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# COLOR MONITOR **SERVICE MANUAL**

CHASSIS NO. : CA-129

**MODEL: FLATRON<sup>ez</sup> T910B (T910BJ-AL \*\*E)**

( ) \*\*Same model for Service

## **CAUTION**

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



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# SPECIFICATIONS

## 1. PICTURE TUBE

|                  |                            |
|------------------|----------------------------|
| Size             | : 19 inch (Flat Slot Mask) |
| Deflection Angle | : 90°                      |
| Neck Diameter    | : 29.1 mm                  |
| Phosphor         | : P22                      |
| Slot Pitch       | : 0.25 mm                  |
| Face Treatment   | : Anti-Glare               |

## 2. SIGNAL

### 2-1. Horizontal & Vertical Sync

- 1) Input Voltage Level : Low=  $\leq$ 0.8V, High=  $\geq$ 2.1V
- 2) Sync Polarity : Positive or Negative

### 2-2. Video Input Signal

- 1) Voltage Level : 0 ~ 0.7 Vp-p
- a) Color 0, 0 : 0 Vp-p
- b) Color 7, 0 : 0.467 Vp-p
- c) Color 15, 0 : 0.7 Vp-p
- 2) Input Impedance : 75 Ω
- 3) Video Color : R, G, B Analog
- 4) Signal Format : Refer to the Timing Chart

### 2-3. Signal Connector

15 Pin D-Sub Connector

### 2-4. Scanning Frequency

- Horizontal : 30 ~ 98 kHz
- Vertical : 50 ~ 160 Hz

## 3. POWER SUPPLY

- AC 100~240V, 50/60HZ, 2.5A Max
- AC 200~240V, 50Hz, 1.5A Max.(PFC version)

### 3-2. Power Consumption

| MODE     | VIDEO | POWER CONSUMPTION | LED COLOR |
|----------|-------|-------------------|-----------|
| MAX      | Yes   | less than 120W    | GREEN     |
| STAND-BY | No    | less than 8W      | AMBER     |
| SUSPEND  | No    | less than 8W      | AMBER     |
| DPMS OFF | No    | less than 3W      | AMBER     |

## 4. DISPLAY AREA

### 4-1. Active Video Area :

- Max Image Size - 365.8 x 274.3mm (12.91" x 9.61")
- Preset Image Size - 350 x 262 mm (12.20" x 9.06")

### 4-2. Display Color : Full Colors

### 4-3. Display Resolution : 1600 Dots x 1200Lines

### 4-4. Video Band width : 203MHz

## 5. ENVIRONMENT

### 5-1. Operating Temperature: 0°C ~ 40°C (32°F ~ 103°F) (Ambient)

### 5-2. Relative Humidity : 8% ~ 80%

(Non-condensing)

### 5-3. Altitude : 10,000 ft

## 6. DIMENSIONS (with TILT/SWIVEL)

|        |                   |
|--------|-------------------|
| Width  | : 443 mm (17.44") |
| Depth  | : 458 mm (18.03") |
| Height | : 450 mm (17.72") |

## 7. WEIGHT (with TILT/SWIVEL)

|              |                       |
|--------------|-----------------------|
| Net Weight   | : 20.9 kg (46.08 lbs) |
| Gross Weight | : 24.4 kg (53.79 lbs) |

# SAFETY PRECAUTIONS

## SAFETY-RELATED COMPONENT WARNING!

There are special components used in this color monitor which 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 X-radiation, shock, fire, or other hazards. Do not modify the original design without obtaining written permission from manufacturer or you will void the original parts and labor guarantee.

**CAUTION:** No modification of any circuit should be attempted.

Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

## SAFETY CHECK

Care should be taken while servicing this color monitor because of the high voltage used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

## FIRE & SHOCK HAZARD

An isolation transformer must be inserted between the color monitor and AC power line before servicing the chassis.

- In servicing, attention must be paid to the original lead dress specially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.
- All the protective devices must be reinstalled per the original design.
- Soldering must be inspected for the cold solder joints, frayed leads, damaged insulation, solder splashes, or the sharp points. Be sure to remove all foreign materials.

## IMPLOSION PROTECTION

All used display tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation. Use only same type display tubes.

## X-RADIATION

The only potential source of X-radiation is the picture tube. However, when the high voltage circuitry is operating properly there is no possibility of an X-radiation problem. The basic precaution which must be exercised is keep the high voltage at the factory recommended level; the normal high voltage is about 27kV. The following steps describe how to measure the high voltage and how to prevent X-radiation.

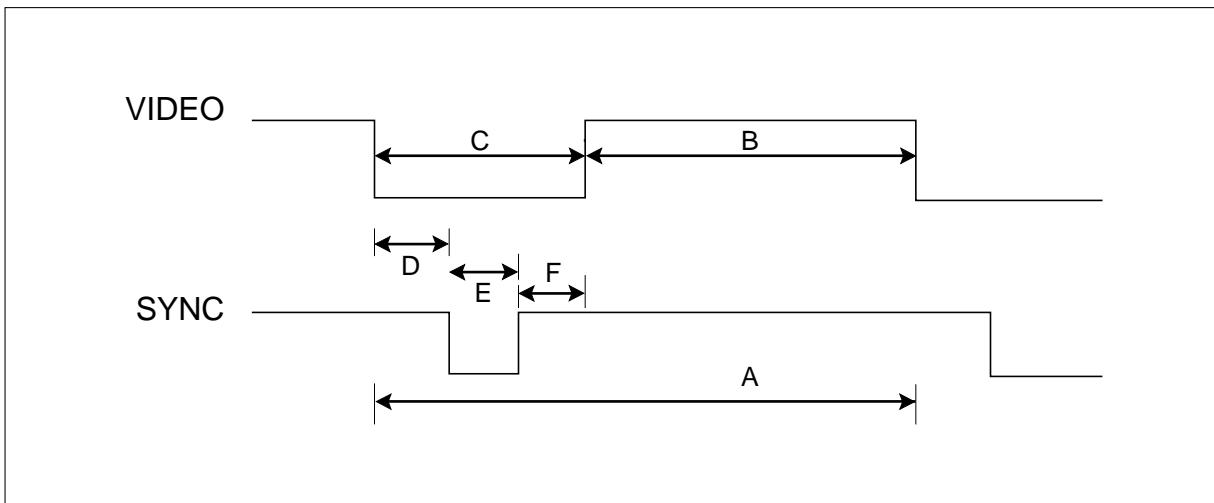
**Note :** It is important to use an accurate high voltage meter calibrated periodically.

- To measure the high voltage, use a high impedance high voltage meter, connect (-) to chassis and (+) to the CDT anode cap.
- Set the brightness control to maximum point at full white pattern.
- Measure the high voltage. The high voltage meter should be indicated at the factory recommended level.
- If the meter indication exceeds the maximum level, immediate service is required to prevent the possibility of premature component failure.
- To prevent X-radiation possibility, it is essential to use the specified picture tube.

## CAUTION:

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

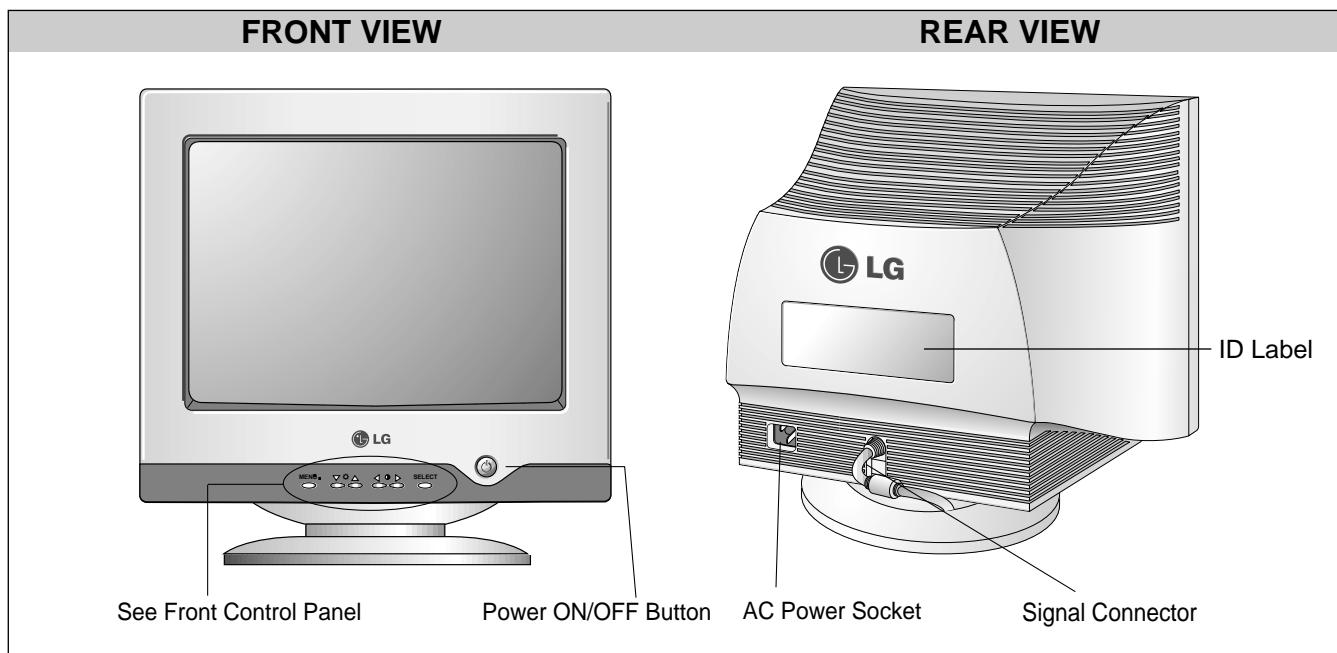
## TIMING CHART



| MODE   |                   | FACTORY PRESET MODE |                             |                             |                              |                               |                               |
|--|-------------------|---------------------|-----------------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|
|  |                   | MARK                | MODE 1                      | MODE 2                      | MODE 3                       | MODE 4                        | MODE 5                        |
| VESA   |                   |                     |                             |                             |                              |                               |                               |
| H<br>O<br>R<br>I<br>Z<br>O<br>N<br>T<br>A<br>L | Sync Polarity     |                     | -                           | +                           | +                            | +                             | +                             |
|  | Frequency         | kHz                 | 43.269                      | 53.674                      | 68.677                       | 91.146                        | 93.750                        |
|  | Total Period      | μs                  | A                           | 23.112                      | 18.631                       | 14.561                        | 10.971                        |
|  | Video Active Time | μs                  | B                           | 17.778                      | 14.222                       | 10.836                        | 8.127                         |
|  | Blanking Time     | μs                  | C                           | 5.334                       | 4.409                        | 3.725                         | 2.844                         |
|  | Front Porch       | μs                  | D                           | 1.556                       | 0.569                        | 0.508                         | 0.406                         |
|  | Sync Duration     | μs                  | E                           | 1.556                       | 1.138                        | 1.016                         | 1.016                         |
|  | Back Porch        | μs                  | F                           | 2.222                       | 2.702                        | 2.201                         | 1.422                         |
| V<br>E<br>R<br>T<br>I<br>C<br>A<br>L           | Sync Polarity     |                     | -                           | +                           | +                            | +                             | +                             |
|  | Frequency         | Hz                  | 85.008                      | 85.061                      | 84.997                       | 85.024                        | 75.000                        |
|  | Total Period      | ms                  | A                           | 11.763                      | 11.756                       | 11.765                        | 11.762                        |
|  | Video Active Time | ms                  | B                           | 11.093                      | 11.178                       | 11.183                        | 11.235                        |
|  | Blanking Time     | ms                  | C                           | 0.670                       | 0.578                        | 0.582                         | 0.527                         |
|  | Front Porch       | ms                  | D                           | 0.023                       | 0.019                        | 0.015                         | 0.011                         |
|  | Sync Duration     | ms                  | E                           | 0.069                       | 0.056                        | 0.044                         | 0.033                         |
|  | Back Porch        | ms                  | F                           | 0.578                       | 0.503                        | 0.523                         | 0.483                         |
| Resolution                                     |                   |                     | 640<br>X<br>480<br><br>85Hz | 800<br>X<br>600<br><br>85Hz | 1024<br>X<br>768<br><br>85Hz | 1280<br>X<br>1024<br><br>85Hz | 1600<br>X<br>1200<br><br>75Hz |
| Recall   |                   |                     | Yes                         | Yes                         | Yes                          | Yes                           |                               |

\* Mode 5 is not preset mode but TCO check resolution!

# OPERATING INSTRUCTIONS



**Front Control Panel**

**1. Power ON/OFF Button**  
Use this button to turn the monitor ON or OFF.

**2. Power Indicator**  
This indicator lights up green when the monitor operates normally; in DPMS (Energy Saving) mode, - stand-by, suspend, or power off mode - its color changes to orange, and if abnormal or damaging circuit turns out orange blink.

**3. Select Button**  
Use this button to enter a selection in the on screen display.

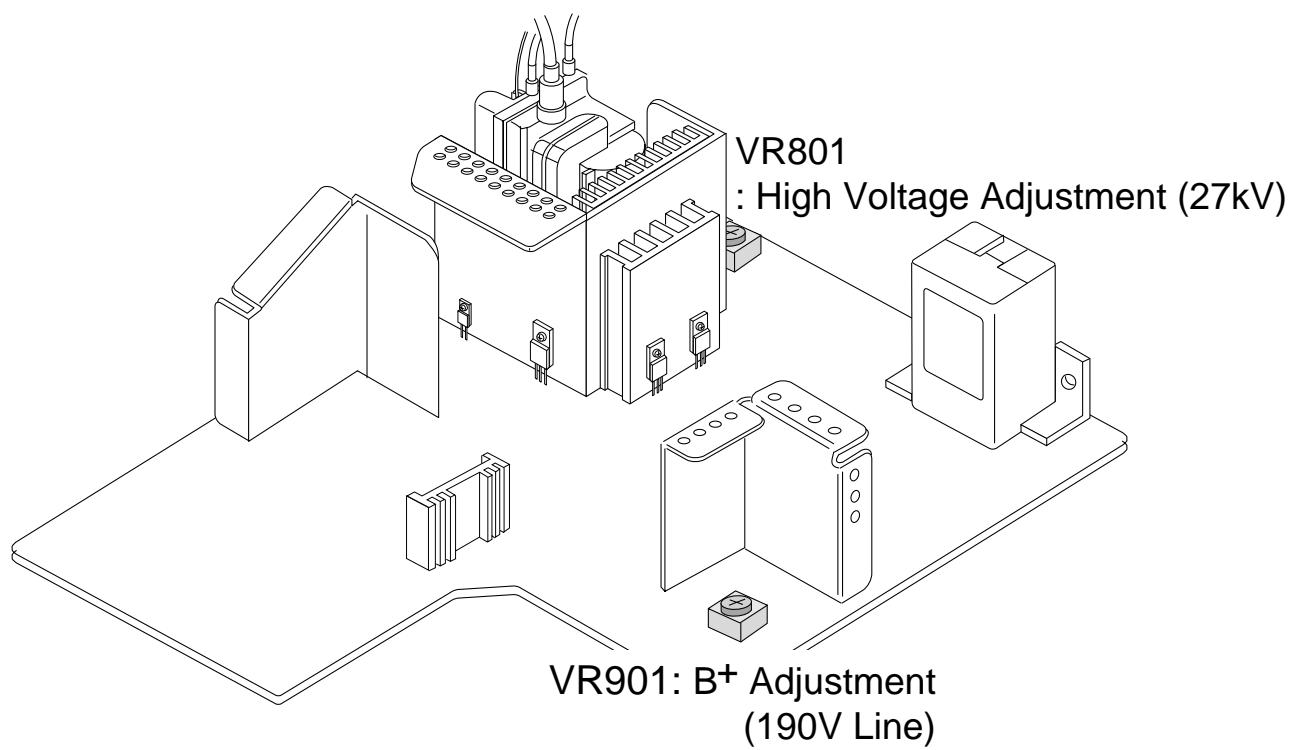
**4.  $\triangle\triangledown/\triangleleft\triangleright$  Button**  
Use these buttons to choose or adjust items in the on screen display.

**5. MENU Button**  
Use this button to enter or exit the on screen display.

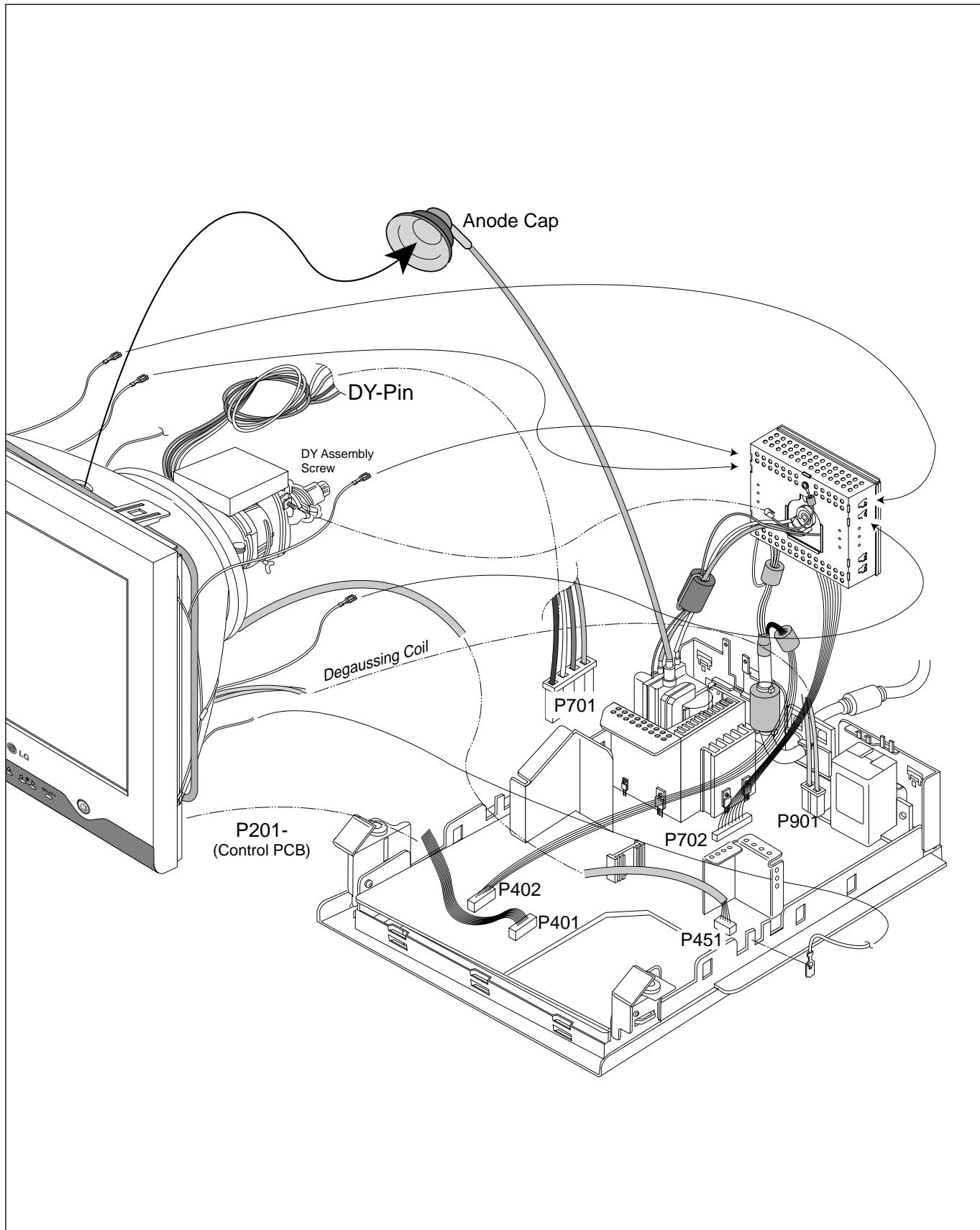
**<Shortcut Keys>**

- Brightness and Contrast can be adjusted directly without entering the On Screen Display (OSD) system.  
Press the  $\triangle\triangledown/\triangleleft\triangleright$  buttons to adjust the settings and then the **MENU button** to save all changes. The Brightness and Contrast functions are also available in the On Screen Display (OSD) menu.

