

# TOSHIBA

## SERVICE MANUAL

LCD Color Television

**40RV52U**

**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](http://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**

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## **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**

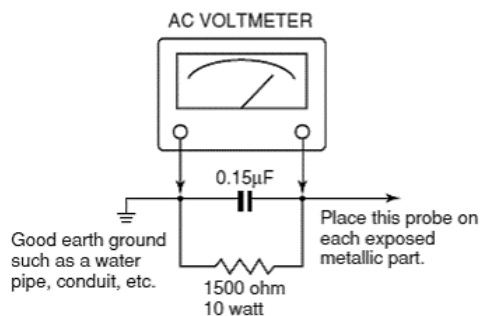
**WARNING:** Servicing should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

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  $\mu$ 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  $\mu$ 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.

### SAFETY INSTRUCTION

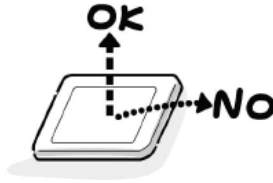
**WARNING:** The metal edges of the LCD module are sharp, **handle it with care.**

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

1. In the event that the screen is damaged or the liquid crystal (fluid) leaks, do not breathe in, drink, or 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.

2. 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.



3. 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.



4. 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, wipe the panel surface with CRT cleaner sprayed onto the cloth. Do not spray the cleaner on the panel. Pay attention not to scratch the panel surface.



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



6. Glass is used in the panel construction. Damage can occur if dropped or struck with hard objects.



7. 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.



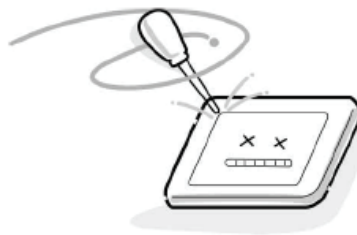
8. Do not expose the LCD module to direct sunlight or strong ultraviolet rays for extended periods.



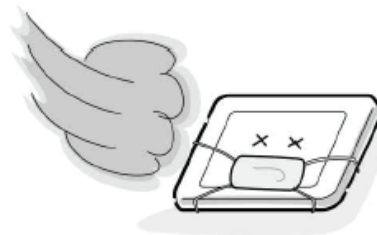
9. Do not store the LCD module below the temperature conditions described in the specifications. Doing so could result in freezing of the liquid crystal, loss of resilience, or other damage.

