

**TOSHIBA**

FILE NO. 020-200514

SERVICE MANUAL

LCD Color Television

**37HL95**

## TABLE OF CONTENTS

SERVICE SAFETY PRECAUTIONS .....	3
HANDLING THE LCD MODULE .....	5
SERVICE MODE .....	7
LAYOUT OF MAJOR BOARDS .....	12
MECHANICAL DISASSEMBLY .....	13
EXPLODED VIEW .....	15
PACKING DISASSEMBLY .....	17
CHASSIS AND CABINET REPLACEMENT PARTS LIST .....	18
PC BOARDS TOP & BOTTOM VIEW .....	24
CIRCUIT BLOCK DIAGRAM .....	47
APPENDIX:	
SCHEMATIC DIAGRAM	



## SERVICE SAFETY PRECAUTIONS

- The caution items shown here describe major safety issues and should always be observed.
- The meanings of the various indications are as follows.

<b>WARNING</b>	Indicates a hypothetical situation in which service personnel and nearby third parties, or even end users due to a product defect after the service operation is completed, could possibly be in danger of injury or even death in the event of operational error.
<b>CAUTION</b>	Indicates a hypothetical situation in which service personnel and nearby third parties, or even end users after the service operation is completed, could possibly be in danger of injury, or where there could be physical damage in the event of operational error.

\* Physical damage means major damage to a home, furnishings and other possessions.

### Examples of marks

<b>SHOCK HAZARD</b>	The $\Delta$ indicates caution (including danger and warning). The actual meaning of this caution is indicated inside the $\Delta$ or nearby illustrations or text. The example shown to the left indicates the danger of "electrical shock".
<b>PROHIBIT DISASSEMBLING</b>	The $\ominus$ indicates a forbidden action. The actual meaning of this caution is indicated inside the $\ominus$ or nearby illustrations or text. The example shown to the left indicates that disassembly is forbidden.
<b>UNPLUG</b>	The $\bullet$ indicates a forced action (an action that must be performed). The actual meaning of this forced action is indicated by $\bullet$ or nearby illustrations or text. The example shown to the left indicates that the power plug must be disconnected.

	 <b>WARNING</b>	
 <b>KEEP CHILDREN AWAY</b>	<ul style="list-style-type: none"> <li>Always advise users to keep children away. There is danger of injury to children from tools, disassembled products, etc.</li> </ul>	
 <b>UNPLUG</b>	<ul style="list-style-type: none"> <li>Always disconnect the power plug before starting work whenever power is not required. Failure to disconnect the power plug before starting work can result in electrical shock.</li> </ul>	
 <b>SHOCK HAZARD</b>	<ul style="list-style-type: none"> <li>Depending on the model, use an insulation transformer or wear gloves when servicing with the power on, and disconnect the power plug to avoid electrical shock when replacing parts. In some cases, alternating current is also impressed in the chassis, so electrical shock is possible if the chassis is contacted with the power on.</li> </ul>	
 <b>USE SPECIFIED PARTS</b>	<ul style="list-style-type: none"> <li>Always use the replacement parts specified for the particular model when making repairs. The parts used in products have the necessary safety characteristics such as inflammability, voltage resistance, etc.; therefore, use only replacement parts that have these same characteristics. Use only the specified parts when the  <b>CAUTION FOR WIRING</b></li></ul>	<ul style="list-style-type: none"> <li>Parts mounting and routing of the wiring should be the same as that used originally. For safety purposes, insulating materials such as tubing or tape is sometimes used and printed circuit boards are sometimes mounted floating. Also make sure that wiring is routed and clamped to avoid parts that generate heat and which use high voltage. Always follow the original scheme.</li> </ul>
 <b>CAUTION FOR ASSEMBLING / WIRING</b>	<ul style="list-style-type: none"> <li>After a repair has been completed, reassemble all disassembled parts, and route and reconnect the wiring, in accordance with the original scheme. Do not allow internal wiring to be pinched by cabinets, panels, etc. Any error in reassembly or wiring can result in electrical leakage, flame, etc., and may be hazardous.</li> </ul>	
 <b>CHECK INSULATION RESISTANCE</b>	<ul style="list-style-type: none"> <li>After completing the work, disconnect the power plug from the outlet, remove the antenna, turn on the power switch. Then, use a 500V insulation resistance meter to check the insulation resistance of the antenna terminal, other metallic parts and between the prongs of the power plug to make sure that the insulation resistance is <math>1M\ \Omega</math> or more. The set will require inspection and repair if the insulation resistance is below this value.</li> </ul>	
 <b>PROHIBIT REMODELING</b>	<ul style="list-style-type: none"> <li>Never remodel the product in any way. Remodeling can result in improper operation, malfunction, or electrical leakage and flame, which may be hazardous</li> </ul>	

# HANDLING THE LCD MODULE

## Safety Precautions

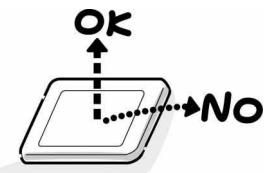
In the event that the screen is damaged or the liquid crystal (fluid) leaks, do not breathe in or drink this fluid. Also, never touch this fluid.

Such actions could cause toxicity or skin irritation. If this fluid should enter the mouth, rinse the mouth thoroughly with water. If the fluid should contact the skin or clothing, wipe off with alcohol, etc., and rinse thoroughly with water. If the fluid should enter the eyes, immediately rinse the eyes thoroughly with running water.

## Precautions for Handling the LCD Module

The LCD module can easily be damaged during disassembly or reassembly; therefore, always observe the following precautions when handling the module.

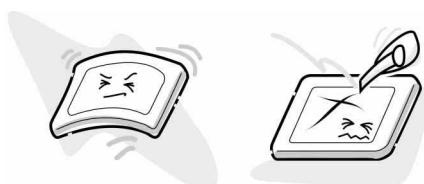
- When attaching the LCD module to the LCD cover, position it appropriately and fasten at the position where the display can be viewed most conveniently.



- Carefully align the holes at all four corners of the LCD module with the corresponding holes in the LCD cover and fasten with screws. Do not strongly push on the module because any impact can adversely affect the performance. Also use caution when handling the polarized screen because it can easily be damaged.

### CAUTION

The metal edges of the LCD module are sharp, so use caution to avoid injury.



- If the panel surface becomes soiled, wipe with cotton or a soft cloth. If this does not remove the soiling, breathe on the surface and then wipe again.

If the panel surface is extremely soiled, use a CRT cleaner as a cleaner. Wipe off the panel surface by drop the cleaner on the cloth. Do not drop the cleaner on the panel. Pay attention not to scratch the panel surface.



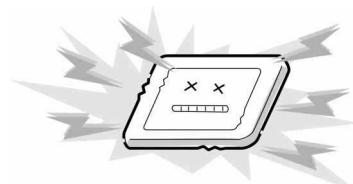
- Leaving water or other fluids on the panel screen for an extended period of time can result in discoloration or stripes. Immediately remove any type of fluid from the screen.



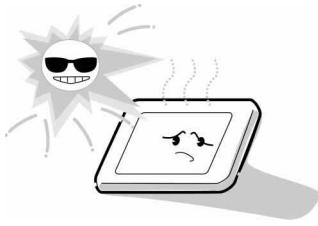
- Glass is used in the panel, so do not drop or strike with hard objects. Such actions can damage the panel.



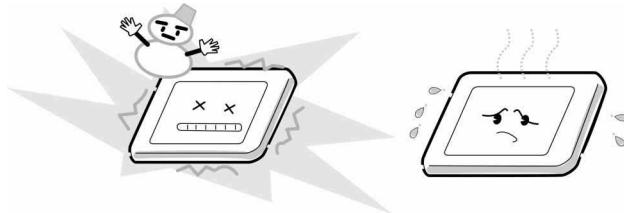
- CMOS-LSI circuitry is used in the LCD module, so avoid damage due to static electricity. When handling the module, use a wrist ground or anchor ground.



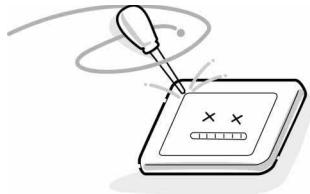
7. Do not expose the LCD module to direct sunlight or strong ultraviolet rays for an extended period of time.



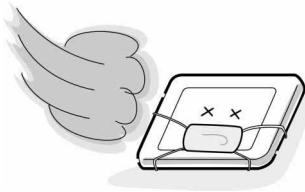
8. Do not store the LCD module below the temperature conditions described in the specifications. Failure to do so could result in freezing of the liquid crystal due to cold air or loss of resilience or other damage.



9. Do not disassemble the LCD module. Such actions could result in improper operation.



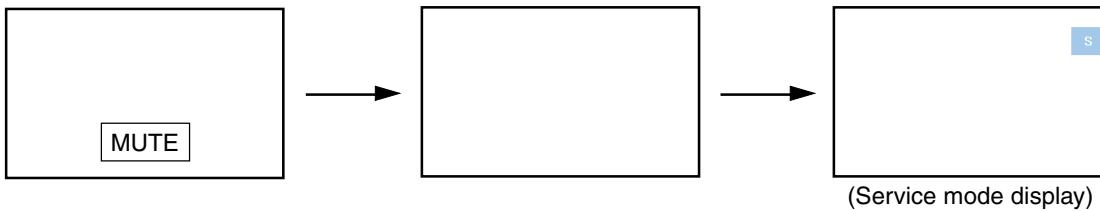
10. When transporting the LCD module, do not use packing containing epoxy resin (amine) or silicon resin (alcohol or oxim). The gas generated by these materials can cause loss of polarity.



# SERVICE MODE

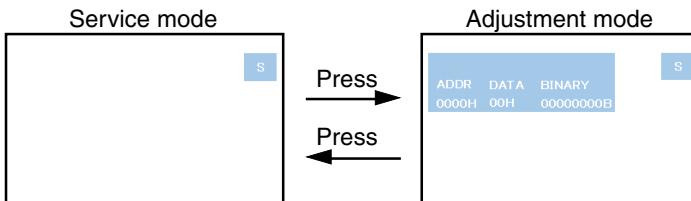
## 1. ENTERING SERVICE MODE

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



## 2. DISPLAYING THE ADJUSTMENT MENU

- 1) Press MENU button on Remote Control.



## 3. KEY FUNCTION IN THE SERVICE MODE

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

Test signal selection :	TV/VIDEO button (on Remote)
Selection of the adjustment items :	Channel ▲ / ▼(on TV or Remote)
Change of the data value :	Volume ◀ / ▶ (on TV) or ▲ / ▼ (on Remote)
Adjustment menu mode ON/OFF :	MENU button (on Remote)
Initialization of the memory :	CALL + Channel button on TV (▲)
Reset the count of operating protect circuit to "00" :	CALL + Channel button on TV (▼)
"RCUT" selection :	1 button
"GCUT" selection :	2 button
"BCUT" selection :	3 button
"CNTX" selection :	4 button
"COLC" selection :	5 button -----Color thickness correction
"UVTT" selection :	6 button      note: Displayed differently as shown below, depending
Automatic A/D Adjustment(PC, Component) :	7 button      on the setting of the receiving color system.
Self diagnostic display ON/OFF :	9 button 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)

#### 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

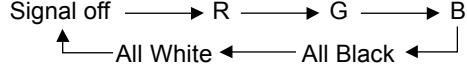
After replacing EEPROM IC, the following initialization is required.

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 EEPROM IC has been completed.
3. Check the picture carefully. If necessary, adjust any adjustment item above.  
Perform "Auto tune" on the owner's manual.

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

#### 7. TEST SIGNAL SELECTION

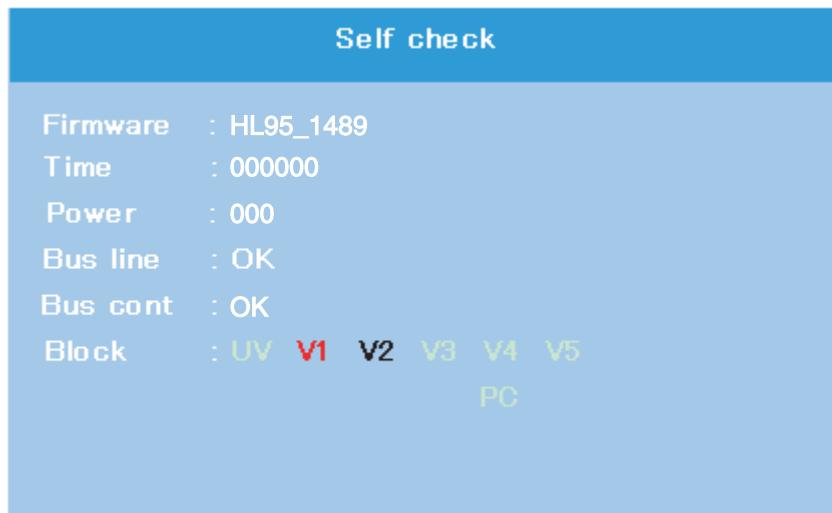
- 1) Every pressing of TV/VIDEO button on the Remote Control changes the built-in test patterns on screen as described below in SERVICE MODE.



Signals	Picture
<ul style="list-style-type: none"><li>• Red raster</li><li>• Green raster</li><li>• Blue raster</li><li>• All Black</li><li>• All White</li></ul>	

## 8. SELF DIAGNOSTIC FUNCTION

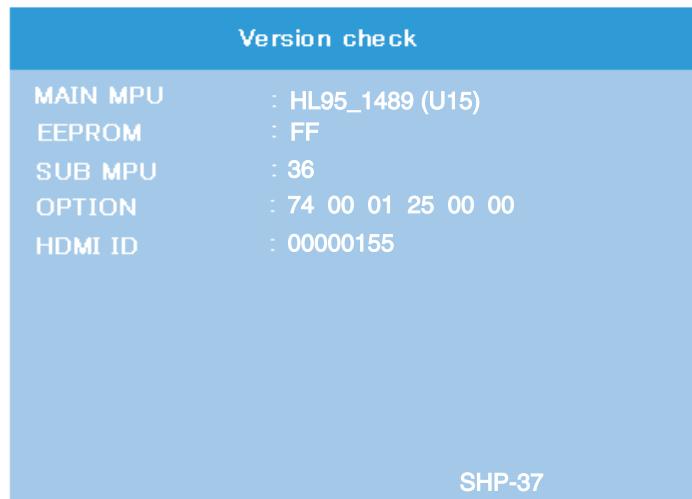
- 1) Press "9" button on Remote Control during display of adjustment menu in the service mode.  
The diagnosis will begin to check if interface among IC's is executed properly.
- 2) During diagnosis, the following displays are shown.



- ① Firmware :  
Version information of microprocessor  
In case of file name : HL95 and Version : 1489 indicates[HL95\_1489].
- ② Time : Total hour of turn the TV on. (Unit : H)
- ③ Power : Operation number of protecting circuit ---"000" is normal.  
When indication is other than "000", overcurrent apt to flow, and circuit parts may possibly be damaged.
- ④ Bus line : --"OK" is normal  
"SCL-GND"(Red indication) : SCL-GND short circuit  
"SDA-GND"(Red indication) : SDA-GND short circuit  
"SCL-SDA"(Red indication) : SCL-SDA short circuit
- ⑤ Bus cont : --- "OK" is normal.  
NG is abnormal(Red indication).  
When type name of semiconductor indicates.
- ⑥ Block
  - UV : TV reception mode
  - V1 : VIDEO 1 input mode
  - V2 : VIDEO 2 input mode
  - V3 : ColorStream HD 1
  - V4 : ColorStream HD 2
  - V5 : HDMI
  - PC : Personal Computer (PC)

## 9. VERSION CHECK MODE

- 1) Press "9" button twice on Remote Control during display of adjustment menu in the service mode. The version of main MPU will begin to check.
- 2) During Version Check, the following displays are shown.



⑥

① MAIN MPU :

Version information of microprocessor

In case of file name : HL95, Version 1489 for Code Program Version  
and (U15) for OSD Version indicates [HL95\_1489(U15)]

② EEPROM :

Version information of EEPROM : Display 1 byte data.

③ SUB MPU :

Version information of SUB MPU : Display 1 byte data.

④ OPTION :

Option information : Display six numbers of 1 byte data.

⑤ HDMI ID :

HDMI ID information : Display 4 byte data.

⑥ LCD Panel Vender information display

The following Panel Vender and screen size are displayed.

Panel Vender	Screen Size(Inch)
CMO	-27
SHP	-32
	-37

Example : SHP-32 indicates that vender is SHP and Screen Size is 32 inch.

## 10. STATUS CHECK MODE

- 1) Press "9" button thrice on Remote Control during display of adjustment menu in the service mode. The status of this model will begin to check.
- 2) During Status Check, the following displays are shown.



### ① MAIN :

Main source information :

Display RF position number (0 - 99) on the main screen, or Input Source (EXT1/2/3/HDMI etc.)

### ② MAIN FORMAT :

Display Video and PC format information

### ③ MAIN PLL :

Main PLL information : Display five numbers of 1 byte data .

### ④ SCREEN SIZE :

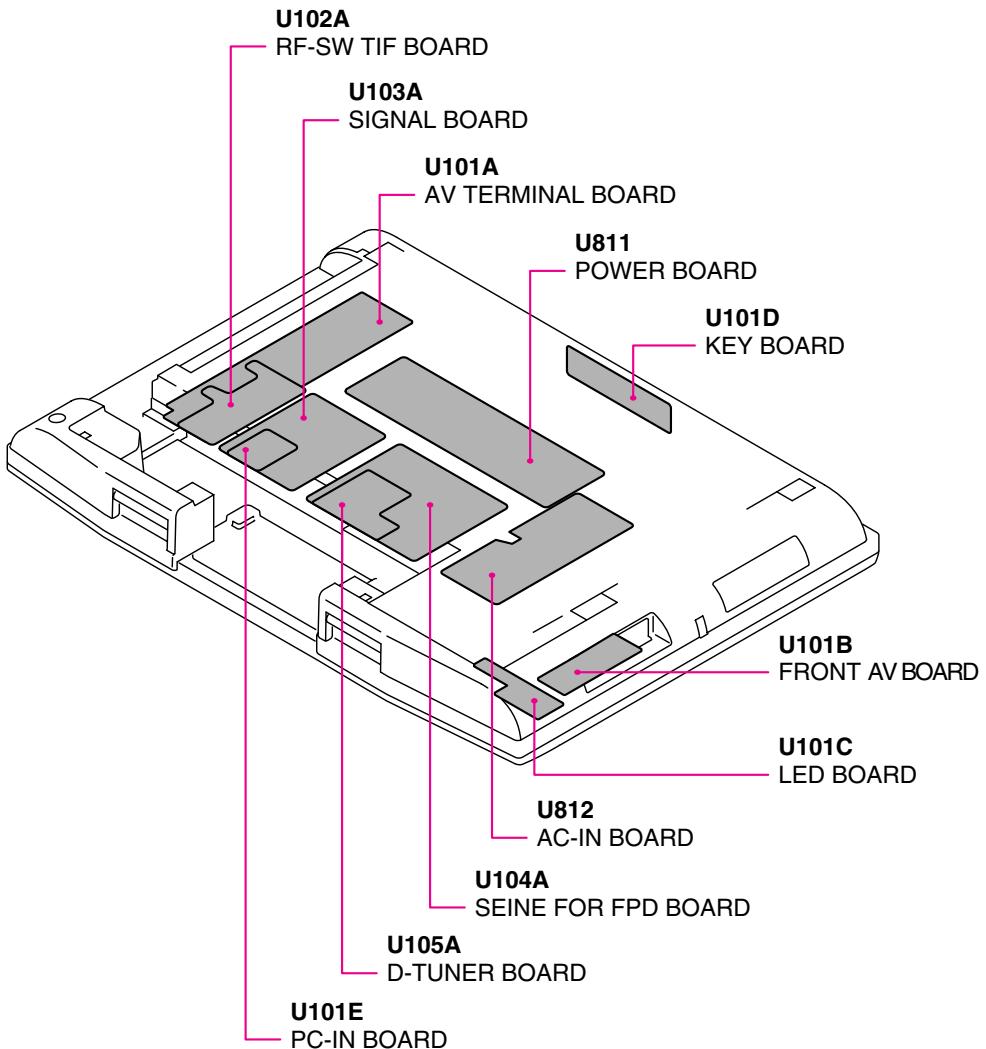
Display the screen size as follows.

