

# TOSHIBA

## COLOUR TELEVISION

# 284R8W



### SPECIFICATIONS

Input Power Rating :	102 watts, AC 220 volts, 50 Hz
Aerial Input Impedance :	75 ohm unbalanced type for VHF and UHF
Receiving Channels :	SECAM L Standard : VHF ..... channels B to C, 1 to 6, <b>B to Q (70 to 86)</b> UHF ..... channels 21 to 69 PAL B/G Standard, SECAM B/G Standard : VHF ..... channels 2 to 4, 5 to 12, <b>S1 to S20</b> UHF ..... channels 21 to 69 PAL I Standard : UHF ..... channels 21 to 68 PAL D/K, SECAM D/K Standard : VHF ..... channels 1 to 12 UHF ..... channels 21 to 69 PAL, SECAM 50Hz/60Hz (For Video Disk playback) 4.43NTSC (For VCR playback)
Intermediate Frequencies :	Picture I-F carrier frequency B/G, I, D/K System ..... 38.9 MHz L System ..... 34.47 MHz Sound I-F carrier frequency B/G System ..... 33.4 MHz I System ..... 32.9 MHz D/K, L(VH, U) System ..... 32.4 MHz L(VL) System ..... 40.47 MHz
Picture Tube :	28 inches, A66EAK51X01, 660 mm (measured on diagonal of viewable picture area), 110° deflection
Sound Output :	5.0 watts (at 10% harmonic distortion), Max. 6.3 watts
Speakers :	70 mm x 60 mm oval, 2 pcs
Aux. Terminals :	Headphone Jack, 21 pin socket, S-VIDEO/AUDIO socket
Cabinet :	Table type
Dimensions :	Height ..... 608 mm Width ..... 647 mm Depth ..... 493 mm
Weight (Net) :	37 kg

Specifications are subject to change without notice.

## SAFETY INSTRUCTIONS

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND THE "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

### X-RAY RADIATION PRECAUTION

1. The E.H.T. must be checked every time the receiver is serviced to ensure that the C.R.T. does not emit X-ray radiation as result of excessive E.H.T. voltage. The nominal E.H.T. for this receiver is 26.0 kV at zero beam current (minimum brightness) operating at 220V a.c. The maximum E.H.T. voltage permissible in any operating circumstances must not exceed 27.5 kV. When checking the E.H.T., use the 'High Voltage Check' procedure in this manual using an accurate E.H.T. voltmeter.
2. The only source of X-RAY radiation in this receiver is the C.R.T. To prevent X-ray radiation, the replacement C.R.T. must be identical to the original fitted as specified in the Parts List.
3. Some components used in this receiver have safety related characteristics preventing the C.R.T. from emitting X-ray radiation. For continued safety, replacement component should only be made after referring the Product Safety Notice below.

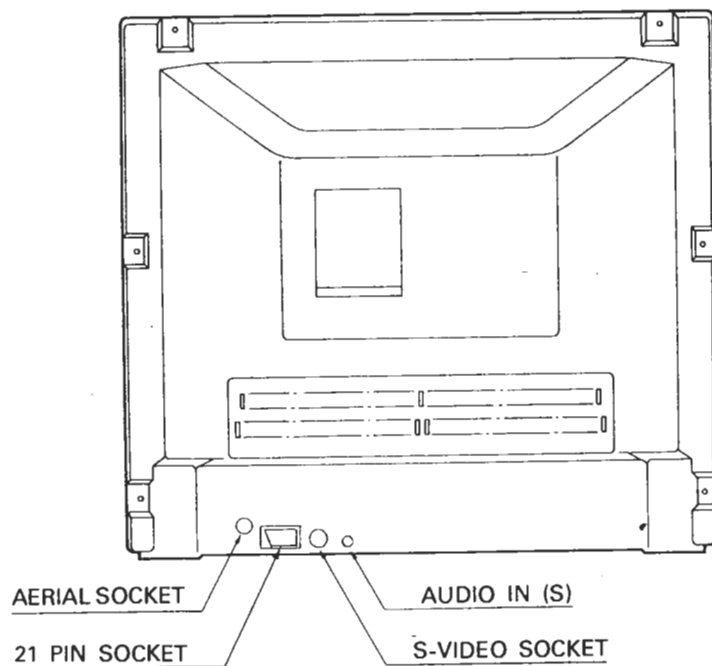
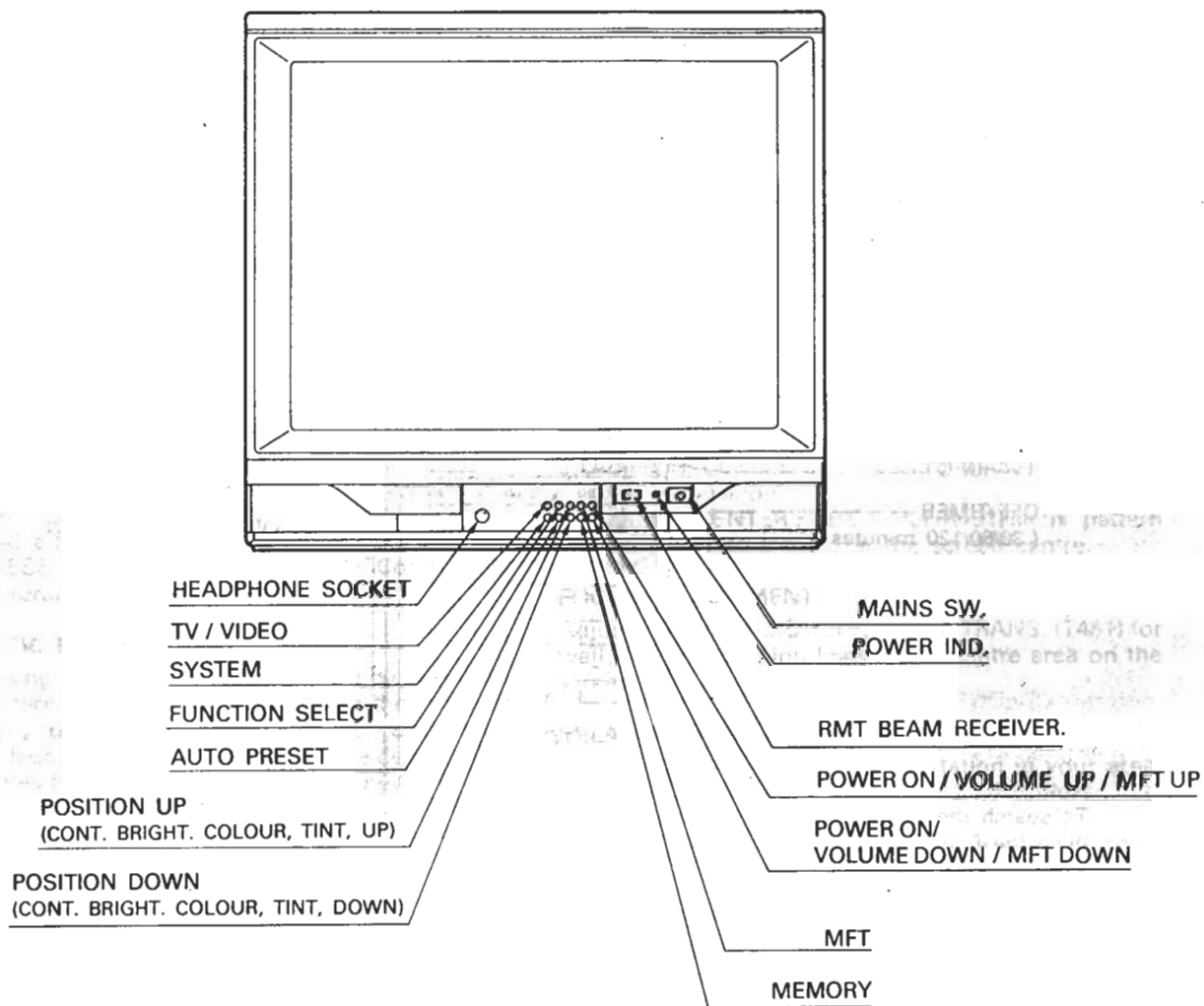
### SAFETY PRECAUTION

1. This receiver has a nominal working E.H.T. voltage of 24.0 kV. Extreme caution should be exercised when working on the receiver with the back removed.  
Do not attempt to service this receiver if you are not conversant with the precautions and procedures for working on high voltage equipment.  
When handling or working on the C.R.T., always discharge the anode to the receiver chassis before removing the anode cap.  
The C.R.T., if broken, will violently expel glass fragments. Use shatter proof goggles and take extreme care while handling.  
Do not hold the C.R.T. by the neck as this is a very dangerous practice.
2. It is essential that to maintain the safety of the customer all cable forms be replaced exactly as supplied from factory.
3. A small part of the chassis used in this receiver is, when operating, at approximately half mains potential at all times. It is therefore essential in the interest of safety that when serving or connecting any test equipment the receiver should be supplied via a suitable isolating transformer of adequate rating.
4. Replace blown fuses within the receiver with the fuse specified in the parts list.
5. When replacing wires or components to terminals or tags, wind the leads around the terminal before soldering. When replacing safety components identified by the international hazard symbols on the circuit diagram and parts list, it must be a Toshiba approved type and must be mounted as the original.
6. Keep wires away from high temperature components.

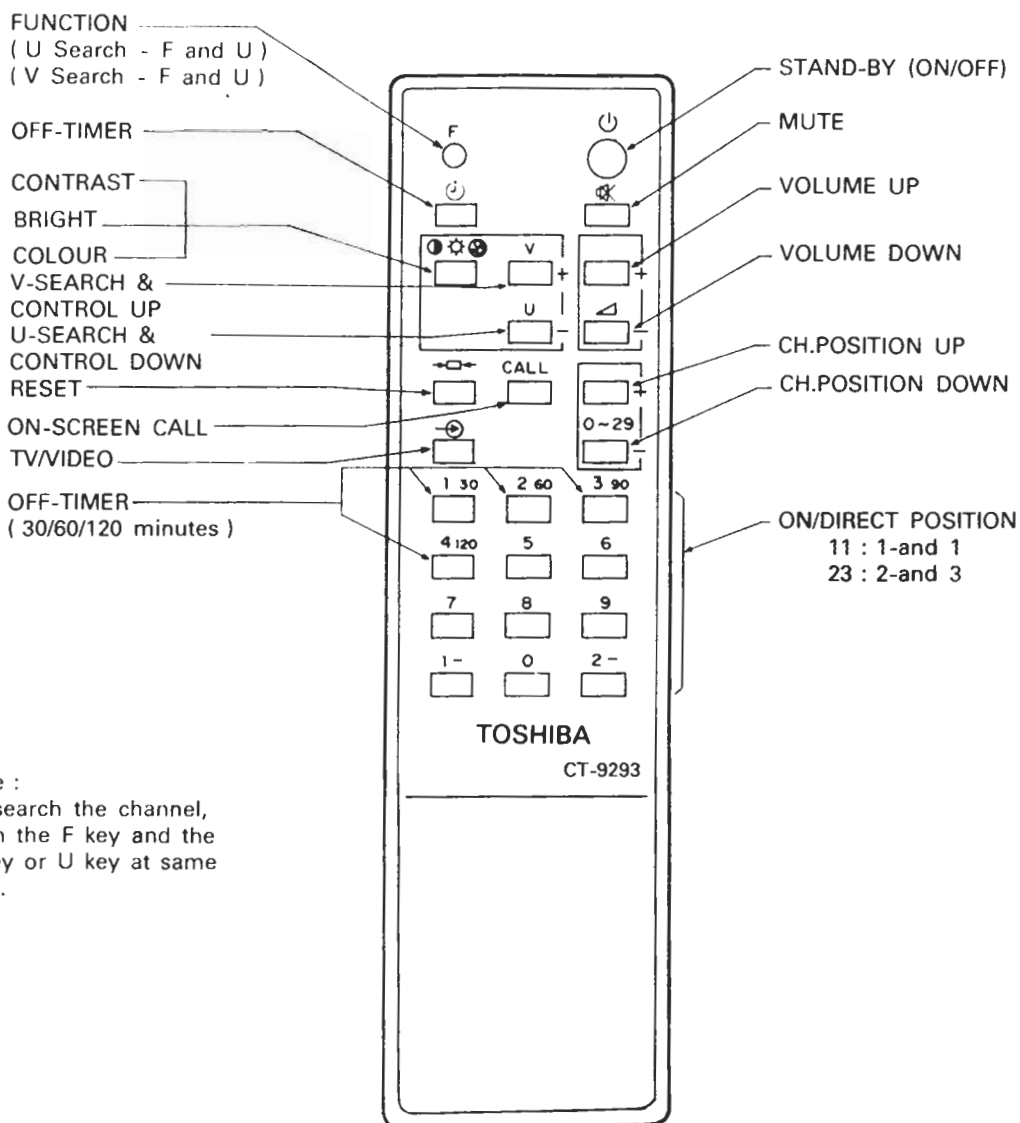
### PRODUCT SAFETY NOTICE

Many electrical and mechanical components in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-ray radiation protection afforded by them cannot necessarily be obtained by using replacements rated at higher voltages or wattage, etc. Components which have these special safety characteristics in this manual and its supplements are identified by the international hazard symbols on the schematic diagram and parts list. Before replacing any of these components read the parts list in this manual carefully. Substitute replacement components which do not have the same safety characteristics as specified in the parts list may create X-ray radiation.

## FRONT CONTROLS AND REAR VIEWS



## REMOTE HAND HELD UNIT



### Note :

To search the channel, push the F key and the V key or U key at same time.

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

## INSTALLATION AND SERVICE ADJUSTMENTS

### GENERAL INFORMATION

All adjustments are thoroughly checked and corrected when the receiver leaves the factory. Therefore the receiver should operate normally and produce proper colour and B/W pictures upon installation. However, several minor adjustments may be required depending on the particular location in which the receiver is operated.

This receiver is shipped completely in cardboard carton. Carefully draw out the receiver from the carton and remove all packing materials.

Plug the power cord into a convenient 220 volts 50 Hz AC two pin power outlet. Turn the receiver ON. Check and adjust all the customer controls such as BRIGHTNESS, CONTRAST and COLOUR Controls to obtain natural colour or B/W picture.

### AUTOMATIC DEGAUSSING

A degaussing coil is mounted around the picture tube so that external degaussing after moving the receiver is normally unnecessary, providing the receiver is properly degaussed upon installation. The degaussing coil operates for about 1 second after the power to the receiver is switched ON. If the set is moved or faced in a different direction, the power switch must be switched off at least 10 minutes in order that the automatic degaussing circuit operates properly.

Should the chassis or parts of the cabinet become magnetized to cause poor colour purity, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube, the sides and front of the receiver and slowly withdraw the coil to a distance of about 2 m before disconnecting it from AC source. If colour shading still persists, perform the COLOUR PURITY ADJUSTMENT and CONVERGENCE ADJUSTMENTS procedures.

### HIGH VOLTAGE CHECK

**CAUTION:** There is no HIGH VOLTAGE ADJUSTMENT on this chassis.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST Controls to minimum (zero beam current).
3. High voltage will be measured below 27.5 kV.
4. Rotate the BRIGHTNESS Control to both extremes to be sure the high voltage does not exceed the limit of 27.5 kV under any conditions.

### HEIGHT ADJUSTMENT

HEIGHT Control (R351) on MAIN Board changes the size of the picture or pattern, having an equal effect on the top and bottom. Make final adjustment to overscan the mask 2 cm at top and bottom.

### HORIZONTAL CENTRE ADJUSTMENT

1. Receive the WG PHILIPS pattern.
2. Set the contrast and colour to minimum, and the brightness to maximum.
3. Adjust H. CENTER USER Control (R452) to the click (centre) position.
4. Adjust H. CENTER SUB Control (R451) so the pattern centre can be located at the screen centre.

### FOCUS ADJUSTMENT

Adjust FOCUS Control on FLYBACK TRANS. (T461) for well defined scanning lines in the centre area on the screen.

### DELAYED RF AGC ADJUSTMENT

1. Tune the set in the strongest station in your area.
2. Turn AGC DELAY Control (R153) on IF Board to fully counterclockwise position.
3. Adjust AGC DELAY Control clockwise until noise (snow) disappears on the screen.

### PICTURE WIDTH AND DISTORTION ADJUSTMENT (Width, Pincushion Distortion, Trapezoid Distortion)

1. Perform this adjustment after +B and H. CENTRE adjustment are completed.
2. Receive the WG PHILIPS pattern.
3. Set the contrast and colour to minimum, and the brightness to maximum.
4. Adjust H. WIDTH Control (R358) for the horizontal width so that the white flags on left and right of the pattern are just hidden.
5. Adjust PINCUSHION CORRECTION Control (R357) to correct the vertical line on left and right straight.
6. Adjust TRAPEZOID CORRECTION Control (R356) to correct the trapezoid distortion.
7. Readjust H. WIDTH control for the precision.

### BELL COIL (LM01) ADJUSTMENT

1. Receive SECAM colour bar signal.
2. Connect the synchroscope to the terminal Pin 2 of LM01.
3. Adjust LM01 for the flat level of amplitude in each colour bar waveform on the scope. (See figure 1.)

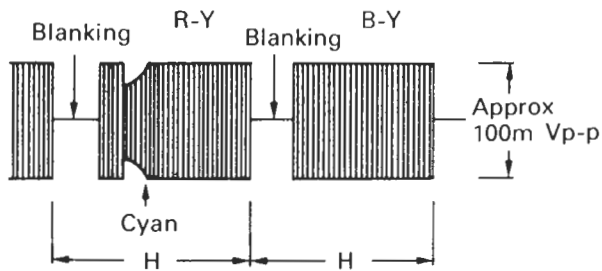


Figure 1.

### IDENT COIL (LM04) ADJUSTMENT

1. Receive SECAM colour bar signal.
2. Connect the DC voltmeter (Digital Voltmeter) to the pin 23 of IC501.
3. Adjust LM04 for the maximum indication (approx. DC10V) on the meter.

### B-Y, R-Y DEMOD COIL (LM02, LM03) ADJUSTMENT

1. Receive SECAM colour bar signal.
2. Set the COLOUR, BRIGHTNESS and CONTRAST Controls free.
3. Connect the synchroscope to the pin 60 of IC501.
4. Adjust LM02 so that the white level in picture part reaches to the vertical retrace line. (See figure 2.)
5. Then change the connection of synchroscope from the pin 60 to the pin 62 of IC501.
6. Adjust LM03 so that the white level in picture part reaches to the vertical retrace line. (See figure 3.)

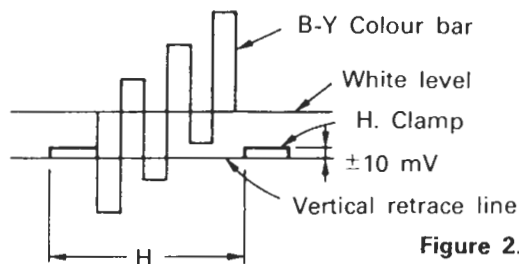


Figure 2.

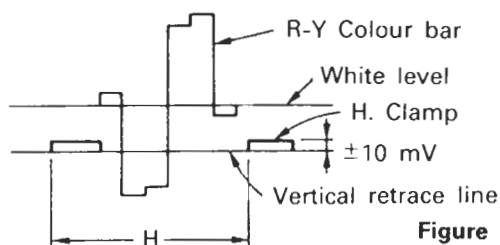


Figure 3.

### PAL MATRIX ADJUSTMENT

1. Turn in the colour programme of Philips pattern.
2. Set the COLOUR Control VR. to obtain the proper colour.
3. If the PAL MATRIX adjustment is incorrect, the Venetian Blind would appear in the colour bars area. This case needs the adjustment.
4. At the first, adjust DL PHASE ADJ. Coil (L551) to minimize the Venetian Blind.

5. Next adjust 1H-DL ADJ. VR (R551) to minimize the Blind.
6. If the Venetian Blind still remains, adjust 1H-DL PHASE ADJ. Coil (L551) to minimize the Blind again.
7. Repeat the item 5 and 6 procedures, adjust the R551 and L551 until the Blind does not appear.

### CRT GREY SCALE ADJUSTMENT

1. Tune in an active channel.
2. Turn the SCREEN Control (on T461) fully counterclockwise.
3. By rotating the RED, GREEN and BLUE CUT OFF controls (R557, R558, R559) counterclockwise to the minimum.
4. Set the GREEN and BLUE DRIVE Controls (R252, R253) to the mid position.
5. Set the SEARVICE SW. (S202) in the H. line position.
6. Shrot temporarily Terminal of RASTER CHIP on the CRT DRIVE Board.
7. Set the CONTRAST, COLOUR Controls to minimum and BRIGHTNESS Control to centre position.
8. Rotate the SCREEN Control gradually clockwise until the first line appears slightly on the screen. Set the SCREEN Control to this position.
9. Open the terminal of RASTER CHIP on the CRT DRIVE Board.
10. Adjust the CUT OFF Controls to obtain the slightly lighted horizontal lines in the same levels of three colours (RED, GREEN and BLUE). The lines may look like white if the CUT OFF Controls are adjusted properly.
11. Return the SERVICE SW. (S202) in the Receiving position.
12. Set the BRIGHTNESS Control to the maximum and COLOUR Control to the minimum.
13. Adjust the BLUE and GREEN DRIVE Controls (R252/R253) to obtain proper white-balanced picture in high light areas.
14. Set the BRIGHTNESS and CONTRAST Controls to obtain dark grey raster. Then check the white balance in low brightness. If the white balance is not proper, retouch the CUT OFF Controls and DRIVE Controls to obtain a good white balance in both low and high light areas.

### SUB-BRIGHTNESS ADJUSTMENT

1. Tune in a colour programme.
2. Set the CONTRAST Control to the maximum and the BRIGHTNESS Control to the centre.
3. Set the COLOUR Control to the minimum.
4. Set the SUB-BRIGHT. Control (R255) to the centre and leave the receiver for five minutes in this state.
5. Watching the picture well, adjust the SUB-BRIGHT. Control in the position where the picture does not show evidence of blooming in high bright area and not appear too dark in low bright portion.
6. Check the proper picture variation by rotating the CONTRAST and BRIGHTNESS Controls to both extremes.
7. If the picture does not appear dark with the CONTRAST and BRIGHTNESS Controls turned to the minimum, or not appear bright with the controls turned to the maximum, adjust the SUB-BRIGHT. Control again for the acceptable picture.

## PICTURE I-F TRAP ALIGNMENT

NOTE ..... Perform this adjustment prior to I-F SWEEP ALIGNMENT.  
 GERNAL ..... Refer to figure 4 for the equipment connection.  
 PRELIMINARY STEPS ..... 1. Disconnect the IF Board from the MAIN Board.  
 2. Supply +12 volts to the IF Board.  
 SWEEP/MARKER GENERATOR ..... Connect to the point (d) as shown in figure 4 on the IF Board.  
 OSCILLOSCOPE ..... Connect through the detector (See figure 6.) to the collector of Q161 on the IF Board.

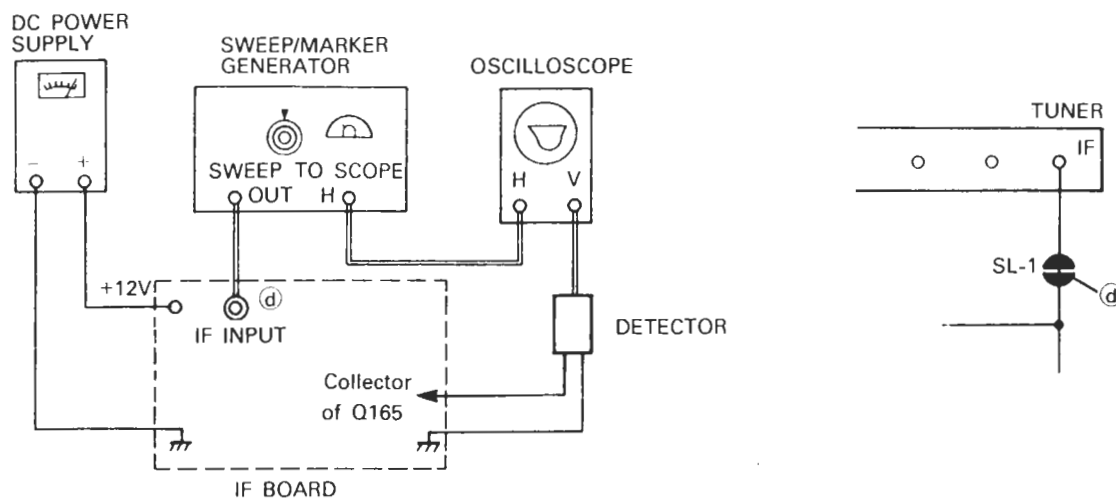


Figure 4.

