

# TOSHIBA

FILE NO. 060-200343

## SERVICE MANUAL

# Color Television

S3ES Chassis

***21CSZ5TR***  
***21SZ5TM***  
***21SZ5VX***

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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 13)

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.

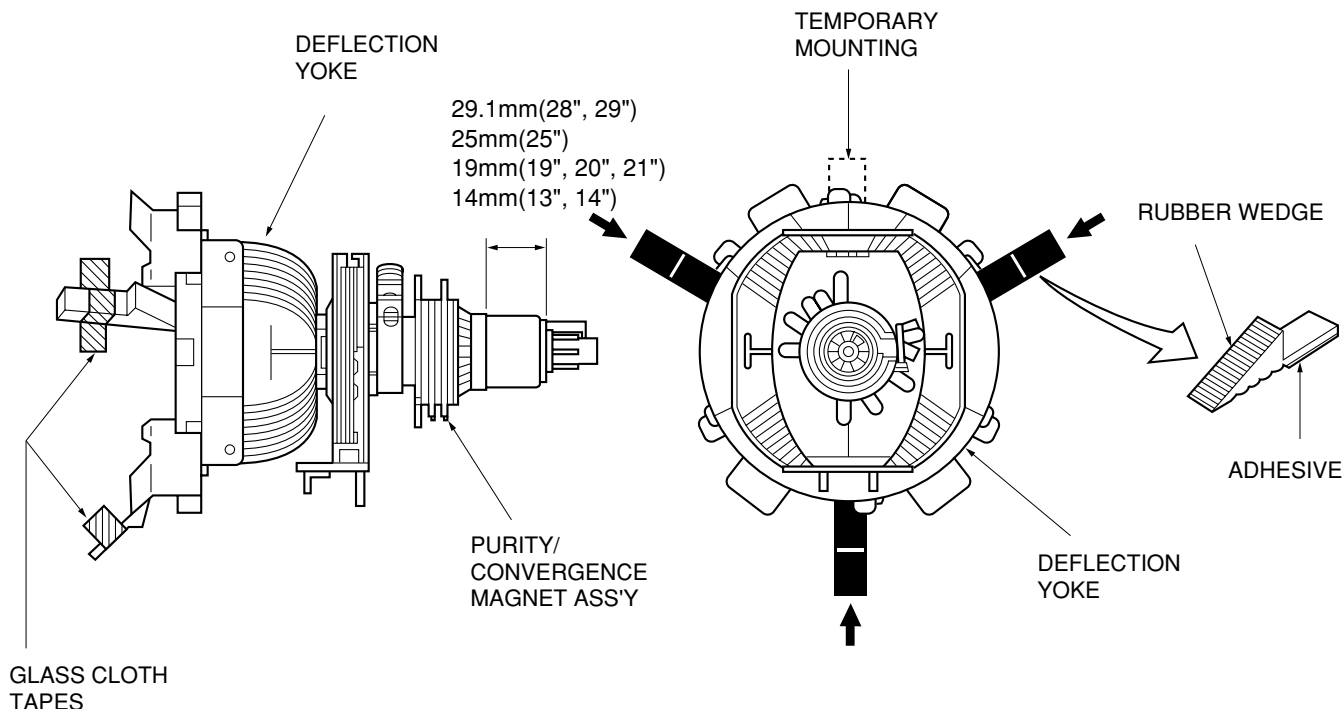


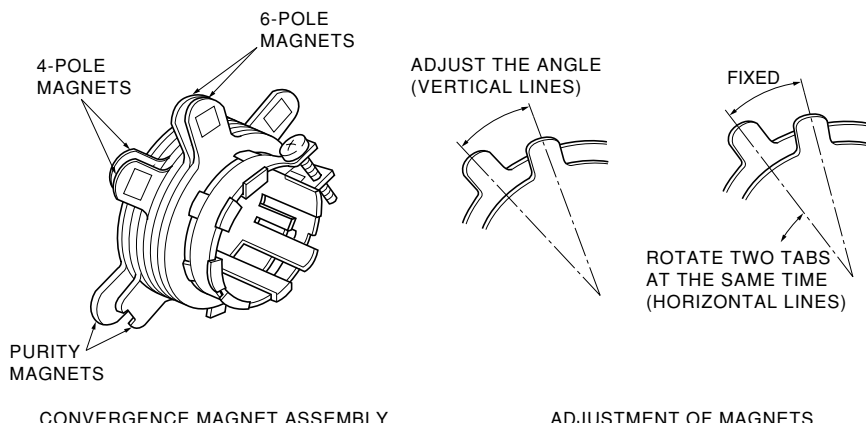
Figure 1.

## CONVERGENCE ADJUSTMENTS

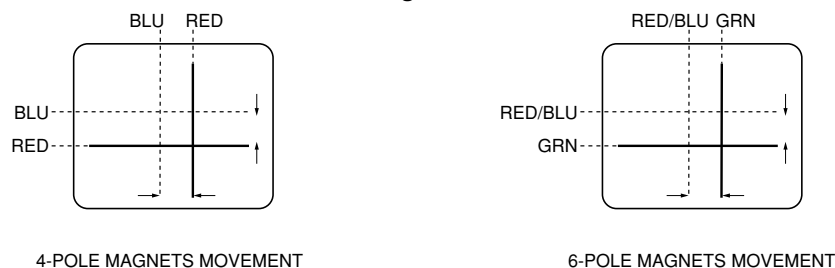
**NOTE:** Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

### ■ 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.



**Figure 2.**



Center Convergence by Convergence Magnets






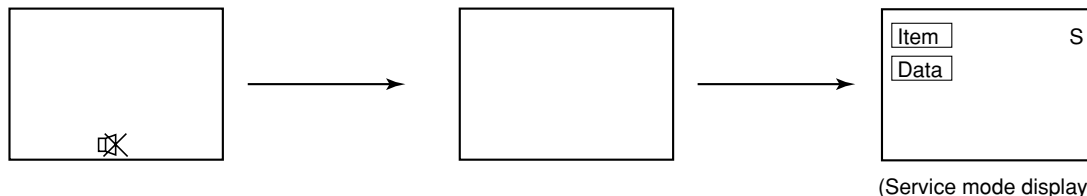
Circumference Convergence by DEF Yoke

**Figure 3. Dot Movement Pattern**

## SERVICE MODE

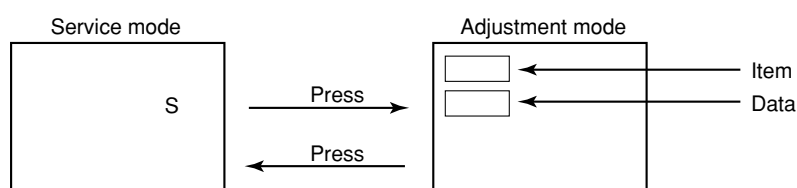
### 1. ENTERING TO SERVICE MODE

- 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:

Test signal selection :

Selection of the adjustment items :

Change of the data value :

Adjustment menu mode ON/OFF :

Initialization of the memory (QA10) :

Reset the count of operating protect circuit to "00":

"RCUT" selection :

"GCUT" selection :

"BCUT" selection :

"CNTX" (or "SCNT") selection :


"COLC" selection :



"TNTC" selection :


Test audio signal ON/OFF (1kHz) :

Self diagnostic display ON/OFF :


- / - button (on Remote) or  button (on TV)


 button (on Remote)

Channel  /  (on TV or Remote)

Volume  +/- (on TV or Remote)

MENU button (on TV)

CALL + Channel button on TV ()

CALL + Channel button on TV ()

1 button

2 button

3 button

4 button

5 button - - - - Color thickness correction

6 button

8 button

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 13)

#### 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 QA10

After replacing QA10, 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 QA10 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 QA10 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.

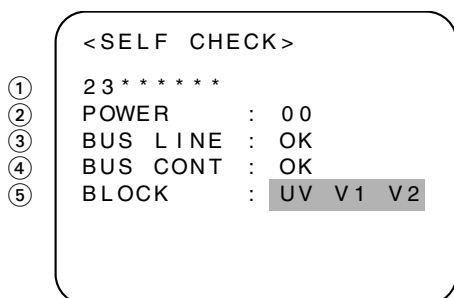
Signal off —→ NTSC signals (14 patterns)  
 ↑ PAL signals (14 patterns) ←

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

\* 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 microprocessor 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.

- ① Part number of microprocessor (QA51)
- ② Operation number of protecting circuit ----"00" is normal.  
When indication is other than "00", overcurrent apt 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)

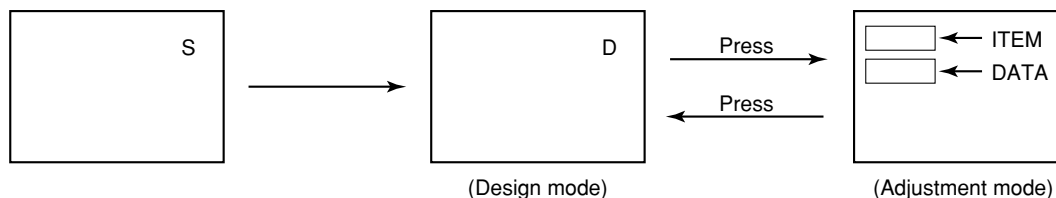
\* The items marked with ■ are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.



## 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 QA10 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

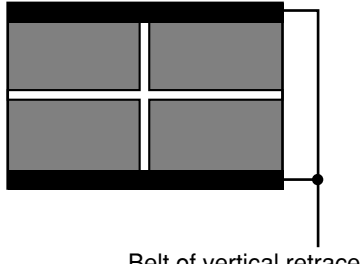
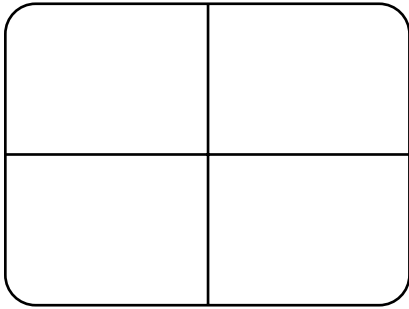
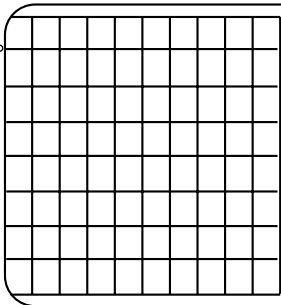
Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3. (▲ button for reverse order)





Refer to table-3 for data of design mode.  
(See SETTING & ADJUSTING DATA on page 13)

### 3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ button will change the value of data.

## ELECTRICAL ADJUSTMENTS

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

ITEM	ADJUSTMENT PROCEDURE
<p>WHITE BALANCE ADJUSTMENT</p> <ul style="list-style-type: none"> <li>● CUTOFF ADJUSTMENT (RCUT) (GCUT) (BCUT)</li> <li>● DRIVE ADJUSTMENT (GDRV) (BDRV)</li> </ul>	<ol style="list-style-type: none"> <li>1. Set Contrast to 40, and brightness to +20 by picture control.</li> <li>2. Set the TV in service mode, and get the inside W/B adjusting signal with VIDEO button.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ol> <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 data-bbox="1018 674 1425 981"> <div data-bbox="1086 674 1358 763">Light area check (to show white)</div> <div data-bbox="1018 898 1425 981">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>	

## 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 13)

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 INFORMATION

### SETTING & ADJUSTING DATA

#### 【 SAFETY INSTRUCTIONS 】

		21"
HIGH VOLTAGE AT ZERO BEAM:	(A)	29.7 kV
MAX HIGH VOLTAGE:	(B)	32.0 kV
AV VOLTAGE	(C)	110~240 V

Table-1

#### 【 SERVICE MODE 】

##### ADJUSTING ITEMS AND DATA IN THE SERVICE MODE:

Item	Adjustment	Reference data			Data		
		21CSZ5TR	21SZ5TM	21SZ5VX	21CSZ5TR	21SZ5TM	21SZ5VX
RCUT	R CUTOFF (B/W)	00H	←	←	80H	←	00H
GCUT	G CUTOFF (B/W)	00H	←	←	4FH	←	B7H
BCUT	B CUTOFF (B/W)	00H	←	←	80H	←	00H
GDRV	G DRIVE	00H	←	←	90H	←	00H
BDRV	B DRIVE	00H	←	←	ACH	←	00H
BRTC	SUB BRIGHT CEN	40H	←	←	←	←	←
COLC	SUB COLOR CEN NTSC	30H	←	←	←	←	←
TNTC	SUB TINT CEN	45H	←	←	←	←	←
COLP	SUB COLOR CEN PAL	09H	←	←	←	←	←
COLS	SUB COLOR CEN SECAM	30H	←	←	←	←	←
SCNT	SUB CONTRAST	08H	←	←	←	←	←
HPOS	50Hz H-POSITION	26H	←	←	30H	33H	30H
VPOS	V-POSITION	74H	←	←	74H	79H	74H
HIT	HEIGHT	7BH	←	←	9CH	83H	9CH
VLIN	V-LINEARITY	5DH	←	←	44H	45H	44H
SRY	SECAM R-Y	08H	←	←	←	←	←
SBY	SECAM-B-Y	08H	←	←	←	←	←
RAGC	RF AGC	2AH	←	←	←	←	←

