

TOSHIBA

FILE NO. 060-200003

SERVICE MANUAL

COLOUR TELEVISION

S0ES Chassis

**21D7DXE,
21D7SXH**

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CHAPTER 1 GENERAL ADJUSTMENTS

SAFETY INSTRUCTIONS

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

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a (C) V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.
2. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
3. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

Refer to table-1 for high voltage (A), (B) & AC voltage (C).
(See SETTING & ADJUSTING DATA on page 16)

Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

SET-UP ADJUSTMENT

■ The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

1. Color Purity
2. Convergence
3. White Balance

Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.

Mounting position of the purity magnet assembly should fit to same position as old one because slightly difference to the position depend on a kind of tube.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Set the brightness and contrast to maximum.
3. Use a green raster from among the built-in test signals.
4. Loosen the clamp screw holding the yoke and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet (See figure 2.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, enter the raster vertically.
7. Slowly move the yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.

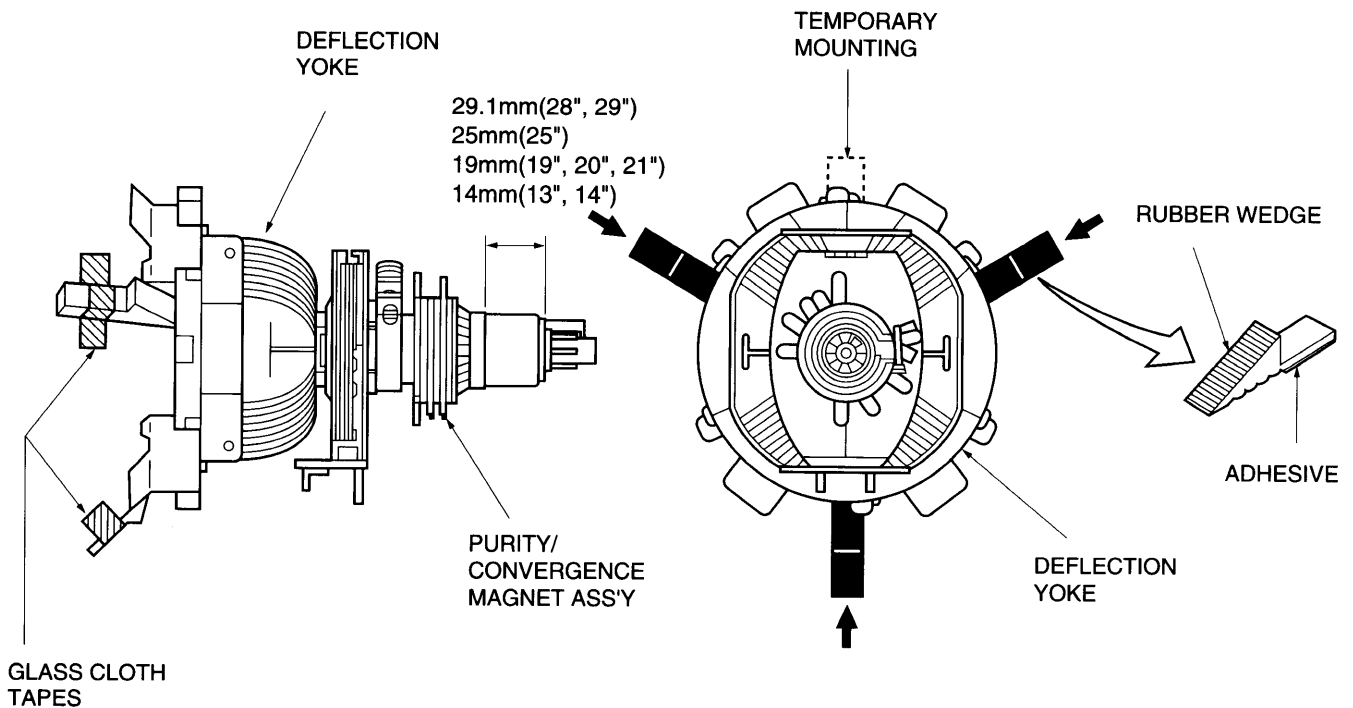


Figure 1.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

■ **CENTER CONVERGENCE ADJUSTMENT**

1. Use the cross-dot pattern from among the built-in test signals.
2. Set the brightness and contrast for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 2.) and superimpose red and blue vertical lines in the center area of the picture screen.
4. Turn the both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines at the center of the screen.
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets have mutual interaction and make dot movement complex.

■ **CIRCUMFERENCE CONVERGENCE ADJUSTMENT**

1. Loosen the clamping screw of deflection yoke slightly to allow the yoke to tilt.
2. Temporarily put a wedge as shown in figure 1. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 3.) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 3.)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. Stick three adhesive tapes on wedges as shown in figure 1.

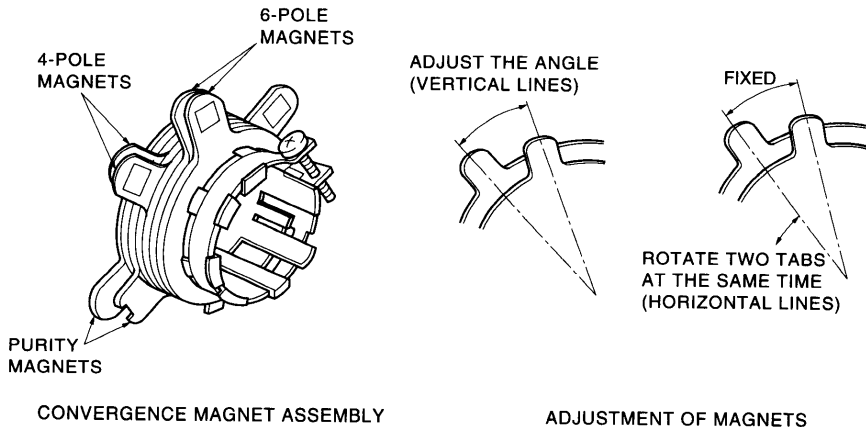
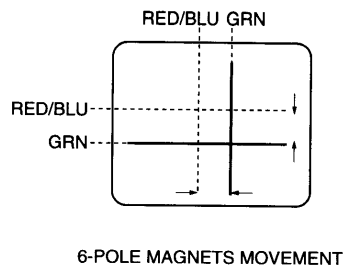
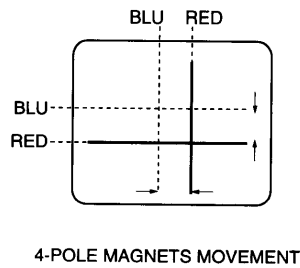
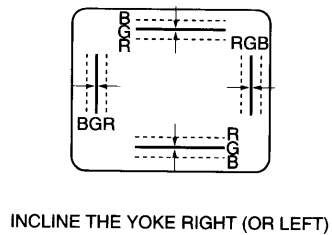
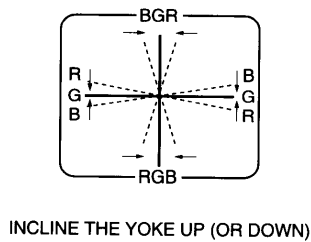


Figure 2.



Center Convergence by Convergence Magnets






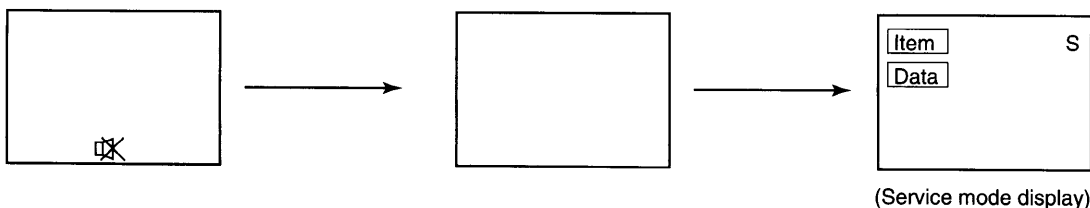
Circumference Convergence by DEF Yoke

Figure 3. Dot Movement Pattern

SERVICE MODE

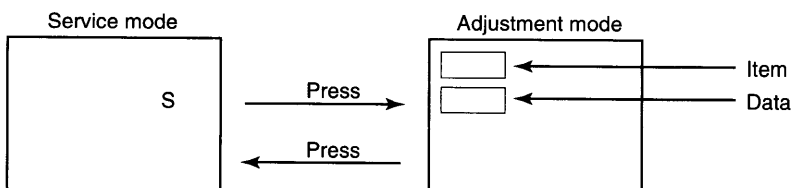
1. ENTERING TO SERVICE MODE

- 1) Press  button once on Remote Control.
- 2) Press  button again to keep pressing.
- 3) While pressing the  button, press MENU button on TV set.










2. DISPLAYING THE ADJUSTMENT MENU

- 1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

A single horizontal line ON/OFF:	- / - - button (on Remote) or  button (on TV)
Test signal selection :	 button (on Remote)
Selection of the adjustment items :	Channel  /  (on TV or Remote)
Change of the data value :	Volume  +/- (on TV or Remote)
Adjustment menu mode ON/OFF :	MENU button (on TV)
Initialization of the memory (QA02) :	CALL + Channel button on TV ()
Reset the count of operating protect circuit to "00":	CALL + Channel button on TV ()
"RCUT" selection :	1 button
"GCUT" selection :	2 button
"BCUT" selection :	3 button
"CNTX" (or "SCNT") selection :	4 button
"COLC" selection :	5 button - - - - Color thickness correction
"TNTC" selection :	6 button
Test audio signal ON/OFF (1kHz) :	8 button
Self diagnostic display ON/OFF :	9 button

note: Displayed differently as shown below, depending on the setting of the receiving color system.
COLP (PAL)
COLC (NTSC)
COLS (SECAM)

CAUTION : Never try to perform initialization unless you have changed the memory IC.

4. SELECTING THE ADJUSTING ITEMS

- 1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode.
(See SETTING & ADJUSTING DATA on page 16)

5. ADJUSTING THE DATA

- 1) Pressing of VOLUME ▲ +/- button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

- 1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

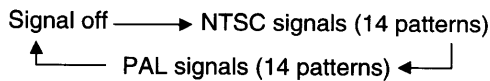
After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been completed.
3. Check the picture carefully. If necessary, adjust any adjustment item above. Perform "Auto search Memory" on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. TEST SIGNAL SELECTION

- 1) Every pressing of ⏪ button on the Remote Control changes the built-in test patterns on screen as described below in SERVICE MODE.

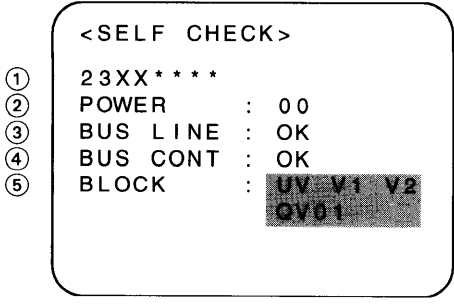


Signals	Picture
<ul style="list-style-type: none"> • Red raster • Green raster • Blue raster • All Black • All White 	
<ul style="list-style-type: none"> • Black & White 	
<ul style="list-style-type: none"> • Black cross-bar • White cross-bar • Black cross-bar on green raster 	
<ul style="list-style-type: none"> • Black cross-hatch • White cross-hatch 	
<ul style="list-style-type: none"> • Black cross-dot • White cross-dot 	
<ul style="list-style-type: none"> • H signal (white) • H signal (black) 	

* The signals marked with ■ are not usable to display in the Test signal for some model.

8. SELF DIAGNOSTIC FUNCTION

- 1) Press "9" button on Remote Control during display of adjustment menu in the service mode.
The diagnosis will begin to check if interface among IC's are executed properly.
- 2) During diagnosis, the following displays are shown.



Indicated color of mode now selected : Green and Red
Indicated color of other modes : White

- Green : Normal
- Red : The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.
- QV01 : In case of indication green ---Normal
In case of indication red with input signal---
Failure may exist in output line including QV01.

- ① Part number of microcomputer (QA01)
- ② Operation number of protecting circuit ----"00" is normal.
When indication is other than "00", overcurrent apts to flow, and circuit parts may possibly be damaged.
- ③ BUS LINE CHECK ----"OK" is normal.
"SDA1-GND" ----- SDA-GND short circuit.
"SCL1-GND" ----- SCL-GND short circuit.
"SCL1-SDA1" ----- SCL-SDA short circuit.
- ④ BUS CONT ----"OK" is normal.
When indication shows "Q○○○ NG", the device with the number may possibly be damaged.
- ⑤ BLOCK
UV : TV reception mode
V1 : VIDEO 1 input mode (○1)
V2 : VIDEO 2 input mode (○2)

NOTE: Component which controls character display on screen is QT01 (TELETEXT IC). If this display function fails to operate due to damage in QT01, self diagnosis procedure is as follows.

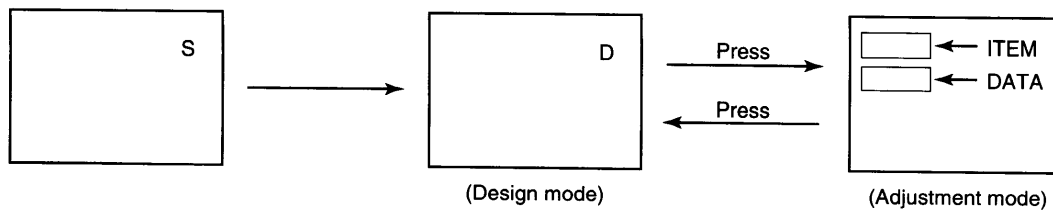
- (1) In case that power indicator is blinking with interval of 0.5 seconds, it means protecting circuit (Current limiter) is operating, and circuit components may possibly be damaged. Check related components.
- (2) In case that power indicator is blinking with interval of 1 second, Protecting circuit does not operate, but a part of Bus line does not operate normally. Check Bus line.

* The items marked with ■ are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.

DESIGN MODE

1. ENTERING TO DESIGN MODE

- 1) Select the Service mode.
- 2) While pressing \times (or CALL) button on Remote and press MENU button on TV.
- 3) Press MENU button on TV.



When QA02 is initialized, items "OPT0" and "OPT1" of DESIGN MODE are set to the data of the representative model of this chassis family.

Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items "OPT0" and "OPT1".

2. SELECTING THE ADJUSTING ITEMS

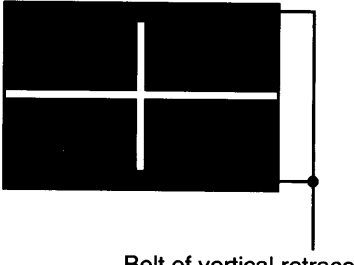
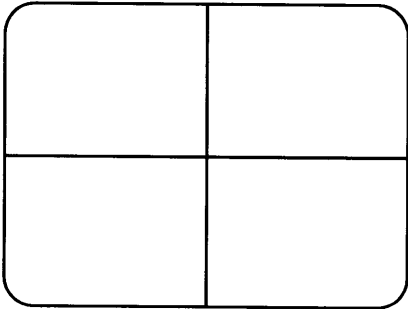
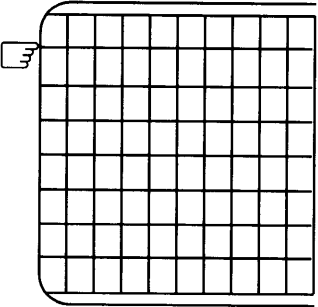
Every pressing of CHANNEL \blacktriangledown button in the design mode changes the adjustment items in the order of table-3. (\blacktriangle button for reverse order)





Refer to table-3 for data of design mode.
(See SETTING & ADJUSTING DATA on page 16)

3. ADJUSTING THE DATA

Pressing of VOLUME \blacktriangle or \blacktriangledown button will change the value of data.