STEP	SWEEP/MERKER GENERATOR	ADJUST	PROCEDURE
<b>TRAP ALIGNMENT</b> Control the sweep output for easy alignment. Set the IF makers for 40.4MHz (P + 1.5MHz), 32.4MHz (P - 6.5MHz) and 32.97MHz			
Trap coil TN01	40.4MHz Marker "ON"	TN01	Adjust TN01 so the 40.4MHz marker point is placed at bottom of response. (See figure 5.)
Trap coil TN02	32.97MHz Marker "ON"	TN02	Short the pins 7 and 11 of P103 to ground, and adjust TN02 so the 32.97MHz marker point is placed at bottom of response. (See figure 5.)
Trap coil TN03	32.4MHz Marker "ON"	TN03	Short the pin 7 of P103 to +12V line, and adjust TN03 so the 32.4MHz marker point is placed at bottom of response. (See figure 5.)

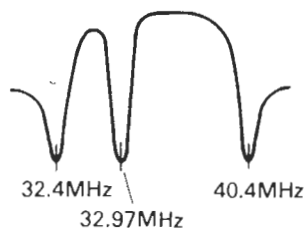


Figure 5. Trap Response

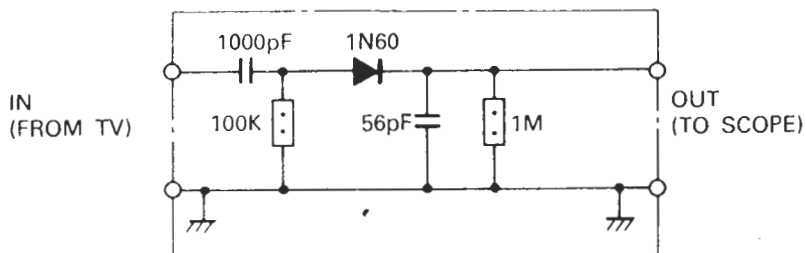


Figure 6. Detector Diagram

## PICTURE I-F SWEEP ALIGNMENT

- GENERAL ..... Refer to figure 7 for test equipment connection.
- PRELIMINARY STEPS ..... 1. Disconnect the IF Board from the Main Board.  
 2. Supply +12 volts to the IF Board.  
 3. Short the resistor to ground to reduce the voltage at pin 30 of IC101 to below 1 volt.  
 4. Turn AGC DELAY Control (R153) on the Main Board fully clockwise.
- SWEEP/MARKER GENERATOR ..... Connect to the pin 6 of P101 on the IF Board.  
 Set to 30 ~ 40 MHz sweep with signal level of 75 ~ 85 dB $\mu$ .
- OSCILLOSCOPE ..... Connect with direct probe to pin 31 of IC101 on the IF Board through 100k ohm resistor.

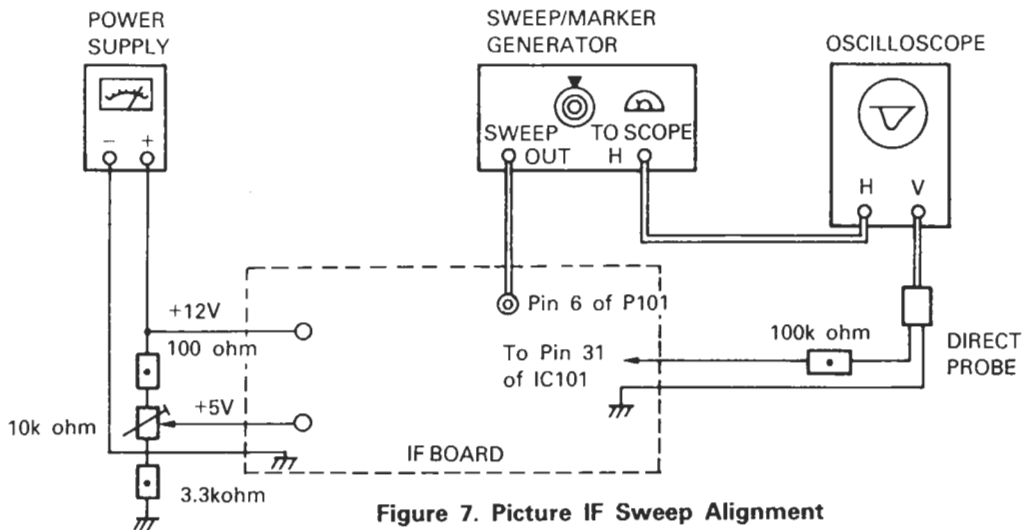


Figure 7. Picture IF Sweep Alignment

STEP	SWEEP/MERKER GENERATOR	ADJUST	REMERKS
1. Detector Coil	38.9 MHz Marker "ON"	L151	<ul style="list-style-type: none"> <li>● Open the junction of RN28 and RN26 on the IF Board.</li> <li>● Supply +3 to +6 volts to pin 4 of IC101 to set the output level for 0.4 Vp-p on the scope.</li> <li>● Adjust L151 so that the marker position (38.9 MHz) on the response can lower to minimum. (See figure 8.)</li> <li>● After completing CN51 adjustment, repeat this step again.</li> </ul>
2. Detector Capacitor	34.47 MHz Marker "ON"	CN51	<ul style="list-style-type: none"> <li>● Short pin 11 of P103 to ground.</li> <li>● Supply +3 to +6 volts to pin 4 of IC101 to set the detection output for 0.4 Vp-p on the scope.</li> <li>● Adjust CN51 so that the marker position (34.47 MHz) on the response can lower to minimum. (See figure 8.)</li> <li>● After completing L151 adjustment, repeat the step again.</li> </ul>
After completing the above steps, disconnect the equipment and connect the IF Board on the Main Board, and adjust the AGC Delay control (R153) following DELAYED RF AGC ADJUSTMENTS.			

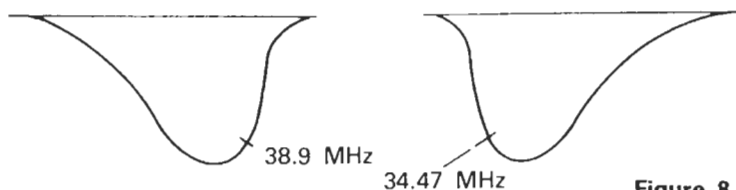


Figure 8. Magnified Response Curve



## AFC ALIGNMENT

- GENERAL ..... Refer to figure 9 for test equipment connection.
- PRELIMINARY STEPS ..... 1. Disconnect the IF Board from the Main Board.  
 2. Supply +12 volts to the IF Board. (See figure 6.)  
 3. Short the resistor of RN16 to Ground to reduce the voltage at pin 30 of IC101 to below 1 volt.  
 4. Turn AGC DELAY Control (R153) on the Main Board fully clockwise.
- DVM ..... Connect to pin 2 of P101 (figure 9) and ground.

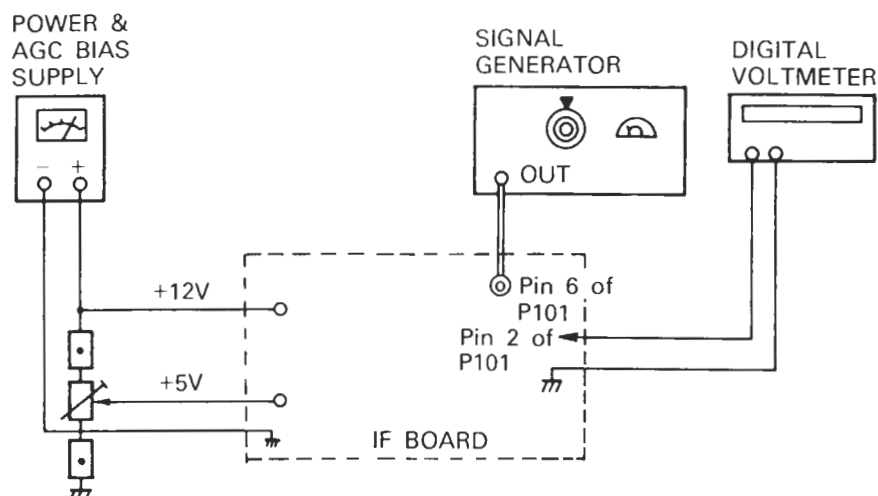


Figure 9. AFC Alignment

STEP	SIGNAL GENERATOR	ADJUST	REMARKS
1. AFC Balance (R152)	NO SIGNAL	R152	<ul style="list-style-type: none"> <li>Short the pin 4 of IC101 to ground.</li> <li>Adjust R152 for 4.5 volts at the pin 2 of P101 in figure 9.</li> </ul>
2. AFC Coil (L152)	38.9 MHz CARRIER WAVE (Level: 75 to 85 dBμ)	L152	<ul style="list-style-type: none"> <li>Remove the short of pin 4 of IC101.</li> <li>Open the junction of RN28 and RN26.</li> <li>Connect IF carrier wave to the pin 2 of P101 figure 6.</li> <li>Adjust L152 for 4.3 volts on the meter at the pin 2 of P101.</li> <li>After completing CN52 adjustment, repeat this step again.</li> </ul>
3. AFC Capacitor (CN52)	34.47 MHz CARRIER WAVE (Level: 75 to 85 dBμ)	CN52	<ul style="list-style-type: none"> <li>Short the junction of RN28 and RN26 to ground.</li> <li>Connect IF carrier wave to the pin 2 of P101 in figure 6.</li> <li>Adjust CN52 for 4.3 volts on the meter at the pin 2 of P101.</li> <li>After completing L152 adjustment repeat this step again.</li> </ul>

## L SECAM DET-OUT (R151) ADJUSTMENT

1. Supply +12V to the IF Board.
2. Short Base of QN08 to ground to keep the voltage at pin 30 of IC101 in 4 volts.
3. Set AGC to Self AGC condition.
4. Connect synchroscope to pin 31 of IC101 through 10:1 probe.
5. Connect the 2-signal generator to IF input, and set up the generator as described below.  
 IF frequency : 38.9 MHz  
 Signal level : 75 to 85 dB $\mu$   
 Video modulation  
 Positive modulation : 97%  
 Video signal fH : 15.625 kHz  
 Picture : Pattern with 100% white
6. Adjust the AC LEVEL Control (R151) for 1.6Vp-p on the scope.

## SIF ALIGNMENT

STEP	ADJUSTING PARTS	INPUT TERMINAL	OUTPUT TERMINAL	TEST SIGNAL	PROCEDURE
1	6.0 MHz SIF DET. COIL (L651)	PIN 17 (IC601)	PIN 7 (IC601)	Input level: 80 to 100 dB $\mu$ f=6.0 MHz fm=1 kHz $\Delta f = \pm 15$ kHz	<ol style="list-style-type: none"> <li>1. Connect the signal to pin 17 of IC601 through a capacitor 0.01<math>\mu</math>F.</li> <li>2. Arrange the IF signal as described left.</li> <li>3. Connect voltmeter to pin 7 of IC601.</li> <li>4. Adjust L651 for the maximum reading on voltmeter.</li> </ol>
2	6.0 MHz SIF CONVERT	PIN 5 (IC661)	POINT (Between C672 and Z666)	Input level: 80 to 100 dB $\mu$ f=5.5 MHz fm= 1kHz $\Delta f = \pm 15$ kHz	<ol style="list-style-type: none"> <li>1. Connect the signal to pin 5 of IC661 through a capacitor 0.01<math>\mu</math>F.</li> <li>2. Connect oscilloscope to the intersection of C672 and Z666.</li> <li>3. Adjust L662 for the maximum amplitude of 6.0 MHz.</li> </ol>

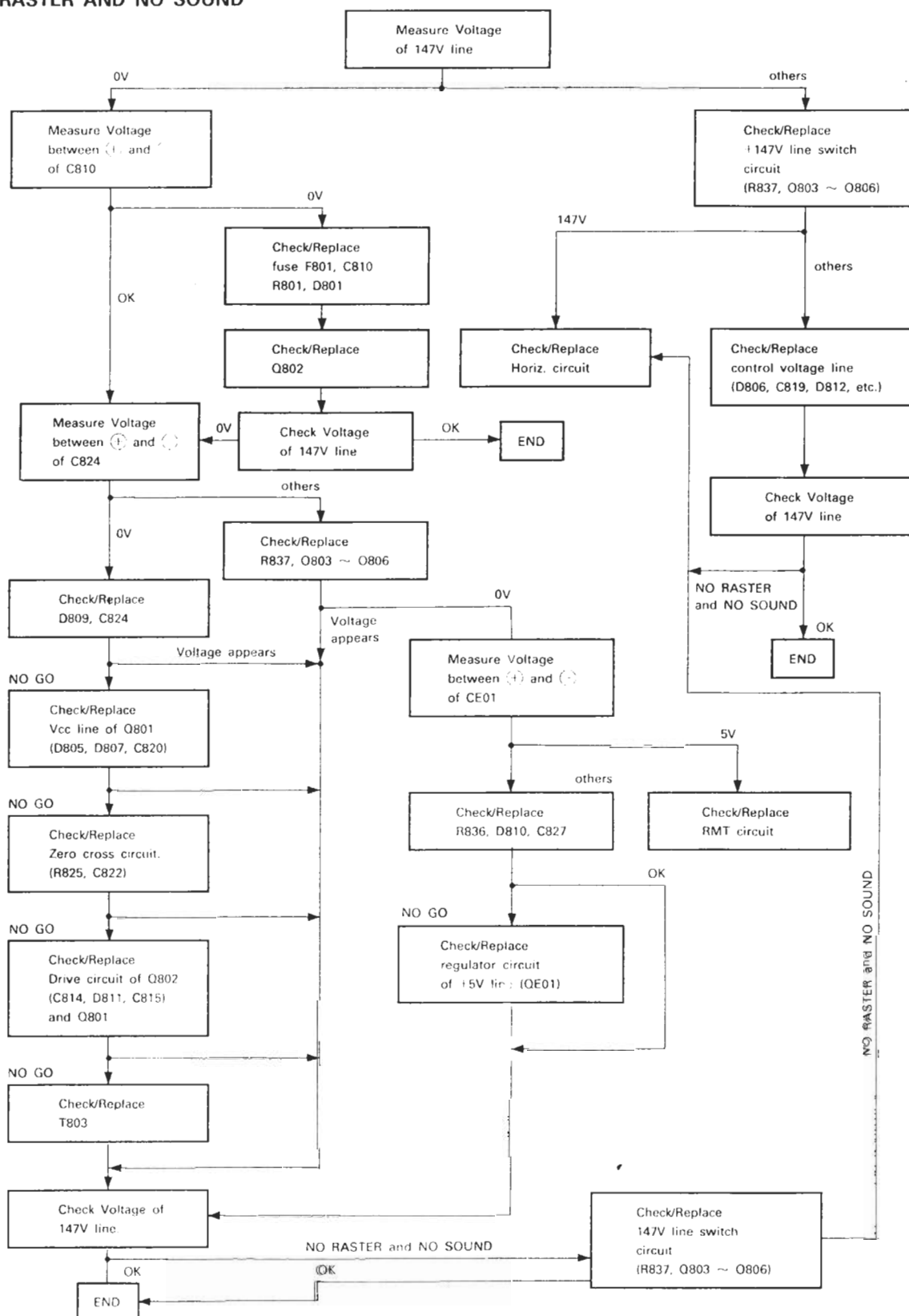
## TROUBLESHOOTING CHARTS

The following charts are devoted to troubleshooting which, if followed carefully, will assist you in tracking down a fault to the correct stage.

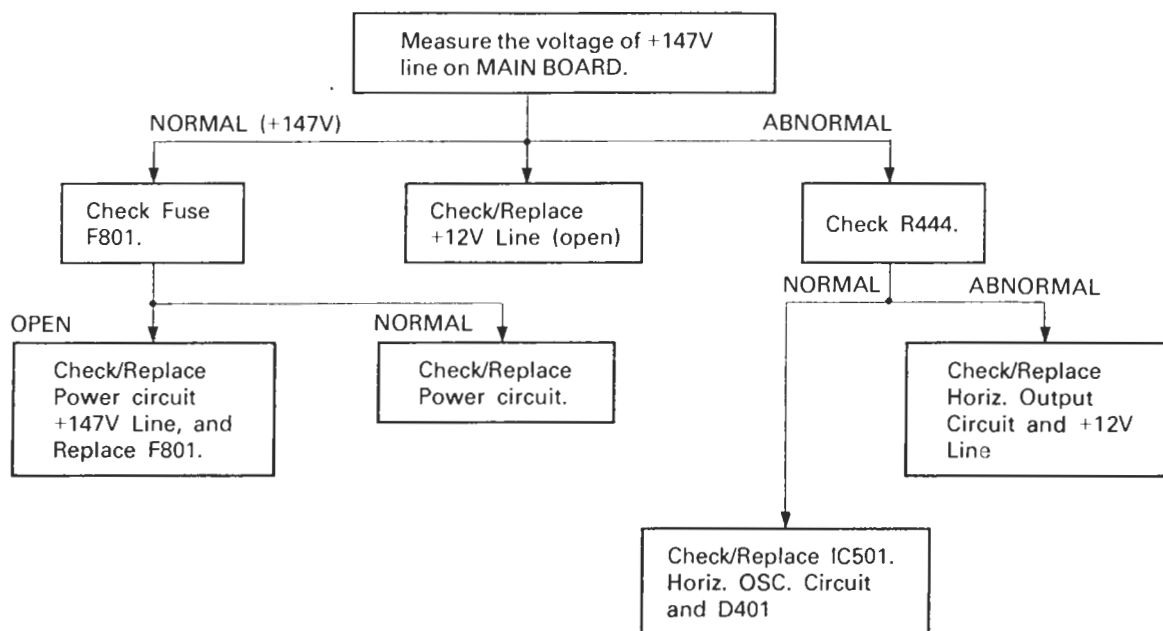
In order to utilize the charts (fault trees), firstly establish the complaint, i.e. – No Raster, No Sound.

Locate the chart applicable and then progress through the various alternatives until a final block indicates the offending components or stage.

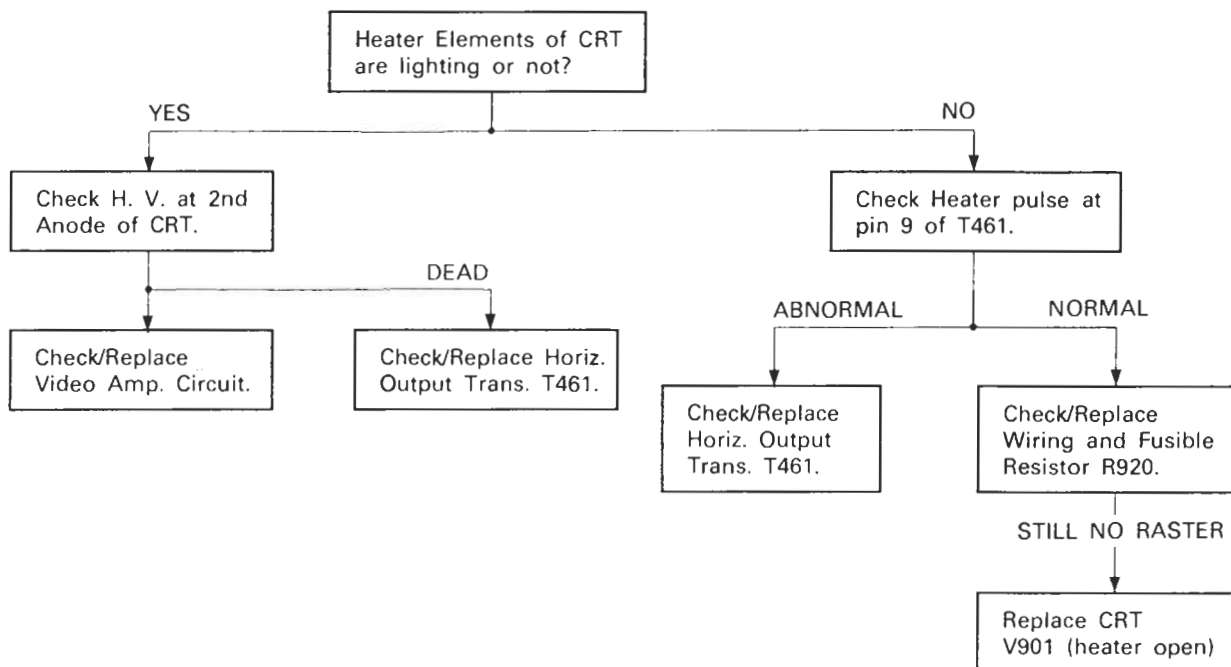
### 1. NO RASTER AND NO SOUND



## 2. NO RASTER (NOISE OR WEAK SOUND)

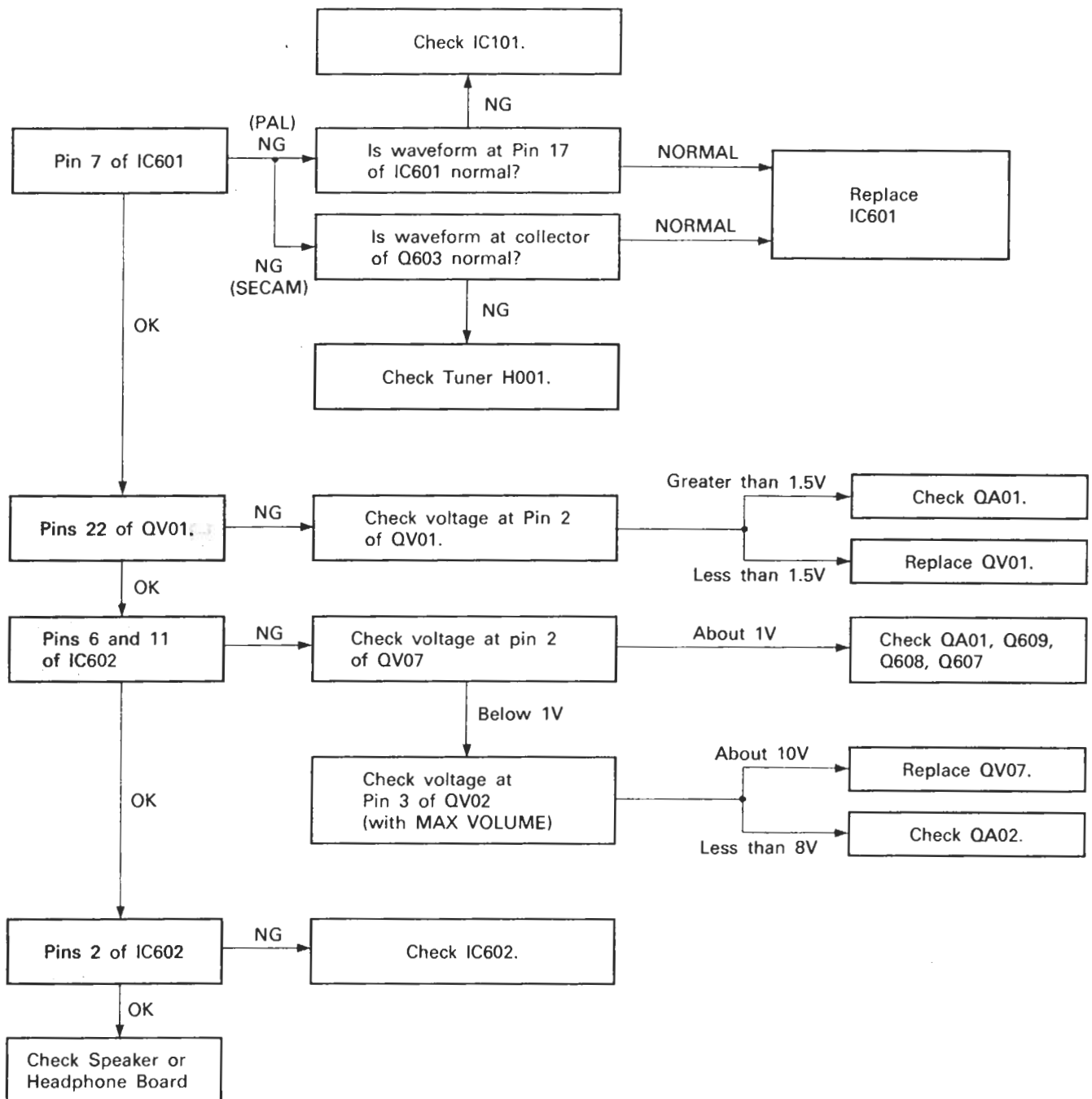


## 3. NO RASTER (SOUND OK)



#### 4. NO SOUND

**NOTE:** Check the sound signal waveform for shaded area below.



## 5. NO PICTURE

Check video signal waveform for shaded area below.

