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COLOR MONITOR
SERVICE MANUAL

CHASSIS NO. : CA-137

MODEL: FLATRON ez T930BU (T930BUL-KL***E*)

( ) **Same model for Service

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

*Same looking with new chassis

CONTENTS

SPECIFICATIONS

1. PICTURE TUBE

Size	: 19 inch (Flat Slot Mask)
Deflection Angle	: 90°
Neck Diameter	: 29.1 mm
Dot Pitch	: 0.25 mm
Diagonal Size	: 457.2 mm
View Size	: 356.8 x 274.3 mm
Face Treatment	: W-ARAS, Internal Anti-Glare

2. SIGNAL

2-1. Horizontal & Vertical Sync

1) Input Voltage Level : Low= ≤0.8V, High= ≥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 : 31.5~ 96.0 kHz
Vertical : 50 ~ 90 Hz

3. POWER SUPPLY

3-1. Power Range

AC 100-240V~50/60HZ, 2.5A

3-2. Power Consumption

MODE	VIDEO	POWER CONSUMPTION	LED COLOR
NORMAL	Yes	less than 103W	GREEN
SLEEP	No	less than 4W	AMBER
POWER OFF	No	less than 2W	AMBER

4. DISPLAY AREA

4-1. Active Video Area :

- Max Image Size - 356.8 x 274.3mm (14.05" x 10.80")
- Preset Image Size - 350 x 262 mm (13.78" x 10.31")

4-2. Display Color : Full Colors

4-3. Display Resolution : 1600 Dots x 1200Lines/75Hz

4-4. Video Bandwidth : 203MHz

5. ENVIRONMENT

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

5-2. Operating Humidity : 10% ~ 80%

5-3. Altitude : Less than 5000m(RELIABILITY)
Less than3000m(FOS)

6. DIMENSIONS (with TILT/SWIVEL)

Width	: 443 mm (17.44")
Depth	: 458 mm (18.03")
Height	: 398 mm (15.67")

7. WEIGHT (with TILT/SWIVEL)

Net Weight	: 21.2 kg (43.35 lbs)
Gross Weight	: 24.5 kg (54.82 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.

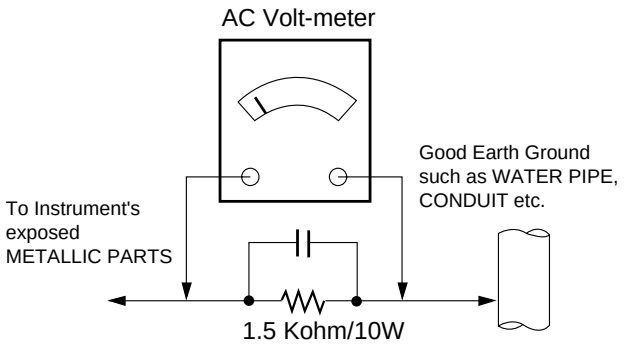
Note : It is important to use an accurate high voltage meter calibrated periodically.

- 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.

Leakage Current Hot Check Circuit



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the ***SAFETY PRECAUTIONS*** on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
      CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
   d. Discharging the picture tube anode.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.
   Do not test high voltage by "drawing an arc".
3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
4. Do not spray chemicals on or near this receiver or any of its assemblies.
5. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
6. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
8. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
9. *Use with this receiver only the test fixtures specified in this service manual.*
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices.* Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle.
   Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature.
      (500°F to 600°F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
      CAUTION: Work quickly to avoid overheating the circuitboard printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
      CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

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

Removal

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

Replacement

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

"Small-Signal" Discrete Transistor Removal/Replacement

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

Power Output, Transistor Device Removal/Replacement

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

Diode Removal/Replacement

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

Fuse and Conventional Resistor Removal/Replacement

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

Circuit Board Foil Repair

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

At IC Connections

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

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

At Other Connections

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

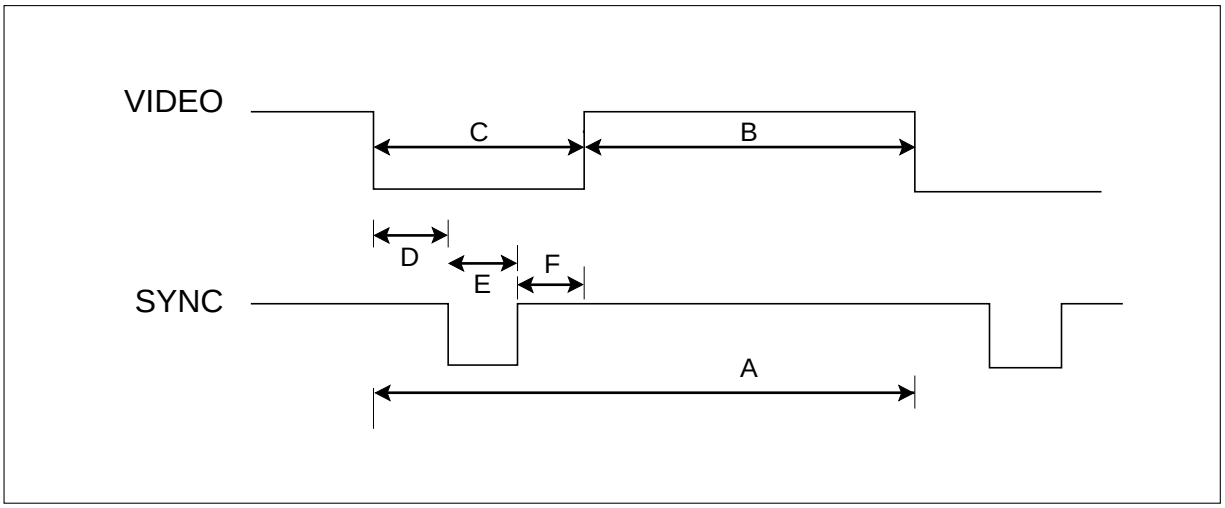
1. Remove the defective copper pattern with a sharp knife.

   Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side.

   Carefully crimp and solder the connections.

   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

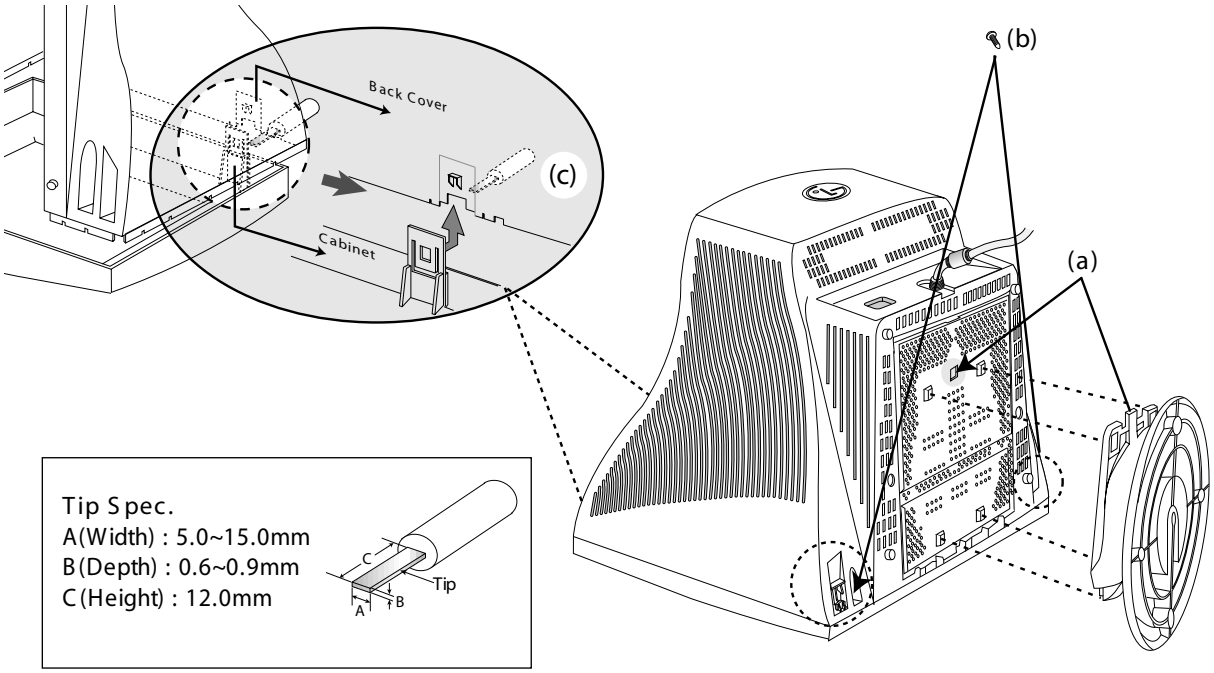
TIMING CHART



MODE				FACTORY PRESET MODE				
			MARK	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5
				VESA				
HORIZONTAL	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	10.666
	Video Active Time	µs	B	17.778	14.222	10.836	8.127	7.901
	Blanking Time	µs	C	5.334	4.409	3.725	2.844	2.765
	Front Porch	µs	D	1.556	0.569	0.508	0.406	0.316
	Sync Duration	µs	E	1.556	1.138	1.016	1.016	0.948
	Back Porch	µs	F	2.222	2.702	2.201	1.422	1.501
VERTICAL	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	13.333
	Video Active Time	ms	B	11.093	11.178	11.183	11.235	12.800
	Blanking Time	ms	C	0.670	0.578	0.582	0.527	0.533
	Front Porch	ms	D	0.023	0.019	0.015	0.011	0.011
	Sync Duration	ms	E	0.069	0.056	0.044	0.033	0.032
	Back Porch	ms	F	0.578	0.503	0.523	0.483	0.490
Resolution				**640 X 480**	**800 X 600**	**1024 X 768**	**1280 X 1024**	**1600 X 1200**
Recall				Yes	Yes	Yes	Yes	Yes

DISASSEMBLY

1. TILT/SWIVEL & BACK COVER REMOVAL
   1) Set the monitor face downward.
   2) Carefully remove the Tilt/Swivel by pulling it upward.
   3) Remove the screw (b), Back cover by pushing it upward.
   4) Release the latch (c). (See Tip Spec.)
   5) Slide the Back Cover away from the Front Cabinet of the monitor.



Tip Spec.
A(Width) : 5.0~15.0mm
B(Depth) : 0.6~0.9mm
C(Height) : 12.0mm

ADJUSTMENT

1. Preparation for Service 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 1and run the alignment program on the DOS for IBM compatible PC.
- Set external Brightness and Contrast volume to max position.

1. Adjustment for B^+ Voltage.

1) Display cross hatch pattern at Mode 4.
2) Adjust P907 voltage to 50V ± 0.2V with **VR901**.

2. Adjustment for High-Voltage.

1) Display cross hatch pattern at Mode 4.
2) Adjust CDT Anode voltage to 27kV ± 0.2kV with I-P in Hot key mode.

3. Adjustment for Horizontal Raster Center.

1) Display cross hatch pattern at Mode 4.
2) Adjust the Back Raster should be center of the screen with SW801.

2. Adjustment by Service Hot key

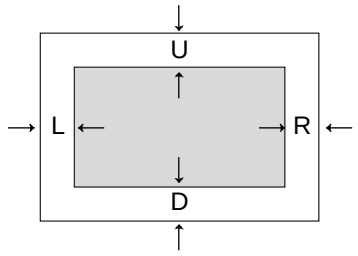
How to enter SVC HOT KEY

1. Press Menu and OSD window will appear.
2. While OSD window is displayed, ★★ is seen on the left bottom of OSD window.
3. Press ◀+▼ simultaneously and the screen will immediately refresh.
4. Press Menu and make sure that ★★ is changed to 1/2.
5. Follow the menu on the left of OSD window to find 1/2 and OSD will change as shown in the figure.
6. Select Degauss in the above figure and then press Select and ▶ to change the screen as shown in the figure. (Back Raster for Pattern)

FOS SPEC

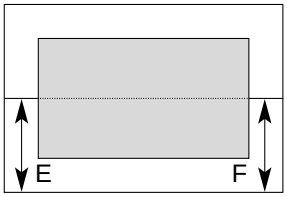
1. Size
   H : 350±4mm
   V : 262±4mm
   Scanning frequency : All Mode (Mode 1~4)
   Display image : Crosshatch pattern

2. Centering
   Scanning frequency : All Mode (Mode 1~4)
   Display image : Crosshatch pattern
   Horizontal : 10 Row
   Vertical : 8 Row



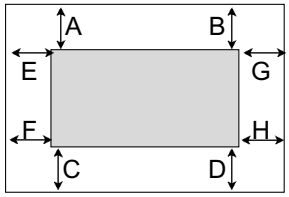
H : | L-R | ≤ 4mm, V : | U-D | ≤ 4mm

3. Tilt
   Scanning frequency : All Mode (Mode 1~4)
   Display image : Crosshatch pattern
   Horizontal : 10 Row
   Vertical : 8 Row



Tilt : | E-F | ≤ 2.0mm

4. Distortion
   Scanning frequency : All Mode (Mode 1~4)
   Display image : Crosshatch pattern
   Horizontal : 10 Row
   Vertical : 8 Row



   | A-B | ≤ 2.5mm, | C-D | ≤ 2.5mm
   | E-F | ≤ 2.0mm, | G-H | ≤ 2.0mm

5. Displa Size drift
   - ±4mm : 25℃ Standard, 10℃, 35℃
   - ±0.5mm : 180V ~ 264V

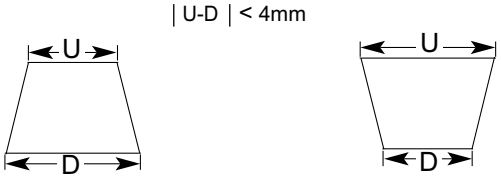
6. Linearity

				Y1
				Y2
				Y3
				Y4
X1	X2	X3	X4	

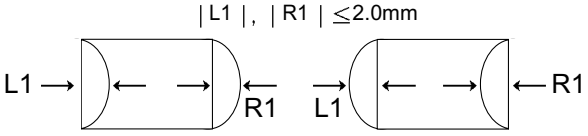
   Formula : {(Max - Min) / Max} x 100(%)
   Criteria : H - 10% Max. (Upper 40kHz)
   14% Max. (Less 40kHz)
   91KHZ*85=8%
   V - 8% Max.

7. Regulation
   1mm/side(upper 54KHZ 800*600
   other model <= 2mm/side
   Scanning frequency : All Mode (Mode 1~4)

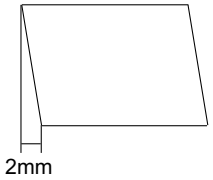
8. Trapezoid



9. Pin Balance



10. Parallelogram



11. Adjustment of white balance (Adjustment of chromaticity diagram)
   *(Adjustment of white balance must be made after entering Hot Key Mode and DEGAUSS.)

   CONDITIONS
   Signal: 91 kHz / 85 Hz
   Display image: Back raster (Color 0,0)
   Contrast: Maximum
   Brightness: Maximum
   Color temperature: 9300K

11-1. Adjustment of cut off (Adjustment of back raster)

11-1(a). Before adjustment, press Menu and Degauss to remove.
=> Enter hot key mode.
   Adjust Brightness and Contrast to Max in OSD window.

(1) Adjust cut off (back raster) first. Enter DEGAUSS in the Menu and modify the following data.
   Modify RCUT to Min (0) ,
   Modify GCUT To Min (0) ,
   Adjust to BCUT Data = 127 (7F) ,
   Adjust to SBRT Data = 205 (CD).
(2) Turn FBT screen volume on "CRT COLOR ANALYZER CA-100" equipment to adjust Brightness to 0.4± 0.05FL.
(3) Adjust RCUT, GCUT, and SBRT to set chromaticity diagram at :
   x: 0.283±0.006
   y: 0.298±0.006
   Y: 0.40±0.05FL

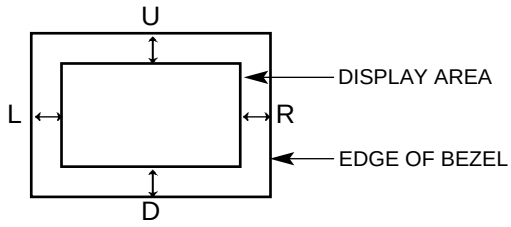
* If color values would not be matched desirable values, repeat sequence 1 and 2 after readjusting ÒGREEN CUTOFFÓcontrol a little different.

11-2. Adjustment of White Balance

After finishing adjustment of cut off (back raster), approve "Color(15.0) Full white pattern".
Adjust to BDRV Data = 92(5C).
Adjust RDRV and GDRV to set chromaticity diagram at :
x: 0.283 ± 0.003
y: 0.298 ± 0.003
Approve "Window pattern (70x70mm)" to adjust S-CON to Y : 45 ± 1FL.
Approve "Color (15.0) Full white pattern" again and adjust ABL Data to Y : 30 ± 1FL

Adjust the horizontal position and vertical position to ≤ 4.0 mm of the center point of the screen.

|L-R| ≤4.0 mm. |U-D| ≤ 4.0 mm.



* SIZE adjustment should be made in ALL Mode.

12. Focus Adjustment

CONDITIONS
Scanning frequency : 91KHz/85KHz
Display image: "H" character pattern
Brightness: Cut off point
Contrast: Maximum

PROCEDURE
1. Adjust the Focus VR on the FBT to display the sharpest image possible.
2. Use Locktite to seal the Focus VR in position.

14. Color Purity Adjustment
Color purity is the absence of undesired color. Conspicuous mislanding (unexpected color in a uniform field) within the display area shall not be visible at a distance of 50 cm from the CRT surface.

CONDITIONS
Orientation: Monitor facing east
Scanning Frequency: 1280 x 1024@85Hz(91kHz/85Hz)
Display image: White flat field
Luminance: Cut off point at the center of the display area

Note: Color purity adjustments should only be attempted by qualified personnel.

PROCEDURE
For trained and experienced service technicians only.
Use the following procedure to correct minor color purity problems:

1. Make sure the display is not affected by external magnetic fields.

2. Very carefully break the glue seal between the 2-pole purity convergence magnets (PCM), the band and the spacer.

3. Make sure the spacing between the PCM assembly and the CRT stem is 29 mm ± 1 mm.

4. Display a green pattern over the entire display area.

5. Adjust the purity magnet rings on the PCM assembly to display a pure green pattern.
(Optimum setting: x = 0.295 ± 0.015,
y = 0.594 ± 0.015)

6. Repeat steps 4 and 5 using a red pattern and then again, using a blue pattern.

Table 4-6. Color Purity Tolerances

Red:	x=0.620 ± 0.015	y=0.334 ± 0.015
Green:	x=0.620 ± 0.015	y=0.334 ± 0.015
Blue:	x=0.620 ± 0.015	y=0.334 ± 0.015

(For 9300K color adjustment: x = 0.283 ± 0.02,
y = 0.298 ± 0.02)

7. When you have the PCMs properly adjusted, carefully glue them together to prevent their movement during shipping.

3. Adjustment Using Service software Program (Adjustment Program)

1. Adjustment for Factory Mode (Preset Mode).

1) Display cross hatch pattern at Mode All.
2) Run alignment program for T930BUL 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 ± 2mm.
8) Adjust V-POSITION as arrow keys to center of the screen.
9) Adjust V-SIZE as arrow keys to 262 ± 2mm.
10) Adjust TRAPEZOID as arrow keys to be the best condition.
11) Adjust SIDE PINCUSHON 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.

2. Adjustment for White Balance and Luminance.

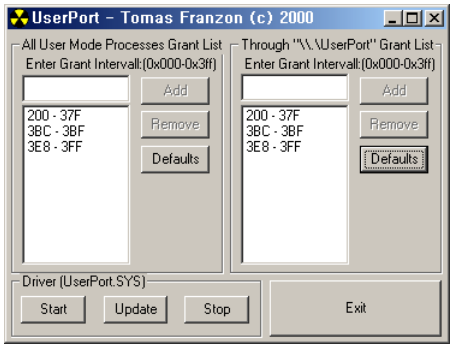
1) Set the White Balance Meter.
2) Press the DEGAUSSING on the OSD menu for demagnetization of the CDT.
3) Display color 0,0 pattern at Mode 4.
4) COMMAND → PRESET START → Y(Yes) command.
5) Set Bightness and Contrast to max position.
6) COLOR ADJ. → LUMINANCE command of the alignment program.
7) COLOR 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 205 (CD)position, B-Bias to 127(7F)position. If it's not blue color, the monitor must repair.
9) Adjust Screen control on the FBT to 0.4 ± 0.05FL of the raster luminance.
10) Adjust R-BIAS and G-BIAS command to x=0.283 ± 0.006 and y=0.298 ± 0.006 on the White Balance Meter with PC arrow keys.
11) Display color 15,0 Full White(70x70mm) at mode 4.
12) DRIVE ADJ command.
13) Set B-DRIVE to 92(5C) at DRIVE of the alignment program.
14) Adjust R-DRIVE and G-DRIVE command to white balance x=0.283 ± 0.003 and y=0.298 ± 0.003 on the White Balance Meter with PC arrow keys.
15) Adjust SUB-CONTRAST command to 45±1FL of the raster luminance.
16) Display color 15,0 full white patten at Mode 4.
17) COLOR ADJ. → LUMINANCE → ABL command.
18) Adjust ABL to 30 ± 1FL of the luminance.
19) Exit from the program.

