

Service
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170A7

Service Manual

Horizontal Frequency
30- 83KHz

TABLE OF CONTENTS

Description	Page	Description	Page
Table Of Contents.....	1	6. Schematic Diagram.....	25
Revision List.....	2	6.1 Main Board.....	25
Important Safety Notice.....	3	6.2 Power Board.....	29
1. Monitor Specifications.....	4	6.3 Key Board.....	31
2. LCD Monitor Description.....	5	6.4 Audio Board.....	32
3. Operation instructions.....	6	7. PCB Layout.....	33
3.1 General Instructions.....	6	7.1 Main Board.....	33
3.2 Control buttons.....	6	7.2 Power Board.....	36
3.3 Adjusting the Picture.....	7	7.3 Key Board.....	38
3.4 Connecting to your PC.....	11	7.4 Audio Board.....	39
4. Input/Output Specification.....	12	8. Wiring Diagram.....	40
4.1 Input Signal Connector.....	12	9. Mechanical Instructions.....	41
4.2 Factory Preset Display Mode.....	12	10. Trouble shooting.....	46
4.3 Panel Specification.....	13	11. Repair Flow Chart.....	48
4.4 Pixel Defect Policy.....	17	12. ISP Instructions.....	53
5. Block Diagram.....	20	13. DDC Instructions.....	59
5.1 Monitor Exploded View.....	20	14. White Balance, Luminance Adjustment.....	66
5.2 Software Flow Chart.....	21	15. Spare Parts List.....	67
5.3 Electrical Block Diagram.....	23	16. General Product Specification.....	81

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

Important Safety Notice

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.

Take care during handling the LCD module with backlight unit

-Must mount the module using mounting holes arranged in four corners.

-Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.

-Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.

-Protect the module from the ESD as it may damage the electronic circuit (C-MOS).

-Make certain that treatment person's body is grounded through wristband.

-Do not leave the module in high temperature and in areas of high humidity for a long time.

-Avoid contact with water as it may a short circuit within the module.

-If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

1. Monitor Specifications

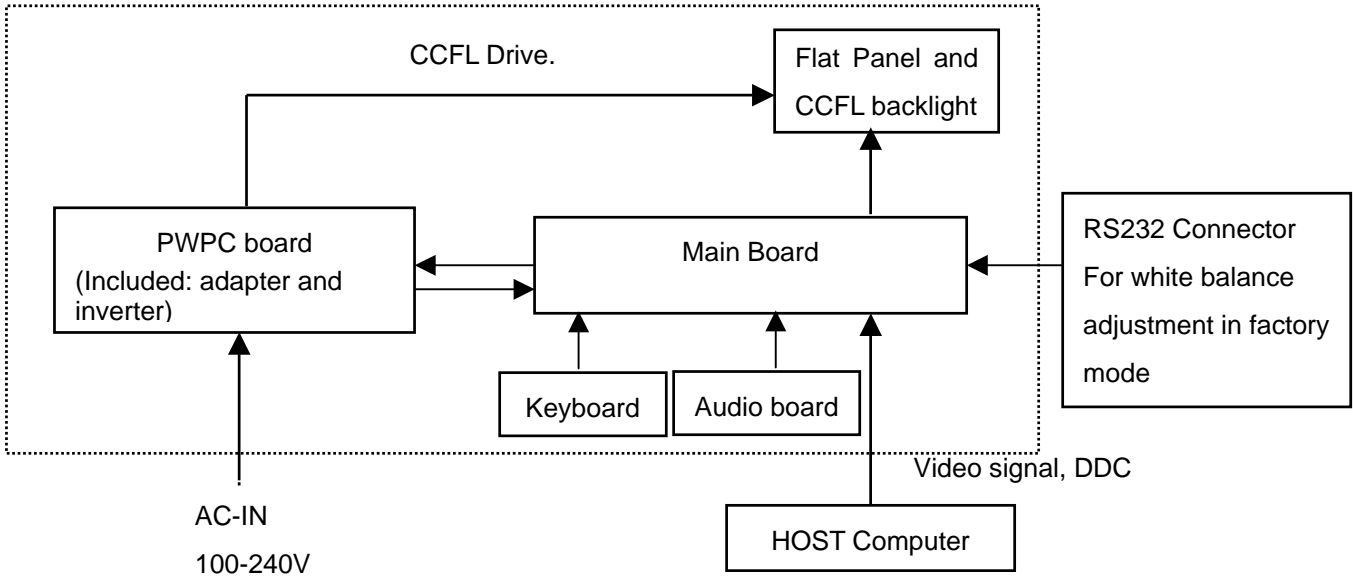
LCD Panel	Screen type	Active matrix - TFT LCD
	Panel Type	LM170E01-TLBB (LPL) QD17EL07-Rev11 (QDI)
	Size	430mm (17.0")
	Pixel pitch	0.264mm(H) x 0.264mm(V)
	Viewable angle (CR>=10)	Horizontal ±70°, Vertical +75°,-65° (CR > 10) (LPL) Horizontal ±70°, Vertical +65°,-60° (CR > 10) (QDI)
	Response time	8 ms (type) (LPL) 8 ms (type) (QDI)
Input	Video	R, G, B Analog Interface
	Separate Sync	TTL level, input impedance 2.2k OHM terminate
	Horizontal Frequency	30kHz – 83kHz
	Vertical refresh rate	56 - 76Hz
Display Colors		16.2 M
Video dot rate		140 MHz
Maximum Resolution		1280 x 1024 at 76Hz (analog input)
Recommended Resolution		1280 x 1024 at 60Hz (analog input)
Plug & Play		VESA DDC2B
Power Consumption		Power on: < 33 W Power off: < 1 W
Input Connector		D -Sub 15pin
Input Video Signal		0.7 Vp-p, input impedance, 75 ohm @DC
Audio	Loudspeaker	2W RMS x 2 Stereo Speakers
	Input signal connector	3.5mm mini jack
	Frequency range	320Hz - 13KHz
Tilt		-5° ~ 25°
Maximum Screen Size		Horizontal: 337.9mm;Vertical: 270.3 mm
Power Source		100-240 VAC, 50/60 Hz
Environmental Considerations		Operating Temp: 5°C to 40°C Storage Temp.: -20°C to 60°C Relative Humidity: 20%-80% Max
Weight (Net)		4.8kg
Cabinet color		170A7FG:Light Gray 170A7FB:Black 170A7FS:Silver

2. LCD Monitor Description

The LCD MONITOR will contain a main board, POWER board, keypad board, which house the flat panel control logic, brightness control logic and DDC.

The power board will provide AC to DC Inverter voltage to drive the backlight of panel and the main board chips each voltage.

Monitor Block Diagram



3. Operation instructions

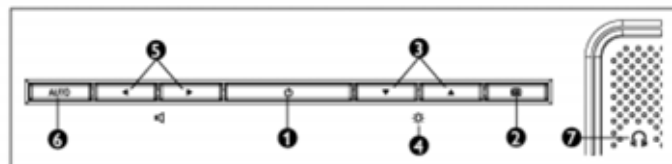
3.1 General Instructions






Press the power button to turn the monitor on or off. The other control buttons are located at front panel of the monitor. By changing these settings, the picture can be adjusted to your personal preferences.

- The power cord should be connected.
- Connect the video cable from the monitor to the video card.
- Press the power button to turn on the monitor, the power indicator will light up.

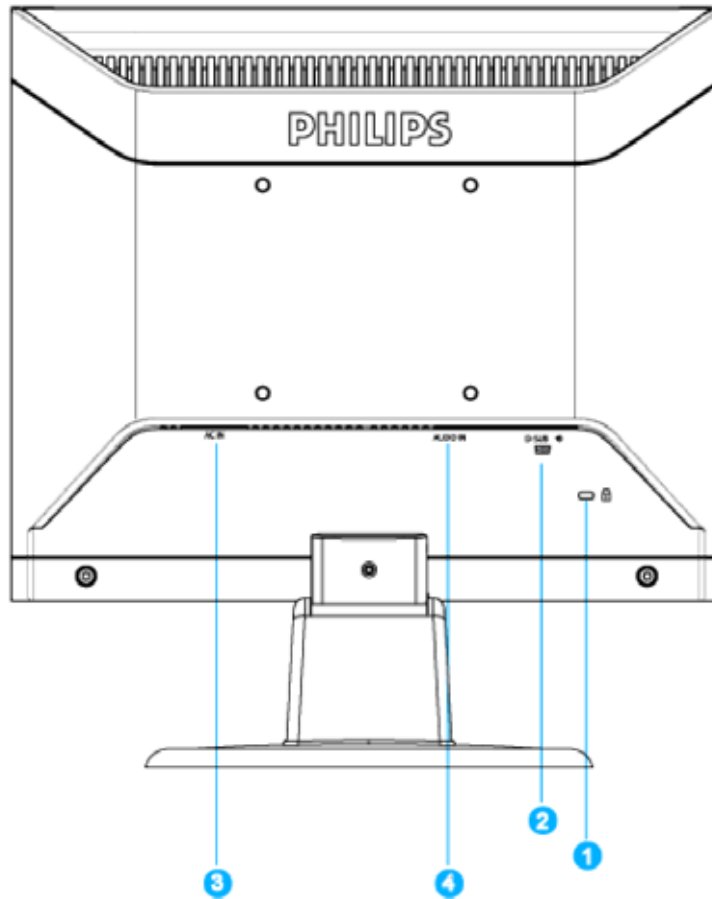
3.2 Control Buttons

Front View



- 1  To switch monitor's power On and Off
- 2  To access OSD menu
- 3  To adjust the OSD
- 4  To adjust brightness of the display
- 5  To adjust the volume or OSD of the display
- 6 **AUTO** Automatically adjust the horizontal position, vertical position, phase and clock settings.




Back View

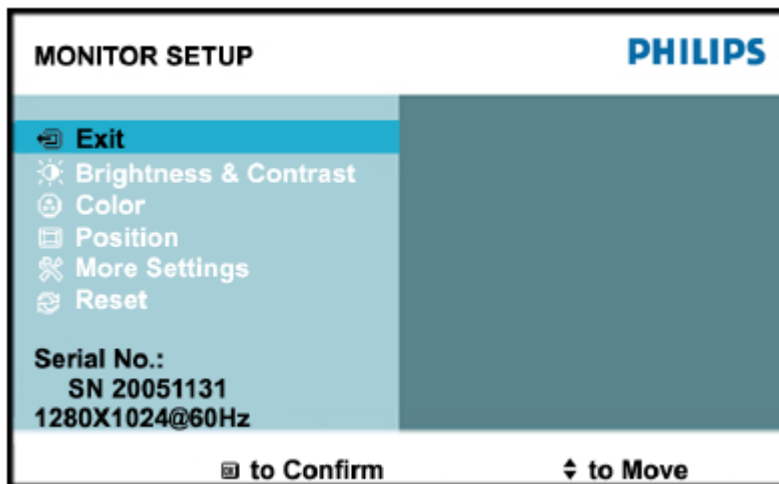


- 1 Kensington anti-thief lock
- 2 VGA input
- 3 AC power input
- 4 PC Audio input

3.3 Adjusting the Picture

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

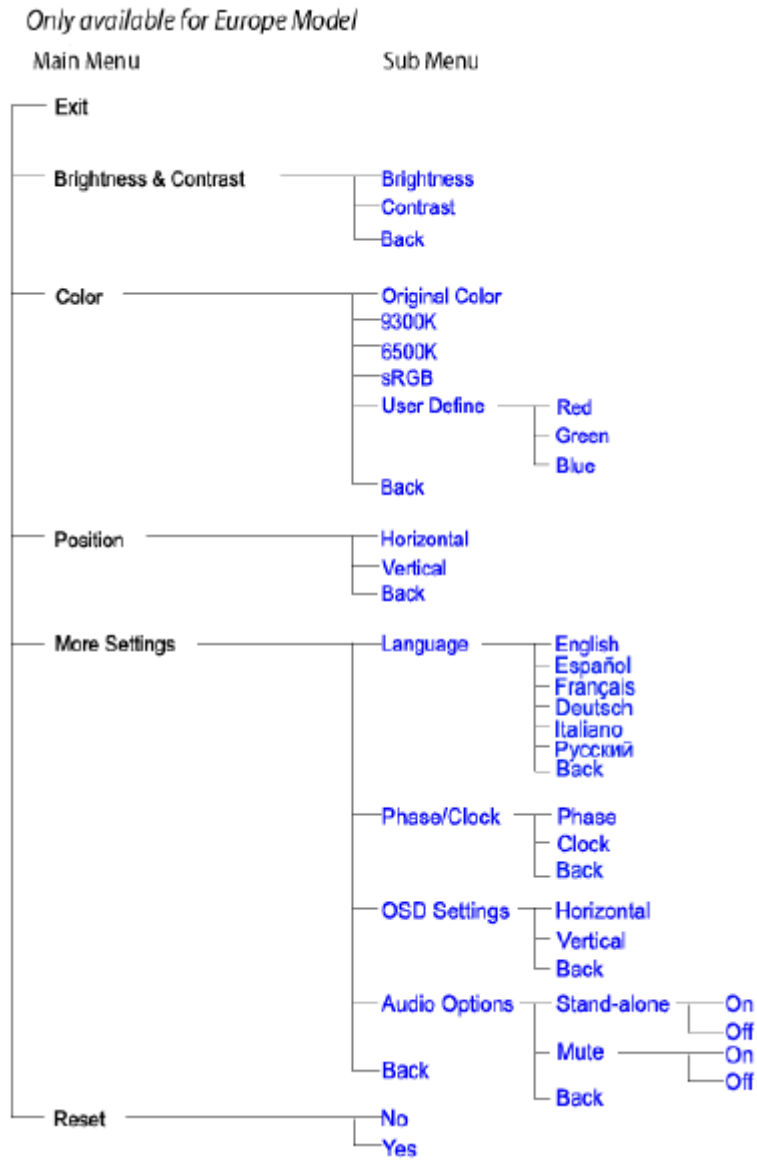
When you press the  button on the front control of your monitor, the On-Screen Display (OSD) main controls window will pop up and you can then start making adjustments to your monitor's various features. Use the  or the  keys to make your adjustments.



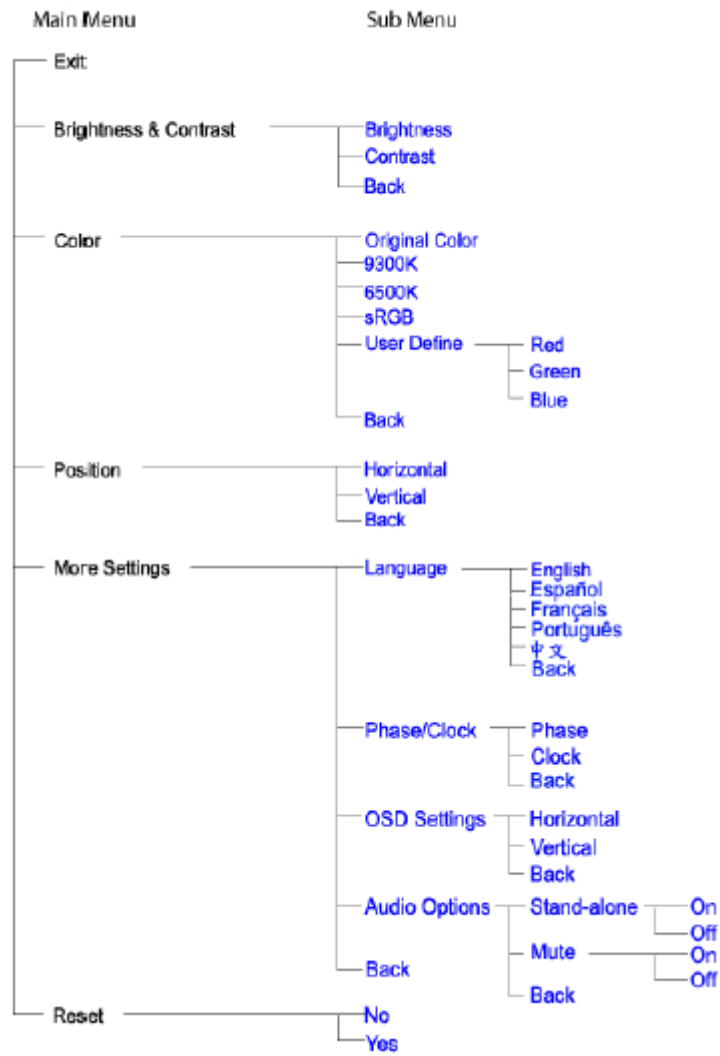
17" LCD Color Monitor

The OSD tree

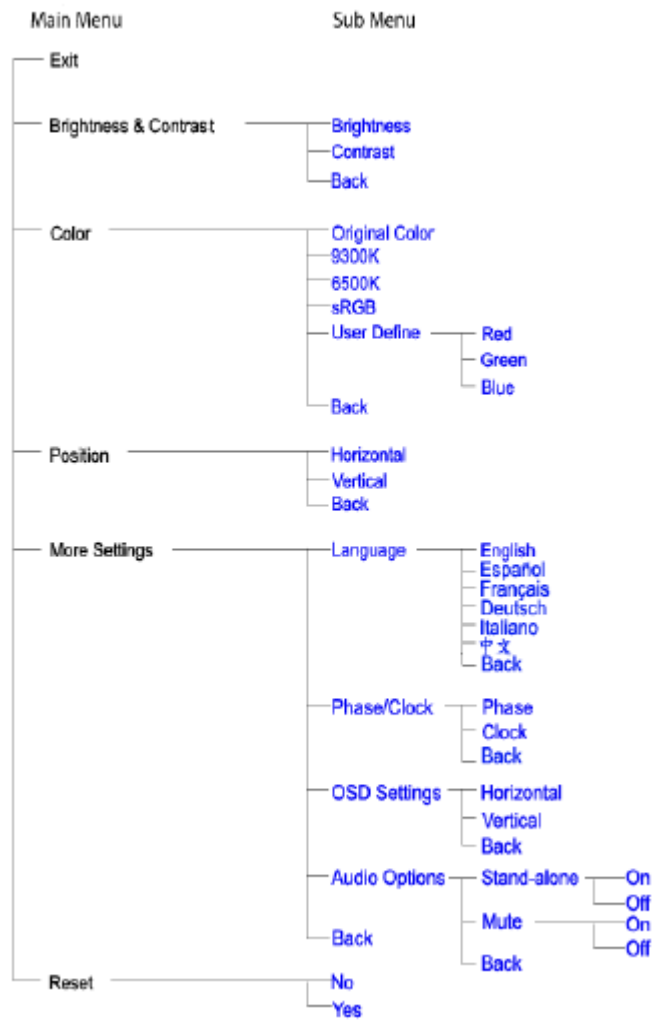
Below is an overall view of the structure of the On-Screen Display. You can use this as a reference when you want to work your way around the different adjustments later on.



Only available for Nafta Model

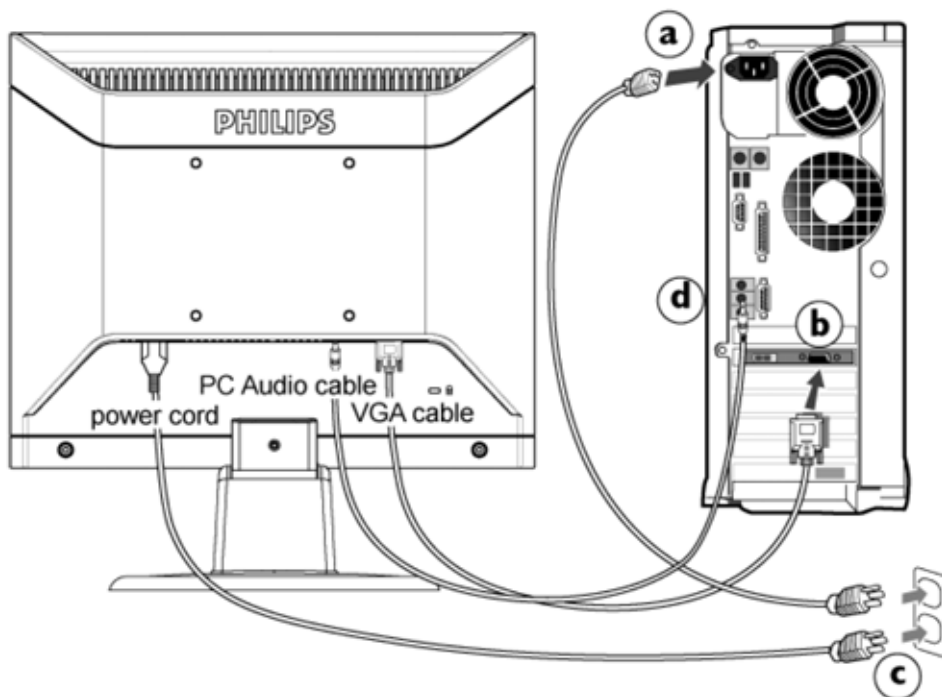
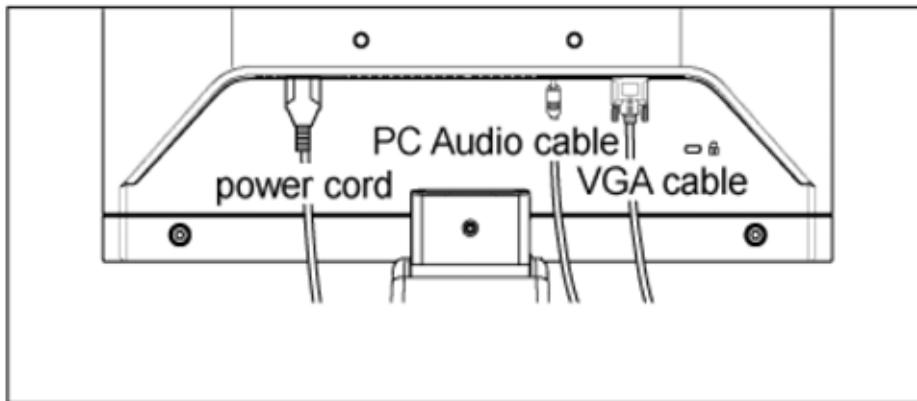


Only available for Asia Pacific Model



3.4 Connecting to the PC

1) Connect the power cord to the back of the monitor firmly. (Philips has pre-connected VGA cable for the first installation.)

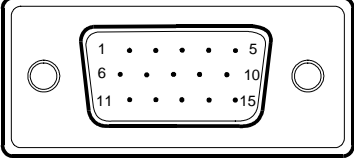


2) Connect to PC

- (a) Turn off your computer and unplug its power cable.
- (b) Connect the monitor signal cable to the video connector on the back of your computer.
- (c) Plug the power cord of your computer and your monitor into a nearby outlet.
- (d) Connect the PC audio cable to the audio connector on the back of your computer.
- (e) Turn on your computer and monitor. If the monitor displays an image, installation is complete.