Theater Wide 1  
Theater Wide 2  
Theater Wide 3  
FULL  
NATURAL

### ⑤ OTHER STATUS :

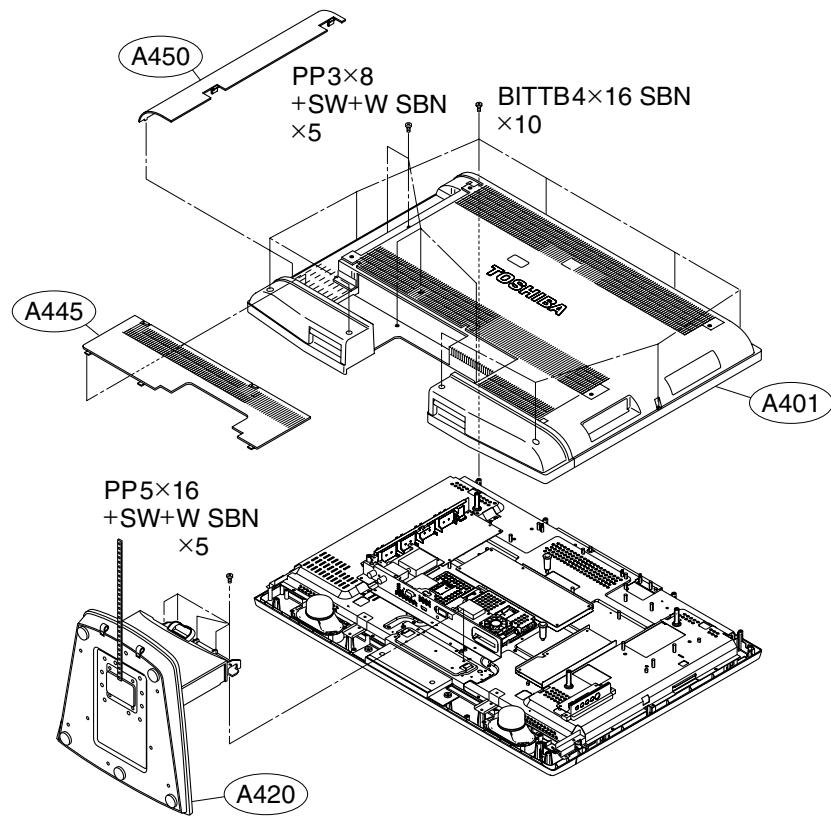
Other status information : Display three numbers of 2 byte data.

## LAYOUT OF MAJOR BOARDS

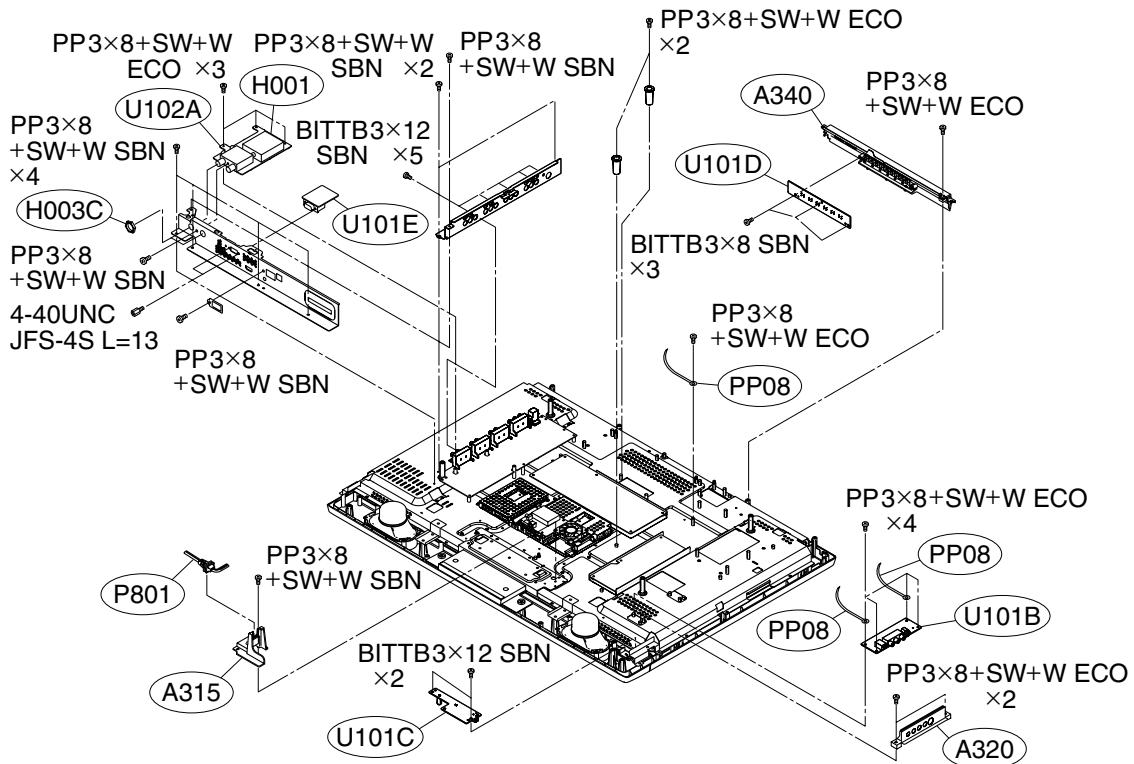


## MECHANICAL DISASSEMBLY

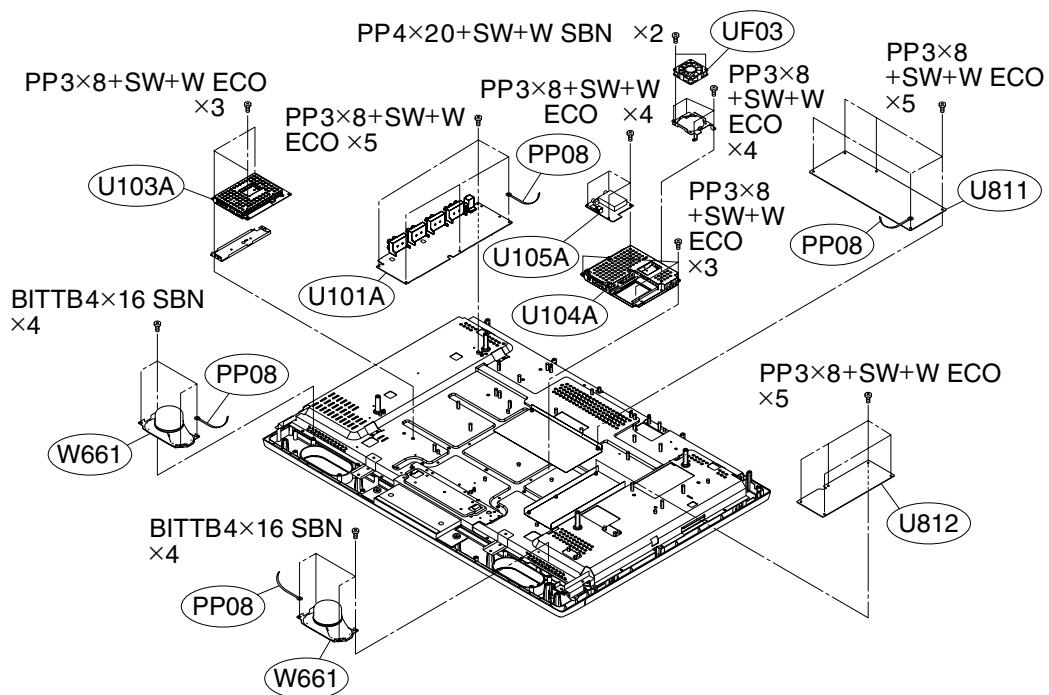
**1. Remove the stand (foot) and back cover.**



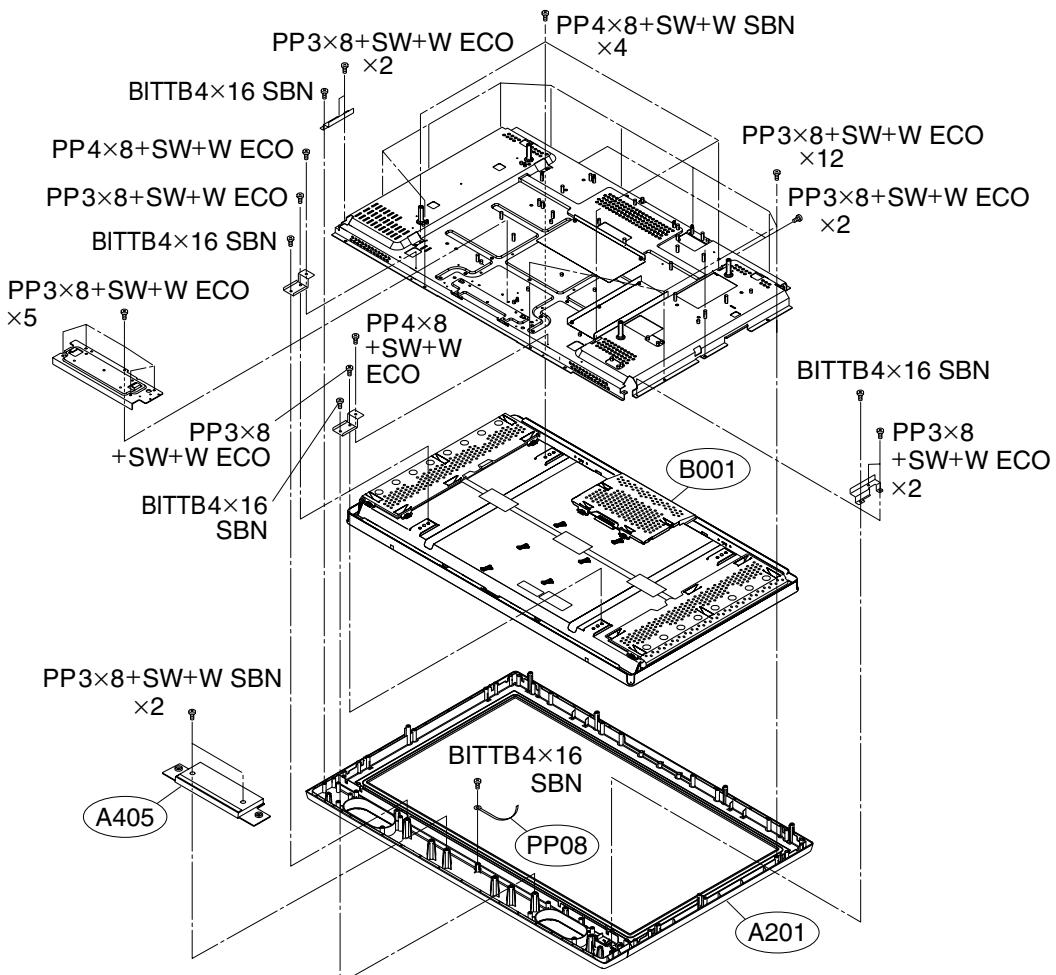
**2. Remove the boards (FRONT AV, LED, KEY, PC-IN, RF-SW TIF) and piece key ass'y.**



