

Service Guide Specification

답 당	관 리 자
PARK H. J 04.01.20	KIM J. O 04.01.20

1. Model Description

MODEL	L1720PM	BRAND	LG	Part No.	3828TSL084F
SUFFIX	ALEUR	Product Name	FLATRON L1720P		

2. Printing Specification

1. Trim Size (Format) : 215mm x 280 mm
2. Printing Colors
 - Cover : LG COLOR
 - Inside : Black
3. Stock (Paper)
 - Cover : Snow white paper 150 g/m²
 - Inside : Snow white paper 100 g/m²
4. Printing Method :
5. Bindery : Saddle stitch
6. Language : English
7. Number of pages : 32(Including blank 3pages)

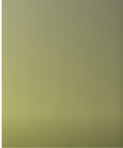
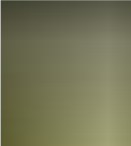
3. Special Instructions

4. Changes

△8				
△7				
△6				
△5				
△4				
△3				
△2				
△1				
REV. NO.	MM/DD/YY	SIGNATURE	CHANGE NO.	CHANGE CONTENTS

Pagination sheet

P/N0.3828TSL084F
Total pages : 32pages

	Front cover Inside 2	English 3	English 4	English 5	English	English	English 28	English (Blank)
	English (Blank)	Rear Cover Inside (Blank)						



Website:<http://biz.LGservice.com>
E-mail:<http://www.LGService.com/techsup.html>

COLOR MONITOR SERVICE MANUAL

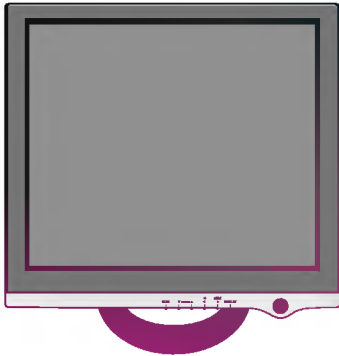
CHASSIS NO. : CL-61

MODEL: FLATRON L1720P (L1720PM-ALR)**

() **Same model for Service

CAUTION

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



*Same looking with new chassis.

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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, 16.7M 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), 400(Typ)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal
 • Type : Separate Sync,
 SOG (Sync On Green)
 Composite Sync, 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 1 W	AMBER
SUSPEND	ON/OFF	OFF	less than 1 W	AMBER
DPMS OFF	OFF/OFF	OFF	less than 1 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% C

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")

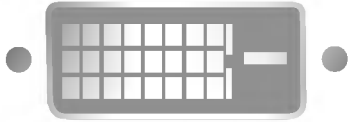


8. WEIGHT (with TILT/SWIVEL)

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

Signal Connector Pin Assignment

• DVI-D Connector




1	T. M. D. S. Data2-	16	Hot Plug Detect
2	T. M. D. S. Data2+	17	T. M. D. S. Data0-
3	T. M. D. S. Data2/4 Shield	18	T. M. D. S. Data0+
4	T. M. D. S. Data4-	19	T. M. D. S. Data0/5 Shield
5	T. M. D. S. Data4+	20	T. M. D. S. Data5-
6	DDC Clock	21	T. M. D. S. Data5+
7	DDC Data	22	T. M. D. S. Clock Shield
8	Analog Vertical Sync.	23	T. M. D. S. Clock+
9	T. M. D. S. Data1-	24	T. M. D. S. Clock-
10	T. M. D. S. Data1+		
11	T. M. D. S. Data1/3 Shield		
12	T. M. D. S. Data3-		
13	T. M. D. S. Data3+		
14	+5V Power		
15	Ground (return for +5V, H. Sync. and V. Sync.)		

T. M. D. S. (Transition Minimized Differential Signaling)

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.

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.

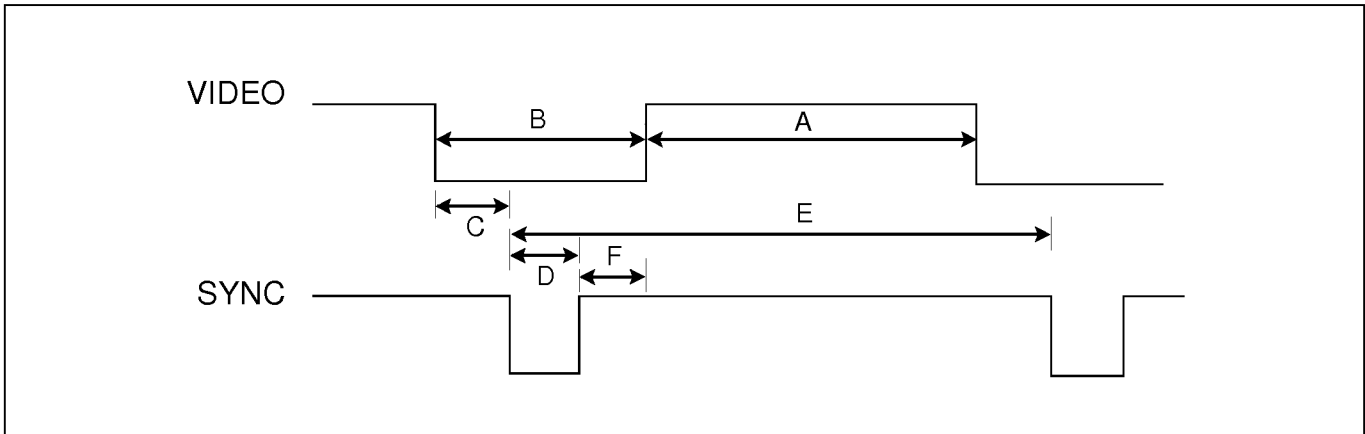
TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- 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.

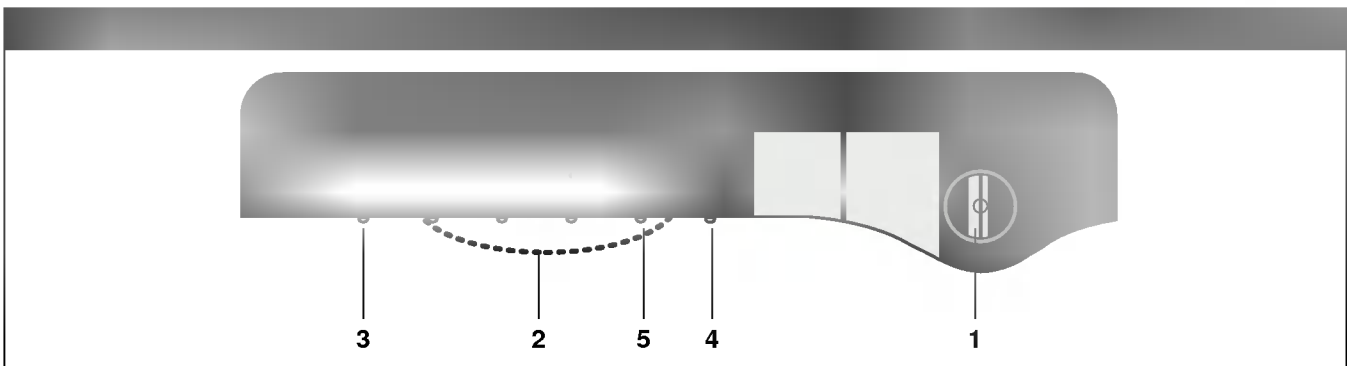
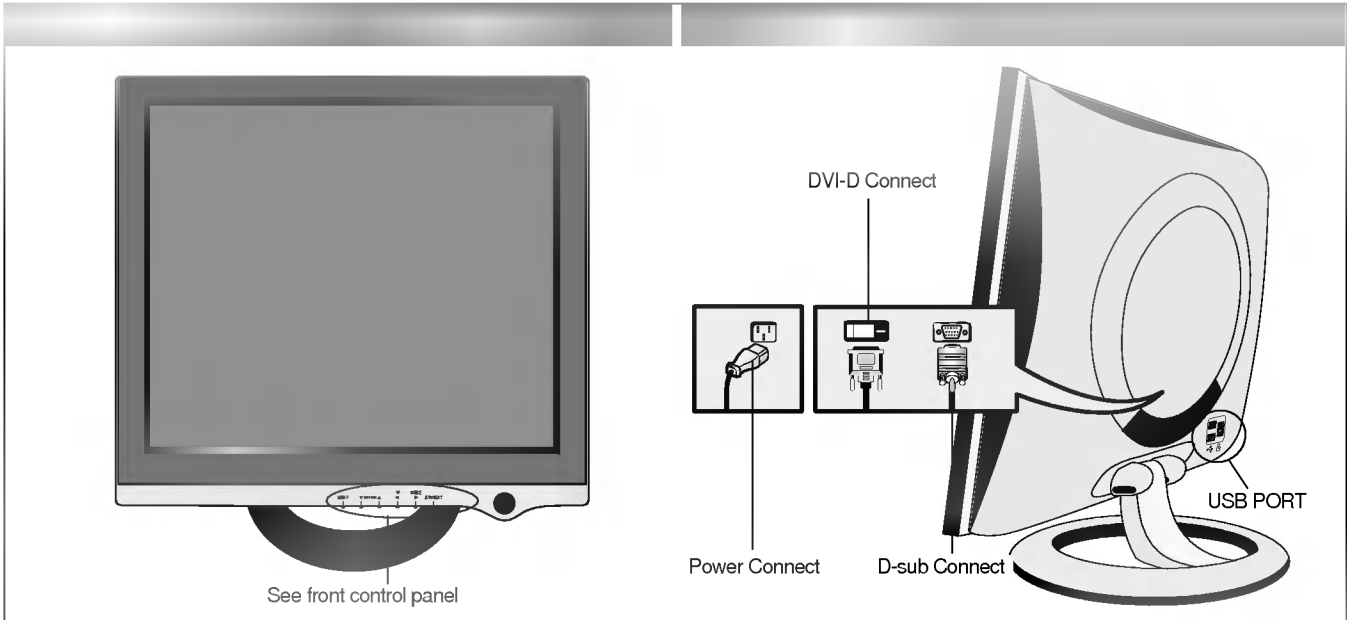
TIMING CHART



<< 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	-		70.8Hz	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	840	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	1152x870 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	

OPERATING INSTRUCTIONS



1. Power Button

Use this button to turn the display on or off.

