TOSHIBA

FILE NO. 030-200216

SERVICE MANUAL

COLOUR TELEVISION

Z23B Chassis

32Z23G, 28Z23G

PUBLISHED IN JAPAN Jun. 2002 So

TOSHIBA

FILE NO. 033-200222

SERVICE MANUAL

COLOUR TELEVISION

Z23B Chassis

32Z23B, 28Z23B

– SUMMARY –

32Z23B, 28Z23B are the same as 32Z23G except for the parts tabled on back of this sheet. Use this service manual together with the original service manual of 32Z23G, 28Z23G (File No. 030-200216).

PUBLISHED IN JAPAN, Jul., 2002 So

REPLACEMENT PARTS LIST DIFFERENCES

Location No.	Part No.	Description
C114	24797229	EL, 2.2μF, ±20%, 50V
CV26	24797470	EL, 47μF, ±20%, 50V
CV39	24794220	EL, 22μF, ±20%, 16V
CV41	24794220	EL, 22μF, ±20%, 16V
H001	23321413	Tuner, TEDB7-205A
L161	23262300	Coil, IF, TRF1246AV
⚠P801	23372151	Power Cord
QA01	23009166	IC, SAA5563/0620
RV18	24366472	CF, 4700 ohm
RV25	24366222	CF, 2200 ohm
RV60	24366561	CF, 560 ohm
RV61	24366561	CF, 560 ohm
✻U902	23787678	SIGNAL Board, PD0720A (32Z23B)
✻U902	23787680	SIGNAL Board, PD0720C (28Z23B)
✻U903	23787674	POWER & DEF Board, PD0721A (32Z23B)
✻U903	23787677	POWER & DEF Board, PD0721D (28Z23B)
⚠Y101	23565660	Owner's Manual, English, 32Z23B/28Z23B
Y131	23589236	QSUG
Z102	23303237	Filter, 38MHZ, K9353M
Z103	23303186	Ceramic Trap, TCF1111

TOSHIBA CORPORATION

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

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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.

   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.
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.

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.

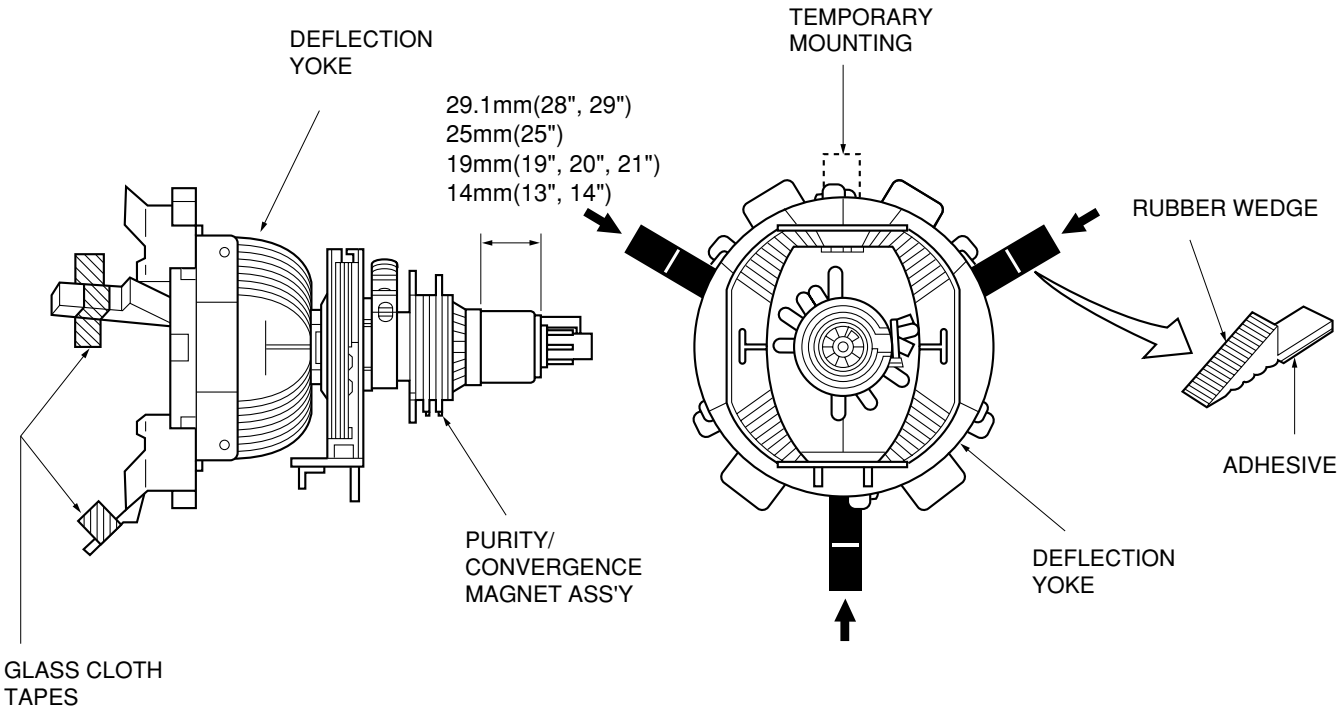


Figure 1.

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.

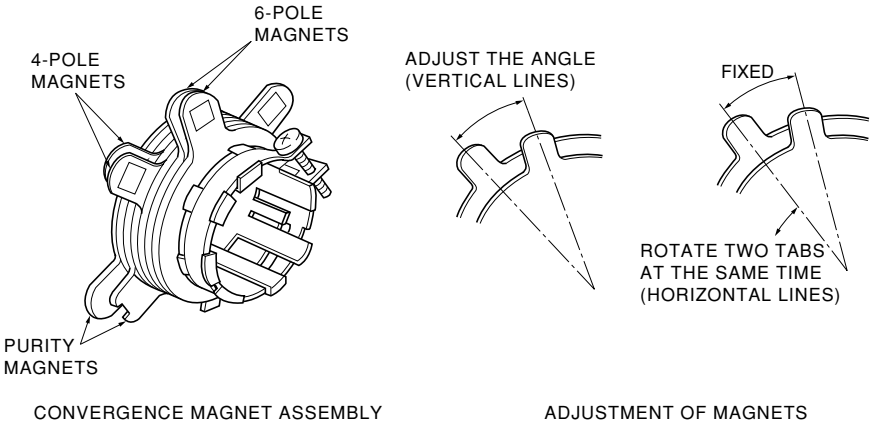


Figure 2.

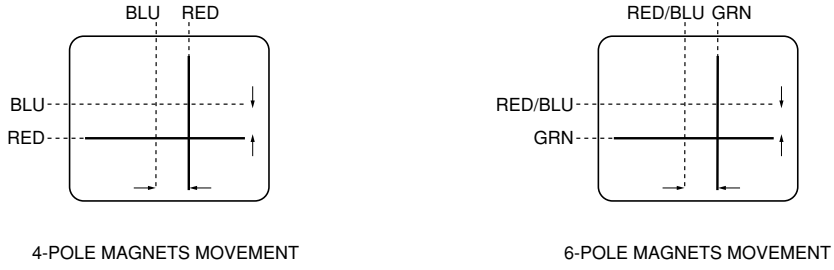


Figure 3. Dot Movement Pattern

SERVICE MODE

1. ENTERING TO SERVICE MODE

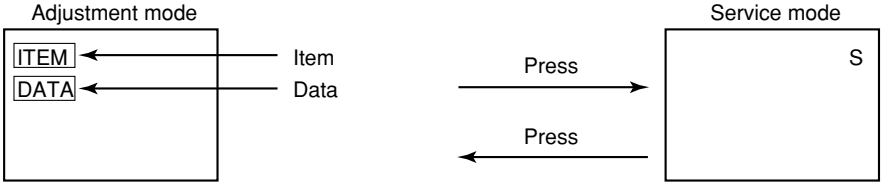
1) Press 🔇 button once on Remote Control.
2) Press 🔇 button again to keep pressing.
3) While pressing the 🔇 button, press MENU button on TV set.



(Service mode display)

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:	INFO 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 – – – Color thickness correction
“CNTX” (or “SCNT”) selection :	4 button note: Displayed differently as shown below, depending on the setting of the receiving color system.
“COLC” selection :	5 button COLP (PAL)
“TNTC” selection :	6 button COLC (NTSC)
Self diagnostic display ON/OFF :	9 button 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 QA02

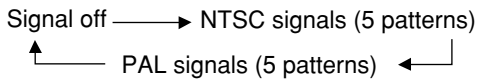
After replacing QA02, the following initialization is required.

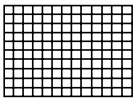
1. Enter the service mode, then select any register item.
2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been complated.
3. Check the picture carefully. If necessary, adjust any adjustment item above. Perform “Auto search Memory”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

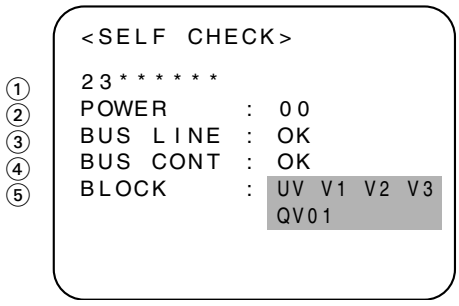


Signals	Picture
• Red raster • Green raster • Blue raster • All White	
• Black cross-hatch	

* 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.



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 (→①1)
V2 : VIDEO 2 input mode (→①2)
V3 : VIDEO 3 input mode (→①3)

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.

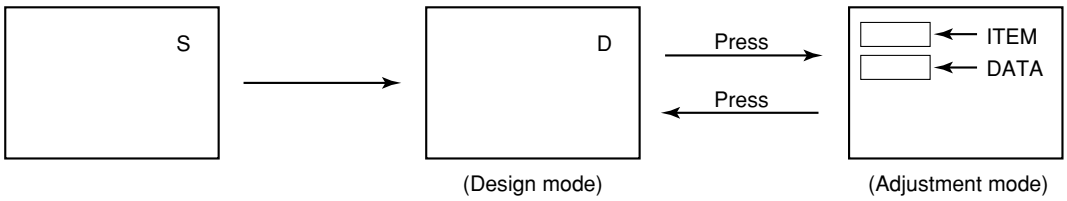
NOTE: Component which controls character display on screen is ICF01 (QT01) (TELETEXT IC.). If this display function fails to operate due to damage in ICF01 (QT01), self diagnosis procedure is as follows.
(1) In case that power indicator is blinking with interval of 0.5 seconds; it means protecting circuit (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 FUCTION for some model.

DESIGN MODE

1. ENTERING TO DESIGN MODE

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



(Design mode) (Adjustment mode)

When QA02 is initialized, items “OPT0”, “OPT1” and “OPT2” 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”, “OPT1” and “OPT2”.

2. SELECTING THE ADJUSTING ITEMS

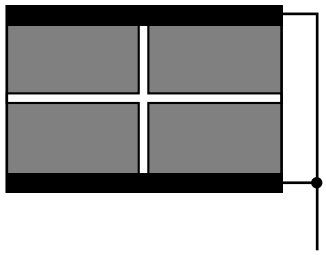
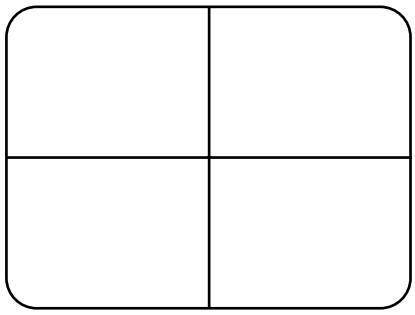
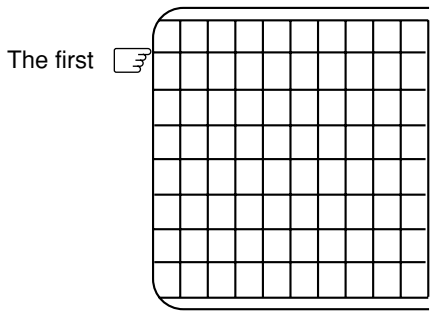
Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3.
(▲ button for reverse order)

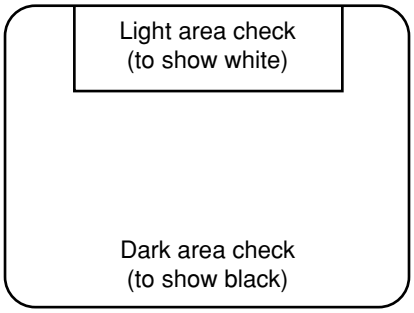
Refer to table-3 for data of design mode.
(See SETTING & ADJUSTING DATA on page 13)

3. ADJUSTING THE DATA

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

ELECTRICAL ADJUSTMENTS

ITEM	ADJUSTMENT PROCEDURE
FOCUS VR ADJ	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.
SUB-BRIGHTNESS (BRTC) Note: Constrict the picture height until the vertical retrace line appears adjusting the item HIT (HEIGHT).	1. Set CONTRAST to minimum, and BRIGHTNESS to center by adjusting user controls. 2. Set the TV in service mode to get cross-bar of inside pattern. 3. Select BRTC (brightness correction), and adjust the ◿ – /+ button to reduce the value so that white portion of inside pattern slightly light. 4. Adjust ◿ – /+ 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.  Belt of vertical retrace
HORIZONTAL POSITION ADJUSTMENT (HPOS) VERTICAL POSITION ADJUSTMENT (VPOS)	1. Set the TV in service mode, and get black cross-bar signal with VIDEO button on remote hand unit. 2. Select either HPOS (Horizontal picture phase) or VPOS (Vertical picture phase) with CHANNEL ▲, ▼ buttons, and adjust horizontal or vertical picture position in the center of screen with VOLUME ◿ – /+ buttons. 
VERTICAL AMPLITUDE ADJUSTMENT (HIT)	1. Set the TV in service mode, and get black cross-hatch signal with VIDEO button on remote hand unit. 2. Select HIT (Vertical amplitude) with CHANNEL ▲, ▼ buttons, and adjust vertical amplitude with VOLUME ◿ – /+ buttons so that vertical amplitude lacks a little. 3. Adjust vertical amplitude with VOLUME ◿ – /+ buttons so that the first bar on cross-hatch signal touches edge of screen.  The first

ITEM	ADJUSTMENT PROCEDURE
WHITE BALANCE ADJUSTMENT ● CUTOFF ADJUSTMENT (RCUT) (GCUT) (BCUT) ● DRIVE ADJUSTMENT (GDRV) (BDRV)	1. Set Contrast to 40, and brightness to +20 by picture control. 2. Receive the Black and White pattern. 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. 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. ※ To correct white balance in light area, select GDRV and BDRV with CHANNEL ▲, ▼ buttons to adjust. ※ To correct white balance in dark area, perform fine adjustment of RCUT, GCUT and BCUT. 

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 INFORMATIONS

SETTING & ADJUSTING DATA

【 SAFETY INSTRUCTIONS 】

		32", 28"
HIGH VOLTAGE AT ZERO BEAM:	(A)	31.9 kV
MAX HIGH VOLTAGE:	(B)	34.0 kV
AC VOLTAGE	(C)	220~240 V

Table-1

【 SERVICE MODE 】

ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

Item	Adjustment	Reference data	
RCUT	R CUTOFF (B/W)	40H	←
GCUT	G CUTOFF (B/W)	40H	←
BCUT	B CUTOFF (B/W)	40H	←
GDRV	R DRIVE	40H	←
BDRV	B DRIVE	40H	←
BRTC	SUB BRIGHT CEN	40H	←
COLP	SUB COLOR CEN PAL	3CH	←
COLS	SUB COLOR CEN SECAM	3CH	←
SCNT	SUB CONTRAST	07H	←
SRY	SECAM R-Y	08H	←
SBY	SECAM B-Y	07H	←
HPOS	H-POSITION (WIDE)	09H	07H

Item	Adjustment	Reference data	
VPOS1	V-POSITION (WIDE)	80H	←
HIT	HEIGHT (WIDE)	34H	←
VLIN	V-LINEARITY (WIDE)	13H	←
WID	PICTURE WIDTH (WIDE)	34H	22H
PARA	E-W PARABOLA (WIDE)	15H	11H
CNR	E-W CORNER (WIDE)	18H	0FH
TRAP	TRAPEZIUM (WIDE)	3BH	3CH
RAGC	RF AGC	27H	←
CSAW	CENTER SAW	06H	05H
CPAR	CENT PARA	05H	02H
HSC	E-W S CORR	10H	12H

Table-2

【 DESIGN MODE 】

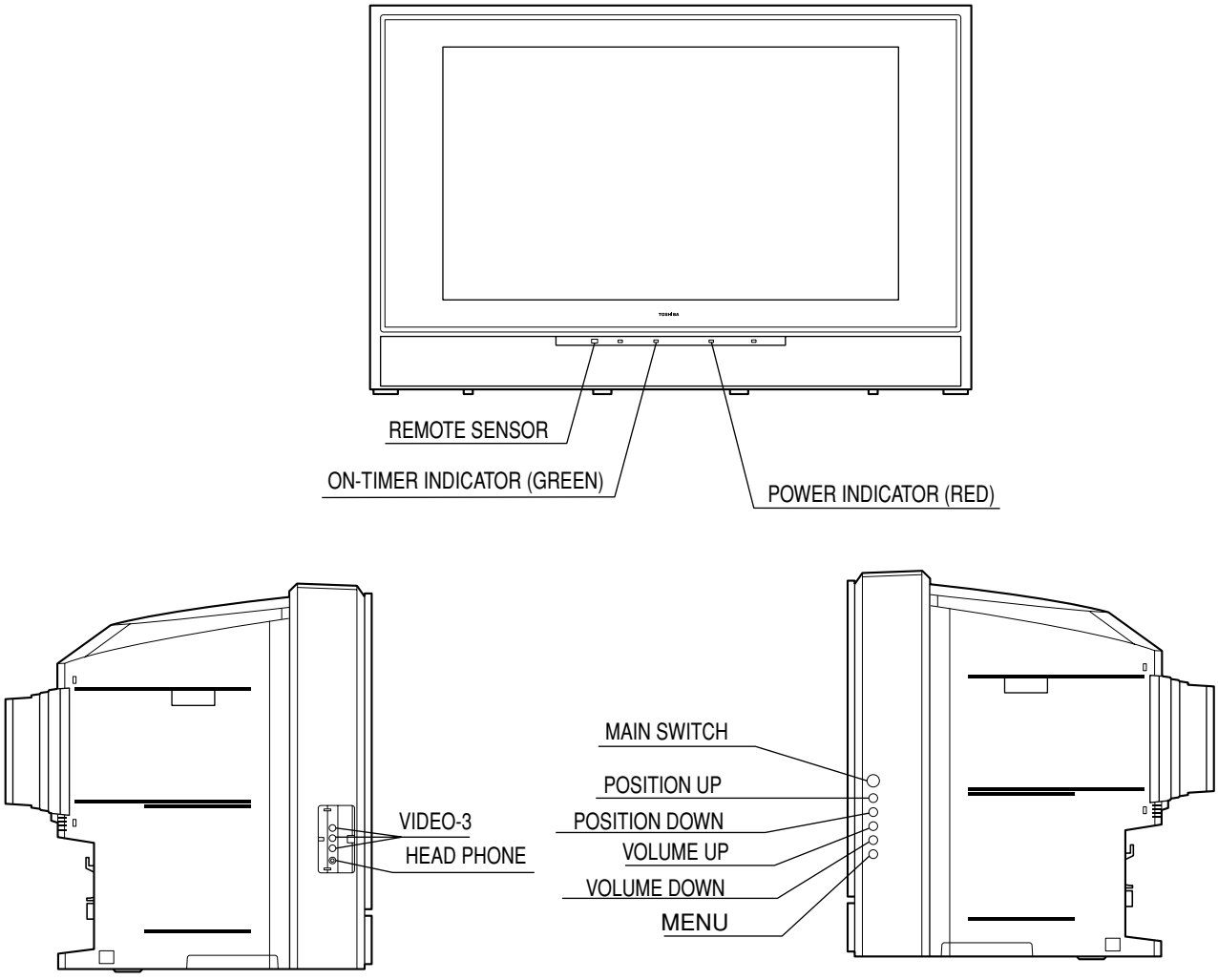
ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Preset Data	Data	Remarks
* There are no adjustments of the design mode.				

