

**TOSHIBA**

FILE NO. 020-200422

SERVICE MANUAL

LCD Color TV



***32HLX84***

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## 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  mark is included in a circuit diagram or parts list.</li> </ul>
 <b>CAUTION FOR WIRING</b>	<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 1M <math>\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

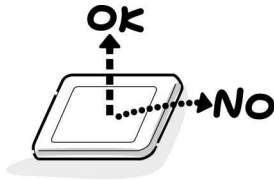
In the event that the screen is damaged or the liquid crystal (fluid) leaks, do not breathe in or drink this fluid. Also, never touch this fluid.

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.

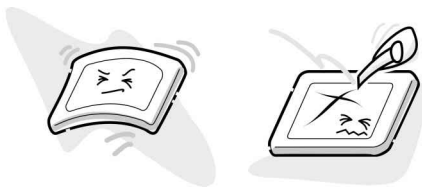
1. When attaching the LCD module to the LCD cover, position it appropriately and fasten at the position where the display can be viewed most conveniently.



2. 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.



3. 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.



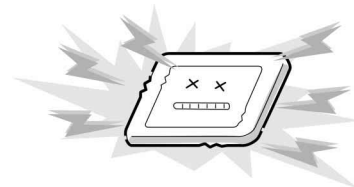
4. Leaving water or other fluids on the panel screen for an extended period of time can result in discoloration or stripes. Immediately remove any type of fluid from the screen.



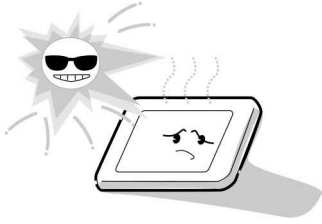
5. Glass is used in the panel, so do not drop or strike with hard objects. Such actions can damage the panel.



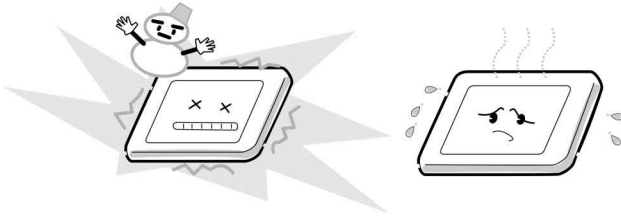
6. CMOS-LSI circuitry is used in the LCD module, so avoid damage due to static electricity. When handling the module, use a wrist ground or anchor ground.



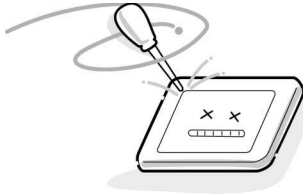
7. Do not expose the LCD module to direct sunlight or strong ultraviolet rays for an extended period of time.



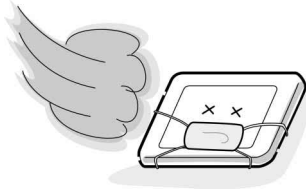
8. Do not store the LCD module below the temperature conditions described in the specifications. Failure to do so could result in freezing of the liquid crystal due to cold air or loss of resilience or other damage.



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.



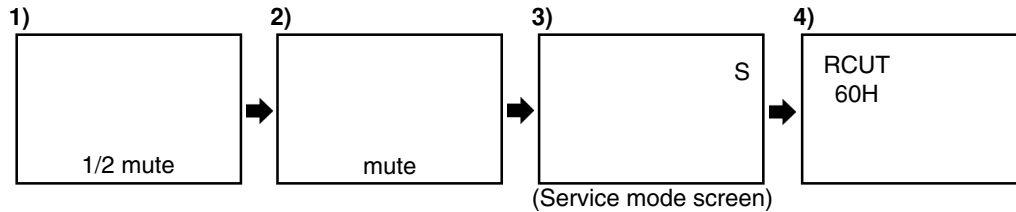
# SERVICE MODE

## ENTERING TO SERVICE MODE

- 1) Press the "MUTE" button once on the remote control, "1/2 MUTE" is displayed on the screen.
- 2) Press the "MUTE" button again, "MUTE" is displayed on the screen.
- 3) Press the "MENU" button on the TV while pressing the "MUTE" button on the remote control, "S" may appear on the screen. Then enter to the service mode.
- 4) Press the "MENU" button on the remote control, adjustment item appears on the screen.

### NOTE

Adjustment items may change by pressing the "CH▼▲" buttons on the remote control.



\* EXIT FROM SERVICE MODE-Turn off the "POWER" of the TV or remote control.

### Built-in signal

- When press the "INPUT" source selection button on the remote controller during service mode, generate the built-in test video signal for servicing.

Built-in test video signal (Use for the adjustment such as white balance, etc.)
General broadcasting signal => red monochrome => green monochrome => blue monochrome => white signal => black cross bar => built-in signal OFF

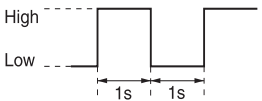
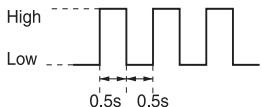
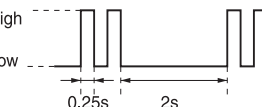
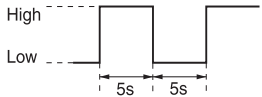
## CAUTION

For the video system adjustment, never attempt to initialize the data unless initial setting data is exceed incorrectly.

Adjustment items	Adjustment procedure
Brightness correction (BRTC)	<ol style="list-style-type: none"> <li>1) Receive a general broadcasting program, then press "MENU" button on the remote control, set the unicolor to minimum (00) and brightness to standard (00) in order to display the "Setting menu" =&gt; "Picture setting" =&gt; "Picture adjustment" by pressing the cursor buttons "◀ ▶ ▼ ▲".</li> <li>2) Select BRTC (brightness correction) using the cursor buttons "CH▼▲" on the remote control, fine adjust the black signal to be black using the "VOL ▼▲" buttons on the remote control. After the adjustment, set "unicolor" back to initialize data.</li> </ol>
White balance (RCUT) (GCUT) (BCUT)	<ol style="list-style-type: none"> <li>1) Enter the service mode, press the "INPUT" source setting button on the remote control to generate the built-in white signal.</li> <li>2) Adjust the data of items RCUT, GCUT and BCUT for proper white-balanced picture in low light area.</li> </ol> <p>* For high light area, GDRV and RDRV items can be adjusted for proper white-balanced picture.</p>

# TROUBLESHOOTING DIAGNOSIS FUNCTION

## 1. DIAGNOSIS FUNCTION FOR LED INDICATION

LED	CAUSE
<p>LED is lit in 1 second at intervals of 1 second.</p> 	<p>Short-circuit detection of BUS line</p> <hr style="border-top: 1px dashed black;"/> <p>BUS line may possibly be short-circuit (SDA to SCL), or BUS line (SDA, SCL) is grounded.</p>
<p>LED is lit in 0.5 at intervals of 0.5 second.</p> 	<p>Overcurrent limiter detection</p> <hr style="border-top: 1px dashed black;"/> <p>POWER terminal on TV microprocessor becomes LOW at 2 seconds or more.</p>
<p>LED is lit in 0.25 second at intervals of 2 second.</p> 	<p>Interruption of FAN motor function detection</p> <hr style="border-top: 1px dashed black;"/> <p>No. 53 terminal on TV microprocessor becomes HIGH for 30 seconds.</p>
<p>LED is lit in 5 seconds at intervals of 5 seconds.</p> 	<p>Abnormal sound detection</p> <hr style="border-top: 1px dashed black;"/> <p>P4 terminal of QS10 becomes LOW for 15 seconds during Speaker is activated.</p>

High : Lighting    Low : No Lighting



## 2. SELF DIAGNOSIS FUNCTION

- 1) Press "9" button on the remote control during display of adjustment menu in the service mode.
- 2) During diagnosis, the following displays are shown.

<SELF CHECK>

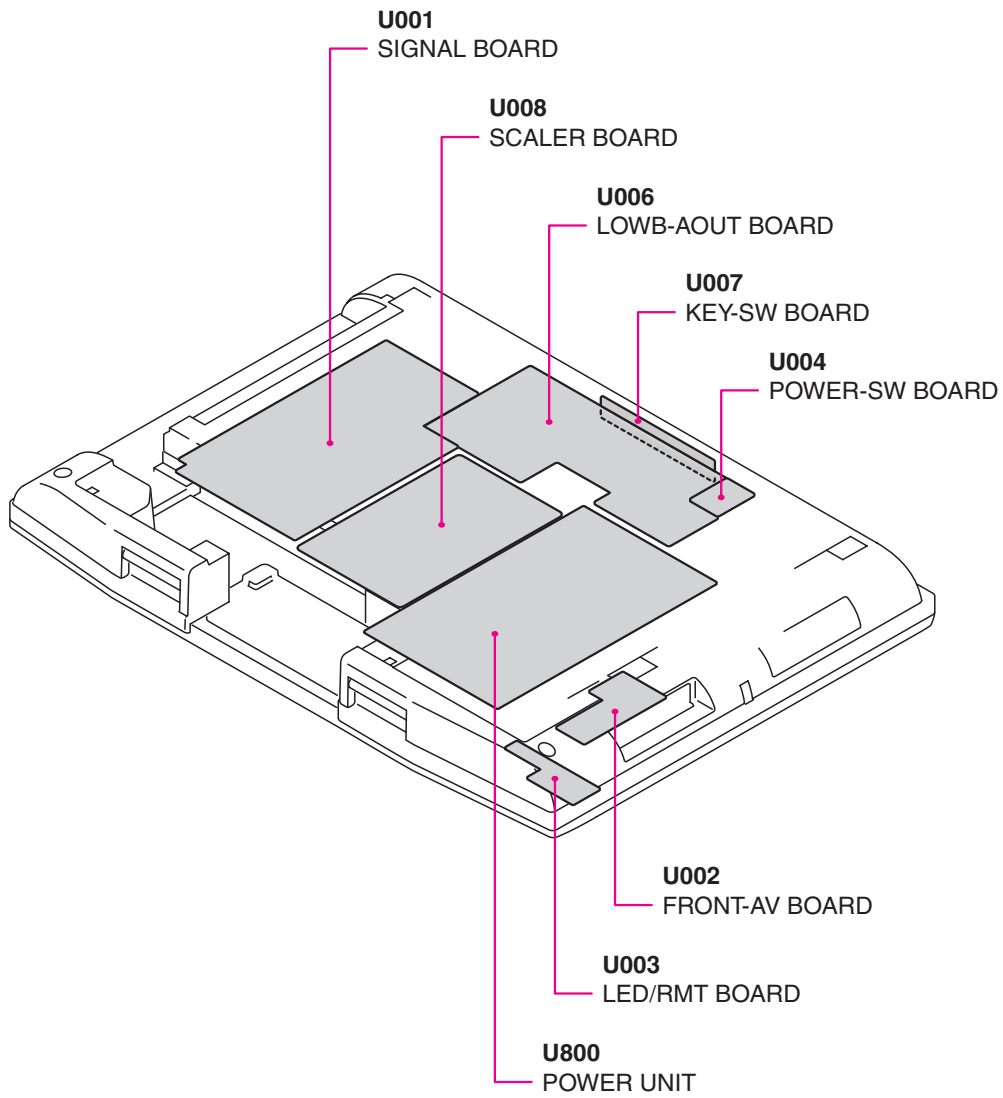
①	NO. 23 * * * * *		
②	POWER : 000	TIME	⑪
③	BUS LINE : OK	TV : 00 * * * *	
④	BUS CONT : OK		
⑤	BLOCK : MAIN SUB		
⑥	SET ID : A0		
⑦	E2P VER : 00		
⑧	OPT1 : 01	OPT2 : A0	
⑨	SW VER : PD SEP 01	2004 10:05:50	
⑩	HDMI NO. * * * * *	BEP SW VER : 74	
	ERR CODE : 00	E2P VER : 00	

