

TOSHIBA

SERVICE MANUAL

Projection Television

65HM167

Rev.1

For Technical Bulletins, Technical Tips, or other information regarding the service of this model, visit the Toshiba America Consumer Products National Service Division website at:

www7.toshiba.com

This model is classified as a green product (*1), as indicated by the underlined serial number. This Service Manual describes replacement parts for the green product. When repairing this green product, use the part(s) described in this manual and lead-free solder (*2).

For (*1) and (*2), refer to **GREEN PRODUCT PROCUREMENT** and **LEAD-FREE SOLDER**.

IMPORTANT NOTICE

WARNING: Do not modify or alter the information or data provided herein without prior written consent by Toshiba. Toshiba shall not be liable to anybody for any damages, losses, expenses or costs, if any, incurred in connection with or as a result of such modification or alteration.

THE INFORMATION OR DATA HEREIN SHALL BE PROVIDED "AS IS" WITHOUT ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Toshiba shall not be liable for any damages, losses, expenses or costs, if any, incurred in connection with or as a result of use of any information or data provided herein.

GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

LEAD-FREE SOLDER

WARNING: This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. **Lead-free solder must be used in the servicing and repair of this product.**

The melting temperature of lead-free solder is higher than that of leaded solder by 86°F to 104°F (30°C to 40°C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product especially when soldering large components, through-hole pins, and on PCBs as the level of heat required to melt lead-free solder is high.

SAFETY INSTRUCTION

WARNING: Before servicing this chassis, read the "Safety Precaution" and "Product Safety Notice" instructions below.

Safety Precaution

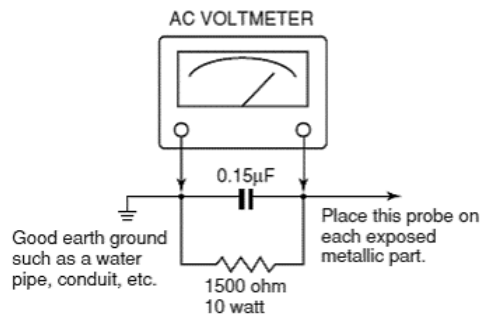
WARNING: Servicing should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always disconnect the power plug before any disassembling of the product. It may result in electrical shock.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as nonmetallic control knobs, insulating covers, shields, isolation resistor-capacitor network, etc.
4. Always keep tools, product components, etc. away from children as these items may cause injury.
5. Depending on the model, use an isolation transformer or wear suitable gloves when servicing with the power on. 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.
6. Always use the replacement parts specified for the particular model when making repairs. The parts used in products require special 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 indicated in the circuit diagram or parts list.

7. Part mounting and wire routing should be the same as that used originally. For safety purposes, insulating materials such as isolation tubes or tape are 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 or use high voltage. Always follow the manufactures wiring routes / dressings.
8. Always ensure that all internal wirings are in accordance before re-assembling the external casing after a repair is completed. 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.
9. NEVER remodel the product in any way. Remodeling can result in improper operation, malfunction, electrical leakage, or flame, which may be hazardous.
10. Always perform an AC leakage current check on the exposed metallic parts of the cabinet such as antennas, terminals, screw heads, metal overlays, control shafts, etc. to be sure that the set is safe to operate without any danger of electrical shock before returning the set to the customer.
11. To check leakage current: (After completing the work, measure the leakage current to prevent an electrical shock.)
 - Plug the AC line cord directly into a 120V AC outlet. Do not use an isolation transformer for this check.
 - Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner.

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μ F, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 μ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts rms. This corresponds to 0.2 milliamps AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



Product Safety Notice

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

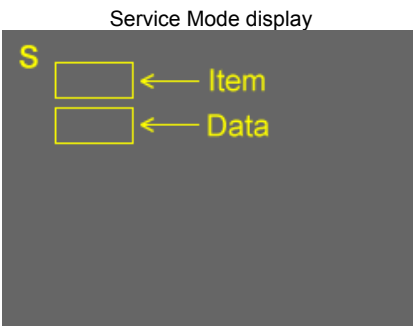
Entering Service Mode



1. Set VOLUME to minimum and press MUTE button twice on the remote control.



2. Press MUTE button again and hold button down.



3. While holding the MUTE button, press MENU button on TV set.

Selecting the Adjusting Item

Every pressing of CH ▲ or ▼ button in the service mode changes the adjustment items.

Adjusting the Data

Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

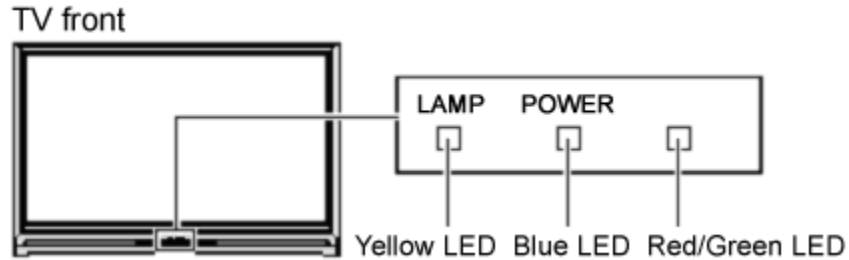
Exiting Service Mode

Press the POWER button once to turn off the TV.

LED BLINK CODES

The yellow, blue, and red/green LED lights on the TV (at the bottom center of the TV) indicate the TV's status, as described below:

Note: If the TV loses A/C power (e.g., a power outage occurs or the power cord is unplugged), when power is restored, the yellow LED will blink while the TV is booting until the remote control is usable. This is normal and is not a sign of malfunction.



MODE	HM167			
	BLUE POWER	YELLOW LAMP	RED/GREEN TIMER	VOICE ANNOUNCEMENT
POWER OFF (Standby w/ Quick Restart OFF)				
POWER OFF (Standby w/ Quick Restart ON)			ON	
IN LPS (Standby w/ Quick restart ON)		Blinking		
POWER ON	ON			
Waiting to re-light the lamp	ON	Blinking		
Lamp won't light		ON	Blinking	YES
Open Lamp door		ON		YES
Fan Stop Detection (Light Engine)			Blinking	YES
IIC BUS Error	Slow blinking			YES
Power Protect Detection	Fast blinking			YES
Color wheel stop	Fast blinking		Blinking	YES
Abnormal temperature in Thermo Sensor	Fast blinking	Blinking	Blinking	YES
Seine Booting		3 Blinks		
Upgrade in progress	ON	ON		
Upgrade successful	ON			
Upgrade failed		ON		
IIC BUS Error (Light Engine)	Fast blinking		Blinking	

Replacing the Lamp Unit

WARNING: RISK OF ELECTRIC SHOCK! TO REDUCE THE RISK OF ELECTRIC SHOCK, NEVER REMOVE TV COVERS, EXCEPT AS SPECIFIED HEREIN. REFER ALL SERVICING NOT SPECIFIED IN THIS MANUAL TO QUALIFIED SERVICE PERSONNEL. Failure to follow this WARNING may result in death or serious injury.

The light source for this TV is a mercury lamp with internal atmospheric pressure that increases during use. The lamp has a limited service life that varies depending on product use and user settings.

As is generally the case with all projection TVs that use projection lamps as a light source, the brightness of the lamp in this TV may vary somewhat over the expected service life and will generally decrease over time. Because of the many variables that can affect the useful service life of the lamp, your experience may vary from other users.

If you use the lamp beyond its service life you may notice a reduction in the colors and/or brightness of the picture. The strength of the quartz glass in the lamp will be reduced and the lamp may rupture (often making a loud noise when this happens). If the lamp ruptures, the TV will not operate until the lamp unit is replaced.

CAUTION: Always handle the lamp unit with care. The lamp unit in this TV was designed for safe replacement by consumers; however, if the lamp unit is subjected to intentional abuse (such as excessive mechanical abuse or handling by children or pets), the unit may break, exposing sharp edges or pinch points.

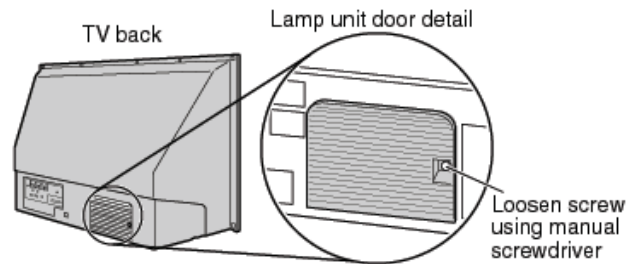
WARNING: RISK OF ELECTRIC SHOCK! TO REDUCE THE RISK OF ELECTRIC SHOCK, NEVER REMOVE TV COVERS, EXCEPT AS SPECIFIED HEREIN. REFER ALL SERVICING NOT SPECIFIED IN THIS MANUAL TO QUALIFIED SERVICE PERSONNEL. Failure to follow this WARNING may result in death or serious injury.

1. Turn off the TV and unplug the power cord.

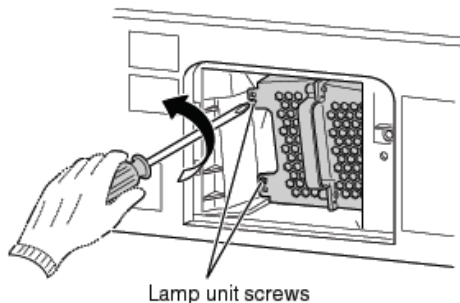
WARNING: Eye damage may result from directly viewing the light produced by this lamp. Always turn off the TV and unplug the power cord before opening the lamp unit door.

CAUTION! HOT SURFACE! Touching the lamp before it has cooled will result in severe burns. ALLOW THE LAMP TO COOL FOR AT LEAST ONE (1) HOUR BEFORE REPLACING IT.

2. Using a manual, slotted screwdriver, loosen the screw securing the lamp door and remove the door.

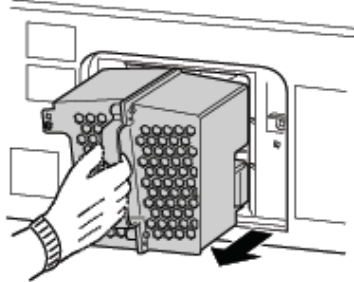


3. Using a manual Phillips screwdriver, loosen the two screws on the lamp unit.

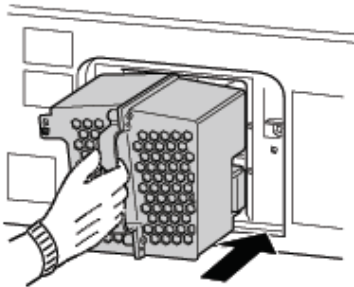


WARNING: RISK OF ELECTRIC SHOCK! The lamp unit door is provided with an interlock to reduce the risk of electric shock and excessive ultraviolet radiation. **Never defeat its purpose or attempt to service without removing the lamp unit door completely.** Failure to follow this WARNING may result in death or serious injury.

4. Grasp the lamp unit handle and gently pull the lamp unit straight out of the TV. Set the old lamp unit aside (-> "Disposing of the used lamp unit" on Owners' Manual). **NOTE: Wear soft, lint-free gloves when replacing the lamp unit.**



5. Carefully insert the new lamp unit straight into the TV until it is fully seated.



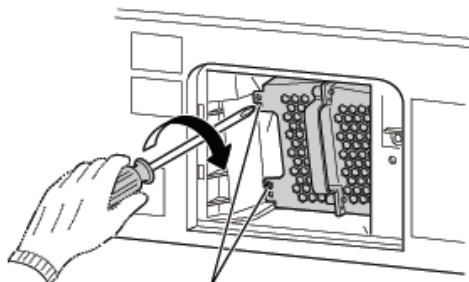
NOTE: Never subject the lamp unit to excessive shock. Never touch the lamp unit glass or otherwise get it dirty. Doing so may affect the image quality and reduce the service life of the lamp. See "Cleaning the lamp unit glass" below.

CLEANING THE LAMP UNIT GLASS

If you accidentally touch the lamp unit glass or otherwise get it dirty, wipe it with a lint-free lens cleaning cloth (such as a cloth for cleaning camera lenses or eyeglasses).

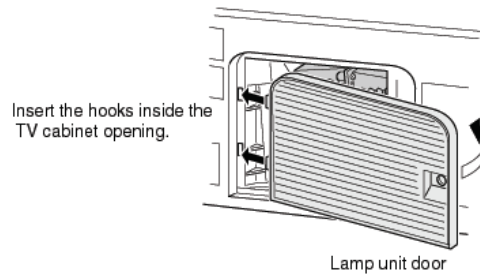
CAUTION: NEVER clean a hot lamp with any type of flammable liquid or aerosol cleaning agent. Many ordinary cleaning agents (such as glass cleaners) contain chemicals that may be flammable at certain temperatures. If the lamp unit is not allowed to cool for at least one (1) hour, such chemicals may ignite.

6. Using a manual Phillips screwdriver, tighten the two lamp unit screws. **NOTE: Hand-tighten only. Do not use an electric screwdriver. Make sure the lamp unit and screws are installed securely. Otherwise, the TV may not turn on and the lamp life may be shortened.**

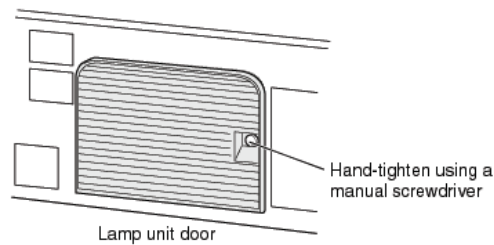


Lamp unit screws
(use manual Phillips screwdriver only)

7. Reattach the lamp unit door, making sure to insert the hooks on the left side of the door inside the opening in the TV cabinet.



8. Replace the door screw and tighten using a manual screwdriver. **NOTE: Make sure the lamp unit door is installed securely; otherwise, the TV may not turn on.**



9. Plug in the power cord and turn on the TV. After the initial warm-up period (which may take several seconds for full picture brightness), the TV should operate normally. If any of the following conditions exist, turn off the TV, unplug the power cord, and repeat steps 1-9 to ensure that the lamp unit and lamp unit door are installed correctly:

- No picture
- Dark picture
- TV will not turn on

NOTE: If, after repeating steps 1-9, the problem still exists:

- In the U.S., call TACP Consumer Solutions at 1-800-631-3811.
- In Canada, locate the nearest Toshiba authorized service depot by directing your web browser to www.toshiba.ca; click "Home Entertainment", and then click "Support".

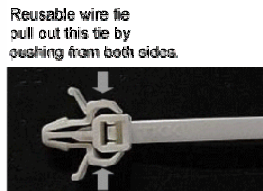
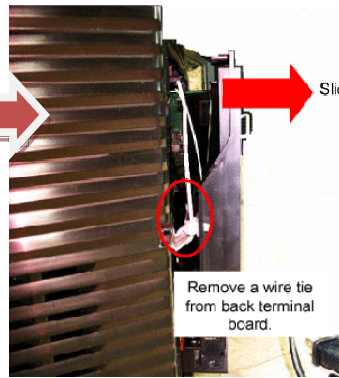
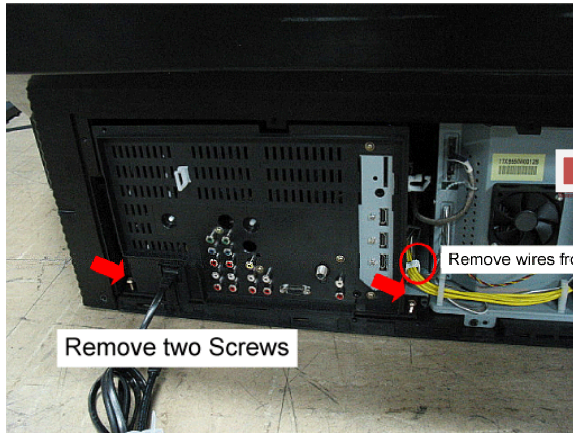
Disposing of the Used Lamp Unit

CAUTION: Always handle the lamp unit with care. The lamp unit in this TV was designed for safe replacement by consumers; however, if the lamp unit is subjected to intentional or accidental abuse (such as excessive mechanical abuse or handling by children or pets), the unit may break, exposing sharp edges or pinch points.

- Place the used lamp unit in the empty box from the new unit.
- Keep the lamp unit out of reach of children and pets.
- Dispose of the used lamp unit by the approved method for your area.

NOTE: The lamp unit contains mercury. Disposal of mercury may be regulated due to environmental considerations. For disposal or recycling information, contact your local authorities or the Electronic Industries Alliance (www.eiae.org).

CHASSIS REMOVAL



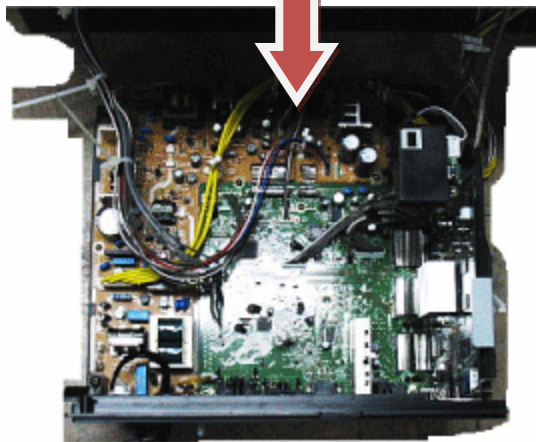
Slide out chassis and remove 2 wire ties.



