

# Service Guide Specification

## 1. Model Description

|        |         |              |                |          |             |
|--------|---------|--------------|----------------|----------|-------------|
| MODEL  | L1720BM | BRAND        | LG             | Part No. | 3828TSL084G |
| SUFFIX | ALUSR   | Product Name | FLATRON L1720B |          |             |

## 2. Printing Specification

1. Trim Size (Format) : 215mm x 280 mm

2. Printing Colors

- Cover : LG COLORS
- Inside : Black

3. Stock (Paper)

- Cover : Snow White 150 g/m<sup>2</sup>
- Inside : Snow White 100 g/m<sup>2</sup>

4. Printing Method :

5. Bindery : Saddle stitch

6. Language : English

7. Number of pages : 29 ( Including blank 3page)

## 3. Special Instructions

### (1) Origin Notification

- \* LGEDI : Printed in Indonesia
- \* LGESP : Printed in Brazil
- \* LGENT : Printed in China
- \* LGEWA : Printed in U.K.
- \* LGEMX : Printed in Mexico
- \* LGEIL : Printed in India

## 4. Changes

|             |          |           |            |                 |
|-------------|----------|-----------|------------|-----------------|
| △<br>8      |          |           |            |                 |
| △<br>7      |          |           |            |                 |
| △<br>6      |          |           |            |                 |
| △<br>5      |          |           |            |                 |
| △<br>4      |          |           |            |                 |
| △<br>3      |          |           |            |                 |
| △<br>2      |          |           |            |                 |
| △<br>1      |          |           |            |                 |
| REV.<br>NO. | MM/DD/YY | SIGNATURE | CHANGE NO. | CHANGE CONTENTS |

# Pagination sheet

P/N0.3828TSL084G

Total pages : 29pages

|       |                                            |                  |                   |                  |                     |                                 |                   |                   |
|-------|--------------------------------------------|------------------|-------------------|------------------|---------------------|---------------------------------|-------------------|-------------------|
| Cover | Front cover<br>Inside<br><br>Contents<br>2 | English<br><br>3 | English<br><br>4  | English<br><br>5 | English<br><br>.... | English<br><br>....             | English<br><br>22 | English<br><br>23 |
|       |                                            |                  | English<br><br>24 | (blank)          | (blank)             | Rear cover<br>Inside<br>(blank) |                   | Rear<br>Cover     |



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

# COLOR MONITOR SERVICE MANUAL

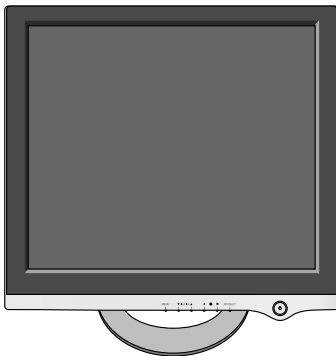
CHASSIS NO. : CL-61

MODEL: FLATRON L1720B (L1720BM-AL\*\*R)

( ) \*\*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          | : 16.2M colors                                                   |
| Electrical Interface | : LVDS                                                           |
| Surface Treatment    | : Hard-coating(3H), Anti-Glare                                   |
| Operating Mode       | : Normally White, Transmissive mode                              |
| Backlight Unit       | : Top/Bottom edge side 4-CCFL<br>(Cold Cathode Fluorescent Lamp) |

### 2. OPTICAL CHARACTERISTICS

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

2-2. Luminance : 200(min), 250(Typ)

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

### 3. SIGNAL (Refer to the Timing Chart)

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

#### 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  $\Omega$

#### 3-3. Operating Frequency

Horizontal : 30 ~ 83kHz  
 Vertical : 56 ~ 75Hz

### 4. Max. Resolution

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)

(Ambient)

6-2. Relative Humidity : 10%~80%  
 (Non-condensing)

6-3. MTBF : 50,000 Hours(Min)

### 7. DIMENSIONS (with TILT/SWIVEL)

#### FullUp Position

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



#### Folded Position

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



### 8. WEIGHT (with TILT/SWIVEL)

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

## PRECAUTION

### WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in LCD monitor that are important for safety. ***These parts are marked  on the schematic diagram and the replacement parts list.*** It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.
- Do not modify original design without obtaining written permission from manufacturer or you will void the original parts and labor guarantee.

### 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.

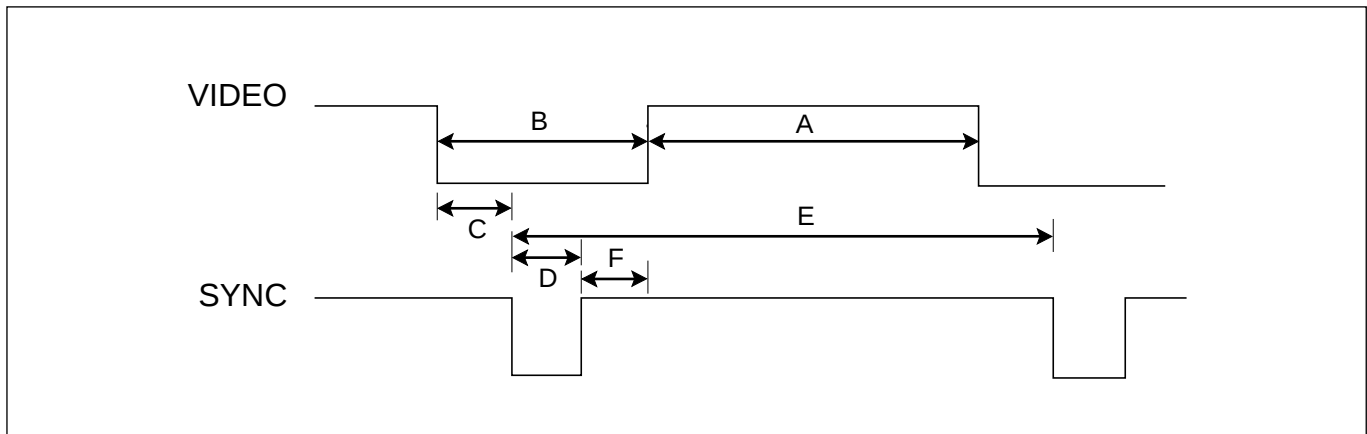
### TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- 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

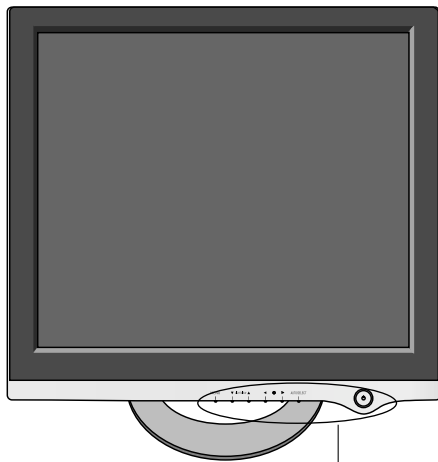


<< Dot Clock (MHz), Horizontal Frequency (kHz), Vertical Frequency (Hz), Horizontal etc... (μs), Vertical etc... (ms) >>

