



Internal Use Only

Website: <http://biz.LGservice.com>

COLOR MONITOR SERVICE MANUAL

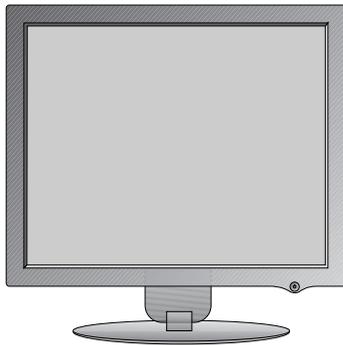
CHASSIS NO. : LM74B

MODEL: FLATRON L1972H(L1972H-PFS.A**OAP)

() **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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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

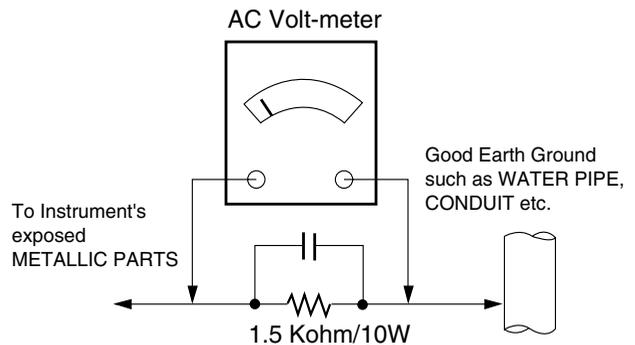
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

\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.

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(6bit + FRC data)
 Size : 396 (H) x 324 (V) x 16.3(D)
 Electrical Interface : LVDS
 Surface Treatment : Hard-coating(3H), Anti-Glare
 Operating Mode : Normally White
 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 : 230(min), 300(Typ) (Full White pattern, 0.70V) -6500K
 : 150(min) (Full White pattern, 0.70V) -9300K
 75%(min)

2-3. Contrast Ratio : 500(min), 800(Typ), 3000 : 1(DFC)

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, 0.8A

5-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 37 W	BLUE
STAND-BY	OFF/ON	OFF	less than 1 W	AMBER
SUSPEND	ON/OFF	OFF	less than 1 W	AMBER
DPMS OFF	OFF/OFF	OFF	less than 1 W	AMBER
POWER S/W OFF	-	-	less than 1 W	OFF

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)

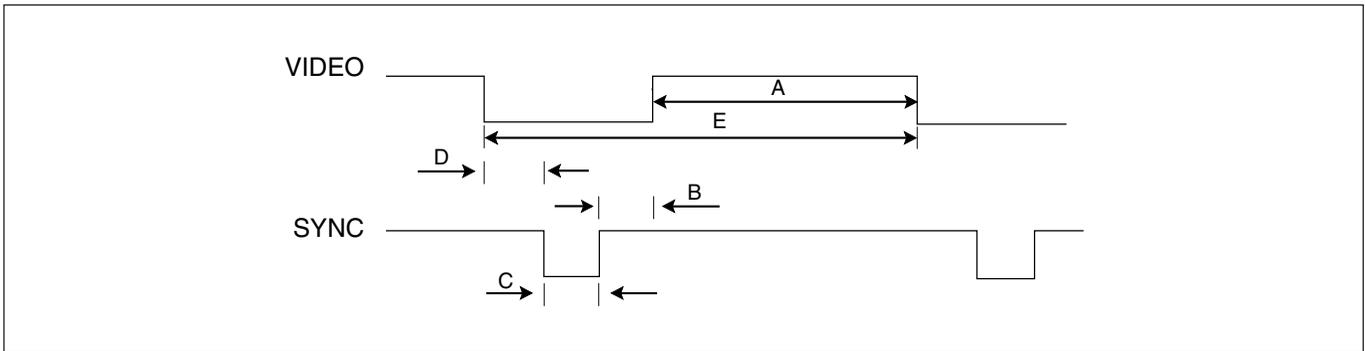
7. DIMENSIONS (with TILT/SWIVEL)

Width : 409 mm (16.93")
 Depth : 366 mm (9.13")
 Height : 105 mm (16.89")

8. WEIGHT (with TILT/SWIVEL)

Net. Weight : 5.6 kg (10.14 lbs)
 Gross Weight : 6.5 kg (11.25 lbs)

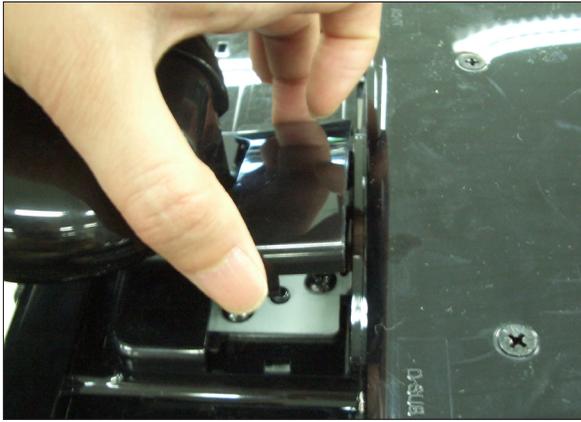
TIMING CHART



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	

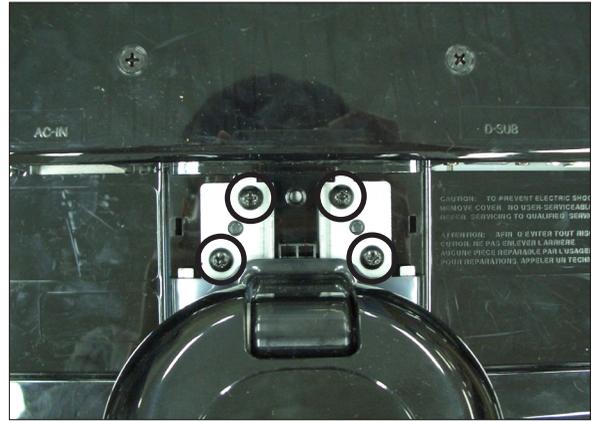
DISASSEMBLY

1



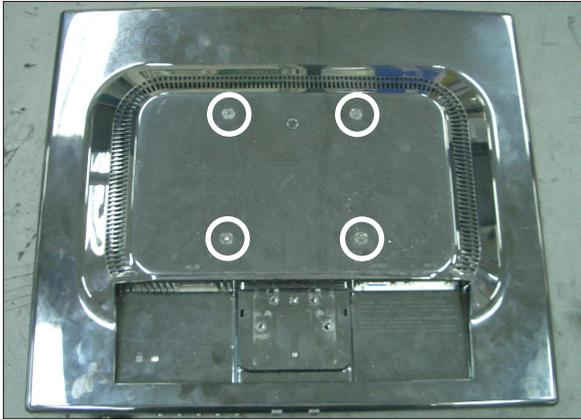
Disassemble Hinge cover

2



Remove the screws.

3



Remove the screws.

4



1. Pull the front cover upward.
2. Then, let the all latches are separated.
3. Put the front face down.

5



Disassemble back cover.

ADJUSTMENT INSTRUCTION

1. Coverage

Apply to 19" monitor made in Monitor Factory(Kumi Korea) or made in accordance with the standard of Kumi Factory process.

2. Appointment

2.1 Adjustment must be done as fixed sequence, and adjustment sequence can be modified after agreement with the responsible R&D engineer considering mass-production condition.

2.2 Power : AC100~240 Voltage (Free)

2.3 Input signal : As Product Standard (Signal ROM : LB800K Ver1.6)

2.4 Warm-up Time : Over than 30 minutes

2.5 Adjustment equipment : White balance equipment (CA-110), Display adjust equipment, VG-813(or VG819), Oscilloscope, PC (More than 486 computer) & White balance adjust program.

3. Adjustment

3.1 Overview

Use factory automation equipment and adjust automatic movement. But, do via passivity adjust in error occurrence.

3.2 Adjustment order(refer to the Adjustment standard and adjustment command table)

3.2.1 Board Assembly Line

- Connect input signal to 15pin D-sub.
- Check the firmware version & model name. And write the firmware code to the serial Flash ROM by ISP.
- Ready for adjustment : check whether adjustment command works normally or not and the operating state of each mode.
- Check the display state of gray color when 256 gray scale pattern is embodied.
- Read by EEPROM Read Command to check whether initial value is correct or not.

3.2.2 Total Assembly Line

- Input analog signal. (1280x1024@60Hz)
- Write HDCP Key to EEPROM(24C16) by using DDC2AB protocol & HDCP Adjusting Jig equipment (Address 0xAC 80, 292 bytes)
- If error is occurred, write and check again.
- Ready : Heat-run during 30 minutes in the state with signal.
- Connect input signal to D-sub.
- Default value before adjustment : Contrast "70" , Brightness "100(Max)"

3.2.3 Adjustment of Horizontal/Verticality screen position, Clock and Clock Phase at each Mode.

- There is no special factory mode adjustment. Writing initial value of EEPROM in Board Assembly line is adjusting Preset Mode and Reset mode. (EEPROM is initialized when AC Power is ON first.)
- If the change of FOS data is needed after M.P, it is possible by writing Mode Data with EEPROM write command or modifying the Mode Data in MICOM itself.

Caution) Must keep power-on more than 3 seconds after AC Power-on first time.

3.2.4 Color coordinates adjustment and Luminance adjustment.

3.2.4.1 Color coordinates adjustment

- Monitor Contrast / Brightness
 - Contrast : 70
 - Brightness : 100(Max)
- CA-110 : Set "Channel 9"
- Signal Generator : At cut-off and drive \pm 16 step pattern for ADC (Program No.: 31)
 - Output Voltage : 700 mVp-p
 - Output Mode : Mode 12 (SXGA 60 Hz) mode Setting.

3.2.4.2.Adjustment : Board Assembly Line

- Input 16 step pattern for ADC (Program No.31 (Mode 12,Pattern 11)). (Video level : 700mVp-p)
- Adjust by commanding AUTO_COLOR_ADJUST
- Confirm "Success" message in Screen or Check the data of 0xFE,0xFF address of EEPROM(0xA6) is 0xAA after waiting 5 seconds.
- If there is "FAULT" message or the data of 0xFE,0xFF address of EEPROM(0xA6) is not 0xAA, do adjust again.
- If all Adjustment is completed, the values of 6500K, User Color and 9300K are saved automatically.

3.2.4.3. Confirm at Total Assembly Line: adjustment

- Check the data of 0xFE,0xFF address of EEPROM(0xA6) is 0xAA.
- If the data of 0xFE,0xFF address of EEPROM(0xA6) is not 0xAA, do adjust again by 3.2.4.2.

3.2.4.4. Adjust PRESET 9300K Color coordinates and Adjust PRESET 6500K Color coordinates .

- Set as Aging mode ON, by commanding AGING_ON/OFF command code.
- Select Module that is being used in present production by commanding MODULE SELECT.
- Send SYSTEM RESET command to set Module data.
- Input Full White Pattern (Video level : 700 mVp-p)
- Set as 9300K by commanding COLOR_MODE_CHANGE Command code.
- Adjust to meet $x = 0.283 \pm 0.004$, $y=0.298 \pm 0.004$, and confirm.
- Save 9300K Color by commanding COLOR SAVE Command code.
- Set as 6500K by commanding COLOR_MODE_CHANGE Command code.
- At first, Check °,uv.
 - If °,uv is under 0.005, Do not any adjustment.
 - If not. Adjust to meet $x=0.313 \pm 0.007$, $y=0.329 \pm 0.007$
- Save 6500K Color by commanding COLOR SAVE Command code.
- Set as sRGB by commanding COLOR_MODE_CHANGE Command code.
- Adjust to meet $Y = 180 \pm 10$, and confirm.
- Save sRGB Color by commanding COLOR SAVE Command code.

- 3.2.4.5. Confirm User color coordinates .
 - Confirm Whether User color is saved same as 6500K.
 - After confirming Color coordinates, Must return to 6500K.

3.2.5 Confirm Operation state.

- 3.2.5.1 Operation mode : Confirm whether each appointed mode operate correctly or not.

- 3.2.5.2 Confirmation of Adjustment condition and operation : Confirm whether it meet Auto/Manual equipement Adjustment standard or not.

- Confirm Analog screen state : Confirm screen state at below mode.
 Appointment mode : 640*350 @ 70Hz (Mode 1), 800*600@75Hz(Mode 6)
 1 0 2 4 * 7 6 8 @ 6 0 H z (M o d e 8) ,
 1280*1024@60Hz(Mode 12)
 SMPTE pattern(Check 0%,5%,95%,100%)
 –Mode can be added.

- 3.2.5.3. Confirm Auto adjustment operation.

- Input Analog 1 Dot on/off & Rectangle Pattern at Mode 12(1280*1024@60Hz).
- Confirm adjustment operation by changing Clock,Phase,H/V Position.
- Check Clock,Phase by pressing AUTO Key.
- Confirm first set of new lot by periods

- 3.2.5.4 Other quality

- Confirm that each items satisfy under standard condition that was written product spec.
- Confirm Applying Module & MICOM Setting ‡ Confirm with Service OSD
- > Confirm at Service OSD by "Menu + Powerkey" on .(from Power off)
- > Confirm first set of new lot by periods, and confirm periodically when there is Process change or Adjustment setting change.

- 3.2.5.5. OSD & Adjustment device Confirmation : Confirm operation mentioned as product spec.

- Vary Brightness and Contrast and confirm the variation of Luminance and display status.
- Operate the F-engine function and confirm variation of Luminance.
- Make sure to do FACTORY RESET after confirmation of OSD function.

- 3.2.5.6. Confirm the display state by inputting 8 color Bar Pattern & 256 Gray Scale pattern.

- 3.2.5.7. DPM operation confirmation : Check if Power LED Color and Power Consumption operates as standard.