Remove wire from clip

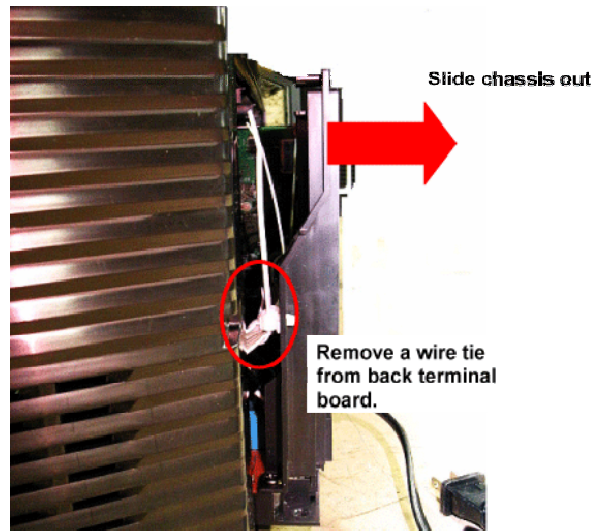
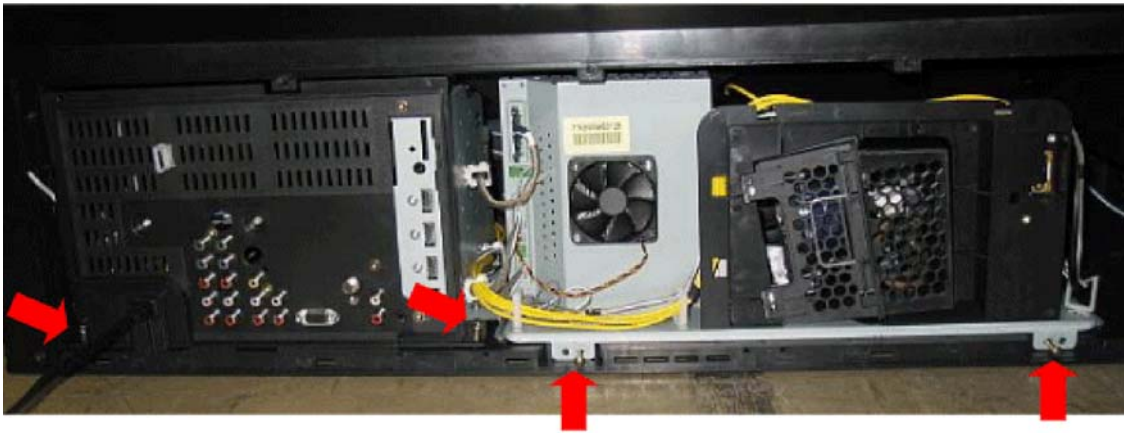


Completion of chassis removal

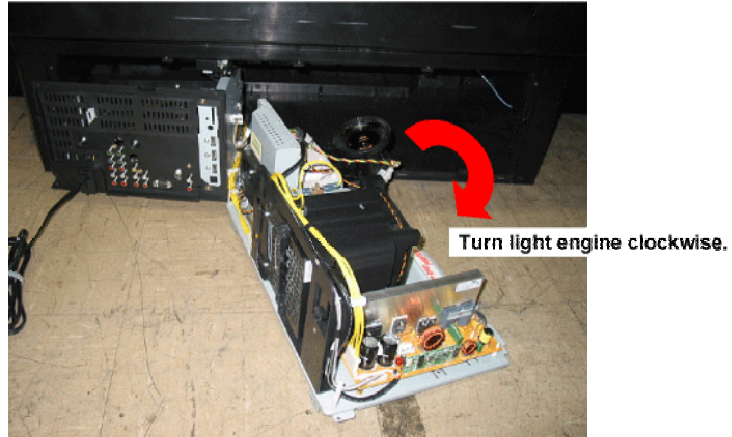


LIGHT ENGINE REMOVAL

Remove 4 screws

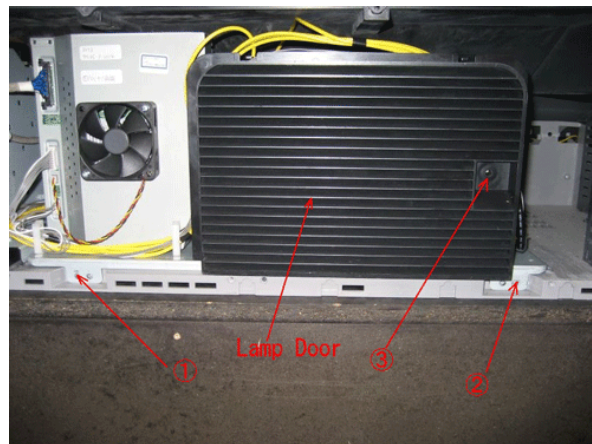


Slide chassis and light engine out.

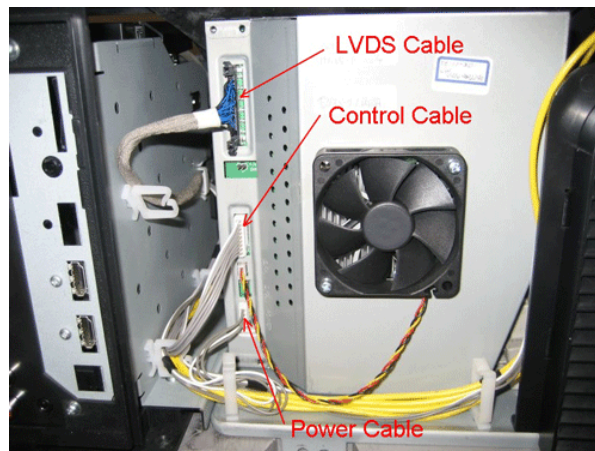


LIGHT ENGINE REPLACEMENT

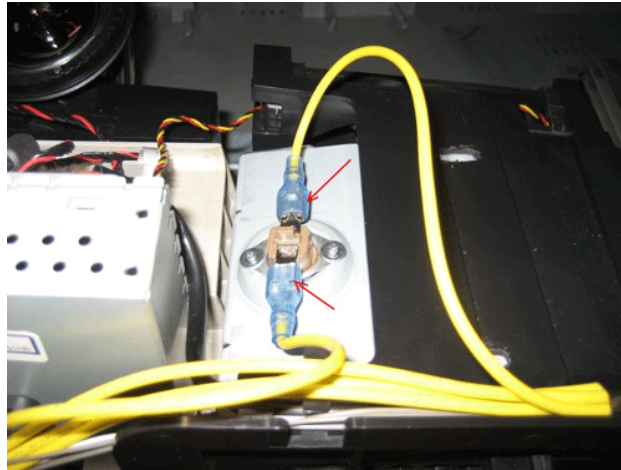
1. Remove the back cover.
2. Remove the screw securing the lamp door.
3. Remove the 2 screws securing the light engine.



4. Remove the cables LVDS, Control and POWER.



5. Unfasten the thermostat lead wires. (Leave the thermostat breaker fitted)



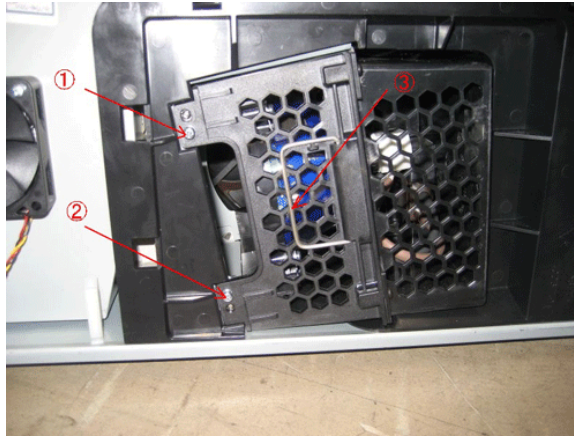
6. Remove the cables AC and Control from the unit.



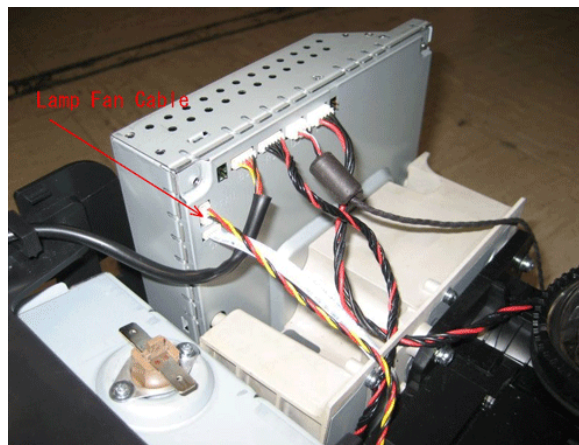
7. Pull the Engine out and replace it.
8. Re-assemble by following steps 1 – 6 in reverse.

LAMP FAN REPLACEMENT

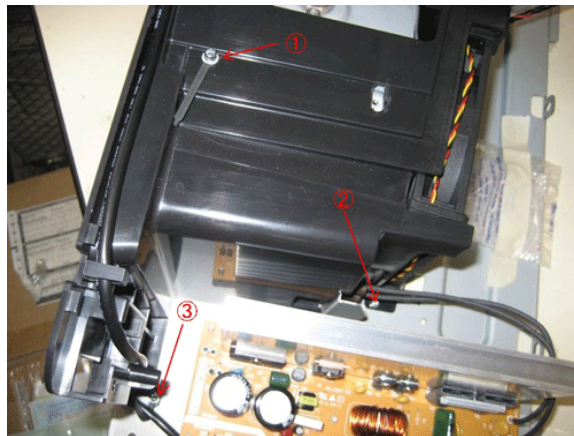
1. Remove the Lamp module by loosening screws "1" and "2".



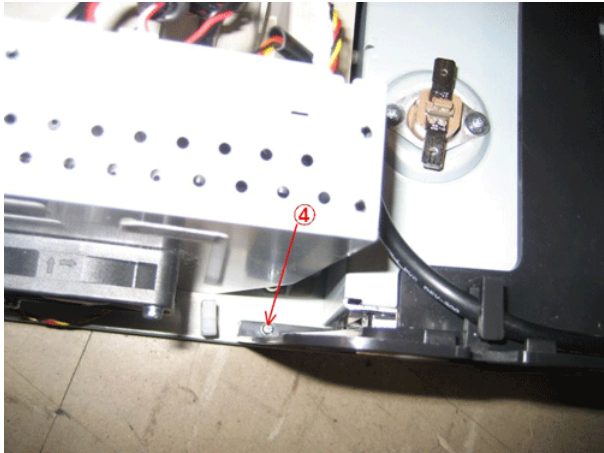
2. Remove the Lamp Fan cable.



3. Remove screws "1", "2" and "3" and remove the lamp fan cover.



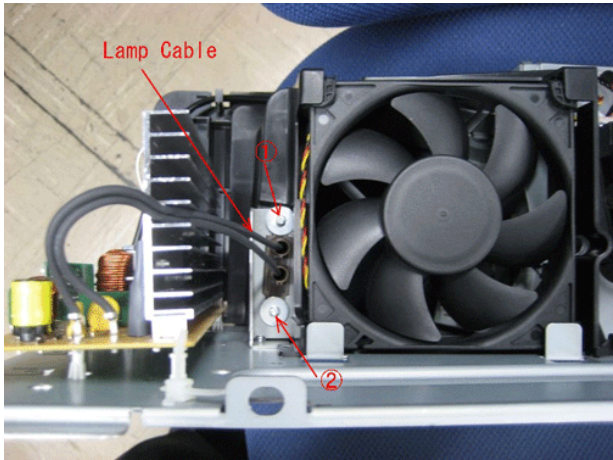
4. Remove the screw securing the Lamp Fan.



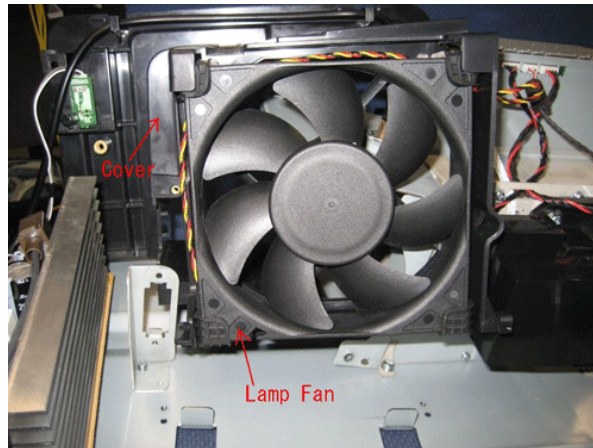
5. Remove the screw securing the Lamp Fan.



6. Remove screws "1" and "2", and then remove the Lamp cable.



7. While lifting the Cover, take the Lamp Fan out by pulling it down.



8. Place the fixing rubbers at 4 corners on the new Lamp Fan.



9. Re-assemble by following Steps 1 – 8 in reverse.

DMD FAN REPLACEMENT

1. Remove the DMD Fan.



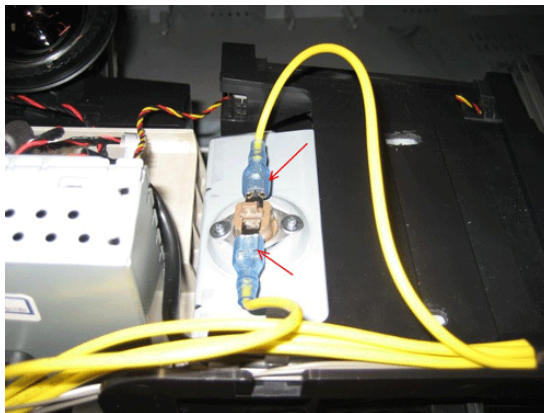
2. Replace the DMD Fan by removing the screws securing the fan.



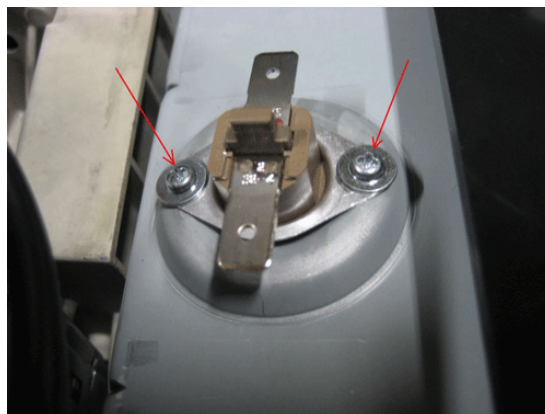
3. Re-assemble by following Steps 1 and 2 in reverse.

THERMAL BREAKER REPLACEMENT

1. Unfasten the thermostat lead wires.



2. Replace the thermostat breaker by removing the securing screws.

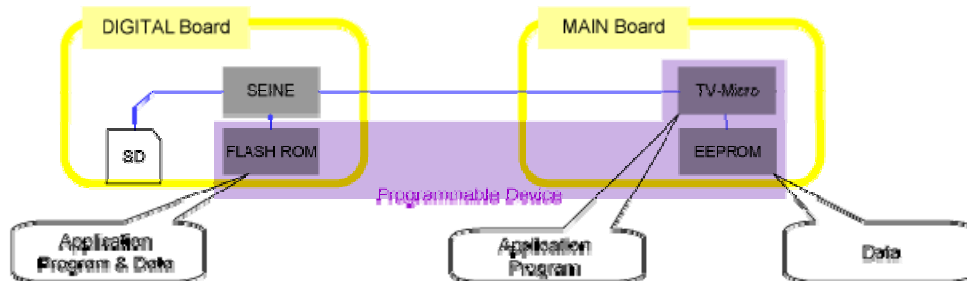


3. Fit the thermostat lead wires.

FIRMWARE AND DATA UPLOADING CONCEPT

WARNING: All application and program data will be upgraded. **DO NOT** upgrade while the TV is turned ON.

- After replacing SEINE or Main unit, perform the following.
- Prepare FW and data in the SD card media.
- Insert SD card and then plug AC in.



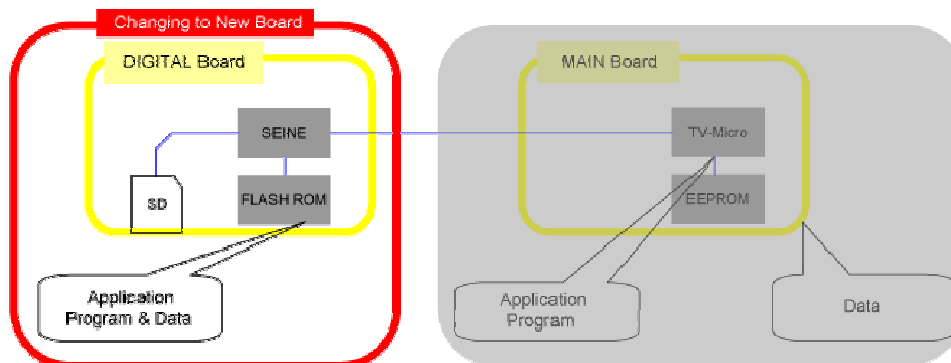
LED Indication During the Software Updating

Three LED indicators show the updating progress or status.

