

Service
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Service Manual

Horizontal Frequency
30-71 kHz

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING

Ⓜ 3138 106 10532

Revision List

Version	Date	Revision History
A00	May-28-2006	Initial Release



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CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING
REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINGS

Proper service and repair is important to the safe, reliable operation of all PHILIPS Company Equipment. The service procedures recommended by PHILIPS and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. PHILIPS could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, PHILIPS has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by PHILIPS must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

Hereafter throughout this manual, PHILIPS Company will be referred to as PHILIPS.

WARNING

Use of substitute replacement parts, which do not have the same, specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from PHILIPS. PHILIPS assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION - The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

1. Monitor Specifications

- CRT : 17"Conventional tube, Curved screen & Shadow mask CRT,90 Deflection, 29.1mm Neck, 0.27mm phosphor dot pitch, Non-Glare Screen , anti-static, Universal power supply.
- Viewable image Size: 40.6CM (16") diagonal
- Display Color: Unlimited Colors
- External Controls:
Power On/Off, OSD key, OSD Function: Contrast, Brightness, H-Center, H-Size, H-Center, V-Size, Zoom, Pincushion, Trapezoid, Pin-Balance, Parallelogram, Rotation, 6500 Color Temperature, User Color, 9300 Color Temperature, Degauss, Moire Reduce, Recall, Exit, Language.
- Input Video Signal

Timing	1.	2.	3.
Resolution	640 x 480	640 x 480	720 x 400
H. Frequency	31.469 kHz	43.269 kHz	31.468 kHz
V. Frequency	59.941 Hz	85.008 Hz	70.084 Hz

Timing	4.	5.	6.
Resolution	800 x 600	800 x 600	1024 x 768
H. Frequency	46.875 kHz	53.674 kHz	60.023 kHz
V. Frequency	75.000 Hz	85.061 Hz	75.029 Hz

Timing	7.	8.	
Resolution	1024 x 768	1280 x 1024	
H. Frequency	68.677 kHz	63.981 kHz	
V. Frequency	84.997 Hz	60.020 Hz	

- Display Size
Horizontal: 306 mm± 4mm
Vertical: 230 mm± 4mm
- Scanning Frequencies
Horizontal: 30KHz ~71KHz
Vertical: 50 Hz ~ 160 Hz
- Factory Preset Timings: 8
User Timings: 6
- Misconvergence

Zone A	<0.25 mm
Zone B	<0.35 mm <0.4mm (for modes < 50kHz)

- Video Bandwidth: 110 MHz
- Power Source:
Switching Mode Power Supply
AC 90 ~264V, 50/60Hz± 3 Hz Universal Type
- Operating Temperature: 0°C to 40°C Ambient

13. Humidity: 5% to 90% Relative, Non-Condensing

14. Weight: Net weight - 12.5 kg
 Gross weight - 14.8 kg (for China, India)
 14.4 kg (for other regions)

15. Dimensions Monitor:

Unit dimension (with stand) - 397mm (W) x 382mm (H) x 415mm (D)
 Packed unit dimension (carton) - 460mm (W) x 420mm (H) x 506mm (D) for China, India
 446mm (W) x 420mm (H) x 470mm (D) for other regions

16. External Connection:
 15 Pin D-type Connector
 AC Power Cord

17. Power Consumption Modes :

Power on - < 75w.
 DPMS off state - < 2w at 240Vac.
 Power off (by switch) - < 1w at 120Vac, <2w at 240Vac.

18.Regulations:

International Regulatory Specification			
Country	Domain	Safety / EMC / Ergonomics / Standards	Documents
INTERNATIONAL	Sa	IEC60950-1: 2001. Group -and national differences of all countries listed in CB Bulletin No. 107A	CB Report and CB certificate
EUROPE	Sa	European Low Voltage Directives 73/23/EEC and 93/68/EEC	Declaration of Conformity
	E	European Electromagnetic Compatibility Directive 89/336/EEC amended by the directive 93/68/EEC. EN 55022:1998 Class B	Declaration of Conformity and Full EMC/CE test report
		EN 55024: 1998	
		EN 61000-3-2: 2000	
		IEC 61000-3-3: 1994/EN61000-3-3: 1995	
		CISPR 22:1997 Class B International EMC standard	
GERMANY	Sa	EN60950-1: 2001	TUV certificate
	O	ISO 9241-3-7-8 (CRT) & 13406-2 (LCD), prEN 50279:1998	TUV-ERG certificate
	O	GS-Mark / EK1-ITB 2000	TUV-GS certificate
	X	Decree ROV 08.01.87 (CRT)	PTB
SWEDEN	Sa	EN60950-1: 2001	SEMKO certificate
	O	TCO 99 (TCO03) (to TCO models)	TCO99 (TCO03) report + certificate

	O	MPR 1990: 8 / MPR 1990:10 (to MPR models)	Meet requirement
RUSSIA	Sa	GOST R 50377-1992	GOST certificate
SOUTH AFRICA	Sa	SABS IEC 60950 and IEC 60950-1	Certificate of Conformity
	E	EN55022 or Cispr 22	Certificate of Conformity
USA	Sa	UL 60950-1: 2003	UL certificate
	E	FCC Part 15 Class B	FCC ID grant or DOC
	O	Energy Star	EPA registration
	X	21CFR 1002.10 to 13 (CRT)	DHHS report
CANADA	Sa	CSA C22.2 No 60950	CSA certificate
	E	ICES-003 issue 3	Statement on label
	E	RED (CRT)	DNHW
MEXICO	Sa	NOM-019-SCFI-1994	NOM certificate
KOREA	Sa	Korean Safety Control law IEC 60950	eK certificate
	E	Regulations laws: EMI 1996-78, 80. EMS 1996-79,81	MIC certificate
SINGAPORE	Sa	IEC60950	PSB certificate
CHINA	Sa	GB4943-2001	CCC certificate
	E	GB9254-1998; 17625.1-2003	
	O	CSC/G1205-2004	CECP certificate
TAIWAN	Sa	CNS-14336 (IEC 60950-1)	BSMI certificate
	E	CNS-13438 (CISPR22) Class B	
	O	Criteria 18 (Monitor) (LCD)	Green Mark / certificate
AUSTRALIA/ NEW-ZEALAND	E	AS/NZS3548: 1995	Declaration of Conformity
ISRAEL	S	IS 1121, IEC60950/IEC60950-1	Certificate of Conformity
	E	EN or Cispr 22	Certificate of Conformity
Saudi Arabia	S	IEC standard	SASO
	E	IEC standard	SASO
Japan	Sa	EN60950-1:001 (AC adapter only)	PSE
	E	VCCI class B (CISPR 22)	VCCI Certificate
Argentina	Sa	EN60950-1: 2001	IRAM
Sa = Safety			
E = Electromagnetic Compatibility			
O = Other which including recycling, energy saving, ergonomics			
X = X-ray			
For detailed regulatory items please refer to the international regulatory specification provided by Philips.			

2. Precautions and notices

2-1.Safety precautions

1. Observe all caution and safety related notes located inside the display cabinet.
2. Operation of the display with the cover removed, may cause a serious shock hazard from the display power supply. Work on the display should not be attempted by anyone who is not thoroughly familiar with precautions necessary when working on high voltage equipment.
3. Do not install, remove or handle the picture tube in any manner unless shatter-proof goggles are worn. People who are not so equipped should be kept away while handling picture tube. Keep picture tube away from the body while handling.
4. The picture tube is constructed to limit X-RAY radiation to 0.5 mR/HR. For continued protection, use the designated replacement tube only, and adjust the voltages so that the designated maximum rating at the anode will not be exceeded.
5. Symbol "△" means safety relative parts. The use of substitute replacement parts which do not have the same characteristics as specified in the parts list may create shock, fire or explode etc.
6. Symbol "★" means X-ray relative parts. Before replacing any of these components please read the parts list in this manual carefully to avoid creating higher anode voltage or x-ray. Especially for sealed controls, such as VR902, VR903, VR701 and FBT screen VR etc, which were sealed by the manufacturer once their optimum position has been set, please don't dismantle them as your likes, otherwise you will break or damage the component. If you need replace the parts with sealed control, please adjust the relative VR to make sure the B+ voltage under 59V and well seal it with A+B glue or equivalent, which you can not move away with one screw driver
7. Before returning a serviced display to the customer, a thorough safety test must be performed to verify that the display is safe to operate without danger or shock. Always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as screw heads.
Test method for current leakage is described as follow.
 - (a) Plug the AC line cord directly into rated AC outlet (do not use a line isolation transformer during this check).
 - (b) Use an AC voltmeter having 5000 ohms per volt or with more sensitivity in the following manner: Connect a 1500 ohms 10 Watt resistor, paralleled by a 0.15UF, AC type capacitor between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts simultaneously. Measure the AC voltage across the combination of 1500 ohms resistor and 0.15UF capacitor.
 - (c) Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part.
 - (d) Voltage measured must not exceed 0.5 volts RMS. This corresponds to 0.35 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

2-2.Product safety notice

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-RAY radiation or other hazards.

2-3.Service notes

1. When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
2. When replacing a high wattage resistor (more than 1/2W of metal oxide film resistor) in circuit board, keep the resistor about 10mm (1/2 in) away from circuit board.
3. Keep wires away from high voltage or high temperature components.
4. Keep wires in their original position so as to reduce interference.

2-4.High voltage warning

Operation of monitor outside of cabinet or with back removed may cause a serious shock hazard. Work on this model should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis and picture tube dag when operating chassis.

Certain HV failures can increase X-ray radiation. Monitor should not be operated with HV levels exceeding the specified rating for the chassis type. The maximum operating HV specified for the chassis used in this monitor is

25KV \pm 0.8KV

with a line voltage of 120/240 VAC. Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the monitor that could cause a rise in high voltage or operating supply voltages. No changes should be made to the original design of the monitor. Components shown in the shaded areas on the schematic should be replaced with exact factory replacement parts. The use of unauthorized substitute parts may create a shock, fire or other hazard.

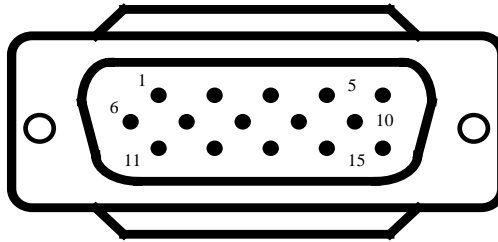
To determine the presence of high voltage, use accurate, high impedance, HV meter connected between second anode lead and CRT dag grounding device. When servicing the High Voltage System, remove static charge from it by connecting a 10K ohm resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead.(AC line cord disconnected from AC power outlet.)

The picture tube used in this monitor employs integral implosion protection. Replace with tube of the same type number for continue safety. Do not lift picture tube by the neck. Handle the picture tube only after discharging the high voltage completely.

3. Operating instructions

This procedure gives you instructions for installing and using the Color display.

1. Position the display on the desired operation and plug the power cord into a convenient AC outlet. Three-wire power cord must be shielded and is provided as a safety precaution as it connects the chassis and cabinet to the electrical conduit ground. If the AC outlet in your location does not have provisions for the grounded type plug, the installer should attach the proper adapter to ensure a safe ground potential.
2. Connect the 15-pin color display shielded signal cable to your signal system device and lock both screws on the connector to ensure firm grounding. The connector information is as follow:



15 - Pin Color Display Signal Cable

Pin No.	Description	Pin No.	Description
1.	Red video	9.	+5V (Supply from PC for DDC circuit)
2.	Green video	10.	Sync GND
3.	Blue video	11.	GND
4.	GND	12.	DDC serial data
5.	Self test	13.	H-sync
6.	Red GND	14.	V-sync
7.	Green GND	15.	DDC serial clock
8.	Blue GND		

3. Apply power to the display by turning the power switch to the "ON" position and allow about thirty seconds for display tube warm-up. The Power-On indicator lights when the display is on.
4. With proper signals feed to the display, a pattern or data should appear on the screen, adjust the brightness and contrast to the most pleasing display.
5. This monitor has power saving function following the VESA DPMS. Be sure to connect the signal cable to the PC.
6. If your color display requires service, it must be returned with the power cord.

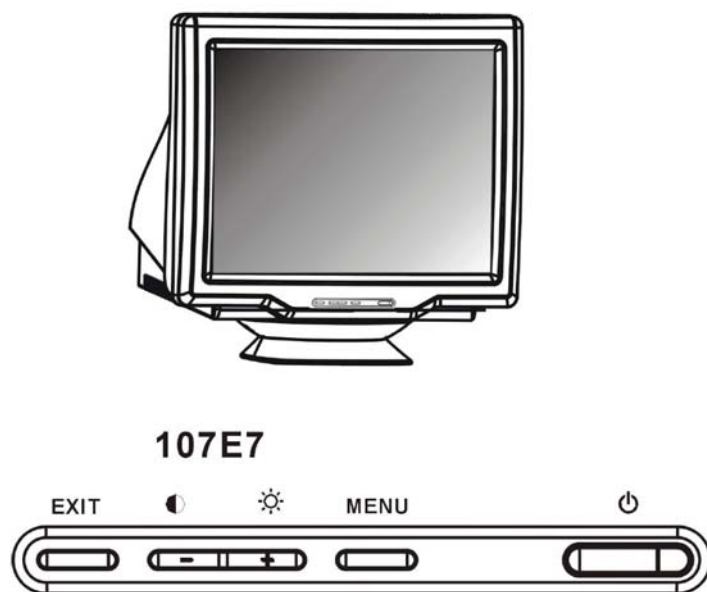
4. Adjustment






4-1. Adjustment conditions and precautions

1. Approximately 30 minutes should be allowed for warm up before proceeding.
2. Adjustments should be undertaken only on those necessary elements since most of them have been carefully preset at the factory.

4-2 Main adjustments

Front View





-  Power button switches your monitor on.
- MENU** MENU button which when pressed will take you to the OSD controls
-  Contrast hotkey. When the  button is pressed, the adjustment controls for the CONTRAST will show up or decrease adjustment.
-  Brightness hotkey. When the  button is pressed, the adjustment controls for BRIGHTNESS will show up or increase adjustment.
- EXIT** When the button is pressed, Exit the OSD menu.

Description of the On Screen Display

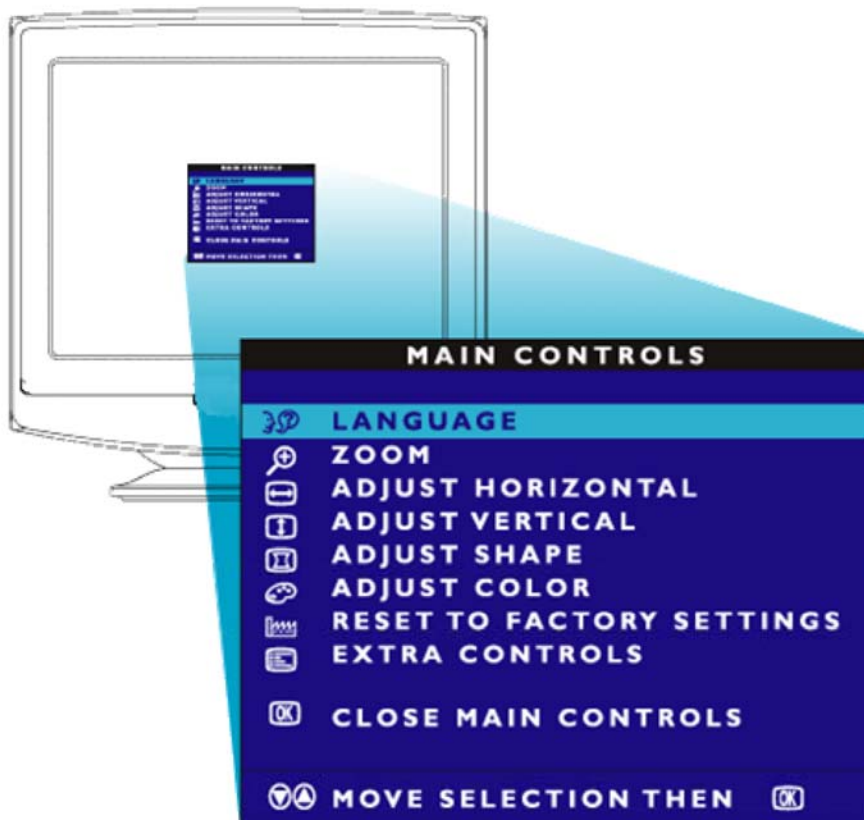
What is the On-Screen Display?

This is a feature in all Philips monitors which allows an end-user to adjust screen performance of monitors directly through an on-screen instruction window. The user interface provides user friendliness and ease-of-use when operating the monitor.

Basic and simple instruction on the control keys.

On the front controls of your monitor, once you press the MENU button, the On Screen Display (OSD) Main Controls window will pop up and you can now start making adjustments to your monitor's various features. Use the  (-)  (+) to make your adjustments within.

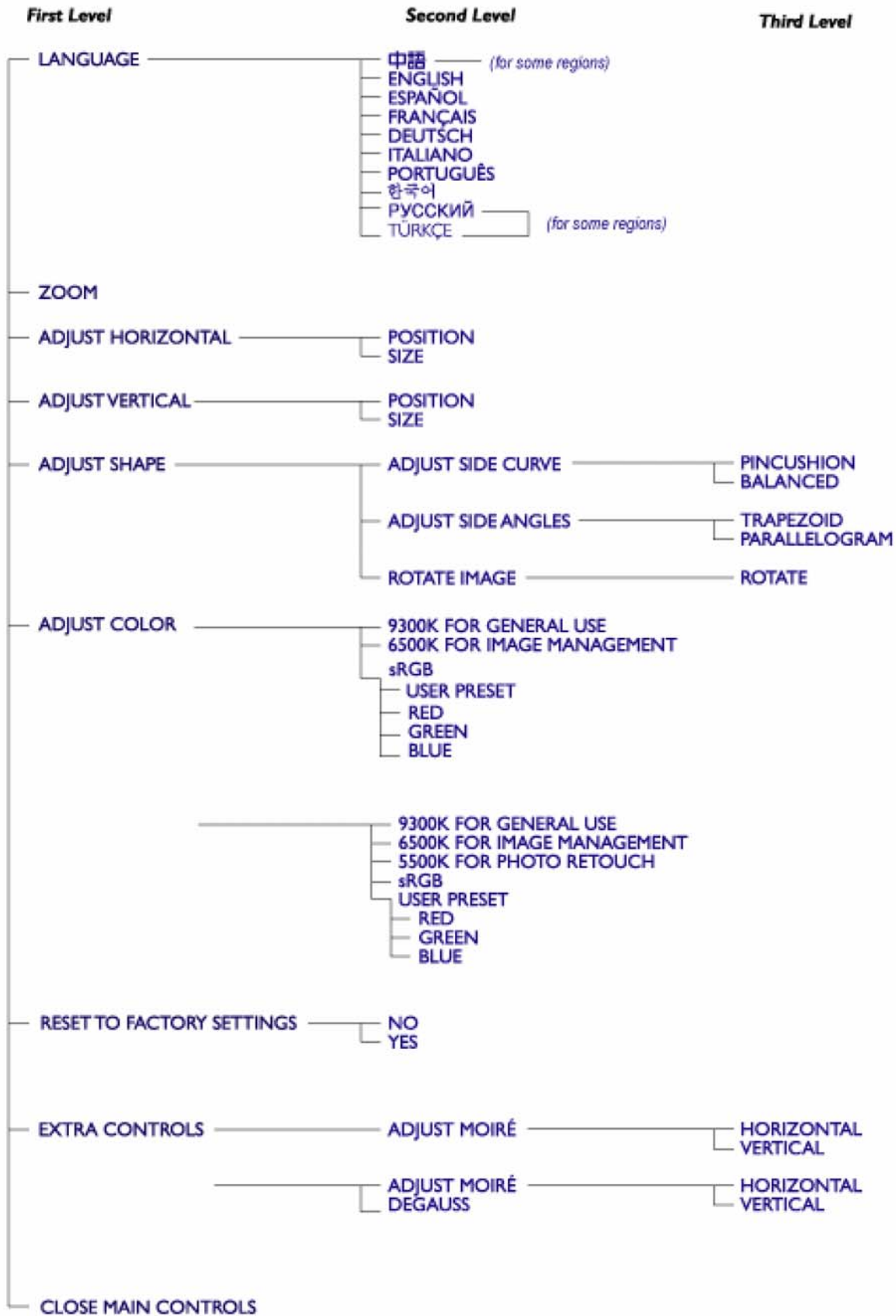
On-Screen Display



The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.

Your monitor may not include all the items in the OSD tree shown below.





















* Specifications are subject to change without prior notice.

4-3 Adjustment method


1. TP901, B + & HV voltage adjustment:
 - A. Chroma-2135 Signal generator or PC equivalent set mode 6, UVGA 640X480 pattern 101 .
 - B. Connect a DC Volt meter between TP902 and ground, then adjust VR902 to be 58±0.2 VDC for CPT CRT and 59±0.2 VDC for LPD CRT.
 - C. Set the contrast and brightness max, and then adjust G2=600V for CPT CRT and G2=560V for LG CRT.
2. Factory preset Timings Adjustment:
 - A. Press MENU Key to show OSD window press Up or Down Key to switch the functional controls.
 - B. Press the Up Key to select the "ZOOM" function, then press the MENU Key. While do not release the MENU Key until the OSD window changed to the Factory preset window.
 - C. The Factory preset window contains the following functional controls. Select one of the control. Then press the Up/Down Key to adjust its value for the optimum picture.



SR	Save SRGB color	VO	V Offset
55	Save 5500C color	VG	V Gain
OS	User OSD size	HM	H size Max
LH	Brightness	HR	H Size Range
SB	SBQ	HS	HSUB Size Range
BI	Set Burn/in Off & On	HG	H Gain
SW	Set H/Freq Max 85~72K		HBRIOSD VC
DC	DCOffset ADJ		HBRIOSD HC
AB	ABL		User adjustment
OV	User OSD VC		Save and Exit
OH	User OSD HC		Degauss
EA	EHT Auto Adjustment		B-Bias


HE	HEHT Gain		G-Bias
VE	VEHT Gain		R-Bias
EO	EHT Offset		G-Gain
EU	EHT Current		B-Gain
BP	B Plus		R-Gain
BB	Bottom Balance		Brightness
TB	Top Balance		Contrast
HB	HS Wave Balance		V-Moire Reduce
HS	HSWAVE		H-Moire Reduce
TM	User Timr:00273hours		PIN-Balance
65	Save 6500C color		Parallelogram
93	Save 9300C color		Trapezoid
VF	V-Focus		Pincushion
VB	VLIN Balance		Rotation
VI	V Linearity		V- Center
HL	H Linearity		V-size
BC	Bottom Corner		H-Center
TC	TOP Corner		H -size

D. To switches the input signal to the other Timing Mode. Please follow step A ~ C to get the optimum picture.

E. Select the "  " RETURN function and press the MENU Key, then the Factor Preset window will be returned to the original OSD window.(user's operating condition)

F. The setting data of the CONTRAST, BRIGHTNESS, COLOR TEMPERATURE are common mode saved in the memory. Don't needed adjust it individual at every timing Mode and save in the memory.

3. White Balance, Luminance adjustment:

A. Press MENU Key to show OSD menu ,and press the down Key to select the "zoom" function, then press the menu Key to enter second menu, press the down key to select "  " about above 3S,then enter into factory setting area for modulation.

B. Brightness & contrast ratio MAX

C. Raster Max modulation: Raster Pattern, adjust R or B bias and G2, make $x=270\pm 10$, $y=290\pm 10$, $Y=2.0\pm 0.2$ cd/m^2

D. Raster cut off modulation: Raster Pattern, adjust brightness to make Cut off: 0.08 ± 0.02 cd/m^2 , and then put it into 9300K & 6500K.

E. Small white screen appears, Raster cut off, make SB to select 1, set R or G or B gain, make $x=283\pm 15$, $y=297\pm 15$, $Y=140\pm 15$ cd/m^2 , then save it into 9300K color temperature; set R or G or B gain, make $x=313\pm 15$, $y=329\pm 15$, $Y=130\pm 15$ cd/m^2 , then save it into **6500K** color temperature and sRGB color temperature, then exit factory setting area.

F. White screen appears, brightness cut off, adjust factory AB value, make it 9300K, color temperature $Y=92\pm 1$ cd/m^2 .

G. White screen appears, brightness cut off, adjust R or G or B gain, make $x=313\pm 15$, $y=329\pm 15$, $Y=80\pm 5$ cd/m^2 , then save it into SRGB color temperature. then exit factory setting area.

H. After modulation, it's necessary to check if the white balance accords with the normal specification. If not, needs reset. then exit factory setting area.

