

1080P Direct View LCD Training













LCD-DV Troubleshooting 55" Class 1080P 120Hz LED TV SmartTV (54.6" diagonally)

Life's Good



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OUTLINE

Preliminary Section:

Contact Information, Preliminary Matters, LCD Overview, General Troubleshooting Steps

Product Information Section: Specifications, Menu Information

Cinema 3D Section: Screen design and theory

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



Overview of Topics to be Discussed

55LW5600 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.



IG Contact Information

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

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

USA Website (GSFS)

Customer Service Website

Knowledgebase Website

LG Web Training

http://gsfs-america.lge.com

http://www.us.lgservice.com

http://lgtechassist.com - Models Software Downloads

https://lge.webex.com

New: 2010/11 Wireless Ready

Presentations with Audio/Video and Screen Notations

LG CS Learning Academy

http://In.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)

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LCD Direct View Overview

Safety and Handling Regulations

- 1. Approximately 20 minute pre-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.

•<u>Correct</u> 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.

55LW5600 PRODUCT INFORMATION SECTION

This section of the manual will discuss the specifications of the 55LW5600 LCD Direct View Display



Welcome to the third dimension! The LW5600 delivers LG Cinema 3D technology and a whole lot more. It lets you tap into the virtually limitless entertainment capabilities of LG Smart TV and enjoy better picture quality with LG's LED Plus display technology.

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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.



Wireless Network Adaptor (AN-WF100)

Wireless Network Adaptor Included



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:



Basic Specifications

- LG Smart TV¹
- LG Cinema 3D²
- 2D to 3D Conversion
- LED Plus w/Local Dimming
- 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



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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 July 2011. The LG web browser does not support Flash 10 or HTML 5, therefore, access to certain web content may be limited or unavailable.

² For a small percentage of the population, the viewing of stereoscopic 3D video technology may cause discomfort such as headaches, dizziness or nausea. If you experience any symptoms, discontinue using the 3D functionality and contact your health care provider. 4 Pairs of 3D glasses are included.

Logo Familiarization Page 1 of 3



LG Cinema 3D

Want 3D like you get it in the movie theater? Lightweight glasses, wider viewing angles and with clear 3D images? LG's Cinema 3D experience can bring it right to your home. Enjoy amazing depth along with smoother, crisper images, and a clear picture from virtually any angle.



LED Plus

Want deeper blacks and richer colors? LG's LED Plus technology provides even greater control of brightness through local dimming technology to deliver better contrast, amazing 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.



Magic Motion Remote (Included)

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



Logo Familiarization Page 2 of 3



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.



FULL HD RESOLUTION 1080P HD Resolution Pixels: 1920 (H) \times 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.



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.



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.





Parts List and Owner's Manual list a p/n AKB72914043. It has the same buttons, but some may be in different locations.



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TV Rear Input / Output Jacks

Rear In/Out Jacks

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

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.



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

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Highlight Start Press Select

Start

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Software Files are now available from LGTechassist.com

Cancel



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

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).



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.



File shown is not correct for this model.

Highlight the Software update file which will appear at the bottom of the screen. (Scroll down if more than one file is on the jump drive). Press "SELECT" to begin the download process.



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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.



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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 is 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 times. The Host Diagnostics screen appears.



See next page for more details.

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55LW5600 Understanding the Host Diagnostic Screen (Page 2 of 2)

Host Diagnostics		
Host Information	Channel Selected Current Channel (Main) Blocked or Not Blocked	
Model Name : 55LW5600-UA (Liquid Crystal Display)	Channel Info : Digital 19-1	
Memory	Parental Control : Channel is not blocked	
FLASH : 524288 KB	DVI/HDMI Status	
DRAM : 524288 KB	Can't display this information now	
NVM : 128 KB		
Host Release Version		
Firmware Version(PQ) : 2.02.07.01(25329)	Wireless Host Ver:0.00.0 Wireless B/B Ver:0.00.0	
Micom Version : V2.21.2	RF Region Config : Not Configured	
Compile Date & Time : 20101130 & 08:45:52	Media Box Type : Not Configured	
Compile User : hellyhorse.kang	RF Frequency (Value):Auto (N.A.)	
FAT Status (Main)	Downlink RF Power gain (Value):Auto:Auto (Min 0)	
Center Frequency : 663.00 MHz	Link Mode : Unicast	
PCR lock : Locked Program Clock Reference (Locked or N	NO) RX MAC Address : II:II:II:IIIIIIIIIIIIIIIIIIIIIIIII	
Modulation mode : QAM 256 — Channel Type (8VSB, QAM 6	4, 256) wheless connection status : Disconnected	
Carrier lock status : Locked — Channel (Locked or Unlocked	d) Avera 8VSB (Above 20 is good)	
SNR : 37 dB Channel Signal to Noise Ratio	QAM 64 (Above 24 is good)	
Signal level : 100% Channel Signal Level (Above 80% good)		
▲ ► Half Page CH	Move Page 💍 Exit	



Accessing the Service Menu



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.



105-201M



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55LW5600 Service Menu First Page (In-Start Menu)

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



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55LW5600 Power Off Status (In-Start Menu)

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IN START		Power Off Status
Model Name: 55LW5600-UA	1. Adjust Check	0. POWER_OFF_BY_LOCAL_KEY
Serial Number: 011PTCA8Y075	2. ADC Data	1. POWER OFF BY ACDET
S/W Version: : 02.02.07.01	3. Power Off Status 🕨	2. POWER OFF BY REMOTE KEY1
MICOM Version : 2.21.2	4. System 1	3. POWER OFF BY LOCAL KEY
BOOT Version : 1.02.33	5. System 2	4. POWER OFF BY ACDET
FRC Version : 20.ba	6. Model Number D/L	5. POWER OFF BY ACDET
IR LED Version : a2.0	7. Test Option	6. POWER OFF BY OFFTIMER
EDID (RGB/HDMI) : 0.00/0.00	8. External ADC	7. POWER OFF BY SW DL
Chip Type : BCM 35230	9. Spread Spectrum	8. POWER_OFF_BY_ACDET
Wireless Host Ver. : 0.00.0	10. Sync Level	9. POWER_OFF_BY_LOCAL_KEY
Wireless B/B/ Ver. : 0.00.0	11. Wireless Ready	10. POWER_OFF_BY_LOCAL_KEY
Vi-Fi Version : 1.0	12. Stable Count	11. POWER_OFF_BY_REMOTE_KEY1
Vi-Fi Channel : 0	13. ODC Test	12. POWER_OFF_BY_REMOTE_KEY1
Wi-Fi MAC : 00:00:00:00:00	14. Local Dimming	13. POWER_OFF_BY_ACDET
MAC Address : E8:5B:5B:2E:C3:67	15. SDP Server Selection	14. POWER_OFF_BY_ACDET
Widevine : LGTV10L000010332	16. Network Error History	15. POWER_OFF_BY_LOCAL_KEY
ESN Num. : LGE-LW4500XXXX00101F449C		16. POWER_OFF_BY_AUTO_OFF
Formatter Version : 20.ba		17. POWER_OFF_BY_INSTOP
RF Receiver Version : VB091		18. POWER_OFF_BY_LOCAL_KEY
Debug Status : RELEASE		19. POWER_OFF_BY_REMOTE_KEY1
		20. POWER_OFF_BY_REMOTE_KEY1
UTT : 12		21. POWER_OFF_BY_ACDET
APP History Ver.:25329		22. POWER_OFF_BY_SW_DL
PQL DB:LGD_AF_LGT10_XXXXXX		23. POWER_OFF_BY_LOCAL_KEY