- Adjustment and EDID Data Down in GCSC

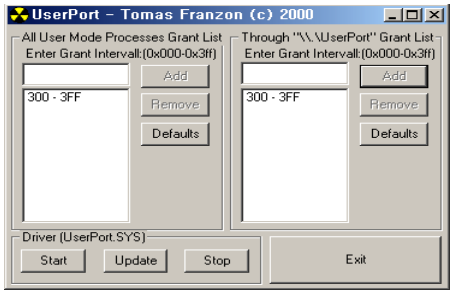
Windows EDID V1.0 User Manual

Operating System: MS Windows 98, 2000, XP
Port Setup: Windows 98 => Don't need setup
Windows 2000, XP => Need to Port Setup.
This program is available to LCD Monitor only.

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

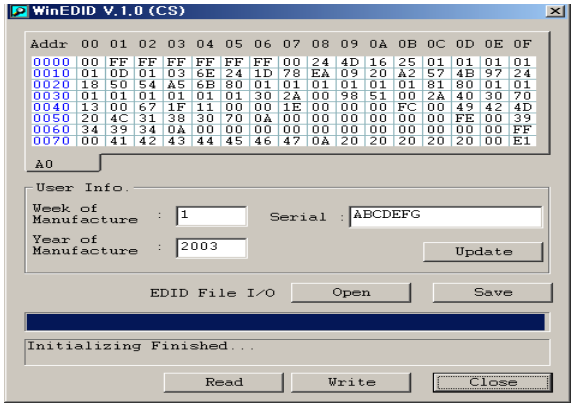


   c) Remove all default number
   d) Add 300-3FF

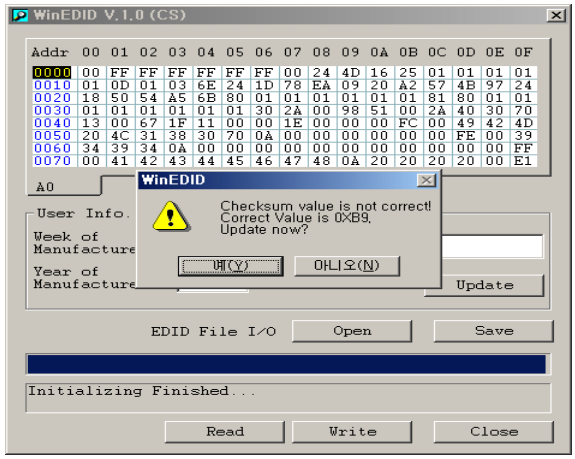


   e) Click Start button.
   f) Click Exit button.

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



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



EDID DATA EDIT

No	Item	Content	Hexadecimal
1	Manufacturer ID	GSM	1E 6D
2	Product ID	19126	4A B6
3	Year	2005	0F
4	Version	1	01
5	Revision	3	03

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1	00	FF	FF	FF	FF	FF	FF	00	1E	6D	# B6	# 4A	* 01	* 00	* 00	* 00
2	** 01	*** 0F	01	03	7C	24	1B	B0	E8	05	79	A0	56	4A	99	26
3	12	48	4C	FF	FF	80	31	59	45	59	61	59	81	80	A9	40
4	E1	40	A9	4A	A9	4F	86	3D	00	C0	51	00	30	40	40	A0
5	13	00	5E	06	11	00	00	1E	00	00	00	FD	00	32	A0	1E
6	62	1B	00	0A	20	20	20	20	20	20	00	00	00	FC	00	54
7	39	33	30	42	55	0A	20	20	20	20	20	20	00	00	00	FC
8	00	0A	20	20	20	20	20	20	20	20	20	20	20	20	00	%

EDID Data Edit Using Service software Program

1 Read and Modify EDID Data

1) Connector the monitor and adjust device as Figure1
2) Display color 15,0 cross hatch pattern at Mode 4.
3) Use EDIT – MODEL SEL. command to select the right model info file.
4) Use EDIT – EDID INFO command and return to read the EDID Data.
5) Modify the EDID Data if needed and using F10 to save the change and exit.

2 Write EDID Data.

1) Display color 15,0 cross hatch pattern at Mode 4.
2) Use 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.

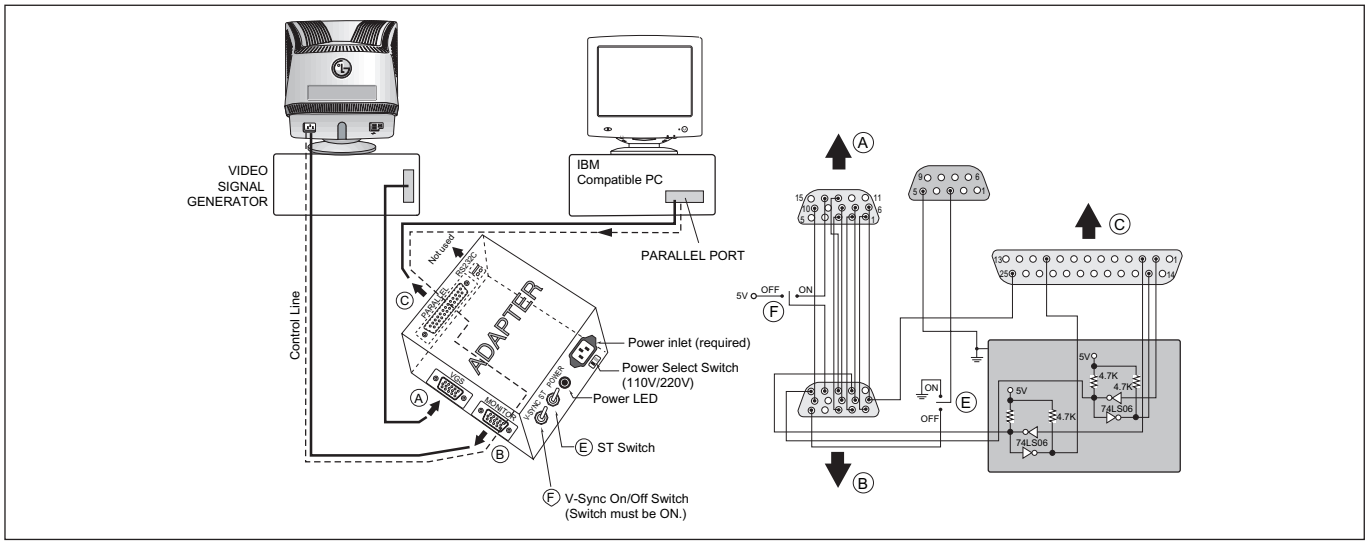
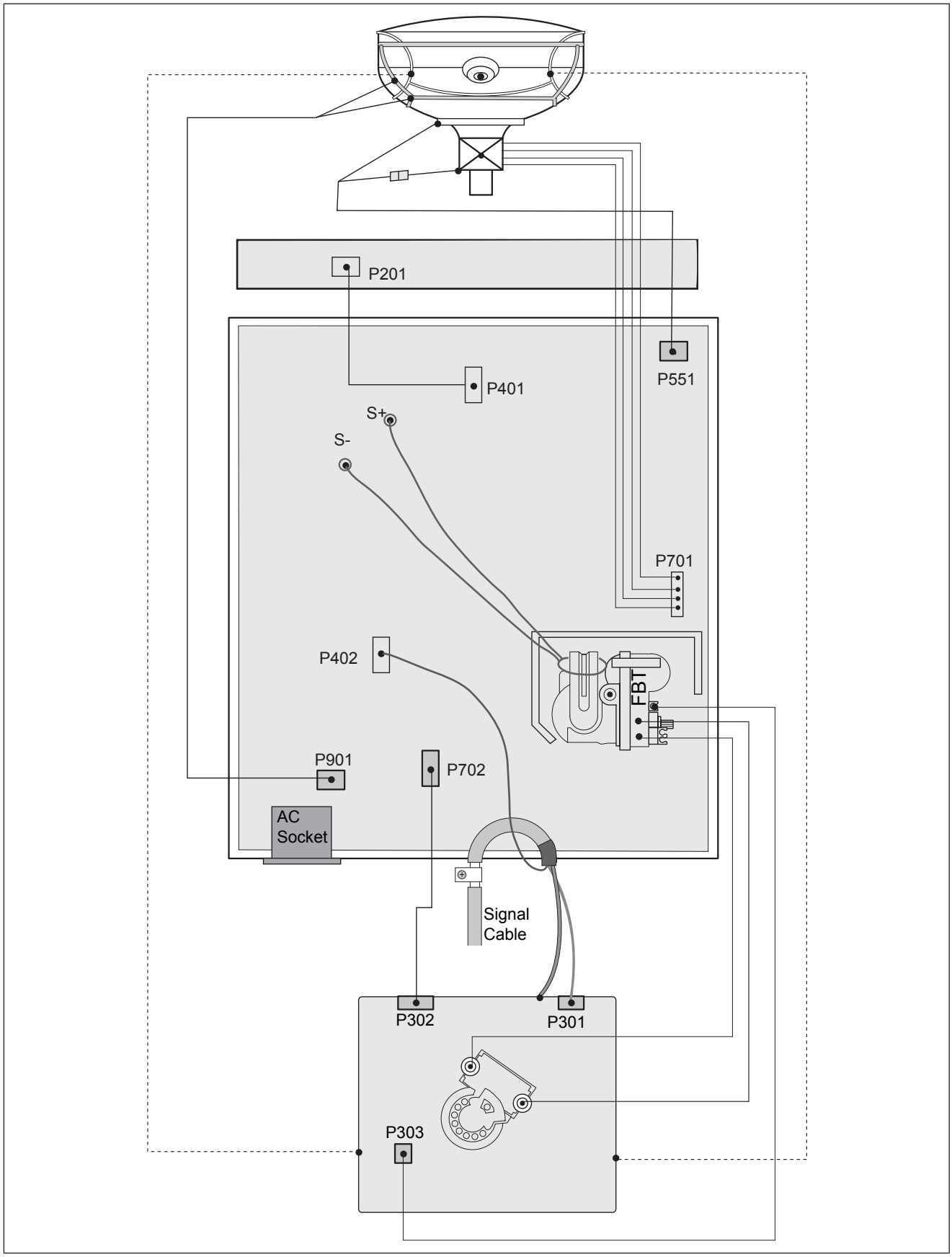
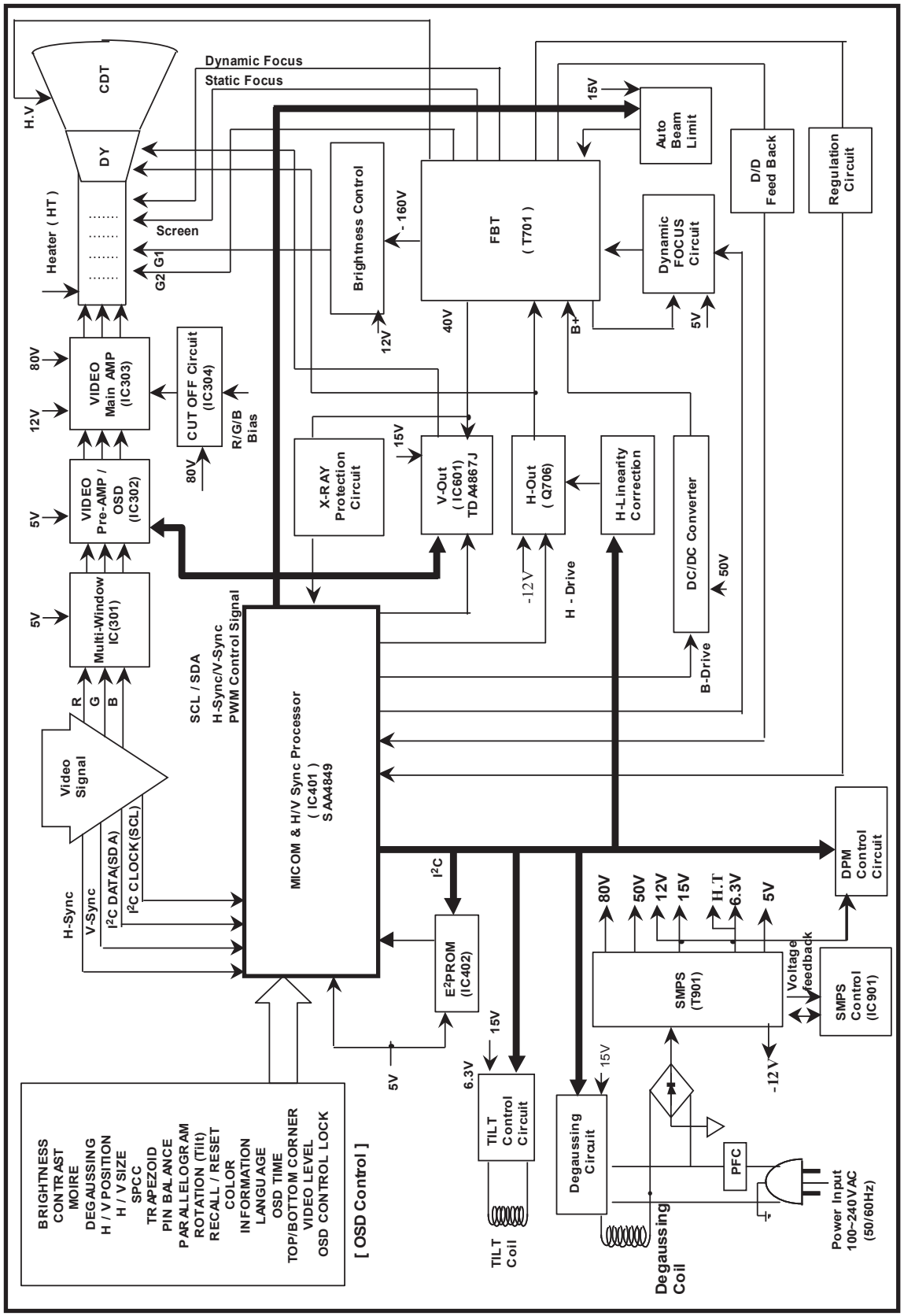


Figure 1. Cable Connection

WIRING DIAGRAM



BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. SMPS(Switching Mode Power Supply)
When you turn on the power switch, the operating procedure is as follows:
1) The AC line voltage is rectified by the bridge diode D901.
2) The control IC(IC901) starts switching and generates switch pulse in the primary turn of the SMPS transformer(T901)
3) The switching pulses of the primary turns are induced to the secondary turns of the transformer by the turn ratio. This pulses are rectified by each diode(D924, D923,D922,D921,D920)
4) Each rectified DC voltage(80V, 50V, 15V,12V, 6.3V 5V and -12V)

2. Over Voltage Protection Circuit
When the input of IC901 Vin(pin 4) is more than 22V, all the secondary voltages of the SMPS transformer (T901) down to low value

3. Display Power Management Circuit(DPM)
1) STAND-BY & SUSPEND Mode
When no input of horizontal or vertical sync Q951, Q941 are turned off and Q912,Q914 are turned off. Then input power consumption is below 8 watts.
2) OFF Mode
When no input of horizontal and vertical sync Q951, Q941 are turned off and Q912, Q914 are turned off. Then input power consumption is below 3 watts.

4. Microprocessor Control & Horizontal and
Vertical Sync Processor Circuit
The operating procedure is as follows ;
1) There is Horizontal & Vertical process function in Microprocessor.(IC401)
2) Microprocessor (IC401) discriminates the operating mode from the sync polarity and resolution.
3) After microprocessor reads these adjusted mode data stored at EEPROM, it controls operating mode data through IIC
4) Users can control screen condition by the OSD Select, Up, Down, Left, Right.

5) The horizontal and vertical sync processor IC (IC401) has a sync detector, a saw-tooth generator, and drive function, And outputs horizontal and vertical drive signal to control screen distortions

5. D/D Converter Circuit.
To obtain constant high voltage, this circuit supplies controlled DC voltage for FBT and horizontal deflection circuit according to the horizontal sync frequency.

6. X-RAY Protection Circuit
When the high Voltage reaches to 30kV in an abnormal case, the high voltage detector circuit, R818,D721,C739, R416, R417,C409 start operation to shut down high voltage circuit.

7. Horizontal S-correction Circuit.
This circuit corrects the horizontal linearity for each horizontal sync frequency.

8. Horizontal drive and Output Circuit.
This circuit is a horizontal deflection amplifier for raster scan.

9. ABL Circuit
This circuit limits the beam-current for the reliability of CDT

10. Vertical Output Circuit
This circuit takes the vertical ramp wave from the TDA4867J (IC601) and perform the vertical deflection by supplying the saw-tooth wave current to the vertical deflection yoke.

11. Blanking and Brightness Control Circuit.
Blanking circuit eliminates the retrace line by supplying a negative pulse wave to the G1 of the CDT. Brightness control circuit is used for control of the screen brightness by changing the DC level G1.

12. 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 near the deflection yoke of the CDT

13. OSD (On Screen Display) Circuit.
This circuit displays information of the monitor`s status on the screen.

14. 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.

15. Video Processor Circuit.

Video processor circuit consists of the video drive output block. The video drive IC(IC302) receives the video signal from PC. The gain of each channel is controlled by MICOM through IIC.The cut-off circuit compensate different voltage of each channel between the cathode and the G1 of the CDT

16. Video Pre-Amp Circuit.

This circuit amplifies the analog video signal from 0~0.7 V to 0~4 V. It is operated by taking the clamp, R,G,B drive and contrast signal from the MICOM (IC401)

17. Video Output Amp Circuit.

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

18. 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.

19. High Voltage Output & FBT (Flyback Transformer).

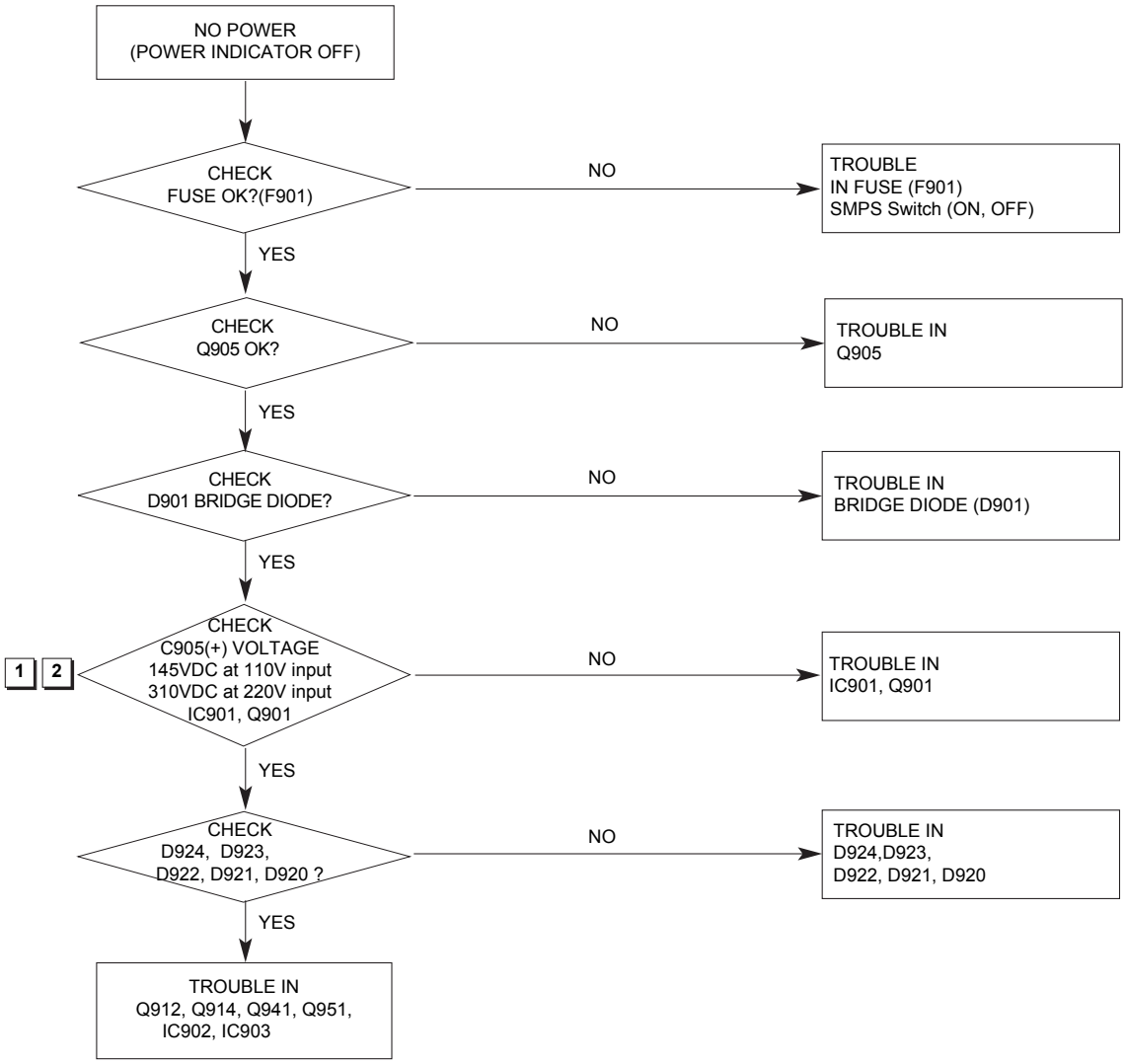
The high voltage output circuit is used for generating pulse wave to the primary coil of the FBT (Flyback Transformer (T701)). A boosted voltage (about 27kV) appears at the secondary of the FBT and it is supplied to the anode of the CDT.
And there are another output voltages such as the dynamic focus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