ELECTRICAL ADJUSTMENTS

ITEM	ADJUSTMENT PROCEDURE
<p>FOCUS VR ADJ</p>	<ol style="list-style-type: none"> 1. Enter the service mode, then select any register item. 2. Press the TV/VIDEO button on the Remote until the black cross-bar pattern appears on the screen. 3. Adjust the FOCUS control (on T461) for well defined scanning lines on the picture screen.
<p>SUB-BRIGHTNESS (BRTC)</p> <p>Note: Constrict the picture height until the vertical retrace line appears adjusting the item HIT (HEIGHT).</p>	<ol style="list-style-type: none"> 1. Set CONTRAST to minimum, and BRIGHTNESS to center by adjusting user controls. 2. Set the TV in service mode to get white cross-bar of inside pattern. 3. Select BRTC (brightness correction), and adjust the \triangle - /+ button to reduce the value so that white portion of inside pattern slightly light. 4. Adjust \triangle - /+ button to increase the data value of BRTC, and set it just before the difference between the belt of vertical retrace and the border of black portion of inside pattern is visible. After that, return vertical height and contrast. <div style="text-align: right;">  <p>Belt of vertical retrace</p> </div>
<p>HORIZONTAL POSITION ADJUSTMENT (HPOS)</p> <p>VERTICAL POSITION ADJUSTMENT (VPOS)</p>	<ol style="list-style-type: none"> 1. Set the TV in service mode, and get black or white cross-bar signal with VIDEO button on remote hand unit. 2. Select either HPOS (Horizontal picture phase) or VPOS (Vertical picture phase) with CHANNEL \blacktriangle, \blacktriangledown buttons, and adjust horizontal or vertical picture position in the center of screen with VOLUME \triangle - /+ buttons. <div style="text-align: right;">  </div>
<p>VERTICAL AMPLITUDE ADJUSTMENT (HIT)</p>	<ol style="list-style-type: none"> 1. Set the TV in service mode, and get black or white cross-hatch signal with VIDEO button on remote hand unit. 2. Select HIT (Vertical amplitude) with CHANNEL \blacktriangle, \blacktriangledown buttons, and adjust vertical amplitude with VOLUME \triangle - /+ buttons so that vertical amplitude lacks a little. 3. Adjust vertical amplitude with VOLUME \triangle - /+ buttons so that the first bar on cross-hatch signal touches edge of screen. <div style="text-align: right;">  <p>The first</p> </div>

ITEM	ADJUSTMENT PROCEDURE
<p>WHITE BALANCE ADJUSTMENT</p> <ul style="list-style-type: none"> ● CUTOFF ADJUSTMENT (RCUT) (GCUT) (BCUT) ● DRIVE ADJUSTMENT (GDRV) (BDRV) 	<ol style="list-style-type: none"> 1. Set Contrast to 40, and brightness to +20 by picture control. 2. Set the TV in service mode, and get the inside W/B adjusting signal with VIDEO button. 3. Select RCUT, GCUT and BCUT with CHANNEL ▲, ▼ buttons, to set individual values to Initial reference data, and to set GDRV and BDRV to Initial reference data with VOLUME ▲ - /+ buttons (See page 16). 4. Press  button on the remote control and rotate Screen VR to get one slight horizontal line on screen. Note: Every pressing of  button provides Horizontal line picture and Normal picture alternately. 5. Press  button to release horizontal line picture, and select the two other colors which did not light in the above step with CHANNEL ▲, ▼ buttons. Then tap VOLUME ▲ - /+ buttons so that three colors slightly light in the same level. <p>※ To correct white balance in light area, select GDRV and BDRV with CHANNEL ▲, ▼ buttons to adjust.</p> <p>※ To correct white balance in dark area, perform fine adjustment of RCUT, GCUT and BCUT.</p> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin-top: 10px;"> <div style="border: 1px solid black; width: fit-content; margin: 5px auto; padding: 5px;">Light area check (to show white)</div> <div style="text-align: center; margin-top: 20px;">Dark area check (to show black)</div> </div>
<p>NOTE: It is released built-in test pattern by changing the adjustment item for some model. In this case, select the adjustment item with channel ▲ ▼ buttons first and then select the built-in test pattern with  button.</p>	

S0ES: Series (Reference factory adjustment)

1 SUB COLOUR CONTRAST (SCNT)

(Measuring point) Q501 #20 (R-OUT)
(Adjusting signal) Sub Bright (NTSC) signal
(Adjusting method)

- 1) Set user control to the standard 1.
- 2) Change to adjust SCNT data.

* It make the point which doesn't have a change and it adjust with screen VR
SPEC: $2.5 \pm 0.2V_{p-p}$

2 SUB BRIGHT (BRTC)

(Adjusting signal) Sub Bright (PAL or NTSC) signal
(Adjusting method)

- 1) Set user control to the standard 1.
- 2) Change BRTC data to set black collapse numbers by eye check.

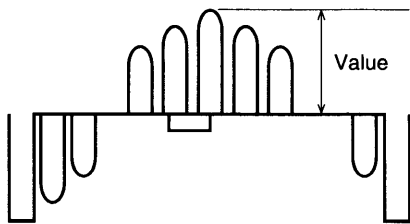
SPEC: 4 ± 1.5 bars

* Note: This ITEM Adjust at last

3 SUB COLOUR CENTER (COLP)

(Measuring point) Q501 #22 (B-OUT)
(Adjusting signal) Sub Bright (PAL) signal
(Adjusting method)

- 1) Set user control to the standard 1.
- 2) Change COLP data (COLC Difference data) to adjust the 6th peak amplitude of rainbow color bar.



Adjust the amplitude of color bar (p-p value of the upper half)

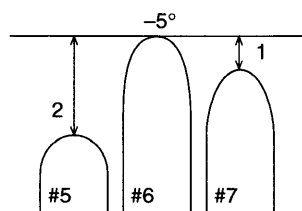
$1.4 \pm 0.2V$ (p-p)

* Note: This ITEM Adjust after (COLC)

4 SUB TINT CENTER (FOR M-NTSC MODEL) (TNTC)

(Measuring point) Q501 #22 (B-OUT)
(Adjusting signal) Sub Bright (NTSC) signal

(Adjusting method) Change TNTC data to adjust the 5th pointion to the 6th level of B-Y signal and the 7th level difference shuld regulate to 2:1



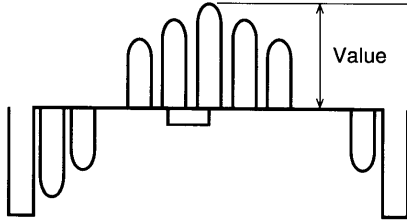
SPEC: $-5.0^\circ \pm 5^\circ$

* Note: This ITEM Adjust after (COLC)

5 SUB COLOUR NTSC (COLC)

(Measuring point) Q501 #22 (B-OUT)
 (Adjusting signal) Sub Bright (NTSC) signal
 (Adjusting method)

- 1) Set BUS data of Q501 to the same value as that SUB TINT adjustment.
- 2) Set user control to the standard 1.
- 3) Change COLC data to adjust the 6th peak amplitude of rainbow color bar



Adjust the amplitude of color bar (p-p value of the upper half)

1.4±0.2V (p-p)

6 WHITE BALANCE ADJUSTMENT

(Adjusting method)
 1) Set user control to the standard 1.
 2) BUS data of Q501
 GDRV→Initial value (40H)
 BDRV→Initial value (40H)
 RCUT→Initial value (20H)
 GCUT→Initial value (20H)
 BCUT→Initial value (20H)

- 3) Set the mode to the one horizontal line mode.
- 4) Change SCREEN VR to set it so that one of the line R, G and B will light slightly.
- 5) Change CUT-OFF data to set it so that each one of R, G and B will light slightly (for about white).
- 6) Release the H. Line mode.
- 7) Change B/G drive data and R/G/B CUT-OFF data to adjust white balance in bright area and dark area.

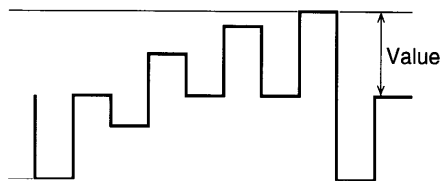
* Bright area (High-light area): 103cd/m²
 * Dark area (Low-light area): 13cd/m²

SPEC High-light area: 11500°K+0.0075uv
 Low-light area: 10500°K+0.0105uv

CA100 DATA	
x=260	y=271
x=260	y=271

7 SUB COLOUR CENTER (COLS) (SECAM)

(Measuring point) Q501 #22 (B-OUT)
 (Adjusting signal) SECAM COLOUR BAR
 (Adjusting method) Adjusting the amplitude of B-Y (Mute the picture in adjustment)



Adjust the amplitude of color bar (p-p value of the upper half)

SPEC: 1.9±0.2V

* Note: This ITEM Adjust after (COLC)

8 SECAM BELL FILTER ADJUSTMENT	
(Measuring point)	
(Adjusting signal)	NO ADJUSTMENT
(Adjusting method)	
9 SECAM R-Y ADJUSTMENT	
(Measuring point)	Q501 #20 R-Y OUT
(Adjusting signal)	Colour bar (SECAM) signal
(Adjusting method)	Adjust (SRY) the level of the monochrome signal part must be a match to the level of horizontal blanking signal.
	SPEC: 0±10 mv (p-p)
10 SECAM B-Y ADJUSTMENT	
(Measuring point)	Q501 #22 R-Y OUT
(Adjusting signal)	Colour bar (SECAM) signal
(Adjusting method)	Adjust (SBY) the level of the monochrome signal part must be a match to the level of horizontal blanking signal.
	SPEC: 0±10 mv (p-p)
11 VERTICAL POSITION	
(Input signal)	WG Philip Pattern (Do not use French SECAM)
(Measuring place)	On Picture
(Setting)	Contrast=Max. Bright=Center Color=Center
(Adjusting method)	Adjust VPOS upper and lower position on Philips pattern may become a center. (Turn the direction of CPT to the south or the north when adjusting. Adjust the amount offsetting if it is not possible to do.)
12 VERTICAL HEIGHT	
(Input signal)	WG Philip Pattern (Do not use French SECAM)
(Measuring place)	On Picture
(Setting)	Contrast=Max. Bright=Center Color=Center
(Adjusting method)	Adjust the Sub address HIT on Philips pattern may hide frag of the upper and lower side in exactly.
13 HORIZONTAL POSITION	
(Input signal)	WG Philip Pattern (Do not use French SECAM)
(Measuring place)	On Picture
(Setting)	Contrast=Max. Bright=Center Color=Center
(Adjusting method)	Adjust the Sub address HPOS on Philips pattern may become the center location (Minimize D-C in the adjustment magnetic field on CPT.)

CIRCUIT CHECK

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

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 must be measured below (B) kV.

Refer to table-1 for high voltage (B).
(See SETTING & ADJUSTING DATA on page 16)

4. Vary the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

CHAPTER 2 SPECIFIC INFORMATIONS

SETTING & ADJUSTING DATA

【 SAFETY INSTRUCTIONS 】

		21"
HIGH VOLTAGE AT ZERO BEAM:	(A)	30.2 kV
MAX HIGH VOLTAGE:	(B)	32.0 kV
AV VOLTAGE	(C)	110~240 V

Table-1

【 SERVICE MODE 】

ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

Item	Adjustment	Reference data	Data
RCUT	R CUTOFF (B/W)	20H	←
GCUT	G CUTOFF (B/W)	20H	←
BCUT	B CUTOFF (B/W)	20H	←
GDRV	G DRIVE	40H	←
BDRV	B DRIVE	40H	←
BRTC	SUB BRIGHT CEN	40H	←
COLC	SUB COLOR CEN NTSC	40H	←
TNTC	SUB TINT CEN	4CH	45H
COLP	SUB COLOR CEN PAL	00H	FFH
COLS	SUB COLOR CEN SECAM	00H	←
SCNT	SUB CONTRAST	08H	06H
HPOS	50Hz H-POSITION	10H	←
VPOS	V-POSITION	03H	←
HIT	HEIGHT	1CH	23H
VLIN	V-LINEARITY	08H	07H
WID	PICTURE WIDTH	30H	←
PARA	E-W PARABOLA	13H	15H
CNT	E-W CORNER	05H	←
TRAP	TRAPEZIUM	0DH	←
SRY	SECAM R-Y	08H	←
SBY	SECAM-B-Y	08H	←

Table-2

【 DESIGN MODE 】

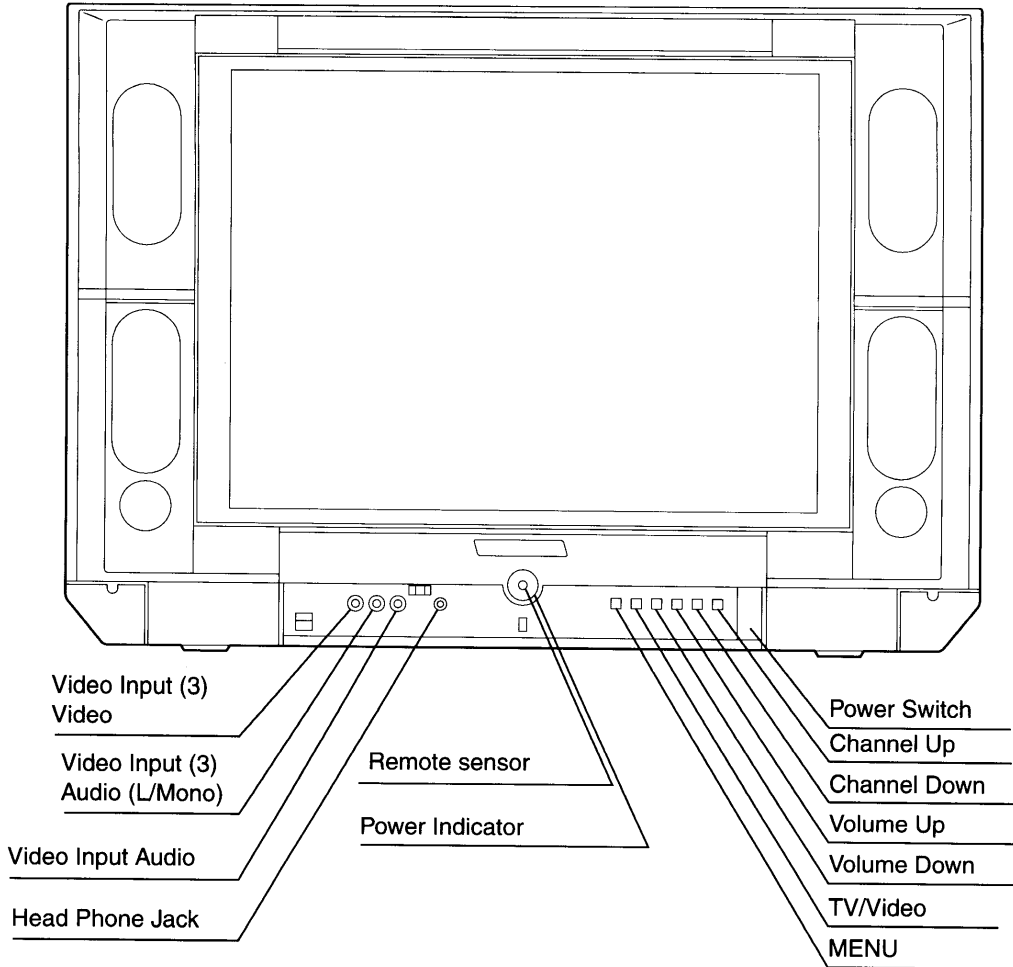
ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Data		Remarks
		Preset Data	21"	
* There are no adjusting items in the design mode.				

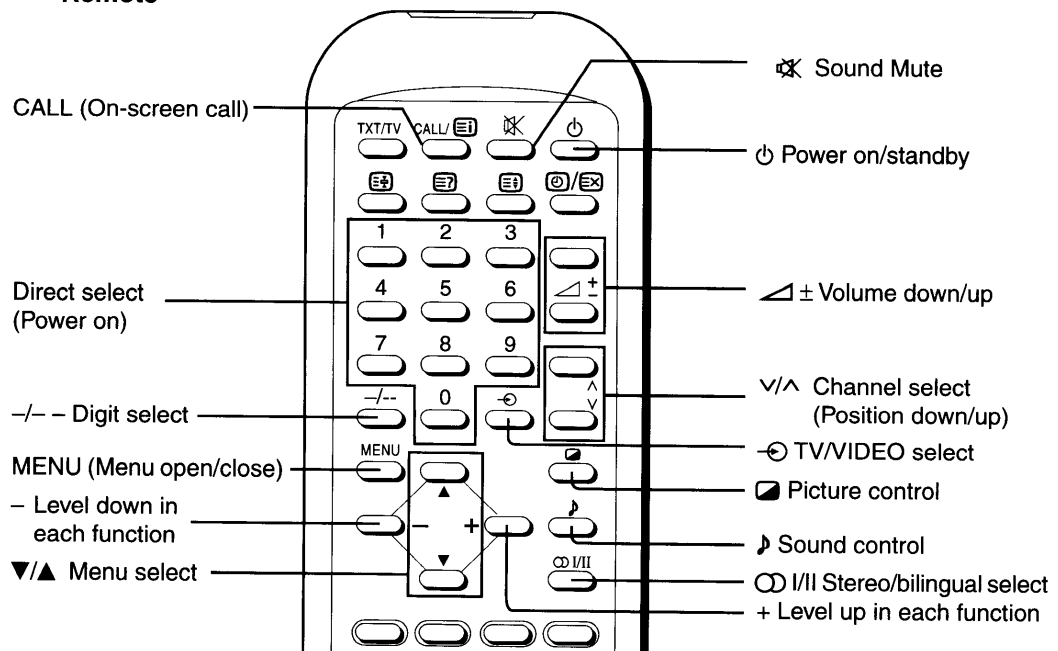
Table-3

LOCATION OF CONTROLS

Front



Remote



PROGRAMMING CHANNEL MEMORY

- First, use the ASM (Automatic Search Memory) function to preset all the active channels in your area automatically. Then, arrange the preset channels with the SEARCH (>>>), MFT (Manual Fine Tuning) and AFT (Auto Fine Tuning) functions so that you can tune into only desired channels.
- This section shows how to tune in channels using mainly the Remote Controller. You can also perform the system select, ASM, SEARCH (>>>), SKIP, MFT and AFT operations using the buttons on the TV set.