## CONTROL LOCATIONS



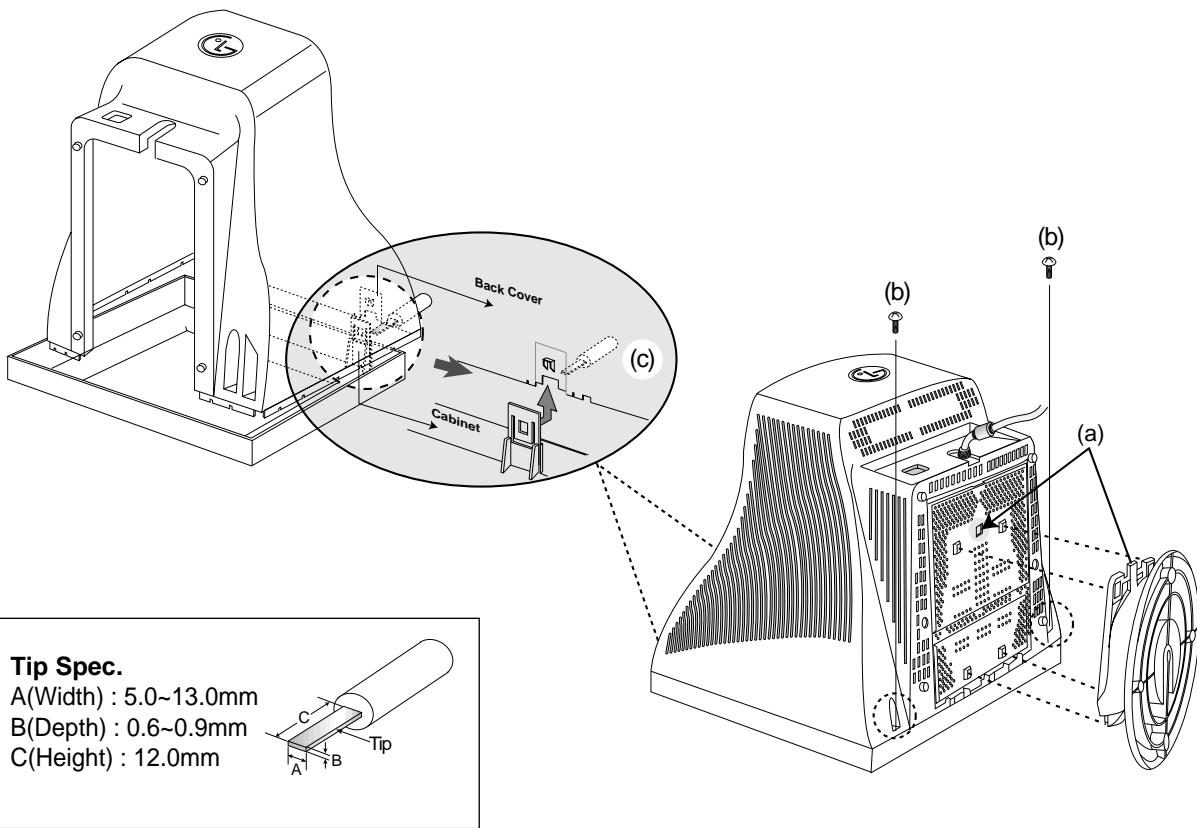
## WIRING DIAGRAM



# DISASSEMBLY

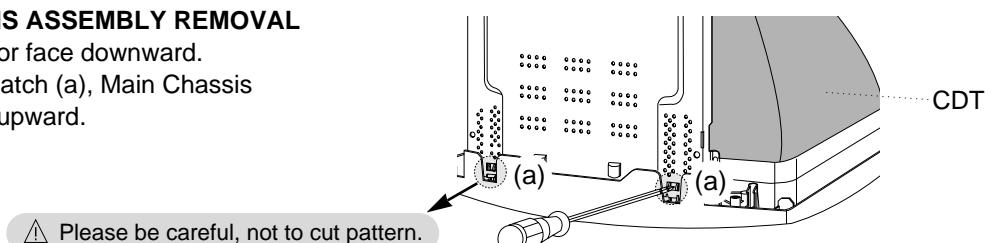
## 1. TILT/SWIVEL & BACK COVER REMOVAL

- 1) Set the monitor face downward.
- 2) Pull the latch (a), carefully remove the Tilt/Swivel by pulling it upward.
- 3) Remove two screws (b) .
- 4) Release the latch (c).
- 5) Slide the Back Cover away from the Front Cabinet of the monitor.

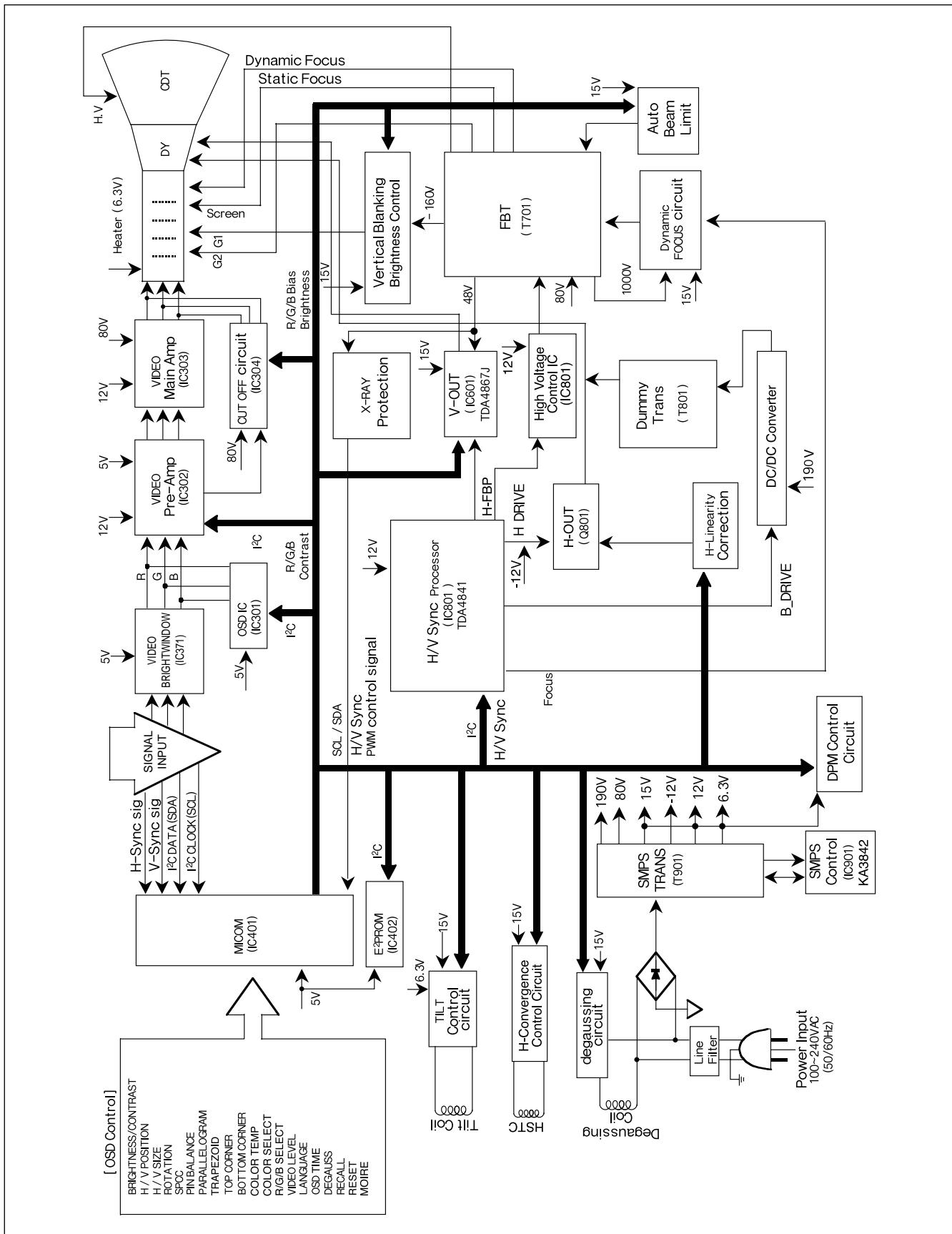


## 2. TOTAL CHASSIS ASSEMBLY REMOVAL

- 1) Set the monitor face downward.
- 2) Pressing the latch (a), Main Chassis by pushing it upward.



# BLOCK DIAGRAM



# DESCRIPTION OF BLOCK DIAGRAM

## 1. Line Filter & Associated Circuit.

This is used for suppressing noise of power input line flowing into the monitor and/or some noise generated in this monitor flowing out through the power input line.

That is to say, this circuit prevents interference between the monitor and other electric appliances.

## 2. Degauss Circuit & Coil.

The degauss circuit consists of the degaussing coil, the PTC (Positive Temperature Coefficient) thermistor (TH901), and the relay (RL901). This circuit eliminates abnormal color of the screen automatically by degaussing the slot mask in the CDT when turn on the power switch.

When you need to degauss while using the monitor, select DEGAUSS on the OSD menu.

## 3. SMPS (Switching Mode Power Supply).

This circuit works with power of 100~240V or 200~240V (50/60Hz) specially for PFC version.

The operation procedure is as follows:

- 1) AC input voltage is rectified and smoothed by the bridge diode (D901) and the capacitor (C905).
- 2) The rectified voltage (DC voltage) is applied to the primary coil of the transformer (T901).
- 3) The control IC (IC901) generates switching pulse to turn on and off the primary coil of the transformer (T901) repeatedly.
- 4) Depending on the turn ratio of the transformer, the secondary voltages appear at the secondary coil of the transformer (T901).
- 5) These secondary voltages are rectified by each diode (D924, D926, D923, D922, D921, D920) and operate the other circuits. (Deflection, Video Amplifier, etc.)

## 4. Display Power Management Circuit.

This circuit controls power consumption of the monitor by detecting H and V sync signal. There are stand-by and suspend mode. When no horizontal or vertical sync signal input, the circuit consists of Q913 and Q915 becomes stand-by and suspend mode. Its power consumption is below 8W. When no horizontal and vertical sync signal input, its power consumption is below 3W.

## 5. X-ray Protection.

This circuit detects the rectified DC voltage comes from the FBT pin 4. If the high voltage of the FBT reaches up to about 30kV (abnormal state), H.V control (IC802) detects. It stops B<sup>+</sup> voltage supplied to the FBT (T701), and high voltage is not be generated, (In the normal state, the high voltage is about 27kV.)

## 6. Micom(Microprocessor) Circuit.

The operating procedure of Micom (Microprocessor) and its associated circuit is as follows:

- 1) H and V sync signal is supplied from Signal Cable to the Micom (IC401).
- 2) The Micom (IC401) distinguishes polarity and frequency of HandV sync.
- 3) The Micom controls each OSD function signals. (H-size, H-position, V-size, etc.)
- 4) The controlled data of each mode is stored in IC402. User can adjust screen condition by each OSD function. The data of the adjust screen condition is stored automatically.

## 7. Horizontal and Vertical Synchronous Processor.

This circuit generates the horizontal drive pulse and the vertical drive pulse by taking sync-signal from Signal Cable. This circuit consists of the TDA4841(IC801) and the associated circuit.

## 8. Oscillating Circuit for D/D Converter.

This circuit generates the pulse wave which has the horizontal period by taking the output of the TDA4841 (IC801).

## 9. D/D (DC to DC) Converter.

This circuit supplies DC voltage to the horizontal deflection output circuit by decreasing DC 190V which is the secondary voltage of the SMPS in accordance with the input horizontal sync signal.

## 10. Side-Pincushion Correcting Circuit.

This circuit improves the Side-pincushion of the screen by mixing east-west wave to the output of the horizontal deflection D/D converter which is used for the supply voltage source (B<sup>+</sup>) of the deflection circuit.

## **11. D/D Drive & Convert Circuit.**

This circuit is used for supplying  $B^+$  voltage to horizontal deflection output transistor (Q801). This circuit makes to add side-pincushion correcting signal to  $B^+$  voltage.

## **12. Horizontal Deflection Output Circuit.**

This circuit makes the horizontal deflection by supplying the saw-tooth current to the horizontal deflection yoke.

## **13. High Voltage Output & FBT (Flyback Transformer).**

The high voltage output circuit is used for generating pulse wave to the primary coil of the FBT (Flyback Transformer (T701)). A boosted voltage (about 27kV) appears at the secondary of the FBT and it is supplied to the anode of the CDT.

And there are another output voltages such as the dynamic focus voltage.

## **14. H-Linearity Correction Circuit.**

This circuit corrects the horizontal linearity for each horizontal sync frequency.

## **15. Vertical Output Circuit.**

This circuit takes the vertical wave from the TDA4841 (IC801) and performs the vertical deflection by supplying the saw-tooth wave current from the TDA4867J (IC601) to the vertical deflection yoke.

## **17. Dynamic Focus Output Circuit.**

This circuit takes H and V parabola wave from the TDA4841 (IC801), and amplifies these waves to offer to the FBT (T701).

## **18. H & V Blanking and Brightness Control.**

This circuit eliminates the retrace line by supplying a negative pulse to the G1 of the CDT. The brightness control circuit is used to control of the screen brightness by changing the DC level of G1.

## **19. Image Rotation (Tilt) Circuit.**

This circuit corrects the tilt of the screen by supplying the image rotation signal to the tilt coil which is attached to the CDT near the deflection.

## **20. Moire Reduction Circuit**

This circuit reduce interference between the periodical display pattern and the CDT's slot (or dot).

The positions of every other one dot video signal beams (red, green, and blue beam) are shifted finely, thus reducing interference.

## **21. OSD Circuit.**

This circuit is used for performing the OSD (On-Screen- Display) function.

When a user selects the OSD Select/Adjustment control, the adjustment status displays on the screen.

## **22. Video Bright-Window Circuit.**

This circuit amplifies the analog video signal from 0-0.7V to 0-0.9V when it was operated by PC Bright Window program. With each input being separately controlled by its own contrast to allow luminance differentiation between inside and outside Window Video. When a user select Bright-window icon and drag his mouse to the special point of screen that window is highlighted by window highlight function.

## **23. Video Pre-Amp Circuit.**

This circuit amplifies the analog video signal from 0-0.7V to 0-4V. This circuit is operated by taking the clamp, R, G, B drives, and contrast signals from the Micom (IC401).

## **24. Video Output Amp Circuit.**

This circuit amplifies the video signal which comes from the video pre-amp circuit and amplified video signal is applied to the CDT cathode.

# ADJUSTMENT

## GENERAL INFORMATION

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

Adjustment should be following procedure and after warming up for a minimum of 30 minutes.

- Alignment appliances and tools.
  - IBM compatible PC.
  - Programmable Signal Generator.  
(eg. VG-819 made by Astrodesign Co.)
  - EPROM or EEPROM with saved each mode data.
  - Alignment Adaptor and Software.
  - Digital Voltmeter.
  - White Balance Meter.
  - Luminance Meter.
  - High-voltage Meter.

## AUTOMATIC AND MANUAL DEGAUSSING

The degaussing coil is mounted around the CDT so that automatic degaussing when turn on the monitor. But a monitor is moved or faced in a different direction, become poor color purity cause of CDT magnetized, then press DEGAUSSING on the OSD menu.

## ADJUSTMENT PROCEDURE & METHOD

- Install the cable for adjustment such as Figure 1 and run the alignment program on the DOS for IBM compatible PC.
- Set external Brightness and Contrast volume to max position.

### 1. Adjustment for B<sup>+</sup> Voltage.

- 1) Display cross hatch pattern at Mode 4.
- 2) Adjust C905 voltage to  $190V \pm 0.2V$  with VR901.

### 2. Adjustment for High-Voltage.

- 1) Display cross hatch pattern at Mode 4.
- 2) Adjust CDT Anode voltage to  $27kV \pm 0.2kV$  with VR801.

### 3. Adjustment for Factory Mode (Preset Mode).

- 1) Display cross hatch pattern at Mode All.
- 2) Run alignment program for T910BJ on the IBM compatible PC.

- 3) EEPROM → ALL CLEAR → Y(Yes) command.  
**<Caution>** Do not run this procedure unless the EEPROM is changed. All data in EEPROM (mode data and color data) will be erased.
- 4) COMMAND → PRESET START → Y(Yes) command.
- 5) DIST. ADJ. → FOS. ADJ command.
- 6) Adjust H-POSITION as arrow keys to center of the screen.
- 7) Adjust H-SIZE as arrow keys to  $350 \pm 2mm$ .
- 8) Adjust V-POSITION as arrow keys to center of the screen.
- 9) Adjust V-SIZE as arrow keys to  $262 \pm 2mm$ .
- 10) Adjust TRAPEZOID as arrow keys to be the best condition.
- 11) Adjust SIDE PINCUSHION as arrow keys to be the best condition.
- 12) Adjust TILT as arrow keys to be the best condition.
- 13) Display cross hatch pattern at Mode 4.
- 14) DIST. ADJ. → BALANCE DATA command.
- 15) Adjust balance of Pin-Balance as arrow keys to be the best condition.
- 16) Adjust parallelogram as arrow keys to be the best condition.
- 17) Save of the Mode.
- 18) Save of the System.
- 19) Display from Mode 4 and repeat above from number 6) to 16).
- 20) COMMAND → PRESET EXIT → Y (Yes) command.

### 4. Adjustment for White Balance and Luminance.

- 1) Set the White Balance Meter.
- 2) Press the DEGAUSSING on the OSD menu for demagnetization of the CDT.
- 3) Display color 0,0 pattern at Mode 4.
- 4) COMMAND → PRESET START → Y(Yes) command.
- 5) Set Brightness and Contrast to max position.
- 6) COLOR ADJ. → LUMINANCE command of the alignment program.
- 7) COLOR ADJ. → BIAS ADJ. command of the alignment program.
- 8) Check whether blue color or not at R-BIAS and G-BIAS to min position, Sub-Brightness to (90:HEX(5A)) position, B-BIAS to 110: HEX(6E) position. If it's not blue color, the monitor must repair.
- 9) Adjust Screen control on the FBT to  $0.15 \pm 0.05FL$  of the raster luminance.
- 10) Adjust R-BIAS and G-BIAS command to  $x=0.283 \pm 0.006$  and  $y=0.298 \pm 0.006$  on the White Balance Meter with PC arrow keys.

