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COLOR MONITOR SERVICE MANUAL

CHASSIS NO. : LM62A

MODEL: FLATRON L1900J (L1900J-BFQ.A**TNP)

() **Same model for Service

CAUTION

BEFORE SERVICING THE UNIT,
READ THE **SAFETY PRECAUTIONS** IN THIS MANUAL.



*To apply the **MSTAR Chip**.

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SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT Color LCD Module
Active Display Area	: 19 inch
Pixel Pitch	: 0.294 (H) x 0.294 (V)
Color Depth	: 16.7M colors
Size	: 396 (H) x 324 (V) x 12(D)
Electrical Interface	: LVDS
Surface Treatment	: Hard-coating(3H), Anti-Glare
Operating Mode	: Normally White, Transmissive mode
Backlight Unit	: 4-CCFL

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10

Left : -70° min., -80°(Typ) Right : +70° min., +80°(Typ)
Top : +60° min., +75°(Typ) Bottom : -70° min., -85°(Typ)

2-2. Luminance : 250(min)-**6500K**

2-3. Contrast Ratio : 450(min), 700(Typ)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal

- Type : Separate Sync, Digital, SOG

3-2. Video Input Signal

- 1) Type : R, G, B Analog
- 2) Voltage Level : 0~0.71 V
 - a) Color 0, 0 : 0 Vp-p
 - b) Color 7, 0 : 0.467Vp-p
 - c) Color 15, 0 : 0.714Vp-p
- 3) Input Impedance : 75 Ω

3-3. Operating Frequency

- Horizontal(Analog) : 30 ~ 83kHz
- Horizontal(Digital) : 30 ~ 71kHz
- Vertical : 56 ~ 75Hz

4. Max. Resolution

D-sub Analog	: 1280 x 1024@75Hz
Digital	: 1280 x 1024@60Hz

5. POWER SUPPLY

5-1. Power : AC 100~240V, 50/60Hz , 0.6A

5-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 39 W	RED
STAND-BY	OFF/ON	OFF	less than 2 W	FROM DARK
SUSPEND	ON/OFF	OFF	less than 2 W	TO BRIGHT
DPMS OFF	OFF/OFF	OFF	less than 2 W	MODE IS
POWER S/W Off	-	-	less than 1 W	REPEATED

6. ENVIRONMENT

6-1. Operating Temperature : 10°C~35°C (50°F~95°F)
(Ambient)

6-2. Relative Humidity : 10%~80% (Non-condensing)

6-3. MTBF : 50,000 HRS with 90% Confidence
Lamp Life : 50,000 Hours(Min)

7. DIMENSIONS (with TILT/SWIVEL)

Width	: 416.5 mm (16.40")
Depth	: 148.4 mm (5.84")
Height	: 432 mm (17.01")

8. WEIGHT (with TILT/SWIVEL)

Net. Weight	: 5.8 kg (12.79 lbs)
Gross Weight	: 8.1 kg (17.86 lbs)

PRECAUTION

WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in LCD monitor that are important for safety. **These parts are marked \triangle on the schematic diagram and the replacement parts list.** It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.
- Do not modify original design without obtaining written permission from manufacturer or you will void the original parts and labor guarantee.

TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person's body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- The module not be exposed to the direct sunlight.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a softmaterial. (Cleaning with a dirty or rough cloth may damage the panel.)

\triangle CAUTION

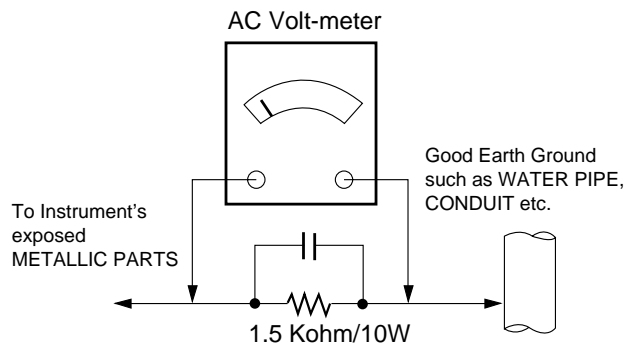
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

\triangle WARNING

BE CAREFUL ELECTRIC SHOCK !

- If you want to replace with the new backlight (CCFL) or inverter circuit, must disconnect the AC adapter because high voltage appears at inverter circuit about 650Vrms.
- Handle with care wires or connectors of the inverter circuit. If the wires are pressed cause short and may burn or take fire.

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.

- d. Discharging the picture tube anode.
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. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
 4. Do not spray chemicals on or near this receiver or any of its assemblies.
 5. 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.
 6. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
 7. 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.
 8. 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.

9. 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 of 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 small 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.

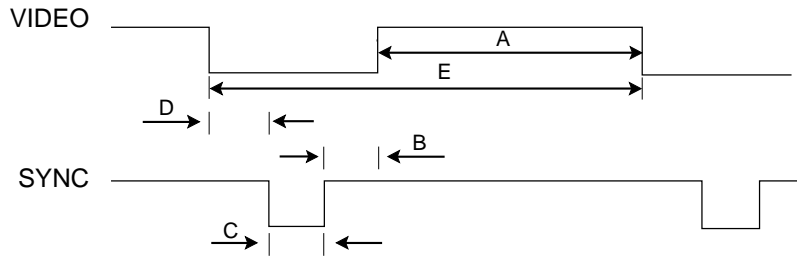
Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.

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.

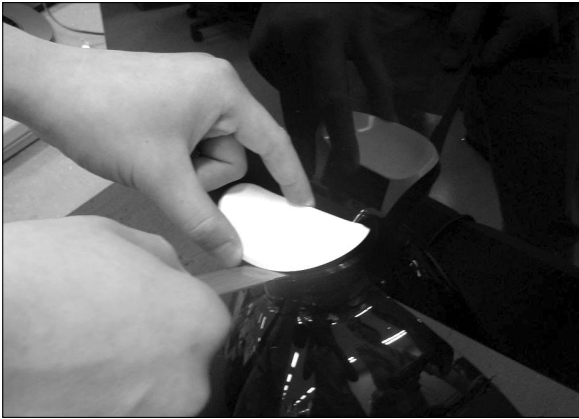
TIMING CHART



MODE	H / V	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Sync Duration (D)	Front Porch (C)	Blanking Time (B)	Resolution
1	H(Pixels)	+	25.175	31.469	800	640	16	96	48	640 x 350
	V(Lines)	-		70.09	449	350	37	2	60	
2	H(Pixels)	-	28.321	31.468	900	720	18	108	54	720 X 400
	V(Lines)	+		70.08	449	400	12	2	35	
3	H(Pixels)	-	25.175	31.469	800	640	16	96	48	640 x 480
	V(Lines)	-		59.94	525	480	10	2	33	
4	H(Pixels)	-	31.5	37.5	840	640	16	64	120	640 x 480
	V(Lines)	-		75	500	480	1	3	16	
5	H(Pixels)	+	40.0	37.879	1056	800	40	128	88	800 x 600
	V(Lines)	+		60.317	628	600	1	4	23	
6	H(Pixels)	+	49.5	46.875	1056	800	16	80	160	800 x 600
	V(Lines)	+		75.0	625	600	1	3	21	
7	H(Pixels)	+/-	57.283	49.725	1152	832	32	64	224	832 x 624
	V(Lines)	+/-		74.55	667	624	1	3	39	
8	H(Pixels)	-	65.0	48.363	1344	1024	24	136	160	1024 x 768
	V(Lines)	-		60.0	806	768	3	6	29	
9	H(Pixels)	-	78.75	60.123	1312	1024	16	96	176	1024 x 768
	V(Lines)	-		75.029	800	768	1	3	28	
10	H(Pixels)	+/-	100.0	68.681	1456	1152	32	128	144	1152 x 870
	V(Lines)	+/-		75.062	915	870	3	3	39	
11	H(Pixels)	+/-	92.978	61.805	1504	1152	18	134	200	1152 x 900
	V(Lines)	+/-		65.96	937	900	2	4	31	
12	H(Pixels)	+	108.0	63.981	1688	1280	48	112	248	1280 x 1024
	V(Lines)	+		60.02	1066	1024	1	3	38	
13	H(Pixels)	+	135.0	79.976	1688	1280	16	144	248	1280 x 1024
	V(Lines)	+		75.035	1066	1024	1	3	38	

DISASSEMBLY

1



Disassembly Stand Top Cover with Jig
(jig P/No : 3911900036A)

2



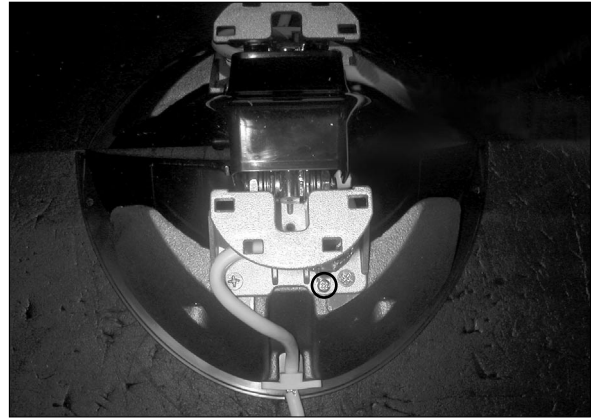
1. Disassembly Rubber and Remove the screws.
2. Disassembly Stand Cover.

3



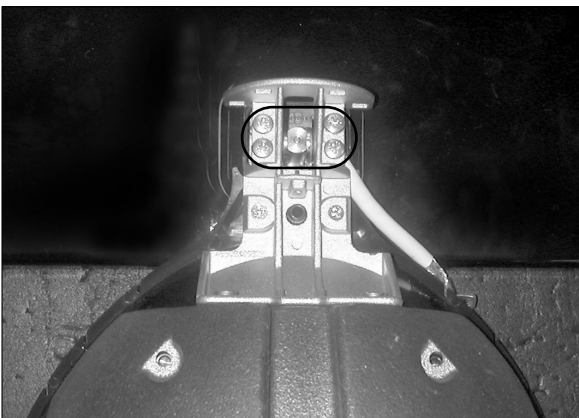
Remove the tape and screws.

4



Remove the screw.

5



Remove the screw.

