

*1080P
Direct View LCD
Training*



*42LV5500
LED Backlights*



**LCD-DV Troubleshooting
42" Class 1080P 120Hz LED
TV SmartTV (42" diagonally)**



Published May 12th, 2011

OUTLINE

Preliminary Section:

Contact Information, Preliminary Matters, Specifications,
LCD Overview, General Troubleshooting Steps,
Signal Distribution, Disassembly Instructions and Voltages

Disassembly Section: Removal of Circuit Boards

Troubleshooting Section: Board Operation Troubleshooting of :

- **Switch Mode Power Supply with LED Backlight Driver**
- **Main Board**
- **T-CON (TFT Panel Driver Board)**
- **Front IR/Intelligent/Soft Touch Key Board**
- **Speaker**

42LV5500 LCD Direct View Display

Section 1

This Section will cover Contact Information and remind the Technician of Important Safety Precautions for the Customers Safety as well as the Technician and the Equipment.

Basic Troubleshooting Techniques which can save time and money sometimes can be overlooked. These techniques will also be presented.

This Section will get the Technician familiar with the Disassembly, Identification and Layout of the LCD Display Panel.

At the end of this Section the Technician should be able to Identify the Circuit Boards and have the ability and knowledge necessary to safely remove and replace any Circuit Board or Assembly.

Preliminary Matters (The Fine Print)

IMPORTANT SAFETY NOTICE

The information in this training manual is intended for use by persons possessing an adequate background in electrical equipment, electronic devices, and mechanical systems. In any attempt to repair a major Product, personal injury and property damage can result. The manufacturer or seller maintains no liability for the interpretation of this information, nor can it assume any liability in conjunction with its use. When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Electronics. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury. If wires, screws, clips, straps, nuts, or washers used to complete a ground path are removed for service, they must be returned to their original positions and properly fastened.

CAUTION

To avoid personal injury, disconnect the power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks. Also be aware that many household products present a weight hazard. At least two people should be involved in the installation or servicing of such devices. Failure to consider the weight of an product could result in physical injury.

ESD Notice (Electrostatic Static Discharge)

Today's sophisticated electronics are electrostatic discharge (ESD) sensitive. ESD can weaken or damage the electronics in a manner that renders them inoperative or reduces the time until their next failure. Connect an ESD wrist strap to a ground connection point or unpainted metal in the product. Alternatively, you can touch your finger repeatedly to a ground connection point or unpainted metal in the product. Before removing a replacement part from its package, touch the anti-static bag to a ground connection point or unpainted metal in the product. Handle the electronic control assembly by its edges only. When repackaging a failed electronic control assembly in an anti-static bag, observe these same precautions.

Regulatory Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the separation between the equipment and the receiver; Connect the equipment to an outlet on a different circuit than that to which the receiver is connected; or consult the dealer or an experienced radio/TV technician for help.

LG Contact Information

Customer Service (and Part Sales) (800) 243-0000

Technical Support (and Part Sales) (800) 847-7597

USA Website (GSFS) <http://gsfs-america.lge.com>

Customer Service Website <http://www.us.lgservice.com>

Knowledgebase Website <http://lgtechassist.com> ← New: 2010 Models Wireless Ready Software Downloads

LG Web Training <https://lge.webex.com> ← Presentations with Audio/Video and Screen Marks

LG CS Learning Academy <http://ln.lge.com/ilearn> ← <http://136.166.4.200>

Training Manuals, Schematics with Navigational Bookmarks, Start-Up Sequence, Owner's Guides, Interconnect Diagrams, Dimensions, Connector IDs, Product Pictures and Features.

Also available on the Plasma Page:
PDP Panel Alignment Handbook,
Plasma Control Board ROM Update (Jig required)

Published May 2011 by LG Technical Support and Training
LG Electronics Alabama, Inc.
201 James Record Road, Huntsville, AL, 35813.

LCD Direct View Overview

Safety and Handling Regulations

1. Approximately 20 minute of run time is required before making any picture performance adjustments from the Menu.
2. Refer to the Voltage/Current silk screening on the Switch Mode Power Supply.
3. C-MOS circuits are sensitive to static electricity.
Use caution when dealing with these IC and circuits.
4. Exercise care when making voltage and waveform checks to prevent costly short circuits from damaging the unit.
5. Be cautious of lost screws and other metal objects to prevent a possible short in the circuitry.

Checking Points to be Considered

1. Check the appearance of the Replacement Panel and Circuit Boards for both physical damage and part number accuracy.
2. Check the model label. Verify model names and board model matches.
3. Check details of defective condition and history. Example: Oscillator failure dead set, etc...

Basic Troubleshooting Steps

Define, Localize, Isolate and Correct

•**Define** Look at the symptom carefully and determine what circuits could be causing the failure. Use your senses Sight, Smell, Touch and Hearing. Look for burned parts and check for possible overheated components. Capacitors will sometimes leak dielectric material and give off a distinct odor. Frequency of power supplies will change with the load, or listen for relay closing etc. Observation of the front Power LED may give some clues.

•**Localize** After carefully checking the symptom and determining the circuits to be checked and after giving a thorough examination using your senses the first check should always be the DC Supply Voltages to those circuits under test. Always confirm the supplies are not only the proper level but be sure they are noise free. If the supplies are missing check the resistance for possible short circuits.

•**Isolate** To further isolate the failure, check for the proper waveforms with the Oscilloscope to make a final determination of the failure. Look for correct Amplitude Phasing and Timing of the signals also check for the proper Duty Cycle of the signals. Sometimes “glitches” or “road bumps” will be an indication of an imminent failure.

•**Correct** The final step is to correct the problem. Be careful of ESD and make sure to check the DC Supplies for proper levels. Make all necessary adjustments and lastly always perform a Safety AC Leakage Test before returning the product back to the Customer.

42LV5500 PRODUCT INFORMATION SECTION



This section of the manual will discuss the specifications of the
42LV5500
LCD Direct View Display

Wireless Media Box

Wireless Media Box (Sold Separately)

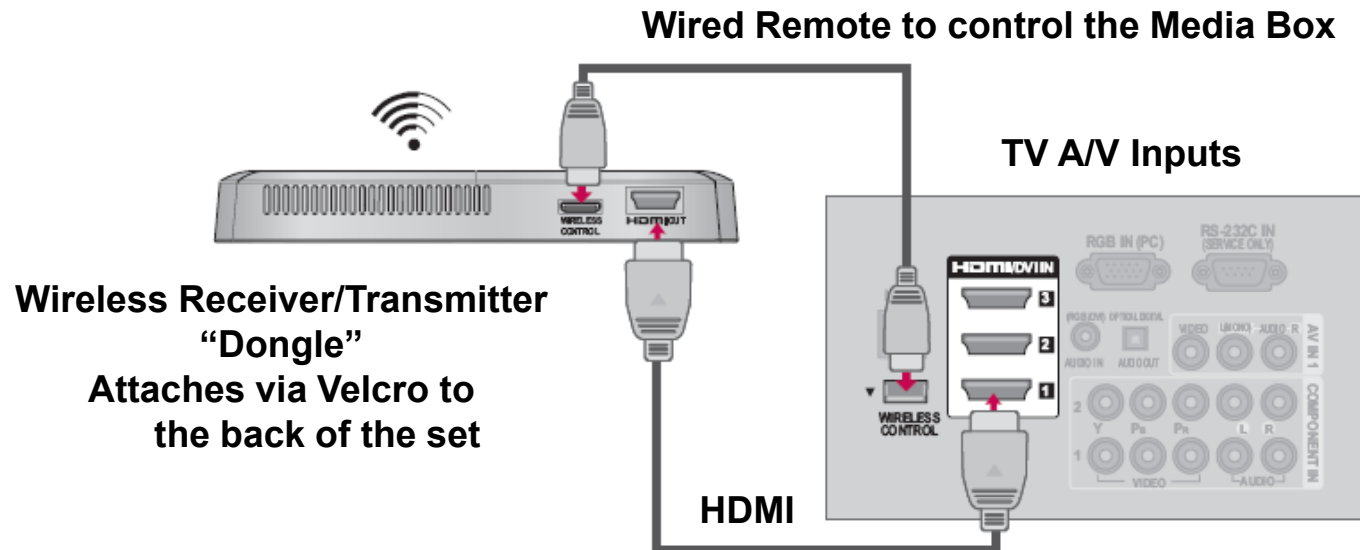


The Wireless Media box communicates to the television via a wireless receiver called a “Dongle”. The Dongle attaches to the Television via two connections:

1. HDMI Cable from the Dongle to the TV to transfer Audio and Video Signals.
2. Wired Remote cable between the TV and Dongle for Control Functions.



Media Box



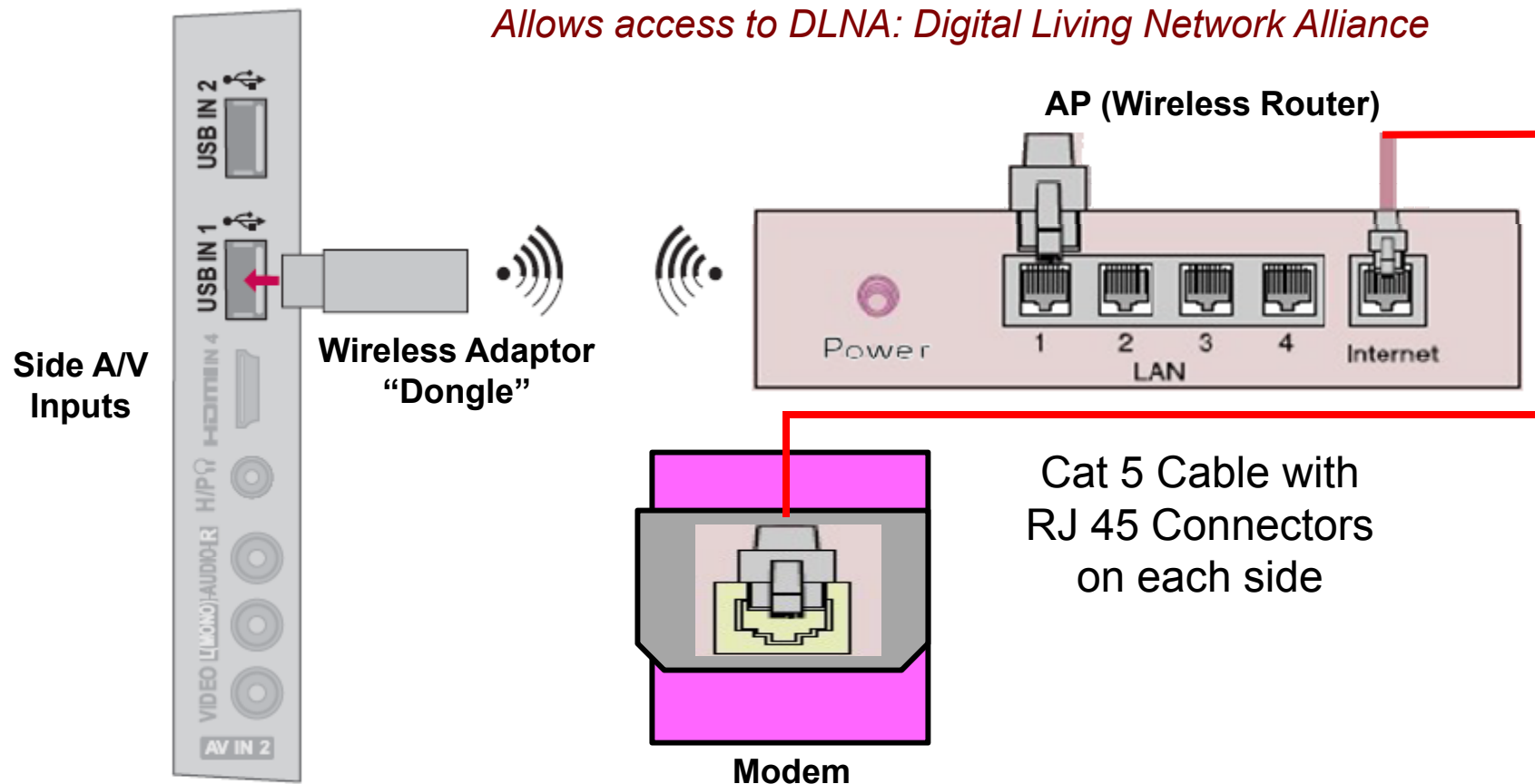
Wireless Network Adaptor (AN-WF100)

Wireless Network Adaptor Sold Separately



Using the LG Wireless LAN for Broadband Adaptor, which is sold separately, allows the TV to connect to a wireless LAN network. The Wireless Network adaptor attaches to the Television via either of the two USB connections:

Allows access to DLNA: Digital Living Network Alliance



Basic Specifications

Key TV Features

- LG Smart TV¹
- LED Backlighting
- TruMotion 120Hz
- Wi-Fi® Ready (Adapter Included)
- Magic Motion Remote (Included)
- Full HD 1080p Resolution
- DLNA Certified®
- ENERGY STAR® Qualified
- Picture Wizard II
- Intelligent Sensor
- Smart Energy Saving
- ISFccc® Ready

¹ Internet connection & subscriptions required and sold separately. The Magic Motion Remote does not come equipped with all LG Smart TV enabled TVs and a separate purchase maybe required. The Hulu Plus service is projected to be available via a firmware update in June 2011. The LG web browser does not support Flash 10 or HTML 5, therefore, access to certain web content may be limited or unavailable.

Logo Familiarization Page 1 of 3



LED

LG's LED technology provides a slim profile and delivers amazing brightness, clarity and color detail, as well as greater energy efficiency compared to conventional LCD TVs.



LG SmartTV

A revolutionary, easy way to access virtually limitless content, thousands of movies, customizable apps, videos and browse the web all organized in a simple to use interface.



TruMotion 120Hz

See sports, video games and high-speed action with virtually no motion blur and in crystal clarity with LG's TruMotion 120Hz technology. Now your TV can keep up with the fastest moving scenes.



Magic Motion Remote (Included)

Just point and choose selections with LG's unique motion-controlled Magic Remote.



DLNA Certified®

To build a digital network, you need digital devices. That's obvious. But unless those devices are compatible, it won't be much of a network. **DLNA Certified®** devices work together.

Logo Familiarization Page 2 of 3



FULL HD RESOLUTION 1080P HD Resolution Pixels: 1920 (H) × 1080 (V)

This stunning picture is the reason you wanted HDTV in the first place. With almost double the pixel resolution, Full HD 1080p gives it superior picture quality over standard HDTV. You'll see details and colors like never before.



WiFi Ready:

Getting your LG TV connected to NetCast™ Entertainment Access and other online content is easy when you are WiFi™ Ready. If you have existing wireless broadband, setting it up is simple and you don't need to worry about messy wires.



Intelligent Sensor

The Intelligent sensor will monitor the room lighting environment. When the room lights go out, the TV will automatically adjust the picture for the best viewing enjoyment.



Picture Wizard

Get easy self-calibration with on-screen reference points for key picture quality elements such as black level, color, tint, sharpness and backlight levels. Take the guesswork out of picture adjustments with this simple-to-use feature. It's not actually magic, but it will sure seem that way.

Logo Familiarization Page 3 of 3



Clear Voice Clearer dialogue sound

Automatically enhances and amplifies the sound of the human voice frequency range to provide high-quality dialogue when background noise swells.



Save Energy, Save Money

Home electronic products use energy when they're off to power features like clock displays and remote controls. Those that have earned the ENERGY STAR use as much as 60% less energy to perform these functions, while providing the same performance at the same price as less-efficient models. Less energy means you pay less on your energy bill. Draws less than 1 Watt in stand by.



5M:1 Dynamic Contrast Ratio

Worrying about dark scenes is a thing of the past. The mega contrast ratio of 5,000,000:1 delivers vivid colors and deep blacks.



AV Mode "One click" Cinema, ^{THX} Cinema, Sport, Game mode.

TAKE IT TO THE EDGE is a true multimedia TV with an AV Mode which allows you to choose from 4 different modes of Cinema, Sports and Game by a single click of a remote control.

42LV5500 Remote Control

TOP PORTION



p/n AKB72914042

BOTTOM PORTION

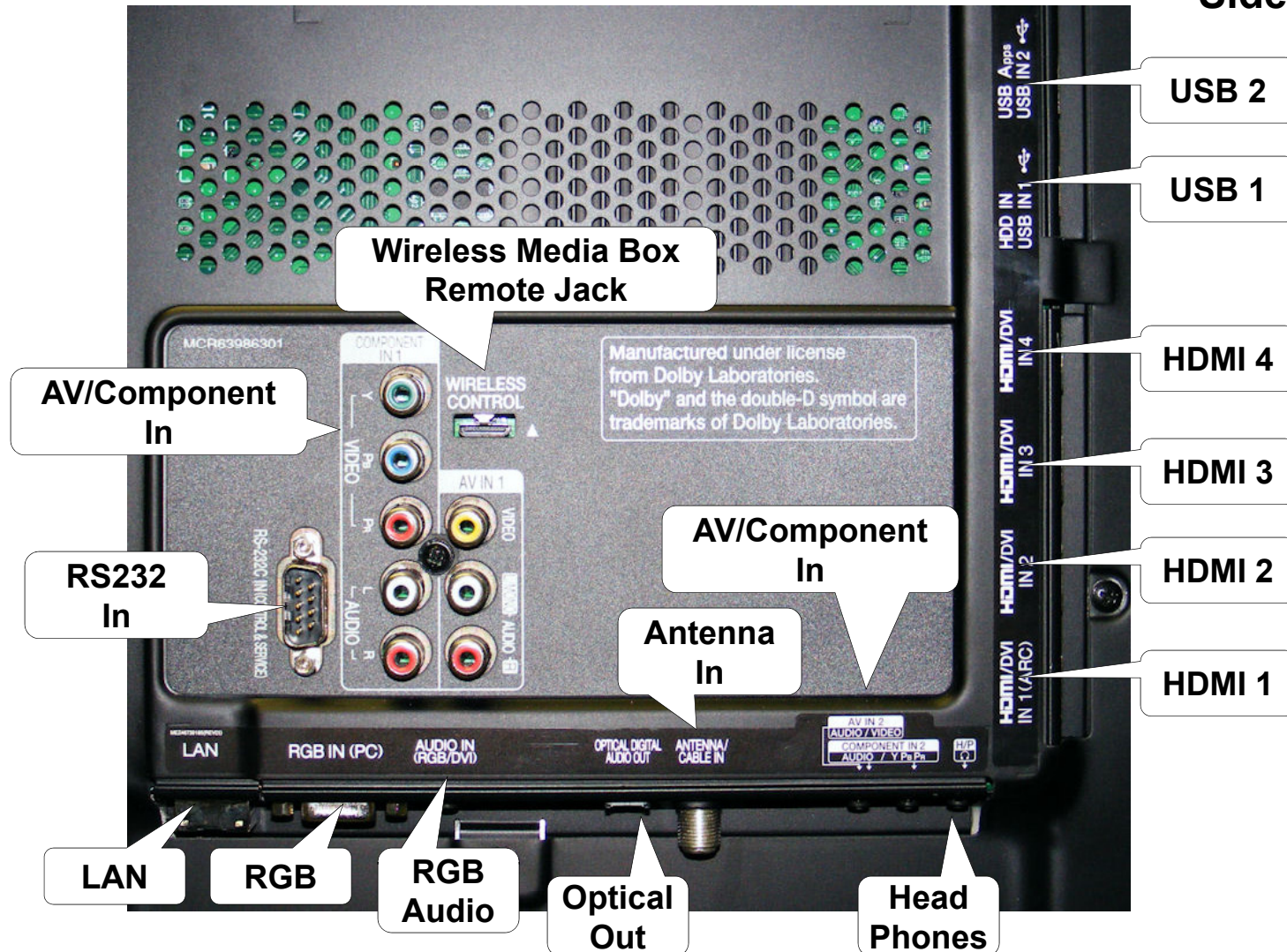


TV Rear Input / Output Jacks

USB1 or USB2 for Software Upgrades, Music, Videos and Photos. Also for the Wireless Network adaptor.

Rear In/Out Jacks

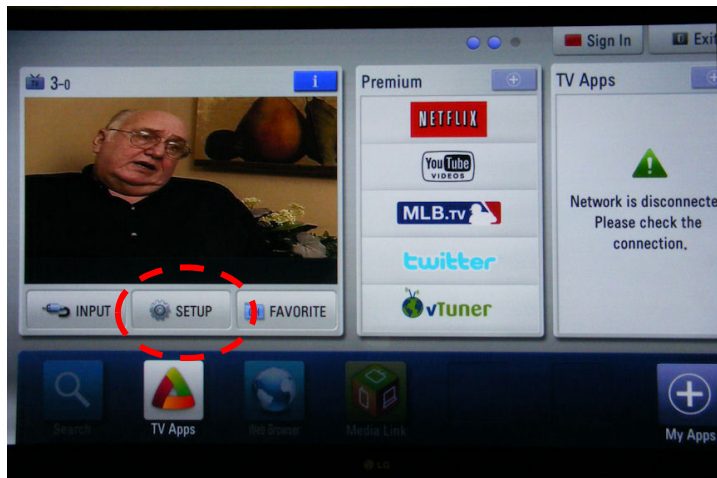
Side In/Out



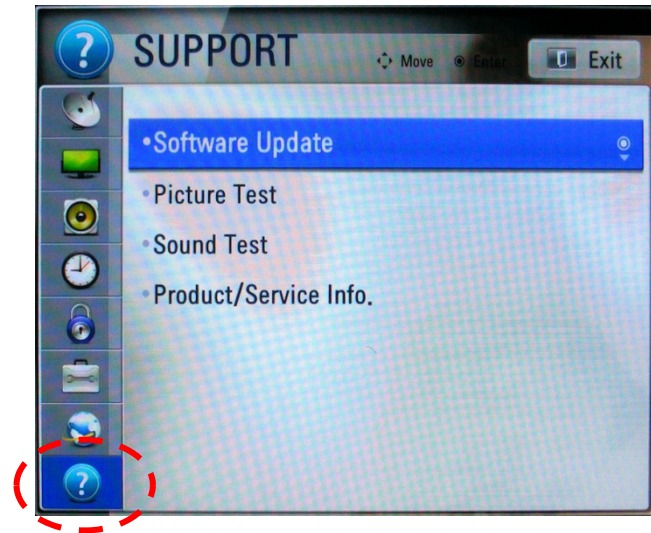
Software Updates (New and Changed Functions)

A wireless Internet Connection will work for Automatic Software Downloads, however if there are problems completing download, a Wired Internet Connection is preferred

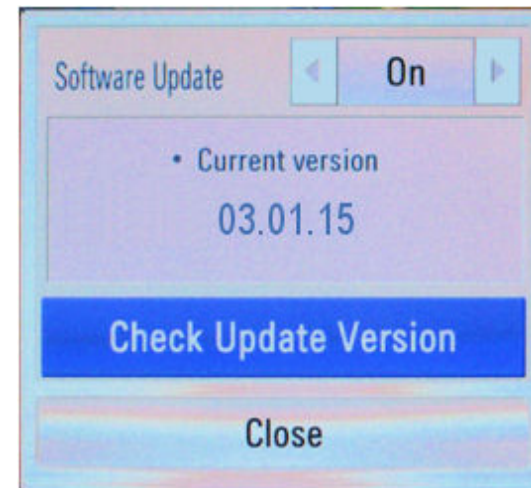
Bring up the Customer's Menu then cursor down 2 times, (Input) will be highlighted. Cursor right to highlight (SETUP). Press "ENTER" on the Remote.



Scroll down to highlight the "?" mark (SUPPORT). Cursor right to highlight "Software Update", Press "ENTER" on Remote

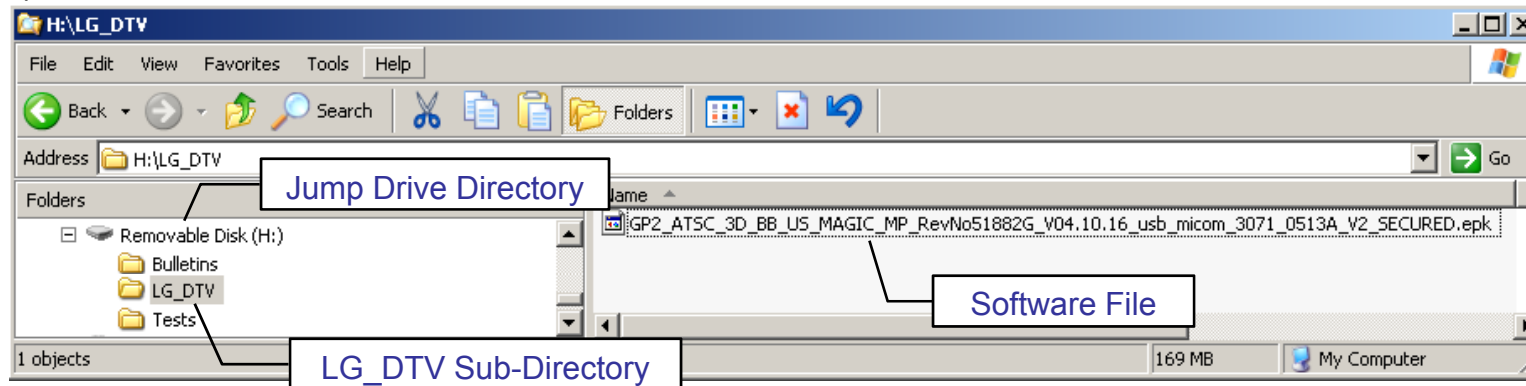


Highlight "Check Update Version" to see if an update is available. Scroll up to highlight "ON" and cursor right to turn off automatic Software Update.

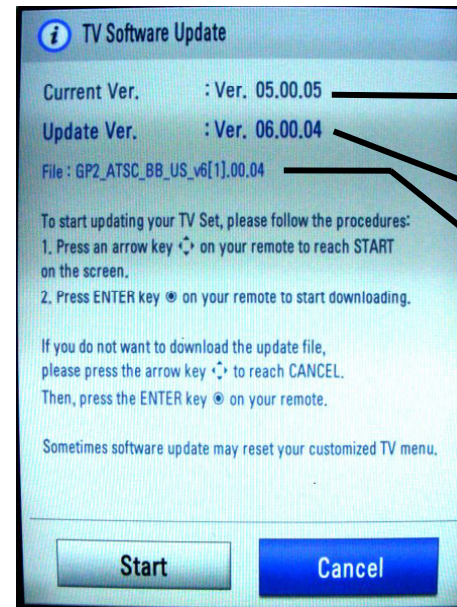


Generic Plasma USB Automatic Software Download Instructions

1) Download the Software File.



- 2) Copy new software (xxx.epk) to "LG_DTV" folder. Make sure to have correct software file.
- 3) With TV turned on, insert USB flash drive.
- 4) The "TV Software Upgrade" screen appears. (See figure to right)
- 5) Cursor left and highlight "START" Button and push "Enter" button using the remote control.
- 6) You can see the download progress Bar.
- 7) Do not unplug until unit has automatically restarted.
- 8) When download is completed, you will see "COMPLETE".
- 9) Your TV will be restarted automatically.



Currently Installed Version

Software Version found on the USB Flash Drive

File found on the USB Flash Drive

*** CAUTION:**
Do not remove AC power or the USB Flash Drive. Do not turn off Power, during the upgrade process.

Highlight Start Press Select

Software Files are now available from
LGTechassist.com

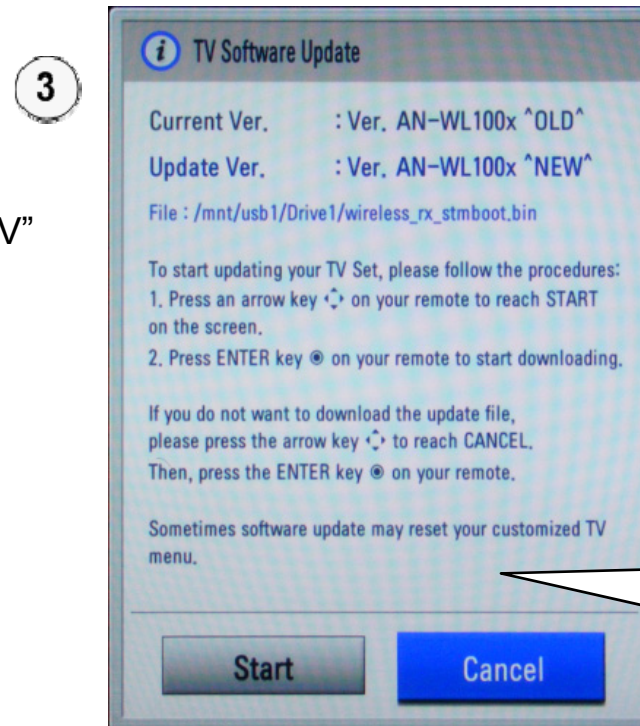
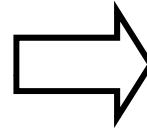
Manual Software Download:

Prepare the Jump Drive as described in the “USB Automatic Download” section and insert it into either of the USB ports. Bring up the Customer’s Menu and scroll to “OPTIONS”, (Nothing should be highlighted on the right side). Press the “FAV” key 7 times to bring up the first screen for Manual Download Screen (Expert Mode).



2 Scroll down and highlight “Options”

Press the “FAV”
key 7 times



Location of
files found
On the Jump
Drive

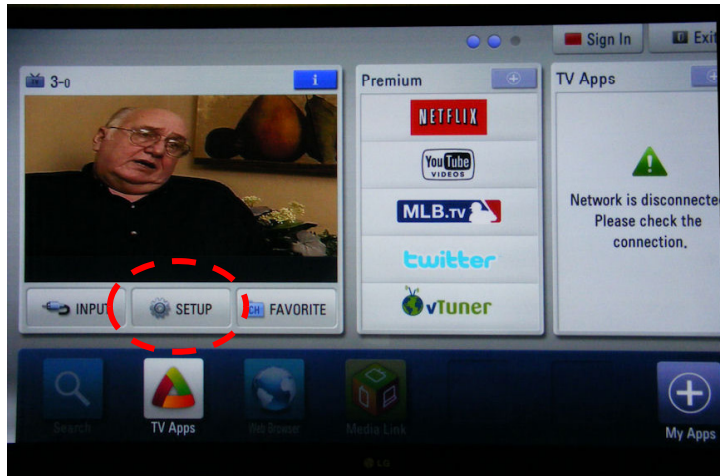
4 Highlight the Software update file the highlight “Start” and press “SELECT” to begin the download process.

