DAEWOO

Service Manual

XGA COLOR MONITOR

Model : 526X

DAEWOO ELECTRONICS CO., LTD.

http : //svc.dwe.co.kr

CONTENTS

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 integral 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.
- Turn the Contrast & Brightness Control fully counterclockwise.
- 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 alchohol (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. Throughly 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.

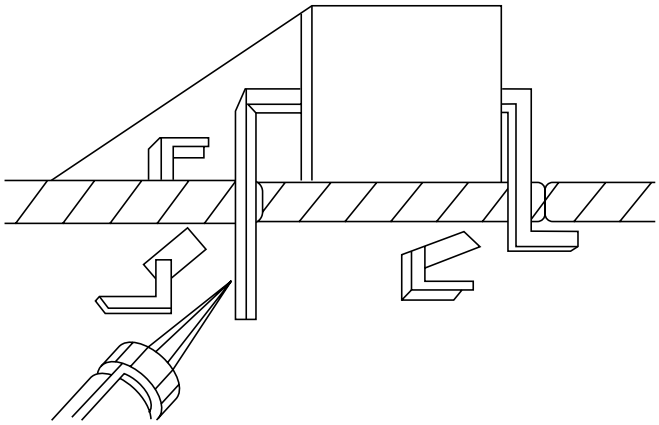


FIGURE 1. USE SOLDERING IRON TO PRY LEADS

◆ 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. (lt 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

CDT Size		15-inch
Diagonal visible image area		14-inch
Dot Pitch		0.28 mm
Synchronization	Horizontal	30 - 54 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		70W
Dimension-W x H x D (set with stand)		360 x 381 x 389mm
Weight-unpacked(lbs/Kg)		25.1/11.4
Operating Temperature		10 ~ 40°C /50 ~ 104°F

GENERAL INFORMATION

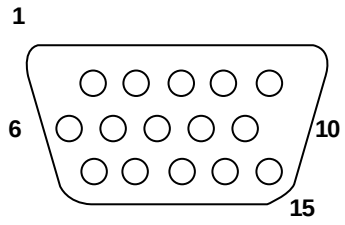
This color monitor automatically scans all horizontal frequencies from 30KHz to 54KHz, and all vertical frequencies from 50Hz to 160Hz. This color monitor supports IBM PC, PC/XT, PC/AT, personal System/2 (PS/2), Apple Macintosh, and compatible users crisp text and vivid color graphics display when using 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 1024 dots and a maximum vertical resolution of 768 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

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

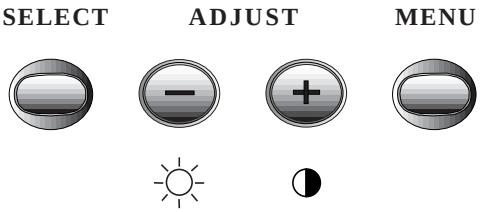
- Degaussing is always required when adjusting purity or convergence.
- The white balance adjustment has been done by a color analyzer in factroy. The adjustment procedure, described in the service manual is made by a visual check.
- Allow 20 minutes warm-up time for the display before checking or adjusting 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

Control Panel



MENU

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

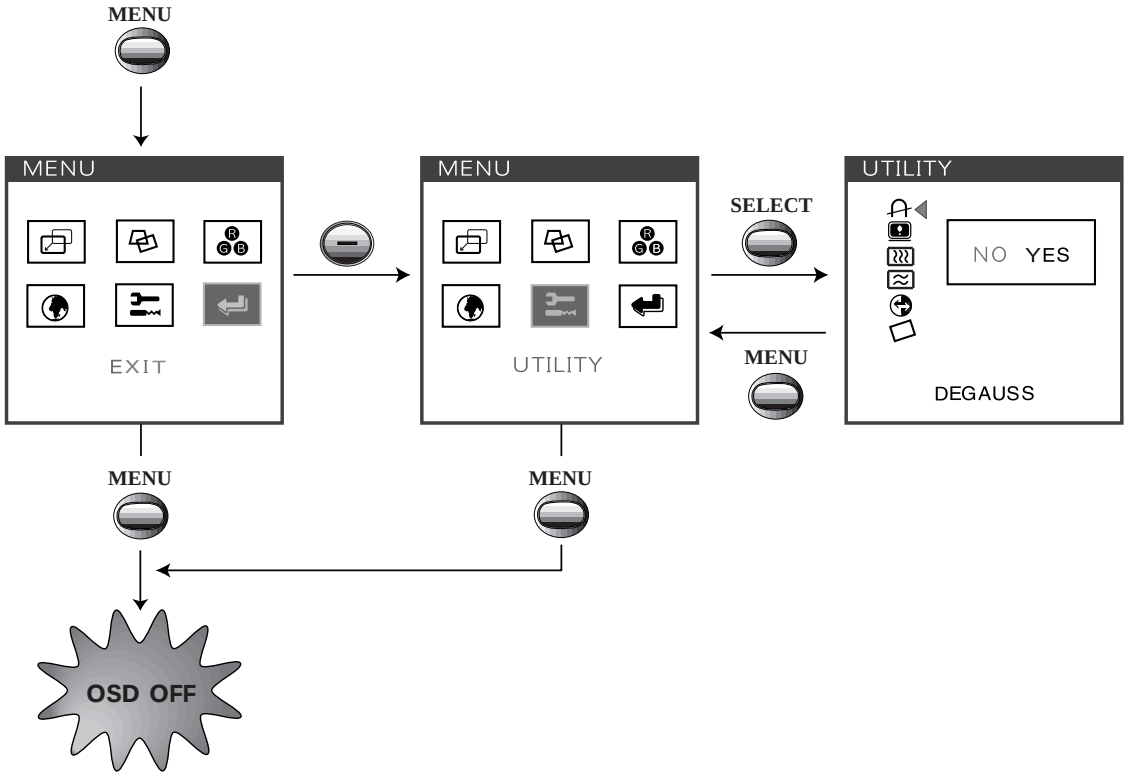
SELECT

- Select a sub Menu & function.

- Move a sub Menu & function.
- Increase the value of any selected function.
- Adjust the contrast directly when there is no OSD.

- Move a sub Menu & function.
- Decrease the value of any selected function.
- Adjust the brightness directly when there is no OSD.

Key Process



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

OSD Functions

ICON	CONTROL	FUNCTIONS
	***H. POSITION***	Adjust the position of the display horizontally (left or right).
	***V. POSITION***	Adjust the position of the display vertically (up or down).
	***H.SIZE***	Adjust the display width (horizontal size).
	***V.SIZE***	Adjust the display height (vertical size).
	***V. LINEARITY***	Adjust the vertical linearity.
	***PINCUSHION***	Adjust the left and right margins for more convex or more concave margins.
	***TRAPEZOID***	Adjust the trapezoid of the screen by moving the lines inward or outward.
	***PIN BALANCE***	Adjust the side balance when the sides of the screen are bowed towards left or right.
	***PARALLELOGRAM***	Adjust the parallelogram when the screen is leaning left or right.
	***T. PIN CORNER***	Adjust the pin corner top when the top sides of the screen are bowed.
	***B. PIN CORNER***	Adjust the pin corner bottom when the bottom sides of the screen are bowed.
	***T. PIN BALANCE***	Adjust the side pin corner balance top when the top sides of the screen are bowed towards left or right.
	***B. PIN BALANCE***	Adjust the side pin corner balance bottom when the bottom sides of the screen are bowed towards left or right.
	***COLOR TEMP***	Choose different preset color temperatures or set your own customized color parameters.

ICON	CONTROL	FUNCTIONS
	***RED GAIN***	Adjust the red gain.
	***GREEN GAIN***	Adjust the green gain.
	***BLUE GAIN***	Adjust the blue gain.
	***RED BIAS***	Adjust the red bias.
	***GREEN BIAS***	Adjust the green bias.
	***BLUE BIAS***	Adjust the blue bias.
	***LANGUAGE***	Select language for OSD (5 languages).
	***DEGAUSS***	Degaussing keeps the monitor free from unwanted magnetism that can result in color impurity.
	***STATUS***	Display horizontal & vertical frequency and polarity.
	***H. MOIRE***	Adjust the horizontal picture moire cancellation.
	***V. MOIRE***	Adjust the vertical picture moire cancellation.
	***RECALL***	Reset the screen to the Factory Preset Display Settings.
	***ROTATION***	Adjust the rotation when the screen is tilted left or right (Optional).

ALIGNMENT PROCEDURE

◆ Standard Adjustment Conditions

1. Power source voltage : 100-240Vac 50/60Hz
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
   Deflection frequency
   Horizontal Frequency : 30KHz - 54KHz
   Vertical Frequency : 50Hz - 160Hz

◆ Pre-Adjustment

1. B+ Adjustment
   Adjust 6.15Vdc ± 0.05Vdc between P503 and ground at 31.5KHz mode, varying VR001.
   Adjust -150Vdc ± 0.5Vdc between P504 and ground at 31.5KHz mode, varying VR501.

◆ Method to launch the factory mode

Step 1. Push the menu button.

Step 2. Push the menu button and plus control button (+) for 5 times in same time.

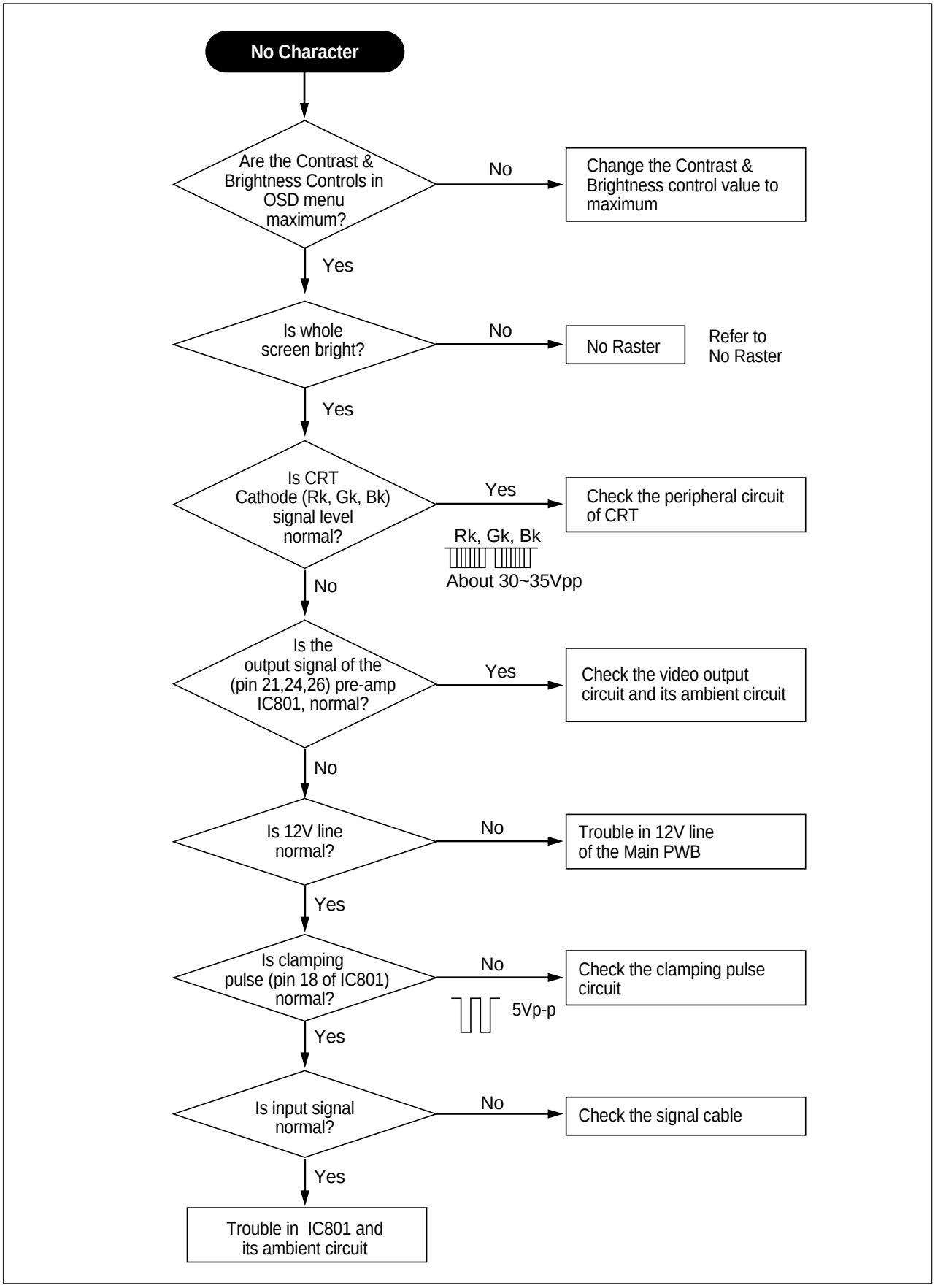
◆ Main Adjustment

1. Setting the Controls
   Set the value of items as following.
   Contrast : Max.(OSD value up to MAX)
   Brightness : Center(Set the OSD value to center)
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 1024 X 768 (48KHz, 60Hz)
   (c) Adjust the Focus control of FBT to obtain best Focus.
4. Geometric Distortion Adjustment.
   (a) Receive the cross hatch pattern of factory preset mode.
   (b) Pincushion, Trapezoid are adjusted the best geometric status.
5. White Balance Adjustment
   (a) Select 9300°K on the OSD Menu.
   (b) Receive a full white pattern of 54KHz mode signal by using the signal generator.
   (c) Set the brightness control to the maximum, the contrast control to the maximum.
   (d) Cut off the FBT screen VR.
   (e) Receive all the black patterns. The luminance of the screen should be 0.5~1.0 Ft-L by using Screen VR.
   (f) Select the R-BIAS, G-BIAS and B-BIAS on the control menu and adjust the +/– key to get the color coordinates in x=0.281 ± 0.015, y=0.311± 0.015.
   (g) Receive a full white pattern. Adjust the brightness value to the center.
   (h) Select the R-GAIN and B-GAIN and adjust the +/– key to get the color coordinates in x=0.281 ± 0.015, y=0.311 ± 0.015.
   (i) Adjust the ABL control to get the screen luminance to 30 Ft/L (a full white pattern over 30 Ft/L)
   (j) Check if the x, y coordinates of color analyzer is in x=0.281±0.015, y=0.311±0.015.
   If the color coordinates is out of range, adjust the R. G. B BIAS & GAIN to get the coorinates in x=0.281, y=0.311. Make sure that the coordinates is in range.
   (k) Select 6550°K on the OSD Menu and set the color coordinates in x=0.313, y=0.329 at the maximum contrast control and center brightness control
   (l) Check if a full white pattern is over 30Ft/L.