REMARK: 1. adjust the balance , it'd better not change G bias ;
2. the white balance spec (except special customer spec).

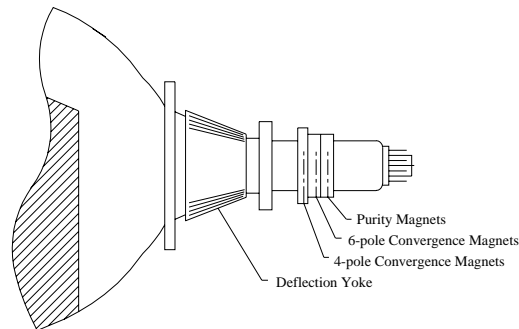
4. Focus Adjustment:

- A. Set mode7 1024×768@85Hz with character full page.
- B. Under the RECALL state.
- C. Then adjust focus VR1 to a fine vertical line.
- D. Adjust focus VR2 to a fine horizontal line.
- E. Repeat step C & D, after that ,set the Focus VR,G2 VR with the white lacquer.

5. Purity Adjustment

- A. Be sure that the display is not being exposed to any external magnetic fields.
- B. Ensure that the spacing between the Purity, Convergence, Magnet, (PCM), assembly and the CRT stem is 29mm. (See below diagram)
- C. Produce a complete, red pattern on the display. Adjust the purity magnet rings on the PCM assembly to obtain a complete field of the color red. This is done by moving the two tabs in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately 180°.
- D. Check the complete blue and complete green patterns to observe their respective color purity. Make minor adjustments if needed.

Relative placement of typical components



6. Convergence adjustment

- A. Produce a magenta crosshatch on the display.
- B. Adjust the focus for the best overall 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 on the PCM assembly. (See above diagrams)
- D. Horizontal red and blue lines are converged by varying the two tabs together, keeping the angle between them constant.
- E. Produce a white crosshatch pattern on the display.
- F. Vertical green and magenta lines are converged by varying the angle between the two tabs of the 6-pole magnets.
- G. Horizontal green and magenta lines are converged by varying the two tabs together, keeping the angle between them constant.

4-4 DDC Instructions

128 bytes EDID Data (Hex):

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
0	00	FF	FF	FF	FF	FF	FF	00	41	0C	1C	00	01	00	00	00
16	01	0F	01	03	68	20	18	78	2B	9E	A8	A1	54	46	99	24
32	0E	48	4C	A5	6E	00	31	59	31	68	45	59	45	68	61	59
48	71	4F	81	40	81	80	EA	24	00	60	41	00	28	30	30	60
64	13	00	36	E6	10	00	00	1E	00	00	00	FF	00	41	55	30
80	35	30	31	30	30	30	30	30	31	0A	00	00	00	FD	00	32
96	A0	1E	47	0B	00	0A	20	20	20	20	20	20	00	00	00	FC
112	00	50	48	31	30	37	45	2F	53	2F	54	37	0A	20	00	2E

Take 105G7 DDC writer for example**1.General**

DDC Data Re-programming

In case the main EEPROM with Software DDC which store all factory settings were replaced because a defect, repaired monitor' the serial numbers have to be re-programmed.

It is advised to re- soldered the main EEPROM with Software DDC from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information:

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data (EDID) information may be also obtained from VESA.

2.System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98,etc.
3. Newphl.exe program
4. (105G7)S554BPHL.ddc EDID program.
5. Software DDC Alignment kits shown as fig 1.

The kit contents:

- a. DDC board x1
- b. Printer cable x1
- c. D-Sub cable x1
- d. 12V DC input

Note: The Newphl.exe is a MS-DOS -based program, which cannot be run in windows.

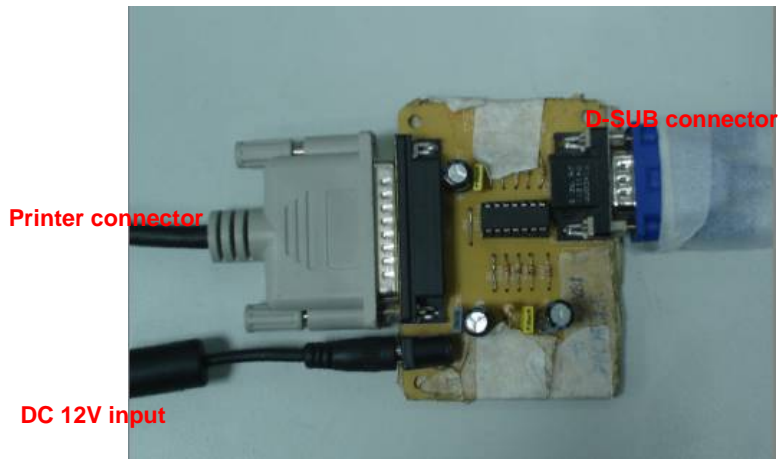
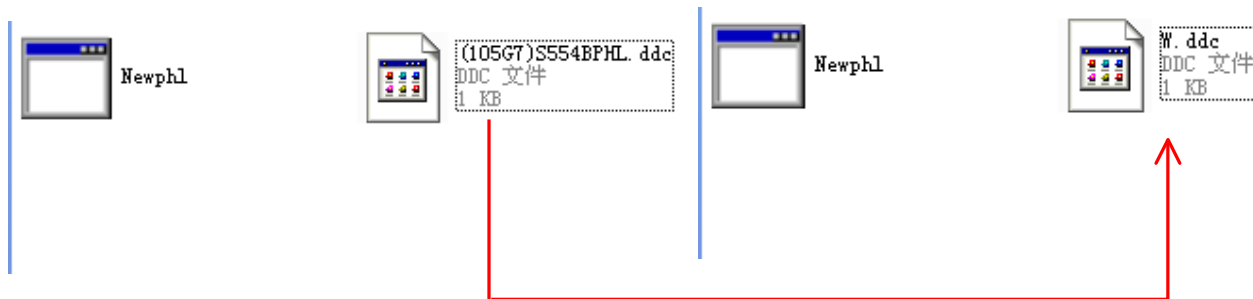


Fig 1

Step 1: Put the "Newphl.exe" and "(105G7) S554BPHL.ddc" to a special folder, such as 105G7. And rename the "(105G7) S554BPHL.ddc" as "W.ddc"



Step 2: Access to MS-DOS program, Input the command as shown fig 2

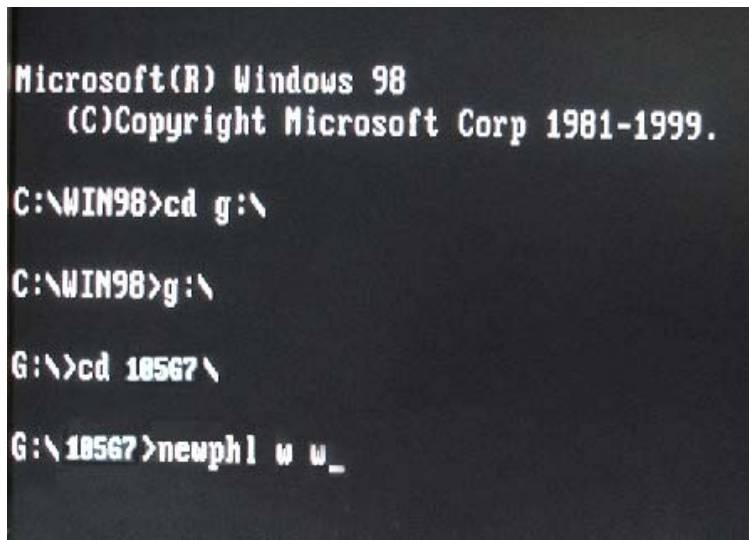


Fig 2

Note: g: is the disk position for 105G7

Step 3: Press Enter into the next screen as shown Fig 3.

a. Input 14 byte digital Serial No. such as "11111111111111" as shown Fig 3.

b. Enter and press "F3" key to input Serial No. again as shown Fig 4. Enter

The Serial No. length is "14" as shown Fig 4.

c. If you correctly input, there will appear "The Barcode length: 14 is OK" as shown Fig 5.

d. And if you incorrectly input, there will appear "The Barcode length: 9 is NG" as shown Fig 6.

You have to input again.

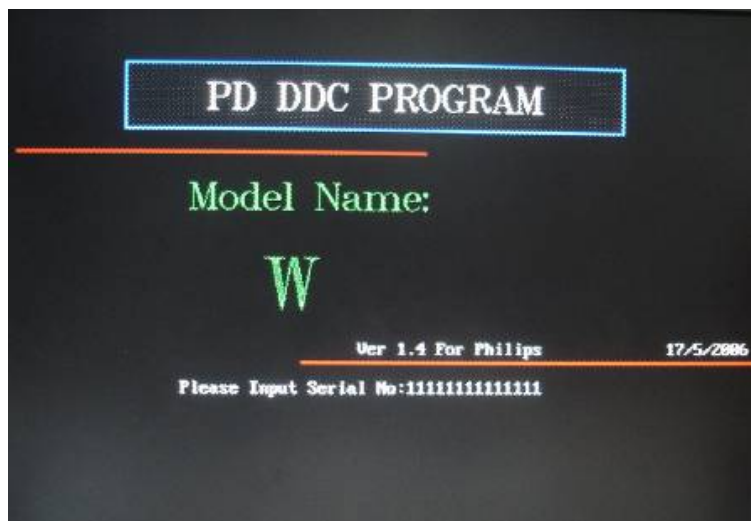


Fig 3

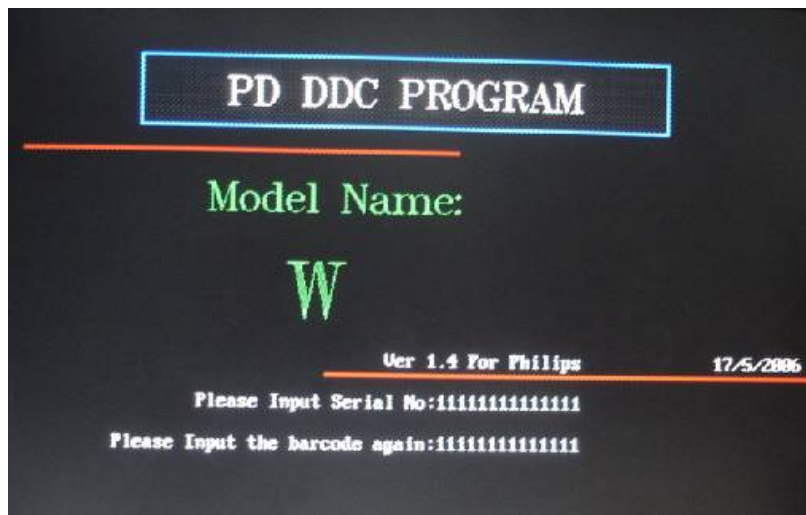


Fig 4

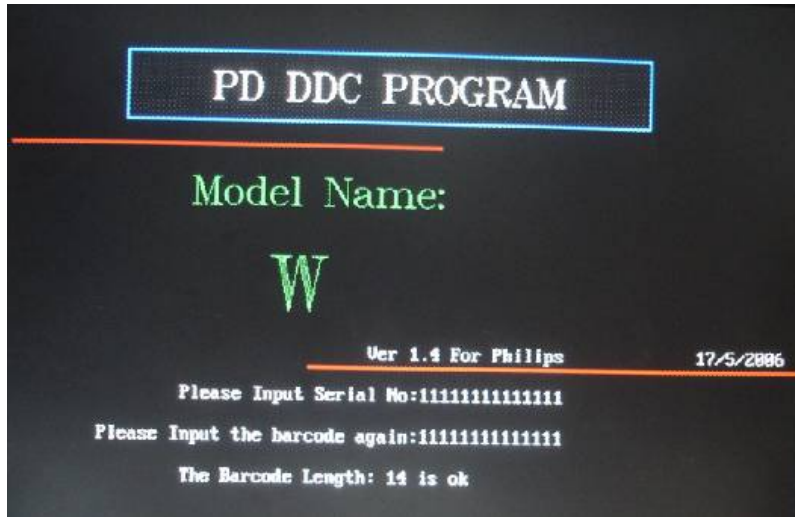


Fig 5

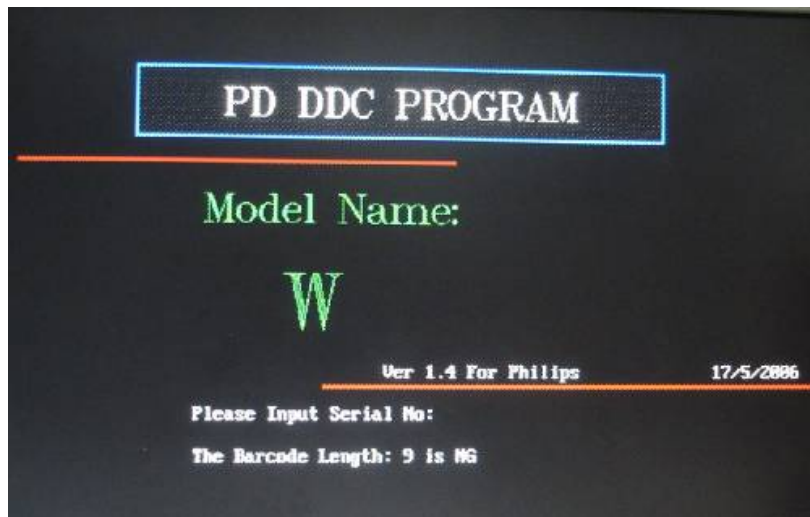


Fig 6

Step 4: Enter, go into the next screen as shown Fig 7.

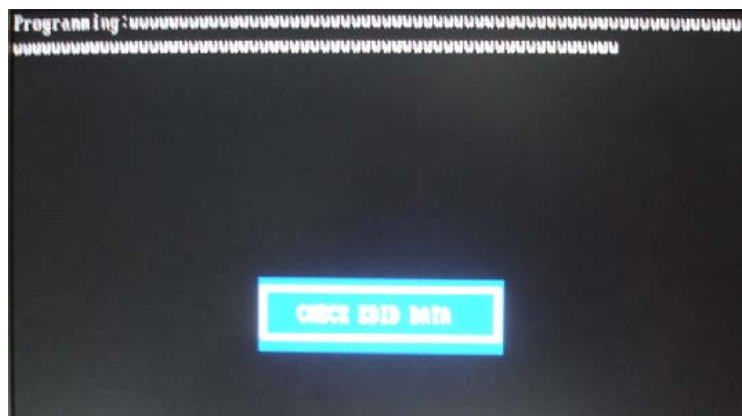


Fig 7

Step 5: Enter into Fig 8.

```
[ EDID CHECK LIST :]

[Vendor/Product Identification :]

Manufacturer Name      : PHL
Vendor Assigned Code  : 001B
Serial Number         : 111111
Week of Manufacture   : 11
Year of Manufacture   : 2011
EDID version          : 1.0
No. of optional EDID  : 03
Checksum              : FE

[ MONITOR S/N:]

111111111111

[ MONITOR RANGE LIMITS:]

Min. V. rate: 50Hz
Max. V. rate: 120Hz
Min. H. rate: 30KHz
Max. H. rate: 54KHz
Max. Pixel Clock:70MHz

[ MONITOR NAME:]

Philips 10567
```

Fig 8

Step 6: Enter into Fig 9.

```
EEPROM data table :

00 FF FF FF FF FF FF 00 41 0C 1B 00 ED C3 04 00
0C 21 01 03 68 1C 15 A0 2A 06 99 A0 57 4F 90 26
10 40 4C AD E0 00 31 59 31 68 45 59 01 01 01 01
01 01 01 01 01 01 P9 15 20 F0 30 50 1F 20 20 40
13 00 10 D2 10 00 00 1E 00 00 00 FF 00 31 32 32
33 31 32 33 31 32 33 30 31 20 00 00 00 FD 00 32
70 1E 36 07 00 0A 20 20 20 20 20 20 00 00 00 FC
00 50 68 69 6C 69 70 73 20 31 30 35 47 37 00 EE

CHECK DDC OK!
```

Fig 9

5. Circuit description

5-1 Micro controller and deflection circuit

Micro Controller

The micro controller(IC101) core is a 80C51 type. The micro clock frequency of 12 Mhz is derived from the Xtal oscillator, which is running at 48MHz. The DDC interface is suitable to handle DDC2 by a modified hardware I²C-bus interface. Standard high current ports, 3 ADC ports with voltage inputs and 4 static standard 8 bit DAC outputs (low interference) and one PWM output for digital control application are implemented. The central processing unit (CPU) manipulates operands in two memory spaces. These are the 1024byte internal data memory (consisting of 256 bytes standard RAM and 768 bytes AUX-RAM) and 48K-byte internal program memory. The program memory of the SAA4849 consists of 48K bytes ROM.

The SAA4849P provides sync. Processing with full auto sync. Capability, a flexible SMPS block and an extensive set of geometry control facilities. Further the IC generates the drive waveforms for DC coupled vertical boosters to the TDA4863A.

H/V sync signals processor

The functions of the sync processor include polarity detection, H-SYNC & V-SYNC signals counting, Programmable SYNC signals output, free running signal generator. Pin52/Pin53 are for the H-SYNC and V-SYNC input. and the polarity are setting in the positive. When no signal input, the Pin49 will output a 75Hz V-SYNC free run signal. The Pin18/20 will output a 60KHz H-SYNC free run signal. for the monitor testing use.

Reset Circuit(pin23)

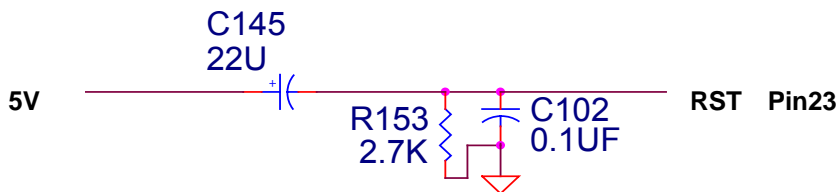
There are three ways possible to invoke a reset and initialize the SAA4849P micro controller part:

Via power-on reset circuit

Via watchdog timer overflow (only micro controller reset)

Via deflection reset after start up (only micro controller reset)

The reset pin (pin23) is connected to a Schmitt trigger for noise reduction. A reset is accomplished by holding the Reset pin HIGH.



x-ray protection

The x-ray protection(pin22) input XRAY provides a voltage detector with a precise voltage input for X-ray protection .If the input voltage at XRAY exceeds the upper threshold for 150us to 300us,the system is forced to shut down by switching off vertical-and B-drive signals. There are two different ways to handle the system in case of XRAY occurrence:

1. If the x-ray latch enable bit UCXRAY[2] was set to "0" during startup the system will shut down without any interference of the uC.The deflection controller is set to Idle mode. Restart of the system only possible due to seitching power off/power on.
2. If register bit UCXRAY[2] was set to "1",micro controller interaction is allowed .If the micro controller doesn't

interrupt the system, the system will shut down to Idle mode. For any interaction of the micro controller the XRAY occurrence has to be acknowledged by the micro controller by clearing the bit SY-STATUS[2].The micro controller take over the control of the handling via software. The actual x-ray pin status can be read through bit SY-STATUS[1].

Quartz Oscillator(pin45,pin46)

The quartz oscillator circuit is available on pins XTAL1(input) and XTAL2(output) and works together with an external 48MHz 3rd overtone quartz.As a result the quartz oscillator is always running on 48MHz.Other quartz crystal frequencies than 48 MHz cannot be used.External capacitors on XTAL1 and XTAL2 are not allowed.

B+ Control Function Block

The B+control block of the SAA4849P has the same behaviour as the TDA4856 with adapted threshol voltages. The circuit allows the user to choose the trigger edge of the HDRV signal and the polarity of the output stage via I²C-Bus.

The B+ control function block of the SAA4849P consists of an Operational Transconductance Amplifier(OTA), a voltage comparator, a flip-flop and a discharge circuit. This configuration allows easy application for different B+ control concepts.

HPLL

The horizontal part contains a PLL,which works over the full frequency range from 25kHz to 140 kHz. This range can be reduced by a ower and an upper frequency limit(Write Once Registers HPMAX and HPMIN).Via I²C bus the number of 48MHz clock cycles is sent through the register. The slewing speed during mode change is also programmable in a write once register (HSLEW)

After the clocks for the HPLL are switched on, the HPLL starts with a fixed freerunning frequency of 60 kHz. The H-drive pulses are not active and the start up procedure is inhibited. The default setting of register bit HCONTROL [0] will cause the HPLL to slew ,not switch. to the freerunning frequency defined in the I²C register HPFREE(the default value is also 60 kHz).Independent on H-syncs which are possibly present. the HPLL will slew to that freerunning frequency. To achieve an always defined starting point for the startup procedure, this procedure cannot be interrupted.

5-2. Transistor & diode and IC circuit

Location.	Description	Function
IC101	SAA4849PS	CPU
IC601	TDA4863A	Vertical Output IC
IC801	NT6812KG-20019	Video PreAmplifier/OSD IC
IC802	LM2476	Video Output IC
IC901	STR-G5643D	PWM Combi power MOS IC
IC902	L7805CV	DC to DC IC
Q911	IRF634B	B+ Transistor
Q403	2SC5929	Horizontal Output Transistor
Q406	IRF630M/S.T	Horizontal Size Transistor
Q410	2SC2120-Y	Horizontal linearity Transistor
D901~D904	1N5408 PEC	Critical Safety Component
Q426/Q420/Q427	IRF630M/S.T	CS adjust Transistor
D919	31DF4/I.R	Rectifier DIODE
D922	RG-4S	Rectifier DIODE
D923	RG-4S	Rectifier DIODE
D925	UF4004	Rectifier DIODE
D408	DMV1500MFD	Rectifier DIODE

6. Mechanical Instructions

0. General

To be able to perform measurements and repairs on the "circuit boards", these unit should be placed in the service position first.

1. Remove the rear cover

Remove 3 screws as shown in Fig. 1 and Fig. 2



Fig. 1

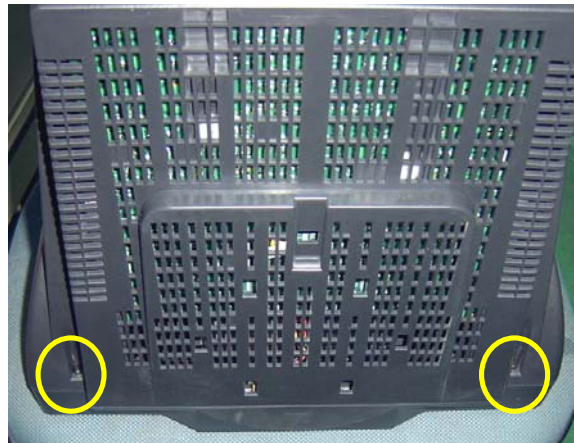


Fig. 2

2. Video board

Cut the tip on the front frame as show in Fig. 3

Disconnect the adhesive tape and ground pins between metal shield of Video board and main board as shown in Fig. 4 to Fig. 7

Cut the tie between the CRT neck and the video board as shown in Fig. 8

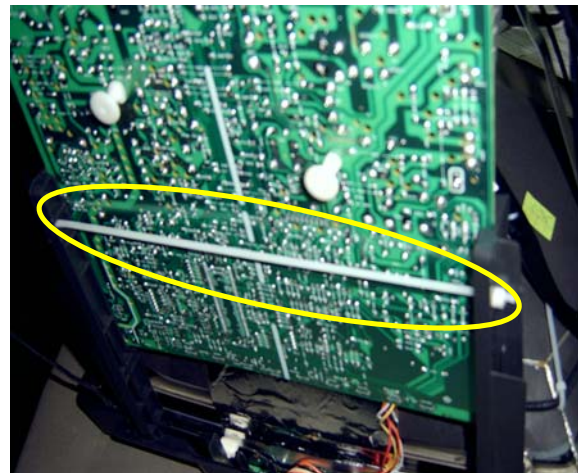


Fig. 3

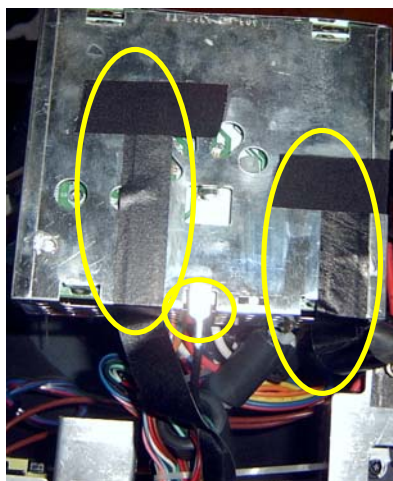


Fig. 4

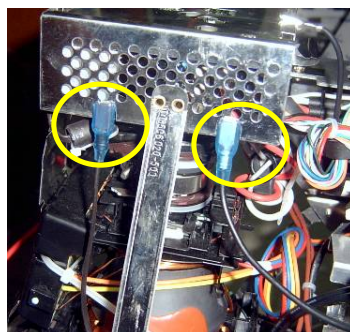


Fig. 5

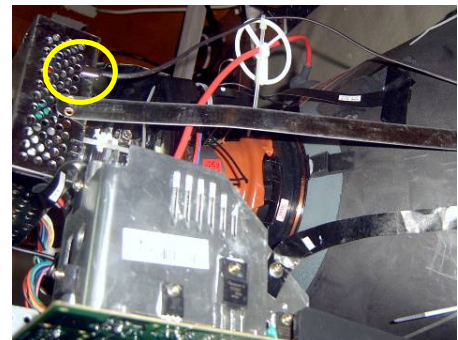


Fig. 6

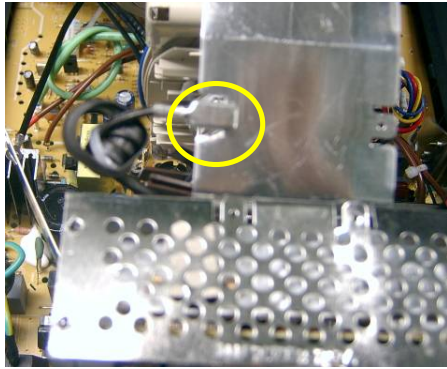


Fig. 7

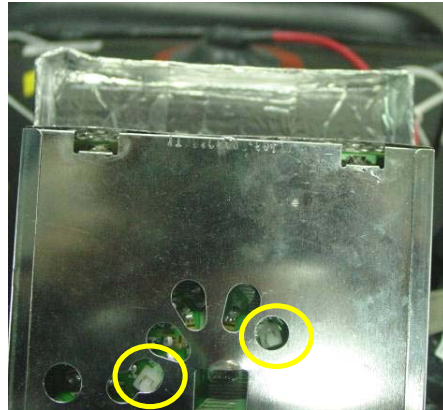


Fig. 8

3. Main panel

Disconnect the rotation coil from Main board as shown in Fig. 9

Disconnect the degaussing coil and ground-screw from Main board as shown in Fig. 10.