WARNING:

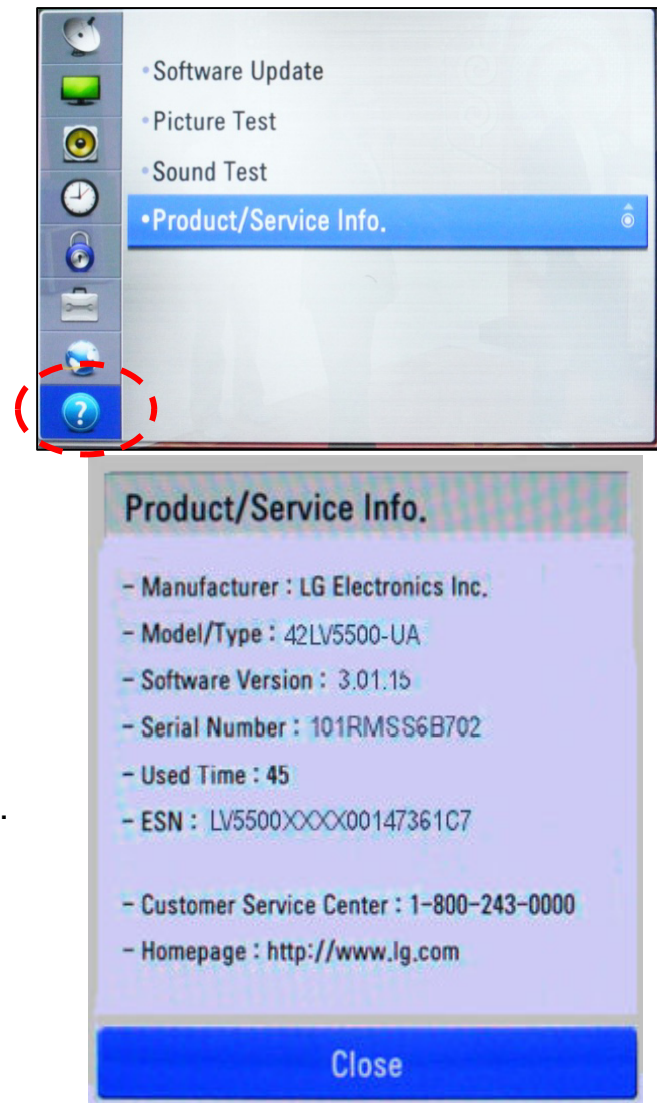
Use extreme Caution when using the Manual “Forced” Download Menu. Any file can be downloaded when selected and may cause the Main board to become inoperative if the incorrect file was selected.

Product and Service Info. Menu

1) Bring up the Customer's Menu then cursor down 2 times, (Input) will be highlighted. Cursor right to highlight (SETUP). Press "ENTER" on the Remote.



2) Scroll down to highlight the "?" mark (SUPPORT). Cursor right and scroll down to highlight "Product/Service Info", Press "ENTER" on Remote

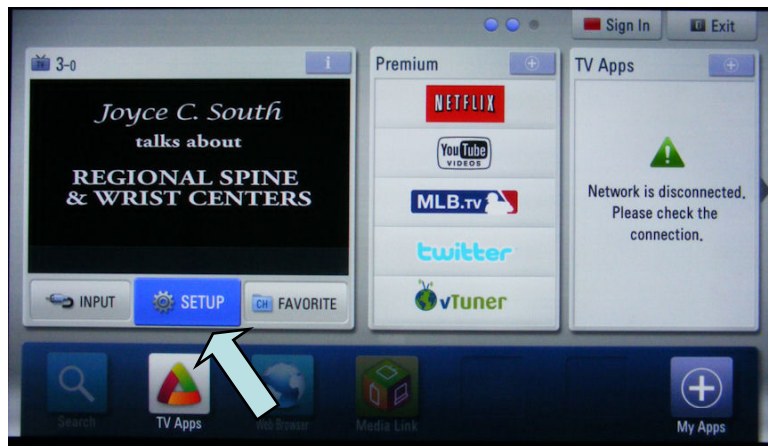


3) Information for Customer Support appears.
Note: Model Number does not include suffix.

Accessing the Host Diagnostic Screen (Page 1 of 2)

Use the Host Diagnostic screen to investigate the signal quality of a problem channel.

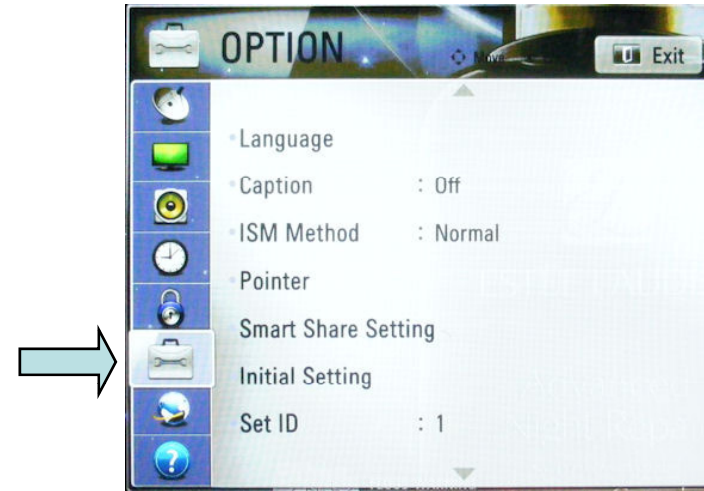
- 1) Place Television on the digital channel that may be showing problems.
- 2) Bring up the Customer's Menu. Cursor down two times and right once to highlight "Setup". Press "Enter" on the remote.



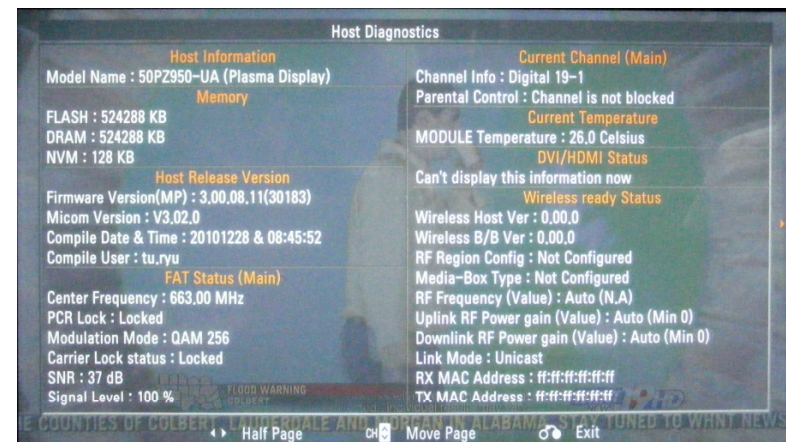
- 3) The "Setup" Menu appears.



- 4) Scroll down and highlight "Options".



- 5) Press the (1) Key 5 to 8 times.
The Host Diagnostics screen appears.



See next page for more details.

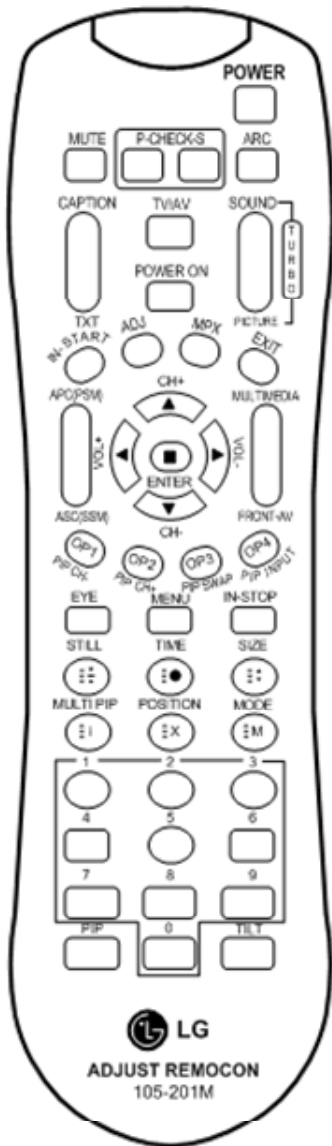
42LV5500 Understanding the Host Diagnostic Screen (Page 2 of 2)

Host Diagnostics

Host Information Model Name : 42LV5500-UA (Liquid Crystal Display) Memory FLASH : 524288 KB DRAM : 524288 KB NVM : 128 KB Host Release Version Firmware Version(MP) : 3.01.15.01(31010) Software Version Micom Version : V3.21.6 Compile Date & Time : 20110127 & 08:45:52 Compile User : tu.ryu FAT Status (Main) Center Frequency : 663.00 MHz Channel Frequency PCR lock : Locked Program Clock Reference (Locked or No) Modulation mode : QAM 256 Channel Type (8VSB, QAM 64, 256) Carrier lock status : Locked Channel (Locked or Unlocked) SNR : 37 dB Channel Signal to Noise Ratio Signal level : 100% Channel Signal Level (Above 80% good)	Channel Selected Current Channel (Main) Blocked or Not Blocked Channel Info : Digital 19-1 Parental Control : Channel is not blocked DVI/HDMI Status Can't display this information now Wireless ready Status Wireless Host Ver:0.00.0 Wireless B/B Ver:0.00.0 RF Region Config : Not Configured Media Box Type : Not Configured RF Frequency (Value):Auto (N.A.) Uplink RF Power gain (Value):Auto (Min 0) Downlink RF Power gain (Value):Auto:Auto (Min 0) Link Mode : Unicast RX MAC Address : ff:ff:ff:ff:ff:ff TX MAC Address : ff:ff:ff:ff:ff:ff Wireless connection status : Disconnected Average 8VSB (Above 20 is good) QAM 64 (Above 24 is good) QAM 256 (Above 30 is good)
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◀ ▶ Half Page
CH ^
v
Move Page
⏮ Exit

Accessing the Service Menu



105-201M

To access the Service Menu.

- 1) You must have either Service Remote.
p/n 105-201M or p/n MKJ39170828
- 2) Press “In-Start”
- 3) A Password screen appears.
- 4) Enter the Password.

Note: A Password is required to enter the Service Menu. Enter; **0000**

Note: If **0000** does not work use **0413**.



MKJ39170828

42LV5500 Service Menu First Page

Bring up the Service Menu using the Service Remote
And pressing "In-Start" enter password 0413.

Model and S/N

IN SART

Model Name: 42LV5500-UA
 Serial Number: 101RMSS6B702
 S/W Version: : 03.01.15.01
 MICOM Version : 3.21.6
 BOOT Version : 1.02.51
 FRC Version : N/A
 IR LED Version : a2.4
 EDID (RGB/HDMI) : 0.03/0.02
 Chip Type : BCM 35230
 Wireless Host Ver. : 0.00.0
 Wireless B/B/ Ver. : 0.00.0
 Vi-Fi Version : 1.0
 Vi-Fi Channel : 0
 Wi-Fi MAC : 00:00:00:00:00:00
 MAC Address : E8:5B:5B:24:67:C9
 Widevine : LGTV11L000012362
 ESN Num. : LGE-LV5500XXXX000A0C9037
 RF Receiver Version : VB091
 Debug Status : RELEASE

UTT : 12

APP History Ver.:31010
 PQL DB:LGD_EF_SANYO_XXXXXX

SW Version

Video Processor Chip Type

Electronic Serial No.

Unit's Total Time

Adjust Check

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Spread Spectrum
10. Sync Level
11. Wireless Ready
12. Stable Count
13. ODC Test
14. Local Dimming
15. SDP Server Selection
16. Network Error History

Country Group

Adjust Check

1. Country Group (Press OK to Save)

Country Group Code	02
Country Group	US
Country	US
2. Tool Option

Tool Option 1	32998
Tool Option 2	65
Tool Option 3	7295
Tool Option 4	21897
Tool Option 5	8781
Tool Option 6	665
3. Adjust White Balance: OK(9)
4. Adjust ADC: OK(Manual)

480i Component	OK
1080p Component	OK
RGB	OK
5. EDID(PCM): OK

RGB	OK (0x98)
HDMI1	OK (0x7f,0xC9)
HDMI2	OK (0x7f,0xB9)
HDMI3	OK (0x7f,0xA9)
HDMI4	OK (0x7f,0x99)

Priority Audio Processing Mode

42LV5500 Model Number Download Screen

When the Main Board is replaced, the Model Number and Serial Number must be corrected. Follow these instructions

Bring up the Service Menu using the Service Remote.
Scroll down to item 6. Model Number D/L to highlight.
Press **"ENTER"** or **"Cursor Right"**.

IN SART	
Model Name: 42LV5500-UA	1. Adjust Check
Serial Number: 101RMSS6B702	2. ADC Data
S/W Version: : 03.01.15.01	3. Power Off Status
MICOM Version : 3.21.6	4. System 1
BOOT Version : 1.02.51	5. System 2
FRC Version : N/A	6. Model Number D/L
IR LED Version : a2.4	7. Test Option
EDID (RGB/HDMI) : 0.03/0.02	8. External ADC
Chip Type : BCM 35230	9. Spread Spectrum
Wireless Host Ver. : 0.00.0	10. Sync Level
Wireless B/B/ Ver. : 0.00.0	11. Wireless Ready
Vi-Fi Version : 1.0	12. Stable Count
Vi-Fi Channel : 0	13. ODC Test
Wi-Fi MAC : 00:00:00:00:00:00	14. Local Dimming
MAC Address : E8:5B:5B:24:67:C9	15. SDP Server Selection
Widevine : LGTV11L000012362	16. Network Error History
ESN Num. : LGE-LV5500XXXX000A0C9037	
RF Receiver Version : VB091	
Debug Status : RELEASE	
UTT : 12	
APP History Ver.:31010	
PQL DB:LGD_EF_SANYO_XXXXXX	

Model Number D/L

0. Model Name 42LV5500-UA

1. Serial Num. 101RMSS6B702

Press OK to Save

To Change the Model Number

1) Use the cursor right or left to select the area to change.

2) Use the cursor up or down to change.

3) Cursor right until there is no text cursor blinking.

4) Cursor down to highlight "Serial Number" and change.

5) Press **"ENTER"** to Save

42LV5500 UTT Reset (IN START) Screen

IN SART	SYSTEM 1	
Model Name: 42LV5500-UA	1. Adjust Check	0. Baudrate 9600
Serial Number: 101RMSS6B702	2. ADC Data	1. 2 Hours Off (On Timer) On
S/W Version: : 03.01.15.01	3. Power Off Status	2. 2 Hours Off (Screen Mute) Off
MICOM Version : 3.21.6	4. System 1 ▶	3. 15Min Force Off On
BOOT Version : 1.02.51	5. System 2	4. Audio EQ On
FRC Version : N/A	6. Model Number D/L5	5. Dynamic EQ On
IR LED Version : a2.4	7. Test Option	6. A2 Threshold 11
EDID (RGB/HDMI) : 0.03/0.02	8. External ADC	7. HDMI Sound(Port1) HDMI Port1
Chip Type : BCM 35230	9. Spread Spectrum	8. Lip Sync Adjust(DTV) 0
Wireless Host Ver. : 0.00.0	10. Sync Level	9. Dimming On
Wireless B/B/ Ver. : 0.00.0	11. Wireless Ready	10. Tuner Option Enhanced Ghost
Vi-Fi Version : 1.0	12. Stable Count	11. Atten RF Signal Off
Vi-Fi Channel : 0	13. ODC Test	12. UTT Reset Reset
Wi-Fi MAC : 00:00:00:00:00:00	14. Local Dimming	13. Channel Mute On
MAC Address : E8:5B:5B:24:67:C9	15. SDP Server Selection	14. Debug Status RELEASE
Widevine : LGTV11L000012362	16. Network Error History	15. NVRAM Type EEPROM
ESN Num. : LGE-LV5500XXXX000A0C9037		16. HDEV Off
RF Receiver Version : VB091		17. Blue back On
Debug Status : RELEASE		18. China Cable SO On
		19. Booster On (VHF) 0
		20. Booster Off (VHF) 0
		21. Booster On (UHF) 0
		22. Booster Off (UHF) 0
		23. Auto ADC Off

UTT : 12 **Unit's Total Time**

APP History Ver.:31010

PQL DB:LGD_EF_SANYO_XXXXXX

Changes to "Doing"

Note: After UTT is reset, the UTT time on the left will not reset to "0" until the Service Menu is exited.

Scroll to
(System 1)
then
Right Cursor

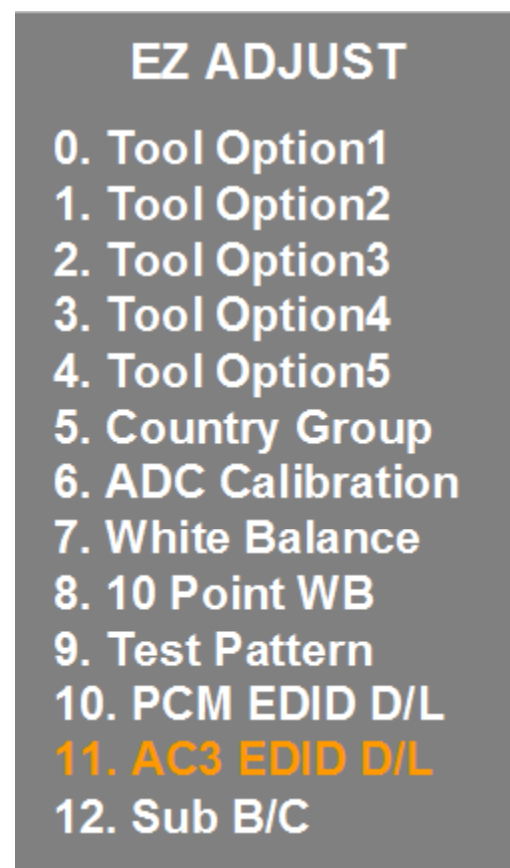
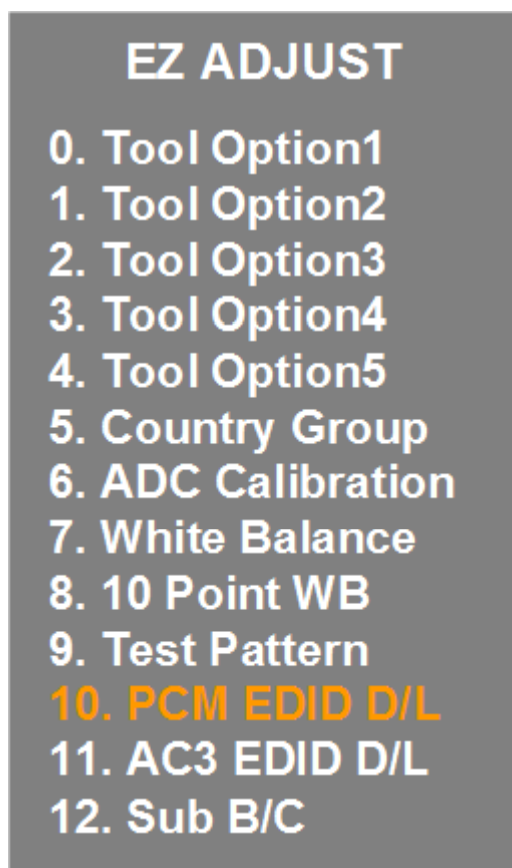
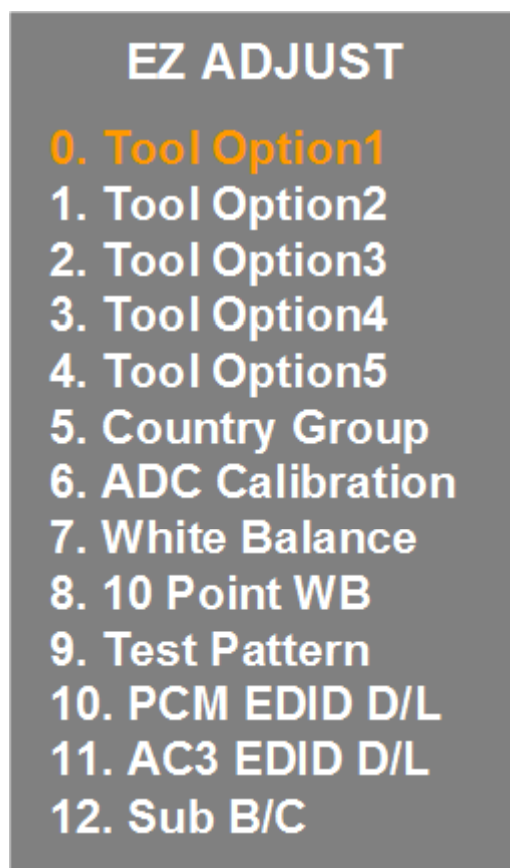
Scroll to
(UTT Reset)
Press (Select)
Reset changes to Doing
then back to Reset

After Reset (Doing) has
completed, Reset returns.
After Exit the UTT Timer is
"0"

Service Menu: Downloading EDID Data Pg 1 of 2

1) Press “ADJ” key.

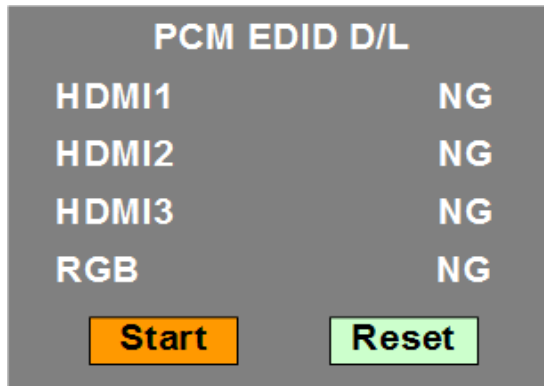
2) Select menu,
Either “PCM EDID D/L” or AC3 EDID D/L



Service Menu: Downloading EDID Data Pg 2 of 2

3) Highlight “Start”
then Press “Select” key.

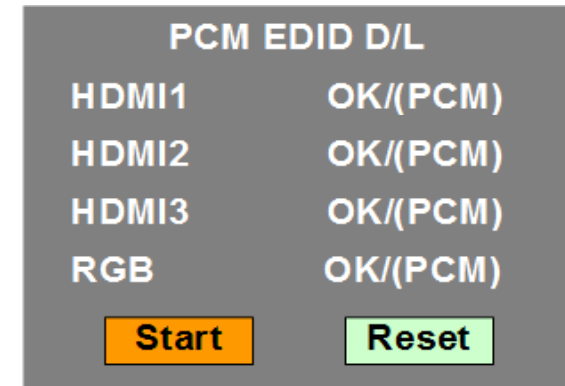
When PCM EDID D/L was selected



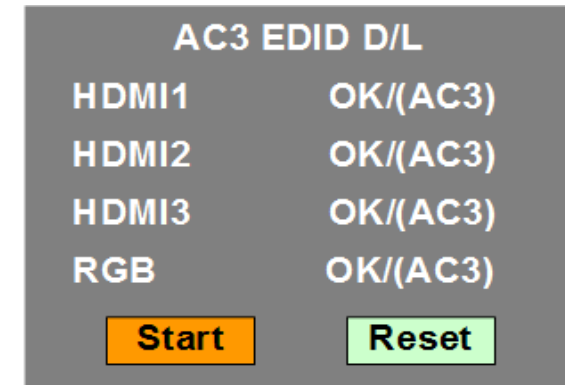
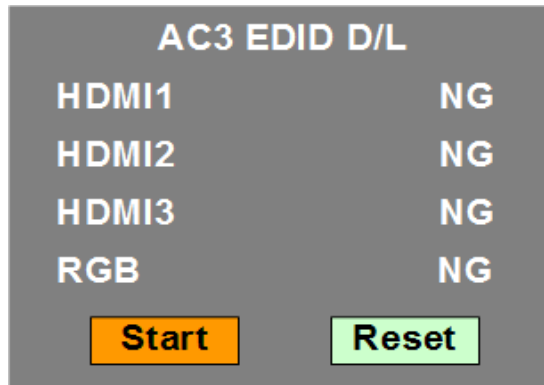
4) When Writing appears
Downloading in progress



5) Downloading Complete

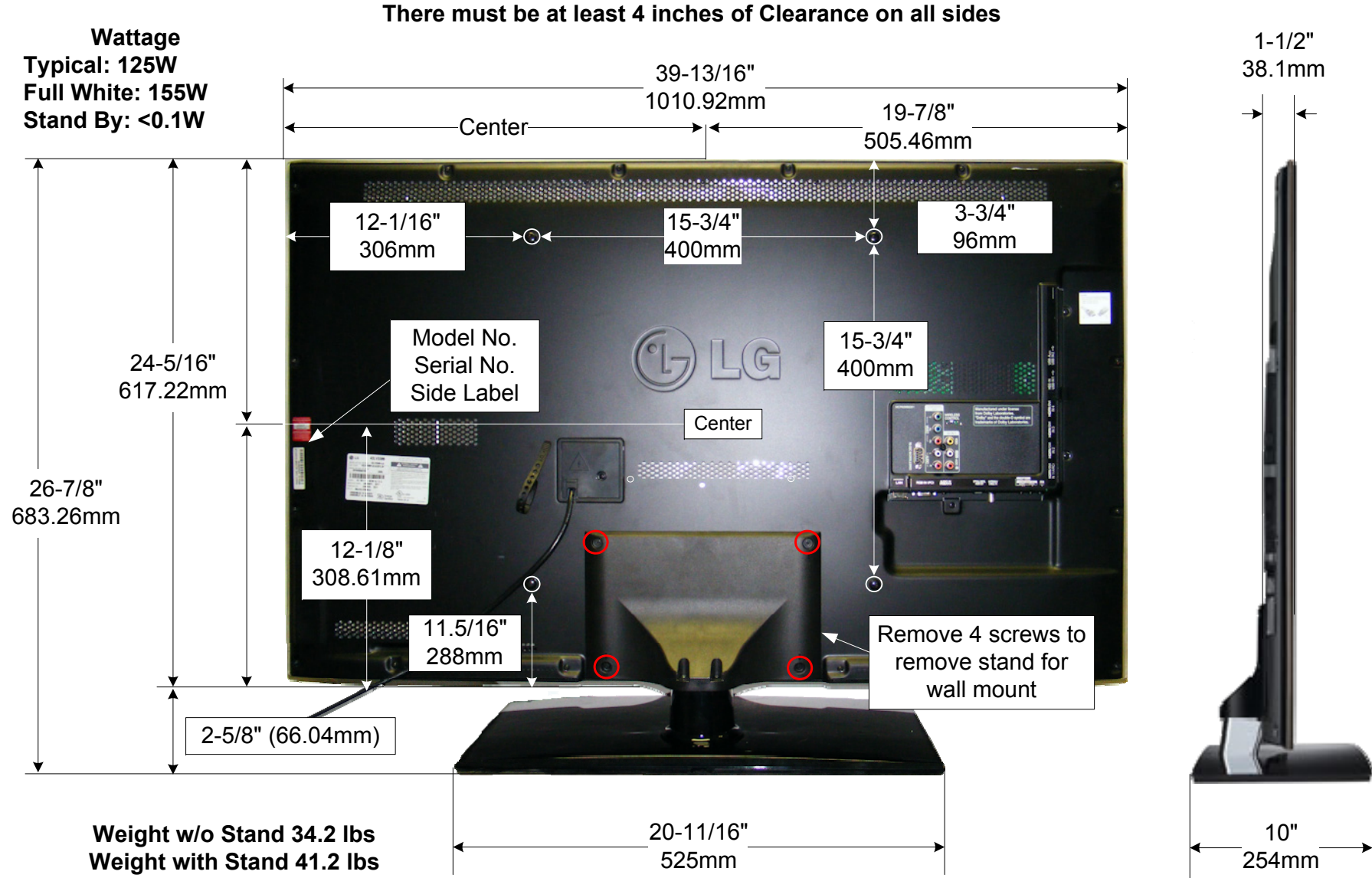


When AC3 EDID D/L was selected



Note: When PCM is downloaded, AC3 will be N/G and when AC3 is downloaded PCM will be N/G. This means that when PCM is OK, PCM audio is priority and when AC3 is OK, AC3 audio is priority.