LOCAL_KEY (Key Board Power) REMOTE_KEY1 (Remote Power) ACDET (Loss of AC Power) SW_DL (Software Download Restart)

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INSTOP (Instop Button on Serv. Remote) SW_DL (Software Download) AUTO_OFF (No Signal Time Out) OFF_TIMER (Auto Off after 2 hours)



In Start Menu "Power Off Status"

Factor	MODE	Contents		
Micom	POWER_OFF_BY_CPUCMD	Power off by CPU Command		
	POWER_OFF_BY_ABN	Power off by abnormal status		
	POWER_OFF_BY_KEYTIMEOUT	Power off when TV is not turned off during a certain time		
	POWER_OFF_BY_ACDET	Power off by not detecting AC (abnormal case)		
	POWER_OFF_BY_RESET	Power off by Micom Reset		
	POWER_OFF_BY_5VMNT	Power off by not detecting 5V monitoring		
	POWER_OFF_BY_NO_POLLING	Power off when receiving no ack		
CPU	POWER_OFF_BY_REMOTE_KEY	Power off by remote key		
	POWER_OFF_BY_OFF_TIMER	Power off by Off timer		
	POWER_OFF_BY_SLEEP_TIMER	Power off by sleep timer		
	POWER_OFF_BY_FAN_CONTRO	Power off by fan control		
	POWER_OFF_BY_INSTOP_KEY	Power off by Instop Key		
	POWER_OFF_BY_AUTO_OFF	Power off by auto off function (10 Min off with no Signal)		
	POWER_OFF_BY_ON_TIMER	Power off by On timer (2 hours off with no button press after auto on)		
	POWER_OFF_BY_RS232C	Power off by RS232C command		
	POWER_OFF_BY_SWDOWN	Power off by software download		
	POWER_OFF_BY_LOCAL_KEY	Power off by local key		
	POWER_OFF_BY_CPU_ABNOR MAL	Power off by CPU Abnormal status		
	POWER_OFF_BY_INV_ERROR	Power off by LCD module inverter error		
	POWER_OFF_BY_OTA	Power off by OTA update		
	POWER_OFF_BY_UNKNOWN	Power off by the other causes		
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55LW5600 UTT Reset (In-Start Menu)



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55LW5600 Model Number Download Screen (In-Start Menu)

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 "**Cursor Right**" a black cursor should appear under the first digit in the Model Number line.





55LW5600 EDID Download Screens



If Item 5 on Adjust Check in the 1st page of the Service Menu shows **PCM**, this shows **NG**.

If **NG** was shown, highlight "**Start**" and press Select on the remote. "**Writing**" appears, then **OK/(AC3)** shows here. Now Item 5 on Adjust Check in the 1st page of the Service Menu shows **EDID AC3**.

If Reset is selected, Erasing will appear and then this shows "NG".

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Reset

Start

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55LW5600 Product Dimensions



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PASSIVE 3D

This section of the manual will discuss the Passive 3D used in the 55LW5600 LCD Direct View Television.

Upon completion of this section the Technician will have a better understanding of Passive 3D.





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What is 3D (From the human viewpoint)

Each eye looks at an image from slightly different angles. Therefore, the brain takes these two different images and translates them into one image giving us depth perception. This is difficult to reproduce on a 2 dimensional screen. We have to come up with a scheme that will allow us to see the same image from two different angles giving us 3D effects.





If the two images were added together without the brain doing the calculations to combine them, they would appear out of focus.

Note: The Left and Right eye are actually seeing the same image but from a different angle, but for this explanation one is shown inverted from the other for clarity purposes simply to show there is a difference between the two images seen by each eye.



What is 3D (From the camera viewpoint)

Each Camera looks at an image from slightly different angles. Each camera generates it's own video, we'll call "Left Camera View" and "Right Camera View". The Frame packing adds both of these videos together as described in the "3D Broadcasting" page.





The two videos are separated by the Frame rate converter in the Television and put on the screen. The first horizontal line is the Left Camera view and the 2^{nd} line is the Right camera view. 3^{rd} line is Left, 4^{th} is Right and so on.

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Note: The Left and Right Cameras are actually seeing the same image but from a different angle, but for this explanation one is shown inverted from the other for clarity purposes simply to show there is a difference between the two images seen by each camera.



LCD 3D Formatter

3D Formatter

- All Formats of input are available and converted by 3D technology

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- Full HD input available

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TV 3D broadcasting

3D for All types of broadcasting signals

- 1. Input of broadcasting signal
- 2. Press "3D" button. Read the Warning.
- 3. Press "ENTER".

/OL

- 4. Select type of input source.
- 5. In case 3D looks *abnormal, press "Quick MENU" and select "3D Mode Setting".

*Abnormality may be caused by reversed L/R order of the input signal. If TV already in Left/Right change to Right/Left or vice versa.



Note: Picture behind the menu is showing a side by side format.

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Note: HDMI 1.4 will automatically select 3D type for you.



See next page for more 3D Mode Setting details.


3D Settings Menu

3D settings may help with 3D view pleasure.

(1) In case 3D looks *abnormal, press "Quick MENU" (2) Select "3D Mode Setting".



3D Picture Correction: Changes the order of images in the right and left sides of the picture in 3D mode.