| 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<br>70Hz   |
|      | V        | -             |           | 70.8Hz    | 449              | 350                   | 37              | 2                 | 60             |                   |
| 2    | H        | -             | 28.321    | 31.468    | 900              | 720                   | 18              | 108               | 54             | 720x400<br>70Hz   |
|      | V        | +             |           | 70.09     | 449              | 400                   | 12              | 2                 | 35             |                   |
| 3    | H        | -             | 25.175    | 31.469    | 840              | 640                   | 16              | 96                | 48             | 640x480<br>60Hz   |
|      | V        | -             |           | 59.94     | 525              | 480                   | 10              | 2                 | 33             |                   |
| 4    | H        | -             | 31.5      | 37.5      | 840              | 640                   | 16              | 64                | 120            | 640x480<br>75Hz   |
|      | V        | -             |           | 75        | 500              | 480                   | 1               | 3                 | 16             |                   |
| 5    | H        | +             | 40.0      | 37.879    | 1056             | 800                   | 40              | 128               | 88             | 800x600<br>60Hz   |
|      | V        | +             |           | 60.317    | 628              | 600                   | 1               | 4                 | 23             |                   |
| 6    | H        | +             | 49.5      | 46.875    | 1056             | 800                   | 16              | 80                | 160            | 800x600<br>75Hz   |
|      | V        | +             |           | 75.0      | 625              | 600                   | 1               | 3                 | 21             |                   |
| 7    | H        | +/-           | 57.283    | 49.725    | 1152             | 832                   | 32              | 64                | 224            | 832x624<br>75Hz   |
|      | V        | +/-           |           | 74.55     | 667              | 624                   | 1               | 3                 | 39             |                   |
| 8    | H        | -             | 65.0      | 48.363    | 1344             | 1024                  | 24              | 136               | 160            | 1024x768<br>60Hz  |
|      | V        | -             |           | 60.0      | 806              | 768                   | 3               | 6                 | 29             |                   |
| 9    | H        | -             | 78.75     | 60.123    | 1312             | 1024                  | 16              | 96                | 176            | 1024x768<br>75Hz  |
|      | V        | -             |           | 75.029    | 800              | 768                   | 1               | 3                 | 28             |                   |
| 10   | H        | +/-           | 100.0     | 68.681    | 1456             | 1152                  | 32              | 128               | 144            | 1152x870<br>75Hz  |
|      | V        | +/-           |           | 75.062    | 915              | 870                   | 3               | 3                 | 39             |                   |
| 11   | H        | +/-           | 92.978    | 61.805    | 1504             | 1152                  | 18              | 134               | 200            | 1152x900<br>65Hz  |
|      | V        | +/-           |           | 65.96     | 937              | 900                   | 2               | 4                 | 31             |                   |
| 12   | H        | +             | 108.0     | 63.981    | 1688             | 1280                  | 48              | 112               | 248            | 1280x1024<br>60Hz |
|      | V        | +             |           | 60.02     | 1066             | 1024                  | 1               | 3                 | 38             |                   |
| 13   | H        | +             | 135.0     | 79.976    | 1688             | 1280                  | 16              | 144               | 248            | 1280x1024<br>75Hz |
|      | V        | +             |           | 75.035    | 1066             | 1024                  | 1               | 3                 | 38             |                   |

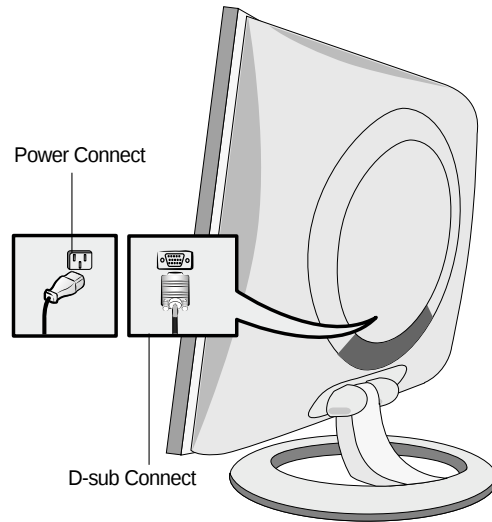
# OPERATING INSTRUCTIONS

## FRONT VIEW

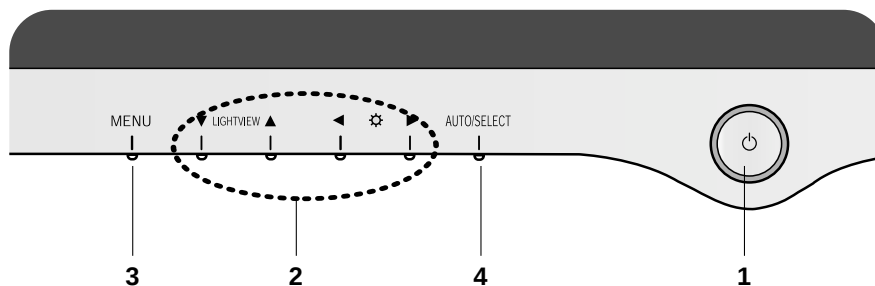


See front control panel

## REAR VIEW



## Front Control Panel



### 1. Power Button

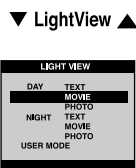
Use this button to turn the display on or off.

#### <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

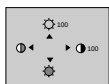
Use these buttons to choose or adjust items in the On Screen Display.



▼ 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

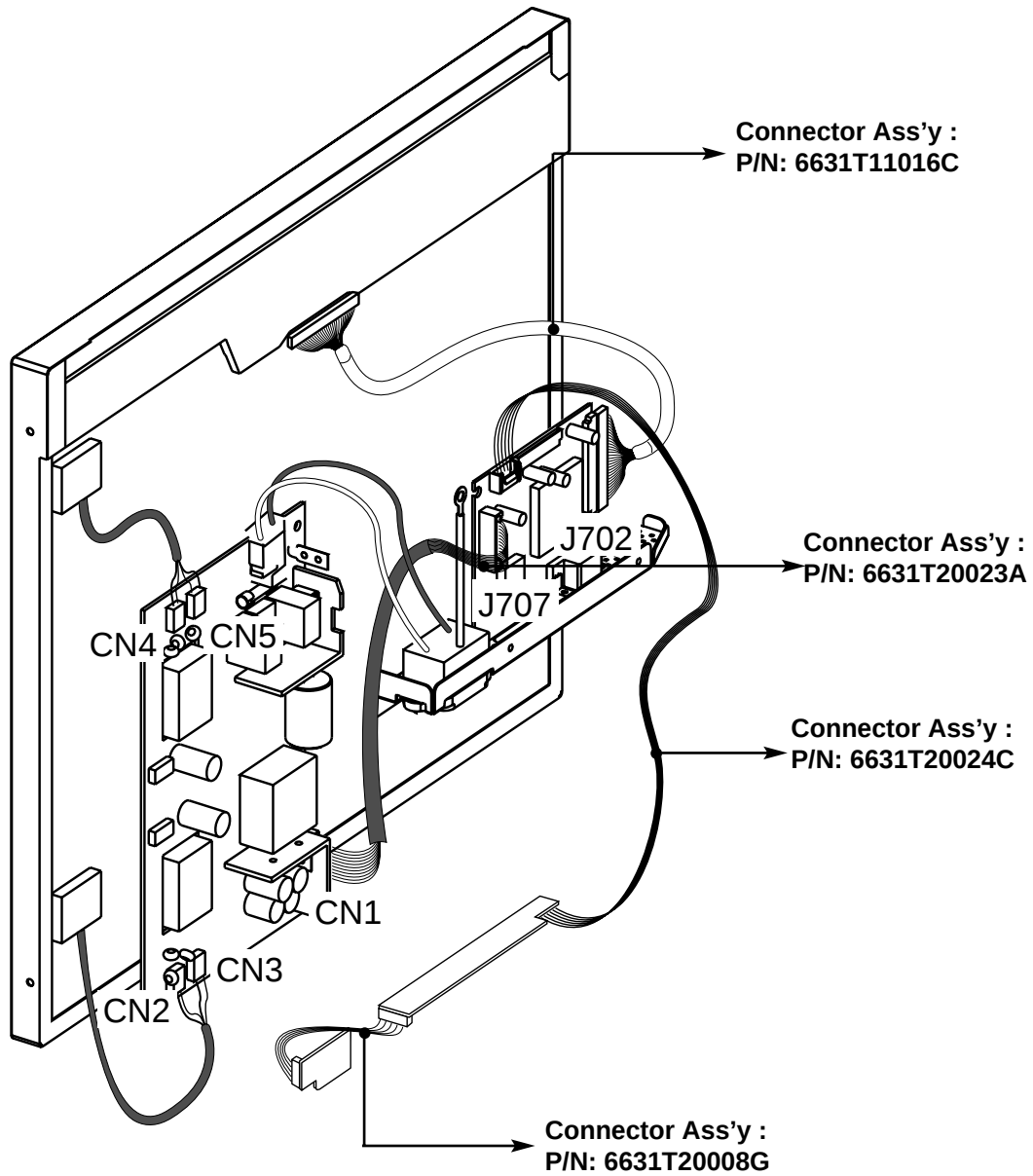
Use this button to enter a selection in the On Screen Display.