- ① Part number of microprocessor (8 digits)
- ② Operation number of protecting circuit -----"000" is normal  
When indication is other than "000", overcurrent is apt to flow, and circuit parts may possibly be damaged.
- ③ BUS LINE ----- "OK" is normal.  
---- "SCL-GND" or "NG" ----- SCL-GND short circuit  
---- "SDA-GND" or "NG" ----- SDA-GND short circuit  
---- "SCL-SDA" or "NG" ----- SCL-SDA short circuit
- ④ BUS CONT ----- "OK" is normal.  
When indication shows "Q uuu (Green: OK, Red: NG)", the device with the number may possibly be damaged.
- ⑤ BLOCK  
MAIN : Main picture display --Green indication  
Main picture does not display--Red indication  
SUB : Sub picture display --Green indication  
Sub picture does not display--Red indication
- ⑥ ID code for TV set
- ⑦ Software version information for E2P
- ⑧ Data number of OPT1 and OPT2
- ⑨ Software version history of host microprocessor (date indication)
- ⑩ HDMI NO: Serial No. of HDMI software (8digits)  
HDMI ERR CODE: HDMI error code number  
BEP SW VER: Software version information for BEP microprocessor  
BEP E2P VER: Software version information for BEP E2P
- ⑪ Total hour of TV set on time (6digits). (Unit: hour)

### \*INITIALIZATION OF SELF DIAGNOSIS DATA

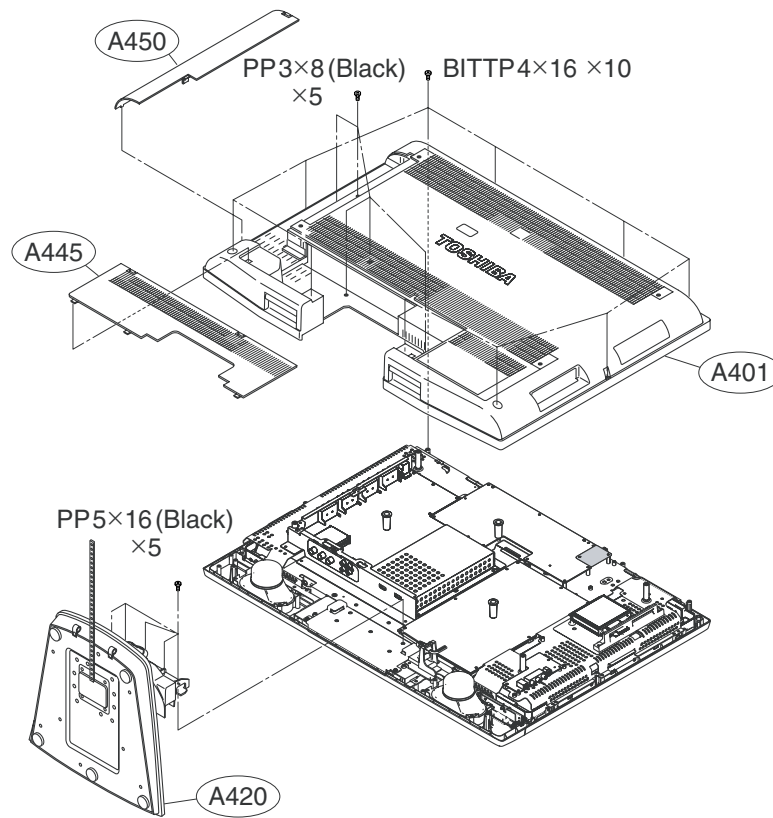
- 1) Enter the service mode, then select any register item.
- 2) Press and hold the RECALL button on the remote control, then press the CHANNEL up button on the TV. The initialization has been completed.

# LAYOUT OF MAJOR BOARDS

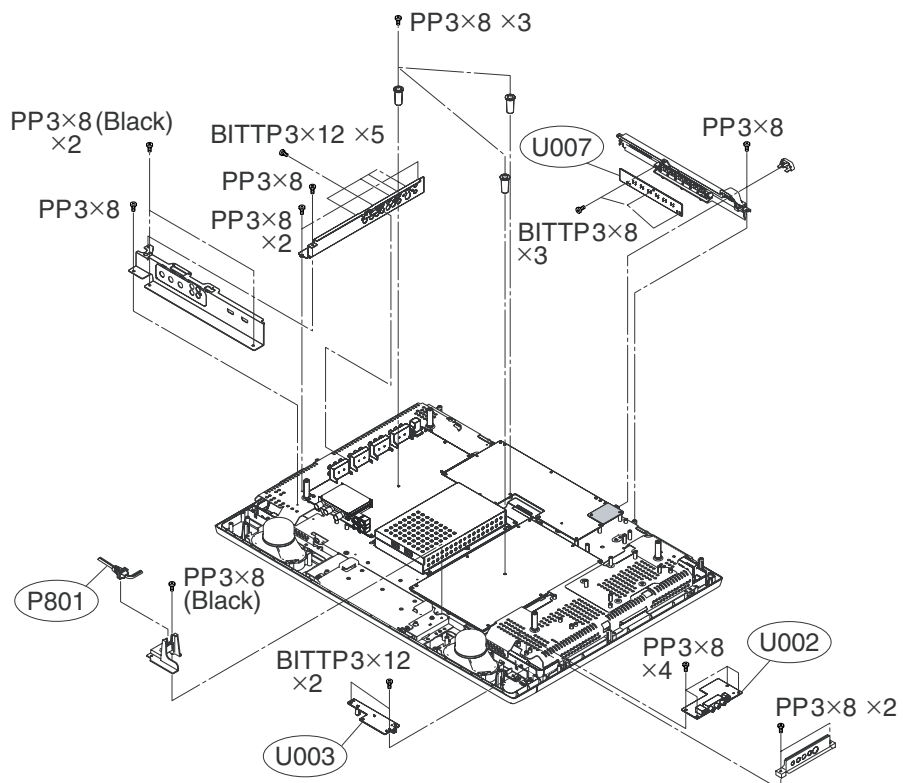


# MECHANICAL DISASSEMBLY

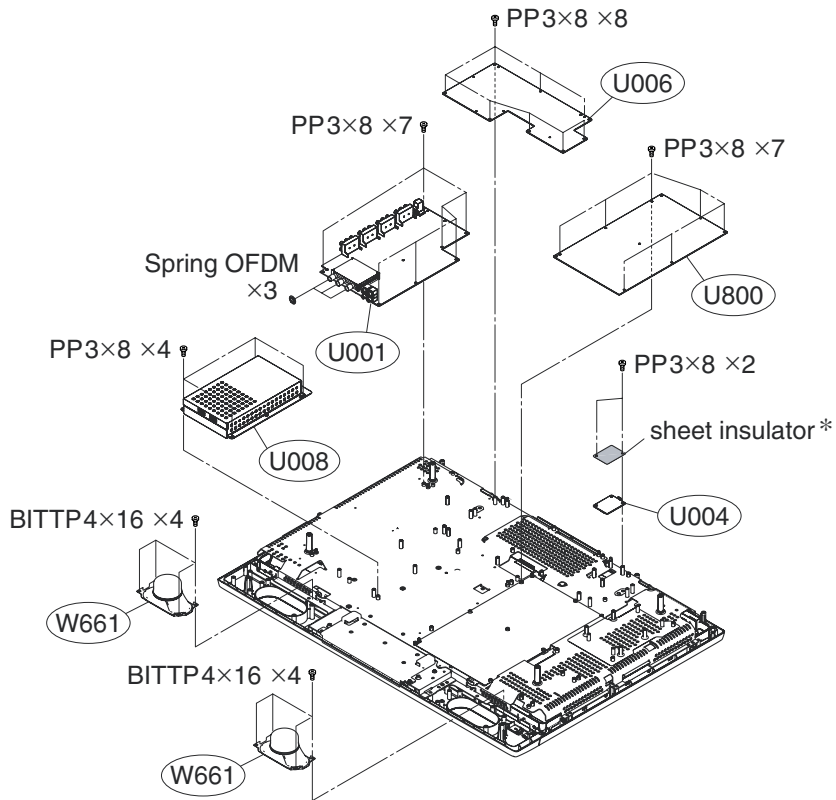
1. Remove the stand (foot) and back cover.



2. Remove the boards (FRONT AV, LED/REM) and piece key ass'y.

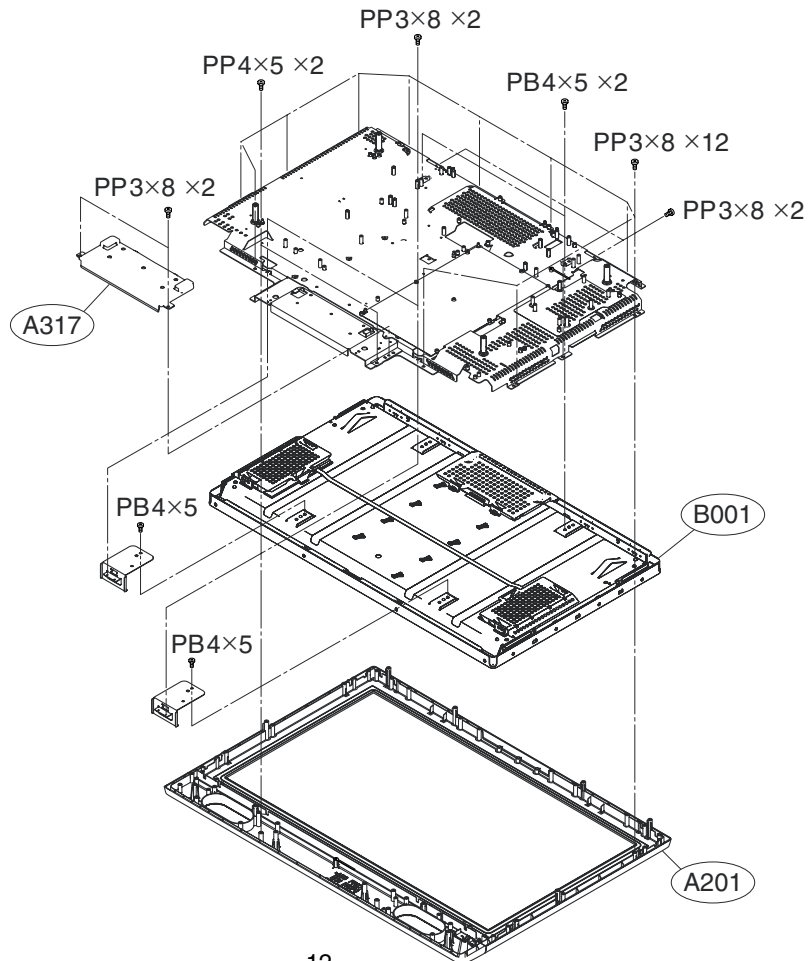


**3. Remove the boards (POWER SW, LOWB, SIGNAL, SCALER) and speaker.**



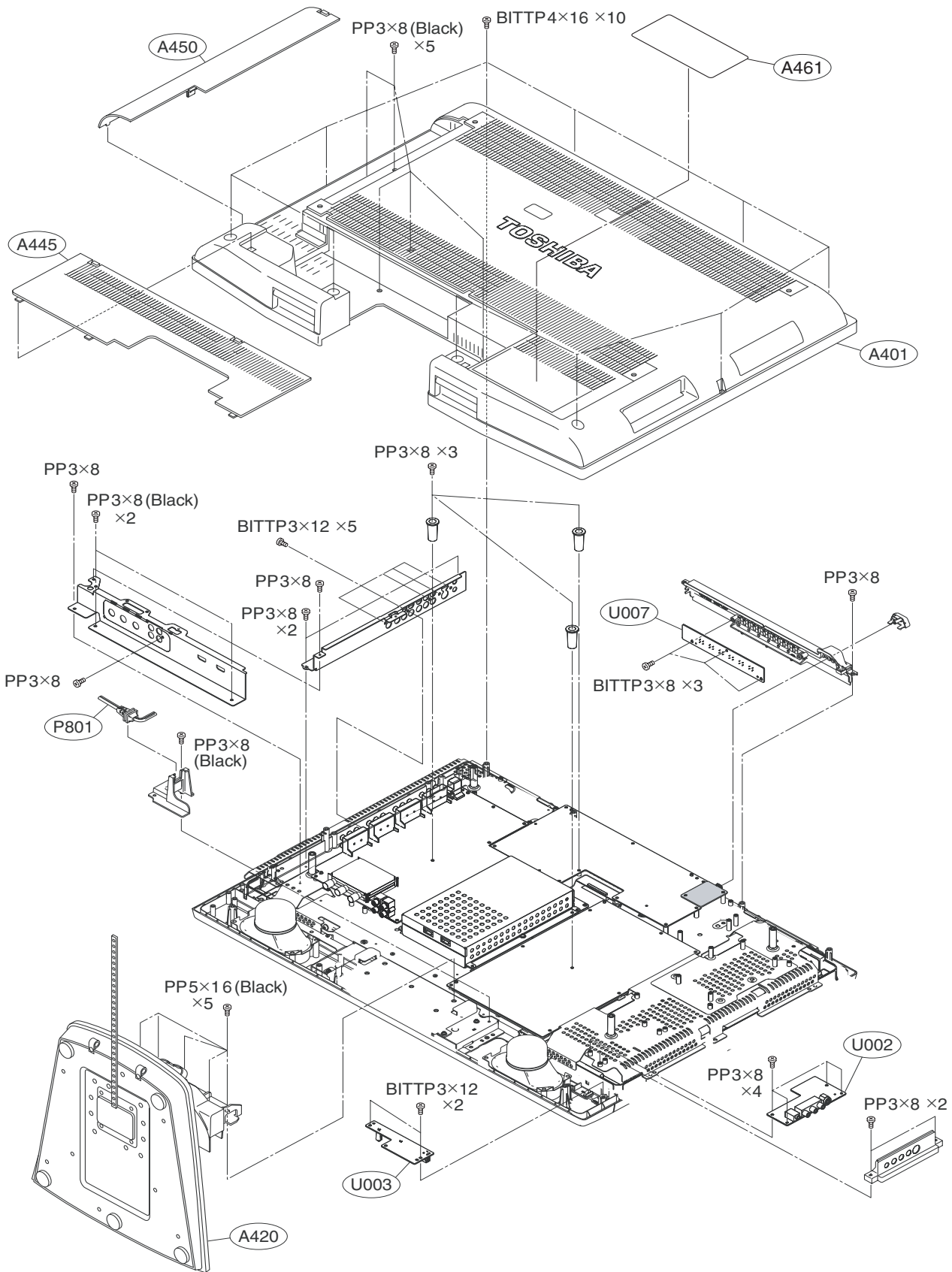
⚠ \* If a power sw board is touched, there is fear of the electric shock accident. Please be sure to do work after covering with sheet insulator.