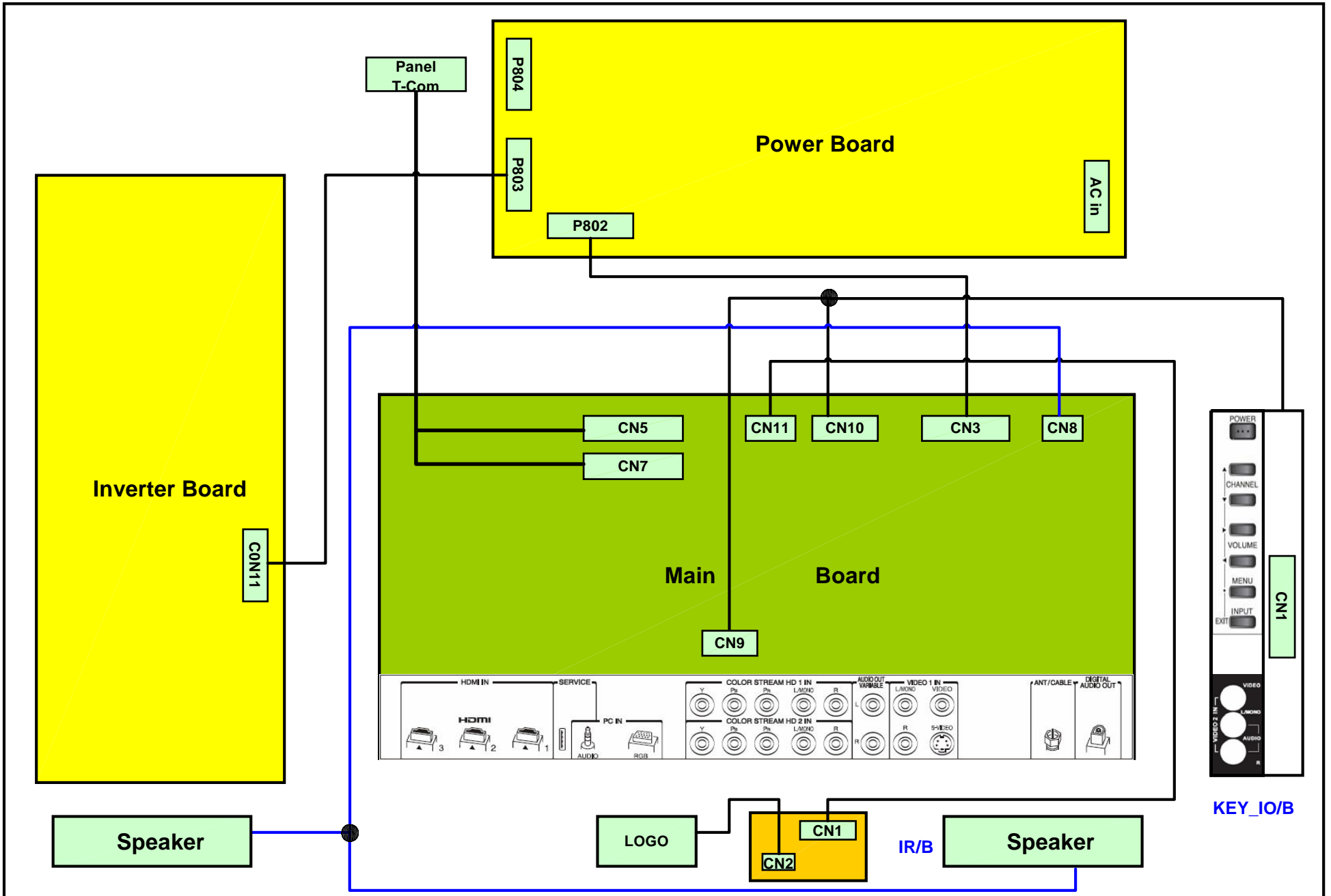


10. Do not disassemble the LCD module. Such actions could result in improper operation.



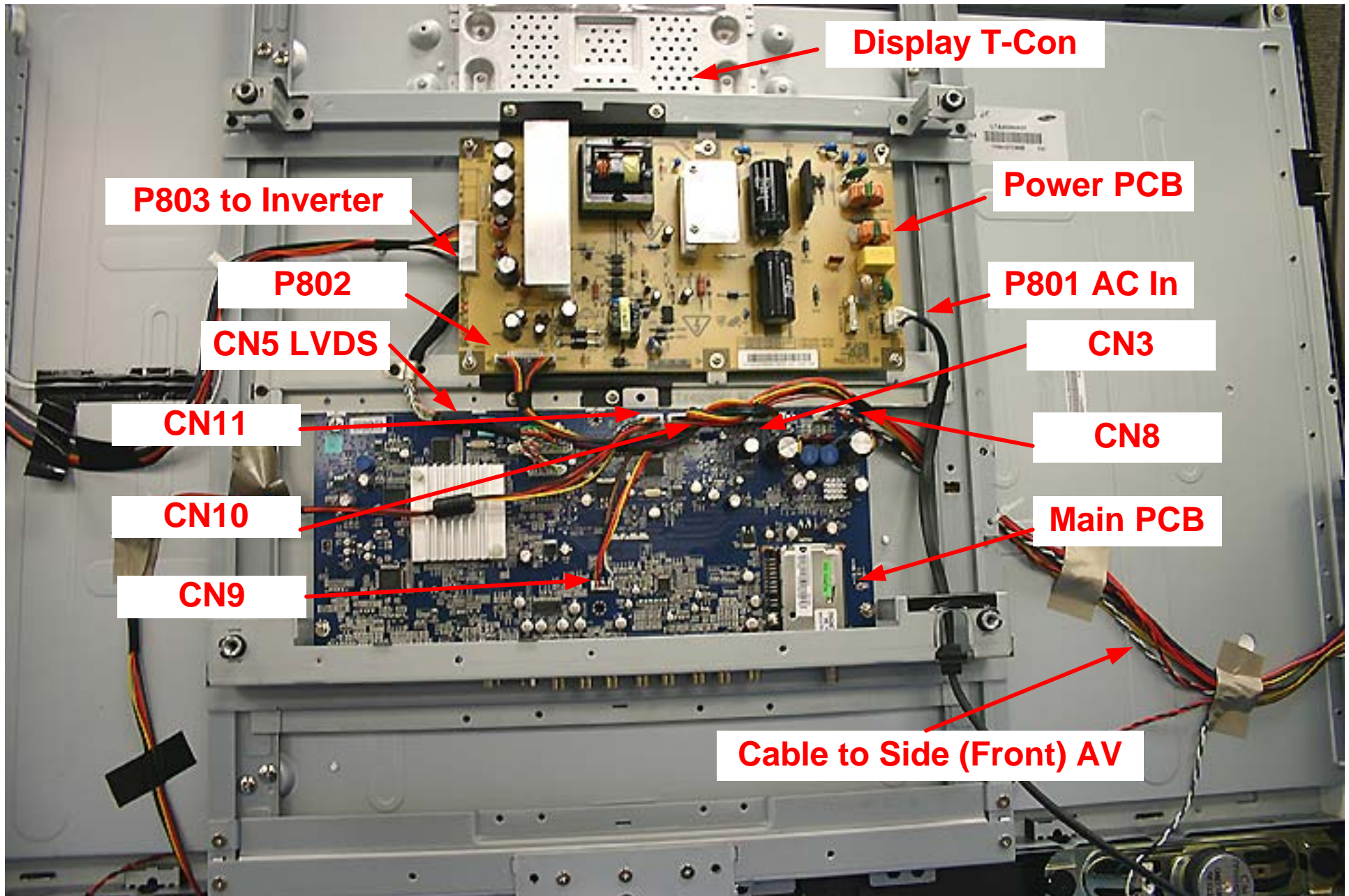
11. When transporting the LCD module, do not use packing containing epoxy resin (amine) or silicon resin (alcohol or oxim). The gas generated by these materials can cause loss of polarity.