- 11) Adjust SUB-Brightness command to  $0.4 \pm 0.05$ FL of the raster luminance.
- 12) Display color 15,0 Full White pattern(70x70mm) at mode 4.
- 13) DRIVE ADJ command.
- 14) Set B-DRIVE to 95:HEX(5F) at DRIVE of the alignment program.
- 15) Adjust R-DRIVE and G-DRIVE command to white balance  $x=0.283 \pm 0.003$  and  $y=0.298 \pm 0.003$  on the White Balance Meter with PC arrow keys.
- 16) Adjust SUB-CONTRAST command to  $45 \pm 1$ FL of the raster luminance.
- 17) Display color 15,0 full white patten at Mode 4.
- 18) COLOR ADJ. → LUMINANCE → ABL command.
- 19) Adjust ABL to  $30 \pm 1$ FL of the luminance.
- 20) Exit from the program.

#### **5. Input EDID Data.**

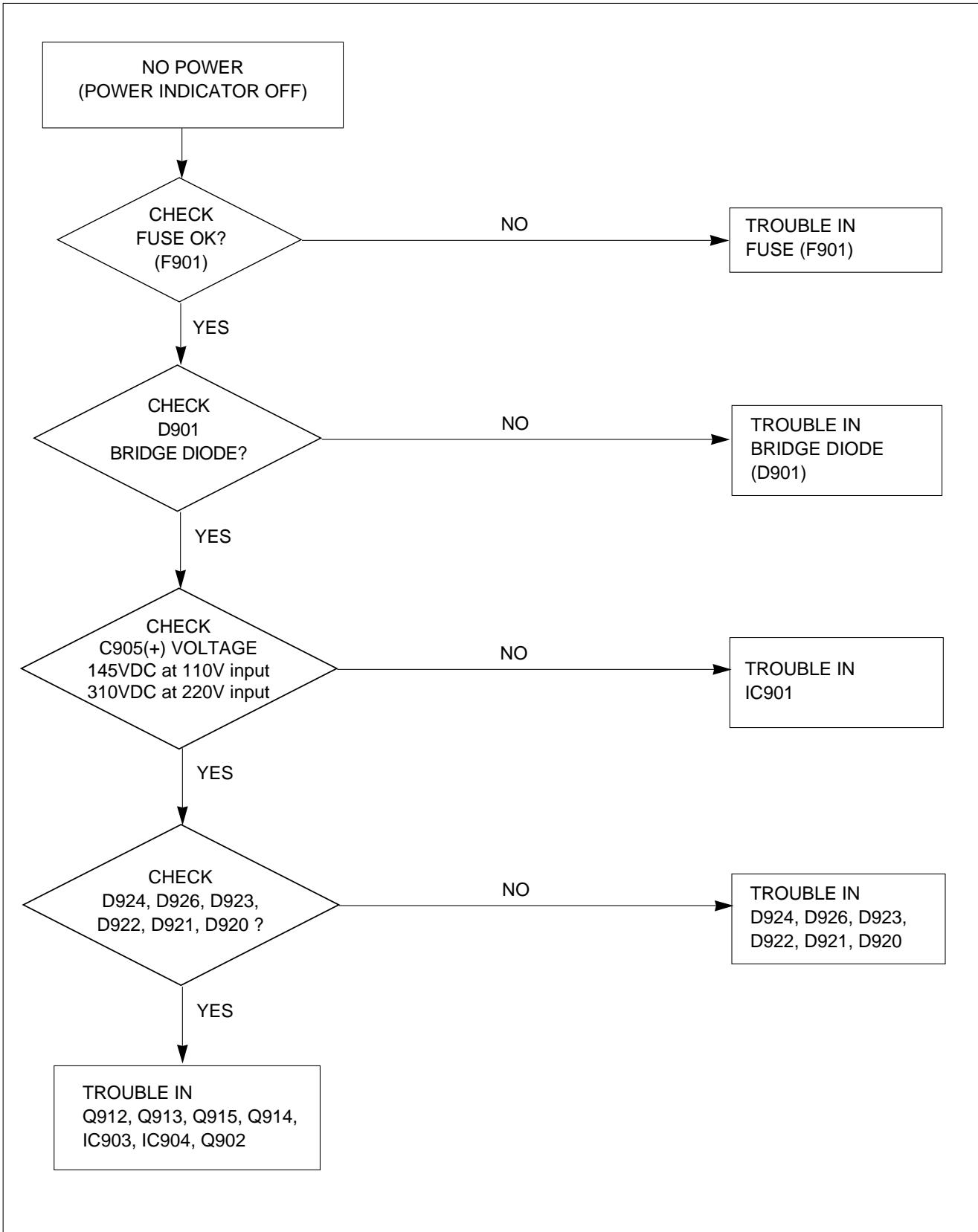
- 1) Display color 15,0 cross hatch pattern at Mode 4.
- 2) EEPROM → Write EDID command and confirm "EDID Write OK!!" message of monitor.
- 3) Exit from the alignment program.
- 4) Power switch OFF/ON for EDID data save.

#### **6. Adjustment for Focus.**

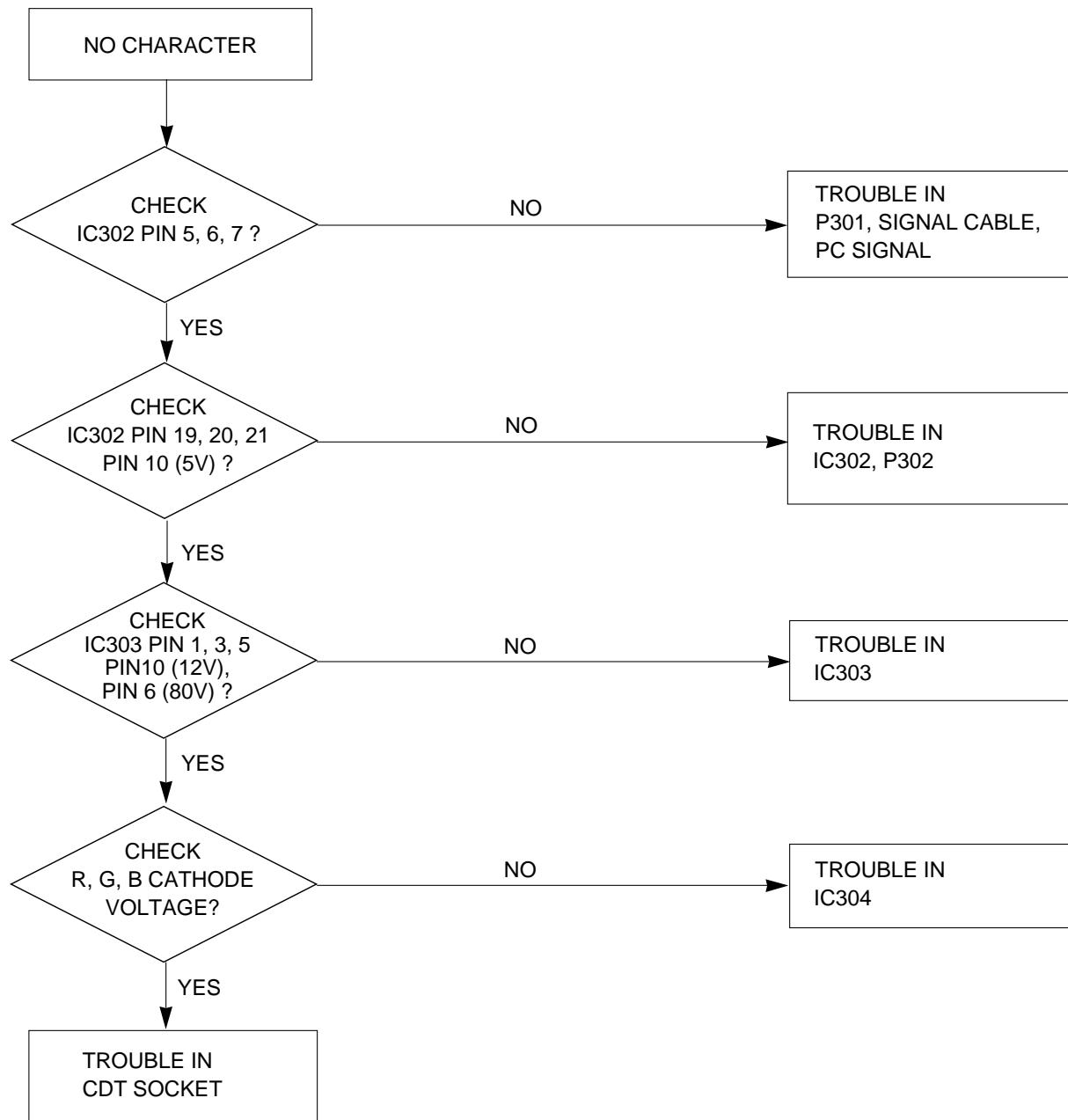
- 1) Display H character in full screen at Mode 4.
- 2) Adjust two Focus control on the FBT that focus should be the best condition.