4. Input/Output Specification

4.1 Input Signal Connector

Pin NO.	Description	Pin NO.	Description
1.	Red Video input	9.	DDC +5V
2.	Green Video input (SOG)	10.	Logic GND
3.	Blue Video input	11.	Ground
4.	Sense (GND)	12.	Serial data line (SDA)
5.	Cable Detect	13.	H.sync/H + V.sync
6.	Red Video Ground	14.	V.Sync
7.	Green Video Ground	15.	Data Clock Line (SCL)
8.	Blue Video Ground		
VGA Connector layout			
			

4.2 Factory Preset Display Modes

H. freq (kHz)	Resolution	V. freq (Hz)
31.469	720*400	70.087
31.469	640*480	59.940
37.861	640*480	72.809
37.500	640*480	75.000
35.156	800*600	56.250
37.879	800*600	60.317
48.077	800*600	72.188
46.875	800*600	75.000
48.363	1024*768	60.004
56.476	1024*768	70.069
60.023	1024*768	75.029
67.500	1152*870	75.000
60.000	1280*960	60.000
63.981	1280*1024	60.020
79.976	1280*1024	75.025
35.000	640*480	67.000
49.700	832*624	75.000

4.3 Panel Specification

4.3.1 Display Characteristics

LM170E01-TLBB Panel

Active screen size	17.0 inch (43.27cm) diagonal
Outline Dimension	358.5(H) x 296.5(V) x 17.0(D) mm(Typ.)
Pixel Pitch	0.264 mm x 0.264 mm
Pixel Format	1280 horiz. by 1024 vert. Pixels. RGB stripe arrangement
Display Colors	16.2M colors
Luminance, white	300 cd/m ² (Typ. Center 1 point)
Power Consumption	19.6 Watts(Typ.)
Weight	2150g (Typ.)
Display operating mode	Transmissive mode, normally white
Surface treatments	Hard coating (3H), Anti-glare treatment of the front polarizer

QD17EL07 Panel

Parameter	Specifications	Unit
Display size	43(17") Diagonal	mm
Active area	337.9(H) × 270.3(V)	mm
Pixel format	1280 (H) × 1024(V)	Pixel
	(1 pixel = R+G+B dots)	
Pixel pitch	0.264(H) × 0.264 (V)	mm
Pixel configuration	R, G, B vertical stripe	
Display mode	Normally white	
Unit outline dimensions (typ.)*1	296.5(W) × 358.5(H) × 17(T)max.	mm
Mass	1700 max.	g
Surface treatment	Anti-glare and hard-coating 3H	

4.3.2 Optical Characteristics

LM170E01-TLBB Panel

Parameter	Symbol	Values			Units
		Min.	Typ.	Max.	
Contrast ratio	CR	500	700	-	
Surface luminance, white	L_{WH}	250	300	-	cd/m ²
Luminance uniformity	ΔL_{ϕ}	75	-	-	%
Response time	T_r		8	16	ms
Rise time	T_{rR}	-	2	4	
Decay time	T_{rD}	-	6	12	
CIE color coordinates					
Red	XR	0.605	0.635	0.665	
	YR	0.312	0.342	0.372	
Green	XG	0.262	0.292	0.322	
	YG	0.581	0.611	0.641	
Blue	XB	0.117	0.147	0.177	
	YB	0.040	0.070	0.100	
White	XW	0.283	0.313	0.343	
	YW	0.299	0.329	0.359	
Viewing angle (by CR ≥ 10)					
X axis, right ($\phi=0^\circ$)	θ_r	60	70	-	degree
X axis, left ($\phi=180^\circ$)	θ_l	60	70	-	
Y axis, up ($\phi=90^\circ$)	θ_u	60	75	-	
Y axis, down ($\phi=270^\circ$)	θ_d	50	65	-	
Viewing angle (by CR ≥ 5)					
X axis, right ($\phi=0^\circ$)	θ_r	70	80	-	degree
X axis, left ($\phi=180^\circ$)	θ_l	70	80	-	
Y axis, up ($\phi=90^\circ$)	θ_u	70	85	-	
Y axis, down ($\phi=270^\circ$)	θ_d	60	75	-	
Relative brightness					
Luminance uniformity (TCO99)		-	-	1.7	

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Viewing Angle Range	Horizontal	$\theta 21, \theta 22$	CR>10	60	70		Deg.
	Vertical	$\theta 11$		55	65		Deg.
		$\theta 12$		50	60		Deg.
	Horizontal	$\theta 21, \theta 22$	CR>5	70	80		Deg.
	Vertical	$\theta 11$		65	75		Deg.
		$\theta 12$		60	70		Deg.
Contrast ratio		CRn	$\theta = 0^\circ$	400	600	—	
Response time		τ	$\theta = 0^\circ$	—	8	16	ms
Rise time	τr				2		ms
Fall time	τd				6		ms
Chromaticity of White (CIE 1931)		Wx		0.283	0.313	0.343	
		Wy		0.299	0.329	0.359	
Chromaticity of Red (CIE 1931)		Rx		0.612	0.642	0.672	
		Ry		0.311	0.341	0.371	
Chromaticity of Green (CIE 1931)		Gx		0.249	0.279	0.309	
		Gy		0.580	0.610	0.640	
Chromaticity of Blue (CIE 1931)		Bx		0.113	0.143	0.173	
		By		0.053	0.083	0.113	
Luminance of white		YL		220	270		Cd/m ²
White Uniformity		δW		—	1.25	1.3	

4.3.3 Electrical Characteristics

LM170E01-TLBB Panel

The LM170E01-TLBB requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. Another which powers the CCFL, is typically generated by an inverter. The inverter is an external unit to the LCD.

Parameter	Symbol	Values			Units
		Min.	Typ.	Max.	
MODULE :					
Power Supply Input Voltage	V_{CC}	4.5	5.0	5.5	V
Permissive Power Input Ripple	V_{RF}	-	-	0.1	V
Power Supply Input Current	I_{CC}	-	0.54	0.63	A
Differential Impedance	Z_m	90	100	110	ohm
Power Consumption	P_C	-	2.7	3.15	Watts
Rush Current	I_{RUSH}	-	2.0	3.0	A
LAMP for each CCFL:					
Operating Voltage	V_{BL}	640	650	740	V_{RMS}
Operating Current	I_{BL}	(@7.0mA)	(@6.5mA)	(@3.0mA)	mA_{RMS}
Established Starting Voltage	V_{BS}	2.5	6.5	7.0	mA_{RMS}
at 25 °C		-	-	1000	V_{RMS}
at 0 °C		-	-	1250	V_{RMS}
Operating Frequency	f_{BL}	40	60	70	kHz
Discharge Stabilization Time	T_S	-	-	3	Minutes
Power Consumption	P_{BL}	-	16.90	18.60	Watts
Life Time		50,000	-	-	Hrs

QD17EL07 Panel

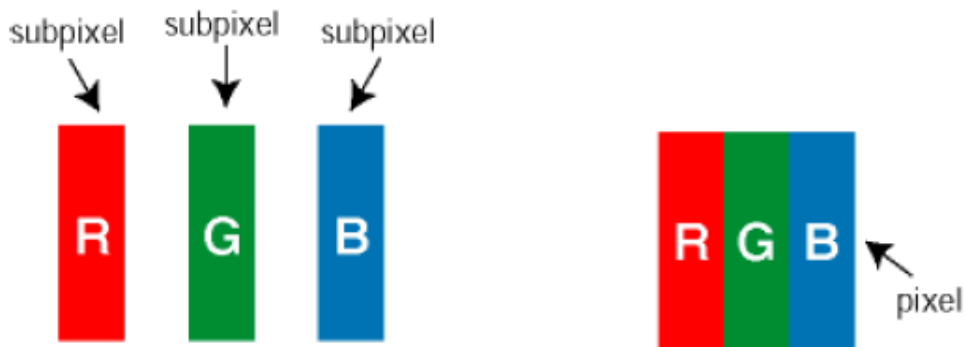
Parameter		Sym.	Min.	Typ.	Max.	Unit	Remark
VDD	Supply voltage	VDD	+4.5	+5.0	+5.5	V	【Note2】
Current dissipation	@ Full Back pattern	IDD	-	760	1200	mA	【Note3】
	@ Full White pattern		-	480		mA	
	@ 1-line on/off pattern		-	700		mA	
	@ 1-dot on/off pattern		-	860		mA	
	@ Mosaic pattern		-	630		mA	
Permissive input ripple voltage		V_{RP}	-	-	100	mV p-p	VDD=+5.5V
Differential input Threshold voltage	High	V_{TH}	-	-	+100	mV	$V_{CM}=+1.2V$ 【Note1】
	Low	V_{TL}	-100	-	-	mV	
Terminal resistor		R_T	-	100	-	Ω	Differential input
Rush current		I_{RUSH}			3	A	Rise time 470uS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Lamp current range	I_L	4.0	7.0	8.0	mA_{RMS}	【Note1】
Lamp voltage	V_L	550.8	612	673.2	V_{rms}	
Lamp power consumption	P_L	-	4.28	-	W	【Note2】
Lamp frequency	F_L	-	47	-	kHz	【Note3】
Kick-off voltage	V_s	-	-	1200	V_{rms}	$T_a=25^\circ C$
		-	-	1500	V_{rms}	$T_a=0^\circ C$ 【Note4】
Lamp life time	L_L	40000	50000	-	hour	【Note5】

4.4 Pixel Defect Policy

Philips' Flat Panel Monitors Pixel Defect Policy

Philips strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practice stringent quality control. However, pixel or sub pixel defects on the TFT LCD panels used in flat panel monitors are sometimes unavoidable. No manufacturer can guarantee that all panels will be free from pixel defects, but Philips guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty. This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels. For example, no more than 0.0004% of the sub pixels on a 17" XGA monitor may be defective. Furthermore, Philips sets even higher quality standards for certain types or combinations of pixel defects that are more noticeable than others. This policy is valid worldwide.



Pixels and Sub pixels

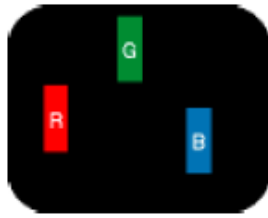
A pixel, or picture element, is composed of three sub pixels in the primary colors of red, green and blue. Many pixels together form an image. When all sub pixels of a pixel are lit, the three colored sub pixels together appear as a single white pixel. When all are dark, the three colored sub pixels together appear as a single black pixel. Other combinations of lit and dark sub pixels appear as single pixels of other colors.

Types of Pixel Defects

Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel

defects and several types of sub pixel defects within each category.

Bright Dot Defects Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. That is, a *bright dot* is a sub-pixel that stands out on the screen when the monitor displays a dark pattern. There are the types of bright dot defects:



One lit red, green or blue sub pixel



Two adjacent lit sub pixels:

- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)

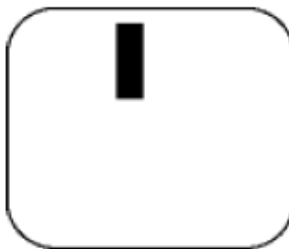


Three adjacent lit sub pixels (one white pixel)



A red or blue *bright dot* must be more than 50 percent brighter than neighboring dots while a green *bright dot* is 30 percent brighter than neighboring dots.

Black Dot Defects Black dot defects appear as pixels or sub pixels that are always dark or 'off'. That is, a *dark dot* is a sub-pixel that stands out on the screen when the monitor displays a light pattern. These are the types of black dot defects:



One dark sub pixel



Two or three adjacent dark sub pixels

Proximity of Pixel Defects

Because pixel and sub pixels defects of the same type that are near to one another may be more noticeable, Philips also specifies tolerances for the proximity of pixel defects.

Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a Philips flat panel monitor must have pixel or sub pixel defects exceeding the tolerances listed in the following tables.

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL
<i>MODEL</i>	170A7
1 lit subpixel	3
2 adjacent lit subpixels	1
3 adjacent lit subpixels (one white pixel)	0
Distance between two bright dot defects*	>15mm
Total bright dot defects of all types	3

BLACK DOT DEFECTS	ACCEPTABLE LEVEL
<i>MODEL</i>	170A7
1 dark subpixel	4
2 adjacent dark subpixels	2
3 adjacent dark subpixels	0
Distance between two black dot defects*	>15mm
Total black dot defects of all types	4

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL
<i>MODEL</i>	170A7
Total bright or black dot defects of all types	5

Note:

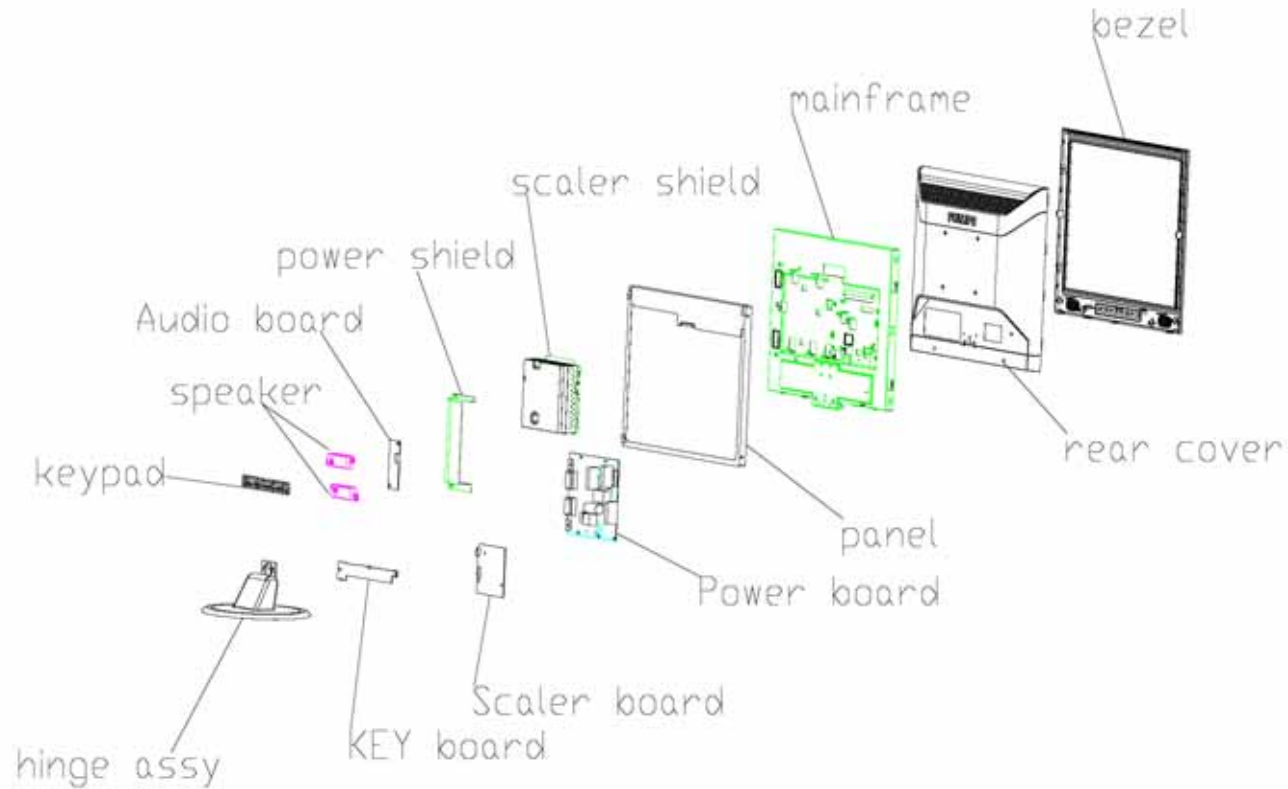
* 1 or 2 adjacent sub pixel defects = 1 dot defect

Your Philips monitor is ISO13406-2 Compliant

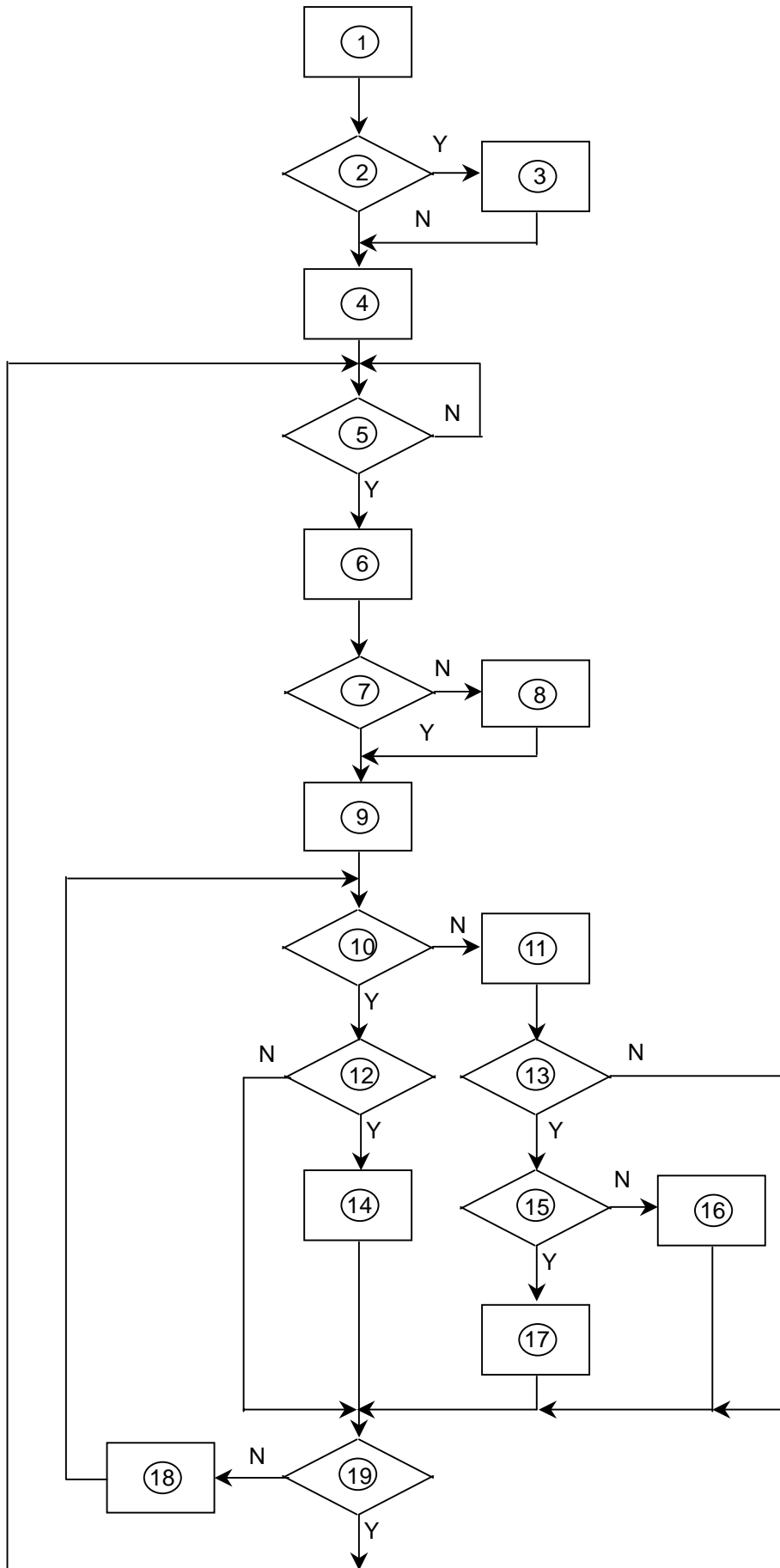
5. Block Diagram

5.1 Monitor Exploded View

explode for 170A7



5.2 Software Flow Chart



17" LCD Color Monitor

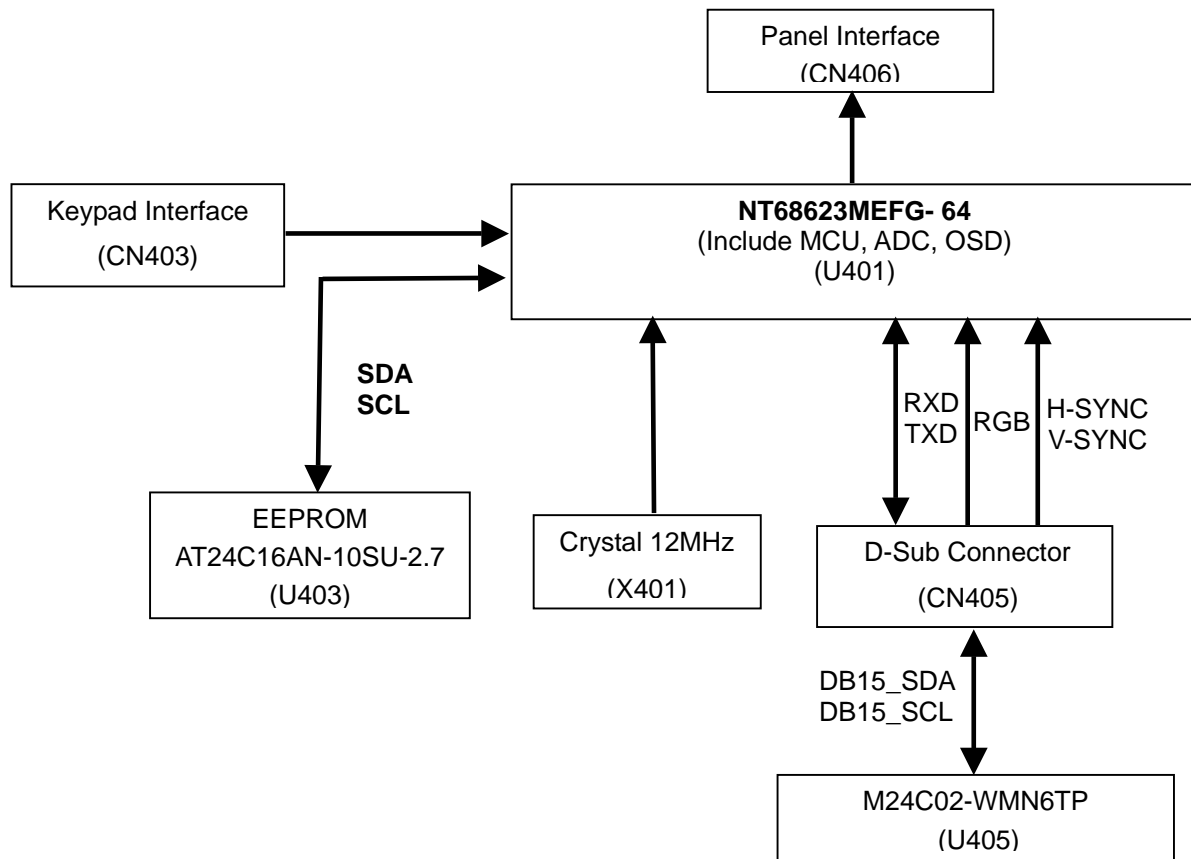
- 1) MCU Initializes.
- 2) Is the EEprom blank?
- 3) Program the EEprom by default values.
- 4) Get the PWM value of brightness from EEprom.
- 5) Is the power key pressed?
- 6) Clear all global flags.
- 7) Are the AUTO and SELECT keys pressed?
- 8) Enter factory mode.
- 9) Save the power key status into EEprom.

Turn on the LED and set it to green color. Scalar initializes.

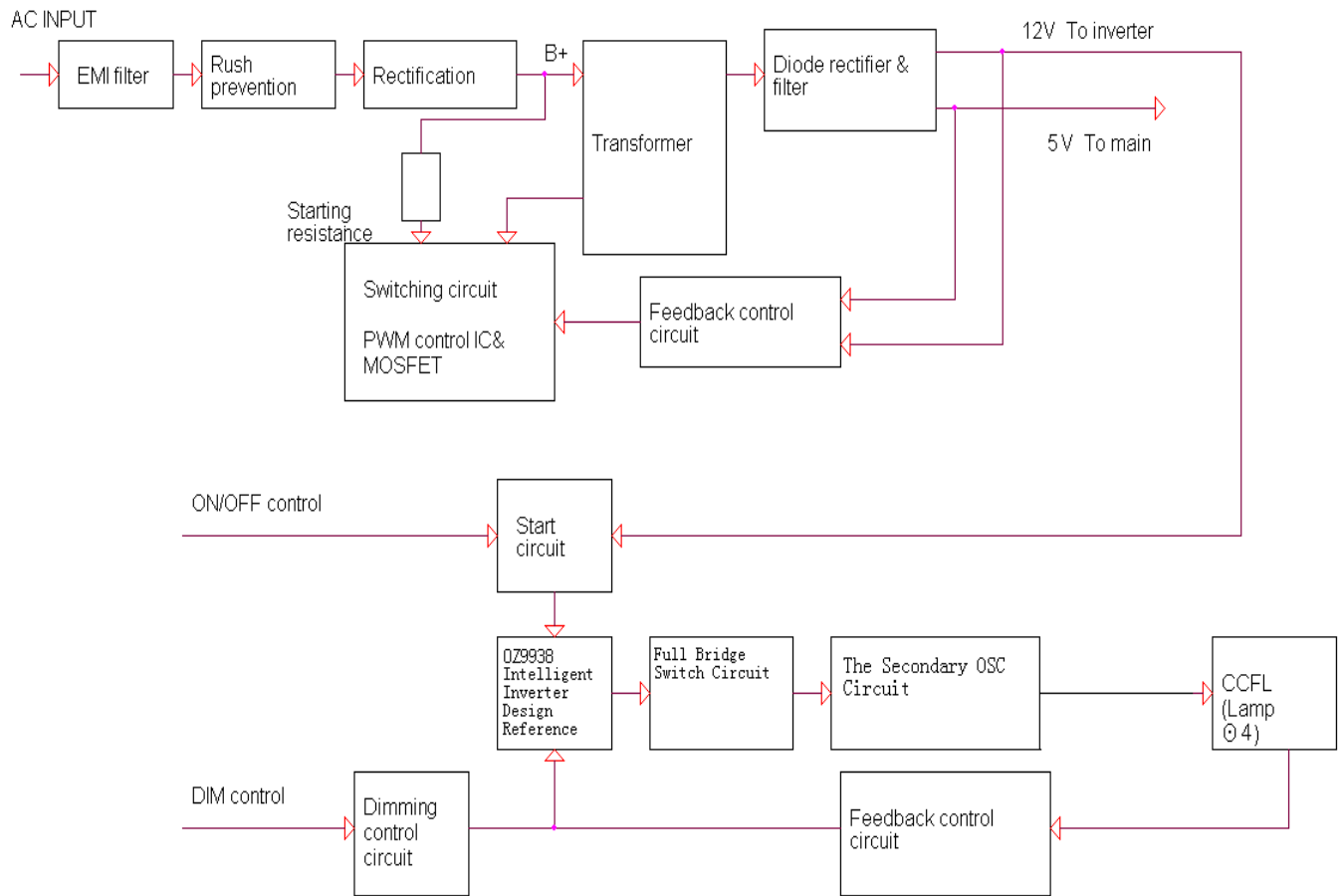
- 10) In standby mode?
- 11) Update the lifetime of back light.
- 12) Check the analog port, are there any signals coming?
- 13) Does the scalar send out an interrupt request?
- 14) Wake up the scalar.
- 15) Are there any signals coming from analog port?
- 16) Display "No connection Check Signal Cable" message. And go into standby mode after the message disappears.
- 17) Program the scalar to be able to show the coming mode.
- 18) Process the OSD display.
- 19) Read the keyboard. Is the power key pressed?