To preset channels (ASM)

ASM (Automatic Search Memory)

- 1** Select the head of the position number to start the ASM with the position down (∨)/up (∧) buttons or the digit/direct select buttons.
- 2** Press the MENU button repeatedly to call up the SET UP menu on the screen.
- 3** Confirm that "COLOR" is set to "AUTO" and "SOUND" is set to proper system.
If not, press the ▼/▲ buttons to move the cursor (▶) to "COLOR" or "SOUND" and press the -/+ buttons to select each proper system.
- 4** Press the ▼/▲ buttons to move the cursor (▶) to "ASM".
- 5** Press the "+" button to start the ASM. All active channels will be stored in the memory automatically. When programming is complete, the initial position number will reappear.

After presetting

Check the preset channels by pressing the position down (∨)/up (∧) buttons.

- If the picture or sound of a certain channel is not good, fine-tune the channel using the MFT function.
- If the colour of a certain channel is abnormal, automatic colour system selection (AUTO) may malfunction, or sound system selection is wrong. In such a case, select another colour and/or sound system.

To preset channels (Manual search, AFT, MFT)

Manual search (>>>)

- 1** Select a position number with the position down (∨)/up (∧) or digit/direct select buttons.
- 2** Press the MENU button repeatedly to call up the SET UP menu on the screen.
- 3** Press the ▼/▲ buttons to move the cursor (▶) to ">>>".
- 4** Press the -/+ buttons to start searching.
The - button searches for lower-numbered channels; the + button for higher-numbered channels.
Repeat this process until you can get the desired channel.
- 5** When the desired programme is shown, press the ▼/▲ buttons to move the cursor (▶) to "◆".
- 6** Press the + button to memorize the channel at the current position.
- 7** When you desire to store another channel at another position, move the cursor (▶) to "POSITION" with the ▼/▲ buttons and select a desired position with the -/+ buttons.
Then, press the ▼/▲ buttons to move the cursor (▶) to ">>>" and repeat the steps 4 to 7.

- Use the SEARCH function if desired channels could not be preset with the ASM, or if you would like to preset the desired channels to specific position numbers one by one.
- The adjustments below are not necessary under normal conditions. However, in areas of inferior broadcast conditions where adjustment is necessary for a better picture, adjust the tuning with the MFT (Manual Fine Tuning). The AFT OFF status automatically keeps the condition adjusted with the MFT function.
- The AFT (Auto Fine Tuning) function automatically corrects slight fluctuations when receiving signals.
- When using Manual Search to preset the channel, the AFT will automatically turn ON and SKIP to OFF.

MFT (Manual Fine Tuning)

- 1** Select the position number you want to fine-tune with the position down (∇)/up (\blacktriangle) buttons or digit/direct select buttons.
- 2** Press the MENU button repeatedly to call up the SET UP menu on the screen.
- 3** Press the ∇/\blacktriangle buttons to move the cursor (\blacktriangleright) to "MFT".
- 4** Press the $-/+$ buttons until the best possible picture and sound are obtained.

Note

When operating the MFT function, the AFT status is automatically set to OFF.

AFT (Auto Fine Tuning)

- 1** Select the position number you want to fine-tune with the position down (∇)/up (\blacktriangle) buttons or digit/direct select buttons.
- 2** Press the MENU button repeatedly to call up the SET UP menu on the screen.
- 3** Press the ∇/\blacktriangle buttons to move the cursor (\blacktriangleright) to "AFT". Press the $-/+$ buttons to select the "ON" indication.

Note

When position is set to AFT OFF status, the "■" mark appears to the left of the position number.
When the channel is set to AFT ON status, the position number is displayed without the "■" mark.

To skip unnecessary position numbers

After presetting the channels, you may skip unnecessary position numbers so that only the channels you want to watch are selected.

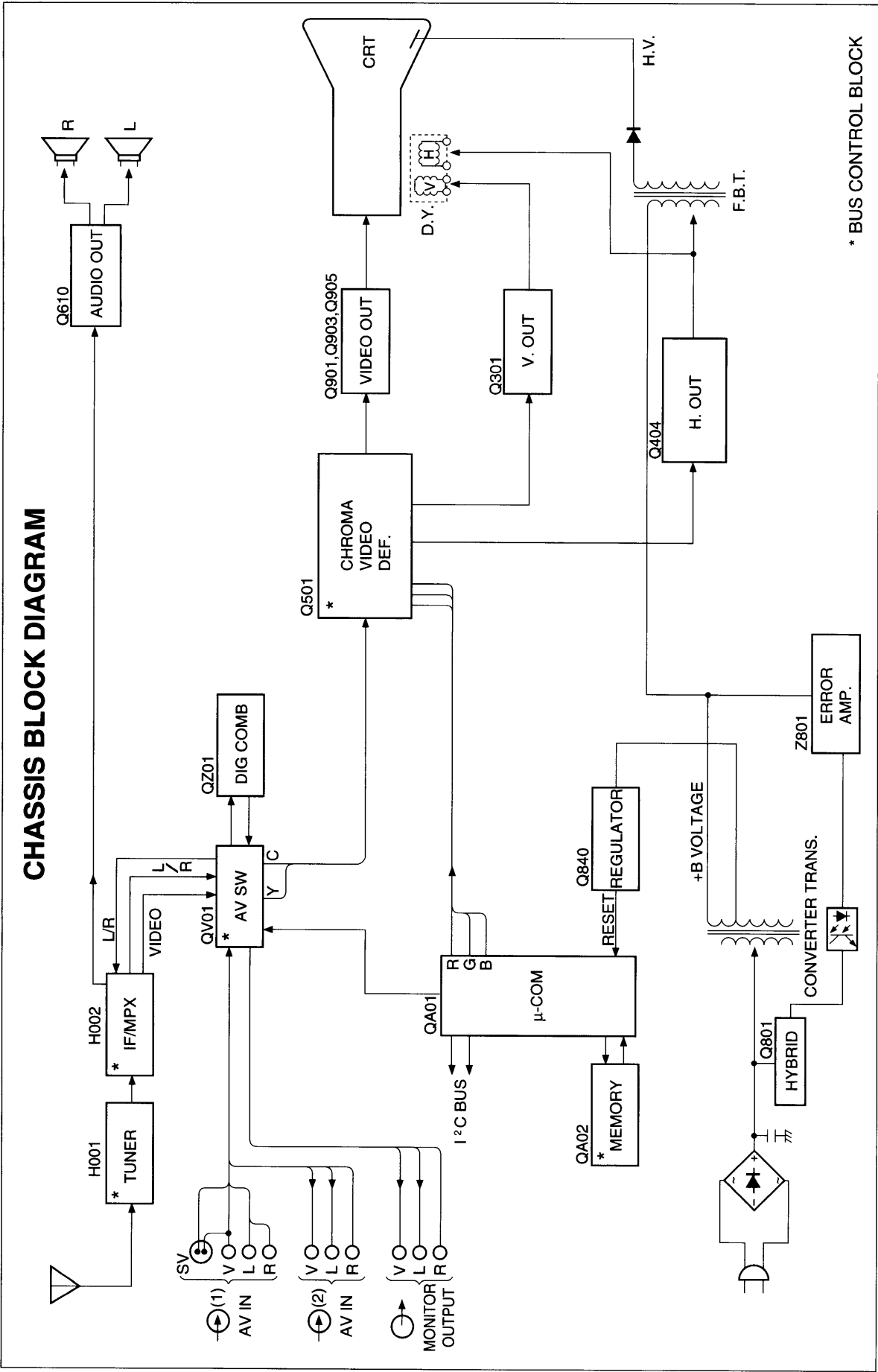
To skip a position number

- 1** Select the position number to be skipped with the position down (∇)/up (\blacktriangle) buttons or digit/direct select buttons.
- 2** Press the MENU button repeatedly to call up the SET UP menu on the screen.
- 3** Press the ∇/\blacktriangle buttons to move the cursor (\blacktriangleright) to "SKIP".
- 4** Press the $-/+$ buttons to select "SKIP ON".
- 5** Press the MENU button to turn off the SET UP menu display. Select the position number to be skipped with the direct select buttons. The * mark appears to the left of the position number. The position number will then be skipped when you select channels with the position down (∇)/up (\blacktriangle) buttons.

To restore a skipped position number

- 1** Select the position number you want to restore with the direct select (and/or digit select) buttons.
- 2** Press the MENU button to call up the SET UP menu display and press the ∇/\blacktriangle buttons to move the cursor (\blacktriangleright) to "SKIP".
- 3** Press the $-/+$ buttons to select "SKIP OFF".

* Please refer to owner's manual in detail.



CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols " \triangle " 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. 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.
- The PC board assembly with * mark is no longer available after the end of the production.

Model : 21D7DXE, 21D7SXH

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.)

SPECIFIC INFORMATIONS

Location No.	Part No.	Description
CAPACITORS		
C102	24232103	CD, 0.01 μ F, +80%, -20%
C103	24794221	EL, 220 μ F, $\pm 20\%$, 16V
C104	24797101	EL, 100 μ F, $\pm 20\%$, 50V
C105	24232103	CD, 0.01 μ F, +80%, -20%
C106	24669010	EL, 1 μ F, $\pm 20\%$, 50V
C108	24794101	EL, 100 μ F, $\pm 20\%$, 16V
C109	24797229	EL, 2.2 μ F, $\pm 20\%$, 50V
C110	24797229	EL, 2.2 μ F, $\pm 20\%$, 50V
C162	24232103	CD, 0.01 μ F, +80%, -20%
C168	24232103	CD, 0.01 μ F, +80%, -20%
C181	24232103	CD, 0.01 μ F, +80%, -20%
C201	24073078	EL, 0.22 μ F, $\pm 20\%$, 50V
C210	24539104	PF, 0.1 μ F
C216	24797010	EL, 1 μ F, $\pm 20\%$, 50V
C221	24473100	CD, 10pF
C222	24473100	CD, 10pF
C223	24473100	CD, 10pF
C224	24797100	EL, 10 μ F, $\pm 20\%$, 50V
C225	24539104	PF, 0.1 μ F
C226	24539104	PF, 0.1 μ F
C233	24797010	EL, 1 μ F, $\pm 20\%$, 50V
C304	24214471	CD, 470pF, $\pm 10\%$, 500V
C305	24617915	EL, 1 μ F, $\pm 10\%$, 50V
C306	24666222	EL, 2200 μ F, $\pm 20\%$, 16V
C307	24693473	PF, 0.047 μ F, 100V
C308	24668101	EL, 100 μ F, $\pm 20\%$, 35V
C310	24073072	EL, 1000 μ F, $\pm 20\%$, 35V
C311	24214821	CD, 820pF, $\pm 10\%$, 500V
C313	24082057	PF, 0.22 μ F, 100V
C314	24591563	PF, 0.056 μ F
C315	24212102	CD, 1000pF, $\pm 10\%$
C316	24539223	PF, 0.022 μ F
C318	24666101	EL, 100 μ F, $\pm 20\%$, 16V
C319	24212102	CD, 1000pF, $\pm 10\%$
C320	24668101	EL, 100 μ F, $\pm 20\%$, 35V
C321	24539474	PF, 0.47 μ F
C340	24797479	EL, 4.7 μ F, $\pm 20\%$, 50V
C341	24666101	EL, 100 μ F, $\pm 20\%$, 16V
C342	24795100	EL, 10 μ F, $\pm 20\%$, 25V
C360	24666101	EL, 100 μ F, $\pm 20\%$, 16V

Location No.	Part No.	Description
C363	24693104	PF, 0.1 μ F, 100V
C403	24591822	PF, 8200pF
C404	24669478	EL, 0.47 μ F, $\pm 20\%$, 50V
C406	24797010	EL, 1 μ F, $\pm 20\%$, 50V
C413	24214182	CD, 1800pF, $\pm 10\%$, 500V
C416	24678229	EL, 2.2 μ F, $\pm 20\%$, 200V
C417	24214391	CD, 390pF, $\pm 10\%$, 500V
C420	24794101	EL, 100 μ F, $\pm 20\%$, 16V
C421	24794221	EL, 220 μ F, $\pm 20\%$, 16V
C430	24232103	CD, 0.01 μ F, +80%, -20%
C431	24763222	EL, 2200 μ F, $\pm 20\%$, 16V
C432	24232103	CD, 0.01 μ F, +80%, -20%
C433	24666100	EL, 10 μ F, $\pm 20\%$, 16V
C436	24665102	EL, 1000 μ F, $\pm 20\%$, 10V
C439	24232103	CD, 0.01 μ F, +80%, -20%
C440	24082934	PF, 1500pF, $\pm 3\%$, 1500V
C441	24693472	PF, 4700pF, 100V
C442	24082995	PF, 0.36 μ F, 250V
C443	24667102	EL, 1000 μ F, $\pm 20\%$, 25V
C444	24082963	PF, 9100pF, $\pm 3\%$, 1500V
C445	24828563	PF, 0.056 μ F, 200V
C447	24679100	EL, 10 μ F, $\pm 20\%$, 250V
C448	24640908	EL, 33 μ F, $\pm 20\%$, 160V
C449	24214331	CD, 330pF, $\pm 10\%$, 500V
C451	24539823	PF, 0.082 μ F
C452	24539474	PF, 0.47 μ F
C460	24539473	PF, 0.047 μ F
C461	24591103	PF, 0.01 μ F
C463	24212222	CD, 2200pF, $\pm 10\%$
C464	24640872	EL, 10 μ F, $\pm 20\%$, 100V
C467	24820333	PF, 0.033 μ F, 630V
C470	24666220	EL, 22 μ F, $\pm 20\%$, 16V
C472	24539474	PF, 0.47 μ F
C482	24539154	PF, 0.15 μ F
C499	24539104	PF, 0.1 μ F
C501	24232103	CD, 0.01 μ F, +80%, -20%
C502	24539104	PF, 0.1 μ F
C503	24539104	PF, 0.1 μ F
C512	24212222	CD, 2200pF, $\pm 10\%$
C516	24232103	CD, 0.01 μ F, +80%, -20%
C517	24797101	EL, 100 μ F, $\pm 20\%$, 50V