6

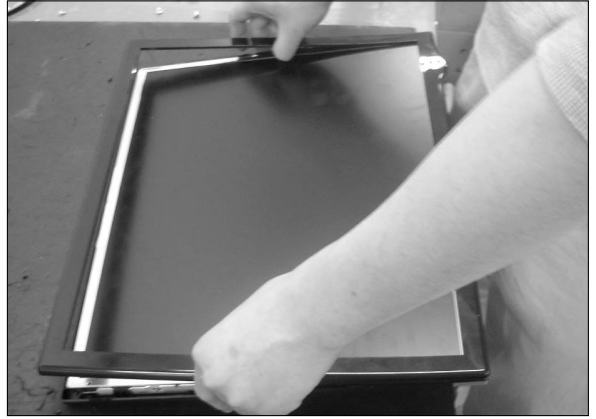


let the all latches are separated.(#6-1~#6-4)

6-1



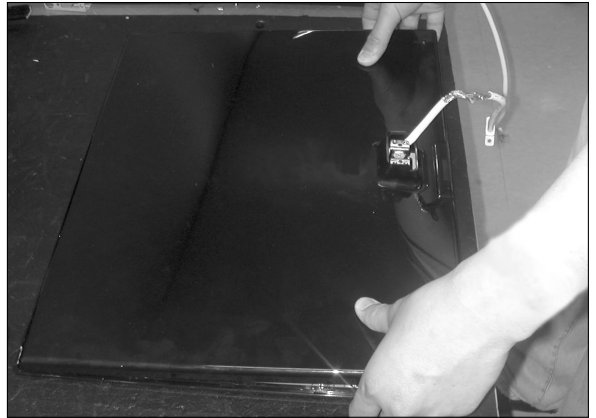
6-2



6-3

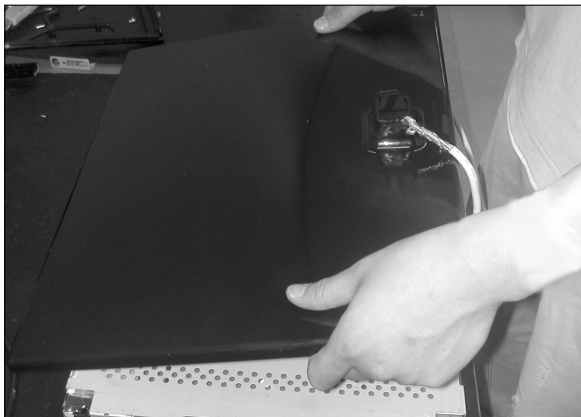


6-4



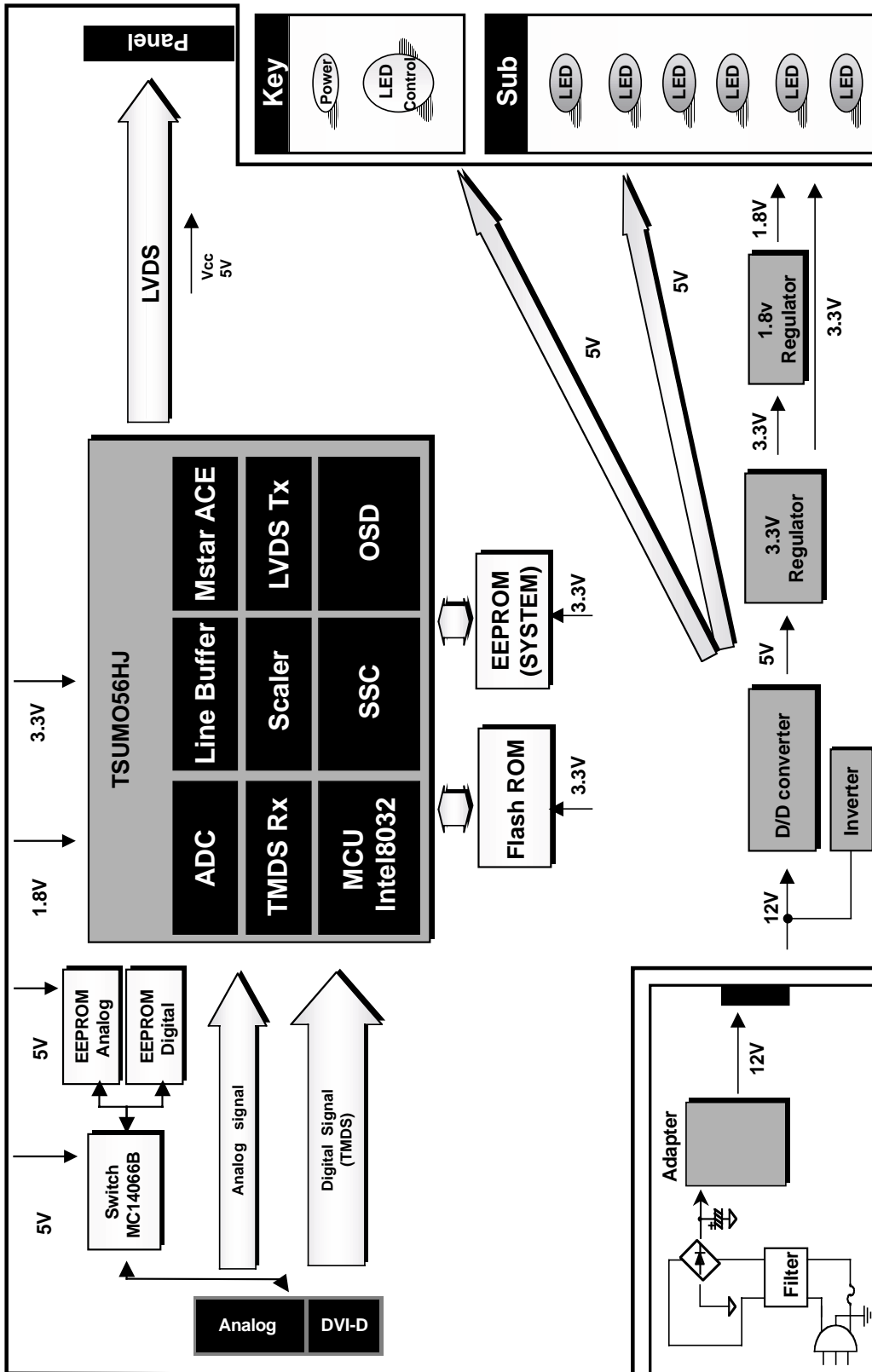
1. Put the front face down.
2. Let the all latches are separated.

7



Disassemble back cover.

BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Video Controller Part.

This part amplifies the level of video signal for the digital conversion and converts from the analog video signal to the digital video signal using a pixel clock.

The pixel clock for each mode is generated by the PLL.

The range of the pixel clock is from 25MHz to 135MHz.

This part consists of the Scaler, ADC and TMDS receiver .

The Scaler gets the video signal converted analog to digital, interpolates input to 1280 X 1024 resolution signal and outputs 8-bit R, G, B signal to transmitter.

2. Power Part.

This part consists of the 3.3V regulator to convert power which is provided 12V,

5V is provided for LCD panel.

Also, 5V is converted 3.3V by regulator and 3.3V is converted 1.8V by regulator.

Converted power is provided for IC in the main board.

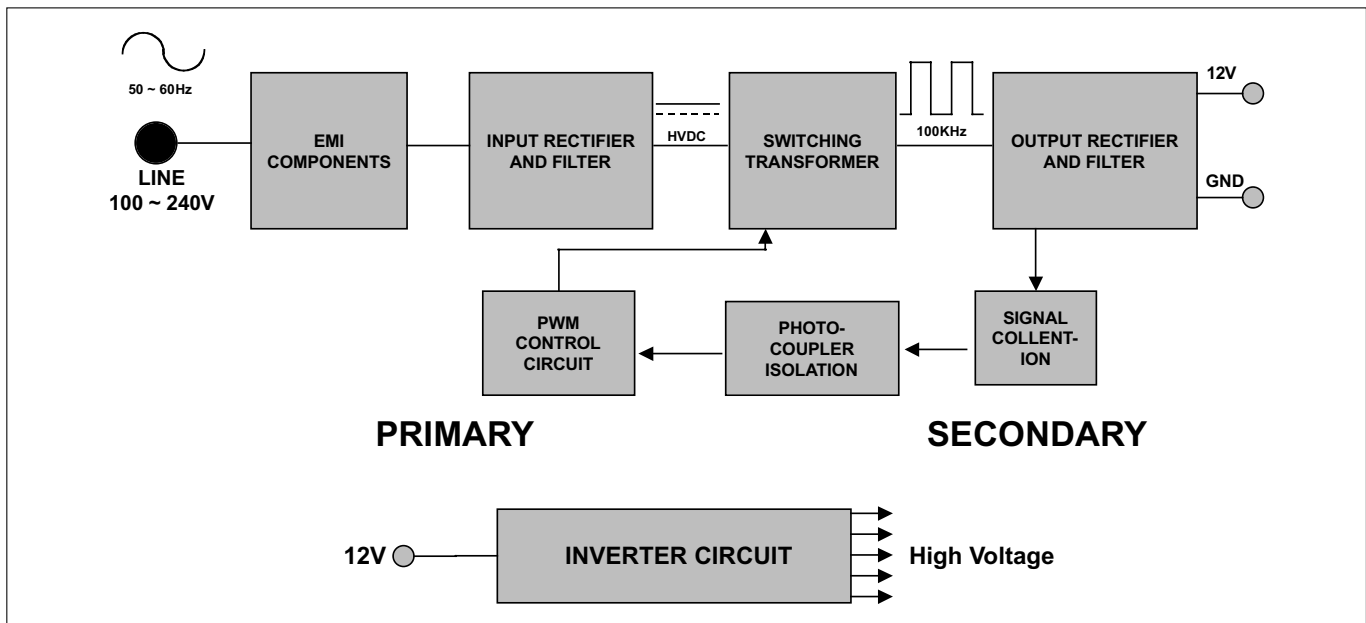
3. MICOM Part.

This part consists of EEPROM IC which stores control data and the Micom.

The Micom distinguishes polarity and frequency of the H/V sync are supplied from signal cable.

The controlled data of each modes is stored in EEPROM.

Adapter Board Block Diagram



Operation description

1. EMI components.

This part contains of EMI components to comply with global marketing EMI standards like FCC,VCCI CISPR, the circuit included a line-filter, across line capacitor and of course the primary protection fuse.

2. Input rectifier and filter.

This part function is for transfer the input AC voltage to a DC voltage through a bridge rectifier and a bulk capacitor.

3. Energy Transfer.

This part function is for transfer the primary energy to secondary through a power transformer.

4. Output rectifier and filter.

This part function is to make a pulse width modulation control and to provide the driver signal to power switch, to adjust the duty cycle during different AC input and output loading condition to achieve the dc output stabilized, and also the over power protection is also monitor by this part.

5. Photo-Coupler isolation.

This part function is to feed back the DC output changing status through a photo transistor to primary controller to achieve the stabilized DC output voltage.

6. Signal collection.

This part function is to collect the any change from the DC output and feed back to the primary through photo transistor.