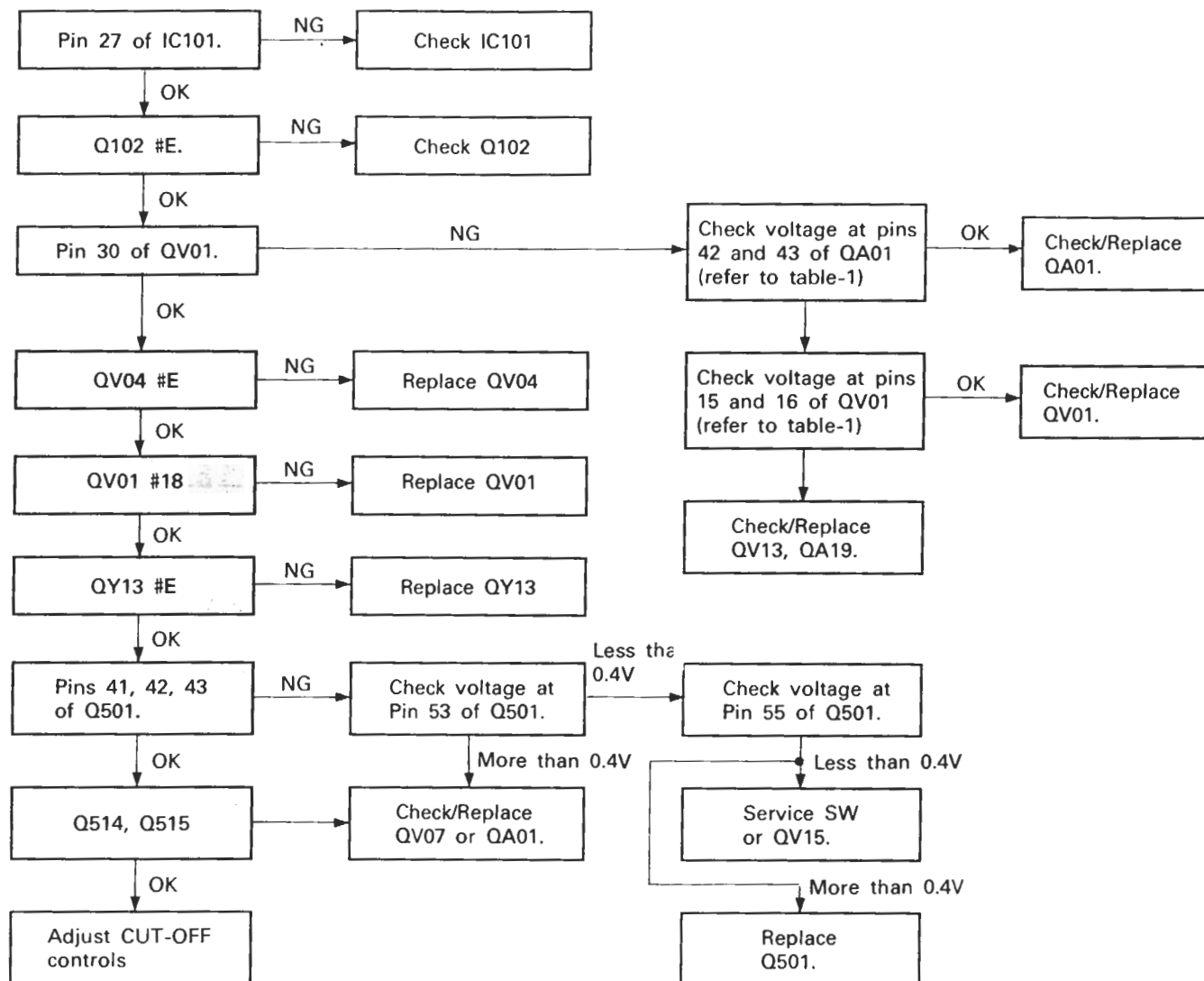


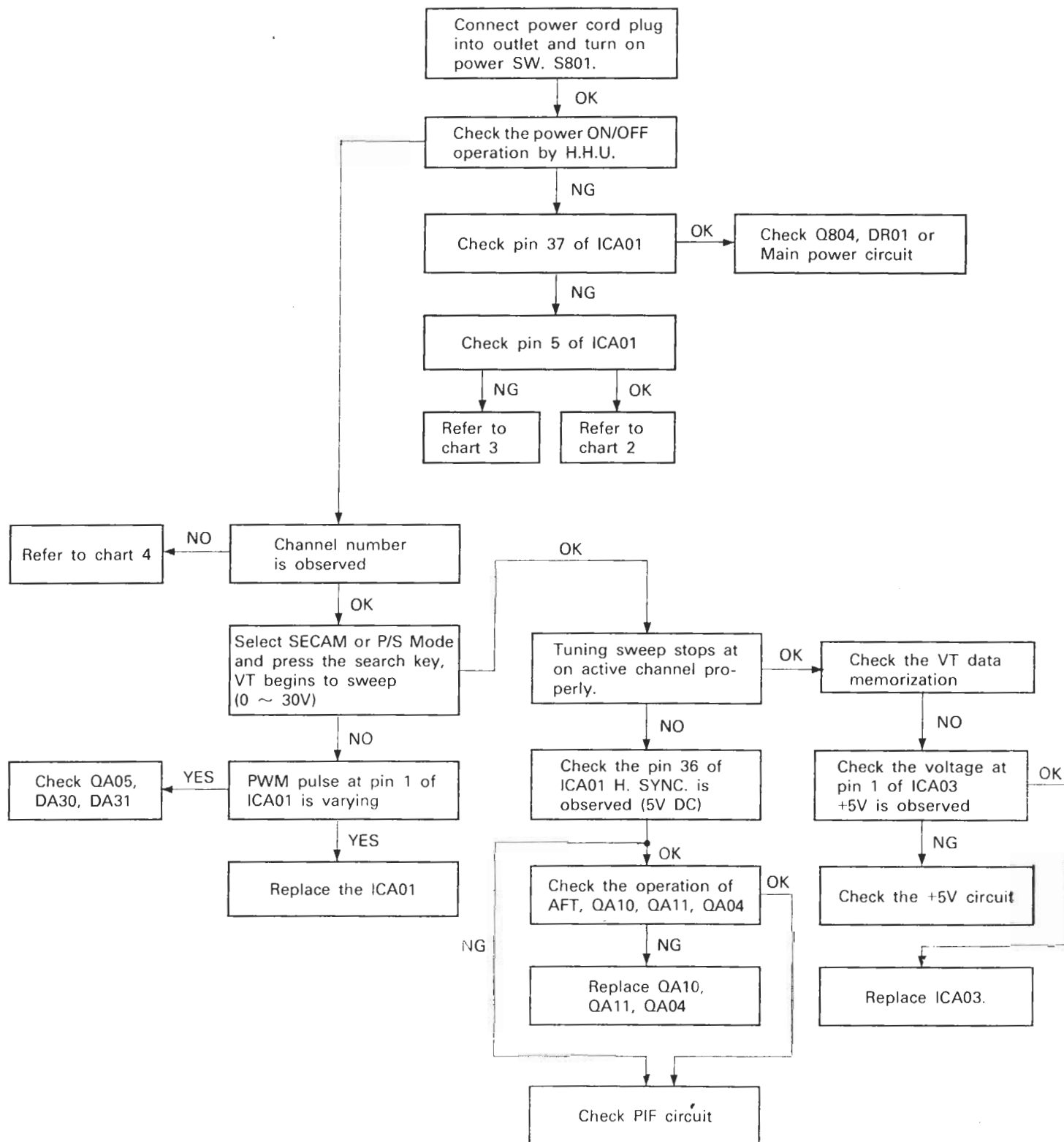
Table-1 (A/V Sw. logic)

MODE	QA01		QV01		Discreption of (L) or (H)
	Pin 42	Pin 43	Pin 15	Pin 16	
TV-1	H	H	H	H (L)	When pin 8 of 21-PIN is High Level
VIDEO-1	H	L	H	L	
VIDEO-2	L	L	L	H	When the S-Socket is inserted

L : Less than 2.5V  
H : More than 2.5V

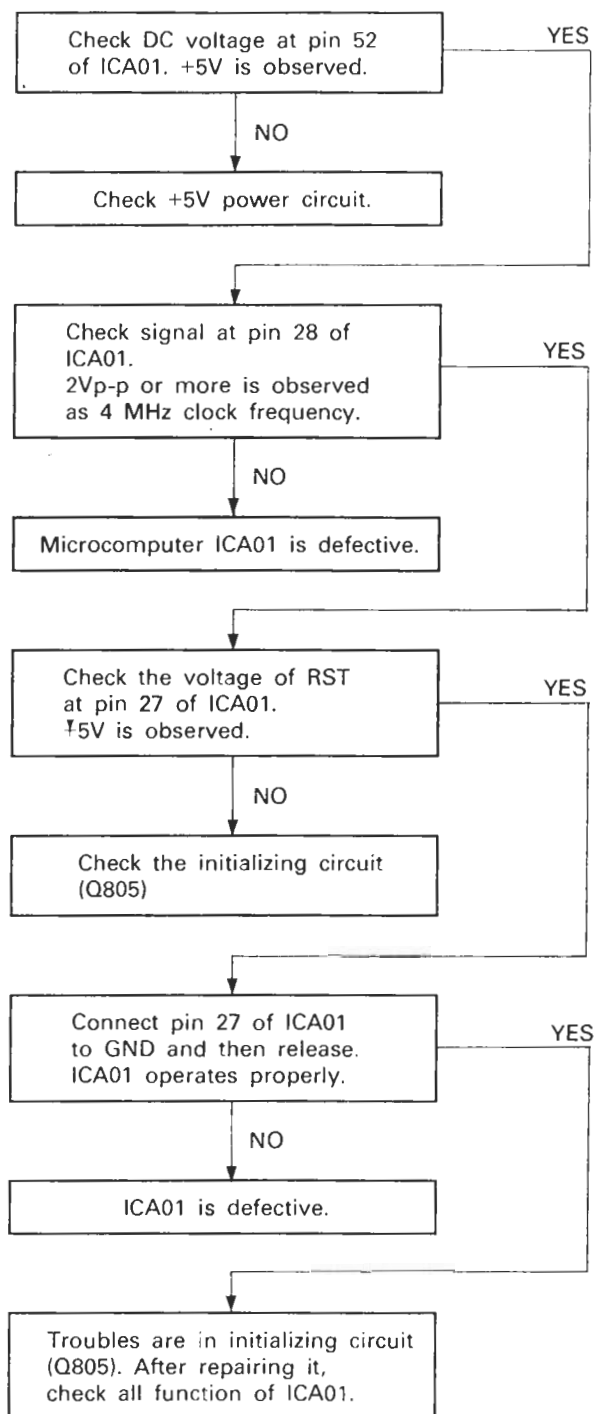
## 6. CHANNEL SELECTOR TROUBLE

[CHART 1]



[CHART 2] Microcomputer (ICA01) Operation Check

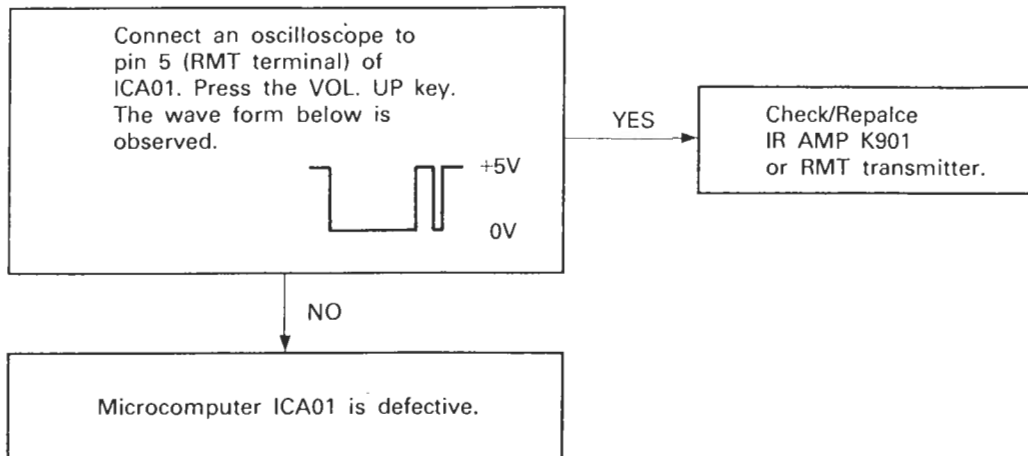
**Note:** Before checking Microcomputer, check that control buttons and their connection work properly.



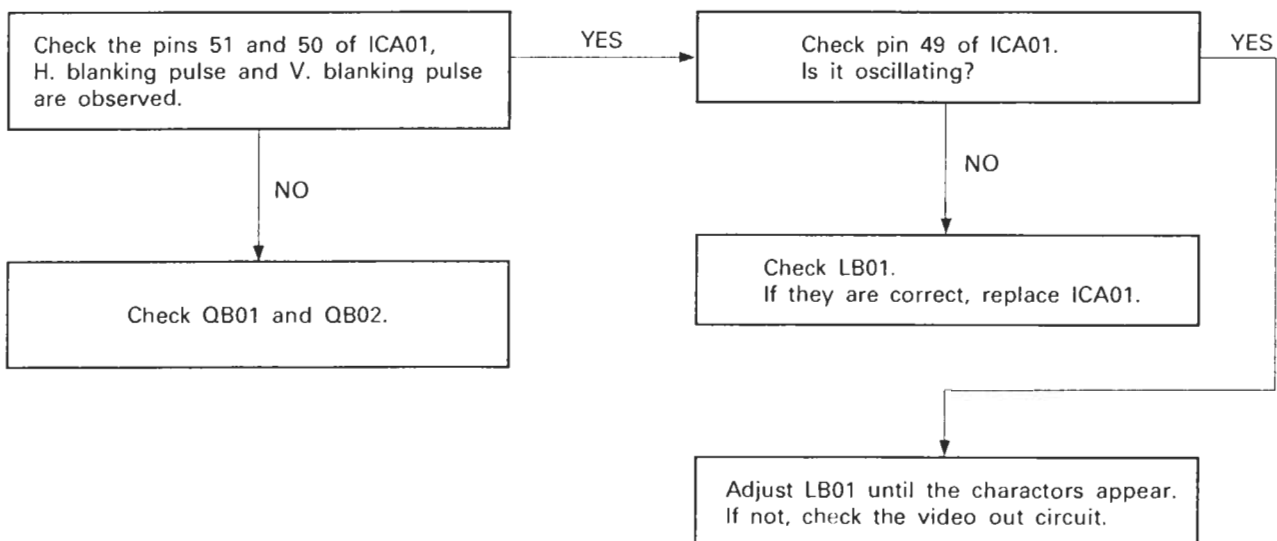


### [CHART 3] Remote Control Operation Check

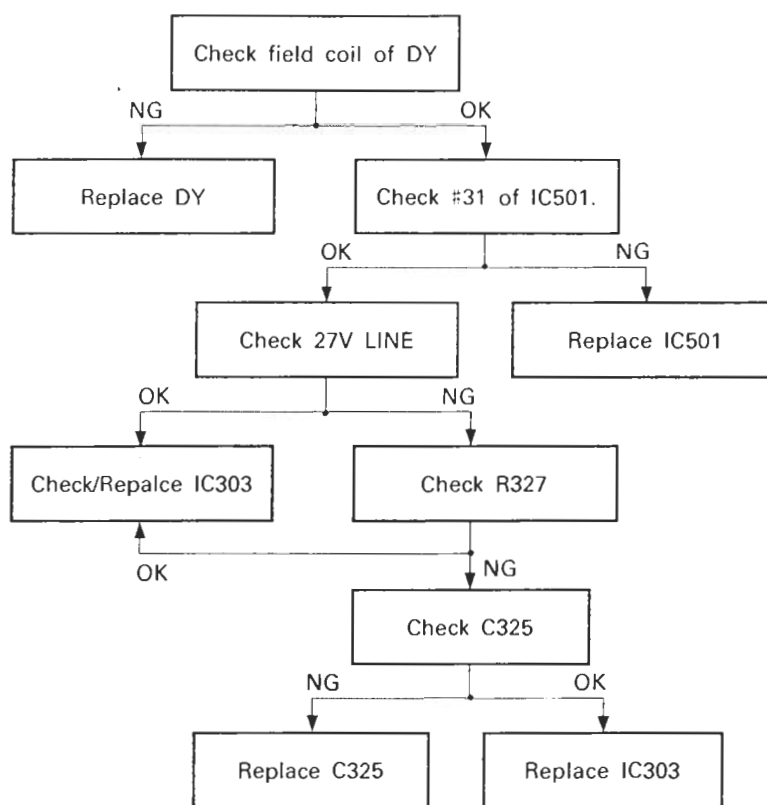
**Note:** Before checking RMT operation, check that key operation on TV set is proper.



### [CHART 4] On Screen Display Operation Check



7. NO VERT. SCAN (ONE HORIZ. LINE RASTER)



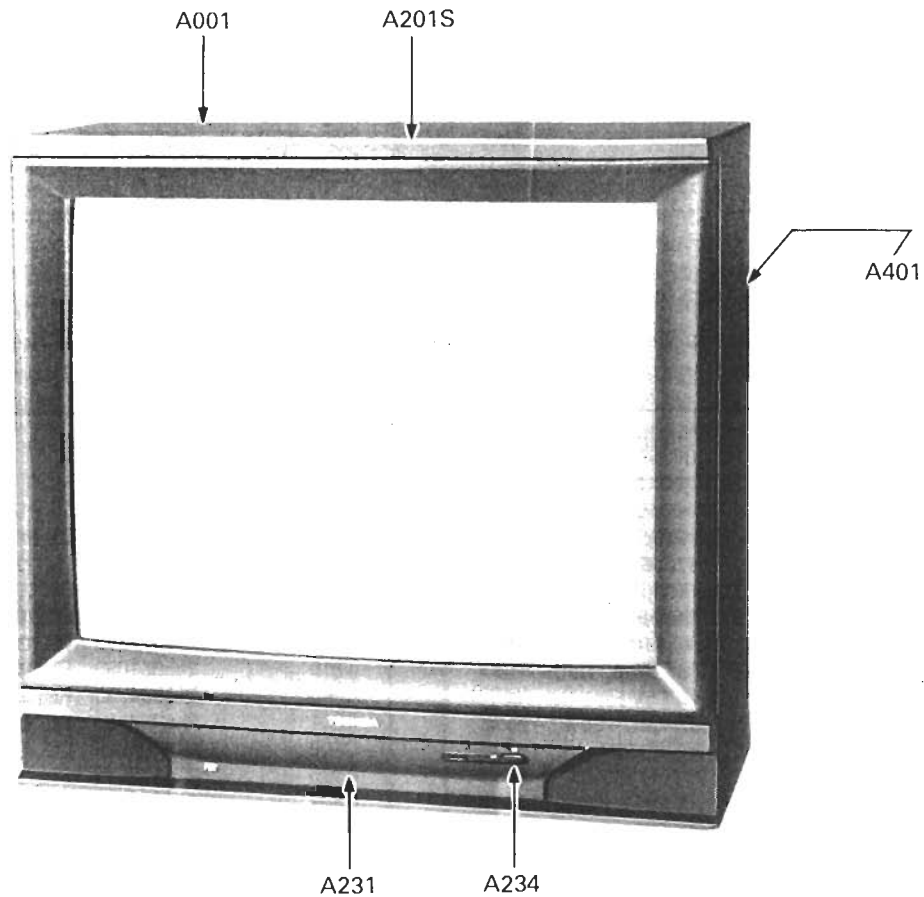
8. OUT OF VERT. SYNC. AND HORIZ. SYNC.

Check/Replace Sync Circuit pin 33 of IC501.

9. OUT OF HORIZ. SYNC.

Check/Replace Horiz. OSC Circuit and Horiz. AFC Circuit connected to Pins 36, 37 and 38 of IC501. Check/Replace IC501.

## CABINET REPLACEMENT PARTS LIST



Location No.	Part No.	Description
A001	23887257	Wood Cabinet
A123	23805411	Leg
A201S	23417293	Front Cover
A231	23422555	Door
A232	70368125	Push Catch for Door
A234	23443197	Knob (Power)
A401	23422439	Back Cover
A411	23998091	Label, ON B/C
A701	23523134	Carton Box
A702	23934284	Packing, Bottom
A703	23934303	Packing, Top
A710	23998092	Label, Carton
B202	23451166	Holder, A/V Terminal
Y101	23994561	Owner's Manual

## CHASSIS REPLACEMENT PARTS LIST

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

**CAUTION:** The international hazard symbols in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

**NOTICE:** The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

### ABBREVIATIONS:

Capacitors ..... CD : Ceramic Disk      PF : Plastic Film      EL : Electrolytic  
Resistors ..... CF : Carbon Film      CC : Carbon Composition      MF : Metal Film  
OMF : Oxide Metal Film      VR : Variable Resistor      FR : Fusible Resistor

(All CD and PF capacitors are  $\pm 5\%$ , 50V and all resistors,  $\pm 5\%$ , 1/6W unless otherwise noted.)

Location No.	Part No.	Description
<b>CAPACITORS</b>		
C101	24212102	CD, 1000pF, $\pm 10\%$
C102	24436471	CD, 470pF
C103	24212102	CD, 1000pF, $\pm 10\%$
C104	24707474	EL, Tantalum, 0.47 $\mu$ F, $\pm 20\%$ , 35V
C105	24707105	EL, Tantalum, 1 $\mu$ F, $\pm 20\%$ , 35V
C106	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C107	24636229	EL, 2.2 $\mu$ F, 50V
C108	24636229	EL, 2.2 $\mu$ F, 50V
C110	24212102	CD, 1000pF, $\pm 10\%$
C111	24633100	EL, 10 $\mu$ F, 16V
C112	24550153	PF, 0.015 $\mu$ F, 63V
C113	24085988	EL, 1 $\mu$ F, $\pm 20\%$ , 50V, Non-Polar
C115	24550224	PF, 0.22 $\mu$ F, 63V
C116	24212102	CD, 1000pF, $\pm 10\%$
C117	24636010	EL, 1 $\mu$ F, 50V
C118	24353120	CD, 12pF
C119	24212102	CD, 1000pF, $\pm 10\%$
C120	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C121	24636100	EL, 10 $\mu$ F, 50V
C122	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C123	24436100	CD, 10pF, $\pm 0.25$ pF
C124	24212102	CD, 1000pF, $\pm 10\%$
C126	24436220	CD, 22pF
C160	24212102	CD, 1000pF, $\pm 10\%$
C161	24212102	CD, 1000pF, $\pm 10\%$
C162	24212102	CD, 1000pF, $\pm 10\%$
C163	24212102	CD, 1000pF, $\pm 10\%$
C164	24212102	CD, 1000pF, $\pm 10\%$
C165	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C166	24212102	CD, 1000pF, $\pm 10\%$
C167	24212102	CD, 1000pF, $\pm 10\%$
C168	24212102	CD, 1000pF, $\pm 10\%$
C169	24212102	CD, 1000pF, $\pm 10\%$
C170	24212102	CD, 1000pF, $\pm 10\%$
C171	24212102	CD, 1000pF, $\pm 10\%$
C172	24212102	CD, 1000pF, $\pm 10\%$
C201	24636100	EL, 10 $\mu$ F, 50V

Location No.	Part No.	Description
C202	24795101	EL, 100 $\mu$ F, 25V
C203	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C204	24797220	EL, 22 $\mu$ F, 50V
C205	24636478	EL, 0.47 $\mu$ F, 50V
C208	24212102	CD, 1000pF, $\pm 10\%$
C209	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C210	24636100	EL, 10 $\mu$ F, 50V
C240	24550474	PF, 0.47 $\mu$ F, 63V
C301	24636229	EL, 2.2 $\mu$ F, 50V
C302	24212152	CD, 1500pF, $\pm 10\%$
C303	24617891	EL, 1 $\mu$ F, $\pm 10\%$ , 50V
C304	24212102	CD, 1000pF, $\pm 10\%$
C307	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C312	24212681	CD, 680pF, $\pm 10\%$
C313	24796221	EL, 220 $\mu$ F, 35V
C314	24796222	EL, 2200 $\mu$ F, 35V
C315	24214221	CD, 220pF, $\pm 10\%$ , 500V
C316	24795222	EL, 2200 $\mu$ F, 25V
C317	24617997	EL, 2.2 $\mu$ F, $\pm 10\%$ , 50V
C321	24435510	CD, 51pF, 500V
C322	24550564	PF, 0.56 $\mu$ F, 63V
C327	24082027	PF, 0.22 $\mu$ F, $\pm 10\%$ , 100V
C328	24693272	PF, 2700pF, 100V
C360	24095945	PF, 0.47 $\mu$ F, 200V
C362	24212821	CD, 820pF, $\pm 10\%$
C363	24095824	PF, 0.27 $\mu$ F, 200V
C364	24212471	CD, 470pF, $\pm 10\%$
C365	24798470	EL, 47 $\mu$ F, 100V
C366	24593182	PF, 1800pF
C367	24550223	PF, 0.022 $\mu$ F, 63V
C368	24550104	PF, 0.1 $\mu$ F, 63V
C370	24591822	PF, 8200pF
C371	24828683	PF, 0.068 $\mu$ F, 200V
C372	24550474	PF, 0.47 $\mu$ F, 63V
C402	24353241	CD, 240pF
C403	24636339	EL, 3.3 $\mu$ F, 50V
C405	24593203	PF, 0.02 $\mu$ F
C406	24593203	PF, 0.02 $\mu$ F
C407	24593243	PF, 0.024 $\mu$ F
C408	24794101	EL, 100 $\mu$ F, 16V
C409	24232103	CD, 0.01 $\mu$ F, +80%, -20%

