



# Service Manual

## XGA COLOR MONITOR

**Model : 719B  
719BF**

**DAEWOO ELECTRONICS CO., LTD.**  
<http://svc.dwe.co.kr>      *February, 2001*

# CONTENTS

SAFETY PRECAUTIONS .....	1
GENERAL SAFETY INFORMATION .....	2
SERVICING PRECAUTIONS .....	3
TECHNICAL INFORMATION .....	6
GENERAL INFORMATION .....	7
PIN CONNECTOR .....	8
CAUTIONS FOR ADJUSTMENT AND REPAIR .....	8
OPERATION AND ADJUSTMENT .....	9
ALIGNMENT PROCEDURE .....	15
TROUBLESHOOTING HINTS .....	17
BLOCK DIAGRAM .....	33
PCB LAYOUT .....	34
SCHEMATIC DIAGRAM .....	38
EXPLODED VIEW & MECHANICAL PARTS LIST .....	42
INFORMATION OF PART DESCRIPTION .....	44
ELECTRICAL PARTS LIST .....	45

# SAFETY PRECAUTIONS

**CAUTION:** No modifications of any circuits 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 analog color display because of the high voltages used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

## ◆ Fire & Shock Hazard

- Insert an isolation transformer between the analog color display and AC power line before servicing the chassis.
- When servicing, pay close attention to the original lead dress especially in the high voltage circuit area; 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 original design.
- Soldering must be inspected for possible cold solder points, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign materials.

## ◆ Implosion Protection

Picture tube in this monitor employs intergral implosion protection system, but care should be taken to avoid damage and scratching during installation.

Only use same type replacement picture tubes.

**IMPORTANT SAFETY NOTICE:** There are special components used in this analog color display, which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-Ray, shock, fire or other hazards. Do not modify the original design without getting written permission from DAEWOO ELECTRONICS CO. or this will void the original parts and labor warranty.

## ◆ X-Ray

**WARNING:** The only potential source of X-Ray is the picture tube. However when the high voltage circuitry is operating properly, there is no possibility of an X-Ray problem. The basic precaution which must be exercised is to keep the high voltage at the following factory recommended level.

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

- To measure the high voltage, use a high-impedance high-voltage meter.  
Connect(-) to chassis and (+) to the CRT anode button.
- Set the Contrast & Brightness Control to the minimum on OSD Menu.
- Measure the high voltage. The high voltage meter should indicate the following factory recommended levels.
- If the upper meter indication exceeds the maximum level, immediate service is required to prevent the possibility of premature component failure.
- To prevent X-Ray possibility, it is essential to use the specified picture tube.
- The normal high voltage is 25.5KV or below and must not exceed 29KV at zero beam current at rated voltage.

# GENERAL SAFETY INFORMATION

## ◆ Terms in the manual

- CAUTION Statements identify conditions or practices that could result in damage to the equipment or other property.
- WARNING Statements identify conditions or practices that could result in personal injury or loss of life.

## ◆ Terms as marked on equipment

- CAUTION Statements indicate a personal injury hazard not immediately accessible as one reads the marking or a hazard which is properly included on the equipment itself.
- WARNING Statements are clearly concerning indicated personal injury hazards.

## ◆ Symbols in the manual

The symbols indicate where applicable cautionary or other information is to be found.

## ◆ Symbols as marked on equipment



Protective GROUND terminal

## ◆ High Voltage Warning And Critical Component Warning Label

The following warning label is on the CRT PWB shield case inside the unit.

**Warning:** This product includes critical mechanical and electrical parts which are essential for x ray protection. For continued safety, replace critical components that are indicated in the service manual with exact replacement parts given in the parts list.  
Operating high voltage with this product is 29Kv at minimum brightness. Refer to service manual for measurement procedures and proper service adjustments.

# SERVICING PRECAUTIONS

**CAUTION:** Before servicing instruments covered by this service manual, its supplements, and addendum, please read and follow the SAFETY PRECAUTIONS of this manual.

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 1 of this manual, always follow the safety precautions.  
Remember: Safety First.

## ◆ General Servicing Precautions

1. Always unplug the AC power cord from the AC power source before:
  - a. Removing or reinstalling any component, circuit board, module, or any other instrument assembly.
  - b. Disconnecting or reconnecting any electrical plug or other electrical connection.
  - c. Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

**CAUTION:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in a explosion.

- 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 line grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touching 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 any spray chemicals on or near this instrument, or any of its assemblies.
5. Unless otherwise specified in this service manual, only clean electrical contacts by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick, or comparable nonabrasive applicator: 10% (by volume) Aceton and 90% (by volume) isopropyl alcohol (90%-99% strength).

**CAUTION:** This is a flammable mixture. Unless specified in this service manual, lubrication of contacts is not required.

6. Do not damage any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
7. Do not apply AC power to this instrument and/or any other of its electrical assemblies unless all the solid-state device heat sinks are correctly installed.
8. Always connect the test instrument ground lead to the appropriate instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.
9. Only use the test fixtures specified in this service manual with this instrument.

**CAUTION:** Do not connect the test fixture ground strap to any heatsink in this instrument.

## ◆ Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity.

Such components are commonly called Electrostatically Sensitive (ES) Devices.

The typical examples of ES devices are integrated circuits, 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 electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, wipe off any electrostatic charge on your body by touching any known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device which should be removed for potential shock reasons prior to applying power to the unit under testing conditions.
2. After removing the electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil to prevent electrostatic charge buildup or exposure to the assembly.
3. Only use a grounded-tip soldering iron to solder or unsolder ES devices.
4. Only use an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate enough electrical charges to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate enough electrical charges 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 replacement ES devices, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**CAUTION:** Be sure that no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily movements when handling unpackaged replacement ES devices. (Otherwise harmful motion such as the brushing together clothes fabric or the lifting your foot from a carpeted floor can generate enough static electricity to damage ES devices).

## ◆ General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron with appropriate tip size and shape that will maintain tip temperature between a 550°F-660°F (288°C-316°C) range.
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.
4. Thoroughly clean the surface to be soldered. Use a small 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 soldering technique:
  - a. Allow the soldering iron tip to reach normal temperature (550°F to 660°F or 288°C to 316°C)
  - b. Hold the soldering iron tip and solder 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 until the solder flows onto and around both the component lead and the foil.
  - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.

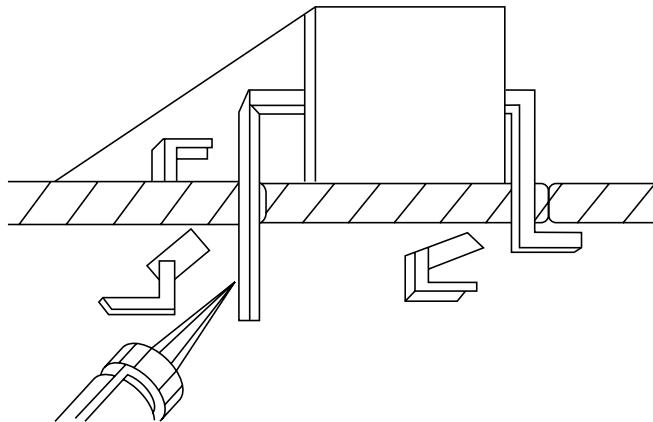


FIGURE 1. USE SOLDERING IRON TO PRY LEADS

## ◆ IC Removal/Replacement

Some utilized chassis circuit boards have slotted (oblong) holes through which the IC leads are inserted and then bent flat against the circuit foil. When holes are slotted, 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 on the page under the title of general soldering guidelines.

### ◆ 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 desoldering 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 area).

## ◆ “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 the ends of each of three leads remaining on the circuit board into a “U” shape.
3. Bend the replacement transistor leads into a “U” shape.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the “U” with long nose pliers to ensure metal-to-metal contact, then solder each connection.

## ◆ Power IC, Transistor or Devices Removal/Replacement

1. Heat and remove all solders from the device leads.
2. Remove the heatsink mounting screw (if applicable).
3. Carefully remove the device from the circuit board.
4. Insert new device in circuit board.
5. Solder each device lead and then clip off excess lead.
6. Replace heatsink.

## ◆ Diode Removal/Replacement

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

# TECHNICAL INFORMATION

Model	719B	719BF
CDT Size	17-inch	17-inch DynaFlat
Diagonal visible image area	16.2-inch	16.01-inch
Dot Pitch	0.28 mm	0.25 mm
Synchronization	Horizontal	30 - 70 KHz
	Vertical	50 - 160 Hz
Plug and Play	DDC1/2B/CI	
Power Saving	EPA, VESA DPMS, Nutek Compliant	
Power Source	100-240 Vac, 50/60Hz (Free Voltage)	
Power Consumption	85W	
Dimension-W x H x D (set with stand)	410 x 402 x 425mm	410 x 407 x 419mm
Weight-unpacked(lbs/Kg)	32.0/14.5	35.2/16
Operating Temperature	10 ~ 40°C /50 ~ 104°F	

# GENERAL INFORMATION

This color monitor automatically scans all horizontal frequencies from 30KHz to 70KHz, and all vertical frequencies from 50Hz to 160Hz. This color monitor supports IBM PC, PC/XT, PC/AT, personal System/2 (PS/2), Apple Macintosh, and compatible users crisp text and vivid color graphics display when using the following graphics adapters : (VGA, 8514/A, Super VGA, VESA and XGA and Apple Macintosh Video Card). And so, this color monitor has a maximum horizontal resolution of 1280 dots and a maximum vertical resolution of 1024 lines for superior clarity of display.

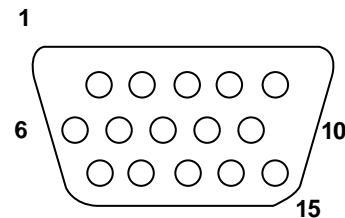
By accepting analog signal inputs which level is zero to 0.7 Volts. This color monitor can display and unlimited palette of colors depending on the graphics adapter and software being used.

## ◆ Abbreviations

<b>ADJ</b>	Adjustment
<b>AFC</b>	Automatic Frequency Control
<b>CRT</b>	Cathode Ray Tube
<b>Def</b>	Deflection
<b>D.Y</b>	Deflection Yoke
<b>FBT</b>	Flyback Transformer
<b>H.SYNC</b>	Horizontal Synchronization
<b>OSC</b>	Oscillator
<b>P.S.U</b>	Power Supply Unit
<b>PWA</b>	Printed Circuit Board Wiring Assembly
<b>R.G.B</b>	Red, Green, Blue
<b>V.Sync</b>	Vertical Synchronization

# PIN CONNECTOR

Pin	Signal
1	Red
2	Green
3	Blue
4	GND
5	GND
6	GND - Red
7	GND - Green
8	GND - Blue
9	+5Vdc
10	GND - H.Sync
11	GND - V.Sync
12	Bi-directional Data (SDA)
13	Horizontal Sync
14	Vertical Sync (VCLK)
15	Data Clock (SCL)



Arrangement of 15-pin D-sub connector

## CAUTIONS FOR ADJUSTMENT AND REPAIR

- Degaussing is always required when adjusting purity or convergence.
- The white balance adjustment has been done by a color analyzer in factory. The adjustment procedure, described in the service manual is made by a visual check.
- Allow 20 minutes warm-up time for the display before checking or adjusting only electrical specification or function.
- Reform the leadwire after any repair work.

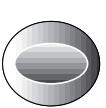
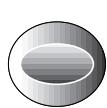
### ◆ Caution For Servicing

- In case of servicing or replacing CRT, high voltage sometimes remains in the anode of the CRT. Completely discharge high voltage before servicing or replacing CRT to prevent a shock to the serviceman.

# OPERATION AND ADJUSTMENT

## 719B Control Panel

▼ BRIGHTNESS ▲ MENU ◀ CONTRAST ▶



- Move cursor to the right window on the OSD window.
- Increase the value of any selected function.



- Move cursor to the left window on the OSD window.
- Decrease the value of any selected function.

MENU



- Launch OSD(On-Screen Display) MENU window.

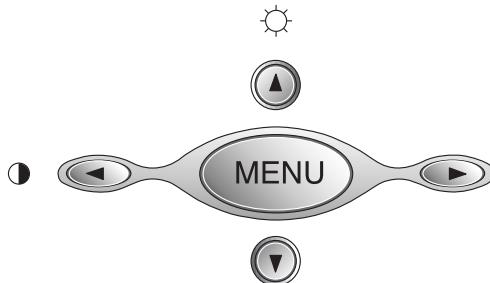


- Move cursor to the high window on the OSD window.
- Increase the value of V.size or V.center.



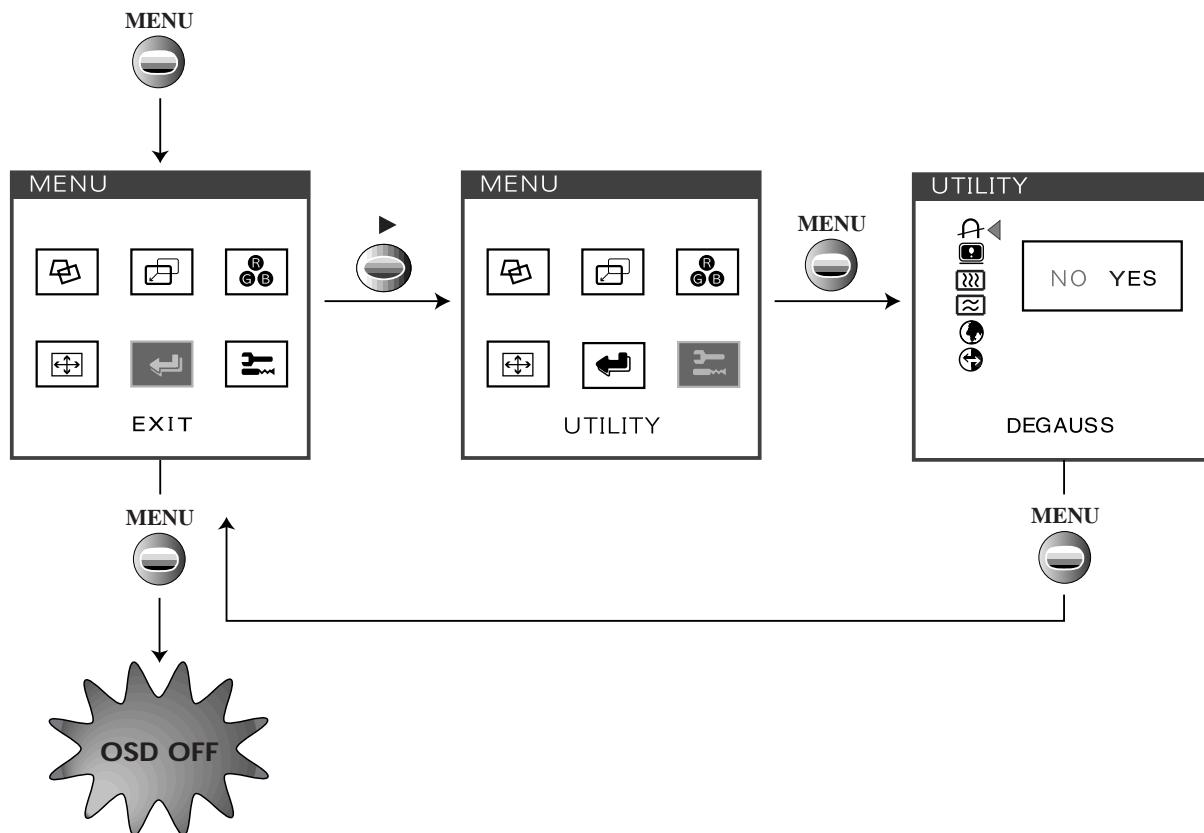
- Move cursor to the low window on the OSD window.
- Decrease the value of V.size or V.center.

## 719BF Control Panel



- ▶ • Move cursor to the right window on the OSD window.  
• Increase the value of any selected function.
  
- ◀ • Move cursor to the left window on the OSD window.  
• Decrease the value of any selected function.
  
- • Launch OSD(On-Screen Display) MENU window.
  
- ▲ • Move cursor to the high window on the OSD window.  
• Increase the value of V.size or V.center.
  
- ▼ • Move cursor to the low window on the OSD window.  
• Decrease the value of V.size or V.center.

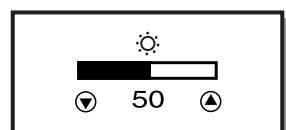
## 719B Key Process



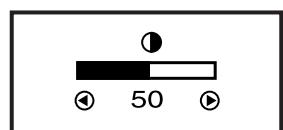
- When you choose the icon on the OSD window, you can exit the OSD screen.

## Hot Key

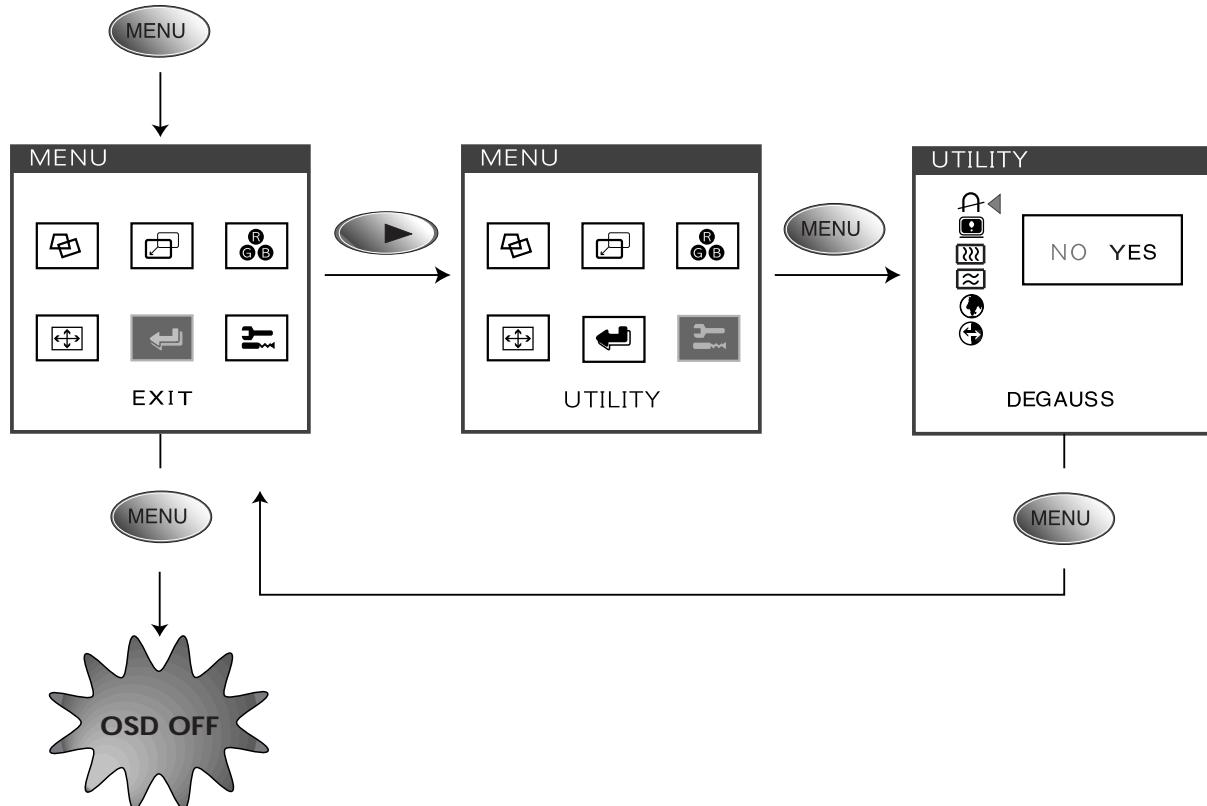
BRIGHTNESS



CONTRAST



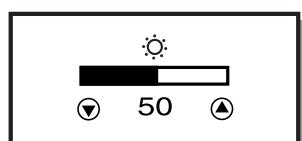
## 719BF Key Process



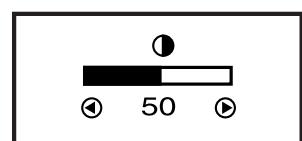
- When you choose the icon on the OSD window, you can exit the OSD screen.

