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LCD TV

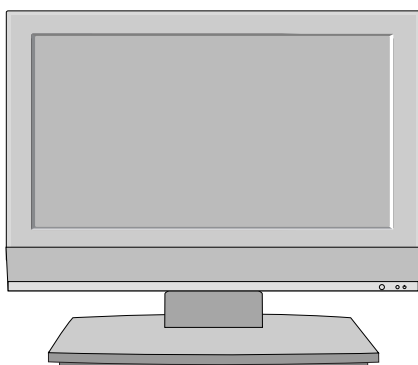
SERVICE MANUAL

CHASSIS : LP69A
FACTORY MODEL : 20LS2R-ZA

MODEL : 20LS2R

CAUTION

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



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SVC. SHEET

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 Replacement Parts List.

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 1W), keep the resistor 10mm 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 $1M\Omega$ and $5.2M\Omega$.

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.

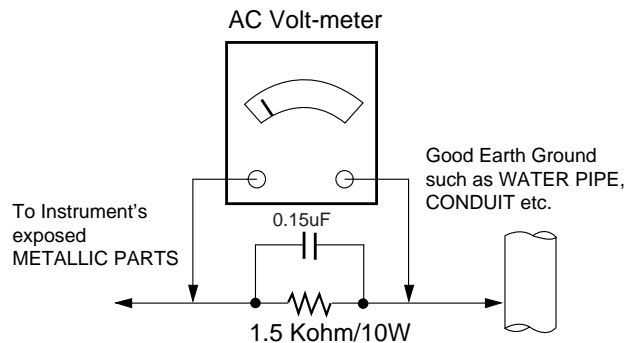
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

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 0.5mA.

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



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
CAUTION: This is a flammable mixture.
Unless specified otherwise in this service manual, lubrication of contacts is not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
Always remove the test receiver ground lead last.
8. *Use with this receiver only the test fixtures specified in this service manual.*

CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices*. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the

unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
 - a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
CAUTION: Work quickly to avoid overheating the circuitboard printed foil.
6. Use the following soldering technique.
 - a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
 - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
 - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
 - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor

Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device

Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor

Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

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

1. Application range

This specification is applied to the 20"/ 23" Wide LCD TV used LP69A chassis.

2. Requirement for Test

Testing for standard of each part must be followed in below condition.

- (1) Power : Standard input voltage (100-240V~, 50/60Hz)
*Standard Voltage of each products is marked by models.
- (2) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
- (3) The receiver must be operated for about 20 minutes prior to the adjustment.

3. Test method

3.1 Performance : LGE TV test method followed

3.2 Demanded other specification

Safety : CE, IEC Specification

EMC : CE, IEC

4. General Specification(TV)

No	Item	Specification	Remark
1	Video input applicable system	PAL-D/K, B/G, I, SECAM L, NTSC, NTSC. 4.43	(ZA)
2	Receivable Broadcasting System	PAL/SECAM BG PAL/SECAM DK PAL I/I SECAM L/L'	(ZA/TA) EU/Non-EU (PAL Market)
3	RF Input Channel	VHF : E2 ~ E12 UHF : E21 ~ E69 CATV : S1 ~ S20 HYPER : S21~ S41 L/L' : B, C, D	PAL FRANCE
4	Input Voltage	100-240V~, 50/60Hz	
5	Market	EU	
6	Tuning System	FVS 100 program FS	PAL, 200 PR.(Option) NTSC
7	Operating Environment	Temp : 0 ~ 40 deg Humidity : 10~90 %RH	
8	Storage Environment	Temp : -20 ~ 50 deg Humidity : 10~90 %RH	
9	Display	LCD Module	

5. Module Sepcification

5.1. LCD 20" (AUO T200MXW02 V0)

No.	Item		Min	Typ.	Max	Unit	Remark
1.	Display area		443.61 (H) *249.41(V)			mm	
2.	Outline dimension		472.0 (H) x 276.5 (V) x23.0 (D)			mm	Typ
3.	Number of Pixels		1366 (H) x 768(V)				1Pixel=3RGB Cells
4.	Cell pitch		324.75um (H) x 324.75um (V)			μm	1Pixel=3RGB Cells
5.	Color arrangement		RGB vertical stripe				
6.	Weight(net)		3			Kg	Max
7.	Operating Environment	Temperature	0 ~ 50			deg	
		Humidity	10 ~ 90			%	
8	Storage Environment	Temperature	-20 ~ 60			deg	
		Humidity	10 ~ 90			%	
9	Electrical Interface		LVDS				
10	Back light Unit		6 CCFL (6 lamps)				
11	R/T		8ms			Typ.	

5.1. Electro optical characteristic specifications(module standard)

No.	Item	Specification				Remark	
			Min	Typ.	Max		
1	Viewing Angle <CR≥10>	R/L U/D		80/80 70/70			
2	Luminance	Luminance (cd/m ²)	350	450			
3	Contrast Ratio	CR	600	700		All white / All black	
4	CIE Color Coordinates	WHITE	Wx	Typ. -0.03	0.295	Typ. +0.03	In AV input PSM : Dynamic White (100 IRE)
			Wy		0.305		
		RED	Rx		0.640		
			Ry		0.330		
		GREEN	Gx		0.290		
			Gy		0.600		
		BLUE	Bx		0.150		
			By		0.060		

6. Model Specification

No	Item	Specification	Remark
1.	Market	EU	
2.	Broadcasting system	PAL BG/I/DK, SECAM-L/L', SECAM BG/DK	
3	RF Input Channel	VHF : E2 ~ E12 UHF : E21 ~ E69 CATV : S1 ~ S20 HYPER : S21~ S41	PAL
		L/L' : B, C, D	FRANCE
4.	SCART Jack(1EA)	PAL, SECAM, NTSC	
5.	Video Input (1EA)	PAL, SECAM, NTSC	4 System(Rear) : PAL50, SECAM, NTSC, PAL60
6.	S-Video Input (1EA)	PAL, SECAM, NTSC	4 System(Rear) : PAL50, SECAM, NTSC, PAL60
7.	Component Input (1EA)	Y/ Pb/Pr	480i/480P/720P/1080i
8.	RGB Input (1EA)	RGB-PC, RGB-DTV	
9.	HDMI Input (1EA)	HDMI-PC HDMI-DTV	
10.	Audio Input (3 EA)	3EA : CVBS, Scart, PC Audio	L/R Input

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

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed
1	720*480	15.73	59.94	13.500	SDTV, DVD 480i(525i)
2	720*480	15.75	60.00	13.514	SDTV, DVD 480i(525i)
3	720*576	15.625	50.00	13.500	SDTV, DVD 576i(625i)
4	720*480	31.47	59.94	27.000	SDTV 480P
5	720*480	31.50	60.00	27.027	SDTV 480P
6	720*576	31.25	50.00	27.000	SDTV 576P
7	1280*720	44.96	59.94	74.176	HDTV 720P
8	1280*720	45.00	60.00	74.250	HDTV 720P
9	1280*720	37.50	50.00	74.250	HDTV 720P 50Hz
10	1920*1080	33.72	59.94	74.176	HDTV 1080i
11	1920*1080	33.75	60.00	74.250	HDTV 1080i
12	1920*1080	28.125	50.00	74.250	HDTV 1080i 50Hz

8. RGB Input (PC)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed
1	720*400	31.469	70.08	28.32	DOS
2	640*480	31.469	59.94	25.17	VESA(VGA)
3	640*350	31.468	70.090	25.175	DOS
4	800*600	37.879	60.31	40.00	VESA(SVGA)
5	1024*768	48.363	60.00	65.00	VESA(XGA)
6	1280*768	47.7	60.00	80.14	VESA
7	1360*768	47.700	60.00	84.62	WXGA

9. RGB input (DTV)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed
1	720*480	31.47	59.94	27.000	SDTV 480P
2	720*480	31.50	60.00	27.027	SDTV 480P
3	720*576	31.25	50.00	27.000	SDTV 576P
4	1280*720	37.5	50.00	74.250	HDTV 720P 50Hz
5	1280*720	44.96	59.94	74.176	HDTV 720P
6	1280*720	45.00	60.00	74.250	HDTV 720P
7	1920*1080	33.72	59.94	74.176	HDTV 1080I
8	1920*1080	33.75	60.00	74.250	HDTV 1080I
9	1920*1080	28.125	50.00	74.250	HDTV 1080I 50Hz

10. HDMI input (PC)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed
1	720*400	31.469	70.08	28.32	DOS
2	640*480	31.469	59.94	25.17	VESA(VGA)
3	640*350	31.468	70.090	25.175	DOS
4	800*600	37.879	60.31	40.00	VESA(SVGA)
5	1024*768	48.363	60.00	65.00	VESA(XGA)
6	1280*768	47.7	60.00	80.14	VESA
7	1360*768	47.700	60.00	84.62	WXGA

11. HDMI input (DTV)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed
1.	720*480	31.47	59.94	27.000	SDTV 480P
2.	720*480	31.50	60.00	27.027	SDTV 480P
3.	720*576	31.25	50.00	27.000	SDTV 576P
4.	1280*720	37.5	50.00	74.250	HDTV 720P 50Hz
5.	1280*720	44.96	59.94	74.176	HDTV 720P
6.	1280*720	45.00	60.00	74.250	HDTV 720P
7.	1920*1080	33.72	59.94	74.176	HDTV 1080I
8.	1920*1080	33.75	60.00	74.250	HDTV 1080I
9.	1920*1080	28.125	50.00	74.250	HDTV 1080I 50Hz

ADJUSTMENT INSTRUCTION

1. Application Range

This specification sheet is applied to 20"/ 23" LCD TV which is manufactured in TV (or Monitor) Factory or is produced on the basis of this data.

2. Specification

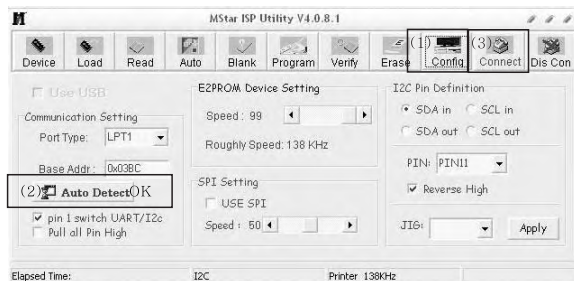
- 1) The adjustment is according to the order which is designated and which must be followed, according to the plan which can be changed only on agreeing.
- 2) Power Adjustment: Free Voltage
- 3) Magnetic Field Condition: Nil.
- 4) Input signal Unit: Product Specification Standard
- 5) Reserve after operation: Above 30 Minutes
- 6) Adjustment equipments: Color Analyzer(CA-210 or CA-110), Pattern Generator (MSPG-925L or Equivalent), DDC Adjustment Jig equipment, SVC remote controller

3. Main PCB check process

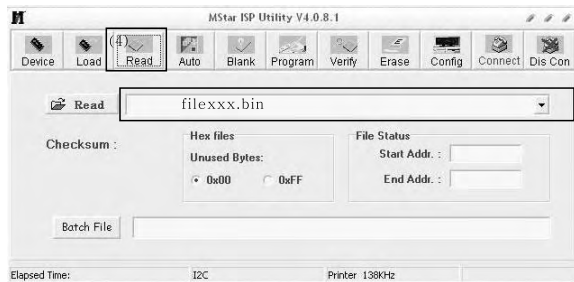
* APC - After Manual-Insult, executing APC

3.1. Download

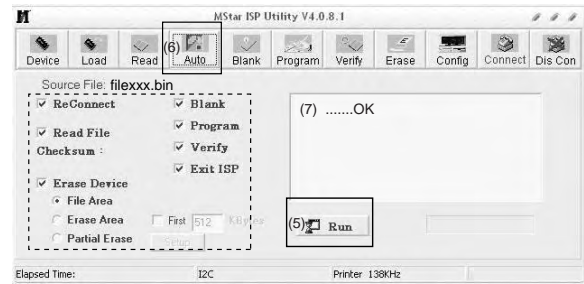
- 1) Execute ISP program "Mstar ISP Utility" and then click "Config" tab.
- 2) Set as below, and then click "Auto Detect" and check "OK" message.
If display "Error", Check connect computer, jig, and set.
- 3) Click "Connect" tab.
If display "Can't", Check connect computer, jig, and set.



- 4) Click "Read" tab, and then load download file(XXXX.bin) by clicking "Read".



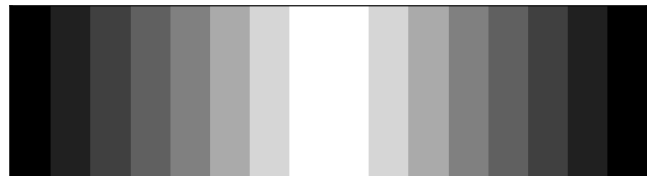
- 5) Click "Auto" tab and set as below
- 6) click "Run".
- 7) After downloading, check "OK" message.



3.2. ADC Process

(1) PC input ADC

- 1) Auto RGB Gain/Offset Adjustment
 - Convert to PC in Input-source
 - Signal equipment displays
Output Voltage : 730 mVp-p
Impress Resolution WXGA (1360 x 768 @ 60Hz)
Model : 107 in Pattern Generator
Pattern : 28 in Pattern Generator (MSPG-925 Series)
[gray pattern that left & right is black and center is white signal (Refer below picture)].



<Adjustment pattern (PC)>

- Adjust by commanding AUTO_COLOR _ADJUST (0xF1) 0x00 0x02 instruction.
- 2) Confirmation
 - We confirm whether "0x8C" address of EEPROM "0xB4" is "0xAA" or not.
 - If "0x8C" address of EEPROM "0xB4" isn't "0xAA", we adjust once more.
 - We can confirm the ADC values from "0x00~0x05" addresses in a page "0xB4"

* Manual ADC process using Service Remote control.
After enter Service Mode by pushing "INSTART" key, execute "Auto-RGB" by pushing "►" key at "Auto-RGB".

(2) COMPONENT input ADC

- 1) Component Gain/Offset Adjustment
 - Convert to Component in Input-source
 - Signal equipment displays
Impress Resolution 480P
MODEL : 212 in Pattern Generator
(480p Mode, Y : 100%, Pb/Pr : 75%)
PATTERN : 08 in Pattern Generator
(MSPG-925 Series)



- Adjust by commanding AUTO_COLOR_ADJUST (0xF1) 0x00 0x02 instruction.

2) Confirmation

- We confirm whether "0x8E" address of EEPROM "0xB4" is "0xAA" or not.
- If "0x8E" address of EEPROM "0xB4" isn't "0xAA", we adjust once more.
- We can confirm the ADC values from "0x00~0x05" addresses in a page "0xB4".

3.3. Function Check

■ Check display and sound

- Check Input and Signal items. (cf. work instructions)
 - 1) TV
 - 2) AV1 (SCART)
 - 3) AV2 (CVBS/ S-Video)
 - 4) COMPONENT (480P)
 - 5) RGB (PC : 1024 x 768 @ 60hz)
 - 6) HDMI
 - 7) PC Audio In and H/P Out
- * Display and Sound check is executed by Remote control.