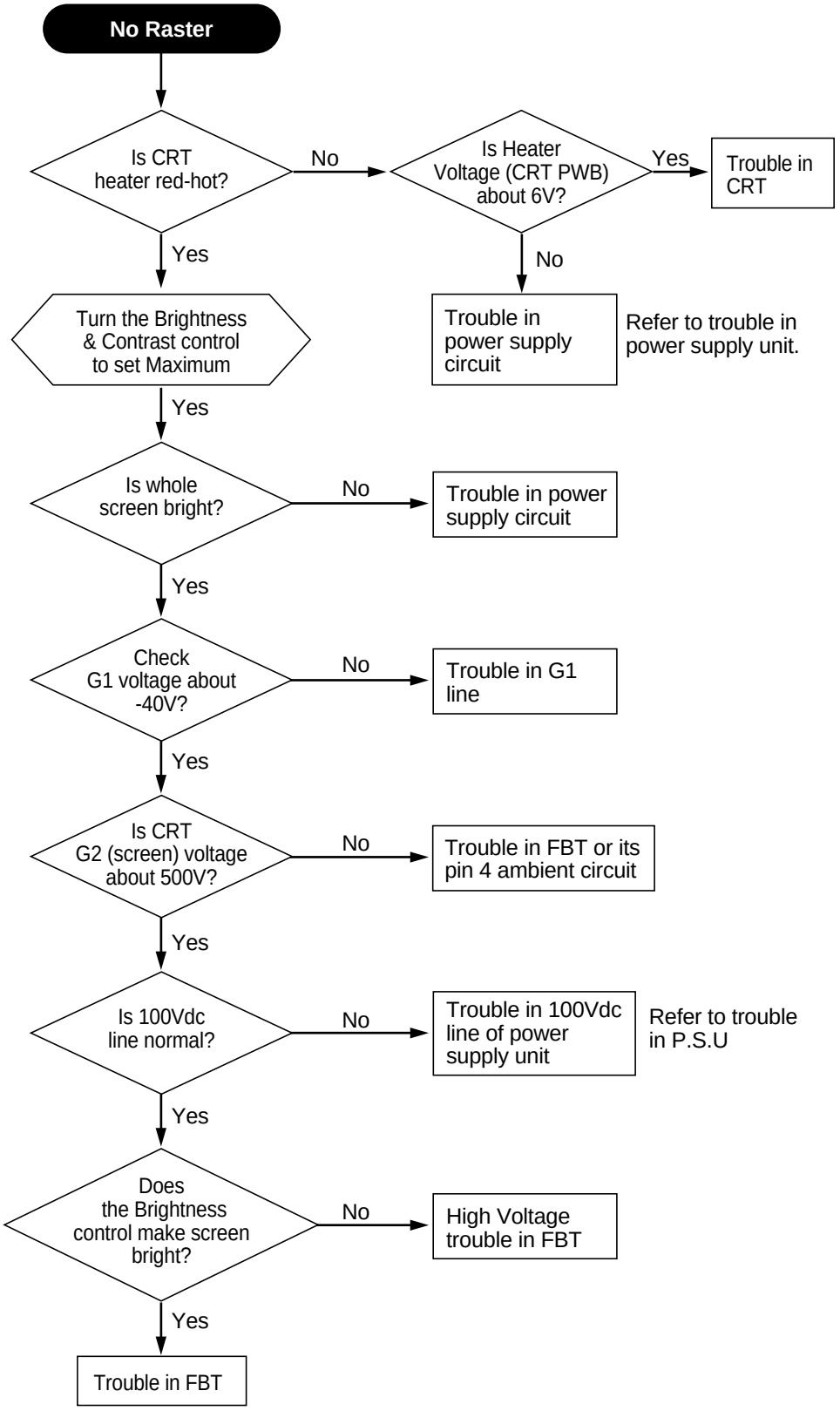
6. Static Convergence Adjustment
   (a) Apply a magenta cross hatch pattern on display.
   (b) Adjust the focus from the best over all focus on the display.
   Also adjust the brightness to the desired condition.
   (c) Vertical red and blue lines are converged by varying the angle between the two tabs 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 display.
   (f) Vertical green and red lines are converged by barying the angle between the two tabs of the 6-pole magnets.
   (g) Horizontal green and red lines are converged by varying the tabs together, keeping the angle between them constant.

TROUBLESHOOTING HINTS

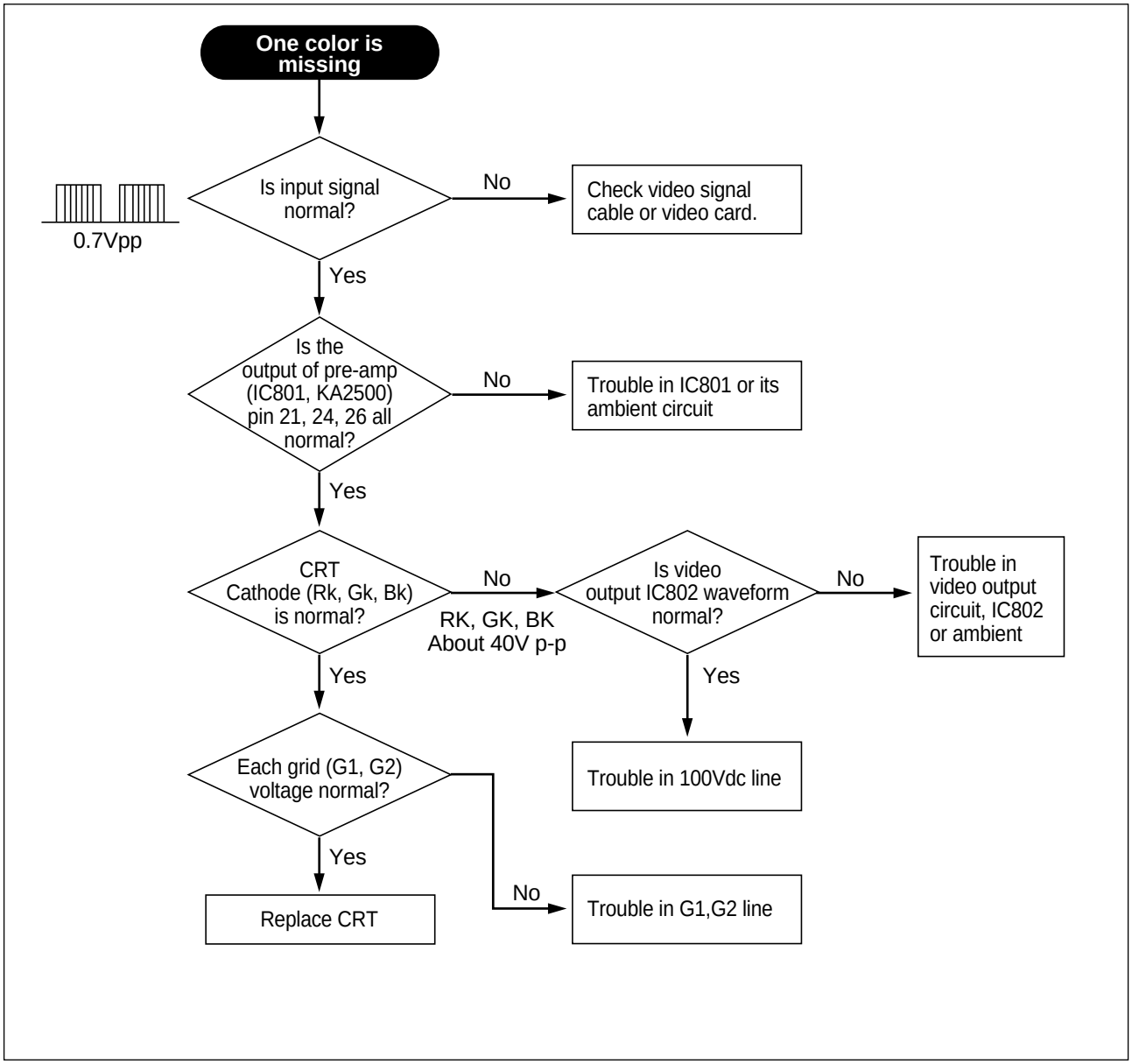
1. No Character



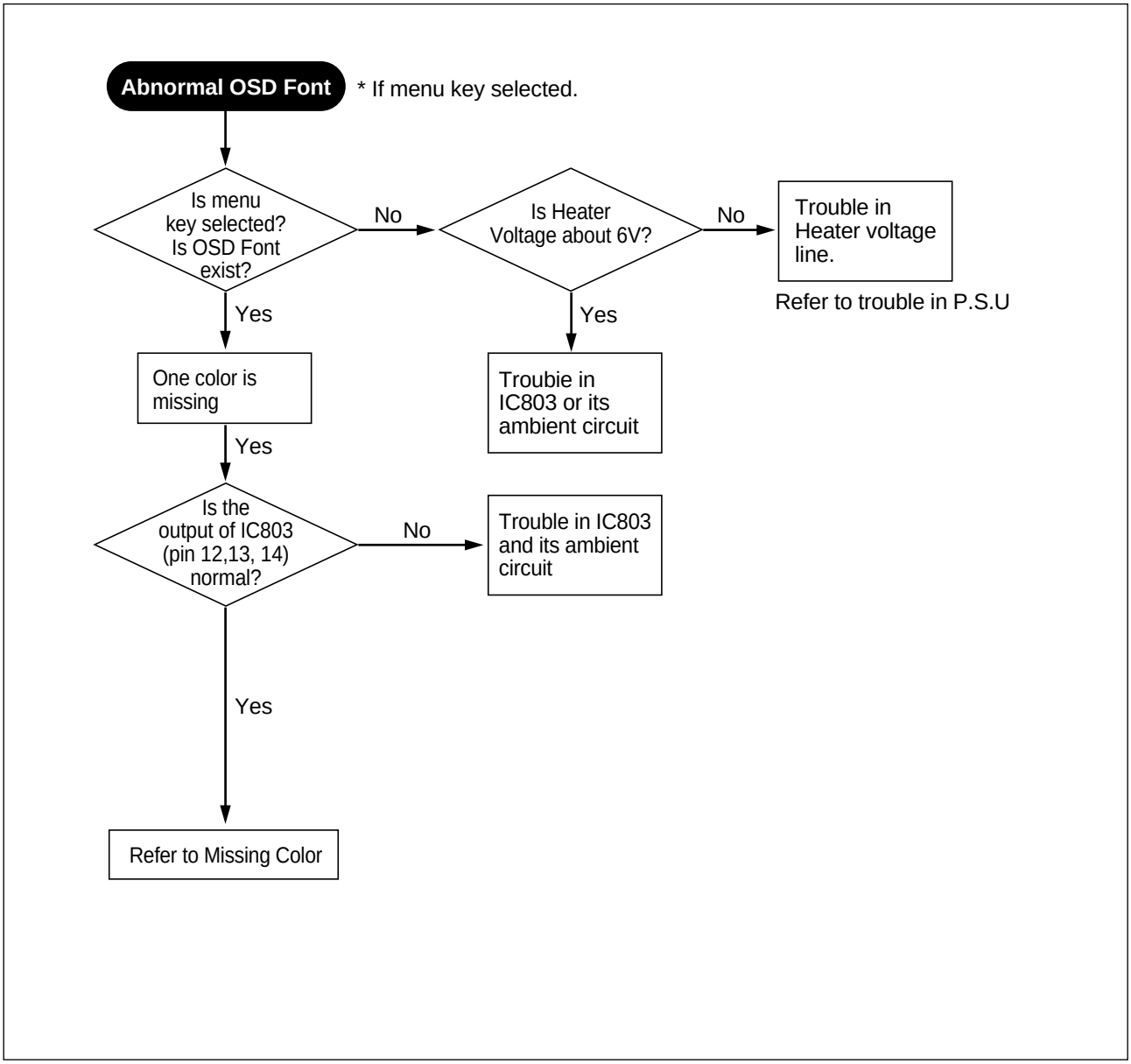
2. No Raster


No Raster
Is CRT heater red-hot?
No
Is Heater Voltage (CRT PWB) about 6V?
Yes
Trouble in CRT
Yes
No
Turn the Brightness & Contrast control to set Maximum
Trouble in power supply circuit
Refer to trouble in power supply unit.
Yes
Is whole screen bright?
No
Trouble in power supply circuit
Yes
Check G1 voltage about -40V?
No
Trouble in G1 line
Yes
Is CRT G2 (screen) voltage about 500V?
No
Trouble in FBT or its pin 4 ambient circuit
Yes
Is 100Vdc line normal?
No
Trouble in 100Vdc line of power supply unit
Refer to trouble in P.S.U
Yes
Does the Brightness control make screen bright?
No
High Voltage trouble in FBT
Yes
Trouble in FBT