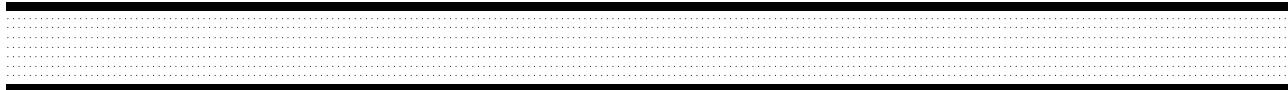
## Hot Key

BRIGHTNESS



CONTRAST





## OSD Functions

ICON	CONTROL	FUNCTIONS
	<b>PINCUSHION</b>	Adjust the left and right margins for more convex or more concave margins.
	<b>TRAPEZOID</b>	Adjust the trapezoid of the screen by moving the lines inward or outward.
	<b>PARALLELOGRAM</b>	Adjust the parallelogram when the screen is leaning left or right.
	<b>PIN BALANCE</b>	Adjust the side balance when the sides of the screen are bowed towards left or right.
	<b>ROTATION</b>	Adjust the rotation when the screen is tilted left or right. (719BF only)
	<b>T. PIN CORNER</b>	Adjust the pin corner top when the top sides of the screen are bowed.
	<b>B. PIN CORNER</b>	Adjust the pin corner bottom when the bottom sides of the screen are bowed.
	<b>H. CENTER &amp; V. CENTER</b>	Adjust the position of the display horizontally(left or right) and vertically (up or down).
	<b>COLOR TEMP</b>	Choose different preset color temperatures or set your own customized color parameters.
	<b>RED GAIN</b>	Adjust the red gain.
	<b>GREEN GAIN</b>	Adjust the green gain.
	<b>BLUE GAIN</b>	Adjust the blue gain.
	<b>H. SIZE &amp; V. SIZE</b>	Adjust the width (horizontal size) and the height (vertical size) of the display.
	<b>DEGAUSS</b>	Degauss the display and restore image quality.

ICON	CONTROL	FUNCTIONS
	<b>STATUS</b>	Display horizontal & vertical frequency and polarity.
	<b>H. MOIRE</b>	Adjust the horizontal picture moire cancellation.
	<b>V. MOIRE</b>	Adjust the vertical picture moire cancellation.
	<b>LANGUAGE</b>	Select language for OSD (5 languages).
	<b>RECALL</b>	Reset the screen to the Factory Preset Display Settings.

# ALIGNMENT PROCEDURE

## ◆ Standard Adjustment Conditions

1. Power source voltage : AC 120V, 60Hz/AC 220V, 50Hz.

2. Aging : Take at least 20 minutes warm-up time.

3. Signals.

Video : Analog 0.7Vpp 75Ω terminal positive polarity

Synchronizing : TTL Level Negative/Positive Separate/Composite

Deflection frequency

Horizontal Frequency : 30KHz - 70KHz

Vertical Frequency : 50Hz - 160Hz

## ◆ Pre-Adjustment

1. High Voltage Adjustment

Adjust 26K Vdc between Anode cap and ground at a cross hatch pattern of 60KHz by using VR 502.

## ◆ Method to launch the factory mode

Step 1. Push the menu button.

Step 2. Push the menu button and Brightness minus control button (▼) for 5 times in same time.

## ◆ Main Adjustment

1. Setting the Controls

Set the value of items as following.

Contrast : Max. (OSD value up to 100)

Brightness : Center (Set the OSD value to 50)

2. H.size, V.size, H.phase, V.position, Pincushion, Trapezoid

Receive the cross hatch pattern of Factory preset mode.

H.size, V.size, H.phase, V.position, Pincushion, Trapezoid are adjusted at each mode.

In Factory, Auto Alignment was done at each mode. Therefore, Factory preset mode has it's own value according to each control.

3. Focus

(a) Set brightness control to center and contrast control to MAX.

(b) Receive all "H" character pattern of 60KHz mode signal.

(c) Adjust the Focus control of FBT to obtain best Focus (static focus and Dynamic focus).

4. Geometric Distortion Adjustment

(a) Receive the cross hatch pattern of VGA mode signal by using the signal generator.

(b) Pin balance, Parallelogram are adjusted the best geometric status.

(c) Repeat the adjustment at each mode.

5. White Balance Adjustment

(a) Receive a full white pattern of 60KHz mode.

(b) Set the bright control and contrast control to the maximum and receive the all black pattern.

(c) Select a Temperature function on the R, G, B item of the OSD menu and select 9300.

(d) If the screen luminosity is changed, adjust the sub brightness control to get the 0.6 ~ 0.8 Ft/L screen luminosity.

(e) Select the R, G, B Bias on the OSD menu and adjust the ▲ / ▼ key to get the color coordinates in X=0.281, Y=0.311.

(f) Set the brightness control to the center and contrast control to the maximum.

(g) Receive a full white pattern.

(h) Select the R, G, B gain on the OSD menu and adjust the  $\blacktriangleleft / \triangleright$  key to get the color coordinates in  $X=0.281\pm 0.02$ ,  $Y=0.311\pm 0.02$ .

(i) Adjust the sub contrast control to get the screen luminosity to 32Ft/L.

## 6. Static Convergence Adjustment

(a) Apply a magenta cross hatch pattern on display.

(b) Adjust the focus from the best over all focus on the display.

Also adjust the brightness to the desired condition.

(c) Vertical red and blue lines are converged by varying the angles between the two tabs of the 4-pole magnets.

(d) Horizontal red and blue lines are converged by varying the tabs together keeping the angle between them constant.

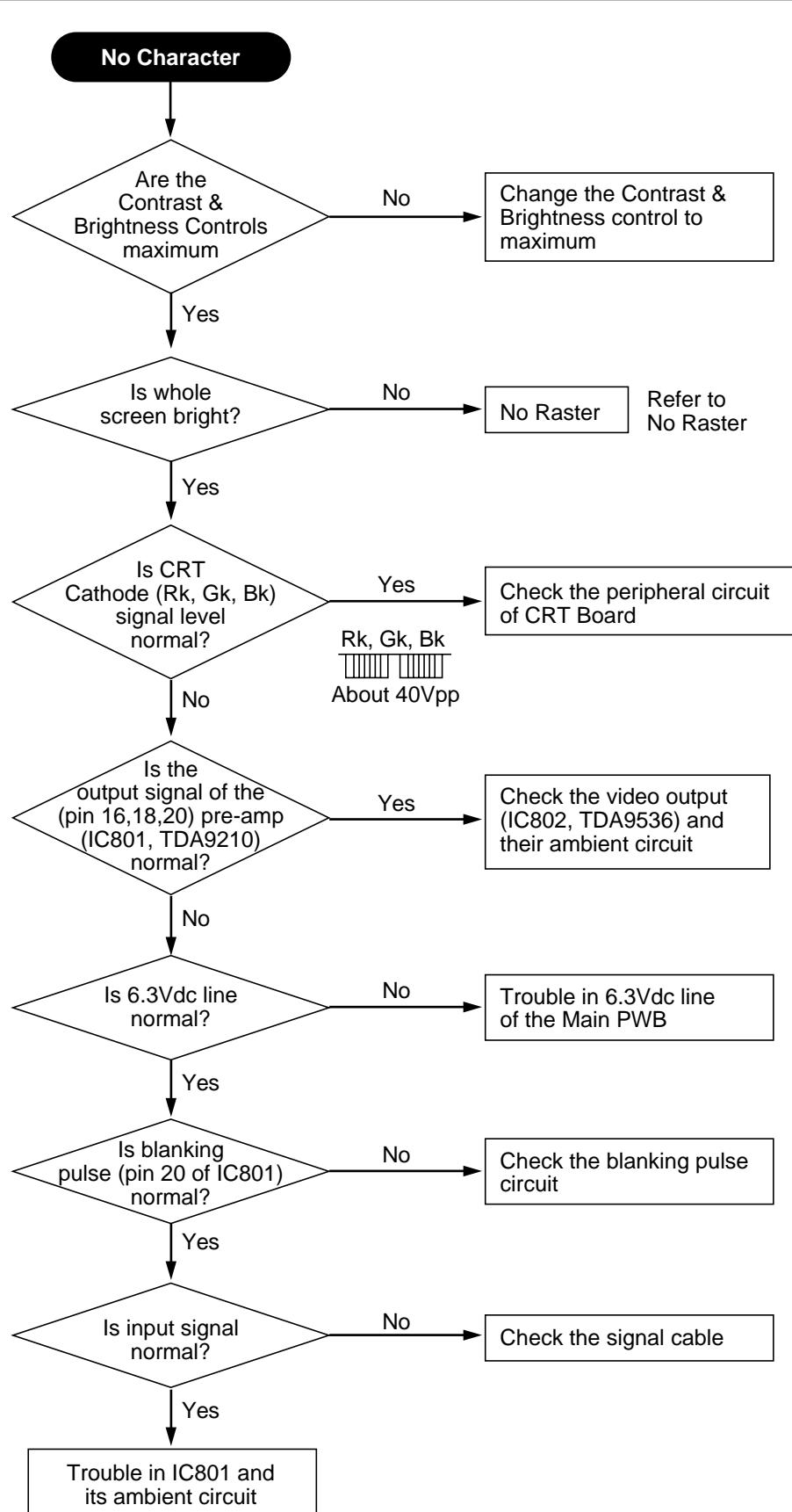
(e) Apply a yellow cross hatch pattern on the display.

(f) Vertical green and red lines are converged by varying the angle between the two tabs of the 6-pole magnets.

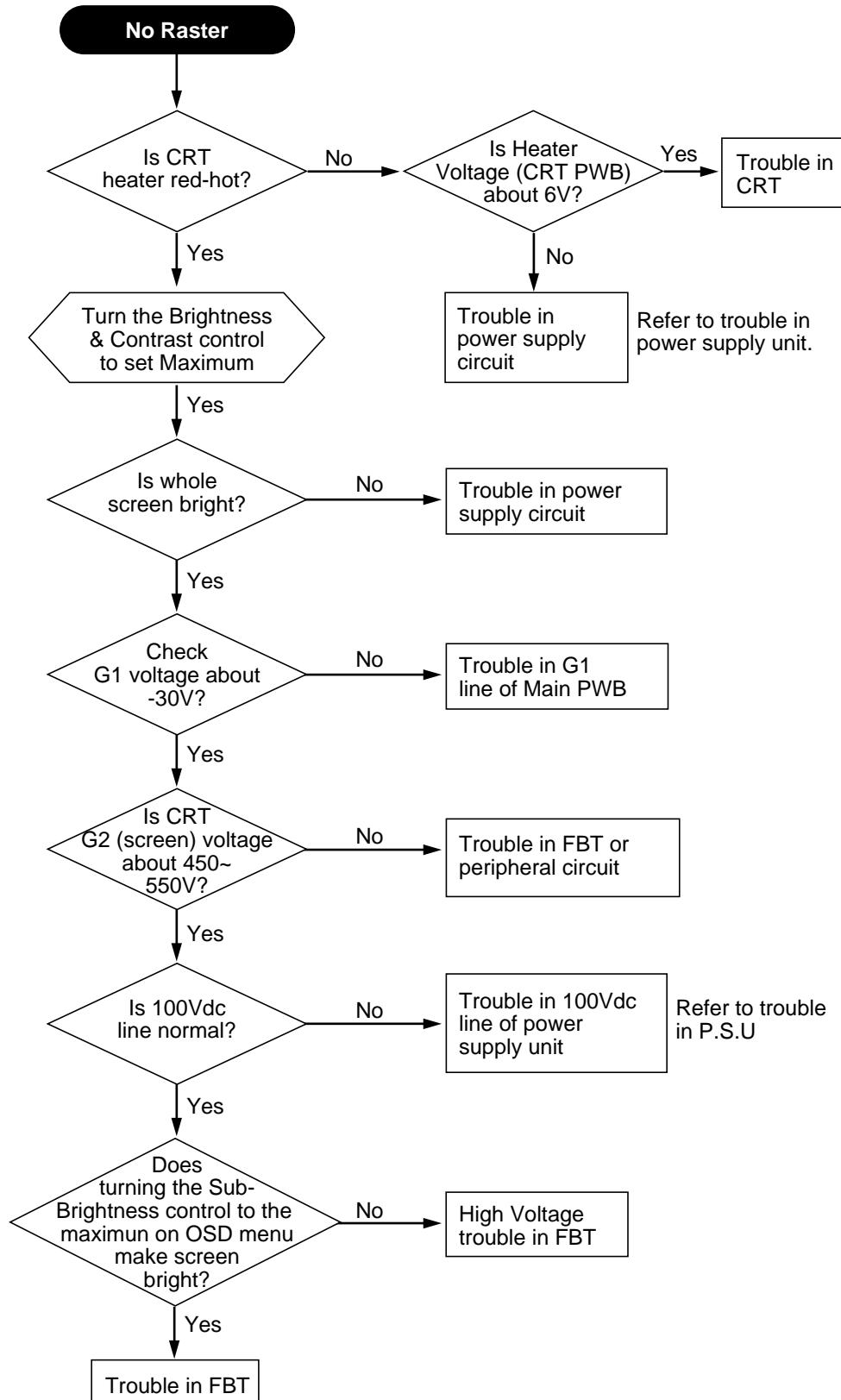
(g) Horizontal green and red lines are converged by varying the tabs together and keeping the angle between them constant.