# 40RV525U Chassis Layout

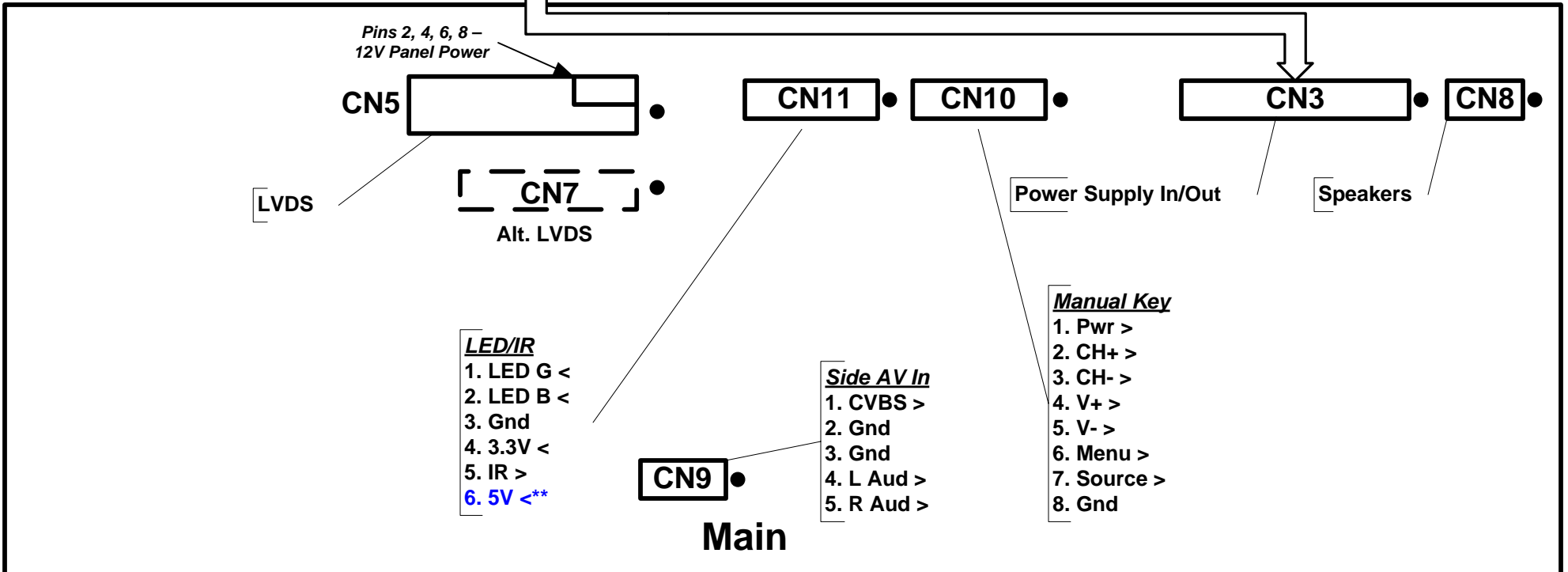
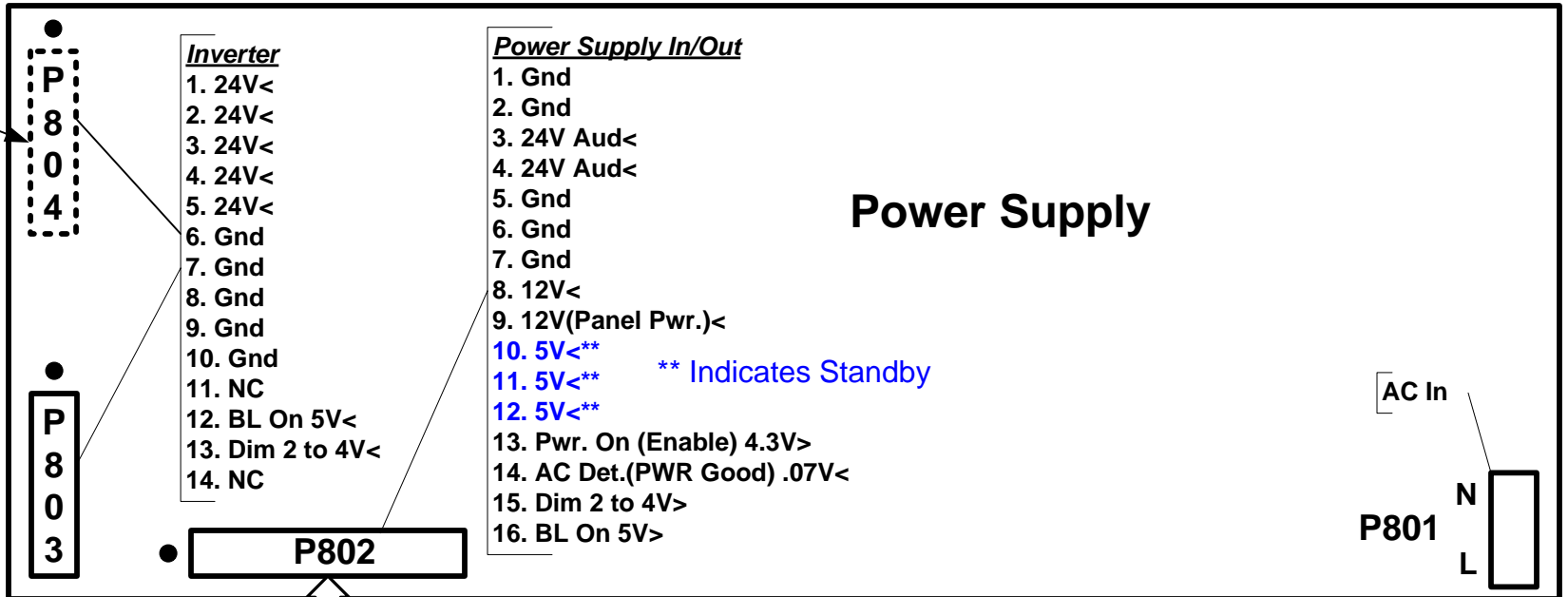


