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COLOR MONITOR SERVICE MANUAL

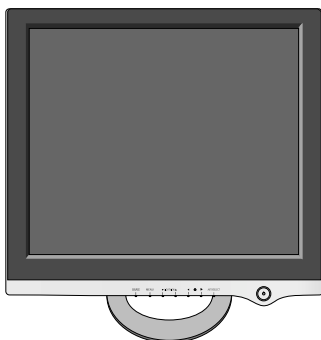
CHASSIS NO. : CL-67

MODEL: FLATRON L1720P (L1720PN-AL**G)

() **Same model for Service

CAUTION

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



*To apply the **GM5321 Chip**.

*Same looking with new chassis.
Issue Date; 2004.10

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SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT SXGA LCD
Size	: 17 inch
Pixel Pitch	: 0.264 (H) x 0.264 (V)
Color Depth	: 8Bits, 16.2M colors
Electrical Interface	: LVDS
Surface Treatment	: Anti-Glare, Hard-coating(3H)
Operating Mode	: Transmissive mode, Normally White
Backlight Unit	: Top/Bottom edge side 4-CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10
 Left : -60° min., -70°(Typ) Right : +60° min., +70°(Typ)
 Top : +45° min., +60°(Typ) Bottom : -45°min., -60°(Typ)

2-2. Luminance : 250(min), 300(Typ)

2-3. Contrast Ratio : 300(min), 450(Typ)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal
 • Type : Separate Sync,
 SOG (Sync On Green)
 Digital

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 : 0.467 Vp-p
 - c) Color 15, 0 : 0.714 Vp-p
- 3) Input Impedance : 75 Ω

3-3. Operating Frequency

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

4. Max. Resolution

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

5. POWER SUPPLY

5-1. Power : AC 100-240V~, 50/60Hz , 1.0A

5-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 43 W	BLUE
STAND-BY	OFF/ON	OFF	less than 2 W	AMBER
SUSPEND	ON/OFF	OFF	less than 2 W	AMBER
DPMS OFF	OFF/OFF	OFF	less than 2 W	AMBER

6. ENVIRONMENT

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

6-2. Operating Humidity : 10%~80%

6-3. MTBF : 50,000 Hours with 90%

7. DIMENSIONS (with TILT/SWIVEL)

FullUp Position

Width : 394 mm (15.51")
 Depth : 232 mm (9.13")
 Height : 379 mm (14.92")

Folded Position

Width : 394mm (15.51")
 Depth : 127mm (9.13")
 Height : 412mm (14.92")

8. WEIGHT (with TILT/SWIVEL)

Net. Weight : 4.5 kg (9.92 lbs)
 Gross Weight : 7.6 kg (16.76 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

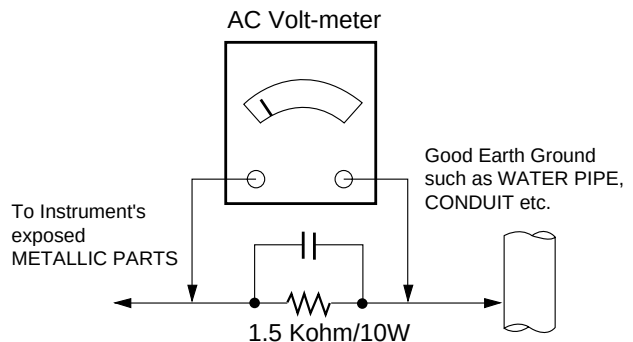
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

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.

Leakage Current Hot Check Circuit



SERVICING PRECAUTIONS

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

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

General Servicing Precautions

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

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

- d. Discharging the picture tube anode.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.
Do not test high voltage by "drawing an arc".
 3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
 4. Do not spray chemicals on or near this receiver or any of its assemblies.
 5. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
CAUTION: This is a flammable mixture.
Unless specified otherwise in this service manual, lubrication of contacts is not required.
 6. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
 7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
 8. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
Always remove the test receiver ground lead last.

9. Use with this receiver only the test fixtures specified in this service manual.

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

Electrostatically Sensitive (ES) Devices

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

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

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500° F to 600° F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a small wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle.

Do not use freon-propelled spray-on cleaners.

5. Use the following unsoldering technique
 - a. Allow the soldering iron tip to reach normal temperature.
(500° F to 600° F)
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
CAUTION: Work quickly to avoid overheating the circuitboard printed foil.
6. Use the following soldering technique.
 - a. Allow the soldering iron tip to reach a normal temperature (500° F to 600° F)
 - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
 - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
 - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

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

Removal

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

Replacement

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

"Small-Signal" Discrete Transistor

Removal/Replacement

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

Power Output, Transistor Device

Removal/Replacement

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

Diode Removal/Replacement

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

Fuse and Conventional Resistor

Removal/Replacement

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

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

Circuit Board Foil Repair

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

At IC Connections

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

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

At Other Connections

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

1. Remove the defective copper pattern with a sharp knife.

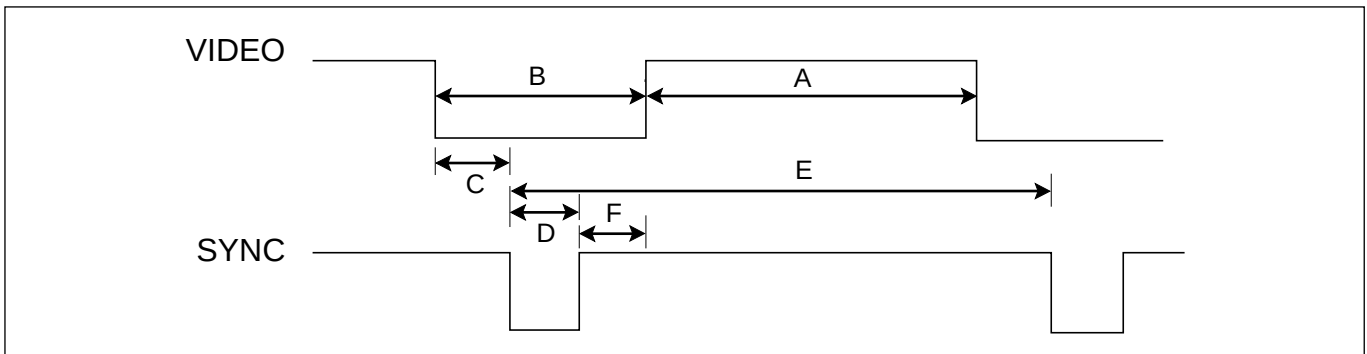
Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.

2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side.

Carefully crimp and solder the connections.