42LV5500 Product Dimensions

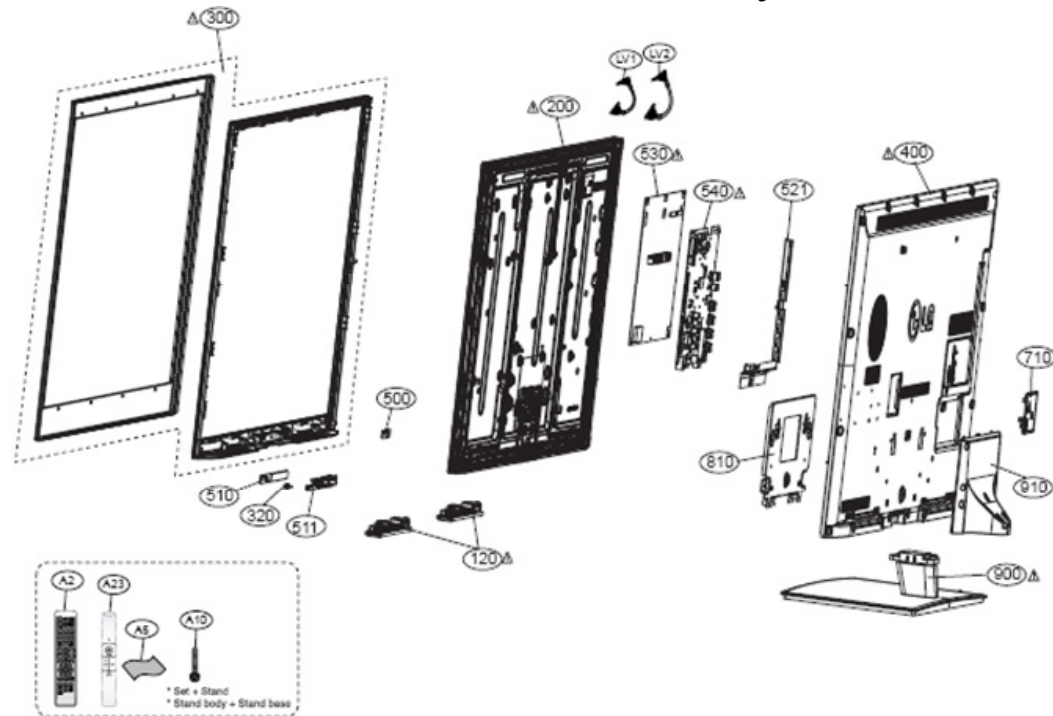


DISASSEMBLY SECTION

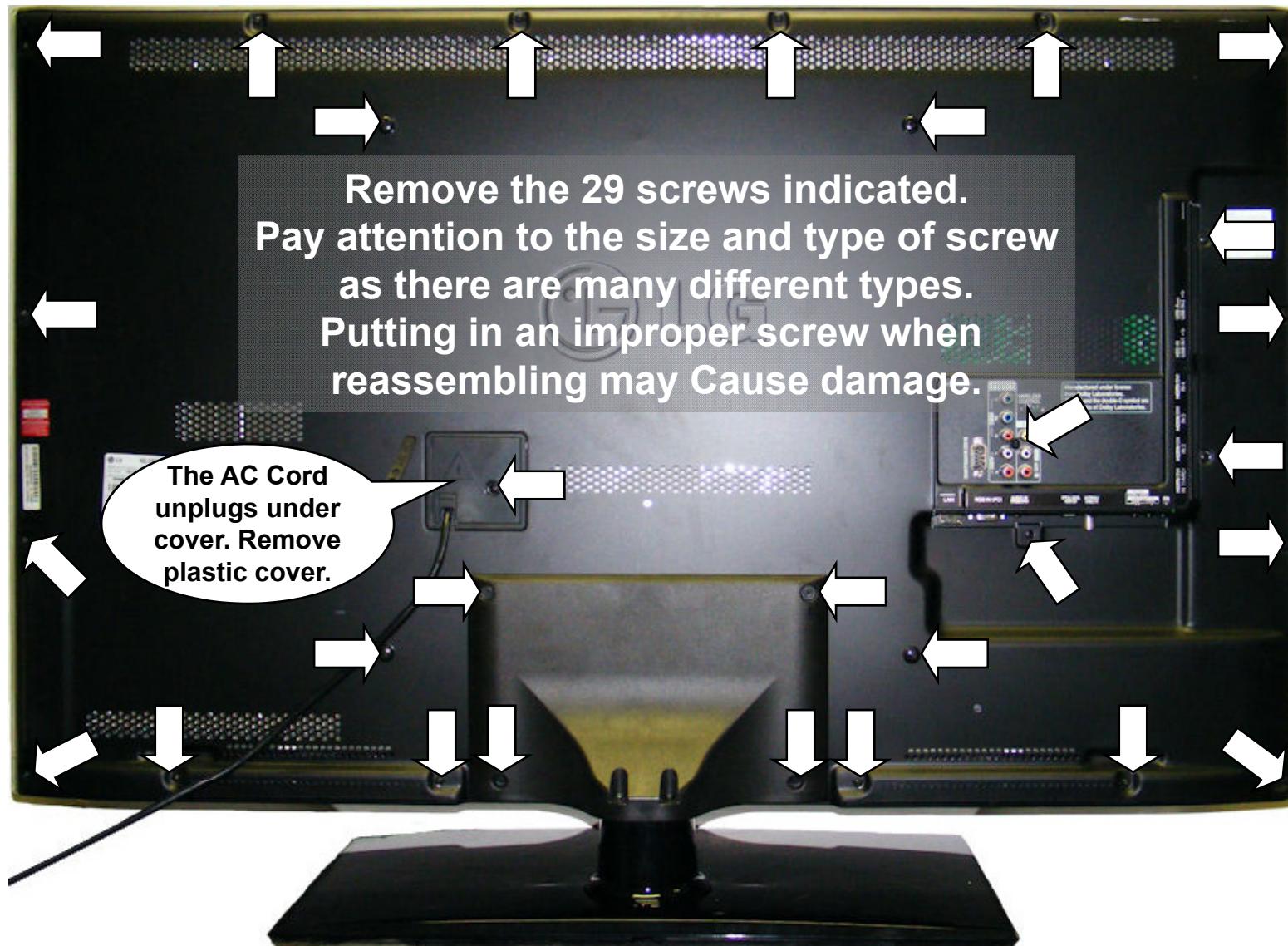
Disassembly:

This section of the manual will discuss Disassembly, Layout (Circuit Board Identification) of the 42LV5500 LCD Direct View Television.

Upon completion of this section the Technician will have a better understanding of the disassembly procedures, the layout of the printed circuit boards and be able to identify each board.



Removing the Back Cover

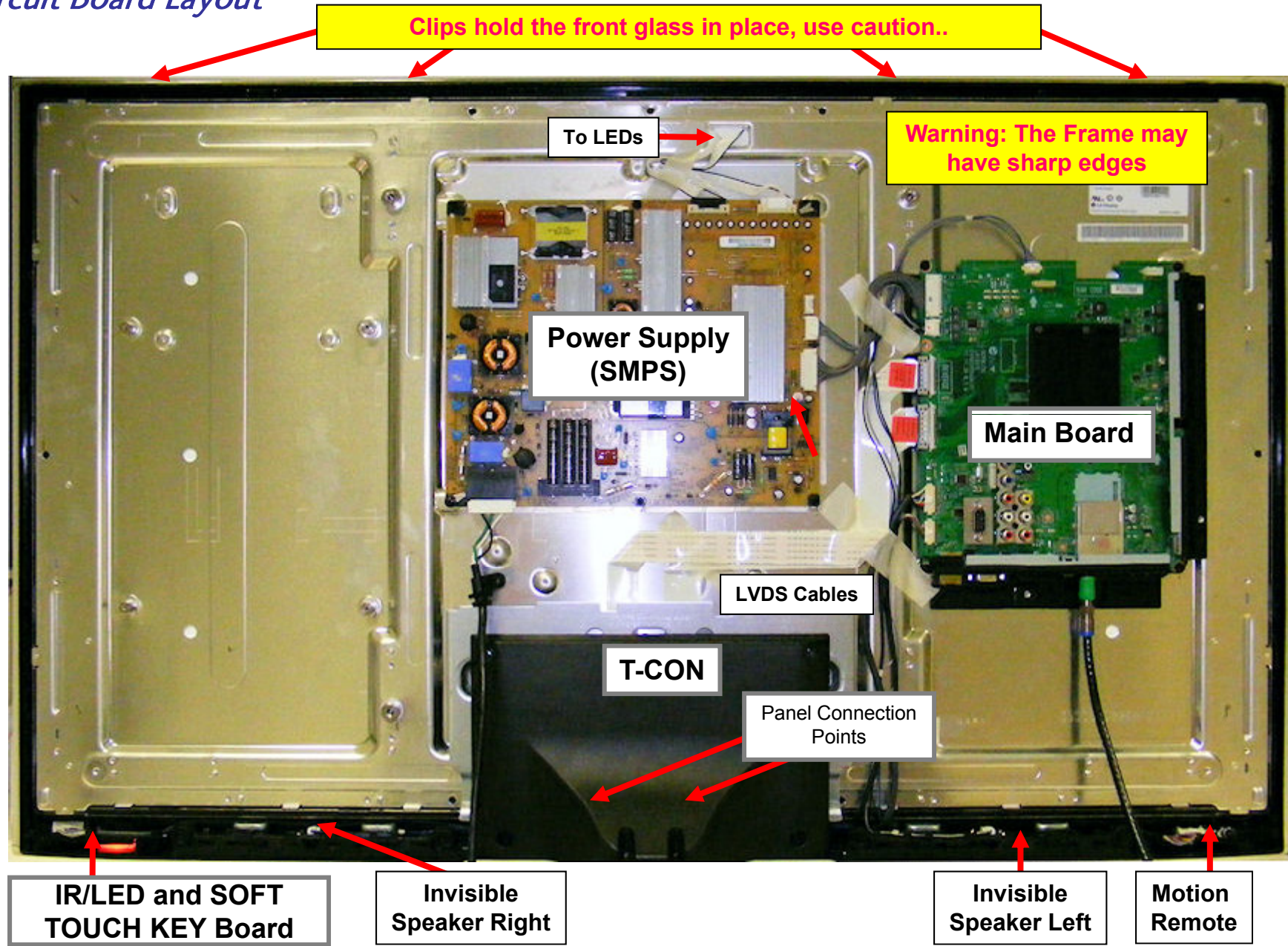


Remove the 29 screws indicated.
Pay attention to the size and type of screw
as there are many different types.
Putting in an improper screw when
reassembling may Cause damage.

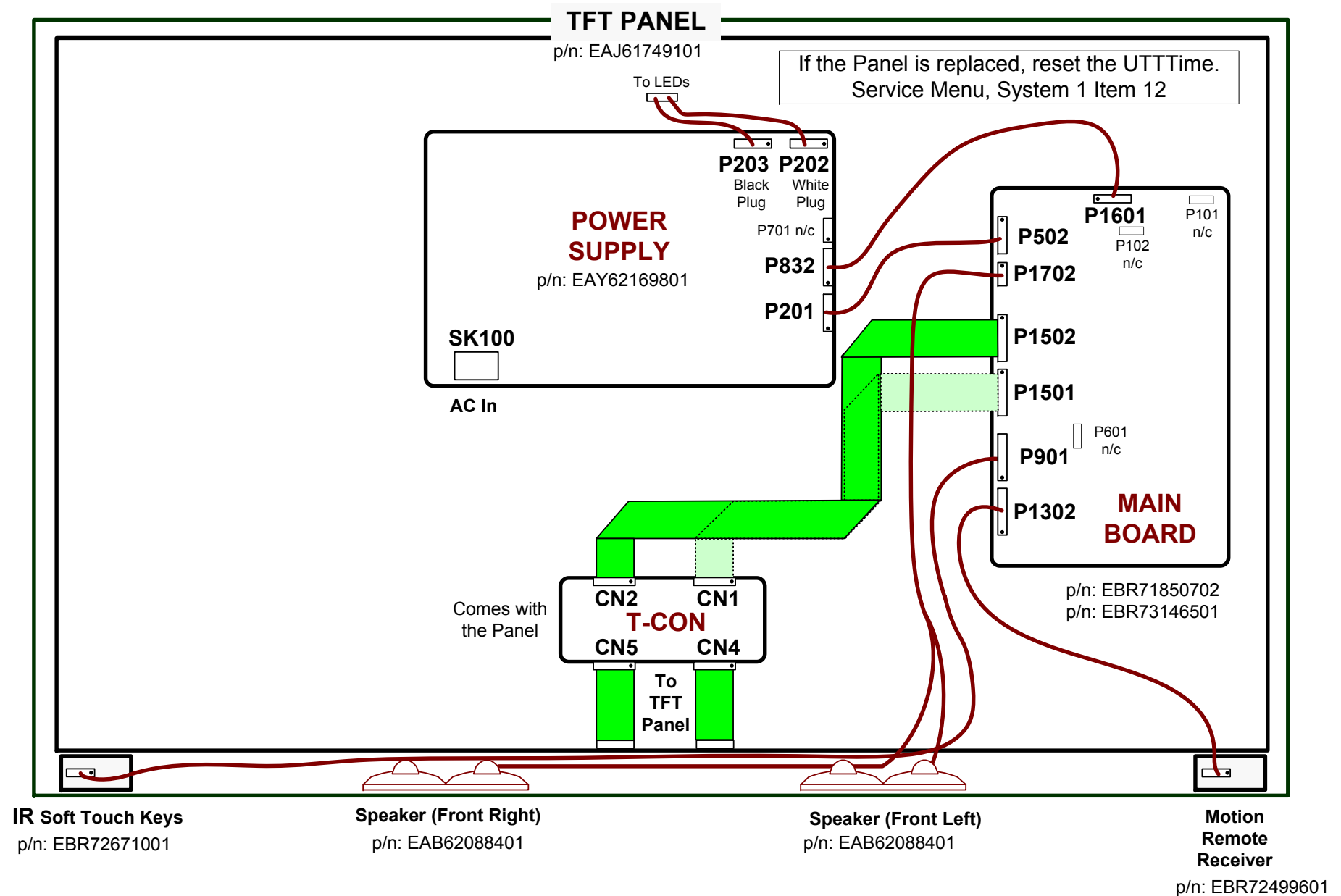
The AC Cord
unplugs under
cover. Remove
plastic cover.

The Stand has to be removed before removing the back.

Circuit Board Layout



42LV5500 Connector Identification Diagram



Power Supply Board Removal

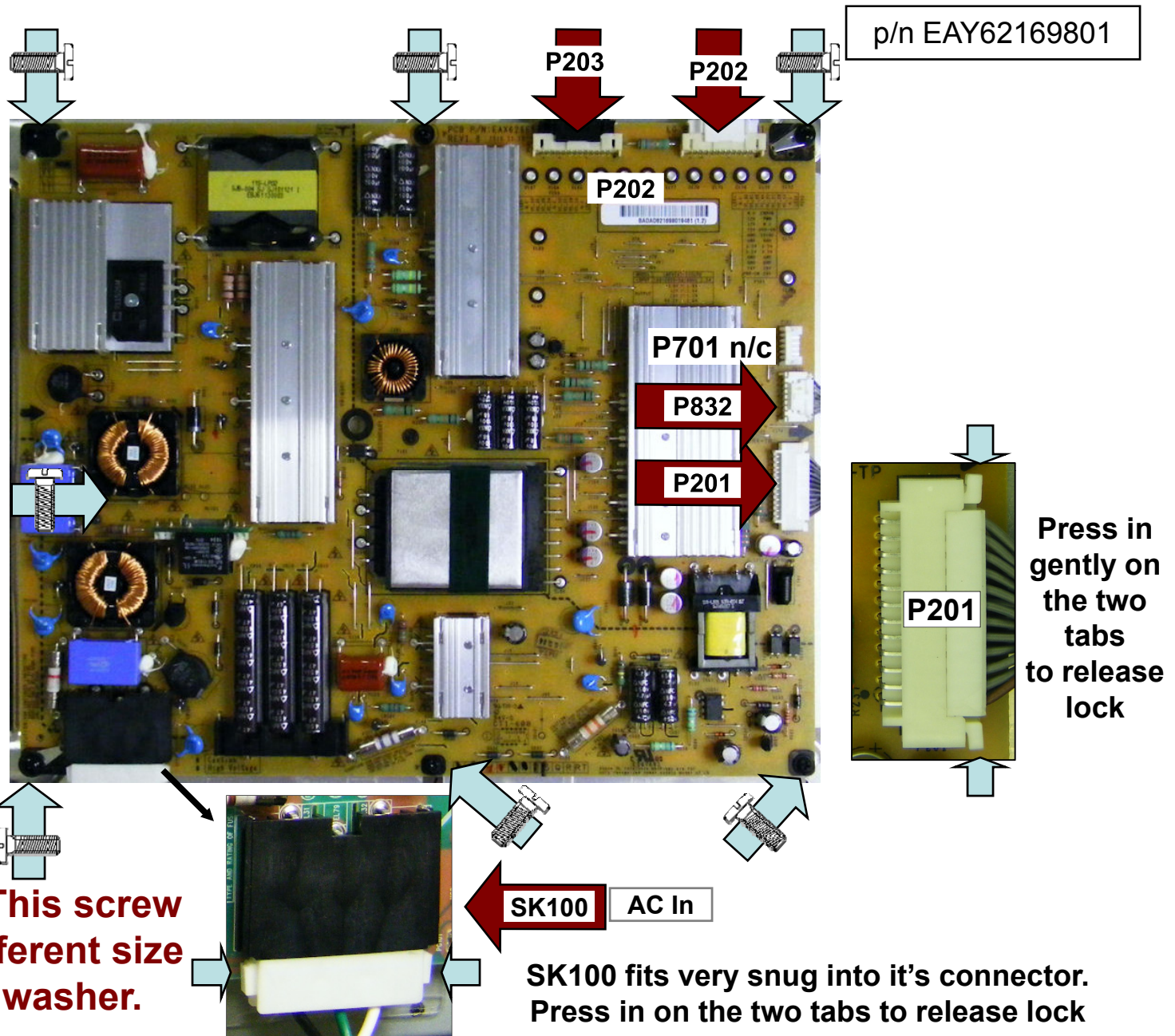
1

Disconnect P201, P202, P203, P832 and AC In SK100.

2

Remove the 6 screws indicated by the arrows.

Note: This screw is a different size with washer.



Removing the Main Board

1

**Disconnect P1601, P502,
P1702, P1502, P1501,
P901 and P1302.**

2

**Remove any tape holding down any cables.
Remove the 5 screws indicated by the arrows.**

3

Remove the board.

4

**Remove the board. Then
Remove the wrap around
decorative Metal piece.
Note: It is one piece.**

p/n EBR71850702 (AUSYLHR) or EBR73146501 (AUSYLJR) or
EBR71850705 (AUSYLUR)

P502

P1702

P1601

N/C

N/C

**Screw
removed
with Back**

Press in on the side release tabs to remove.

P1502

P1501

Decorative Metal Plate

After removing the Main, there are tabs sticking through the Main board holding the Metal plate in place.

**Screw
removed
with Back**

P901

P1302

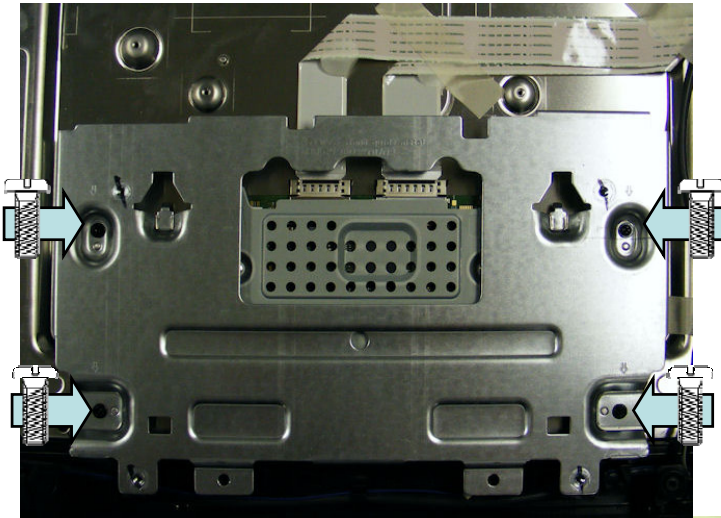
Screw removed with Back

Removing the T-CON (1 of 2)

Comes with the Panel

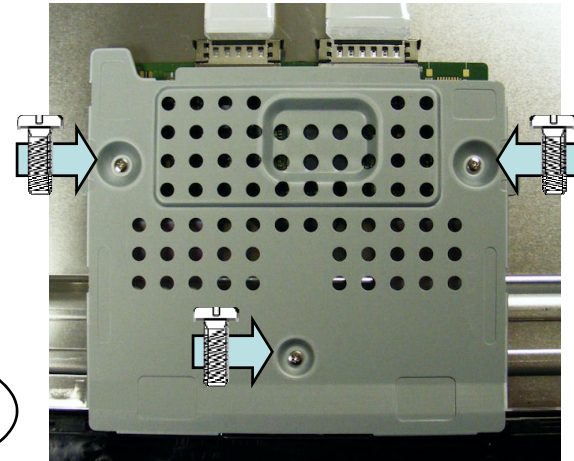
1

T-CON is under the Stand Bracket.
Remove the Stand Bracket (4 Screws).



2

T-CON is under a Shield.
Remove the T-CON Shield (3 Screws).

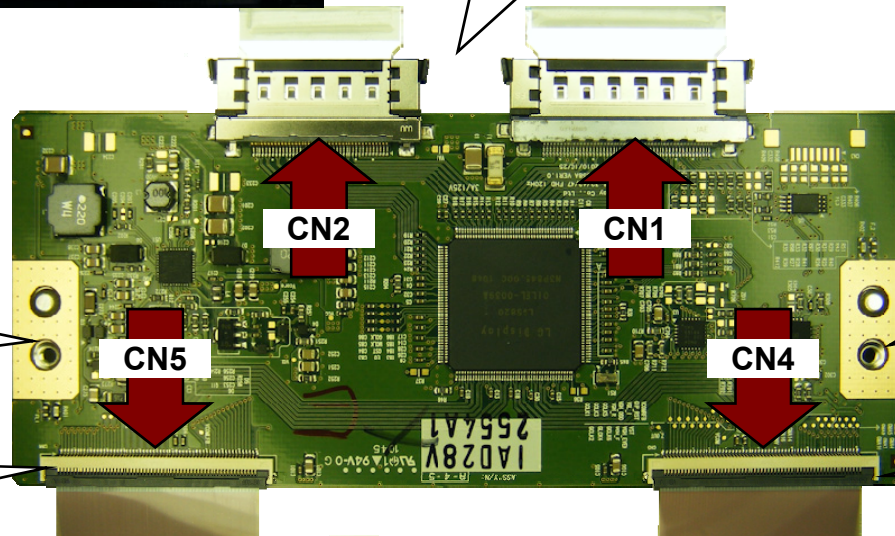


3

Disconnect CN1, CN2,
CN4 and CN5.

Return Screws if
testing board.

Flip up the
unlocking tabs.



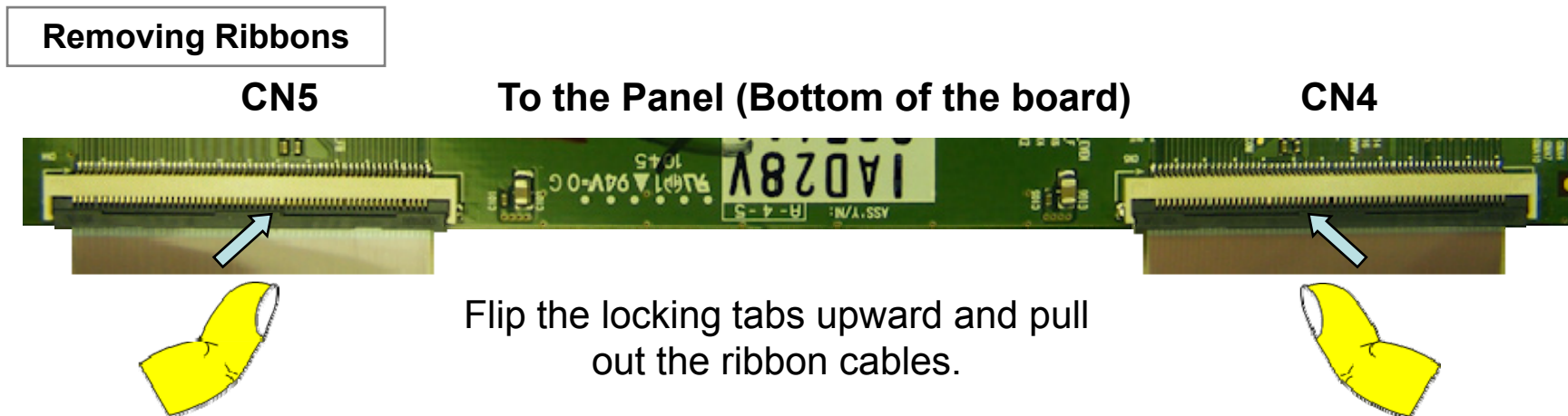
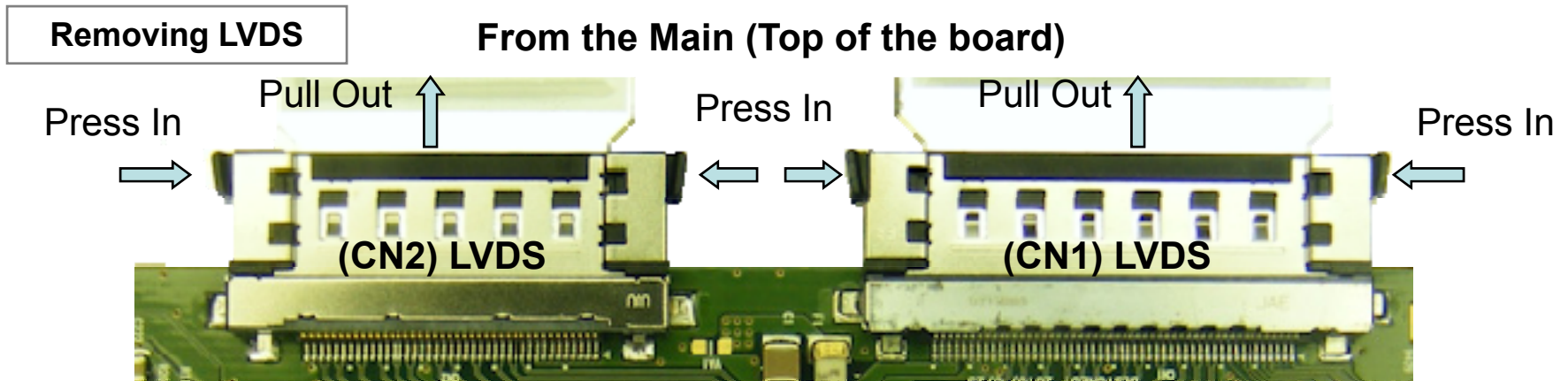
See next page for
removing Connectors.

Return Screws if
testing board.

Flip up the
unlocking tabs.

T-CON Board Removal Continued (2 of 2)

STEP (4) To remove the LVDS cables CN1 and CN2;
Press in on the two tabs and slowly rock the cable out of the connector.
(Shown by the arrows in Figure above)

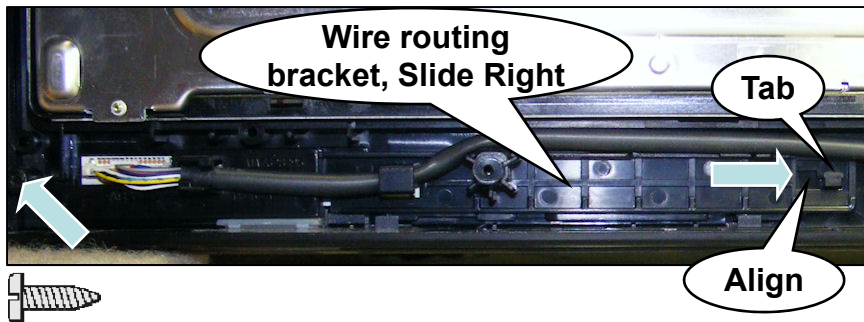


Removing the Front IR

p/n: EBR72671001

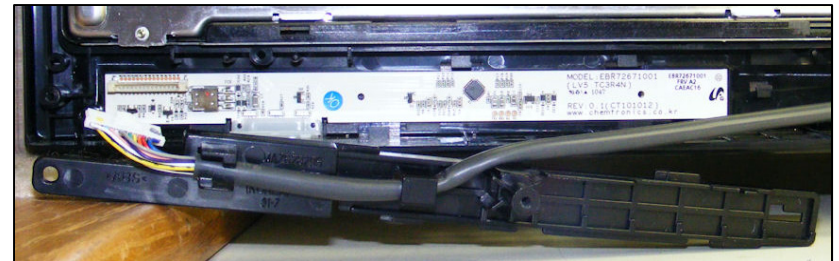
1

The Front IR Item 510 on the parts breakdown is under a wire routing bracket Item 511. Remove the one Screw and disconnect the connector. Slide the wire routing bracket to the right to allow the bracket to pull forward.



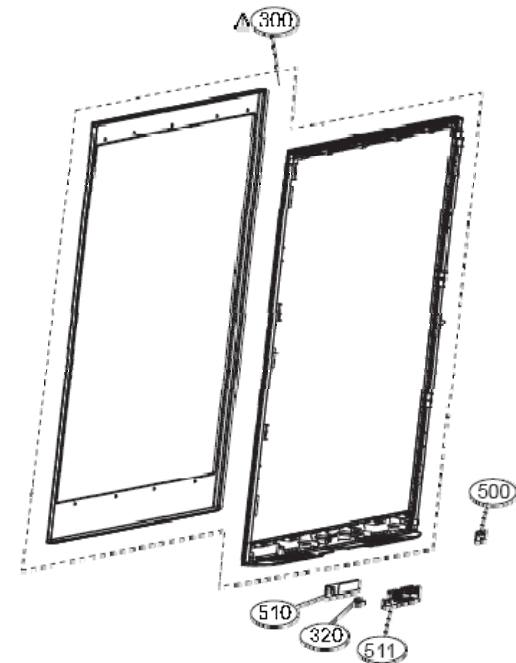
2

Remove the cable wire from the wire routing bracket and remove the wire routing bracket Item 511 on the parts breakdown.



3

After gaining access to the Front IR/Intelligent Sensor Board, lay the TV down on its face and remove the LCD Panel by removing the screws around the perimeter of the panel. Lift the Panel up and out. The Front Frame / key board is attached to the Front Frame. It must be removed to be replaced.
Part number: EBR72671001



TROUBLESHOOTING SECTION

Troubleshooting:

This section of the manual will discuss troubleshooting.

Upon completion of this section the Technician will have a better understanding of how to diagnosis and resolve problems.

POWER SUPPLY SECTION

This switch mode power supply develops Stand By 3.5V at all times when AC is applied. At power on, it develops 12V and 24V for the Main board. It develops 45V for the LED Backlights.

