

COLOR MONITOR SERVICE MANUAL

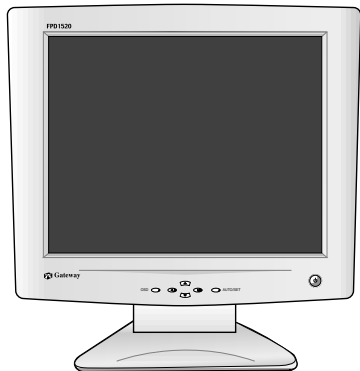
CHASSIS NO. : CL-18

FACTORY MODEL: LG56AL

MODEL: FPD1520

CAUTION

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



To apply the **LG Philips Module**.

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SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT Color LCD Module
Size	: 352.0(H) x 263.5(V) x 14.0(T)
Pixel Pitch	: 0.300mm x 0.300mm
Color Depth	: 16,2M colors
Active Video Area	: 15.1inch (307.2mm x 230.4mm diagonal)
Surface Treatment	: Anti-Glare, Hard Coating (3H)
Backlight Unit	: Two-CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10

Left	: 60° min.
Right	: 60° min.
Top	: 45° min.
Bottom	: 45° min.

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

2-3. Contrast Ratio : 200(min.), 300(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 : 0~0.714 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	: 31 ~ 61kHz
Vertical	: 56 ~ 75Hz

4. POWER SUPPLY

4-1. Power Adaptor

Input	: AC 100~240V, 50/60Hz 1.2A
Output	: DC 12V $\overline{\text{---}}$ 3.0A

4-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 35 W	GREEN
STAND-BY	OFF/ON	OFF	less than 5 W	AMBER
SUSPEND	ON/OFF	OFF	less than 5 W	AMBER
DPM OFF	OFF/OFF	OFF	less than 5 W	AMBER
POWER OFF	-	-	less than 5 W	OFF

5. ENVIRONMENT

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

5-2. Relative Humidity : 10%~80%
(Non-condensing)

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

6. DIMENSIONS (with TILT/SWIVEL)

Width	: 389mm (15.3")
Depth	: 205mm (8.1")
Height	: 392mm (15.4")

7. WEIGHT (with TILT/SWIVEL)

Net. Weight	: 4.7kg (10.36 lbs)
Gross Weight	: 6.9kg (15.21 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 GateWay. 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.

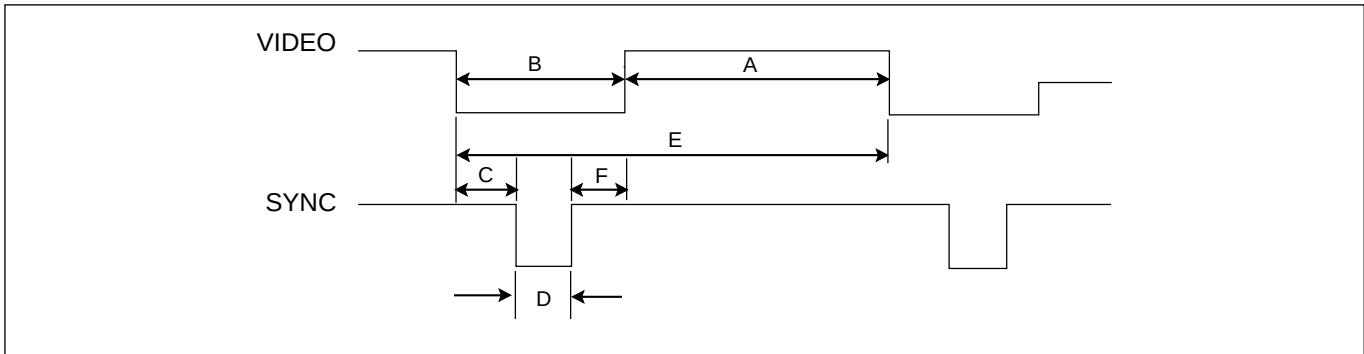
TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- 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

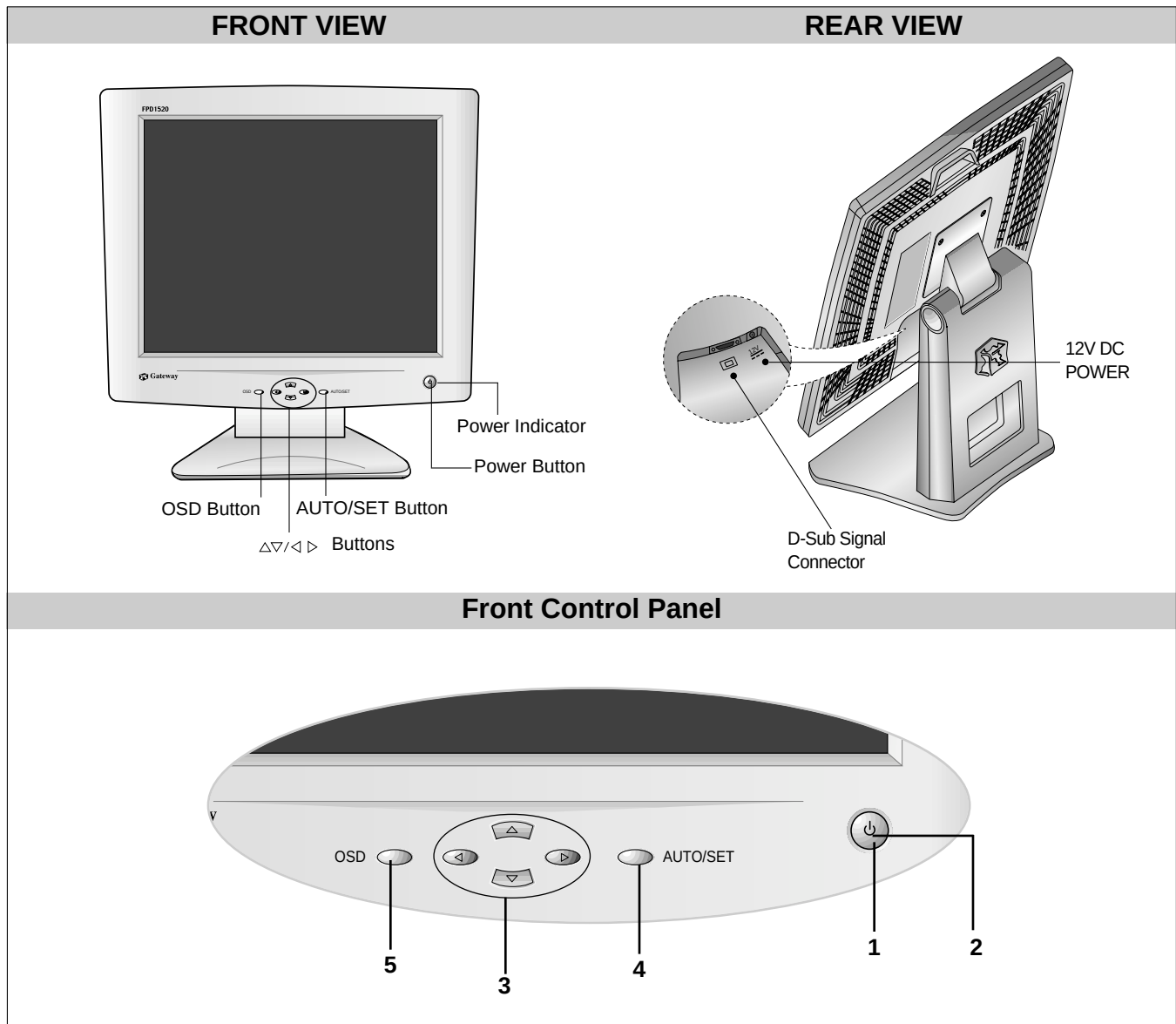
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

TIMING CHART



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	35.0 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	37.681 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 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	

OPERATING INSTRUCTIONS



1. Power ON/OFF Button

Use this button to turn the monitor on or off.

2. Power Indicator

This indicator lights up green when the monitor operates normally; in DPMS (Energy Saving) mode, - stand-by, suspend, or power off mode - its color changes to amber.

3. $\Delta \nabla / \triangle \triangleright$ Button

Use these buttons to choose or adjust items in the on screen display.

4. AUTO/SET Button

Use this button to enter a selection in the on screen display.

* AUTO adjustment function

Touch the **AUTO/SET** button before using OSD menu. This button is for the automatic adjustment of the screen position, clock and phase.

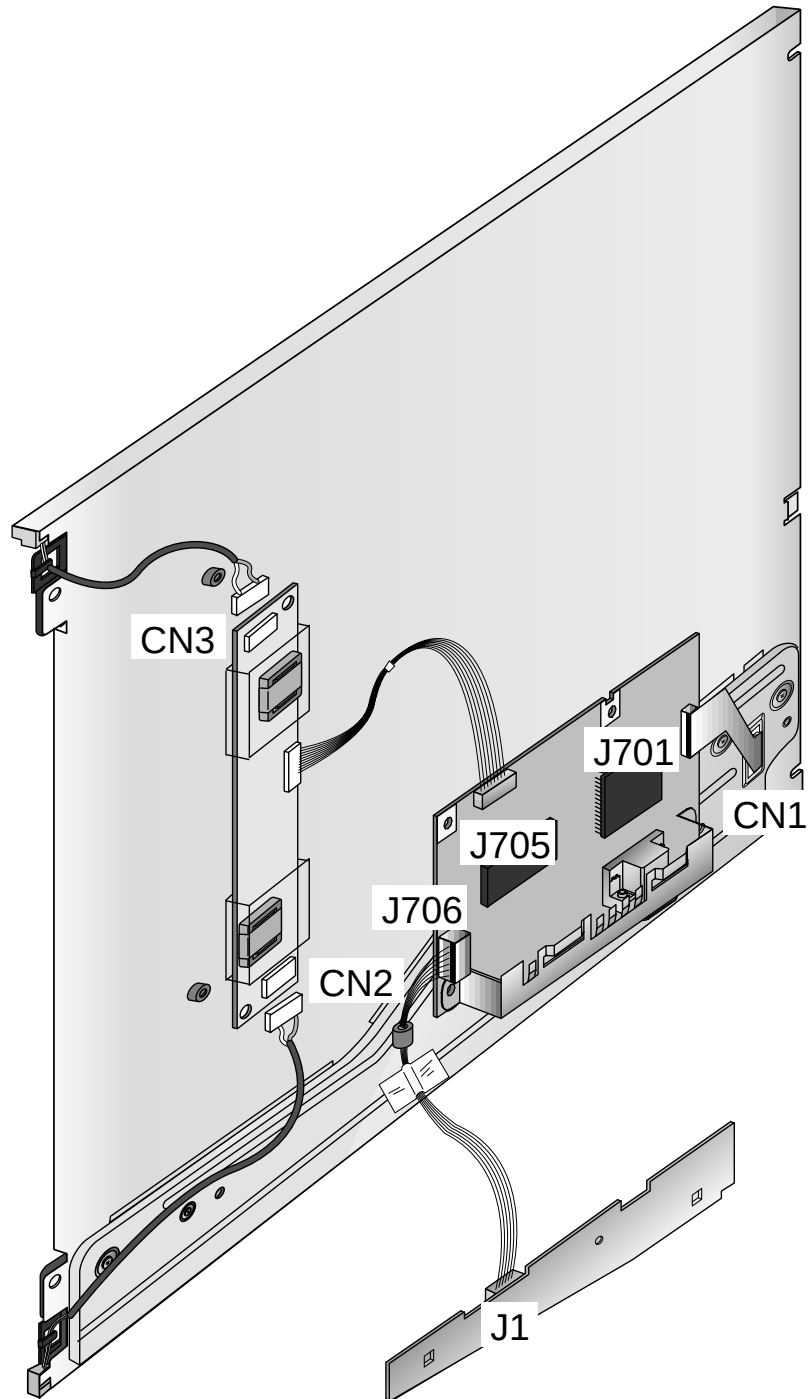
Note: Some signal from some graphics boards may not function properly. **If the results are unsatisfactory**, adjust your monitor's Position, Clock and Phase manually.

5. OSD Button

Use this button to enter or exit the on screen display.



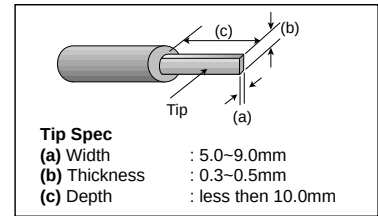
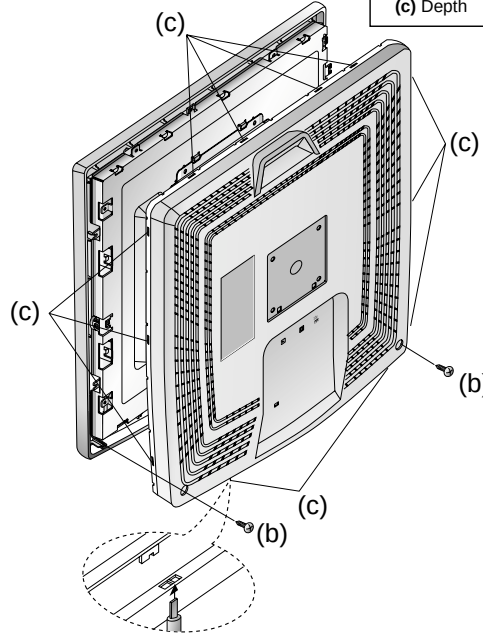
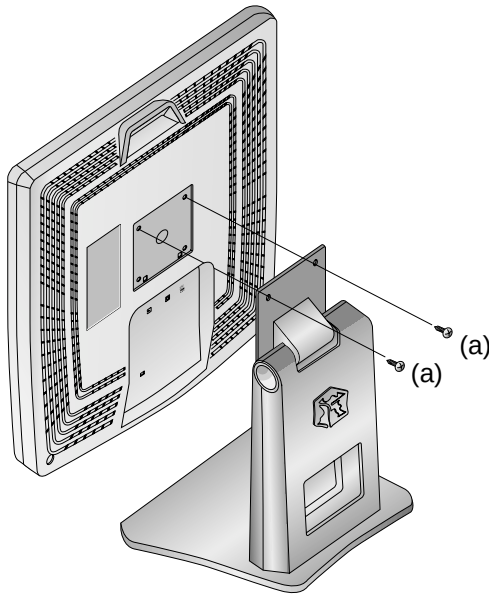
WIRING DIAGRAM



DISASSEMBLY

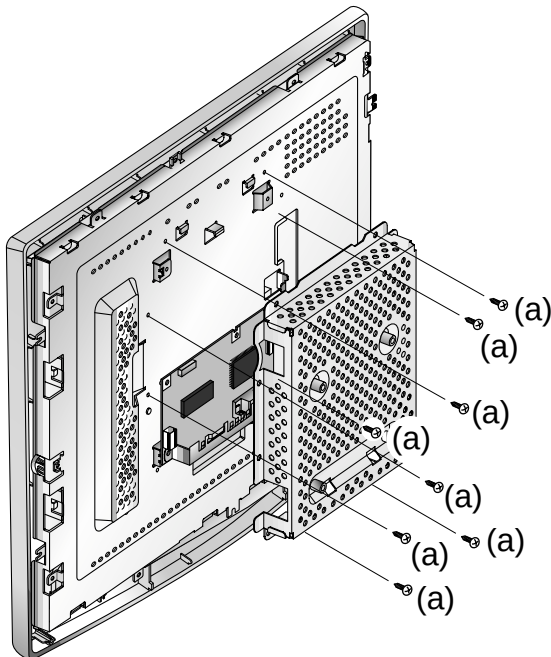
1. TILT/SWIVEL & BACK COVER REMOVAL

- (1) Remove two screws (a).
- (2) Remove the Tilt/swivel.
- (3) Remove two screws (b) from the Back Cover.
- (4) Release twelve latches (c).
- (5) Remove the Back Cover from the Bottom Side.



