LG

Website:http://biz.LGservice.com
E-mail:http://www.LGEservice.com/techsup.html

# COLOR MONITOR
# SERVICE MANUAL

**CHASSIS NO. : CL-32**

## MODEL: FLATRON L1520B(L1520BL-AL**R)

*(  ) **Same model for Service

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

*To apply the **Mstar Chip**.

# CONTENTS



# SPECIFICATIONS

**1. LCD CHARACTERISTICS**

| | |
|---|---|
| Type | : TFT XGA LCD Module |
| Size | : 352.0(H) x 263.5(V) x 14.0(T) |
| Pixel Pitch | : 0.297mm x 0.297mm |
| Color Depth | : 6bits(with FRC)/ 16M colors |
| Active Video Area | : 15.0inch (304.128 x 228.096) |
| Surface Treatment | : Anti-Glare, Hard Coating (3H) |
| Backlight Unit | : Top/Bottom edge side 2CCFL |
| Electrical Interface | : LVDS interface |

**2. OPTICAL CHARACTERISTICS**

2-1. Viewing Angle by Contrast Ratio $\geq 10$

Left : 55° min. Right : 55° min.
Top : 40° min. Bottom : 40° min.

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

2-3. Contrast Ratio :250(min.), 350(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 | : 0~0.7 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 | : 30 ~ 63kHz |
| Vertical | : 56 ~ 75Hz |

**4. POWER SUPPLY**

4-1. Power
100-240V~, 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 25 W | BLUE |
| STAND-BY | OFF/ON | OFF | less than 3 W | AMBER |
| SUSPEND | ON/OFF | OFF | less than 3 W | AMBER |
| DPM OFF | - | - | less than 3 W | AMBER |

**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)**

**FullUp Position**

| | |
|---|---|
| Width | : 363.8mm (14.32") |
| Depth | : 220mm (8.66") |
| Height | : 330.7mm (13.02") |

**Folded Position**

| | |
|---|---|
| Width | : 363.8mm (14.32") |
| Depth | : 113.7mm (8.66") |
| Height | : 358mm (14.09") |

**7. WEIGHT (with TILT/SWIVEL)**

| | |
|---|---|
| Net. Weight | : 3.2kg (7.05 lbs) |
| Gross Weight | : 5.5kg (12.13 lbs) |

# PRECAUTION

**WARNING FOR THE SAFETY-RELATED COMPONENT.**

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

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

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person's body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- The module not be exposed to the direct sunlight.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a softmaterial. (Cleaning with a dirty or rough cloth may damage the panel.)

**⚠ CAUTION**

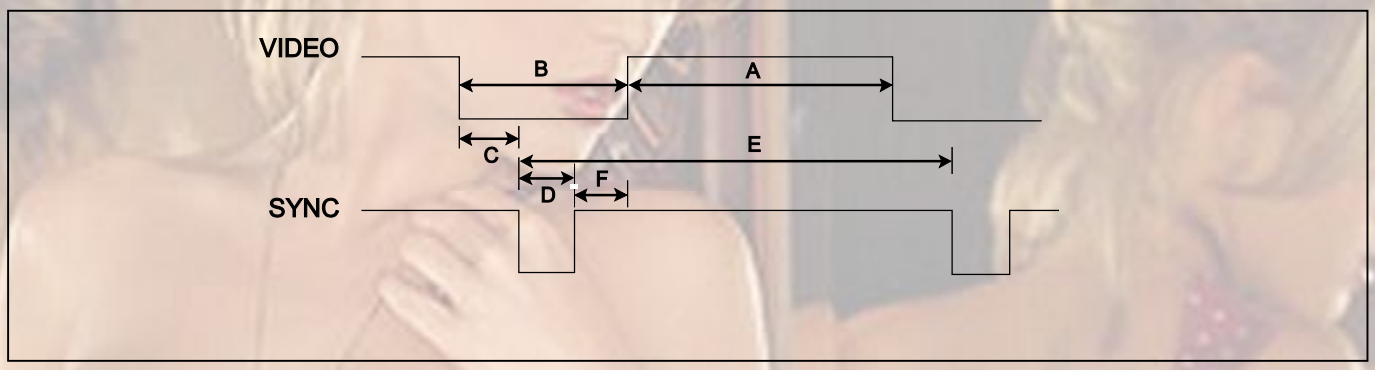
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

**⚠ WARNING**

BE CAREFUL ELECTRIC SHOCK !

- If you want to replace with the new backlight (CCFL) or inverter circuit, must disconnect the AC adapter because high voltage appears at inverter circuit about 650Vrms.
- Handle with care wires or connectors of the inverter circuit. If the wires are pressed cause short and may burn or take fire.

# 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 | 35.00 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 | 37.861 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) | – | | 75.0 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

## FRONT VIEW


## REAR VIEW


## Front Control Panel

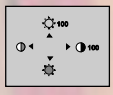

1. **Power Button**
   Use this button to turn the display on or off.
   **<Power (DPMS) Indicator>**
   This Indicator lights up blue when the display operates normally. If the display is in DPM (Energy Saving) mode, this indicator color changes to amber.

2. **▲▼/◄ ► Button**
   Use these buttons to choose or adjust items in the On Screen Display.

   ▼ LightView ▲

   This function optimizes the brightness, contrast or color value to the surrounding conditions and settings and enables you to enjoy the most suitable picture by adjusting the surroundings (DAY/NIGHT/USER MODE).
   - TEXT: For viewing letters
   - MOVIE: For viewing movies
   - PHOTO: For viewing pictures or the photographs
   - USER MODE: This function memorizes the manual adjustment -Brightness, Contrast and Color value on the On Screen Display.

   ◄ ☼ ►
   Bring up Contrast and Brightness adjustment.
   : ◄☼► →▼▲◄►→ MENU

3. **Menu Button**
   Use this button to enter or exit the On Screen Display.

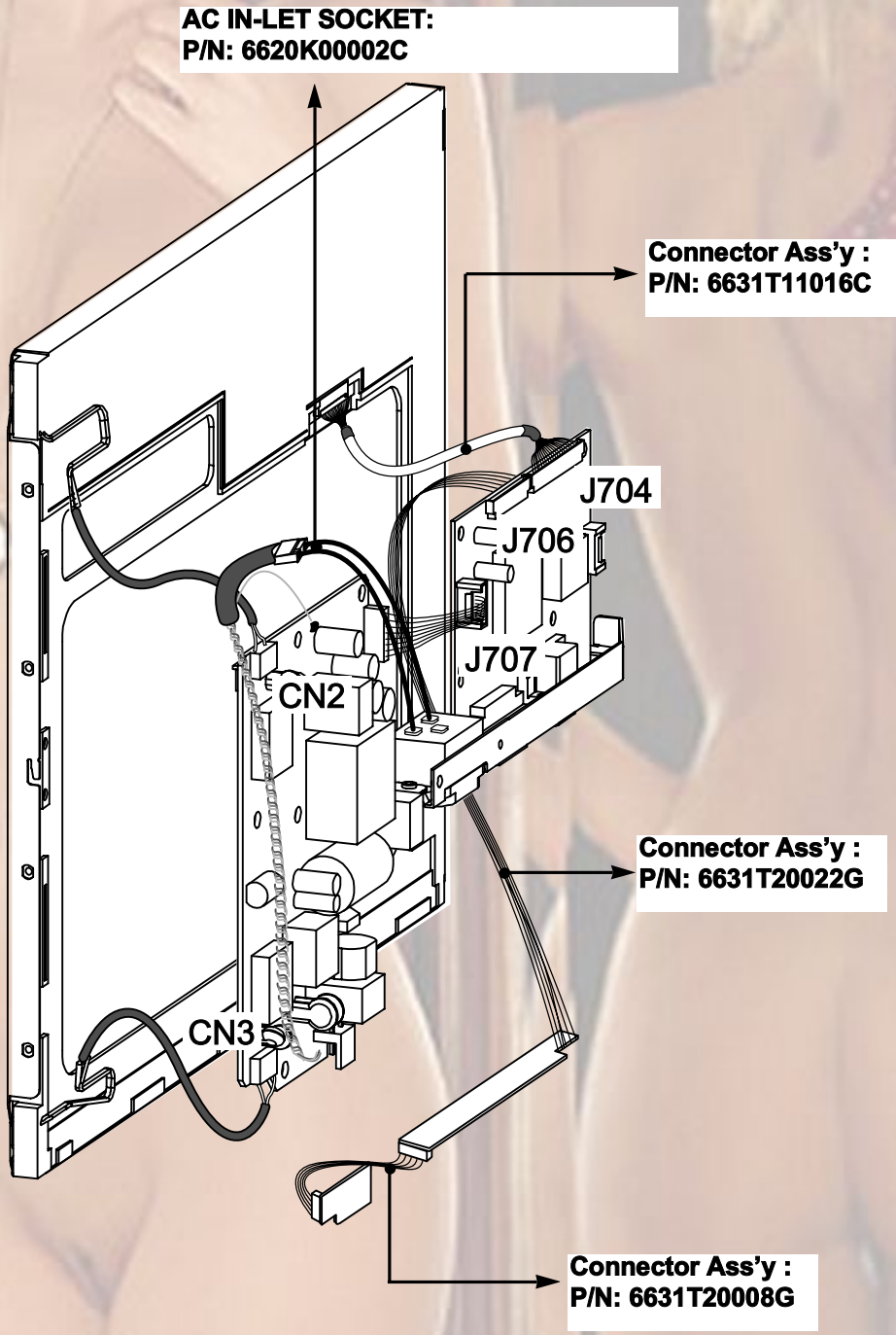
4. **AUTO/SELECT Button**
   Use this button to enter a selection in the On Screen Display.

