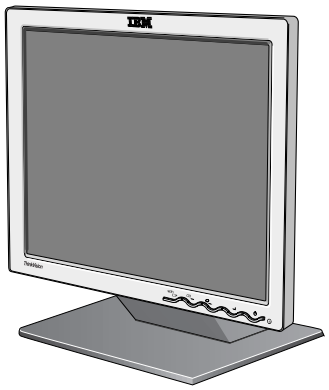
MODEL: L170 (6734 - AB9)

COLOR MONITOR
SERVICE MANUAL

Chassis No. : CL-61



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

CONTENTS

SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT XGA LCD Module
Size	: 358.5(H) x 296.5(V) x 17.0(D)
Pixel Pitch	: 0.264mm x 0.264mm
Color Depth	: 16.2M colors
Active Video Area	: 17.0inch (432.7mm)
Surface Treatment	: Anti-Glare, Hard Coating (3H)
Backlight Unit	: 4CCFL
Opraating Mode	: Transmissive mode, Normally white
Electrical Interface	: LVDS interface

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10

LPL Module

Left : -60° min. -70° typ. Right: +60° min. +70° typ.
Top : +45° min. +60° typ. Bottom: -45° min. -60° typ.

AUO Module

Left : -60° min. -70° typ. Right: +60° min. +70° typ.
Top : +60° min. +70° typ.Right: -60° min. -70° typ.

2-2. Luminance : 250(min.), 300(typ.) ***- LPL***
300(typ) ***- AUO***

2-3. Contrast Ratio : 300(min.), 450(typ.) ***- LPL***
450(typ) ***- AUO***

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal

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

3-2. Video Input Signal

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

3-3. Operating Frequency

Horizontal : 31 ~ 81kHz
Vertical : 55 ~ 75Hz

3-4. Resolution

Max. : 1280 x 1024@75Hz
Recommend : 1280 x 1024@60Hz

4. POWER SUPPLY

4-1. Power
90-264V~, 50/60Hz 0.6A

4-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 40 W	GREEN
POWER S/W ON		OFF	less than 2 W	AMBER
POWER S/W OFF	-	-	less than 2 W	OFF

5. ENVIRONMENT

5-1. Operating Temperature: 10°C~35°C
5-2. Operating Humidity : 10%~80%
5-3. MTBF : 50,000 HRS (Min.)
Lamp Life : 25,000 Hours (Min.)

6. DIMENSIONS (with TILT / with Base)

Width : 398.9mm (15.70")
Depth : 222mm (8.74")
Height : 412.9mm (16.25")

7. WEIGHT (with TILT)

Net. Weight : 5.3kg (11.69 lbs)
Gross Weight : 7.3kg (16.07lbs)

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

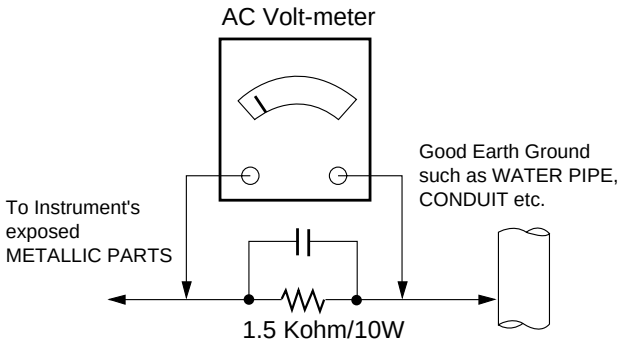
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

⚠ 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 in 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 or 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 mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle.
   Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature.
      (500°F to 600°F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
      CAUTION: Work quickly to avoid overheating the circuitboard printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
      CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

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

Removal

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

Replacement

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

"Small-Signal" Discrete Transistor Removal/Replacement

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

Power Output, Transistor Device Removal/Replacement

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

Diode Removal/Replacement

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

Fuse and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

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

At IC Connections

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

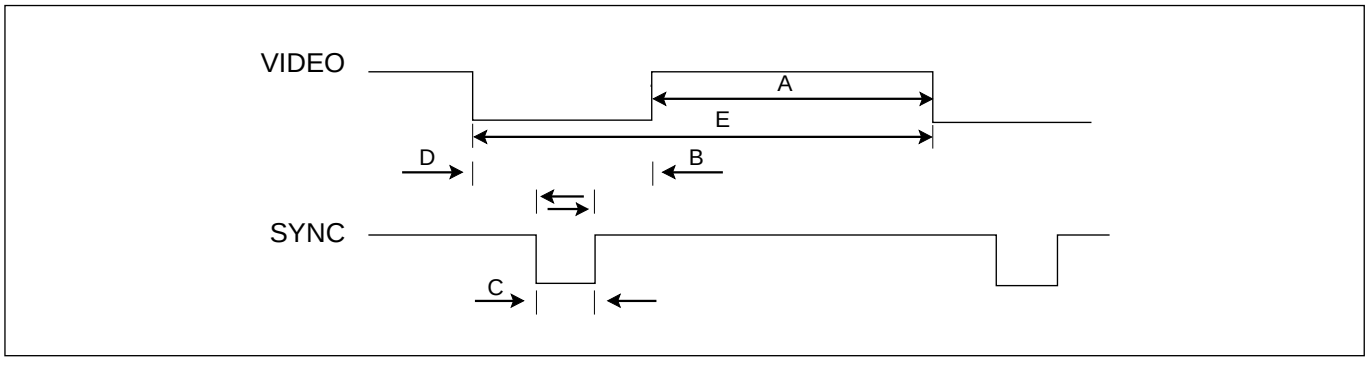
1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire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

At Other Connections

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

1. Remove the defective copper pattern with a sharp knife.
   Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side.
   Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

TIMING CHART



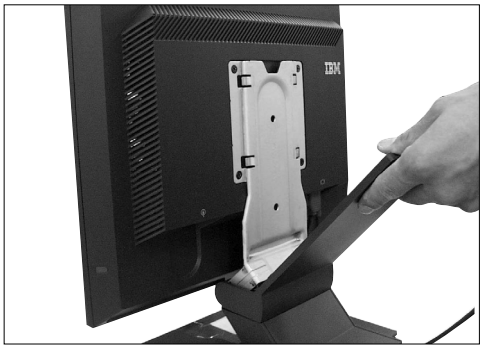
Mode	H/V Sort	Sync Porarity	DOT Clock	Frequency	Total Period (E)	Video Active Time (A)	Front Porch (D)	Sync Duration(C)	Back Porch (B)	Resolution
1	H(Pixels)	+	25.175	31.469	800	640	16	96	48	640 x 350
	V(Lines)	-		70.8	449	350	37	2	60	
2	H(Pixels)	-	25.175	31.469	800	640	16	96	48	640 x 480
	V(Lines)	-		59.94	525	480	10	2	33	
3	H(Pixels)	-	30.240	35.00 KHz	864	640	64	64	96	640 x 480
	V(Lines)	-		66.667 Hz	525	480	3	3	39	
4	H(Pixels)	-	31.5	37.861	832	640	24	40	128	**640 x 480**
	V(Lines)	-		72.809	520	480	9	3	28	
5	H(Pixels)	-	31.5	37.5	840	640	16	64	120	**640 x 480**
	V(Lines)	-		75	500	480	1	3	16	
6	H(Pixels)	-	28.350	31.50 KHz	900	720	18	108	54	**720 x 400**
	V(Lines)	+		70.156 Hz	449	400	12	3	34	
7	H(Pixels)	+	40.0	37.879	1056	800	40	128	88	**800 x 600**
	V(Lines)	+		60.317	628	600	1	4	23	
8	H(Pixels)	+	50	48.077	1040	800	56	120	64	**800 x 600**
	V(Lines)	+		72.188	666	600	37	6	23	
9	H(Pixels)	+	49.5	46.875	1056	800	16	80	160	**800 x 600**
	V(Lines)	+		75.0	625	600	1	3	21	
10	H(Pixels)	+/-	57.283	49.725	1152	832	32	64	224	**832 x 624**
	V(Lines)	+/-		74.55	667	624	1	3	39	
11	H(Pixels)	-	65.0	48.363	1344	1024	24	136	160	**1024 x 768**
	V(Lines)	-		60.0	806	768	3	6	29	
12	H(Pixels)	-	75	56.476	1328	1024	24	136	144	**1024 x 768**
	V(Lines)	-		70.069	806	768	3	6	29	
13	H(Pixels)	-	78.75	60.123	1312	1024	16	96	176	**1024 x 768**
	V(Lines)	-		75.029	800	768	1	3	28	
14	H(Pixels)	-	80.00	60.241	1328	1024	32	96	176	**1024 x 768**
	V(Lines)	-		74.927	804	768	3	3	30	
15	H(Pixels)	+	108	67.5	1600	1152	64	128	256	**1152 x 864**
	V(Lines)	+		75	900	864	1	3	32	
16	H(Pixels)	+/-	100.0	68.681	1456	1152	32	128	144	**1152 x 870**
	V(Lines)	+/-		75.062	915	870	3	3	39	
17	H(Pixels)	+/-	92.978	61.805	1504	1152	18	134	200	**1152 x 900**
	V(Lines)	+/-		65.96	937	900	2	4	31	
18	H(Pixels)	+	108.00	60.000	1800	1280	96	112	312	**1280 x 960**
	V(Lines)	+		60.000	1000	960	1	3	36	
19	H(Pixels)	+	108.0	63.981	1688	1280	48	112	248	**1280 x 1024**
	V(Lines)	+		60.02	1066	1024	1	3	38	
20	H(Pixels)	-	135	78.125	1728	1280	64	192	192	**1280 x 1024**
	V(Lines)	-		72.005	1085	1024	3	3	55	
21	H(Pixels)	+	135.0	79.976	1688	1280	16	144	248	**1280 x 1024**
	V(Lines)	+		75.035	1066	1024	1	3	38	