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

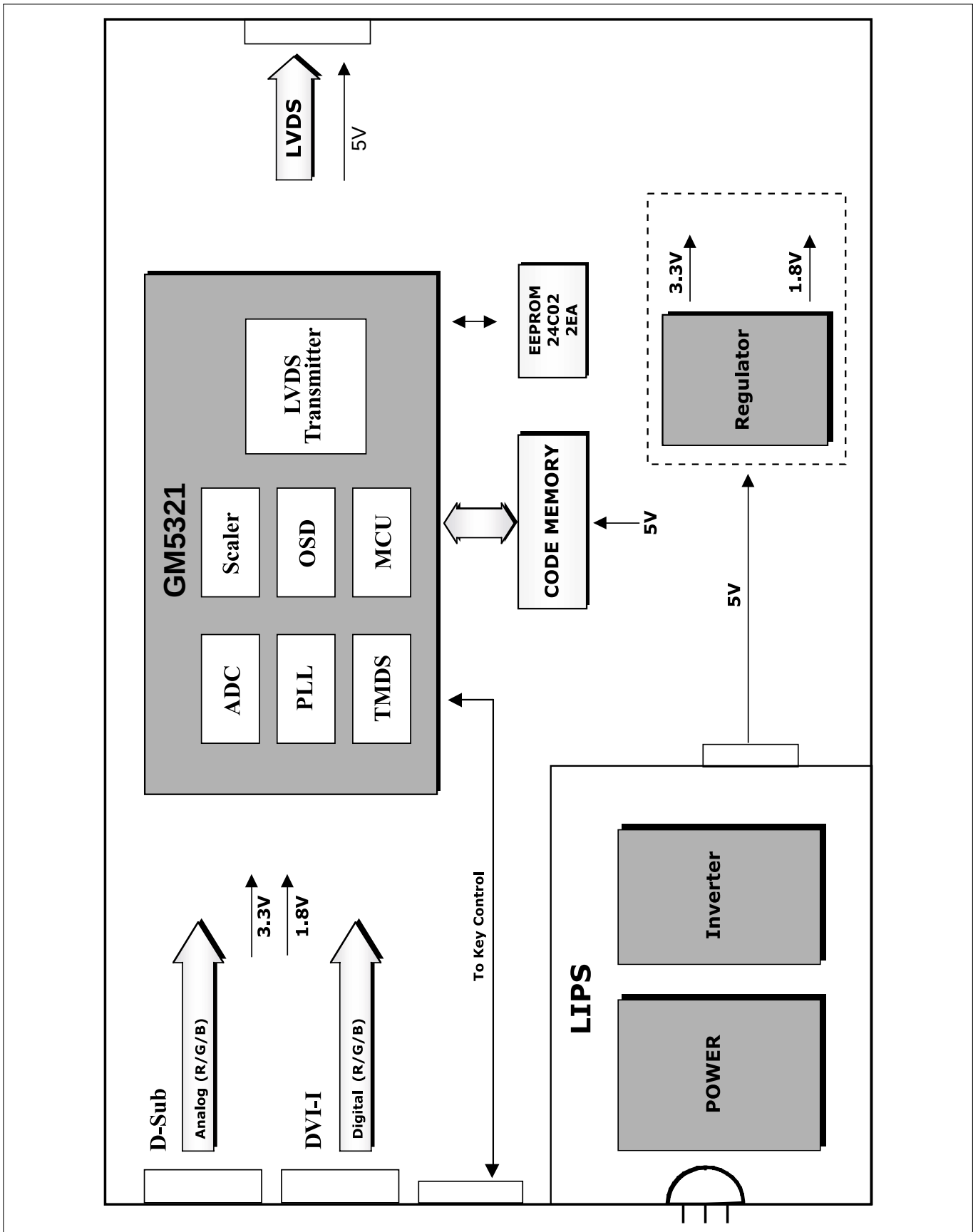
TIMING CHART



<< Dot Clock (MHz), Horizontal Frequency (kHz), Vertical Frequency (Hz), Horizontal etc... (μs), Vertical etc... (ms) >>

Mode	H/V Sort	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Front Porch (C)	Sync Duration (D)	Back Porch (F)	Resolution
1	H	+	25.175	31.469	800	640	16	96	48	640x350 70Hz
	V	-		70.8	449	350	37	2	60	
2	H	-	28.321	31.468	900	720	18	108	54	720x400 70Hz
	V	+		70.09	449	400	12	2	35	
3	H	-	25.175	31.469	800	640	16	96	48	640x480 60Hz
	V	-		59.94	525	480	10	2	33	
4	H	-	31.5	37.5	840	640	16	64	120	640x480 75Hz
	V	-		75	500	480	1	3	16	
5	H	+	40.0	37.879	1056	800	40	128	88	800x600 60Hz
	V	+		60.317	628	600	1	4	23	
6	H	+	49.5	46.875	1056	800	16	80	160	800x600 75Hz
	V	+		75.0	625	600	1	3	21	
7	H	+/-	57.283	49.725	1152	832	32	64	224	832x624 75Hz
	V	+/-		74.55	667	624	1	3	39	
8	H	-	65.0	48.363	1344	1024	24	136	160	1024x768 60Hz
	V	-		60.0	806	768	3	6	29	
9	H	-	78.75	60.123	1312	1024	16	96	176	1024x768 75Hz
	V	-		75.029	800	768	1	3	28	
10	H	+/-	100.0	68.681	1456	1152	32	128	144	1152x900 75Hz
	V	+/-		75.062	915	870	3	3	39	
11	H	+/-	92.978	61.805	1504	1152	18	134	200	1152x900 65Hz
	V	+/-		65.96	937	900	2	4	31	
12	H	+	108.0	63.981	1688	1280	48	112	248	1280x1024 60Hz
	V	+		60.02	1066	1024	1	3	38	
13	H	+	135.0	79.976	1688	1280	16	144	248	1280x1024 75Hz
	V	+		75.035	1066	1024	1	3	38	

BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Video Controller Part.

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

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

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

This part consists of the Scaler, ADC convertor 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.

12V is provided for inverter, 5V is provided for LCD panel and 5V for micom.

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 DC12V to AC 700Vrms and operates back-light lamps of module.

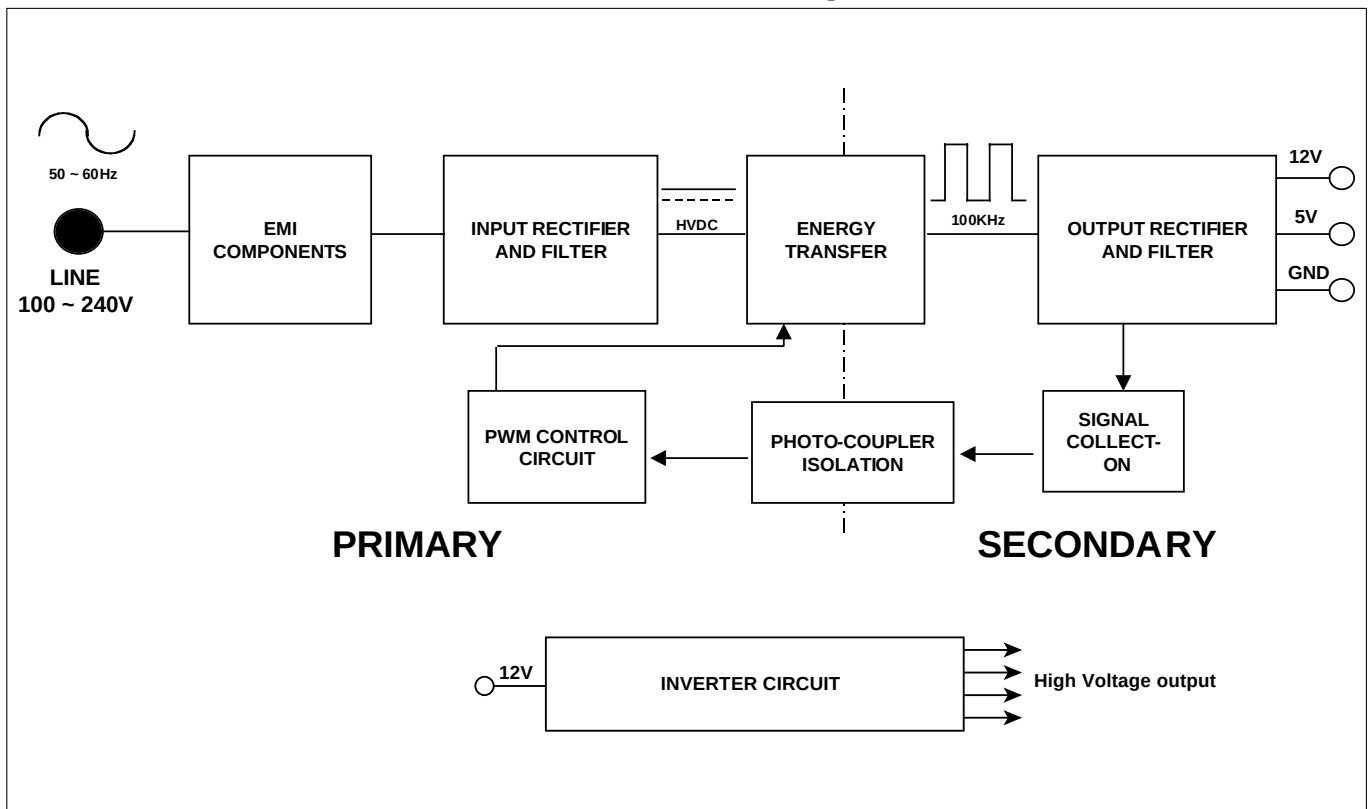
3. MICOM Part.

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 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 achive the dc output stablize, and also the over power protection is also monitor by this part.

5. Photo-Coupler isolation.

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

6. Signal collection.

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

ADJUSTMENT

Windows EDID V1.0 User Manual

Operating System: MS Windows 98, 2000, XP

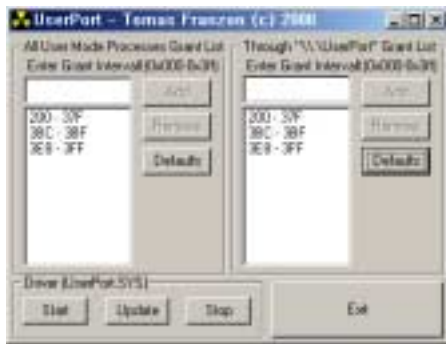
Port Setup: Windows 98 => Don't need setup

Windows 2000, XP => Need to Port Setup.

This program is available to LCD Monitor only.

1. Port Setup

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



- Remove all default number
- Add 300-3FF



- Click Start button.
- Click Exit button.