Location No.	Part No.	Description
C521	24539104	PF, 0.1 μ F
C522	24539104	PF, 0.1 μ F
C523	24539104	PF, 0.1 μ F
C524	24794101	EL, 100 μ F, \pm 20%, 16V
C525	24232103	CD, 0.01 μ F, +80%, -20%
C526	24591222	PF, 2200pF
C527	24353090	CD, 9pF, \pm 0.25pF, CH
C528	24073078	EL, 0.22 μ F, \pm 20%, 50V
C610	24794100	EL, 10 μ F, \pm 20%, 16V
C612	24794470	EL, 47 μ F, \pm 20%, 16V
C615	24232103	CD, 0.01 μ F, +80%, -20%
C620	24794100	EL, 10 μ F, \pm 20%, 16V
C621	24797229	EL, 2.2 μ F, \pm 20%, 50V (21D7DXE)
C621	24539223	PF, 0.022 μ F (21D7SXH)
C622	24797229	EL, 2.2 μ F, \pm 20%, 50V (21D7DXE)
C622	24539223	PF, 0.022 μ F (21D7SXH)
C623	24232103	CD, 0.01 μ F, +80%, -20%
C624	24797478	EL, 0.47 μ F, \pm 20%, 50V
C631	24797229	EL, 2.2 μ F, \pm 20%, 50V
C651	24591102	PF, 1000pF
C652	24591102	PF, 1000pF
C653	24797229	EL, 2.2 μ F, \pm 20%, 50V
C654	24797229	EL, 2.2 μ F, \pm 20%, 50V
C655	24797229	EL, 2.2 μ F, \pm 20%, 50V
C661	24591102	PF, 1000pF
C662	24591102	PF, 1000pF
C663	24794100	EL, 10 μ F, \pm 20%, 16V
C664	24539473	PF, 0.047 μ F (21D7DXE)
C664	24539223	PF, 0.022 μ F (21D7SXH)
C665	24539473	PF, 0.047 μ F
C670	24794100	EL, 10 μ F, \pm 20%, 16V (21D7DXE)
C673	24669229	EL, 2.2 μ F, \pm 20%, 50V
C674	24539104	PF, 0.1 μ F
C675	24539104	PF, 0.1 μ F
C676	24539104	PF, 0.1 μ F
C677	24539104	PF, 0.1 μ F
C678	24669229	EL, 2.2 μ F, \pm 20%, 50V
C679	24797229	EL, 2.2 μ F, \pm 20%, 50V
C680	24669101	EL, 100 μ F, \pm 20%, 50V
C681	24668102	EL, 1000 μ F, \pm 20%, 35V
C682	24669221	EL, 220 μ F, \pm 20%, 50V
C683	24668102	EL, 1000 μ F, \pm 20%, 35V
C684	24669221	EL, 220 μ F, \pm 20%, 50V
C685	24668102	EL, 1000 μ F, \pm 20%, 35V
C686	24668102	EL, 1000 μ F, \pm 20%, 35V
C690	24669101	EL, 100 μ F, \pm 20%, 50V
C691	24232103	CD, 0.01 μ F, +80%, -20%
C692	24232103	CD, 0.01 μ F, +80%, -20%
C693	24794101	EL, 100 μ F, \pm 20%, 16V
C704	24591822	PF, 8200pF
C705	24232103	CD, 0.01 μ F, +80%, -20%
C707	24795470	EL, 47 μ F, \pm 20%, 25V
C712	24795470	EL, 47 μ F, \pm 20%, 25V
C713	24790100	EL, 10 μ F, \pm 20%, 160V
C714	24436101	CD, 100pF
C715	24214472	CD, 4700pF, \pm 10%, 500V
C716	24436101	CD, 100pF
C717	24214472	CD, 4700pF, \pm 10%, 500V
C718	24794470	EL, 47 μ F, \pm 20%, 16V
C719	24435560	CD, 56pF, 500V
C720	24790100	EL, 10 μ F, \pm 20%, 160V

Location No.	Part No.	Description
C721	24794470	EL, 47 μ F, \pm 20%, 16V
C722	24436561	CD, 560pF
Δ C801	24503002	PF, 0.22 μ F, \pm 20%, AC275V
C802	24503002	PF, 0.22 μ F, \pm 20%, AC275V
Δ C805	24092281	CD, 4700pF, \pm 20%, AC250V
Δ C806	24092281	CD, 4700pF, \pm 20%, AC250V
C808	24795331	EL, 330 μ F, \pm 20%, 25V
C810	24086857	EL, 560 μ F, \pm 20%, 400V
Δ C813	24092567	CD, 470pF, \pm 10%, AC250V
Δ C814	24092567	CD, 470pF, \pm 10%, AC250V
C817	24092339	CD, 330pF, \pm 10%, 2kV
C818	24095931	PF, 2200pF, 1250V
C819	24676220	EL, 22 μ F, \pm 20%, 100V
C821	24214471	CD, 470pF, \pm 10%, 500V
C822	24539474	PF, 0.47 μ F
C823	24214471	CD, 470pF, \pm 10%, 500V
C829	24591272	PF, 2700pF
C831	24794470	EL, 47 μ F, \pm 20%, 16V
C833	24797229	EL, 2.2 μ F, \pm 20%, 50V
C841	24797100	EL, 10 μ F, \pm 20%, 50V
C842	24794100	EL, 10 μ F, \pm 20%, 16V
C843	24591104	PF, 0.1 μ F
C846	24539224	PF, 0.22 μ F
C883	24539474	PF, 0.47 μ F
C884	24086916	EL, 330 μ F, \pm 20%, 160V
C885	24214471	CD, 470pF, \pm 10%, 500V
C887	24214471	CD, 470pF, \pm 10%, 500V
C889	24668222	EL, 2200 μ F, \pm 20%, 35V
C893	24092474	CD, 220pF, \pm 10%, 2kV
C895	24676470	EL, 47 μ F, \pm 20%, 100V
C898	24591272	PF, 2700pF
C902	24092345	CD, 1000pF, \pm 10%, 2kV
C904	24436681	CD, 680pF
C905	24436681	CD, 680pF
C907	24436681	CD, 680pF
C909	24679220	EL, 22 μ F, \pm 20%, 250V
C910	24797478	EL, 0.47 μ F, \pm 20%, 50V
C912	24794331	EL, 330 μ F, \pm 20%, 16V
C913	24794220	EL, 22 μ F, \pm 20%, 16V
C914	24212103	CD, 0.01 μ F, \pm 10%
C930	24214101	CD, 100pF, \pm 10%, 500V
C931	24214101	CD, 100pF, \pm 10%, 500V
C971	24203220	EL, 22 μ F, \pm 20%, 16V
CA22	24473150	CD, 15pF
CA23	24473150	CD, 15pF
CA24	24473150	CD, 15pF
CA25	24473150	CD, 15pF
CA28	24212101	CD, 100pF, \pm 10%
CA29	24212101	CD, 100pF, \pm 10%
CA33	24232103	CD, 0.01 μ F, +80%, -20%
CA34	24212101	CD, 100pF, \pm 10%
CA37	24212101	CD, 100pF, \pm 10%
CA38	24212101	CD, 100pF, \pm 10%
CA42	24794100	EL, 10 μ F, \pm 20%, 16V
CA43	24232103	CD, 0.01 μ F, +80%, -20%
CA44	24232103	CD, 0.01 μ F, +80%, -20%
CA68	24794100	EL, 10 μ F, \pm 20%, 16V
CA69	24232103	CD, 0.01 μ F, +80%, -20%
CA70	24212472	CD, 4700pF, \pm 10%
CA71	24212561	CD, 560pF, \pm 10%
CA72	24794331	EL, 330 μ F, \pm 20%, 16V
CA73	24474181	CD, 180pF, \pm 10%
CA74	24797010	EL, 1 μ F, \pm 20%, 50V
CB01	24794470	EL, 47 μ F, \pm 20%, 16V

Location No.	Part No.	Description
CB20	24212101	CD, 100pF, ±10%
CB21	24212221	CD, 220pF, ±10%
CC01	24232103	CD, 0.01μF, +80%, -20%
CC14	24232103	CD, 0.01μF, +80%, -20%
CC15	24232103	CD, 0.01μF, +80%, -20%
CC18	24232103	CD, 0.01μF, +80%, -20%
CC19	24232103	CD, 0.01μF, +80%, -20%
CG01	24539124	PF, 0.12μF
CG02	24539104	PF, 0.1μF
CG03	24539823	PF, 0.082μF
CG04	24797010	EL, 1μF, ±20%, 50V
CG05	24794220	EL, 22μF, ±20%, 16V
CG07	24797010	EL, 1μF, ±20%, 50V
CG08	24797010	EL, 1μF, ±20%, 50V
CG09	24797010	EL, 1μF, ±20%, 50V
CG12	24539273	PF, 0.027μF
CG13	24232103	CD, 0.01μF, +80%, -20%
CG14	24794101	EL, 100μF, ±20%, 16V
CG15	24591822	PF, 8200pF
CG16	24797010	EL, 1μF, ±20%, 50V
CG17	24539273	PF, 0.027μF
CG18	24591822	PF, 8200pF
CG24	24797100	EL, 10μF, ±20%, 50V
CG25	24212102	CD, 1000pF, ±10%
CG26	24085942	EL, 10μF, ±20%, 16V, Non-Polar
CG27	24797229	EL, 2.2μF, ±20%, 50V
CG28	24797229	EL, 2.2μF, ±20%, 50V
CN01	24232103	CD, 0.01μF, +80%, -20%
CN02	24797101	EL, 100μF, ±20%, 50V
CN03	24797470	EL, 47μF, ±20%, 50V
CN07	24797100	EL, 10μF, ±20%, 50V
CN08	24232103	CD, 0.01μF, +80%, -20%
CN09	24797100	EL, 10μF, ±20%, 50V
CN10	24797100	EL, 10μF, ±20%, 50V
CN12	24232103	CD, 0.01μF, +80%, -20%
CN13	24232103	CD, 0.01μF, +80%, -20%
CN15	24085961	EL, 10μF, ±20%, 50V, Non-Polar
CN16	24085961	EL, 10μF, ±20%, 50V, Non-Polar
CN17	24232103	CD, 0.01μF, +80%, -20%
CN18	24797470	EL, 47μF, ±20%, 50V
CN19	24797101	EL, 100μF, ±20%, 50V
CS02	24797010	EL, 1μF, ±20%, 50V
CS03	24797010	EL, 1μF, ±20%, 50V
CS04	24797010	EL, 1μF, ±20%, 50V
CS05	24797010	EL, 1μF, ±20%, 50V
CS06	24797010	EL, 1μF, ±20%, 50V
CS07	24797010	EL, 1μF, ±20%, 50V
CS10	24794100	EL, 10μF, ±20%, 16V
CS11	24794100	EL, 10μF, ±20%, 16V
CS12	24797010	EL, 1μF, ±20%, 50V
CS13	24797010	EL, 1μF, ±20%, 50V
CS15	24232103	CD, 0.01μF, +80%, -20%
CS29	24203220	EL, 22μF, ±20%, 16V
CT01	24794221	EL, 220μF, ±20%, 16V (21D7DXE)
CT02	24232103	CD, 0.01μF, +80%, -20% (21D7DXE)
CT03	24232103	CD, 0.01μF, +80%, -20% (21D7DXE)
CT04	24794101	EL, 100μF, ±20%, 16V (21D7DXE)

Location No.	Part No.	Description
CT05	24591104	PF, 0.1μF (21D7DXE)
CT06	24794470	EL, 47μF, ±20%, 16V (21D7DXE)
CT07	24794100	EL, 10μF, ±20%, 16V (21D7DXE)
CT08	24353560	CD, 56pF, CH (21D7DXE)
CT09	24353560	CD, 56pF, CH (21D7DXE)
CT10	24794470	EL, 47μF, ±20%, 16V (21D7DXE)
CT11	24591104	PF, 0.1μF (21D7DXE)
CT12	24794470	EL, 47μF, ±20%, 16V (21D7DXE)
CT13	24591104	PF, 0.1μF (21D7DXE)
CT14	24591104	PF, 0.1μF (21D7DXE)
CT16	24353220	CD, 22pF, CH (21D7DXE)
CT17	24591104	PF, 0.1μF (21D7DXE)
CT20	24232103	CD, 0.01μF, +80%, -20% (21D7DXE)
CV01	24794101	EL, 100μF, ±20%, 16V
CV02	24539103	PF, 0.01μF
CV03	24085942	EL, 10μF, ±20%, 16V, Non-Polar
CV19	24794100	EL, 10μF, ±20%, 16V
CV20	24794100	EL, 10μF, ±20%, 16V
CV22	24794100	EL, 10μF, ±20%, 16V
CV30	24085942	EL, 10μF, ±20%, 16V, Non-Polar
CV32	24232103	CD, 0.01μF, +80%, -20%
CV33	24232103	CD, 0.01μF, +80%, -20%
CV34	24762471	EL, 470μF, ±20%, 10V
CV36	24794221	EL, 220μF, ±20%, 16V
CV39	24794100	EL, 10μF, ±20%, 16V
CZ01	24797478	EL, 0.47μF, ±20%, 50V
CZ02	24794101	EL, 100μF, ±20%, 16V
CZ03	24092398	CD, 0.1μF, +80%, -20%, 25V
CZ04	24232103	CD, 0.01μF, +80%, -20%
CZ05	24232103	CD, 0.01μF, +80%, -20%
CZ06	24232103	CD, 0.01μF, +80%, -20%
CZ07	24794101	EL, 100μF, ±20%, 16V
CZ08	24092398	CD, 0.1μF, +80%, -20%, 25V
CZ09	24591103	PF, 0.01μF
CZ10	24473150	CD, 15pF
CZ11	24591103	PF, 0.01μF
CZ12	24474181	CD, 180pF, ±10%
CZ13	24232103	CD, 0.01μF, +80%, -20%
CZ14	24232103	CD, 0.01μF, +80%, -20%
CZ15	24473390	CD, 39pF
CZ16	24473560	CD, 56pF
CZ17	24092398	CD, 0.1μF, +80%, -20%, 25V
CZ18	24473680	CD, 68pF
CZ20	24794330	EL, 33μF, ±20%, 16V
RESISTORS		
R101	24382183	OMF, 18k ohm, 1W
R102	24366122	CF, 1200 ohm
R118	24366683	CF, 68k ohm
R119	24366104	CF, 100k ohm
R216	24366184	CF, 180k ohm
R217	24367682	CF, 6800 ohm, ±2%
R218	24366104	CF, 100k ohm
R220	24366101	CF, 100 ohm
R221	24366222	CF, 2200 ohm
R222	24366103	CF, 10k ohm
R228	24366271	CF, 270 ohm

Location No.	Part No.	Description
R228	24367622	CF, 6200 ohm, $\pm 2\%$
R229	24366271	CF, 270 ohm
R230	24366271	CF, 270 ohm
R233	24366100	CF, 10 ohm
R234	24366394	CF, 390k ohm
R271	24366101	CF, 100 ohm
R272	24366103	CF, 10k ohm
R273	24366272	CF, 2700 ohm
R301	24366471	CF, 470 ohm
R303	24366683	CF, 68k ohm
R304	24366104	CF, 100k ohm
R305	24322159	MF, 1.5 ohm, 1W
R306	24366683	CF, 68k ohm
R307	24366684	CF, 680k ohm
R308	24366471	CF, 470 ohm
R312	24552272	OMF, 2700 ohm, 1/2W
R314	24366103	CF, 10k ohm (21D7DXE)
R314	24366105	CF, 1M ohm
R315	24366824	CF, 820k ohm
R316	24366154	CF, 150k ohm
R317	24366222	CF, 2200 ohm (21D7DXE)
R318	24366222	CF, 2200 ohm (21D7DXE)
R319	24366222	CF, 2200 ohm (21D7DXE)
R327	24321109	MF, 1 ohm, 1/2W
R328	24338159	MF, 1.5 ohm, 1W
R330	24366471	CF, 470 ohm
R331	24366104	CF, 100k ohm
R333	24366471	CF, 470 ohm
R336	24383271	OMF, 270 ohm, 2W
R341	24366182	CF, 1800 ohm
R342	24366562	CF, 5600 ohm
R343	24310159	MF, 1.5 ohm, 1/2W
R344	24366392	CF, 3900 ohm
R349	24366473	CF, 47k ohm
R363	24552181	OMF, 180 ohm, 1/2W
R365	24552822	OMF, 8200 ohm, 1/2W (21D7DXE)
R402	24366103	CF, 10k ohm
R403	24366822	CF, 8200 ohm
R411	24366561	CF, 560 ohm
R413	24366271	CF, 270 ohm
R415	24553222	OMF, 2200 ohm, 1W
R416	24019330	OMF, 3600 ohm, 5W
R423	24366471	CF, 470 ohm
R425	24381471	OMF, 470 ohm, 1/2W
R426	24366153	CF, 15k ohm
R427	24366152	CF, 1500 ohm
R429	24366560	CF, 56 ohm
R430	24366103	CF, 10k ohm
R432	24531560	FR, 56 ohm, 1/2W
R434	24552271	OMF, 270 ohm, 1/2W
R435	24366561	CF, 560 ohm
R436	24366751	CF, 750 ohm
R437	24366392	CF, 3900 ohm
R439	24366102	CF, 1k ohm
R441	24532102	FR, 1k ohm, 1W
R442	24366333	CF, 33k ohm
R443	24366563	CF, 56k ohm
R444	24366563	CF, 56k ohm
R445	24366563	CF, 56k ohm
R447	24382472	OMF, 4700 ohm, 1W
R448	24338398	MF, 0.39 ohm, 1W
R451	24366123	CF, 12k ohm
R452	24366103	CF, 10k ohm