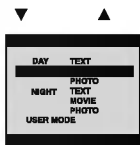
<Power (DPMS) Indicator>

This Indicator lights up blue when the display operates normally. If the display is in DPM (Energy Saving) mode, this indicator color changes to amber.

2. ▲▼/◀▶ Button

Use these buttons to choose or adjust items in the On Screen Display.

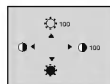
LIGHTVIEW



This feature lets you easily select the best desired image condition optimized to the environment (ambient illumination, image types etc.).

- DAY : Bright ambient illumination
- NIGHT : Dark ambient illumination
- TEXT : For text images (Word processing etc.)
- MOVIE : For animation images in videos or movies
- PHOTO : For pictures or drawings
- USER MODE : For use under user setup image conditions (Brightness, contrast and color tint are selected by the user in OSD Screen Setup Menu.)

LIGHTVIEW → LIGHTVIEW → MENU



Bring up Contrast and Brightness adjustment.

← → ▲ ▼ → MENU

3. Menu Button

Use this button to enter or exit the On Screen Display.

4. AUTO/SELECT Button

Use this button to enter a selection in the On Screen Display.



When adjusting your display settings, always press the **AUTO/SELECT** button before entering the On Screen

Display(OSD). This will automatically adjust your display image to the ideal settings for the current screen resolution size (display mode).

The best display mode is **1280x1024/75Hz**.

5. SOURCE Button

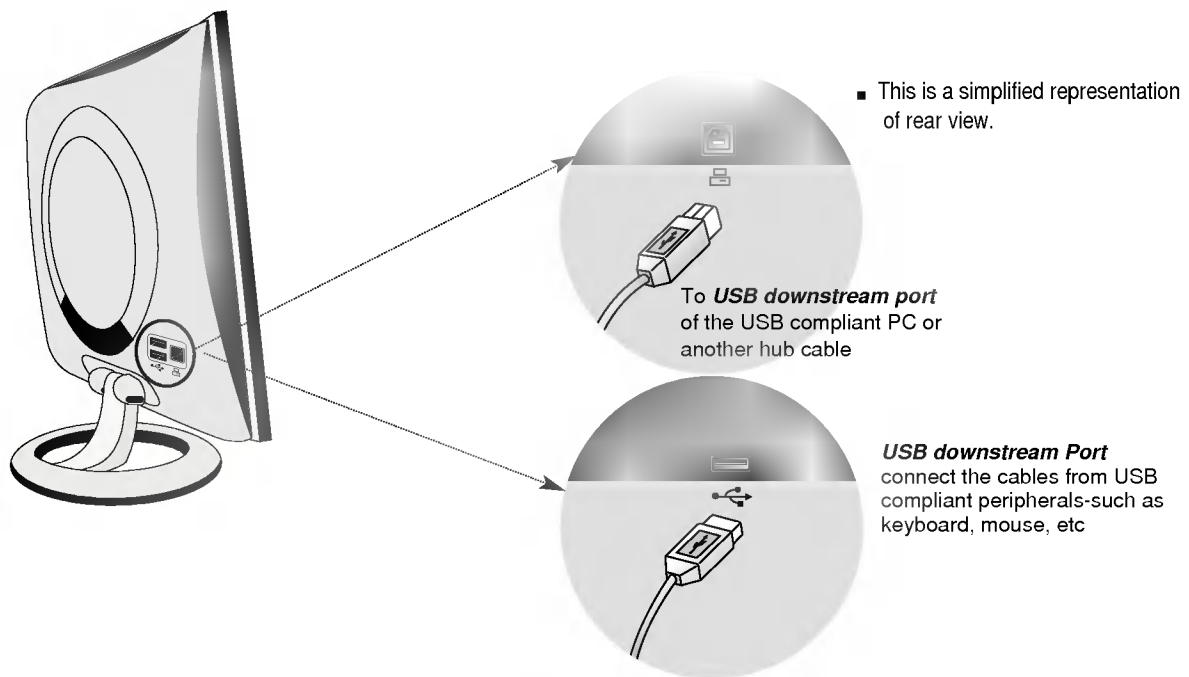
Use this button to make Dsub or DVI connector active. This feature is used when two computers are connected to the display. The default setting is Dsub.

Making use of USB (Universal Serial Bus)*

USB (Universal Serial Bus) is an innovation in connecting your different desktop peripherals conveniently to your computer. By using the USB, you will be able to connect your mouse, keyboard, and other peripherals to your display instead of having to connect them to your computer. This will give you greater flexibility in setting up your system. USB allows you to connect a chain of up to 120 devices on a single USB port; and you can "hot" plug (attach them while the computer is running) or unplug them while maintaining the Plug and the Plug auto detection and configuration. This display has an integrated BUS-powered USB hub, allowing up to 2 other USB devices to be attached it.

USB connection

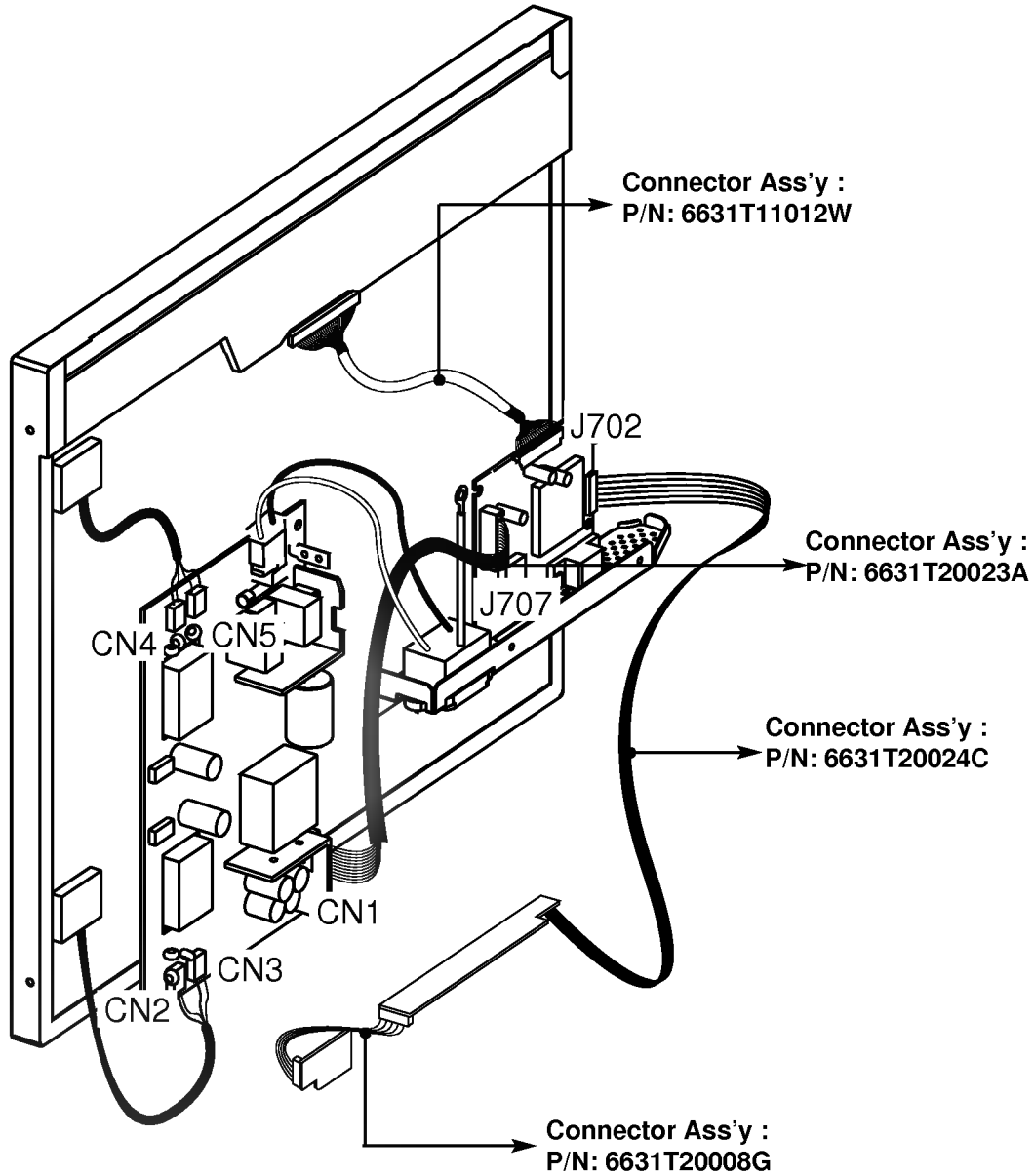
1. Connect the upstream port of the display to the downstream port of the USB compliant PC or another hub using the USB cable. (Computer must have a USB port)
2. Connect the USB compliant peripherals to the downstream ports of the display.