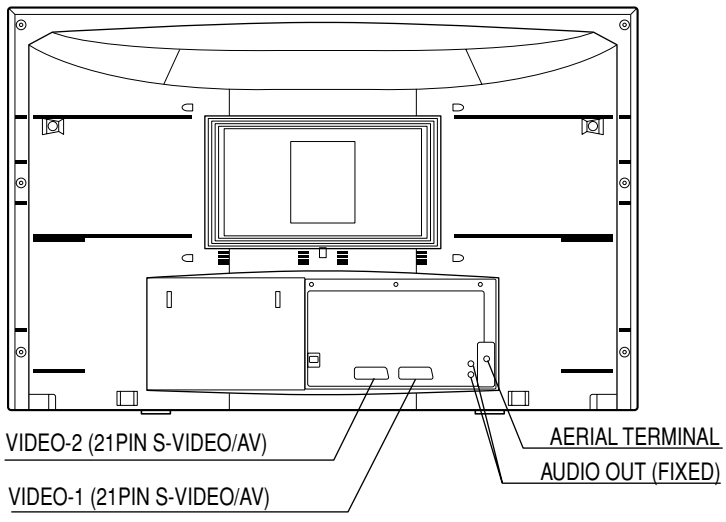
Table-3

LOCATION OF CONTROLS

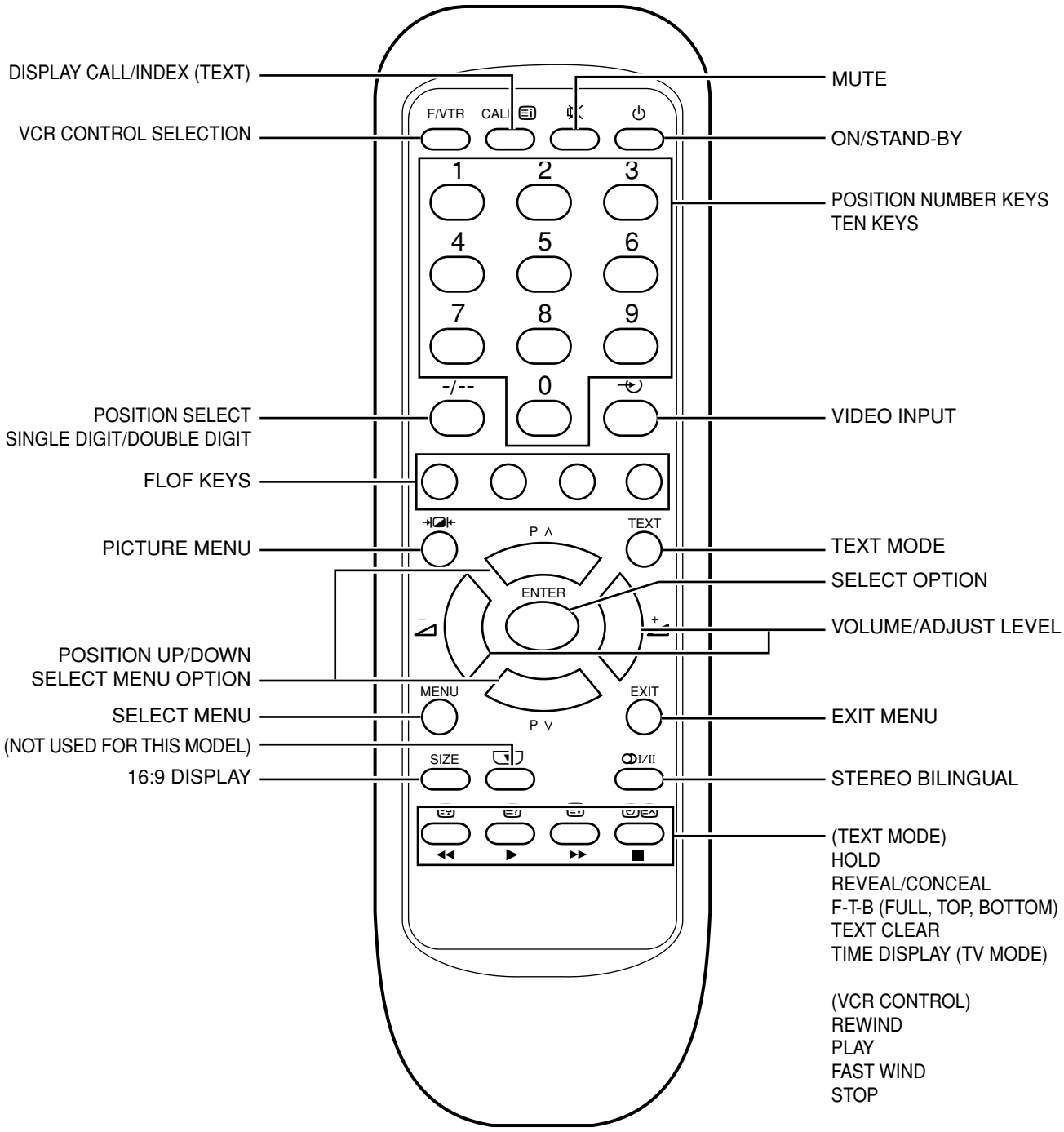
Front



Rear terminals



Remote Controller



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.*

Models : 32Z23G, 28Z23G

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 ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Parts No.	Description
CAPACITORS		
C103	24232103	CERAMIC DISC, 50V F 10000PF Z
C104	24232103	CERAMIC DISC, 50V F 10000PF Z
C106	24503049	PLASTIC FILM, 63V 0.47UF J
C107	24232103	CERAMIC DISC, 50V F 10000PF Z
C108	24232103	CERAMIC DISC, 50V F 10000PF Z
C109	24232103	CERAMIC DISC, 50V F 10000PF Z
C110	24232103	CERAMIC DISC, 50V F 10000PF Z
C111	24503049	PLASTIC FILM, 63V 0.47UF J
C112	24436120	CERAMIC DISC, 50V SL 12PF J
C113	24232103	CERAMIC DISC, 50V F 10000PF Z
C114	24794470	ELECTORLYTIC, 16V 47UF M
C115	24232103	CERAMIC DISC, 50V F 10000PF Z
C116	24503041	PLASTIC FILM, 63V 0.1UF J
C117	24232103	CERAMIC DISC, 50V F 10000PF Z
C118	24794101	ELECTROLYTIC, 16V 100UF M
C121	24232103	CERAMIC DISC, 50V F 10000PF Z
C123	24794221	ELECTORLYTIC, 16V 220UF M
C124	24232103	CERAMIC DISC, 50V F 10000PF Z
C130	24436470	CERAMIC DISC, 50V SL 47PF J
C160	24794101	ELECTROLYTIC, 16V 100UF M
C161	24797478	ELECTROLYTIC, 50V 0.47UF M
C162	24212332	CERAMIC DISC, 50V B 3300PF K
C165	24794100	ELECTROLYTIC, 16V 10UF M
C166	24797010	ELECTROLYTIC, 50V 1UF M
C168	24794100	ELECTROLYTIC, 16V 10UF M
C169	24590103	PLASTIC FILM, 50V 0.01MF J
C180	24797229	ELECTROLYTIC, 50V 2.2UF M
C181	24212102	CERAMIC DISC, 50V B 1000PF K
C183	24794101	ELECTROLYTIC, 16V 100UF M
C188	24794100	ELECTROLYTIC, 16V 10UF M
C189	24232103	CERAMIC DISC, 50V F 10000PF Z
C190	24232103	CERAMIC DISC, 50V F 10000PF Z
C199	24797100	ELECTROLYTIC, 50V 10UF M
C216	24797479	ELECTROLYTIC, 50V 4.7UF M
C221	24436100	CERAMIC DISC, 50V SL 10PF C
C222	24436100	CERAMIC DISC, 50V SL 10PF C
C223	24436100	CERAMIC DISC, 50V SL 10PF C
C224	24794100	ELECTROLYTIC, 16V 10UF M
C225	24503041	PLASTIC FILM, 63V 0.1UF J
C226	24206108	ELECTROLYTIC, 50V 0.1UF M 7L 3A
C233	24797010	ELECTROLYTIC, 50V 1UF M

Location No.	Parts No.	Description
C302	24214471	CERAMIC DISC, 500V B 470PF K
C303	24214471	CERAMIC DISC, 500V B 470PF K
C305	24667222	ELECTROLYTIC, 25V 2200UF M 3A
C308	24797221	ELECTROLYTIC, 50V 220UF M
C309	24591102	PLASTIC FILM, 50V 1000PF J
C310	24795222	ELECTROLYTIC, 25V 2200UF M
C313	24082057	PLASTIC FILM, 100V 220000PF J
C316	24795471	ELECTROLYTIC, 25V 470UF M
C317	24214561	CERAMIC DISC, 500V B 560PF K
C318	24794471	ELECTROLYTIC, 16V 470UF M
C319	24212102	CERAMIC DISC, 50V B 1000PF K
C320	24795471	ELECTROLYTIC, 25V 470UF M
C320	24796479	ELECTROLYTIC, 35V 4.7UF M
C322	24617912	ELECTROLYTIC, 50V 2.2UF K 3A LI
C323	24503049	PLASTIC FILM, 63V 0.47UF J
C325	24590223	PLASTIC FILM, 50V 0.022MF J
C326	24797010	ELECTROLYTIC, 50V 1UF M
C327	24794471	ELECTROLYTIC, 16V 470UF M
C329	24503045	PLASTIC FILM, 63V 0.22UF J
C331	24503038	PLASTIC FILM, 63V 0.056UF J
C332	24212102	CERAMIC DISC, 50V B 1000PF K
C341	24503049	PLASTIC FILM, 63V 0.47UF J
C366	24082049	PLASTIC FILM, 100V 47000PF J
C370	24794100	ELECTROLYTIC, 16V 10UF M
C371	24797100	ELECTROLYTIC, 50V 10UF M
C374	24797470	ELECTROLYTIC, 50V 47UF M
C375	24797470	ELECTROLYTIC, 50V 47UF M
C403	24590822	PLASTIC FILM, 50V 8200PF J
C404	24797478	ELECTROLYTIC, 50V 0.47UF M
C410	24214471	CERAMIC DISC, 500V B 470PF K
C413	24214821	CERAMIC DISC, 500V B 820PF K
C416	24678010	ELECTROLYTIC, 200V 1UF M 3A
C417	24214391	CERAMIC DISC, 500V B 390PF K
C420	24794101	ELECTROLYTIC, 16V 100UF M
⚠ C423	24829393	PLASTIC FILM, 400V 39000PF J
C430	24820472	PLASTIC FILM, 630V 4700PF J
C431	24232103	CERAMIC DISC, 50V F 10000PF Z
C431	24232103	CERAMIC DISC, 50V F 10000PF Z
C432	24590103	PLASTIC FILM, 50V 0.01MF J
C433	24794100	ELECTROLYTIC, 16V 10UF M
C434	24794222	ELECTROLYTIC, 16V 2200UF M
C435	24232103	CERAMIC DISC, 50V F 10000PF Z

Location No.	Parts No.	Description
⚠ C440	24503275	MT PLA CAP T 1500VH 802H
C442	24082913	PLASTIC FILM, 315V 0.20UF J
⚠ C444	24503349	MT PLA CAP T 1800VH 432H
C445	24828473	PLASTIC FILM, 200V 47000PF J
C446	24679330	ELECTROLYTIC, 250V 33UF M 3A
C447	24829133	PLASTIC FILM, 400V 0.013UF J
C448	24640908	ELECTROLYTIC, 160V 33UF M 3A LI
C451	24503042	PLASTIC FILM, 63V 0.12UF J
C452	24503043	MT PLA CAP, 63V 0.15UF J
C460	24073092	ELECTROLYTIC, 50V 330UF M 3A
C462	24794222	ELECTROLYTIC, 16V 2200UF M
C463	24212222	CERAMIC DISC, 50V B 2200PF K
C464	24640900	ELEC, CE04W 100V 4.7MF CE04W2A4R7
⚠ C466	24095879	PLASTIC FILM, 630V 22000PF H
C470	24794470	ELECTORLYTIC, 16V 47UF M
C471	24085988	ELECTROLYTIC, NONPOLAR, 50V 1.0UF M 7L
C472	24503049	PLASTIC FILM, 63V 0.47UF J
C473	24669010	ELECTROLYTIC, 50V 1.0UF M 3A
C475	24820103	PLASTIC FILM, 630V 10000PF J
C476	24794220	ELECTROLYTIC, 16V 22UF M
C477	24503041	PLASTIC FILM, 63V 0.1UF J
C478	24503038	PLASTIC FILM, 63V 0.056UF J
C479	24214471	CERAMIC DISC, 500V B 470PF K
C481	24085988	ELECTROLYTIC, NONPOLAR, 50V 1.0UF M 7L
C484	24590103	PLASTIC FILM, 50V 0.01MF J
C495	24092343	CERAMIC DISC, 2KV 680PF K
C496	24092343	CERAMIC DISC, 2KV 680PF K
C498	24503252	MT PLA CAP T 400V 304J
C510	24503041	PLASTIC FILM, 63V 0.1UF J
C511	24503041	PLASTIC FILM, 63V 0.1UF J
C512	24212222	CERAMIC DISC, 50V B 2200PF K
C516	24232103	CERAMIC DISC, 50V F 10000PF Z
C521	24503041	PLASTIC FILM, 63V 0.1UF J
C522	24503041	PLASTIC FILM, 63V 0.1UF J
C523	24503041	PLASTIC FILM, 63V 0.1UF J
C524	24794101	ELECTROLYTIC, 16V 100UF M
C525	24590103	PLASTIC FILM, 50V 0.01MF J
C526	24590222	PLASTIC FILM, 50V 2200PF J
C527	24353090	CERAMIC DISC CC45CH 50V CH 9PF C
C528	24206228	ELECTROLYTIC, 50V 0.22UF M 7L 3A
C529	24794101	ELECTROLYTIC, 16V 100UF M
C560	24503041	PLASTIC FILM, 63V 0.1UF J
C561	24503041	PLASTIC FILM, 63V 0.1UF J
C562	24503041	PLASTIC FILM, 63V 0.1UF J
C563	24503041	PLASTIC FILM, 63V 0.1UF J
C564	24503041	PLASTIC FILM, 63V 0.1UF J
C565	24503041	PLASTIC FILM, 63V 0.1UF J
C567	24794100	ELECTROLYTIC, 16V 10UF M
C568	24232103	CERAMIC DISC, 50V F 10000PF Z
C569	24232103	CERAMIC DISC, 50V F 10000PF Z
C570	24232103	CERAMIC DISC, 50V F 10000PF Z
C571	24794100	ELECTROLYTIC, 16V 10UF M
C572	24794470	ELECTORLYTIC, 16V 47UF M
C573	24794100	ELECTROLYTIC, 16V 10UF M
C601	24797478	ELECTROLYTIC, 50V 0.47UF M
C603	24212102	CERAMIC DISC, 50V B 1000PF K
C612	24797100	ELECTROLYTIC, 50V 10UF M
C613	24797100	ELECTROLYTIC, 50V 10UF M
C621	24590103	PLASTIC FILM, 50V 0.01MF J
C626	24797470	ELECTROLYTIC, 50V 47UF M
C633	24503042	PLASTIC FILM, 63V 0.12UF J
C634	24503042	PLASTIC FILM, 63V 0.12UF J
C636	24797100	ELECTROLYTIC, 50V 10UF M
C637	24667470	ELECTROLYTIC, 25V 47UF M 3A
C638	24667470	ELECTROLYTIC, 25V 47UF M 3A