Disconnect the BY coil from Main board as shown in Fig. 11.

Disconnect the key board connector P102 from Main board as shown in Fig. 12

Disconnect the ground pins from Main board as shown in Fig. 13

Disconnect the Hi-Pot cap between the CRT and Main board as shown in Fig. 14.

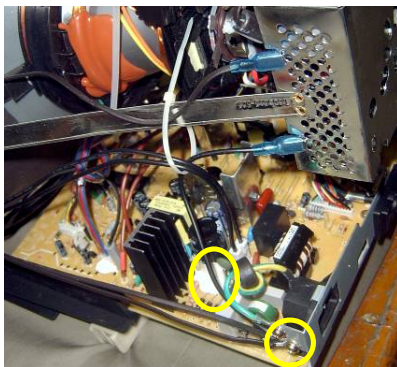
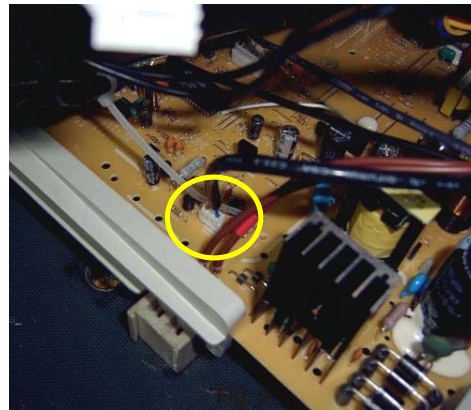


Fig. 10

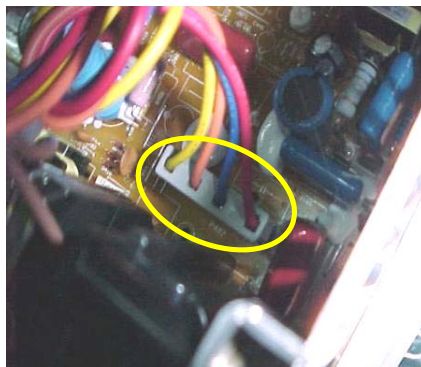


Fig. 11



Fig. 12

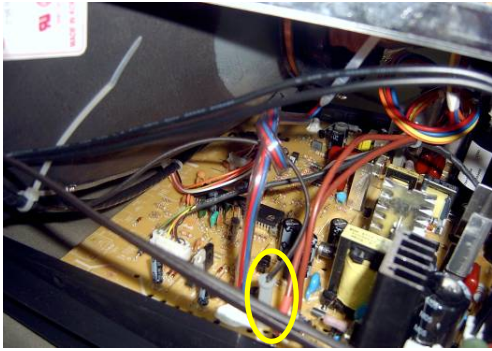


Fig. 13

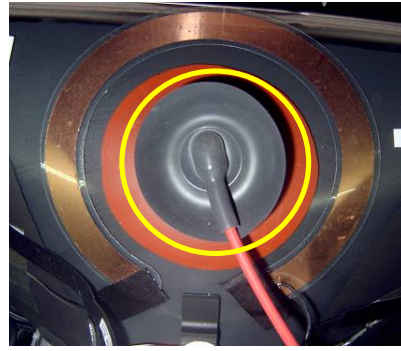


Fig. 14

4. Remove Main board

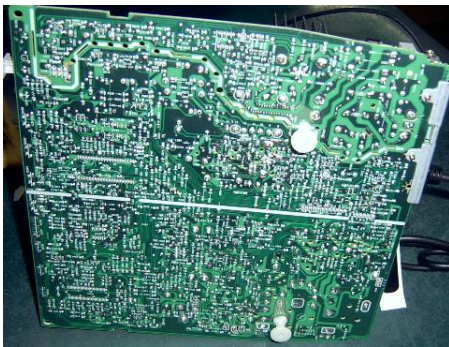


Fig. 15

5. Remove Front frame

Remove four screws as show in Fig. 16

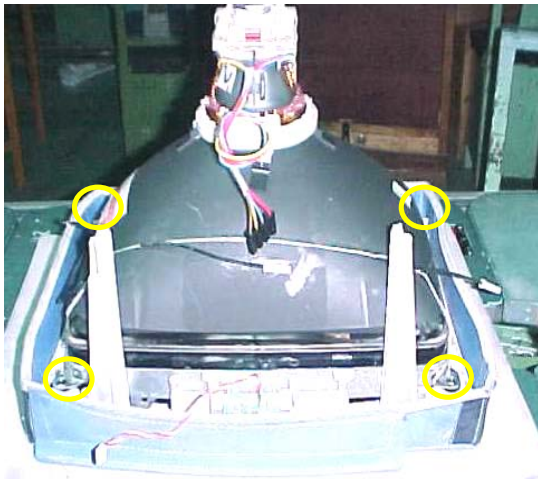


Fig. 16

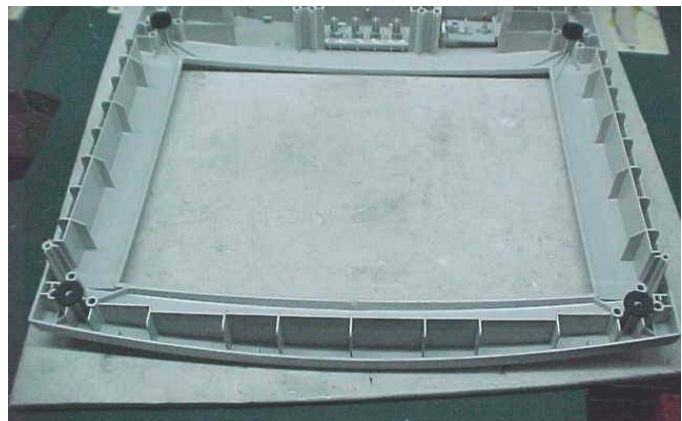
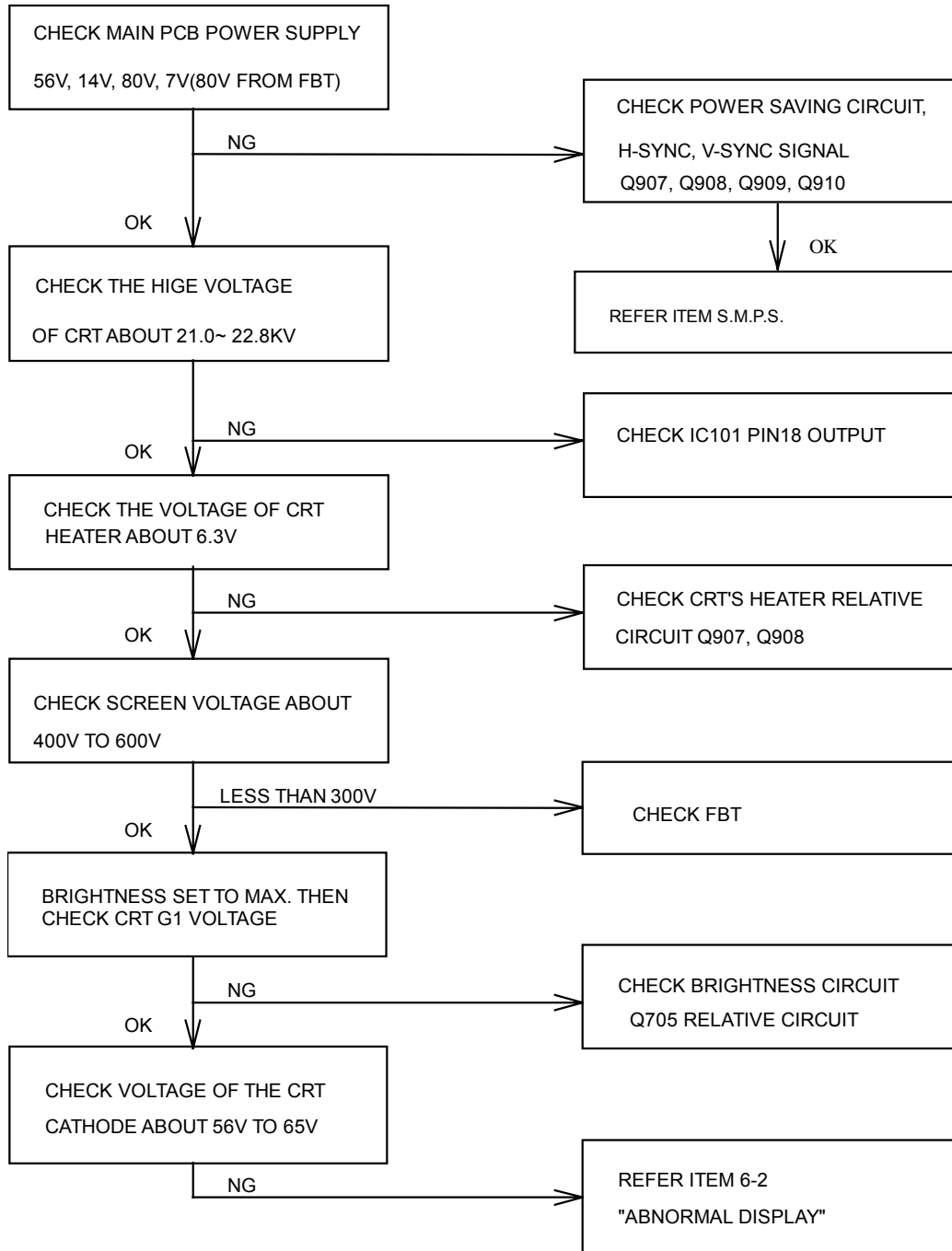


Fig. 17

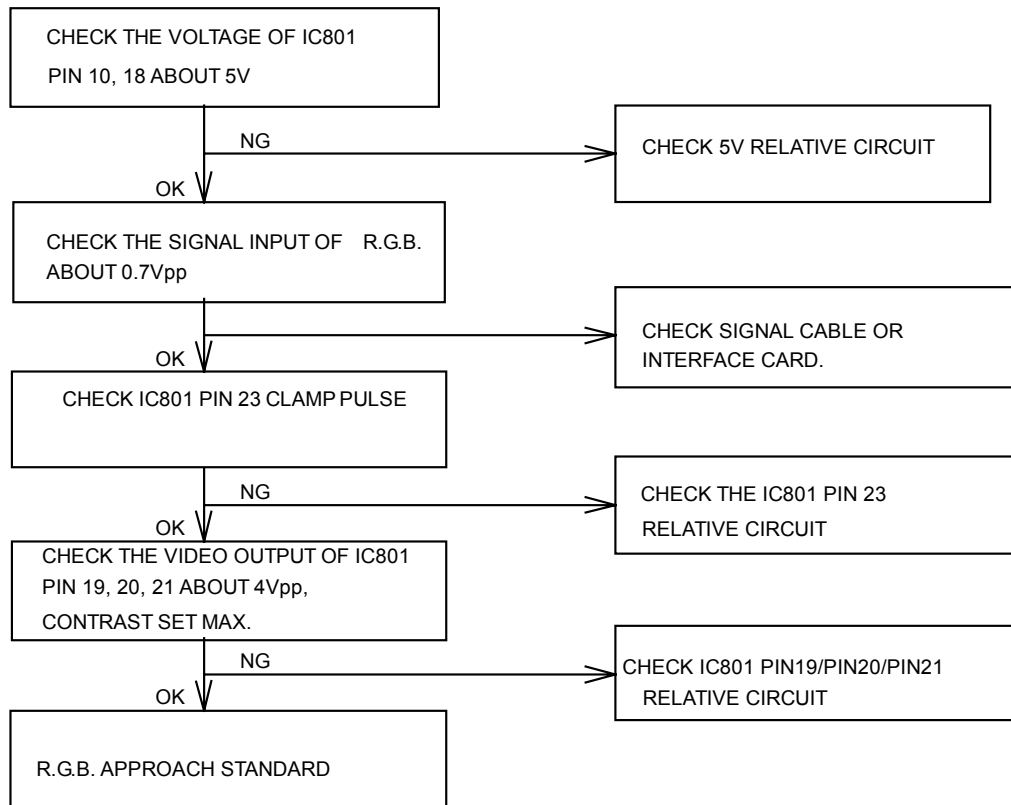
7. Trouble Shooting Chart

7-1 No Raster

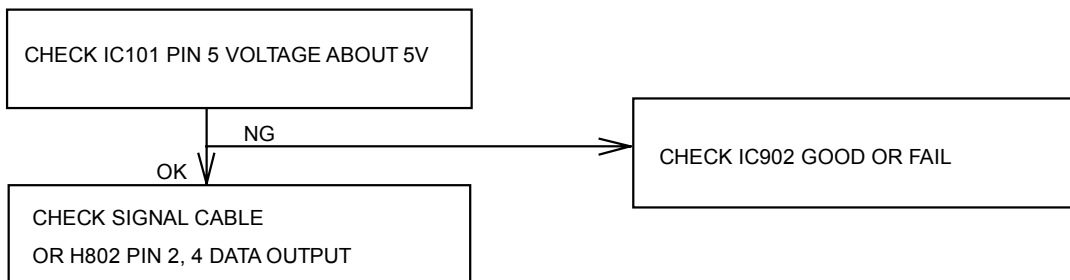
1. CRT Relative Circuit Problems



2. Abnormal Video Level On Screen

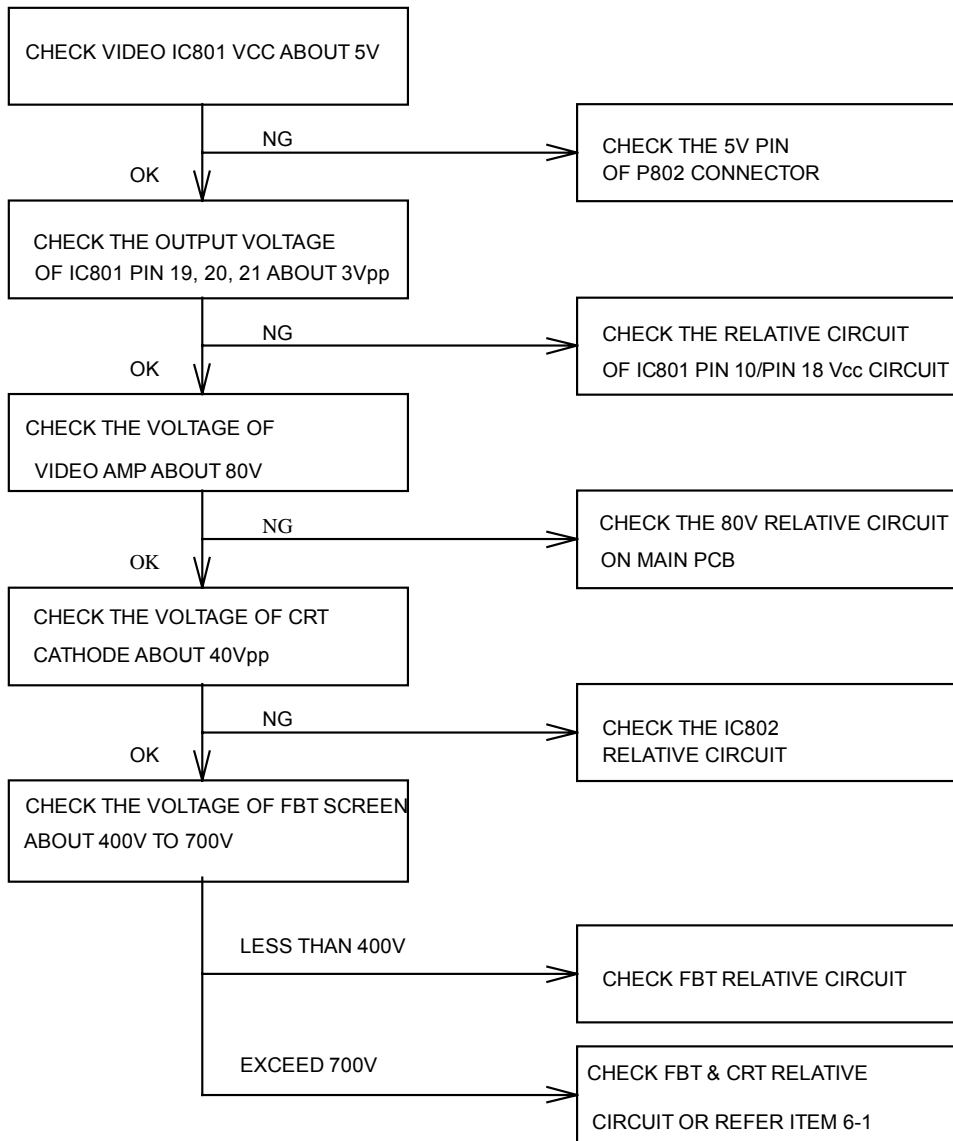


3. Abnormal DDC (Plug & Play)

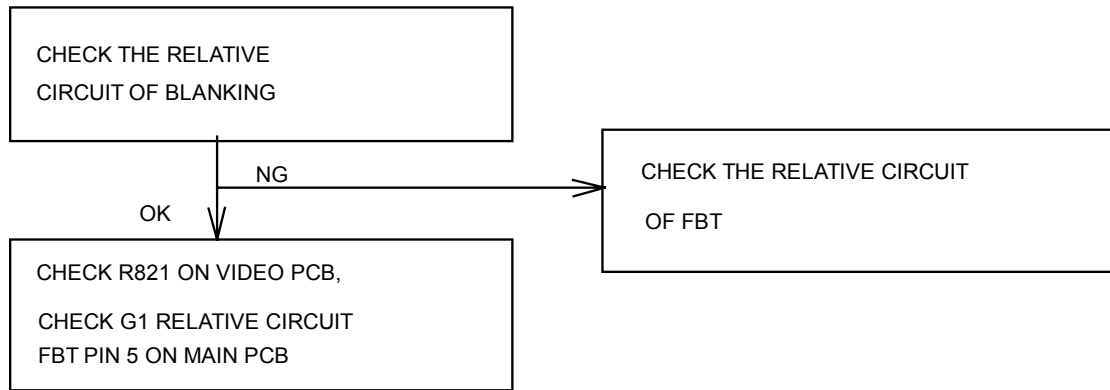


7-2. Abnormal Display

1.No Signal On Screen

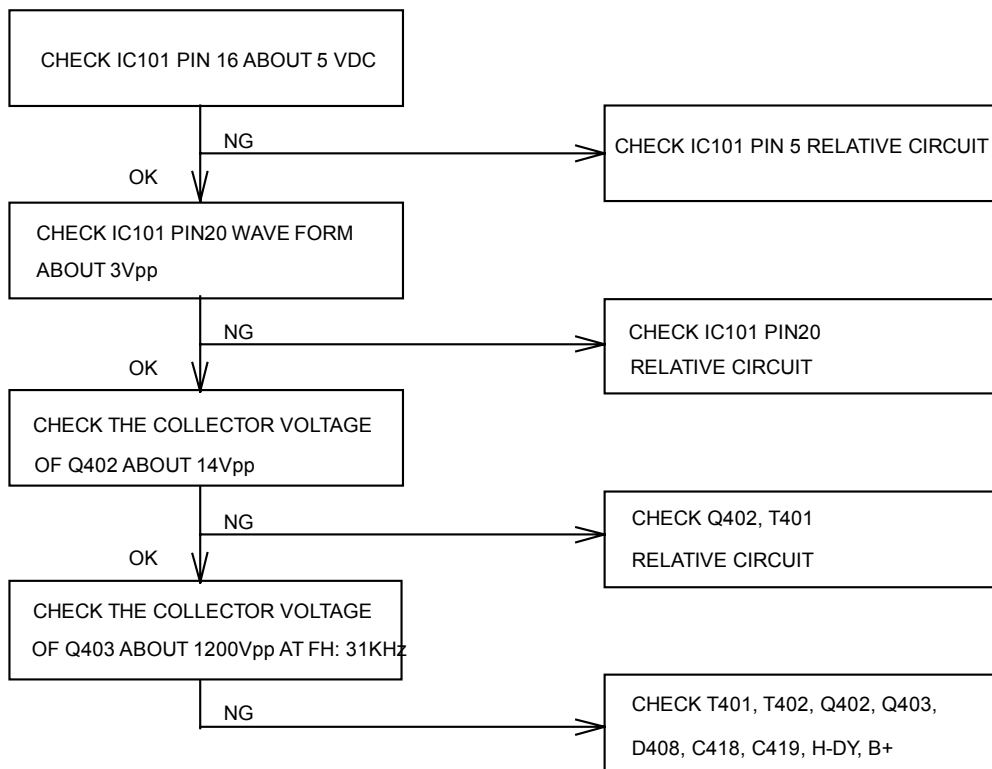


7-3. No Blanking



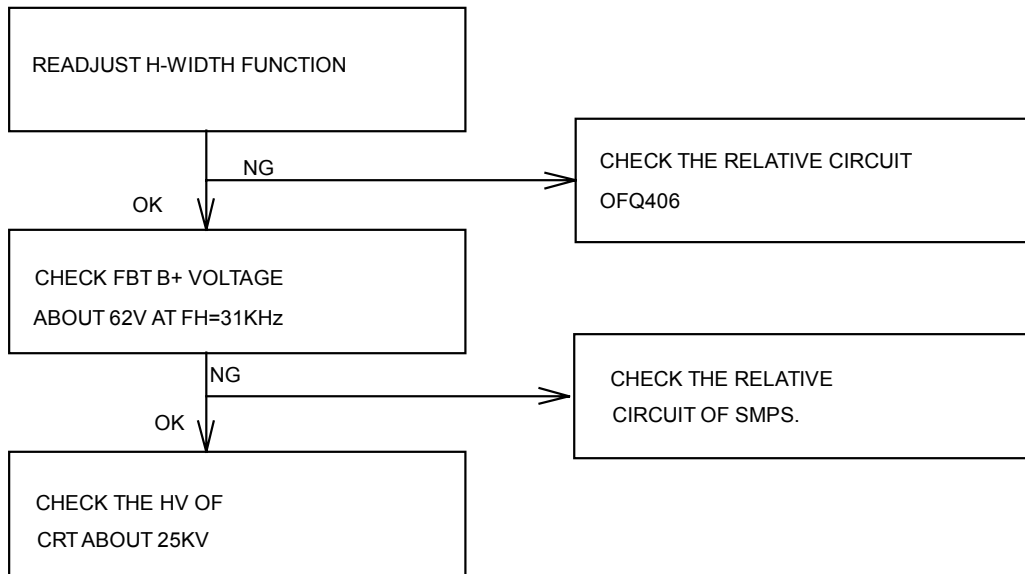
7-4. Hor./Osc/Def/Hv Circuit Fault

No Raster (Disconnect With Signal Cable)