**3. Remove the boards (AV TERMINAL, SIGNAL, SEINE FOR FPD, D-TUNER, POWER, AC-IN) and speaker.**

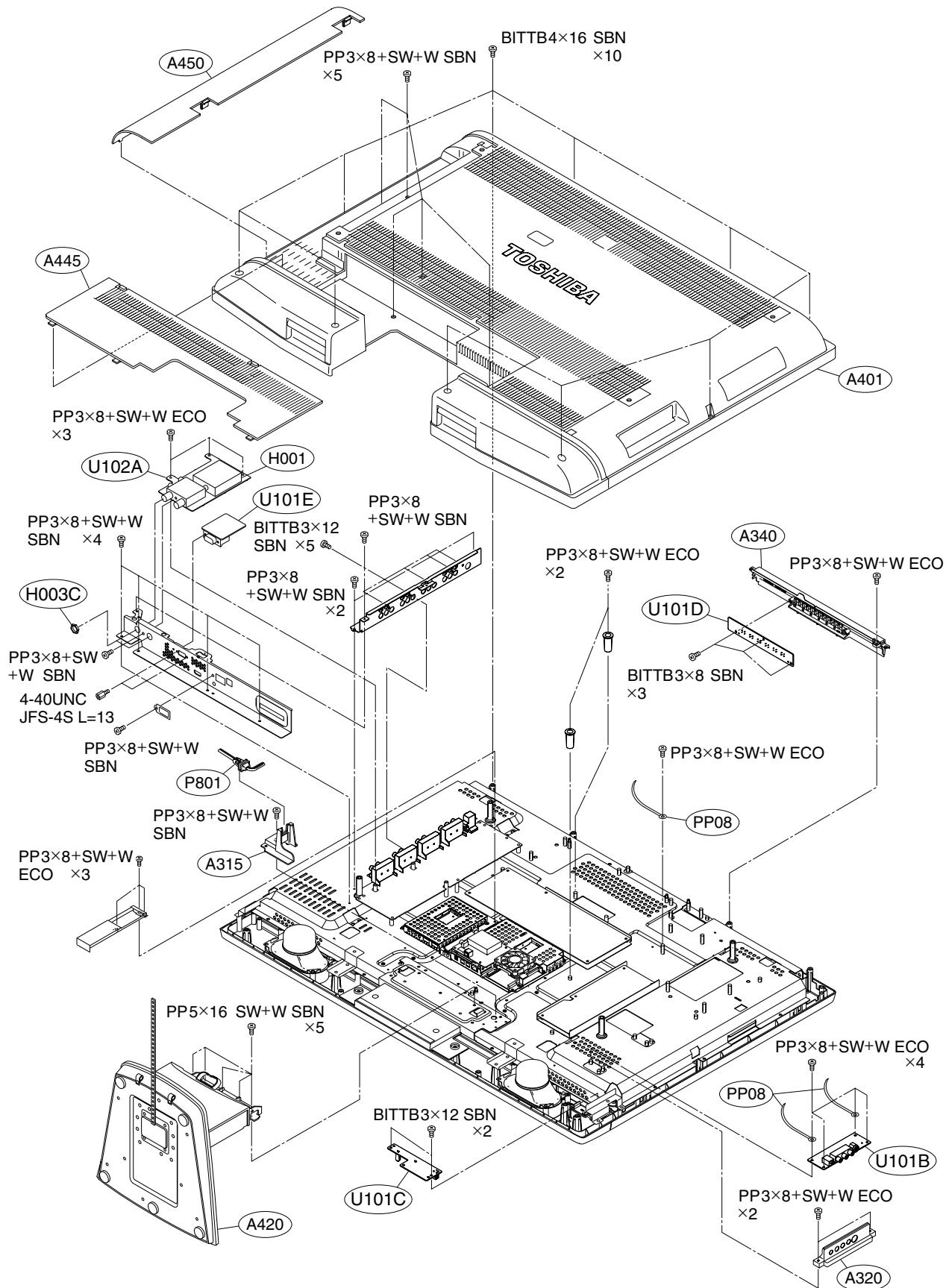


**4. Remove the display.**

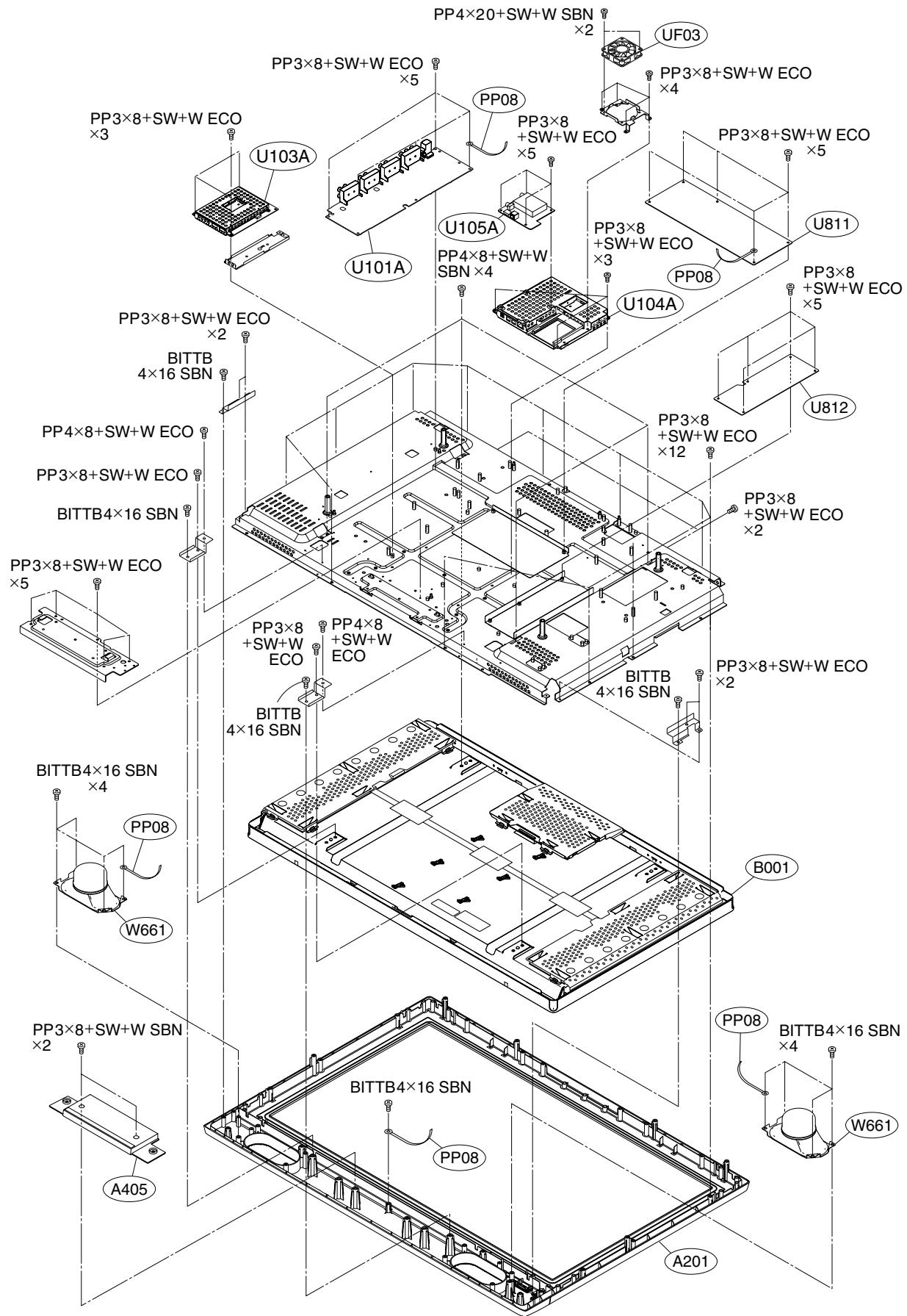


# **EXPLODED VIEWS**

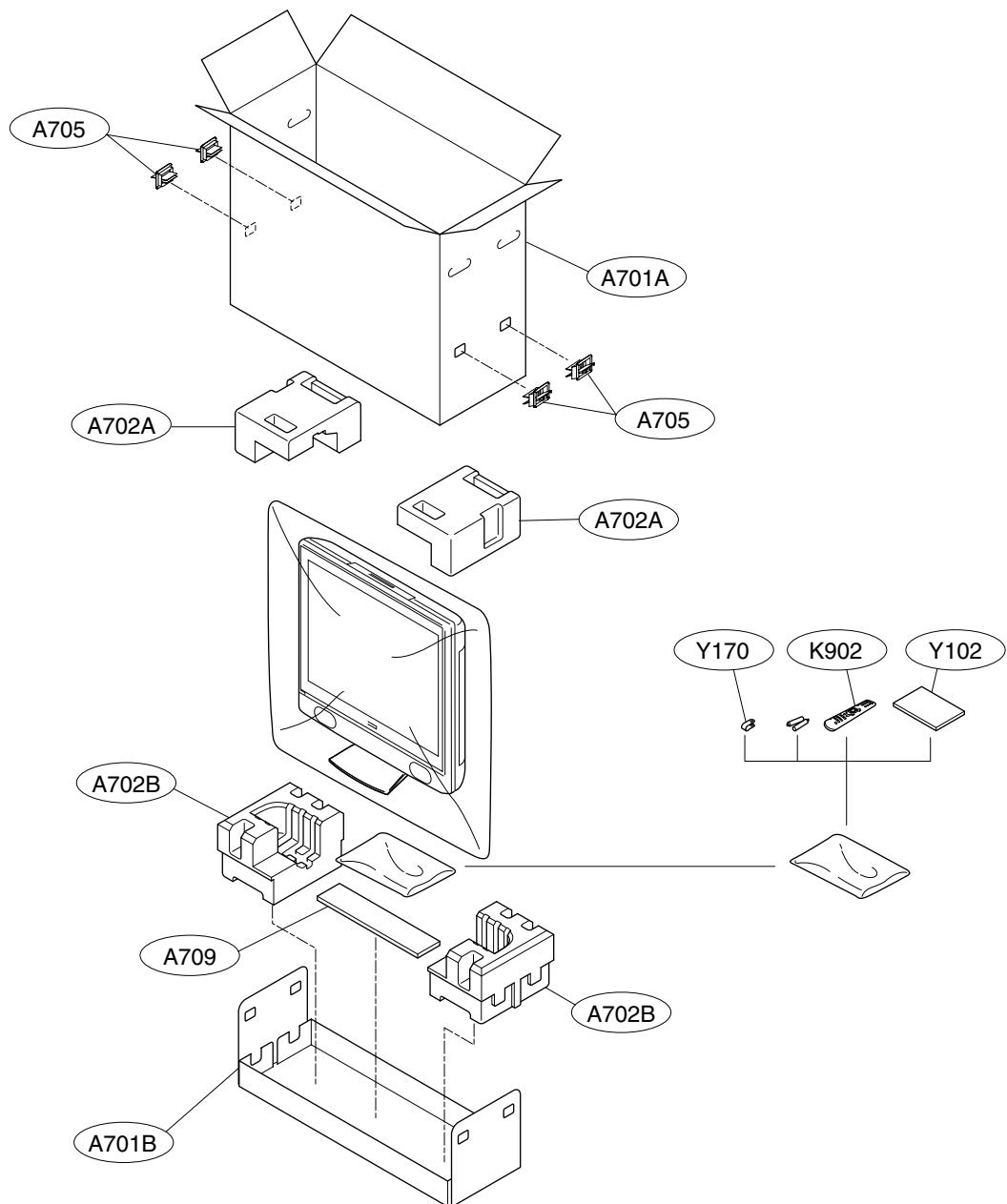
## 1. Chassis Block



## 2. Main Block



## PACKING DISASSEMBLY



# CHASSIS AND CABINET REPLACEMENT PARTS LIST

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "SERVICE SAFETY PRECAUTIONS" 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 SERVICE SAFETY PRECAUTIONS. 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 : 37HL95**

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
<b>CAPACITORS</b>		
C102	76073019	ELECTROLYTIC, 10V 470UF M 3A
C103	76109102	CERAMIC CHIP, 50V B 1000PF K
C104	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C105	76073019	ELECTROLYTIC, 10V 470UF M 3A
C108	76092730	CERAMIC CHIP, 16V B 0.1UF K
C121	76105330	CERAMIC CHIP, 50V CH 33PF J
C123	76105270	CERAMIC CHIP, 50V CH 27PF J
C124	76105220	CERAMIC CHIP, 50V CH 22PF J
C150	76073041	ELECTROLYTIC, 16V 470UF M 3A
C151	76109103	CERAMIC CHIP, 50V B 0.01UF K
C152	76109103	CERAMIC CHIP, 50V B 0.01UF K
C153	76109103	CERAMIC CHIP, 50V B 0.01UF K
C161	76109102	CERAMIC CHIP, 50V B 1000PF K
C162	76105101	CERAMIC CHIP, 50V CH 100PF J
C164	76092730	CERAMIC CHIP, 16V B 0.1UF K
C605	76109102	CERAMIC CHIP, 50V B 1000PF K
C606	76109102	CERAMIC CHIP, 50V B 1000PF K
C656	76797100	ELECTROLYTIC, 50V 10UF M
C660	76669479	ELECTROLYTIC, 50V 4.7UF M
C661	76669479	ELECTROLYTIC, 50V 4.7UF M
C662	76109681	CERAMIC CHIP, 50V B 680PF K
C663	76109681	CERAMIC CHIP, 50V B 680PF K
C670	76669100	ELECTROLYTIC, 50V 10UF M
C671	76669100	ELECTROLYTIC, 50V 10UF M
C673	76667470	ELECTROLYTIC, 25V 47UF M 3A
C674	76669010	ELECTROLYTIC, 50V 1UF M
C675	76669339	ELECTROLYTIC, 50V 3.3UF M
C676	76797101	ELECTROLYTIC, 50V 100UF M
C678	76503041	PLASTIC FILM , 63V 0.1UF J
C679	76503041	PLASTIC FILM , 63V 0.1UF J
C680	76073072	ELECTROLYTIC, 35V 1000UF M 3A
C681	76073072	ELECTROLYTIC, 35V 1000UF M 3A
C682	76073072	ELECTROLYTIC, 35V 1000UF M 3A
C684	76109103	CERAMIC CHIP, 50V B 0.01UF K
C685	76109103	CERAMIC CHIP, 50V B 0.01UF K
⚠ C801	76503507	PLASTIC FILM, AC275V 0.22UF K
⚠ C802	76503507	PLASTIC FILM, AC275V 0.22UF K
⚠ C803	76503250	PLASTIC FILM 7E2G224J-SC
C804	76214103	CERAMIC DISC, 500V B 0.01UF K
C805	76092281	CERAMIC DISC, AC250V E 4700PF

Location No.	Parts No.	Description
C806	76092281	CERAMIC DISC, AC250V E 4700PF
C810	76073233	ELECTROLYTIC, 200V 560UF M
⚠ C811	76092569	CERAMIC DISC, AC250V E 2200PF M
⚠ C812	76092569	CERAMIC DISC, AC250V E 2200PF M
C813	76503047	PLASTIC FILM, 63V 0.33UF J
C815	76503049	PLASTIC FILM, 63V 0.47UF J
C816	76073183	ELECTROLYTIC CE04P 35V 220UF M 3A
C817	76567224	PLASTIC FILM, 50V 0.22UF J
C819	76214101	CERAMIC DISC, 500V B 100PF K
C820	76567224	PLASTIC FILM, 50V 0.22UF J
C821	76092343	CERAMIC DISC, 2KV 680PF K
C822	76092344	CERAMIC DISC, 2KV 820PF K
C823	76092341	CERAMIC DISC, 2KV R 470PF K
C824	76591102	PLASTIC FILM, 50V 1000PF J
C825	76503053	PLASTIC FILM, 63V 1UF J
C826	76092341	CERAMIC DISC, 2KV R 470PF K
C827	76678229	ELECTROLYTIC, 200V 2.2UF M
C851	76092538	CERAMIC CHIP, 10V F 1UF Z
C852	76109102	CERAMIC CHIP, 50V B 1000PF K
C883	76073193	ELECTROLYTIC, 35V 2200UF M 3A
C884	76073193	ELECTROLYTIC, 35V 2200UF M 3A
C888	76109102	CERAMIC CHIP, 50V B 1000PF K
C889	76073094	ELECTROLYTIC, 50V 1000UF M 3A
C890	76503047	PLASTIC FILM, 63V 0.33UF J
C1101	76109103	CERAMIC CHIP, 50V B 0.01UF K
C1102	76109103	CERAMIC CHIP, 50V B 0.01UF K
C2607	76619048	ELECTROLYTIC CHIP, 25V 4.7UF M
C6600	76797470	ELECTROLYTIC, 50V 47UF M
C6601	76085944	ELECTROLYTIC, NP, 50V 2.2UF M 11L
C6602	76085944	ELECTROLYTIC, NP, 50V 2.2UF M 11L
C6603	76797229	ELECTROLYTIC, 50V 2.2UF M
C6604	76797229	ELECTROLYTIC, 50V 2.2UF M
C6605	76797470	ELECTROLYTIC, 50V 47UF M
C6606	76797229	ELECTROLYTIC, 50V 2.2UF M
C6607	76797229	ELECTROLYTIC, 50V 2.2UF M
C6608	76797229	ELECTROLYTIC, 50V 2.2UF M
C6609	76797229	ELECTROLYTIC, 50V 2.2UF M
C6610	76797229	ELECTROLYTIC, 50V 2.2UF M
C6612	76797229	ELECTROLYTIC, 50V 2.2UF M
C6613	76797479	ELECTROLYTIC, 50V 4.7UF M
C6614	76797479	ELECTROLYTIC, 50V 4.7UF M

Location No.	Parts No.	Description
C6615	76797229	ELECTROLYTIC, 50V 2.2UF M
C6616	76797229	ELECTROLYTIC, 50V 2.2UF M
C6617	76797100	ELECTROLYTIC, 50V 10UF M
C6620	76797100	ELECTROLYTIC, 50V 10UF M
C6621	76797100	ELECTROLYTIC, 50V 10UF M
C6990	76206478	ELECTROLYTIC, 50V 0.47UF M 7L 3A
C8001	76073072	ELECTROLYTIC, 35V 1000UF M 3A
C8110	76073233	ELECTROLYTIC, 200V 560UF M
CB01	76202221	ELECTROLYTIC, 10V 220UF M 7L 3A
CB02	76202221	ELECTROLYTIC, 10V 220UF M 7L 3A
CB03	76100104	CERAMIC CHIP, 25V F 0.1UF Z
CB04	76100104	CERAMIC CHIP, 25V F 0.1UF Z
CB05	76202221	ELECTROLYTIC, 10V 220UF M 7L 3A
CB38	76100104	CERAMIC CHIP, 25V F 0.1UF Z
CC11	76109102	CERAMIC CHIP, 50V B 1000PF K
CC12	76109102	CERAMIC CHIP, 50V B 1000PF K
CE04	76092281	CERAMIC DISC, AC250V E 4700PF
CE05	76092281	CERAMIC DISC, AC250V E 4700PF
CE07	76503049	PLASTIC FILM, 63V 0.47UF J
CE09	76668339	ELECTROLYTIC, 35V 3.3UF M 3A
CE10	76073217	ELECTROLYTIC, 200V 560UF M
CE12	76503041	PLASTIC FILM , 63V 0.1UF J
△ CE13	76092561	CERA CAP B 250V 101 CD70-B2GA101KYNS
△ CE14	76092561	CERA CAP B 250V 101 CD70-B2GA101KYNS
CE15	76092337	CERAMIC DISC, 2KV 220PF K
CE16	76073181	ELECTROLYTIC CE04P 35V 56UF M 3A
CE17	76092339	CERAMIC DISC, 2KV 330PF K
△ CE18	76503253	PLASTIC FILM, 1250VH 0.01UF H
CE23	76214471	CERAMIC DISC, 500V B 470PF K
CE24	76285104	CERAMIC CHIP, 50V B 0.1UF K
CE26	76795101	ELECTROLYTIC, 25V 100UF M
CE29	76436561	CERAMIC DISC, 50V SL 560PF J
CE40	76073183	ELECTROLYTIC CE04P 35V 220UF M 3A
CE42	76539104	PLASTIC FILM, 50V 0.1UF J
CE43	76503041	PLASTIC FILM , 63V 0.1UF J
CE51	76617023	ELECTROLYTIC, 16V 330UF M
CE52	76092179	CERAMIC CHIP, 25V B 0.22UF K
CE53	76092179	CERAMIC CHIP, 25V B 0.22UF K
CE55	76073181	ELECTROLYTIC CE04P 35V 56UF M 3A
CE73	76073186	ELECTROLYTIC CE04P 35V 470UF M 3A
CE74	76073189	ELECTROLYTIC, 35V 1000UF M 3A
CE75	76073128	ELECTROLYTIC CE04P 6.3V 1000UF M 3A
CE76	76073181	ELECTROLYTIC CE04P 35V 56UF M 3A
CE82	766676470	ELECTROLYTIC, 100V 47UF M 3A
CE83	76073175	ELECTROLYTIC CE04P 25V 1800UF M 3A
CE84	76073178	ELECTROLYTIC CE04P 25V 3300UF M 3A
CE85	76073188	ELECTROLYTIC CE04P 35V 680UF M 3A
CE86	76073188	ELECTROLYTIC CE04P 35V 680UF M 3A
CE87	76669100	ELECTROLYTIC, 50V 10UF M
CE90	76503047	PLASTIC FILM, 63V 0.33UF J
CE91	76503041	PLASTIC FILM , 63V 0.1UF J
CE92	76794101	ELECTROLYTIC, 16V 100UF M
CV10	76109102	CERAMIC CHIP, 50V B 1000PF K
CV68	76085988	ELECTROLYTIC, NP, 50V 1UF M 7L
CV72	76794471	ELECTROLYTIC, 16V 470UF M
CV74	76794101	ELECTROLYTIC, 16V 1000UF M
CV76	76100104	CERAMIC CHIP, 25V F 0.1UF Z
CV78	76085988	ELECTROLYTIC, NP, 50V 1UF M 7L
<b>RESISTORS</b>		
R103	76011101	CHIP, 1/20W 100 OHM J
R104	76011103	CHIP, 1/20W 10K OHM J
R105	76011273	CHIP, 1/20W 27K OHM J
R107	76000445	CHIP JUMPER, 1608TYPE
R108	76000445	CHIP JUMPER, 1608TYPE
R110	76011682	CHIP, 1/20W 6.8K OHM J

Location No.	Parts No.	Description
R111	76011391	CHIP, 1/20W 390 OHM J
R113	76000445	CHIP JUMPER, 1608TYPE
R114	76000445	CHIP JUMPER, 1608TYPE
R115	76011102	CHIP, 1/20W 1K OHM J
R120	76011331	CHIP, 1/20W 330 OHM J
R122	76000445	CHIP JUMPER, 1608TYPE
R151	76000445	CHIP JUMPER, 1608TYPE
R152	76000445	CHIP JUMPER, 1608TYPE
R161	76011102	CHIP, 1/20W 1K OHM J
R165	76011392	CHIP, 1/20W 3.9K OHM J
R166	76011472	CHIP, 1/20W 4.7K OHM J
R167	76011101	CHIP, 1/20W 100 OHM J
R168	76011101	CHIP, 1/20W 100 OHM J
R657	76011473	CHIP, 1/20W 47K OHM J
R658	76011473	CHIP, 1/20W 47K OHM J
R659	76011103	CHIP, 1/20W 10K OHM J
R670	76011472	CHIP, 1/20W 4.7K OHM J
R671	76011472	CHIP, 1/20W 4.7K OHM J
R672	76011182	CHIP, 1/20W 1.8K OHM J
R673	76011182	CHIP, 1/20W 1.8K OHM J
R678	76871229	CHIP, 1/8W 2.2 OHM J
R679	76871229	CHIP, 1/8W 2.2 OHM J
R680	76011103	CHIP, 1/20W 10K OHM J
R681	76011103	CHIP, 1/20W 10K OHM J
R683	76011223	CHIP, 1/20W 22K OHM J
R684	76011104	CHIP, 1/20W 100K OHM J
R685	76011183	CHIP, 1/20W 18K OHM J
R686	76011102	CHIP, 1/20W 1K OHM J
R687	76871102	CHIP, 1/8W 1K OHM J
R688	76871102	CHIP, 1/8W 1K OHM J
R689	76871102	CHIP, 1/8W 1K OHM J
R695	76871102	CHIP, 1/8W 1K OHM J
R696	76871102	CHIP, 1/8W 1K OHM J
R697	76871102	CHIP, 1/8W 1K OHM J
△ R801	76004716	METAL GLAZE, 1/2W 2.2M OHM J
R803	76366182	CARBON FILM, 1/6W 1.8K OHM J
R805	76366102	CARBON FILM, 1/6W 1K OHM J
R806	76552470	OXIDE METAL FILM, 1/2W 47 OHM J
R807	76366153	CARBON FILM, 1/6W 15K OHM J
R808	76552101	OXIDE METAL FILM, 1/2W 100 OHM J
R809	76321689	OXIDE METAL FILM, 1/2W 6.8 OHM J
R812	76552681	OXIDE METAL FILM, 1/2W 680 OHM J
R813	76366120	CARBON FILM, 1/6W 12 OHM J
R814	76552330	OXIDE METAL FILM, 1/2W 33 OHM J
R815	76552100	OXIDE METAL FILM, 1/2W 10 OHM J
R816	76011681	CHIP, 1/20W 680 OHM J
R817	76382823	OXIDE FILM 1W 82K J
R821	76382680	OXIDE METAL FILM, 1W 68 OHM J
R827	76383103	OXIDE METAL FILM, 2W 10K OHM J
R850	76011101	CHIP, 1/20W 100 OHM J
R851	76011102	CHIP, 1/20W 1K OHM J
R852	76011471	CHIP, 1/20W 470 OHM J
R853	76011103	CHIP, 1/20W 10K OHM J
R854	76011102	CHIP, 1/20W 1K OHM J
R855	76011471	CHIP, 1/20W 470 OHM J
R856	76011102	CHIP, 1/20W 1K OHM J
R857	76011471	CHIP, 1/20W 470 OHM J
R858	76011471	CHIP, 1/20W 470 OHM J
R859	76011102	CHIP, 1/20W 1K OHM J
R861	76007416	CERAMIC COVERED, 5W 82 OHM J
R862	76120002	CERAMIC COVERED G 5W 68 J
R873	76366152	CARBON FILM, 1/6W 1.5K OHM J
R890	76011102	CHIP, 1/20W 1K OHM J
△ R899	76004718	METAL GLAZE, 1/2W 8.2M OHM J
R4100	76011102	CHIP, 1/20W 1K OHM J
R4101	76011681	CHIP, 1/20W 680 OHM J