Location No.	Part No.	Description
C412	24593182	PF, 1800pF
C413	24593182	PF, 1800pF
C414	24212471	CD, 470pF, $\pm 10\%$
C416	24214271	CD, 270pF, $\pm 10\%$ , 500V
C417	24214332	CD, 3300pF, $\pm 10\%$ , 500V
C418	24790100	EL, 10 $\mu$ F, $\pm 20\%$ , 160V
C424	24797470	EL, 47 $\mu$ F, 50V
C425	24794101	EL, 100 $\mu$ F, 16V
△ C440	24095888	PF, 0.01 $\mu$ F, $\pm 3\%$ , 1600V
C441	24214221	CD, 220pF, $\pm 10\%$ , 500V
C443	24214221	CD, 220pF, $\pm 10\%$ , 500V
C445	24828563	PF, 0.056 $\mu$ F, 200V
△ C446	24829243	PF, 0.024 $\mu$ F, 400V
C447	24644479	EL, 4.7 $\mu$ F, 250V
C448	24795102	EL, 1000 $\mu$ F, 25V
C449	24794471	EL, 470 $\mu$ F, 16V
C451	24640962	EL, 33 $\mu$ F, $\pm 20\%$ , 200V
△ C463	24212222	CD, 2200pF, $\pm 10\%$
△ C464	24092035	CD, 1800pF, $\pm 10\%$ , 2kV
C465	24095942	PF, 0.62 $\mu$ F, 200V
C466	24640933	EL, 1 $\mu$ F, $\pm 20\%$
C501	24797220	EL, 22 $\mu$ F, 50V
C505	24593273	PF, 0.027 $\mu$ F
C506	24593273	PF, 0.027 $\mu$ F
C507	24593103	PF, 0.01 $\mu$ F
C508	24085028	EL, 2.2 $\mu$ F, 25V, Non-Polar
C509	24353330	CD, 33pF
C510	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C511	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C512	24353200	CD, 20pF
C513	24436181	CD, 180pF
C514	24436181	CD, 180pF
C515	24636010	EL, 1 $\mu$ F, 50V
C516	24550104	PF, 0.1 $\mu$ F, 63V
C517	24550104	PF, 0.1 $\mu$ F, 63V
C518	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C519	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C520	24636229	EL, 2.2 $\mu$ F, 50V
C521	24550474	PF, 0.47 $\mu$ F, 63V
C522	24550474	PF, 0.47 $\mu$ F, 63V
C523	24550474	PF, 0.47 $\mu$ F, 63V
C524	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C530	24796220	EL, 22 $\mu$ F, 35V
C531	24633100	EL, 10 $\mu$ F, 16V
C532	24436330	CD, 33pF
C533	24436330	CD, 33pF
C534	24436180	CD, 18pF
C535	24636100	EL, 10 $\mu$ F, 50V
C536	24636478	EL, 0.47 $\mu$ F, 50V
C537	24794101	EL, 100 $\mu$ F, 16V
C539	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C601	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C602	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C603	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C604	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C605	24797470	EL, 47 $\mu$ F, 50V
C607	24358510	CD, 51pF
C609	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C610	24636100	EL, 10 $\mu$ F, 50V
C611	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C612	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C613	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C614	24794470	EL, 47 $\mu$ F, 16V

Location No.	Part No.	Description
C620	24797101	EL, 100 $\mu$ F, 50V
C621	24436101	CD, 100pF
C622	24795471	EL, 470 $\mu$ F, 25V
C623	24636010	EL, 1 $\mu$ F, 50V
C624	24550104	PF, 0.1 $\mu$ F, 63V
C625	24796102	EL, 1000 $\mu$ F, 35V
C626	24550104	PF, 0.1 $\mu$ F, 63V
C628	24591272	PF, 2700pF
C629	24550823	PF, 0.082 $\mu$ F, 63V
C630	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C663	24436470	CD, 47pF
C664	24436470	CD, 47pF
C665	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C666	24436680	CD, 68pF
C667	24436471	CD, 470pF
C668	24436471	CD, 470pF
C669	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C672	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C674	24797470	EL, 47 $\mu$ F, 50V
C675	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C698	24636478	EL, 0.47 $\mu$ F, 50V
△ C801	24098999	PF, 0.1 $\mu$ F, $\pm 20\%$ , AC250V
△ C802	24098999	PF, 0.1 $\mu$ F, $\pm 20\%$ , AC250V
△ C803	24094906	CD, 4700pF, +80%, -20%
△ C804	24094906	CD, 4700pF, +80%, -20%
△ C805	24094906	CD, 4700pF, +80%, -20%
△ C806	24094906	CD, 4700pF, +80%, -20%
C810	24086883	EL, 330 $\mu$ F, $\pm 20\%$ , 400V
C811	24436101	CD, 100pF
C813	24550682	PF, 6800pF, 63V
C814	24797470	EL, 47 $\mu$ F, 50V
C815	24212102	CD, 1000pF, $\pm 10\%$
C816	24442331	CD, 330pF, $\pm 10\%$ , 2kV
C818	24095914	PF, 2200pF, $\pm 3\%$ , 1600V
C819	24636010	EL, 1 $\mu$ F, 50V
C820	24797101	EL, 100 $\mu$ F, 50V
C821	24436331	CD, 330pF
C822	24593822	PF, 8200pF
C823	24442181	CD, 180pF, $\pm 10\%$ , 2kV
C824	24086945	EL, 330 $\mu$ F, $\pm 20\%$ , 200V
C825	24797220	EL, 22 $\mu$ F, 50V
C826	24214331	CD, 330pF, $\pm 10\%$ , 500V
C827	24795222	EL, 2200 $\mu$ F, 25V
△ C883	24094655	CD, 1000pF, $\pm 20\%$ , AC400V
△ C884	24094655	CD, 1000pF, $\pm 20\%$ , AC400V
△ C885	24094656	CD, 2200pF, $\pm 20\%$ , AC400V
C901	24644010	EL, 1 $\mu$ F, 250V
C902	24095981	PF, 2200pF, 1600V
CA02	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA03	24633100	EL, 10 $\mu$ F, 16V
CA05	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA06	24436300	CD, 30pF
CA07	24436300	CD, 30pF
CA08	24436101	CD, 100pF
CA14	24636479	EL, 4.7 $\mu$ F, 50V
CA15	24707685	EL, Tantalum, 6.8 $\mu$ F, $\pm 20\%$ , 35V
CA16	24707475	EL, Tantalum, 4.7 $\mu$ F, $\pm 20\%$ , 35V
CA19	24212102	CD, 1000pF, $\pm 10\%$
CA20	24436391	CD, 390pF
CA21	24436221	CD, 220pF
CA22	24550104	PF, 0.1 $\mu$ F, 63V
CA23	24550104	PF, 0.1 $\mu$ F, 63V

Location No.	Part No.	Description
CA24	24550104	PF, 0.1 $\mu$ F, 63V
CA25	24636229	EL, 2.2 $\mu$ F, 50V
CA26	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA27	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA30	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA31	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA32	24550104	PF, 0.1 $\mu$ F, 63V
CA34	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA35	24794470	EL, 47 $\mu$ F, 16V
CA37	24797470	EL, 47 $\mu$ F, 50V
CA38	24636100	EL, 10 $\mu$ F, 50V
CA40	24794102	EL, 1000 $\mu$ F, 16V
CA41	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA42	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA43	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA44	24636100	EL, 10 $\mu$ F, 50V
CB01	24436101	CD, 100pF
CE01	24636100	EL, 10 $\mu$ F, 50V
CF82	24795331	EL, 330 $\mu$ F, 25V
CH01	24794471	EL, 470 $\mu$ F, 16V
CM01	24436241	CD, 240pF
CM02	24436241	CD, 240pF
CM03	24340080	CD, 8pF, $\pm$ 0.25pF
CM04	24340080	CD, 8pF, $\pm$ 0.25pF
CM05	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CM06	24357270	CD, 27pF
CM07	24593273	PF, 0.027 $\mu$ F
CM08	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CM09	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CM99	24436270	CD, 27pF
CN10	24436101	CD, 100pF
CN11	24353240	CD, 24pF
CN12	24436270	CD, 27pF
CN13	24353200	CD, 20pF
CN14	24436150	CD, 15pF
CN15	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CN16	24353220	CD, 22pF
CN17	24353220	CD, 22pF
CN18	24636010	EL, 1 $\mu$ F, 50V
CN19	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CN20	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CN21	24212102	CD, 1000pF, $\pm$ 10%
CN22	24212102	CD, 1000pF, $\pm$ 10%
CN24	24795101	EL, 100 $\mu$ F, 25V
CN25	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CN26	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CN28	24357271	CD, 270pF
CN29	24357201	CD, 200pF
CN30	24357271	CD, 270pF
CN32	24550473	PF, 0.047 $\mu$ F, 63V
CN34	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CN51	24094959	Variable Capacitor, 2 to 12pF, 50V
CN52	24094959	Variable Capacitor, 2 to 12pF, 50V
CV01	24636010	EL, 1 $\mu$ F, 50V
CV02	24636100	EL, 10 $\mu$ F, 50V
CV03	24636010	EL, 1 $\mu$ F, 50V
CV04	24636100	EL, 10 $\mu$ F, 50V
CV05	24636010	EL, 1 $\mu$ F, 50V
CV06	24636010	EL, 1 $\mu$ F, 50V
CV07	24636100	EL, 10 $\mu$ F, 50V
CV09	24636100	EL, 10 $\mu$ F, 50V
CV10	24794101	EL, 100 $\mu$ F, 16V

Location No.	Part No.	Description
CV11	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CV12	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CV13	24636100	EL, 10 $\mu$ F, 50V
CV14	24636100	EL, 10 $\mu$ F, 50V
CV15	24636100	EL, 10 $\mu$ F, 50V
CV16	24633101	EL, 100 $\mu$ F, 16V
CV17	24636010	EL, 1 $\mu$ F, 50V
CV18	24636010	EL, 1 $\mu$ F, 50V
CV19	24212471	CD, 470pF, $\pm$ 10%
CV20	24636010	EL, 1 $\mu$ F, 50V
CX02	24550104	PF, 0.1 $\mu$ F, 63V
CX03	24550104	PF, 0.1 $\mu$ F, 63V
CX04	24550104	PF, 0.1 $\mu$ F, 63V
<b>RESISTORS</b>		
R101	24366222	CF, 2200 ohm
R103	24366392	CF, 3900 ohm
R104	24366562	CF, 5600 ohm
R105	24366104	CF, 100k ohm
R106	24360185	CF, 1.8M ohm, 1/8W
R107	24366222	CF, 2200 ohm
R108	24366332	CF, 3300 ohm
R109	24366684	CF, 680k ohm
R110	24366562	CF, 5600 ohm
R111	24366271	CF, 270 ohm
R112	24366331	CF, 330 ohm
R113	24366184	CF, 180k ohm
R114	24366331	CF, 330 ohm
△ R115	24552820	OMF, 82 ohm, 1/2W
R116	24366271	CF, 270 ohm
R117	24366101	CF, 100 ohm
R118	24366332	CF, 3300 ohm
R119	24366102	CF, 1k ohm
R120	24366562	CF, 5600 ohm
R121	24366332	CF, 3300 ohm
R122	24366102	CF, 1k ohm
R123	24366391	CF, 390 ohm
R124	24366223	CF, 22k ohm
R125	24366334	CF, 330k ohm
R126	24366681	CF, 680 ohm
R127	24366182	CF, 1800 ohm
R128	24366332	CF, 3300 ohm
R129	24366153	CF, 15k ohm
R130	24366222	CF, 2200 ohm
R132	24366272	CF, 2700 ohm
R134	24366331	CF, 330 ohm
R135	24890101	CF, 100 ohm, 1/4W
R151	24066952	VR, 10k ohm, 1/10W
R152	24066946	VR, 1M ohm, 1/10W
R153	24066953	VR, 5k ohm, 1/10W
R161	24366101	CF, 100 ohm
R162	24366680	CF, 68 ohm
R163	24366151	CF, 150 ohm
R164	24366562	CF, 5600 ohm
R165	24366102	CF, 1k ohm
R166	24366101	CF, 100 ohm
R167	24366680	CF, 68 ohm
R168	24366561	CF, 560 ohm
R169	24366681	CF, 680 ohm
R170	24366472	CF, 4700 ohm
R171	24366102	CF, 1k ohm
R174	24366121	CF, 120 ohm
R175	24366561	CF, 560 ohm
R176	24366680	CF, 68 ohm

Location No.	Part No.	Description
R177	24366101	CF, 100 ohm
R178	24366682	CF, 6800 ohm
R179	24366102	CF, 1k ohm
R180	24366562	CF, 5600 ohm
R181	24366390	CF, 39 ohm
R182	24366392	CF, 3900 ohm
R183	24366102	CF, 1k ohm
R184	24366271	CF, 270 ohm
R185	24366151	CF, 150 ohm
R186	24366561	CF, 560 ohm
R202	24366152	CF, 1500 ohm
R207	24366182	CF, 1800 ohm
R208	24366101	CF, 100 ohm
R209	24366103	CF, 10k ohm
R210	24366203	CF, 20k ohm
R211	24366622	CF, 6200 ohm
R212	24366101	CF, 100 ohm
R213	24366101	CF, 100 ohm
R214	24366182	CF, 1800 ohm
R215	24366152	CF, 1500 ohm
R216	24366133	CF, 13k ohm
R217	24366101	CF, 100 ohm
R218	24366222	CF, 2200 ohm
R219	24366472	CF, 4700 ohm
R220	24366132	CF, 1300 ohm
R221	24366181	CF, 180 ohm
R223	24366182	CF, 1800 ohm
R241	24366103	CF, 10k ohm
R242	24366562	CF, 5600 ohm
R243	24366183	CF, 18k ohm
R252	24061591	VR, 2k ohm, 1/8W
R253	24061591	VR, 2k ohm, 1/8W
R255	24066952	VR, 10k ohm, 1/10W
R301	24366301	CF, 300 ohm
R302	24366244	CF, 240k ohm
R303(U902A)	24366561	CF, 560 ohm
R303(U903)	24366223	CF, 22k ohm
R304	24366102	CF, 1k ohm
R305	24366161	CF, 160 ohm
R309	24366102	CF, 1k ohm
△ R311	24552242	OMF, 2400 ohm, 1/2W
R318	24366203	CF, 20k ohm
△ R319	24553681	OMF, 680 ohm, 1W
△ R320	24322828	OMF, 0.82 ohm, 1W
R321	24366113	CF, 11k ohm
R322	24366823	CF, 82k ohm
△ R323	24322828	OMF, 0.82 ohm, 1W
△ R325	24552122	OMF, 1200 ohm, 1/2W
△ R326	24552122	OMF, 1200 ohm, 1/2W
△ R327	24557279	FR, 2.7 ohm, ±10%, 1W
△ R328	24322479	OMF, 4.7 ohm, 1W
R329	24376472	CF, 4700 ohm, 1/2W
R333	24366103	CF, 10k ohm
R334	24366103	CF, 10k ohm
R335	24366123	CF, 12k ohm
R337	24366623	CF, 62k ohm
R338	24366473	CF, 47k ohm
R351	24066820	VR, 47k ohm, ±20%
R356	24066713	VR, 10k ohm, ±20%
R357	24066712	VR, 470k ohm, ±20%
R358	24066710	VR, 2.2k ohm, ±20%
R361	24367393	CF, 39k ohm, ±2%
R362	24367562	CF, 5600 ohm, ±2%
R363	24367223	CF, 22k ohm, ±2%

Location No.	Part No.	Description
R364	24366823	CF, 82k ohm
R366	24366512	CF, 5100 ohm
R367	24366104	CF, 100k ohm
△ R368	24327911	MF, 910 ohm, ±1%, 1/4W
△ R369	24381682	OMF, 6800 ohm, 1/2W
R370	24366682	CF, 6800 ohm
R371	24367393	CF, 39k ohm, ±2%
△ R372	24003984	MF, 1k ohm, 1/4W
R373	24366394	CF, 390k ohm
R375	24366182	CF, 1800 ohm
R376	24367102	CF, 1k ohm, ±2%
R377	24366184	CF, 180k ohm
R378	24366364	CF, 360k ohm
R380	24366153	CF, 15k ohm
R383	24945335	CC, 3.3M ohm, ±10%, 1/4W
R384	24366103	CF, 10k ohm
R402	24366273	CF, 27k ohm
R403	24366302	CF, 3k ohm
R404	24366103	CF, 10k ohm
R405	24366511	CF, 510 ohm
R406	24366621	CF, 620 ohm
R407	24366181	CF, 180 ohm
R408	24366562	CF, 5600 ohm
R409	24366103	CF, 10k ohm
△ R410	24552432	OMF, 4300 ohm, 1/2W
R411	24366301	CF, 300 ohm
R412	24366241	CF, 240 ohm
△ R416	24384432	OMF, 4300 ohm, 3W
△ R418	24553682	OMF, 6800 ohm, 1W
R419	24942390	CC, 39 ohm, 1/2W
△ R420	24009951	OMF, 1k ohm, 1W
R421	24366105	CF, 1M ohm
△ R423	24552221	OMF, 220 ohm, 1/2W
△ R440	24552103	OMF, 10k ohm, 1/2W
△ R441	24552103	OMF, 10k ohm, 1/2W
△ R444	24323828	OMF, 0.82 ohm, 2W
△ R446	24532151	OMF, 150 ohm, 1W
△ R448	24547519	FR, 5.1 ohm, 1W
R451	24066499	VR, 22k ohm, ±20%
R452	24069547	VR, 5k ohm, 0.08W
R502	24366683	CF, 68k ohm
R503	24366202	CF, 2k ohm
R504	24366391	CF, 390 ohm
R505	24366822	CF, 8200 ohm
R506	24366561	CF, 560 ohm
R507	24366822	CF, 8200 ohm
R508	24366561	CF, 560 ohm
R509	24366273	CF, 27k ohm
R510	24366101	CF, 100 ohm
R511	24366822	CF, 8200 ohm
R512	24366152	CF, 1500 ohm
R513	24366152	CF, 1500 ohm
R514	24366562	CF, 5600 ohm
R515	24366101	CF, 100 ohm
R516	24366101	CF, 100 ohm
R517	24366101	CF, 100 ohm
R521	24366102	CF, 1k ohm
R522	24360185	CF, 1.8M ohm, 1/8W
R523	24366333	CF, 33k ohm
R531	24366102	CF, 1k ohm
R532	24366272	CF, 2700 ohm
R533	24366132	CF, 1300 ohm
R534	24376104	CF, 100k ohm, 1/2W
R535	24366302	CF, 3k ohm

Location No.	Part No.	Description
R536	24376104	CF, 100k ohm, 1/2W
R537	24366132	CF, 1300 ohm
R538	24366332	CF, 3300 ohm
R539	24366132	CF, 1300 ohm
R540	24376104	CF, 100k ohm, 1/2W
R541	24366821	CF, 820 ohm
R542	24366271	CF, 270 ohm
R543	24366103	CF, 10k ohm
R544	24366101	CF, 100 ohm
R545	24366101	CF, 100 ohm
R547	24366471	CF, 470 ohm
R548	24366471	CF, 470 ohm
R549	24366471	CF, 470 ohm
R551	24066955	VR, 1k ohm, 1/10W
R557	24061591	VR, 2k ohm, 1/8W
R558	24061591	VR, 2k ohm, 1/8W
R559	24061591	VR, 2k ohm, 1/8W
R560	24366512	CF, 5100 ohm
R561	24366821	CF, 820 ohm
R562	24366333	CF, 33k ohm
R563	24366101	CF, 100 ohm
R564	24366101	CF, 100 ohm
R565	24366101	CF, 100 ohm
R570	24366562	CF, 5600 ohm
R571	24366562	CF, 5600 ohm
R572	24366562	CF, 5600 ohm
R573	24366104	CF, 100k ohm
△ R591	24009957	OMF, 10k ohm, 2W
△ R592	24009957	OMF, 10k ohm, 2W
△ R593	24009957	OMF, 10k ohm, 2W
R603	24366102	CF, 1k ohm
R604	24366101	CF, 100 ohm
R605	24366681	CF, 680 ohm
R606	24366562	CF, 5600 ohm
R607	24366102	CF, 1k ohm
R609	24366104	CF, 100k ohm
R610	24366473	CF, 47k ohm
R611	24366473	CF, 47k ohm
R612	24366103	CF, 10k ohm
R613	24366103	CF, 10k ohm
R614	24366473	CF, 47k ohm
R620	24366334	CF, 330k ohm
△ R621	24321479	OMF, 4.7 ohm, 1/2W
R622	24946181	CC, 180 ohm, $\pm 10\%$ , 1/2W
R623	24366562	CF, 5600 ohm
R624	24366103	CF, 10k ohm
R625	24366682	CF, 6800 ohm
R643	24366103	CF, 10k ohm
R648	24366223	CF, 22k ohm
R649	24890473	CF, 47k ohm, 1/4W
R664	24366471	CF, 470 ohm
R665	24366563	CF, 56k ohm
R666	24366563	CF, 56k ohm
R667	24366102	CF, 1k ohm
R668	24366102	CF, 1k ohm
R669	24366102	CF, 1k ohm
R670	24366102	CF, 1k ohm
R674	24366222	CF, 2200 ohm
R680	24366152	CF, 1500 ohm
R681	24366223	CF, 22k ohm
R682	24366105	CF, 1M ohm
R683	24366561	CF, 560 ohm
△ R684	24552431	OMF, 430 ohm, 1/2W
△ R801	24007857	Cement, 6.2 ohm, 15W

Location No.	Part No.	Description
R810	24377274	CF, 270k ohm, 1W
R814	24366823	CF, 82k ohm
R815	24366221	CF, 220 ohm
R816	24367122	CF, 1200 ohm, $\pm 2\%$
△ R817	24321688	OMF, 0.68 ohm, 1/2W
△ R818	24384203	OMF, 20k ohm, 3W
R819	24366689	CF, 6.8 ohm
△ R821	24007778	Cement, 180 ohm, 7W
R822	24366390	CF, 39 ohm
R823	24367912	CF, 9100 ohm, $\pm 2\%$
R824	24366123	CF, 12k ohm
△ R825	24531620	OMF, 62 ohm, 1/2W
△ R826	24384123	OMF, 12k ohm, 3W
R828	24366102	CF, 1k ohm
△ R829	24382473	OMF, 47k ohm, 1W
R830	24366272	CF, 2700 ohm
R831	24366103	CF, 10k ohm
△ R832	24383331	OMF, 330 ohm, 2W
△ R834	24323229	OMF, 2.2 ohm, 2W
△ R836	24322228	OMF, 0.22 ohm, 1W
△ R837	24000900	FR, 0.47 ohm, $\pm 10\%$ , 1W
R838	24366392	CF, 3900 ohm
R851	24066620	VR, 2.2k ohm, $\pm 20\%$
△ R875	24384822	OMF, 8200 ohm, 3W
△ R890	24000630	PTC Thermistor, Dual
R901	24946272	CC, 2700 ohm, $\pm 10\%$ , 1/2W
R902	24946272	CC, 2700 ohm, $\pm 10\%$ , 1/2W
R903	24946272	CC, 2700 ohm, $\pm 10\%$ , 1/2W
△ R920	24000818	FR, 5.6 ohm, 1W
RA04	24366102	CF, 1k ohm
RA05	24366102	CF, 1k ohm
RA06	24366102	CF, 1k ohm
RA09	24366103	CF, 10k ohm
RA11	24366102	CF, 1k ohm
RA12	24366103	CF, 10k ohm
RA15	24366102	CF, 1k ohm
RA16	24366103	CF, 10k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA19	24366103	CF, 10k ohm
RA20	24366102	CF, 1k ohm
RA21	24366223	CF, 22k ohm
RA22	24366333	CF, 33k ohm
RA23	24366333	CF, 33k ohm
RA24	24366333	CF, 33k ohm
RA25	24360225	CF, 2.2M ohm, 1/8W
RA26	24366220	CF, 22 ohm
RA27	24366333	CF, 33k ohm
RA29	24366103	CF, 10k ohm
RA30	24366102	CF, 1k ohm
RA31	24366103	CF, 10k ohm
RA32	24366102	CF, 1k ohm
RA34	24366123	CF, 12k ohm
RA35	24366102	CF, 1k ohm
RA36	24366102	CF, 1k ohm
RA37	24366102	CF, 1k ohm
RA38	24366471	CF, 470 ohm
RA39	24366471	CF, 470 ohm
RA40	24366472	CF, 4700 ohm
RA41	24366122	CF, 1200 ohm
RA42	24366392	CF, 3900 ohm
RA43	24366182	CF, 1800 ohm
RA44	24366103	CF, 10k ohm
RA45	24366102	CF, 1k ohm