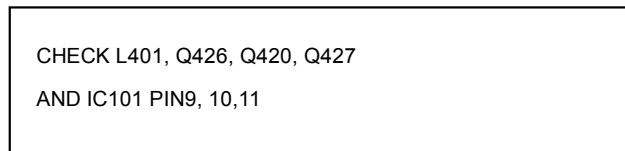


7-5. Abnormal Horizontal Deflection

1. Abnormal Horizontal Width Of Video

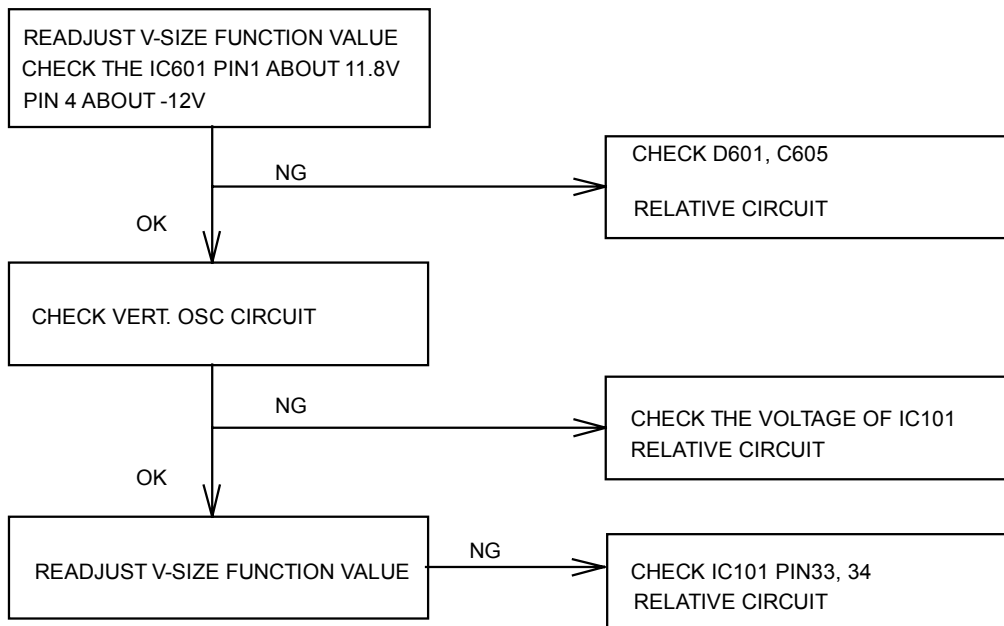


2. Abnormal Horizontal Linearity

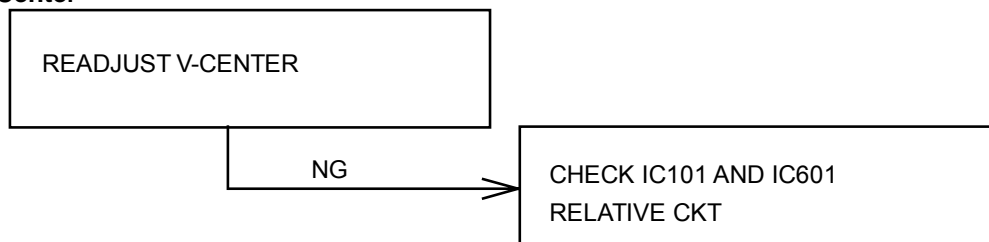


7-6. Abnormal Vertical Scanning

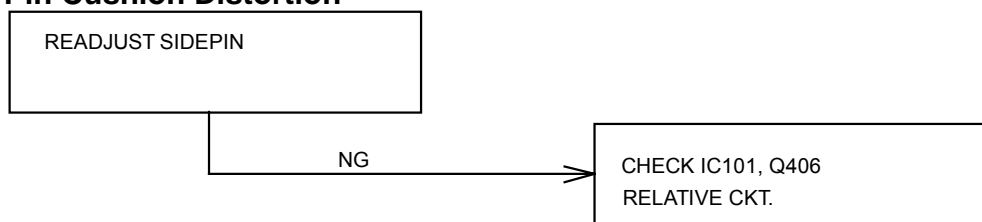
1. Abnormal Vertical Size



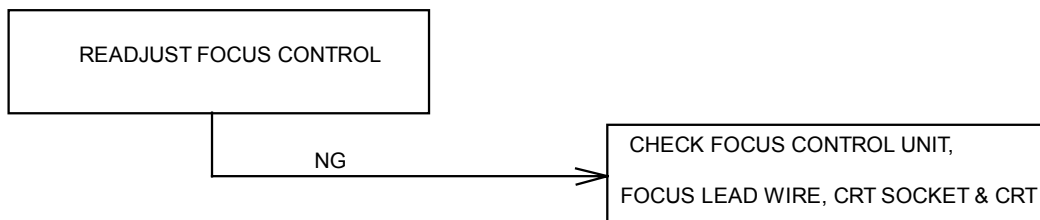
2. Vertical Center



7-7. Side-Pin Cushion Distortion

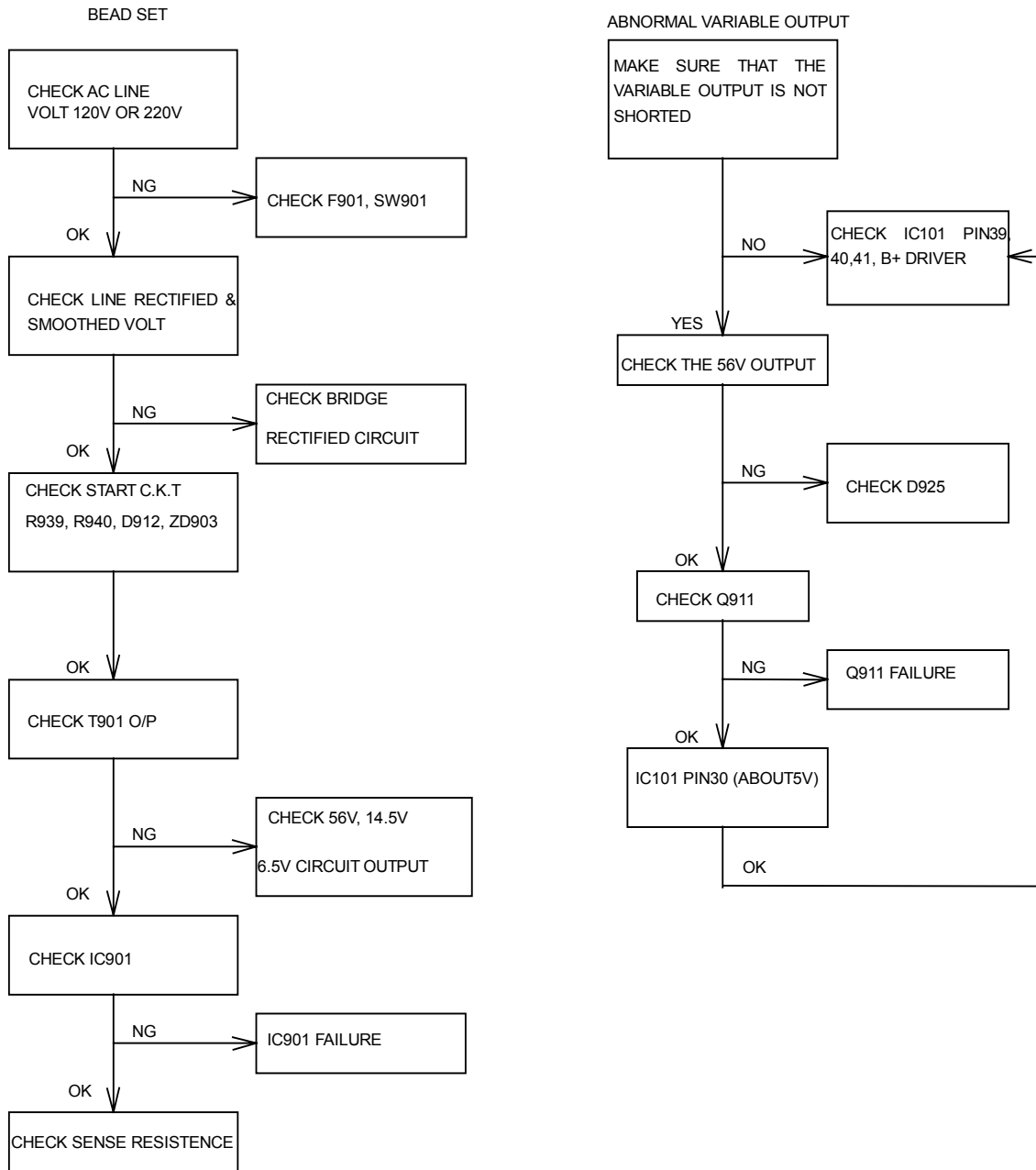


7-8. Poor Focus

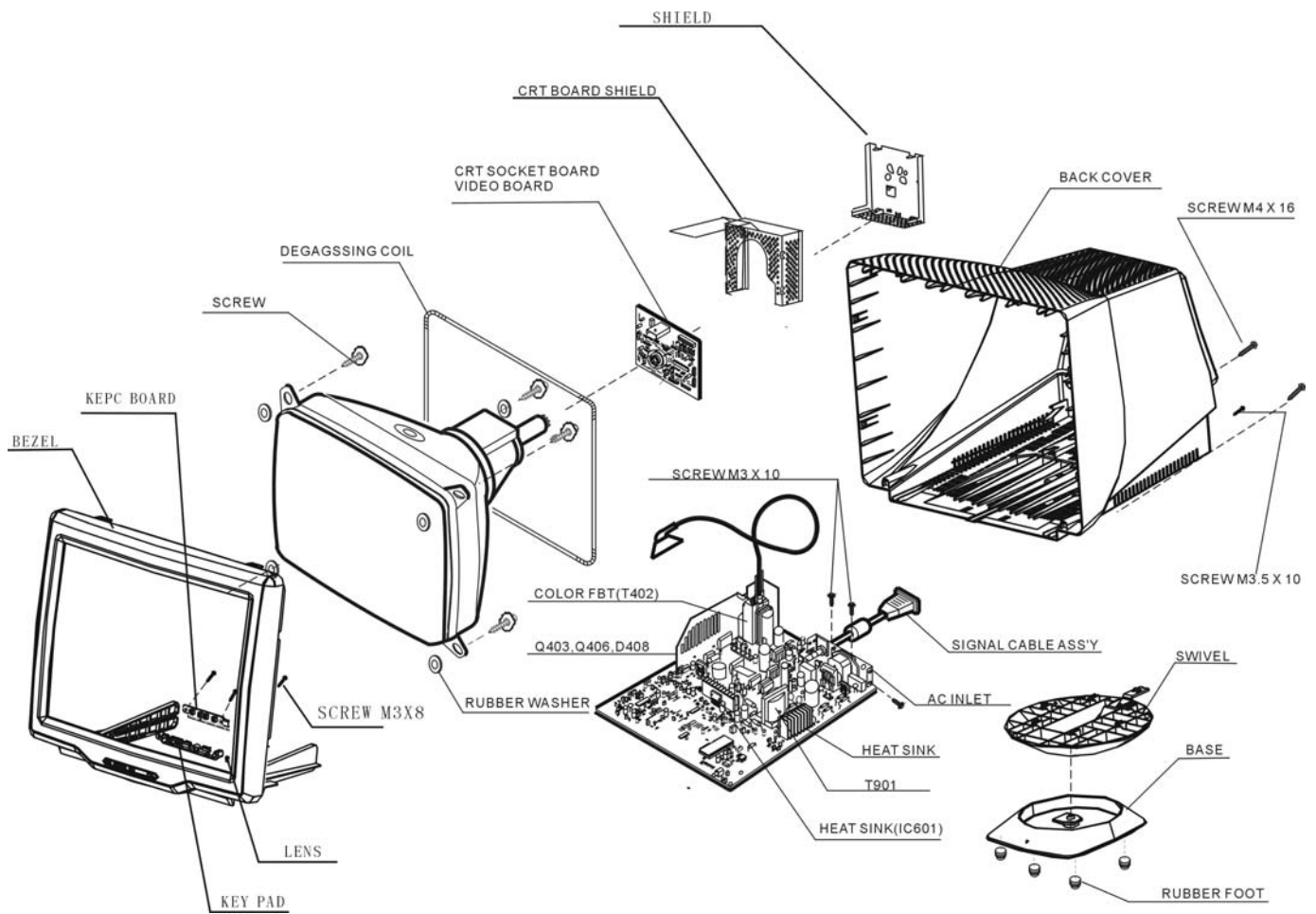


7-9. Power Supply Trouble Shooting Chart

BEFORE CHECK SW.REG. PLEASE REFER TO THE POWER SUPPLY BLOCK DIAGRAM
 POWER SUPPLY OUTPUT: (A) VARIABLE OUTPUT : 60V – 154.5V
 (DEPENDING EPENDING UPON H.SYNC FREQUENCY)
 (B) CONSTANT OUTPUT : 6.3V, 14V,80V



8. Mechanical of cabinet front dis-assembly



9. Spare parts list

107E71/00

PCB

Part No. for TPV	Description	Philips P/N (12NC)
CMS774B1T9EP1P	CHASSIS FOR S774B3-1 PHILIPS ROH	9965 000 37530
CKB774B1TP1P	KEPC B774B3-1 PHILIPS	9965 000 35420
CRS774B1T9P1P	CRT BOARD S774B3-1 PHILIPS ROHS	9965 000 37452

Panel

Part No. for TPV	Description	Philips P/N (12NC)
750C5W561AV	CPT 17" CRT	9965 000 37114

Accessory and Mechanical

Part No. for TPV	Description	Philips P/N (12NC)
033C64131	LENS	9965 000 37041
034C6377VCA	BACK COVER	9965 000 35423
034C6379VCL	BASE	9965 000 35425
034C6380AVCA	FRONT PANEL	9965 000 37528
034C6383VCL	SWIVEL	9965 000 37529
085C6027604	SHIELD CASE	9965 000 35407
750A1697504JAG	DEGAUSSING COIL	9965 000 35412
750C58627AV	LPD CRT	9965 000 37152
Q85C6028516	SHIELD	9965 000 37348
089C71F5TYBG3	SIGNAL CABLE D-SUB COMLINK	9965 000 37461
705A774BC5701	Q426/Q420/Q427 ASS'Y	9965 000 37276
705A774BC570PH	Q403 ASS'Y	9965 000 37279
087C5016	AC SOCKET	9965 000 35733
705C784PC570PH	Q911 ASS'Y	9965 000 37277
CRS774B1T9P1P	CRT BOARD S774B3-1 PHILIPS ROHS	9965 000 37452
084C3310	FUSE CLIP	9965 000 35535
005C711	TRANSISTOR HOUSING	9965 000 35735
750C5W561AV	CPT 17" CRT	9965 000 37114
093C397352T	HZ6B1-E	9965 000 35815
065C2K6806A692	68PF -10% 2KV	9965 000 37270
087C3504ZW	CRT SOCKET(QQ FOCUS)	9965 000 35877
089C404E15NIS	POWER CORD	9965 000 35426

Main Board

Location	Part No. for TPV	Description	Philips P/N (12NC)
	CMS774B1T9EP1P	CHASSIS FOR S774B3-1 PHILIPS ROH	9965 000 37530
IC902	056C1335ST	L7805CV	9965 000 35460
IC101	056C1125575X	SAA4849PS	9965 000 35461
Q907	057C20151A	2SB772-P	9965 000 35464
Q909	057C20151A	2SB772-P	9965 000 35464
PR901	061C52274J	PTCR	9965 000 35465
R607	061C20810964	MOFR 1 OHM -5% 1W	9965 000 35466
R606	061C20812164	120 OHM 1W	9965 000 35467
R927	061C20833364	MOFR 33K OHM -5% 1W	9965 000 35468
R907	061C20868164	MOFR 680 OHM -5% 1W	9965 000 35469
R724	061C152M10064	MOFR 10 OHM -5% 2W	9965 000 35471
R911	061C152M10164	MOFR 100OHM -5% 2W	9965 000 35472
R929	061C152M20864	0.20 OHM 2W	9965 000 35473
R407	061C152M22064	22 OHM -5% 2W	9965 000 35474
R963	061C152M22864	MOFR 0.22 OHM -5% 2W	9965 000 35475
R912	061C152M82964	MOFR 8.2 OHM -5% 2W	9965 000 35476
R916	061C153M13259	1.3KOHM 3W	9965 000 35477
R426	061C153M33059	MOFR 33 OHM -5% 3W	9965 000 36661
R456	061C153M56159	MOFR 560 OHM -5% 3W	9965 000 35478
R428	061C153M75859	MOFR 0.75 OHM -5% 3W	9965 000 35470
C425	063C210J2743CU	.27UF 5% 400V FOR CAMEL	9965 000 37267
C419	063C210J4724CU	4.7NF 630V	9965 000 35482
C418	063C210J5127FC	MPP 5.1NF 1600V -5%	9965 000 37268
C427	063C210J6442CU	0.64UF 250V	9965 000 37269
C482	063C210J6842CU	0.68UF 250V	9965 000 35484
C422	064C100J22559	2.2UF -5% 100V	9965 000 35485
C919	065C2M1033B692	0.01UF 2KV 20% Z5U	9965 000 35487
C924	065C2M1033FB69	10000PF -20%~ 18% 2KV	9965 000 35488
C925	065C2M1033FB69	10000PF -20%~ 18% 2KV	9965 000 35488
C961	065C305M3322B2	3.3NF,400VAC, Y2, M	9965 000 35489
C962	065C305M3322B2	3.3NF,400VAC, Y2, M	9965 000 35489
C963	065C305M3322B2	3.3NF,400VAC, Y2, M	9965 000 35489
C964	065C305M3322B2	3.3NF,400VAC, Y2, M	9965 000 35489
C401	067C2151024	1000UF -20% 25V	9965 000 35490
C931	067C2152219J	220UF -20% 100V JAMICON	9965 000 35491
C605	067C3051023	1000 UF -20% 16V	9965 000 35492
C936	067C3051024	1000UF -20% 25V	9965 000 35493
C937	067C3051024	1000UF -20% 25V	9965 000 35493
C939	067C3051023T	1000UF -20% 16V	9965 000 35494
C402	067C30547010	47UF -20% 160V	9965 000 35495
C603	067C3091023	1000UF -20% 16V	9965 000 35496
C907	067C40D15115P	150UF -20% 450V	9965 000 35497
DF922	071C552	FERRITE BEAD 6.5*5*1.7	9965 000 35498
CF963	071C552A	FERRITE BEAD 3*5*1.5	9965 000 35499
CF962	071C552A	FERRITE BEAD 3*5*1.5	9965 000 35499
L901	073A1747G6906	LINE CHOKE	9965 000 35502

L902	073C174502HB	350 UH	9965 000 35503
L405	073C25369T	CHOKE COIL 150UH -10%	9965 000 35504
L906	073C253109SP	CHOKE COIL	9965 000 35505
VR902	075A334201	CFVR 200 OHM -20%	9965 000 35506
RY901	077C26054	RELAY	9965 000 35507
T402	079A774503EG	FBT (FURI)	9965 000 37281
T403	079C167124H	DRIVER TRANSFORMER	9965 000 35509
T401	079C167125T	DRIVE TRANSFORMER	9965 000 35730
T901	080AS7742N1G	TRANSFORMER YUVA	9965 000 35511
D910	093C6026W52T	FR107	9965 000 35512
D925	093C30408AT	RG-4S	9965 000 35513
D923	093C30408AT	RG-4S	9965 000 35513
D922	093C30408AT	RG-4S	9965 000 35513
IC901	056C379504	STR-G5643D	9965 000 35516
	705A774BC5701	Q426/Q420/Q427 ASS'Y	9965 000 37276
	705A774BC570PH	Q403 ASS'Y	9965 000 37279
NR901	061C588NL	NTCR 16OHM -20%2.5A NANWUNO.11	9965 000 35526
NR901	061C588TL	NTCR 15OHM -15%2.5A THINKING	9965 000 35732
	087C5016	AC SOCKET	9965 000 35733
CN901	095C80022G	WIRE&CORE	9965 000 35734
X101	093C2248H	48MHZ	9965 000 35527
	705C784PC570PH	Q911 ASS'Y	9965 000 37277
E750A	750C5K52774MPH	17" CPT MPRII ASS'Y	9965 000 37284
	AMS774B1TP1P	MAIN BOARD S774B3-1 PHILIPS	9965 000 37543
	CRS774B1T9P1P	CRT BOARD S774B3-1 PHILIPS ROHS	9965 000 37452
	084C3310	FUSE CLIP	9965 000 35535
F901	084C7H400SL	FUSE 4A 250V LF-618 004	9965 000 35536
Q420	057C60021	IRF630M/S.T	9965 000 35518
Q426	057C60021	IRF630M/S.T	9965 000 35518
Q427	057C60021	IRF630M/S.T	9965 000 35518
	005C711	TRANSISTOR HOUSING	9965 000 35735
IC601	056C5841A	TDA4863A/PHILIPS	9965 000 35520
Q406	057C60021	IRF630M/S.T	9965 000 35518
Q403	057C706505	2SC5929	9965 000 35519
D408	093C220512	DMV1500MFD	9965 000 35522
Q911	057C60027	IRF634B	9965 000 35524
	750C5W561AV	CPT 17" CRT	9965 000 37114
C426	063C210J1242CC	0.12UF 250V	9965 000 35718
C423	063C210J2742CU	0.27UF 250V	9965 000 35481
C480	065C1K1515T605	150PF/1KV	9965 000 35530
C450	065C1K6805T692	68PF/1KV	9965 000 37357
L401	073C147523HA2	LINEARITY COIL	9965 000 37358
R716	061C17216452T	CFR 160KOHM -5% 1/4W	9965 000 35760
R429	061A212Y10052T	10 OHM 1/2W	9965 000 35744
R969	061A212Y20352T	20K OHM -5% 1/2W	9965 000 35745
R725	061A212Y20452T	MGFR 200K OHM -5% 1/2W	9965 000 37271
R939	061A212Y39452T	390KOHM 1/2W	9965 000 35748
R940	061A212Y43452T	430KOHM -5% 1/2W	9965 000 36662
R702	061A212Y62152T	620 OHM 1/2W	9965 000 35750

R420	061A214Y24452T	MGFR 240K OHM -5% 1/4W	9965 000 35751
R138	061A214Y75352T	MGFR 75K OHM -5% 1/4W	9965 000 36663
NR601	061C58450UT	NTCR 45OHM -15%3100K UPPERMOST	9965 000 35752
R421	061C17210052T	CFR 100OHM -5% 1/4W	9965 000 35753
R422	061C17210052T	CFR 100OHM -5% 1/4W	9965 000 35753
R909	061C17210152T	CFR 100OHM -5% 1/4W	9965 000 35754
R425	061C17210152T	CFR 100OHM -5% 1/4W	9965 000 35754
R958	061C17210252T	CFR 1KOHM -5% 1/4W	9965 000 35755
R970	061C17210252T	CFR 1KOHM -5% 1/4W	9965 000 35755
R980	061C17210252T	CFR 1KOHM -5% 1/4W	9965 000 35755
R444	061C17210352T	CFR 10KOHM -5% 1/4W	9965 000 35756
R448	061C17210352T	CFR 10KOHM -5% 1/4W	9965 000 35756
R487	061C17210352T	CFR 10KOHM -5% 1/4W	9965 000 35756
R915	061C17210452T	CFR100K OHM -5% 1/4W	9965 000 35757
R418	061C17211352T	CFR 11K OHM -5% 1/4W	9965 000 36436
R161	061C17212452T	CFR 120K OHM -5% 1/4W	9965 000 35759
R705	061C17215152T	CFR 150 OHM -5% 1/4W	9965 000 35544
R405	061C17218252T	CFR 1.8K OHM -5% 1/4W	9965 000 35761
R416	061C17218452T	CFR 180KOHM -5% 1/4W	9965 000 36440
R463	061C17220552T	CFR 2MOHM -5% 1/4W	9965 000 35762
R918	061C17222152T	CFR 220OHM -5% 1/4W	9965 000 35746
R960	061C17222352T	CFR 22KOHM -5% 1/4W	9965 000 35763
R417	061C17230352T	CFR 30KOHM -5% 1/4W	9965 000 35764
R715	061C17236352T	CFR 36K OHM -5% 1/4W	9965 000 36445
R903	061C17243052T	CFR 43 OHM -5% 1/4W	9965 000 35766
R906	061C17247052T	CFR 47 OHM -5% 1/4W	9965 000 35767
R962	061C17247052T	CFR 47 OHM -5% 1/4W	9965 000 35767
R951	061C17247152T	CFR 470OHM -5% 1/4W	9965 000 35768
R603	061C17247152T	CFR 470OHM -5% 1/4W	9965 000 35768
R601	061C17247152T	CFR 470OHM -5% 1/4W	9965 000 35768
R721	061C17247252T	CFR 4.7K OHM -5% 1/4W	9965 000 35769
R720	061C17247252T	CFR 4.7K OHM -5% 1/4W	9965 000 35769
R486	061C17247252T	CFR 4.7K OHM -5% 1/4W	9965 000 35769
R461	061C17247252T	CFR 4.7K OHM -5% 1/4W	9965 000 35769
R460	061C17247252T	CFR 4.7K OHM -5% 1/4W	9965 000 35769
R412	061C17247352T	CFR 47K OHM -5% 1/4W	9965 000 35770
R133	061C17247452T	CFR 470K OHM -5% 1/4W	9965 000 35771
R965	061C17247952T	CFR 4.7 OHM -5% 1/4W	9965 000 35772
R941	061C17251152T	CFR 510 OHM -5% 1/4W	9965 000 36665
R707	061C17256252T	CFR 5.6K OHM -5% 1/4W	9965 000 35773
R150	061C17256352T	CFR 56K OHM -5% 1/4W	9965 000 35774
R147	061C17262352T	CFR 62K OHM -5% 1/4W	9965 000 35776
R930	061C17268152T	CFR 680 OHM -5% 1/4W	9965 000 35777
R403	061C17268352T	CFR 68K OHM -5% 1/4W	9965 000 35778
R749	061C17268352T	CFR 68K OHM -5% 1/4W	9965 000 35778
R110	061C60210052T	CFR 10 OHM -5% 1/6W	9965 000 35781
R111	061C60210052T	CFR 10 OHM -5% 1/6W	9965 000 35781
R143	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R145	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549