Location No.	Part No.	Description
R453	24366103	CF, 10k ohm
R454	24366102	CF, 1k ohm
R455	24366222	CF, 2200 ohm
R456	24366101	CF, 100 ohm
R457	24366123	CF, 12k ohm
R458	24366222	CF, 2200 ohm
R459	24366103	CF, 10k ohm
R460	24376332	CF, 3300 ohm, 1/2W
R461	24366183	CF, 18k ohm
R462	24376182	CF, 1800 ohm, 1/2W
R463	24546689	FR, 6.8 ohm, 1/2W
R464	24366562	CF, 5600 ohm
R466	24366332	CF, 3300 ohm
R468	24366563	CF, 56k ohm
R469	24366224	CF, 220k ohm
R470	24338828	MF, 0.82 ohm, 1W
R471	24531271	FR, 270 ohm, 1/2W
R477	24366101	CF, 100 ohm
R478	24366223	CF, 22k ohm
R480	24366561	CF, 560 ohm
R483	24366563	CF, 56k ohm
R484	24366561	CF, 560 ohm
R485	24366561	CF, 560 ohm
R486	24366103	CF, 10k ohm
R489	24366104	CF, 100k ohm
R499	24366224	CF, 220k ohm
R501	24366102	CF, 1k ohm
R502	24366102	CF, 1k ohm
R511	24000527	MF, 5600 ohm, 1/4W
R520	24366222	CF, 2200 ohm (21D7DXE)
R521	24366222	CF, 2200 ohm (21D7DXE)
R522	24366222	CF, 2200 ohm (21D7DXE)
R523	24366303	CF, 30k ohm
R525	24366103	CF, 10k ohm (21D7DXE)
R610	24366273	CF, 27k ohm
R612	24366103	CF, 10k ohm
R623	24366103	CF, 10k ohm
R624	24366104	CF, 100k ohm
R631	24366103	CF, 10k ohm
R632	24366103	CF, 10k ohm
R633	24366104	CF, 100k ohm
R643	24552331	OMF, 330 ohm, 1/2W
R644	24552331	OMF, 330 ohm, 1/2W
R650	24366333	CF, 33k ohm
R651	24366333	CF, 33k ohm
R652	24366562	CF, 5600 ohm (21D7DXE)
R652	24366103	CF, 10k ohm (21D7SXH)
R653	24366562	CF, 5600 ohm (21D7DXE)
R653	24366103	CF, 10k ohm (21D7SXH)
R654	24366122	CF, 1200 ohm (21D7DXE)
R654	24366222	CF, 2200 ohm (21D7SXH)
R655	24366122	CF, 1200 ohm (21D7DXE)
R655	24366222	CF, 2200 ohm (21D7SXH)
R661	24366122	CF, 1200 ohm (21D7DXE)
R661	24366222	CF, 2200 ohm (21D7SXH)
R662	24366122	CF, 1200 ohm (21D7DXE)
R662	24366222	CF, 2200 ohm (21D7SXH)
R663	24366333	CF, 33k ohm
R664	24366333	CF, 33k ohm
R665	24366562	CF, 5600 ohm (21D7DXE)
R666	24366562	CF, 5600 ohm (21D7DXE)
R667	24366104	CF, 100k ohm
R668	24366103	CF, 10k ohm
R669	24366103	CF, 10k ohm

Location No.	Part No.	Description
R670	24366103	CF, 10k ohm
R673	24366103	CF, 10k ohm
R674	24366229	CF, 2.2 ohm
R675	24366229	CF, 2.2 ohm
R676	24366229	CF, 2.2 ohm
R677	24366229	CF, 2.2 ohm
R702	24366821	CF, 820 ohm
R715	24366273	CF, 27k ohm
R716	24366273	CF, 27k ohm
R717	24366333	CF, 33k ohm
R721	24366102	CF, 1k ohm
R722	24552471	OMF, 470 ohm, 1/2W
R723	24366101	CF, 100 ohm
R724	24366121	CF, 120 ohm
R725	24366182	CF, 1800 ohm
R730	24552100	OMF, 10 ohm, 1/2W
R731	24552331	OMF, 330 ohm, 1/2W
R732	24366820	CF, 82 ohm
R733	24366683	CF, 68k ohm
R734	24366820	CF, 82 ohm
R735	24366683	CF, 68k ohm
R736	24366620	CF, 62 ohm
R737	24366152	CF, 1500 ohm
R738	24366102	CF, 1k ohm
R739	24366152	CF, 1500 ohm
R740	24366620	CF, 62 ohm
R741	24366279	CF, 2.7 ohm
R742	24366279	CF, 2.7 ohm
R743	24554221	OMF, 220 ohm, 2W
R744	24366122	CF, 1200 ohm
R745	24366122	CF, 1200 ohm
R760	24366101	CF, 100 ohm
R775	24366182	CF, 1800 ohm
△R801	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
R802	24383123	OMF, 12k ohm, 2W
R803	24383123	OMF, 12k ohm, 2W
R804	24366334	CF, 330k ohm
R805	24366681	CF, 680 ohm
R807	24366334	CF, 330k ohm
R808	24019476	PTC Thermistor, 18 ohm, AC290V
R809	24366393	CF, 39k ohm
R810	24007737	Cement, 2.2 ohm, 15W
R811	24568271	Cement, 270 ohm, 7W
R814	24366682	CF, 6800 ohm
R815	24366332	CF, 3300 ohm
R818	24019461	MF, 0.15 ohm, 2W
R819	24310399	MF, 3.9 ohm, 1/2W
R820	24366101	CF, 100 ohm
R822	24552103	OMF, 10k ohm, 1/2W
R823	24552392	OMF, 3900 ohm, 1/2W
R824	24569689	Cement, 6.8 ohm, 10W
R827	24366472	CF, 4700 ohm
R828	24366222	CF, 2200 ohm
R829	24321399	MF, 3.9 ohm, 1/2W
R830	24338229	MF, 0.22 ohm, 1W
R831	24366331	CF, 330 ohm
R841	24531120	FR, 12 ohm, 1/2W
R842	24552472	OMF, 4700 ohm, 1/2W
R846	24366101	CF, 100 ohm
R847	24366472	CF, 4700 ohm
R880	24366471	CF, 470 ohm
R881	24366561	CF, 560 ohm

Location No.	Part No.	Description
R890	24553333	OMF, 33k ohm, 1W
△R899	24005015	Metal-Glazed Resistor, 8.2M ohm, 1W
R901	24376102	CF, 1k ohm, 1/2W
R902	24376102	CF, 1k ohm, 1/2W
R903	24376102	CF, 1k ohm, 1/2W
R904	24366472	CF, 4700 ohm
R905	24366150	CF, 15 ohm
R912	24366561	CF, 560 ohm
R914	24366561	CF, 560 ohm
R915	24366121	CF, 120 ohm
R916	24366181	CF, 180 ohm
R917	24366821	CF, 820 ohm
R918	24366270	CF, 27 ohm
R919	24366561	CF, 560 ohm
R920	24000568	FR, 4.7 ohm, 1W
R921	24366561	CF, 560 ohm
R922	24366121	CF, 120 ohm
R924	24366270	CF, 27 ohm
R925	24366821	CF, 820 ohm
R926	24366561	CF, 560 ohm
R928	24366561	CF, 560 ohm
R929	24366121	CF, 120 ohm
R930	24366270	CF, 27 ohm
R932	24366102	CF, 1k ohm
R934	24366561	CF, 560 ohm
R935	24366272	CF, 2700 ohm
R936	24545150	FR, 15 ohm, 1/4W
R937	24366821	CF, 820 ohm
R942	24366562	CF, 5600 ohm
R943	24366562	CF, 5600 ohm
R944	24366562	CF, 5600 ohm
R945	24366181	CF, 180 ohm
R946	24366181	CF, 180 ohm
R960	24383153	OMF, 15k ohm, 2W
R961	24383153	OMF, 15k ohm, 2W
R962	24383153	OMF, 15k ohm, 2W
R977	24366122	CF, 1200 ohm
R992	24366150	CF, 15 ohm
RA04	24366102	CF, 1k ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA11	24366102	CF, 1k ohm
RA12	24366102	CF, 1k ohm
RA13	24366102	CF, 1k ohm
RA14	24366752	CF, 7500 ohm
RA15	24366753	CF, 75k ohm (21D7DXE)
RA15	24366433	CF, 43k ohm (21D7SXH)
RA16	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA22	24366472	CF, 4700 ohm
RA23	24366472	CF, 4700 ohm
RA24	24366472	CF, 4700 ohm
RA25	24366152	CF, 1500 ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA28	24366331	CF, 330 ohm
RA29	24366331	CF, 330 ohm
RA31	24366101	CF, 100 ohm
RA32	24366101	CF, 100 ohm
RA33	24366103	CF, 10k ohm
RA34	24366103	CF, 10k ohm
RA35	24366102	CF, 1k ohm

Location No.	Part No.	Description
RA37	24366331	CF, 330 ohm
RA38	24366331	CF, 330 ohm
RA39	24366472	CF, 4700 ohm (21D7DXE)
RA39	24366272	CF, 2700 ohm (21D7SXH)
RA40	24366472	CF, 4700 ohm (21D7DXE)
RA40	24366102	CF, 1k ohm (21D7SXH)
RA41	24366472	CF, 4700 ohm (21D7DXE)
RA41	24366102	CF, 1k ohm (21D7SXH)
RA42	24366472	CF, 4700 ohm (21D7DXE)
RA42	24366102	CF, 1k ohm (21D7SXH)
RA61	24366103	CF, 10k ohm
RA62	24366103	CF, 10k ohm
RA64	24366333	CF, 33k ohm
RA65	24366333	CF, 33k ohm
RA66	24366103	CF, 10k ohm
RA67	24366103	CF, 10k ohm
RA68	24366103	CF, 10k ohm
RA69	24366103	CF, 10k ohm
RA70	24366333	CF, 33k ohm
RA71	24366683	CF, 68k ohm
RA72	24366223	CF, 22k ohm
RA73	24366103	CF, 10k ohm
RA74	24366223	CF, 22k ohm
RA75	24366392	CF, 3900 ohm
RA76	24366392	CF, 3900 ohm
RA77	24366123	CF, 12k ohm
RA78	24366333	CF, 33k ohm
RA79	24366471	CF, 470 ohm
RA80	24366564	CF, 560k ohm
RA81	24366101	CF, 100 ohm
RA82	24366222	CF, 2200 ohm
RA87	24366102	CF, 1k ohm
RB01	24366271	CF, 270 ohm
RB02	24366221	CF, 220 ohm
RB09	24366470	CF, 47 ohm
RB11	24366103	CF, 10k ohm
RB12	24366223	CF, 22k ohm
RB20	24366823	CF, 82k ohm
RB22	24366272	CF, 2700 ohm
RB26	24366472	CF, 4700 ohm
RB27	24366103	CF, 10k ohm
RB28	24366104	CF, 100k ohm
RB30	24366103	CF, 10k ohm
RB43	24366103	CF, 10k ohm
RB44	24366562	CF, 5600 ohm
RB45	24366102	CF, 1k ohm
RB46	24366331	CF, 330 ohm
RB47	24366221	CF, 220 ohm
RG01	24366223	CF, 22k ohm
RG02	24366223	CF, 22k ohm
RG03	24366101	CF, 100 ohm
RG04	24366101	CF, 100 ohm
RG05	24366101	CF, 100 ohm
RG07	24366101	CF, 100 ohm
RG08	24366101	CF, 100 ohm
RG09	24366103	CF, 10k ohm
RG10	24366103	CF, 10k ohm
RG11	24366103	CF, 10k ohm
RG12	24366103	CF, 10k ohm
RN01	24366103	CF, 10k ohm
RN02	24366103	CF, 10k ohm
RN03	24366183	CF, 18k ohm
RN04	24367153	CF, 15k ohm, $\pm 2\%$
RN05	24367152	CF, 1500 ohm, $\pm 2\%$

Location No.	Part No.	Description
RN06	24366103	CF, 10k ohm
RN07	24366183	CF, 18k ohm
RN10	24366104	CF, 100k ohm
RN11	24366392	CF, 3900 ohm
RN12	24366152	CF, 1500 ohm
RN13	24366182	CF, 1800 ohm
RN14	24366392	CF, 3900 ohm
RN15	24366152	CF, 1500 ohm
RN16	24366182	CF, 1800 ohm
RN19	24366822	CF, 8200 ohm
RN20	24366101	CF, 100 ohm
RN21	24366102	CF, 1k ohm
RN23	24366102	CF, 1k ohm
RN24	24366822	CF, 8200 ohm
RN25	24366101	CF, 100 ohm
RN31	24366333	CF, 33k ohm
RN32	24366333	CF, 33k ohm
RN33	24366332	CF, 3300 ohm
RN34	24366332	CF, 3300 ohm
RS01	24366103	CF, 10k ohm
RS02	24366104	CF, 100k ohm
RS03	24366103	CF, 10k ohm
RS04	24366104	CF, 100k ohm
RS10	24366472	CF, 4700 ohm
RS11	24366472	CF, 4700 ohm
RS14	24366101	CF, 100 ohm
RS15	24366101	CF, 100 ohm
RS17	24366472	CF, 4700 ohm
RS18	24366472	CF, 4700 ohm
RS19	24366101	CF, 100 ohm
RS20	24366222	CF, 2200 ohm
RS21	24366101	CF, 100 ohm
RS22	24366222	CF, 2200 ohm
RS23	24366102	CF, 1k ohm
RS24	24366102	CF, 1k ohm
RS27	24366561	CF, 560 ohm
RS30	24366104	CF, 100k ohm
RS31	24366104	CF, 100k ohm
RT01	24366101	CF, 100 ohm (21D7DXE)
RT02	24366101	CF, 100 ohm (21D7DXE)
RT03	24366102	CF, 1k ohm (21D7DXE)
RT04	24366102	CF, 1k ohm (21D7DXE)
RT05	24366100	CF, 10 ohm (21D7DXE)
RT13	24366102	CF, 1k ohm (21D7DXE)
RT14	24366222	CF, 2200 ohm (21D7DXE)
RT15	24366333	CF, 33k ohm (21D7DXE)
RT16	24366103	CF, 10k ohm (21D7DXE)
RT17	24366561	CF, 560 ohm (21D7DXE)
RT18	24366152	CF, 1500 ohm (21D7DXE)
RT19	24366122	CF, 1200 ohm (21D7DXE)
RT27	24367243	CF, 24k ohm, $\pm 2\%$ (21D7DXE)
RT28	24366101	CF, 100 ohm (21D7DXE)
RT30	24366472	CF, 4700 ohm (21D7DXE)
RT31	24366472	CF, 4700 ohm (21D7DXE)
RT32	24366472	CF, 4700 ohm (21D7DXE)
RT33	24366472	CF, 4700 ohm (21D7DXE)
RT34	24366472	CF, 4700 ohm (21D7DXE)
RT38	24366151	CF, 150 ohm (21D7DXE)
RT39	24366102	CF, 1k ohm (21D7DXE)
RT40	24366151	CF, 150 ohm (21D7DXE)
RT43	24366151	CF, 150 ohm (21D7DXE)
RT46	24366332	CF, 3300 ohm (21D7DXE)
RT47	24366332	CF, 3300 ohm (21D7DXE)
RT48	24366332	CF, 3300 ohm (21D7DXE)

Location No.	Part No.	Description
RV01	24366103	CF, 10k ohm
RV03	24366820	CF, 82 ohm
RV10	24366101	CF, 100 ohm
RV11	24366472	CF, 4700 ohm
RV12	24366101	CF, 100 ohm
RV13	24366472	CF, 4700 ohm
RV15	24366101	CF, 100 ohm
RV17	24366820	CF, 82 ohm
RV18	24366102	CF, 1k ohm
RV19	24366102	CF, 1k ohm
RV20	24366222	CF, 2200 ohm
RV21	24366181	CF, 180 ohm
RV24	24552101	OMF, 100 ohm, 1/2W
RV25	24366750	CF, 75 ohm
RV26	24366101	CF, 100 ohm
RV31	24366820	CF, 82 ohm
RV32	24366101	CF, 100 ohm
RV33	24366750	CF, 75 ohm
RV34	24366750	CF, 75 ohm
RV35	24366103	CF, 10k ohm
RV90	24366101	CF, 100 ohm
RV91	24366101	CF, 100 ohm
RZ01	24366101	CF, 100 ohm
RZ02	24366101	CF, 100 ohm
RZ03	24366102	CF, 1k ohm
RZ04	24366102	CF, 1k ohm
RZ05	24366821	CF, 820 ohm
RZ07	24366751	CF, 750 ohm
RZ08	24366102	CF, 1k ohm
RZ09	24366102	CF, 1k ohm
COILS & TRANSFORMERS		
L101	23238506	Coil, Peaking, TRF4229AJ
L102	23238506	Coil, Peaking, TRF4229AJ
L301	23103894	Coil (Ferrite Bead), TEM2011AW
L430	23289470	Coil, Peaking, TRF4470AF
L432	23289229	Coil, Peaking, TRF42R2AF
L461	23248238	Coil, Choke, TLN3335AF
L463	23103894	Coil (Ferrite Bead), TEM2011AW
L502	23103852	Coil, Filter, TEM2028AH
L503	23103852	Coil, Filter, TEM2028AH
L511	23289100	Coil, Peaking, TRF4100AF
L525	23289100	Coil, Peaking, TRF4100AF
L702	23261974	Coil, Choke, HC5-035
L704	23103894	Coil (Ferrite Bead), TEM2011AW
L705	23103894	Coil (Ferrite Bead), TEM2011AW
L811	23103894	Coil (Ferrite Bead), TEM2011AW
L883	23221747	Coil, Choke, TRF9253D
L885	23248073	Coil, Choke, TLN3299D
L886	23103894	Coil (Ferrite Bead), TEM2011AW
L889	23280016	Coil, Peaking, TRF4100AZ
L896	23103894	Coil (Ferrite Bead), TEM2011AW
△L901	23200316	Coil, Degaussing, TSB-2301AL
L902	23289221	Coil, Peaking, TRF4221AF
L903	23289221	Coil, Peaking, TRF4221AF
L904	23289221	Coil, Peaking, TRF4221AF
L905	23289390	Coil, Peaking, TRF4390AF