ADJUSTMENT

Windows EDID V1.0 User Manual

Operating System: MS Windows 98, 2000, XP

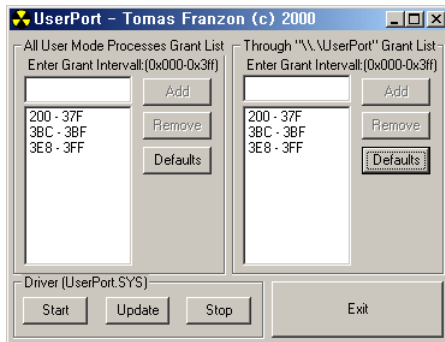
Port Setup: Windows 98 => Don't need setup

Windows 2000, XP => Need to Port Setup.

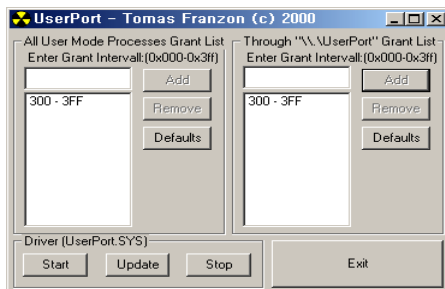
This program is available to LCD Monitor only.

1. Port Setup

- a) Copy "UserPort.sys" file to
"c:\WINNT\system32\drivers" folder
- b) Run Userport.exe



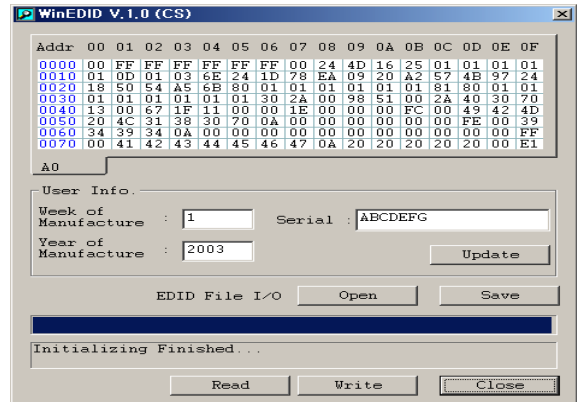
- c) Remove all default number
- d) Add 300-3FF



- e) Click Start button.
- f) Click Exit button.

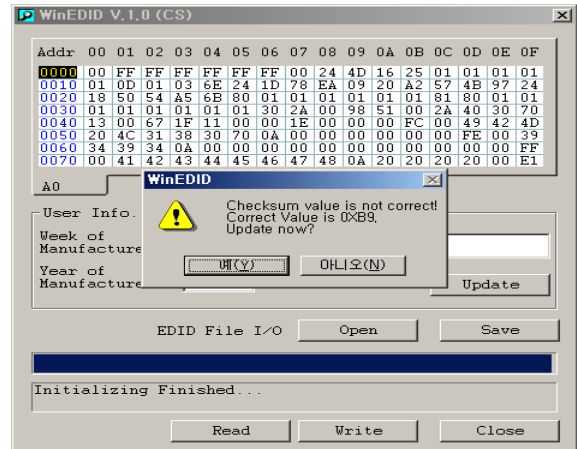
2. EDID Read & Write

1) Run WinEDID.exe



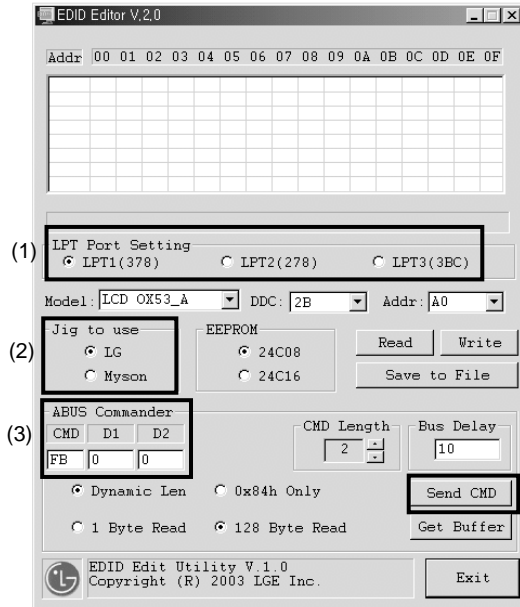
2) Edit Week of Manufacture, Year of Manufacture, Serial Number

- a) Input User Info Data
- b) Click "Update" button
- c) Click "Write" button



SERVICE OSD

1. Install the 'DLPortIO.exe' and connection the monitor and PC by JIG.
2. Start the 'EDID.exe'.



1. LPT port Setting

Select the Computer LPT Port.

2. Jig to use

Select Using the JIG.

3. ABUS Commander

Enter the Adjust and Select the 'Send CMD'.

(Reference the adjust table)

	CMD	D1	D2
SERVICE OSD	FB	0	0
Auto Color	F1	0	2
NVRAM INIT	E4	0	0
CLEAR ETI	E9	0	0
AGING	F3	0	ON : FF OFF : 0
MODULE	F6	0	LPL19TN8MS : 27

<Service OSD Adjust Table>

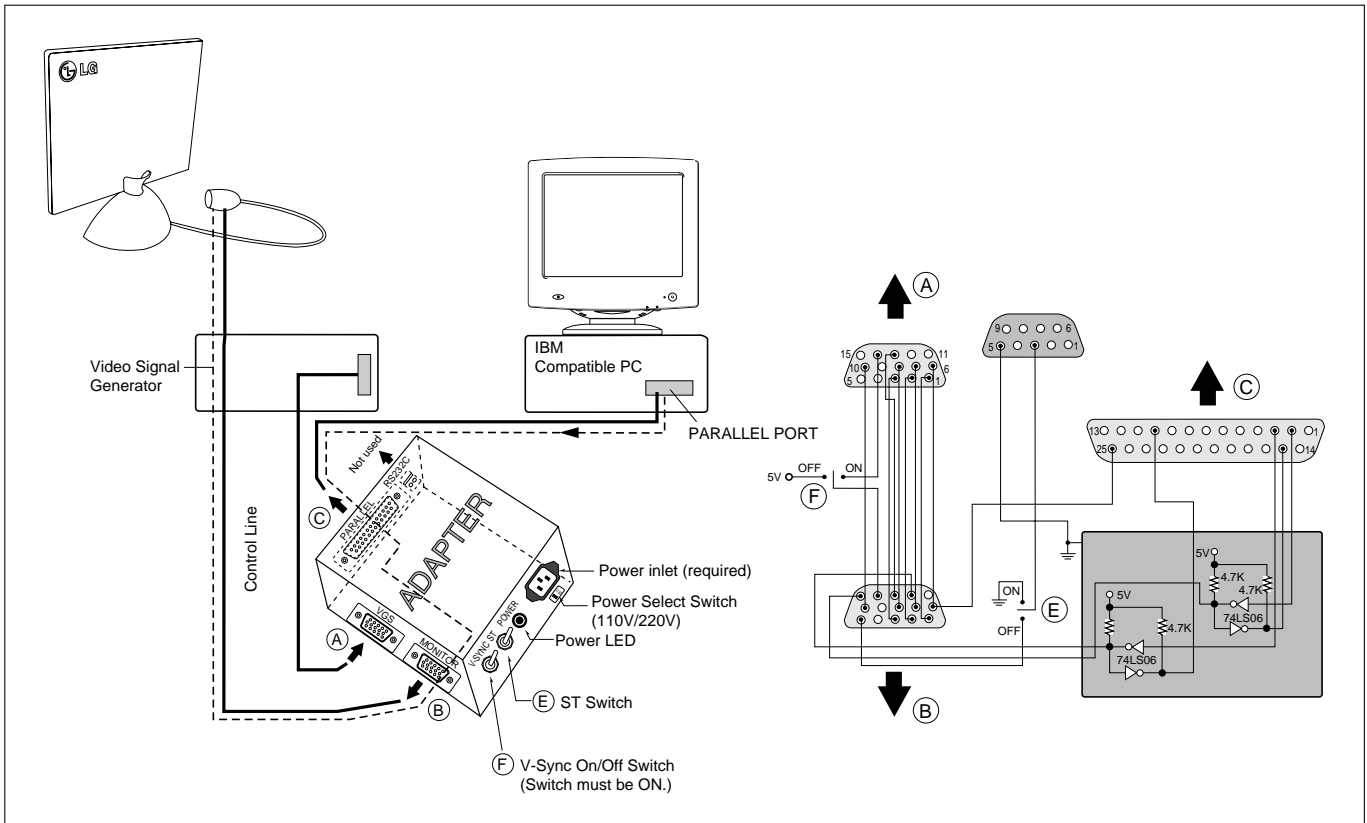
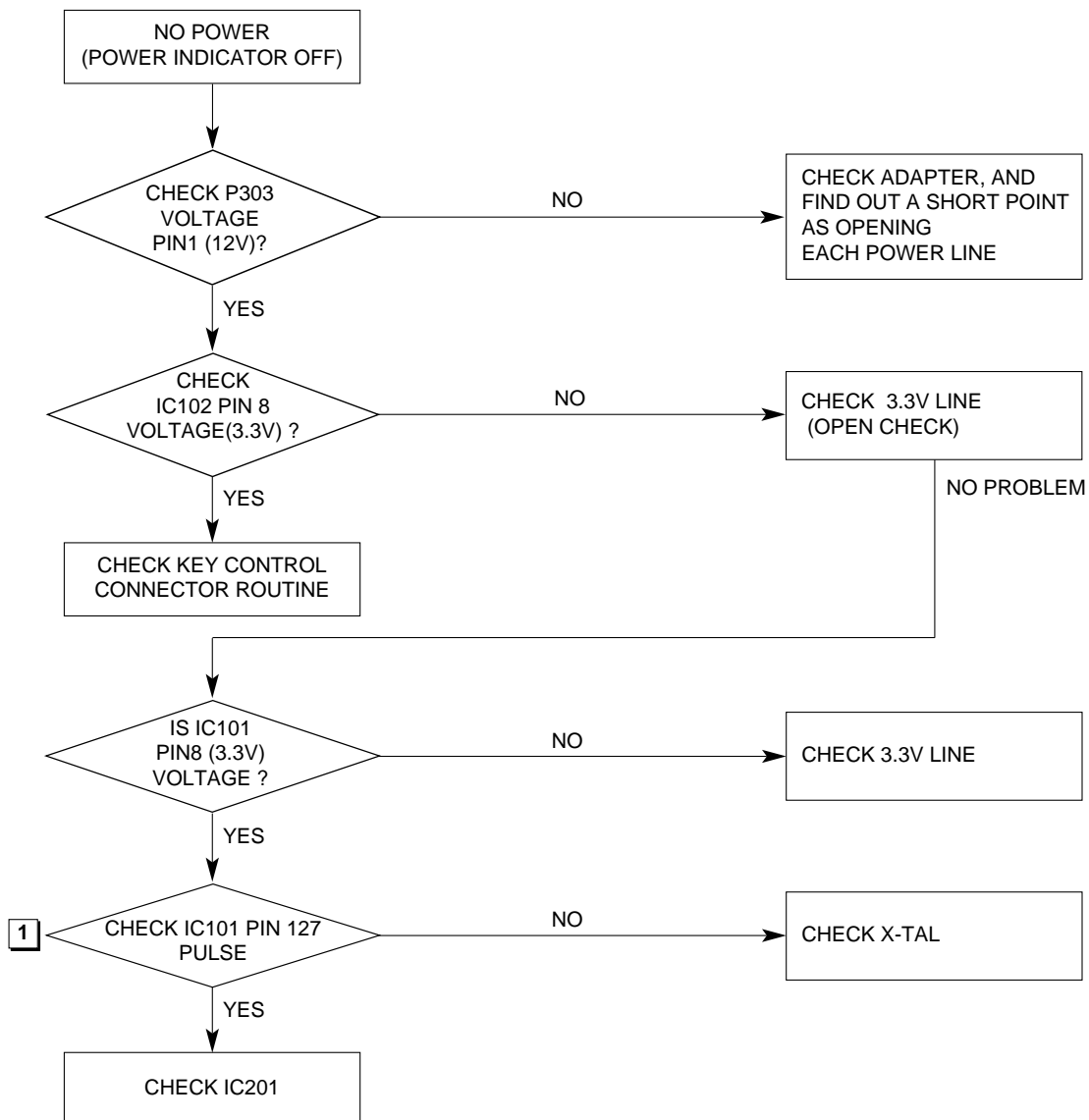