LED Colors	Blue	Yellow	Red/Green
Upgrade In Progress	● Light ON	● Light ON	○
Upgrade Successful	● Light ON	○	○
Upgrade Failed	○	● Light ON	○

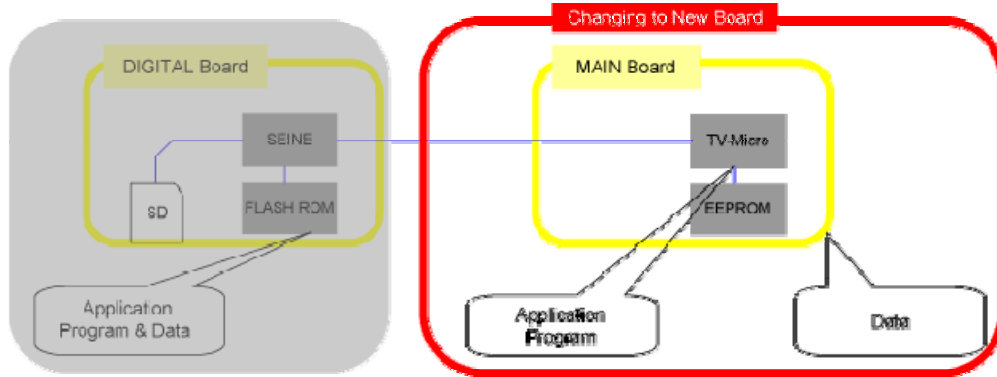
Firmware and Data Updating

After SEINE unit changed, perform the following.



1. Write both Application program and Data in SD Card.
2. Insert SD card into the slot and plug AC in.
* The updating will commence.

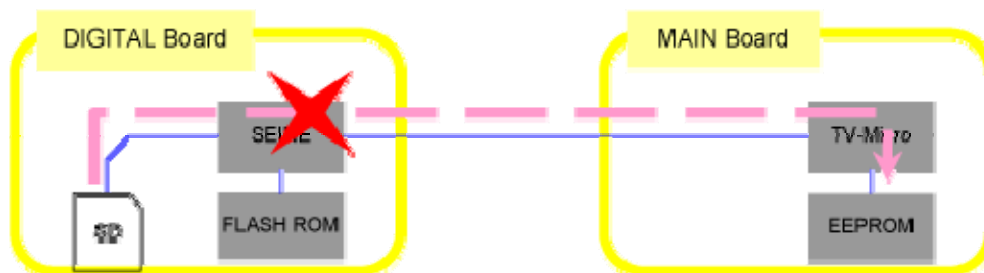
After Main Board changed, perform the following.



1. Write both Application program and Data in SD Card.
2. Insert SD card into the slot and plug AC in.
* The updating will commence.

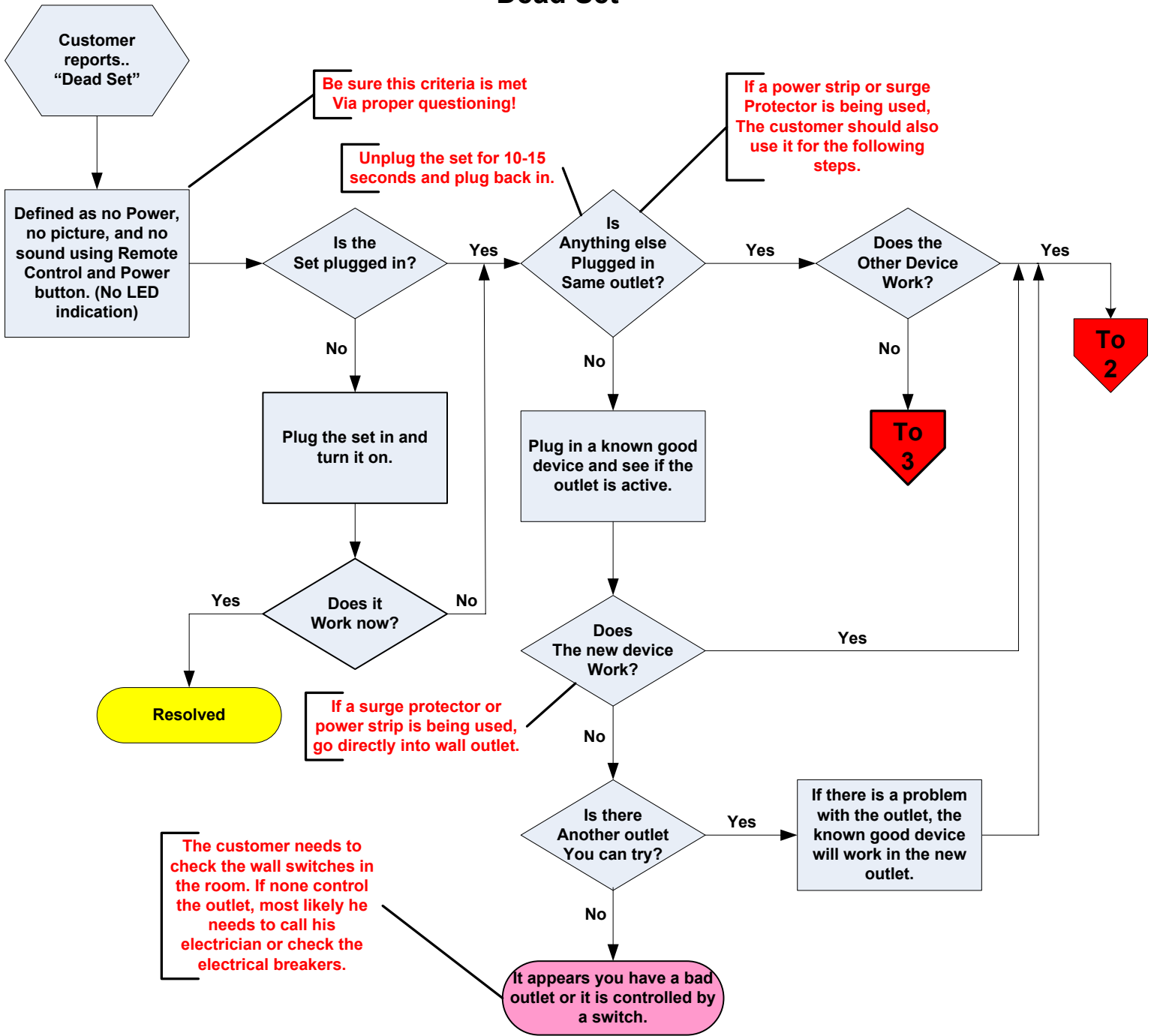
The EEPROM data should have the correct model ID data to identify the model name. TV micro EEPROM data will be written thru SEINE chip from SD Card. If the model ID which is to be uploaded into the EEPROM data stored in SD card does not correspond to the number which stored SEINE chip, the programming will fail. If this situation is encountered, the forced writing procedure is required.

Forced Writing Procedure



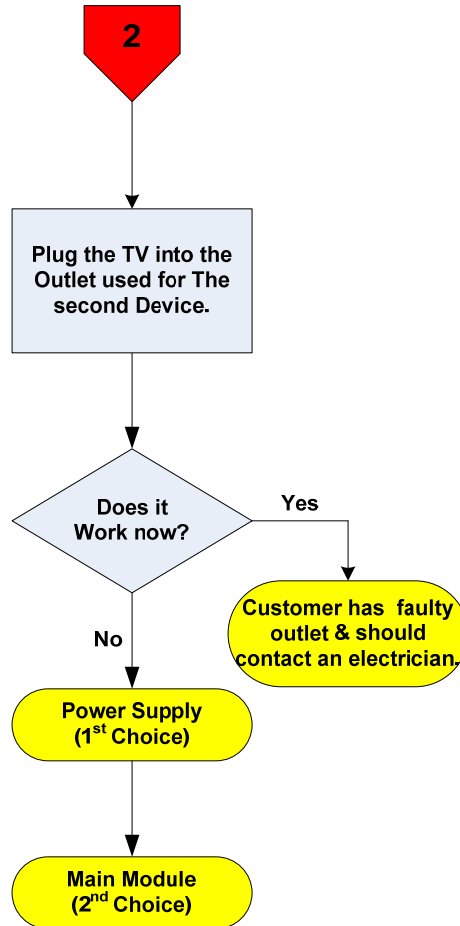
1. Change the EEPROM data file name from eHM***_data.txt f to eforce_data.txt f then save in SD Card by PC.
2. Insert SD Card then plug AC in.
The forced writing procedure will commence.
* The forced writing mode is not available by SD card insertion during TV power ON.

Dead Set



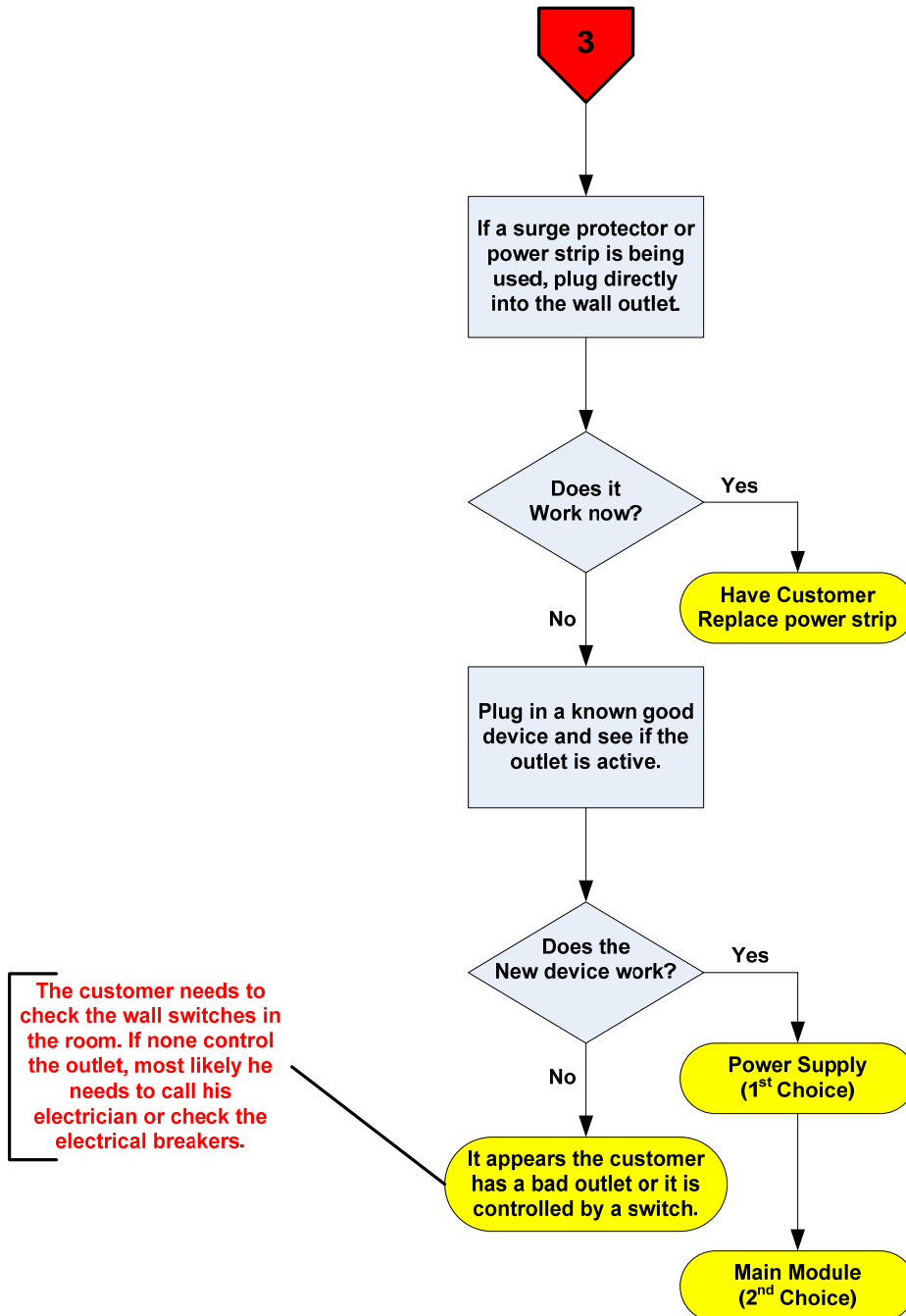
Dead Set (Continued)

Insure the Following Steps are Taken

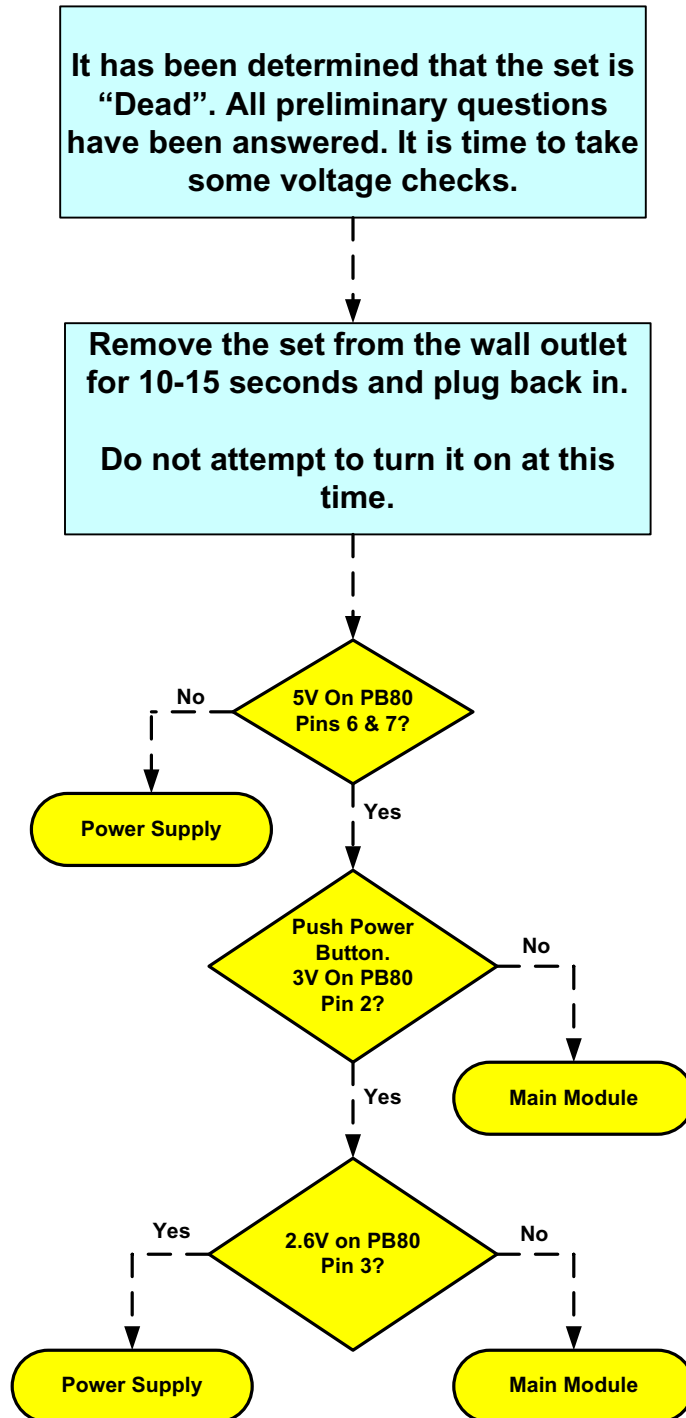


Dead Set (Continued)