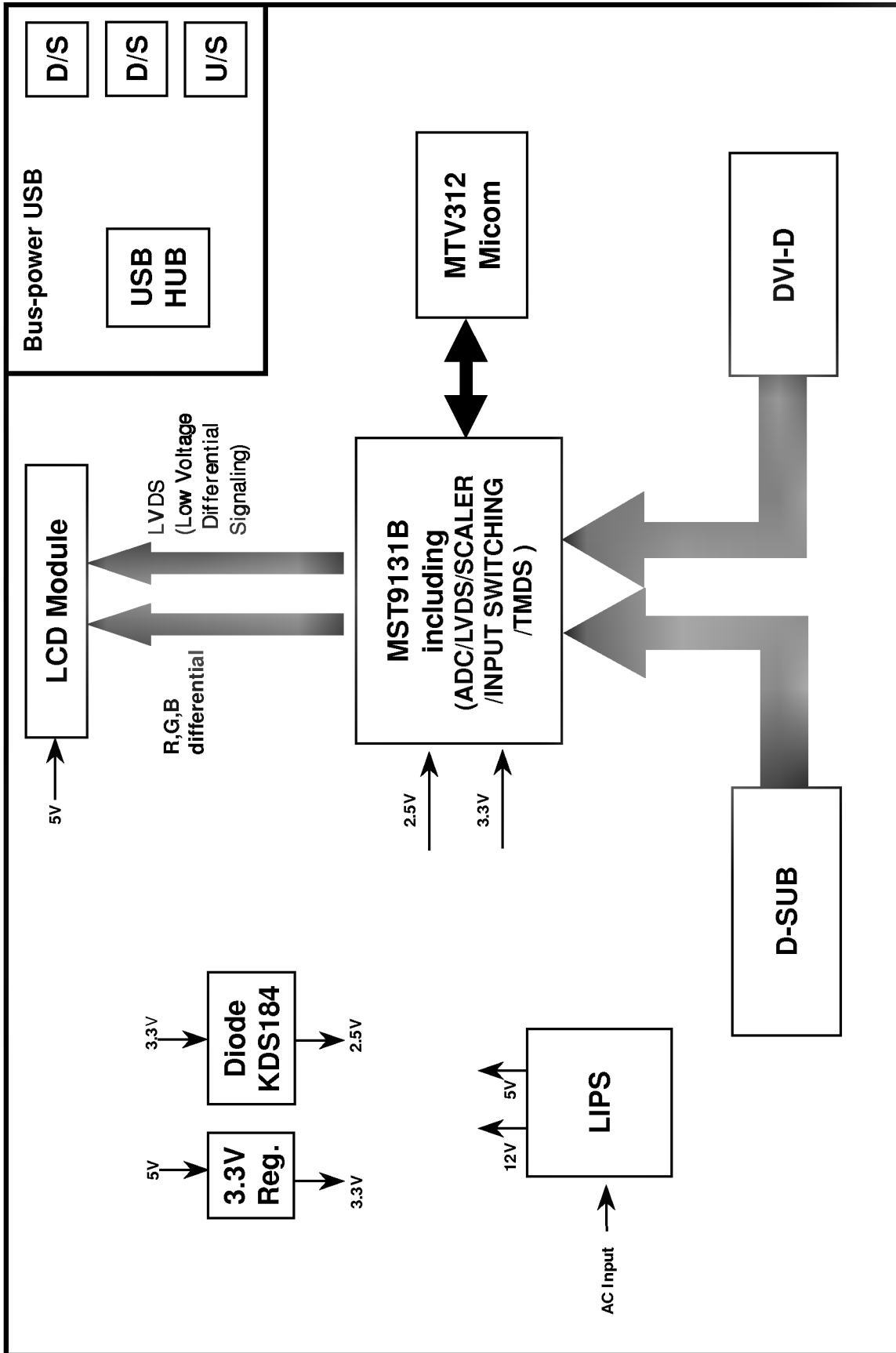
NOTE

- To activate the USB hub function, the monitor must be connected to a USB compliant PC(OS) or another hub with the USB cable(enclosed).
- When connecting the USB cable, check that the shape of the connector at the cable side matches the shape at the connecting side.
- Even if the monitor is in a power saving mode, USB compliant devices will function when they are connected the USB ports(both the upstream and downstream) of the monitor.

WIRING DIAGRAM



BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Video Controller Part.

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

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

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

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

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

2. Power Part.

This part consists of the one 3.3V regulator, and two 2.5V drop diodes to convert power which is provided 12V, 5V in Power board.

5V is provided for LCD panel and Micom.

Also, 5V is converted 3.3V by regulator and 3.3V is converted 2.5V by drop diode.

Converted power is provided for IC in the main board.

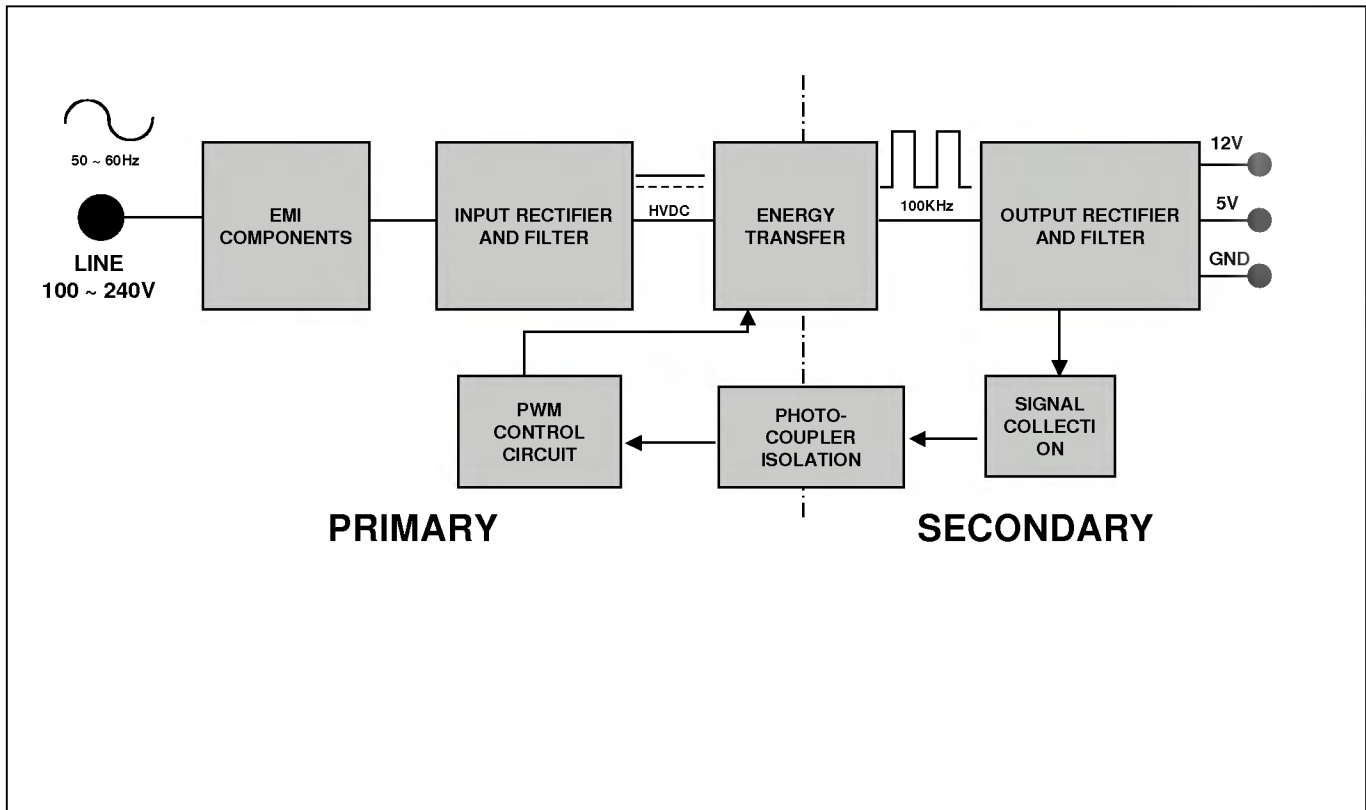
3. MICOM Part.

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.

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 stabilize, and also the over power protection is also monitor by this part.

5. Photo-Coupler isolation.

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

6. Signal collection.

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

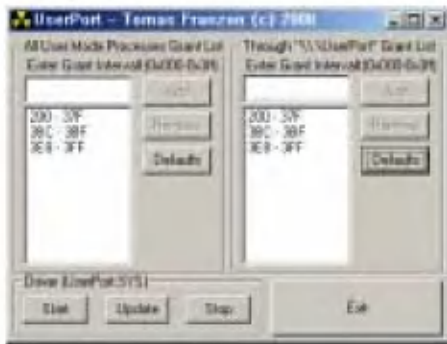
ADJUSTMENT

Windows EDID V1.0 User Manual

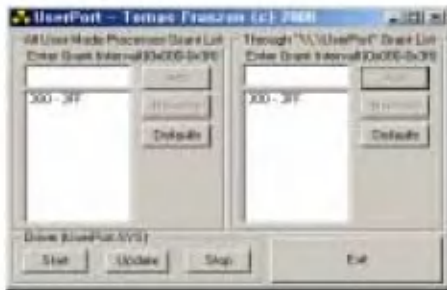
Operating System: MS Windows 98, 2000, XP
 Port Setup: Windows 98 => Don't need setup
 Windows 2000, XP => Need to Port Setup.
 This program is available to LCD Monitor only.

1. Port Setup

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



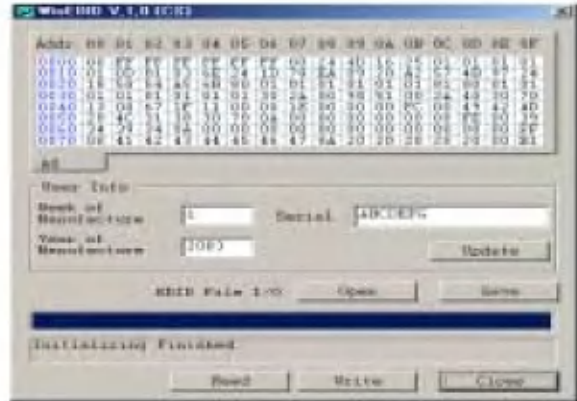
- c) Remove all default number
- d) Add 300-3FF



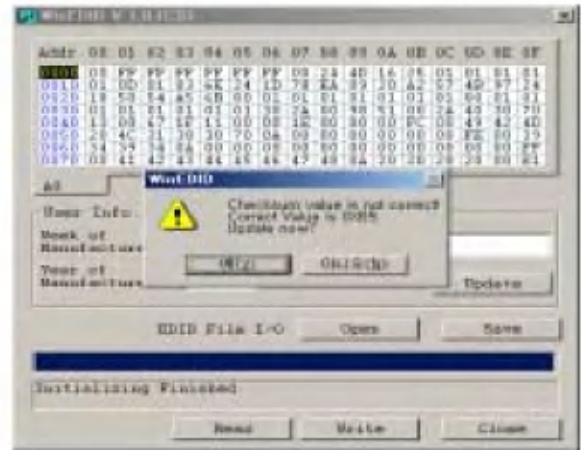
- e) Click Start button.
- f) Click Exit button.