3D Depth: Adjusts the distance between the object and the background in the picture to enhance the 3D effect in 2D to 3D mode.

3D View Point: Brings the picture (including both the object and background images) to the front or back to enhance the 3D effect in 3D mode.

Other 3D Mode Settings on different Model Menus

3D Picture Balance: Adjusts the color and brightness difference between the right and left sides of the picture in 3D mode.

3D Picture Size: Cuts off the outer edges of the picture and stretch it to fit the full screen in 3D mode.



Advantages of Passive 3D

GLASSES	ADVANTAGES			
AG-P110	Easy Wear	Light Weight : 15g		
4 Pair Come with the TV Additional Glasses	 Comfortable Flicker Free Light No Batteries No Charging 	 Possible to watch 3D while laying down Horizontal (Left/Right) Viewing Angle Free Large group of people can watch simultaneously No synchronization pulse to interfere with. 		
	 Compatibility with all types of 3D Passive TV Maker Glasses can be made by polarized coating on normal glasses 			



PR Type of 3D Display

Pattern Retarder makes separation of polarization status. Each eye can see left and right images respectively when wearing polarized glasses.



FPR 3D Display Design



- 1. Patterned Retarder plate is attached on the LCD module
- 2. Patterned Retarder plate rotates odd line to CW 45 degree and even line CCW 45 degree
- 3. Odd number pixels see through the Left lens and even number pixels see through the Right lens of the Polarized glasses
- 4. The brain combines separated images into 3D image

Polarizer State

Pattern retarder makes 2 kinds of polarization states; LHC, RHC Polarizer glasses is possible to distinguish polarization state.



3D Supported Formats

Input	Signal	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Playable 3D video format
	720p	1280x720	45.00	60	 » Side by Side » Top & Bottom » HDMI 3D Top & Bottom
			90.00	60	» HDMI 3D Frame Packing
	1080i	1920×1080	33.75	60	 » Side by Side » Top & Bottom » HDMI 3D Side by Side (Half)
HDMI			67.50	60	 » Side by Side » Top & Bottom » Checker Board » Single Frame Sequential
	1080p	1920×1080	27.00	24	 » Side by Side » Top & Bottom » Checker Board » HDMI 3D Top & Bottom
			54.00	24	» HDMI 3D Frame Packing
			67.50 (📺)	30	» HDMI 3D Frame Packing
			33.75	30	» Side by Side » Top & Bottom » Checker Board
	720-	1200-720	44.96	59.94	» Side by Side
Component	720p	1280x720	45.00	60.00	» Top & Bottom
(🚞)	1000:	1020-1090	33.72	59.94	» Side by Side
	10801	1920x1080	33.75	60.00	» Top & Bottom
RGB-PC	1080p	1920×1080	66.587	59.934	» Side by Side » Top & Bottom
USB	1080p	1920×1080	33.75	30	 » Side by Side » Top & Bottom » Checker Board » MPO (Photo)
DLNA	1080p	1920×1080	33.75	30	 » Side by Side » Top & Bottom » Checker Board
	Signal				Playable 3D video format
DTV	720p, 1080i				» Side by Side » Top & Bottom

•Media contents and a player need to support HDMI 3D Frame Packing, HDMI 3D Side by Side, HDMI 3D Top & Bottom to play in 3D. •Video, which is input as HDMI 3D Frame Packing, HDMI 3D Side by Side, HDMI 3D Top & Bottom format, is switched into the 3D screen automatically

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DISASSEMBLY SECTION

Disassembly:

This section of the manual will discuss Disassembly, Layout (Circuit Board Identification) of the 55LW5600 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.



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Removing the Back Cover





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Circuit Board Layout





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55LW5600 Connector Identification Diagram





Power Supply **Board Removal**



Removing the Main Board



The Decorative Metal Plate is one Piece



T-CON Board Removal Continued (2 of 2)

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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 Figures below)



BROKEN TAB: If a tab is broken, Use a thin object And push in at the Location shown by The arrow on the left.



Removing the Front IR Page 1 of 2

The Front IR Item 510 on the parts breakdown is under a wire routing bracket Item 511.

Disconnect the cable coming from the Main board and remove it from the wire holders in Item 511.



IR/Key board p/n: EBR72671301





Remove the one screw. Lift up on the three tabs at the top of Item 511 and pull the Item 511 slightly forward. Lift Item 511 up and out.



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(3)

 $(\mathbf{1})$

Removing the Front IR Continued

p/n: EBR72671301



After gaining access to the Front IR/Intelligent Sensor Board, lay the TV down on its face and remove the LCD Panel by releasing the tabs around the perimeter of the panel. Lift the Panel up and out. The Front IR / Key Board is attached to the Front Frame Item 300 p/n: ABJ73289206. It must be separated to replace independently. Part number: EBR72671301.





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 63V for the LED Backlights.

This power supply draws less than 1 watt during stand by mode. The fuse F101 reads approximately 57V and F501 reads 154V during this time (from hot ground). 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 3.4V 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 reads between 395V~397V (from hot ground). D253 receiving switching pulses from L601 and filtered by C256 and C257, develops the 63V for the LED backlights.

When the SMPS receives the DRV_ON command from the Main board via P201 Pin 18 (3.24V) 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.

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 P201 Connector: (To Main Board)
 P202 C

 3.5V_ST (3.55V) output P201 pins 9~12
 63V ou

 12V output P201 pins 17, 19 and 21
 63V ou

 24V output P201 pins 2, 3 and 4.
 P203 C

 Turn on commands.
 63V ou

P202 Connector: (To Panel LEDs) 63V output P202 pins 1 and 12.

P203 Connector: (To Panel LEDs) 63V output P203 pins 1 and 13.

P832 Connector: (To the Main Board) This connector receives the Local Dimming signals.

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55LW5600 Power Supply Drawing



Pin	l abel	STBY	Run	Diode Check
			i tuii	
24	ERROR	n/c	n/c	2.2V
23	n/c	n/c	n/c	n/c
22	PWM	0V	0.2V~3.3V	OL
21	12V	0V	12.07V	0.48V
20	n/c	n/c	n/c	n/c
19	12V	0V	12.07V	0.48V
18	DRV-ON	0V	3.24V	OL
17	12V	0V	12.07V	0.48V
16	V-SYNC	n/c	n/c	n/c
13~15	Gnd	Gnd	Gnd	Gnd
9~12	3.5V	3.56V	3.51V	OL
5~8	Gnd	Gnd	Gnd	Gnd
2~4	24V	0V	25V	1.1V
1	PWR-ON	0V	3.4V	1.16V

⁽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

SMPS TEST 1: To Force Power Supply On.

Disconnect P502 on Main board.

(A) Jump pins 9, 10, 11 or 12 (STBY_3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main and 56V to the Panel LEDs. Remove AC power. Leave the jumper in place. No Backlights at this time.

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 63V then back down to 63V.

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.



MODEL	LGP55-11SLPB				
INPUT	100-240V~50/60Hz	2.5A			
	3.5V = 1.8A				
	12V = 2.8A				
	24V = 1.2A				
	81.4V = 1.6A				



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55LW5600 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 (25.02V) and 12V (12.08V) power supplies are turned on,
 - P201 (12V pins 17, 19 and 21)
 - P201 (24V pins 2, 3 and 4)
 - P202 (56V pins 1 and 12) AND P203 (pins 1 and 13)

(2) Remove AC power

No Backlights during this test





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 at least 3V and the 63V 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:



P201

SMPS TEST 2



2 SIDED EDGE LIT SECTION

2 Sided Edge Lit Panel Structure

LED Array is on the side of Module



LED Array

Local Dimming



Each of the 16 blocks can be controlled independently (Local Dimming) or all of them as a group (Global Dimming) P-DIM.

This allows the panel to be darkened out in areas that are black or low brightness areas of the video. This allows for more deeper blacks and a thin design.



55LW5600 2 Sided Edge Lit Panel (V6) 2011

55" TWO SIDED EDGE 2011 (Rear View)



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63V Power Supply for the Backlights 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 56V. When the DRV_ON command arrives This voltage will rise to 63V.



Location: Top Center of the SMPS



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

Tip: You can use the right side of R287 or R288 to check for the 63V. Tip: Remember to use a 220Ω to ground on any of the "EL" Test Points to force an LED Block to turn on.



WARNING: Do not simply "Ground" any of the EL Test Points (EL62~EL77) to turn on an LED Block. The LED Block will be destroyed.



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P202 / P203 Power Supply Connector Voltage and Diode Check

Pin	Label	ТР	Run	Diode Check
1	LED+	C256+	63V	OL
2	n/c	n/c	n/c	OL
3	VC-3A	EL70	*1.59V~18V	OL
4	VC-3B	EL71	*1.59V~18V	OL
5	VC-3C	EL72	*1.59V~18V	OL
6	VC-3D	EL73	*1.59V~18V	OL
7	VC-4A	EL74	*1.59V~18V	OL
8	VC-4B	EL75	*1.59V~18V	OL
9	VC-4C	EL76	*1.59V~18V	OL
10	VC-4D	EL77	*1.59V~18V	OL
11	n/c	n/c	n/c	OL
12	LED+	C256+	63V	OL

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

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

Pin	Label	ТР	Run	Diode Check
1	LED+	C256+	63V	OL
2	n/c	n/a	n/c	OL
3	VC-1A	EL62	*1.59V~18V	OL
4	VC-1B	EL63	*1.59V~18V	OL
5	VC-1C	EL64	*1.59V~18V	OL
6	VC-1D	EL65	*1.59V~18V	OL
7	n/c	n/a	n/c	OL
8	VC-2A	EL66	*1.59V~18V	OL
9	VC-2B	EL67	*1.59V~18V	OL
10	VC-2C	EL68	*1.59V~18V	OL
11	VC-2D	EL69	*1.59V~18V	OL
12	n/c	n/a	n/c	OL
13	LED+	C256+	63V	OL

*White to Black screen



*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



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P832 Local Dimming Drive Waveforms



P832 "SMPS" to P3503 "MAIN"

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



P832 Voltages and Diode Checks

P832 "SMPS" to P3503 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
8	Reverse	0V	0V	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	0.12V	OL
3	SCL	0V	3.2V	OL
2	SDA	0V	3.2V	OL
1	VSYNC	0V	0V	2V

P832 Connector



Note: On the Main Board the pins are Reversed and the Labels may be different.

	SMPS P832	MAIN P3503	
Pin	Label	Pin	Label
8	Reverse	1	Reverse
7	n/c	2	n/c
6	SCLK	3	M0_SCLK
5	Gnd	4	Gnd
4	SIN	5	M0_MOSI
3	SCL	6	SCL2_3.3V
2	SDA	7	SDA2_3.3V
1	VSYNC	8	L_VS

Diode Mode values taken with all Connectors Removed

P832 Local Dimming Waveform Information SIN SCLK Pin 4 P832 Pin 6 P832 3.57V p/p 3.54V p/p Local Dimming On SIN **V-SYNC** Pin 4 P832 Pin 1 P832 3.57V p/p 3.5V p/p Local Dimming Off



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P201 Power Supply Connector Voltage and Diode Check

Din	Labol	STRV	Pup	Diada Chack
rin	Label	3161	Run	Didde Check
24	ERROR	n/c	n/c	2.2V
23	n/c	n/c	n/c	n/c
22	PWM	0V	0.2V~3.3V	OL
21	12V	0V	12.07V	0.48V
20	n/c	n/c	n/c	n/c
19	12V	0V	12.07V	0.48V
18	DRV-ON	0V	3.24V	OL
17	12V	0V	12.07V	0.48V
16	V-SYNC	n/c	n/c	n/c
13~15	Gnd	Gnd	Gnd	Gnd
9~12	3.5V	3.56V	3.51V	OL
5~8	Gnd	Gnd	Gnd	Gnd
2~4	24V	0V	25V	1.1V
1	PWR-ON	0V	3.4V	1.16V
				(3)

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

level, OSD Backlight setting and then Intelligent Sensor

(room light condition) Output from the Video Processor

IC900. Range 0.37V to 3.3V.

(1) PWR_ON Pin 1 turns on the SMPS which send 12V and 24V to the Main. The 63V Power Supply turns on too, but only generates 56V at this time.

Diode Mode values taken with all Connectors Removed

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P-DIM1 3.66V p/p 50IRE

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SK100 and AC Fuse Power Supply Voltage and Diode Check

SK100 "SMPS" to AC IN



Diode Mode values taken with all Connectors Removed

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Diode Check

OL

OL

Run

F100 (Diode Check)

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

Bottom Left of SMPS



F101 and F501 Power Supply Voltage Checks



If the set was on and then turned off, the voltage takes a while to bleed down.



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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 duel 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 Frame Rate Converter for 3D, 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).

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ins 9~12)

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)

Frame Rate Converter (IC5201) FRC

1.26V_FRC (IC5401) 3.3V_FRC (IC5402),
 1.5V_FRC (IC5403)

HDMI SELECTOR VOLTAGES (IC701)

3.3V_HDMI
 (From 3.3V_Normal through L701)

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Main Board Layout



55LW5600 Main Board (Front and Back Side) Component Layout

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

Pin	Label	STBY	Run	Diode Check
1	PWR-ON	0V	3.4V	2.79V
2-4	24V	0V	25V	OL
5-8	Gnd	Gnd	Gnd	Gnd
9-12	3.5V_ST	3.56V	3.51V	1.15V
13-15	Gnd	Gnd	Gnd	Gnd
16	GND/VSYNC	n/c	n/c	OL
17	12V	0V	12.01V	2.09V
18	DRV-ON	0V	3.24V	1.54V
19	12V	0V	12.01V	2.09V
20	A-DIM	n/c	n/c	OL
21	12V	0V	12.01V	2.09V
22	PDIM-1	0V	0.2V~3.3V	2.4V
23	n/c	n/c	n/c	OL
24	Err OUT	n/c	n/c	OL

P901 "MAIN Board" To "IR Board" J1

Pin	Label	STBY	Run	Diode Check
1	SCL	3.55V	3.48V	3.29V
2	SDA	3.55V	3.48V	3.29V
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.33V	3.31V	1.84V
5	KEY 2	3.33V	3.31V	1.84V
6	3.5V_ST	3.55V	3.48V	1.15V
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	IR	1.5V	1.41V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0.0V	3.33V	0.55V
12	LED_R/BUZZ	0V	0V	2.68V
13	Gnd	Gnd	Gnd	Gnd
14	S/T_SCL	3.55V	3.48V	1.91V
15	S/T_SDA	3.55V	3.48V	1.92




55LW5600 Main Board (Front) Component Layout



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55LW5600 Main (Front Side) Component Voltages





47LW5600 Main Board (Back Side) Component Layout





55LW5600 Main (Back Side) Component Voltages





Main Board X601, X602 and X5201 Crystal Checks



P1702 and IC1702 Audio Amplification for the Speakers Information

IC1702 VOLTAGES

Use speaker out to test for defective Audio Amp IC1702 Note: (Normal, ½ Audio B+) 12.09V on each pin.

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+)



P1702 Connector "Main" To "Speakers"

Pin	Label	SBY	Run	Diode Check
1	SPK-R(-)	0V	12.43V	OL
2	SPK-R(+)	0V	12.43V	OL
3	SPK-L(-)	0V	12.43V	OL
4	SPK-L(+)	0V	12.43V	OL

Amp_Reset pin 25

Amp_Reset is generated from Model_Opt_0 pin 8 of the Micro. Through R604 it becomes Amp_Reset and goes to R170-2 and C1701 then to pin 25 of IC1702.

AMP_MUTE_PDN

Q1701 is on the Back side of the board. Mute (it's collector) is Active Low when it's base is high from pin 6 of the Microprocessor. 3.3V_ST goes to it's Collector which is tied to AMP_MUTE_PDN Pin 19

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Diode Mode values taken with all Connectors Removed



P3503 Main Board Connectors Voltage and Diode Check

Local Dimming Connector P3503 Information										
P3503 Connector "MAIN Board" To P832 "SMPS"										
Pin	Label	STBY	Run	Diode Check						
1	Reverse	0V	0V	OL						
2	n/c	n/c	n/c	OL						
3	M0_SCLK	0V	0.1V	OL						
4	Gnd	Gnd	Gnd	Gnd						
5	M0_MOSI	0V	0.12V	OL						
6	SCL2_3.3V	0V	3.2V	1.73V						
7	SDA2_3.3V	0V	3.2V	1.71V						
8	L_VS	0V	0V	OL						

Note: P832 "SMPS" (Pin 1 is reversed).

Diode Mode values taken with all Connectors Removed

P3503		SMPS		MAIN
The state of the second		P832		P3503
	Pin	Label	Pin	Label
- Unup	8	Reverse	1	Reverse
	7	n/c	2	n/c
	6	SCLK	3	M0_SCLK
	5	Gnd	4	Gnd
	4	SIN	5	M0_MOSI
	3	SCL	6	SCL2_3.3V
	2	SDA	7	SDA2_3.3V
	1	VSYNC	8	L_VS

Note: On the Main Board the pins are reversed and the Labels may be different.

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P3503 Local Dimming Waveform Information

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P502 Main Board Connector to Power Supply Voltage and Diode Check

P;	502
1	
But	P501 P502
	C1777

DEAD

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

Pin	Label	STBY	Run	Diode Check
1	PWR-ON	0V	3.4V	2.79V
2-4	24V	24V 0V 25V		OL
5-8	Gnd	Gnd	Gnd	Gnd
9-12	3.5V_ST	3.56V	3.51V	1.15V
13-15	Gnd	Gnd	Gnd	Gnd
16	GND/VSYNC	n/c	n/c	OL
17	12V	0V	12.01V	2.09V
18	DRV-ON	0V	3.24V	1.54V
19	12V	0V	12.01V	2.09V
20	A-DIM	n/c	n/c	OL
21	12V	0V	12.01V	2.09V
22	PDIM-1	0V	0.2V~3.3V	2.4V
23	n/c	n/c	n/c	OL
24	Err OUT	n/c	n/c	OL

Odd Pins Top Row

⁽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



vrt

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P3501 "Main" to "T-CON" Voltage and Diode Check

P3501 "MAIN Board" To "T-CON" CN1

Pin	Label	Run	Diode Check	Pin	Label	Run	Diode Check	Pin	Label	Run	Diode Check
1	2D/3D_CTL	0V	1.17V	21	Gnd	Gnd	Gnd	41	TXB4P	1.16V	1.13V
2	n/c	n/c	n/c	22	TXA3N	1.24V	1.12V	42	Gnd	Gnd	Gnd
3	n/c	n/c	n/c	23	ТХАЗР	1.18V	1.12V	43	Gnd	Gnd	Gnd
4	n/c	n/c	n/c	24	TXA4N	1.23V	1.12V	44	Gnd	Gnd	Gnd
5	n/c	n/c	n/c	25	TXA4P	1.16V	1.12V	45	Gnd	Gnd	Gnd
6	AU0_65_Mirror	0V	OL	26	Gnd	Gnd	Gnd	46	Gnd	Gnd	Gnd
7	LVDS_SEL	0V	OL	27	BIT_SEL	2.4V	OL	47	n/c	n/c	n/c
8	n/c	n/c	n/c	28	TXB0N	1.24V	1.13V	48	Panel_VCC	12.13V	0.89V
9	n/c	n/c	n/c	29	TXB0P	1.18V	1.13V	49	Panel_VCC	12.13V	0.89V
10	n/c	n/c	n/c	30	TXB1N	1.23V	0.85V	50	Panel_VCC	12.13V	0.89V
11	Gnd	Gnd	Gnd	31	TXB1P	1.16V	1.15V	51	Panel_VCC	12.13V	0.89V
12	TXA0N	1.24V	1.13V	32	TXB2N	1.25V	1.13V			D3501	
13	TXA0P	1.18V	1.13V	33	TXB2P	1.16V	1.13V				113
14	TXA1N	1.23V	1.13V	34	Gnd	Gnd	Gnd				
15	TXA1P	1.16V	1.13V	35	TXBCLKN	1.19V	1.11V				Ų
16	TXA2N	1.25V	1.10V	36	TXBCLKP	1.23V	1.11V				
17	TXA2P	1.16V	1.10V	37	Gnd	Gnd	Gnd				R350
18	Gnd	Gnd	Gnd	38	TXB3N	1.24V	1.13V				
19	TXACLKN	1.19V	0.84V	39	TXB3P	1.18V	1.13V				CE40
20	TXACLKP	1.23V	1.12V	40	TXB4N	1.23V	1.13V				212

There are no Stand-By Voltages for the Connector Diode Mode values taken with all Connectors Removed Pins in **Bold** are Video.

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P3502 "Main" to "T-CON" Voltage and Diode Check

P3502 "MAIN" To "T-CON" CN2

Pin	Label	Run	Diode Check	Pin	Label	Run	Diode Check
1	n/c	n/c	n/c	21	TXC3P	1.18V	1.12V
2	n/c	n/c	n/c	22	TXC4N	1.23V	1.12V
3	n/c	n/c	n/c	23	TXC4P	1.16V	1.12V
4	n/c	n/c	n/c	24	Gnd	Gnd	Gnd
5	n/c	n/c	n/c	25	Gnd	Gnd	Gnd
6	n/c	n/c	n/c	26	TXD0N	1.24V	1.11V
7	n/c	n/c	n/c	27	TXD0P	1.18V	1.12V
8	n/c	n/c	n/c	28	TXD1N	1.23V	1.12V
9	Gnd	Gnd	Gnd	29	TXD1P	1.16V	1.13V
10	TXC0N	1.24V	1.13V	30	TXD2N	1.25V	1.12V
11	TXC0P	1.18V	1.13V	31	TXD2P	1.16V	1.12V
12	TXC1N	1.23V	1.12V	32	Gnd	Gnd	Gnd
13	TXC1P	1.16V	1.12V	33	TXDCLKN	1.19V	1.14V
14	TXC2N	1.25V	1.10V	34	TXDCLKP	1.23V	1.10V
15	TXC2P	1.16V	1.10V	35	Gnd	Gnd	Gnd
16	Gnd	Gnd	Gnd	36	TXD3N	1.24V	1.10V
17	TXCCLKN	1.19V	1.10V	37	TXD3P	1.18V	1.10V
18	TXCCLKP	1.23V	1.10V	38	TXD4N	1.23V	1.10V
19	Gnd	Gnd	Gnd	39	TXD4P	1.16V	1.10V
20	TXC3N	1.24V	1.12V	40	Gnd	Gnd	Gnd
				41	Gnd	Gnd	Gnd



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Pins in **Bold** are Video Signals.

There are no Stand-By Voltages for the Connector.

Diode Mode values taken with all Connectors Removed.



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

P901 Connector "MAIN Board" To "IR Board" J1

Pin	Label	STBY	Run	Diode Check
1	⁽¹⁾ SCL	3.55V	3.48V	3.29V
2	⁽¹⁾ SDA	3.55V	3.48V	3.29V
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.31V	3.31V	1.84V
5	KEY 2	3.31V	3.31V	1.84V
6	3.5V_ST	3.55V	3.48V	1.15V
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	⁽²⁾ IR	1.5V	1.41V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0V	3.33V	0.55V
12	LED_R/BUZZ	0V	0V	2.68V
13	Gnd	Gnd	Gnd	Gnd
14	⁽³⁾ S/T_SCL	3.55V	3.48V	1.91V
15	⁽³⁾ S/T_SCL	3.55V	3.48V	1.92V



⁽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



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

Pin	Label	Run	Diode Check
1	3.5V_Normal	3.41V	0.56V
2	Gnd	Gnd	Gnd
3	M_Remote_RX	3.30V	OL
4	M_Remote_TX	3.31V	OL
5	Reset	3.32V	2.41V
6	DC_MRemote	3.31V	2.42V
7	DD_MRemote	3.31V	2.40V
8	Gnd	Gnd	Gnd
9	GPI0-O	0V	OL
10	GPI0-1	0V	OL
11	GPI0-2	0V	OL
12	GPI0-3	0V	OL

P1302 "MAIN Board" To "Motion Remote"



Not Used

Diode Mode values taken with all Connectors Removed



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

Pin	Label	STBY	Run	Diode Check
1-6	*25V	0V	25V	OL
7	Detect	0V	0.3V	2.39V
8	Interrupt	0V	3.3V	OL
9	Gnd	0V	Gnd	Gnd
10	n/c	0V	3.3V	OL
11	Gnd	0V	Gnd	Gnd
12	I2C_SCL	0V	3.3V	1.77V
13	I2C_SDA 0V 3.		3.3V	1.77V
14	Gnd	0V	Gnd	Gnd
15	Wireless_RX	0V	3.3V	OL
16	Wireless_TX	0V	3.3V	OL
17	Gnd	0V	Gnd	Gnd
18	IR	0.67V	3.3V	OL
19-20	Gnd	0V	Gnd	Gnd

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



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).

*25V 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.



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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 and U6 are DC to DC converters which develop the Panels driver voltages. These voltages can be read at the ribbon connector or at test locations on the board which are identified on the following pages.





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T-CON (TFT Drive) Board Layout

TIP: 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.



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55LW5600 T-CON (TFT Drive) with (Shield Removed) Components Identified

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



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U6 pin 10: (16.12V) to CN4 pin 2, CN5 pin 59 U6 pin 11: (13.3V) to CN4 pin 3, CN5 pin 58 U6 pin 12: (12.2V) to CN4 pin 4, CN5 pin 57 U6 pin 13: (10.26V) to CN4 pin 5, CN5 pin 56 $\begin{array}{l} {\sf U6\ pin\ 14:\ (5.9V)\ to\ CN4\ pin\ 8,\ CN5\ pin\ 53} \\ {\sf U6\ pin\ 15:\ (4.05V)\ to\ CN4\ pin\ 9,\ CN5\ pin\ 52} \\ {\sf U6\ pin\ 18:\ (3.01V)\ to\ CN4\ pin\ 10,\ CN5\ pin\ 51} \\ {\sf U6\ pin\ 19:\ (2.36V)\ to\ CN4\ pin\ 11,\ CN5\ pin\ 50} \end{array}$

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LCD-DV



T-CON (TFT Drive) Board Panel Test

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)



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

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

CN1 "T-CON" to "MAIN Board" P3501

Pin	Label	Run	Diode Check	Pin	Label	Run	Diode Check	Pin	Label	Run	Diode Check
1	n/c	n/c	n/c	21	Gnd	Gnd	Gnd	41	TXB4P	1.08V	1.94V
2	*3D_SYNC	0V	OL	22	TXA3N	1.29V	1.94V	42	Gnd	Gnd	Gnd
3	n/c	n/c	n/c	23	TXA3P	1.12V	1.94V	43	Gnd	Gnd	Gnd
4	SDA2_3.3V	3.3V	OL	24	TXA4N	1.33V	1.94V	44	Gnd	Gnd	OL
5	SCL2_3.3V	3.3V	OL	25	TXA4P	1.08V	1.94V	45	Gnd	Gnd	Gnd
6	FRC_RESET	3.14V	OL	26	Gnd	Gnd	Gnd	46	Gnd	Gnd	Gnd
7	LVDS_SEL	0V	OL	27	BIT_SEL	2.40V	OL	47	n/c	n/c	n/c
8	n/c	n/c	n/c	28	TXB0N	1.23V	1.94V	48	Panel_VCC	11.98V	OL
9	n/c	n/c	n/c	29	TXB0P	1.18V	1.94V	49	Panel_VCC	11.98V	OL
10	PANEL_CTL	0V	OL	30	TXB1N	1.24V	1.94V	50	Panel_VCC	11.98V	OL
11	Gnd	Gnd	Gnd	31	TXB1P	1.17V	1.94V	51	Panel_VCC	11.98V	OL
12	TXA0N	1.23V	1.94V	32	TXB2N	1.29V	1.94V		Daldlahal		
13	TXA0P	1.16V	1.94V	33	TXB2P	1.15V	1.94V		Bold labels		ueo signais.
14	TXA1N	1.25V	1.94V	34	Gnd	Gnd	Gnd		F1115 4	o~51 a	
15	TXA1P	1.15V	1.94V	35	TXBCLKN	1.19V	1.94V			CN1	
16	TXA2N	1.27V	1.94V	36	TXBCLKP	1.23V	1.94V				
17	TXA2P	1.15V	1.94V	37	Gnd	Gnd	Gnd				
18	Gnd	Gnd	Gnd	38	TXB3N	1.27V	1.94V				
19	TXACLKN	1.19V	1.94V	39	TXB3P	1.31V	1.94V	(easerro à o		(1)
20	TXACLKP	1.23V	1.94V	40	TXB4N	1.31V	1.94V				

Pin 2 (3D_Sync) will go high when 3D is played. But is not used by the Main Board.

Diode Mode values taken with all Connectors Removed



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Hash marks in steps of 5.

First hash mark is off by 1 pin. Starts on pin 6.

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

CN2 "T-CON" to "MAIN" P1503

Pin	Label	Run	Diode Check	Pin	Label	Run	Diode Check
1	n/c	n/c	n/c	22	TXC4N	1.28V	1.94V
2	n/c	n/c	n/c	23	TXC4P	1.11V	1.94V
3	n/c	n/c	n/c	24	Gnd	Gnd	Gnd
4	n/c	n/c	n/c	25	Gnd	Gnd	Gnd
5	n/c	n/c	n/c	26	TXD0N	1.23V	1.94V
6	n/c	n/c	n/c	27	TXD0P	1.18V	1.94V
7	n/c	n/c	n/c	28	TXD1N	1.23V	1.94V
8	n/c	n/c	n/c	29	TXD1P	1.18V	1.94V
9	Gnd	Gnd	Gnd	30	TXD2N	1.25V	1.94V
10	TXC0N	1.23V	1.94V	31	TXD2P	1.15V	1.94V
11	TXC0P	1.18V	1.94V	32	Gnd	Gnd	Gnd
12	TXC1N	1.24V	1.94V	33	TXDCLKN	1.19V	1.94V
13	TXC1P	1.19V	1.94V	34	TXDCLKP	1.23V	1.94V
14	TXC2N	1.26V	1.94V	35	Gnd	Gnd	Gnd
15	TXC2P	1.15V	1.94V	36	TXD3N	1.25V	1.94V
16	Gnd	Gnd	Gnd	37	TXD3P	1.17V	1.94V
17	TXCCLKN	1.18V	1.94V	38	TXD4N	1.31V	1.94V
18	TXCCLKP	1.22V	1.94V	39	TXD4P	1.20V	1.94V
19	Gnd	Gnd	Gnd	40	Gnd	Gnd	Gnd
20	TXC3N	1.24V	1.94V	41	Gnd	Gnd	Gnd
21	TXC3P	1.16V	1.94V				



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Bold labels are video signals.

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Diode Mode values taken with all Connectors Removed



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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 it 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 (1.47V). 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. 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 Soft Touch Keys are part of the IR board. Key 1 (pin 4) and Key 2 (pin 5) are output From Pat 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 it's operational voltage when the set turns on via pin 11 (3.3V_Normal).



Gaining access to the Front IR/Key Board

The Front IR Item 510 on the parts breakdown is under a wire routing bracket Item 511. Disconnect the cable coming from the Main board and remove it from the wire holders in Item 511.



IR/Key board p/n: EBR72671301

Remove the Speaker by sliding it forward.





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Remove the one screw. Lift up on the three tabs at the top of Item 511 and pull the Item 511 slightly forward. Lift Item 511 up and out.