PROCESSING  
AUTO CONFIGURATION

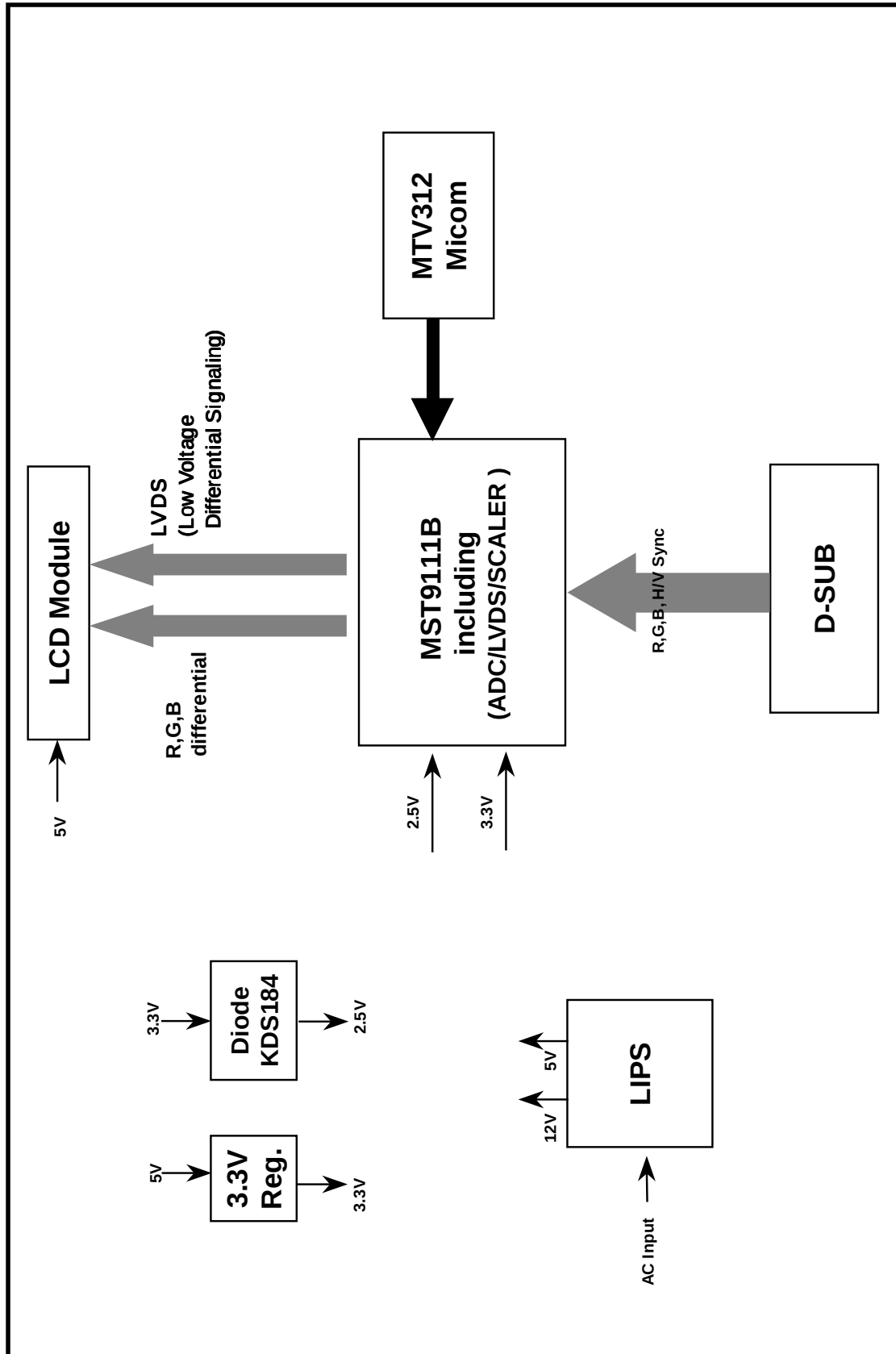
When adjusting your display settings, always press the **AUTO/SELECT** button before entering the On Screen Display(OSD). This will automatically adjust your display image to the ideal settings for the current screen resolution size (display mode).

The best display mode is **1024x768/60Hz**.

## 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.

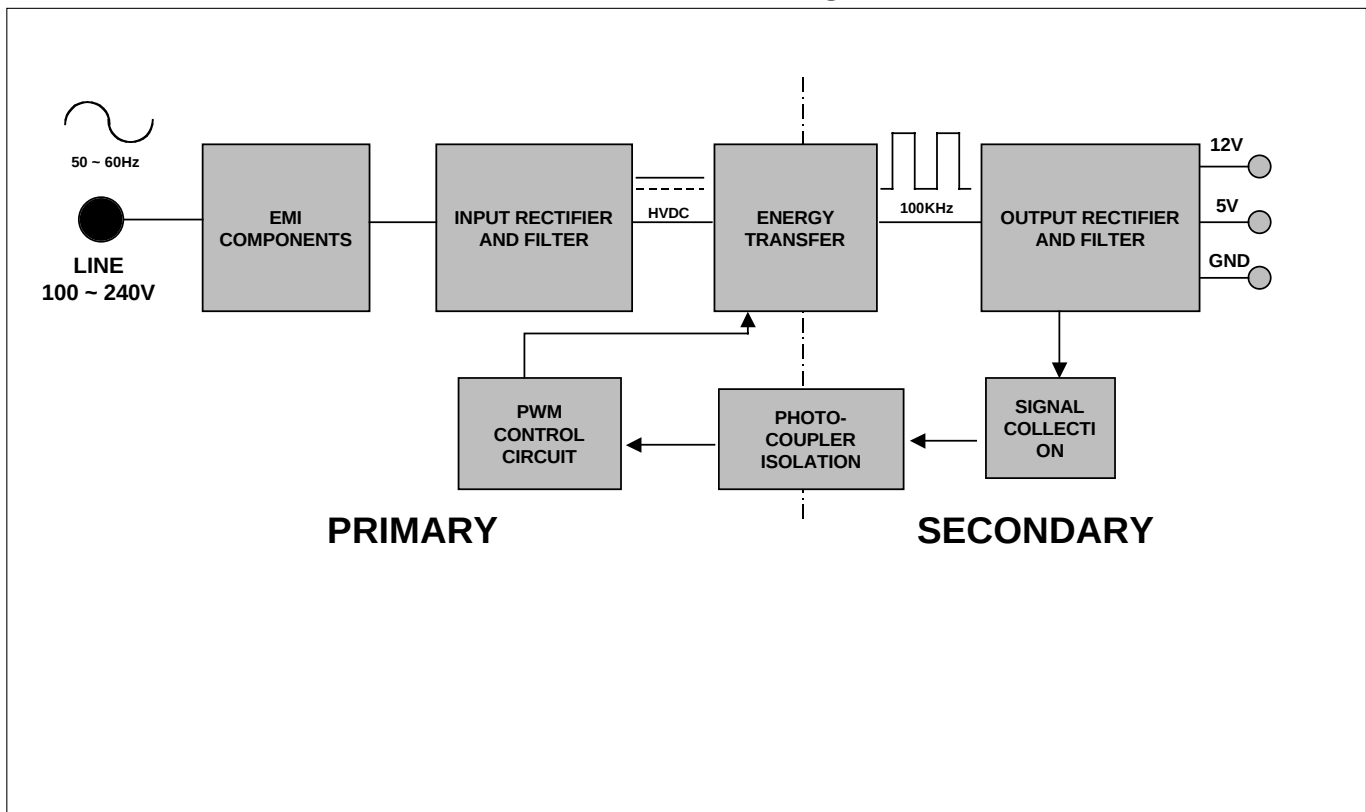
### 3. MICOM Part.