R148	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R149	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R152	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R159	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R165	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R167	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R172	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R101	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R102	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R103	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R104	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R105	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R117	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R120	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R122	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R132	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R484	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R445	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R443	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R415	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R139	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R124	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R983	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R982	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R959	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R953	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R952	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R933	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R921	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R902	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R144	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R130	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R126	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R140	061C60212152T	CFR 120 OHM -5% 1/6W	9965 000 35782
R610	061C60213152T	CFR 130 OHM -5% 1/6W	9965 000 35783
R106	061C60215352T	CFR 15K OHM -5% 1/6W	9965 000 35784
R113	061C60218252T	CFR 1.8K OHM -5% 1/6W	9965 000 35785
R114	061C60218252T	CFR 1.8K OHM -5% 1/6W	9965 000 35785
R602	061C60218252T	CFR 1.8K OHM -5% 1/6W	9965 000 35785
R158	061C60220352T	CFR 20K OHM -5% 1/6W	9965 000 35786
R108	061C60222252T	CFR 2.2K OHM -5% 1/6W	9965 000 35787
R109	061C60222252T	CFR 2.2K OHM -5% 1/6W	9965 000 35787
R131	061C60222252T	CFR 2.2K OHM -5% 1/6W	9965 000 35787
R751	061C60222252T	CFR 2.2K OHM -5% 1/6W	9965 000 35787
J066	061C60224252T	CFR 2.4K OHM -5% 1/6W	9965 000 35742
R153	061C60227252T	CFR 2.7K OHM -5% 1/6W	9965 000 35788
R984	061C60227252T	CFR 2.7K OHM -5% 1/6W	9965 000 35788
R156	061C60233252T	CFR 3.3K OHM -5% 1/6W	9965 000 35553
R157	061C60233252T	CFR 3.3K OHM -5% 1/6W	9965 000 35553

R713	061C60233252T	CFR 3.3K OHM -5% 1/6W	9965 000 35553
R134	061C60239252T	CFR 3.9K OHM -5% 1/6W	9965 000 35789
R116	061C60239252T	CFR 3.9K OHM -5% 1/6W	9965 000 35789
R112	061C60247052T	CFR 47 OHM -5% 1/6W	9965 000 35790
R119	061C60247052T	CFR 47 OHM -5% 1/6W	9965 000 35790
R433	061C60247152T	CFR 470 OHM -5% 1/6W	9965 000 35791
R154	061C60247152T	CFR 470 OHM -5% 1/6W	9965 000 35791
R151	061C60247152T	CFR 470 OHM -5% 1/6W	9965 000 35791
R135	061C60247152T	CFR 470 OHM -5% 1/6W	9965 000 35791
R129	061C60247152T	CFR 470 OHM -5% 1/6W	9965 000 35791
R125	061C60247152T	CFR 470 OHM -5% 1/6W	9965 000 35791
R115	061C60247152T	CFR 470 OHM -5% 1/6W	9965 000 35791
R107	061C60247252T	CFR 4.7K OHM -5% 1/6W	9965 000 35554
R123	061C60247252T	CFR 4.7K OHM -5% 1/6W	9965 000 35554
R609	061C60247252T	CFR 4.7K OHM -5% 1/6W	9965 000 35554
R957	061C60247352T	CFR 47K OHM -5% 1/6W	9965 000 35792
R905	061C60262252T	CFR 6.2K OHM -5% 1/6W	9965 000 35793
R748	061C60268252T	CFR 6.8K OHM -5% 1/6W	9965 000 35794
R137	061C60275352T	CFR 75K OHM -5% 1/6W	9965 000 36465
R142	061C60282252T	CFR 8.2K OHM -5% 1/6W	9965 000 35795
R146	061C60282252T	CFR 8.2K OHM -5% 1/6W	9965 000 35795
R961	061C60282252T	CFR 8.2K OHM -5% 1/6W	9965 000 35795
R910	061C60291352T	CFR 91K OHM -5% 1/6W	9965 000 35796
R413	061C172S10052T	RES CF 5% 1/4W 100HM AX	9965 000 35797
R419	061C172S10452T	CFR 100 KOHM -5% 1/4WS	9965 000 35798
R471	061C172S10452T	CFR 100 KOHM -5% 1/4WS	9965 000 35798
R472	061C172S10452T	CFR 100 KOHM -5% 1/4WS	9965 000 35798
R478	061C172S22452T	220K 1/4W	9965 000 35799
R477	061C172S22452T	220K 1/4W	9965 000 35799
R476	061C172S22452T	220K 1/4W	9965 000 35799
R410	061C175L10052T	CFR 10 OHM -5% 1/2W	9965 000 35800
R981	061C175L10152T	CFR 100 OHM -5% 1/2W	9965 000 35559
R723	061C175L10252T	CFR 1K OHM -5% 1/2W	9965 000 35801
R401	061C175L10452T	CFR 100K OHM -5% 1/2W	9965 000 36667
R901	061C175L10552T	CFR 1M OHM -5% 1/2W	9965 000 35802
R605	061C175L15952T	CFR 1.5 OHM -5% 1/2W	9965 000 35804
R741	061C175L43452T	CFR 430K OHM -5% 1/2W	9965 000 35805
R750	061C175L47952T	CFR 4.7 OHM -5% 1/2W	9965 000 36666
R740	061C175L56352T	CFR 56K OHM -5% 1/2W	9965 000 35807
R908	061C175L75952T	CFR 7.5 OHM -5% 1/2W	9965 000 35808
R604	061C175S18252T	CFR 1.8K OHM -5% 1/2W	9965 000 35809
R608	061C175S27152T	270 OPHM 1/2W	9965 000 35810
FB402	071C559T	CORE RF BEAD RH 3.5X6X0.76TP	9965 000 35562
FB403	071C559T	CORE RF BEAD RH 3.5X6X0.76TP	9965 000 35562
FB907	071C559T	CORE RF BEAD RH 3.5X6X0.76TP	9965 000 35562
FB901	071C5519T	FERRITE BEAD 9X3.5X0.8	9965 000 35812
ZD903	093C395852T	HZ24-2-E	9965 000 35813
ZD105	093C395852T	HZ24-2-E	9965 000 35813
ZD109	093C397352T	HZ6B1-E	9965 000 35815

	093C397352T	HZ6B1-E	9965 000 35815
ZD106	093C397352T	HZ6B1-E	9965 000 35815
ZD703	093C3950252T	HZ18-1-E	9965 000 35816
ZD108	093C3953052T	TZX5V6D	9965 000 35814
D901	093C529T52T	2A 600V 2A05	9965 000 35818
D902	093C529T52T	2A 600V 2A05	9965 000 35818
D903	093C529T52T	2A 600V 2A05	9965 000 35818
D904	093C529T52T	2A 600V 2A05	9965 000 35818
D601	093C5247T52T	1N4004	9965 000 35819
D406	093C6021P52T	PS156R	9965 000 35566
D407	093C6021P52T	PS156R	9965 000 35566
D463	093C6026T52T	RECTIFIER DIODE FR107	9965 000 35820
D474	093C6026T52T	RECTIFIER DIODE FR107	9965 000 35820
D464	093C6026T52T	RECTIFIER DIODE FR107	9965 000 35820
D706	093C6044T52T	RECTIFIER DIODE FR157S	9965 000 35821
D708	093C641152T	1N4148	4822 130 30621
D939	093C641152T	1N4148	4822 130 30621
D916	093C641152T	1N4148	4822 130 30621
D602	093C641152T	1N4148	4822 130 30621
D450	093C641152T	1N4148	4822 130 30621
D104	093C641152T	1N4148	4822 130 30621
D912	093C6431P52T	BAV20	9965 000 35822
D405	093C10021W52T	1N5817	9965 000 35823
D101	093C10021W52T	1N5817	9965 000 35823
D740	093C1040252T	UF4004	9965 000 35824
D404	093C1040252T	UF4004	9965 000 35824
D911	093C1040252T	UF4004	9965 000 35824
D929	093C1040252T	UF4004	9965 000 35824
D403	093C2020552T	ER202	9965 000 35826
Q401	057C417503T	2N3904	9965 000 35827
Q901	057C417503T	2N3904	9965 000 35827
Q412	057C419PPT	2PC945	9965 000 35828
Q913	057C419503T	2SC945P	9965 000 35829
Q910	057C419503T	2SC945P	9965 000 35829
Q908	057C419503T	2SC945P	9965 000 35829
Q906	057C419503T	2SC945P	9965 000 35829
Q903	057C419503T	2SC945P	9965 000 35829
Q423	057C419503T	2SC945P	9965 000 35829
Q411	057C419503T	2SC945P	9965 000 35829
Q905	057C420502T	2SA733P	9965 000 35830
Q912	057C420502T	2SA733P	9965 000 35830
Q743	057C446500T	2SC1213C	9965 000 35831
Q902	057C446501T	2SC2120-Y	9965 000 35832
Q742	057C49312AT	BF420	9965 000 36683
Q705	057C4983T	HBF423	9965 000 35834
Q402	057C530503T	2SD1207T	9965 000 35835
C415	064C44J4721AT	4700PF 100V PEI	9965 000 35836
C116	064C45G2221AT	.0022UF -2% 100V	9965 000 35837
C433	064C176J1041T	0.1UF 5% 100V	9965 000 35838

C710	064C176J1231T	12NF 100V MPE	9965 000 35839
C414	064C176J4740T	.47UF -5% 50/63V	9965 000 35840
C601	064C178J1020T	1000PF -5% 63V	9965 000 35841
C413	064C178J1040T	CL21X0.1UF 63V -5%	9965 000 35568
C921	064C178J1041T	C121X 0.1UF 100V -5%	9965 000 35843
C608	064C178J1041T	C121X 0.1UF 100V -5%	9965 000 35843
C417	064C178J2240T	0.22UF 63V. -5%	9965 000 35844
C117	064C178J4721T	4700PF 100V	9965 000 36671
C432	065C1K1025T692	1NF/1KV Y5P -10%	9965 000 36510
C916	065C1K4715T692	470PF -10% 1KV Y5P	9965 000 35845
C922	065C2K1015T692	100PF/2KV	9965 000 35571
C917	065C2K1515T692	150P/2KV	9965 000 36672
C412	065C2K2215T692	220PF 2000V	9965 000 35846
	065C2K6806A692	68PF -10% 2KV	9965 000 37270
C488	065C2K6806A692	68PF -10% 2KV	9965 000 37270
C122	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C121	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C110	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C107	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C131	065C44233013T	33PF -5% NPO 50V	9965 000 35847
C105	065C4441025T	1000 PF 10% 50V Y5P	9965 000 35848
C106	065C4441025T	1000 PF 10% 50V Y5P	9965 000 35848
C130	065C4441025T	1000 PF 10% 50V Y5P	9965 000 35848
C124	065C4442225T	2200PF 10% Y5P 50V	9965 000 35849
C114	065C4442225T	2200PF 10% Y5P 50V	9965 000 35849
C109	065C4442225T	2200PF 10% Y5P 50V	9965 000 35849
C920	065C4444715T	470PF 10% 50V Y5P	9965 000 36673
C127	065C44447213T	4700PF -10% Z5P 50V	9965 000 35851
C123	065C4501037T	10000PF/50V Y5V 80% -20%	9965 000 35853
C956	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C908	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C705	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C410	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C120	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C103	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C102	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C101	065C4501043T	0.1UF 50V Y5V	9965 000 35854
C411	065C4501047T	0.1UF 80-20% 50V Y5V	9965 000 35578
C429	065C4501047T	0.1UF 80-20% 50V Y5V	9965 000 35578
C431	065C4501047T	0.1UF 80-20% 50V Y5V	9965 000 35578
C111	065C4501047T	0.1UF 80-20% 50V Y5V	9965 000 35578
C112	065C4501047T	0.1UF 80-20% 50V Y5V	9965 000 35578
C720	065C517K1022T6	1000PF 10% Z5P 500V	9965 000 35855
C430	065C517K4711T6	470PF/500 Z5F -10%	9965 000 36674
C740	065C517M1033T6	10NF 500V	9965 000 35857
C910	067C3052207T	22UF -20% 50V	9965 000 35858
C912	067C3052297T	2.2UF -20% 50V	9965 000 35859
C713	067C30522912T	2.2UF -20% 250V	9965 000 35860
C609	067C3054707T	47UF -20% 50V	9965 000 35861

C940	067C3054797T	4.7UF -20% 50V	9965 000 35863
C742	067C3091003T	10UF -20% 16V	9965 000 35864
C434	067C3091007T	10UF -20% 50V	9965 000 35865
C483	067C3094793T	4.7UF -20% 16V	9965 000 35869
C100	067C305M4703KT	47UF -20% 16V	9965 000 36675
C115	067C305M4787KT	0.47UF -20% 50V	9965 000 36676
C119	067C309M1003KT	10UF -20% 16V	9965 000 36677
C113	067C309M1013KT	100UF -20% 16V	9965 000 36678
C104	067C309M1013KT	100UF -20% 16V	9965 000 36678
C118	067C309M1097KT	1.0UF -20% 50V	9965 000 36679
C145	067C309M2204KT	22UF -20% 25V	9965 000 36680
ZD101	093C3955452T	BZX79-B6V2	9965 000 35870
ZD102	093C3955452T	BZX79-B6V2	9965 000 35870
ZD103	093C3955452T	BZX79-B6V2	9965 000 35870
ZD104	093C3955452T	BZX79-B6V2	9965 000 35870
ZD701	093C3955652T	BZX79-B5V1	9965 000 35871
ZD711	093C3955652T	BZX79-B5V1	9965 000 35871
ZD901	093C3955652T	BZX79-B5V1	9965 000 35871
ZD702	093C3955952T	BZX79-C3VO	9965 000 35872
C128	065C4441025T	1000 PF 10% 50V Y5P	9965 000 35848

Key Board

Location	Part No. for TPV	Description	Philips P/N (12NC)
	CKB774B1TP1P	KEPC B774B3-1 PHILIPS	9965 000 35420
SW102	077C6001GCJ	TACT SWITCH TSPB-2-NP	9965 000 35740
SW103	077C6001GCJ	TACT SWITCH TSPB-2-NP	9965 000 35740
SW104	077C6001GCJ	TACT SWITCH TSPB-2-NP	9965 000 35740
SW105	077C6001GCJ	TACT SWITCH TSPB-2-NP	9965 000 35740
SW106	077C6001GCJ	TACT SWITCH TSPB-2-NP	9965 000 35740
R191	061C60224252T	CFR 2.4K OHM -5% 1/6W	9965 000 35742
R194	061C60224252T	CFR 2.4K OHM -5% 1/6W	9965 000 35742
R192	061C60256252T	CFR 5.6KOHM -5% 1/6W	9965 000 35555
R193	061C60256252T	CFR 5.6KOHM -5% 1/6W	9965 000 35555

CRT Board

Location	Part No. for TPV	Description	Philips P/N (12NC)
IC801	056C366522	NT6812KG-20028	9965 000 35876
C806	065C2M1033FB69	10000PF -20%~ 18% 2KV	9965 000 35488
C844	065C44210013T	10PF -5% NPO 50V	9965 000 35572
C848	067C3051099T	1UF -20% 100V	9965 000 35540
C811	067C3054709	47UF -20% 100V	9965 000 35541
C805	067C3054709	47UF -20% 100V	9965 000 35541
FB809	071C5521	FERRITE BEAD 10*6.0*0.8	9965 000 35542
	087C3504ZW	CRT SOCKET(QQ FOCUS)	9965 000 35877
IC802	056C551525	LM2476	9965 000 35543
	ARS774B1TP1P	CRT BOARD S774B3-1 PHILIPS	9965 000 37453

R815	061C17215152T	CFR 150 OHM -5% 1/4W	9965 000 35544
R828	061C17233052T	CFR 330OHM -5% 1/4W	9965 000 35545
R829	061C17233052T	CFR 330OHM -5% 1/4W	9965 000 35545
R840	061C17233052T	CFR 330OHM -5% 1/4W	9965 000 35545
R819	061C17233452T	CFR 330K OHM -5% 1/4W	9965 000 35546
R837	061C17233452T	CFR 330K OHM -5% 1/4W	9965 000 35546
R844	061C17233452T	CFR 330K OHM -5% 1/4W	9965 000 35546
R806	061C21019252T	MFR 1.9KOHM - 1% 1/6W	9965 000 35547
R810	061C21033352T	MFR 33K OHM - 1% 1/6W	9965 000 35548
R835	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R832	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R820	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R805	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R802	061C60210152T	CFR 100 OHM -5% 1/6W	9965 000 35549
R812	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R813	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R816	061C60210252T	CFR 1K OHM -5% 1/6W	9965 000 35550
R825	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R814	061C60210352T	CFR 10K OHM -5% 1/6W	9965 000 35551
R818	061C60233052T	CFR 33 OHM -5% 1/6W	9965 000 35552
R821	061C60233052T	CFR 33 OHM -5% 1/6W	9965 000 35552
R836	061C60233052T	CFR 33 OHM -5% 1/6W	9965 000 35552
R845	061C60233252T	CFR 3.3K OHM -5% 1/6W	9965 000 35553
R822	061C60247252T	CFR 4.7K OHM -5% 1/6W	9965 000 35554
R811	061C60256252T	CFR 5.6KOHM -5% 1/6W	9965 000 35555
R834	061C60275052T	CFR 75 OHM -5% 1/6W	9965 000 35556
R826	061C60275052T	CFR 75 OHM -5% 1/6W	9965 000 35556
R824	061C60275052T	CFR 75 OHM -5% 1/6W	9965 000 35556
L807	061C172S10152T	RES CF 5% 1/4W 1000HM A	9965 000 35557
L808	061C172S10152T	RES CF 5% 1/4W 1000HM A	9965 000 35557
L809	061C172S10152T	RES CF 5% 1/4W 1000HM A	9965 000 35557
R809	061C172S47052T	RES CF 5% 1/4W 47OHM AX	9965 000 35558
R817	061C172S47052T	RES CF 5% 1/4W 47OHM AX	9965 000 35558
R830	061C172S47052T	RES CF 5% 1/4W 47OHM AX	9965 000 35558
R804	061C175L10152T	CFR 100 OHM -5% 1/2W	9965 000 35559
FB804	061C175L56452T	CFR 560K OHM -5% 1/2W	9965 000 35561
R846	061C175L82852T	0.82 OHM -5% 1/2W	9965 000 35560
L805	071C559T	CORE RF BEAD RH 3.5X6X0.76TP	9965 000 35562
FB805	071C5523	FERRITE BEAD 7.5*3.5*0.8	9965 000 35563
FB806	071C5523	FERRITE BEAD 7.5*3.5*0.8	9965 000 35563
L804	071C5523	FERRITE BEAD 7.5*3.5*0.8	9965 000 35563
R843	073C5468810T	0.68UH -10%	9965 000 35564
R842	073C5468810T	0.68UH -10%	9965 000 35564
R841	073C5468810T	0.68UH -10%	9965 000 35564
D809	093C6021P52T	PS156R	9965 000 35566
D814	093C641152T	1N4148	4822 130 30621
D813	093C641152T	1N4148	4822 130 30621
D812	093C641152T	1N4148	4822 130 30621
D811	093C641152T	1N4148	4822 130 30621

D805	093C641152T	1N4148	4822 130 30621
D803	093C641152T	1N4148	4822 130 30621
D810	093C6450152T	BAV21	4822 130 30842
D808	093C6450152T	BAV21	4822 130 30842
D807	093C6450152T	BAV21	4822 130 30842
D806	093C6450152T	BAV21	4822 130 30842
D804	093C6450152T	BAV21	4822 130 30842
D802	093C6450152T	BAV21	4822 130 30842
C815	064C178J1040T	CL21X0.1UF 63V -5%	9965 000 35568
C823	064C178J1040T	CL21X0.1UF 63V -5%	9965 000 35568
C824	064C178J1040T	CL21X0.1UF 63V -5%	9965 000 35568
C830	064C700J3330AT	0.033UF 63V -5%	9965 000 35569
C841	065C1K2215T605	220PF/1KV Y5P -10%	9965 000 35570
C835	065C2K1015T692	100PF/2KV	9965 000 35571
C836	065C2K1015T692	100PF/2KV	9965 000 35571
C843	065C44210013T	10PF -5% NPO 50V	9965 000 35572
C842	065C44210013T	10PF -5% NPO 50V	9965 000 35572
C839	065C44210013T	10PF -5% NPO 50V	9965 000 35572
C802	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C803	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C809	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C812	065C44210113T	100PF -5% NPO 50V	9965 000 35573
C818	065C4441015T	100 PF 10% 50V Y5P	9965 000 35575
C817	065C4441015T	100 PF 10% 50V Y5P	9965 000 35575
C816	065C4441015T	100 PF 10% 50V Y5P	9965 000 35575
C833	065C4441525T	1500PF 10% Y5P 50V	9965 000 35576
C837	065C44447113T	470PF -10% Z5P 50V	9965 000 35577
C804	065C4501047T	0.1UF 80-20% 50V Y5V	9965 000 35578
C814	065C4501047T	0.1UF 80-20% 50V Y5V	9965 000 35578
C832	065C251K1042T	0.1UF 250V	9965 000 35579
C831	065C251K1042T	0.1UF 250V	9965 000 35579
C829	065C251K1042T	0.1UF 250V	9965 000 35579
C827	065C251K1042T	0.1UF 250V	9965 000 35579
C813	065C251K1042T	0.1UF 250V	9965 000 35579
C834	065C517K1025T6	1000PF 500V -10% Y5P	9965 000 35580
C846	065C517K1025T6	1000PF 500V -10% Y5P	9965 000 35580
C847	065C517K1025T6	1000PF 500V -10% Y5P	9965 000 35580
C849	065C517K1025T6	1000PF 500V -10% Y5P	9965 000 35580
C801	065C517K5612T6	560PF 500V Z5P -10%	9965 000 35581
C822	067C701099T	1UF -20% 100V	9965 000 35582
C821	067C701099T	1UF -20% 100V	9965 000 35582
C820	067C701099T	1UF -20% 100V	9965 000 35582
C810	067C3052203T	22UF -20% 16V	9965 000 35583
C819	067C3054703T	47UF -20% 16V	9965 000 35584
C807	067C3054703T	47UF -20% 16V	9965 000 35584
C826	067C3054713T	470UF -20% 16V	9965 000 35585
C808	067C3054793T	4U7 16V	9965 000 35586
C828	067C3094703T	47UF -20% 16V	9965 000 35587
ZD804	093C3951952T	TZX8V2B	9965 000 35588