Location No.	Parts No.	Description
C639	24796102	ELECTROLYTIC, 35V 1000UF M
C641	24795470	ELECTROLYTIC, 25V 47UF M
C642	24797100	ELECTROLYTIC, 50V 10UF M
C643	24797479	ELECTROLYTIC, 50V 4.7UF M
C644	24668102	ELECTROLYTIC, 35V 1000UF M 3A
C645	24668102	ELECTROLYTIC, 35V 1000UF M 3A
C647	24232103	CERAMIC DISC, 50V F 10000PF Z
C648	24797479	ELECTROLYTIC, 50V 4.7UF M
C649	24797479	ELECTROLYTIC, 50V 4.7UF M
C667	24212102	CERAMIC DISC, 50V B 1000PF K
C668	24212102	CERAMIC DISC, 50V B 1000PF K
C669	24797330	ELECTROLYTIC, 50V 33UF M
C670	24797330	ELECTROLYTIC, 50V 33UF M
C674	24591561	PLASTIC FILM, 50V 560PF J
C677	24591561	PLASTIC FILM, 50V 560PF J
C696	24793101	ELECTROLYTIC, 10V 100UF M
C704	24591822	PLASTIC FILM, 50V 8200PF J
C705	24797229	ELECTROLYTIC, 50V 2.2UF M
C707	24794470	ELECTORLYTIC, 16V 47UF M
C712	24794470	ELECTORLYTIC, 16V 47UF M
C713	24790100	ELECTROLYTIC, CE04G 160V 10UF M
C714	24436101	CERAMIC DISC CC45 SL 50V100PF J
C715	24214472	CERAMIC DISC, 500C B 4700PF K
C716	24436101	CERAMIC DISC CC45 SL 50V100PF J
C717	24214472	CERAMIC DISC, 500C B 4700PF K
C718	24794470	ELECTORLYTIC, 16V 47UF M
C719	24435151	PCERA CAP SL 500V 151J
C720	24790100	ELECTROLYTIC, CE04G 160V 10UF M
C721	24794470	ELECTORLYTIC, 16V 47UF M
⚠ C801	24503055	PLASTIC FILM, AC275V 0.22UF M
⚠ C802	24503055	PLASTIC FILM, AC275V 0.22UF M
C805	24092281	CERAMIC DISC, AC250V E 4700PF
C806	24092281	CERAMIC DISC, AC250V E 4700PF
C808	24667221	ELECTROLYTIC, 25V 220UF M 3A
C810	24086037	ELECTORLYTIC, 68W 400V 270UF M
C811	24092555	CERAMIC DISC, AC250V E 1000PF M
⚠ C813	24092555	CERAMIC DISC, AC250V E 1000PF M
⚠ C814	24092555	CERAMIC DISC, AC250V E 1000PF M
C817	24092339	CERAMIC DISC, 2KV 330PF K
C818	24095931	PLASTIC FILM, CF92T 1250VH 2200PF J
C819	24676220	ELECTROLYTIC, 100V 22UF M 3A
C821	24214471	CERAMIC DISC, 500V B 470PF K
C822	24503049	PLASTIC FILM, 63V 0.47UF J
C823	24214471	CERAMIC DISC, 500V B 470PF K
C829	24590272	PLASTIC FILM, 50V 2700PF J
C833	24669010	ELECTROLYTIC, 50V 1.0UF M 3A
C841	24669100	ELECTROLYTIC, 50V 10UF M 3A
C842	24669100	ELECTROLYTIC, 50V 10UF M 3A
C843	24503041	PLASTIC FILM, 63V 0.1UF J
C846	24503045	PLASTIC FILM, 63V 0.22UF J
C860	24794470	ELECTORLYTIC, 16V 47UF M
C884	24086916	ELECTROLYTIC, CE692R 160V 330UF M 3D
C885	24214471	CERAMIC DISC, 500V B 470PF K
C887	24214471	CERAMIC DISC, 500V B 470PF K
C889	24669222	ELECTROLYTIC, 50V 2200UF M 3A
C890	24667222	ELECTROLYTIC, 25V 2200UF M 3A
C893	24092337	CERAMIC DISC, 2KV 220PF K
C895	24669101	ELECTROLYTIC, 50V 100UF M 3A
C896	24214471	CERAMIC DISC, 500V B 470PF K
C898	24503045	PLASTIC FILM, 63V 0.22UF J
C902	24092353	CERAMIC DISC, 2KV 4700PF K
C904	24436561	CERAMIC DISC, 50V SL 560PF J
C905	24436561	CERAMIC DISC, 50V SL 560PF J
C907	24436561	CERAMIC DISC, 50V SL 560PF J
C909	24679100	ELECTROLYTIC, 250V 10UF M 3A
C910	24797478	ELECTROLYTIC, 50V 0.47UF M
C911	24794100	ELECTROLYTIC, 16V 10UF M

Location No.	Parts No.	Description
C912	24763102	ELECTROLYTIC, 16V 1000UF M
C913	24794100	ELECTROLYTIC, 16V 10UF M
C930	24214101	CERAMIC DISC, 500V B 100PF K
C931	24214101	CERAMIC DISC, 500V B 100PF K
C4401	24590103	PLASTIC FILM, 50V 0.01MF J
C4402	24766010	ELECTROLYTIC, 50V 1UF M
C4403	24763331	ELECTROLYTIC, 16V 330UF M
C4404	24232103	CERAMIC DISC, 50V F 10000PF Z
C4490	24082873	PLASTIC FILM, CF92 T 250V R20UF J
C4491	24082873	PLASTIC FILM, CF92 T 250V R20UF J
CA01	24503041	PLASTIC FILM, 63V 0.1UF J
CA02	24503041	PLASTIC FILM, 63V 0.1UF J
CA03	24503041	PLASTIC FILM, 63V 0.1UF J
CA04	24232103	CERAMIC DISC, 50V F 10000PF Z
CA05	24212101	CERAMIC DISC, 50V B 100PF K
CA06	24232103	CERAMIC DISC, 50V F 10000PF Z
CA07	24436560	CERAMIC DISC, 50V SL 56PFJ
CA08	24436560	CERAMIC DISC, 50V SL 56PFJ
CA09	24232103	CERAMIC DISC, 50V F 10000PF Z
CA10	24503041	PLASTIC FILM, 63V 0.1UF J
CA11	24794100	ELECTROLYTIC, 16V 10UF M
CA12	24794470	ELECTORLYTIC, 16V 47UF M
CA13	24232103	CERAMIC DISC, 50V F 10000PF Z
CA14	24794100	ELECTROLYTIC, 16V 10UF M
CA16	24794100	ELECTROLYTIC, 16V 10UF M
CB01	24797010	ELECTROLYTIC, 50V 1UF M
CB02	24436181	CERAMIC DISC, 50V SL 180PF J
CB03	24794330	ELECTROLYTIC, 16V 33UF M
CB04	24212392	CERAMIC DISC, 50V B 3900PF K
CB05	24212561	CERAMIC DISC, 50V B 560PF K
CB21	24503041	PLASTIC FILM, 63V 0.1UF J
CB22	24203470	ELECTROLYTIC, 16V 47UF M 7L 3A
CB31	24232103	CERAMIC DISC, 50V F 10000PF Z
CB32	24503049	PLASTIC FILM, 63V 0.47UF J
CB33	24212472	CERAMIC DISC, 50V B 4700PF K
CB37	24436150	CERAMIC DISC, 50V SL 15PF J
CB40	24232103	CERAMIC DISC, 50V F 10000PF Z
CB45	24232103	CERAMIC DISC, 50V F 10000PF Z
CB46	24797100	ELECTROLYTIC, 50V 10UF M
CC01	24212102	CERAMIC DISC, 50V B 1000PF K
CC02	24212102	CERAMIC DISC, 50V B 1000PF K
CC03	24212152	CERAMIC DISC, 50V B 1500PF K
CC04	24212152	CERAMIC DISC, 50V B 1500PF K
CC05	24212152	CERAMIC DISC, 50V B 1500PF K
CC06	24212152	CERAMIC DISC, 50V B 1500PF K
CC07	24212102	CERAMIC DISC, 50V B 1000PF K
CC08	24212102	CERAMIC DISC, 50V B 1000PF K
CC09	24212471	CERAMIC DISC, 50V B 470PF K
CC10	24212471	CERAMIC DISC, 50V B 470PF K
CC11	24473330	CERAMIC, 50V SL 33PF J
CC13	24232103	CERAMIC DISC, 50V F 10000PF Z
CC14	24212102	CERAMIC DISC, 50V B 1000PF K
CC15	24232103	CERAMIC DISC, 50V F 10000PF Z
CC16	24590103	PLASTIC FILM, 50V 0.01MF J
CC19	24474102	CERAMIC, 50V B 1000PF K
CC20	24474101	CERAMIC, 50V B 100PF K
CC21	24474101	CERAMIC, 50V B 100PF K
CC22	24473220	CERAMIC DISC, 50V SL 22PF J
CC23	24473220	CERAMIC DISC, 50V SL 22PF J
CC98	24232103	CERAMIC DISC, 50V F 10000PF Z
CC99	24232103	CERAMIC DISC, 50V F 10000PF Z
CR01	24203100	ELECTORLYTIC, 16V 10UF M 7L 3A
CR02	24797010	ELECTROLYTIC, 50V 1UF M
CR03	24797010	ELECTROLYTIC, 50V 1UF M
CR04	24797010	ELECTROLYTIC, 50V 1UF M
CR05	24797010	ELECTROLYTIC, 50V 1UF M
CR06	24797010	ELECTROLYTIC, 50V 1UF M
CR07	24797010	ELECTROLYTIC, 50V 1UF M
CR08	24353270	CERAMIC DISC, 50V CH 27PF J
CV02	24797010	ELECTROLYTIC, 50V 1UF M
CV03	24797010	ELECTROLYTIC, 50V 1UF M
CV04	24794100	ELECTROLYTIC, 16V 10UF M
CV05	24797010	ELECTROLYTIC, 50V 1UF M
CV06	24797010	ELECTROLYTIC, 50V 1UF M
CV07	24794100	ELECTROLYTIC, 16V 10UF M
CV08	24797010	ELECTROLYTIC, 50V 1UF M
CV09	24794100	ELECTROLYTIC, 16V 10UF M
CV10	24794100	ELECTROLYTIC, 16V 10UF M
CV11	24232103	CERAMIC DISC, 50V F 10000PF Z
CV12	24794100	ELECTROLYTIC, 16V 10UF M
CV13	24797010	ELECTROLYTIC, 50V 1UF M
CV15	24794100	ELECTROLYTIC, 16V 10UF M
CV16	24232103	CERAMIC DISC, 50V F 10000PF Z
CV17	24794101	ELECTROLYTIC, 16V 100UF M
CV24	24794101	ELECTROLYTIC, 16V 100UF M
CV31	24794220	ELECTROLYTIC, 16V 22UF M
CV32	24794220	ELECTROLYTIC, 16V 22UF M
CV36	24503041	PLASTIC FILM, 63V 0.1UF J
CV37	24503045	PLASTIC FILM, 63V 0.22UF J
CV38	24794101	ELECTROLYTIC, 16V 100UF M
CV40	24797478	ELECTROLYTIC, 50V 0.47UF M
CV46	24212332	CERAMIC DISC, 50V B 3300PF K
CV47	24212332	CERAMIC DISC, 50V B 3300PF K
CV54	24794220	ELECTROLYTIC, 16V 22UF M
CV98	24212102	CERAMIC DISC, 50V B 1000PF K

RESISTORS

R101	24366271	CARBON FILM, 1/6W 270 OHM J
R101	24553223	OXIDE METAL FILM, 1W 22K OHM J
R103	24366472	CARBON FILM, 1/6W 4.7K OHM J
R104	24366472	CARBON FILM, 1/6W 4.7K OHM J
R105	24366472	CARBON FILM, 1/6W 4.7K OHM J
R106	24366360	CARBON FILM, SB1/6W 36. J
R107	24366102	CARBON FILM, 1/6W 1K OHM J
R108	24366562	CARBON FILM, 1/6W 5.6K OHM J
R110	24366681	CARBON FILM, 1/6W 680 OHM J
R112	24366122	CARBON FILM, 1/6W 1.2K OHM J
R113	24366682	CARBON FILM, 1/6W 6.8K OHM J
R114	24366471	CARBON FILM, 1/6W 470 OHM J
R115	24366360	CARBON FILM, SB1/6W 36. J
R118	24366683	CARBON FILM, 1/6W 68K OHM J
R119	24366133	CARBON FILM, 1/6W 13K OHM J
R120	24366122	CARBON FILM, 1/6W 1.2K OHM J
R121	24366512	CARBON FILM, 1/6W 5.1K OHM J
R126	24366332	CARBON FILM, 1/6W 3.3K OHM J
R127	24366102	CARBON FILM, 1/6W 1K OHM J
R128	24366182	CARBON FILM, 1/6W 1.8K OHM J
R129	24366101	CARBON FILM, 1/6W 100 OHM J
R130	24366103	CARBON FILM, 1/6W 10K OHM J
R132	24366471	CARBON FILM, 1/6W 470 OHM J
R133	24366221	CARBON FILM, 1/6W 220 OHM J
R135	24366101	CARBON FILM, 1/6W 100 OHM J
R136	24366102	CARBON FILM, 1/6W 1K OHM J
R167	24366151	CARBON FILM, 1/6W 150 OHM J
R168	24366684	CARBON FILM, 1/6W 680K OHM J
R208	24366103	CARBON FILM, 1/6W 10K OHM J
R209	24366103	CARBON FILM, 1/6W 10K OHM J
R211	24366473	CARBON FILM, 1/6W 47K OHM J
R216	24366683	CARBON FILM, 1/6W 68K OHM J
R217	24366392	CARBON FILM, 1/6W 3.9K OHM J
R218	24366104	CARBON FILM, 1/6W 100K OHM J
R219	24366473	CARBON FILM, 1/6W 47K OHM J
R227	24366223	CARBON FILM, 1/6W 22K OHM J
R228	24366271	CARBON FILM, 1/6W 270 OHM J

Location No.	Parts No.	Description
R229	24366271	CARBON FILM, 1/6W 270 OHM J
R230	24366271	CARBON FILM, 1/6W 270 OHM J
R303	24321109	OXIDE METAL FILM, 1/2W 1 OHM J
R305	24322109	OXIDE METAL FILM, 1W 1 OHM J
R307	24366101	CARBON FILM, 1/6W 100 OHM J
R308	24382681	OXIDE METAL FILM, 1W 680 OHM J
R312	24366223	CARBON FILM, 1/6W 22K OHM J
R314	24366102	CARBON FILM, 1/6W 1K OHM J
R316	24366394	CARBON FILM, 1/6W 390K OHM J
R318	24366101	CARBON FILM, 1/6W 100 OHM J
R319	24366101	CARBON FILM, 1/6W 100 OHM J
R320	24366155	CARBON FILM, 1/6W 1.5M OHM J
R321	24366103	CARBON FILM, 1/6W 10K OHM J
R322	24366102	CARBON FILM, 1/6W 1K OHM J
⚠ R326	24339109	METAL FILM, 2W 1 OHM J
⚠ R327	24339109	METAL FILM, 2W 1 OHM J
R329	24366102	CARBON FILM, 1/6W 1K OHM J
R330	24552103	OXIDE METAL FILM, 1/2W 10K OHM J
R331	24366104	CARBON FILM, 1/6W 100K OHM J
R332	24366101	CARBON FILM, 1/6W 100 OHM J
R333	24552103	OXIDE METAL FILM, 1/2W 10K OHM J
R335	24366153	CARBON FILM, 1/6W 15K OHM J
R336	24383331	OXIDE METAL FILM, 2W 330 OHM J
R341	24366822	CARBON FILM, 1/6W 8.2K OHM J
R343	24366223	CARBON FILM, 1/6W 22K OHM J
R370	24366822	CARBON FILM, 1/6W 8.2K OHM J
R371	24366103	CARBON FILM, 1/6W 10K OHM J
R372	24552150	OXIDE METAL FILM, 1/2W 15 OHM J
R373	24366103	CARBON FILM, 1/6W 10K OHM J
R373	24366103	CARBON FILM, 1/6W 10K OHM J
R374	24366472	CARBON FILM, 1/6W 4.7K OHM J
R375	24366103	CARBON FILM, 1/6W 10K OHM J
R400	24946561	CARBON COMPOSITION, 1/2W 560 OHM K
R401	24946223	CARBON COMPOSITION, GF 1/2W 22K K
R402	24366103	CARBON FILM, 1/6W 10K OHM J
R403	24366822	CARBON FILM, 1/6W 8.2K OHM J
R405	24553682	OXIDE METAL FILM, 1W 6.8K OHM J
R410	24366271	CARBON FILM, 1/6W 270 OHM J
R411	24366103	CARBON FILM, 1/6W 10K OHM J
R411	24366561	CARBON FILM, 1/6W 560 OHM J
R412	24366332	CARBON FILM, 1/6W 3.3K OHM J
R413	24366103	CARBON FILM, 1/6W 10K OHM J
R414	24366332	CARBON FILM, 1/6W 3.3K OHM J
R414	24531560	FUSIBLE, 1/2W 56 OHM J
R415	24366103	CARBON FILM, 1/6W 10K OHM J
R415	24553472	OXIDE METAL FILM, 1W 4.7K OHM J
R416	24366223	CARBON FILM, 1/6W 22K OHM J
R417	24366333	CARBON FILM, 1/6W 33K OHM J
R417	24510432	CERAMIC COVERED, 5W 4.3K OHM J
R418	24366103	CARBON FILM, 1/6W 10K OHM J
R419	24366103	CARBON FILM, 1/6W 10K OHM J
R423	24366471	CARBON FILM, 1/6W 470 OHM J
R424	24366152	CARBON FILM, 1/6W 1.5K OHM J
R425	24366182	CARBON FILM, 1/6W 1.8K OHM J
R426	24366751	CARBON FILM, 1/6W 750 OHM J
R427	24366392	CARBON FILM, 1/6W 3.9K OHM J
R428	24366561	CARBON FILM, 1/6W 560 OHM J
R429	24552560	OXIDE METAL FILM, 1/2W 56 OHM J
R430	24366473	CARBON FILM, 1/6W 47K OHM J
R431	24366103	CARBON FILM, 1/6W 10K OHM J
R431	24366223	CARBON FILM, 1/6W 22K OHM J
R432	24366392	CARBON FILM, 1/6W 3.9K OHM J
R432	24366473	CARBON FILM, 1/6W 47K OHM J
R433	24366103	CARBON FILM, 1/6W 10K OHM J
R433	24366681	CARBON FILM, 1/6W 680 OHM J
R434	24366271	CARBON FILM, 1/6W 270 OHM J
R434	24366472	CARBON FILM, 1/6W 4.7K OHM J