# TROUBLESHOOTING HINTS

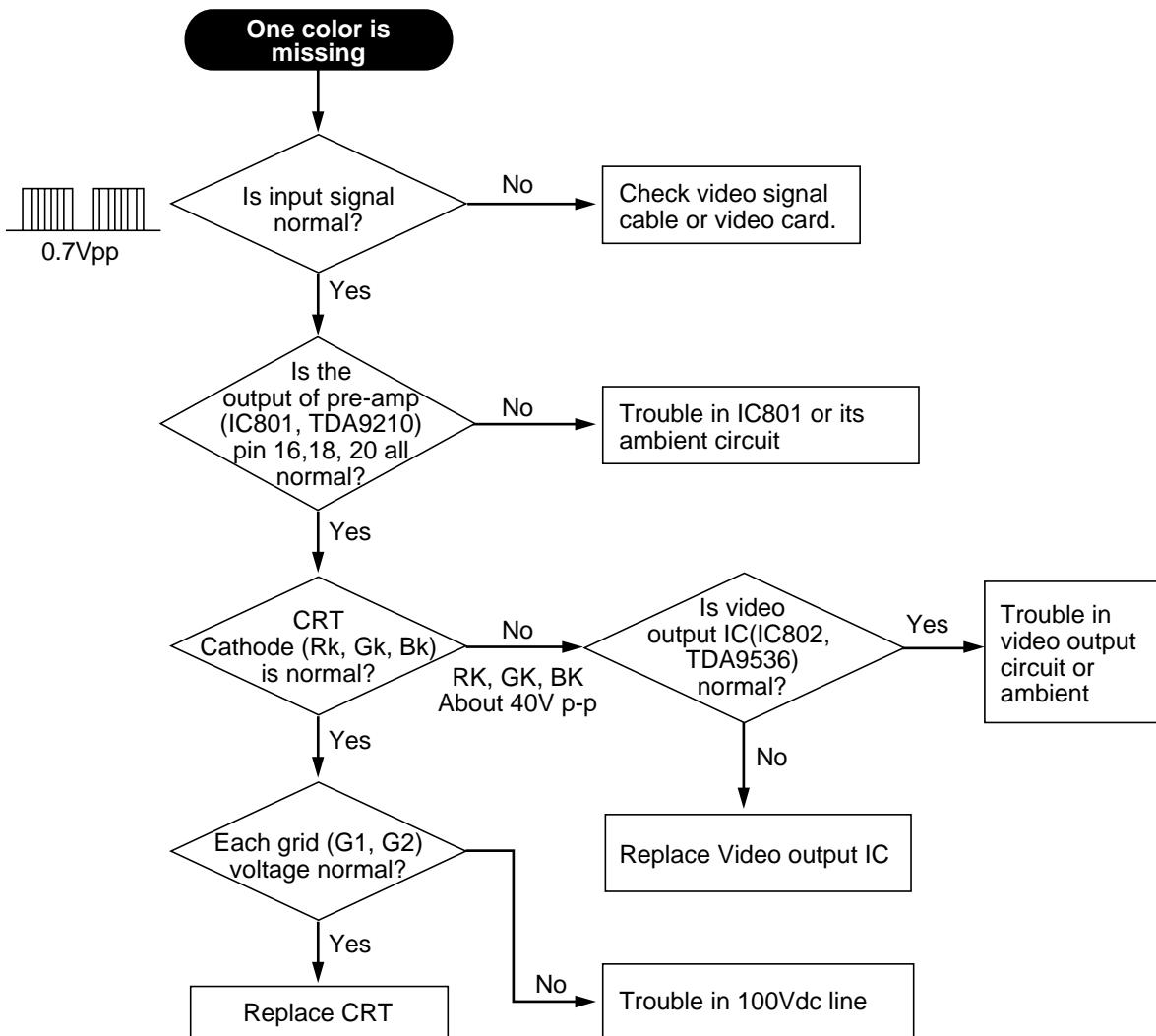
## 1. No Character



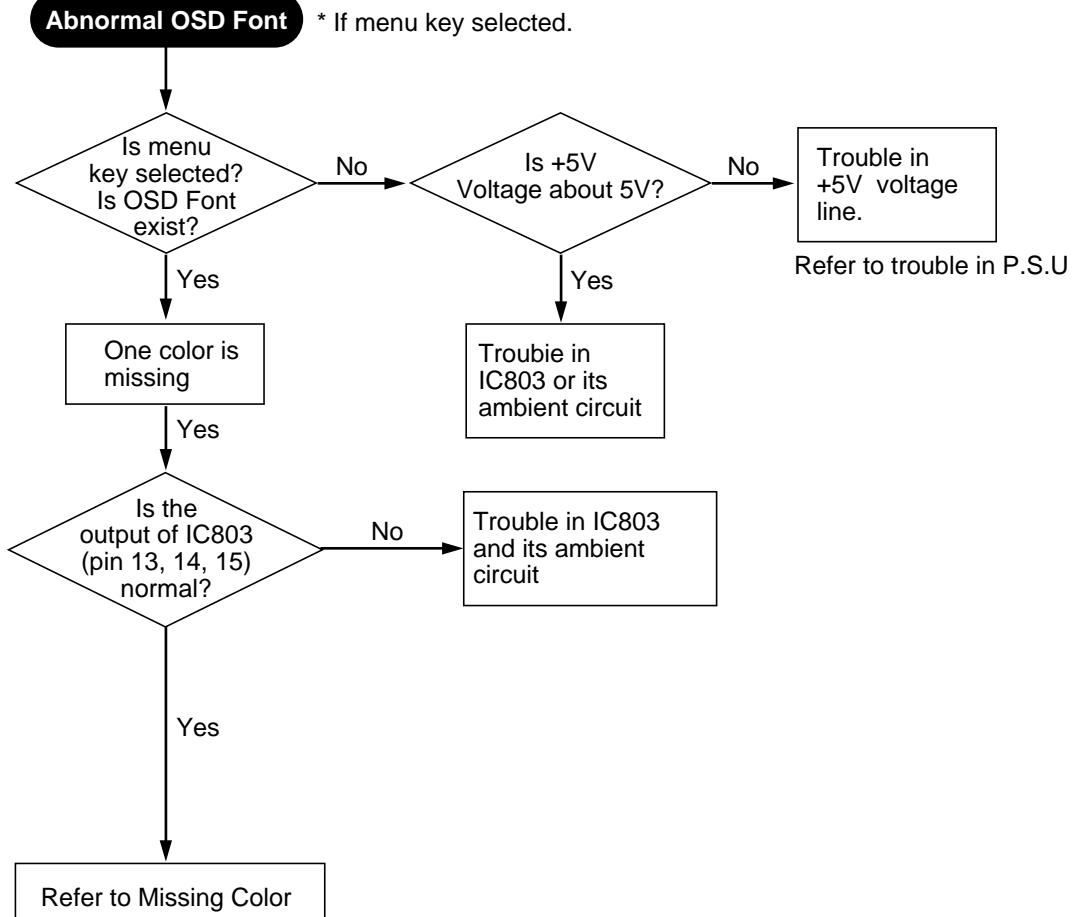
## 2. No Raster



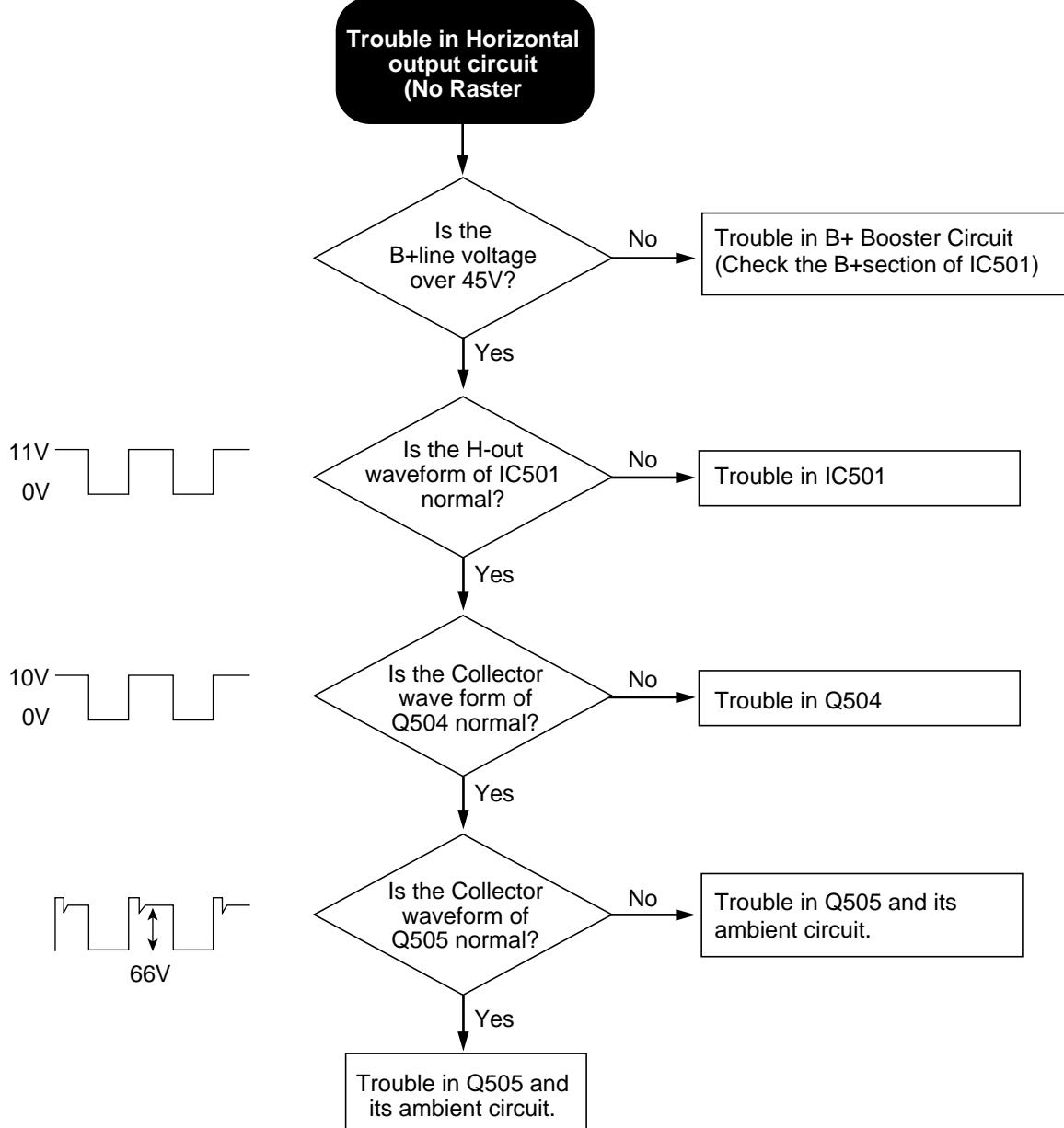
### 3. A Missing Color



#### 4. Abnormal OSD Font

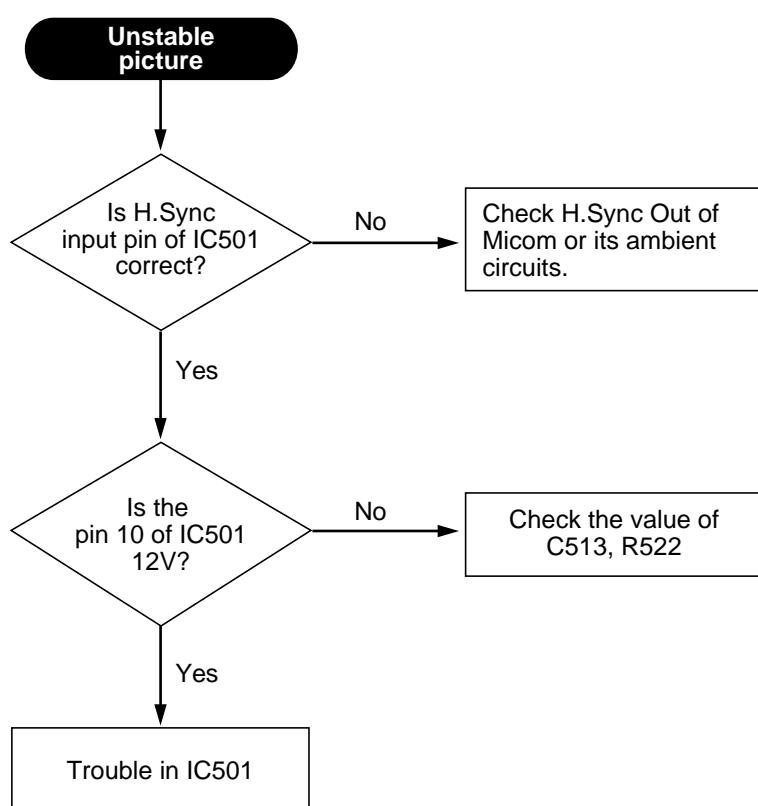


## 5. Horizontal Output Circuit

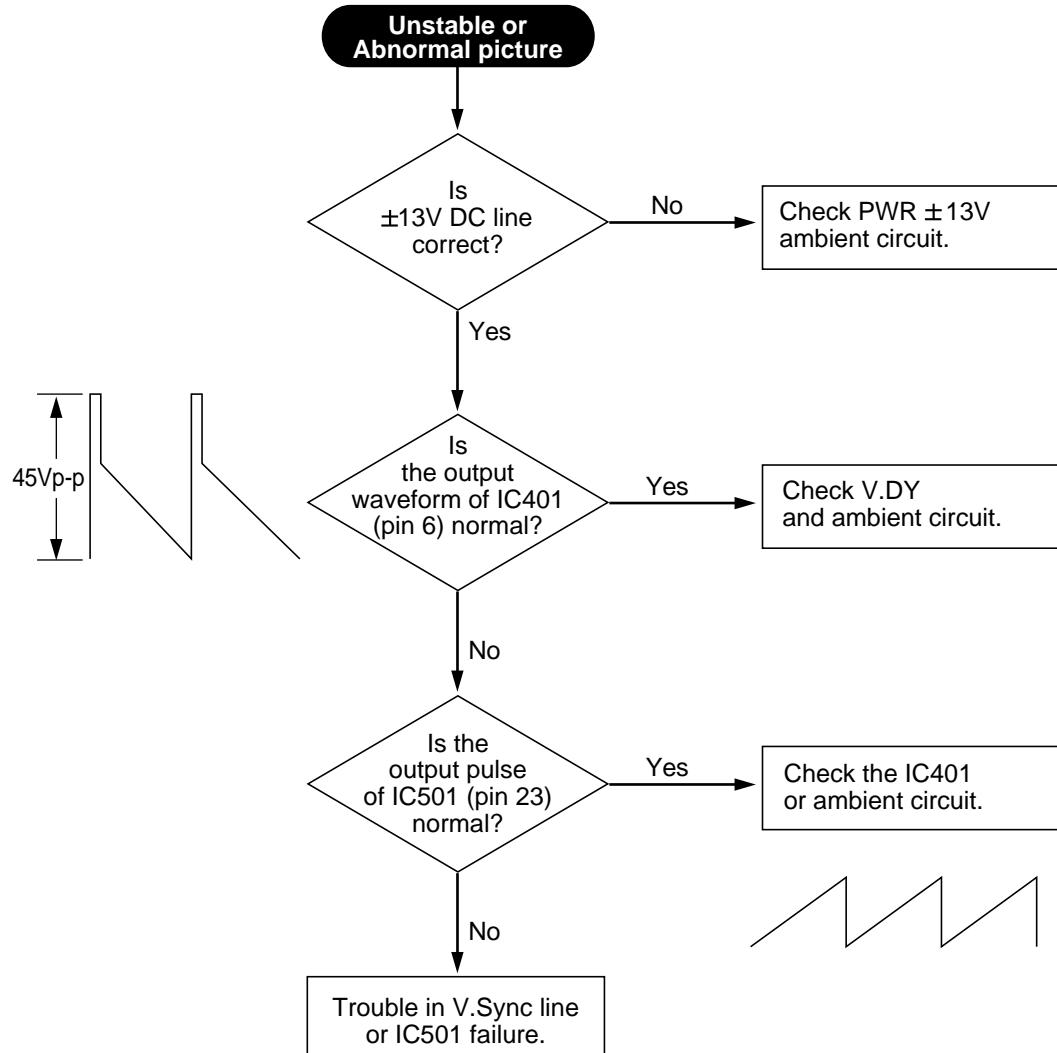


## 6. Unstable Picture

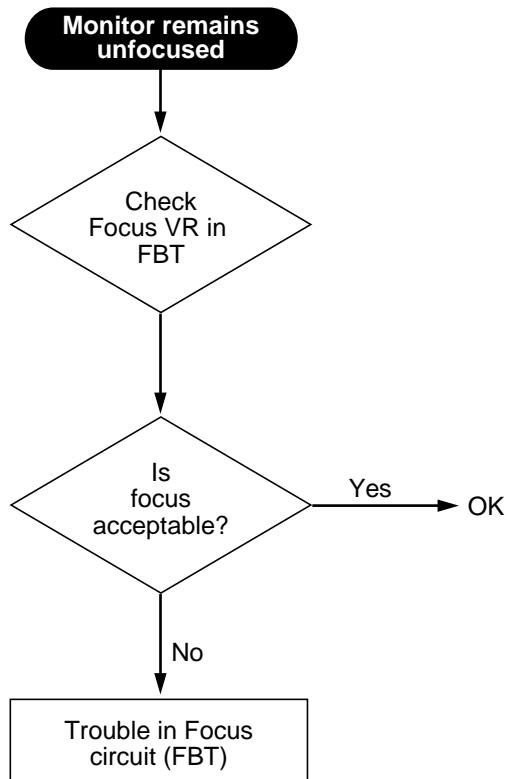
### 6-1. Horizontal



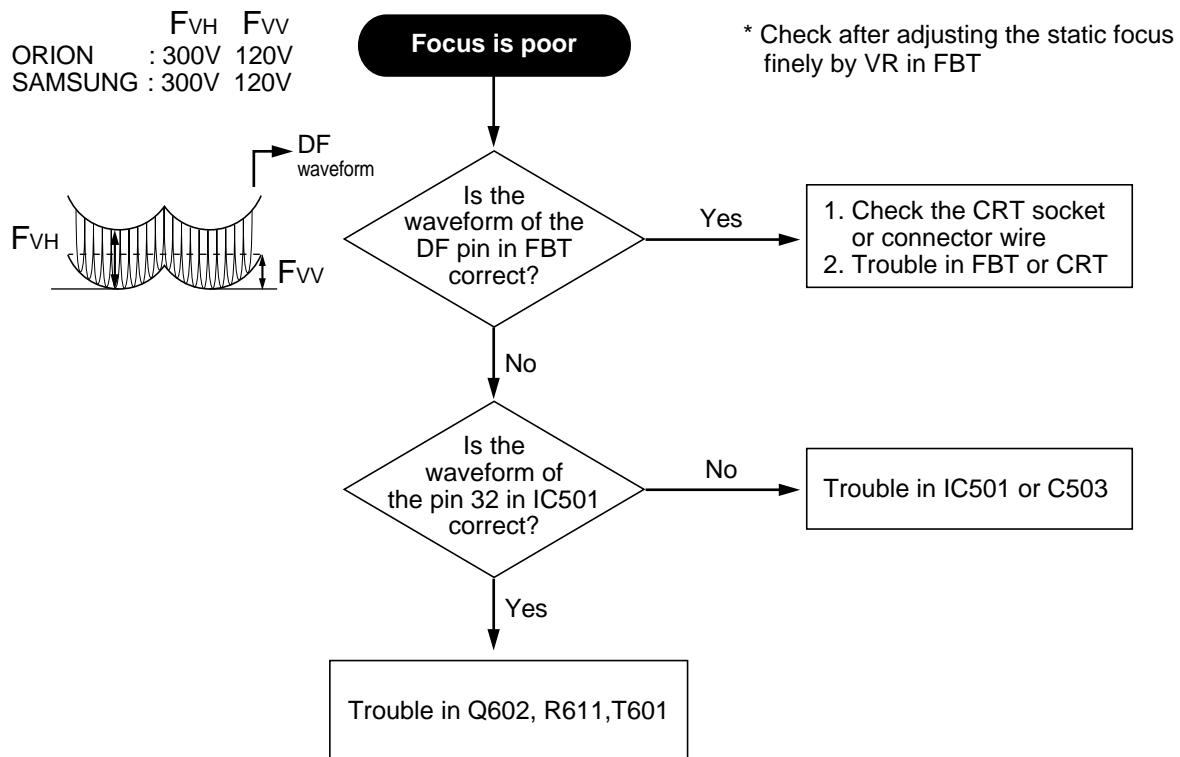
## 6-2. Vertical



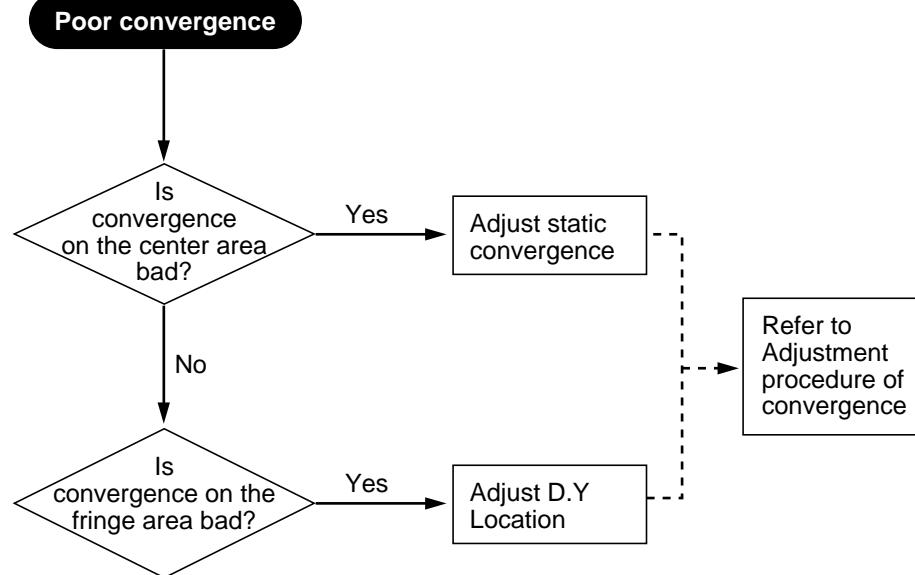
## 7. Focus



## 7-1. Dynamic Focus

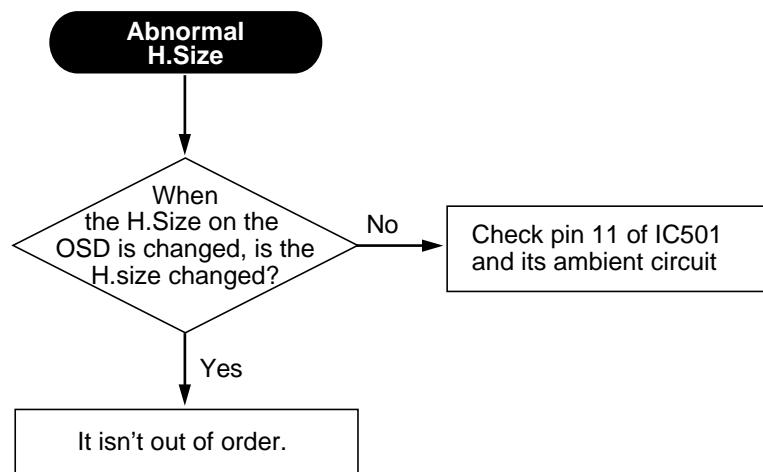


## 8. Convergence

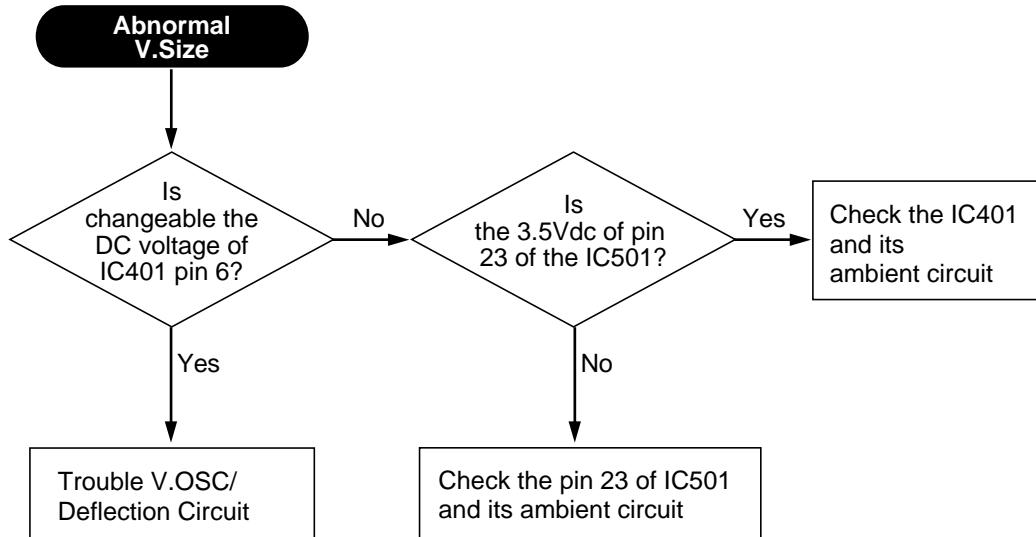


## 9. Abnormal Picture

### 9-1. Horizontal Size

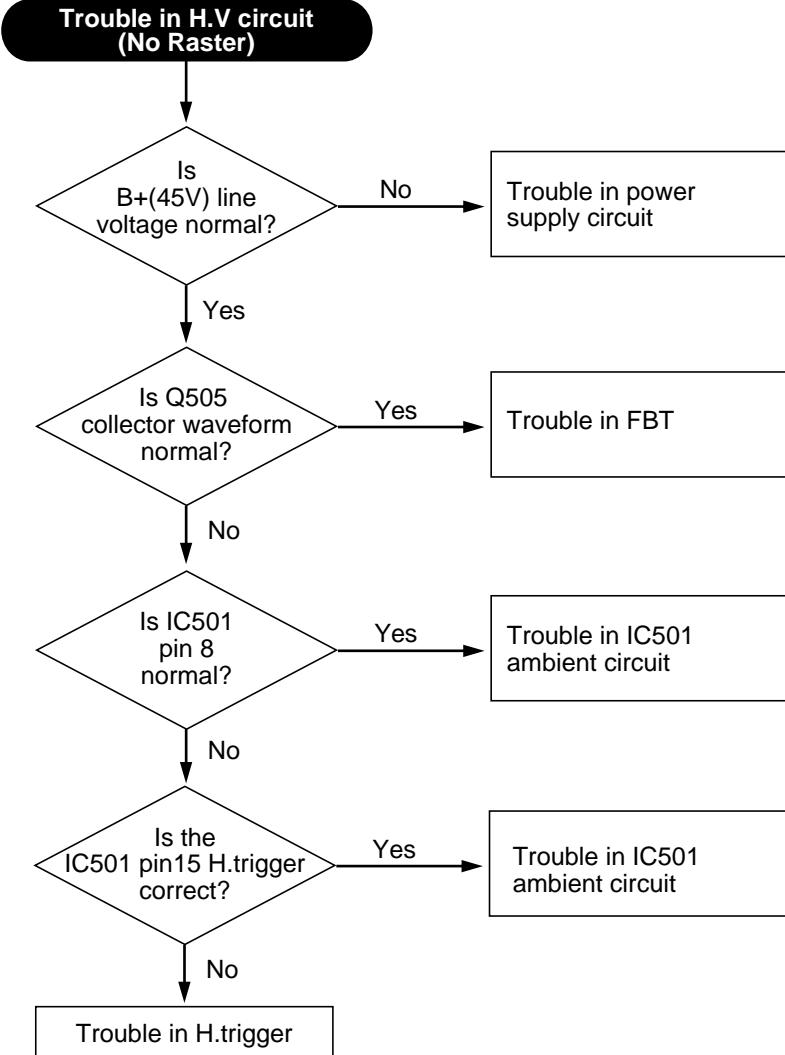


## 9-2. Vertical Size

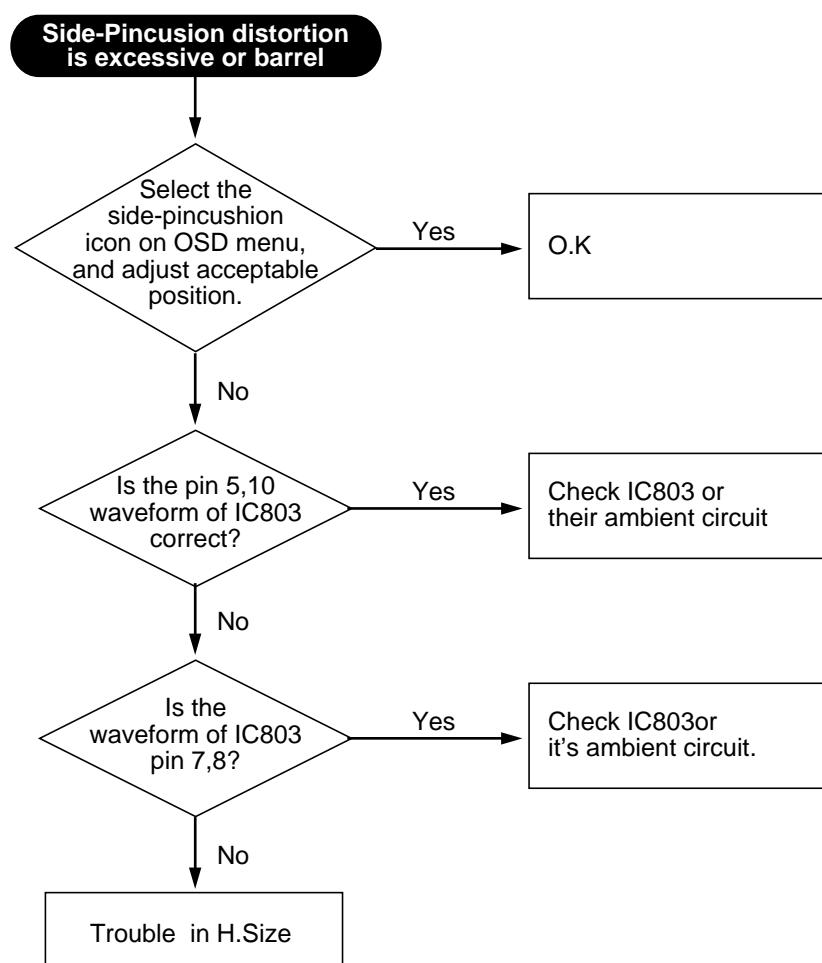


Refer to V.OSC/Deflection circuit

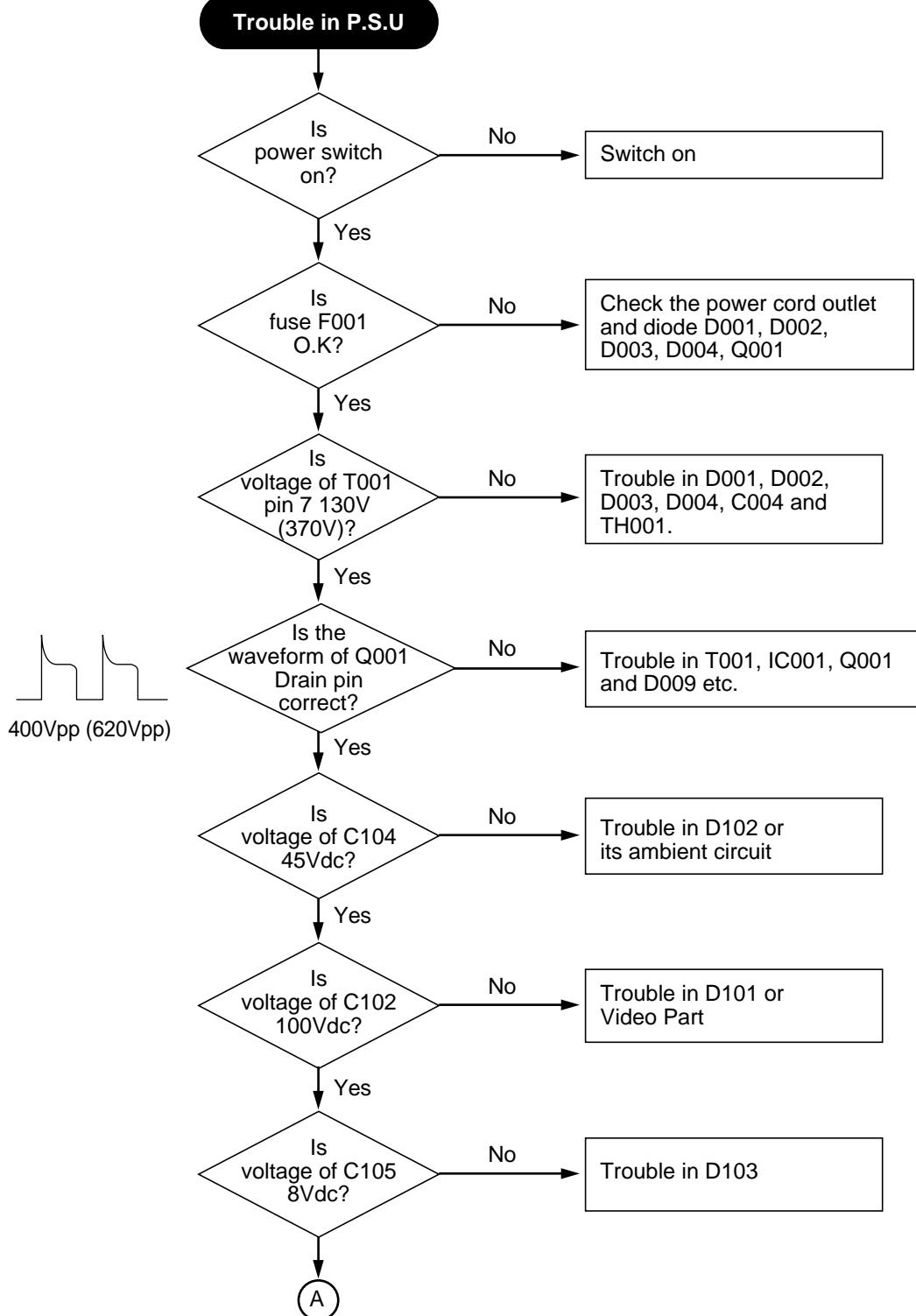
## 10. High Voltage Output Circuit

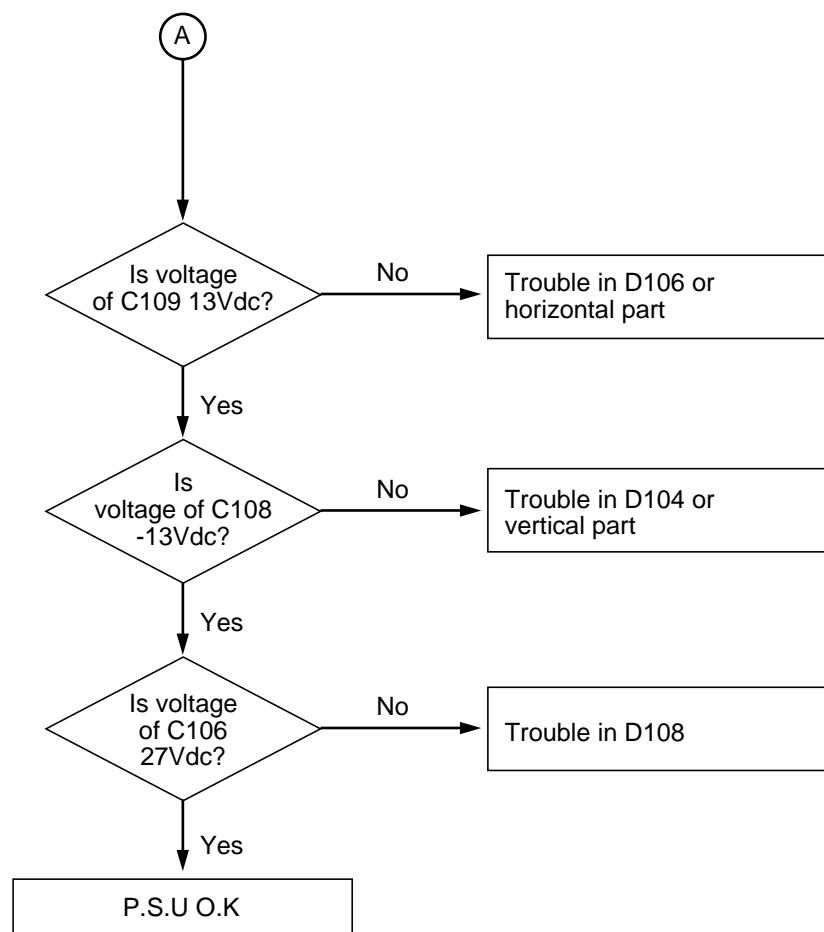


## 11. Side-Pincushion Circuit

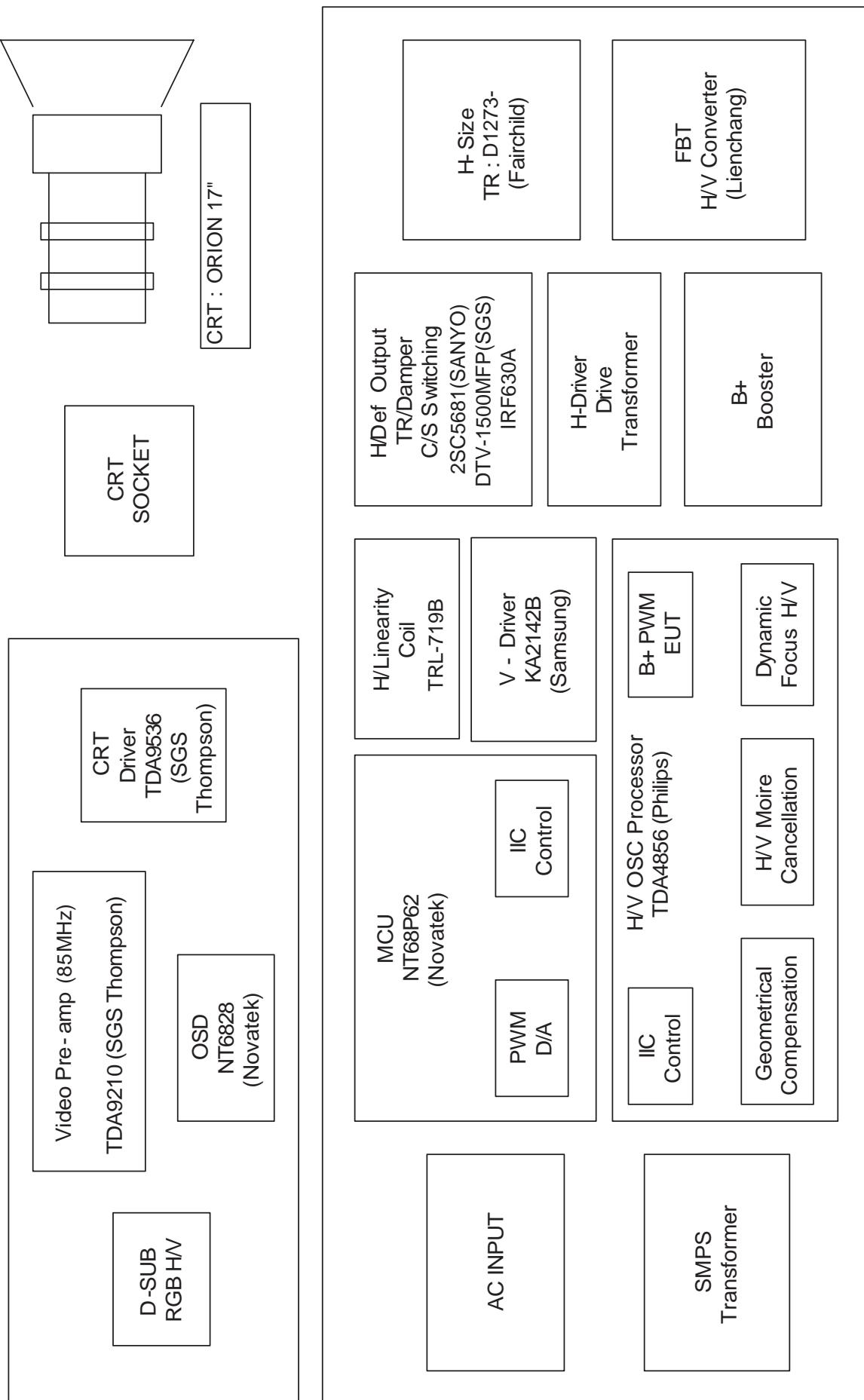


## 12. Power Supply Unit (P.S.U)



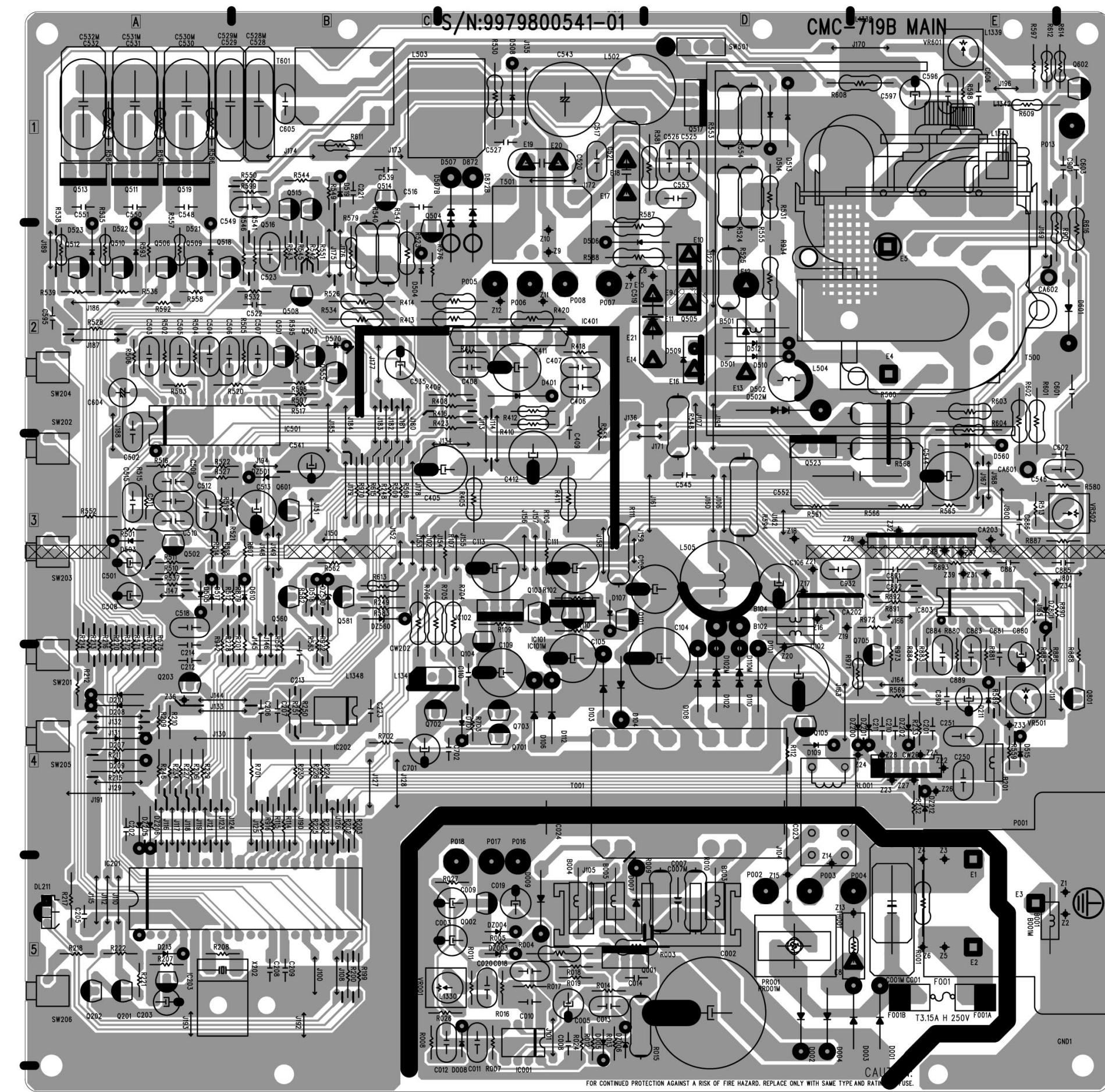


# BLOCK DIAGRAM

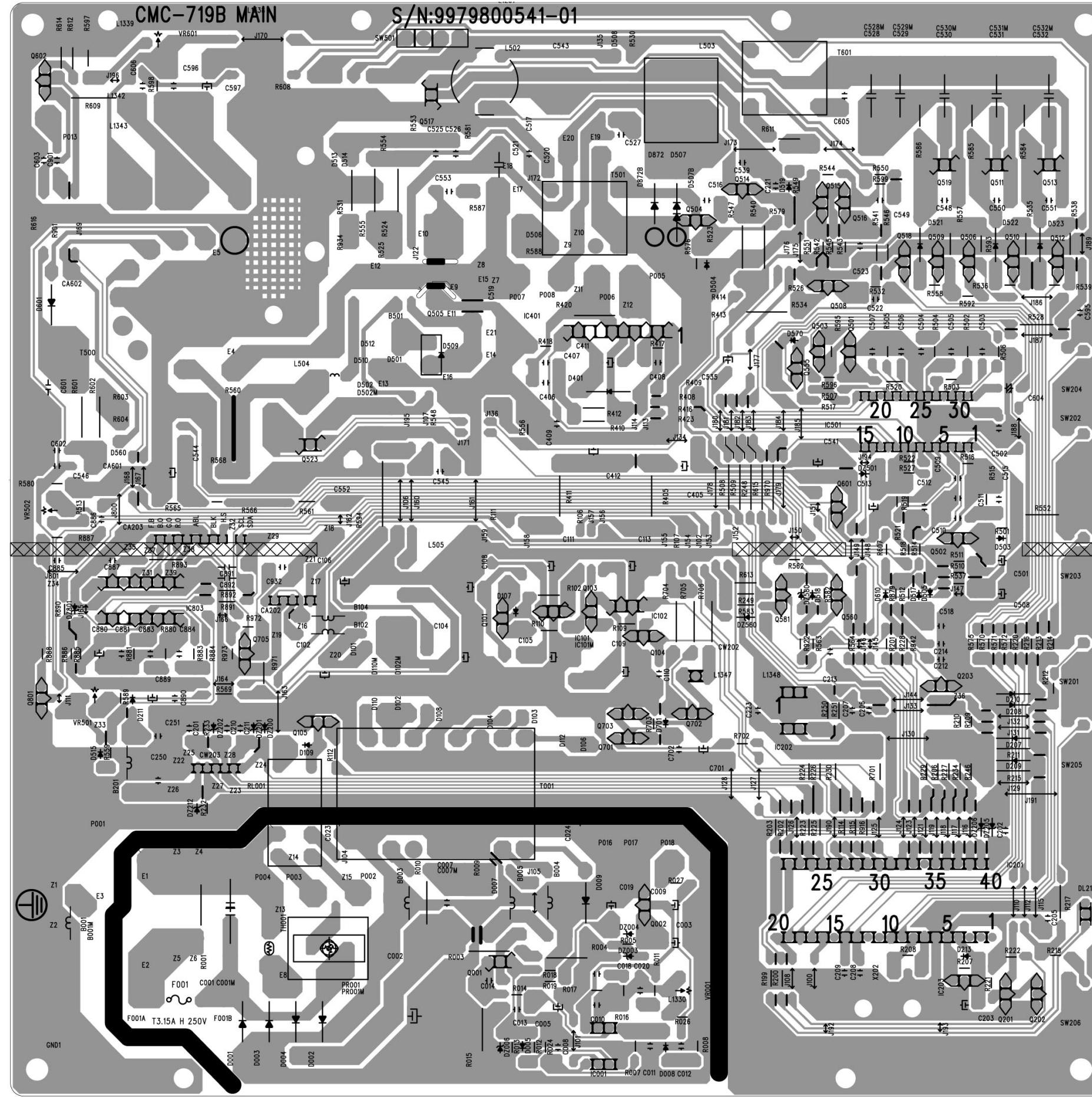


## PCB LAYOUT

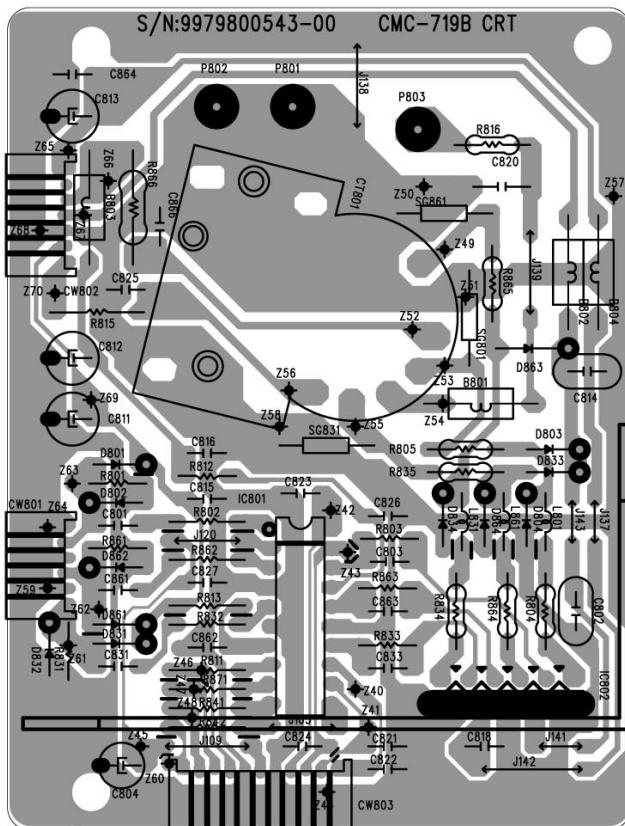
### 719B/719BF Main PCB Component Side



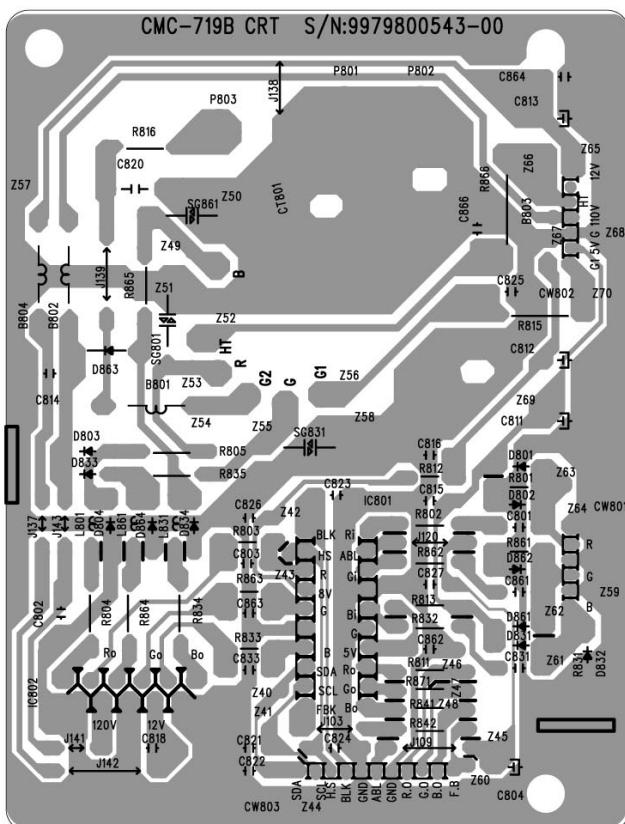
## **719B/719BF Main PCB Solder Side**



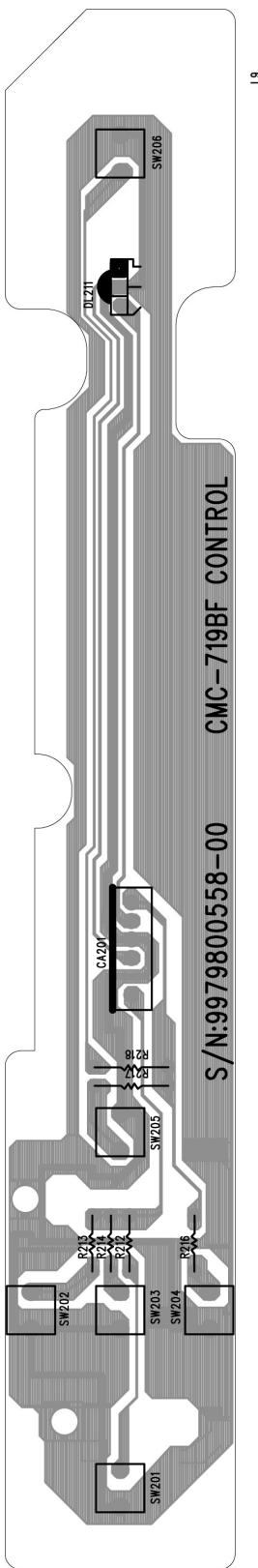
# **719B/719BF CRT PCB Component Side**



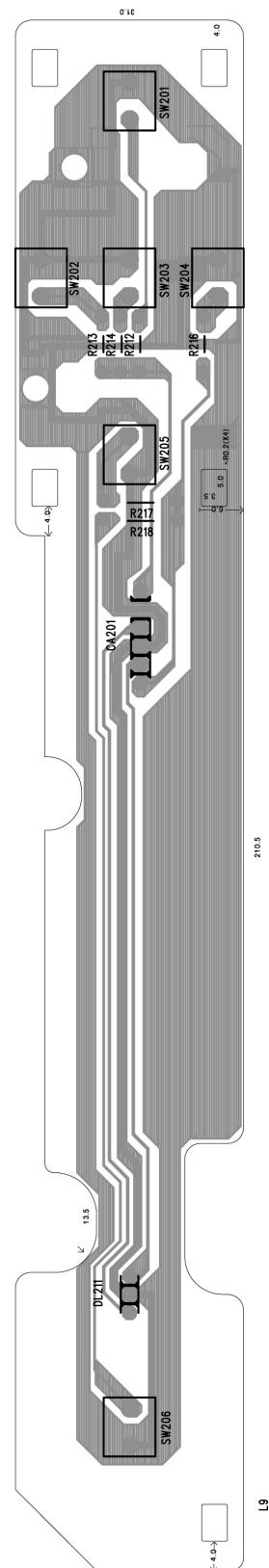
## **719B/719BF CRT PCB Solder Side**



**719BF Control PCB Component Side**

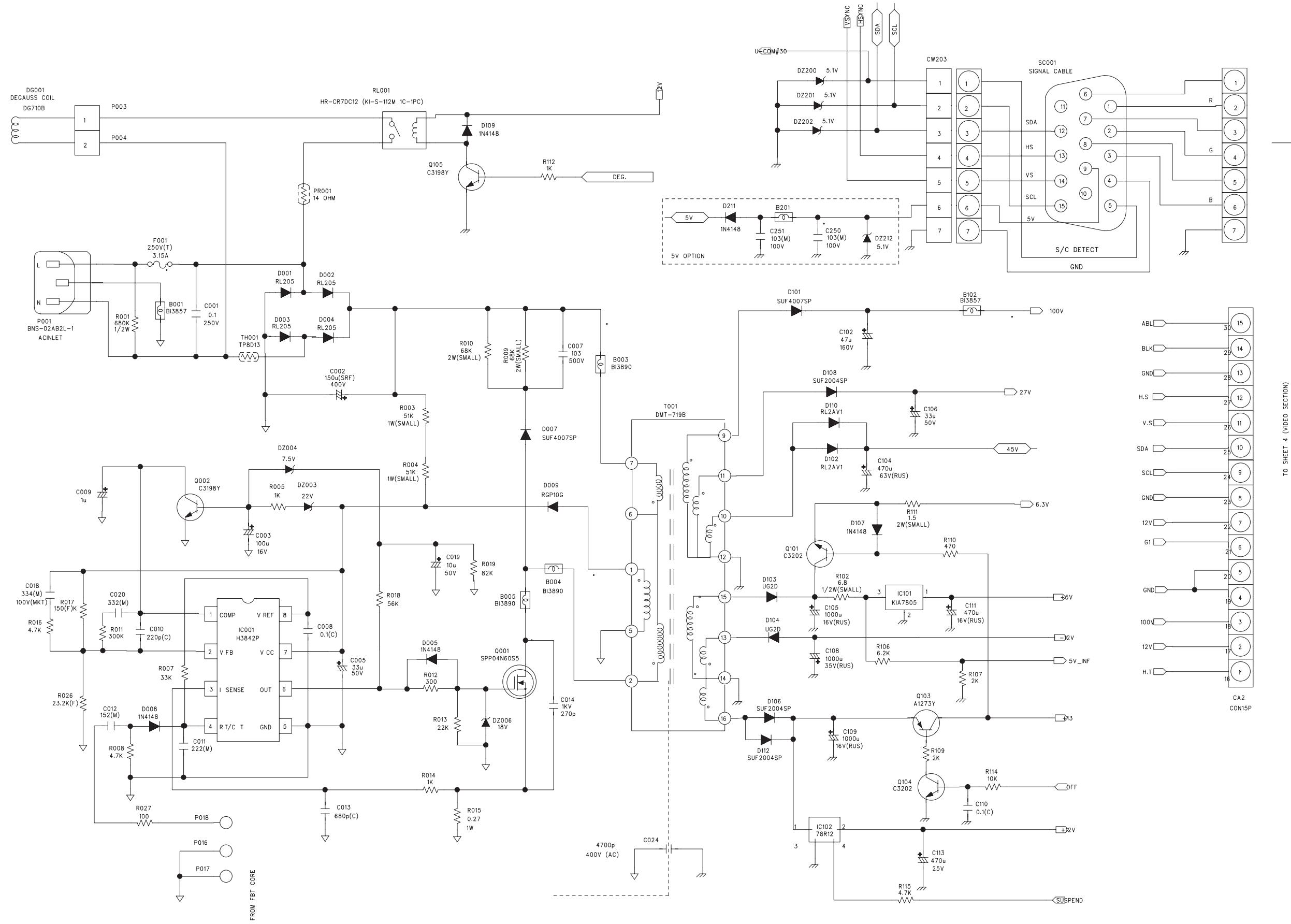


**719BF Control PCB Solder Side**

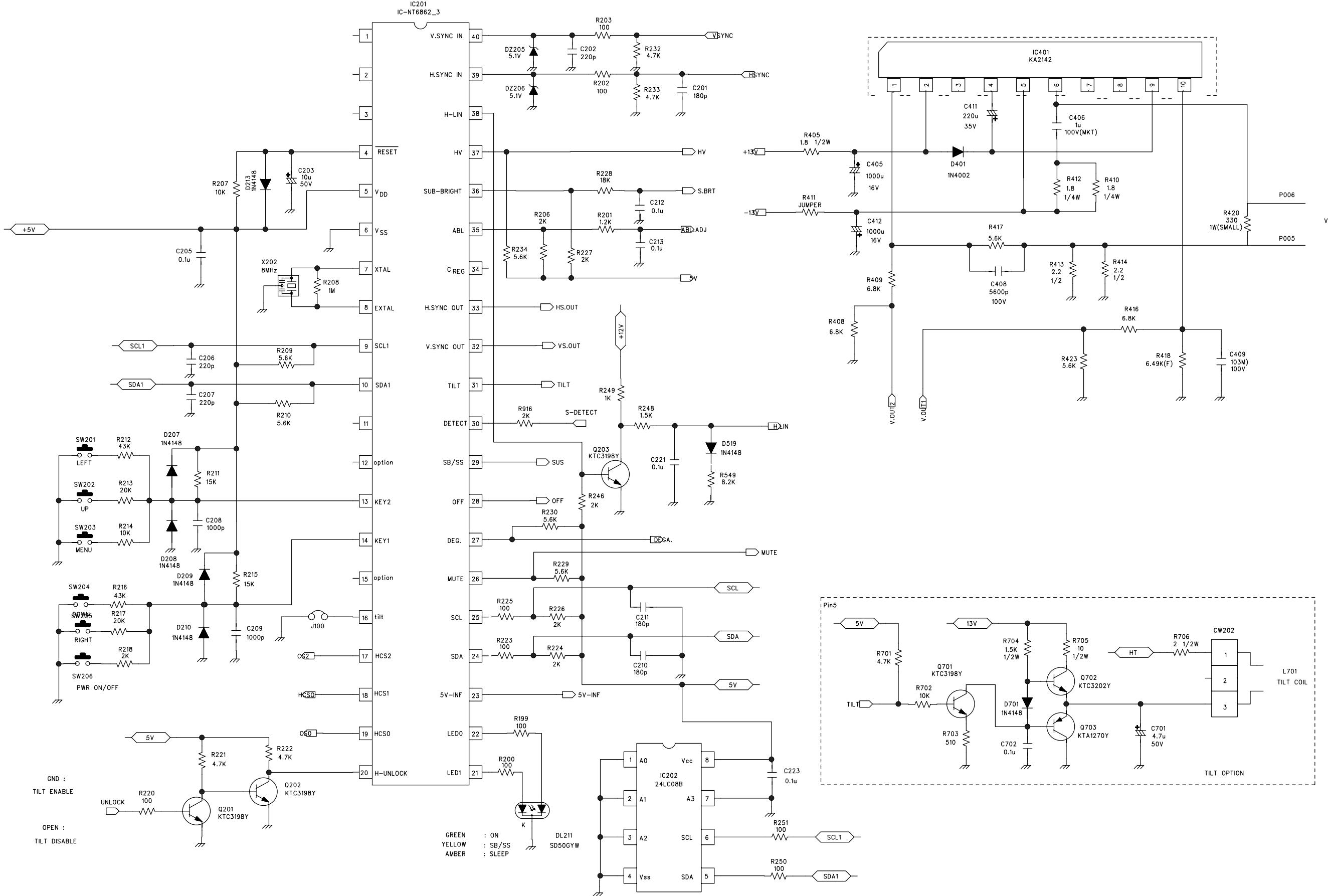


# SCHEMATIC DIAGRAM

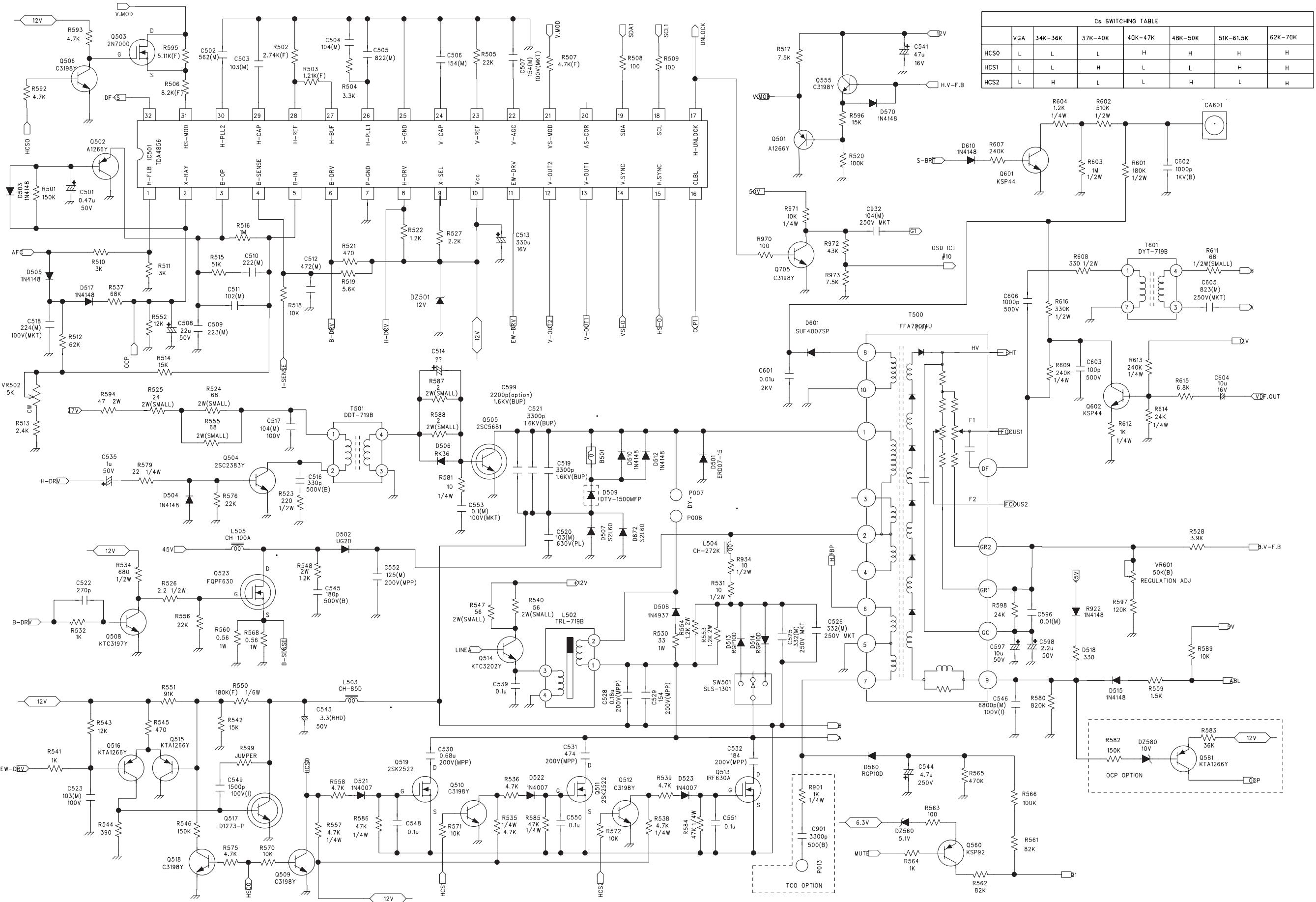
## Power & Connection Section



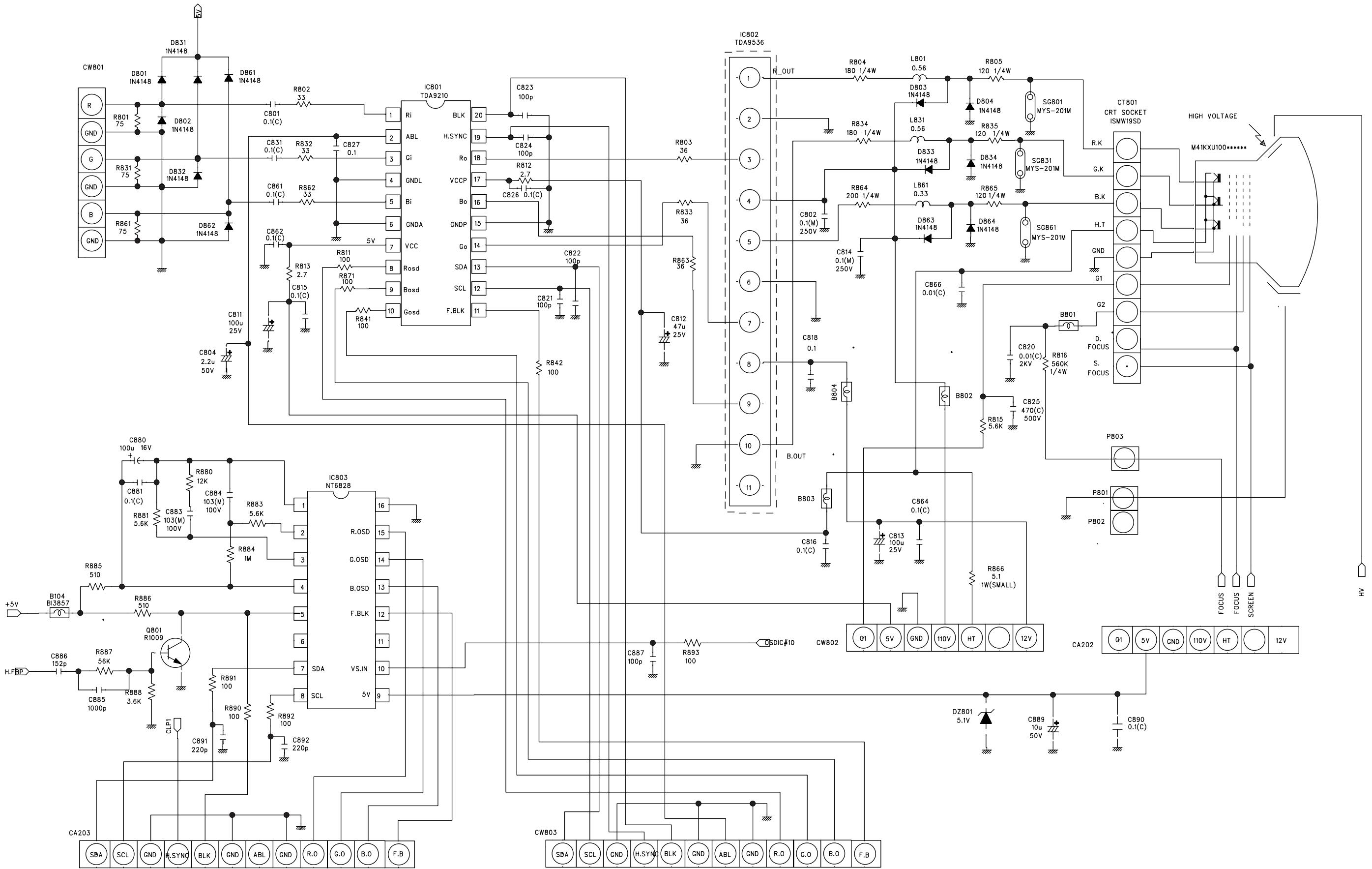
## Control & Vert. out Section



## Horizontal Section

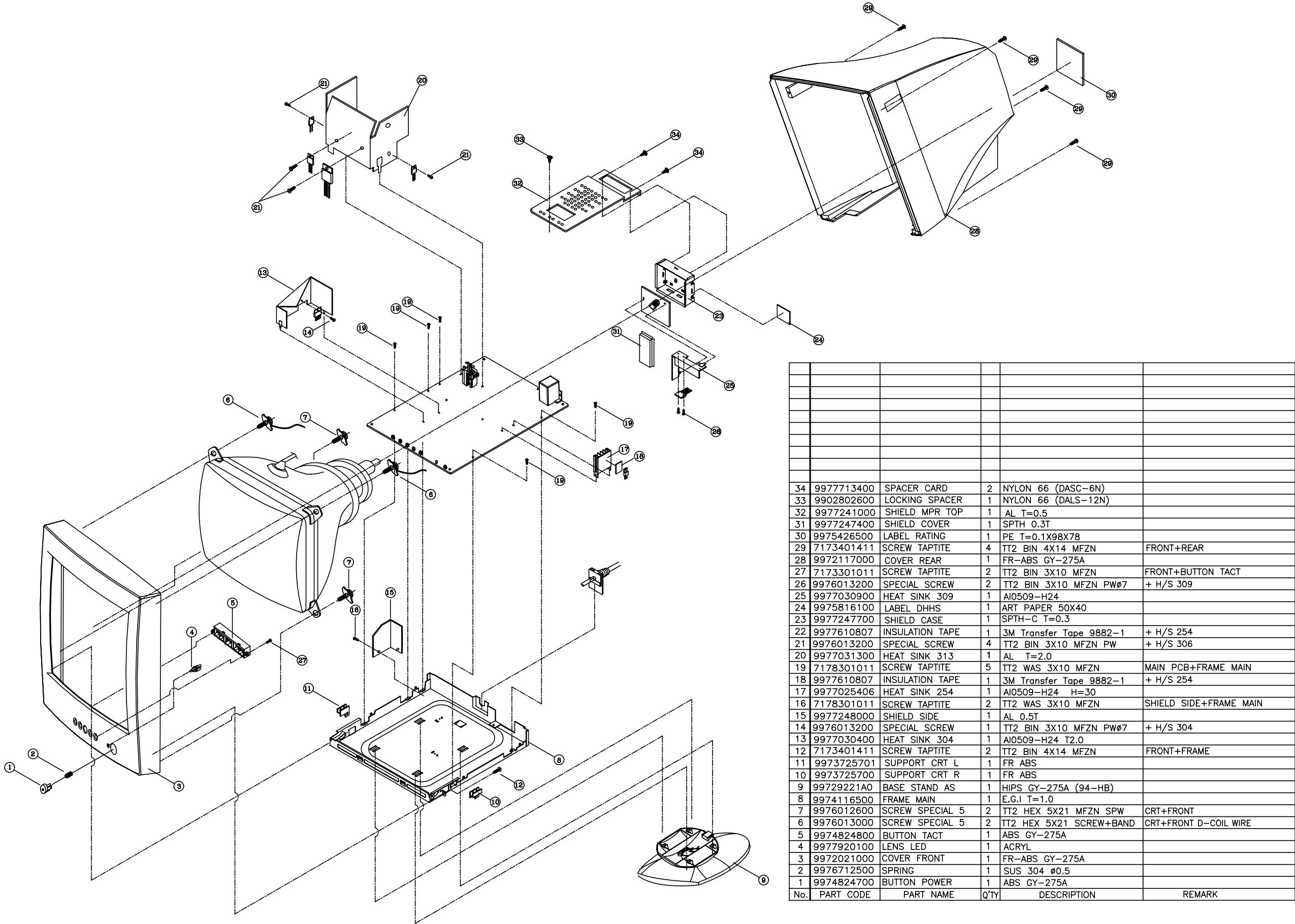


## Video Section

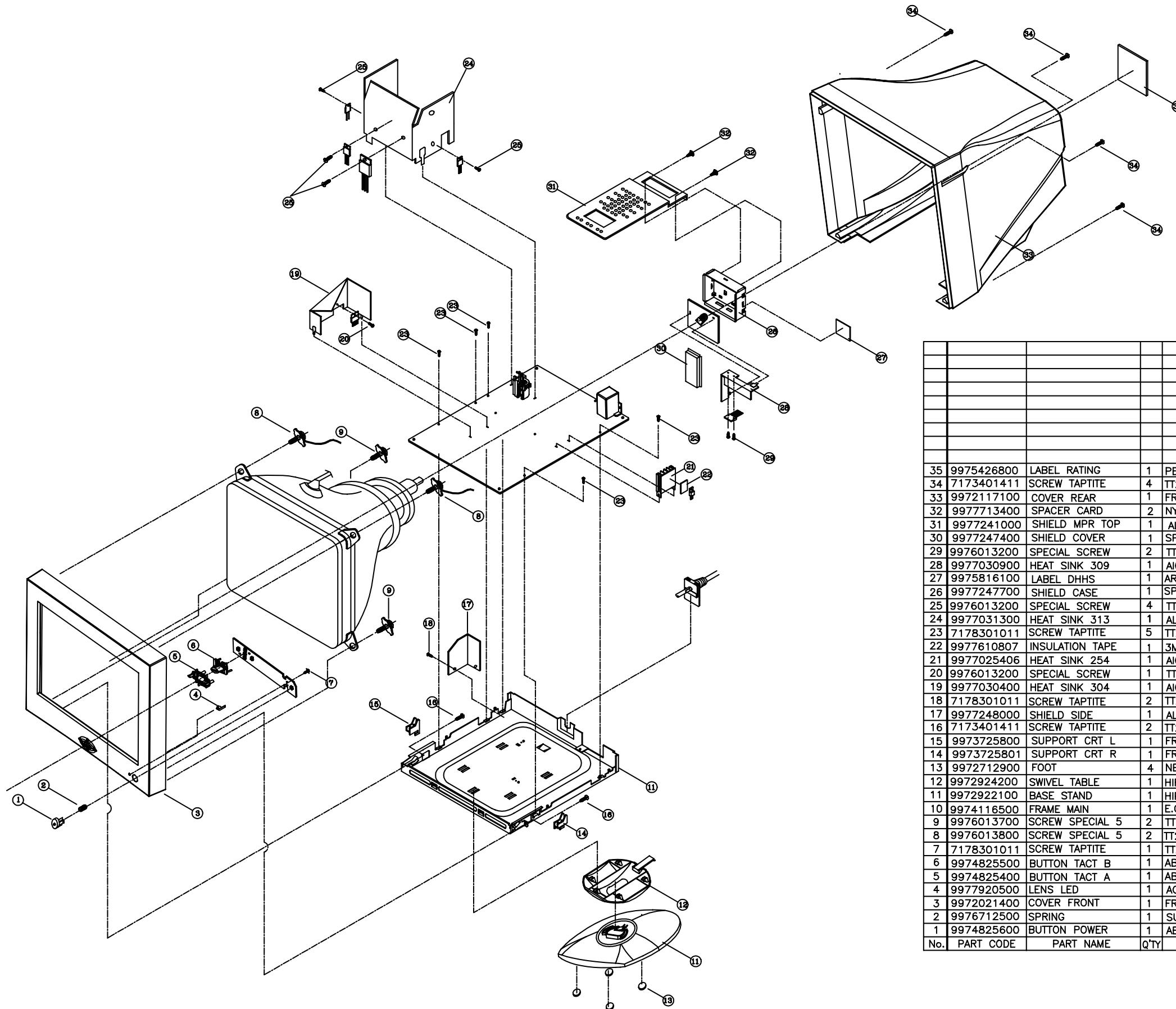


# EXPLODED VIEW & MECHANICAL PARTS LIST

719B



719BF



No.	PART CODE	PART NAME	Q'TY	DESCRIPTION	REMARK
35	9975426800	LABEL RATING	1	PE T=0.1X98X78	
34	7173401411	SCREW TAPITIE	4	TT2 BIN 4X14 MFZN	FRONT+REAR
33	9972117100	COVER REAR	1	FR-ABS GY-275A	
32	9977713400	SPACER CARD	2	NYLON 66 (DASC-6N)	
31	9977241000	SHIELD MPR TOP	1	AL T=0.5	
30	9977247400	SHIELD COVER	1	SPTH 0.3T	
29	9976013200	SPECIAL SCREW	2	TT2 BIN 3X10 MFZN PWØ7	+ H/S 309
28	9977030900	HEAT SINK 309	1	AI0509-H24	
