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COLOR MONITOR SERVICE MANUAL

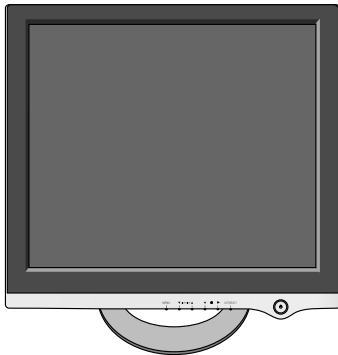
CHASSIS NO. : CL-66

MODEL: FLATRON L1520B (L1520BN-AL**G)

() **Same model for Service

CAUTION

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



*To apply the **Genesis ZAN3SL Chip**.

*Same looking with new chassis.
Issue Date; 2004.8

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SPECIFICATIONS

1. LCD CHARACTERISTICS

Type : TFT XGA LCD Module
 Size : 352.0(H) x 263.5(V) x 14.0(T)
 Pixel Pitch : 0.297mm x 0.297mm
 Color Depth : 6bits(with FRC)/ 16M colors
 Active Video Area : 15.0inch
 (304.128 x 228.096)
 Surface Treatment : Anti-Glare, Hard Coating (3H)
 Backlight Unit : 2CCFL
 Operating Mode : Transmissive mode, Normally white
 Electrical Interface : LVDS interface

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10
 Left : 55° min. 65° typ. Right: 55° min. 65° typ.
 Top : 40° min. 50° typ. Bottom: 45° min. 55° typ.

2-2. Luminance
 : 200(min.), 250(typ.) at Center point

2-3. Contrast Ratio : 300(min.), 400(typ.)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal
 1) Type : Separate Sync. (Horizontal & Vertical)
 2) Input Voltage Level: Low=0~0.8V, High=2.1~5.5V
 3) Sync Polarity : Positive or Negative

3-2. Video Input Signal
 1) Type : R, G, B Analog
 2) Voltage Level : 0~0.7 V
 a) Color 0, 0 : 0 Vp-p
 b) Color 7, 0 : 0.35 Vp-p
 c) Color 15, 0 : 0.7 Vp-p
 3) Input Impedance : 75 Ω

3-3. Operating Frequency
 Horizontal : 30 ~ 63kHz
 Vertical : 56 ~ 75Hz

4. POWER SUPPLY

4-1. Power
 100-240V~, 50/60Hz 0.6A

4-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 25 W	BLUE
STAND-BY	OFF/ON	OFF	less than 1 W	AMBER
SUSPEND	ON/OFF	OFF	less than 1 W	AMBER
DPM OFF	OFF	OFF	less than 1W	AMBER
POWER S/W OFF	-	-	less than 1W	OFF

5. ENVIRONMENT

5-1. Operating Temperature: 10°C~35°C (50°F~95°F)

5-2. Operating Humidity : 10%~80%

5-3. MTBF : 50,000 Hours (Min.)
 Lamp Life : 40,000 Hours (Min.)

6. DIMENSIONS (with TILT/SWIVEL)

FullUp Position

Width : 363.8mm (14.32")
 Depth : 220mm (8.66")
 Height : 330.7mm (13.02")



Folded Position

Width : 363.8mm (14.32")
 Depth : 113.7mm (8.66")
 Height : 358mm (14.09")




7. WEIGHT (with TILT/SWIVEL)

Net. Weight : 3.2kg (7.05 lbs)
 Gross Weight : 5.5kg (12.13 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  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.)

CAUTION

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

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.

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.

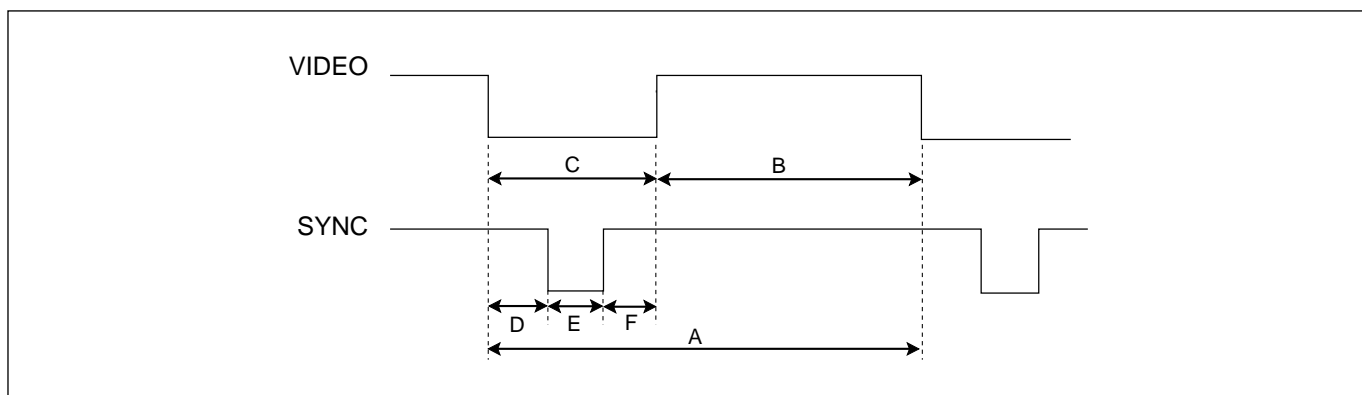
Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.

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.

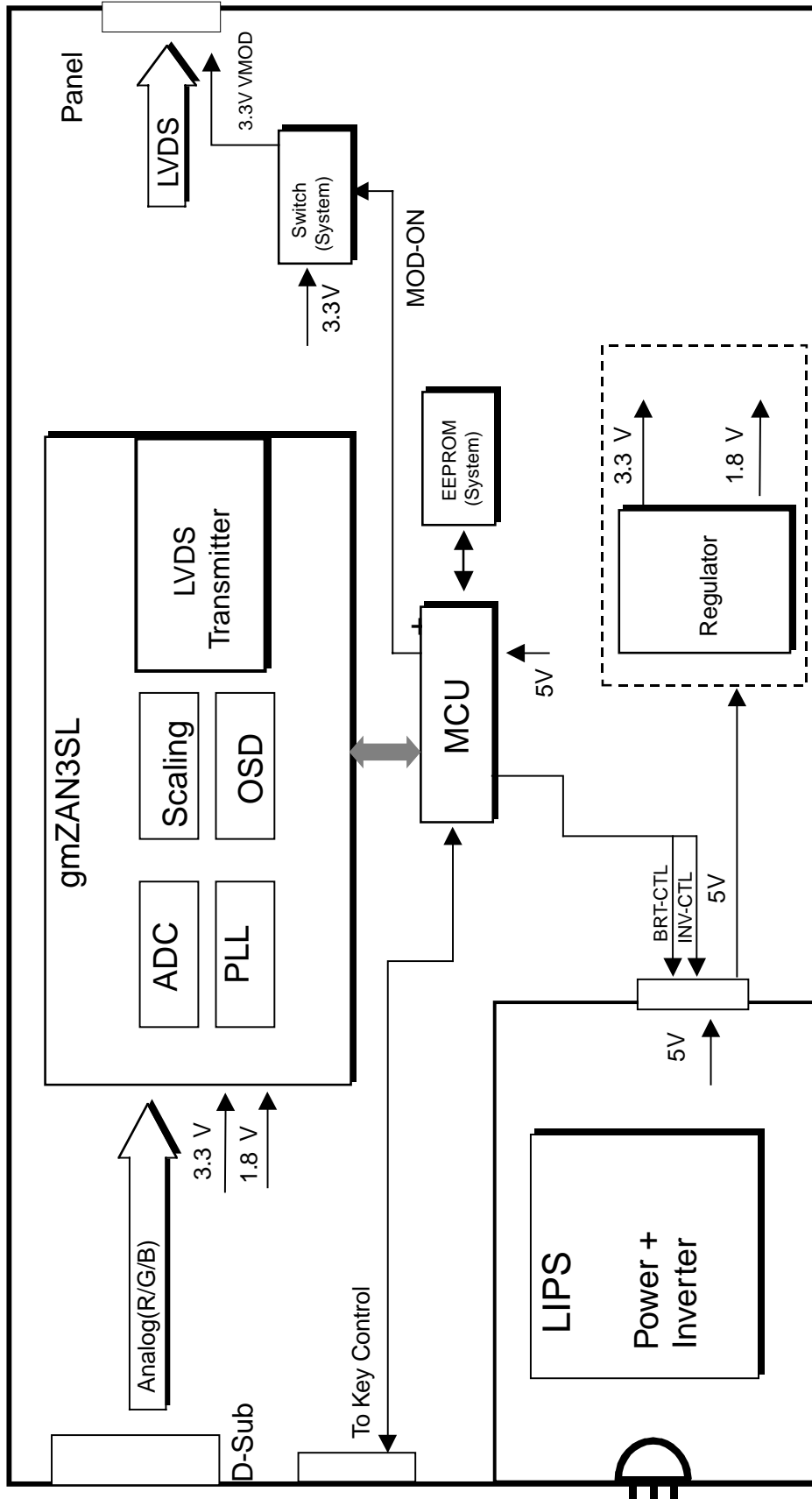
CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