Location No.	Part No.	Description
RA46	24366682	CF, 6800 ohm
RA47	24366133	CF, 13k ohm
RA48	24366163	CF, 16k ohm
RA61	24366473	CF, 47k ohm
RA62	24366473	CF, 47k ohm
RA70	24945565	CC, 5.6M ohm, $\pm 10\%$ , 1/4W
RA71	24945565	CC, 5.6M ohm, $\pm 10\%$ , 1/4W
RA72	24945565	CC, 5.6M ohm, $\pm 10\%$ , 1/4W
RA73	24945565	CC, 5.6M ohm, $\pm 10\%$ , 1/4W
RA79	24366123	CF, 12k ohm
RA80	24366221	CF, 220 ohm
RA81	24366103	CF, 10k ohm
RA82	24366103	CF, 10k ohm
RA83	24366103	CF, 10k ohm
RA84	24366622	CF, 6200 ohm
RA85	24366103	CF, 10k ohm
RA86	24366332	CF, 3300 ohm
RA94	24366473	CF, 47k ohm
RA95	24366103	CF, 10k ohm
RA96	24366103	CF, 10k ohm
△ RA97	24383123	OMF, 12k ohm, 2W
RB01	24366472	CF, 4700 ohm
RB02	24366332	CF, 3300 ohm
RB03	24366103	CF, 10k ohm
RB04	24366103	CF, 10k ohm
RB05	24366332	CF, 3300 ohm
RB06	24366473	CF, 47k ohm
RE01	24366103	CF, 10k ohm
RE02	24366272	CF, 2700 ohm
RE03	24366102	CF, 1k ohm
△ RF80	24322109	OMF, 1 ohm, 1W
△ RF81	24382273	OMF, 27k ohm, 1W
RH01	24366562	CF, 5600 ohm
RH02	24366562	CF, 5600 ohm
RH03	24366750	CF, 75 ohm
RH04	24366101	CF, 100 ohm
RH05	24366910	CF, 91 ohm
RH06	24366680	CF, 68 ohm
RH07	24366103	CF, 10k ohm
RH08	24366104	CF, 100k ohm
RH09	24366104	CF, 100k ohm
RM03	24366272	CF, 2700 ohm
RM04	24366432	CF, 4300 ohm
RM05	24366221	CF, 220 ohm
RM06	24366221	CF, 220 ohm
RM07	24941475	CC, 4.7M ohm, 1/4W
RM26	24366333	CF, 33k ohm
RN04	24366105	CF, 1M ohm
RN08	24941225	CC, 2.2M ohm, 1/4W
RN09	24366224	CF, 220k ohm
RN10	24366473	CF, 47k ohm
RN11	24366473	CF, 47k ohm
RN12	24366272	CF, 2700 ohm
RN13	24366103	CF, 10k ohm
RN14	24366103	CF, 10k ohm
RN15	24366223	CF, 22k ohm
RN16	24366103	CF, 10k ohm
RN18	24366102	CF, 1k ohm
RN20	24366103	CF, 10k ohm
RN22	24366152	CF, 1500 ohm
RN23	24366472	CF, 4700 ohm
RN24	24366103	CF, 10k ohm
RN25	24366154	CF, 150k ohm
RN26	24366472	CF, 4700 ohm

Location No.	Part No.	Description
RN27	24366472	CF, 4700 ohm
RN28	24366472	CF, 4700 ohm
RN29	24366103	CF, 10k ohm
RN30	24366103	CF, 10k ohm
RN31	24366103	CF, 10k ohm
RN32	24366103	CF, 10k ohm
RN33	24366103	CF, 10k ohm
RN34	24366103	CF, 10k ohm
RN35	24366103	CF, 10k ohm
RN37	24366182	CF, 1800 ohm
RN38	24366182	CF, 1800 ohm
RN39	24366103	CF, 10k ohm
RN44	24366103	CF, 10k ohm
RN45	24366473	CF, 47k ohm
RN46	24366103	CF, 10k ohm
RN60	24366223	CF, 22k ohm
RN67	24366152	CF, 1500 ohm
RN68	24366103	CF, 10k ohm
RN69	24366473	CF, 47k ohm
RN70	24366103	CF, 10k ohm
RN71	24366473	CF, 47k ohm
RN72	24366103	CF, 10k ohm
RN73	24366473	CF, 47k ohm
RN74	24366103	CF, 10k ohm
RN75	24366102	CF, 1k ohm
RN76	24366473	CF, 47k ohm
RN77(U101)	24366152	CF, 1500 ohm
RN77(U902A)	24366472	CF, 4700 ohm
RN78	24366103	CF, 10k ohm
RR06	24366391	CF, 390 ohm
RV01	24366332	CF, 3300 ohm
RV02	24366332	CF, 3300 ohm
RV03	24366101	CF, 100 ohm
RV04	24366122	CF, 1200 ohm
RV05	24366821	CF, 820 ohm
RV06	24366101	CF, 100 ohm
RV07	24366101	CF, 100 ohm
RV08	24366101	CF, 100 ohm
RV09	24366101	CF, 100 ohm
RV10	24366101	CF, 100 ohm
RV11	24366473	CF, 47k ohm
RV12	24366103	CF, 10k ohm
RV13	24366473	CF, 47k ohm
RV14	24366103	CF, 10k ohm
RV15	24366473	CF, 47k ohm
RV16	24366473	CF, 47k ohm
RV17	24366103	CF, 10k ohm
RV18	24366332	CF, 3300 ohm
RV19	24366391	CF, 390 ohm
△ RV20	24552750	OMF, 75 ohm, 1/2W
RV22	24366331	CF, 330 ohm
RV23	24366103	CF, 10k ohm
RV24	24366103	CF, 10k ohm
RV25	24366682	CF, 6800 ohm
RV26	24366682	CF, 6800 ohm
RV27	24366102	CF, 1k ohm
RV28	24366101	CF, 100 ohm
RV29	24366102	CF, 1k ohm
RV31	24366474	CF, 470k ohm
RV32	24366103	CF, 10k ohm
RV33	24366152	CF, 1500 ohm
△ RV34	24552101	OMF, 100 ohm, 1/2W
RV35	24366102	CF, 1k ohm
RV36	24366820	CF, 82 ohm

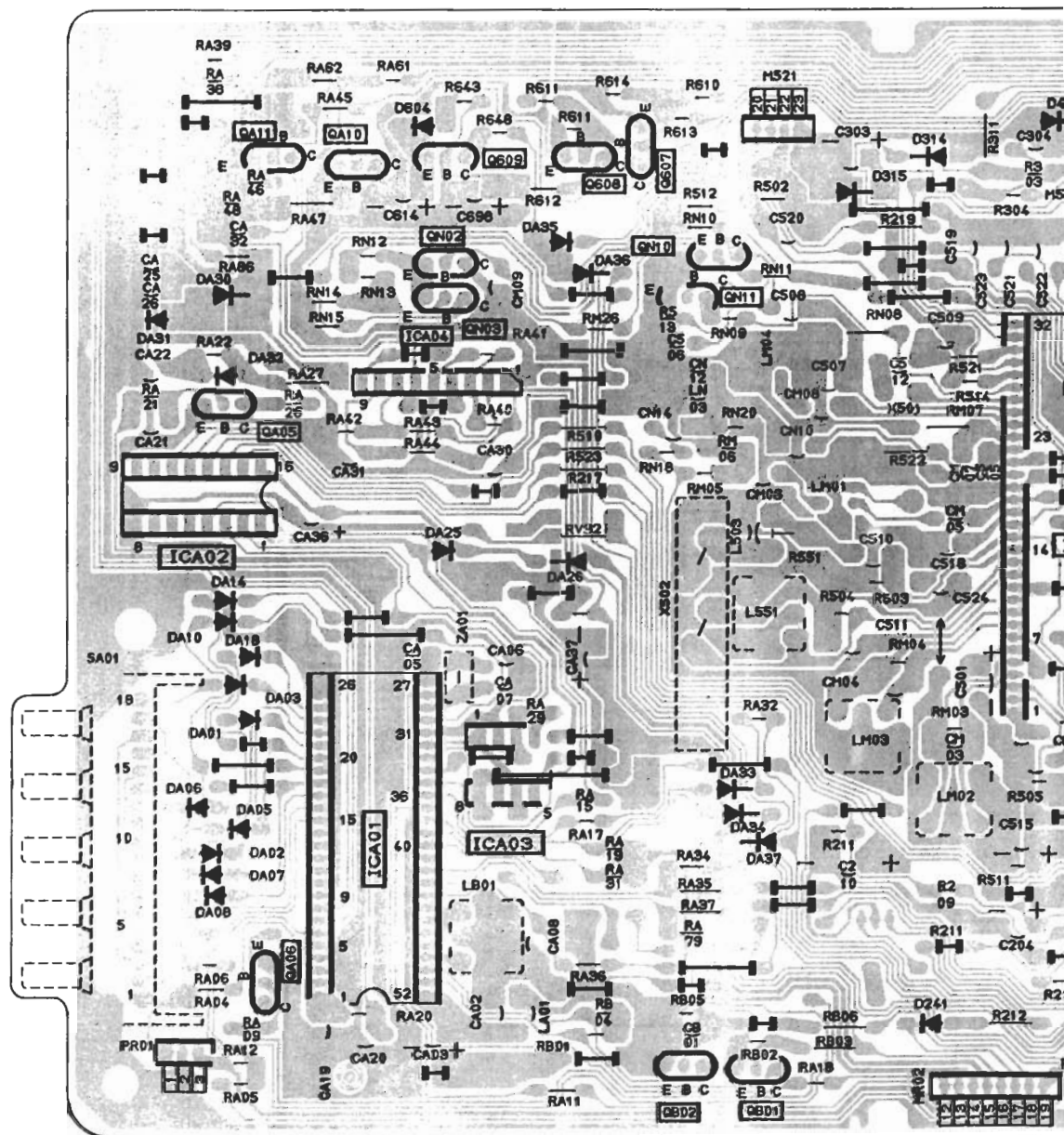
Location No.	Part No.	Description
RV37	24366820	CF, 82 ohm
RV38	24366104	CF, 100k ohm
RV39	24366473	CF, 47k ohm
RV40	24366103	CF, 10k ohm
RV41	24366473	CF, 47k ohm
RV42	24366101	CF, 100 ohm
RV43	24366101	CF, 100 ohm
RV44	24366101	CF, 100 ohm
RV45	24366102	CF, 1k ohm
RV46	24366473	CF, 47k ohm
RV47	24366103	CF, 10k ohm
RV48	24366473	CF, 47k ohm
RX02	24366102	CF, 1k ohm
RX03	24366510	CF, 51 ohm
RX04	24366510	CF, 51 ohm
RX05	24366101	CF, 100 ohm
RX06	24366510	CF, 51 ohm
RX08	24366101	CF, 100 ohm
RX10	24366101	CF, 100 ohm
RX13	24366102	CF, 1k ohm
RX20	24366220	CF, 22 ohm
RX21	24366220	CF, 22 ohm
RX22	24366220	CF, 22 ohm
<b>COILS &amp; TRANSFORMERS</b>		
L102	23262650	Coil, IF Coil, TRF1149D
L105	23237988	Coil, Peaking, TRF4829AC
L107	23237984	Coil, Peaking, TRF4180AC
L108	23238928	Coil, Peaking, TRF4339AC
L109	23237989	Coil, Peaking, TRF4689AC
L151	23262813	Coil, IF Coil, TRF1077D
L152	23262813	Coil, IF Coil, TRF1077D
L161	23261985	Coil, RF Choke, TRF9221
L203	23237974	Coil, Peaking, TRF4121AC
L311	23261974	Coil (Ferrite Bead), HC5-035
L361	23221738	Coil, Choke, TLN3132D
L362	23211896	Coil, Choke, AT4043/60T
L363	23211897	Coil, Choke, AT4043/100T
L406	23103859	Coil (Ferrite Bead), TEM2011
L411	23233068	Coil, Linearity, TLN2117
L412	23221936	Coil, Choke, TLN3041
△ L462	23227340	Deflection Yoke, AT6000/01
L503	23237987	Coil, Peaking, TRF4100AC
L551	23250972	Coil, 1H-Delay Matching, TRF5418D
L601	23262951	Coil, RF Choke, TRF1019
L602	23262841	Coil, PIF, TRF1057
L651	23232864	Coil, Variable, TRF3500D
L661	23237986	Coil, Peaking, TRF4120AC
L662	23232946	Coil, Variable, TRF3073D
L801	23221050	Coil, RF Choke, TLN1015
L802	23103859	Coil (Ferrite Bead), TEM2011
L803	23261975	Coil, Choke, TRF9229
L804	23261975	Coil, Choke, TRF9229
L805	23222694	Coil, Width, TLN2026
L806	23103859	Coil (Ferrite Bead), TEM2011
L807	23222694	Coil, Width, TLN2026
△ L901	23200713	Coil, Degaussing, TSB2282
LA01	23238934	Coil, Peaking, TRF4109AC
LA02	23221803	Coil, Choke, TL3040D
LB01	23262778	Coil, IF Coil, TRF1112
LM01	23262797	Coil, IF Coil, TRF1093D
LM02	23272988	Coil, Chroma Demod, TRF5414

Location No.	Part No.	Description
LM03	23272988	Coil, Chroma Demod, TRF5414
LM04	23262798	Coil, IF Coil, TRF1092D
LN03	23237983	Coil, Peaking, TRF4220AC
LV01	23237988	Coil, Peaking, TRF4829AC
△ T401	23224997	Transformer, Horiz. Drive, TLN1027
△ T461	23236089	Transformer, Flyback, G4298
T801	23211934	Line Filter, TRF3133
T802	23211928	Line Filter, TRF3129
△ T803	23213580	Transformer, Converter, G4326-04
TN01	23232880	Coil, PIF Trap, TRF3505D
TN02	23262961	Coil, PIF Trap, TRF1411
TN03	23262961	Coil, PIF Trap, TRF1411
<b>SEMICONDUCTORS</b>		
IC101	23318286	IC, T51419SP
IC303	23318301	IC, TDA8170
IC361	23318231	IC, TEA2031A
IC408	23318218	IC, $\mu$ PC7812H
IC501	B0379435	IC, TA8653N
IC601	23318390	IC, TDA4480-2
IC602	23318388	IC, TDA1010A
IC661	B0383400	IC, TA8710S
IC801	23318232	IC, TDA4601
ICA01	23318396	M50436-682SP 7.13
ICA02	23119182	IC, PD6336C
ICA03	23318397	IC, M6M80021P
ICA04	B0349250	IC, TA75393S
ICA12	23119441	IC, LA7910
ICE01	23318299	IC, L78MR05-FA
ICV01	B0383500	IC, TA8720N
ICV07	23318392	IC, AN5262
Q102	23118980	Transistor, BC337
Q161	A6708871	Transistor, 2SC388ATM
Q162	A6708871	Transistor, 2SC388ATM
Q163	A6708871	Transistor, 2SC388ATM
Q164	A6708871	Transistor, 2SC388ATM
Q165	A6708871	Transistor, 2SC388ATM
Q204	23114689	Transistor, BC547A
Q304	23114689	Transistor, BC547A
Q305	23114689	Transistor, BC547A
Q362	23114689	Transistor, BC547A
Q363	23114689	Transistor, BC547A
Q402	A678971D	Transistor, 2SC1569 FA-5
△ Q404	23314376	Transistor, BU508AF
Q406	23314229	Transistor, 2SD1378-Q
Q505	23114693	Transistor, BF871
Q506	23114689	Transistor, BC547A
Q507	23114693	Transistor, BF871
Q508	23114689	Transistor, BC547A
Q509	23114693	Transistor, BF871
Q510	23114689	Transistor, BC547A
Q514	A6509120	Transistor, 2SA562TM-O
Q515	23114689	Transistor, BC547A
Q516	A6734585	Transistor, 2SC752GTM-O
Q603	A6708871	Transistor, 2SC388ATM
Q607	23114689	Transistor, BC547A
Q608	23114689	Transistor, BC547A
Q609	23114691	Transistor, BC557A
Q660	23114689	Transistor, BC547A
Q802	A6870900	Transistor, 2SD1548
Q803	23314246	Transistor, 2SC2023 LF-4

Location No.	Part No.	Description
Q804	A6547303	Transistor, 2SA1321
Q805	A6325067	Transistor, 2SC2230A-Y
Q806	23114546	Transistor, BC557B
QA05	23114689	Transistor, BC547A
QA06	23114689	Transistor, BC547A
QA10	23114689	Transistor, BC547A
QA11	23114689	Transistor, BC547A
QA13	23114689	Transistor, BC547A
QA15	23114689	Transistor, BC547A
QB01	23114689	Transistor, BC547A
QB02	23114689	Transistor, BC547A
QE02	23114546	Transistor, BC557B
QF80	23314374	Transistor, BD945
QN02	23114691	Transistor, BC557A
QN03	23114691	Transistor, BC557A
QN04	A6041876	Transistor, 2SK117-GR FA-2
QN05	23114689	Transistor, BC547A
QN07	23114689	Transistor, BC547A
QN08	23114689	Transistor, BC547A
QN10	23114689	Transistor, BC547A
QN11	23114689	Transistor, BC547A
QN12	23114689	Transistor, BC547A
QN13	23114689	Transistor, BC547A
QN14	23114689	Transistor, BC547A
QN15	23114689	Transistor, BC547A
QV02	23114691	Transistor, BC557A
QV03	23114632	Transistor, BC547B
QV04	23114691	Transistor, BC557A
QV05	A6342200	Transistor, 2SC2878-A
QV06	23114689	Transistor, BC547A
QV08	23114689	Transistor, BC547A
QV09	23114689	Transistor, BC547A
QV10	23114689	Transistor, BC547A
QV11	23114689	Transistor, BC547A
QV12	23114689	Transistor, BC547A
QV13	23114689	Transistor, BC547A
D241	A7150041	Diode, 1S5104
D302	A7568250	Diode, 1S1834
D303	23118102	Diode, Zener, ZPY-6.8
D305	23118479	Diode, BYD33J
D306	23115599	Diode, 1N4148
D314	A7117205	Diode, Zener, 04AZ12X
D315	A7110160	Diode, Zener, 05Z7.5Y
D361	A7110612	Diode, Zener, 05Z18Z
D362	23115599	Diode, 1N4148
D363	23118633	Diode, Zener, RD3.0ES-B2
D367	23115599	Diode, 1N4148
D368	A7110725	Diode, Zener, 05Z30Y
D401	A7116925	Diode, Zener, 04AZ9.1Z
D402	A7117215	Diode, Zener, 04AZ12Y
D405	A7110634	Diode, Zener, 05Z20Y
D406	23118479	Diode, BYD33J
D408	23118479	Diode, BYD33J
D409	A7110311	Diode, Zener, 05Z10X
D410	A7116815	Diode, Zener, 04AZ8.2Y
D440	23118995	Diode, BY228
D441	23118994	Diode, BYW95C
D591	23115599	Diode, 1N4148
D592	23115599	Diode, 1N4148
D593	23115599	Diode, 1N4148
D594	23115599	Diode, 1N4148
D595	23115599	Diode, 1N4148
D596	23115599	Diode, 1N4148
D604	23115599	Diode, 1N4148

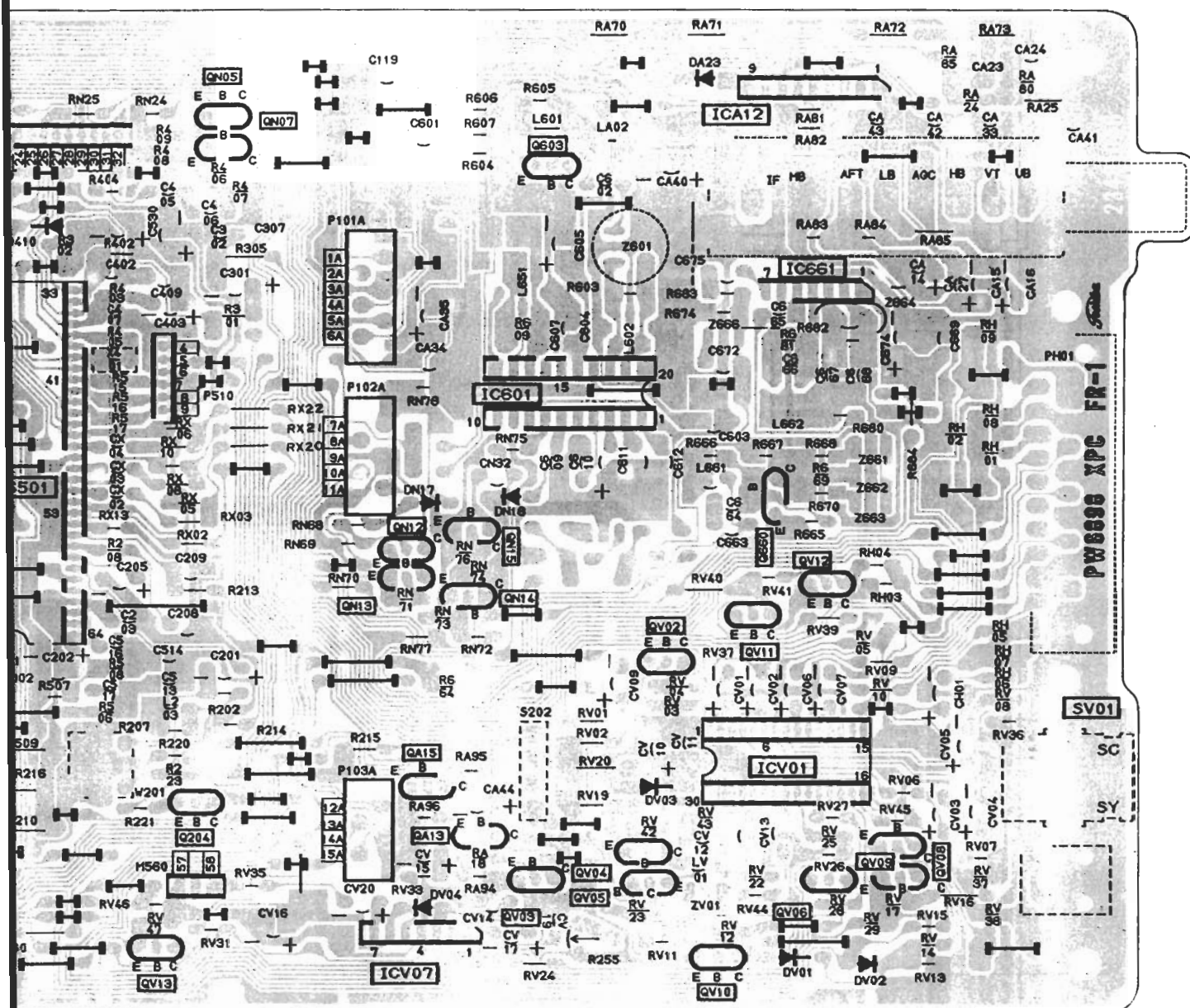
Location No.	Part No.	Description
D610	A7110664	Diode, Zener, 05Z24Y
△ D801	23118173	Diode, RBV-406M-LFA
D805	23118479	Diode, BYD33J
D806	23118479	Diode, BYD33J
D807	23118479	Diode, BYD33J
D808	23118736	Diode, BYV96E
D809	23118451	Diode, RU4A
D810	23118052	Diode, RU4Z
D811	23118479	Diode, BYD33J
D812	A7116515	Diode, Zener, 04AZ6.2Y
DA01	23115599	Diode, 1N4148
DA02	23115599	Diode, 1N4148
DA03	23115599	Diode, 1N4148
DA05	23115599	Diode, 1N4148
DA06	23115599	Diode, 1N4148
DA07	23115599	Diode, 1N4148
DA08	23115599	Diode, 1N4148
DA10	23115599	Diode, 1N4148
DA14	23115599	Diode, 1N4148
DA18	23115599	Diode, 1N4148
DA23	23115599	Diode, 1N4148
DA25	23115599	Diode, 1N4148
DA26	23115599	Diode, 1N4148
DA30	23115878	Diode, Zener, $\mu$ PC574J (L)
DA31	23115599	Diode, 1N4148
DA32	23115599	Diode, 1N4148
DA33	23115599	Diode, 1N4148
DA34	23115599	Diode, 1N4148
DA35	23115599	Diode, 1N4148
DA36	23115599	Diode, 1N4148
DA37	23115599	Diode, 1N4148
DE40	23118969	Diode (LED), MV57124, Red
DF80	A7117305	Diode, Zener, 04AZ13X
DN01	A7288601	Diode, 1S2186 FA-1
DN02	A7110040	Diode, Zener, 05Z5.1X
DN03	A7288601	Diode, 1S2186 FA-1
DN04	A7288601	Diode, 1S2186 FA-1
DN05	A7288601	Diode, 1S2186 FA-1
DN06	A7288601	Diode, 1S2186 FA-1
DN07	A7288601	Diode, 1S2186 FA-1
DN08	A7288601	Diode, 1S2186 FA-1
DN17	A7288601	Diode, 1S2186 FA-1
DN18	23115599	Diode, 1N4148
DV01	23115599	Diode, 1N4148
DV02	23115599	Diode, 1N4148
DV03	A7110262	Diode, Zener, 05Z9.1Y
DV04	23115599	Diode, 1N4148
<b>MISCELLANEOUS</b>		
△ F801	23144898	Fuse, 3.15AT
F801A	23845691	Fuse Clip
K901	23120611	Remote Sensor, IR-9101-M
P661	23365292	Earphone Jack, 3.5mm
△ P801	23176772	Line Cord, 2Pin
PH01	23365025	Connector, 21Pin
S202	23145542	Switch, Lever, 1C3P
S301	23145682	Switch, Lever, 1C3P
△ S801	23344069	Mains Switch, PBMS-3025
S801B	23035308	Screw, BTB3X8SZN
SA01	23344053	Switch, Push, 1C1P
SV01	23365259	Jack, 4P
△ V901A	23901293	Socket, CRT, 10P
W201	23250879	Coil, Delay Line,