2. EDID Read & Write

- 1) Run WinEDID.exe



- 2) Edit Week of Manufacture, Year of Manufacture, Serial Number
 - a) Input User Info Data
 - b) Click "Update" button
 - c) Click "Write" button



- 1) Turn off the power switch at the front side of the display.
- 2) Wait for about 3 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) MODULE : To select applied module.
 - b) NVRAM INIT : EEPROM initialize(24C08)
 - c) ADC OFFSET : The lowest value of input levels sets to digitally 0(zero).
 - d) ADC GAIN : The highest value of input levels sets to digitally 255.
 - e) ADC CAL : W/B balance sets the gain and offset value.
 - f) ELAPSED CLEAR : To initialize using time.

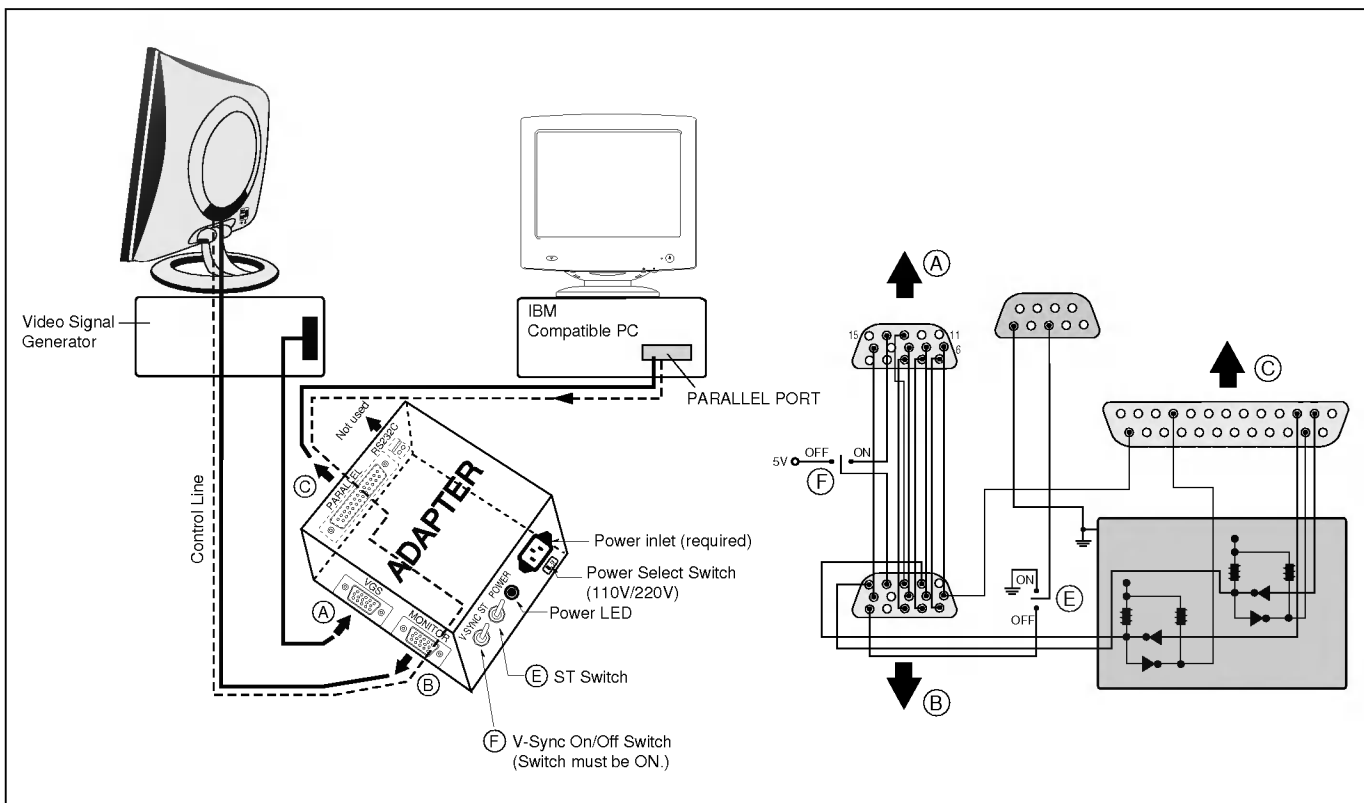
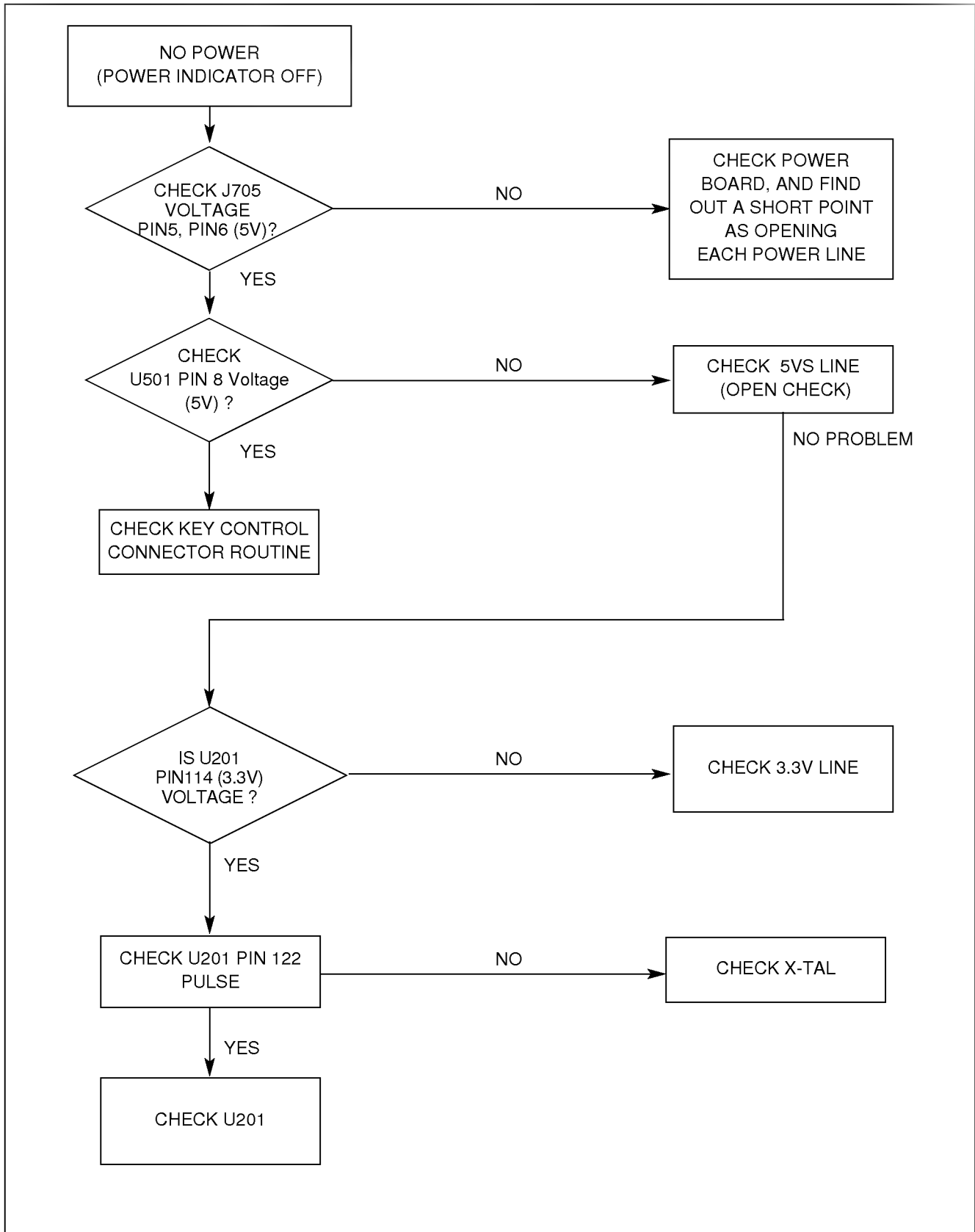
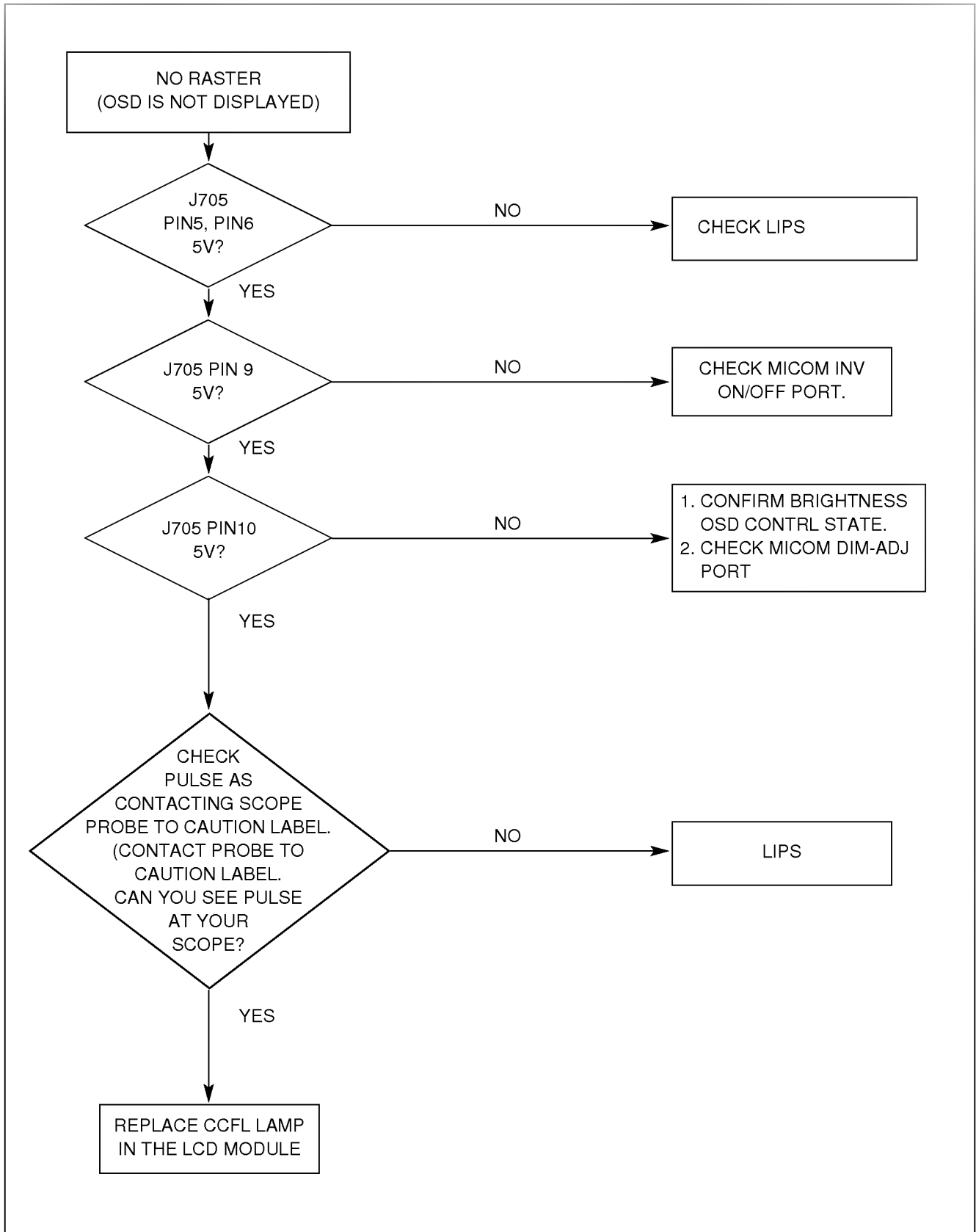
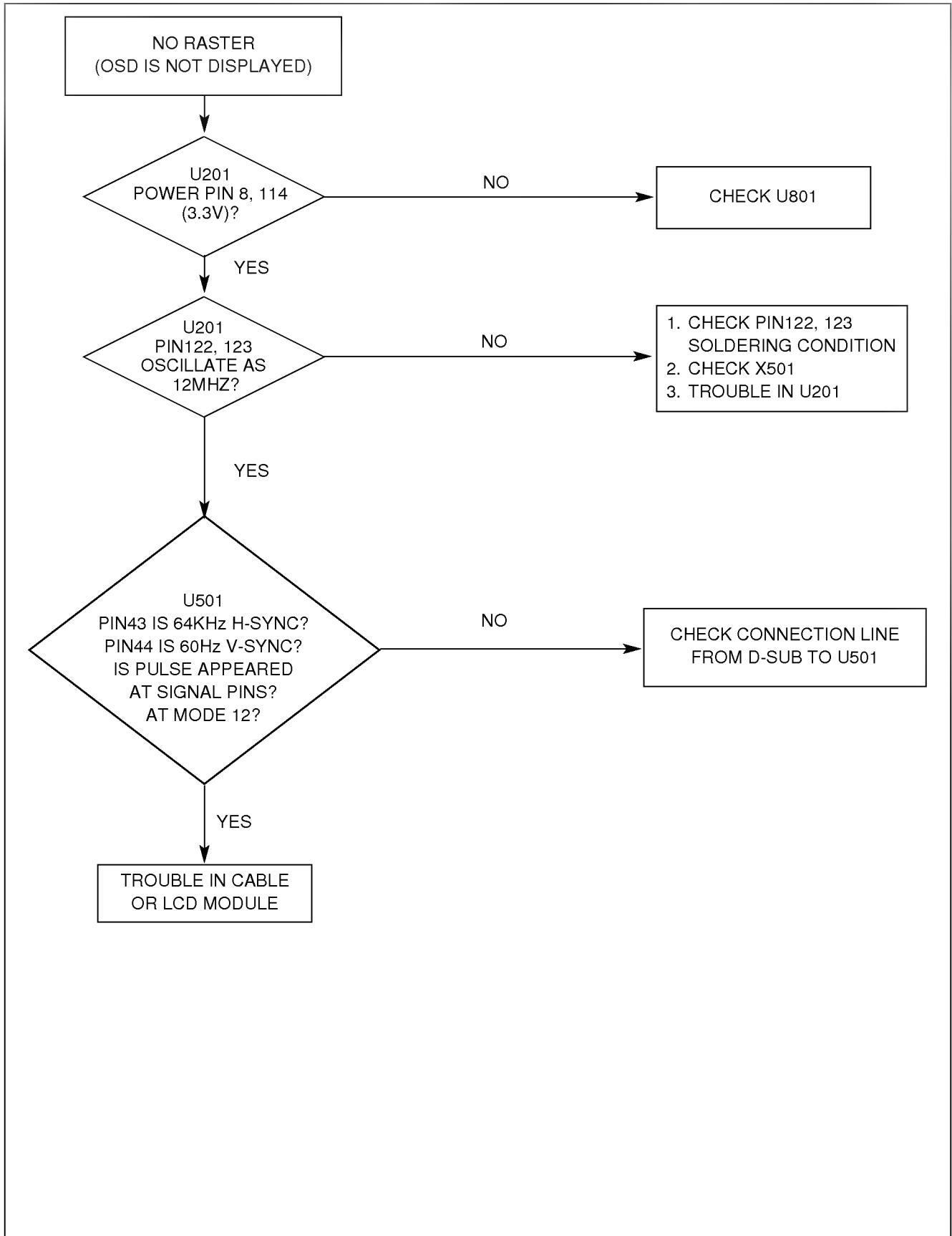