TIMING CHART



MODE	H / V	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Blanking Time (B)	Sync Duration (D)	Back Porch (F)	Front Porch (C)	Resolution
1	H (Pixels)	+	25.175	31.468 KHz	800	640	160	96	48	16	640 x 350
	V (Lines)	-		70.0 Hz	449	350	99	2	60	37	
2	H (Pixels)	-	28.322	31.468 KHz	900	720	180	108	55	17	720 x 400 (TEXT)
	V (Lines)	+		70.0 Hz	449	400	49	2	34	13	
3	H (Pixels)	-	25.175	31.469 KHz	800	640	160	96	48	16	640 x 480
	V (Lines)	-		60.0 Hz	525	480	45	2	33	10	
4	H (Pixels)	-	30.24	35.00 KHz	864	640	224	64	96	64	640 x 480
	V (Lines)	-		66.67 Hz	525	480	45	3	39	3	
5	H (Pixels)	-	31.5	37.861 KHz	832	640	192	40	128	24	640 x 480
	V (Lines)	-		72.8 Hz	520	480	40	3	28	9	
6	H (Pixels)	-	31.5	37.50 KHz	840	640	200	64	120	16	640 x 480
	V (Lines)	-		75.0 Hz	500	480	20	3	16	1	
7	H (Pixels)	+	36.0	35.156KHz	1024	800	224	72	128	24	800 x 600
	V (Lines)	+		56.25 Hz	625	600	25	2	22	1	
8	H (Pixels)	+	40.0	37.879 KHz	1056	800	256	128	88	40	800 x 600
	V (Lines)	+		60.3 Hz	628	600	28	4	23	1	
9	H (Pixels)	+	50.0	48.077 KHz	1040	800	240	120	64	56	800 x 600
	V (Lines)	+		72.188 Hz	666	600	66	6	23	37	
10	H (Pixels)	+	49.5	46.875 KHz	1056	800	256	80	160	16	800 x 600
	V (Lines)	+		75.0 Hz	625	600	25	3	21	1	
11	H (Pixels)	-	57.2832	49.725 KHz	1152	832	320	64	224	32	832 x 624 (MAC)
	V (Lines)	-		74.55 Hz	667	624	43	3	39	1	
12	H (Pixels)	-	65	48.363 KHz	1344	1024	320	136	160	24	1024 x 768
	V (Lines)	-		60.0 Hz	806	768	38	6	29	3	
13	H (Pixels)	-	75	56.476 KHz	1328	1024	304	136	144	24	1024 x 768
	V (Lines)	-		70.0 Hz	806	768	38	6	29	3	
14	H (Pixels)	+	78.75	60.023 KHz	1312	1024	288	96	176	16	1024 x 768
	V (Lines)	+		75.0 Hz	800	768	32	3	28	1	

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 80MHz.

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

The Scaler gets the video signal converted analog to digital, interpolates input to 1024 X768 resolution signal and outputs 8-bit R, G, B signal to transmitter.

2. Power Part.

This part consists of the one 5V, one 3.3V, and one 1.8V regulators to convert power which is provided 5V in Power board.

3.3V is provided for LCD panel and inverter, 5V is provided for micom.

Also, 5V is converted 3.3V and 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, 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.

ADJUSTMENT

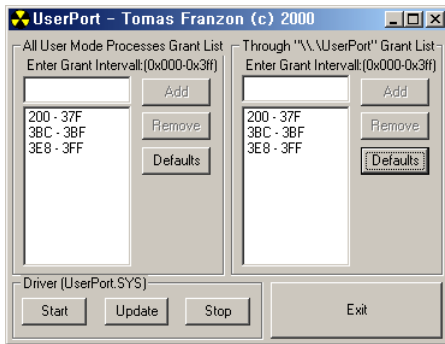
Windows EDID V1.0 User Manual

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

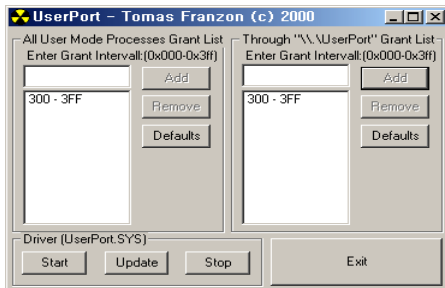
This program is available to LCD Monitor only.

1. Port Setup

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



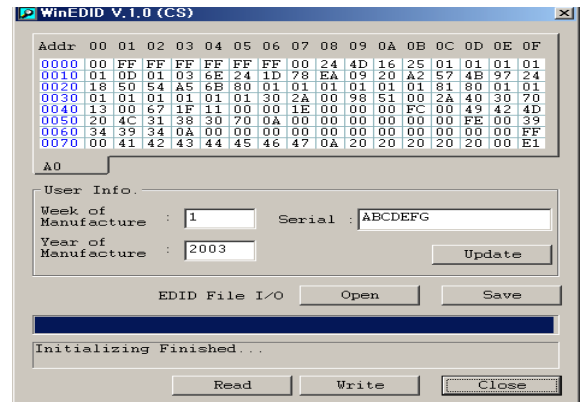
- c) Remove all default number
- d) Add 300-3FF



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

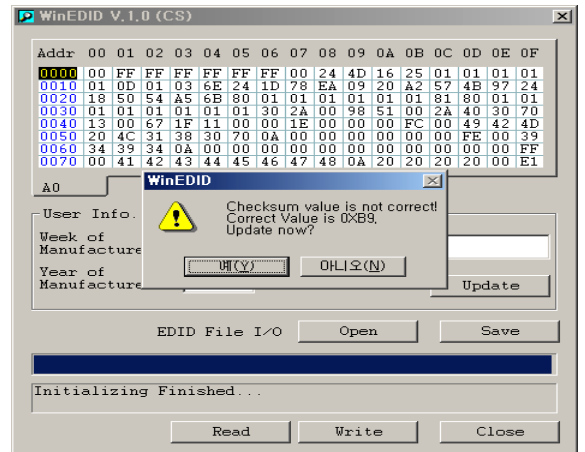
2. EDID Read & Write

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) 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.