DISASSEMBLY

 # 1

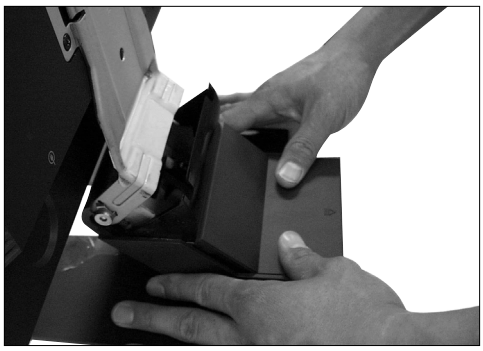
Disassembly Hinge Cover.

 # 2



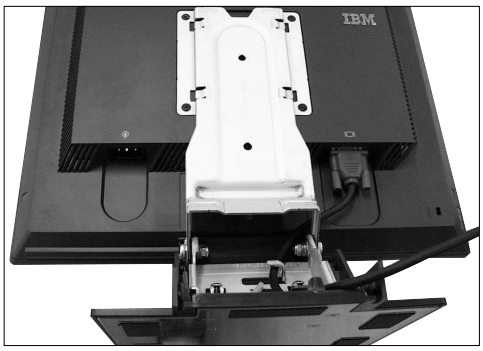
Pull the Hinge Cover out From the Stand.

 # 3



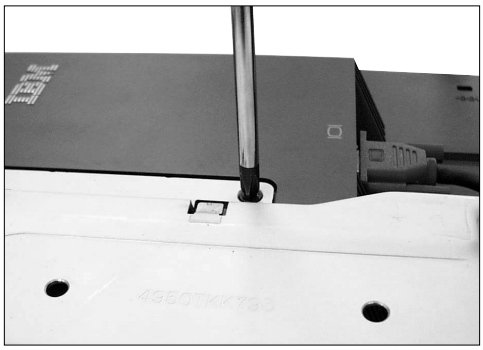
Pull the rear cover assy out from stand.

 # 4



Put a soft cushion on the floor and lay the stand on it.

 # 5



Remove the screws.

 # 6

1. Remove the screw for the signal cable.
2. Pull out the signal cable.

 # 7

Disassemble the four screw cover by using something sharp.

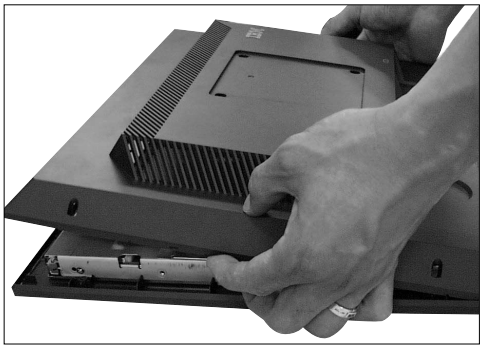
 # 8

Remove the four screws from the Back cover.

 # 9

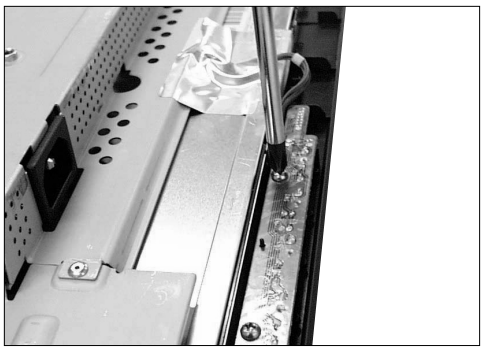
1. Pull the front cover upward.
2. Then, let the all latches are separated.
3. Put the from face down.

 # 10



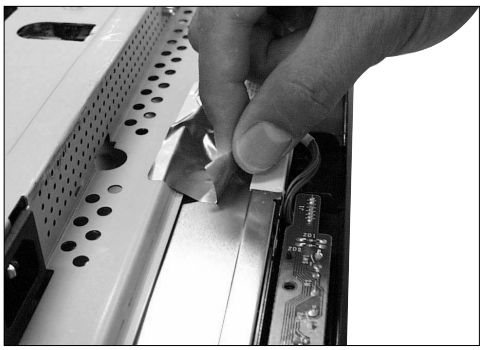
Disassemble back cover

 # 11



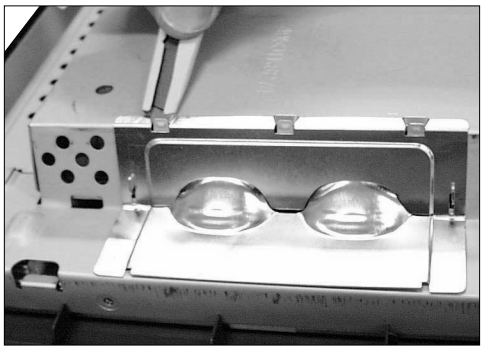
Remove te two screws for control pcb fix.

 # 12



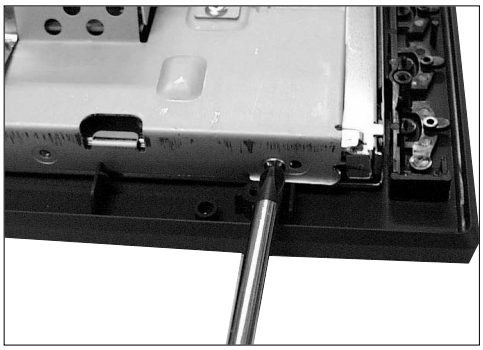
Detach Al-tape from panel.

 # 13



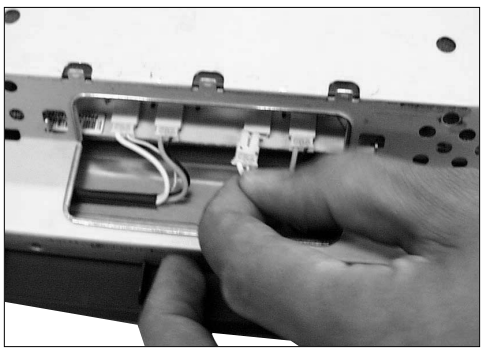
Disassemble inverter shield something thin.