**4. Remove the display.**

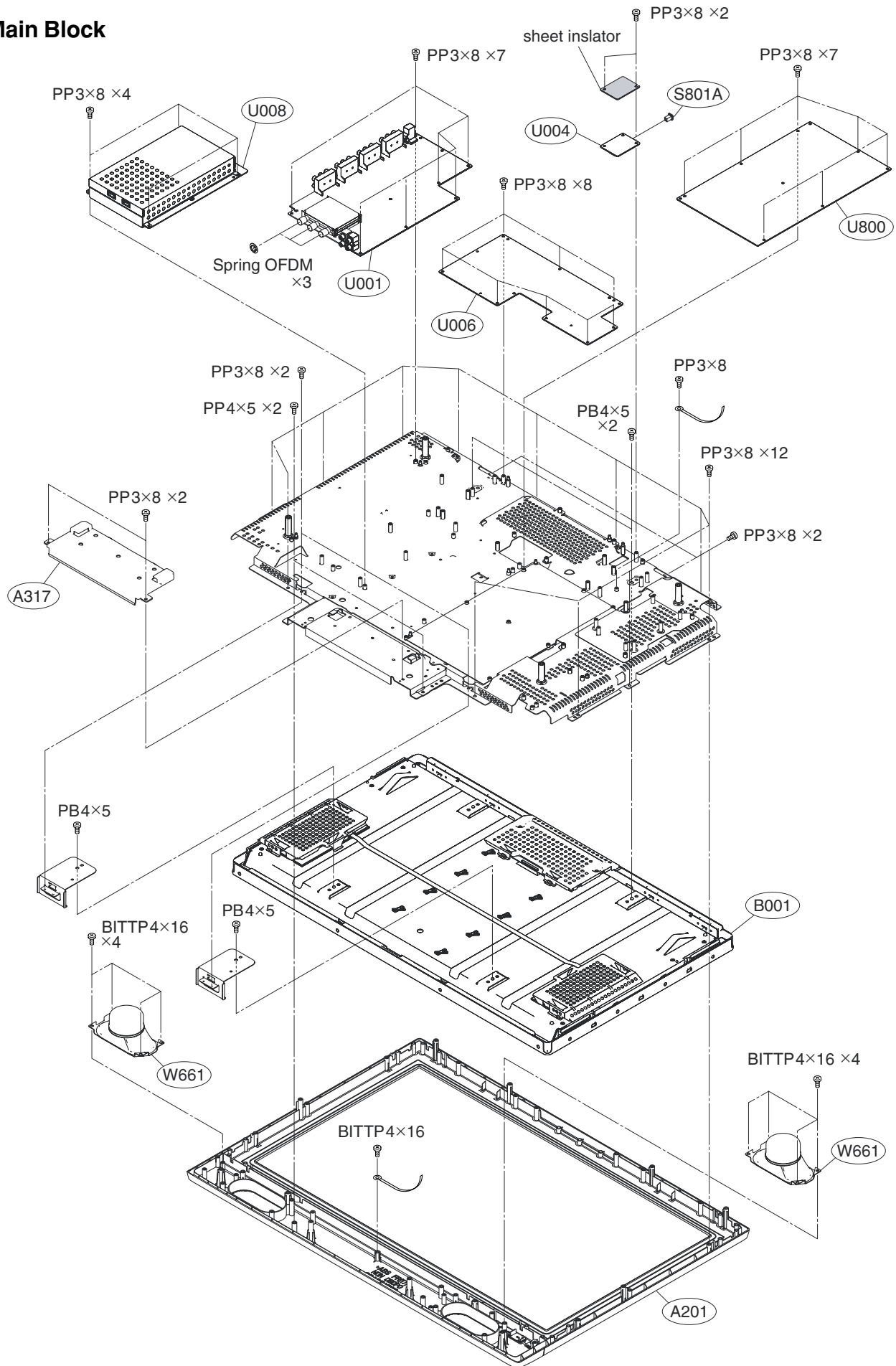


# EXPLODED VIEWS

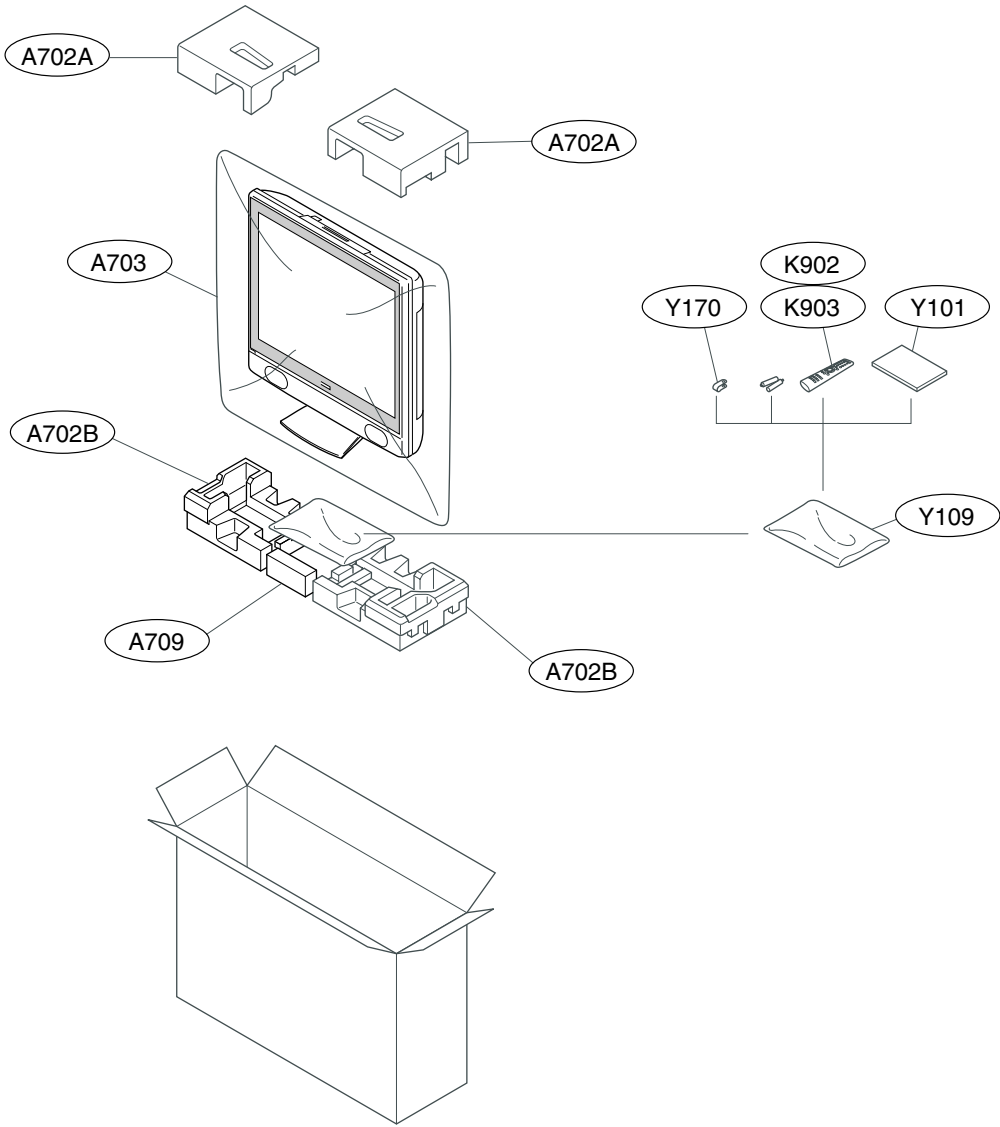
## 1. Chassis Block



## 2. Main Block



# PACKING DISASSEMBLY



## CHASSIS AND CABINET REPLACEMENT PARTS LIST

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

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

**NOTICE:**

- The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.
- The PC board assembly with \* mark is no longer available after the end of the production.

**Model : 32HLX84**

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	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
C103	24109102	CERAMIC CHIP, 50V B 1000PF K
C104	24619143	ELECTROLYTIC CHIP, 50V 4.7UF M
C105	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
C122	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
C161	24109102	CERAMIC CHIP, 50V B 1000PF K
C162	24105101	CERAMIC CHIP, 50V CH 100PF J
C164	24092730	CERAMIC CHIP, 16V B 0.1UF K
C6010	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6016	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6020	24109102	CERAMIC CHIP, 50V B 1000PF K
C6021	24109102	CERAMIC CHIP, 50V B 1000PF K
C6028	24109472	CERAMIC CHIP, 50V B 4700PF K
C6029	24109472	CERAMIC CHIP, 50V B 4700PF K
C6030	24619100	ELECTROLYTIC, 16V 10UF M
C6032	24619100	ELECTROLYTIC, 16V 10UF M
C6033	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6034	24619142	ELECTROLYTIC CHIP, 50V 3.3UF M
C6044	24092726	CERAMIC CHIP, 16V B 2.2UF K
C6045	24092726	CERAMIC CHIP, 16V B 2.2UF K
C6046	24619100	ELECTROLYTIC, 16V 10UF M
C6049	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C605	24109102	CERAMIC CHIP, 50V B 1000PF K
C6050	24105560	CERAMIC CHIP, 50V CH 56PF J
C6051	24105560	CERAMIC CHIP, 50V CH 56PF J
C6052	24105560	CERAMIC CHIP, 50V CH 56PF J
C6054	24105050	CERAMIC CHIP, 50V CH 5PF C
C6055	24105010	CERAMIC CHIP, 50V CK 1PF C
C606	24109102	CERAMIC CHIP, 50V B 1000PF K
C6070	24105470	CERAMIC CHIP, 50V CH 47PF J
C6071	24105470	CERAMIC CHIP, 50V CH 47PF J
C6072	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6073	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6075	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
C6078	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6079	24619097	ELECTROLYTIC, 6.3V 47UF M
C6080	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6081	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6082	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6083	24100104	CERAMIC CHIP, 25V F 0.1UF Z

