	ECEA2AU3R3	E 3.3UF 100V	C609	ECCF1H221JC	C 220PF J 50V
C362	ECEA2AU4R7	E 4.7UF 100V	C612	ECCF1H221JC	C 220PF J 50V
C363	ECEA2DS2R2	E 2.2UF 200V	C613	ECQM1H273JZ	P 0.027UF J 50V
C364	ECEA2ESO10	E 1UF 250V	C614	ECKF1H103ZF	C 0.01UF Z 50V
C365	ECEA1CU100	E 10UF 16V	C615	ECKF1H103ZF	C 0.01UF Z 50V
C401	ECQM1H273JZ	P 0.027UF J 50V	C616	ECEA1HUR47	E 0.47UF 50V
C402	ECEA1CU221	E 220UF 16V	C617	ECEA1CU220	E 22UF 16V
C403	ECSF16E2R2Y	T 2.2UF 16V	C618	ECKF1H103ZF	C 0.01UF Z 50V
C404	ECSF16E3R3Y	T 3.3UF 16V	C619	ECQM1H822JZ	P 8200PF J 50V
C405	ECEA1CN101S	E 100UF 16V	C620	ECEA1HN3R3S	E 3.3UF 50V
C406	ECQM1H563JZ	P 0.056UF J 50V	C621	ECEA50ZR15	E 0.15UF 50V
C411	ECKF1H103ZF	C 0.01UF Z 50V	C622	ECCF1H330JC	C 33PF J 50V
C450	ECEA1VU100	E 10UF 35V	C623	ECCF1H470JC	C 47PF J 50V
C451	ECEA1HNO10S	E 1UF 50V	C625	ECCF1H121JC	C 120PF J 50V
C452	ECEA1VU101	E 100UF 35V	C627	ECCF1H121JC	C 120PF J 50V
C453	ECQM1H104JV	P 0.1UF J 50V	C628	ECCF1H121JC	C 120PF J 50V
C454	ECKD2H182KB2	C 1800PF K 500V	C630	ECCF1H121JC	C 120PF J 50V
C455	ECQM1473KZ	P 0.047UF K 100V	C631	ECCF1H121JC	C 120PF J 50V
C456	ECEA50Z2R2	E 2.2UF 50V	C632	ECCF1H151JC	C 150PF J 50V
C457	ECEA25Z10	E 1UF 25V	C751	ECQM1H124JZ	P 0.12UF J 50V
C458	ECEA1EU222	E 2200UF 25V	C752	ECQM1H124JZ	P 0.12UF J 50V
C459	ECEA1VU471	E 470UF 35V	C753	ECQV1H474JZ	P 0.47UF J 50V
C460	ECEA25Z4R7	E 4.7UF 25V	C754	ECCF1H181J	C 180PF J 50V
C501	ECEA1HU010	E 1UF 50V	C755	ECEA1EU470	E 47UF 25V
C502	ECEA1HU4R7	E 4.7UF 50V	C756	ECEA1AU471	E 470UF 10V
			C757	ECEA1VG331S	E 330UF 35V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C758	ECEA1CU470	E 47UF 16V	C5110	ECEA1HUR47	E 0.47UF 50V
C759	ECEA63W22Q	E 200UF 63V	C5111	ECEA1HUR47	E 0.47UF 50V
C761	ECEA1EU100	E 10UF 25V	C5112	ECKF1H103ZF	C 0.01UF Z 50V
C762	ECEA1CU220	E 22UF 16V	C5115	ECEA50Z1	E OUF 50V
C763	ECKF1H103ZF	C 0.01UF Z 50V	C5116	ECEA50Z1	E OUF 50V
C764	ECEA1CU100	E 10UF 16V	C5117	ECEA50Z1	E OUF 50V
C765	ECEA1CU101	E 100UF 16V	C5118	ECEA1HNO10S	E 1UF 50V
C766	ECEA1VU220	E 22UF 35V	C5119	ECEA1HNO10S	E 1UF 50V
C767	ECQM1H392JZ	P 3900PF J 50V	C5120	ECEA1HNO10S	E 1UF 50V
C768	ECEA1HN220S	E 22UF 50V	C5121	ECEA1CU101	E 100UF 16V
△ C801	ECQU2A473MN	PP 0.047UF M 250V	C5122	ECKF1H103ZF	C 0.01UF Z 50V
△ C802	ECQU2A473MN	PP 0.047UF M 250V	C5123	ECEA1HU010	E 1UF 50V
△ C805	ECKD2H472MD	C 4700PF M 500V	C5124	ECKF1H103ZF	C 0.01UF Z 50V
△ C806	ECKD2H472MD	C 4700PF M 500V	C5125	ECEA1CU101	E 100UF 16V
△ C808	ECET2PR561SW	E 560UF 180V	C5126	ECEA1HU010	E 1UF 50V
△ C809	ECEA25Z10	E 1UF 25V	C5127	ECEA1HU010	E 1UF 50V
△ C810	ECQM1H474JZ	P 0.47UF J 50V	C5128	ECEA1HU010	E 1UF 50V
△ C811	ECKC3D471KBN	C 470PF K 2KV	C5131	ECEA50ZR47	E 0.47UF 50V
△ C812	ECKD2H103KB2	C 0.01UF K 500V	C5132	ECEA1HU010	E 1UF 50V
△ C815	ECKD2H472MD	C 4700PF M 500V	C5133	ECCF1H821J	C 820PF J 50V
△ C817	ECKD2H472MD	C 4700PF M 500V	C5134	ECEA1HUR47	E 0.47UF 50V
△ C819	ECKCNS472MFJ	C 4700PF M	C5135	ECEA1HNO10S	E 1UF 50V
△ C821	ECEA1EU102	E 1000UF 25V	C5141	ECEA1CU101	E 100UF 16V
△ C826	ECKD2H102KB2	C 1000PF K 500V	C5142	ECEA1CU101	E 100UF 16V
△ C829	ECQM1H562JZ	P 5600PF J 50V	C5144	ECKF1H103ZF	C 0.01UF Z 50V
C831	ECKC3D561KBN	C 560PF K 2KV	C5201	ECEA1CU330	E 33UF 16V
△ C832	ECEA2ES330	E 33UF 250V	C5202	ECEA1CU330	E 33UF 16V
C834	ECKD2H222KB2	C 2200PF K 500V	C5203	ECQM1H473JZ	P 0.047UF J 50V
△ C835	ECEA1VU101	E 100UF 35V	C5204	ECEA1CU100	E 10UF 16V
C836	ECKD2H222KB2	C 2200PF K 500V	C5205	ECKF1H103ZF	C 0.01UF Z 50V
△ C837	ECEA1CG101S	E 100UF 16V	C5303	ECEA1CKS470	E 47UF 16V
C838	ECKC3D561KBN	C 560PF K 2KV	C5304	ECEA16Z47	E 47UF 16V
C839	ECKD2H222KB2	C 2200PF K 500V	C5305	ECEA1CU101	E 100UF 16V
C840	ECKD2H222KB2	C 2200PF K 500V	C5306	ECEA1AU102	E 1000UF 10V
C841	ECKD2H152KB2	C 1500PF K 500V	C5310	ECCF1H561J	C 560PF J 50V
△ C842	ECEA2DS100	E 10UF 200V	C5401	ECEA1CN470S	E 47UF 16V
C856	ECQM2154KZ	P 0.15UF K 200V	C5402	ECEA1HNO10S	E 1UF 50V
C5001	ECKF1H103KB	C 0.01UF K 50V	C5404	ECCF1H221JC	C 220PF J 50V
C5002	ECKF1H103KB	C 0.01UF K 50V	C5405	ECEA1HU010	E 1UF 50V
C5003	ECEA16Z47	E 47UF 16V	C5406	ECQM1H153JZ	P 0.015UF J 50V
C5004	ECCF1H820JC	C 82PF J 50V	C5407	ECQM1H153JZ	P 0.015UF J 50V
C5006	ECEA16Z47	E 47UF 16V	C5408	ECQM1H222JZ	P 2200PF J 50V
C5007	ECEA25Z4R7	E 4.7UF 25V	C5409	ECEA1HNO10S	E 1UF 50V
C5008	ECKF1H103KB	C 0.01UF K 50V	C5410	ECKF1H562KB	C 5600PF K 50V
C5009	ECCF1H101JC	C 100PF J 50V	C5411	ECQM1H182JZ	P 1800PF J 50V