4. Total Assembly line process

4.1. Adjustment Preparation

- (1) Above 30 minutes H/run in RF no signal
- (2) 15 Pin D-Sub Jack is connected to the signal of Pattern Generator.

4.2. Confirm color coordinate of RGB

- (1) Set Input to RGB.
- (2) Input signal : WXGA (1360 x 768 @ 60Hz), Full white 216/255 gray level (85 IRE, Model : 107, Pattern : 78 at MSPG925L)
- (3) Set CSM : Cool
- (4) Confirm whether $x = 0.283 \pm 0.03$, $y = 0.298 \pm 0.03$ or not.

4.3. Confirm color coordinate of AV2

- (1) Set Input to AV2
- (2) Input signal : CVBS, PAL @ 50Hz
Full white 216/255 gray level (85 IRE, Model : 202, Pattern : 78 at MSPG925L)
- (3) Set PSM : Dynamic / CSM : Cool
- (4) Confirm whether $x = 0.283 \pm 0.03$, $y = 0.298 \pm 0.03$ or not.

4.4. Confirm color coordinate of component

- (1) Set Input to COMPONENT.
- (2) Input signal : 480P
Full white 216/255 gray level (85 IRE Model : 212, Pattern : 78 at MSPG925L)
- (3) Set PSM : Dynamic / CSM : Cool
- (4) Confirm whether $x = 0.283 \pm 0.03$, $y = 0.298 \pm 0.03$ or not.

4.5. Other quality

- Confirm that each items satisfy under standard condition that was written product spec.
- Confirm Video and Sound at each source

(1) AV

- 1) Select input AV1 and whether picture is displayed or not.
- SCART output displayed or not.
- 2) Select input AV2 (S-video) and whether picture is displayed or not
- 3) Select input AV2 (CVBS) and whether picture is displayed or not

(2) TV

- Select input TV and check below item
- * In Gumi Factory
 - C05 (E05) – TELETEXT Function Check
; (Applicable to the model that has Teletext code set-up item in Product spec)
 - C07 (E07) – Nicam DUAL Check.
 - C52 (E52) – Nicam Stereo Check.
 - Refer to "7.Preset CH information".

(3) RGB

- Select input RGB and whether picture is displayed or not.

(4) COMPONENT

- Select input COMPONENT and whether picture is displayed or not.

(5)HDMI

- Select input HDMI and whether picture is displayed or not

4.6. DPM operation confirmation

- Check if Power LED Color and Power Consumption operate as standard.
 - (1) Set Input to RGB and connect D-sub cable to set.
 - (2) Measurement Condition : 230V@ 50Hz (Analog)
 - (3) Confirm DPM operation at the state of screen without Signal

4.7 DDC EDID Write

- 1) Connect D-sub Signal Cable to D-Sub Jack.
- 2) Connect HDMI Signal Cable to HDMI Jack.
- 3) Write EDID DATA to EEPROM(24C02) by using DDC2B protocol.
- 4) Check whether written EDID data is correct or not. (refer to Product spec).

(1) 20LS2R EDID DATA

1) ANALOG DATA 128Byte

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	FF	00	1E	6D	5C	4E	01	01	01	01
10	03	10	01	03	08	2C	19	78	0A	32	00	A3	56	4C	9A	25
20	0F	48	4B	A1	08	00	31	40	01	01	01	01	45	40	01	01
30	61	40	01	01	01	01	1B	21	50	A0	51	00	1E	30	48	48
40	35	00	D6	18	11	00	00	1C	4E	1F	00	80	51	00	1E	30
50	40	80	37	00	D6	18	11	00	00	18	00	00	00	FD	00	3A
60	3F	1F	32	09	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	32	30	4C	53	32	52	2D	5A	4B	0A	20	20	20	00	29

2) DIGITAL DATA 256Byte

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	FF	00	1E	BD	5D	4E	01	01	01	01
10	03	10	01	03	80	2C	19	78	0A	32	00	A3	58	4C	9A	25
20	0F	48	4B	A1	08	00	31	40	01	01	01	01	45	40	01	01
30	61	40	01	01	01	01	1B	21	50	A0	51	00	1E	30	45	48
40	35	00	D6	18	11	00	00	1C	4E	1F	00	80	51	00	1E	30
50	40	80	37	00	D6	18	11	00	00	18	00	00	00	FD	00	3A
60	3F	1F	32	09	00	0A	20	20	20	20	20	00	00	00	FC	
70	00	32	30	4C	53	32	52	2D	5A	4B	0A	20	20	20	01	AF

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	02	03	1C	72	23	09	07	02	49	07	18	B1	03	05	14	13
10	12	04	83	01	00	00	65	03	0C	00	10	00	01	1D	80	18
20	71	1C	18	20	58	2C	25	00	BC	F9	10	00	00	9E	01	1D
30	80	D0	72	1C	18	20	10	2C	25	80	BC	F9	10	00	00	9E
40	01	1D	00	BC	52	D0	1E	20	B8	28	55	40	BC	F9	10	00
50	00	1E	6C	0A	D0	80	20	40	31	20	0C	40	55	00	BC	F9
60	10	00	00	18	01	1D	00	72	51	D0	1E	20	6E	28	55	00
70	BC	F9	10	00	00	1E	00	00	00	00	00	00	00	00	00	95

4.8. HDCP SETTING

(High-Bandwidth Digital Contents Protection)

- 1) Connect D-sub Signal Cable to D-Sub Jack.
- 2) Input HDCP key with HDCP-key- in-program.
- 3) HDCP Key value is stored on EEPROM(AT24C64) which is E00~F20 addresses of 0xBC~0xBE page.
- 4) AC off/ on and on HDCP button of MSPG925 and confirm whether picture is displayed or not of using MSPG925.
- 5) HDCP Key value is different among the sets.

4.9. Outgoing condition Configuration

- 1) After all function test., press IN-STOP Key by SVC Remote controller. And Make Ship Condition.
- 2) When pressing IN-STOP key by SVC remocon, Green and red LED are blinked alternatively. And then Automatically turn off. (Must not AC power OFF during blinking)

4.10. Internal pressure

- Confirm whether is normal or not when between power board's ac block and GND is impacted on 1.5kV(dc) or 2.2kV(dc) for one second.

4.11 Option data setting (SVC OSD setting)

(1) PAL Model (Change by Suffix)

No.	Item	Condition	Remark
Option1			
1	200PR	No	
2	ACMS	YES	
3	TEXT	FLOF	TOP / FLOF
4	CH+AU	0	0 : Except below area 1 : China, Australia
5	BOOSTER	No	AGC Threshold point
Option2			
1	SYS	No	BG/IDK/L
2	A2 ST	YES	Acting FM-ST after checking Nicam
3	I II SAVE	No	
4	HDEV	No	
5	V-CURVE	No	
6	MONO	No	
Option3			
1	KEY-TYPE	2	8 key
Option4			
1	Default Lang	3	
2	Lang	0	English Deutsch French Italiano Spanish Nederlands Svenska Norsk Dansk Suomi Portuguese Romaneste Polski Magyar Chesky
3	T-Lang	0	AUSTRIA BULGARIA CROATIA CZECH DENMARK ENGLAND ESTONIA FINLAND FRANCE GERMANY GREECE HUNGARY ITALY LATVIA NETHERLANDS NORWAY POLAND PORTUGAL RUMANIA RUSSIA SERBIA SLOVAKIA SLOVENIA SPAIN SWEDEN SWITZERLAND TURKEY ARAB HEBREW Others
Option5			
1	2 HR-OFF	Yes	
2	TV-LINK-TUNER	No	
3	FACTORY MODE	No	
4	CHANNEL-MUTE	Yes	

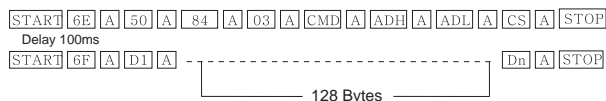
5. Adjustment Command

5.1. Adjustment Commands(LENGTH=84)

Adjustment Contents	CMD(hex)	ADR	VAL	Description
FACTORY ON	E0	00	00	Factory mode on
FACTORY OFF	E2	00	00	Factory mode off
EEPROM ALL INIT.	E4	00	00	EEPROM All clear
EEPROM Read	E7	00	00	EEPROM Read
EEPROM Write	E8	00	data	EEPROM Write by some values
COLOR SAVE (R/G/B cutoff, Drive, Contrast, Bright)	EB	00	00	Color Save
H POSITION	20	00	00 ~ 100	They have different range each mode, FOS Adjustment
V POSITION	30	00	00 ~ 100	
CLOCK	90	00	00 ~ 100	
PHASE	92	00	00 ~ 100	
R DRIVE	16	00	00 ~ FF	Drive adjustment
G DRIVE	18	00	00 ~ FF	
B DRIVE	1A	00	00 ~ FF	
R CUTOFF	80	00	00 ~ 7F	
G CUTOFF	82	00	00 ~ 7F	Offset adjustment
B CUTOFF	84	00	00 ~ 7F	
BRIGHT	10	00	00 ~ 3F	
CONTRAST	12	00	00 ~ 64	
AUTO_COLOR_ADJUST	F1	00	02	Auto COLOR Adjustment
CHANGE_COLOR_TEMP	F2	00	0,1,2,3	0: COOL 1: NORMAL 2: WARM 3: USER
FACTORY_DEFAULT	F3	00	00	Factory mode off & II_SW is "1" & Input change to "TV"
AUTO_INPUT CHANGE	F4	00	0,1,2,4	0: TV 1: AV1 2: AV2 3: Component 4: RGB 5: DVI

5.2 EEPROM DATA READ

(1) Signal Table



(2) Command Set

Adjustment contents	CMD(hex)	ADH(hex)	ADL(hex)	Details
EEPROM READ	E7	A0	0	0-Page 0~7F Read
			80	0-Page 80~FF Read
		A2	0	1-Page 0~7F Read
			80	1-Page 80~FF Read
		A4	0	2-Page 0~7F Read
			80	2-Page 80~FF Read
		A6	0	3-Page 0~7F Read
			80	3-Page 80~FF Read

* Purpose : To read the appointment Address of E2PROM by 128(80h)-byte

5.3. E2PROM Data Write

(1) Signal Table



LEN : 84h+Bytes

CMD : 8Eh

ADH : E²PROM Slave Address(A0,A2,A4,A6,A8), Not 00h(Reserved by BufferToEEPROM)

ADL : E²PROM Sub Address(00~FF)

Data : Write data

(2) Command Set

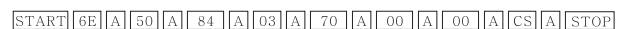
Adjustment contents	CMD(hex)	ADH(hex)	Details
EEPROM WRITE	E8	94	16-Byte Write
		84+n	n-byte Write

* Purpose

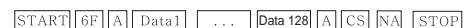
- 1) EDID write : 16-byte by 16-byte, 8 order (128-byte) write(TO "00 ~ 7F" of "EEPROM Page A4").
- 2) FOS Default write : 16-mode data (HFh, HFI, VF, STD, HP, VP, Clk, ClkPh, PhFine) write.
- 3) Random Data write : write the appointment Address of E2PROM.

5.4. VRAM Read

- 1) Send CMD(70h) to read Video RAM value from MICOM And save its value to 128-Bytes Buffer(Common Buffer for the use of EDID)

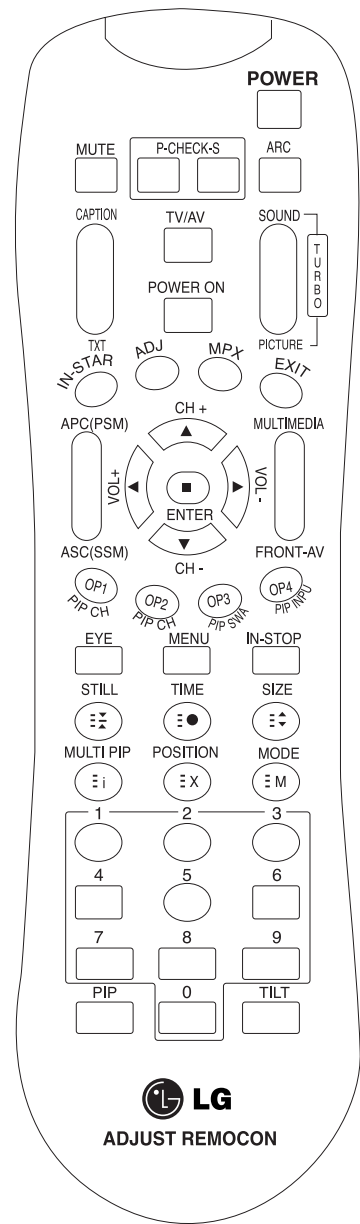


- 2) Delay 500ms (Time to Wait and Read Video RAM from MICOM)
- 3) Be transmitted the contents of MICOM's 128-bytes Buffer to PC. (128th Data is the CheckSum of 127-bytes data : That's OK if the value of adding 128-bytes Data is Zero)