Table-2

#### 【 DESIGN MODE 】

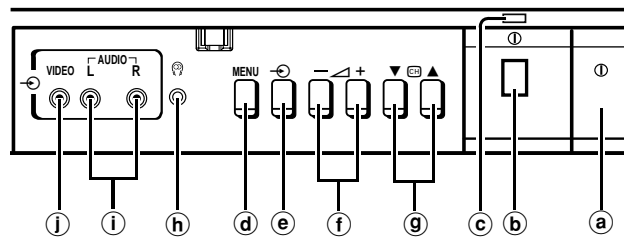
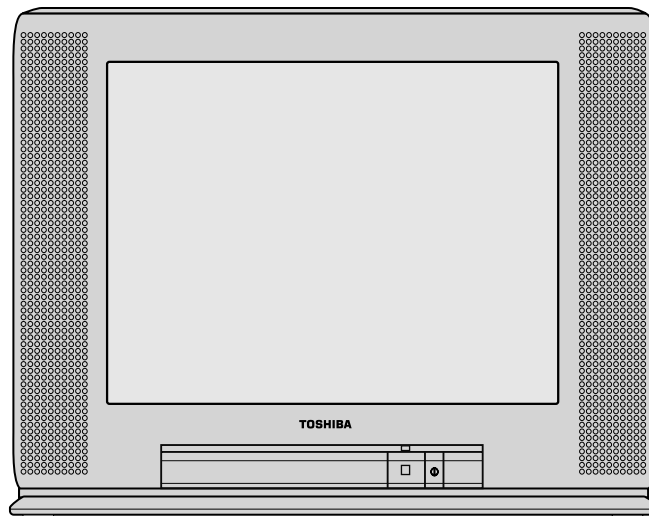
##### ADJUSTING ITEMS AND DATA IN THE DESIGN MODE:

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

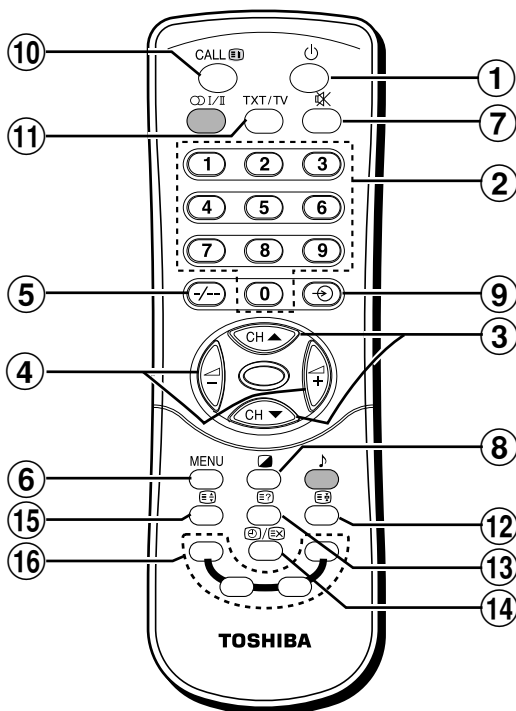
Table-3

## LOCATION OF CONTROLS

### Front



### Remote



### NAMES OF PARTS

TV Set			Remote Control	
a	①	Main power on/off	①	⏻ Power on/standby
b		Infrared sensor	②	0~9 Direct select
c	①	Power indicator (red)	③	CH ▲/▼ Channel up/down. Item select
d	MENU	Menu open	④	⏮ -/+ Volume down/up, Menu select, Level adjust
e	↺	TV/VIDEO select	⑤	-/-- Digit select
f	⏮	Volume down/up, Menu select, Level adjust	⑥	MENU Menu open
g	▼ CH ▲	Channel down/up, Item select	⑦	🔇 Sound mute
h	🎧	Headphone jack	⑧	🖼 Picture control
i	AUDIO	Audio input terminals	⑨	↺ TV/VIDEO select,
j	VIDEO L/R	Video input terminal	⑩	CALL 📺 On-screen on/off Teletext initial index
			⑪	TXT/TV Teletext/TV select
			⑫	📺 Full/stop/bottom
			⑬	📺 Reveal/Conceal
			⑭	📺 Time/Text cancel
			⑮	📺 Stop a page of text
			⑯	📺 Text select Red/Green/Yellow/Blue

**Note:** The shaded buttons are not available for your TV.

## PROGRAMMING CHANNEL MEMORY

- For easy Channel selection, the chosen Position should have the same number as Channel stored there. For this operation, you may use the "SEARCH" and "SKIP" functions.  
Example : Presetting Channel 12 to Position 12

### Channel Preset

#### Auto search memory (ASM)

All the channels that can be received are preset automatically.

- 1 Select the starting position for ASM. Press (0~9) or **CH ▲/▼**.
- 2 Set the correct broadcast system for your region. Press **MENU** and **△-/+** to call up the "SET UP" menu **[D7]**. Set "COLOR" to "AUTO" and set "SOUND" according to the table above using **CH▲/▼** and **△-/+**.
- 3 Press **MENU** and **△-/+** to call up the "TUNING" menu **[D8]**. Select "ASM", then press **△+** to start the search. When the TV screen returns to the start position, the procedure is complete.

### Manual Search and Changing the assigned position

#### Manual Search

- 1 Select Position 12.  
Press **CH ▲/▼** repeatedly until 12 is displayed. Or, press **-/-** twice to display "--" on the screen then press the "1" and "2" buttons in this order.
- 2 Press **MENU** and **△-/+** to call up the "TUNING" menu **[D8]**. Press **CH ▲/▼** and select "SEARCH". Press **△-/+** to search. Pressing "." searches for channels at lower frequencies while pressing "+" searches for channels at higher frequencies.
- 3 When Channel 12 is found, press **CH ▲/▼** to select "MEMORY". Press "+" to complete the presetting.

#### Store Position

- 1 Select Channel 12.  
Press (0~9) or **CH ▲/▼** to find the position preset for Channel 12.
- 2 When Channel 12 is selected, press **MENU** and **△-/+** to call up the "TUNING" menu **[D8]**. Press **CH ▲/▼** and select "POSITION". Press **△-/+** and set "POSITION" to P012. Pressing "-" and "+" respectively decreases and increases the position number.
- 3 When Position 12 is found, press **CH ▲/▼** to select "MEMORY". Press "+" to complete the presetting.

- Under some reception conditions, fine tuning may be necessary to improve the picture quality. In such cases, adjust the manual fine tuning (MFT).
- If the signal frequency is unstable due to environmental conditions, use auto fine tuning.

### Skip Function

If you set "SKIP ON" for unnecessary position numbers, these will be skipped when selecting channels using **CH ▲/▼**.  
Example : Skipping Channel 13

- 1 Select Position 13 using the same method for selecting Position 12 (above).
- 2 Press **MENU** and **△-/+** to call up the "SET UP" menu **D7**. Press **CH ▲/▼** and select "SKIP". Press **△-/+** to switch the "SKIP" setting from "OFF" to "ON". This completes the setting for skipping Position 13.

#### Note:

- When "SKIP" is ON, the Position number is prefixed by "\*".  
Example: \*13. To confirm this, select Position 13 using the **-/--** and 0~9 buttons.
- If you want to restore a skipped position number, select it using the **-/--** and 0~9 buttons then switch the "SKIP" setting to "OFF" as in step 2 above.

### Manual fine tuning (MFT)

- 1 Press **MENU** and **△-/+** to call up the "TUNING" menu **D8**.
- 2 Press **CH ▲/▼** and select "MFT". Press **△-/+** to start fine tuning. Pressing "-" fine tunes to a lower frequency while pressing "+" fine tunes to a higher frequency.

### Auto fine tuning (AFT)

- 1 Press **MENU** and **△-/+** to call up the "TUNING" menu **D8**.
- 2 Press **CH ▲/▼** and select "AFT". Press **△-/+** to switch it to "ON". This completes the setting.

#### Notes:

- When you operate MFT, AFT is switched OFF automatically. If you switch on AFT after fine tuning with MFT, MFT may be cancelled.
- AFT may be set independently for each Position.



# 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 "⚠" 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 : 21CSZ5TR/21SZ5TM/21SZ5VX

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.	Parts No.	Description
#1 : [21CSZ5TR]		
#2 : [21SZ5TM]		
#3 : [21SZ5VX]		
<b>CAPACITORS</b>		
C101	#1 24797479	ELECTROLYTIC, 50V 4.7UF M
	#2 24206479	ELECTROLYTIC, 50V 4.7UF M 7L 3A
	#3 24797479	ELECTROLYTIC, 50V 4.7UF M
C103	24797221	ELECTROLYTIC, 50V 220UF M
C105	24109102	CERAMIC CHIP, 50V B 1000PF K
C106	24797100	ELECTROLYTIC, 50V 10UF M
C110	24797221	ELECTROLYTIC, 50V 220UF M
C200	24793101	ELECTROLYTIC, 10V 100UF M
C201	24092538	CERAMIC CHIP, 10V F 1UF Z
C202	24092538	CERAMIC CHIP, 10V F 1UF Z
C203	24092538	CERAMIC CHIP, 10V F 1UF Z
C204	24793470	ELECTROLYTIC CE04G 10V 47UF M
C205	24092538	CERAMIC CHIP, 10V F 1UF Z
C207	24092538	CERAMIC CHIP, 10V F 1UF Z
C208	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
C209	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
C210	24085949	ELEC. NONPOLAR CE04J 25V 10UF M 11L NP
C211	24092538	CERAMIC CHIP, 10V F 1UF Z
C220	24085944	ELECTROLYTIC, NONPOLAR, 50V 2.2UF M 11L
C221	24092538	CERAMIC CHIP, 10V F 1UF Z
C298	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTORLYTIC, 16V 10UF M 7L 3A
	#3 24203100	ELECTORLYTIC, 16V 10UF M 7L 3A
C299	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTORLYTIC, 16V 10UF M 7L 3A
	#3 24203100	ELECTORLYTIC, 16V 10UF M 7L 3A
C303	24214471	CERAMIC DISC, 500V B 470PF K
C306	24666332	ELECTROLYTIC, 16V 3300UF M 3A
C308	#1 24669101	ELECTROLYTIC, 50V 100UF M 3A
	#2 24766101	ELECTROLYTIC, 50V 100UF M
	#3 24766101	ELECTROLYTIC, 50V 100UF M
C309	#1 24669331	ELECTROLYTIC, 50V 330UF M 3A
	#2 24766331	ELECTROLYTIC CE04G 50V 330UF M
	#3 24766331	ELECTROLYTIC CE04G 50V 330UF M
C310	#1 24669222	ELECTROLYTIC, 50V 2200UF M 3A
	#2 24766222	ELECTROLYTIC CE04G 50V 2200UF M
	#3 24766222	ELECTROLYTIC CE04G 50V 2200UF M

Location No.	Parts No.	Description
C311	#1 24435560	CERAMIC DISC, 500V SL 56PF J
	#2 24435560	CERAMIC DISC, 500V SL 56PF J
	#3 24434560	CERAMIC DISC, 500V SL 56PF J
C313	24082061	PLASTIC FILM, 100V 0.47UF J
C314	24693472	PLASTIC FILM, 100V 4700PF J
C315	24109102	CERAMIC CHIP, 50V B 1000PF K
C320	24503052	MT PLA CAP 63V 0.82UF J
C321	24591183	PLASTIC FILM, 50V 0.018UF J
C323	#1 24668101	ELECTROLYTIC, 35V 100UF M 3A
	#2 24765101	ELECTROLYTIC, 35V 100UF M
	#3 24765101	ELECTROLYTIC, 35V 100UF M
C325	24206479	ELECTROLYTIC, 50V 4.7UF M 7L 3A
C341	24794101	ELECTROLYTIC, 16V 100UF M
C342	24795100	ELECTROLYTIC, 25V 10UF M
C363	24693473	PLASTIC FILM, 100V 0.047UF J
C401	24108680	CERAMIC CHIP, 50V SL 68PF J
C402	24693393	PLASTIC FILM, 100V 0.039UF J
C406	24109221	CERAMIC CHIP, 50V B 220PF K
C407	24092730	CERAMIC CHIP, 16V B 0.1UF K
C408	24108330	CERAMIC CHIP, 50V SL 33PF J
C409	24109103	CERAMIC CHIP, 50V B 0.01UF K
C410	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTORLYTIC, 16V 10UF M 7L 3A
	#3 24794100	ELECTROLYTIC, 16V 10UF M
C413	24214821	CERAMIC DISC, 500V B 820PF K
C415	24109103	CERAMIC CHIP, 50V B 0.01UF K
C416	24678229	ELECTROLYTIC, 1500V 2.2UF M 3A
C417	24214391	CERAMIC DISC, 500V B 390PF K
C418	24109221	CERAMIC CHIP, 50V B 220PF K
C419	24668221	ELECTROLYTIC, 35V 220UF M 3A
C430	24092730	CERAMIC CHIP, 16V B 0.1UF K
C431	24794101	ELECTROLYTIC, 16V 100UF M
C440	#1 24503193	PLASTIC FILM, 1500VH 1000PF H
	#2 24503193	PLASTIC FILM, 1500VH 1000PF H
	#3 24503211	PLASTIC FILM, 1500VH 1200PF H
C442	24082995	PLASTIC FILM, 250V 0.36 UF J
C444	24503279	PLASTIC FILM, 1500VH 9100PF H
C445	24828563	PLASTIC FILM, 200V 56000PF J
C447	24679220	ELECTROLYTIC, 250V 22UF M 3A
C448	#1 24640908	ELECTROLYTIC, 160V 33UF M 3A LI
	#2 24073118	ELECTROLYTIC, 160V 33UF M
	#3 24073118	ELECTROLYTIC, 160V 33UF M
C449	#1 24667102	ELECTROLYTIC, 25V 1000UF M 3A
	#2 24764102	ELECTROLYTIC, 25V 1000UF M
	#3 24764102	ELECTROLYTIC, 25V 1000UF M
C463	24212222	CERAMIC DISC, 50V B 2200PF K