C5010	ECRCA100H12	TRIMMER CAPACITOR	C5413	ECEA1HNO10S	E 1UF 50V
C5013	ECEA1CU221	E 220UF 16V	C5414	ECQM1H224JZ	P 0.22UF J 50V
C5015	ECQM1H473JZ	P 0.047UF J 50V	C5415	ECQM1H224JZ	P 0.22UF J 50V
C5016	ECQM1H473JZ	P 0.047UF J 50V	C5416	ECEA1HNO10S	E 1UF 50V
C5018	ECCF1H220JC	C 22PF J 50V	C5423	ECCF1H121JC	C 120PF J 50V
C5019	ECEA16Z47	E 47UF 16V	C5425	ECQM1H183JZ	P 0.018UF J 50V
C5021	ECKF1H103ZF	C 0.01UF Z 50V	C5501	ECCF1H221JC	C 220PF J 50V
C5022	ECCF1H680JC	C 68PF J 50V	C5502	ECCF1H181JC	C 180PF J 50V
C5023	ECCF1H680JC	C 68PF J 50V	C5503	ECCF1H181JC	C 180PF J 50V
C5101	ECEA1CU101	E 100UF 16V	C5507	ECEA1CU101	E 100UF 16V
C5102	ECKF1H103ZF	C 0.01UF Z 50V	C5508	ECEA1CU101	E 100UF 16V
C5104	ECEA50ZR47	E 0.47UF 50V	C5509	ECEA1CU101	E 100UF 16V
C5105	ECEA50ZR47	E 0.47UF 50V	C5511	ECKF1H103ZF	C 0.01UF Z 50V
C5106	ECKF1H103ZF	C 0.01UF Z 50V	C5513	ECEA50Z1	E OUF 50V
C5107	ECEA50ZR47	E 0.47UF 50V	C5514	ECEA50Z1	E OUF 50V
C5108	ECEA50ZR47	E 0.47UF 50V	C5515	ECEA50Z1	E OUF 50V
C5109	ECEA1HUR47	E 0.47UF 50V	C5516	ECKF1H103ZF	C 0.01UF Z 50V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C5517	ECKF1H103ZF	C 0.01UF Z 50V	R319	ERDS2TJ331	C 330 OHM J 1/4W
C5518	ECKF1H103ZF	C 0.01UF Z 50V	R320	ERDS2TJ561	C 560 OHM J 1/4W
C5525	ECKF1H103ZF	C 0.01UF Z 50V	R321	ERDS2TJ471	C 470 OHM J 1/4W
C5531	ECCF1H221JC	C 220PF J 50V	R322	ERDS2TJ272	C 2.7K OHM J 1/4W
C5532	ECCF1H470JC	C 47PF J 50V	R323	ERDS2TJ102	C 1K OHM J 1/4W
C5533	ECCF1H221J	C 220PF J 50V	R324	EVM4HGA00B13	CONTROL B 1K OHM
C5534	ECCF1H221JC	C 220PF J 50V	R325	ERDS2TJ121	C 120 OHM J 1/4W
C5535	ECKF1H103ZF	C 0.01UF Z 50V	R326	EVM4HGA00B33	CONTROL B 3K OHM
C5536	ECEA1CU330	E 33UF 16V	R327	ERDS2TJ101	C 100 OHM J 1/4W
C5601	ECEA1CKS470	E 47UF 16V	R328	ERDS2TJ101	C 100 OHM J 1/4W
C5602	ECEA1CKS470	E 47UF 16V	R329	EVM4HGA00B13	CONTROL B 1K OHM
C5603	ECEA1CKS470	E 47UF 16V	R330	ERDS2TJ332	C 3.3K OHM J 1/4W
C5604	ECCF1H561J	C 560PF J 50V	R331	ERDS2TJ152	C 1.5K OHM J 1/4W
C5605	ECCF1H561J	C 560PF J 50V	R333	ERD25FJ222K	C 2.2K OHM J 1/4W
C5606	ECCF1H561J	C 560PF J 50V	R351	ERDS2TJ101	C 100 OHM J 1/4W
C5608	ECKF1H103ZF	C 0.01UF Z 50V	R352	ERDS2TJ101	C 100 OHM J 1/4W
C5609	ECEA1CU100	E 10UF 16V	R353	ERDS2TJ101	C 100 OHM J 1/4W
C5651	ECEA1CKS470	E 47UF 16V	R354	ERDS1FJ121	C 120 OHM J 1/2W
C5652	ECEA1CKS470	E 47UF 16V	R355	ERDS1FJ121	C 120 OHM J 1/2W
C5653	ECEA1CKS470	E 47UF 16V	R356	ERDS1FJ121	C 120 OHM J 1/2W
C5655	ECKF1H103ZF	C 0.01UF Z 50V	R357	ERC12GJ471	S 470 OHM J 1/2W
C5656	ECKF1H103ZF	C 0.01UF Z 50V	R358	ERC12GJ471	S 470 OHM J 1/2W
C5657	ECKF1H103ZF	C 0.01UF Z 50V	R359	ERC12GJ471	S 470 OHM J 1/2W
C5660	ECCF1H471J	C 470PF J 50V	R360	ERDS2TJ102	C 1K OHM J 1/4W
C5702	ECEA16Z10	E 10UF 16V	R361	ERDS2TJ102	C 1K OHM J 1/4W
C5703	ECEA1CU101	E 100UF 16V	R362	ERDS2TJ102	C 1K OHM J 1/4W
C5704	ECEA1CU221	E 220UF 16V	R363	EVM4HGA00B33	CONTROL B 3K OHM
C5706	ECKF1H331KB	C 330PF K 50V	R364	EVM4HGA00B33	CONTROL B 3K OHM
C5807	ECKF1H103ZF	C 0.01UF Z 50V	R365	EVM4HGA00B33	CONTROL B 3K OHM
C5808	ECKF1H103ZF	C 0.01UF Z 50V	R366	ERG5ZXJ472	M 4.7K OHM J 5W
C5809	ECEA1CN100S	E 10UF 16V	R367	ERG5ZXJ472	M 4.7K OHM J 5W
C5901	ECEA1CU472	E 4700UF 16V	R368	ERG5ZXJ472	M 4.7K OHM J 5W
C5902	ECEA1EU472	E 4700UF 25V	R369	ERG1SJ681	M 680 OHM J 1W
C5951	ECQM1H152JZ	P 1500PF J 50V	R370	ERG1SJ681	M 680 OHM J 1W
C5954	ECQM1H562JZ	P 5600PF J 50V	R371	ERG1SJ681	M 680 OHM J 1W
C5955	ECQM1H273JZ	P 0.027UF J 50V	R373	ERG1SJ272	M 2.7K OHM J 1W
C5956	ECQM1H332JZ	P 3300PF J 50V	R374	ERDS1FJ102	C 1K OHM J 1/2W
C5957	ECEA1CN100S	E 10UF 16V	R375	ERDS1FJ332	C 3.3K OHM J 1/2W
C5958	ECQM1H182JZ	P 1800PF J 50V	R376	ERDS2TJ104	C 100K OHM J 1/4W
RESISTORS			R377	ERDS1FJ472	C 4.7K OHM J 1/2W
J15	TSC925-4	FERRITE CORE	R378	ERDS2TJ334	C 330K OHM J 1/4W
J61	ERDS1FJ561	C 560 OHM J 1/2W	R381	ERDS2TJ220	C 22 OHM J 1/4W
J66	ERD25FJ103K	C 10K OHM J 1/4W	R382	ERDS2TJ120	C 12 OHM J 1/4W
J121	TSC925-4	FERRITE CORE	R383	ERDS2TJ150	C 15 OHM J 1/4W
R301	ERDS2TJ101	C 100 OHM J 1/4W	R384	ERDS2TJ563	C 56K OHM J 1/4W
R302	ERDS2TJ821	C 820 OHM J 1/4W	R385	ERQ12HKR22	F 0.22 OHM K 1/2W
R303	ERD25FJ100K	C 10 OHM J 1/4W	R386	ERDS2TJ101	C 100 OHM J 1/4W
R304	ERD25FJ102K	C 1K OHM J 1/4W	R387	ERD25FJ124K	C 120K OHM J 1/4W
R305	ERDS2TJ102	C 1K OHM J 1/4W	R388	ERDS2TJ333	C 33K OHM J 1/4W
R306	ERDS2TJ821	C 820 OHM J 1/4W	R389	ERQ12HJ1R0	F 1 OHM J 1/2W