 # 14



Remove the 4 screws from each side of metal frame

 # 15

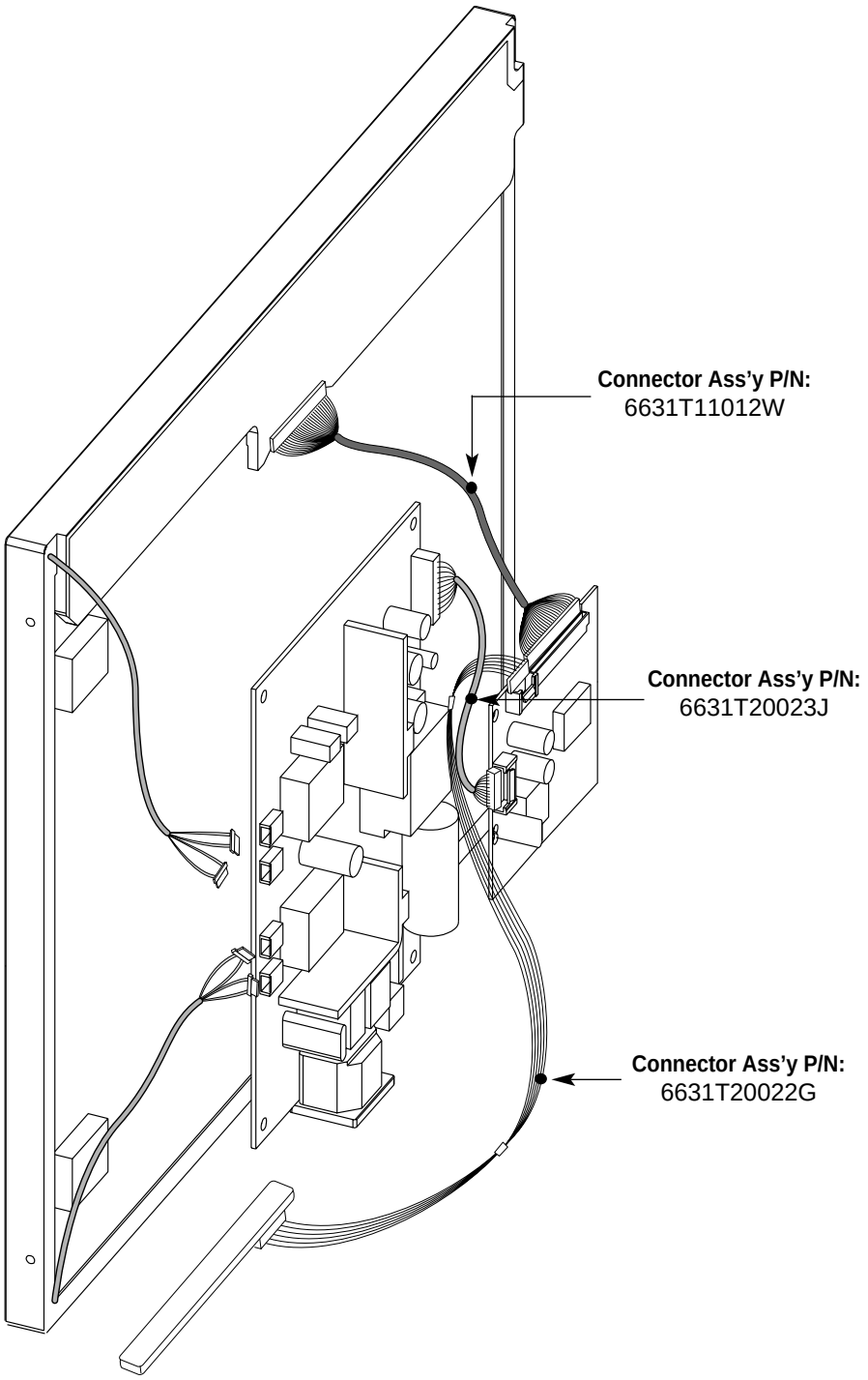


Pull out the lamp cables

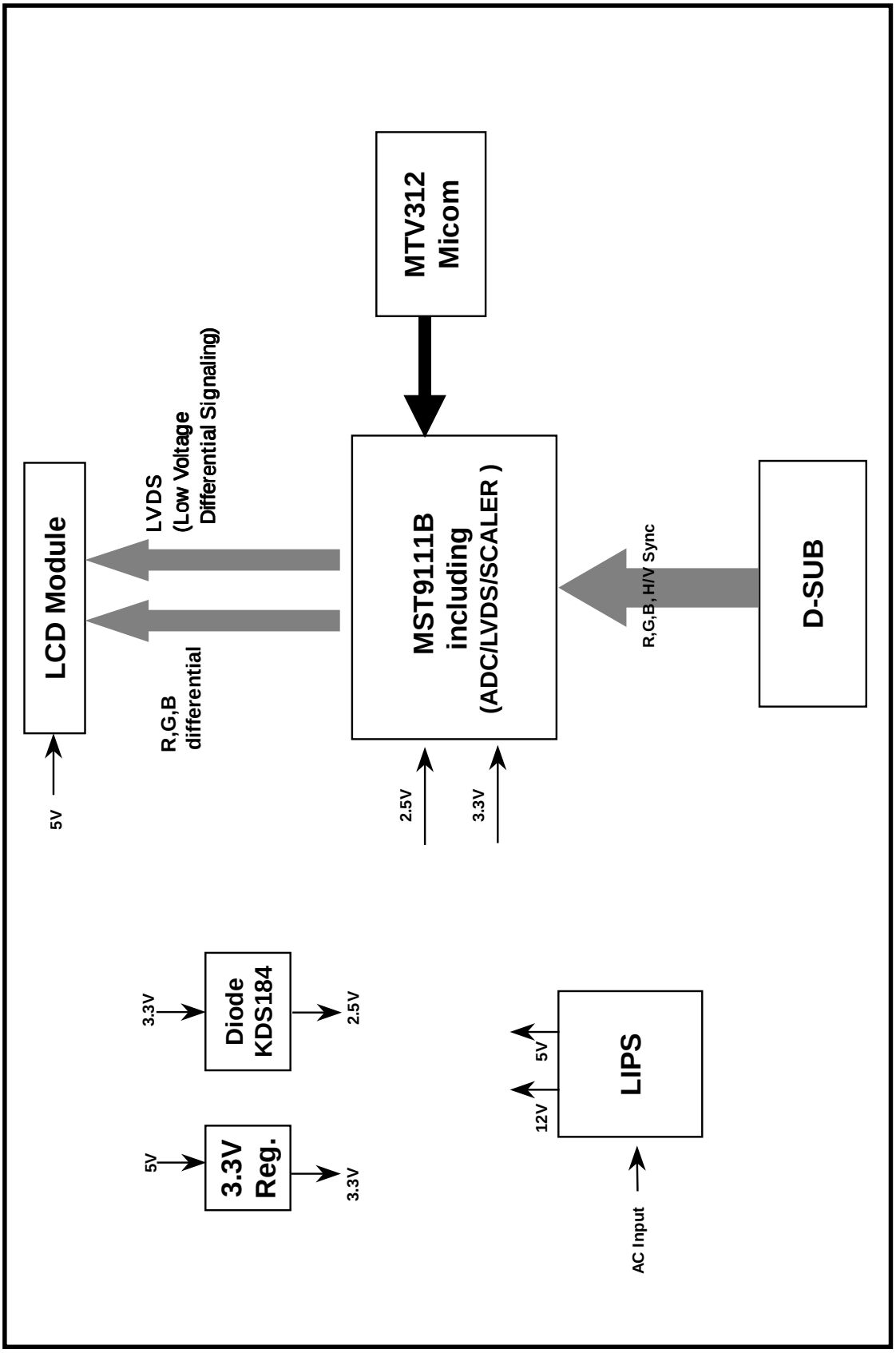
 # 16

1. Lift downside of metal frame
2. Detach the insulation tage
3. Pull out the link cable

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, 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.

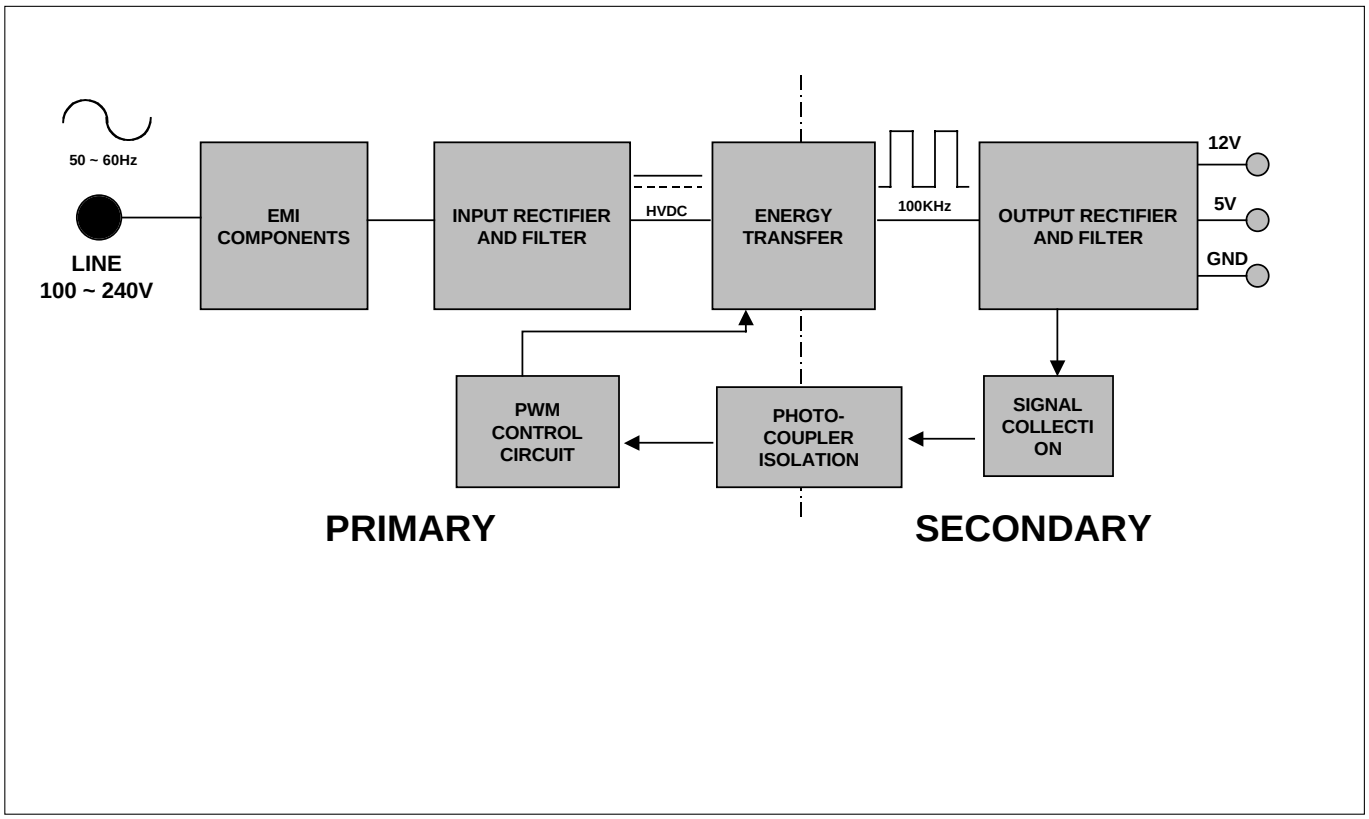
2. Power Part.