10.Differen parts list

Diversity of 107E76/05 compared with 107E71/00			
Location	Part No. for TPV	Description	Philips P/N (12NC)
	034C6377VBA	BACK COVER	9965 000 35397
	034C6379VBL	BASE	9965 000 35399
	034C6380AVBA	FRONT PANEL	9965 000 37347
	034C6383VBL	SWIVEL]	9965 000 37042
E089A	089C410A15NIS	POWER CORD	9965 000 35408
E750A	750C58627AV	LPD CRT	9965 000 37152
	Q40C70S8134A	RATING LABEL	9965 000 37542
	089C71B5TYBG3	SIGNAL CABLE D-SUB COMLINK	9965 000 35417

Diversity of 107E76/27 compared with 107E71/00			
Location	Part No. for TPV	Description	Philips P/N (12NC)
	034C6377VBA	BACK COVER	9965 000 35397
	034C6379VBL	BASE	9965 000 35399
	034C6380AVBA	FRONT PANEL	9965 000 37347
	034C6383VBL	SWIVEL]	9965 000 37042
E089A	089C402A15NIS	POWER CORD	9965 000 36575
	089C71B5TYHG3	SIGNAL CABLE	9965 000 35436

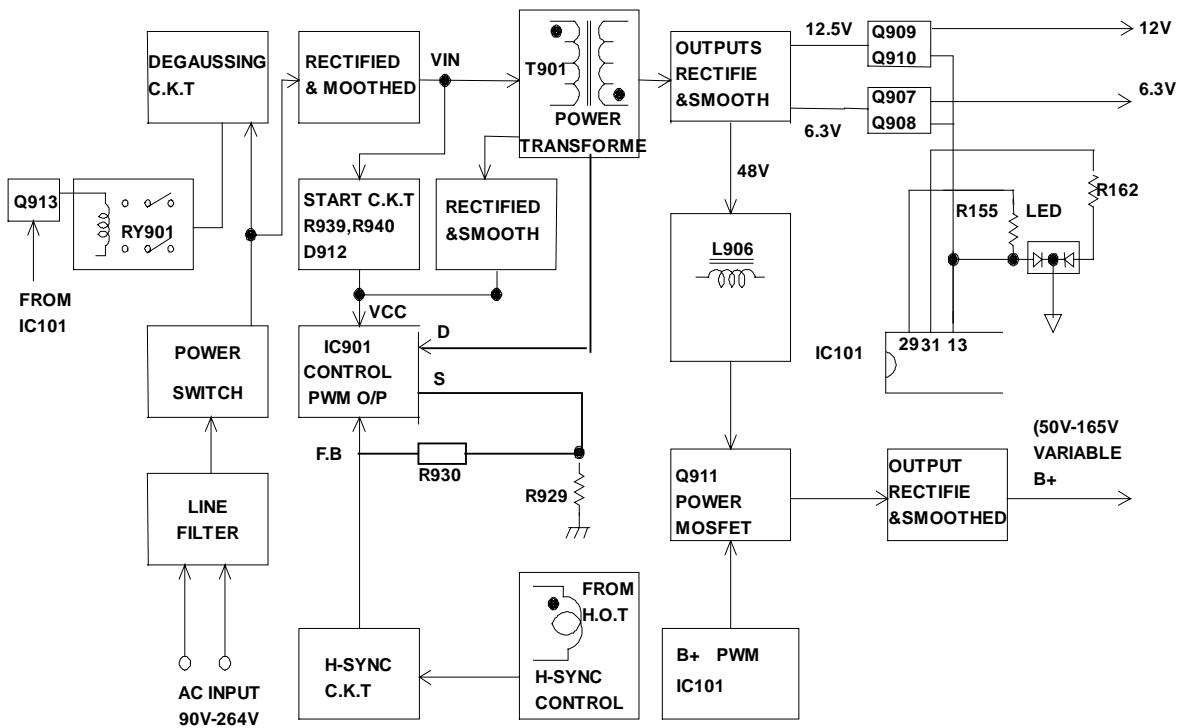
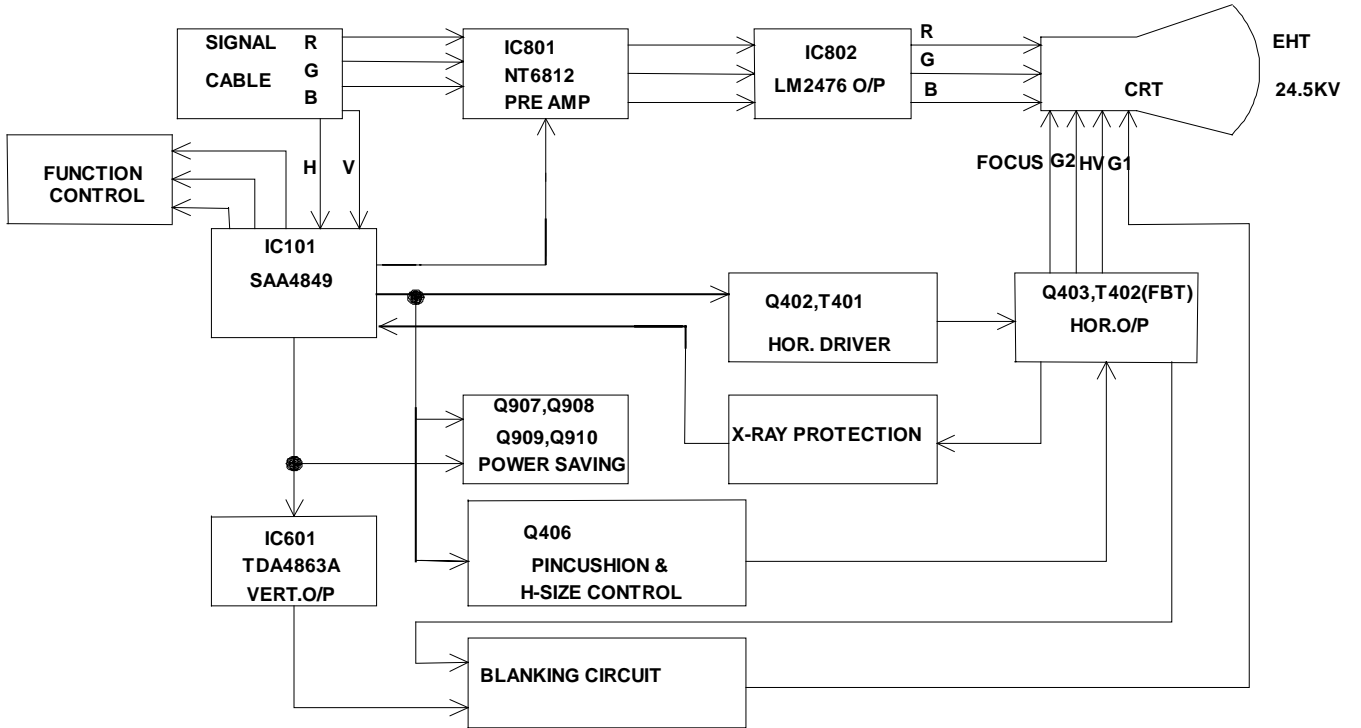
Diversity of 107E76/94 compared with 107E71/00			
Location	Part No. for TPV	Description	Philips P/N (12NC)
	033C6414VEA	KEY PAD	9965 000 37346
	034C6377VBA	BACK COVER	9965 000 35397
	034C6379VBL	BASE	9965 000 35399
	034C6380AVBA	FRONT PANEL	9965 000 37347
	034C6383VBL	SWIVEL]	9965 000 37042
	040C5818131A	CARTON LABEL	9965 000 35401
	044C67G11	EPS CUSHION	9965 000 37105
	044C67G12	EPS CUSHION	9965 000 37106
E089A	089C417A15NIS	POWER CORD	9965 000 36880
	750A1697504JAL	DEG. COIL 0.45X90TS	9965 000 37353
	750C5K561AV	CRT 17" CV 0.18 CPT	9965 000 37351
	750C5K627AV	CRT 17" CV 0.18 LPDKR	9965 000 37352
	CMS774B1T8EP2P	CHASSIS FOR S774B3-1 PHILIPS POH	9965 000 37349
	Q40C70S81312A	RATING LABEL	9965 000 37354
	Q44C67F88133A	CARTON	9965 000 37350
	Q70CD7988131B	CD MANUAL	9965 000 35418
	089C71B5TYHG3	SIGNAL CABLE	9965 000 35436
LED1	081C232P	LED	9965 000 35741
	CRS774B1T8P1P	CRT BOARD S774B3-1 PHILIPS ROHS	9965 000 37356
IC102	056C11332PH	M24C16-WBN6/P	9965 000 35462

FB404	071C5529	FERRITE BEAD	9965 000 35500
FB902	071C55503	FERRITE BEAD	9965 000 35501
T401	079C167125LS	DRIVER TRANSFORMER	9965 000 35510
ZD066	093C3951652T	TZX5V1B	9965 000 36416
IC901	056C379513	STR-G5643B	9965 000 37355
	705A774BC8701B	CN901 ASS'Y	9965 000 37283
	705A774BC9301T	D919 ASS'Y	9965 000 37280
	040C45762412B	LABEL	9965 000 35538
IC801	056C366521	NT6812KG-20019	9965 000 35539
TP404	095C201F50162	16" PULSE	9965 000 37359

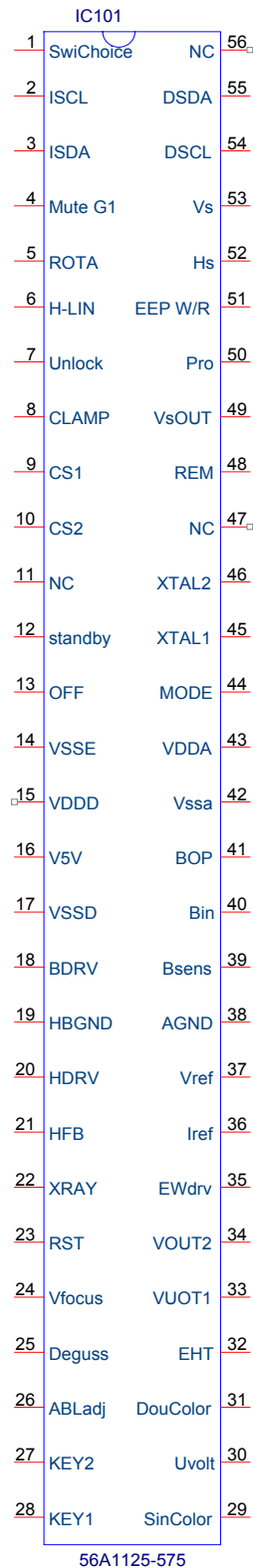
Diversity of 107E71/05 compared with 107E71/00			
Location	Part No. for TPV	Description	Philips P/N (12NC)
	033C6414VEA	KEY PAD	9965 000 37346
E089A	089C410E15NIS	POWER CORD	9965 000 38271
	750A1697504JAL	DEG. COIL 0.45X90TS	9965 000 37353
E750A	750C58627AV	LPD CRT	9965 000 37152
	089C71F5TYHG3	SIGNAL CABLE D-SUB HONGLIN	9965 000 35432
	750C5K561AV	CRT 17" CV 0.18 CPT	9965 000 37351
	750C5K627AV	CRT 17" CV 0.18 LPDKR	9965 000 37352
IC102	056C11332PH	M24C16-WBN6/P	9965 000 35462

Diversity of 107E71/27 compared with 107E71/00			
Location	Part No. for TPV	Description	Philips P/N (12NC)
	033C6414VEA	KEY PAD	9965 000 37346
E089A	089C402E15NIS	POWER CORD	9965 000 38372
	750A1697504JAL	DEG. COIL 0.45X90TS	9965 000 37353
	750C5K561AV	CRT 17" CV 0.18 CPT	9965 000 37351
	750C5K627AV	CRT 17" CV 0.18 LPDKR	9965 000 37352
	089C71F5TYHG3	SIGNAL CABLE D-SUB HONGLIN	9965 000 35432
IC102	056C11332PH	M24C16-WBN6/P	9965 000 35462

11. Block diagram

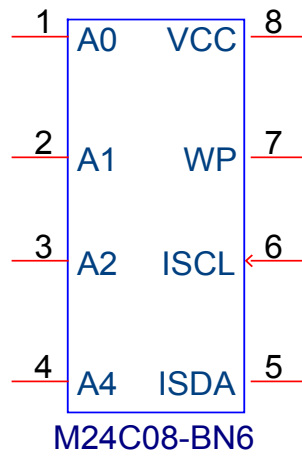


12. IC Block diagram

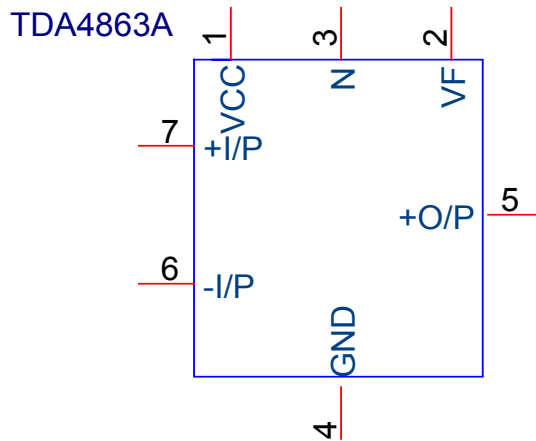


IC101 SAA4848P

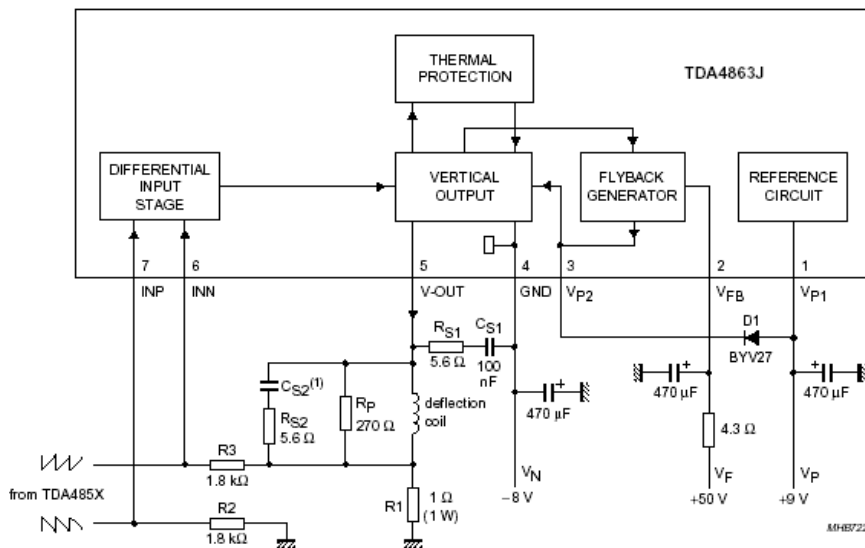
IC102



IC601

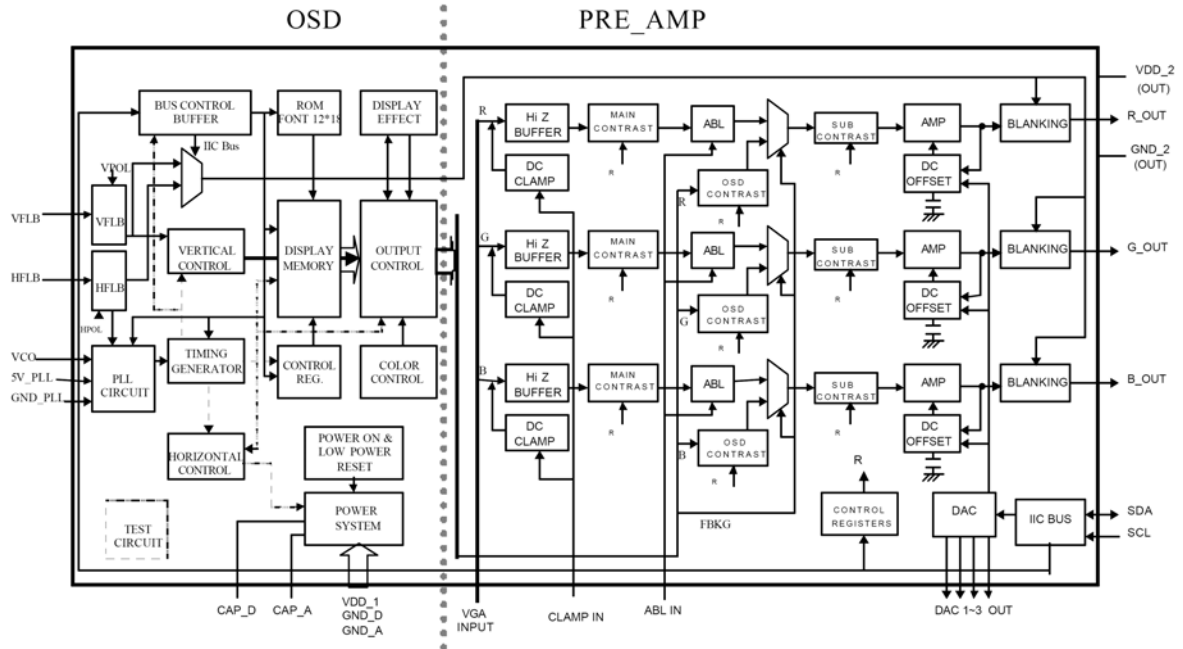


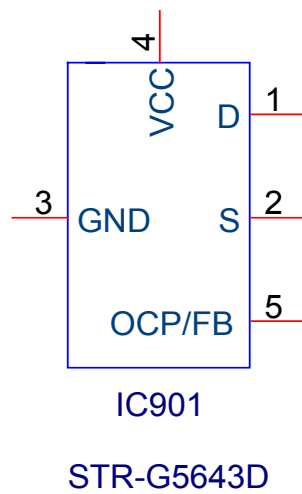
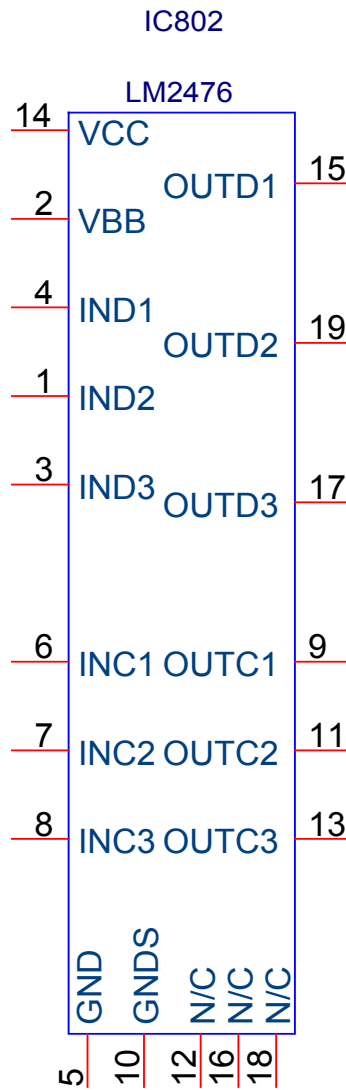
IC601 TDA4863A



IC801
NT6812

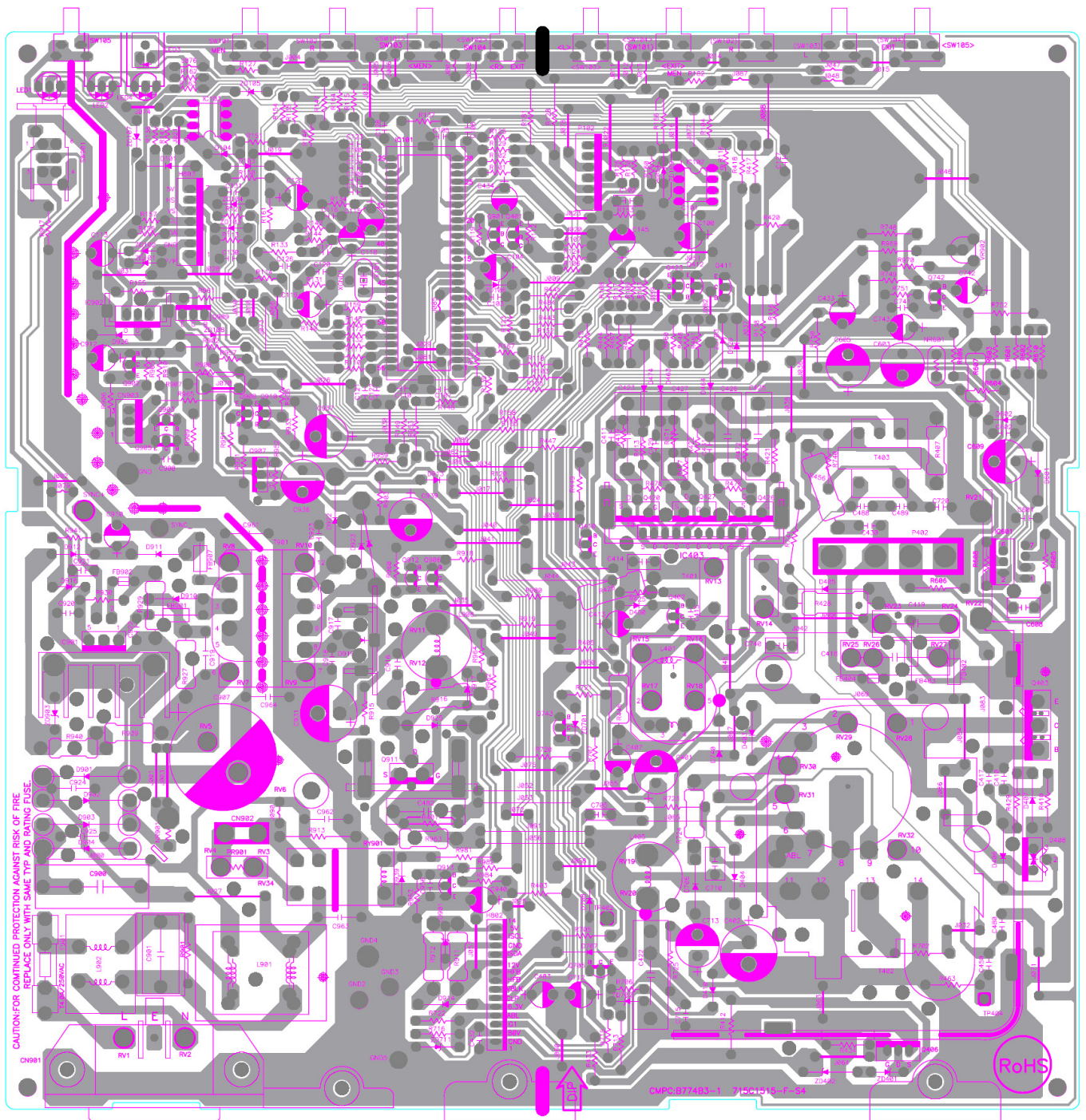
1	VBLK	HBLK	24
2	CAP_A	CLAMP	23
3	VDD_1	ABL	22
4	GND_A	B_OUT	21
5	B_IN	R_OUT	20
6	R_IN	G_OUT	19
7	G_IN	VDD_2	18
8	GND-PLL	GND_2	17
9	VCO	DA1	16
10	5V_PLL	DA2	15
11	SDA	DA3	14
12	SCL	CAP_D	13