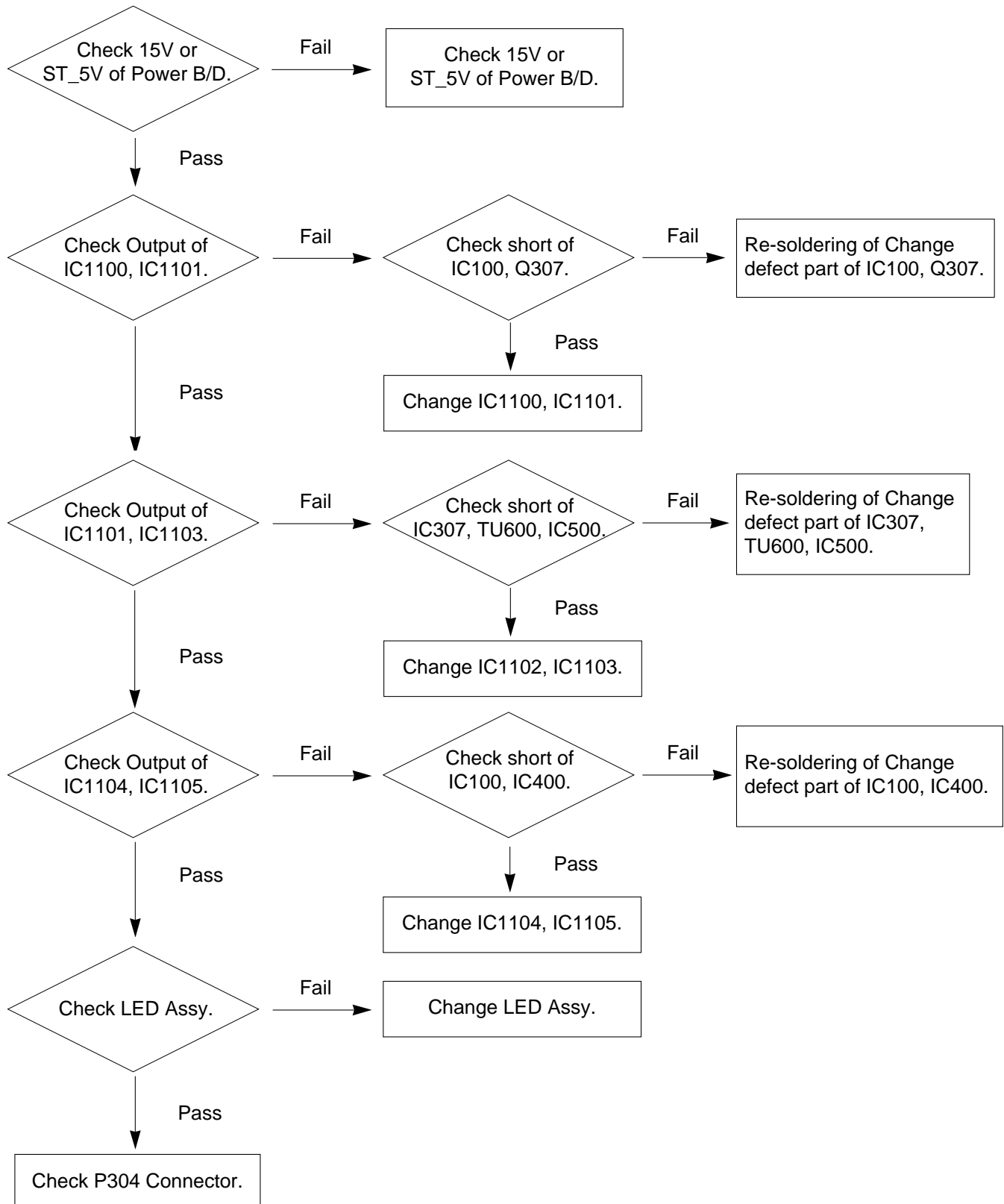
SVC REMOCON

NO	KEY	FUNCTION	REMARK
1	POWER	To turn the TV on or off	
2	POWER ON	To turn the TV on automatically if the power is supplied to the TV. (Use the POWER key to deactivate):It should be deactivated when delivered.	
3	MUTE	To activate the mute function.	
4	P-CHECK	To check TV screen image easily.	Shortcut keys
5	S-CHECK	To check TV screen sound easily	Shortcut keys
6	ARC	To select size of the main screen (Normal, Spectacle, Wide or Zoom)	Shortcut keys
7	CAPTION	Switch to closed caption broadcasting	
8	TXT	To toggle on/off the teletext mode	
9	TV/AV	To select an external input for the TV screen	
10	TURBO SOUND	To start turbo sound	
11	TURBO PICTURE	To start turbo picture	
12	IN-START	To enter adjustment mode when manufacturing the TV sets.	Use the AV key to enter the screen W/B adjustment mode.
		To adjust the screen voltage (automatic): In-start→mute→Adjust→AV(Enter into W/B adjustment mode)	
		W/B adjustment (automatic): After adjusting the screen→W/B adjustment→Exit two times(Adjustment completed)	
13	ADJ	To enter into the adjustment mode. To adjust horizontal line and sub-brightness.	
14	MPX	To select the multiple sound mode (Mono, Stereo or Foreign language)	
15	EXIT	To release the adjustment mode	
16	APC(PSM)	To easily adjust the screen according to surrounding brightness	
17	ASC(SSM)	To easily adjust sound according to the program type	
18	MULTIMEDIA	To check component input	Shortcut keys
19	FRONT-AV	To check the front AV	Shortcut keys
20	CH ±	To move channel up/down or to select a function displayed on the screen.	
21	VOL ±	To adjust the volume or accurately control a specific function.	
22	ENTER	To set a specific function or complete setting.	
23	PIP CH-(OP1)	To move the channel down in the PIP screen. To use as a red key in the teletext mode	
24	PIP CH+(OP2)	To move the channel in the PIP screen To use as a green key in the teletext mode	
25	PIP SWAP(OP3)	To switch between the main and sub screens To use as a yellow key in the teletext mode	
26	PIP INPUT(OP4)	To select the input status in the PIP screen To use as a blue key in the teletext mode	
27	EYE	To set a function that will automatically adjust screen status to match the surrounding brightness so natural color can be displayed.	
28	MENU	To select the functions such as video, voice, function or channel.	
29	IN-STOP	To set the delivery condition status after manufacturing the TV set. To halt the main screen in the normal mode, or the sub screen at the PIP screen.	
30	STILL	Used as a hold key in the teletext mode(Page updating is stopped.). Displays the teletext time in the normal mode	
31	TIME	Enables to select the sub code in the teletext mode Used as the size key in the PIP screen in the normal mode	
32	SIZE	Used as the size key in the teletext mode Used as the index key in the teletext mode (Top index will be	
33	MULTI PIP	displayed if it is the top text.) To select the position of the PIP screen in the normal mode	
34	POSITION	Used as the update key in the teletext mode (Text will be displayed if the current page is updated.)	
35	MODE	Used as Mode in the teletext mode	
36	PIP	To select the simultaneous screen	
37	TILT	To adjust screen tilt	Shortcut keys
38	0~9	To manually select the channel.	

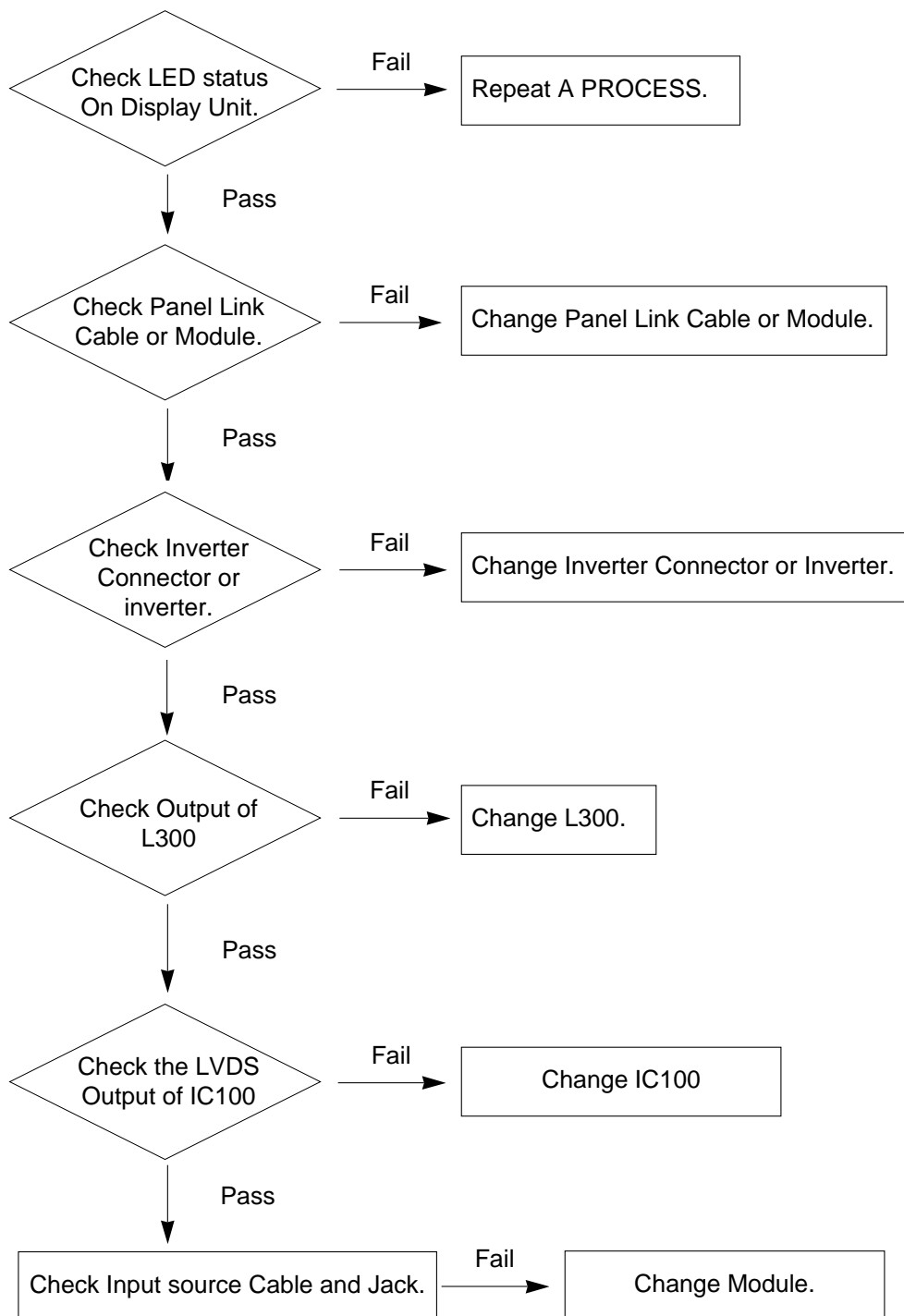


TROUBLE SHOOTING

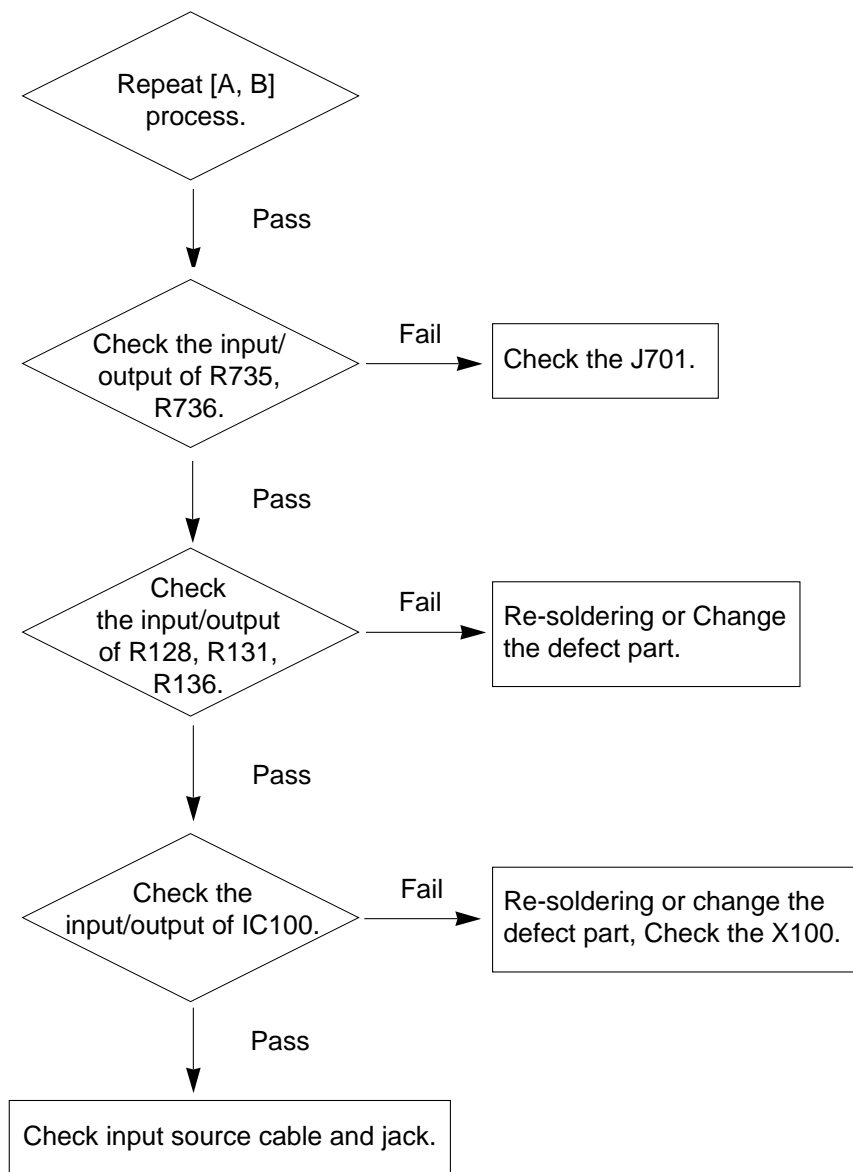
1. No Power (LED indicator off) : [A] Process