This part consists of the one 3.3V 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 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.

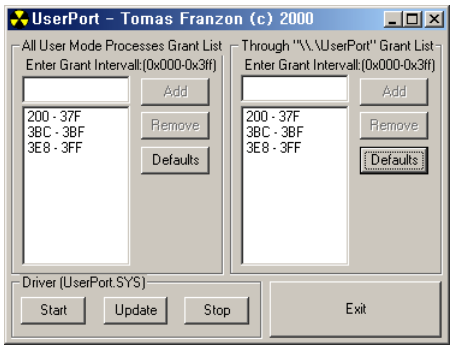
6. Signal collection.
This part function is to collect the any change from the dc output and feed back to the primary through photo transistor.

ADJUSTMENT

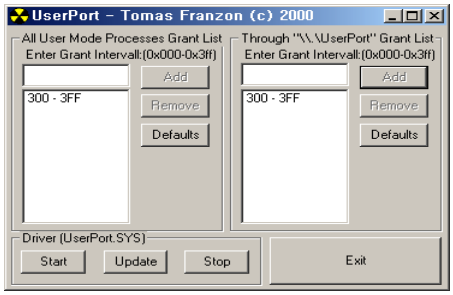
Windows EDID V1.0 User Manual

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

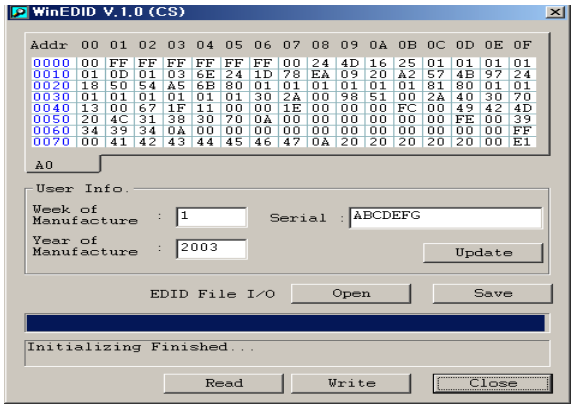


   c) Remove all default number
   d) Add 300-3FF

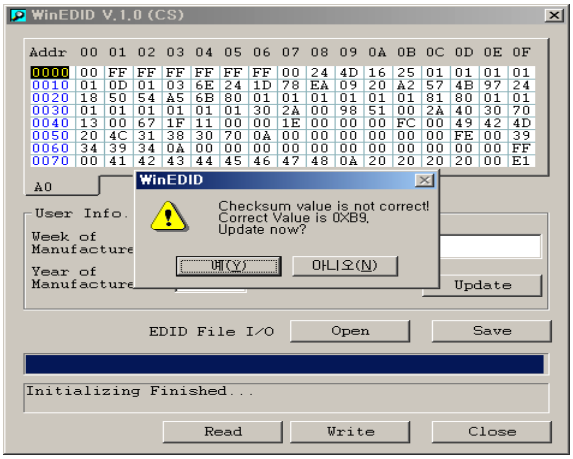


   e) Click Start button.
   f) Click Exit button.

2. EDID Read & Write
   1) Run WinEDID.exe



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



SERVICE OSD

1) Turn off the power switch at the front side of the display.

2) Wait for about 3 seconds and press Exit POWER switch with 1 second interval.

3) The SVC OSD menu contains additional menus that the User OSD menu as described below.

a) MODULE SELECT
b) NVRAM INIT : EEPROM initialize(24C08)
c) ADC OFFSET : The lowest value of input leves 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.
g) AGING : To select factory aging mode.
h) ELAPSED TIME : ## Hr => Display the monitor's elapsed time.

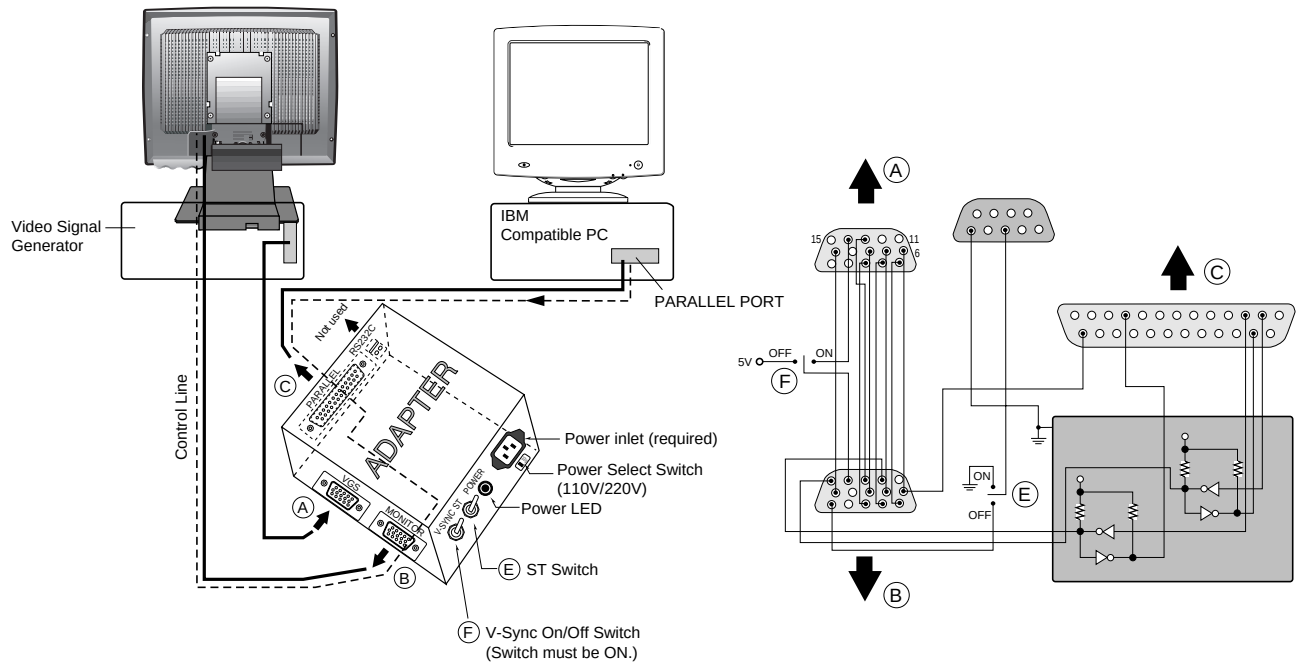
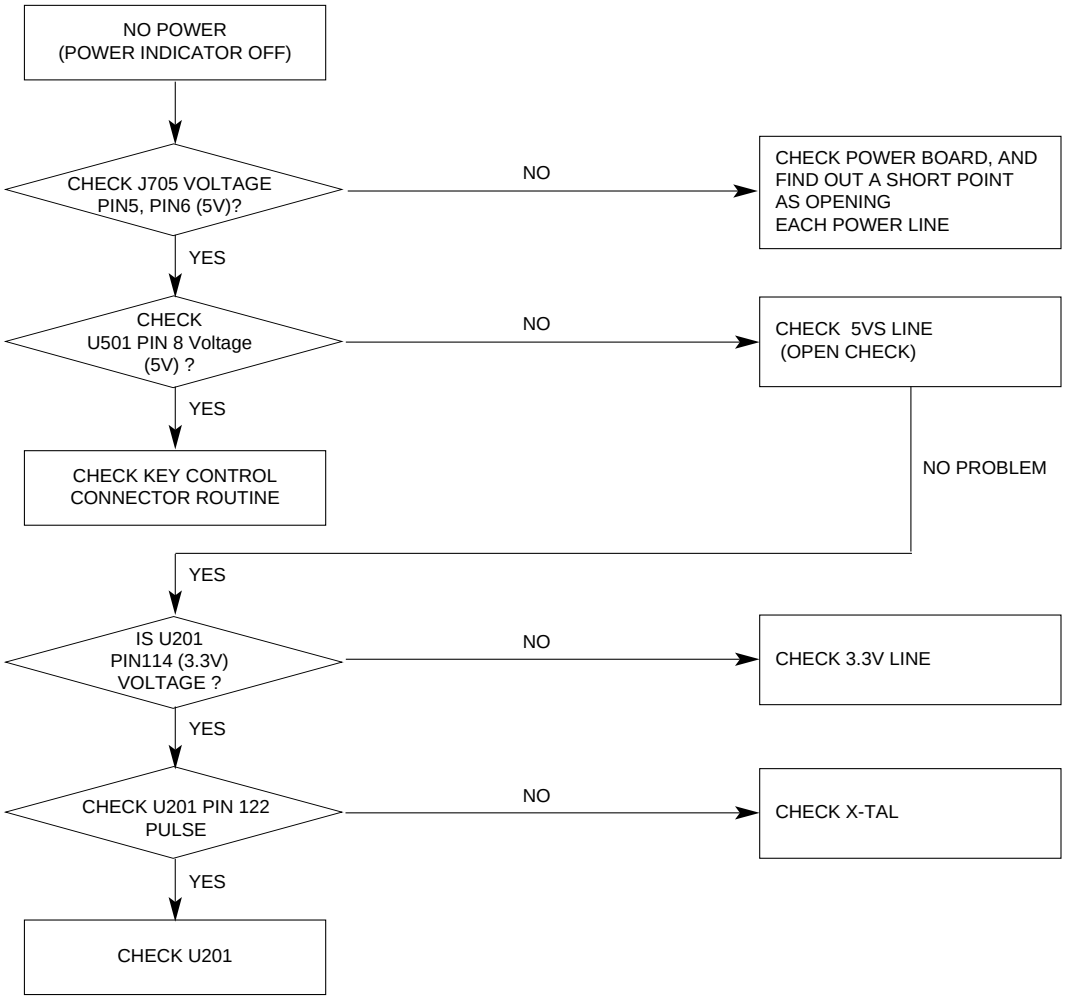