- Measurement Condition : 230V@ 50Hz (Analog)
- Confirm DPM operation at the state of screen without Video Signal.(refer to Spec at Page 11)

- 3.2.5.8. DDC EDID Write (Set as Aging mode ON, by commanding AGING_ON/OFF command code.)

- Digital part EDID data

- Confirm whether module selection is correct or not on the self-diagnostics OSD with signal cable disconnected.
- Connect Digital Signal Cable to DVI-D wafer.
- Write EDID DATA to EEPROM(24C02) by using DDC2B protocol.
- Check whether written EDID data is correct or not. (refer to Product spec).

- Analog part EDID data

- Connect analog Signal Cable to D-sub wafer.
- Write EDID DATA to EEPROM(24C02) by using DDC2B protocol.£@NOVATEK dual and odc model£©
- Write EDID DATA to EEPROM(24C02) by using DDC2AB protocol.£@Mstar dual model£©
- Check whether written EDID data is correct or not. (refer to Product spec).

- Analog part EDID data

- Connect analog Signal Cable to D-sub wafer.
 - Write EDID DATA to EEPROM(24C02) by using DDC2B protocol.
 - Check whether written EDID data is correct or not. (refer to Product spec).
 (Mstar ODC model only)
-

- > After writing EDID, send Elapsed Time Clear command. (Elapsed time should not be displayed, after EDID writing)
 : Confirm periodically (in the first set of new lot, process change) whether module name and aging time disappeared on the self-diagnostics OSD with signal cable disconnected.
- > If Elapsed Time Clear command isn't executed, module name, aging time and TCO word appear on the self-diagnostics OSD.(Module name and aging time should not appear after writing EDID)
- > Make sure to do FACTORY RESET at the final process.

- 3.2.5.9. Shipping condition

- Contrast : 70
- Power Switch : Off
- Brightness : "100(Max)"
- Color Select : Preset (6500K)
- Language Select : Refer to product spec.
- OSD Position : Center
- Power indicator : ON
- Flatron F-engine : Normal Mode

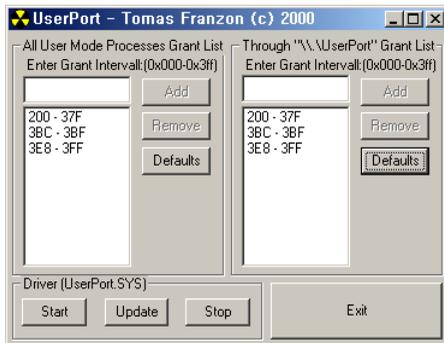
Windows EDID V1.0 User Manual

Operating System: MS Windows 98, 2000, XP
 Port Setup: Windows 98 => Don't need setup
 Windows 2000, XP => Need to Port Setup.

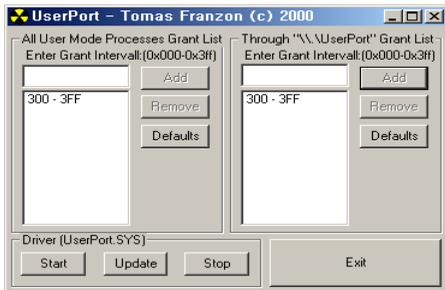
This program is available to LCD Monitor only.

1. Port Setup

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



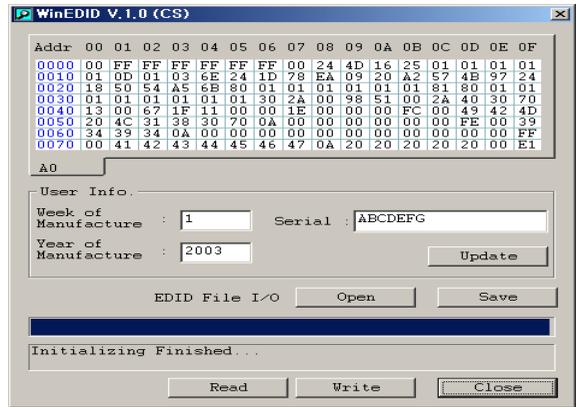
- c) Remove all default number
- d) Add 300-3FF



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

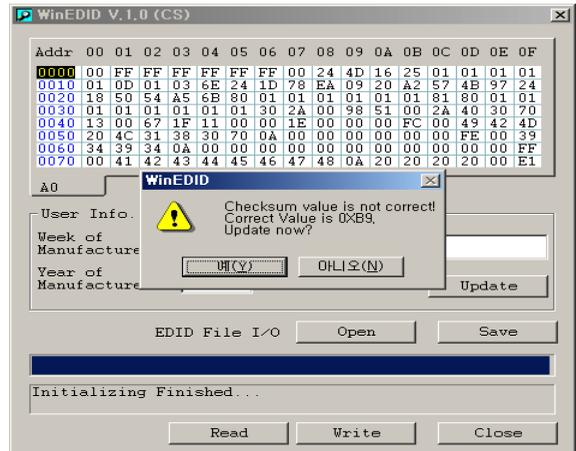
2. EDID Read & Write

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) Turn off the power switch at the front side of the display.
- 2) Wait for about 5 seconds and press MENU, POWER switch with 1 second interval.
- 3) The SVC OSD menu contains additional menus that the User OSD menu as described below.
 - a) Auto Color : W/B balance and Automatically sets the gain and offset value.
 - b) NVRAM INIT : EEPROM initialize.(24C08)
 - c) CLEAR ETI : To initialize using time.
 - d) AGING : Select Aging mode(on/off).
 - e) R/G/B-9300K : Allows you to set the R/G/B-9300K value manually.
 - f) R/G/B-6500K : Allows you to set the R/G/B-6500K value manually.
 - g) R/G/B-Offset : Allows you to set the R/G/B-Offset value manually.(Analog Only)
 - h) R/G/B-Gain : Allows you to set the R/G/B-Gain value manually.(Analog Only)
 - i) MODULE : To select applied module.

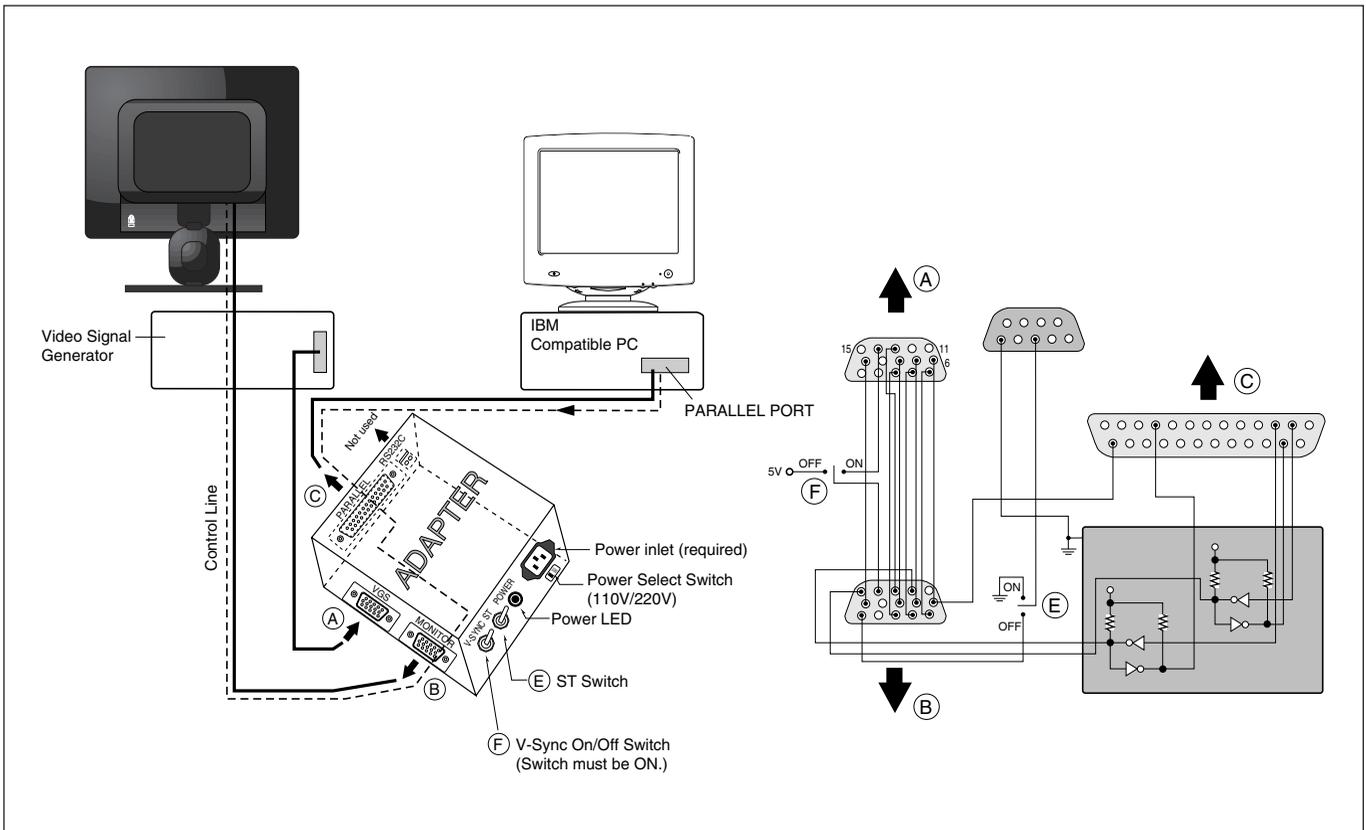
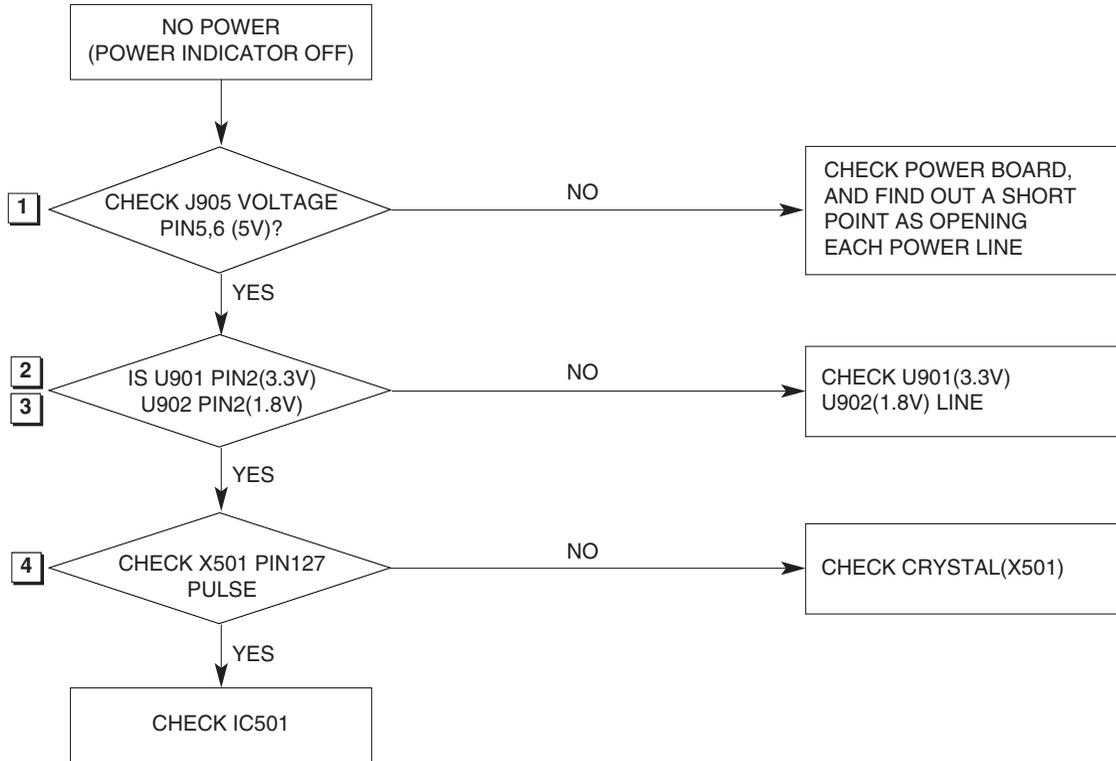


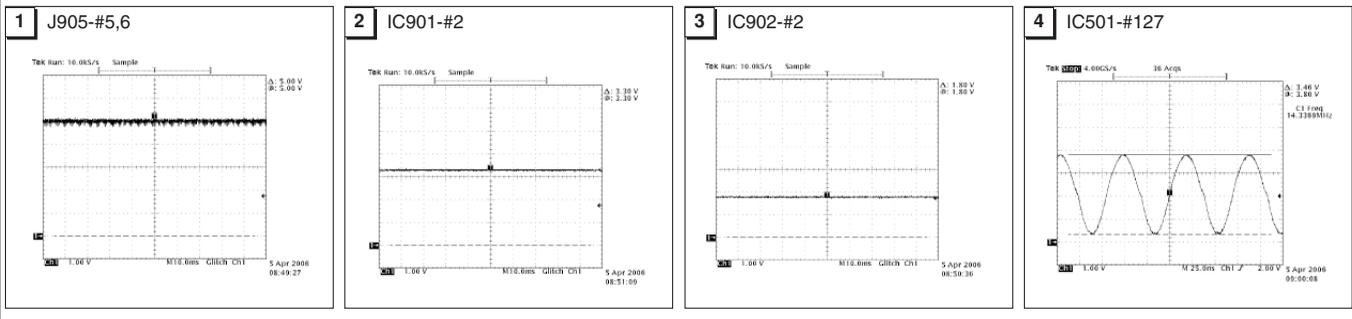
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