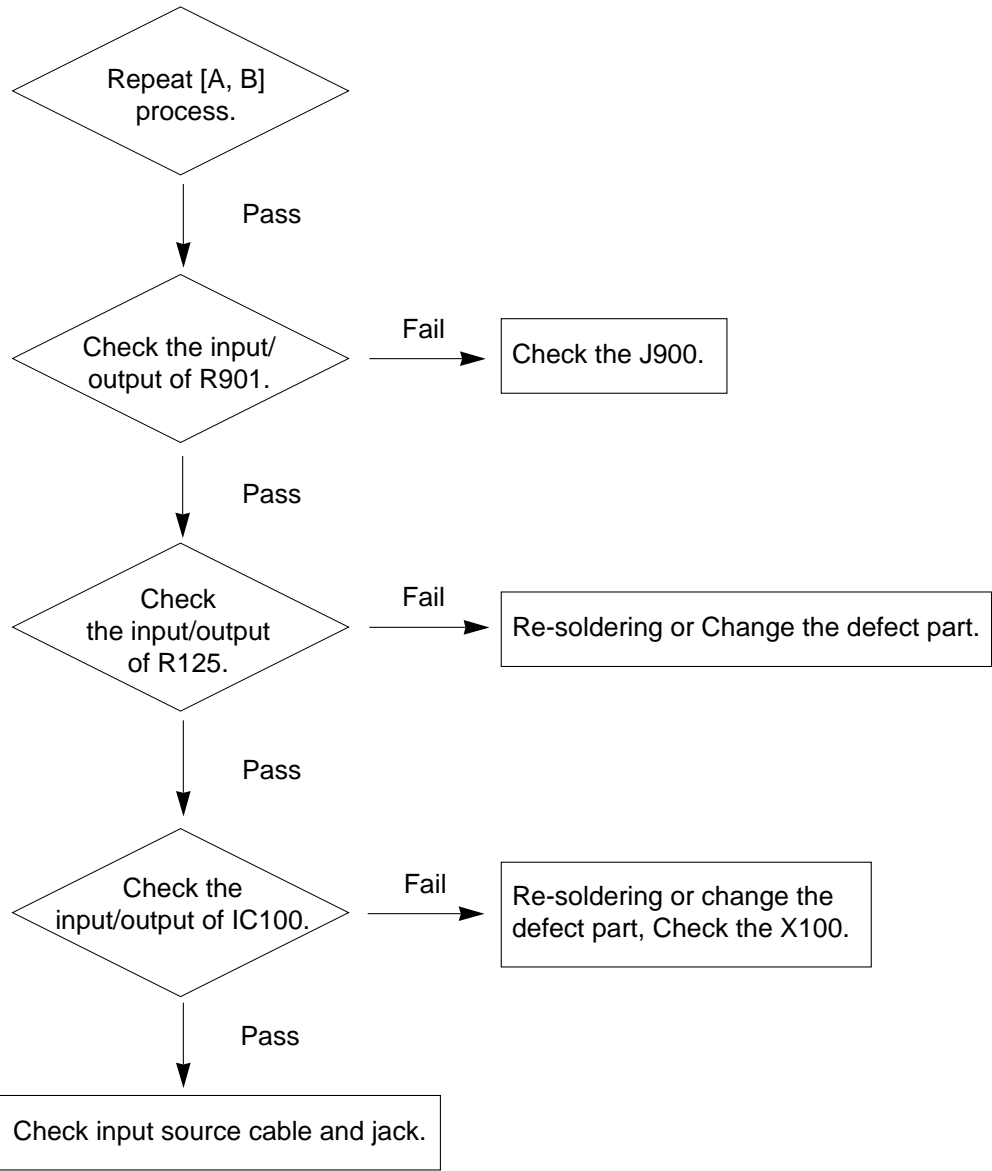
2. No RASTER : [B] Process



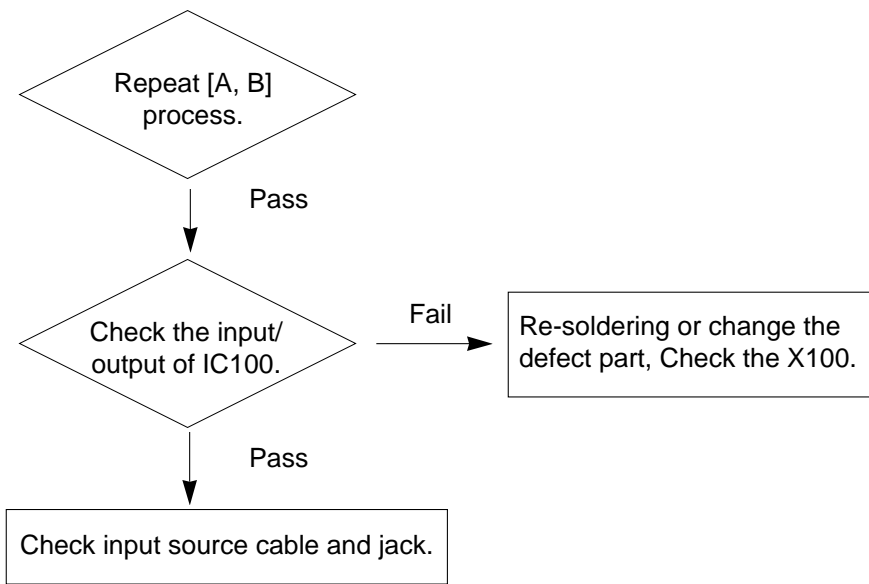
3. No RASTER on PC Signal



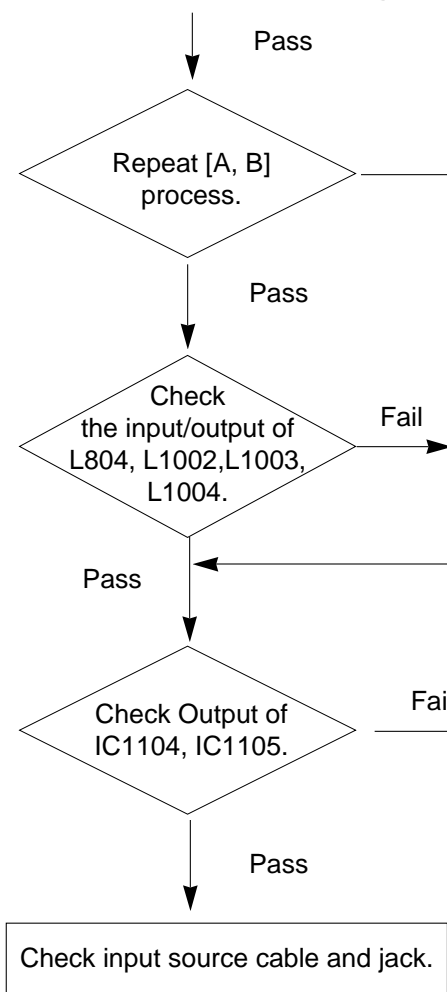
4. No Raster on Component Signal



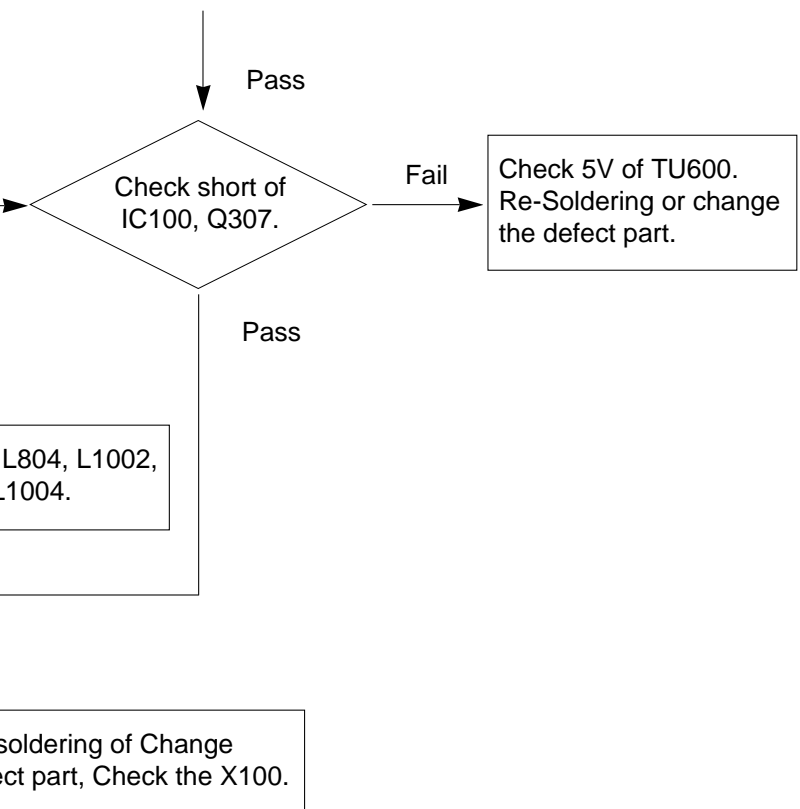
5. No Raster on HDMI Signal



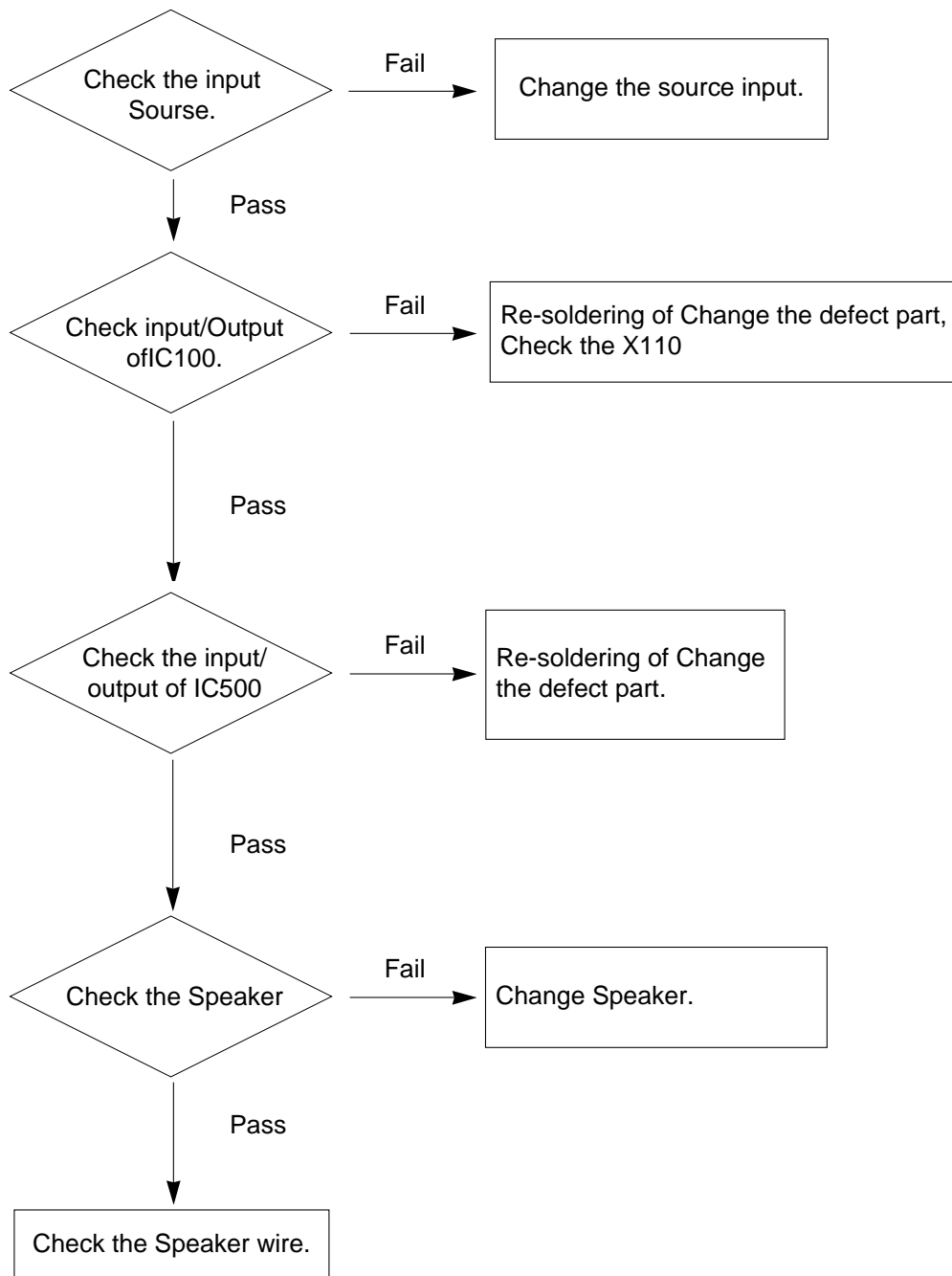
6. No Raster on AV(Scart in Video, S-Video) Signal