This power supply draws less than 1 watt during stand by mode. The fuse F101 and F501 reads approximately 398V (from hot ground) during this time. The transformer T501 delivers an AC signal which is rectified and filtered by D201, D202, C201 and C202 which develops a Stand-By voltage of 3.55V which is used by the SMPS Controller circuit and is also sent to the Main Board. It is output P201 pins 9~12 and sent to the P502 on the Main Board.

When the controller chip on the back side of the SMPS receives the PWR-ON command 3.41V via P201 Pin 1, it turns on the Relay RL101 which supplies AC to the bridge rectifier BD101. The primary section (Power Factor Controller circuit) increases its current supplying ability. Both Primary fuses F101 and F501 now read a little more than 396V. D253 receiving switching pulses from L601 develops the 45V for the LED backlights.

When the SMPS receives the DRV_ON command from the Main board via P201 Pin 18 (3.26V) it turns on the on-board Inverter to start driving the LED backlights. The backlight brightness is controlled by the Main board via PWM Pin 22 and Local Dimming signals via P832.

P201 Connector: (To Main Board)

3.5V_ST (3.55V) output P201 pins 9~12
12V (12V) output P201 pins 17, 19 and 21
24V (24V) output P201 pins 2, 3 and 4.

P202 Connector: (To Panel LEDs)

45V output P202 pins 1 and 12.

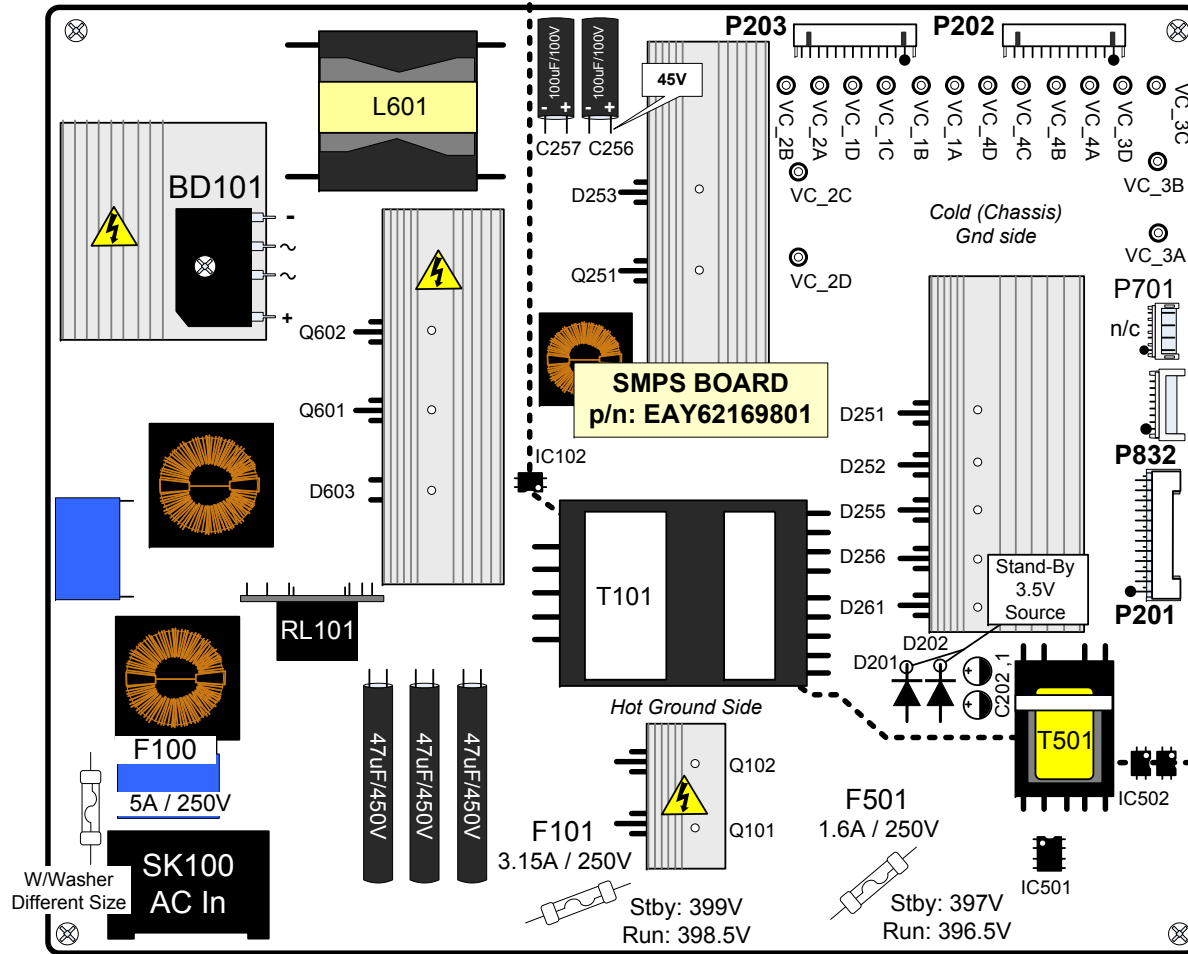
P203 Connector: (To Panel LEDs)

45V output P203 pins 1 and 13.

P832 Connector: (To the Main Board)

This connector receives the Local Dimming signals.

42LV5500 Power Supply Drawing



P201 Connector "SMPS Board" To P502 "MAIN Board"

Pin	Label	STBY	Run	Test1	Diode
24	ERROR	n/c	n/c	0V	2.03V
23	n/c	n/c	n/c	0V	OL
22	PWM	0V	0.2V~3.3V	3.52V	OL
21	12V	0V	12V	12V	0.48V
20	n/c	n/c	n/c	n/c	OL
19	12V	0V	12V	12V	0.48V
18	DRV-ON	0V	3.26V	0V	OL
17	12V	0V	12V	12V	0.48V
16	V_Sync (n/c)	n/c	n/c	n/c	OL
13-15	Gnd	Gnd	Gnd	Gnd	Gnd
9-12	3.5V	3.55V	3.53V	3.55V	2.63V
5-8	Gnd	Gnd	Gnd	Gnd	Gnd
2-4	24V	0V	24.5V	24.41V	1.09V
1	PWR-ON	0V	3.41V	3.55V	1.15V

(1) P-DIM1 (Digital Dimming) Global Pin 22 can vary according to incoming video IRE level, OSD Backlight setting and room light condition. 0.2V 0% to 3.3V 100% and the Intelligent Sensor. Output from the Video Processor IC900.



Indicates Hot Ground

45V Line:

PWR-ON turns on the 45V supply but it will only be 36V. Note: A block of LEDs can not be turned on with this voltage. It will increase to 65V then drops to 45V in less than 20 seconds when the DRV-ON line goes high.

MODEL	LGP4247-11SLPB	
INPUT	100-240V~50/60Hz	2.5A
OUTPUT	3.5V = 1.8A	
	12V = 2.8A	
	24V = 1.2A	
	59.2V = 1.6A	

SMPS TEST 1: To Force Power Supply On.

Disconnect P502 on Main board.

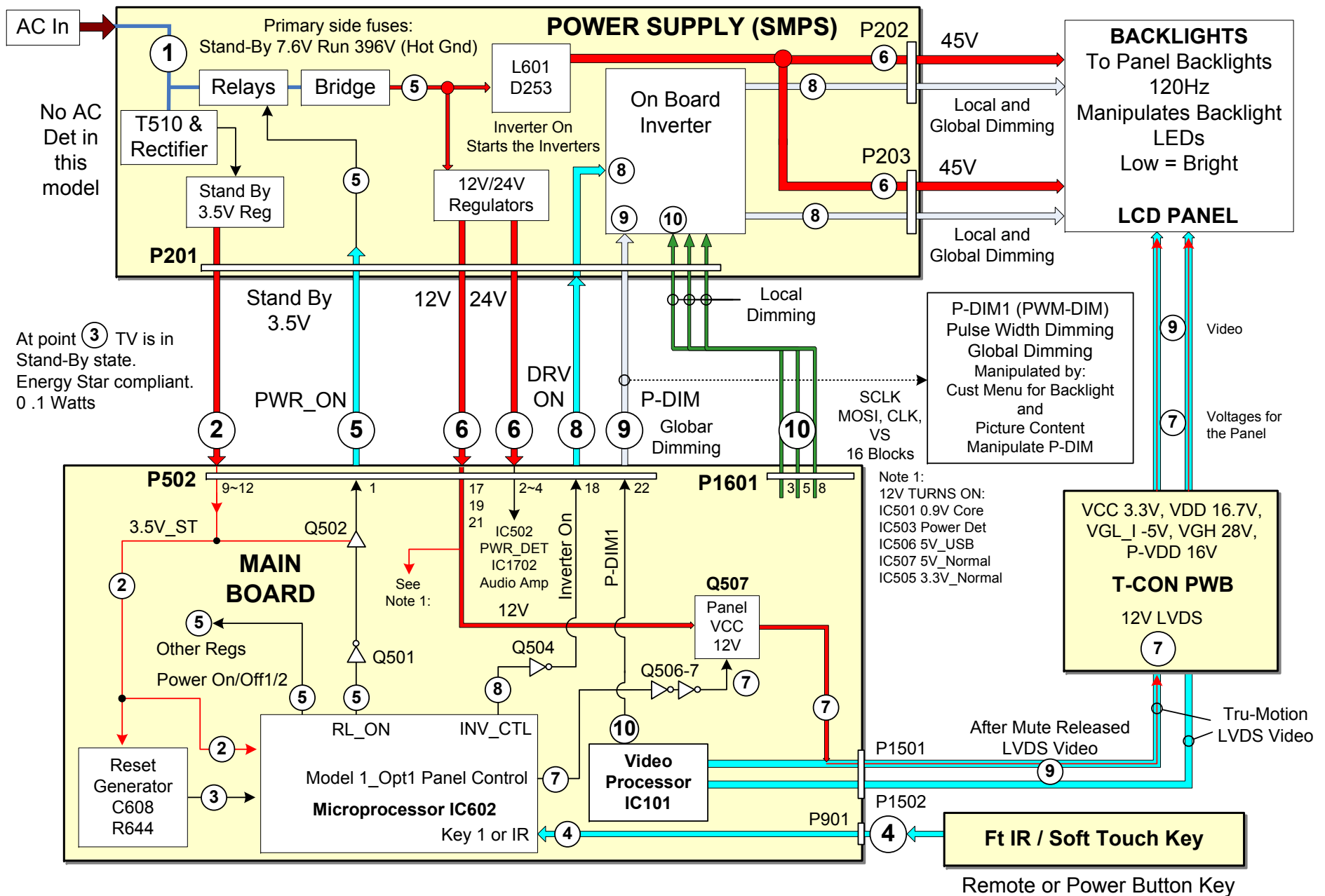
(A) Jump pins 9, 10, 11 or 12 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main and 36V to the Inverter Section of the SMPS. Remove AC power. Leave the jumper in place.

SMPS TEST 2:

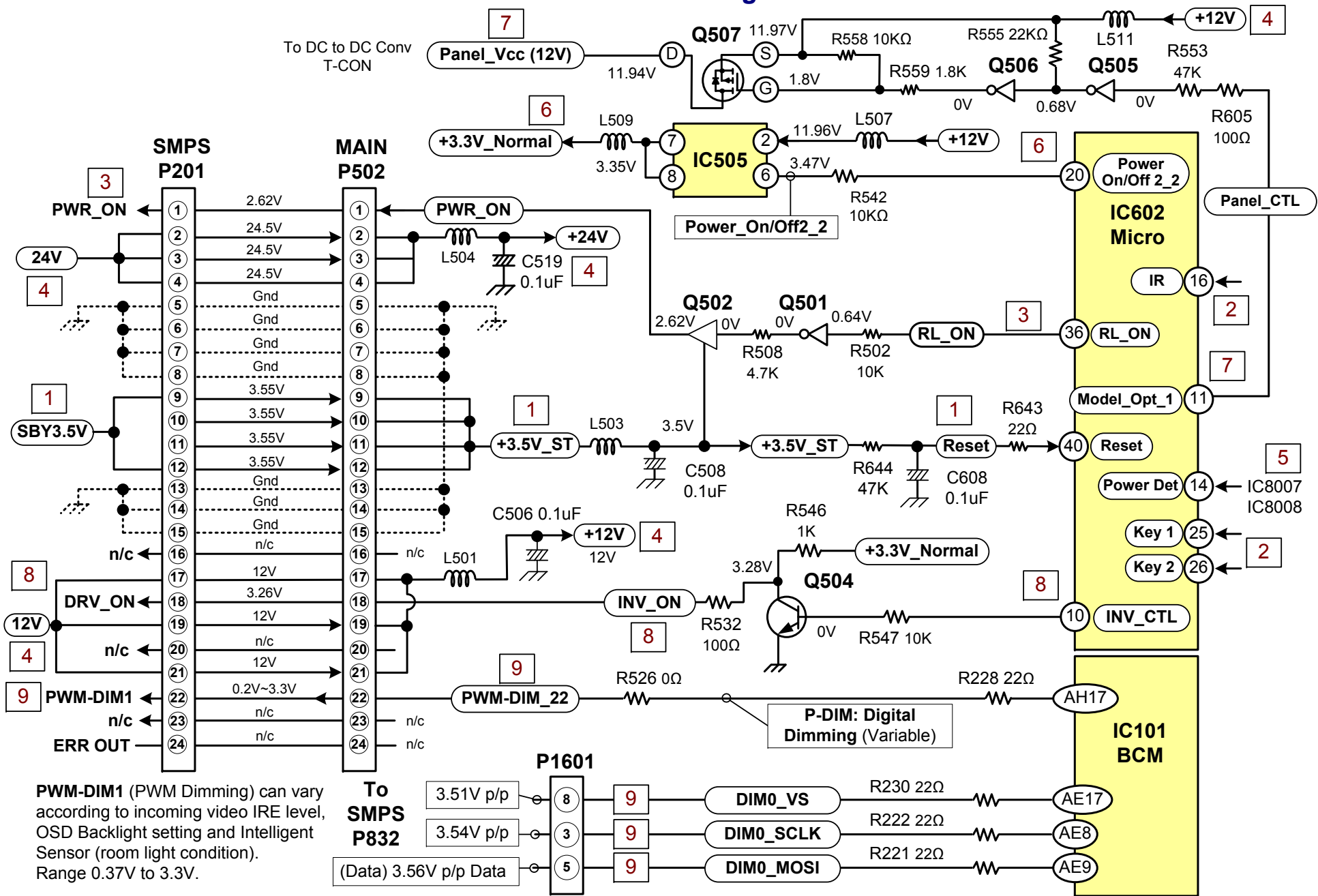
(B) Jump pins 9, 10, 11 or 12 (3.5V) to pin 18 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now jump to 65V then back down to 45V.

Note; If there is a problem with a load from the panel backlights, you can remove AC and Disconnect P202 or P203. When AC is reapplied, the Backlight LEDs should turn on for about 4 seconds and then shut off.

42LV5500 Power Supply Start Up Sequence



42LV5500 Television Turn On Commands Circuit Drawing



Power Supply Board Low Voltage Test 1

AC Should not be applied at any time while adding jumpers or While unplugging connectors as damage to the circuit Board may occur.

- a) When AC is applied, the SMPS “MUST” be producing STBY 3.5V on pins 9, 10, 11 or 12 of P201.

If 3.5V Standby is not being generated, the SMPS is defective and must be replaced. There is no need to continue with the next test.

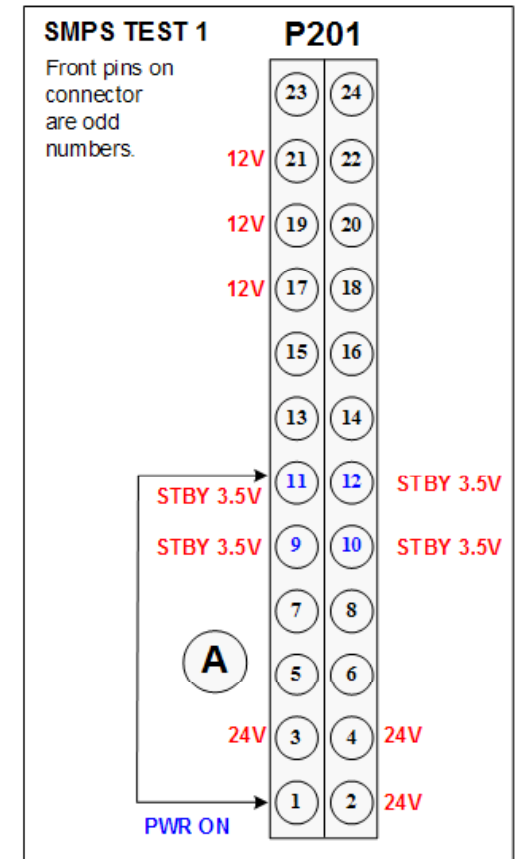
But, make sure AC is arriving at the connector SK101.

- (b) Unplug P502 on the Main Board to make insertion of the Jumpers easier.
Use P502 Side to insert resistors

TEST 1:

- (1) Add a jumper between (3.5V STBY) pin 7, 8, 9 or 10 and Pin 1 (PWR_ON).
Apply AC. This will turn on the power supply, relay will click.
- a) Check that the 24V (24.41V) and 12V power supplies are turned on,
- P201 (12V pins 17, 19 and 21)
 - P201 (24V pins 2, 3 and 4)
 - P202 (36V pins 1 and 12) AND P203 (pins 1 and 13)
- (2) Remove AC power

No Backlights during this test



Pin 1 is the Brown Wire

Power Supply Board Backlights Test 2

Continue if the 1st test was OK.
Leave original jumper in place.

- (3) Add another jumper between (STBY_3.5V) pin 9, 10, 11 or 12 and Pin 18 (DRV_ON).
- (4) Apply AC Power. Simulating a Power and Backlight On command.

Backlights Normal:

- a) If normal, the backlights should turn on.
SMPS OK, Inverter OK.

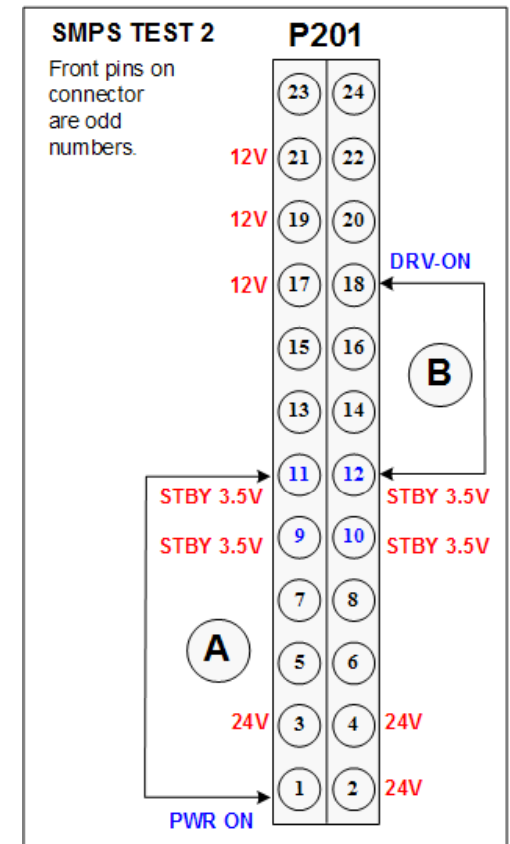
Backlights Abnormal:

- a) Recheck all connections.
- b) Confirm the **DRV_ON** line pulling up to at least 3V.
- c) Check the connections to the Panel.

If the DRV_On command is pulling up to 3V and the 45V is being generated from C256 + leg, see the Inverter Section of the Power Supply for additional checks.

Note: If either P202 or P203 is disconnected, the backlights will come on,
The Error line will go high, then the backlights shut off in 4~6 seconds.

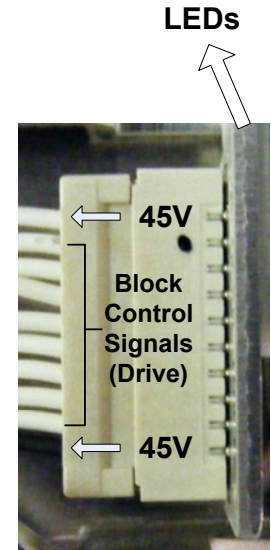
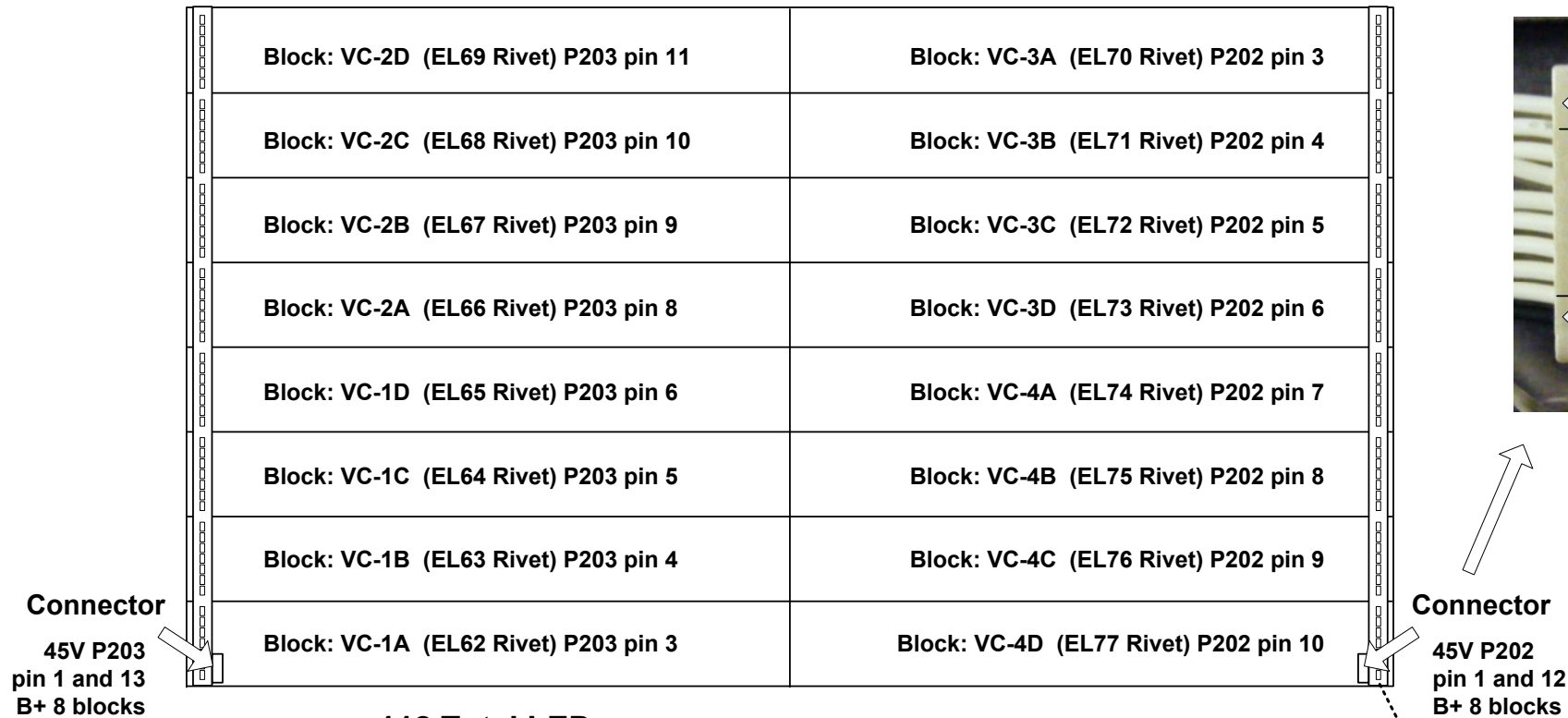
REMOVE AC POWER:



**Pin 1 is the
Brown Wire**

42LV5500 2 Sided Edge Lit Panel (V6) 2011

TWO SIDED EDGE 2011 (Rear View)

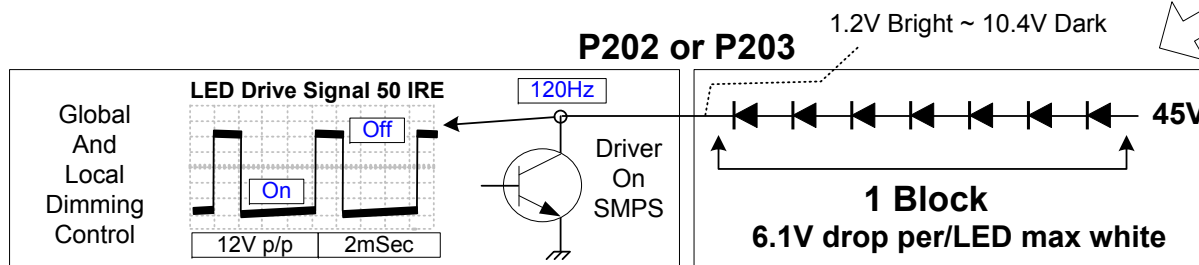


Example

112 Total LEDs
2 Boards (Strips)
56 LEDs per/board

16 Total Blocks
8 Blocks per/board (8 on Left, 8 on Right)
7 LEDs per/block

ONE STRIP (Board)



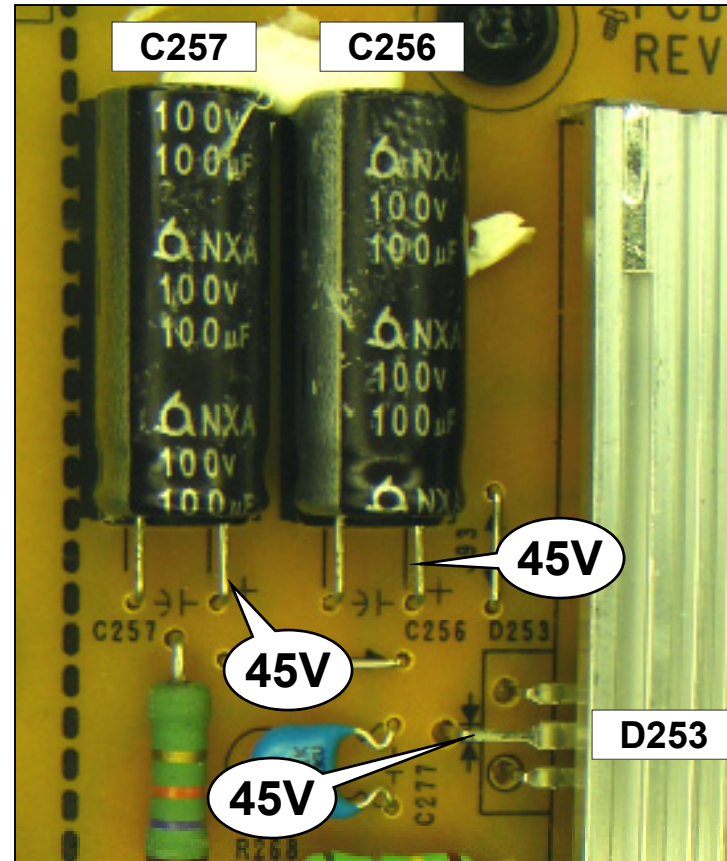
One LED can be tested with a Diode Check using a DVM. Forward biased, the LED should light.

1.2V Bright ~ 12V Dark

45V Supply Backlight Driver Section of the SMPS

The Power Supply for the Backlights Can be checked at the (+) side of C256 or C257 or the Cathode of D253.

Note: When the PWR_ON command Arrives, this voltage will read 36V.
When the DRV_ON command arrives This voltage will rise to 65V the fall quickly Down to 45V.



Location: Top Center of the SMPS

P202 and P203 Backlight Driver Section of the SMPS Association with TPs

P203

Pin	Label	TP
1	LED+	C256+
2	n/c	n/a
3	VC-1A	EL62
4	VC-1B	EL63
5	VC-1C	EL64
6	VC-1D	EL65
7	n/c	n/a
8	VC-2A	EL66
9	VC-2B	EL67
10	VC-2C	EL68
11	VC-2D	EL69
12	n/c	n/a
13	LED+	C256+

P202

Pin	Label	TP
1	LED+	C256+
2	n/c	n/c
3	VC-3A	EL70
4	VC-3B	EL71
5	VC-3C	EL72
6	VC-3D	EL73
7	VC-4A	EL74
8	VC-4B	EL75
9	VC-4C	EL76
10	VC-4D	EL77
11	n/c	n/c
12	LED+	C256+

P202 / P203 Power Supply Connector Voltage and Diode Check

P202 White Plug "SMPS Board" To "Panel LEDs"

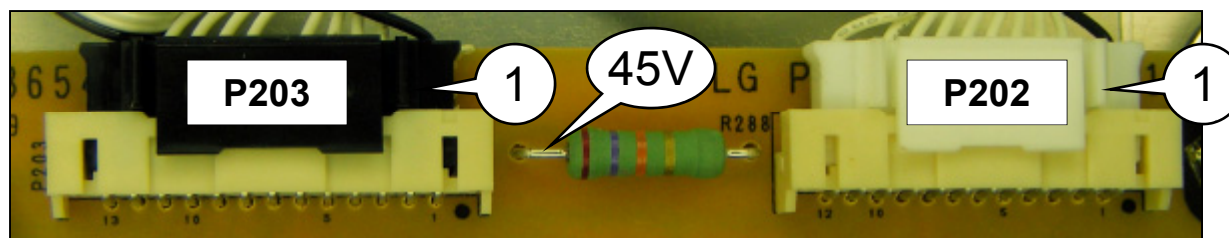
Pin	Label	TP	Run	Diode Check
1	LED+	C256+	45V	OL
2	n/c	n/c	n/c	OL
3	VC-3A	EL70	*1.2V~10.4V	OL
4	VC-3B	EL71	*1.2V~10.4V	OL
5	VC-3C	EL72	*1.2V~10.4V	OL
6	VC-3D	EL73	*1.2V~10.4V	OL
7	VC-4A	EL74	*1.2V~10.4V	OL
8	VC-4B	EL75	*1.2V~10.4V	OL
9	VC-4C	EL76	*1.2V~10.4V	OL
10	VC-4D	EL77	*1.2V~10.4V	OL
11	n/c	n/c	n/c	OL
12	LED+	C256+	45V	OL

*White to Black screen

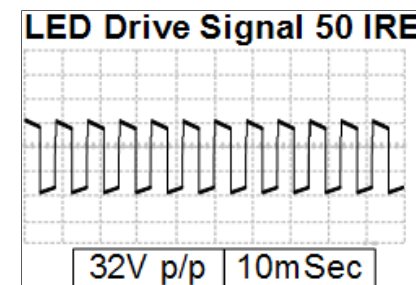
P203 Black Plug "SMPS Board" To "Panel LEDs"

Pin	Label	TP	Run	Diode Check
1	LED+	C256+	45V	OL
2	n/c	n/a	n/c	OL
3	VC-1A	EL62	*1.2V~10.4V	OL
4	VC-1B	EL63	*1.2V~10.4V	OL
5	VC-1C	EL64	*1.2V~10.4V	OL
6	VC-1D	EL65	*1.2V~10.4V	OL
7	n/c	n/a	n/c	OL
8	VC-2A	EL66	*1.2V~10.4V	OL
9	VC-2B	EL67	*1.2V~10.4V	OL
10	VC-2C	EL68	*1.2V~10.4V	OL
11	VC-2D	EL69	*1.2V~10.4V	OL
12	n/c	n/a	n/c	OL
13	LED+	C256+	45V	OL

*White to Black screen



*The drive signal changes due to the brightness level of the backlights. Low indicates "Bright". High indicates "Dim".