   PROCESSING
   AUTO CONFIGURATION

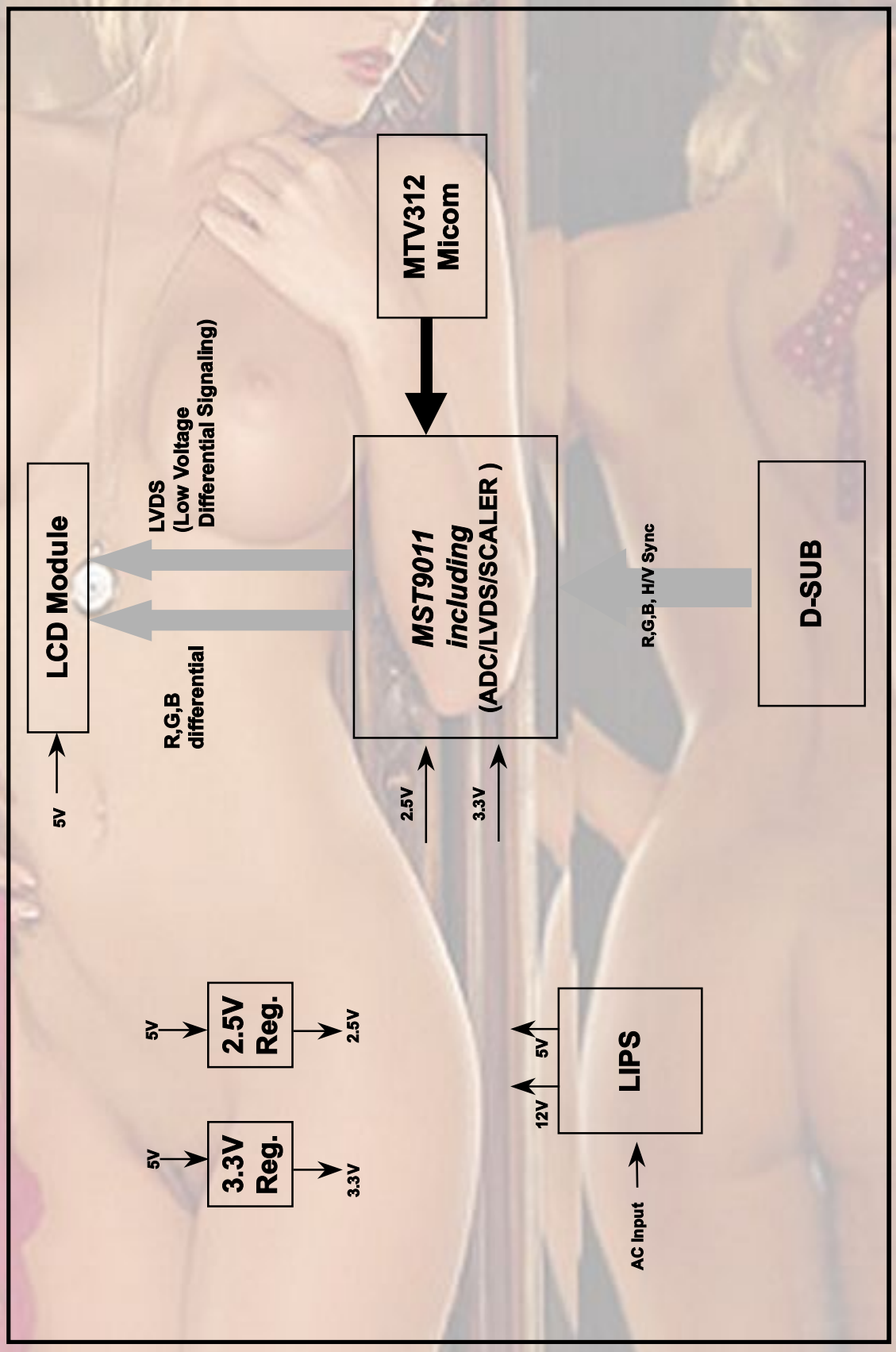
   When adjusting your display settings, always press the **AUTO/SELECT** button before entering the On Screen Display(OSD). This will automatically adjust your display image to the ideal settings for the current screen resolution size (display mode).

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

# WIRING DIAGRAM



# BLOCK DIAGRAM



# DESCRIPTION OF BLOCK DIAGRAM

**1. Video Controller Part & Display Data Transmitter Part.(MST9011)**

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 80MHz.
This part consists of the Scaler.
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 transmitter.
Especially pre-amp / ADC / Video controller/ Transmitter are merged to one chip “MST9011” by MSTAR.
This part transmit digital signal from the Scaler to the receiver of module.

**2. 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.

**3. Power Part**

This part consists of the one 3.3V and one 2.5 regulators to convert power which is provided 5V in LIPS Board.
5V is provided for LCD Panel and Micom part.
Also, 5V is converted 3.3V and 2.5V by regulator. Converted power is provided for IC in the main board.

# 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 L1520BL on the IBM compatible PC.
   2) Select EEPROM All Init. command and Enter.
   3) Display cross hatch pattern at Mode 1.
   4) Select EDID WRITE command and Enter.

2. **Adjustment for White Balance**
   1) Display color 0,0 pattern at Mode 12.
   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.

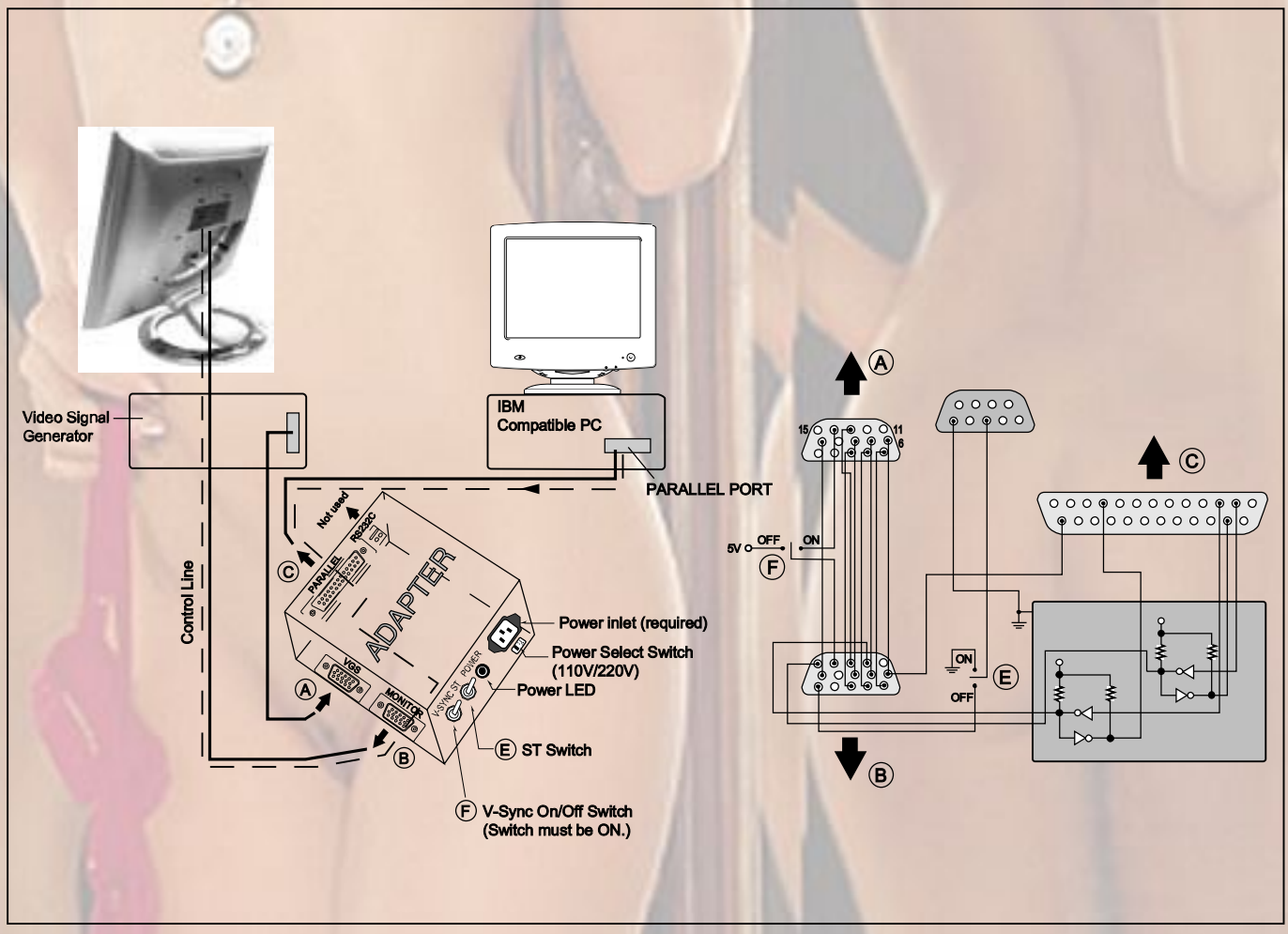
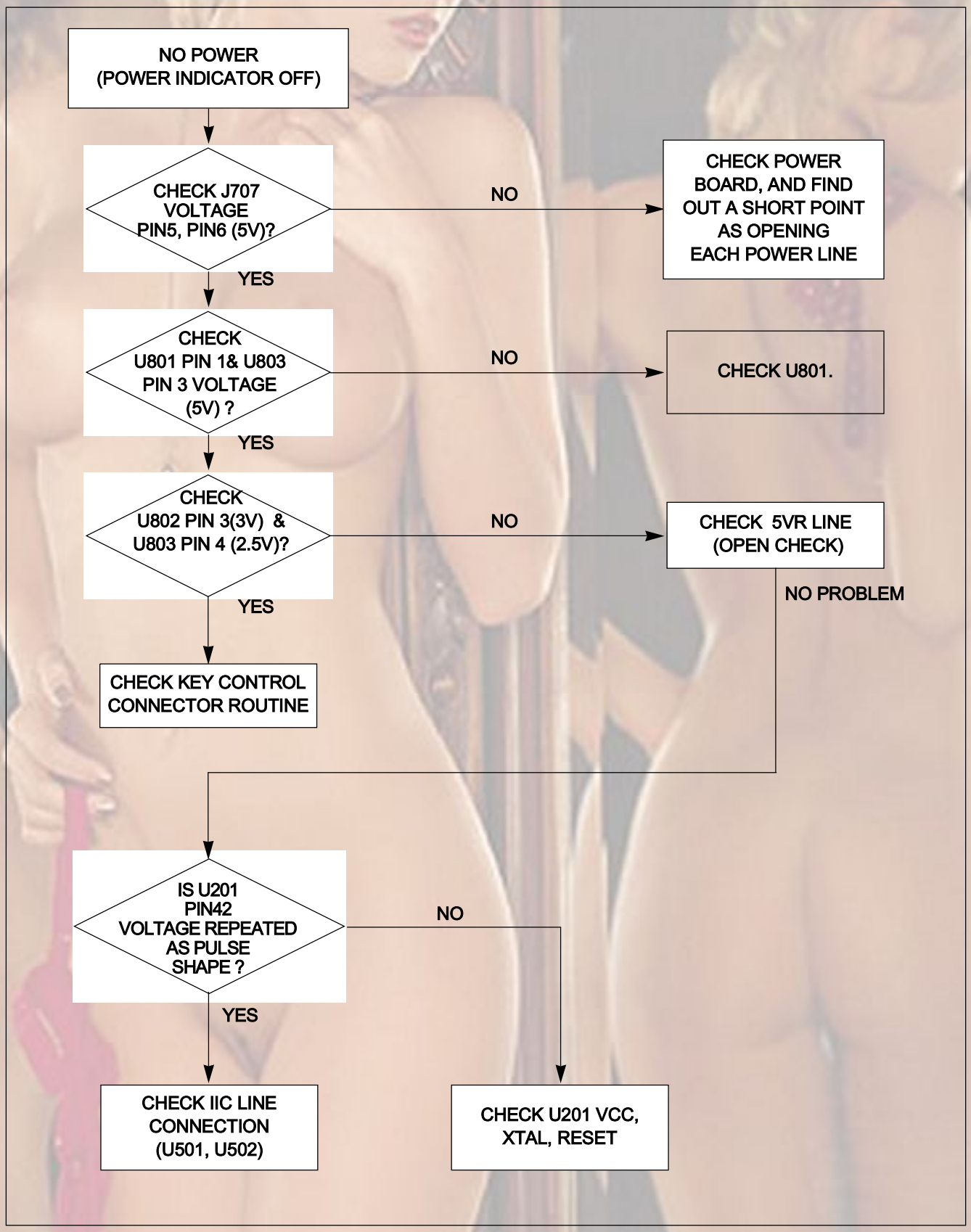