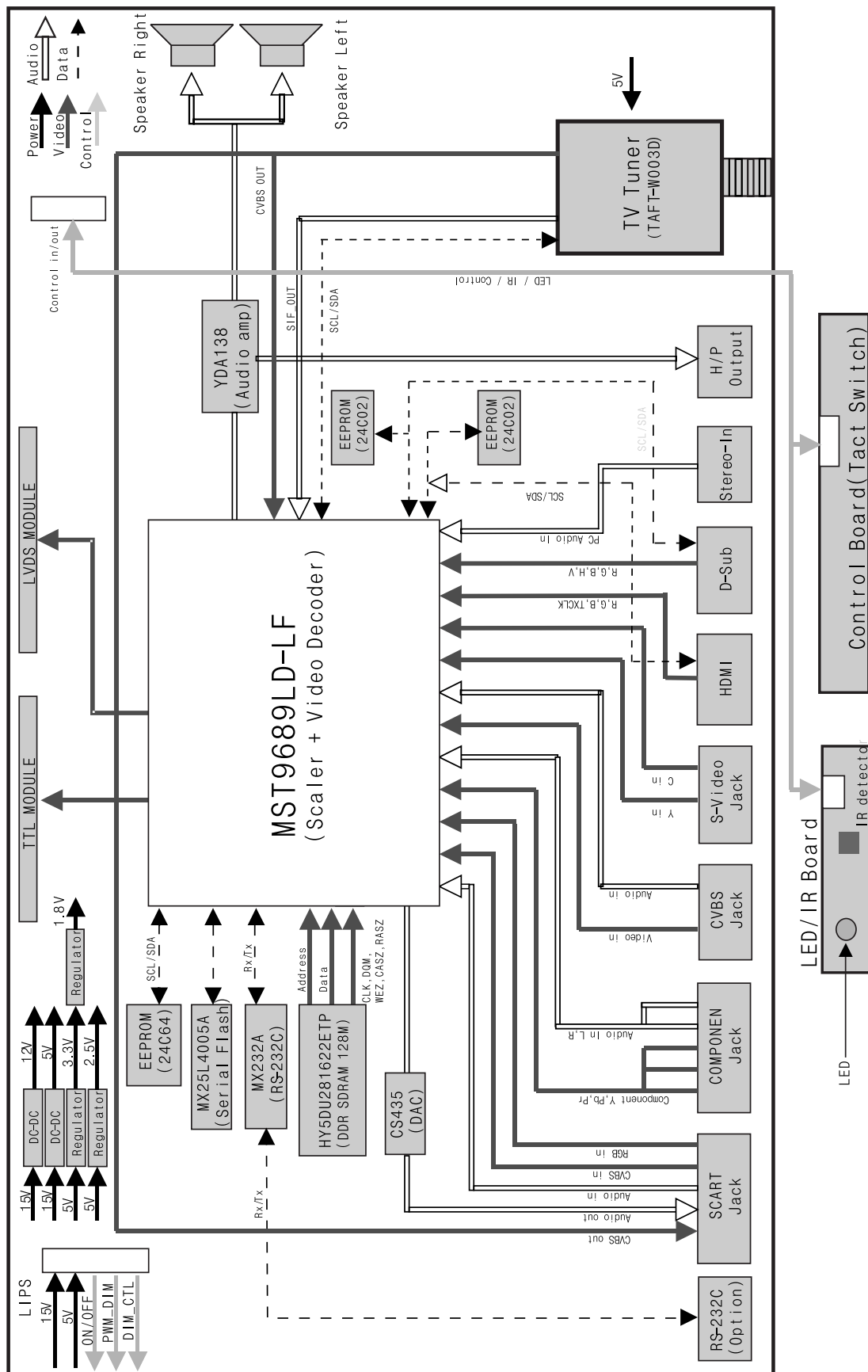
7. No Raster on TV(RF) Signal



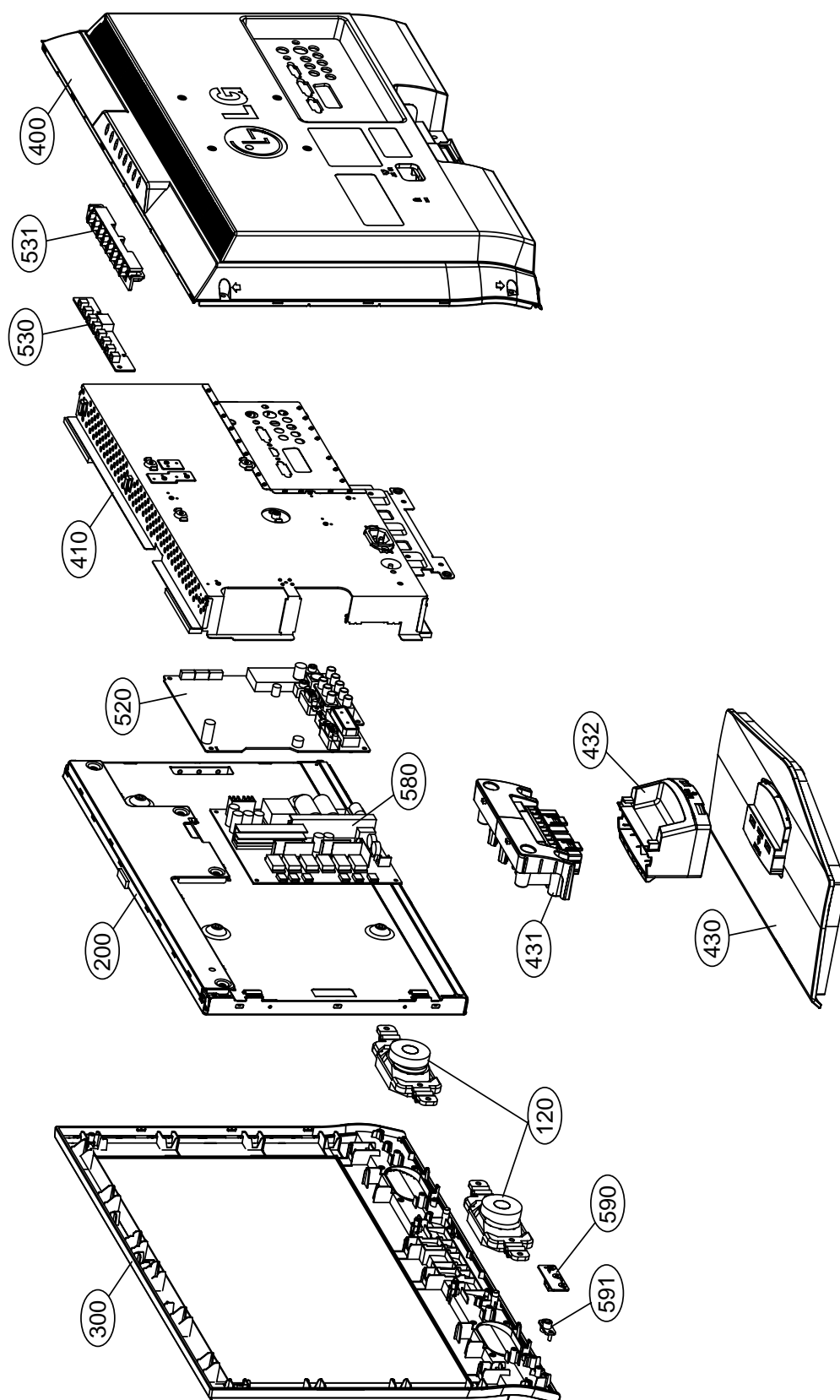
8. No sound



BLOCK DIAGRAM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

No.		PART NO.	DESCRIPTION
120		EAB30826701	Speaker,Full Range EN1527C-6603-1. ND 7W 8OHM 80DB 170HZ 71.5 X 42 X 29.5 LUG
200	△	6304FAU027A	LCD,Module-TFT T200XW02-V0 T200XW02-V0 AU TN,450NITS,600 BY 1,8MS, ROHS, 3H
300	△	ABJ31730602	Cabinet Assembly 20LS2R LP-69A 20" CABINET ASSY
400	△	ACQ31730702	Cover Assembly,Rear 20LS2R LP-69A 20" BACK COVER ASSY(EU_CKD)
410		ADV31731102	Frame Assembly 20LS2R LP-69A 20" REAR SHIELD ASSY
430	△	AAN30637910	Base Assembly STAND 20LS2R CL81 20LS2 BASE _NON_METAL(CSKD)
431	△	AAN31023102	Base Assembly STAND 20LS1R CL81 20LS1R STAND BODY ASSY' , "A"-CSKD
432		MCK30214205	Cover MOLD HIPS 51SF 15LS1R HIPS 51SF 20/15 LS1R STAND BODY COVER, BK
520		EBU34016301	Main Total Assembly 20LS2R BRAND LP69A
530		EBR33871901	PCB Assembly,Sub CONTROL T.T LP69A 20LS2R AEUWLAX 20LS2R CONTOL T.T ASS'Y
531		MEY30552602	Knob, MOLD AB HF-380NB SUB CONTROL KNOB LS2R
580	△	EAY32636402	Power Supply Assembly AIV-P0033 FREE 20LS2R LCD 20.1 INCH 16:9 WIDE 6 LAMP LIPS
590		EBR33877501	PCB Assembly,Sub SUB T.T LP69A 20LS2R/23LS2R AEUWLAX/AEUULAX LS2 IR
591		MES32968101	Indicator MOLD PMMA LED 20/23LS2R PMMA 10 PHY LENS

REPLACEMENT PARTS LIST

For Capacitor & Resistors, the characters at 2nd and 3rd digit in the P/No. means as follows;

CC, CX, CK, CN, CH : Ceramic
CQ : Polyester
CE : Electrolytic
CF : Fixed Film

RD : Carbon Film
RS : Metal Oxide Film
RN : Metal Film
RH : CHIP, Metal Glazed(Chip)
RR : Drawing

DATE: 2006. 12. 28.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITOR				
		C1001	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C1002	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C1003	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C1004	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C1005	0CC561CK41A	C1608C0G1H561JT 560pF 5% 50V
		C1006	0CC561CK41A	C1608C0G1H561JT 560pF 5% 50V
		C1007	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C1008	0CC561CK41A	C1608C0G1H561JT 560pF 5% 50V
		C1009	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C101	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1010	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C1011	0CC561CK41A	C1608C0G1H561JT 560pF 5% 50V
		C1012	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C1013	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C102	0CH3224K946	C2012Y5V1H224ZT 220nF -20TO+
		C103	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C104	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C105	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C106	0CC200CK41A	C1608C0G1H200JT 20pF 5% 50V
		C107	0CC200CK41A	C1608C0G1H200JT 20pF 5% 50V
		C108	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C110	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C1100	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C1101	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C1102	0CK105DH56A	C2012X7R105KFT 1uF 10% 25V X
		C1103	0CK105DH56A	C2012X7R105KFT 1uF 10% 25V X
		C1104	0CE477EF638	KMG5.0TP16VB470M 470uF 20% 1
		C1105	0CE477EK618	KMG5.0TP50VB470M 470uF 20% 5
		C1106	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1107	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C1109	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1110	0CK474DH56A	C2012X7R1E474KT 470nF 10% 25
		C1111	0CK474DH56A	C2012X7R1E474KT 470nF 10% 25
		C1112	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C1113	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C1114	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1116	0CK272CK46A	0603B272J500CT 2.7nF 10% 50V
		C1117	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1118	0CK272CK46A	0603B272J500CT 2.7nF 10% 50V
		C1119	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C112	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1120	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C1121	0CK226FF67A	EMK325BJ226MM-T 22uF 20% 16V
		C1122	0CK226FF67A	EMK325BJ226MM-T 22uF 20% 16V
		C1123	0CE227WF6DC	MVK8.0TP16VC220M 220uF 20% 1
		C1124	0CE477EH618	KMG5.0TP25VB470M 470uF 20% 2
		C1125	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C1126	0CE107WH6DC	MVK8.0TP25VC100M 100uF 20% 2
		C1127	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1128	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1129	0CK105DH56A	C2012X7R105KFT 1uF 10% 25V X
		C1130	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V

DATE: 2006. 12. 28.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C1131	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C1133	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1138	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C114	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C1140	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C1141	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C116	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C117	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C118	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C119	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C121	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C122	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C123	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C124	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C125	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C126	0CC560CK41A	C1608C0G1H560JT 56pF 5% 50V
		C127	0CC560CK41A	C1608C0G1H560JT 56pF 5% 50V
		C128	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C129	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C130	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C131	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C132	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C133	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C134	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C135	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C136	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C137	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C138	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C139	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C140	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C141	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C142	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C143	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C144	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C145	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C146	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C147	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C148	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C149	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C150	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C151	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C152	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C153	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C154	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C155	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C156	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C157	0CC561CK41A	C1608C0G1H561JT 560pF 5% 50V
		C158	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C159	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C160	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C161	0CC561CK41A	C1608C0G1H561JT 560pF 5% 50V
		C162	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C163	0CK475CC94A	C1608Y5V0J475ZT 4.7uF -20TO+
		C164	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C165	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C166	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C167	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C168	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C169	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C170	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C171	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C172	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C173	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C174	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C175	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C176	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C177	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C178	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C179	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C180	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C181	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C182	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C183	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C184	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C185	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C186	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C187	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C188	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C189	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C190	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C191	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C192	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C193	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C194	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C195	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C196	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C197	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C198	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C199	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C200	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C202	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C204	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C205	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C206	0CK225DFK4A	C2012Y5V1C225MT 2.2uF 20% 16
		C207	0CK106EF56A	C3216X7R1C106KT 10uF 10% 16V
		C300	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C301	0CE477WF6DC	MVK1.0TP16VC470M 470uF 20% 16
		C302	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C303	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C304	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C305	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C306	0CC470CK41A	C1608C0G1H470JT 47pF 5% 50V
		C307	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C308	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C309	0CE226WF6DC	MVK5.0TP16VC22M 22uF 20% 16V
		C311	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C400	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C401	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C402	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C403	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C404	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C405	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C406	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C407	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C408	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C409	0CK104CK56A	0603B104K500CT 100nF 10% 50V

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C500	0CK225DK94A	CL21F225ZBFNNNE 2.2uF -20TO+
		C501	0CE476WH6DC	MVK8.0TP25VC47M 47uF 20% 25V
		C502	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C503	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C504	0CK474DH56A	C2012X7R1E474KT 470nF 10% 25
		C505	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C506	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C507	0CK475EF56A	C3216X7R1C475KT 4.7uF 10% 16
		C508	0CK475EF56A	C3216X7R1C475KT 4.7uF 10% 16
		C509	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C510	0CE337WH6DC	MVK10TP25VC330M 330uF 20% 25
		C511	0CK475EF56A	C3216X7R1C475KT 4.7uF 10% 16
		C512	0CK105DH56A	C2012X7R105KFT 1uF 10% 25V X
		C513	0CE337WH6DC	MVK10TP25VC330M 330uF 20% 25
		C514	0CK475EF56A	C3216X7R1C475KT 4.7uF 10% 16
		C515	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C516	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C517	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C518	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C519	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C520	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C521	0CK474DH56A	C2012X7R1E474KT 470nF 10% 25
		C522	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C523	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C524	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C525	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C526	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C527	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C600	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C602	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C604	0CK103CK56A	0603B103K500CT 10nF 10% 50V
		C605	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C606	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C607	0CK273CK56A	0603B273K500CT 27nF 10% 50V
		C608	0CK273CK56A	0603B273K500CT 27nF 10% 50V
		C700	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C701	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C702	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C703	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C706	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C710	0CC680CK41A	C1608C0G1H680JT 68pF 5% 50V
		C711	0CC680CK41A	C1608C0G1H680JT 68pF 5% 50V
		C712	0CC680CK41A	C1608C0G1H680JT 68pF 5% 50V
		C713	0CC680CK41A	C1608C0G1H680JT 68pF 5% 50V
		C714	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C716	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C717	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C718	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C800	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C801	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C802	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C803	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C804	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C805	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C806	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C807	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C810	0CC221CK41A	C1608C0G1H221JT 220pF 5% 50V
		C812	0CC220CK41A	C1608C0G1H220JT 22pF 5% 50V
		C813	0CC220CK41A	C1608C0G1H220JT 22pF 5% 50V
		C814	0CC220CK41A	C1608C0G1H220JT 22pF 5% 50V
		C815	0CC220CK41A	C1608C0G1H220JT 22pF 5% 50V
		C816	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C817	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C818	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C819	0CE106WH6DC	MVK5.0TP25VC10M 10uF 20% 25V
		C820	0CC331CK41A	C1608C0G1H331JT 330pF 5% 50V
		C821	0CE106WFKDC	MVK4.0TP16VC10M 10uF 20% 16V
		C822	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C829	0CE335WK6D8	MVK4.0TP50VC3.3M 3.3uF 20% 5
		C830	0CE335WK6D8	MVK4.0TP50VC3.3M 3.3uF 20% 5
		C831	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C832	0CE335WK6D8	MVK4.0TP50VC3.3M 3.3uF 20% 5
		C833	0CE335WK6D8	MVK4.0TP50VC3.3M 3.3uF 20% 5
		C834	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C835	0CK222CK51A	0603B222K500CT 2.2nF 10% 50V
		C836	0CK222CK51A	0603B222K500CT 2.2nF 10% 50V
		C837	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C838	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C900	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C901	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
DIODES				
		D100	0DS181009AA	KDS181 1.2V 85V 300MA 2A 4NS
		D1101	0DR340009AA	MBRS340 525MV 40V 4A 0SEC 0F
		D1102	0DR340009AA	MBRS340 525MV 40V 4A 0SEC 0F
		D500	0DS181009AA	KDS181 1.2V 85V 300MA 2A 4NS
		D501	0DS181009AA	KDS181 1.2V 85V 300MA 2A 4NS
		D502	0DS181009AA	KDS181 1.2V 85V 300MA 2A 4NS
		D700	0DD184009AA	KDS184 KDS184 TP KEC - 85V -
		D701	0DD184009AA	KDS184 KDS184 TP KEC - 85V -
		D702	0DS0N00138A	MMBD301LT1G 600MV 30V - - 1.
		D704	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D705	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D706	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		ZD1000	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1005	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1006	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1007	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1008	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1009	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1010	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1011	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1013	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1014	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1015	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1016	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1017	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1018	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1019	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1020	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD1021	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD701	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD702	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD703	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD704	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD705	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD800	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD801	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD802	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD803	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD804	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD809	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD811	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		ZD900	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD901	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD902	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD903	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD904	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD905	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD906	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
		ZD907	0DZ560009DA	UDZS5.6B 5.6V 5.49TO5.73V 60
IC				
		IC100	EAN33715803	"LGE9689AD-LF 300MVT03.6V,300"
		IC101	0IPRPKE008A	KIA7442F -0.3TO7.5V 4.2V 500
		IC103	0IMMRAL026C	AT24C64AN-10SU-2.7 64KBIT 81
		IC1100	0IPRPSG025A	LD1086D2M33 4.9TO30V 3.3V -
		IC1101	0IPMGSG016A	LD1086D2T18TR 3.4TO30V 1.8V
		IC1102	0IMCRMZ001A	"MP1583DN-Z,LF 4.75TO23V 21V"
		IC1103	0IMCRMZ001A	"MP1583DN-Z,LF 4.75TO23V 21V"
		IC1104	0IPMG00107A	AZ1117H-2.5TR/E1 15V 2.5V -
		IC1105	0IMCRRH001A	BA033FP-E2 4.3TO25V 3.3V 1W
		IC1106	EAN33594801	CS4352-CZZR 8.55TO12.6 3.13T
		IC1108	0ISS780500H	KA78M05RTM 7TO20V 5V - DPAK
		IC400	EAN32205201	HY5DU281622FTP-5 128MBIT 8 x
		IC500	EAN33643401	YDA138-EZ(D-3) 9TO13.5V 7mV
		IC700	0IPRP00623A	"CM2021-00TR 1VTO5.5V,0VTO0V,"
		IC701	0IMMRAL014D	AT24C02BN-10SU-1.8 2KBIT 256
		IC702	0IMMRAL014D	AT24C02BN-10SU-1.8 2KBIT 256
			SAA30688801	3.01 6477 EUROPE flash ROM 2
COIL & FILTER & INDUCTOR				
		L1000	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L1001	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L1002	0LC0233002A	FI-B2012-332KJT 3.3UH 10% -
		L1003	0LC0233002A	FI-B2012-332KJT 3.3UH 10% -
		L1004	0LC0233002A	FI-B2012-332KJT 3.3UH 10% -
		L1005	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L1006	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L1007	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L102	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L103	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L1100	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L1101	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L1102	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L1103	61409B0002A	DBF-1030A 30uH - 2.5A 10.8X1
		L1104	61409B0002A	DBF-1030A 30uH - 2.5A 10.8X1
		L111	6200J00005E	HH-1M2012-601JT 600OHM 2X1.2
		L1111	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L1113	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L1114	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L300	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L304	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L305	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L306	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L307	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L500	61409B0002A	DBF-1030A 30uH - 2.5A 10.8X1
		L501	61409B0002A	DBF-1030A 30uH - 2.5A 10.8X1
		L503	61409B0002A	DBF-1030A 30uH - 2.5A 10.8X1
		L504	61409B0002A	DBF-1030A 30uH - 2.5A 10.8X1
		L505	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L506	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L507	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		L508	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L509	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L510	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L511	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L512	6210TCE001G	HH-1M3216-501JT 500OHM 3.2X1
		L800	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L801	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L802	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L803	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L804	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L805	6200J00005E	HH-1M2012-601JT 600OHM 2X1.2
		L806	6200J00005E	HH-1M2012-601JT 600OHM 2X1.2
		L807	6200J00005E	HH-1M2012-601JT 600OHM 2X1.2
		L900	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		L901	6210TCE001A	HB-1S2012-080JT 8OHM 2X1.25X
		X100	6202VDT002B	SX-1 14.31818MHZ 30PPM(16PF)
TRANSISTOR				
		Q1102	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q300	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q302	0TR390609FA	KST3906-MTF PNP -5V -40V -40
		Q303	0TR390609FA	KST3906-MTF PNP -5V -40V -40
		Q304	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q305	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q307	EBK32753101	SI4925BDY P-CHANNEL MOSFET -
		Q500	0TR150400BA	2SA1504S(ASY) PNP -5V -50V -
		Q501	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q600	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q601	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q602	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
		Q603	0TR150400BA	2SA1504S(ASY) PNP -5V -50V -
		Q606	0TR150400BA	2SA1504S(ASY) PNP -5V -50V -
		Q607	0TR150400BA	2SA1504S(ASY) PNP -5V -50V -
		Q610	0TR387500AA	2SC3875S(ALY) NPN 5V 60V 50V
RESISTORS				
		AR400	0RJ1000C687	RCA86TRJ100R 100OHM 5% 1/16W
		AR401	0RJ1000C687	RCA86TRJ100R 100OHM 5% 1/16W
		AR410	0RJ1000C687	RCA86TRJ100R 100OHM 5% 1/16W
		AR411	0RJ1000C687	RCA86TRJ100R 100OHM 5% 1/16W
		R1000	0RJ0752D477	MCR03EZPF750 75OHM 1% 1/10W
		R1001	0RJ0752D477	MCR03EZPF750 75OHM 1% 1/10W
		R1002	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R1003	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R1004	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R1005	0RJ0752D477	MCR03EZPF750 75OHM 1% 1/10W
		R1006	0RJ1502D677	MCR03EZPJ153 15KOHM 5% 1/10W
		R1007	0RJ1502D677	MCR03EZPJ153 15KOHM 5% 1/10W
		R1008	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R1009	0RJ9101D677	MCR03EZPJ912 9.1KOHM 5% 1/10
		R101	0RJ1004D477	MCR03EZPF105 1MOHM 1% 1/10W
		R1010	0RJ9101D677	MCR03EZPJ912 9.1KOHM 5% 1/10
		R1011	0RJ0752D477	MCR03EZPF750 75OHM 1% 1/10W
		R1012	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R1013	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R1014	0RJ0752D477	MCR03EZPF750 75OHM 1% 1/10W
		R1015	0RJ0752D477	MCR03EZPF750 75OHM 1% 1/10W
		R1016	0RJ1202D677	MCR03EZPJ123 12KOHM 5% 1/10W
		R1017	0RJ1202D677	MCR03EZPJ123 12KOHM 5% 1/10W
		R102	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W