Location No.	Parts No.	Description
C464	#1 24640872	ELECTROLYTIC, 100V 10UF M 3A
	#2 24073124	100V 10U TOKUSHU 100YXG10MCA10X20
	#3 24073124	100V 10U TOKUSHU 100YXG10MCA10X20
C467	#1 24820433	PLASTIC FILM, 630V 0.043UF J
	#2 24820433	PLASTIC FILM, 630V 0.043UF J
	#3 24503158	PLASTIC FILM, 630V 0.036UF J
C470	24797101	ELECTROLYTIC, 50V 100UF M
C472	#1 24539474	PLASTIC FILM, 50V 0.47UF J
	#2 24503049	PLASTIC FILM, 63V 0.47UF J
	#3 24503049	PLASTIC FILM, 63V 0.47UF J
C475	24092730	CERAMIC CHIP, 16V B 0.1UF K
C499	24353100	CERAMIC DISC, 50V CH 10PF C
C500	24092730	CERAMIC CHIP, 16V B 0.1UF K
C501	24109103	CERAMIC CHIP, 50V B 0.01UF K
C502	24793102	ELECTROLYTIC, 10V 1000UF M
C503	24109103	CERAMIC CHIP, 50V B 0.01UF K
C543	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
	#3 24794100	ELECTROLYTIC, 16V 10UF M
C547	24793101	ELECTROLYTIC, 10V 100UF M
C560	24794101	ELECTROLYTIC, 16V 100UF M
C561	24109103	CERAMIC CHIP, 50V B 0.01UF K
C597	24436390	CERAMIC DISC, 50V SL 39PFJ
C598	24436390	CERAMIC DISC, 50V SL 39PFJ
C599	24436390	CERAMIC DISC, 50V SL 39PFJ
C624	#1 24797478	ELECTROLYTIC, 50V 0.47UF M
	#2 24206478	ELECTROLYTIC, 50V 0.47UF M 7L 3A
	#3 24797478	ELECTROLYTIC, 50V 0.47UF M
C664	#1 24797478	ELECTROLYTIC, 50V 0.47UF M
	#2 24206478	ELECTROLYTIC, 50V 0.47UF M 7L 3A
	#3 24797478	ELECTROLYTIC, 50V 0.47UF M
C666	24591563	PLASTIC FILM, 50V 0.056UF J
C670	24797470	ELECTROLYTIC, 50V 47UF M
C671	24797471	ELECTROLYTIC, 50V 470UF M
C672	24766470	ELECTROLYTIC, 50V 47UF M
C674	#1 24797478	ELECTROLYTIC, 50V 0.47UF M
	#2 24206478	ELECTROLYTIC, 50V 0.47UF M 7L 3A
	#3 24797478	ELECTROLYTIC, 50V 0.47UF M
C675	#1 24109102	CERAMIC CHIP, 50V B 1000PF K
C676	24591823	PLASTIC FILM, 50V 0.082UF J
C677	#1 24539823	PLASTIC FILM, 50V 0.082UF J
	#2 24591823	PLASTIC FILM, 50V 0.082UF J
	#3 24591823	PLASTIC FILM, 50V 0.082UF J
C678	#1 24109102	CERAMIC CHIP, 50V B 1000PF K
C679	#1 24539563	PLASTIC FILM, 50V 0.056UF J
	#2 24591563	PLASTIC FILM, 50V 0.056UF J
	#3 24591563	PLASTIC FILM, 50V 0.056UF J
C680	#1 24669229	ELECTROLYTIC, 50V 2.2UF M 3A
	#2 24766229	ELECTROLYTIC, 50V 2.2UF M
	#3 24766229	ELECTROLYTIC, 50V 2.2UF M
C681	#1 24669229	ELECTROLYTIC, 50V 2.2UF M 3A
	#2 24766229	ELECTROLYTIC, 50V 2.2UF M
	#3 24766229	ELECTROLYTIC, 50V 2.2UF M
C682	#1 24669229	ELECTROLYTIC, 50V 2.2UF M 3A
	#2 24766229	ELECTROLYTIC, 50V 2.2UF M
	#3 24766229	ELECTROLYTIC, 50V 2.2UF M
C683	24795101	ELECTROLYTIC, 25V 100UF M
C684	24503049	PLASTIC FILM, 63V 0.47UF J
C685	24797100	ELECTROLYTIC, 50V 10UF M
C686	24795102	ELECTROLYTIC, 25V 1000UF M
C687	24797100	ELECTROLYTIC, 50V 10UF M
C688	24503049	PLASTIC FILM, 63V 0.47UF J
C689	#1 24667471	ELECTROLYTIC, 25V 470UF M 3A
	#2 24764471	ELECTROLYTIC, 25V 470UF M
	#3 24764471	ELECTROLYTIC, 25V 470UF M
C690	#1 24667471	ELECTROLYTIC, 25V 470UF M 3A
	#2 24764471	ELECTROLYTIC, 25V 470UF M
	#3 24764471	ELECTROLYTIC, 25V 470UF M
C739	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
	#3 24794100	ELECTROLYTIC, 16V 10UF M
△ C801	24503507	PLASTIC FILM, AC275V 0.22UF K
△ C802	24503507	PLASTIC FILM, AC275V 0.22UF K
C805	24092281	CERAMIC DISC, AC250V E 4700PF
C806	24092281	CERAMIC DISC, AC250V E 4700PF
C808	#1 24668101	ELECTROLYTIC, 35V 100UF M 3A

Location No.	Parts No.	Description
	#2 24765101	ELECTROLYTIC, 35V 100UF M
	#3 24765101	ELECTROLYTIC, 35V 100UF M
C810	#1 24086857	ELECTROLYTIC, 400V 560UF
	#2 24086857	ELECTROLYTIC, 400V 560UF
	#3 24086934	ELECTROLYTIC, 450V 560UF M 35F
C811	24092555	CERAMIC DISC, AC250V E 1000PF M
△ C813	24092555	CERAMIC DISC, AC250V E 1000PF M
△ C814	24092555	CERAMIC DISC, AC250V E 1000PF M
△ C815	24092551	CERAMIC DISC, AC250V B 220PF K
C817	24092338	CERAMIC DISC, 2KV R 270PF K
C818	24092341	CERAMIC DISC, 2KV R 470PF K
C821	24214561	CERAMIC DISC, 500V B 560PF K
C822	24214102	CERAMIC DISC, 500V B 1000PF K
C823	24214471	CERAMIC DISC, 500V B 470PF K
C829	24212561	CERAMIC DISC, 50V B 560PF K
C830	24503047	PLASTIC FILM, 63V 0.33UF J
C831	24503047	PLASTIC FILM, 63V 0.33UF J
C832	24503047	PLASTIC FILM, 63V 0.33UF J
C834	24503047	PLASTIC FILM, 63V 0.33UF J
C840	24666470	ELECTROLYTIC CE04Q, 16V 47UF M 3A
C841	24503047	PLASTIC FILM, 63V 0.33UF J
C842	24503047	PLASTIC FILM, 63V 0.33UF J
C862	24092339	CERAMIC DISC, 2KV 330PF K
C883	24214561	CERAMIC DISC, 500V B 560PF K
C884	24086052	ELECTROLYTIC, 200V 220UF M 22A
C885	24214471	CERAMIC DISC, 500V B 470PF K
C889	#1 24668222	ELECTROLYTIC CE04Q, 35V 2200UF M 3A
	#2 24765222	ELECTROLYTIC CE04G 35V 2200UF M
	#3 24765222	ELECTROLYTIC CE04G 35V 2200UF M
C891	#1 24666102	ELECTROLYTIC, 16V 1000UF M 3A
	#2 24763102	ELECTROLYTIC, 16V 1000UF M
	#3 24763102	ELECTROLYTIC, 16V 1000UF M
C893	24092337	CERAMIC DISC, 2KV 220PF K
C898	24503045	PLASTIC FILM, 63V 0.22UF J
C899	24214471	CERAMIC DISC, 500V B 470PF K
C902	24092339	CERAMIC DISC, 2KV 330PF K
C904	#1 24436681	CERAMIC DISC, 50V SL 680PF J
	#2 24436681	CERAMIC DISC, 50V SL 680PF J
	#3 24436471	CERAMIC DISC, 50V SL 470PF J
C905	#1 24436821	CERAMIC DISC, 50V SL 820PF J
	#2 24436821	CERAMIC DISC, 50V SL 820PF J
	#3 24436561	CERAMIC DISC, 50V SL 560PF J
C907	#1 24436102	CERAMIC DISC, 50V SL 1000PF J
	#2 24436102	CERAMIC DISC, 50V SL 1000PF J
	#3 24436681	CERAMIC DISC, 50V SL 680PF J
C909	24679220	ELECTROLYTIC, 250V 22UF M 3A
C910	24797100	ELECTROLYTIC, 50V 10UF M
C912	24794222	ELECTROLYTIC, 16V 2200UF M
C913	#1 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
C915	#1 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
C930	24214101	CERAMIC DISC, 500V B 100PF K
C931	24214101	CERAMIC DISC, 500V B 100PF K
C997	#3 24214102	CERAMIC DISC, 500V B 1000PF K
C998	#3 24214102	CERAMIC DISC, 500V B 1000PF K
C999	24436221	CERAMIC DISC, 50V SL 220PF J
C4200	24109221	CERAMIC CHIP, 50V B 220PF K
C4300	24109103	CERAMIC CHIP, 50V B 0.01UF K
C4712	24109103	CERAMIC CHIP, 50V B 0.01UF K
CA09	24109103	CERAMIC CHIP, 50V B 0.01UF K
CA14	24105680	CERAMIC CHIP, 50V CH 68PF J
CA15	24105680	CERAMIC CHIP, 50V CH 68PF J
CA48	24105221	CERAMIC CHIP, 50V CH 220PF J
CA49	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
	#3 24794100	ELECTROLYTIC, 16V 10UF M
CA50	24105270	CERAMIC CHIP, 50V CH 27PF J
CA51	24105270	CERAMIC CHIP, 50V CH 27PF J
CA53	24105101	CERAMIC CHIP, 50V CH 100PF J
CA54	24092730	CERAMIC CHIP, 16V B 0.1UF K
CA55	24100103	CERAMIC CHIP, 50V F 0.01UF Z
CA56	24100103	CERAMIC CHIP, 50V F 0.01UF Z
CA60	24092538	CERAMIC CHIP, 10V F 1UF Z

Location No.	Parts No.	Description
CA61	24793101	ELECTROLYTIC, 10V 100UF M
CA65	24092729	CERAMIC CHIP CK73B 16V 68000PFK
CA72	24105680	CERAMIC CHIP, 50V CH 68PF J
CA73	24105680	CERAMIC CHIP, 50V CH 68PF J
CA74	24105101	CERAMIC CHIP, 50V CH 100PF J
CA76	#1 24797229	ELECTROLYTIC, 50V 2.2UF M
	#2 24206229	ELECTROLYTIC, 50V 2.2UF M 7L 3A
	#3 24797229	ELECTROLYTIC, 50V 2.2UF M
CA77	24092538	CERAMIC CHIP, 10V F 1UF Z
CA82	24793470	ELECTROLYTIC CE04G 10V 47UF M
CA99	24353101	CERAMIC DISC, 50V CH 100PF J
CB01	#1 24794470	ELECTROLYTIC, 16V 47UF M
	#2 24203470	ELECTROLYTIC, 16V 47UF M 7L 3A
	#3 24794470	ELECTROLYTIC, 16V 47UF M
CB05	#1 24666100	ELECTROLYTIC, 10V 10UF M 3A
	#2 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
	#3 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
CC01	24109103	CERAMIC CHIP, 50V B 0.01UF K
CC11	#1 24109102	CERAMIC CHIP, 50V B 1000PF K
CC12	#1 24109102	CERAMIC CHIP, 50V B 1000PF K
CC25	#1 24109102	CERAMIC CHIP, 50V B 1000PF K
CC26	#1 24109102	CERAMIC CHIP, 50V B 1000PF K
CC32	#1 24232103	CERAMIC DISC, 50V F 0.01UF Z
CC33	#1 24232103	CERAMIC DISC, 50V F 0.01UF Z
CI01	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI02	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI03	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI04	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI05	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI06	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI08	#1 24797010	ELECTROLYTIC, 50V 1UF M
	#2 24206010	ELECTROLYTIC, 50V 1.0UF M 7L 3A
	#3 24797010	ELECTROLYTIC, 50V 1UF M
CI09	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI10	24794101	ELECTROLYTIC, 16V 100UF M
CI12	24092573	CERAMIC CHIP, 16V B 0.47UF K
CI13	24109102	CERAMIC CHIP, 50V B 1000PF K
CI14	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI16	24105150	CERAMIC CHIP, 50V CH 15PF J
CI17	#1 24797229	ELECTROLYTIC, 50V 2.2UF M
	#2 24206229	ELECTROLYTIC, 50V 2.2UF M 7L 3A
	#3 24797229	ELECTROLYTIC, 50V 2.2UF M
CI18	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
CI20	24105560	CERAMIC CHIP, 50V CH 56PF J
CI21	24105430	CERAMIC CHIP CC73CH 50V 43PF J
CI30	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI31	#1 24797479	ELECTROLYTIC, 50V 4.7UF M
	#2 24206479	ELECTROLYTIC, 50V 4.7UF M 7L 3A
	#3 24797479	ELECTROLYTIC, 50V 4.7UF M
CI56	24105120	CERAMIC CHIP, 50V CH 12PF J
CI57	24105510	CERAMIC CHIP, 50V CH 51PF J
CI60	24105470	CERAMIC CHIP, 50V CH 47PF J
CI61	24105470	CERAMIC CHIP, 50V CH 47PF J
CI62	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI63	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI65	24109153	CERAMIC CHIP, 50V B 0.015UF K
CI71	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI81	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI90	24105470	CERAMIC CHIP, 50V CH 47PF J
CI91	24105470	CERAMIC CHIP, 50V CH 47PF J
CI92	24109103	CERAMIC CHIP, 50V B 0.01UF K
CI93	24109103	CERAMIC CHIP, 50V B 0.01UF K
CS10	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
	#3 24794100	ELECTROLYTIC, 16V 10UF M
CS11	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
	#3 24794100	ELECTROLYTIC, 16V 10UF M
CS12	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
CS13	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M