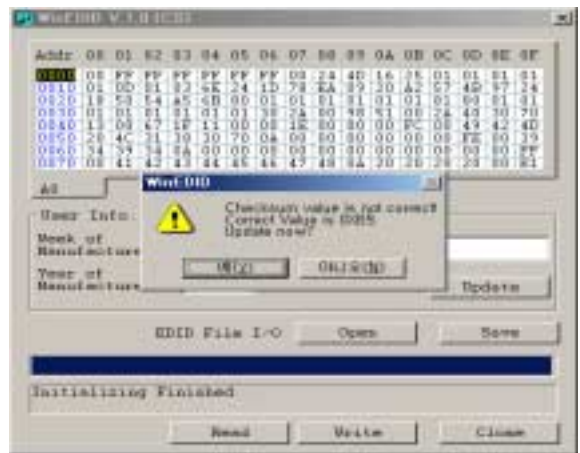
2. EDID Read & Write

1) Run WinEDID.exe



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

- Input User Info Data
- Click "Update" button
- 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.

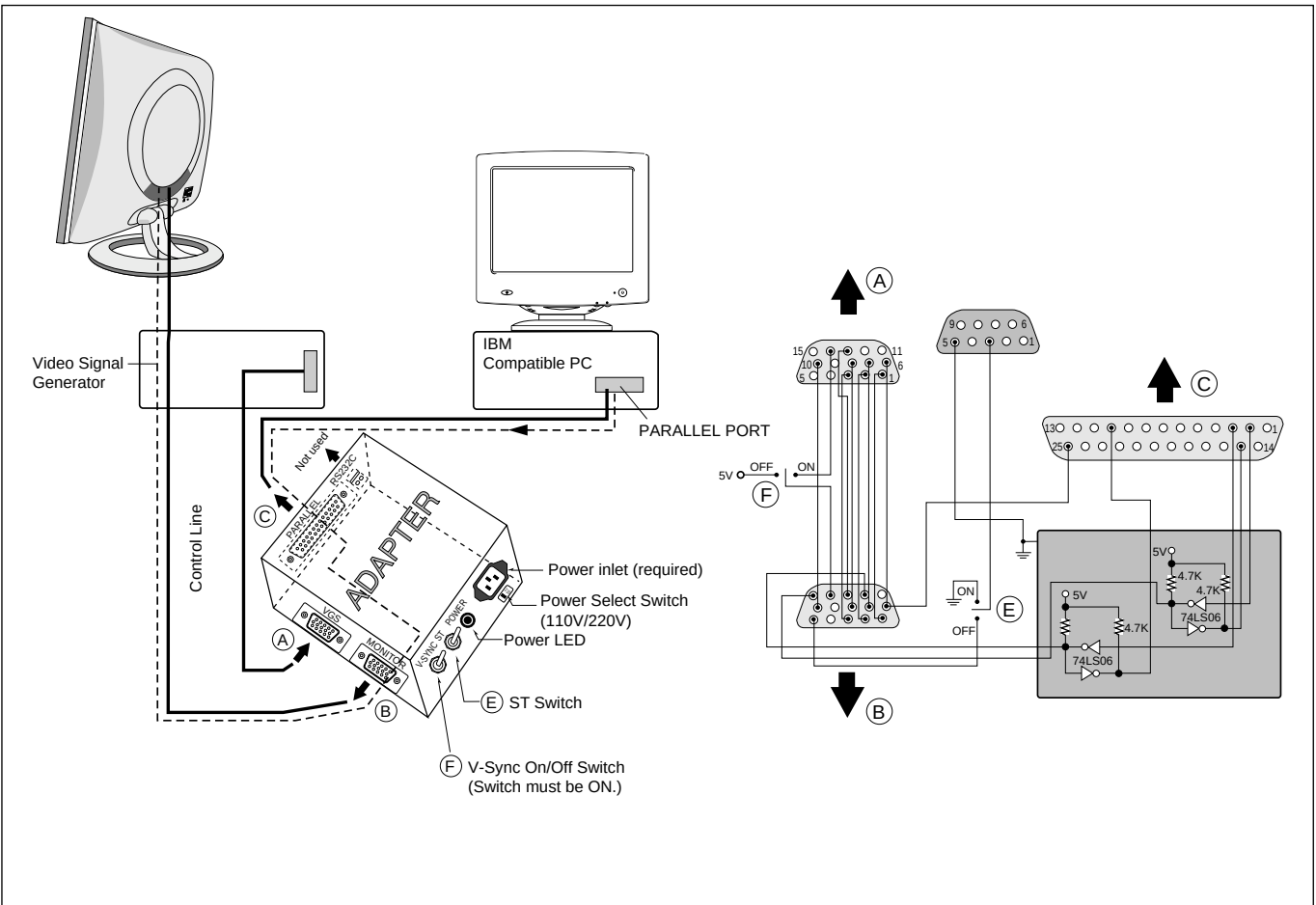
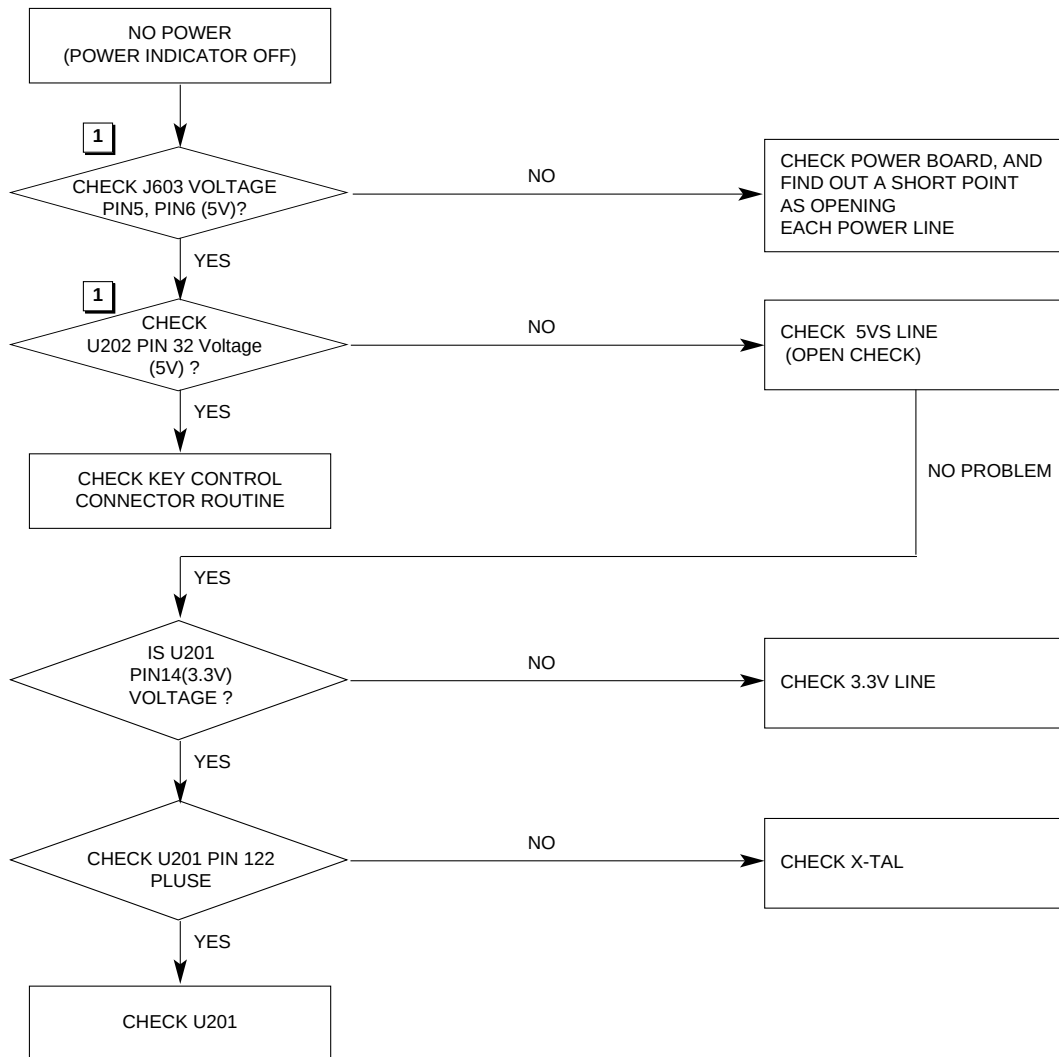