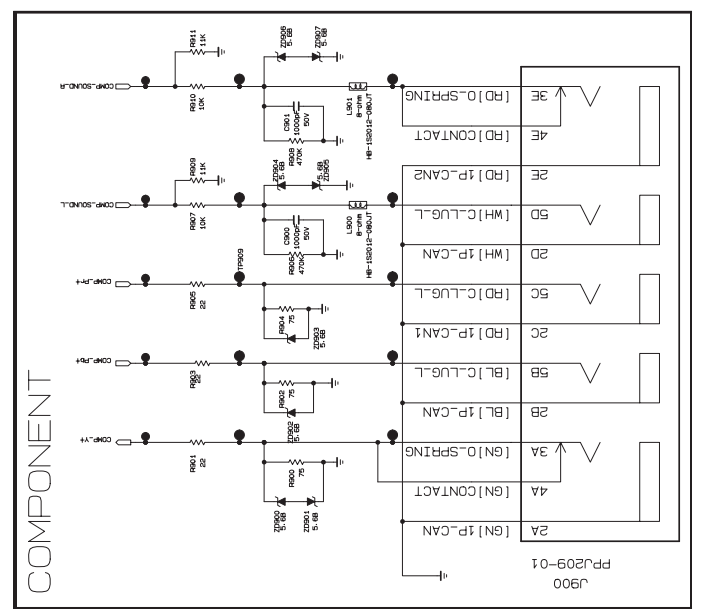
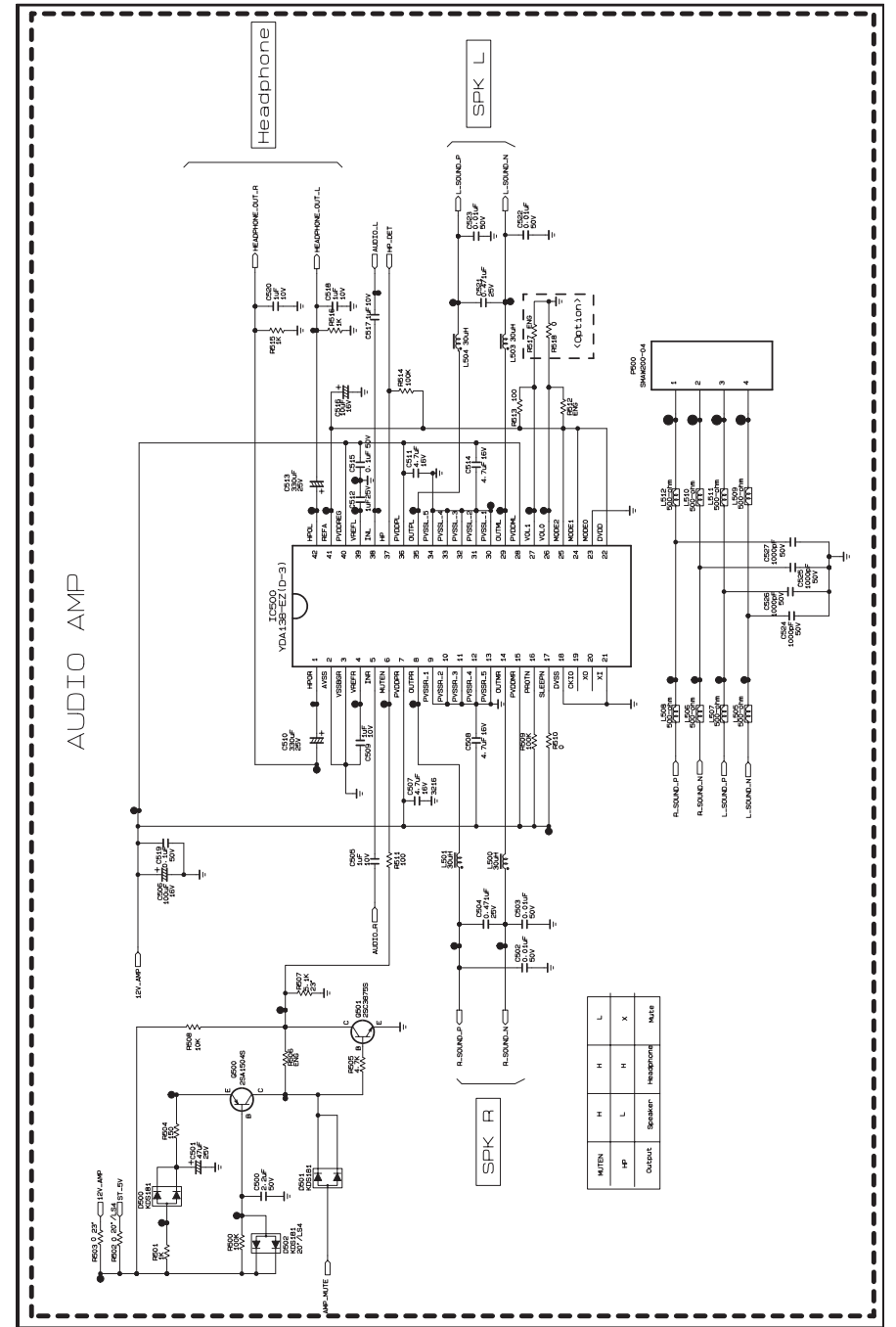
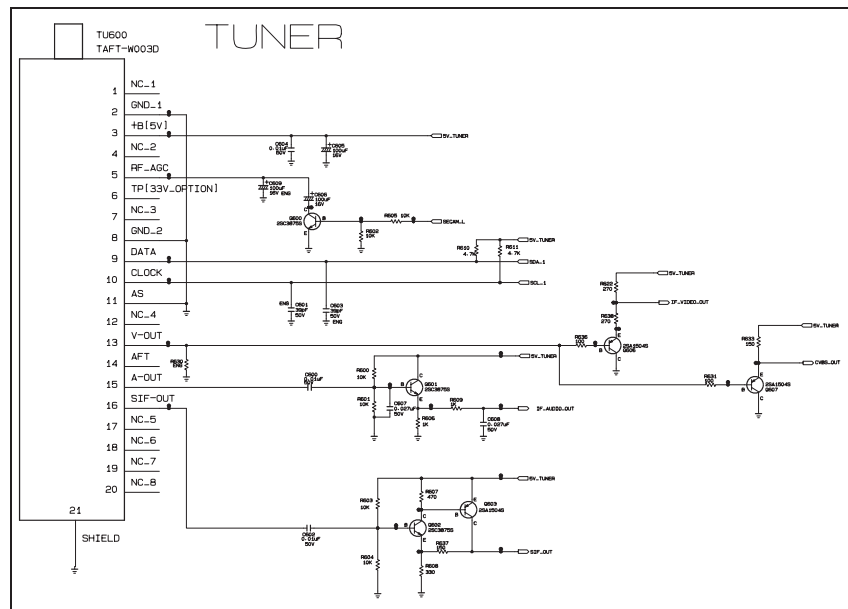
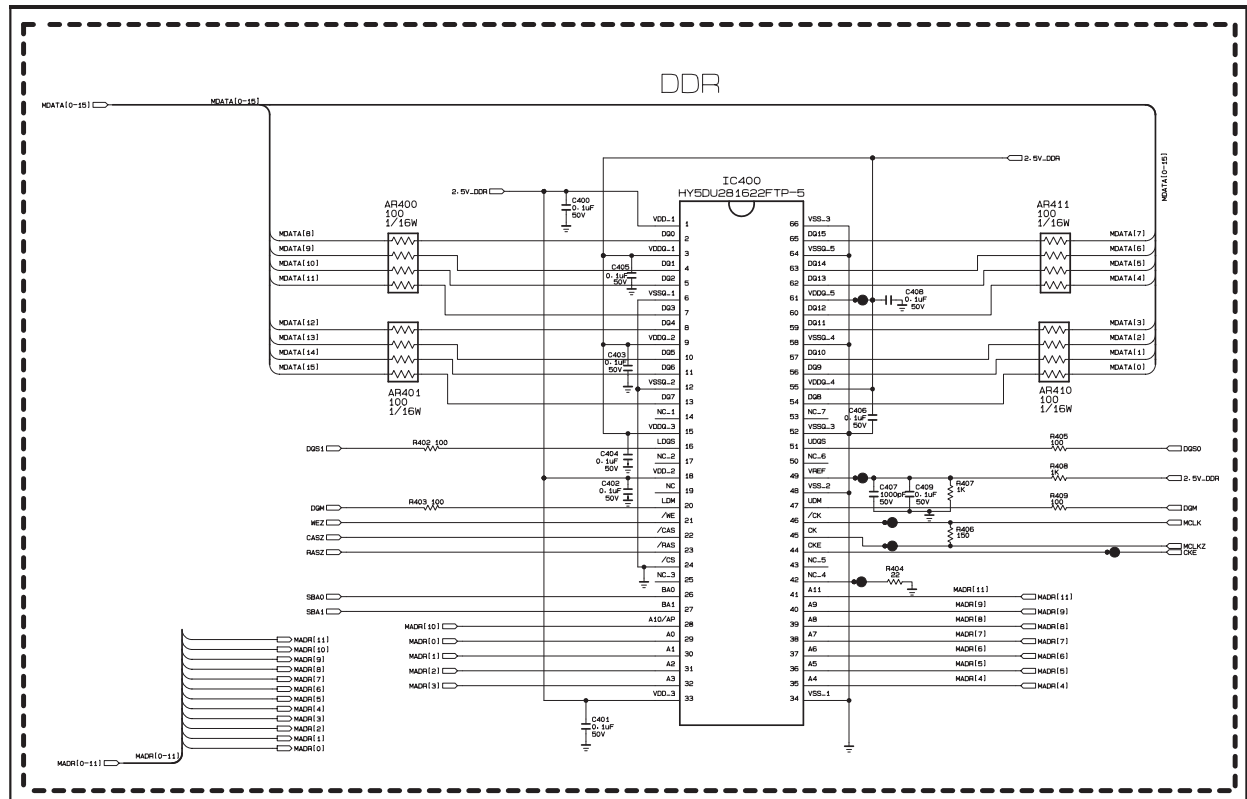
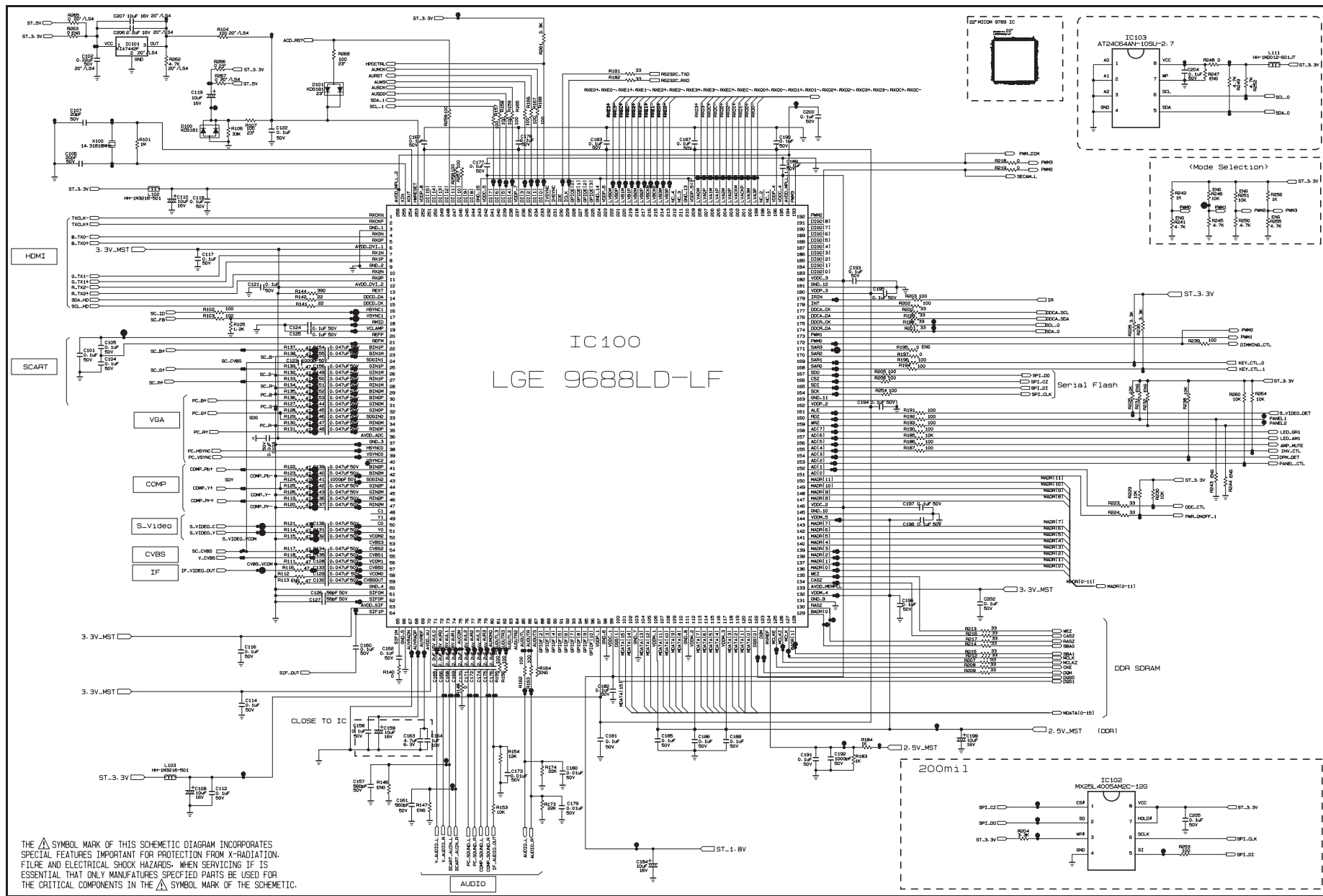
DATE: 2006. 12. 28.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
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		R1022	0RJ0561D677	MCR03EZPJ5R6 5.6OHM 5% 1/10W
		R103	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R104	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R105	0RJ1201D677	MCR03EZPJ122 1.2KOHM 5% 1/10
		R106	0RJ3302D677	MCR03EZPJ333 33KOHM 5% 1/10W
		R1104	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R1105	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R1106	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R1107	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R111	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R1110	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R1111	0RJ6801D477	MCR03EZPF682 6.8KOHM 1% 1/10
		R1112	0RJ2202D477	MCR03EZPF223 22KOHM 1% 1/10W
		R1113	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R1114	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R1115	0RJ6801D477	MCR03EZPF682 6.8KOHM 1% 1/10
		R1116	0RJ5902C477	MCR03EZPF5902 59KOHM 1% 1/10
		R1117	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R1118	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R112	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R1123	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R1126	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R1128	0RX0332K665	RSD02F4J33R0 33OHM 5% 2W 12.
		R1129	0RX0332K665	RSD02F4J33R0 33OHM 5% 2W 12.
		R114	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R115	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R116	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R117	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R118	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R119	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R120	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R121	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R122	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R123	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R124	0RJ4700D677	MCR03EZPJ471 470OHM 5% 1/10W
		R125	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R126	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R127	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R128	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R129	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R130	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R131	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R132	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R133	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R134	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R135	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R136	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R137	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R138	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R139	0RJ0472D677	MCR03EZPJ470 47OHM 5% 1/10W
		R140	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R141	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R142	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R144	0RJ3900D677	MCR03EZPJ391 390OHM 5% 1/10W
		R148	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R153	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R154	0RJ1202D677	MCR03EZPJ123 12KOHM 5% 1/10W
		R155	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R156	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
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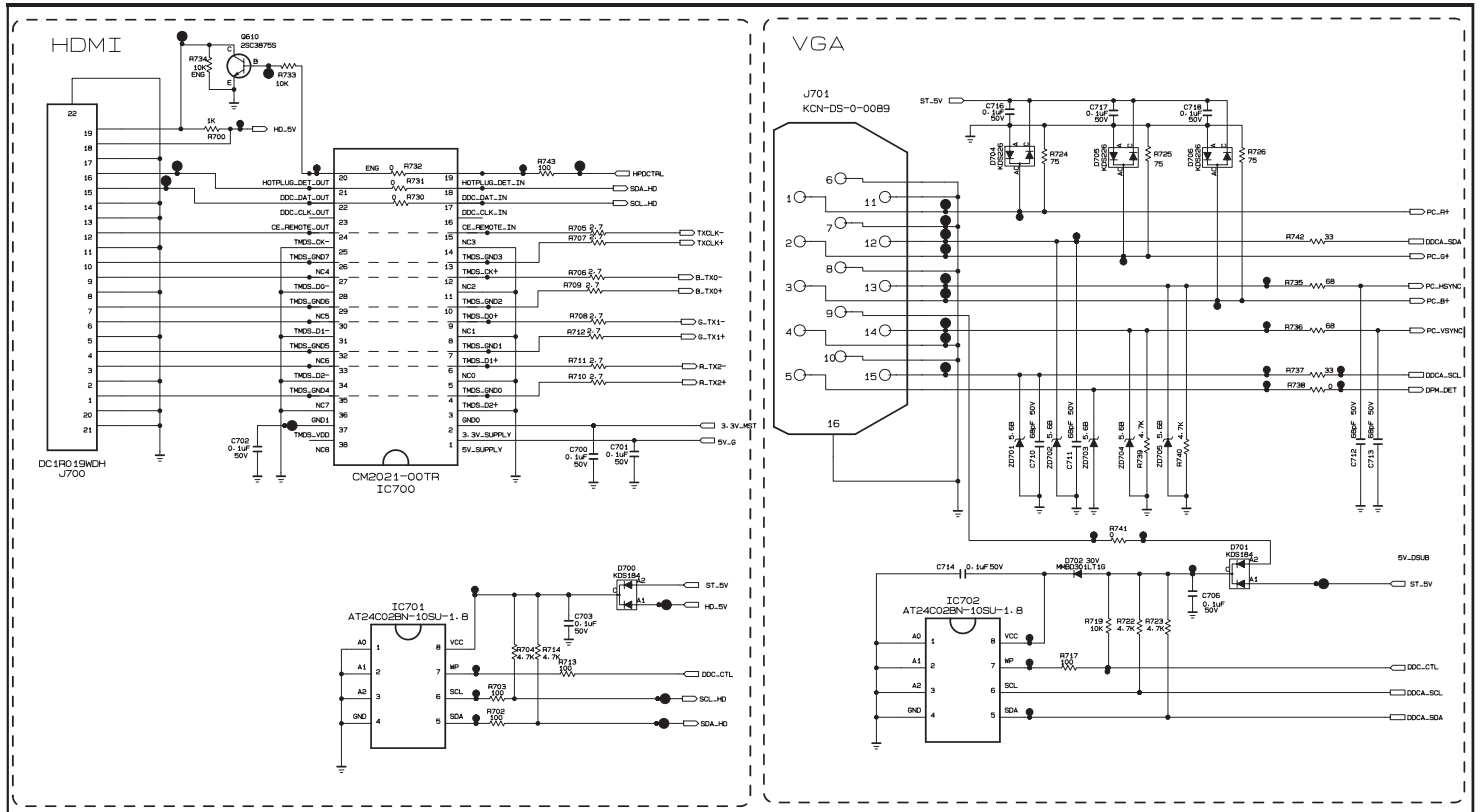
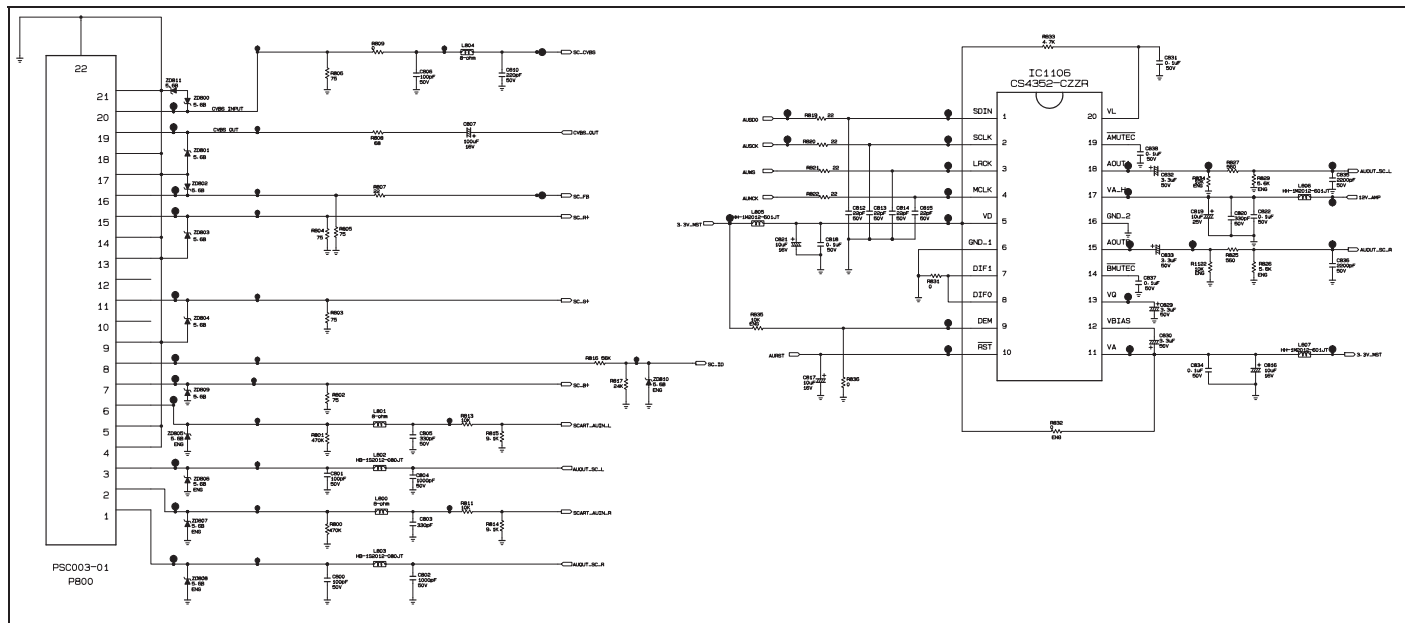
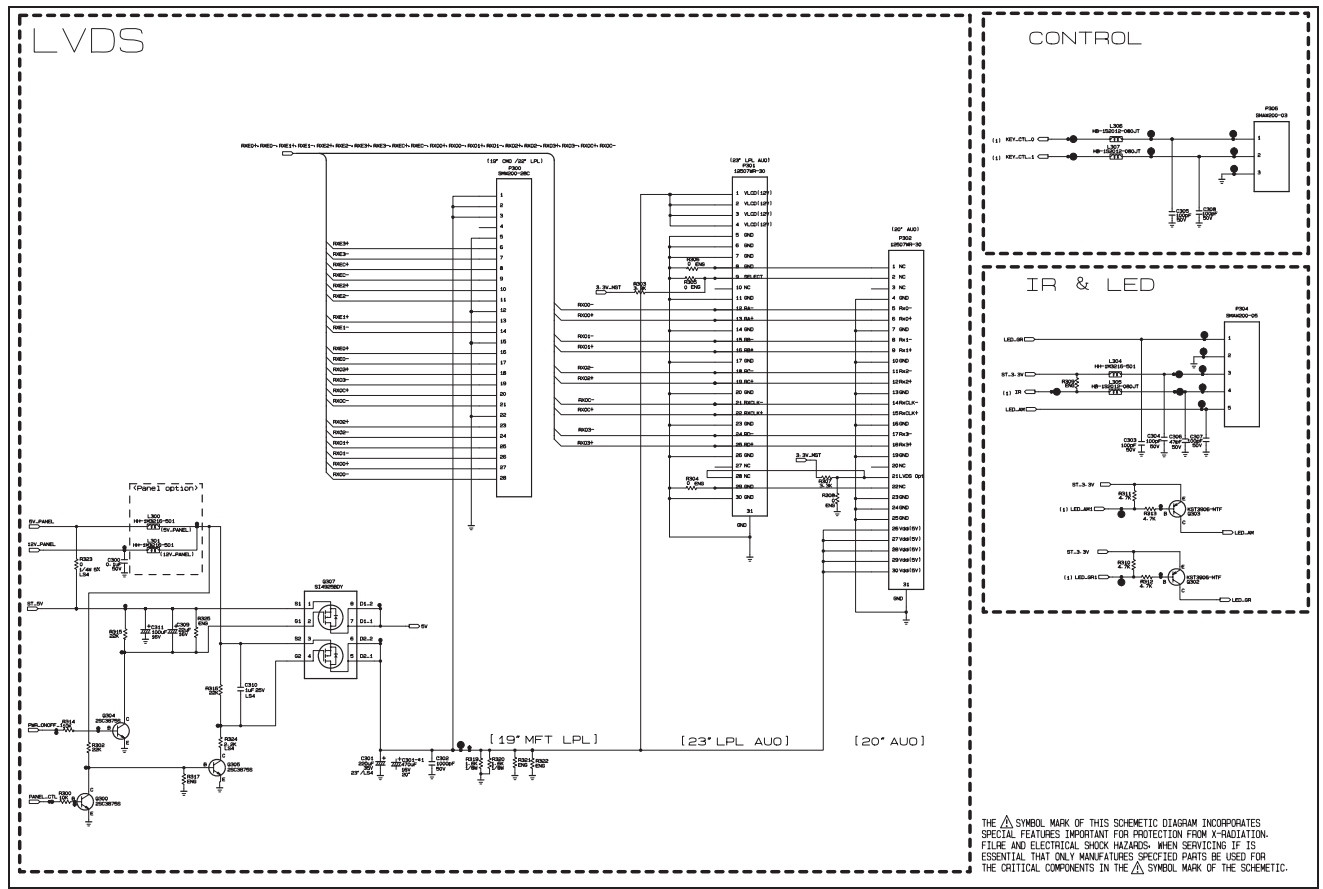
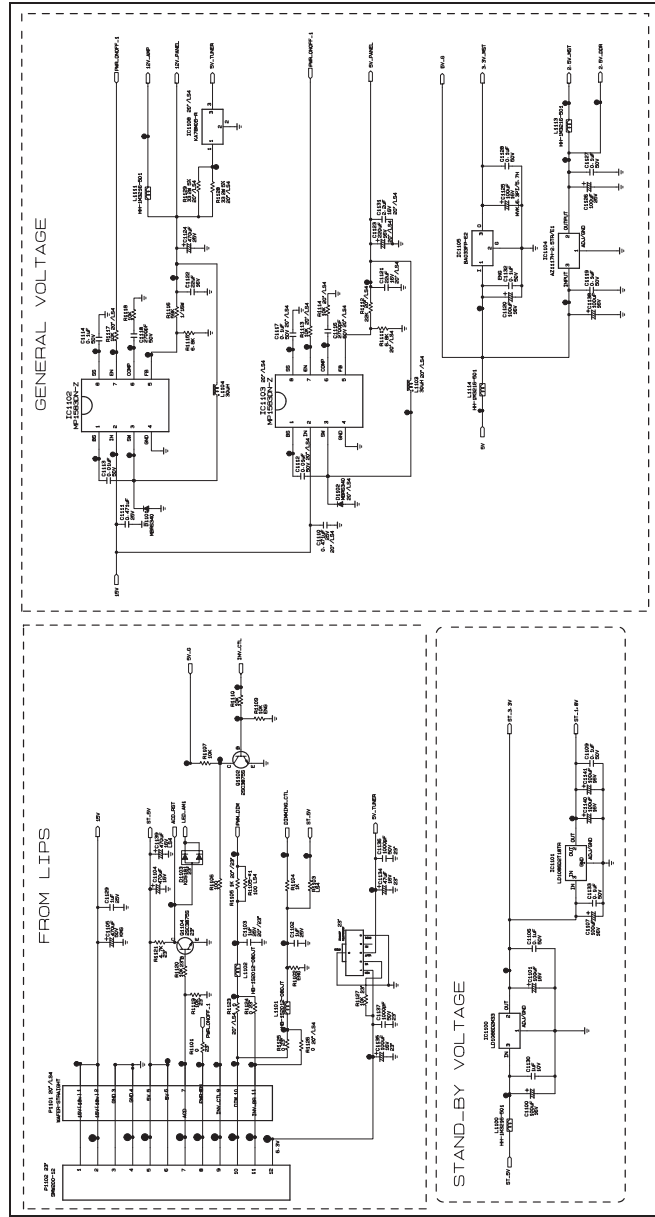
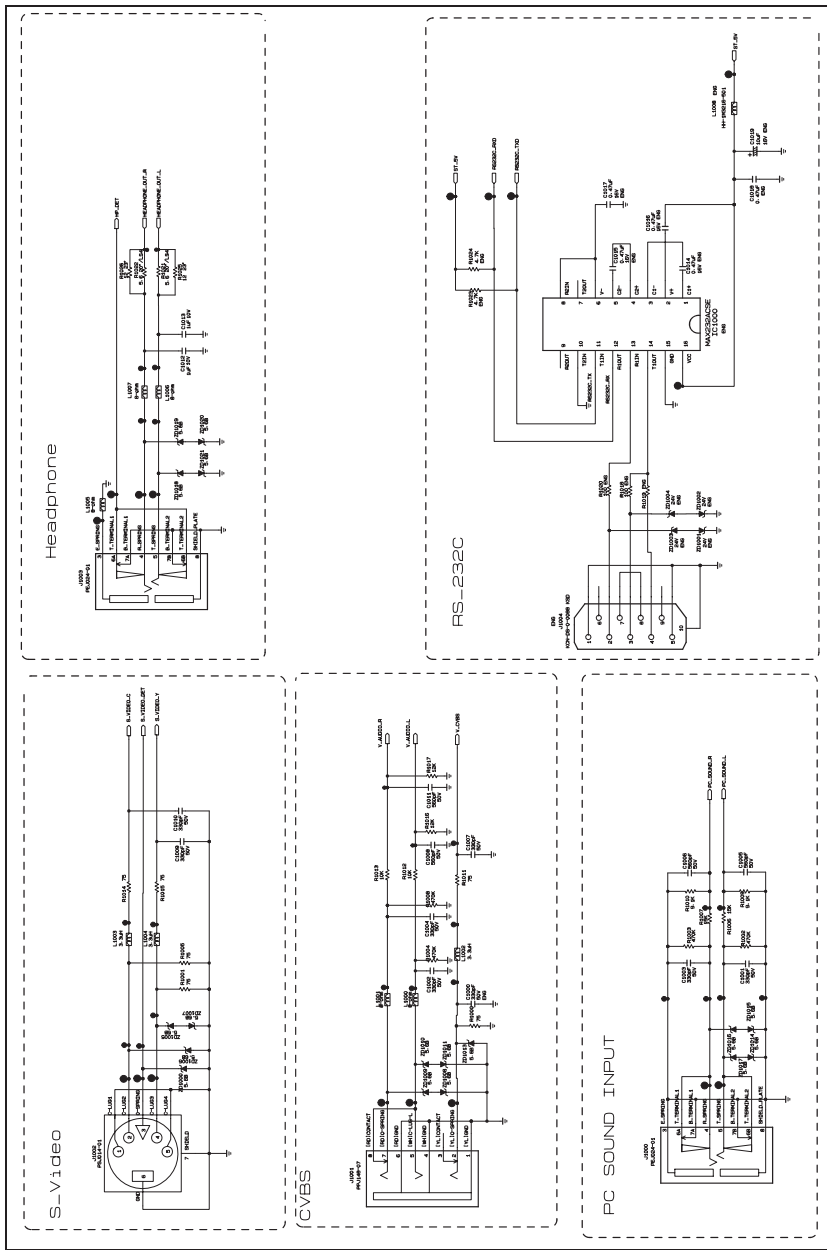
DATE: 2006. 12. 28.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
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		R162	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R163	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R165	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R166	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R167	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R168	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R173	0RJ2202D677	MCR03EZPJ223 22KOHM 5% 1/10W
		R174	0RJ2202D677	MCR03EZPJ223 22KOHM 5% 1/10W
		R181	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R182	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R183	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R184	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R185	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R186	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R187	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R190	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R191	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R192	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R193	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R194	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R196	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R197	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
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		R201	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R202	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R203	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R204	0RJ3301D677	MCR03EZPJ332 3.3KOHM 5% 1/10
		R205	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R206	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R207	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R208	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R209	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R212	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
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		R223	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R224	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R225	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R228	0RJ3301D677	MCR03EZPJ332 3.3KOHM 5% 1/10
		R229	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R230	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R235	0RJ3301D677	MCR03EZPJ332 3.3KOHM 5% 1/10
		R238	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R239	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R242	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R245	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R248	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R249	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R250	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
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		R253	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R254	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R256	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R257	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W