Location No.	Parts No.	Description
C6084	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6085	24619097	ELECTROLYTIC, 6.3V 47UF M
C6086	24100104	CERAMIC CHIP, 25V F 0.1UF Z
C6088	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
C612	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
C613	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
C631	24619321	ELECTROLYTIC, 50V 47UF, 50SGV47M8X10.5
C632	24092731	CERAMIC CHIP, 16V B 1UF K
C651	24092463	CERAMIC CHIP, 16V B 0.22UF K
C652	24092463	CERAMIC CHIP, 16V B 0.22UF K
C653	24092538	CERAMIC CHIP, 10V F 1UF Z
C661	24109102	CERAMIC CHIP, 50V B 1000PF K
C662	24109102	CERAMIC CHIP, 50V B 1000PF K
C663	24619100	ELECTROLYTIC, 16V 10UF M
C665	24619142	ELECTROLYTIC CHIP, 50V 3.3UF M
C666	24619142	ELECTROLYTIC CHIP, 50V 3.3UF M
C671	24619143	ELECTROLYTIC CHIP, 50V 4.7UF M
C674	24619143	ELECTROLYTIC CHIP, 50V 4.7UF M
C677	24105181	CERAMIC CHIP, 50V CH 180PF J
C678	24105181	CERAMIC CHIP, 50V CH 180PF J
C680	24668102	ELECTROLYTIC, 35V 1000UF M 3A
C681	24668102	ELECTROLYTIC, 35V 1000UF M 3A
C682	24668102	ELECTROLYTIC, 35V 1000UF M 3A
C687	24590472	PLASTIC FILM, 50V 4700PF J
C688	24590472	PLASTIC FILM, 50V 4700PF J
C690	24815103	CERAMIC CHIP, 50V B 10000PF K
C694	24285104	CERAMIC CHIP, 50V B 0.1UF K
C696	24285104	CERAMIC CHIP, 50V B 0.1UF K
C820	24539474	PLASTIC FILM, 50V 0.47UF J
C822	24666470	ELECTROLYTIC, 16V 47UF M 3A
C823	24666470	ELECTROLYTIC, 16V 47UF M 3A
C834	24073042	ELECTROLYTIC, 16V 1000UF M 3A
C8340	24073042	ELECTROLYTIC, 16V 1000UF M 3A
C835	24666470	ELECTROLYTIC, 16V 47UF M 3A
C8351	24539104	PLASTIC FILM, 50V 0.1UF J
C837	24666470	ELECTROLYTIC, 16V 47UF M 3A
C838	24617028	ELECTROLYTIC, 16V 1200UF M
C839	24539474	PLASTIC FILM, 50V 0.47UF J
C841	24617041	ELECTROLYTIC, 25V 1500UF M
C844	24539104	PLASTIC FILM, 50V 0.1UF J
C870	24617041	ELECTROLYTIC, 25V 1500UF M



Location No.	Parts No.	Description
C871	24539104	PLASTIC FILM, 50V 0.1UF J
C874	24539104	PLASTIC FILM, 50V 0.1UF J
C875	24073007	ELECTROLYTIC, 6.3V 3300UF M 3A
C876	24617015	ELECTROLYTIC, 10V 2200UF M
CB01	24794470	ELECTROLYTIC, 16V 47UF M
CB51	24590103	PLASTIC FILM, 50V 0.01UF J
CB52	24794470	ELECTROLYTIC, 16V 47UF M
CB53	24503041	PLASTIC FILM , 63V 0.1UF J
CB54	24109221	CERAMIC CHIP, 50V B 220PF K
CB55	24797010	ELECTROLYTIC, 50V 1UF M
CB56	24794470	ELECTROLYTIC, 16V 47UF M
CB59	24590103	PLASTIC FILM, 50V 0.01UF J
CB60	24794100	ELECTROLYTIC, 16V 10UF M
CB61	24503041	PLASTIC FILM , 63V 0.1UF J
CC01	24109102	CERAMIC CHIP, 50V B 1000PF K
CC02	24109102	CERAMIC CHIP, 50V B 1000PF K
CC03	24109102	CERAMIC CHIP, 50V B 1000PF K
CC04	24109102	CERAMIC CHIP, 50V B 1000PF K
CC05	24109102	CERAMIC CHIP, 50V B 1000PF K
CC06	24109102	CERAMIC CHIP, 50V B 1000PF K
CC07	24109102	CERAMIC CHIP, 50V B 1000PF K
CC08	24109102	CERAMIC CHIP, 50V B 1000PF K
CC10	24109102	CERAMIC CHIP, 50V B 1000PF K
CC11	24109102	CERAMIC CHIP, 50V B 1000PF K
CC12	24109102	CERAMIC CHIP, 50V B 1000PF K
CC13	24109102	CERAMIC CHIP, 50V B 1000PF K
CC14	24109102	CERAMIC CHIP, 50V B 1000PF K
CC15	24109102	CERAMIC CHIP, 50V B 1000PF K
CC16	24109102	CERAMIC CHIP, 50V B 1000PF K
CC17	24109102	CERAMIC CHIP, 50V B 1000PF K
CC18	24109102	CERAMIC CHIP, 50V B 1000PF K
CC19	24109102	CERAMIC CHIP, 50V B 1000PF K
CS10	24092731	CERAMIC CHIP, 16V B 1UF K
CS11	24092731	CERAMIC CHIP, 16V B 1UF K
CS12	24109473	CERAMIC CHIP, 25V B 0.047UF K
CS13	24092726	CERAMIC CHIP, 16V B 2.2UF K
CS14	24092726	CERAMIC CHIP, 16V B 2.2UF K
CS15	24092731	CERAMIC CHIP, 16V B 1UF K
CS16	24092731	CERAMIC CHIP, 16V B 1UF K
CS40	24092538	CERAMIC CHIP, 10V F 1UF Z
CS41	24092538	CERAMIC CHIP, 10V F 1UF Z
CS42	24092538	CERAMIC CHIP, 10V F 1UF Z
CS43	24092538	CERAMIC CHIP, 10V F 1UF Z
CS44	24092538	CERAMIC CHIP, 10V F 1UF Z
CS45	24092538	CERAMIC CHIP, 10V F 1UF Z
CS46	24092538	CERAMIC CHIP, 10V F 1UF Z
CS47	24092538	CERAMIC CHIP, 10V F 1UF Z
CS48	24092538	CERAMIC CHIP, 10V F 1UF Z
CS49	24092538	CERAMIC CHIP, 10V F 1UF Z
CS50	24092538	CERAMIC CHIP, 10V F 1UF Z
CS501	24092731	CERAMIC CHIP, 16V B 1UF K
CS502	24092726	CERAMIC CHIP, 16V B 2.2UF K
CS503	24092731	CERAMIC CHIP, 16V B 1UF K
CS504	24105470	CERAMIC CHIP, 50V CH 47PF J
CS505	24105470	CERAMIC CHIP, 50V CH 47PF J
CS51	24092538	CERAMIC CHIP, 10V F 1UF Z
CS510	24092542	CERAMIC CHIP, 16V B 1UF K
CS52	24092538	CERAMIC CHIP, 10V F 1UF Z
CS53	24092538	CERAMIC CHIP, 10V F 1UF Z
CS54	24092538	CERAMIC CHIP, 10V F 1UF Z
CS55	24092538	CERAMIC CHIP, 10V F 1UF Z
CS56	24092538	CERAMIC CHIP, 10V F 1UF Z
CS57	24619102	ELECTROLYTIC, 16V 47UF M
CS64	24619101	ELECTROLYTIC, 16V 22UF M
CS82	24092538	CERAMIC CHIP, 10V F 1UF Z
CV01	24092621	CERAMIC CHIP, 10V B 1UF K

Location No.	Parts No.	Description
CV02	24092621	CERAMIC CHIP, 10V B 1UF K
CV03	24092621	CERAMIC CHIP, 10V B 1UF K
CV04	24100104	CERAMIC CHIP, 25V F 0.1UF Z
CV05	24092621	CERAMIC CHIP, 10V B 1UF K
CV06	24092621	CERAMIC CHIP, 10V B 1UF K
CV10	24100104	CERAMIC CHIP, 25V F 0.1UF Z
CV11	24092621	CERAMIC CHIP, 10V B 1UF K
CV121	24109103	CERAMIC CHIP, 50V B 0.01UF K
CV122	24105101	CERAMIC CHIP, 50V CH 100PF J
CV13	24100104	CERAMIC CHIP, 25V F 0.1UF Z
CV14	24092621	CERAMIC CHIP, 10V B 1UF K
CV15	24100104	CERAMIC CHIP, 25V F 0.1UF Z
CV245	24092621	CERAMIC CHIP, 10V B 1UF K
CV246	24092621	CERAMIC CHIP, 10V B 1UF K
CV247	24092621	CERAMIC CHIP, 10V B 1UF K
CV249	24092621	CERAMIC CHIP, 10V B 1UF K
CV250	24092621	CERAMIC CHIP, 10V B 1UF K
CV251	24092621	CERAMIC CHIP, 10V B 1UF K
CV38	24109102	CERAMIC CHIP, 50V B 1000PF K
CV39	24109102	CERAMIC CHIP, 50V B 1000PF K
CV47	24092621	CERAMIC CHIP, 10V B 1UF K
CV64	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
CV650	24619322	ELECTROLYTIC, 50V 100UF, 50SGV100M8X10.5
CV66	24100104	CERAMIC CHIP, 25V F 0.1UF Z
CV670	24619100	ELECTROLYTIC, 16V 10UF M
CV70	24619322	ELECTROLYTIC, 50V 100UF, 50SGV100M8X10.5
CV71	24092731	CERAMIC CHIP, 16V B 1UF K
CV72	24619101	ELECTROLYTIC, 16V 22UF M
CY102	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
CY103	24109102	CERAMIC CHIP, 50V B 1000PF K
CY108	24619102	ELECTROLYTIC, 16V 47UF M
CY133	24109393	CERAMIC CHIP, 25V B 0.039UF K
CY201	24092441	CERAMIC CHIP, 16V F 1UF Z
CY202	24619322	ELECTROLYTIC, 50V 100UF, 50SGV100M8X10.5
CY203	24100104	CERAMIC CHIP, 25V F 0.1UF Z
CY204	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY205	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY206	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY207	24619100	ELECTROLYTIC, 16V 10UF M
CY208	24100104	CERAMIC CHIP, 25V F 0.1UF Z
CY209	24105101	CERAMIC CHIP, 50V CH 100PF J
CY211	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY212	24105181	CERAMIC CHIP, 50V CH 180PF J
CY213	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY214	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY215	24105390	CERAMIC CHIP, 50V CH 39PF J
CY216	24105470	CERAMIC CHIP, 50V CH 47PF J
CY217	24105180	CERAMIC CHIP, 50V CH 18PF J
CY501	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY502	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY504	24109222	CERAMIC CHIP, 50V B 2200PF K
CY505	24105120	CERAMIC CHIP, 50V CH 12PF J
CY506	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY508	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY512	24092463	CERAMIC CHIP, 16V B 0.22UF K
CY513	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY514	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY515	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY516	24109103	CERAMIC CHIP, 50V B 0.01UF K
CY517	24092731	CERAMIC CHIP, 16V B 1UF K
CY524	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY525	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY526	24092730	CERAMIC CHIP, 16V B 0.1UF K
CY538	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
CY539	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
CY540	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5