Location No.	Parts No.	Description
R4102	76011471	CHIP, 1/20W 470 OHM J
R4103	76011681	CHIP, 1/20W 680 OHM J
R4104	76011102	CHIP, 1/20W 1K OHM J
R4105	76011102	CHIP, 1/20W 1K OHM J
R4106	76011681	CHIP, 1/20W 680 OHM J
R4107	76011471	CHIP, 1/20W 470 OHM J
R4108	76011681	CHIP, 1/20W 680 OHM J
R4109	76011102	CHIP, 1/20W 1K OHM J
R6601	76011223	CHIP, 1/20W 22K OHM J
R6602	76011103	CHIP, 1/20W 10K OHM J
R6603	76011104	CHIP, 1/20W 100K OHM J
R6604	76011102	CHIP, 1/20W 1K OHM J
R6614	76011102	CHIP, 1/20W 1K OHM J
R6615	76011102	CHIP, 1/20W 1K OHM J
R6616	76011104	CHIP, 1/20W 100K OHM J
R6617	76011104	CHIP, 1/20W 100K OHM J
R6620	76011101	CHIP, 1/20W 100 OHM J
R6622	76011100	CHIP, 1/20W 10 OHM J
R6623	76011100	CHIP, 1/20W 10 OHM J
R6624	76011100	CHIP, 1/20W 10 OHM J
R6625	76011473	CHIP, 1/20W 47K OHM J
R6626	76011473	CHIP, 1/20W 47K OHM J
R6627	76011473	CHIP, 1/20W 47K OHM J
R6628	76011473	CHIP, 1/20W 47K OHM J
R6629	76011103	CHIP, 1/20W 10K OHM J
R6630	76011103	CHIP, 1/20W 10K OHM J
R6631	76011103	CHIP, 1/20W 10K OHM J
R6632	76011103	CHIP, 1/20W 10K OHM J
R6633	76011100	CHIP, 1/20W 10 OHM J
R6634	76011100	CHIP, 1/20W 10 OHM J
R6635	76011473	CHIP, 1/20W 47K OHM J
R6636	76011473	CHIP, 1/20W 47K OHM J
R6637	76011100	CHIP, 1/20W 10 OHM J
R6638	76011473	CHIP, 1/20W 47K OHM J
R6639	76011473	CHIP, 1/20W 47K OHM J
R6640	76011100	CHIP, 1/20W 10 OHM J
R6641	76011100	CHIP, 1/20W 10 OHM J
R6642	76011100	CHIP, 1/20W 10 OHM J
R6643	76011473	CHIP, 1/20W 47K OHM J
R6644	76011473	CHIP, 1/20W 47K OHM J
R6645	76011473	CHIP, 1/20W 47K OHM J
R6646	76011473	CHIP, 1/20W 47K OHM J
R6647	76011100	CHIP, 1/20W 10 OHM J
R6648	76011100	CHIP, 1/20W 10 OHM J
R6649	76011563	CHIP, 1/20W 56K OHM J
R6650	76011563	CHIP, 1/20W 56K OHM J
R6651	76011393	CHIP, 1/20W 39K OHM J
R6652	76011393	CHIP, 1/20W 39K OHM J
R6653	76011222	CHIP, 1/20W 2.2K OHM J
R6654	76011222	CHIP, 1/20W 2.2K OHM J
R6655	76011103	CHIP, 1/20W 10K OHM J
R6656	76011103	CHIP, 1/20W 10K OHM J
R6657	76011100	CHIP, 1/20W 10 OHM J
R6658	76011473	CHIP, 1/20W 47K OHM J
R6659	76011101	CHIP, 1/20W 100 OHM J
R6660	76011473	CHIP, 1/20W 47K OHM J
R6661	76011103	CHIP, 1/20W 10K OHM J
RA71	76011683	CHIP, 1/20W 68K OHM J
RA72	76011223	CHIP, 1/20W 22K OHM J
RA73	76011103	CHIP, 1/20W 10K OHM J
RA74	76000445	CHIP JUMPER, 1608TYPE
RA76	76011223	CHIP, 1/20W 22K OHM J
RA77	76011103	CHIP, 1/20W 10K OHM J
RA78	76000445	CHIP JUMPER, 1608TYPE
RA79	76000445	CHIP JUMPER, 1608TYPE
RB08	76011470	CHIP, 1/20W 47 OHM J

Location No.	Parts No.	Description
RB09	76011470	CHIP, 1/20W 47 OHM J
RB10	76011331	CHIP, 1/20W 330 OHM J
RB15	76011471	CHIP, 1/20W 470 OHM J
RB24	76000445	CHIP JUMPER, 1608TYPE
RC11	76011821	CHIP, 1/20W 820 OHM J
RC12	76011821	CHIP, 1/20W 820 OHM J
RE03	76553683	OXIDE METAL FILM, 1W 68K OHM J
RE04	76553683	OXIDE METAL FILM, 1W 68K OHM J
RE05	76554683	OXIDE RES 2W 68K J
RE12	76552221	OXIDE METAL FILM, 1/2W 220 OHM J
RE13	76366473	CARBON FILM, 1/6W 47K OHM J
RE15	76366102	CARBON FILM, 1/6W 1K OHM J
RE16	76366102	CARBON FILM, 1/6W 1K OHM J
RE17	76366363	CARBON FILM, 1/6W 36K OHM J
RE18	76019463	METAL PLATE, 2W 0.22 OHM J
RE19	76310829	OXIDE METAL FILM, 1/2W 8.2 OHM J
RE20	76871152	CHIP, 1/8W 1.5K OHM J
RE23	76552152	OXIDE METAL FILM, 1/2W 1.5K OHM J
RE25	76011103	CHIP, 1/20W 10K OHM J
RE26	76011271	CHIP, 1/20W 270 OHM J
RE27	76011472	CHIP, 1/20W 4.7K OHM J
RE40	76871681	CHIP, 1/8W 680 OHM J
RE43	76011753	CHIP, 1/20W 75K OHM J
RE44	76000593	METAL FILM CHIP 1/16W 10K F
RE45	76000445	CHIP JUMPER, 1608TYPE
RE46	76000605	CHIP, 1/16W 6.8K OHM F
RE48	76011222	CHIP, 1/20W 2.2K OHM J
RE51	76000445	CHIP JUMPER, 1608TYPE
RE52	76011151	CHIP, 1/20W 150 OHM J
RE53	76871222	CHIP, 1/8W 2.2K OHM J
RE54	76871222	CHIP, 1/8W 2.2K OHM J
RE56	76190012	METAL FILM CHIP 1/16W 1.5K F
RE57	76190012	METAL FILM CHIP 1/16W 1.5K F
RE58	76190013	CHIP RES 1/16W 22K F
RE59	76011334	CHIP, 1/20W 330K OHM J
RE60	76011473	CHIP, 1/20W 47K OHM J
RE61	76190014	METAL FILM CHIP 1/16W 18K F
RE73	76011224	CHIP, 1/20W 220K OHM J
RE74	76553680	OXIDE METAL FILM, 1W 68 OHM J
RE78	76011102	CHIP, 1/20W 1K OHM J
RE79	76011473	CHIP, 1/20W 47K OHM J
RE82	76011473	CHIP, 1/20W 47K OHM J
RE83	76011473	CHIP, 1/20W 47K OHM J
RE84	76011152	CHIP, 1/20W 1.5K OHM J
RE87	76011473	CHIP, 1/20W 47K OHM J
RE88	76011103	CHIP, 1/20W 10K OHM J
RE91	76011103	CHIP, 1/20W 10K OHM J
RE92	76011102	CHIP, 1/20W 1K OHM J
RE93	76011223	CHIP, 1/20W 22K OHM J
RE94	76871271	CHIP, 1/8W 270 OHM J
RE95	76553122	OXIDE METAL FILM, 1W 1.2K OHM J
RE96	76011473	CHIP, 1/20W 47K OHM J
RE97	76553681	OXIDE RES 1W 68 J
RE98	76011104	CHIP, 1/20W 100K OHM J
RR01	76871750	CHIP, 1/8W 75 OHM J
RR02	76871750	CHIP, 1/8W 75 OHM J
RR03	76871750	CHIP, 1/8W 75 OHM J
RR04	76011330	CHIP, 1/20W 33 OHM J
RR05	76011330	CHIP, 1/20W 33 OHM J
RR06	76011330	CHIP, 1/20W 33 OHM J
RV07	76011750	CHIP, 1/20W 75 OHM J
RV18	76011750	CHIP, 1/20W 75 OHM J
RV19	76011750	CHIP, 1/20W 75 OHM J
RV20	76000445	CHIP JUMPER, 1608TYPE
RV21	76011750	CHIP, 1/20W 75 OHM J
RV22	76000445	CHIP JUMPER, 1608TYPE

Location No.	Parts No.	Description
RV23	76000445	CHIP JUMPER, 1608TYPE
RV25	76011750	CHIP, 1/20W 75 OHM J
RV26	76011750	CHIP, 1/20W 75 OHM J
RV27	76011750	CHIP, 1/20W 75 OHM J
RV28	76011750	CHIP, 1/20W 75 OHM J
RV29	76011750	CHIP, 1/20W 75 OHM J
RV30	76011750	CHIP, 1/20W 75 OHM J
RV40	76000445	CHIP JUMPER, 1608TYPE
RV41	76000445	CHIP JUMPER, 1608TYPE
RV42	76000445	CHIP JUMPER, 1608TYPE
RV43	76000445	CHIP JUMPER, 1608TYPE
RV44	76000445	CHIP JUMPER, 1608TYPE
RV74	76011750	CHIP, 1/20W 75 OHM J
RV75	76011750	CHIP, 1/20W 75 OHM J
RV76	76011750	CHIP, 1/20W 75 OHM J
RV78	76011123	CHIP, 1/20W 12K OHM J
RV82	76011822	CHIP, 1/20W 8.2K OHM J
RV600	76011473	CHIP, 1/20W 47K OHM J
<b>COIL &amp; TRANSFORMERS</b>		
L101	23248398	COIL, CHOKE, TLN3278D
L102	23103828	INDUCTOR, BEAD, TEM2121M
L103	23103828	INDUCTOR, BEAD, TEM2121M
L122	23246654	COIL, CHIP, TRF4220CG
L151	23103828	INDUCTOR, BEAD, TEM2121M
L152	23103828	INDUCTOR, BEAD, TEM2121M
△L801	23217791	TRANSFORMER, CHOKE 4.8MH 4.1A TPW2071AS
△L802	23217792	TRANSFORMER, CHOKE 1.8MH 4.1A TPW2072AS
L805	23103302	FERRITE CHOKE, TEM2011AH
L806	23248417	COIL, CHOKE, TLN3481AH
L807	23248417	COIL, CHOKE, TLN3481AH
L874	23103302	FERRITE CHOKE, TEM2011AH
L875	23103302	FERRITE CHOKE, TEM2011AH
L876	23103302	FERRITE CHOKE, TEM2011AH
L878	23103302	FERRITE CHOKE, TEM2011AH
L883	23248489	COIL, CHOKE COIL 1.5MMH 8A TLN3639AH
L888	23248432	COIL, CHOKE, TLN3499AH
LE11	23103302	FERRITE CHOKE, TEM2011AH
LE12	23103307	FERRITR CHOKE, TEM2014AA
LE52	23289025	COIL, PEAKING, TRF4330AT
LE53	23248399	COIL, CHOKE, TLN3283D
LE71	23248387	COIL, CHOKE 9X11H 22MMHK 2.5A TLN3499AA
LE72	23248386	COIL, CHOKE 9X11H 2.0MMH 4.0A TLN3481AA
LE73	23248417	COIL, CHOKE, TLN3481AH
LE74	23248417	COIL, CHOKE, TLN3481AH
T801	2321902	COIL, LINE FILTER, TRF3254AD
△T862	23217804	TRANSFORMER, CONVERTERTPW3562BS
△TE62	23217805	TRANSFORMER, CONVERTERTPW3563BS
<b>SEMICONDUCTORS</b>		
Q101	23205506	TRANSISTOR, 2SC4081 Q
Q102	23205507	TRANSISTOR, 2SA1576A Q
Q161	23205506	TRANSISTOR, 2SC4081 Q
Q651	23205325	TRANSISTOR, RN2404(F)
Q652	23205302	TRANSISTOR, 2SC3326-B(F)
Q653	23205302	TRANSISTOR, 2SC3326-B(F)
Q662	23205325	TRANSISTOR, RN2404(F)
Q663	23205506	TRANSISTOR, 2SC4081 Q
Q664	23205506	TRANSISTOR, 2SC4081 Q
Q665	23205506	TRANSISTOR, 2SC4081 Q
Q670	23085039	IC, TA8246AHQ
Q671	23205302	TRANSISTOR, 2SC3326-B(F)
Q672	23205302	TRANSISTOR, 2SC3326-B(F)
Q673	23205443	TRANSISTOR, 2SA1162-Y(F)
Q801	23135087	IC, HYBRID VDS=200V STR-Z4317
△Q826	23000823	IC, PHOTO COUPLER, TLP421F(GR)

Location No.	Parts No.	Description
Q851	23205446	TRANSISTOR, 2SC2412K, Q T146
Q852	23205446	TRANSISTOR, 2SC2412K, Q T146
Q853	23205443	TRANSISTOR, 2SA1162-Y(F)
Q854	23205446	TRANSISTOR, 2SC2412K, Q T146
Q855	23205446	TRANSISTOR, 2SC2412K, Q T146
Q883	23135091	IC, SE024N
Q4100	23085635	TRANSISTOR, 2SC3437-Y(TE85L,F)
Q4101	23085635	TRANSISTOR, 2SC3437-Y(TE85L,F)
Q4102	23085635	TRANSISTOR, 2SC3437-Y(TE85L,F)
Q4103	23085635	TRANSISTOR, 2SC3437-Y(TE85L,F)
Q6600	23318977	IC, MC14052BF
Q6601	23205392	TRANSISTOR, 2SC5343UF-Y(BULK)
Q6602	23205392	TRANSISTOR, 2SC5343UF-Y(BULK)
Q6603	23205329	TRANSISTOR, RN1404(F)
Q6604	23205329	TRANSISTOR, RN1404(F)
Q6605	23318981	IC, MC14053BF
QB04	23205463	TRANSISTOR, 2SC2712-Y(TE85L,F)
QB07	23205463	TRANSISTOR, 2SC2712-Y(TE85L,F)
QE01	23135089	IC, HYBRID 650V STR-W6756
QE21	23205292	TRANSISTOR, 2SD2396
△QE26	23000823	IC, PHOTO COUPLER, TLP421F(GR)
QE40	23085463	IC, SI-8050E
QE52	23205567	TRANSISTOR, CHIP R1=R2=22K SMT RN2403(TE85L,F)
QE53	23205330	TRANSISTOR, RN1403(F)
QE64	23085415	IC, BD4746G
QE71	23135085	IC, CE-1050
QE73	23135084	IC, MPD6S011S
QE74	23205330	TRANSISTOR, RN1403(F)
QE75	23205446	TRANSISTOR, 2SC2412K, Q T146
QE83	23085389	IC, NJM431L
QE90	23085423	IC, KIA7809API-U/P
QE92	23205446	TRANSISTOR, 2SC2412K, Q T146
QE93	23205301	TRANSISTOR, 2SA1887(FA,F)
QE94	23205292	TRANSISTOR, 2SD2396
QE95	23205446	TRANSISTOR, 2SC2412K, Q T146
QE96	23205301	TRANSISTOR, 2SA1887(FA,F)
QE97	23205569	TRANSISTOR, CHIP VCEO=120V 2SC2713-GR(TE85L,F)
QE98	23205568	TRANSISTOR, CHIP VCEO=120V 2SA1163-GR(TE85L,F)
QV16	23085823	IC, 2IN-1OUTSW 6DBAMP CLP(PB F MM1508XNR)
QV17	23205329	TRANSISTOR, RN1404(F)
QV61	23205329	TRANSISTOR, RN1404(F)
D670	23362140	DIODE, KDS160-RTK
D671	23362140	DIODE, KDS160-RTK
D674	23362140	DIODE, KDS160-RTK
D675	23362140	DIODE, KDS160-RTK
D676	23362140	DIODE, KDS160-RTK
D677	23362140	DIODE, KDS160-RTK
D678	23362140	DIODE, KDS160-RTK
D679	23362140	DIODE, KDS160-RTK
D680	23362140	DIODE, KDS160-RTK
D681	23362140	DIODE, KDS160-RTK
D801	23362200	DIODE, VRM=600V IO=6A SIP D5SB60, 7009F07
D805	23357627	DIODE, ZENER, RD9.1ESA B1
D806	23357666	DIODE, ZENER, RD27ESA B3
D809	23357654	DIODE, ZENER, RD36ESA B3
D810	23357666	DIODE, ZENER, RD27ESA B3
D811	23357511	DIODE, AG01A
D813	23357512	DIODE, AL01Z
D852	23357697	DIODE, 1SS133
D883	23362196	DIODE, SCHOTTKY VRM90V 20A RB215T-90
D884	23362196	DIODE, SCHOTTKY VRM90V 20A RB215T-90
D885	23357408	DIODE, FMX-12S(023-108)
△D899	76000656	VARISTOR, TNR15G471K
DA01	23362042	DIODE, ZENER, UDS6.8B
DA06	23362042	DIODE, ZENER, UDS6.8B
DA07	23362042	DIODE, ZENER, UDS6.8B