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 achieve 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

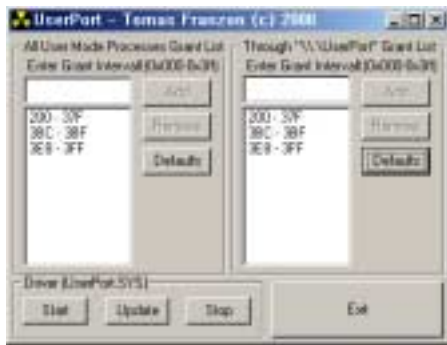
Port Setup: Windows 98 => Don't need setup

Windows 2000, XP => Need to Port Setup.

This program is available to LCD Monitor only.

## 1. Port Setup

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



- Remove all default number
- Add 300-3FF



- Click Start button.
- Click Exit button.

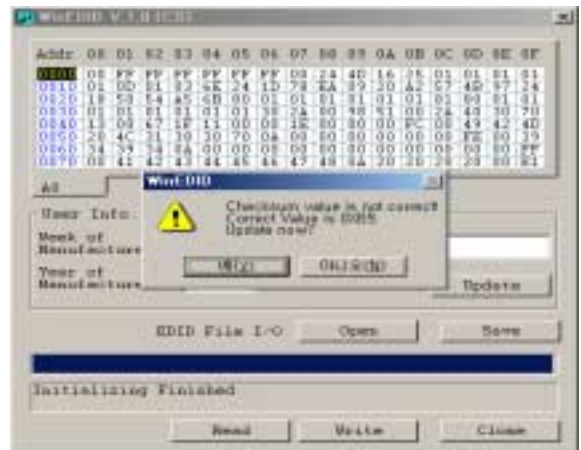
## 2. EDID Read & Write

### 1) Run WinEDID.exe



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

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



## SERVICE OSD

- 1) Turn off the power switch at the front side of the display.
- 2) Wait for about 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.

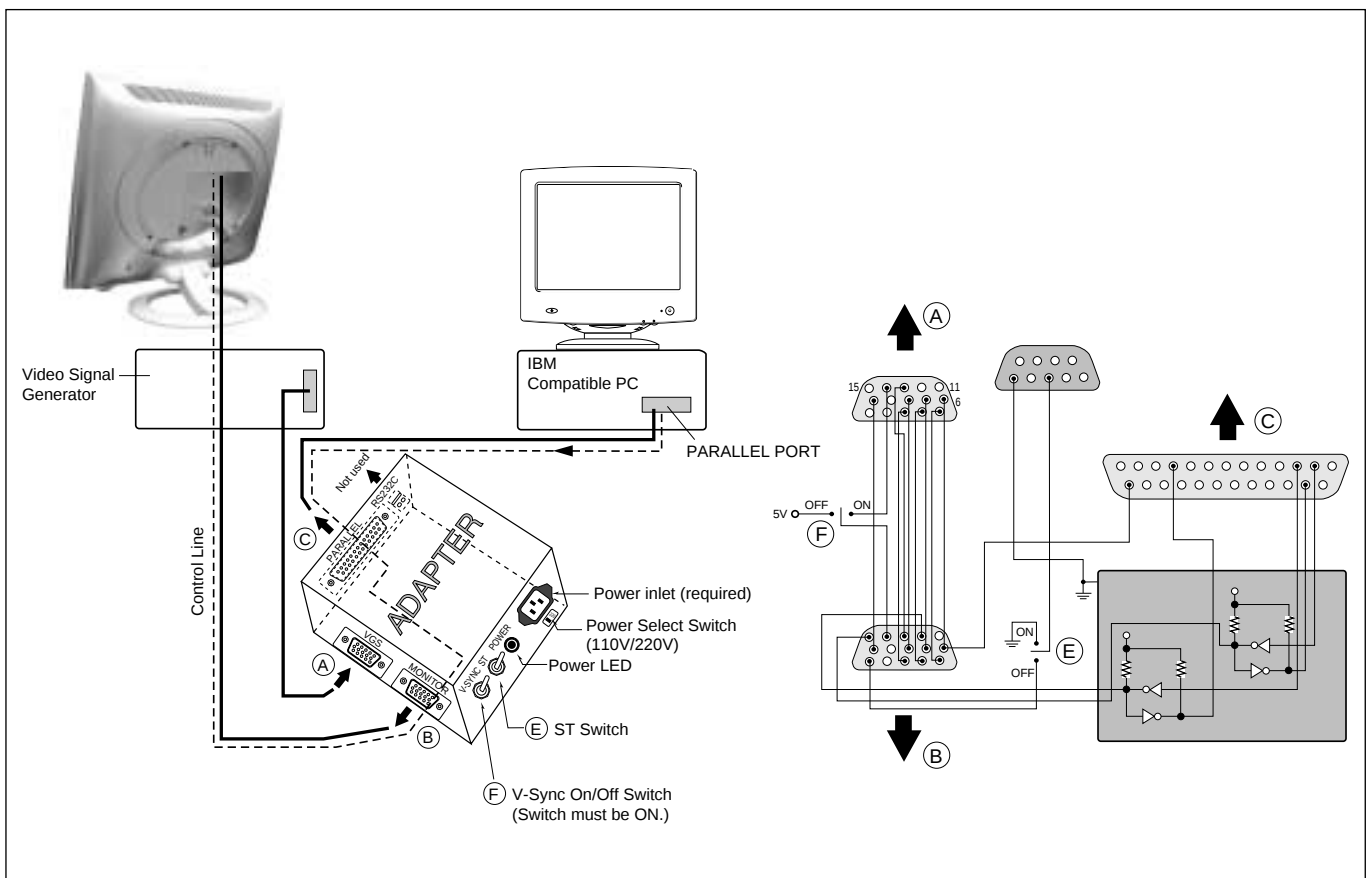
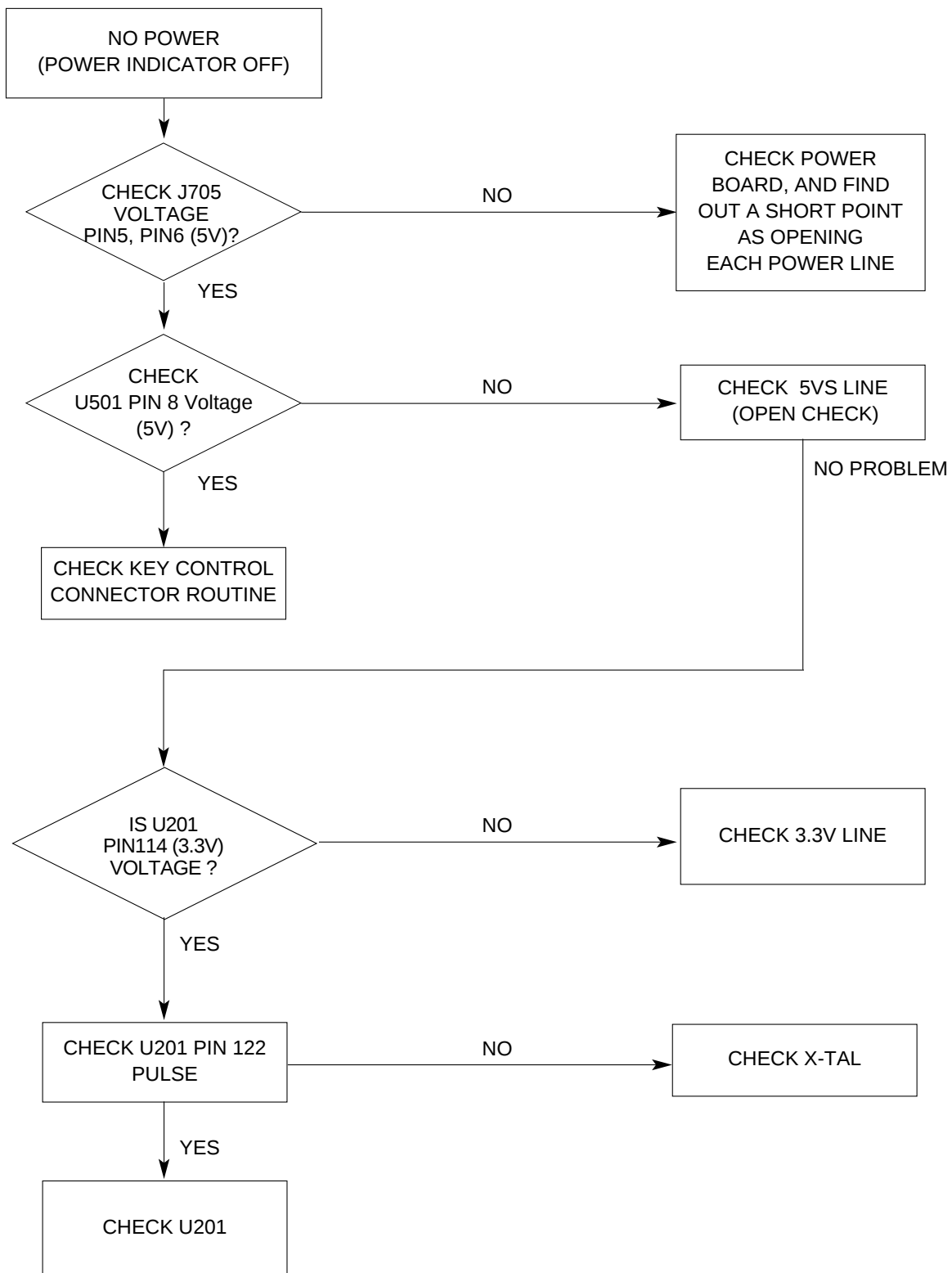