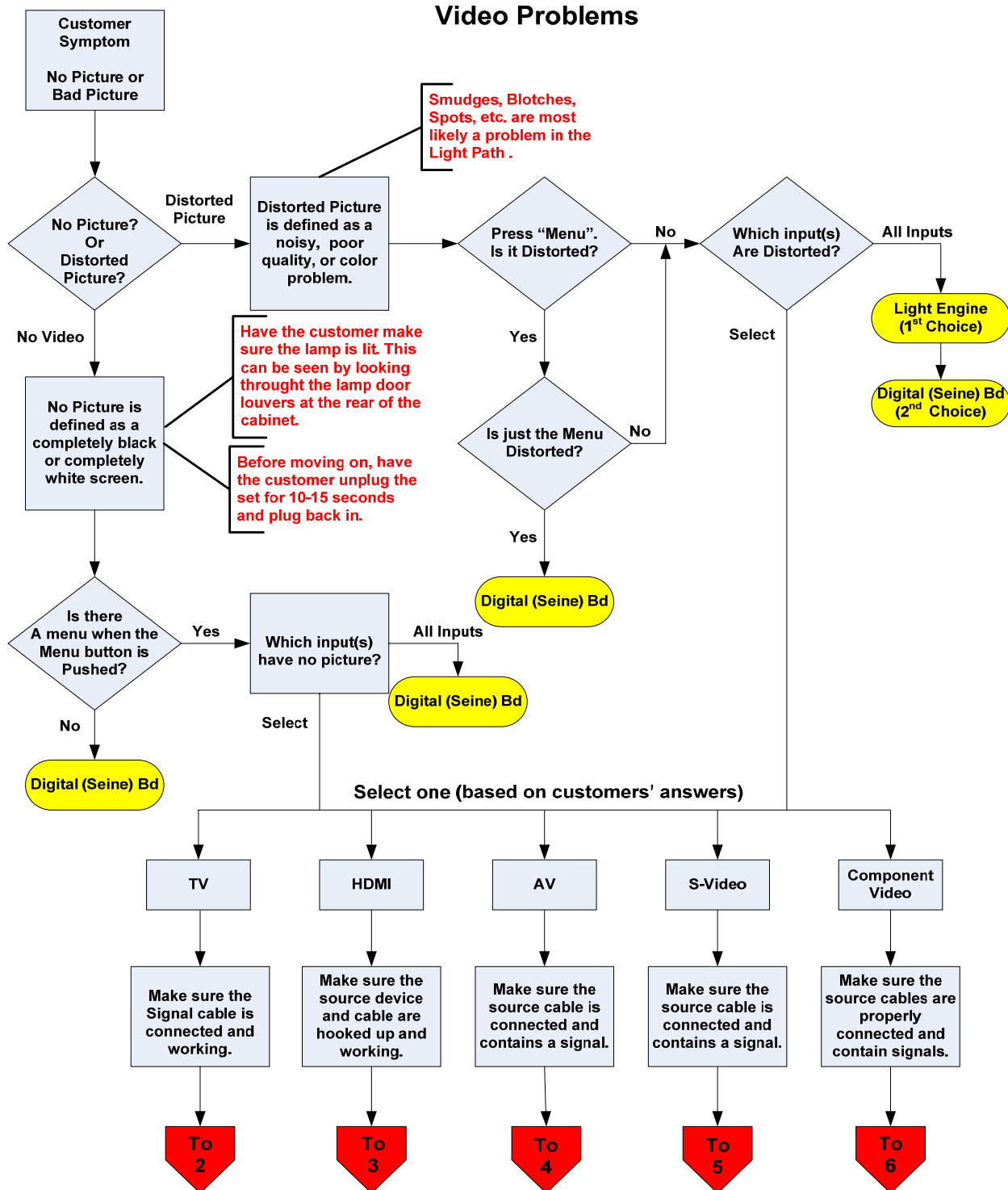
Insure the Following Steps are Taken



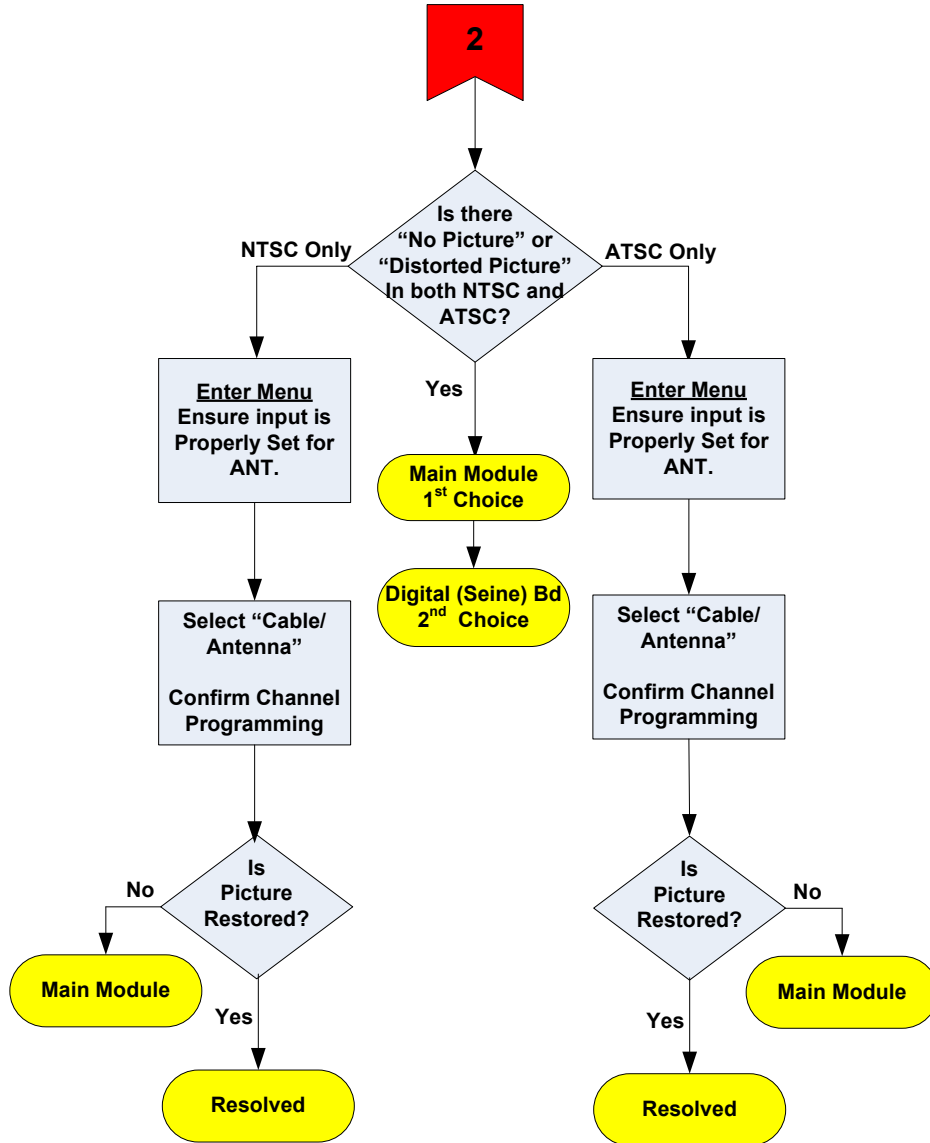
Dead Set Troubleshooting



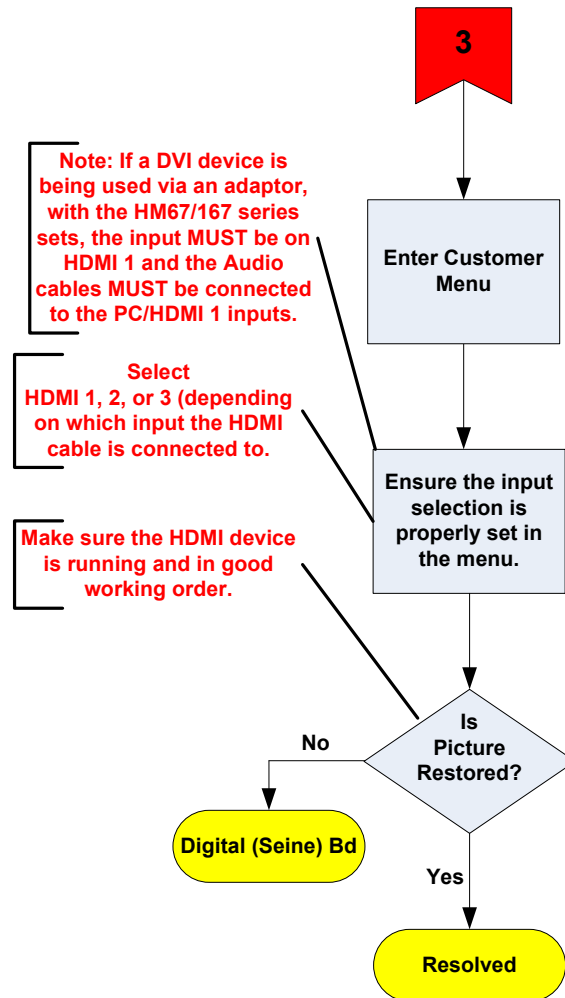
Video Problems



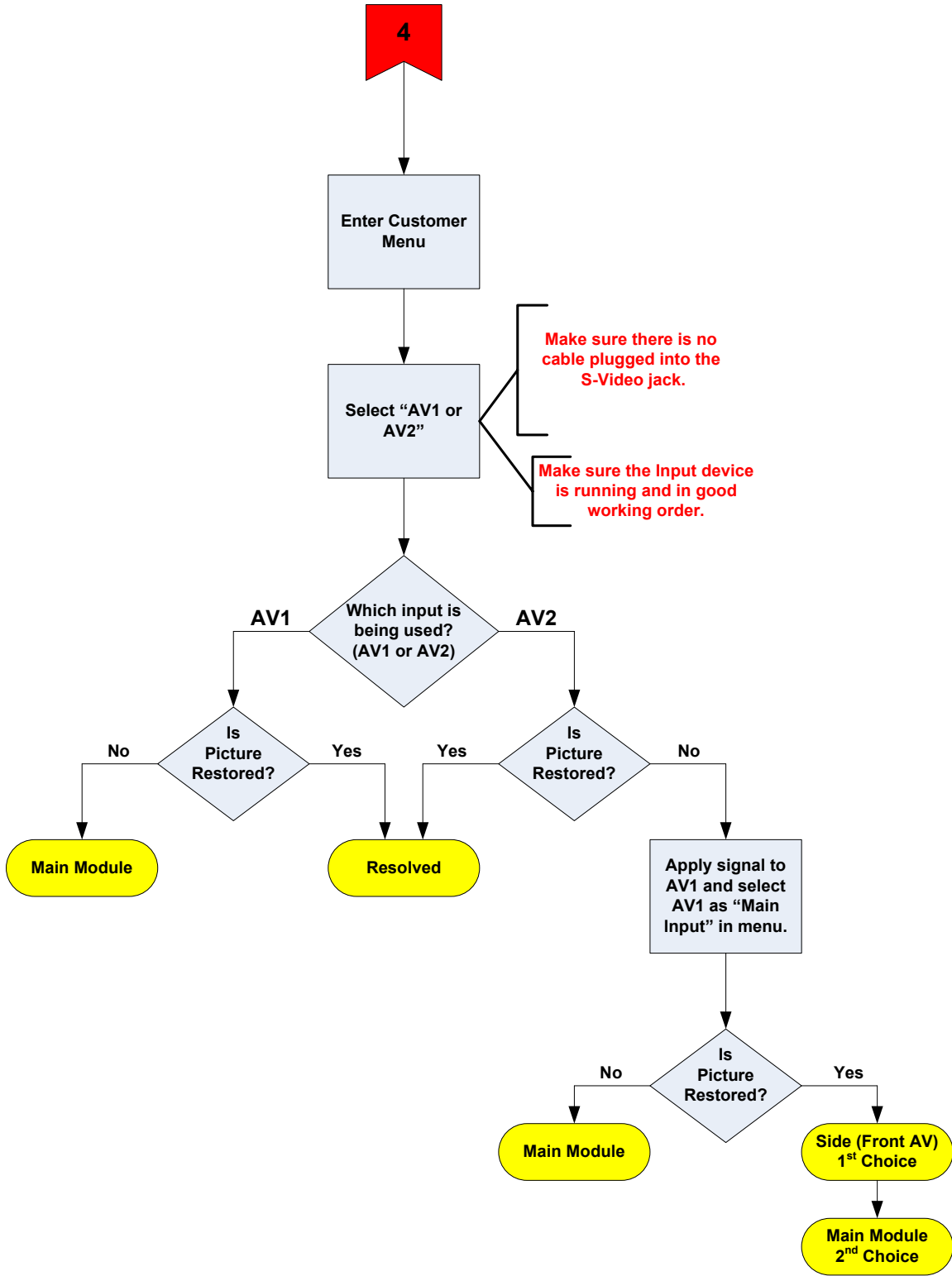
Insure the Following Steps are Taken



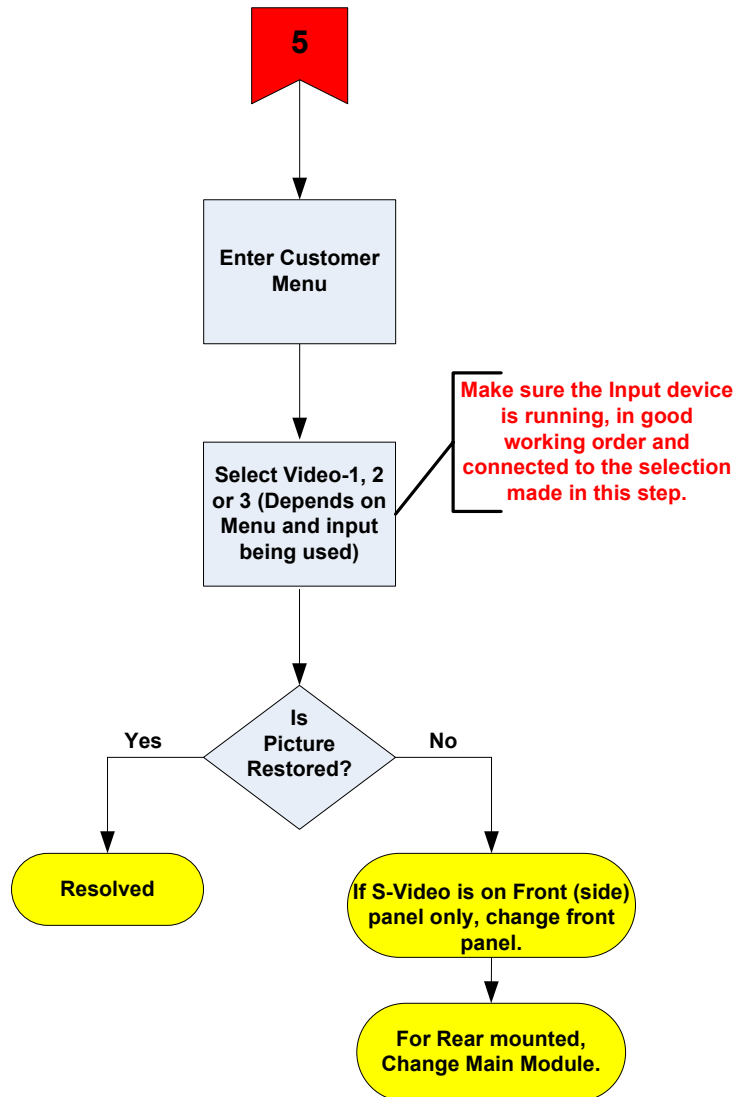
Insure the Following Steps are Taken



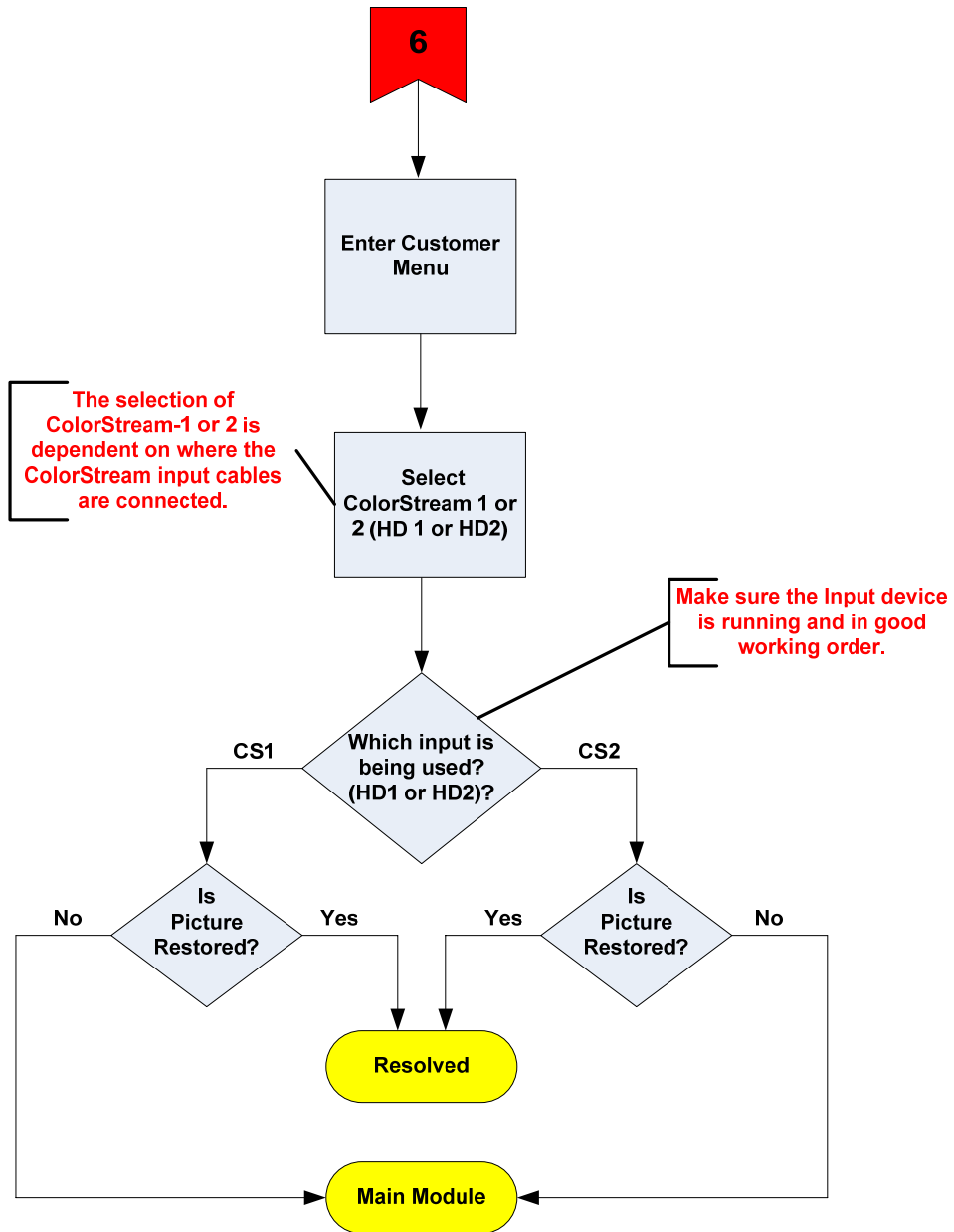
Insure the Following Steps are Taken



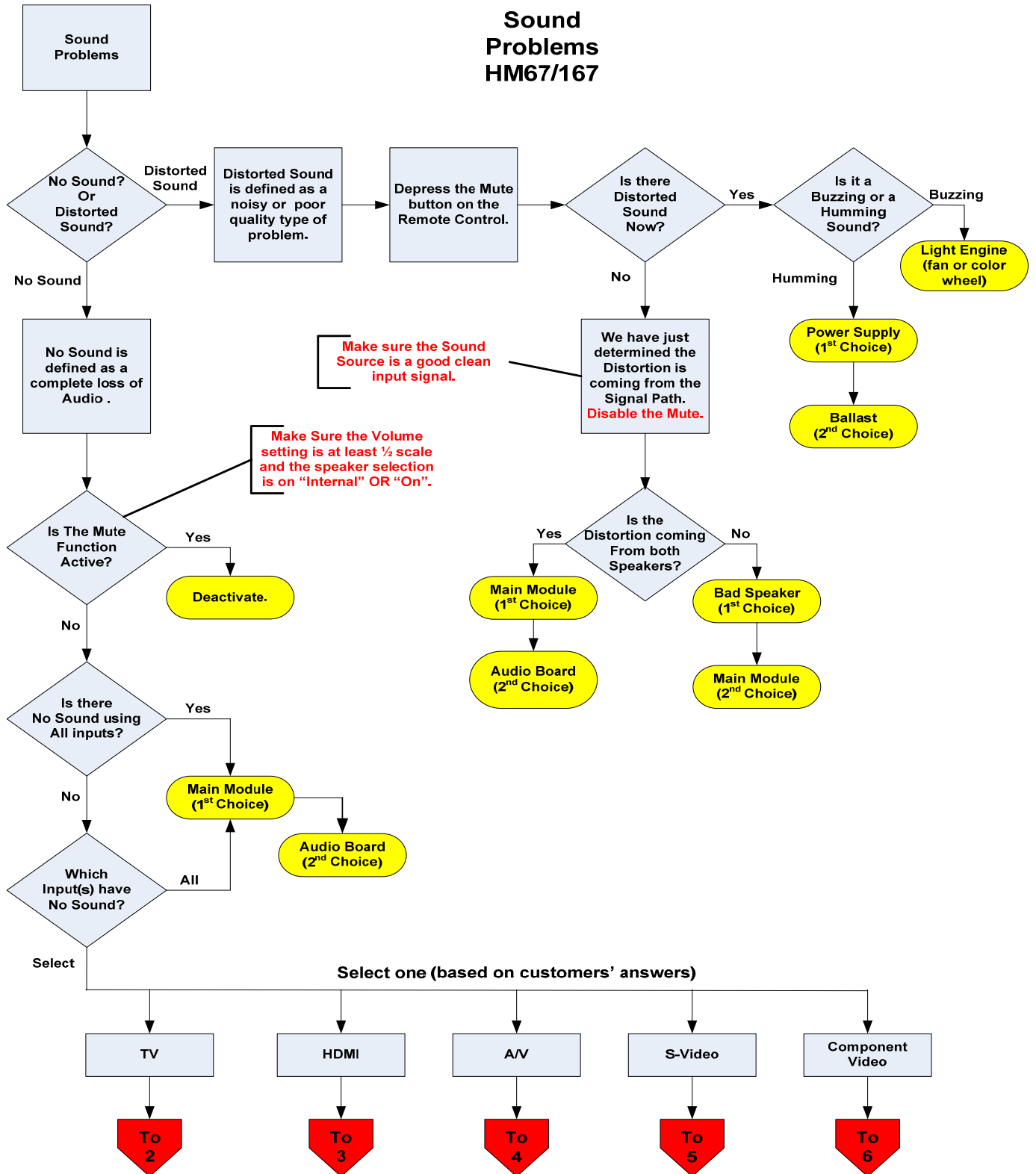
Insure the Following Steps are Taken