20. Video Bright-Window Circuit.

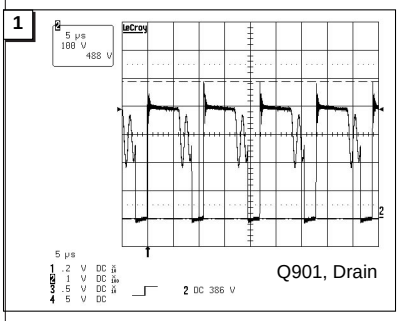
This circuit amplifier the analog video signal from 0-0.7V to 0-0.9V when it was operated by PC Bright Window program.With each input being seperately controlled by it's own contrast to allow luminance differentiation between inside and outside Window Video.When a user select Bright-Window icon and drag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

TROUBLESHOOTING GUIDE

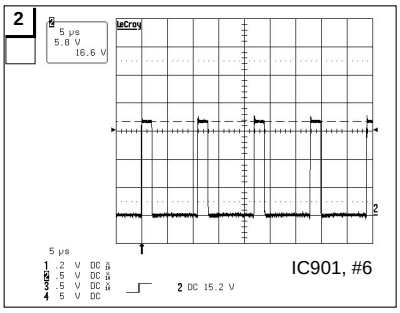
1. NO POWER



Waveforms

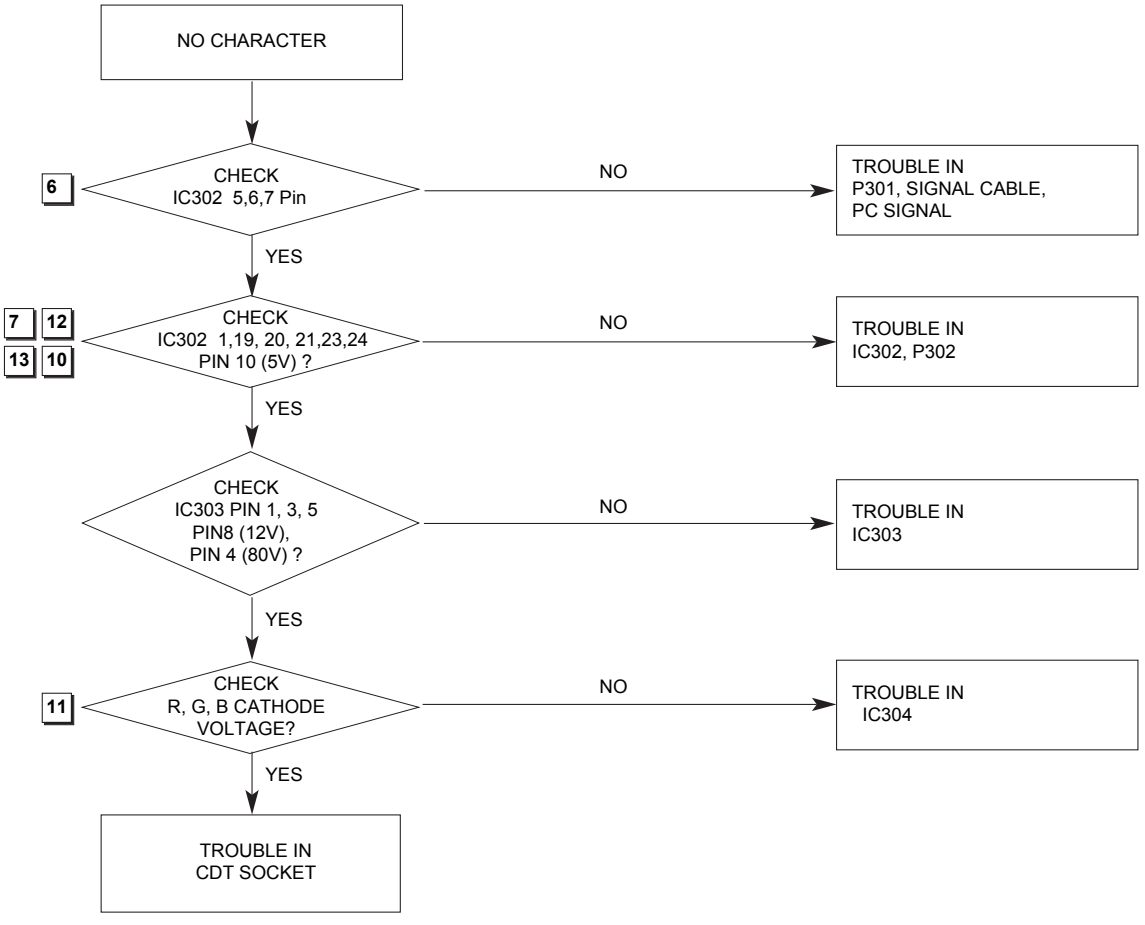


Q901, Drain

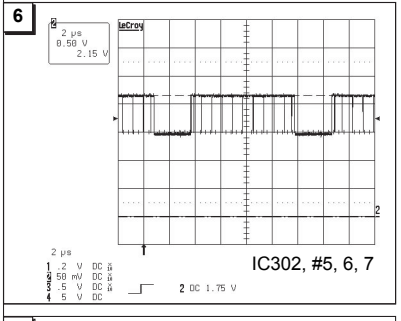


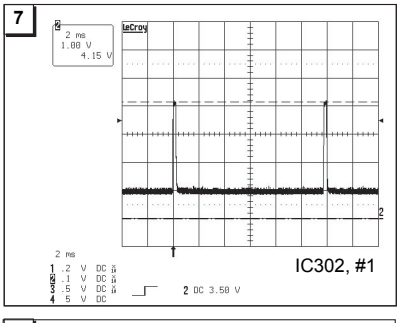
IC901, #6

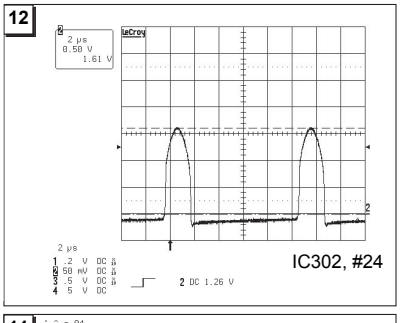
2. NO CHARACTER

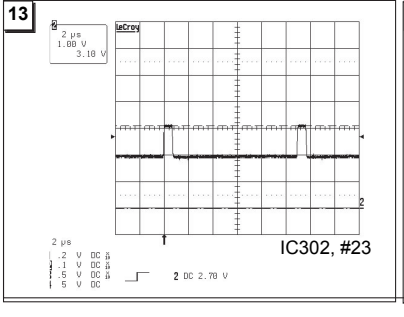


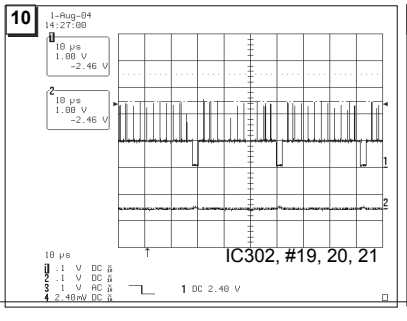
Waveforms

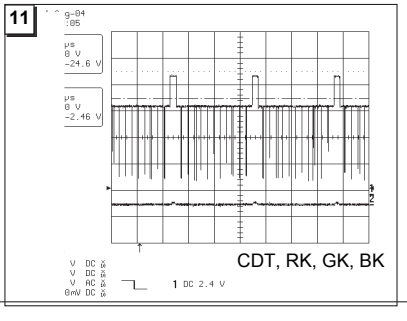




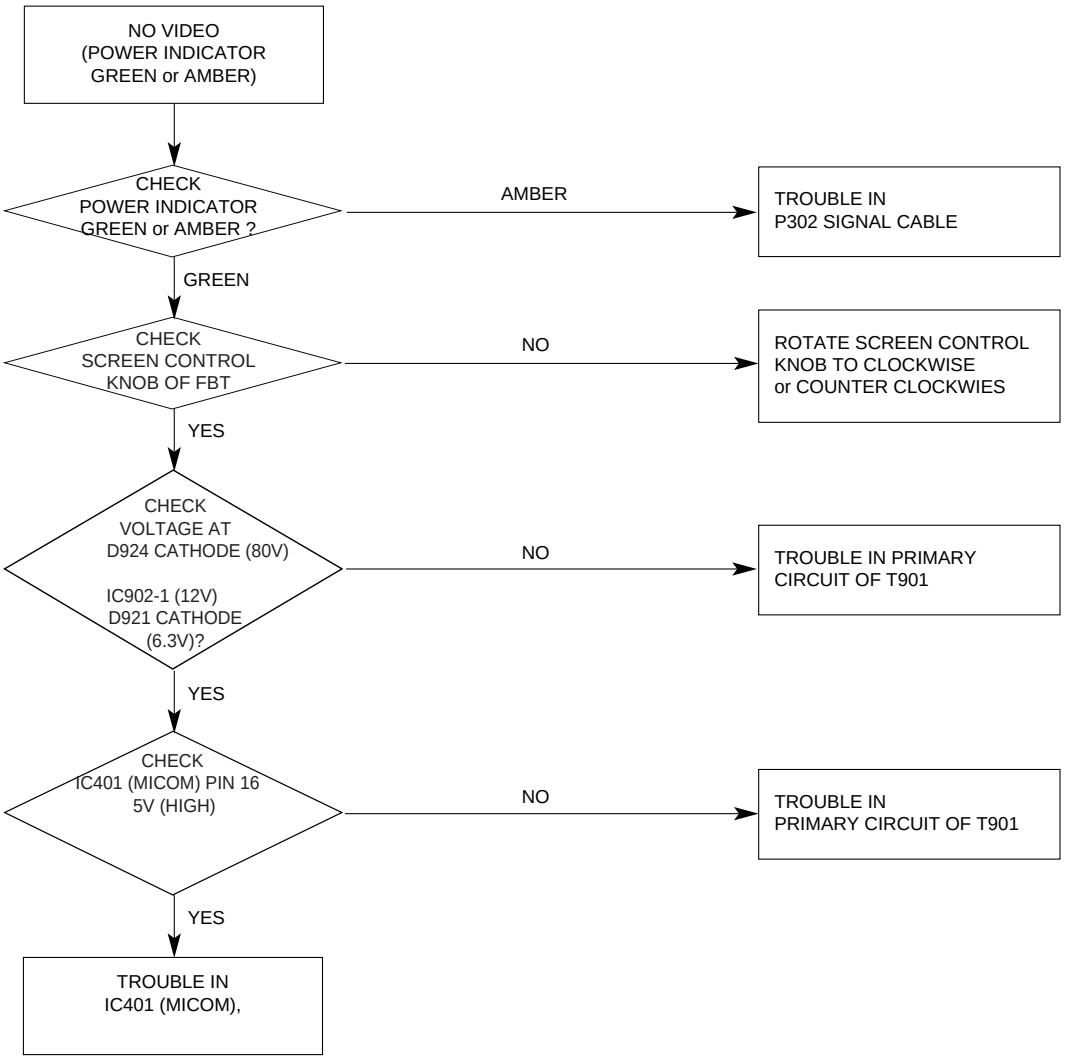




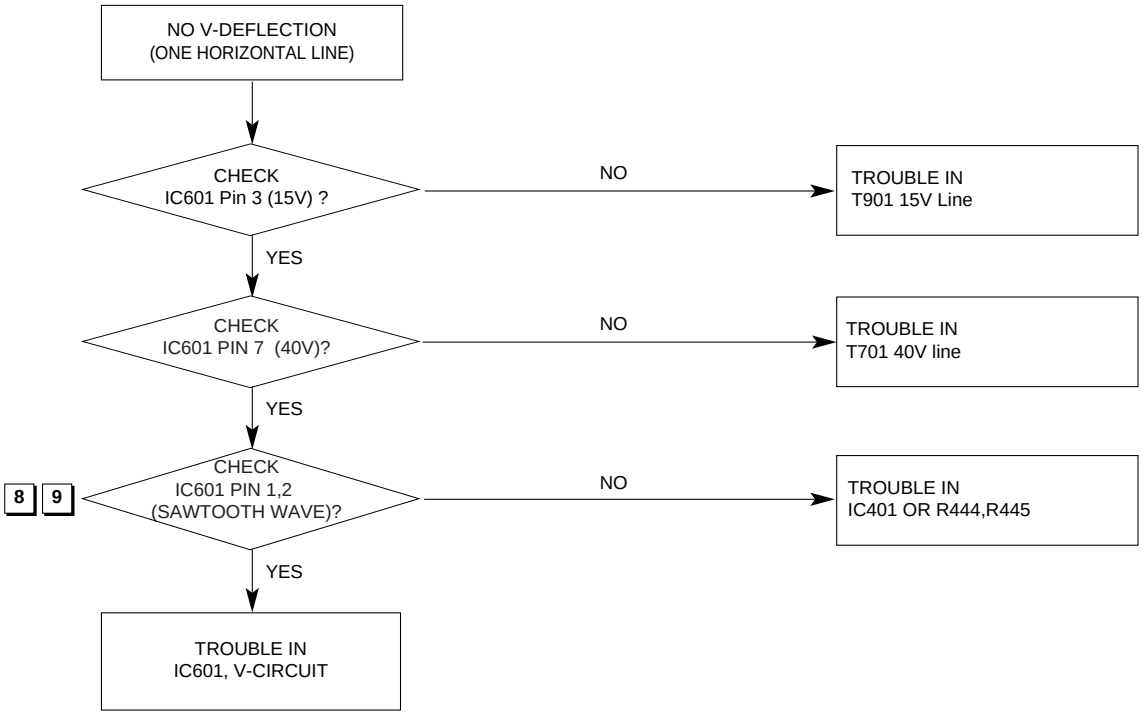




3. NO RASTER

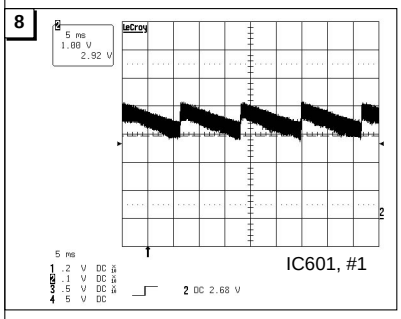

NO VIDEO
(POWER INDICATOR
GREEN or AMBER)
CHECK
POWER INDICATOR
GREEN or AMBER ?
AMBER
TROUBLE IN
P302 SIGNAL CABLE
GREEN
CHECK
SCREEN CONTROL
KNOB OF FBT
NO
ROTATE SCREEN CONTROL
KNOB TO CLOCKWISE
or COUNTER CLOCKWIES
YES
CHECK
VOLTAGE AT
D924 CATHODE (80V)
IC902-1 (12V)
D921 CATHODE
(6.3V)?
NO
TROUBLE IN PRIMARY
CIRCUIT OF T901
YES
CHECK
IC401 (MICOM) PIN 16
5V (HIGH)
NO
TROUBLE IN
PRIMARY CIRCUIT OF T901
YES
TROUBLE IN
IC401 (MICOM),