3. A Missing Color

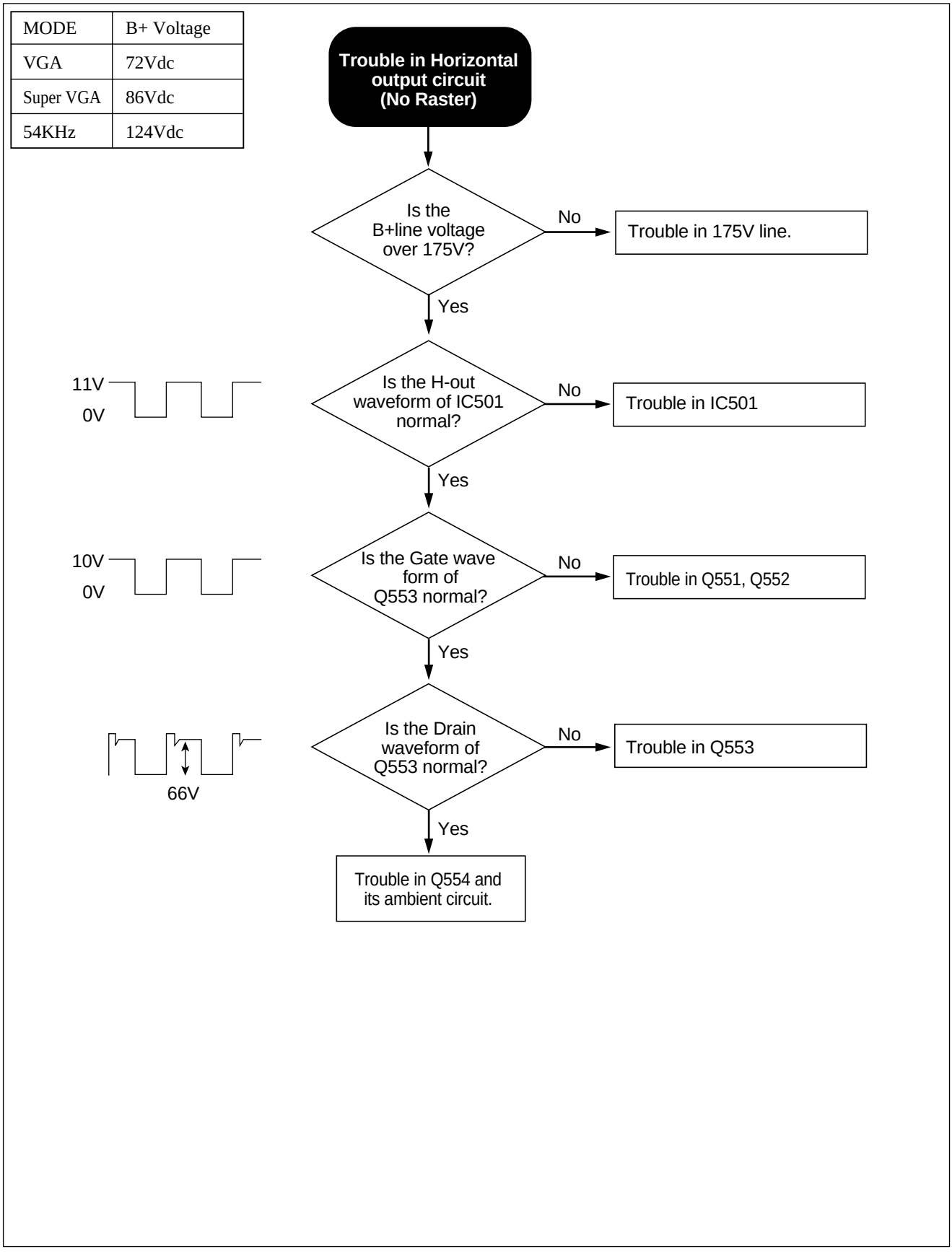


4. Abnormal OSD Font



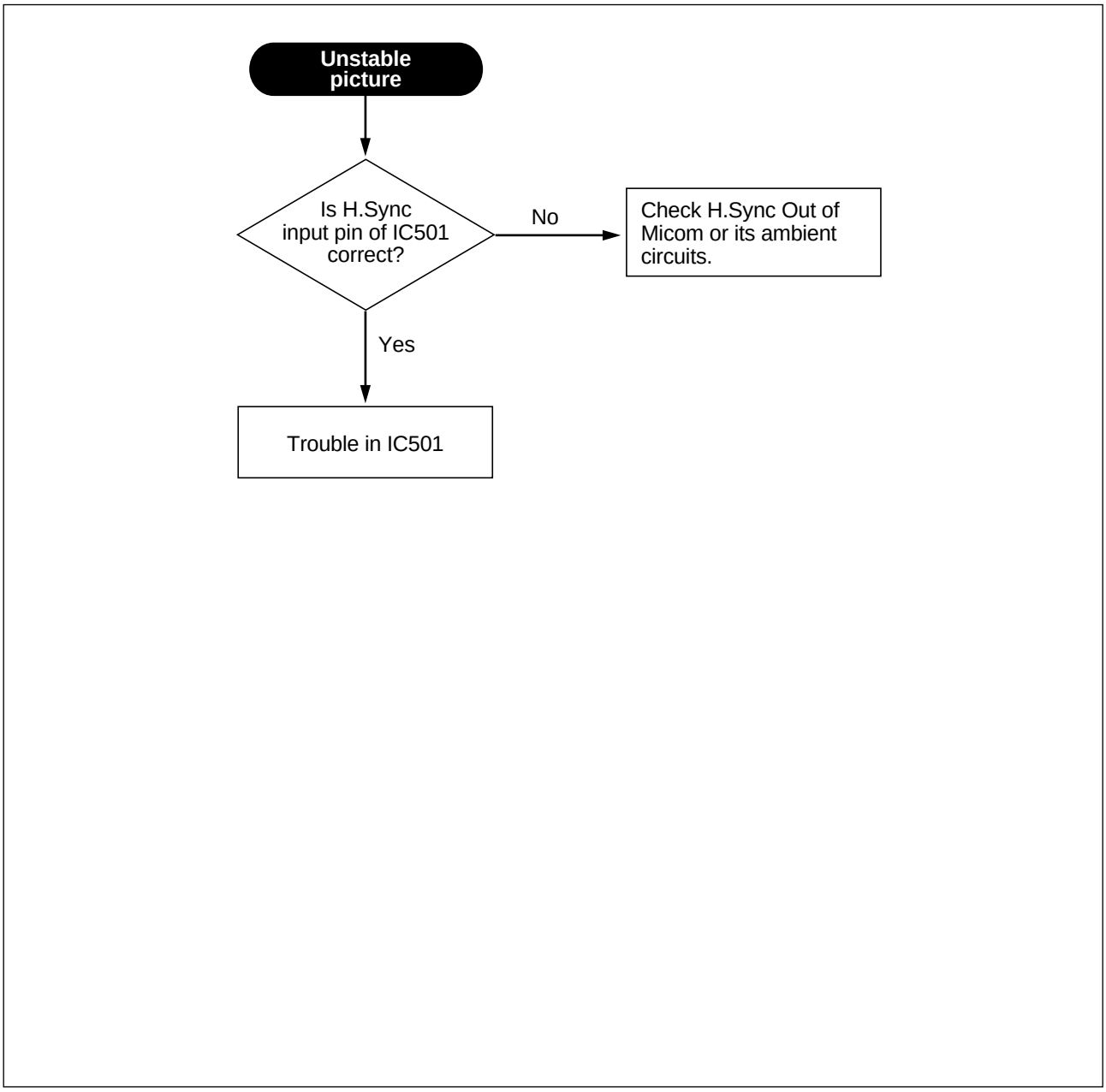
5. Horizontal Output Circuit

MODE	B+ Voltage
VGA	72Vdc
Super VGA	86Vdc
54KHz	124Vdc

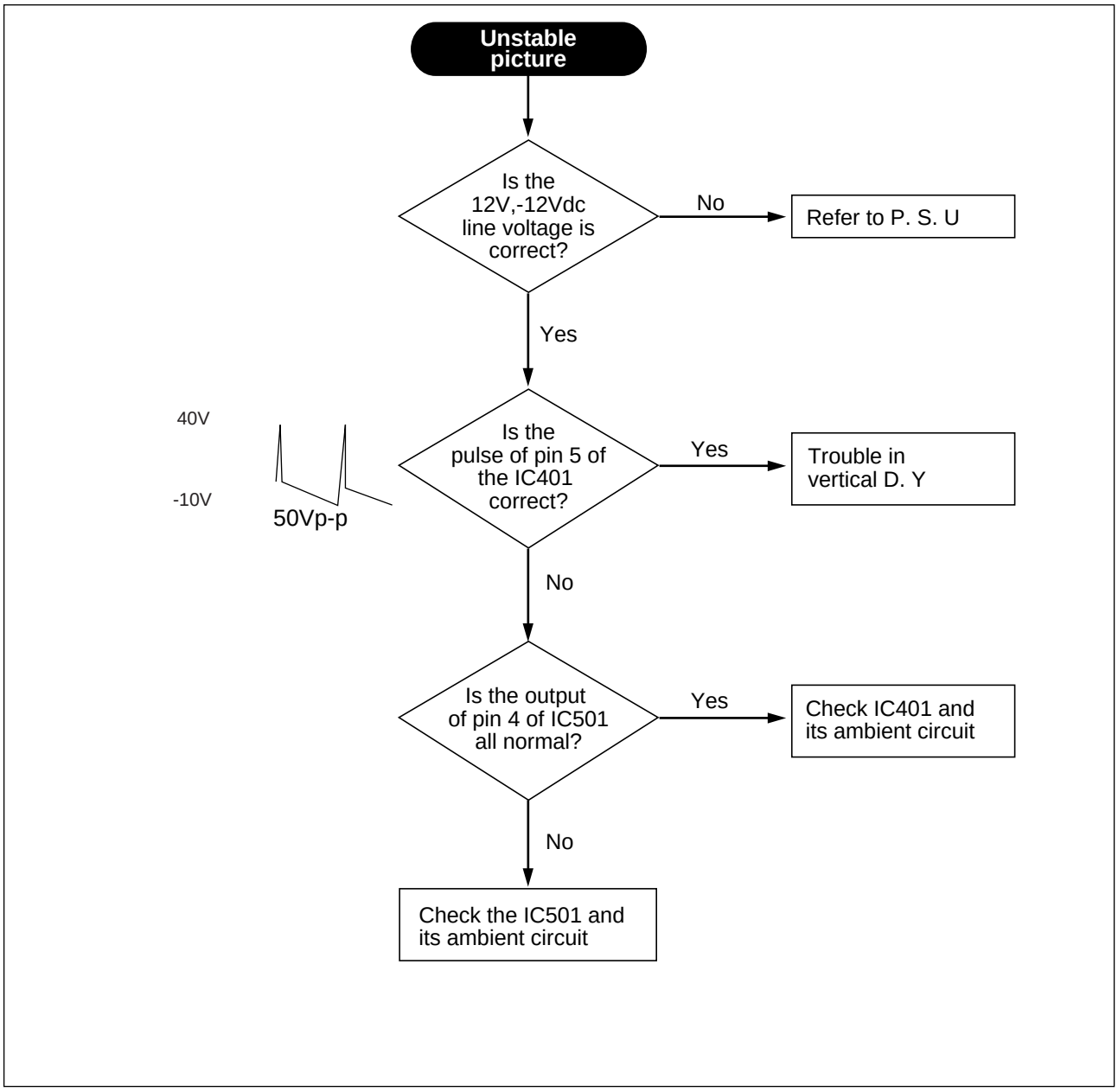


6. Unstable Picture

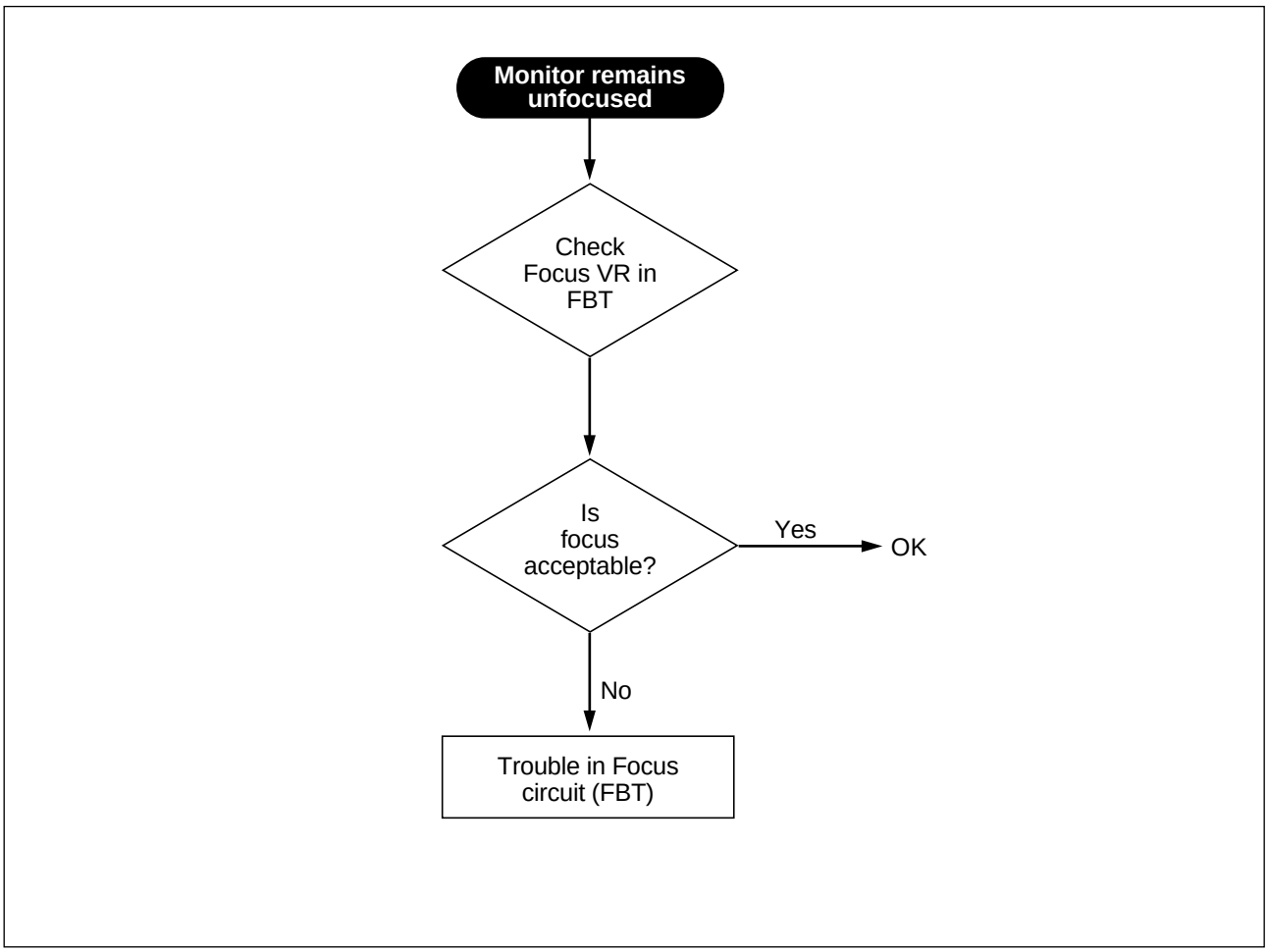
6-1. Horizontal



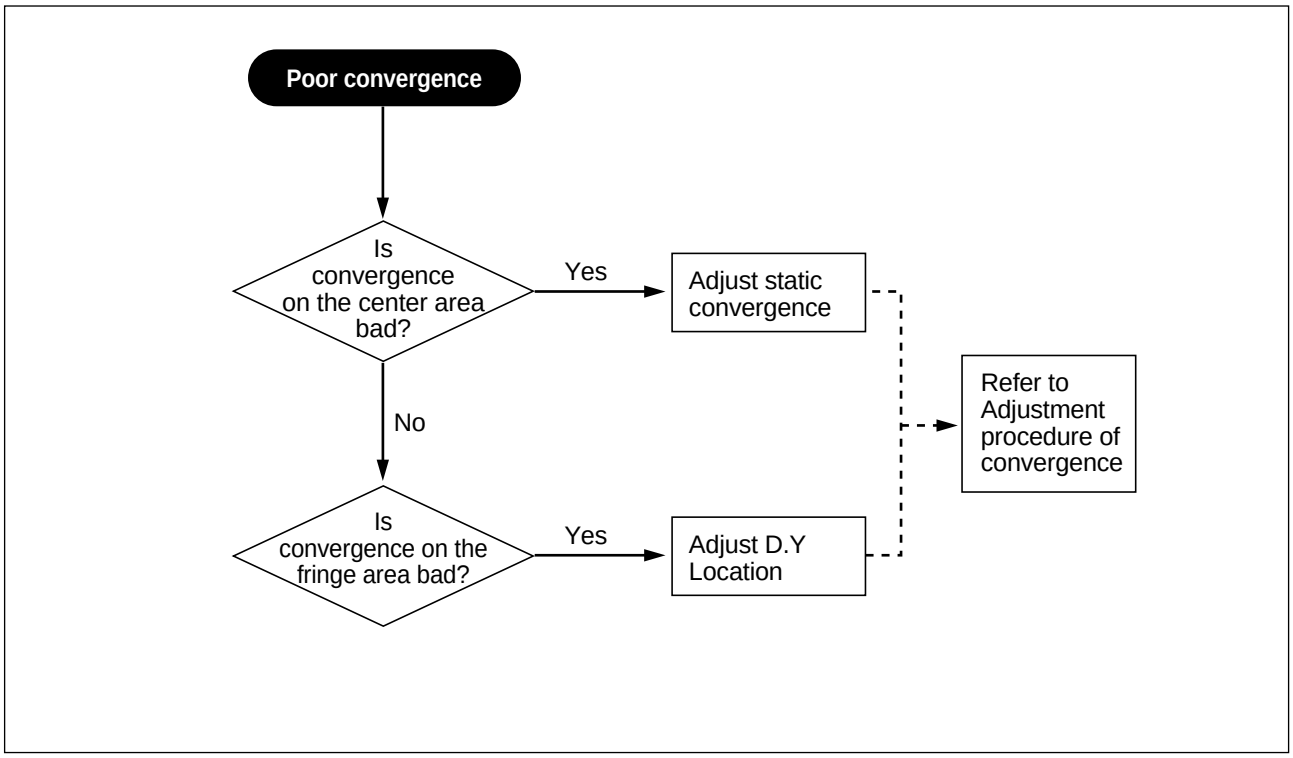
6-2. Vertical


Unstable picture
Is the 12V,-12Vdc line voltage is correct?
No
Refer to P. S. U
Yes
40V
-10V
50Vp-p
Is the pulse of pin 5 of the IC401 correct?
Yes
Trouble in vertical D. Y
No
Is the output of pin 4 of IC501 all normal?
Yes
Check IC401 and its ambient circuit
No
Check the IC501 and its ambient circuit

7. Focus


Monitor remains unfocused
Check Focus VR in FBT
Is focus acceptable?
Yes
OK
No
Trouble in Focus circuit (FBT)