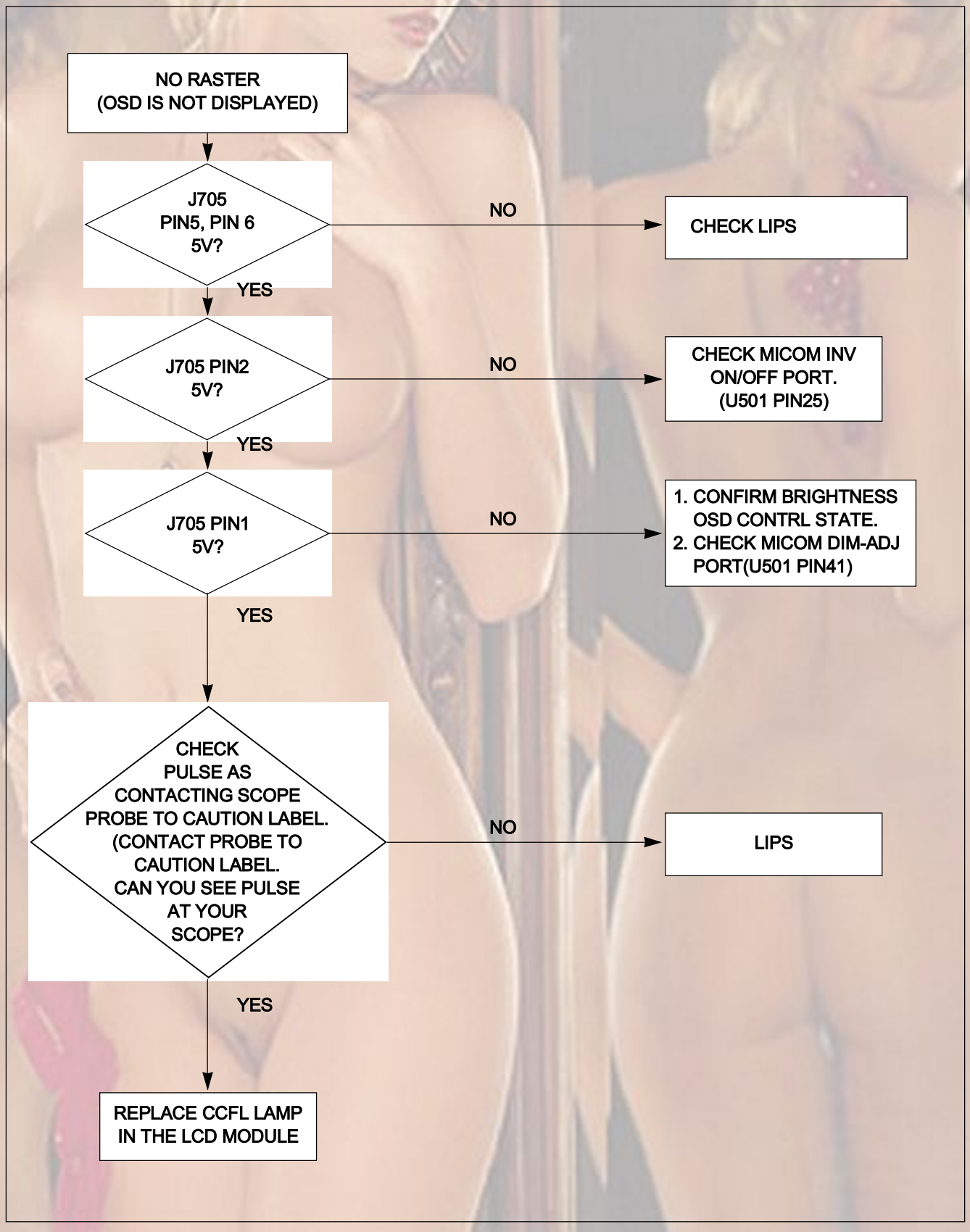

**Figure 1. Cable Connection**

# TROUBLESHOOTING GUIDE

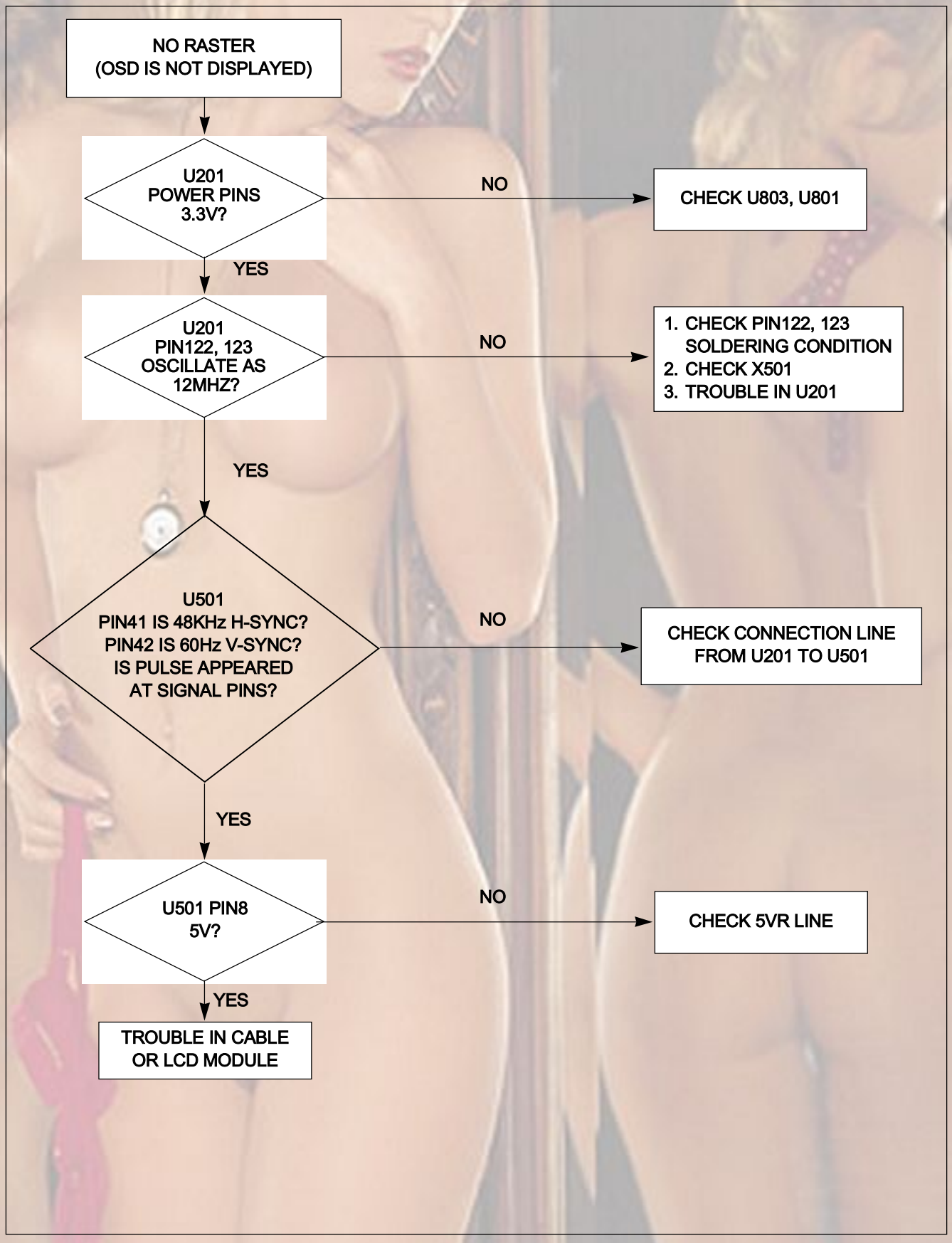
## 1. NO POWER



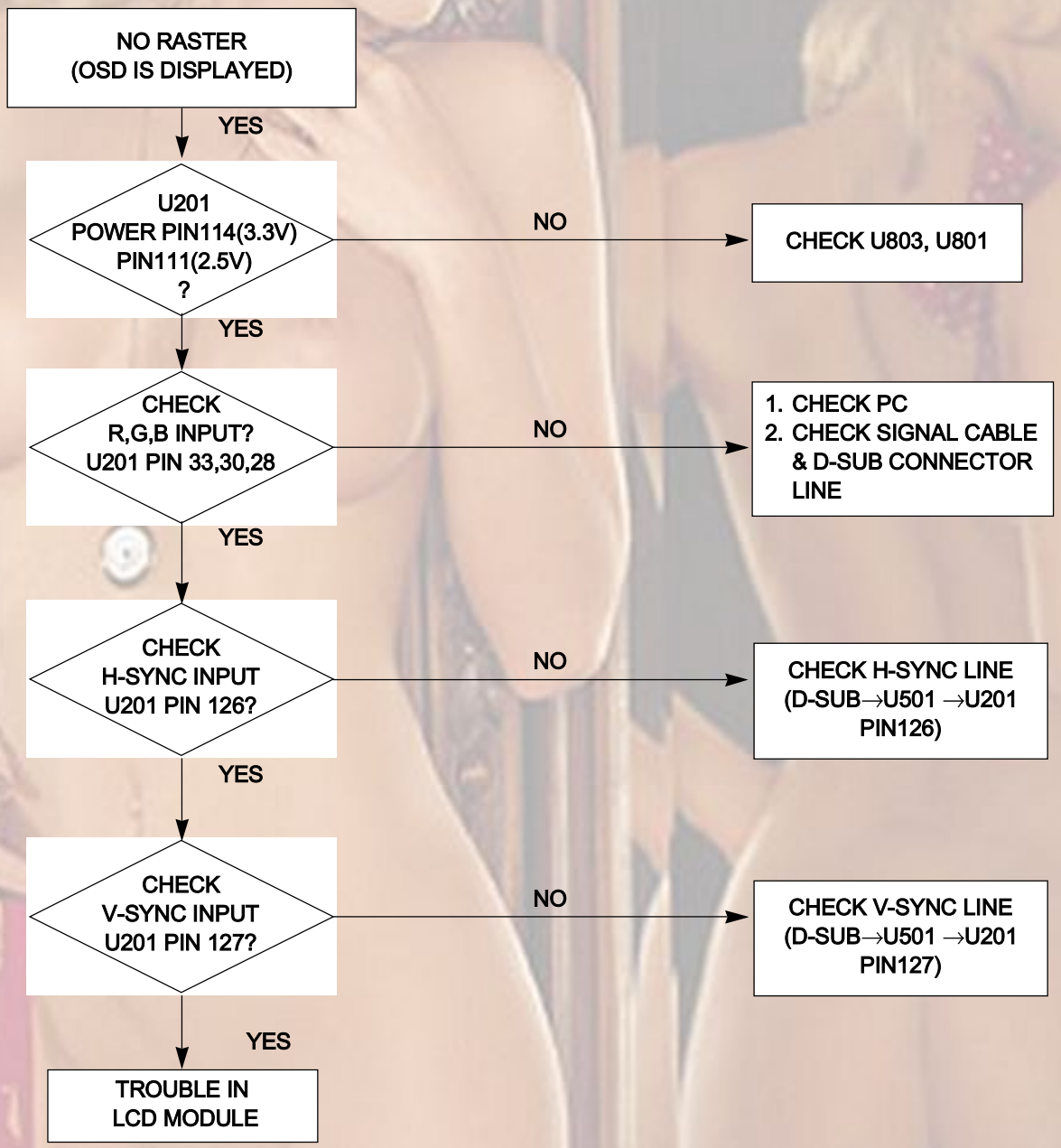
## 2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS



## 3. NO