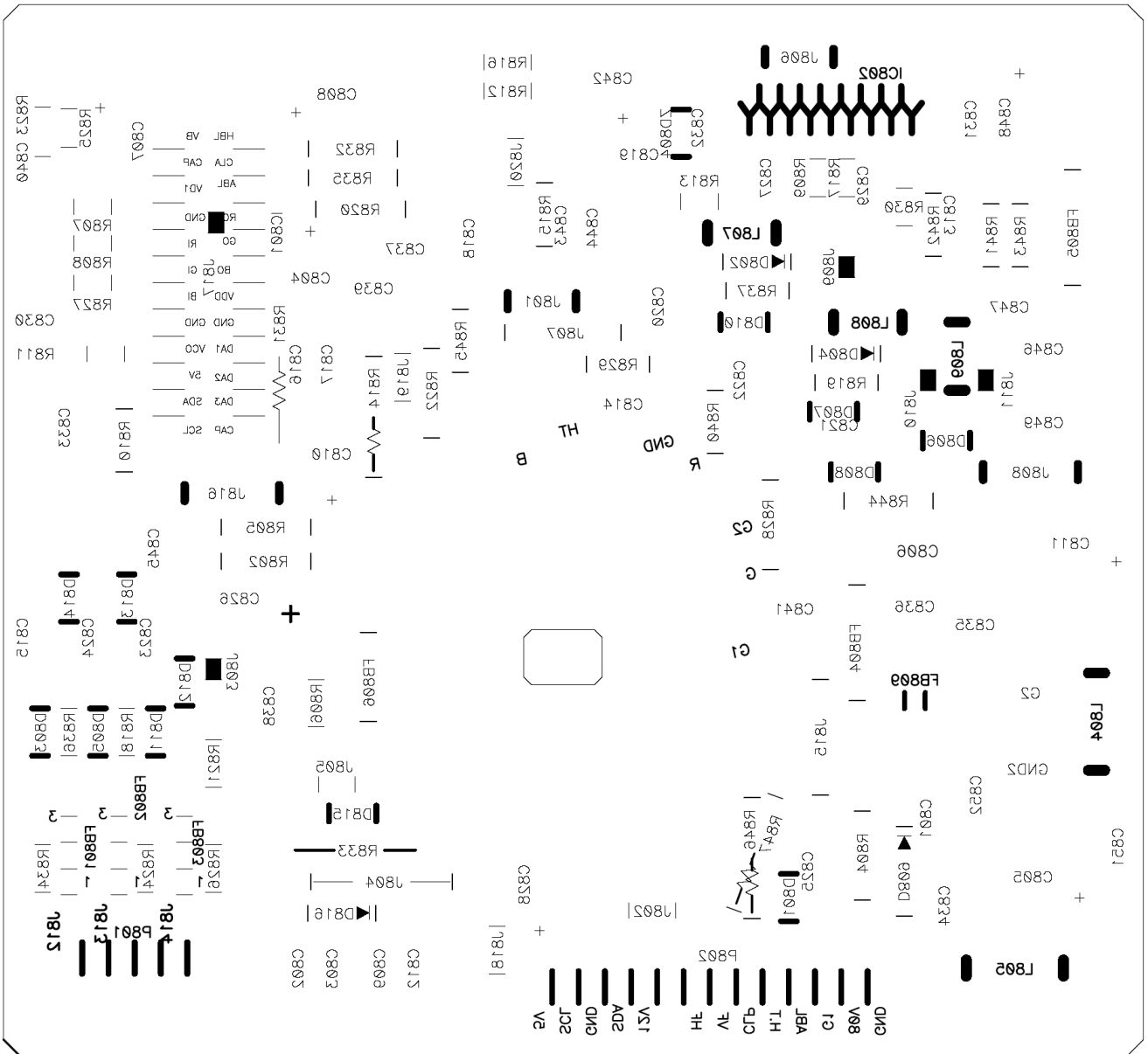


13. PCB Layout

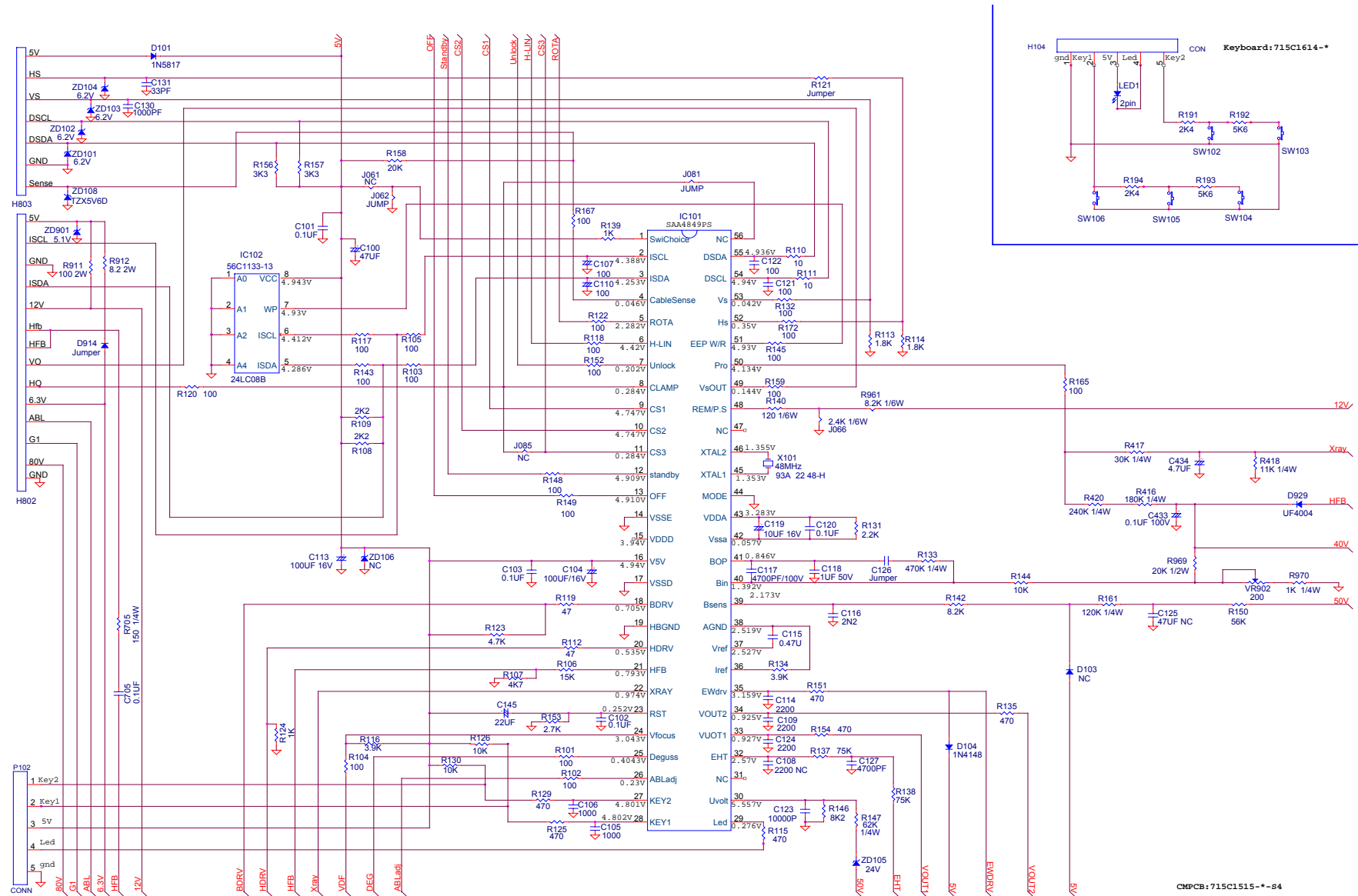
13-1 Main PCB layout



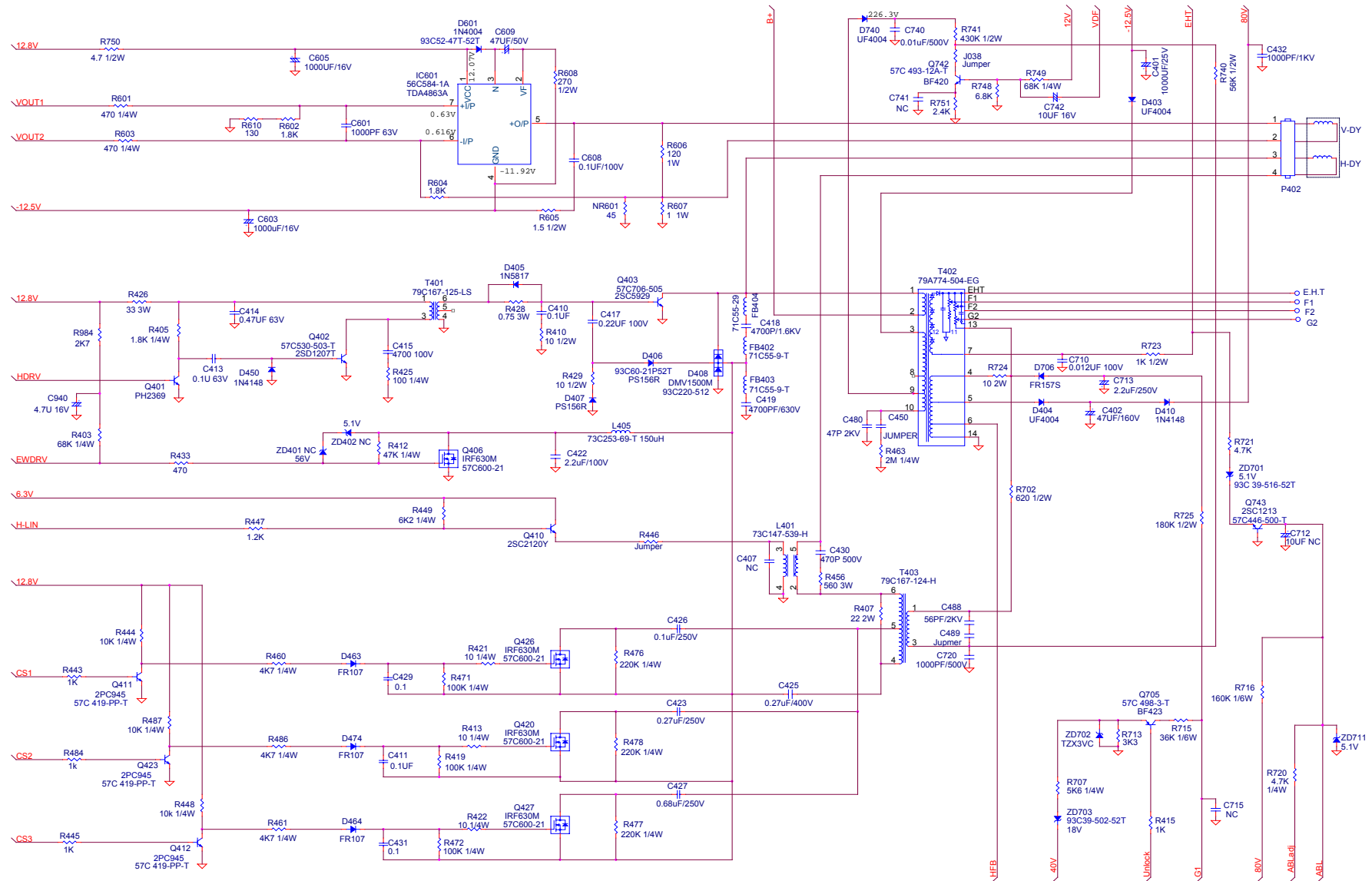
13-2 CRPC Board layout



14. Schematic diagram CPU

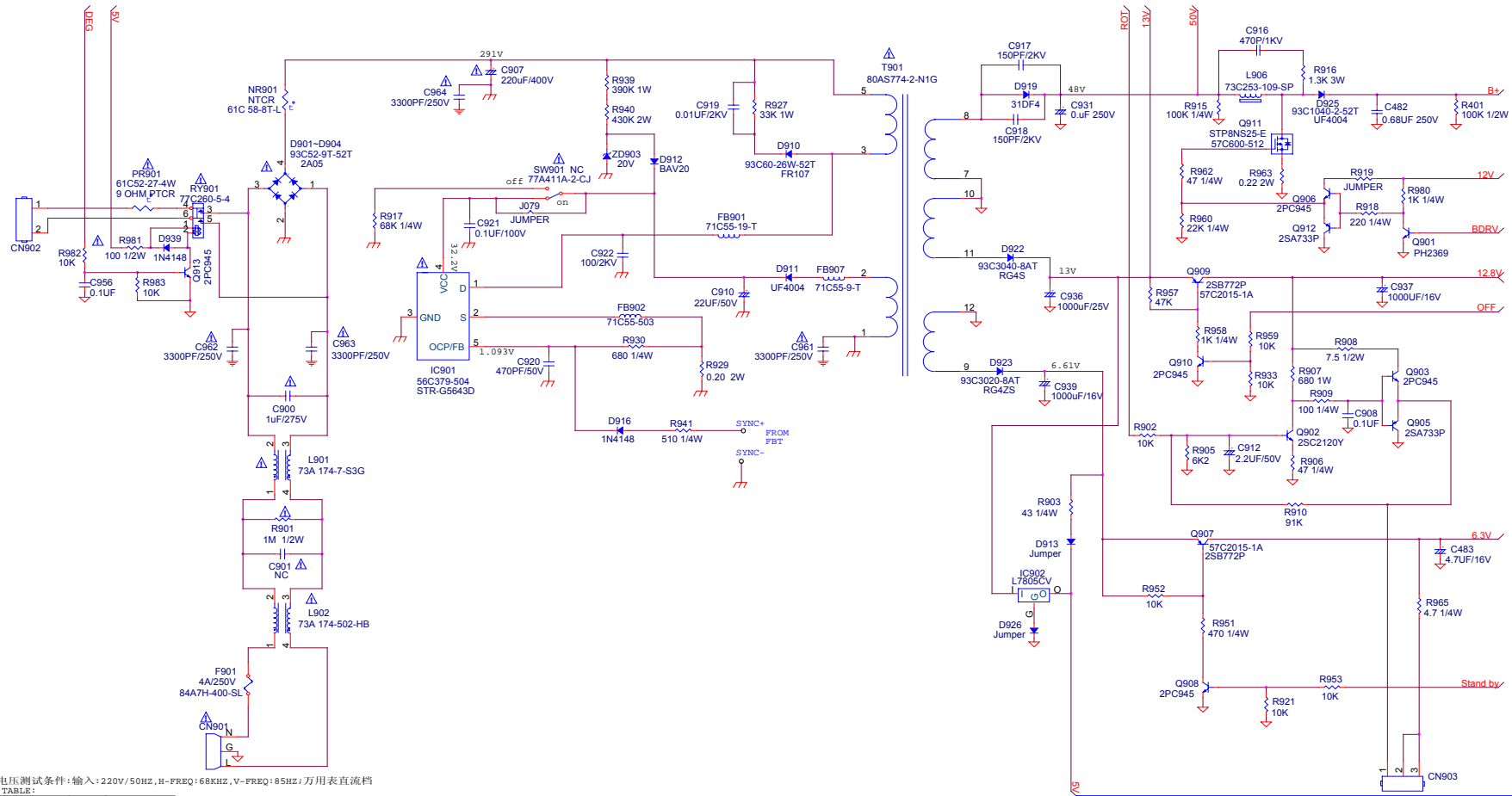


Output



Page3:Output Section

Power



注：电压测试条件：输入：220V/50HZ，H-FREQ：68KHZ，V-FREQ：85HZ；万用表直流量

CS TABLE:

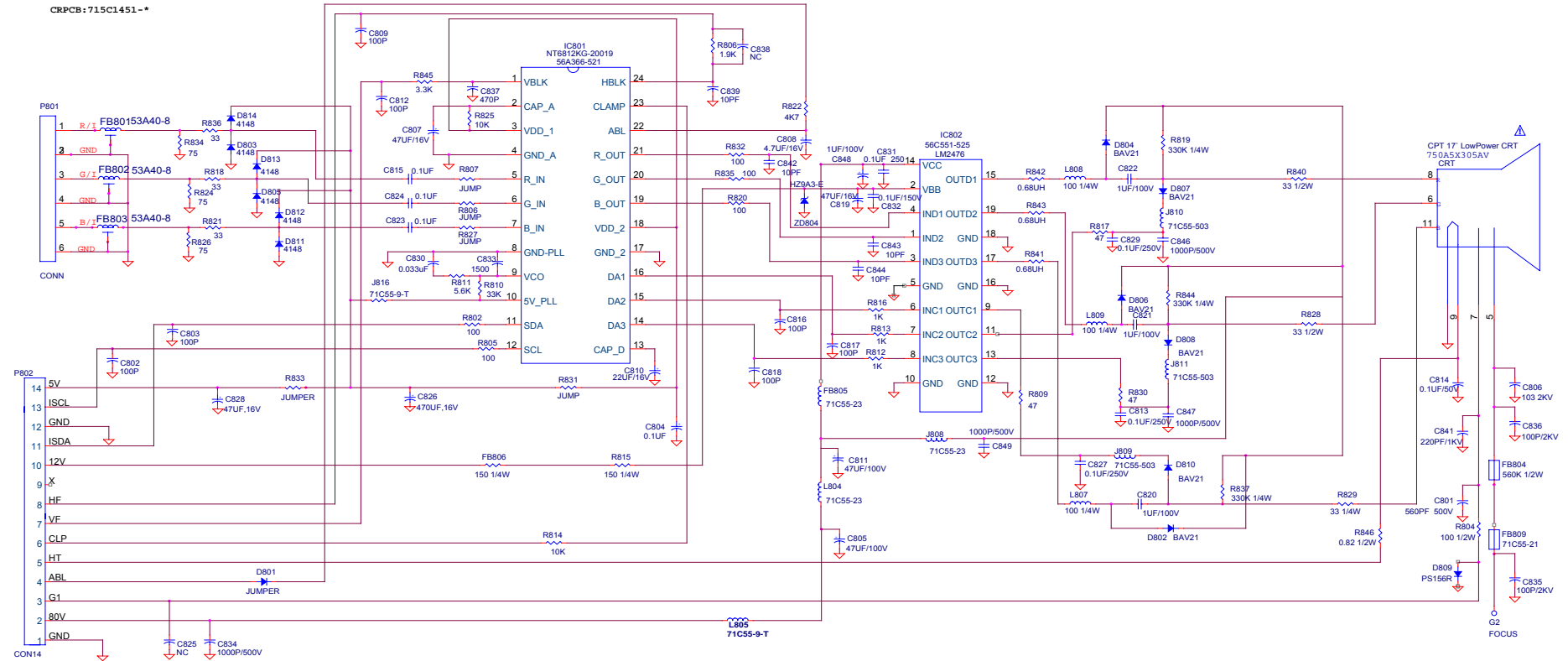
Frequency	CS1	CS2	CS3
<33KHZ	0	0	0
33KHZ-36KHZ	1	0	0
36KHZ-40KHZ	0	1	0
40KHZ-44KHZ	0	0	1
44KHZ-50KHZ	1	0	1
50KHZ-62KHZ	0	1	1
>62KHZ	1	1	1

LED1为单色发光二极管，POWERSAVING时为绿闪；LED2为双色发光二极管；

Page1:Power Section Based on the Bom of Sep-19-05



Video



Page4:Video Section

Attention:Based on the Bcm of Sep-19-05

15. General Product Specification

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- 7.5 WEEE
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1. Scope

This specification describes features and performance of 107E7 CRT monitor.

- Product Name - PH107E7
- Manufacturer ID - PHL
- Product ID - 001C

1.1 General Product Features

- 17" curved screen color monitor
- 0.27mm phosphor dot pitch
- Viewable Image Size 325mm x 244mm
- Universal power supply
- DPM compliant
- 8 preset modes, 6 user modes, GTF supported
- Horizontal frequency up to 71 kHz
- Vertical refresh rate up to 160 Hz
- Maximum display resolution up to 1280x1024
- VESA DDC 2B compliant
- Plug and Play
- Multi-language OSD user control
- Tilt and swivel adjustable base
- MPR II / TCO03

1.2 Product Range

CTV	Destination	Mains Cord	Magnetic Field	Cabinet Color	Ergonomics	OSD Language
107E70/00	Europe	European	North	Grey	TCO'03	9
107E71/00	Europe	European	North	Grey	MPRII	9
107E71/05	UK/ Dubai/ Pakistan/ HK/ Bangladesh/ Singapore	UK	North	Grey	MPRII	9
107E71/27	NAFTA	US	North	Grey	MPRII	9
107E71/73	South Africa	South Africa	South	Grey	MPRII	8
107E71/77	Argentina	Argentina	South	Grey	MPRII	8
107E71/94	India	Indian	North	Grey	MPRII	8
107E71/96	Taiwan	US	North	Grey	MPRII	8
107E76/00	Europe	European	North	Black	MPRII	9
107E76/05	UK/ Dubai/ Pakistan/ HK/ Bangladesh/ Singapore	UK	North	Black	MPRII	9
107E76/27	NAFTA	US	North	Black	MPRII	9
107E76/73	South Africa	South Africa	South	Black	MPRII	8
107E76/75	Australia /NZ	Australian	South	Black	MPRII	8
107E76/94	India	Indian	North	Black	MPRII	8

2. Electrical Performance

All performance specifications are defined under "STANDARD TESTING CONDITIONS", unless otherwise specified.

2.1 Standard Testing Conditions

- Monitor facing to the east
- Warm up time - ≥ 30 min
- Ambient temperature - 25 ± 3 °C
- Prime modes - 1024x768@85Hz.
- Color temperature - 9300 °K
- Video signal level - 700mVpp
- Brightness setting - 50% (set to near cutoff)

2.2 Video Signals

2.2.1 Video Input Signals

- Maximum pixel rate - 110 MHz.

- Sync input - TTL level, separate H/V sync only, "+" or "-" polarity, terminated with $\geq 2.2k\Omega$ impedance.
- Horizontal frequency - 30 ~ 71 kHz.
- Horizontal sync width - 0.6 us minimum, 4 us maximum.
- Vertical frequency - 50 ~ 160 Hz.
- Vertical sync width - 2 lines minimum, 10 lines maximum.
- Analog RGB level - 0 ~ 700mV linear, positive polarity, terminated with $75\Omega \pm 5\%$ impedance.
- Preset video modes - 8 preset modes. All visual performance has to fulfill the FOS performance specifications. The user can recall the factory setting in OSD menu.
- Preload video modes - 10 preload modes. Parameters preloaded in EEPROM, little size and centering deviations are allowed, but geometry distortions should be strictly managed for users easy adjustment. The user can recall the factory setting in OSD menu.
- User modes - 6 user modes. User can store adjustment result of 6 new modes, first in first out control when over 6 new modes are encountered.
- Detectable mode frequency separation - $\pm 1\text{kHz}$ min. for H-sync, $\pm 1\text{Hz}$ min. for V-sync.

2.2.2 Video Driver Signals

- Rise time - $< 10\text{ns} / 30\text{Vpp}$ (real measurement, white to black)
- Fall time - $< 10\text{ns} / 30\text{Vpp}$ (real measurement, black to white)
- Overshoot / undershoot - $< 15\%$
- Black level shift - $< 5\%$ (30 min ~ 3 hour)

2.3 Ddc Signals

- Support VESA DDC/2B according to VESA DDC standard Ver.1.0 Rev. 3.
- DDC1 is not allowed.

The DDC components are connected to both monitor Vcc and DDC +5V (from PC via video cable), that the PC can read the DDC data also when the monitor is powered off. To prevent current feedback into PC, blocking diodes are required at monitor side.

- DDC serial Data - D-sub connector pin 12, I²C-BUS.
- DDC serial Clock - D-sub connector pin 15, I²C-BUS.

2.4 Plug And Play

Win Logo certification required.

- Win logo test logs to be provided by suppliers during DVT stage.