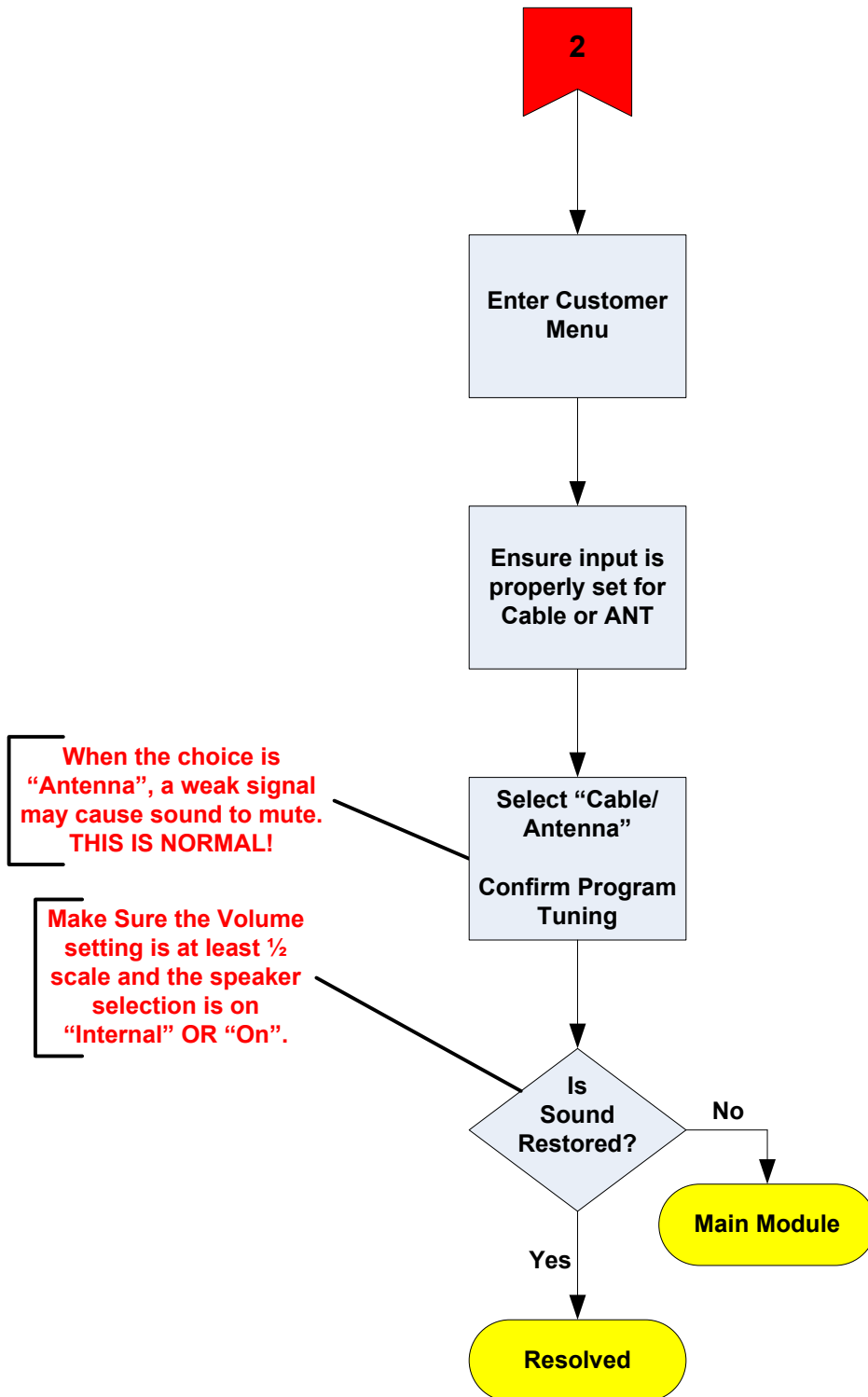
Insure the Following Steps are Taken



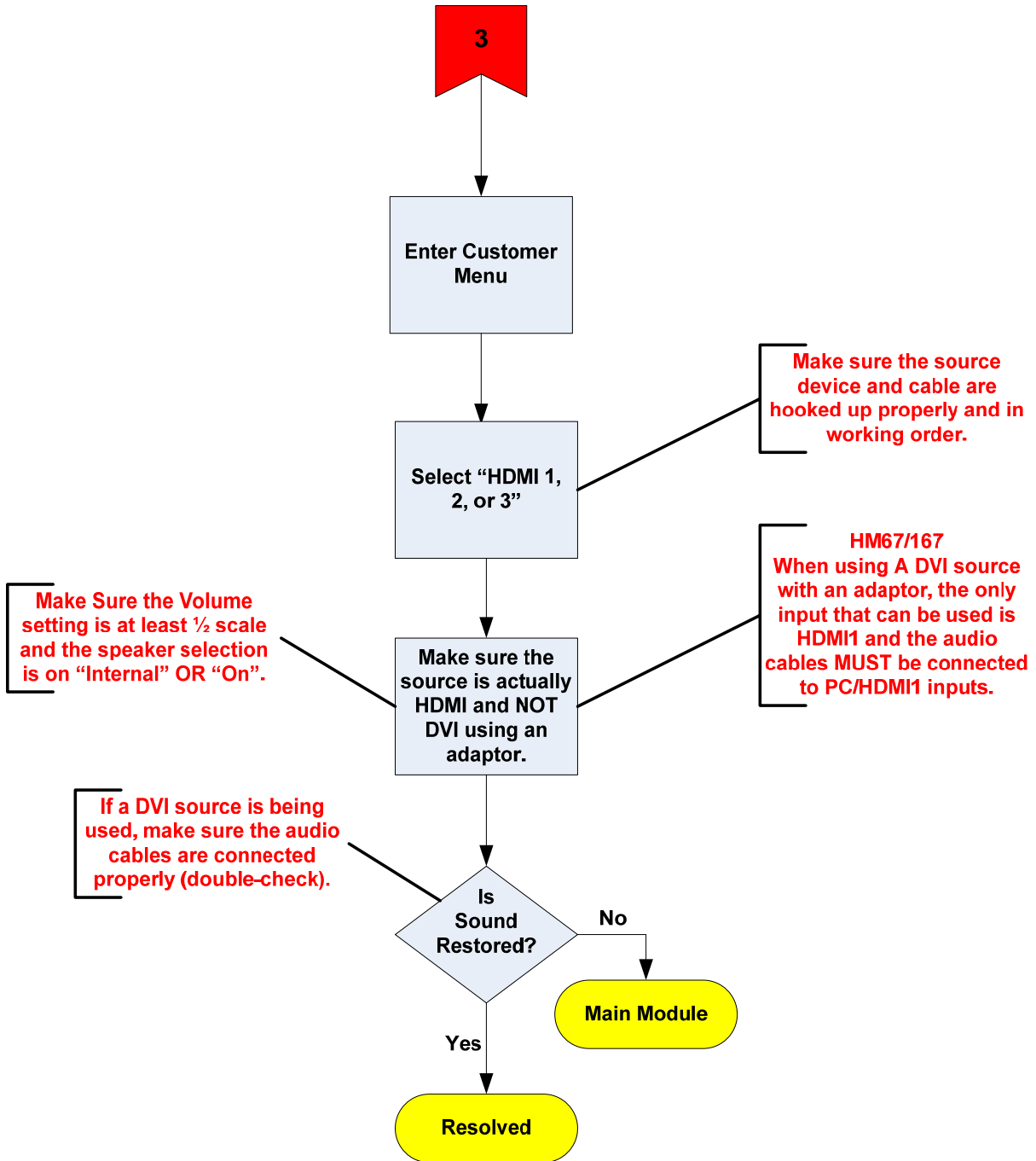
Sound Problems HM67/167



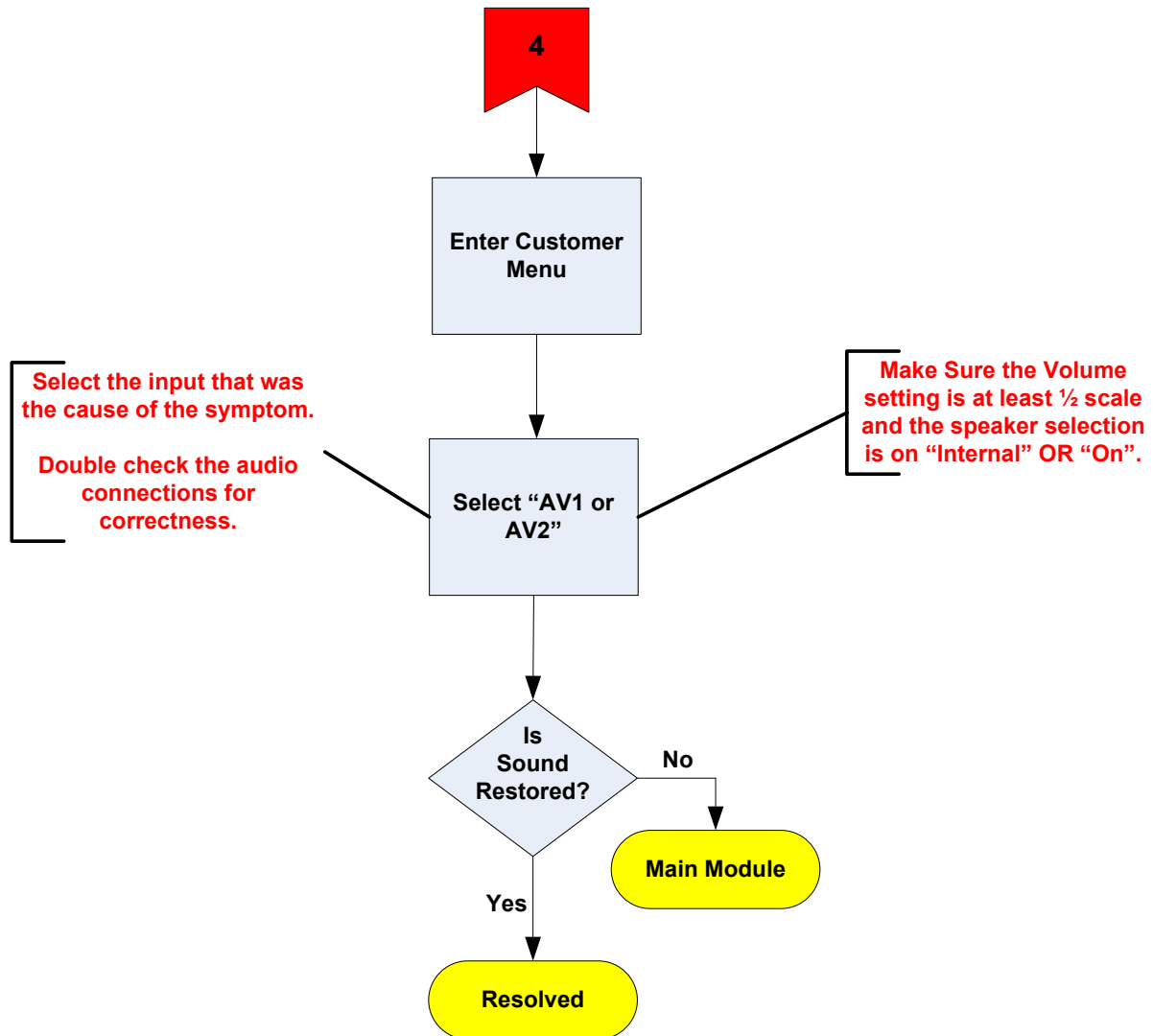
Insure the Following Steps are Taken



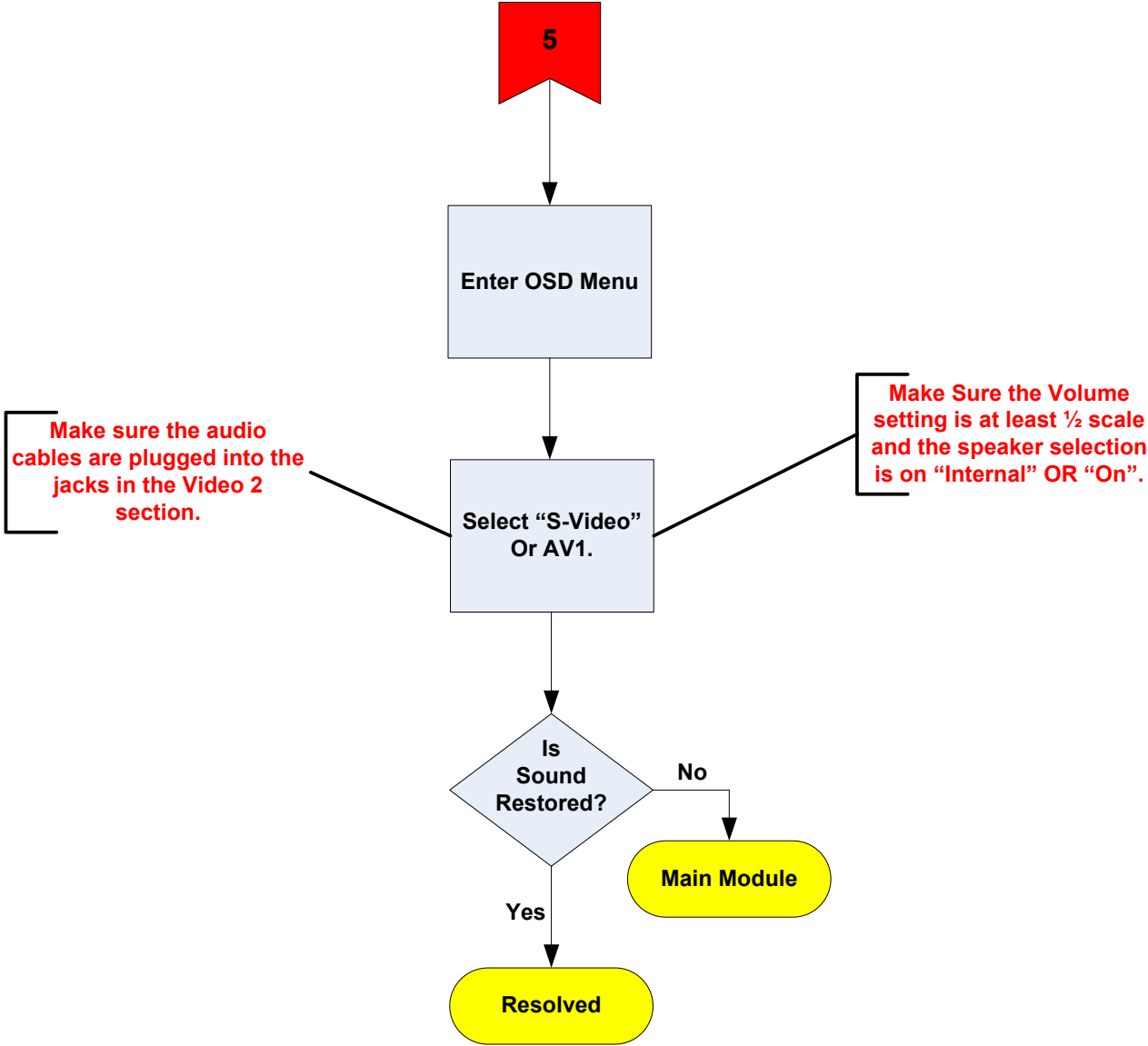
Insure the Following Steps are Taken



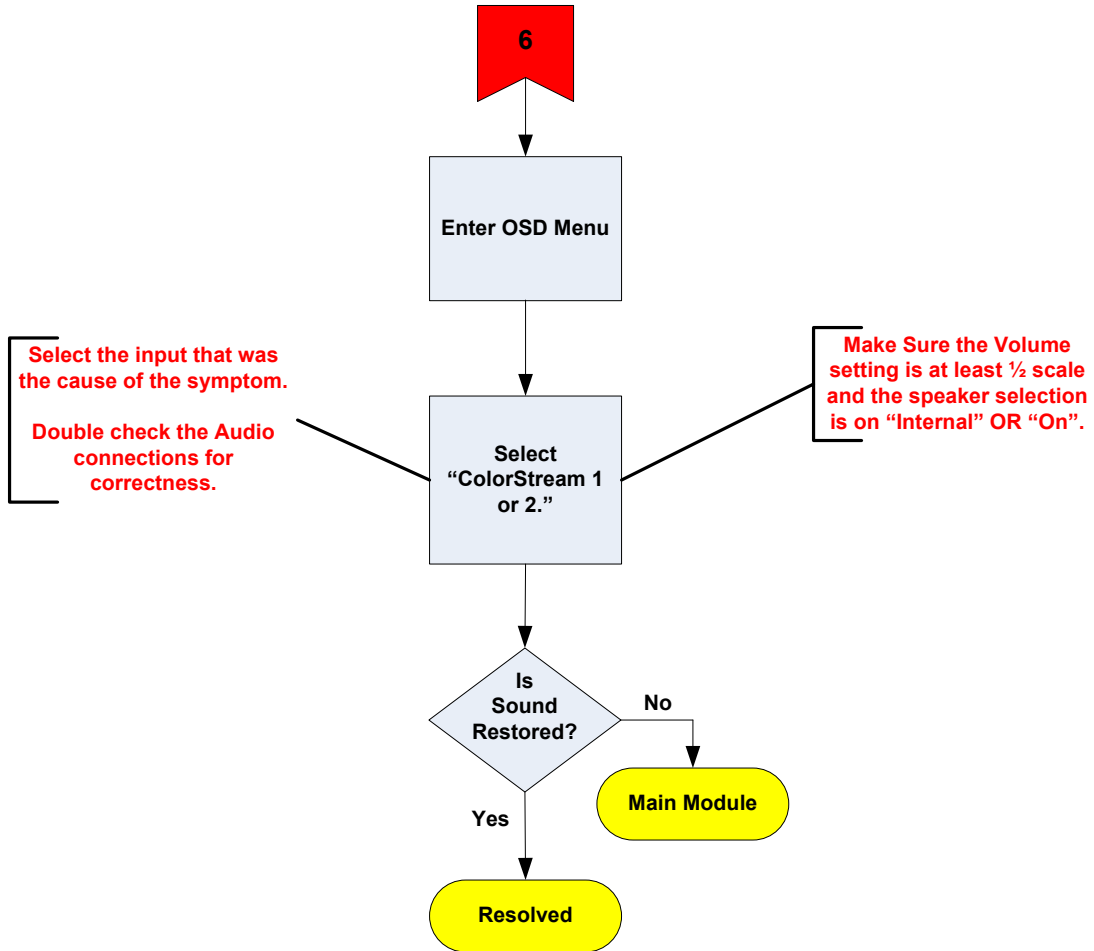
Insure the Following Steps are Taken

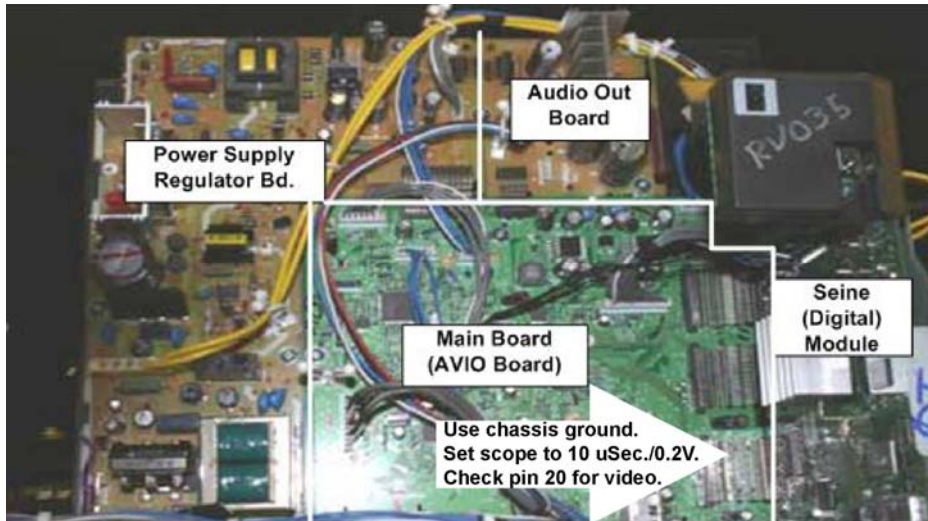


Insure the Following Steps are Taken



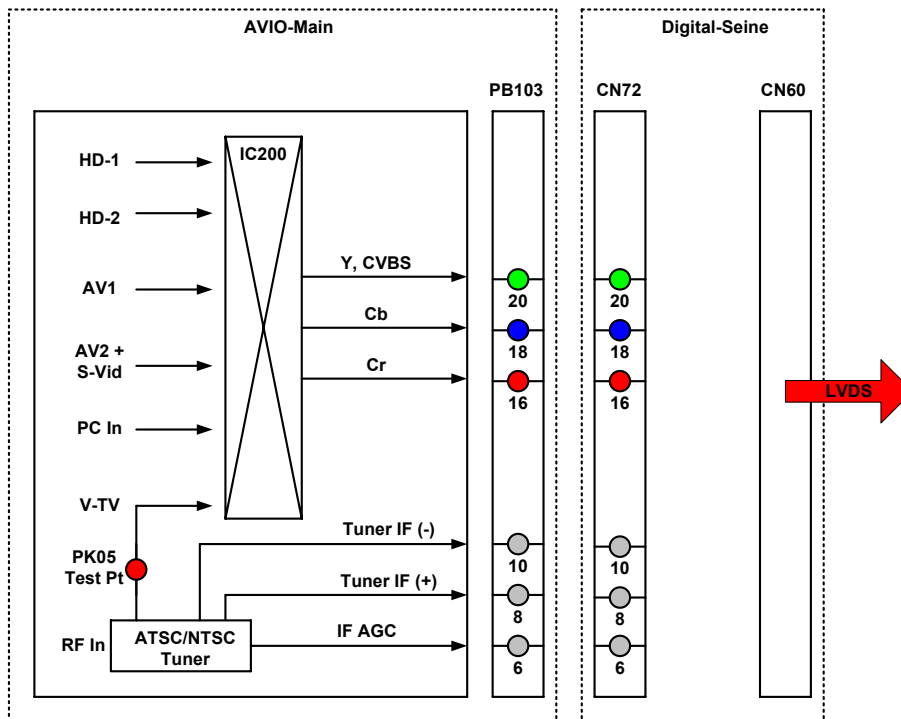
Insure the Following Steps are Taken