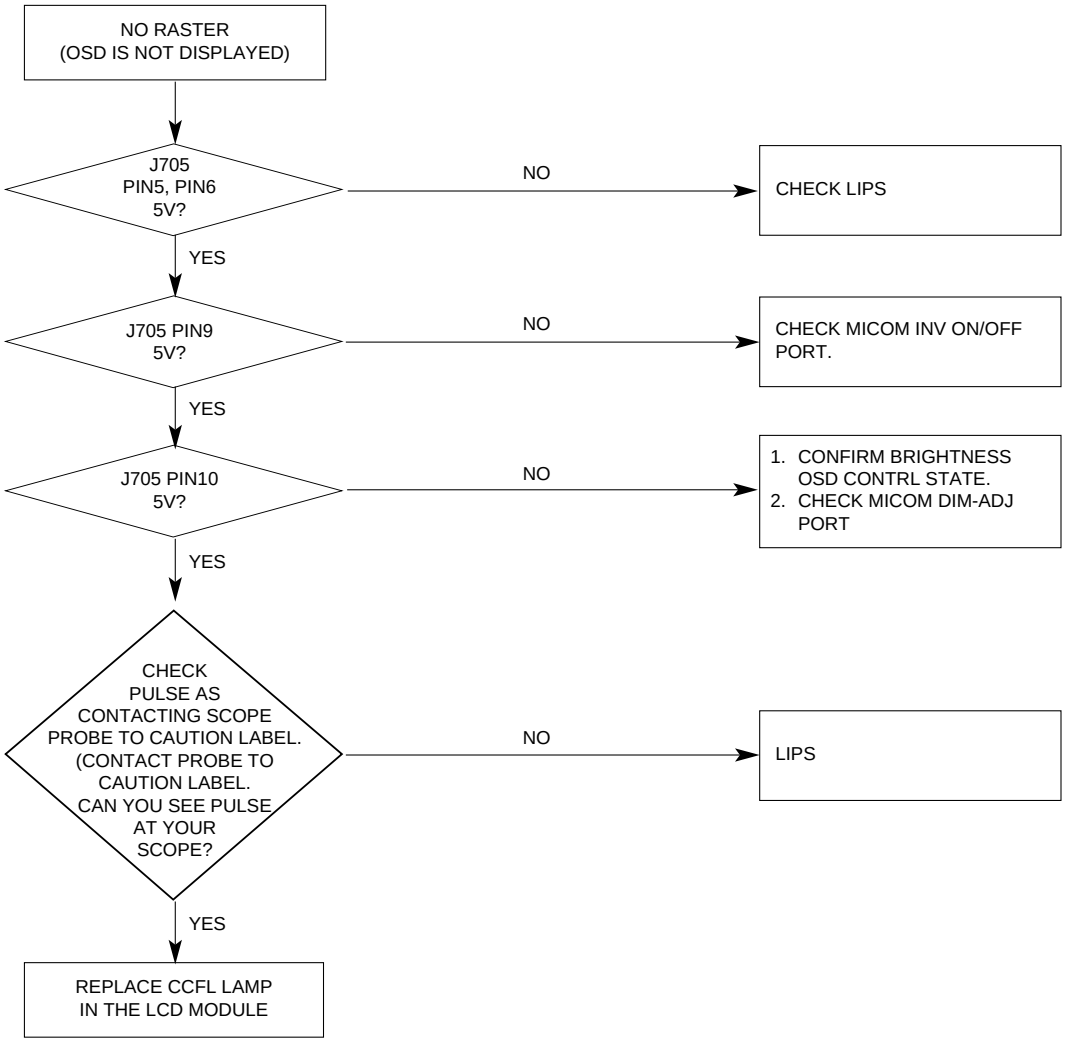
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

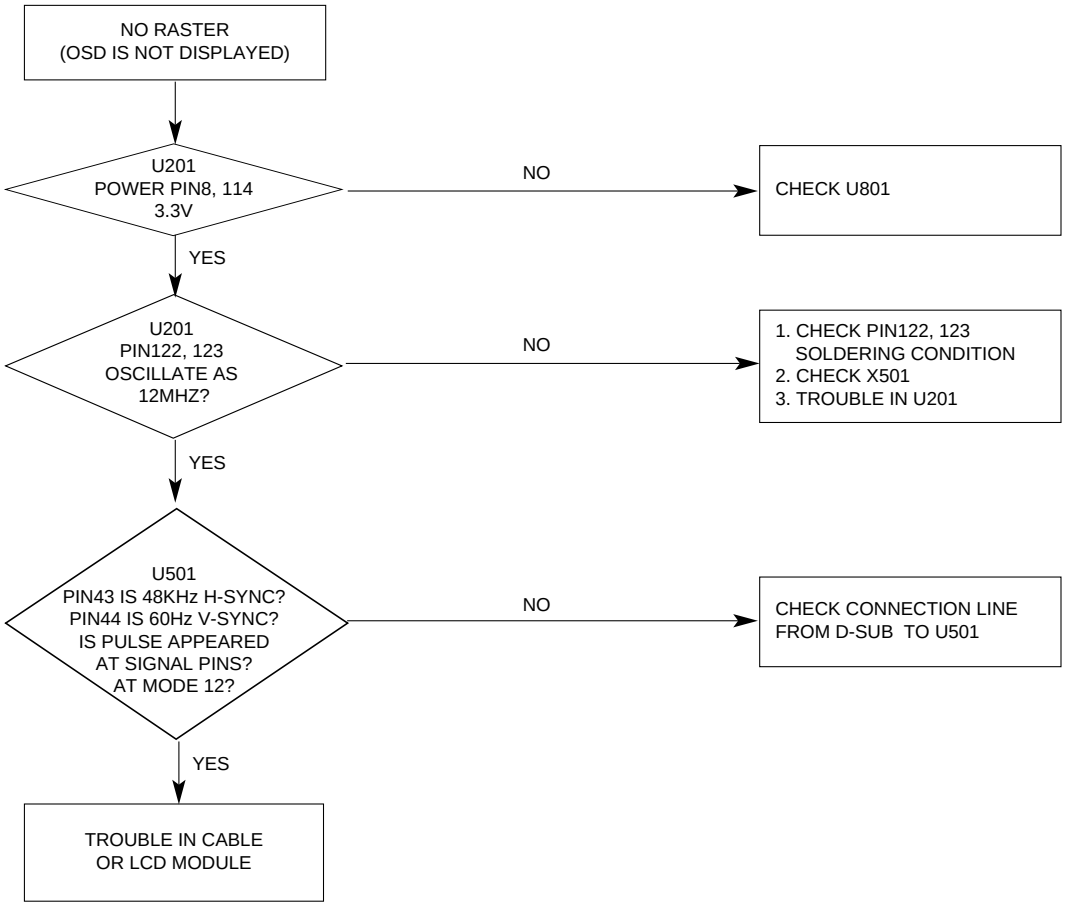
1. NO POWER



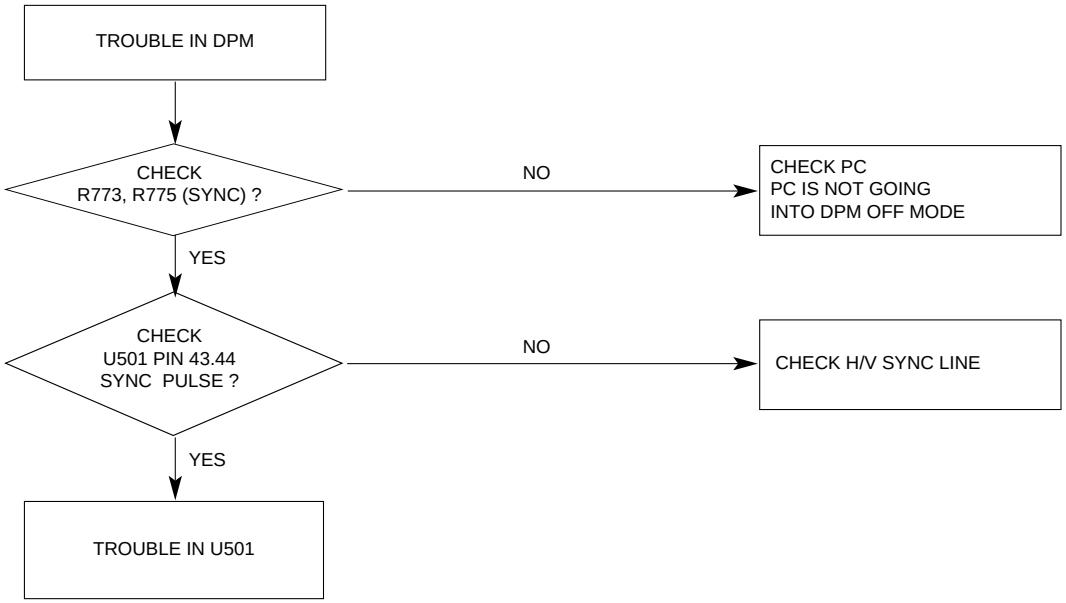
2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS



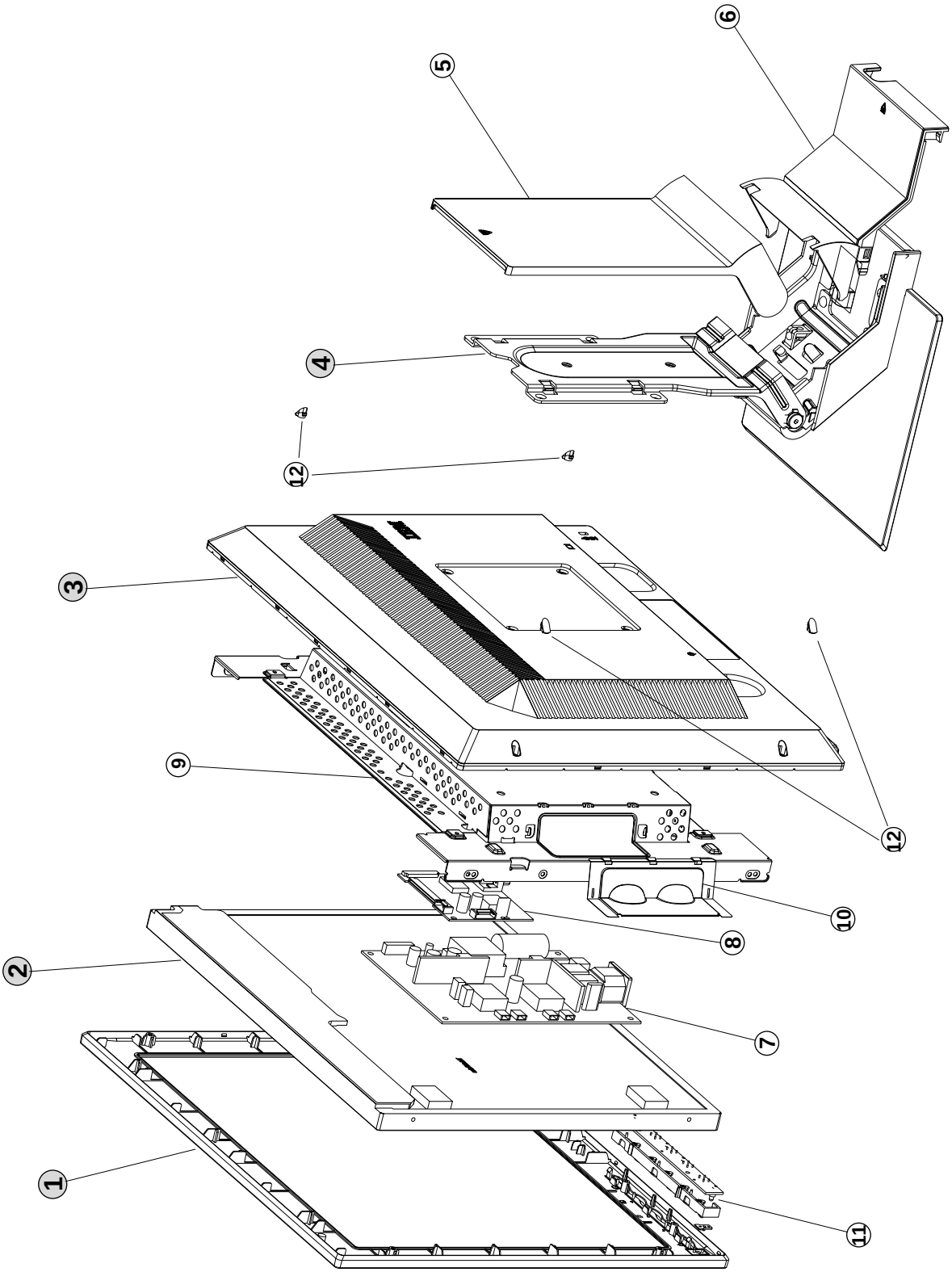
3. NO RASTER (OSD IS NOT DISPLAYED) – MST9111B



4. TROUBLE IN DPM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL107B	CABINET ASSEMBLY, LL170M IBM L096A STEALTH BK LGEWA
2	6304FLP107A	LCD(LIQUID CRYSTAL DISPLAY), LM170E01-B5K1 ***LG PHILPS TFT COLOR*** (LOX73L),300NITS SXGA LVDS
	6304FAU012C	LCD(LIQUID CRYSTAL DISPLAY), M170EG01-V0 ***AUO TFT COLOR*** SXGA LVDS 300NITS PSWG TCO-03
3	3809TKL077B	BACK COVER ASSEMBLY, LL170M L080A STEALTH BK LGEWA
4	3043TKK160B	TILT SWIVEL ASSEMBLY, LL170M . STEALTH BK LGEWA
5	3550TKK521A	COVER, LL170M HINGE IBM17"
6	3551TKK524A	COVER ASSEMBLY, LL170M STAND . REAR COVER
7	6871TPT272A	PWB(PCB) ASSEMBLY,POWER, LL170M(IBM) POWER TOTAL POWERNET LIPS FOR ***LPL***
	6871TPT272B	PWB(PCB) ASSEMBLY,POWER, LL170M(IBM) POWER TOTAL POWERNET LIPS FOR ***AUO***
8	3313TL2018B	MAIN TOTAL ASSEMBLY, LL170M IBM CL-61 ***- LPL***
	3313TL2018C	MAIN TOTAL ASSEMBLY, LL170M IBM CL-61***- AUO***
9	4951TKS149B	METAL ASSEMBLY, FRAME MAIN LL170M LGEWA SKD
10	4814TKK269B	SHIELD, INVERTER LL170M LGEWA CKD
11	6871TST547A	PWB(PCB) ASSEMBLY,SUB, LL170M CONTROL TOTAL IBM CL-61
12	5040TKM072A	RUBBER, COVER MOLDING SCREW(LL170M)SANTOPRENE S/BLACK

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. 06. 04.

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		MAIN BOARD		
		CAPACITORS		
		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
		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
		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
		C230	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C231	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C232	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C233	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C240	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C251	0CK104CK56A	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	0CK104CK56A	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	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C701	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C703	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C708	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C709	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C710	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C711	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C717	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C718	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C719	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C720	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C721	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C727	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C732	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C733	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C734	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C735	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C760	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C801	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y

DATE: 2004. 06. 04.

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C803	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C804	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C805	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C806	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C807	0CE107EF610	"100UF KMG,RD 16V 20% FL BULK"
		C808	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C809	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C810	0CK104CK56A	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	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C816	0CK103CK51A	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
		D804	0DSDI00068A	BAV70 DIODES R/TP SOT23 100V
		D805	0DSDI00068A	BAV70 DIODES R/TP SOT23 100V
		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
		ZD711	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ICs		
		U201	0IPRPM3008B	"MST9111B(ANALOG) MSTAR 128P,"
		U501	0IZZTSZ458A	MYSON MTV312 LL170M
		U502	0ISG240860B	M24C08W6 SGS-THOMSON 8SOP R/
		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

DATE: 2004. 06. 04.