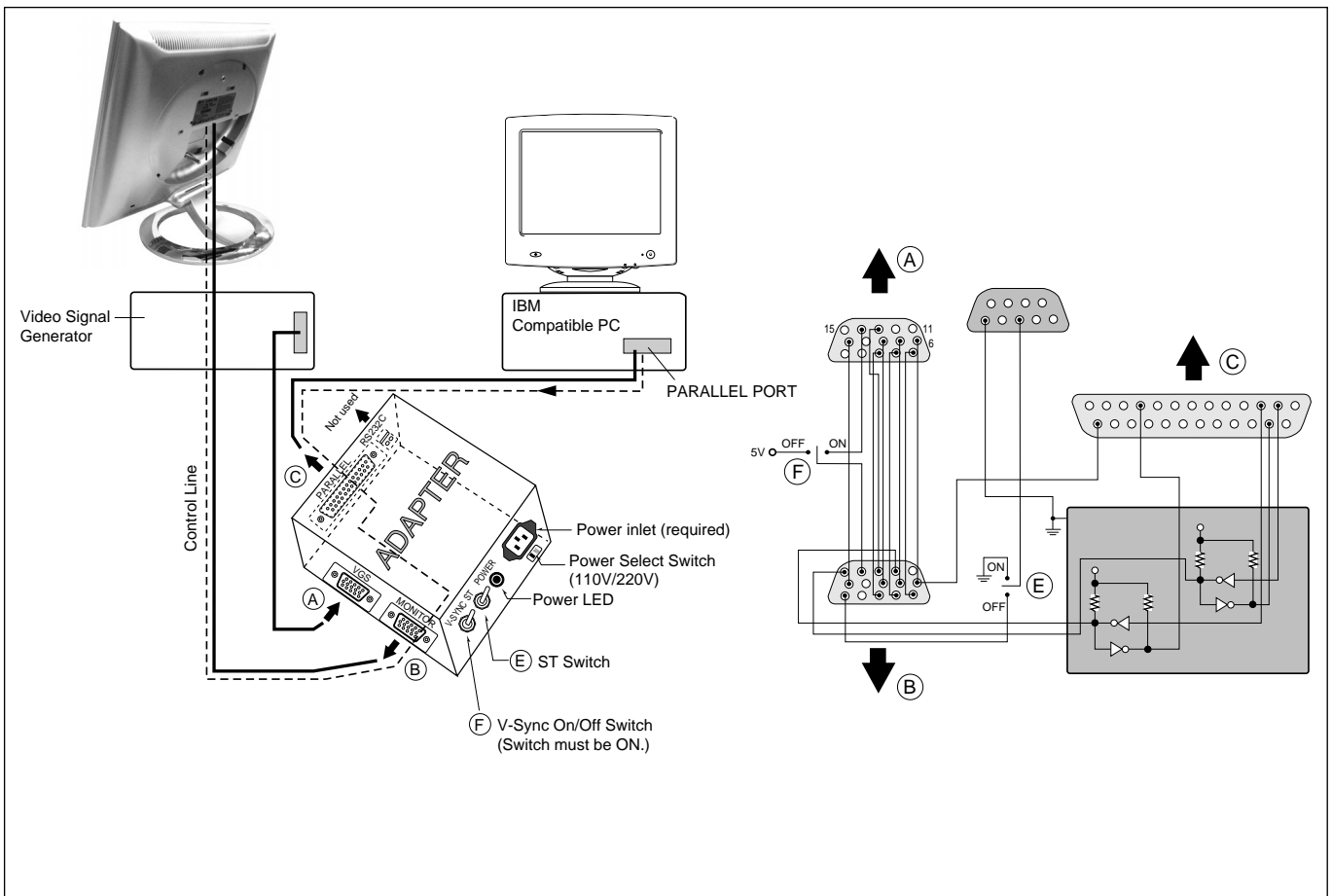
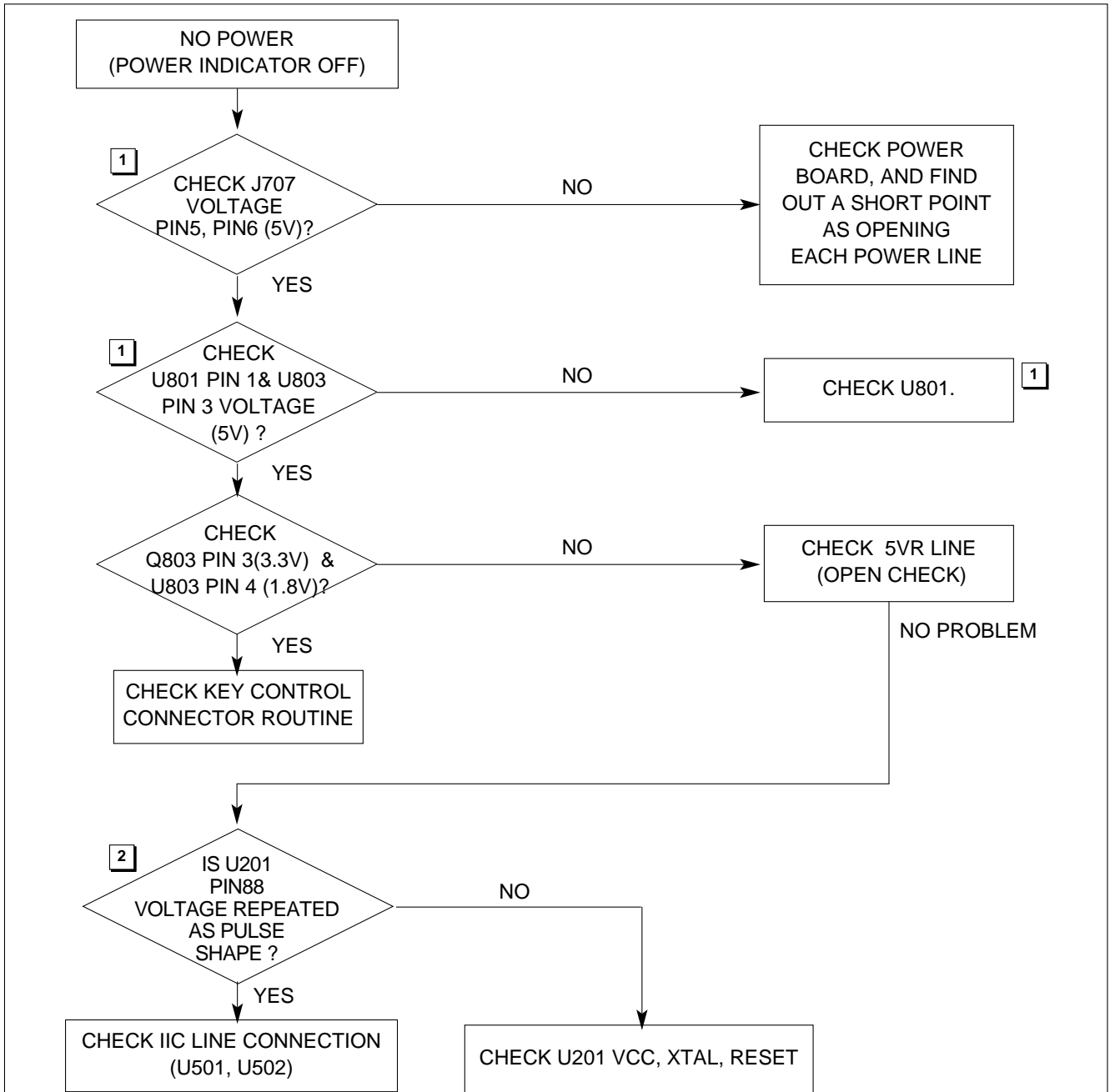


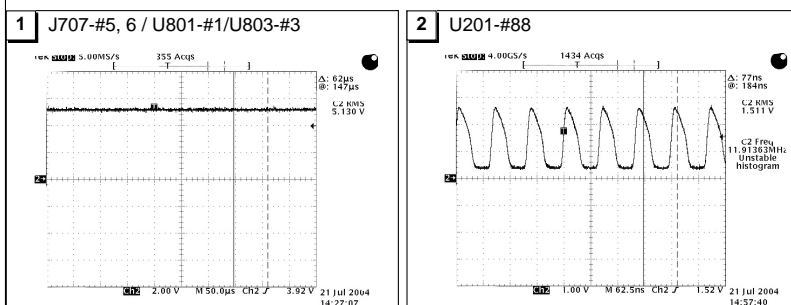
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