5.3 Electrical Block Diagram

5.3.1 Main Board

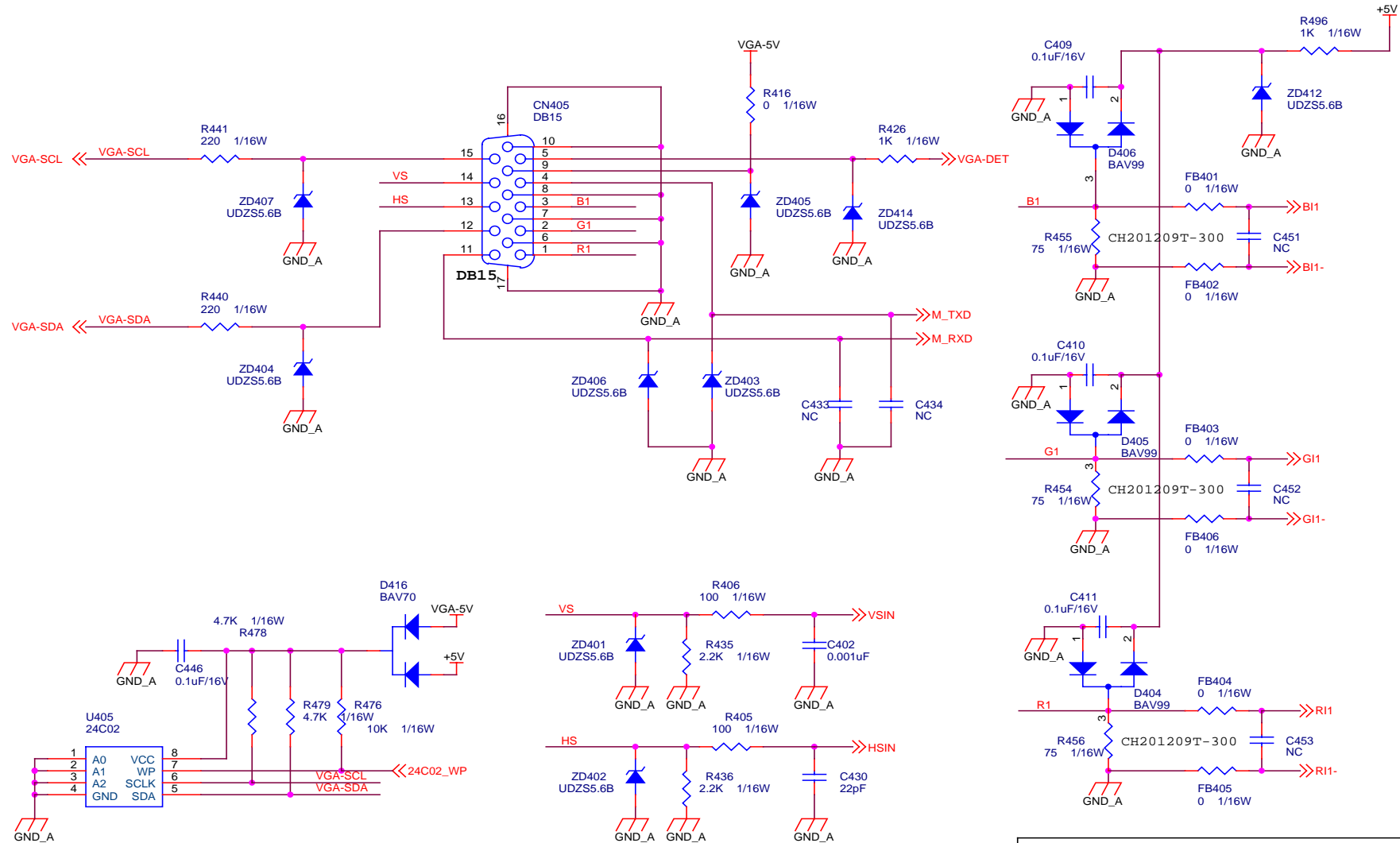


5.3.2 Inverter/Power Board



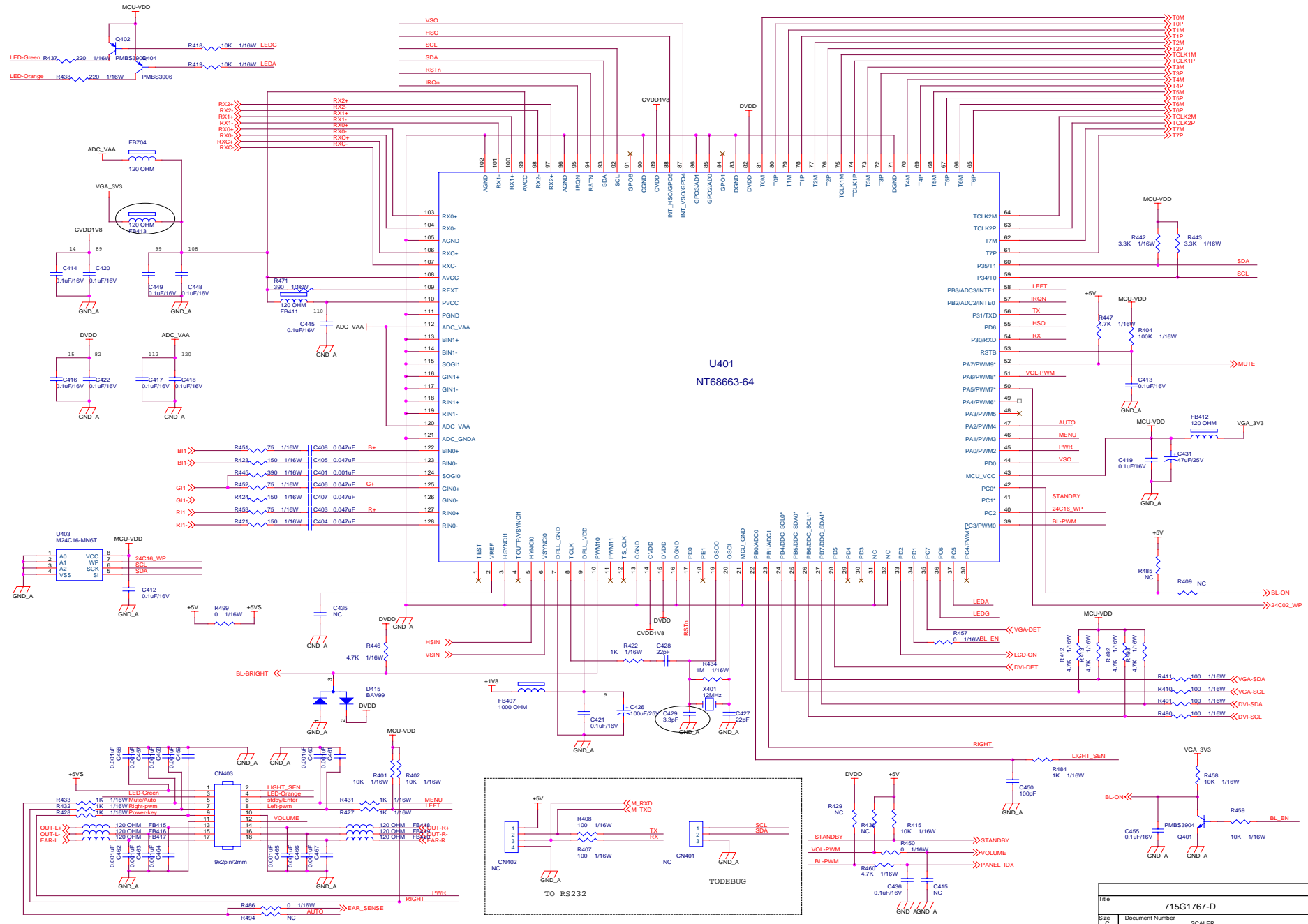
6. Schematic Diagram

6.1 Main Board

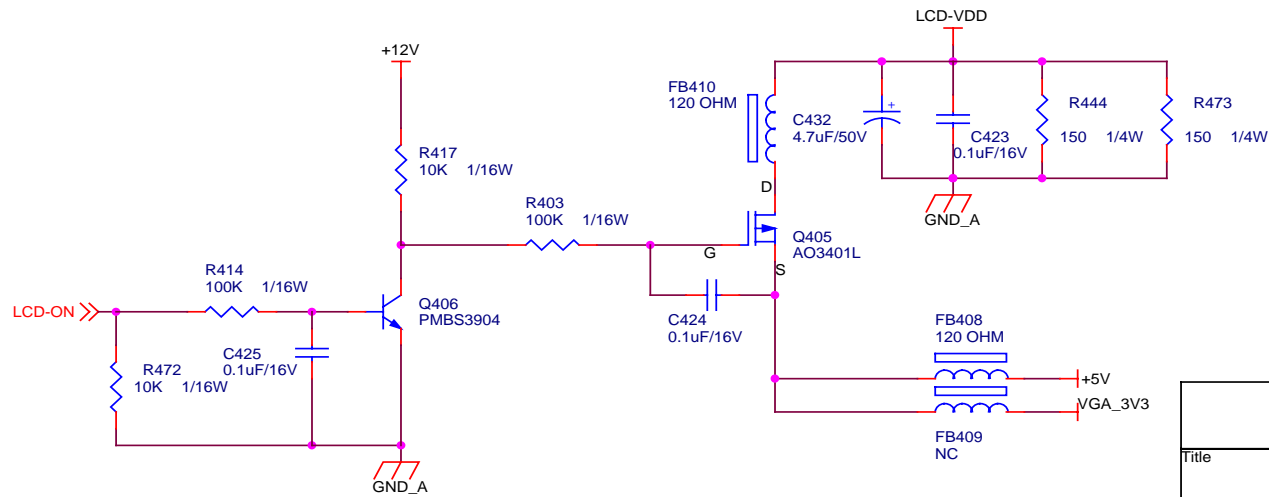
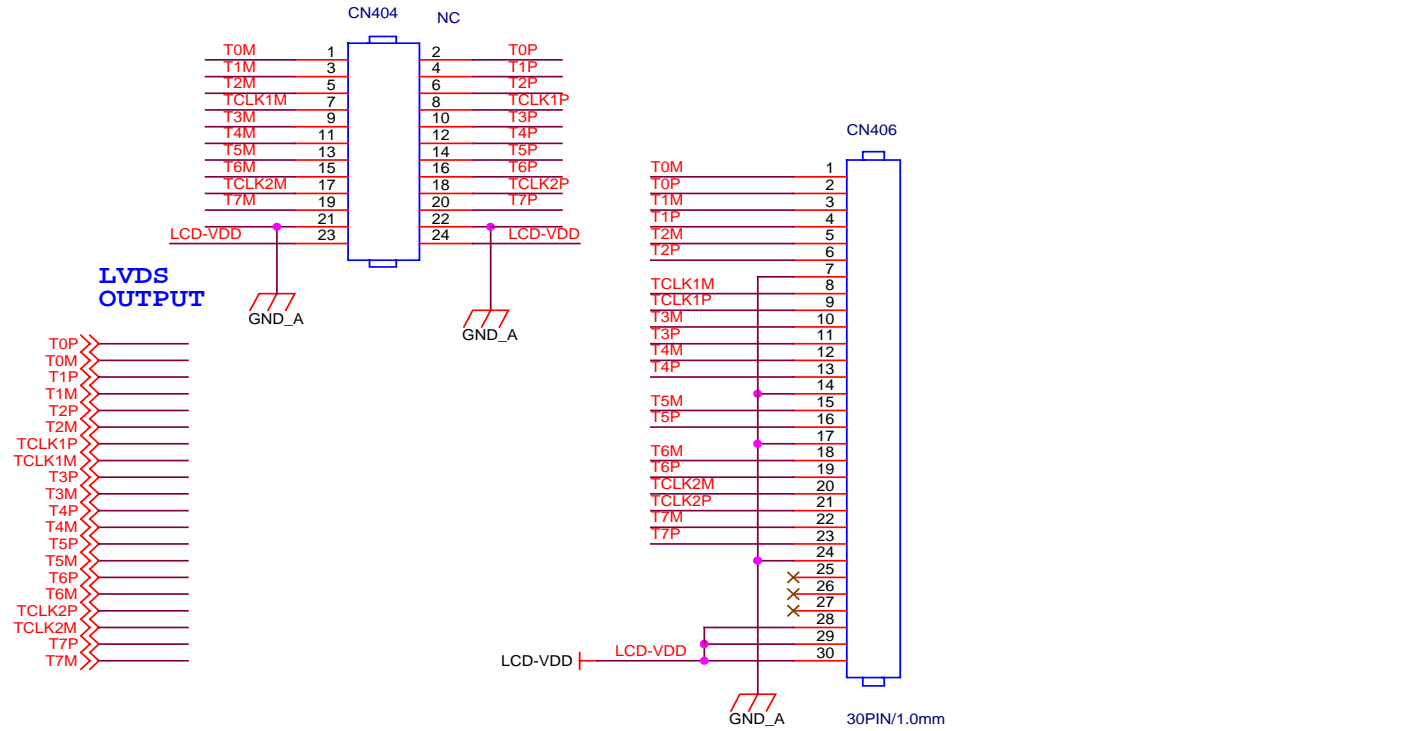


Title		
715G1767-D		
Size A4	Document Number ADC Input	Rev 0.1
Date: Saturday, March 18, 2006	Sheet 1	of 5

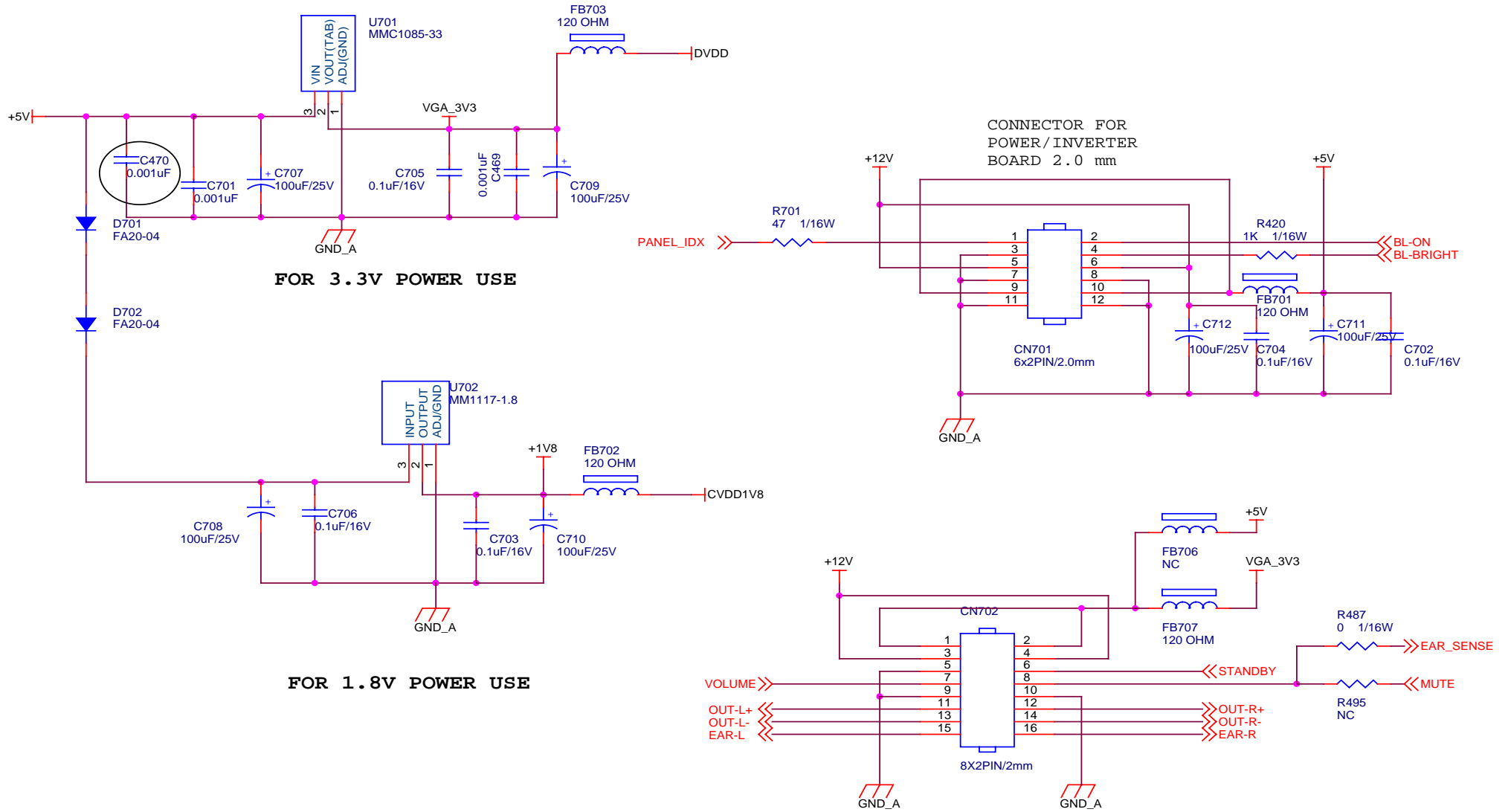
17" LCD Color Monitor



Title		715G1767-D	
Size	Document Number	SCALER	Rev 0.1
C	Date: Saturday, March 18, 2006		Sheet 2 of 5



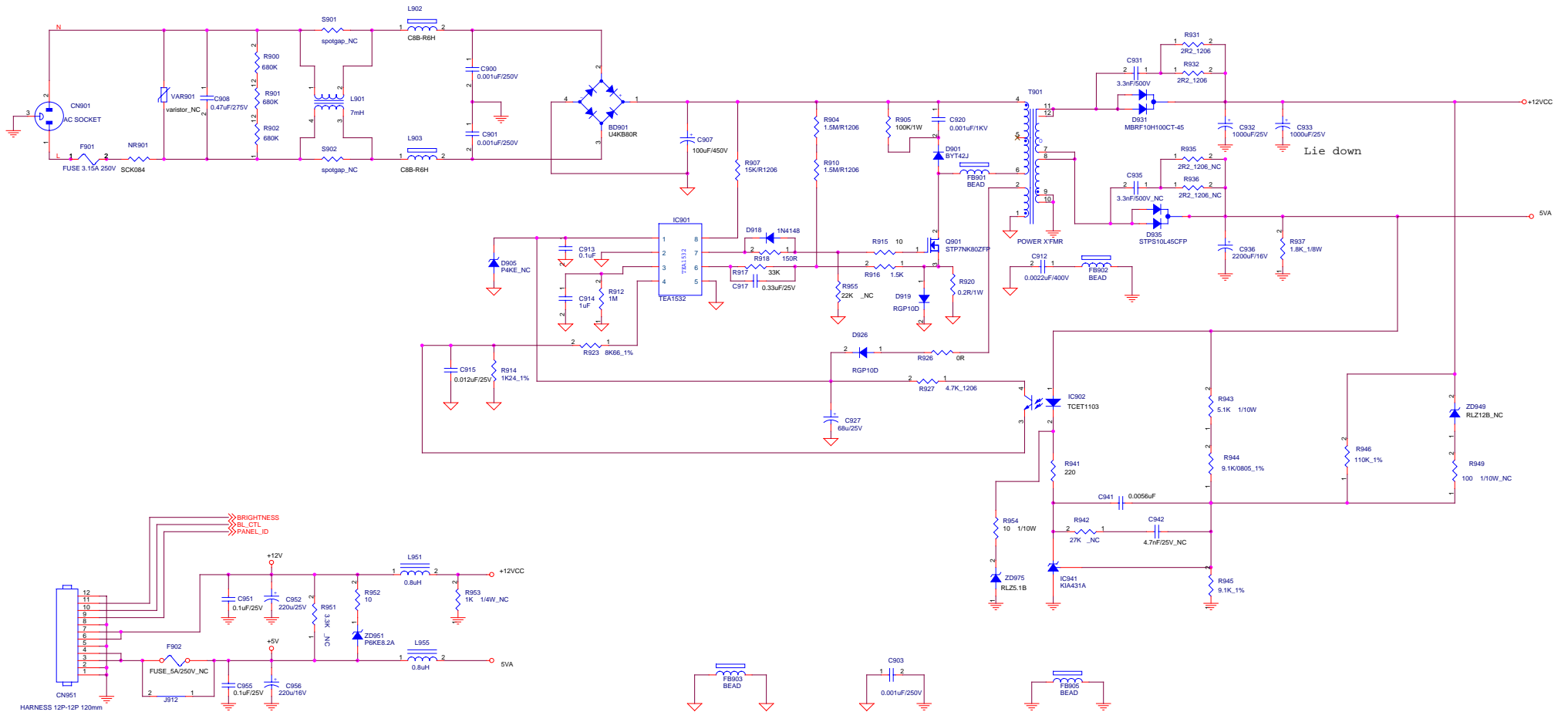
Title		
715G1767-D		
Size A4	Document Number PANEL OUTPUT	Rev 0.1
Date: Saturday, March 18, 2006	Sheet 3	of 5

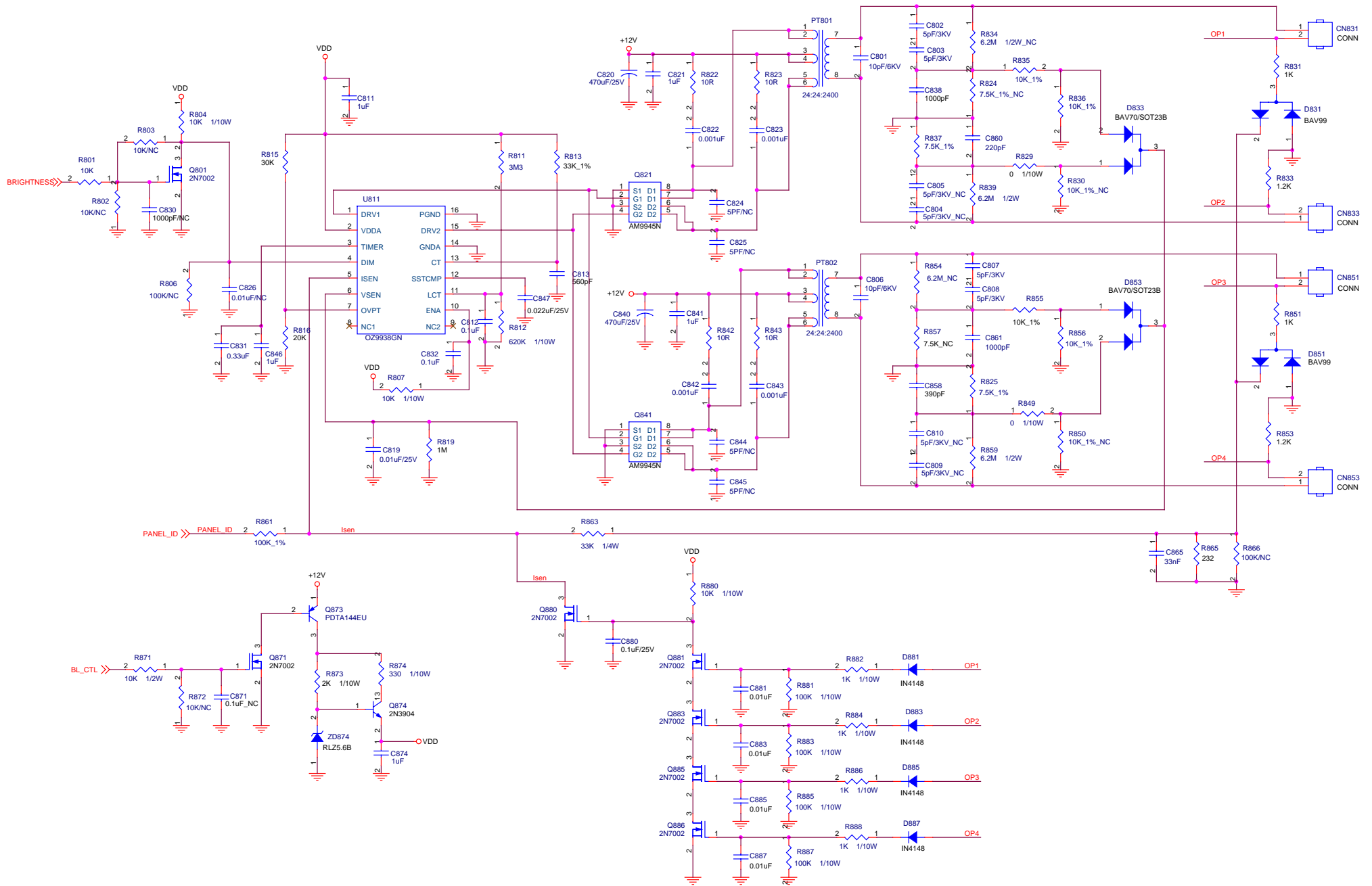


Title		
715G1767-D		
Size	Document Number	Rev
A4	Scaler Power	0.1
Date:	Saturday, March 18, 2006	Sheet 4 of 5