Location No.	Parts No.	Description
DB01	23358606	DIODE, LED RED, SLR-56VC3FPQ
DB04	23358605	DIODE, LED GREEN, SLR-56MC3FPQR
DB20	23357406	DIODE, ZENER, UDZS5.6B
DB22	23357703	DIODE, 1SS355
DB23	23357703	DIODE, 1SS355
DE01	23362204	DIODE, DIODE, D3SB60,7109F08
DE02	23357511	DIODE, AG01A
DE03	23357511	DIODE, AG01A
DE05	23357104	DIODE, 1SS244
DE06	23357366	DIODE, FR105-B5
DE07	23362103	DIODE, ZENER, DZ33 BS B
DE09	23362074	DIODE, ZENER, DZ6.8 BS B
DE11	23357709	DIODE, RU1P
DE12	23357512	DIODE, AL01Z
DE13	23357512	DIODE, AL01Z
DE14	23357512	DIODE, AL01Z
DE15	23362099	DIODE, ZENER, DZ27 BS B
DE16	23357880	DIODE, ZENER, MTZJ20B
DE17	23357512	DIODE, AL01Z
DE19	23357854	DIODE, ZENER, MTZJ10B
DE21	23357703	DIODE, 1SS355
DE22	23357866	DIODE, ZENER, MTZJ12C
DE50	23357706	DIODE, AK04
DE51	23357842	DIODE, ZENER, MTZJ6.8B
DE52	23357703	DIODE, 1SS355
DE54	23357703	DIODE, 1SS355
DE55	23357783	DIODE, ZENER 16.90-17.76 MA8180-L, TX
DE56	23357800	DIODE, ZENER, MA8300-H
DE72	23357366	DIODE, FR105-B5
DE73	23362197	DIODE, SCHOTTKY VRM60V 10A RB085T-60
DE75	23357408	DIODE, FMX-12S(023-108)
DE77	23362197	DIODE, SCHOTTKY VRM60V 10A RB085T-60
DE90	23357866	DIODE, ZENER, MTZJ12C
DE92	23357856	DIODE, ZENER, MTZJ10D
DE93	23357861	DIODE, ZENER, MTZJ11A
DE94	23357862	DIODE, ZENER, MTZJ11B
DE96	23357840	DIODE, ZENER, MTZJ6.2B
DE97	23357869	DIODE, ZENER, MTZJ13C
DE98	23357869	DIODE, ZENER, MTZJ13C
DE99	23357703	DIODE, 1SS355
DV05	23362042	DIODE, ZENER, UDZS6.8B

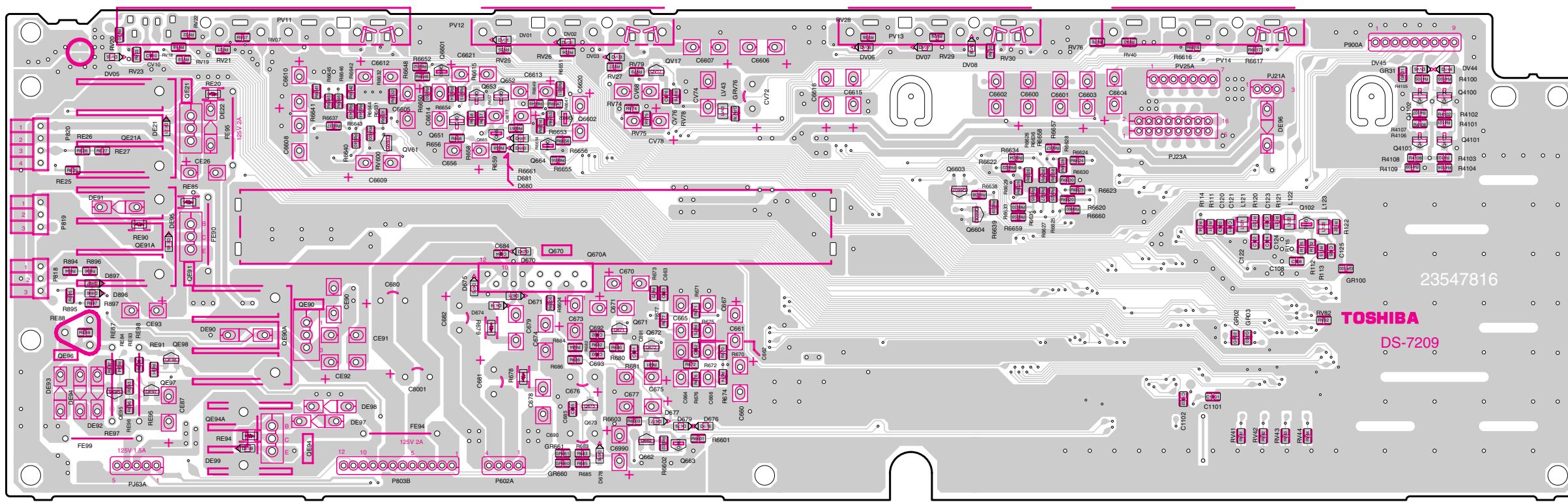
#### MISCELLANEOUS

△ B001	23301646	DISPLAY, G4LPL37 G4LPL37
B310	23717219	SCREW, PP3X8+SW+W SBN
B315	23717214	SCREW, BITTB3X12SBN
B401	23717225	SCREW, PP4X20+SW+W SBN
D801B	23717240	SCREW
D883B	23717240	SCREW
D884B	23717240	SCREW
DE73B	23717240	SCREW
DE75B	23717240	SCREW
DE77B	23717240	SCREW
△ F801	23144319	FUSE, CARTRIDGE, 125V 8A, 5.2X20
F801A	23165433	FUSE HOLDER, 5.2
F801B	23165433	FUSE HOLDER, 5.2
△ F802	23144227	FUSE, AXIAL, 125V 5A
△ F889	23144715	FUSE, CARTRIDGE 5.2X20, 125V 5A
△ FE01	23144380	FUSE, RADIAL LEAD SUB-MINIATUR 250V 3.15A
△ FE72	23144708	FUSE, AXIAL 125V 1.0A
△ FE73	23144715	FUSE, CARTRIDGE 5.2X20, 125V 5A
△ FE74	23144715	FUSE, CARTRIDGE 5.2X20, 125V 5A
△ FE75	23144715	FUSE, CARTRIDGE 5.2X20, 125V 5A
△ FE76	23144714	FUSE, AXIAL 125V 4.0A
△ FE94	23144710	FUSE, CARTRIDGE 5.2X20, 125V 2A
△ FE95	23144710	FUSE, CARTRIDGE 5.2X20, 125V 2A

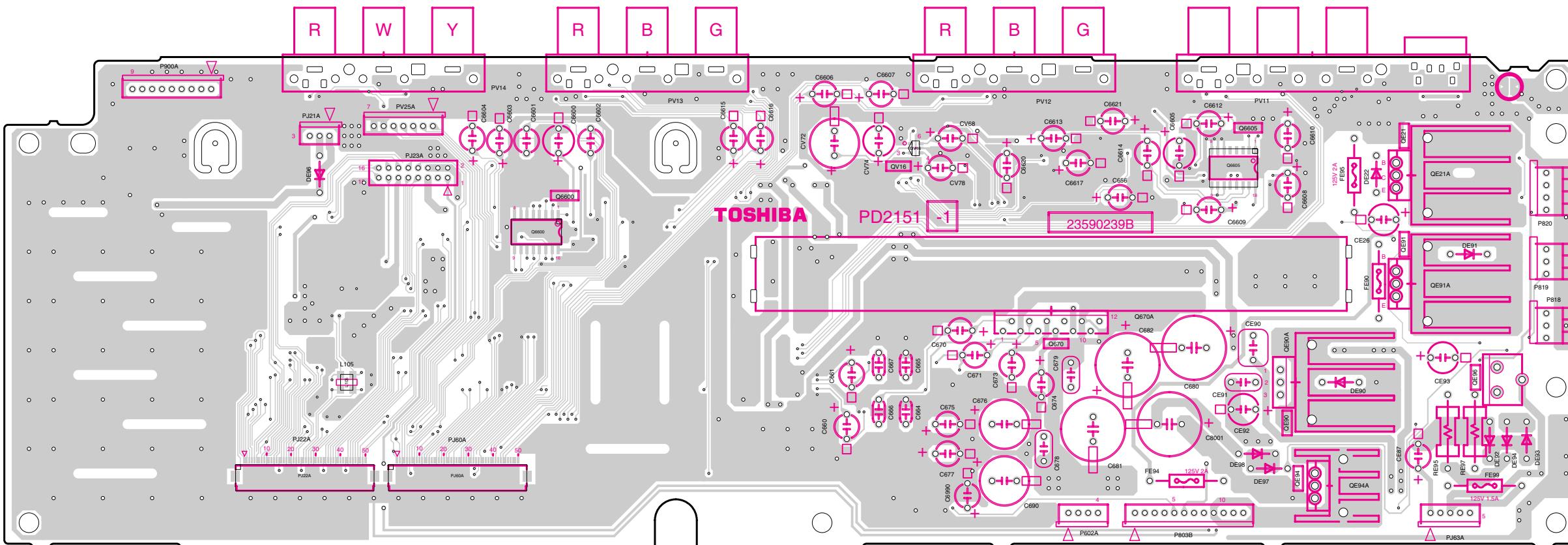
Location No.	Parts No.	Description
△ FE99	23144709	FUSE, AXIAL 125V 1.5A
GE50	23103302	FERRITE CHOKE, TEM2011AH
GE51	76000445	CHIP JUMPER, 1608TYPE
GR02	76000445	CHIP JUMPER, 1608TYPE
GR03	76000445	CHIP JUMPER, 1608TYPE
GR04	76000445	CHIP JUMPER, 1608TYPE
GR05	76000445	CHIP JUMPER, 1608TYPE
GR31	76000445	CHIP JUMPER, 1608TYPE
GR34	76000445	CHIP JUMPER, 1608TYPE
GR35	76000445	CHIP JUMPER, 1608TYPE
GR100	76000445	CHIP JUMPER, 1608TYPE
GR112	76000445	CHIP JUMPER, 1608TYPE
GR113	76000445	CHIP JUMPER, 1608TYPE
GR114	76000445	CHIP JUMPER, 1608TYPE
GR612	76000445	CHIP JUMPER, 1608TYPE
GR613	76000445	CHIP JUMPER, 1608TYPE
GR661	76011223	CHIP, 1/20W 22K OHM J
△ H003	23344525	SWITCH, 213O BUNPAI US DIG RSU143
H003A	23368943	CABLE, PHONO 350MM JLC YAF11-1194N
H003B	23368943	CABLE, PHONO 350MM JLC YAF11-1194N
H003C	23747055	NUT, F-CONNECTOR2HBS
H003E	23748093	WASHER WAVE15X10.6X0.232HL95;D055098E
H003F	23748092	WASHER, 14.2X9.6X2 32HL95;D055097E
IC909	75001247	IC, TC7SH32FU(TE85LF)
K903	23306644	REMOCON IR, IR BLASTER G-LINK VTR CONT
KB01	23009710	REMOCON RECEIVER, GP1UE281RK
MZ01	23368908	CABLE, LVDS30P170MM SHP T2 E30-X30
P601	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P602A	23713937	CONNECTOR, PLUG 4P B4B-PH-K-S(LF)
P602B	23713937	CONNECTOR, PLUG 4P B4B-PH-K-S(LF)
P661	23023302	EARPHONE JACK
△ P800	23713702	PLUG, 2P 11.88MM W VT
P801	23372264	POWER CORD, U/C 125V10A HSV 5 CMC-02P 11111
P803A	23713944	CONNECTOR, CONNECTB12B-PH-K-S(LF)
P803B	23713944	CONNECTOR, CONNECTB12B-PH-K-S(LF)
P804	23713942	CONNECTOR, CONNECTB10B-PH-K-S(LF)
P805	23713942	CONNECTOR, CONNECTB10B-PH-K-S(LF)
△ P811A	23713909	CONNECTOR, CONNECTORB4P-VH(LF)
△ P811B	23713909	CONNECTOR, CONNECTORB4P-VH(LF)
△ P812A	23713910	CONNECTOR, CONNECTORB5P-VH(LF)
△ P812B	23713910	CONNECTOR, CONNECTORB5P-VH(LF)
P813A	23713937	CONNECTOR, PLUG 4P B4B-PH-K-S(LF)
P813B	23713937	CONNECTOR, PLUG 4P B4B-PH-K-S(LF)
P900A	23713941	CONNECTOR, CONNECTB9B-PH-K-S(LF)
P900B	23713941	CONNECTOR, CONNECTB9B-PH-K-S(LF)
PJ21A	23713934	CONNECTOR, 2MM 3P S WHT B3B-PH-K-S(LF)
PJ22A	23713960	CONNECTOR, 50P FFC 9637S-50Y901
PJ41A	23713953	CONNECTOR, CONNECTS11B-PH-K-S(LF)
PJ42A	23713948	CONNECTOR, CONNECTS6B-PH-K-S(LF)
PJ60A	23713960	CONNECTOR, 50P FFC 9637S-50Y901
PJ62	23713910	CONNECTOR, CONNECTORB5P-VH(LF)
PJ62A	23713910	CONNECTOR, CONNECTORB5P-VH(LF)
PJ63A	23713938	CONNECTOR, CONNECTB5B-PH-K-S(LF)
PP08	23974994	BAND, KESSOKU
PP22	23748085	WASHER, 10X4.2XT=0.3
PV11	23023424	JACK, PIN RA 1S6P SMK T-5P
PV12	23023425	JACK, PIN RA 5P SMK T-7P
PV13	23023425	JACK, PIN RA 5P SMK T-7P
PV14	23023426	JACK, PIN RA 5P SMK T-7P
PV60	23365833	JACK, PIN 3P, YKC21
PV90	23713710	SOCKET, D-SUB 15P, KRD-8622
Q670B	23717240	SCREW
QE01B	23717240	SCREW
QE21B	23717240	SCREW
QE90B	23717240	SCREW
QE93B	23717240	SCREW

<b>Location No.</b>	<b>Parts No.</b>	<b>Description</b>
QE94B	23717240	SCREW
SA01	23344505	SWITCH, PUSH 1C1P
SA02	23344505	SWITCH, PUSH 1C1P
SA03	23344505	SWITCH, PUSH 1C1P
SA04	23344505	SWITCH, PUSH 1C1P
SA05	23344505	SWITCH, PUSH 1C1P
SA06	23344505	SWITCH, PUSH 1C1P
SA07	23344505	SWITCH, PUSH 1C1P
SA08	23344505	SWITCH, PUSH 1C1P
SOF2	23340016	SUB MICON SOFT VER, 4.7 IC400
△SR81	23146588	RELAY, DLS5D1-O(M) 0.15W
△UF03	23125942	MOTOR, DCFAN12V60MMPOD D06R-12TS1002BC2
W661	23351292	SPEAKER, SPK1410AM, 60X120 8-OHM 10W
ZA01	23103839	FERRITE CORE, TFE1012
<b>PC BOARD ASSEMBLIES</b>		
* U101A	75001462	PC BOARD ASSY, PD2151B1 AV TERM
* U101B	75001463	PC BOARD ASSY, PD2151B2 FRONT AV
* U101C	75001464	PC BOARD ASSY, PD2151B3 LED
* U101D	75001465	PC BOARD ASSY, PD2151B4 KEY
* U101E	75001466	PC BOARD ASSY, PD2151B5 PC-IN
* U102A	75001461	PC BOARD ASSY, PD2190A1 RF-SW TIF
* U103A	75001406	PC BOARD ASSY, PD2131H1 SIGNAL
* U104A	75001489	PC BOARD ASSY, PD2266C1 SEINE FOR FPD
* U105A	75001408	PC BOARD ASSY, PD2232A1 D-TUNER
* U811	75001424	PC BOARD ASSY, PD2237C1 POWER
* U812	75001425	PC BOARD ASSY, PD2237C2 AC-IN
<b>TUNER</b>		
△ H001	23321536	TUNER, TIF US HOR IIC PH 864M ENG36A36GF
<b>ACCESSORIES</b>		
A701A	23015096	CARTON, TOP CASE 37HL95
A701B	23015097	CARTON, BOTTOM CASE 37HL95
A702A	23946122	PACKING, TOP PACKING 37HL95
A702B	23946123	PACKING, BOTTOM PACKING 37HL95
A705	23518043	PACKING, JOINT
A709	23946940	PACKING, CENTER PACKING
△ K902	23306629	REMOCON HAND UNIT IR, DTVUSA CT-90235
Y102	23566785	OWNERS MANUAL, FRENCH 37HL95
Y170	23845800	HOLDER, WIRE, NYLON66 D6.8
<b>CABINET PARTS</b>		
△ A201	23533419	COVER, FRONT BEZEL ASSY 37HL95
A240	23717267	SCREW, BITTB4X16 SBN
△ A315	23528412	HOLDER, AC HLD BASE USA/JPN
△ A320	23940410	PIECE, FRONT AV ASSY
△ A340	23940441	PIECE, PIECE KEY ASSY
A365	23717219	SCREW, PP3X8+SW+W SBN
A370	23717267	SCREW, BITTB4X16 SBN
A375	23717214	SCREW, BITTB3X12SBN
△ A401	23533318	COVER, BACK COVER 37HL95
△ A405	23533111	COVER, SP BACK C ASSY
A410	23717219	SCREW, PP3X8+SW+W SBN
A411	23717267	SCREW, BITTB4X16 SBN
△ A420	23436870	FOOT, STAND ASSY
A440	23738074	SCREW, PP 5X16 SW+W SBN
A445	23533113	COVER, BC STAND COVER
A450	23533114	COVER, BACKTERMINAL