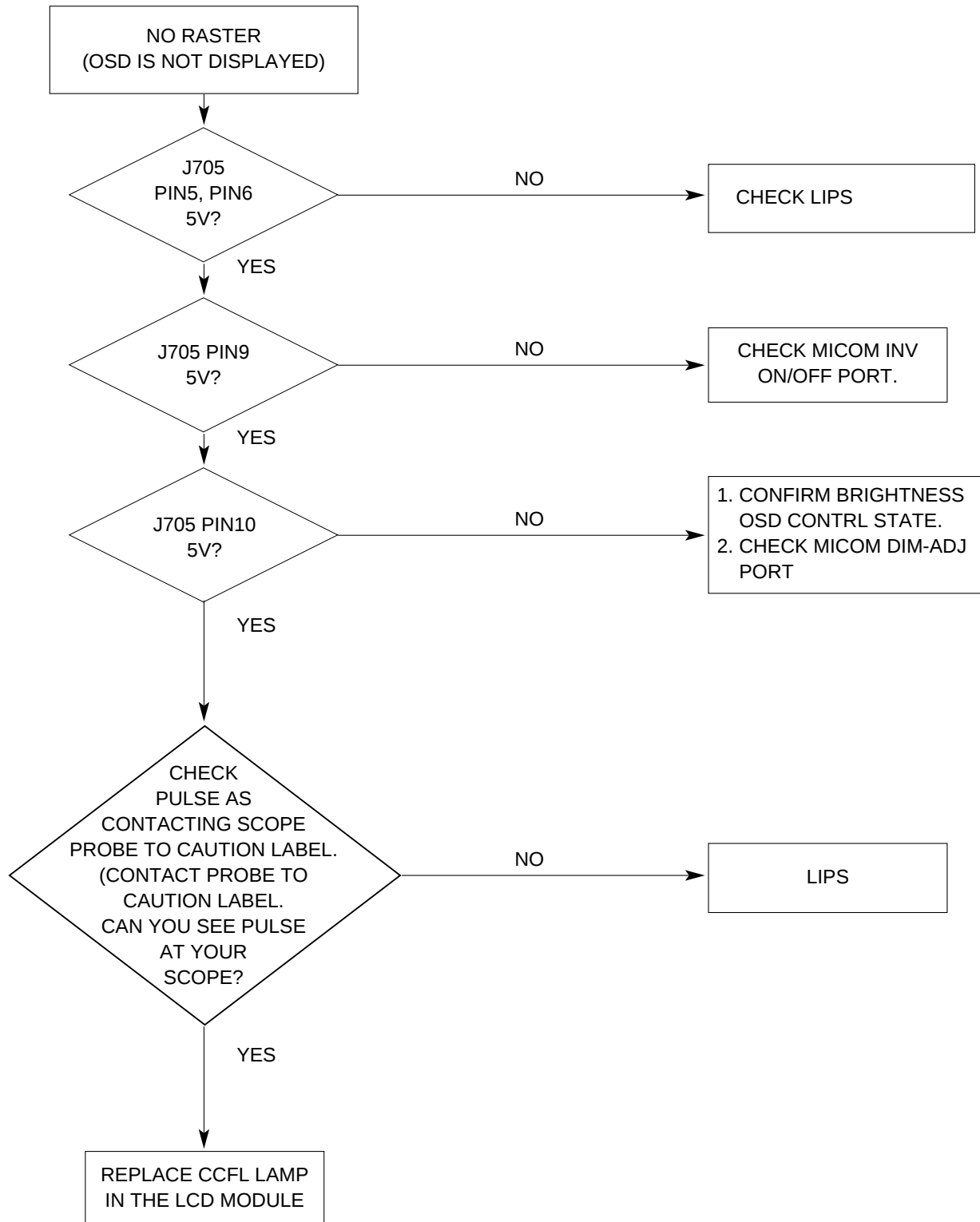
Figure 1. Cable Connection

# TROUBLESHOOTING GUIDE

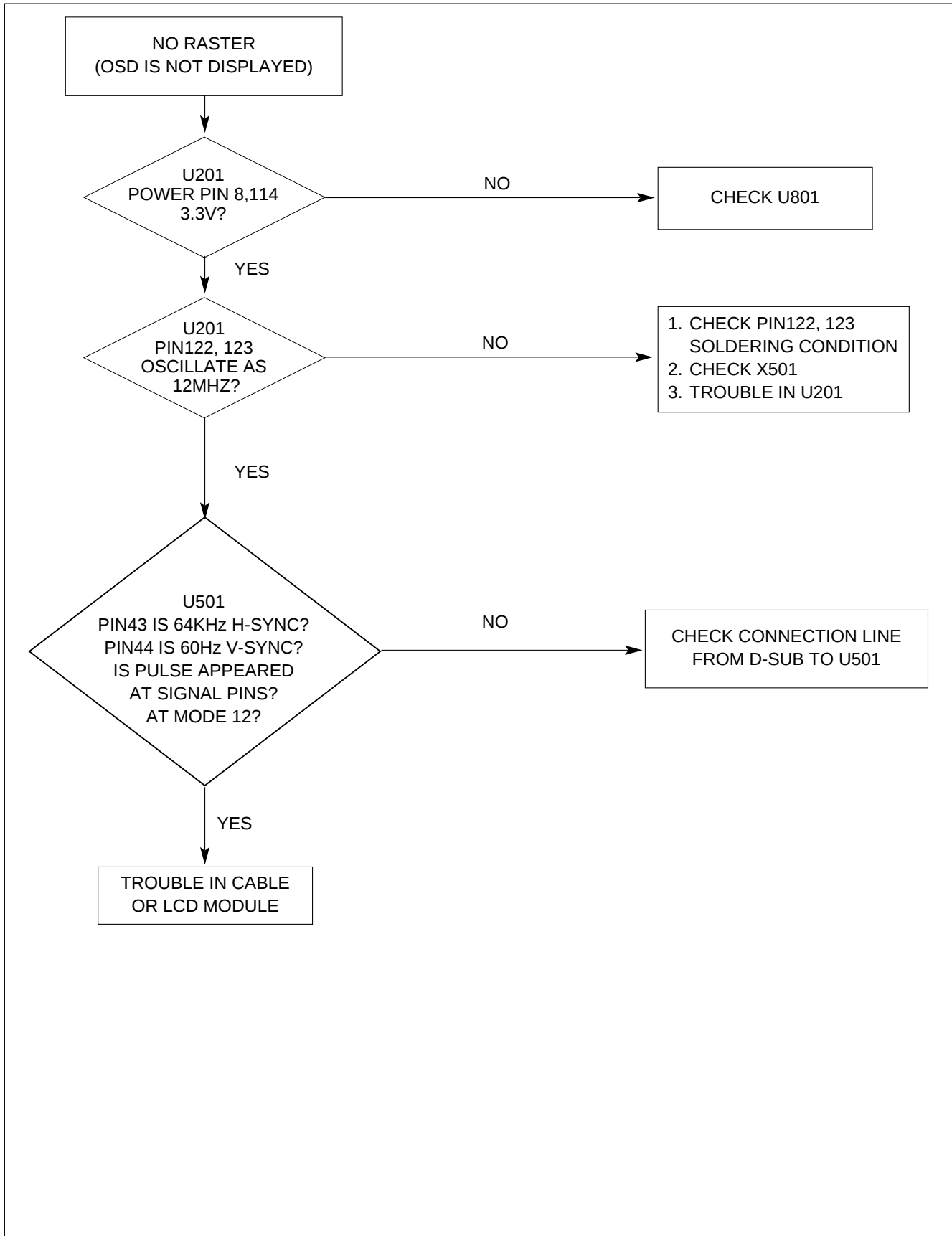
## 1. NO POWER



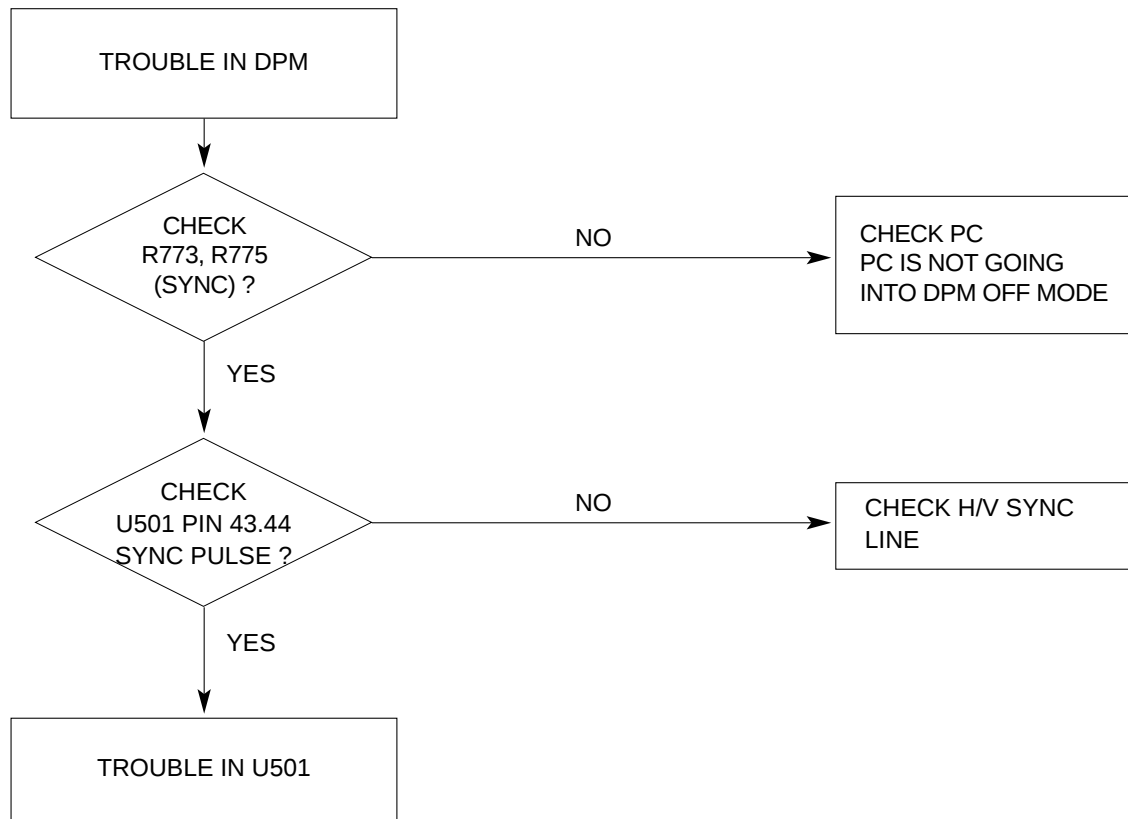