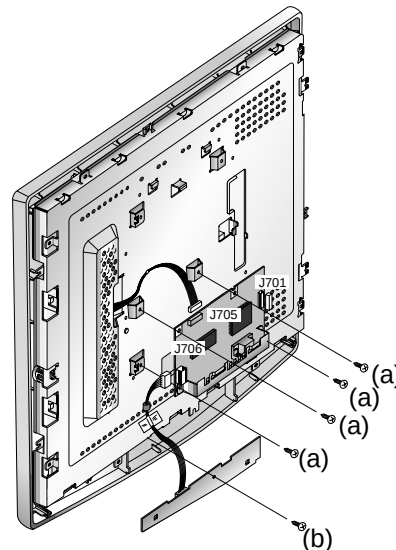
2. METAL REAR ASSEMBLY REMOVAL

- (1) Remove eight screws (a).
- (2) Remove the Metal rear Ass'y.



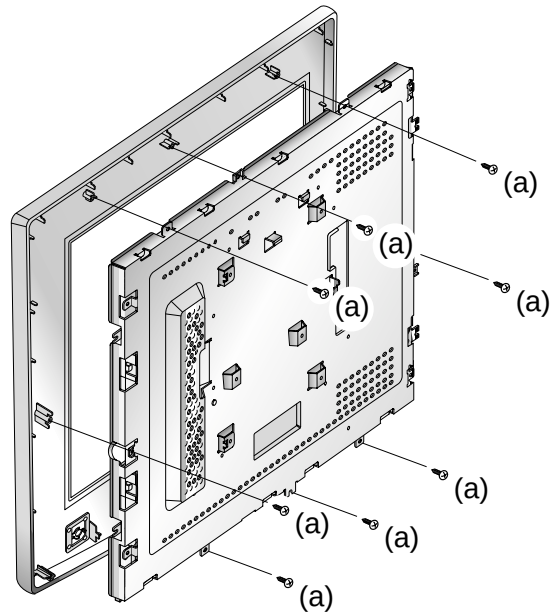
3. CONTROL, MAIN PCB ASSEMBLY REMOVAL

- (1) Disconnect J701, J706 and J705.
- (2) Remove four screws (a).
- (3) Remove the Main PCB Ass'y.
- (4) Remove the screw (b).
- (5) Remove the Control PCB Ass'y.



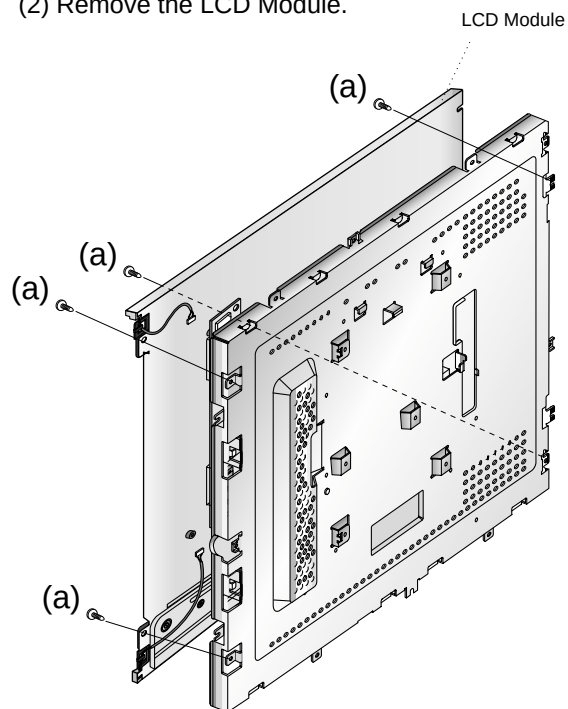
4. MAIN FRAME ASSEMBLY REMOVAL(LG56AL)

- (1) Remove eight screws (a).
- (2) Remove Main Frame Ass'y



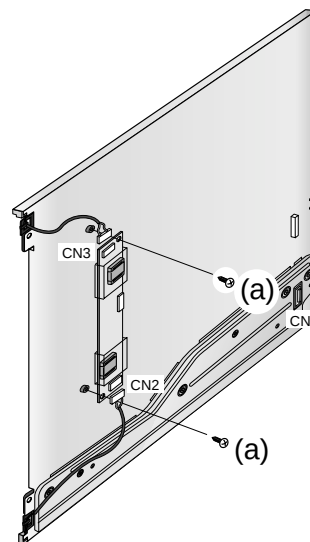
5. LCD MODULE REMOVAL

- (1) Remove four screws (a).
- (2) Remove the LCD Module.

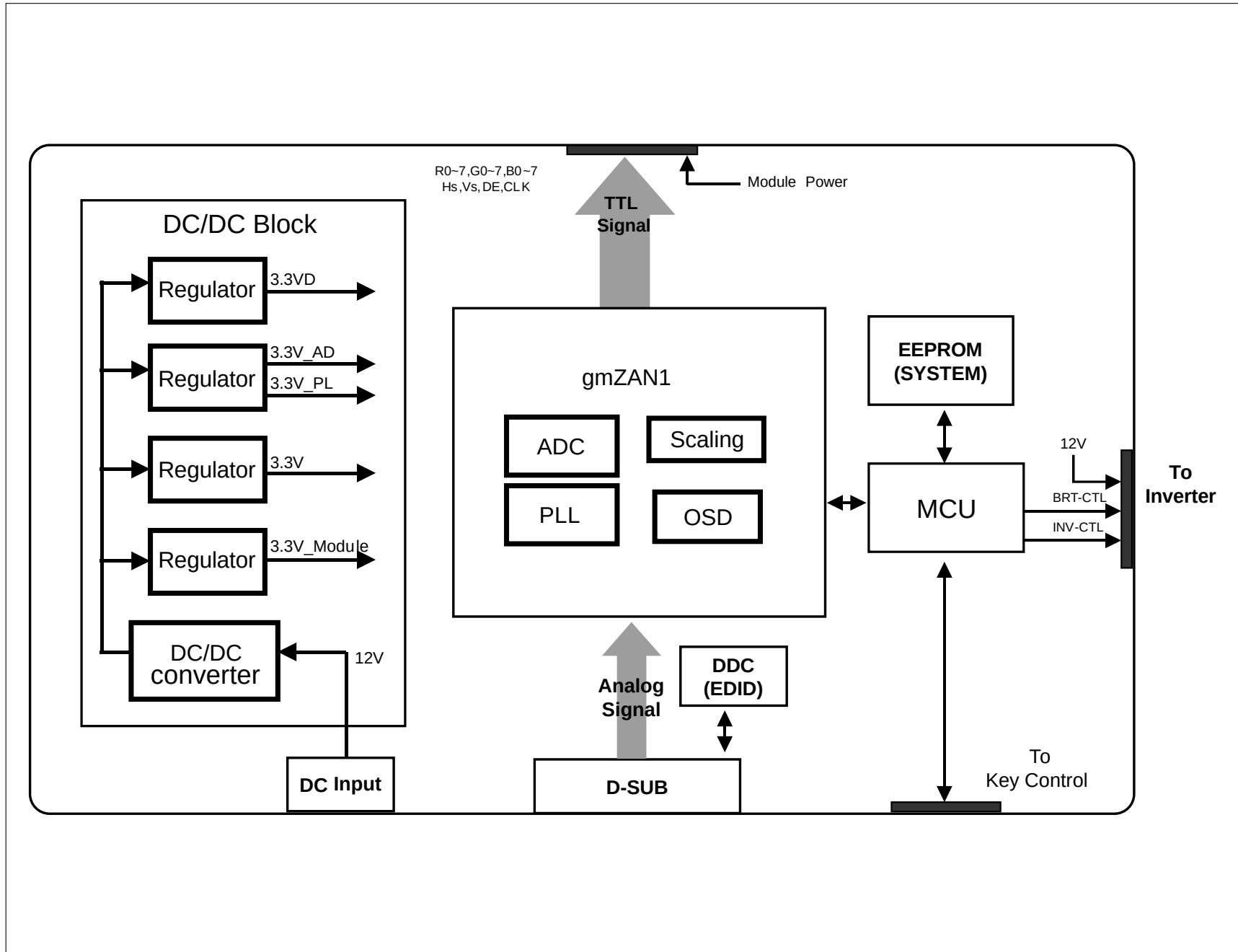


6. INVERTER REMOVAL

- (1) Disconnect CN2, CN3.
- (2) Remove two screws (a).
- (3) Remove the INVERTER.



BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Input signal switching part.

There is one input which is analog.
It comes from 15 pin D-Sub connector.

2. Pre-amp/ ADC / PLL / Video Controller.

This part amplifies the level of video signal 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 78.75MHz.

The Scaler gets the video signal converted analog to digital, interpolates input to 1024 X 768 resolution signal and outputs 8-bit R, G, B signal to LCD module.

Especially pre-amp / ADC / Video controller are merged to one chip 'gmZAN1' by Genesis.

3. Power Part.

This part consists of the DC/DC converter and two 3.3V and one 2.5 regulators .

The DC/DC converter converts 12V to be entered power adapter to 5V.

5V, output of DC/DC converter, is supplied to the Micom and 3.3V/2.5V regulators.

The output voltage of 3.3V / 2.5V regulators flow to IC of each part.

4. 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.

5. Inverter

The inverter converts from DC12V to AC 700V and operate back-light lamp of module.

ADJUSTMENT

All adjustment are thoroughly checked and corrected when the monitor leaves the factory, but sometimes several minor adjustment may be required.

Adjustment should be following procedure and after warming up for a minimum of 10 minutes.

Alignment appliances and tools.

- IBM Compatible PC
- Programmable Signal Generator.
(eg. VG-819 made by Astrodesign Co.)
- E(E)PROM with each mode data saved.
- Alignment Adapter and Software.

1. Adjustment for Factory Preset Mode

- 1) Run alignment program for FPD1520 on the IBM compatible PC.
- 2) Select EEPROM All Init. command and Enter.
- 3) Display cross hatch pattern at Mode 1.
- 4) Select COMMAND PRESET START command.
- 5) Select EDID WRITE command and Enter.

2. Adjustment for White Balance

- 1) Display color 0,0 pattern at Mode 13.
- 2) Set External Bright to MAX position and Contrast to MAX Position.
- 3) Select PRESET START → BIAS CAL command and Enter.
- 4) No attempt to manually adjust, BIAS data is automatically adjusted and saved to the EEPROM.
- 5) Display color 15,0 pattern at Mode 13.
- 6) Select DRIVE CAL command and Enter.
- 7) Color 1 (9300K) and Color 2 (6500K) are automatically adjusted and saved to the EEPROM.
- 8) Select PRESET EXIT command and Enter.

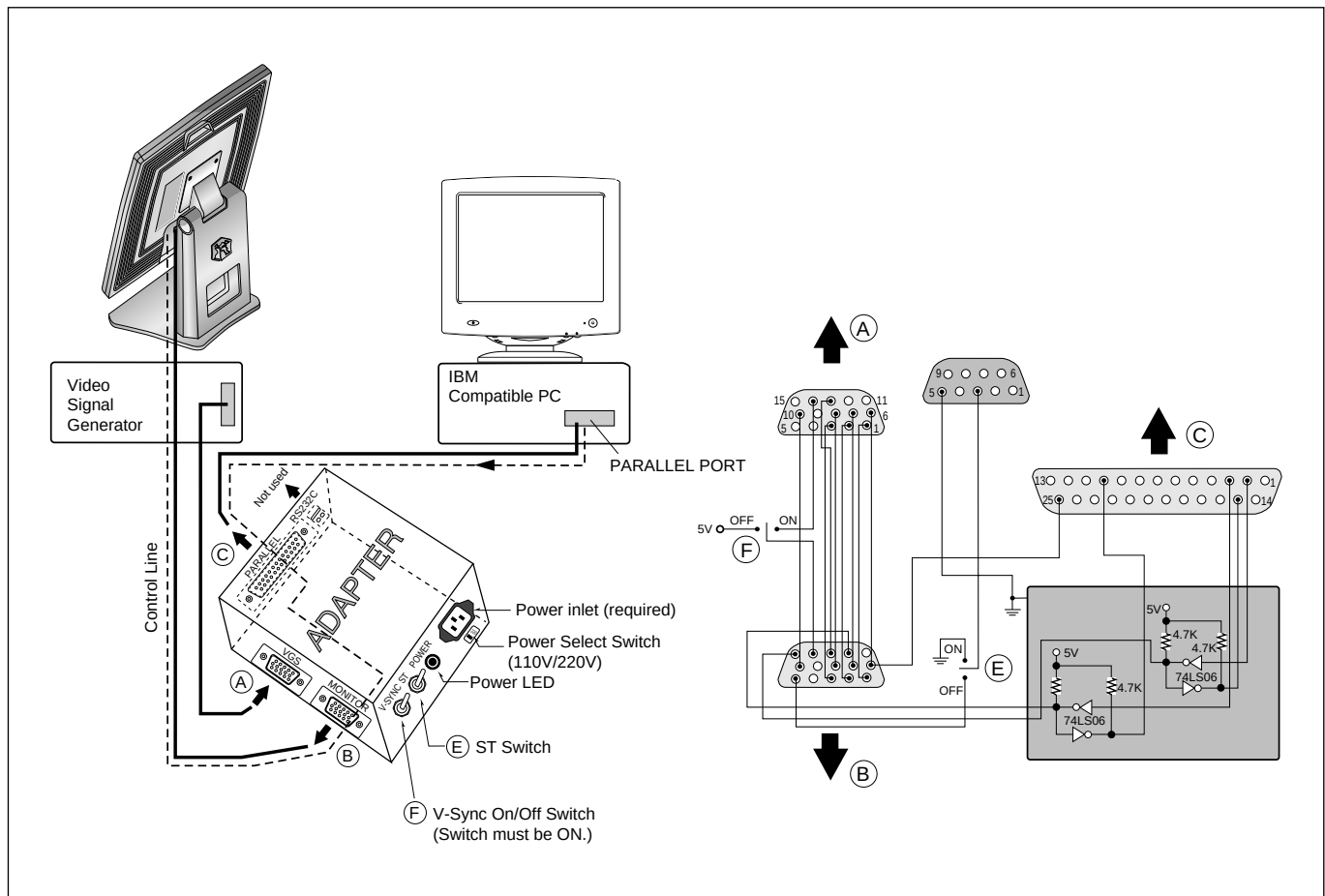
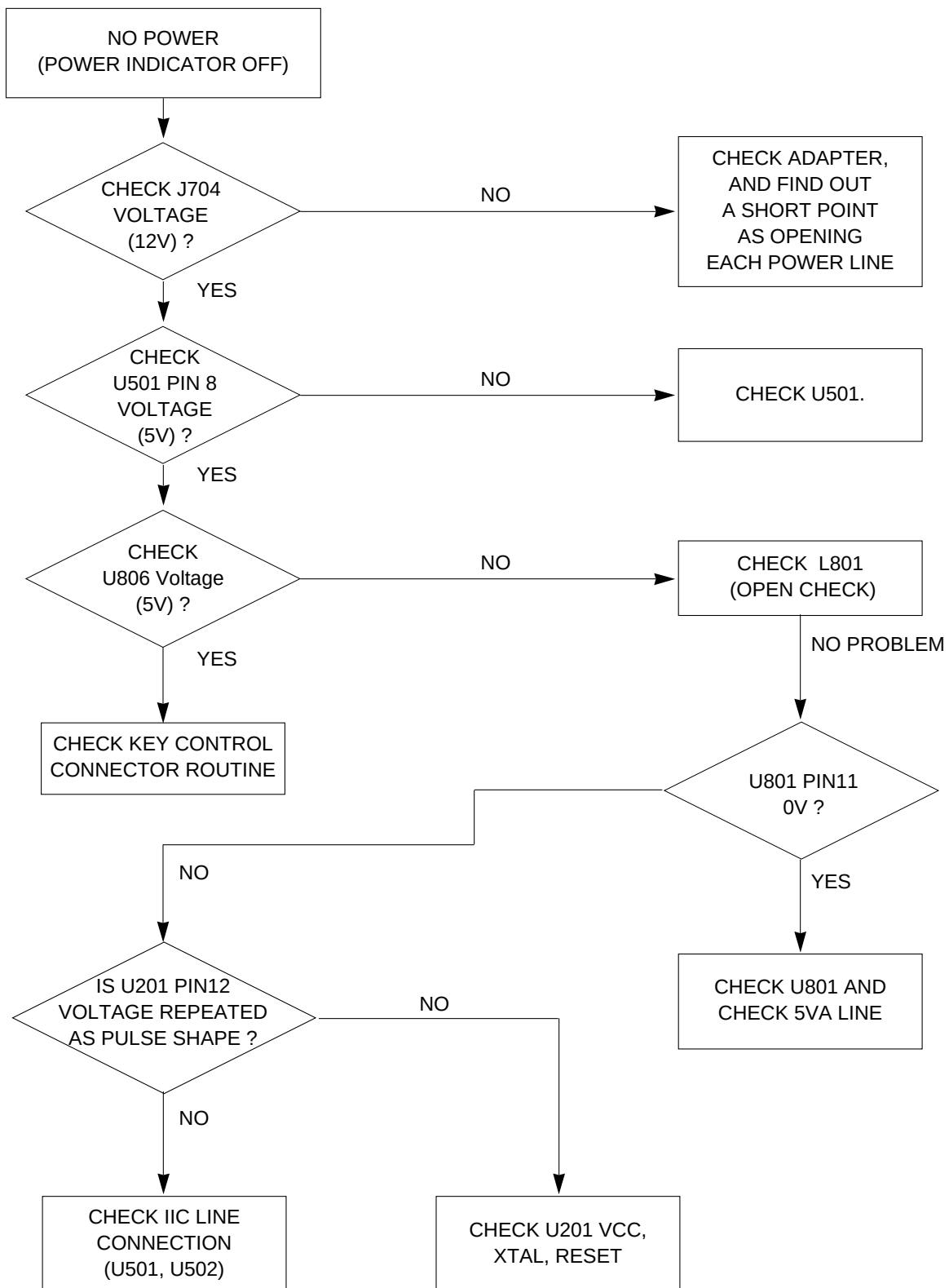