Location No.	Part No.	Description



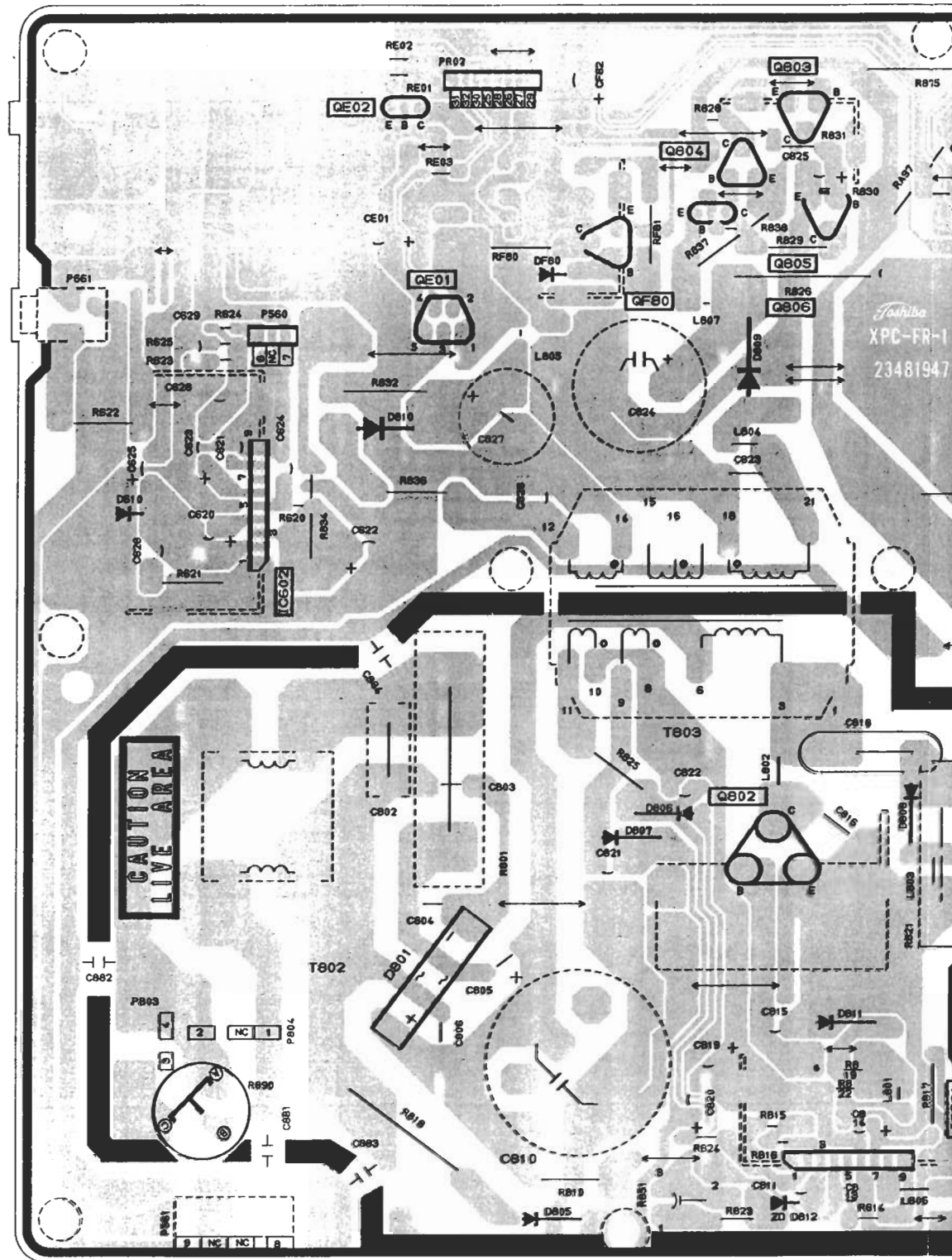
# MAIN BOARD PW6898-1

BOTTOM (FOIL) SIDE



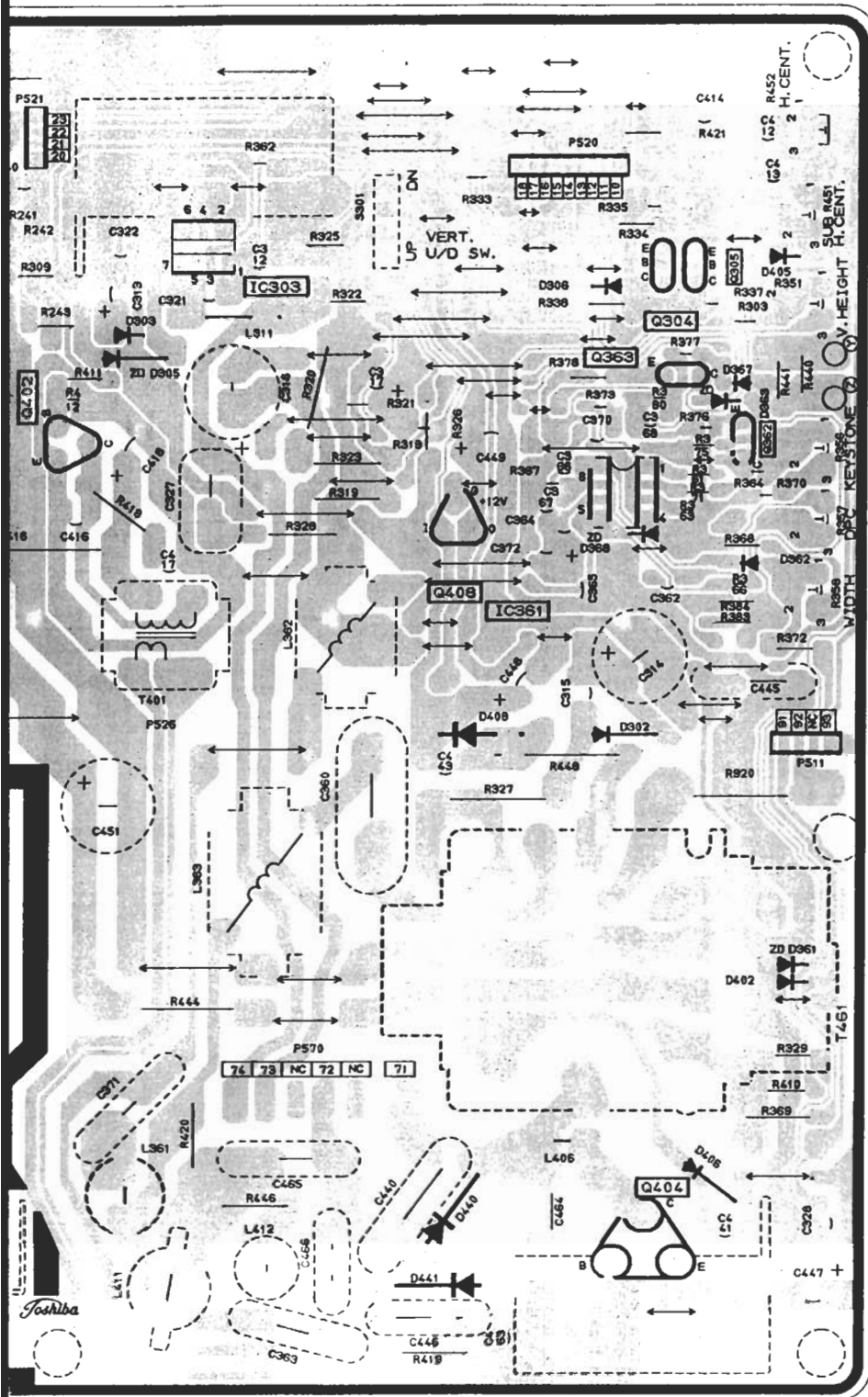


POWER/DEF BOA  
BOTTOM (FOI



RD PW6899

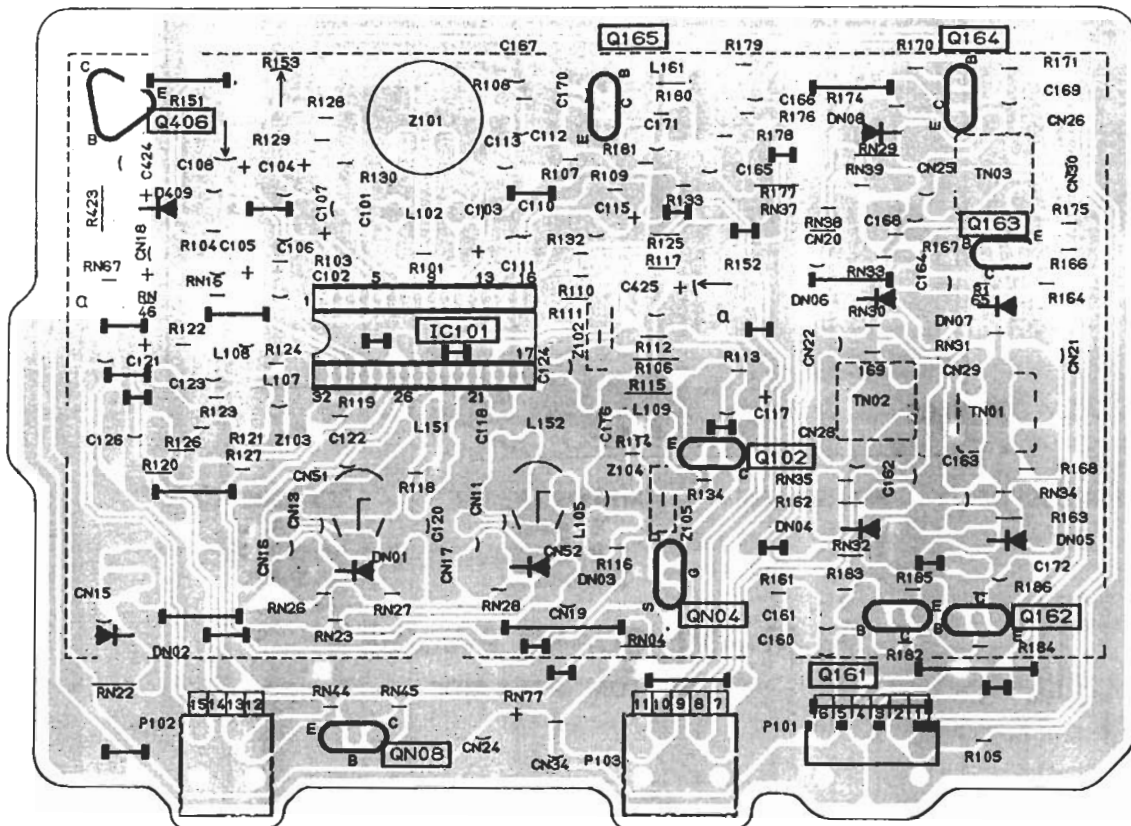
SIDE





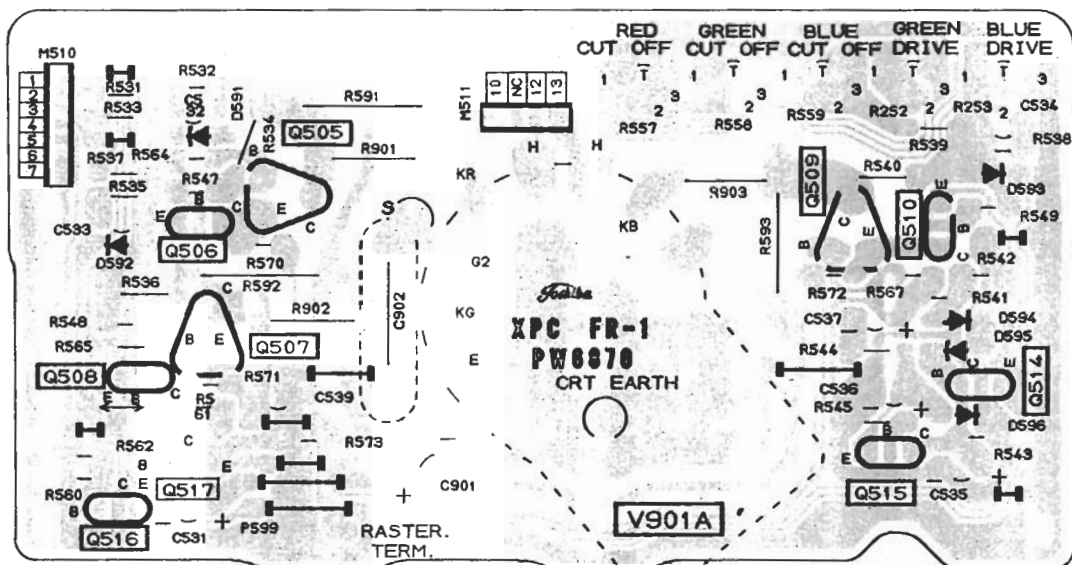
# IF BOARD PW6900

BOTTOM (FOIL) SIDE



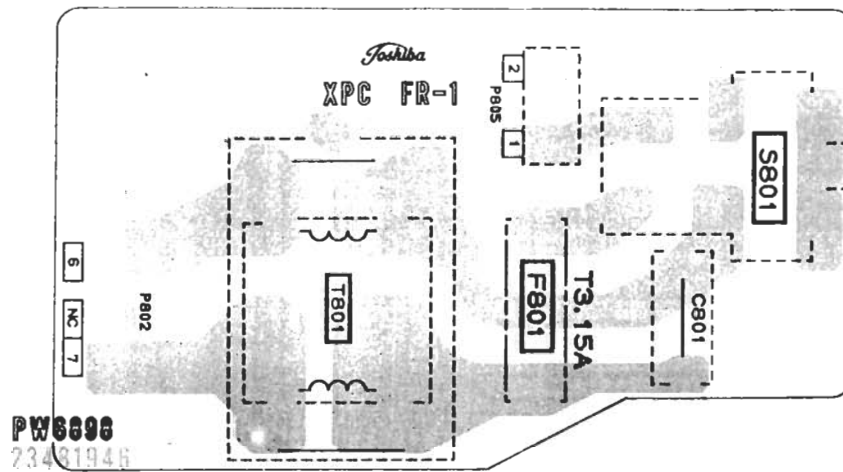
# CRT DRIVE BOARD PW6898-2

BOTTOM (FOIL) SIDE



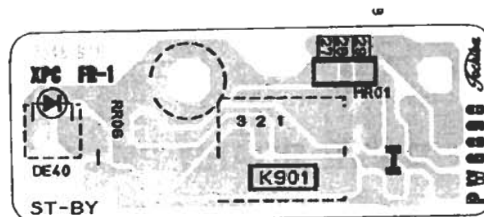
# MAINS SW. BOARD PW6898-3

BOTTOM (FOIL) SIDE



# IR AMP BOARD PW6898-4

BOTTOM (FOIL) SIDE



## TERMINAL VIEW OF TRANSISTOR

- ① BC327  
BC337  
BC547A  
BC547B  
BC547C  
BC556A  
BC557A  
BC557B



- ② 2SK30ATM  
2SK117



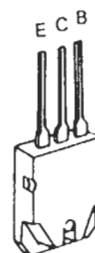
- ③ BD202



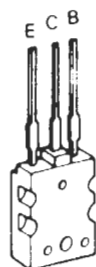
- ④ BF871  
2SD553  
2SC1569



- ⑤ 2SC3678  
2SC3182N



- ⑥ 2SD1427  
2SD1432



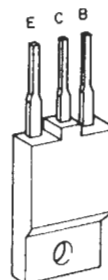
- ⑦ 2SC2482  
2SA1321  
2SC2230  
2SA1020  
2SC2655  
2SC752GTM



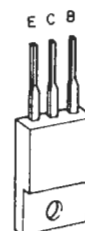
- ⑧ 2SC388ATM  
2SA1015  
2SC1959  
2SA562TM



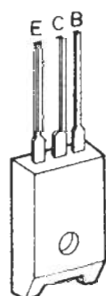
- ⑨ 2SD1548



- ⑩ 2SC2023



- ⑪ BU508DF



# 284R8W

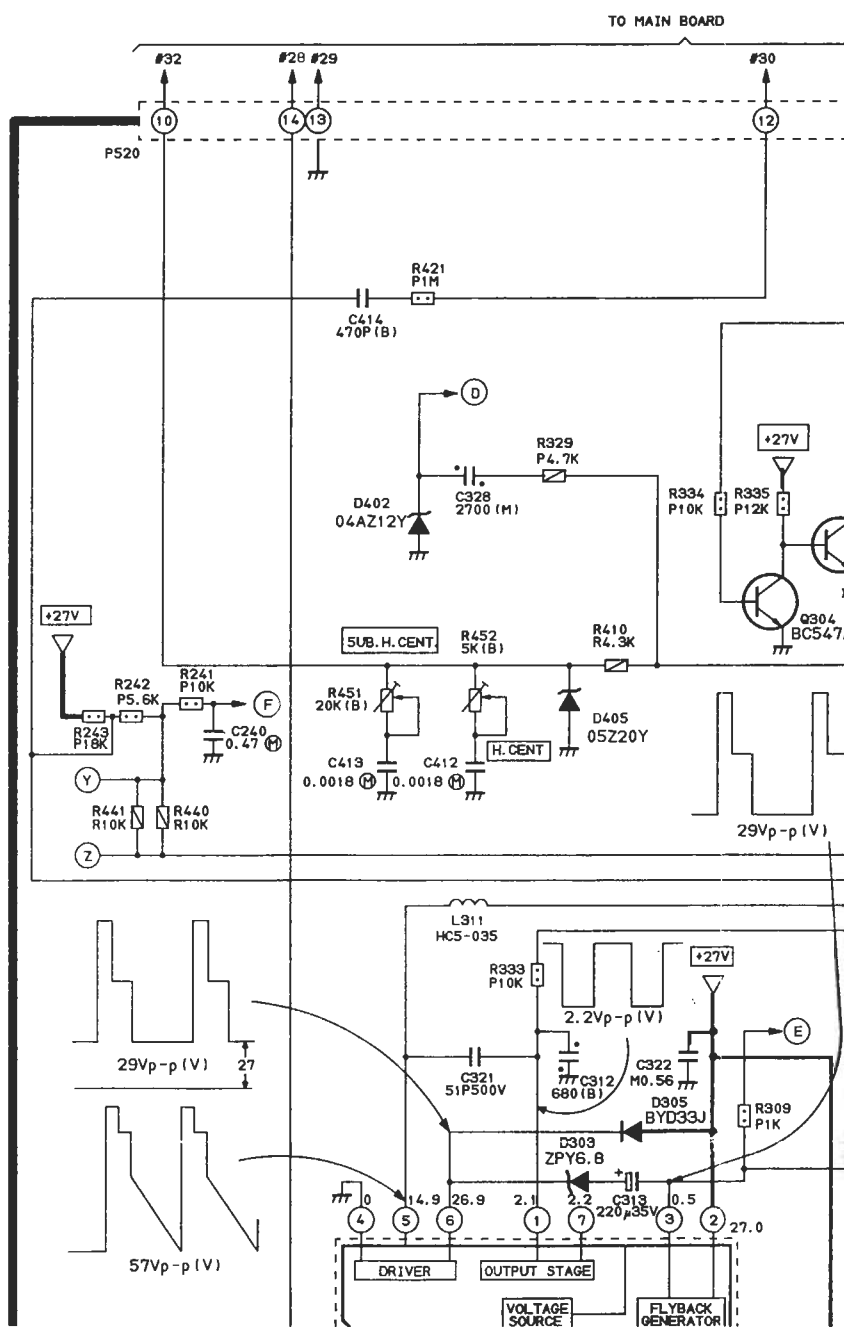
## SCHEMATIC DIAGRAM (2/2)

### IMPORTANT SAFETY NOTICE

Component marked with the International Hazard Symbol must be of approved type and must be mounted as the original. This will ensure adherence to during manufacture will be maintained following any

### OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltage readings were obtained using a high impedance di
2. (—) or ground lead of instruments should be connected to the schematic on checking Non-isolated circuit surrounded by to the points marked (  $\pi$  ) on checking isolated circuit.
3. The voltage readings may vary as much as  $\pm 20\%$ .
4. Check that the Tuning, A.F.C., Brightness, Contrast and the best picture, making sure that the Contrast, Brightness near to their mid-positions.
5. The waveforms were taken using a standard colour bar signal wide band oscilloscope via a low capacity probe.



changed, be replaced by an  
ure that the safety standards  
servicing procedure.

## NOTES:

1. This circuit diagram is subject to change without notice.

## EXPRESSION

### VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000.
2. Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in  $\mu\text{F}$  and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in  $\mu\text{H}$ , and the values less than 1 in H.

### GROUNDING SYMBOL

1.  $\perp$ : Non isolated ground,  $\equiv$ : Isolated ground.