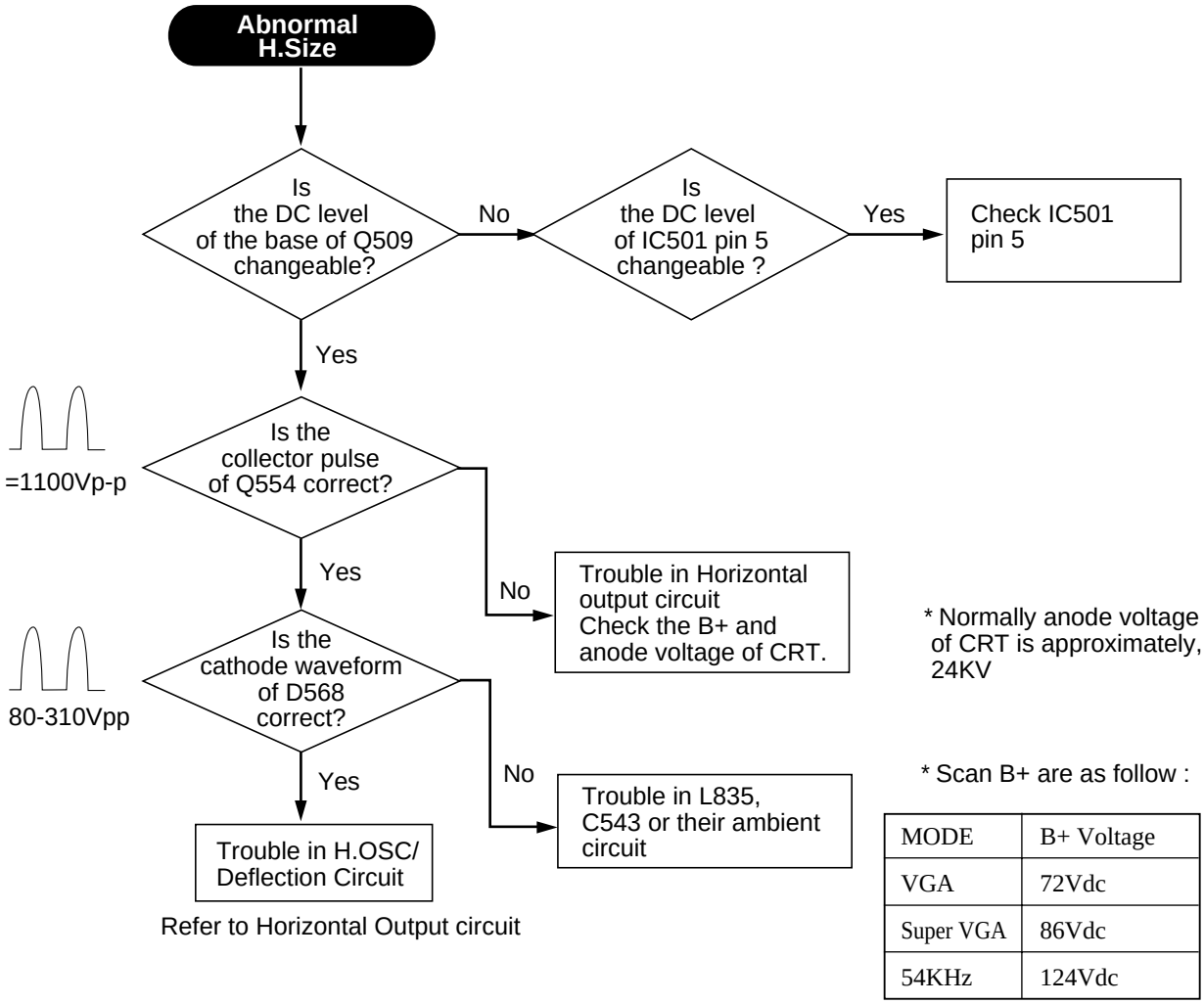
8. Convergence



9. Abnormal Picture

9-1. Horizontal Size

∗ At first, adjust controls in the OSD Menu

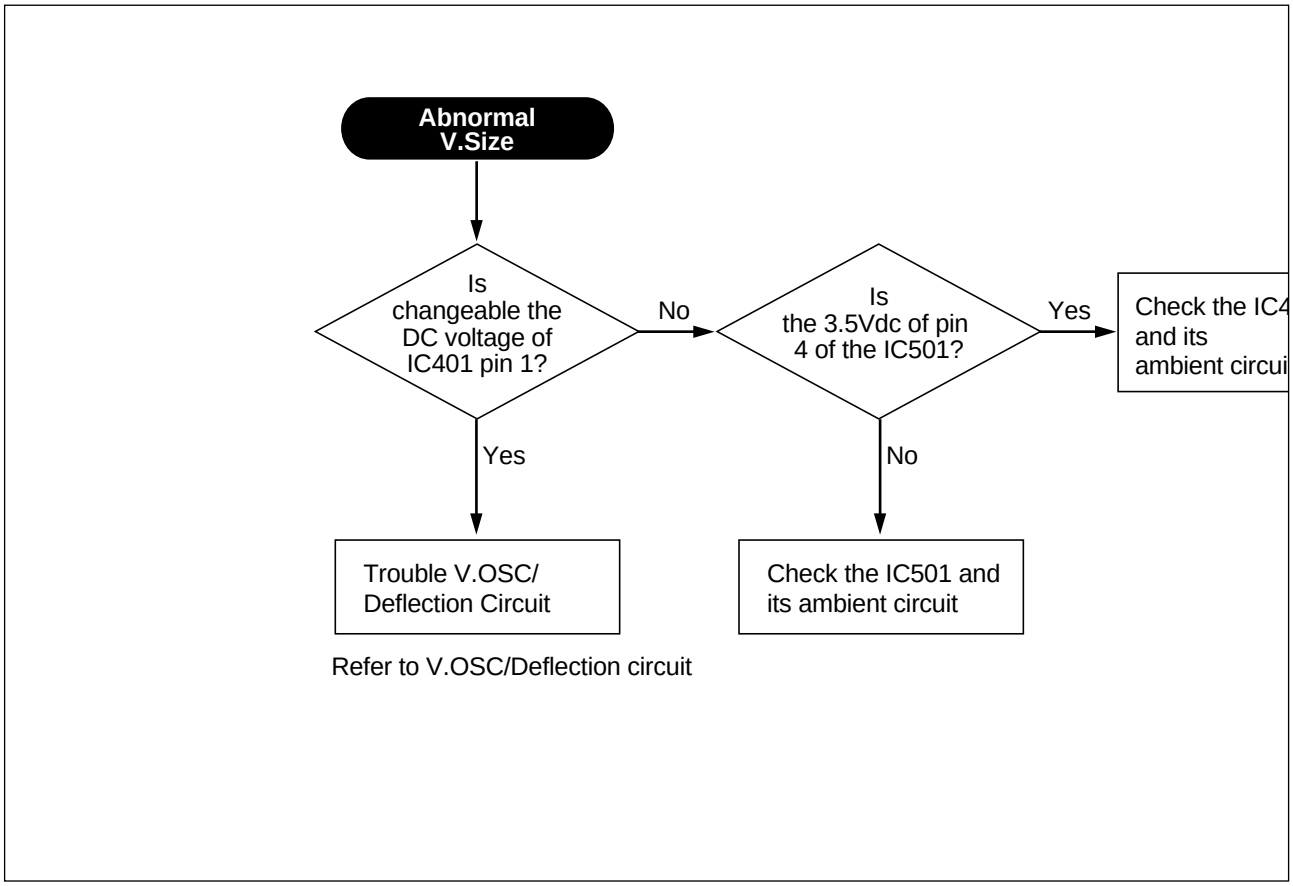


* Normally anode voltage of CRT is approximately, 24KV

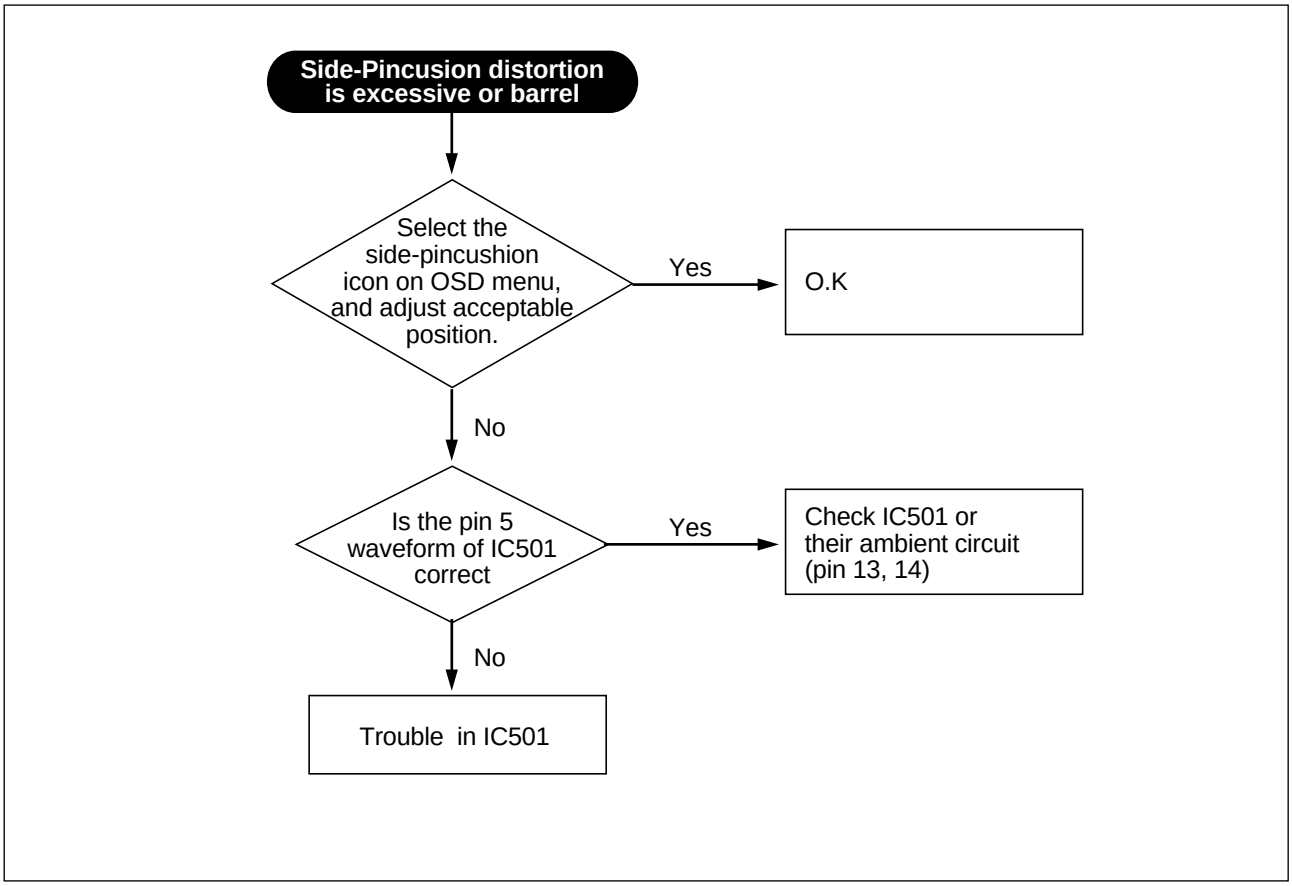
* Scan B+ are as follow :