2.5 Preset & Preload Modes Timing Chart

2.5.1 Preset Video Timings

Timing	1.	2.	3.
Resolution	640 x 480	640 x 480	720 x 400
Pixel clock	25.175 MHz	36.000 MHz	28.321 MHz
H. Frequency	31.469 kHz	43.269 kHz	31.468 kHz
H. Total	31.778 us	23.111 us	31.778 us
H. Active display	25.422 us	17.778 us	25.422 us
H. Back porch	1.907 us	2.222 us	1.907 us
H. Sync. Width	3.813 us	1.556 us	3.813 us
V. Frequency	59.941 Hz	85.008 Hz	70.084 Hz
V. Total display	16.683 ms	11.763 ms	14.268 ms
V. Active display	15.253 ms	11.093 ms	12.711 ms
V. Back porch	1.049 ms	0.578 ms	1.112 ms
V. Sync. Width	0.064 ms	0.069 ms	0.064 ms
H/V sync polarity	- / -	- / -	- / +

Timing	4.	5.	6.
Resolution	800 x 600	800 x 600	1024 x 768
Pixel clock	49.500 MHz	56.250 MHz	78.750 MHz
H. Frequency	46.875 kHz	53.674 kHz	60.023 kHz
H. Total	21.333 us	18.631 us	16.660 us
H. Active display	16.162 us	14.222 us	13.003 us
H. Back porch	3.232 us	2.702 us	2.235 us
H. Sync. Width	1.616 us	1.138 us	1.219 us
V. Frequency	75.000 Hz	85.061 Hz	75.029 Hz
V. Total display	13.333 ms	11.756 ms	13.328 ms
V. Active display	12.800 ms	11.179 ms	12.795 ms
V. Back porch	0.448 ms	0.503 ms	0.466 ms
V. Sync. Width	0.064 ms	0.056 ms	0.050 ms
H/V sync polarity	+ / +	+ / +	+ / +

Timing	7.	8.	
Resolution	1024 x 768	1280 x 1024	
Pixel clock	94.500 MHz	108.000 MHz	
H. Frequency	68.677 kHz	63.981 kHz	
H. Total	14.561 us	15.630 us	
H. Active display	10.836 us	11.852 us	
H. Back porch	2.201 us	2.296 us	
H. Sync. Width	1.016 us	1.037 us	
V. Frequency	84.997 Hz	60.020 Hz	
V. Total display	11.765 ms	16.661 ms	
V. Active display	11.183 ms	16.005 ms	
V. Back porch	0.524 ms	0.594 ms	
V. Sync. Width	0.044 ms	0.047 ms	
H/V sync polarity	+ / +	+ / +	

2.5.2 Preload

video

timings

Timing	1.	2.	3.
Resolution	640 x 350	640 x 480	640 x 480
Pixel clock	25.175 MHz	31.500 MHz	40.500 MHz
H. Frequency	31.469 kHz	37.500 kHz	50.628 kHz
H. Total	31.778 us	26.667 us	19.752 us
H. Active display	25.422 us	20.317 us	15.802 us
H. Back porch	1.907 us	3.810 us	1.975 us
H. Sync. Width	3.813 us	2.032 us	1.580 us
V. Frequency	70.087 Hz	75.000 Hz	100.10 Hz
V. Total display	14.268 ms	13.333 ms	9.995 ms
V. Active display	11.122 ms	12.800 ms	9.481 ms
V. Back porch	1.907 ms	0.427 ms	0.435 ms
V. Sync. Width	0.064 ms	0.080 ms	0.059 ms
H/V sync polarity	+ / -	- / -	- / -

Timing	4.	5.	6.
Resolution	800 x 600	800 x 600	832 x 624
Pixel clock	40.000 MHz	67.500 MHz	57.280 MHz
H. Frequency	37.879 kHz	63.923 kHz	49.722 kHz
H. Total	26.400 us	15.644 us	20.110 us
H. Active display	20.000 us	11.852 us	14.520 us
H. Back porch	2.200 us	2.370 us	3.910 us
H. Sync. Width	3.200 us	0.948 us	1.117 us
V. Frequency	60.317 Hz	100.00 Hz	74.546 Hz
V. Total display	16.579 ms	9.997ms	13.410 ms
V. Active display	15.840 ms	9.387 ms	12.550 ms
V. Back porch	0.607 ms	0.548 ms	0.784 ms
V. Sync. Width	0.106 ms	0.047 ms	0.060 ms
H/V sync polarity	+ / +	+ / +	+ / +

Timing	7.	8.	9.
Resolution	1024 x 768	1024 x 768	1152 x 864
Pixel clock	65.000 MHz	75.000 MHz	108.000 MHz
H. Frequency	48.363 kHz	56.476 kHz	67.500 kHz
H. Total	20.677 us	17.707 us	14.815 us
H. Active display	15.754 us	13.653 us	10.667 us
H. Back porch	2.462 us	1.920 us	2.370 us
H. Sync. Width	2.092 us	1.813 us	1.185 us
V. Frequency	60.004 Hz	70.069 Hz	74.979 Hz
V. Total display	16.666 ms	14.272 ms	13.333 ms
V. Active display	15.880 ms	13.599 ms	12.678 ms
V. Back porch	0.600 ms	0.513 ms	0.568 ms
V. Sync. Width	0.124 ms	0.106 ms	0.044 ms
H/V sync polarity	- / -	- / -	- / -

Timing	10.		
Resolution	1280 x 960		
Pixel clock	108.000 MHz		
H. Frequency	60.000 kHz		
H. Total	16.667 us		
H. Active display	11.852 us		
H. Back porch	2.889 us		
H. Sync. Width	1.037 us		
V. Frequency	60.000 Hz		
V. Total display	16.667 ms		
V. Active display	16.000 ms		
V. Back porch	0.600 ms		
V. Sync. Width	0.050 ms		
H/V sync polarity	+ / +		

2.6 Power Supply

2.6.1 Features

- AC line voltage range - 90Vac ~ 264Vac.
- AC line frequency range - 50/60 Hz \pm 3 Hz.
- Input voltage transient - 300Vac for 10 seconds (China), 280Vac for 10 seconds (RoW).
- Inrush current - < 50 A at 240Vac cold start.
- Earth leakage current - < 1.0mA at 240Vac.
- Power factor correction - According to EN61000-3-2

2.6.2 Power Consumption

It is equipped with two-stage power saving management. A delay of 5 seconds before entering the power saving state is required to avoid misunderstanding of display resolution and timing mode changes.

- Power on - < 75w. (Test requirements refer to EN61000-3-2)
- Active off - < 2w at 120Vac / 240Vac.
- Switch off - < 2w at 120Vac / 240Vac.

2.6.3 Power saving conditions

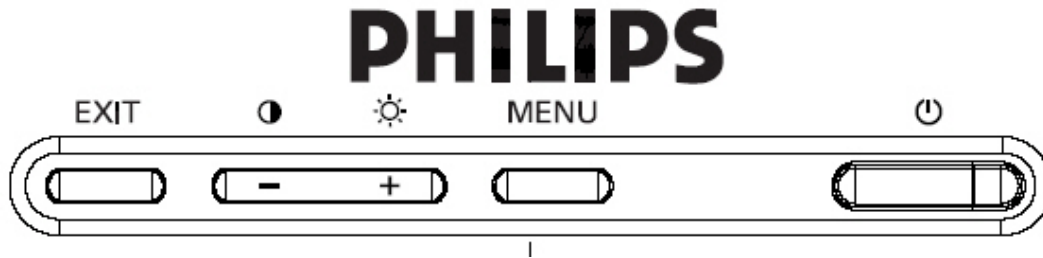
The monitor enters DPM off mode when no H&V sync or one of H-sync / V-sync input is absent. No message appears before entering DPM mode.

2.6.4 Power recovery from power saving

Both H-sync and V-sync are detected.

2.7 User Controls / Indicators / Connectors

2.7.1 Front controls



- OSD menu is accessed by the keypad.

Key (R to L)	Function
Power	Tact DC switch
Menu	OSD Menu
" + "	Brightness/Adjust increase/Menu selection
" - "	Contrast/Adjust decrease/Menu selection
Exit	OSD menu exit

- Access main menu by pressing "MENU" key.
- Select function via "+/-" & "MENU" keys, increase/decrease via "+/-" keys.
- Brightness control - Direct access only by hotkey.
- Contrast control - Direct access only by hotkey.
- Exit - Exit OSD menu

2.7.2 OSD Menu

- Languages (per region) - **8 languages** (English, French, German, Italian, Spanish, Portuguese, Korean, **Simplified Chinese**).
9 languages (English, French, German, Italian, Spanish, Portuguese, Korean, **Turkish, Russian**).
- OSD tree - As shown below.

OSD tree / English		
1 st level	2 nd level	3 rd level
LANGUAGE (per region)	8 LANGUAGES 9 LANGUAGES	
ZOOM		
ADJUST HORIZONTAL	POSITION	

ADJUST VERTICAL	SIZE	
	POSITION	
	SIZE	
ADJUST SHAPE	ADJUST SIDE CURVE	PINCUSHION
		BALANCED
	ADJUST SIDE ANGLES	TRAPEZOID
		PARALLELOGRAM
ADJUST COLOR	ROTATE IMAGE	ROTATE
	9300K FOR GENERAL USE	
	6500K FOR IMAGE MANAGEMENT	
	sRGB	
	USER PRESET	
	RED	
	GREEN	
BLUE		
RESET TO FACTORY SETTING	NO	
	YES	
EXTRA CONTROLS	ADJUST MOIRE	HORIZONTAL
		VERTICAL
	DEGAUSS	
CLOSE MAIN CONTROLS		

- OSD lock - Lock all OSD by holding down "MENU" key for 15 seconds.

2.7.3 LED indicator

- Normal on - Green.
- Active off - Green Blinking (1sec on / 1sec off).
- Switch off - Blank.

2.7.4 Monitor status information

- Self-test feature - "CHECK SIGNAL CABLE" message appears when video cable is disconnected.
- Out of scan range - "FREQUENCY IS OUT OF RANGE" appears when input H-sync or V-sync out of range.
- Resolution & H/V input - Shown in OSD menu "EXTRA CONTROLS".

2.7.5 Power connector

- AC socket 3-pin IEC-320-C13, at rear side.

2.7.6 Video input connector/Video cable

- 1.5m non-detachable fly-in video cable with D-Sub 15 pin male blue connector, pin assignment of D-Sub:

Pin	Function
-----	----------

1	Red video
2	Green video
3	Blue video
4	GND
5	Self test
6	Red GND
7	Green GND
8	Blue GND
9	+5V (Supply from PC for DDC circuit)
10	Sync GND
11	GND
12	DDC serial data
13	H-sync
14	V-sync
15	DDC serial clock

- H-sync line impedance must be within 50 ~ 70Ω (TDR measurement).
- V-sync line impedance should be within 40 ~ 70Ω (TDR measurement).
- RGB signal lines must be 75Ω ± 5% coaxial.
- R, G, B coaxial shield must connect to D-Sub metal shell.

3. Front Of Screen Performance

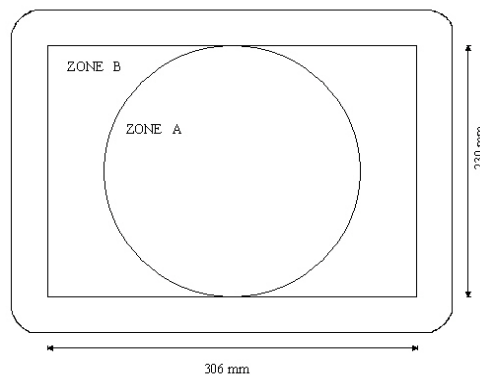
3.1 CRT characteristics

Vendor	LPD	CPT
CRT Type Number		
Screen & Mask	Curved screen & Shadow mask	Curved screen & Shadow mask
Screen Diagonal Size	444mm	444mm
Phosphor Area	325mm x 244mm	325mm x 244mm
VIS (front bezel opening)		
Neck size	29.1mm	29.1mm
Deflection Angle	90°	90°
Yoke impedance	LH: xxx uH LV: xxx mH RH: xxx Ω RV: xxx Ω	LH: xxx uH LV: xxx mH RH: xxx Ω RV: xxx Ω
Phosphor Dot Pitch	0.27mm	0.27mm
Phosphor Type	P22, medium short persistence	P22, medium short persistence
Light Transmission rate		
Surface Treatment	Anti glare/Anti static	Anti glare/Anti static
Surface Resistance		
CRT net Weight		

3.2 Display image / Geometric distortions

- Nominal display size - 306mm x 230mm ± 4mm for all preset modes.
306mm x 230mm ± 10mm for preload modes.
- Size control range - Nominal total size: -15mm to full scan.
- Raster centering - < 4mm for prime mode.
- Image centering - < 5mm for all preset modes.
< 12mm for preload modes.
- Position control range - H: ± 10mm minimum, V: ± 8mm minimum.
- Line straightness - Border overall distortion < 2.0mm for all preset modes, the waviness of any vertical or horizontal should be less than 1.0mm over a 50mm distance.
- Image tilt - < 1.0mm (each side).
- Dynamic EHT size regulation - < 1.0mm (each side).
- Static EHT size regulation - < 1.5mm (each side).
- Image size stability - < 1.0% (110Vac ~ 240Vac) as a function of supply voltage.
< 1.0% (5 ~ 40°C) as a function of temperature.
- Linearity [(max-min)/mean] - Pattern: 12 x 9 blocks
Prime modes: 1024x768@75, 1024x768@85.

Overall H&V < 10% (prime modes).
Adjacent H&V < 6% (prime modes).
Overall H&V < 14% (other modes).
Adjacent H&V < 7% (other modes).
- Convergence - Zone A < 0.25mm, Zone B < 0.35mm.
Zone B < 0.4mm (for modes < 50kHz).



Mis-convergence measurement area

- Jitter - < 0.1mm. (No annoying level by visual)

3.3 Optical performance

- Focus - "me" pattern characters must be clearly identified at prime modes,

set brightness 50%, set contrast for 25Fl at full white.

- Full white luminance - 29 ± 4 fl (brightness: 50%, contrast: maximum).
- 5x5cm block luminance - 40 ± 5 fl (brightness: 50%, contrast: maximum), check at 9300K only.
- Raster light output (w/o video signal, brightness at 50%, contrast at 0%) - < 0.3 fl (raster has to disappear when brightness set to 0%).
- Raster light output (w/o video signal, brightness at 100%, contrast at 0%) - > 0.3 fl.
- Brightness uniformity - $> 75\%$ (9 block measurements for center to corner).
- Preset 9300K colour - $x = 0.283 \pm 0.015$
 $y = 0.297 \pm 0.015$
- Preset 6500K colour - $x = 0.313 \pm 0.015$
 $y = 0.329 \pm 0.015$
- Preset sRGB colour - $x = 0.313 \pm 0.015$, (brightness set at 23 ± 3 fl)
 $y = 0.329 \pm 0.015$.
- White colour uniformity - < 0.015 (contrast at maximum for center to corner).
- Colour tracking - < 0.020 (set contrast from 10fl to maximum).
- Moire - The clouding effect must not rise to disturbing levels in anywhere of the screen with luminance setting from 15 to contrast 100%.
- Video blanking - During mode change or unstable input signal, the video will be blanking for 1s to 2s, no switching behaviour is visible.
- Local doming - Not allowed.
- Proximity - No on-screen interference can be seen, when two monitors are placed side by side (distance: 30cm) and operate in different modes.

4. Accessories

4.1 Cables

- Power cord (option) - Length: 1.5 M +/- 50 mm

4.2 User's manual

- 8 languages Quick Setup Guide.

4.3 CD-ROM

- User's manual, driver,.....

5. Mechanical

5.1 Cosmetic

Philips ID

5.2 Mechanical data files

ProE files required

5.3 Location of logo

Per Philips make-up sheet

5.4 Location of icons

Per Philips make-up sheet

5.5 Color for resin/paint

Per Philips make-up sheet

5.6 Resins

- RoHS requirements.
- WEEE requirements.

5.7 If paint is used

- RoHS requirements.
- WEEE requirements.

5.8 Plastic mold tooling

- Tooling to be designed to minimize cosmetic defects induced by molding process (sink, blush, weld lines, gate marks, ejector marks, etc.).
- Painting to cover up cosmetic defects due to molding is strongly discouraged.

5.9 Plastics flammability

- All Plastics except Base / Pedestal to be Flame Retardant UL 94-V0 or Better (if monitor weighs less than 18kg; UL94-V0 is OK).
- Base / Pedestal to be Flame Retardant UL 94-HB.
- All major plastic parts (bezel, back cover) need to be molded from same resin. Base / Pedestal otherwise specified.

5.10 Texture/Glossing of housing

- The texture area and texture no should follow Philips make-up sheet.
- The exterior surfaces shall have a uniform texture.
- Philips must approve the mold texturing.
- Detail document for texture refer to UAN-D249.
- ≤ 20 gloss units

5.11 Tilt/Swivel Base ranges

- Tilt Range - Up = $14^\circ \pm 1^\circ$, Down = $3.5^\circ \pm 1^\circ$
- Swivel Range - $\pm 90^\circ$
- Base should not break plastic when attempting to rotate it past the stops.

5.12 Movement of unit with base

- Base must have non-marring, non-staining feet.
- Unit must tilt up and down with no "Stick / Slip".
- Base must provide sufficient friction to hold unit in desired position after adjusting tilt.

5.13 Label

- Regulatory label / Carton label should follow Philips requirement.
- Detail document refer to Philips Engineering Reference Book.

5.14 Product Dimensions / Weight

- Unit dimension (with stand) - 397mm (W) x 382mm (H) x 415mm (D)
- Packed unit dimension (carton) - 460mm (W) x 420mm (H) x 506mm (D) for China, India
446mm (W) x 420mm (H) x 470mm (D) for other regions
- Net weight - 12.5 kg
- Gross weight - 14.8 kg (for China, India)
14.4 kg (for other regions)

5.15 Transportation

Transportation standards refer to UAN-D1534/00 and TYE-M0002.

5.15.1 Transportation packages

Packaging and wrapping shall be sufficient to protect the product against damage or loss during shipment from the supplier to the destination specified in the purchase order. All packaging materials are subject to test and evaluation per TYE-M0002. The cushion material shall be constructed using EPS material.

Carton paper (Double wall AB flute corrugate board, colour brown)

Bursting -	19.3 kgf/cm ² min
Compression -	670 kgf min

5.15.2 Transportation test procedures

The overall test sequence is: vibration test, drop test and when applicable cold drop test. The sequential tests have to be carried out using the same packaging.

Vibration, drop test should be performed at ambient temperature (20°C to 23°C) and relative humidity (40% to 65%).

---DBC test required and refer to TYE-M0002.

- Transportation test specification for all regions except China/India, refer to UAN-D1534/01

Sequential tests:

1. Vibration test
2. Drop test
3. Single package resonance test (optional)
4. Compression test
5. Stacking test (optional)

- Transportation test specification for China/India, refer to UAN-D1534/02

Sequential tests:

1. Vibration test
2. Bump test
3. Drop test
4. Multiple drop tests (after vibration)
5. Cold drop test when applicable (after vibration)
6. Compression test
7. Stacking test (optional)

5.16 Pallet / Container loading

- Air shipment - tbc
- Sea container 20'(pallet/slip sheet) - 300 sets with pallet
310 sets without pallet

- Sea container 40'(pallet/slip sheet) - 630 sets with pallet
635 sets without pallet
- Sea container 40' High Cube (pallet/slip sheet) - 756 sets with slip sheet
- Truck shipment for China - 400 sets

Table 5.16.1. Air shipment container loading

TBC

Table 5.16.2. Sea shipment container loading for China & India

Quantity	Container size											
	40'			20'			40' High Cube			PWHC 45'		
	W/ Pallet		W/ SLIP SHEET	W/ Pallet		W/ SLIP SHEET	W/ Pallet		W/ SLIP SHEET	W/ Pallet		W/ SLIP SHEET
	Yes	No		Yes	No		Yes	No		Yes	No	
Layers	4			4			5					
Sets/Layer (PA)	4			4			4					
Sets/Layer (PB)	2			NA			2					
Sets/Block (PA)	16			16			20					
Sets/Block (PB)	8			NA			10					
Blocks/Container (PA)	24			12			24					
Blocks/Container (PB)	2			NA			2					
Total sets	400			192			500					

Table 5.16.3. Sea shipment container loading for other regions

Quantity	Container size											
	40'			20'			40' High Cube			PWHC 45'		
	W/ Pallet		W/ SLIP SHEET	W/ Pallet		W/ SLIP SHEET	W/ Pallet		W/ SLIP SHEET	W/ Pallet		W/ SLIP SHEET
	Yes	No		Yes	No		Yes	No		Yes	No	
Layers	5		5	5		5	5		6			
Sets/Layer (PA)	6		6	6		6	6		6			
Sets/Layer (PB)	NA		NA	NA		NA	NA					
Sets/Block (PA)	30		30	30		30	30		36			
Sets/Block (PB)	NA		NA	NA		NA	NA					
Blocks/Container (PA)	21		21	10		10	21		21			
Blocks/Container (PB)	NA		NA	NA		NA	NA					
Total sets	630		630	300		300	630		756			

Table 5.16.4. Truck loading for China

TBC

6.0 Reliability / Environment / Transportation**6.1 MTBF prediction** > 100k hours (excluding CRT)**6.2 Demonstration MTBF** > 75k hours (excluding CRT)**6.3 Temperature**

- Operating (guaranteed performance according to spec requirements): 0 to 40 degree
- Storage - -20 to 60 °C
- Shipping - -40 to 65 °C

6.4 Humidity

- Operating (non-condensing) - 5 to 90%
- Storage (non-condensing) - 5 to 95%
- Shipping (non-condensing) - 5 to 95%

6.5 Altitude

- Operating - 0 to 10,000 ft
- Storage - 0 to 35,000 ft
- Shipping - 0 to 35,000 ft

6.6 Air pressure

- Operating - 700 to 1100 mbar
- Storage - 300 to 1100 mbar
- Shipping - 300 to 1100 mbar

6.7 Earth magnetic field

North Hemispheric	H=0, V=450, Z=0mG
South Hemispheric	H=0, V= -500, Z=0mG
Equatorial	H=0, V=0, Z=0mG

7. Regulatory Compliance**7.1 Worldwide regulatory -**

International Regulatory Specification			
Country	Domain	Safety / Emc / Ergonomics / Standards	Documents
INTERNATIONAL	Sa	IEC60950-1: 2001. Group -and national differences of all countries listed in CB Bulletin No. 107A	CB Report and CB certificate
EUROPE	Sa	European Low Voltage Directives 73/23/EEC and 93/68/EEC	Declaration of Conformity
	E	European Electromagnetic Compatibility Directive 89/336/EEC amended by the directive 93/68/EEC. EN 55022:1998 Class B	Declaration of Conformity and Full EMC/CE test report
		EN 55024: 1998	
		EN 61000-3-2: 2000	
		IEC 61000-3-3: 1994/EN61000-3-3: 1995	
		CISPR 22:1997 Class B International EMC standard	
GERMANY	Sa	EN60950-1: 2001	TUV certificate
	O	ISO 9241-3-7-8 (CRT) & 13406-2 (LCD), prEN 50279:1998	TUV-ERG certificate
	O	GS-Mark / EK1-ITB 2000	TUV-GS certificate
	X	Decree ROV 08.01.87 (CRT)	PTB
SWEDEN	Sa	EN60950-1: 2001	SEMKO certificate
	O	TCO 99 (TCO03) (to TCO models)	TCO99 (TCO03) report + certificate
	O	MPR 1990: 8 / MPR 1990:10 (to MPR models)	Meet requirement
RUSSIA	Sa	GOST R 50377-1992	GOST certificate
SOUTH AFRICA	Sa	SABS IEC 60950 and IEC 60950-1	Certificate of Conformity
	E	EN55022 or Cisper 22	Certificate of Conformity
USA	Sa	UL 60950-1: 2003	UL certificate
	E	FCC Part 15 Class B	FCC ID grant or DOC
	O	Energy Star	EPA registration
	X	21CFR 1002.10 to 13 (CRT)	DHHS report
CANADA	Sa	CSA C22.2 No 60950	CSA certificate
	E	ICES-003 issue 3	Statement on label
	E	RED (CRT)	DNHW
MEXICO	Sa	NOM-019-SCFI-1994	NOM certificate
KOREA	Sa	Korean Safety Control law IEC 60950	eK certificate
	E	Regulations laws: EMI 1996-78, 80. EMS 1996-79,81	MIC certificate

SINGAPORE	Sa	IEC60950	PSB certificate
CHINA	Sa	GB4943-2001	CCC certificate
	E	GB9254-1998; 17625.1-2003	
	O	CSC/G1205-2004	CECP certificate
TAIWAN	Sa	CNS-14336 (IEC 60950-1)	BSMI certificate
	E	CNS-13438 (CISPR22) Class B	
	O	Criteria 18 (Monitor) (LCD)	Green Mark / certificate
AUSTRALIA/ NEW-ZEALAND	E	AS/NZS3548: 1995	Declaration of Conformity
ISRAEL	S	IS 1121, IEC60950/IEC60950-1	Certificate of Conformity
	E	EN or Cisper 22	Certificate of Conformity
Saudi Arabia	S	IEC standard	SASO
	E	IEC standard	SASO
Japan	Sa	EN60950-1:001 (AC adapter only)	PSE
	E	VCCI class B (CISPR 22)	VCCI Certificate
Argentina	Sa	EN60950-1: 2001	IRAM
Sa = Safety			
E = Electromagnetic Compatibility			
O = Other which including recycling, energy saving, ergonomics			
X = X-ray			
For detailed regulatory items please refer to the international regulatory specification provided by Philips.			

7.2 EMC requirements

Supplier DVT EMI test result must be submitted prior to DVT samples delivery, and PVT EMI test result must be submitted again prior to PVT samples delivery. Which also has to meet Philips' immunity testing specification.

7.3 MPR II / TCO

CTV	Front Bezel Color	Back Cover Color	MPRII	TCO-99	TCO-03
107E70	Grey	Grey	X	X	Y
107E71	Grey	Grey	Y	X	X
107E76	Black	Black	Y	X	X

7.4 RoHS

Restriction on the use of certain hazardous substances.

Lead, Cadmium, Mercury, Hexavalent Chromium, Polybrominated Biphenyl (PBB) and Polybrominated Biphenyl Ether (PBDE) (flame retardant).

7.5 WEEE

Producer's responsibility for retailer takes back schemes and recycling.

--System implemented.

--Collection and recycle targets.

7.6 Ongoing regulatory

There's a possibility that other regulatory certificates will be required during the life of the product. It is the responsibility of the supplier to provide related documentation.