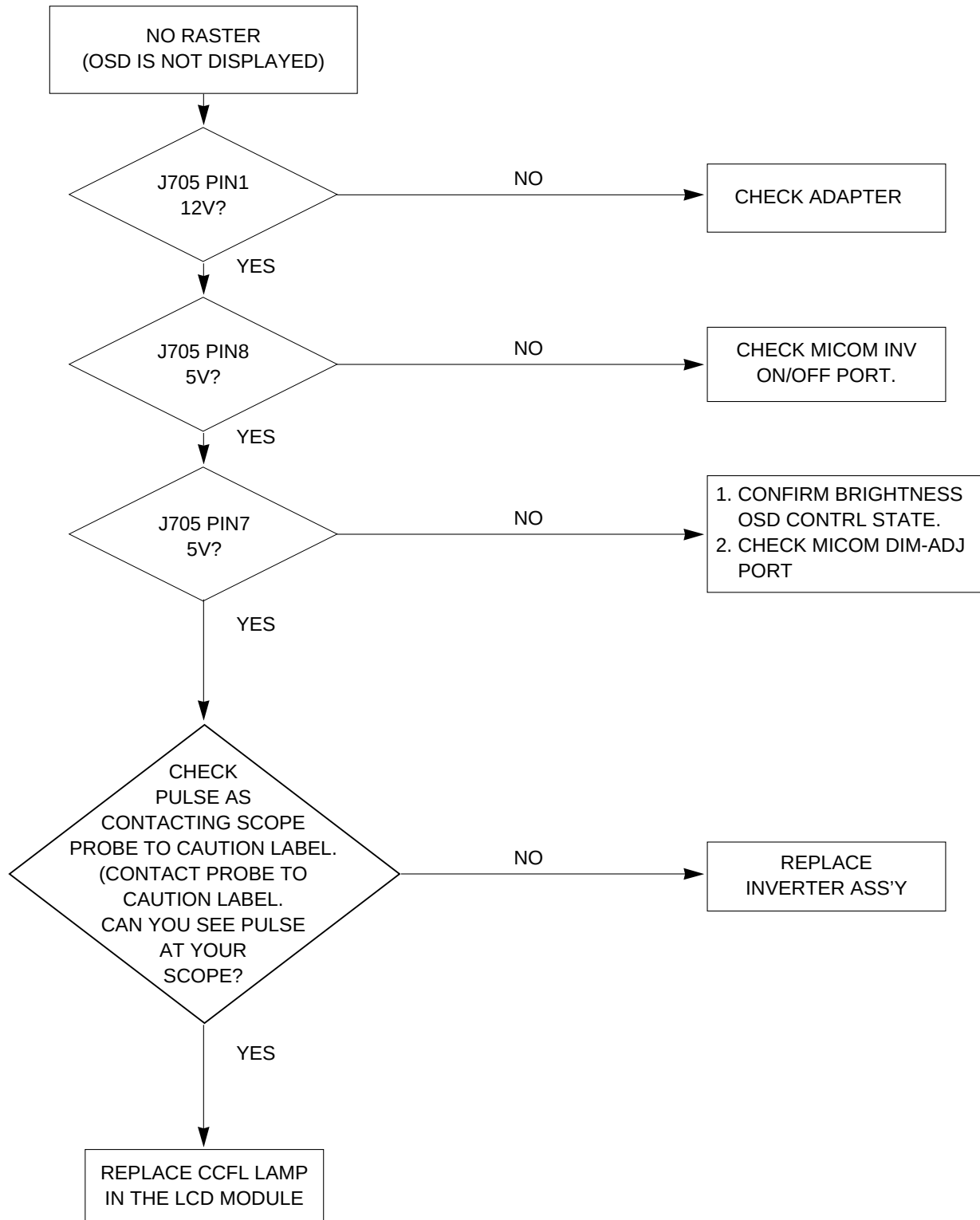
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

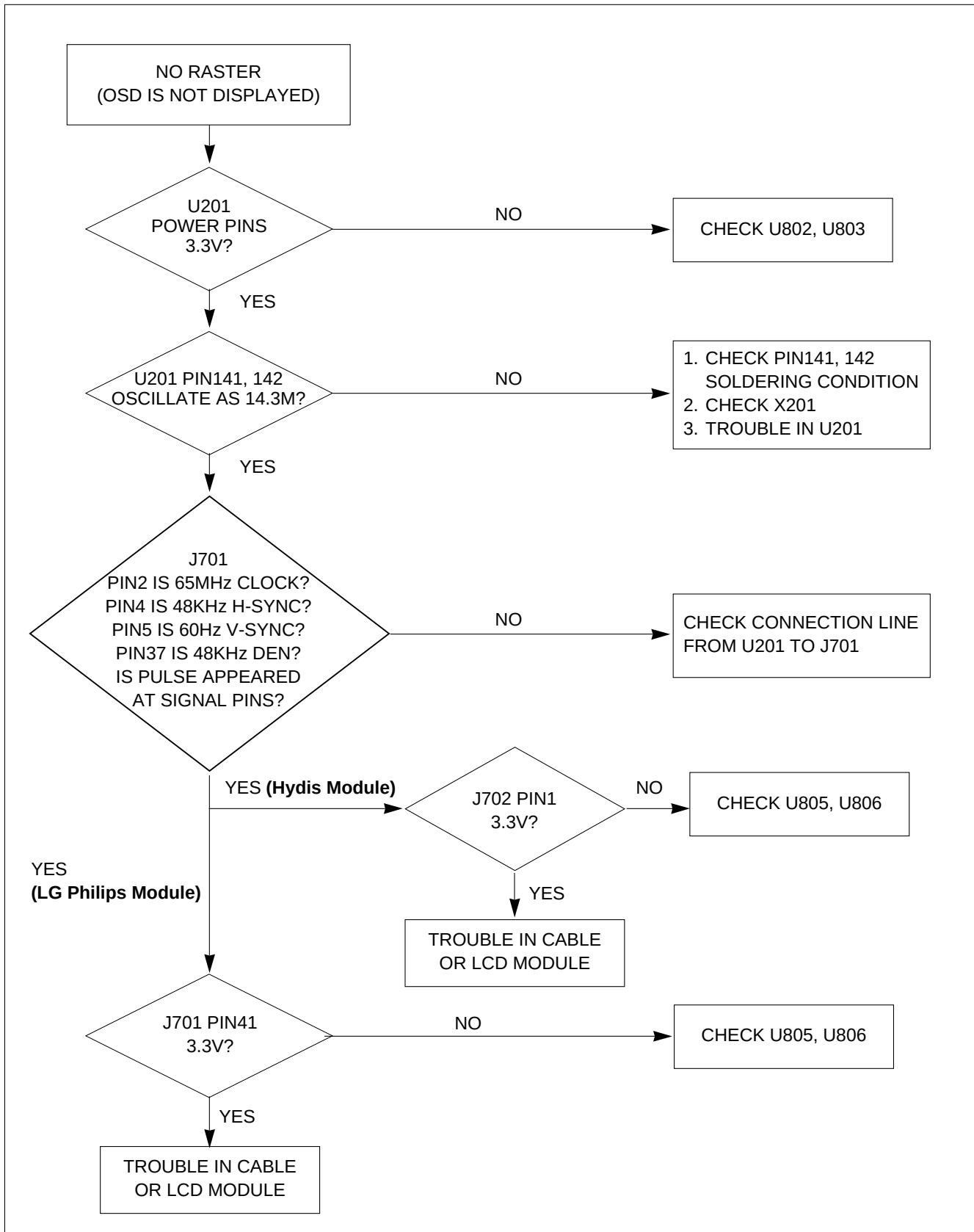
1. NO POWER



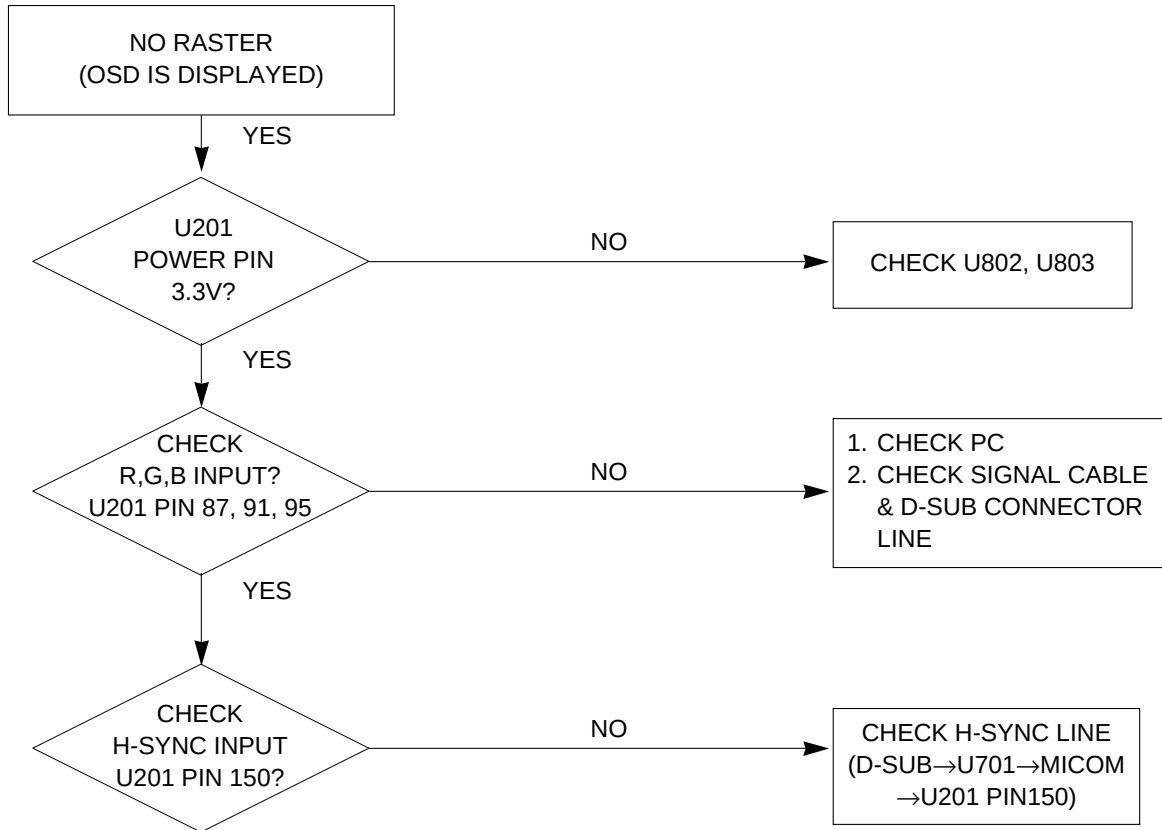
2. NO RASTER (OSD IS NOT DISPLAYED) – INVERTER