MODE	B+ Voltage
VGA	72Vdc
Super VGA	86Vdc
54KHz	124Vdc

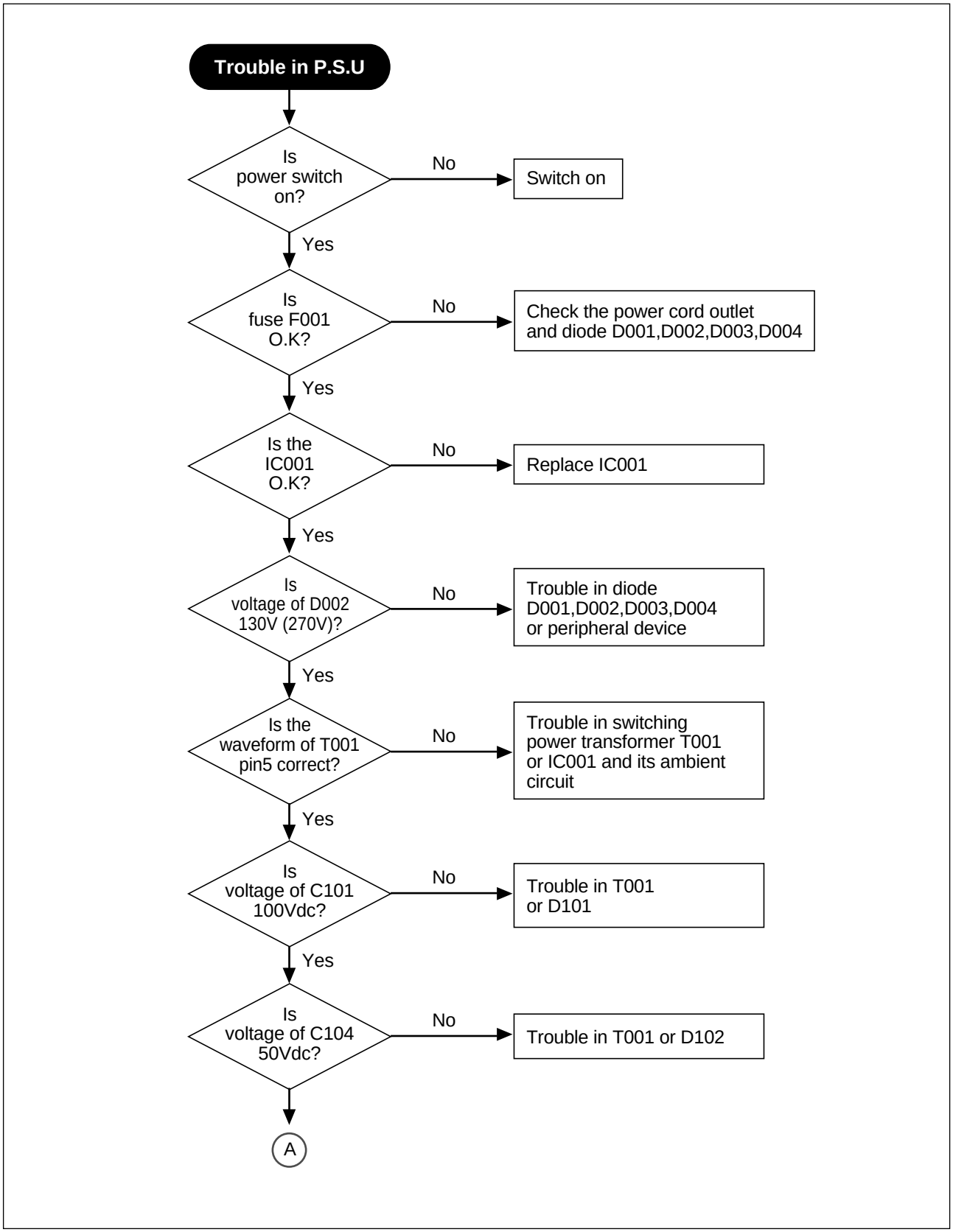
9-2. Vertical Size

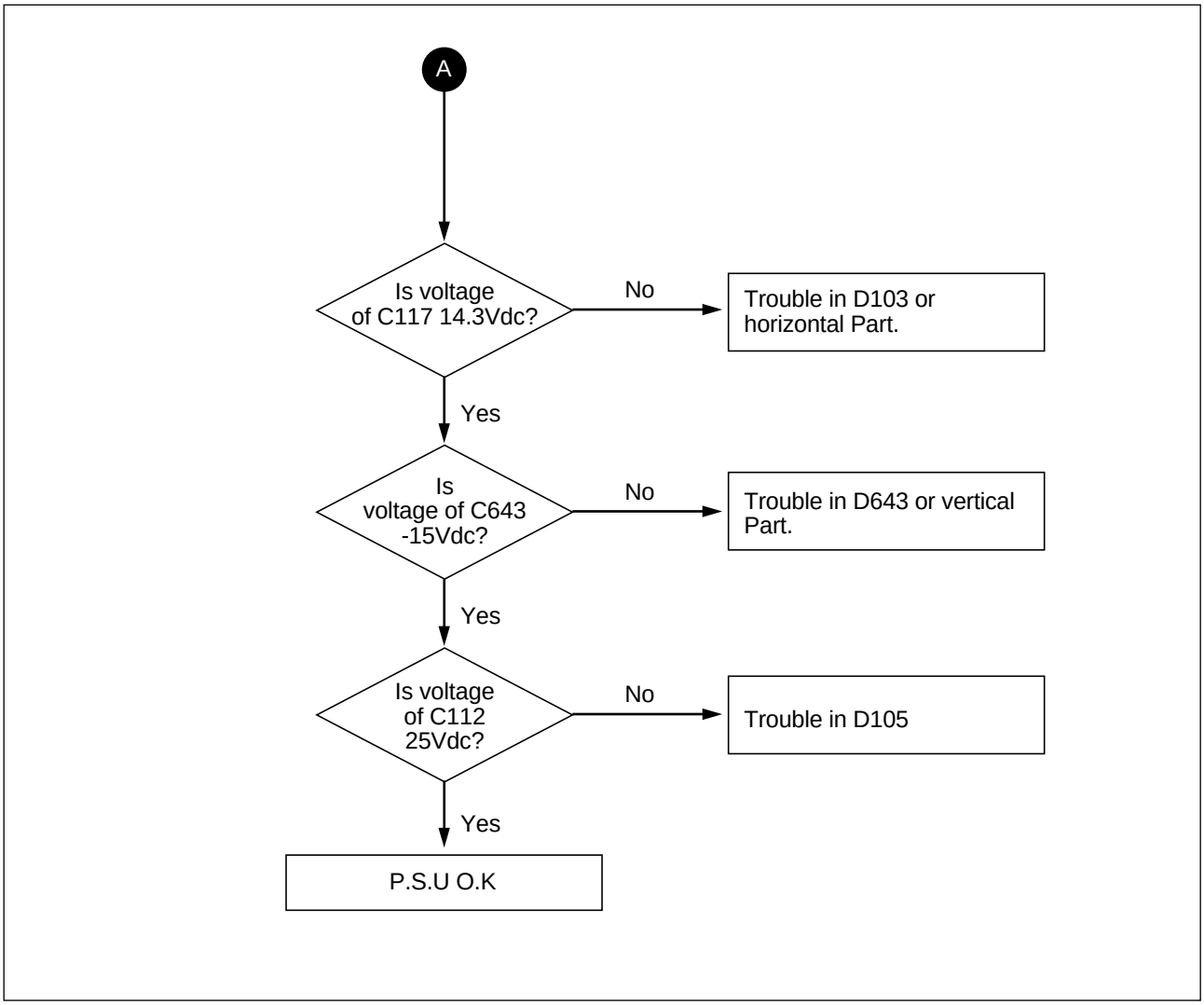


10. Side-Pincushion Circuit

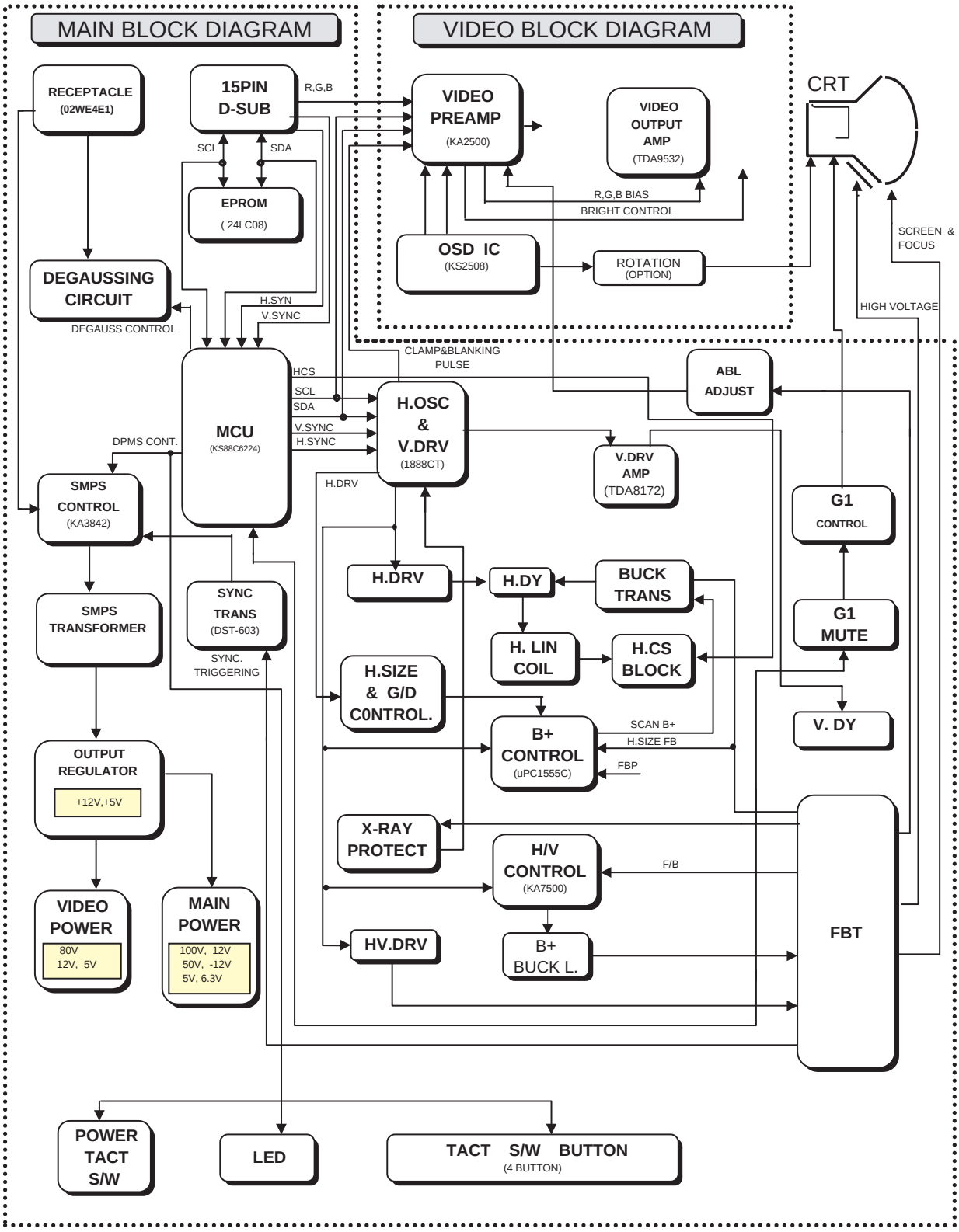


11. Power Supply Unit (P.S.U)

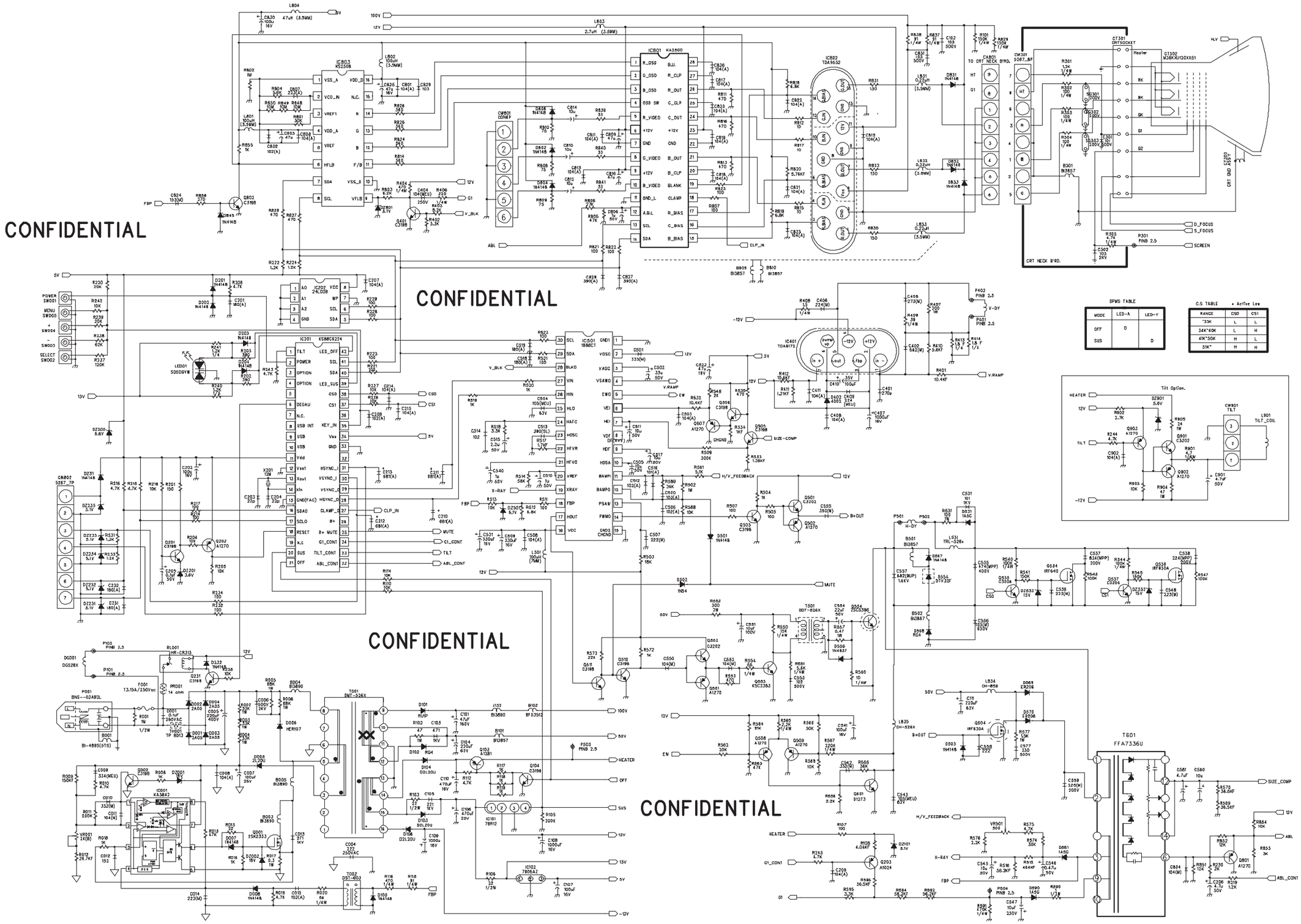



A
Is voltage of C117 14.3Vdc?
No
Trouble in D103 or horizontal Part.
Yes
Is voltage of C643 -15Vdc?
No
Trouble in D643 or vertical Part.
Yes
Is voltage of C112 25Vdc?
No
Trouble in D105
Yes
P.S.U O.K

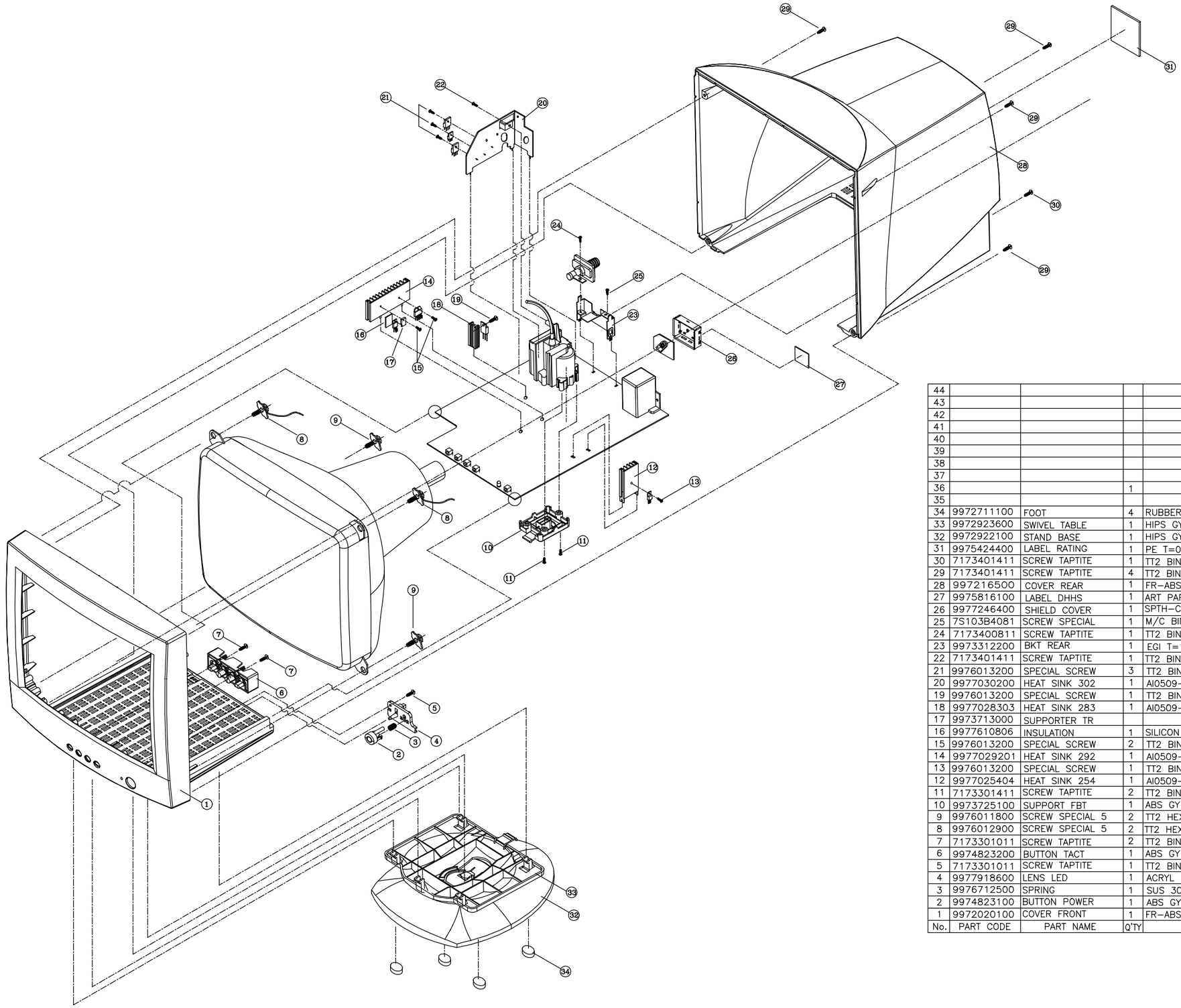
BLOCK DIAGRAM



SCHEMATIC DIAGRAM



EXPLODED VIEW DIAGRAM



No.	PART CODE	PART NAME	Q'TY	DESCRIPTION	REMARK
44					
43					
42					
41					
40					
39					
38					
37					
36			1		
35					
34	9972711100	FOOT	4	RUBBER WHITE 14	
33	9972923600	SWIVEL TABLE	1	HIPS GY-275A (94-HB)	
32	9972922100	STAND BASE	1	HIPS GY-275A (94-HB)	
31	9975424400	LABEL RATING	1	PE T=0.1X98X78	
30	7173401411	SCREW TAPTITE	1	TT2 BIN 4X14 MFZN	FRAME+REAR
29	7173401411	SCREW TAPTITE	4	TT2 BIN 4X14 MFZN	FRONT+REAR
28	997216500	COVER REAR	1	FR-ABS GY-275A	
27	9975816100	LABEL DHHS	1	ART PAPER 50X40	
26	9977246400	SHIELD COVER	1	SPTH-C T=0.3	
25	7S103B4081	SCREW SPECIAL	1	M/C BIN 4X8 MFZN TW	BKT REAR+MAIN GROUND
24	7173400811	SCREW TAPTITE	1	TT2 BIN 3X8 MFZN	BKT REAR+SIGNAL CABLE
23	9973312200	BKT REAR	1	EGI T=1.0	