# TROUBLESHOOTING GUIDE

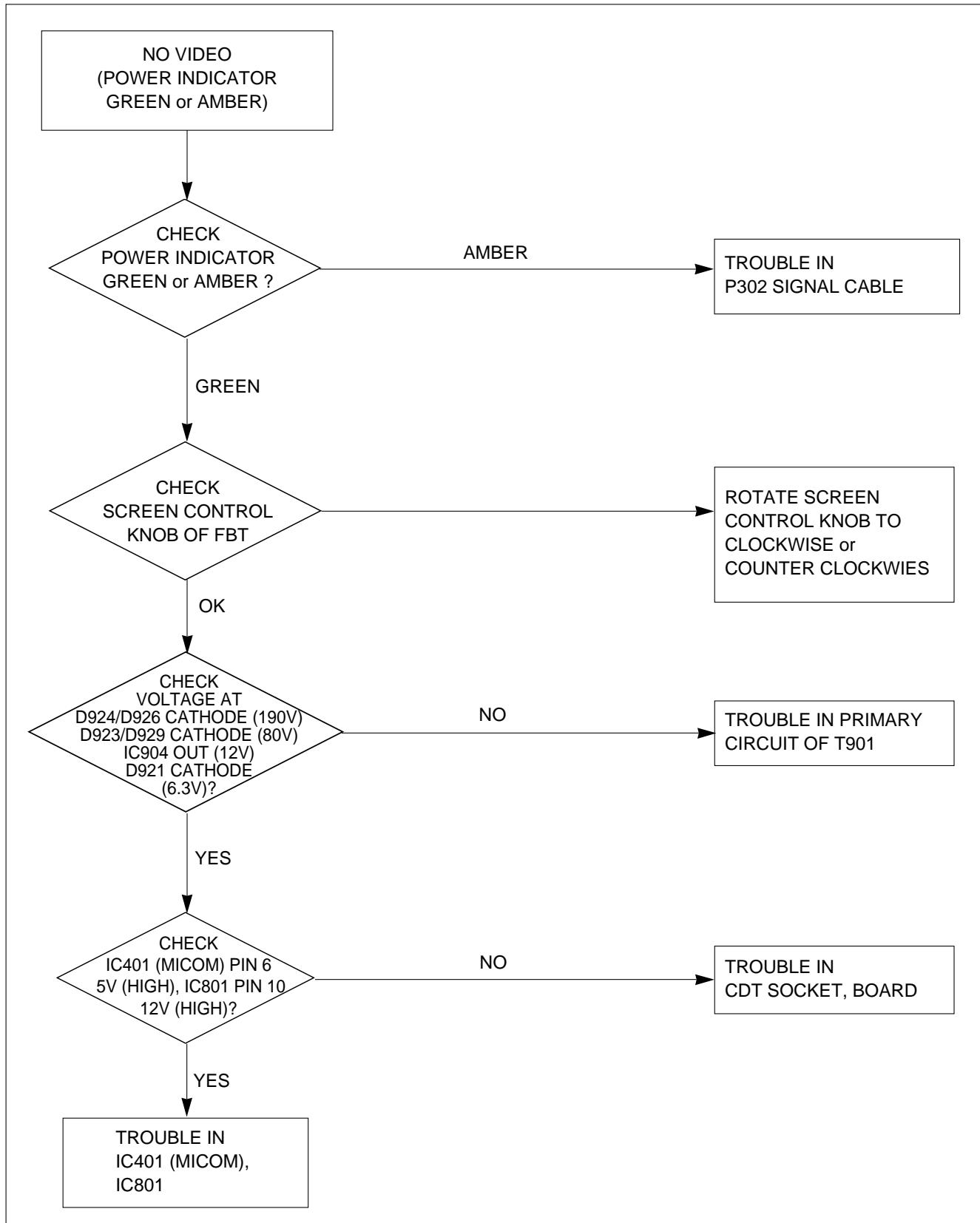
## 1. NO POWER



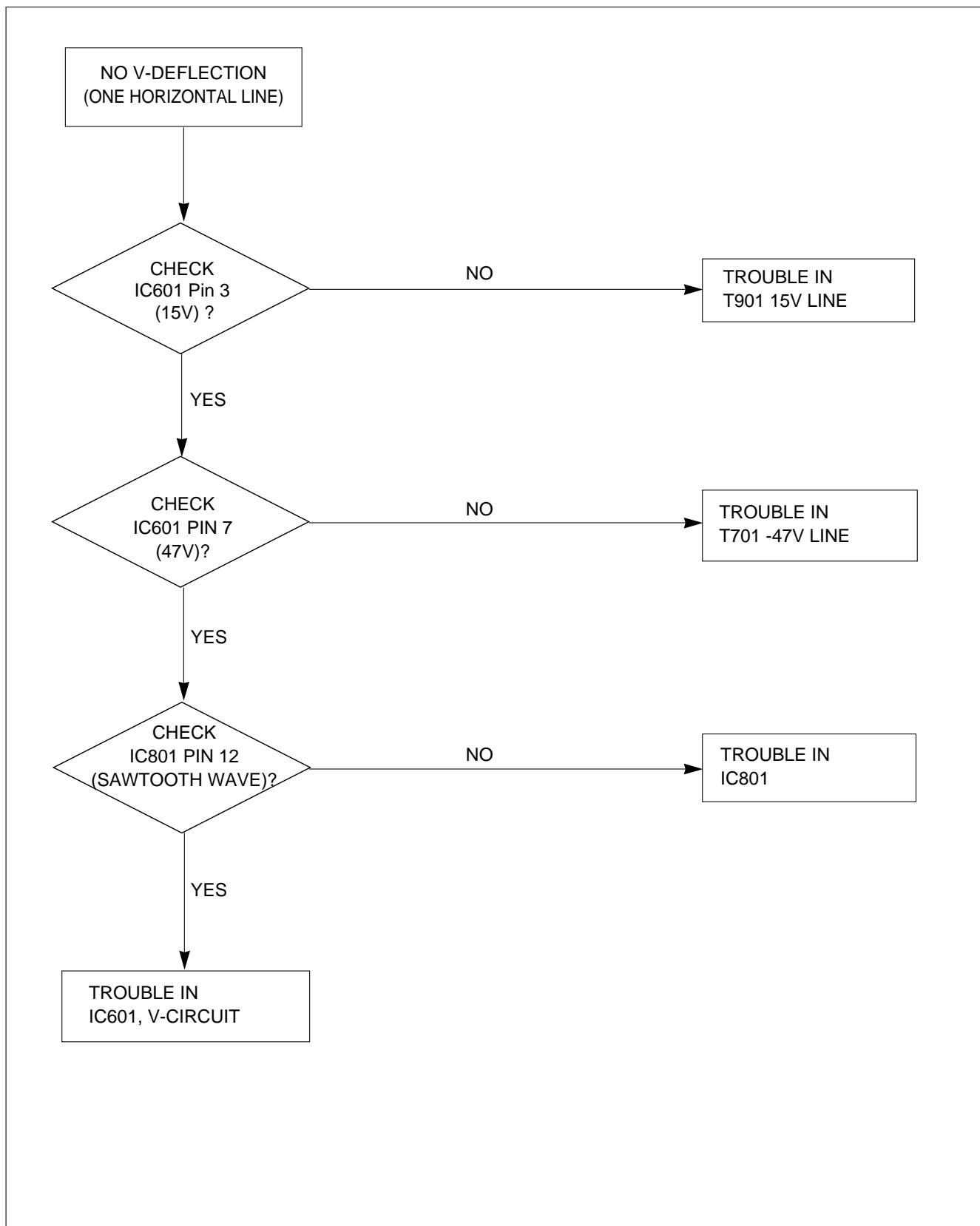
## 2. NO CHARACTER



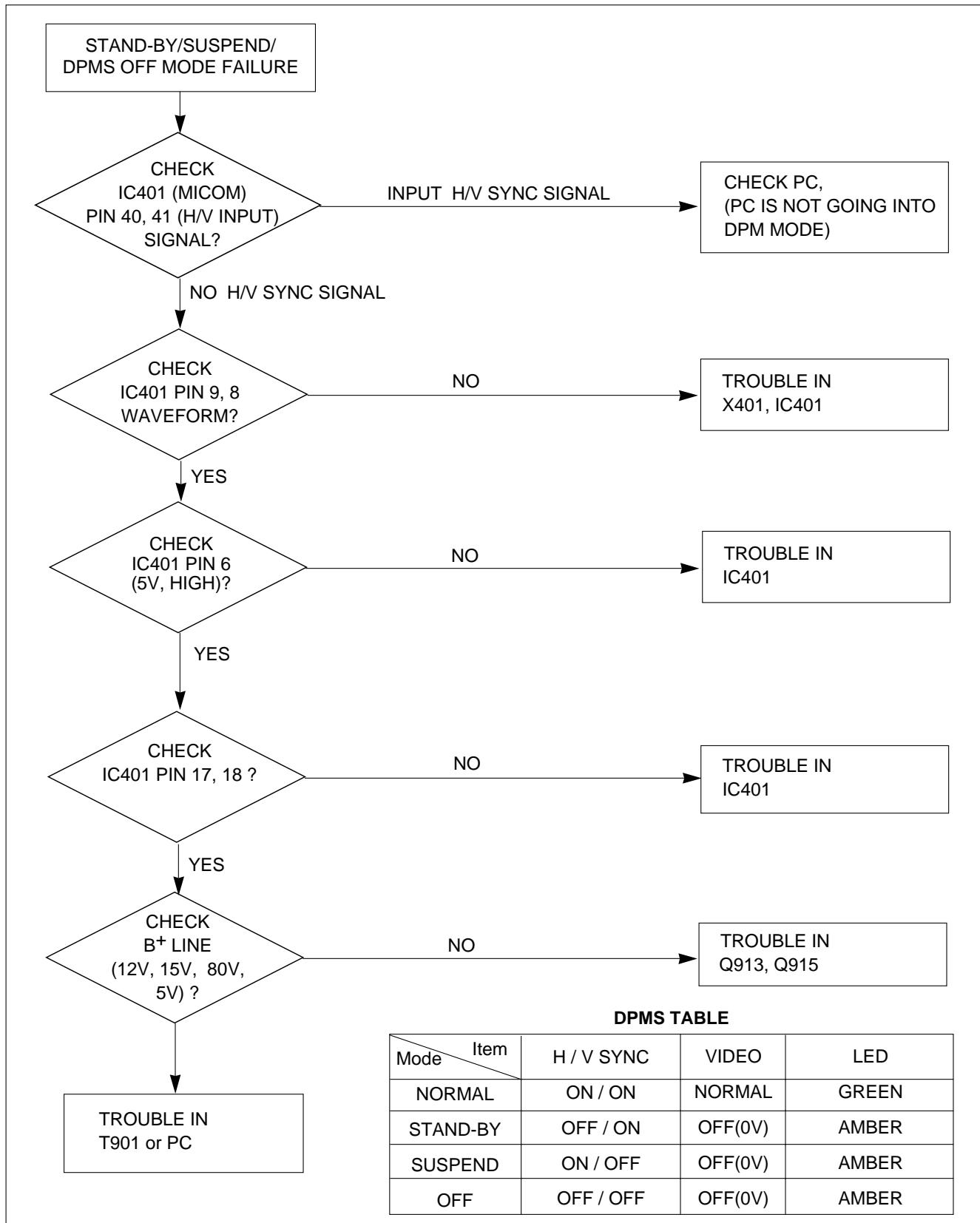
### 3. NO RASTER



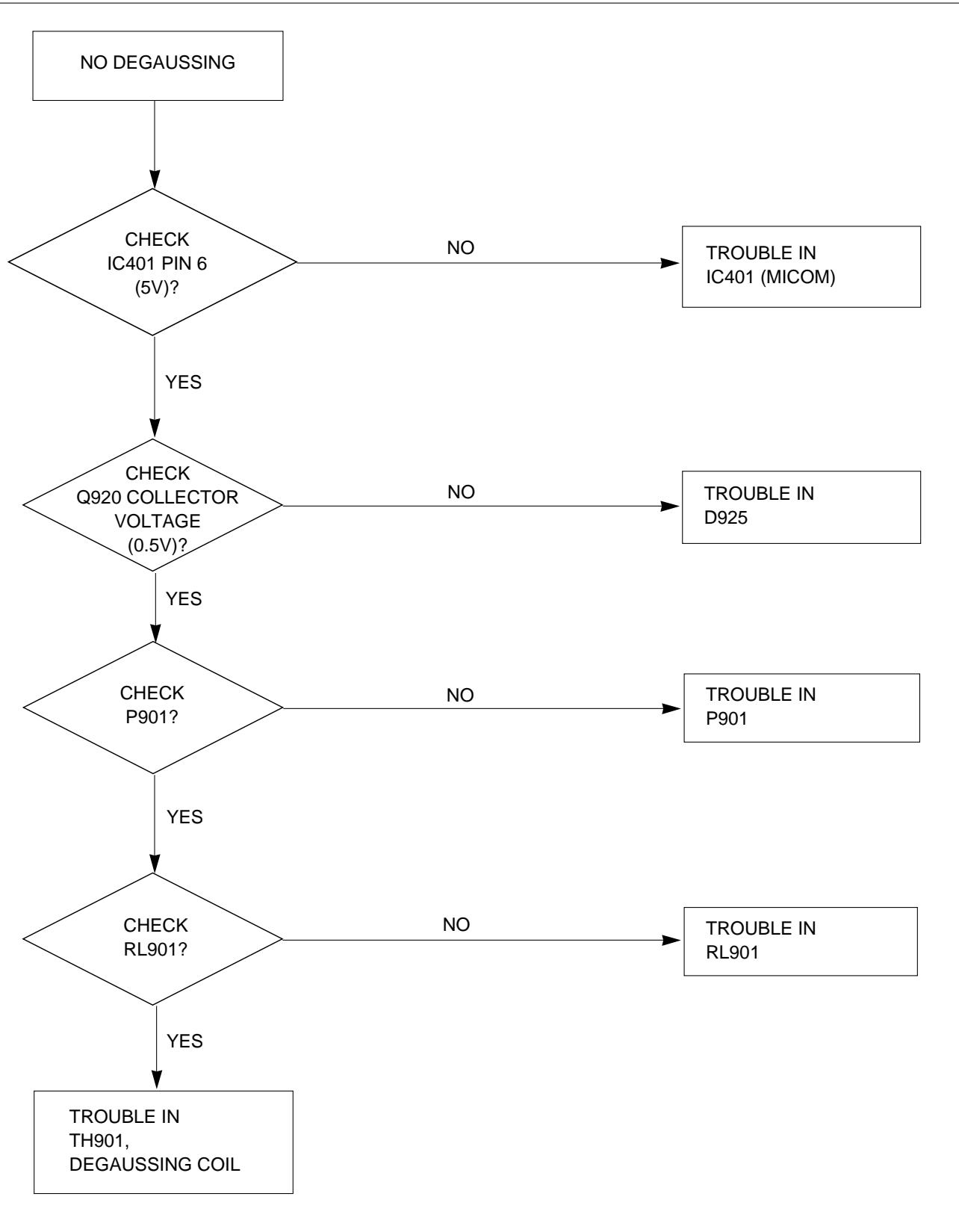
#### 4. NO VERTICAL DEFLECTION



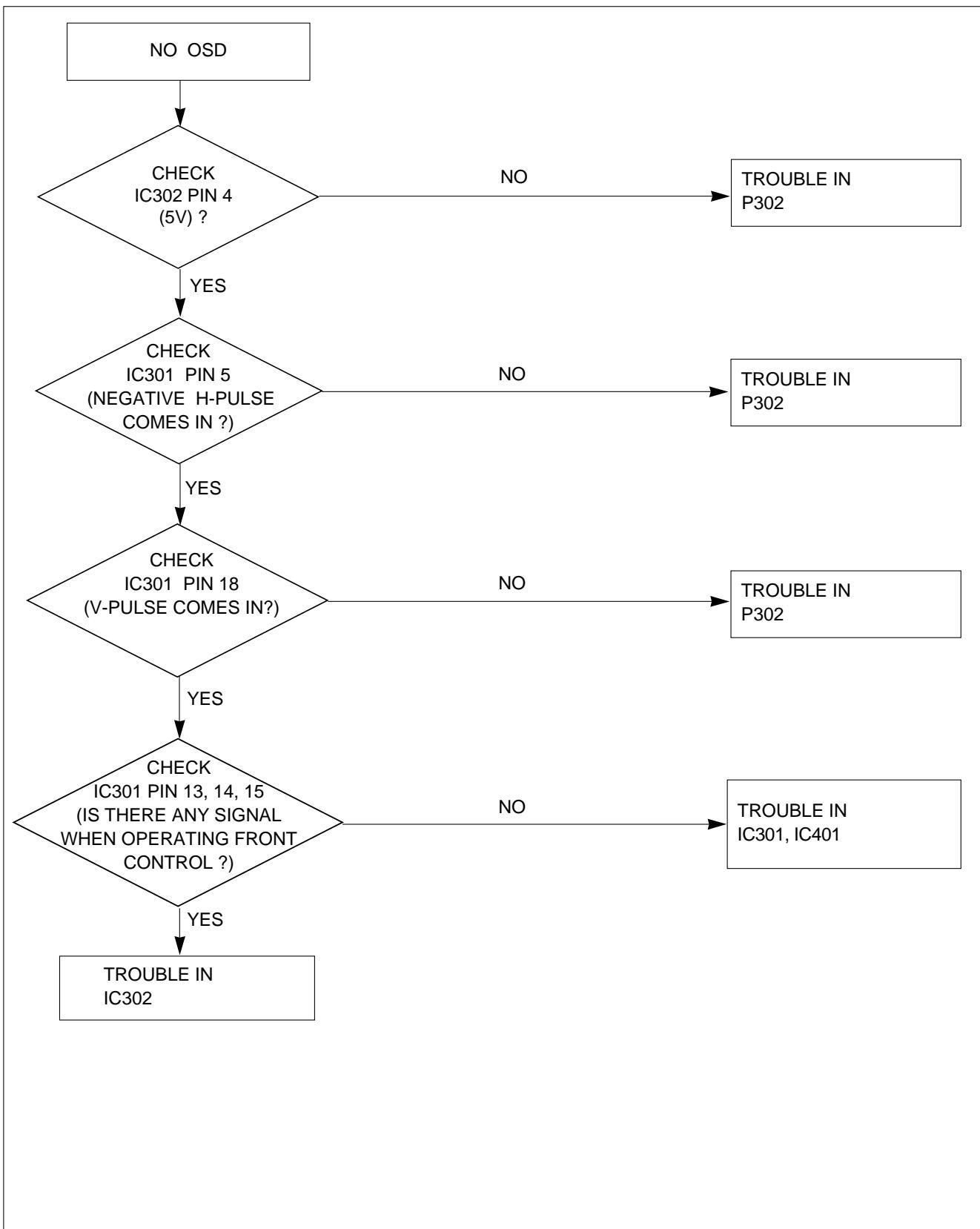
## 5. TROUBLE IN DPM



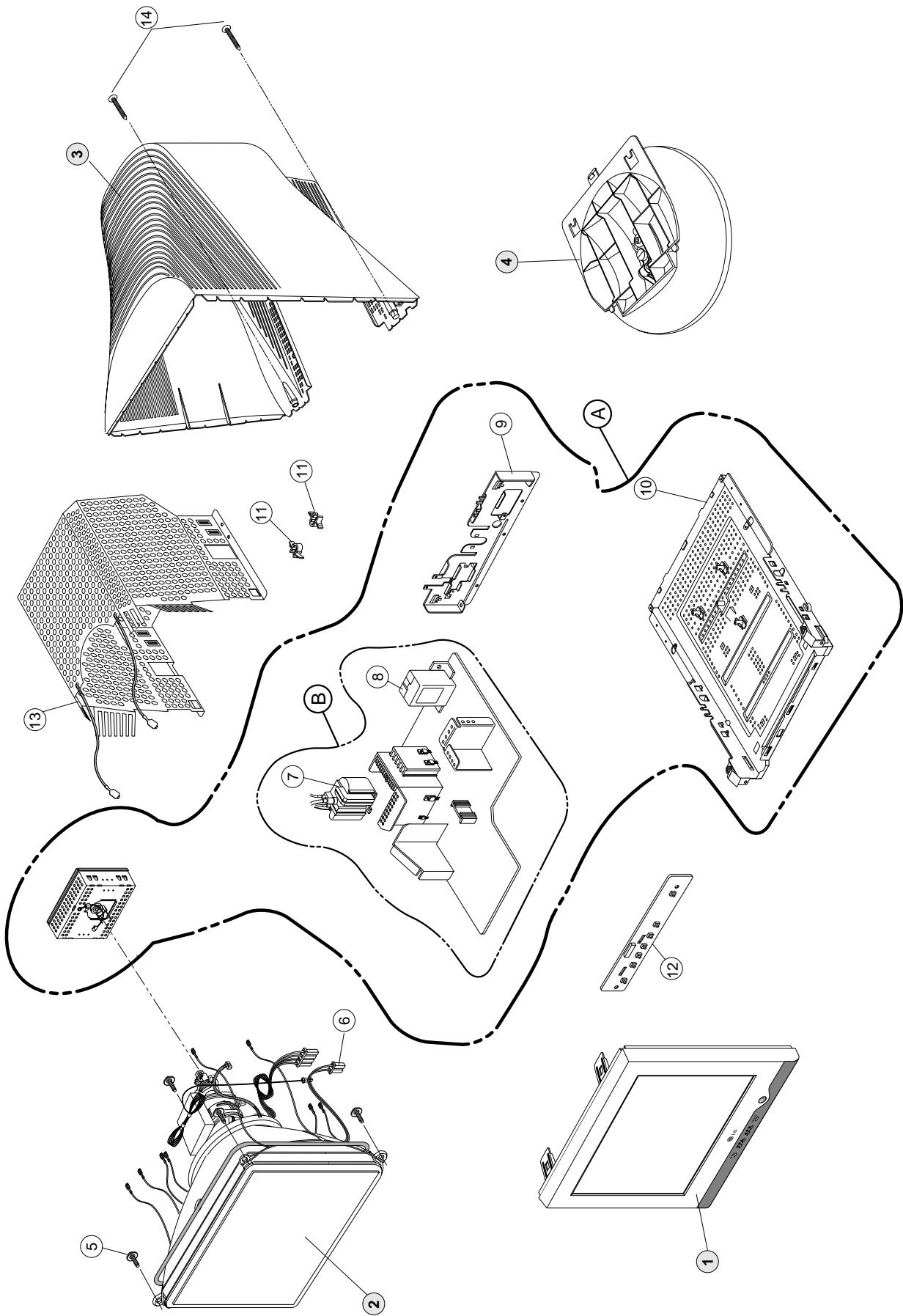
## 6. NO DEGAUSSING



## 7. TROUBLE IN OSD



**EXPLODED VIEW**



## EXPLODED VIEW PARTS LIST

| Ref. No. | Part No.    | Description  |
|----------|-------------|--|
| 1        | 3091TKC088B | CABINET ASSEMBLY, T910BG BRAND TKC080 ACORE NO SPRAY - <b>For Europe</b>                         |
|          | 3091TKC088G | CABINET ASSEMBLY, T910BG/J BRAND C080 ACORE NO SPRAY - <b>For Australia</b>                      |
| 2        | 6318L19007A | CDT(CIRC), M46QEF903X 13NPLD LG-PHILIPS 95KHZ 29.1MM FCDT TCO - <b>For Northern Hemisphere</b>   |
|          | 6318L19007B | CDT(CIRC), M46QEF903X15SPLD LG-PHILIPS 95KHZ 29.1MM FCDT TCO V2 - <b>For Southern Hemisphere</b> |
| 3        | 3809TKC054A | BACK COVER ASSEMBLY, T910BG C047 BRAND LGC. 8C359 - <b>For Europe</b>                            |
|          | 3809TKC054B | BACK COVER ASSEMBLY, T910BG C047 LGC. 8C359 - <b>For Australia, South Africa</b>                 |
| 4        | 3043TKK079E | TILT SWIVEL ASSEMBLY, E910BG EQ54 (8C358)  |
| 5        | 339-002H    | SCREW ASSY, PHP+5*20(FZMY)+GW18 NEW TYPE   |
| 6        | 6140TC4002B | COIL,DEGAUSSING, -- 0.45*115TS,17 OHM,WITH EARTH,T910BJ  |
| 7        | 6174T13010K | FBT (FLY BACK TRANSFORMER), FQM19A013,T910BJ(98K) SAMSUNG 19"                                    |
| 8        | 6200TJB001N | FILTER(CIRC),EMC, 02MD5 DELTA BK F900BJ  |
| 9        | 4950TKK292A | METAL, REAR CB997E   |
| 10       | 4951TKK108C | METAL ASSEMBLY, SHIELD BOTTOM T910B"J"   |
| 11       | 4930TKK031C | HOLDER, PCB FIX , PC+ABS   |
| 12       | 6871TST379A | PWB(PCB) ASSEMBLY,SUB, T910BJ CONTROL TOTAL BRAND .  |
| 13       | 4815TKT017C | SHIELD ASSEMBLY, TOP T910BJ  |
| 14       | 332-102F    | SCREW, PTP+4*20BP(MSWR/FZMY)   |
| A        | 3313T19055D | MAIN TOTAL ASSEMBLY, T910BJ BRAND CA-129 - <b>For Europe</b>                                     |
|          | 3313T19055A | MAIN TOTAL ASSEMBLY, T910BJ BRAND CA-129 - <b>For Australia, South Africa</b>                    |
| B        | 6871TMT409C | PWB(PCB) ASSEMBLY,MAIN, T910BJ ALUKE BRAND CA-129 TOTAL - <b>For Europe</b>                      |
|          | 6871TMT409A | PWB(PCB) ASSEMBLY,MAIN, T910BJ ALRDE BRAND CA-129 TOTAL - <b>For Australia, South Africa</b>     |

## 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. 5. 24. |     |          |             |                             |
|--------------------|-----|----------|-------------|-----------------------------|
| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION |
| <b>CAPACITORS</b>  |     |          |             |                             |
|                    |     | C201     | OCN1040K949 | 0.1M 50V Z F TA52           |
|                    |     | C301     | OCK1020K515 | 1000PF 50V K B TR           |
|                    |     | C303     | OCK3320K515 | 3300P 50V K B TS            |
|                    |     | C304     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C306     | 181-288N    | MKT 100V 103JTR PHS86103    |
|                    |     | C307     | OCK1030K945 | 0.01UF 50V Z F TR           |
|                    |     | C308     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C309     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C310     | 181-288E    | MKT 100V 474JTR PHS 26474   |
|                    |     | C311     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C312     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C313     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C315     | OCE476CF638 | 47UF SHL,SD 16V M FM5 TP 5  |
|                    |     | C317     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C318     | OCN1040K949 | 0.1M 50V Z F TA52           |
|                    |     | C319     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C320     | OCE107CN630 | 100U SHL 100V M FM5         |
|                    |     | C321     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C323     | OCE107CH638 | 100UF SHL,SD 25V M FM5 TP 5 |
|                    |     | C324     | OCN1040K949 | 0.1M 50V Z F TA52           |
|                    |     | C325     | 181-288E    | MKT 100V 474JTR PHS 26474   |
|                    |     | C328     | OCE476CN618 | 47UF SHL 100V M FL TP5      |
|                    |     | C330     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C331     | 181-288E    | MKT 100V 474JTR PHS 26474   |
|                    |     | C332     | 181-288E    | MKT 100V 474JTR PHS 26474   |
|                    |     | C333     | 181-288E    | MKT 100V 474JTR PHS 26474   |
|                    |     | C334     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C335     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C339     | OCK2710W515 | 270P 500V K B TS            |
|                    |     | C340     | 181-288B    | MKT 100V 104JTR PHS26104    |
|                    |     | C341     | OCK10302945 | 0.01UF 2KV Z F TR           |
|                    |     | C342     | OCC2200W415 | 22PF 500V J NP0 TR          |
|                    |     | C344     | 181-288C    | MKT 100V 224JTR PHS 26224   |
|                    |     | C346     | OCK10202515 | 1000PF D 2KV 10% TR B(Y5P)  |
|                    |     | C347     | OCK10302940 | 0.01M 2KV Z F S             |
|                    |     | C355     | OCE476CF638 | 47UF SHL,SD 16V M FM5 TP 5  |
|                    |     | C372     | OCN1040K949 | 0.1M 50V Z F TA52           |
|                    |     | C401     | OCC5600K415 | 56P 50V J NP0 TR            |
|                    |     | C402     | OCE476CH638 | 47UF SHL,SD 25V M FM5 TP 5  |
|                    |     | C403     | OCK2710K515 | 270P 50V K B TS             |
|                    |     | C404     | OCK2710K515 | 270P 50V K B TS             |
|                    |     | C405     | OCK2710K515 | 270P 50V K B TS             |
|                    |     | C406     | OCC0400K115 | 4P 50V D NP0 TS             |
|                    |     | C407     | OCC0400K115 | 4P 50V D NP0 TS             |
|                    |     | C410     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C417     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C452     | OCE106CK638 | 10UF SHL,SD 50V M FM5 TP 5  |
|                    |     | C454     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C456     | OCN1040K949 | 0.1M 50V Z F TA52           |
|                    |     | C457     | 181-288E    | MKT 100V 474JTR PHS 26474   |
|                    |     | C458     | OCK1040K945 | 0.1UF 50V Z F TR            |
|                    |     | C459     | OCK1010K515 | 100PF 50V K B TR            |
|                    |     | C460     | OCE475CK638 | 4.7UF SHL,SD 50V M FM5 TP 5 |