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

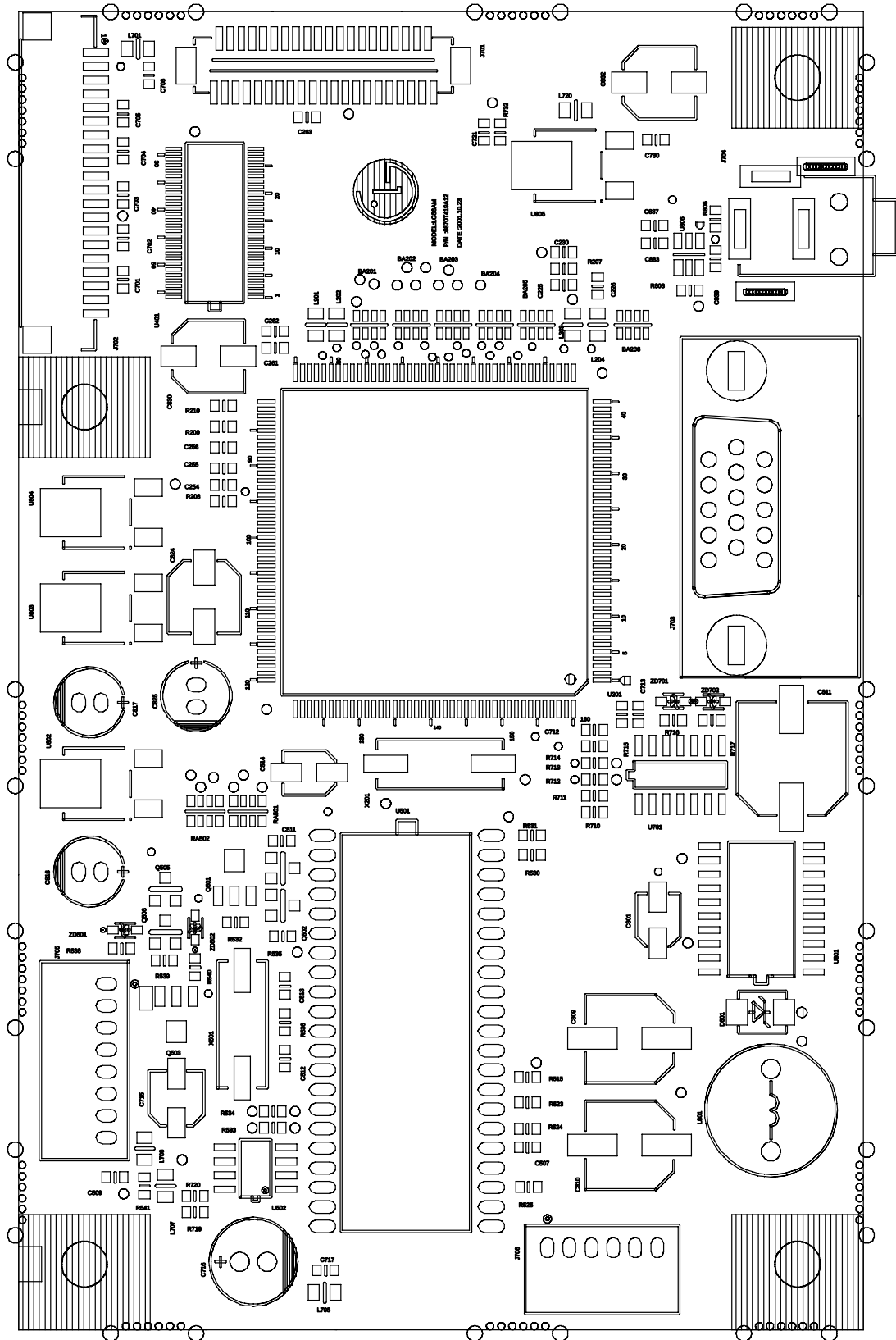


4. NO RASTER (OSD IS DISPLAYED) – gmzanl

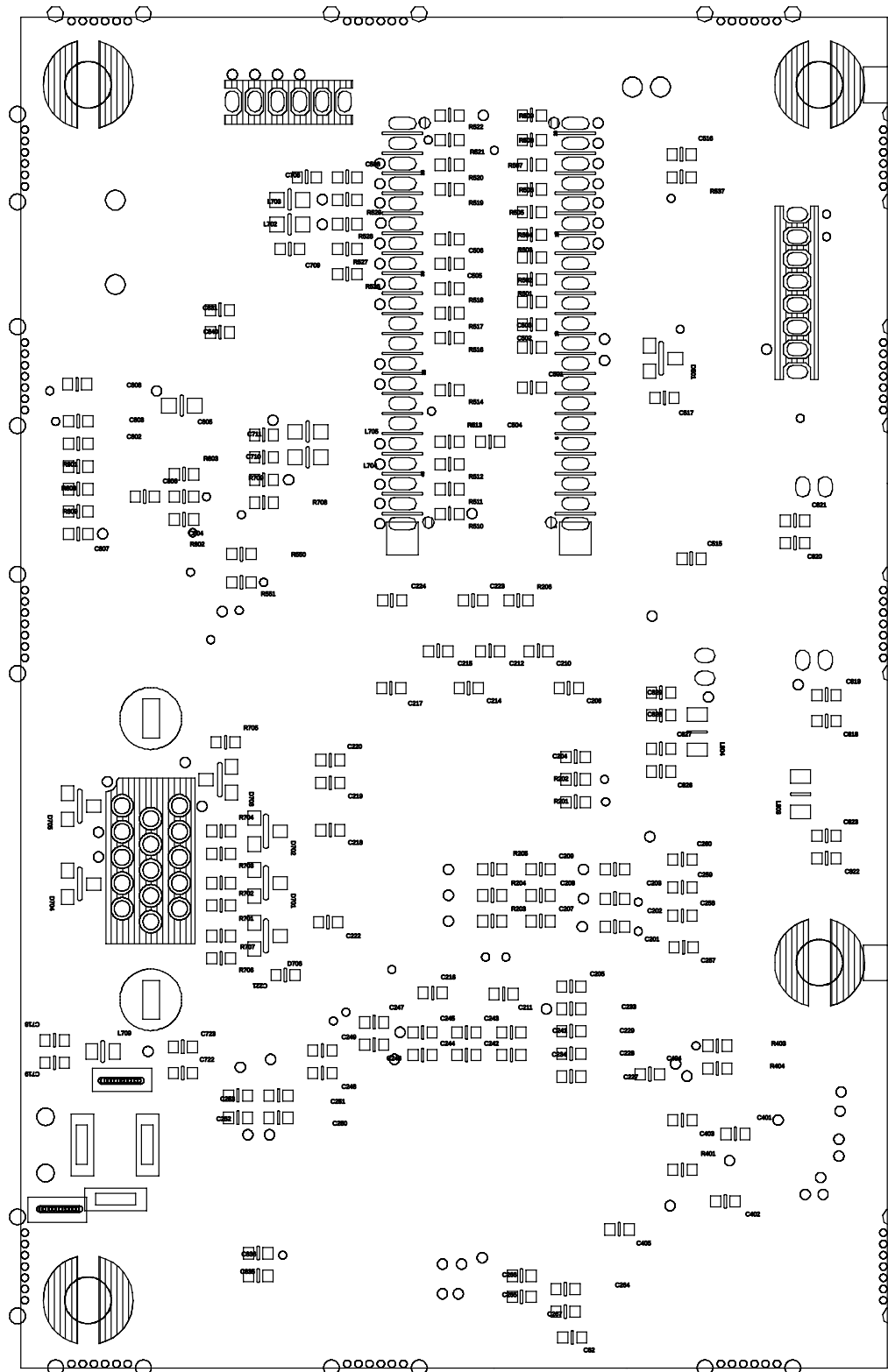


PRINTED CIRCUIT BOARD

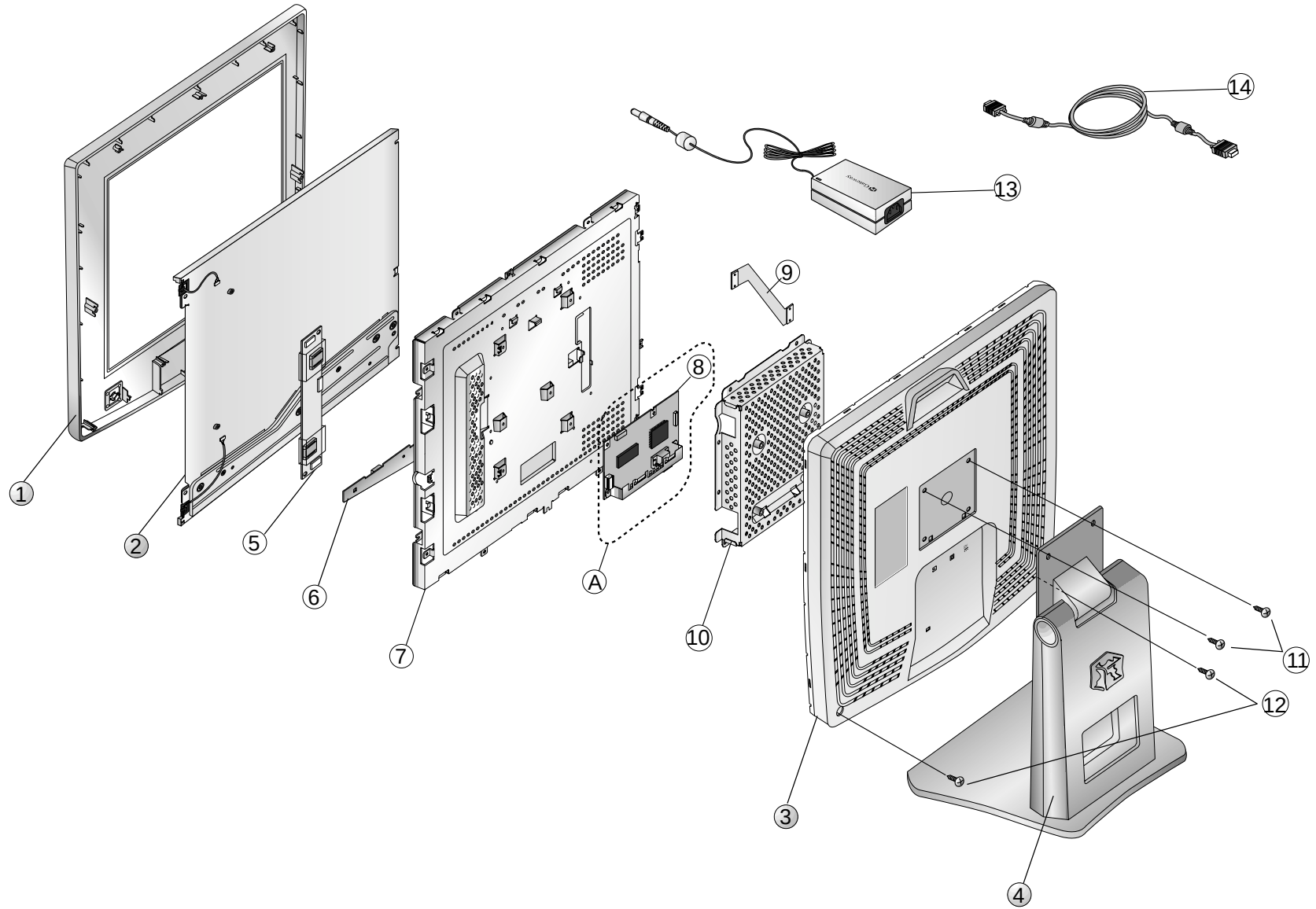
1. MAIN BOARD (Component Side)



2. MAIN BOARD (Solder Side)



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL024C	CABINET ASSEMBLY, LG56AL G/WAY >PC+ABS< 12446B, ANALOG VER.
2	6304FLP001A	LCD(LIQUID CRYSTAL DISPLAY), LM151X05-B3 LG PHILPS TFT COLOR 15.1
3	3809TKL017A	BACK COVER ASSY, LG56AH >PC+ABS< 12446B
4	3043TKK078A	TILT SWIVEL ASSY, LG56AH >PC+ABS< 12446B
5	6633TZA003H	INVERTER ASSEMBLY, SAMSUNG LG1510 LG56AH
6	6871TST245B	PWB(PCB) ASSEMBLY, SUB, LG56AL & LG56AM CONTROL TOTAL G/WAY
7	4951TKS074C	METAL ASSEMBLY, FRAME LG56AL
8	6871TMT251B	PWB(PCB) ASSEMBLY, MAIN, LG56AL XAGC G/WAY CL-18 TOTAL
9	6631T11014G	CONNECTOR ASSEMBLY, 41P H-H 130MM FPC LG56AL FOXCONN
	or 6631T11011G	CONNECTOR ASSEMBLY, 41P H-H 130MM FPC F219-016C LG56AL CAREER
10	4950TKK262A	METAL REAR LB680A
11	332-105F	SCREW, PVS+4*10(MSWR/FZMW)
12	332-068T	SCREW, PPB+3*10 (MSWR/FZMW1)
13	6634TBZ016C	ADAPTER,AC-DC, ADP-36UB DELTA 12V 3.0A FOR G/W(FPD1520)
	or 6634TBZ014E	ADAPTER,AC-DC, PSCV360104A SAMSUNG 12V 3.0A FOR G/W(FPD1520)
14	6866TD9001Q	CABLE,D-SUB, UL 2990-9C(7.5) DT 1870MM COOL GRAY 3C CG992E DM
	or 6866TD9001L	CABLE,D-SUB, UL 2990-9C(7.5) DT 1870MM COOL GRAY 3C LB680A DM
A	3313TL5029B	MAIN TOTAL ASSEMBLY, LG56AL G/WAY CL-18

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

MODEL: FPD1520(LG Philips Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITORS				
		C201	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C202	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C203	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C205	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C207	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C208	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C209	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C210	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C211	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C212	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C215	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C219	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C223	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C224	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C225	0CC330CK41A	33PF 1608 50V 5% R/TP NP0
		C226	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C254	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C255	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C256	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C257	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C258	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C259	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C261	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C262	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C501	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C502	0CK101CK41A	100PF 1608 50V 5% R/TP NP0
		C503	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C504	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C505	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C506	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C507	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C508	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C509	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C512	0CC330CK41A	33PF 1608 50V 5% R/TP NP0
		C513	0CC330CK41A	33PF 1608 50V 5% R/TP NP0
		C514	0CH8106F611	10UF 16V M 85STD(CYL) R/TP
		C515	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C516	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C712	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C713	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C715	0CH8106J611	10UF 35V M 85STD(CYL) R/TP
		C716	0CE107CH610	100UF SHL,SD 25V 20% BULK
		C717	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C718	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C719	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C721	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C722	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C723	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C730	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C801	0CH8105K611	1UF 50V M 85STD(CYL) R/TP
		C802	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C803	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7

MODEL: FPD1520(LG Philips Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C804	0CK223CK51A	0.022UF 1608 50V 10% R/TP
		C805	0CH3105F946	1UF 16V Z F 2012 R/TP
		C806	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C807	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C808	0CK152CK51A	1500PF 1608 50V 10% R/TP B
		C809	0CH8227D611	220UF 10V M 85STD (CYL) R/
		C810	0CH8227D611	220UF 10V M 85STD (CYL) R/
		C811	0CH8477F611	470UF 16V M 85STD(CYL) R/T
		C816	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C817	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C818	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C819	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C820	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C821	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C822	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C823	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C824	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C825	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C826	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C827	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C828	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C829	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C830	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C831	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C832	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C833	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C835	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C836	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C837	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C839	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C840	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
DIODES				
		D701	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D702	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D703	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D704	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D705	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D706	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D801	0DRSG00028A	STPS340U SGS-THOMSON R/TP
		ZD501	0DZ910009FE	UDZS 9.1B TP ROHM - - 9.1V
		ZD701	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD32
		ZD702	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD32
ICs				
		U4	0IZZTSZ138B	MYSON 42PIN BK OTP LG56AL
		U201	0IPRPGA001A	GMZAN1A-160P GENESIS MICRO
		U502	0ICS240813B	CAT24WC08J-TE13 8P,SOIC R/
		U701	0IMO741420B	MC74HCT14ADR2 14P,SOIC TP
		U801	0ISG497351A	L4973D5.1 SO20 TP 3.5A S/D
		U802	0IRH033200A	BA033FP-E2 MOLD-3 TP REGUL
		U803	0IRH033200A	BA033FP-E2 MOLD-3 TP REGUL
		U805	0IRH033200A	BA033FP-E2 MOLD-3 TP REGUL

MODEL: FPD1520(LG Philips Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		U806	OTF632509AA	FDC6325L TP FAIRCHILD 8V 2
COILS & CORES				
		L201	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L202	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L203	6210TCE001R	HB-1S2012-400JT CERATECH 2
		L204	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L702	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L703	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L704	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L705	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L706	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L707	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L708	6210TCE001S	HU-1M2012-121 CERATECH 201
		L709	6210TCE001S	HU-1M2012-121 CERATECH 201
		L720	6210TCE001S	HU-1M2012-121 CERATECH 201
		L801	6140TBZ016E	LX31 GET DR10*7,0.45*37TS,
		L803	6210TCE001G	HH-1M3216-501 CERATEC 3216
		L804	6210TCE001G	HH-1M3216-501 CERATEC 3216
TRANSISTOR				
		Q501	0IKE704200J	KIA7042AF SOT-89 TP 4.2V V
		Q502	0TR390409AE	KST3904-LGEMTF TP SANSUNG
		Q505	0TR162309CA	KSC1623 TP SAMSUNG SOT23
		Q506	0TR162309CA	KSC1623 TP SAMSUNG SOT23
RESISTORS				
		R201	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R202	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R203	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R204	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R205	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R206	0RJ2701D677	2.7K OHM 1/10 W 5% 1608 R/
		R207	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R208	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R209	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R210	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R501	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R502	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R503	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R504	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R505	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R506	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R507	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R508	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R509	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R510	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R511	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R512	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R513	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/
		R514	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R515	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R516	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R517	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R518	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R519	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R520	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R521	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R522	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T