Location No.	Part No.	Description
L906	23289390	Coil, Peaking, TRF4390AF
L907	23289390	Coil, Peaking, TRF4390AF
LA01	23289100	Coil, Peaking, TRF4100AF
LT01	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LT02	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LT03	23289229	Coil, Peaking, TRF42R2AF (21D7DXE)
LT04	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LT05	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LT07	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LT08	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LT09	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LT10	23238506	Coil, Peaking, TRF4229AJ (21D7DXE)
LZ01	23289330	Coil, Peaking, TRF4330AF
LZ02	23103894	Coil (Ferrite Bead), TEM2011AW
LZ03	23289100	Coil, Peaking, TRF4100AF
LZ04	23103894	Coil (Ferrite Bead), TEM2011AW
LZ05	23289150	Coil, Peaking, TRF4150AF
LZ06	23289100	Coil, Peaking, TRF4100AF
LZ07	23289229	Coil, Peaking, TRF42R2AF
T401	23224983	Transformer, Horiz. Drive, TLN1039
△T461Z	23236612	Transformer, Flyback, TFB4159ZD
△T801	23211731	Line Filter, TRF3164AC
T802	23211732	Line Filter, TRF3202AC
△T862	23217474	Transformer, Converter, TPW3452AE
SEMICONDUCTORS		
Q220	23314962	Transistor, KTA1266 Y
Q271	23314965	Transistor, KTC3198 Y
Q301	B0377890	IC, TA8403K
Q301B	70391355	Screw, BITTB3X8 SZN
Q310	A6002020	Transistor, RN1202 (21D7DXE)
Q311	A6002040	Transistor, RN1202 (21D7DXE)
Q317	23314962	Transistor, KTA1266 Y (21D7DXE)
Q318	23314962	Transistor, KTA1266 Y (21D7DXE)
Q319	23314962	Transistor, KTA1266 Y (21D7DXE)
Q340	23314962	Transistor, KTA1266 Y
Q402	A6330069	Transistor, 2CS2482 FA-1
Q404	A6873527	Transistor, 2SD2499
Q404B	72471082	Screw, BRDT2W3X10 SZN
Q420	23314141	Transistor, 2SC3852
Q420B	70391355	Screw, BITTB3X8 SZN
Q422	23314965	Transistor, KTC3198 Y
Q423	23314965	Transistor, KTC3198 Y
Q424	23314965	Transistor, KTC3198 Y
Q430	23314141	Transistor, 2SC3852
Q430B	70391355	Screw, BITTB3X8 SZN
Q431	23314965	Transistor, KTC3198 Y

Location No.	Part No.	Description
Q451	23314965	Transistor, KTC3198 Y
Q452	23314965	Transistor, KTC3198 Y
Q453	23314965	Transistor, KTC3198 Y
Q460	23314141	Transistor, 2SC3852
Q460B	70391355	Screw, BITTB3X8 SZN
Q461	23314962	Transistor, KTA1266 Y
Q462	23314962	Transistor, KTA1266 Y
Q463	23314962	Transistor, KTA1266 Y
Q464	23314965	Transistor, KTC3198 Y
Q465	23314965	Transistor, KTC3198 Y
Q606	A6342200	Transistor, 2CS2878-A
Q607	A6342200	Transistor, 2CS2878-A
Q608	A6342200	Transistor, 2CS2878-A
Q609	A6342200	Transistor, 2CS2878-A
Q610	23906582	IC, AN5277
Q610C	70391355	Screw, BITTB3X8 SZN
Q611	23906582	IC, AN5277
Q611C	70391355	Screw, BITTB3X8 SZN
Q612	23314962	Transistor, KTA1266 Y
Q623	A6010040	Transistor, RN2004
Q631	23314962	Transistor, KTA1266 Y
Q706	23314965	Transistor, KTC3198 Y
Q707	A6734590	Transistor, 2SC752(G)TM-Y
Q709	23314965	Transistor, KTC3198 Y
Q710	23314962	Transistor, KTA1266 Y
Q711	23314911	Transistor, 2SB1569A E
Q712	23314914	Transistor, 2SD2400A E
Q719	23314965	Transistor, KTC3198 Y
Q773	23314965	Transistor, KTC3198 Y
Q801	23135008	IC, STR-F6668B
Q802	23314141	Transistor, 2SC3852
△ Q826	23906937	Photo Coupler, ON3171-R
Q830	23314141	Transistor, 2SC3852
Q830B	70391355	Screw, BITTB3X8 SZN
Q840	23318299	IC, L78MR05
Q840B	70391355	Screw, BITTB3X8 SZN
Q880	23314962	Transistor, KTA1266 Y
Q901	23314811	Transistor, 2SC5147
Q902	23314965	Transistor, KTC3198 Y
Q903	23314811	Transistor, 2SC5147
Q904	23314965	Transistor, KTC3198 Y
Q905	23314811	Transistor, 2SC5147
Q906	23314965	Transistor, KTC3198 Y
Q907	23314962	Transistor, KTA1266 Y
Q908	A6321240	Transistor, 2SC2120-Y
QA01	23000397	IC, M37274MA-154SP
QA02	23905665	IC, AT24C08-10PC
QA10	23314965	Transistor, KTC3198 Y
QA11	23314962	Transistor, KTA1266 Y
QA12	23314965	Transistor, KTC3198 Y
QB01	23314965	Transistor, KTC3198 Y
QB02	23314962	Transistor, KTA1266 Y
QB20	A6002010	Transistor, RN1201
QB21	23314965	Transistor, KTC3198 Y
QB30	23314965	Transistor, KTC3198 Y
QB40	23314965	Transistor, KTC3198 Y
QG01	B0385647	IC, TA1217AN
QN01	23000402	IC, MM1454
QN02	23906596	IC, BA4558
QN03	A6002040	Transistor, RN1202
QN04	A6002040	Transistor, RN1202
QS01	23314965	Transistor, KTC3198 Y
QS02	23314965	Transistor, KTC3198 Y
QS03	A6342200	Transistor, 2CS2878-A

Location No.	Part No.	Description
QS04	A6342200	Transistor, 2CS2878-A
QT01	23000994	IC, SAA5264PS (21D7DXE)
QT02	23314965	Transistor, KTC3198 Y (21D7DXE)
QT03	A6734590	Transistor, 2SC752(G)TM-Y (21D7DXE)
QT04	23314962	Transistor, KTA1266 Y (21D7DXE)
QT06	23906484	IC, BA033T (21D7DXE)
QT07	23906809	IC, S-24C02ADPA (21D7DXE)
QV01	B0385655	IC, TA1219N
QV02	23314965	Transistor, KTC3198 Y
QV11	23314965	Transistor, KTC3198 Y
QZ01	B0410867	IC, TC90A45P
QZ02	23314965	Transistor, KTC3198 Y
QZ03	23314965	Transistor, KTC3198 Y
QZ04	23314965	Transistor, KTC3198 Y
D101	23115878	Diode, Zener, μ PC574J, (C)
D224	23118859	Diode, 1SS133
D301	23118094	Diode, EU2A, LF-F10
D306	23118859	Diode, 1SS133
D308	23118094	Diode, EU2A, LF-F10
D317	23118859	Diode, 1SS133 (21D7DXE)
D318	23118859	Diode, 1SS133 (21D7DXE)
D319	23118859	Diode, 1SS133 (21D7DXE)
D332	23316794	Diode, SC570ALFE2
D340	23118636	Diode, Zener, RD2.7ESA B1
D406	23118094	Diode, EU2A, LF-F10
D408	A7580658	Diode, 3JH41
D420	23118534	Diode, Zener, RD4.7ESA B3
D421	23118534	Diode, Zener, RD4.7ESA B3
D431	23118524	Diode, Zener, RD7.5ESA B1
D441	23118516	Diode, Zener, RD9.1ESA B3
D443	23118859	Diode, 1SS133
D444	23316254	Diode, ERC06-15L
D461	23118338	Diode, RU-4AM LF-L1
D463	23118859	Diode, 1SS133
D467	23118094	Diode, EU2A, LF-F10
D477	23118859	Diode, 1SS133
D478	23118859	Diode, 1SS133
D498	23118859	Diode, 1SS133
D499	23118859	Diode, 1SS133
D606	23118859	Diode, 1SS133
D607	23118859	Diode, 1SS133
D608	23118859	Diode, 1SS133
D609	23118859	Diode, 1SS133
D610	23118859	Diode, 1SS133
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D615	23118859	Diode, 1SS133
D616	23118859	Diode, 1SS133
D617	23118859	Diode, 1SS133
D618	23118859	Diode, 1SS133
D619	23118859	Diode, 1SS133
D620	23118859	Diode, 1SS133
D621	23118859	Diode, 1SS133
D631	23118859	Diode, 1SS133
D704	23118859	Diode, 1SS133
D705	23118859	Diode, 1SS133
D715	23118859	Diode, 1SS133
D721	23118859	Diode, 1SS133
D801	23357041	Diode, LN6SB60-F05
D801B	72471082	Screw, BRDT2W3X10 SZN

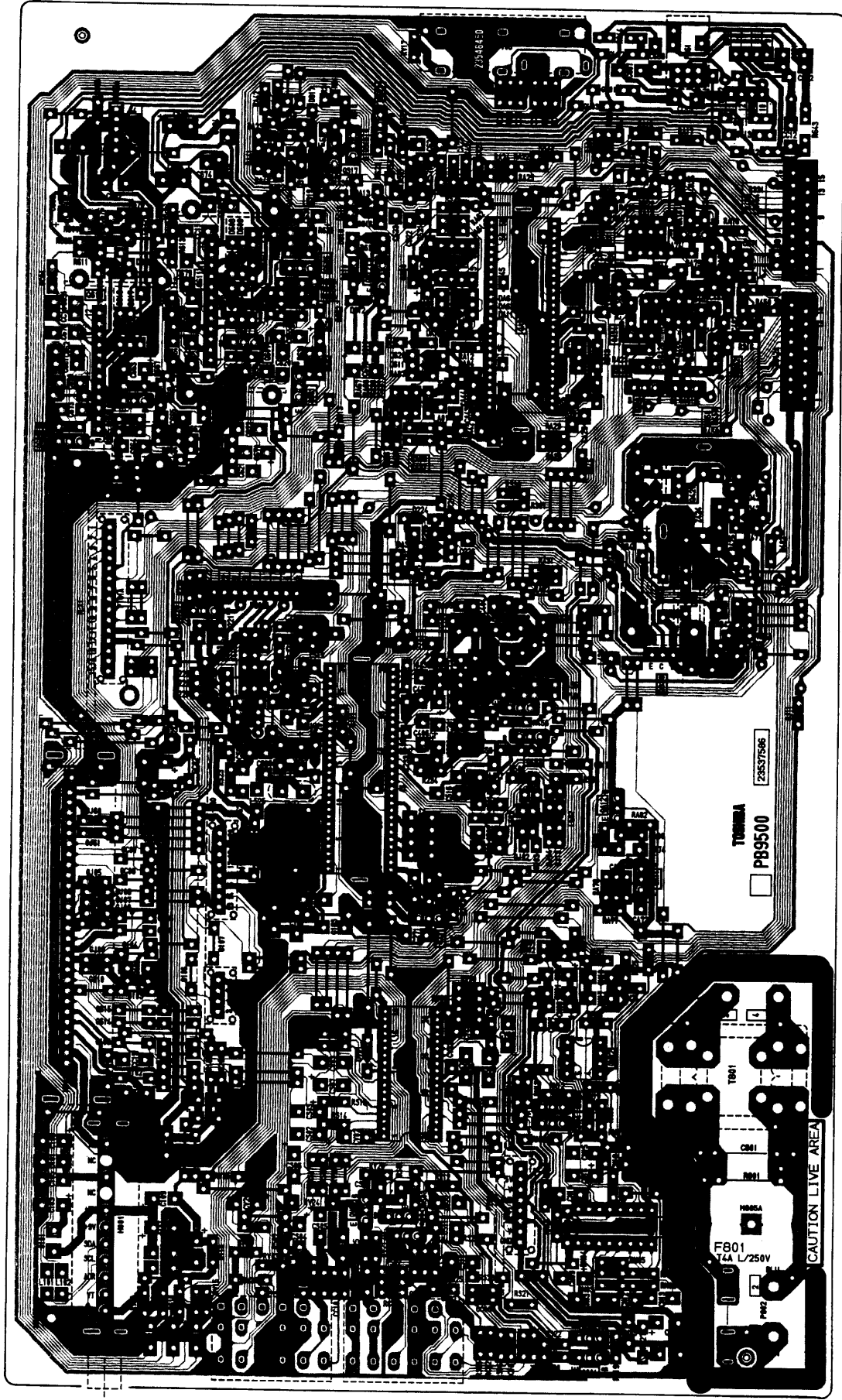
Location No.	Part No.	Description
D804	23118505	Diode, Zener, RD15ESA B2
D805	23316553	Diode, 1SS145
D806	23118094	Diode, EU2A, LF-F10
D807	23118616	Diode, Zener, RD27ESA B2
D810	23118496	Diode, Zener, RD22ESA B2
D811	23118859	Diode, 1SS133
D815	23118616	Diode, Zener, RD27ESA B2
D817	23118859	Diode, 1SS133
D818	23118496	Diode, Zener, RD22ESA B2
D819	23118526	Diode, Zener, RD6.8ESA B2
D828	23118859	Diode, 1SS133
D830	23118528	Diode, Zener, RD5.6ESA B3
D883	23118338	Diode, RU-4AM LF-L1
D885	23118052	Diode, RU4Z LF-L1
D896	23118094	Diode, EU2A, LF-F10
D901	23118859	Diode, 1SS133
D903	23118859	Diode, 1SS133
D904	23118859	Diode, 1SS133
D905	23118859	Diode, 1SS133
D906	23118859	Diode, 1SS133
D907	23118859	Diode, 1SS133
D908	23118859	Diode, 1SS133
D909	23118859	Diode, 1SS133
D910	23118859	Diode, 1SS133
D911	A7568250	Diode, 1S1834
DA13	23118859	Diode, 1SS133 (21D7DXE)
DA22	23118859	Diode, 1SS133 (21D7DXE)
DA23	23118859	Diode, 1SS133 (21D7DXE)
DA24	23118859	Diode, 1SS133 (21D7DXE)
DA42	23118538	Diode, Zener, RD6.2ESA B2
DA61	23118859	Diode, 1SS133
DA62	23118859	Diode, 1SS133
DB01	A8636650	Diode,(LED) TLG116
DB30	23118859	Diode, 1SS133
DT01	23118859	Diode, 1SS133 (21D7DXE)
DV01	23118517	Diode, Zener, RD9.1ESA B2
MISCELLANEOUS		
B202	23037312	Screw, BTBW 3X12 SZN
E912	23848729	Rubber Wedge
△F470	23144874	Fuse, 0.8A
F470A	23165433	Holder, Fuse
△F801	23144508	Fuse, 4.0A, 250V
F801A	23165433	Holder, Fuse
△F802	23144507	Fuse, 3.15A, 250V
F802A	23165433	Holder, Fuse
G101	23248229	Coil, Choke, TLN3040AC
G106	23238714	Coil, Peaking, TRF4100AJ
G107	23238714	Coil, Peaking, TRF4100AJ
G117	24232103	CD, 0.01μF, +80%, -20%
G202	23238714	Coil, Peaking, TRF4100AJ
G402	23103894	Coil (Ferrite Bead), TEM2011AW
G472	24531680	FR, 68 ohm, 1/2W
G616	24366103	CF, 10k ohm
G620	24794101	EL, 100μF, ±20%, 16V
G714	24545220	FR, 22 ohm, 1/4W
G805	23248234	Coil, Choke, TLN3481AC
G806	23248234	Coil, Choke, TLN3481AC
G810	23103894	Coil (Ferrite Bead), TEM2011AW
G828	23103775	Coil (Ferrite Bead), TEM2014
G865	23118859	Diode, 1SS133
G894	23289100	Coil, Peaking, TRF4100AF