27	9975816100	LABEL DHHS	1	ART PAPER 50X40	
26	9977247700	SHIELD CASE	1	SPTH-C T=0.3	
25	9976013200	SPECIAL SCREW	4	TT2 BIN 3X10 MFZN PW	+ H/S 313
24	9977031300	HEAT SINK 313	1	AL T=2.0	
23	7178301011	SCREW TAPITIE	5	TT2 WAS 3X10 MFZN	MAIN PCB+FRAME MAIN
22	9977610807	INSULATION TAPE	1	3M Transfer Tape 9882-1	+ H/S 254
21	9977025406	HEAT SINK 254	1	AI0509-H24 H=30	
20	9976013200	SPECIAL SCREW	1	TT2 BIN 3X10 MFZN PWØ7	+ H/S 304
19	9977030400	HEAT SINK 304	1	AI0509-H24 T2.0	
18	7178301011	SCREW TAPITIE	2	TT2 WAS 3X10 MFZN	SHIELD SIDE+FRAME MAIN
17	9977248000	SHIELD SIDE	1	AL 0.5T	
16	7173401411	SCREW TAPITIE	2	TT2 BIN 4X14 MFZN	FRONT+FRAME
15	9973725800	SUPPORT CRT L	1	FR-ABS	
14	9973725801	SUPPORT CRT R	1	FR-ABS	
13	9972712900	FOOT	4	NBR BLACK	
12	9972924200	SWIVEL TABLE	1	HIPS GY-275A (94-HB)	
11	9972922100	BASE STAND	1	HIPS GY-275A (94-HB)	
10	9974116500	FRAME MAIN	1	E.G.I T=1.0	
9	9976013700	SCREW SPECIAL 5	2	TT2 HEX 5X21 MFZN SPW	CRT+FRONT
8	9976013800	SCREW SPECIAL 5	2	TT2 HEX 5X21 SCREW+BAND	CRT+FRONT D-COIL WIRE
7	7178301011	SCREW TAPITIE	1	TT2 WAS 3X10 MFZN	CONTROL PCB+FRONT
6	9974825500	BUTTON TACT B	1	ABS GY-275A	
5	9974825400	BUTTON TACT A	1	ABS GY-275A	SILVER SPRAY
4	9977920500	LENS LED	1	ACRYL	
3	9972021400	COVER FRONT	1	FR-ABS GY-275A	
2	9976712500	SPRING	1	SUS 304 Ø0.5	
1	9974825600	BUTTON POWER	1	ABS GY-275A	

# ELECTRICAL PARTS LIST

The components identified by mark ! have special characteristics important for safety and x-ray radiation. These should be replaced only with the types specified in the parts list.

## ◆ Parts List for 719B & 719BF

LOC	PART-CODE	PART-NAME	PART-DESC	LOC	PART-CODE	PART-NAME	PART-DESC
00020	W3475N731-	CORD POWER	3 H05VV-F 3X0.75 1.8 IV	C210	CCXB1H181K	C CERA	50V B 180PF K (TAPPING)
B001	5PB13857--	COIL BEAD	BI3857(AXIAL)	C211	CCXB1H181K	C CERA	50V B 180PF K (TAPPING)
! B003	5PB13890--	COIL BEAD	BI3890	C212	CCXF1H104Z	C CERA	50V F 0.1MF Z
! B004	5PB13890--	COIL BEAD	BI3890	C213	CCXF1H104Z	C CERA	50V F 0.1MF Z
! B005	5PB13890--	COIL BEAD	BI3890	C221	CCXF1H104Z	C CERA	50V F 0.1MF Z
B102	5PB13857--	COIL BEAD	BI3857(AXIAL)	C223	CCXF1H104Z	C CERA	50V F 0.1MF Z
B104	5PB13857--	COIL BEAD	BI3857(AXIAL)	C405	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP
B501	5PB13857--	COIL BEAD	BI3857(AXIAL)	C406	CMXL1J105J	C MYLAR	MEU 63V 1MF J
B801	5PB13857--	COIL BEAD	BI3857(AXIAL)	C408	CMXM2A562J	C MYLAR	100V 5600PF J (TP)
B802	5PB13857--	COIL BEAD	BI3857(AXIAL)	C409	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)