22	7173401411	SCREW TAPTITE	1	TT2 BIN 4X14 MFZN	+ H/S 302+FBT
21	9976013200	SPECIAL SCREW	3	TT2 BIN 3X10 MFZN PWø7	+ H/S 302
20	9977030200	HEAT SINK 302	1	AI0509-H24	
19	9976013200	SPECIAL SCREW	1	TT2 BIN 3X10 MFZN PWø7	+ H/S 283
18	9977028303	HEAT SINK 283	1	AI0509-H24	
17	9973713000	SUPPORTER TR			+ H/S 292+IC401
16	9977610806	INSULATION	1	SILICON RUBBER 0.8X20X20	+ H/S 292+IC401
15	9976013200	SPECIAL SCREW	2	TT2 BIN 3X10 MFZN PWø7	+ H/S 292
14	9977029201	HEAT SINK 292	1	AI0509-H24	
13	9976013200	SPECIAL SCREW	1	TT2 BIN 3X10 MFZN PWø7	+ H/S 254
12	9977025404	HEAT SINK 254	1	AI0509-H24	
11	7173301411	SCREW TAPTITE	2	TT2 BIN 3X14 MFZN	SUPPOR FBT+FBT
10	9973725100	SUPPORT FBT	1	ABS GY-275A	
9	9976011800	SCREW SPECIAL 5	2	TT2 HEX 5X25 MFZN SPW	CRT+FRONT
8	9976012900	SCREW SPECIAL 5	2	TT2 HEX 5X25 SCREW+BAND	CRT+FRONT D-COIL WIRE
7	7173301011	SCREW TAPTITE	2	TT2 BIN 3X10 MFZN	FORNT+BUTTON TACT
6	9974823200	BUTTON TACT	1	ABS GY-275A	
5	7173301011	SCREW TAPTITE	1	TT2 BIN 3X10 MFZN	FORNT+LENS LED
4	9977918600	LENS LED	1	ACRYL	
3	9976712500	SPRING	1	SUS 304 ø0.5	
2	9974823100	BUTTON POWER	1	ABS GY-275A	
1	9972020100	COVER FRONT	1	FR-ABS GY-275A	

INFORMATION OF PART DESCRIPTION

Important Safety Notice

Components identified with the International Symbol have special characteristics important for safety.
When replacing any components, use only manufacturer's specified parts.