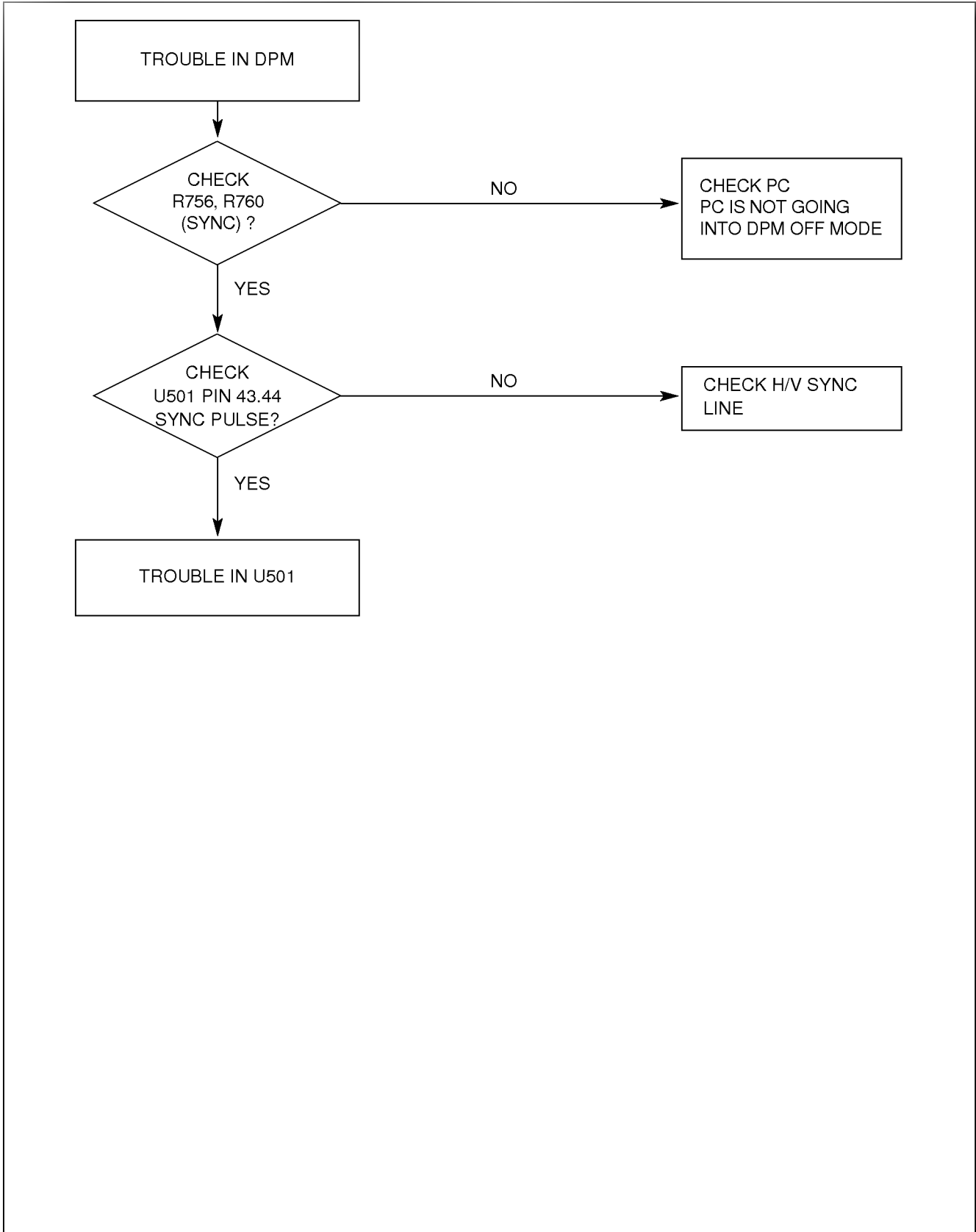
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