Location No.	Parts No.	Description
CS15	24109103	CERAMIC CHIP, 50V B 0.01UF K
CS16	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
CS17	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
CS29	#1 24794220	ELECTROLYTIC, 16V 22UF M
	#2 24203220	ELECTROLYTIC, 16V 22UF M 7L 3A
	#3 24794220	ELECTROLYTIC, 16V 22UF M
CV01	#1 24212102	CERAMIC DISC, 50V B 1000PF K
CV02	#1 24212102	CERAMIC DISC, 50V B 1000PF K
CV03	#1 24212102	CERAMIC DISC, 50V B 1000PF K
CV04	#1 24212102	CERAMIC DISC, 50V B 1000PF K
CV13	24085942	ELECTROLYTIC, NONPOLAR, 16V 10UF M 5L
CV14	#1 24794100	ELECTROLYTIC, 16V 10UF M
	#2 24203100	ELECTROLYTIC, 16V 10UF M 7L 3A
	#3 24794100	ELECTROLYTIC, 16V 10UF M
CV34	24762471	ELECTROLYTIC, 10V 470UF M
CV36	24794221	ELECTROLYTIC, 16V 220UF M
<b>RESISTORS</b>		
R101	24553153	OXIDE METAL FILM, 1W 15K OHM J
R121	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R201	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R202	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R203	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R204	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R205	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R206	24011182	CHIP, METAL FILM, 1/20W 1.8K OHM J
R207	24011821	CHIP, METAL FILM, 1/20W 820 OHM J
R208	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R209	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R210	24011272	CHIP, 1/20W 2.7K OHM J
R212	24011273	CHIP, METAL FILM, 1/20W 27K OHM J
R215	24011362	CHIP, 1/20W 3.6K OHM J
R217	24366103	CARBON FILM, 1/6W 10K OHM J
R218	24367272	CARBON FILM, 1/6W 2.7K OHM J
R219	24011682	CHIP, METAL FILM, 1/20W 6.8K OHM J
R220	24011822	CHIP, METAL FILM, 1/20W 8.2K OHM J
R221	24011183	CHIP, METAL FILM, 1/20W 18K OHM J
R222	24011681	CHIP, METAL FILM, 1/20W 680 OHM J
R227	24367113	CARBON FILM, 1/2W 11K OHM J
R231	24011622	CHIP, METAL FILM, 1/20W 6.2K OHM J
R232	24011123	CHIP, METAL FILM, 1/20W 12K OHM J
R233	24367273	CARBON FILM, 1/6W 27K OHM G
R303	24321109	OXIDE METAL FILM, 1/2W 1 OHM J
R305	#1 24338159	OXIDE METAL FILM, 1W 1.5 OHM J
	#2 24338159	OXIDE METAL FILM, 1W 1.5 OHM J
	#3 24338109	OXIDE METAL FILM, 1W 1 OHM J
R312	24552561	OXIDE METAL FILM, 1/2W 560 OHM J
R314	24011562	CHIP, METAL FILM, 1/20W 5.6K OHM J
R319	24000445	CHIP JUMPER, 1608TYPE
R320	24000445	CHIP JUMPER, 1608TYPE
R321	24011183	CHIP, METAL FILM, 1/20W 18K OHM J
R322	24011303	CHIP, METAL FILM, 1/20W 30K OHM J
R324	24011182	CHIP, METAL FILM, 1/20W 1.8K OHM J
R325	24011752	CHIP, METAL FILM, 1/20W 7.5K OHM J
R327	24323159	OXIDE METAL FILM, 2W 1.5 OHM J
R328	24367472	CARBON FILM, 1/6W 4.7K OHM G
R329	24000633	METAL FILM, 1/4W 10K OHM F
R330	24000245	METAL FILM, 1/4W 33K OHM F
R331	24366153	CARBON FILM, 1/6W 15K OHM J
R336	24383101	OXIDE METAL FILM, 2W 100 OHM J
R341	24011182	CHIP, METAL FILM, 1/20W 1.8K OHM J
R342	24366562	CARBON FILM, 1/6W 5.6K OHM J
R343	24310189	OXIDE METAL FILM, 1/2W 1.8 OHM J
R344	24366392	CARBON FILM, 1/6W 3.9K OHM J
R349	24011473	CHIP, METAL FILM, 1/20W 47K OHM J
R401	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
R402	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
R403	24382123	OXIDE METAL FILM, 1W 12K OHM J
R404	24011680	CHIP, METAL FILM, 1/20W 68 OHM J
R405	24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
R406	24011682	CHIP, METAL FILM, 1/20W 6.8K OHM J
R407	24011223	CHIP, METAL FILM, 1/20W 22K OHM J

Location No.	Parts No.	Description
R408	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
R409	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R410	24872102	CHIP, 1/16W 1K OHM J
R411	24011470	CHIP, METAL FILM, 1/20W 47 OHM J
R415	24553272	OXIDE METAL FILM, 1W 2.7K OHM J
R416	24019330	OXIDE METAL FILM, 5W 3.6K OHM J
R417	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R418	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R420	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
R424	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R425	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R429	#1 24366560	CARBON FILM, 1/6W 56 OHM J
	#2 24366560	CARBON FILM, 1/6W 56 OHM J
	#3 24552560	OXIDE METAL FILM, 1/2W 56 OHM J
R431	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R432	24366332	CARBON FILM, 1/6W 3.3K OHM J
R433	24531680	FUSIBLE, 1/2W 68 OHM J
R434	24366101	CARBON FILM, 1/6W 100 OHM J
R441	24532102	FUSIBLE, 1W 1K OHM J
R448	24338398	OXIDE METAL FILM, 1W 0.39 OHM J
R470	24338688	OXIDE METAL FILM, 1W 0.68 OHM J
R471	24381820	OXIDE METAL FILM, 1/2W 82 OHM J
R473	24000637	METAL FILM, 1/4W 15K OHM F
R474	#1 24383181	OXIDE METAL FILM, 2W 180 OHM J
	#2 24383181	OXIDE METAL FILM, 2W 180 OHM J
	#3 24383910	OXIDE METAL FILM, 2W 91 OHM J
R479	24381331	OXIDE FILM 1/2W 330 J
R501	24011562	CHIP, METAL FILM, 1/20W 5.6K OHM J
R502	24011152	CHIP, METAL FILM, 1/20W 1.5K OHM J
R512	24011121	CHIP, METAL FILM, 1/20W 120 OHM J
R513	24011121	CHIP, METAL FILM, 1/20W 120 OHM J
R515	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
R520	24011271	CHIP, METAL FILM, 1/20W 270 OHM J
R521	24011271	CHIP, METAL FILM, 1/20W 270 OHM J
R522	24011271	CHIP, METAL FILM, 1/20W 270 OHM J
R544	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
R545	24011121	CHIP, METAL FILM, 1/20W 120 OHM J
R623	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R624	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R660	24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R661	24011223	CHIP, METAL FILM, 1/20W 22K OHM J
R662	24011220	CHIP, METAL FILM, 1/20W 22 OHM J
R663	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R664	24011152	CHIP, METAL FILM, 1/20W 1.5K OHM J
R665	24011152	CHIP, METAL FILM, 1/20W 1.5K OHM J
R666	24011273	CHIP, METAL FILM, 1/20W 27K OHM J
R667	24011272	CHIP, 1/20W 2.7K OHM J
R668	24011273	CHIP, METAL FILM, 1/20W 27K OHM J
R669	24011272	CHIP, 1/20W 2.7K OHM J
R673	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R674	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
R675	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
R690	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R691	24011220	CHIP, METAL FILM, 1/20W 22 OHM J
△ R801	24009954	METAL FILM, 1/2W 2.2M OHM J
R802	24383104	OXIDE METAL FILM, 2W 100K OHM J
R805	24366681	CARBON FILM, 1/6W 680 OHM J
R807	24376684	
△ R808	24019476	THERMISTOR, POSITIVE, AC290V 18 OHM M
R809	24376433	RD14B2H433J
R810	24007737	CERAMIC COVERED, 15W 2.2 OHM J
R811	24568271	CERAMIC COVERED, 7W 270 OHM J
R815	24366562	CARBON FILM, 1/6W 5.6K OHM J
R820	24019463	METAL PLATE RK99 2W R22 J
R821	24310479	OXIDE METAL FILM, 1/2W 4.7 OHM J
R823	24376152	CARBON FILM, 1/2W 1.5K OHM J
R827	24366102	CARBON FILM, 1/6W 1K OHM J
R829	24988027	METAL FILM 1W R47 J
R840	24366471	CARBON FILM, 1/6W 470 OHM J
R842	24366332	CARBON FILM, 1/6W 3.3K OHM J
R843	24366471	CARBON FILM, 1/6W 470 OHM J
R844	24321478	OXIDE METAL FILM, 1/2W 0.47 OHM J
R863	24366132	CARBON FILM, 1/6W 1.3K OHM J
R865	24366332	CARBON FILM, 1/6W 3.3K OHM J
R868	24366472	CARBON FILM, 1/6W 4.7K OHM J
R898	24321228	OXIDE METAL FILM, 1/2W 0.22 OHM J

Location No.	Parts No.	Description
△ R899	24004718	METAL GLAZE 1/2W 8R2M J
R901	#1 24376102	CARBON FILM, 1/2W 1K OHM J
	#2 24376102	CARBON FILM, 1/2W 1K OHM J
	#3 24376152	CARBON FILM, 1/2W 1.5K OHM J
R902	#1 24376102	CARBON FILM, 1/2W 1K OHM J
	#2 24376102	CARBON FILM, 1/2W 1K OHM J
	#3 24376152	CARBON FILM, 1/2W 1.5K OHM J
R903	#1 24376102	CARBON FILM, 1/2W 1K OHM J
	#2 24376102	CARBON FILM, 1/2W 1K OHM J
	#3 24376152	CARBON FILM, 1/2W 1.5K OHM J
R904	24366472	CARBON FILM, 1/6W 4.7K OHM J
R905	24366150	CARBON FILM, 1/6W 15 OHM J
R912	24366102	CARBON FILM, 1/6W 1K OHM J
R914	24366561	CARBON FILM, 1/6W 560 OHM J
R915	24366121	CARBON FILM, 1/6W 120 OHM J
R916	24366181	CARBON FILM, 1/6W 180 OHM J
R917	24366821	CARBON FILM, 1/6W 820 OHM J
R918	24366270	CARBON FILM, 1/6W 27 OHM J
R919	24366102	CARBON FILM, 1/6W 1K OHM J
R920	24000880	FUSIBLE, 1W 5.1 OHM J
R921	24366561	CARBON FILM, 1/6W 560 OHM J
R922	24366121	CARBON FILM, 1/6W 120 OHM J
R924	24366270	CARBON FILM, 1/6W 27 OHM J
R925	24366821	CARBON FILM, 1/6W 820 OHM J
R926	24366102	CARBON FILM, 1/6W 1K OHM J
R928	24366561	CARBON FILM, 1/6W 560 OHM J
R929	24366121	CARBON FILM, 1/6W 120 OHM J
R930	24366270	CARBON FILM, 1/6W 27 OHM J
R932	24366102	CARBON FILM, 1/6W 1K OHM J
R934	24366561	CARBON FILM, 1/6W 560 OHM J
R935	24366392	CARBON FILM, 1/6W 3.9K OHM J
R936	24545150	FUSIBLE, 1/4W 15 OHM J
R937	24366821	CARBON FILM, 1/6W 820 OHM J
R942	#1 24366562	CARBON FILM, 1/6W 5.6K OHM J
	#2 24366562	CARBON FILM, 1/6W 5.6K OHM J
R943	#1 24366562	CARBON FILM, 1/6W 5.6K OHM J
	#2 24366562	CARBON FILM, 1/6W 5.6K OHM J
R944	#1 24366562	CARBON FILM, 1/6W 5.6K OHM J
	#2 24366562	CARBON FILM, 1/6W 5.6K OHM J
R945	24366181	CARBON FILM, 1/6W 180 OHM J
R946	24366181	CARBON FILM, 1/6W 180 OHM J
R960	24383153	OXIDE METAL FILM, 2W 15K OHM J
R961	24383153	OXIDE METAL FILM, 2W 15K OHM J
R962	24383153	OXIDE METAL FILM, 2W 15K OHM J
R977	24366122	CARBON FILM, 1/6W 1.2K OHM J
R992	24366150	CARBON FILM, 1/6W 15 OHM J
R4200	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
R4711	24011684	CHIP, METAL FILM, 1/20W 680K OHM J
R4712	24011224	CHIP, METAL FILM, 1/20W 220K OHM J
R4715	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
R4716	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
R4760	24000247	METAL FILM, 1/4W 39K OHM F
RA770	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RA03	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RA04	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RA05	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RA11	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RA12	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RA40	24366683	CARBON FILM, 1/6W 68K OHM J
RA41	24366223	CARBON FILM, 1/6W 22K OHM J
RA42	24366103	CARBON FILM, 1/6W 10K OHM J
RA43	24366103	CARBON FILM, 1/6W 10K OHM J
RA44	24366223	CARBON FILM, 1/6W 22K OHM J
RA45	24366683	CARBON FILM, 1/6W 68K OHM J
RA49	24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
RA50	24011680	CHIP, METAL FILM, 1/20W 68 OHM J
RA53	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
RA54	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RA55	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RA56	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RA59	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
RA63	24367333	CARBON FILM, 1/6W 33K OHM G
RA64	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RA65	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
RA66	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
RA67	24011102	CHIP, METAL FILM, 1/20W 1K OHM J