Figure 1. Cable Connection

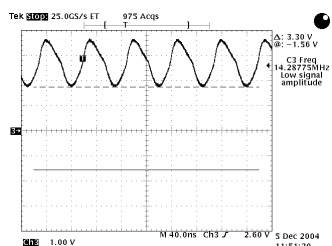
TROUBLESHOOTING GUIDE

1. NO POWER

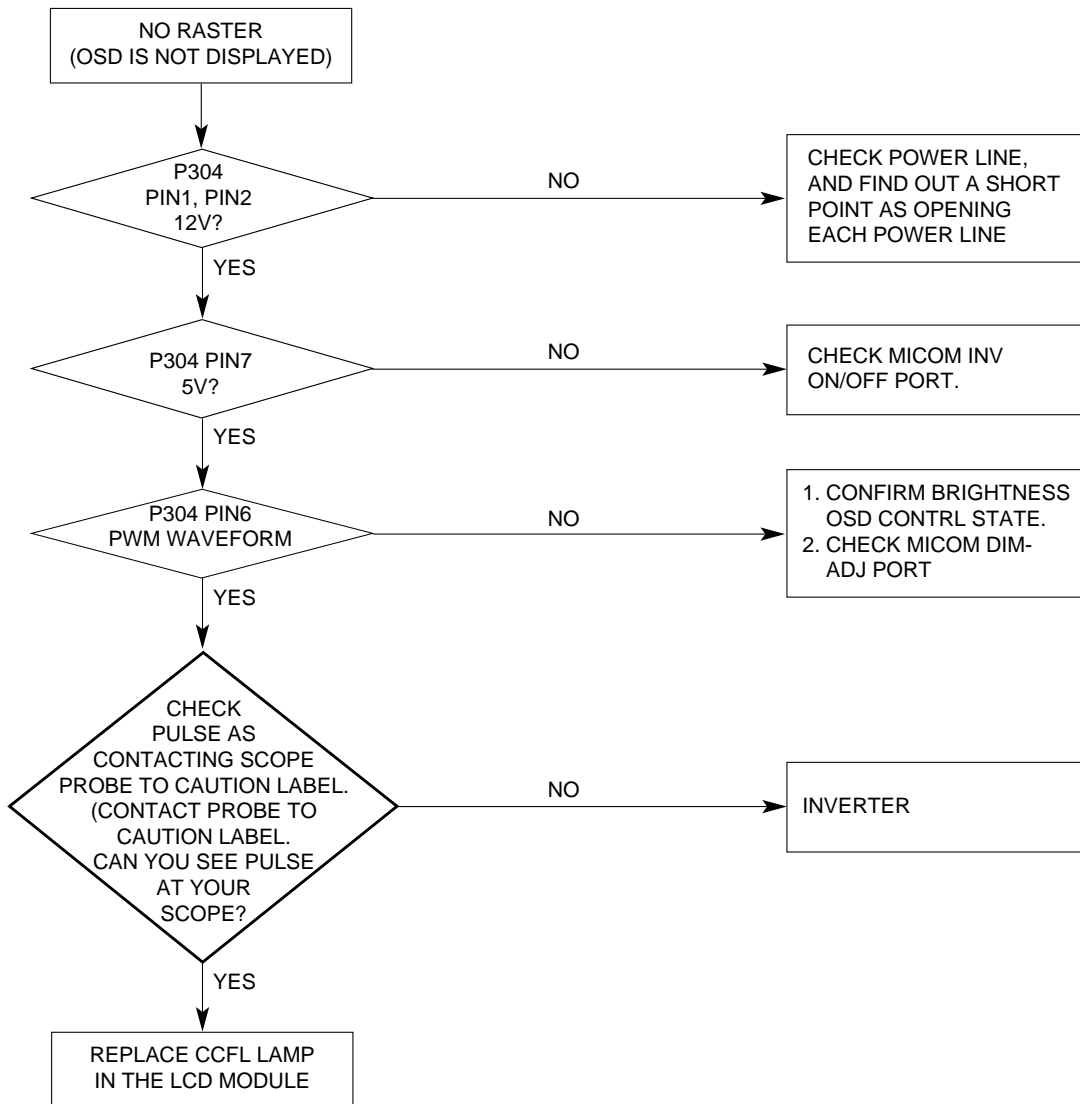


Waveforms

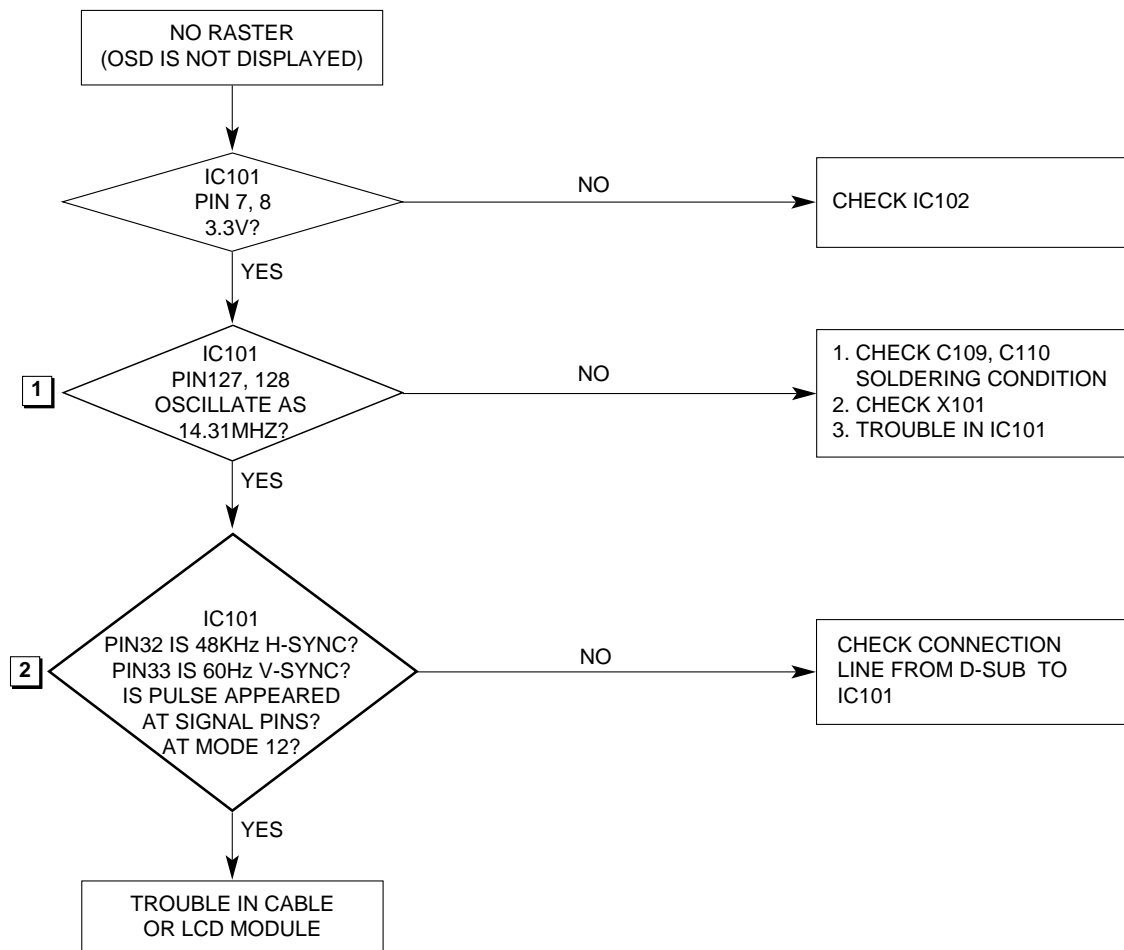
1 IC101-#127



2. NO RASTER (OSD IS NOT DISPLAYED) – INVERTER

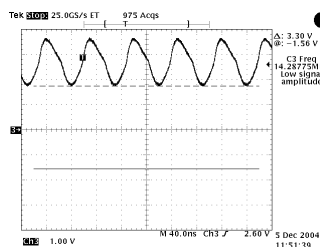


3. NO RASTER (OSD IS NOT DISPLAYED) – MSTAR

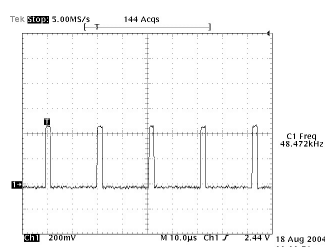


Waveforms

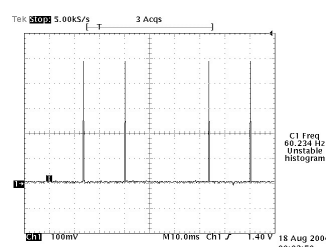
1 IC101-#127, 128



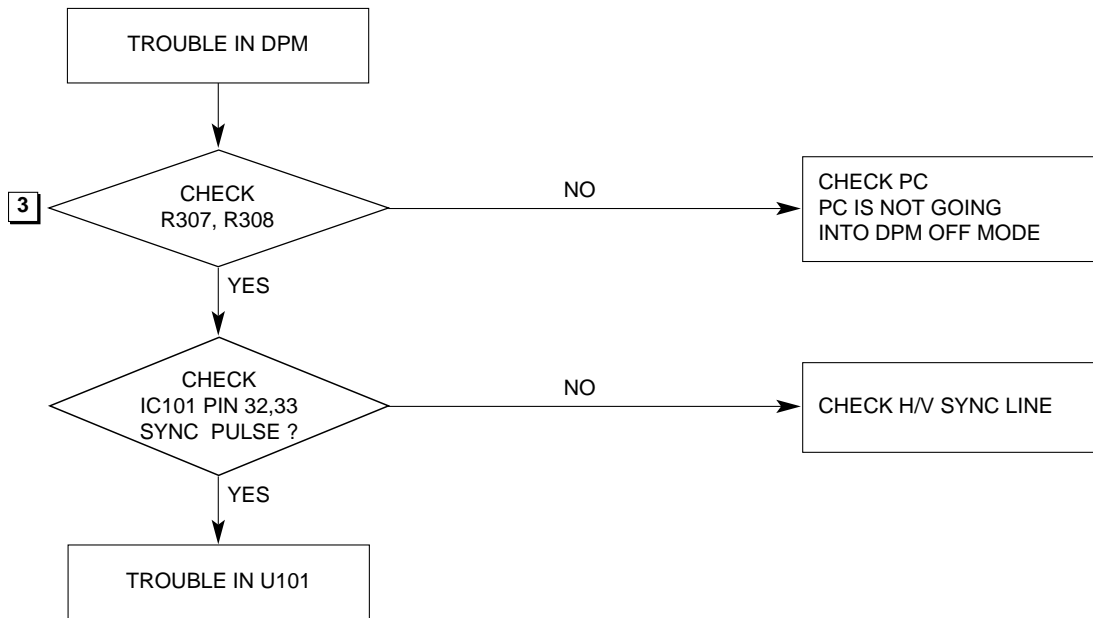
2 IC101-#32 H-SYNC



2 IC101-#33 V-SYNC

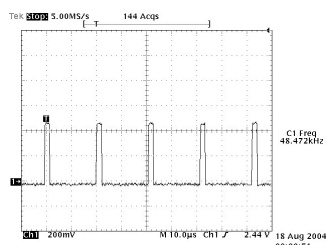


4. TROUBLE IN DPM

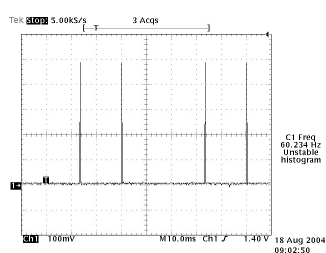


Waveforms

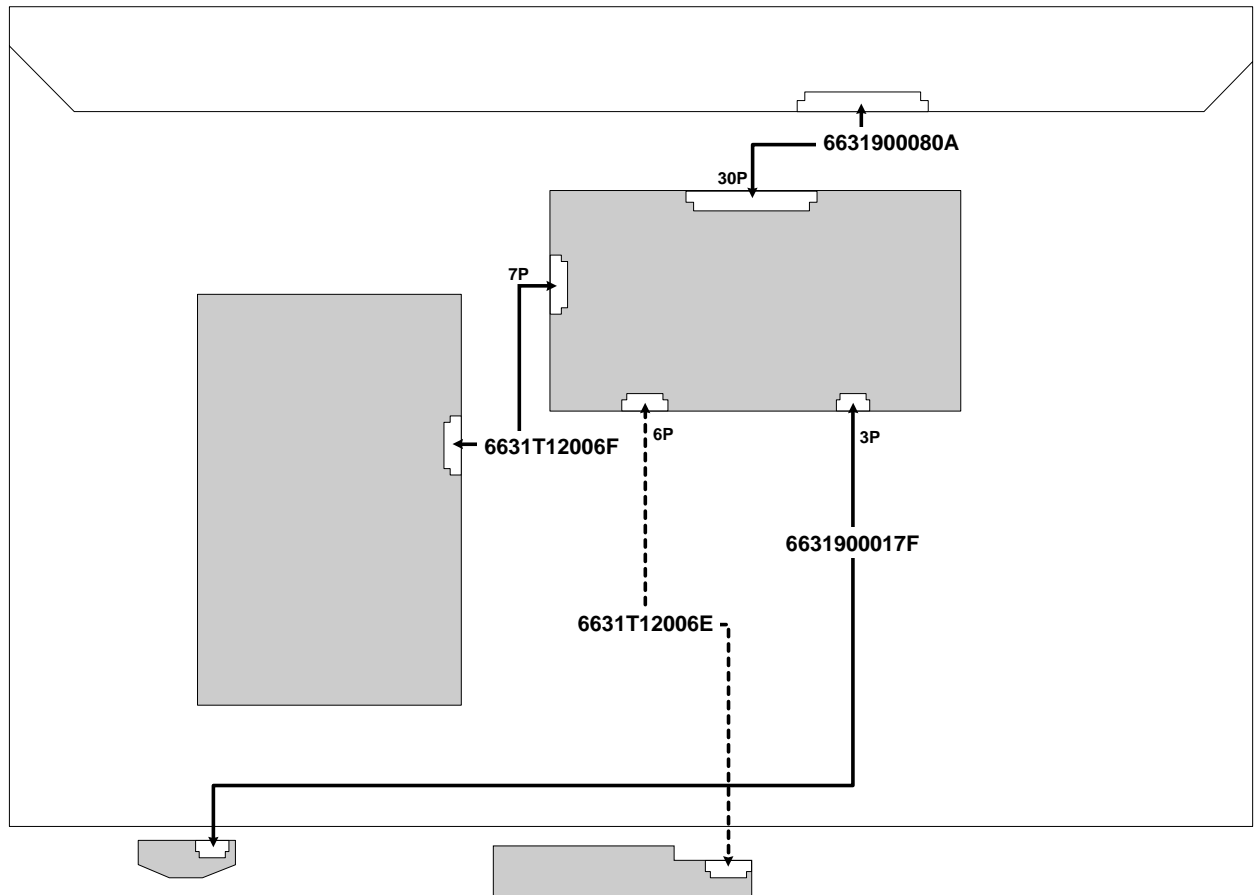
3 R307 H-Sync



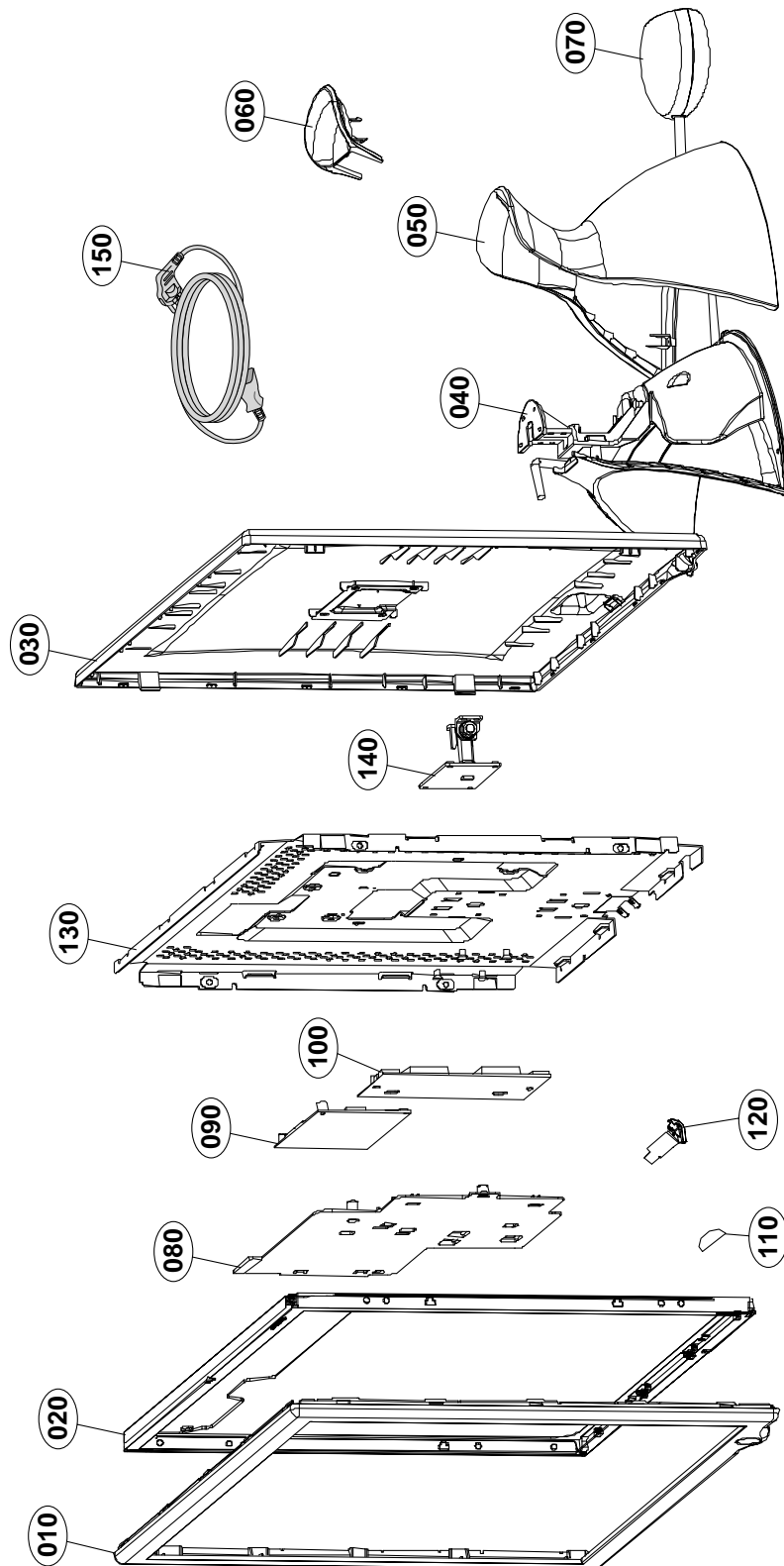
3 R308 V-Sync




WIRING DIAGRAM







EXPLODED VIEW




EXPLODED VIEW PARTS LIST

* Note: Safety mark 

Ref. No.		Part No.	Description
010		ACQ30055801	Cover Assembly, L1900 . 19" CABINET ASSY
		ACQ30055804	Cover Assembly, L1900 . 19" CABINET ASSY R/J TYPE C/SKD
020		6304FLP372A	LCD,Panel-TFT, LM190E06-TLA2 19INCH 1280X1024 300CD COLOR 72% - LG PHILIPS LCD
030		ACQ30055905	Cover Assembly, L1900 LM62A 19" BACK COVER ASSY_JAR_BK
		ACQ30055911	Cover Assembly, L1900 . 19" BACK COVER ASSY_ C/SKD
040		AAN30057301	Base Assembly, STAND L1900 LM62A STAND ASSY_JAR_BK
		AAN30057303	Base Assembly, STAND L1900 LM62A STAND ASSY_JAR_BK C/SKD
050		35509K0324A	Cover, L1961 STAND REAR J-TYPE COVER
		35509K0324C	Cover, MOLD ABS XG-568 L1900J ABS L1900J REAR COVER BLACK C/SKD
060		35509K0325A	Cover, L1961 STAND TOP J-TYPE COVER
		35509K0325C	Cover, MOLD ABS HF380 L1900J ABS, HF-380 L1900J TOP COVER RED C/SKD
070		ACQ30077201	Cover Assembly, L1900 LM62A 19" CABLE COVER ASSY_BK
		ACQ30077203	Cover Assembly, L1900 LM62A 19" L1900 CABLE COVER ASSY_BK C/SKD
080		35509K0314A	Cover, L1961 PIECE PCB BRACKET
090		33139L9047A	Main Total Assembly, L1900 BRAND LM62A(J-TYPE RED LED)
		33139L9047B	Main Total Assembly, L1900J BRAND LM62A-CKD-For Only Brazil
100		66339A0020A	Inverter,DC/AC, FIF1742-50B 11.5VTO12.5V,11.5VTO12.5V,11.5VTO12.5V 800V 7.3A 4 YES PWM DIMMING 19INCH PB FREE
110		68719STA96A	PCB Assembly, SUB T.T LM62A L1900 E-TYPE -
		68719STA96B	PCB Assembly,Sub, SUB T.T LM62A L1900E KXXNTPS POWER KEY CKD FOR LGESP-For Only Brazil
120		68719STA94A	PCB Assembly, SUB T.T LM62A L1900 J-TYPE -
		68719STA94B	PCB Assembly,Sub, SUB T.T LM62A L1900J KXXTNPS LED ASS'Y- CKD-For Only Brazil
130		AGU30056601	Plate Assembly, ASSY MAIN FRAME ASSY_R/J_TYPE
		AGU30056603	Plate Assembly, ASSY MAIN FRAME ASSY_R/J_TYPE C/SKD.
140		AJJ32384901	Supporter Assembly, L1900 common using hinge asm (new concept)
150		6410TEW010A	Power Cord, CEE,LP-34A&H05VV-FX3C,LS-60_1.87M_BLK LP-34A LS-60 1.87M - 250V 16A H05VV-F 3X0.75MM2 BLACK VDE SEMKO N LONGWELL COMPANY-For Europe,Saudi
		6410TJW005A	Power Cord, PSE,LP-54 & VTF18OXC70A & LS-13J_1.87M_BLK LP-54 LS-13J 1.87M - 125V 7A VCTF 3X0.75MM2 BLACK PSE N-For Japan
		6410TPW003A	Power Cord, LP-33 & GFC18N<B90A+LS-60_1.87M_BLK LP-33 LS-60 1.87M - 250V 16A H05VV-F 3X0.75MM2 BLACK PCT N-For Russia
		6410TBW004A	Power Cord, LP-61L+GFC18N+<B90A+LS-60_1.87M_BLK LP-61L LS-60 1.87M - 250V 10A H05VV-F 3X0.75MM2 BLACK BSI N-For Singapore