Figure 1. Cable Connection

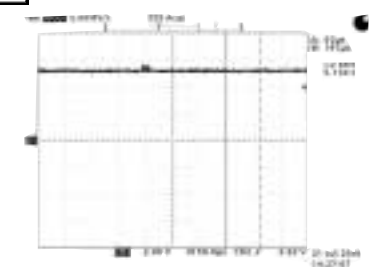
TROUBLESHOOTING GUIDE

1. NO POWER

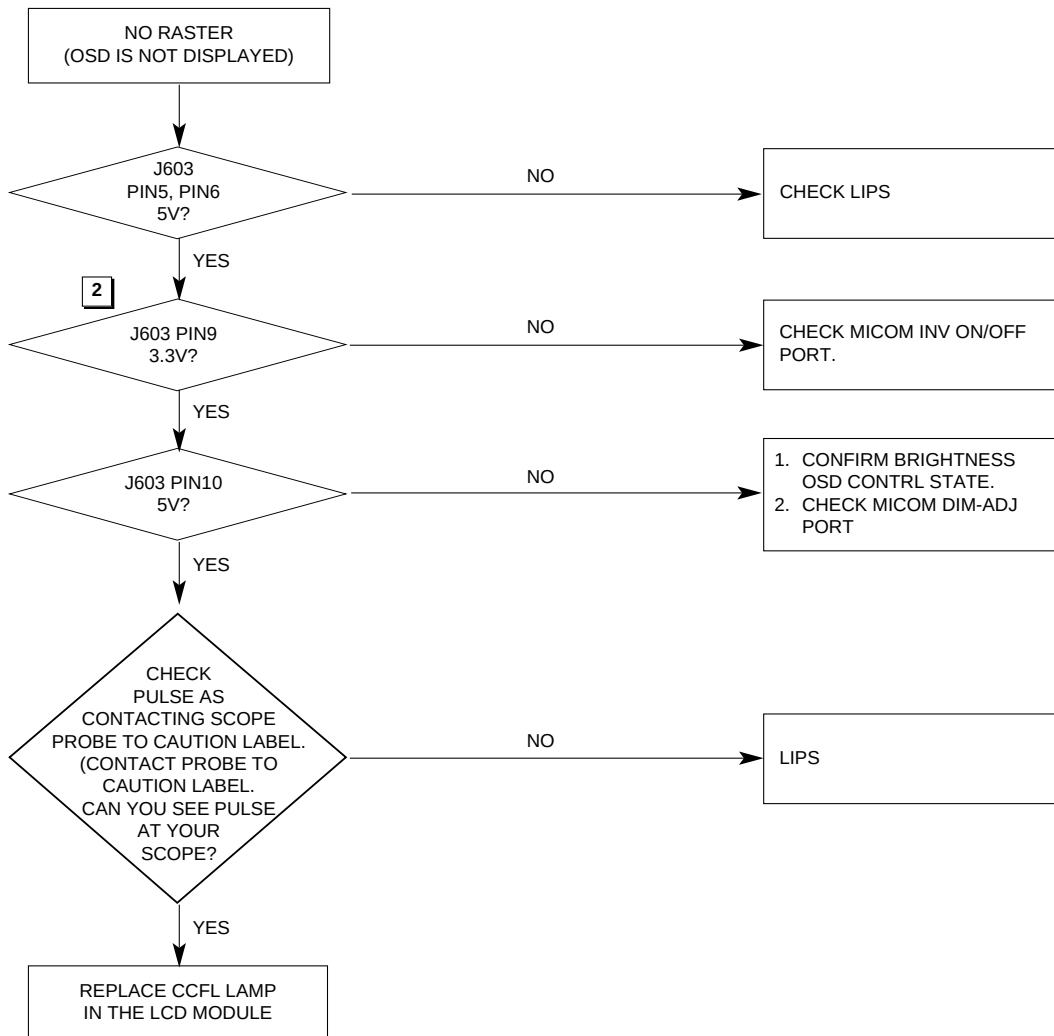


Waveforms

1 J603-#5,6/U202-#32

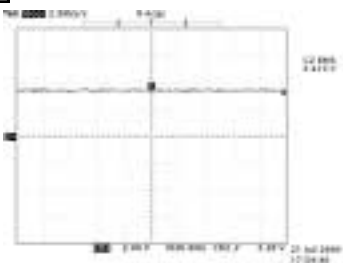


2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS

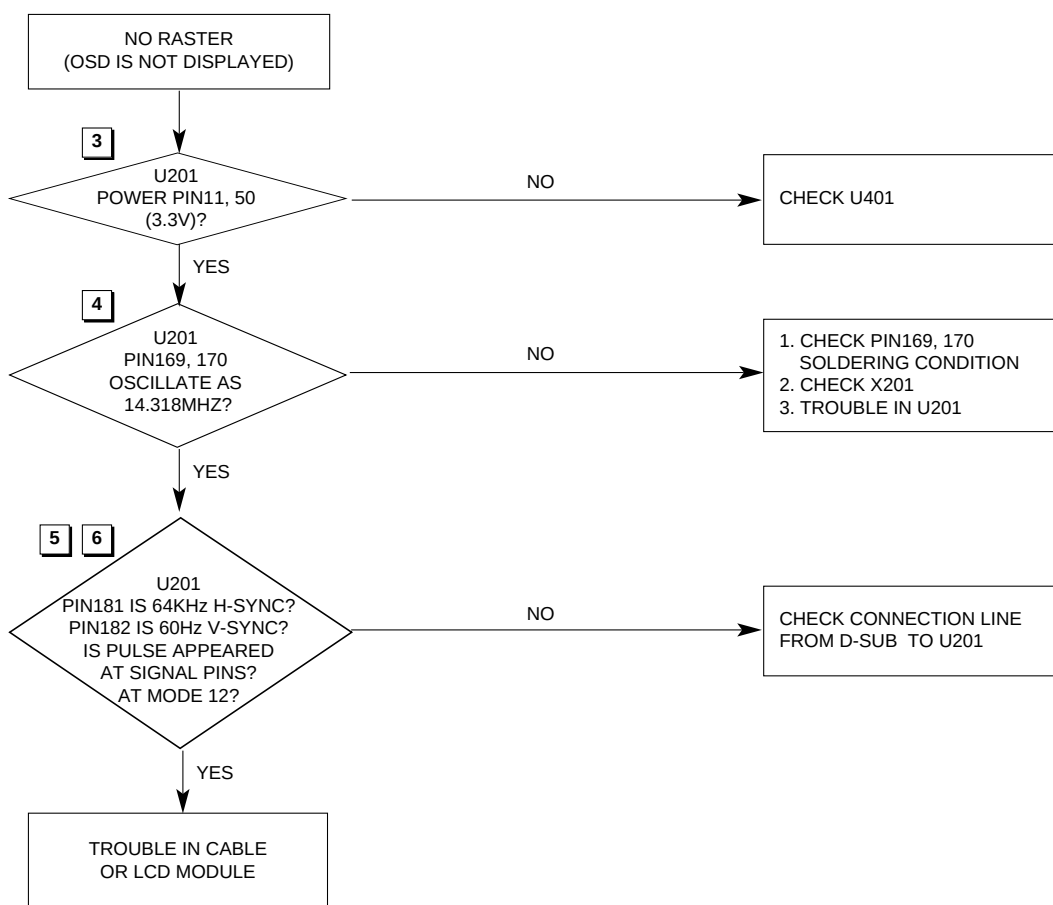


Waveforms

2 J603-#9

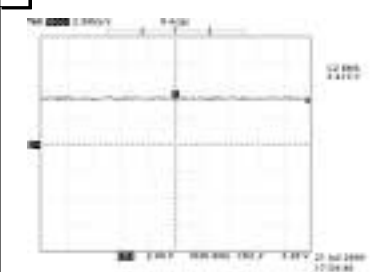


3. NO RASTER (OSD IS NOT DISPLAYED) – GM5321

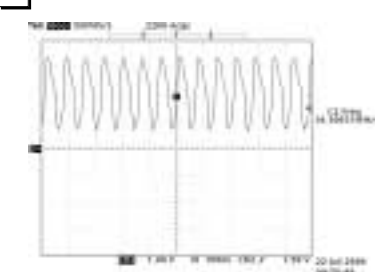


Waveforms

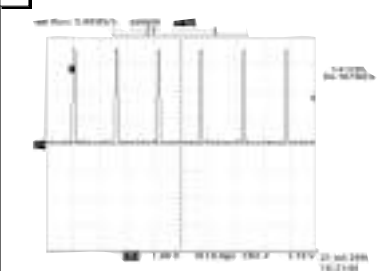
3 U201-#11



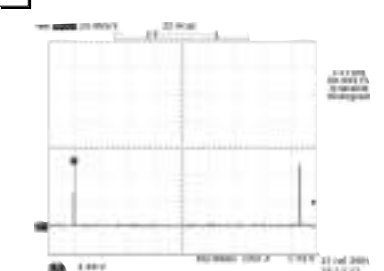
4 U201-#170



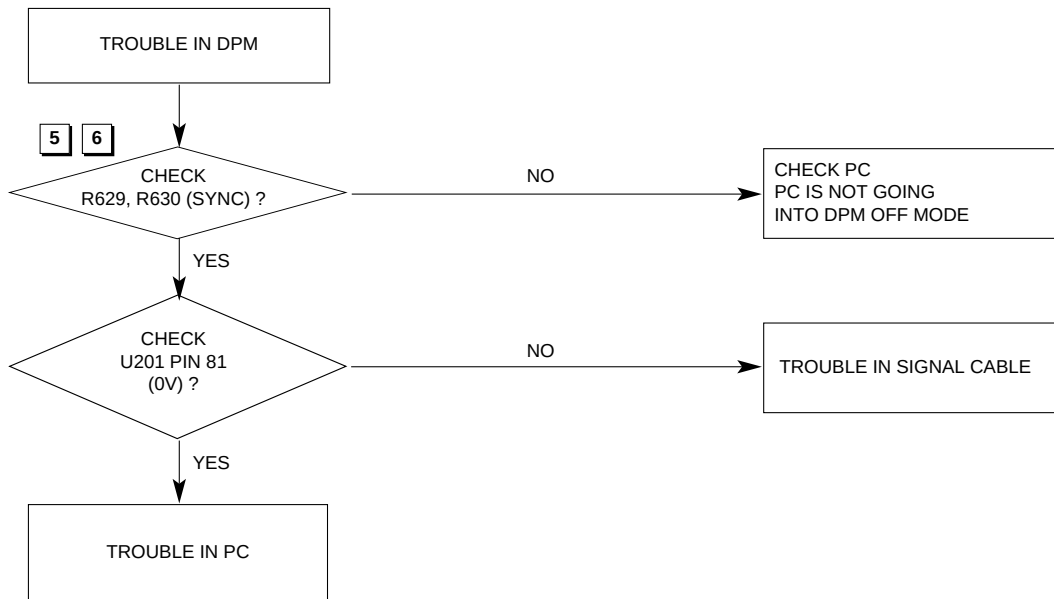
5 U201-#181/R629



6 U201-#182/R630

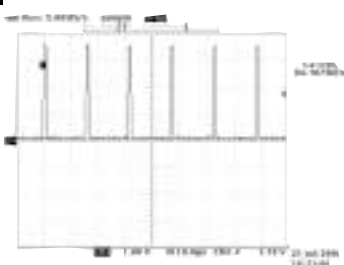


4. TROUBLE IN DPM

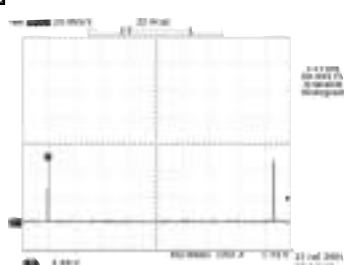


Waveforms

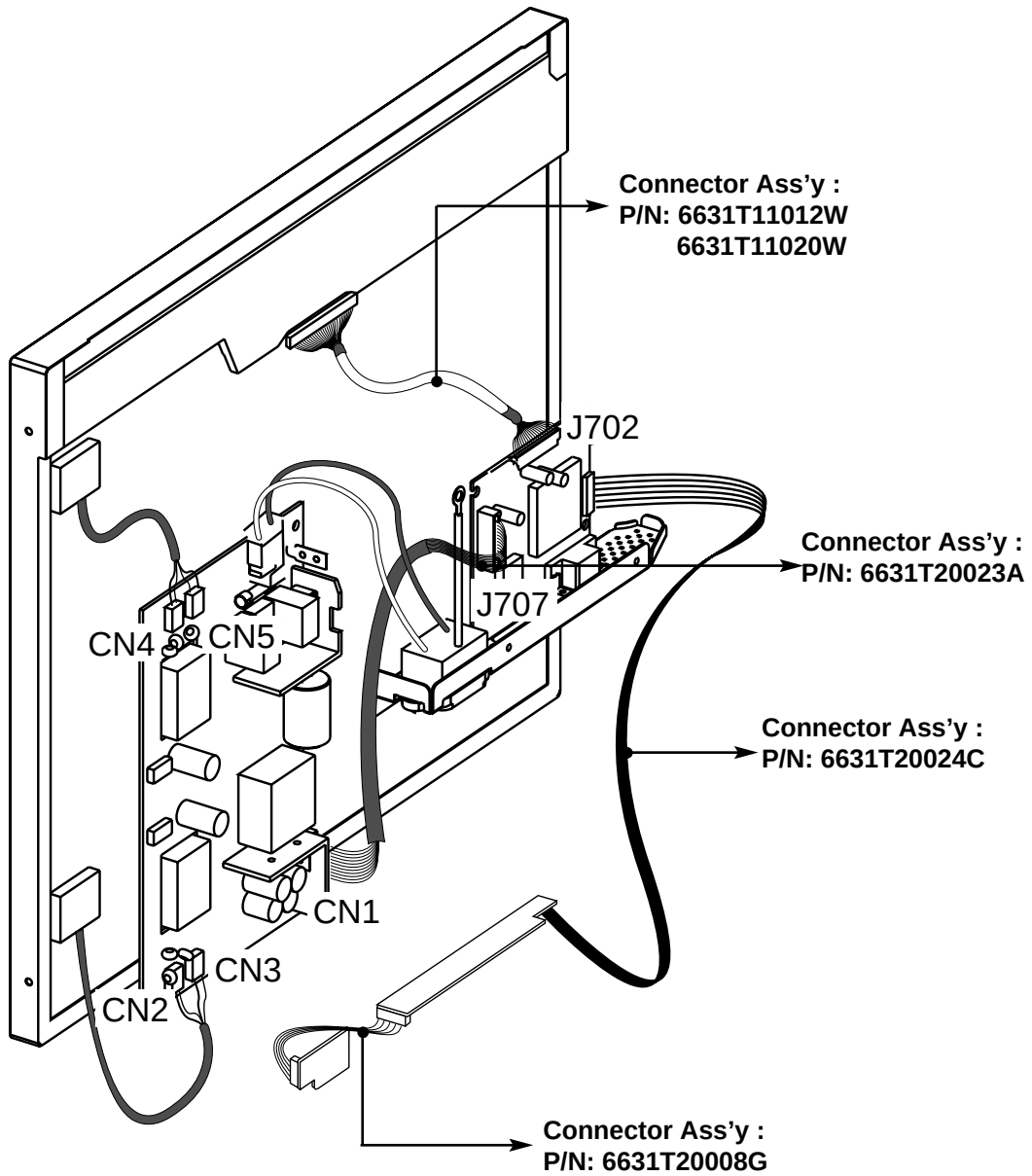
5 U201-#181/R629



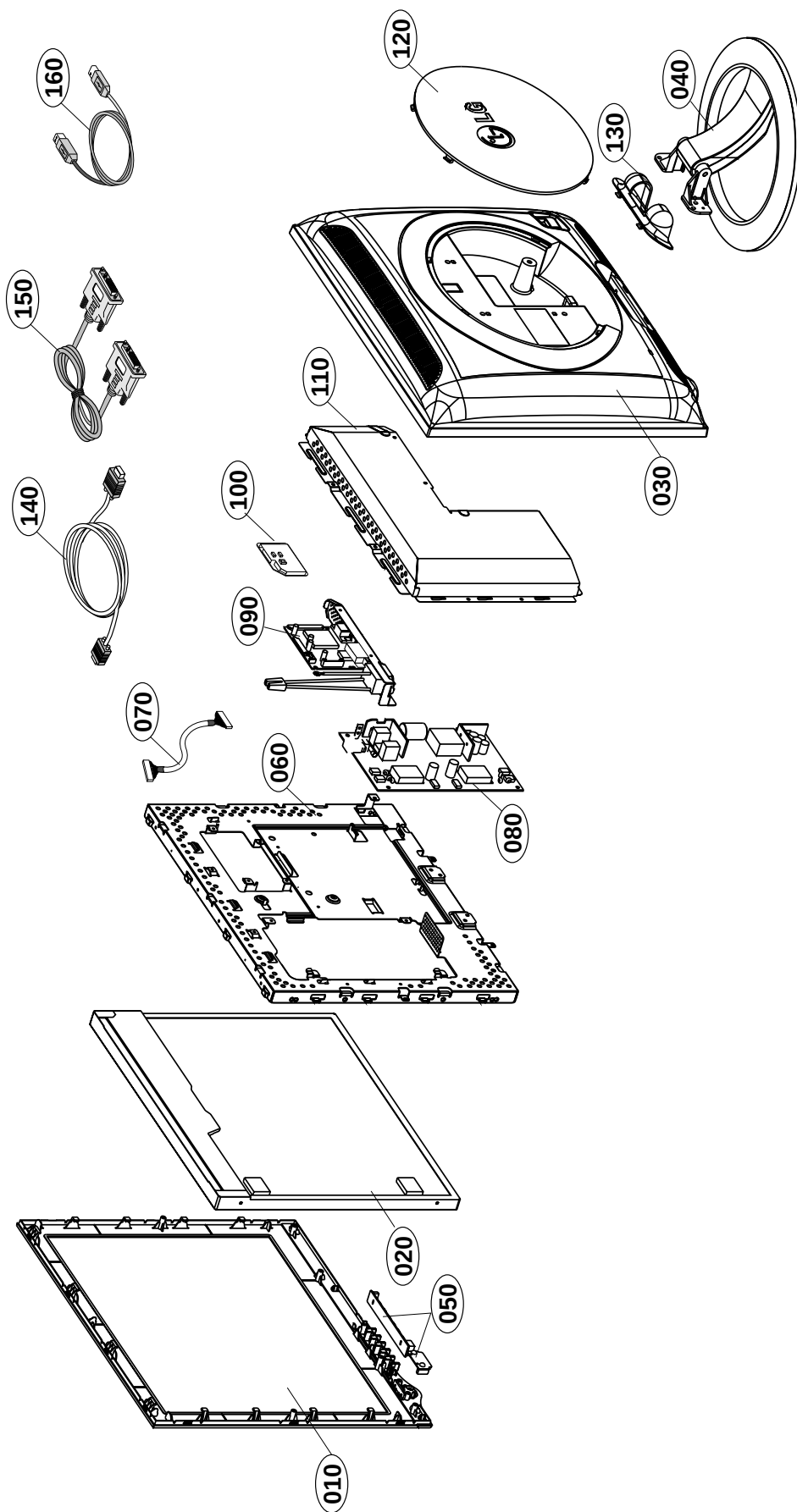
6 U201-#182/R630



WIRING DIAGRAM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
010	3091TKL086J	CABINET ASSEMBLY, L1720PL BRAND TKL077 DUAL PC+ABS
	3091TKL086N	CABINET ASSEMBLY, L1720P BRAND . PC+ABS, CKD (US-VERSION)"
020	6304FLP107A	LCD(LIQUID CRYSTAL DISPLAY), LM170E01-B5K1 LG PHILPS TFT COLOR (LOX73L),300NITS SXGA LVDS
030	3809TKL059H	BACK COVER ASSEMBLY, L1720PL . PC+ABS
	3809TKL059L	BACK COVER ASSEMBLY, L1720P . PC+ABS, CKD (US-VERSION)"
040	3043TKK134E	TILT SWIVEL ASSEMBLY, L1720B/PL . M/BASE_SPRAY_NEW SCREW/RUBBER
	3043TKK134D	TILT SWIVEL ASSEMBLY, L1720 . M/BASE-SPRAY- CKD
050	6871TST742A	PWB(PCB) ASSEMBLY,SUB, L1720BN CONTROL TOTAL BRAND N-CHASSIS
	6871TST742C	PWB(PCB) ASSEMBLY,SUB, L1720BN CONTROL TOTAL BRAND MX CKD
060	4951TKS111G	METAL ASSEMBLY, FRAME MAIN L1720PM-LPL
	4951TKS111H	METAL ASSEMBLY, FRAME MAIN L1720PM- CKD -LPL
070	6631T11020W	CONNECTOR ASSEMBLY, 30P-30P H-H 200MM UL20276AWG30 CD/PB FREE 17/19 INCH
	or 6631T11012W	CONNECTOR ASSEMBLY, 30P H-H 200MM UL20276 LG708G
080	6871TPT271S	PWB(PCB) ASSEMBLY,POWER, M-CHASSIS 1719 DOCKING,2PIN,450V POWER TOTAL LIEN CHANG
	or 6871TPT271C	PWB(PCB) ASSEMBLY,POWER, 19"" 17"" M-CHASSIS POWER TOTAL LIEN CHANG ""INTEGRATED LIPS"" FOR DOCKING TYPE
090	3313TL7068A	MAIN TOTAL ASSEMBLY, L1720PN GM5321 BRAND CL-67
	3313TL7068E	MAIN TOTAL ASSEMBLY, L1720PN GM5321 MX CKD BRAND CL-67
100	6871TUT035A	PWB(PCB) ASSEMBLY,USB, L15,17,1920PL SUB TOTAL BRAND USB"
110	4951TKK139A	METAL ASSEMBLY, REAR L1720BL
	4951TKK139B	METAL ASSEMBLY, REAR L1720BL CKD (NT)
120	3550TKK398A	COVER, L1720 BACK CAP
130	3550TKK400A	COVER, L1720 HINGE CAP
	3550TKK400B	COVER, L1720BL HINGE CAP CKD (NT)
140	6850TD9004J	CABLE,D-SUB,UL20276-9C(5.8MM) DT 1500MM,CORE POS400MM GRAY(85964) L1720BM DM"
150	6866TDV004R	CABLE,DVI, UL20276(7.5MM) DT 2000MM GRAY(85964) 20 MODEL DM
160	6866TDU002D	CABLE,D-SUB, UL20276SB10P+2C AWG#30 DT 1870MM GRAY(85964) BRAND 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. 10. 13.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITORS				
		C201	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C202	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C203	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C204	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C205	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C206	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C207	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C208	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C209	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C210	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C211	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C212	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C213	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C214	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C215	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C216	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C217	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C218	