DATE: 2006. 12. 28.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
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		R260	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R261	0RJ3301D677	MCR03EZPJ332 3.3KOHM 5% 1/10
		R262	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R264	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R265	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R267	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R300	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R302	0RJ2202D677	MCR03EZPJ223 22KOHM 5% 1/10W
		R303	0RJ3301D677	MCR03EZPJ332 3.3KOHM 5% 1/10
		R307	0RJ3301D677	MCR03EZPJ332 3.3KOHM 5% 1/10
		R310	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R311	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R312	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R313	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R314	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R315	0RJ2202D677	MCR03EZPJ223 22KOHM 5% 1/10W
		R316	0RJ2202D677	MCR03EZPJ223 22KOHM 5% 1/10W
		R319	0RJ1601E472	MCR10EZH162 1.6KOHM 1% 1/8W
		R320	0RJ1601E472	MCR10EZH162 1.6KOHM 1% 1/8W
		R324	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R325	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R402	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R403	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R404	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R405	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R406	0RJ1500D677	MCR03EZPJ151 150OHM 5% 1/10W
		R407	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R408	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R409	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R500	0RJ1003D677	MCR03EZPJ104 100KOHM 5% 1/10
		R501	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R502	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R504	0RJ1500D677	MCR03EZPJ151 150OHM 5% 1/10W
		R505	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R508	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R509	0RJ1003D677	MCR03EZPJ104 100KOHM 5% 1/10
		R510	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R511	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R513	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R514	0RJ1003D677	MCR03EZPJ104 100KOHM 5% 1/10
		R515	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R516	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R518	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R600	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R601	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R602	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R603	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R604	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R605	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R606	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R607	0RJ4700D677	MCR03EZPJ471 470OHM 5% 1/10W
		R608	0RJ3300D677	MCR03EZPJ331 330OHM 5% 1/10W
		R609	0RJ1001D677	MCR03EZPJ101 100OHM 5% 1/10W
		R610	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R611	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R622	0RJ2700D677	MCR03EZPJ271 270OHM 5% 1/10W
		R631	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R633	0RJ1500D677	MCR03EZPJ151 150OHM 5% 1/10W
		R636	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R637	0RJ1500D677	MCR03EZPJ151 150OHM 5% 1/10W