R307	ERDS2TJ101	C 100 OHM J 1/4W	R390	ERDS2TJ101	C 100 OHM J 1/4W
R309	ERDS2TJ154	C 150K OHM J 1/4W	R391	ERDS2TJ101	C 100 OHM J 1/4W
R310	ERDS2TJ561	C 560 OHM J 1/4W	R392	ERQ1CKPR47S	F 0.47 OHM K 1W
R311	ERDS2TJ271	C 270 OHM J 1/4W	R393	ERDS2TJ274	C 270K OHM J 1/4W
R312	ERDS2TJ561	C 560 OHM J 1/4W	R404	ERD25FJ220K	C 22 OHM J 1/4W
R313	ERDS2TJ331	C 330 OHM J 1/4W	R408	ERDS2TJ562	C 5.6K OHM J 1/4W
R314	ERDS2TJ561	C 560 OHM J 1/4W	R409	ERDS2TJ562	C 5.6K OHM J 1/4W
R315	ERDS2TJ223	C 22K OHM J 1/4W	R410	ERDS2TJ561	C 560 OHM J 1/4W
R316	ERDS2TJ103	C 10K OHM J 1/4W	R413	ERDS2TJ272	C 2.7K OHM J 1/4W
R317	ERDS2TJ331	C 330 OHM J 1/4W	R444	ERDS2TJ102	C 1K OHM J 1/4W
R318	ERDS2TJ331	C 330 OHM J 1/4W	R445	ERDS2TJ563	C 56K OHM J 1/4W
			R446	ERDS2TJ123	C 12K OHM J 1/4W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R447	ERDS2TJ153	C 15K OHM J 1/4W	R600	ERDS2TJ104	C 100K OHM J 1/4W
R448	ERDS2TJ103	C 10K OHM J 1/4W	R601	ERDS2TJ561	C 560 OHM J 1/4W
R449	ERDS2TJ472	C 4.7K OHM J 1/4W	R602	ERDS2TJ561	C 560 OHM J 1/4W
R450	ERDS2TJ102	C 1K OHM J 1/4W	R603	ERDS2TJ181	C 180 OHM J 1/4W
R451	ERD25FJ153K	C 15K OHM J 1/4W	R604	ERDS2TJ561	C 560 OHM J 1/4W
R452	ERDS2TJ153	C 15K OHM J 1/4W	R606	ERDS2TJ102	C 1K OHM J 1/4W
R453	EVM36GAO0B14	CONTROL B 10K OHM	R609	ERDS2TJ822	C 8.2K OHM J 1/4W
R454	ERDS2TJ152	C 1.5K OHM J 1/4W	R613	ERDS2TJ182	C 1.8K OHM J 1/4W
R457	ERD25FJ562K	C 5.6K OHM J 1/4W	R614	ERDS2TJ122	C 1.2K OHM J 1/4W
R458	ERDS1FJ1R5	C 1.5 OHM J 1/2W	R615	ERD25FJ100K	C 10 OHM J 1/4W
R459	ERDS2TJ392	C 3.9K OHM J 1/4W	R616	ERDS2TJ564	C 560K OHM J 1/4W
R460	ERDS2TJ392	C 3.9K OHM J 1/4W	R617	ERDS2TJ561	C 560 OHM J 1/4W
R461	ERDS1FJ102	C 1K OHM J 1/2W	R618	ERDS2TJ102	C 1K OHM J 1/4W
R501	ERDS2TJ821	C 820 OHM J 1/4W	R619	EVM4HGA00B54	CONTROL B 50K OHM
R502	ERDS2TJ104	C 100K OHM J 1/4W	R620	ERDS2TJ103	C 10K OHM J 1/4W
R503	ERDS2TJ182	C 1.8K OHM J 1/4W	R621	EVM4HGA00B52	CONTROL B 500 OHM
R506	EVM4HGA00B14	CONTROL B 10K OHM	R622	ERDS2TJ102	C 1K OHM J 1/4W
R509	ERDS2TJ102	C 1K OHM J 1/4W	R623	EVM4HGA00B54	CONTROL B 50K OHM
R510	ERDS2TJ393	C 39K OHM J 1/4W	R624	ERDS2TJ103	C 10K OHM J 1/4W
R511	ERDS2TJ103	C 10K OHM J 1/4W	R625	ERDS2TJ221	C 220 OHM J 1/4W
R512	ERDS2TJ821	C 820 OHM J 1/4W	R626	EVM4HGA00B14	CONTROL B 10K OHM
R513	ERD25FJ102K	C 1K OHM J 1/4W	R627	ERDS2TJ104	C 100K OHM J 1/4W
R514	ERDS2TJ103	C 10K OHM J 1/4W	R628	ERDS2TJ821	C 820 OHM J 1/4W
R515	ERDS2TJ103	C 10K OHM J 1/4W	R633	ERD25FJ824K	C 820K OHM J 1/4W
R516	ERDS2TJ102	C 1K OHM J 1/4W	R635	ERDS2TJ392	C 3.9K OHM J 1/4W
R517	ERDS2TJ103	C 10K OHM J 1/4W	R636	ERDS2TJ682	C 6.8K OHM J 1/4W
R518	ERDS2TJ272	C 2.7K OHM J 1/4W	R637	ERDS2TJ222	C 2.2K OHM J 1/4W
R520	ERG1SJ101	M 100 OHM J 1W	R639	ERD25FJ222K	C 2.2K OHM J 1/4W
R521	ERDS2TJ124	C 120K OHM J 1/4W	R640	ERDS2TJ681	C 680 OHM J 1/4W
△ R524	ERF7ZJ151	W 150 OHM J 7W	R642	ERDS2TJ681	C 680 OHM J 1/4W
R526	ERDS2TJ333	C 33K OHM J 1/4W	R643	ERDS2TJ561	C 560 OHM J 1/4W
R533	ERD25FJ103K	C 10K OHM J 1/4W	R645	ERDS2TJ561	C 560 OHM J 1/4W
R534	ERDS2TJ222	C 2.2K OHM J 1/4W	R646	ERDS2TJ822	C 8.2K OHM J 1/4W
R535	ERDS2TJ102	C 1K OHM J 1/4W	R647	ERDS2TJ562	C 5.6K OHM J 1/4W
R539	ERDS2TJ223	C 22K OHM J 1/4W	R649	ERDS2TJ391	C 390 OHM J 1/4W
R541	ERD25FJ103K	C 10K OHM J 1/4W	R661	ERDS2TJ152	C 1.5K OHM J 1/4W
R542	ERDS2TJ103	C 10K OHM J 1/4W	R662	ERDS2TJ472	C 4.7K OHM J 1/4W
△ R551	ERD25FJ184K	C 180K OHM J 1/4W	R671	ERDS2TJ221	C 220 OHM J 1/4W
△ R552	ERDS2TJ223	C 22K OHM J 1/4W	R750	ERD25FJ222K	C 2.2K OHM J 1/4W
R555	ERX2ANJ1R5	M 1.5 OHM J 2W	R751	ERDS2TJ103	C 10K OHM J 1/4W
R556	ERG1ANJ471	M 470 OHM J 1W	R752	ERDS2TJ124	C 120K OHM J 1/4W
R558	ERD25FJ682K	C 6.8K OHM J 1/4W	R753	ERDS2TJ563	C 56K OHM J 1/4W
R559	ERD25FJ222K	C 2.2K OHM J 1/4W	R754	ERDS2TJ473	C 47K OHM J 1/4W
R560	ERDS2TJ273	C 27K OHM J 1/4W	R755	ERDS2TJ473	C 47K OHM J 1/4W
R566	ERX1ANJP6R8	M 6.8 OHM J 1W	R756	ERDS2TJ103	C 10K OHM J 1/4W
R567	ERG1SJ102	M 1K OHM J 1W	R757	ERDS2TJ102	C 1K OHM J 1/4W
△ R570	ERDS2TJ122	C 1.2K OHM J 1/4W	R760	ERD25FJ822K	C 8.2K OHM J 1/4W
R576	ERDS2TJ332	C 3.3K OHM J 1/4W	R762	ERDS2TJ103	C 10K OHM J 1/4W
R580	ERF5AJ561	W 560 OHM J 5W	R763	ERDS2TJ223	C 22K OHM J 1/4W
R580-L	TEL312	TERMINAL	R764	ERDS1FJ101	C 100 OHM J 1/2W
R580-R	TEL312	TERMINAL	R766	ERDS2TJ102	C 1K OHM J 1/4W
R581	ERDS2TJ393	C 39K OHM J 1/4W	R767	ERDS2TJ683	C 68K OHM J 1/4W
R581	ERF5AJ561	W 560 OHM J 5W	R768	EVN38CA00B23	CONTROL B 2K OHM