B803	5PB13857--	COIL BEAD	BI3857(AXIAL)	C411	CEXF1V221V	C ELECTRO	35V RSS 220MF (10X12.5)TP
B804	5PB13857--	COIL BEAD	BI3857(AXIAL)	C412	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP
! C001	CL1UC3104M	C LINE ACROSS	WORLD AC250V 0.1UF M R.47	C501	CEXF1H478V	C ELECTRO	50V RSS 0.47MF (5X11) TP
C002	CEYP2G151Z	C ELECTRO	400V SMH 150MF (25.4*40)	C502	CMXM2A562J	C MYLAR	100V 5600PF J (TP)
C003	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	C503	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)
C005	CEXF1H330V	C ELECTRO	50V RSS 33MF (6.3X11) TP	! C504	CMXL2A104J	C MYLAR	MEU 100V 0.1MF J
! C007	CCXB2H103K	C CERA	HIKB 500V 0.01MF K	C505	CMXM2A822J	C MYLAR	100V 8200PF J (TP)
C008	CCXF1H104Z	C CERA	50V F 0.1MF Z	! C506	CMXL2A154J	C MYLAR	MEU 100V 0.15MF J
C009	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP	! C507	CMXL2A154J	C MYLAR	MEU 100V 0.15MF J
C010	CCXB1H221K	C CERA	50V B 220PF K (TAPPING)	C508	CEXF1H220V	C ELECTRO	50V RSS 22MF (5X11) TP
C011	CMXM2A222J	C MYLAR	100V 2200PF J (TP)	C509	CMXM2A562J	C MYLAR	100V 5600PF J (TP)
C012	CMXM2A152J	C MYLAR	100V 1500PF J (TP)	C510	CMXM2A222J	C MYLAR	100V 2200PF J (TP)
C013	CCXB1H681K	C CERA	50V B 680PF K (TAPPING)	C511	CMXM2A102J	C MYLAR	100V 1000PF J (TP)
! C014	CCXB3A271K	C CERA	1KV B 270PF K (TAPPING)	C512	CMXM2A472J	C MYLAR	100V 4700PF J (TP)
! C018	CMXL2A334J	C MYLAR	MEU 100V 0.33MF J	C513	CEXF1C331V	C ELECTRO	16V RSS 330MF (8X11.5) TP
C019	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	C516	CCXB2H331K	C CERA	500V B 330PF K (TAPPING)
C020	CMXM2A332J	C MYLAR	100V 3300PF J (TP)	! C517	CMXL2A104J	C MYLAR	MEU 100V 0.1MF J
! C024	CH1FDF472M	C CERA AC	2.5KV 4700PF M AC250V	! C518	CMXL2A224J	C MYLAR	100V MEU 0.22MF J
C102	CEXF2C470V	C ELECTRO	160V RSS 47MF (13X25) TP	C519	CMYH3C222J	C MYLAR	1.6KV BUP 2200PF J
! C104	CEXF1J471C	C ELECTRO	RUS 63V 470MF (13*25)	C520	CMXE2J103J	C MYLAR	630V PL 0.01MF J
! C105	CEXF1C102C	C ELECTRO	16V RUS 1000MF (10X20) TP	C521	CMYH3C222J	C MYLAR	1.6KV BUP 2200PF J
C106	CEXF1H330V	C ELECTRO	50V RSS 33MF (6.3X11) TP	C522	CCXB1H271K	C CERA	50V B 270PF K (TAPPING)
! C108	CEXF1V102C	C ELECTRO	35V RUS 1000MF (13X25) TP	C523	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)
! C109	CEXF1C102C	C ELECTRO	16V RUS 1000MF (10X20) TP	C526	CMXE2J103J	C MYLAR	630V PL 0.01MF J
C110	CCXF1H104Z	C CERA	50V F 0.1MF Z	C528	CMXF2D184J	C MYLAR	MPP 200V 0.18MF J (TP)
! C111	CEXF1C471C	C ELECTRO	16V RUS 470MF (10X12.5)TP	C529	CMXF2D154J	C MYLAR	200V MPP 0.15MF J