AV TERMINAL BOARD PD2151B1 (U101A) BOTTOM (FOIL) SIDE

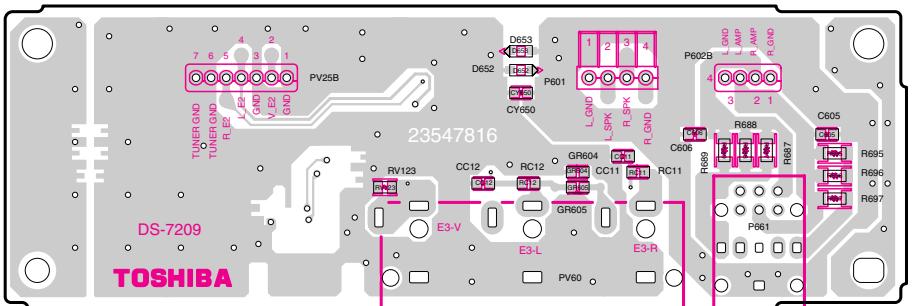


AV TERMINAL BOARD PD2151B1 (U101A) TOP (COMPONENT) SIDE



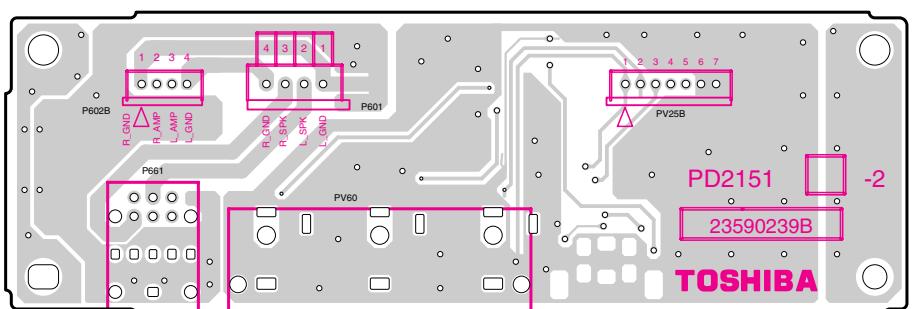
**FRONT AV BOARD PD2151B2 (U101B)**

## **BOTTOM (FOIL) SIDE**



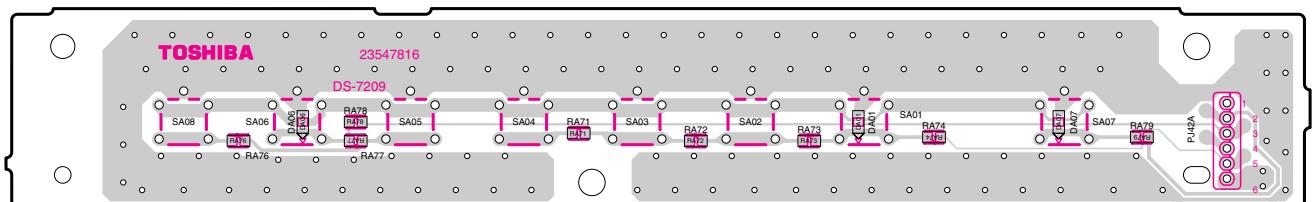
**FRONT AV BOARD PD2151B2 (U101B)**

## **TOP (COMPONENT) SIDE**



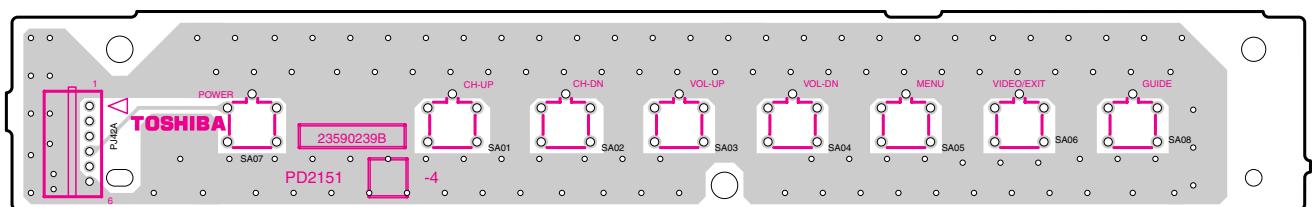
KEY BOARD PD2151B4 (U101D)

## **BOTTOM (FOIL) SIDE**



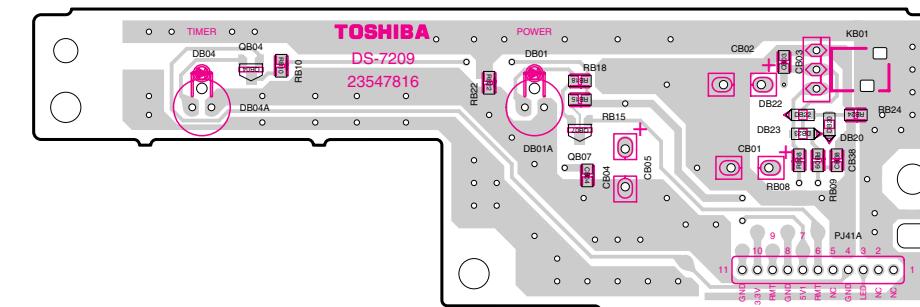
KEY BOARD PD2151B4 (U101D)

**TOP (COMPONENT) SIDE**



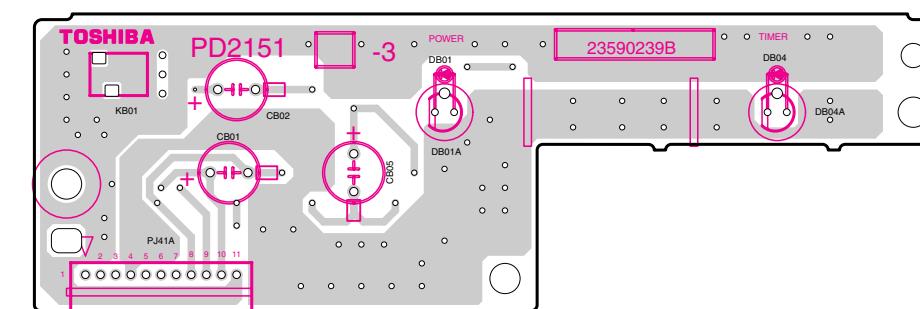
## **LED BOARD PD2151B3 (U101C)**

BOTTOM (FOIL) SIDE



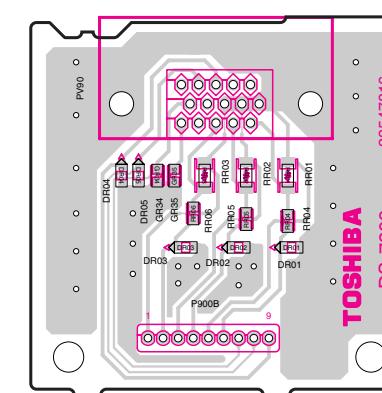
LED BOARD PD2151B3 (U101C)

TOP (COMPONENT) SIDE



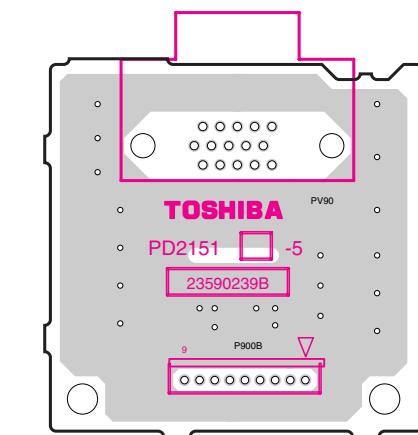
PC-IN BOARD PD2151B5 (U101E)

**BOTTOM (FOIL) SIDE**



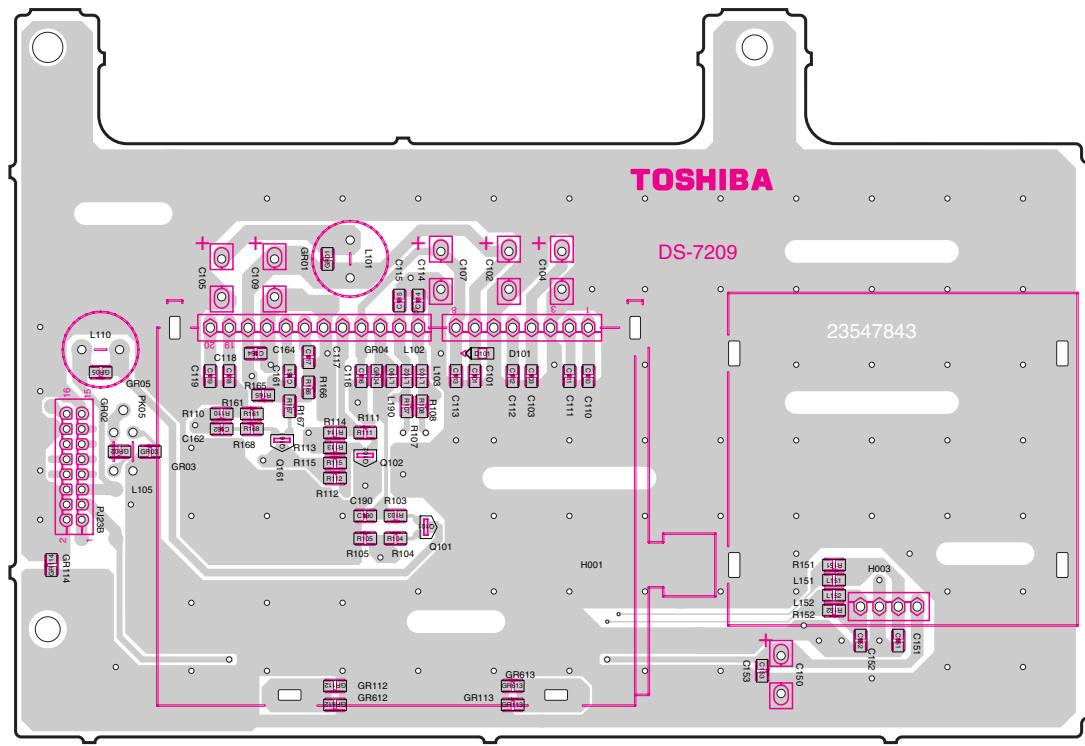
PC-IN BOARD PD2151B5 (U101E)

TOP (COMPONENT) SIDE



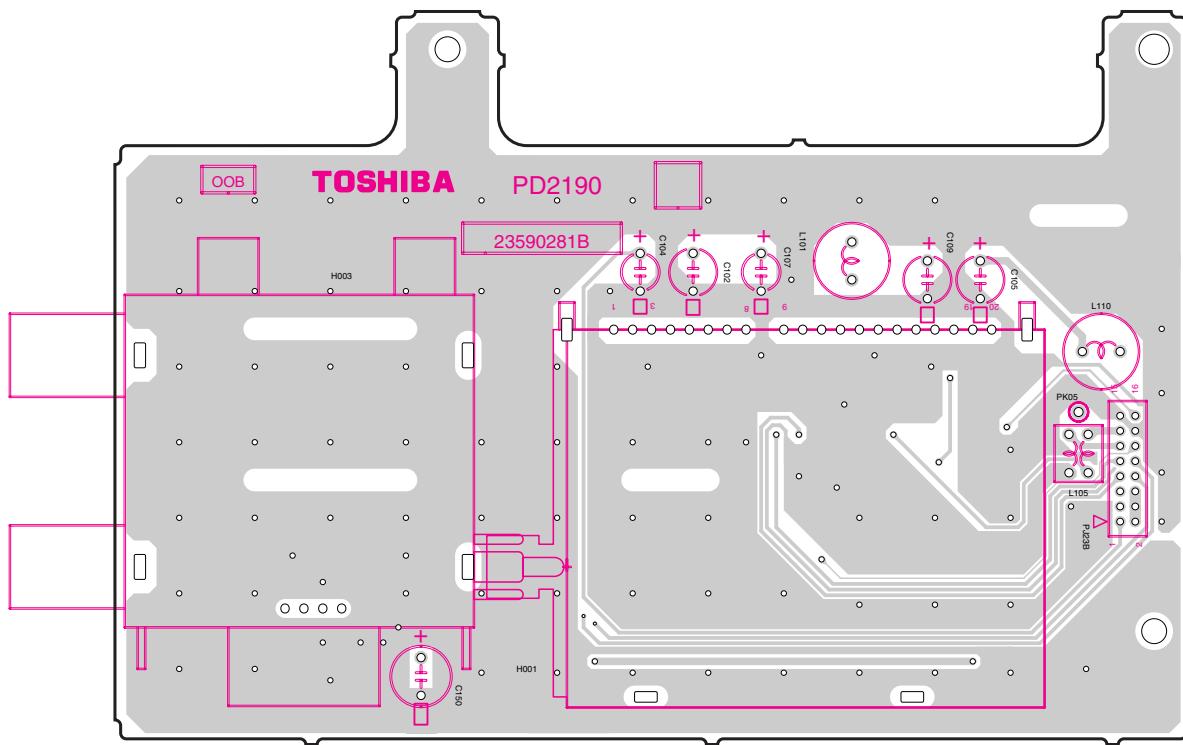
## RF-SW TIF BOARD PD2190A1 (U102A)

BOTTOM (FOIL) SIDE



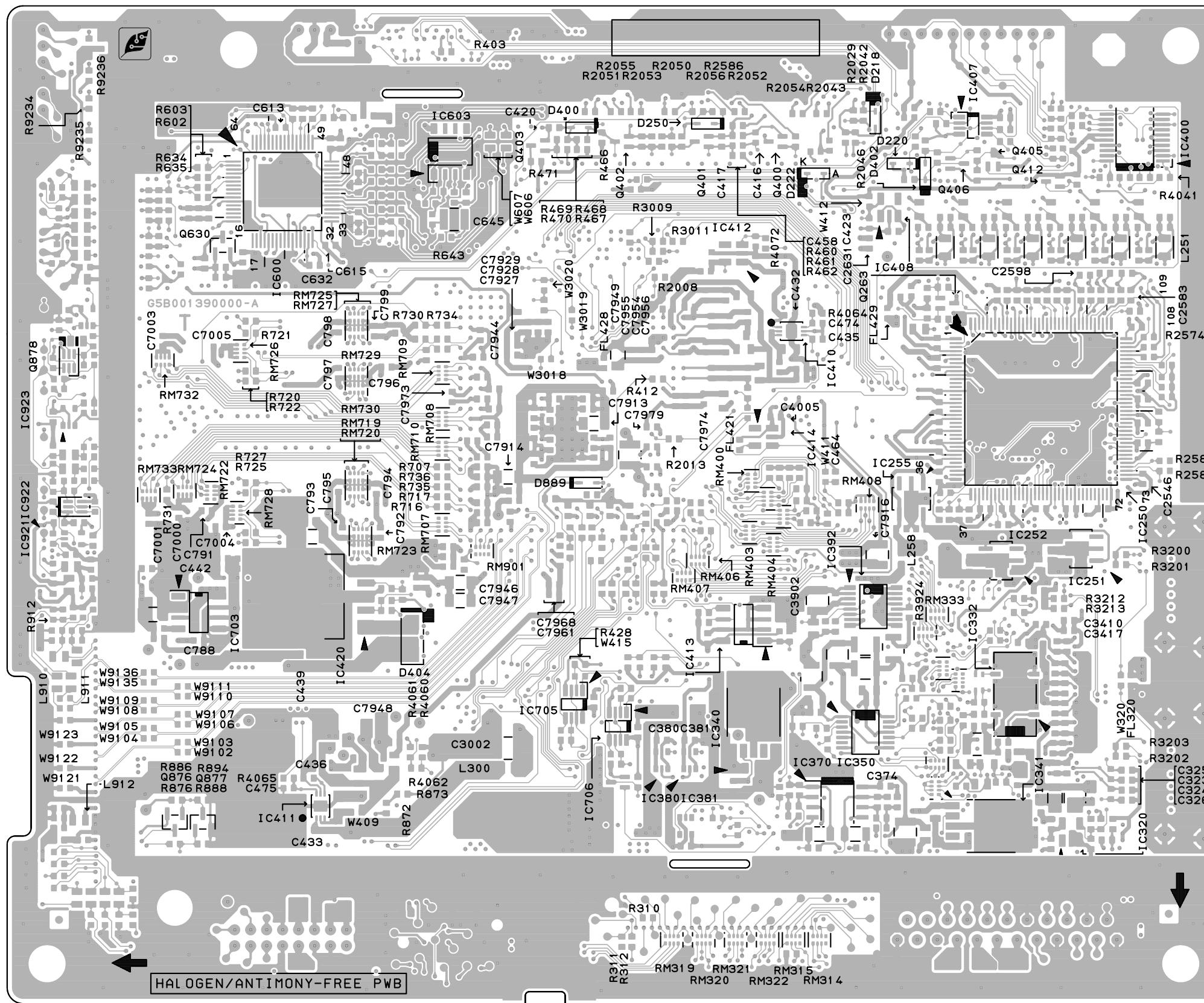
## RF-SW TIF BOARD PD2190A1 (U102A)

TOP (COMPONENT) SIDE



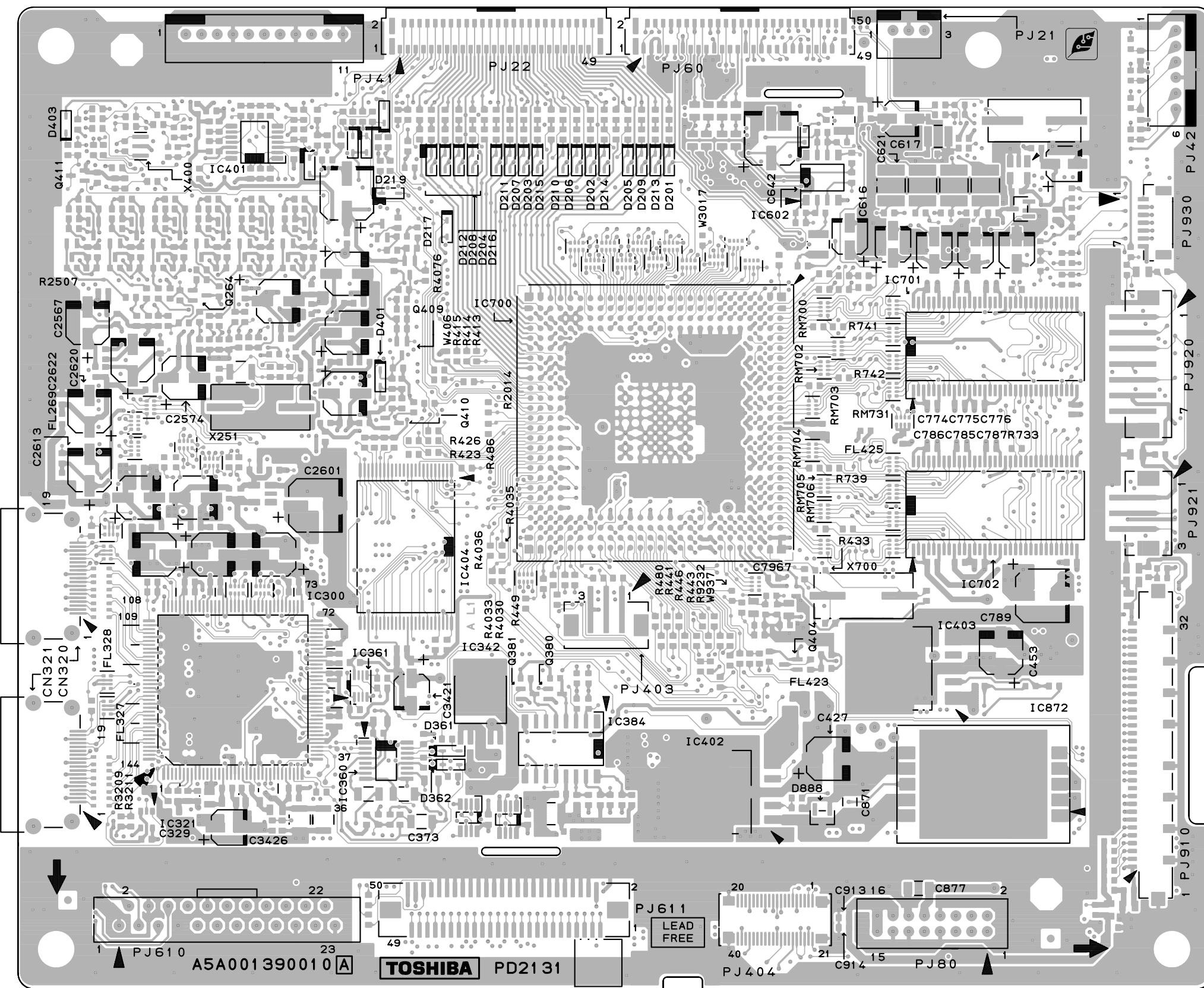
## SIGNAL BOARD PD2131H1 (U103A)