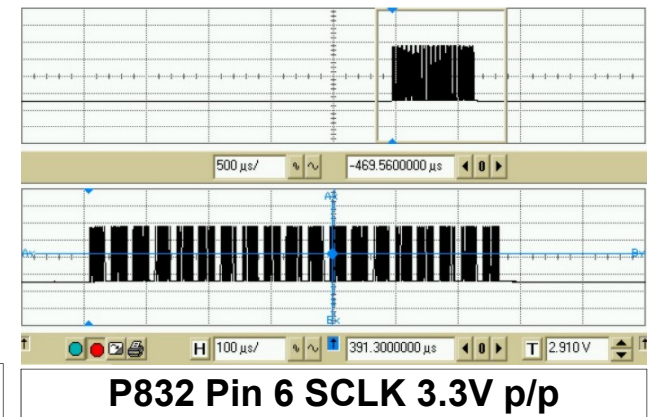
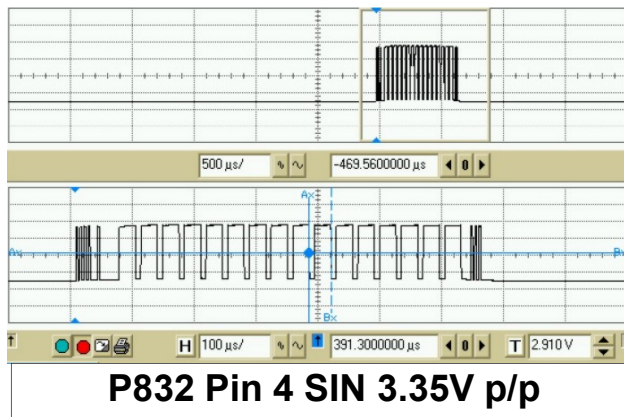
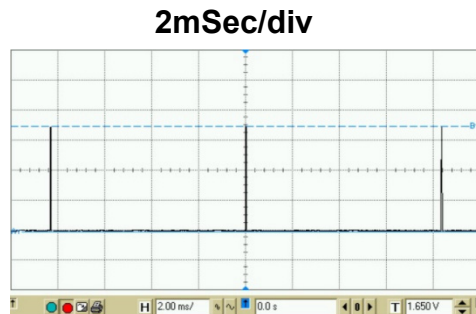
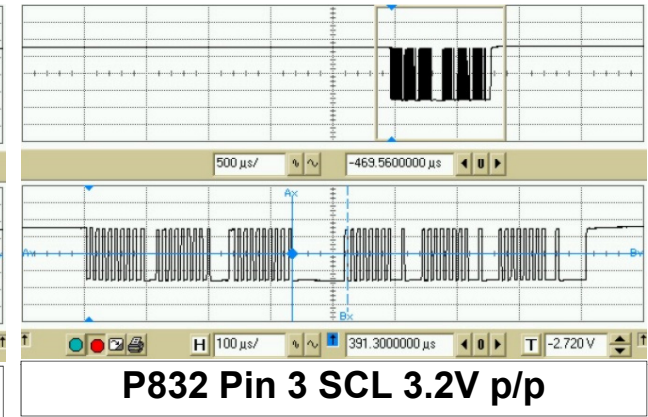
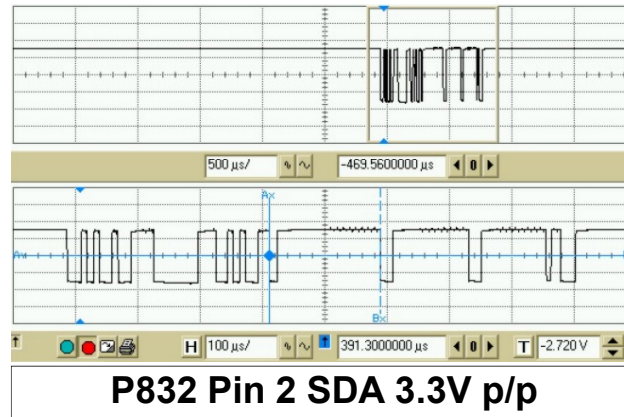
Diode Mode values taken with all Connectors Removed

P832 Local Dimming Drive Waveforms

P832 "SMPS" to P1601 "MAIN"

Pin	Label
1	VSYNC
2	SDA
3	SCL
4	SIN
5	Gnd
6	L/DIM0_SCLK
7	n/c
8	Reverse

Top Waveforms are 500uSec/div
Bottom Waveforms are 100uSec/div

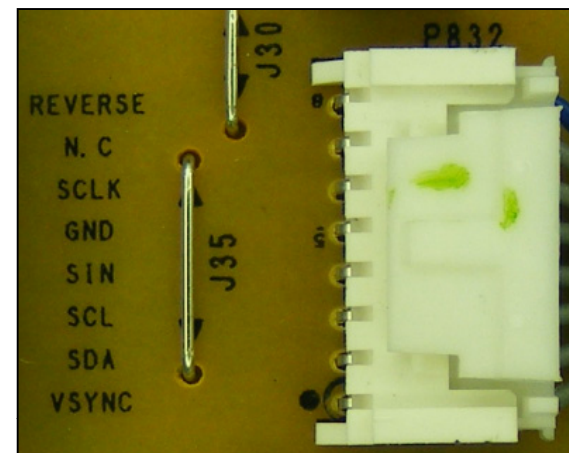


P832 Voltages and Diode Checks

P832 "SMPS" to P1601 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
8	Reverse	Gnd	Gnd	1.91V
7	n/c	n/c	n/c	OL
6	L/DIM0_SCLK	0V	0.1V	OL
5	Gnd	Gnd	Gnd	Gnd
4	SIN	0V	0.18V	OL
3	SCL	0V	3.25V	OL
2	SDA	0V	3.25V	OL
1	VSYNC	0V	0V	OL

P832 Connector

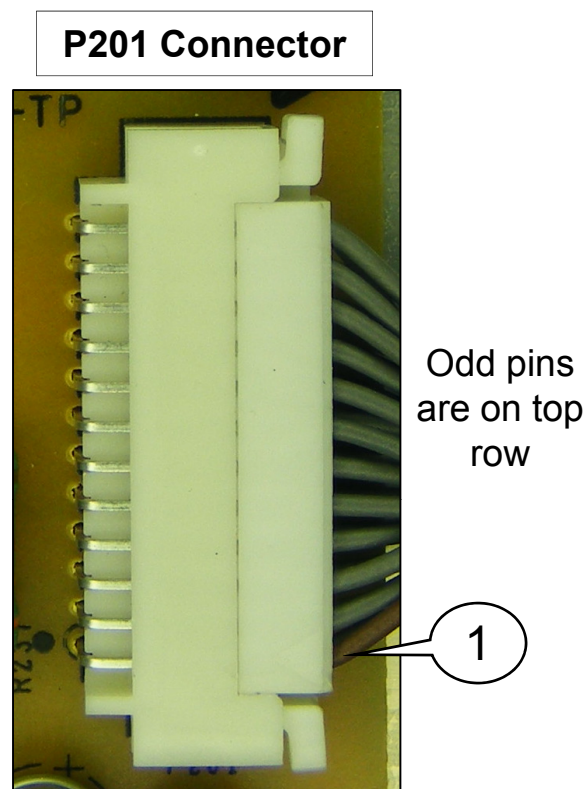


Diode Mode values taken with all Connectors Removed

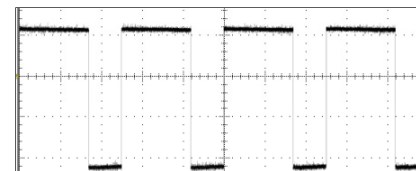
P201 Power Supply Connector Voltage and Diode Check

P201 Connector "SMPS Board" To P502 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
24	ERROR	n/c	n/c	2.03V
23	n/c	n/c	n/c	n/c
22	PWM	0V	0.2V~3.3V	OL
21	12V	0V	12V	0.48V
20	n/c	n/c	n/c	n/c
19	12V	0V	12V	0.48V
18	DRV-ON	0V	3.26V	OL
17	12V	0V	12V	0.48V
16	V-SYNC	n/c	n/c	n/c
13-15	Gnd	Gnd	Gnd	Gnd
9-12	3.5V	3.55V	3.53V	2.63V
5-8	Gnd	Gnd	Gnd	Gnd
2-4	24V	0V	24.5V	1.09V
1	PWR-ON	0V	2.62V	1.15V



(1) PDIM1 Pin 22 can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition) Output from the Video Processor IC900. Range 0.37V to 3.3V.



P-DIM1
3.66V p/p 50IRE

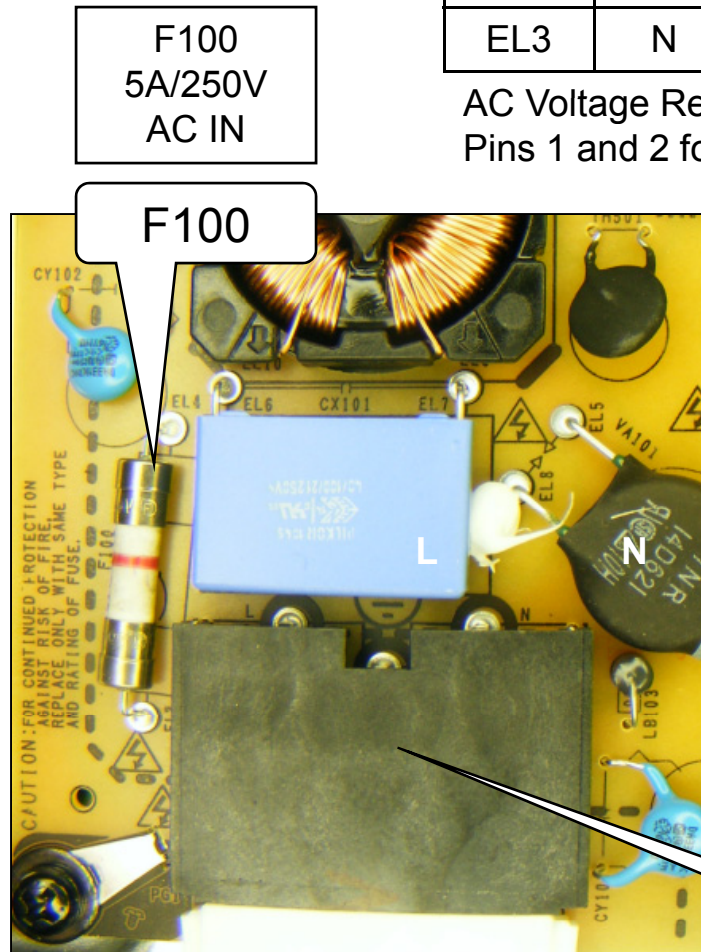
Diode Mode values taken with all Connectors Removed

SK100 and AC Fuse Power Supply Voltage and Diode Check

SK100 "SMPS" to AC IN

Pin	Label	STBY	Run	Diode Check
EL1	L	120Vac		OL
EL3	N			OL

AC Voltage Readings (From Hot Ground)
Pins 1 and 2 for STBY and RUN.



Diode Mode values taken with all Connectors Removed

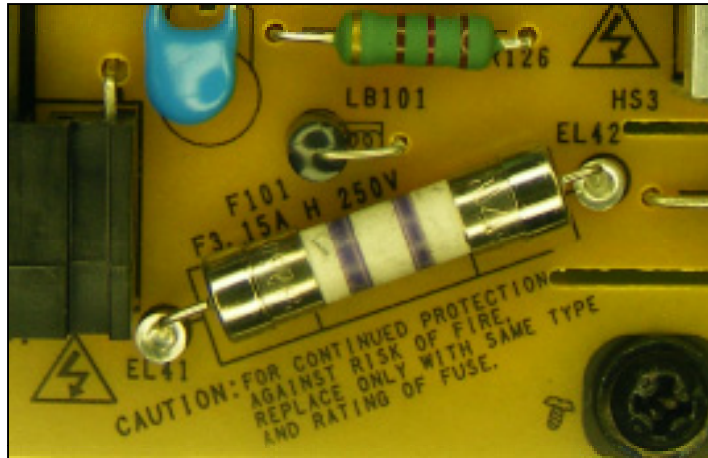
F100 (Diode Check)

Red or Black Lead on Fuse (Open)
Other Lead on Hot Ground

Bottom Left of SMPS

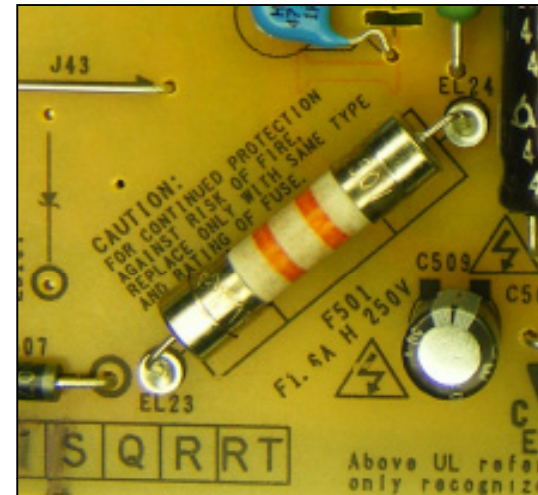
SK100

F101 and F501 Power Supply Voltage Checks



F101
3.15A/250V

From Hot Gnd
STBY 399V
Run 398.5V



F501
1.6A/250V

From Hot Gnd
STBY 397V
Run 396.5V

MAIN BOARD SECTION

The Main board receives its operational B+ from the Power Supply via P502.

There are two LVDS cable feeds that are output to the T-CON (TFT Driver). These carry the dual 24 bit LVDS Video and TruMotion Video equaling a 120Hz video signal. These signals have already been prepared for the T-CON board. The Main board also includes the Tuner, Audio and Audio/Video inputs and selection circuits.

Input Voltages from SMPS.

STAND-BY

- STBY 3.5V (P502 pins 9~12)

RUN

- 12V (P502 pins 17, 19 and 21).
- 24V (P502 pins 2~4).

The Main board also develops several B+ sources on the board.

STAND-BY VOLTAGES

- 3.3V_ST (Direct from SMPS through L503).

LVDS

- Panel_VCC (12V Not generated, but switched by Q507 from the 12V arriving from the SMPS).

TUNER TU2101 and VSB CIRCUIT

- 5V_TU (Made from 5V_Normal through L2101 / 4)
- 3.3V_TU (Made from 3.3V_Normal L2103).
- 1.26V_TU IC2103 (Made from 3.3V_TU).

AUDIO IC1702

- 3.3V_AU_AVDD (Made from 3.3V_Normal).
- 3.3V_DVDD (Made from 3.3V_Normal).
- 1.8V (Made from 3.3V_Normal).
- 24V (Direct from SMPS through L504).

GENERAL

- 5V_Normal IC507 (Made from 12V In).
- 3.3V_Normal IC505 (Made from 12V In).
- 5V_USB IC506 (Made from 12V In).

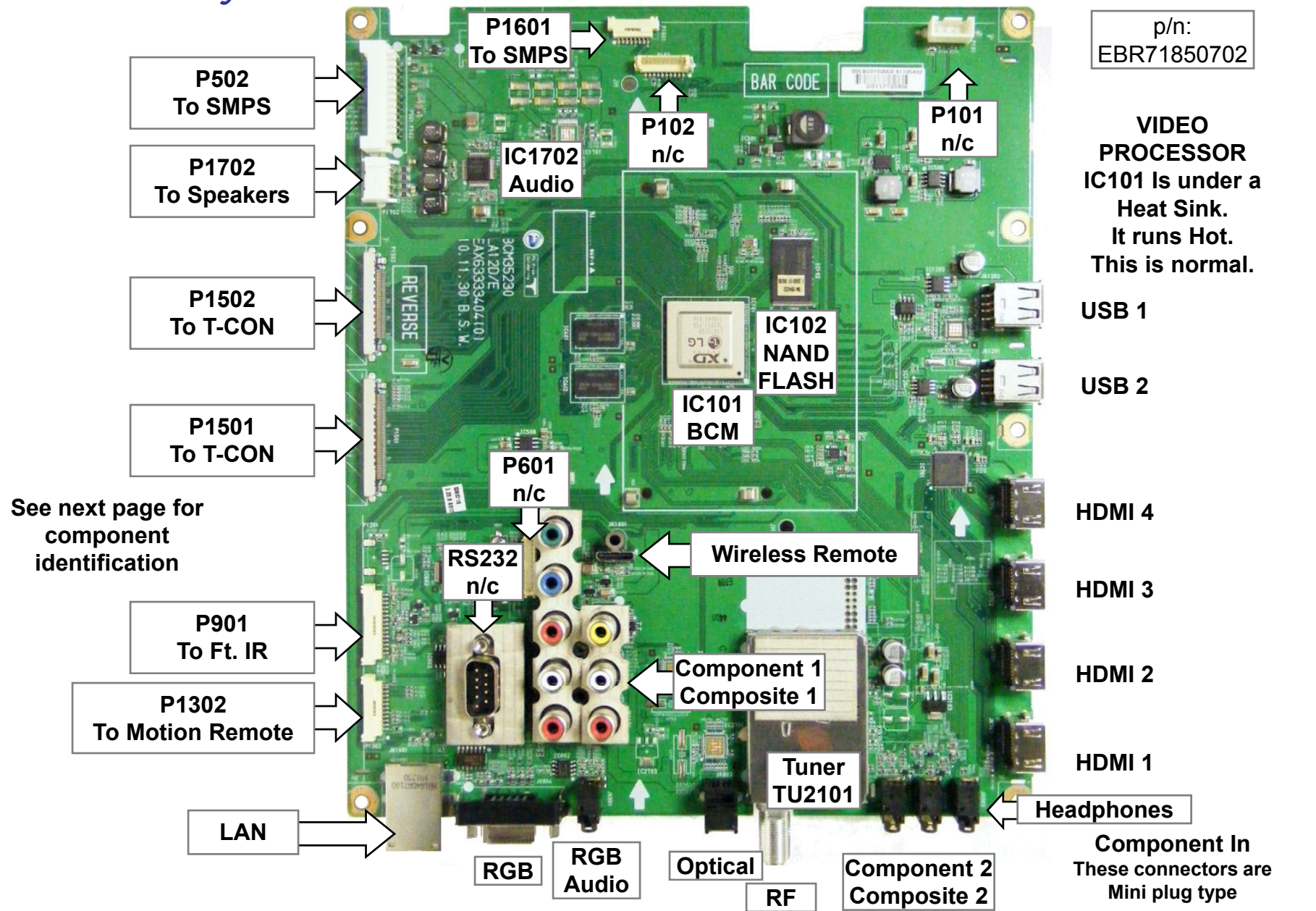
BCM IC101 Video Processor

- 3.3V_ST (Direct from SMPS through L503).
- 2.5V_BCM52230 (IC504)
- D1.5V_DDR (IC508)
- 0.9V_CORE (IC501)

HDMI SELECTOR VOLTAGES (IC701)

- 3.3V_HDMI
(From 3.3V_Normal through L701)

Main Board Layout



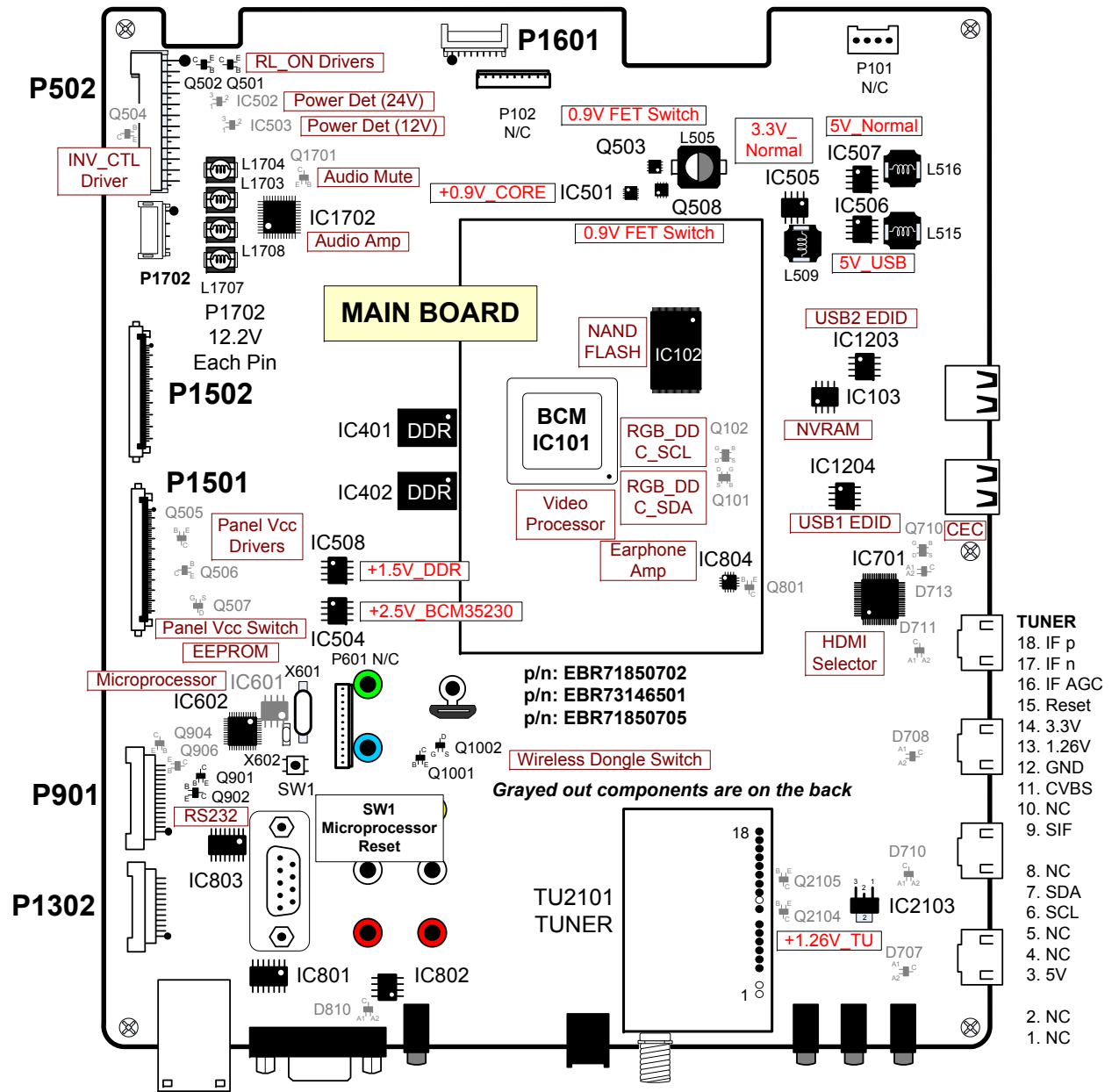
42LV5500 Main Board (Front and Back Side) Component Layout

P201 "SMPS Board" To P502 "MAIN Board"

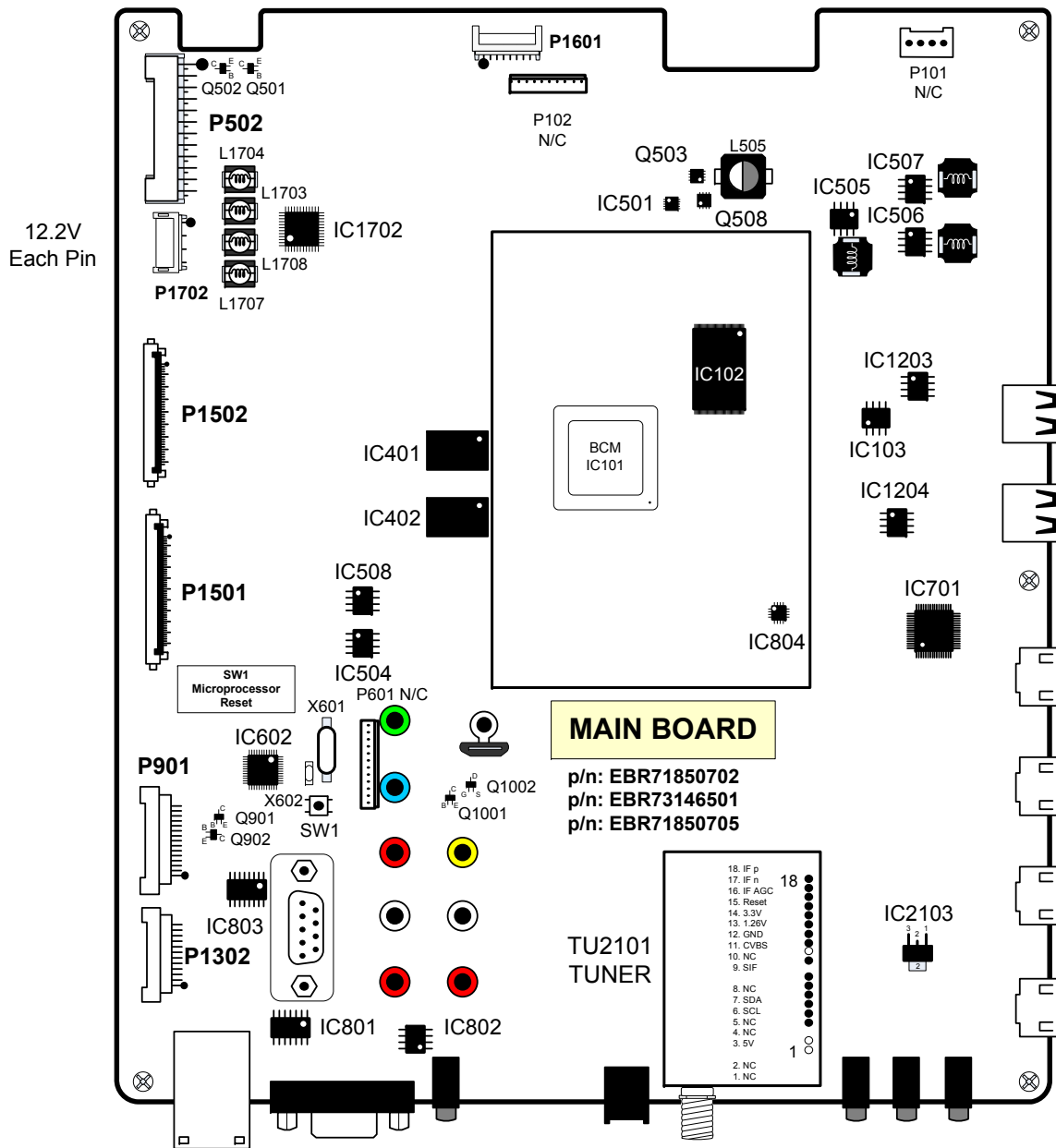
Pin	Label	STBY	Run	Diode Check
24	ERROR	n/c	n/c	OL
23	n/c	n/c	n/c	OL
22	(*) PWM	0V	0.2V~3.3V	2.35V
21	12V	0V	12V	2.07V
20	n/c	n/c	n/c	OL
19	12V	0V	12V	2.07V
18	DRV-ON	0V	3.26V	1.53V
17	12V	0V	12V	2.07V
16	V_Sync	0V	0V	OL
13-15	Gnd	Gnd	Gnd	Gnd
9-12	3.5V	3.55V	3.53V	1.15V
5-8	Gnd	Gnd	Gnd	Gnd
2-4	24V	0V	24.5V	OL
1	PWR-ON	0V	3.41V	2.89V

P901 Connector "MAIN Board" To "IR Board"

Pin	Label	STBY	Run	Diode Check
1	SCL	2.9V	3.49V	3.28V
2	SDA	2.92V	3.49V	3.28V
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.26V	3.28V	1.88V
5	KEY 2	3.26V	3.28V	1.88V
6	3.5V_ST	3.55V	3.49V	1.15V
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	IR	1.48V	1.45V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0.35V	3.34V	0.53V
12	LED_R/BUZZ	0V	0V	2.67V
13	Gnd	Gnd	Gnd	Gnd
14	S/T_SCL	3.55V	3.49V	1.86V
15	S/T_SDA	3.55V	3.49V	1.86V



42LV5500 Main Board (Front) Component Layout



42LV5500 Main (Front Side) Component Voltages

IC103 NVRAM for USB



Pin	
[1]	n/c
[2]	0V
[3]	3.34V
[4]	0V
[5]	3.22V
[6]	3.22V
[7]	0V (Gnd)
[8]	3.34V

IC501 +0.9V_CORE DC to DC



Pin	
[1]	3.17V
[2]	0.59V
[3]	0.44V
[4]	11.95V
[5]	0V
[6]	5.33V
[7]	4.6V
[8]	5.81V
[9]	0.95V
[10]	1.36V

IC504 +2.5V BCM Regulator



Pin	
[1]	n/c
[2]	4.92V (En)
[3]	3.47V (In)
[4]	3.49V (Ctl)
[5]	n/c
[6]	2.57V (Out)
[7]	0.6V
[8]	0V (Gnd)