| DATE: 2003. 5. 24. |     |          |              |                              |
|--------------------|-----|----------|--------------|------------------------------|
| *S                 | *AL | LOC. NO. | PART NO.     | DESCRIPTION / SPECIFICATION  |
|                    |     | C601     | OCEQ6821N419 | 6800PF 100V J PE NI TP       |
|                    |     | C602     | 181-288Q     | MKT 100V 154JTR PHS26154     |
|                    |     | C603     | OCK1020W515  | 1000P 500V K B TS            |
|                    |     | C605     | OCE476CN618  | 47UF SHL 100V M FL TP5       |
|                    |     | C611     | OCE108CH618  | 1000UF SHL 25V M FL TP5      |
|                    |     | C701     | OCE106CK638  | 10UF SHL,SD 50V M FM5 TP 5   |
|                    |     | C702     | OCE337EN630  | 330UF KMG 100V M FM5 BULK    |
|                    |     | C704     | OCBZTBU003M  | 562J 20.0*14.0*8.5*10.0 800V |
|                    |     | C705     | OCE336CN638  | 33UF SHL,SD 100V M FM5 TP 5  |
|                    |     | C707     | OCE106CK638  | 10UF SHL,SD 50V M FM5 TP 5   |
|                    |     | C708     | OCE476CQ618  | 47U SHL 200V M FL TP5        |
|                    |     | C709     | 181-477A     | 102J 19.5*12.0*7.0*7.5 250V  |
|                    |     | C710     | OCC3300K405  | 33P 50V J SL TP              |
|                    |     | C711     | OQC4721N419  | 0.0047U 100V J POLY NI TP5   |
|                    |     | C712     | OCK2220K515  | 2200P 50V K B TS             |
|                    |     | C713     | OCE107CH638  | 100UF SHL,SD 25V M FM5 TP 5  |
|                    |     | C730     | OCE476CH638  | 47UF SHL,SD 25V M FM5 TP 5   |
|                    |     | C731     | OCE105CK638  | 1UF SHL,SD 50V 20% FM5 TP 5  |
|                    |     | C732     | OCK1040K945  | 0.1UF 50V Z F TR             |
|                    |     | C734     | 181-288T     | MKT 100V 223KTR PHS85223     |
|                    |     | C735     | OCK10302945  | 0.01UF 2KV Z F TR            |
|                    |     | C736     | OCK10302945  | 0.01UF 2KV Z F TR            |
|                    |     | C738     | OCE685CN638  | 6.8UF SHL,SD 100V 20% TP 5 F |
|                    |     | C739     | OCK1040K945  | 0.1UF 50V Z F TR             |
|                    |     | C740     | OCE106EK638  | 10UF KMG 50V M FM5 TP 5      |
|                    |     | C741     | OCC1000W105  | 10PF 500V D SL TR            |
|                    |     | C742     | OCC1000W105  | 10PF 500V D SL TR            |
|                    |     | C743     | OCE106CN638  | 10UF SHL,SD 100V M FM5 TP 5  |
|                    |     | C744     | OCN1020K519  | 1000P 50V K B TA52           |
|                    |     | C771     | OCK6810K515  | 680P 50V K B TS              |
|                    |     | C772     | OCK4710W515  | 470P 500V K B TS             |
|                    |     | C801     | OQC8221N519  | 0.0082U 100V K POLY NI TP    |
|                    |     | C802     | 181-288B     | MKT 100V 104JTR PHS26104     |
|                    |     | C803     | OCE106CK638  | 10UF SHL,SD 50V M FM5 TP 5   |
|                    |     | C804     | 181-288D     | MKT 100V 473JTR PHS26473     |
|                    |     | C805     | 181-476R     | 2200 D 100V H PP NI TP5      |
|                    |     | C806     | OCE227CH638  | 220UF SHL,SD 25V M FM5 TP 5  |
|                    |     | C807     | 181-288B     | MKT 100V 104JTR PHS26104     |
|                    |     | C808     | OCC1000K115  | 10P 50V D NP0 TS             |
|                    |     | C809     | OCK1020K515  | 1000PF 50V K B TR            |
|                    |     | C810     | OCE105CK638  | 1UF SHL,SD 50V 20% FM5 TP 5  |
|                    |     | C811     | OCE476CH638  | 47UF SHL,SD 25V M FM5 TP 5   |
|                    |     | C812     | OCE107CH638  | 100UF SHL,SD 25V M FM5 TP 5  |
|                    |     | C813     | OCE106CK638  | 10UF SHL,SD 50V M FM5 TP 5   |
|                    |     | C814     | OCK5610K515  | 560P 50V K B TS              |
|                    |     | C815     | OCE227CF638  | 220UF SHL,SD 16V M FM5 TP 5  |
|                    |     | C817     | OCE476CH638  | 47UF SHL,SD 25V M FM5 TP 5   |
|                    |     | C818     | 181-288J     | MKT 100V 563JTR PHS26563     |
|                    |     | C819     | 181-477U     | 333J 19.5*13.0*7.5*7.5 250V  |
|                    |     | C821     | OCN1040K949  | 0.1M 50V Z F TA52            |
|                    |     | C823     | OCK1010K515  | 100PF 50V K B TR             |
|                    |     | C832     | OCK10102515  | 100PF D 2KV 10% B(Y5P) TR    |
|                    |     | C833     | 181-305Y     | MPP 250 204J S=10.0          |
|                    |     | C834     | OCN1040K949  | 0.1M 50V Z F TA52            |

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|--------------------|-----|----------|-------------|------------------------------|--|
| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION  |  |
|                    |     | C841     | 0CE476CR630 | 47UF SHL,SD 250V M FM5 BULK  |  |
|                    |     | C842     | 0CBZTTA002A | 2000PF D 2.5KV J M/PP NI TP7 |  |
|                    |     | C843     | 0CQ3321N419 | 3300P 100V J POLY NI TP      |  |
|                    |     | C844     | 0CBZTTA002A | 2000PF D 2.5KV J M/PP NI TP7 |  |
|                    |     | C845     | 181-288B    | MKT 100V 104JTR PHS26104     |  |
|                    |     | C846     | 0CE108EF618 | 1000UF KMG 16V M FL TP 5     |  |
|                    |     | C847     | 0CQ2221N419 | 2200PF 100V J PE NI TP       |  |
|                    |     | C848     | 0CK47101515 | 470P 1KV K B TS              |  |
|                    |     | C849     | 0CK6810W515 | 680P 500V K B TS             |  |
|                    |     | C850     | 0CK1040K945 | 0.1UF 50V Z F TR             |  |
|                    |     | C851     | 0CK1040K945 | 0.1UF 50V Z F TR             |  |
|                    |     | C852     | 0CN1040K949 | 0.1M 50V Z F TA52            |  |
|                    |     | C854     | 181-482J    | 394J 18.0*19.0*12.0*7.5 250V |  |
|                    |     | C855     | 181-477Y    | 683JF 20.0*16.5*9.5*7.5 250V |  |
|                    |     | C857     | 181-305N    | 105J 26.0*22.5*14.0*15.0 250 |  |
|                    |     | C858     | 181-303A    | 104J 20.5*18.5*10.5*10.0 250 |  |
|                    |     | C859     | 181-303C    | 154J 30.0*17.5*10.5*20.0 250 |  |
|                    |     | C860     | 0CN1040K949 | 0.1M 50V Z F TA52            |  |
|                    |     | C861     | 0CN1040K949 | 0.1M 50V Z F TA52            |  |
|                    |     | C864     | 0CN1040K949 | 0.1M 50V Z F TA52            |  |
|                    |     | C865     | 0CE105CK638 | 1UF SHL,SD 50V 20% FM5 TP 5  |  |
|                    |     | C891     | 0CZTFT001J  | ECQB1H562JM3 562J 50V TP5.0  |  |
|                    |     | C892     | 0CZTFT001M  | ECQB1H103JF3 MATSUSHITA 50V  |  |
|                    |     | C893     | 181-288B    | MKT 100V 104JTR PHS26104     |  |
|                    |     | C894     | 0CZTFT001L  | ECQB1H822JM3 822J 50V TP5.0  |  |
|                    |     | C895     | 181-288B    | MKT 100V 104JTR PHS26104     |  |
|                    |     | C896     | 181-288Q    | MKT 100V 154JTR PHS26154     |  |
|                    |     | C902     | 0CKZTTA003C | SC E 472M 14.0FF7 250V TP7.5 |  |
|                    |     | C903     | 0CK10101515 | 100PF 1KV K B TR             |  |
|                    |     | C904     | 181-304V    | 393J 19.5*15.5*9.5*10.0 400V |  |
|                    |     | C905     | 181-296F    | 330UF SMH(30*40) 400V M VNS  |  |
|                    |     | C906     | 0CE475CN638 | 4.7UF SHL,SD 100V M FM5 TP 5 |  |
|                    |     | C907     | 0CE336CK638 | 33UF SHL,SD 50V M FM5 TP 5   |  |
|                    |     | C908     | 0CK1040K945 | 0.1UF 50V Z F TR             |  |
|                    |     | C909     | 181-288T    | MKT 100V 223KTR PHS85223     |  |
|                    |     | C910     | 0CZTFT001N  | ECQB1H123JM3 123J 50V TP5.0  |  |
|                    |     | C911     | 0CE108CD618 | 1000UF SHL 10V M FL TP5      |  |
|                    |     | C912     | 0CE475CK638 | 4.7UF SHL,SD 50V M FM5 TP 5  |  |
|                    |     | C915     | 0CE476CH638 | 47UF SHL,SD 25V M FM5 TP 5   |  |
|                    |     | C916     | 0CK2220K515 | 2200P 50V K B TS             |  |
|                    |     | C917     | 0CKZTTA003C | SC E 472M 14.0FF7 250V TP7.5 |  |
|                    |     | C918     | 0CKZTTA003C | SC E 472M 14.0FF7 250V TP7.5 |  |
|                    |     | C920     | 0CC47001505 | 47PF 1KV K SL TR             |  |
|                    |     | C921     | 0CE227CR650 | 220UF SHL 250V M FM7.5 BULK  |  |
|                    |     | C922     | 0CE3376N650 | 330M SMS 100V M FM7.5        |  |
|                    |     | C923     | 0CK1010W515 | 100P 500V K B TS             |  |
|                    |     | C925     | 0CE228EH618 | 2200UF KMG 25V M FL TP 5     |  |
|                    |     | C926     | 0CE108EF618 | 1000UF KMG 16V M FL TP 5     |  |
|                    |     | C927     | 0CE228CH618 | 2200U SHL 25V M FL TP5       |  |
|                    |     | C928     | 0CE108EF618 | 1000UF KMG 16V M FL TP 5     |  |
|                    |     | C929     | 0CK1020K515 | 1000PF 50V K B TR            |  |
|                    |     | C930     | 0CQ2721N419 | 2700PF 100V J PE NI TP       |  |
|                    |     | C931     | 0CK1010W515 | 100P 500V K B TS             |  |
|                    |     | C932     | 0CC47001505 | 47PF 1KV K SL TR             |  |
|                    |     | C953     | 0CE477CF638 | 470UF SHL TYPE 16V M FM5 TP  |  |
|                    |     | C970     | 0CE476CH638 | 47UF SHL,SD 25V M FM5 TP 5   |  |
| DIODEs             |     |          |             |                              |  |
|                    |     | D201     | 0DL305029BA | LTL-305DJ-0C2 TP LITEON GREE |  |
|                    |     | D301     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D302     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
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| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION  |  |
|                    |     | D303     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D304     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D305     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D306     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D307     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D308     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D309     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D310     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D311     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D312     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D313     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D314     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D315     | 0DS124409AA | 1SS244 TP ROHM KOREA         |  |
|                    |     | D316     | 0DR140059DA | 1N4005TB52 TP LITEON DO41 60 |  |
|                    |     | D401     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D402     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D405     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D451     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D453     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D701     | 0DR400409AC | UF4004 GULF TP DO41 400V 1A  |  |
|                    |     | D702     | 0DR400409AC | UF4004 GULF TP DO41 400V 1A  |  |
|                    |     | D703     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D704     | 0DR100009CA | RGP10G TP GULF SEMICONDUCTOR |  |
|                    |     | D706     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D707     | 0DR100009DA | RGP10J TP GULF SEMICONDUCTOR |  |
|                    |     | D708     | 0DRFJ00011A | YG339D6F208 FUJI ST TO220 -4 |  |
|                    |     | D731     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D732     | 0DD400709CB | UF4007 TP G.I DO204AL 1000V  |  |
|                    |     | D733     | 0DD400709CB | UF4007 TP G.I DO204AL 1000V  |  |
|                    |     | D734     | 0DD400709CB | UF4007 TP G.I DO204AL 1000V  |  |
|                    |     | D735     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D736     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D737     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D738     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D740     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D771     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D772     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D773     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D801     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D802     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D803     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D804     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D805     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D808     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D811     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D812     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D831     | 0DR260400AA | S2L60-4004P15 BK SHINDENGEN  |  |
|                    |     | D833     | 0DR140059DA | 1N4005TB52 TP LITEON DO41 60 |  |
|                    |     | D834     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D837     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D838     | 0DR200000EA | FMQ-G2FMS BK SANKEN NON 1500 |  |
|                    |     | D839     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D840     | 0DR100009DA | RGP10J TP GULF SEMICONDUCTOR |  |
|                    |     | D861     | 0DD140009AA | EK14 V(1) TP SANKEN E/EO-TMD |  |
|                    |     | D901     | 0DRGF00090A | GBL06 GULF BK GBL 600V 4A 12 |  |
|                    |     | D902     | 0DRGF00109A | GUF10M GULF TP DO41 1000V 1A |  |
|                    |     | D903     | 0DR100009CA | RGP10G TP GULF SEMICONDUCTOR |  |
|                    |     | D904     | 0DR100009DA | RGP10J TP GULF SEMICONDUCTOR |  |
|                    |     | D905     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D906     | 971-0054    | TIN 50MM TAPING              |  |
|                    |     | D907     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |
|                    |     | D908     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW |  |

| DATE: 2003. 5. 24. |     |          |             |                               |
|--------------------|-----|----------|-------------|-------------------------------|
| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION   |
|                    |     | D909     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW  |
|                    |     | D910     | 0DRGF00139A | GPP20J GULF TP DO15 600V 2.0  |
|                    |     | D911     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW  |
|                    |     | D912     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW  |
|                    |     | D913     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW  |
|                    |     | D914     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW  |
|                    |     | D920     | 0DRSD00079A | D2L20U SHINDENGEN TP DO-204A  |
|                    |     | D921     | 0DRSD00079A | D2L20U SHINDENGEN TP DO-204A  |
|                    |     | D922     | 0DR540400AA | UF5404L BK G.I DO201AD 400V   |
|                    |     | D923     | 0DRGS00400A | 31GF4 GENERAL SEMICONDUCTOR   |
|                    |     | D924     | 0DR260400AA | S2L60-4004P15 BK SHINDENGEN   |
|                    |     | D925     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW  |
|                    |     | D926     | 0DR260400AA | S2L60-4004P15 BK SHINDENGEN   |
|                    |     | D927     | 0DS141489AB | 1N4148 TP GRANDE DO-34 500MW  |
|                    |     | D928     | 971-0054    | TIN 50MM TAPING               |
|                    |     | D929     | 0DRGS00400A | 31GF4 GENERAL SEMICONDUCTOR   |
|                    |     | D951     | 0DR100009CA | RGP10G TP GULF SEMICONDUCTOR  |
|                    |     | ZD201    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD202    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD203    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD402    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD403    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD404    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD405    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD407    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD408    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD409    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD410    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD601    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD703    | 0DZ510009BE | GDZ5.1B TP GRANDE DO34 500MW  |
|                    |     | ZD711    | 0DZ180009BD | GDZJ18B TP GRANDE DO34 0.5W   |
|                    |     | ZD712    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
|                    |     | ZD801    | 0DZ110009AD | MTZJ11B TP ROHM-K DO34 500MW  |
|                    |     | ZD802    | 0DZ180009BD | GDZJ18B TP GRANDE DO34 0.5W   |
|                    |     | ZD804    | 0DZ180009BD | GDZJ18B TP GRANDE DO34 0.5W   |
|                    |     | ZD901    | 0DZ240009BJ | GDZJ24B TP GRANDE DO34 500MW  |
|                    |     | ZD902    | 0DZ560009AG | GDZJ5.6B TP GRANDE DO-34 500  |
| ICs                |     |          |             |                               |
|                    |     | IC302    | 0IPRPN025A  | LM1246DDA/NA NATIONAL SEMICO  |
|                    |     | IC303    | 0IPRPN007A  | LM2463TA NATIONAL SEMICONDUC  |
|                    |     | IC304    | 0IPRPN005A  | LM2480NA NATIONAL SEMICONDUC  |
|                    |     | IC401    | 0IZZTSZ241A | HBW96G6 WT62P1 42P ST MTP .   |
|                    |     | IC402    | 0ISG240860A | M24C08-BN6 8DIP BK 8K SERIAL  |
|                    |     | IC601    | 0IPRPPH018A | TDA4867J PHILIPS 9PIN,ST DIP  |
|                    |     | IC702    | 0INS353000A | LF353N OP-AMP                 |
|                    |     | IC801    | 0IPRPPH005A | TDA4841PS PHILIPS 32P,SDIP S  |
|                    |     | IC802    | 0IMI625010A | M62501P 16P4 BK INTERFACE PW  |
|                    |     | IC901    | 0ISS384300A | KA3843B 8P SDIP BK PWM CONTR  |
|                    |     | IC903    | 0ISS780500F | KA7805                        |
|                    |     | IC904    | 0IKE781200F | KIA78L12BP(AT) 3P 12V,150MA   |
| COILs & COREs      |     |          |             |                               |
|                    |     | FB201    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB301    | 125-022J    | FERRITE KQ-1 JS 3.5*5.0MM AX  |
|                    |     | FB302    | 125-155P    | BFS2550R2FG SAMWHA 2.5*5.0MM  |
|                    |     | FB303    | 125-022J    | FERRITE KQ-1 JS 3.5*5.0MM AX  |
|                    |     | FB304    | 125-022J    | FERRITE KQ-1 JS 3.5*5.0MM AX  |
|                    |     | FB305    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB306    | 125-155A    | BFD3510R2FG SAMWHA 3.5*10MM   |
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| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION   |
|                    |     | FB309    | 125-155B    | BFS3580R2FG SAMWHA 3.5*8.0MM  |
|                    |     | FB310    | 125-155A    | BFD3510R2FG SAMWHA 3.5*10MM   |
|                    |     | FB311    | 125-155A    | BFD3510R2FG SAMWHA 3.5*10MM   |
|                    |     | FB401    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB402    | 125-155N    | BFD3565R2FG SAMWHA 3.5*6.5MM  |
|                    |     | FB403    | 125-155L    | BFS3580A0FG SAMWHA 3.5*8.0MM  |
|                    |     | FB404    | 125-155F    | BFD3580R2FG SAMWHA 3.5*8.0MM  |
|                    |     | FB405    | 125-155F    | BFD3580R2FG SAMWHA 3.5*8.0MM  |
|                    |     | FB406    | 125-155A    | BFD3510R2FG SAMWHA 3.5*10MM   |
|                    |     | FB407    | 125-155A    | BFD3510R2FG SAMWHA 3.5*10MM   |
|                    |     | FB701    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB801    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB841    | 125-155P    | BFS2550R2FG SAMWHA 2.5*5.0MM  |
|                    |     | FB901    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB902    | 125-155A    | BFD3510R2FG SAMWHA 3.5*10MM   |
|                    |     | FB903    | 125-155H    | BFS3510A0FG SAMWHA 3.5*10MM   |
|                    |     | FB904    | 125-155H    | BFS3510A0FG SAMWHA 3.5*10MM   |
|                    |     | FB905    | 125-155C    | BFD3514R2FG SAMWHA 3.5*14MM   |
|                    |     | FB906    | 125-155H    | BFS3510A0FG SAMWHA 3.5*10MM   |
|                    |     | FB907    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB908    | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | FB909    | 125-155H    | BFS3510A0FG SAMWHA 3.5*10MM   |
|                    |     | L301     | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | L302     | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | L303     | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM  |
|                    |     | L311     | 0LA0560K119 | 0.56UH K 2.3*3.4 TP           |
|                    |     | L312     | 0LA0560K119 | 0.56UH K 2.3*3.4 TP           |
|                    |     | L313     | 0LA0470K119 | 0.47UH K 2.3*3.4 TP           |
|                    |     | L701     | 6140TBZ009C | NO CORE 10UH 0.12*15MM 50.5T  |
|                    |     | L801     | 6140TYZ011B | - GET DR14*15 EB990G H-LIN    |
|                    |     | L806     | 150-985N    | DR10*10 4.7UH 0.16MM 322.5    |
|                    |     | L901     | 6140TBZ031B | EE36SI PFC 49MH 0.5MM 228 +/- |
| TRANSISTOR         |     |          |             |                               |
|                    |     | Q301     | OTR127509AC | KTA1275-Y(KTA1013) TP KEC TO  |
|                    |     | Q302     | OTR231609AA | KSC2316-Y TP SAMSUNG TO92L    |
|                    |     | Q451     | OTR127009AA | KTA1270-Y(KTA562TM) TP KEC T  |
|                    |     | Q452     | OTR127009AA | KTA1270-Y(KTA562TM) TP KEC T  |
|                    |     | Q453     | OTR320209AA | KTC3202-Y(KTC1959) TP KEC TO  |
|                    |     | Q458     | OTR320509AB | KTC3205-Y(KTC2236A) TP KEC T  |
|                    |     | Q459     | OTR127309AA | KTA1273-Y(KTA966A) TP KEC TO  |
|                    |     | Q701     | OTR320509AB | KTC3205-Y(KTC2236A) TP KEC T  |
|                    |     | Q704     | OTF760000AD | SS57N60B FAIRCHILD ST TO220F  |
|                    |     | Q705     | OTR320209AA | KTC3202-Y(KTC1959) TP KEC TO  |
|                    |     | Q706     | OTR127009AA | KTA1270-Y(KTA562TM) TP KEC T  |
|                    |     | Q707     | OTR390409CA | FAIRCHILD 2N3904(TA) TP TO-9  |
|                    |     | Q708     | OTR319809AA | KTC3198-Y(KTC1815) TP KEC TO  |
|                    |     | Q721     | OTR390409CA | FAIRCHILD 2N3904(TA) TP TO-9  |
|                    |     | Q723     | OTR390409CA | FAIRCHILD 2N3904(TA) TP TO-9  |
|                    |     | Q724     | OTR463300AB | 2SC4633(LS-CB11) BK SANYO L   |
|                    |     | Q725     | OTR463300AB | 2SC4633(LS-CB11) BK SANYO L   |
|                    |     | Q726     | OTR555109AB | 2N5551 TP SAMSUNG TO92 AMP    |
|                    |     | Q771     | OTR920009AB | KSP92 TP SAMSUNG TO92 HIGH V  |
|                    |     | Q801     | OTR558900BA | 2SC5589(LG,W/M) BK TOSHIBA T  |
|                    |     | Q802     | OTR471009AA | KSD471AC-Y TP SAMSUNG TO92    |
|                    |     | Q803     | OTR564009AB | KSB564AC-YTA TP SANSUNG TO92  |
|                    |     | Q804     | OTR319809AA | KTC3198-Y(KTC1815) TP KEC TO  |
|                    |     | Q806     | OTR471009AA | KSD471AC-Y TP SAMSUNG TO92    |
|                    |     | Q807     | OTR564009AB | KSB564AC-YTA TP SANSUNG TO92  |
|                    |     | Q808     | OTR127009AA | KTA1270-Y(KTA562TM) TP KEC T  |
|                    |     | Q810     | OTR114009AB | DTC114ES TP ROHM-K SPT NPN    |