Location No.	Parts No.	Description
RA68	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
RA69	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RA70	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RA71	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RA72	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RA73	24000445	CHIP JUMPER, 1608TYPE
RA74	24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
RA75	24011123	CHIP, METAL FILM, 1/20W 12K OHM J
RA76	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RA77	24011123	CHIP, METAL FILM, 1/20W 12K OHM J
RA78	24011183	CHIP, METAL FILM, 1/20W 18K OHM J
RA79	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
RB01	24366271	CARBON FILM, 1/6W 270 OHM J
RB05	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RB09	24366470	CARBON FILM, 1/6W 47 OHM J
RB48	24011332	CHIP, METAL FILM, 1/20W 3.3K OHM J
RB49	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RC11	#1 24011102	CHIP, METAL FILM, 1/20W 1K OHM J
	#2 24000445	CHIP JUMPER, 1608TYPE
	#3 24000445	CHIP JUMPER, 1608TYPE
RC12	#1 24011102	CHIP, METAL FILM, 1/20W 1K OHM J
	#2 24000445	CHIP JUMPER, 1608TYPE
	#3 24000445	CHIP JUMPER, 1608TYPE
RC16	#1 24011102	CHIP, METAL FILM, 1/20W 1K OHM J
	#2 24000445	CHIP JUMPER, 1608TYPE
	#3 24000445	CHIP JUMPER, 1608TYPE
RC17	#1 24011102	CHIP, METAL FILM, 1/20W 1K OHM J
	#2 24000445	CHIP JUMPER, 1608TYPE
	#3 24000445	CHIP JUMPER, 1608TYPE
RI01	24011330	CHIP, 1/20W 33 OHM J
RI02	24011682	CHIP, METAL FILM, 1/20W 6.8K OHM J
RI03	24011272	CHIP, 1/20W 2.7K OHM J
RI04	24011330	CHIP, 1/20W 33 OHM J
RI05	24011751	CHIP, METAL FILM, 1/20W 750 OHM J
RI06	24011330	CHIP, 1/20W 33 OHM J
RI07	24871390	CHIP, 1/8W 39 OHM J
RI08	24011821	CHIP, METAL FILM, 1/20W 820 OHM J
RI09	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI10	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RI11	24011302	CHIP, METAL FILM, 1/20W 3K OHM J
RI12	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RI13	24011332	CHIP, METAL FILM, 1/20W 3.3K OHM J
RI14	24000445	CHIP JUMPER, 1608TYPE
RI15	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RI16	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RI17	24011271	CHIP, METAL FILM, 1/20W 270 OHM J
RI18	24011331	CHIP, METAL FILM, 1/20W 330 OHM J
RI19	24011105	CHIP, METAL FILM, 1/20W 1M OHM J
RI20	24011821	CHIP, METAL FILM, 1/20W 820 OHM J
RI21	24011271	CHIP, METAL FILM, 1/20W 270 OHM J
RI30	24011473	CHIP, METAL FILM, 1/20W 47K OHM J
RI31	24011433	CHIP, METAL FILM, 1/20W 43K OHM J
RI32	24011123	CHIP, METAL FILM, 1/20W 12K OHM J
RI33	#1 24011272	CHIP, 1/20W 2.7K OHM J
	#2 24011272	CHIP, 1/20W 2.7K OHM J
	#3 24011302	CHIP, METAL FILM, 1/20W 3K OHM J
RI40	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
RI41	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI42	24011112	CHIP, 1/20W 1.1K OHM J
RI43	24011561	CHIP, METAL FILM, 1/20W 560 OHM J
RI44	24011471	CHIP, METAL FILM, 1/20W 470 OHM J
RI45	24011561	CHIP, METAL FILM, 1/20W 560 OHM J
RI46	24011122	CHIP, METAL FILM, 1/20W 1.2K OHM J
RI47	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RI51	24066046	VARIABLE. CARBON, 0.1W 20K N
RI52	24011331	CHIP, METAL FILM, 1/20W 330 OHM J
RI61	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI62	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI63	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI65	24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
RI67	24011563	CHIP, METAL FILM, 1/20W 56K OHM J
RI68	24011563	CHIP, METAL FILM, 1/20W 56K OHM J
RI69	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI71	24011134	CHIP, METAL FILM, 1/20W 130K OHM J
RI72	24011134	CHIP, METAL FILM, 1/20W 130K OHM J
RI73	24011303	CHIP, METAL FILM, 1/20W 30K OHM J

Location No.	Parts No.	Description
RI74	24011223	CHIP, METAL FILM, 1/20W 22K OHM J
RI77	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI78	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI79	24011333	CHIP, METAL FILM, 1/20W 33K OHM J
RI80	24011183	CHIP, METAL FILM, 1/20W 18K OHM J
RI81	24011301	CHIP, METAL FILM, 1/20W 300 OHM J
RI82	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RI83	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RI84	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RI85	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RI87	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RI88	24011203	CHIP, METAL FILM, 1/20W 20K OHM J
RI91	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RI97	24011563	CHIP, METAL FILM, 1/20W 56K OHM J
RI98	24011563	CHIP, METAL FILM, 1/20W 56K OHM J
RI99	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RS01	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RS02	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
RS03	24011103	CHIP, METAL FILM, 1/20W 10K OHM J
RS04	24011104	CHIP, METAL FILM, 1/20W 100K OHM J
RS11	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RS12	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RS19	24011101	CHIP, METAL FILM, 1/20W 10K OHM J
RS20	24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
RS21	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RS22	24011222	CHIP, METAL FILM, 1/20W 2.2K OHM J
RS23	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RS24	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RS27	24011561	CHIP, METAL FILM, 1/20W 560 OHM J
RS61	24552221	OXIDE METAL FILM, 1/2W 220 OHM J
RS62	24552221	OXIDE METAL FILM, 1/2W 220 OHM J
RV01	24366223	CARBON FILM, 1/6W 22K OHM J
RV02	24366223	CARBON FILM, 1/6W 22K OHM J
RV03	#1 24366102	CARBON FILM, 1/6W 1K OHM J
RV04	#1 24366102	CARBON FILM, 1/6W 1K OHM J
RV06	24011472	CHIP, METAL FILM, 1/20W 4.7K OHM J
RV07	24366202	CARBON FILM, 1/6W 2K OHM J
RV08	24366202	CARBON FILM, 1/6W 2K OHM J
RV17	24366750	CARBON FILM, 1/6W 75 OHM J
RV18	24011102	CHIP, METAL FILM, 1/20W 1K OHM J
RV24	24552181	OXIDE METAL FILM, 1/2W 180 OHM J
RV25	24011750	CHIP, METAL FILM, 1/20W 75 OHM J
RV26	24011101	CHIP, METAL FILM, 1/20W 100 OHM J
RV33	24011750	CHIP, METAL FILM, 1/20W 75 OHM J
RV34	24011750	CHIP, METAL FILM, 1/20W 75 OHM J
GJ04	24000445	CHIP JUMPER, 1608TYPE
GJ44	#2 24366472	CARBON FILM, 1/6W 4.7K OHM J
GJ45	#2 24366472	CARBON FILM, 1/6W 4.7K OHM J
GJ331	24000445	CHIP JUMPER, 1608TYPE
GR30	24000445	CHIP JUMPER, 1608TYPE
GR301	24000445	CHIP JUMPER, 1608TYPE
GRI01	24000445	CHIP JUMPER, 1608TYPE
GRI02	24000445	CHIP JUMPER, 1608TYPE
JP242	24000445	CHIP JUMPER, 1608TYPE
JP247	24000445	CHIP JUMPER, 1608TYPE
JR001	24000445	CHIP JUMPER, 1608TYPE

**COILS & TRANSFORMERS**

L101	#1	23248296	COIL, CHOKE
	#2	23248367	COIL, CHOKE 9X13H 221MMH 0.6A TLN3278AC
	#3	23248367	COIL, CHOKE 9X13H 221MMH 0.6A TLN3278AC
L301		23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
L320		23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
L441		23233999	COIL, LINEALITY, TLN2215AY
L461	#1	23248177	COIL, CHOKE, TLN3337AD
	#2	23248364	COIL, CHOKE 17X29H 680MMH 1.7A TLN3337AC
	#3	23248364	COIL, CHOKE 17X29H 680MMH 1.7A TLN3337AC
L462	#1	23231355	COIL, DEFLECTION YOKE, TDY-821AZ
	#2	23231355	COIL, DEFLECTION YOKE, TDY-821AZ
L462A	#1	23993696	BOARD, CORRECTION
	#2	23993696	BOARD, CORRECTION
L462B	#1	23949616	CONVER CORRECTOR, YV TC-R TC-R(YV)
	#2	23949616	CONVER CORRECTOR, YV TC-R TC-R(YV)
L462C	#1	23993081	METAL SHEET, CONV. CORRECTION TCRMXH01H
	#2	23993081	METAL SHEET, CONV. CORRECTION TCRMXH01H
L462D	#1	23948535	SHEET, MAGNETIC FERRITE



Location No.	Parts No.	Description
L462E	#2 23948535	SHEET, MAGNETIC FERRITE
	#1 23948536	SHEET, MAGNETIC FERRITE
	#2 23948536	SHEET, MAGNETIC FERRITE
L501	23289912	COIL, PEAKING COIL 3.3MMH TRF4339AU
L502	23289924	COIL, PEAKING COIL 33MMH TRF4330AU
L503	23289924	COIL, PEAKING COIL 33MMH TRF4330AU
L505	23289924	COIL, PEAKING COIL 33MMH TRF4330AU
L506	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
L507	23289924	COIL, PEAKING COIL 33MMH TRF4330AU
L805	23248234	COIL, CHOKE, TLN3481AC
L806	23248234	COIL, CHOKE, TLN3481AC
L810	23103279	FILTER, FERRITR CHOKE 3.5X5X2 TEM2014AO
L811	23103279	FILTER, FERRITR CHOKE 3.5X5X2 TEM2014AO
L883	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
L885	#1 23248288	COIL, CHOKE, TLN3299GH
	#2 23248327	COIL, CHOKE 10X13.3H 100MMH TLN3299AC
	#3 23248327	COIL, CHOKE 10X13.3H 100MMH TLN3299AC
L886	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
L888	23280016	COIL, PEAKING, TRF4100AZ
L889	23280016	COIL, PEAKING, TRF4100AZ
L891	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
L893	23280016	COIL, PEAKING, TRF4100AZ
L900	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
△ L901	#1 23200534	COIL, DG-0.37 TSB-2301AH
△	#2 23200534	COIL, DG-0.37 TSB-2301AH
△	#3 23200486	COIL, DG-0.37, 55T 22.5R-8TYPE TSB-2301BV
L902	#1 23289221	COIL, PEAKING, TRF4221AF
	#2 23289221	COIL, PEAKING, TRF4221AF
L903	#1 23289221	COIL, PEAKING, TRF4221AF
	#2 23289221	COIL, PEAKING, TRF4221AF
L904	#1 23289221	COIL, PEAKING, TRF4221AF
	#2 23289221	COIL, PEAKING, TRF4221AF
L905	#1 23289390	COIL, PEAKING, TRF4390AF
	#2 23289390	COIL, PEAKING, TRF4390AF
	#3 23289925	COIL, PEAKING, TRF4390AU
L906	#1 23289390	COIL, PEAKING, TRF4390AF
	#2 23289390	COIL, PEAKING, TRF4390AF
	#3 23289925	COIL, PEAKING, TRF4390AU
L907	#1 23289390	COIL, PEAKING, TRF4390AF
	#2 23289390	COIL, PEAKING, TRF4390AF
	#3 23289925	COIL, PEAKING, TRF4390AU
LA01	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
LC01	#1 23221129	CHOKE COIL , TRF9240AC
LC02	#1 23221129	CHOKE COIL , TRF9240AC
LC03	#1 23221129	CHOKE COIL , TRF9240AC
LC04	#1 23103279	FILTER, FERRITR CHOKE 3.5X5X2 TEM2014AO
	#2 23289910	COIL, PEAKING COIL 2.2MMH TRF4229AU
	#3 23289910	COIL, PEAKING COIL 2.2MMH TRF4229AU
LC05	#1 23103279	FILTER, FERRITR CHOKE 3.5X5X2 TEM2014AO
	#2 23289910	COIL, PEAKING COIL 2.2MMH TRF4229AU
	#3 23289910	COIL, PEAKING COIL 2.2MMH TRF4229AU
LI01	23238554	COIL, PEAKING, TRF4R22AJ
LI03	23238503	COIL, PEAKING, TRF4129AJ
LI04	23238706	COIL, PEAKING, TRF4470AJ
LI06	23238719	COIL, PEAKING, TRF4399AJ
LI07	23238712	COIL, PEAKING, TRF4150AJ
LI10	23289270	COIL, PEAKING, TRF4270AF
LI51	23232032	COIL, VARIABLE TRF3546D
LI56	23238562	COIL, PEAKING, TRF4109AJ
LI57	23238562	COIL, PEAKING, TRF4109AJ
LI61	23238710	COIL, PEAKING, TRF4220AJ
LI91	23238713	COIL, PEAKING, TRF4120AJ
T401	23224391	TRANSFORMER, DRIVE, TLN1104AH
△ T461	#1 23236738	TRANSFORMER, HORIZ OUTPUT, TFB4159AS(NO SEVICE PART)
△	#2 23236738	TRANSFORMER, HORIZ OUTPUT, TFB4159AS(NO SEVICE PART)
T461Z	23236612	TRANSFORMER, HORIZ OUTPUT, SERVICE, TFB4159ZD
△ T801	23211731	COIL, LINE FILTER, TRF3164AC
△ T802	23211777	COIL, LINE FILTER 37X40H 4.7MH TRF3202AR
△ T862	23217638	TRANSFORMER, TPW3534AM
G103	#1 23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
G104	#1 23248234	COIL, CHOKE, TLN3481AC
G105	#1 23248234	COIL, CHOKE, TLN3481AC
G106	#1 23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
G107	#1 23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
G108	#1 23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
G109	#1 23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO

Location No.	Parts No.	Description
G402	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
G461	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
G815	23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
GL10	#1 23103249	CORE, FERRITE BEAD 3.5X4.5, TEM2011AO
<b>SEMICONDUCTORS</b>		
Q104	70200934	IC, PST9126NR
Q107	#2 23205238	TRANSISTOR, NPN R1=R2=10K KRC402 (USM)
Q203	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q204	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q205	#1 23205045	TRANSISTOR, 2SA1037AKQ
	#2 23314163	TRANSISTOR, 2SA1162-Y
	#3 23314163	TRANSISTOR, 2SA1162-Y
Q208	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q210	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q211	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q301	23009352	IC, AN5522
Q321	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q340	#1 23205045	TRANSISTOR, 2SA1037AKQ
	#2 23314163	TRANSISTOR, 2SA1162-Y
	#3 23314163	TRANSISTOR, 2SA1162-Y
Q402	23114755	TRANSISTOR, 2SC2482FA-1
Q403	70114402	TRANSISTOR, 2SC3437-Y
Q404	#1 23314375	TRANSISTOR, ON4409
	#1 23314970	TRANSISTOR, 2SD2539(FA)
	#2 23314375	TRANSISTOR, ON4409
	#2 23314970	TRANSISTOR, 2SD2539(FA)
	#3 23314375	TRANSISTOR, ON4409
Q430	23114733	TRANSISTOR, 2SC2655-Y
Q431	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q471	#1 23114759	TRANSISTOR, 2SA949-Y
	#2 23205257	TRANSISTOR, PNP VCBO=-150V KTA1024-Y
	#3 23205257	TRANSISTOR, PNP VCBO=-150V KTA1024-Y
Q502	23009508	IC, RGB AMP MATSUSHITA AN15931A
Q610	23000867	IC, AN5274
Q623	#1 23114493	TRANSISTOR, RN2404
	#2 23205222	TRANSISTOR, PNP R1=R2=47KOHM SRA2204S (SOT-23)
	#3 23205222	TRANSISTOR, PNP R1=R2=47KOHM SRA2204S (SOT-23)
Q670	23205005	TRANSISTOR, KTA2014Y
Q801	23009322	IC, POW SW.REG.IC VDS=650V,PO= STR-G8656
△ Q826	23906937	IC, PHOTO COUPLER, ON3171-R
Q830	#1 23009188	IC, KIA7805API
	#2 23009843	IC, REGULATOR +5V 4% S7805PI
	#3 23009843	IC, REGULATOR +5V 4% S7805PI
Q835	#1 23009187	IC, REGULATOR +9V 4% KIA7809API
	#2 23009844	IC, REGULATOR +9V 4% S7809PI
	#3 23009844	IC, REGULATOR +9V 4% S7809PI
Q840	#1 23314141	TRANSISTOR, 2SC3852
	#2 23205160	TRANSISTOR, NPN VCBO=100V KTD2092
	#3 23205160	TRANSISTOR, NPN VCBO=100V KTD2092
Q841	23114879	TRANSISTOR, 2SC2230A-Y(C)
Q842	#1 23314965	TRANSISTOR, KTC3198 Y
	#2 23205085	TRANSISTOR, 2SC5343-Y
	#3 23205085	TRANSISTOR, 2SC5343-Y
Q843	23009512	IC, REGULATOR, +3.3V 2% TO-220F NJU7223F33
Q901	23314780	TRANSISTOR, 2SC4544
Q902	23205085	TRANSISTOR, 2SC5343-Y
Q903	23314780	TRANSISTOR, 2SC4544
Q904	23205085	TRANSISTOR, 2SC5343-Y
Q905	23314780	TRANSISTOR, 2SC4544
Q906	23205085	TRANSISTOR, 2SC5343-Y
Q907	23205081	TRANSISTOR, 2SA1980-Y

Location No.	Parts No.	Description
Q908	23205202	TRANSISTOR, 2SC5344Y
Q4030	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
Q4710	#1 23205045	TRANSISTOR, 2SA1037AKQ
	#2 23314163	TRANSISTOR, 2SA1162-Y
	#3 23314163	TRANSISTOR, 2SA1162-Y
QA10	23009648	IC, AT24C32A-10PI-2.7
QA51	#1 23009951	IC, PANA MICRO VCD COMB TEXT MN101E02HME
	#2 23009951	IC, PANA MICRO VCD COMB TEXT MN101E02HME
	#3 23009948	IC, PANA MICRO VCD COMB TEXT MN101E04GAF
QA71	#1 23205045	TRANSISTOR, 2SA1037AKQ
	#2 23314163	TRANSISTOR, 2SA1162-Y
	#3 23314163	TRANSISTOR, 2SA1162-Y
QA72	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
QA73	23114460	TRANSISTOR, RN1204
QB05	#1 23314204	TRANSISTOR, 2SC2412K,Q
	#2 23314475	TRANSISTOR, 2SC2712-Y
	#3 23314475	TRANSISTOR, 2SC2712-Y
QI01	23906820	IC, VIF/SIF SSOP 24PIN TA1267AF(FA02,EL)
QI02	23114611	TRANSISTOR, 2SC3357
QI04	23205005	TRANSISTOR, KTA2014Y
QI05	23205006	TRANSISTOR, KTC4075Y
QI06	23205005	TRANSISTOR, KTA2014Y
QI07	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI08	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI09	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI12	23314926	TRANSISTOR, FET, 2SK880-Y
QI15	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI16	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI17	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI61	23205006	TRANSISTOR, KTC4075Y
QI63	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI64	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI65	23205006	TRANSISTOR, KTC4075Y
QI71	23205006	TRANSISTOR, KTC4075Y
QI81	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QI91	23205006	TRANSISTOR, KTC4075Y
QI92	#1 23205140	TRANSISTOR, DTC114EUAT106
	#2 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
	#3 23205214	TRANSISTOR, NPN R1=R2=10KOHM SRC1202U (SOT-323)
QS01	23205006	TRANSISTOR, KTC4075Y
QS02	23205006	TRANSISTOR, KTC4075Y
QS03	#1 70114396	TRANSISTOR, 2SC3326B
	#2 23205204	TRANSISTOR, NPN VEO=25V KTC2875B-RTK
	#3 23205204	TRANSISTOR, NPN VEO=25V KTC2875B-RTK
QS04	#1 70114396	TRANSISTOR, 2SC3326B
	#2 23205204	TRANSISTOR, NPN VEO=25V KTC2875B-RTK
	#3 23205204	TRANSISTOR, NPN VEO=25V KTC2875B-RTK
QS11	23000359	IC, MM1111XF
QS12	23000359	IC, MM1111XF
QV02	#1 23314962	TRANSISTOR, KTA1266 Y
	#2 23205081	TRANSISTOR, 2SA1980-Y
	#3 23205081	TRANSISTOR, 2SA1980-Y
QV10	#1 23114498	TRANSISTOR, RN1405
	#2 23205209	TRANSISTOR, NPN R1=2.2K R2=47K SRC1205S (SOT-23)

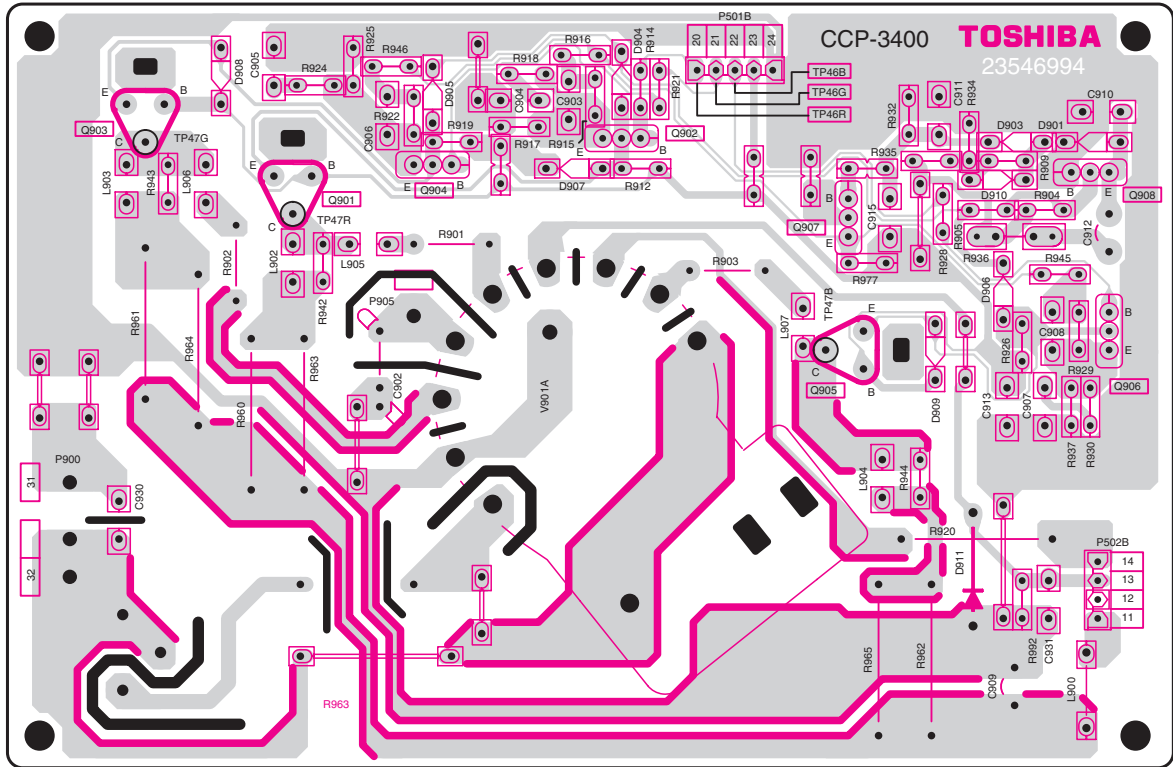
Location No.	Parts No.	Description
	#3 23205209	TRANSISTOR, NPN R1=2.2K R2=47K SRC1205S (SOT-23)
QV11	23905020	IC, MM1116XF
QV12	23114462	TRANSISTOR, RN1202
D101	23118607	DIODE, ZENER, RD33ESA B3
D210	#1 23316231	DIODE, 1SS355
	#2 23357447	DIODE, SWITCH SILICON KDS160-RTK/USC
	#3 23357447	DIODE, SWITCH SILICON KDS160-RTK/USC
D211	#1 23316231	DIODE, 1SS355
	#2 23357447	DIODE, SWITCH SILICON KDS160-RTK/USC
	#3 23357447	DIODE, SWITCH SILICON KDS160-RTK/USC
D301	#1 23118822	DIODE, ERB12-02
	#2 23357448	DIODE, DIODE IF=1.0A GP10D
	#3 23357448	DIODE, DIODE IF=1.0A GP10D
D302	23357372	DIODE, AXIAL EU2JGF-41U2
D303	23316794	DIODE, SC570A
D340	23118529	DIODE, ZENER, RD5.6ES B2
D406	23357372	DIODE, AXIAL EU2JGF-41U2
D408	23357375	DIODE, 3JHJGR-M2
D431	23118530	DIODE, ZENER, RD5.6ESA B1
D432	23316231	DIODE, 1SS355
D441	23118531	DIODE, ZENER, RD5.1ESA B3
D444	23316254	DIODE, ERC06-15
D461	23357364	DIODE, RU4JGF- M2 RU4JGF- M2
D467	23357372	DIODE, AXIAL EU2JGF-41U2
D470	23118511	DIODE, ZENER, RD12ES B2
D473	23118635	DIODE, ZENER, RD2.7ESA B2
D474	23118635	DIODE, ZENER, RD2.7ESA B2
D670	23316231	DIODE, 1SS355
D671	23316231	DIODE, 1SS355
D672	23316231	DIODE, 1SS355
D673	23316231	DIODE, 1SS355
D674	23316231	DIODE, 1SS355
D801	#1 23357237	DIODE, TS4B05G-A1
	#2 23357237	DIODE, TS4B05G-A1
	#3 23118173	DIODE, RBV-406M
D805	23357012	DIODE, 1SS244
D806	23357372	DIODE, AXIAL EU2JGF-41U2
D809	23118529	DIODE, ZENER, RD5.6ES B2
D810	23118616	DIODE, ZENER, RD27ESA B2
D812	23357372	DIODE, AXIAL EU2JGF-41U2
D819	23118526	DIODE, ZENER, RD6.8ES B2
D840	23118528	DIODE, ZENER, RD5.6ESA B3
D848	23118531	DIODE, ZENER, RD5.1ESA B3
D872	23118511	DIODE, ZENER, RD12ES B2
D883	23357336	DIODE, RL3A LF014-3
D885	23357372	DIODE, AXIAL EU2JGF-41U2
D891	23357372	DIODE, AXIAL EU2JGF-41U2
D901	23357450	DIODE, VRM=90V IO=130MA ISS133
D903	23357450	DIODE, VRM=90V IO=130MA ISS133
D904	23357450	DIODE, VRM=90V IO=130MA ISS133
D905	23357450	DIODE, VRM=90V IO=130MA ISS133
D906	23357450	DIODE, VRM=90V IO=130MA ISS133
D907	23357450	DIODE, VRM=90V IO=130MA ISS133
D908	23357450	DIODE, VRM=90V IO=130MA ISS133
D909	23357450	DIODE, VRM=90V IO=130MA ISS133
D910	23357450	DIODE, VRM=90V IO=130MA ISS133
D911	23357449	DIODE, DIODE IO=1.0A ERB10JGR-41A-1AU
D4710	23316231	DIODE, 1SS355
DA78	#1 23316231	DIODE, 1SS355
	#2 23357447	DIODE, SWITCH SILICON KDS160-RTK/USC
	#3 23357447	DIODE, SWITCH SILICON KDS160-RTK/USC
DB01Z	23358571	DIODE, LED, BT-H254N-31-SH
DI01	#1 23314428	DIODE, SILICON BAND SWICHING 1SS312(TE85L)
	#2 23357446	DIODE, VR=30V IF=50MA KDS112-RTK/USM
	#3 23357446	DIODE, VR=30V IF=50MA KDS112-RTK/USM
DI02	#1 23118043	DIODE, CHIP VRM80V 100MA A-C US DAP202U T106
	#2 23357212	DIODE, CHIP VRM=85V IO=200MA KC KDS120-RTK
	#3 23357212	DIODE, CHIP VRM=85V IO=200MA KC KDS120-RTK
DI03	#1 23118138	DIODE, MA77
	#2 23357445	DIODE, KDS114-RTK/USC KDS114-RTK/USC
	#3 23357445	DIODE, KDS114-RTK/USC KDS114-RTK/USC
KB01	23009490	IC, REMOCON RECEIVER, PIC-TB19
<b>MISCELLANEOUS</b>		
△ F470	23144646	FUSE, CARTRIDGE 5X20 250V 0.8A
F470A	23165433	FUSE HOLDER, 5.2 SOC