MODEL: FPD1520(LG Philips Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R523	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R524	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R525	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R526	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R527	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R528	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R529	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R530	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R531	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R532	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/
		R533	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T
		R534	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T
		R535	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/
		R536	0RJ1004D677	1000000 OHM 1/10 W 5% 1608
		R537	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R538	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/T
		R539	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R541	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R551	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R702	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R704	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R705	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/T
		R706	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R707	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R708	0RJ2000D677	200 OHM 1/10 W 5% 1608 R/T
		R709	0RJ2000D677	200 OHM 1/10 W 5% 1608 R/T
		R711	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R712	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R713	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R714	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R715	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R716	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R717	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R719	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R801	0RJ3602D677	36K OHM 1/10 W 5% 1608 R/T
		R802	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R803	0RJ9101D677	9.1K OHM 1/10 W 5% 1608 R/
		R805	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/T
		R806	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/T
		R808	0RJ3602D677	36K OHM 1/10 W 5% 1608 R/T
		R809	0RJ1003D677	100K OHM 1/10 W 5% 1608 R/
		RA501	0RHZTCZ001A	100 OHM 1/16 W 5% 3215 R/T
		RA502	0RHZTCZ001A	100 OHM 1/16 W 5% 3215 R/T
OTHERS				
		J704	6612TAH003A	DJ-023 KSD R/ANGLE LB563B
		X201	6202TST001A	SX-1 SUNNY, SMS, 14.31818M
		X501	6202TST003D	HC-49/SM5H KONY CHIP 12 MH
CONTROL BOARD				
		C1	0CN1040K949	0.1M 50V Z F TA52
		C2	0CN1040K949	0.1M 50V Z F TA52
		C3	0CN1040K949	0.1M 50V Z F TA52
		R1	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R2	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R3	0RD1501Q609	1.50K 1/4W(3 5% TA52
		R4	0RD1501Q609	1.50K 1/4W(3 5% TA52
		R5	0RD3301Q609	3.30K 1/4W(3 5% TA52

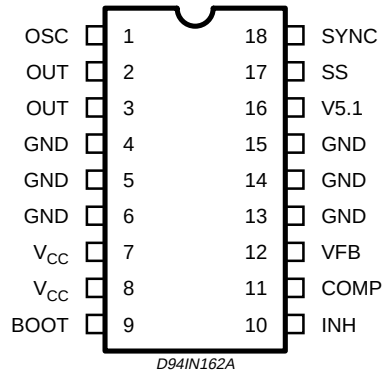
MODEL: FPD1520(LG Philips Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R6	0RD3301Q609	3.30K 1/4W(3 5% TA52
		R7	0RD9101Q609	9.10K 1/4W(3 5% TA52
		SW1	140-058D	SKHV10911A LGEC NON 12 20
		SW2	140-058D	SKHV10911A LGEC NON 12 20
		SW3	140-058D	SKHV10911A LGEC NON 12 20
		SW4	140-058D	SKHV10911A LGEC NON 12 20
		SW5	140-058D	SKHV10911A LGEC NON 12 20
		SW6	140-058D	SKHV10911A LGEC NON 12 20
		SW7	140-058E	SKHV10910B LGEC NON 12V 20
		ZD1	0DZ560009CE	MTZJ5.6B TP ROHM-K DO34 5
		ZD2	0DZ560009CE	MTZJ5.6B TP ROHM-K DO34 5
		LED1	0DL305029BA	LTL-305DJ-0C2 TP LITEON GR
MISCELLANEOUS				
⚠		P/CORD	174-206F	SP305+HS14,SVT 18*3C I-SHE
⚠	or	P/CORD	6410TUW001B	YC-2+YC-5, SVT 18*3 YU CHOU
⚠		LCD	6304FLP001A	LM151X05-B3 LG PHILIPS TFT
⚠		INVERTER	6633TZA003H	SAMSUNG LG1510 LG56AH
⚠		ADAPTER,AC-DC	6634TBZ016C	ADP-36UB DELTA 12V 3.0A FO
⚠	or	ADAPTER,AC-DC	6634TBZ014E	ADAPTER,AC-DC, PSCV360104A
⚠		S/CABLE	6866TD9001Q	UL 2990-9C(7.5) DT 1870MM
⚠	or	S/CABLE	6866TD9001L	UL 2990-9C(7.5) DT 1870MM COOL

PIN CONFIGURATION(LG56AL/LG56AM)

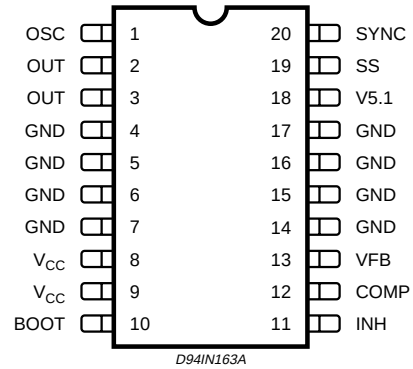
L4973V3-L4973V5
L4973D3-L4973D5

3.5A STEP DOWN SWITCHING REGULATOR

Pin Configuration

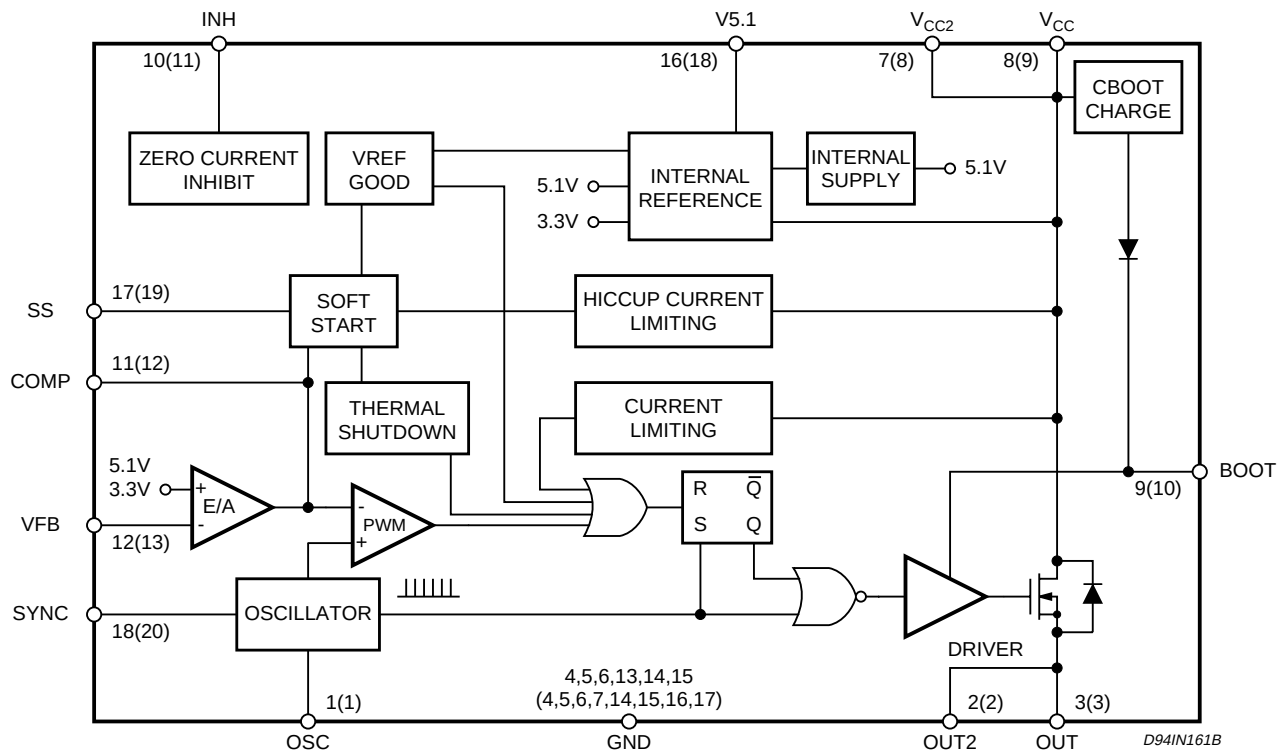


DIP18



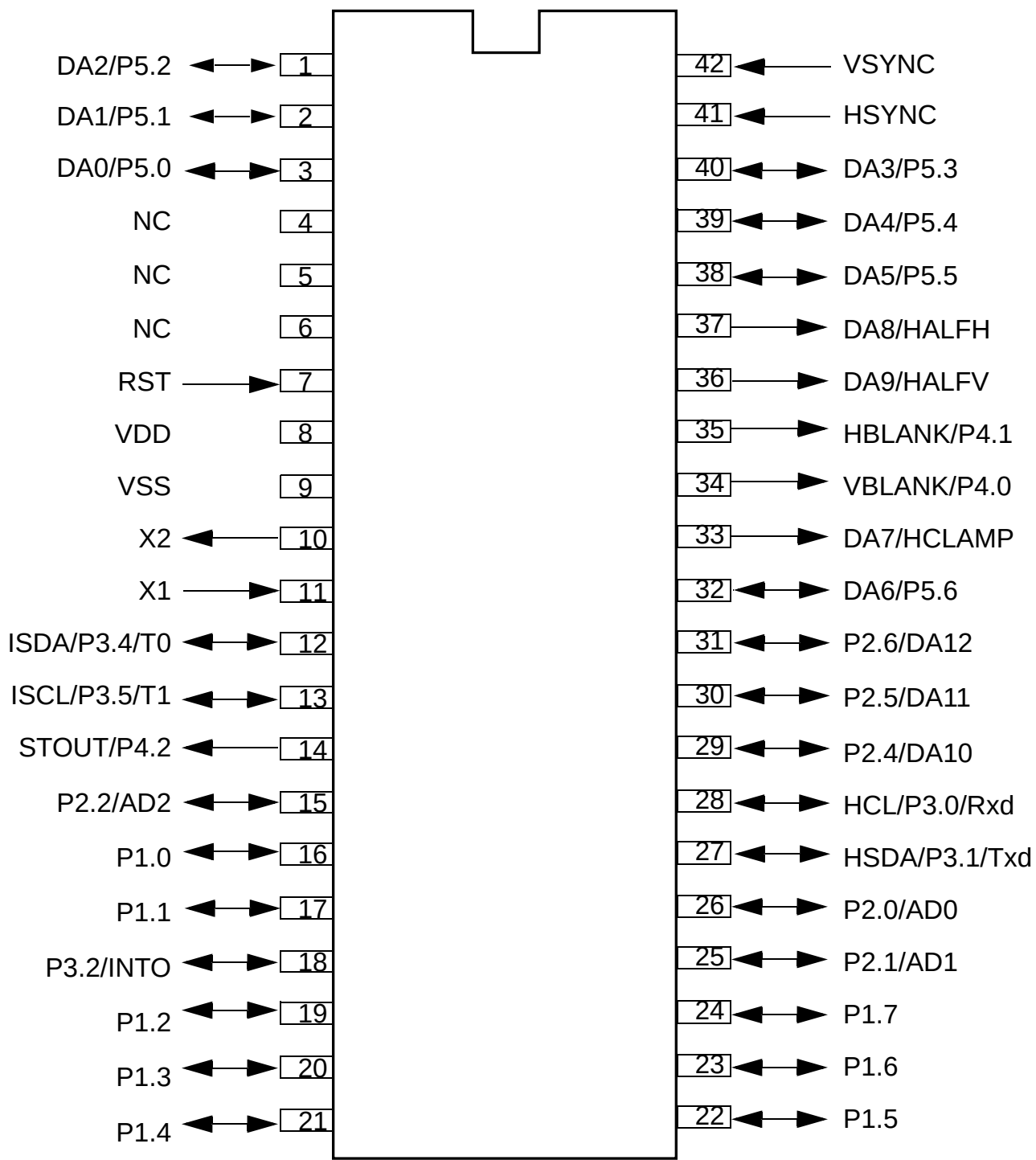
SO20

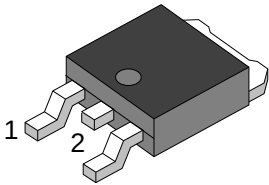
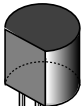
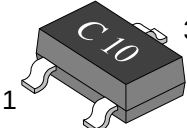
Block Diagram



Pin x = Powerdip
Pin (x) = S020

MTV212MS64I

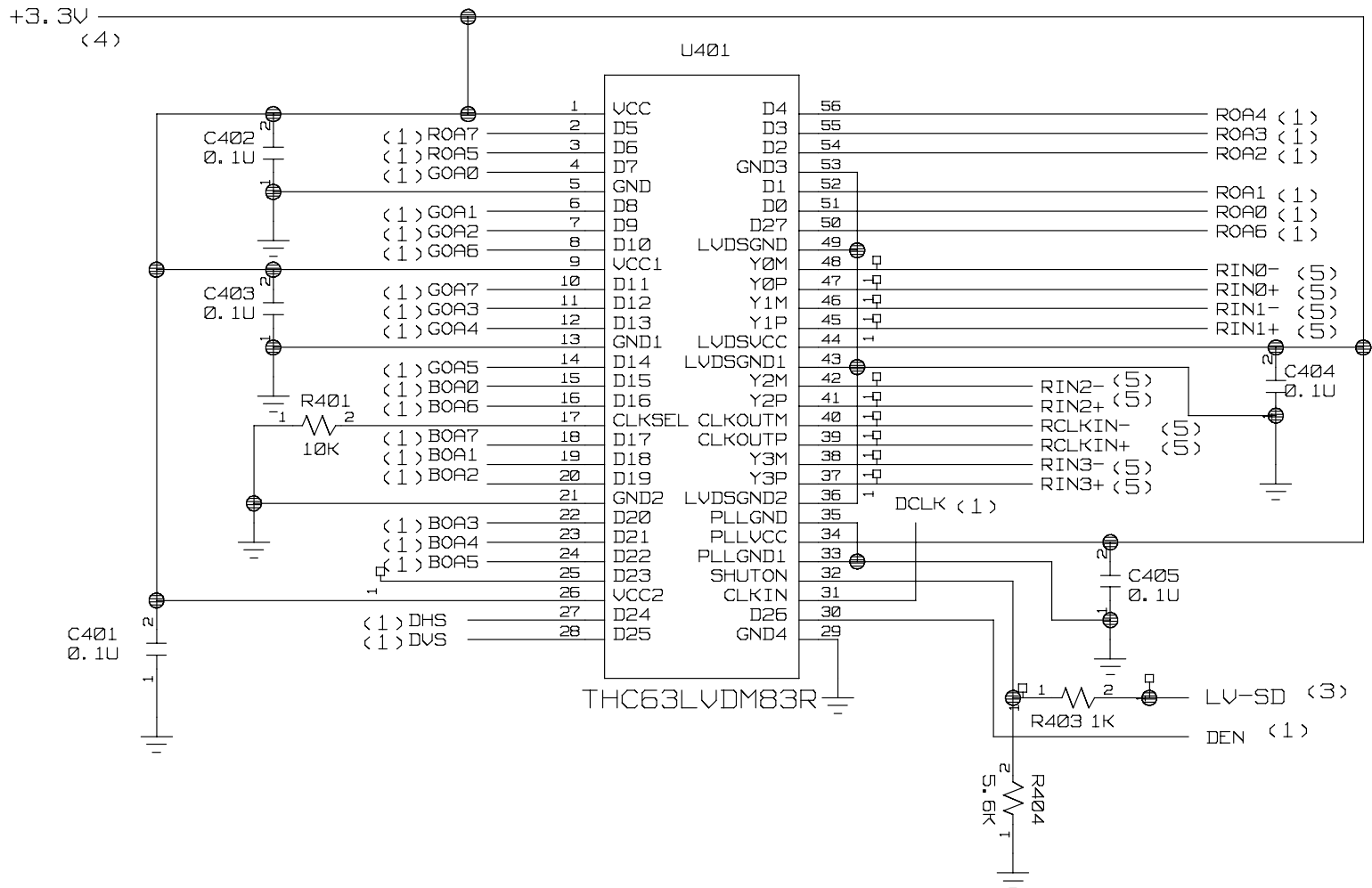


TYPE	PARTS	TYPE	PARTS
 1. Vcc 2. GND 3. OUT	ICs	 1: Vcc 2: GND 3: OUT	Transistor
	BA033FP		KIA7042F
 1. BASE 2. EMITTER 3. COLLECTOR	Transistor		
	KSC1623		