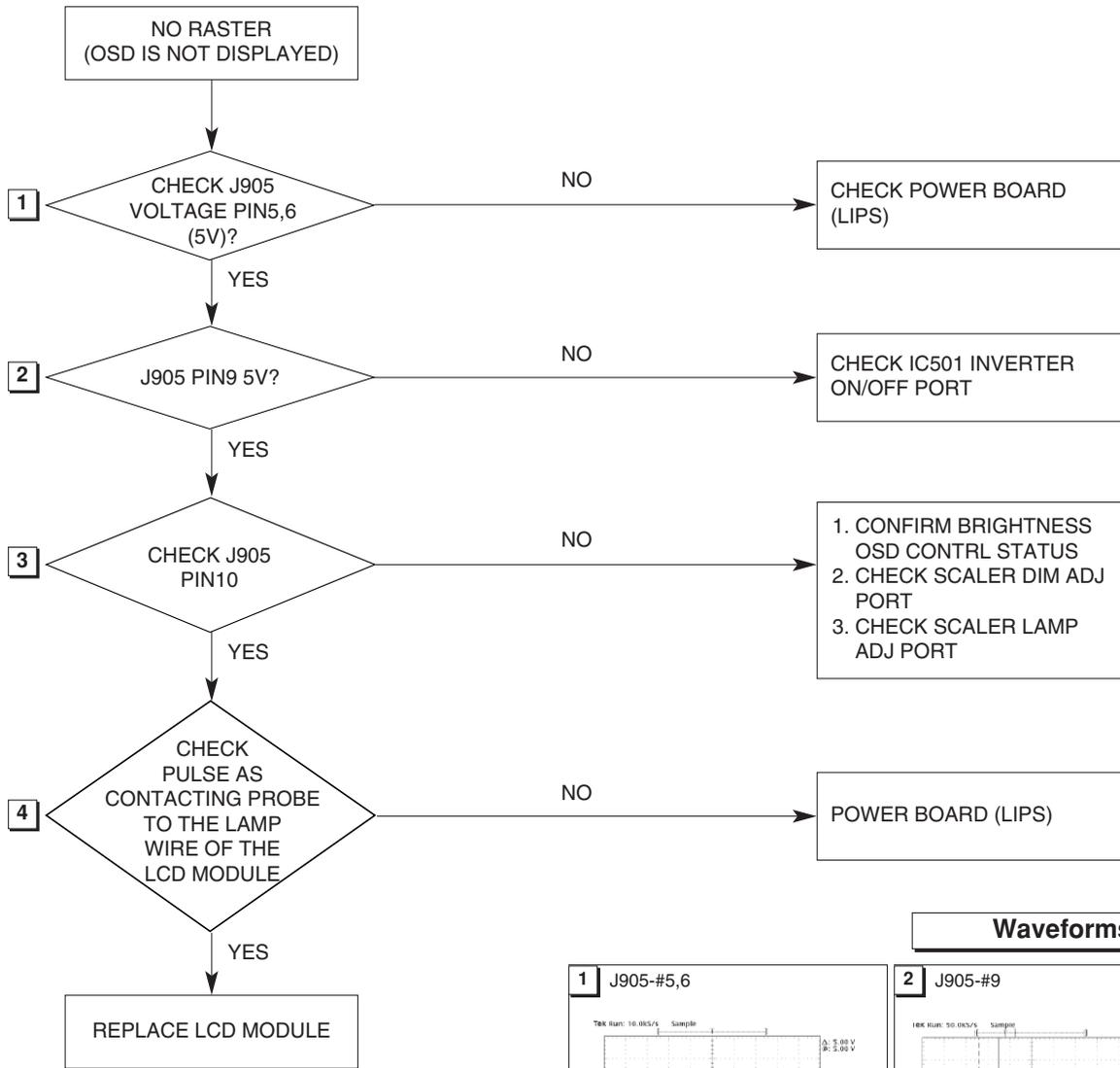
1. NO POWER



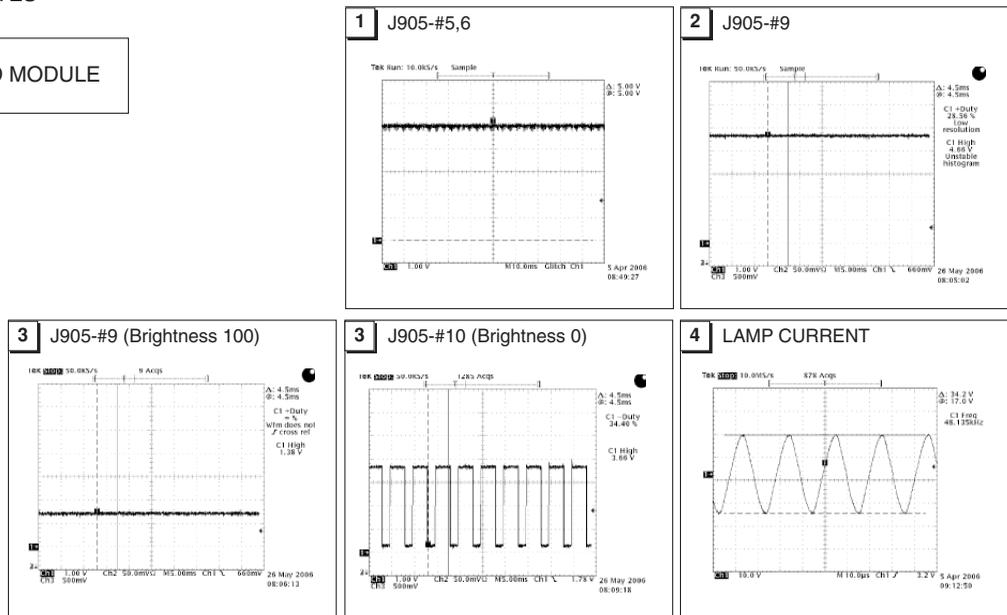
Waveforms



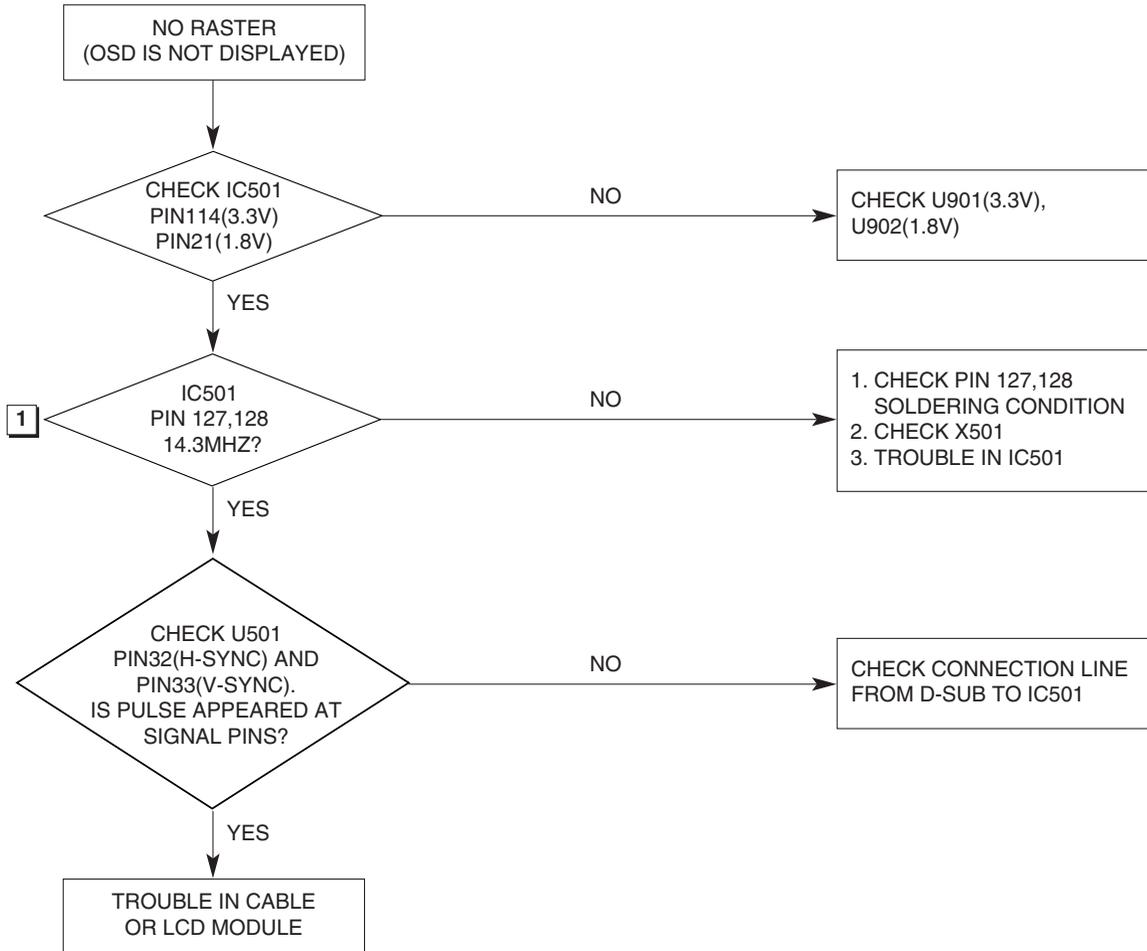
2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS



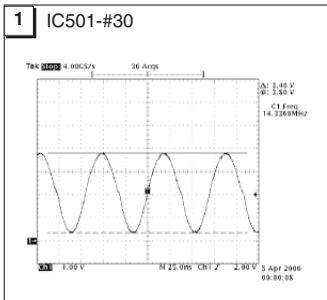
Waveforms



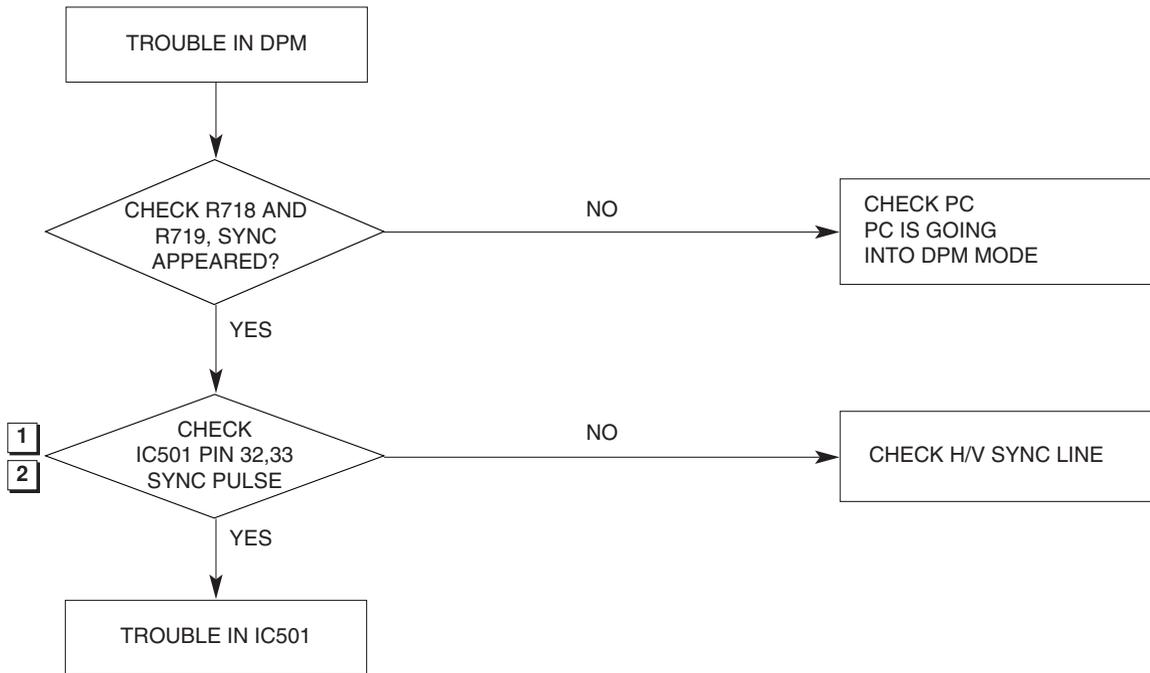
3. NO RASTER (OSD IS NOT DISPLAYED) - MAIN