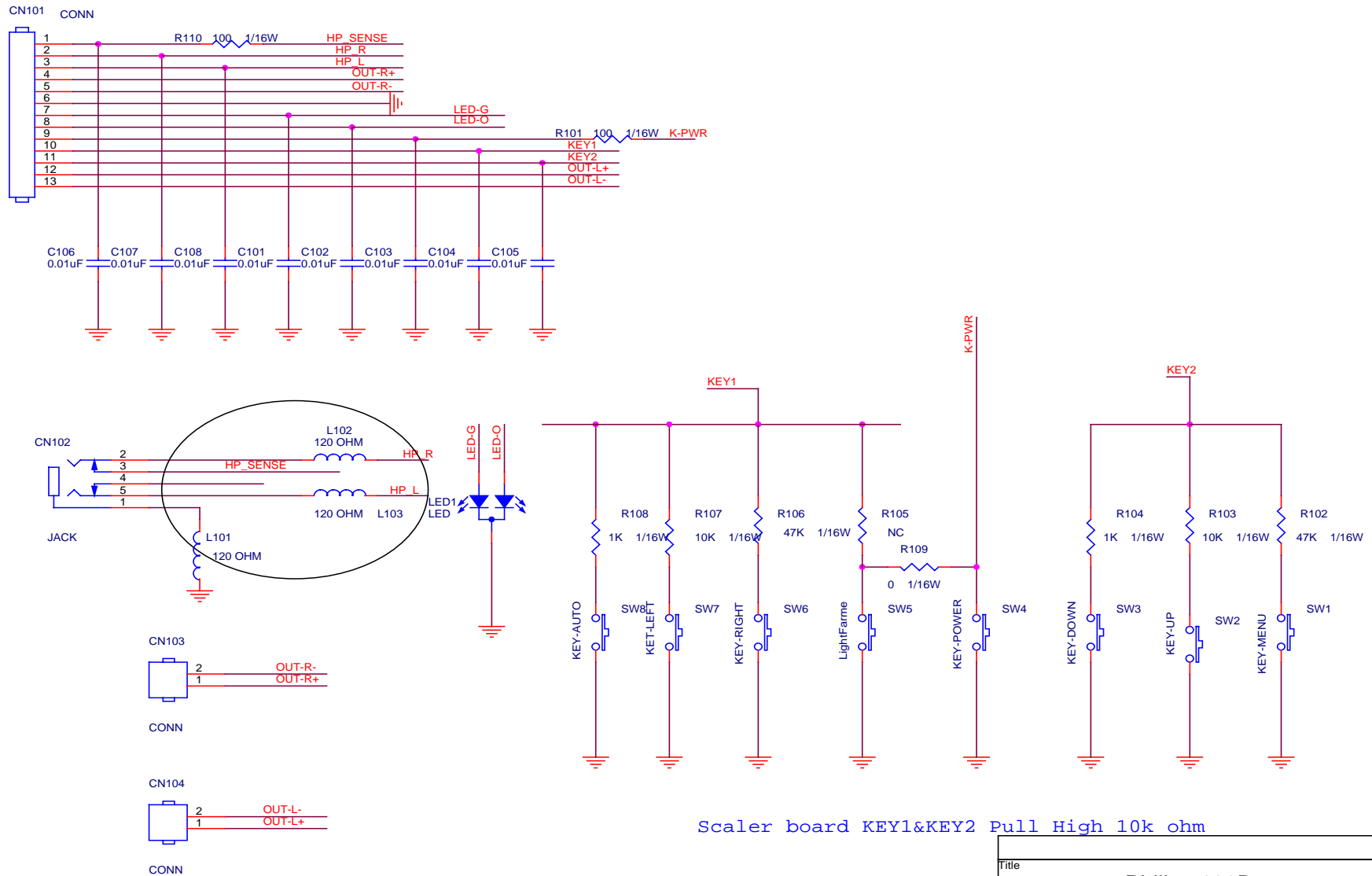
6.2 Power Board

PN : PWPC1742LGR1





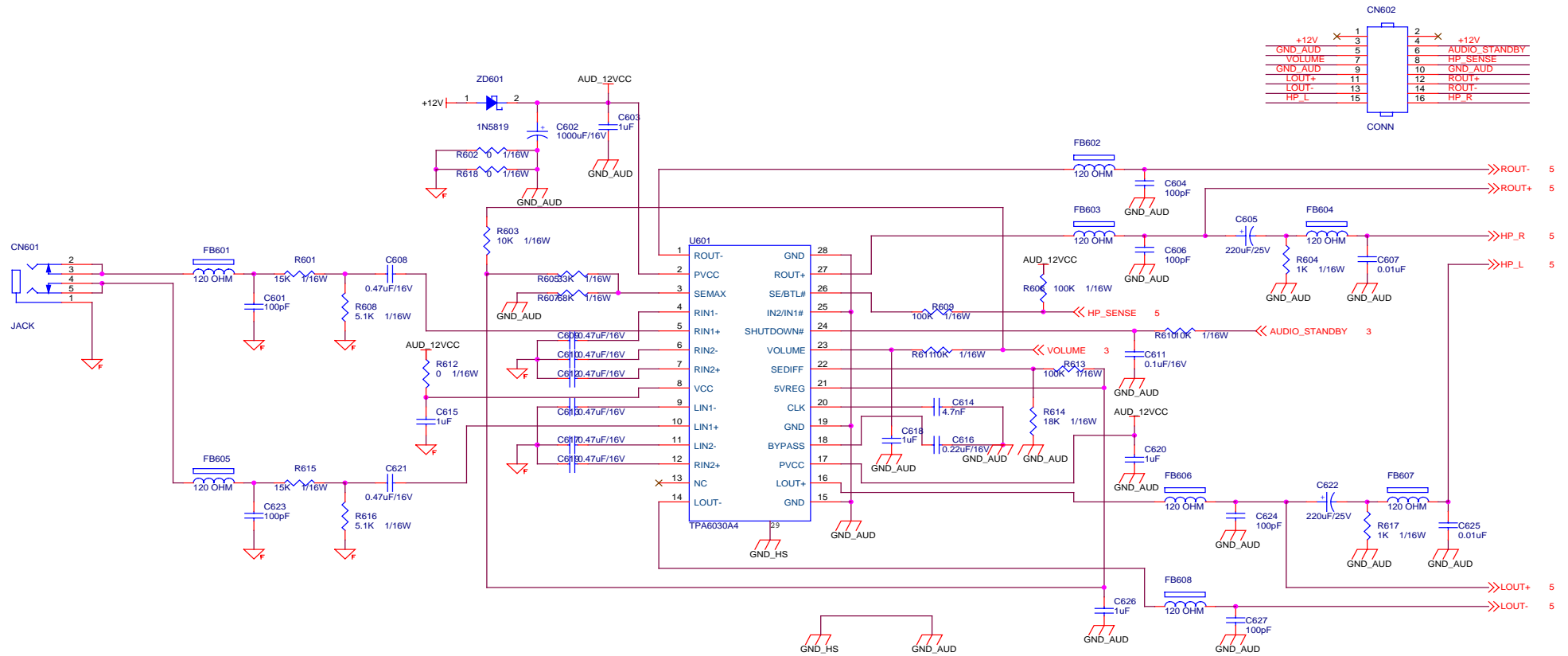
6.3 Key Board



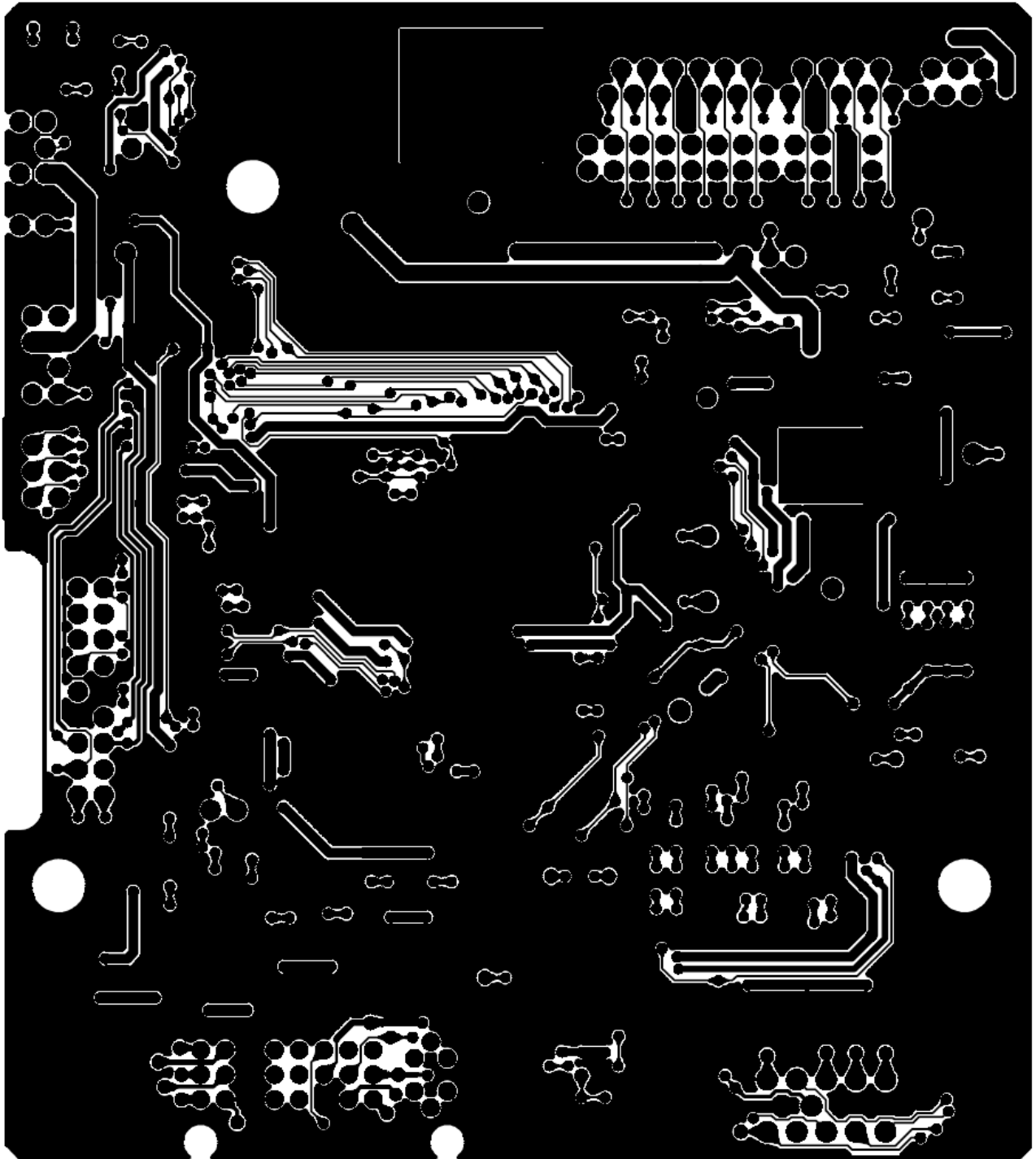
Scaler board KEY1&KEY2 Pull High 10k ohm

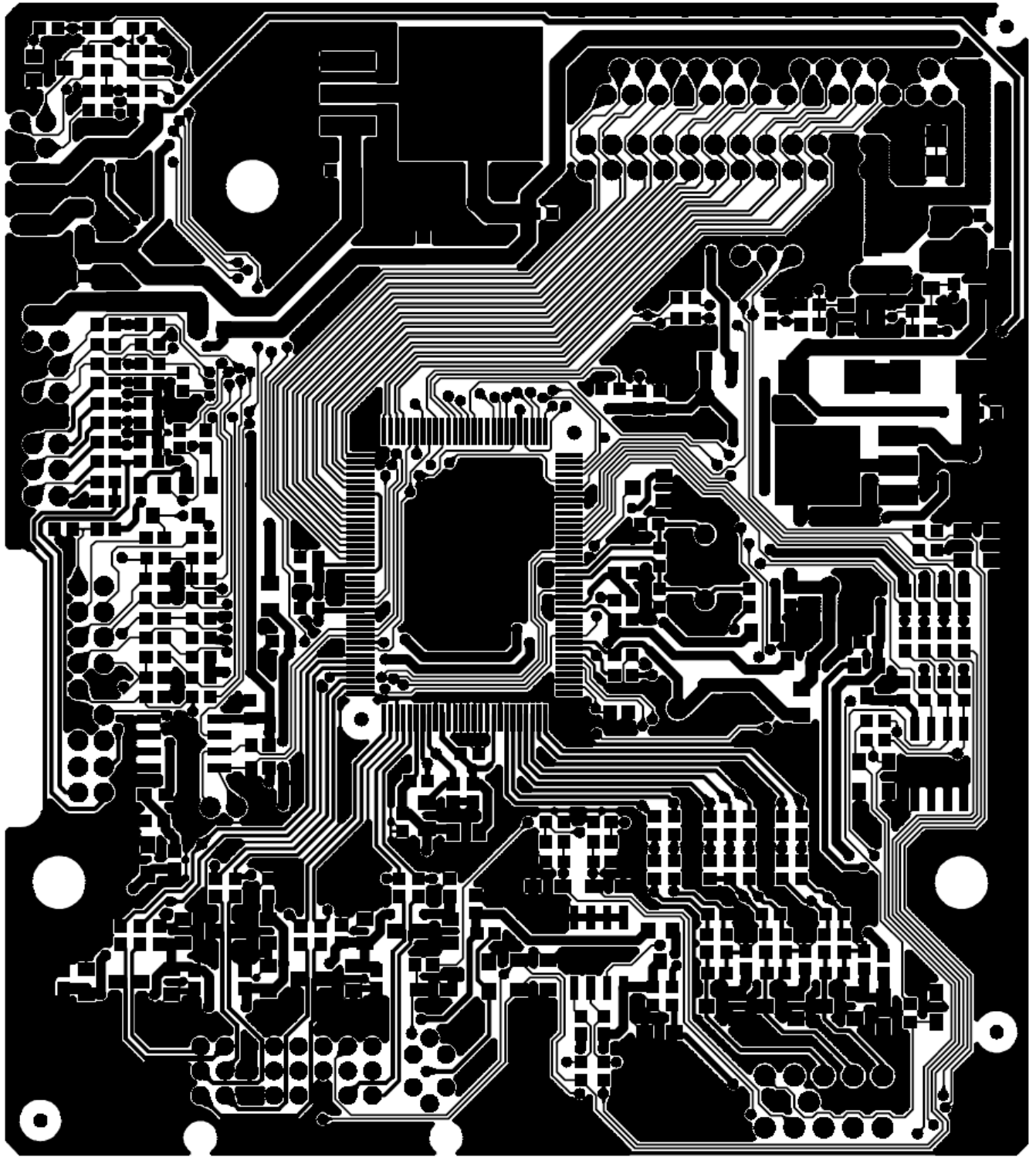
Title		
Philips 190B		
Size A4	Document Number Control Board	Rev C
Date: Thursday, January 05, 2006	Sheet 1	of 1

6.4 Audio Board

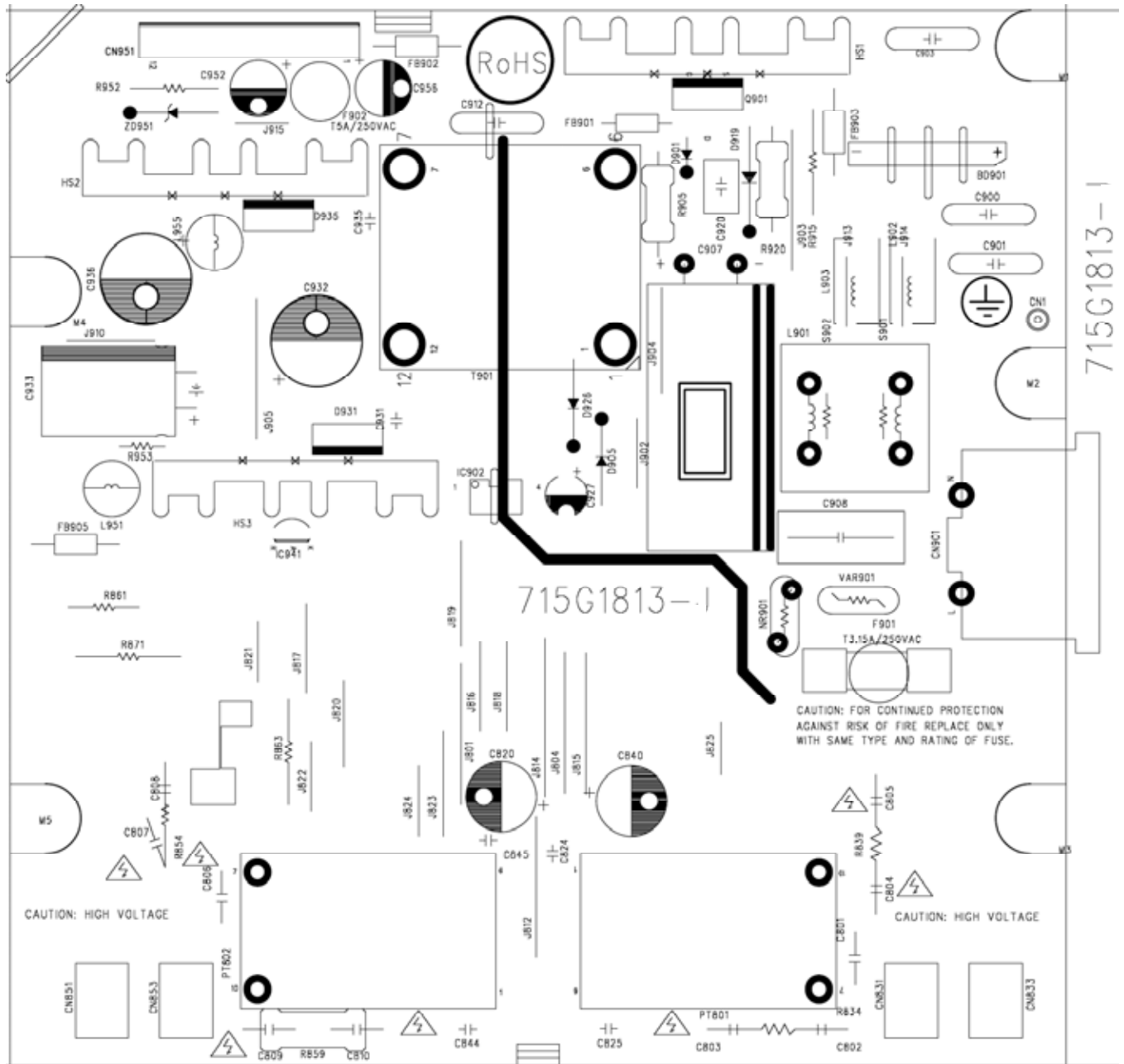


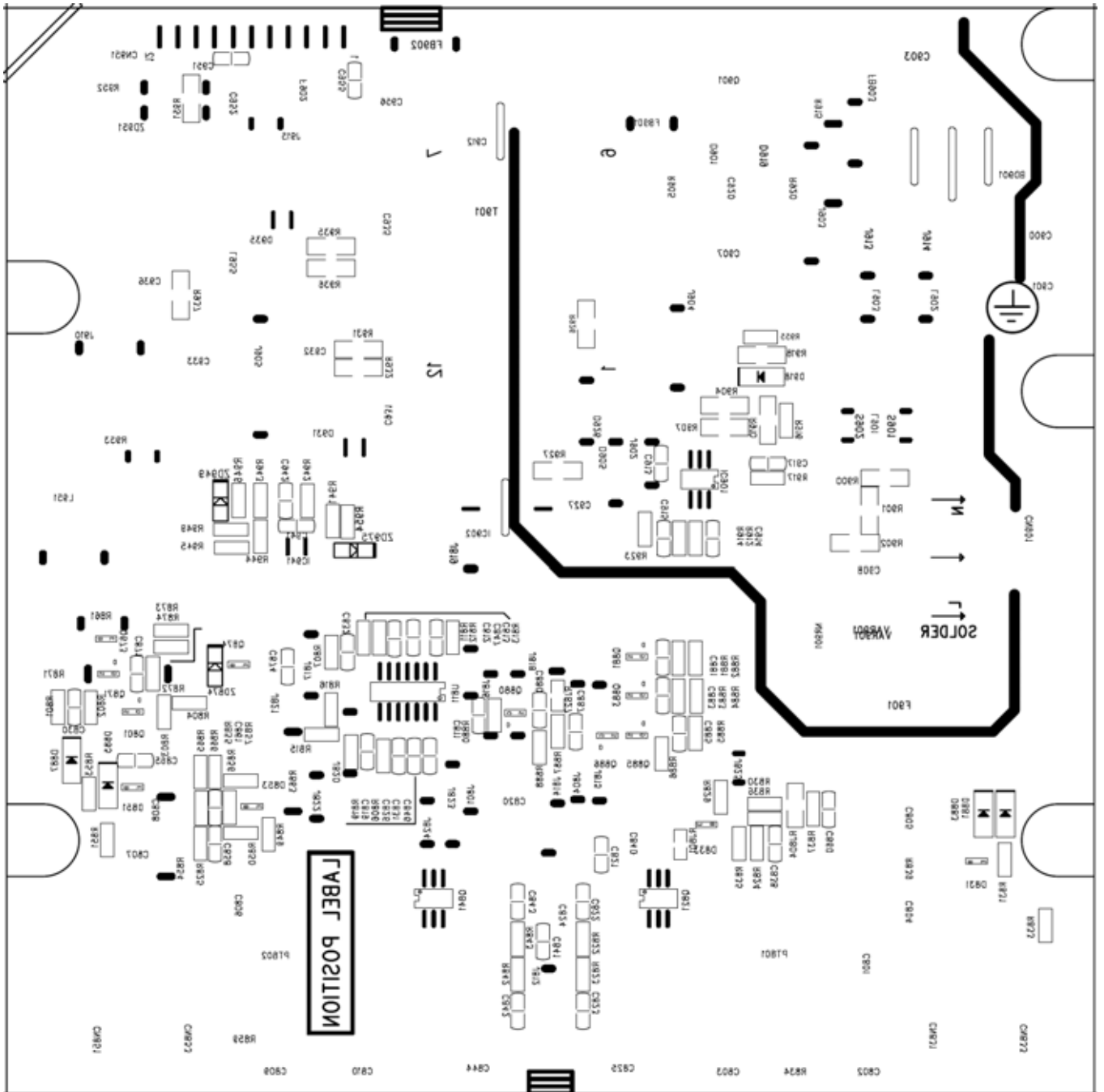
Title			
B7_NT68663_V02			
Size	Document Number		Rev
A3	AUDIO		C
Date:	Friday, January 06, 2006	Sheet	1 of 1