RASTER (OSD IS NOT DISPLAYED) – MST9011

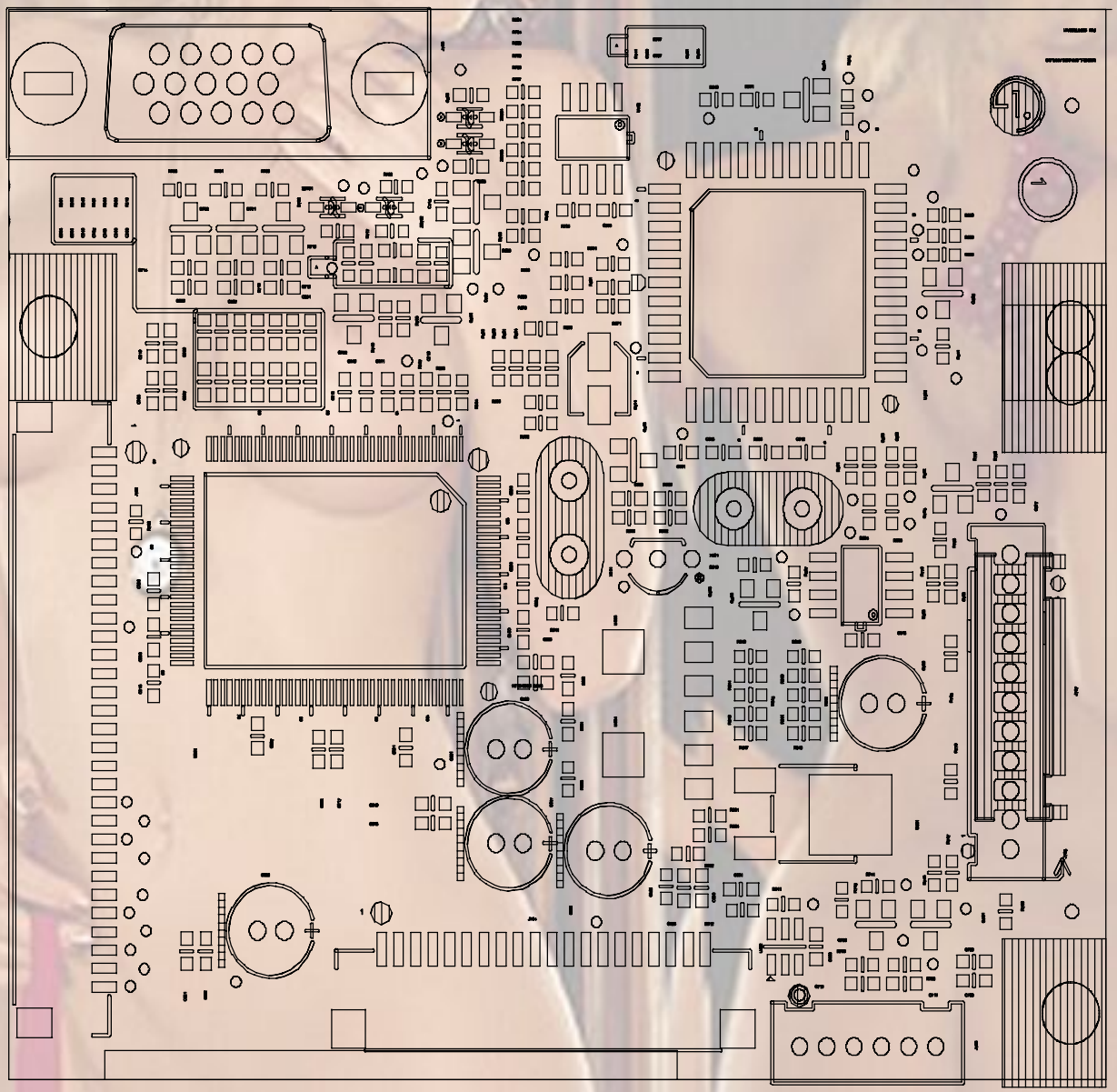


## 4. NO RASTER (OSD IS DISPLAYED) – MST9011

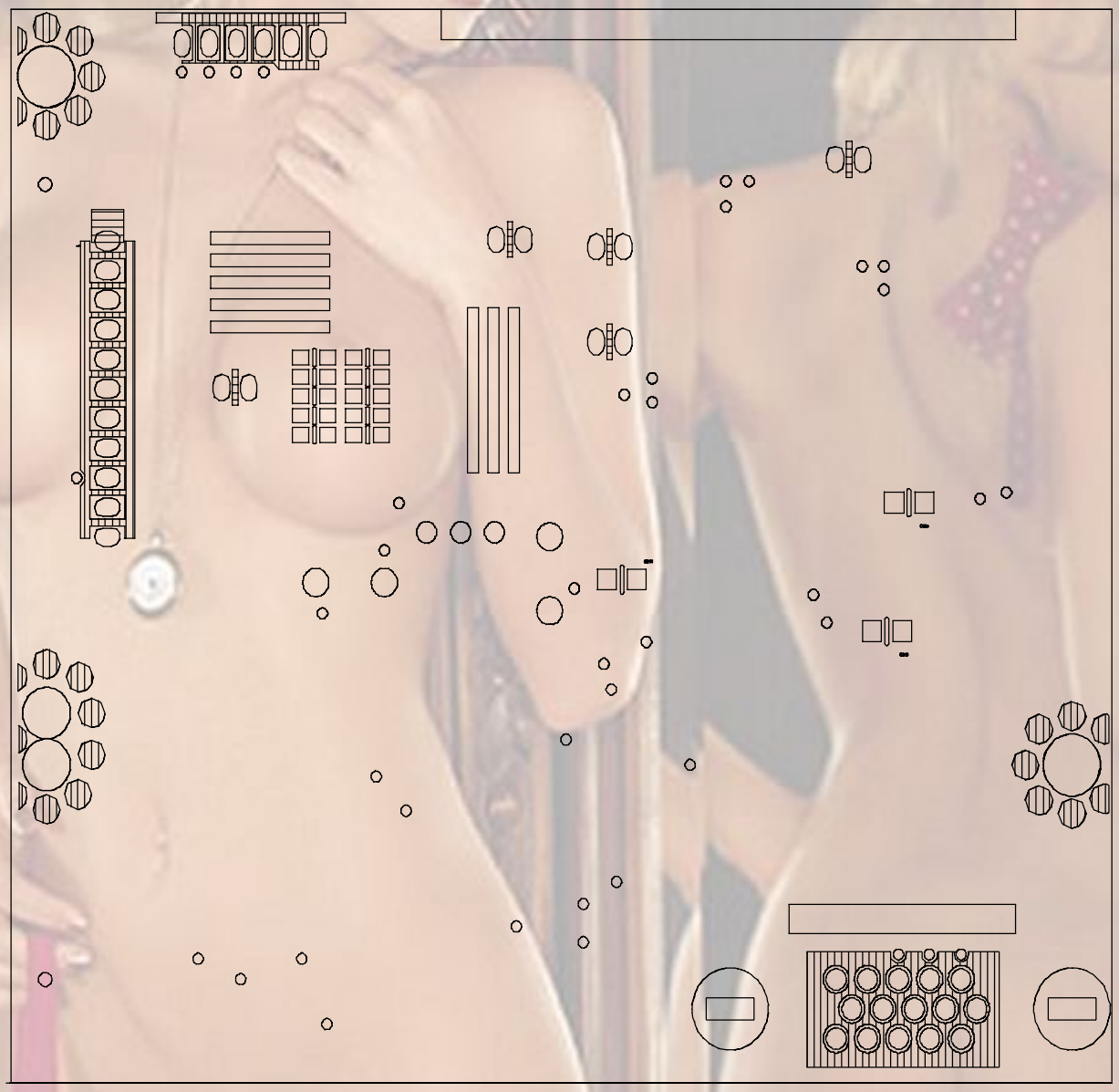


# PRINTED CIRCUIT BOARD

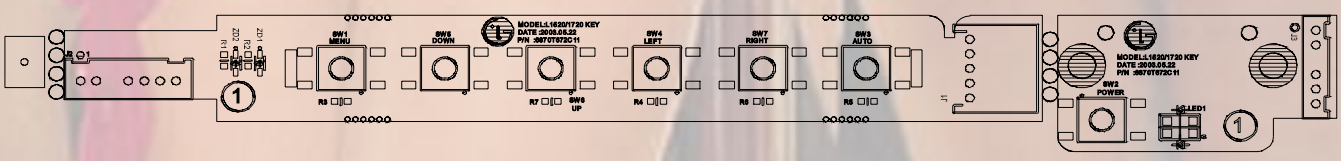
## 1. MAIN BOARD (Component Side)