## 2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS



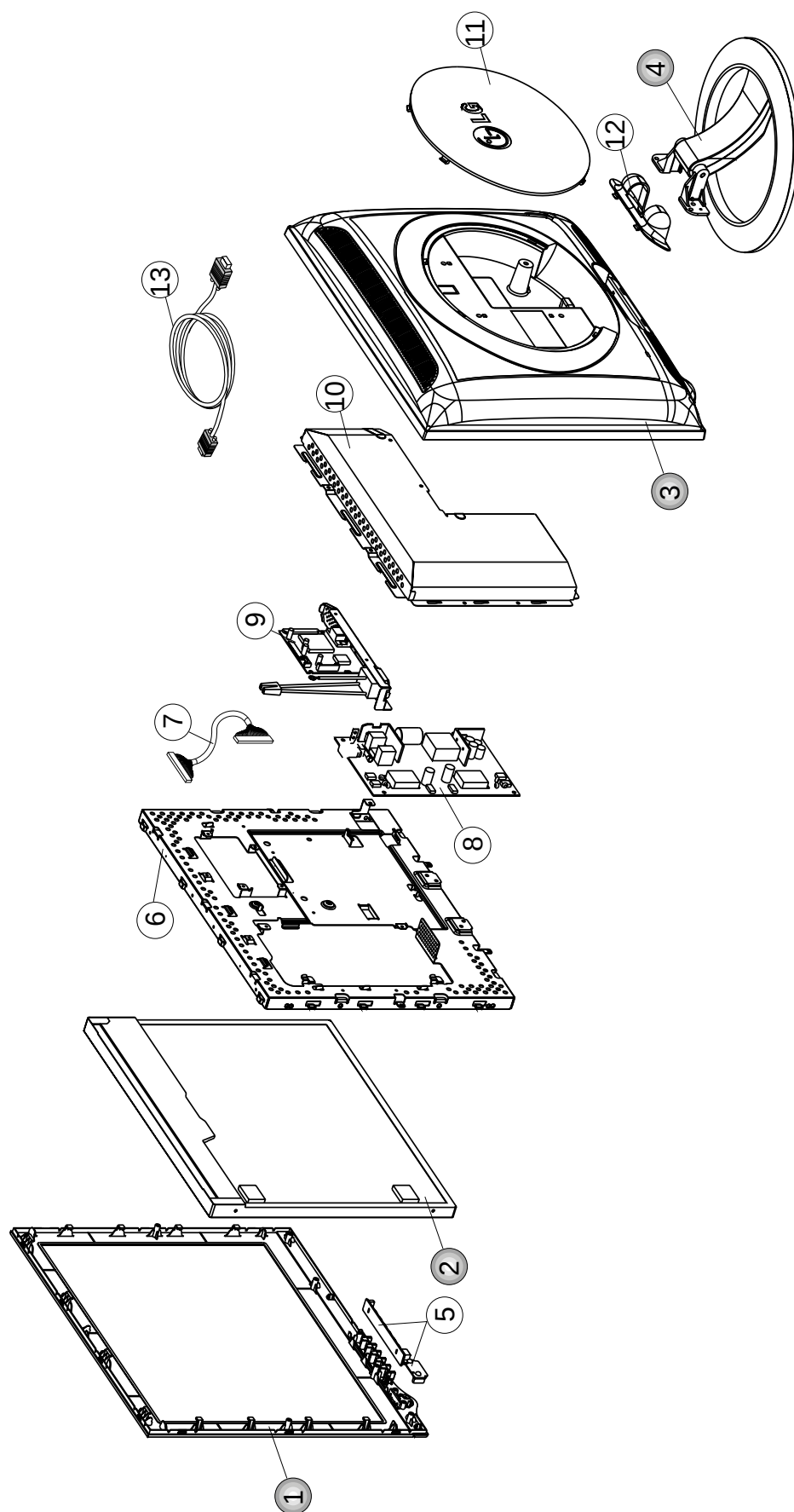
### 3. NO RASTER (OSD IS NOT DISPLAYED) – MST9111B