Waveforms

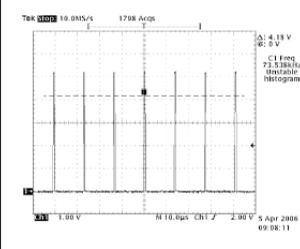


4. TROUBLE IN DPM

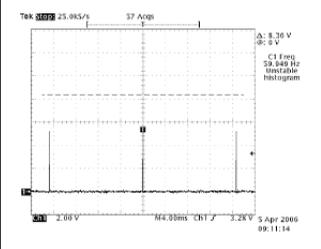


Waveforms

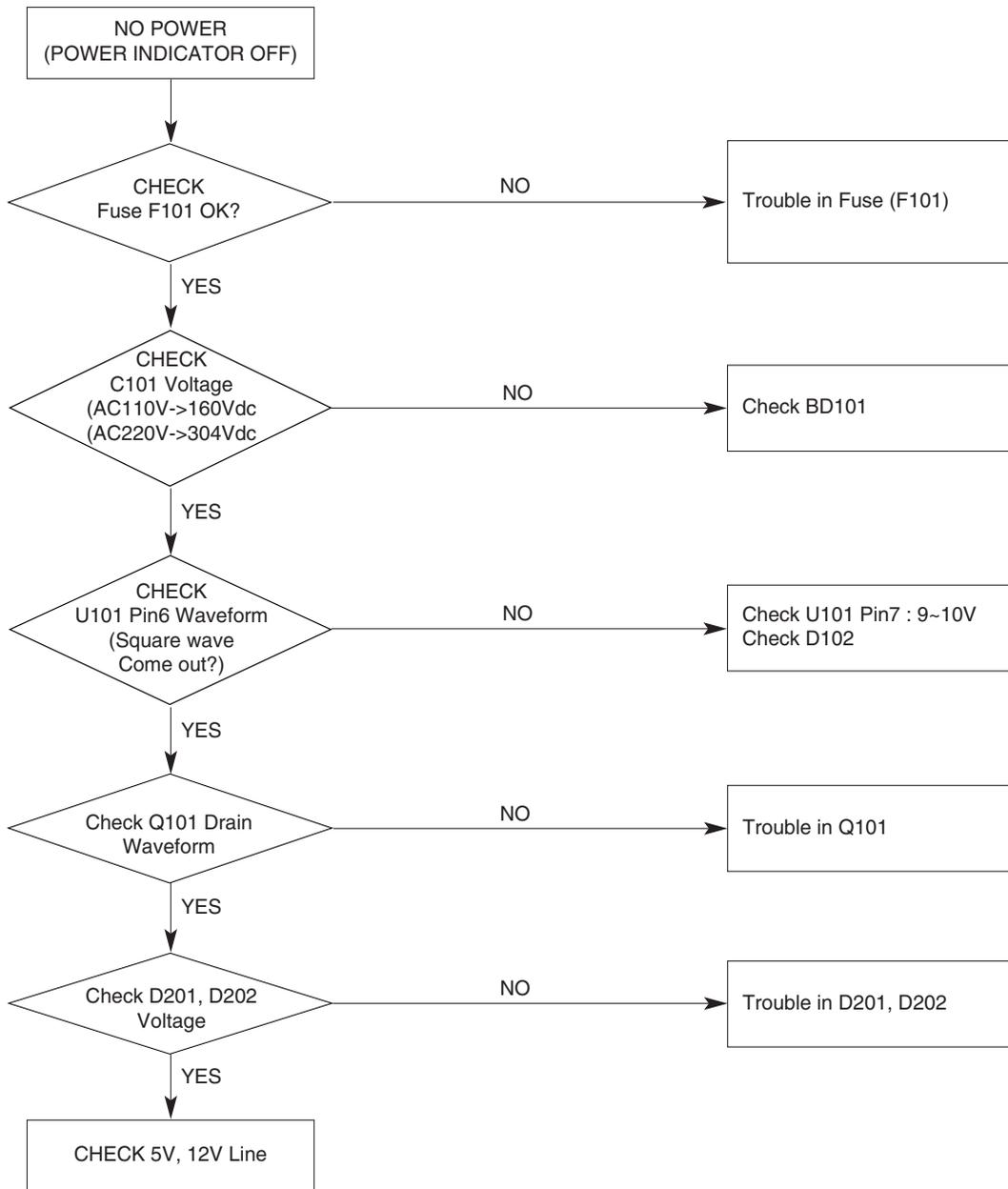
1 H-SYNC



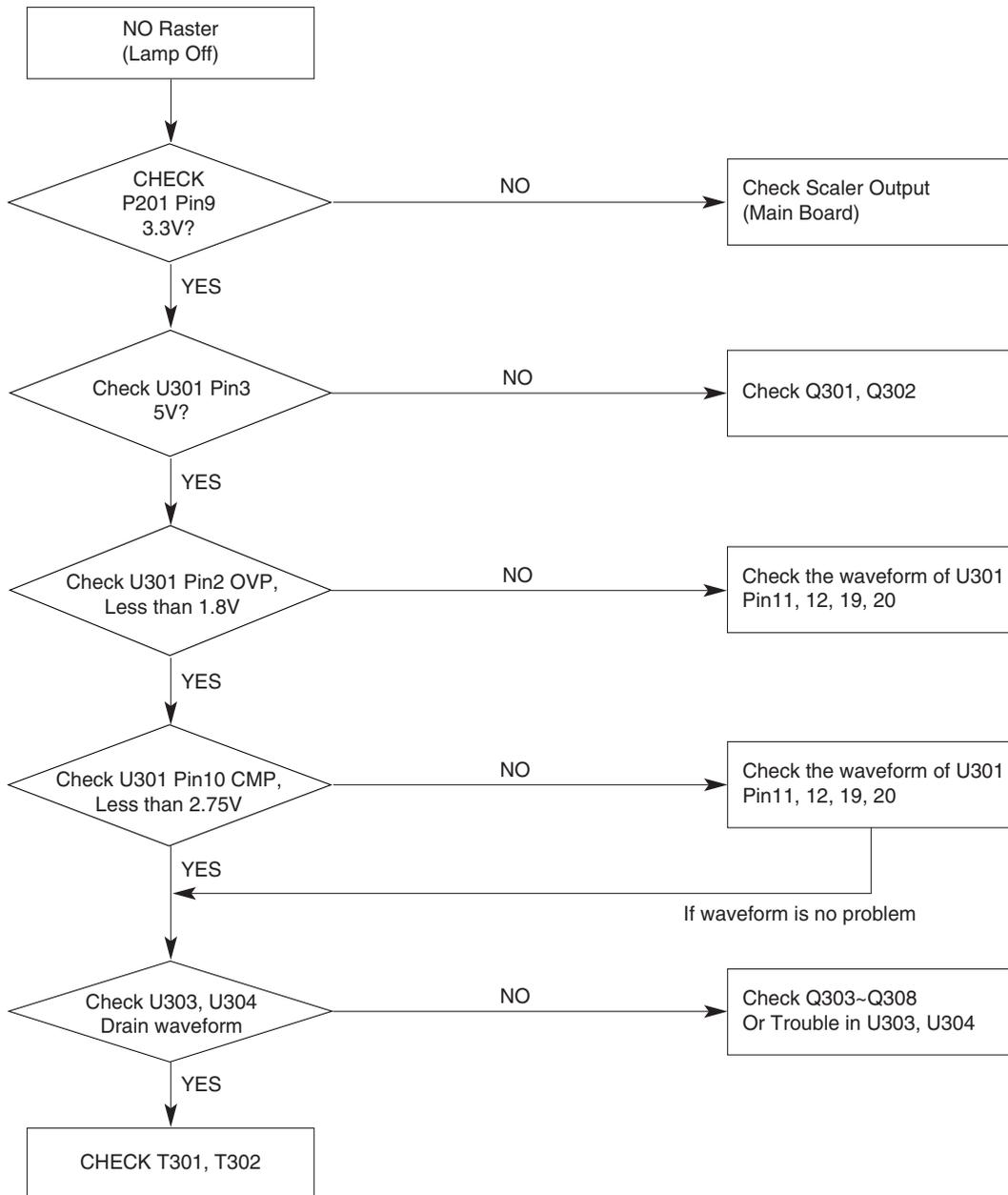
2 V-SYNC



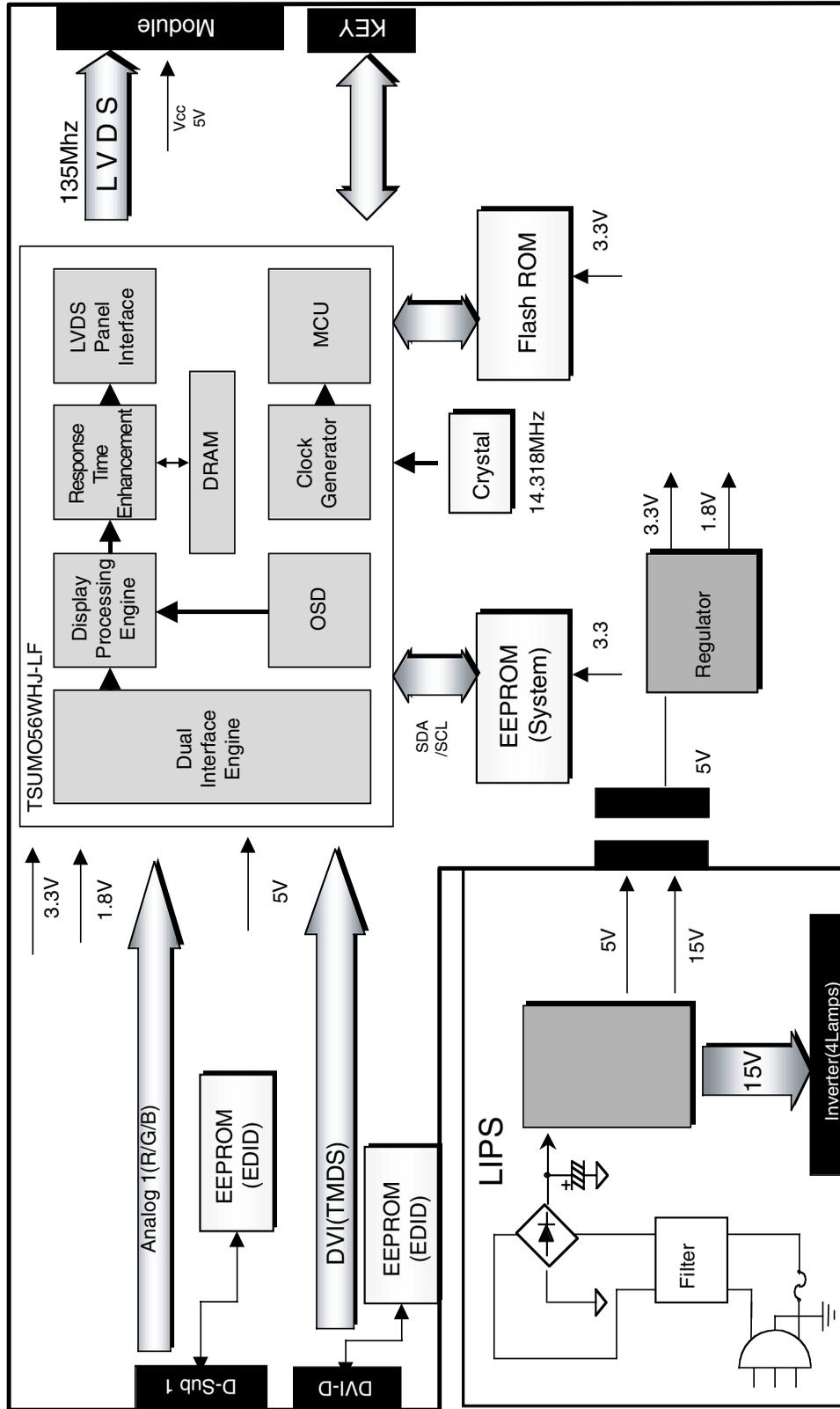
5. POWER



6. Raster

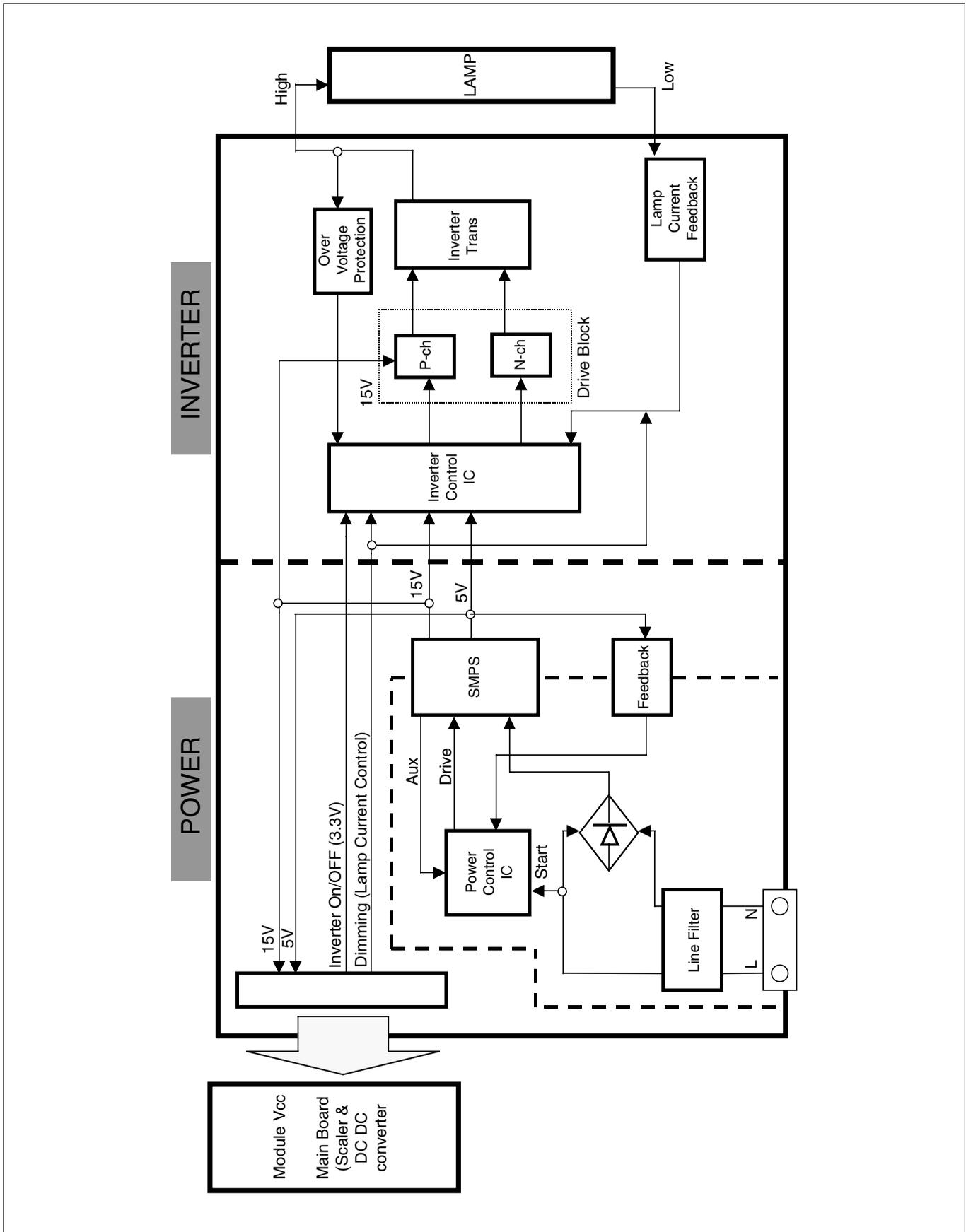


BLOCK DIAGRAM



Crystal Location No : X501

BLOCK DIAGRAM-POWER



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 convertor, TMDS receiver and LVDS transmitter.