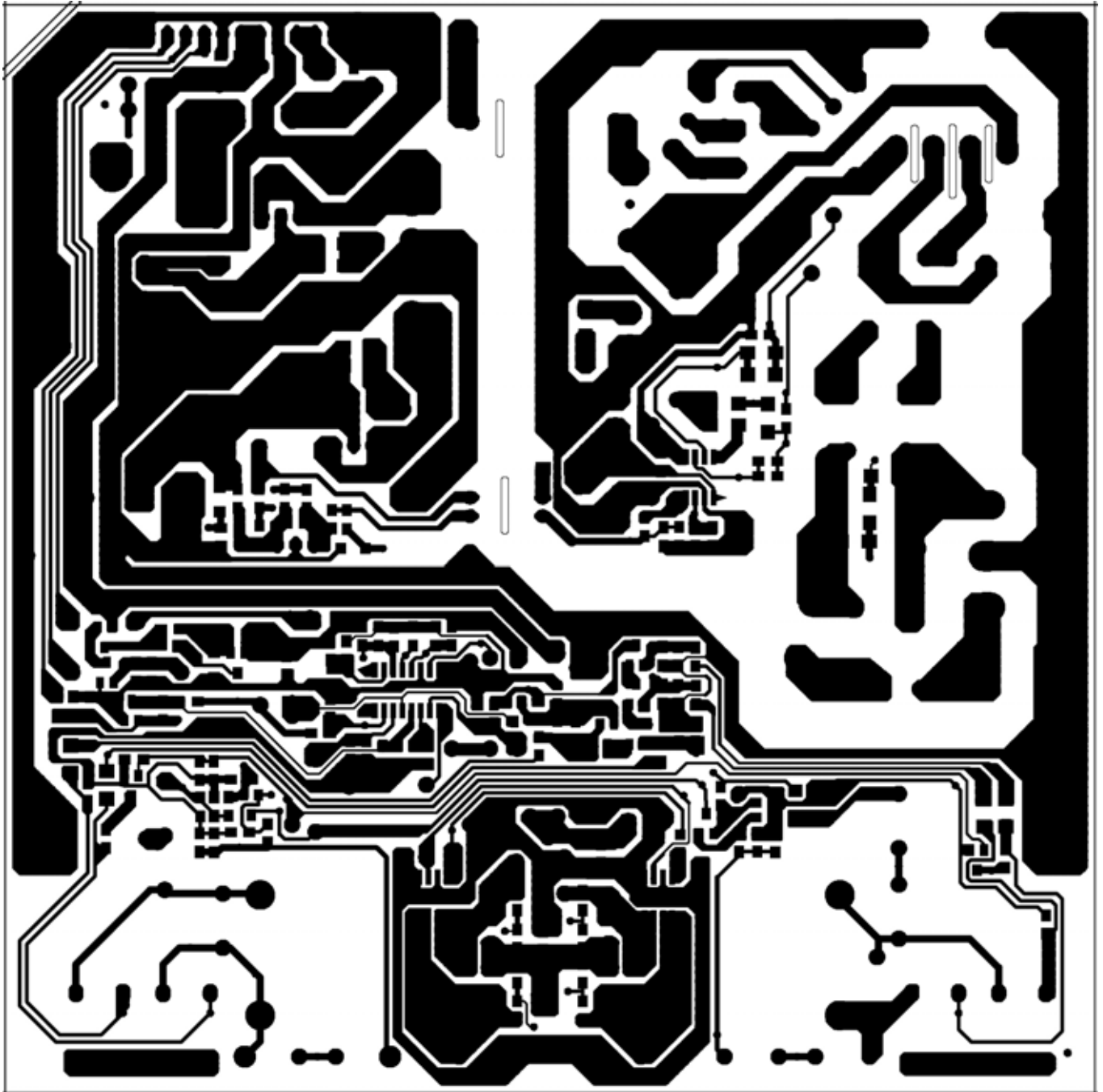




7.2 Power Board
715G1813-1



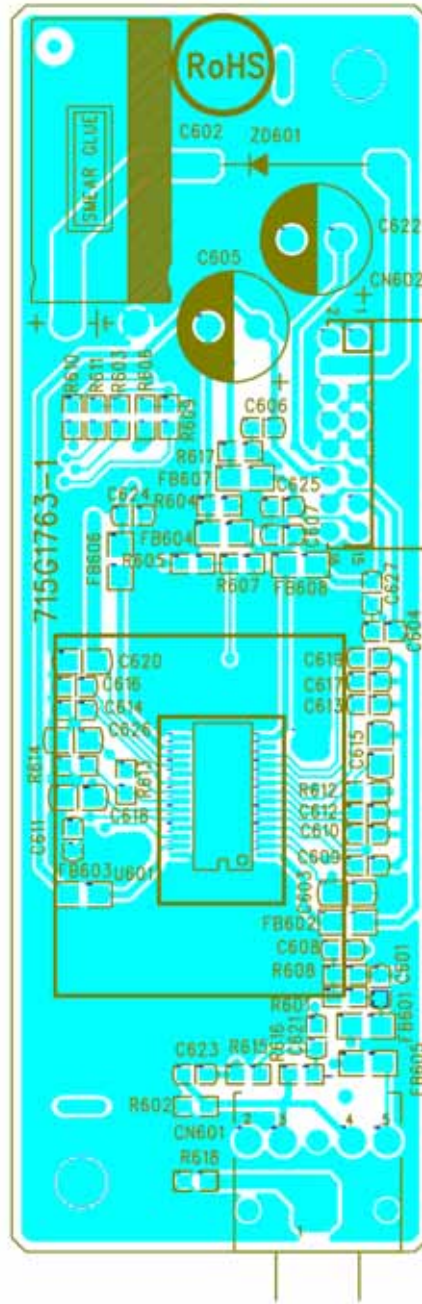




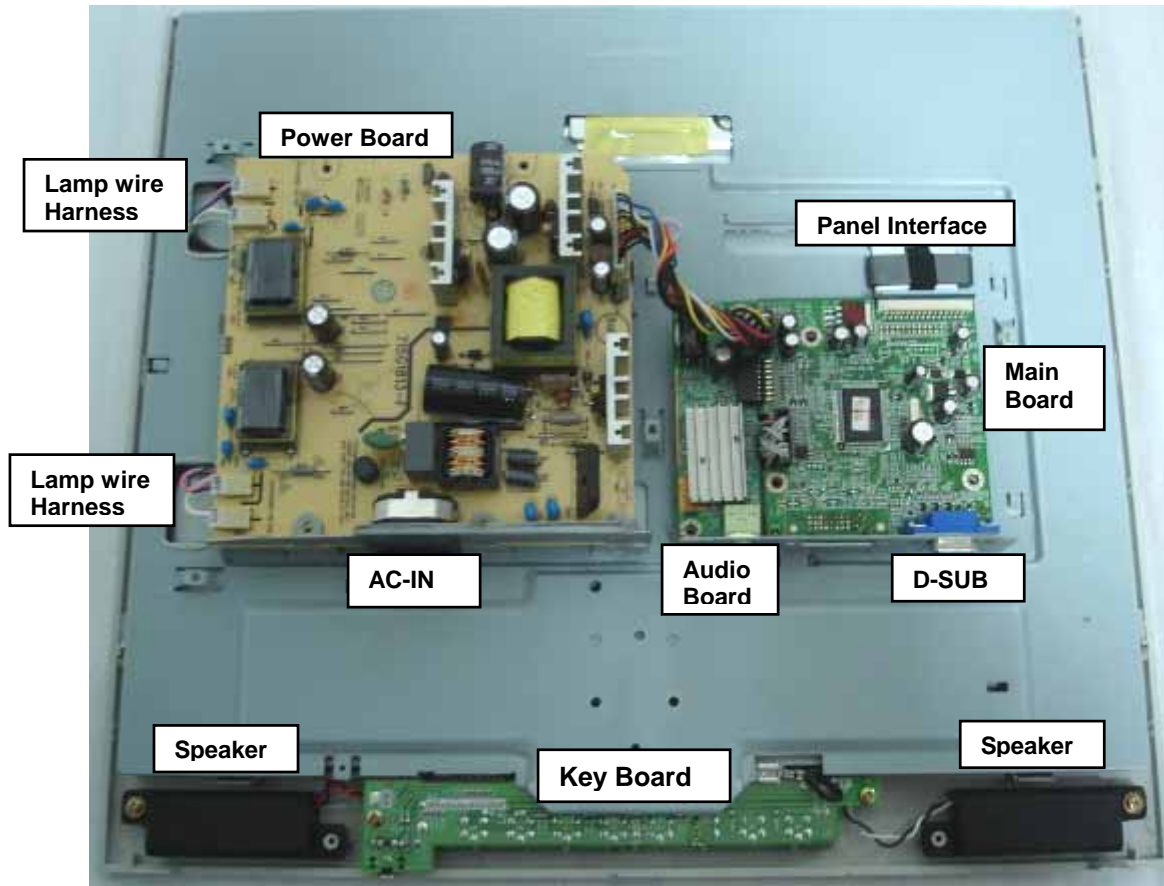
7.3 Key Board
715G1766-1



7.4 Audio Board
715G1763-1



8. Wiring Diagram



9. Mechanical Instructions

1. Back View as Fig.1



Fig.1

2. Remove base as Fig.2- Fig.3

- a. Remove 1 screw for hinge cover as Fig.2
- b. Remove 5 screws for base as Fig.3



Fig.2



Fig.3

3. Remove rear cover as Fig.4- Fig.6

- a. Remove 2 screws for back cover as Fig.4
- b. Using the "1" type screwdriver to open the 3 clicks on bottom side as Fig.5



Fig.4



Fig.5



Fig.6

4. Remove shield as Fig.7

Remove 6 screws as Fig.7

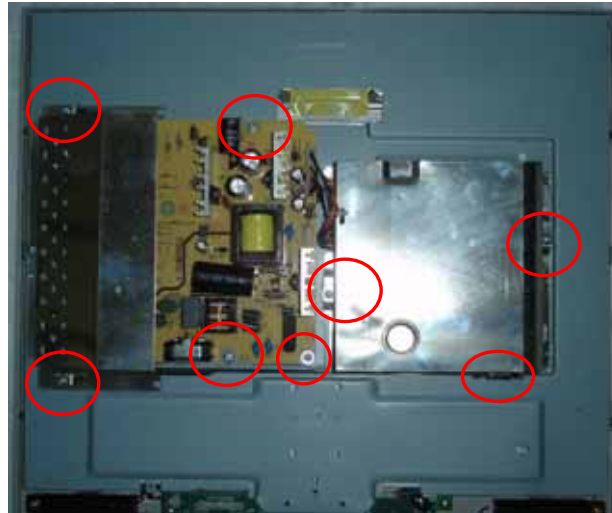


Fig.7

5. Remove main and Power board as Fig.8

Remove 13 screws for main and Power board as Fig.8

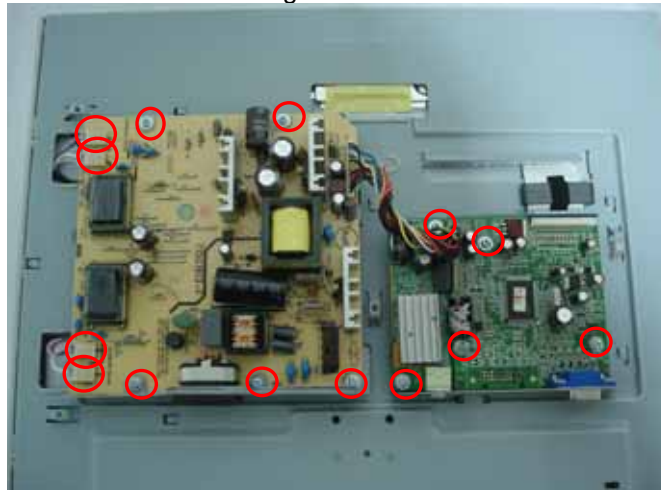


Fig.8

6. Remove the bezel as Fig.9- Fig.11

- a. Remove 2 screws at the right of bezel as Fig.9
- b. Remove 2 screws at the left of bezel as Fig.10
- c. Remove 4 screws at the bottom of bezel as Fig.11
- d. Remove connect wire between main and key board as Fig.12



Fig.9



Fig.10

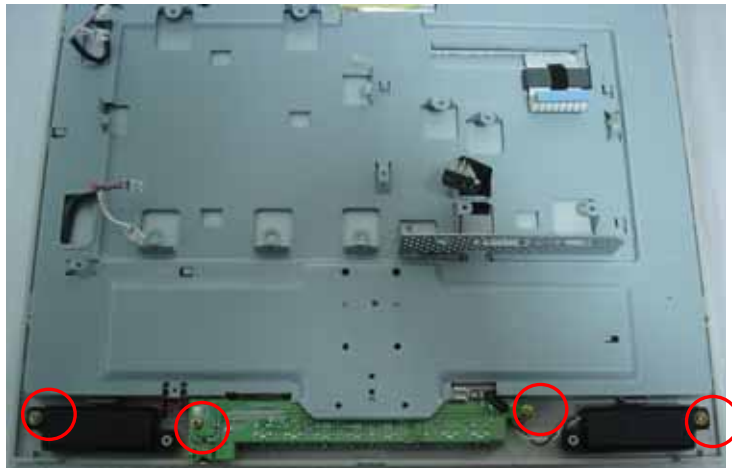


Fig.11

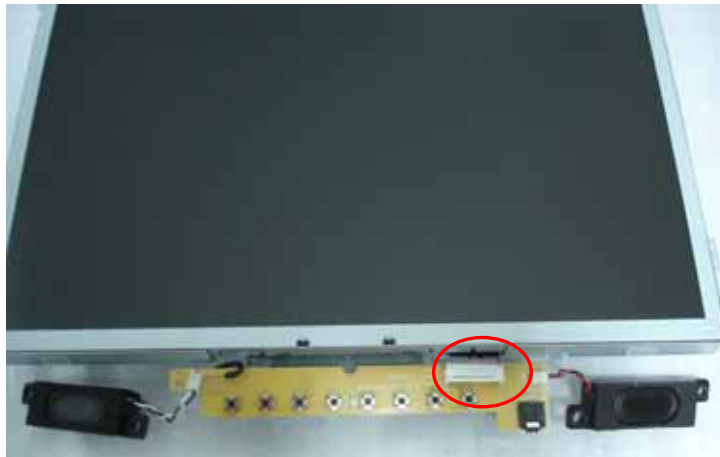


Fig.12

7. Remove the main frame as Fig.12- Fig.14

- a. Remove 2 screws at the right of main frame Fig.13
- b. Remove 2 screws at the left of main frame Fig.14



Fig.13



Fig.14






Fig.15



10. Trouble Shooting

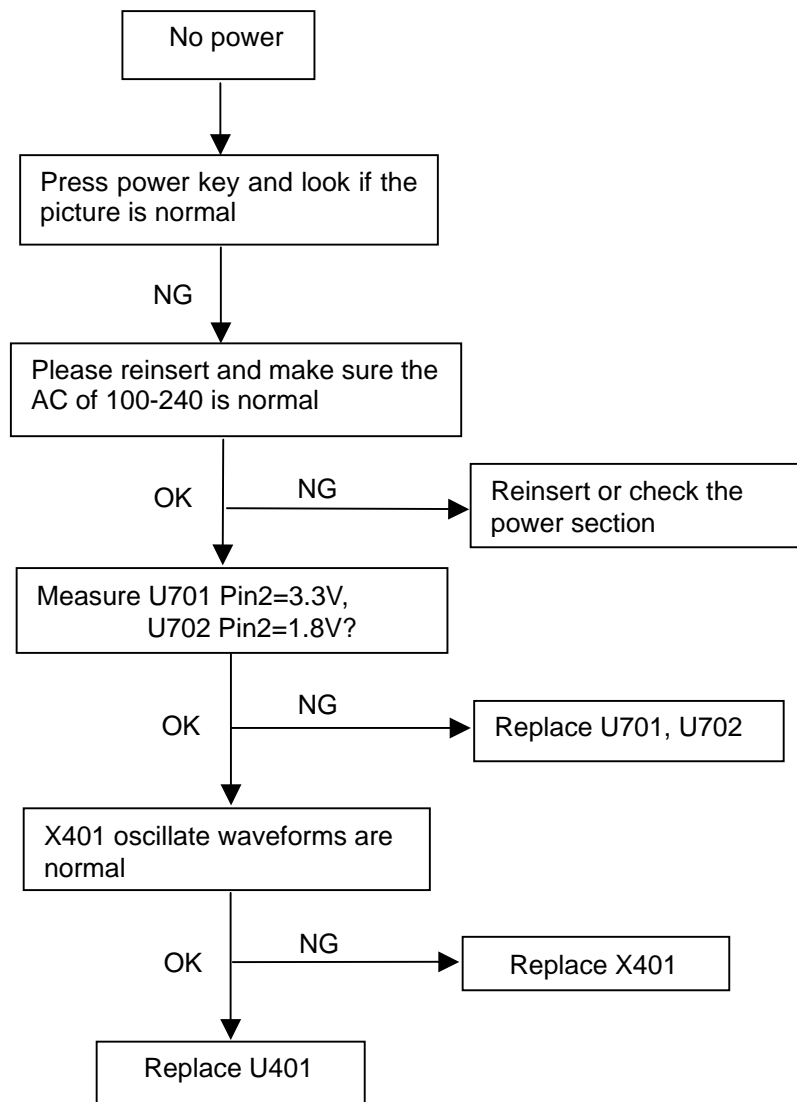
This page deals with problems that can be corrected by a user. If the problem still persists after you have tried these solutions, contact Philips customer service representative.

Common Problems	
Having this problem	Check these items
No Picture (Power LED not lit)**	<ul style="list-style-type: none"> • —Make sure the power cord is plugged into the power outlet and into the back of the monitor. • —First, ensure that the power button on the front of the monitor is in the OFF position, then press it to the ON position.**
No Picture (Power LED is amber or yellow)**	<ul style="list-style-type: none"> • —Make sure the computer is turned on.** • —Make sure the signal cable is properly connected to your computer. • —Check to see if the monitor cable has bent pins.** • —The Energy Saving feature may be activated**
Screen says 	<ul style="list-style-type: none"> • —Make sure the monitor cable is properly connected to your computer. (Also refer to the Quick Set-Up Guide). • —Check to see if the monitor cable has bent pins. • —Make sure the computer is turned on.**
AUTO button not working properly	<ul style="list-style-type: none"> • —The Auto Function is designed for use on standard Macintosh or IBM-compatible PCs running Microsoft Windows. • —It may not work properly if using nonstandard PC or video card.**
Imaging Problems	
Display position is incorrect	<ul style="list-style-type: none"> • —Press the Auto button. • —Adjust the image position using the Phase/Clock of More Settings in OSD Main Controls.**
Image vibrates on the screen	<ul style="list-style-type: none"> • —Check that the signal cable is properly connected to the graphics board or PC.**

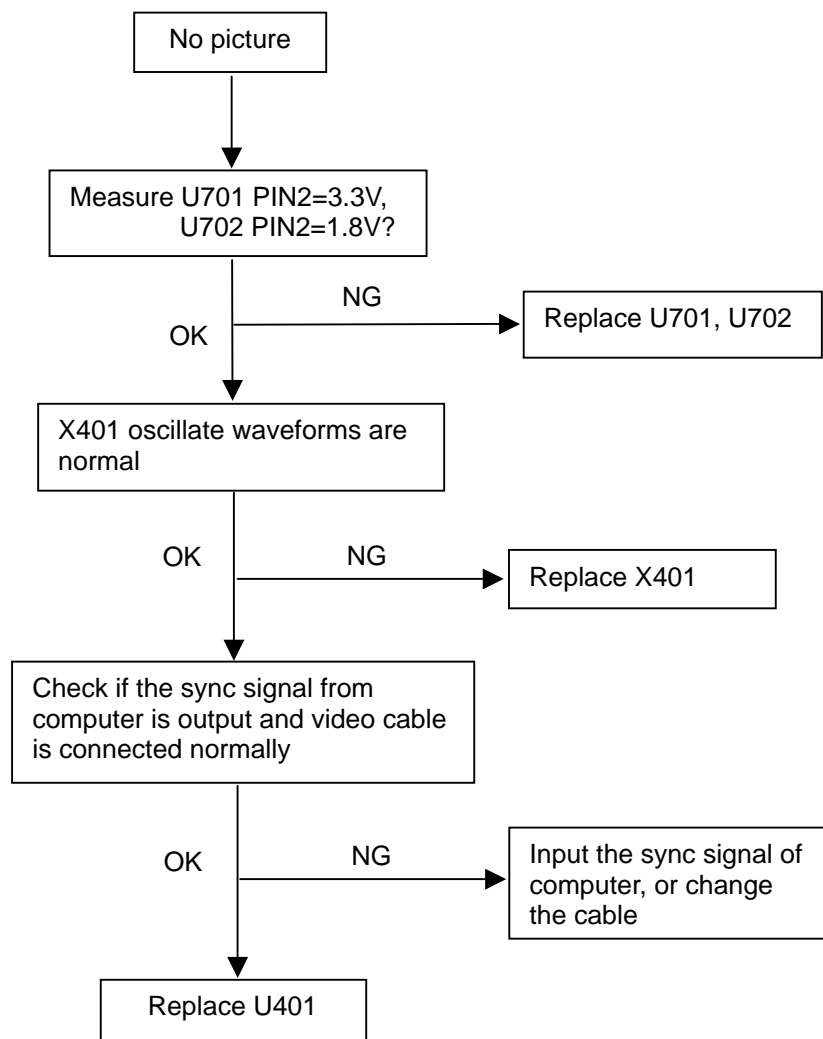
<p>Vertical flicker appears</p> 	<ul style="list-style-type: none"> • Press the Auto button.** • Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls.**
<p>Horizontal flicker appears</p> 	<ul style="list-style-type: none"> • Press the Auto button. • Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls.
<p>The screen is too bright or too dark</p>	<ul style="list-style-type: none"> • Adjust the contrast and brightness on On-Screen Display. (The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicker, please contact your sales representative).
<p>An after-image appears</p>	<ul style="list-style-type: none"> • If an image remains on the screen for an extended period of time, it may be imprinted in the screen and leave an after-image. This usually disappears after a few hours
<p>An after-image remains after the power has been turned off.</p>	<ul style="list-style-type: none"> • This is characteristic of liquid crystal and is not caused by a malfunction or deterioration of the liquid crystal. The after-image will disappear after a period of time.
<p>Green, red, blue, dark, and white dots remains</p>	<ul style="list-style-type: none"> • The remaining dots are normal characteristic of the liquid crystal used in today's technology.**
<p>For further assistance, refer to the Consumer Information Centers list and contact Philips customer service representative.</p> <p>**</p>	