Abbreviation of Description

RESISTOR Description

Allowance	
F	± 1%
J	± 5%
K	± 10%
M	± 20%
G	± 2%

Example:

Fig & Index	Part No	Description
R101	Resistors	
	RD-4Z820J	Carbon: 82J
R102	RD-4Z201J	Carbon1/4W-200J

CAPACITOR Description

Allowance	
C	± 0.25pF
D	± 0.5%
F	± 1pF
J	± 5%
K	± 10%
P	± 100% ~ 0%
Z	± 80% ~ –

Example:

Fig & Index	Part No	Description
	Capacitors	
C102	CCXF1H104Z	Ceramic 50V 0.1µF Z
C402	CCXB1H331K	Ceramic 50V 330PF K
C105	CMXM 2A224J	MYLAR 100V 0.22µF J

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.

	LOC	PART-CODE	PART-NAME	PART-DESC
	00001	9979800516	PCB MAIN	T=1.6*246*310
	00020	WNA75N031-	CORD POWER	SP502B+IS14 3ASL/100
⚠	B001	5PB14865--	COIL BEAD	BI-4865(5TS)
⚠	B003	5PB13890--	COIL BEAD	BI3890
⚠	B004	5PB13890--	COIL BEAD	BI3890
	(J004)			
⚠	B005	5PB13890--	COIL BEAD	BI3890
	(J003)			
	B101	5PB13857--	COIL BEAD	BI3857(AXIAL)
	B102	5MBFD3512R	COIL BEAD	BFD 3512 R2
	B301	5PB13857--	COIL BEAD	BI3857(AXIAL)
	(B1)			
	B501	5PB13857--	COIL BEAD	BI3857(AXIAL)
	B502	5PB13857--	COIL BEAD	BI3857(AXIAL)
	B809	5PB13857--	COIL BEAD	BI3857(AXIAL)
	B810	5PB13857--	COIL BEAD	BI3857(AXIAL)
⚠	C001	CL1UC3104M	C LINE ACROSS	WORLD AC250V 0.1UF MR47
⚠	C004	CH1FDF222M	C CERA AC	2.5KV 2200PF M AC250V
	C005	CEYP2G221Z	C ELECTRO	400V SMH 220MF (25.4*40)
	C006	CCXE3D103P	C CERA	HIKE 2KV 0.01MF P
	C007	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
	C008	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
	C009	CMXL2A334J	C MYLAR	MEU 100V 0.33MF J
	C010	CMXM2A332J	C MYLAR	100V 3300PF J (TP)
	C011	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)
	C012	CCXB1H152K	C CERA	50V B 1500PF K (TAPPING)
	C013	CCXB3A271K	C CERA	1KV B 270PF K (TAPPING)
	C014	CMXM2A222J	C MYLAR	100V 2200PF J (TP)
	C015	CCZB1H102K	C CERA	50V B 1000PF K
	C101	CEXF2C470V	C ELECTRO	160V RSS 47MF (13X25) TP
	C102	CCXF2H103Z	C CERA	HIKF 500V 0.01MF Z
	C103	CCXB3A471K	C CERA	1KV B 470PF K (T)
	C104	CEXF1J221V	C ELECTRO	63V RSS 220MF (10X20) TP
	C105	CCXB3A221K	C CERA	1KV B 220PF K (TAPPING)
	C106	CEXF1E471V	C ELECTRO	25V RSS 470MF (10X16) TP
	C107	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
	C108	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP
	C109	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP
	C110	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5) TP
	C111	CEXF1J221V	C ELECTRO	63V RSS 220MF (10X20) TP
	C302	CCXE3D103P	C CERA	HIKE 2KV 0.01MF P
	(C2)			
	C201	CCZB1H181K	C CERA	50V B 180PF K AXIAL
	C202	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
	C203	CXCH1H220J	C CERA	50V CH 22PF J (TAPPING)
	C204	CXCH1H220J	C CERA	50V CH 22PF J (TAPPING)
	C205	CEXF1H108V	C ELECTRO	50V RSS 0.1MF (5X11) TP

LOC	PART-CODE	PART-NAME	PART-DESC
C206	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP
C207	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C208	CCZB1H102K	C CERA	50V B 1000PF K
C209	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C210	CCZB1H681K	C CERA	50V B 680PF K
C211	CCZB1H681K	C CERA	50V B 680PF K
C212	CCZB1H681K	C CERA	50V B 680PF K
C213	CCZB1H681K	C CERA	50V B 680PF K
C214	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C215	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C231	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C232	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C301	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)
(C1)			
C401	CCXB1H271K	C CERA	50V B 270PF K (TAPPING)
C402	CMXM2A562J	C MYLAR	100V 5600PF J (TP)
C404	CMXL2E104J	C MYLAR	MEU 250V 0.1MF J
C405	CMXM2A273J	C MYLAR	100V 0.027MF J (TP)
C406	CMXL2A224J	C MYLAR	100V MEU 0.22MF J
C407	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP
C408	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C409	CMXL2A224J	C MYLAR	100V MEU 0.22MF J
C410	CEXF1V101V	C ELECTRO	35V RSS 100MF (8X11.5) TP
C411	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C501	CMXM2A333J	C MYLAR	100V 0.033MF J (TP)
C502	CEXF1H330V	C ELECTRO	50V RSS 33MF (6.3X11) TP
C503	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C504	CMXL1J105J	C MYLAR	MEU 63V 1MF J
C505	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C506	CCZB1H102K	C CERA	50V B 1000PF K
C507	CMXM2A222J	C MYLAR	100V 2200PF J (TP)
C508	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C509	CEXF1C331V	C ELECTRO	16V RSS 330MF (8X11.5) TP
C510	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C511	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C512	CCZB1H102K	C CERA	50V B 1000PF K
C513	CXSL1H391J	C CERA	50V SL 390PF J
C514	CCXB1H102K	C CERA	50V B 1000PF K (TAPPING)
C515	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C516	CCZB1H101K	C CERA	50V B 100PF K
C517	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C518	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C519	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C520	CCZF1H103Z	C CERA	50V F 0.01MF Z
C521	CEXF1C331V	C ELECTRO	16V RSS 330MF (8X11.5) TP
C522	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C531	CCXB3A101K	C CERA	1KV B 100PF K

LOC	PART-CODE	PART-NAME	PART-DESC
C535	CMXA2G474J	C MYLAR	MPA 400V 0.47MF J
C536	CMXM2A223J	C MYLAR	100V 0.022MF J TP
C537	CMYF2D624J	C MYLAR	200V MPP 0.62MF J
C538	CMXF2D224J	C MYLAR	MPP 200V 0.22MF J
C540	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C541	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C542	CMXM2A332J	C MYLAR	100V 3300PF J (TP)
C543	CMXL1J105J	C MYLAR	MEU 63V 1MF J
C545	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C546	CEXF1H478V	C ELECTRO	50V RSS 0.47MF (5X11) TP
C547	CEXF2E100V	C ELECTRO	250V RSS 10MF (10X20) TP
C548	CMXM2A223J	C MYLAR	100V 0.022MF J TP
C550	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)
C551	CEXF2A100V	C ELECTRO	100V RSS 10MF (6.3X11) TP
C552	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)
C553	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)
C554	CEXF1H220V	C ELECTRO	50V RSS 22MF (5X11) TP
C555	CMXM2A393J	C MYLAR	100V 0.039MF J (TP)
C556	CMXE2J103J	C MYLAR	630V PL 0.01MF J
C557	CMYH3C682J	C MYLAR	BUP 1.6KV 6800PF J BULK
C558	CMXM2A223J	C MYLAR	100V 0.022MF J TP
C559	CMYF2D225J	C MYLAR	MPP 200V 2.2MF J
C560	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C561	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP
C577	CCXB2H331K	C CERA	500V B 330PF K (TAPPING)
C801	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C802	CCZB1H102K	C CERA	50V B 1000PF K
C803	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C804	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)
C806	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C807	CCZB1H223K	C CERA	HIBK 50V 0.022MF K AXL 52
C808	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C809	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C810	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C811	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C812	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C813	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C814	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C815	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C816	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C817	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C818	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C819	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C820	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C821	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C822	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C823	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C824	CMXM2A153J	C MYLAR	100V 0.015MF J (TP)
C825	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C826	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C827	CCZB1H391K	C CERA	50V B 390PF K

LOC	PART-CODE	PART-NAME	PART-DESC
C828	CCZB1H391K	C CERA	50V B 390PF K
C829	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)
C830	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C831	CCXF2H103Z	C CERA	HIKF 500V 0.01MF Z
CA801	9970780032	CONN AS	SMH250+5108+2037#28=250
CDT	9979615003	CDT	M36KXU110XX61(T)
CGND	9970710243	CRT GND AS	0.12*6*16+BL101NG*2=580
CT301	9979300013	SOCKET CRT	PCS629-03A
CW301	9979220009	CONN WAFER	SMW250-08
CW801	485923272S	CONN WAFER	5267-06A STICK TYPE
CW802	485923282S	CONN WAFER	5267-07A STICK TYPE
D001	D2A05-----	DIODE	2A05
D002	D2A05-----	DIODE	2A05
D003	D2A05-----	DIODE	2A05
D004	D2A05-----	DIODE	2A05
D005	DD2L20U---	DIODE	D2L20U
D006	DHER107---	DIODE	HER107
D007	DZN4148---	DIODE	1N4148 AUTO 52MM
D008	DZN4148---	DIODE	1N4148 AUTO 52MM
D101	DRU1P-----	DIODE	RU 1P (TAPPING)
D102	DRG4------	DIODE	RG4
D103	DD2L20U---	DIODE	D2L20U
D104	DD2L20U---	DIODE	D2L20U
D105	DZN4148---	DIODE	1N4148 AUTO 52MM
D106	DD2L20U---	DIODE	D2L20U
D201	DZN4148---	DIODE	1N4148 AUTO 52MM
D202	DZN4148---	DIODE	1N4148 AUTO 52MM
D203	DZN4148---	DIODE	1N4148 AUTO 52MM
D204	DZN4148---	DIODE	1N4148 AUTO 52MM
D231	DZN4148---	DIODE	1N4148 AUTO 52MM
D232	DZN4148---	DIODE	1N4148 AUTO 52MM
D402	D1N4002A--	DIODE	1N4002
D501	DZN4148---	DIODE	1N4148 AUTO 52MM
D502	D1NS4-----	DIODE	1NS4
D503	DZN4148---	DIODE	1N4148 AUTO 52MM
D531	D1A5G-----	DIODE	1A5G
D554	DDTV32F---	DIODE	DTV32F
D556	D1N4937GP-	DIODE	1N4937GP (TAPPING)
D561	D1A5G-----	DIODE	1A5G
D567	DZN4148---	DIODE	1N4148 AUTO 52MM
D568	DRG4------	DIODE	RG4
D569	DER206----	DIODE	ER206
D570	DER206----	DIODE	ER206
D590	D1A5G-----	DIODE	1A5G
D802	DZN4148---	DIODE	1N4148 AUTO 52MM
D804	DZN4148---	DIODE	1N4148 AUTO 52MM
D806	DZN4148---	DIODE	1N4148 AUTO 52MM
D831	DZN4148---	DIODE	1N4148 AUTO 52MM
D832	DZN4148---	DIODE	1N4148 AUTO 52MM
D833	DZN4148---	DIODE	1N4148 AUTO 52MM
D845	DZN4148---	DIODE	1N4148 AUTO 52MM