Location No.	Parts No.	Description
CY541	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
CY542	24619313	ELECTROLYTIC, 16V 470UF, 16SGV470M8X10.5
CY582	24105101	CERAMIC CHIP, 50V CH 100PF J
CY650	24109103	CERAMIC CHIP, 50V B 0.01UF K
<b>RESISTORS</b>		
R103	24011101	CHIP, 1/20W 100 OHM J
R104	24011103	CHIP, 1/20W 10K OHM J
R105	24011273	CHIP, 1/20W 27K OHM J
R107	24000445	CHIP JUMPER, 1608TYPE
R108	24000445	CHIP JUMPER, 1608TYPE
R110	24011682	CHIP, 1/20W 6.8K OHM J
R114	24000445	CHIP JUMPER, 1608TYPE
R150	24011222	CHIP, 1/20W 2.2K OHM J
R151	24011562	CHIP, 1/20W 5.6K OHM J
R152	24011103	CHIP, 1/20W 10K OHM J
R153	24011223	CHIP, 1/20W 22K OHM J
R161	24011102	CHIP, 1/20W 1K OHM J
R165	24011392	CHIP, 1/20W 3.9K OHM J
R166	24011472	CHIP, 1/20W 4.7K OHM J
R167	24011101	CHIP, 1/20W 100 OHM J
R168	24011101	CHIP, 1/20W 100 OHM J
R264	24871750	CHIP, 1/8W 75 OHM J
R265	24871750	CHIP, 1/8W 75 OHM J
R266	24871750	CHIP, 1/8W 75 OHM J
R286	24871750	CHIP, 1/8W 75 OHM J
R287	24871750	CHIP, 1/8W 75 OHM J
R288	24871750	CHIP, 1/8W 75 OHM J
R347	24011101	CHIP, 1/20W 100 OHM J
R348	24011101	CHIP, 1/20W 100 OHM J
R6003	24011101	CHIP, 1/20W 100 OHM J
R6004	24011101	CHIP, 1/20W 100 OHM J
R6005	24011101	CHIP, 1/20W 100 OHM J
R6006	24011101	CHIP, 1/20W 100 OHM J
R6016	24011104	CHIP, 1/20W 100K OHM J
R6020	24011101	CHIP, 1/20W 100 OHM J
R6021	24011101	CHIP, 1/20W 100 OHM J
R6028	24011101	CHIP, 1/20W 100 OHM J
R6029	24011101	CHIP, 1/20W 100 OHM J
R6031	24871150	CHIP, 1/8W 15 OHM J
R6044	24011471	CHIP, 1/20W 470 OHM J
R6045	24011101	CHIP, 1/20W 100 OHM J
R6050	24000445	CHIP JUMPER, 1608TYPE
R6060	24011102	CHIP, 1/20W 1K OHM J
R6061	24011102	CHIP, 1/20W 1K OHM J
R6062	24000445	CHIP JUMPER, 1608TYPE
R6071	24011102	CHIP, 1/20W 1K OHM J
R6072	24011101	CHIP, 1/20W 100 OHM J
R6073	24011223	CHIP, 1/20W 22K OHM J
R6074	24011101	CHIP, 1/20W 100 OHM J
R6075	24011101	CHIP, 1/20W 100 OHM J
R6077	24011223	CHIP, 1/20W 22K OHM J
R6078	24000445	CHIP JUMPER, 1608TYPE
R6080	24011101	CHIP, 1/20W 100 OHM J
R6081	24011472	CHIP, 1/20W 4.7K OHM J
R6082	24011472	CHIP, 1/20W 4.7K OHM J
R620	24011223	CHIP, 1/20W 22K OHM J
R621	24011472	CHIP, 1/20W 4.7K OHM J
R650	24011102	CHIP, 1/20W 1K OHM J
R651	24011473	CHIP, 1/20W 47K OHM J
R652	24011103	CHIP, 1/20W 10K OHM J
R653	24011223	CHIP, 1/20W 22K OHM J
R654	24011103	CHIP, 1/20W 10K OHM J
R655	24011222	CHIP, 1/20W 2.2K OHM J
R664	24011104	CHIP, 1/20W 100K OHM J
R665	24011104	CHIP, 1/20W 100K OHM J

Location No.	Parts No.	Description
R667	24011104	CHIP, 1/20W 100K OHM J
R670	24011682	CHIP, 1/20W 6.8K OHM J
R671	24011152	CHIP, 1/20W 1.5K OHM J
R672	24011682	CHIP, 1/20W 6.8K OHM J
R673	24011152	CHIP, 1/20W 1.5K OHM J
R675	24011102	CHIP, 1/20W 1K OHM J
R676	24011473	CHIP, 1/20W 47K OHM J
R677	24011473	CHIP, 1/20W 47K OHM J
R680	24011332	CHIP, 1/20W 3.3K OHM J
R681	24011332	CHIP, 1/20W 3.3K OHM J
R684	24871229	CHIP, 1/8W 2.2 OHM J
R685	24871229	CHIP, 1/8W 2.2 OHM J
R687	24871102	CHIP, 1/8W 1K OHM J
R688	24871102	CHIP, 1/8W 1K OHM J
R689	24871102	CHIP, 1/8W 1K OHM J
R690	24871102	CHIP, 1/8W 1K OHM J
R691	24871102	CHIP, 1/8W 1K OHM J
R692	24871102	CHIP, 1/8W 1K OHM J
R697	24000576	CHIP JUMPER, 3216TYPE
R820	24367101	CARBON FILM, 1/6W 100 OHM G
R821	24367202	CARBON FILM, 1/6W 2K OHM G
R835	24367330	CARBON FILM, 1/6W 33 OHM G
R838	24367180	CARBON FILM, 1/6W 18 OHM G
R839	24011102	CHIP, 1/20W 1K OHM J
R845	24367222	CARBON FILM, 1/6W 2.2K OHM G
R848	24366822	CARBON FILM, 1/6W 8.2K OHM J
R853	24367122	CARBON FILM, 1/6W 1.2K OHM G
R870	24000164	METAL FILM, 1/4W 39 OHM F
R871	24000356	METAL FILM, 1/4W 820 OHM F
R872	24011102	CHIP, 1/20W 1K OHM J
R896	24011473	CHIP, 1/20W 47K OHM J
RA71	24011273	CHIP, 1/20W 27K OHM J
RA72	24011153	CHIP, 1/20W 15K OHM J
RA73	24011822	CHIP, 1/20W 8.2K OHM J
RA75	24011822	CHIP, 1/20W 8.2K OHM J
RA76	24011153	CHIP, 1/20W 15K OHM J
RB01	24011391	CHIP, 1/20W 390 OHM J
RB04	24011473	CHIP, 1/20W 47K OHM J
RB05	24011102	CHIP, 1/20W 1K OHM J
RB15	24011471	CHIP, 1/20W 470 OHM J
RB19	24011470	CHIP, 1/20W 47 OHM J
RB51	24011224	CHIP, 1/20W 220K OHM J
RB52	24011123	CHIP, 1/20W 12K OHM J
RB53	24011123	CHIP, 1/20W 12K OHM J
RB54	24011123	CHIP, 1/20W 12K OHM J
RB55	24011224	CHIP, 1/20W 220K OHM J
RB56	24011151	CHIP, 1/20W 150 OHM J
RB57	24011103	CHIP, 1/20W 10K OHM J
RB58	24011103	CHIP, 1/20W 10K OHM J
RB59	24011122	CHIP, 1/20W 1.2K OHM J
RB60	24011224	CHIP, 1/20W 220K OHM J
RB62	24011272	CHIP, 1/20W 2.7K OHM J
RB63	24011271	CHIP, 1/20W 270 OHM J
RB67	24011221	CHIP, 1/20W 220 OHM J
RB69	24011272	CHIP, 1/20W 2.7K OHM J
RB70	24011331	CHIP, 1/20W 330 OHM J
RB71	24019112	CHIP, METAL FILM, 1/8W 1 OHM F
RB72	24011220	CHIP, 1/20W 22 OHM J
RB73	24011560	CHIP, 1/20W 56 OHM J
RC01	24011821	CHIP, 1/20W 820 OHM J
RC02	24011821	CHIP, 1/20W 820 OHM J
RC03	24011821	CHIP, 1/20W 820 OHM J
RC04	24011821	CHIP, 1/20W 820 OHM J
RC05	24011821	CHIP, 1/20W 820 OHM J
RC06	24011821	CHIP, 1/20W 820 OHM J
RC07	24011821	CHIP, 1/20W 820 OHM J

Location No.	Parts No.	Description
RC08	24011821	CHIP, 1/20W 820 OHM J
RC09	24011821	CHIP, 1/20W 820 OHM J
RC10	24011821	CHIP, 1/20W 820 OHM J
RC11	24011821	CHIP, 1/20W 820 OHM J
RC12	24011821	CHIP, 1/20W 820 OHM J
RC13	24011821	CHIP, 1/20W 820 OHM J
RC14	24011821	CHIP, 1/20W 820 OHM J
RS16	24011473	CHIP, 1/20W 47K OHM J
RS17	24011473	CHIP, 1/20W 47K OHM J
RS18	24011103	CHIP, 1/20W 10K OHM J
RS19	24011104	CHIP, 1/20W 100K OHM J
RS20	24011104	CHIP, 1/20W 100K OHM J
RS25	24011101	CHIP, 1/20W 100 OHM J
RS26	24011101	CHIP, 1/20W 100 OHM J
RS27	24011222	CHIP, 1/20W 2.2K OHM J
RS28	24011222	CHIP, 1/20W 2.2K OHM J
RS29	24011102	CHIP, 1/20W 1K OHM J
RS30	24011102	CHIP, 1/20W 1K OHM J
RS31	24011104	CHIP, 1/20W 100K OHM J
RS32	24011104	CHIP, 1/20W 100K OHM J
RS33	24011473	CHIP, 1/20W 47K OHM J
RS34	24011473	CHIP, 1/20W 47K OHM J
RS35	24011104	CHIP, 1/20W 100K OHM J
RS40	24011472	CHIP, 1/20W 4.7K OHM J
RS41	24011472	CHIP, 1/20W 4.7K OHM J
RS42	24011472	CHIP, 1/20W 4.7K OHM J
RS43	24011472	CHIP, 1/20W 4.7K OHM J
RS44	24011472	CHIP, 1/20W 4.7K OHM J
RS45	24011472	CHIP, 1/20W 4.7K OHM J
RS46	24011472	CHIP, 1/20W 4.7K OHM J
RS47	24011472	CHIP, 1/20W 4.7K OHM J
RS48	24011472	CHIP, 1/20W 4.7K OHM J
RS49	24011472	CHIP, 1/20W 4.7K OHM J
RS50	24011472	CHIP, 1/20W 4.7K OHM J
RS500	24011473	CHIP, 1/20W 47K OHM J
RS501	24011103	CHIP, 1/20W 10K OHM J
RS504	24011103	CHIP, 1/20W 10K OHM J
RS505	24011473	CHIP, 1/20W 47K OHM J
RS506	24011222	CHIP, 1/20W 2.2K OHM J
RS507	24011222	CHIP, 1/20W 2.2K OHM J
RS51	24011472	CHIP, 1/20W 4.7K OHM J
RS515	24011332	CHIP, 1/20W 3.3K OHM J
RS516	24011473	CHIP, 1/20W 47K OHM J
RS517	24011473	CHIP, 1/20W 47K OHM J
RS52	24011472	CHIP, 1/20W 4.7K OHM J
RS53	24011472	CHIP, 1/20W 4.7K OHM J
RS54	24011101	CHIP, 1/20W 100 OHM J
RS55	24011822	CHIP, 1/20W 8.2K OHM J
RS56	24011822	CHIP, 1/20W 8.2K OHM J
RS58	24011101	CHIP, 1/20W 100 OHM J
RS59	24011101	CHIP, 1/20W 100 OHM J
RS60	24011101	CHIP, 1/20W 100 OHM J
RS61	24011101	CHIP, 1/20W 100 OHM J
RS64	24011682	CHIP, 1/20W 6.8K OHM J
RS65	24011182	CHIP, 1/20W 1.8K OHM J
RS66	24011100	CHIP, 1/20W 10 OHM J
RS78	24011102	CHIP, 1/20W 1K OHM J
RS81	24011102	CHIP, 1/20W 1K OHM J
RS82	24011101	CHIP, 1/20W 100 OHM J
RS87	24011101	CHIP, 1/20W 100 OHM J
RS88	24011101	CHIP, 1/20W 100 OHM J
RS92	24011104	CHIP, 1/20W 100K OHM J
RS93	24011104	CHIP, 1/20W 100K OHM J
RV001	24011102	CHIP, 1/20W 1K OHM J
RV002	24011101	CHIP, 1/20W 100 OHM J
RV003	24011102	CHIP, 1/20W 1K OHM J