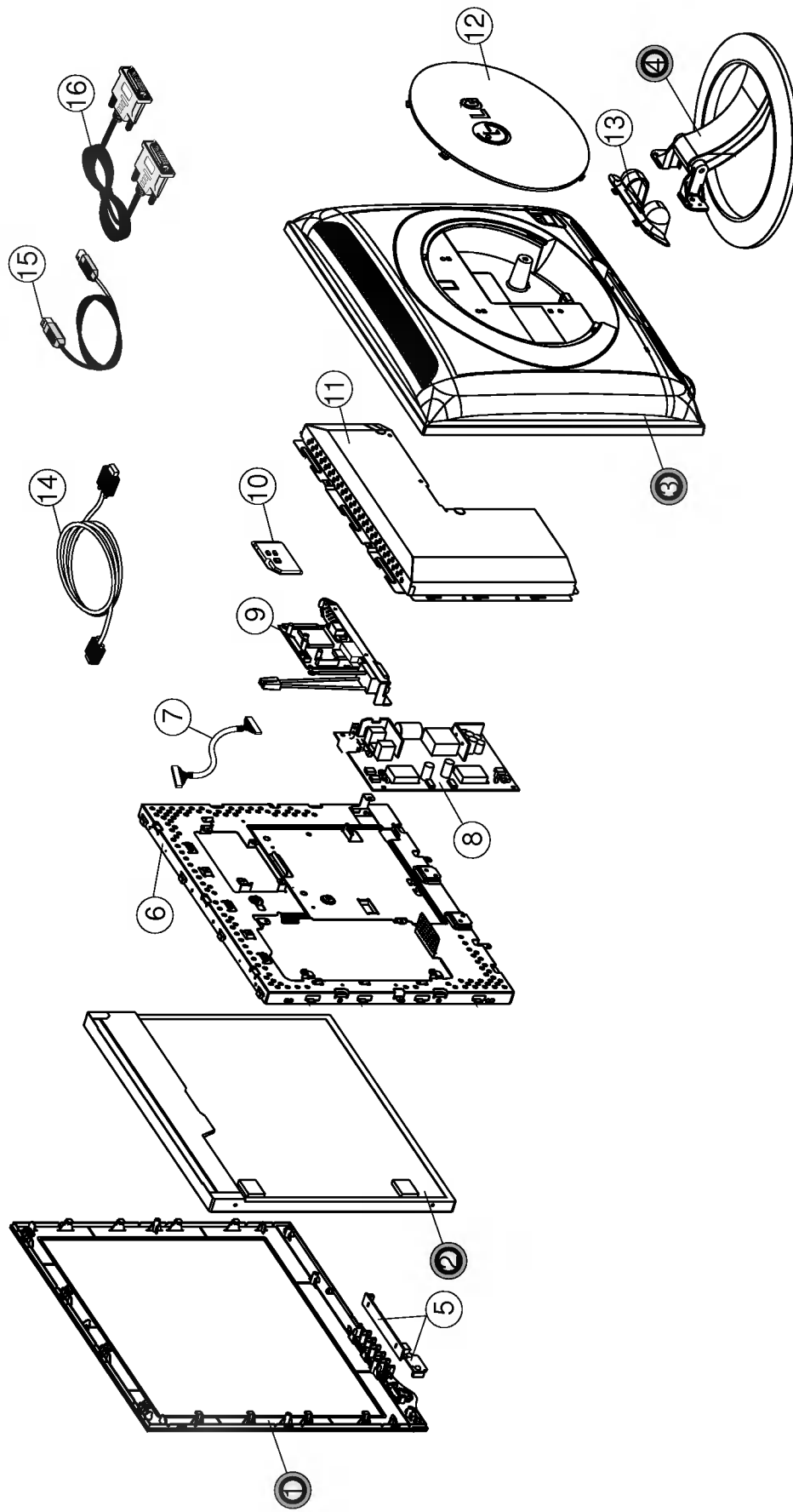








EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL086F	CABINET ASSEMBLY, L1720PL BRAND TKL077 USB/DUAL
2	6304FLP107A	LCD(LIQUID CRYSTAL DISPLAY), LM170E01-B5K1 LG PHILIPS TFT COLOR (LOX73L) 300NIT
3	3809TKL059E	BACK COVER ASSEMBLY, L1720PL TKL062 USB, DUAL
4	3043TKK134E	TILT SWIVEL ASSEMBLY, L1720B/PL . M/BASE-SPRAY_NEW SCREW/RUBBER
5	6871TST430A	PWB(PCB) ASSEMBLY,SUB, L1720BL CONTROL TOTAL BRAND CL-43
6	4951TKS111G	METAL ASSEMBLY, FRAME MAIN L1720PM
7	6631T11012W	CONNECTOR ASSEMBLY, 30P H-H 200MM UL20276 LG708G
8	6871TPT271C	PWB(PCB) ASSEMBLY, POWER, 19"+17" M-CHASSIS POWER TOTAL LIEN CHANG "INTEGRATED LIPS" FOR DOCKING TYPE
9	3313TL7041A	MAIN TOTAL ASSEMBLY, L1720PM BRAND CL-62
	3313TL7041C	MAIN TOTAL ASSEMBLY L1720PM 4 LANGUAGE BRAND CL-62 -For JAPAN
10	6871TUT035A	PWB(PCB) ASSEMBLY, USB, L15,17,1920PL SUB TOTAL BRAND USB
11	4951TKK139A	METAL ASSEMBLY, REAR L1720BL
12	3550TKK398A	COVER, L1720 BACK CAP
13	3550TKK400A	COVER, L1720 HINGE CAP
14	6850TD9004H	CABLE, D-SUB, UL2990-9C(5.8MM) DT 1500MM GLAY 20 MODEL DM
15	6866TDU002D	CABLE, D-SUB, UL20276SB10P+2C AWG#30 DT 1870MM GRAY(85964) BRAND DM
16	6866TDV004R	CABLE, DVI, UL20276(7.5MM) DT 2000MM GRAY(85964) 20 MODEL 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

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITORS				
			C204	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C205	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C206	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C207	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C208	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C209	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C210	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C211	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C213	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C214	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C215	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C216	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C217	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C218	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C219	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C220	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C221	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C222	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C223	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C224	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C225	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C226	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C227	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C230	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C231	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C232	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C233	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C240	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C251	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C501	0CC101CK41A 100PF 1608 50V 5% R/TP NP0
			C502	0CC101CK41A 100PF 1608 50V 5% R/TP NP0
			C503	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C504	0CH8106F611 10UF 16V M 85STD(CYL) R/TP
			C506	0CC030CK01A 3PF 1608 50V 0.25 PF R/TP NP
			C507	0CC180CK41A 18PF 1608 50V 5% R/TP NP0
			C508	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C701	OCK105CD56A 1UF 1608 10V 10% R/TP X7R
			C703	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C707	0CC680CK41A 68PF 1608 50V 5% R/TP NP0
			C708	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C709	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C710	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C711	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C712	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C713	0CC101CK41A 100PF 1608 50V 5% R/TP NP0
			C714	0CC101CK41A 100PF 1608 50V 5% R/TP NP0
			C717	0CC101CK41A 100PF 1608 50V 5% R/TP NP0
			C718	0CC101CK41A 100PF 1608 50V 5% R/TP NP0
			C719	0CC680CK41A 68PF 1608 50V 5% R/TP NP0
			C720	0CC101CK41A 100PF 1608 50V 5% R/TP NP0
			C721	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C722	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
			C723	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C724	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C725	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C726	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C727	OCK105CD56A 1UF 1608 10V 10% R/TP X7R
			C728	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C732	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C733	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C734	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C735	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C737	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C738	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C739	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C740	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C741	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C742	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C743	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C760	0CE107EF610 100UF KMG,RD 16V 20% FL BULK
			C801	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C803	0CE107EF610 100UF KMG,RD 16V 20% FL BULK
			C804	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C805	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C806	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C807	0CE107EF610 100UF KMG,RD 16V 20% FL BULK
			C808	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C809	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
			C810	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C812	0CE107EF610 100UF KMG,RD 16V 20% FL BULK
			C814	0CE107EF610 100UF KMG,RD 16V 20% FL BULK
			C815	OCK104CK56A 0.1UF 1608 50V 10% R/TP X7R
			C816	OCK103CK51A 0.01UF 1608 50V 10% R/TP B(Y)
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
			D707	0DD184009AA KDS184 TP KEC - 85V - - - 30
			D708	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D709	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D710	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D711	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D712	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D713	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D714	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D715	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D719	0DD184009AA KDS184 TP KEC - 85V - - - 30
			D720	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D721	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D722	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D723	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D724	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D725	0DS226009AA KDS226 TP KEC SOT-23 80V 30
			D804	0DD184009AA KDS184 TP KEC - 85V - - - 30