C113	CEXF1E471V	C ELECTRO	25V RSS 470MF (10X16) TP	C530	CMYF2D684J	C MYLAR	200V MPP 0.68MF J
C201	CCXB1H181K	C CERA	50V B 180PF K (TAPPING)	C531	CMXF2D474J	C MYLAR	MPP 200V 0.47MF J
C202	CCXB1H221K	C CERA	50V B 220PF K (TAPPING)	C532	CMXF2D184J	C MYLAR	MPP 200V 0.18MF J (TP)
C203	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	C535	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C205	CCXF1H104Z	C CERA	50V F 0.1MF Z	C539	CCXF1H104Z	C CERA	50V F 0.1MF Z
C206	CCXB1H221K	C CERA	50V B 220PF K (TAPPING)	C541	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C207	CCXB1H221K	C CERA	50V B 220PF K (TAPPING)	! C543	CEXD1H339W	C ELECTRO	50V RHD 3.3MF(16*25)
C208	CCXB1H102K	C CERA	50V B 1000PF K (TAPPING)	C544	CEXF2E479V	C ELECTRO	250V RSS 4.7MF (10X16)TP
C209	CCXB1H102K	C CERA	50V B 1000PF K (TAPPING)	C545	CCXB2H181K	C CERA	500V B 180PF K (TAPPING)

LOC	PART-CODE	PART-NAME	PART-DESC	LOC	PART-CODE	PART-NAME	PART-DESC
C546	CMXM2A682J	C MYLAR	100V 6800PF J (TP)	C891	CCZB1H221K	C CERA	50V B 220PF K
C548	CCXF1H104Z	C CERA	50V F 0.1MF Z	C892	CCZB1H221K	C CERA	50V B 220PF K
C549	CMXM2A152J	C MYLAR	100V 1500PF J (TP)	C932	CMXL2E104J	C MYLAR	MEU 250V 0.1MF J
C550	CCXF1H104Z	C CERA	50V F 0.1MF Z	CA202	9970770028	CONN AS	SMH200-07+YBNH200-07=270
C551	CCXF1H104Z	C CERA	50V F 0.1MF Z	CA203	99707C0012	CONN AS	SMH200-11+YBNH200-12=300
C552	CMYF2D125J	C MYLAR	MPP 200V 1.2MF J BULK	CA601	9970710232	CONN AS	1032#22+35404-9002=320
C553	CMXL2E104J	C MYLAR	MEU 250V 0.1MF J	CDT	9979617037	CDT	M41KXU100XX021 (5X10(5))
C596	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)	CGND	9970710248	CRT GND AS	0.16X3X16+BL101NG=660
C597	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	CT801	9979300008	SOCKET CRT	033 0 7700 44(ISDW-16S)
C598	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	CW203	9979220102	CONN WAFER	SMW200-07 (ST)
C599	CMYH3C222J	C MYLAR	1.6KV BUP 2200PF J	CW801	9979220087	CONN WAFER	SMAW200-06 (ANGLE)
C601	CCXE3D103P	C CERA	HIKE 2KV 0.01MF P	CW802	9979220088	CONN WAFER	SMAW200-07 (ANGLE)
C602	CCXB3A102K	C CERA	1KV B 1000PF K (TAPPING)	CW803	9979220092	CONN WAFER	SMAW200-11 (ANGLE)
C603	CCXB2H101K	C CERA	500V B 100PF K (TAPPING)	D001	DRL205----	DIODE	RL205
C604	CEXD1C100F	C ELECTRO	16V RND 10MF(5X11)	D002	DRL205----	DIODE	RL205
C605	CMXL2E823J	C MYLAR	MEU 250V 0.082MF J(TP)	D003	DRL205----	DIODE	RL205
C606	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)	D004	DRL205----	DIODE	RL205
C801	CCXF1H104Z	C CERA	50V F 0.1MF Z	D005	DZN4148---	DIODE	1N4148 AUTO 52MM