		6410TMW004A	Power Cord, UC,LP-45 & H05VV-F 0.75_3C, LS-60_1.87M_BLK LP-45 LS-60 1.87M - 250V 10A H05VV-F 3X0.75MM2 BLACK INMETRO N-For Brazil
		6410TCW007A	Power Cord, CCC,LSG-31&RVA18N<F10A&LS-70_1.87M_BLK LSG-31 LS-70 1.87M - 250V 10A RVV 3X0.75MM2 BLACK CCC N-For China

REPLACEMENT PARTS LIST

CAUTION: BEFORE REPLACING ANY OF THESE COMPONENTS,
READ CAREFULLY THE **SAFETY PRECAUTIONS** IN THIS MANUAL.

* NOTE : **S** SAFETY Mark 
AL ALTERNATIVE PARTS

DATE: 2006. 08. 25.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITORS				
		C101	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C102	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C103	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C104	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C105	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C106	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C107	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C108	0CK473CK56A	C1608X7R1H473KT 47nF 10% 50V
		C109	0CC150CK41A	C1608C0G1H150JT 15pF 5% 50V
		C110	0CC150CK41A	C1608C0G1H150JT 15pF 5% 50V
		C111	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C112	0CZZTAT006A	RV2-16V100MU-R 10uF 20% 16V
		C113	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C114	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C115	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C116	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C117	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C118	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C119	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C120	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C121	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C122	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C123	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C124	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C125	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C126	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C127	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C128	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C129	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C130	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C131	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C132	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C133	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C134	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C135	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C136	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C137	0CK224CF56A	0603B224K160CT 220nF 10% 16V
		C201	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C202	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C203	0CK103CK51A	0603B103K500CT 10nF 10% 50V
		C204	0CK103CK51A	0603B103K500CT 10nF 10% 50V
		C205	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C206	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C207	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C208	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C209	0CE107SF6DC	VMV107M016S0ANE010 100uF 20%