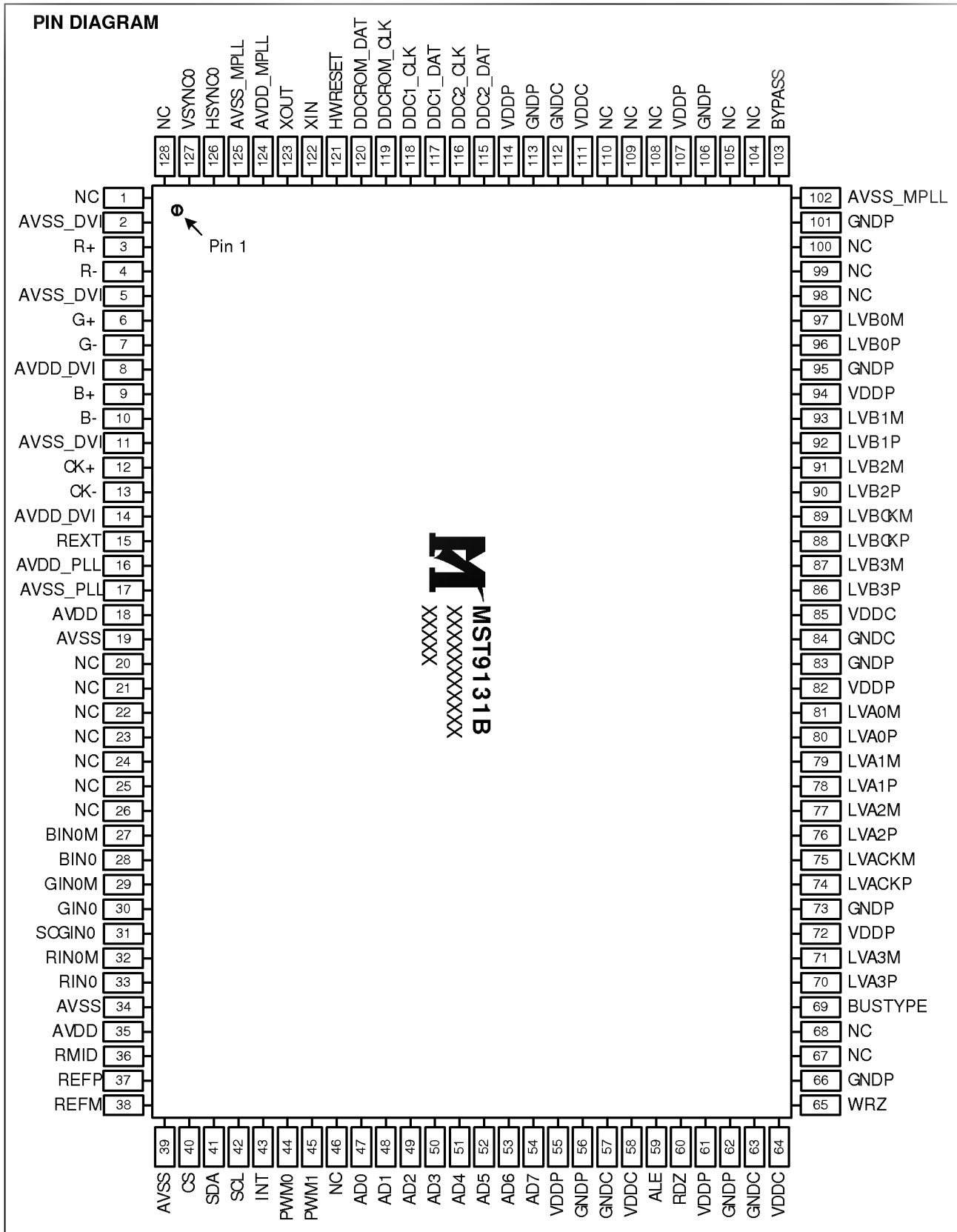
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		D805	0DD184009AA	KDS184 TP KEC - 85V --- 30
		ZD701	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD702	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD703	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD704	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD705	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD706	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD709	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD711	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD712	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
ICs				
		U201	0IPRPM3011B	MST9131B(DUAL) MSTAR 128P,LQ
		U501	0IZZTSZ357A	MYSON 44P PLCC ST OTP L1720P
		U501	0IZZTSZ357B	MYSON 44P PLCC ST OTP -For Japan
		U502	0ISG240860B	M24C08W6 SGS-THOMSON 8SOP R/
		U703	0IMMRSG036A	M24C02-WMN6T SGS-THOMSON 8P,
		U801	0IPMGKE011A	KIA78D33F KEC DPAK R/TP 3.3V
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
		Q706	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q707	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q801	0TR127309AA	KTA1273-Y(KTA966A) TP KEC TO
		Q802	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
RESISTORS				
		R201	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R202	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R203	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R207	0RJ3900D677	390 OHM 1/10 W 5% 1608 R/TP
		R208	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R209	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R210	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R216	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R217	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R220	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R240	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R501	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP -For Japan
		R506	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R508	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R512	0RJ2000D677	200 OHM 1/10 W 5% 1608 R/TP
		R512	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP -For Japan
		R513	0RJ2000D677	200 OHM 1/10 W 5% 1608 R/TP
		R513	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP -For Japan
		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
		R519	0RJ1000D677	100 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

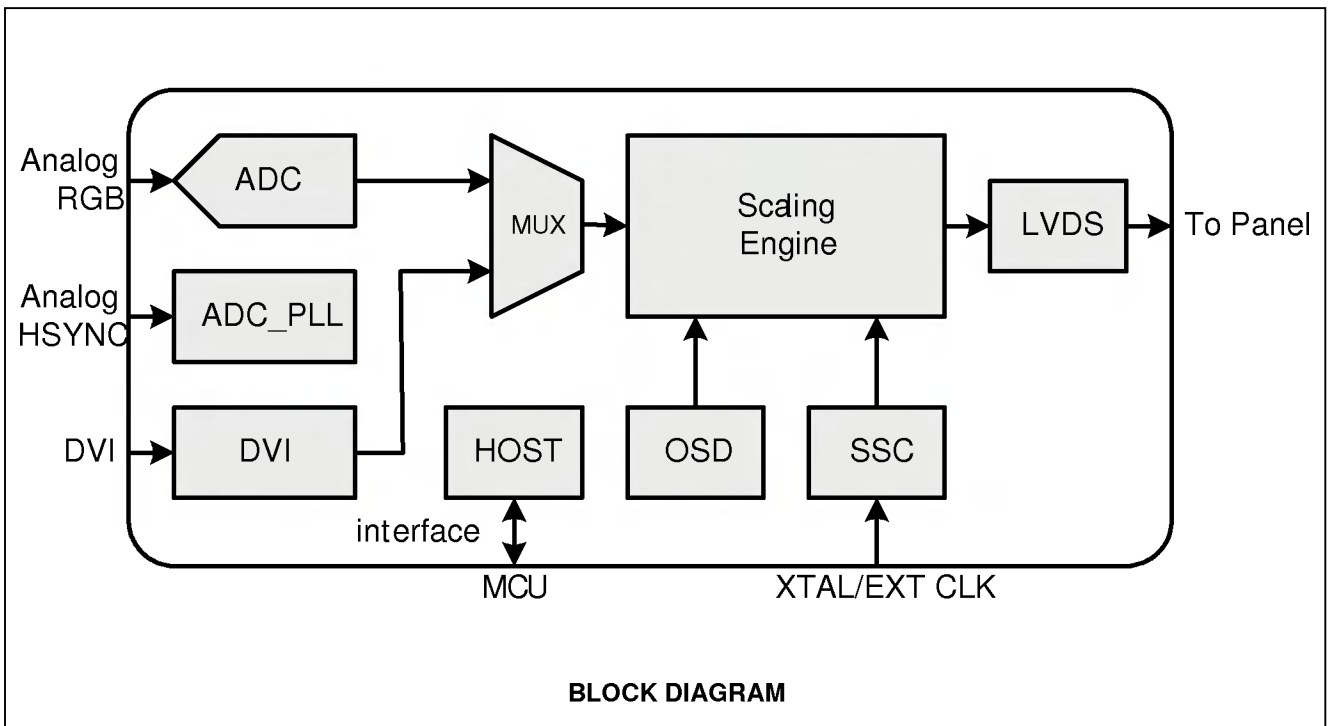
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R524	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R525	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R526	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R527	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R528	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R529	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R530	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R531	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R532	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R534	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		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
		R546	0RJ4701D677	4.7K 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
		R556	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R557	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R560	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R561	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R562	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R563	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R564	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R702	0RJ2001D677	2K OHM 1/10 W 5% 1608 R/TP
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R704	0RJ2001D677	2K 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	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R709	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP -For Japan
		R712	0RJ0102D677	10 OHM 1/10 W 5% 1608 R/TP
		R713	0RJ0102D677	10 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
		R720	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R722	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R723	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R724	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R725	0RJ4701D677	4.7K 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	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R729	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R730	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R731	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R737	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP -For Japan
		R744	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R745	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R747	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R748	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R755	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R756	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R759	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R760	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R762	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R763	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R764	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R765	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R766	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R769	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R772	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R773	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R774	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R775	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R776	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R777	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R778	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R803	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R804	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R805	0RJ3900D677	390 OHM 1/10 W 5% 1608 R/TP
		R806	0RJ3900D677	390 OHM 1/10 W 5% 1608 R/TP
		R807	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R808	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R810	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R818	0RJ3900D677	390 OHM 1/10 W 5% 1608 R/TP
		R819	0RJ3900D677	390 OHM 1/10 W 5% 1608 R/TP
		R820	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R821	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R822	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
OTHERs				
		X501	6212AA2004A	HC-49U TXC 12.0MHZ +/- 30 PP
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	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		R4	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		R5	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R6	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R7	0RJ9101D677	9.1K 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