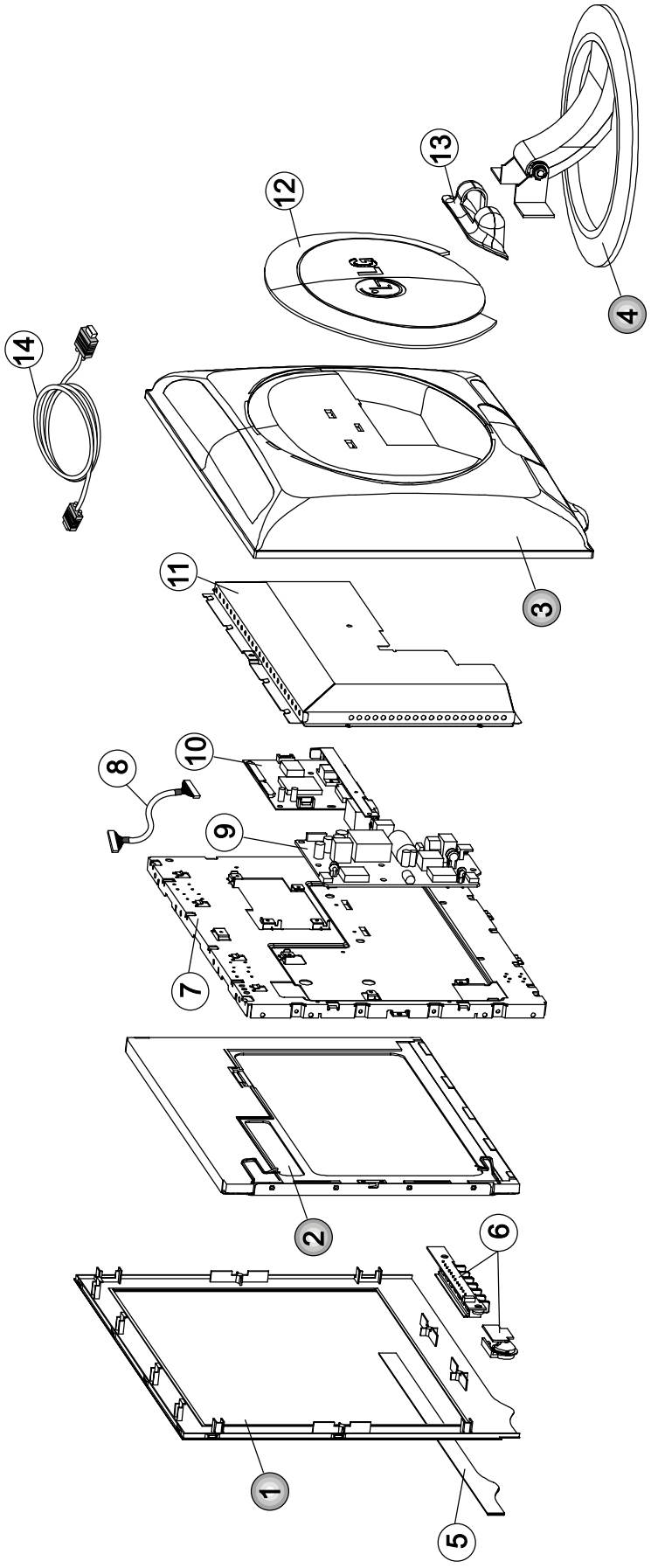
## 2. MAIN BOARD (Solder Side)



## 3.CONTROL BOARD (Component Side)



## EXPLODED VIEW



# EXPLODED VIEW PARTS LIST

| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | 3091TKL085A | CABINET ASSEMBLY, L1520 BRAND |
| 2 | 6304FLP068A | LCD(LIQUID CRYSTAL DISPLAY), LM150X06-A4C3 LG PHILPS TFT COLOR LPL |
| 3 | 3809TKL058A | BACK COVER ASSEMBLY, L1520. SILVER SPRAY |
| 4 | 3043TKK133A | TILT SWIVEL ASSEMBLY L1520BL . SILVER+CR |
| 5 | 3550TKK395A | COVER, L1520 PIECE DECO |
| 6 | 6871TST436A | PWB(PCB) ASSEMBLY, SUB, L1520BL CONTROL TOTAL BRAND CL-32 |
| 7 | 4951TKS112A | METAL ASSEMBLY, FRAME L1520BL |
| 8 | 6631T11016C | CONNECTOR ASSEMBLY, 20P H-H 100MM UL20276 I/FACE CABLE LB500K |
| 9 | 6871TPT234F | PWB(PCB) ASSEMBLY, POWER, 1520 POWER TOTAL POWERNET 15" LIPS |
| 10 | 6871TMT462A | PWB(PCB) ASSEMBLY, MAIN, L1520BL ALRDR BRAND CL-32 TOTAL |
| 11 | 4951TKK141A | METAL ASSEMBLY, SHIELD CKD(NT) |
| 12 | 3550TKK397A | COVER, L1520. BACK CAP |
| 13 | 3550TKK399A | COVER, L1520. HINGE CAP |
| 14 | 6850TD9004D | CABLE, D-SUB, UL20276-9C(5.8MM) DT 1560MM GRAY(85964) LB500L DM |
| | or 6850TD9004A | CABLE, D-SUB, UL20276-9C(5.8MM) DT 1870MM GRAY(85964) LB500K 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: 2003. 6. 14.

| *S | *AL | LOC. NO. | PART NO. | DESCRIPTION / SPECIFICATION |
|---|---|---|---|---|
| **MAIN BOARD** | | | | |
| CAPACITORS | | | | |
| | | C201 | 0CC180CK41A | 18PF 1608 50V 5% R/TP NP0 |
| | | C202 | 0CC180CK41A | 18PF 1608 50V 5% R/TP NP0 |
| | | C203 | 0CC180CK41A | 18PF 1608 50V 5% R/TP NP0 |
| | | C204 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C205 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C206 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C207 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C208 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C209 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C210 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C211 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C212 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | 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 |
| | | C501 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C502 | 0CC101CK41A | 100PF 1608 50V 5% R/TP NP0 |
| | | C503 | 0CC101CK41A | 100PF 1608 50V 5% R/TP NP0 |
| | | C505 | 0CC101CK41A | 100PF 1608 50V 5% R/TP NP0 |
| | | C506 | 0CC101CK41A | 100PF 1608 50V 5% R/TP NP0 |
| | | C512 | 0CC180CK41A | 18PF 1608 50V 5% R/TP NP0 |
| | | C513 | 0CC030CK01A | 3PF 1608 50V 0.25 PF R/TP NP0 |
| | | C514 | 0CH8106F611 | 10UF 16V M 85STD(CYL) R/TP |
| | | C516 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C550 | 0CC102CK41A | 1000PF 1608 50V 5% R/TP NP0 |
| | | C703 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C707 | 0CC680CK41A | 68PF 1608 50V 5% R/TP NP0 |
| | | C708 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C709 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C710 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C711 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C712 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C713 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C714 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C715 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C727 | 0CK105CD56A | 1UF 1608 10V 10% R/TP X7R |
| | | C730 | 0CC101CK41A | 100PF 1608 50V 5% R/TP NP0 |
| | | C731 | 0CC680CK41A | 68PF 1608 50V 5% R/TP NP0 |

DATE: 2003. 6. 14.

| *S | *AL | LOC. NO. | PART NO. | DESCRIPTION / SPECIFICATION |
|---|---|---|---|---|
| | | C732 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C760 | 0CE107EF610 | 100UF KMG,RD 16V 20% FL BULK |
| | | C801 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C802 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C803 | 0CK105CD56A | 1UF 1608 10V 10% R/TP X7R |
| | | C804 | 0CC102CK41A | 1000PF 1608 50V 5% R/TP NP0 |
| | | C817 | 0CE107EF610 | 100UF KMG,RD 16V 20% FL BULK |
| | | C818 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C819 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C820 | 0CE107EF610 | 100UF KMG,RD 16V 20% FL BULK |
| | | C821 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C822 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C828 | 0CK104CK56A | 0.1UF 1608 50V 10% R/TP X7R |
| | | C829 | 0CK103CK51A | 0.01UF 1608 50V 10% R/TP B(Y5 |
| | | C831 | 0CE107EF610 | 100UF KMG,RD 16V 20% FL BULK |
| | | C832 | 0CE107EF610 | 100UF KMG,RD 16V 20% FL BULK |
| DIODEs | | | | |
| | | D701 | 0DS226009AA | KDS226 TP KEC SOT-23 80V 300 |
| | | D702 | 0DS226009AA | KDS226 TP KEC SOT-23 80V 300 |
| | | D703 | 0DS226009AA | KDS226 TP KEC SOT-23 80V 300 |
| | | D706 | 0DS226009AA | KDS226 TP KEC SOT-23 80V 300 |
| | | D707 | 0DD184009AA | KDS184 TP KEC - 85V - - - 300 |
| | | ZD701 | 0DZ560009GB | BZT52C5V6S DIODES R/TP SOD323 |
| | | ZD702 | 0DZ560009GB | BZT52C5V6S DIODES R/TP SOD323 |
| | | ZD703 | 0DZ560009GB | BZT52C5V6S DIODES R/TP SOD323 |
| | | ZD704 | 0DZ560009GB | BZT52C5V6S DIODES R/TP SOD323 |
| ICs | | | | |
| | | U201 | 0IPRPM3003A | MST9011 ANALOG MSTAR 128P LQF |
| | | U501 | 0IZZTSZ281A | MYSON 44P PLCC ST OPT L1520BL |
| | | U502 | 0ISG240860B | M24C08W6 SGS-THOMSON 8SOP R/T |
| | | U702 | 0ICS240213A | CAT24WC02J-TE13 8P SOP TP 2K |
| | | U801 | 0IPMGKE011A | KIA78D33F KEC DPAK R/TP 3.3V |
| | | U802 | 0TFVI80023A | VISHAY SI3865DV R/TP TSOP-6 8 |
| | | U803 | 0IPMGNS001D | LM1117MPX-2.5 NATIONAL SEMICO |
| TRANSISTOR | | | | |
| | | Q502 | 0TR390409AE | FAIRCHILD KST3904(LGEMTF) TP |
| | | Q503 | 0IKE704200H | KIA7042AP TO-92 TP 4.2 VOLT. |
| | | Q504 | 0TR390409AE | FAIRCHILD KST3904(LGEMTF) TP |
| | | Q505 | 0TR390409AE | FAIRCHILD KST3904(LGEMTF) TP |
| | | Q506 | 0TR390409AE | FAIRCHILD KST3904(LGEMTF) TP |
| | | Q701 | 0TR390409AE | FAIRCHILD KST3904(LGEMTF) TP |
| | | Q702 | 0TR390409AE | FAIRCHILD KST3904(LGEMTF) TP |
| | | Q703 | 0TR390609FA | KST3906-MTF TP SAMSUNG SOT23 |
| | | Q704 | 0TR390609FA | KST3906-MTF TP SAMSUNG SOT23 |
| | | Q705 | 0TR390409AE | FAIRCHILD KST3904(LGEMTF) TP |

DATE: 2003. 6. 14.