P804 used in models with 2 inverters

# Wiring Interconnect

## 40RV52U/ 40RV525U/ 46RV525U

Key  
Pin 1 ●  
Flow <-out >-in





## Keypad

Keypad-8P	
1	PWR_KEY
2	CH+
3	CH-
4	VOL+
5	VOL-
6	Menu
7	SOURCE
8	GND

## Side I/O board

Side I/O board	
1	FL_AV_CVBS
2	GND
3	GND
4	L
5	R

## IR board

IR board	
1	LED-G
2	LED-B
3	GND
4	VCC3_3
5	IR_DATA
6	5VSUB

## Speaker

L Speaker	
1	SPK_OUTL+
2	GND
R Speaker	
1	GND
2	SPK_OUTR+

## Main Board

CN12	
1	KEY -8P
2	CH+
3	CH-
4	VOL+
5	VOL-
6	Menu
7	SOURCE
8	GND

CN9	
1	Side I/O board
2	FL_AV_CVBS
3	GND
4	L
5	R

CN11	
1	IR board
2	LED-G
3	LED-B
4	VCC3_3
5	IR_DATA
6	5VSUB

CN7	
1	Speaker -4P
2	SPK_OUTL+
3	GND
4	SPK_OUTR+

CN5	
1	LVDS -2x15P
1	GND
2	LVDS PWR
3	LVDS D4E_P
4	LVDS PWR
5	LVDS D4E_N
6	LVDS PWR
7	LVDS D3E_P
8	LVDS PWR
9	LVDS D3E_N
10	GND
11	LVDS D2E_P
12	GND
13	LVDS D2E_N
14	GND
15	LVDS D1E_P
16	GND
17	LVDS D1E_N
18	GND
19	GND
20	GND
21	LVDS_CE_P
22	EXT_VBR_B
23	LVDS_CE_N
24	DCR_VBR_B
25	GND
26	LVDS_SEL
27	LVDS_D0E_P
28	BIT_SEL
29	LVDS_D0E_N
30	DCR/BRT

## Power board

CN3	
1	Power supply -16P
1	GND
2	GND
3	24Vaud
4	24Vaud
5	GND
6	GND
7	GND
8	12VCCIN
9	Panel power
10	5V_IN
11	5V_IN
12	5V_IN
13	POWER_EN
14	POWER_GOOD
15	VBR_OUT
16	BKLT_EN

Power supply -16P	
1	GND
2	GND
3	24Vaud
4	24Vaud
5	GND
6	GND
7	GND
8	12VCCIN
9	Panel power
10	5V_IN
11	5V_IN
12	5V_IN
13	POWER_EN
14	POWER_GOOD
15	VBR_OUT
16	BKLT_EN

AC In	
1	Line
2	NC
3	Line

## Panel module

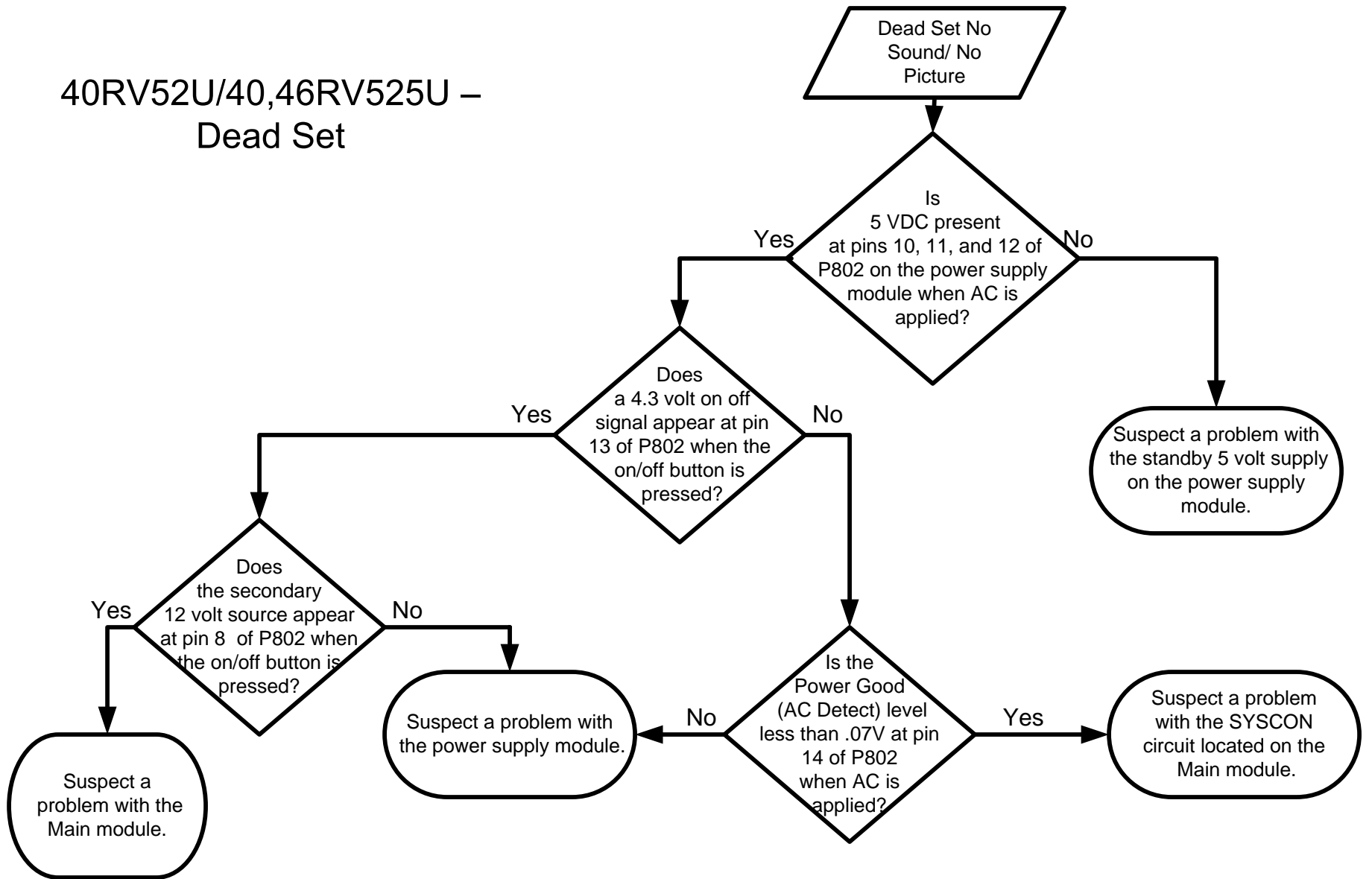
Inverter -14P	
1	+24Vinv
2	+24Vinv
3	+24Vinv
4	+24Vinv
5	+24Vinv
6	GND
7	GND
8	GND
9	GND
10	GND
11	NC
12	Backlight on/off
13	Dimming Control
14	NC