Location No.	Parts No.	Description
RV004	24011101	CHIP, 1/20W 100 OHM J
RV005	24011102	CHIP, 1/20W 1K OHM J
RV006	24011101	CHIP, 1/20W 100 OHM J
RV007	24011102	CHIP, 1/20W 1K OHM J
RV008	24011101	CHIP, 1/20W 100 OHM J
RV01	24011101	CHIP, 1/20W 100 OHM J
RV03	24011101	CHIP, 1/20W 100 OHM J
RV06	24011101	CHIP, 1/20W 100 OHM J
RV07	24011562	CHIP, 1/20W 5.6K OHM J
RV08	24011101	CHIP, 1/20W 100 OHM J
RV09	24011101	CHIP, 1/20W 100 OHM J
RV10	24011101	CHIP, 1/20W 100 OHM J
RV11	24011101	CHIP, 1/20W 100 OHM J
RV12	24011101	CHIP, 1/20W 100 OHM J
RV121	24872750	CHIP, 1/16W 75 OHM J
RV122	24872750	CHIP, 1/16W 75 OHM J
RV123	24872750	CHIP, 1/16W 75 OHM J
RV129	24011101	CHIP, 1/20W 100 OHM J
RV14	24011562	CHIP, 1/20W 5.6K OHM J
RV147	24011101	CHIP, 1/20W 100 OHM J
RV148	24011101	CHIP, 1/20W 100 OHM J
RV15	24011101	CHIP, 1/20W 100 OHM J
RV17	24011101	CHIP, 1/20W 100 OHM J
RV19	24011101	CHIP, 1/20W 100 OHM J
RV21	24011562	CHIP, 1/20W 5.6K OHM J
RV22	24011101	CHIP, 1/20W 100 OHM J
RV23	24011222	CHIP, 1/20W 2.2K OHM J
RV24	24011222	CHIP, 1/20W 2.2K OHM J
RV32	24011104	CHIP, 1/20W 100K OHM J
RV323	24011101	CHIP, 1/20W 100 OHM J
RV324	24011101	CHIP, 1/20W 100 OHM J
RV325	24011101	CHIP, 1/20W 100 OHM J
RV33	24011104	CHIP, 1/20W 100K OHM J
RV330	24871750	CHIP, 1/8W 75 OHM J
RV34	24011104	CHIP, 1/20W 100K OHM J
RV340	24871750	CHIP, 1/8W 75 OHM J
RV346	24011101	CHIP, 1/20W 100 OHM J
RV35	24871750	CHIP, 1/8W 75 OHM J
RV36	24871750	CHIP, 1/8W 75 OHM J
RV37	24011101	CHIP, 1/20W 100 OHM J
RV370	24871750	CHIP, 1/8W 75 OHM J
RV376	24000445	CHIP JUMPER, 1608TYPE
RV377	24000445	CHIP JUMPER, 1608TYPE
RV38	24011562	CHIP, 1/20W 5.6K OHM J
RV40	24871750	CHIP, 1/8W 75 OHM J
RV66	24872750	CHIP, 1/16W 75 OHM J
RY103	24011101	CHIP, 1/20W 100 OHM J
RY104	24011103	CHIP, 1/20W 10K OHM J
RY105	24011273	CHIP, 1/20W 27K OHM J
RY107	24000445	CHIP JUMPER, 1608TYPE
RY108	24000445	CHIP JUMPER, 1608TYPE
RY134	24011222	CHIP, 1/20W 2.2K OHM J
RY135	24011101	CHIP, 1/20W 100 OHM J
RY136	24011101	CHIP, 1/20W 100 OHM J
RY201	24011101	CHIP, 1/20W 100 OHM J
RY202	24011221	CHIP, 1/20W 220 OHM J
RY203	24011102	CHIP, 1/20W 1K OHM J
RY204	24011102	CHIP, 1/20W 1K OHM J
RY205	24011821	CHIP, 1/20W 820 OHM J
RY206	24000445	CHIP JUMPER, 1608TYPE
RY207	24011222	CHIP, 1/20W 2.2K OHM J
RY209	24011332	CHIP, 1/20W 3.3K OHM J
RY210	24011152	CHIP, 1/20W 1.5K OHM J
RY501	24011303	CHIP, 1/20W 30K OHM J
RY502	24011103	CHIP, 1/20W 10K OHM J
RY504	24011103	CHIP, 1/20W 10K OHM J

Location No.	Parts No.	Description
RY505	24011123	CHIP, 1/20W 12K OHM J
RY507	24011102	CHIP, 1/20W 1K OHM J
RY508	24011222	CHIP, 1/20W 2.2K OHM J
RY509	24011472	CHIP, 1/20W 4.7K OHM J
RY510	24011152	CHIP, 1/20W 1.5K OHM J
RY511	24011222	CHIP, 1/20W 2.2K OHM J
RY512	24011222	CHIP, 1/20W 2.2K OHM J
RY513	24011152	CHIP, 1/20W 1.5K OHM J
RY516	24011472	CHIP, 1/20W 4.7K OHM J
RY517	24011472	CHIP, 1/20W 4.7K OHM J
RY518	24011472	CHIP, 1/20W 4.7K OHM J
RY519	24000445	CHIP JUMPER, 1608TYPE
RY520	24011101	CHIP, 1/20W 100 OHM J
RY521	24011101	CHIP, 1/20W 100 OHM J
RY523	24011332	CHIP, 1/20W 3.3K OHM J
RY524	24011182	CHIP, 1/20W 1.8K OHM J
RY525	24011222	CHIP, 1/20W 2.2K OHM J
RY526	24011222	CHIP, 1/20W 2.2K OHM J
RY527	24011222	CHIP, 1/20W 2.2K OHM J
RY528	24011222	CHIP, 1/20W 2.2K OHM J
RY529	24011102	CHIP, 1/20W 1K OHM J
RY530	24011102	CHIP, 1/20W 1K OHM J
RY531	24011102	CHIP, 1/20W 1K OHM J
RY532	24011101	CHIP, 1/20W 100 OHM J
RY533	24011102	CHIP, 1/20W 1K OHM J
RY534	24011102	CHIP, 1/20W 1K OHM J
RY541	24011682	CHIP, 1/20W 6.8K OHM J
RY542	24011392	CHIP, 1/20W 3.9K OHM J
RY543	24011152	CHIP, 1/20W 1.5K OHM J
RY545	24011101	CHIP, 1/20W 100 OHM J
RY548	24011102	CHIP, 1/20W 1K OHM J
RY550	24011332	CHIP, 1/20W 3.3K OHM J
RY551	24011182	CHIP, 1/20W 1.8K OHM J
RY552	24011152	CHIP, 1/20W 1.5K OHM J
RY560	24011332	CHIP, 1/20W 3.3K OHM J
RY561	24011471	CHIP, 1/20W 470 OHM J
RY570	24000445	CHIP JUMPER, 1608TYPE
RY571	24000445	CHIP JUMPER, 1608TYPE
RY572	24000445	CHIP JUMPER, 1608TYPE
RY573	24011102	CHIP, 1/20W 1K OHM J
RY575	24011103	CHIP, 1/20W 10K OHM J
RY576	24011123	CHIP, 1/20W 12K OHM J
RY578	24011332	CHIP, 1/20W 3.3K OHM J
RY580	24011101	CHIP, 1/20W 100 OHM J
RY582	24011332	CHIP, 1/20W 3.3K OHM J
RY583	24011102	CHIP, 1/20W 1K OHM J
RY584	24011101	CHIP, 1/20W 100 OHM J
RY585	24011103	CHIP, 1/20W 10K OHM J
RY586	24000445	CHIP JUMPER, 1608TYPE
RY587	24000445	CHIP JUMPER, 1608TYPE
RY588	24000445	CHIP JUMPER, 1608TYPE
RY589	24000445	CHIP JUMPER, 1608TYPE
RY590	24011103	CHIP, 1/20W 10K OHM J
RY593	24000445	CHIP JUMPER, 1608TYPE
RY594	24000445	CHIP JUMPER, 1608TYPE
RY595	24000445	CHIP JUMPER, 1608TYPE
RY596	24000445	CHIP JUMPER, 1608TYPE
RY597	24000445	CHIP JUMPER, 1608TYPE
<b>COIL &amp; TRANSFORMERS</b>		
L101	23248296	COIL, CHOKE, TLN3278GH
L102	23103828	INDUCTOR, BEAD, TEM2121M
L103	23103828	INDUCTOR, BEAD, TEM2121M
L6001	23103825	INDUCTOR, BEAD, TEM2118M
L6002	23103825	INDUCTOR, BEAD, TEM2118M
L6003	23103825	INDUCTOR, BEAD, TEM2118M

Location No.	Parts No.	Description
L6004	23103825	INDUCTOR, BEAD, TEM2118M
L6005	23103825	INDUCTOR, BEAD, TEM2118M
L6006	23103828	INDUCTOR, BEAD, TEM2121M
L6007	23103828	INDUCTOR, BEAD, TEM2121M
L6010	23103828	INDUCTOR, BEAD, TEM2121M
L6011	23103828	INDUCTOR, BEAD, TEM2121M
L833	23248236	COIL, CHOKE, TLN3441AF
L8330	23248236	COIL, CHOKE, TLN3441AF
L835	23248341	COIL, CHOKE, TLN3533AH
L836	23280018	COIL, PEAKING, TRF4220AZ
L839	23280016	COIL, PEAKING, TRF4100AZ
L870	23248257	COIL, CHOKE, TLN3503AH
L871	23280019	COIL, PEAKING, TRF4330AZ
L873	23248235	COIL, CHOKE, TLN3462AF
LB51	23246004	COIL, CHIP INDUCTER, TRF4R10CC
LC01	23103828	INDUCTOR, BEAD, TEM2121M
LC02	23103828	INDUCTOR, BEAD, TEM2121M
LC03	23103828	INDUCTOR, BEAD, TEM2121M
LC04	23103828	INDUCTOR, BEAD, TEM2121M
LV13	23246253	INDUCTOR, CHIP, TRF4100CN
LY012	23246253	INDUCTOR, CHIP, TRF4100CN
LY101	23248296	COIL, CHOKE, TLN3278GH
LY102	23103828	INDUCTOR, BEAD, TEM2121M
LY103	23103828	INDUCTOR, BEAD, TEM2121M
LY200	23246223	COIL, CHIP INDUCTOR, TRF4330CG
LY201	23103827	INDUCTOR, BEAD, TEM2120M
LY202	23103827	INDUCTOR, BEAD, TEM2120M
LY203	23103230	INDUCTOR, BEAD, TEM2134AD
LY204	23246219	COIL, CHIP INDUCTOR, TRF4150CG
LY205	23246222	COIL, CHIP INDUCTOR, TRF4270CG
LY212	23103230	INDUCTOR, BEAD, TEM2134AD
LY501	23246253	INDUCTOR, CHIP, TRF4100CN
LY503	23246253	INDUCTOR, CHIP, TRF4100CN
<b>SEMICONDUCTORS</b>		
D6001	23316231	DIODE, 1SS355
D607	23316628	DIODE, ZENER, MA8330-M, TX
D611	23316231	DIODE, 1SS355
D612	23316231	DIODE, 1SS355
D613	23316231	DIODE, 1SS355
D614	23316231	DIODE, 1SS355
D615	23316231	DIODE, 1SS355
D618	23316231	DIODE, 1SS355
D640	23316231	DIODE, 1SS355
D641	23316231	DIODE, 1SS355
D674	23316231	DIODE, 1SS355
D675	23316231	DIODE, 1SS355
D810	23316669	DIODE, ZENER, MTZJ5.1B
D820	23118213	DIODE, RK44,
D832	23316819	DIODE, RU4YX
D833	23118213	DIODE, RK44,
D835	23316637	DIODE, SCHOTTKY, FMB-G14L
D844	23118859	DIODE, 1SS133
D846	23316782	DIODE, ZENER, MTZJ6.2C
D870	23316637	DIODE, SCHOTTKY, FMB-G14L
D872	23316664	DIODE, ZENER, MTZJ4.3 C
D873	23118859	DIODE, 1SS133
DB01	23358564	DIODE, LED, SLR-56VC3FPQ
DB03	23358522	DIODE, LED, SIR-56SB3F
DB51	23358573	PHOTO DIODE, PIN 940NM HPI-2FER4
DB52	23316231	DIODE, 1SS355
DB54	23316231	DIODE, 1SS355
DB76	23118041	DIODE, MA111
DS102	23316571	DIODE, ZENER, MA8056-M
DV07	23316577	DIODE, ZENER, MA8068-M
DV120	23118529	DIODE, ZENER, RD5.6ES B2