Location No.	Parts No.	Description
R435	24366184	CARBON FILM, 1/6W 18OK OHM J
R436	24366153	CARBON FILM, 1/6W 15K OHM J
R437	24366332	CARBON FILM, 1/6W 3.3K OHM J
R438	24366103	CARBON FILM, 1/6W 10K OHM J
R439	24366102	CARBON FILM, 1/6W 1K OHM J
R441	24382222	OXIDE METAL FILM, 1W 2.2K OHM J
R442	24366333	CARBON FILM, 1/6W 33K OHM J
R443	24366563	CARBON FILM, 1/6W 56K OHM J
R444	24366563	CARBON FILM, 1/6W 56K OHM J
R445	24366563	CARBON FILM, 1/6W 56K OHM J
R445	24321129	OXIDE METAL FILM, 1/2W 1.2 OHM J
R451	24366153	CARBON FILM, 1/6W 15K OHM J
R452	24366392	CARBON FILM, 1/6W 3.9K OHM J
R460	24552332	OXIDE METAL FILM, 1/2W 3.3K OHM J
R461	24552182	OXIDE METAL FILM, 1/2W 1.8K OHM J
R462	24366823	CARBON FILM, 1/6W 82K OHM J
R463	24323229	OXIDE METAL FILM, 2W 2.2 OHM J
R464	24366273	CARBON FILM, 1/6W 27K OHM J
R465	24366101	CARBON FILM, 1/6W 100 OHM J
R466	24366392	CARBON FILM, 1/6W 3.9K OHM J
R467	24327224	METAL FILM, 1/4W 220K OHM F
⚠ R469	24000211	FUSIBLE, 1/2W 15 OHM J
R470	24339568	METAL FILM, 2W R56 J
R471	24531271	FUSIBLE, 1/2W 270 OHM J
R472	24366101	CARBON FILM, 1/6W 100 OHM J
R473	24366183	CARBON FILM, 1/6W 18K OHM J
R474	24376393	CARBON FILM, 1/2W 39K OHM J
R476	24366471	CARBON FILM, 1/6W 470 OHM J
R477	24366102	CARBON FILM, 1/6W 1K OHM J
R478	24381333	OXIDE METAL FILM, 1/2W 33K OHM J
R479	24531680	FUSIBLE, 1/2W 68 OHM J
R480	24552222	OXIDE METAL FILM, 1/2W 2.2K OHM J
R481	24366103	CARBON FILM, 1/6W 10K OHM J
R482	24366684	CARBON FILM, 1/6W 680K OHM J
R486	24366183	CARBON FILM, 1/6W 18K OHM J
R487	24366154	CARBON FILM, 1/6W 150K OHM J
R488	24366154	CARBON FILM, 1/6W 150K OHM J
R489	24366102	CARBON FILM, 1/6W 1K OHM J
R490	24366101	CARBON FILM, 1/6W 100 OHM J
R491	24366101	CARBON FILM, 1/6W 100 OHM J
R492	24366472	CARBON FILM, 1/6W 4.7K OHM J
R493	24366103	CARBON FILM, 1/6W 10K OHM J
R494	24366103	CARBON FILM, 1/6W 10K OHM J
R495	24366103	CARBON FILM, 1/6W 10K OHM J
R498	24553513	OXIDE METAL FILM, 1W 51K OHM J
R499	24366101	CARBON FILM, 1/6W 100 OHM J
R509	24366332	CARBON FILM, 1/6W 3.3K OHM J
R510	24366101	CARBON FILM, 1/6W 100 OHM J
R511	24000527	METAL FILM, 1/4W 5.6K OHM F
R512	24366682	CARBON FILM, 1/6W 6.8K OHM J
R513	24366102	CARBON FILM, 1/6W 1K OHM J
R514	24366473	CARBON FILM, 1/6W 47K OHM J
R515	24366103	CARBON FILM, 1/6W 10K OHM J
R516	24366471	CARBON FILM, 1/6W 470 OHM J
R517	24366222	CARBON FILM, 1/6W 2.2K OHM J
R518	24366152	CARBON FILM, 1/6W 1.5K OHM J
R519	24366222	CARBON FILM, 1/6W 2.2K OHM J
R520	24366821	CARBON FILM, 1/6W 820 OHM J
R521	24366102	CARBON FILM, 1/6W 1K OHM J
R522	24366102	CARBON FILM, 1/6W 1K OHM J
R523	24366333	CARBON FILM, 1/6W 33K OHM J
R524	24366103	CARBON FILM, 1/6W 10K OHM J
R525	24366392	CARBON FILM, 1/6W 3.9K OHM J
R526	24366101	CARBON FILM, 1/6W 100 OHM J
R527	24366332	CARBON FILM, 1/6W 3.3K OHM J
R601	24366103	CARBON FILM, 1/6W 10K OHM J
R602	24366103	CARBON FILM, 1/6W 10K OHM J

Location No.	Parts No.	Description
R603	24366103	CARBON FILM, 1/6W 10K OHM J
R612	24366681	CARBON FILM, 1/6W 680 OHM J
R613	24366681	CARBON FILM, 1/6W 680 OHM J
R614	24366222	CARBON FILM, 1/6W 2.2K OHM J
R615	24366222	CARBON FILM, 1/6W 2.2K OHM J
R616	24366101	CARBON FILM, 1/6W 100 OHM J
R617	24366101	CARBON FILM, 1/6W 100 OHM J
R618	24366103	CARBON FILM, 1/6W 10K OHM J
R619	24366103	CARBON FILM, 1/6W 10K OHM J
R633	24366229	CARBON FILM, 1/6W 2.2 OHM J
R634	24366229	CARBON FILM, 1/6W 2.2 OHM J
R641	24366103	CARBON FILM, 1/6W 10K OHM J
R645	24366102	CARBON FILM, 1/6W 1K OHM J
R646	24366102	CARBON FILM, 1/6W 1K OHM J
R661	24552221	OXIDE METAL FILM, 1/2W 220 OHM J
R662	24552221	OXIDE METAL FILM, 1/2W 220 OHM J
R668	24366103	CARBON FILM, 1/6W 10K OHM J
R670	24366103	CARBON FILM, 1/6W 10K OHM J
R673	24366123	CARBON FILM, 1/6W 12K OHM J
R674	24366102	CARBON FILM, 1/6W 1K OHM J
R675	24366123	CARBON FILM, 1/6W 12K OHM J
R676	24366224	CARBON FILM, 1/6W 220K OHM J
R681	24366103	CARBON FILM, 1/6W 10K OHM J
R688	24366104	CARBON FILM, 1/6W 100K OHM J
R689	24366103	CARBON FILM, 1/6W 10K OHM J
R701	24366103	CARBON FILM, 1/6W 10K OHM J
R702	24366101	CARBON FILM, 1/6W 100 OHM J
R702	24552821	OXIDE METAL FILM, 1/2W 820 OHM J
R703	24366222	CARBON FILM, 1/6W 2.2K OHM J
R712	24366101	CARBON FILM, 1/6W 100 OHM J
R715	24366223	CARBON FILM, 1/6W 22K OHM J
R716	24366273	CARBON FILM, 1/6W 27K OHM J
R717	24366333	CARBON FILM, 1/6W 33K OHM J
R718	24366222	CARBON FILM, 1/6W 2.2K OHM J
R722	24552471	OXIDE METAL FILM, 1/2W 470 OHM J
R723	24366101	CARBON FILM, 1/6W 100 OHM J
R724	24366221	CARBON FILM, 1/6W 220 OHM J
R725	24366182	CARBON FILM, 1/6W 1.8K OHM J
R730	24552100	OXIDE METAL FILM, 1/2W 10 OHM J
R731	24553331	OXIDE METAL FILM, 1W 330 OHM J
R732	24366820	CARBON FILM, 1/6W 82 OHM J
R733	24366683	CARBON FILM, 1/6W 68K OHM J
R734	24366820	CARBON FILM, 1/6W 82 OHM J
R735	24366683	CARBON FILM, 1/6W 68K OHM J
R736	24366560	CARBON FILM, 1/6W 56 OHM J
R737	24366152	CARBON FILM, 1/6W 1.5K OHM J
R738	24366102	CARBON FILM, 1/6W 1K OHM J
R739	24366152	CARBON FILM, 1/6W 1.5K OHM J
R740	24366560	CARBON FILM, 1/6W 56 OHM J
R741	24366279	CARBON FILM, 1/6W 2.7 OHM J
R742	24366279	CARBON FILM, 1/6W 2.7 OHM J
R743	24554221	OXIDE METAL FILM, 2W 220 OHM J
R744	24366122	CARBON FILM, 1/6W 1.2K OHM J
R745	24366122	CARBON FILM, 1/6W 1.2K OHM J
⚠ R801	24009954	METAL FILN, 1/2W 2.2M OHM J
R803	24553683	OXIDE METAL FILM, 1W 68K OHM J
R805	24366681	CARBON FILM, 1/6W 680 OHM J
⚠ R808	24019484	THERMISTOR, PTC, AC265 4R5A
R814	24366682	CARBON FILM, 1/6W 6.8K OHM J
R815	24366332	CARBON FILM, 1/6W 3.3K OHM J
R818	24019461	METAL PLATE, 2W 0.15 OHM J
R819	24310829	OXIDE METAL FILM, 1/2W 8.2 OHM J
R821	24366101	CARBON FILM, 1/6W 100 OHM J
R822	24552103	OXIDE METAL FILM, 1/2W 10K OHM J
R823	24552682	OXIDE METAL FILM, 1/2W 6.8K OHM J
R827	24366681	CARBON FILM, 1/6W 680 OHM J
R828	24366821	CARBON FILM, 1/6W 820 OHM J

Location No.	Parts No.	Description
R829	24321159	OXIDE METAL FILM, 1/2W 1.5 OHM J
R841	24531120	FUSIBLE, 1/2W 12 OHM J
R842	24552392	OXIDE METAL FILM, 1/2W 3.9K OHM J
R843	24366331	CARBON FILM, 1/6W 330 OHM J
R846	24366101	CARBON FILM, 1/6W 100 OHM J
R847	24366472	CARBON FILM, 1/6W 4.7K OHM J
R850	24366103	CARBON FILM, 1/6W 10K OHM J
R851	24366471	CARBON FILM, 1/6W 470 OHM J
R852	24366225	CARBON FILM, 1/6W 2.2M OHM J
R860	24366681	CARBON FILM, 1/6W 680 OHM J
R865	24366332	CARBON FILM, 1/6W 3.3K OHM J
R868	24366472	CARBON FILM, 1/6W 4.7K OHM J
⚠ R899	24005015	METAL GLAZE, 1W 8.2M OHM J
R901	24376471	CARBON FILM, 1/2W 470 OHM J
R902	24376471	CARBON FILM, 1/2W 470 OHM J
R903	24376471	CARBON FILM, 1/2W 470 OHM J
R904	24366472	CARBON FILM, 1/6W 4.7K OHM J
R905	24366150	CARBON FILM, 1/6W 15 OHM J
R914	24366471	CARBON FILM, 1/6W 470 OHM J
R915	24366181	CARBON FILM, 1/6W 180 OHM J
R916	24366221	CARBON FILM, 1/6W 220 OHM J
R917	24366681	CARBON FILM, 1/6W 680 OHM J
R918	24366470	CARBON FILM, 1/6W 47 OHM J
R920	24000568	FUSIBLE, 1W 4.7 OHM J
R921	24366471	CARBON FILM, 1/6W 470 OHM J
R922	24366181	CARBON FILM, 1/6W 180 OHM J
R924	24366470	CARBON FILM, 1/6W 47 OHM J
R925	24366681	CARBON FILM, 1/6W 680 OHM J
R928	24366471	CARBON FILM, 1/6W 470 OHM J
R929	24366181	CARBON FILM, 1/6W 180 OHM J
R930	24366470	CARBON FILM, 1/6W 47 OHM J
R932	24366102	CARBON FILM, 1/6W 1K OHM J
R933	24366750	CARBON FILM, 1/6W 75 OHM J
R934	24366331	CARBON FILM, 1/6W 330 OHM J
R935	24366102	CARBON FILM, 1/6W 1K OHM J
R936	24366750	CARBON FILM, 1/6W 75 OHM J
R937	24366681	CARBON FILM, 1/6W 680 OHM J
R945	24366221	CARBON FILM, 1/6W 220 OHM J
R946	24366221	CARBON FILM, 1/6W 220 OHM J
R960	24383153	OXIDE METAL FILM, 2W 15K OHM J
R963	24383153	OXIDE METAL FILM, 2W 15K OHM J
R966	24383153	OXIDE METAL FILM, 2W 15K OHM J
R977	24366102	CARBON FILM, 1/6W 1K OHM J
R992	24366150	CARBON FILM, 1/6W 15 OHM J
R4310	24366183	CARBON FILM, 1/6W 18K OHM J
R4408	24366361	CARBON FILM, 1/6W 360 OHM J
R4411	24366103	CARBON FILM, 1/6W 10K OHM J
R4412	24366153	CARBON FILM, 1/6W 15K OHM J
R4430	24366752	CARBON FILM, 1/6W 7.5K OHM J
R4473	24366101	CARBON FILM, 1/6W 100 OHM J
R4474	24366101	CARBON FILM, 1/6W 100 OHM J
R4490	24382222	OXIDE METAL FILM, 1W 2.2K OHM J
R4491	24366392	CARBON FILM, 1/6W 3.9K OHM J
R4492	24366103	CARBON FILM, 1/6W 10K OHM J
R4493	24382104	OXIDE METAL FILM, 1W 100K OHM J
R4495	24366473	CARBON FILM, 1/6W 47K OHM J
RA01	24366102	CARBON FILM, 1/6W 1K OHM J
RA02	24366102	CARBON FILM, 1/6W 1K OHM J
RA04	24366102	CARBON FILM, 1/6W 1K OHM J
RA05	24366103	CARBON FILM, 1/6W 10K OHM J
RA06	24366102	CARBON FILM, 1/6W 1K OHM J
RA07	24366103	CARBON FILM, 1/6W 10K OHM J
RA08	24366102	CARBON FILM, 1/6W 1K OHM J
RA09	24366102	CARBON FILM, 1/6W 1K OHM J
RA10	24366103	CARBON FILM, 1/6W 10K OHM J
RA11	24366103	CARBON FILM, 1/6W 10K OHM J
RA12	24366331	CARBON FILM, 1/6W 330 OHM J

Location No.	Parts No.	Description
RA13	24366102	CARBON FILM, 1/6W 1K OHM J
RA14	24366331	CARBON FILM, 1/6W 330 OHM J
RA16	24366331	CARBON FILM, 1/6W 330 OHM J
RA17	24366102	CARBON FILM, 1/6W 1K OHM J
RA18	24366273	CARBON FILM, 1/6W 27K OHM J
RA19	24366102	CARBON FILM, 1/6W 1K OHM J
RA20	24366103	CARBON FILM, 1/6W 10K OHM J
RA21	24366103	CARBON FILM, 1/6W 10K OHM J
RA22	24366472	CARBON FILM, 1/6W 4.7K OHM J
RA25	24366101	CARBON FILM, 1/6W 100 OHM J
RA26	24366471	CARBON FILM, 1/6W 470 OHM J
RA27	24366102	CARBON FILM, 1/6W 1K OHM J
RA28	24366102	CARBON FILM, 1/6W 1K OHM J
RA29	24366151	CARBON FILM, 1/6W 150 OHM J
RA30	24366103	CARBON FILM, 1/6W 10K OHM J
RA31	24366102	CARBON FILM, 1/6W 1K OHM J
RA32	24366331	CARBON FILM, 1/6W 330 OHM J
RA33	24366472	CARBON FILM, 1/6W 4.7K OHM J
RA34	24366331	CARBON FILM, 1/6W 330 OHM J
RA35	24366472	CARBON FILM, 1/6W 4.7K OHM J
RA36	24366472	CARBON FILM, 1/6W 4.7K OHM J
RA37	24366471	CARBON FILM, 1/6W 470 OHM J
RA38	24366472	CARBON FILM, 1/6W 4.7K OHM J
RA39	24366102	CARBON FILM, 1/6W 1K OHM J
RA41	24366103	CARBON FILM, 1/6W 10K OHM J
RA42	24366103	CARBON FILM, 1/6W 10K OHM J
RA45	24366101	CARBON FILM, 1/6W 100 OHM J
RA46	24366101	CARBON FILM, 1/6W 100 OHM J
RA47	24366101	CARBON FILM, 1/6W 100 OHM J
RA48	24366101	CARBON FILM, 1/6W 100 OHM J
RA49	24366101	CARBON FILM, 1/6W 100 OHM J
RA50	24366102	CARBON FILM, 1/6W 1K OHM J
RA71	24366113	CARBON FILM, 1/6W 11K OHM J
RA72	24366512	CARBON FILM, 1/6W 5.1K OHM J
RA73	24366272	CARBON FILM, 1/6W 2.7K OHM J
RB01	24366182	CARBON FILM, 1/6W 1.8K OHM J
RB02	24366271	CARBON FILM, 1/6W 270 OHM J
RB02	24366474	CARBON FILM, 1/6W 470K OHM J
RB03	24366271	CARBON FILM, 1/6W 270 OHM J
RB03	24366333	CARBON FILM, 1/6W 33K OHM J
RB04	24366123	CARBON FILM, 1/6W 12K OHM J
RB05	24366392	CARBON FILM, 1/6W 3.9K OHM J
RB06	24366392	CARBON FILM, 1/6W 3.9K OHM J
RB07	24366223	CARBON FILM, 1/6W 22K OHM J
RB08	24366471	CARBON FILM, 1/6W 470 OHM J
RB09	24366103	CARBON FILM, 1/6W 10K OHM J
RB22	24366470	CARBON FILM, 1/6W 47 OHM J
RB30	24366103	CARBON FILM, 1/6W 10K OHM J
RB30	24366105	CARBON FILM, 1/6W 1M OHM J
RB31	24366102	CARBON FILM, 1/6W 1K OHM J
RB32	24366332	CARBON FILM, 1/6W 3.3K OHM J
RB33	24366332	CARBON FILM, 1/6W 3.3K OHM J
RB35	24366102	CARBON FILM, 1/6W 1K OHM J
RB36	24366102	CARBON FILM, 1/6W 1K OHM J
RB37	24366221	CARBON FILM, 1/6W 220 OHM J
RB38	24366331	CARBON FILM, 1/6W 330 OHM J
RB39	24366331	CARBON FILM, 1/6W 330 OHM J
RB50	24366101	CARBON FILM, 1/6W 100 OHM J
RB51	24366472	CARBON FILM, 1/6W 4.7K OHM J
RC01	24366681	CARBON FILM, 1/6W 680 OHM J
RC02	24366681	CARBON FILM, 1/6W 680 OHM J
RC07	24366681	CARBON FILM, 1/6W 680 OHM J
RC08	24366681	CARBON FILM, 1/6W 680 OHM J
RF01	24366102	CARBON FILM, 1/6W 1K OHM J
RF02	24366102	CARBON FILM, 1/6W 1K OHM J
RF03	24366102	CARBON FILM, 1/6W 1K OHM J
RR02	24366472	CARBON FILM, 1/6W 4.7K OHM J