11. Repair Flow Chart

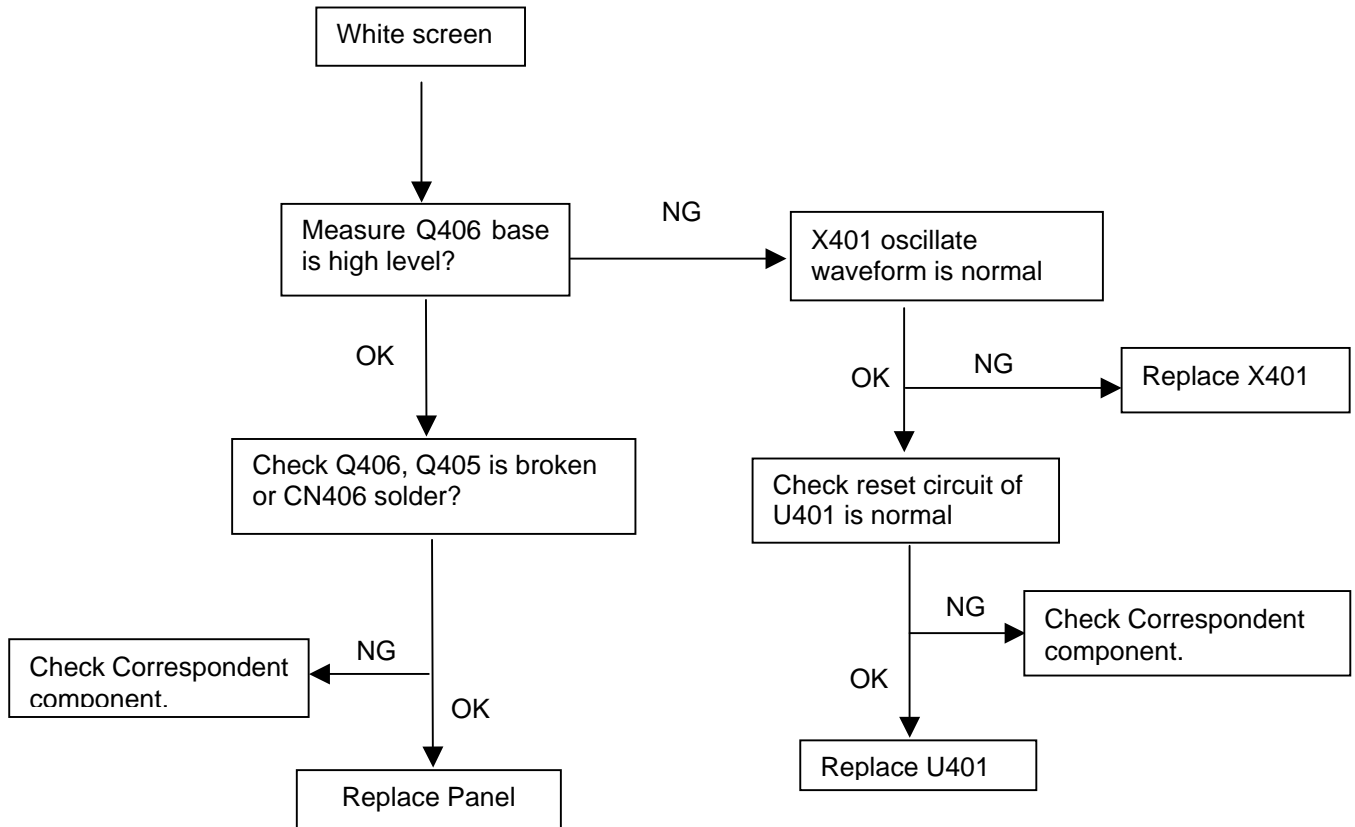
(1). No Power



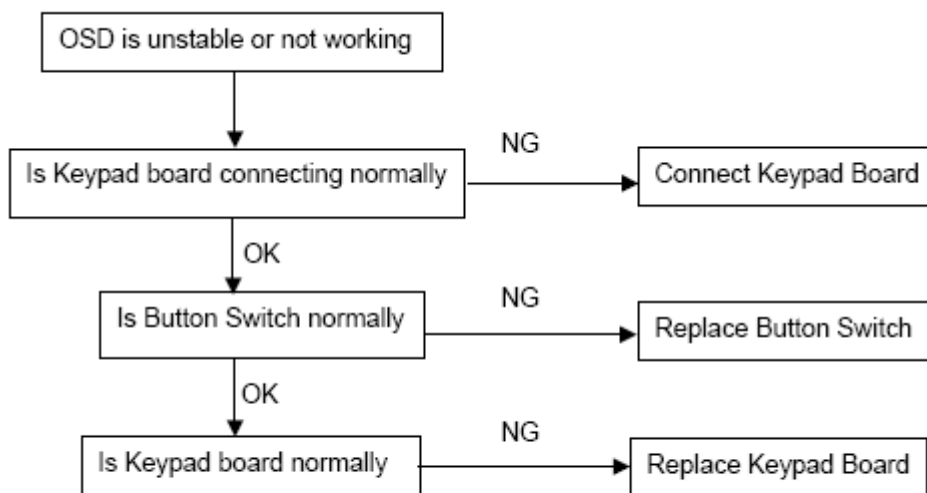
(2). No Picture



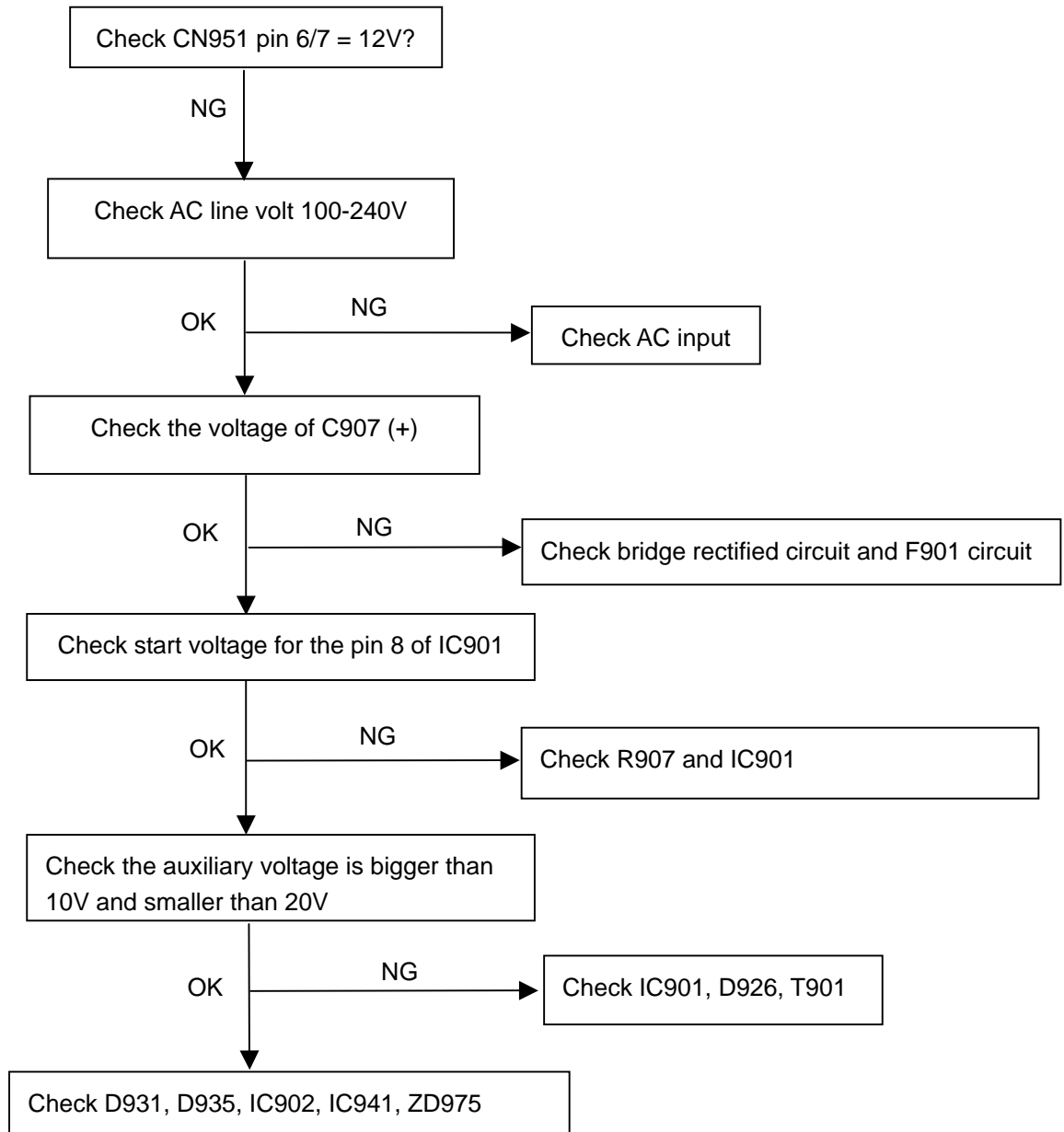
(3). White screen



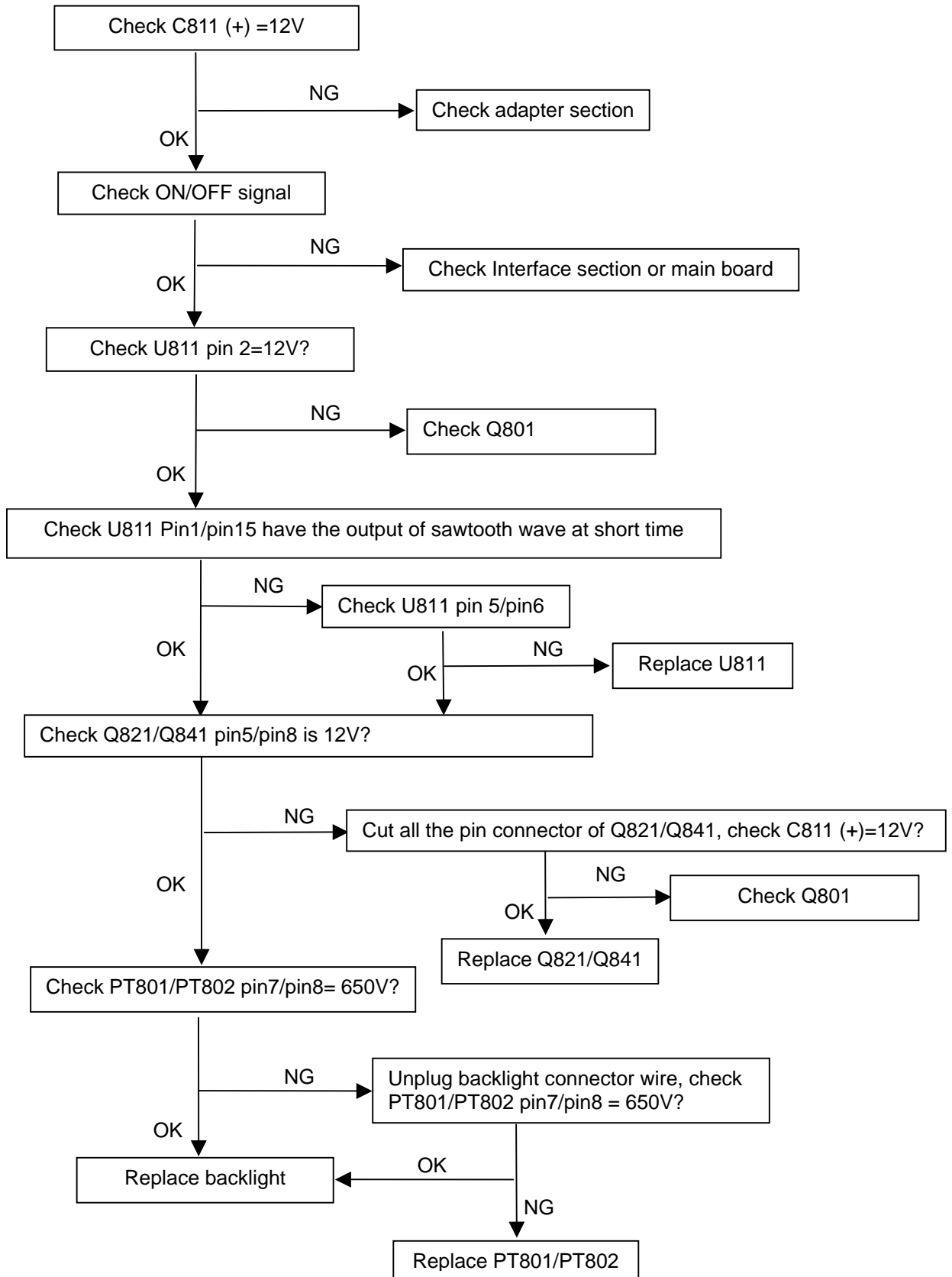
(4). Keypad Board



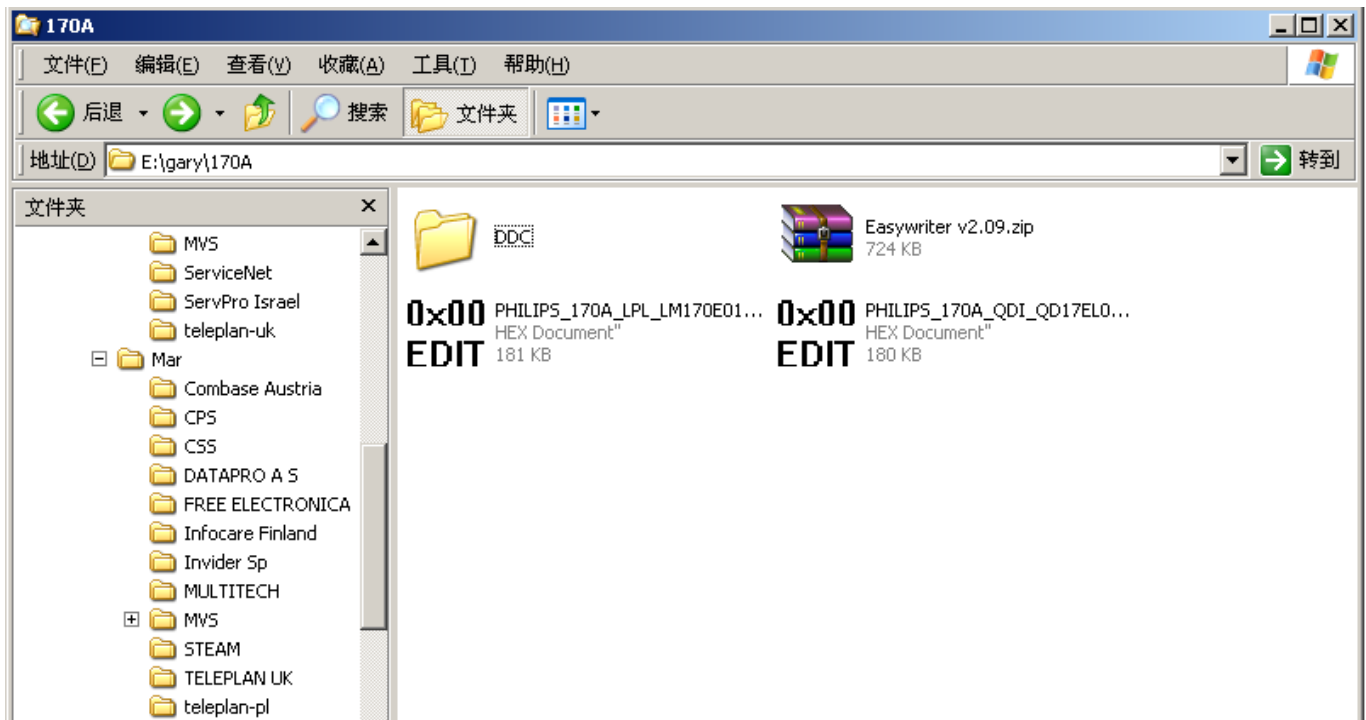
Power/Inverter Board
No power
Adapter Board



Inverter board
No power




12. ISP Instruction

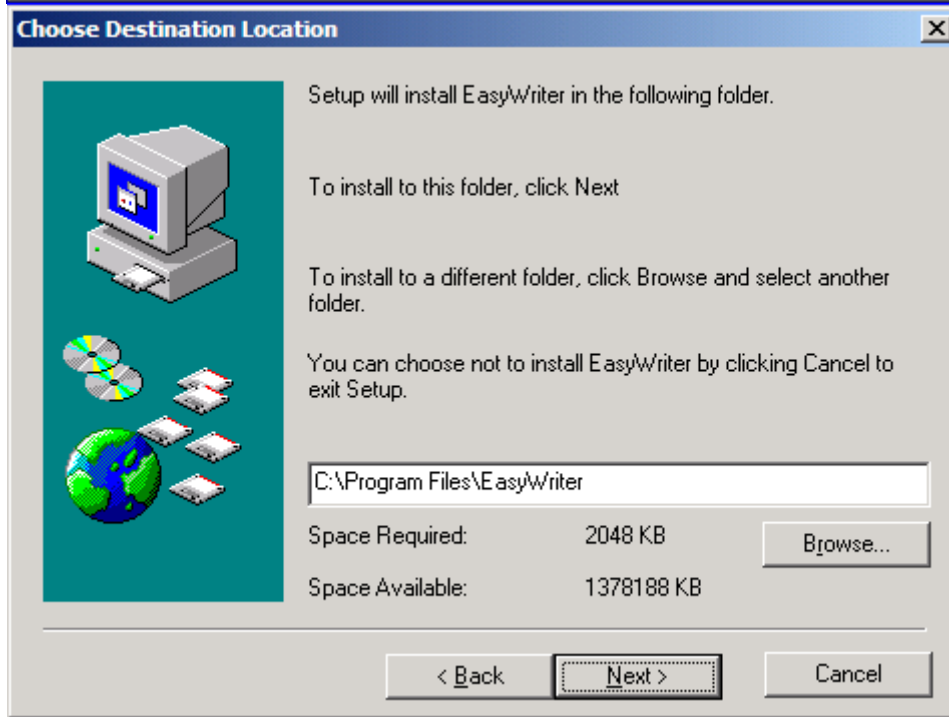
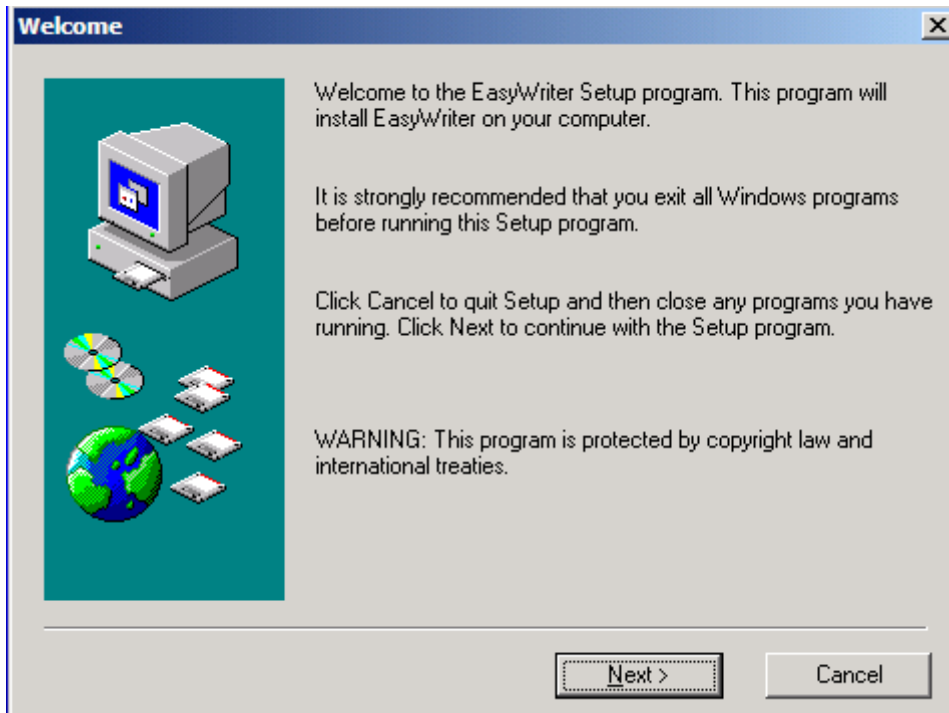


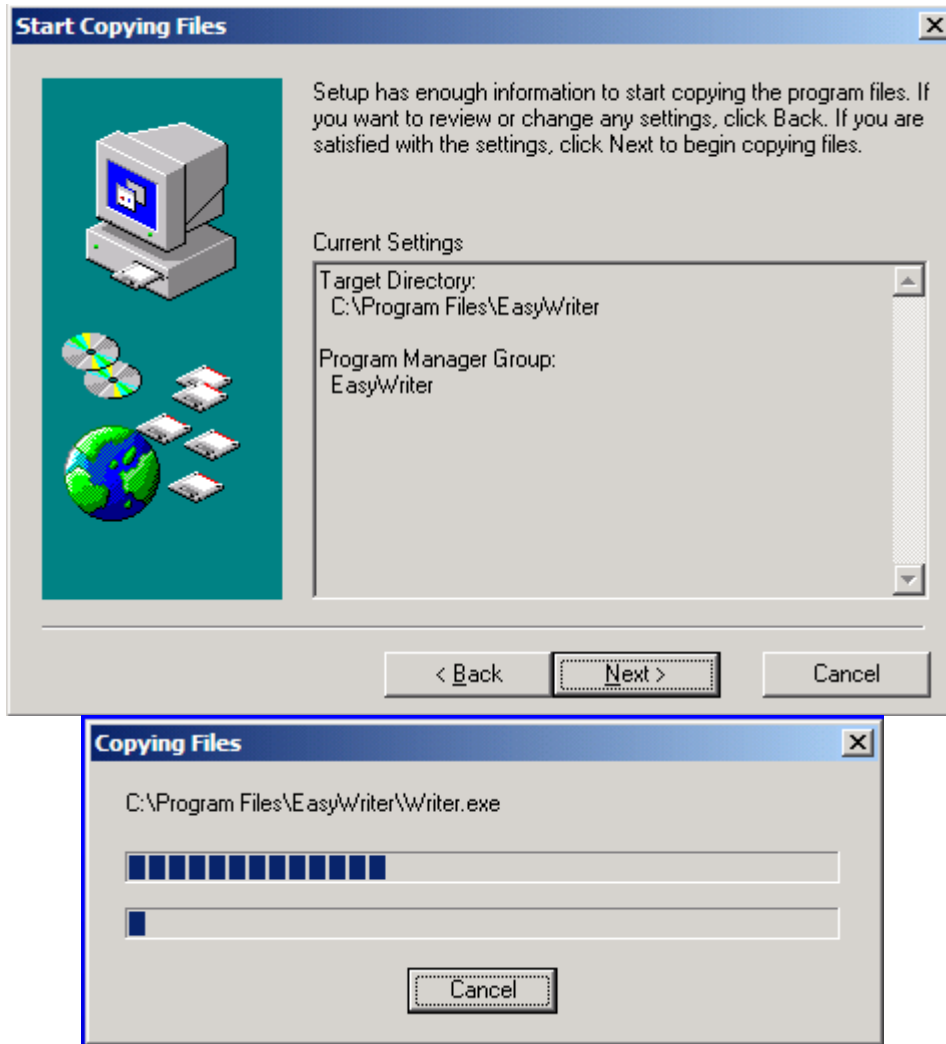
(1). Install the program software

- a. First decompressing files  **EasyWriterV2.09.rar**
WinRAR 档案文件
6.18 KB
- , as follow:



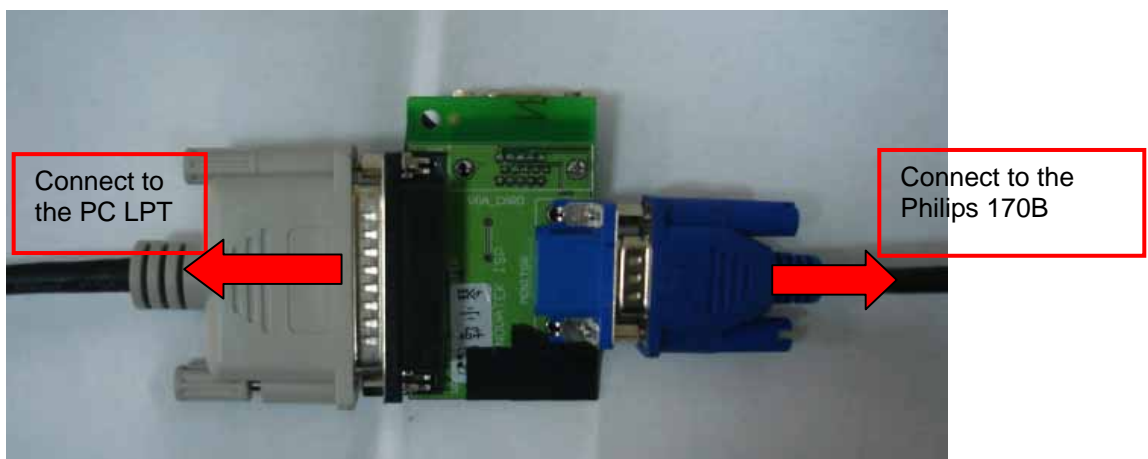
- b. Double – click  **EasyWriterV2.09.exe** , start to install as follows:




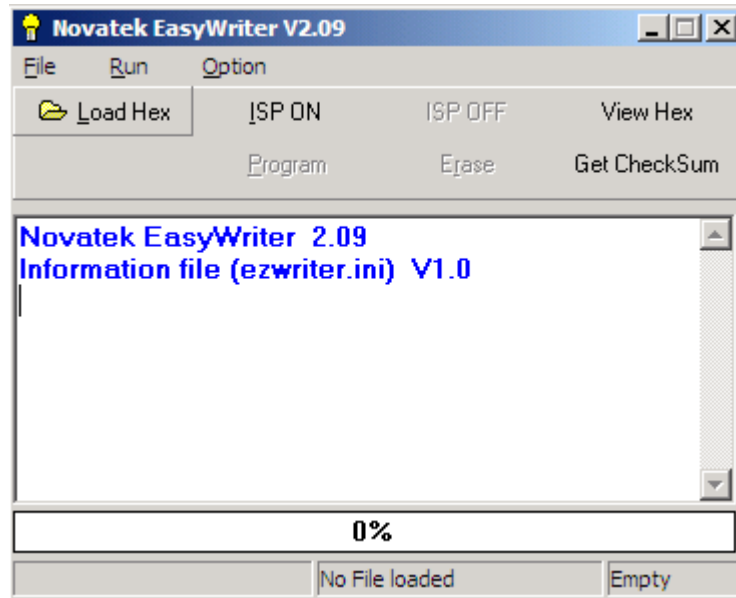



c. There will be a shortcut key  appears on the desktop.

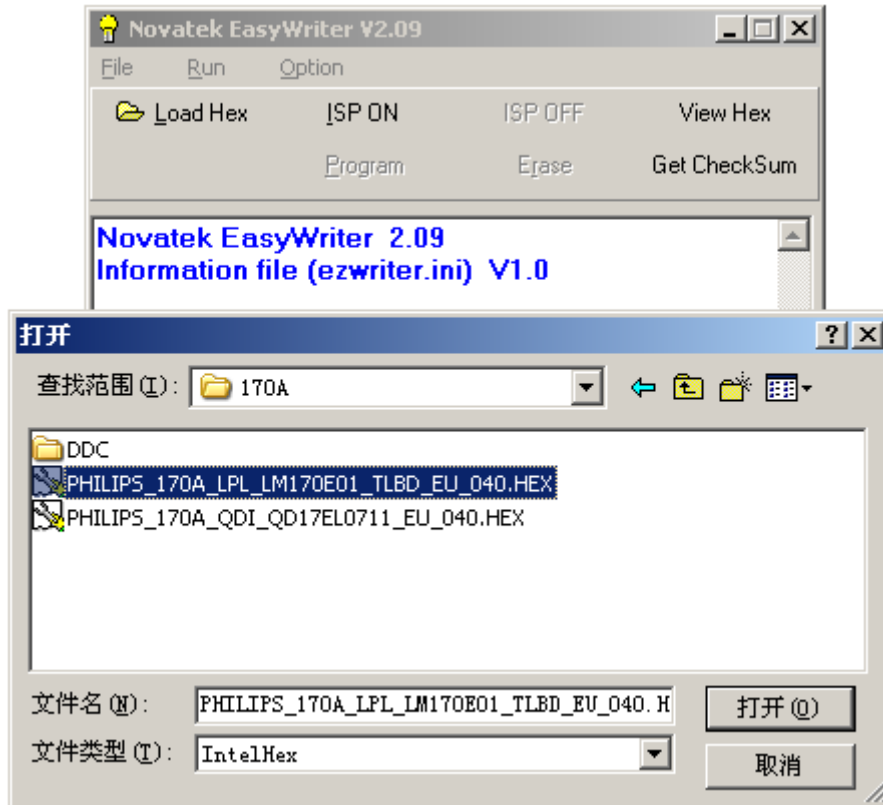
(2). Connect the ISP board as follow:




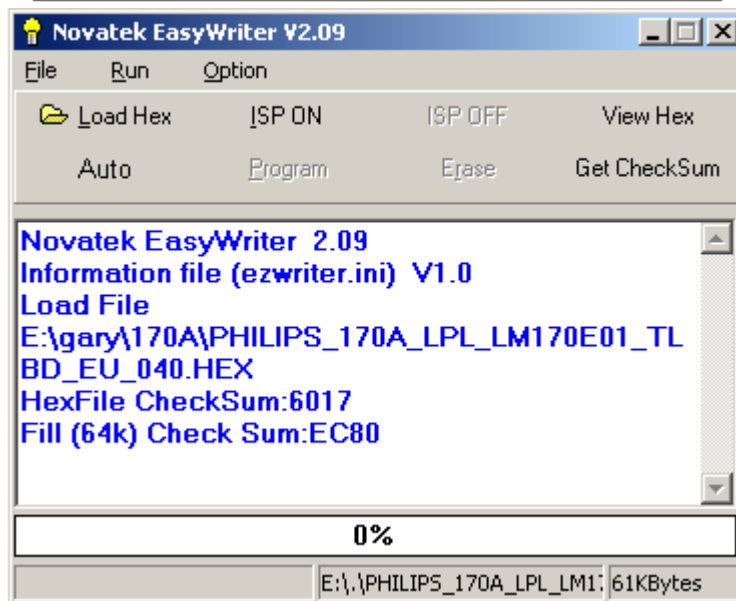
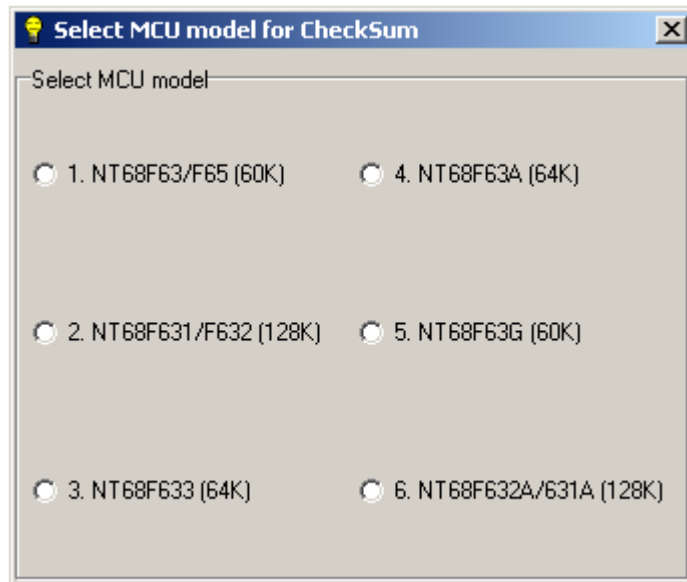
a. Double-click  , running the program as follows:



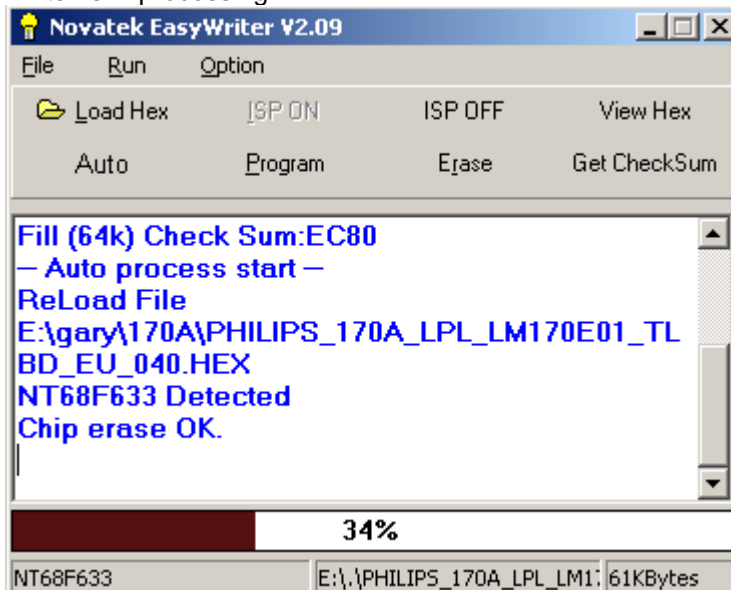
- b. Click  Load Hex icon, search the program "PHILIPS_170B_LPL_LM170E01_TLBB_EU_040.HEX", and click open:



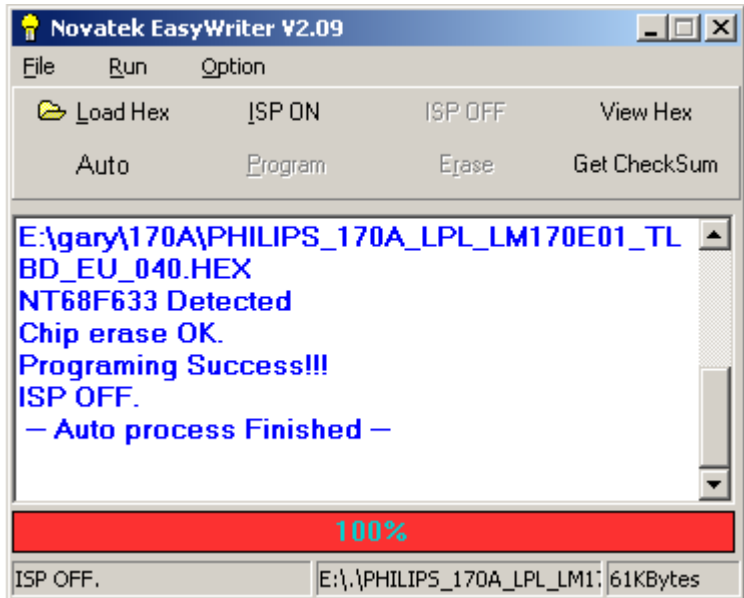
- c. After click "OPEN", there would be a dialog box, select  3. NT68F633 (64K) .