		C210	0CE107SF6DC	VMV107M016S0ANE010 100uF 20%
		C211	0CE107SF6DC	VMV107M016S0ANE010 100uF 20%
		C212	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C213	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C214	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C215	0CK102CK56A	0603B102K500CT 1nF 10% 50V X

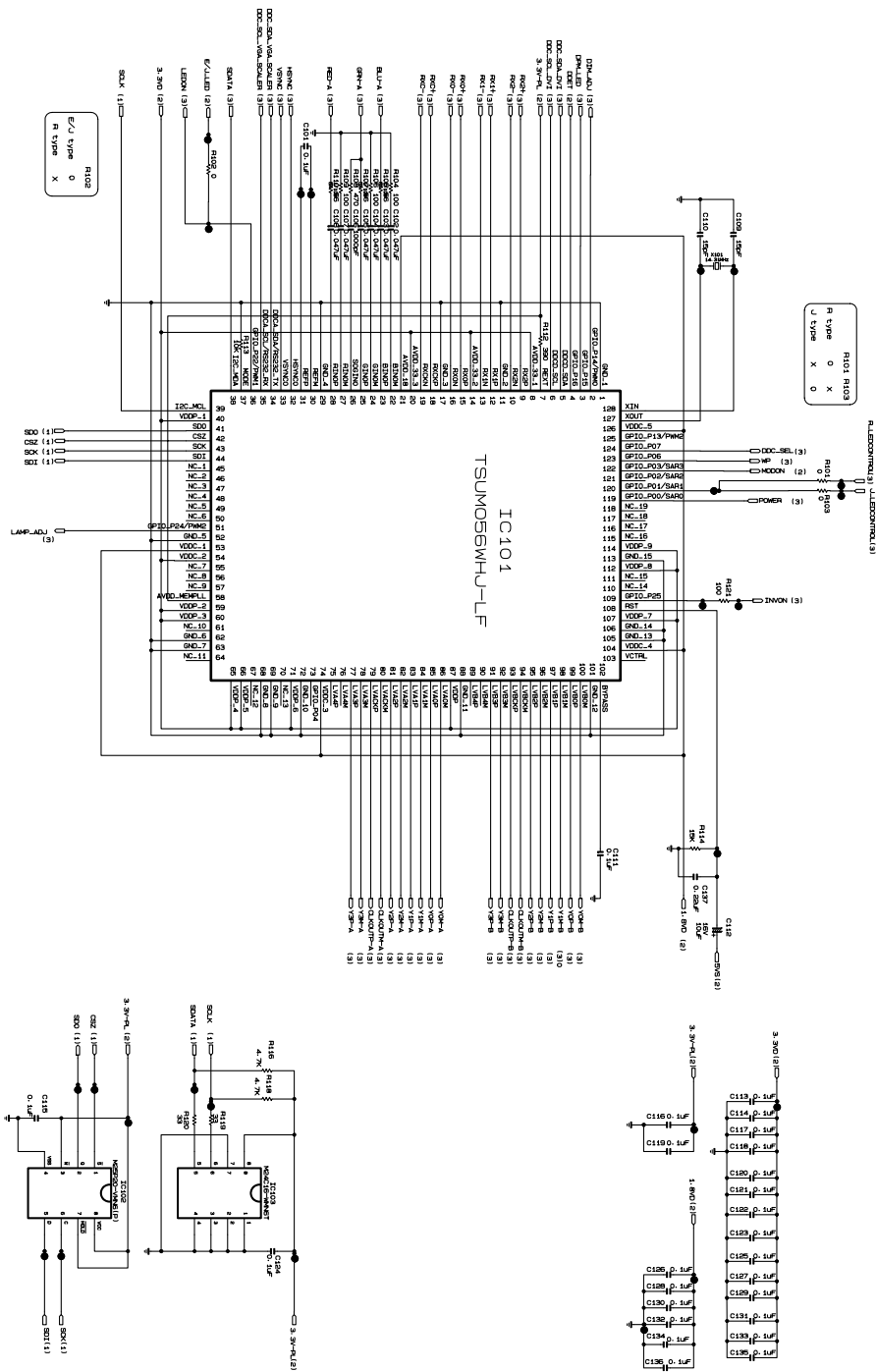
DATE: 2006. 08. 25.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C216	0CK102CK56A	0603B102K500CT 1nF 10% 50V X
		C217	0CK102CK56A	0603B102K500CT 1nF 10% 50V X
		C218	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C219	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C220	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C221	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C222	0CK103CK51A	0603B103K500CT 10nF 10% 50V
		C223	0CK103CK51A	0603B103K500CT 10nF 10% 50V
		C224	0CE107SF6DC	VMV107M016S0ANE010 100uF 20%
		C226	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C227	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C228	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C229	0CE107WF6DC	MVK6.3TP16VC100M 100uF 20% 1
		C232	0CK226FF67A	EMK325BJ226MM-T 22uF 20% 16V
		C233	0CK226FF67A	EMK325BJ226MM-T 22uF 20% 16V
		C301	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C302	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C303	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C304	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C305	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C306	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C307	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C308	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C309	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C310	0CC220CK41A	C1608C0G1H220JT 22pF 5% 50V
		C311	0CC220CK41A	C1608C0G1H220JT 22pF 5% 50V
		C312	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C313	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C314	0CC680CK41A	C1608C0G1H680JT 68pF 5% 50V
		C315	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C316	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C317	0CC680CK41A	C1608C0G1H680JT 68pF 5% 50V
		C318	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C319	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C320	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C321	0CK105CD56A	C1608X7R1A105KT 1uF 10% 10V
		C322	0CC101CK41A	C1608C0G1H101JT 100pF 5% 50V
		C323	0CK103CK51A	0603B103K500CT 10nF 10% 50V
		C324	0CK104CK56A	0603B104K500CT 100nF 10% 50V
		C325	0CK103CK51A	0603B103K500CT 10nF 10% 50V
		C326	0CK103CK51A	0603B103K500CT 10nF 10% 50V
		C327	0CK103CK51A	0603B103K500CT 10nF 10% 50V
DIODEs				
		D201	0DRON00268A	MBRS190T3G 750MV 90V 2A --
		D301	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D302	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D303	0DS0N00138A	MMBD301LT1G 600MV 30V -- 1.
		D304	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D305	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D306	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D307	0DD184009AA	KDS184 KDS184 TP KEC - 85V -
		D308	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS

DATE: 2006. 08. 25.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		D309	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D310	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D311	0DSON00138A	MMBD301LT1G 600MV 30V - - 1.
		D312	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D313	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		D314	0DD184009AA	KDS184 KDS184 TP KEC - 85V -
		D315	0DS226009AA	KDS226 1.2V 85V 300MA 2A 4NS
		ZD301	0DZ560009GB	BZT52C5V6S-(F) 5.6V 5.2TO6V
		ZD302	0DZ560009GB	BZT52C5V6S-(F) 5.6V 5.2TO6V
		ZD303	0DZ560009GB	BZT52C5V6S-(F) 5.6V 5.2TO6V
		ZD304	0DZ560009GB	BZT52C5V6S-(F) 5.6V 5.2TO6V
		ZD305	0DZ560009GB	BZT52C5V6S-(F) 5.6V 5.2TO6V
ICs				
		IC101	0IPRP00784A	FE251MOH-LF(TSUMO56WHJ-LF) 1
		IC102	0IZZ9H9060A	M25P10 M25P10 SGS THOMSON SS
		IC103	0IMMRSG036B	M24C16-WMN6TP 16KBIT 2KX8BIT
		IC201	0IMCRMZ001A	"MP1583DN-Z,LF 4.75TO23V 21V"
		IC202	0IPMGKE011A	KIA78D33F 4TO10V 3.3V 1.3W D
		IC203	0IPMGSG019A	LD1117S18TR 3.3TO8V 1.8V 12W
		IC301	0IMMR00014A	M24C02-RMN6TP 2KBIT 256X8BIT
		IC302	0IMMR00014A	M24C02-RMN6TP 2KBIT 256X8BIT
		IC303	0ISTL00031A	MC74HC4066ADR2G MC74HC4066AD
FILTERs & INDUCTORs				
		L202	0LCML00003B	MLB-201209-0120P-N2 120OHM 2
		L203	0LCML00003B	MLB-201209-0120P-N2 120OHM 2
		L204	0LCML00003B	MLB-201209-0120P-N2 120OHM 2
		L301	6210TCE001S	HU-1M2012-121 120OHM 2X1.25X
		L302	6210TCE001S	HU-1M2012-121 120OHM 2X1.25X
		L303	6210TCE001S	HU-1M2012-121 120OHM 2X1.25X
		L304	6210TCE001S	HU-1M2012-121 120OHM 2X1.25X
		L201	6140TBZ048A	SLF10145T-150M2R2 15UH 20% -
TRANSISTOR				
		Q203	0TR390409AE	KST3904 NPN 6V 60V 40V 200MA
		Q301	0TR162309CA	KSC1623-Y(MTF) NPN 5V 60V 50
RESISTORs				
		R102	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R103	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R104	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R105	0RJ0562D677	MCR03EZPJ560 56OHM 5% 1/10W
		R106	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R107	0RJ0562D677	MCR03EZPJ560 56OHM 5% 1/10W
		R108	0RJ4700D677	MCR03EZPJ471 470OHM 5% 1/10W
		R109	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R110	0RJ0562D677	MCR03EZPJ560 56OHM 5% 1/10W
		R112	0RJ3900D677	MCR03EZPJ391 390OHM 5% 1/10W
		R113	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R114	0RJ1502D677	MCR03EZPJ153 15KOHM 5% 1/10W
		R116	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R118	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R119	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R120	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R121	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R201	0RJ1502D477	MCR03EZPF153 15KOHM 1% 1/10W
		R202	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W

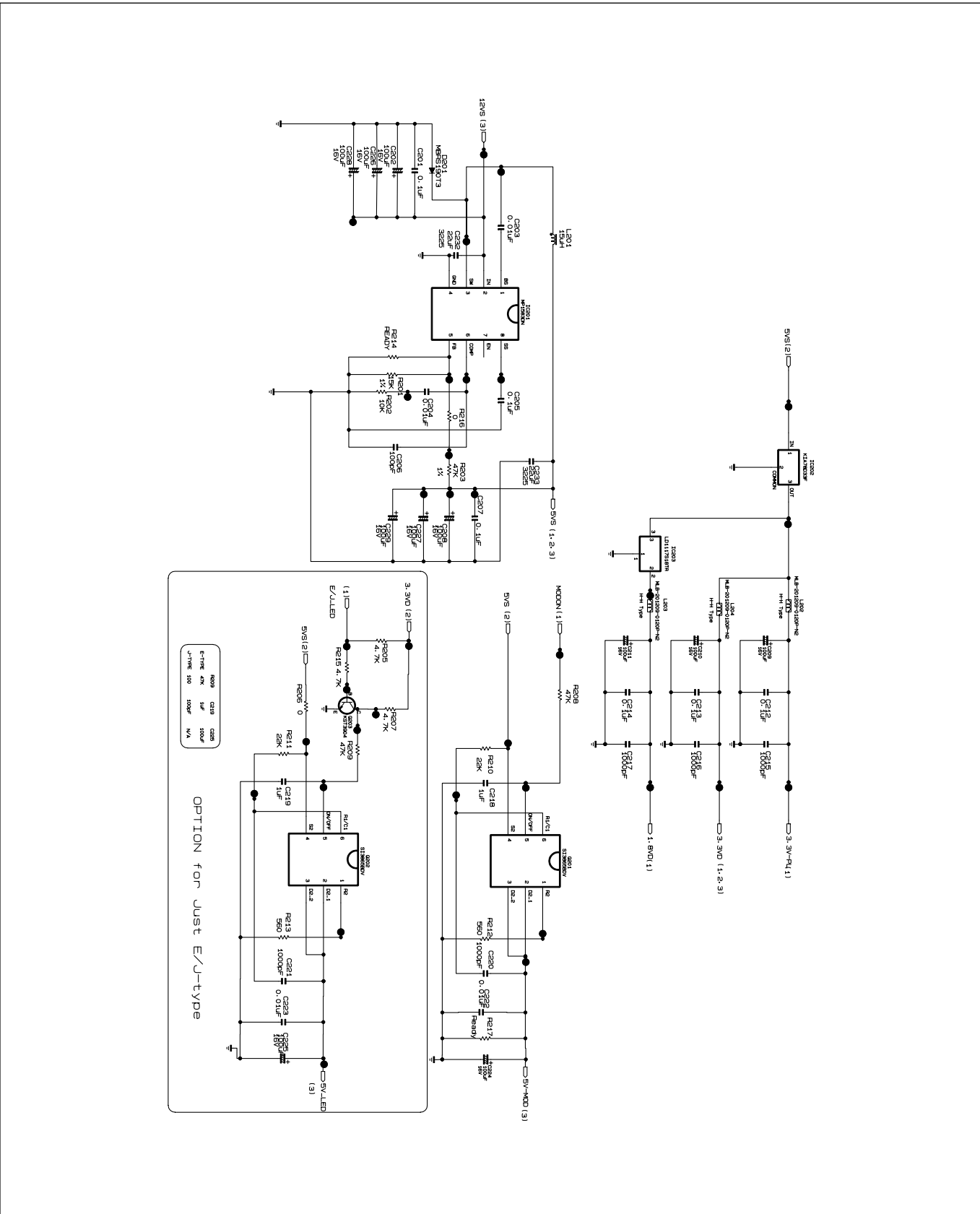
DATE: 2006. 08. 25.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R203	0RJ4702D477	MCR03EZPF473 47KOHM 1% 1/10W
		R205	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R206	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R207	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R208	0RJ4702D677	MCR03EZPJ473 47KOHM 5% 1/10W
		R209	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R210	0RJ2202D677	MCR03EZPJ223 22KOHM 5% 1/10W
		R211	0RJ2202D677	MCR03EZPJ223 22KOHM 5% 1/10W
		R212	0RJ5600D677	MCR03EZPJ561 560OHM 5% 1/10W
		R213	0RJ5600D677	MCR03EZPJ561 560OHM 5% 1/10W
		R215	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R216	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R301	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R302	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R303	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R304	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R305	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R306	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R307	0RJ0682D677	MCR03EZPJ680 68OHM 5% 1/10W
		R308	0RJ0682D677	MCR03EZPJ680 68OHM 5% 1/10W
		R309	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R310	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R311	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R312	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R313	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R314	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R315	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R316	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R317	0RJ0102D677	MCR03EZPJ100 10OHM 5% 1/10W
		R318	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R319	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R320	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R321	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R322	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R323	0RJ0752D677	MCR03EZPJ750 75OHM 5% 1/10W
		R324	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R325	0RJ1000D677	MCR03EZPJ101 100OHM 5% 1/10W
		R326	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R327	0RJ0332D677	MCR03EZPJ330 33OHM 5% 1/10W
		R328	0RJ0752D677	MCR03EZPJ750 75OHM 5% 1/10W
		R329	0RJ0752D677	MCR03EZPJ750 75OHM 5% 1/10W
		R330	0RJ4701D677	MCR03EZPJ472 4.7KOHM 5% 1/10
		R331	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R332	0RJ1002D677	MCR03EZPJ103 10KOHM 5% 1/10W
		R333	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R334	0RJ1001D677	MCR03EZPJ102 1KOHM 5% 1/10W
		R336	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R340	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R341	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R343	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
		R344	0RJ0000D677	MCR03EZPJ000 0OHM 5% 1/10W 1
OTHERs				
		Q201	0TFV180067A	SI3865BDV(E3) N-CHANNEL MOSF
		Q202	0TFV180067A	SI3865BDV(E3) N-CHANNEL MOSF
		X101	6202TST001A	SX-1 14.31818MHZ 30PPM 14.31
LED BOARD				
		C603	0CC102CK41A	C1608C0G1H102JT 1nF 5% 50V C
		C605	0CC681CK41A	C1608C0G1H681JT 680pF 5% 50V