## RESISTOR

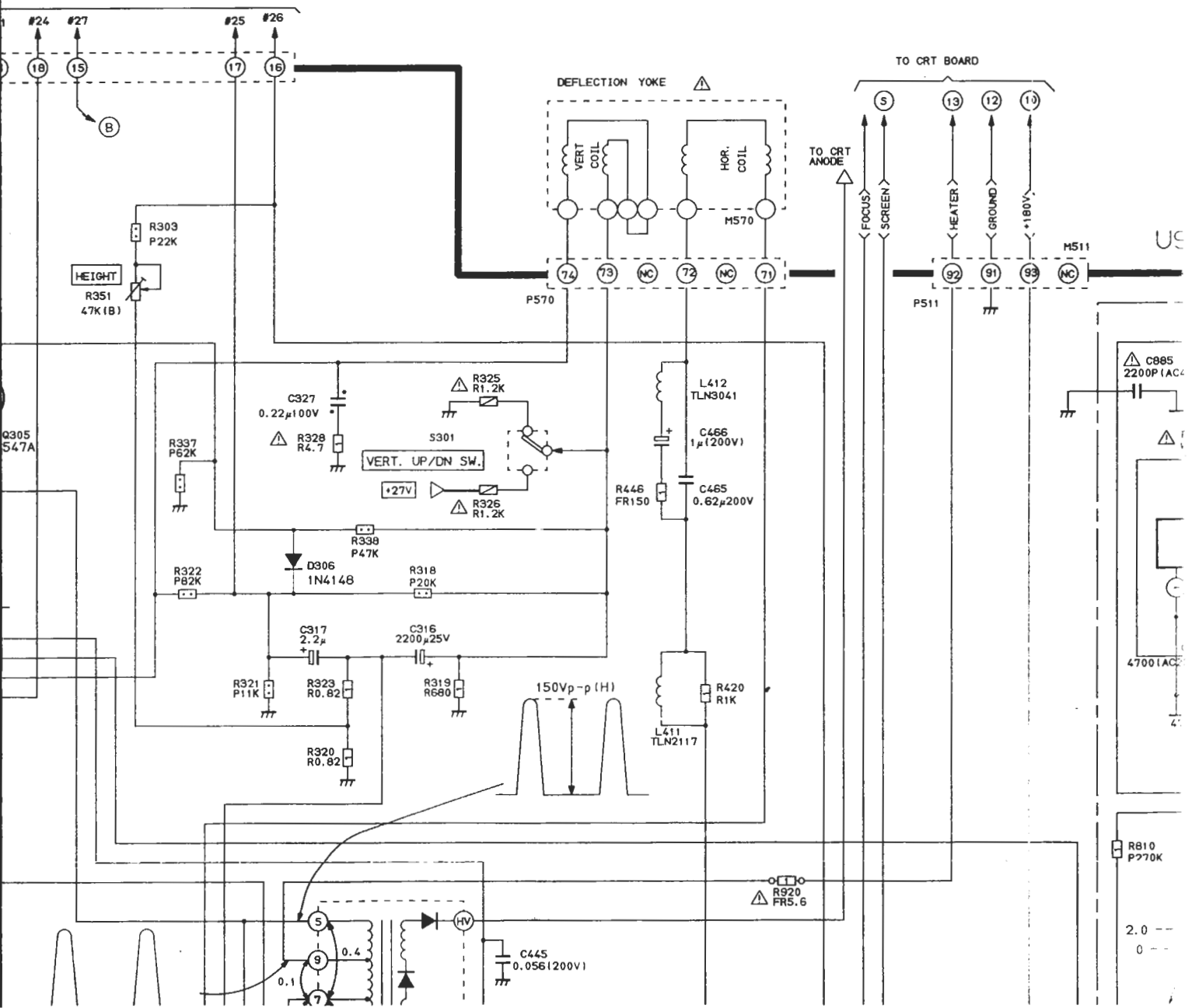
Prefixed to

Cart.
Oxide
Ins. C
Wii
Cement
Fu

al voltmeter.  
the ground marked ( $\perp$ ) in the  
mark but should be connected

our controls are adjusted for  
s and Colour controls are set

hal and were observed using a



## RESISTORS

Prefixed to values:

TYPE	MARK
Carbon Comp.	S
Oxide Metal Film	R
Ins. Carbon Film	P
Wire Wound	W
Cement covered W.W.	NO MARK
Fusible Res.	FR

Suffixes to values:

TOLERANCE	MARK
$\pm 1\%$	(F)
$\pm 2\%$	(G)

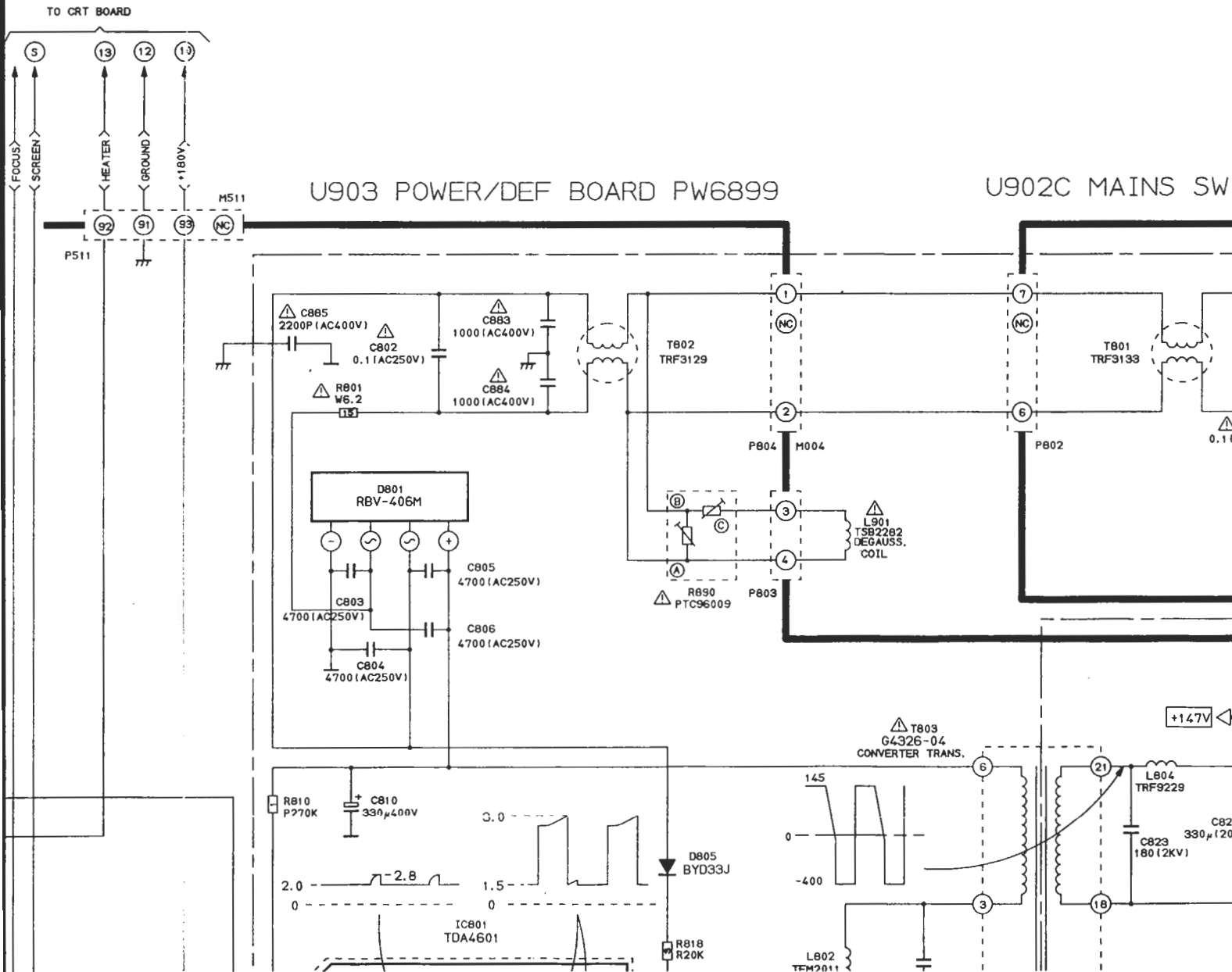
Suffixes to VR values:

LAW	MARK
Linear	(B)
'C' Curve Characteristic	(C)

Rating Markings:













WATTAGE	
1/6W	—
1/4W	—
1/2W	—
1W	—
2W	—

1 are expressed in  
1 are expressed in

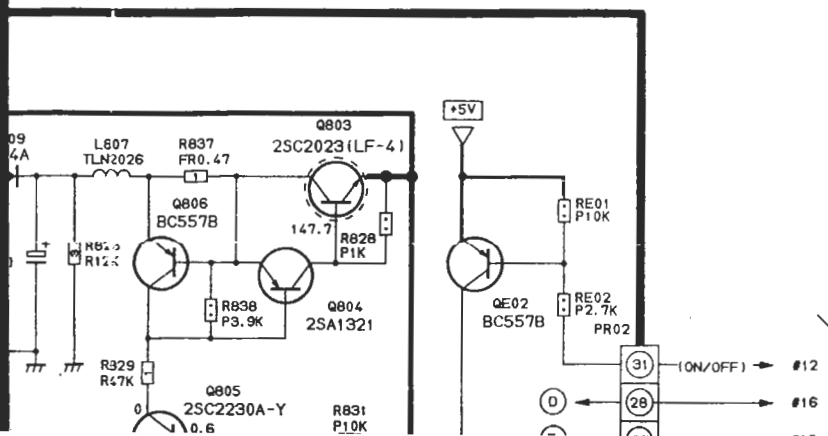
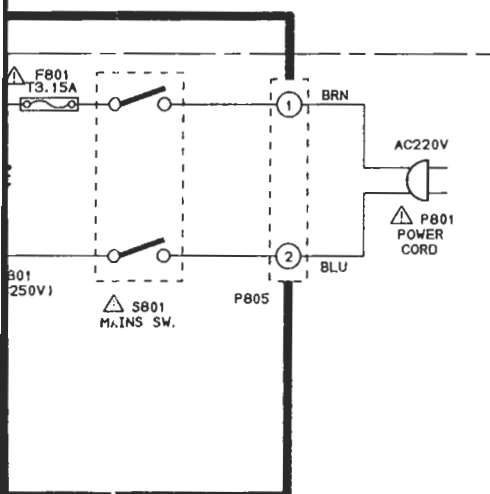


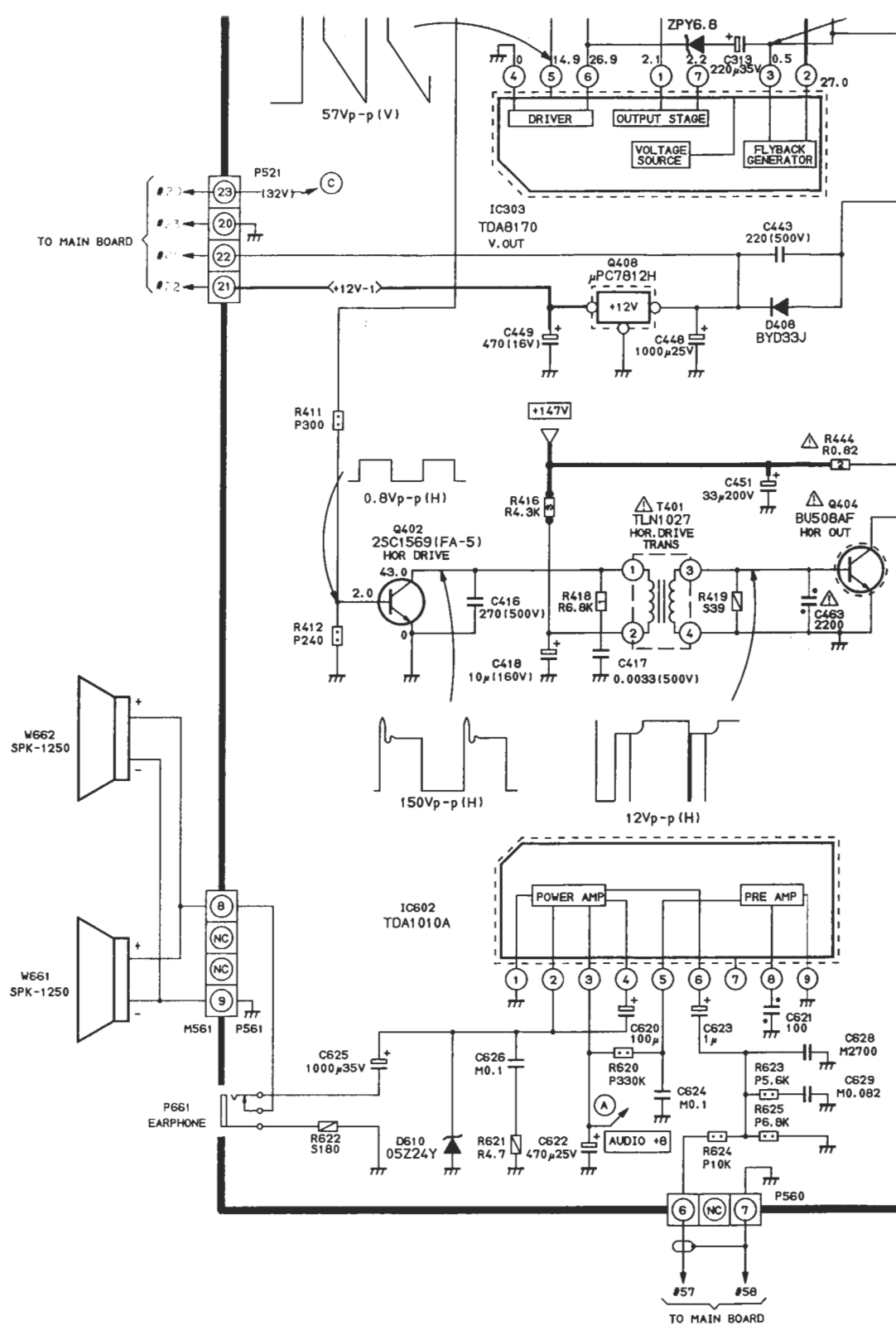
**Rating Markings:**

Type	Mark
Ceramic Disc 50V Only	
Electrolytic	
Electrolytic Non-Polar	
Variable Capacitor	
Other	

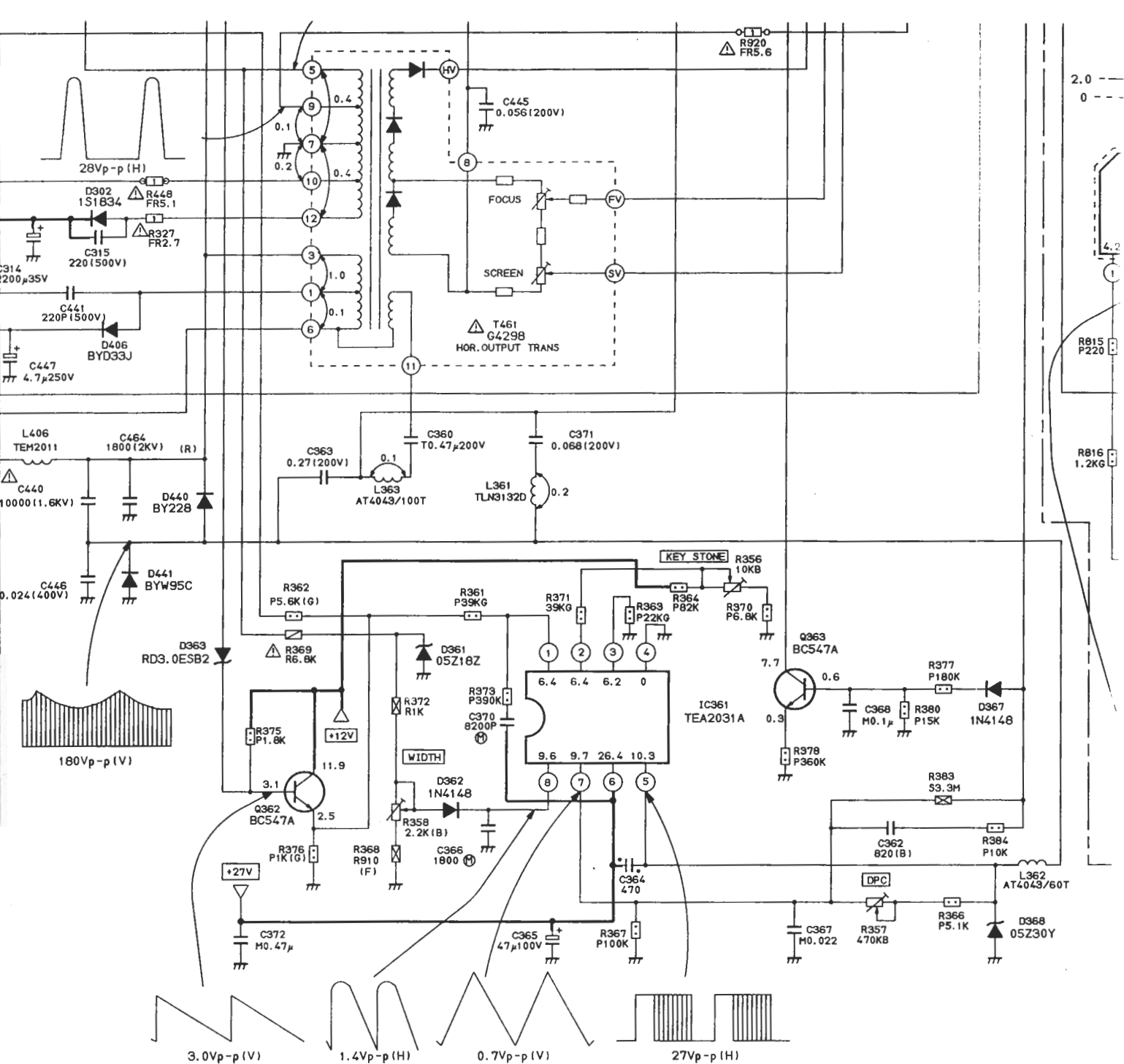
ARK	WATTAGE	MARK
	3W	
	5W	
	10W	
	15W	
	20W	
	25W	

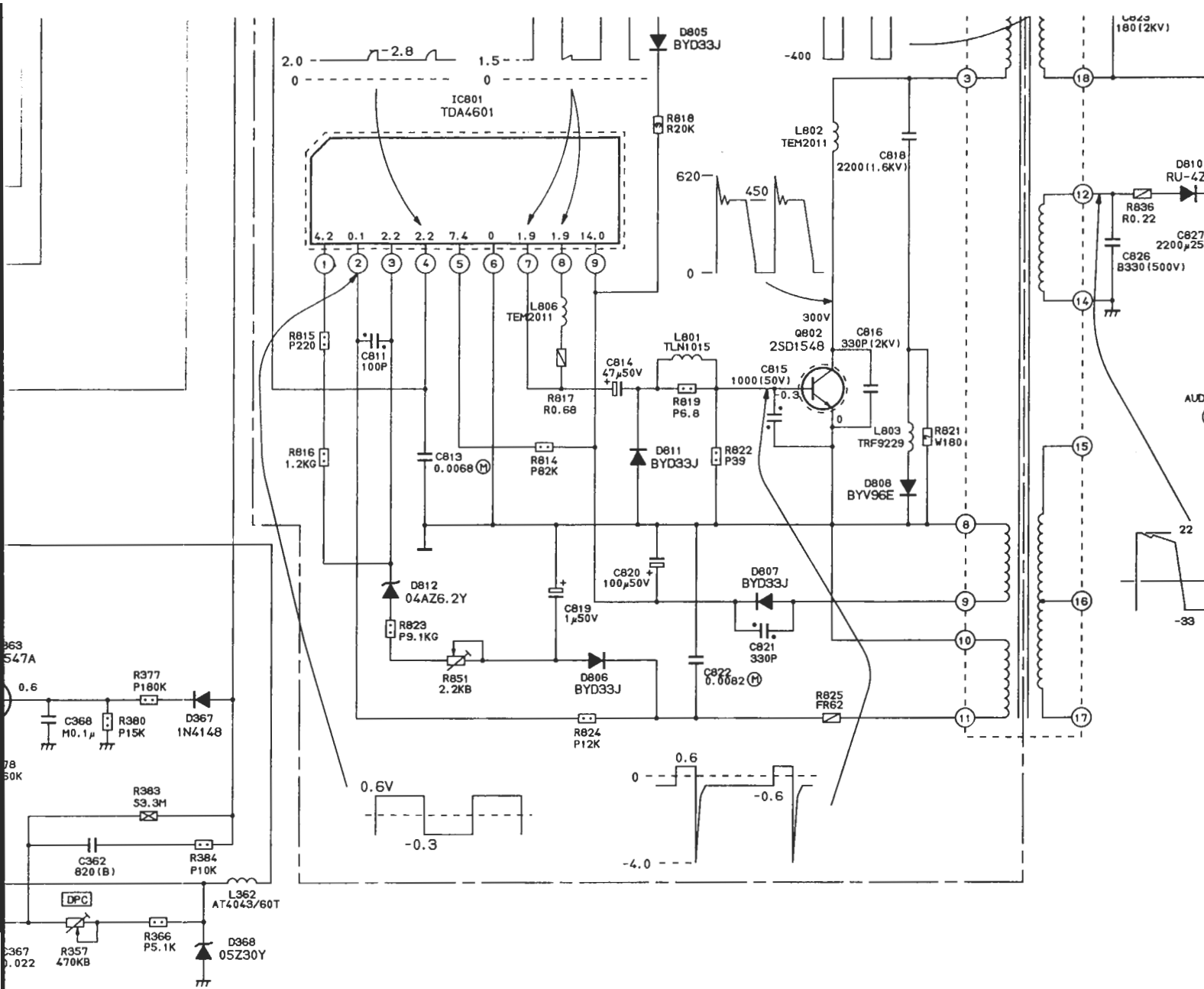
BOARD PW6898-3

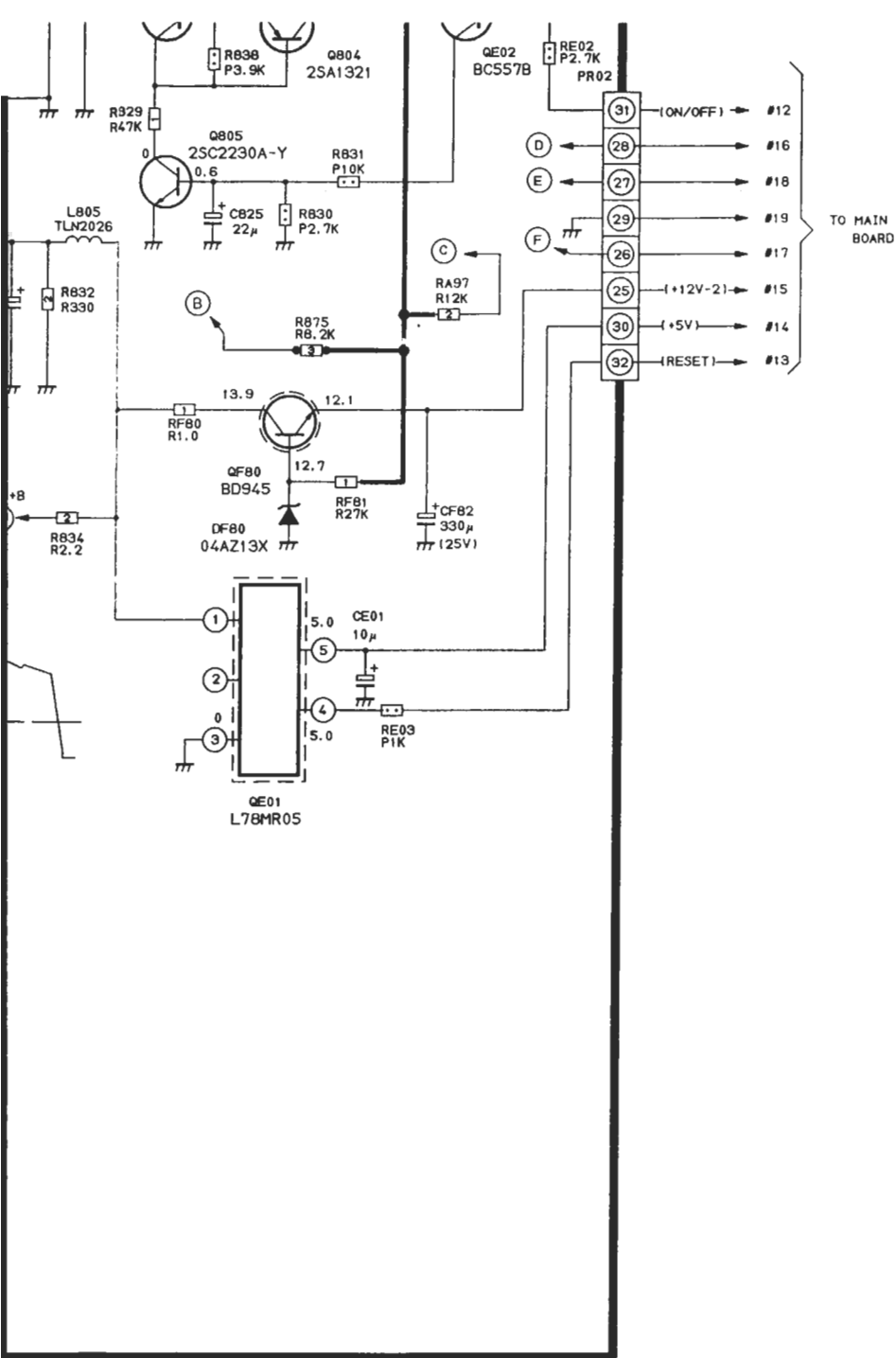












# 284R8W

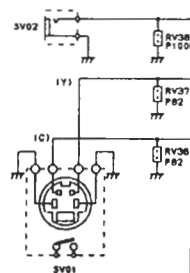
## SCHEMATIC DIAGRAM (1/2)

### IMPORTANT SAFETY NOTICE

Component marked with the International Hazard Symbol must be of an approved type and must be mounted as the original. This will ensure that the product adhered to during manufacture will be maintained following any repair.

### OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltage readings were obtained using a high impedance digital multimeter.
2. (—) or ground lead of instruments should be connected to the chassis ground. When checking Non-isolated circuit surrounded by a shield, connect the ground lead to the points marked (—) on checking isolated circuit.
3. The voltage readings may vary as much as  $\pm 20\%$ .
4. Check that the Tuning, A.F.C., Brightness, Contrast and Colour controls are set to their best picture, making sure that the Contrast, Brightness and Colour controls are near to their mid-positions.
5. The waveforms were taken using a standard colour bar and a wide band oscilloscope via a low capacity probe.



MODE	P100		QV01
	1S	1B	
TV	M	M	MIL1

If changed, be replaced by an  
 ure that the safety standards  
 servicing procedure.

tal voltmeter.  
 the ground marked (⊥) in the  
 mark but should be connected

colour controls are adjusted for  
 s and Colour controls are set

nal and were observed using a

## NOTES:

1. This circuit diagram is subject to change without notice.

## EXPRESSION

### VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000.
2. Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in  $\mu\text{F}$  and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in  $\mu\text{H}$ , and the values less than 1 in H.

### GROUNDING SYMBOL

1.  $\perp$ : Non isolated ground,  $\text{---}\text{||}\text{---}$ : Isolated ground.