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C219	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C220	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C221	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C222	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C223	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C224	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C225	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C226	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C227	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C228	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C229	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C230	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		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
		C235	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C236	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C237	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C238	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C239	0CC080CK11A	8PF 1608 50V 0.5 PF R/TP NP0
		C240	0CC080CK11A	8PF 1608 50V 0.5 PF R/TP NP0
		C241	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C243	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C244	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C245	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C246	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C247	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C248	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C249	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
C250	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y		
C251	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y		
C252	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R		
C253	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"		

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C403	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C405	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C406	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C407	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C408	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C409	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C410	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C411	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C412	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C413	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C414	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C415	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C416	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C417	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C418	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C419	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C601	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C602	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C603	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C604	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C605	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C606	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C610	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C611	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C612	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C613	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C614	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C615	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C630	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C631	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C632	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C633	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C634	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C635	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C636	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C637	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C638	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C639	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C640	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C641	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C642	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C643	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C644	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C645	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C646	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C647	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C648	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
DIODEs				
		D601	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D602	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D603	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D604	0DS226009AA	KDS226 TP KEC SOT-23 80V 30

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		D605	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D606	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D607	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D608	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D609	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D610	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D611	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D612	0DS226009AA	KDS226 TP KEC SOT-23 80V 30
		D621	0DS301109AA	MMBD301LT1 TP MOTOROLA SOT23
		D622	0DS301109AA	MMBD301LT1 TP MOTOROLA SOT23
		D623	0DS301109AA	MMBD301LT1 TP MOTOROLA SOT23
		ZD601	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD602	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD603	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD604	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD605	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD606	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD607	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD608	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		ZD609	0DZKE00138A	KDZ5.6V KEC R/TP USC 0.2W 5.
		U604	0DRCE00018A	PACDN004 CAMD R/TP SOT143 5V
		U605	0DRCE00018A	PACDN004 CAMD R/TP SOT143 5V
		U606	0DRCE00018A	PACDN004 CAMD R/TP SOT143 5V
		U607	0DRCE00018A	PACDN004 CAMD R/TP SOT143 5V
ICs				
		U201	0IPRPGN013A	"GM5321 GENESIS 208P,PQFP TRA"
		U202	0IMMRAL039A	"AT49F002AN-55JI ATMEL 32P,PL"
		U202	0IZZTSZ539A	L1720PN GM5321 FLASH MEMORY
		U203	0IKE704200H	KIA7042AP TO-92 TP 4.2 VOLT
		U204	0ISG240860B	M24C08W6 SGS-THOMSON 8SOP R/
		U401	0IPMGKE011A	KIA78D33F KEC DPAK R/TP 3.3V
		U402	0IPMGSG019A	LD1117S18TR STM SOT223 R/TP
		U601	0IMMRSG036A	"M24C02-WMN6T SGS-THOMSON 8P,"
		U602	0IMMRSG036A	"M24C02-WMN6T SGS-THOMSON 8P,"
TRANSISTOR				
		U403	0TFV180023A	VISHAY SI3865DV R/TP TSOP-6
		Q201	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q202	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q601	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q602	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q603	0TR390609FA	KST3906-MTF TP SAMSUNG SOT2
		Q604	0TR390609FA	KST3906-MTF TP SAMSUNG SOT2
RESISTORS				
		R201	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R202	0RJ0822D677	82 OHM 1/10 W 5% 1608 R/TP
		R203	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R204	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R205	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R208	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R212	0RJ0822D677	82 OHM 1/10 W 5% 1608 R/TP
		R214	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R215	0RJ4702D677	47000 OHM 1/10 W 5% 1608 R/T
		R216	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R217	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R218	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R220	0RJ0822D677	82 OHM 1/10 W 5% 1608 R/TP