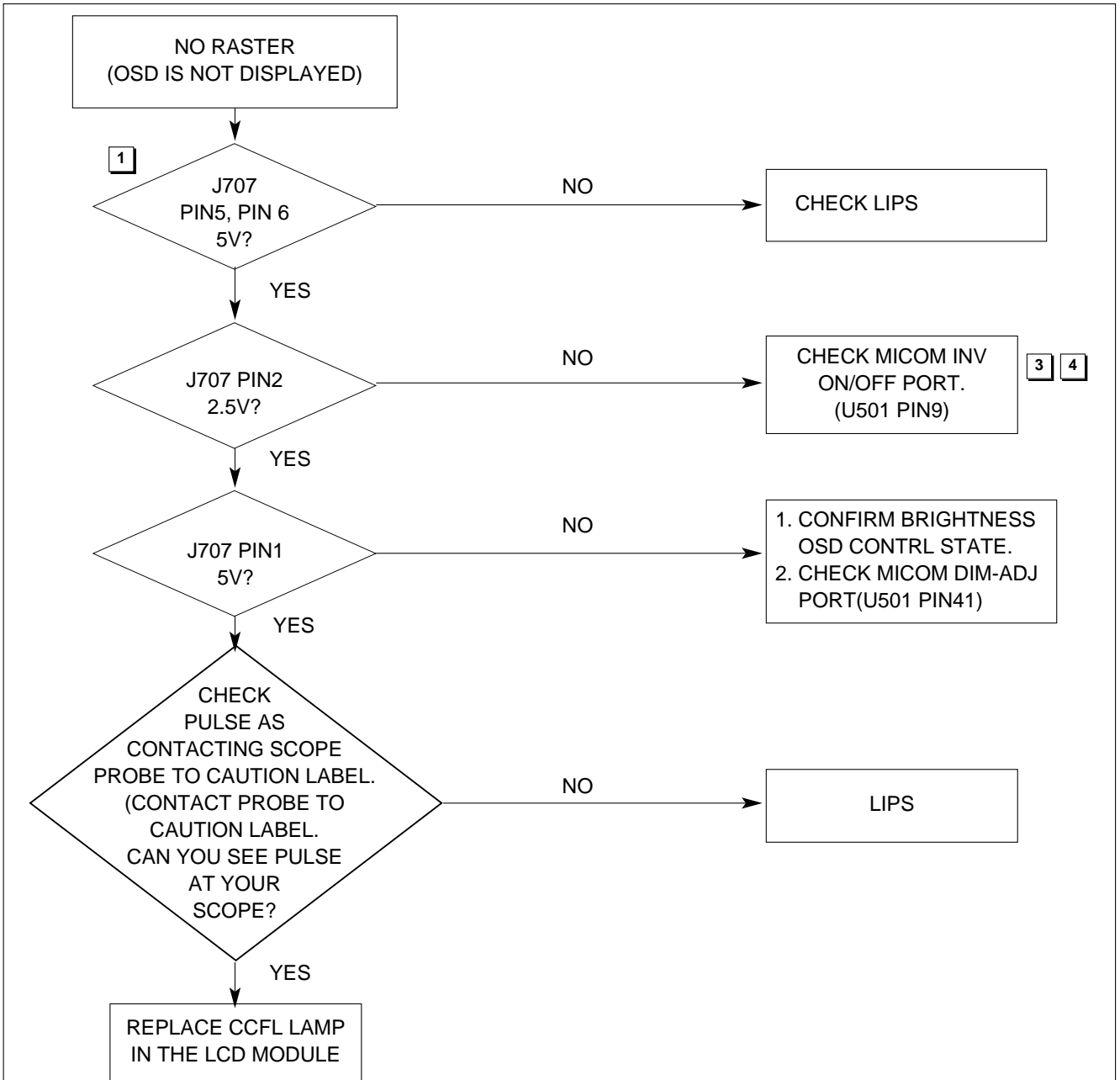
1. NO POWER



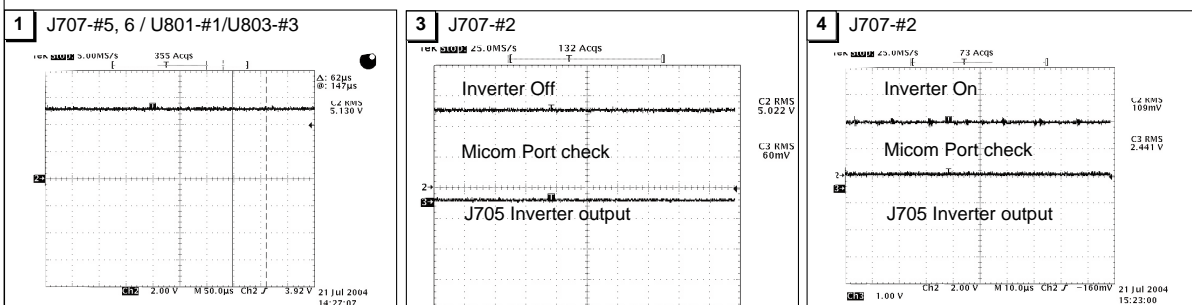
Waveforms



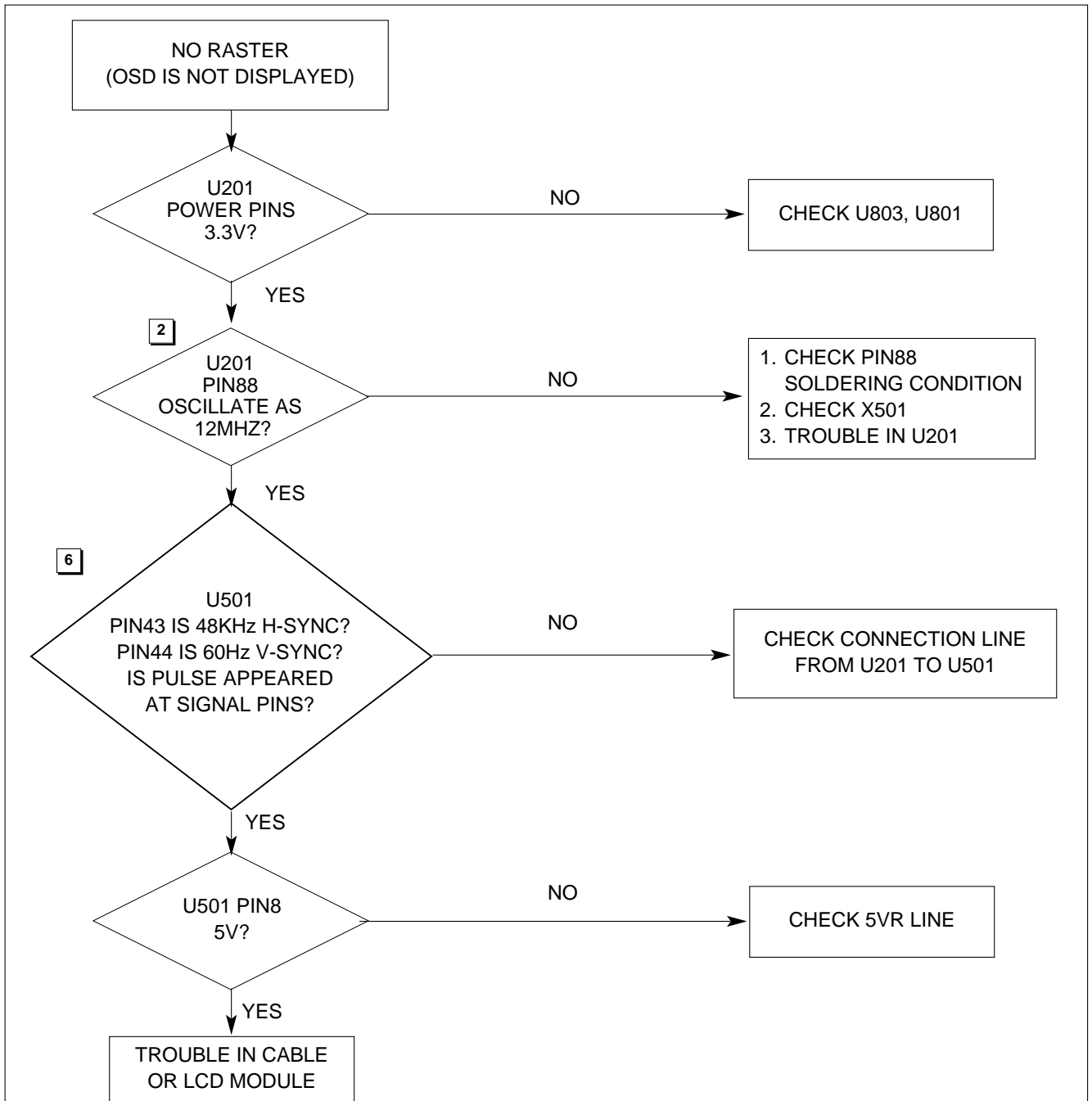
2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS



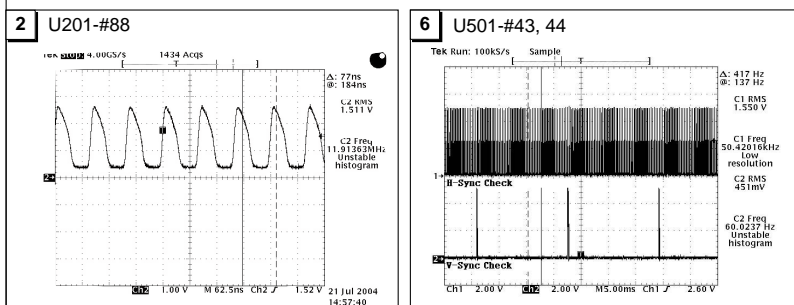
Waveforms



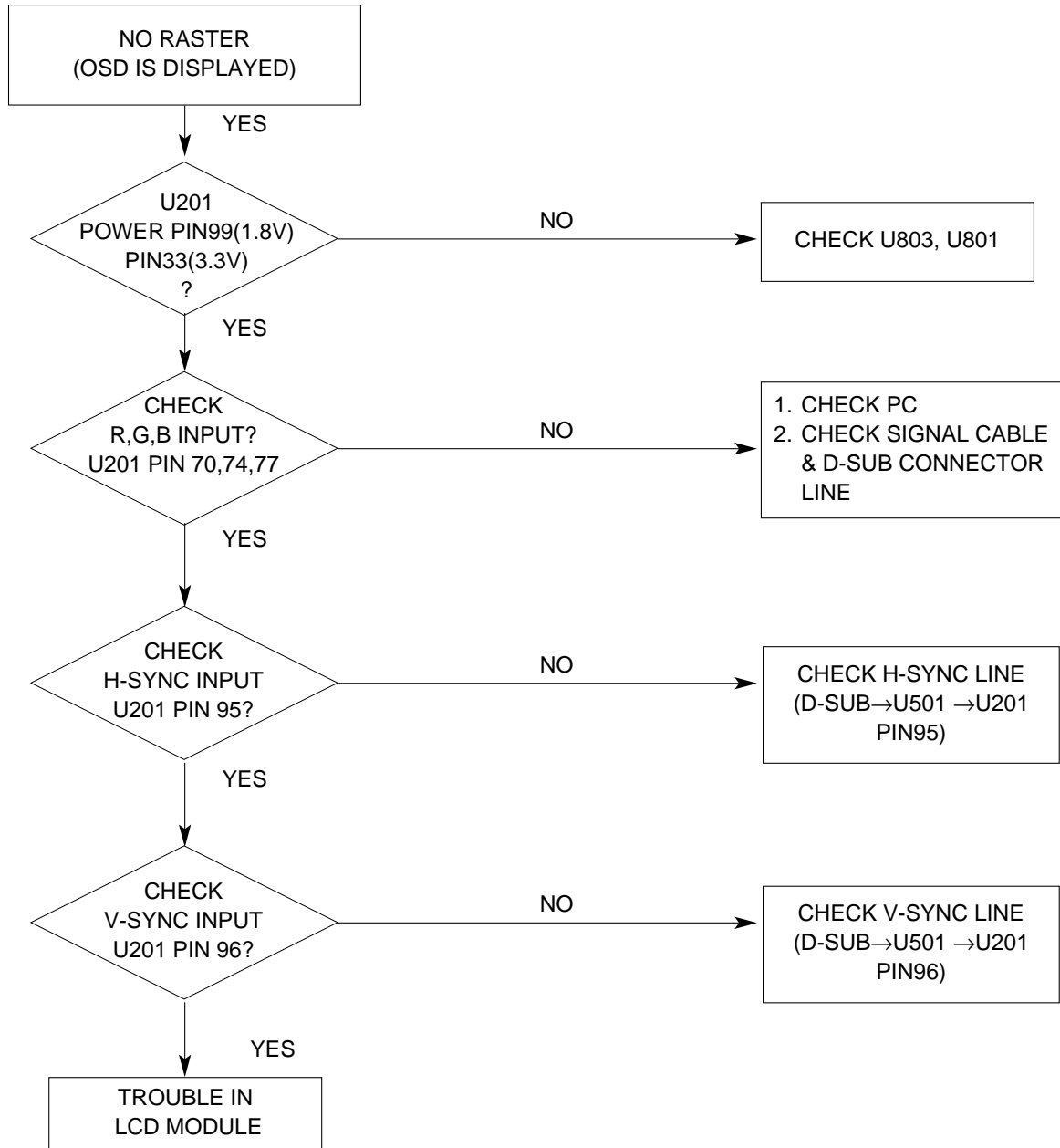
3. NO RASTER (OSD IS NOT DISPLAYED) – gmZAN3SL



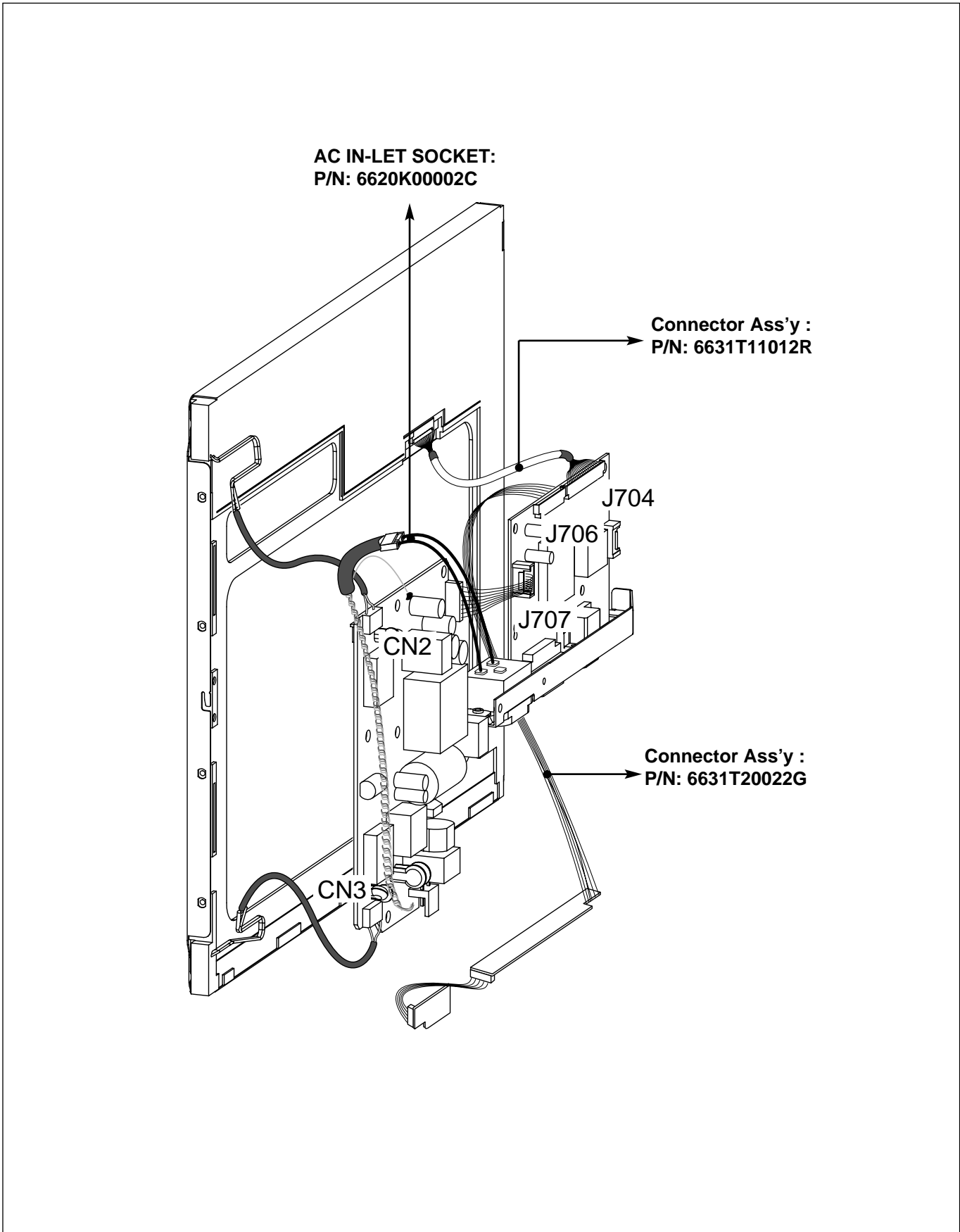
Waveforms



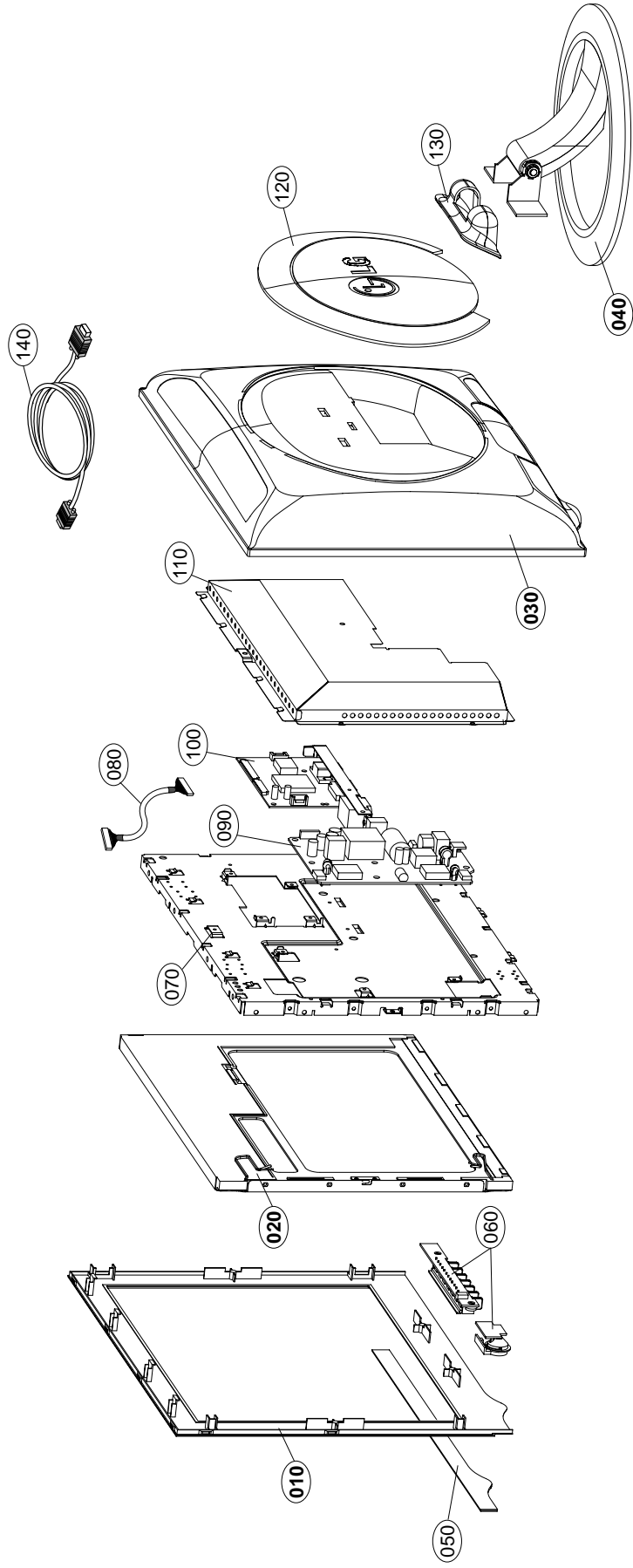
4. NO RASTER (OSD IS DISPLAYED) – gmZAN3SL