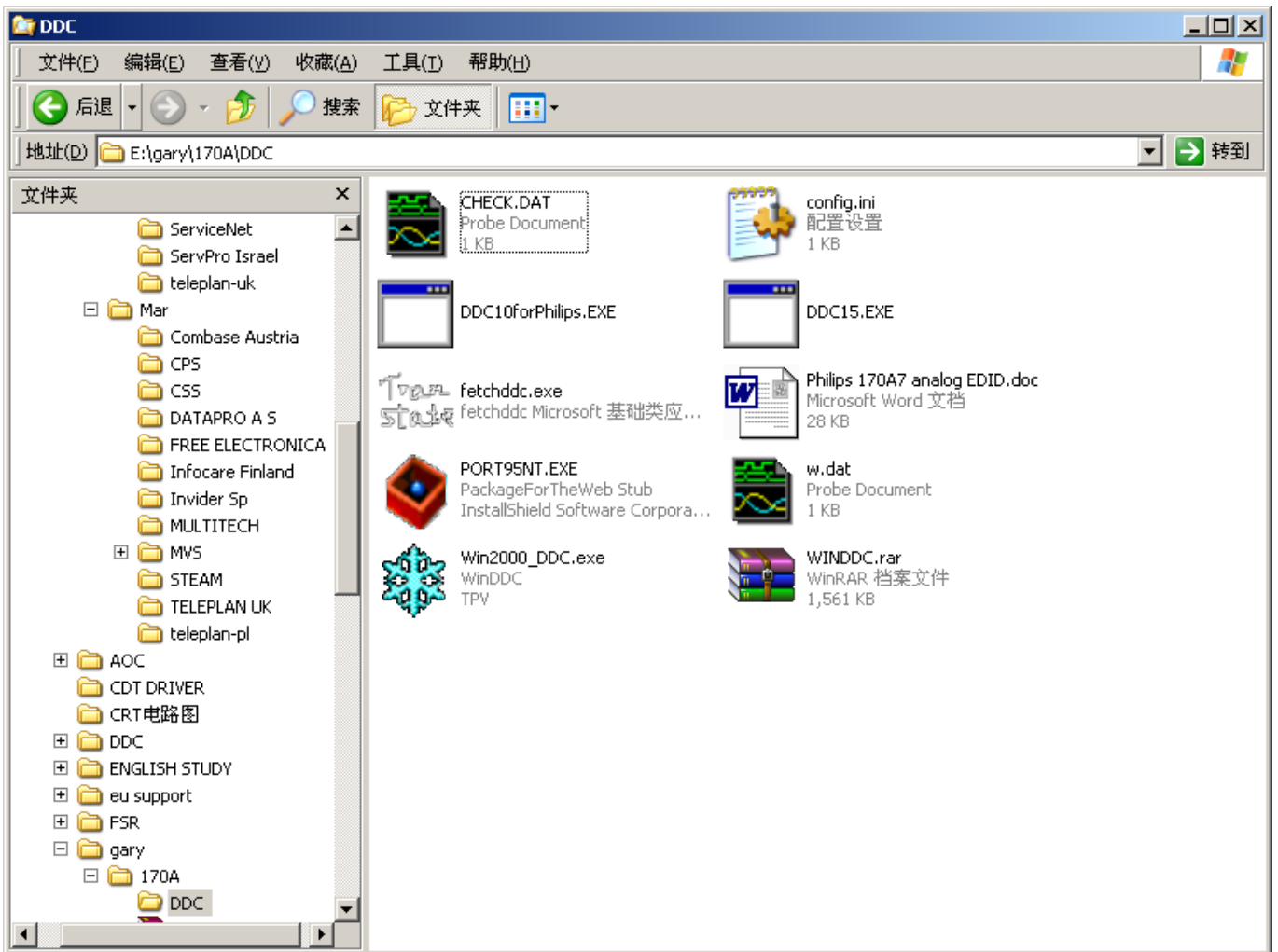
c. Click **Auto** icon, the writer is in processing...



d. Until appears the follow Fig, writer completed.



13. DDC Instruction

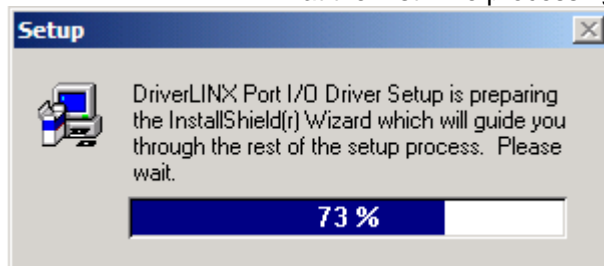


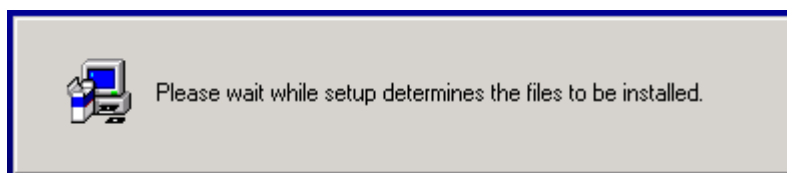
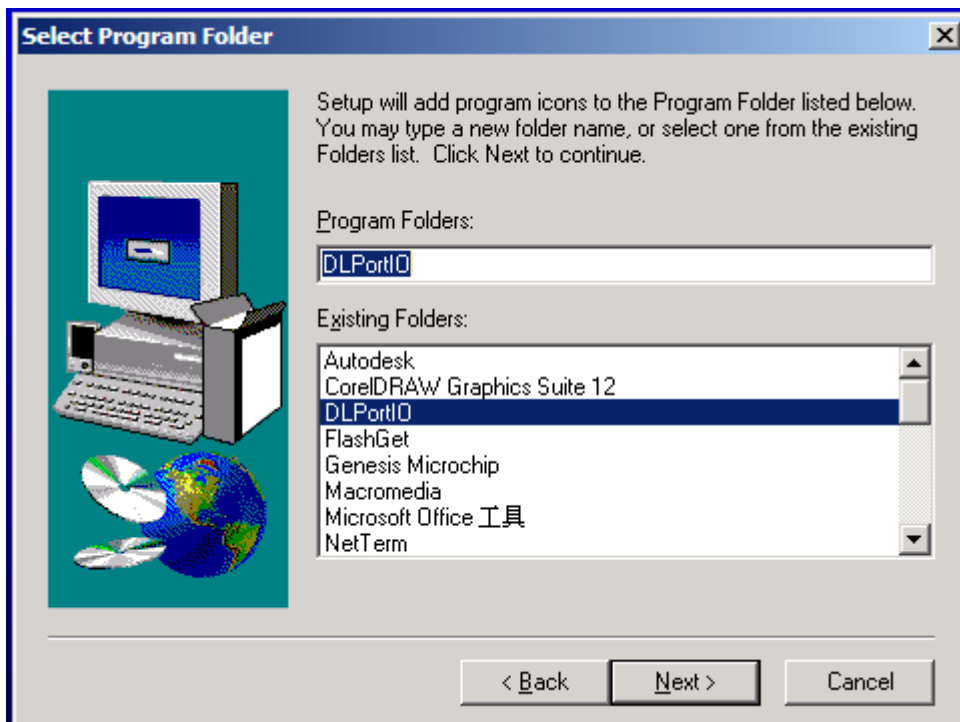
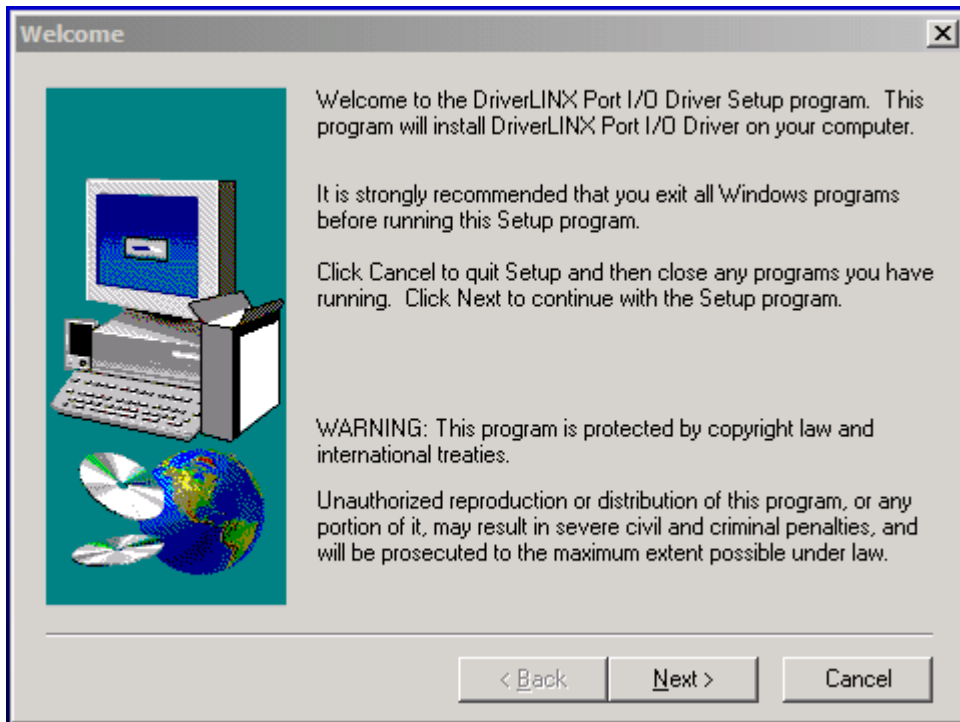
(1). Install software




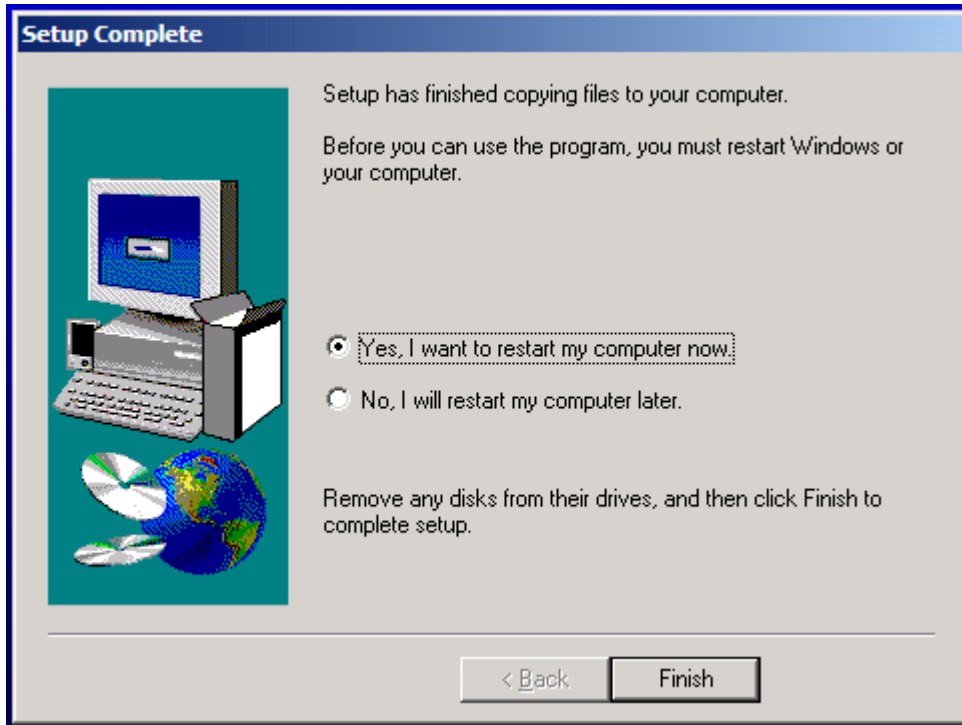
PORT95NT.EXE
PackageForTheWeb Stub
InstallShield Software Corpora...

You must install the  at the first. The processing as follows:



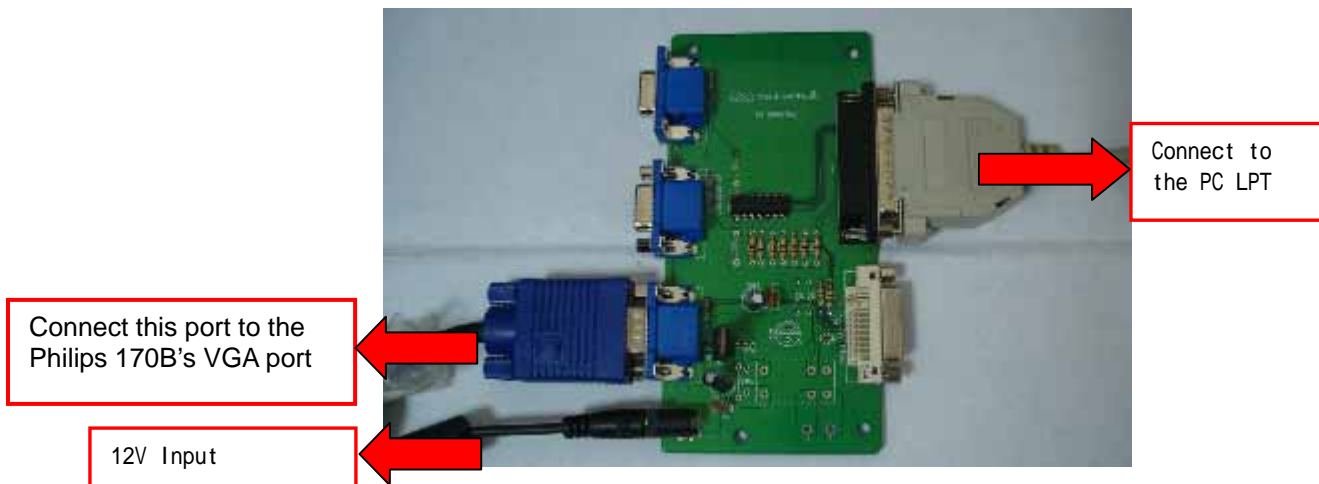


Click  to complete the installation.



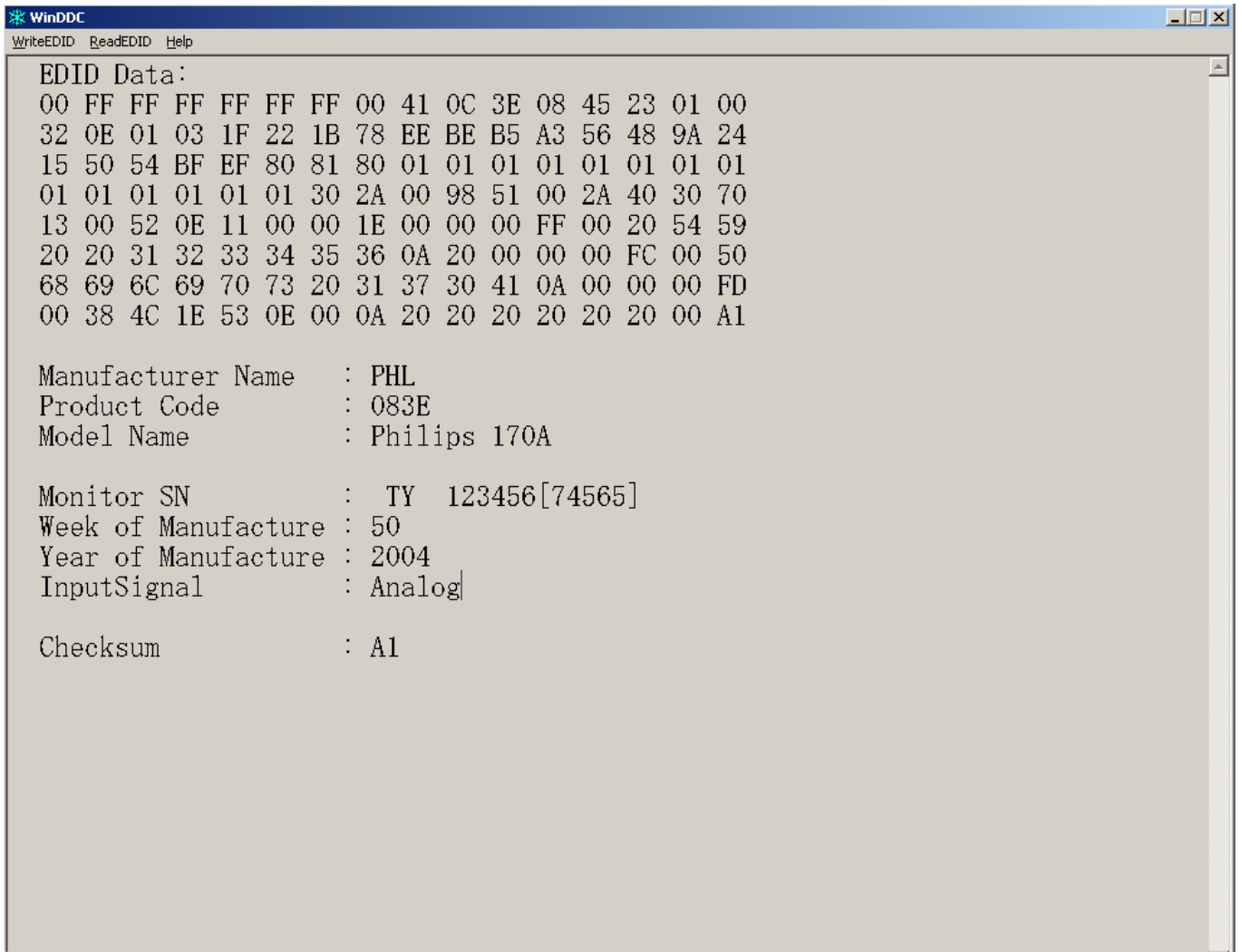
Note: After installation, you must restart the PC to take the setup to effect.

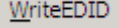
(2). Connect the DDC board as follow:

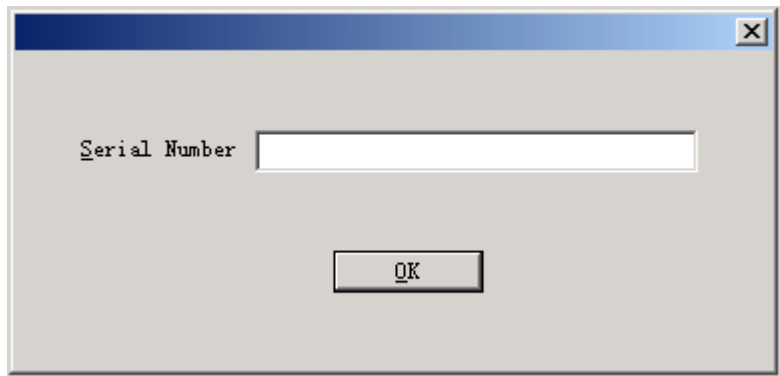


a. Double-click `WinDDC.exe` , appear as follow Figs :

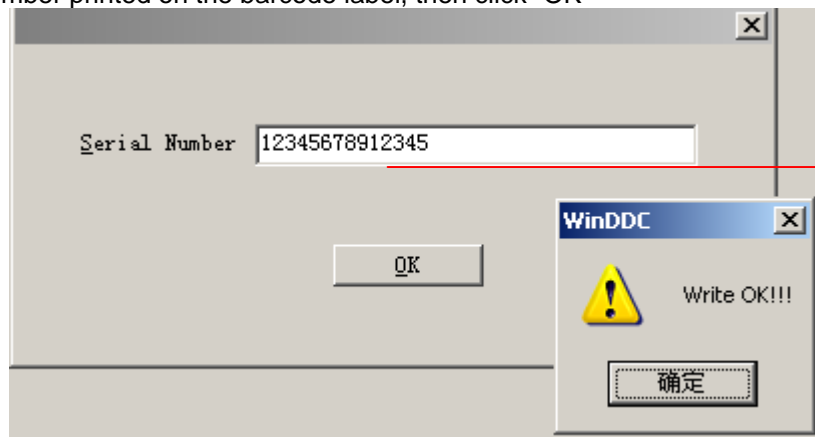
17" LCD Color Monitor



b. Click 



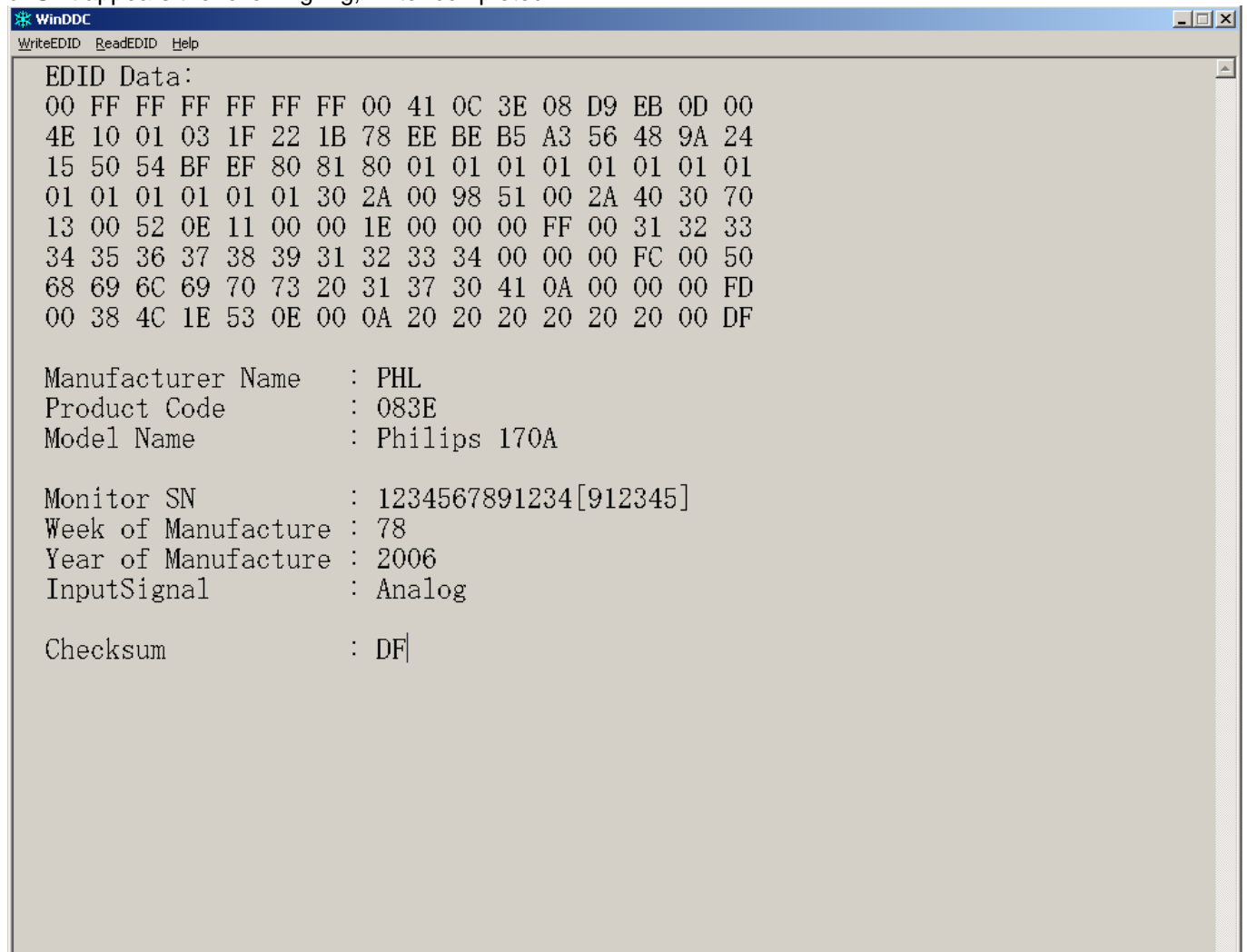
c. Key in the Serial Number printed on the barcode label, then click "OK"



14 codes,
for example.