R581-L	TEL312	TERMINAL	R769	ERDS2TJ393	C 39K OHM J 1/4W
R581-R	TEL312	TERMINAL	R770	ERDS2TJ392	C 3.9K OHM J 1/4W
R582	ERDS1FJ270	C 27 OHM J 1/2W	R771	ERDS2TJ123	C 12K OHM J 1/4W
R583	ERDS1FJ270	C 27 OHM J 1/2W	R772	ERDS2TJ182	C 1.8K OHM J 1/4W
R584	ERG5CJ182	M 1.8K OHM J 5W	R773	ERG1SJ391	M 390 OHM J 1W
R584-L	TEL312	TERMINAL	R774	ERDS1FJ563	C 56K OHM J 1/2W
R584-R	TEL312	TERMINAL	R775	ERDS2TJ273	C 27K OHM J 1/4W
R585	ERDS1FJ822	C 8.2K OHM J 1/2W	R776	ERDS1FJ821	C 820 OHM J 1/2W
R586	ERDS1FJ223	C 22K OHM J 1/2W	R777	ERG2SJ222	M 2.2K OHM J 2W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R778	ERG2SJ222	M 2.2K OHM J 2W	R5039	ERDS2TJ563	C 56K OHM J 1/4W
R779	ERDS1FJ122	C 1.2K OHM J 1/2W	R5040	EVM4HGAA00B13	CONTROL B 1K OHM
R780	ERDS1FJ682	C 6.8K OHM J 1/2W	R5042	ERDS2TJ561	C 560 OHM J 1/4W
R781	ERQ12HJ820	F 82 OHM J 1/2W	R5043	ERDS2TJ471	C 470 OHM J 1/4W
R782	ERDS2TJ682	C 6.8K OHM J 1/4W	R5044	ERDS2TJ103	C 10K OHM J 1/4W
R783	ERDS2TJ562	C 5.6K OHM J 1/4W	R5045	ERDS2TJ333	C 33K OHM J 1/4W
R784	ERDS2TJ153	C 15K OHM J 1/4W	R5046	ERDS2TJ333	C 33K OHM J 1/4W
R800-L	TEL312	TERMINAL	R5049	ERDS2TJ153	C 15K OHM J 1/4W
R800-R	TEL312	TERMINAL	R5050	ERDS2TJ333	C 33K OHM J 1/4W
△ R801	ERF7ZK1R5	W 1.5 OHM K 7W	R5051	ERDS2TJ103	C 10K OHM J 1/4W
△ R803	ERG1SJ331	M 330 OHM J 1W	R5052	ERDS2TJ101	C 100 OHM J 1/4W
△ R804	ERG2SJ683	M 68K OHM J 2W	R5061	ERDS2TJ153	C 15K OHM J 1/4W
△ R805	ERDS2TJ332	C 3.3K OHM J 1/4W	R5101	ERDS2TJ103	C 10K OHM J 1/4W
△ R806	EVMK4GA00B13	CONTROL B 1K OHM	R5102	ERD25FJ100K	C 10 OHM J 1/4W
△ R807	ERDS2TJ821	C 820 OHM J 1/4W	R5103	ERDS2TJ332	C 3.3K OHM J 1/4W
△ R809	ERG3SJ330	M 33 OHM J 3W	R5104	ERDS2TJ272	C 2.7K OHM J 1/4W
△ R810	ERG2SJ183	M 18K OHM J 2W	R5106	EVM4HGAA00B54	CONTROL B 50K OHM
△ R811	ERF2AKR39	W 0.39 OHM K 2W	R5107	ERDS2TJ681	C 680 OHM J 1/4W
△ R812	ERC12ZGK825	S 8.2M OHM K 1/2W	R5108	ERDS2TJ103	C 10K OHM J 1/4W
△ R824	ERG3SJ151	M 150 OHM J 3W	R5109	ERDS2TJ102	C 1K OHM J 1/4W
△ R833	ERQ2CJP390S	F 39 OHM J 2W	R5110	ERDS2TJ332	C 3.3K OHM J 1/4W
△ R834	ERG1SJ561	M 560 OHM J 1W	R5111	ERDS2TJ681	C 680 OHM J 1/4W
△ R836	ERDS2TJ222	C 2.2K OHM J 1/4W	R5112	ERDS2TJ152	C 1.5K OHM J 1/4W
△ R837	ERDS2TJ102	C 1K OHM J 1/4W	R5113	ERDS2TJ681	C 680 OHM J 1/4W
R843	ERQ12HKR22	F 0.22 OHM K 1/2W	R5115	EVM4HGAA00B33	CONTROL B 3K OHM
R5001	ERDS2TJ471	C 470 OHM J 1/4W	R5116	EVM4HGAA00B33	CONTROL B 3K OHM
R5002	EVM4HGAA00B52	CONTROL B 500 OHM	R5117	ERDS2TJ471	C 470 OHM J 1/4W
R5003	ERDS2TJ273	C 27K OHM J 1/4W	R5118	ERDS2TJ471	C 470 OHM J 1/4W
R5004	ERDS2TJ562	C 5.6K OHM J 1/4W	R5119	ERDS2TJ471	C 470 OHM J 1/4W
R5005	ERDS2TJ561	C 560 OHM J 1/4W	R5120	ERD25FJ472K	C 4.7K OHM J 1/4W
R5006	ERDS2TJ101	C 100 OHM J 1/4W	R5122	ERDS2TJ331	C 330 OHM J 1/4W
R5007	ERDS2TJ561	C 560 OHM J 1/4W	R5124	ERDS2TJ182	C 1.8K OHM J 1/4W
R5008	ERDS2TJ561	C 560 OHM J 1/4W	R5125	ERDS2TJ331	C 330 OHM J 1/4W
R5009	ERDS2TJ561	C 560 OHM J 1/4W	R5126	ERDS2TJ102	C 1K OHM J 1/4W
R5010	ERDS2TJ561	C 560 OHM J 1/4W	R5127	ERDS2TJ331	C 330 OHM J 1/4W
R5011	ERDS2TJ561	C 560 OHM J 1/4W	R5128	ERDS2TJ101	C 100 OHM J 1/4W
R5012	ERDS2TJ333	C 33K OHM J 1/4W	R5129	ERDS2TJ101	C 100 OHM J 1/4W
R5013	ERDS2TJ562	C 5.6K OHM J 1/4W	R5130	ERDS2TJ101	C 100 OHM J 1/4W
R5014	ERDS2TJ102	C 1K OHM J 1/4W	R5132	ERDS2TJ472	C 4.7K OHM J 1/4W
R5015	ERDS2TJ331	C 330 OHM J 1/4W	R5133	ERDS2TJ471	C 470 OHM J 1/4W
R5016	ERDS2TJ101	C 100 OHM J 1/4W	R5134	ERDS2TJ103	C 10K OHM J 1/4W
R5017	ERDS2TJ102	C 1K OHM J 1/4W	R5136	ERDS2TJ471	C 470 OHM J 1/4W
R5018	ERDS2TJ561	C 560 OHM J 1/4W	R5137	ERD25FJ471K	C 470 OHM J 1/4W
R5019	ERDS2TJ471	C 470 OHM J 1/4W	R5138	ERDS2TJ471	C 470 OHM J 1/4W
R5020	ERDS2TJ822	C 8.2K OHM J 1/4W	R5139	ERDS1FJ472	C 4.7K OHM J 1/2W
R5021	ERDS2TJ563	C 56K OHM J 1/4W	R5140	ERDS2TJ472	C 4.7K OHM J 1/4W
R5022	ERDS2TJ222	C 2.2K OHM J 1/4W	R5141	ERDS2TJ472	C 4.7K OHM J 1/4W
R5023	ERDS2TJ221	C 220 OHM J 1/4W	R5142	EVM4HGAA00B52	CONTROL B 500 OHM
R5024	ERDS2TJ121	C 120 OHM J 1/4W	R5143	EVM4HGAA00B52	CONTROL B 500 OHM
R5025	ERDS2TJ471	C 470 OHM J 1/4W	R5144	EVM4HGAA00B52	CONTROL B 500 OHM
R5026	ERDS2TJ561	C 560 OHM J 1/4W	R5148	ERDS2TJ222	C 2.2K OHM J 1/4W
R5027	ERDS2TJ473	C 47K OHM J 1/4W	R5151	ERDS2TJ223	C 22K OHM J 1/4W
R5029	ERDS2TJ223	C 22K OHM J 1/4W	R5152	ERDS2TJ472	C 4.7K OHM J 1/4W
R5030	ERDS2TJ471	C 470 OHM J 1/4W	R5161	ERDS2TJ564	C 560K OHM J 1/4W