Inverter -14P	
1	+24Vinv
2	+24Vinv
3	+24Vinv
4	+24Vinv
5	+24Vinv
6	GND
7	GND
8	GND
9	GND
10	GND
11	NC
12	Backlight on/off
13	Dimming Control
14	NC

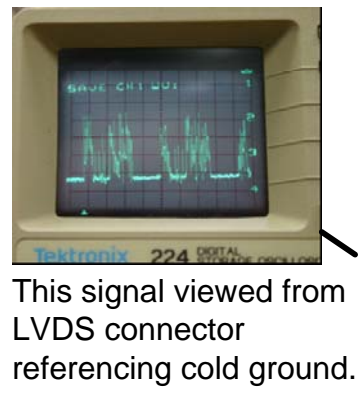
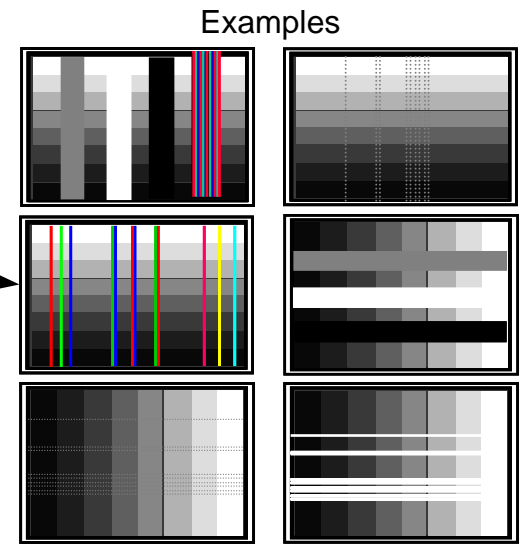
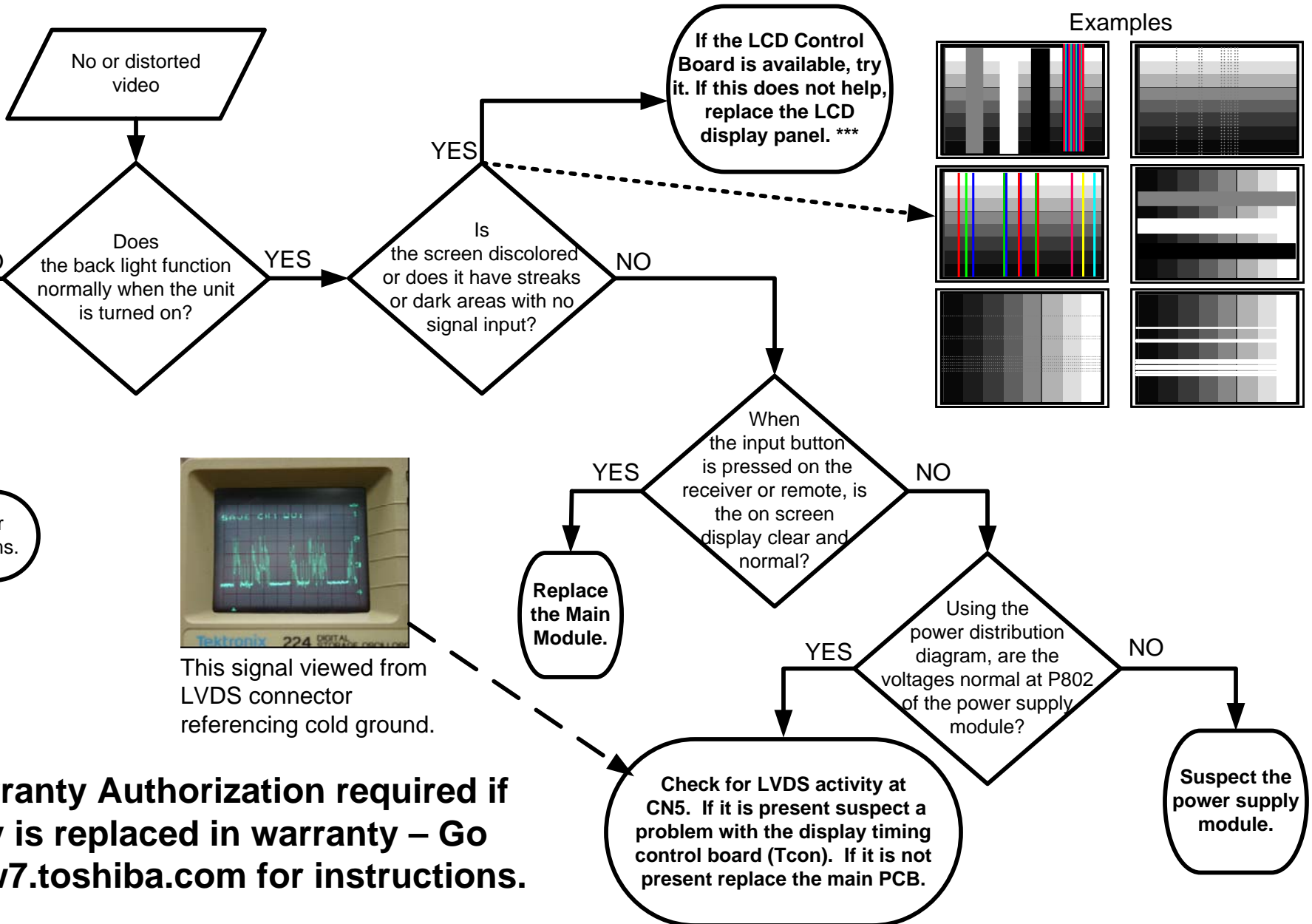
LG PI LTA400HA07	
PANEL-FI-E51S	
1	Power
2	Power
3	Power
4	Power
5	Power
6	NC
7	GND
8	GND
9	GND
10	RO[0]N
11	RO[0]P
12	RO[1]N
13	RO[1]P
14	RO[2]N
15	RO[2]P
16	GND
17	ROCLK-
18	ROCLK+
19	GND
20	RO[3]N
21	RO[3]P
22	NC
23	NC
24	GND
25	PE[0]N
26	PE[0]P
27	PE[1]N
28	PE[1]P
29	PE[2]N
30	PE[2]P
31	GND
32	ROCLK-
33	ROCLK+
34	GND
35	PE[3]N
36	PE[3]P
37	NC
38	NC
39	GND
40	NC
41	NC
42	NC
43	NC
44	NC
45	LVDS_SEL
46	NC
47	NC
48	NC
49	NC
50	NC
51	NC