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(3)

Front IR Component Identification

See Disassembly section for gaining access to the IR/Key Board



J1 Front IR/Soft Touch Key Board Voltage and Diode Check

Pin	Label	STBY	Run	Diode Check
1	SCL	3.55V	3.49V	OL
2	SDA	3.55V	3.49V	OL
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.33V	3.33V	OL
5	KEY 2	3.33V	3.33V	OL
6	3.5V_ST	3.55V	3.49V	OL
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	IR	1.48V	1.47V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0V	3.33V	OL
12	LED_R/BUZZ	0V	0V	OL
13	Gnd	Gnd	Gnd	Gnd
14	S/T_SCL	3.55V	3.49V	OL
15	S/T_SDA	3.55V	3.49V	OL

J1 "IR Board" To P901 "Main Board"



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⁽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



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Soft Touch Key Resistance and Voltages

Key 1 Line

KEY 1	Pin 4 measured from Gnd	KEY 1	Pin 4 measured from Gnd
Volume (+)	16.8M Ohms	Volume (+)	1.67V
Volume (-)	10.7M Ohms	Volume (-)	1.07V
Home	5.4M Ohms	Home	0.54V
Enter	1.19M Ohms	Enter	0.12V

Key 2 Line

KEY 2	Pin 5 measured from Gnd	KEY 2	Pin 5 measured from Gnd
CH (Up)	15.9M Ohms	CH (Up)	1.56V
CH (Dn)	9.8M Ohms	CH (Dn)	0.98V
Power	5.7M Ohms	Power	0.53V
Input	1.19M Ohms	Input	0.12V



Diode Mode values taken with all Connectors Removed



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MOTION REMOTE BOARD SECTION



The first time the Motion Remote has it's 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.



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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" AKB72914043



Motion Remote Receiver Board Voltage and Diode Check

Motion Remote Board p/n EBR72499601



"Motion Remote Receiver Board" To P1302 "Main"

Pin	Label	STBY	Run	Diode Check
1	3.5V_Normal	0.35V	3.33V	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	OL
6	DC_MRemote	0.35V	3.33V	2.41V
7	DD_MRemote	0.35V	3.33V	2.38V
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



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INVISIBLE SPEAKER SECTION

The 55LW56000 contains the Invisible Speaker system.

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





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INTERCONNECT DIAGRAM (11 X 17 FOLDOUT SECTION)

This section shows the 11 X 17 foldout that's available in the Paper and Adobe version of the Training Manual.

The Adobe version of this Training Manual allows the viewer to zoom in and out making reading of the small text easier. This Power Point shows a graphical representation of the 11 X 17 foldout page so clarity is limited.



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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 or unplug P832. If the brightness returns to normal, examine the signals required for Local Dimming.

(SIN, V-SYNC and SCLK). Suspect the Main Board. You can also test each of the 12 blocks functionality by grounding the return path signal (V1~V4) through a 220Ω, providing the 63V LED Power is present. See "LED Single Block Test" instructions below

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



Pin	Label	TP	Run	Diode
1	LED+	C256+	63V	OL
2	n/c	n/a	n/c	OL
3	VC-1A	EL62	*1.59V~18V	OL
4	VC-1B	EL63	*1.59V~18V	OL
5	VC-1C	EL64	*1.59V~18V	OL
6	VC-1D	EL65	*1.59V~18V	OL
7	n/c	n/a	n/c	OL
8	VC-2A	EL66	*1.59V~18V	OL
9	VC-2B	EL67	*1.59V~18V	OL
10	VC-2C	EL68	*1.59V~18V	OL
11	VC-2D	EL69	*1.59V~18V	OL
12	n/c	n/a	n/c	OL
13	LED+	C256+	63V	OL

<u>)</u>

7)(8)

24V 3 4 24V

A 56

p/n: EBR72671301

Front IR/Kev

Off On 20V p/p 2mSec Any drive signal VC1 through VC4 A~D

V-SYNC Pin 1 P832

3.5V p/p

SMPS TEST 1: Force Power Supply On. SMPS TEST 2 Disconnect P502 on Main board. P201 (A) Jump pins 9, 10, 11 or 12 (3.5V) to pin 1 23 24 Test Voltage Outputs 12V 24V to Main and 12V (1) (2) 63V to the LED Backlights. Remove AC power 12V (19 20) Leave the jumper in place. DRV-O 12V 17 18+ No Backlights, 63V to Backlights reads 56V STBY 3.5V (5) (6) 9,10,11,12

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 be 65V

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.

LED SINGLE BLOCK TEST DIM OR DARK PICTURE: Confirm the 63V to the LED Backlights is present. Turn the Brightness, Contrast and Backlights all the way up Confirm P-DIM is 3.3V. Using a 2200 resistor, jump any of the blocks grounding lug (VC_1~4_A~D) while observing the picture and each block should turn on maximum





Ft. IR/Intelligent Sensor And Soft Touch Key Board

op pins on

SMPS TEST 1

P201

23 24

12V (1) (2)

12V (19 20)

12V (7) (8)

► **(1)** (

91

78

241 3 4 241

A 56

PWR ON 12 24V

STBY 3.5V (5) (6)

9,10,11,12 34

*White to Black screen

Top pins on connector

p/n: EAJ61928201 (AUSYLJR/UR)

55LW5600 MAIN (FRONT SIDE) SIMICONDUCTORS



I	С
2	A1

С	3.45V
A2	3.5V
	5V Routing to
Pin	IC802 RGB ED
A1	4.73V
С	5.01V
A 0	0.07)/

55LW5600 Main Board Components on in (Stand_By 3.5V) and with (24V)



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55LW5600 Main Board Components on with (12V) and Other Voltage Distributions



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55LW5600 Conclusion Page Direct View LCD



3D

This concludes the 55LW56000 training session.



07/13/2011 Updates

Added Voltage Distribution pages to the end of the training manual.

Updates 07/27/2011

- 1. Page 55: The bottom IC is the FRC IC.
- 2. Updated page 55 and 77 with information about the Main board pins P3503 are reversed on P832 on the SMPS. Added Local Dimming Waveforms to pages 64 and 77.
- 3. Moved the Speaker Connector P1702 to page 76 (from page 77) to free up room for the waveforms on page 77.
- 4. Page 94 cleaned up the Table related to Resistance and Voltages for the Soft Touch Key Board.

08/03/2011 Updates

Added pages 26 and 27 referencing Power Off Status