The drawing below is showing Y, Cb, and Cr test points from main PCB to Seine PCB and the test point for NTSC tuner video (PK05).

Video Test Points



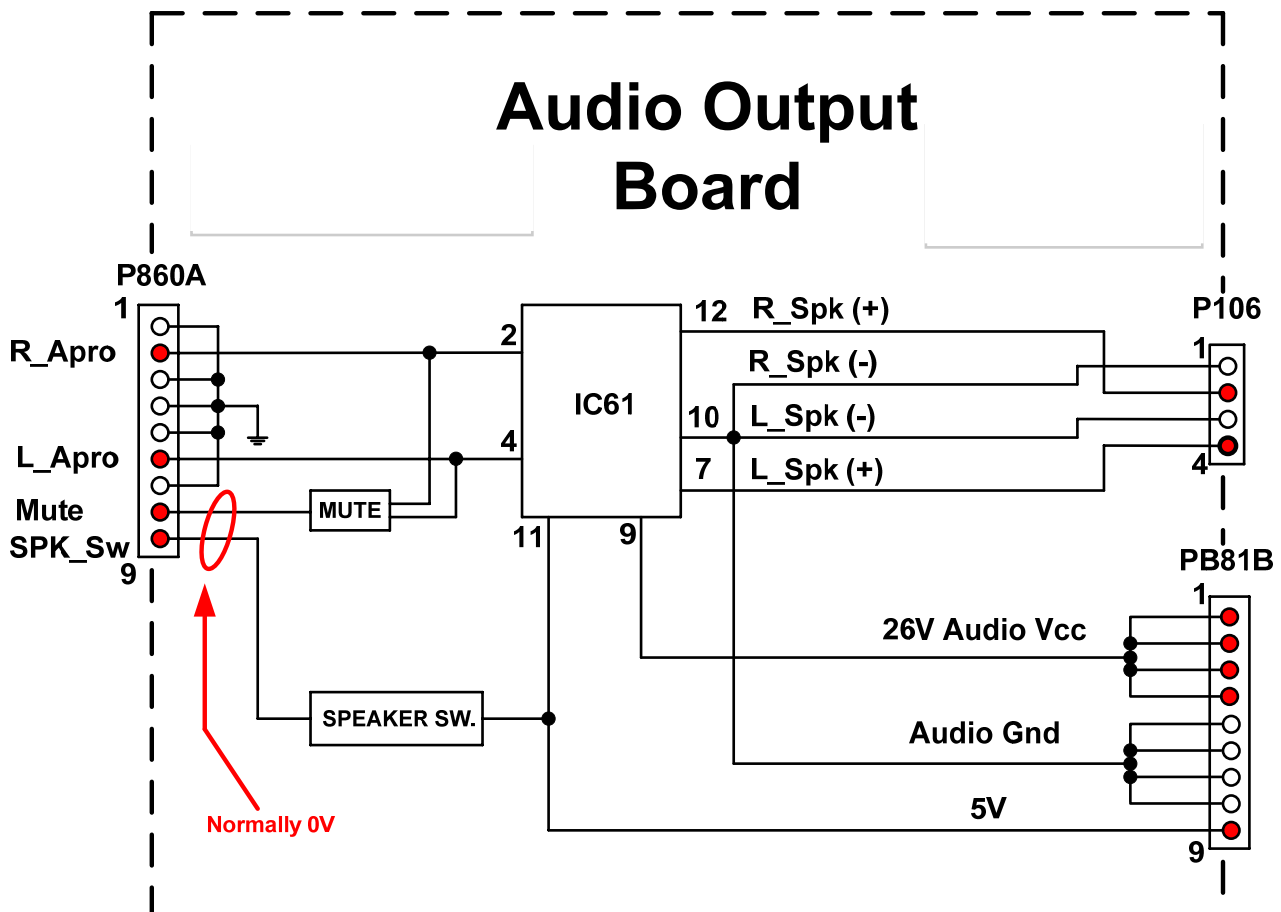
Verifying Audio

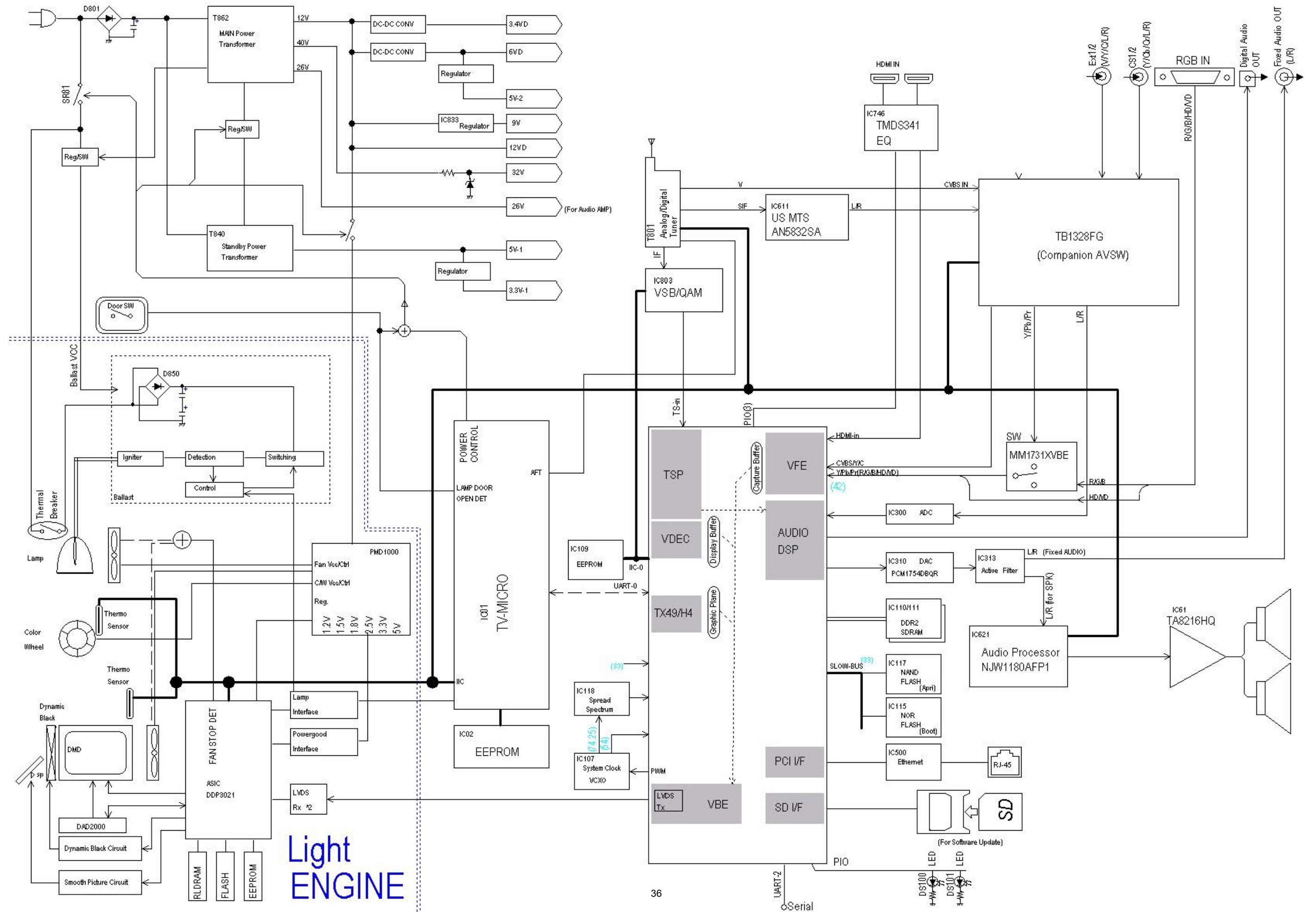
Distorted audio can be approached using the drawing below and an oscilloscope, signal tracer, or signal injector. Inputs to the Audio Output board can be scoped on pins 2 and 6 of P860A or B. Signal injection and/or signal tracing can also be applied to pins 2 and 6.