	LOC	PART-CODE	PART-NAME	PART-DESC
⚠	DG001	5MG0000066	COIL DEGAUSSING	DG-526X
	DZ001	DUZ18BM---	DIODE ZENER	UZ-18BM
	DZ002	DUZ18BM---	DIODE ZENER	UZ-18BM
	DZ101	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	DZ200	DDZ5R6BM--	DIODE ZENER	DZ5.6BM
	DZ201	DDZ3R6B---	DIODE ZENER	DZ3.6B
	DZ231	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	DZ232	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	DZ233	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	DZ234	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	DZ235	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	DZ501	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	DZ532	DDZ15BM---	DIODE ZENER	DZ15BM
	DZ533	DDZ15BM---	DIODE ZENER	DZ15BM
	DZ801	DDZ5R1B---	DIODE ZENER	DZ-5.1B
	F001	5F3CB3122L	FUSE CERA	SEMKOTL315AH250VMF51
	F001A	9977410900	FUSE CLIP	BSP3-H T0.4 SN 5.2
	F001B	9977410900	FUSE CLIP	BSP3-H T0.4 SN 5.2
	GND2	9970700123	CONN AS	4.3+35404-9002+1015#18=50
	IC001	1KA3842B--	IC POWER	KA3842B
	IC101	1KA78R12--	IC REGULATOR	KA78R12
	IC102	1KA78L05AZ	IC REGULATOR	KA78L05AZ
	IC201	1KS88P6232	IC MICOM	KS88P6232N
	IC202	124C08----	IC EEPROM	24C08
	IC401	1TDA9302H-	IC VERTICAL	TDA9302H
	IC501	1UPC1888CT	IC H/V OSC	UPC1888CT
	IC801	1KA2500---	IC	KA2500
	IC802	1TDA9533--	IC VIDEO OUTPUT	TDA9533
	IC803	1DW0SD10--	IC OSD	KS2508-02
	J132	5PB13890--	COIL BEAD	BI3890
	L501	5CPZ101K03	COIL PEAKING	100UH K (AXIAL 7MM)
	L531	5MH0000070	COIL H-LINEARITY	TRL-526X
	L801	5CPZ101K02	COIL PEAKING	100UH K (AXIAL 3.5MM)
	L802	5CPZ101K02	COIL PEAKING	100UH K (AXIAL 3.5MM)
	L803	5CPZ279K02	COIL PEAKING	LAL02TB 2.7UH M AXIAL
	L804	5CPZ470K02	COIL PEAKING	47UH K (AXIAL 3.5MM)
	L831	5CPZ109K02	COIL PEAKING	1UH K (AXIAL 3.5MM)
	L832	5CPZ109K02	COIL PEAKING	1UH K (AXIAL 3.5MM)
	L833	5CPZ109K02	COIL PEAKING	1UH K (AXIAL 3.5MM)
	L834	5MC0000078	COIL CHOKE	CH-85B
	L835	5MC0000074	COIL CHOKE	TCH-526X(110UH)
	LED1	DSD50GYW--	LED	SD50GYW(GREEN/AMBER)
⚠	P001	9979500022	RECEPTACLE	BNS-02AB2L-1
	PCB	9979800545	PCB CRT	T=1.6*61*50 (526X)
⚠	PR001	DECPAC140M	POSISTOR	ECPAC140M290
	Q001	T2SK2101--	FET	2SK2101
	Q002	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
	Q103	TKTA1281Y-	TR	KTA1281Y
	Q104	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
	Q201	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
	Q202	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)

LOC	PART-CODE	PART-NAME	PART-DESC
Q203	TZTA1024Y-	TR	KTA1024Y (949Y)
Q231	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
Q401	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
Q501	TZTC3202Y-	TR	KTC3202Y(AUTO)(1959Y)
Q502	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q503	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
Q504	T1RF630A--	FET	IRF630A
Q505	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
Q506	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
Q507	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q508	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q509	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q510	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
Q534	T1RF640---	FET	IRF640
Q535	TZTC3206Y-	TR	KTC3206Y (2229Y)
Q536	T1RF630A--	FET	IRF630A
Q537	TZTC3206Y-	TR	KTC3206Y (2229Y)
Q551	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q552	TZTC3202Y-	TR	KTC3202Y(AUTO)(1959Y)
Q553	TKSC2383Y-	TR	KSC 2383-Y
Q554	T2SC5386--	TR H.OUT	2SC5386
Q601	TKSD1273P-	TR	KSD1273-P
Q801	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q802	TZTC3198Y-	TR	KTC3198Y-(1815Y)(AUTO)
R001	RC-2Z105J-	R CARBON COMP	1/2 1M OHM J SR37
R002	RS01Z333J-	R M-OXIDE FILM	1W 33K OHM J (TAPPING)
R003	RS01Z333J-	R M-OXIDE FILM	1W 33K OHM J (TAPPING)
R004	RS01Z333J-	R M-OXIDE FILM	1W 33K OHM J (TAPPING)
R005	RS01Z683J-	R M-OXIDE FILM	1W 68K OHM J (TAPPING)
R006	RS01Z683J-	R M-OXIDE FILM	1W 68K OHM J (TAPPING)
R008	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R009	RN-AZ1503F	R METAL FILM	1/6 150K OHM F
R010	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R011	RD-AZ204J-	R CARBON FILM	1/6 200K OHM J
R012	RN-AZ2672F	R METAL FILM	1/6 26.7K OHM F
R013	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R015	RD-AZ220J-	R CARBON FILM	1/6 22 OHM J
R016	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R017	RW01Z278JN	R WIRE WOUND	1W0.27OHM J NON-INDUCT
R018	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R019	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R020	RD-4Z560J-	R CARBON FILM	1/4 56 OHM J
R101	RD-4Z154J-	R CARBON FILM	1/4 150K OHM J
R102	RS01Z470J-	R M-OXIDE FILM	1W 47 OHM J (TAPPING)
R103	RD-2Z220J-	R CARBON FILM	1/2 22 OHM J
R105	RD-AZ204J-	R CARBON FILM	1/6 200K OHM J
R106	RD-2Z220J-	R CARBON FILM	1/2 22 OHM J
R107	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R108	RN-AZ4021F	R METAL FILM	1/6 4.02K OHM F
R110	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R112	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R114	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R115	RD-4Z910J-	R CARBON FILM	1/4 91 OHM J
R116	RD-4Z471J-	R CARBON FILM	1/4 470 OHM J
R117	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R118	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R119	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R201	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J
R202	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
R203	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
R204	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R205	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R206	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R214	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R215	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R216	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R217	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R218	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R219	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R220	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
R221	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R222	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R223	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R224	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R226	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R227	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R228	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R229	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R230	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J
R231	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R232	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R233	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R234	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R235	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R237	RD-AZ124J-	R CARBON FILM	1/6 120K OHM J
R238	RD-AZ623J-	R CARBON FILM	1/6 62K OHM J
R239	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
R240	RD-4Z122J-	R CARBON FILM	1/4 1.2K OHM J
R241	RD-4Z122J-	R CARBON FILM	1/4 1.2K OHM J
R242	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R243	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R245	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R301 (R4)	RD-4Z122J-	R CARBON FILM	1/4 1.2K OHM J
R302 (R3)	RD-4Z101J-	R CARBON FILM	1/4 100 OHM J
R303 (R2)	RD-4Z101J-	R CARBON FILM	1/4 100 OHM J
R304 (R1)	RD-4Z101J-	R CARBON FILM	1/4 100 OHM J
R305 (R5)	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R401	RN-AZ1042F	R METAL FILM	1/6 10.4K OHM F
R402	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R403	RD-AZ822J-	R CARBON FILM	1/6 8.2K OHM J
R404	RD-4Z471J-	R CARBON FILM	1/4 470 OHM J
R406	RD-4Z221J-	R CARBON FILM	1/4 220 OHM J
R407	RS01Z201J-	R M-OXIDE FILM	1W 200 OHM J (TAPPING)
R408	RD-4Z159J-	R CARBON FILM	1/4 1.5 OHM J
R409	RD-4Z390J-	R CARBON FILM	1/4 39 OHM J
R410	RN-AZ5601F	R METAL FILM	1/6 5.6K OHM F
R411	RN-AZ1211F	R METAL FILM	1/6 1.21K OHM F
R412	RN-AZ1062F	R METAL FILM	1/6 10.6K OHM F
R413	RN-4Z1808F	R METAL FILM	1/4 1.8 OHM F
R414	RN-4Z1808F	R METAL FILM	1/4 1.8 OHM F
R502	RD-AZ105J-	R CARBON FILM	1/6 1M OHM J
R503	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J
R504	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R505	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R507	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R509	RD-AZ304J-	R CARBON FILM	1/6 300K OHM J
R511	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R512	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R513	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R514	RD-AZ563J-	R CARBON FILM	1/6 56K OHM J
R515	RN-AZ4643F	R METAL FILM	1/6 464K OHM F
R516	RN-AZ5622F	R METAL FILM	1/6 56.2K OHM F
R517	RN-AZ1701F	R METAL FILM	1/6 1.7K OHM F
R518	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J
R519	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R520	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R521	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R522	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R531	RS01Z101J-	R M-OXIDE FILM	1W 100 OHM J (TAPPING)
R532	RN-AZ1042F	R METAL FILM	1/6 10.4K OHM F
R533	RN-AZ1371F	R METAL FILM	1/6 1.37K OHM F
R534	RN-AZ1001F	R METAL FILM	1/6 1K OHM F
R535	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R540	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J
R541	RD-AZ154J-	R CARBON FILM	1/6 150K OHM J
R543	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R544	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J
R545	RD-AZ154J-	R CARBON FILM	1/6 150K OHM J
R547	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R548	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J
R550	RD-4Z153J-	R CARBON FILM	1/4 15K OHM J
R551	RD-4Z562J-	R CARBON FILM	1/4 5.6K OHM J
R552	RS02Z301J-	R M-OXIDE FILM	2W 300 OHM J (TAPPING)
R553	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R554	RD-4Z560J-	R CARBON FILM	1/4 56 OHM J
R555	RD-AZ363J-	R CARBON FILM	1/6 36K OHM J
R556	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
R557	RW01Z478JN	R WIRE WOUND	1W 0.47 OHM J NON-INDUCT

LOC	PART-CODE	PART-NAME	PART-DESC
R560	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J
R561	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R562	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
R563	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R564	RD-AZ913J-	R CARBON FILM	1/6 91K OHM J
R565	RD-4Z222J-	R CARBON FILM	1/4 2.2K OHM J
R566	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J
R567	RD-4Z224J-	R CARBON FILM	1/4 220K OHM J
R568	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R569	RN-AZ3652F	R METAL FILM	1/6 36.5K OHM F
R570	RN-AZ3652F	R METAL FILM	1/6 36.5K OHM F
R572	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R573	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
R574	RD-4Z303J-	R CARBON FILM	1/4 30K OHM J
R575	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R576	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
R577	RS01Z152J-	R M-OXIDE FILM	1W 1.5K OHM J (TAPPING)
R588	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R589	RD-AZ363J-	R CARBON FILM	1/6 36K OHM J
R590	RD-2Z109J-	R CARBON FILM	1/2 1 OHM J
R591	RD-4Z474J-	R CARBON FILM	1/4 470K OHM J
R592	RN-AZ5622F	R METAL FILM	1/6 56.2K OHM F
R594	RN-AZ5622F	R METAL FILM	1/6 56.2K OHM F
R595	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R596	RN-AZ3652F	R METAL FILM	1/6 36.5K OHM F
R801	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J
R802	RD-AZ105J-	R CARBON FILM	1/6 1M OHM J
R803	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J
R804	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R805	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R806	RD-AZ273J-	R CARBON FILM	1/6 27K OHM J
R807	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R808	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R809	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R810	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R811	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R812	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J
R813	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R814	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R815	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J
R816	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R817	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J
R818	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R819	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R820	RN-AZ5761F	R METAL FILM	1/6 5.76K OHM F
R821	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R822	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R823	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R824	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R825	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R826	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R827	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R828	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R829	RD-4Z154J-	R CARBON FILM	1/4 150K OHM J
R831	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J
R833	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J
R835	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J
R837	RD-4Z910J-	R CARBON FILM	1/4 91 OHM J
R838	RD-4Z910J-	R CARBON FILM	1/4 91 OHM J
R839	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
R840	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
R841	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
R848	RD-AZ106J-	R CARBON FILM	1/6 10M OHM J
R849	RD-AZ106J-	R CARBON FILM	1/6 10M OHM J
R850	RD-AZ106J-	R CARBON FILM	1/6 10M OHM J
R851	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J
R852	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J
R853	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R854	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R855	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R856	RD-AZ271J-	R CARBON FILM	1/6 270 OHM J
RL001	5SC0101006	SW RELAY	KH-S-112M 1C-1P (HR-CR313)
SC001	9970800033	CABLE SIGNAL AS	15P+1C/DDC=1.5M (GY286A)
SG301 (SG1)	4SG0D00104	SPARK GAP	S-23 1.5KV
SG302 (SG2)	4SG0D00104	SPARK GAP	S-23 1.5KV
SG303 (SG3)	4SG0D00104	SPARK GAP	S-23 1.5KV
SW001	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW002	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW003	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW004	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW005	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
T001	5RM0000099	TRANS SMPS	DMT-526X
T002	5RY0000002	TRANS SYNC	DST-603
T501	5RD0000047	TRANS DRIVE	DDT-526X
T601	5RH0000125	FBT	FFA73336U
TH001	DTP8D13---	THERMISTOR	TP8D13
VR001	RV6421202P	R SEMI FIXED	CCT065AT2K OHM B TAP
VR501	RV6121501P	R SEMI FIXED	CCT063BT500 OHM B TAP
X201	5XE12R000E	CRYSTAL QUARTZ	HC-49U 12.000000MHZ 30PPM

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