IC505 (+3.3V_NORMAL) Regulator



Pin	
[1]	0V (Gnd)
[2]	11.96V (In)
[3]	0V (Gnd)
[4]	0.8V
[5]	0.79V
[6]	3.47V (PWR On/Off2_2)
[7]	3.35V (Out)
[8]	3.35V (Out)

IC506 Switched 5V for USB 2



Pin	
[1]	0V (Gnd)
[2]	11.98V (In)
[3]	0V (Gnd)
[4]	0.79V
[5]	3.48V
[6]	3.48V (PWR On/Off2_1)
[7]	4.96V (Out)
[8]	4.96V (Out)

IC507 (+5V_NORMAL) Regulator



Pin	
[1]	0V (Gnd)
[2]	11.98V (In)
[3]	0V (Gnd)
[4]	0.79V
[5]	3.48V
[6]	3.48V (PWR On/Off2_1)
[7]	4.96V (Out)
[8]	4.96V (Out)

IC508 (+1.5V_DDR) Regulator



Pin	
[1]	3.46V
[2]	n/c
[3]	3.46V (In)
[4]	3.49V (PWR On/Off1)
[5]	0V (Gnd)
[6]	3.31V
[7]	0.79V
[8]	1.5V (Out)

Q901 IR Buffer 2nd



Pin	
B	0.02V
C	3.48V
E	Gnd

Q902 IR Buffer 1st



Pin	
B	0.57V
C	0.02V
E	Gnd

IC801 RGB Data Buffer



Pin	
[1]	1.81V
[2]	1.81V
[3]	3.72V
[4]	1.8V
[5]	1.8V
[6]	n/c (4.44V)
[7]	0V (Gnd)
[8]	n/c (4.43V)
[9]	n/c (1.79V)
[10]	n/c (1.79V)
[11]	3.72V
[12]	1.81V
[13]	1.81V
[14]	5V (Vcc In)

IC802 EDID Data PC



Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	0V (Gnd)
[4]	0V (Gnd)
[5]	4.73V
[6]	4.73V
[7]	4.73V
[8]	4.73V (Vcc In)

Q1001 Wireless Vcc Driver



Pin	
B	0.02V
C	24.5V
E	Gnd

On when wireless dongle connected

Q1002 Wireless Vcc Switch



Pin	
S	24.5V
G	24.5V
D	0V

On when wireless dongle connected

IC803 RS232 Routing



Pin	
[1]	3.5V
[2]	5.64V
[3]	0V
[4]	0V
[5]	(-5.56V)
[6]	(-5.59V)
[7]	n/c (5.64V)
[8]	n/c (0V)
[9]	n/c (3.49V)
[10]	n/c (0V)
[11]	n/c (3.34V)
[12]	3.48V
[13]	0V
[14]	(-5.59V)
[15]	0V (Gnd)
[16]	3.5V (Vcc In)

IC1203 EDID Data PC



Pin	
[1]	0V (Gnd)
[2]	4.96V (Vcc In)
[3]	4.96V (Vcc In)
[4]	3.34V (USB Ctl2)
[5]	3.17V
[6]	4.96V (Out)
[7]	4.96V (Out)
[8]	n/c (0V)

IC1204 EDID Data PC



Pin	
[1]	0V (Gnd)
[2]	4.96V (Vcc In)
[3]	4.96V (Vcc In)
[4]	3.34V (USB Ctl1)
[5]	3.17V
[6]	4.96V (Out)
[7]	4.96V (Out)
[8]	n/c (0V)

IC2103 (+1.26V_TU) Regulator



Pin	
[1]	0V (Gnd)
[2]	1.27V (Out)
[3]	3.33V (In)

Q501 RL_ON (PWR_On) 1st Driver



Pin	
B	0.64V
C	0V
E	Gnd

Q502 PWR_ON Switch



Pin	
[1]	3.5V (In)
[2]	0.67V
[3]	2.62V (Out)

Q503 0.9V FET Switch



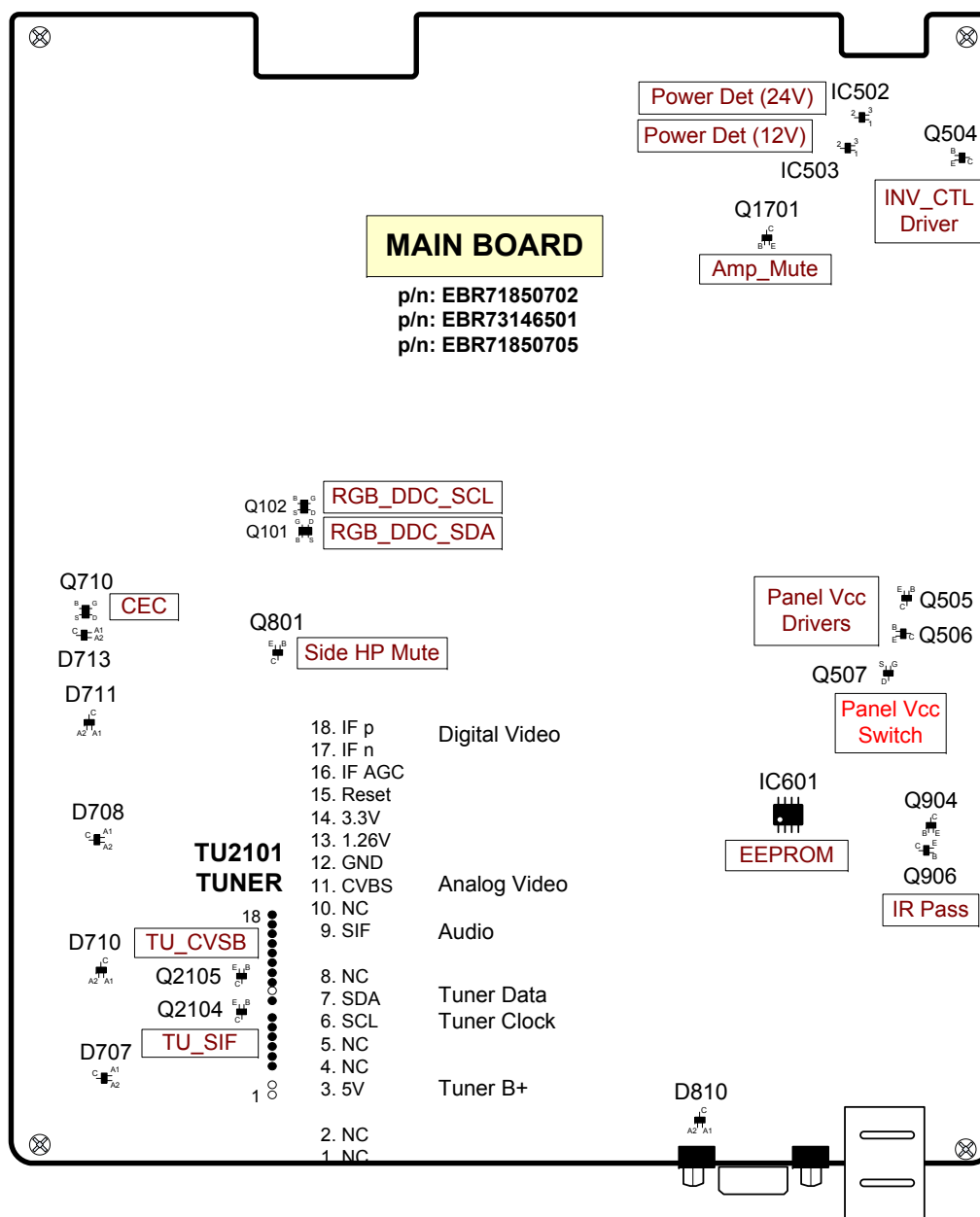
Pin	
[1]	0.95V
[2]	0.95V
[3]	0.95V
[4]	1.36V
[5]	11.96V
[6]	11.96V
[7]	11.96V
[8]	11.96V

Q508 0.9V FET Switch



Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	0V (Gnd)
[4]	4.6V
[5]	0.95V
[6]	0.95V
[7]	0.95V
[8]	0.95V

42LV5500 Main Board (Back Side) Component Layout



42LV5500 Main (Back Side) Component Voltages

IC502  Power Det Gen (For +12V) Pin [1] 0V (Gnd) [2] 3.8V (In) [3] 3.73V (Out)	Q102  RGB_DDC_SCL FET Buffer Pin [B] 0V (Gnd) [G] 3.3V [S] 4.74V [D] 3.34V	Q710  CEC Remote HDMI CEC Pin [B] 3.47V [G] 3.51V [S] 3.47V [D] 3.49V	Q2104  Tuner SIF (Sound) Buffer Pin B 0.23V C 0V (Gnd) E 0.93V
IC503  Power Det Gen (For +24V) Pin [1] 0V (Gnd) [2] 3.7V (In) [3] 3.73V (Out)	Q504  INV_CTL (Drv_On) Driver Pin B 0V (INV ON) En C 3.28V (Out) E Gnd	Q801  Earphone Mute Pin B 0V C 3.35V E Gnd	Q2106  Tuner Video (Analog) Buffer Pin B 3.67V C 0V (Gnd) E 4.35V
IC601  EEPROM Micro Pin [1] 0V (Gnd) [2] 0V (Gnd) [3] 3.49V [4] 0V (Gnd) [5] 3.49V [6] 3.49V [7] 0V (Gnd) [8] 3.50V (Vcc In)	Q505  PANEL_VCC Control 1st Driver Pin B 0V C 0.68V E Gnd	Q904  IR Wireless Pass 2nd Driver Pin B 0.02V C 3.48V E Gnd	Q1701  AMP_MUTE Pin 19 IC1702 B 0V C 3.36V E Gnd
Q101  RGB_DDC_SDA FET Buffer Pin [B] 0V (Gnd) [G] 3.3V [S] 4.74V [D] 3.34V	Q506  PANEL_VCC Control 2nd Driver Pin B 0.67V C 0V E Gnd	Q906  IR Wireless Pass 1st Driver Pin B 0.57V C 0V E Gnd	D707  5V Pull-Up to DDC_SCL/SDA_1 Pin A1 4.96V C 5V A2 0V
D710  5V Pull-Up to DDC_SCL/SDA_2 Pin A1 4.96V C 5V A2 0V	Q507  PANEL_VCC Switch Pin S 11.97V (In) G 1.8V (Enable) D 11.94V (Out)	D713  Bias for Q710 HDMI CEC Pin A1 0V C 3.45V A2 3.5V	D708  5V Pull-Up to DDC_SCL/SDA_3 Pin A1 4.96V C 5V A2 0V
	D711  5V Pull-Up to DDC_SCL/SDA_4 Pin A1 4.96V C 5V A2 0V		D810  5V Routing to IC802 RGB EDID Pin A1 4.73V C 5.01V A2 0.07V

Main Board X601 and X602 Crystal Checks

IC601 Micro Crystal



2.31V p/p

3.3V p/p

X601

1.57V

2V

10Mhz

Runs all
The time

X602

32.768KHz

No Signal

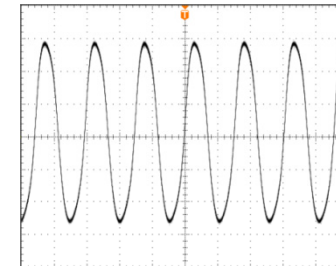
Runs all
The time

3.51V p/p

1.18V

2.09V

Bottom leg



MAIN Board

X601

X602

Audio Amplification for Speakers Information

Use speaker out to test for defective Audio Amp IC1702

Note: (Normal, ½ Audio B+) 12.2V on each pin.

IC1702 VOLTAGES

3.3V_AU_AVDD pin 13

3.3V_DVDD pin 27

All made from

3.3V_Normal

Right Channel:

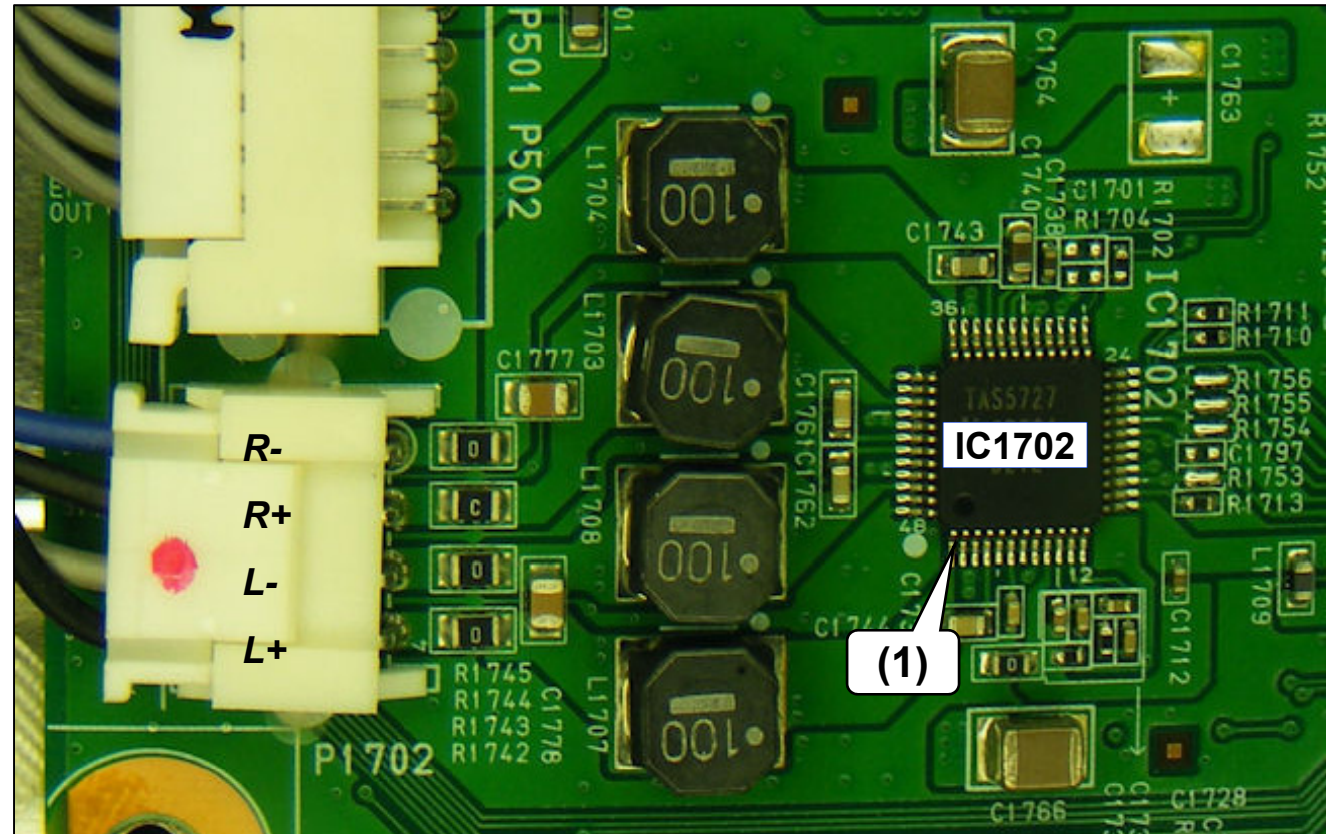
24V pin 34, 35 (R-)

24V pin 40, 41 (R+)

Left Channel:

24V pin 44, 45 (L-)

24V pin 2, 3 (L+)

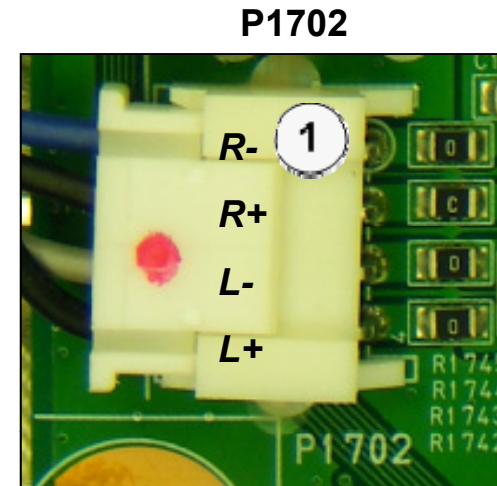


Amp_Reset pin 25 Q1701 Back side of the board is (Mute) Active Low.
3.3V_ST Collector to AMP_MUTE_PDN Pin 19

P1702 Main Board Connector to Speakers Voltage and Diode Check

P1702 Connector "Main" To "Speakers"

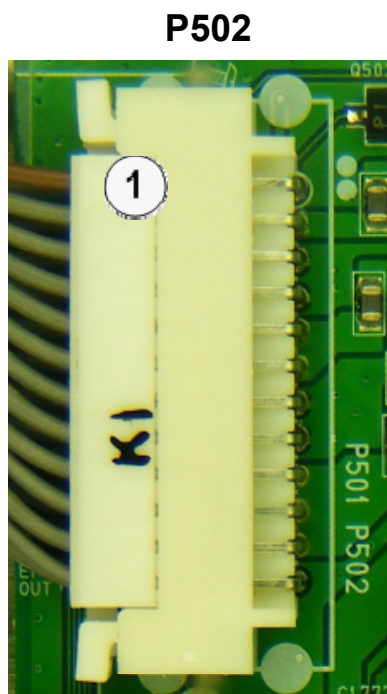
Pin	Label	SBY	Run	Diode Check
1	SPK-R(-)	0V	12.2V	Open
2	SPK-R(+)	0V	12.2V	Open
3	SPK-L(-)	0V	12.2V	Open
4	SPK-L(+)	0V	12.2V	Open



Diode Mode values taken with all Connectors Removed

P502 Main Board Connector to Power Supply Voltage and Diode Check

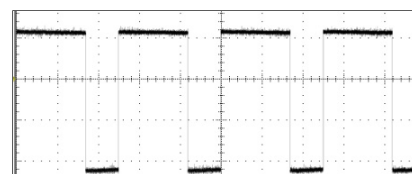
P502 "MAIN Board" Connector To P201 "SMPS Board"



Odd Pins Top Row

Pin	Label	STBY	Run	Diode Check
1	PWR-ON	0V	2.62V	2.89V
2-4	24V	0V	24.5V	OL
5-8	Gnd	Gnd	Gnd	Gnd
9-12	3.5V_ST	3.55V	3.53V	1.15V
13-15	Gnd	Gnd	Gnd	Gnd
16	GND/VSYNC	n/c	n/c	OL
17	12V	0V	12V	2.07V
18	INV-ON	0V	3.26V	1.53V
19	12V	0V	12V	2.07V
20	A-DIM	n/c	n/c	OL
21	12V	0V	12V	2.07V
22	PDIM-1	0V	0.2V~3.3V	2.35V
23	n/c	n/c	n/c	OL
24	Err OUT	n/c	n/c	OL

(1) PDIM Pin 22 can vary according to incoming video IRE level, OSD Backlight setting and Intelligent Sensor (room light condition). Range 0.2V to 3.3V.



P-DIM1
3.66V p/p 50IRE

Diode Mode values taken with all Connectors Removed

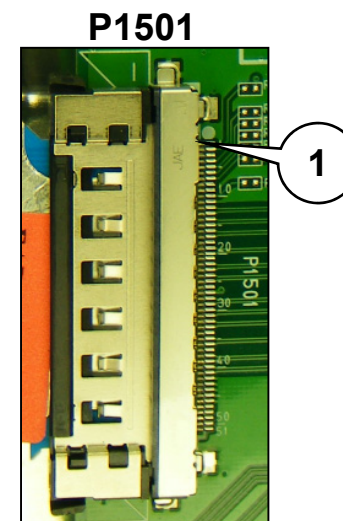
P1501 "Main" to "T-CON" Voltage and Diode Check

P1501 Connector "MAIN Board" To "T-CON"

Pin	Label	Run	Diode Check
1	n/c	n/c	n/c
2	3D_SYNC	0V	OL
3	n/c	n/c	n/c
4	SDA2_3.3V	3.31V	OL
5	SCL2_3.3V	3.31V	OL
6	FRC_RESET	2.95V	OL
7	LVDS_SEL	0V	OL
8	n/c	n/c	n/c
9	n/c	n/c	n/c
10	PANEL_CTL	0V	OL
11	Gnd	Gnd	Gnd
12	TXA0N	1.26V	0.94V
13	TXA0P	1.15V	0.94V
14	TXA1N	1.26V	0.94V
15	TXA1P	1.14V	0.94V
16	TXA2N	1.27V	0.94V
17	TXA2P	1.13V	0.94V
18	Gnd	Gnd	Gnd
19	TXACLKN	1.16V	0.94V
20	TXACLKP	1.23V	0.94V

Pin	Label	Run	Diode Check
21	Gnd	Gnd	Gnd
22	TXA3N	1.27V	0.94V
23	TXA3P	1.15V	0.94V
24	TXA4N	1.33V	0.94V
25	TXA4P	0.98V	OL
26	Gnd	Gnd	Gnd
27	BIT_SEL	2.37V	OL
28	TXB0N	1.24V	0.94V
29	TXB0P	1.14V	0.94V
30	TXB1N	1.27V	0.94V
31	TXB1P	1.14V	0.94V
32	TXB2N	1.31V	0.94V
33	TXB2P	1.10V	0.94V
34	Gnd	Gnd	Gnd
35	TXBCLKN	1.16V	0.94V
36	TXBCLKP	1.23V	0.94V
37	Gnd	Gnd	Gnd
38	TXB3N	1.34V	0.94V
39	TXB3P	1.07V	0.94V
40	TXB4N	1.41V	0.94V

Pin	Label	Run	Diode Check
41	TXB4P	0.99V	0.94V
42	Gnd	Gnd	Gnd
43	Gnd	Gnd	Gnd
44	Gnd	Gnd	Gnd
45	Gnd	Gnd	Gnd
46	Gnd	Gnd	Gnd
47	n/c	n/c	n/c
48	Panel_VCC	11.9V	0.89V
49	Panel_VCC	11.9V	0.89V
50	Panel_VCC	11.9V	0.89V
51	Panel_VCC	11.9V	0.89V



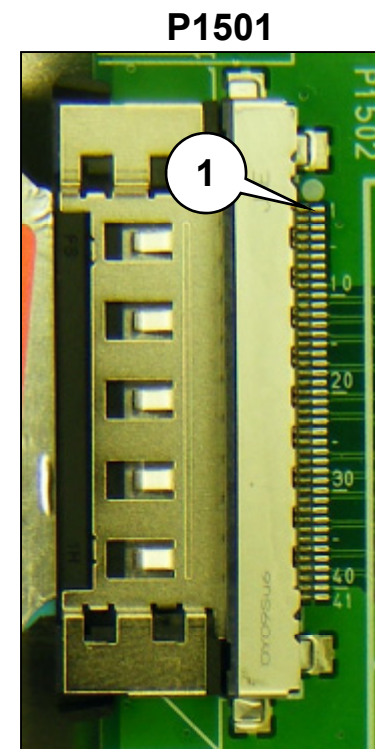
There are no Stand-By Voltages for the Connector
Diode Mode values taken with all Connectors Removed

P1502 "Main" to "T-CON" Voltage and Diode Check

P1502 Connector "MAIN" To "T-CON"

Pin	Label	Run	Diode Check
1	n/c	n/c	n/c
2	n/c	n/c	n/c
3	n/c	n/c	n/c
4	n/c	n/c	n/c
5	n/c	n/c	n/c
6	n/c	n/c	n/c
7	n/c	n/c	n/c
8	n/c	n/c	n/c
9	Gnd	Gnd	Gnd
10	TXC0N	1.25V	0.94V
11	TXC0P	1.15V	0.94V
12	TXC1N	1.26V	0.94V
13	TXC1P	1.13V	0.94V
14	TXC2N	1.29V	0.94V
15	TXC2P	1.11V	0.94V
16	Gnd	Gnd	Gnd
17	TXCCLKN	1.17V	0.94V
18	TXCCLKP	1.23V	0.94V
19	Gnd	Gnd	Gnd
20	TXC3N	1.31V	0.94V

Pin	Label	Run	Diode Check
21	TXC3P	1.07V	0.94V
22	TXC4N	1.40V	0.94V
23	TXC4P	0.99V	0.94V
24	Gnd	Gnd	Gnd
25	Gnd	Gnd	Gnd
26	TXD0N	1.24V	0.94V
27	TXD0P	1.15V	0.94V
28	TXD1N	1.27V	0.94V
29	TXD1P	1.12V	0.94V
30	TXD2N	1.32V	0.94V
31	TXD2P	1.07V	0.94V
32	Gnd	Gnd	Gnd
33	TXDCLKN	1.17V	0.94V
34	TXDCLKP	1.23V	0.94V
35	Gnd	Gnd	Gnd
36	TXD3N	1.31V	0.94V
37	TXD3P	1.07V	0.94V
38	TXD4N	1.39V	0.94V
39	TXD4P	1.02V	0.94V
40	Gnd	Gnd	Gnd
41	Gnd	Gnd	Gnd



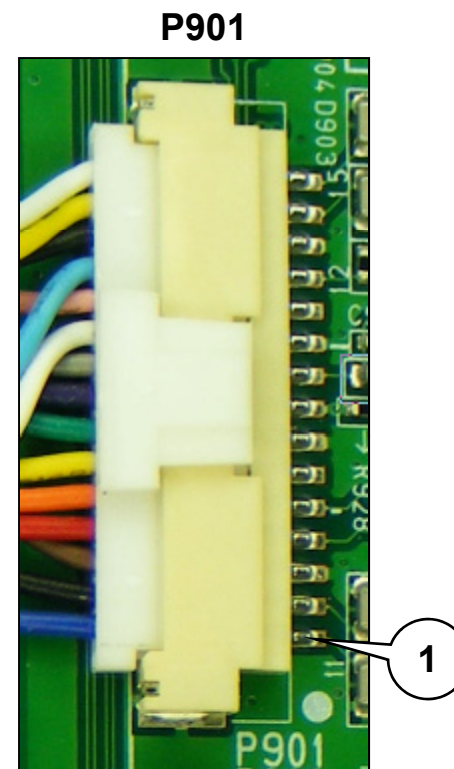
There are no Stand-By Voltages for the Connector

Diode Mode values taken with all Connectors Removed

P901 Main Board to (Ft. IR/Intelligent Sensor) Voltage and Diode Check

P901 Connector "MAIN Board" To "IR Board"

Pin	Label	STBY	Run	Diode Check
1	⁽¹⁾ SCL	2.9V	3.49V	3.28V
2	⁽¹⁾ SDA	2.92V	3.49V	3.28V
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.26V	3.28V	1.88V
5	KEY 2	3.26V	3.28V	1.88V
6	3.5V_ST	3.55V	3.49V	1.15V
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	⁽²⁾ IR	1.48V	1.45V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0.35V	3.34V	0.53V
12	LED_R/BUZZ	0V	0V	2.67V
13	Gnd	Gnd	Gnd	Gnd
14	⁽³⁾ S/T_SCL	3.55V	3.49V	1.86V
15	⁽³⁾ S/T_SDA	3.55V	3.49V	1.86V



⁽¹⁾ Clock & Data pulses only present when Intelligent Sensor is turned on. (3.6V p/p)

⁽²⁾ IR pulses (2V p/p)

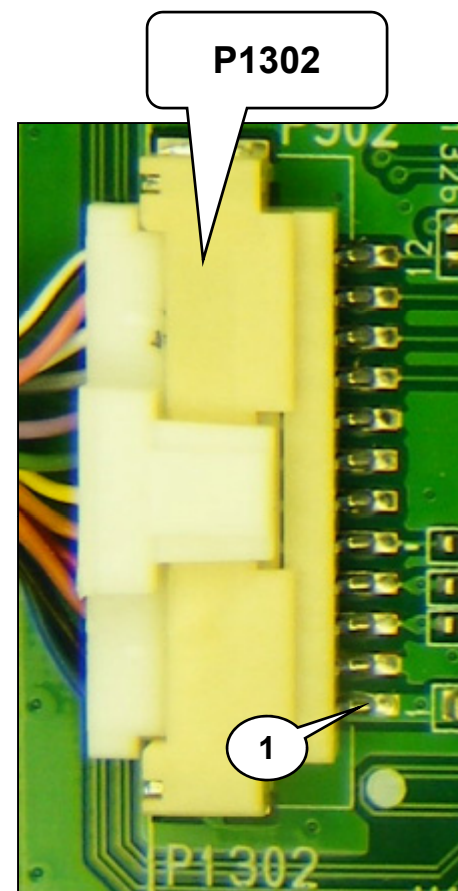
⁽³⁾ Clock & Data pulses only present when Set is turned on or Off. (3.9V p/p)

Diode Mode values taken with all Connectors Removed

P1302 "Main" to "Motion Remote" (Voltage and Diode Check)

P1302 Connector "MAIN Board" To "Motion Remote"

Pin	Label	STBY	Run	Diode Check
1	3.5V_Normal	0.35V	3.34V	0.53V
2	Gnd	Gnd	Gnd	Gnd
3	M_Remote_RX	0.35V	3.33V	OL
4	M_Remote_TX	0.35V	3.33V	OL
5	Reset	0.35V	3.33V	2.41V
6	DC_MRemote	0.35V	3.33V	2.38V
7	DD_MRemote	0.35V	3.33V	Gnd
8	Gnd	Gnd	Gnd	Gnd
9	GPI0-O	0V	0V	OL
10	GPI0-1	0V	0V	OL
11	GPI0-2	0V	0V	OL
12	GPI0-3	0V	0V	OL



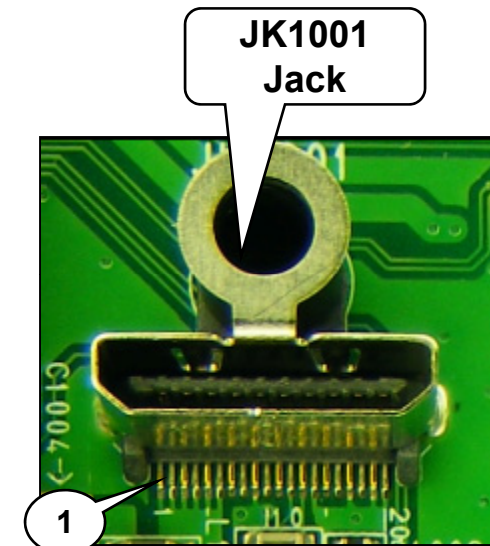
Diode Mode values taken with all Connectors Removed

JK1001 Main Wireless Media Box Dongle Jack (Voltage and Diode Check)

JK1001 "MAIN Board" To "Wireless Media Box Dongle"

Pin	Label	STBY	Run	Diode Check
1-6	*24V	0V	24.5V	0.98V
7	Detect	0V	0.3V	0.98V
8	Interrupt	0V	3.3V	1.2V
9	Gnd	0V	Gnd	Gnd
10	n/c	0V	3.3V	1.1V
11	Gnd	0V	Gnd	Gnd
12	I2C_SCL	0V	3.3V	1.02V
13	I2C_SDA	0V	3.3V	1.02V
14	Gnd	0V	Gnd	Gnd
15	Wireless_RX	0V	3.3V	1.17V
16	Wireless_TX	0V	3.3V	1.22V
17	Gnd	0V	Gnd	Gnd
18	IR	0.67V	3.3V	1.37V
19-20	Gnd	0V	Gnd	Gnd

Wireless Media Box Dongle must be plugged in for these voltages.