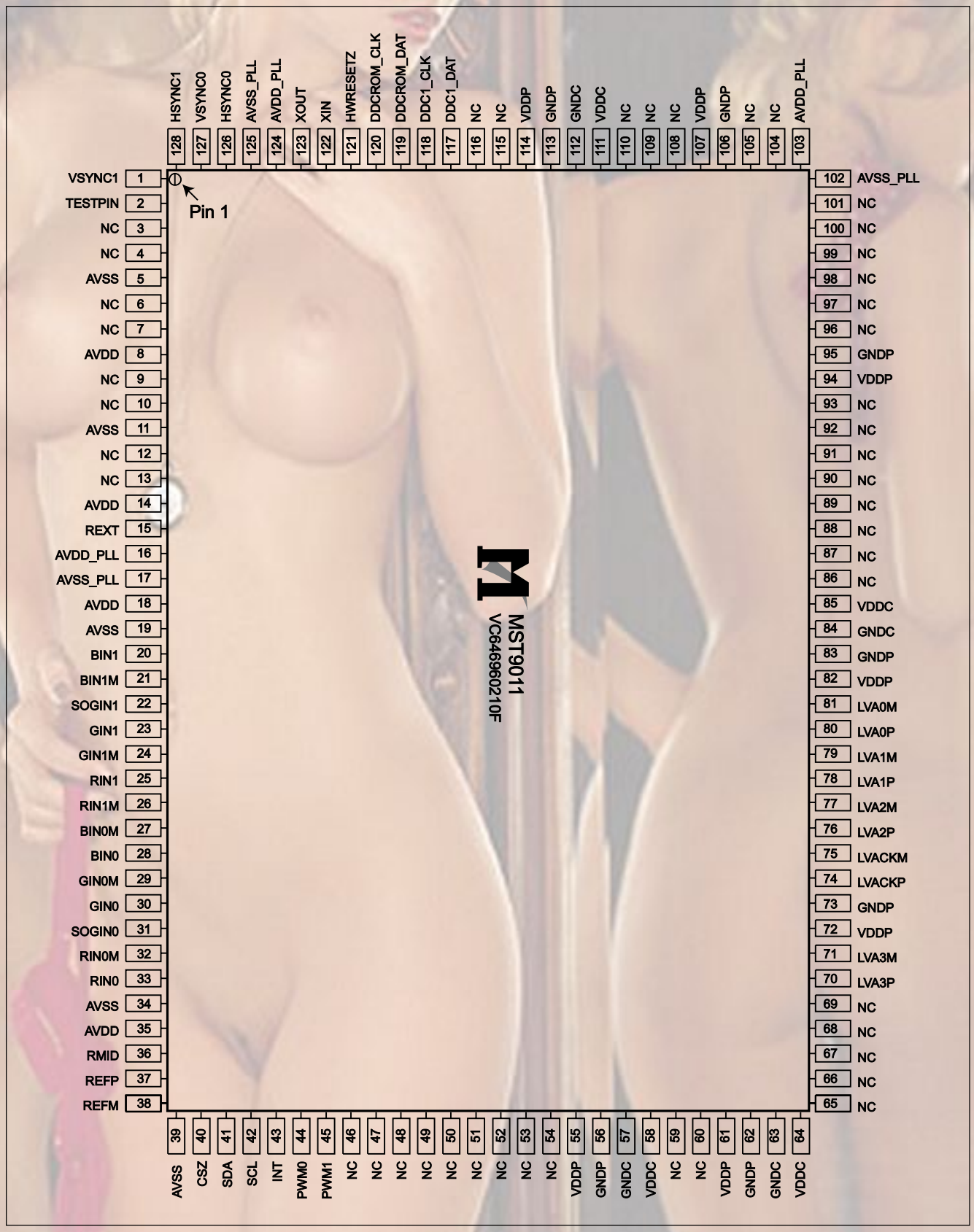
| *S | *AL | LOC. NO. | PART NO. | DESCRIPTION / SPECIFICATION |
|---|---|---|---|---|
| RESISTORs | | | | |
| | | R201 | 0RJ1500D677 | 150 OHM 1/10 W 5% 1608 R/TP |
| | | R202 | 0RJ1500D677 | 150 OHM 1/10 W 5% 1608 R/TP |
| | | R203 | 0RJ1500D677 | 150 OHM 1/10 W 5% 1608 R/TP |
| | | R204 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R205 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R207 | 0RJ4700D677 | 470 OHM 1/10 W 5% 1608 R/TP |
| | | R208 | 0RJ1500D677 | 150 OHM 1/10 W 5% 1608 R/TP |
| | | R209 | 0RJ1500D677 | 150 OHM 1/10 W 5% 1608 R/TP |
| | | R210 | 0RJ1500D677 | 150 OHM 1/10 W 5% 1608 R/TP |
| | | R240 | 0RJ1500D677 | 150 OHM 1/10 W 5% 1608 R/TP |
| | | R501 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R502 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R504 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R509 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R510 | 0RJ4700D677 | 470 OHM 1/10 W 5% 1608 R/TP |
| | | R511 | 0RJ4700D677 | 470 OHM 1/10 W 5% 1608 R/TP |
| | | R515 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R520 | 0RJ1003D677 | 100K OHM 1/10 W 5% 1608 R/TP |
| | | R522 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R523 | 0RJ0332D677 | 33 OHM 1/10 W 5% 1608 R/TP |
| | | R524 | 0RJ0332D677 | 33 OHM 1/10 W 5% 1608 R/TP |
| | | R525 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R528 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R529 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R530 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R531 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R532 | 0RJ3301D677 | 3.3K OHM 1/10 W 5% 1608 R/TP |
| | | R533 | 0RJ0332D677 | 33 OHM 1/10 W 5% 1608 R/TP |
| | | R534 | 0RJ0332D677 | 33 OHM 1/10 W 5% 1608 R/TP |
| | | R535 | 0RJ3301D677 | 3.3K OHM 1/10 W 5% 1608 R/TP |
| | | R537 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R540 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R541 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R551 | 0RJ4702D677 | 47000 OHM 1/10 W 5% 1608 R/TP |
| | | R571 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R581 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R590 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R591 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R592 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R593 | 0RJ1000D677 | 100 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 |
| | | R705 | 0RJ1501D677 | 1.5K OHM 1/10 W 5% 1608 R/TP |
| | | R706 | 0RJ0752D677 | 75 OHM 1/10 W 5% 1608 R/TP |
| | | R707 | 0RJ0682D677 | 68 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 |
| | | R722 | 0RJ1000D677 | 100 OHM 1/10 W 5% 1608 R/TP |
| | | R723 | 0RJ0332D677 | 33 OHM 1/10 W 5% 1608 R/TP |
| | | R724 | 0RJ0332D677 | 33 OHM 1/10 W 5% 1608 R/TP |
| | | R725 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R726 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R727 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R733 | 0RJ1001D677 | 1K OHM 1/10 W 5% 1608 R/TP |
| | | R734 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R735 | 0RJ0000D677 | 0 OHM 1/10 W 5% 1608 R/TP |
| | | R740 | 0RJ1001D677 | 1K OHM 1/10 W 5% 1608 R/TP |
| | | R741 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |
| | | R744 | 0RJ4701D677 | 4.7K OHM 1/10 W 5% 1608 R/TP |

DATE: 2003. 6. 14.

| *S | *AL | LOC. NO. | PART NO. | DESCRIPTION / SPECIFICATION |
|---|---|---|---|---|
| | | 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 |
| | | R749 | 0RJ0000D677 | 0 OHM 1/10 W 5% 1608 R/TP |
| | | R750 | 0RJ1001D677 | 1K OHM 1/10 W 5% 1608 R/TP |
| | | R751 | 0RJ1001D677 | 1K OHM 1/10 W 5% 1608 R/TP |
| | | R753 | 0RJ1001D677 | 1K OHM 1/10 W 5% 1608 R/TP |
| | | R779 | 0RJ1002D677 | 10K OHM 1/10 W 5% 1608 R/TP |
| | | R802 | 0RJ0000D677 | 0 OHM 1/10 W 5% 1608 R/TP |
| | | R803 | 0RJ0000D677 | 0 OHM 1/10 W 5% 1608 R/TP |
| | | R811 | 0RJ2202D677 | 22K OHM 1/10 W 5% 1608 R/TP |
| | | R812 | 0RJ5600D677 | 560 OHM 1/10 W 5% 1608 R/TP |
| | | R840 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R841 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R842 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R843 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R844 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R845 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R846 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R847 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R848 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| | | R849 | 0RJ0471D677 | 4.7 OHM 1/10 W 5% 1608 R/TP |
| OTHERs | | | | |
| | | X501 | 6212AA2004A | HC-49U TXC 12.0MHZ +/- 30 PPM |
| **CONTROL BOARD** | | | | |
| | | 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 S |
| | | SW2 | 6600R00004A | JTP1138A6EM JEIL 12VDC 50MA S |
| | | SW3 | 6600R00004A | JTP1138A6EM JEIL 12VDC 50MA S |
| | | SW4 | 6600R00004A | JTP1138A6EM JEIL 12VDC 50MA S |
| | | SW5 | 6600R00004A | JTP1138A6EM JEIL 12VDC 50MA S |
| | | SW6 | 6600R00004A | JTP1138A6EM JEIL 12VDC 50MA S |
| | | SW7 | 6600R00004A | JTP1138A6EM JEIL 12VDC 50MA S |
| | | ZD1 | 0DZ560009GB | BZT52C5V6S DIODES R/TP SOD323 |
| | | ZD2 | 0DZ560009GB | BZT52C5V6S DIODES R/TP SOD323 |