C802	CMXL2E104J	C MYLAR	MEU 250V 0.1MF J	D007	DSUF4007SP	DIODE	SUF4007SP
C804	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	D008	DZN4148---	DIODE	1N4148 AUTO 52MM
C811	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP	D009	DRGP10G---	DIODE	RGP10G
C812	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP	D101	DSUF4007SP	DIODE	SUF4007SP
C813	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP	D102	DRL2AV1---	DIODE	RL2AV1
C814	CMXL2E104J	C MYLAR	MEU 250V 0.1MF J	D103	DUG2D-----	DIODE	UG2D 200V 2A
C815	CCXF1H104Z	C CERA	50V F 0.1MF Z	D104	DUG2D-----	DIODE	UG2D 200V 2A
C816	CCXF1H104Z	C CERA	50V F 0.1MF Z	D106	DSUF2004SP	DIODE	SUF2004SP
C818	CCXF1H104Z	C CERA	50V F 0.1MF Z	D107	DZN4148---	DIODE	1N4148 AUTO 52MM
C820	CCXE3D103P	C CERA	HIKE 2KV 0.01MF P	D108	DSUF2004SP	DIODE	SUF2004SP
C821	CCXB1H101K	C CERA	50V B 100PF K (TAPPING)	D109	DZN4148---	DIODE	1N4148 AUTO 52MM
C822	CCXB1H101K	C CERA	50V B 100PF K (TAPPING)	D110	DRL2AV1---	DIODE	RL2AV1
C823	CCXB1H101K	C CERA	50V B 100PF K (TAPPING)	D112	DSUF2004SP	DIODE	SUF2004SP
C824	CCXB1H101K	C CERA	50V B 100PF K (TAPPING)	D207	DZN4148---	DIODE	1N4148 AUTO 52MM
C825	CCXB2H471K	C CERA	500V B 470PF K (TAPPING)	D208	DZN4148---	DIODE	1N4148 AUTO 52MM
C826	CCXF1H104Z	C CERA	50V F 0.1MF Z	D209	DZN4148---	DIODE	1N4148 AUTO 52MM
C827	CCXF1H104Z	C CERA	50V F 0.1MF Z	D210	DZN4148---	DIODE	1N4148 AUTO 52MM
C831	CCXF1H104Z	C CERA	50V F 0.1MF Z	D213	DZN4148---	DIODE	1N4148 AUTO 52MM
C861	CCXF1H104Z	C CERA	50V F 0.1MF Z	D401	D1N4002A--	DIODE	1N4002
C862	CCXF1H104Z	C CERA	50V F 0.1MF Z	D501	DERD07-15-	DIODE	ERD07-15
C864	CCXF1H104Z	C CERA	50V F 0.1MF Z	D502	DUG2D-----	DIODE	UG2D 200V 2A
C866	CCXB1H103K	C CERA	50V B 0.01MF K	D503	DZN4148---	DIODE	1N4148 AUTO 52MM
C880	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	D504	DZN4148---	DIODE	1N4148 AUTO 52MM
C881	CCXF1H104Z	C CERA	50V F 0.1MF Z	D505	DZN4148---	DIODE	1N4148 AUTO 52MM
C883	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)	D506	DRK36-----	DIODE	RK36
C884	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)	D507	DS2L60---R	DIODE	S2L60
C885	CCZB1H102K	C CERA	50V B 1000PF K	D508	D1N4937GP-	DIODE	1N4937GP (TAPPING)
C886	CCXB1H152K	C CERA	50V B 1500PF K (TAPPING)	D509	DDTV1500MF	DIODE	DTV-1500MFP
C887	CCXB1H101K	C CERA	50V B 100PF K (TAPPING)	D510	DZN4148---	DIODE	1N4148 AUTO 52MM
C889	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	D512	DZN4148---	DIODE	1N4148 AUTO 52MM
C890	CCXF1H104Z	C CERA	50V F 0.1MF Z	D513	DRGP10D---	DIODE	RGP 10-D (TAPPING)