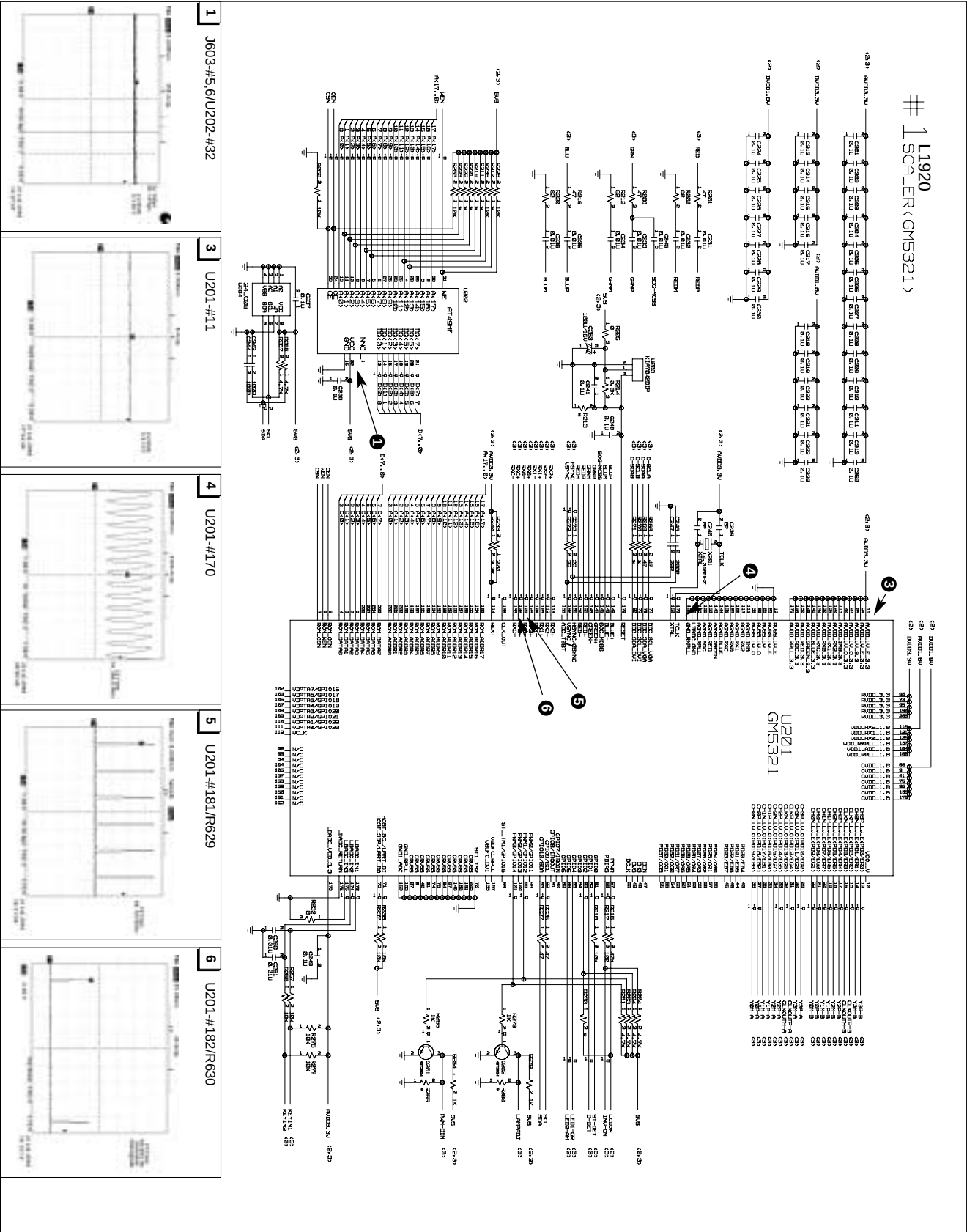
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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R224	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R226	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R227	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R228	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R232	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R233	0RJ2700D677	270 OHM 1/10 W 5% 1608 R/TP
		R236	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R237	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R238	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R240	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R253	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R254	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R256	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R257	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R258	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R262	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R265	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R267	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R268	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R269	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R272	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R273	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R276	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R277	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R278	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R279	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R281	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R413	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/TP
		R414	0RJ5600D677	560 OHM 1/10 W 5% 1608 R/TP
		R419	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R420	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R421	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R422	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R604	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R605	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R606	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R607	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R616	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R617	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R618	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R619	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R620	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R625	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R626	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R627	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R628	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R629	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R630	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R631	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R632	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R642	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R643	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R650	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R651	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R652	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R654	0RJ0102D677	10 OHM 1/10 W 5% 1608 R/TP
		R655	0RJ0102D677	10 OHM 1/10 W 5% 1608 R/TP
		R656	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R657	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R660	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R661	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R662	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R663	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R666	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R667	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
OTHERs				
		X201	6212AA2004F	HC-49U TXC 14.318 MHZ +/- 30
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
USB BOARD				
		C801	0CE1074F638	"100UF SRA,SS 16V M FM5 TP 5"
		C803	0CE1074F638	"100UF SRA,SS 16V M FM5 TP 5"
		C805	0CH6330K416	33PF 50V J NP0 2012 R/TP
		C806	0CE1074F638	"100UF SRA,SS 16V M FM5 TP 5"
		C807	0CE1054K638	"1 UF SRA,SS 50V M FM5 TP 5"
		C809	0CH6330K416	33PF 50V J NP0 2012 R/TP
		C810	0CE1054K638	"1 UF SRA,SS 50V M FM5 TP 5"
		C812	0CH3103K516	10000PF 50V 10% B(Y5P) 2012
		C813	0CK1030K945	0.01UF 50V Z F TR
		C820	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C821	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C822	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C823	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C831	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C832	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C850	0CH3104K946	100000PF 50V Z F 2012 R/TP
		C851	0CH3104K946	100000PF 50V Z F 2012 R/TP
		IC801	0IPH112200C	"ISP1122ABD 32P,LQFP R/TP USB"
		IC802	0IT1204200B	TPS2042ADR TEXAS INSTRUMENT
		L801	125-155P	BFS2550R2FG SAMWHA 2.5*5.0MM
		L802	125-155H	BFS3510A0FG SAMWHA 3.5*10MM
		L804	6210TCE001H	HB-1T2012-301JT CERATEC 2012
		L805	6210TCE001H	HB-1T2012-301JT CERATEC 2012
		L807	6210TCE001H	HB-1T2012-301JT CERATEC 2012
		L808	6210TCE001H	HB-1T2012-301JT CERATEC 2012
		L809	6210TCE001H	HB-1T2012-301JT CERATEC 2012
		L810	6210TCE001H	HB-1T2012-301JT CERATEC 2012
		L812	125-155D	BFS3514A0FG SAMWHA 3.5*14MM
		R801	0RH1502D622	15K 1/10W 5 D.R/TP
		R802	0RH1502D622	15K 1/10W 5 D.R/TP

DATE: 2004. 10. 13.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R803	0RH1502D622	15K 1/10W 5 D.R/TP
		R804	0RD0222Q609	22 1/4W(3 5% TA52
		R805	0RD0222Q609	22 1/4W(3 5% TA52
		R806	0RD0222Q609	22 1/4W(3 5% TA52
		R807	0RH1502D622	15K 1/10W 5 D.R/TP
		R808	0RH0222D622	22 OHM 1 / 10 W 2012 5.00% D
		R809	0RH1004D622	1.0M 1/10W 5 D.R/TP
		R810	0RH1004D622	1.0M 1/10W 5 D.R/TP
		R811	0RH1003D622	100K 1/10W 5 D.R/TP
		R812	0RH1003D622	100K 1/10W 5 D.R/TP
		R813	0RH1004D622	1.0M 1/10W 5 D.R/TP
		R814	0RH1004D622	1.0M 1/10W 5 D.R/TP
		R817	0RH0222D622	22 OHM 1 / 10 W 2012 5.00% D
		R821	0RH1501D622	1.5K OHM 1 / 10 W 2012 5.00%
		R828	0RH0222D622	22 OHM 1 / 10 W 2012 5.00% D
		R829	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R830	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R835	0RH1003D622	100K 1/10W 5 D.R/TP
		R836	0RH1004D622	1.0M 1/10W 5 D.R/TP
		R837	0RH3301D622	3.3K 1/10W 5 D.R/TP
		R841	0RH1502D622	15K 1/10W 5 D.R/TP
		R842	0RH1502D622	15K 1/10W 5 D.R/TP
		R850	0RH1502D622	15K 1/10W 5 D.R/TP
		R851	0RH1502D622	15K 1/10W 5 D.R/TP
		X801	6202TTB002B	ATS-49/U SUNNY RADIAL 6MHZ 3
		ZD801	0DZ510009EE	UDZ S 5.1B TP ROHM-K SOD323
		ZD802	0DZ510009EE	UDZ S 5.1B TP ROHM-K SOD323
		ZD803	0DZ510009EE	UDZ S 5.1B TP ROHM-K SOD323
		ZD804	0DZ510009EE	UDZ S 5.1B TP ROHM-K SOD323
		ZD805	0DZ510009EE	UDZ S 5.1B TP ROHM-K SOD323
		ZD806	0DZ510009EE	UDZ S 5.1B TP ROHM-K SOD323
		ZD807	0DZ510009EE	UDZ S 5.1B TP ROHM-K SOD323
		ZD811	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323
		ZD812	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323