Location No.	Part No.	Description
GA60	24366101	CF, 100 ohm
H002	23148337	Module, MVCS42A, IF
KB01	23904946	Remote Sensor, RPM-676CBR-S
L462A	23993696	Corrector, DY, YH
L462B	23949616	Compensator, CNV, TC-R(YV)
L462D	23948535	Convergence Corrector, TC-U(PLUS)
L462E	23948536	Convergence Corrector, TC-V(MINUS)
P661	23363607	Jack, Headphone
△P801	23372096	Power Cord (21D7DXE)
△P801	23372023	Power Cord (21D7SXH)
P900	23164725	Plug, 2P
P910	23164725	Plug, 2P
PG01A	23902064	Socket, B-B, 8P
PG01B	23368006	Plug, B-B, 8P
PG02A	23902654	Socket, B-B, 4P
PG02B	23367723	Plug, B-B,4P
PT01A	23902655	Socket, B-B, 15P (21D7DXE)
PT01B	23367724	Plug, B-B,15P (21D7DXE)
PV01	23365472	Jack, MSP-226V1-01, 6P
PV03	23365763	Jack, Phono, 3P
PV04	23365471	Jack, MSP-226V3-03, 6P
PZ01A	23902064	Socket, B-B, 8P
PZ01B	23368006	Plug, B-B, 8P
△S801	23344429	Switch, Power
SA01	23344443	Switch, Tacting
SA02	23344443	Switch, Tacting
SA03	23344443	Switch, Tacting
SA04	23344443	Switch, Tacting
SA05	23344443	Switch, Tacting
SA06	23344443	Switch, Tacting
△V901A	23902891	Socket, CRT, 10P
V901B	23102959	Magnet, Rubber,Z2007A
V901M	23102426	Magnet, MAG-1084
W661	23351144	Speaker, SPK-1401, 60X120mm, 8 ohm
W662	23351107	Speaker, SPK-1374, 60X120mm, 8 ohm
W663	23351144	Speaker, SPK-1401, 60X120mm, 8 ohm
W664	23351107	Speaker, SPK-1374, 60X120mm, 8 ohm
X501	23153979	Crystal, 4.43MHz
XA01	23153504	Ceramic Resonator, 8.00MHz, TCR1056BM
XT01	23153930	Crystal, 12.0MHz (21D7DXE)
Z424	23144539	Protector, PRF20005491, 125V, 2A
Z801	23904998	IC, HIC1016
Z889	23144542	Protector, PRF40005491, 125V, 4A
PC BOARD ASSEMBLIES		
* U901		CRT Drive Board, PB9499
* U902		Signal Board, PB9500 (21D7DXE)
* U902		Signal Board, PB9653 (21D7SXH)
* U903		Power/DEF Board, PB9501 (21D7DXE)
* U903		Power/DEF Board, PB9674 (21D7SXH)

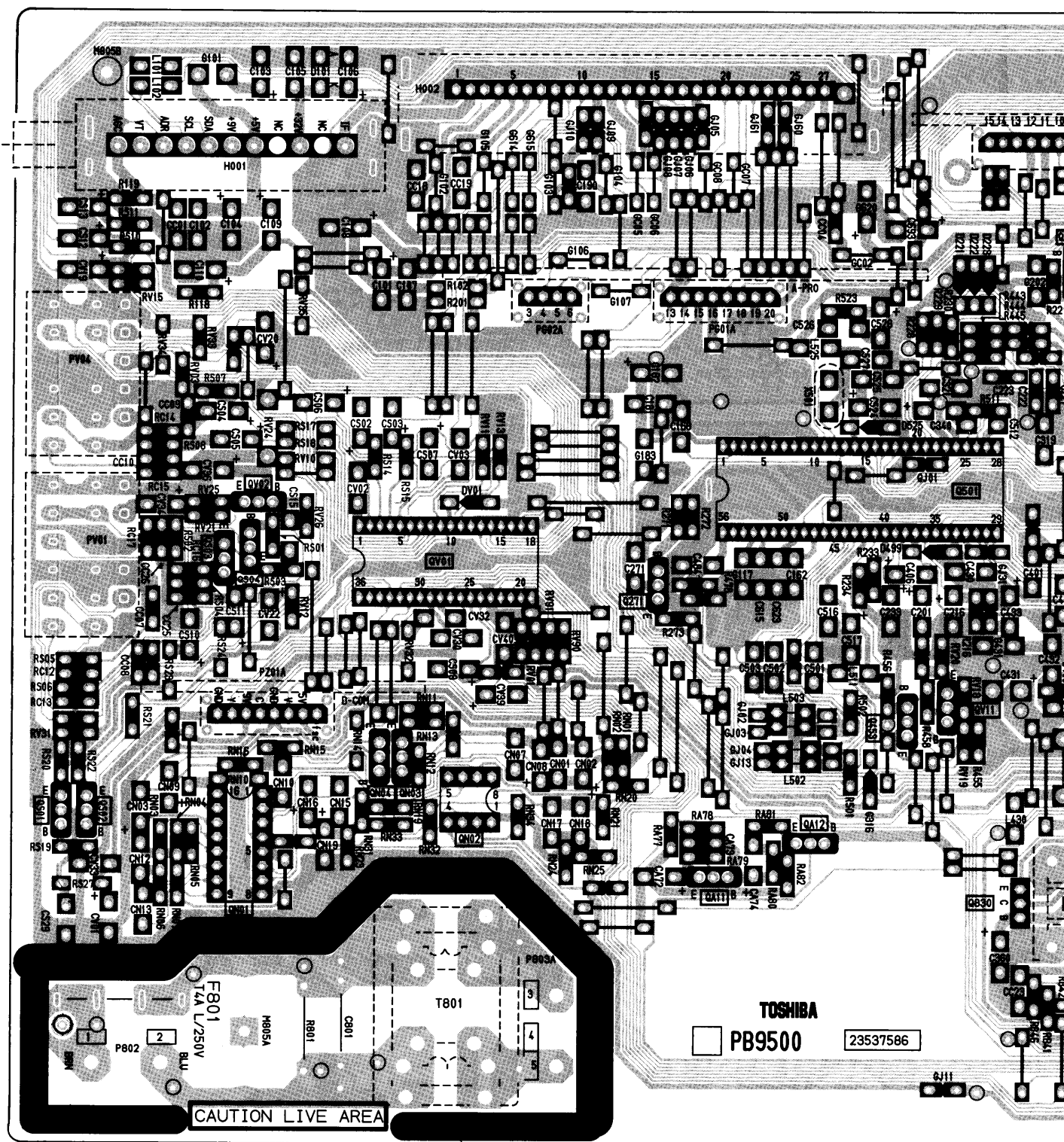
Location No.	Part No.	Description
* U904	23784363	TEXT Board, PB9502 (21D7DXE)
* U905	23785186	A-PRO Board, PB9503
* U906	23784364	D-COM Board, PB9504
PICTURE TUBE		
△ V901	23312855	Picture Tube, A51LSH196X
TUNER		
H001	23321357	Tuner, ECA33LX1
ACCESSORIES		
K902	23306194	Remote Hand Unit, CT-9881 (21D7DXE)
K902	23306193	Remote Hand Unit, CT-9878 (21D7SXH)
AT03	23588016	Battery Cover
Y101A	23552912	Owner's Manual, English, 21D7DXE/21D7SXH
Y101B	23563975	Owner's Manual, Canton, 21D7SXH
Y120	23943846	Cover, Poly
CABINET PARTS		
A201	23540069	Front Cover (21D7DXE)
A201	23540157	Front Cover (21D7SXH)
A265	23445415	Button, Power
A270	23445416	Button, Control
A272	23427827	Door (21D7DXE)
A272	23427851	Door (21D7SXH)
△ A401	23540070	Back Cover
A521	23035412	Screw, BTB4X12SZN
A522	23035412	Screw, BTB4X12SZN
A531	23035412	Screw, BTB4X12SZN
A532	23035412	Screw, BTB4X12SZN
A701	23064232	Case (21D7DXE)
A701	23064277	Case (21D7SXH)
A702A	23946043	Packing, Top
A702B	23946044	Packing, Bottom

Location No.	Part No.	Description
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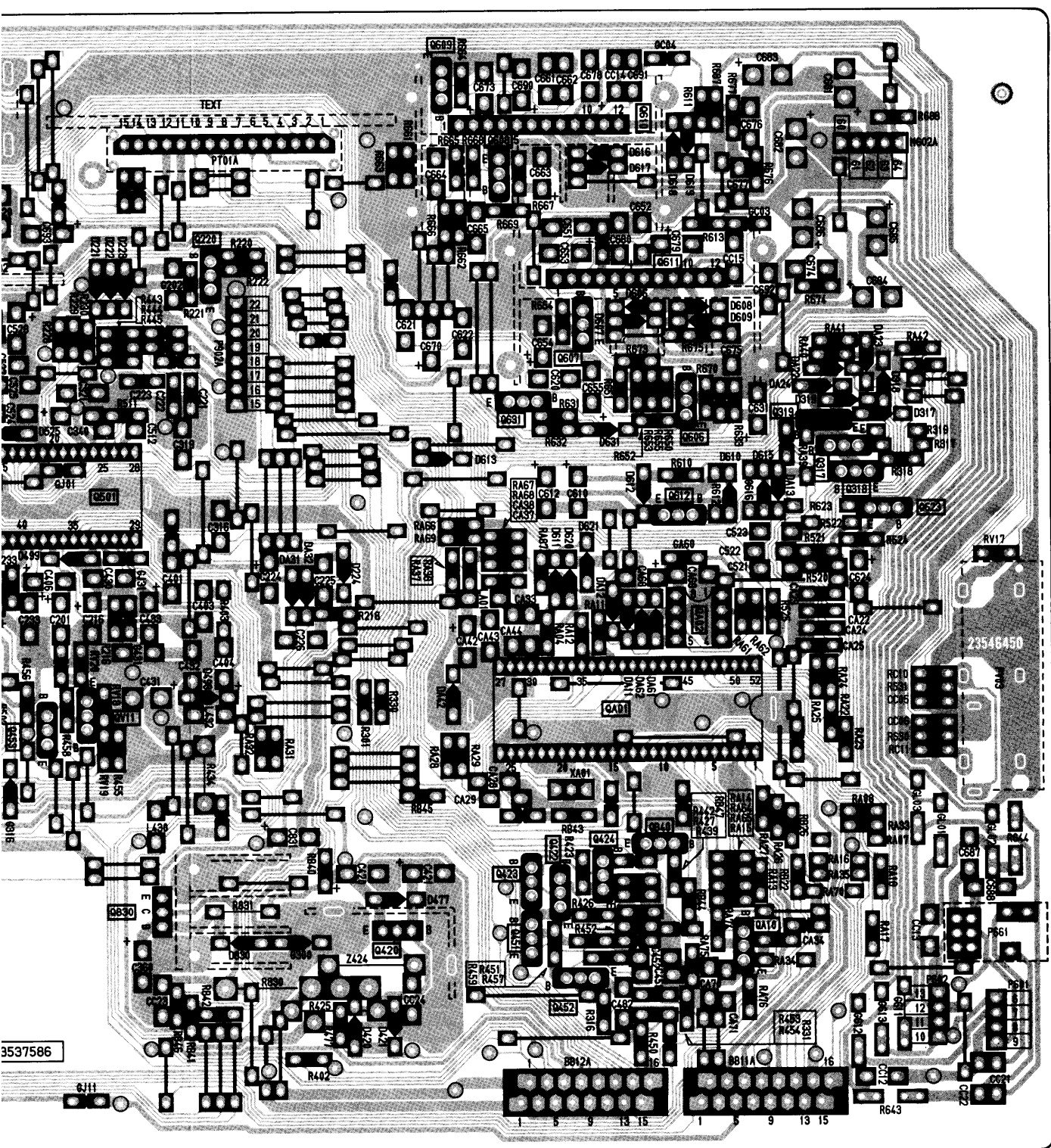
SIGNAL BOARD PB9500 (DXE)
PB9653 (SXH)
BOTTOM (FOIL) SIDE



SIGNAL BOARD PB950
PB965
BOTTOM (FOIL) SIDE

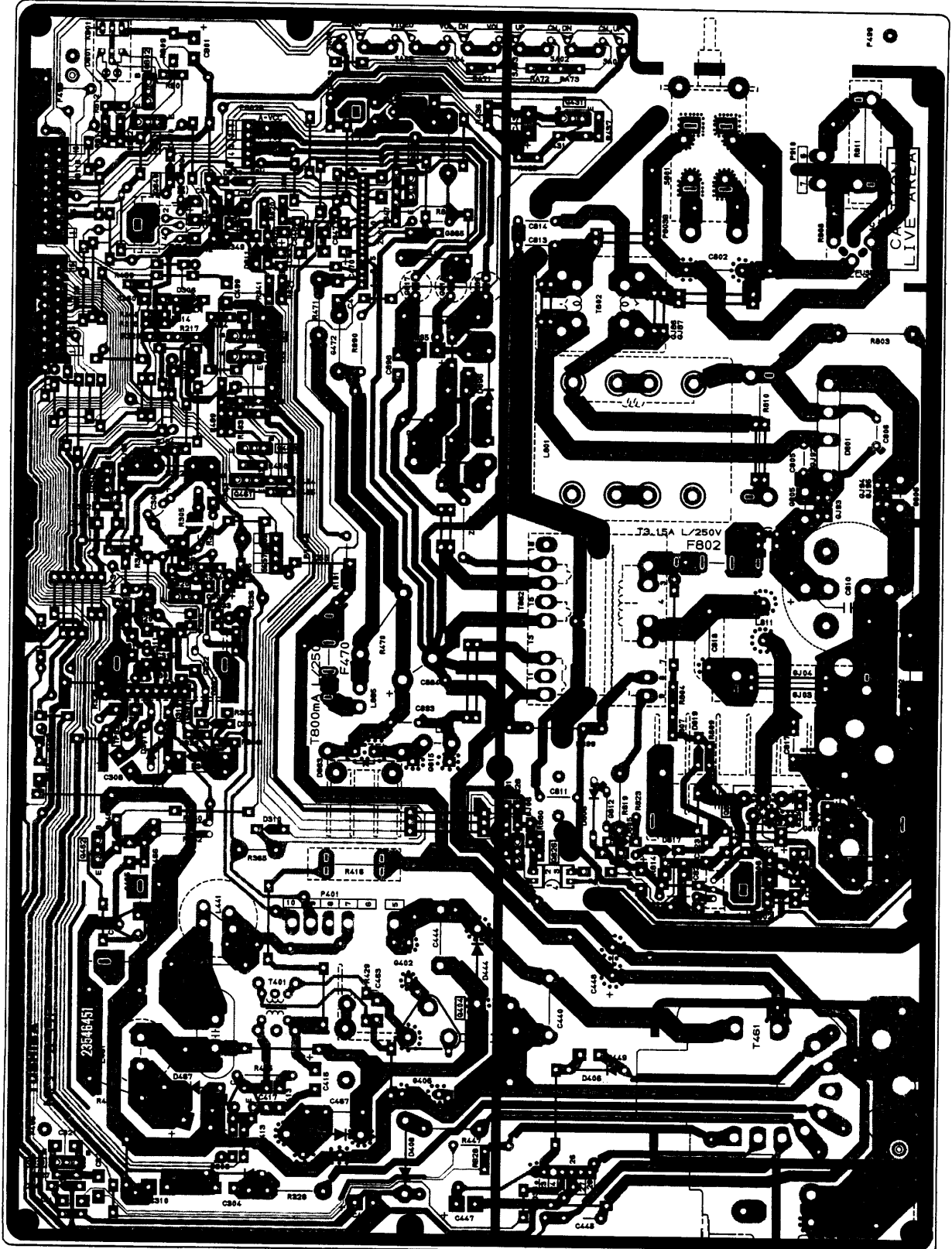


BOARD PB9500 (DXE)
PB9653 (SXH)
BOTTOM (FOIL) SIDE



POWER/DEF BOARD PB9501 (DXE)
PB9674 (SXH)