4. NO VERTICAL DEFLECTION

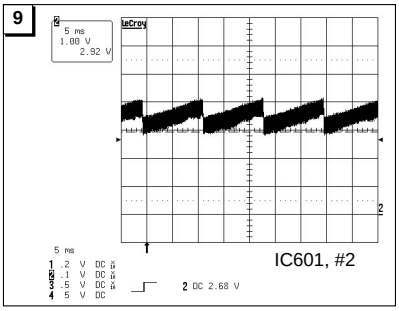


Waveforms

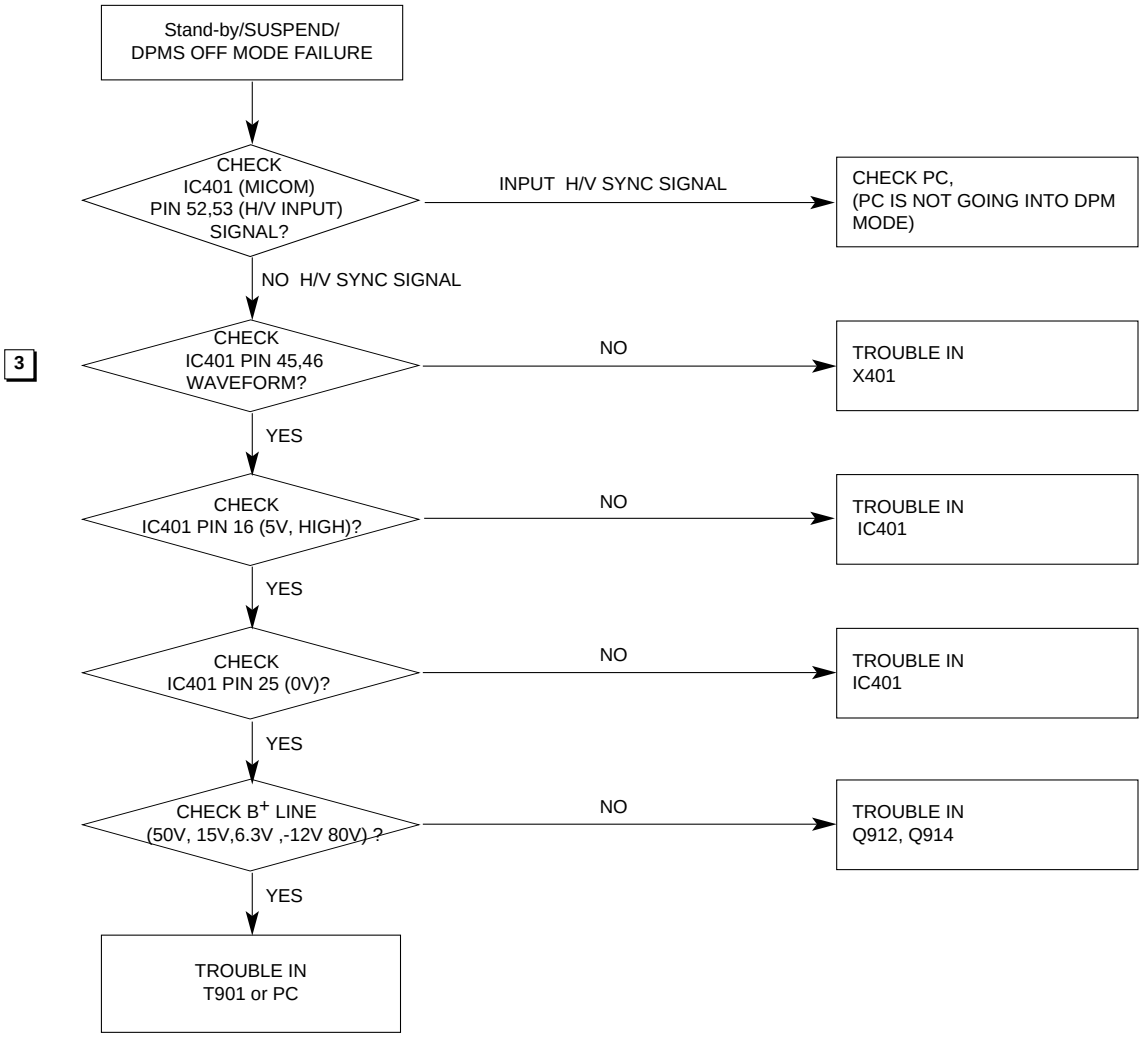
8



9

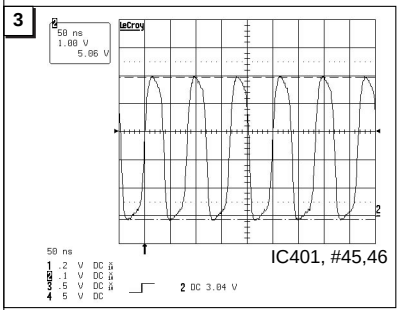


5. TROUBLE IN DPM



Waveforms

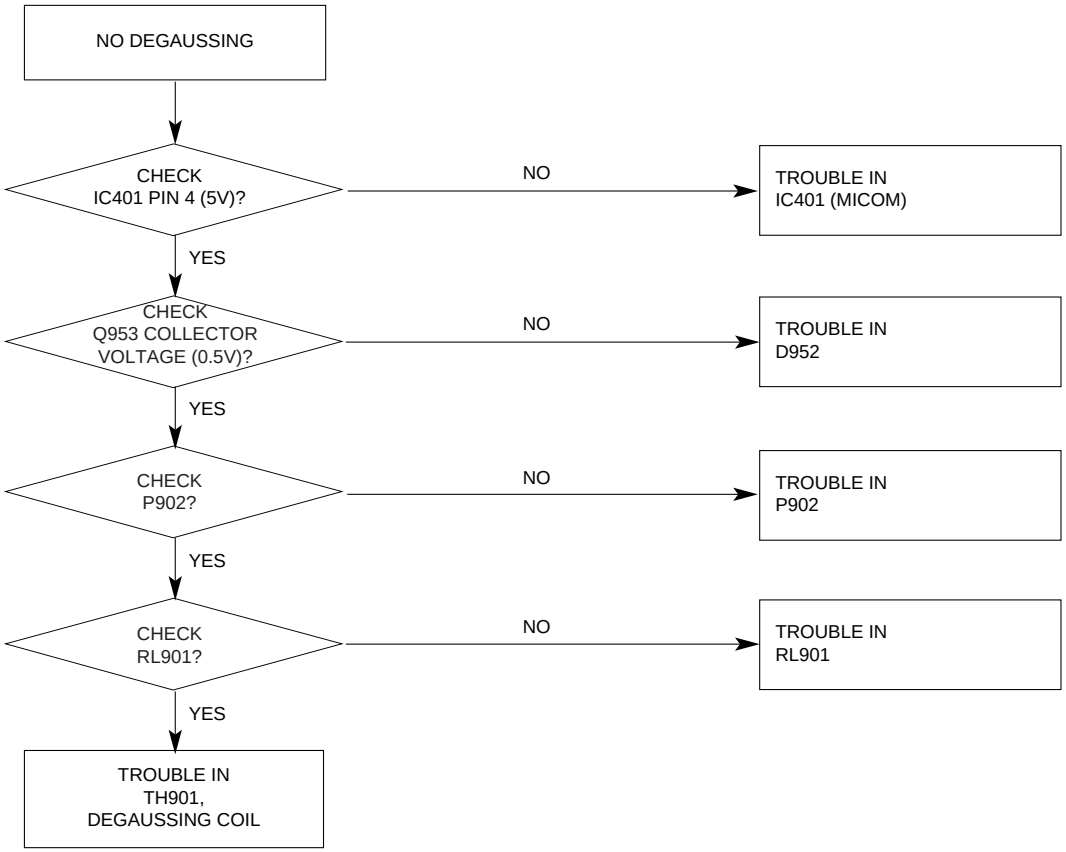
3



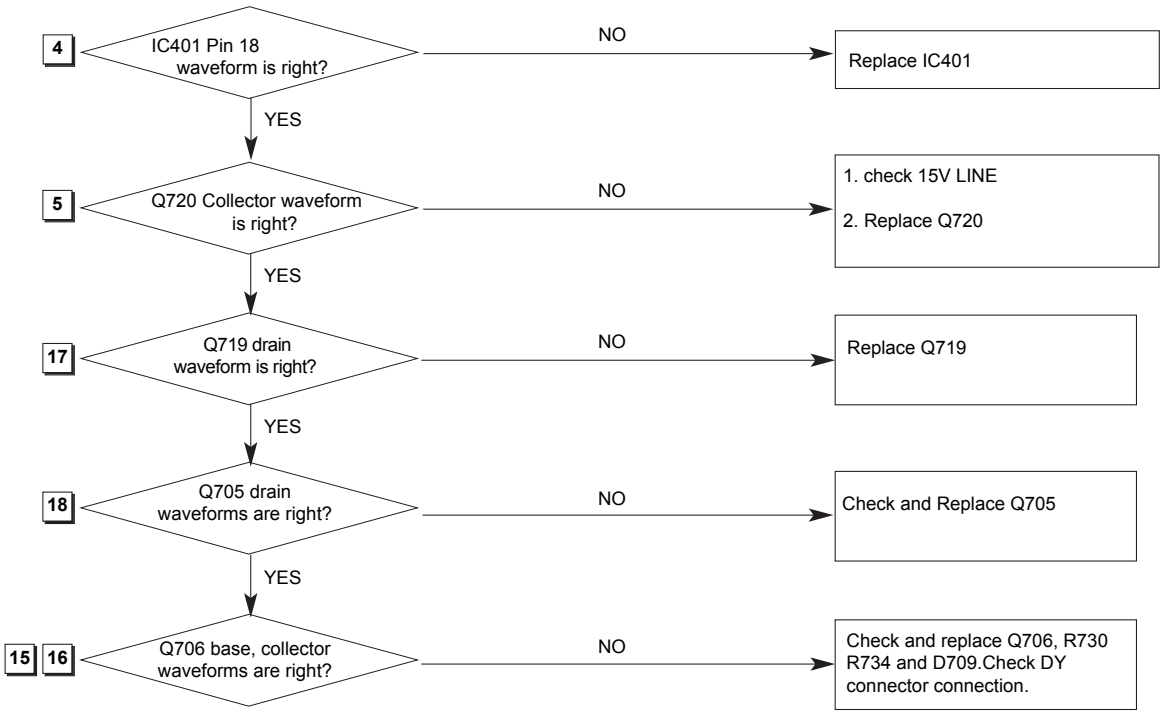
DPMS TABLE

ITEM / MODE	H/V SYNC	VIDEO	LED
NORMAR	ON/ON	NORMAL	GREEN
STAND-BY	OFF/ON	OFF(0V)	AMBER
SUSPEND	ON/OFF	OFF(0V)	AMBER
OFF	OFF/OFF	OFF(0V)	AMBER

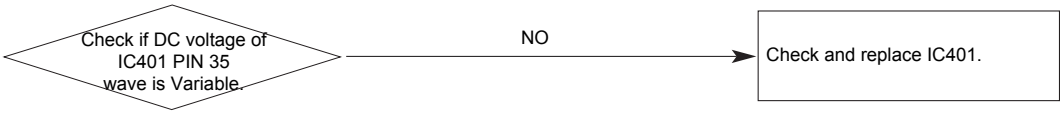
6. NO DEGAUSSING



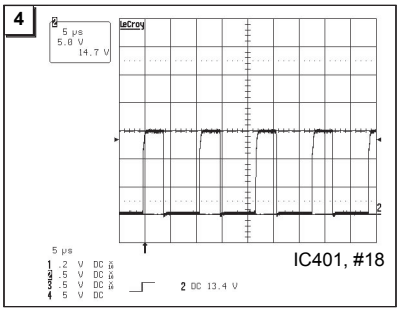
7. H_Deflection Failure

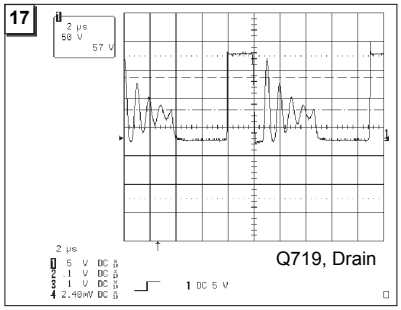


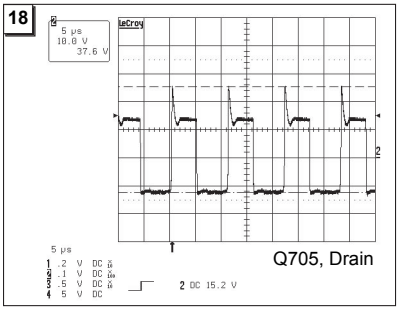
8. Invariable H_Size

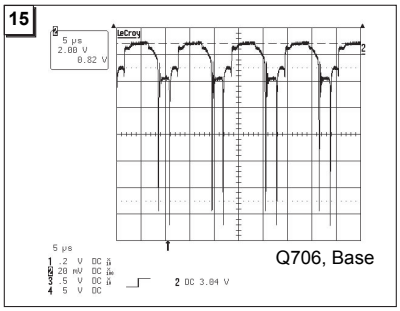


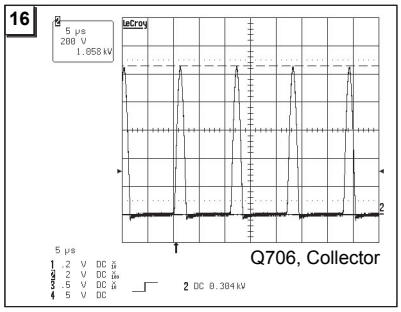
Waveforms

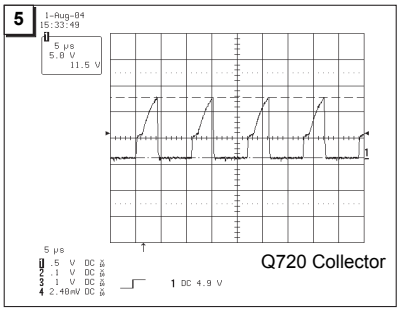




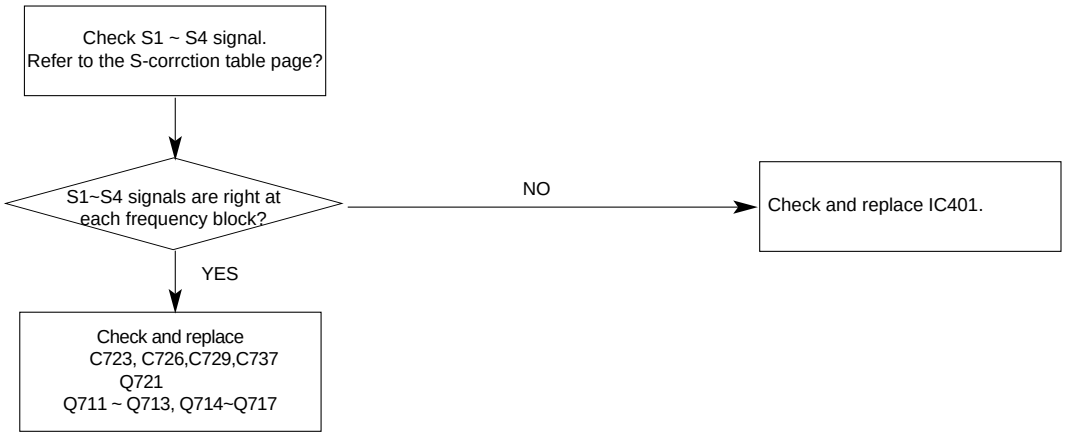




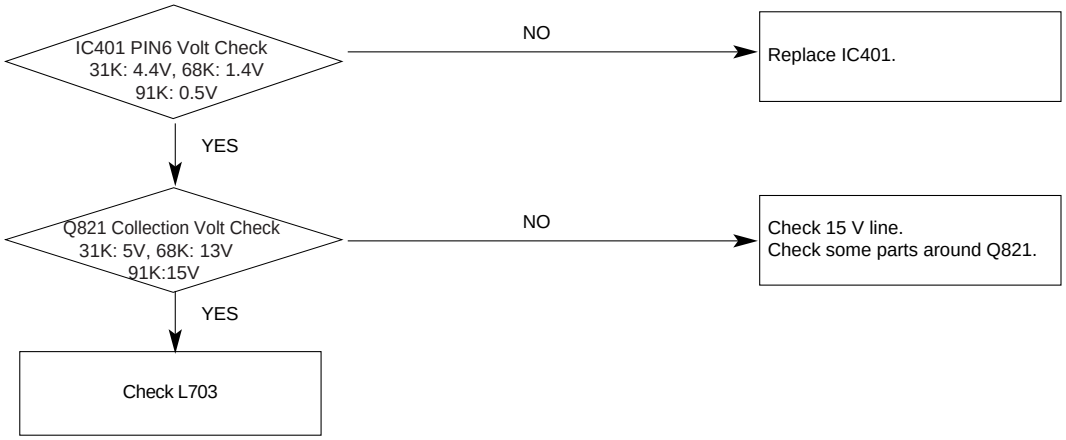




9. S Correction Failure



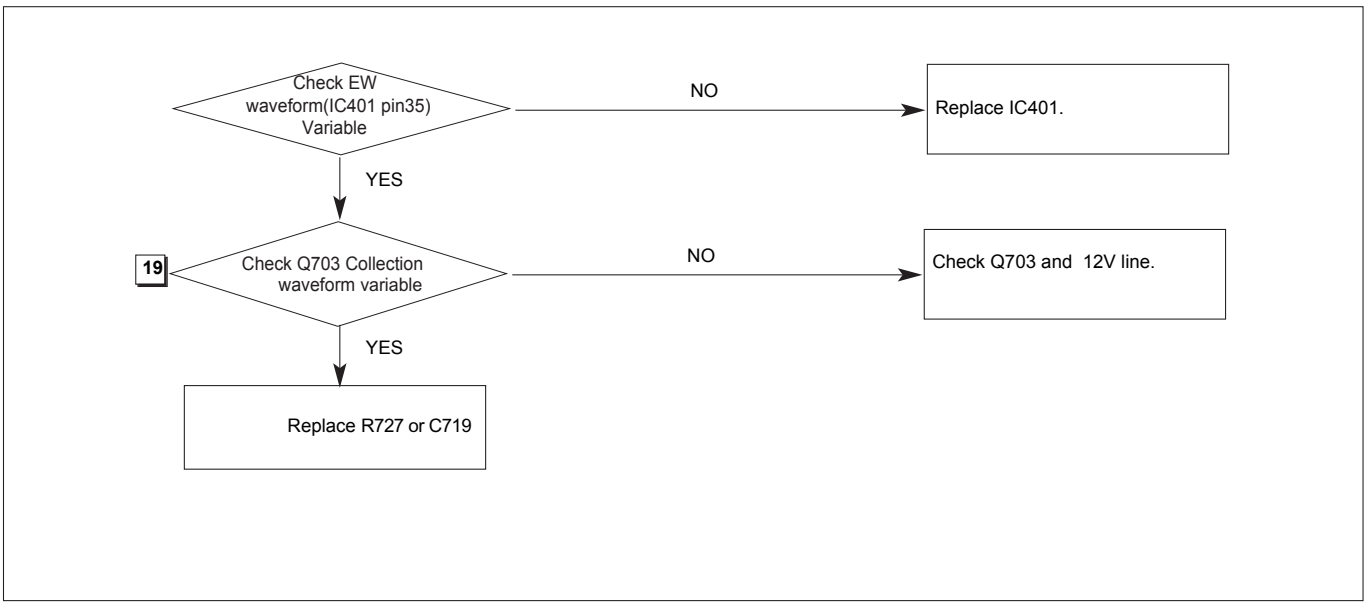
10. H_Lin. Failure



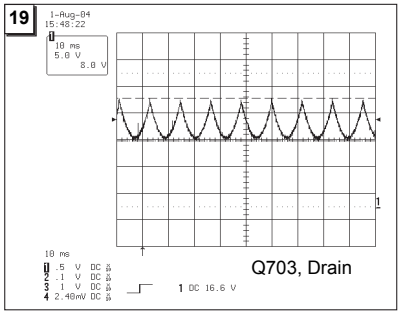
Cs SIGNAL TABLE

HORIZONTAL FREQUENCY(fH)	CS1	CS2	CS3	CS4
29=<Hf<34kHZ	L	L	L	L
34=<Hf<39kHZ	L	H	H	L
39=<Hf<44kHZ	H	L	L	L
44=<Hf<49kHZ	H	L	L	L
49=<Hf<52kHZ	H	L	H	L
52=<Hf<58kHZ	H	L	H	L
58=<Hf<62kHZ	H	L	H	H
62=<Hf<66kHZ	H	L	H	H
66=<Hf<71kHZ	H	H	H	L
71=<Hf<76kHZ	H	H	H	L
76=<Hf<81kHZ	H	H	H	L
81=<Hf<84kHZ	H	H	H	H
84=<Hf<89kHZ	H	H	H	H
89=<Hf<95kHZ	H	H	H	H
95=<Hf<120kHZ	H	H	H	H

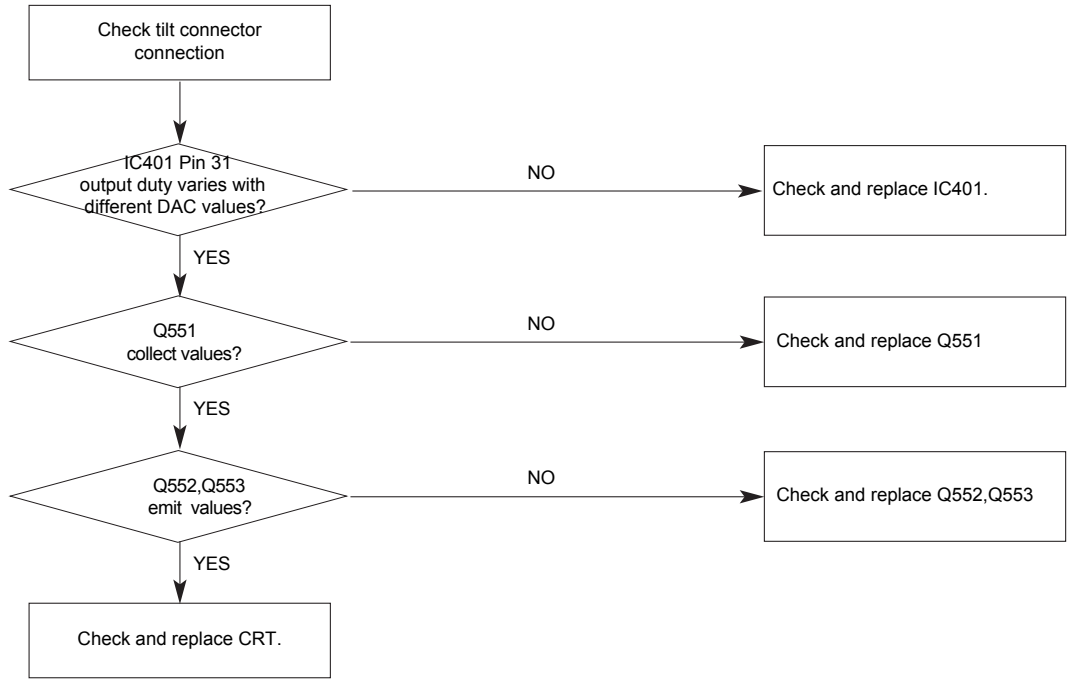
11. Side Pin or Trap Para.Pin Banlance Failure