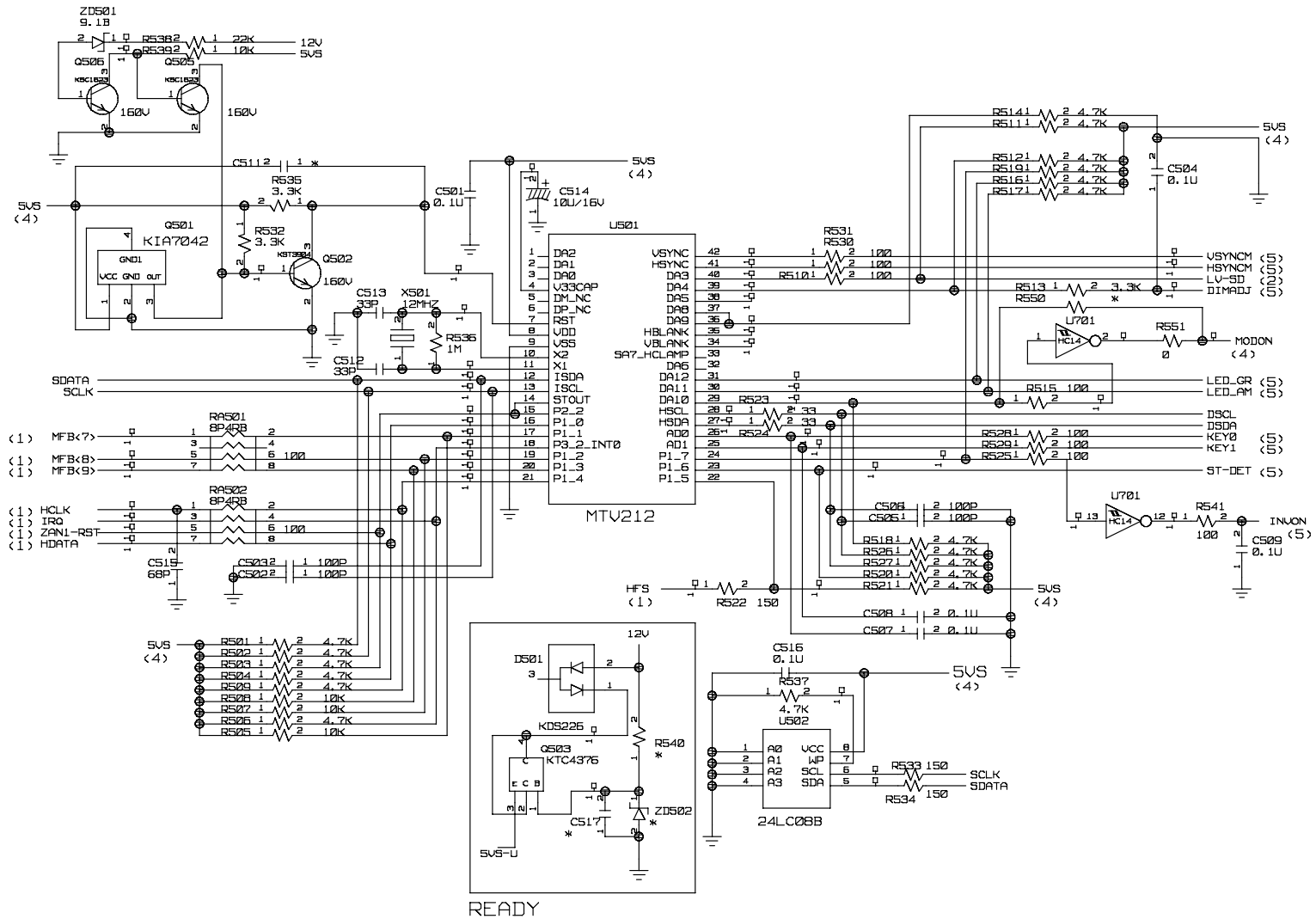
1. GMZAN1



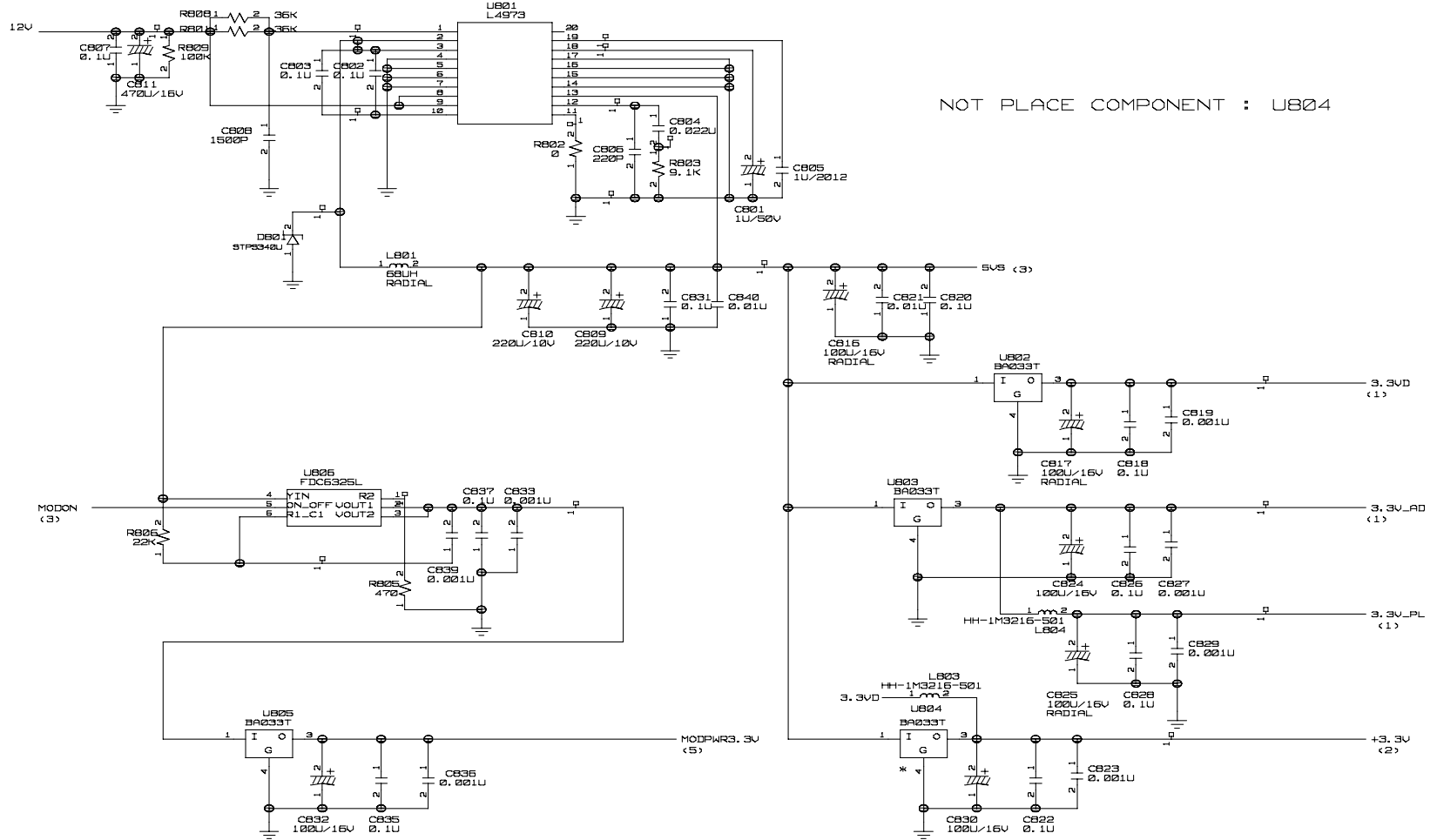
#2 GATEWAY LG56AM LVDS



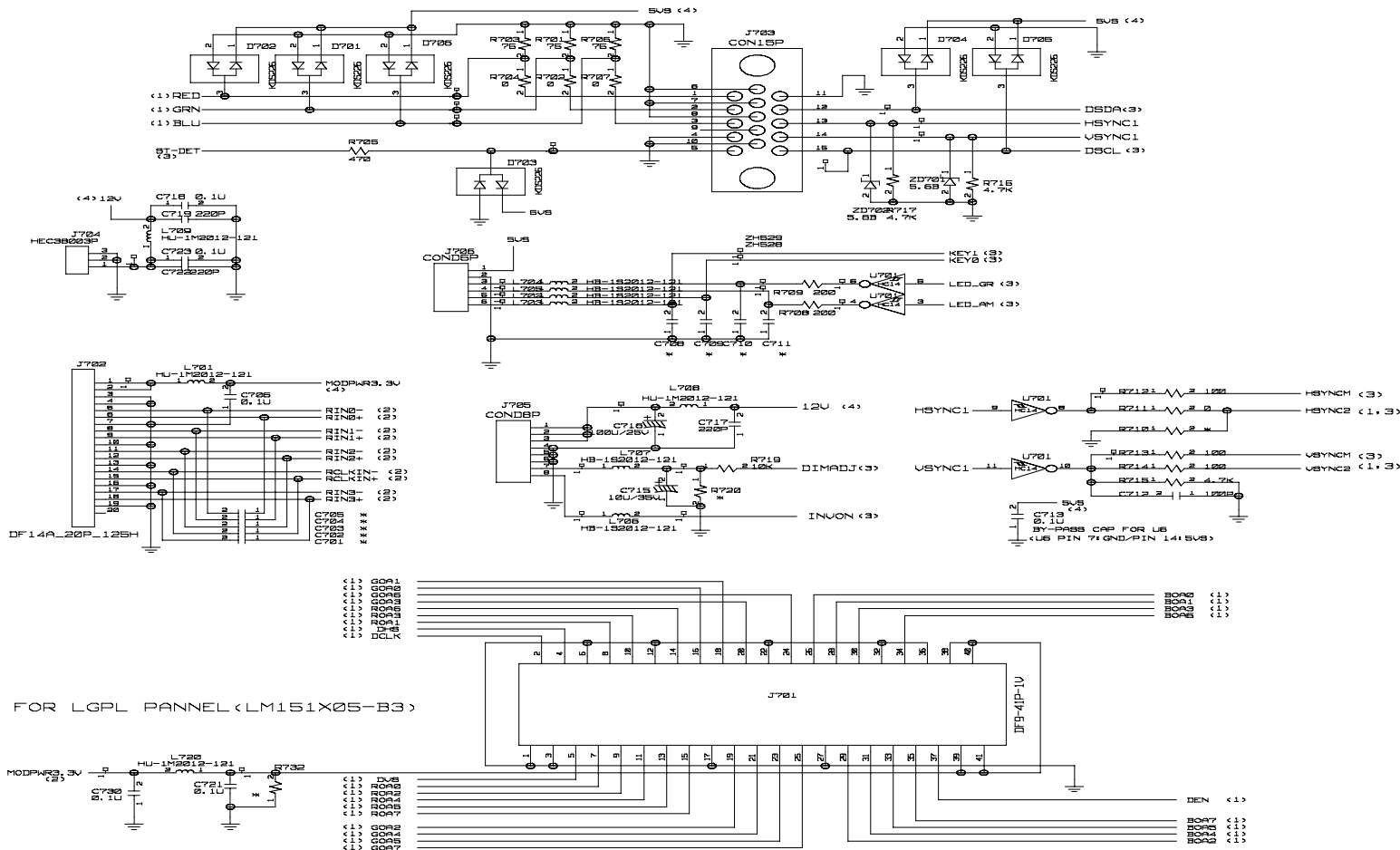
#3 GATEWAY LG56AL&LG56AM
MICOM



#4 GATEWAY LG56AL&LG56AM POWER



U COPY TO GUY XX
ZEE FOR JACKS



COLOR MONITOR SERVICE MANUAL

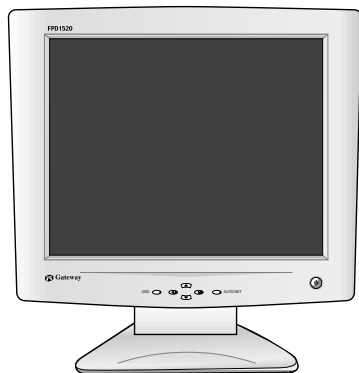
CHASSIS NO. : CL-18

FACTORY MODEL: LG56AM

MODEL: FPD1520

CAUTION

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



To apply the **Hydis Module**.

CONTENTS

SPECIFICATIONS	2	DESCRIPTION OF BLOCK DIAGRAM.....	7
WIRING DIAGRAM	3	EXPLODED VIEW.....	8
DISASSEMBLY	4	REPLACEMENT PARTS LIST	10
BLOCK DIAGRAM	6	PACKING AND ACCESSORIES.....	13

SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT Color LCD Module
Size	: 331.6(H) x 254.7(V) x 12.7(T)
Pixel Pitch	: 0.297mm x 0.297mm
Color Depth	: 8-bit color, 16,194,277 colors
Active Video Area	: 15.0inch (304.1mm x 228mm diagonal)
Surface Treatment	: Anti-Glare, Hard Coating (3H)
Backlight Unit	: 4-CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10	
Left	: 60° min.
Right	: 60° min.
Top	: 35° min.
Bottom	: 50° min.
2-2. Luminance	: 200(min.), 250(typ.) at Center point
2-3. Contrast Ratio	: 250(min.), 300(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	: 0~0.714 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	: 31 ~ 61kHz
Vertical	: 56 ~ 75Hz

4. POWER SUPPLY

4-1. Power Adaptor	
Input	: AC 100~240V, 50/60Hz 1.2A
Output	: DC 12V $\overline{\text{---}}$ 3.0A
4-2. Power Consumption	

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 35 W	GREEN
STAND-BY	OFF/ON	OFF	less than 5 W	AMBER
SUSPEND	ON/OFF	OFF	less than 5 W	AMBER
DPM OFF	OFF/OFF	OFF	less than 5 W	AMBER
POWER OFF	-	-	less than 5 W	OFF

5. ENVIRONMENT

5-1. Operating Temperature:	10°C~35°C (50°F~95°F) (Ambient)
5-2. Relative Humidity	: 10%~80% (Non-condensing)
5-3. MTBF	: 50,000 Hours (Min.)
Lamp Life	: 40,000 Hours (min.)