**BOTTOM (FOIL) SIDE**



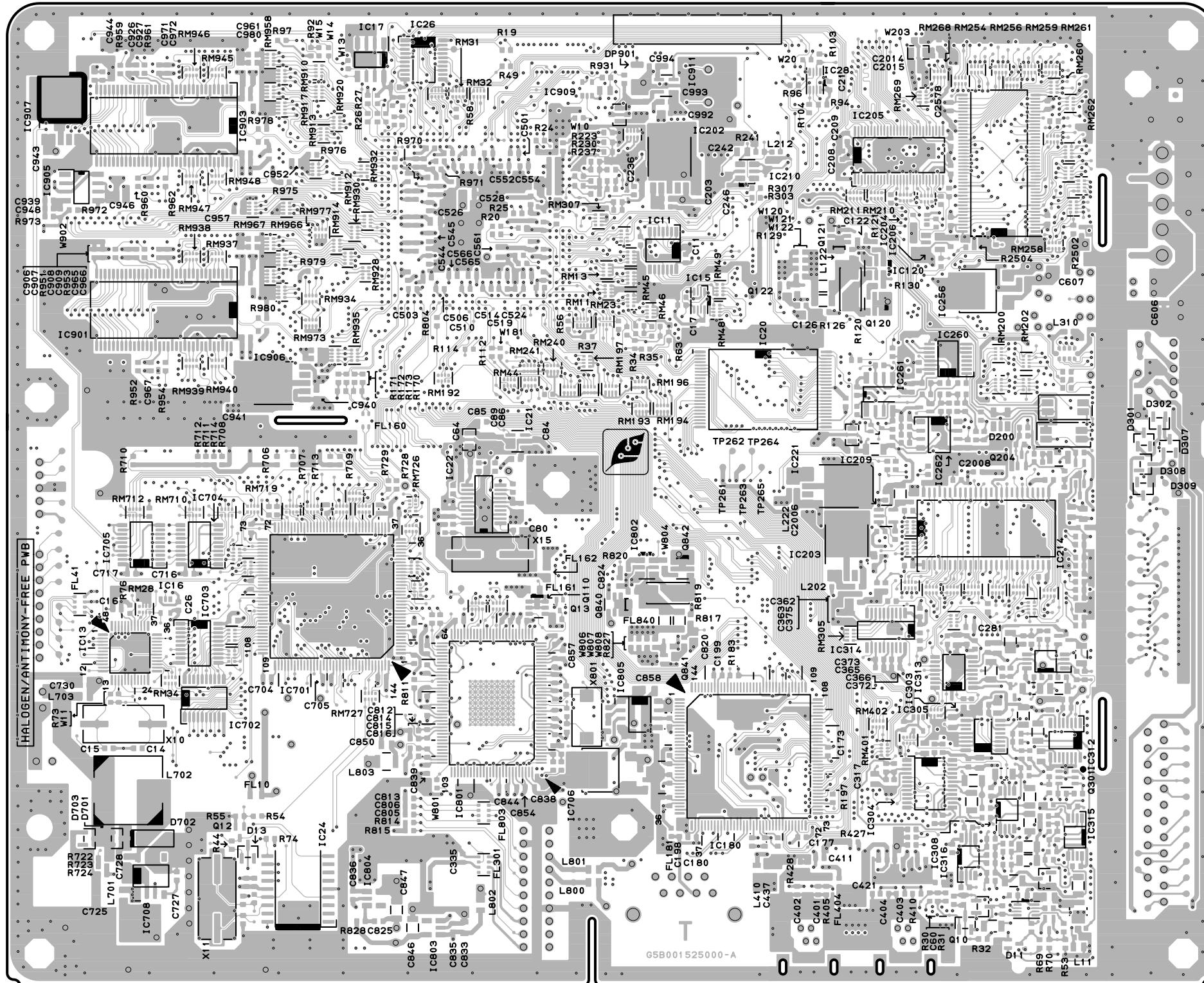
# SIGNAL BOARD PD2131H1 (U103A)

TOP (COMPONENT) SIDE



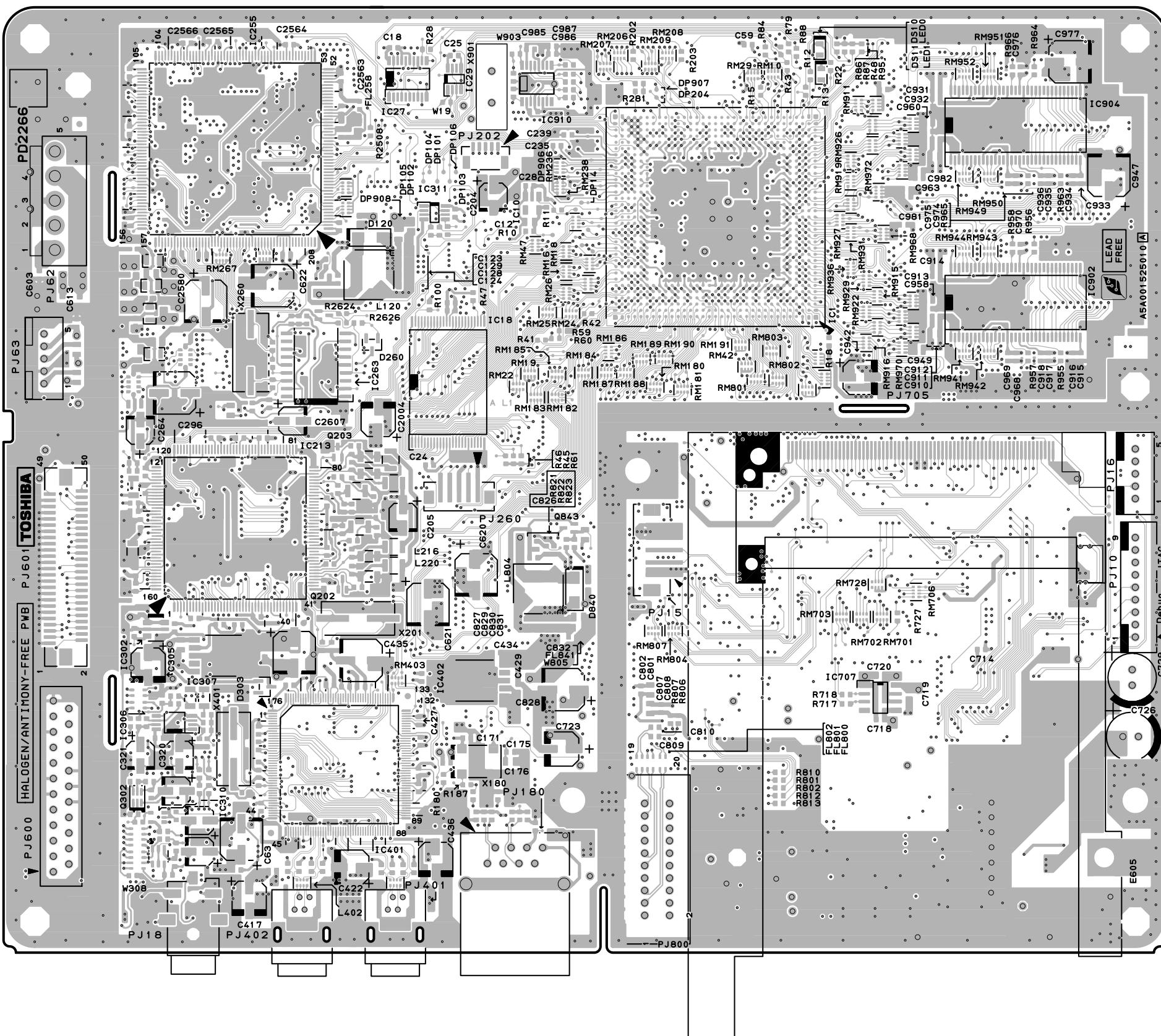
SEINE FOR FPD BOARD PD2266C1 (U104A)

BOTTOM (FOIL) SIDE



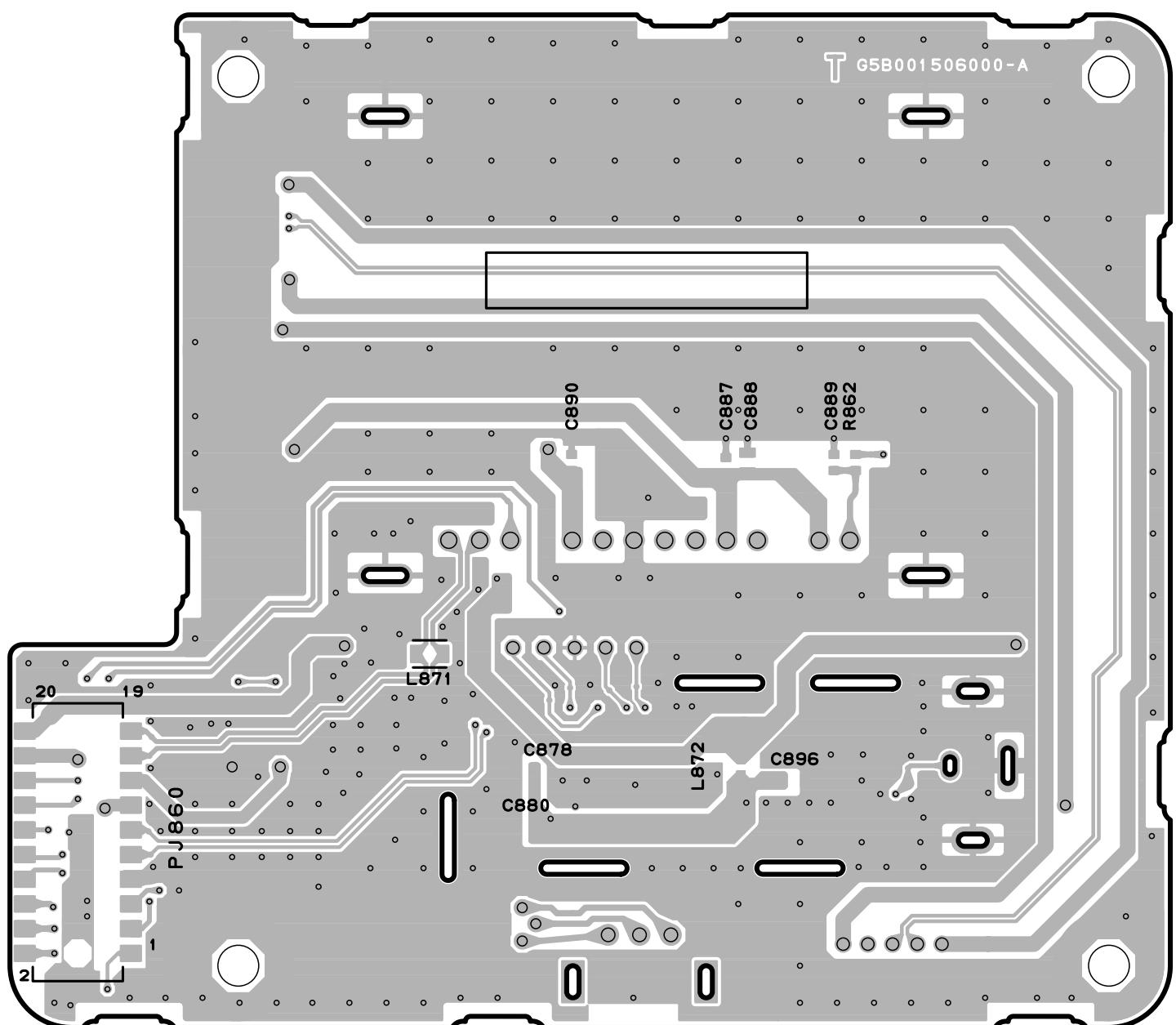
# **SEINE FOR FPD BOARD PD2266C1 (U104A)**

**TOP (COMPONENT) SIDE**



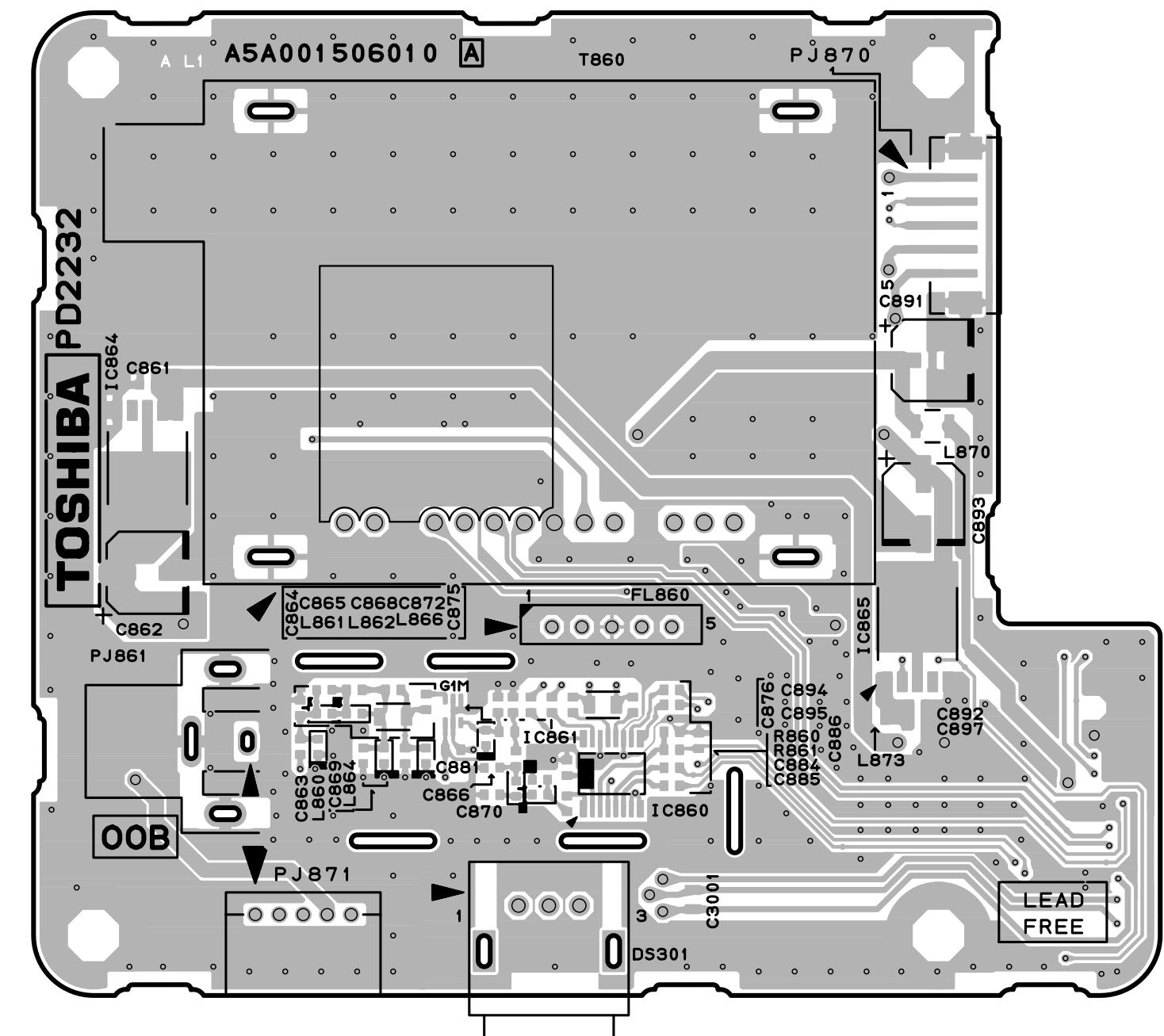
D-TUNER BOARD PD2232A1 (U105A)

BOTTOM (FOIL) SIDE



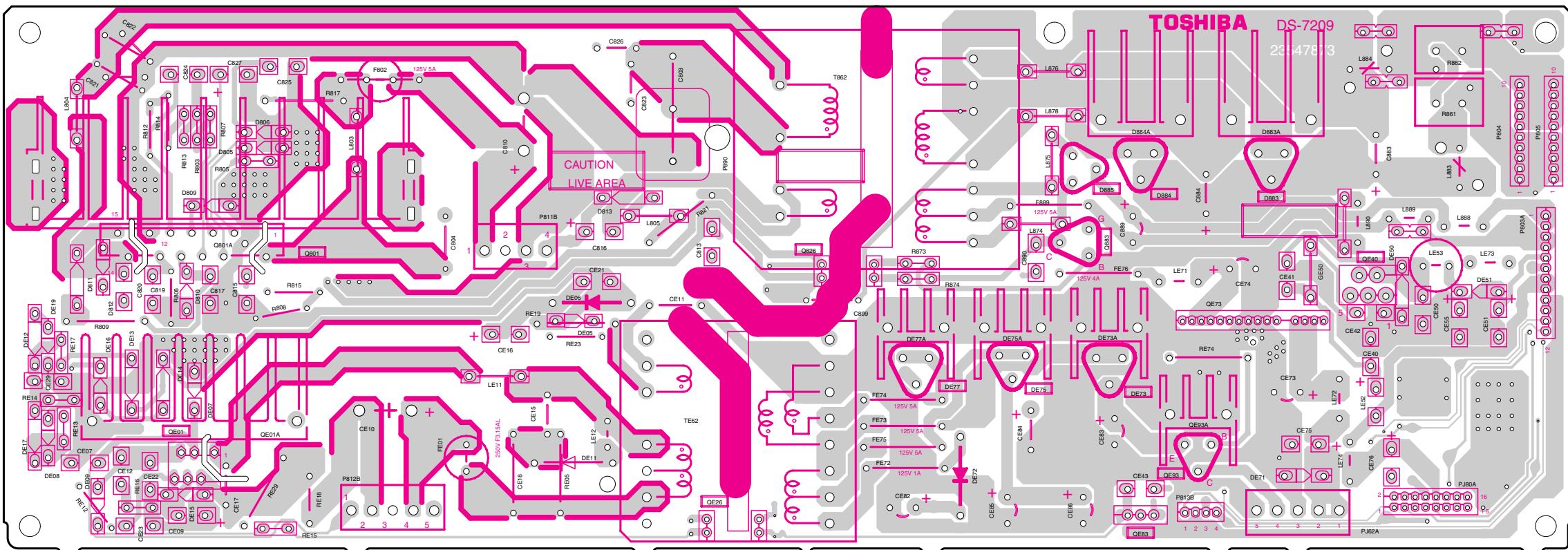
D-TUNER BOARD PD2232A1 (U105A)