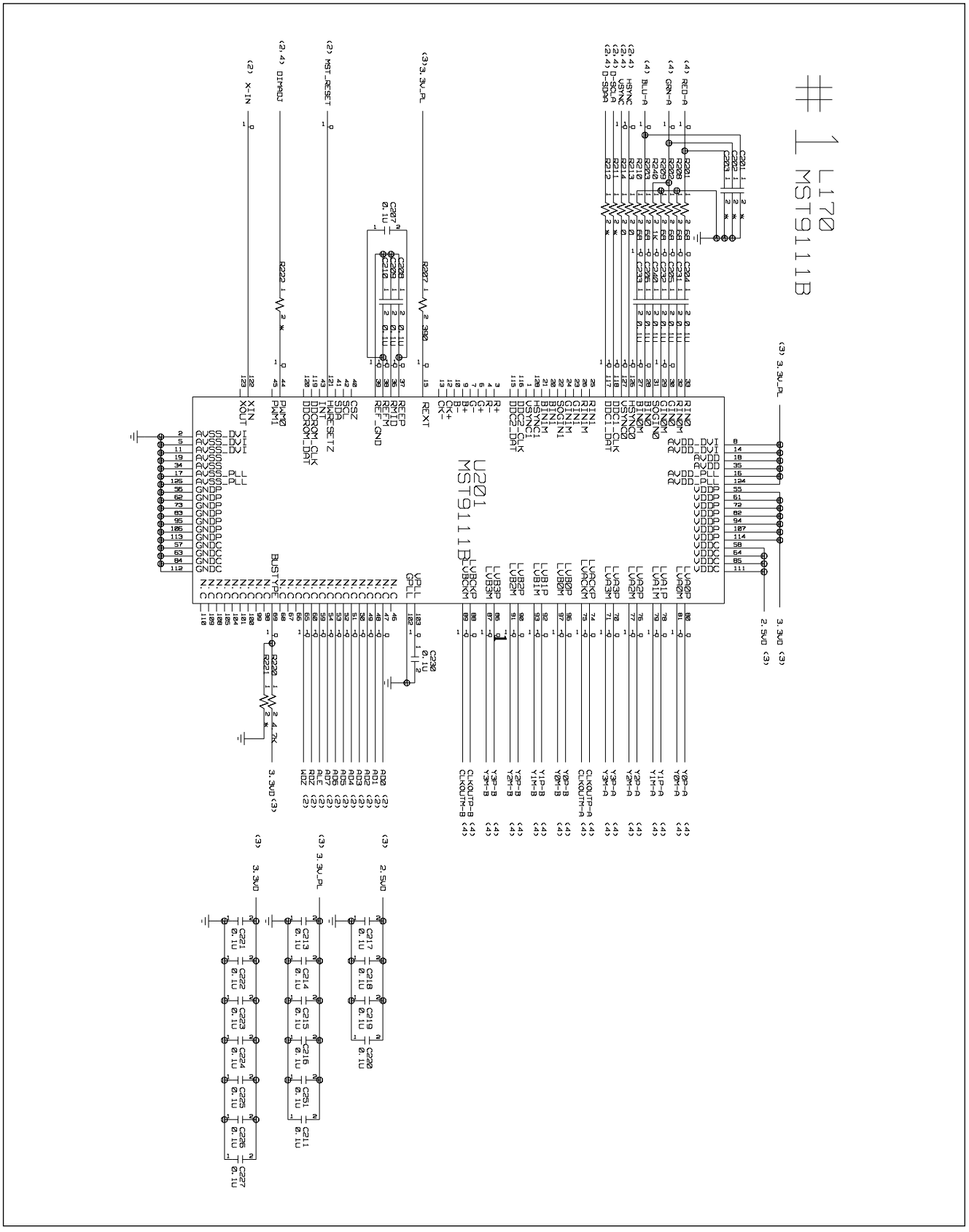
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R209	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R210	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R213	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R214	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R220	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R240	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		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	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R513	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R514	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R515	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R516	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R518	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		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
		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
		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	0RJ0000D677	0 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	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		R561	0RJ4701D677	4.7K 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
		R565	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R566	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R706	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R708	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R709	0RJ4700D677	470 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
		R726	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R727	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R737	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP

DATE: 2004. 06. 04.

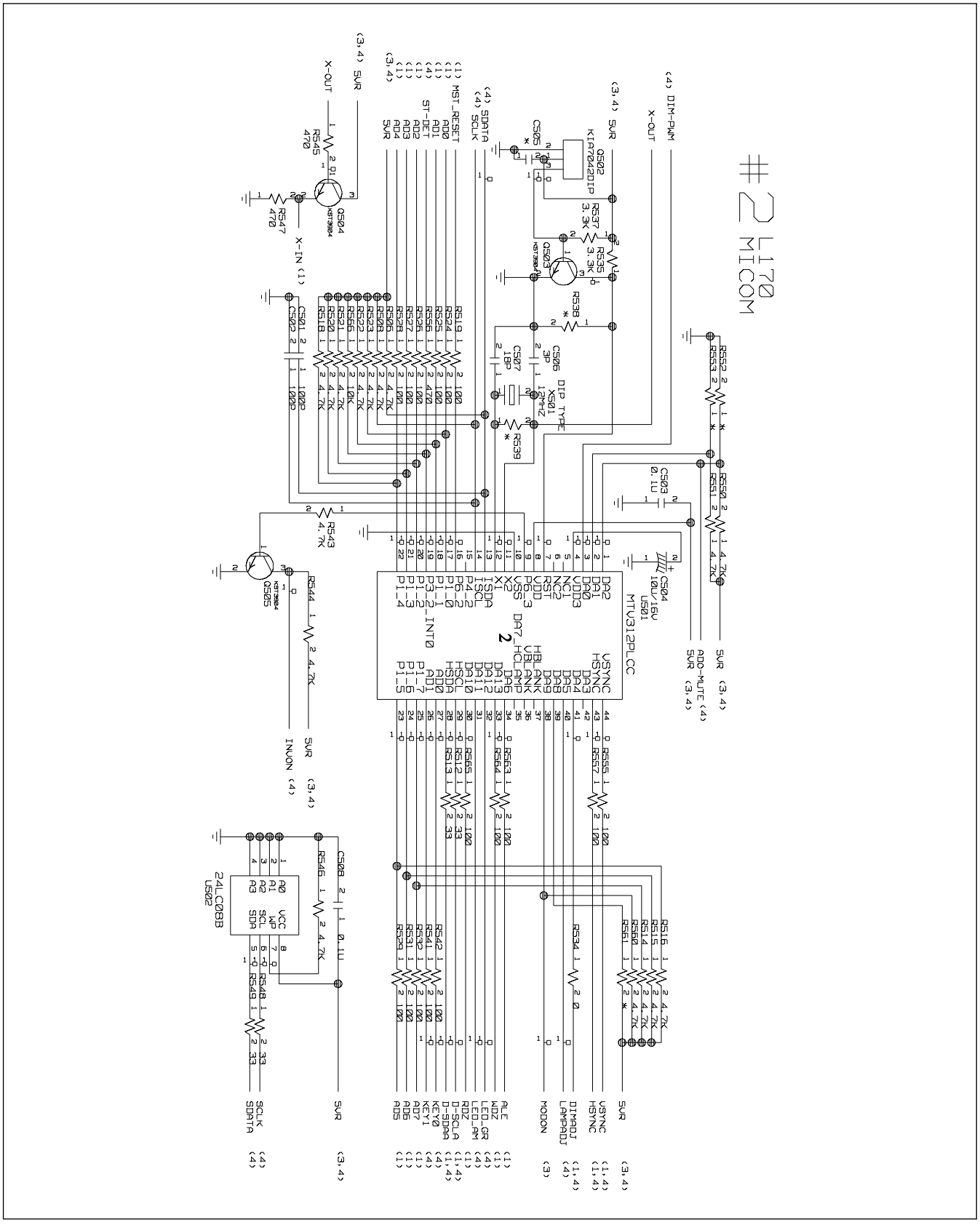
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R744	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R745	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R747	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R748	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R769	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R772	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R773	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R774	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R775	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R779	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R780	0RJ2001D677	2K OHM 1/10 W 5% 1608 R/TP
		R781	0RJ2001D677	2K OHM 1/10 W 5% 1608 R/TP
		R782	0RJ0102D677	10 OHM 1/10 W 5% 1608 R/TP
		R783	0RJ0102D677	10 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
		R821	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R822	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R824	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		OTHERs		
		X501	6212AA2004A	HC-49U TXC 12.0MHZ +/- 30 PP
		CONTROL BOARD		
		LED1	0DLLT0089AA	LITEON LTL-1BEDJ-0C2 TP GREE
		R1	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R2	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R3	0RD8200Q609	820 1/4W(3 5% TA52
		R4	0RD8200Q609	820 1/4W(3 5% TA52
		R5	0RD1501Q609	1.50K 1/4W(3 5% TA52
		SW1	140-058E	SKHV10910B LGEC NON 12V 20A
		SW2	140-058E	SKHV10910B LGEC NON 12V 20A
		SW3	140-058E	SKHV10910B LGEC NON 12V 20A
		SW4	140-058E	SKHV10910B LGEC NON 12V 20A
		SW5	140-058E	SKHV10910B LGEC NON 12V 20A
		ZD1	0DZ560009AG	GDZJ5.6B TP GRANDE DO-34 500
		ZD2	0DZ560009AG	GDZJ5.6B TP GRANDE DO-34 500