Location No.	Parts No.	Description
RR03	24366103	CARBON FILM, 1/6W 10K OHM J
RR04	24366333	CARBON FILM, 1/6W 33K OHM J
RR05	24366103	CARBON FILM, 1/6W 10K OHM J
RR06	24366182	CARBON FILM, 1/6W 1.8K OHM J
RR10	24366101	CARBON FILM, 1/6W 100 OHM J
RR11	24366101	CARBON FILM, 1/6W 100 OHM J
RR12	24366101	CARBON FILM, 1/6W 100 OHM J
RR13	24366121	CARBON FILM, 1/6W 120 OHM J
RR14	24366121	CARBON FILM, 1/6W 120 OHM J
RR15	24366121	CARBON FILM, 1/6W 120 OHM J
RV01	24366101	CARBON FILM, 1/6W 100 OHM J
RV02	24366101	CARBON FILM, 1/6W 100 OHM J
RV04	24366472	CARBON FILM, 1/6W 4.7K OHM J
RV05	24366472	CARBON FILM, 1/6W 4.7K OHM J
RV07	24366472	CARBON FILM, 1/6W 4.7K OHM J
RV09	24366472	CARBON FILM, 1/6W 4.7K OHM J
RV12	24366101	CARBON FILM, 1/6W 100 OHM J
RV13	24366101	CARBON FILM, 1/6W 100 OHM J
RV15	24366472	CARBON FILM, 1/6W 4.7K OHM J
RV16	24366472	CARBON FILM, 1/6W 4.7K OHM J
RV17	24366102	CARBON FILM, 1/6W 1K OHM J
RV19	24366222	CARBON FILM, 1/6W 2.2K OHM J
RV20	24366104	CARBON FILM, 1/6W 100K OHM J
RV21	24366104	CARBON FILM, 1/6W 100K OHM J
RV22	24366223	CARBON FILM, 1/6W 22K OHM J
RV23	24366822	CARBON FILM, 1/6W 8.2K OHM J
RV24	24366750	CARBON FILM, 1/6W 75 OHM J
RV26	24366750	CARBON FILM, 1/6W 75 OHM J
RV27	24366750	CARBON FILM, 1/6W 75 OHM J
RV28	24552101	OXIDE METAL FILM, 1/2W 100 OHM J
RV29	24366102	CARBON FILM, 1/6W 1K OHM J
RV30	24366101	CARBON FILM, 1/6W 100 OHM J
RV31	24366102	CARBON FILM, 1/6W 1K OHM J
RV32	24366102	CARBON FILM, 1/6W 1K OHM J
RV33	24366102	CARBON FILM, 1/6W 1K OHM J
RV34	24366104	CARBON FILM, 1/6W 100K OHM J
RV35	24366104	CARBON FILM, 1/6W 100K OHM J
RV36	24366104	CARBON FILM, 1/6W 100K OHM J
RV37	24366104	CARBON FILM, 1/6W 100K OHM J
RV38	24366750	CARBON FILM, 1/6W 75 OHM J
RV39	24366750	CARBON FILM, 1/6W 75 OHM J
RV40	24366822	CARBON FILM, 1/6W 8.2K OHM J
RV41	24366223	CARBON FILM, 1/6W 22K OHM J
RV42	24366103	CARBON FILM, 1/6W 10K OHM J
RV43	24366103	CARBON FILM, 1/6W 10K OHM J
RV45	24366750	CARBON FILM, 1/6W 75 OHM J
RV46	24366750	CARBON FILM, 1/6W 75 OHM J
RV48	24366750	CARBON FILM, 1/6W 75 OHM J
RV49	24366750	CARBON FILM, 1/6W 75 OHM J
RV53	24366102	CARBON FILM, 1/6W 1K OHM J
RV54	24366222	CARBON FILM, 1/6W 2.2K OHM J
RV55	24366102	CARBON FILM, 1/6W 1K OHM J
RV57	24552101	OXIDE METAL FILM, 1/2W 100 OHM J
RV58	24366101	CARBON FILM, 1/6W 100 OHM J
RV59	24366102	CARBON FILM, 1/6W 1K OHM J
RV62	24366103	CARBON FILM, 1/6W 10K OHM J
RV63	24366103	CARBON FILM, 1/6W 10K OHM J
RV64	24366103	CARBON FILM, 1/6W 10K OHM J
RV80	24366681	CARBON FILM, 1/6W 680 OHM J
RV83	24366681	CARBON FILM, 1/6W 680 OHM J
RV84	24366223	CARBON FILM, 1/6W 22K OHM J
RV88	24366223	CARBON FILM, 1/6W 22K OHM J
RV99	24366750	CARBON FILM, 1/6W 75 OHM J
RW01	24366681	CARBON FILM, 1/6W 680 OHM J
RW02	24366681	CARBON FILM, 1/6W 680 OHM J

Location No.	Parts No.	Description
COILS & TRANSFORMERS		
L101	23238562	COIL, PEAKING, TRF4109AJ
L102	23238561	COIL, PEAKING-0.82MMHK, COLTRF4R82AJ
L103	23238554	COIL, PEAKING, TRF4R22AJ
L104	23221803	COIL, CHOKE, TLN3040D
L110	23289846	COIL, PEAKING, TRF4101AT
L114	23289836	COIL, PEAKING, TRF42R2AT
L130	23289841	COIL, PEAKING, TRF4150AT
L134	23289840	COIL, PEAKING, TRF4100AT
L161	23262296	COIL, IF COIL 40MHZ 7KMM, TRF1244AV
L183	23289120	COIL, PEAKING, TRF4120AF
L301	23103859	COIL, CHOKE, TEM2011
L302	23289846	COIL, PEAKING, TRF4101AT
L410	23103859	COIL, CHOKE, TEM2011
⚠ L441	23233944	COIL, LINIARITY, TLN2163G
L442	23248122	COIL, CHOKE, TLN3384D
L449	23103859	COIL, CHOKE, TEM2011
L461	23248115	COIL, CHOKE, TLN3367D
⚠ L492	23222655	COIL, TLN2074
L511	23289840	COIL, PEAKING, TRF4100AT
L512	23289840	COIL, PEAKING, TRF4100AT
L513	23289840	COIL, PEAKING, TRF4100AT
L525	23289840	COIL, PEAKING, TRF4100AT
L701	23289840	COIL, PEAKING, TRF4100AT
L702	23261974	COIL, FERRITE BEAD, HC5-035
L704	23103859	COIL, CHOKE, TEM2011
L705	23103859	COIL, CHOKE, TEM2011
⚠ L801	23217522	TRANSFORMER, CHOKE, TPW2037BS
L811	23103859	COIL, CHOKE, TEM2011
L860	23289836	COIL, PEAKING, TRF42R2AT
L883	23221747	COIL, CHOKE, TRF9253D
L885	23248073	COIL, CHOKE, TLN3299D
L886	23103859	COIL, CHOKE, TEM2011
L889	23280016	COIL, PEAKING, TRF4100AZ
L892	23103859	COIL, CHOKE, TEM2011
L893	23280016	COIL, PEAKING, TRF4100AZ
L894	23289840	COIL, PEAKING, TRF4100AT
L896	23103859	COIL, CHOKE, TEM2011
⚠ L901	23200490	COIL, DG, TSB2395CN
L908	23289840	COIL, PEAKING, TRF4100AT
L911	23289846	COIL, PEAKING, TRF4101AT
LA02	23103859	COIL, CHOKE, TEM2011
LA03	23289834	COIL, PEAKING, TRF41R0AT
LA04	23103859	COIL, CHOKE, TEM2011
LA39	23103859	COIL, CHOKE, TEM2011
LB30	23289840	COIL, PEAKING, TRF4100AT
LB31	23103859	COIL, CHOKE, TEM2011
LC01	23289834	COIL, PEAKING, TRF41R0AT
LC02	23289834	COIL, PEAKING, TRF41R0AT
LC03	23238714	COIL, PEAKING, TRF4100AJ
LC04	23238714	COIL, PEAKING, TRF4100AJ
LC05	23238714	COIL, PEAKING, TRF4100AJ
LC06	23238714	COIL, PEAKING, TRF4100AJ
LC07	23238714	COIL, PEAKING, TRF4100AJ
LC08	23238714	COIL, PEAKING, TRF4100AJ
LC09	23103937	FILTER, EM2004
LC11	23261959	COIL, CHOKE, TRF9240
LC12	23261959	COIL, CHOKE, TRF9240
LC13	23261959	COIL, CHOKE, TRF9240
LC20	23103845	COIL, COMMONMODE, TEM2030AY
LC21	23103845	COIL, COMMONMODE, TEM2030AY
LV49	23103852	COIL, FILTER, TEM2028AH
⚠ T400	23224364	TRANSFORMER, FOCUS, TLN2168AH
⚠ T401	23224373	TRANSFORMER, HORIZ DRVE, TLN1100AM
⚠ T461	23236761	FBT 30KV 32Z23B BODY HF, TFB4164CH
T461A	23192941	ANODECAP ASSEMBLY, TCCP5158
T461B	23501175	CABLE ASSY, FOCUS CABLE FOCUS
T461C	23501176	CABLE ASSY, FOCUS
T461D	23236447	TRANSFORMER, HORIZ OUTPUT, TFB4115AR
⚠ T801	23211736	COIL, LINE FILTER, TRF3231AL
⚠ T802	23211728	COIL, LINE FILTER, TRF3231AQ
⚠ T862	23217509	TRANSFORMER, CONVERTER, TPW3475AD
SEMICONDUCTORS		
Q101	23114458	TRANSISTOR, RN1206
Q102	23114458	TRANSISTOR, RN1206
Q104	23114815	TRANSISTOR, 2SC388ATM(FA)
Q106	23114458	TRANSISTOR, RN1206
Q107	23114815	TRANSISTOR, 2SC388ATM(FA)
Q130	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q131	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q132	23314791	TRANSISTOR, 2PA1015Y
Q200	23114756	TRANSISTOR, 2SC2482
Q301	23319787	IC, LA7833S
Q301B	23035308	SCREW, 3X8MM, TAPPING
Q302	23000711	IC, TA1317AN
Q303	23314791	TRANSISTOR, 2PA1015Y
Q370	23314791	TRANSISTOR, 2PA1015Y
Q371	23114462	TRANSISTOR, RN1202
Q371	23114462	TRANSISTOR, RN1202
Q372	23114462	TRANSISTOR, RN1202
Q373	23114462	TRANSISTOR, RN1202
Q402	23114755	TRANSISTOR, 2SC2482FA-1
⚠ Q404	23314955	TRANSISTOR, 2SD2553(FA)
Q404B	72471082	SCREW, 3X10MM
Q411	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q412	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q413	23314791	TRANSISTOR, 2PA1015Y
Q420	23314141	TRANSISTOR, 2SC3852
Q420B	23035308	SCREW, 3X8MM, TAPPING
Q421	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q422	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q423	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q424	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q430	23314141	TRANSISTOR, 2SC3852
Q430B	23035308	SCREW, 3X8MM, TAPPING
Q432	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q438	23314791	TRANSISTOR, 2PA1015Y
Q451	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q460	23205130	TRANSISTOR, KTB778-O
Q460B	70391356	SCREW, BITTB3X10 SZN
Q461	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q462	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q470	23114541	TRANSISTOR, 2SA1320
Q471	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q472	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q472	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q473	23314791	TRANSISTOR, 2PA1015Y
Q490	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q491	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q501	23000665	IC, TB1251CN
Q511	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q512	23906379	IC, TA1287P
Q515	23314791	TRANSISTOR, 2PA1015Y
Q516	23314791	TRANSISTOR, 2PA1015Y
Q517	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q518	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q601	23114623	TRANSISTOR, 2SC2878-A(TEM
Q602	23114623	TRANSISTOR, 2SC2878-A(TEM
Q603	23114478	TRANSISTOR, RN2004
Q604	23314791	TRANSISTOR, 2PA1015Y
Q608	23318814	IC, TA8211AH
Q612	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y

Location No.	Parts No.	Description
Q613	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q618	23114623	TRANSISTOR, 2SC2878-A(TEM
Q619	23114623	TRANSISTOR, 2SC2878-A(TEM
Q671	23114623	TRANSISTOR, 2SC2878-A(TEM
Q673	23114623	TRANSISTOR, 2SC2878-A(TEM
Q701	23314791	TRANSISTOR, 2PA1015Y
Q705	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q706	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q707	23114437	TRANSISTOR, 2SC752GTM-Y
Q709	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q710	23314791	TRANSISTOR, 2PA1015Y
Q711	23314909	TRANSISTOR, 2SA1837
Q711B	23035308	SCREW, 3X8MM, TAPPING
Q712	23314912	TRANSISTOR, 2SC4793
Q712B	23035308	SCREW, 3X8MM, TAPPING
Q719	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
⚠ Q801	23135035	IC, HYBRID IC
Q801B	72471082	SCREW, 3X10MM
Q802	23314141	TRANSISTOR, 2SC3852
Q802B	23035308	SCREW, 3X8MM, TAPPING
Q805	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
⚠ Q826	23904427	IC, PHOTO COUPLER, TLP621(GR-LF2
Q827	23319693	IC, SE116N, LF4
Q840	23318299	IC, L78MR05-FA
Q840B	23035308	SCREW, 3X8MM, TAPPING
Q841	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q842	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q861	23314141	TRANSISTOR, 2SC3852
Q861B	23035308	SCREW, 3X8MM, TAPPING
Q901	23314052	TRANSISTOR, 2SC3619
Q902	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q903	23314052	TRANSISTOR, 2SC3619
Q904	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q905	23314052	TRANSISTOR, 2SC3619
Q906	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
Q907	23114422	TRANSISTOR, 2SA562TM-Y
Q908	23114429	TRANSISTOR, 2SC2120-Y(TE
Q4200	23000370	IC, TA1318N
Q4490	23118952	IC, PHOTO COUPLER, TLP521-1 (FA)
Q4491	23314917	TRANSISTOR, 2SK2003-01MR
Q4493	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QA01	23009165	IC, 8BIT TV/TEXT MCU 64K
QA02	23009328	IC, 16K BIT CMOS EEPROM
QA03	23114733	TRANSISTOR, 2SC2655-Y
QA04	23114458	TRANSISTOR, RN1206
QA05	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QB01	23314791	TRANSISTOR, 2PA1015Y
QB02	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QB30	23906946	IC, CM0016AD
QB30	23314791	TRANSISTOR, 2PA1015Y
QF01	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QR01	70129053	IC, BA7603
QR02	23114437	TRANSISTOR, 2SC752GTM-Y
QR03	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QR04	23114460	TRANSISTOR, RN1204
QR05	23114460	TRANSISTOR, RN1204
QV01	23904931	IC, TA1219N
QV02	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QV03	23314791	TRANSISTOR, 2PA1015Y
QV04	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QV05	23114623	TRANSISTOR, 2SC2878-A(TEM
QV06	23114623	TRANSISTOR, 2SC2878-A(TEM
QV07	23114478	TRANSISTOR, RN2004
QV08	23314794	TRANSISTOR, VCEO=50V TO-92, 2PC1815Y
QV11	23314791	TRANSISTOR, 2PA1015Y
D101	23115599	DIODE, 1N4148
D102	23357354	DIODE, MA2C858

Location No.	Parts No.	Description
D110	23357354	DIODE, MA2C858
D190	23316755	DIODE, ZENER, MTZJ33C
D224	23115599	DIODE, 1N4148
D240	23115599	DIODE, 1N4148
D301	23118479	DIODE, BYD33J
D302	23118479	DIODE, BYD33J
D303	23316794	DIODE, SC570A
D304	23118479	DIODE, BYD33J
D308	23118479	DIODE, BYD33J
D312	23115599	DIODE, 1N4148
D320	23115599	DIODE, 1N4148
D327	23316717	DIODE, ZENER, MTZJ11C
D336	23316672	DIODE, ZENER, MTZJ5.6B
D337	23316672	DIODE, ZENER, MTZJ5.6B
D370	23316658	DIODE, ZENER, MTZJ3.6A
D371	23115599	DIODE, 1N4148
D373	23316685	DIODE, ZENER, MTZJ8.2C
D374	23115599	DIODE, 1N4148
D377	23118479	DIODE, BYD33J
D378	23118479	DIODE, BYD33J
D401	23316685	DIODE, ZENER, MTZJ8.2C
D403	23115599	DIODE, 1N4148
D406	23118479	DIODE, BYD33J
D421	23316680	DIODE, ZENER, MTZJ7.5A
D422	23316726	DIODE, ZENER, MTZJ15C
D431	23316670	DIODE, ZENER, MTZJ5.1C
D432	23316670	DIODE, ZENER, MTZJ5.1C
D436	23115599	DIODE, 1N4148
D441	23316690	DIODE, ZENER, MTZJ10B
D460	23118479	DIODE, BYD33J
D461	23316803	DIODE, FMU-G16S
D461B	23035308	SCREW, 3X8MM, TAPPING
D463	23115599	DIODE, 1N4148
D464	23316725	DIODE, ZENER, MTZJ15B
D466	23316672	DIODE, ZENER, MTZJ5.6B
D467	23118479	DIODE, BYD33J
D470	23316670	DIODE, ZENER, MTZJ5.1C
D474	23316719	DIODE, ZENER, MTZJ12B
D475	23118479	DIODE, BYD33J
D488	23115599	DIODE, 1N4148
D490	23115599	DIODE, 1N4148
D492	23115599	DIODE, 1N4148
D498	23316745	DIODE, ZENER, MTZJ27A
D498	23115599	DIODE, 1N4148
D499	23115599	DIODE, 1N4148
D499	23115599	DIODE, 1N4148
D599	23316717	DIODE, ZENER, MTZJ11C
D603	23115599	DIODE, 1N4148
D604	23115599	DIODE, 1N4148
D605	23115599	DIODE, 1N4148
D636	23115599	DIODE, 1N4148
D637	23115599	DIODE, 1N4148
D638	23115599	DIODE, 1N4148
D639	23115599	DIODE, 1N4148
D704	23115599	DIODE, 1N4148
D705	23115599	DIODE, 1N4148
D715	23115599	DIODE, 1N4148
D721	23115599	DIODE, 1N4148
D801	23357041	DIODE, LN6SB60-F05
D804	23316725	DIODE, ZENER, MTZJ15B
D805	23357012	DIODE, 1SS244
D806	23118479	DIODE, BYD33J
D807	23316746	DIODE, ZENER, MTZJ27B
D810	23316738	DIODE, ZENER, MTZJ22B
D811	23115599	DIODE, 1N4148
D815	23316746	DIODE, ZENER, MTZJ27B
D817	23115599	DIODE, 1N4148