Location No.	Parts No.	Description
△ F801	23144508	FUSE, CARTRIDGE 5.2X20, 250V 4.0A
F801A	23165433	FUSE HOLDER, 5.2 SOC
M461A	23192962	ANODE CAP ASSY, TCC5606AT
M461B	23509110	CABLE, FOCUS
M461C	23509371	CABLE ASSY, SCREEN
N724	#1 23965900	TAPE, GLASS-CLOTH, W/ADHESIVE W=18 T=0.18
	#2 23965900	TAPE, GLASS-CLOTH, W/ADHESIVE W=18 T=0.18
N728	#1 23960101	SILICONE RUBBER, TSE-382 RTV
	#2 23960101	SILICONE RUBBER, TSE-382 RTV
P661	23023116	PLUG, HEAD PHONE JACK 3.5MM PJ3-14-7
△ P801	#1 23372052	POWER CORD, 250V2.5A
△	#2 23372160	POWER CORD, SSA 127V15A 250V6A CMC-02
△	#3 23372224	POWER CORD, CEE 250V 2.5A VIET M4206N
P802	#1 23368249	POWER CORD, 2P 11.88MM VH-JST
	#2 23368249	POWER CORD, 2P 11.88MM VH-JST
P900	23164725	CONNECTOR, PLUG 2P
P910	23164725	CONNECTOR, PLUG 2P
PI01A	23023145	PLUG, B15PS-TB-2 B15PS-TB-2
PI02A	23023145	PLUG, B15PS-TB-2 B15PS-TB-2
PV01	#1 23023139	JACK, PIN JACK 3P AV3-23-002
	#2 23023139	JACK, PIN JACK 3P AV3-23-002
	#3 23023057	JACK, 3P KM04036B01-01
PV02	23023200	JACK, 8P (3SW) DAV8-31B01113S01
△ S801	23344481	SWITCH, POWER, AAPY2211
SA01	#1 23145227	SWITCH, PUSH, 1C1P
	#2 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
	#3 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
SA02	#1 23145227	SWITCH, PUSH, 1C1P
	#2 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
	#3 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
SA03	#1 23145227	SWITCH, PUSH, 1C1P
	#2 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
	#3 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
SA04	#1 23145227	SWITCH, PUSH, 1C1P
	#2 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
	#3 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
SA05	#1 23145227	SWITCH, PUSH, 1C1P
	#2 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
	#3 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
SA06	#1 23145227	SWITCH, PUSH, 1C1P
	#2 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
	#3 23344443	SWITCH, TACTING SWITCH TSV TYP TSVB-1
△ V901A	23903147	SOCKET, ISH46S-E ICE 29MM
V901B	#1 23102959	MAGNET, RUBBER
	#2 23102959	MAGNET, RUBBER
V901M	#1 23102424	CONVERGENCE MAGNET, MAG-1082
	#2 23102424	CONVERGENCE MAGNET, MAG-1082
W661	23351227	SPEAKER, 60X120 16-OHM 3W SEA SPK-1418AC
W662	23351227	SPEAKER, 60X120 16-OHM 3W SEA SPK-1418AC
XA03	23153759	CRYSTAL RESONATOR, 10MHZ
Z891	23144542	PROTECTOR, 491SERIES, 125V 4A
Z902	#3 23103840	FERRITE CORE, TFE1013
ZI01	23303223	SAW FILTER, PIF
ZI02	23303210	SAW FILTER, SIF
ZI05	23303085	CERAMIC TRAP, TCF1092
ZI06	23303136	CERAMIC TRAP, TCF1097
ZI07	23303290	FILTER, FIL-CTRAP-4.5MHZ TCF1142AM
ZI54	23303166	CERAMIC TRAP, 39.5MHZ TCF1107
ZI55	23303224	CERAMIC TRAP, TCF1120AM
ZI61	23303294	FILTER, FIL CFILT 5.5MHZ TCF1146AM
ZI62	23303269	FILTER, FIL CFILT 6.0MHZ TCF1136AM
ZI63	23303270	FILTER, CFILT 6.5MHZ, TCF1137AM
ZI64	23303289	FILTER, TCF1141AM
<b>PC BOARD ASSEMBLIES</b>		
* U901	#1 23761146	PC BOARD ASSY, PD0607C CRT/D TSP2003040360
	#2 23761146	PC BOARD ASSY, PD0607C CRT/D TSP2003040360
	#3 23761589	PC BOARD ASSY, PD0607D CRT/D TSP2003063034
* U902	#1 23761789	PC BOARD ASSY, PD1563B SIG 21S TSP2003082887
	#2 23761595	PC BOARD ASSY, PD1420K SIG 21S TSP2003063040
	#3 23761738	PC BOARD ASSY, PD1420P SIG 21S TSP2003073105
* U903	#1 23761819	PC BOARD ASSY, PD1346J IF/MONO TSP2003091602
	#2 23761148	PC BD ASSY PD1346A IF/MONO, TSP2003040362
	#3 23761704	PC BOARD ASSY, PD1346E IF/MONO TSP2003072912
* U904	#1 23761790	PC BOARD ASSY, PD1421I CONT 21 TSP2003082888
	#2 23761344	PC BD ASSY, PD1421A CONT 21S TSP2003050238

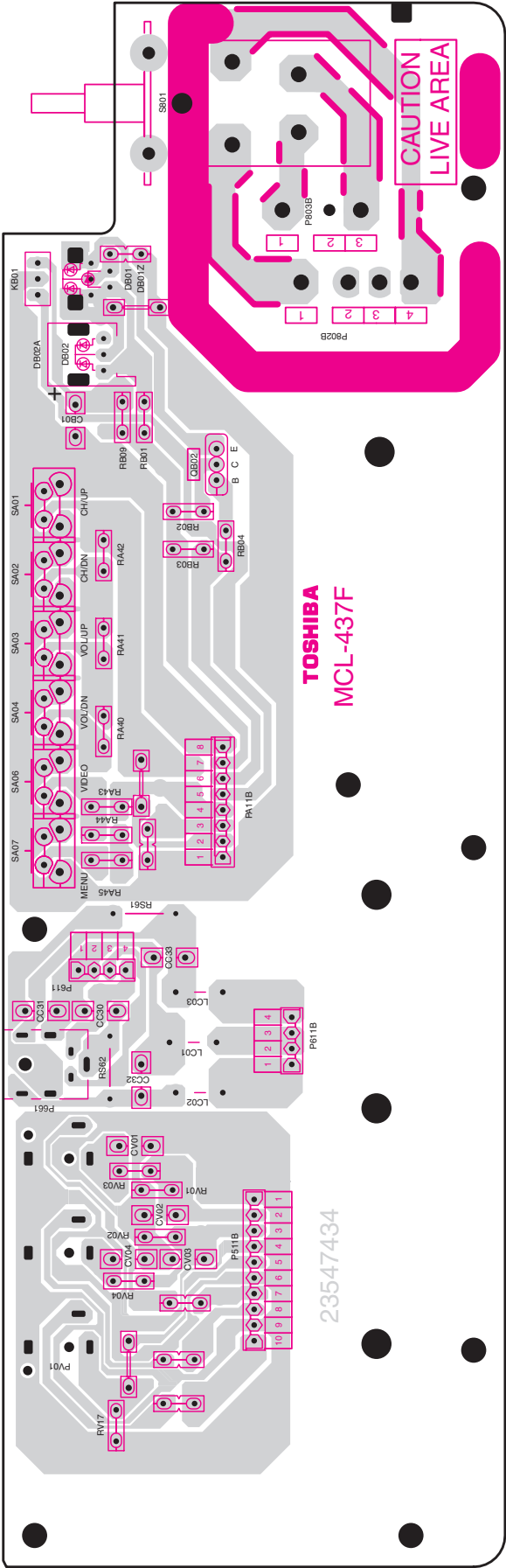
Location No.	Parts No.	Description
	#3 23761597	PC BOARD ASSY, PD1421E CONT 21 TSP2003063042
<b>PICTURE TUBE</b>		
△ V901	#1 23312954	PICTURE TUBE, A51LVV896X, 21FFG02
△	#2 23312954	PICTURE TUBE, A51LVV896X, 21FFG02
△	#3 23324023	PICTURE TUBE, 20VPF ITC ZERO A51LVV897X06
<b>TUNER</b>		
H001	#1 23321450	TUNER, ASIA HYPER FS D-J, ENV59DA7G3
	#2 23321417	TUNER, ASIA MLT IICPLL D-J LG ECA33LX6
	#2 23321428	TUNER, ASIA MLT IICPLL SANYO ECA33LX8
	#2 23321452	TUNER, ASIA MLT IICPLL SAMSUNG ECA33LXB
	#2 23321473	TUNER, ASIA MLT IICPLL SANYO ECA33LXC
	#3 23321357	TUNER, ECA33LX1, ASIA MLT IICPLL D-J MATU
	#3 23321450	TUNER, ASIA HYPER FS D-J, ENV59DA7G3
<b>ACCESSORIES</b>		
K902	23306459	REMOCON HAND UNIT IR, CTVPAL CT-90119
Y101A	#1 23566082	OWNER'S MANUAL
	#2 23566081	OWNER'S MANUAL
	#3 23566083	OWNER'S MANUAL
Y108	#2 23725049	CONNECTOR, AC ADAPTER NC3528
Y120	23943846	BAG, POLY
Y125	#3 23142083	ADAPTOR
Y126	#2 23124089	ANTENNA, ROD ANTENNA 700MM 2-52245 CA
	#3 23124081	ANTENNA, ROD TT-ANT07-TB
<b>CABINET PARTS</b>		
A201	#1 23532539	COVER, FRONT ASSY TSP2003090403
	#2 23532539	COVER, FRONT ASSY TSP2003090403
	#3 23532418	COVER, FRONT ASSY F/C ASSY
A264	23929509	HOLDER, BUTTON
A265	23445744	KNOB, POWER BUTTON TSP2003021909
A266	#1 23428269	DOOR, FRONT TSP2003090402
	#2 23428269	DOOR, FRONT TSP2003090402
	#3 23428218	DOOR, FRONT TSP2003021918
A270	23451204	PUSH CATCH
A401	#1 23532018	COVER, BACK PROPER TSP2003021919
	#2 23532018	COVER, BACK PROPER TSP2003021919
A701	#1 23067211	CARTON, BOX
	#2 23067210	CARTON, BOX
	#3 23067208	CARTON, BOX
A702A	#1 23946613	PACKING, TOP TSP2003050607
	#2 23946613	PACKING, TOP TSP2003050607
	#3 23946695	PACKING, TOP
A702B	#1 23946614	PACKING, BOTTOM TSP2003050608
	#2 23946614	PACKING, BOTTOM TSP2003050608
	#3 23946696	PACKING, BOTTOM
AT03	23588765	REMOCON PART, BATTERY COVER, CT-90119
E501	23198694	WIRE, CRT EARTH, 21D7DXE
E912	#1 23848729	WEDGE, YOKE HOLDING, 3 REQUIRED
	#2 23848729	WEDGE, YOKE HOLDING, 3 REQUIRED