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R638	0RJ2700D677	MCR03EZPJ271 270OHM 5% 1/10W
		R700	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R702	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R703	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R704	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R705	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R706	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R707	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R708	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R709	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R710	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R711	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R712	0RJ0271D677	MCR03EZPJ2R7 2.7OHM 5% 1/10W
		R713	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R714	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R717	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R719	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R722	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R723	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R724	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R725	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R726	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R730	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R731	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R733	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R735	0RJ0682D677	MCR03EZPJ680 68OHM 5% 1/10W
		R736	0RJ0682D677	MCR03EZPJ680 68OHM 5% 1/10W
		R737	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R738	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R739	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R740	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R741	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R742	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R743	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R800	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R801	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R802	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R803	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R804	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R805	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R806	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R807	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R808	0RJ0682D677	MCR03EZPJ680 68OHM 5% 1/10W
		R809	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R811	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R813	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R814	0RJ9101D677	MCR03EZPJ912 9.1KOHM 5% 1/10
		R815	0RJ9101D677	MCR03EZPJ912 9.1KOHM 5% 1/10
		R816	0RJ5602D477	MCR03EZPF563 56KOHM 1% 1/10W
		R817	0RJ1102D677	MCR03EZPJ113 11KOHM 5% 1/10W
		R819	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R820	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R821	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R822	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R825	0RJ5600D677	MCR03EZPJ561 560OHM 5% 1/10W
		R827	0RJ5600D677	MCR03EZPJ561 560OHM 5% 1/10W
		R831	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R833	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R836	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R900	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R901	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R902	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R903	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R904	0RJ0752D477	MCR03EZPF750 750OHM 1% 1/10W
		R905	0RJ0222D677	MCR03EZPJ220 22OHM 5% 1/10W
		R906	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R907	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R908	0RJ4703D677	MCR03EZPJ474 470KOHM 5% 1/10
		R909	0RJ1102D677	MCR03EZPJ113 11KOHM 5% 1/10W
		R910	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R911	0RJ1102D677	MCR03EZPJ113 11KOHM 5% 1/10W
CONNECTOR				
		J701	6630TGA004H	KCN-DS-0-0089 D-SUB 15P 2.29
		P1101	6602T20008K	SMW200-11P 11P 2.00MM 1R STR
		P302	6630VF00530	12507WR-30A00 30P 1.25MM 1R
		P304	6602T20009D	SMAW200-05P 5P 2.00MM 1R ANG
		P306	6602T20009B	SMAW200-03P 3P 2.00MM 1R ANG
		P500	6602T20009C	SMAW200-04P 4P 2.00MM 1R ANG
JACK				
		J1000	6612F00099A	PEJ024-01 1P 4P STRAIGHT TR
		J1001	6612J10003K	PPJ148-07 14.0MM 1RX3C STRAI
		J1002	6612F00024C	PSJ014-01 SOCKET 4P ANGLE DI
		J1003	6612F00099A	PEJ024-01 1P 4P STRAIGHT TR
		J700	6612B00015B	DC1R019WDH SOCKET 21P STRAIG
		J900	6612J10031B	PPJ209-01 14.0MM 1RX3C ANGLE
		P800	6612M00010A	PSC003-01 21P 21P/1C 3.81MM
OTHERS				
		TU600	EBL35311201 6631T20023A	TAFT-W003D PAL-B/G+I+D/K SEC SMH200-11 SMH200-11 200mM 2.
CONTROL BOARD				
		C4000	0CN1040K949	CH UP050 F104Z-B-B Z 100nF -
		C4001	0CN1040K949	CH UP050 F104Z-B-B Z 100nF -
		P4000	6602T20009B	SMAW200-03P 3P 2.00MM 1R ANG
		R4000	0RN6801F409	RN-96T1F6K80 6.8KOHM 1% 1/6W
		R4001	0RN2201F409	RN-96T1F2K20 2.2KOHM 1% 1/6W
		R4002	0RN1001F409	RN-96T1F1K00 1KOHM 1% 1/6W 3
		R4003	0RN6801F409	RN-96T1F6K80 6.8KOHM 1% 1/6W
		R4004	0RN2201F409	RN-96T1F2K20 2.2KOHM 1% 1/6W
		R4005	0RN1001F409	RN-96T1F1K00 1KOHM 1% 1/6W 3
		SW4000	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		SW4001	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		SW4002	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		SW4003	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		SW4004	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		SW4005	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		SW4006	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		SW4007	140-058B	EVQPB205K 1C1P 15VDC 0.02A V
		ZD4000	0DZ560009CF	MTZJ5.6B 5.6V 5.45TO5.73V 40
		ZD4001	0DZ560009CF	MTZJ5.6B 5.6V 5.45TO5.73V 40
			6631900022P	SMH200-3P SMH200-3P 400mM 2.
LED&IR BOARD				
		C5000	0CH5101K416	C2012C0G1H101JT 100pF 5% 50V
		C5001	0CH5101K416	C2012C0G1H101JT 100pF 5% 50V
		C5002	0CH5470K416	0805N470J500LT 47pF 5% 50V C







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