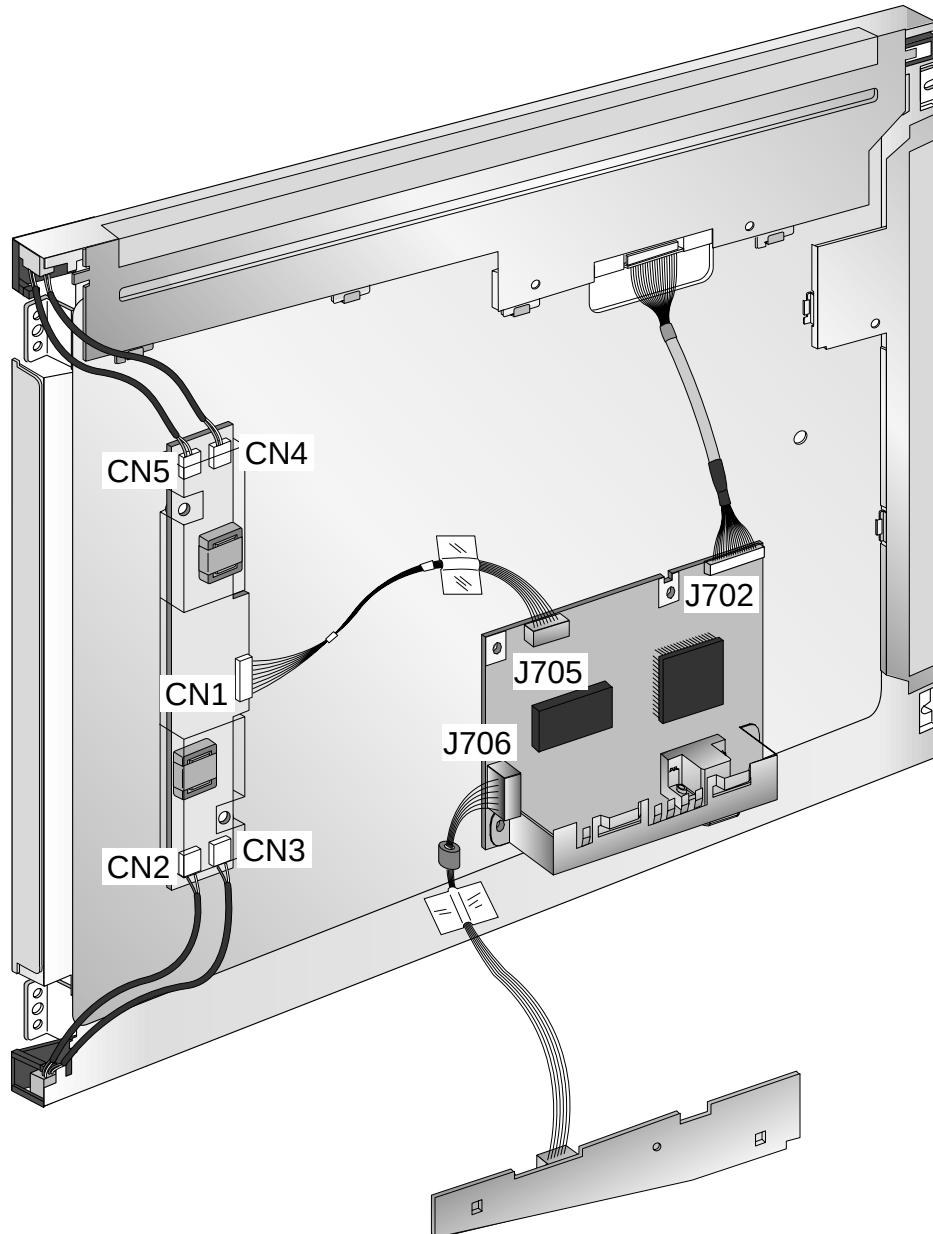
6. DIMENSIONS (with TILT/SWIVEL)

Width	: 389mm (15.3")
Depth	: 205mm (8.1")
Height	: 392mm (15.4")

7. WEIGHT (with TILT/SWIVEL)

Net. Weight	: 4.8kg (10.6 lbs)
Gross Weight	: 7.0kg (15.4 lbs)

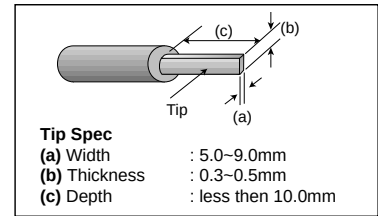
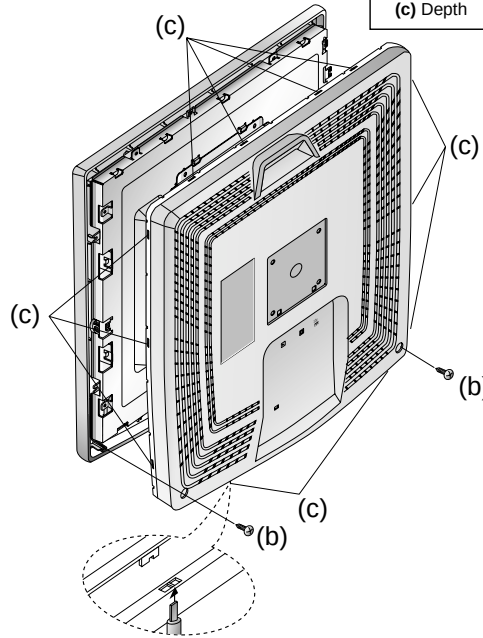
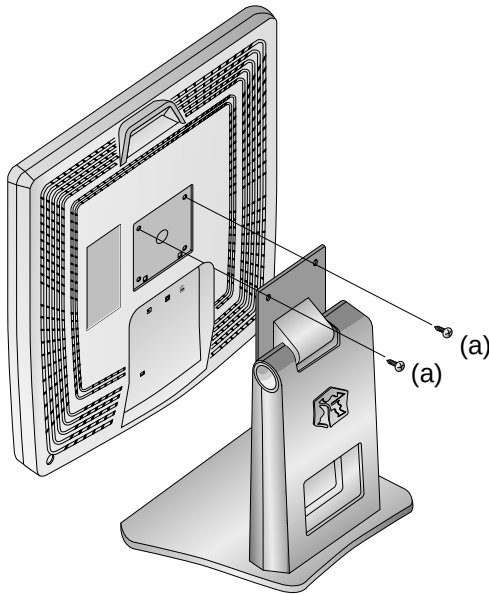
WIRING DIAGRAM



DISASSEMBLY

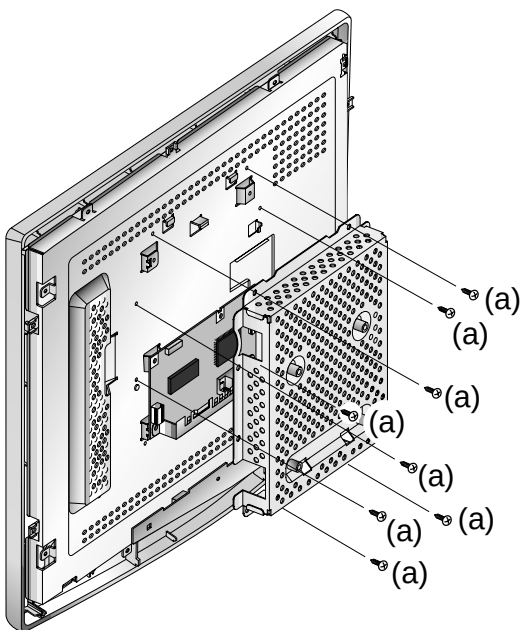
1. TILT/SWIVEL & BACK COVER REMOVAL

- (1) Remove two screws (a).
- (2) Remove the Tilt/swivel.
- (3) Remove two screws (b) from the Back Cover.
- (4) Release twelve latches (c).
- (5) Remove the Back Cover from the Bottom Side.



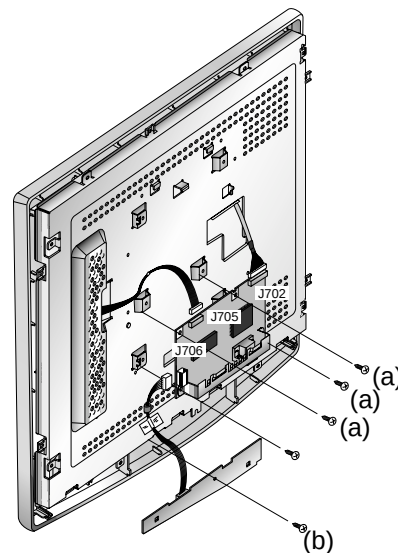
2. METAL REAR ASSEMBLY REMOVAL.

- (1) Remove eight screws (a).
- (2) Remove the Metal rear Ass'y.



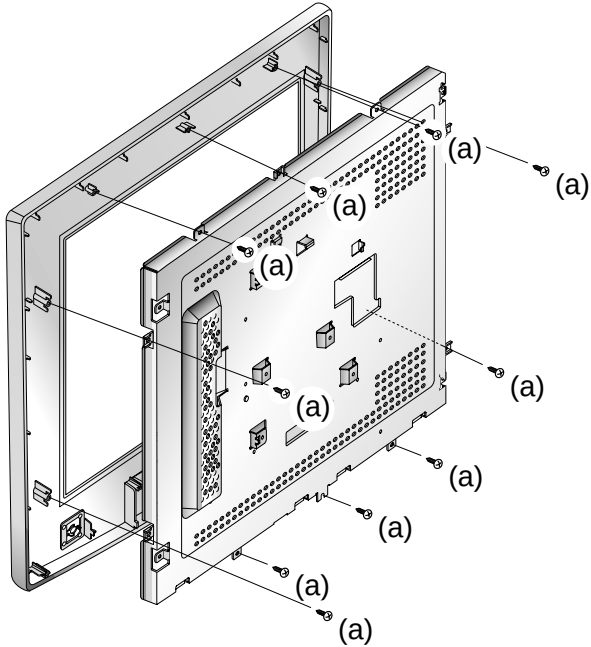
3. CONTROL, MAIN PCB ASSEMBLY REMOVAL.

- (1) Disconnect J705, J706 and J702.
- (2) Remove four screws (a).
- (3) Remove the Main PCB Ass'y.
- (4) Remove the screw (b).
- (5) Remove the Control PCB Ass'y.



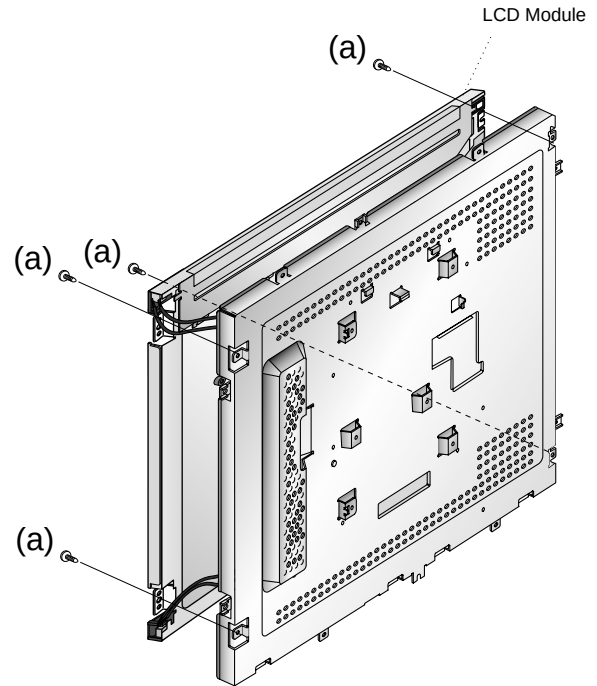
4. MAIN FRAME ASSEMBLY REMOVAL.

- (1) Remove ten screws (a).
- (2) Remove Main Frame Ass'y



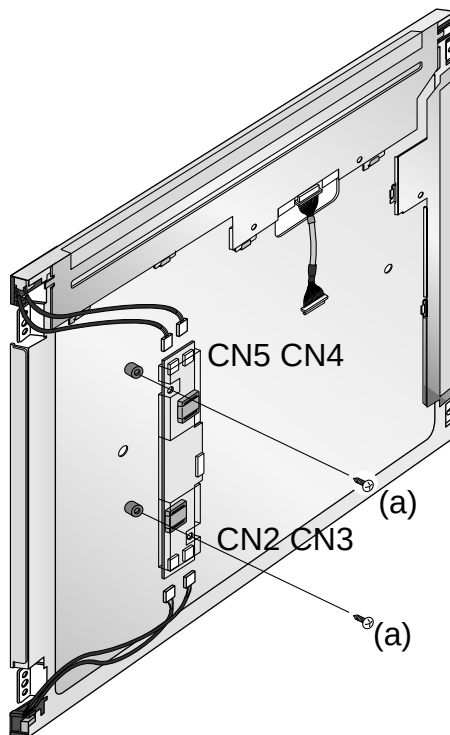
5. LCD MODULE REMOVAL

- (1) Remove four screws (a).
- (2) Remove the LCD Module.

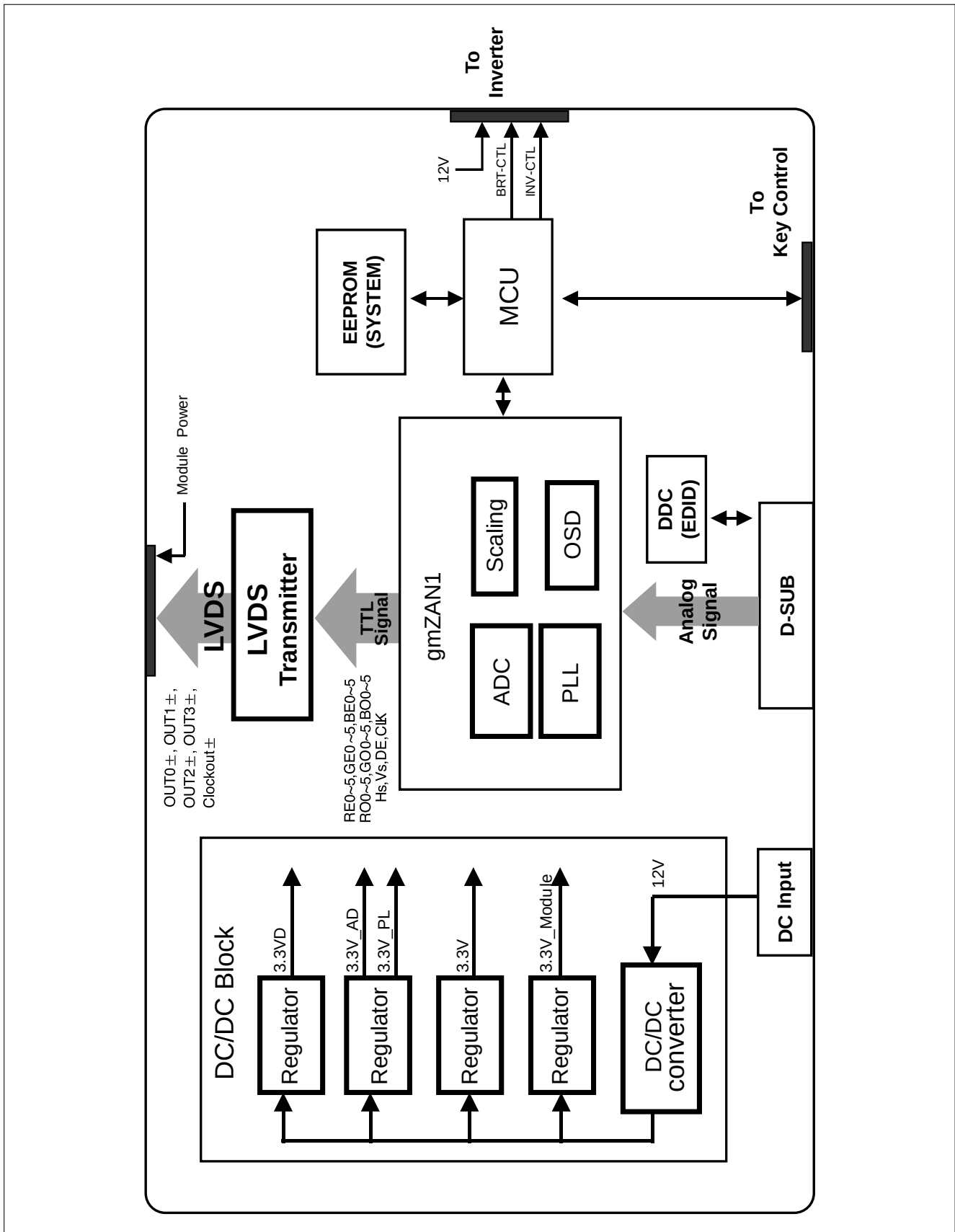


6. INVERTER REMOVAL.

- (1) Disconnect CN2, CN3 and CN4, CN5.
- (2) Remove two screws (a).
- (3) Remove the INVERTER.



BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Input signal switching part.

There is one input which is analog.
It comes from 15 pin D-Sub connector.

2. Pre-amp/ ADC / PLL / Video Controller.

This part amplifies the level of video signal 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 78.75MHz.

The Scaler gets the video signal converted analog to digital, interpolates input to 1024 X 768 resolution signal and outputs 8-bit R, G, B signal to LCD module.

Especially pre-amp / ADC / Video controller are merged to one chip 'gmZAN1' by Genesis.

3. Power Part.

This part consists of the DC/DC converter and two 3.3V and one 2.5 regulators .

The DC/DC converter converts 12V to be entered power adapter to 5V.

5V, output of DC/DC converter, is supplied to the Micom and 3.3V/2.5V regulators.

The output voltage of 3.3V / 2.5V regulators flow to IC of each part.