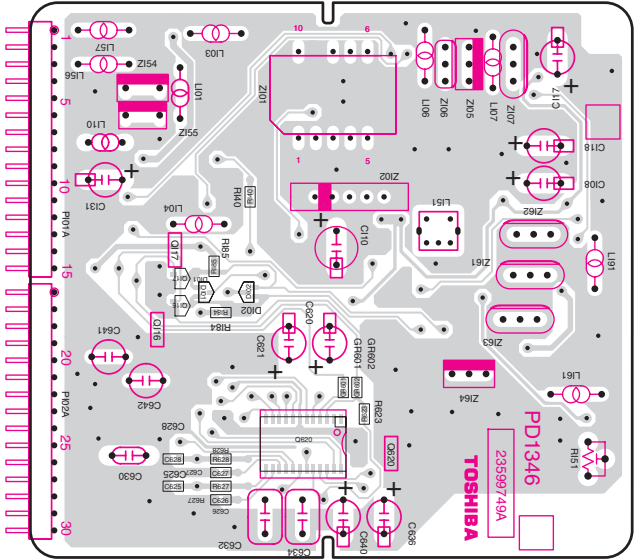
CRT/D BOARD PD0607C (21CSZ5TR/21SZ5TM) (U901)  
CRT/D BOARD PD0607D (21SZ5VX) (U901)  
BOTTOM (FOIL) SIDE



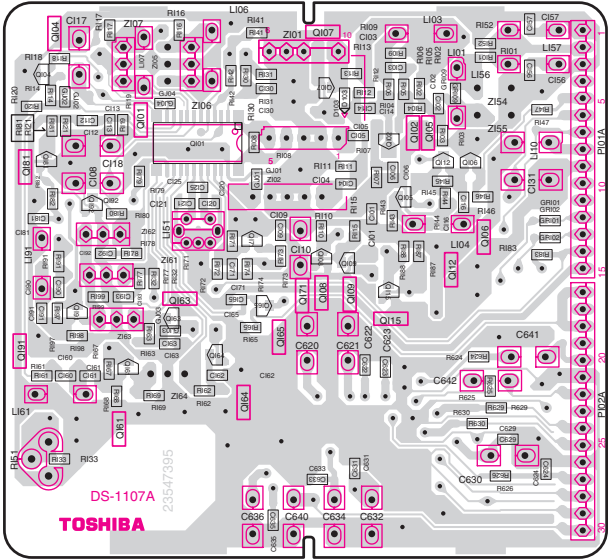
FRONT AV BOARD PD1421I (21CSZ5TR) (U904)  
FRONT AV BOARD PD1421A (21SZ5TM) (U904)  
FRONT AV BOARD PD1421E (21SZ5VX) (U904)  
BOTTOM (FOIL) SIDE



IF/MONO BOARD PD1346J (21CSZ5TR) (U903)  
IF/MONO BOARD PD1346A (21SZ5TM) (U903)  
IF/MONO BOARD PD1346E (21SZ5VX) (U903)  
TOP (COMPONENT) SIDE



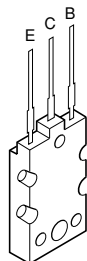
IF/MONO BOARD PD1346J (21CSZ5TR) (U903)  
IF/MONO BOARD PD1346A (21SZ5TM) (U903)  
IF/MONO BOARD PD1346E (21SZ5VX) (U903)  
BOTTOM (FOIL) SIDE



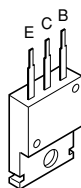
This is a detailed technical drawing of a Toshiba MCL-437F VCR circuit board. The drawing shows the layout of the printed circuit board (PCB) with various components, traces, and labels. The components are labeled with their part numbers and values, such as resistors (R), capacitors (C), inductors (L), and integrated circuits (IC). The drawing also includes a warning label "CAUTION LIVE AREA" and a note "MCL-437F TOSHIBA 23547433". The board is populated with numerous components, including resistors, capacitors, inductors, diodes, and integrated circuits. The layout is complex, with many traces and components packed closely together. The drawing is a top-down view of the board, showing the components and traces from the front side.

## TERMINAL VIEW OF TRANSISTORS

① 2SD2253  
(old)  
2SC5243



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



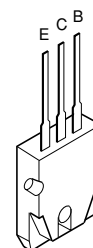
③ 2SC752GTM  
2SC2482  
2SC2655  
2SC4721P



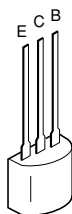
④ 2SC752  
2SA562TM  
2SA1015  
2SC1815  
2SC2878  
2SC1740S  
2SC2120  
2SA9335



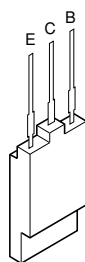
⑤ 2SA1788



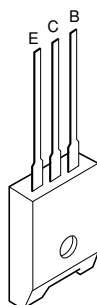
⑥ RN2203  
RN2201  
RN2004  
RN1203  
RN1204  
RN2204  
RN1205  
RN1202  
RN1201



⑦ 2SD1554  
2SD2253  
2SD1556  
2SC5143  
2SD2553



⑧ ON4409




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# SCHEMATIC DIAGRAM


**MODEL : 21CSZ5TR/21SZ5TM/21SZ5VX**



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

**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 the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

## NOTE:

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.  
 1/2R = Metal or Metal oxide of 1/2 watt      1/2S = Carbon composition of 1/2 watt  
 1RF = Fuse resistor of 1 watt      10W = Cement of 10 watt  
 K =  $\pm 10\%$     G =  $\pm 2\%$     F =  $\pm 1\%$
2. CAPACITOR 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.  
 All capacitors are ceramic 50V, unless otherwise noted as the following marks.  

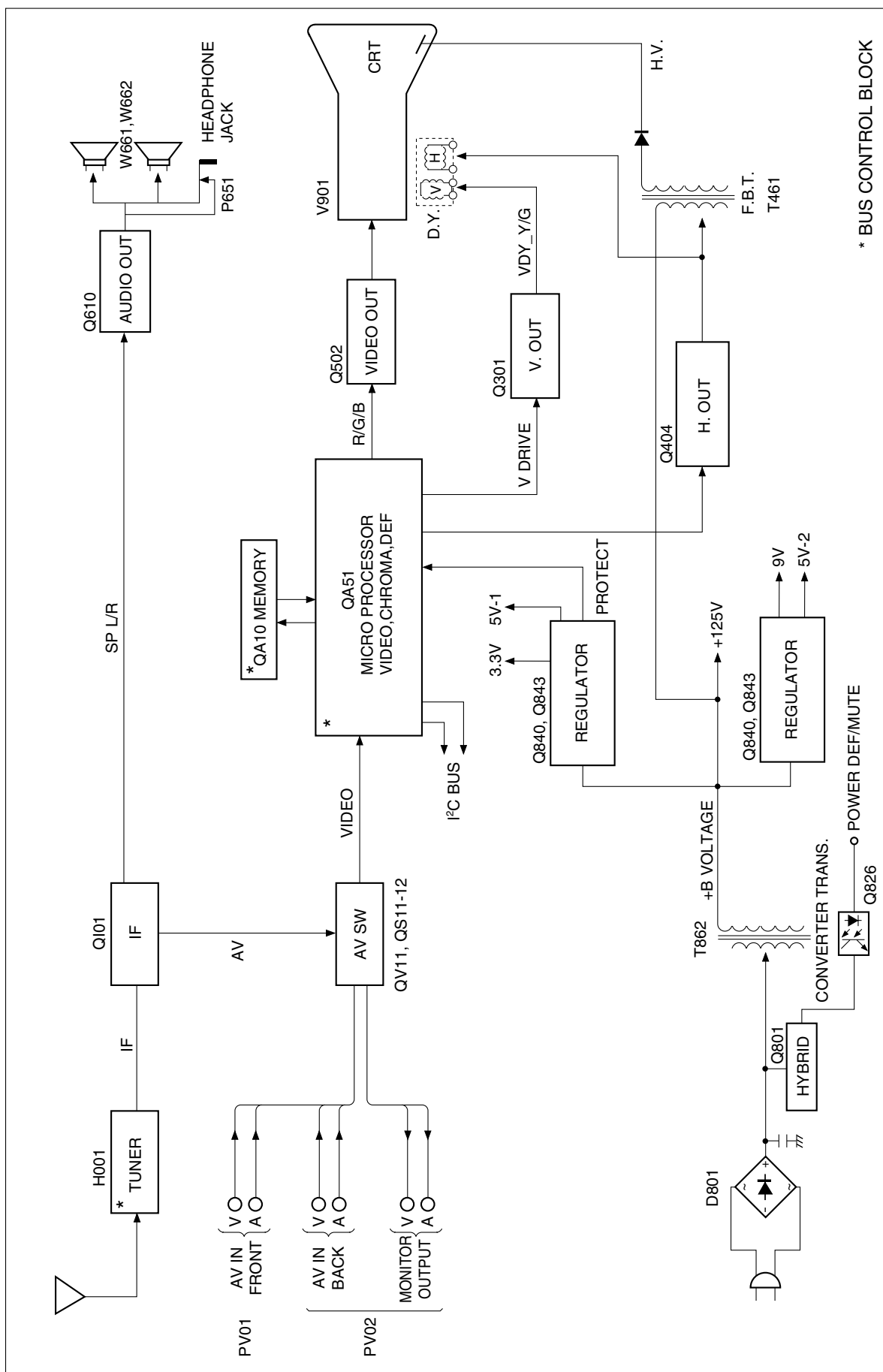
 Electrolytic capacitor

 Mylar capacitor
3. The parts indicated with "" have special characteristics, and should be replaced with identical parts only.
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassis ground, using a color bar signal with all controls at normal, line voltage at 220 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary  $\pm 20\%$  except H.V.

## ■ SCHEMATIC DIAGRAM STRUCTURE:

MAIN Circuit	TUNER	[ SHEET- 1/9 ] .....	1/12
	AV SW	[ SHEET- 2/9 ] .....	2/12
	VERT	[ SHEET- 3/9 ] .....	3/12
	HDEF	[ SHEET- 4/9 ] .....	4/12
	VCD/MICON	[ SHEET- 5/9 ] .....	5/12
	A-PRO/AUDIO-AMP	[ SHEET- 6/9 ] .....	6/12
	PROTECTOR	[ SHEET- 7/9 ] .....	7/12
	POWER	[ SHEET- 8/9 ] .....	8/12
	LOW B REG	[ SHEET- 9/9 ] .....	9/12
CRT DRIVE Circuit .....			10/12
FRONT AV Circuit .....			11/12
IF Circuit .....			12/12

# CIRCUIT BLOCK DIAGRAM



SPECIFICATIONS						
MODEL		21CSZ5TR		21SZ5TM		21SZ5VX
Rated voltage		~ 220 - 240V, 50Hz		~ 110 - 240V, 50/60Hz		
Power consumption (at ~ 220V 50Hz)		110W		107W		
Dimensions (Width x Depth x Height)		613(W) X 487(D) X 470(H) mm				
Mass		23.4kg				
Picture Tube		Type 21 Flat square picture tube (549.1mm) Overall picture tube measured diagonally (505.5mm) Viewable picture tube measured diagonally 90° deflection				
Television system (Aerial input)	Channel coverage	<b>System</b>	<b>Channel</b>	<b>VHF</b>	<b>UHF</b>	<b>CATV</b>
		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
		NTSC M	JAPAN	1 - 12	13 - 62	M1~M10, S1~41
	Special RF signal	<b>Color system:</b> NTSC4.43 <b>Sound system:</b> 5.5/6.0/6.5 MHz				
Color system		PAL / SECAM / NTSC4.43 / NTSC3.58				
Sound output		2.5 W x 2				
Terminals		DVD Component input: Video/Y, P <sub>B</sub> /C <sub>B</sub> , P <sub>R</sub> /C <sub>R</sub> , Audio L, Audio R  Monitor output: Video, Audio L, Audio R  Headphone output: Ø 3.5 mm (mini jack stereo type)		Input: Video/Audio (monaural) Monitor output: Video/Audio (monaural)		
Speaker		6 x 12cm (2)				

\* Please refer to owner's manual in detail.

**TOSHIBA CORPORATION**  
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN