

Service Manual

LCD TV For LT37HVS

Doc. No. :

Version : 1.0

Total Pages : 39

Approvals		
Job Function	Signature	Date
CPO		
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1. Introduction

1.1 Preface

This service manual aims directly at the module of LCD TV. It offers the simple repair which emphasizes on technique explanation and production troubles to remove for the engineers and technicians who have electronic background.

1.2 Caution

Be sure to read those manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Digimedia LCD TV. Be sure to read cautionary items described in the manual to maintain safety before servicing.

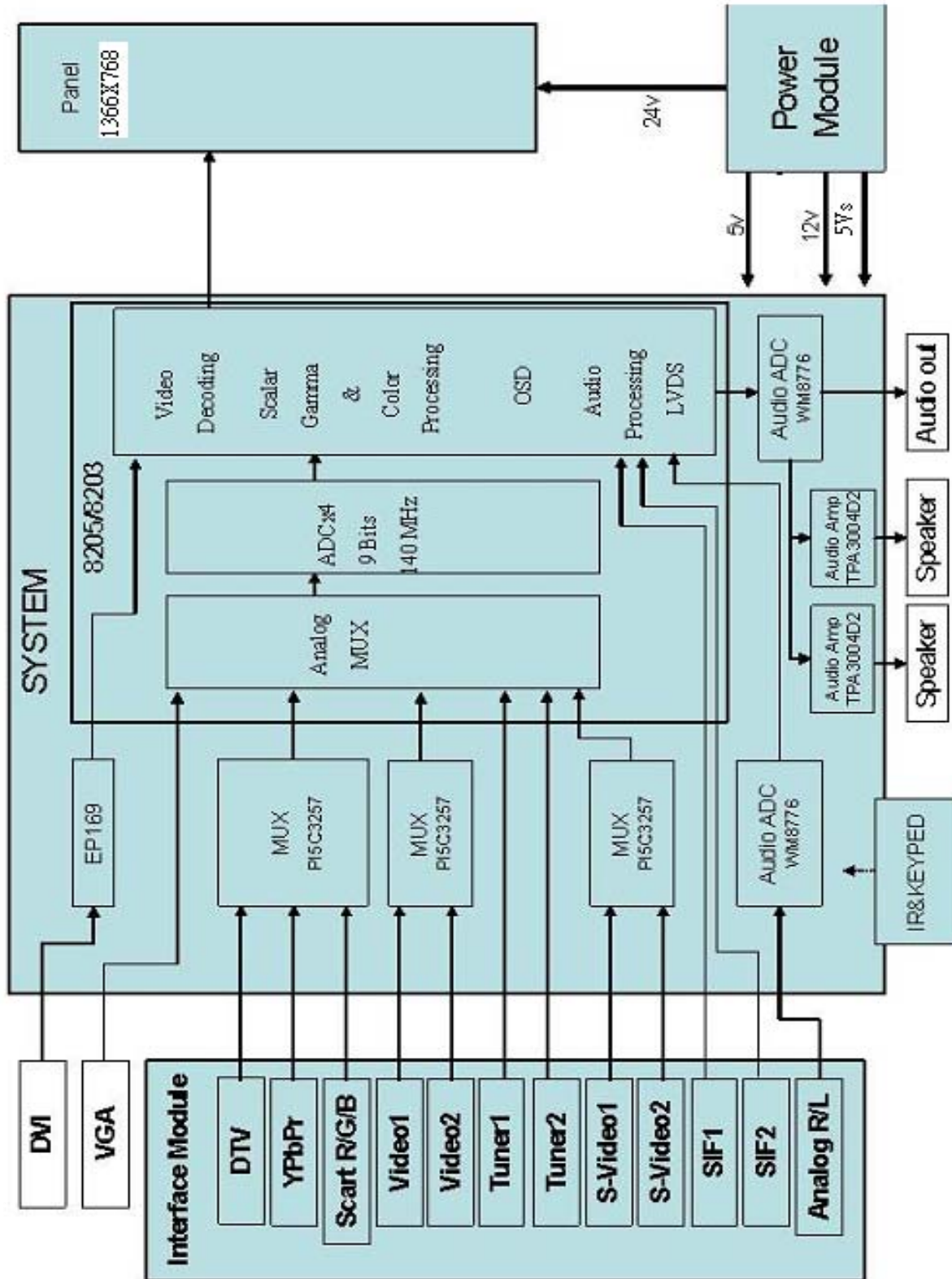
1.3 Warning

1. Remember to unplug the AC cord from the AC outlet before cleaning the product. And do not use liquid cleaners or aerosol cleaners to clean the display.
2. Do not place the product on an unstable place. It can cause the product to fall, resulting in serious personal injuries as well as damage to the product.
3. In case the product needs replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. Use of unauthorized parts can result in fire, electric shock and/or other danger.
4. Do not overload AC outlets or extension cords. It can cause fire or electric shock.
5. The AC cords must be routed properly to prevent people from stepping on them or objects from resting on them. Check the cords at the plugs and product.
6. Do not hit the panel. Be careful to prevent from getting hurt by broken glass pieces in case the panel breaks.
7. Keep the product away from heat sources such as radiators, heaters, stoves and other heat-generating products.
8. Do not place the display near water. Like bathtub, washbasin, kitchen sink and laundry tub, swimming pool and in a wet basement.

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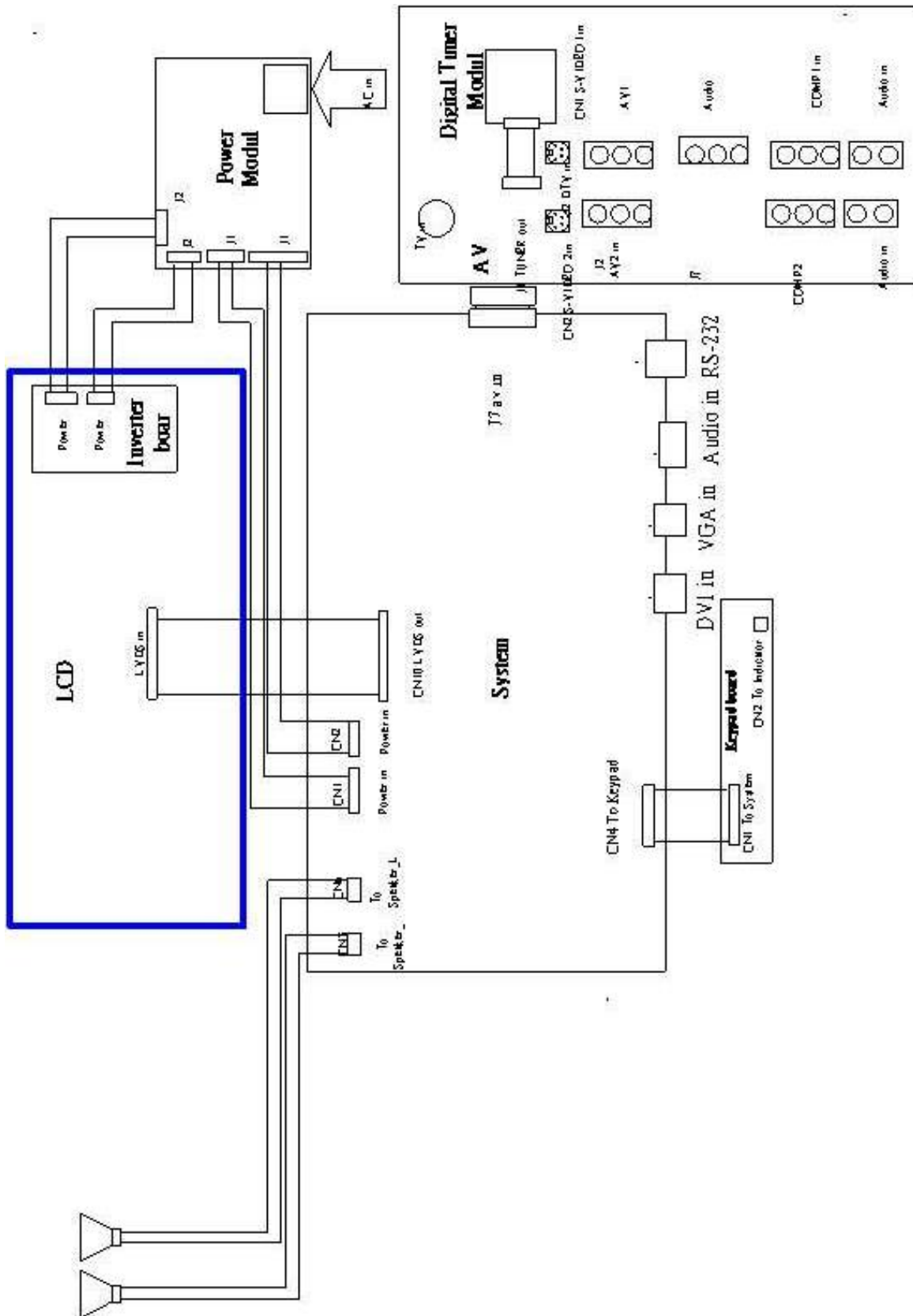
2. System Block Diagram

2.1 System block diagram



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2.2 Connector Connection Diagram



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2.3 Connector Pin Definition

SYSTEM BOARD

Function: VGA Signal In port

Connector type :D-Sub

Specification: CNNT-HD D Sub-H-F-3Row-15pin-Dip-BLU

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	VGAR	I	75 ohm termination, 0.7Vp-p red sig
2	VGAG	I	75 ohm termination, 0.7Vp-p green s
3	VGAB	I	75 ohm termination, 0.7Vp-p blue si
4	GND	-	GND -
5	NC	-	No connection
6	GND	-	GND
7	GND	-	GND
8	GND	-	GND
9	VGA5V	I	VCC 5V IN
10	GND	-	GND
11	GND	-	-
12	VGASDA	I/O	I2C data bus for Reading DDC dat
13	VGA_HS	I	Horizontal Sync.
14	VGA_VS	I	Vertical Sync.
15	VGASCL	I	I2C clock bus for Reading DDC da

Function: DVI/HDMI signal port

Connector type :HDMI

Specification: HDMI/CRE-HM-19F4-01 CNNT HDMI Cnnt Right Angle M 2Row 19pin SMD

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	RX2p	I	TMDS LVDS input signal
2	GND	I	GND
3	RX2m	I	TMDS LVDS input signal
4	RX1p	I	TMDS LVDS input signal
5	GND	-	GND
6	RX1m	I	TMDS LVDS input signal
7	RX0p	I	TMDS LVDS input signal
8	GND	-	GND

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9	RX0m	I	TMDS LVDS input signal
10	RXCp	I	TMDS LVDS input signal
11	GND	-	GND
12	RXCm	I	TMDS LVDS input signal
13	NC	-	No connection
14	NC	-	No connection
15	DDC_CLK	I/O	I2C clock bus for Reading DDC data
16	DDC_DATA	I/O	I2C data bus for Reading DDC data
17	GND	-	TMDS LVDS input signal
18	GDC5V	I	VCC5
19	HPD	I	HOT PLUG DETECT

Function: PC Audio In

Connector type: RCA

Specification: CNNT-RCA white / red -F DIP RIGHT ANGLE 8.3 ϕ -4PIN

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	GND	-	GND
2	AUD_R	I	Audio In_R
3	GND	-	GND
4	AUD_L	I	Audio In_L

Function: RS-232 port

Connector type: Mini Din

Specification: CNNT-Mini Din-H-F-8pin-12 ϕ -Dip

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	NC	-	No connection
2	FlsahDL#	I	Cable Plug In Detect
3	GND	-	GND
4	NC	-	No connection
5	NC	-	No connection
6	P_DGNS#	-	Download Function Control
7	PC_TXD	O	RS-232 Data Transmit
8	PC_RXD	I	RS-232 Data Receive
9	GND	-	GND

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10	GND	-	GND
11	GND	-	GND

Function: Keypad In

Connector type: M15-I20001

Specification: CNNT M 15PIN pitch 2.0mm DIP Straight WST(blue)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	NC	-	NC
2	LED_B1	O	Signal for Indicator LED
3	LED_B1	O	Signal for Indicator LED
4	LED_B1	O	Signal for Indicator LED
5	GND	-	GND
6	IRD	I	IR Data In
7	GND	-	GND
8	KEY_Y3	I	Signal sent from Keypad to System 3
9	KEY_Y2	I	Signal sent from Keypad to System 2
10	KEY_Y1	I	Signal sent from Keypad to System 1
11	KEY_X3	O	Signal sent from System to Keypad 3
12	KEY_X2	O	Signal sent from System to Keypad 2
13	KEY_X1	O	Signal sent from System to Keypad 1
14	GND	-	GND
15	V5_IR	O	5V POWER Out

Function: TUNER IN /AV IN

Connector type: BOARD TO BOARD

Specification: 2-557100-1 CNNT-Dip Right Angle-M - 80PIN-1.27mm-0.5A(Board to Board)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	CHKTNR1	I	CHECK AV Board In
2	V5_TUNER	O	POWER OUT_5V
3	V5_TUNER	O	POWER OUT_5V
4	GND	-	GND
5	GND	-	GND
6	NC	-	No connection
7	NC	-	No connection

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8	NC	-	No connection
9	NC	-	No connection
10	GND	-	GND
11	HD_PR	I	HD_PR In
12	HD_PB	I	HD_PB In
13	HD_Y	I	HD_Y In
14	SV_SEL1	O	S_Video_SEL
15	GND	-	GND
16	ALO_SC2	O	Scart2 AUDIO_L CH out
17	ARO_SC2	O	Scart2 AUDIO_R CH out
18	ALO_SC1	O	Scart1 AUDIO_L CH out
19	ARO_SC1	O	Scart1 AUDIO_R CH out
20	GND	-	GND
21	YCBCR_L	O	YCBCR AUDIO_L CH out
22	YCBCR_R	O	YCBCR AUDIO_R CH out
23	HDTV_L	O	HDTV_L AUDIO_L CH out
24	HDTV_R	O	HDTV_L AUDIO_R CH out
25	GND	-	GND
26	SIF1_IN	I	SIF format_IN1
27	SIF2_IN	I	SIF format_IN2
28	GND	-	GND
29	IF_TU2CVBS	I	Tuner2 CVBS IN
30	IF_TU1CVBS	I	Tuner1 CVBS IN
31	GND	-	GND
32	V12_SYS2	O	+12V OUT
33	NC	-	No connection
34	NC	-	No connection
35	V12_SYS2	O	+12V OUT
36	PC2DTV_TX	I	PC TO DTV_TX IN
37	PC2DTV_RX	I	PC TO DTV_RX IN
38	S2DTV_TX	I	SYS TO DTV_TX IN
39	S2DTV_RX	I	SYS TO DTV_RX IN
40	RESETn	I	RESET
41	GND	-	GND
42	CVBS_SC1	I	CVBS1 IN
43	IF_YCVBS	I	S-VIDEO1_Y In

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44	IF_C	I	S-VIDEO1_C In
45	GND	-	GND
46	OCVBS_SC2	O	Scart2 cvbs out
47	IF_CR	I	YCBCR_CR IN
48	IF_CB	I	YCBCR_CB IN
49	IF_Y	I	YCBCR_Y IN
50	GND	-	GND
51	DTV_PR	I	DTV_ Pr In
52	DTV_PB	I	DTV_ Pb In
53	DTV_Y	I	DTV_ Y In
54	TPA_MODE	I	CHECK EARPHONE CONNECT In
55	EPOUT_L	O	Audio EARPHONE L CH OUT
56	EPOUT_R	O	Audio EARPHONE R CH OUT
57	AMP_WF	O	Audio Sub woofer OUT
58	LINE_L	O	Audio Line L CH out
59	LINE_R	O	Audio Line R CH out
60	GND	-	GND
61	SAL_SC2	I	Audio CVBS2/SV2 L ch in
62	SAR_SC2	I	Audio CVBS2/SV2 R ch in
63	CVBSAL_SC1	I	Audio CVBS1/SV1 L ch in
64	CVBSAR_SC1	I	Audio CVBS1/SV1 R ch in
65	GND	-	GND
66	SCL	O	Software I2C Clk
67	SDA	I/O	Software I2C data
68	HWSDA	I/O	hardwae I2C data
69	HWSCL	O	hardwae I2C clk
70	GND	-	GND
71	CVBS_SC2	I	CVBS2 IN
72	IF_YCVBS2	I	S-VIDEO2_Y In
73	IF_C2	I	S-VIDEO2_C In
74	ADC2	I	A/D conver
75	DTV_L	I	Audio DTV L ch in
76	DTV_R	I	Audio DTV R ch in
77	ADC1	I	A/D conver
78	DTV_SPDIF	I	DTV audio format
79	ADC0	I	A/D conver

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80	DTV_IR	I	DTV_IR pin
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Function: LVDS output port

Connector type: TD01-30R1

Specification: CNNT-LVDS-F SMD STRAIGHT-V-30 PIN-1.25mm

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	NC	-	No connection
2	GND	-	GND
3	NC	-	No connection
4	NC	-	No connection
5	NC	-	No connection
6	GND	-	GND
7	GND	-	GND
8	GND	-	GND
9	TXE3P	O	Positive LVDS differential data output Ch 3
10	TXE3N	O	Negative LVDS differential data output Ch 3
11	TXECKP	O	Positive LVDS differential clock output
12	TXECKN	O	Negative LVDS differential clock output
13	GND	-	GND
14	GND	-	GND
15	TXE2P	O	Positive LVDS differential data output. Ch 2
16	TXE2N	O	Negative LVDS differential data output. Ch 2
17	TXE1P	O	Positive LVDS differential data output. Ch 1
18	TXE1N	O	Negative LVDS differential data output. Ch 1
19	TXE0P	O	Positive LVDS differential data output. Ch 0
20	TXE0N	O	Negative LVDS differential data output. Ch 0
21	GND	-	GND
22	GND	-	GND
23	GND	-	GND
24	GND	-	GND
25	GND	-	GND
26	VCC	-	+5.0V power supply
27	VCC	-	+5.0V power supply
28	VCC	-	+5.0V power supply
29	VCC	-	+5.0V power supply

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30	VCC	-	+5.0V power supply
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Function: Power Input 1

Connector type:M15-I25002

Specification: CNNT M 15PIN pitch 2.5mm DIP straight

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	+V5_SYS	I	DC Power 5V IN
2	+V5	I	DC Power 5V IN
3	+V5	I	DC Power 5V IN
4	+V5	I	DC Power 5V IN
5	+V5	I	DC Power 5V IN
6	GND	-	GND
7	GND	-	GND
8	GND	-	GND
9	GND	-	GND
10	+V5	I	DC Power 5V IN
11	GND	-	GND
12	LCD_INVON	O	Inverter On/Off
13	PWSTBY	O	Standby Mode Power 5V
14	BRI	O	Backlight Brightness Control
15	GND	-	GND

Function: Power Input 2

Connector type:M11-I25002

Specification: CNNT M 11PIN pitch 2.5mm DIP straight

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	+V12	I	DC Power 12V IN
2	+V12	I	DC Power 12V IN
3	+V12	I	DC Power 12V IN
4	GND	-	GND
5	GND	-	GND
6	GND	-	GND
7	+12V	I	DC Power 12V IN
8	GND	-	GND

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9	+12V	I	DC Power 12V IN
10	GND	-	GND
11	GND	-	GND

Function: Audio Out (R Channel)

Connector type:M3-I25002

Specification: CNNT M 3PIN pitch 2.5mm DIP straight (red)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	R_OUTN	O	Negative Audio Out_R
2	NC	-	No connection
3	R_OUTP	O	Positive 0Audio Out_R

Function: Audio Out (L Channel)

Connector type: M3-I25002

Pecification : CNNT M 3PIN pitch 2.5mm DIP straight (white)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	L_OUTN	O	Negative Audio Out_L
2	NC	-	No connection
3	L_OUTP	O	Positive 0Audio Out_L

AV BOARD

Function: TUNER OUT / AV OUT

Connector type: BOARD TO BOARD

Specification: 2-557100-1 CNNT-Dip Right Angle-M - 80PIN-1.27mm-0.5A(Board to Board)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	CHKTNR1	O	CHECK AV Board In
2	V5_TUNER	I	POWER IN_5V
3	V5_TUNER	I	POWER IN_5V
4	GND	-	GND
5	GND	-	GND
6	NC	-	No connection
7	NC	-	No connection

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8	NC	-	No connection
9	NC	-	No connection
10	GND	-	GND
11	HD_PR	O	HD_PR OUT
12	HD_PB	O	HD_PB OUT
13	HD_Y	O	HD_Y OUT
14	SV_SEL1	I	S_Video_SEL
15	GND	-	GND
16	ALO_SC2	I	Scart2 AUDIO_L CH IN
17	ARO_SC2	I	Scart2 AUDIO_R CH IN
18	ALO_SC1	I	Scart1 AUDIO_L CH IN
19	ARO_SC1	I	Scart1 AUDIO_R CH IN
20	GND	-	GND
21	YCBCR_L	I	YCBCR AUDIO_L CH IN
22	YCBCR_R	I	YCBCR AUDIO_R CH IN
23	HDTV_L	I	HDTV_L AUDIO_L CH IN
24	HDTV_R	I	HDTV_L AUDIO_R CH IN
25	GND	-	GND
26	SIF1_OUT	O	SIF format _OUT1
27	SIF2_OUT	O	SIF format _OUT2
28	GND	-	GND
29	IF_TU2CVBS	O	Tuner2 CVBS OUT
30	IF_TU1CVBS	O	Tuner1 CVBS OUT
31	GND	-	GND
32	V12_SYS2	I	+12V IN
33	NC	-	No connection
34	NC	-	No connection
35	V12_SYS2	I	+12V IN
36	PC2DTV_TX	O	PC TO DTV_TX OUT
37	PC2DTV_RX	O	PC TO DTV_RX OUT
38	S2DTV_TX	O	SYS TO DTV_TX OUT
39	S2DTV_RX	O	SYS TO DTV_RX OUT
40	RESETn	O	RESET
41	GND	-	GND
42	CVBS_SC1	O	CVBS1 OUT
43	IF_YCVBS	O	S-VIDEO1_Y OUT

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44	IF_C	O	S-VIDEO1_C OUT
45	GND	-	GND
46	OCVBS_SC2	I	Scart2 cvbs IN
47	IF_CR	O	YCBCR_CR OUT
48	IF_CB	O	YCBCR_CB OUT
49	IF_Y	O	YCBCR_Y OUT
50	GND	-	GND
51	DTV_PR	O	DTV_Pr OUT
52	DTV_PB	O	DTV_Pb OUT
53	DTV_Y	O	DTV_Y OUT
54	TPA_MODE	O	CHECK EARPHONE CONNECT OUT
55	EPOUT_L	I	Audio EARPHONE L CH IN
56	EPOUT_R	I	Audio EARPHONE R CH IN
57	AMP_WF	I	Audio Sub woofer IN
58	LINE_L	I	Audio Line L CH IN
59	LINE_R	I	Audio Line R CH IN
60	GND	-	GND
61	SAL_SC2	O	Audio CVBS2/SV2 L ch OUT
62	SAR_SC2	O	Audio CVBS2/SV2 R ch OUT
63	CVBSAL_SC1	O	Audio CVBS1/SV1 L ch OUT
64	CVBSAR_SC1	O	Audio CVBS1/SV1 R ch OUT
65	GND	-	GND
66	SCL	I	Software I2C Clk
67	SDA	I/O	Software I2C data
68	HWSDA	I/O	hardwae I2C data
69	HWSCL	I	hardwae I2C clk
70	GND	-	GND
71	CVBS_SC2	O	CVBS2 OUT
72	IF_YCVBS2	O	S-VIDEO2_Y OUT
73	IF_C2	O	S-VIDEO2_C OUT
74	ADC2	O	A/D conver
75	DTV_L	O	Audio DTV L ch OUT
76	DTV_R	O	Audio DTV R ch OUT
77	ADC1	O	A/D conver
78	DTV_SPDIF	O	DTV audio format
79	ADC0	O	A/D conver

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80	DTV_IR	O	DTV_IR pin
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Function: S-Video1 1/2 In

Connector type: Mini Din

Specification: CNNT F 12PIN Mini Din DIP Right Angle 12 ψ AMP(2 S-Video)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	GND	-	GND
2	GND	-	GND
3	S1AV_C2	I	S-Video1_C2 In
4	S1AV_Y2	I	S-Video1_Y2 In
5	GND	-	GND
6	GND	-	GND
7	S1AV_C1	I	S-Video1_C1 In
8	S1AV_Y1	I	S-Video1_Y1 In
9	GND	-	GND
10	GND	-	GND
11	GND	-	GND
12	GND	-	GND
13	GND	-	GND

Function: CVBS 1/2 and CVBS 1/2 AUDIO 1/2 In

Connector type: RCA

Specification: CNNT-RCA*6 yellow&white&red / yellow&white&red

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	CVBS1	I	CVBS1 In
2	CVBS1_AR	I	CVBS1 Audio_R In
3	CVBS1_AL	I	CVBS1 Audio_L In
4	CVBS2	I	CVBS2 In
5	CVBS2_AR	I	CVBS2 Audio_R In
6	CVBS2_AL	I	CVBS2 Audio_L In
7	GND	-	GND
8	GND	-	GND
9	GND	-	GND

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Function: Earphone Out

Connector type: PHONE JACK

Specification: CNNT-EAR Phone Jack-H-F-5pin-3.6 ψ -Dip

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	EAR_ROUT	O	EAR Audio_R OUT
2	GND	-	GND
3	TPA_MODE	O	TPA_MODE
4	EAR_LOUT	O	EAR Audio_L OUT
5	GND	-	GND

Function: Audio Output Port (Line Out)

Connector type: RCA

Specification: CNNT-RCA*2 white / red

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	LINE_L	O	Audio Line_L Out
2	LINE_R	O	Audio Line_R Out
3	GND	-	GND

Function: Component 1/2 (YPbPr1/YcbCr1) In

Connector type: RCA

Specification: CNNT-RCA*6 green&blue&red / green&blue&red

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	COM1_Y	I	Component1_Y In
2	COM1_Pb	I	Component1_Pb In
3	COM1_Pr	I	Component1_Pr In
4	COM2_Y	I	Component2_Y In
5	COM2_Cb	I	Component2_Cb In
6	COM2_Cr	I	Component2_Cr In
7	GND	-	GND
8	GND	-	GND
9	GND	-	GND

Function: Component 1/2 Audio 1/2 In

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Connector type: RCA

Specification: CNNT-RCA*4 white&red / white&red

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	COM1_AL	I	Component1 Audio_L In
2	COM1_AR	I	Component1 Audio_R In
3	COM2_AL	I	Component2 Audio_L In
4	COM2_AR	I	Component2 Audio_R In
5	GND	-	GND
6	GND	-	GND

Function: Digital Tuner Out

Connector type:MD32-I20003

Specification: CNNT M 32pin (16x2) pitch 2.0mm DIP straight

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	V5_TUNER	O	POWER OUT_5V
2	+12V	O	POWER OUT_12V
3	V5_TUNER	O	POWER OUT_5V
4	+12V	O	POWER OUT_12V
5	GND	-	GND
6	GND	-	GND
7	S2DTV_TX	I	SYS TO DTV_TX IN
8	RESETn	O	RESET
9	S2DTV_RX	I	SYS TO DTV_RX IN
10	MAIN_DE	I	MAIN_DE pin
11	GND	-	GND
12	GND	-	GND
13	PC2DTV_TX	I	PC TO DTV_TX IN
14	SCL	I	Sofeware I2C Clk
15	PC2DTV_RX	I	PC TO DTV_RX IN
16	SDA	I/O	Sofeware I2C data
17	GND	-	GND
18	GND	-	GND
19	DTV_Y	I	DTV_Y In
20	DTV_SPDIF	I	DTV audio format

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21	GND	-	GND
22	DTV_SPDIF	I	DTV audio format
23	DTV_Pb	I	DTV_Pb In
24	GND	-	GND
25	GND	-	GND
26	DTV_L	I	Audio DTV L ch IN
27	DTV_Pr	I	DTV_Pr In
28	DTV_R	I	Audio DTV R ch IN
29	DTV_DL	I	DTV_DL pin
30	DTV_IR	I	DTV_IR pin
31	DTV_NM	I	DTV_NM pin
32	GND	-	GND

P2S BOARD

Function: TUNER OUT / AV OUT P2S TO SYSTEM BOARD

Connector type: BOARD TO BOARD

Specification: 2-557100-1 CNNT-Dip Right Angle-M - 80PIN-1.27mm-0.5A(Board to Board)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	CHKTNR1	O	CHECK AV Board In
2	V5_TUNER	I	POWER IN_5V
3	V5_TUNER	I	POWER IN_5V
4	GND	-	GND
5	GND	-	GND
6	NC	-	No connection
7	NC	-	No connection
8	NC	-	No connection
9	NC	-	No connection
10	GND	-	GND
11	HD_PR	O	HD_PR OUT
12	HD_PB	O	HD_PB OUT
13	HD_Y	O	HD_Y OUT
14	SV_SEL1	I	S_Video_SEL
15	GND	-	GND
16	ALO_SC2	I	Scart2 AUDIO_L CH IN
17	ARO_SC2	I	Scart2 AUDIO_R CH IN

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18	ALO_SC1	I	Scart1 AUDIO_L CH IN
19	ARO_SC1	I	Scart1 AUDIO_R CH IN
20	GND	-	GND
21	YCBCR_L	I	YCBCR AUDIO_L CH IN
22	YCBCR_R	I	YCBCR AUDIO_R CH IN
23	HDTV_L	I	HDTV_L AUDIO_L CH IN
24	HDTV_R	I	HDTV_L AUDIO_R CH IN
25	GND	-	GND
26	SIF1_OUT	O	SIF format _OUT1
27	SIF2_OUT	O	SIF format _OUT2
28	GND	-	GND
29	IF_TU2CVBS	O	Tuner2 CVBS OUT
30	IF_TU1CVBS	O	Tuner1 CVBS OUT
31	GND	-	GND
32	V12_SYS2	I	+12V IN
33	NC	-	No connection
34	NC	-	No connection
35	V12_SYS2	I	+12V IN
36	PC2DTV_TX	O	PC TO DTV_TX OUT
37	PC2DTV_RX	O	PC TO DTV_RX OUT
38	S2DTV_TX	O	SYS TO DTV_TX OUT
39	S2DTV_RX	O	SYS TO DTV_RX OUT
40	RESETn	O	RESET
41	GND	-	GND
42	CVBS_SC1	O	CVBS1 OUT
43	IF_YCVBS	O	S-VIDEO1_Y OUT
44	IF_C	O	S-VIDEO1_C OUT
45	GND	-	GND
46	OCVBS_SC2	I	Scart2 cvbs IN
47	IF_CR	O	YCBCR_CR OUT
48	IF_CB	O	YCBCR_CB OUT
49	IF_Y	O	YCBCR_Y OUT
50	GND	-	GND
51	DTV_PR	O	DTV_ Pr OUT
52	DTV_PB	O	DTV_ Pb OUT
53	DTV_Y	O	DTV_ Y OUT

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54	TPA_MODE	O	CHECK EARPHONE CONNECT OUT
55	EPOUT_L	I	Audio EARPHONE L CH IN
56	EPOUT_R	I	Audio EARPHONE R CH IN
57	AMP_WF	I	Audio Sub woofer IN
58	LINE_L	I	Audio Line L CH IN
59	LINE_R	I	Audio Line R CH IN
60	GND	-	GND
61	SAL_SC2	O	Audio CVBS2/SV2 L ch OUT
62	SAR_SC2	O	Audio CVBS2/SV2 R ch OUT
63	CVBSAL_SC1	O	Audio CVBS1/SV1 L ch OUT
64	CVBSAR_SC1	O	Audio CVBS1/SV1 R ch OUT
65	GND	-	GND
66	SCL	I	Software I2C Clk
67	SDA	I/O	Software I2C data
68	HWSDA	I/O	hardwae I2C data
69	HWSCl	I	hardwae I2C clk
70	GND	-	GND
71	CVBS_SC2	O	CVBS2 OUT
72	IF_YCVBS2	O	S-VIDEO2_Y OUT
73	IF_C2	O	S-VIDEO2_C OUT
74	ADC2	O	A/D conver
75	DTV_L	O	Audio DTV L ch OUT
76	DTV_R	O	Audio DTV R ch OUT
77	ADC1	O	A/D conver
78	DTV_SPDIF	O	DTV audio format
79	ADC0	O	A/D conver
80	DTV_IR	O	DTV_IR pin

Function: TUNER IN /AV IN TUNER TO P2S BOARD

Connector type: BOARD TO BOARD

Specification: 2-557100-1 CNNT-Dip Right Angle-M - 80PIN-1.27mm-0.5A(Board to Board)

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	CHKTNR1	I	CHECK AV Board In
2	V5_TUNER	O	POWER OUT_5V
3	V5_TUNER	O	POWER OUT_5V

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4	GND	-	GND
5	GND	-	GND
6	NC	-	No connection
7	NC	-	No connection
8	NC	-	No connection
9	NC	-	No connection
10	GND	-	GND
11	HD_PR	I	HD_PR In
12	HD_PB	I	HD_PB In
13	HD_Y	I	HD_Y In
14	SV_SEL1	O	S_Video_SEL
15	GND	-	GND
16	ALO_SC2	O	Scart2 AUDIO_L CH out
17	ARO_SC2	O	Scart2 AUDIO_R CH out
18	ALO_SC1	O	Scart1 AUDIO_L CH out
19	ARO_SC1	O	Scart1 AUDIO_R CH out
20	GND	-	GND
21	YCBCR_L	O	YCBCR AUDIO_L CH out
22	YCBCR_R	O	YCBCR AUDIO_R CH out
23	HDTV_L	O	HDTV_L AUDIO_L CH out
24	HDTV_R	O	HDTV_L AUDIO_R CH out
25	GND	-	GND
26	SIF1_IN	I	SIF format_IN1
27	SIF2_IN	I	SIF format_IN2
28	GND	-	GND
29	IF_TU2CVBS	I	Tuner2 CVBS IN
30	IF_TU1CVBS	I	Tuner1 CVBS IN
31	GND	-	GND
32	V12_SYS2	O	+12V OUT
33	NC	-	No connection
34	NC	-	No connection
35	V12_SYS2	O	+12V OUT
36	PC2DTV_TX	I	PC TO DTV_TX IN
37	PC2DTV_RX	I	PC TO DTV_RX IN
38	S2DTV_TX	I	SYS TO DTV_TX IN
39	S2DTV_RX	I	SYS TO DTV_RX IN

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40	RESETn	I	RESET
41	GND	-	GND
42	CVBS_SC1	I	CVBS1 IN
43	IF_YCVBS	I	S-VIDEO1_Y In
44	IF_C	I	S-VIDEO1_C In
45	GND	-	GND
46	OCVBS_SC2	O	Scart2 cvbs out
47	IF_CR	I	YCBCR_CR IN
48	IF_CB	I	YCBCR_CB IN
49	IF_Y	I	YCBCR_Y IN
50	GND	-	GND
51	DTV_PR	I	DTV_Pr In
52	DTV_PB	I	DTV_Pb In
53	DTV_Y	I	DTV_Y In
54	TPA_MODE	I	CHECK EARPHONE CONNECT In
55	EPOUT_L	O	Audio EARPHONE L CH OUT
56	EPOUT_R	O	Audio EARPHONE R CH OUT
57	AMP_WF	O	Audio Sub woofer OUT
58	LINE_L	O	Audio Line L CH out
59	LINE_R	O	Audio Line R CH out
60	GND	-	GND
61	SAL_SC2	I	Audio CVBS2/SV2 L ch in
62	SAR_SC2	I	Audio CVBS2/SV2 R ch in
63	CVBSAL_SC1	I	Audio CVBS1/SV1 L ch in
64	CVBSAR_SC1	I	Audio CVBS1/SV1 R ch in
65	GND	-	GND
66	SCL	O	Software I2C Clk
67	SDA	I/O	Software I2C data
68	HWSDA	I/O	hardwae I2C data
69	HWSCS	O	hardwae I2C clk
70	GND	-	GND
71	CVBS_SC2	I	CVBS2 IN
72	IF_YCVBS2	I	S-VIDEO2_Y In
73	IF_C2	I	S-VIDEO2_C In
74	ADC2	I	A/D conver
75	DTV_L	I	Audio DTV L ch in

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76	DTV_R	I	Audio DTV R ch in
77	ADC1	I	A/D conver
78	DTV_SPDIF	I	DTV audio format
79	ADC0	I	A/D conver
80	DTV_IR	I	DTV_IR pin

Function: Power Input

Connector type:M5-I25002

Specification: CNNT M 5PIN pitch 2.5mm DIP straight

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	+V18	I	DC Power 18V IN
2	+V18	I	DC Power 18V IN
3	GND	-	GND
4	GND	-	GND
5	NC	-	No connection

Function: Power Output

Connector type:M6-I25002

Specification: CNNT M 6PIN pitch 2.5mm DIP straight

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	+V12	O	DC Power 12V OUT
2	+V12	O	DC Power 12V OUT
3	GND	-	GND
4	GND	-	GND
5	+V18	O	DC Power 18V OUT
6	+V18	O	DC Power 18V OUT

KEYPAD BOARD

Function: Keypad In

Connector type: M15-I20001

Specification: CNNT M 15PIN pitch 2.0mm DIP Straight WST

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	NC	-	NC

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2	LED_B1	I	Signal for Indicator LED
3	LED_B1	I	Signal for Indicator LED
4	LED_B1	I	Signal for Indicator LED
5	GND	-	GND
6	IRD	O	IR Data Out
7	GND	-	GND
8	KEY_Y3	O	Signal sent from Keypad to System 3
9	KEY_Y2	O	Signal sent from Keypad to System 2
10	KEY_Y1	O	Signal sent from Keypad to System 1
11	KEY_X3	I	Signal sent from System to Keypad 3
12	KEY_X2	I	Signal sent from System to Keypad 2
13	KEY_X1	I	Signal sent from System to Keypad 1
14	GND	-	GND
15	V5_IR	I	5V POWER In

Function: Indicator Out

Connector type: M3-I20001

Specification: CNNT M 3PIN pitch 2.0mm DIP Straight WST

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	V5_Indicator	O	5V POWER Out
2	LED_B1	I	Signal for Indicator LED
3	GND	-	GND

INDICATOR BOARD

Function: Signal In

Connector type: M3-I20001

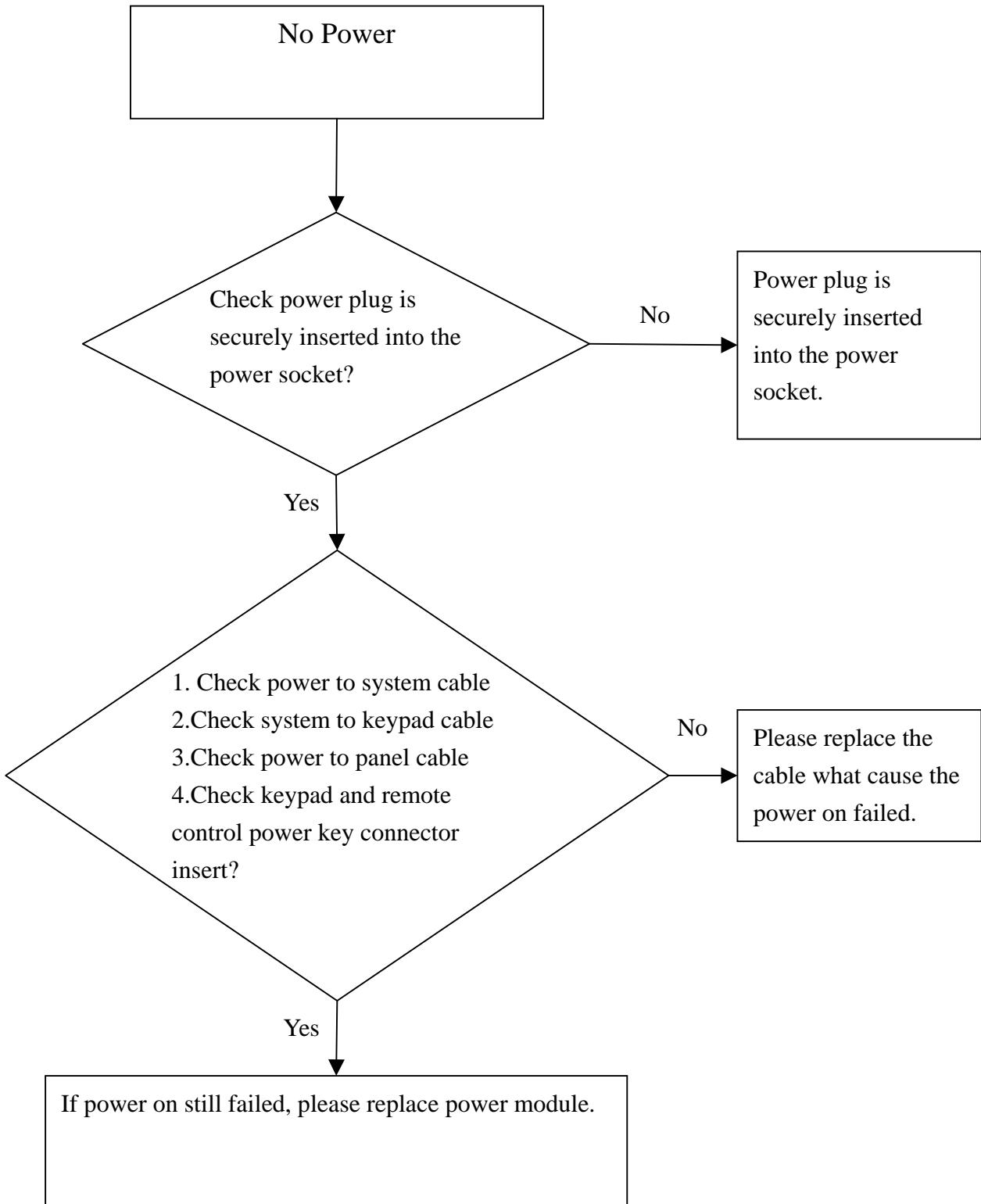
Specification: CNNT M 3PIN pitch 2.0mm DIP straight

Pin Definition			
Pin No.	Pin Name	I/O	Description
1	V5_KEY1	I	5V POWER IN
2	LED	I	Signal for Indicator LED
3	GND	-	GND

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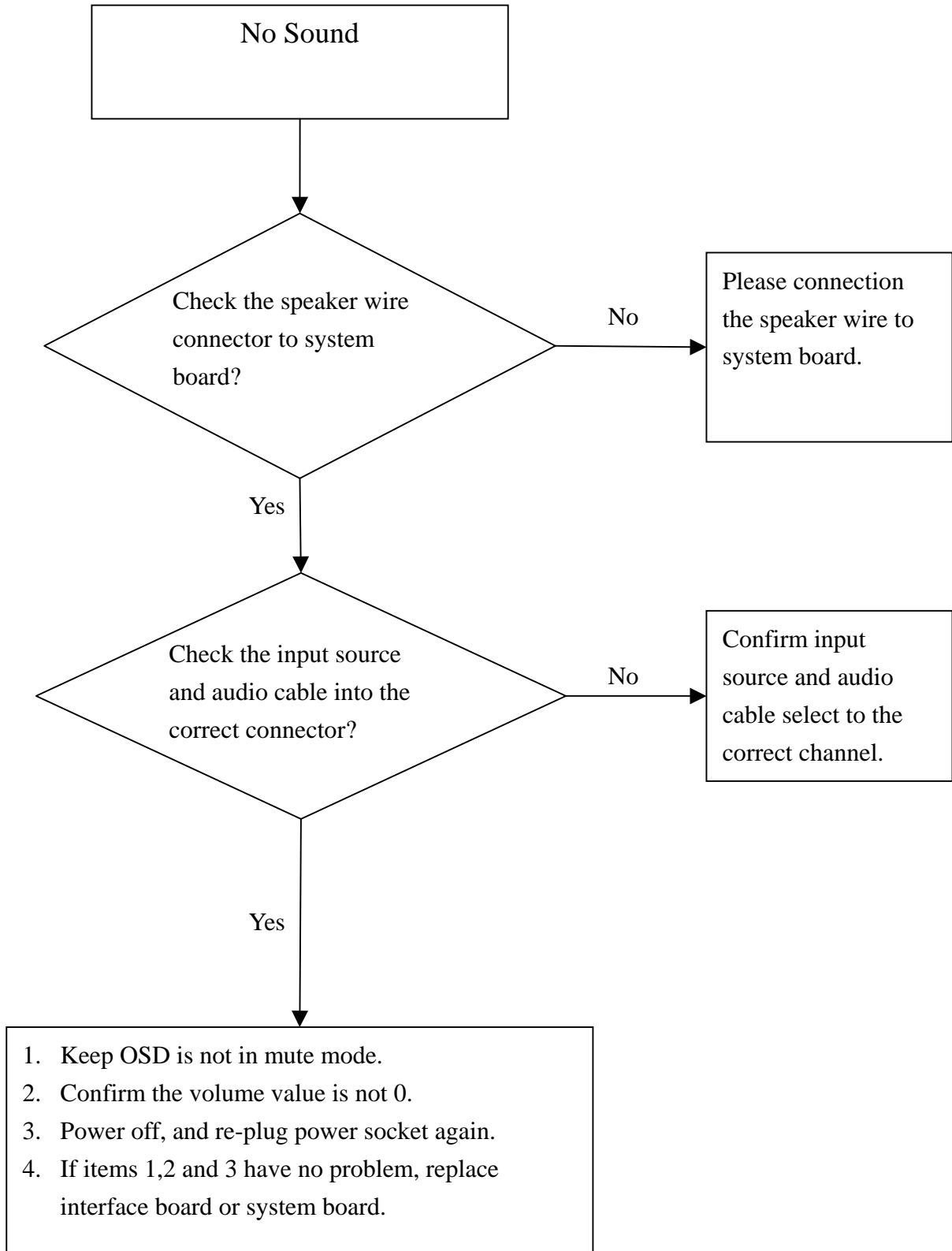
3. Troubleshooting

3.1 No Power



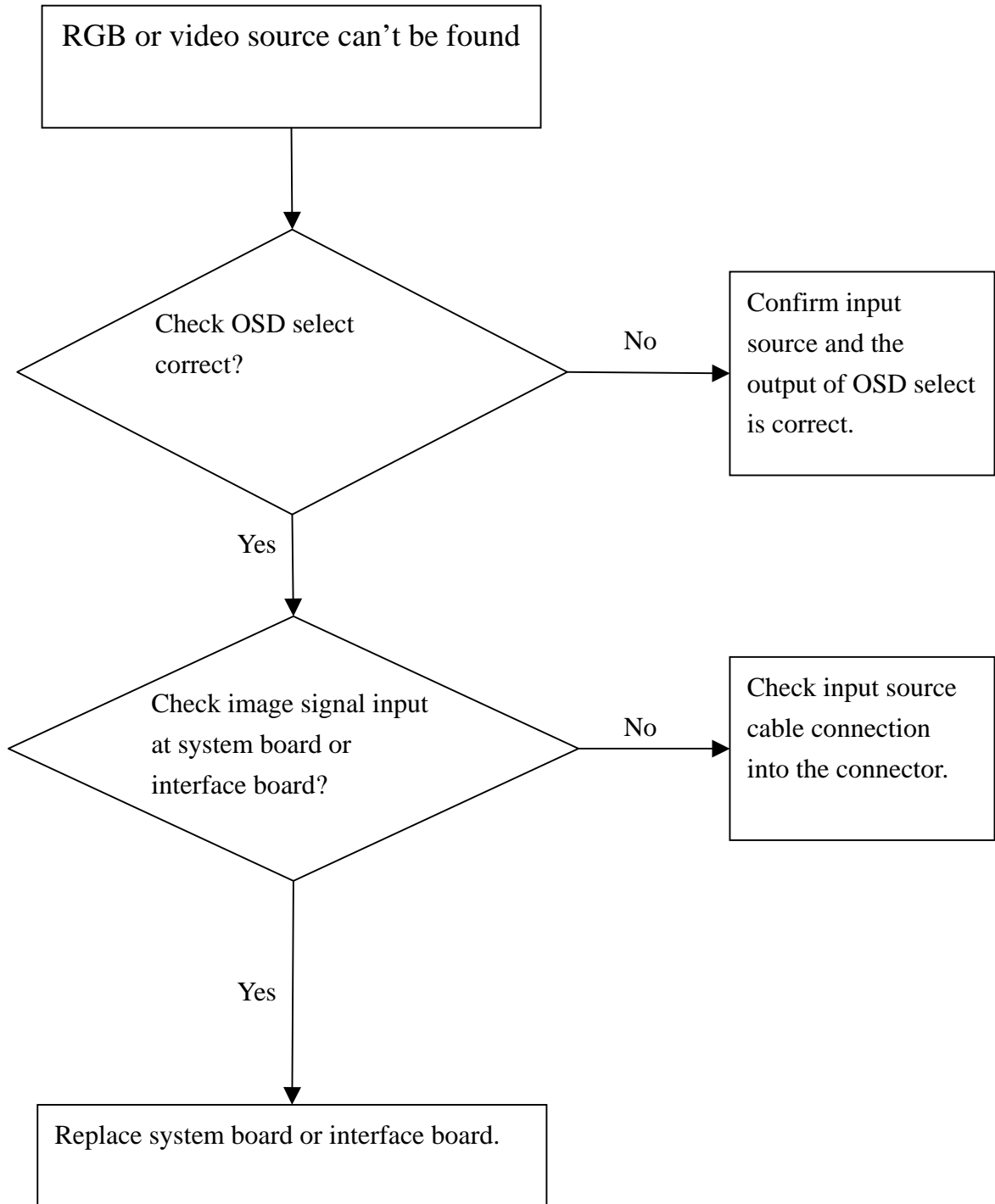
TITLE	Service Manual LCD TV For LT37HVS	Doc No.	
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3.2 No Sound



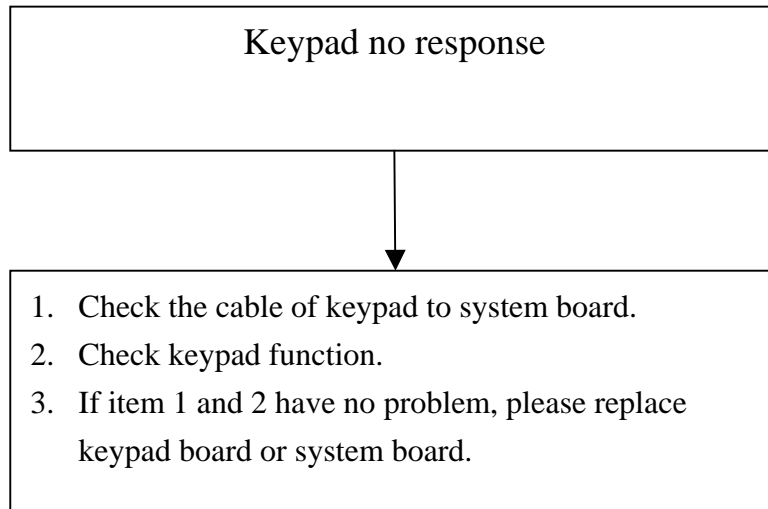
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3.3 No Source Input



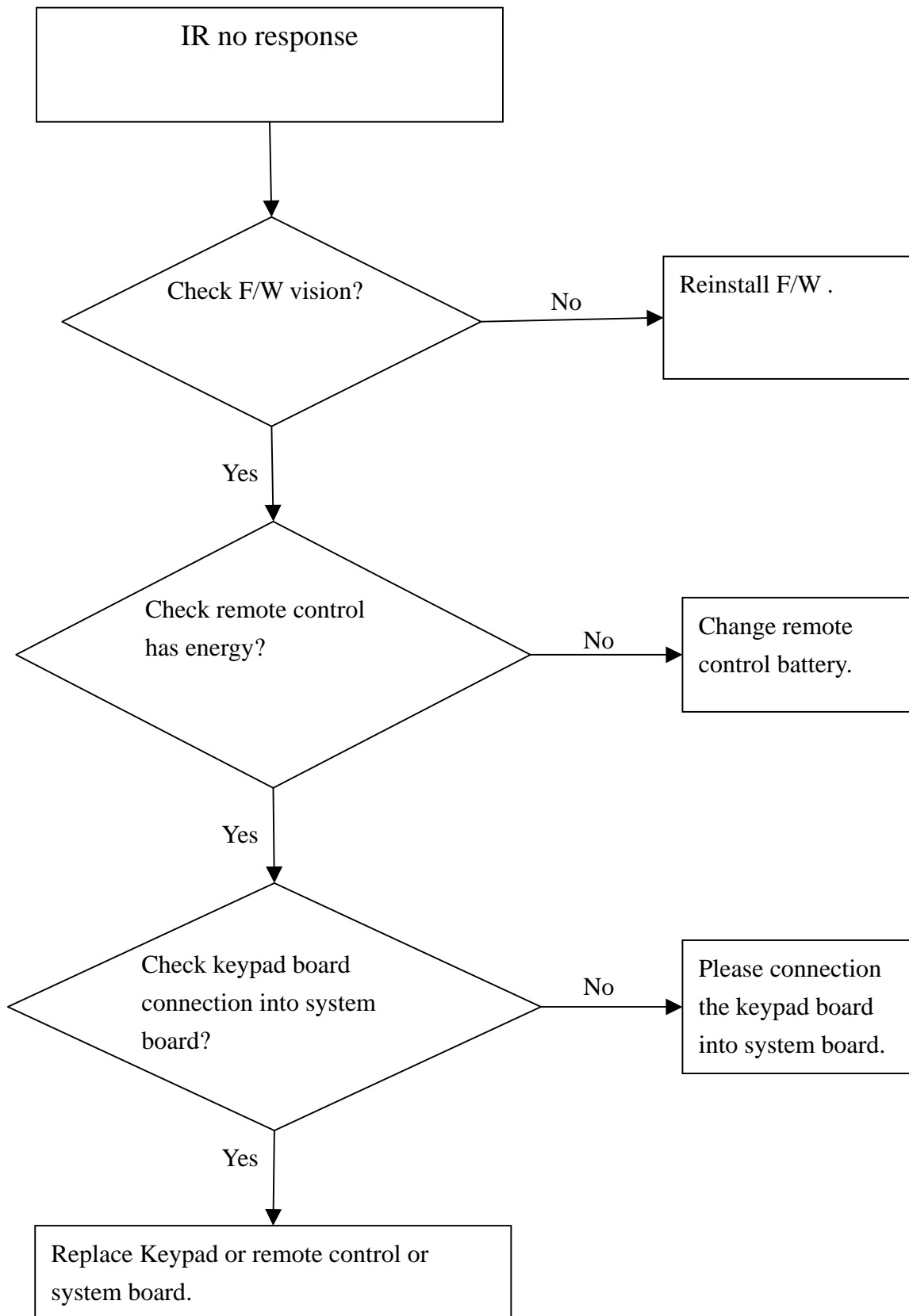
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3.4 Keypad Failed



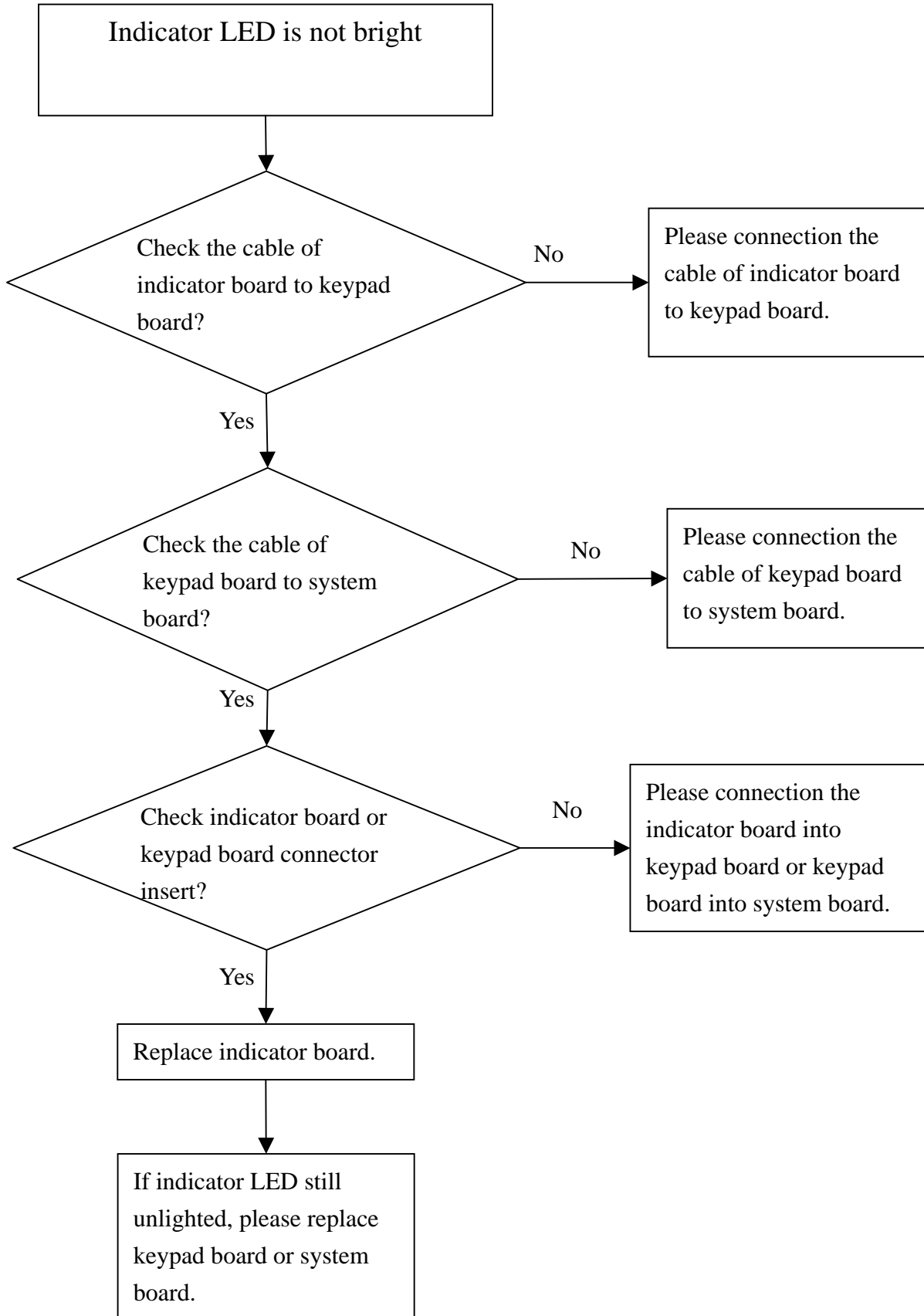
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3.5 IR Failed



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3.6 Indicator LED Failed



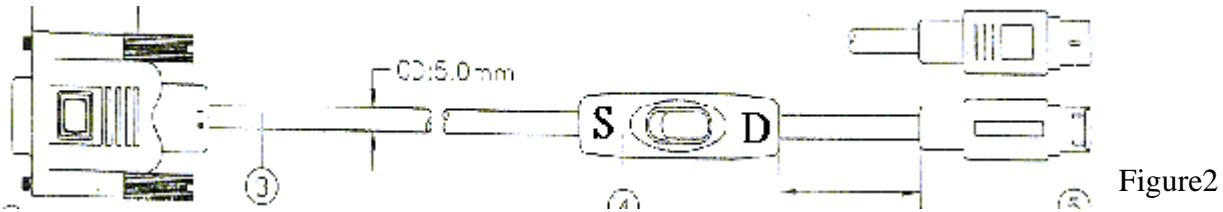
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4. Firmware upgrade applications

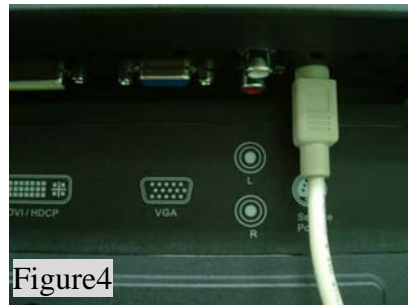
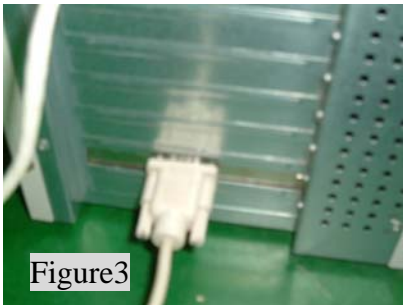
1. Update Firmware tools :
 - 1.PC(Notebook)
 2. transmission line as Figure1
 - 3.Sofeware(MtkTool.exe , COMPR.DLL , MTKDLL.DLL)



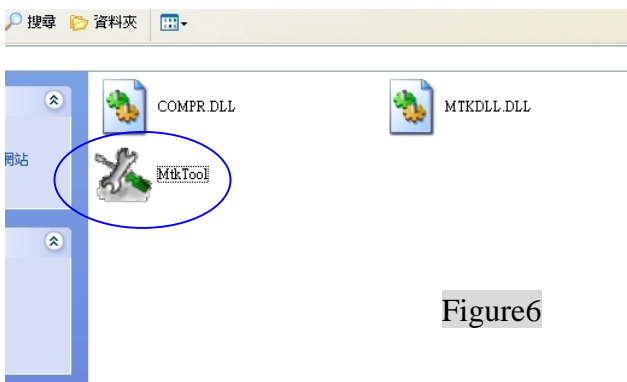
2. **Cable switch:** on **D** side (refer Figure2)



3. Insert the power cord and RS232 cable.
4. Insert RS232 cable in **Mouse** socket or **RS232** socket(refer Figure3) and other side insert to service socket on TV(refer Figure4 and Figure5)



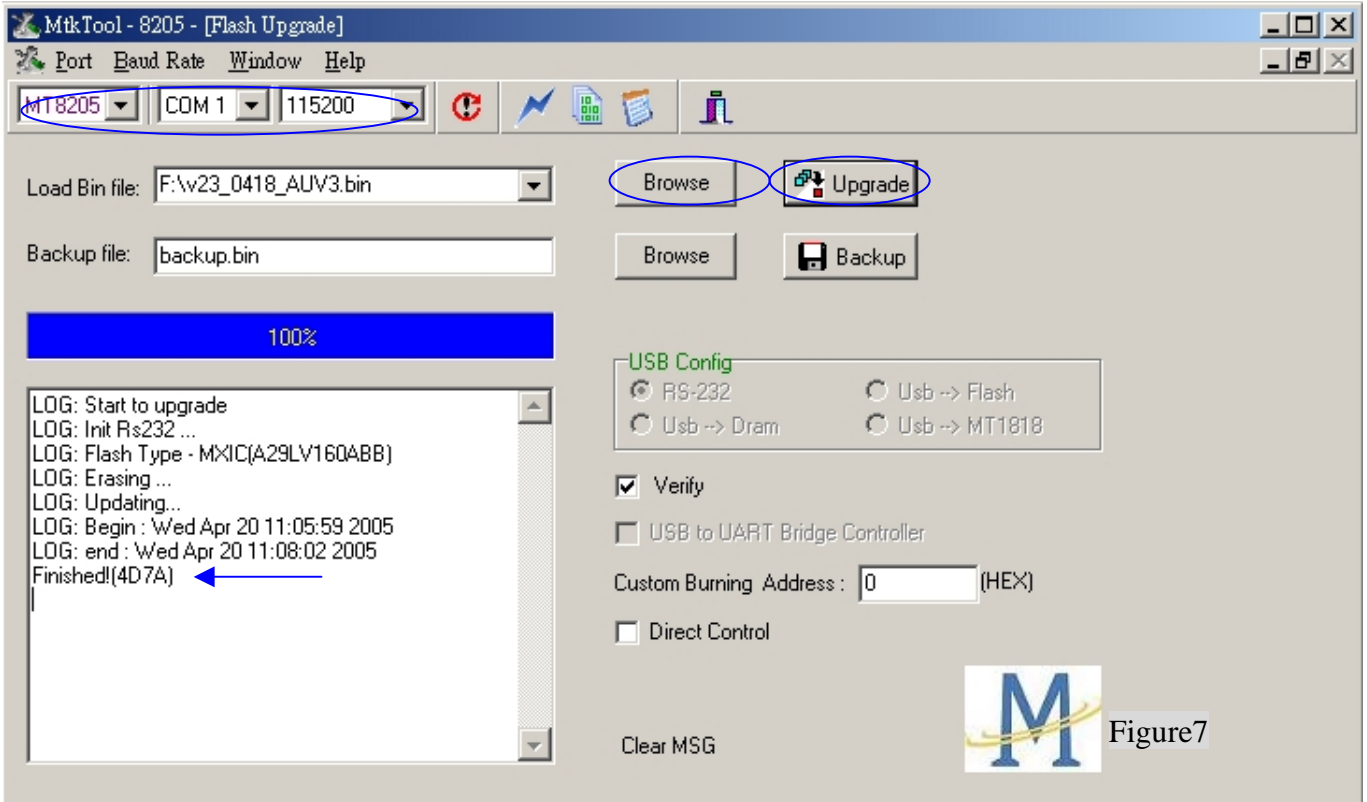
5. There are some files should be in directory. (MtkTool.exe , COMPR.DLL , MTKDLL.DLL)



6. Execute **MtkTool.exe**.(step 6 and step 7 please refer Figure 6)
7. Make sure IC model is MT8205, serial connection is correct(default is COM1) and baud rate is 115200.

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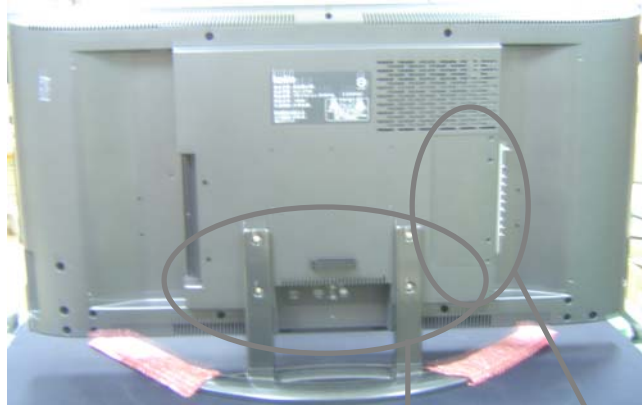
8. Click the Browse of “Load Bin file option” to choose the correct firmware.
9. Click the bottom of Upgrade, System will start upgrade firmware, when it finished the operation, list form has to show the “Finished” as blow arrow (step 8 and step 10 please refer the Figure7)
10. pull out the RS232 cable and AC cord.



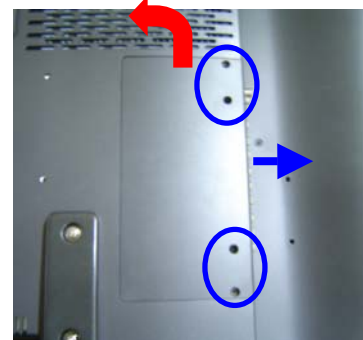
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5. Disaggregate Graphic

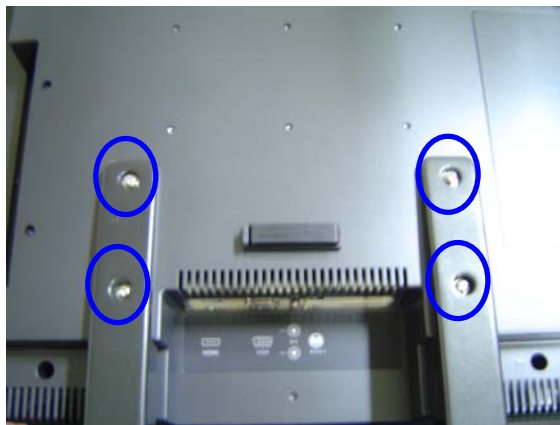
5.1 TV Box



1. Loosen 4 screws as blue circles.
2. Pull up the TV Box Cover as red arrow.
3. Pull up the TV Box out as blue arrow.



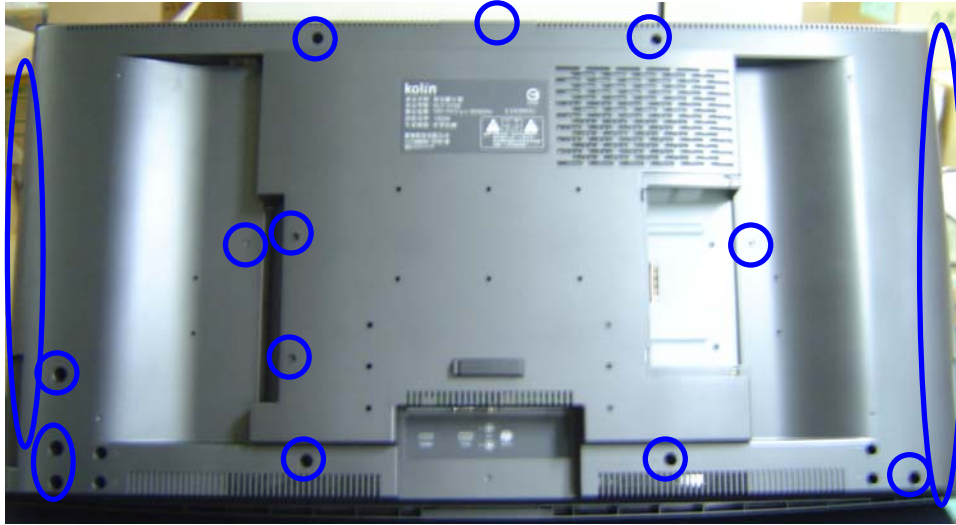
5.2 Stand Module



1. Loosen handle screws as blue circles.

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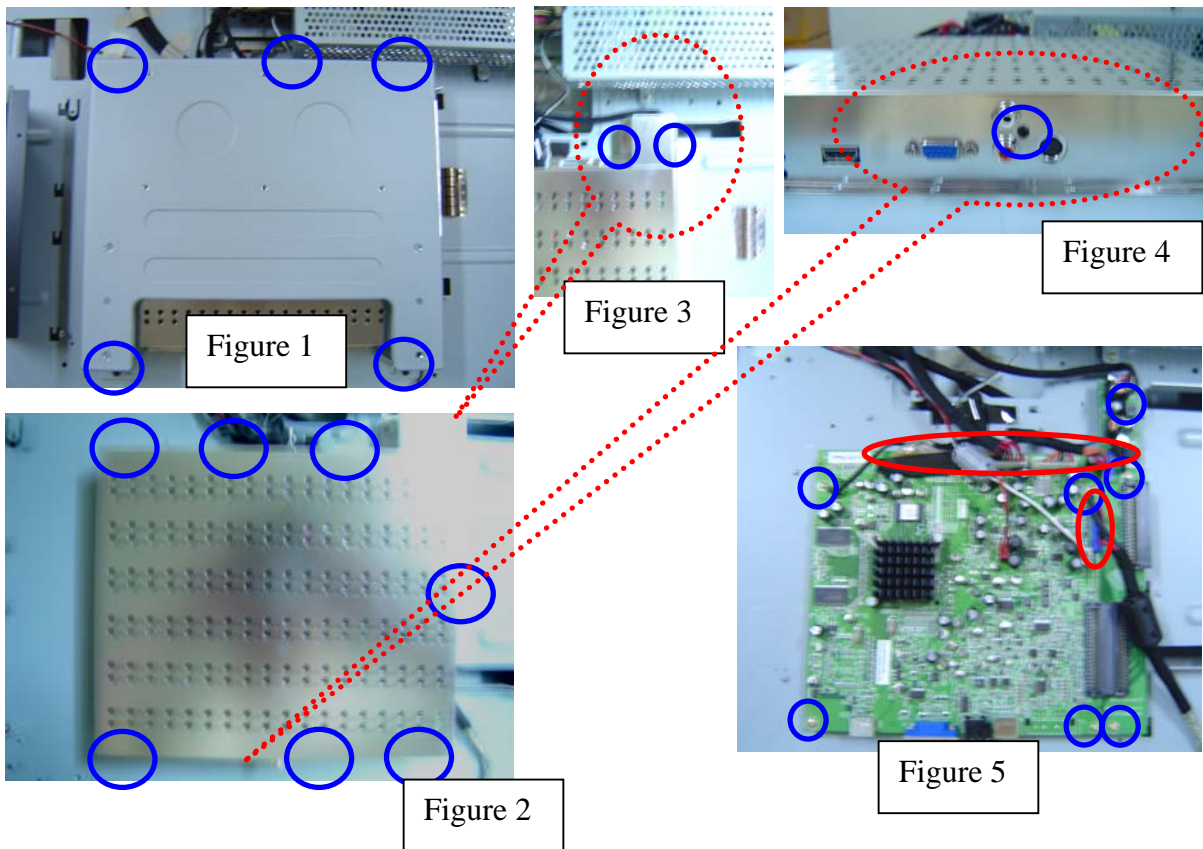
5.3 Back Cover



1. Please finished step 5.1 and 5.2 first.
2. Loosen 19 screws as blue circles.
3. Pull up the Back Cover.

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5.4 System Board



1. Loosen 5 screws as blue circles of Figure 1 and take off the Wall Mount Bracket.
2. Loosen 10 screws as blue circles of Figure 2.3.4 then take off the PCBA Shielding.
3. Loosen 7 screws as blue circles of Figure 5 and pull off connector as red circles of Figure 5.

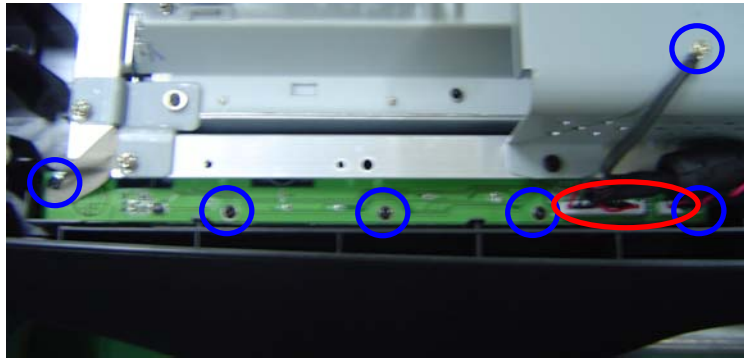
5.5 Indicator Board Module



1. Please loosen 2 screws as blue circles to take off the Chin Metal.
2. Loosen 4 screws as blue circles to take apart the Indicator board.

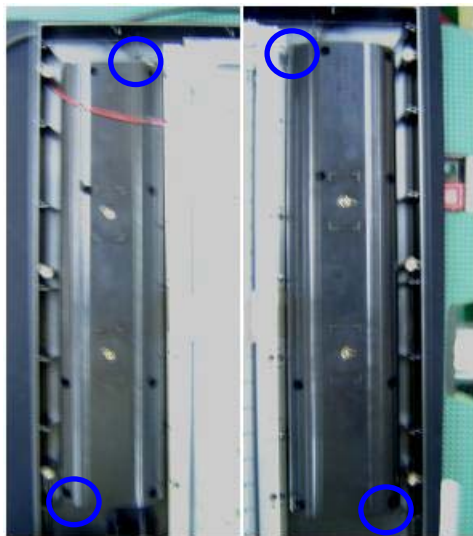
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5.6 Keypad Board



1. Please loosen 6 screws as blue circles.
2. Take off all of connector as red circles.

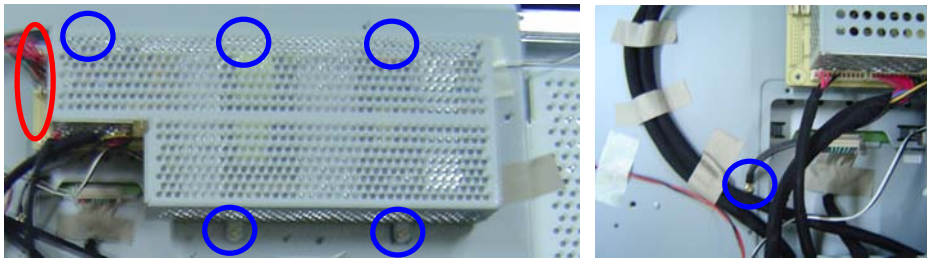
5.7 Speaker



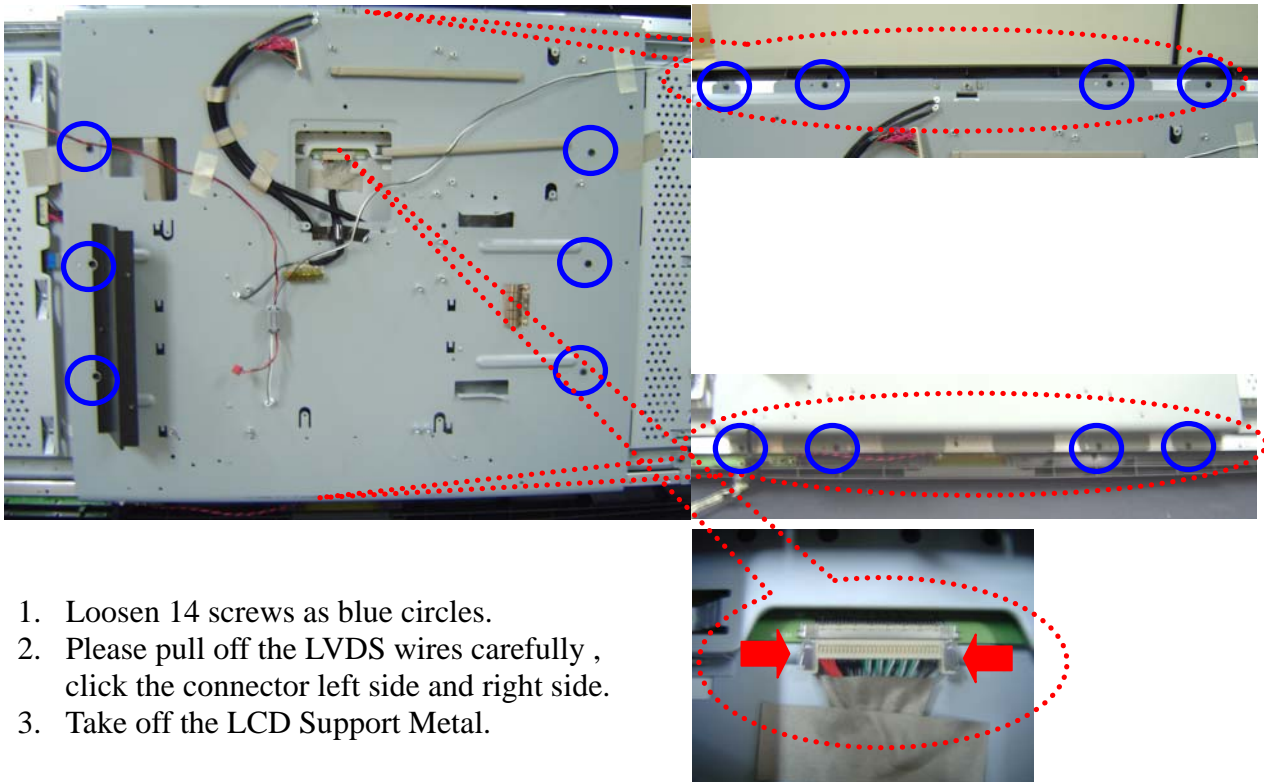
1. Please loosen 4 screws as blue circles.

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5.8 Power Module and LCD Panel Module



1. Loosen 6 screws as blue circles.
2. Take apart the inverter connector as red circles.



1. Loosen 14 screws as blue circles.
2. Please pull off the LVDS wires carefully , click the connector left side and right side.
3. Take off the LCD Support Metal.



1. Pull out all of wires as red circles
2. Loosen 8 screws as blue circles.
3. pick off the LCD Support Metal.

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1. Loosen 8 screws as blue circles, then can pick up LCD panel.