SCHEMATIC DIAGRAM

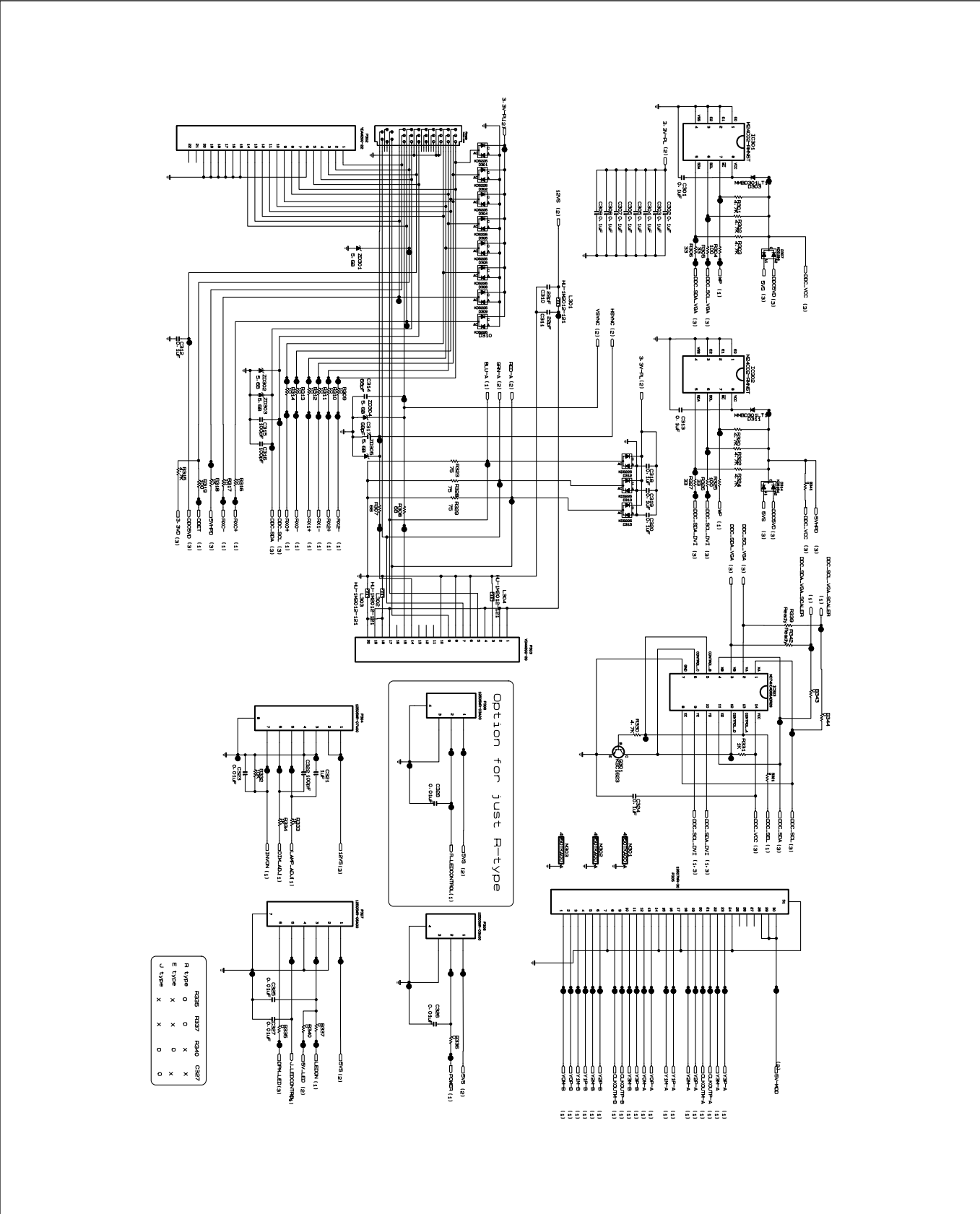
1. SCALER



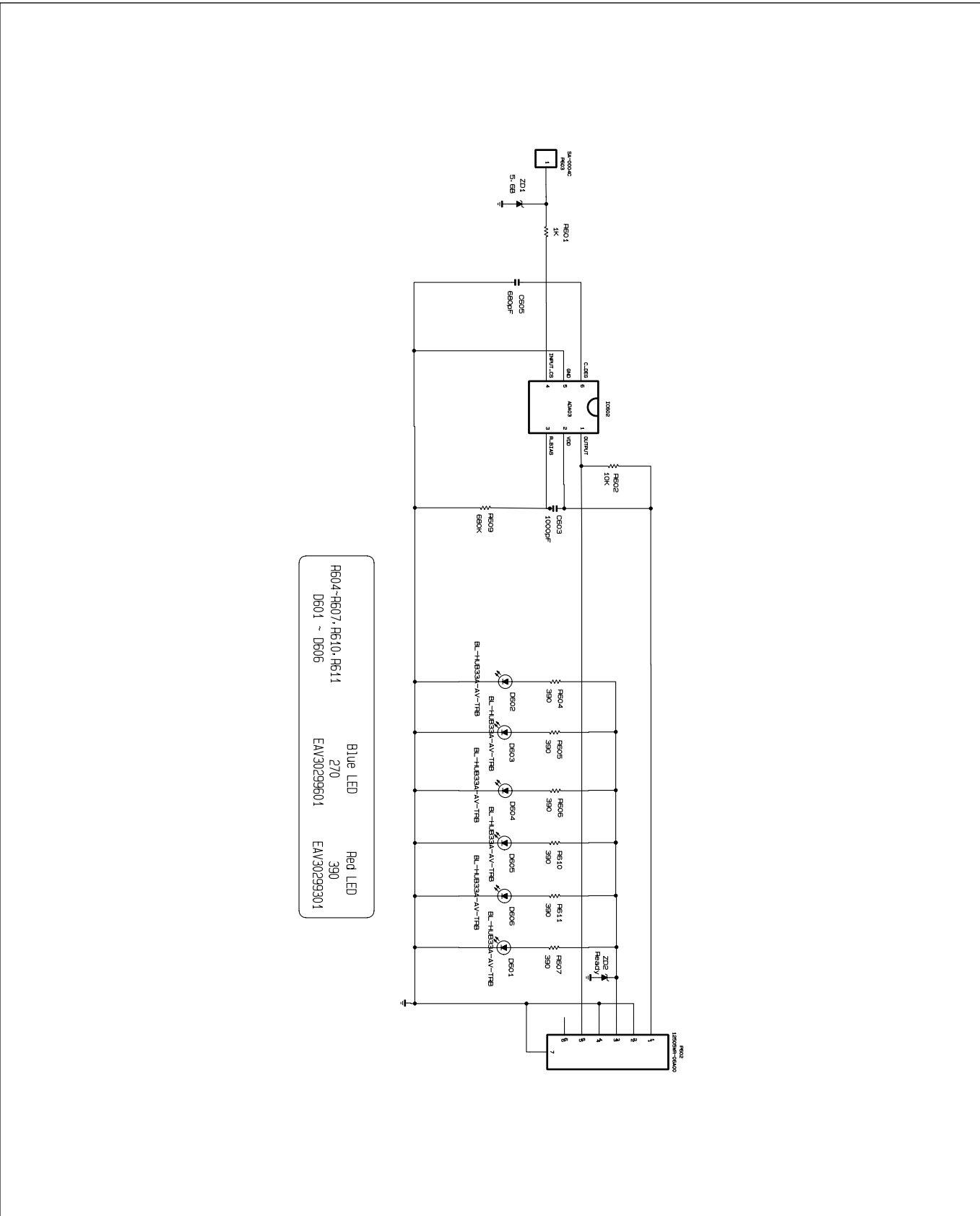
2. POWER



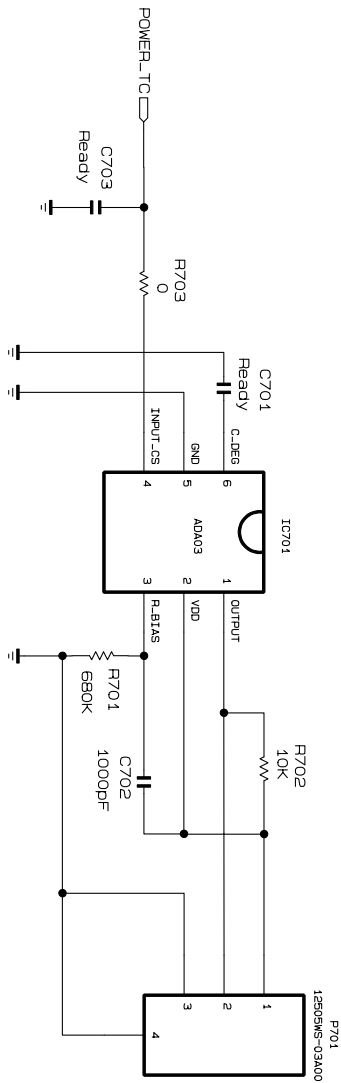
3. CONNECTOR



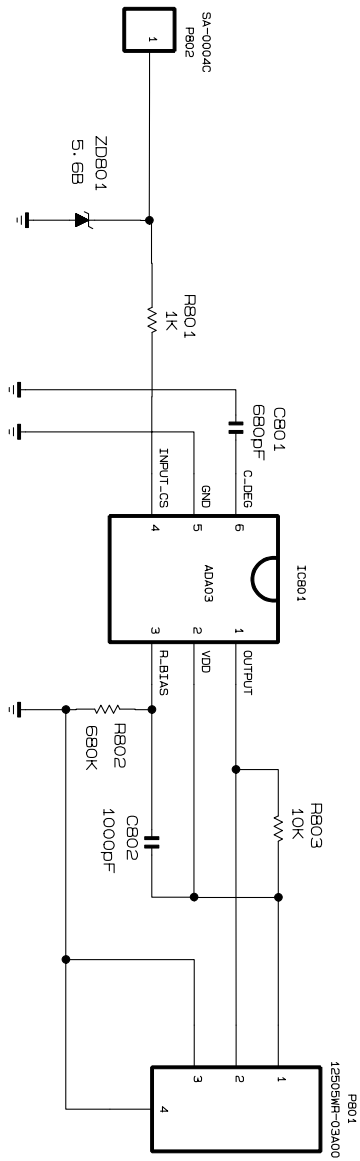
4. J-Type LED



5. POWER



6. LED Bright control





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