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LED TV

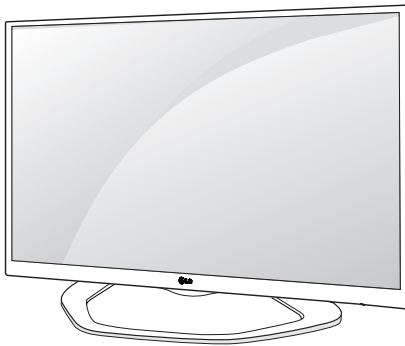
SERVICE MANUAL

CHASSIS : LD33B

MODEL : 50LA62** 50LA62**-Z*

CAUTION

BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



CONTENTS

CONTENTS	2
SAFETY PRECAUTIONS	3
SERVICING PRECAUTIONS.....	4
SPECIFICATION	6
ADJUSTMENT INSTRUCTION	14
BLOCK DIAGRAM	21
EXPLODED VIEW	22
SCHEMATIC CIRCUIT DIAGRAM	

SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by $\triangle$ in the Schematic Diagram and Exploded View.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1 W), keep the resistor 10 mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 M Ω and 5.2 M Ω .

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

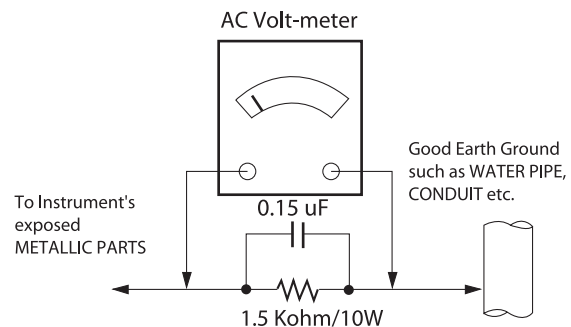
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 μ F capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which corresponds to 0.5 mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 Ω

*Base on Adjustment standard

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This specification is applied to the LED TV used LD33B chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

- 1) Temperature: 25 °C ± 5 °C(77 °F ± 9 °F), CST: 40 °C ± 5 °C
- 2) Relative Humidity: 65 % ± 10 %
- 3) Power Voltage
 - : Standard input voltage (AC 100-240 V~, 50/60 Hz)
 - * Standard Voltage of each products is marked by models.
- 4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
- 5) The receiver must be operated for about 20 minutes prior to the adjustment.

3. Test method

- 1) Performance: LGE TV test method followed
- 2) Demanded other specification
 - Safety : CE, IEC specification
 - EMC : CE, IEC

4. Model General Specification

No.	Item	Specification	Remarks
1	Market	EU(PAL Market-37Countries)	DTV & Analog (Total 37 countries) DTV (MPEG2/4, DVB-T) : 29 countries Germany, Netherland, Switzerland, Hungary, Austria, Slovenia, Bulgaria, France, Spain, Italy, Belgium, Luxemburg, Greece, Czech, Croatia, Turkey, Morocco, Ireland, Latvia, Estonia, Lithuania, Poland, Portugal, Romania, Albania, Bosnia, Serbia, Slovakia, Beralus DTV (MPEG2/4, DVB-T2): 8 countries UK(Ireland), Sweden, Denmark, Finland, Norway, Ukraine, Kazakhstan, Russia DTV (MPEG2/4, DVB-C): 37 countries Germany, Netherland, Switzerland, Hungary, Austria, Slovenia, Bulgaria, France, Spain, Italy, Belgium, Russia, Luxemburg, Greece, Czech, Croatia, Turkey, Morocco, Ireland, Latvia, Estonia, Lithuania, Poland, Portugal, Romania, Albania, Bosnia, Serbia, Slovakia, Beralus, UK, Sweden, Denmark, Finland, Norway, Ukraine, Kazakhstan DTV (MPEG2/4,DVB-S): 30 countries Germany, Netherland, Switzerland, Hungary, Austria, Slovenia, Bulgaria, France, Spain, Italy, Belgium, Russia, Luxemburg, Greece, Czech, Croatia, Turkey, Morocco, Ireland, Latvia, Estonia, Lithuania, Poland, Portugal, Romania, Albania, Bosnia, Serbia, Slovakia, Beralus Supported satellite : 22 satellites HISPASAT 1C/1D, ATLANTIC BIRD 2, NILESAT 101/102, ATLANTIC BIRD 3, AMOS 2/3, THOR 5/6, IRIUS 4, EUTELSAT-W3A, EUROBIRD 9A, EUTELSAT-W2A, HOTBIRD 6/8/9, EUTELSAT-SESAT, ASTRA 1L/H/M/KR, ASTRA 3A/3B, BADR 4/6, ASTRA 2D, EUROBIRD 3, EUTELSAT-W7, HELLASAT 2, EXPRESS AM1, TURK-SAT 2A/3A, INTERSAT10

No.	Item	Specification	Remarks
2	Broadcasting system	1) PAL-BG 2) PAL-DK 3) PAL-I/I' 4) SECAM-L/L', DK, BG, I 5) DVB-T 6) DVB-C 7) DVB-T2 8) DVB-S/S2	Model : *L*V*-Z* (T2 only Model) DVB-S: Satellite
3	Program coverage	1) Digital TV - VHF, UHF - C-Band, Ku-Band 2) Analogue TV - VHF : E2 to E12 - UHF : E21 to E69 - CATV : S1 to S20 - HYPER : S21 to S47	
4	Receiving system	Analog : Upper Heterodyne Digital : COFDM, QAM	► DVB-T - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32 - Modulation : Code Rate QPSK : 1/2, 2/3, 3/4, 5/6, 7/8 16-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 64-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 ► DVB-T2 (Model : *L*V*-Z* (T2 only Model)) - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32, 1/128, 19/128, 19/256, - Modulation : Code Rate QPSK : 1/2, 2/5, 2/3, 3/4, 5/6 16-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 64-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 256-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 ► DVB-C - Symbolrate : 4.0Msymbols/s to 7.2Msymbols/s - Modulation : 16QAM, 64-QAM, 128-QAM and 256-QAM ► DVB-S/S2 - symbolrate DVB-S2 (8PSK / QPSK) : 2 ~ 45Msymbol/s DVB-S (QPSK) : 2 ~ 45Msymbol/s - viterbi DVB-S mode : 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2 mode : 1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10
5	Scart (1EA)	PAL, SECAM	Scart 1 Jack is Full scart and support ATV/DTV-OUT (not support DTV Auto AV)
6	Video Input RCA(1EA)	PAL, SECAM, NTSC	4 System : PAL, SECAM, NTSC, PAL60 Common port
7	Head phone out	Antenna, AV1, AV2, Component, HDMI1, HDMI2, HDMI3, USB1, USB2, USB3	
8	Component Input (1EA)	Y/Cb/Cr Y/Pb/Pr	Hybrid Type
9	HDMI Input (3EA)	HDMI1-DTV HDMI2-DTV HDMI3-DTV	HDMI1: PC support(HDMI version 1.3) Support HDCP
10	Audio Input (3EA)	DVI Audio Component/AV2 AV1	L/R Input.
11	SDPIF out (1EA)	SPDIF out	
12	USB (1EA)	EMF, DivX HD, For SVC (download)	JPEG, MP3, DivX HD
13	Ethernet Connect(1EA)	Ethernet Connect	

5. Component Video Input (Y, PB, PR)

No.	Resolution	H-freq(kHz)	V-freq(Hz)	Pixel clock
1.	720×480	15.73	60.00	SDTV, DVD 480i
2.	720×480	15.63	59.94	SDTV, DVD 480i
3.	720×480	31.47	59.94	480p
4.	720×480	31.50	60.00	480p
5.	720×576	15.625	50.00	SDTV 576i
6.	720×576	31.25	50.00	SDTV 576p
7.	1280×720	45.00	50.00	HDTV 720p
8.	1280×720	44.96	59.94	HDTV 720p
9.	1280×720	45.00	60.00	HDTV 720p
10.	1920×1080	31.25	50.00	HDTV 1080i
11.	1920×1080	33.75	60.00	HDTV 1080i
12.	1920×1080	33.72	59.94	HDTV 1080i
13.	1920×1080	56.250	50	HDTV 1080p
14.	1920×1080	67.5	60	HDTV 1080p

6. HDMI Input

6.1. DTV mode

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)
1.	640*480	31.469 / 31.5	59.94/60	SDTV 480P
2.	720*480	31.469 / 31.5	59.94 / 60	SDTV 480P
3.	720*576	31.25	50	SDTV 576P
4.	720*576	15.625	50	SDTV 576I
5.	1280*720	37.500	50	HDTV 720P
6.	1280*720	44.96 / 45	59.94 / 60	HDTV 720P
7.	1920*1080	33.72 / 33.75	59.94 / 60	HDTV 1080I
8.	1920*1080	28.125	50.00	HDTV 1080I
9.	1920*1080	26.97 / 27	23.97 / 24	HDTV 1080P
10.	1920*1080		25	HDTV 1080P
11.	1920*1080	33.716 / 33.75	29.976 / 30.00	HDTV 1080P
12.	1920*1080	56.250	50	HDTV 1080P
13.	1920*1080	67.43 / 67.5	59.94 / 60	HDTV 1080P

6.2. PC mode

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)
1	640 x 350 @70Hz	31.468	70.09	EGA
2	720 x 400 @70Hz	31.469	70.08	DOS
3	640 x 480 @60Hz	31.469	59.94	VESA(VGA)
4	800 x 600 @60Hz	37.879	60.31	VESA(SVGA)
5	1024 x 768 @60Hz	48.363	60.00	VESA(XGA)
6	1152 x 864 @60Hz	54.348	60.053	VESA
7	1280 x 1024 @60Hz	63.981	60.020	VESA(SXGA)
8	1360 x 768 @60Hz	47.712	60.015	VESA(WXGA)
9	1920 x 1080 @60Hz	67.5	60.00	WUXGA(Reduced Blanking)
10.	1920*1080		25	HDTV 1080P
11.	1920*1080	33.716 / 33.75	29.976 / 30.00	HDTV 1080P
12.	1920*1080	56.250	50	HDTV 1080P
13.	1920*1080	67.43 / 67.5	59.94 / 60	HDTV 1080P

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7.2. HDMI Input(1.3)

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1280*720	45.00	60.00	74.25	HDTV 720P	2D to 3D, Side by Side(half), Top & Bottom, Single Frame Sequential
2	1280*720	37.500	50	74.25	HDTV 720P	
3	1920*1080	33.75	60.00	74.25	HDTV 1080I	2D to 3D, Side by Side(half), Top & Bottom
4	1920*1080	28.125	50.00	74.25	HDTV 1080I	
5	1920*1080	27.00	24.00	74.25	HDTV 1080P	2D to 3D, Side by Side(Half), Top & Bottom, Checker Board
6	1920*1080	28.12	25	74.25	HDTV 1080P	
7	1920*1080	33.75	30.00	74.25	HDTV 1080P	
8	1920*1080	67.50	60.00	148.5	HDTV 1080P	2D to 3D, Side by Side(half), Top & Bottom, Checkerboard, Single Frame Sequential, Row Interleaving, Column Interleaving
9	1920*1080	56.25	50	148.5	HDTV 1080P	

7.3. RF Input(3D supported mode manually)

No.	Resolution	Proposed	3D input proposed mode
1	HD	1080I 720P	2D to 3D Side by Side(Half) Top & Bottom
2	SD	576P 576I	2D to 3D

7.4. RF Input (3D supported mode automatically)

No.	Signal	3D input proposed mode
1	Frame Compatible	Side by Side(Half), Top & Bottom

7.5. USB Input (3D supported mode manually)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1920*1080	33.75	30	74.25	HDTV 1080P	2D to 3D, Side by Side(Half)* , Top & Bottom* , Checkerboard* , Row Interleaving, Column Interleaving (Photo : side by Side(half), Top & Bottom)
	Others	-	-	-	640*350 720*400 640*480 800*600 1152*864 1280*1024	2D to 3D

(“*” 3D supported mode manually & automatically)