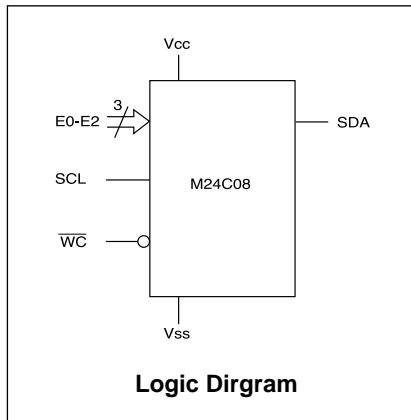
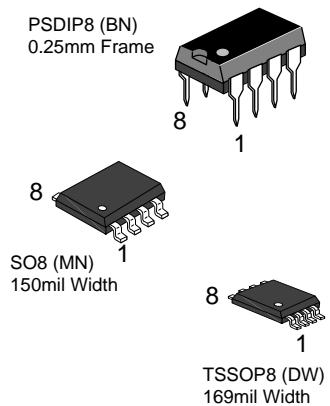
| DATE: 2003. 5. 24. |     |          |             |                              |
|--------------------|-----|----------|-------------|------------------------------|
| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION  |
|                    |     | Q811     | 0TF63000CA  | IRFS630A BK SAMSUNG 200V 6.5 |
|                    |     | Q812     | 0TR114009AB | DTC114ES TP ROHM-K SPT NPN   |
|                    |     | Q832     | 0TF283509AA | 2SK2835(TP) TP TOSHIBA 200V  |
|                    |     | Q833     | 0TFFC10008A | SFS9634 FAIRCHILD ST TO220F  |
|                    |     | Q834     | 0TR231609AA | KSC2316-Y TP SAMSUNG TO92L   |
|                    |     | Q836     | 0TF63000CA  | IRFS630A BK SAMSUNG 200V 6.5 |
|                    |     | Q837     | 0TF63000CA  | IRFS630A BK SAMSUNG 200V 6.5 |
|                    |     | Q839     | 0TF640000CA | IRFS640A BK SAMSUNG 200V 9A  |
|                    |     | Q841     | 0TR114009AB | DTC114ES TP ROHM-K SPT NPN   |
|                    |     | Q842     | 0TR114009AB | DTC114ES TP ROHM-K SPT NPN   |
|                    |     | Q844     | 0TR114009AB | DTC114ES TP ROHM-K SPT NPN   |
|                    |     | Q901     | 0TFFN10003C | INFINEON SPA07N60C3(E8153) S |
|                    |     | Q902     | 0DR100609BA | MCR100-6RLRA TP MOTOROLA TO9 |
|                    |     | Q903     | 0TR319809AA | KTC3198-Y(KTC1815) TP KEC TO |
|                    |     | Q912     | 0TR127309AA | KTA1273-Y(KTA966A) TP KEC TO |
|                    |     | Q913     | 0TR319809AA | KTC3198-Y(KTC1815) TP KEC TO |
|                    |     | Q914     | 0TR928009AB | KSA928A-Y TP SAMSUNG TO92L P |
|                    |     | Q915     | 0TR319809AA | KTC3198-Y(KTC1815) TP KEC TO |
|                    |     | Q920     | 0TR319809AA | KTC3198-Y(KTC1815) TP KEC TO |
| RESISTORs          |     |          |             |                              |
|                    |     | R201     | 0RD1001Q609 | 1K 1/4W(3.5% TA52            |
|                    |     | R202     | 0RD1600Q609 | 160 1/4W(3.5% TA52           |
|                    |     | R203     | 0RD2200Q609 | 220 1/4W(3.5% TA52           |
|                    |     | R204     | 0RD2200Q609 | 220 1/4W(3.5% TA52           |
|                    |     | R205     | 0RD1001Q609 | 1K 1/4W(3.5% TA52            |
|                    |     | R206     | 0RD1600Q609 | 160 1/4W(3.5% TA52           |
|                    |     | R207     | 0RD3300Q609 | 330 1/4W(3.5% TA52           |
|                    |     | R208     | 0RD3300Q609 | 330 1/4W(3.5% TA52           |
|                    |     | R209     | 0RD5600Q609 | 560 1/4W(3.5% TA52           |
|                    |     | R210     | 0RD3600Q609 | 360 1/4W(3.5% TA52           |
|                    |     | R211     | 0RD2200Q609 | 220 1/4W(3.5% TA52           |
|                    |     | R301     | 0RD0752Q609 | 75 1/4W(3.5% TA52            |
|                    |     | R302     | 0RD0752Q609 | 75 1/4W(3.5% TA52            |
|                    |     | R303     | 0RD0752Q609 | 75 1/4W(3.5% TA52            |
|                    |     | R305     | 0RN6201F409 | 6.20K 1/6W 1% TA52           |
|                    |     | R306     | 0RD1002Q609 | 10K 1/4W(3.5% TA52           |
|                    |     | R307     | 0RD5102Q509 | 51K OHM 1/4 W (3.4) 2% TA52  |
|                    |     | R308     | 0RD1002Q609 | 10K 1/4W(3.5% TA52           |
|                    |     | R314     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R315     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R319     | 0RD8201Q609 | 8.20K 1/4W(3.5% TA52         |
|                    |     | R320     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R326     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R327     | 0RD2001Q609 | 2K 1/4W(3.5% TA52            |
|                    |     | R328     | 0RD2001Q609 | 2K 1/4W(3.5% TA52            |
|                    |     | R329     | 0RD2001Q609 | 2K 1/4W(3.5% TA52            |
|                    |     | R330     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R331     | 0RD1600Q609 | 160 1/4W(3.5% TA52           |
|                    |     | R332     | 0RD1800Q609 | 180 1/4W(3.5% TA52           |
|                    |     | R333     | 0RD1500Q609 | 150 1/4W(3.5% TA52           |
|                    |     | R334     | 0RD3303Q609 | 330K 1/4W(3.5% TA52          |
|                    |     | R335     | 0RD3303Q609 | 330K 1/4W(3.5% TA52          |
|                    |     | R336     | 0RD3303Q609 | 330K 1/4W(3.5% TA52          |
|                    |     | R337     | 0RD1500Q609 | 150 1/4W(3.5% TA52           |
|                    |     | R340     | 0RN1002F409 | 10K 1/6W 1 TA52              |
|                    |     | R341     | 0RD0332A609 | 33 OHM 1/2 W (7.0) 5% TA52   |
|                    |     | R342     | 0RD0332A609 | 33 OHM 1/2 W (7.0) 5% TA52   |
|                    |     | R343     | 0RD0332A609 | 33 OHM 1/2 W (7.0) 5% TA52   |
|                    |     | R344     | 0RD0332Q609 | 33 1/4W(3.5% TA52            |
|                    |     | R345     | 0RD0332Q609 | 33 1/4W(3.5% TA52            |
|                    |     | R346     | 0RD0332Q609 | 33 1/4W(3.5% TA52            |
|                    |     | R347     | 971-0054    | TIN 50MM TAPING              |
|                    |     | R401     | 0RD3300Q609 | 330 1/4W(3.5% TA52           |
|                    |     | R402     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R403     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R405     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R406     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R407     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R412     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R413     | 0RD2202Q609 | 22K 1/4W(3.5% TA52           |
|                    |     | R414     | 0RD2202Q609 | 22K 1/4W(3.5% TA52           |
|                    |     | R415     | 0RD2202Q609 | 22K 1/4W(3.5% TA52           |
|                    |     | R416     | 0RD2202Q609 | 22K 1/4W(3.5% TA52           |
|                    |     | R418     | 0RD2000Q609 | 200 1/4W(3.5% TA52           |
|                    |     | R419     | 0RN1002F409 | 10K 1/6W 1 TA52              |
|                    |     | R420     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R421     | 0RD1001Q609 | 1K 1/4W(3.5% TA52            |
|                    |     | R422     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R423     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R424     | 0RN5601F409 | 5.60K 1/6W 1% TA52           |
|                    |     | R425     | 0RD2001Q609 | 2K 1/4W(3.5% TA52            |
|                    |     | R426     | 0RD2001Q609 | 2K 1/4W(3.5% TA52            |
|                    |     | R428     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R429     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R430     | 0RD1801Q609 | 1.80K 1/4W(3.5% TA52         |
|                    |     | R431     | 0RD1801Q609 | 1.80K 1/4W(3.5% TA52         |
|                    |     | R432     | 0RD1301Q609 | 1.30K 1/4W(3.5% TA52         |
|                    |     | R434     | 0RN1002F409 | 10K 1/6W 1 TA52              |
|                    |     | R440     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R443     | 0RD1001Q609 | 1K 1/4W(3.5% TA52            |
|                    |     | R451     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R452     | 0RD4701Q609 | 4.70K 1/4W(3.5% TA52         |
|                    |     | R453     | 0RD1500Q609 | 150 1/4W(3.5% TA52           |
|                    |     | R454     | 0RD6201Q609 | 6.20K 1/4W(3.5% TA52         |
|                    |     | R456     | 0RD0622A609 | 62 OHM 1/2 W (7.0) 5% TA52   |
|                    |     | R461     | 0RX0472J609 | 47 OHM 1 W 5% TA52           |
|                    |     | R462     | 0RD0102A609 | 10 OHM 1/2 W (7.0) 5% TA52   |
|                    |     | R463     | 0RD6801Q609 | 6.80K 1/4W(3.5% TA52         |
|                    |     | R464     | 0RN1000F409 | 100OHM 1/6 W 1% TA52         |
|                    |     | R465     | 0RN6202F409 | 62KOHM 1/6 W 1% TA52         |
|                    |     | R466     | 0RD4302Q609 | 43K 1/4W(3.5% TA52           |
|                    |     | R467     | 0RN5601F409 | 5.60K 1/6W 1% TA52           |
|                    |     | R473     | 0RD1004Q609 | 1M OHM 1/4 W (3.4) 5% TA52   |
|                    |     | R493     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R494     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R601     | 0RD2001Q609 | 2K 1/4W(3.5% TA52            |
|                    |     | R602     | 0RD2001Q609 | 2K 1/4W(3.5% TA52            |
|                    |     | R603     | 0RD0131A509 | 1.3 OHM 1/2 W (7.0) 2% TA52  |
|                    |     | R604     | 0RD0331A609 | 3.3 OHM 1/2 W (7.0) 5% TA52  |
|                    |     | R605     | 0RN1502F409 | 15K 1/6W 1% TA52             |
|                    |     | R606     | 0RN1202F409 | 12K 1/6W 1% TA52             |
|                    |     | R607     | 0RD1500A609 | 150 OHM 1/2 W (7.0) 5% TA52  |
|                    |     | R608     | 0RD1000Q609 | 100 1/4W(3.5% TA52           |
|                    |     | R609     | 0RD1000A609 | 100 OHM 1/2 W (7.0) 5% TA52  |
|                    |     | R610     | 0RN0390H609 | 0.39 1/2W 5 TA52             |
|                    |     | R701     | 0RMZTWD001C | 47 OHM 7 W 5% RWR PD-TYPE    |
|                    |     | R702     | 0RD1002Q609 | 10K 1/4W(3.5% TA52           |
|                    |     | R703     | 0RD3301Q609 | 3.30K 1/4W(3.5% TA52         |
|                    |     | R704     | 0RD2201Q609 | 2.20K 1/4W(3.5% TA52         |
|                    |     | R705     | 0RB0150K609 | 0.15 OHM 2 W 5% TA52         |
|                    |     | R706     | 0RD1003Q609 | 100K 1/4W(3.5% TA52          |
|                    |     | R707     | 0RD5601Q609 | 5.60K 1/4W(3.5% TA52         |