Location No.	Parts No.	Description
D818	23316738	DIODE, ZENER, MTZJ22B
D828	23115599	DIODE, 1N4148
D842	23316724	DIODE, ZENER, MTZJ15A
D844	23316715	DIODE, ZENER, MTZJ11A
D848	23316675	DIODE, ZENER, MTZJ6.2B
D855	23115599	DIODE, 1N4148
D861	23316673	DIODE, ZENER, MTZJ5.6C
D862	23316674	DIODE, ZENER, MTZJ6.2A
D883	23118338	DIODE, RU4AM LF-K2
D885	23118094	DIODE, EU2A
D892	23118052	DIODE, RU4Z LF-L1
D896	23118479	DIODE, BYD33J
D901	23115599	DIODE, 1N4148
D903	23115599	DIODE, 1N4148
D904	23115599	DIODE, 1N4148
D905	23115599	DIODE, 1N4148
D906	23115599	DIODE, 1N4148
D907	23115599	DIODE, 1N4148
D908	23115599	DIODE, 1N4148
D909	23115599	DIODE, 1N4148
D910	23115599	DIODE, 1N4148
D911	23115599	DIODE, 1N4148
D4410	23115599	DIODE, 1N4148
D4411	23115599	DIODE, 1N4148
D4412	23115599	DIODE, 1N4148
DA02	23115599	DIODE, 1N4148
DA03	23115599	DIODE, 1N4148
DA04	23115599	DIODE, 1N4148
DA05	23115599	DIODE, 1N4148
DA06	23316675	DIODE, ZENER, MTZJ6.2B
DA07	23316661	DIODE, ZENER, MTZJ3.9B
DR06	23115599	DIODE, 1N4148
DV06	23115599	DIODE, 1N4148
MISCELLANEOUS		
B221	23037312	SCREW, BTBW3X12SZN
BB10B	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
BB11B	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
BB12B	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
BB13B	23903022	CONNECTOR, BASE B-B 8P 2.5 JST
⚠ F470	23144873	FUSE, 1A, 250V
F470A	23165433	FUSE HOLDER, 5.2 SOC
⚠ F801	23144508	FUSE, CARTRIDGE 5.2X20, 250V 4.0A
F801A	23165433	FUSE HOLDER, 5.2 SOC
⚠ F802	23144506	FUSE, CARTRIDGE 5.2X20, 250V 2.5A
F802A	23165433	FUSE HOLDER, 5.2 SOC
G101	24366123	CARBON FILM, 1/6W 12K OHM J
G103	24366820	CARBON FILM, 1/6W 82 OHM J
G108	23238562	COIL, PEAKING, TRF4109AJ
G111	23238714	COIL, PEAKING, TRF4100AJ
G112	23238714	COIL, PEAKING, TRF4100AJ
G113	23357354	DIODE, MA2C858
G131	24366221	CARBON FILM, 1/6W 220 OHM J
G299	24366103	CARBON FILM, 1/6W 10K OHM J
G309	23118479	DIODE, BYD33J
G312	24366562	CARBON FILM, 1/6W 5.6K OHM J
G379	24366220	CARBON FILM, 1/6W 22 OHM J
G430	23115532	DIODE, ERB12-01
G465	23316672	DIODE, ZENER, MTZJ5.6B
G810	23103859	COIL, CHOKE, TEM2011
G828	23103859	COIL, CHOKE, TEM2011
GV06	24366101	CARBON FILM, 1/6W 100 OHM J
GV08	24366101	CARBON FILM, 1/6W 100 OHM J
GV11	24366101	CARBON FILM, 1/6W 100 OHM J
GV14	24366101	CARBON FILM, 1/6W 100 OHM J
GV18	23238714	COIL, PEAKING, TRF4100AJ
H002	23148767	MODULE, NICAM/IGR, MPSE22A

Location No.	Parts No.	Description
KB01	23000852	IC, REMOCON RECEIVER, PIC-37043TE2
P661	23363607	JACK, HEAD PHONE, 3.5MM
⚠ P801	23372052	POWER CORD, 250V2.5A
P801A	23368013	CONNECTOR, PLUG, 2P 11.88MM W VT-JST
P821A	23368013	CONNECTOR, PLUG, 2P 11.88MM W VT-JST
P821B	23368013	CONNECTOR, PLUG, 2P 11.88MM W VT-JST
P831A	23368013	CONNECTOR, PLUG, 2P 11.88MM W VT-JST
P831B	23368013	CONNECTOR, PLUG, 2P 11.88MM W VT-JST
PH01	23365598	21 PIN CONNECTOR 2100RFT
PH02	23365598	21 PIN CONNECTOR 2100RFT
⚠ S801	23344416	SWITCH, POWER PUSH 2C1P, ESB92D21B
SA01	23145430	SWITCH, PUSH, SKHHLMA010
SA02	23145430	SWITCH, PUSH, SKHHLMA010
SA03	23145430	SWITCH, PUSH, SKHHLMA010
SA04	23145430	SWITCH, PUSH, SKHHLMA010
SA05	23145430	SWITCH, PUSH, SKHHLMA010
SR40	23146564	RELAY, DC12V, TV5, DG-3
⚠ SR83	23146570	RELAY, DC12V, 2M OMR, G5PA-2 DC12
⚠ V901A	23903145	SOCKET, CRT, WFOCUS ISD35SE INCHANG ISD-35S-E
W661	23351128	SPEAKER, SPK1389, 60X120 16-OHM 6W
W662	23351128	SPEAKER, SPK1389, 60X120 16-OHM 6W
X4010	23153721	CERAMIC RESONATOR, 503KHZ
X501	23153979	CRYSTAL, 4.43MHZ PAL-APC
XA01	23153930	CRYSTAL, 12.000 25PPM 40OHM 7PF
Z101	23303231	FILTER, FILTER FOR VIDEO 38.9M K3953M
Z102	23303232	FILTER, FOR AUDIO 33.9/38.9M K9453M
Z103	23303189	CERAMIC TRAP, TCF1114
Z104	23303072	CERAMIC FILTER, TCF1089
⚠ Z420	23144539	PROTECTOR, 491SERIES, 125V 2A
⚠ Z891	23144543	PROTECTOR, 491SERIES, 125V 5A
⚠ Z898	23144542	PROTECTOR, 491SERIES, 125V 4A
Z902	23103839	FERRITE CORE, TFE1012
⚠ ZP83	23144536	PROTECTOR PRF1000, 491SERIES, 125V 1A
PC BOARD ASSEMBLIES		
* U901	23787673	CRT-D&DSM BOARD, PD0014D
* U902	23787679	SIGNAL BOARD, PD0720B
* U903	23787675	POW&DEF BOARD, PD0721B
* U904	23787684	CONT-1 BOARD, PD0515C (32Z23G)
* U904	23787685	CONT-1 BOARD, PD0722A (28Z23G)
* U905A	23787741	CONT-2 IND BOARD, PD0723B-1
* U905B	23787742	CONT-2 AV BOARD, PD0723B-2
PICTURE TUBE		
⚠ V901	23312992	PICTURE TUBE, W76QEN881X1
TUNER		
H001	23321370	TUNER, HYP.EMULT IICPL D-J MATU, EGA51L
ACCESSORIES		
K902	23306363	REMOCON HAND UNIT IR, CTVPAL, CT-90040
Y101A	23565660	OWNER'S MANUAL, ENGLISH, 32Z23G/28Z23G
Y101A	23565687	OWNER'S MANUAL, ENGLISH, 32Z23G/28Z23G
Y101B	23565688	OWNER'S MANUAL, GERMAN, 32Z23G/28Z23G
Y101C	23565689	OWNER'S MANUAL, FRENCH, 32Z23G/28Z23G
Y101D	23565690	OWNER'S MANUAL, ITALIAN, 32Z23G/28Z23G
Y101E	23565691	OWNER'S MANUAL, SPANISH, 32Z23G/28Z23G

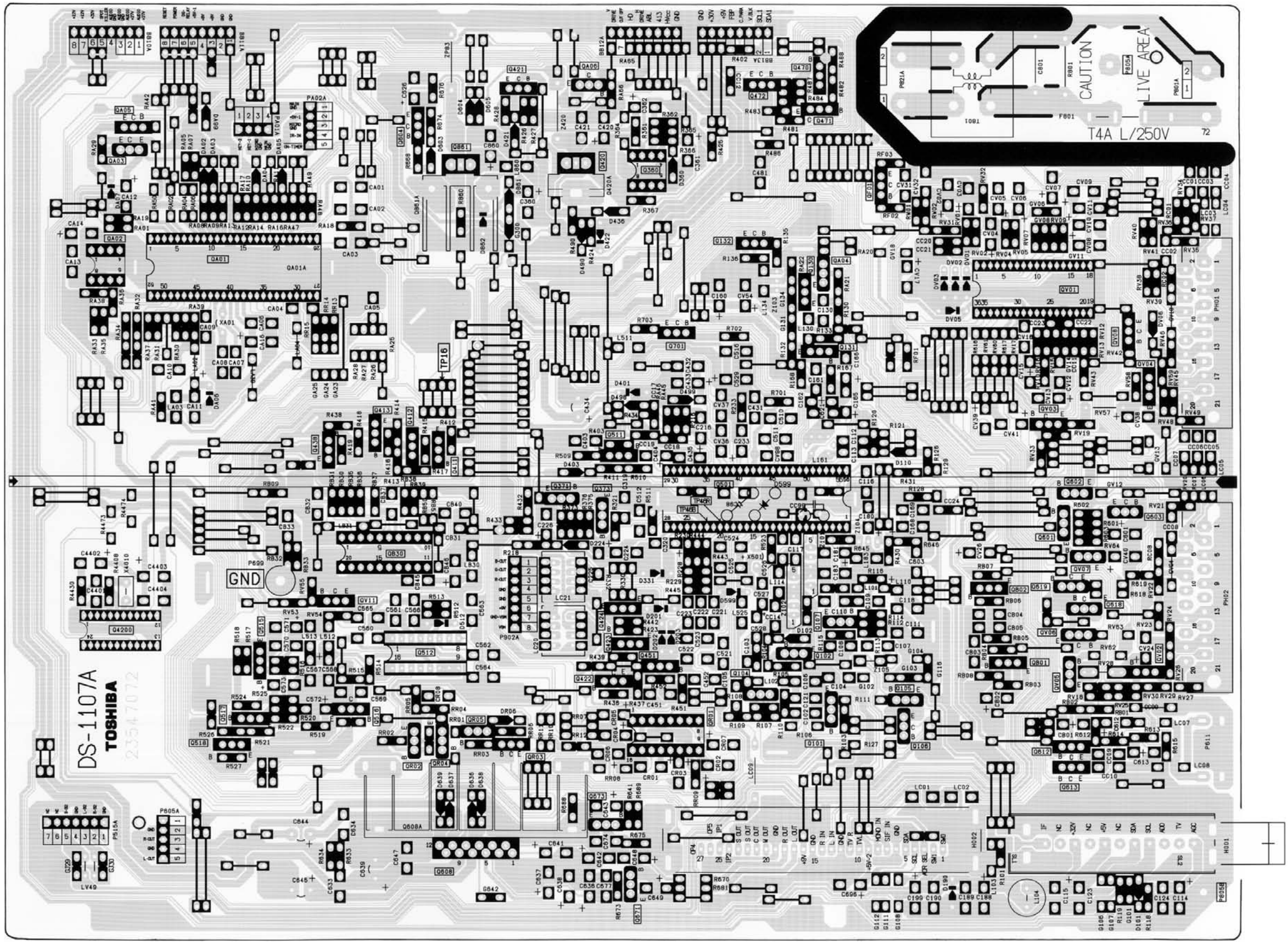
Location No.	Parts No.	Description
Y101F	23565692	OWNER'S MANUAL, PORTUGUES, 32Z23G/28Z23G
Y101G	23565693	OWNER'S MANUAL, SWEDISH, 32Z23G/28Z23G
Y101H	23565694	OWNER'S MANUAL, FINNISH, 32Z23G/28Z23G
Y101J	23565695	OWNER'S MANUAL, DUTCH, 32Z23G/28Z23G
Y101K	23565696	OWNER'S MANUAL, POLISH, 32Z23G/28Z23G
Y101L	23565697	OWNER'S MANUAL, HUNGARIAN, 32Z23G/28Z23G
Y101M	23565698	OWNER'S MANUAL, TURKISH, 32Z23G/28Z23G
Y101N	23565699	OWNER'S MANUAL, GREEK, 32Z23G/28Z23G
CABINET PARTS		
A243	23445606	BUTTON, BUTTON(CONTROL) 32ZD26 BUTTON
A231	23445607	BUTTON, BUTTON(POWER) 32ZD26P BUTTON
A701	23064789	CARTON, CARTON 32ZD26P
⚠ A401	23530303	COVER, BACK COVER ASSEY 3
A430	23530210	COVER, BACK COVER PROPER
A201S	23530343	COVER, FRONT COVER SERVIC
A242	23428067	DOOR, DOOR PROPER 32ZD26P
A236	23527208	GRILLE, SPEAKER GRILLE 32ZD26P
A711	23560820	LABEL, IN HOUSE CARTON(57YEL), 28MW7DB
A227	23845834	LEAD CLAMPER
A702	23946346	PACKING, BOTTOM PACKING 3
A703	23946347	PACKING, TOP PACKING 32ZD
A241	70368125	PUSH CATCH
A214	23035412	SCREW, BTB4X12SZN
A221	23035412	SCREW, BTB4X12SZN
A222	23035412	SCREW, BTB4X12SZN
A223	23037312	SCREW, BTBW3X12SZN
A245	23037312	SCREW, BTBW3X12SZN
A247	23037312	SCREW, BTBW3X12SZN
A248	23035412	SCREW, BTB4X12SZN
A249	23035412	SCREW, BTB4X12SZN

Location No.	Parts No.	Description

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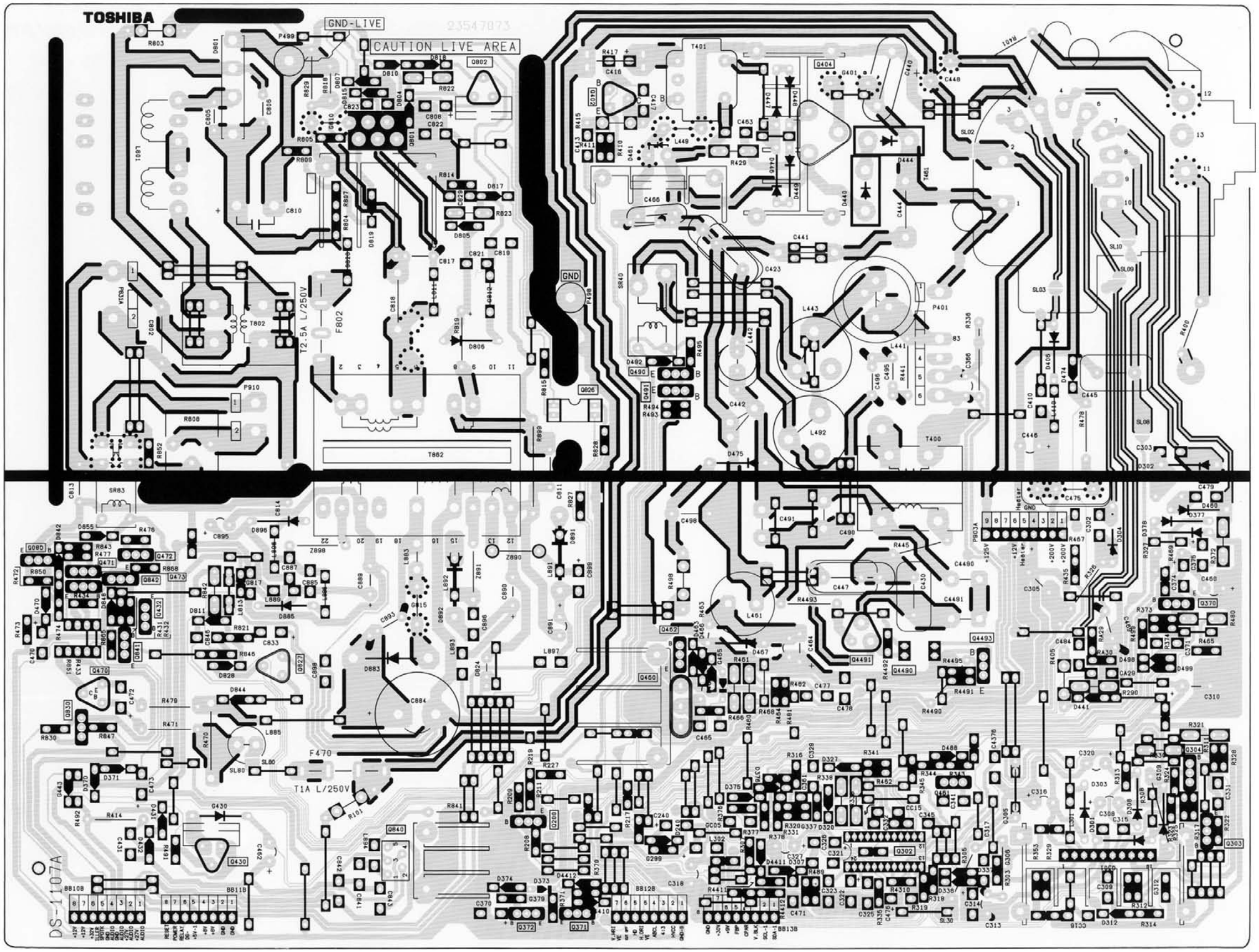
SIGNAL BOARD PD0720D