TOP (COMPONENT) SIDE



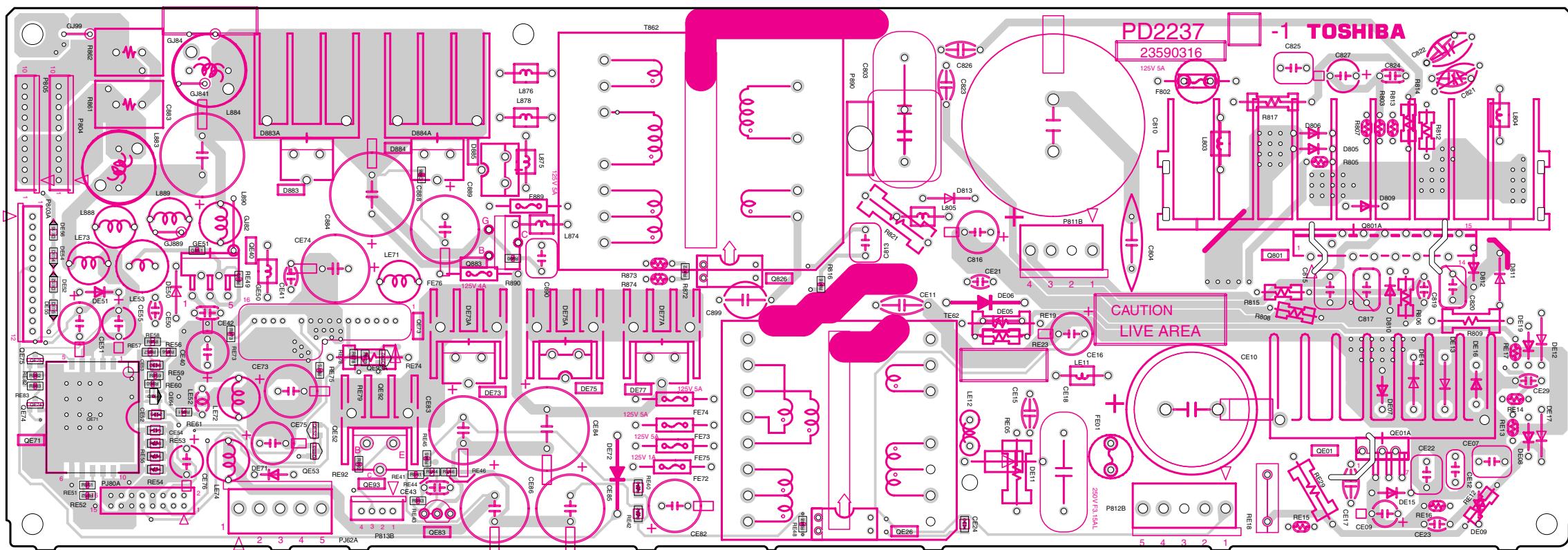
POWER BOARD PD2237C1 (U811)

## **BOTTOM (FOIL) SIDE**



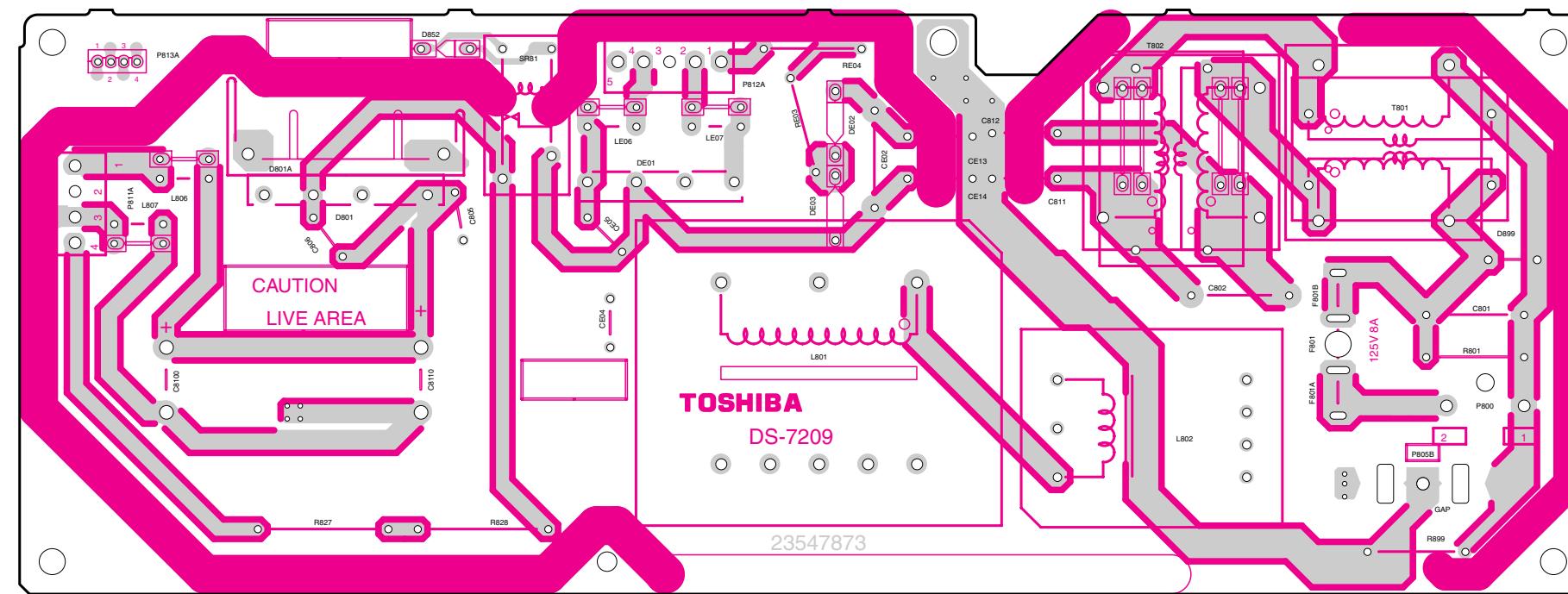
POWER BOARD PD2237C1 (U811)

TOP (COMPONENT) SIDE



## AC-IN BOARD PD2237C2 (U812)

BOTTOM (FOIL) SIDE



# SCHEMATIC DIAGRAM

MODEL : 37HL95

**WARNING :** BEFORE SERVICING THIS CHASSIS, READ THE "SERVICE SAFETY PRECAUTIONS" 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 SERVICE SAFETY PRECAUTIONS 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 = ±10%    G = ±2%    F = ±1%
2. CAPACITOR      Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in  $\mu$ 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 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.

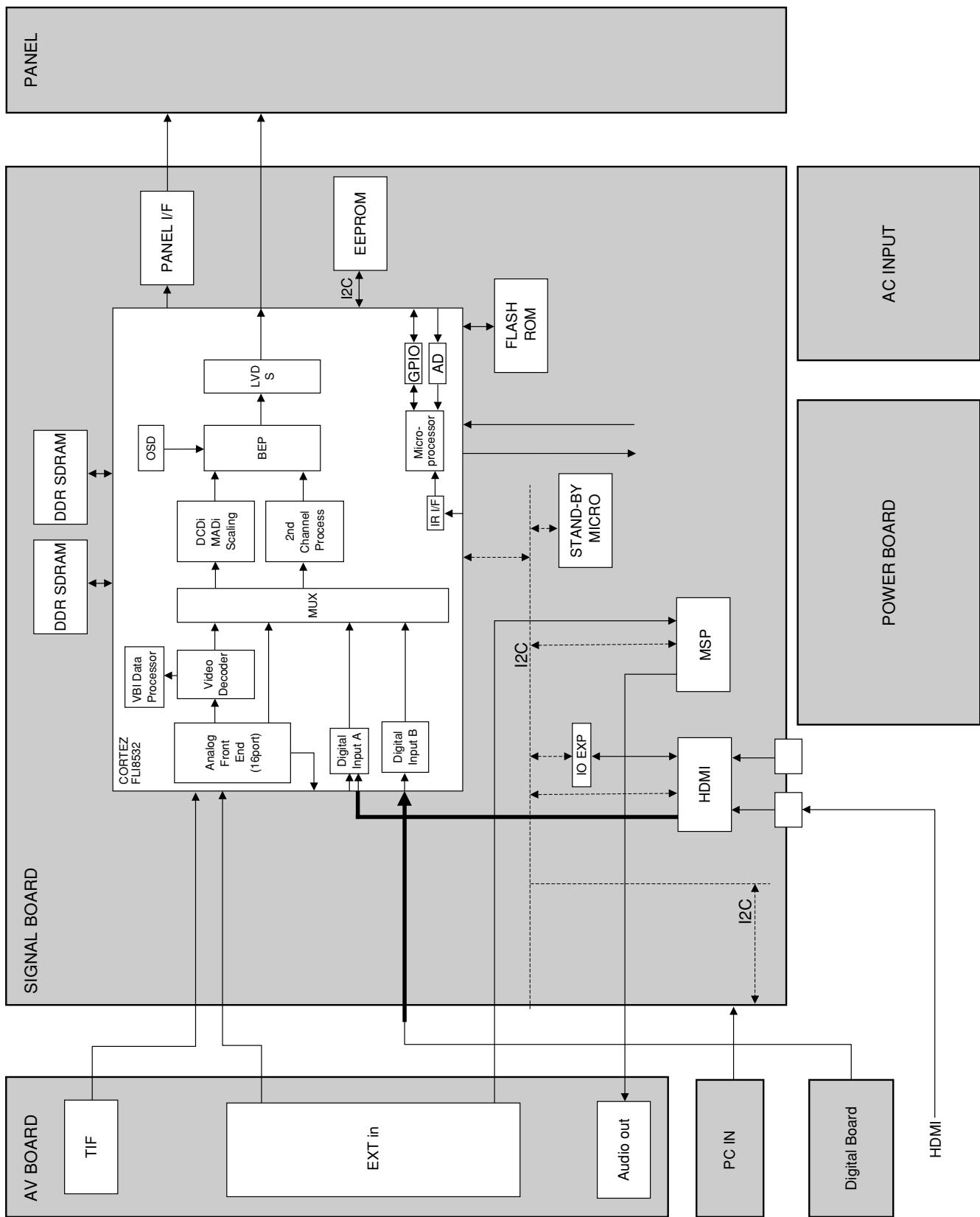
## ■ SCHEMATIC DIAGRAM STRUCTURE:

CONNECTOR .....	1/122
AV_JACK .....	2/122
AUDIO_OUT .....	3/122
REGULATOR .....	4/122
FRONT-AV .....	5/122
LED_RMT .....	6/122
KEY .....	7/122
PC-IN BOARD .....	8/122
CONNECTOR(POWER_BOARD) .....	9/122
MAIN_POWER(POWER_BOARD) .....	10/122
SUB_POWER(POWER_BOARD) .....	11/122
AC-INPUT .....	12/122
RF-SW & TIF .....	13/122
SIGNAL	
ANALOG IN	[SHEET-200] .... 14/122
D IN A	[SHEET-300] .... 15/122
D IN B	[SHEET-301] .... 16/122
HDMI (Link, I2C)	[SHEET-302] .... 17/122
HDMI Rx#2 (Video/Audio)	[SHEET-303] .... 18/122
HDMI Rx#3 (PWR,Audio)	[SHEET-304] .... 19/122
HDMI AUDIO PLL	[SHEET-305] .... 20/122
HDMI AUDIO DAC	[SHEET-306] .... 21/122
HDMI AUDIO OUT	[SHEET-307] .... 22/122
HDMI CONTROLLER	[SHEET-308] .... 23/122
EEPROM1	[SHEET-309] .... 24/122
EEPROM2	[SHEET-310] .... 25/122
MICRO I/O	[SHEET-400] .... 26/122
OCM MEMORY I/F	[SHEET-401] .... 27/122
FLASH MEMORY	[SHEET-402] .... 28/122
SYNC SEPA	[SHEET-403] .... 29/122
E2P OTHER	[SHEET-404] .... 30/122
STD-BY MICOR	[SHEET-405] .... 31/122
CORTEZ REG 1	[SHEET-406] .... 32/122
CORTEZ REG 2	[SHEET-407] .... 33/122
CORTEZ REG 3	[SHEET-408] .... 34/122
BOOT CONFIG	[SHEET-409] .... 35/122
SERVICE CONNECTOR	[SHEET-410] .... 36/122
I2C Switch	[SHEET-411] .... 37/122
AUDIO	(1/2) (2/2)
CORTEZ 1	[SHEET-600] .... 38/122
CORTEZ 2	[SHEET-601] .... 39/122
DDR I/F	[SHEET-700] .... 40/122
DDR SDRAM	[SHEET-701] .... 41/122
DDR TERMINATION	[SHEET-702] .... 42/122
DCDC CONV.	[SHEET-703] .... 43/122
LVDS OUT	[SHEET-704] .... 44/122
LVDS OUT(SHARP LCD)	[SHEET-802] .... 45/122
Power Connector and Dimming	[SHEET-900] .... 46/122
LVDS Power and Others	[SHEET-901] .... 47/122
SEINE FOR FPD	
SEINE RESET/CLOCK/TIMER/IRC	[SHEET-1] .... 48/122
SEINE SLOW BUS	[SHEET-2] .... 49/122
SLOW BUS ADDRESS REGISTER	[SHEET3] .... 50/122
SEINE IIC/UART	[SHEET4] .... 51/122
SEINE PIO	[SHEET5] .... 52/122
ROM/FLASH	[SHEET6] .... 53/122

SEINE FOR FPD	M-SYSTEM(NANDFLASHROM)	[SHEET-7] .... 56/122
	IR	[SHEET-8] .... 57/122
	GLINK IR-OUT	[SHEET-9] .... 58/122
	CLOCK GEN.	[SHEET-10] .... 59/122
	USB I/F	[SHEET-11] .... 60/122
	UART0 INTERFACE	[SHEET-12] .... 61/122
	EJTAG CONNECTOR	[SHEET-13] .... 62/122
	SEINE PCI BUS	[SHEET-14] .... 63/122
	MPU POWER	[SHEET-16] .... 64/122
	Ext UART	[SHEET-17] .... 65/122
	MACPHYTER 1	(1/2) [SHEET-20] .... 66/122
		(2/2) [SHEET-21] .... 67/122
	RJ45	[SHEET-22] .... 68/122
	TUENR CONNECTOR	[SHEET-100] .... 69/122
	T313(Signal)	[SHEET-101] .... 70/122
	1.1VRegulator	[SHEET-102] .... 71/122
	T313(Power)	[SHEET-103] .... 72/122
	Seine TS I/F	[SHEET-150] .... 73/122
	SEINE CAPTURE IN	[SHEET-200] .... 74/122
	VIDEO POWER	[SHEET-210] .... 75/122
	SEINE DIGITAL OUT	[SHEET-220] .... 76/122
	SEINE-BEP IF	[SHEET-221] .... 77/122
	SEINE DAC OUT	[SHEET-225] .... 78/122
	DOWN CON OUT DRIVER	[SHEET-226] .... 79/122
	HD OUT LPF	[SHEET-227] .... 80/122
	MACRO VCD	(1/2) [SHEET-240] .... 81/122
		(2/2) [SHEET-241] .... 82/122
	VIDEO LPF	[SHEET-242] .... 83/122
	MPEG Enc. (CLK, SDRAM)	[SHEET-250] .... 84/122
	MPEG Enc. (AV I/F)	[SHEET-251] .... 85/122
	MPEG Enc. (STREAM I/F)	[SHEET-252] .... 86/122
	MPEG Enc. (POWER)	[SHEET-253] .... 87/122
	LPF, Slicer	[SHEET-260] .... 88/122
	H/V Sync Sep.	[SHEET-261] .... 89/122
	AUDIO POWER	[SHEET-300] .... 90/122
	SEINE AUDIO I/F	[SHEET-301] .... 91/122
	AUDIO DAC	[SHEET-302] .... 92/122
	AUDIO PLL/DAC	[SHEET-303] .... 93/122
	AUDIO VTR OUT	[SHEET-304] .... 94/122
	AUDIO SP OUT	[SHEET-305] .... 95/122
	MPEG2 AUDIO TV IN	[SHEET-306] .... 96/122
	MPEG2 AUDIO ADC	[SHEET-307] .... 97/122
	MPEG2 AUDIO PLL	[SHEET-308] .... 98/122
	AUDIO DAC 0.1CH	[SHEET-309] .... 99/122
	AUDIO VTR OUT	[SHEET-310] ... 100/122
	MB86619	[SHEET-400] .. 101/122
	MB86619 (POWER)	[SHEET-401] .. 102/122
	CPLD XILINX	[SHEET-700] .. 103/122
	SLOWBUS	[SHEET-701] .. 104/122
	PODVPP	[SHEET-702] .. 105/122
	POD I/F	[SHEET-703] .. 106/122
	PODVCC	[SHEET-704] .. 107/122
	DDR SDRAM I/F	[SHEET-901] .. 108/122

SEINE FOR FPD	DDR 1	[SHEET-902] .. 109/122
	DDR 2	[SHEET-903] .. 110/122
	DDR 3	[SHEET-904] .. 111/122
	DDR 4	[SHEET-905] .. 112/122
	DDR POWER	[SHEET-906] .. 113/122
	TERMINATOR	[SHEET-907] .. 114/122
	VCXO	[SHEET-941] .. 115/122
	SEINE VDD/VSS	[SHEET-950] .. 116/122
	SIGNAL CONNECTOR	[SHEET-960] .. 117/122
	POWER CONNECTOR	[SHEET-961] .. 118/122
	Signal filter	[SHEET-964] .. 119/122
D-TUNER	TUNER CONNECTOR(TUNER)	[SHEET-104] .. 120/122
	OOB FDC	[SHEET-105] .. 121/122
	FAT TUNER	[SHEET-106] .. 122/122

## CIRCUIT BLOCK DIAGRAM



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