| DATE: 2003. 5. 24. |     |          |             |  |
|--------------------|-----|----------|-------------|--|
| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION                        |
|                    |     | R710     | ORD0222Q609 | 22 1/4W(3.5% TA52                                  |
|                    |     | R711     | ORN1502F409 | 15K 1/6W 1% TA52                                   |
|                    |     | R712     | ORD1003Q609 | 100K 1/4W(3.5% TA52                                |
|                    |     | R714     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R715     | ORD5601Q609 | 5.60K 1/4W(3.5% TA52                               |
|                    |     | R716     | ORD1004Q609 | 1M OHM 1/4 W (3.4) 5% TA52                         |
|                    |     | R717     | ORD1000Q609 | 100 1/4W(3.5% TA52                                 |
|                    |     | R718     | ORN101H609  | 1.0 1/2W 5 TA52                                    |
|                    |     | R718-1   | ORN101H609  | 1.0 1/2W 5 TA52                                    |
|                    |     | R719     | ORD0332Q609 | 33 1/4W(3.5% TA52                                  |
|                    |     | R720     | ORD4701Q609 | 4.70K 1/4W(3.5% TA52                               |
|                    |     | R721     | ORN7501F409 | 7.50K 1/6W 1% TA52                                 |
|                    |     | R722     | ORD1003Q609 | 100K 1/4W(3.5% TA52                                |
|                    |     | R723     | ORN1302F409 | 13K 1/6W 1% TA52                                   |
|                    |     | R730     | ORD6802Q609 | 68K 1/4W(3.5% TA52                                 |
|                    |     | R731     | ORD1000Q609 | 100 1/4W(3.5% TA52                                 |
|                    |     | R732     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R733     | ORD4702Q609 | 47K 1/4W(3.5% TA52                                 |
|                    |     | R734     | ORD2001Q609 | 2K 1/4W(3.5% TA52                                  |
|                    |     | R735     | ORD1002Q609 | 10K 1/4W(3.5% TA52                                 |
|                    |     | R736     | ORX2001J609 | 2K OHM 1 W 5% TA52                                 |
|                    |     | R737     | ORD6801Q609 | 6.80K 1/4W(3.5% TA52                               |
|                    |     | R738     | ORN2702F409 | 27K 1/6W 1% TA52                                   |
|                    |     | R739     | ORC1004A609 | 1M OHM 1/2 W(7.0) 5% TA52                          |
|                    |     | R740     | ORN1503G409 | 150K 1/4W 1 TA52                                   |
|                    |     | R741     | ORD2001Q609 | 2K 1/4W(3.5% TA52                                  |
|                    |     | R742     | ORD6800Q609 | 680 1/4W(3.5% TA52                                 |
|                    |     | R743     | ORD1000A609 | 100 OHM 1/2 W (7.0) 5% TA52                        |
|                    |     | R744     | ORX1502J609 | 15KOHM 1 W 5% TA52                                 |
|                    |     | R745     | 971-0054    | TIN 50MM TAPING                                    |
|                    |     | R746     | ORX1503L607 | 150K OHM 3 W 5% TA62                               |
|                    |     | R747     | ORX1503L607 | 150K OHM 3 W 5% TA62                               |
|                    |     | R748     | ORD0472Q609 | 47 1/4W(3.5% TA52                                  |
|                    |     | R749     | ORD4300Q609 | 430 OHM 1/4 W(3.4) 5.00% TA5                       |
|                    |     | R750     | ORD6800Q609 | 680 1/4W(3.5% TA52                                 |
|                    |     | R764     | ORD0472Q609 | 47 1/4W(3.5% TA52                                  |
|                    |     | R771     | ORD1101Q609 | 1.1K OHM 1/4 W (3.4) 5% TA52                       |
|                    |     | R773     | ORN6802H409 | 68K OHM 1/2 W 1% TA52                              |
|                    |     | R774     | ORN4302G409 | 43K OHM 1/4 W 1% TA52                              |
|                    |     | R775     | ORD3300Q609 | 330 1/4W(3.5% TA52                                 |
|                    |     | R776     | ORD7502Q609 | 75K 1/4W(3.5% TA52                                 |
|                    |     | R780     | ORD2202Q609 | 22K 1/4W(3.5% TA52                                 |
|                    |     | R801     | ORD1502Q609 | 15K 1/4W(3.5% TA52                                 |
|                    |     | R802     | ORN2002F409 | 20K 1/6W 1% TA52                                   |
|                    |     | R803     | ORD3302Q609 | 33K 1/4W(3.5% TA52                                 |
|                    |     | R805     | ORD1002Q609 | 10K 1/4W(3.5% TA52                                 |
|                    |     | R806     | ORD1002Q609 | 10K 1/4W(3.5% TA52                                 |
|                    |     | R807     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R808     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R809     | ORD3902Q509 | 39K OHM 1/4 W(3.4) 2% TA52                         |
|                    |     | R810     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R811     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R812     | ORD2201Q609 | 2.20K 1/4W(3.5% TA52                               |
|                    |     | R813     | ORD2401Q609 | 2.40K 1/4W(3.5% TA52                               |
|                    |     | R814     | ORN1202F409 | 12K 1/6W 1% TA52                                   |
|                    |     | R815     | ORN4700F409 | 470 1/6W 1 TA52                                    |
|                    |     | R816     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R817     | ORD1002Q609 | 10K 1/4W(3.5% TA52                                 |
|                    |     | R818     | ORD2701Q609 | 2.70K 1/4W(3.5% TA52                               |
|                    |     | R822     | ORN3601F409 | 3.6K 1/6W 1 TA52                                   |
|                    |     | R823     | ORD2703Q609 | 270K 1/4W(3.5% TA52                                |
|                    |     | R824     | ORN4700F409 | 470 1/6W 1 TA52                                    |
|                    |     | R825     | ORN1002F409 | 10K 1/6W 1 TA52                                    |
|                    |     | R826     | ORN1502F409 | 15K 1/6W 1% TA52                                   |
|                    |     | R827     | ORN1002F409 | 10K 1/6W 1 TA52                                    |
|                    |     | R830     | ORD1002Q609 | 10K 1/4W(3.5% TA52                                 |
|                    |     | R831     | ORN1002F409 | 10K 1/6W 1 TA52                                    |
|                    |     | R835     | ORD4700Q609 | 470 OHM 1/4 W (3.4) 5% TA52                        |
|                    |     | R836     | ORD1002A609 | 10K OHM 1/2 W (7.0) 5% TA52                        |
|                    |     | R837     | ORN1202F409 | 12K 1/6W 1% TA52                                   |
|                    |     | R838     | ORD0101Q609 | 1 1/4W(3.5% TA52                                   |
|                    |     | R841     | ORD5601Q609 | 5.60K 1/4W(3.5% TA52                               |
|                    |     | R842     | ORMZTWD001J | RWR SMART 5.6OHM 5 W 5% PD T                       |
|                    |     | R843     | ORX1003J609 | 100KOHM 1 W 5% TA52                                |
|                    |     | R846     | ORD0332A609 | 33 OHM 1/2 W (7.0) 5% TA52                         |
|                    |     | R847     | ORD1000A609 | 100 OHM 1/2 W (7.0) 5% TA52                        |
|                    |     | R849     | ORX1300J609 | 130 OHM 1 W 5% TA52                                |
|                    |     | R851     | ORD4701Q609 | 4.70K 1/4W(3.5% TA52                               |
|                    |     | R853     | ORD4701Q609 | 4.70K 1/4W(3.5% TA52                               |
|                    |     | R857     | ORD3001Q609 | 3K 1/4W(3.5% TA52                                  |
|                    |     | R859     | ORD102Q609  | 10 1/4W(3.5% TA52                                  |
|                    |     | R860     | ORD2000Q609 | 200 1/4W(3.5% TA52                                 |
|                    |     | R861     | 180-465Y    | RWR 1.2OHM 7W.(V-TYPE)                             |
|                    |     | R862     | ORN0390J607 | 0.39 1W 5% TA62                                    |
|                    |     | R865     | ORD4701Q609 | 4.70K 1/4W(3.5% TA52                               |
|                    |     | R871     | ORX1500K607 | 150 OHM 2 W 5% TA62                                |
|                    |     | R872     | ORD2401Q609 | 2.40K 1/4W(3.5% TA52                               |
|                    |     | R873     | ORD0122A609 | 12 OHM 1/2 W (7.0) 5% TA52                         |
|                    |     | R874     | ORX0332K607 | 33 OHM 2 W 5% TA62                                 |
|                    |     | R875     | ORX0242K607 | 24 OHM 2 W 5.00% TA62                              |
|                    |     | R876     | ORN3002F409 | 30K 1/6W 1% TA52                                   |
|                    |     | R878     | ORX0182K607 | 18 OHM 2 W 5% TA62                                 |
|                    |     | R891     | ORN2701F409 | 2.7K OHM 1/6 W 1.00% TA52                          |
|                    |     | R892     | ORN6800F409 | 680 1/6W 1% TA52                                   |
|                    |     | R893     | ORD3301Q609 | 3.30K 1/4W(3.5% TA52                               |
|                    |     | R894     | ORN2202F409 | 22K 1/6W 1% TA52                                   |
|                    |     | R895     | ORD1000Q609 | 100 1/4W(3.5% TA52                                 |
|                    |     | R896     | ORD1000Q609 | 100 1/4W(3.5% TA52                                 |
|                    |     | R901     | 180-465H    | 0.24 OHM 5W 5% B RWR - For Australia, South Africa |
|                    |     | R902     | ORD0912Q609 | 91 OHM 1/4 W (3.4) 5% TA52                         |
|                    |     | R903     | ORD0752Q609 | 75 1/4W(3.5% TA52                                  |
|                    |     | R904     | ORX3902J609 | 39K OHM 1 W 5% TA52                                |
|                    |     | R905     | ORX1003K607 | 100KOHM 2 W 5% TA62                                |
|                    |     | R906     | ORX1003K607 | 100KOHM 2 W 5% TA62                                |
|                    |     | R907     | ORD1000Q609 | 100 1/4W(3.5% TA52                                 |
|                    |     | R908     | ORN0220H609 | 0.22 1/2W 5% TA52                                  |
|                    |     | R909     | ORD1002Q609 | 10K 1/4W(3.5% TA52                                 |
|                    |     | R910     | ORN1602H409 | 16000 OHM 1/2 W 1% TA52                            |
|                    |     | R911     | ORN6200F409 | 620 1/6W 1% TA52                                   |
|                    |     | R912     | ORD1001Q609 | 1K 1/4W(3.5% TA52                                  |
|                    |     | R913     | ORB0120K607 | 0.12 OHM 2 W 5% TA62                               |
|                    |     | R914     | ORD1500Q609 | 150 1/4W(3.5% TA52                                 |
|                    |     | R915     | ORD8203Q609 | 820KOHM 1/4 W (3.4) 5% TA52                        |
|                    |     | R916     | ORD8203Q609 | 820KOHM 1/4 W (3.4) 5% TA52                        |
|                    |     | R917     | ORD1000Q609 | 100 1/4W(3.5% TA52                                 |
|                    |     | R918     | ORD1003Q609 | 100K 1/4W(3.5% TA52                                |
|                    |     | R919     | ORD2002Q609 | 20K 1/4W(3.5% TA52                                 |
|                    |     | R920     | ORD0392Q609 | 39 1/4W(3.5% TA52                                  |
|                    |     | R921     | ORD0332Q609 | 33 1/4W(3.5% TA52                                  |
|                    |     | R922     | ORD5601Q609 | 5.60K 1/4W(3.5% TA52                               |
|                    |     | R923     | ORD4703Q609 | 470K 1/4W(3.5% TA52                                |
|                    |     | R924     | ORD0152Q609 | 15 1/4W(3.5% TA52                                  |
|                    |     | R925     | ORD1501Q609 | 1.50K 1/4W(3.5% TA52                               |
|                    |     | R926     | ORD4701Q609 | 4.70K 1/4W(3.5% TA52                               |

| DATE: 2003. 5. 24. |     |          |             |  |
|--------------------|-----|----------|-------------|--|
| *S                 | *AL | LOC. NO. | PART NO.    | DESCRIPTION / SPECIFICATION                                |
|                    |     | R927     | ORD1001Q609 | 1K 1/4W(3.5% TA52  |
|                    |     | R929     | ORN0220H609 | 0.22 1/2W 5% TA52  |
|                    |     | R930     | ORN0220H609 | 0.22 1/2W 5% TA52  |
|                    |     | R931     | ORC4703A609 | 470K OHM 1/2 W(7.0) 5% TA52                                |
|                    |     | R932     | ORC4703A609 | 470K OHM 1/2 W(7.0) 5% TA52                                |
|                    |     | R933     | ORD0472Q609 | 47 1/4W(3.5% TA52  |
|                    |     | R934     | ORD3302Q609 | 33K 1/4W(3.5% TA52   |
|                    |     | R935     | ORD3301Q609 | 3.30K 1/4W(3.5% TA52                                       |
|                    |     | R941     | ORD2703Q609 | 270K 1/4W(3.5% TA52  |
|                    |     | R949     | ORN0220H609 | 0.22 1/2W 5% TA52  |
|                    |     | R950     | ORD1002Q609 | 10K 1/4W(3.5% TA52   |
|                    |     | R951     | ORD1101A609 | 1.1K OHM 1/2 W (7.0) 5% TA52                               |
|                    |     | R952     | ORD4701Q609 | 4.70K 1/4W(3.5% TA52                                       |
|                    |     | R953     | ORD1002Q609 | 10K 1/4W(3.5% TA52   |
|                    |     | R954     | ORD4700A609 | 470 OHM 1/2 W (7.0) 5% TA52                                |
|                    |     | R955     | ORD4701Q609 | 4.70K 1/4W(3.5% TA52                                       |
|                    |     | R984     | ORX3902J609 | 39K OHM 1 W 5% TA52  |
|                    |     | R990     | ORD0512Q609 | 51 1/4W(3.5% TA52  |
|                    |     | R991     | ORD5101Q609 | 5.10K 1/4W(3.5% TA52                                       |
|                    |     | R992     | ORD5101Q609 | 5.10K 1/4W(3.5% TA52                                       |
| OTHERs             |     |          |             |  |
|                    |     | J315     | 125-155K    | BFS3550A0FG SAMWHA 3.5*5.0MM                               |
|                    |     | J54      | 125-155J    | BFS2550A0FG SAMWHA 2.5*5.0MM                               |
|                    |     | F1       | 430-858C    | AFC-520 BAE EUN TA   |
|                    |     | F2       | 430-858C    | AFC-520 BAE EUN TA   |
|                    |     | F901     | 0FZTTTH004B | TIME LAG HBC TSC 5A/250V,WAL                               |
|                    |     | RL901    | 6920TBB006A | DY3M-DC12V DONGYANG 250VAC 5                               |
|                    |     | SC301    | 6620TBD003A | PCS701E PARK ELEC. 10PIN 14/                               |
|                    |     | SC901    | 6200TJB001N | 02MD5 DELTA BK F900BJ                                      |
|                    |     | SG301    | 6918TAT005E | MTAS-201M GIGA AXIAL TAPING                                |
|                    |     | SG302    | 6918TAT005E | MTAS-201M GIGA AXIAL TAPING                                |
|                    |     | SG303    | 6918TAT005E | MTAS-201M GIGA AXIAL TAPING                                |
|                    |     | SG304    | 6918TAT005E | MTAS-201M GIGA AXIAL TAPING                                |
|                    |     | SG305    | 165-004A    | AG20PT 152F-L3N/S-23 HANDOK                                |
|                    |     | SG701    | 165-004A    | AG20PT 152F-L3N/S-23 HANDOK                                |
|                    |     | SW201    | 140-058D    | SKHV10911A LGEC NON 12 20 HO                               |
|                    |     | SW202    | 140-058D    | SKHV10911A LGEC NON 12 20 HO                               |
|                    |     | SW203    | 140-058D    | SKHV10911A LGEC NON 12 20 HO                               |
|                    |     | SW204    | 140-058D    | SKHV10911A LGEC NON 12 20 HO                               |
|                    |     | SW205    | 140-058D    | SKHV10911A LGEC NON 12 20 HO                               |
|                    |     | SW206    | 140-058D    | SKHV10911A LGEC NON 12 20 HO                               |
|                    |     | SW207    | 140-058D    | SKHV10911A LGEC NON 12 20 HO                               |
|                    |     | T701     | 6174T13010K | FQM19A013,T910BJ(98K) SAMSUN                               |
|                    |     | T801     | 6140TDZ010C | -- EER2834,1.3MH,T910BJ,70.                                |
|                    |     | T802     | 6170TCZ008A | EE2218 1.3MH FB995C  |
|                    |     | T901     | 6170TMZ150A | EER4045 200UH V-18PIN F700PJ                               |
|                    |     | TH901    | 6322B00003A | J502P62D070Q290 JA HWA 7 OHM                               |
|                    |     | TH902    | 6322TA080BA | SCK-084 THINKING 8 OHM 15% 2 - For Australia, South Africa |
|                    |     | VR801    | 180-035Q    | EVN-DJAA03B24 (MEC),20KB                                   |
|                    |     | VR901    | 180-035A    | EVN-DJAA03B12 (MEC),100B                                   |
|                    |     | X401     | 6202TTB003B | HC-49/U HARMONY RADIAL 12MHZ                               |

## PIN CONFIGURATION

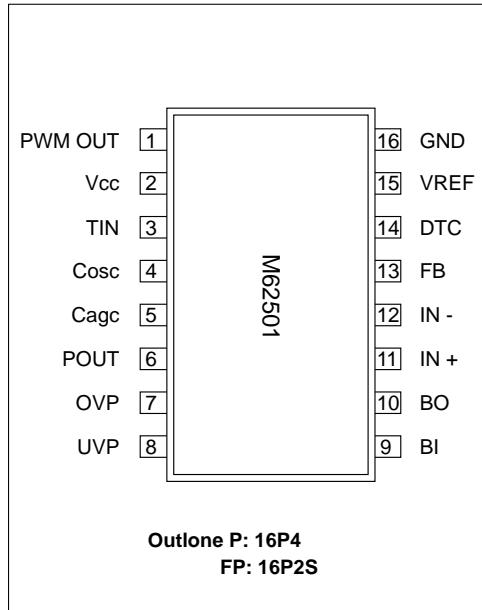
### M24C08 Serial I<sup>2</sup>C BUS EEPROM



| SYMBOL | DESCRIPTION                      |
|--------|----------------------------------|
| E0-E2  | Chip Enable Input                |
| SDA    | Serial Data Address Input/Output |
| SCL    | Serial Clock                     |
| WC     | Write Control                    |
| Vcc    | Supply Voltage                   |
| Vss    | Ground                           |

### M62501P /FP

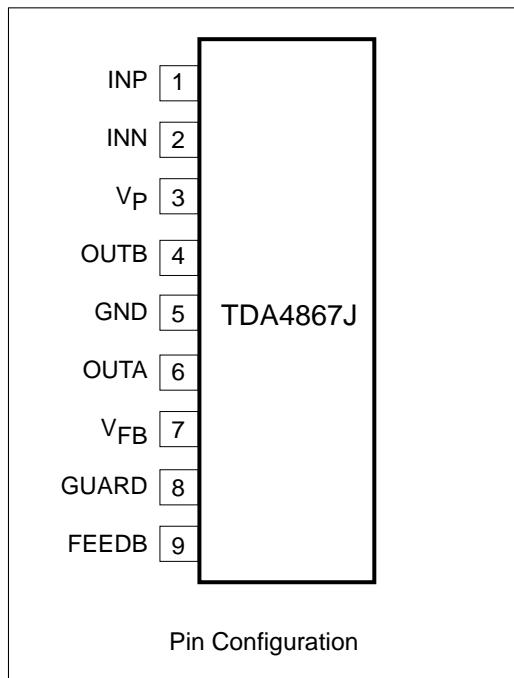
#### PIN CONFIGURATION(TOP VIEW)



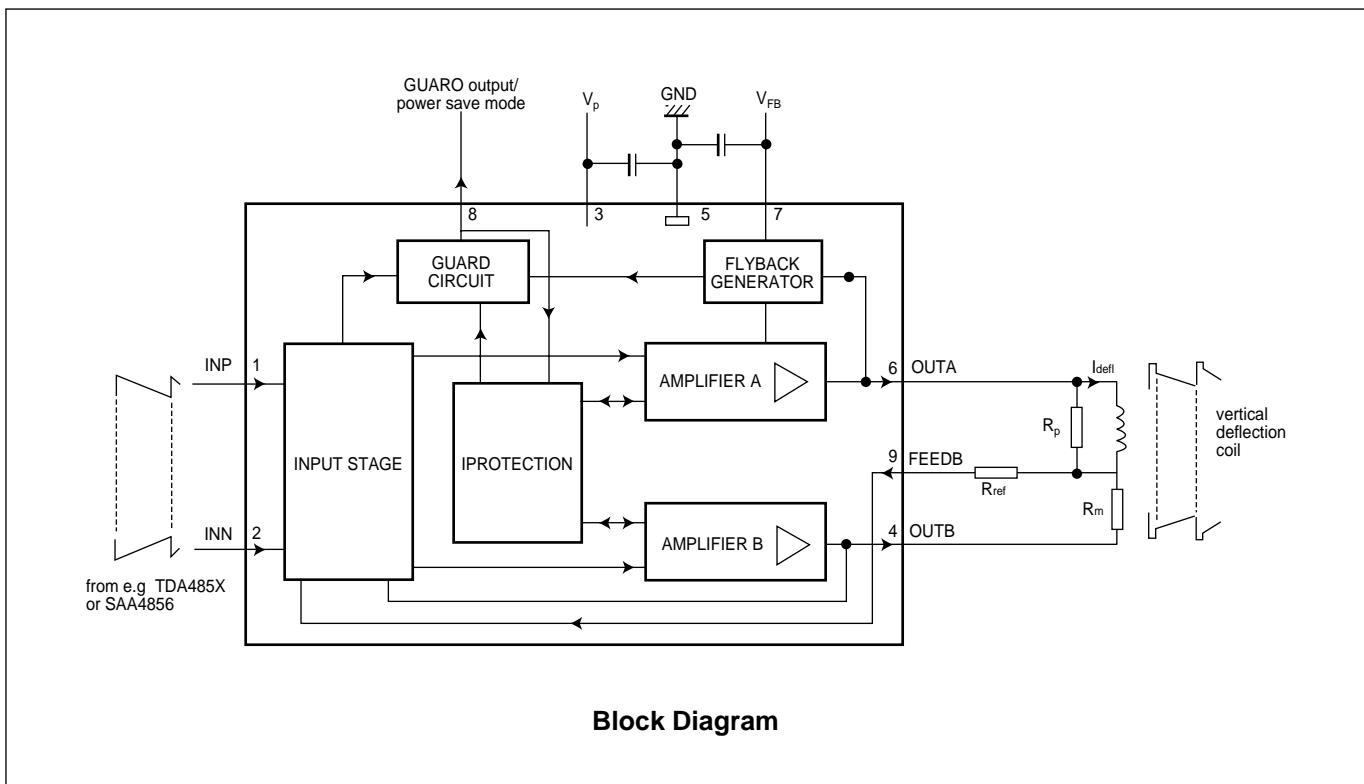
#### Terminal Number and The facility

| PIN NO. | Symbol          | Functional Description                          |
|---------|-----------------|---|
| 1       | PWM OUT         | PWM output terminal                             |
| 2       | Vcc             | Power supply terminal                           |
| 3       | TIN             | Trigger Input terminal                          |
| 4       | CAGC            | This pin is used to set oscillating frequency   |
| 5       | CAGC            | This pin is used for AGC setting                |
| 6       | P.OUT           | Output terminal of error signal                 |
| 7       | OVP             | Input terminal of Over Voltage Protection       |
| 8       | UVP             | Input terminal of Under Voltage Protection      |
| 9       | BI              | Positive Input terminal of Buffer Amp           |
| 10      | BO              | Output terminal of Buffer Amp                   |
| 11      | IN <sup>+</sup> | Positive Input terminal of OP Amp               |
| 12      | IN <sup>-</sup> | Negative Input terminal of OP Amp               |
| 13      | FB              | Output terminal of OP Amp                       |
| 14      | DTC             | Dead time control terminal(Soft start function) |
| 15      | VREF            | Output terminal of reference voltage (5V)       |
| 16      | GND             | Ground terminal                                 |