#### 4. TROUBLE IN DPM



# EXPLODED VIEW



## EXPLODED VIEW PARTS LIST

| Ref. No. | Part No.    | Description                                                                                           |
|----------|-------------|-------------------------------------------------------------------------------------------------------|
| 1        | 3091TKL086A | CABINET ASSEMBLY, L1720 BRAND . .                                                                     |
| 2        | 6304FLP086A | LCD(LIQUID CRYSTAL DISPLAY), LM170E01-A5K6 LG PHILPS TFT COLOR LVDS SXGA OKI GATE D-IC                |
|          | 6304FLP085A | LCD(LIQUID CRYSTAL DISPLAY), LM170E01-A4K4 LG PHILPS TFT COLOR SXGA LVDS OKI GATE D-IC                |
|          | 6304FLP082A | LCD(LIQUID CRYSTAL DISPLAY), LM170E01-A5M1 LG PHILPS TFT COLOR SXGA LVDS PEM-NUT                      |
|          | 6304FLP076A | LCD(LIQUID CRYSTAL DISPLAY), LM170E01-A5 LG PHILPS TFT COLOR LVDS SXGA                                |
|          | 6304FLP058A | LCD(LIQUID CRYSTAL DISPLAY), LM170E01-A4 LG PHILPS TFT COLOR 17" TFT LCD                              |
| 3        | 3809TKL059A | BACK COVER ASSEMBLY, L1720 . SILVER SPRAY                                                             |
| 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        | 4951TKS111E | METAL ASSEMBLY, FRAME MAIN L1720BM LPL                                                                |
| 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        | 3313TL7038A | MAIN TOTAL ASSEMBLY, L1720BM BRAND CL-61                                                              |
| 10       | 4951TKK139A | METAL ASSEMBLY, REAR L1720BL                                                                          |
| 11       | 3550TKK398A | COVER, L1720 BACK CAP                                                                                 |
| 12       | 3550TKK400A | COVER, L1720BL HINGE CAP                                                                              |
| 13       | 6850TD9004M | CABLE, D-SUB, UL2990-9C(5.8MM) DT 1500MM GRAY 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

| DATE: 2004. 1. 9. |     |          |             |                               |
|-------------------|-----|----------|-------------|-------------------------------|
| *S                | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION   |
| <b>MAIN BOARD</b> |     |          |             |                               |
| <b>CAPACITORS</b> |     |          |             |                               |
|                   |     | 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: 2003. 1. 9. |     |          |             |                               |
|-------------------|-----|----------|-------------|-------------------------------|
| *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) |
| <b>DIODES</b>     |     |          |             |                               |
|                   |     | 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     | 0DD184009AA | KDS184 TP KEC - 85V - - - 30  |
|                   |     | 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  |
|                   |     | ZD711    | 0DZ560009GB | BZT52C5V6S DIODES R/TP SOD32  |
| <b>ICs</b>        |     |          |             |                               |
|                   |     | U201     | 0IPRPM3008B | MST9111B(ANALOG) MSTAR 128P,  |
|                   |     | U501     | 0IZZTSZ355A | MTV312MV64 MYSON 44P , PLCC   |
|                   |     | U502     | 0ISG240860B | M24C08W6 SGS-THOMSON 8SOP R/  |
|                   |     | U801     | 0IPMGKE011A | KIA78D33F KEC DPAK R/TP 3.3V  |
| <b>TRANSISTOR</b> |     |          |             |                               |
|                   |     | 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  |
| <b>RESISTORS</b>  |     |          |             |                               |
|                   |     | 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    |

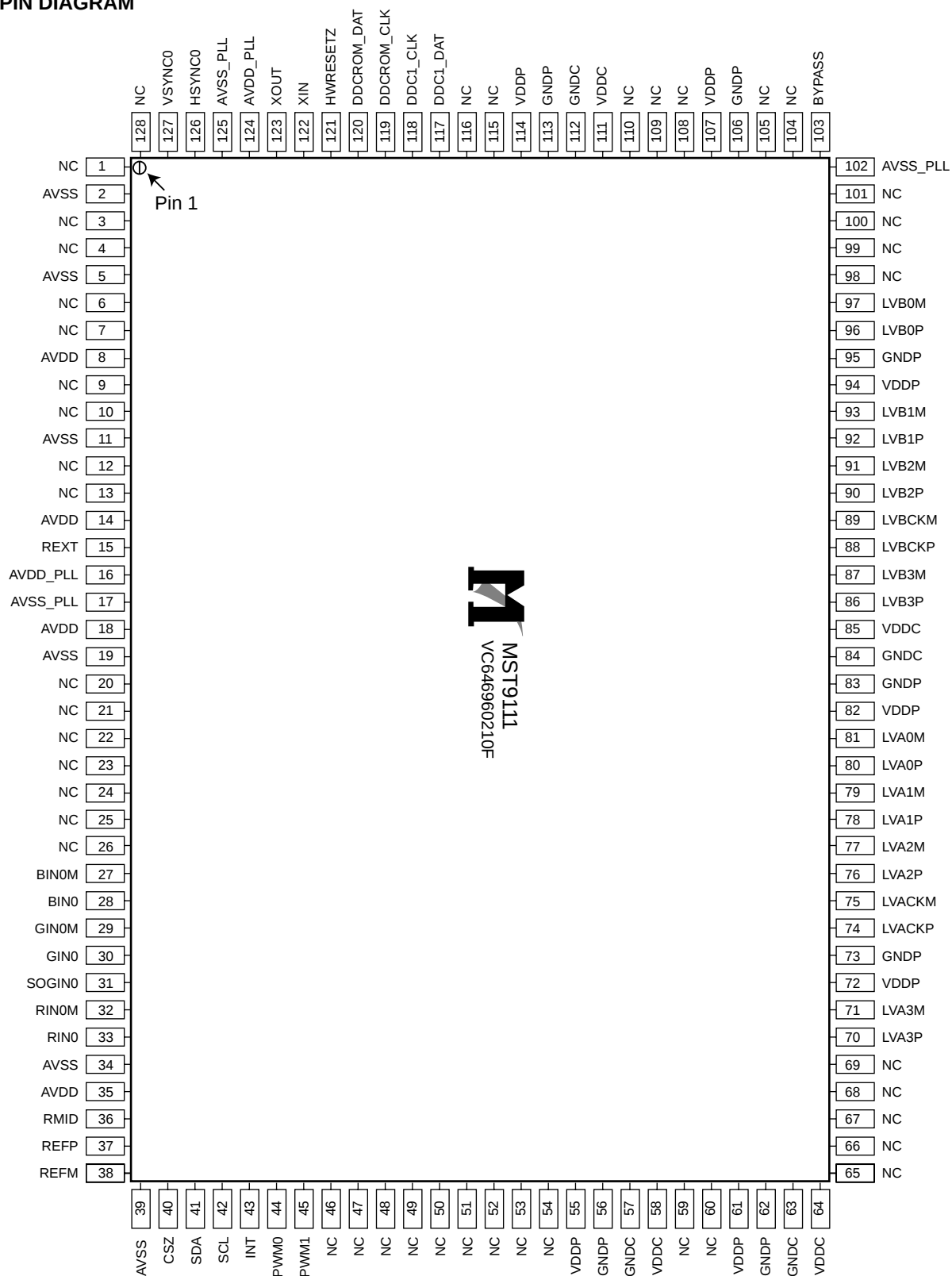
| DATE: 2003. 1. 9. |     |          |             |                              |
|-------------------|-----|----------|-------------|------------------------------|
| *S                | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION  |
|                   |     | R209     | 0RJ0682D677 | 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     | 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 |
|                   |     | 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     | 0RJ1001D677 | 1K OHM 1/10 W 5% 1608 R/TP   |
|                   |     | R716     | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
|                   |     | R717     | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
|                   |     | 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: 2003. 1. 9. |     |          |             |                              |
|-------------------|-----|----------|-------------|------------------------------|
| *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     | 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 |