WIRING DIAGRAM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
010	3091TKL085L	CABINET ASSEMBLY, L1520B BRAND . PC+ABS E_CKD
020	6304FLP146A	LCD(LIQUID CRYSTAL DISPLAY), LM150X08-A4K8 LG PHILIPS TFT COLOR PSWG,LVDS,16MS,SS S D-IC
	6304FLP156A	LCD(LIQUID CRYSTAL DISPLAY), LM150X08-A4NA LG PHILIPS TFT COLOR PSWG,LVDS,16MS,SS S D-IC LPL NJ,250NITS
030	3809TKL058J	BACK COVER ASSEMBLY, L1520B . PC+ABS D_CKD
040	3043TKK133D	TILT SWIVEL ASSEMBLY, L1520 . M/BASE-SPRAY-CKD
050	3550TKK395A	COVER, L1520 PIECE DECO
060	6871TST741C	PWB(PCB) ASSEMBLY,SUB, L1520BN CONTROL TOTAL BRAND MX CKD
070	4951TKS112F	METAL ASSEMBLY, FRAME L1520BL LPL X08 CKD
080	6631T11012R	CONNECTOR ASSEMBLY, 20P H-H 140MM UL20276 PANEL LINK CABLE LM567D
090	6871TPT234G	PWB(PCB) ASSEMBLY,POWER, L1520SL POWER TOTAL POWERNET MODIFIED LIPS TO ANALOG DIMMING FOR LPL
100	3313TL5100E	MAIN TOTAL ASSEMBLY, L1520BN GMZAN3SL MX CKD - E BRAND CL-66
110	- 4951TKK141D	METAL ASSEMBLY, REAR (L1520,CKD
120	3550TKK397B	COVER,L1520BL BACK CKD(NT)
130	3550TKK399B	COVER, L1520BL HINGE CKD(NT)
140	6850TD9004J	CABLE,D-SUB, UL20276-9C(5.8MM) DT 1500MM,CORE POS400MM GRAY(85964) L1720BM DM

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: 2004. 8. 24.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITORS				
		C204	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C205	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C206	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C207	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C208	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C210	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C213	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C214	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C215	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C216	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C217	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C218	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C219	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C220	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C221	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C222	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C223	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C224	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C225	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C226	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C227	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C231	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C232	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C233	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C234	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C503	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C504	0CE106CK610	"10UF SHL,SD 50V 20% BULK FL"
		C506	0CC030CK01A	3PF 1608 50V 0.25 PF R/TP NP
		C507	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C508	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C701	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C708	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C709	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C717	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C718	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C720	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C721	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C727	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C732	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C733	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C734	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C735	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C801	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C819	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C820	0CE107EF628	"100UF KMG,RD 16V 20% FM2.5 T"
		C821	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C829	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C831	0CE107EF628	"100UF KMG,RD 16V 20% FM2.5 T"
		C832	0CE107EF628	"100UF KMG,RD 16V 20% FM2.5 T"
		C833	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C834	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0

DATE: 2004. 8. 24.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
DIODES				
		D701	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D702	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D706	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		ZD701	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD702	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD703	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD704	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD705	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD711	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
ICs				
		U201	0IPRPGN016A	"GMZAN3SL-BD GENESIS 128P,PQF"
		U501	0IZZTSZ534A	L1520BN GMZAN3SL MICOM ASSY
		U502	0ISG240860B	M24C08W6 SGS-THOMSON 8SOP R/
		U801	0IPMGKE011A	KIA78D33F KEC DPAK R/TP 3.3V
		U802	0TFV180023A	VISHAY SI3865DV R/TP TSOP-6
		U803	0IPMGSG019A	LD1117S18TR STM SOT223 R/TP
TRANSISTOR				
		Q502	0IKE704200H	KIA7042AP TO-92 TP 4.2 VOLT
		Q503	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q504	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q505	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q703	0TR390609FA	KST3906-MTF TP SAMSUNG SOT2
		Q704	0TR390609FA	KST3906-MTF TP SAMSUNG SOT2
RESISTORS				
		R201	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R202	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R203	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R208	0RJ1200D677	120 OHM 1/10 W 5% 1608 R/TP
		R209	0RJ1200D677	120 OHM 1/10 W 5% 1608 R/TP
		R210	0RJ1200D677	120 OHM 1/10 W 5% 1608 R/TP
		R211	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R213	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R214	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R220	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R221	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R222	0RJ1004D677	1000000 OHM 1/10 W 5% 1608 R
		R506	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R508	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R514	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R515	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R516	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R518	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R520	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R521	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R522	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R523	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R534	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP

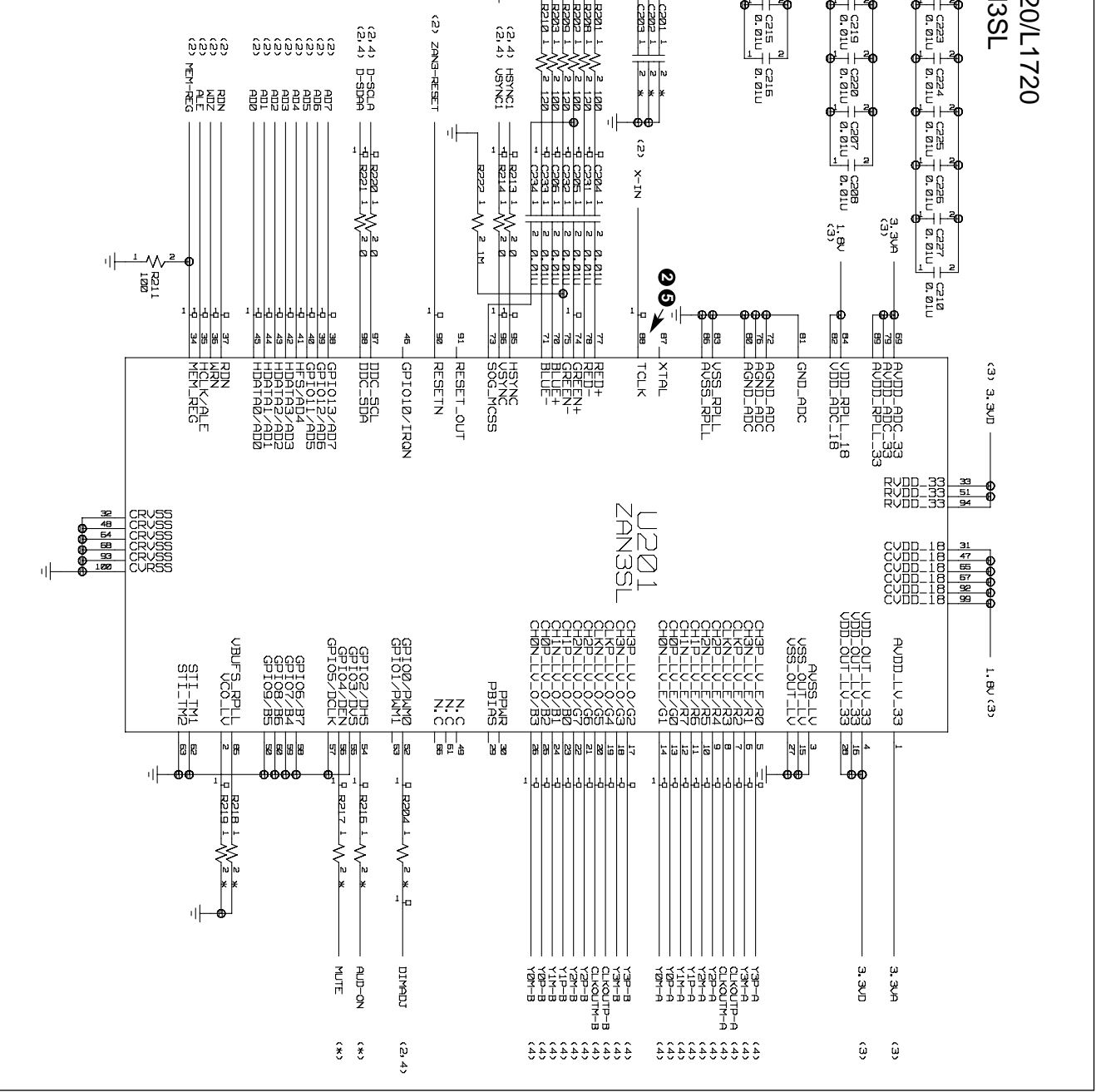
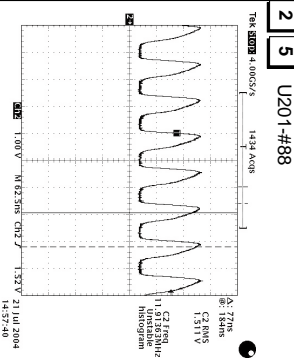
DATE: 2004. 8. 24.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R535	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R537	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R541	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R542	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R543	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R544	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R545	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R547	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R548	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R549	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R555	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R557	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R560	0RJ4702D677	47000 OHM 1/10 W 5% 1608 R/T
		R561	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R566	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R706	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R708	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R709	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R716	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R717	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R721	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R722	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R723	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R724	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R726	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R727	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R728	0RJ1502D677	15K OHM 1/10 W 5% 1608 R/TP
		R735	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R737	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R744	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R747	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R749	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R770	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R771	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R775	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R779	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R780	0RJ2001D677	2K OHM 1/10 W 5% 1608 R/TP
		R781	0RJ2001D677	2K OHM 1/10 W 5% 1608 R/TP
		R782	0RJ0471D677	4.7 OHM 1/10 W 5% 1608 R/TP
		R803	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R811	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/TP
		R812	0RJ5600D677	560 OHM 1/10 W 5% 1608 R/TP
		R813	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R814	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R815	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R816	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R817	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R818	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R819	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R820	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R821	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R822	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R827	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
OTHERs				
		X501	6212AA2004A	HC-49U TXC 12.0MHZ +/- 30 PP