BOTTOM (FOIL) SIDE



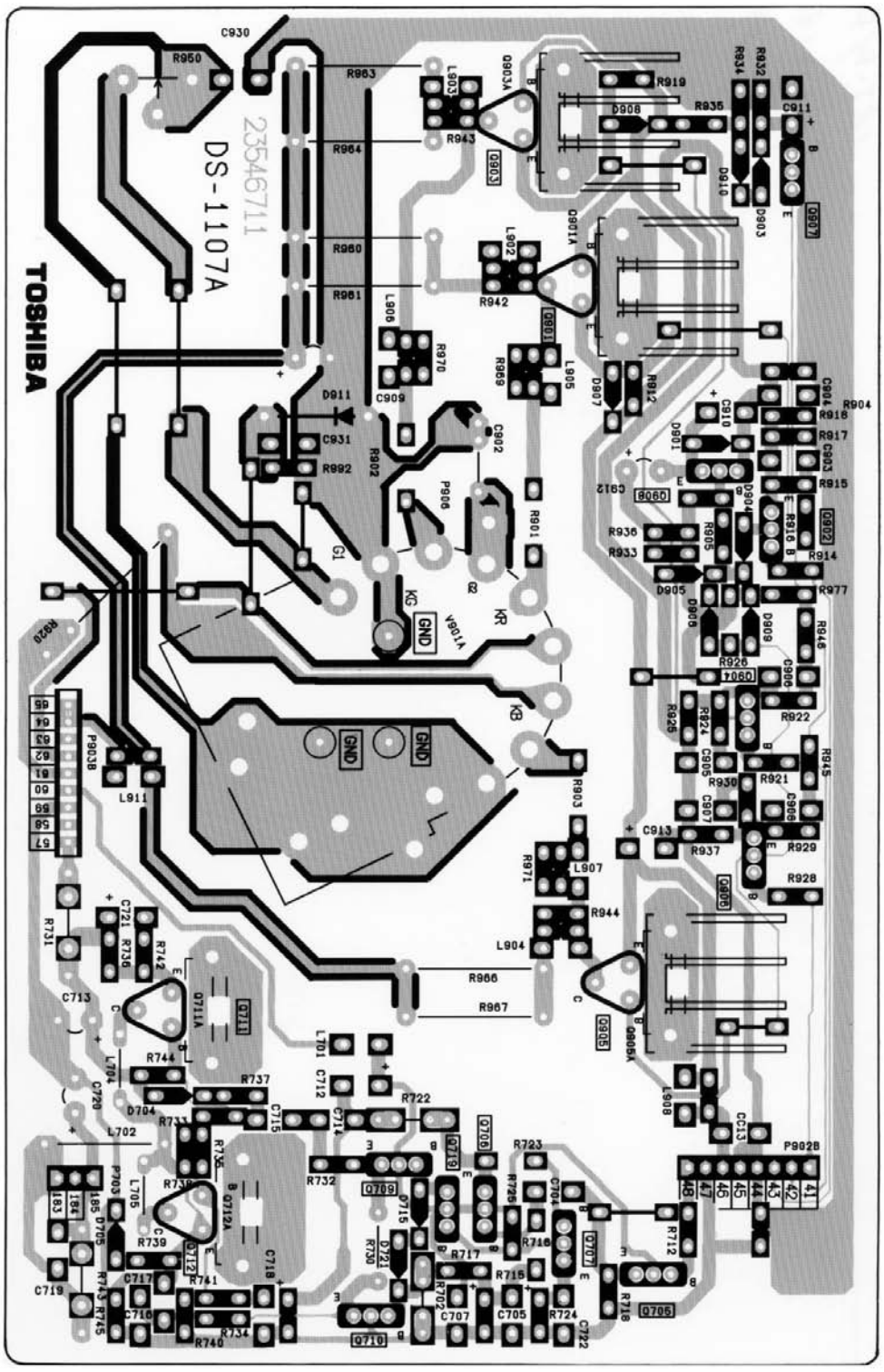
POWER/DEF BOARD PD0721C

BOTTOM (FOIL) SIDE



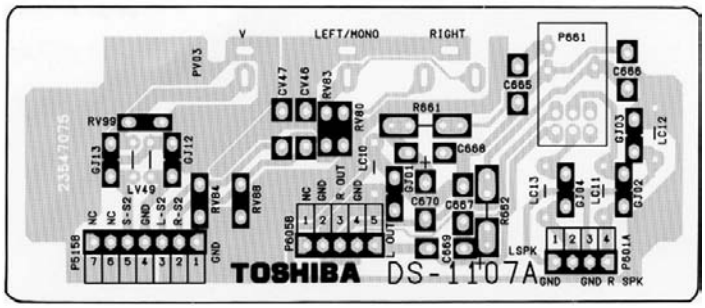
CRT-D/DSM BOARD PD0014D

BOTTOM (FOIL) SIDE



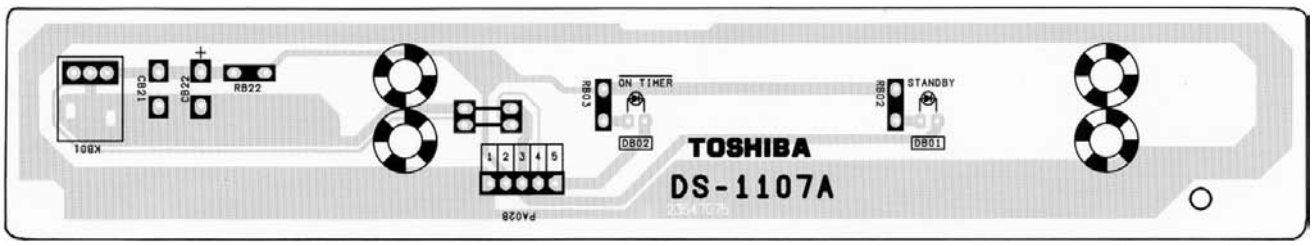
AV BOARD PD0723B-2

BOTTOM (FOIL) SIDE



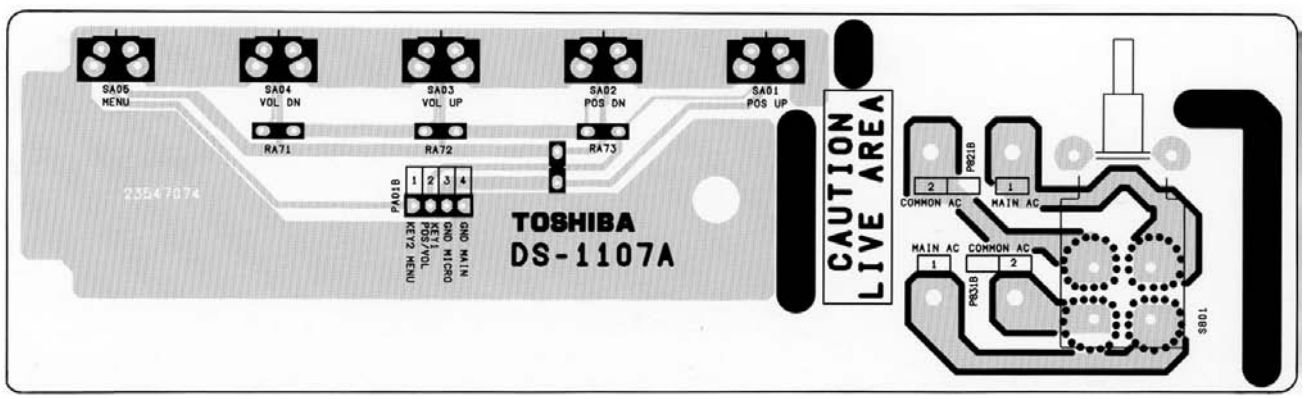
INDICATOR BOARD PD0723B-1

BOTTOM (FOIL) SIDE



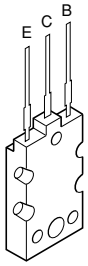
CONT-1 BOARD PD0515C (32")
CONT-1 BOARD PD0722A (28")

BOTTOM (FOIL) SIDE

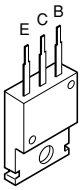


TERMINAL VIEW OF TRANSISTORS

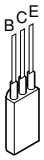
① 2SD2253
(old)
2SC5243
2SC5570



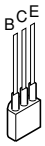
② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A



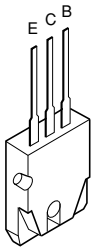
③ 2SC752GTM
2SC2482
2SC2655
2SC4721P



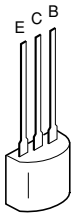
④ 2SC752
2SA562TM
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



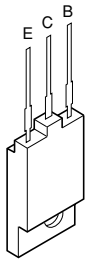
⑤ 2SA1788



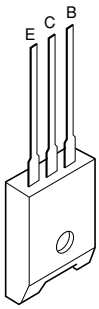
⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



⑦ 2SD1554
2SD2253
2SD1556
2SC5143
2SD2553



⑧ ON4409



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SCHEMATIC DIAGRAM

MODEL : 32Z23G / 28Z23G

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.

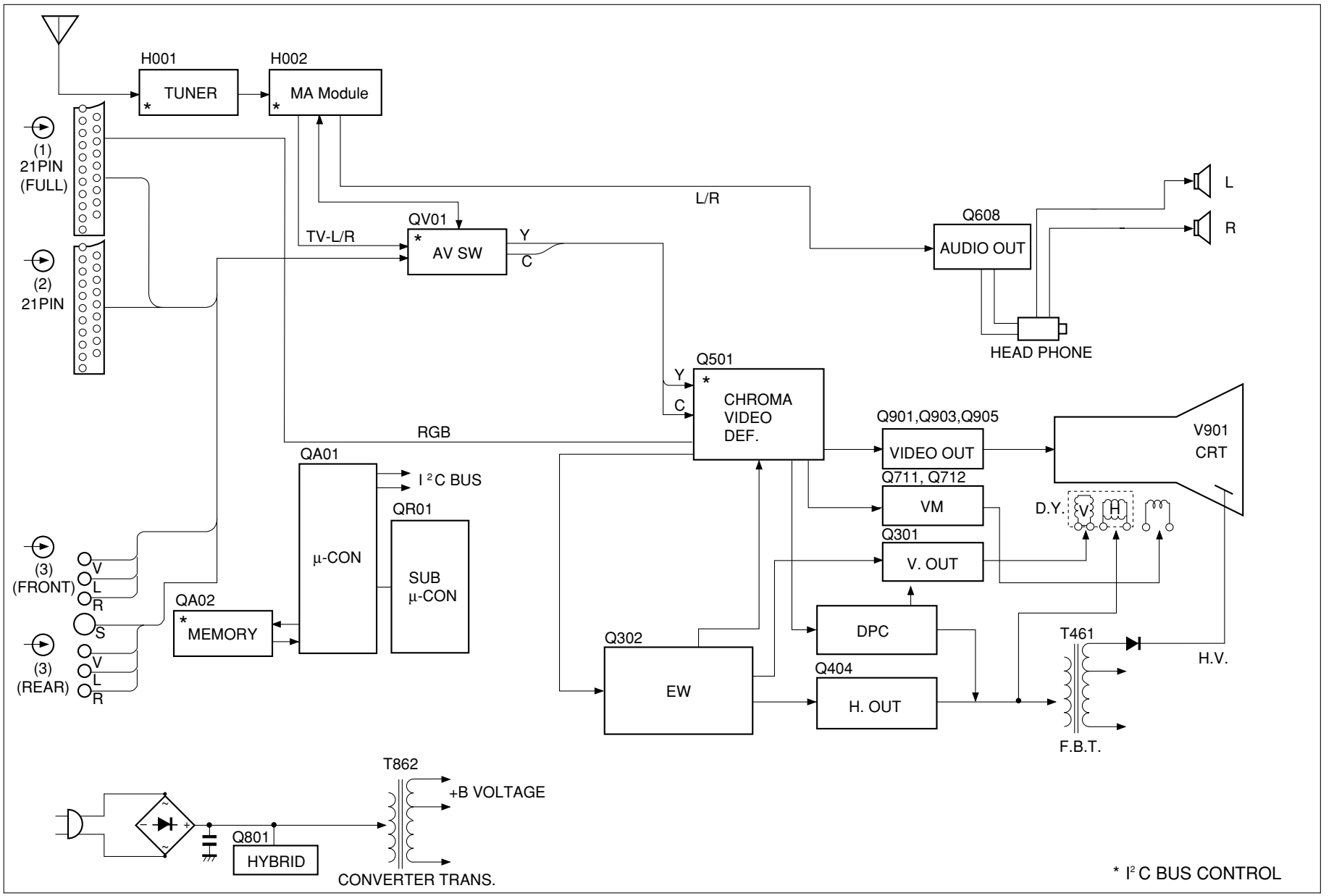
NOTE:

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 compsistion of 1/2 watt
   1RF = Fuse resistor of 1 watt 10W = Cement of 10 watt
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μF, and the values more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the following marks.
   —|+|— Electolytic capacitor —|M|— 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 chassing ground, using a color bar signal with all controls at normal, line voltage 220 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

■ **SCHEMATIC DIAGRAM STRUCTURE:**

- CONT-2 / INDICATOR Circuit 1/5
- CONT-1 Circuit 2/5
- CRT-D Circuit 3/5
- POWER / DEF Circuit 4/5
- SIGNAL Circuit 5/5

CIRCUIT BLOCK DIAGRAM



SPECIFICATIONS (Representative: 32Z23G)

Input Power Rating:	AC 220 ~ 240 Volts
Aerial Input Impedance:	75 ohm unbalanced type for VHF, UHF and CATV
Receiving Channels:	**System** **Channel** **VHF** **UHF** **CATV** PAL I UK 21 ~ 69 PAL, /60 Hz (For Video Disk play back) 4.43 NTSC (For VCR playback), 3.58 NTSC (For VCR playback)
Intermediate Frequencies:	Picture I-F carrier frequency ..... 38.9 MHz (L VL) Sound I-F carrier frequency ..... 32.9 MHz
Picture Tube:	32 inches, 760 mm (measured on diagonal of viewable picture area) 106° deflection
Sound Output:	5 W + 5 W (at 10% Distortion, Main)
Speakers:	60 mm × 120 mm oval, 2 pcs (Main)
Aux. Terminals:	21 pin socket (FULL), 21 pin socket (S-VIDEO/AV), MONITOR OUTPUT, STEREO HEADPHONE JACK (3.5mm).
Cabinet:	Table type
Dimensions:	Height ..... 528 mm Width ..... 828 mm Depth ..... 542 mm
Mass:	54.0 kg

* Please refer to owner's manual in detail.

– END –

SCHEMATIC DIAGRAM

MODEL : 32Z23G / 28Z23G

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.

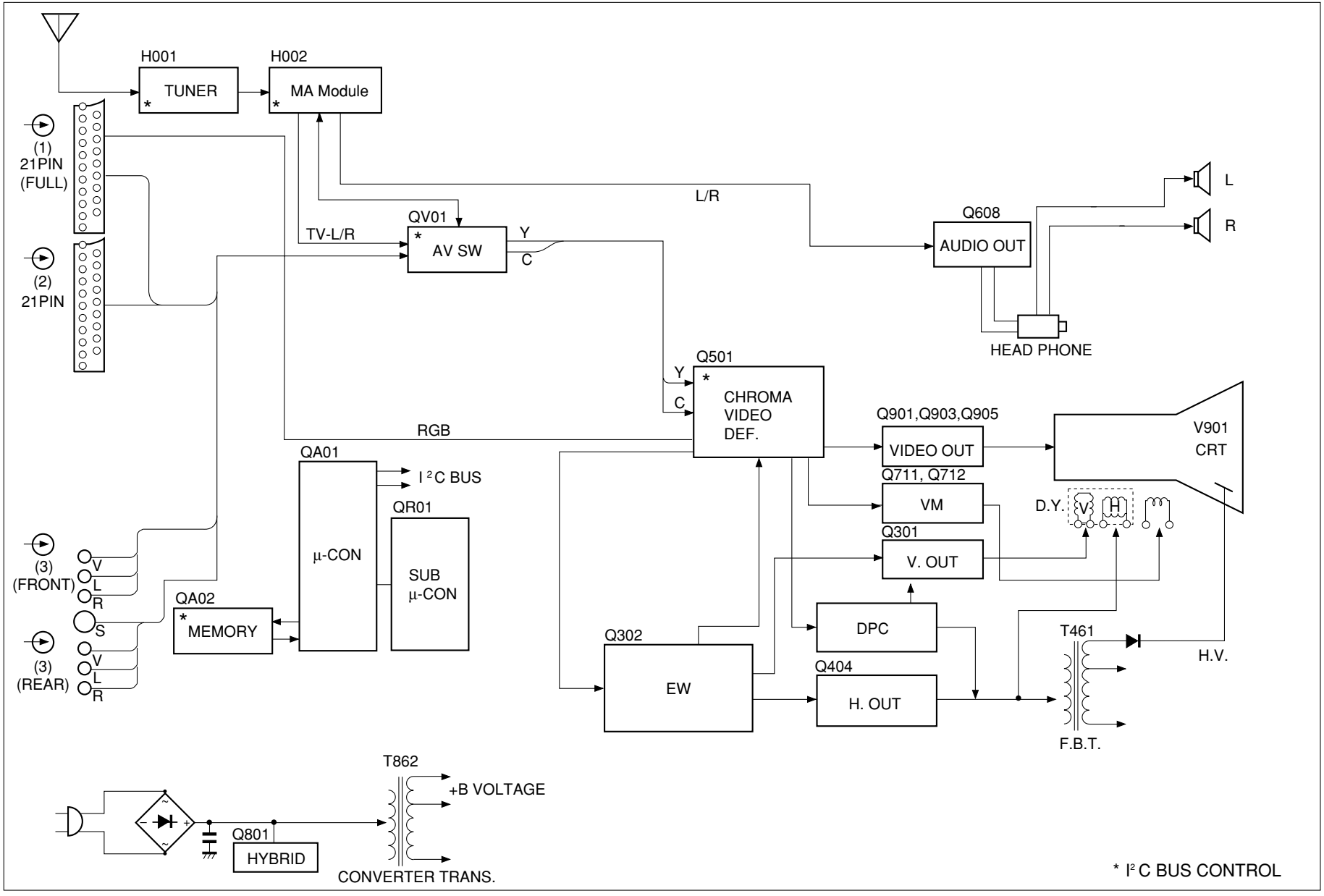
NOTE:

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.
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   —|+|— Electolytic capacitor —|M|— Mylar capacitor
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5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

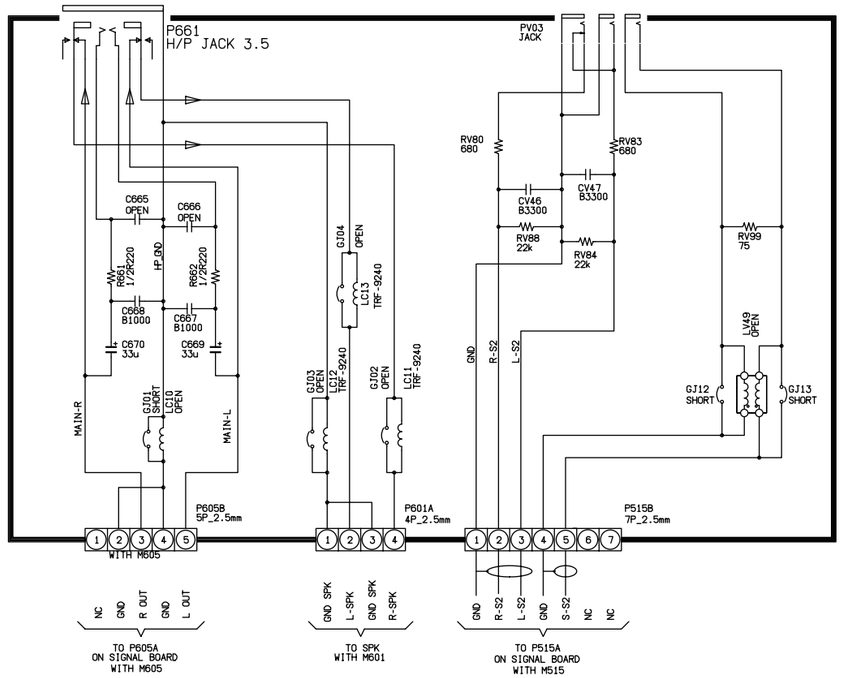
■ **SCHEMATIC DIAGRAM STRUCTURE:**

- CONT-2 / INDICATOR Circuit 1/5
- CONT-1 Circuit 2/5
- CRT-D Circuit 3/5
- POWER / DEF Circuit 4/5
- SIGNAL Circuit 5/5

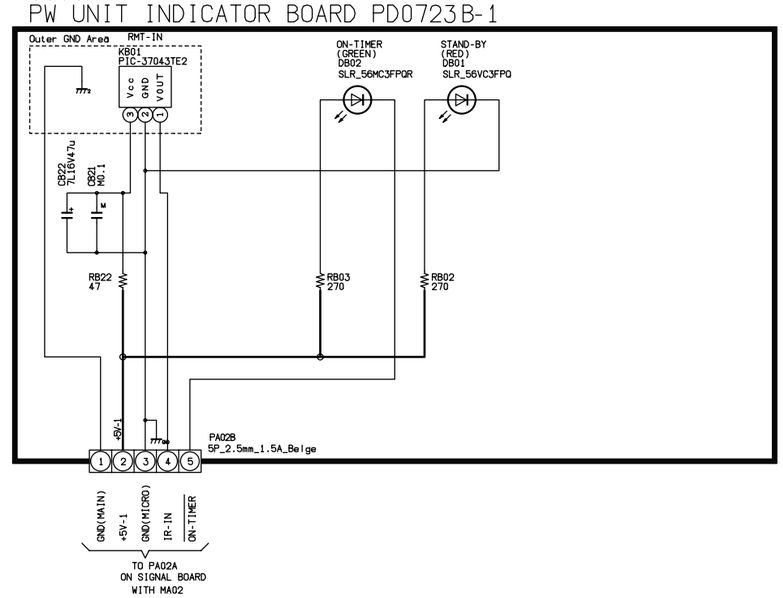
CIRCUIT BLOCK DIAGRAM



U905B
PW UNIT AV BOARD PD0723B-2

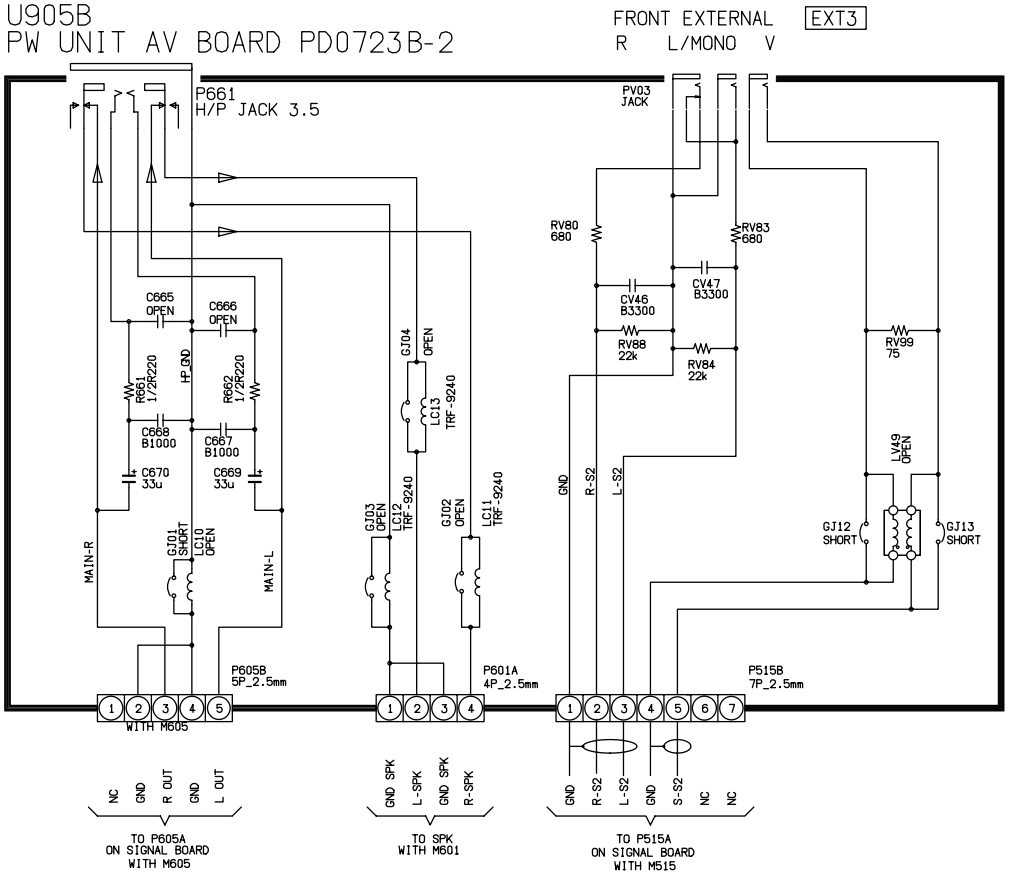


U905A
PW UNIT INDICATOR BOARD PD0723B-1

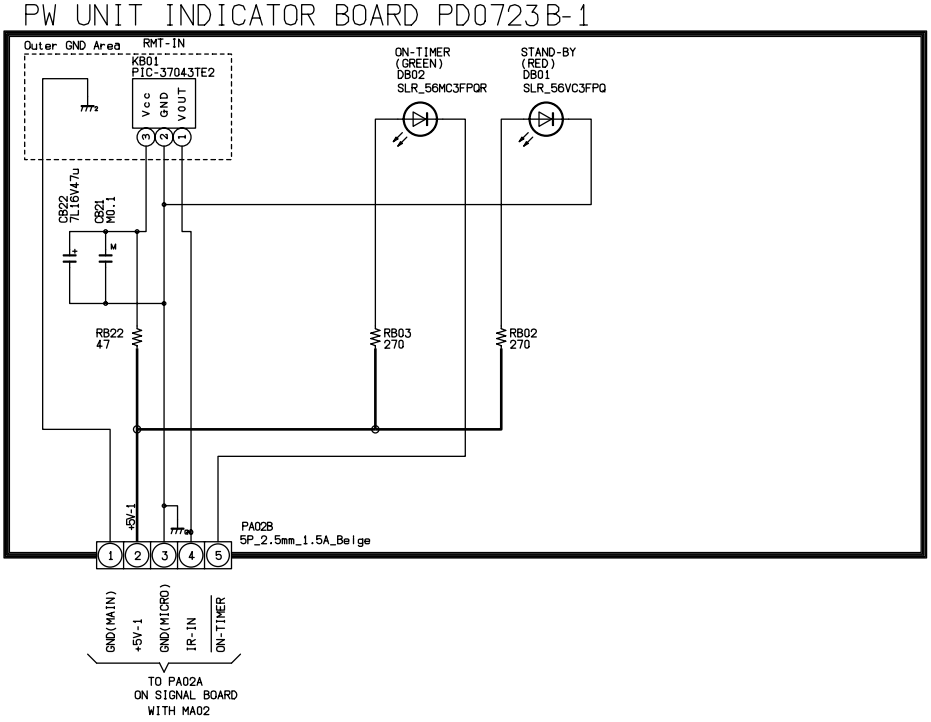


CONT-2/INDICATOR
32Z23G, 28Z23G

U905B
PW UNIT AV BOARD PD0723B-2

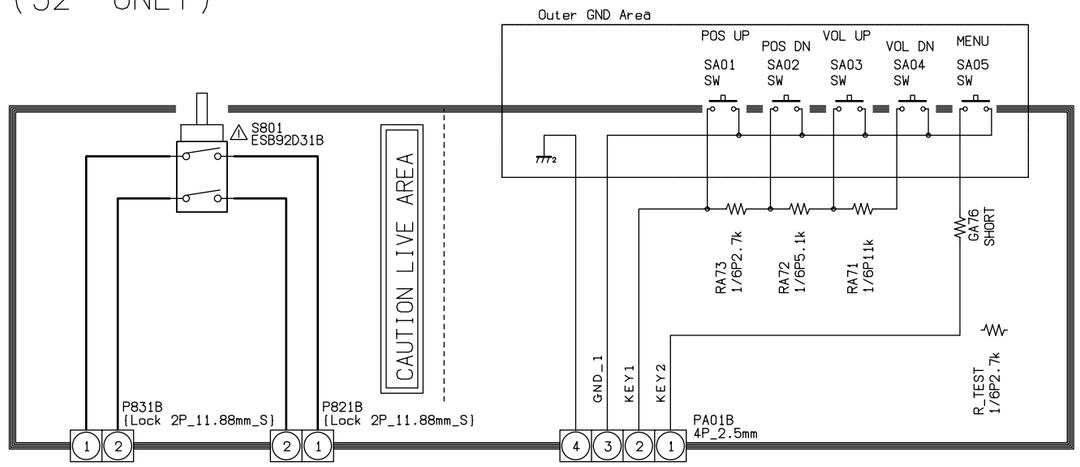


U905A
PW UNIT INDICATOR BOARD PD0723B-1



CONT-2/INDICATOR
32Z23G, 28Z23G

U905
PW UNIT CONT-1 BOARD FWEF043
(32" ONLY)



CONTROL-1
32Z23G, 28Z23G

U901 PW UNIT CRT-D&DSM BOARD PD 0014B

104Vp-p

102Vp-p

103Vp-p

R904 4.7k
R905 15

Q901 2SC3619 170 9.1
Q901A OPEN
D907 1N4148
R912 OPEN
D904 1N4148
Q902 2PC1815Y 2.5 2.1
R914 470
R915 1/6P180
R916 220
R917 680
R918 47
C903 OPEN
C904 560

Q903 2SC3619
Q903A OPEN
D908 1N4148
R919 OPEN
D905 1N4148
Q904 2PC1815Y 2.5 2.1
R921 470
R922 1/6P180
R946 220
R924 47
R925 680
C905 560
C906 OPEN

Q905 2SC3619
Q905A OPEN
D909 1N4148
R926 OPEN
D906 1N4148
Q906 2PC1815Y 2.5 2.1
R928 470
R929 1/6P180
R945 220
R930 47
R937 680
C907 560
C908 OPEN

R977 1k
D910 1N4148
C911 16V10u
Q907 2SA562TM-Y 1.7 1.1 0
R935 1k
R934 1/6P330
D903 1N4148
R932 1k
C913 16V10u

R933 75
R936 75
C912 16V1000
C910 50V0.47u
D901 1N4148
Q908 2SC2120-Y 9.2 0

GJ05 SHORT
R960 2R15k
R942 OPEN
R961 OPEN
L902 OPEN
GJ06 SHORT
R969 OPEN
L905 OPEN
GJ08 SHORT
R970 OPEN
GJ07 SHORT
R943 OPEN
R963 2R15k
L903 OPEN
L906 OPEN
R964 OPEN
GJ10 SHORT
R971 OPEN
GJ09 SHORT
R944 OPEN
R966 2R15k
L904 OPEN
L907 OPEN
R967 OPEN

C930 500V100p
R901 1/2 470C
R902 1/2 470C
R903 1/2 470C
G910 OPEN
R950 OPEN
C902 2kV4700
P906 OPEN
L911 100u
GJ04 OPEN
C909 250V10
V901A ISD-35S-E
D911 BYD33J
R992 15
C931 500V100p
R920 2FR4.7
(HEATER)

32" W76ER6041X0(JHOMEON)PS)

M902
VSM
GND-VSM
+9V
GND
GND
R-OUT
G-OUT
B-OUT
48 47 46 45 44 43 42 41
TO P903A ON SIGNAL BOARD WITH M902
P902B 8P_2.5mm
CC13 0.01 SHORT
L908 TRF4100AT
GJ12 OPEN
TP46R
TP46B

+200V
+200V
NC
GND Heater
Heater
+12V
GND
NC
+125V
65 64 63 62 61 60 59 58 57
TO P903A ON PDK-DEF BOARD WITH M903
P903B 9P_2.5mm
M903

+12V
L701 TRF4100AT
C707 16V47u
R712 100
Q705 2PC1815Y 11.5 8.5 7.9
GJ11 OPEN
R718 2.2k
C704 M8200p
Q706 2PC1815Y 9.8 1.5 0.8
R722 1/2R470
R723 100
Q707 2SC752GTM 6.0 0.8 0.1
C722 OPEN
R724 220
R725 1.8k
Q719 2PC1815Y 11.5 6.5 5.9
Q709 2PC1815Y 11.5 5.5
C712 16V47u
D715 1N4148
D721 1N4148
R730 1/2R10
R732 82
C714 100
R716 27k
R715 22k
C705 50V2.2u
R717 33k
R702 820
Q710 2PA1015Y 5.5 5.2 0
R734 82
C716 100p
C717 500V4700p

+125V
R731 1R330
C713 160V10u
D704 1N4148
R737 1.5k
R744 1.2k
R736 56
C721 16V47u
R742 2.7
C715 500V4700p
Q711 2SA1837 122.7 122.3 6
Q711A HEAT SINK BRACKET
L704 TEM2011
R733 68k
R738 1K
L705 TEM2011
R735 68k
Q712 2SC4793 64.3 0.8 0.3
Q712A HEAT SINK BRACKET
R739 1.5k
R745 1.2k
D705 1N4148
R740 56
R741 2.7
C718 16V47u
L702 HC5-035
C719 500V150p
R743 2R220
C720 160V10u
P703 3P_SMK

CRT-D
32Z23G, 28Z23G

U903 PW UNIT POWER/DEFLECTION BOARD PD0721 B

TO SIGNAL BOARD

CAUTION LIVE AREA

50VIp-pX1

13VIp-pX1

27VIp-pX10

105VIp-pX100

150VIp-pX100

270VIp-pX100

450Vp-p

VAC=220V

27V-90P

POWER/DEFLECTION
32Z23G, 28Z23G

Z23 Virtual Dolby Module
MPSE24 P/N 23148022 for Z27 models

Z27 MA Module
MPSE22A 23148767 for Z23 models

U902 PW UNIT SIGNAL BOARD PD 0720B

ALL	23148022	MPSE24	
322270	23148022	MPSE24	
322278	23148022	MPSE24	
282270	23148022	MPSE24	
282278	23148022	MPSE24	
322230	23148767	MPSE22A	
322238	23148767	MPSE22A	
282230	23148767	MPSE22A	
282238	23148767	MPSE22A	
ALL	23148022	MPSE24	CE_DH0020_01
	H002 PartNum	H002 SCHDescrip	H002 CellComp
H002 MA or Virtual Dolby Module			

CAUTION LIVE AREA

TUNER

E1	
20	SHIELD EARTH
19	VIDEO IN
18	VIDEO OUT
17	SWITCH BUS EARTH
16	SWITCH BLANKING
15	NC
14	EARTH
13	RED EARTH
12	NC
11	GREEN IN
10	NC
9	GREEN EARTH
8	EARTH
7	NC
6	AUDIO INS.1
5	BLUE EARTH
4	AUDIO EARTH
3	AUDIO OUT.1
2	AUDIO IN.R1
1	AUDIO OUT.R1

E2	
20	SHIELD EARTH
19	S-VIDEO-Y
18	VIDEO OUT
17	VIDEO EARTH
16	NC
15	S-VIDEO-C
14	EARTH
13	NC
12	NC
11	NC
10	NC
9	EARTH
8	EARTH
7	NC
6	AUDIO INS.1
5	EARTH
4	AUDIO EARTH
3	AUDIO OUT.L1
2	AUDIO IN.R1
1	AUDIO OUT.R1

ALL	23991115	BA4556A/NS/8535	SC_DG0235_01
322278	23991115	BA4556A/NS/8685	
282278	23991115	BA4556A/NS/8685	
282278	23991115	BA4556A/NS/8685	
322230	23991115	BA4556A/NS/8685	
322238	23991115	BA4556A/NS/8535	
282230	23991115	BA4556A/NS/8535	
282238	23991115	BA4556A/NS/8535	
ALL	23991115	BA4556A/NS/8535	SC_DG0235_01
	H002 PartNum	H002 SCHDescrip	H002 CellComp

Microcontroller

SIGNAL
32Z23G, 28Z23G

TOSHIBA CORPORATION
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