Location No.	Parts No.	Description
DV14	23316577	DIODE, ZENER, MA8068-M
KB01	23000852	IC, REMOCON RECEIVER, PIC-37043TE2
Q101	23314993	TRANSISTOR, 2SC4081 Q
Q151	23314994	TRANSISTOR, 2SA1576A106
Q152	23314993	TRANSISTOR, 2SC4081 Q
Q161	23314993	TRANSISTOR, 2SC4081 Q
Q6001	23009934	IC, NTSC SOUND DEC QFP64 MSP3441G-QI-C12-10
Q6002	23009933	IC, DIGITAL AUD DELAY SOP8 NJU26901E2
Q6004	23085124	IC, DIGITAL IC TC7SH32FU(TE85L,F)
Q6005	23085124	IC, DIGITAL IC TC7SH32FU(TE85L,F)
Q6006	23085124	IC, DIGITAL IC TC7SH32FU(TE85L,F)
Q6007	23906951	IC, SN74AHCT1G32DCK
Q6008	23009114	IC, BD4746G
Q6009	23114499	TRANSISTOR, RN1404
Q610	23085039	IC, TA8246AHQ
Q612	23314163	TRANSISTOR, 2SA1162-Y
Q620	23314993	TRANSISTOR, 2SC4081 Q
Q621	23314993	TRANSISTOR, 2SC4081 Q
Q622	23314993	TRANSISTOR, 2SC4081 Q
Q671	70114396	TRANSISTOR, 2SC3326B
Q672	70114396	TRANSISTOR, 2SC3326B
Q820	23000805	IC, SI-3033CA(LF1101)
Q823	23114498	TRANSISTOR, RN1405
Q824	23114498	TRANSISTOR, RN1405
Q825	23114500	TRANSISTOR, RN1403
Q829	23904163	IC, SI-3090CA
Q835	23000546	IC, SI-8050SS
Q870	23000806	IC, SI-8033SS
QB01	23314475	TRANSISTOR, 2SC2712-Y
QB51	23319808	IC, M5218AP
QB52	23314475	TRANSISTOR, 2SC2712-Y
QB53	23314994	TRANSISTOR, 2SA1576A106
QB54	23314994	TRANSISTOR, 2SA1576A106
QS01	23009916	IC, MM1631AJBE
QS03	70114396	TRANSISTOR, 2SC3326B
QS04	70114396	TRANSISTOR, 2SC3326B
QS05	23114493	TRANSISTOR, RN2404
QS08	23314993	TRANSISTOR, 2SC4081 Q
QS09	23314993	TRANSISTOR, 2SC4081 Q
QS10	70114396	TRANSISTOR, 2SC3326B
QS102	23318820	IC, OPE AMP, BA10358F
QS11	70114396	TRANSISTOR, 2SC3326B
QS19	23314993	TRANSISTOR, 2SC4081 Q
QV004	23314993	TRANSISTOR, 2SC4081 Q
QV005	23314993	TRANSISTOR, 2SC4081 Q
QV006	23314993	TRANSISTOR, 2SC4081 Q
QV007	23314993	TRANSISTOR, 2SC4081 Q
QV01	23009940	IC, MM1630AQ
QV12	23009418	IC, MM1505XNRE
QV91	23314994	TRANSISTOR, 2SA1576A106
QY101	23314993	TRANSISTOR, 2SC4081 Q
QY132	23314994	TRANSISTOR, 2SA1576A106
QY200	23906515	IC, TC90A45F
QY201	23314993	TRANSISTOR, 2SC4081 Q
QY202	23314993	TRANSISTOR, 2SC4081 Q
QY203	23314994	TRANSISTOR, 2SA1576A106
QY501	23009929	IC, TA1383FG(DRY,EL)
QY502	23205014	TRANSISTOR, 2SC4667-O
QY503	23314994	TRANSISTOR, 2SA1576A106
QY504	23314994	TRANSISTOR, 2SA1576A106
QY507	23314993	TRANSISTOR, 2SC4081 Q
QY508	23314993	TRANSISTOR, 2SC4081 Q
QY509	23314993	TRANSISTOR, 2SC4081 Q
QY511	23314994	TRANSISTOR, 2SA1576A106
QY512	23314994	TRANSISTOR, 2SA1576A106
QY513	23314994	TRANSISTOR, 2SA1576A106

Location No.	Parts No.	Description
QY514	23314994	TRANSISTOR, 2SA1576A106
QY515	23314994	TRANSISTOR, 2SA1576A106
QY516	23314994	TRANSISTOR, 2SA1576A106
QY518	23314993	TRANSISTOR, 2SC4081 Q
QY522	23314993	TRANSISTOR, 2SC4081 Q
<b>MISCELLANEOUS</b>		
△B001	23301625	DISPLAY, 04LPL32
B300	23717215	SCREW, PP3X8+SW+W ECO
B310	23717219	SCREW, PP3X8+SW+W SBN
B315	23717214	SCREW, BITTB3X12SBN
D835C	23960136	ADHESIVE, SILICONE, TSE3843-W
D870C	23960136	ADHESIVE, SILICONE, TSE3843-W
E30	23389238	CABLE, FFC P1.0-21P
E31	23389237	CABLE, FFC P0.5-50P
E902	72471012	SCREW WITH WASHER
E903	72471012	SCREW WITH WASHER
E904	72471012	SCREW WITH WASHER
E905	72471012	SCREW WITH WASHER
E906	72471012	SCREW WITH WASHER
E907	72471012	SCREW WITH WASHER
E908	72471012	SCREW WITH WASHER
E909	72471012	SCREW WITH WASHER
E922	23717218	SCREW, PP3X30 ECO
E950	23148129	MODULE, HDMI DIGITAL OUTPUT MHDM12
GR01	24000445	CHIP JUMPER, 1608TYPE
GR02	24000445	CHIP JUMPER, 1608TYPE
GR03	24000445	CHIP JUMPER, 1608TYPE
GR04	24000445	CHIP JUMPER, 1608TYPE
GR06	24000445	CHIP JUMPER, 1608TYPE
GR131	24000445	CHIP JUMPER, 1608TYPE
GR132	24000445	CHIP JUMPER, 1608TYPE
GR135	24000445	CHIP JUMPER, 1608TYPE
GR50	24000445	CHIP JUMPER, 1608TYPE
GR605	24000445	CHIP JUMPER, 1608TYPE
GRV14	24000445	CHIP JUMPER, 1608TYPE
MJ13	23389253	CABLE, FFC P1.0-35P P1.0-35P A70
MZ01	23368873	CABLE, LVDS 100MM KARI1111
P105	23368577	CONNECTOR, PLUG, 3P 2.5MM G JST-EH, B3B-EH-F1-TV4
P601	23368579	CONNECTOR, PLUG 5P, 2.5MM G JST-EH, B5B-EH-F1-TV4
P601A	23368579	CONNECTOR, PLUG 5P, 2.5MM G JST-EH, B5B-EH-F1-TV4
P602	23368578	CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4
P661	23365500	EARPHONE JACK
△P801	23372264	POWER CORD, U/C 125V10A HSV 5 CMC-02P 11111
P807A	23713493	SOCKET, 127301113K2 127301113K2
P809A	23713494	SOCKET, 127301115K2
P816A	23713496	SOCKET, TWG-P23X-A1 TWG-P23X-A1
PJ13A	23713459	CONNECTOR, 35P JST 35FMN-BTK-A
PJ81A	23713496	SOCKET, TWG-P23X-A1 TWG-P23X-A1
PP51	23845859	HOLDER, WIRE, PVC-C0AT, L=70MM
PP52	23974994	BAND, KESSOKU
PP58	23974994	BAND, KESSOKU
PP62	23974994	BAND, KESSOKU
PR80	23023128	JACK, PHONE J YKB21-5290N
PS01	23023288	JACK, PIN 4/4P JALCO YKC21-4726N
PV01	23023004	JACK, 2S0P JLC
PV02	23023268	JACK, PIN 6/6P JALCO, YKC21-4671N
PV03	23023284	JACK, PIN 5/6P JALCO YKC21-4725N
PV04	23023284	JACK, PIN 5/6P JALCO YKC21-4725N
PV05	23023285	JACK, PIN 5/6P JALCO YKC21-4724N
PV25A	23367071	PLUG, NP 2.5MM G JST-EH, B11B-EH-F1A
PV25B	23367071	PLUG, NP 2.5MM G JST-EH, B11B-EH-F1A
PV60	23365833	PIN JACK, 3P JALCO, YKC21
PV61	23023107	JACK, Y/C JLC YKF51-5560, 14VL43
S801	23344335	SWITCH
S801A	23940043	CAP, POWER SWITCH, 32L400V

Location No.	Parts No.	Description
SA01	23145226	SWITCH, 1C1P, PUSH
SA02	23145226	SWITCH, 1C1P, PUSH
SA03	23145226	SWITCH, 1C1P, PUSH
SA04	23145226	SWITCH, 1C1P, PUSH
SA06	23145226	SWITCH, 1C1P, PUSH
SA07	23145226	SWITCH, 1C1P, PUSH
W661	23351156	SPEAKER, SPK1410AM, 60X120 8-OHM 10W
X6001	23153490	CRYSTAL, 18.432 20PPM CL=13PF
XY501	23153961	CRYSTAL, 3.58MHZ
XY502	23153721	CERAMIC RESONATOR, 503KHZ
△ZA01	23103778	FERRITE CORE, TFE1008
△ZA03	23103839	FERRITE CORE, TFE1012
△ZA04	23103914	FERRITE CORE, TFE1015AD
<b>PC BOARD ASSEMBLIES</b>		
* U001	75001016	PCB SIGNAL PD1976-1
* U002	75001017	PCB FRONT-AV PD1976-2
* U003	75001018	PCB LED/RMT PD1976-3
* U004	75001019	PCB POWER-SW PD1976-4
* U006	75001021	PCB LOWB-AOUT PD1977-1
* U007	75001022	PCB KEY-SW PD1977-2
* U008	75001015	PCB SCALLER PD1898
* U800	23122476	POWER UNIT, 1H216W
<b>TUNER</b>		
△H001	23321484	TUNER, TIF US HOR61 PH 181CH C6 ENG36A22GF
H003	23124087	ANTENNA SWITCH, RSU135X1, 2I3O BUNPAI US
H003A	23740989	NUT, F-CONNECTOR 2H BS
△HY01	23321485	TUNER, TIF US HOR61 PH 181CH CO ENG36A21GF
<b>ACCESSORIES</b>		
A702A	23946849	PACKING, TOP 32HLX84 32HLX84:S1304D174
A702B	23946850	PACKING, BOTTOM 32HLX84 32HLX84:S1304D175
A703	23945143	BAG, PROTECTIVE, 35P2700
A709	23946940	PACKING, CENTER PACKING 32HLX84 32HLX84:S1304D286
K902	23306504	REMOCON HAND UNIT, CT-90164
K903	23306465	REMOCON HAND UNIT, 57HX82
△Y101	23566541	OWNERS MANUAL, ENG/FRE/SPA 32HLX84;E/F/S
Y109	23945015	BAG, POLYETHYLENE COVER, 250X400
Y170	23845800	WIRE HOLDER, NYLON66 D6.8
<b>CABINET PARTS</b>		
△A201	23533003	COVER, FRONT BEZEL ASSY 32HLX84;A045146E
A231	23717226	SCREW, PB 4X5 SNI 32WL48C;S70391347
A240	23717267	SCREW, BITTB4X16 SBN 32LZ100:S70391354
△A315	23528412	HOLDER, AC HLD BASE USA/JPN 32HLX84;S1304E359
A317	23533055	COVER, BRACKET SUPPORT 32WL48C 32WL48C;S1304E360
A360	23717226	SCREW, PB 4X5 SNI 32WL48C;S70391347
A365	23717219	SCREW, PP3X8+SW+W SBN
A370	23717267	SCREW, BITTB4X16 SBN 32LZ100:S70391354
A375	23717214	SCREW, BITTB3X12SBN
△A401	23533010	COVER, BACK COVER 32HLX84;A045161E
A410	23717219	SCREW, PP3X8+SW+W SBN
A411	23717267	SCREW, BITTB4X16 SBN 32LZ100:S70391354
A420	23436857	FOOT, STAND S1304E237
A440	23738074	SCREW, PP 5X16 SW+W SBN PP 5X16 SW+W SBN
A445	23532988	COVER, BC STAND COVER 32WL48C;Z045027E
A450	23532989	COVER, BC TERMINAL COVER 32WL48C;Z045028E
A461	23950113	LABEL, SERIAL NUMBER, TTX3