Diode Mode values taken with all Connectors Removed

Voltages with Wireless Media Box Dongle plugged in. Use Media Box Dongle side to read voltages.

Remove cover, (see Wireless Media Box training manual for details).

*24.5V Switched from Q1002 Drain front side of the board.

Q1002 turned on by Q1001 front side of the board.

Q1001 turned on by Microprocessor pin 38.

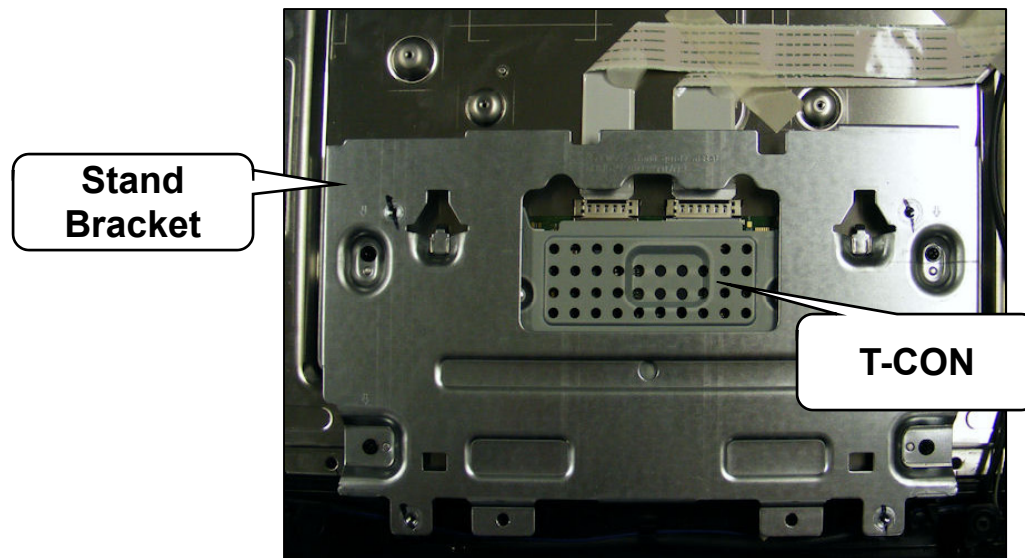
T-CON (TFT DRIVE) SECTION

TFT-LCD Controller Board

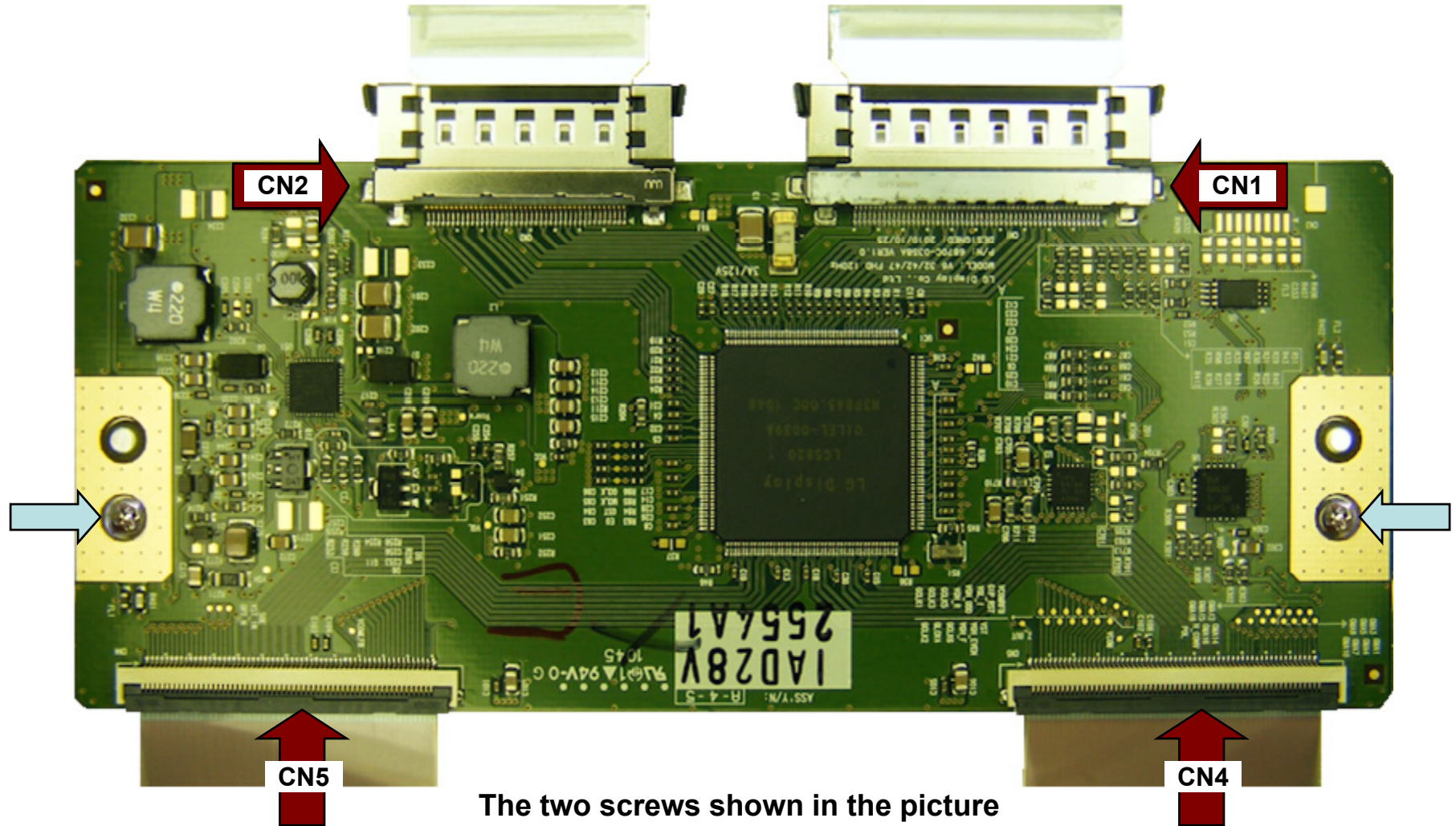
The T-CON is located at the bottom of the panel under the Stand Bracket.

12V is supplied to the T-CON Board from the Main Board via connector CN1 (easily measured at fuse F1). IC UC1 receives 24 bit LVDS video signals from the Main Board at CN1 and CN2 which it processes into TFT Drive Signals. It delivers its output signals through connectors CN4 and CN5 to control the LCD Panel.

US1, U3 and U6 are DC to DC converters which develops the Panels driver voltages. 16.74V, 3.3V, -5V and 28V. These voltages can be read at the ribbon connector or at test locations on the board which are identified on the following pages.



T-CON (TFT Drive) Board Layout



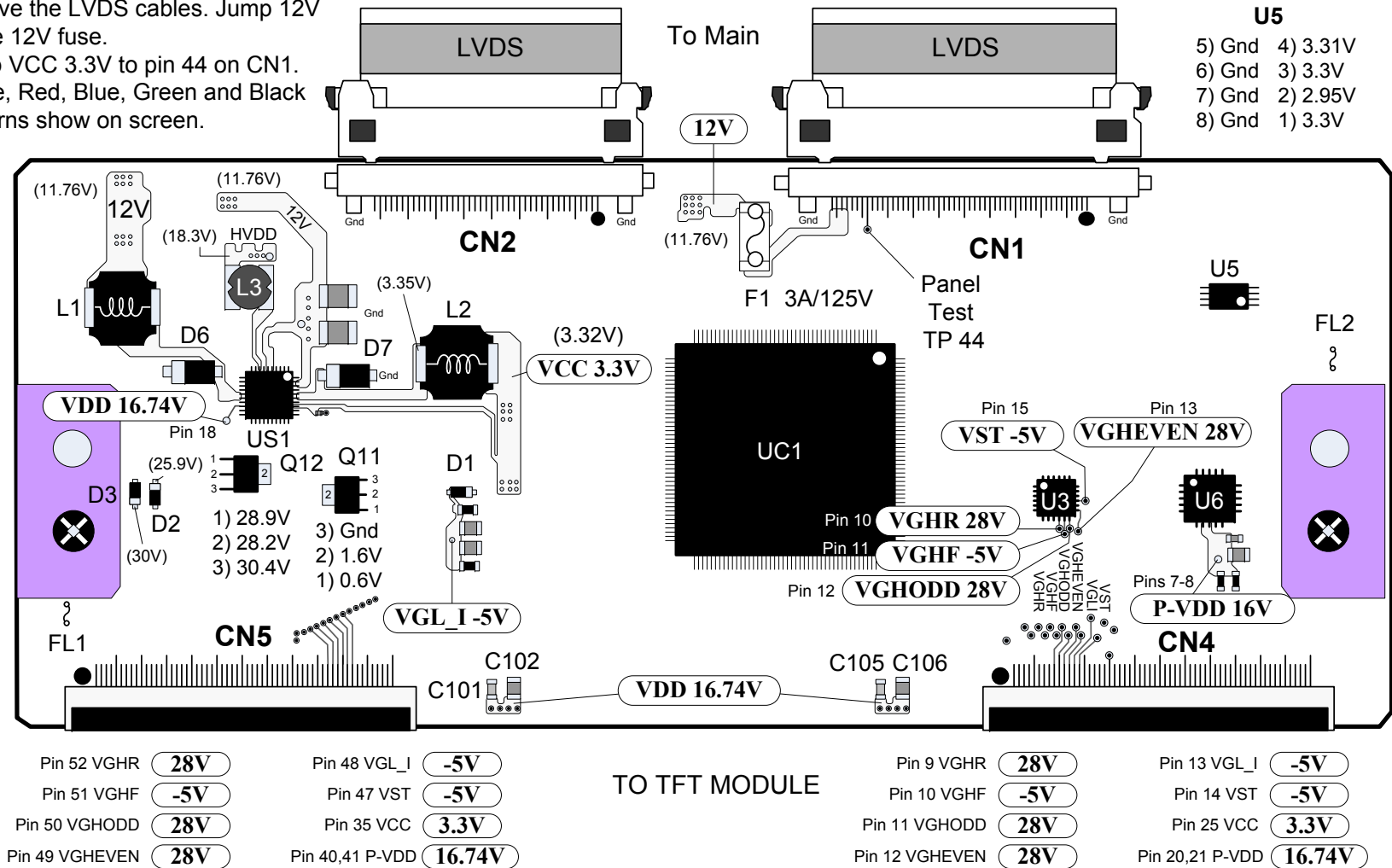
The two screws shown in the picture
are for the Service Position.
They would have been removed when removing the shield.
Be sure to reinstall them if servicing the T-CON board.

42LV5500 T-CON (TFT Drive) with (Shield Removed) Components Identified

PANEL TEST

To run the T-CON "Panel Test", remove the LVDS cables. Jump 12V to the 12V fuse.

Jump VCC 3.3V to pin 44 on CN1. White, Red, Blue, Green and Black patterns show on screen.

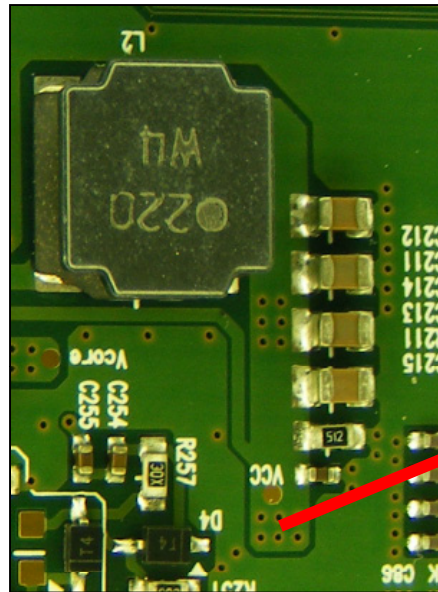


Warning:

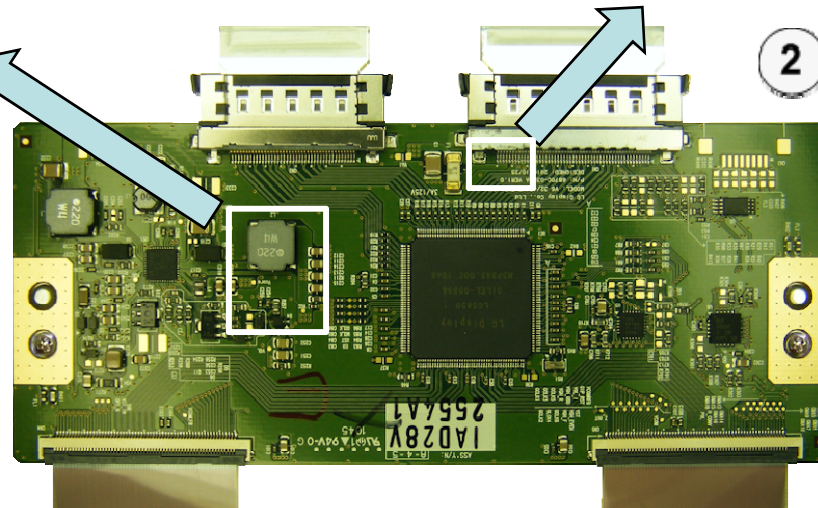
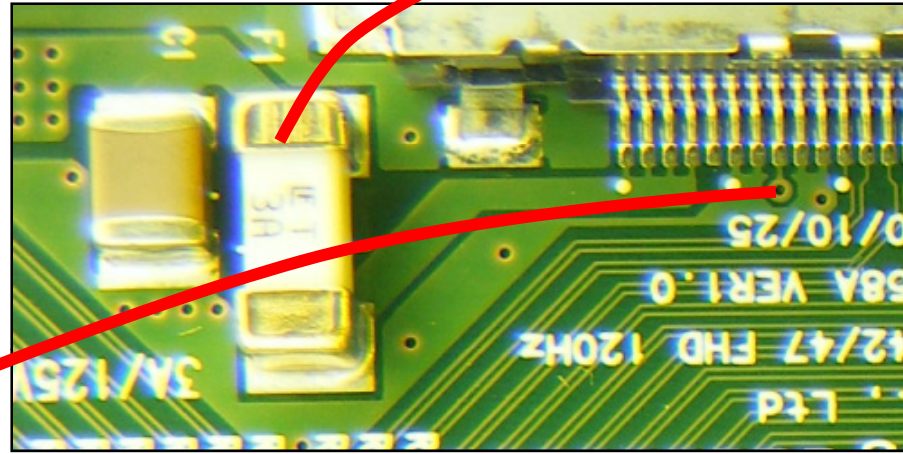
T-Con Board under shield. Be sure to reinsert screws before operating set with shield removed.

T-CON (TFT Drive) Board Panel Test

- 1 Set up the Power Supply Test as in Test 2 (Shown on page 46). Do not apply AC at this time.
- 3 Jump 12V from the SMPS to the T-CON Fuse F1 (P201 pin 17 or 19 or 21)



- 4 Jump 3.3V from the VCC TP to pin 44 of CN1



- 2 Disconnect both LVDS Cables

- 5 Apply AC to the Power Supply and Toggling patterns of White, Red, Blue, Green should appear on the screen

CN1 T-CON Connector CN1 to the Main PWB (Voltage and Diode Check)

CN1 "T-CON" to "MAIN Board" P1501

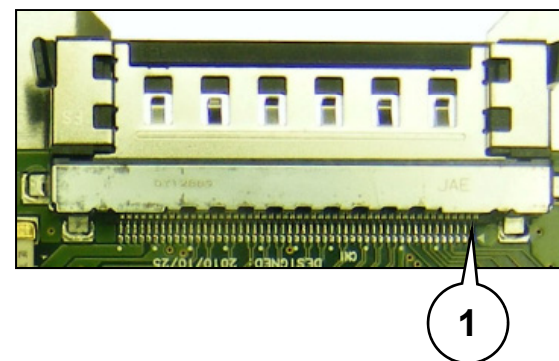
Pin	Label	Run	Diode Check
1	n/c	n/c	n/c
2	3D_SYNC	0V	OL
3	n/c	n/c	n/c
4	SDA2_3.3V	3.31V	OL
5	SCL2_3.3V	3.31V	OL
6	FRC_RESET	2.95V	OL
7	LVDS_SEL	0V	OL
8	n/c	n/c	n/c
9	n/c	n/c	n/c
10	PANEL_CTL	0V	OL
11	Gnd	Gnd	Gnd
12	TXA0N	1.26V	OL
13	TXA0P	1.15V	OL
14	TXA1N	1.26V	OL
15	TXA1P	1.14V	OL
16	TXA2N	1.27V	OL
17	TXA2P	1.13V	OL
18	Gnd	Gnd	Gnd
19	TXACLKN	1.16V	OL
20	TXACLKP	1.23V	OL

Pin	Label	Run	Diode Check
21	Gnd	Gnd	Gnd
22	TXA3N	1.27V	OL
23	TXA3P	1.15V	OL
24	TXA4N	1.33V	OL
25	TXA4P	0.98V	OL
26	Gnd	Gnd	Gnd
27	BIT_SEL	2.37V	OL
28	TXB0N	1.24V	OL
29	TXB0P	1.14V	OL
30	TXB1N	1.27V	OL
31	TXB1P	1.14V	OL
32	TXB2N	1.31V	OL
33	TXB2P	1.10V	OL
34	Gnd	Gnd	Gnd
35	TXBCLKN	1.16V	OL
36	TXBCLKP	1.23V	OL
37	Gnd	Gnd	Gnd
38	TXB3N	1.34V	OL
39	TXB3P	1.07V	OL
40	TXB4N	1.41V	OL

Pin	Label	Run	Diode Check
41	TXB4P	0.99V	OL
42	Gnd	Gnd	Gnd
43	Gnd	Gnd	Gnd
44	Gnd	Gnd	Gnd
45	Gnd	Gnd	Gnd
46	Gnd	Gnd	Gnd
47	n/c	n/c	n/c
48	Panel_VCC	11.9V	OL
49	Panel_VCC	11.9V	OL
50	Panel_VCC	11.9V	OL
51	Panel_VCC	11.9V	OL

Bold labels are video signals.
Except 48~51 which are 12V

CN1



Diode Mode values taken with all Connectors Removed

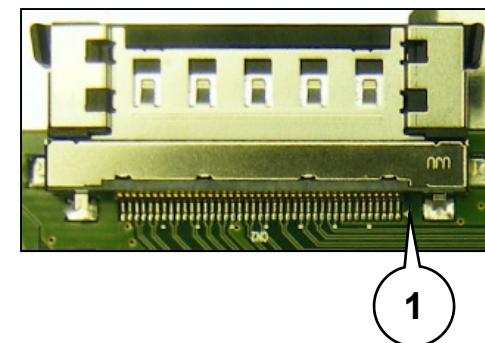
CN2 T-CON to the Main PWB (Voltage and Diode Check)

CN2 "T-CON" to "MAIN" P1502

Pin	Label	Run	Diode Check
1	n/c	n/c	n/c
2	n/c	n/c	n/c
3	n/c	n/c	n/c
4	n/c	n/c	n/c
5	n/c	n/c	n/c
6	n/c	n/c	n/c
7	n/c	n/c	n/c
8	n/c	n/c	n/c
9	Gnd	Gnd	Gnd
10	TXC0N	1.25V	OL
11	TXC0P	1.15V	OL
12	TXC1N	1.26V	OL
13	TXC1P	1.13V	OL
14	TXC2N	1.29V	OL
15	TXC2P	1.11V	OL
16	Gnd	Gnd	Gnd
17	TXCCLKN	1.17V	OL
18	TXCCLKP	1.23V	OL
19	Gnd	Gnd	Gnd
20	TXC3N	1.31V	OL

Pin	Label	Run	Diode Check
21	TXC3P	1.07V	OL
22	TXC4N	1.40V	OL
23	TXC4P	0.99V	OL
24	Gnd	Gnd	Gnd
25	Gnd	Gnd	Gnd
26	TXD0N	1.24V	OL
27	TXD0P	1.15V	OL
28	TXD1N	1.27V	OL
29	TXD1P	1.12V	OL
30	TXD2N	1.32V	OL
31	TXD2P	1.07V	OL
32	Gnd	Gnd	Gnd
33	TXDCLKN	1.17V	OL
34	TXDCLKP	1.23V	OL
35	Gnd	Gnd	Gnd
36	TXD3N	1.31V	OL
37	TXD3P	1.07V	OL
38	TXD4N	1.39V	OL
39	TXD4P	1.02V	OL
40	Gnd	Gnd	Gnd
41	Gnd	Gnd	Gnd

CN1



Bold labels are video signals.

Diode Mode values taken with all Connectors Removed

FRONT (IR, INTELLIGENT SENSOR and POWER LED) SECTION

The Intelligent Sensor and IR board (located on the bottom left as viewed from the rear) contains the IR (Infrared Remote Sensor) and the Intelligent Sensor. This board also has the Soft Touch Key Board.

The IR board receives its operating B+ pin 6 from the Main P901 (STBY 3.5V).

The IR (Infrared) remote receiver can be measured (1.48V) at pin 9 of connector P901 on the Main board in Stand-By. During run pin 9 reads (1.45V).

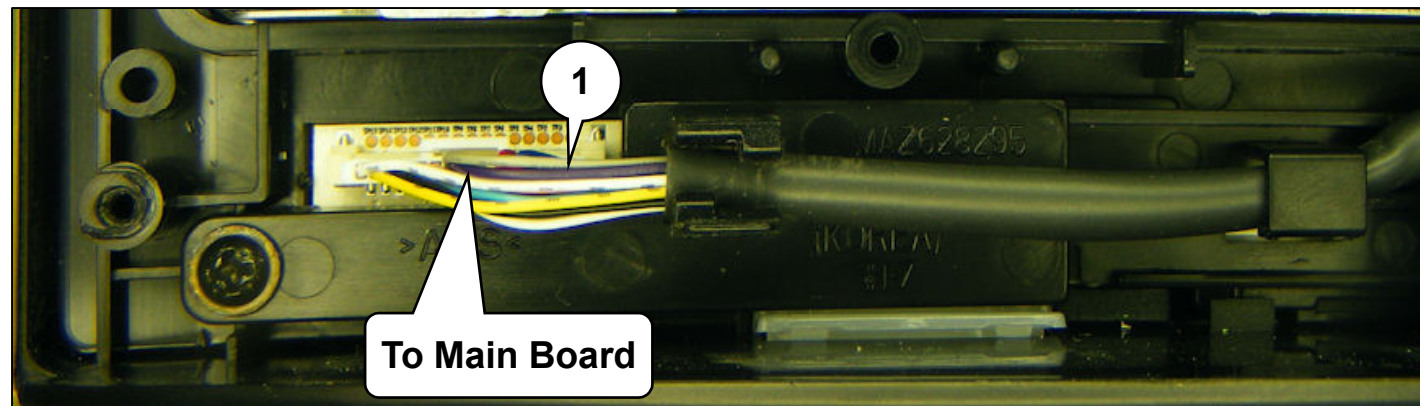
The IR pulses (2V p/p) are sent to the Main board and on to the Microprocessor (IC602) via pin 16.

The Front Power LEDs are controlled by different Clock and Data lines which communicate with the LED Driver IC U1 on the IR board. These clock and data lines are from the Main board P901 pins 14 and 15 which are only active when the Power is turned on or off.

The Key board is routed from the IR board Key 1 (pin 4) and Key 2 (pin 5). Arriving at P901 on the Main Board, then to the Microprocessor 25 and 26 lines.

The Intelligent Sensor communicates with the Micro Processor IC602 pins 3 & 4 via clock and data lines EEPROM_SCL and EEPROM_SDA arriving on connector P901 pins 1 and 2 on the Main board. The Intelligent Sensor circuit receives its operational voltage when the set turns on via pin 11 (3.3V_Normal).

Front IR and Soft
Touch Key Board
p/n EBR72671001

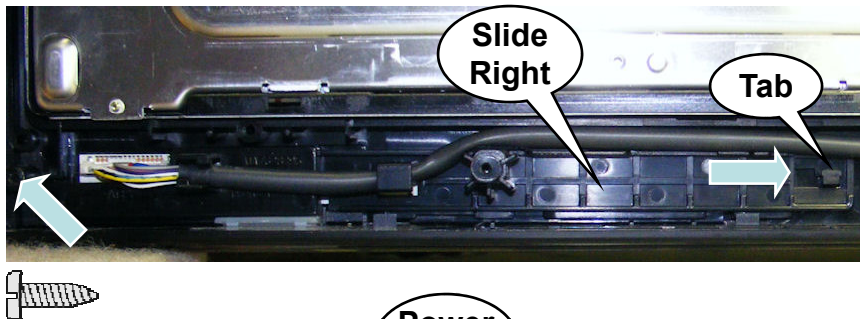


Accessing the Front IR

Attached to the Front Frame

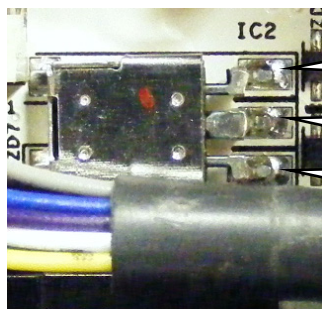
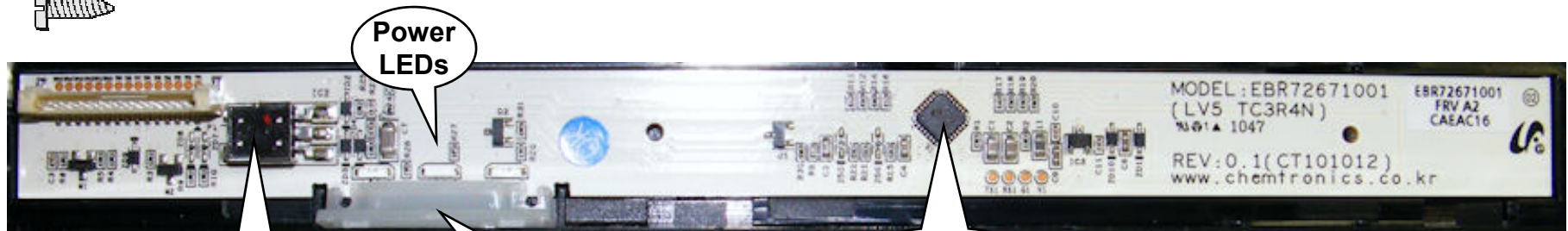
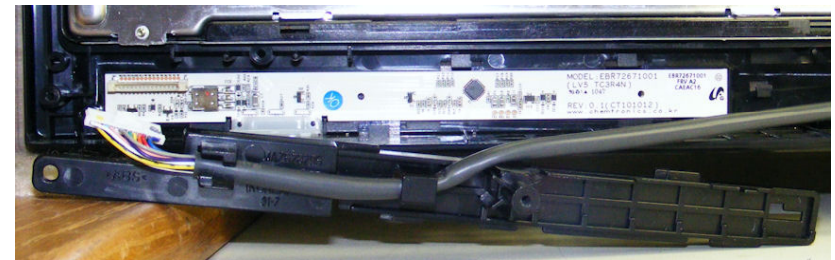
1

The Front IR is under a wire routing bracket. Remove the one Screw and disconnect the connector. Slide the wire routing bracket to the right to allow the bracket to pull forward.



2

For access to the board for voltage checks, Remove the cable wire from the wire routing bracket and reconnect the connector.