R5031	ERDS2TJ221	C 220 OHM J 1/4W	R5162	ERDS2TJ684	C 680K OHM J 1/4W
R5032	ERDS2TJ101	C 100 OHM J 1/4W	R5163	ERDS2TJ684	C 680K OHM J 1/4W
R5033	ERDS2TJ101	C 100 OHM J 1/4W	R5164	ERDS2TJ824	C 820K OHM J 1/4W
R5034	ERDS2TJ101	C 100 OHM J 1/4W	R5165	ERDS2TJ105	C 1M OHM J 1/4W
R5035	ERDS2TJ473	C 47K OHM J 1/4W	R5166	ERDS2TJ824	C 820K OHM J 1/4W
R5036	ERDS2TJ223	C 22K OHM J 1/4W	R5167	EXBF4E153J	RR COMBINATION
R5037	ERDS2TJ471	C 470 OHM J 1/4W	R5171	ERD25FJ391K	C 390 OHM J 1/4W
R5038	ERDS2TJ563	C 56K OHM J 1/4W	R5172	ERDS2TJ331	C 330 OHM J 1/4W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R5173	ERDS2TJ472	C 4.7K OHM J 1/4W	R5410	ERDS2TJ102	C 1K OHM J 1/4W
R5174	ERDS2TJ272	C 2.7K OHM J 1/4W	R5411	ERDS2TJ392	C 3.9K OHM J 1/4W
R5175	ERDS2TJ122	C 1.2K OHM J 1/4W	R5412	ERDS2TJ221	C 220 OHM J 1/4W
R5176	ERDS2TJ472	C 4.7K OHM J 1/4W	R5415	ERDS2TJ222	C 2.2K OHM J 1/4W
R5177	ERDS2TJ102	C 1K OHM J 1/4W	R5416	ERDS2TJ103	C 10K OHM J 1/4W
R5178	ERDS2TJ102	C 1K OHM J 1/4W	R5417	ERDS2TJ272	C 2.7K OHM J 1/4W
R5179	ERDS2TJ472	C 4.7K OHM J 1/4W	R5418	ERDS2TJ392	C 3.9K OHM J 1/4W
R5180	ERDS2TJ472	C 4.7K OHM J 1/4W	R5419	ERDS2TJ392	C 3.9K OHM J 1/4W
R5181	ERDS2TJ121	C 120 OHM J 1/4W	R5420	ERDS2TJ821	C 820 OHM J 1/4W
R5182	ERDS2TJ331	C 330 OHM J 1/4W	R5421	ERDS2TJ102	C 1K OHM J 1/4W
R5183	ERDS2TJ121	C 120 OHM J 1/4W	R5422	ERDS2TJ102	C 1K OHM J 1/4W
R5184	ERDS2TJ393	C 39K OHM J 1/4W	R5423	ERD25FJ821K	C 820 OHM J 1/4W
R5185	ERDS2TJ222	C 2.2K OHM J 1/4W	R5424	ERDS2TJ823	C 82K OHM J 1/4W
R5186	ERDS2TJ472	C 4.7K OHM J 1/4W	R5425	ERDS2TJ471	C 470 OHM J 1/4W
R5187	ERDS2TJ153	C 15K OHM J 1/4W	R5426	ERDS2TJ823	C 82K OHM J 1/4W
R5188	ERDS2TJ103	C 10K OHM J 1/4W	R5427	ERDS2TJ101	C 100 OHM J 1/4W
R5189	ERDS2TJ563	C 56K OHM J 1/4W	R5428	ERDS2TJ103	C 10K OHM J 1/4W
R5190	ERDS2TJ393	C 39K OHM J 1/4W	R5429	EVM4HGAA00B14	CONTROL B 10K OHM
R5191	ERD25FJ182K	C 1.8K OHM J 1/4W	R5430	ERDS2TJ103	C 10K OHM J 1/4W
R5192	ERDS2TJ393	C 39K OHM J 1/4W	R5431	ERDS2TJ101	C 100 OHM J 1/4W
R5193	ERDS2TJ273	C 27K OHM J 1/4W	R5432	ERDS2TJ391	C 390 OHM J 1/4W
R5195	ERD25FJ100K	C 10 OHM J 1/4W	R5433	ERDS2TJ391	C 390 OHM J 1/4W
R5201	EROS2CKF75R0	M 75R OHM F 1/4W	R5434	ERDS2TJ472	C 4.7K OHM J 1/4W
R5202	EROS2CKF75R0	M 75R OHM F 1/4W	R5435	ERDS2TJ564	C 560K OHM J 1/4W
R5203	ERDS2TJ331	C 330 OHM J 1/4W	R5436	ERDS2TJ472	C 4.7K OHM J 1/4W
R5204	ERDS2TJ331	C 330 OHM J 1/4W	R5437	ERDS2TJ223	C 22K OHM J 1/4W
R5205	ERDS2TJ563	C 56K OHM J 1/4W	R5438	ERDS2TJ472	C 4.7K OHM J 1/4W
R5206	ERDS2TJ563	C 56K OHM J 1/4W	R5439	ERDS2TJ473	C 47K OHM J 1/4W
R5207	ERDS2TJ563	C 56K OHM J 1/4W	R5440	EVM4HGAA00B54	CONTROL B 50K OHM
R5208	ERDS2TJ563	C 56K OHM J 1/4W	R5441	ERDS2TJ683	C 68K OHM J 1/4W
R5209	ERDS2TJ821	C 820 OHM J 1/4W	R5442	ERDS2TJ472	C 4.7K OHM J 1/4W
R5210	ERDS2TJ821	C 820 OHM J 1/4W	R5443	ERDS2TJ471	C 470 OHM J 1/4W
R5211	ERDS2TJ223	C 22K OHM J 1/4W	R5444	ERDS2TJ102	C 1K OHM J 1/4W
R5212	ERDS2TJ223	C 22K OHM J 1/4W	R5445	ERDS2TJ102	C 1K OHM J 1/4W
R5213	ERDS2TJ561	C 560 OHM J 1/4W	R5446	ERDS2TJ823	C 82K OHM J 1/4W
R5214	ERDS2TJ122	C 1.2K OHM J 1/4W	R5447	ERDS2TJ823	C 82K OHM J 1/4W
R5215	ERDS2TJ102	C 1K OHM J 1/4W	R5448	ERDS2TJ471	C 470 OHM J 1/4W
R5216	EVM4HGAA00B13	CONTROL B 1K OHM	R5449	ERDS2TJ103	C 10K OHM J 1/4W
R5309	ERDS2TJ331	C 330 OHM J 1/4W	R5450	ERDS2TJ103	C 10K OHM J 1/4W
R5310	ERDS2TJ393	C 39K OHM J 1/4W	R5451	ERDS2TJ221	C 220 OHM J 1/4W
R5311	ERDS2TJ183	C 18K OHM J 1/4W	R5452	ERDS2TJ221	C 220 OHM J 1/4W
R5312	ERDS2TJ122	C 1.2K OHM J 1/4W	R5453	ERDS2TJ102	C 1K OHM J 1/4W
R5313	ERDS2TJ222	C 2.2K OHM J 1/4W	R5454	ERDS2TJ562	C 5.6K OHM J 1/4W
R5314	ERD25FJ561K	C 560 OHM J 1/4W	R5455	ERDS2TJ472	C 4.7K OHM J 1/4W
R5315	ERD25FJ100K	C 10 OHM J 1/4W	R5456	ERDS2TJ103	C 10K OHM J 1/4W
R5317	ERDS2TJ331	C 330 OHM J 1/4W	R5457	ERDS2TJ822	C 8.2K OHM J 1/4W
R5319	ERDS2TJ331	C 330 OHM J 1/4W	R5458	ERDS2TJ223	C 22K OHM J 1/4W
R5320	ERDS2TJ750	C 75 OHM J 1/4W	R5459	ERDS2TJ223	C 22K OHM J 1/4W
R5321	ERDS2TJ103	C 10K OHM J 1/4W	R5460	ERDS2TJ182	C 1.8K OHM J 1/4W
R5327	ERDS2TJ103	C 10K OHM J 1/4W	R5501	ERDS2TJ152	C 1.5K OHM J 1/4W
R5328	ERDS2TJ331	C 330 OHM J 1/4W	R5504	ERDS2TJ221	C 220 OHM J 1/4W
R5329	ERD25FJ331K	C 330 OHM J 1/4W	R5505	ERDS2TJ221	C 220 OHM J 1/4W
R5330	ERDS2TJ472	C 4.7K OHM J 1/4W	R5506	ERDS2TJ221	C 220 OHM J 1/4W
R5331	ERDS2TJ223	C 22K OHM J 1/4W	R5507	ERDS2TJ471	C 470 OHM J 1/4W