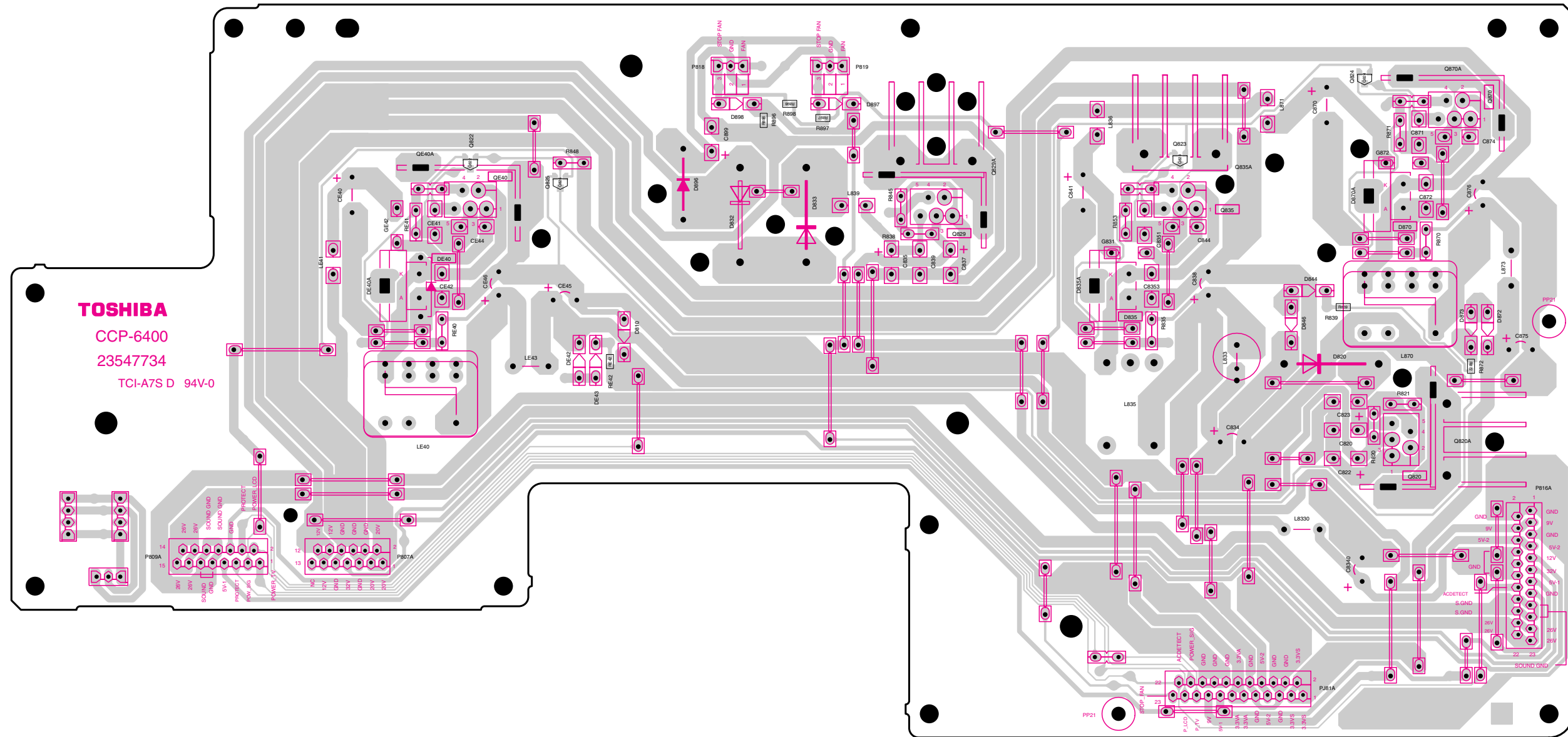




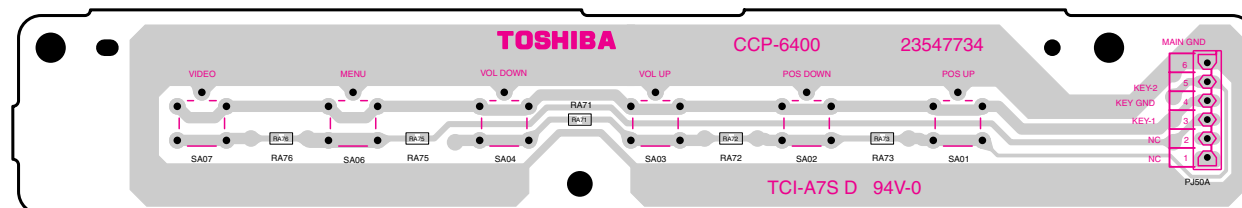




**LOWB-AOUT BOARD PD1977-1 (U006)**  
**BOTTOM (FOIL) SIDE**



**KEY-SW BOARD PD1977-2 (U007)**  
**BOTTOM (FOIL) SIDE**







# SCHEMATIC DIAGRAM

MODEL : 32HLX84

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

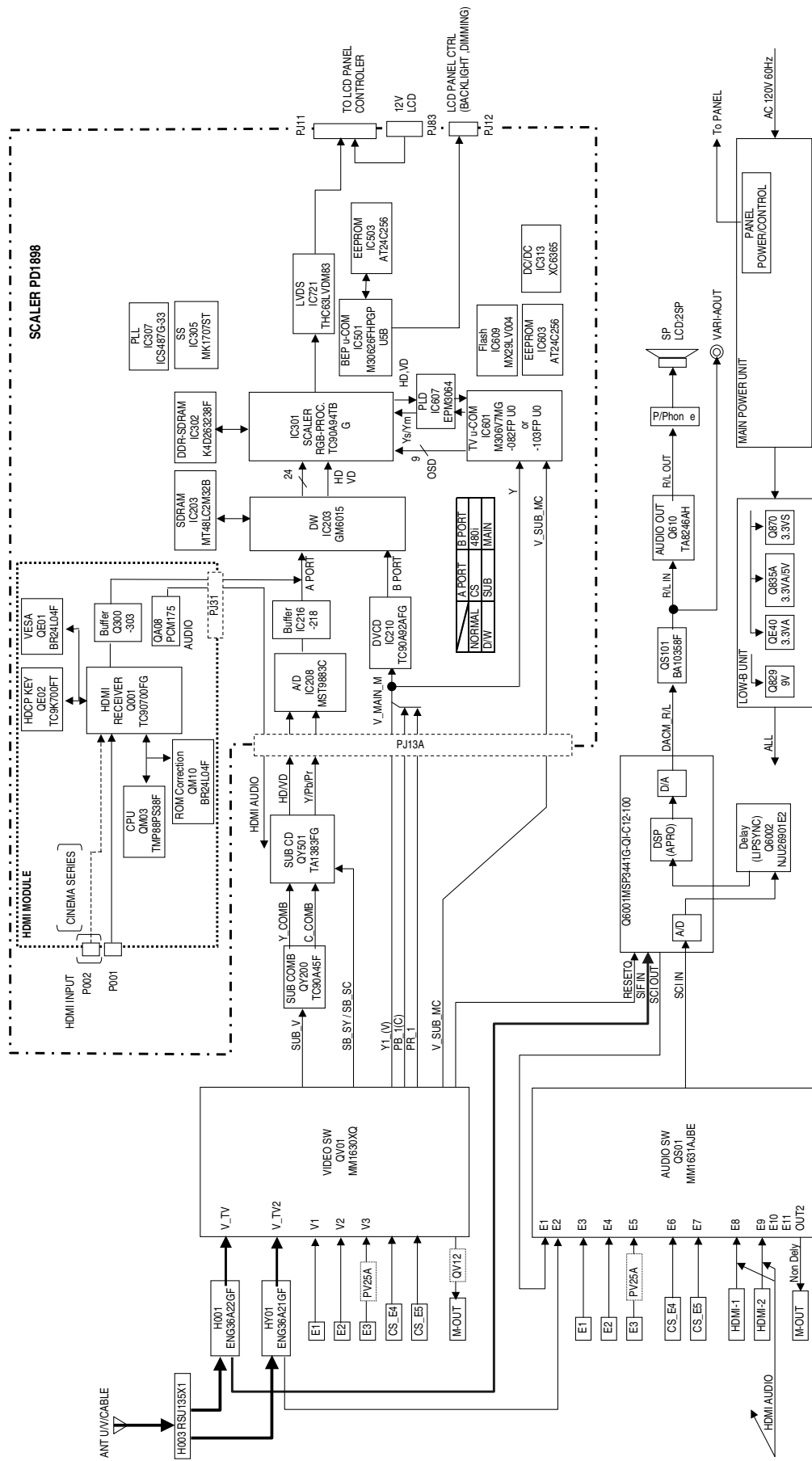
**NOTE:**

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.  
1/2R = Metal or Metal oxide of 1/2 watt                      1/2S = Carbon composition of 1/2 watt  
1RF = Fuse resistor of 1 watt                                      10W = Cement of 10 watt  
K =  $\pm 10\%$     G =  $\pm 2\%$     F =  $\pm 1\%$
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in  $\mu\text{F}$ , and the values more than 1 in pF.  
All capacitors are ceramic 50V, unless otherwise noted as the following marks.  
—<sup>+</sup>||— Electrolytic capacitor                      —<sup>⊗</sup>||— Mylar capacitor
3. The parts indicated with " $\Delta$ " 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  $\pm 20\%$  except H.V.

■ SCHEMATIC DIAGRAM STRUCTURE:

CONNECT .....		1/60
SIGNAL	CONNECTOR [SHEET-1/9] .....	2/60
	VIDEO_SW [SHEET-2/9] .....	3/60
	MSP+LIPSYNC [SHEET-3/9] .....	4/60
	BACK_AV [SHEET-4/9] .....	5/60
	MAIN/SUB TIF [SHEET-5/9] .....	6/60
	AUDIO_MUTE [SHEET-6/9] .....	7/60
	AUDIO_SW [SHEET-7/9] .....	8/60
	SUB VCD [SHEET-8/9] .....	9/60
	A_OUT [SHEET-9/9] .....	10/60
LOWB-AOUT	(1/2) [SHEET-1/2] .....	11/60
	(2/2) [SHEET-2/2] .....	12/60
FRONT AV .....		13/60
POWER SW .....		14/60
KEY .....		15/60
IR-PASS .....		16/60
SCALER	AV_CONNECTOR [SHEET-200] .....	17/60
	AD LPF [SHEET-201] .....	18/60
	DVCD2_LPF [SHEET-202] .....	19/60
	DVCD1_LPF [SHEET-203] .....	20/60
	3chADC HD [SHEET-204] .....	21/60
	3chADC MST9883C-LF-110 [SHEET-205] .....	22/60
	SUB(AD/HDMI) Selector [SHEET-206] .....	23/60
	DVCD TC90A92AFG [SHEET-207] .....	24/60
	DVCD_POWER [SHEET-208] .....	25/60
	GENESIS-1 GM6015BD-LF [SHEET-209] .....	26/60
	GENESIS-2 GM6015BD-LF [SHEET-210] .....	27/60
	SDRAM [SHEET-211] .....	28/60
	GENEISIS_POWER [SHEET-212] .....	29/60
	GENESIS_IIC [SHEET-213] .....	30/60
	94 DIGITAL INPUT [SHEET-300] .....	31/60
	94 CAPTURE INPUT [SHEET-301] .....	32/60
	94 DDR SDRAM [SHEET-302] .....	33/60
	94 PLL [SHEET-303] .....	34/60
	94 OSD ROM I/F [SHEET-304] .....	35/60
	94 IIC and RESET [SHEET-305] .....	36/60
	94 POWER and GND [SHEET-306] .....	37/60
	94 LVDS OUT [SHEET-307] .....	38/60
	94 2.5V reg. [SHEET-308] .....	39/60
	DC/DC CONVERTER [SHEET-310] .....	40/60
	SUB MICON (1/4) [SHEET-500] .....	41/60
	(2/4) [SHEET-501] .....	42/60
	(3/4) [SHEET-502] .....	43/60
	(4/4) [SHEET-503] .....	44/60
	TV-MICON (1/3) [SHEET-600] .....	45/60
	(2/3) [SHEET-601] .....	46/60
	(3/3) [SHEET-602] .....	47/60
	TV-MICON RESET IC [SHEET-603] .....	48/60
	SYNC_DETECT [SHEET-604] .....	49/60
	PLD [SHEET-605] .....	50/60
	POWER_CONNECTOR [SHEET-800] .....	51/60
	TV-MICON CONNECTOR [SHEET-801] .....	52/60
	TV-MICON FIL [SHEET-802] .....	53/60
	SERVICE CONNECTOR [SHEET-804] .....	54/60
	HDMI CONNECTOR [SHEET-805] .....	55/60
	LG PDP LVDS CONNECTOR [SHEET-807] .....	56/60
	LVDS OUT for LCD [SHEET-808] .....	57/60
	LG LCD LVDS CONNECTOR [SHEET-809] .....	58/60
	LCD DIMMING [SHEET-810] .....	59/60
	CONNECTORS FOR SHARP PANEL [SHEET-811] .....	60/60

# BLOCK DIAGRAM



# **TOSHIBA CORPORATION**

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