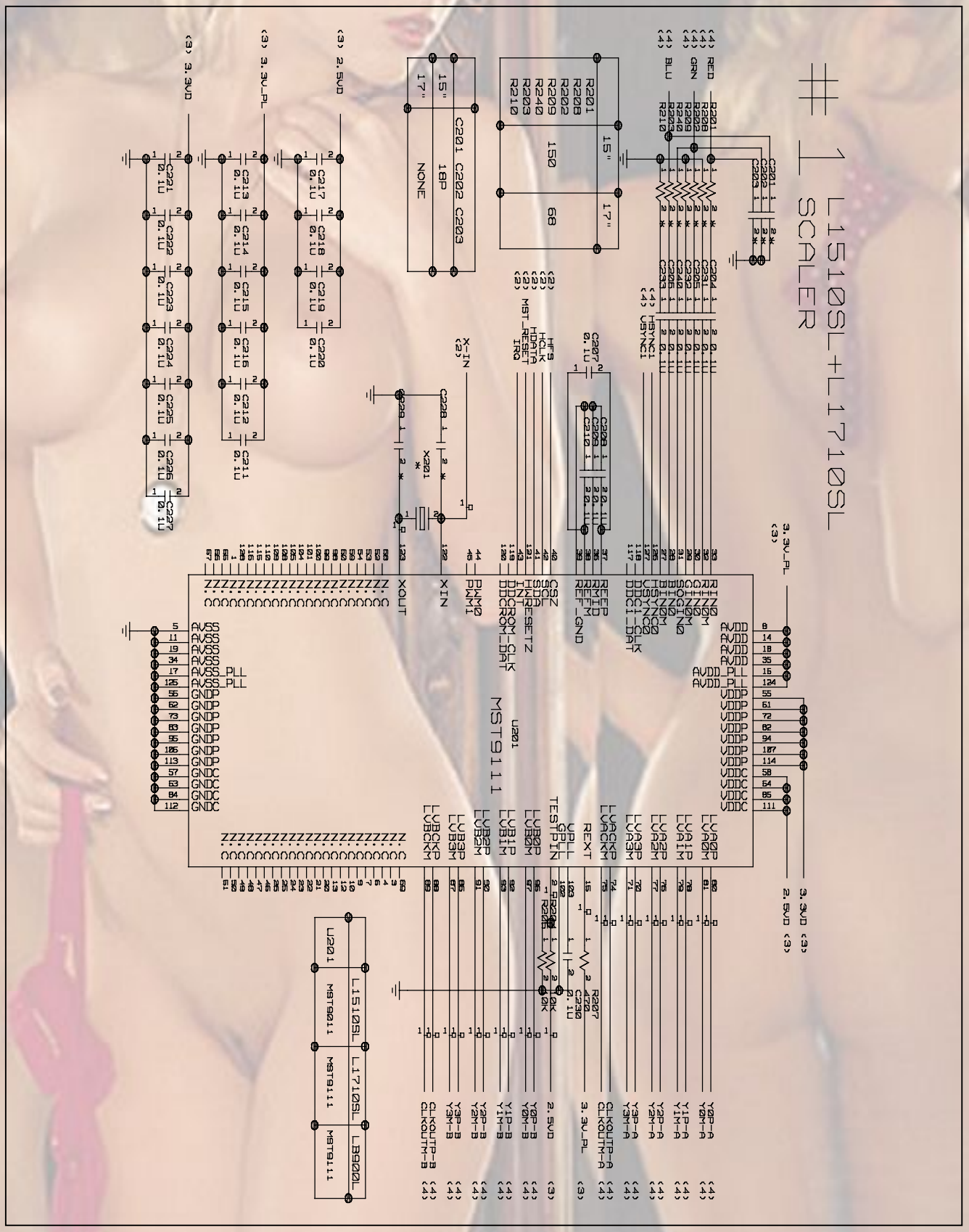
# PIN CONFIGURATION

## MST9011 ANALOG MSTAR 128P

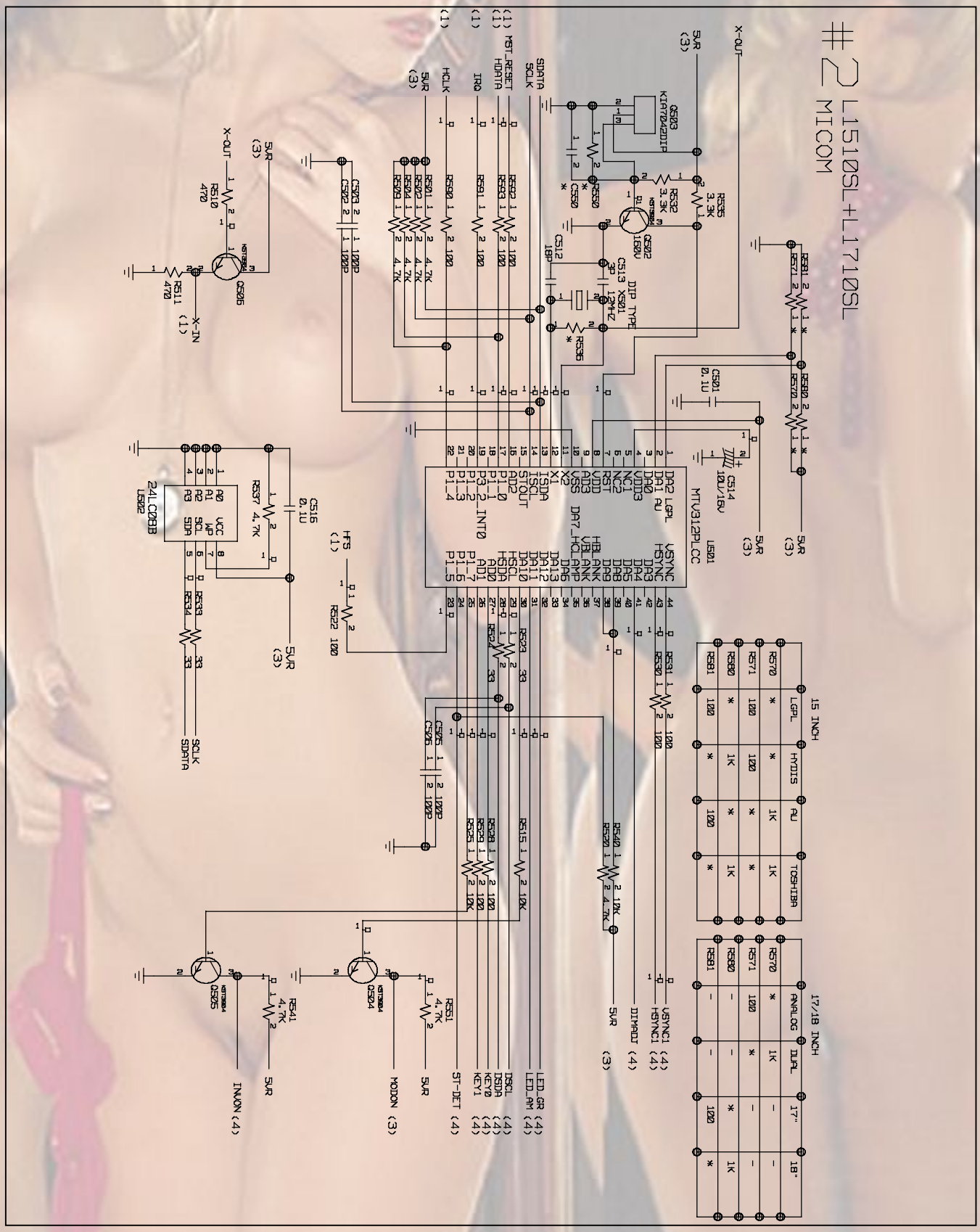


# SCHEMATIC DIAGRAM

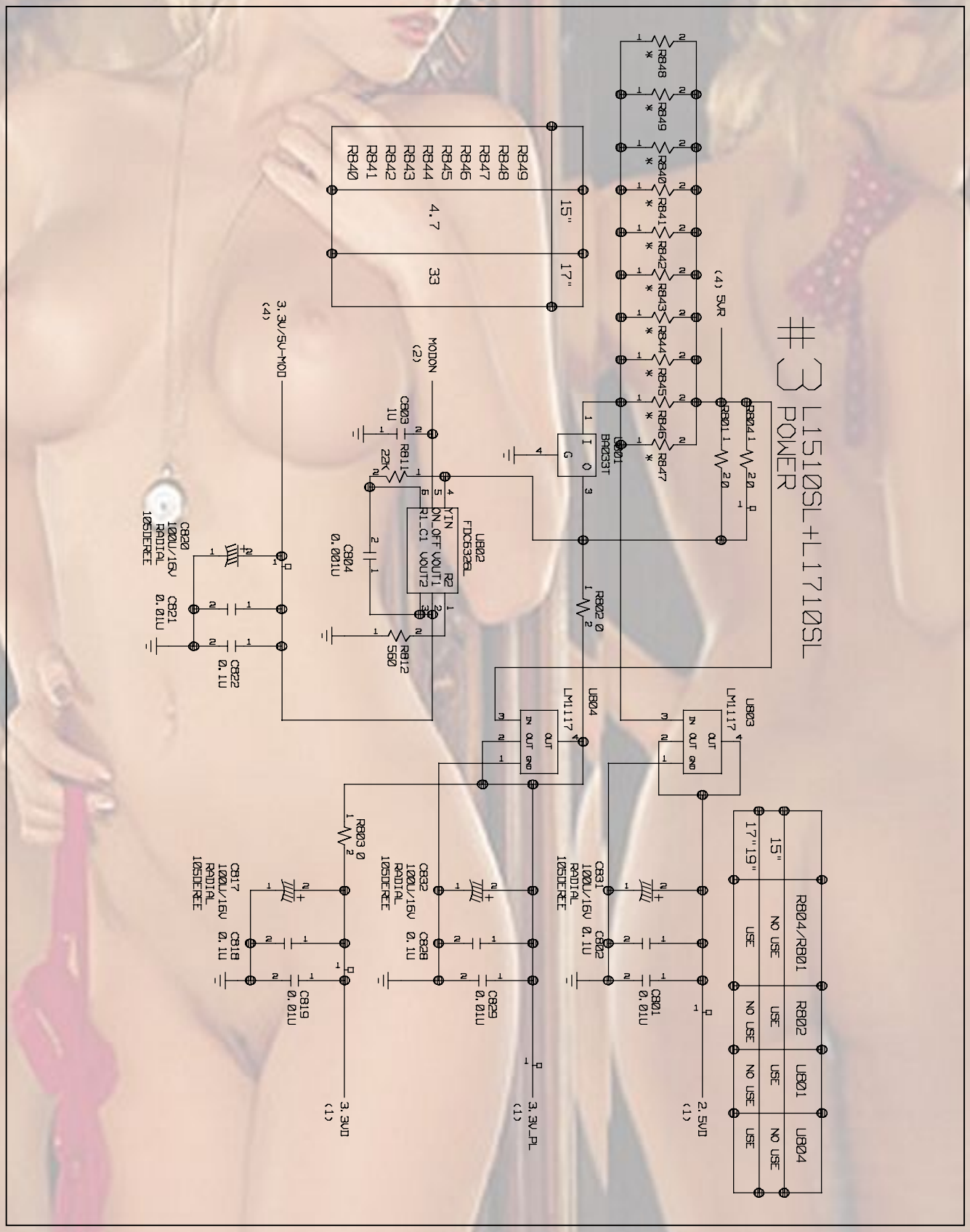
## 1. SCALER



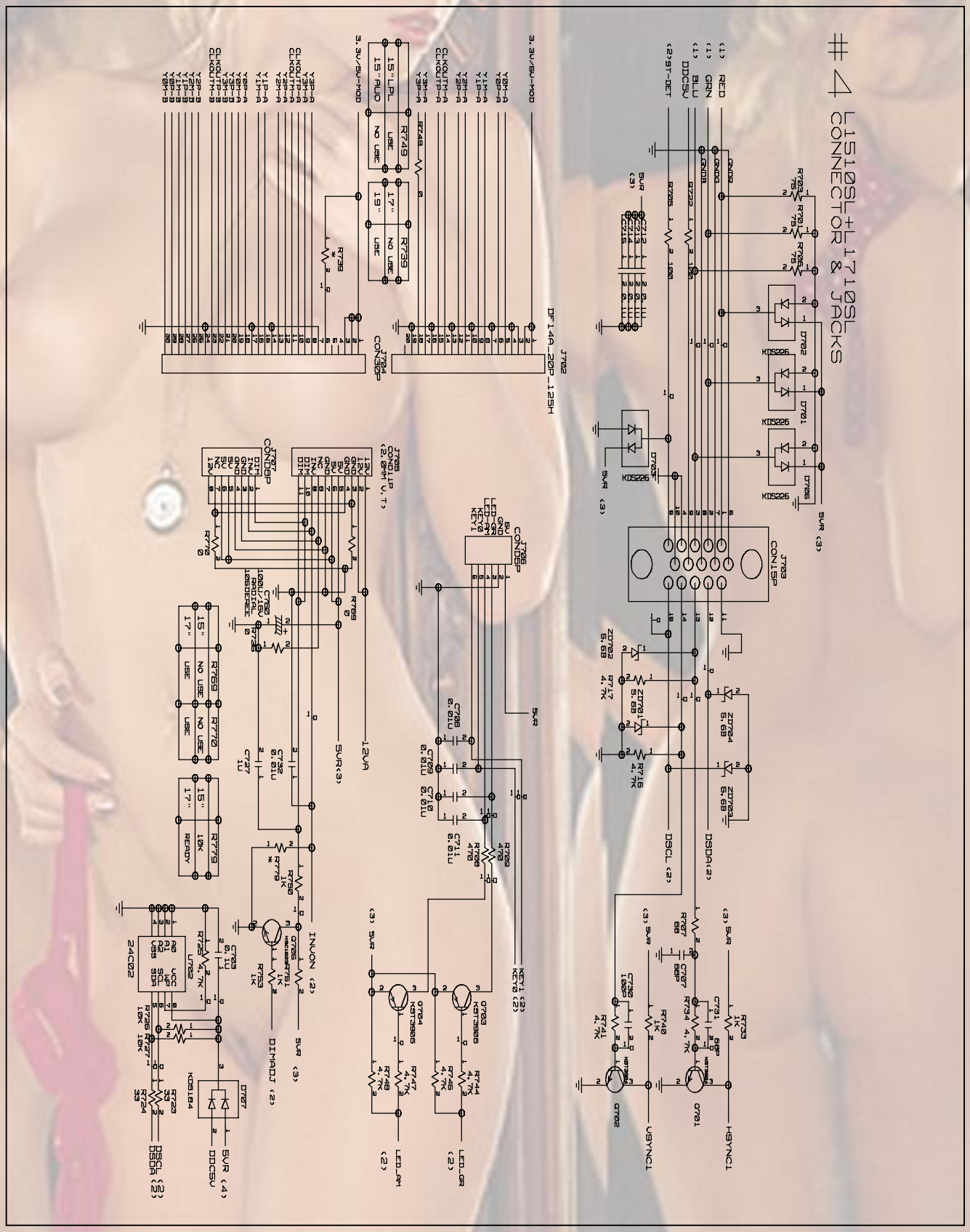
## 2. MICOM


#2 L1510SL+L1710SL
MICOM
MTV312PLCC
U501
24LC02B
U502
KIA7042DIP
Q503
DIP TYPE
X501
12MHZ
15 INCH
17/18 INCH
LGPL
HYDIS
AU
TOSHIBA
ANALOG
DUAL
17"
18"
5VR (3)
X-OUT
X-IN (1)
MST_RESET (1)
HDATA (1)
IRQ (1)
HCLK (1)
SDATA
SCLK
HFS (1)
VSYNC1 (4)
HSYNC1 (4)
DIMADJ (4)
LED_GR (4)
LED_AM (4)
DSCL (4)
DSDA (4)
KEY0 (4)
KEY1 (4)
ST-DET (4)
MODON (3)
INVON (4)

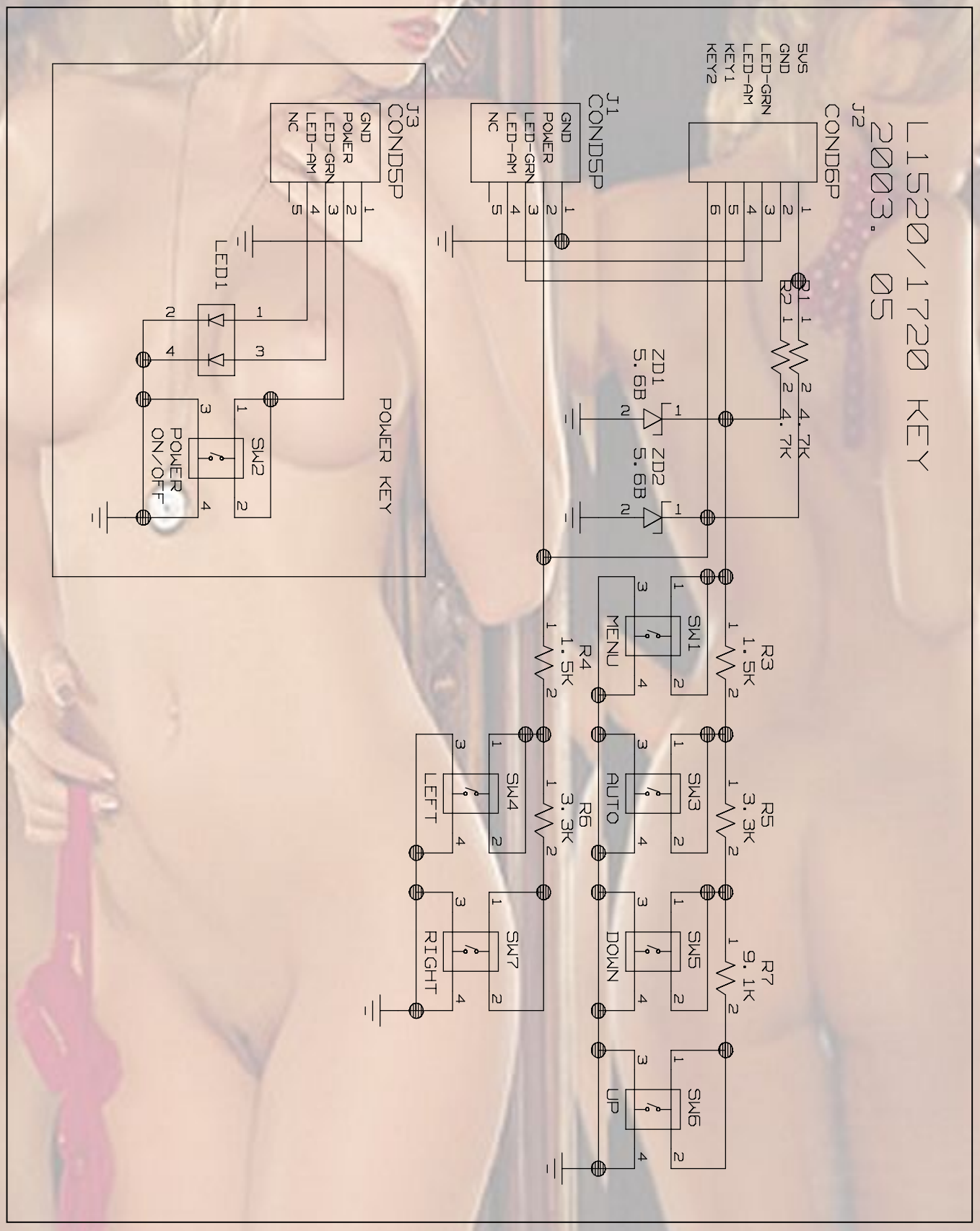
## 3. POWER


#3 L1510SL+L1710SL
POWER
(4) 5VR
R804 20
R801 20
Q801
BA033T
R848
R849
R840
R841
R842
R843
R844
R845
R846
R847
4.7
33
15"
17"