R5401	ERDS2TJ101	C 100 OHM J 1/4W	R5508	ERDS2TJ471	C 470 OHM J 1/4W
R5402	ERDS2TJ222	C 2.2K OHM J 1/4W	R5509	ERD25FJ471K	C 470 OHM J 1/4W
R5403	ERDS2TJ222	C 2.2K OHM J 1/4W	R5510	ERDS2TJ101	C 100 OHM J 1/4W
R5404	ERDS2TJ391	C 390 OHM J 1/4W	R5511	ERD25FJ101K	C 100 OHM J 1/4W
R5405	ERDS2TJ101	C 100 OHM J 1/4W	R5512	ERDS2TJ101	C 100 OHM J 1/4W
R5406	ERDS2TJ124	C 120K OHM J 1/4W	R5513	ERDS2TJ101	C 100 OHM J 1/4W
R5407	ERDS2TJ152	C 1.5K OHM J 1/4W	R5514	ERDS2TJ101	C 100 OHM J 1/4W
R5409	ERDS2TJ152	C 1.5K OHM J 1/4W	R5523	ERDS1TJ222	C 2.2K OHM J 1/2W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R5532	ERDS2TJ221	C 220 OHM J 1/4W	R5623	EVMQHGA01B24	CONTROL B 20K OHM
R5533	ERDS2TJ103	C 10K OHM J 1/4W	R5626	ERDS1FJ471	C 470 OHM J 1/2W
R5534	ERDS2TJ222	C 2.2K OHM J 1/4W	R5627	EVMQHGA01B13	CONTROL B 1K OHM
R5535	ERDS2TJ333	C 33K OHM J 1/4W	R5628	ERDS1FJ821	C 820 OHM J 1/2W
R5536	ERDS2TJ222	C 2.2K OHM J 1/4W	R5631	EVM4HGA00B23	CONTROL B 2K OHM
R5537	ERDS2TJ332	C 3.3K OHM J 1/4W	R5632	ERDS2TJ822	C 8.2K OHM J 1/4W
R5538	ERDS2TJ222	C 2.2K OHM J 1/4W	R5633	EVMQHGA01B14	CONTROL B 10K OHM
R5539	ERDS2TJ333	C 33K OHM J 1/4W	R5634	ERDS2TJ472	C 4.7K OHM J 1/4W
R5540	ERDS2TJ222	C 2.2K OHM J 1/4W	R5635	ERD25FJ271K	C 270 OHM J 1/4W
R5542	EVM4HGA00B23	CONTROL B 2K OHM	R5636	EVMQHGA01B54	CONTROL B 50K OHM
R5543	ERD25FJ684K	C 680K OHM J 1/4W	R5637	EVMQHGA01B34	CONTROL B 30K OHM
R5544	EVM4HGA00B13	CONTROL B 1K OHM	R5638	EVMQHGA01B24	CONTROL B 20K OHM
R5545	ERDS2TJ102	C 1K OHM J 1/4W	R5639	EVMQHGA01B34	CONTROL B 30K OHM
R5546	EVM4HGA00B23	CONTROL B 2K OHM	R5640	ERDS2TJ683	C 68K OHM J 1/4W
R5547	EROS2CKF2402	M 24K OHM F 1/4W	R5641	ERDS2TJ473	C 47K OHM J 1/4W
R5548	EROS2CKF2402	M 24K OHM F 1/4W	R5650	EROS2CKF75R0	M 75R OHM F 1/4W
R5549	EROS2CKF2402	M 24K OHM F 1/4W	R5651	EROS2CKF75R0	M 75R OHM F 1/4W
R5550	ERDS2TJ273	C 27K OHM J 1/4W	R5652	EROS2CKF75R0	M 75R OHM F 1/4W
R556-1	TEL312	TERMINAL	R5653	EROS2CKF75R0	M 75R OHM F 1/4W
R556-2	TEL312	TERMINAL	R5655	ERDS2TJ331	C 330 OHM J 1/4W
R5571	ERDS1TJ101	C 100 OHM J 1/2W	R5656	ERDS2TJ331	C 330 OHM J 1/4W
R5572	ERDS2TJ101	C 100 OHM J 1/4W	R5657	ERDS2TJ331	C 330 OHM J 1/4W
R5574	ERDS2TJ101	C 100 OHM J 1/4W	R5659	ERDS2TJ563	C 56K OHM J 1/4W
R5576	ERDS2TJ101	C 100 OHM J 1/4W	R5660	ERDS2TJ563	C 56K OHM J 1/4W
R5577	EVM4HGA00B14	CONTROL B 10K OHM	R5661	ERDS2TJ563	C 56K OHM J 1/4W
R5578	ERD25FJ472K	C 4.7K OHM J 1/4W	R5663	ERDS2TJ563	C 56K OHM J 1/4W
R5579	EVM4HGA00B14	CONTROL B 10K OHM	R5664	ERDS2TJ563	C 56K OHM J 1/4W
R5580	EROS2CKF2052	M 20.5K OHM F 1/4W	R5665	ERDS2TJ563	C 56K OHM J 1/4W
R5581	EROS2CKF2052	M 20.5K OHM F 1/4W	R5667	ERDS2TJ821	C 820 OHM J 1/4W
R5582	EROS2CKF2052	M 20.5K OHM F 1/4W	R5668	ERDS2TJ821	C 820 OHM J 1/4W
R5583	ERDS2TJ101	C 100 OHM J 1/4W	R5669	ERDS2TJ821	C 820 OHM J 1/4W
R5584	ERDS2TJ101	C 100 OHM J 1/4W	R5672	ERDS2TJ103	C 10K OHM J 1/4W
R5585	ERDS2TJ101	C 100 OHM J 1/4W	R5673	ERDS2TJ563	C 56K OHM J 1/4W
R5586	EROS2CKF1201	M 1.2K OHM F 1/4W	R5674	ERDS2TJ563	C 56K OHM J 1/4W
R5587	EROS2CKF1201	M 1.2K OHM F 1/4W	R5675	ERDS2TJ563	C 56K OHM J 1/4W
R5588	EROS2CKF1201	M 1.2K OHM F 1/4W	R5676	ERDS2TJ563	C 56K OHM J 1/4W
R5589	EROS2CKF1201	M 1.2K OHM F 1/4W	R5677	ERDS2TJ103	C 10K OHM J 1/4W
R5590	EROS2CKF1201	M 1.2K OHM F 1/4W	R5678	ERDS2TJ103	C 10K OHM J 1/4W
R5591	EROS2CKF1201	M 1.2K OHM F 1/4W	R5679	ERDS2TJ103	C 10K OHM J 1/4W
R5592	ERDS2TJ221	C 220 OHM J 1/4W	R5705	ERDS2TJ222	C 2.2K OHM J 1/4W
R5593	ERDS2TJ221	C 220 OHM J 1/4W	R5706	ERDS2TJ561	C 560 OHM J 1/4W
R5594	ERDS2TJ221	C 220 OHM J 1/4W	R5708	ERD25FJ100K	C 10 OHM J 1/4W
R5595	EVM4HGA00B13	CONTROL B 1K OHM	R5709	ERDS2TJ102	C 1K OHM J 1/4W
R5596	ERDS2TJ331	C 330 OHM J 1/4W	R5710	ERDS2TJ223	C 22K OHM J 1/4W
R5597	EVM4HGA00B13	CONTROL B 1K OHM	R5711	ERDS2TJ223	C 22K OHM J 1/4W
R5598	ERDS2TJ181	C 180 OHM J 1/4W	R5712	ERDS2TJ223	C 22K OHM J 1/4W
R5599	ERDS2TJ181	C 180 OHM J 1/4W	R5713	ERDS2TJ223	C 22K OHM J 1/4W
R5601	ERDS2TJ331	C 330 OHM J 1/4W	R5714	ERDS2TJ472	C 4.7K OHM J 1/4W
R5602	ERDS2TJ331	C 330 OHM J 1/4W	R5715	ERDS2TJ472	C 4.7K OHM J 1/4W
R5603	ERD25FJ332K	C 3.3K OHM J 1/4W	R5716	ERDS2TJ223	C 22K OHM J 1/4W
R5604	EROS2CKF75R0	M 75R OHM F 1/4W	R5717	ERDS2TJ223	C 22K OHM J 1/4W
R5605	EROS2CKF75R0	M 75R OHM F 1/4W	R5718	ERDS2TJ223	C 22K OHM J 1/4W
R5606	EROS0CKF75R0	M 75 OHM F 1/2W	R5719	ERDS2TJ223	C 22K OHM J 1/4W
R5607	EROS2CKF5602	M 56K OHM F 1/4W	R5720	ERDS2TJ682	C 6.8K OHM J 1/4W