# 40RV52U/40,46RV525U – Dead Set

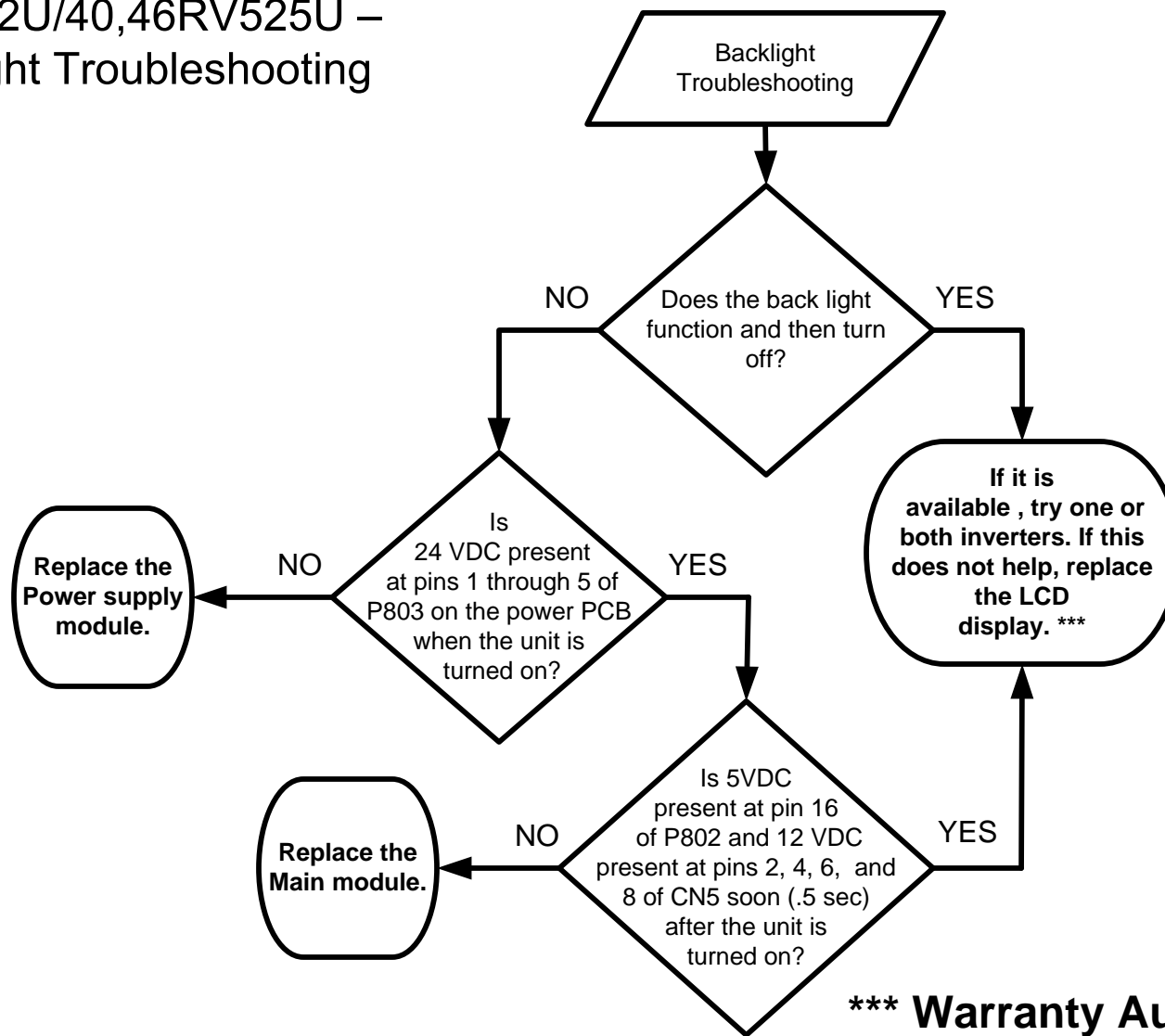


# 40RV52U/40,46RV525U – No or distorted Video



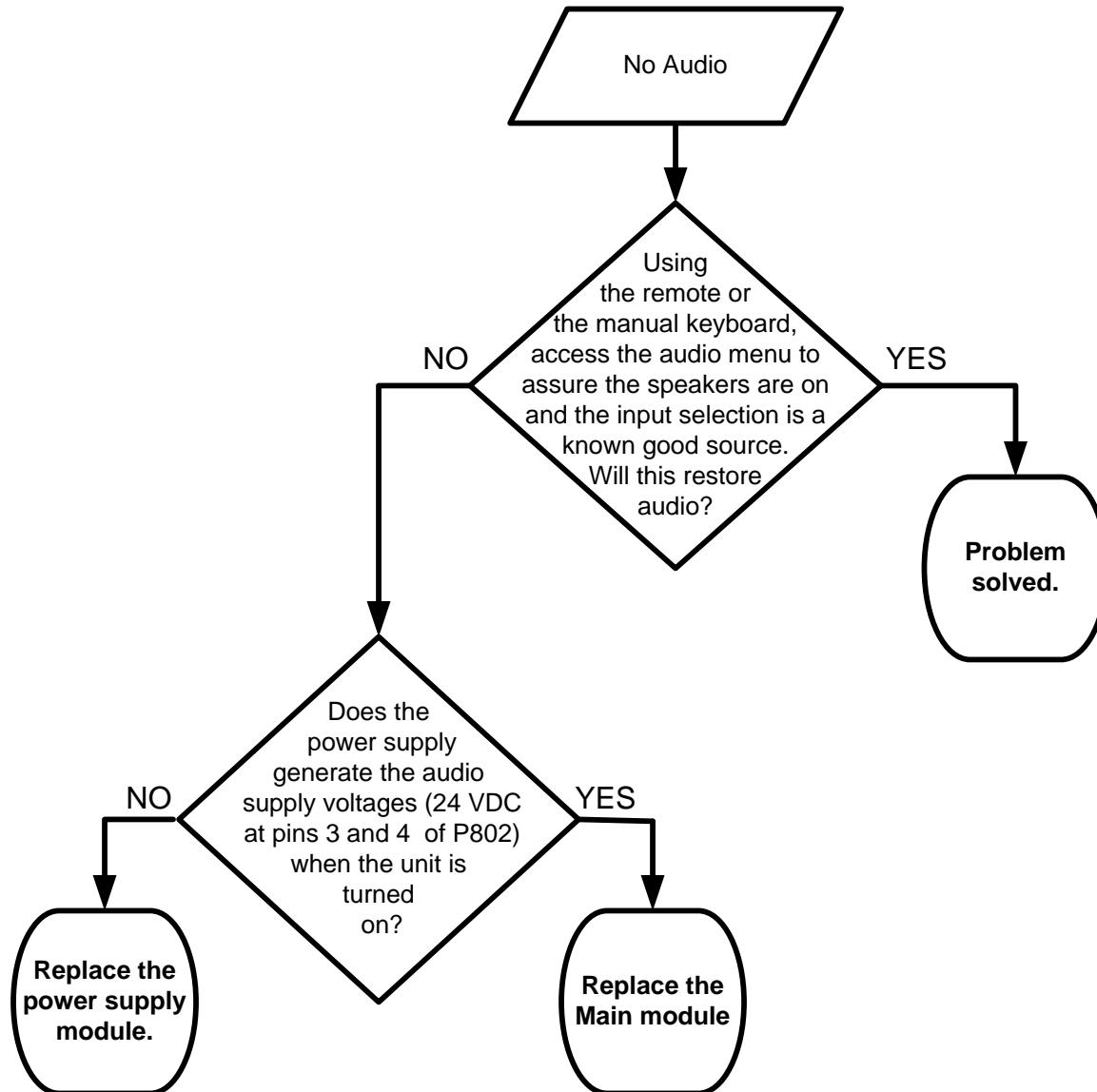
**\*\*\* Warranty Authorization required if display is replaced in warranty – Go to [www7.toshiba.com](http://www7.toshiba.com) for instructions.**