Output: 1.54V

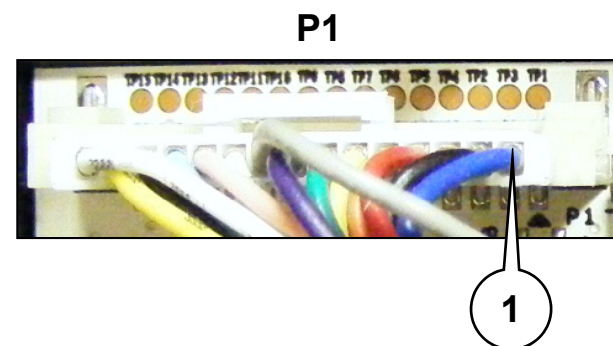
Ground

Input Voltage 3.57V

P1 Front IR/Soft Touch Key Board Voltage and Diode Check

P1 "IR Board" To P901 "Main Board"

Pin	Label	STBY	Run	Diode Check
1	SCL	2.9V	3.49V	OL
2	SDA	2.92V	3.49V	OL
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.26V	3.28V	2.3V
5	KEY 2	3.26V	3.28V	2.3V
6	3.5V_ST	3.55V	3.49V	1.68V
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	IR	1.48V	1.45V	2.61V
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0.35V	3.34V	OL
12	LED_R/BUZZ	0V	0V	OL
13	Gnd	Gnd	Gnd	Gnd
14	S/T_SCL	3.55V	3.49V	2.39V
15	S/T_SDA	3.55V	3.49V	2.39V



(1) Clock & Data pulses only present when Intelligent Sensor is turned on. (3.6V p/p)

(2) IR pulses (2V p/p)

(3) Clock & Data pulses only present when Set is turned on or Off. (3.9V p/p)

Diode Mode values taken with all Connectors Removed

Soft Touch Key Resistance and Voltages

Key 2 Line

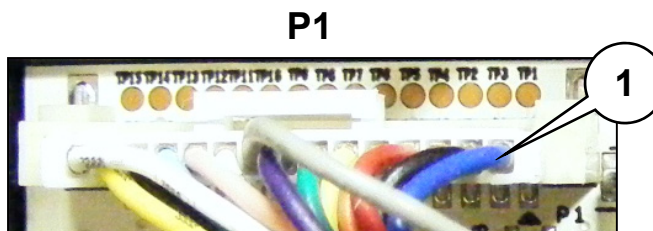
KEY 1	Pin 4 measured from Gnd
Volume (+)	16.8M Ohms
Volume (-)	10.7M Ohms
Home	5.4M Ohms
Enter	1.19M Ohms

KEY 1	Pin 4 measured from Gnd
Volume (+)	1.67V
Volume (-)	1.07V
Home	0.54V
Enter	0.12V

Key 2 Line

KEY 2	Pin 5 measured from Gnd
CH (Up)	15.9M Ohms
CH (Dn)	9.8M Ohms
Power	5.7M Ohms
Input	1.19M Ohms

KEY 2	Pin 5 measured from Gnd
CH (Up)	1.56V
CH (Dn)	0.98V
Power	0.53V
Input	0.12V



Diode Mode values taken with all Connectors Removed

MOTION REMOTE BOARD SECTION



The first time the Motion Remote has its batteries installed and pointed at the Television, the Motion Remote is synchronized with the TV. After that, when pointing the remote at the TV and pressing the Enter key, a pointer appears on screen, then by moving the Motion Remote around, the pointer moves with the movement of the remote. When the pointer is placed over a selectable button, you can press the center “Enter” button and active the object. This makes navigation much easier.

You can also adjust the volume, change channels and mute the audio with the Motion Remote and it has a convenient “Home” button for the TV Menu.

A wrist band can be attached to the remote to avoid dropping and damaging the remote.

The Motion Remote utilizes a specialized receiver on the Television to receive the RF signal and this information is then routed to P1302 and on to the IC101 the BCM IC for pointer positioning and interpretation of the other functions.

How to **Re-register the Magic Motion Remote** Control after Registration Failure. Reset the remote control by pressing and holding both the **ENTER** and **MUTE** buttons for **5 seconds**.

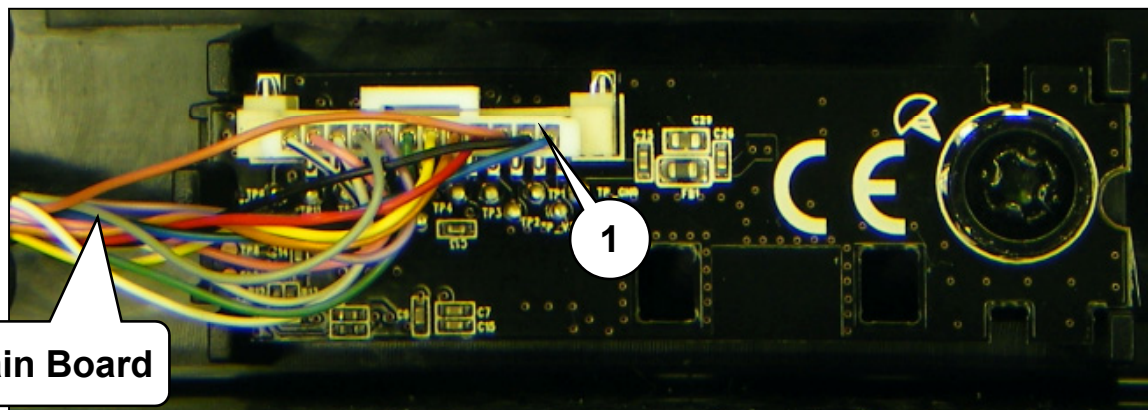
An LED will blink 3 times indicating the remote is ready for registering.

Motion Remote “Magic Remote” AKB73295502

Motion Remote Receiver Board Voltage and Diode Check

Motion Remote
Board
p/n EBR72499601

To Main Board



"Motion Remote Receiver Board" To P1302 "Main"

Pin	Label	STBY	Run	Diode Check
1	3.5V_Normal	0.35V	3.34V	1.71V
2	Gnd	Gnd	Gnd	Gnd
3	M_Remote_RX	0.35V	3.33V	2.34V
4	M_Remote_TX	0.35V	3.33V	2.22V
5	Reset	0.35V	3.33V	2.41V
6	DC_MRemote	0.35V	3.33V	2.22V
7	DD_MRemote	0.35V	3.33V	2.22V
8	Gnd	Gnd	Gnd	Gnd
9	GPI0-O	0V	0V	2.13V
10	GPI0-1	0V	0V	2.16V
11	GPI0-2	0V	0V	2.18V
12	GPI0-3	0V	0V	2.22V

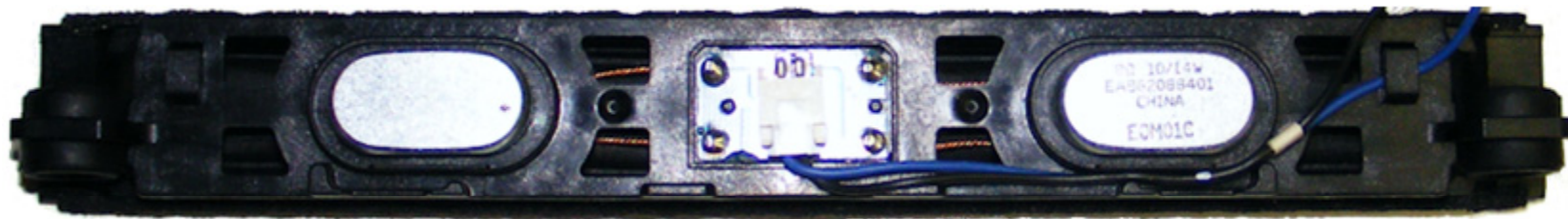
Diode Mode values taken with all Connectors Removed

INVISIBLE SPEAKER SECTION

The 42LV5500 contains the Invisible Speaker system.

The Full Range Speakers point downward, so there is no front viewable speaker grill or air ports.

Back View



Front View



Speaker
p/n EAB62088401

INTERCONNECT DIAGRAM (11 X 17 FOLDOUT SECTION)

This section shows the 11X17 foldout that's available in the Paper and Adobe version of the Training Manual.

When printing, us 11X17 paper for best results.

42LV5500 INTERCONNECT DIAGRAM

Note: If a particular area is exhibiting a dimmer backlight level than other areas or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not,

1st: Check the P-DIM level, it should rise with the percentage shown on screen. 100%, 3.3V. Follow the P-DIM signal all the way to the Inverter.

2nd: Turn off Local Dimming in the Customers Menu. If the brightness returns to normal, examine the signals required for Local Dimming. (SIN, V-SYNC and SCLK).

You can also test each of the 12 blocks functionality by grounding the return path signal through a 220Ω. See “Forcing on a Block of LEDs on the right.

P202 White Plug "SMPS Board" To "Panel LEDs"

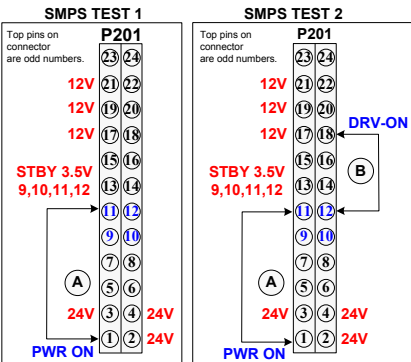
Pin	Label	TP	Run	Diode Check
1	LED+	C256+	45V	OL
2	n/c	n/c	n/c	OL
3	VC-3A	EL70	*1.2V~10.4V	OL
4	VC-3B	EL71	*1.2V~10.4V	OL
5	VC-3C	EL72	*1.2V~10.4V	OL
6	VC-3D	EL73	*1.2V~10.4V	OL
7	VC-4A	EL74	*1.2V~10.4V	OL
8	VC-4B	EL75	*1.2V~10.4V	OL
9	VC-4C	EL76	*1.2V~10.4V	OL
10	VC-4D	EL77	*1.2V~10.4V	OL
11	n/c	n/c	n/c	OL
12	LED+	C256+	45V	OL

*White to Black screen

P203 Black Plug "SMPS Board" To "Panel LEDs"

Pin	Label	TP	Run	Diode Check
1	LED+	C256+	45V	OL
2	n/c	n/a	n/c	OL
3	VC-1A	EL62	*1.2V~10.4V	OL
4	VC-1B	EL63	*1.2V~10.4V	OL
5	VC-1C	EL64	*1.2V~10.4V	OL
6	VC-1D	EL65	*1.2V~10.4V	OL
7	n/c	n/a	n/c	OL
8	VC-2A	EL66	*1.2V~10.4V	OL
9	VC-2B	EL67	*1.2V~10.4V	OL
10	VC-2C	EL68	*1.2V~10.4V	OL
11	VC-2D	EL69	*1.2V~10.4V	OL
12	n/c	n/a	n/c	OL
13	LED+	C256+	45V	OL

*White to Black screen



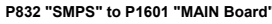
SMPS TEST 1: Force Power Supply On.

Disconnect P502 on Main board.
(A) Jump pins 9, 10, 11 or 12 (3.5V) to pin 1.
Test Voltage Outputs 12V, 24V to Main and
36V to the Inverter Section of the SMPS.
Remove AC power. Leave the jumper in place.

SMPS TEST 2: Force the Backlights On.

(B) Jump pins 9, 10, 11 or 12 (3.5V) to pin 18 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now jump to 65V then back down to 45V.

Note: If there is a problem with a load from the panel backlights, you can remove AC and Disconnect P202 or P203. When AC is reapplied, the Backlight LEDs should turn on for about 4 seconds and then shut off.



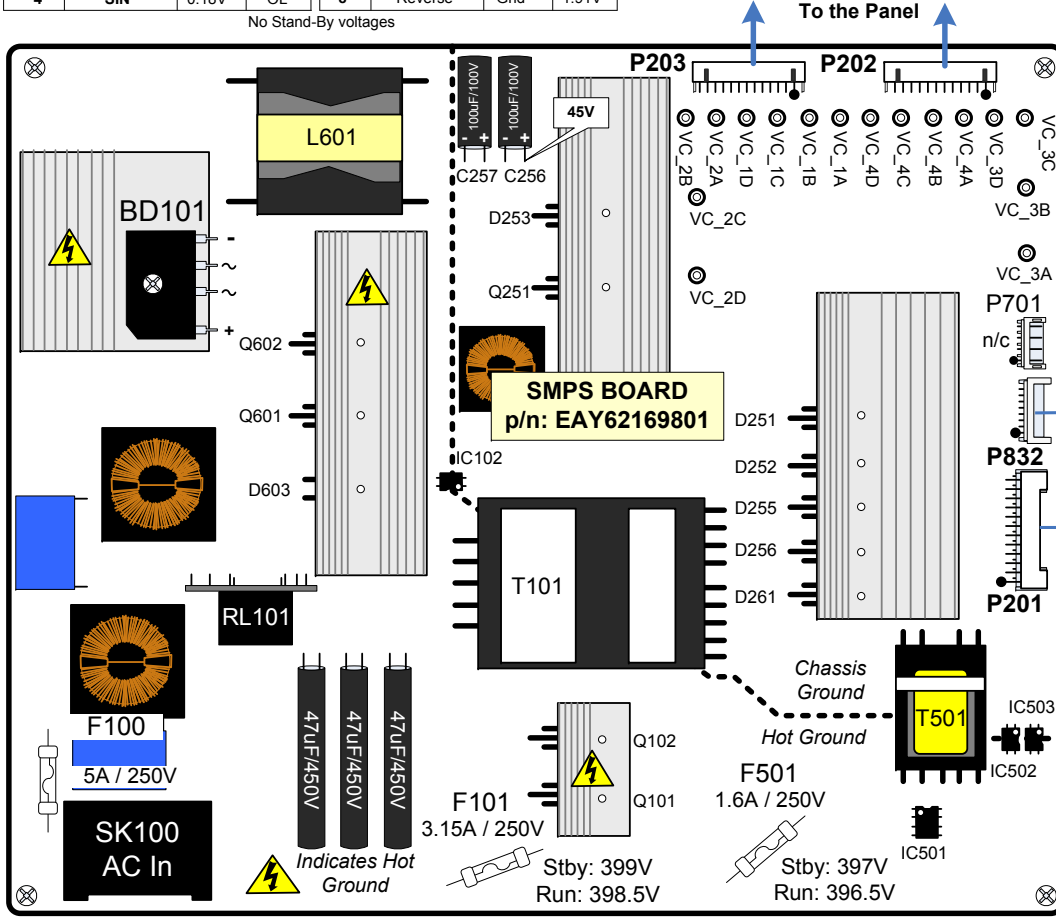
Pin	Label	Run	Diode	Pin	Label	Run	Diode
1	VSYNC	0V	OL	5	Gnd	Gnd	Gnd
2	SDA	3.25V	OL	6	L/DIM0_SCLK	0.1V	OL
3	SCL	3.25V	OL	7	n/c	n/c	OL
4	SIN	0.18V	OL	8	Reverse	Gnd	1.91V

No Stand-By voltage:

PWR-ON: Starts 12V, 24V and 35V LED Power.
DRV-ON: Starts Backlights LED Power goes to 65 then down to 45V.

(1) **PWM Pin 22** can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition). Output from the Video Processor. Range 0.2V to 3.3V.

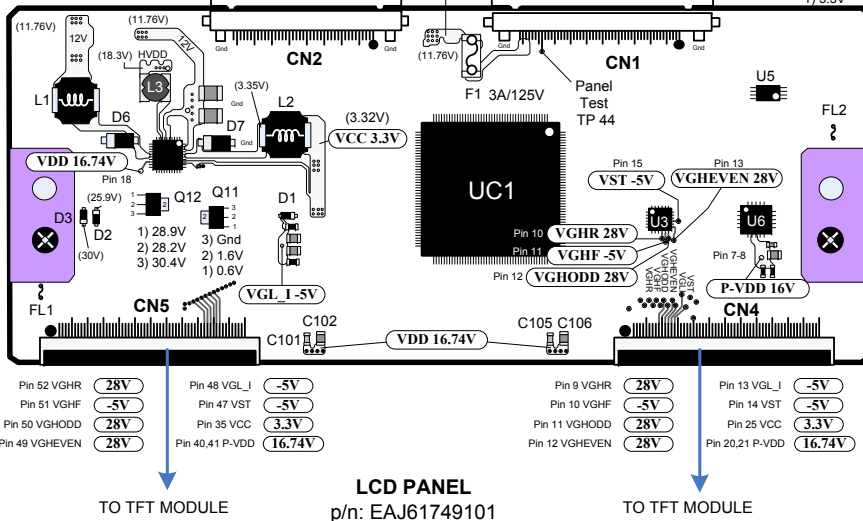
(1) **PWM Pin 22** can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition). Output from the Video Processor. Range 0.2V to 3.3V.



W/Washer
Different Size

PANEL TEST

To run the T-CON "Panel Test",
remove the LVDS cables.
Jump 12V to the 12V fuse.
Jump VCC 3.3V to pin 44 on CN1.
White, Red, Blue, Green and Black
patterns show on screen.



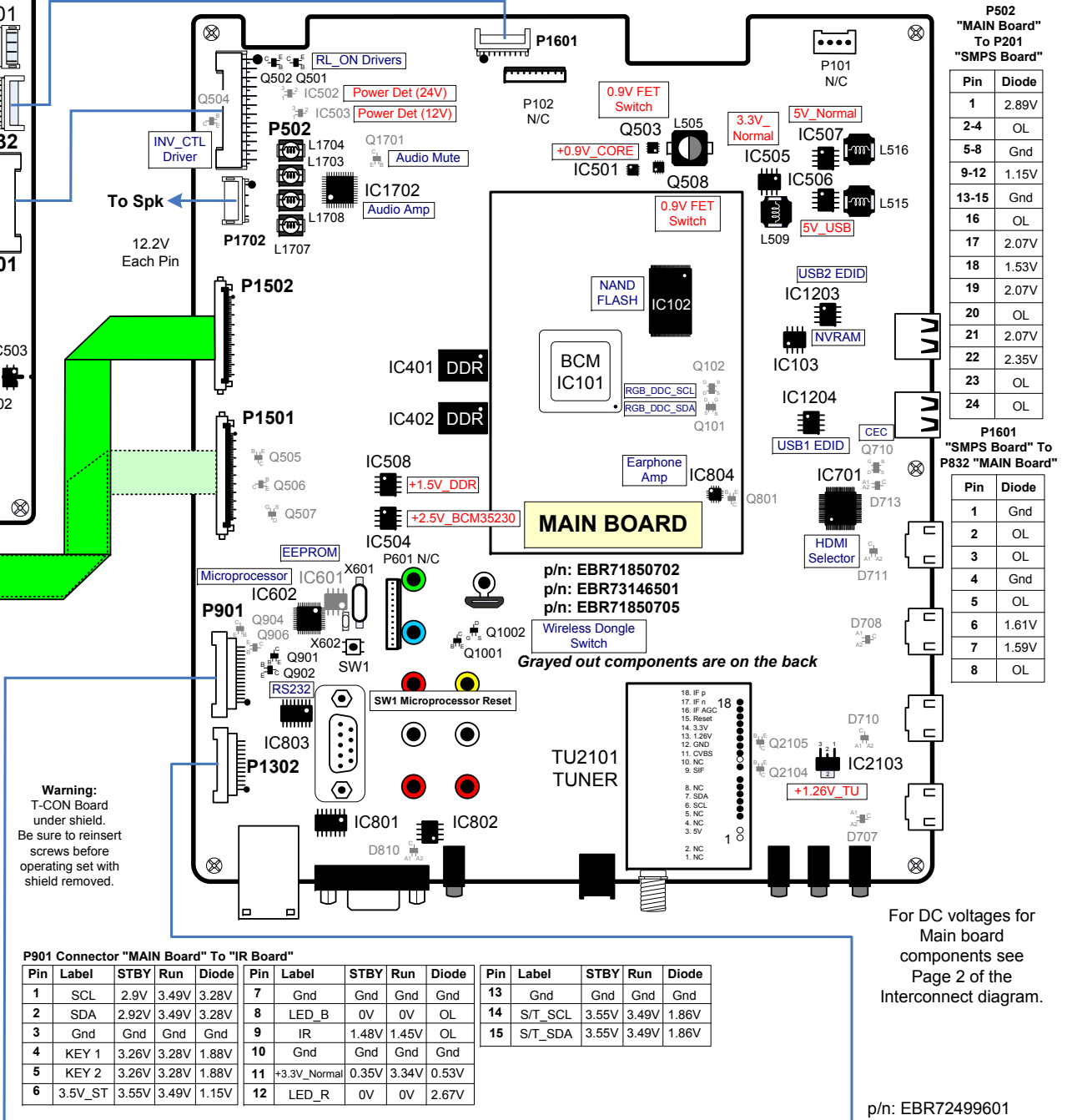
LCD PANEL
n: EAJ61749101

P201 "SMPS Board" To P502 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
24	ERROR	n/c	n/c	2.03V
23	n/c	n/c	n/c	OL
22	(1) PWM	0V	0.2V~3.3V	OL
21	12V	0V	12V	0.48V
20	n/c	n/c	n/c	OL
19	12V	0V	12V	0.48V
18	DRV-ON	0V	3.26V	OL
17	12V	0V	12V	0.48V
16	V_Sync	0V	0V	OL
13-15	Gnd	Gnd	Gnd	Gnd
9-12	3.5V	3.55V	3.53V	2.63V
5-8	Gnd	Gnd	Gnd	Gnd
2-4	24V	0V	24.5V	1.09V
1	PWR-ON	0V	3.41V	1.15V

P1302 "MAIN Board" To "Motion Remote"

Pin	Label	STBY	Run	Diode Check
1	3.5V_Normal	0.35V	3.34V	0.53V
2	Gnd	Gnd	Gnd	Gnd
3	M_Remote_RX	0.35V	3.33V	OL
4	M_Remote_TX	0.35V	3.33V	OL
5	Reset	0.35V	3.33V	2.41V
6	DC_MRemote	0.35V	3.33V	2.38V
7	DD_MRemote	0.35V	3.33V	Gnd
8	Gnd	Gnd	Gnd	Gnd
9	GPIO-O	0V	0V	OL
10	GPIO-1	0V	0V	OL
11	GPIO-2	0V	0V	OL
12	GPIO-3	0V	0V	OL



Warning:
T-CON Board
under shield.
Be sure to reinsert
screws before
operating set with
shield removed.

P901 Connector "MAIN Board" To "IR Board"

Pin	Label	STBY	Run	Diode	Pin	Label	STBY	Run	Diode	Pin	Label	STBY	Run	Diode
1	SCL	2.9V	3.49V	3.28V	7	Gnd	Gnd	Gnd	Gnd	13	Gnd	Gnd	Gnd	Gnd
2	SDA	2.92V	3.49V	3.28V	8	LED_B	0V	0V	OL	14	S/T_SCL	3.55V	3.49V	1.86V
3	Gnd	Gnd	Gnd	Gnd	9	IR	1.48V	1.45V	OL	15	S/T_SDA	3.55V	3.49V	1.86V
4	KEY 1	3.26V	3.28V	1.88V	10	Gnd	Gnd	Gnd	Gnd					
5	KEY 2	3.26V	3.28V	1.88V	11	+3.3V_Normal	0.35V	3.34V	0.53V					
6	3.5V_ST	3.55V	3.49V	1.15V	12	LED_R	0V	0V	2.67V					

For DC voltages for Main board components see Page 2 of the Interconnect diagram.

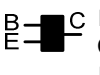
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**Ft. IR/Intelligent Sensor
And Soft Touch Key Board**

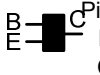
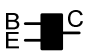
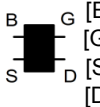
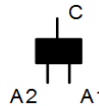
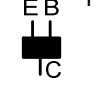
o/n: EBR72499601

Motion Remote

42LV5500 MAIN (FRONT SIDE) SIMICONDUCTORS

IC103 Pin NVRAM for USB  [1] n/c [2] 0V [3] 3.34V [4] 0V [5] 3.22V [6] 3.22V [7] 0V (Gnd) [8] 3.34V	IC505 Pin (+3.3V_NORMAL) Regulator  [1] 0V (Gnd) [2] 11.96V (In) [3] 0V (Gnd) [4] 0.8V [5] 0.79V [6] 3.47V (PWR On/Off2_2) [7] 3.35V (Out) [8] 3.35V (Out)	IC508 Pin (+1.5V_DDR) Regulator  [1] 3.46V [2] n/c [3] 3.46V (In) [4] 3.49V (PWR On/Off1) [5] 0V (Gnd) [6] 3.31V [7] 0.79V [8] 1.5V (Out)	IC801 Pin RGB Data Buffer  [1] 1.81V [2] 1.81V [3] 3.72V [4] 1.8V [5] 1.8V [6] n/c (4.44V) [7] 0V (Gnd) [8] n/c (4.43V) [9] n/c (1.79V) [10] n/c (1.79V) [11] 3.72V [12] 1.81V [13] 1.81V [14] 5V (Vcc In)	Q1001 Pin Wireless Vcc Driver  B 0.02V C 24.5V E Gnd On when wireless dongle connected	IC1203 Pin EDID Data PC  [1] 0V (Gnd) [2] 4.96V (Vcc In) [3] 4.96V (Vcc In) [4] 3.34V (USB Ctl2) [5] 3.17V [6] 4.96V (Out) [7] 4.96V (Out) [8] n/c (0V)	Q502 Pin PWR_ON Switch  [1] 3.5V (In) [2] 0.67V [3] 2.62V (Out)
IC501 Pin +0.9V_CORE DC to DC  [1] 3.17V [2] 0.59V [3] 0.44V [4] 11.95V [5] 0V [6] 5.33V [7] 4.6V [8] 5.81V [9] 0.95V [10] 1.36V	IC506 Pin Switched 5V for USB 2  [1] 0V (Gnd) [2] 11.98V (In) [3] 0V (Gnd) [4] 0.79V [5] 3.48V [6] 3.48V (PWR On/Off2_1) [7] 4.96V (Out) [8] 4.96V (Out)	Q901 Pin IR Buffer 2nd  B 0.02V C 3.48V E Gnd	IC802 Pin EDID Data PC  [1] 0V (Gnd) [2] 0V (Gnd) [3] 0V (Gnd) [4] 0V (Gnd) [5] 4.73V [6] 4.73V [7] 4.73V [8] 4.73V (Vcc In)	Q1002 Pin Wireless Vcc Switch  D G S S 24.5V G 24.5V D 0V On when wireless dongle connected	IC1204 Pin EDID Data PC  [1] 0V (Gnd) [2] 4.96V (Vcc In) [3] 4.96V (Vcc In) [4] 3.34V (USB Ctl1) [5] 3.17V [6] 4.96V (Out) [7] 4.96V (Out) [8] n/c (0V)	Q503 Pin 0.9V FET Switch  [1] 0.95V [2] 0.95V [3] 0.95V [4] 1.36V [5] 11.96V [6] 11.96V [7] 11.96V [8] 11.96V
IC504 Pin +2.5V BCM Regulator  [1] n/c [2] 4.92V (En) [3] 3.47V (In) [4] 3.49V (Ctl) [5] n/c [6] 2.57V (Out) [7] 0.6V [8] 0V (Gnd)	IC507 Pin (+5V_NORMAL) Regulator  [1] 0V (Gnd) [2] 11.98V (In) [3] 0V (Gnd) [4] 0.79V [5] 3.48V [6] 3.48V (PWR On/Off2_1) [7] 4.96V (Out) [8] 4.96V (Out)	Q902 Pin IR Buffer 1st  B 0.57V C 0.02V E Gnd	Q508 Pin 0.9V FET Switch  [1] 0V (Gnd) [2] 0V (Gnd) [3] 0V (Gnd) [4] 4.6V [5] 0.95V [6] 0.95V [7] 0.95V [8] 0.95V	IC803 Pin RS232 Routing  [1] 3.5V [2] 5.64V [3] 0V [4] 0V [5] (-5.56V) [6] (-5.59V) [7] n/c (5.64V) [8] n/c (0V) [9] n/c (3.49V) [10] n/c (0V) [11] n/c (3.34V) [12] 3.48V [13] 0V [14] (-5.59V) [15] 0V (Gnd) [16] 3.5V (Vcc In)	IC2103 Pin (+1.26V_TU) Regulator  [1] 0V (Gnd) [2] 1.27V (Out) [3] 3.33V (In)	Q501 Pin RL_ON (PWR_On) 1st Driver  B 0.64V C 0V E Gnd

42LV5500 MAIN (BACK SIDE) SIMICONDUCTORS

IC502 Pin Power Det Gen (For +12V)  [1] 0V (Gnd) [2] 3.8V (In) [3] 3.73V (Out)	Q101 Pin RGB_DDC_SDA FET Buffer  G D B S	Q506 Pin PANEL_VCC Control 2nd Driver  B 0.67V C 0V E Gnd	Q904 Pin IR Wireless Pass 2nd Driver  B 0.02V C 3.48V E Gnd	D707 Pin 5V Pull-Up to DDC_SCL/SDA_1  A1 4.96V C 5V A2 0V	D713 Pin Bias for Q710 HDMI CEC  A1 0V C 3.45V A2 3.5V
IC503 Pin Power Det Gen (For +24V)  [1] 0V (Gnd) [2] 3.7V (In) [3] 3.73V (Out)	Q102 Pin RGB_DDC_SCL FET Buffer  B G S D	Q507 Pin PANEL_VCC Switch  S G D I	Q906 Pin IR Wireless Pass 1st Driver  B 0.57V C 0V E Gnd	D708 Pin 5V Pull-Up to DDC_SCL/SDA_3  A1 4.96V C 5V A2 0V	D810 Pin 5V Routing to IC802 RGB EDID  A1 4.73V C 5.01V A2 0.07V
IC601 Pin EEPROM Micro  [1] 0V (Gnd) [2] 0V (Gnd) [3] 3.49V [4] 0V (Gnd) [5] 3.49V [6] 3.49V [7] 0V (Gnd) [8] 3.50V (Vcc In)	Q504 Pin INV_CTL (Drv_On) Driver  B 0V (INV ON) En C 3.28V (Out) E Gnd	Q710 Pin CEC Remote HDMI CEC  B 3.47V G 3.51V S 3.47V D 3.49V	Q2104 Pin Tuner SIF (Sound) Buffer  E B IC	D710 Pin 5V Pull-Up to DDC_SCL/SDA_2  A1 4.96V C 5V A2 0V	D711 Pin 5V Pull-Up to DDC_SCL/SDA_4  A1 4.96V C 5V A2 0V
	Q505 Pin PANEL_VCC Control 1st Driver  B 0V C 0.68V E Gnd	Q801 Pin Earphone Mute  B 0V C 3.35V E Gnd	Q2106 Pin Tuner Video (Analog) Buffer  E B IC		

42LV5500 Conclusion Page

Direct View LCD



*This concludes the
42LV5500 training
session.*