R5608	EROS2CKF5602	M 56K OHM F 1/4W	R5801	ERD25FJ331K	C 330 OHM J 1/4W
R5609	ERDS2TJ563	C 56K OHM J 1/4W	R5802	EVMQ1GA01B15	CONTROL B 100K OHM
R5610	EROS2CKF5602	M 56K OHM F 1/4W	R5803	ERDS2TJ102	C 1K OHM J 1/4W
R5611	EROS2CKF5602	M 56K OHM F 1/4W	R5804	TAV12K11215	VARIABLE RESISTOR
R5612	ERDS2TJ563	C 56K OHM J 1/4W	R5805	ERDS2TJ102	C 1K OHM J 1/4W
R5613	ERDS2TJ103	C 10K OHM J 1/4W	R5806	ERD25FJ821K	C 820 OHM J 1/4W
R5614	ERDS2TJ103	C 10K OHM J 1/4W	R5807	EVMQ1GA01B13	CONTROL B 1K OHM
R5615	ERDS2TJ821	C 820 OHM J 1/4W	R5808	ERDS2TJ821	C 820 OHM J 1/4W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R5809	TAV12K11213	VARIABLE RESISTOR	R5982	ERD25FJ102K	C 1K OHM J 1/4W
R5810	ERDS2TJ821	C 820 OHM J 1/4W	R5983	ERDS2TJ223	C 22K OHM J 1/4W
R5811	ERD25FJ563K	C 56K OHM J 1/4W	R5984	ERDS2TJ223	C 22K OHM J 1/4W
R5812	EVMQ1GA01B14	CONTROL B 10K OHM	R5985	ERDS2TJ223	C 22K OHM J 1/4W
R5813	ERDS2TJ563	C 56K OHM J 1/4W	R5986	ERDS2TJ223	C 22K OHM J 1/4W
R5814	TAV12K11214	VARIABLE RESISTOR	R5987	ERD25FJ223K	C 22K OHM J 1/4W
R5815	ERDS2TJ123	C 12K OHM J 1/4W	R5988	ERDS2TJ103	C 10K OHM J 1/4W
R5816	ERDS2TJ102	C 1K OHM J 1/4W	R5989	ERDS2TJ473	C 47K OHM J 1/4W
R5817	EVMQ1GA01B53	CONTROL B 5K OHM	R5990	ERDS2TJ103	C 10K OHM J 1/4W
R5818	ERDS2TJ472	C 4.7K OHM J 1/4W	R5991	EVM4HGA00B54	CONTROL B 50K OHM
R5819	TAV12K11253	VARIABLE RESISTOR	R5992	ERDS2TJ393	C 39K OHM J 1/4W
R5820	ERDS2TJ472	C 4.7K OHM J 1/4W	R5993	ERDS2TJ183	C 18K OHM J 1/4W
R5822	EVMQ1GA01B23	CONTROL B 2K OHM	R5994	ERDS2TJ223	C 22K OHM J 1/4W
R5823	ERD25FJ392K	C 3.9K OHM J 1/4W	R5995	ERDS2TJ223	C 22K OHM J 1/4W
R5824	TAV12K11223	VARIABLE RESISTOR	R5996	ERD25FJ471K	C 470 OHM J 1/4W
R5825	ERDS2TJ392	C 3.9K OHM J 1/4W	R5997	EVM4HGA00B13	CONTROL B 1K OHM
R5827	EVMQ1GA01B13	CONTROL B 1K OHM	R5998	ERDS2TJ221	C 220 OHM J 1/4W
R5828	ERD25FJ560K	C 56 OHM J 1/4W	R5999	ERDS2TJ472	C 4.7K OHM J 1/4W
R5829	EVMQ1GA01B13	CONTROL B 1K OHM	OTHERS		
R5832	ERD25FJ560K	C 56 OHM J 1/4W		ECQM2104JZ	P 0.1UF J 200V
R5833	EVMQ1GA01B13	CONTROL B 1K OHM		ERF3AKR47	W 0.47 OHM K 3W
R5835	EVMQ1GA01B13	CONTROL B 1K OHM		MA27QB	DIODE
R5836	ERD25FJ560K	C 56 OHM J 1/4W	K104	NO18E	MICA SAET
R5837	EVMQ1GA01B13	CONTROL B 1K OHM	K105	NO18R	MICA SAET
R5838	ERDS1FJ471	C 470 OHM J 1/2W	K106	TES4539	SPRING(TR)
R5839	ERDS1FJ471	C 470 OHM J 1/2W	K107	TES6162	SPRING
R5840	ERDS2TJ332	C 3.3K OHM J 1/4W	K108	TES6583	SPRING(IC) SMALL
R5841	ERDS2TJ101	C 100 OHM J 1/4W	K109	TJS1A4020	BNC/SW SOCKET
R5842	ERDS2TJ223	C 22K OHM J 1/4W	K110	TJS118150	VTR 8P SOCKET
R5843	ERDS2TJ332	C 3.3K OHM J 1/4W	K111	TJS35030	CRT SOCKET
R5844	ERDS1FJ221	C 220 OHM J 1/2W	K112	TKK870503	VOLUME HOLDER
R5845	ERDS2TJ123	C 12K OHM J 1/4W	K113	TKK878503-2	POWER IN TERMINAL BOARD
R5846	ERDS1FJ561	C 560 OHM J 1/2W		TLP408	CHOKE COIL
R5847	ERG1SJ221	M 220 OHM J 1W		TMK3205	SPACER
R5848	ERDS2TJ103	C 10K OHM J 1/4W	K114	TMK87513-1	CONTROL PCB BARRIER
R5849	ERD25FJ331K	C 330 OHM J 1/4W	K115	TMM15202	CRT SOCKET COVER
R5850	ERD25FJ821K	C 820 OHM J 1/4W	K116	TMM15412-1	CLAMPER
R5852	ERD25FJ222K	C 2.2K OHM J 1/4W	K117	TMM15423-1	READ CLAMPER (B)
R5853	ERD25FJ222K	C 2.2K OHM J 1/4W	K118	TMM6428-1	CLAMPER
R5854	ERD25FJ222K	C 2.2K OHM J 1/4W	K119	TMM76403-1	CLAMPER
R5855	ERDS2TJ102	C 1K OHM J 1/4W	K120	TMX6424	L. CLAMPER
R5857	ERDS2TJ471	C 470 OHM J 1/4W	K121	TUW87501	TERMINAL BOARD BRACKET
R5858	ERD25FJ471K	C 470 OHM J 1/4W	K122	TUX87403	PC BOARD BRACKET
R5859	ERDS2TJ332	C 3.3K OHM J 1/4W	K123	TUX87417	VOLUME BRACKET
R5860	ERTD3ZHL402S	THERMISTOR	K124	TUX87418	PC BOARD BRACKET(C)
R5864	EVM4HGA00B33	CONTROL B 3K OHM	K125	TUX87419	SWITCH BRACKET
R5865	ERDS2TJ561	C 560 OHM J 1/4W		TXAJTT2P343	2P CONNECTOR ASSY(A)
R5940	ERDS2TJ471	C 470 OHM J 1/4W		TXAJTT3P1156	3P CONNECTOR ASSY(A10)
R5950	ERDS2TJ472	C 4.7K OHM J 1/4W		TXAJTT3P1165	3P CONNECTOR ASSY(A31)
R5951	ERDS2TJ472	C 4.7K OHM J 1/4W		TXAJTV2P383	2P CONNECTOR ASSY(B20)
R5952	ERDS2TJ392	C 3.9K OHM J 1/4W		TXAJTV3P1164	3P CONNECTOR ASSY(W7)
R5953	ERDS2TJ102	C 1K OHM J 1/4W		TXAJTV3P1168	3P CONNECTOR ASSY(Q2)
R5954	ERDS2TJ472	C 4.7K OHM J 1/4W	K126	XNG3BS	NUT
R5955	ERDS2TJ393	C 39K OHM J 1/4W	K127	XSN3+10S	SCREW
R5956	ERDS2TJ473	C 47K OHM J 1/4W	K128	XTB26+8CFZ	SCREW
R5957	ERDS2TJ472	C 4.7K OHM J 1/4W	K129	XTN26+10B	SCREW
R5958	ERDS2TJ822	C 8.2K OHM J 1/4W	K130	XTV3+10A	SCREW
R5977	ERDS2TJ223	C 22K OHM J 1/4W			