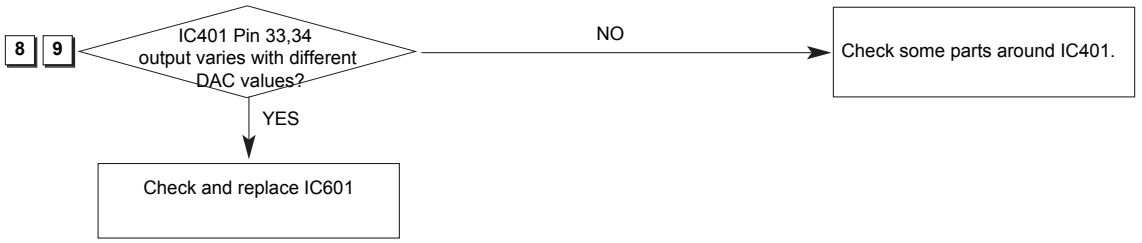
Waveforms



12. Tilt Failure

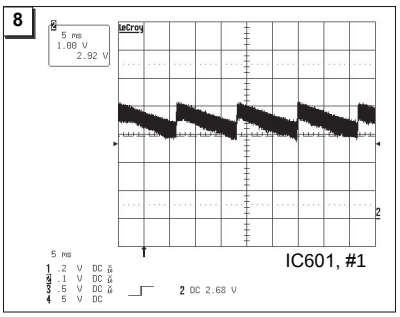


13. V Size or Pos. Variation Failure

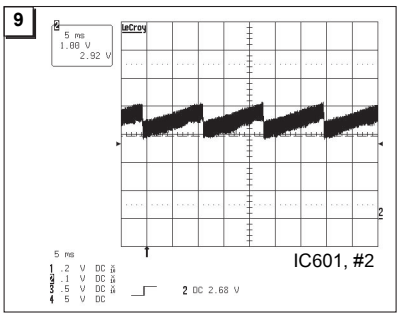


Waveforms

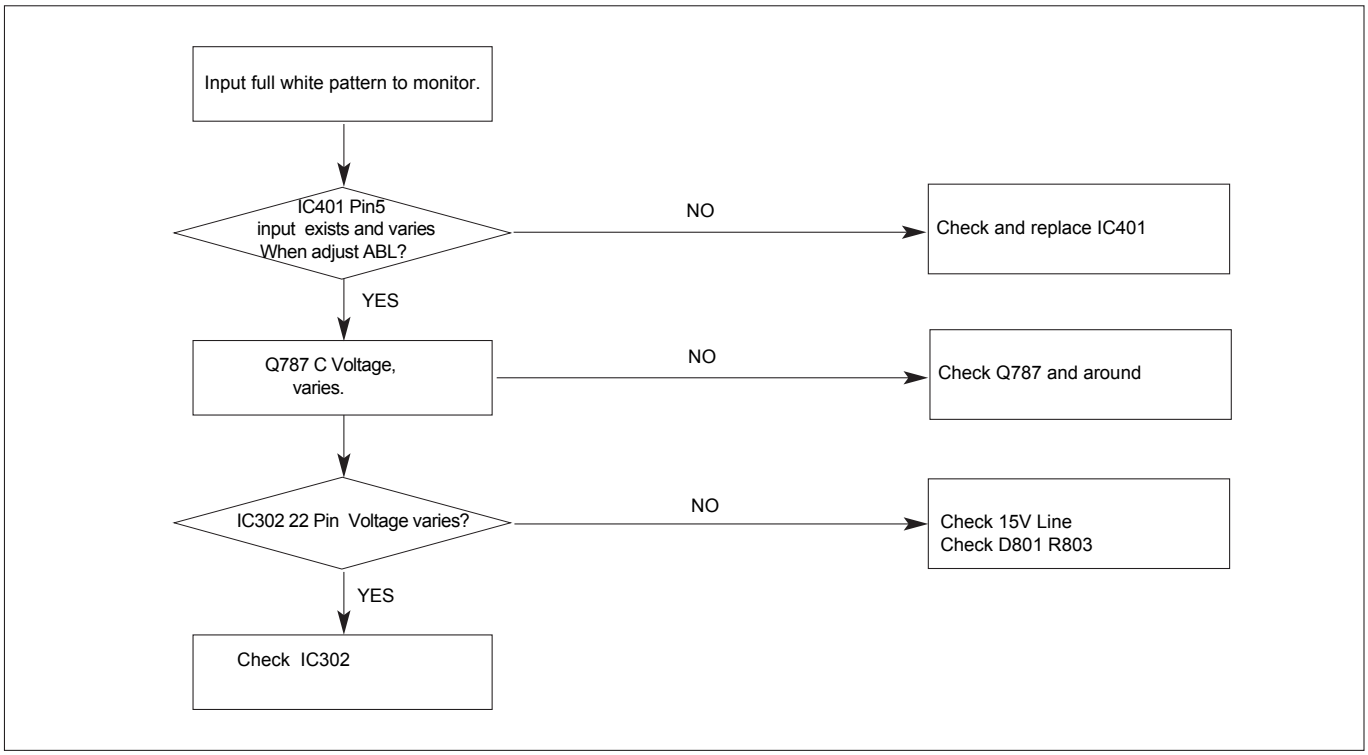
8



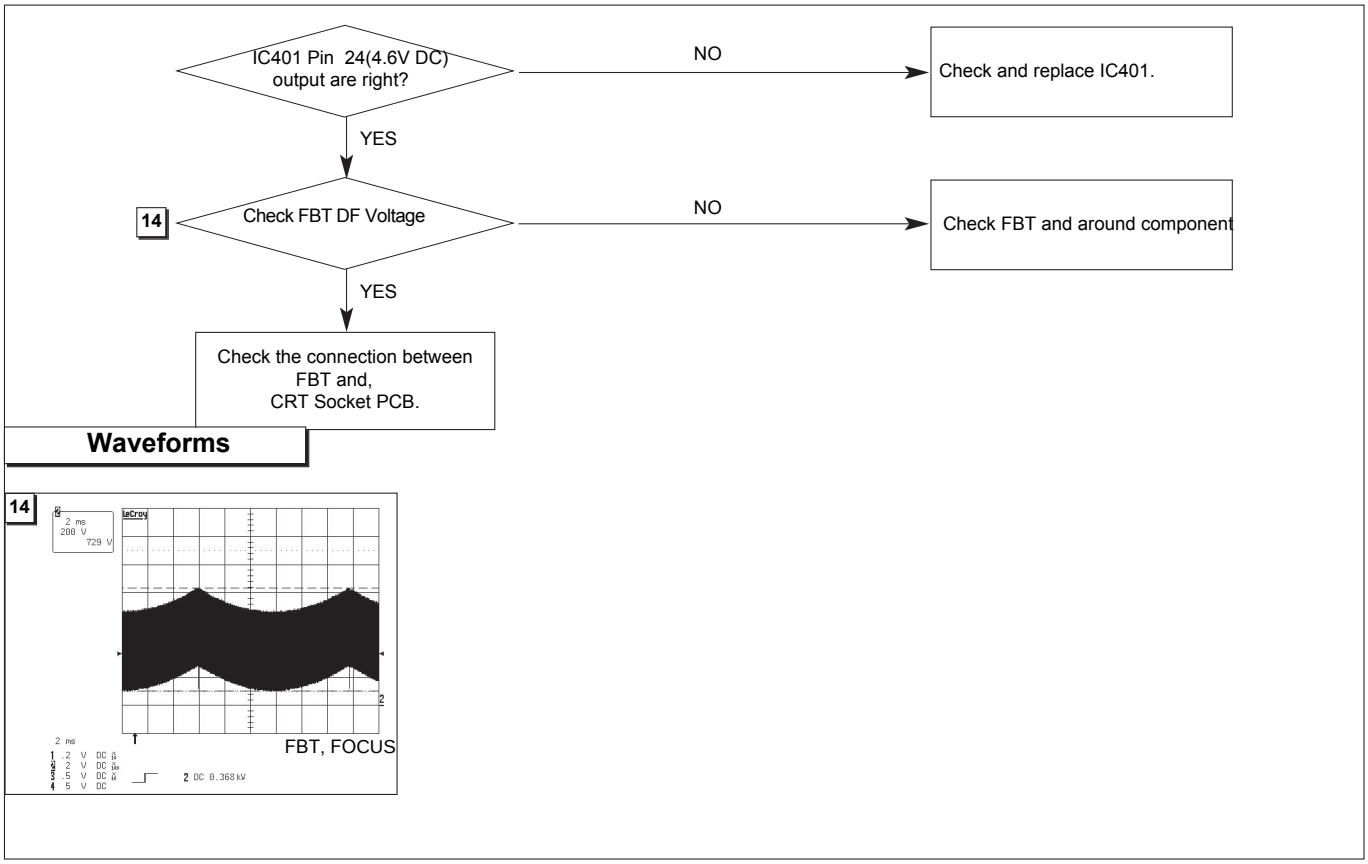
9



14. ABL Failure



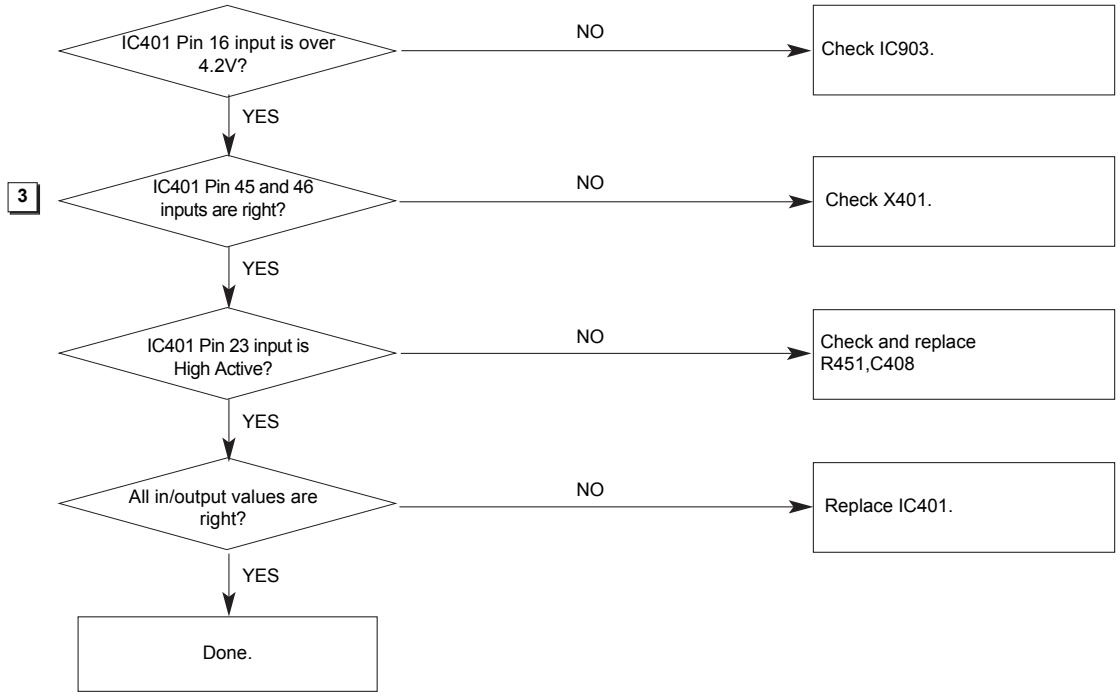
15. Focus Failure



Waveforms

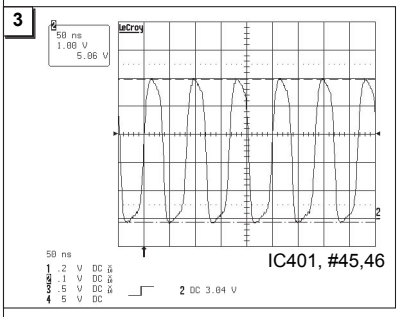
14

16. Micom Failure

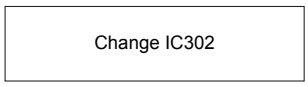


Waveforms

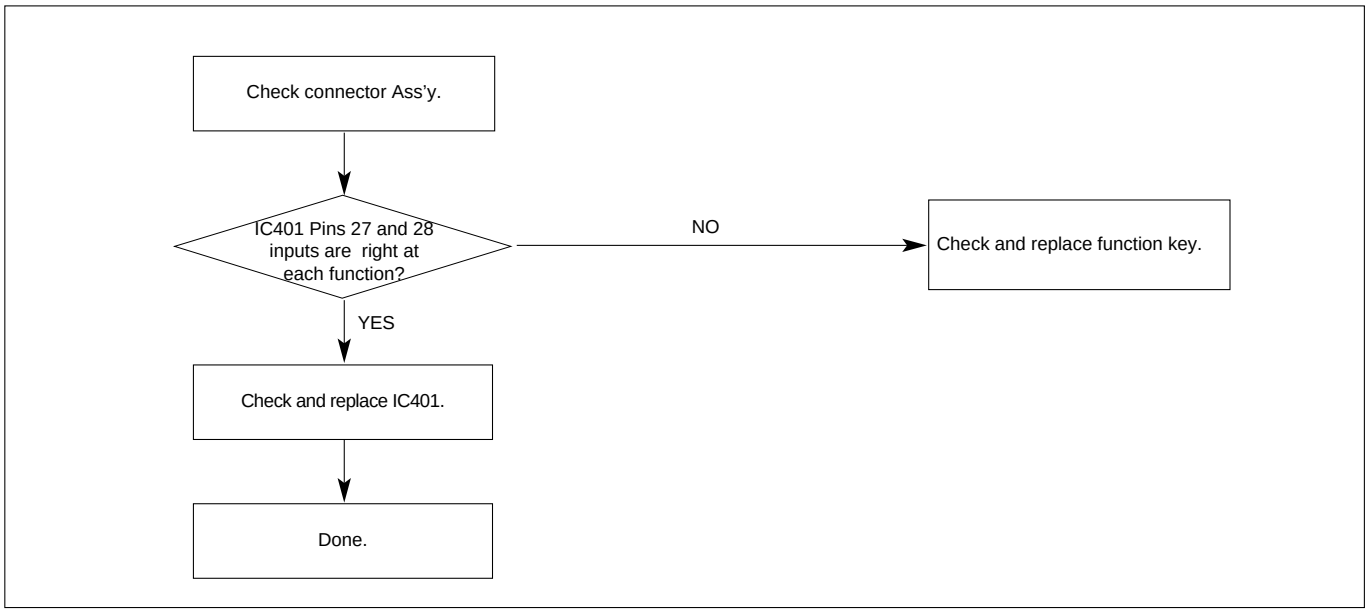
3



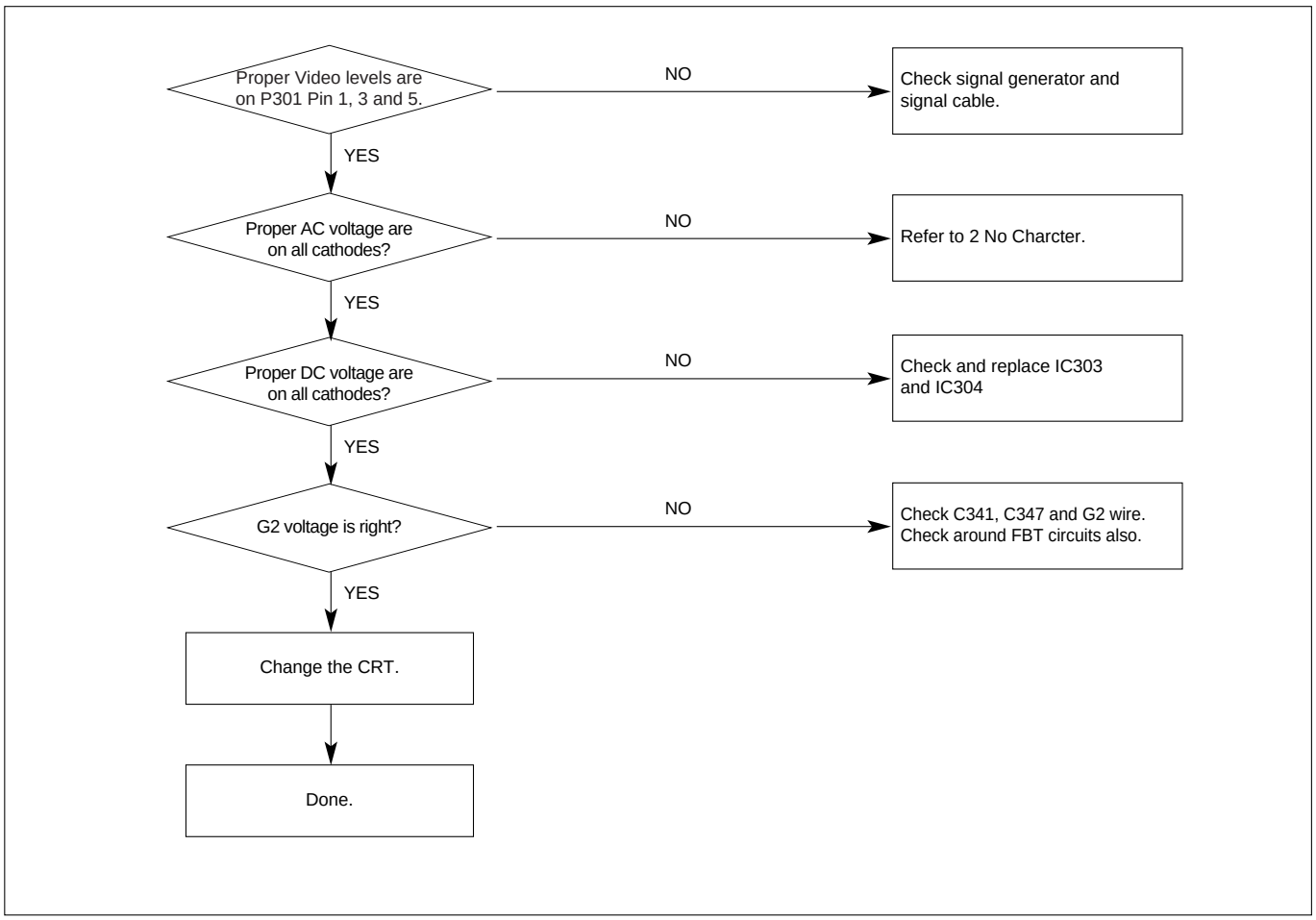
17. OSD Failure



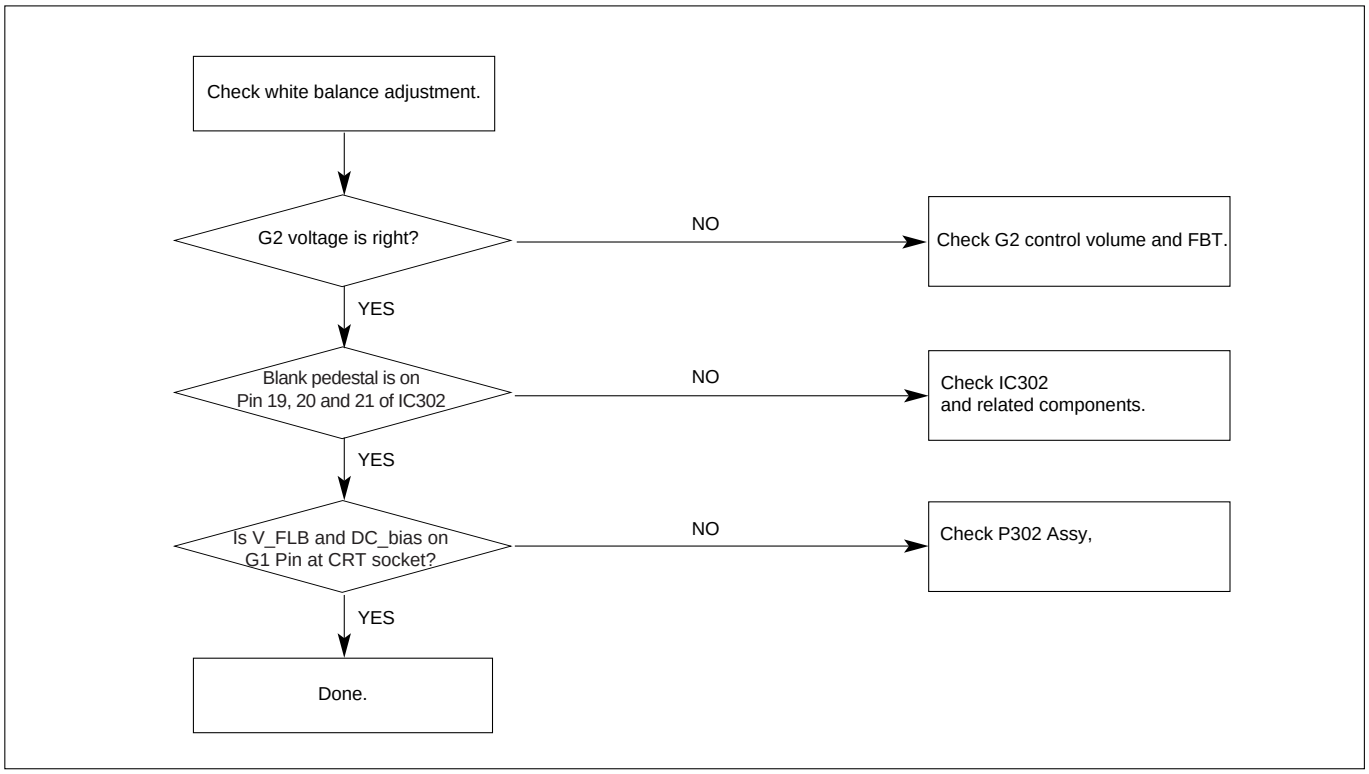
18. User Control Failure



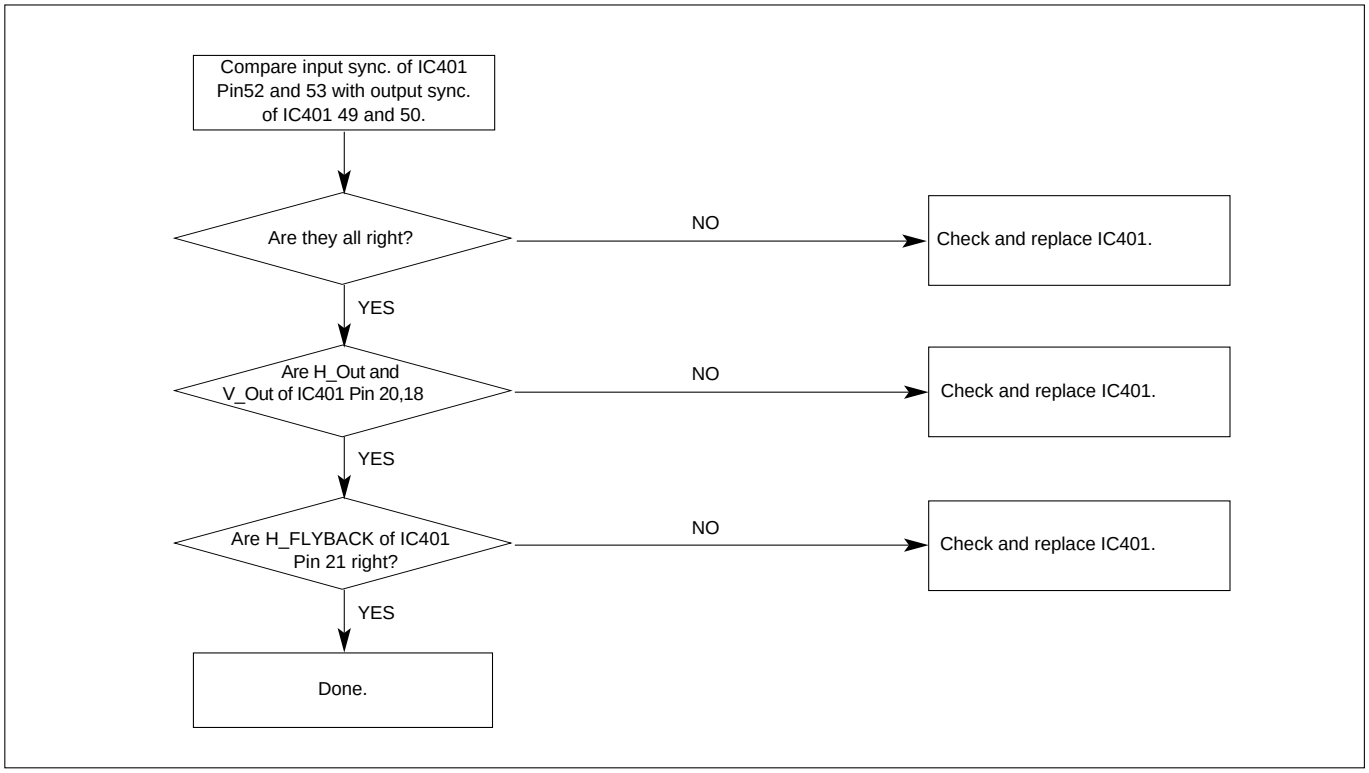
19. Missing Color



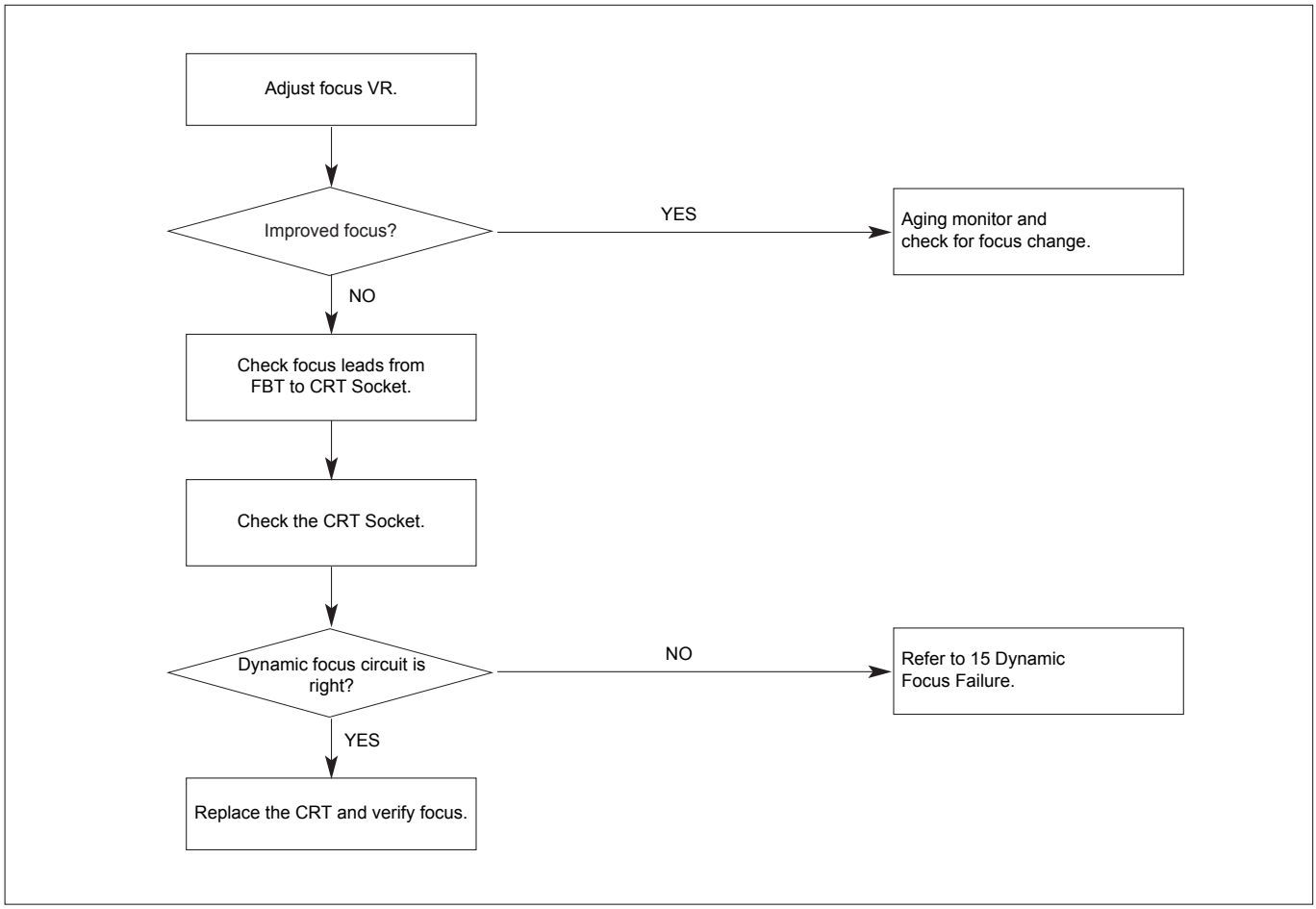
20. Visible Retrace



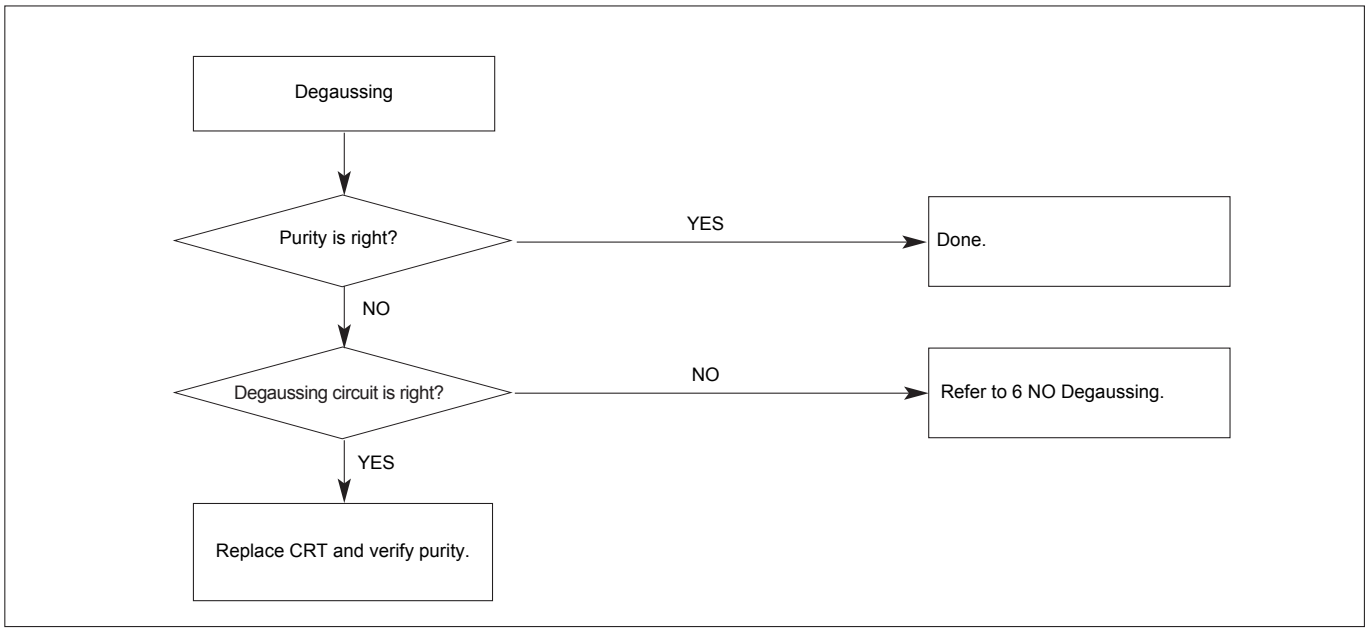
21. Unsynchronized Image



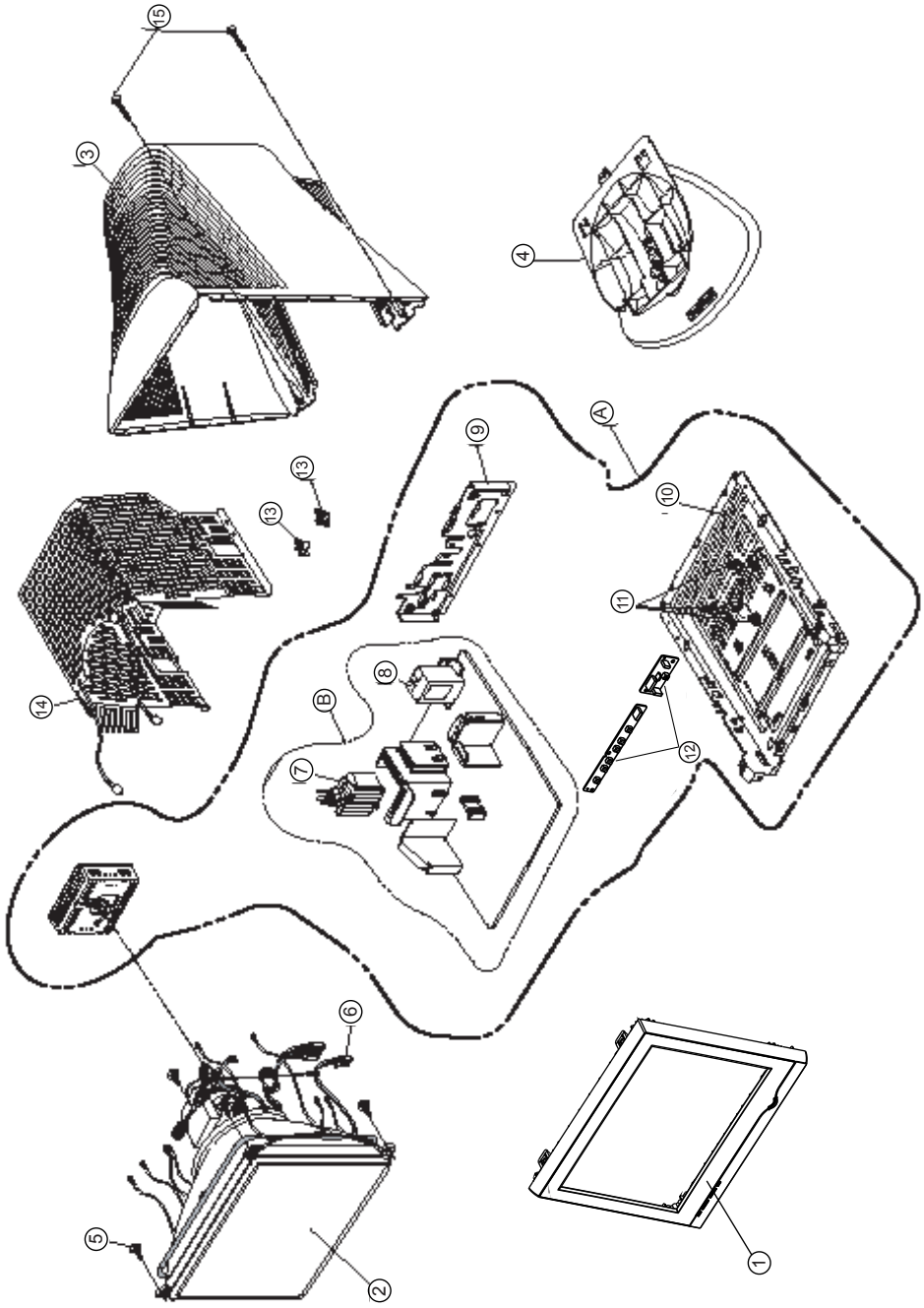
22. Poor Focus



23. Purity Failure



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKC140A	CABINET ASSEMBLY, T930BUL BRAND C105 TCO03 SILVER VERSION
	3091TKC140B	CABINET ASSEMBLY, T930BUL BRAND C105 TCO03 SILVER VERSION
2	6318L19014C	CDT(CIRC) M46QEF903X28(T)SDDP LG-PHILIPS DISPLAYS 85KHZ 29.1MM FCDT(S)
	6318L19014A	CDT(CIRC) M46QEF903X25(T)NNTP LG-PHILIPS DISPLAYS 85KHZ 29.1MM FCDT
	6318L19014B	CDT(CIRC) M46QEF903X27(T)QDDP LG-PHILIPS DISPLAYS 85KHZ 29.1MM FCDT(EQ)
3	3809TKC054E	BACK COVER ASSEMBLY, T910BJ C047 NT-CKD
	3809TKC054J	BACK COVER ASSEMBLY, T910BH TKC047 PFC DI-LOCAL
	3809TKC054H	BACK COVER ASSEMBLY, T910BK TKC047 DI-LOCAL
4	3043TKK141D	TILT SWIVEL ASSEMBLY, T910BK TKB059/TKT054 DI-LOCAL
	3043TKK141C	TILT SWIVEL ASSEMBLY, T910BJ TKT054A/TKB059A 8C358 NT-CKD
5	339-002H	SCREW ASSY, TAP TITE PTYPE D5.0 L20.0 FZMY
6	6140TC4002E	COIL,DEGAUSSING,17.0OHM 0.45MM 115T 19"WITH EARTH T910BL
7	6174T11005G	FBT (FLY BACK TRANSFORMER) CF2172LG3900, T910BL(98KHZ),13MM LIEN CHANG 19"
8	6200TJB001G	FILTER(CIRC),EMC 02MD3P DELTA BK CB777F
9	4950TKK292C	METAL,REAR T910 DI-LOCAL
10	4951TKK108R	METAL ASSEMBLY,SHIELD BOTTOM ASSY,T930BL/T930BUL NT CKD
11	4930TKK036A	HOLDER,PCB FIX FB770G 2ND FLATRON
12	6871TST650L	PWB(PCB) ASSEMBLY,SUB ,T930BUL CONTROL TOTAL BRAND CA-137 LGENT
	6871TST650K	PWB(PCB) ASSEMBLY,SUB, T930BUL CONTROL TOTAL BRAND CA-137 LGEDI
13	4930TKK031C	HOLDER,PCB FIX,PC+ABS
14	4815TKT017K	SHIELD ASSEMBLY,TOP L-CHASSIS
15	332-102F	SCREW, PTP+4*20BP(MSWR/FZMY)
A	3313T19075E	MAIN TOTAL ASSEMBLY,T930BUL BRAND CA-137 LGENT
	3313T19075F	MAIN TOTAL ASSEMBLY,T930BUL BRAND CA-137 LGEDI
B	6871TMTA11A	PWB(PCB) ASSEMBLY,MAIN T910BUL CA-137 TOTAL
	6871TMTA11D	PWB(PCB) ASSEMBLY,MAIN T910BUL CA-137 TOTAL

REPLACEMENT PARTS LIST

CAUTION: BEFORE REPLACING ANY OF THESE COMPONENTS,
READ CAREFULLY THE SAFETY PRECAUTIONS IN THIS MANUAL.
* NOTE : S SAFETY Mark
AL ALTERNATIVE PARTS

MODEL :T930BUL				DATE:2005.02.21
*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
CAPACITORs				
		C202	0CN1040K949	0.1M 50V Z F TA52
		C301	0CK1020K515	1000PF 50V K B TR
		C302	0CE106CK638	"10UF SHL,SD 50V M FM5 TP 5"
		C303	0CK1020K515	1000PF 50V K B TR
		C304	181-288B	MKT 100V 104JTR PHS26104
		C305	0CC2200W415	22PF 500V J NP0 TR
		C306	181-288N	MKT 100V 103JTR PHS86103
		C308	0CE476CF638	"47UF SHL,SD 16V M FM5 TP 5"
		C309	0CK1040K945	0.1UF 50V Z F TR
		C310	181-288B	MKT 100V 104JTR PHS26104
		C311	0CK1040K945	0.1UF 50V Z F TR
		C312	0CK1040K945	0.1UF 50V Z F TR
		C313	0CK1040K945	0.1UF 50V Z F TR
		C314	0CC4700W405	47PF 500V J SL TP
		C315	0CE227EF638	"220UF KMG,RD 16V 20% TP 5 FM5"
		C316	0CK1040K945	0.1UF 50V Z F TR
		C317	0CK1040K945	0.1UF 50V Z F TR
		C318	0CN1040K949	0.1M 50V Z F TA52
		C319	0CK1040K945	0.1UF 50V Z F TR
		C321	0CE225BK638	2.2U KME 50V M FM5 TP5
		C322	0CK1040K945	0.1UF 50V Z F TR
		C323	0CE476EF638	47UF KMG 16V M FM5 TP 5
		C324	0CN1040K949	0.1M 50V Z F TA52
		C325	181-288B	MKT 100V 104JTR PHS26104