DATE: 2004. 8. 24.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
CONTROL BOARD				
		LED1	0DLBE0048AA	BRIGHT LED ELECTRONICS BL-HK
		R1	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R2	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R3	0RJ8200D677	820 OHM 1/10 W 5% 1608 R/TP
		R4	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		R5	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		R6	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R7	0RJ2201D677	2200 OHM 1/10 W 5% 1608 R/TP
		SW1	6600R00004A	JTP1138A6EM JEIL 12VDC 50MA
		SW2	6600R00004A	JTP1138A6EM JEIL 12VDC 50MA
		SW3	6600R00004A	JTP1138A6EM JEIL 12VDC 50MA
		SW4	6600R00004A	JTP1138A6EM JEIL 12VDC 50MA
		SW5	6600R00004A	JTP1138A6EM JEIL 12VDC 50MA
		SW6	6600R00004A	JTP1138A6EM JEIL 12VDC 50MA
		SW7	6600R00004A	JTP1138A6EM JEIL 12VDC 50MA
		ZD1	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD2	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD3	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD4	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32

SCHEMATIC DIAGRAM

1. SCALER

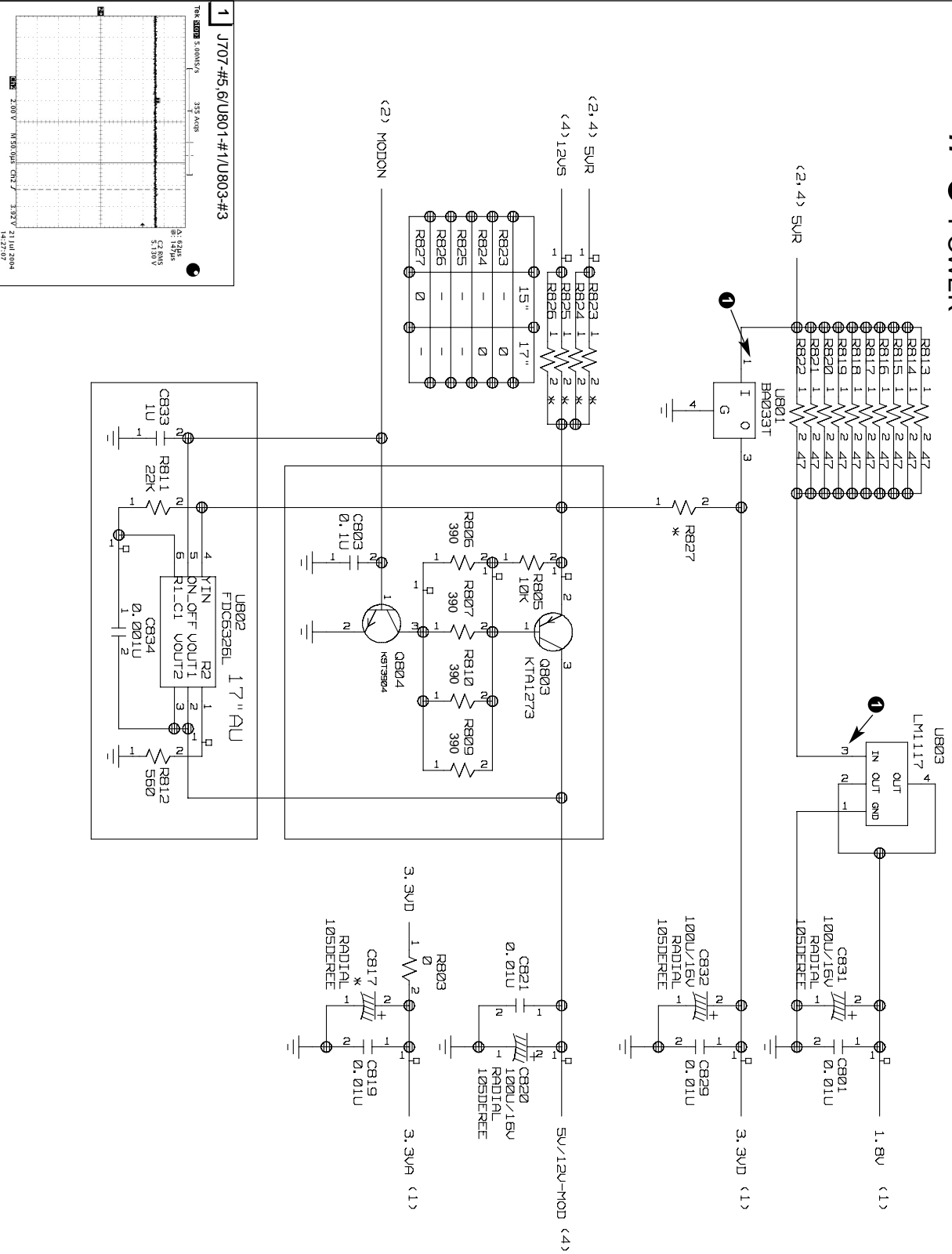
1 L1520/L1720
ZAN3SL



3. POWER

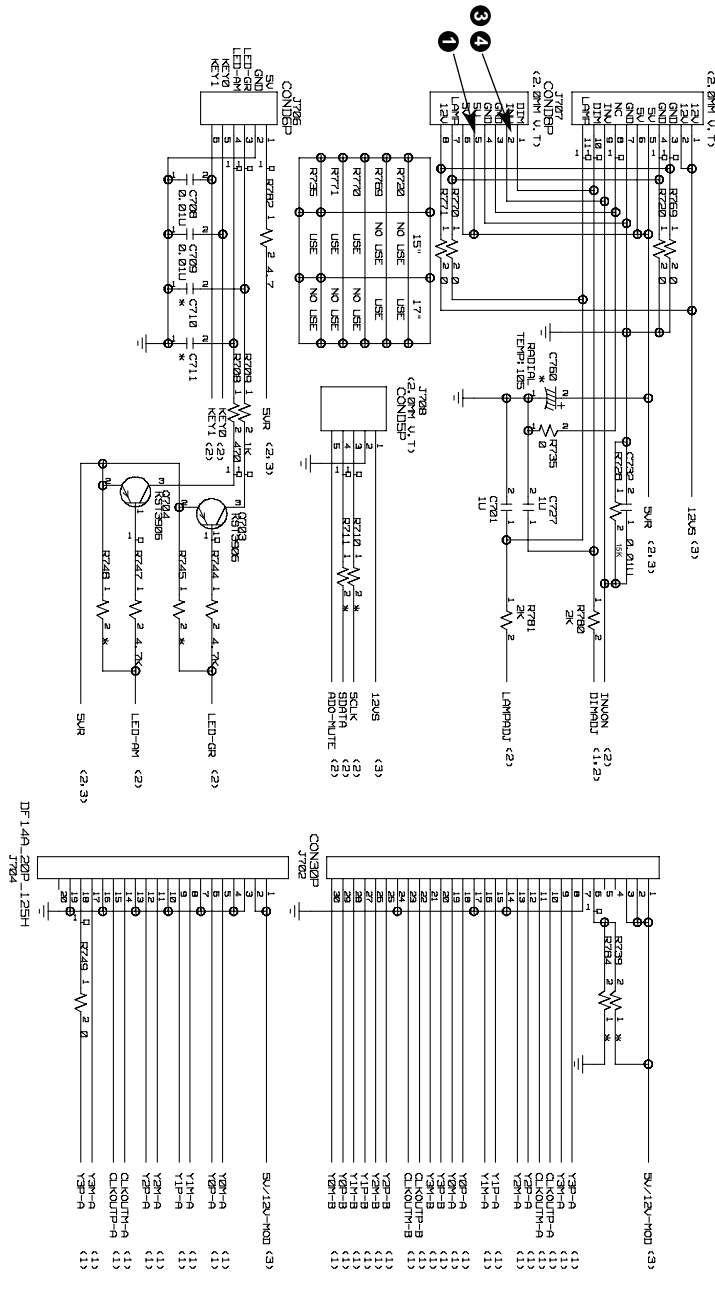
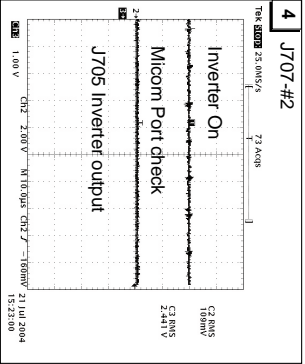
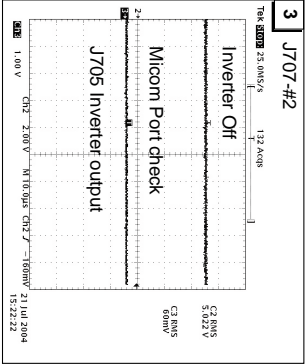
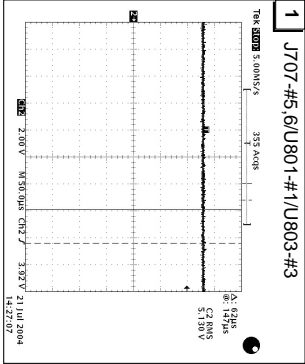
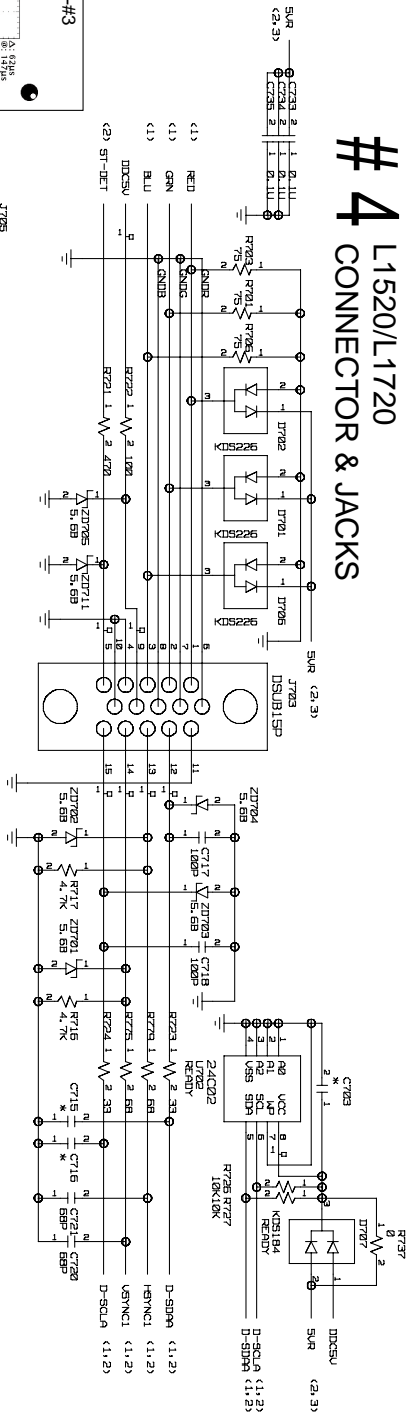
3 POWER

L1520/L1720



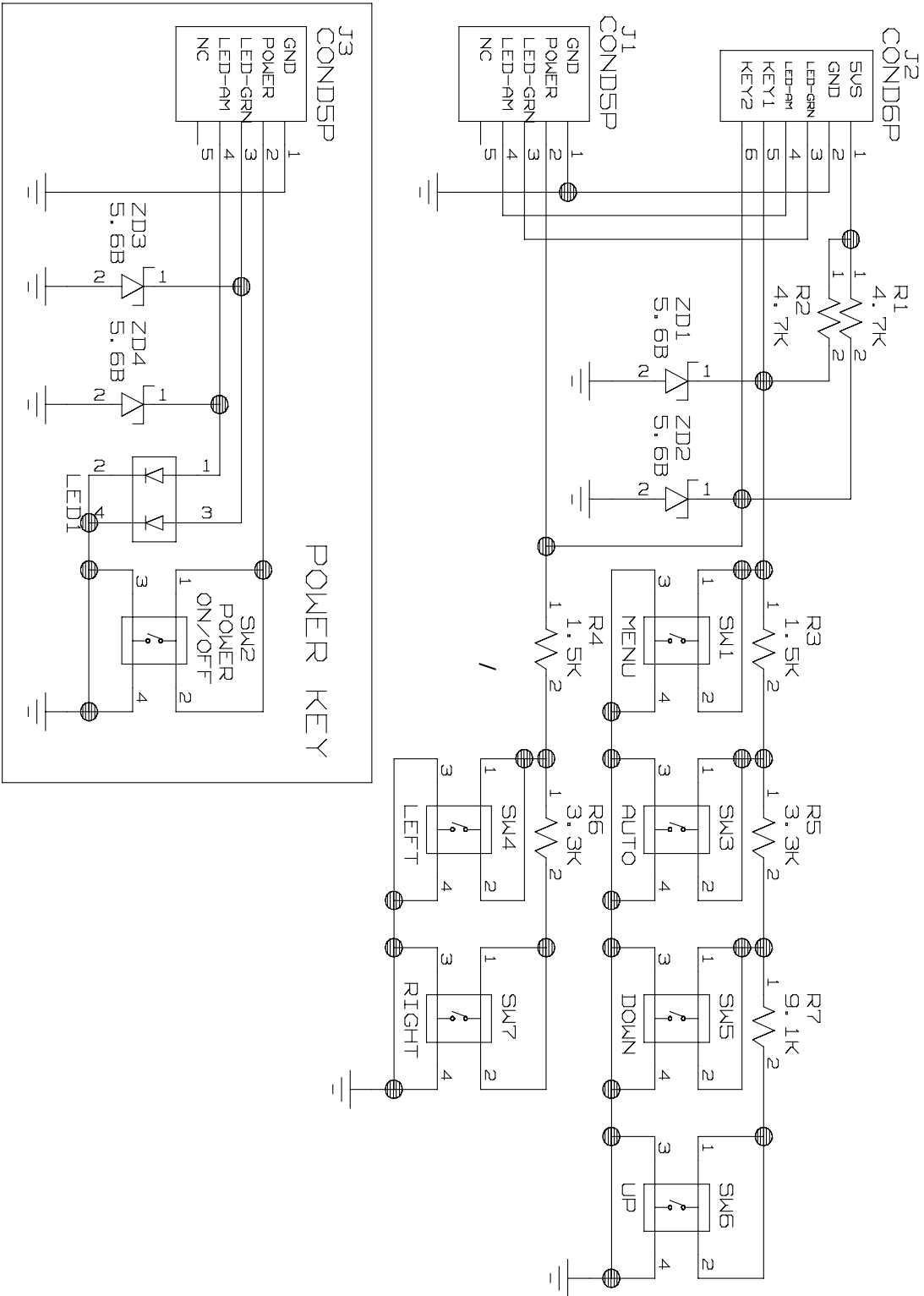
4. CONNECTOR & JACKS

4 L1520/L1720 CONNECTOR & JACKS



5. KEY

L1520 / 1720 KEY





P/NO : 3828TSL085F

Aug. 2004
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