A missing audio symptom can be scoped at pins 2 and 6. DC voltage readings can be taken at pins 8 and 9. The normal state of pins 8 and 9 are 0VDC. Missing waveforms on pins 2 and 6 or a DC level on pins 8 or 9 will tell us the Audio Output board is not at fault.

Pins 1 – 4 and pin 9 of PB81B or A can be checked for proper voltages to the Audio Output board and scoped for distortion causing ripple.

Pins 2 and 4 of P106 can be scoped for distortion. The grounds to be used are pins 1 and 3, respectively.



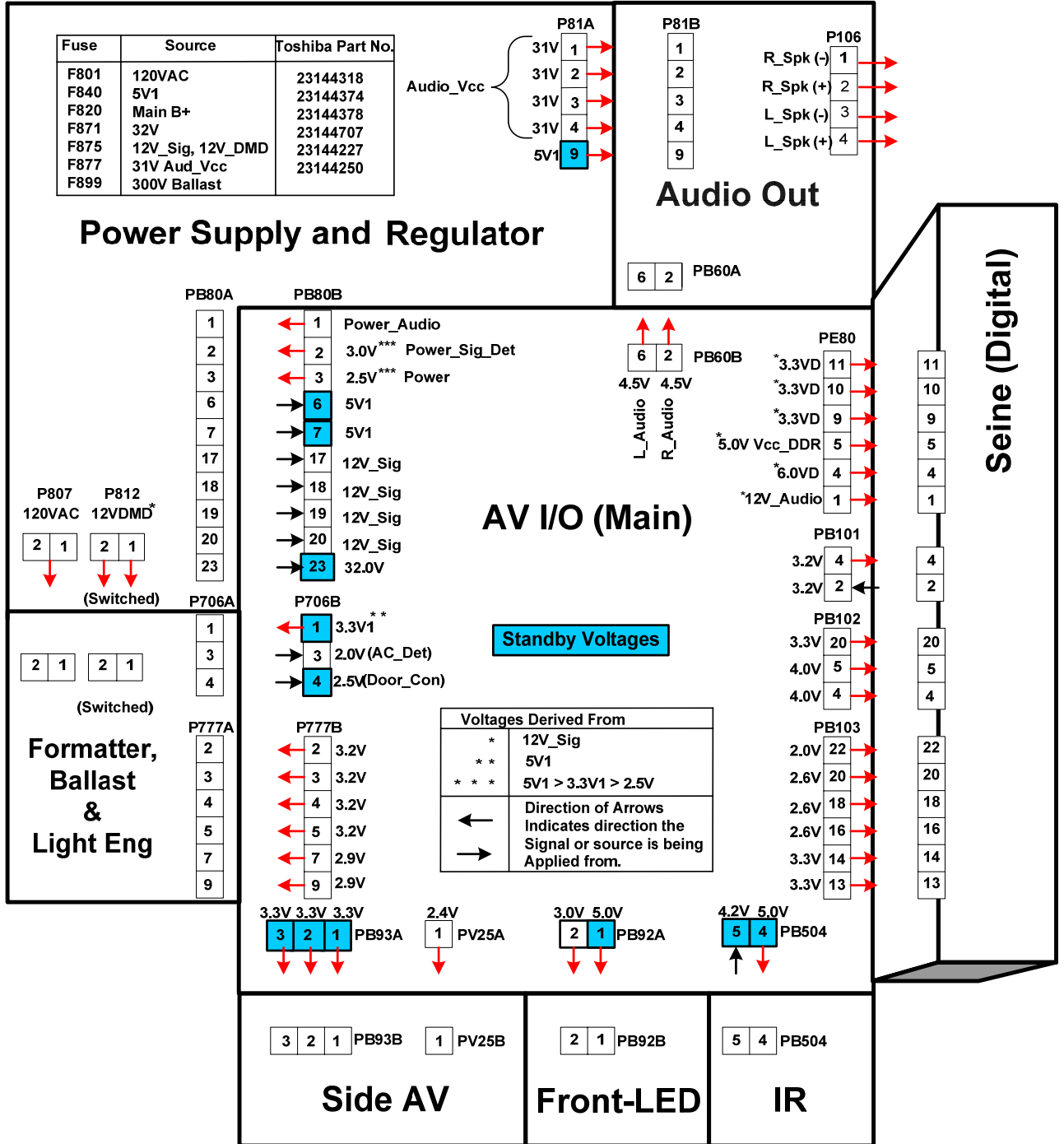


**Light
ENGINE**

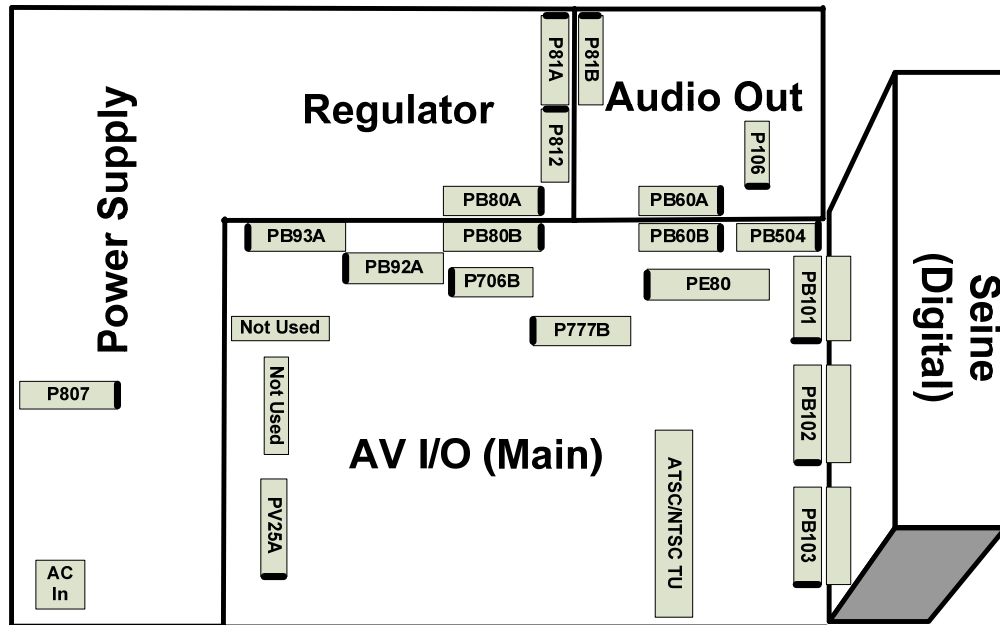
HM67/167 Series

Wiring Interconnect

-FULL-RUN Supply Voltages-



Board Layout & Connector Placement HM67/167 Series



Connector	From	To	Pin Numbers & Voltages – FULL RUN MODE
PV25A	Main	Side AV	P-1 (2.4V)
PB93A	Main	Side AV	P-1, P2, P3 (3.3V)
PB92A	Main	Front-LED	P-1 (5.0V), P-2 (3.0V)
P706B	Main	Light Engine	P-1 (3.3V), P-3 (2.0V), P-4 (2.5V)
PB80A to B	Power	Main	P-2 (3.0V), P-3 (2.5V), P-6, P-7, (5.0V), P-17, P-18, P19, P20, (12.0V), P-23 (32V)
P812	Power	Formatter	P-1, P2, (12.0V)
P81A to B	Power	Audio Out	P-1, P2, P3, P4 (31.0V), P-9 (5.0V)
PB60A to B	Main	Audio Out	P-2 (4.5V), P-6 (4.5V)
P106	Audio Out	Speakers	
PB504	Main	IR Board	P-4 (5.0V), P-5 (4.2V)
PE80	Main	Seine	P-1 (12.0V), P-4 (6.0V), P-5 (5.0V), P-9, P10, P11 (3.3V)
PB101	Main	Seine	P-2 (3.2V), P-4 (3.2V)
PB102	Main	Seine	P-4 (4.0V), P-5 (4.0V), P20 (3.3V)
PB103	Main	Seine	P-13 (3.3V), P-14 (3.3V), P16, P18, P20 (2.6V), P22 (2V)
P777B	Main	Light Engine	P-2, P-3, P-4, P-5 (3.2V), P-7 (2.9V), P-9 (2.9V)
P807	Power	Light Engine	P-1 to P-2 (120VAC)

Legend: Indicates Pin #1

1

2

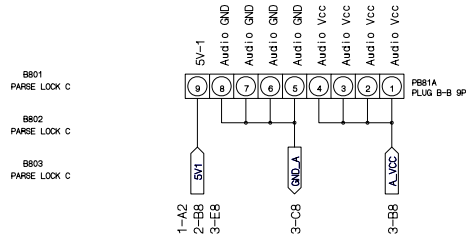
A

A

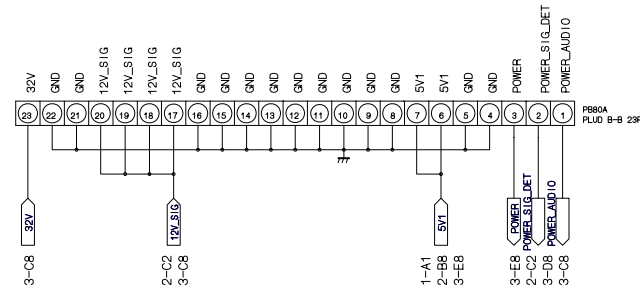
B

B

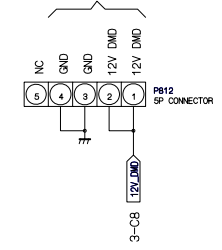
TO U01B AUDIO OUT [1] AUDIO OUT (PE0310)
PB81A → PB81B



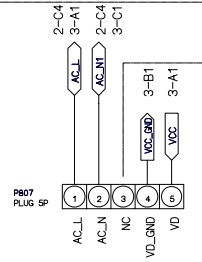
TO U02A MAIN [1] CONNECTOR (PE0311)
PB80A → PB80B



TO FORMATTER BOARD



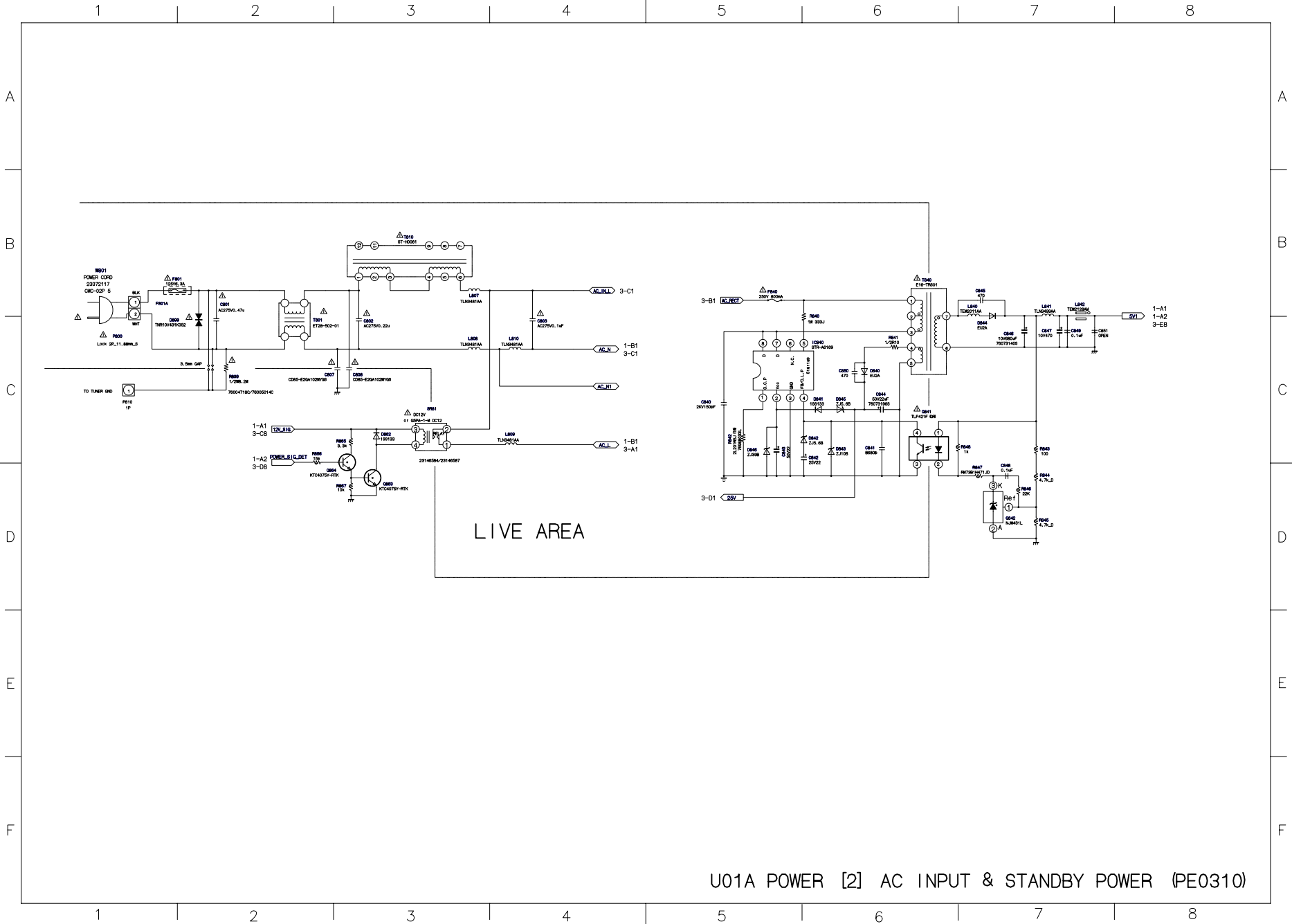
LIVE AREA



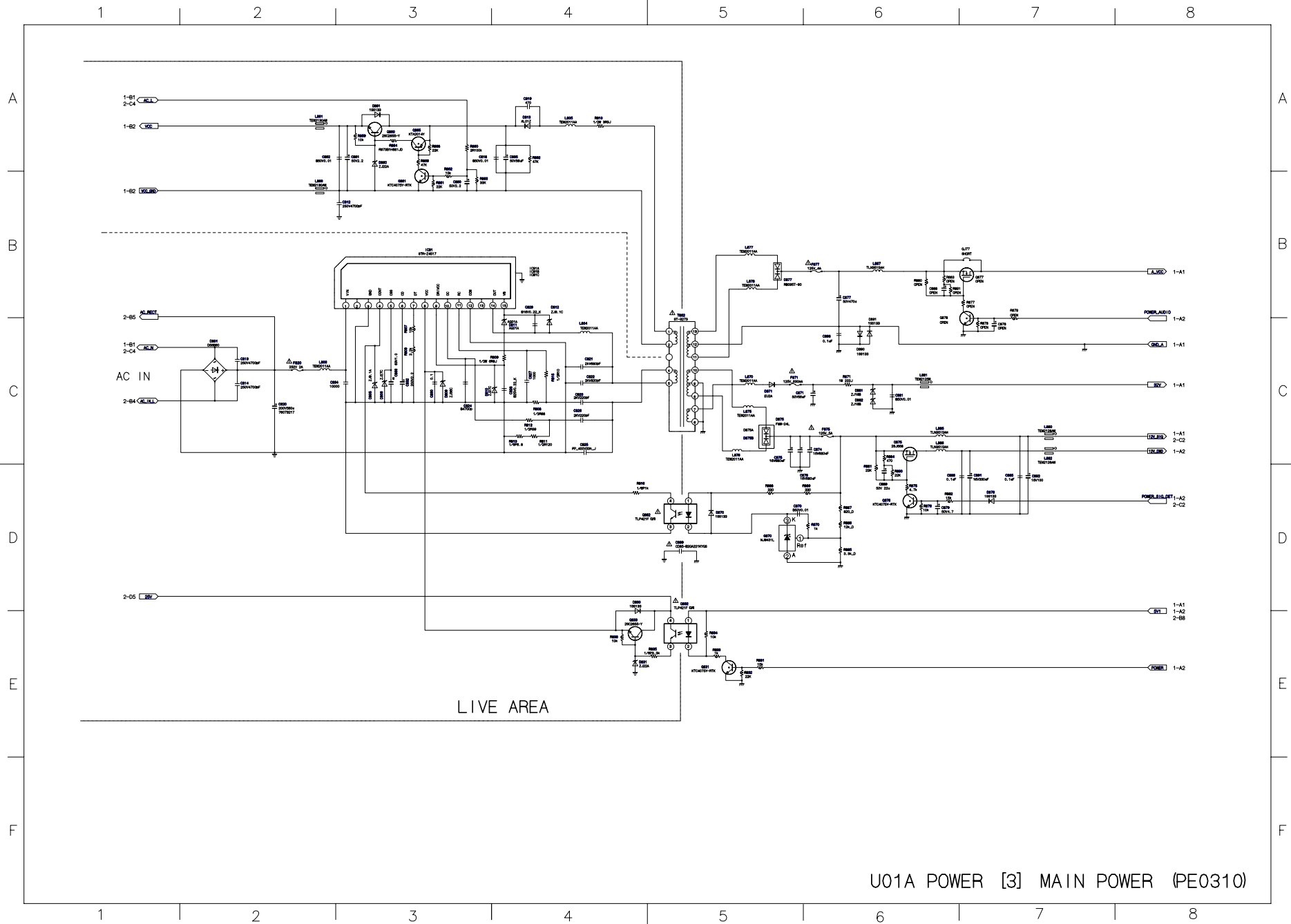
U01A POWER [1] CONNECTOR (PE0310)