		C326	0CC1800K415	18P 50V J NPO TP
		C327	0CC1800K415	18P 50V J NPO TP
		C328	0CE476CN618	47UF SHL 100V M FL TP5
		C329	0CC1800K415	18P 50V J NPO TP
		C330	181-288B	MKT 100V 104JTR PHS26104
		C331	181-288G	MKT 100V 334JTR PHS26334
		C332	181-288G	MKT 100V 334JTR PHS26334
		C333	181-288G	MKT 100V 334JTR PHS26334
		C334	181-288B	MKT 100V 104JTR PHS26104
		C335	181-288B	MKT 100V 104JTR PHS26104
		C339	0CK4710W515	470P 500V K B TS
		C340	181-288B	MKT 100V 104JTR PHS26104
		C341	0CK10302945	0.01UF 2KV Z F TR
		C344	181-288C	MKT 100V 224JTR PHS 26224
		C345	0CZZTFT001R	ECQB1H223JM3 223J 50V TP5.0 MATSUSHITA
		C346	0CK10302945	0.01UF 2KV Z F TR
		C347	0CK10302945	0.01UF 2KV Z F TR
		C350	0CK10302945	0.01UF 2KV Z F TR
		C351	181-288H	MKT 100V 333JTR PHS 86333
		C352	0CZZTFT001F	ECQB1H332JM3 332J 50V TP5.0 MATSUSHITA
		C353	181-288B	MKT 100V 104JTR PHS26104
		C355	0CE476CF638	"47UF SHL,SD 16V M FM5 TP 5"
		C356	181-288B	MKT 100V 104JTR PHS26104
		C357	0CK1040K945	0.1UF 50V Z F TR
		C358	0CN1040K949	0.1M 50V Z F TA52
		C359	0CN1040K949	0.1M 50V Z F TA52
		C360	0CN1040K949	0.1M 50V Z F TA52
		C372	0CK1040K945	0.1UF 50V Z F TR
		C401	0CK1040K945	0.1UF 50V Z F TR
		C403	0CK1040K945	0.1UF 50V Z F TR
		C404	0CK1040K945	0.1UF 50V Z F TR
		C405	0CE477CF638	470UF SHL TYPE 16V M FM5 TP 5

MODEL :T930BUL				DATE:2005.02.21
*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		C406	0CK10102515	100PF D 2KV 10% B(Y5P) TR
		C407	0CQ4721N419	0.0047U 100V J POLY NI TP5
		C408	0CK1040K945	0.1UF 50V Z F TR
		C409	0CE106CK638	"10UF SHL,SD 50V M FM5 TP 5"
		C410	0CK1010K515	100PF 50V K B TR
		C411	0CK1010K515	100PF 50V K B TR
		C412	0CK1020K515	1000PF 50V K B TR
		C413	0CK1010K515	100PF 50V K B TR
		C414	0CE106CF638	"10UF SHL,SD 16V M FM5 TP 5"
		C415	0CQ6821N419	6800PF 100V J PE NI TP
		C417	181-288B	MKT 100V 104JTR PHS26104
		C418	0CQ1031N419	0.01U 100V J POLY NI TP
		C419	181-476R	2200 D 100V H PP NI TP5
		C420	0CQ6831N509	0.068U 100V K POLY TP
		C421	0CQ1021N419	1000P 100V J POLY NI TP
		C422	0CK2220K515	2200P 50V K B TS
		C423	0CK2220K515	2200P 50V K B TS
		C424	0CE4756F618	4.7U SMS 16V M FL TP(5)
		C426	0CK1030K945	0.01UF 50V Z F TR
		C428	0CK1030K515	0.01UF D 50V 10% B(Y5P) TR
		C429	0CE3376F618	330M SMS 16V M FM5 TP5
		C502	0CK1040K945	0.1UF 50V Z F TR
		C601	0CE227EH638	"220UF KMG,RD 25V 20% FM5 TP 5"
		C602	181-288Q	MKT 100V 154JTR PHS26154
		C603	0CE337CK618	330UF SHL 50V M FL TP5
		C604	0CQ6821N419	6800PF 100V J PE NI TP
		C605	0CK1020W515	1000PF D 500V 10% B(Y5P) TR
		C701	0CK1020K515	1000PF 50V K B TR
		C703	0CE108CF630	1000UF SHL 16V M FM5 BULK
		C705	181-477X	563J 19.5*15.5*9.0*7.5 250V J PU TP7.5
		C712	0CE106CK638	"10UF SHL,SD 50V M FM5 TP 5"
		C713	0CE1076F618	100UF SMS 16V M TP(5)
		C715	0CQ2221N419	2200PF 100V J PE NI TP
		C719	0CZZTAB001F	SHL-BP SYE / SWE 50V 3.3UF 20% BULK EB770H
		C722	181-477Y	683JF 20.0*16.5*9.5*7.5 250V J PU TP7.5
		C723	181-482F	274JF 18.0*17.0*10.0*7.5 250V J MPP TP7.5
		C724	0CK1040K945	0.1UF 50V Z F TR
		C725	0CK6810W515	680P 500V K B TS
		C726	181-482G	334J 18.0*18.0*11.0*7.5 250V J MPP TP7.5
		C727	0CK1040K945	0.1UF 50V Z F TR
		C729	181-305Z	"0.75UF D 250V 5%,-5% M/PP BULK"
		C730	0CK1040K945	0.1UF 50V Z F TR
⚠		C731	181-309H	272J 23.0*17.0*10.0*15.0 1.6KV J BUP FM15
		C733	181-306F	272J 20.0*15.0*9.0*10.0 800V J PU FM10
		C734	181-306M	822J 20.0*18.0*11.0*10.0 800V J PU FM10
		C735	181-306M	822J 20.0*18.0*11.0*10.0 800V J PU FM10
⚠		C736	181-309H	272J 23.0*17.0*10.0*15.0 1.6KV J BUP FM15
		C737	181-305C	154J 19.0*14.0*8.0*10.0 250V J MPP FM10
		C738	181-477Y	683JF 20.0*16.5*9.5*7.5 250V J PU TP7.5
		C739	0CE106EK638	10UF KMG 50V 20% FM5 TP 5
		C740	0CE337EL630	330UF KMG 63V 20% BULK FM5
		C741	0CZZTFT001Z	ECQB1H104JM3 104J 50V TP5.0 MATSUSHITA
		C744	181-305Z	"0.75UF D 250V 5%,-5% M/PP BULK"
		C745	0CK5610W515	560P 500V K B TS
		C746	0CK1510W515	150PF 500V K B TR
		C748	0CK1510W515	150PF 500V K B TR