SCHEMATIC DIAGRAM

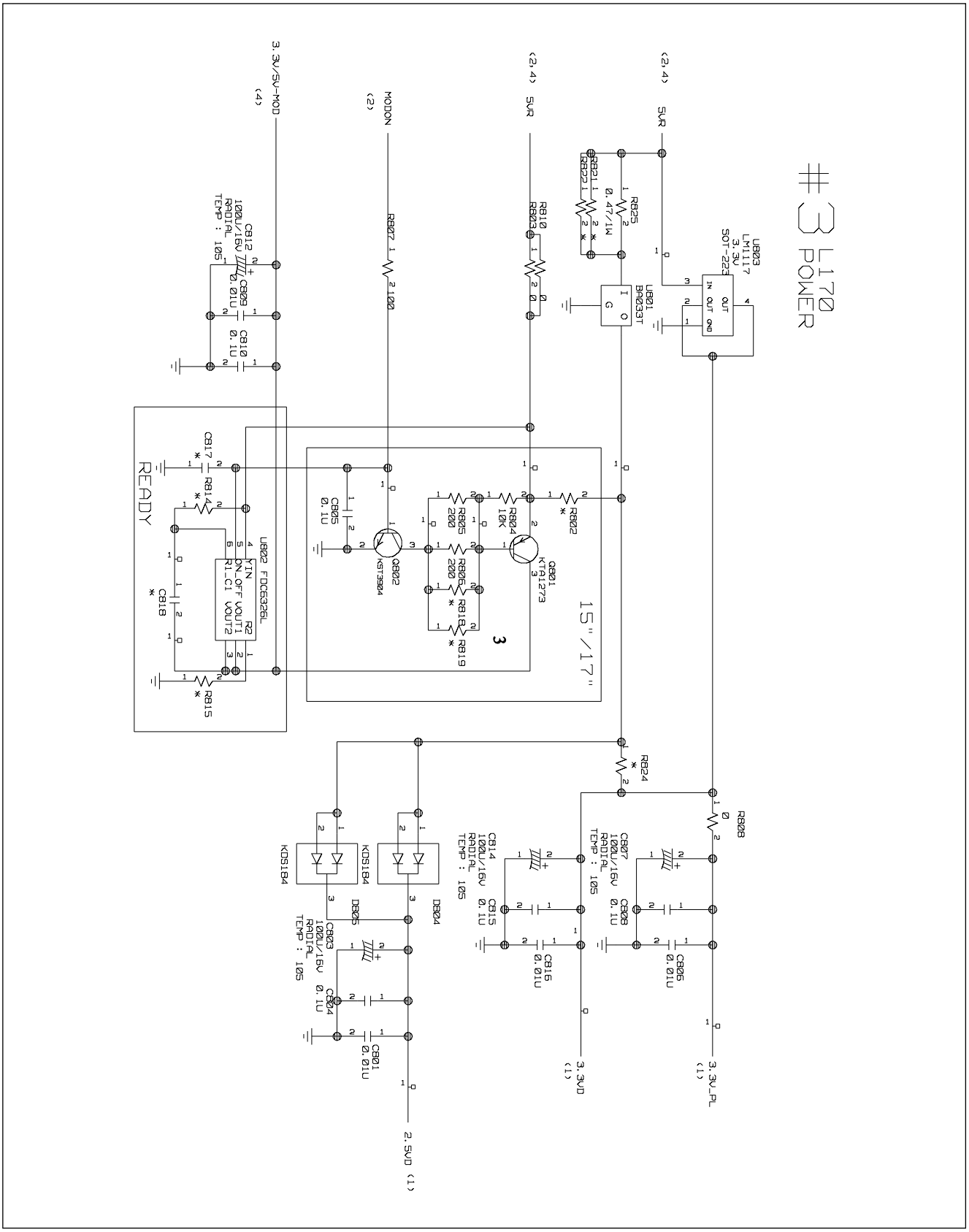
1. SCALER & MICOM IC



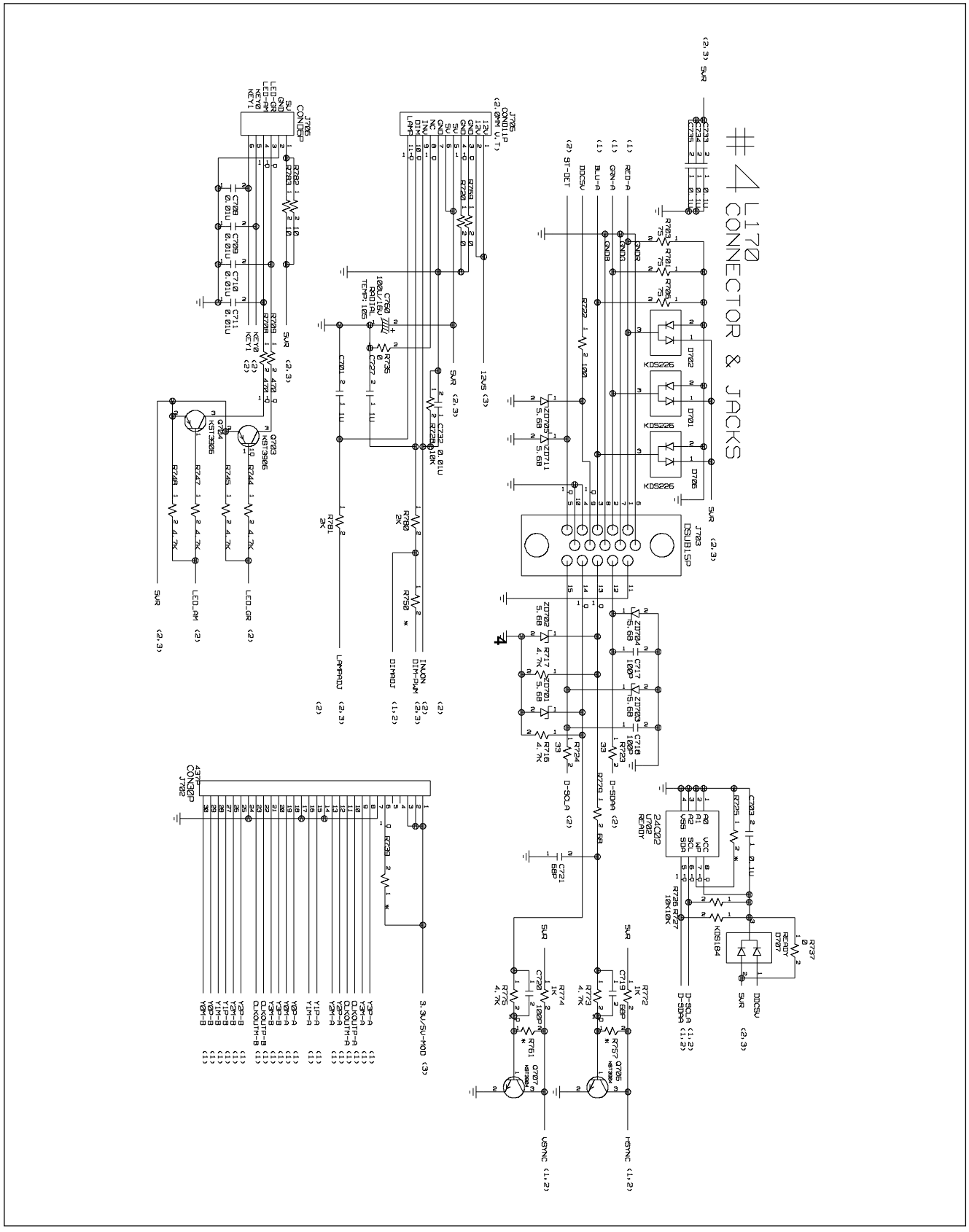
2. MICOM


#2 L170 MICOM
MTV312PLCC
U501
24LC08B
U502
Q502
KIA7042DIP
Q503
Q504
Q505
DIP TYPE
X501
12MHz
C504
10uV/16V
C503
0.1u
C505
C506
3P
C507
18P
R537
3.3K
R535
3.3K
R538
R539
R543
4.7K
R544
4.7K
R545
470
R547
470
C501
C502
100P
C508
0.1u
R546
4.7K
R548
R549
33
R550
R551
4.7K
R552
R553
1K
R534
2.0
(4) DIM-PWM
X-OUT
(3,4) SVR
ADD-MUTE (4)
SVR (3,4)
(1) MST_RESET
(1) AD0
(1) AD1
(4) ST-DET
(1) AD2
(1) AD3
(3,4) AD4
(4) SDATA
(4) SCLK
X-IN (1)
INJON (4)
DIMADJ (1,4)
LAMPADJ (4)
MODON (3)
VSYNC (1,4)
HSYNC (1,4)
ALE (1)
WDZ (1)
LED-GR (4)
LED-AM (4)
RDZ (1)
D-SCLA (1,4)
D-SDAA (1,4)
KEY0 (4)
KEY1 (4)
AD7 (1)
AD6 (1)
AD5 (1)
SCLK (4)
SDATA (4)

3.POWER


#3 L170 POWER
U803 LM1117 3.3V SOT-223
U801 BA033T
R825 0.47/1W
RB21 RB22
RB10 RB03
R807 2.100
R802 *
R804 10K
R805 200
R806 200
R818 *
R819 *
Q801 KTA1273
Q802 KST3904
C805 0.1U
15"/17"
3
READY
U802 FDC6326L
C817 *
R814 *
C818 *
R815 *
C812 100U/16V RADIAL TEMP : 105
C809 0.01U
C810 0.1U
R824 *
R808 0
C807 100U/16V RADIAL TEMP : 105
C808 0.1U
C805 0.01U
C814 100U/16V RADIAL TEMP : 105
C815 0.1U
C816 0.01U
C803 100U/16V RADIAL TEMP : 105
C804 0.1U
C801 0.01U
D803 KDS184
D804 KDS184
D805 KDS184
(2,4) 5VR
MODON (2)
3.3V/5V-MOD (4)
3.3VD (1)
3.3V_PL (1)
2.5VD (1)

4. CONNECTOR & JACKS



Jun. 2004
Printed in Korea

P/NO : 3828TSO058M