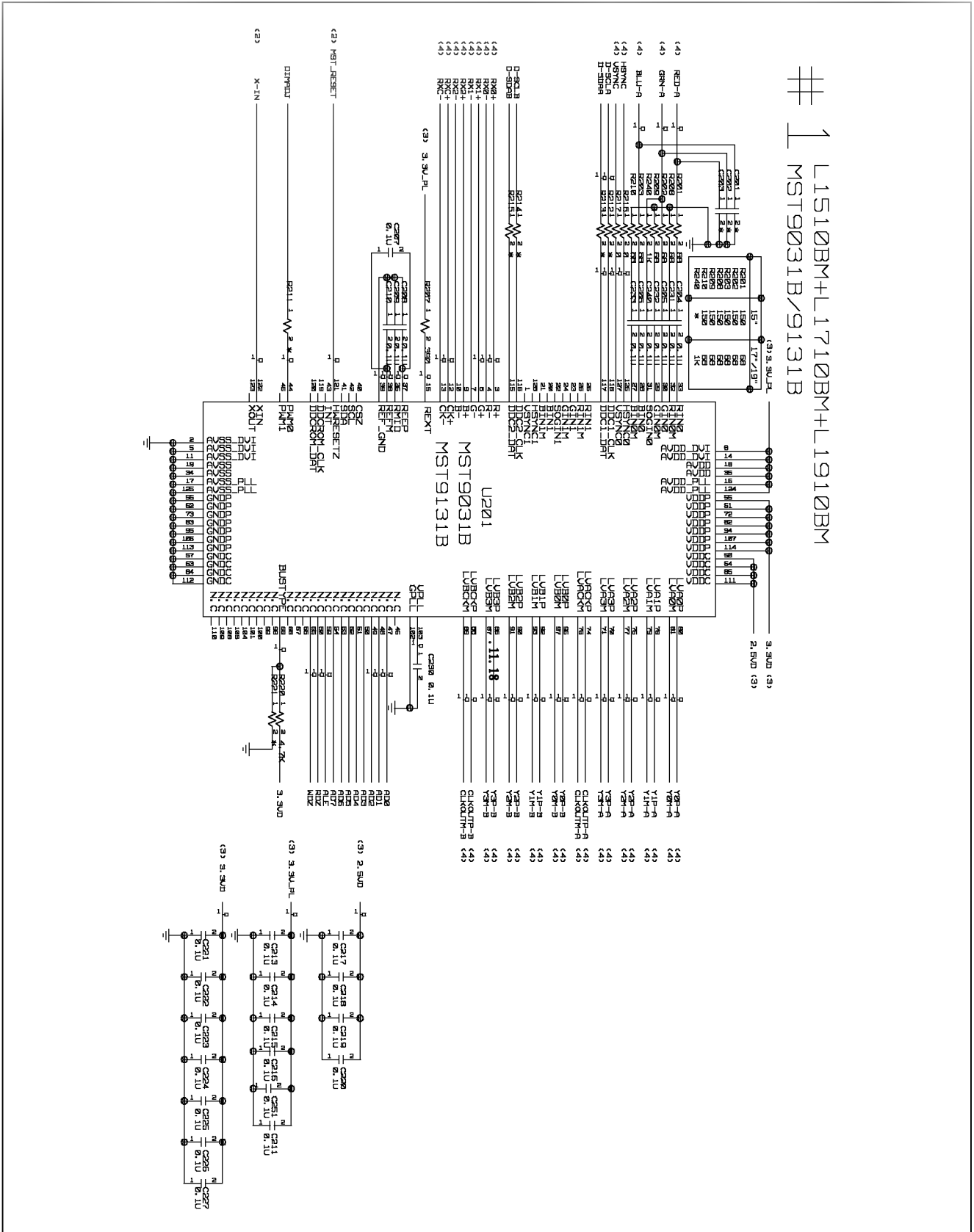
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C820	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C821	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C822	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C823	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C831	0CH6470K416	47PF 50V 5% NP0 2012 R/TP
		C832	0CH6470K416	47PF 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
		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

PIN CONFIGURATION

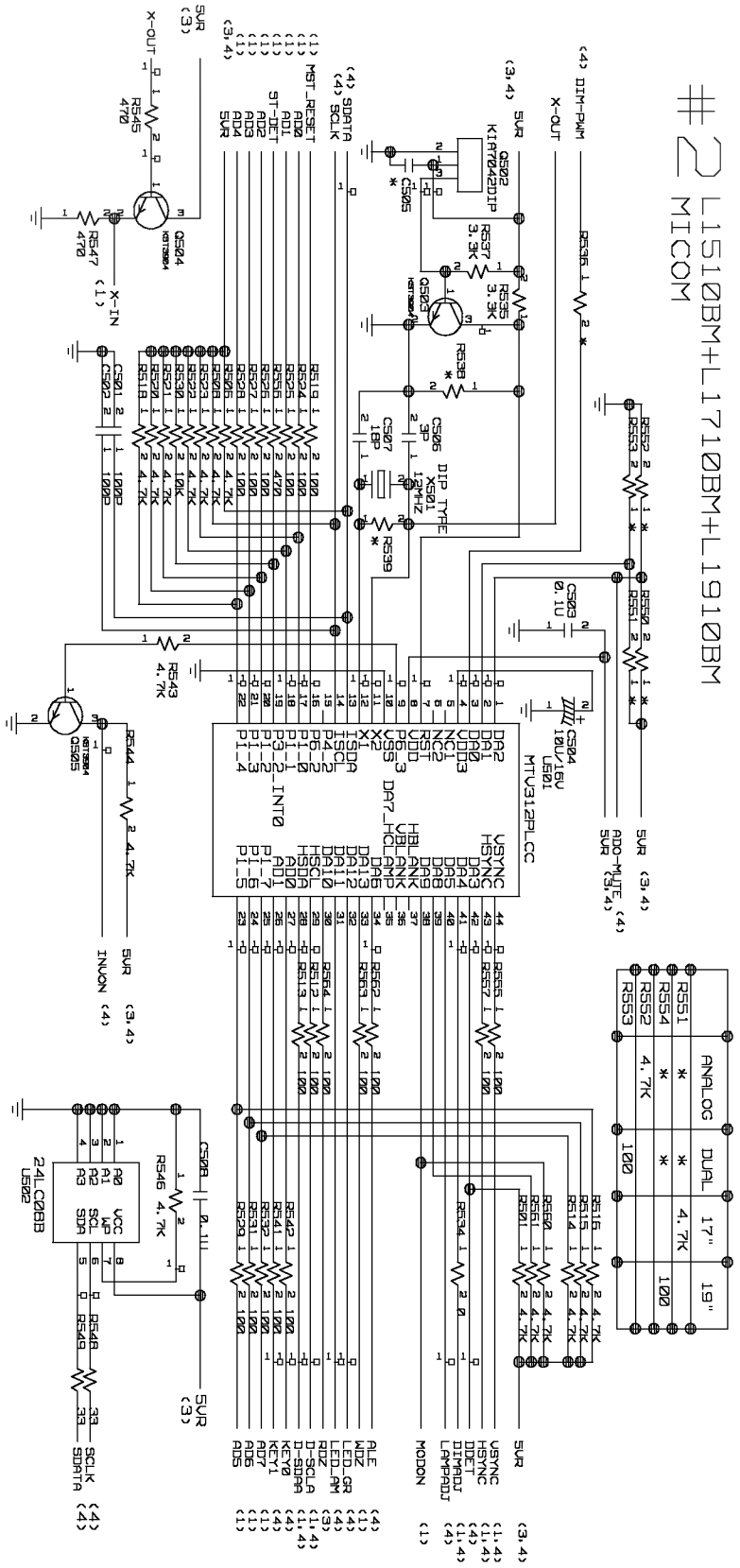




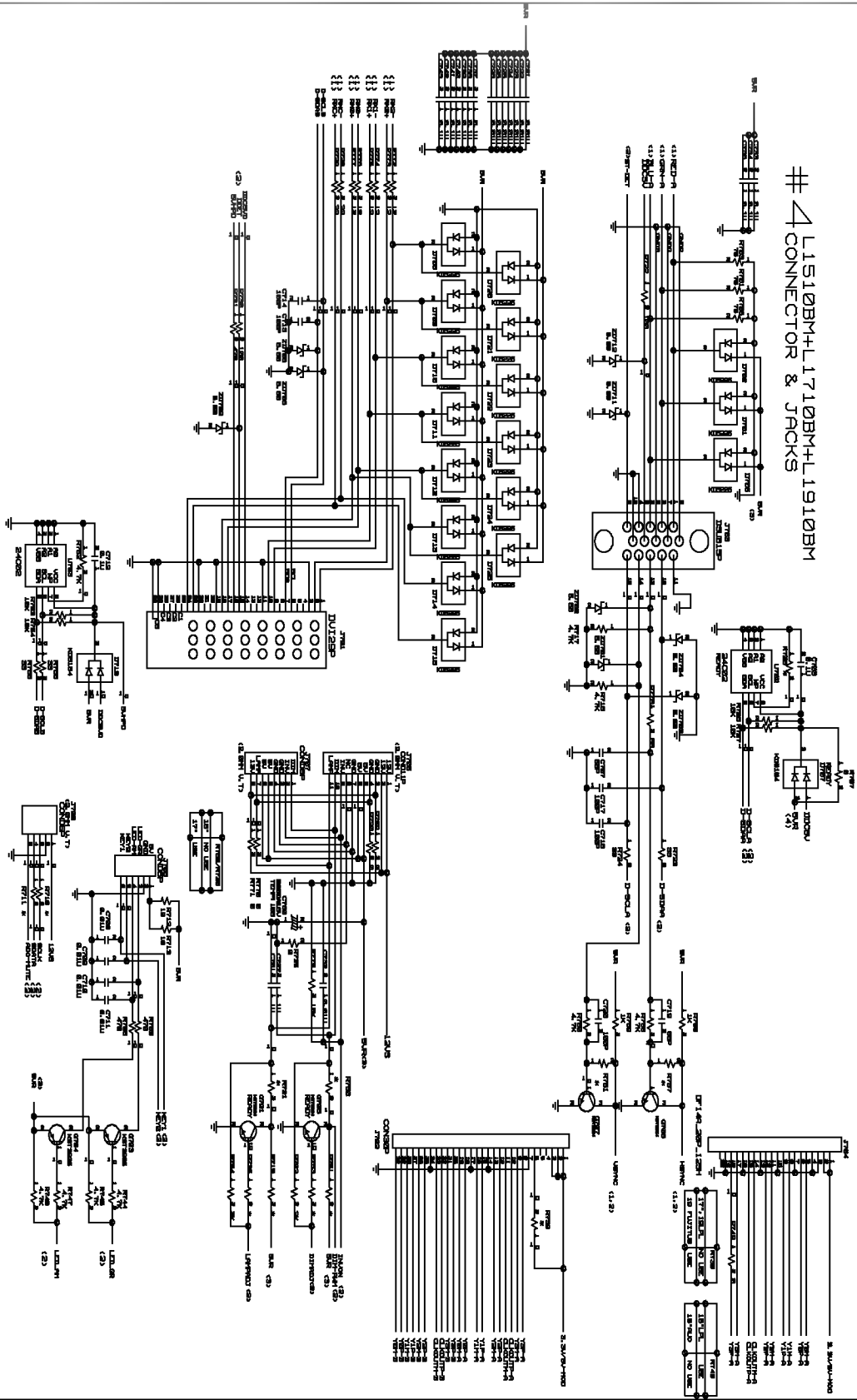
SCHEMATIC DIAGRAM



#2 LIS10BM+L1710BM+L1910BM MICOM



4 L1510BM+L1710BM+L1910BM CONNECTOR & JACKS



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