LOC	PART-CODE	PART-NAME	PART-DESC	LOC	PART-CODE	PART-NAME	PART-DESC
D514	DRGP10D---	DIODE	RGP 10-D (TAPPING)	IC401	1KA2142---	IC V-OUT	KA2142
D515	DZN4148---	DIODE	1N4148 AUTO 52MM	IC501	1TDA4856--	IC H.OSC	TDA4856
D517	DZN4148---	DIODE	1N4148 AUTO 52MM	IC801	1TDA9210--	IC VIDEO PREAMP	TDA9210
D518	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J	IC802	1TDA9536--	IC VIDEO OUTPUT	TDA9536
D519	DZN4148---	DIODE	1N4148 AUTO 52MM	IC803	1DW0SD11--	IC OSD	NT6828-00005
D521	D1N4007---	DIODE	IN4007	L503	5MC0000081	COIL CHOKE	CH-85D
D522	D1N4007---	DIODE	IN4007	L504	5MC0000082	COIL CHOKE	CH-272K
D523	D1N4007---	DIODE	IN4007	L505	5MC0000085	COIL CHOKE	CH-100A
D560	DRGP10D---	DIODE	RGP 10-D (TAPPING)	L801	5CPZ568K02	COIL PEAKING	0.56UH K (AXIAL 3.5MM)
D570	DZN4148---	DIODE	1N4148 AUTO 52MM	L831	5CPZ568K02	COIL PEAKING	0.56UH K (AXIAL 3.5MM)
D601	DSUF4007SP	DIODE	SUF4007SP	L861	5CPZ338K02	COIL PEAKING	0.33UH K (AXIAL 3.5MM)
D610	DZN4148---	DIODE	1N4148 AUTO 52MM	P001	9979500022	RECEPTACLE	BNS-02AB2L-1
D801	DZN4148---	DIODE	1N4148 AUTO 52MM	PCB1	9979800541	PCB MAIN	T=1.6*246*247 (719B)
D802	DZN4148---	DIODE	1N4148 AUTO 52MM	PCB2	9979800543	PCB VIDEO	T=1.6*123*95(719B)
D803	DZN4148---	DIODE	1N4148 AUTO 52MM	PR001	DECPAC140M	POSISTOR	ECPAC140M290
D804	DZN4148---	DIODE	1N4148 AUTO 52MM	Q001	TSPP04N60S	FET	SPP04N60S5
D831	DZN4148---	DIODE	1N4148 AUTO 52MM	Q002	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
D832	DZN4148---	DIODE	1N4148 AUTO 52MM	Q101	TZTC3202Y-	TR	KTC3202Y (AUTO)(1959Y)
D833	DZN4148---	DIODE	1N4148 AUTO 52MM	Q103	TKTA1273Y-	TR	KTA1273-Y
D834	DZN4148---	DIODE	1N4148 AUTO 52MM	Q104	TZTC3202Y-	TR	KTC3202Y (AUTO)(1959Y)
D861	DZN4148---	DIODE	1N4148 AUTO 52MM	Q105	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
D862	DZN4148---	DIODE	1N4148 AUTO 52MM	Q201	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
D863	DZN4148---	DIODE	1N4148 AUTO 52MM	Q202	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
D864	DZN4148---	DIODE	1N4148 AUTO 52MM	Q203	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
D872	DS2L60---R	DIODE	S2L60	Q501	TZTA1266Y-	TR	KTA1266Y- (AUTO)(1015Y)
DG001	5MG0000062	COIL DEGAUSSING	DG-710B	Q502	TZTA1266Y-	TR	KTA1266Y- (AUTO)(1015Y)
DL211	DSD50GYW--	LED	SD50GYW(GREEN/AMBER)	Q503	T2N7000---	FET	2N7000
DZ003	DDZ22BM---	DIODE ZENER	DZ22BM	Q504	TKSC2383Y-	TR	KSC 2383-Y
DZ004	DDZ7R5BM--	DIODE ZENER	DZ7.5BM	Q505	T2SC5681--	TR H.OUT	2SC5681
DZ006	DGDZJ18C--	DIODE ZENER	GDZJ 18C	Q506	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
DZ200	DDZ5R1B---	DIODE ZENER	DZ-5.1B	Q508	TZTC3197--	TR	KTC3197 (AUTO)(388A)
DZ201	DDZ5R1B---	DIODE ZENER	DZ-5.1B	Q509	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
DZ202	DDZ5R1B---	DIODE ZENER	DZ-5.1B	Q510	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
DZ205	DDZ5R1B---	DIODE ZENER	DZ-5.1B	Q511	T2SK2522--	FET	2SK2522-01MR
DZ206	DDZ5R1B---	DIODE ZENER	DZ-5.1B	Q512	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
DZ501	DDZ12BM---	DIODE ZENER	DZ12BM	Q513	T1RF630A--	FET	IRF630A
DZ560	DDZ5R1B---	DIODE ZENER	DZ-5.1B	Q514	TZTC3202Y-	TR	KTC3202Y (AUTO)(1959Y)
DZ801	DDZ5R1B---	DIODE ZENER	DZ-5.1B	Q515	TZTA1266Y-	TR	KTA1266Y- (AUTO)(1015Y)
EMI	9970K00012	CORE FERRITE	RING-23	Q516	TZTA1266Y-	TR	KTA1266Y- (AUTO)(1015Y)
EMI1	9970K00010	CORE FERRITE	RING-18	Q517	TKSD1273P-	TR	KSD1273-P
F001	5F3CB312L	FUSE CERA	SEMKO TL 3.15AH 250V MF51	Q518	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
GND1	9970710249	CONN AS	35750+1015#22+SOLDER=260	Q519	T2SK2522--	FET	2SK2522-01MR
GND2	9970710250	CONN AS	35072+1015#22+SOLDER=180	Q523	T1RF630A--	FET	IRF630A
GND3	9970710233	CONN AS	HOLDER+1015#18+SOLDER=100	Q555	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
IC001	1H3842P---	IC POWER	H3842P	Q560	TKSP92---	TR	KSP92
IC101	1K1A7805P1	IC REGULATOR	KIA7805API	Q601	TKSP44----	TR	KSP44
IC102	1KA78R12--	IC REGULATOR	KA78R12	Q602	TKSP44----	TR	KSP44
IC201	1DWM240T--	IC MICOM	NT68P62	Q705	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
IC202	124LC08B--	IC MEMORY	24LC08B	Q801	TZSR1009--	TR	KSR1009

LOC	PART-CODE	PART-NAME	PART-DESC	LOC	PART-CODE	PART-NAME	PART-DESC
R001	RC-2Z684J-	R CARBON COMP	1/2 680K OHM J	R223	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R003	RS01Z513JS	R M-OXIDE FILM	1W 51K OHM J SMALL	R224	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J
R004	RS01Z513JS	R M-OXIDE FILM	1W 51K OHM J SMALL	R225	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R005	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	R226	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J
R007	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J	R227	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J
R008	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R228	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J
R009	RS02Z683JS	R M-OXIDE FILM	2W 68K OHM J SMALL	R229	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R010	RS02Z683JS	R M-OXIDE FILM	2W 68K OHM J SMALL	R230	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R011	RD-AZ304J-	R CARBON FILM	1/6 300K OHM J	R232	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R012	RD-AZ301J-	R CARBON FILM	1/6 300 OHM J	R233	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R013	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J	R234	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R014	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	R246	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J
R015	RW01Z278JN	R WIRE WOUND	1W 0.27 OHM J NON-INDUCT	R248	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J
R016	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R249	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R017	RN-AZ1503F	R METAL FILM	1/6 150K OHM F	R250	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R018	RD-AZ563J-	R CARBON FILM	1/6 56K OHM J	R251	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R019	RD-AZ823J-	R CARBON FILM	1/6 82K OHM J	R405	RD-2Z189J-	R CARBON FILM	1/2 1.8 OHM J
R026	RN-AZ2322F	R METAL FILM	1/6 23.2K OHM F	R408	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R027	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	R409	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R102	RD-2Z689JS	R CARBON FILM	1/2W 6.8 OHM J SMALL	R410	RD-4Z189J-	R CARBON FILM	1/4 1.8 OHM J
R106	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J	R411	85801052GY	WIRE COPPER	1/0.52 TIN COATING
R107	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R412	RD-4Z189J-	R CARBON FILM	1/4 1.8 OHM J
R109	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	R413	RD-2Z229J-	R CARBON FILM	1/2 2.2 OHM J
R110	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J	R414	RD-2Z229J-	R CARBON FILM	1/2 2.2 OHM J
R111	RS02Z159JS	R M-OXIDE FILM	2W 1.5 OHM J SMALL	R416	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R112	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	R417	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R114	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	R418	RN-AZ6491F	R METAL FILM	1/6W 6.49K OHM F (TP)
R115	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R420	RS01Z331JS	R M-OXIDE FILM	1W 330 OHM J SMALL(TP)
R199	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	R423	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R200	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	R501	RD-AZ154J-	R CARBON FILM	1/6 150K OHM J
R201	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	R502	RN-AZ2741F	R METAL FILM	1/6 2.74K OHM F
R202	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	R503	RN-AZ1211F	R METAL FILM	1/6 1.21K OHM F
R203	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	R504	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R206	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	R505	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
R207	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	R506	RN-AZ8201F	R METAL FILM	1/6 8.2K OHM F
R208	RD-AZ105J-	R CARBON FILM	1/6 1M OHM J	R507	RN-AZ4301F	R METAL FILM	1/6 4.30K OHM F
R209	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J	R508	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R210	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J	R509	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R211	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J	R510	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R212	RD-AZ433J-	R CARBON FILM	1/6 43K OHM J	R511	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R213	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J	R512	RD-AZ623J-	R CARBON FILM	1/6 62K OHM J
R214	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	R513	RD-AZ242J-	R CARBON FILM	1/6 2.4K OHM J
R215	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J	R514	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
R216	RD-AZ433J-	R CARBON FILM	1/6 43K OHM J	R515	RD-AZ513J-	R CARBON FILM	1/6 51K OHM J
R217	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J	R516	RD-AZ105J-	R CARBON FILM	1/6 1M OHM J
R218	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	R517	RN-AZ7501F	R METAL FILM	1/6 7.50K OHM F
R220	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	R518	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R221	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R519	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R222	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R520	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J

LOC	PART-CODE	PART-NAME	PART-DESC	LOC	PART-CODE	PART-NAME	PART-DESC
R521	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J	R576	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
R522	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	R579	RD-4Z220J-	R CARBON FILM	1/4 22 OHM J
R523	RD-2Z221J-	R CARBON FILM	1/2 220 OHM J	R580	RD-AZ824J-	R CARBON FILM	1/6 820K OHM J
R524	RS02Z680JS	R M-OXIDE FILM	2W 68 OHM J SMALL	R581	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J
R525	RS02Z240JS	R M-OXIDE FILM	2W 24 OHM J SMALL	R584	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J
R526	RD-2Z229J-	R CARBON FILM	1/2 2.2 OHM J	R585	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J
R527	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J	R586	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J
R528	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J	R587	RS02Z209JS	R M-OXIDE FILM	2W 2 OHM J SMALL
R530	RS01Z330JS	R M-OXIDE FILM	1W 33 OHM J SMALL(TP)	R588	RS02Z209JS	R M-OXIDE FILM	2W 2 OHM J SMALL
R531	RD-2Z100J-	R CARBON FILM	1/2 10 OHM J	R589	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R532	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	R592	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R534	RD-2Z681J-	R CARBON FILM	1/2 680 OHM J	R593	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R535	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J	R594	RS02Z470J-	R M-OXIDE FILM	2W 47 OHM J (TAPPING)
R536	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R595	RN-AZ5111F	R METAL FILM	1/6 5.11K OHM F
R537	RD-AZ683J-	R CARBON FILM	1/6 68K OHM J	R596	RN-AZ1502F	R METAL FILM	1/6 15K OHM F
R538	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J	R597	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R539	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R598	RD-AZ243J-	R CARBON FILM	1/6 24K OHM J
R540	RS02Z560JS	R M-OXIDE FILM	2W 56 OHM J SMALL	R599	85801052GY	WIRE COPPER	1/0.52 TIN COATING
R541	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	R601	RD-2Z184J-	R CARBON FILM	1/2 180K OHM J
R542	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J	R602	RD-2Z334J-	R CARBON FILM	1/2 330K OHM J
R543	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J	R603	RD-2Z105J-	R CARBON FILM	1/2 1M OHM J
R544	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J	R604	RD-4Z122J-	R CARBON FILM	1/4 1.2K OHM J
R545	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J	R607	RD-AZ244J-	R CARBON FILM	1/6 240K OHM J
R546	RD-AZ154J-	R CARBON FILM	1/6 150K OHM J	R608	RD-2Z331J-	R CARBON FILM	1/2 330 OHM J
R547	RS02Z560JS	R M-OXIDE FILM	2W 56 OHM J SMALL	R609	RD-4Z244J-	R CARBON FILM	1/4 240K OHM J
R548	RS02Z122JS	R M-OXIDE FILM	2W 1.2K OHM J SMALL	R611	RD-2Z680JS	R CARBON FILM	1/2 68 OHM J SMALL
R549	RD-AZ822J-	R CARBON FILM	1/6 8.2K OHM J	R612	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J
R550	RN-AZ1803F	R METAL FILM	1/6 180K OHM F	R613	RD-4Z244J-	R CARBON FILM	1/4 240K OHM J
R551	RD-AZ913J-	R CARBON FILM	1/6 91K OHM J	R614	RD-4Z243J-	R CARBON FILM	1/4 24K OHM J
R552	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J	R615	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R553	RS02Z122JS	R M-OXIDE FILM	2W 1.2K OHM J SMALL	R616	RD-2Z334J-	R CARBON FILM	1/2 330K OHM J
R554	RS02Z122JS	R M-OXIDE FILM	2W 1.2K OHM J SMALL	R801	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R555	RS02Z680JS	R M-OXIDE FILM	2W 68 OHM J SMALL	R802	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
R556	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J	R803	RD-AZ360J-	R CARBON FILM	1/6 36 OHM J
R557	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J	R804	RD-4Z181J-	R CARBON FILM	1/4 180 OHM J
R558	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R805	RD-4Z121J-	R CARBON FILM	1/4 120 OHM J
R559	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J	R811	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R560	RW01Z568JN	R WIRE WOUND	1W 0.56 OHM J NON-INDUCT	R812	RD-AZ279J-	R CARBON FILM	1/6 2.7 OHM J
R561	RD-AZ823J-	R CARBON FILM	1/6 82K OHM J	R813	RD-AZ279J-	R CARBON FILM	1/6 2.7 OHM J
R562	RD-AZ823J-	R CARBON FILM	1/6 82K OHM J	R815	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R563	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	R816	RD-4Z564J-	R CARBON FILM	1/4 560K OHM J
R564	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	R831	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R565	RD-AZ474J-	R CARBON FILM	1/6 470K OHM J	R832	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
R566	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J	R833	RD-AZ360J-	R CARBON FILM	1/6 36 OHM J
R568	RW01Z568JN	R WIRE WOUND	1W 0.56 OHM J NON-INDUCT	R834	RD-4Z181J-	R CARBON FILM	1/4 180 OHM J
R570	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	R835	RD-4Z121J-	R CARBON FILM	1/4 120 OHM J
R571	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	R841	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R572	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	R842	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R575	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	R861	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J

LOC	PART-CODE	PART-NAME	PART-DESC	LOC	PART-CODE	PART-NAME	PART-DESC
R862	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J	R972	RD-AZ433J-	R CARBON FILM	1/6 43K OHM J
R863	RD-AZ360J-	R CARBON FILM	1/6 36 OHM J	R973	RD-AZ752J-	R CARBON FILM	1/6 7.5K OHM J
R864	RD-4Z201J-	R CARBON FILM	1/4 200 OHM J	RL001	5SC0101325	SW RELAY	HR-CR7 DC12V
R865	RD-4Z121J-	R CARBON FILM	1/4 120 OHM J	SC001	9970800045	CABLE SIGNAL AS	15P+3C/DDC=1.5M(GY275A)
R866	RS01Z519JS	R M-OXIDE FILM	1W 5.1 OHM J SMALL	SG801	DWSP201M--	SURGE ABSORBER	WSP-201M
R871	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	SG831	DWSP201M--	SURGE ABSORBER	WSP-201M
R880	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J	SG861	DWSP201M--	SURGE ABSORBER	WSP-201M
R881	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J	SW201	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
R883	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J	SW202	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
R884	RD-AZ105J-	R CARBON FILM	1/6 1M OHM J	SW203	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
R885	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J	SW204	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
R886	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J	SW205	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
R887	RD-AZ563J-	R CARBON FILM	1/6 56K OHM J	SW206	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
R888	RD-AZ362J-	R CARBON FILM	1/6 3.6K OHM J	SW501	5S80303001	SW LEVER	P12T21
R890	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	T001	5RM0000106	TRANS SMPS	DMT-719B
R891	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	T500	5RH0000120	FBT	FFA79014U
R892	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	T501	5RD0000055	TRANS DRIVE	DDT-719B
R893	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	T601	5R50000039	TRANS DYNAMIC	DYT-719B
R916	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	TH001	DTP8D13---	THERMISTOR	TP8D13
R922	DZN4148---	DIODE	1N4148 AUTO 52MM	VR502	RV6421502P	R SEMI FIXED	CCT 065AT 5K OHM B TAP
R934	RD-2Z100J-	R CARBON FILM	1/2 10 OHM J	VR601	RV6421503P	R SEMI FIXED	CCT 065AT 50K OHM B TAP
R970	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	X202	5PEF0EC8T4	RESONATOR	EFOEC8004T4
R971	RD-4Z103J-	R CARBON FILM	1/4 10K OHM J				

## ◆ Parts List for only 719BF

LOC	PART-CODE	PART-NAME	PART-DESC	LOC	PART-CODE	PART-NAME	PART-DESC
C519	CMXH3C222J	C MYLAR	1.6KV BUP 2200PF J (TP)	R409	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
C521	CMXH3C222J	C MYLAR	1.6KV BUP 2200PF J (TP)	R418	RN-AZ6491F	R METAL FILM	1/6W 6.49K OHM F (TP)
C528	CMXF2D184J	C MYLAR	MPP 200V 0.18MF J (TP)	R420	RD-2Z811J-	R CARBON FILM	1/2 810 OHM J
C530	CMYF2D684J	C MYLAR	200V MPP 0.68MF J	R545	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
C531	CMXF2D474J	C MYLAR	MPP 200V 0.47MF J	R551	RD-AZ124J-	R CARBON FILM	1/6 120K OHM J
C532	CMXF2D184J	C MYLAR	MPP 200V 0.18MF J (TP)	R701	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
C701	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP	R702	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
C702	CCXF1H104Z	C CERA	50V F 0.1MF Z	R703	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J
CA201	9970750036	CONN AS	SMH250-05+1007#24=150	R704	RD-2Z152J-	R CARBON FILM	1/2 1.5K OHM J
CGND	9970710248	CRT GND AS	0.16X3X16+BL101NG=660	R705	RD-2Z100J-	R CARBON FILM	1/2 10 OHM J
CRT	9979617051	CDT	M41QCJ761X172(FLAT)	R706	RD-2Z229J-	R CARBON FILM	1/2 2.2 OHM J
CW202	9979220082	CONN WAFER	5045-03A	R804	RD-4Z121J-	R CARBON FILM	1/4 120 OHM J
CW204	9979220020	CONN WAFER	SMAW250-05 (ANGLE)	R864	RD-4Z151J-	R CARBON FILM	1/4 150 OHM J
D701	DZN4148---	DIODE	1N4148 AUTO 52MM	SW201	5S50101Z10	SW TACT	KPT-1115AM
EMI1	9970K00010	CORE FERRITE	RING-18	SW202	5S50101Z10	SW TACT	KPT-1115AM
PCB1	9979800558	PCB CONTROL	T=1.6*209*31 MONITOR)	SW203	5S50101Z10	SW TACT	KPT-1115AM
Q701	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)	SW204	5S50101Z10	SW TACT	KPT-1115AM
Q702	TZTC3202Y-	TR	KTC3202Y (AUTO)(1959Y)	SW205	5S50101Z10	SW TACT	KPT-1115AM
Q703	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)	SW206	5S50101Z10	SW TACT	KPT-1115AM

**DAEWOO**

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