MODEL :T930BUL			DATE:2005.02.21	
*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		C749	0CE106CQ618	10UF SHL 200V M FL TP5
		C750	0CK1040K945	0.1UF 50V Z F TR
		C758	181-306M	822J 20.0*18.0*11.0*10.0 800V J PU FM10
		C767	0CK10301945	"10000PF D 1KV 80%,-20% F(Y5V) TR"
		C770	0CK10102515	100PF D 2KV 10% B(Y5P) TR
		C771	0CK10301945	"10000PF D 1KV 80%,-20% F(Y5V) TR"
		C775	0CK1040K945	0.1UF 50V Z F TR
		C790	0CN1040K949	0.1M 50V Z F TA52
		C803	181-288B	MKT 100V 104JTR PHS26104
		C807	181-288B	MKT 100V 104JTR PHS26104
		C822	0CK1040K945	0.1UF 50V Z F TR
		C830	0CK10102515	100PF D 2KV 10% B(Y5P) TR
⚠		C901	0CZZTCB003C	BULK 7.5 CS E 472M 14.5 250V TDK
⚠		C902	0CZZTCB003C	BULK 7.5 CS E 472M 14.5 250V TDK
		C903	0CK10101515	100PF 1KV K B TR
		C904	0CK10301945	"10000PF D 1KV 80%,-20% F(Y5V) TR"
		C905	181-124R	220UF SMG(25.4*40) 400V M VNSN BULK
		C906	0CE475CN638	"4.7UF SHL,SD 100V M FM5 TP 5"
		C907	0CE476CH638	"47UF SHL,SD 25V 20% FM5 TP 5"
		C908	0CK1040K945	0.1UF 50V Z F TR
		C909	0CK6810W515	680P 500V K B TS
		C910	0CZZTFT001N	ECQB1H123JM3 123J 50V TP5.0 MATSUSHITA
		C911	0CE2266F618	22M SMS 16V M FM5 TP(5)
		C912	0CE225CK638	"2.2UF SHL,SD 50V M FM5 TP 5"
		C915	0CE476CH638	"47UF SHL,SD 25V 20% FM5 TP 5"
		C916	0CK2220K515	2200P 50V K B TS
⚠		C918	0CZZTCB003C	BULK 7.5 CS E 472M 14.5 250V TDK
⚠		C919	0CZZTCB003C	BULK 7.5 CS E 472M 14.5 250V TDK
		C920	0CE107CF638	"100UF SHL,SD 16V M FM5 TP 5"
		C921	0CE476CN618	47UF SHL 100V M FL TP5
		C922	0CE337EL630	330UF KMG 63V 20% BULK FM5
		C925	0CE228CH618	2200U SHL 25V M FL TP5
		C926	0CE108EF618	1000UF KMG 16V M FL TP 5
		C928	0CE108EF618	1000UF KMG 16V M FL TP 5
		C929	0CZZTFT001D	ECQB1H222JM3 222J 50V TP5.0 MATSUSHITA
		C930	0CQ2721N419	2700PF 100V J PE NI TP
		C931	0CK10101515	100PF 1KV K B TR
		C932	0CE477CF638	470UF SHL TYPE 16V M FM5 TP 5
		C952	0CE477CH618	470UF SHL 25V M FL TP5
DIODEs				
		D301	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D302	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D303	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D304	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D305	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D306	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		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 600V 1A 40A ,SEC 5UA"

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*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		D403	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D406	0DS124409AA	1SS244 TP ROHM KOREA
		D407	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D553	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D704	0DRSG00061A	"DMV1500HF(D)5,LF SGS-THOMSON ST TO220AB 600V/1500V 3A/6A 35A/80A 110NS/625NSSEC 20UA/100UA"
		D705	0DRGF00069A	SB140 GULF TP DO41 40V 1A 40A .SEC 1MA
		D706	0DRFC00020A	"FFPF10F150STU,LF FAIR CHILD BK TO220F 1500V 10A 100A 170NSSEC 10UA"
		D708	0DR140059DA	"1N4005TB52 TP LITEON DO41 600V 1A 40A ,SEC 5UA"
		D709	0DRGF00069A	SB140 GULF TP DO41 40V 1A 40A .SEC 1MA
		D710	0DR400409AC	UF4004 GULF TP DO41 400V 1A 30A 50NSEC 10UA
		D712	0DR100009CA	RGP10G TP GULF SEMICONDUCTOR LTD. DO41 400V 1A 30A - 100UA
		D714	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D715	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D716	0DR140059DA	"1N4005TB52 TP LITEON DO41 600V 1A 40A ,SEC 5UA"
		D717	0DR140059DA	"1N4005TB52 TP LITEON DO41 600V 1A 40A ,SEC 5UA"
		D718	0DR140059DA	"1N4005TB52 TP LITEON DO41 600V 1A 40A ,SEC 5UA"
		D719	0DR100009DA	RGP10J TP GULF SEMICONDUCTOR LTD. DO41 600V 1A 30A - 100UA
		D720	0DR140059DA	"1N4005TB52 TP LITEON DO41 600V 1A 40A ,SEC 5UA"
⚠		D721	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D723	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D724	0DR100009DA	RGP10J TP GULF SEMICONDUCTOR LTD. DO41 600V 1A 30A - 100UA
		D730	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D731	0DRGF00069A	SB140 GULF TP DO41 40V 1A 40A .SEC 1MA
		D768	0DR100009DA	RGP10J TP GULF SEMICONDUCTOR LTD. DO41 600V 1A 30A - 100UA
		D791	0DR140059DA	"1N4005TB52 TP LITEON DO41 600V 1A 40A ,SEC 5UA"
		D801	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D802	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D821	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D835	0DRGF00069A	SB140 GULF TP DO41 40V 1A 40A .SEC 1MA
		D836	0DRGF00069A	SB140 GULF TP DO41 40V 1A 40A .SEC 1MA
		D901	0DRTW00071A	TS4B05G-1021 TIWAN SEMI ST NON 600V 4A 120A .SEC 5UA
		D902	0DR153999AA	1N5399GP TP GULF SEMICONDUCTOR LTD. DO15 1000V 1.5
		D903	0DR100009CA	RGP10G TP GULF SEMICONDUCTOR

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*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
				LTD. DO41 400V 1A 30A - 100UA
		D904	0DR100009DA	RGP10J TP GULF SEMICONDUCTOR LTD. DO41 600V 1A 30A - 100UA
		D905	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D906	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D907	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D908	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D909	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D910	0DRGF00139A	GPP20J GULF TP DO15 600V 2.0A 70A 2.0USSEC 5.0UA
		D911	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D912	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D913	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D914	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D920	0DRSD00079A	D2L20U SHINDENGEN TP DO-204AC 200V 1.5A 40A 35NSEC 10UA
		D921	0DRSD00079A	D2L20U SHINDENGEN TP DO-204AC 200V 1.5A 40A 35NSEC 10UA
		D922	0DRGF00150A	UF5404 GULF BK DO201AD 400V 3.0A 150A 50NSSEC 10.0UA
		D923	0DRVH00091A	GURF5H60 VISHAY ST ITO220 600V 5A 90A 30NSSEC 20UA
		D924	0DR100009DA	RGP10J TP GULF SEMICONDUCTOR LTD. DO41 600V 1A 30A - 100UA
		D927	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		D952	0DS141489AB	1N4148 TP GRANDE DO-34 500MW 1 25NA(20V)
		ZD301	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD401	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD402	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD403	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD404	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD405	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD406	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD408	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD409	0DZPT56009A	UZ-5.6BSB PCTRONIX TP52 DO34 500MW 5.6BV 5MA PF
		ZD702	0DZ510009AB	MTZ5.1B TP ROHM-K DO34 500MW 5.1V 20MA
COILs&COREs				
		FB301	6210TCE003J	BAS2550T BO SUNG 2550MM AXIAL52MM
		FB302	6210TCE003C	BRD3514B BO SUNG 3514MM RADIAL
		FB303	6210TCE003J	BAS2550T BO SUNG 2550MM AXIAL52MM
		FB304	6210TCE003J	BAS2550T BO SUNG 2550MM AXIAL52MM
		FB305	6210TCE003J	BAS2550T BO SUNG 2550MM AXIAL52MM
		FB309	6210TCE003B	BRS3580B BO SUNG 3580MM RADIAL
		FB310	6210TCE003A	BRD3510B BO SUNG 3510MM RADIAL

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*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		FB312	6210TCE003J	BAS2550T BO SUNG 2550MM AXIAL52MM
		FB313	6210TCE003B	BRS3580B BO SUNG 3580MM RADIAL
		FB314	6210TCE003C	BRD3514B BO SUNG 3514MM RADIAL
		FB315	6210TCE003A	BRD3510B BO SUNG 3510MM RADIAL
		FB316	6210TCE003A	BRD3510B BO SUNG 3510MM RADIAL
		FB317	6210TCE003A	BRD3510B BO SUNG 3510MM RADIAL
		FB351	6210TCE003J	BAS2550T BO SUNG 2550MM AXIAL52MM
		FB504	6210TCE003A	BRD3510B BO SUNG 3510MM RADIAL
		FB505	6210TCE003A	BRD3510B BO SUNG 3510MM RADIAL
		FB507	6210TCE003B	BRS3580B BO SUNG 3580MM RADIAL
		FB701	6210TCE003L	BAS3580T BO SUNG 3580MM AXIAL52MM
		FB702	6210TCE003H	BAS3510T BO SUNG 3510MM AXIAL52MM
		FB901	6210TCE003A	BRD3510B BO SUNG 3510MM RADIAL
		FB904	6210TCE003K	BAS3550T BO SUNG 3550MM AXIAL52MM
		FB905	6210TCE003C	BRD3514B BO SUNG 3514MM RADIAL
		FB906	6210TCE003H	BAS3510T BO SUNG 3510MM AXIAL52MM
		FB907	6210TCE003H	BAS3510T BO SUNG 3510MM AXIAL52MM
		FB909	6210TCE003B	BRS3580B BO SUNG 3580MM RADIAL
		FB910	6210TCE003K	BAS3550T BO SUNG 3550MM AXIAL52MM
		FB911	6210TCE003K	BAS3550T BO SUNG 3550MM AXIAL52MM
		L702	6140TBZ025A	DR14*20 120UH 0.12*25MM 47.5T FB775B
		L703	6140TYZ011G	"- GET DR14*25,4.0UH,EB770H"
		L705	6140TBZ026F	DR15*18-C9.8 55UH 0.10*45MM 33.5T D/D CHOKE
		L706	150-985P	DR12*15 6MH 0.25MM 365.5T H-CENTERING
⚠		L901	6140TBZ031B	EE36SI PFC 49MH 0.5MM 228 +/- 10T .
Ics				
		IC301	0ICTMLG015A	"LGDP4301 LG IC 24P,PDIP ST BRIGHT WINDOW"
		IC302	0IPRPNS025C	"LM1246DDC/NA,NOPB NATIONAL SEMICONDUCTOR 24,DIP ST LF,ONE CHIP (VIDEO+OSD)"
		IC303	0IPRPNS014A	"LM2465TA,NOPB NATIONAL SEMICONDUCTOR 9P,TO220 ST LF,MONOLITHIC TRIPLE 5.5NS CRT DRIVER"
		IC304	0IPRPNS005A	"LM2480NA,NOPB NATIONAL SEMICONDUCTOR 8P,DIP ST LF,80V TRIPLE BIAS CLAMP"
		IC401	0IMCRPH033A	SAA4849(OTP) PHILIPS 56PIN SDIP - DEFLECTION AND MICOM
		IC402	0IMMRSG044A	"M24C08-WBN6(P),LF STM 8PIN PDIP ST SERIAL IIC EEPROM"
		IC601	0IPRPPH018A	"TDA4867J PHILIPS 9PIN,ST DIP VERTICAL OUTPUT IC"
		IC901	0ISS384300A	KA3843B 8P SDIP BK PWM CONTROLLER
		IC902-1	0IKE781200F	"KIA78L12BP(AT) 3P 12V,150MA - - - -"
		IC903	0ISS780500F	KA7805
TRANSISTORs				
		Q201	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q551	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q552	0TR127009AA	KTA1270-Y(KTA562TM) TP KEC TO92 PNP
		Q553	0TR320209AA	KTC3202-Y(KTC1959) TP KEC TO92 NPN
		Q704	0TR390409CA	FAIRCHILD 2N3904(TA) TP TO-92 60V 0.2A
		Q705	0TFFC90002A	IRFNL210B FAIRCHILD TP TO-92L 200V 1A
		Q706	0TRFC10012B	FJAF6820L FAIRCHILD ST TO3PF 1550V 20A/30A
		Q707	0TFFC00011B	"FQPF11N40C-YDTU (FORMING),LF FAIRCHILD ST TO-220FM 400V 10.5A A"
		Q710	0TRKE90020A	MPSA44 KEC TP TO92 500V 300MA
		Q714	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q715	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q716	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q717	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN

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*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		Q718	0TR320509AB	KTC3205-Y(KTC2236A) TP KEC TO92L NPN
		Q719	0TFFC00010A	FQPF19N20C FAIRCHILD BK TO-220FM 200V 19A
		Q720	0TR390409CA	FAIRCHILD 2N3904(TA) TP TO-92 60V 0.2A
		Q721	0TF630001BB	"IRF630MFP,LF SGS-T(STM) ST TO220F 200V 5A"
		Q731	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q787	0TR555109AB	2N5551 TP SAMSUNG TO92 AMP TR
		Q799	0TRKE90019A	MPSA92 KEC TP TO92 -300V -500MA
		Q821	0TR231609AA	KSC2316-Y TP SAMSUNG TO92L NPN
⚠		Q901	0TFFC10010A	FQPF10N60C FAIRCHILD ST TO220F 650V 9.5A
		Q903	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q905	0DR100609BA	MCR100-6RLRA TP MOTOROLA TO92 400V 0.8A 10A - 10UA
		Q912	0TR127309AA	KTA1273-Y(KTA966A) TP KEC TO92L PNP
		Q914	0TR928009AB	KSA928A-Y TP SAMSUNG TO92L PNP
		Q941	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q951	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
		Q953	0TR319809AA	KTC3198-Y(KTC1815) TP KEC TO92 NPN
RESISTORs				
		FB201	0RD0101Q609	1 1/4W(3 5% TA52
		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	0RD5600Q609	560 1/4W(3 5% TA52
		R208	0RD3300Q609	330 1/4W(3 5% TA52
		R209	0RD3300Q609	330 1/4W(3 5% TA52
		R210	0RD3600Q609	360 1/4W(3 5% TA52
		R211	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R212	0RD5600Q609	560 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
		R304	0RD6804F609	6.8M 1/6W 5 TA52
		R305	0RN6201F409	6.20K 1/6W 1% TA52
		R306	0RD6804F609	6.8M 1/6W 5 TA52
		R314	0RD1000Q609	100 1/4W(3 5% TA52
		R315	0RD1000Q609	100 1/4W(3 5% TA52
		R319	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R320	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R326	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R327	0RD1001Q609	1K 1/4W(3 5% TA52
		R328	0RD1001Q609	1K 1/4W(3 5% TA52
		R329	0RD1001Q609	1K 1/4W(3 5% TA52
		R331	0RD1500Q609	150 1/4W(3 5% TA52
		R332	0RD1500Q609	150 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	0RD3000Q609	300 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	0RD1200Q609	120 1/4W(3 5% TA52
		R351	0RN6201F409	6.20K 1/6W 1% TA52

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*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		R352	0RD1000Q609	100 1/4W(3 5% TA52
		R353	0RD1000Q609	100 1/4W(3 5% TA52
		R354	0RD1000Q609	100 1/4W(3 5% TA52
		R355	0RD1000Q609	100 1/4W(3 5% TA52
		R356	0RN1002F409	10K 1/6W 1 TA52
		R357	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R401	0RD2200Q609	220 1/4W(3 5% TA52
		R402	0RD1000Q609	100 1/4W(3 5% TA52
		R403	0RD1000Q609	100 1/4W(3 5% TA52
		R404	0RD1000Q609	100 1/4W(3 5% TA52
		R405	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R406	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R407	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R409	0RD1000Q609	100 1/4W(3 5% TA52
		R410	0RD1000Q609	100 1/4W(3 5% TA52
		R411	0RD1000Q609	100 1/4W(3 5% TA52
		R412	0RD0102Q609	10 1/4W(3 5% TA52
		R413	0RD1000Q609	100 1/4W(3 5% TA52
		R414	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R415	0RD1000Q609	100 1/4W(3 5% TA52
⚠		R416	0RN3301F409	3.30K 1/6W 1% TA52
⚠		R417	0RN2701F409	2.7K OHM 1/6 W 1.00% TA52
		R418	0RD1000Q609	100 1/4W(3 5% TA52
		R419	0RD1000Q609	100 1/4W(3 5% TA52
		R420	0RD1001Q609	1K 1/4W(3 5% TA52
		R421	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R422	0RD2001Q609	2K 1/4W(3 5% TA52
		R423	0RD1000Q609	100 1/4W(3 5% TA52
		R424	0RD1000Q609	100 1/4W(3 5% TA52
		R425	0RD1000Q609	100 1/4W(3 5% TA52
		R426	0RD1000Q609	100 1/4W(3 5% TA52
		R427	0RD1002Q609	10K 1/4W(3 5% TA52
		R429	0RN1002F409	10K 1/6W 1 TA52
		R430	0RD1000Q609	100 1/4W(3 5% TA52
		R431	0RD1002Q609	10K 1/4W(3 5% TA52
		R432	0RD1000Q609	100 1/4W(3 5% TA52
		R433	0RD1000Q609	100 1/4W(3 5% TA52
		R434	0RD7502Q609	75K 1/4W(3 5% TA52
		R435	0RD2001Q609	2K 1/4W(3 5% TA52
⚠		R436	0RN3601F409	3.6K 1/6W 1 TA52
⚠		R437	0RN2702F409	27K 1/6W 1% TA52
		R438	0RN2402F409	24K 1/6W 1% TA52
⚠		R439	0RN1001F409	1K 1/6W 1% TA52
⚠		R440	0RN5600F409	560 1/6W 1% TA52
		R442	0RN3901F409	3.90K 1/6W 1% TA52
		R443	0RD2200Q609	220 1/4W(3 5% TA52
		R444	0RD4700Q609	470 OHM 1/4 W (3.4) 5% TA52
		R445	0RD4700Q609	470 OHM 1/4 W (3.4) 5% TA52
		R449	0RN8201F409	8.20K 1/6W 1% TA52
		R450	0RN1203F409	120K 1/6W 1% TA52
		R451	0RD1001Q609	1K 1/4W(3 5% TA52
		R452	0RN2002F409	20K 1/6W 1% TA52
		R453	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R454	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R455	0RD3600Q609	360 1/4W(3 5% TA52
		R456	0RD1000Q609	100 1/4W(3 5% TA52
		R457	0RD1801Q609	1.80K 1/4W(3 5% TA52
		R458	0RD1801Q609	1.80K 1/4W(3 5% TA52
		R490	0RD1000Q609	100 1/4W(3 5% TA52
		R494	0RD1000Q609	100 1/4W(3 5% TA52
		R495	0RD1000Q609	100 1/4W(3 5% TA52
		R501	0RD0102A609	10 OHM 1/2 W (7.0) 5% TA52
		R550	0RD4702Q609	47K 1/4W(3 5% TA52
		R551	0RD1502Q609	15K 1/4W(3 5% TA52
		R552	0RD3902Q509	39K OHM 1/4 W(3.4) 2% TA52

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*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		R554	0RD1202Q609	12K 1/4W(3 5% TA52
		R556	0RD0102A609	10 OHM 1/2 W (7.0) 5% TA52
		R601	0RD1000Q609	100 1/4W(3 5% TA52
		R602	0RD1000Q609	100 1/4W(3 5% TA52
		R603	0RN0220H609	0.22 1/2W 5% TA52
		R604	0RD0101A609	1 OHM 1/2 W (7.0) 5% TA52
		R605	0RD0331A609	3.3 OHM 1/2 W (7.0) 5% TA52
		R606	0RD1000A609	100 OHM 1/2 W (7.0) 5% TA52
		R607	0RN4301F409	4.30K 1/6W 1% TA52
		R608	0RD1600A609	160 OHM 1/2 W (7.0) 5% TA52
		R701	0RD6800Q609	680 1/4W(3 5% TA52
		R702	0RD6800Q609	680 1/4W(3 5% TA52
		R703	0RD1002A609	10K OHM 1/2 W (7.0) 5% TA52
		R704	0RD1002Q609	10K 1/4W(3 5% TA52
		R706	0RN0102G609	10 1/4W 5 TA52
		R707	0RD3302A609	33K OHM 1/2 W (7.0) 5% TA52
		R708	0RD5600A609	560 OHM 1/2 W (7.0) 5% TA52
		R711	0RD7502Q609	75K 1/4W(3 5% TA52
		R729	0RD3301Q609	3.30K 1/4W(3 5% TA52
		R730	0RMZTWD001N	PRZC-1 UNI-OHM 1.1OHM 5 W 5% RWR PD-TYPE
		R731	0RD4702Q609	47K 1/4W(3 5% TA52
		R732	0RD1001Q609	1K 1/4W(3 5% TA52
		R734	0RN0390J607	0.39 1W 5% TA62
		R735	0RD1002Q609	10K 1/4W(3 5% TA52
		R736	0RX2201K665	2200 OHM 2 W 5% SF
		R737	0RN0121J607	1.2 OHM 1 W 5.00% TA62
		R738	0RN0121J607	1.2 OHM 1 W 5.00% TA62
		R739	0RD1001Q609	1K 1/4W(3 5% TA52
		R740	0RD0332A609	33 OHM 1/2 W (7.0) 5% TA52
		R743	0RD2000Q609	200 1/4W(3 5% TA52
		R744	0RX2000K607	200 OHM 2 W 5.00% TA62
		R745	0RD4702Q609	47K 1/4W(3 5% TA52
		R746	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R747	0RD3001Q609	3K 1/4W(3 5% TA52
		R748	0RD4702Q609	47K 1/4W(3 5% TA52
		R749	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R750	0RD3001Q609	3K 1/4W(3 5% TA52
		R751	0RD0221A609	2.2 OHM 1/2 W (7.0) 5% TA52
		R752	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R753	0RD3001Q609	3K 1/4W(3 5% TA52
		R754	0RX6800K607	680 OHM 2 W 5% TA62
		R755	0RD3001Q609	3K 1/4W(3 5% TA52
		R756	0RD2202A609	22K OHM 1/2 W (7.0) 5% TA52
		R758	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R761	0RD3001Q609	3K 1/4W(3 5% TA52
		R762	0RD3001Q609	3K 1/4W(3 5% TA52
		R763	0RD3001Q609	3K 1/4W(3 5% TA52
		R764	0RD3001Q609	3K 1/4W(3 5% TA52
		R765	0RD1000A609	100 OHM 1/2 W (7.0) 5% TA52
		R768	0RD4303A609	430K OHM 1/2 W (7.0) 5% TA52
		R771	0RD1101A609	1.1K OHM 1/2 W (7.0) 5% TA52
		R772	0RN2002F409	20K 1/6W 1% TA52
		R773	0RN1303H409	130K OHM 1/2 W 1% TA52
		R775	0RD4702Q609	47K 1/4W(3 5% TA52
		R780	0RD2202Q609	22K 1/4W(3 5% TA52
		R781	0RD2001Q609	2K 1/4W(3 5% TA52
		R782	0RD3301A609	3.3K OHM 1/2 W(7.0) 5.00% TA52
		R785	0RD0471A609	4.7 OHM 1/2 W (7.0) 5% TA52
		R788	0RD4702Q609	47K 1/4W(3 5% TA52
		R790	0RD3001Q609	3K 1/4W(3 5% TA52
		R791	0RD3001Q609	3K 1/4W(3 5% TA52
		R792	0RD2201Q609	2.20K 1/4W(3 5% TA52
		R793	0RD4702Q609	47K 1/4W(3 5% TA52
		R794	0RD4702Q609	47K 1/4W(3 5% TA52

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*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
		R799	0RD1502Q609	15K 1/4W(3 5% TA52
		R803	0RD2001Q609	2K 1/4W(3 5% TA52
		R809	0RX0151L665	1.5 OHM 3 W 5% SF
⚠		R818	0RN6202F409	62KOHM 1/6 W 1% TA52
		R822	0RD0122A609	12 OHM 1/2 W (7.0) 5% TA52
		R823	0RX0432K665	43OHM 2 W 5% SF
		R869	0RX0332K665	33 OHM 2 W 5% SF
		R870	0RX0332K607	33 OHM 2 W 5% TA62
		R871	0RX0332K607	33 OHM 2 W 5% TA62
		R872	0RD2401Q609	2.40K 1/4W(3 5% TA52
		R902	0RD0102Q609	10 1/4W(3 5% TA52
		R903	0RD0512Q609	51 1/4W(3 5% TA52
		R905	0RX7502K607	75K OHM 2 W 5.00% TA62
		R906	0RX7502K607	75K OHM 2 W 5.00% TA62
		R907	0RN1800F409	180 OHM 1/6 W 1.00% TA52
		R908	0RN0220H609	0.22 1/2W 5% TA52
		R909	0RD1002Q609	10K 1/4W(3 5% TA52
⚠		R910	0RN1602F409	16K 1/6W 1% TA52
⚠		R911	0RN2001F409	2K OHM 1/6 W 1.00% TA52
		R912	0RD1001Q609	1K 1/4W(3 5% TA52
		R913	0RB0150K607	0.15 OHM 2 W 5% TA62
		R914	0RD6800Q609	680 1/4W(3 5% TA52
		R915	0RD3903A609	390K OHM 1/2 W (7.0) 5% TA52
		R916	0RD3603A609	360K OHM 1/2 W (7.0) 5% TA52
		R917	0RD0622Q609	62 OHM 1/4 W(3.4) 5.00% TA52
		R918	0RD1003Q609	100K 1/4W(3 5% TA52
		R920	0RD0392Q609	39 1/4W(3 5% TA52
		R921	0RD0332Q609	33 1/4W(3 5% TA52
		R922	0RD5601Q609	5.60K 1/4W(3 5% TA52
		R923	0RD1001Q609	1K 1/4W(3 5% TA52
		R924	0RD4703Q609	470K 1/4W(3 5% TA52
		R925	0RD1501Q609	1.50K 1/4W(3 5% TA52
		R926	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R929	0RN0220H609	0.22 1/2W 5% TA52
		R930	0RN0220H609	0.22 1/2W 5% TA52
		R931	0RD1000Q609	100 1/4W(3 5% TA52
		R933	0RD0472Q609	47 1/4W(3 5% TA52
		R934	0RD3302Q609	33K 1/4W(3 5% TA52
		R935	0RD3301Q609	3.30K 1/4W(3 5% TA52
		R936	0RX3902K665	39K OHM 2 W 5% SF
		R941	0RD6802A609	68K OHM 1/2 W (7.0) 5% TA52
		R944	0RD4700A609	470 OHM 1/2 W (7.0) 5% TA52
		R946	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R949	0RN0220H609	0.22 1/2W 5% TA52
		R953	0RD1101A609	1.1K OHM 1/2 W (7.0) 5% TA52
		R954	0RD4701Q609	4.70K 1/4W(3 5% TA52
		R955	0RD5101Q609	5.10K 1/4W(3 5% TA52
		R957	0RD0512Q609	51 1/4W(3 5% TA52
		R991	0RD5101Q609	5.10K 1/4W(3 5% TA52
OTHERs				
		F1	430-858C	AFC-520 BAE EUN TA
		F2	430-858C	AFC-520 BAE EUN TA
⚠		F901	0FZZTTH001B	"TIME LAG HBC 5A/250V,215 005,LITTELFUSE"
		P701	366-112K	SA-0002K/YFW800-04L SE-A/YEONHO 4P 10.0MM NI PLATED
		P902	366-164A	YW396-03AV YEONHO 3P 3.96MM S/T
⚠		RL901	6920TBB007A	JZC-42012-2HS HONGMEI 250VAC 5A 12V 2A NO VENTING
		SC301	6620TBD003A	PCS701E PARK ELEC. 10PIN 14/360 STRAIGHT
⚠		SC901	6200TJB001G	02MD3P DELTA BK CB777F
		SG301	6918TAT007A	KSA-201-MA Y&Y UNICTRON AXIAL TAPING
		SG302	6918TAT007A	KSA-201-MA Y&Y UNICTRON AXIAL

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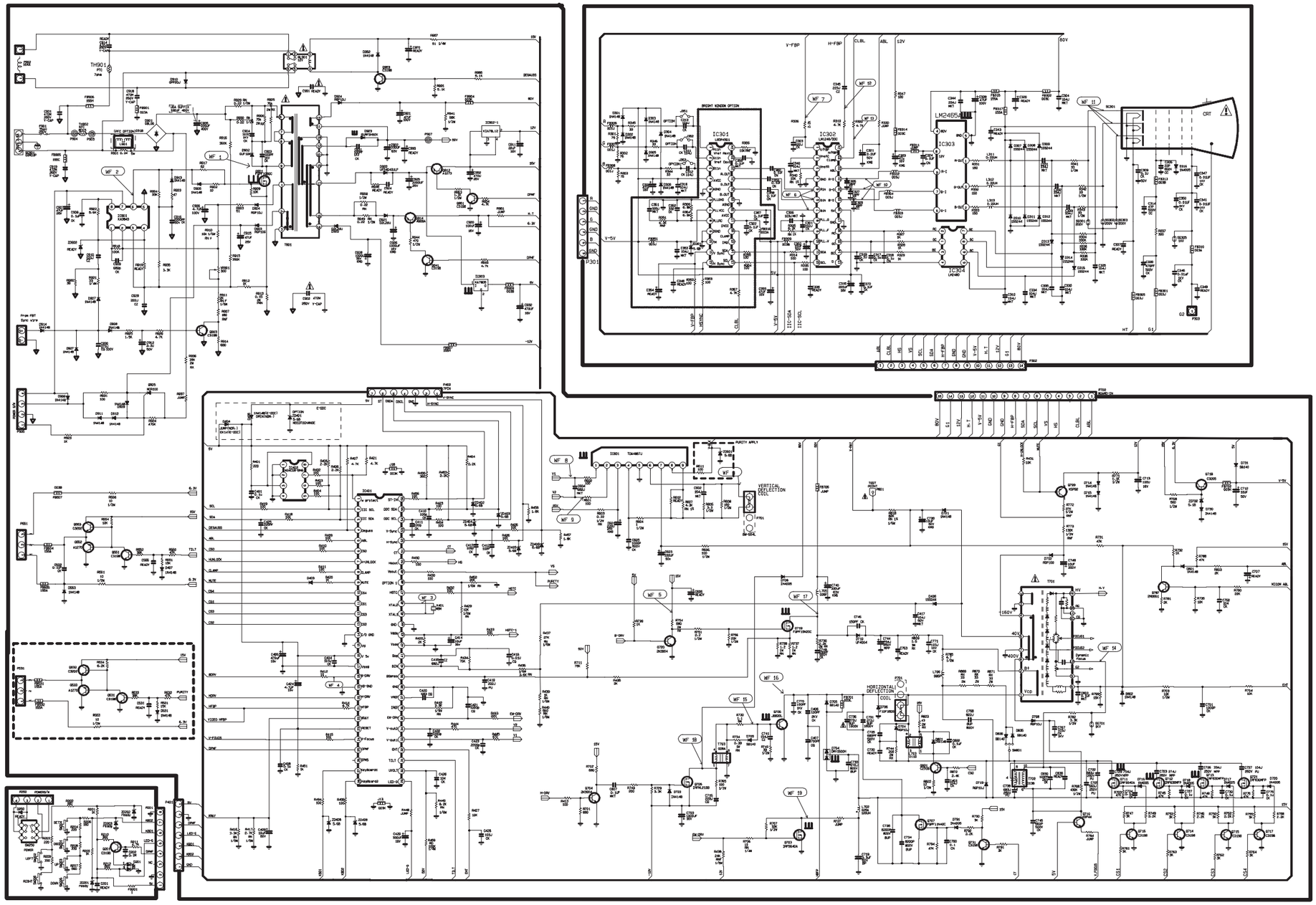
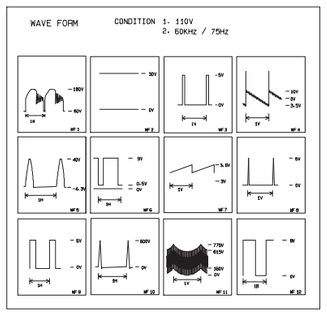
*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON
				TAPING
		SG303	6918TAT007A	KSA-201-MA Y&Y UNICTRON AXIAL TAPING
		SG305	6918TRT004B	SG5-152-CB Y&Y UNICTRON RADIAL TAPING
		SG701	6918TRT004B	SG5-152-CB Y&Y UNICTRON RADIAL TAPING
		SW201	6600R00001A	"JTP1280F6 JEIL 12V DC 1MA VERTICAL,7MM"
		SW202	6600R00001A	"JTP1280F6 JEIL 12V DC 1MA VERTICAL,7MM"
		SW203	6600R00001A	"JTP1280F6 JEIL 12V DC 1MA VERTICAL,7MM"
		SW204	6600R00001A	"JTP1280F6 JEIL 12V DC 1MA VERTICAL,7MM"
		SW205	6600R00001A	"JTP1280F6 JEIL 12V DC 1MA VERTICAL,7MM"
		SW206	6600R00001A	"JTP1280F6 JEIL 12V DC 1MA VERTICAL,7MM"
		SW250	6600M000037	JPS2225A NAMAE 30VDC 0.1A BLUE ANGEL
		SW801	140-079D	"JLS1301 JEIL 36V 200MA LEVER S/W,JEIL"
⚠		T701	6174T11005G	"CF2172LG3900, T910BL(98KHZ),13MM LIEN CHANG 19""""
		T702	6170TCZ013B	EI2218 26UH D/FOCUS F700PL
		T703	6170TCZ008A	EE2218 1.3MH FB995C
⚠		T901	6170TMZ156A	EER4045 150UH V-18PIN T910BL SI/TC/SC/NY 98KHZ
		TH901	6322B00003A	"J502P62D070Q290 JA HWA 7 OHM +30% -20% 2 PIN, HF"
		VR901	180-035D	"EVN-DJAA03B32 (MEC),300B"
		X401	6212AA2003E	HC-49U SOUTH STAR 48MHZ +/- 20 PPM 22PF BULK

MODEL :T930BUL			DATE:2005.02.21	
*S	*AL	LOC NO.	PART NO.	DESCRIPTION/SPECIFICATON

SCHEMATIC DIAGRAM



PURITY APPLY	
R326	4.7K
C303	3300P/DK
R452	2-4K/RIN



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

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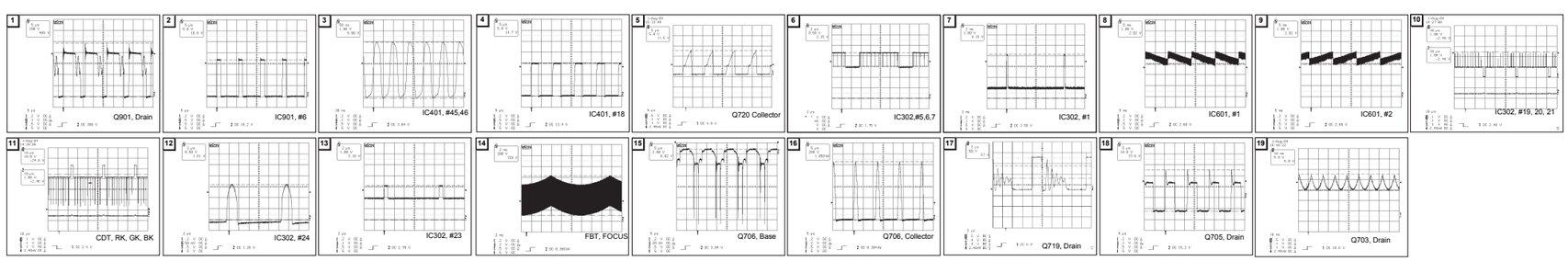
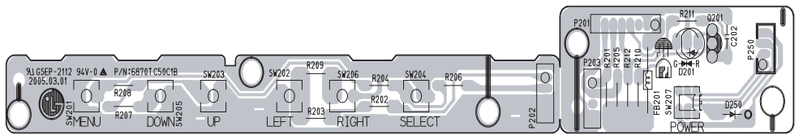
MODEL	T930BUL	Sheet	1 / 1 Page

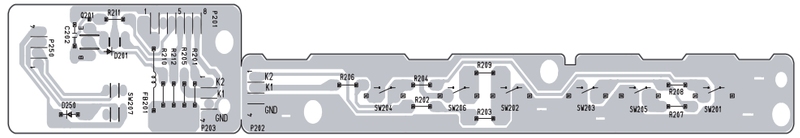


PRINTED CIRCUIT BOARD

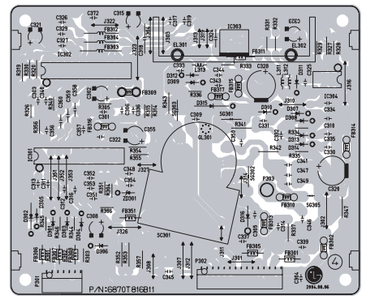
1. CONTROL BOARD (Component Side)



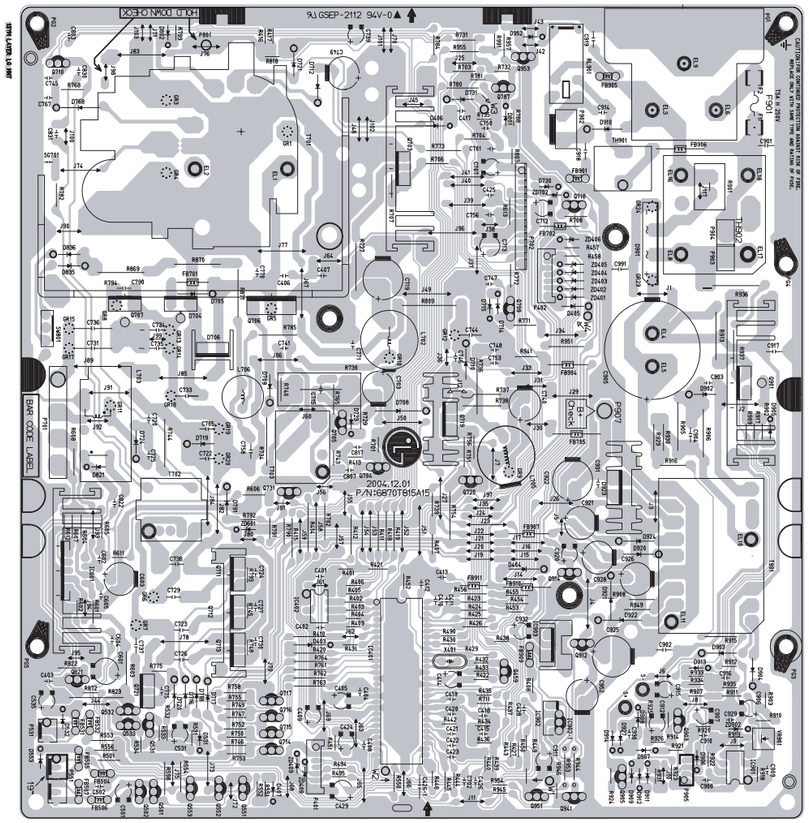
2. CONTROL BOARD (Solder Side)



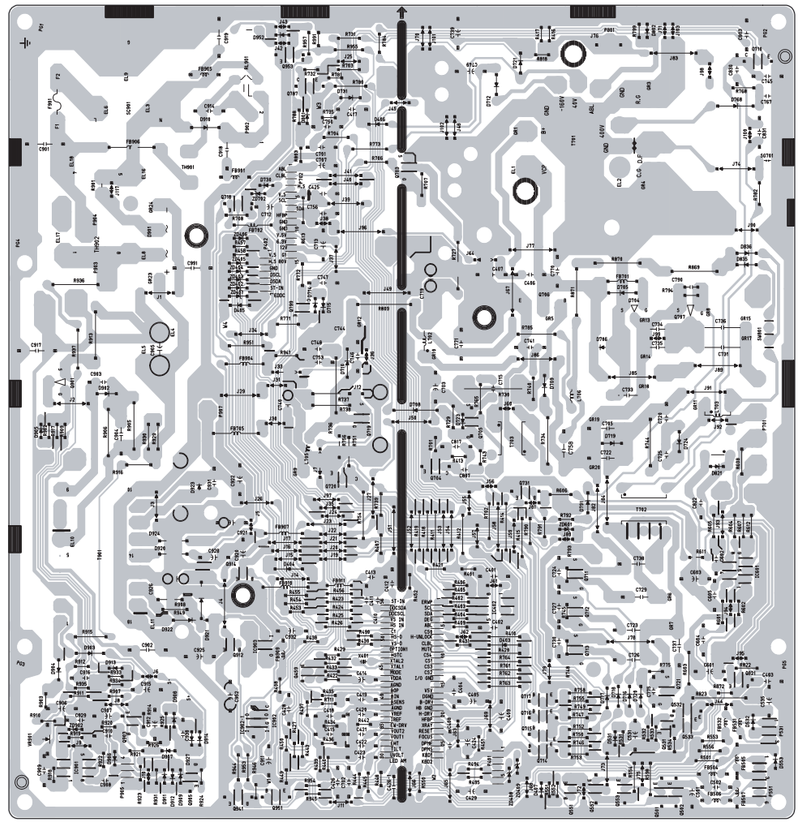
5.VIDEO BOARD(component side)



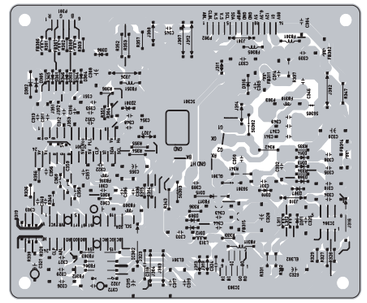
3. MAIN BOARD (Component Side)



4. MAIN BOARD (Solder Side)



6.VIDEO BOARD(solder side)



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