4. MICOM Part.

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

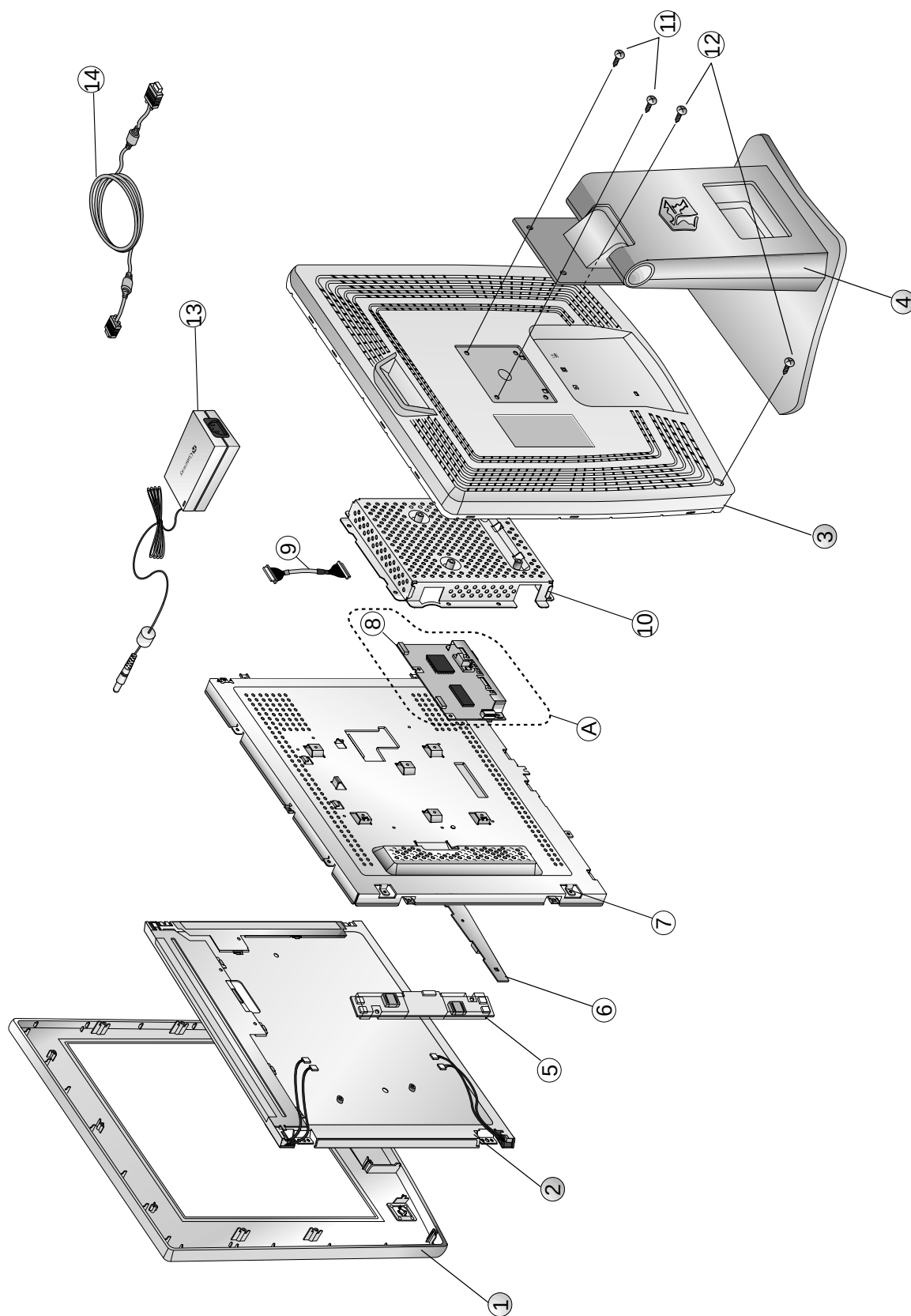
The Micom distinguishes polarity and frequency of the H/V sync are supplied from signal cable.

The controlled data of each modes is stored in EEPROM.

5. Inverter

The inverter converts from DC12V to AC 700V and operate back-light lamp of module.

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL036A	CABINET ASSEMBLY, LG56AM G/WAY >PC+ABS< 12446B, ANALOG VER.
2	6304FHD001C	LCD, HT15X13-200(A) HYUNDAI 15.0 INCH XGA(1024 X 768) TFT COLOR LVDS
3	3809TKL017A	BACK COVER ASSY, LG56AH >PC+ABS< 12446B
4	3043TKK078D	TILT SWIVEL ASSEMBLY, "LG56AM >PC+ABS< 12446B,VESA PLATE PAINTING"
5	6633TZA003K	INVERTER ASSEMBLY, "SAMSUNG LG1509-1 4 LAMP,LG56AM"
	or 6633TZA009A	INVERTER ASSEMBLY, "LG-PHILIPS NMC1509-1 4 LAMP,LG56AM"
6	6871TST245B	PWB(PCB) ASSEMBLY, SUB, LG56AL & LG56AM CONTROL TOTAL G/WAY
7	4951TKS079A	METAL ASSEMBLY, FRAME LG56AM
8	6871TMT251C	PWB(PCB), ASSEMBLY, MAIN, LG56AM XAGC G/WAY CL-18 TOTAL
9	6631T11012T	CONNECTOR ASSEMBLY, 20P H-H 80MM FPC UNIXTAR LG56AM
10	4950TKK262A	METAL REAR LB680A
11	332-105F	SCREW, PVS+4*10(MSWR/FZMW)
12	332-068T	SCREW, PPB+3*10 (MSWR/FZMW1)
13	6634TBZ016C	ADAPTER,AC-DC, ADP-36UB DELTA 12V 3.0A FOR G/W(FPD1520)
	or 6634TBZ014E	ADAPTER,AC-DC, PSCV360104A SAMSUNG 12V 3.0A FOR G/W(FPD1520)
14	6866TD9001Q	CABLE,D-SUB, UL 2990-9C(7.5) DT 1870MM COOL GRAY 3C CG992E DM
	or 6866TD9001L	CABLE,D-SUB, UL 2990-9C(7.5) DT 1870MM COOL GRAY 3C LB680A DM
A	3313TL5029C	MAIN TOTAL ASSEMBLY, LG56AM G/WAY CL-18

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

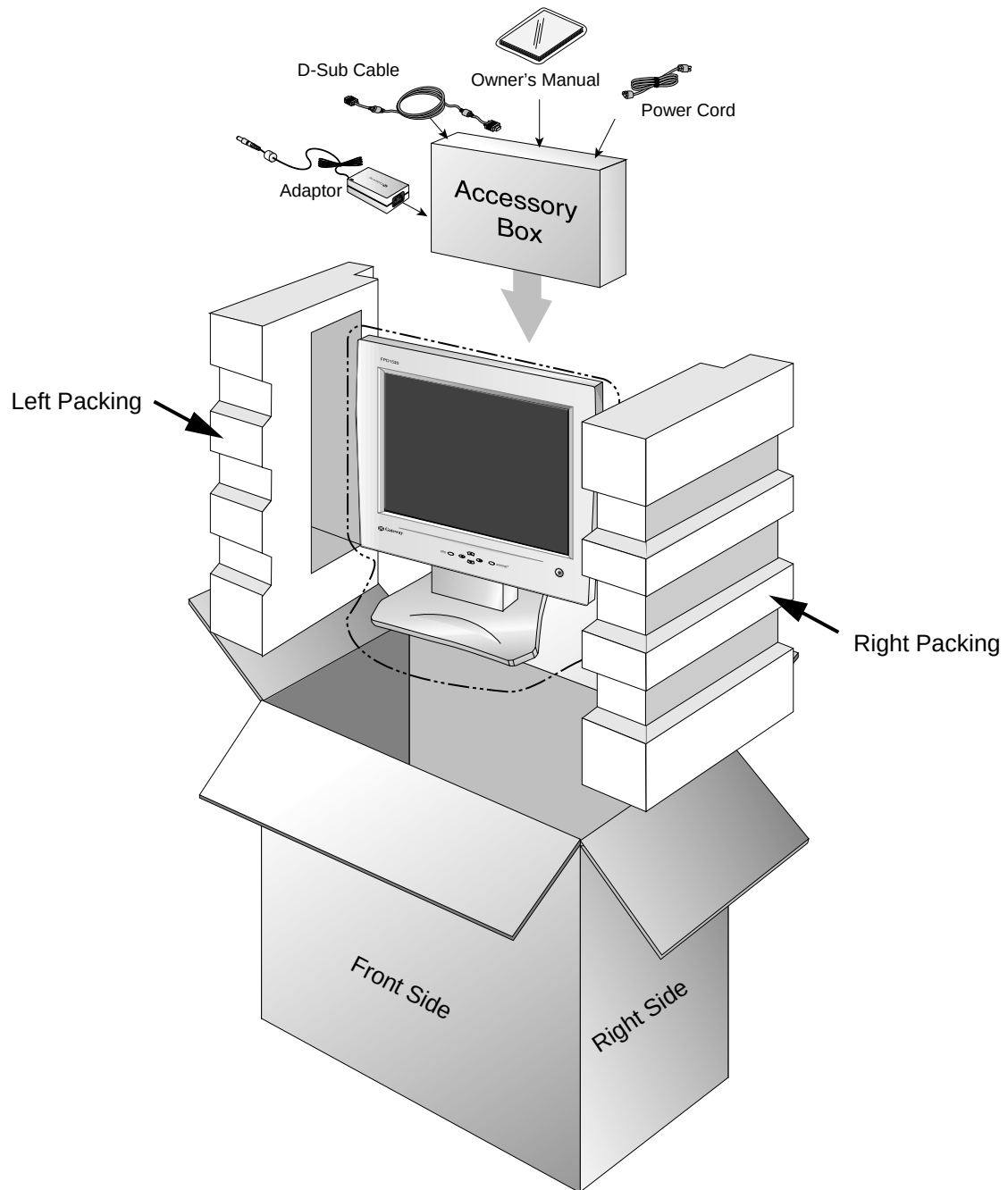
MODEL: FPD1520(Hydis Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITORS				
		C62	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C201	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C202	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C203	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C205	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C207	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C208	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C209	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C210	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C211	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C212	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C215	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C219	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C223	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C224	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C225	0CC100CK41A	10PF 1608 50V 5% R/TP NP0
		C226	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C227	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C228	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C229	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C230	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C233	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C234	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C241	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C242	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C243	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C244	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C245	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C246	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C247	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C248	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C249	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C250	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C251	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C252	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C253	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C254	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C255	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C256	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C257	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C258	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C259	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C261	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C262	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C263	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C264	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C265	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C266	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C267	0CC470CK41A	47PF 1608 50V 5% R/TP NP0
		C401	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C402	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C403	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7

MODEL: FPD1520(Hydis Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C404	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C405	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C501	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C502	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C503	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C504	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C505	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C506	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C507	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C508	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C509	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C512	0CC330CK41A	33PF 1608 50V 5% R/TP NP0
		C513	0CC330CK41A	33PF 1608 50V 5% R/TP NP0
		C514	0CH8106F611	10UF 16V M 85STD(CYL) R/TP
		C515	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C516	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C706	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C712	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C713	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C715	0CH8106J611	10UF 35V M 85STD(CYL) R/TP
		C716	0CE107CH610	100UF SHL,SD 25V 20% BULK
		C717	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C718	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C719	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C722	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C723	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C801	0CH8105K611	1UF 50V M 85STD(CYL) R/TP
		C802	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C803	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C804	0CK223CK51A	0.022UF 1608 50V 10% R/TP
		C805	0CH3105F946	1UF 16V Z F 2012 R/TP
		C806	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C807	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C808	0CK152CK51A	1500PF 1608 50V 10% R/TP B
		C809	0CH8227D611	220UF 10V M 85STD (CYL) R/
		C810	0CH8227D611	220UF 10V M 85STD (CYL) R/
		C811	0CH8477F611	470UF 16V M 85STD(CYL) R/T
		C816	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C817	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C818	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C819	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C820	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C821	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C822	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C823	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C824	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C825	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C826	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C827	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C828	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C829	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C830	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C831	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C832	0CH8107F611	100UF 16V M 85STD(CYL) R/T

MODEL: FPD1520(Hydis Module)				DATE: 2001. 10. 29.
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C833	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C835	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C836	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C837	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C839	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C840	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
DIODEs				
		D701	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D702	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D703	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D704	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D705	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D706	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D801	0DRSG00028A	STPS340U SGS-THOMSON R/TP
		ZD501	0DZ910009FE	UDZS 9.1B TP ROHM - - 9.1V
		ZD701	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD32
		ZD702	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD32
ICs				
		U201	0IPRPGA001A	GMZAN1A-160P GENESIS MICRO
		U4	0IZZTSZ138C	MYSON DIP 42PIN BK OTP LG5
		U401	0ITH638300B	THC63LVDM83R THINE 56P,TSS
		U502	0ICS240813B	CAT24WC08J-TE13 8P,SOIC R/
		U701	0IMO741420B	MC74HCT14ADR2 14P,SOIC TP
		U801	0ISG497351A	L4973D5.1 SO20 TP 3.5A S/D
		U802	0IRH033200A	BA033FP-E2 MOLD-3 TP REGUL
		U803	0IRH033200A	BA033FP-E2 MOLD-3 TP REGUL
		U805	0IRH033200A	BA033FP-E2 MOLD-3 TP REGUL
		U806	0TF632509AA	FDC6325L TP FAIRCHILD 8V 2
COILS & COREs				
		L201	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L202	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L203	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L204	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L701	6210TCE001S	HU-1M2012-121 CERATECH 201
		L702	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L703	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L704	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L705	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L706	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L707	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L708	6210TCE001S	HU-1M2012-121 CERATECH 201
		L709	6210TCE001S	HU-1M2012-121 CERATECH 201
		L801	6140TBZ016E	LX31 GET DR10*7,0.45*37TS,
		L803	6210TCE001G	HH-1M3216-501 CERATEC 3216
		L804	6210TCE001G	HH-1M3216-501 CERATEC 3216
TRANSISTOR				
		Q501	0IKE704200J	KIA7042AF SOT-89 TP 4.2V V
		Q502	0TR390409AE	KST3904-LGEMTF TP SANSUNG
		Q505	0TR162309CA	KSC1623 TP SAMSUNG SOT23
		Q506	0TR162309CA	KSC1623 TP SAMSUNG SOT23
RESISTORS				
		R201	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/

MODEL: FPD1520(Hydis Module)				DATE: 2001. 10. 29.	
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION	
		R202	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R203	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R204	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R205	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R206	0RJ2701D677	2.7K OHM 1/10 W 5% 1608 R/	
		R207	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP	
		R208	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R209	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R210	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R401	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T	
		R403	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP	
		R404	0RJ5601D477	5.6K OHM 1/10 W 1% 1608 R/	
		R501	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R502	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R503	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R504	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R505	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T	
		R506	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R507	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T	
		R508	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T	
		R509	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R510	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R511	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R512	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R513	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/	
		R514	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R516	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R517	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R518	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R519	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R520	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R521	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R522	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T	
		R523	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP	
		R524	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP	
		R525	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R526	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R527	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R528	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R529	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R530	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R531	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R532	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/	
		R533	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T	
		R534	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T	
		R535	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/	
		R536	0RJ1004D677	1000000 OHM 1/10 W 5% 1608	
		R537	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/	
		R538	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/T	
		R539	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T	
		R541	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R550	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T	
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP	
		R702	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP	
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP	
		R704	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP	
		R705	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/T	
		R706	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP	
		R707	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP	
		R708	0RJ2000D677	200 OHM 1/10 W 5% 1608 R/T	
		R709	0RJ2000D677	200 OHM 1/10 W 5% 1608 R/T	
		R711	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP	

PACKING AND ACCESSORIES



Nov. 2001
Printed in Korea

P/NO : 3828TSO045B