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 one 3.3V, and one 1.8V regulators to convert power which is provided 5V in Power board.

15V is provided for inverter, 5V is provided for LCD panel.

Also, 5V is converted 3.3V and 1.8V by regulator. Converted power is provided for IC in the main board.

The inverter converts from DC15V to AC 700Vrms and operates back-light lamps of module.

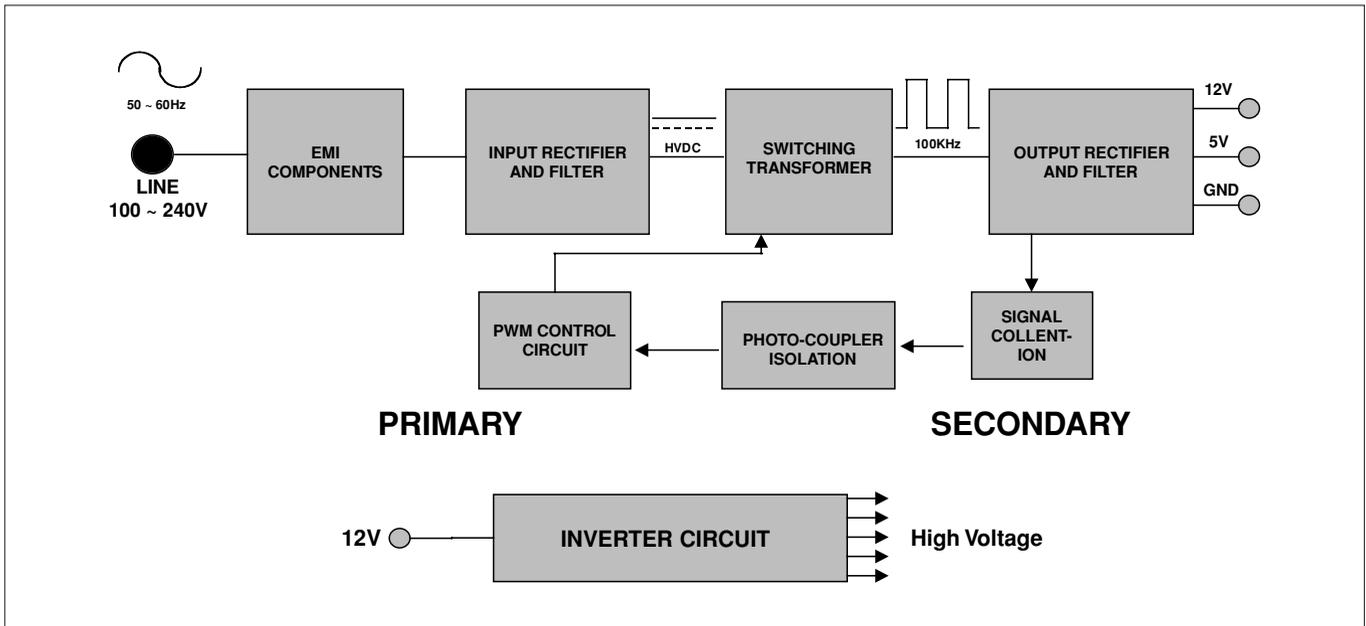
3. MICOM Part.

This part is include video controller part. And this part consists of EEPROM IC which stores control data, Reset IC 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.

LIPS Board Block Diagram



Operation description_LIPS

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.

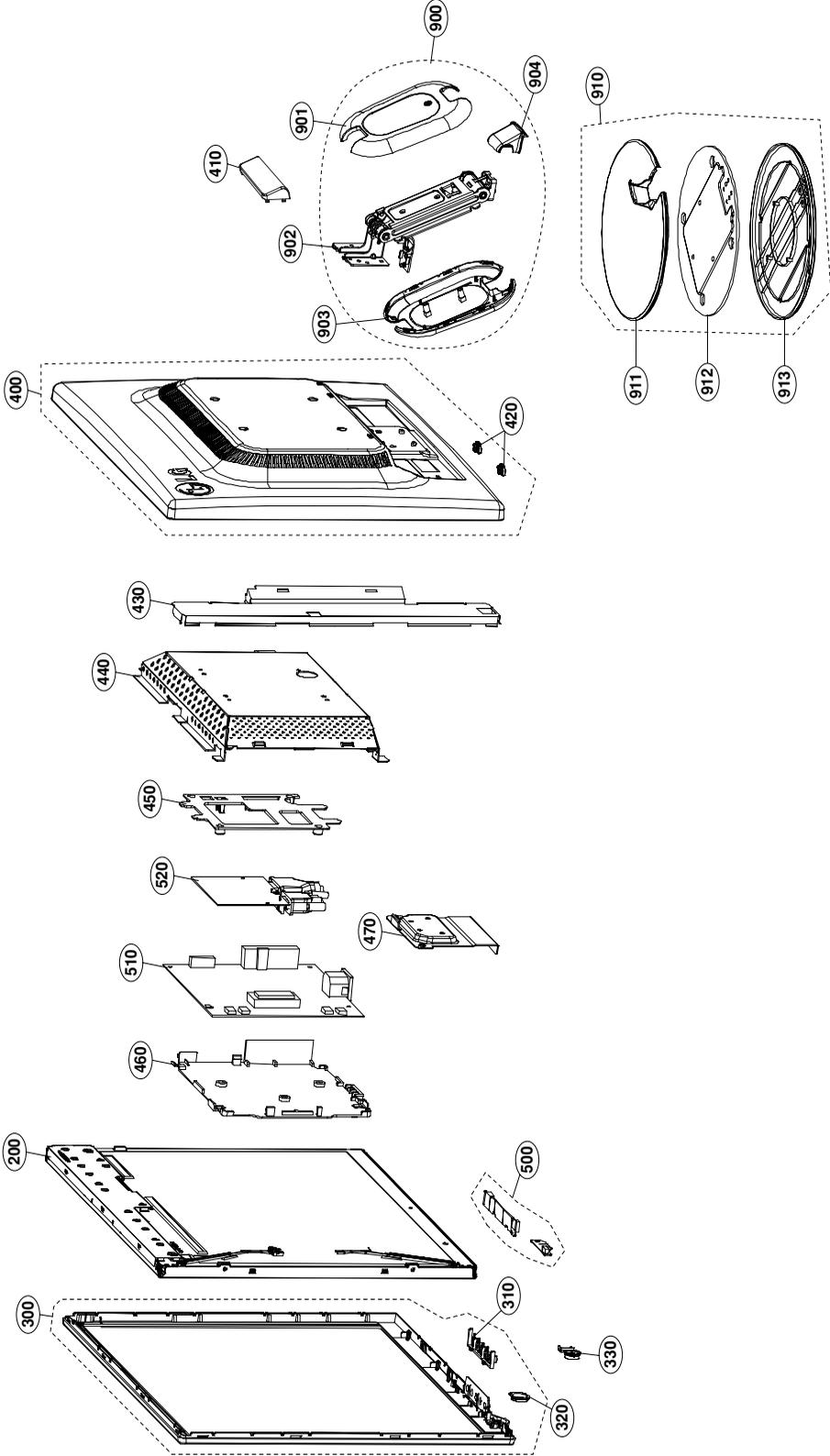
5. Photo-Coupler isolation.

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.

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

* Note: Safety mark 

No.	Part No.	Description
	200	EAJ36380901 LCD,Module-TFT, LM190E08-TLL2 DRIVER 19.0INCH 1280X1024 300CD COLOR 72% 4/3 800:1 P7, 5ms, 160/160, TLI T-con, Lusem/Toshiba(Source/Gate), lamp Heesung, Diffuser x2+P
		or EAJ36380801 LCD,Module-TFT, LM190E08-TLL1 DRIVER 19.0INCH 1280X1024 300CD COLOR 72% 4/3 800:1 P4, 5ms, 160/160, TLI T-con, Lusem/Toshiba(Source/Gate), lamp:Heesung, Diffuser x2 L
		or EAJ36381001 LCD,Module-TFT, LM190E08-TLL3 DRIVER 19.0INCH 1280X1024 300CD COLOR 72% 4/3 800:1 P4, 5ms, 160/160, TLI T-con, Magna/Toshiba(Source/Gate), lamp Heesung, Diffuser x2 L
	300	ACQ33828904 Cover Assembly, L1972 LM74B 19" L1972 glossy cabinet,"03"-CKD FOR CHINA
	310	MEY38582301 Knob, MOLD ABS HF-350U SUB TACK KNOB FOR LX7W, L1972 GLOBAL TACK, KNOB CONTROL
	320	MCK38584101 Cover, MOLD ABS HF-350U L1972, Lx7W ABS L1972,LX7W PIECE DECO RING_VACUUM PLATING
	330	MFB38581401 Lens, MOLD PMMA SAMSUNG TECHWIN LENS Lx72 / Lx7w lens , power LED Knob Double injection Power LED for L1972, Lxx7W
	400	ACQ33829102 Cover Assembly,Rear, L1972 LM74B 19" L1972 BACK COVER ASSY,"01"-CKD
	410	MCK38778502 Cover, MOLD ABS L1972 ABS L1972 / LX7W COVER HINGE CAP, "01"-CKD
	420	MCQ38594601 Damper, MOLD SANTOPRENE SUPPORT RUBBER L1972, Lx7W - Bottom Rubber
	430	MGJ38598201 Plate,Shield, PRESS SPTE 0.3 SHIELD SPTE L1972 / L1954 - LAMP WIRE SHIELD
	440	ADV33707201 Frame Assembly, L1954/L1972 (Dual) LM57B 19" Rear, Frame Assy
	450	MCK38597501 Cover, MOLD PC+ABS L1972 ABS L1972 / L1954 / Lx7W - VESA BRACKET
	460	MCK38597701 Cover, MOLD PC+ABS L1972 ABS L1972 / L1954 / Lx7W - LIPS BRACKET
	470	MGJ39022602 Plate,Metal, PRESS SBHG 1.0 METAL SPTE L1972 Metal Support 1.0T, "01"-CKD
	500	EBR39972801 Auto Insert PCB Assembly,Sub, CONTROL T.T LM74B L1972H . .
	510	EBR38153501 PCB Assembly, POWER T.T --- L1954T -- ----
		or EAY38800201 Power Supply Assembly, PLLM-M605A FREE L1954T/L1972H/L197W 19"/ 19"W LCD MNT LCD LG INNOTEK 4 lamp lips board LG INNOTEK CO. LTD.
	520	EBU39939501 Main Total Assembly, L1972H BRAND LM74B
	900	AAN33892201 Base Assembly, BASE L1972 LM57B L1972 BODY ASSY
	901	MCK38583601 Cover, MOLD ABS L1972 ABS L1972 , LX7W -COVER HINGE BODY REAR
	902	AAN33892501 Base Assembly, ASSY L1972 LM57B L1972 HINGE ASSY
	903	MCK38583301 Cover, MOLD ABS L1972 ABS L1972, LX7W - COVER HINGE BODY FRONT
	904	MCK38583101 Cover, MOLD ABS L1972 ABS L1972, LX7W - COVER HINGE BOTTOM
	910	AAN33892301 Base Assembly, BASE L1972 LM57B L1972 STAND BASE ASSY
	911	MCK38582701 Cover, MOLD ABS L1972, LX7W ABS L1972,LX7W - COVER BASE TOP
	912	MAM38594901 Base, PRESS H-GI 3.0 BASE L1972 LM57B L1972 / Lx7W - METAL BASE
	913	MCK38582901 Cover, MOLD ABS L1972 ABS L1972, LX7W - COVER BASE BOTTOM

REPLACEMENT PARTS LIST

DATE: 2007. 07. 12.

LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
ACCESSORY					
A1	SAB30016415	S/W PackageSAB30016415 L1972H-**Q	C402	EAE36975601	"Capacitor,Ceramic,RadialDCG150J26"
A2	6410TEW010A	"Power CordCEE,LP-34A&H05VV-FX3C,L"	C403	EAE36975601	"Capacitor,Ceramic,RadialDCG150J26"
A3	3171TZ1099Q	S/W Package3171TZ1099Q Forte Mana	C404	EAE36975601	"Capacitor,Ceramic,RadialDCG150J26"
A4	68509F0003A	"Cable,AssemblyD-SUB TO D-SUB UL20"	C407	0CK22201510	"Capacitor,Ceramic,RadialDCH222K43"
A5	68509J0004A	"Cable,AssemblyDVI-D TO DVI-D UL20"	C408	0CK22201510	"Capacitor,Ceramic,RadialDCH222K43"
A6	MBM34871507	CardPRINTING OTHERS BRAND L1972H-	C409	0CK22201510	"Capacitor,Ceramic,RadialDCH222K43"
CAPACITORS					
C101	0CZZ9ST017A	"Capacitor,AL,RadialEKM107M2WL35P6"	C410	0CK22201510	"Capacitor,Ceramic,RadialDCH222K43"
C102	0CKZTTA002Q	"Capacitor,Ceramic,RadialDCH222M46"	C411	0CH6152K406	"Capacitor,Ceramic,ChipC2012S2L1H1"
C103	0CZZ9ST014A	"Capacitor,AL,RadialEGF336R1HE11TC"	C412	0CH6152K406	"Capacitor,Ceramic,ChipC2012S2L1H1"
C104	0CH5271K416	"Capacitor,Ceramic,Chip0805N271J50"	C413	0CH6152K406	"Capacitor,Ceramic,ChipC2012S2L1H1"
C105	0CZZ9ST013A	"Capacitor,AL,RadialEKM474M1HD11TC"	C414	0CH6152K406	"Capacitor,Ceramic,ChipC2012S2L1H1"
C106	0CK222DK4DA	"Capacitor,Ceramic,ChipUMK212CG222"	C415	0CH2393K516	"Capacitor,Ceramic,Chip0805B393K50"
C107	0CK1040K945	"Capacitor,Ceramic,RadialDCS104Z30"	C416	0CH2393K516	"Capacitor,Ceramic,Chip0805B393K50"
C201	0CKZTTA002E	"Capacitor,Ceramic,RadialDG3AHR102"	C501	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C202	0CZZ9ST021A	"Capacitor,AL,RadialEGF108M1EG20TC"	C502	0CK473CH56A	"Capacitor,Ceramic,ChipC1608X7R1E4"
C203	0CZZ9ST020A	"Capacitor,AL,RadialEGF687M1EG20TC"	C503	0CK473CH56A	"Capacitor,Ceramic,ChipC1608X7R1E4"
C204	0CZZ9ST018A	"Capacitor,AL,Radial0CZZ9ST018A(LG)"	C504	0CK473CH56A	"Capacitor,Ceramic,ChipC1608X7R1E4"
C205	0CZZ9ST018A	"Capacitor,AL,Radial0CZZ9ST018A(LG)"	C505	0CK473CH56A	"Capacitor,Ceramic,ChipC1608X7R1E4"
C206	0CZZ9ST021A	"Capacitor,AL,RadialEGF108M1EG20TC"	C506	0CC102CK41A	"Capacitor,Ceramic,ChipC1608C0G1H1"
C207	0CZZ9ST019A	"Capacitor,AL,RadialEGF477M1EG16TC"	C507	0CK473CH56A	"Capacitor,Ceramic,ChipC1608X7R1E4"
C208	0CKZTTA002E	"Capacitor,Ceramic,RadialDG3AHR102"	C508	0CK473CH56A	"Capacitor,Ceramic,ChipC1608X7R1E4"
C210	0CH3104K566	"Capacitor,Ceramic,Chip0805B104K16"	C509	0CC270CK41A	"Capacitor,Ceramic,ChipC1608C0G1H2"
C301	0CZZTCT006D	"Capacitor,Ceramic,ChipC3216X7R1E2"	C510	0CC270CK41A	"Capacitor,Ceramic,ChipC1608C0G1H2"
C302	0CZZTCT006D	"Capacitor,Ceramic,ChipC3216X7R1E2"	C511	0CK103CK51A	"Capacitor,Ceramic,Chip0603B103K50"
C303	0CK225DD66A	"Capacitor,Ceramic,ChipLMK212JB225"	C512	0CK103CK51A	"Capacitor,Ceramic,Chip0603B103K50"
C304	0CK225DD66A	"Capacitor,Ceramic,ChipLMK212JB225"	C513	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C305	0CK224DH56A	"Capacitor,Ceramic,Chip0805B224K25"	C514	0CK224CF56A	"Capacitor,Ceramic,Chip0603B224K16"
C306	0CH2102K566	"Capacitor,Ceramic,ChipC2012X7R1H1"	C515	0CE106CF638	"Capacitor,AL,RadialSHL5.0TP16VB10"
C307	0CH2102K566	"Capacitor,Ceramic,ChipC2012X7R1H1"	C516	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C308	0CH2102K566	"Capacitor,Ceramic,ChipC2012X7R1H1"	C517	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C309	0CK473DK56A	"Capacitor,Ceramic,ChipC2012X7R1H4"	C518	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C310	0CH5181K416	"Capacitor,Ceramic,Chip0805N181J50"	C519	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C312	0CH3103K516	"Capacitor,Ceramic,ChipC2012Y5P1H1"	C520	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C313	0CZZTCT006D	"Capacitor,Ceramic,ChipC3216X7R1E2"	C521	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C314	0CZZTCT006D	"Capacitor,Ceramic,ChipC3216X7R1E2"	C522	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C315	0CZZTCT006D	"Capacitor,Ceramic,ChipC3216X7R1E2"	C523	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C316	0CK473DK56A	"Capacitor,Ceramic,ChipC2012X7R1H4"	C524	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C317	0CH2222K516	"Capacitor,Ceramic,Chip0805B222K50"	C525	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C318	0CH2222K516	"Capacitor,Ceramic,Chip0805B222K50"	C526	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C319	0CH2102K566	"Capacitor,Ceramic,ChipC2012X7R1H1"	C527	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C320	0CK473DK56A	"Capacitor,Ceramic,ChipC2012X7R1H4"	C528	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C321	0CH2102K566	"Capacitor,Ceramic,ChipC2012X7R1H1"	C529	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C322	0CH3103K516	"Capacitor,Ceramic,ChipC2012Y5P1H1"	C530	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C323	0CH5221K416	"Capacitor,Ceramic,Chip0805N221J50"	C531	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C401	EAE36975601	"Capacitor,Ceramic,RadialDCG150J26"	C532	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
			C533	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
			C534	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
			C535	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
			C536	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"

LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
C537	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C538	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C539	0CC080CK11A	"Capacitor,Ceramic,ChipC1608C0G1H0"
C540	0CC080CK11A	"Capacitor,Ceramic,ChipC1608C0G1H0"
C541	0CC080CK11A	"Capacitor,Ceramic,ChipC1608C0G1H0"
C701	0CC101CK41A	"Capacitor,Ceramic,ChipC1608C0G1H1"
C702	0CC101CK41A	"Capacitor,Ceramic,ChipC1608C0G1H1"
C703	0CC680CK41A	"Capacitor,Ceramic,ChipC1608C0G1H6"
C704	0CK104CK56A	"Capacitor,Ceramic,Chip0603B104K50"
C705	0CC680CK41A	"Capacitor,Ceramic,ChipC1608C0G1H6"
C706	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C707	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C708	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C709	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C710	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C711	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C712	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C713	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C714	0CC680CK41A	"Capacitor,Ceramic,ChipC1608C0G1H6"
C715	0CC680CK41A	"Capacitor,Ceramic,ChipC1608C0G1H6"
C716	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C717	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C718	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C719	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C720	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C723	0CK104CF56A	"Capacitor,Ceramic,Chip0603B104K16"
C724	0CK105CD56A	"Capacitor,Ceramic,ChipC1608X7R1A1"
C725	0CC101CK41A	"Capacitor,Ceramic,ChipC1608C0G1H1"
C901	0CK103CK51A	"Capacitor,Ceramic,Chip0603B103K50"
C902	0CE107EF610	"Capacitor,AL,RadialKMG16VB100M 10"
C905	0CE107EF610	"Capacitor,AL,RadialKMG16VB100M 10"
C906	0CE107EF610	"Capacitor,AL,RadialKMG16VB100M 10"
C907	0CE107EF610	"Capacitor,AL,RadialKMG16VB100M 10"
C908	0CK104CK56A	"Capacitor,Ceramic,Chip0603B104K50"
C909	0CK104CK56A	"Capacitor,Ceramic,Chip0603B104K50"
C910	0CK104CK56A	"Capacitor,Ceramic,Chip0603B104K50"
C911	0CK102CK56A	"Capacitor,Ceramic,Chip0603B102K50"
C912	0CK102CK56A	"Capacitor,Ceramic,Chip0603B102K50"
C913	0CK102CK56A	"Capacitor,Ceramic,Chip0603B102K50"
C914	0CE227EF610	"Capacitor,AL,RadialKMG16VB220M 22"
C915	0CK105CD56A	"Capacitor,Ceramic,ChipC1608X7R1A1"
C916	0CE107EF610	"Capacitor,AL,RadialKMG16VB100M 10"
CX101	0CZ9ST025A	"Capacitor,Film,DIPPCX233712474 47"
CY101	0CZ9ST024A	"Capacitor,Ceramic,RadialDCF101K26"
CY102	0CZ9ST024A	"Capacitor,Ceramic,RadialDCF101K26"
CY104	0CZ9ST023A	"Capacitor,Ceramic,RadialDCF472M46"
DIODES		
D101	0DRDI00234A	"Diode,RectifierPR1007 1KV 1.3V 5U"
D102	0DRDI00244A	"Diode,RectifierN4007/L 1KV 1V 5U"
D103	0DSGF00019A	"Diode,Switching1N4148 1V 100V 150"
D104	0DRTW00274A	"Diode,Rectifier2A05 600V 1V 50UA"
D105	0DRTW00274A	"Diode,Rectifier2A05 600V 1V 50UA"

LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
D106	0DRTW00274A	"Diode,Rectifier2A05 600V 1V 50UA"
D107	0DRTW00274A	"Diode,Rectifier2A05 600V 1V 50UA"
D201	0DRTW00280A	"Diode,RectifierMBRF10200CT 200V 9"
D202	EAH36977701	"Diode,RectifierSR306 TSC 60V 700M"
D203	EAH36977701	"Diode,RectifierSR306 TSC 60V 700M"
D301	0DSGD00048A	"Diode,SwitchingMM4148 1V 75V 150M"
D302	0DSDI00038A	"Diode,SwitchingBAV99-(F) 1.25V 10"
D303	0DSDI00038A	"Diode,SwitchingBAV99-(F) 1.25V 10"
D304	0DSGD00048A	"Diode,SwitchingMM4148 1V 75V 150M"
D401	0DSDI00068A	"Diode,SwitchingBAV70-(F) 1.25V 10"
D402	0DSDI00068A	"Diode,SwitchingBAV70-(F) 1.25V 10"
D403	0DSDI00038A	"Diode,SwitchingBAV99-(F) 1.25V 10"
D404	0DSDI00038A	"Diode,SwitchingBAV99-(F) 1.25V 10"
D405	0DSGD00048A	"Diode,SwitchingMM4148 1V 75V 150M"
D406	0DSGD00048A	"Diode,SwitchingMM4148 1V 75V 150M"
D701	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D702	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D703	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D704	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D705	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D706	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D707	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D708	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D709	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D710	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D711	0DS226009AA	"Diode,SwitchingKDS226 1.2V 85V 30"
D712	0DSON00138A	"Diode,SchottkyMMBD301LT1G 600MV 3"
D713	0DD184009AA	Diode AssemblyKDS184 KDS184 TP KE
D714	0DSON00138A	"Diode,SchottkyMMBD301LT1G 600MV 3"
D715	0DD184009AA	Diode AssemblyKDS184 KDS184 TP KE
ZD1	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD101	0DZ330009CC	"Diode,ZenerMTZJ3.3B 3.3V 3.32TO3."
ZD2	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD3	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD301	EAH36968501	"Diode,ZenerZMM5232B(Grande) 5.6V"
ZD302	EAH36968501	"Diode,ZenerZMM5232B(Grande) 5.6V"
ZD303	EAH36968501	"Diode,ZenerZMM5232B(Grande) 5.6V"
ZD4	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD701	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD702	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD703	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD704	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD705	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD708	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD709	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ZD710	0DZ560009GB	"Diode,ZenerBZT52C5V6S-(F) 5.6V 5."
ICs		
IC1	0IPMGA0010A	"IC,LDO Voltage RegulatorAZ1117H-3"
PC201	0IPMG78432A	"IC,Voltage DetectorLTV-817M-V(C)"
U101	0IPMG78425A	"IC,PWM ControllerFAN7601 20V 5V 1"
U201	0IPMG78424A	"IC,Voltage RegulatorAZ431-A 20V_4"
U301	EAN36961401	"IC,PWM ControllerOZ9938GN 4.5VTO5"

LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
U501	0IPRP00784A	"IC,Video ProcessorsFE251MOH-LF(TS"
U502	EAN37000605	IC AssemblyMstar Dual ODC (Ez-Zoo
U503	0IMMRS036B	"IC,EEPROMM24C16-WMN6TP 16KBIT 2KX"
U701	0IMMR00014A	"IC,EEPROMM24C02-RMN6TP 2KBIT 256X"
U702	0IMMR00014A	"IC,EEPROMM24C02-RMN6TP 2KBIT 256X"
U902	0IPMG78403A	"IC,LDO Voltage RegulatorAZ1086S-1"
COIL & FILTERs		
L202	61409B0009A	"Coil,ChokeHL-1520S(7UH) 7.0uH 5V"
FB101	6210TCE003G	"Filter,BeadBRS3550T0 55TO100OHM 7"
L901	0LCML00003B	"Filter,BeadMLB-201209-0120P-N2 12"
L902	0LCML00003B	"Filter,BeadMLB-201209-0120P-N2 12"
L903	0LCML00003B	"Filter,BeadMLB-201209-0120P-N2 12"
LF101	6200J000154	"Filter,Line Noise13.0*710*23680 2"
TRANSISTORs & FETs		
Q301	0TR390609DC	"TR,Bipolar2N3906S-RTK PNP -5V -40"
Q302	0TRKE80046A	"TR,Bipolar2N3904S NPN 6V 60V 40V"
Q303	0TRKE80046A	"TR,Bipolar2N3904S NPN 6V 60V 40V"
Q501	0TR390409AE	"TR,BipolarKST3904 NPN 6V 60V 40V"
Q502	0TR390409AE	"TR,BipolarKST3904 NPN 6V 60V 40V"
Q701	0TR390609FA	"TR,BipolarKST3906-MTF PNP -5V -40"
Q702	0TR390609FA	"TR,BipolarKST3906-MTF PNP -5V -40"
Q901	0TR127309AA	"TR,BipolarKTA1273 PNP -5V -30V -3"
Q902	0TR390409AE	"TR,BipolarKST3904 NPN 6V 60V 40V"
Q101	0TFFC10017A	FETFQPF8N60CYDTU(FORMING) N-CHANN
U303	0TFAN00002A	FETAPM4546JC-TUL N/P-CHANNEL MOSF
U304	0TFAN00002A	FETAPM4546JC-TUL N/P-CHANNEL MOSF
RESISTORs		
R1	0RJ7501D677	"Resistor,ChipMCR03EZPJ752 7.5KOHM"
R101	0RJ4703G676	"Resistor,ChipMCR18EZJ474 470KOHM"
R102	0RJ6801E472	"Resistor,ChipRC98TRF6K80 6.8KOHM"
R103	0RH1004D622	"Resistor,ChipMCR10EZJ105 1MOHM 5"
R104	0RH1001D622	"Resistor,ChipMCR10EZJ102 1KOHM 5"
R105	0RD0912Q609	"Resistor,Carbon FilmRDM94T1J91R0"
R106	0RH2201D622	"Resistor,ChipMCR10EZJ222 2.2KOHM"
R107	0RD8203A609	"Resistor,Carbon FilmRDM92T1J820K"
R108	0RD4702A609	"Resistor,Carbon FilmRDM92T1J47K0"
R109	0RX0560J609	"Resistor,Metal Oxide FilmRSD01T1J"
R110	0RX1003K607	"Resistor,Metal Oxide FilmRSD02T3J"
R111	0RD0471Q609	"Resistor,Carbon FilmRDM94T1J4R70"
R112	0RJ1302E472	"Resistor,ChipMCR10EZHF 1302 13KOH"
R115	0RJ4703G676	"Resistor,ChipMCR18EZJ474 470KOHM"
R116	0RJ4703G676	"Resistor,ChipMCR18EZJ474 470KOHM"
R117	0RH2403D622	"Resistor,ChipMCR10EZJ244 240KOHM"
R118	0RH2403D622	"Resistor,ChipMCR10EZJ244 240KOHM"
R122	0RH0122D622	"Resistor,ChipMCR10EZJ120 12OHM 5"
R2	0RJ7501D677	"Resistor,ChipMCR03EZPJ752 7.5KOHM"
R201	0RX0102K665	"Resistor,Metal Oxide FilmRSD02F4J"
R202	0RX0242K665	"Resistor,Metal Oxide FilmRSD02F4J"

LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
R204	0RN6802F409	"Resistor,Metal FilmRN-96T1F68K0 6"
R205	0RN2201F409	"Resistor,Metal FilmRN-96T1F2K20 2"
R206	0RH1801D422	"Resistor,ChipMCR10EZHF182 1.8KOHM"
R207	0RH1001D622	"Resistor,ChipMCR10EZJ102 1KOHM 5"
R208	0RH6800D622	"Resistor,ChipMCR10EZJ681 680OHM"
R209	0RH1001D622	"Resistor,ChipMCR10EZJ102 1KOHM 5"
R211	0RJ1001G476	"Resistor,ChipMCR18EZHF1001 1KOHM"
R3	0RJ1201D677	"Resistor,ChipMCR03EZPJ122 1.2KOHM"
R301	0RH4701D622	"Resistor,ChipMCR10EZJ472 4.7KOHM"
R302	0RD0222Q609	"Resistor,Carbon FilmRDM94T1J22R0"
R303	0RH1000D422	"Resistor,ChipMCR10EZHF101 100OHM"
R306	0RH1002D422	"Resistor,ChipMCR10EZHF103 10KOHM"
R309	0RH1002D422	"Resistor,ChipMCR10EZHF103 10KOHM"
R310	0RH1004D622	"Resistor,ChipMCR10EZJ105 1MOHM 5"
R311	0RH3902D422	"Resistor,ChipMCR10EZHF393 39KOHM"
R312	0RH0512D622	"Resistor,ChipMCR10EZJ510 51OHM 5"
R313	0RH0512D622	"Resistor,ChipMCR10EZJ510 51OHM 5"
R314	0RH0512D622	"Resistor,ChipMCR10EZJ510 51OHM 5"
R319	0RH1004D622	"Resistor,ChipMCR10EZJ105 1MOHM 5"
R320	0RH3902D422	"Resistor,ChipMCR10EZHF393 39KOHM"
R321	0RH1803D422	"Resistor,ChipMCR10EZHF184 180KOHM"
R322	0RH5101D422	"Resistor,ChipMCR10EZHF512 5.1KOHM"
R324	0RH1002D422	"Resistor,ChipMCR10EZHF103 10KOHM"
R325	0RH2202D622	"Resistor,ChipMCR10EZJ223 22KOHM"
R326	0RH1002D422	"Resistor,ChipMCR10EZHF103 10KOHM"
R327	0RH2202D622	"Resistor,ChipMCR10EZJ223 22KOHM"
R328	0RH0512D622	"Resistor,ChipMCR10EZJ510 51OHM 5"
R329	0RH1002D422	"Resistor,ChipMCR10EZHF103 10KOHM"
R330	0RH1002D422	"Resistor,ChipMCR10EZHF103 10KOHM"
R331	0RH1002D422	"Resistor,ChipMCR10EZHF103 10KOHM"
R332	0RJ2001E472	"Resistor,ChipMCR10EZHF202 2KOHM 1"
R333	0RH1004D622	"Resistor,ChipMCR10EZJ105 1MOHM 5"
R4	0RJ1801D677	"Resistor,ChipMCR03EZPJ182 1.8KOHM"
R401	0RH5101D422	"Resistor,ChipMCR10EZHF512 5.1KOHM"
R402	0RH5101D422	"Resistor,ChipMCR10EZHF512 5.1KOHM"
R403	0RJ3000E472	"Resistor,ChipMCR10EZHF3000 300OHM"
R404	0RJ3000E472	"Resistor,ChipMCR10EZHF3000 300OHM"
R405	0RJ9102E472	"Resistor,Chip0805W8F9101T5E 91KOH"
R406	0RH1802D422	"Resistor,ChipMCR10EZHF183 18KOHM"
R407	0RJ9102E472	"Resistor,Chip0805W8F9101T5E 91KOH"
R408	0RH1802D422	"Resistor,ChipMCR10EZHF183 18KOHM"
R409	0RJ9102E472	"Resistor,Chip0805W8F9101T5E 91KOH"
R410	0RH1802D422	"Resistor,ChipMCR10EZHF183 18KOHM"
R411	0RJ9102E472	"Resistor,Chip0805W8F9101T5E 91KOH"
R412	0RH1802D422	"Resistor,ChipMCR10EZHF183 18KOHM"
R5	0RJ1201D677	"Resistor,ChipMCR03EZPJ122 1.2KOHM"
R501	0RJ1000D677	"Resistor,ChipMCR03EZPJ101 100OHM"
R502	0RJ0562D677	"Resistor,ChipMCR03EZPJ560 56OHM 5"
R503	0RJ1000D677	"Resistor,ChipMCR03EZPJ101 100OHM"
R504	0RJ0562D677	"Resistor,ChipMCR03EZPJ560 56OHM 5"
R505	0RJ4700D677	"Resistor,ChipMCR03EZPJ471 470OHM"
R506	0RJ1000D677	"Resistor,ChipMCR03EZPJ101 100OHM"
R507	0RJ0562D677	"Resistor,ChipMCR03EZPJ560 56OHM 5"
R508	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"

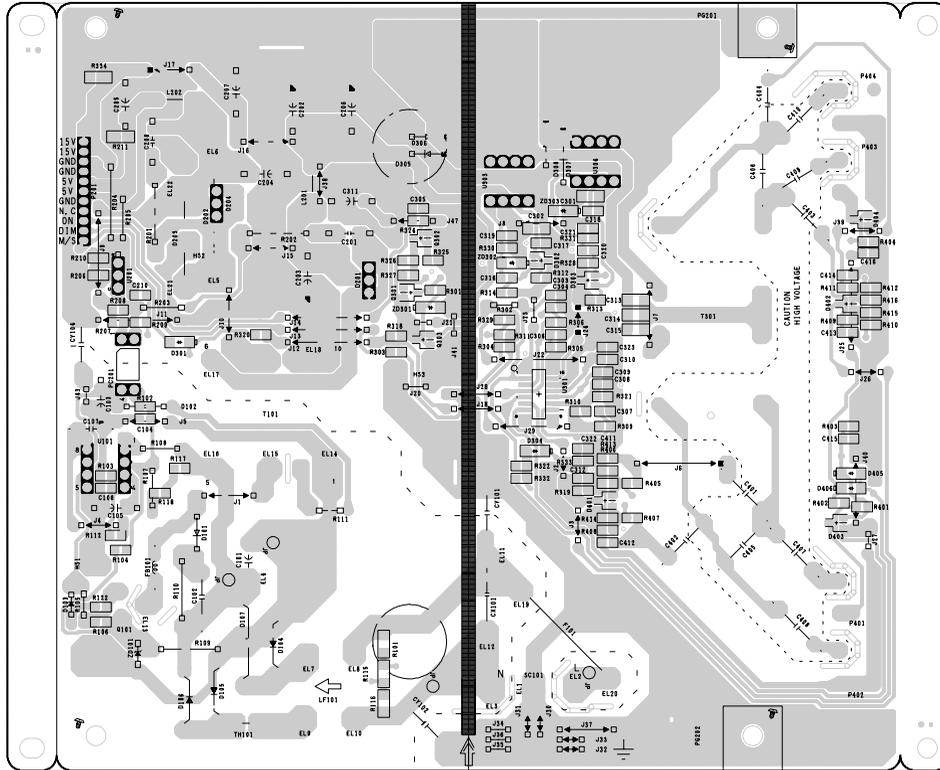
LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
R509	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R510	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R511	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R512	0RJ4700D677	"Resistor,ChipMCR03EZPJ471 470OHM"
R513	0RJ4700D677	"Resistor,ChipMCR03EZPJ471 470OHM"
R516	0RJ3900D677	"Resistor,ChipMCR03EZPJ391 390OHM"
R517	0RJ1002D677	"Resistor,ChipMCR03EZPJ103 10KOHM"
R518	0RJ0000D677	"Resistor,ChipMCR03EZPJ000 0OHM 5%"
R519	0RJ1502D677	"Resistor,ChipMCR03EZPJ153 15KOHM"
R522	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R523	0RJ1000D677	"Resistor,ChipMCR03EZPJ101 100OHM"
R524	0RJ1002D677	"Resistor,ChipMCR03EZPJ103 10KOHM"
R525	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R526	0RJ0332D677	"Resistor,ChipMCR03EZPJ330 33OHM 5"
R527	0RJ0332D677	"Resistor,ChipMCR03EZPJ330 33OHM 5"
R529	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R530	0RJ1002D677	"Resistor,ChipMCR03EZPJ103 10KOHM"
R532	0RJ1501D677	"Resistor,ChipMCR03EZPJ152 1.5KOHM"
R533	0RJ1000D677	"Resistor,ChipMCR03EZPJ101 100OHM"
R6	0RJ1801D677	"Resistor,ChipMCR03EZPJ182 1.8KOHM"
R701	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R702	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R703	0RJ0332D677	"Resistor,ChipMCR03EZPJ330 33OHM 5"
R704	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R705	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R706	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R707	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R708	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R709	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R710	0RJ0332D677	"Resistor,ChipMCR03EZPJ330 33OHM 5"
R711	0RJ0000D677	"Resistor,ChipMCR03EZPJ000 0OHM 5%"
R712	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R713	0RJ0102D677	"Resistor,ChipMCR03EZPJ100 10OHM 5"
R714	0RJ1001D677	"Resistor,ChipMCR03EZPJ102 1KOHM 5"
R715	0RJ0000D677	"Resistor,ChipMCR03EZPJ000 0OHM 5%"
R716	0RJ0332D677	"Resistor,ChipMCR03EZPJ330 33OHM 5"
R717	0RJ0752D677	"Resistor,ChipMCR03EZPJ750 75OHM 5"
R718	0RJ0682D677	"Resistor,ChipMCR03EZPJ680 68OHM 5"
R719	0RJ0682D677	"Resistor,ChipMCR03EZPJ680 68OHM 5"
R720	0RJ0332D677	"Resistor,ChipMCR03EZPJ330 33OHM 5"
R721	0RJ0752D677	"Resistor,ChipMCR03EZPJ750 75OHM 5"
R722	0RJ0752D677	"Resistor,ChipMCR03EZPJ750 75OHM 5"
R723	0RJ0000D677	"Resistor,ChipMCR03EZPJ000 0OHM 5%"
R724	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R725	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R726	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R727	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R728	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R729	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R730	0RJ2200D677	"Resistor,ChipMCR03EZPJ221 220OHM"
R731	0RJ2200D677	"Resistor,ChipMCR03EZPJ221 220OHM"
R732	0RJ1000D677	"Resistor,ChipMCR03EZPJ101 100OHM"
R733	0RJ1000D677	"Resistor,ChipMCR03EZPJ101 100OHM"
R735	0RJ2001D677	"Resistor,ChipMCR03EZPJ202 2KOHM 5"

LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
R736	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R737	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R738	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R739	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R903	0RJ1002D677	"Resistor,ChipMCR03EZPJ103 10KOHM"
R904	0RJ2001D677	"Resistor,ChipMCR03EZPJ202 2KOHM 5"
R905	0RJ3900D677	"Resistor,ChipMCR03EZPJ391 390OHM"
R906	0RH1002D622	"Resistor,ChipMCR10EZHJ103 10KOHM"
R907	0RX0331K668	"Resistor,Metal Oxide FilmRSD02F4J"
R909	0RJ0000D677	"Resistor,ChipMCR03EZPJ000 0OHM 5%"
R910	0RJ0000D677	"Resistor,ChipMCR03EZPJ000 0OHM 5%"
R911	0RJ1002D677	"Resistor,ChipMCR03EZPJ103 10KOHM"
R912	0RJ3900D677	"Resistor,ChipMCR03EZPJ391 390OHM"
R913	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
R914	0RJ4701D677	"Resistor,ChipMCR03EZPJ472 4.7KOHM"
CONNECTORS		
C1	6631V12031A	"Harness,Single4P CONNECTOR ASSY ("
C2	EAD30368603	"Harness,Singleconnector assy(L245"
CA1	6631900109A	"Harness,Single(FOOSUNG)DCE153B-23"
CA2	6631T20023J	"Harness,Single11P(2.0MM) SMH200-1"
J1	6602T12005E	"Connector,Wafer12505WR-06A00 6P 1"
J2	6602T12005C	"Connector,Wafer12505WR-04A00 4P 1"
J3	6602T12004C	"Connector,Wafer12505WS-04A00 4P 1"
J901	6630TGA005B	"Connector,DSUBQH11121-DN0-D DVI 2"
J902	6630TGA004F	"Connector,DSUBKCN-DS-3-0062 D-SUB"
J905	6602T20008K	"Connector,WaferSMW200-11P 11P 2.0"
J906	6630V90219A	"Connector,WaferSMW200-28C 28P 2.0"
J907	6602T12004E	"Connector,Wafer12505WS-06A00 6P 1"
P201	6602T20008K	"Connector,WaferSMW200-11P 11P 2.0"
P401	6630V90218A	"Connector,Wafer35002WR-02A00 2P 3"
P402	6630V90218A	"Connector,Wafer35002WR-02A00 2P 3"
P403	6630V90218A	"Connector,Wafer35002WR-02A00 2P 3"
P404	6630V90218A	"Connector,Wafer35002WR-02A00 2P 3"
SWITCHs		
SW1	6600R00004C	"Switch,TactJTP1127WEM 1C1P 15VDC"
SW2	6600R00004C	"Switch,TactJTP1127WEM 1C1P 15VDC"
SW3	6600R00004C	"Switch,TactJTP1127WEM 1C1P 15VDC"
SW4	6600R00004C	"Switch,TactJTP1127WEM 1C1P 15VDC"
SW5	6600R00004C	"Switch,TactJTP1127WEM 1C1P 15VDC"
SW6	6600R00004C	"Switch,TactJTP1127WEM 1C1P 15VDC"
OTHERs		
B1	MAY39088201	BoxBOX SW 461 414 154 2 COLOR L19
D1	0DLBE0048AA	"LED,ChipBL-HKBB533B-TRB SUPER YEL"
P1	3918TKK038B	"Packing(1250*900) LCD, G/W LG508G"
P1	MFZ38935101	PackingMOLD EPS L1972H EPS Brand
PG1	302-987A	PlatePRESS SPTE-C TO.3 INTERFACE
PG2	302-987A	PlatePRESS SPTE-C TO.3 INTERFACE
SC101	6620K00020A	"Jack,DC PowerSA-4S-320 ANGLE DIP"

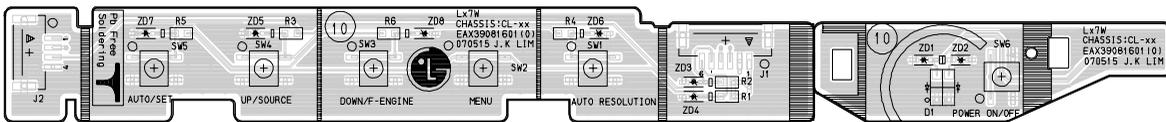
LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
T101	EBJ38179301	"Transformer,SwitchingBCK-42802-HA"
T301	EBJ36896701	"Transformer,SwitchingEEL-22 EEL22"
TH101	6322A00035A	"Thermistor,NTC10D2-07 10OHM 15% 2"
X501	6212AA2004F	CrystalHC-49/U 14.31818MHZ 30PPM(

LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION

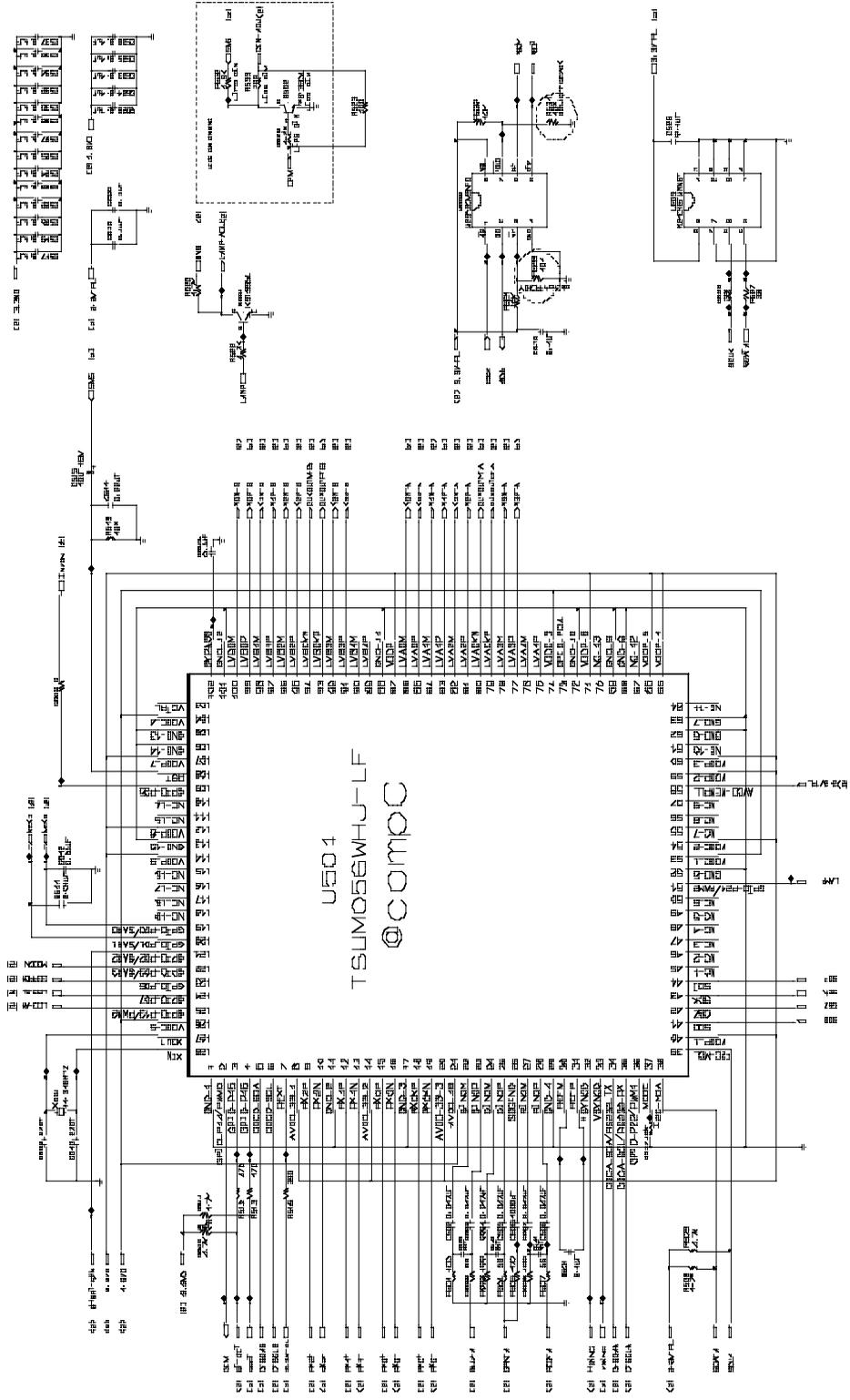
POWER



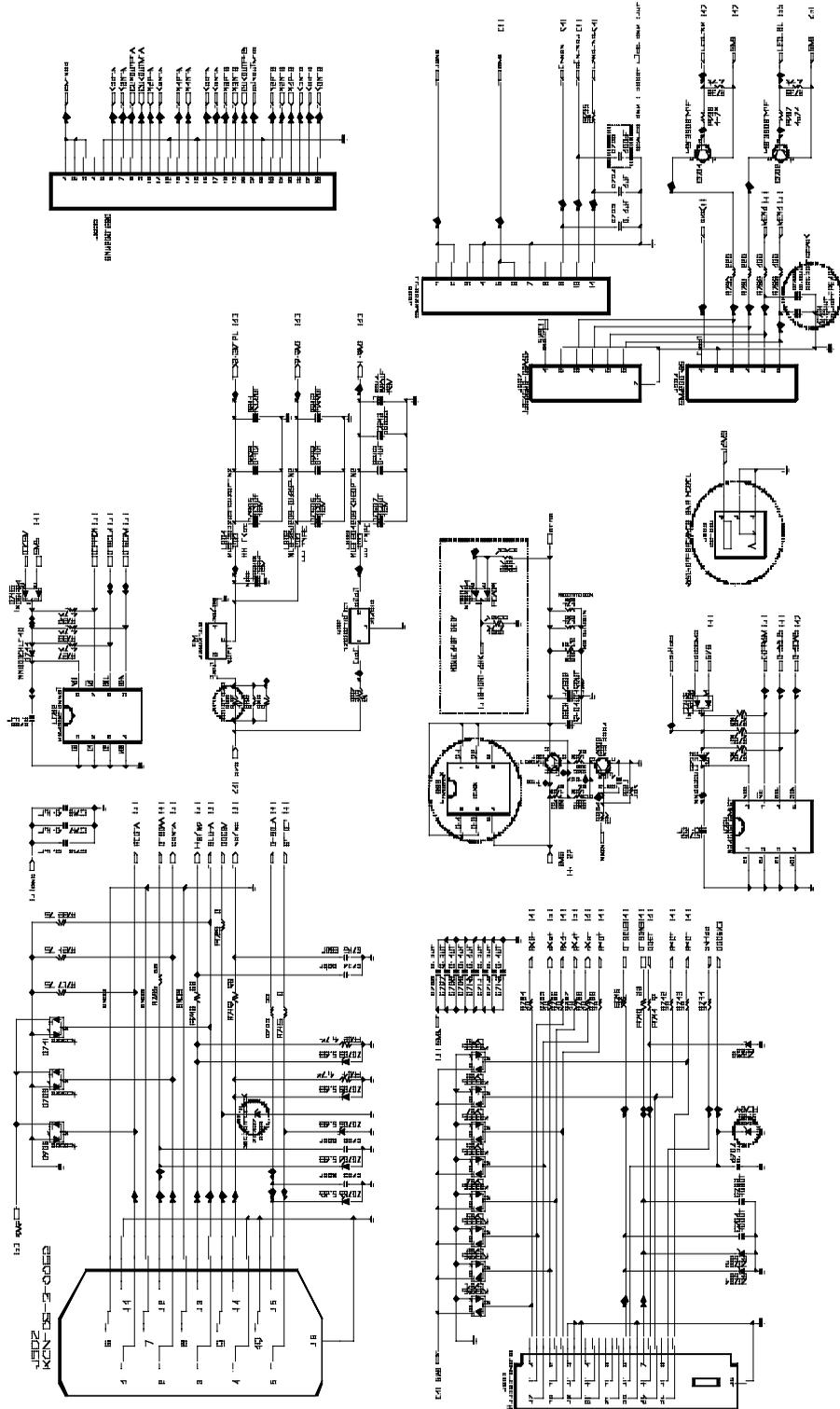
CONTROL



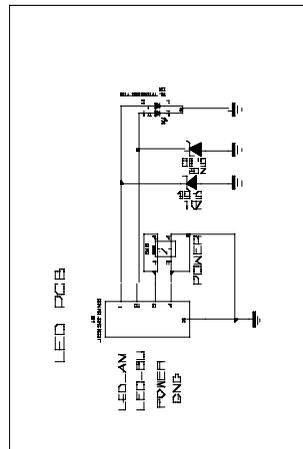
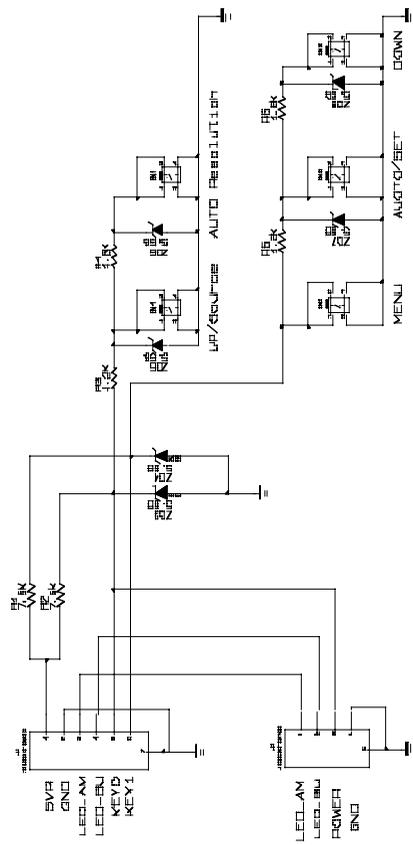
1. SCALER



2. POWER & WAFER



3. CONTROL





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