1

2














U01A POWER [2] AC INPUT & STANDBY POWER (PE0310)












U01A POWER [3] MAIN POWER (PE0310)





Replacement Parts List

	Location	Part No.	Description
	A026	75004854	REAR VENT ASSY
	A100	75006662	CESE/COVER/LID BASE ASSEMBLY, BASE ASSEMBLY
	A110	75006663	CESE/COVER/LID CENT. DIV. ASSY, CENT. DIV. ASSY. 65
	A112	75006664	CESE/COVER/LID SIDE WALL, RIGHT, SIDE WALL, RIGHT 65
	A114	75006665	CABINET/RACK SIDE WALL, LEFT, SIDE WALL, LEFT
	A201	75006667	BEZEL/DECORATIVE BEZEL ASSY, BEZEL ASSY
	C801	76503513	CAPACITOR, PLASTIC FILM, LE474-C
	C802	76503510	CAPACITOR, PLASTIC FILM, LE224-C
	C803	76168104	CAPACITOR, PLASTIC FILM, 275V 0.1UF M, LE104-M-C
	C807	76092567	CAPACITOR, CERAMIC DISC, AC250V E 1000PF M
	C808	76092567	CAPACITOR, CERAMIC DISC, AC250V E 1000PF M
	C812	76092281	CAPACITOR, CERAMIC DISC, AC250V E 4700PF
	C813	76092281	CAPACITOR, CERAMIC DISC, AC250V E 4700PF
	C814	76092281	CAPACITOR, CERAMIC DISC, AC250V E 4700PF
	C818	76109103	CAPACITOR, CERAMIC CHIP, 50V B 0.01UF K
	C819	76214471	CAPACITOR, CERAMIC DISC, 500V B 470PF K
	C820	76073217	CAPACITOR, ELECTROLYTIC, 200V 560UF M
	C821	76092343	CAPACITOR, CERAMIC DISC, 2KV 680PF K
	C822	76092344	CAPACITOR, CERAMIC DISC, 2KV 820PF K
	C823	76092337	CAPACITOR, CERAMIC DISC, 2KV 220PF K
	C824	76109472	CAPACITOR, CERAMIC CHIP, 50V B 4700PF K
	C825	76829333	CAPACITOR, PLASTIC FILM, 400V 0.033UF J
	C826	76092337	CAPACITOR, CERAMIC DISC, 2KV 220PF K
	C827	76214102	CAPACITOR, CERAMIC DISC, 500V B 1000PF K
	C828	76092179	CAPACITOR, CERAMIC CHIP, 25V B 0.22UF K
	C829	76092463	CAPACITOR, CERAMIC CHIP, 16V B 0.22UF K
	C830	76285104	CAPACITOR, CERAMIC CHIP, 50V B 0.1UF K
	C832	76678229	CAPACITOR, ELECTROLYTIC, 200V 2.2UF M
	C833	76503053	CAPACITOR, PLASTIC FILM, 63V 1UF J
	C834	76214103	CAPACITOR, CERAMIC DISC, 500V B 0.01UF K
	C835	76073197	CAPACITOR, ELECTROLYTIC, 50V 56UF M
	C840	76092335	CAPACITOR, CERAMIC DISC, 2KV R 150PF K
	C841	76212681	CAPACITOR, CERAMIC DISC, 50V B 680PF K
	C842	76073050	CAPACITOR, ELECTROLYTIC, 25V 22UF M
	C843	76073087	CAPACITOR, ELECTROLYTIC, 50V 22UF M
	C844	76073196	CAPACITOR, ELECTROLYTIC, 50V 22UF M
	C845	76214471	CAPACITOR, CERAMIC DISC, 500V B 470PF K
	C846	76073140	CAPACITOR, ELECTROLYTIC, 10V 680UF M
	C847	76665471	CAPACITOR, ELECTROLYTIC, 10V 470UF M
	C848	76092730	CAPACITOR, CERAMIC CHIP, 16V B 0.1UF K
	C849	76092730	CAPACITOR, CERAMIC CHIP, 16V B 0.1UF K
	C850	76214471	CAPACITOR, CERAMIC DISC, 500V B 470PF K
	C860	76669229	CAPACITOR, ELECTROLYTIC, 50V 2.2UF M
	C861	76669229	CAPACITOR, ELECTROLYTIC, 50V 2.2UF M
	C862	76109103	CAPACITOR, CERAMIC CHIP, 50V B 0.01UF K
	C870	76109103	CAPACITOR, CERAMIC CHIP, 50V B 0.01UF K
	C871	76073197	CAPACITOR, ELECTROLYTIC, 50V 56UF M
	C874	76073154	CAPACITOR, ELECTROLYTIC, 16V 680UF M
	C875	76073154	CAPACITOR, ELECTROLYTIC, 16V 680UF M
	C876	76073154	CAPACITOR, ELECTROLYTIC, 16V 680UF M
	C877	76073205	CAPACITOR, ELECTROLYTIC, 50V 470UF M
	C879	76073084	CAPACITOR, ELECTROLYTIC, 50V 4.7UF M
	C881	76109103	CAPACITOR, CERAMIC CHIP, 50V B 0.01UF K
	C885	76092730	CAPACITOR, CERAMIC CHIP, 16V B 0.1UF K









Replacement Parts List

	Location	Part No.	Description
	C886	76092730	CAPACITOR, CERAMIC CHIP, 16V B 0.1UF K
	C889	76073087	CAPACITOR, ELECTROLYTIC, 50V 22UF M
	C891	76073152	CAPACITOR, ELECTROLYTIC, 16V 330UF M
	C892	76073038	CAPACITOR, ELECTROLYTIC, 16V 100UF M
	C898	76092730	CAPACITOR, CERAMIC CHIP, 16V B 0.1UF K
	C899	76092563	CAPACITOR, CERAMIC DISC, AC250V B 220PF K
	D801	23362200	DIODE, D5SB60, 7009F07
	D805	23362310	DIODE, ZENER, ZJ9.1A-26MM
	D806	23362347	DIODE, ZENER, ZJ27C-26MM
	D809	23362359	DIODE, ZENER, ZJ36C-26MM
	D810	23362347	DIODE, ZENER, ZJ27C-26MM
	D811	23357511	DIODE, AG01A
	D812	23362312	DIODE, ZENER, ZJ9.1C-26MM
	D813	23357512	DIODE, AL01Z
	D830	23362268	DIODE, 1SS133-B/P
	D831	23362337	DIODE, ZENER, ZJ22A-26MM
	D840	23357366	DIODE, FR105-B5
	D841	23362268	DIODE, 1SS133-B/P
	D842	23362296	DIODE, ZENER, ZJ5.6B-26MM
	D843	23362314	DIODE, ZENER, ZJ10B-26MM
	D844	23357366	DIODE, FR105-B5
	D845	23362296	DIODE, ZENER, ZJ5.6B-26MM
	D846	23362362	ZENER DIODE, VZ=35.36~37.19V ZJ39B-26MM
	D860	23362337	DIODE, ZENER, ZJ22A-26MM
	D861	23362268	DIODE, 1SS133-B/P
	D862	23362268	DIODE, 1SS133-B/P
	D870	23362268	DIODE, 1SS133-B/P
	D871	23357366	DIODE, FR105-B5
	D875	75002031	DIODE, FMW-24L
	D875B	23717241	SCREW, BITTB3X8ECO
	D877	23362210	DIODE, SCHOTTKY, RB095T-90
	D879	23362268	DIODE, 1SS133-B/P
	D881	23362329	DIODE, ZENER, ZJ16B-26MM
	D882	23362329	DIODE, ZENER, ZJ16B-26MM
	D899	76019485	VARISTOR, TNR10V431K
	F801	75006594	FUSE CARTRIDGE, 5.2 X 20, FBT 125V 6.3A (EM)
	F801A	23165433	FUSE HOLDER, 5.2
	F820	23144378	FUSE, RADIAL LEAD SUB-MINIATUR, 250V 2A
	F840	23144374	FUSE, RADIAL LEAD SUB-MINIATUR, 250V 0.8A
	F871	75006592	FUSE AXIAL, CCV 125V 630MA (EM)FC-1506
	F875	75005716	FUSE, AXIAL, CCV 125V 5A (EM)FC-1506
	F877	75006593	FUSE AXIAL, CCV 125V 4A (EM)FC-1506
	IC81	75001933	IC, STRZ4517
	IC840	23135083	IC, STRA6169
	K271	75006693	OPTICAL ENGINE, 95.L9002G003
	K501	75006670	SCREEN 65D7ML, SCREEN65D7ML
	K502	75006671	SCREEN 65D7MF, SCREEN65D7MF
	K601	75006669	MIRROR 65E7M5, MIRROR65E7M5
	L803	23103304	FERRITE CHOKE, TEM2011AA
	L804	23103304	FERRITE CHOKE, TEM2011AA
	L805	23103304	FERRITE CHOKE, TEM2011AA
	L807	23248386	COIL, CHOKE, TLN3481AA
	L808	23248386	COIL, CHOKE, TLN3481AA
	L809	23248386	COIL, CHOKE, TLN3481AA

Replacement Parts List

	Location	Part No.	Description
	L810	23248386	COIL, CHOKE, TLN3481AA
	L840	23103304	FERRITE CHOKE, TEM2011AA
	L841	23248387	COIL, CHOKE, TLN3499AA
	L842	23103885	BEAD INDUCTOR, 3A 22OHM
	L860	23103887	INDUCTOR, CHIP BEAD, TEM2130AM
	L861	23103887	INDUCTOR, CHIP BEAD, TEM2130AM
	L870	23103304	FERRITE CHOKE, TEM2011AA
	L875	23103304	FERRITE CHOKE, TEM2011AA
	L876	23103304	FERRITE CHOKE, TEM2011AA
	L877	23103304	FERRITE CHOKE, TEM2011AA
	L878	23103304	FERRITE CHOKE, TEM2011AA
	L880	23103885	BEAD INDUCTOR, 3A 22OHM
	L881	23103832	INDUCTOR, BEAD, TEM2125M
	L882	23103885	BEAD INDUCTOR, 3A 22OHM
	L885	23248388	COIL, CHOKE, TLN3515AA
	L886	23248388	COIL, CHOKE, TLN3515AA
	L887	23248388	COIL, CHOKE, TLN3515AA
	P800	23713702	PLUG, 2P 11.88MM W VT
	P807	75006591	CONNECTOR, W-P3505-#02
	P812	23713756	PLUG, 5P 2.5MM G, B5B-EH-F1-TV4
	Q831	23205347	TRANSISTOR, KTC4075Y/P
	Q832	23000823	IC, PHOTO COUPLER, TLP421F(GR)
	Q833	23205339	TRANSISTOR, 2SC2655-Y(F)
	Q841	23000823	IC, PHOTO COUPLER, TLP421F(GR)
	Q842	23085587	IC, TA76431S
	Q860	23205339	TRANSISTOR, 2SC2655-Y(F)
	Q861	23205347	TRANSISTOR, KTC4075Y/P
	Q862	23000823	IC, PHOTO COUPLER, TLP421F(GR)
	Q863	23205347	TRANSISTOR, KTC4075Y/P
	Q864	23205347	TRANSISTOR, KTC4075Y/P
	Q865	23205346	TRANSISTOR, KTA2014Y/P
	Q870	23085587	IC, TA76431S
	Q875	75002025	TRANSISTOR, 2SJ668(Q)
	Q876	23205347	TRANSISTOR, KTC4075Y/P
	R803	76011222	RESISTOR, CHIP, 1/20W 2.2K OHM J
	R807	76011153	RESISTOR, CHIP, 1/20W 15K OHM J
	R808	76552680	RESISTOR, OXIDE METAL FILM, 1/2W 680 OHM J
	R809	76321689	RESISTOR, OXIDE METAL FILM, 1/2W 6.8 OHM J
	R810	76321339	RESISTOR, OXIDE METAL FILM, 1/2W 3.3 OHM J
	R811	76552121	RESISTOR, OXIDE METAL FILM, 1/2W 120 OHM J
	R812	76552390	RESISTOR, OXIDE METAL FILM, 1/2W 39 OHM J
	R813	76366689	RESISTOR, CARBON FILM 1/6W 6R8 J
	R815	76552100	RESISTOR, OXIDE METAL FILM, 1/2W 10 OHM J
	R816	76366102	RESISTOR, CARBON FILM, 1/6W 1K OHM J
	R831	76011153	RESISTOR, CHIP, 1/20W 15K OHM J
	R832	76011223	RESISTOR, CHIP, 1/20W 22K OHM J
	R833	76011102	RESISTOR, CHIP, 1/20W 1K OHM J
	R834	76011103	RESISTOR, CHIP, 1/20W 10K OHM J
	R835	76366332	RESISTOR, CARBON FILM, 1/6W 3.3K OHM J
	R836	76011103	RESISTOR, CHIP, 1/20W 10K OHM J
	R840	76382333	RESISTOR, OXIDE METAL FILM, 1W 33K OHM J
	R841	76381100	RESISTOR, OXIDE METAL FILM, 1/2W 10 OHM J
	R842	76988033	RESISTOR, METAL FILM, 1W 1.5 OHM J
	R843	76011101	RESISTOR, CHIP, 1/20W 100 OHM J

Replacement Parts List

	Location	Part No.	Description
	R844	75006570	RESISTOR, CR1/16 472DV
	R845	75006570	RESISTOR, CR1/16 472DV
	R846	76011223	RESISTOR, CHIP, 1/20W 22K OHM J
	R847	76011471	RESISTOR, CHIP, 1/20W 470 OHM J
	R848	76011102	RESISTOR, CHIP, 1/20W 1K OHM J
	R859	76011103	RESISTOR, CHIP, 1/20W 10K OHM J
	R860	76383104	RESISTOR, OXIDE METAL FILM, 2W 100K OHM J
	R861	76011223	RESISTOR, CHIP, 1/20W 22K OHM J
	R862	76011103	RESISTOR, CHIP, 1/20W 10K OHM J
	R863	76011333	RESISTOR, CHIP, 1/20W 33K OHM J
	R864	76011681	RESISTOR, CHIP, 1/20W 680 OHM J
	R865	76011332	RESISTOR, CHIP, 1/20W 3.3K OHM J
	R866	76011153	RESISTOR, CHIP, 1/20W 15K OHM J
	R867	76011103	RESISTOR, CHIP, 1/20W 10K OHM J
	R868	76011223	RESISTOR, CHIP, 1/20W 22K OHM J
	R869	76011473	RESISTOR, CHIP, 1/20W 47K OHM J
	R870	76011102	RESISTOR, CHIP, 1/20W 1K OHM J
	R871	76382222	RESISTOR, OXIDE METAL FILM, 1W 2.2K OHM J
	R875	76011472	RESISTOR, CHIP, 1/20W 4.7K OHM J
	R876	76011103	RESISTOR, CHIP, 1/20W 10K OHM J
	R881	76011223	RESISTOR, CHIP, 1/20W 22K OHM J
	R882	76011153	RESISTOR, CHIP, 1/20W 15K OHM J
	R884	76011471	RESISTOR, CHIP, 1/20W 470 OHM J
	R885	75004057	RESISTOR, CR1/16 332DV
	R886	75006061	RESISTOR, CR1/16 123DV
	R887	75006056	RESISTOR, CR1/16 821DV
	R888	76011331	RESISTOR, CHIP, 1/20W 330 OHM J
	R889	76011331	RESISTOR, CHIP, 1/20W 330 OHM J
	R890	76011223	RESISTOR, CHIP, 1/20W 22K OHM J
	R892	76011473	RESISTOR, CHIP, 1/20W 47K OHM J
	R899	76004718	RESISTOR, METAL GLAZE, 1/2W 8.2M OHM J
	SP661	75002024	SPEAKER, SPK-1488AO
	SP662	75002024	SPEAKER, SPK-1488AO
	SR81	23146584	RELAY, DC12V, TV5, DG-3
	T801	75002021	FILTER, LF LH28V 5MH 3.2A, ET28-502-01
	T810	75002020	TRANSFORMER, CHOKE, ST-H0061
	T840	75006590	TRANSFORMER CONVERTER, E16-TRS01
	T862	75006589	TRANSFORMER CONV EE28 56HM67, ST-3273
	U01A	75006603	PCB ASSY POWER, PE0310A1
	U01B	75006604	PCB ASSY AUDIO OUT, PE0310A2
	U01C	75006605	PCB ASSY SIDE AV, PE0310A3
	U01D	75006607	PCB ASSY SIDE KEY SW, PE0310A4
	U01E	75006608	PCB ASSY FRONT LED, PE0310A5
	U01F	75006609	PCB ASSY LAMP DOOR SW, PE0310A6
	U02AS	75007559	PCB ASSY MAIN, PE0311A1
	U02B	75006598	PCB ASSY REMOTE EYE, PE0311A2
	U04S	75007556	PC BOARD ASSY, PE0361A1, SEINE
	V701	75007091	Lamp Assy, Service
	W801	23372117	POWER CORD, U/C 125V10A HSV 5 CMC-02P 5
	Y912	75005729	REMOCON HAND UNIT, CT-90275

TOSHIBA CORPORATION

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