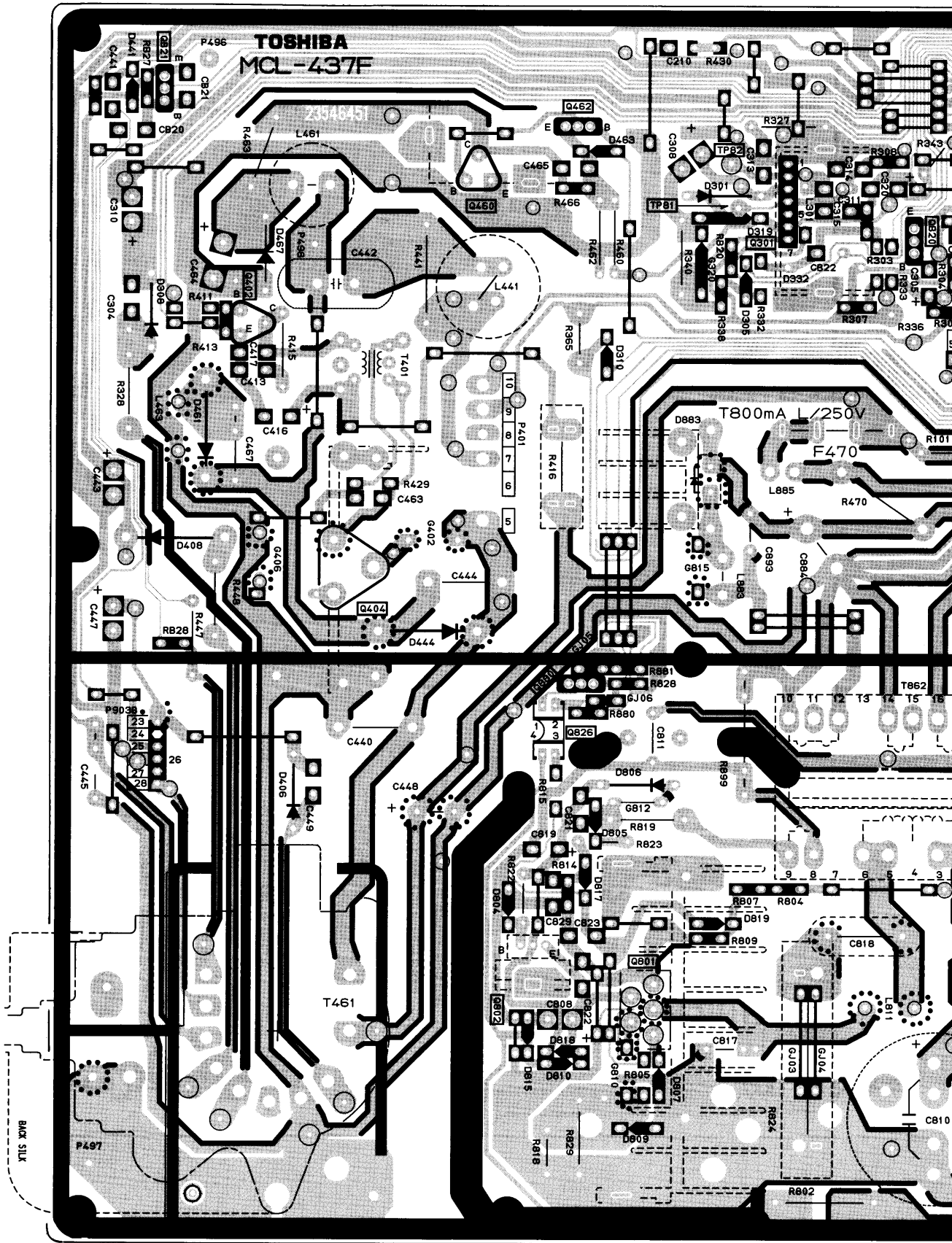
BOTTOM (FOIL) SIDE



POWER/DEF BOARD P

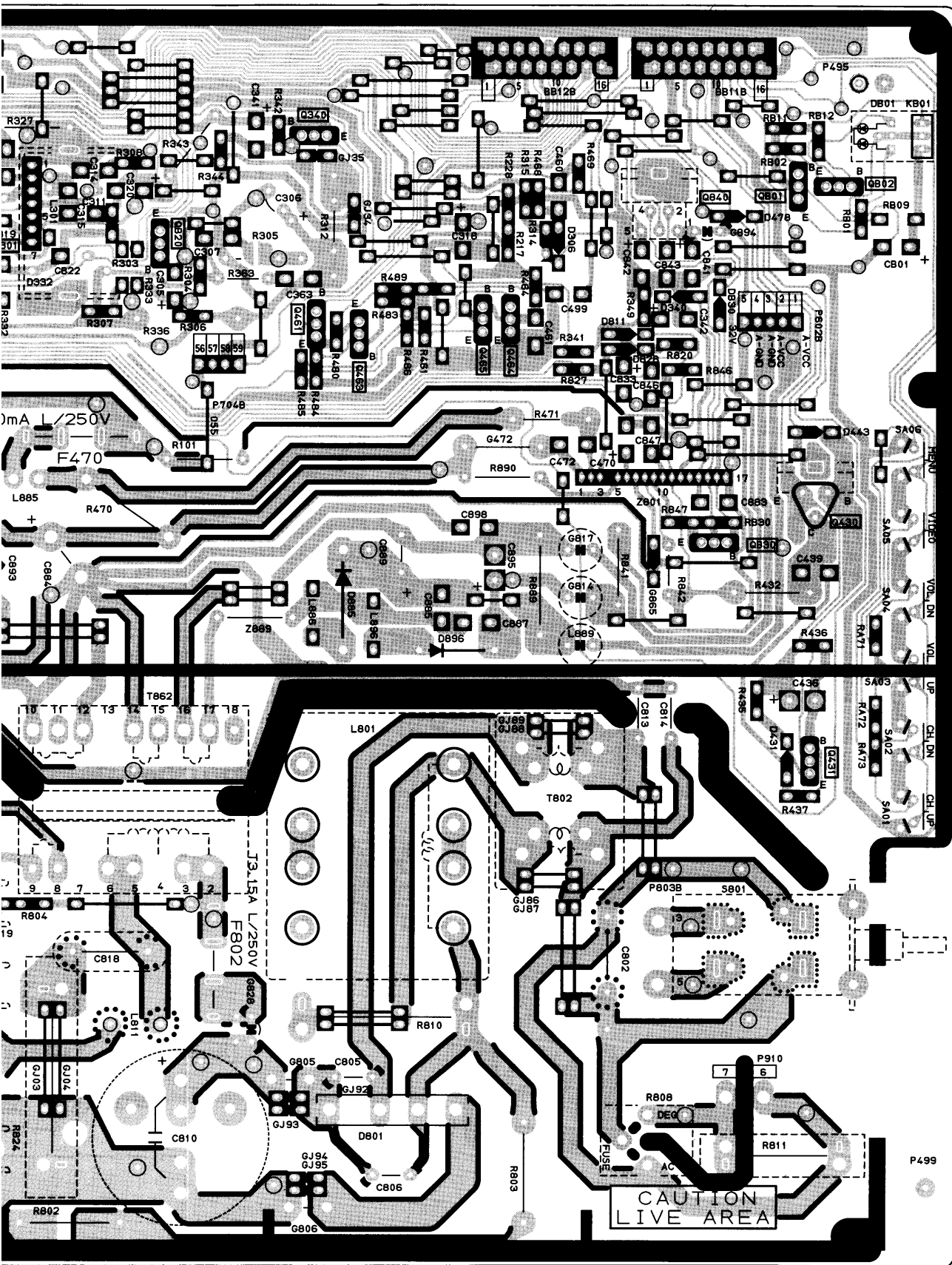
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BOTTOM (FOIL) SIDE

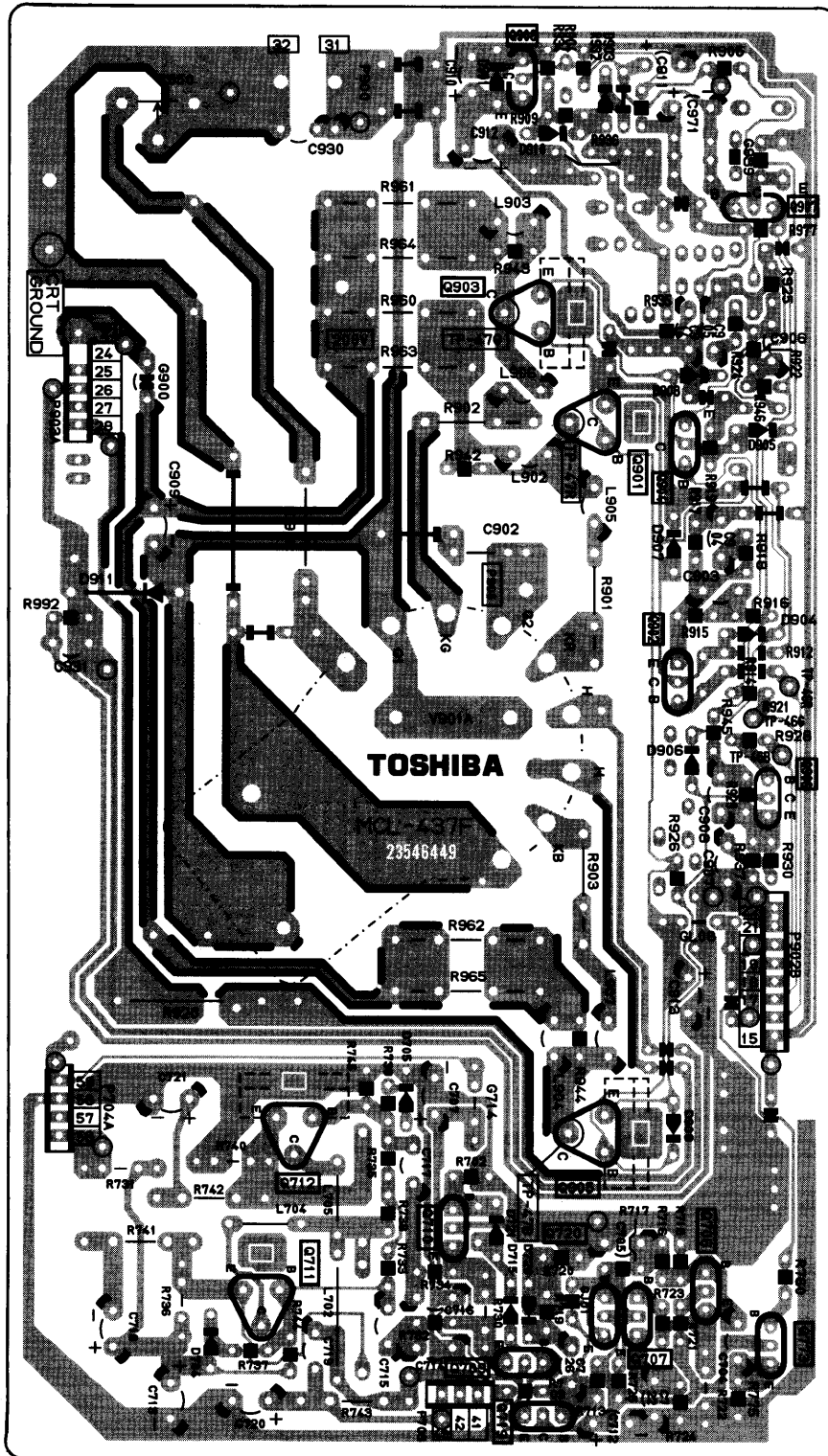


DEF BOARD PB9501 (DXE)
PB9674 (SXH)

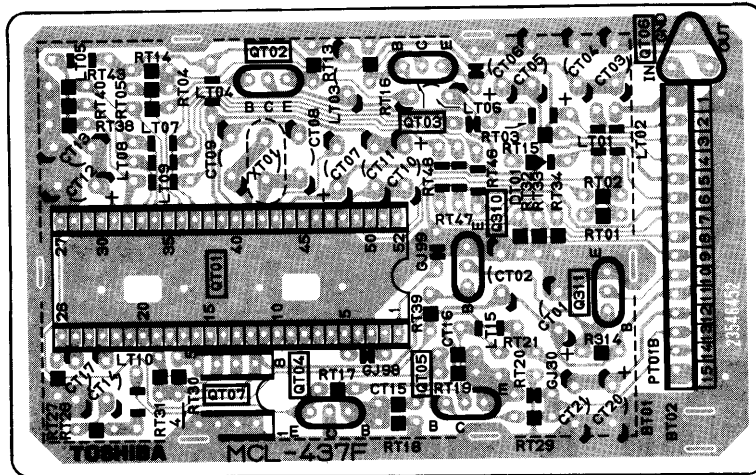
TTOM (FOIL) SIDE



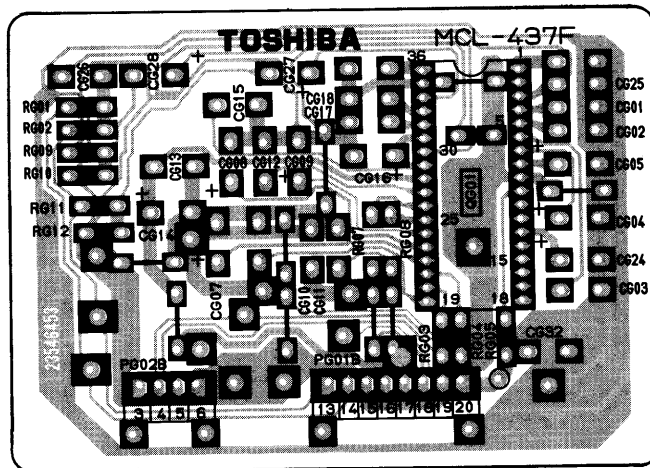
CRT-DRIVE BOARD PB9499
BOTTOM (FOIL) SIDE



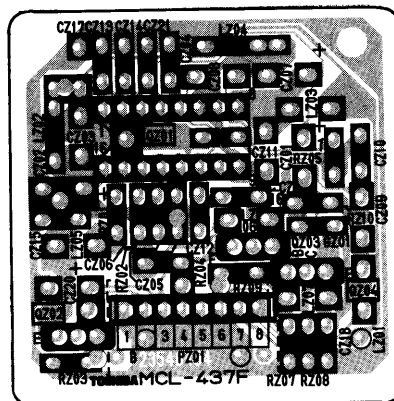
TEXT BOARD PB9502
BOTTOM (FOIL) SIDE



A-PRO BOARD PB9503
BOTTOM (FOIL) SIDE

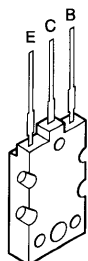


D-COMB BOARD PB9504
BOTTOM (FOIL) SIDE

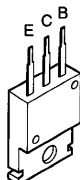


TERMINAL VIEW OF TRANSISTORS

- ① 2SD2253
(old)
2SC5243



- ② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A



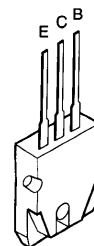
- ③ 2SC752GTM
2SC2482
2SC2655
2SC4721P



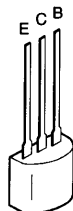
- ④ 2SC752
2SA562TM
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



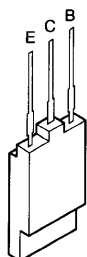
- ⑤ 2SA1788



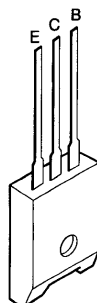
- ⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



- ⑦ 2SD1554
2SD2253
2SD1556
2SC5143
2SD2553



- ⑧ ON4409



MEMO

A large rectangular area containing 25 horizontal dotted lines for writing.

MEMO

A large rectangular frame containing 25 horizontal dotted lines for writing.

MEMO

A large rectangular area containing 25 horizontal dotted lines for writing.

SPECIFICATIONS (Representative: 21D7DXE)						
Rated voltage		AC 110 V – 240 V, 50/60 Hz				
Power consumption (at AC 220 V, 50 Hz)		105 W				
Dimensions		Width 654 mm × Height 462 mm × Depth 471 mm				
Mass		25.5 kg				
Picture tube		TYPE 21 (54 cm) Overall picture tube measured diagonally (51 cm) Viewable picture tube measured diagonally 90° deflection				
Television system (Aerial input)	Channel coverage	System	Channel	VHF	UHF	CATV
	Special RF signal	Colour system	Sound system			
		PAL B/G	CCIR	2 – 12	21 – 69	X ~ Z+2, S1 ~ S41
		PAL I	UK	—	21 – 69	—
		PAL D/K	CHINA	1 – 12	13 – 57	Z-1 ~ Z-38
		SECAM B/G	CCIR	2 – 12	21 – 69	X ~ Z+2, S1 ~ S41
		SECAM D/K	OIRT	1 – 12	21 – 69	X1 ~ X19
		NTSC M	US	2 – 13	14 – 69	A-6 ~ A-1, A ~ W, AA ~ ZZ, AAA, BBB
		4.43NTSC	5.5/6.0/6.5 MHz			
		PAL 60Hz	5.5/6.0/6.5 MHz			
Colour system (Video input)		PAL / SECAM / NTSC4.43 / NTSC3.58 / 60 Hz PAL / 50 Hz 3.58NTSC				
Audio power		5 W + 5 W / 5 W + 5 W (10% THD)				
Speaker		120 × 60 mm 4 pcs.				
Accessories		Remote Controller	× 1			
		Battery (R6, AA)	× 2			

* Please refer to owner's manual in detail.