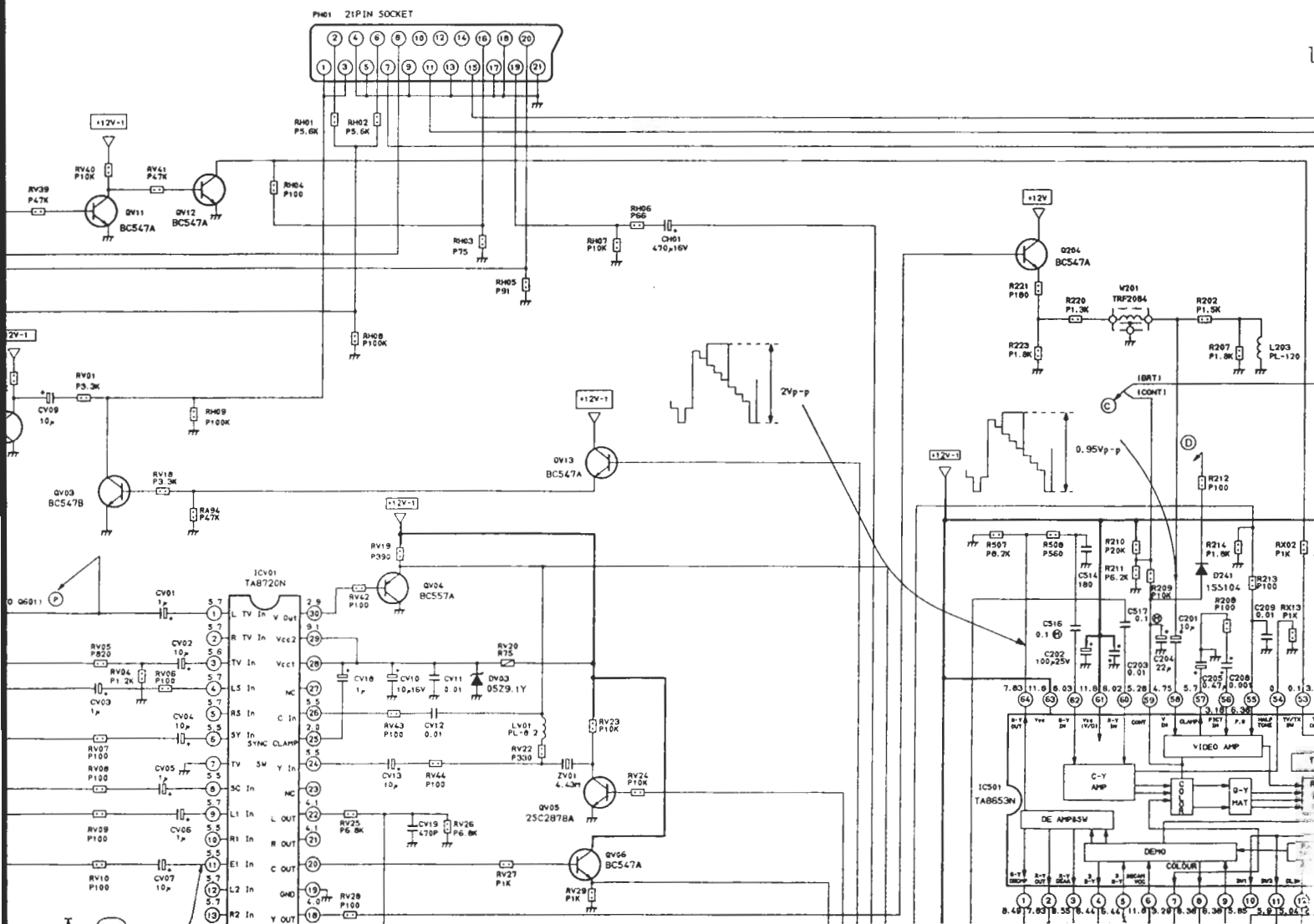
## RESISTORS

Prefixed to value

TYPE
Carbon C
Oxide Meta
Ins. Carbon
Wire Wo
Cement cover
Fusible

1 AUDIO OUT (R)	12 NC
2 AUDIO IN (R)	13 RED EARTH
3 AUDIO OUT (L)	14 NC
4 AUDIO EARTH	15 RED IN
5 EARTH	16 RAPID BLANKING
6 AUDIO IN (L)	17 VIDEO EARTH
7 BLUE IN	18 RAPID BLK EARTH
8 EXT/TV	19 VIDEO OUT
9 GREEN EARTH	20 VIDEO IN
10 NC	21 SHIELD EARTH
11 GREEN IN	

U902A MAIN BOARD PW6898-1



## RESISTORS

Prefixed to values:

TYPE	MARK
Carbon Comp.	S
Oxide Metal Film	R
Ins. Carbon Film	P
Wire Wound	W
Cement covered W.W.	NO MARK
Fusible Res.	FR

Suffixes to values:

TOLERANCE	MARK
$\pm 1\%$	(F)
$\pm 2\%$	(G)

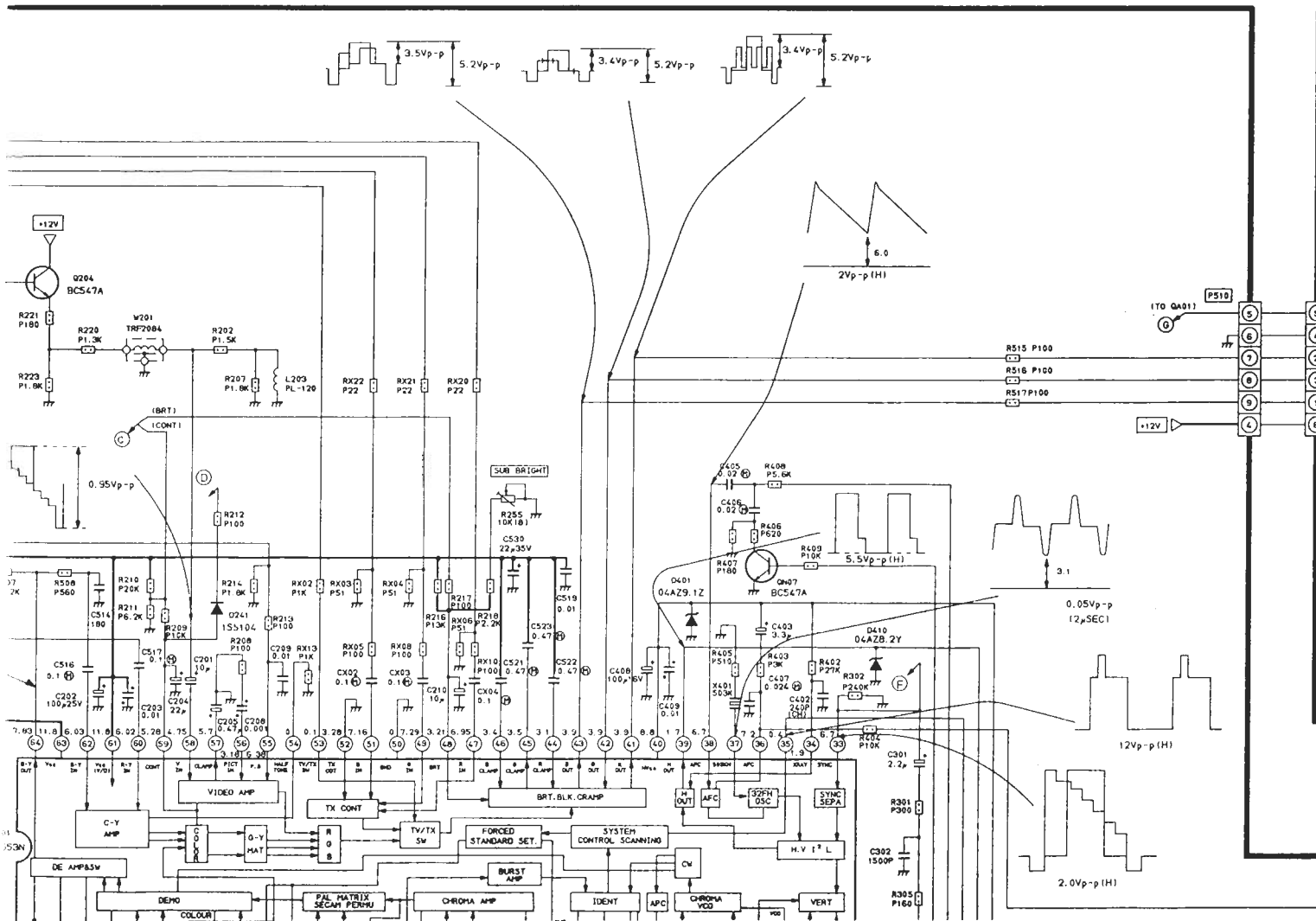
Suffixes to VR values:

LAW	MARK
Linear	(B)
'C' Curve Characteristic	(C)

Rating Markings:






WATTAGE	MARK
1/6W	
1/4W	
1/2W	
1W	
2W	

W6898-1



**Rating Markings:**

**Rating Markings:**

Type	Mark
Ceramic Disc 50V Only	
Electrolytic	
Electrolytic Non-Polar	
Variable Capacitor	
Other	

WATTAGE	MARK
3W	3
5W	5
10W	10
15W	15
20W	20
25W	25

U902B CRT DRIVE BOARD PW6898-2

110V  
HEATER  
GND  
SCREEN  
FOCUS  
14V

FROM POWER BOARD

MS10

MS11

MS20

Q501 25A562TH-0

R501 52.7K  
R502 52.7K  
R503 52.7K  
R504 52.7K  
R505 52.7K  
R506 52.7K  
R507 52.7K  
R508 52.7K  
R509 52.7K  
R510 52.7K  
R511 52.7K  
R512 52.7K  
R513 52.7K  
R514 52.7K  
R515 52.7K  
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R529 52.7K  
R530 52.7K  
R531 52.7K  
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R567 52.7K  
R568 52.7K  
R569 52.7K  
R570 52.7K  
R571 52.7K  
R572 52.7K  
R573 52.7K  
R574 52.7K  
R575 52.7K  
R576 52.7K  
R577 52.7K  
R578 52.7K  
R579 52.7K  
R580 52.7K  
R581 52.7K

C501 10µF 16V  
C502 10µF 16V  
C503 10µF 16V  
C504 10µF 16V  
C505 10µF 16V  
C506 10µF 16V  
C507 10µF 16V  
C508 10µF 16V  
C509 10µF 16V  
C510 10µF 16V  
C511 10µF 16V  
C512 10µF 16V  
C513 10µF 16V  
C514 10µF 16V  
C515 10µF 16V  
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C526 10µF 16V  
C527 10µF 16V  
C528 10µF 16V  
C529 10µF 16V  
C530 10µF 16V  
C531 10µF 16V  
C532 10µF 16V  
C533 10µF 16V  
C534 10µF 16V  
C535 10µF 16V  
C536 10µF 16V  
C537 10µF 16V  
C538 10µF 16V

Q501 25A562TH-0  
Q502 25A562TH-0  
Q503 25A562TH-0  
Q504 25A562TH-0  
Q505 25A562TH-0  
Q506 25A562TH-0  
Q507 25A562TH-0  
Q508 25A562TH-0  
Q509 25A562TH-0  
Q510 25A562TH-0  
Q511 25A562TH-0  
Q512 25A562TH-0  
Q513 25A562TH-0  
Q514 25A562TH-0

RED OUT  
GREEN OUT  
BLU OUT

RED OUT OFF  
GREEN OUT OFF  
BLU OUT OFF

100Vp-p  
90Vp-p  
90Vp-p

MS10  
MS11  
MS20

Q501 25A562TH-0  
Q502 25A562TH-0  
Q503 25A562TH-0  
Q504 25A562TH-0  
Q505 25A562TH-0  
Q506 25A562TH-0  
Q507 25A562TH-0  
Q508 25A562TH-0  
Q509 25A562TH-0  
Q510 25A562TH-0  
Q511 25A562TH-0  
Q512 25A562TH-0  
Q513 25A562TH-0  
Q514 25A562TH-0

RED OUT  
GREEN OUT  
BLU OUT

RED OUT OFF  
GREEN OUT OFF  
BLU OUT OFF

100Vp-p  
90Vp-p  
90Vp-p

MS10  
MS11  
MS20

Q501 25A562TH-0  
Q502 25A562TH-0  
Q503 25A562TH-0  
Q504 25A562TH-0  
Q505 25A562TH-0  
Q506 25A562TH-0  
Q507 25A562TH-0  
Q508 25A562TH-0  
Q509 25A562TH-0  
Q510 25A562TH-0  
Q511 25A562TH-0  
Q512 25A562TH-0  
Q513 25A562TH-0  
Q514 25A562TH-0

RED OUT  
GREEN OUT  
BLU OUT

RED OUT OFF  
GREEN OUT OFF  
BLU OUT OFF

100Vp-p  
90Vp-p  
90Vp-p

MS10  
MS11  
MS20

Q501 25A562TH-0  
Q502 25A562TH-0  
Q503 25A562TH-0  
Q504 25A562TH-0  
Q505 25A562TH-0  
Q506 25A562TH-0  
Q507 25A562TH-0  
Q508 25A562TH-0  
Q509 25A562TH-0  
Q510 25A562TH-0  
Q511 25A562TH-0  
Q512 25A562TH-0  
Q513 25A562TH-0  
Q514 25A562TH-0

RED OUT  
GREEN OUT  
BLU OUT

RED OUT OFF  
GREEN OUT OFF  
BLU OUT OFF

100Vp-p  
90Vp-p  
90Vp-p

MS10  
MS11  
MS20

Q501 25A562TH-0  
Q502 25A562TH-0  
Q503 25A562TH-0  
Q504 25A562TH-0  
Q505 25A562TH-0  
Q506 25A562TH-0  
Q507 25A562TH-0  
Q508 25A562TH-0  
Q509 25A562TH-0  
Q510 25A562TH-0  
Q511 25A562TH-0  
Q512 25A562TH-0  
Q513 25A562TH-0  
Q514 25A562TH-0

RED OUT  
GREEN OUT  
BLU OUT

RED OUT OFF  
GREEN OUT OFF  
BLU OUT OFF

100Vp-p  
90Vp-p  
90Vp-p

MS10  
MS11  
MS20

Q501 25A562TH-0  
Q502 25A562TH-0  
Q503 25A562TH-0  
Q504 25A562TH-0  
Q505 25A562TH-0  
Q506 25A562TH-0  
Q507 25A562TH-0  
Q508 25A562TH-0  
Q509 25A562TH-0  
Q510 25A562TH-0  
Q511 25A562TH-0  
Q512 25A562TH-0  
Q513 25A562TH-0  
Q514 25A562TH-0

RED OUT  
GREEN OUT  
BLU OUT

RED OUT OFF  
GREEN OUT OFF  
BLU OUT OFF

100Vp-p  
90Vp-p  
90Vp-p

MS10  
MS11  
MS20

Q501 25A562TH-0  
Q502 25A562TH-0  
Q503 25A562TH-0  
Q504 25A562TH-0  
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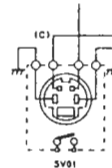
RED OUT  
GREEN OUT  
BLU OUT

RED OUT OFF  
GREEN OUT OFF  
BLU OUT OFF

100Vp-p  
90Vp-p  
90Vp-p

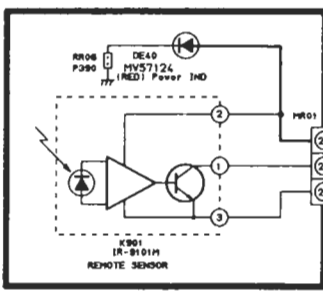
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MS11  
MS20

Q501 25A562TH-0  
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Q503 25A562TH-0  
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Q506 25A562TH-0  
Q507 25A562TH-0  
Q508 25A562TH-0



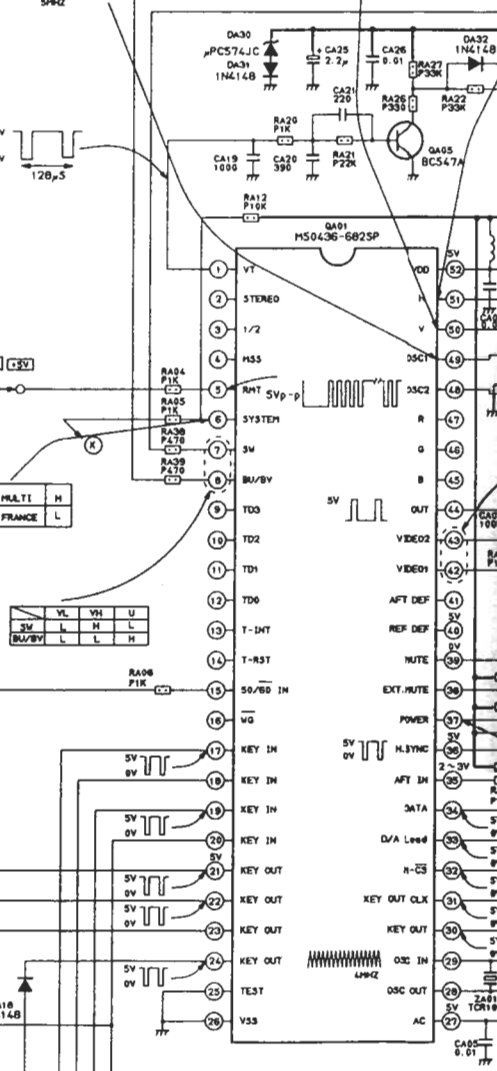
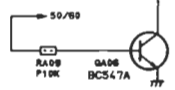
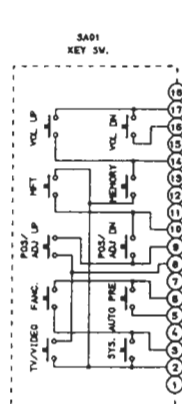
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TV	H	H/L1
VIDEO1	H	L
VIDEO2	L	H

# U902D IR AMP BOARD PW6898-4

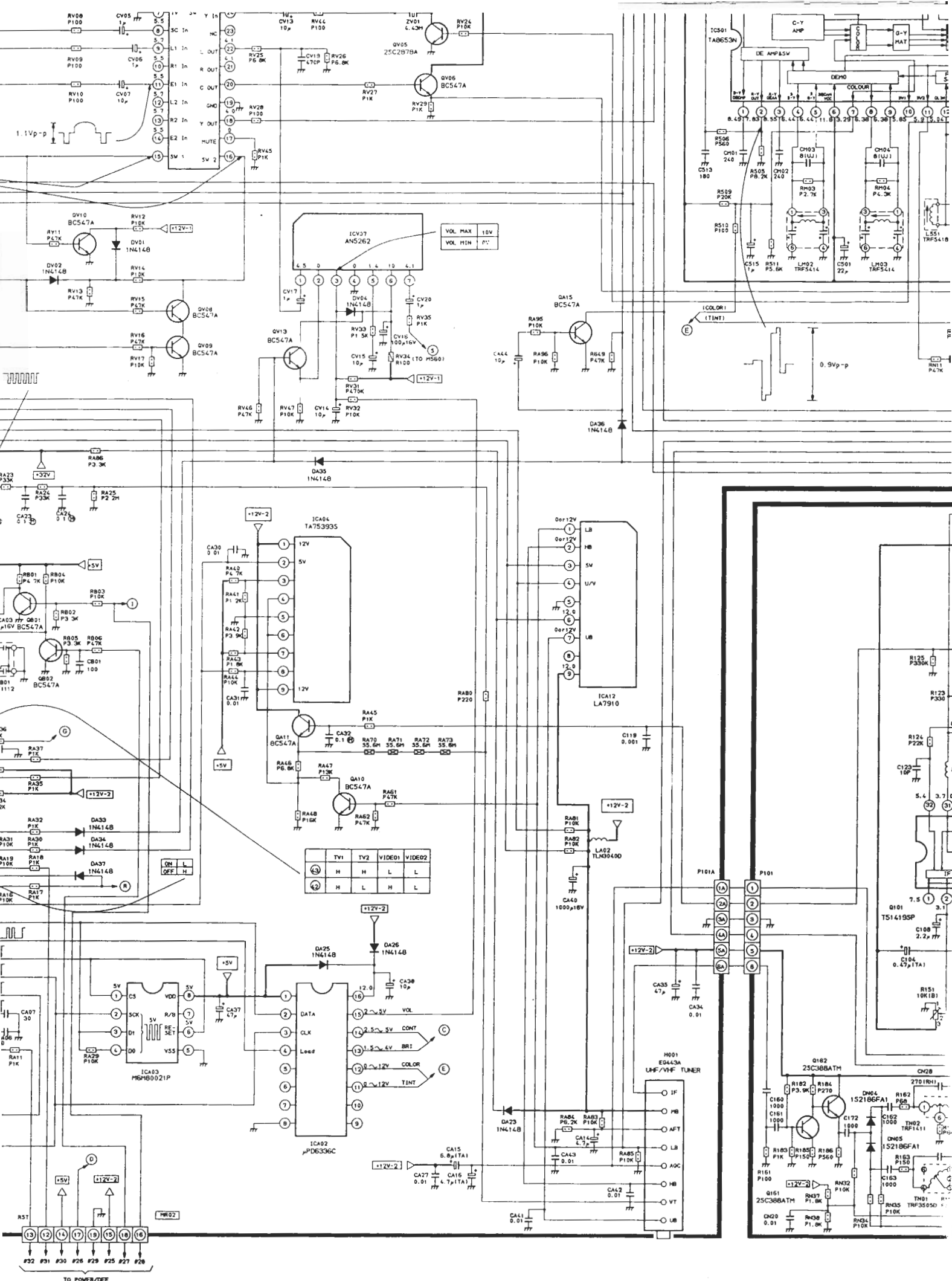


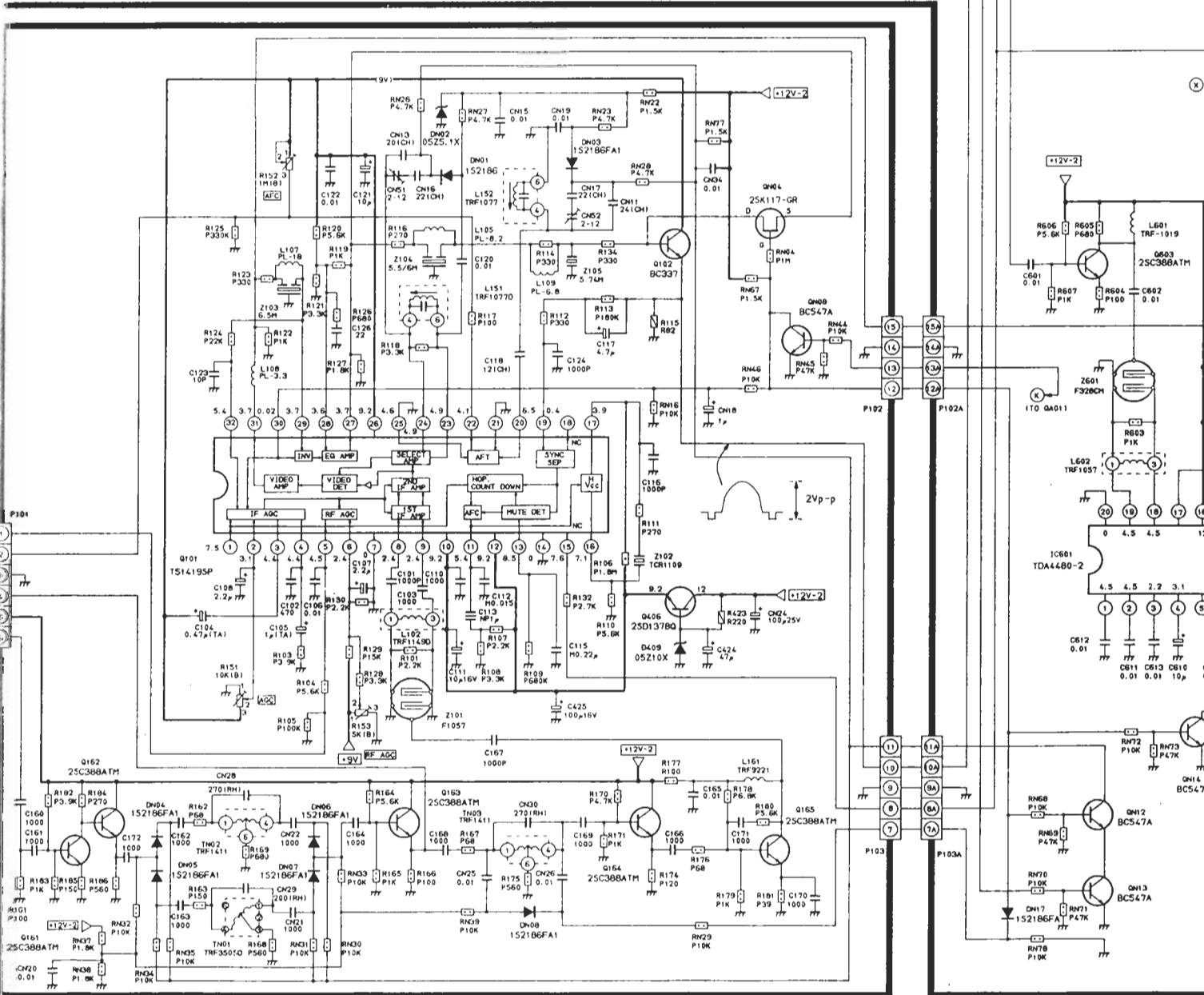
MULTI	H	
	FRANCE	L

VL	VH	U
SV	L	H
BU/BV	L	H









U101 IF BOARD PW6900