## TDA4867J PHILIPS 32P, SDIP

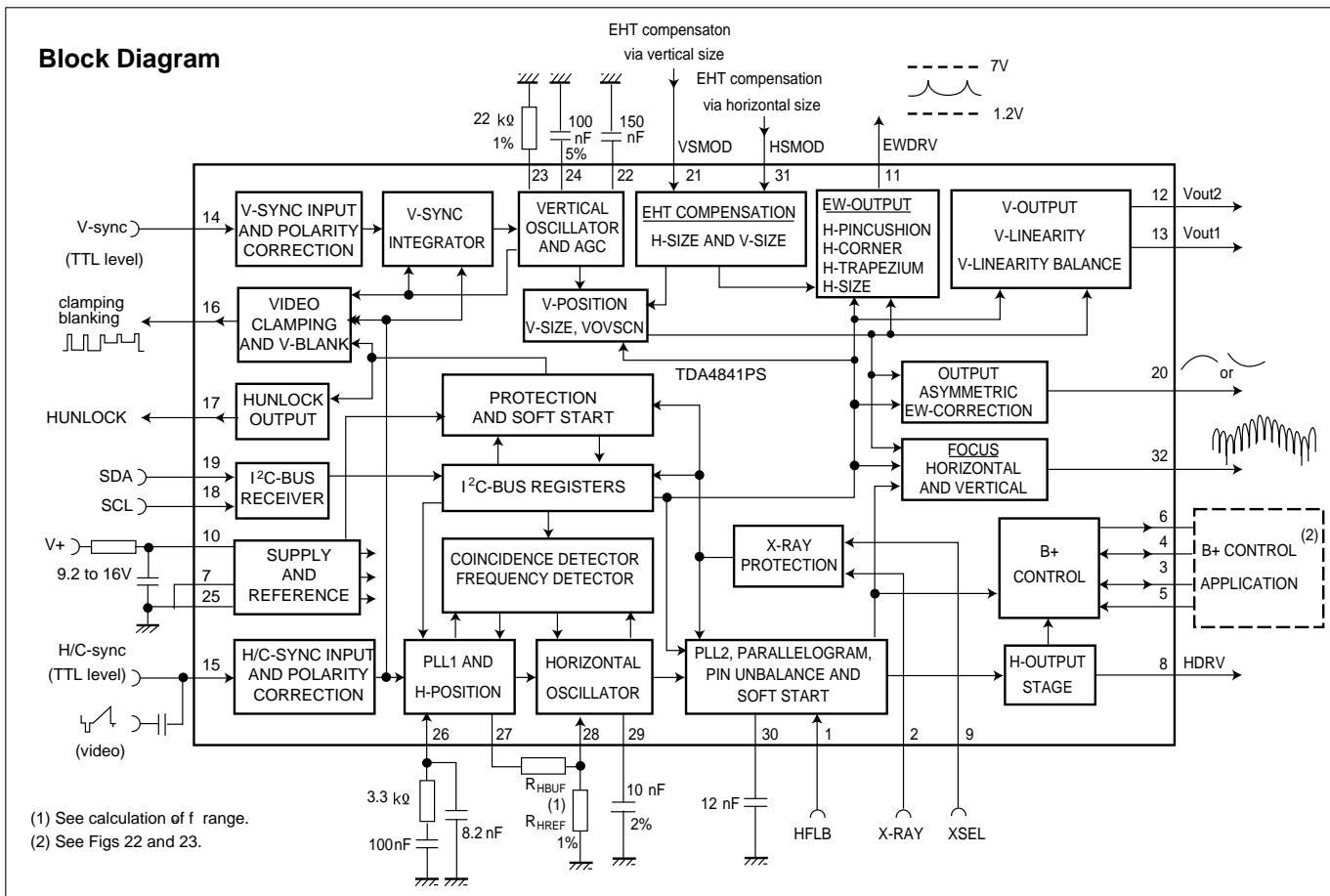
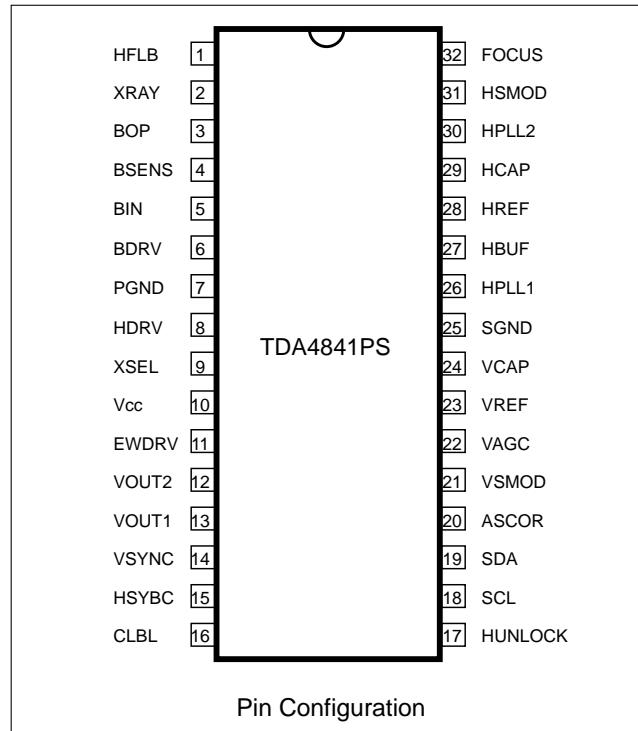


| SYMBOL          | PIN | DESCRIPTION            |
|-----------------|-----|------------------------|
| INP             | 1   | non-inverted input     |
| INN             | 2   | inverted input         |
| V <sub>P</sub>  | 3   | supply voltage         |
| OUTB            | 4   | output B               |
| GND             | 5   | ground                 |
| OUTA            | 6   | output A               |
| V <sub>FB</sub> | 7   | flyback supply voltage |
| GUARD           | 8   | guard output           |
| FEEDB           | 9   | feedback inprt         |

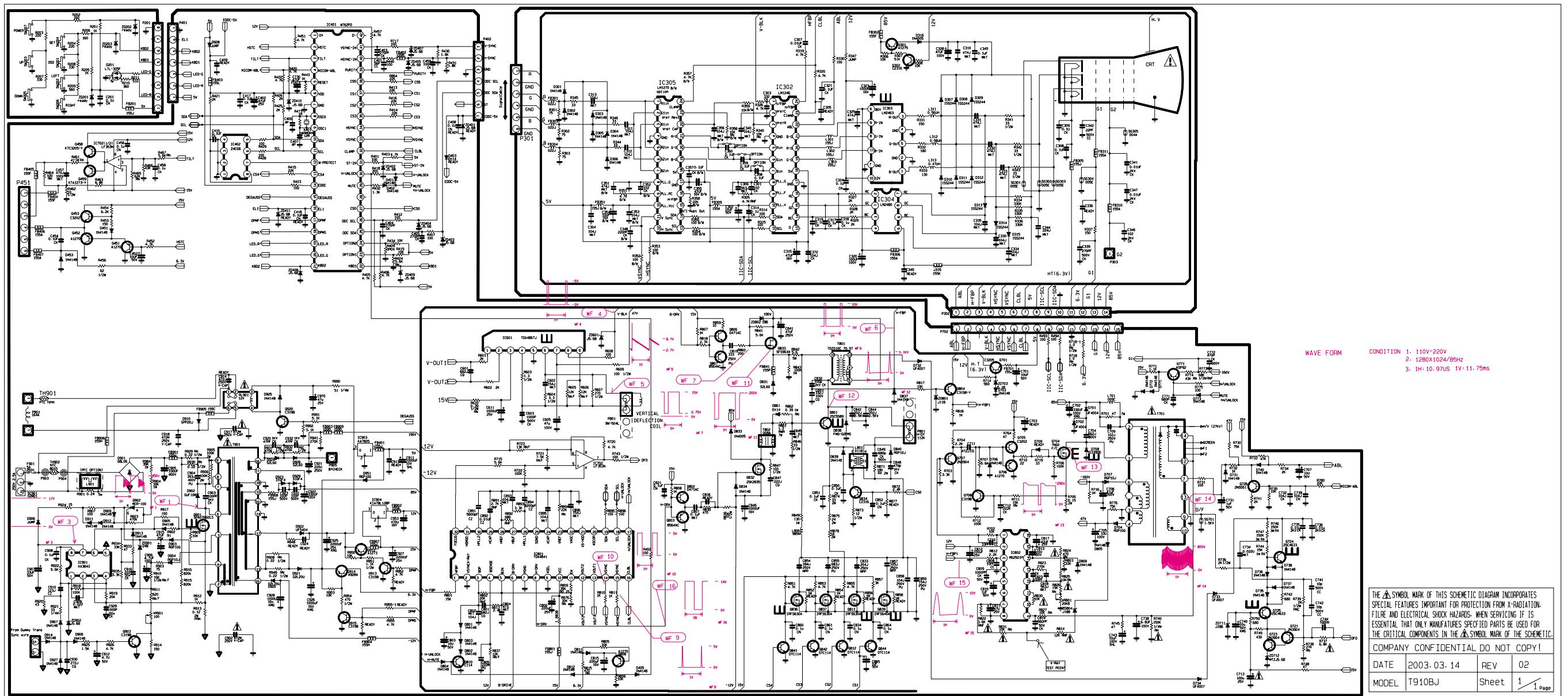


# TDA4841PS

# PHLIPS 32P



## SCHEMATIC DIAGRAM

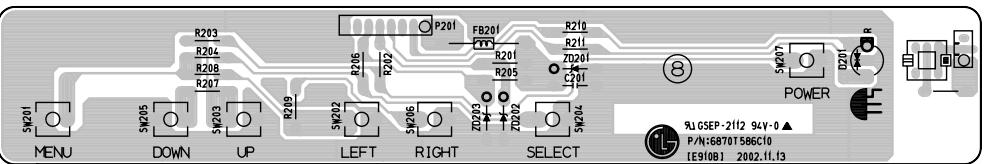


### NOTICE

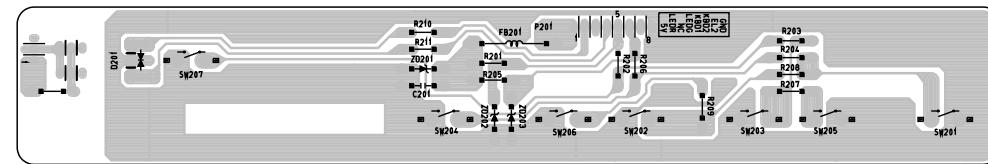
Since this is a basic schematic diagram.  
 The value of components and some partial connection are subject to be changed for improvement without notice.

## PRINTED CIRCUIT BOARD

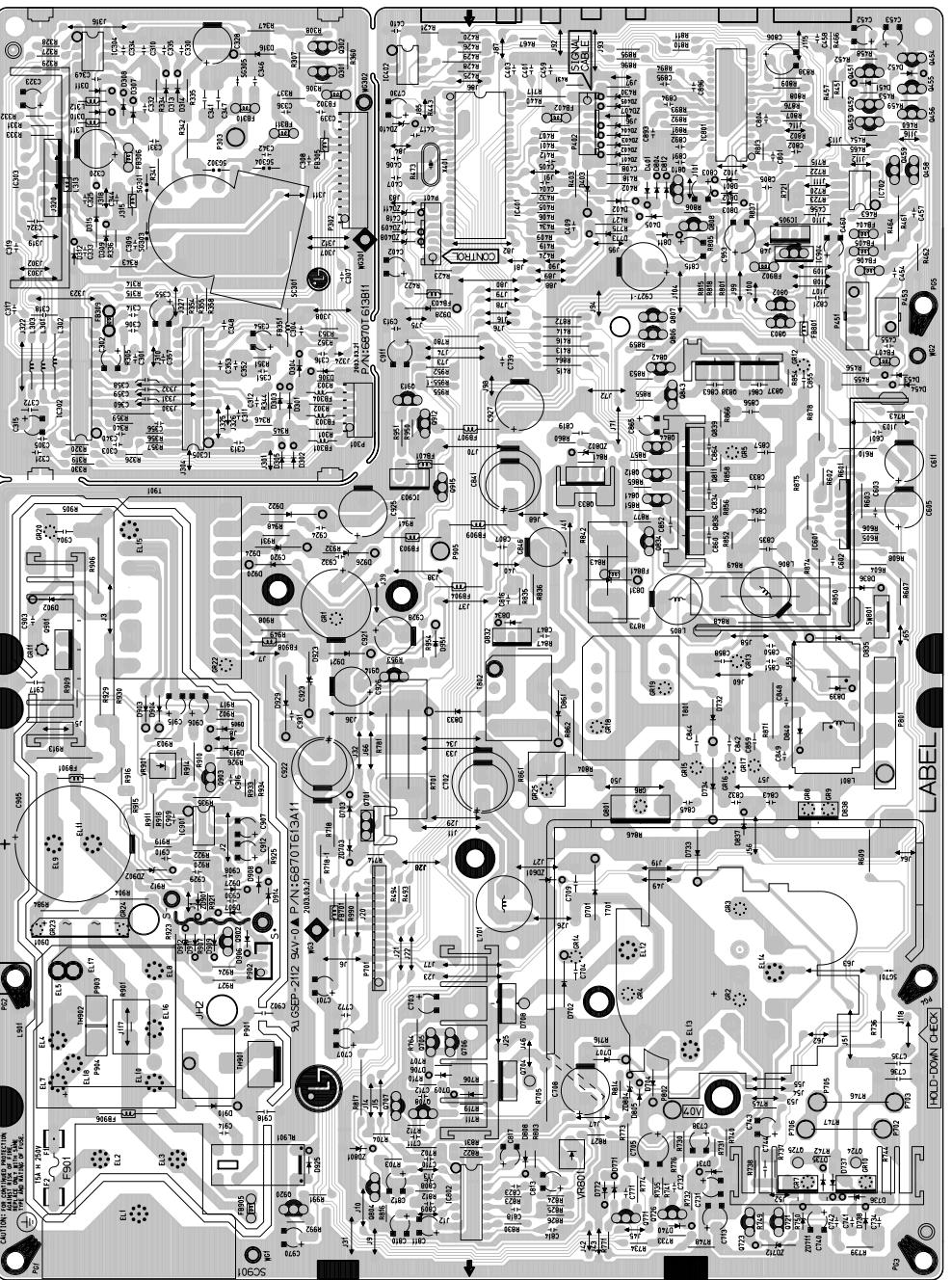
**1. CONTROL BOARD (Component Side)**



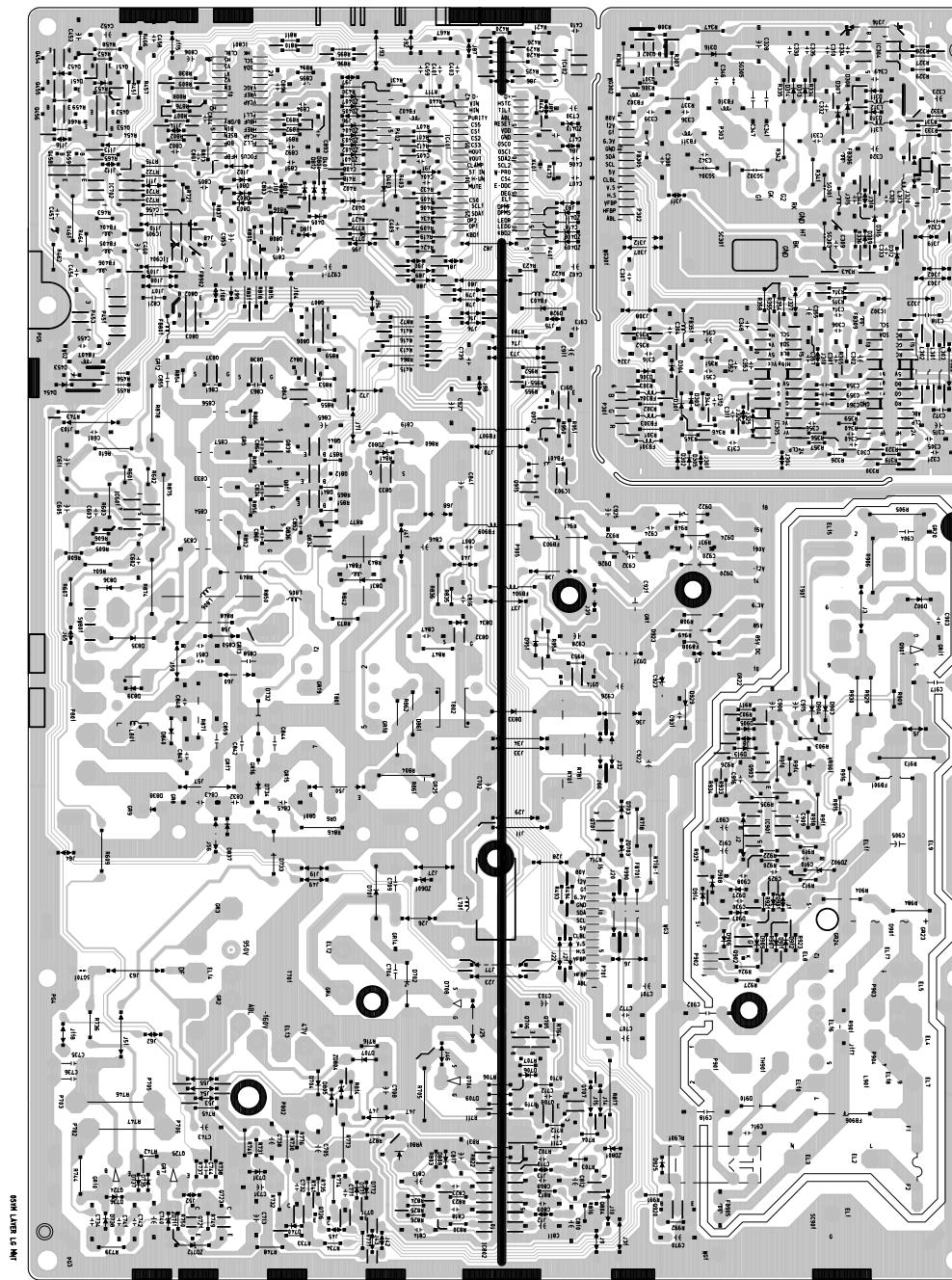
**2. CONTROL BOARD (Solder Side)**



**3. MAIN BOARD (Component Side)**



**4. MAIN BOARD (Solder Side)**





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