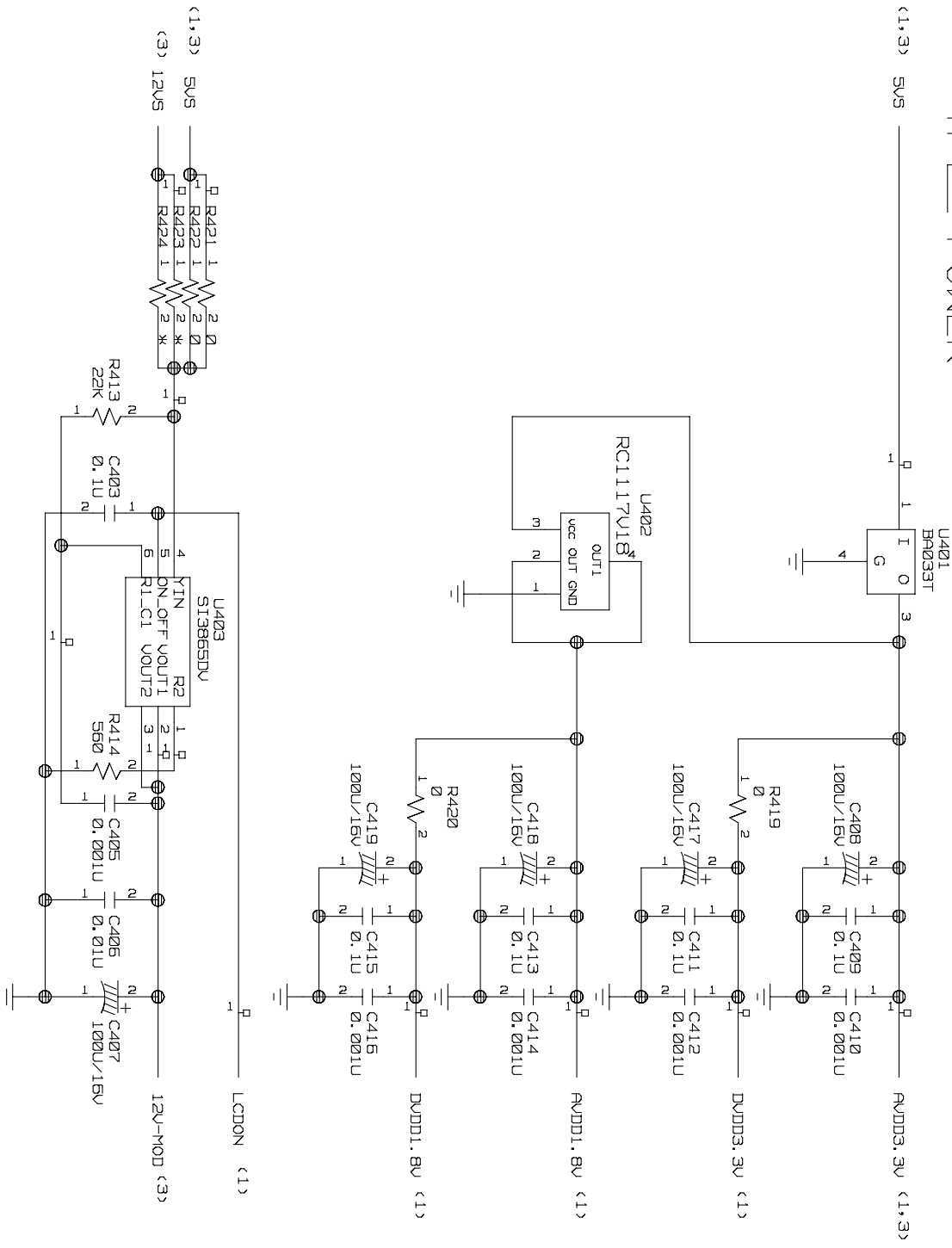
SCHEMATIC DIAGRAM

1. SCALER



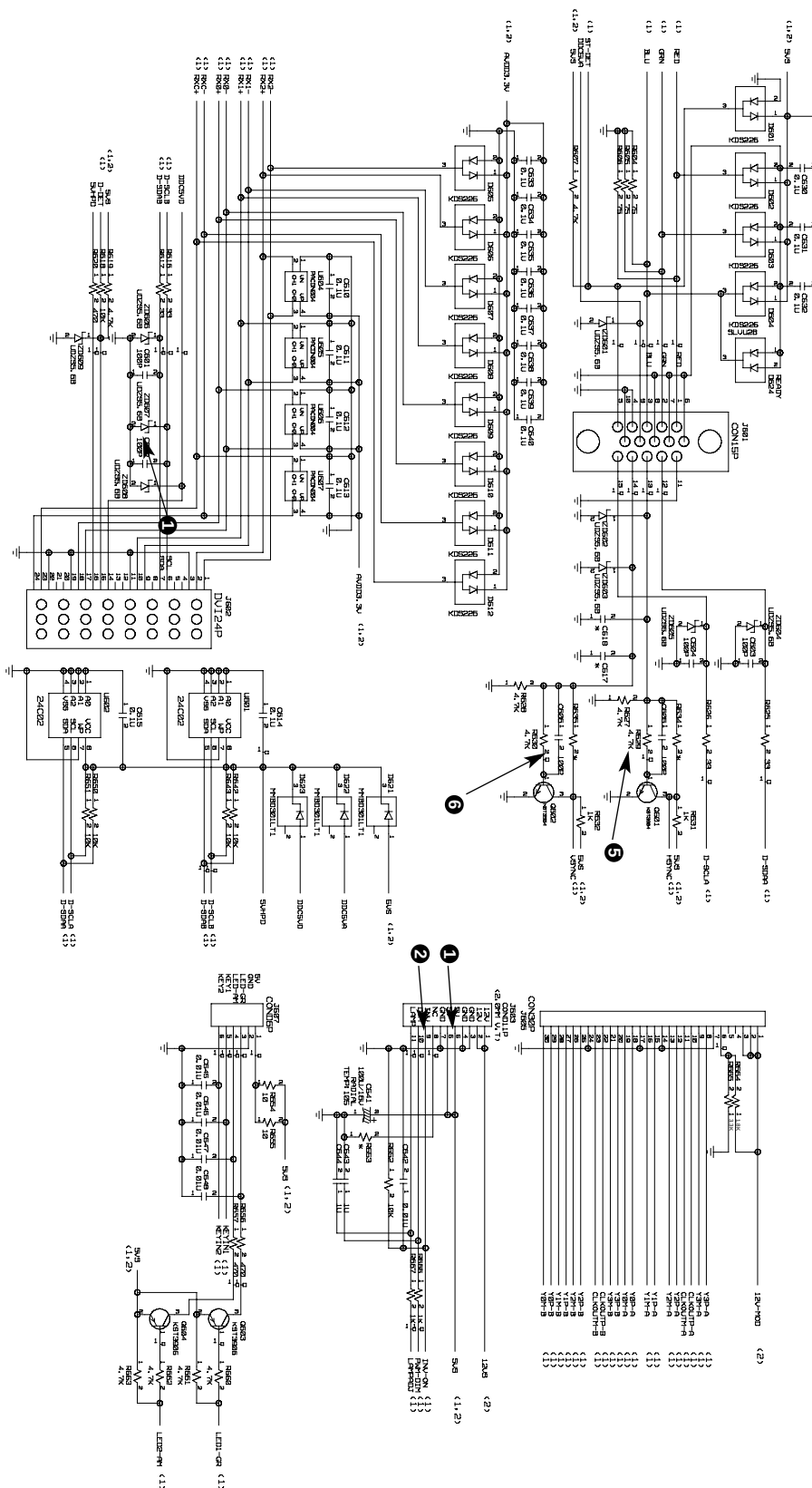
2. POWER

#2 L1920 POWER



3.CONNECTOR

#3 L1920 CONNECTOR



1 J603-#5,6/U202-#32

2 J603-#9

U201-#181/R629

6 U201-#182/R630

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