# PIN CONFIGURATION

## MST9111B(ANALOG) MSTAR 128P

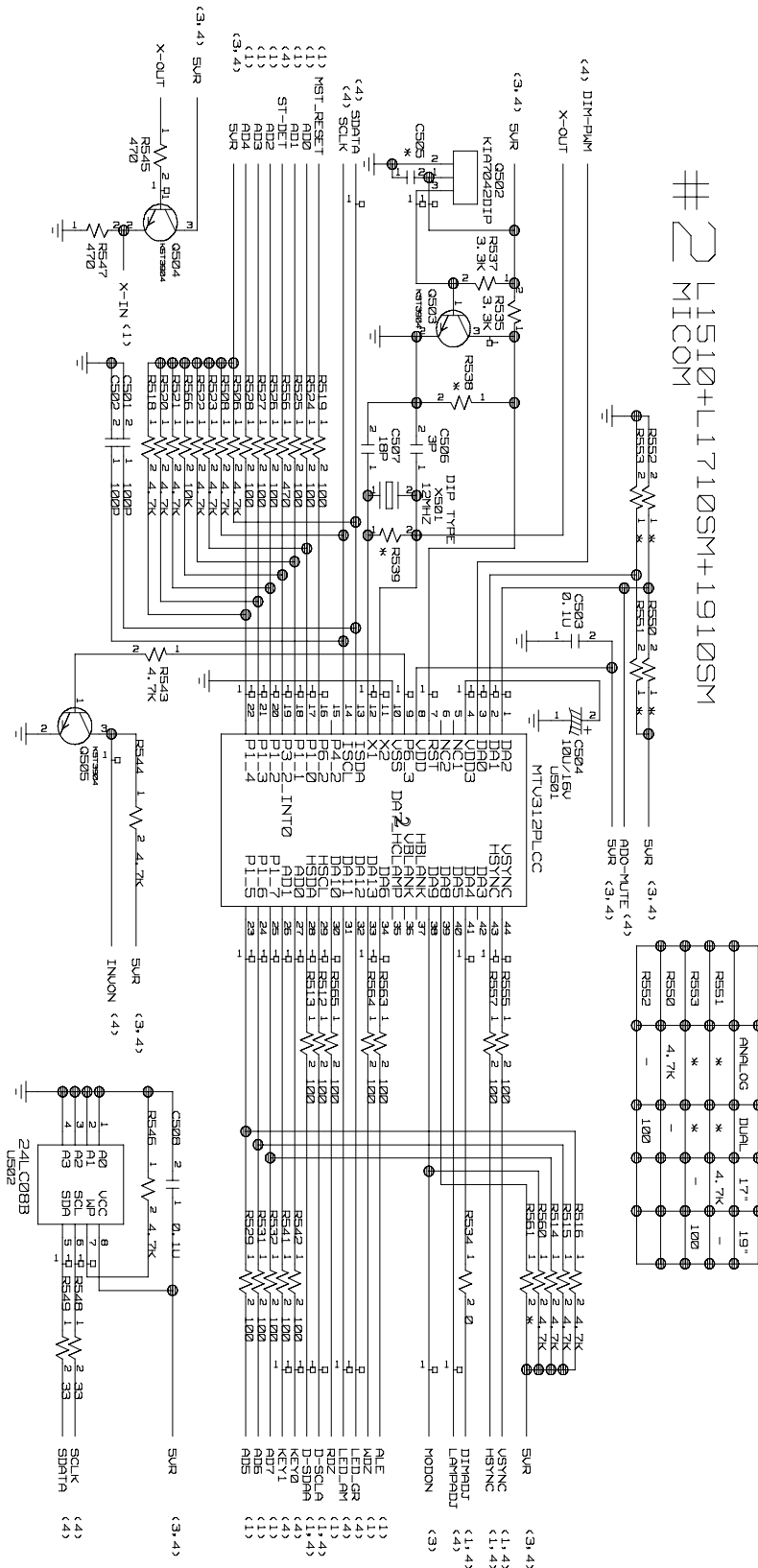
### PIN DIAGRAM



## 1. SCALER

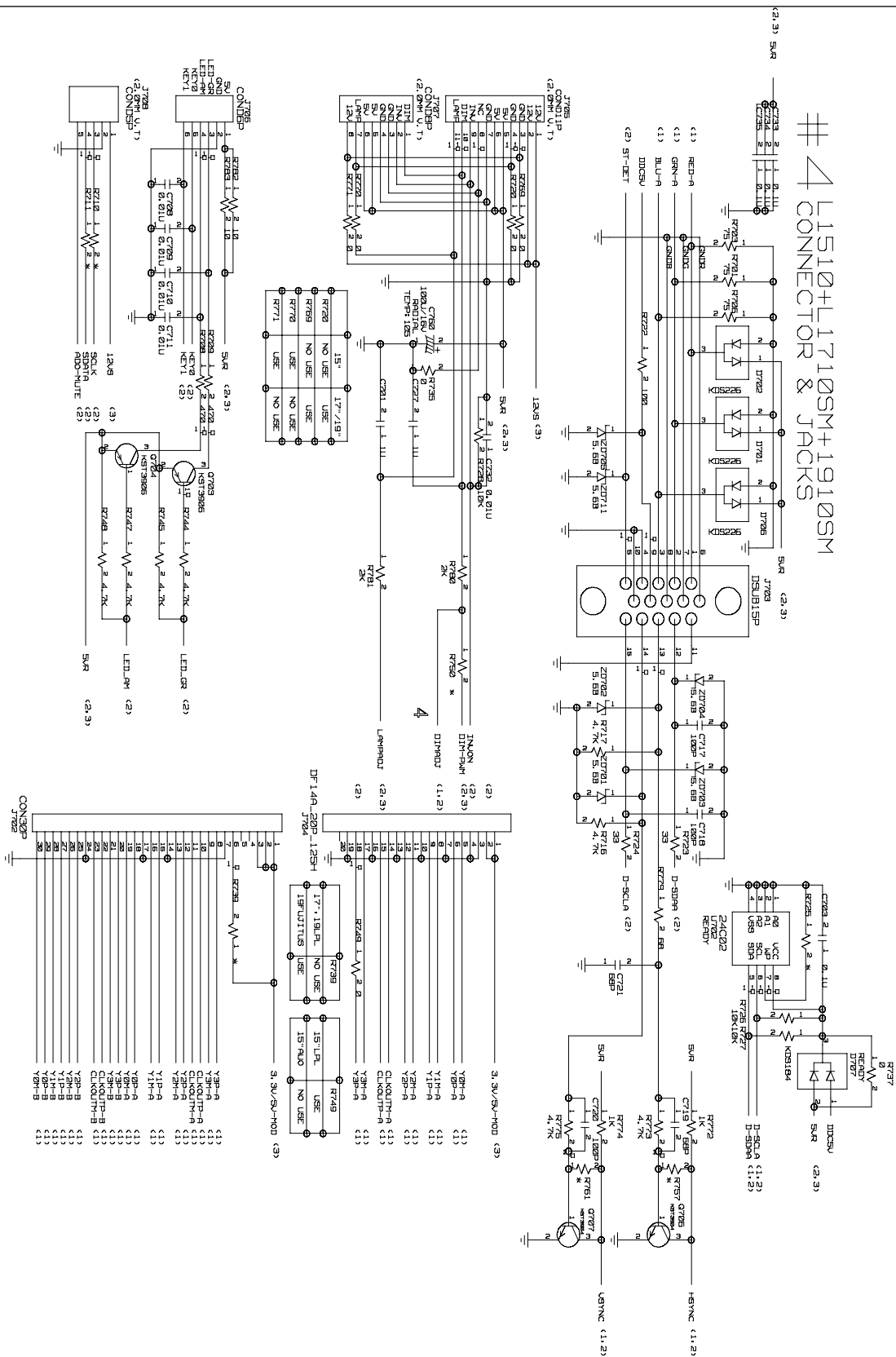


## 2. MICOM



### 3. POWER

## 4. CONNECTOR & JACKS



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**Blank Page2**

**Blank Page3**



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Jan. 2004  
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