R5978	ERDS2TJ273	C 27K OHM J 1/4W			
R5979	ERDS2TJ563	C 56K OHM J 1/4W			
R5980	ERDS2TJ103	C 10K OHM J 1/4W			
R5981	ERDS2TJ472	C 4.7K OHM J 1/4W			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
K131	XTWT983G	SCREW	B33-3	TEL302-9	TERMINAL
K132	XWG3	WASHER	CN1-CNT	TXAJTV7P057	7P CONNECTOR ASSY
K133	XYN3+C6	SCREW	CN2-CNT	TXAJTV9P072	9P CONNECTOR ASSY
K134	XYN3+F12	SCREW	CN3-CNT	TXAJTV7P058	7P CONNECTOR ASSY
A1	TJS118590	SHORT PLUG	CN4-CNT	TXAJTV3P1217	3P CONNECTOR ASSY
A2	TJS118620	SHORT PLUG	C1	TXAJTV10P033	10P CONNECTOR ASSY(B11)
A3	TJS118590	SHORT PLUG	C2	TXAJTV2P384	2P CONNECTOR ASSY(B42)
A4	TJS118620	SHORT PLUG	C3	TXAJTV3P1216	3P CONNECTOR ASSY(A33)
A5	TJS118600	PHONO PIN	C4	TXAJTV5P306	5P CONNECTOR ASSY(B7)
A6	TJS118600	PHONO PIN	C5	TXAJTV2P385	2P CONNECTOR ASSY(W11)
A7	TJS118600	PHONO PIN	C6	TXAJTV4P574	4P CONNECTOR ASSY(B16)
A17	TJS118590	SHORT PLUG	C7	TXAJTV5P307	5P CONNECTOR ASSY(B5)
A18	TJS118590	SHORT PLUG	C8	TXAJTV6P428	6P CONNECTOR ASSY(W3)
A33	TJS118600	PHONO PIN	DEG-1	TEL302-9	TERMINAL
A34	TJS118590	SHORT PLUG	DEG-2	TEL302-9	TERMINAL
A35	TXAJTT1P159	1P CONNECTOR ASSY(D1)	D1	TEL302-9	TERMINAL
A36	TEL302-9	TERMINAL	D7	TXAJTV8P062	8P CONNECTOR ASSY(M1)
A10-1	TEL302-9	TERMINAL	D8	TXAJTV7P046	7P CONNECTOR ASSY(M2)
A10-2	TEL302-9	TERMINAL	JX5201	TJS8A8553	4P DIN CONNECTOR
A10-3	TEL302-9	TERMINAL	JX5202	TJS8A8553	4P DIN CONNECTOR
A15-1	TEL302-9	TERMINAL	L1	TXAJTV3P1211	3P CONNECTOR ASSY(B38)
A15-2	TEL302-9	TERMINAL	L2	TXAJTV3P1212	3P CONNECTOR ASSY(B37)
A15-3	TEL302-9	TERMINAL	L3	TXAJTV3P1213	3P CONNECTOR ASSY(B39)
A15-4	TEL302-9	TERMINAL	L4	TXAJTV3P1160	3P CONNECTOR ASSY(A6)
A31-1	TEL302-9	TERMINAL	L5	TXAJTV3P1214	3P CONNECTOR ASSY(A36)
A31-2	TEL302-9	TERMINAL	L6	TEL302-9	TERMINAL
B1	TJS118630	6P CONNECTOR	L7	TEL302-9	TERMINAL
B2	TEL302-9	TERMINAL	L11	TXAJTT1P181	1P CONNECTOR ASSY(B2)
B5	TJS118620	SHORT PLUG	M1	TJS118650	8P CONNECTOR
B6	TJS118590	SHORT PLUG	M2	TJS118640	7P CONNECTOR
B7	TJS118620	SHORT PLUG	Q1	TXAJTV6P402	6P CONNECTOR ASSY(B9)
B8	TJS118630	6P CONNECTOR	Q2	TJS118600	PHONO PIN
B9	TJS118620	SHORT PLUG	S401	EVQR1AL13	SWITCH
B10	TJS118620	SHORT PLUG	SE5808	TSE80732	SWITCH
B11	TJS118670	10P CONNECTOR	SW5201	TSE80374	SWITCH
B13	TXAJTV6P399	6P CONNECTOR ASSY(A2)	SW5801	TSE80471	SWITCH
B14	TJS118650	8P CONNECTOR	SW5806	TSE80478	SWITCH
B15	TJS118600	PHONO PIN	SW5807	TSE80732	SWITCH
B16	TJS118610	4P CONNECTOR	SW5809	TSE80479	SWITCH
B17	TXAJTV2P342	2P CONNECTOR ASSY(A7)	SW5810	TSE80734	SWITCH
B18	TXAJTV4P548	4P CONNECTOR ASSY(A1)	SW5814	TSE80732	SWITCH
B19	TJS118600	PHONO PIN	SW5815	TSE80733	SWITCH
B20	TJS118590	SHORT PLUG	W1	TXAJTV8P063	8P CONNECTOR ASSY(B14)
B22	TJS118590	SHORT PLUG	W2	TXAJTV6P401	6P CONNECTOR ASSY(B1)
B23	TJS118610	4P CONNECTOR	W3	TJS118630	6P CONNECTOR
B23	TXAJTV4P549	4P CONNECTOR ASSY(B23)	W4	TJS118600	PHONO PIN
B37	TJS118600	PHONO PIN	W5	TXAJTV2P349	2P CONNECTOR ASSY(A18)
B38	TJS118600	PHONO PIN	W6	TXAJTV2P348	2P CONNECTOR ASSY(A34)
B39	TJS118600	PHONO PIN	W7	TJS118600	PHONO PIN
B40	TJS118600	PHONO PIN	W9	TXAJTV3P1167	3P CONNECTOR ASSY(B19)
B42	TJS118590	SHORT PLUG	W10	TXAJTV3P1215	3P CONNECTOR ASSY(A3)
B43	TJS118590	SHORT PLUG	W11	TJS118590	SHORT PLUG
B32-1	TEL302-9	TERMINAL	X602	TSS816M	CRYSTAL OSCILLATOR
B32-2	TEL302-9	TERMINAL	K135	TMK87905	SPACER
B32-3	TEL302-9	TERMINAL	K136	TMK87906	CUSHION
B33-1	TEL302-9	TERMINAL			
B33-2	TEL302-9	TERMINAL			

Panasonic Industrial Company

Division of Matsushita Electric Corporation of America

PROFESSIONAL/INDUSTRIAL VIDEO

Executive Office:

Two Panasonic Way, Secaucus, NJ 07094

Regional:

Northeast;	50 Meadowland Parkway, Secaucus, NJ 07094 (201) 348-7620
Southeast;	1854 Shackleford Ct. Suite 115 Norcross. GA 30093 (404) 925-6835
Midwest;	425 E Algonquin Rd. Arlington Heights. IL 60005 (312) 981-4826
Southwest;	1825 Walnut Hill Lane. P.O.Box 5246 Irving. TX 75062 (214) 580-0518
Western;	6550 Katella Ave., Cypress. CA 90630 (714) 895-7200
Northwest;	1200 Westlake Ave., N., Ste. 508 Seattle, WA 98109 (206) 285-8883

PANASONIC HAWAII, INC.

91-238 Kauhi St. Ewa Beach P.O.Box 774 Honolulu, Hawaii 96808-0774 (808) 682-2851

MATSUSHITA ELECTRIC OF CANADA LIMITED

5770 Ambler Drive, Mississauga, Ontario L4W 2T3 (416) 624-5010

PANASONIC SALES COMPANY

Ave. 65 de Infanterial, KM. 9.7, Victoria Industrial Park, Carolina, Puerto Rico 00630 (809) 769-4320