MODON
(2)
C803
1U
R811
22K
U802
FDC6326L
C804
0.001U
R812
560
R802 0
3.3V/5V-MOD
(4)
C820
100U/16V
RADIAL
105DEREE
C821
0.01U
C822
0.1U
U803
LM1117
U804
LM1117
IN OUT GND
R803 0
C817
100U/16V
RADIAL
105DEREE
C818
0.1U
C819
0.01U
C832
100U/16V
RADIAL
105DEREE
C828
0.1U
C829
0.01U
C831
100U/16V
RADIAL
105DEREE
C802
0.1U
C801
0.01U
15"
17"19"
R804/R801
R802
U801
U804
NO USE
USE
2.5VD
(1)
3.3V_PL
(1)
3.3VD
(1)

## 4. CONNECTOR & JACKS



## 5.KEY


L1520/1720 KEY
2003. 05
J2
COND6P
5VS
GND
LED-GRN
LED-AM
KEY1
KEY2
R1 4.7K
R2 4.7K
J1
COND5P
GND
POWER
LED-GRN
LED-AM
NC
ZD1
5.6B
ZD2
5.6B
R3
1.5K
R4
1.5K
R5
3.3K
R6
3.3K
R7
9.1K
SW1
MENU
SW3
AUTO
SW5
DOWN
SW6
UP
SW4
LEFT
SW7
RIGHT
J3
COND5P
GND
POWER
LED-GRN
LED-AM
NC
LED1
SW2
POWER
ON/OFF
POWER KEY

LG

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