# 40RV52U/40,46RV525U – Backlight Troubleshooting



**\*\*\* Warranty Authorization required if display is replaced in warranty – Go to [www7.toshiba.com](http://www7.toshiba.com) for instructions.**

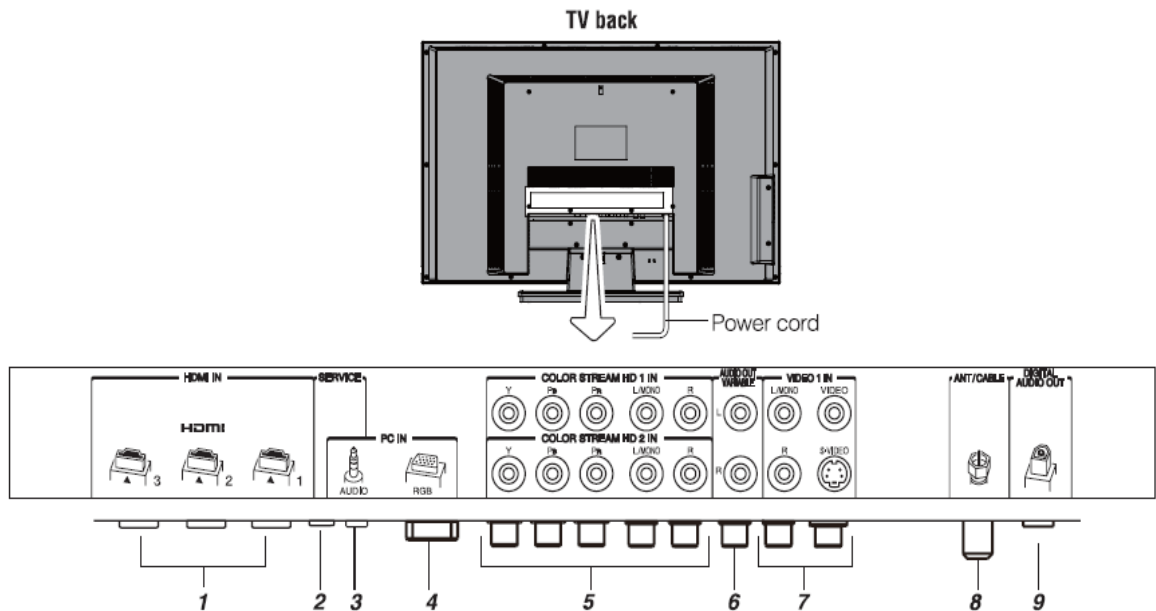
# 40RV52U/40,46RV525U – Audio Problems



## Firmware Update

Firmware updating for this chassis family is accomplished via a USB port located on the rear of the unit. It is designated as “Service” and is located between the HDMI and PC audio input jacks. Visit the Toshiba website at [www7.toshiba.com](http://www7.toshiba.com) for the latest update information.

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#2 - Firmware Update - USB Port



## Factory Mode

The factory mode, necessary adjustments, and update procedures shown below can be accessed in this unit using the supplied remote control transmitter.



To access the factory mode, you must press “Left Arrow (<), Exit, Enter” in sequence on the remote transmitter. The mode can be exited by pressing exit or simply turning the unit off.

Replacement Parts List

Location	Part No.	Description
E100	75013363	BEZEL ASSY, TX401A PCABS 94V0, 39C01A51L13
E110	75013357	BACK COVER ASSY, TX4012 MBK97 HI-PS, 39C01A51L08
E120	75012786	STAND ASSY, 37AV502U, 39C02051L15
E140	75013153	KEY PLATE, 39C02051L17
E200	75013349	PC BOARD ASSY, MAIN , VTV-L4007 STX40T A, 39C01A51L01
E250	75013355	POWER MODULE, (STX40T) FSP245-4F01 5/12/2, 39C01A51L09
E260	75012770	PC BOARD ASSY, KEY/B, 37AV502U, 39C02051L06
E261	75013348	PC BOARD ASSY, IR/B, VTV-IR3707 STW37TG, 39C01A51L12
E300	75013346	LCD PANEL, LTA400HA07, 40RV525U
E310	75013353	H-CON SET, TX40T MB-LVDS SAM, 39C01A51L02
E320	75013354	POWER CORD, SP12X1.8MXSR119X22, 39C01A51L11
E330	75012773	SPEAKER ASSY, 10W 6OHM, 37AV502U, 39C02051L09
E340	75012778	H-CON SET, STW46T MB-POW 12V, 39C02451L11
E341	75013369	H-CON SET, STX46T INV-POW P803, 39C01D51L07
E342	75012774	H-CON SET, TX40T MB CN9 CN10-, 39C02051L10
E343	75012775	H-CON SET, TX40T MB CN11-IR 6, 39C02051L11
E344	75012776	H-CON SET, TX40T MB CN8-SPK S, 39C02051L12
E400	75010932	REMOCON HAND UNIT, CT-90302, 39C02051L05

# **TOSHIBA CORPORATION**

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