17" LCD Color Monitor

d. Unit appears the following Fig, writer completed.



The screenshot shows a window titled "WinDDC" with a menu bar containing "WriteEDID", "ReadEDID", and "Help". The main content area displays the following EDID data:

```
EDID Data:
00 FF FF FF FF FF 00 41 0C 3E 08 D9 EB 0D 00
4E 10 01 03 1F 22 1B 78 EE BE B5 A3 56 48 9A 24
15 50 54 BF EF 80 81 80 01 01 01 01 01 01 01
01 01 01 01 01 01 30 2A 00 98 51 00 2A 40 30 70
13 00 52 0E 11 00 00 1E 00 00 00 FF 00 31 32 33
34 35 36 37 38 39 31 32 33 34 00 00 00 FC 00 50
68 69 6C 69 70 73 20 31 37 30 41 0A 00 00 00 FD
00 38 4C 1E 53 0E 00 0A 20 20 20 20 20 20 00 DF

Manufacturer Name      : PHL
Product Code           : 083E
Model Name              : Philips 170A

Monitor SN             : 1234567891234[912345]
Week of Manufacture    : 78
Year of Manufacture     : 2006
InputSignal            : Analog

Checksum               : DF
```

17" LCD Color Monitor

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 3E 08 60 AA 0B 00
16 : 62 0E 01 03 1F 22 1B 78 EE BE B5 A3 56 48 9A 24
32 : 15 50 54 BF EF 80 81 80 01 01 01 01 01 01 01
48 : 01 01 01 01 01 01 30 2A 00 98 51 00 2A 40 30 70
64 : 13 00 52 0E 11 00 00 1E 00 00 00 FF 00 31 33 32
80 : 36 35 34 39 38 37 36 34 35 31 00 00 00 FC 00 50
96 : 68 69 6C 69 70 73 20 31 37 30 41 0A 00 00 00 FD
112: 00 38 4C 1E 53 0E 00 0A 20 20 20 20 20 20 00 83

Decoded EDID data

<---Header--->

Header: 00 FF FF FF FF FF FF 00

<-x-Header-x->

<---Vendor/Product Identification--->

ID Manufacturer Name: PHL

ID Product Code: 083E

ID Serial Number: 764512

Week of Manufacture: 98

Year of Manufacture: 2004

<-x-Vendor/Product Identification-x->

<---EDID Structure Version/Revision--->

EDID Version#: 1

EDID Revision#: 3

<-x-EDID Structure Version/Revision-x->

<---Basic Display Parameters/Features--->

Video i/p definition: Analog

Signal Level Standard: 0.700V/0.300V(1.000Vpp)

Setup: Blank-to-Black expected

Separate Sync Support: Yes

Composite Sync Support: Yes

Sync On Green Video Support: Yes

Max. H. Image Size : 34cm.

Max. V. Image Size : 27cm.

Display Gamma: 2.2

Display Type: R.G.B color display

Standard Default Color Space: Yes

Features, Preferred Timing Mode: In First Detailed Timing

Features, GTF support: No

DPMS Features, Stand-by: Yes

DPMS Features, Suspend: Yes

DPMS Features, Active Off: Yes

<-x-Basic Display Parameters/Features-->

<---Color Characteristics--->

Red x: 0.638671875

Red y: 0.3388671875

Green x: 0.2841796875

Green y: 0.603515625

Blue x: 0.142578125

Blue y: 0.0849609375

White x: 0.3134765625

White y: 0.3291015625

<-x-Color Characteristics-x->

<---Established Timings--->

17" LCD Color Monitor

Established Timings 1: BF

- 720x400 @70Hz
- 640x480 @60Hz
- 640x480 @67Hz
- 640x480 @72Hz
- 640x480 @75Hz
- 800x600 @56Hz
- 800x600 @60Hz

Established Timings 2: EF

- 800x600 @72Hz
- 800x600 @75Hz
- 832x624 @75Hz
- 1024x768 @60Hz
- 1024x768 @70Hz
- 1024x768 @75Hz
- 1280x1024 @75Hz

Established Timings 3: 80

<-x-Established Timings-x->

<---Standard Timing Identification--->

Standard Timing: 1280x1024 @60Hz

<-x-Standard Timing Identification-x->

<---Detailed Timing Descriptions--->

Detailed Timing: 1280x1024 @60Hz
Detailed Timing: FF (Monitor SN) '1326549876451'
Detailed Timing: FC (Monitor name) Philips 170A
Detailed Timing: FD (Monitor limits)
Min. V. rate:56Hz
Max. V. rate:76Hz
Min. H. rate:30KHz
Max. H. rate:83KHZ

Max. Pixel Clock: 140MHz

<-x-Detailed Timing Descriptions-x->

Extension Flag: 00

Checksum: 83

14. White Balance, Luminance Adjustment

Approximately 30 minutes should be allowed for warm up before proceeding White-Balance adjustment.

1. Required instruments: Chroma 7120、 Chroma 2325 (BGA265A)
2. First connect the instruments together and turn on the LCD power.
3. Set Chroma 2325 (BGA265A) to be T144 (1280*1024/60HZ) and P105 of full white screen.
4. Enter into the factory mode:
Firstly, turn off the power, press the AUTO and OK at one time, and then turn the power on (AUTO and OK are still pressed, about 10s), release, press the menu again will activate the factory mode, the factory OSD will be at the left top of the screen.

Move the cursor to select the Hyson 170A7*****, press OK button to enter into the sub-menu; Move the cursor again to select " Cool/warm ".
5. Set Chroma-7120 CH3 as 9300K color temperature by ID key, press SC and Next key set 9300K: $x=283\pm 20$, $y=297\pm 20, Y>230$.

Set Chroma-7120 CH4 as 6500K color temperature by ID key, press SC and Next key set 6500K: $x=313\pm 20$, $y=329\pm 20, Y>200$.
6. Adjust 9300K color temperature:
 - 1). Switch the Chroma-7120 to RGB-Mode (with press "MODE" button)
 - 2). Switch the MEM. Channel to Channel 3 (with up or down arrow on chroma 7120)
 - 3). Adjust the **R** of Cool item on factory window until chroma 7120 indicator reached the value $R=100\pm 5$
 - 4). Adjust the **G** of Cool item on factory window until chroma 7120 indicator reached the value $G=100\pm 5$
 - 5). Adjust the **B** of Cool item on factory window until chroma 7120 indicator reached the value $B=100\pm 5$
 - 6). Switch the Chroma-7120 to x, y, Y Mode (with press "MODE" button), check whether the color-temperature value is within Spec (the Spec is 9300K: $x=283\pm 20$, $y=297\pm 20, Y>230$). If not in the SPEC, repeat step 3,4,5.
7. Adjust 6500K/SRGB color temperature:
 - 1). Switch the Chroma-7120 to RGB-Mode (with press "MODE" button)
 - 2). Switch the MEM. Channel to Channel 4 (with up or down arrow on chroma 7120)
 - 3). Adjust the **R** of Warm item on factory window until chroma 7120 indicator reached the value $R=100\pm 5$
 - 4). Adjust the **G** of Warm item on factory window until chroma 7120 indicator reached the value $G=100\pm 5$
 - 5). Adjust the **B** of Warm item on factory window until chroma 7120 indicator reached the value $B=100\pm 5$
 - 6). Switch the Chroma-7120 to x, y, Y Mode, check whether the color-temperature value is within Spec.
the Spec is 6500K: $x=313\pm 20$, $y=329\pm 20, Y>200$. If not in the SPEC, repeat step 3,4,5.

Turn the Power-button off to quit and save the factory mode.

15. Spare Parts List

170A7FS/00

PCB

Part No for TPV	Description	Philips 12NC
CBPC786KGMPBP	CONVERSION BOARD	9965 000 37503
CBPC786KQMPBP	CONVERSION BOARD	9965 000 37504
PWPC1742LGR2P	POWER BOARD	9965 000 37512
KEPC986KC1P	KEY BOARD ASSY	9965 000 37289
AUPC986A8P	AUDIO BOARD ASSY	9965 000 37306

Panel

Part No for TPV	Description	Philips 12NC
750GLG70E1B11M	PANEL LCD 17" E01 TLBB PHILIPS L	9965 000 37088
750GLQ70L0761M	PANEL LCD 17" EL07 R11 PHILIPS Q	9965 000 37087

Accessory

Part No for TPV	Description	Philips 12NC
089G1735631	AUDIO CABLE	9965 000 37286
089G179E30C551	FFC CABLE P-TWO	9965 000 37288
P15G82991	BKT-VESA	9965 000 35919
P15G83111 (QDI)	MAIN FRAME	9965 000 37505
P15G83112 (LPL)	MAIN FRAME	9965 000 37506
P15G83161	POWER BRACKET	9965 000 37013
P33G4972VB1L	COVER_HINGE	9965 000 35921
P33G4984VPA1C	CONTORL BUTTON	9965 000 37302
P34G1838VOA1T	BEZEL	9965 000 37507
P34G1839VB1T	BACK COVER	9965 000 37508
P37G5591VO	HINGE	9965 000 37110
P44G37908133A	CARTON	9965 000 37509
P44G37951	EPS(R)	9965 000 37510
P44G37952	EPS (L)	9965 000 37511
P85G7381	SCALER SHIELDING	9965 000 37304
P85G7421	POWER SHIELDING	9965 000 37023
Q40G17N8138A	RATING LABEL	9965 000 37513
Q70G17008132A	CD MANUAL	9965 000 37514

17" LCD Color Monitor

Main Board (LPL)

Location	Part No for TPV	Description	Philips 12NC
	CBPC786KGMPBP	CONVERSION BOARD	9965 000 37503
C710	067G215L1014N	KY25VB100M-L 6.3*11	9965 000 35958
C707	067G215L1014N	KY25VB100M-L 6.3*11	9965 000 35958
C426	067G215L4713N	KY16VB470M-L 10*12.5	9965 000 36922
C431	067G215V4704N	KY25VB47-M-CC3.0 5*11MM	9965 000 36923
C432	067G215Y4797N	LOW ESR EC 4.7 UF 50V NCC	9965 000 35959
CN405	088G35315FH	D-SUB 15PIN	9965 000 35960
X401	093G2251	CRYSTAL 12MHZ HC-49US ARG6-120	9965 000 35961
U401	056G562112	NT68623MEFG-64	9965 000 35962
U701	056G56321	AP1084K33LA	9965 000 37330
U702	056G56331	AI1117D-1.8-EI	9965 000 35963
U403	056G113324	AT24C16AN-10SU-2.7	9965 000 35964
U405	056G113334	M24C02-WMN6TP	9965 000 35965
Q406	057G4174	PMBS3904/PHILIPS-SMT(04)	9965 000 35966
Q401	057G4174	PMBS3904/PHILIPS-SMT(04)	9965 000 35966
Q402	057G4176	TR PNP PMBS3906 SOT23(PHILIPS)	9965 000 12957
Q404	057G4176	TR PNP PMBS3906 SOT23(PHILIPS)	9965 000 12957
Q405	057G7631	A03401 SOT23 BY AOS(A1)	9965 000 35968
R457	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R450	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R416	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
FB405	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
FB402	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R453	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R452	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R451	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R411	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R410	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R408	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R407	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R406	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R405	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R420	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R496	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R484	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R433	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R432	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R431	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R428	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R427	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R426	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R422	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R446	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R476	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971

17" LCD Color Monitor

R472	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R459	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R458	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R419	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R418	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R417	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R415	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R402	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R401	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R403	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R404	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R414	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R434	061L0603105	RST SM 0603 RC0603 1M PM5 R	9965 000 35973
R424	061L0603151	CHIPR 150 OHM -5% 1/16W	9965 000 35974
R423	061L0603151	CHIPR 150 OHM -5% 1/16W	9965 000 35974
R421	061L0603151	CHIPR 150 OHM -5% 1/16W	9965 000 35974
R437	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R438	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R440	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R441	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R435	061L0603222	CHIPR 2.2K OHM -5% 1/16W	9965 000 35977
R436	061L0603222	CHIPR 2.2K OHM -5% 1/16W	9965 000 35977
R442	061L0603332	CHIP 3.3K OHM 1/10W	9965 000 35978
R443	061L0603332	CHIP 3.3K OHM 1/10W	9965 000 35978
R445	061L06033900F	CHIP 390 OHM 1/10W 1%	9965 000 35979
R701	061L0603470	CHIPR 47 OHM -5% 1/16W	9965 000 35980
R412	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R413	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R447	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R460	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R478	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R479	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R454	061L0603750	CHIPR 75 OHM -5% 1/16W	9965 000 35982
R455	061L0603750	CHIPR 75 OHM -5% 1/16W	9965 000 35982
R456	061L0603750	CHIPR 75 OHM -5% 1/16W	9965 000 35982
R473	061L1206301	CHIP 300OHM 1/4W	9965 000 37516
R444	061L1206301	CHIP 300OHM 1/4W	9965 000 37516
C429	065G060310031	CHIP 10PF -0.5PF 50V NPO	9965 000 36916
C450	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C467	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C466	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C465	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C464	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C463	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C462	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C401	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917

17" LCD Color Monitor

C402	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C456	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C459	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C460	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C461	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C701	065G060310232	1000PF -10% 50V X7R	9965 000 37517
C424	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C425	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C436	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C446	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C448	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C449	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C455	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C702	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C703	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C704	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C705	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C706	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C423	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C409	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C410	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C411	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C413	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C414	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C416	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C417	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C418	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C419	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C420	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C421	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C422	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C430	065G060322031	CER1 0603 NP0 50V 22P PM5 R	9965 000 36919
C428	065G060322031	CER1 0603 NP0 50V 22P PM5 R	9965 000 36919
C427	065G060322031	CER1 0603 NP0 50V 22P PM5 R	9965 000 36919
C412	065G060322417	CAP:CER 0.22UF-20%-80% 10V SM	9965 000 37324
C403	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C404	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C405	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C406	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C407	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C408	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
FB407	071G56D102	B201209D102TT	9965 000 37332
FB408	071G56K121M	CHIP BEAD	9965 000 36567
FB413	071G56K121M	CHIP BEAD	9965 000 36567
FB415	071G59B121K	CHIP BEAD 120 OHM 0603FBM-11-1	9965 000 36933
FB401	071G59B300K		9965 000 36934

17" LCD Color Monitor

D415	093G6433	DIO SIG SM BAV99 (PHSE)R	9965 000 35994
D416	093G6442P	DIO SW BAV70 SOT23	9965 000 13591
D406	093G6433P	BAV99	5322 130 34337
D405	093G6433P	BAV99	5322 130 34337
D404	093G6433P	BAV99	5322 130 34337
ZD404	093G39P599T	MM3Z5V6B	9965 000 37329
ZD403	093G39P599T	MM3Z5V6B	9965 000 37329
ZD402	093G39P599T	MM3Z5V6B	9965 000 37329
ZD401	093G39P599T	MM3Z5V6B	9965 000 37329
D701	093G20403F	FA20-04	9965 000 36935
D702	093G20403F	FA20-04	9965 000 36935

Main Board (QDI)

Location	Part No for TPV	Description	Philips 12NC
	CBPC786KQMPBP	CONVERSION BOARD	9965 000 37504
CN406	033G801930FH	FPC CONN. 1.0MM 30P	9965 000 36924
C708	067G215L1014N	KY25VB100M-L 6.3*11	9965 000 35958
C707	067G215L1014N	KY25VB100M-L 6.3*11	9965 000 35958
C426	067G215L4713N	KY16VB470M-L 10*12.5	9965 000 36922
C431	067G215V4704N	KY25VB47-M-CC3.0 5*11MM	9965 000 36923
C432	067G215Y4797N	LOW ESR EC 4.7 UF 50V NCC	9965 000 35959
CN405	088G35315FH	D-SUB 15PIN	9965 000 35960
X401	093G2251	CRYSTAL 12MHZ HC-49US ARG6-120	9965 000 35961
U401	056G562112	NT68623MEFG-64	9965 000 35962
U701	056G56321	AP1084K33LA	9965 000 37330
U702	056G56331	AI1117D-1.8-EI	9965 000 35963
U403	056G113324	AT24C16AN-10SU-2.7	9965 000 35964
U405	056G113334	M24C02-WMN6TP	9965 000 35965
Q406	057G4174	PMBS3904/PHILIPS-SMT(04)	9965 000 35966
Q401	057G4174	PMBS3904/PHILIPS-SMT(04)	9965 000 35966
Q402	057G4176	TR PNP PMBS3906 SOT23(PHILIPS)	9965 000 12957
Q404	057G4176	TR PNP PMBS3906 SOT23(PHILIPS)	9965 000 12957
Q405	057G7631	A03401 SOT23 BY AOS(A1)	9965 000 35968
R457	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R450	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R416	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
FB402	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R453	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R452	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R451	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R411	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R410	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R408	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969

17" LCD Color Monitor

R407	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R406	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R405	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R420	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R496	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R484	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R433	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R432	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R431	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R428	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R427	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R426	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R422	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R446	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R476	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R472	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R459	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R458	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R419	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R418	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R417	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R415	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R402	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R401	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R403	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R404	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R414	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R434	061L0603105	RST SM 0603 RC0603 1M PM5 R	9965 000 35973
R424	061L0603151	CHIPR 150 OHM -5% 1/16W	9965 000 35974
R423	061L0603151	CHIPR 150 OHM -5% 1/16W	9965 000 35974
R421	061L0603151	CHIPR 150 OHM -5% 1/16W	9965 000 35974
R437	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R438	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R440	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R441	061L0603221	CHIPR 220 OHM -5% 1/16W	9965 000 35976
R435	061L0603222	CHIPR 2.2K OHM -5% 1/16W	9965 000 35977
R436	061L0603222	CHIPR 2.2K OHM -5% 1/16W	9965 000 35977
R442	061L0603332	CHIP 3.3K OHM 1/10W	9965 000 35978
R443	061L0603332	CHIP 3.3K OHM 1/10W	9965 000 35978
R445	061L06033900F	CHIP 390 OHM 1/10W 1%	9965 000 35979
R701	061L0603470	CHIPR 47 OHM -5% 1/16W	9965 000 35980
R412	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R413	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R447	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R460	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R478	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981

17" LCD Color Monitor

R479	061L0603472	CHIPR 4.7K OHM -5% 1/16W	9965 000 35981
R454	061L0603750	CHIPR 75 OHM -5% 1/16W	9965 000 35982
R455	061L0603750	CHIPR 75 OHM -5% 1/16W	9965 000 35982
R456	061L0603750	CHIPR 75 OHM -5% 1/16W	9965 000 35982
R473	061L1206301	CHIP 300OHM 1/4W	9965 000 37516
R444	061L1206301	CHIP 300OHM 1/4W	9965 000 37516
C429	065G060310031	CHIP 10PF -0.5PF 50V NPO	9965 000 36916
C450	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C470	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C469	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C467	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C466	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C465	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C464	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C463	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C462	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C401	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C402	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C456	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C461	065G060310231	CHIP 1000PF 50V NPO	9965 000 36917
C701	065G060310232	1000PF -10% 50V X7R	9965 000 37517
C424	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C425	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C436	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C446	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C448	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C449	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C455	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C702	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C703	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C423	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C409	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C410	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C411	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C413	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C414	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C416	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C417	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C418	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C419	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C420	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C421	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C422	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C430	065G060322031	CER1 0603 NP0 50V 22P PM5 R	9965 000 36919
C428	065G060322031	CER1 0603 NP0 50V 22P PM5 R	9965 000 36919
C427	065G060322031	CER1 0603 NP0 50V 22P PM5 R	9965 000 36919

17" LCD Color Monitor

C412	065G060322417	CAP:CER 0.22UF-20%-80% 10V SM	9965 000 37324
C403	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C404	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C405	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C406	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C407	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
C408	065G060347332	CHIP 0.047UF 50V X7R	9965 000 36921
FB407	071G56D102	B201209D102TT	9965 000 37332
FB408	071G56K121M	CHIP BEAD	9965 000 36567
FB416	071G59B121K	CHIP BEAD 120 OHM 0603FBM-11-1	9965 000 36933
FB415	071G59B121K	CHIP BEAD 120 OHM 0603FBM-11-1	9965 000 36933
FB401	071G59B300K		9965 000 36934
D415	093G6433	DIO SIG SM BAV99 (PHSE)R	9965 000 35994
D416	093G6442P	DIO SW BAV70 SOT23	9965 000 13591
D406	093G6433P	BAV99	5322 130 34337
D405	093G6433P	BAV99	5322 130 34337
D404	093G6433P	BAV99	5322 130 34337
ZD404	093G39P599T	MM3Z5V6B	9965 000 37329
ZD403	093G39P599T	MM3Z5V6B	9965 000 37329
ZD402	093G39P599T	MM3Z5V6B	9965 000 37329
ZD401	093G39P599T	MM3Z5V6B	9965 000 37329
D701	093G20403F	FA20-04	9965 000 36935
D702	093G20403F	FA20-04	9965 000 36935

17" LCD Color Monitor

Power Board

Location	Part No for TPV	Description	Philips 12NC
	PWPC1742LGR2P	POWER BOARD	9965 000 37512
IC902	056G1393A	PC123Y22FZOF	9965 000 36055
NR901	061G5810T	8 OHM 4A NTCR BY THINKING	9965 000 36938
R905	061G152M10464	100KOHM 5% 2W	9965 000 36939
R920	061G152M20864	0.20 OHM 2W	9965 000 36940
C808	065G3J5096ET	5PF 5% SL 3KV	9965 000 36941
C807	065G3J5096ET	5PF 5% SL 3KV	9965 000 36941
C803	065G3J5096ET	5PF 5% SL 3KV	9965 000 36941
C802	065G3J5096ET	5PF 5% SL 3KV	9965 000 36941
C801	065G6J1006ET	10PF 5% SL 6KV	9965 000 36942
C806	065G6J1006ET	10PF 5% SL 6KV	9965 000 36942
C900	065G305M1022BP	Y2 1000PF M 250VAC Y5P	9965 000 36943
C901	065G305M1022BP	Y2 1000PF M 250VAC Y5P	9965 000 36943
C912	065G305M2222BP	2200PF -20%	9965 000 36944
C936	067G215D2222KV	105 2200UF M 10V	9965 000 36945
C840	067G215D4714K	ED 470UF 25V	9965 000 36007
C907	067G215S10115K	100UF 450V	9965 000 36086
C933	067G215S1024K	ED1000UF 25V	9965 000 36946
C932	067G215S1024K	ED1000UF 25V	9965 000 36946
L902	071G5524	FERRITE BEAD	9965 000 36947
L903	071G5524	FERRITE BEAD	9965 000 36947
L901	073G17465H	LINE FILTER	9965 000 36088
L951	073G253902T	CKOLE COIL 0.8UH	9965 000 36948
L955	073G253902T	CKOLE COIL 0.8UH	9965 000 36948
T901	080GL17T900T	X'FMR SRW28LEC-T93H016	9965 000 36950
PT801	080GL19T8DN1	X'FMR DARFONTK.2006M.101	9965 000 36093
PT802	080GL19T8DN1	X'FMR DARFONTK.2006M.101	9965 000 36093
CN901	087G50132S	AC SOCKET	9965 000 36028
BD901	093G5046016	U4KB80R	9965 000 36951
D901	093G6026T52T	RECTIFIER DIODE FR107	9965 000 36030
Q901	057G60035	STP8NK80ZFP	9965 000 36959
D931	093G60267	SP10100	9965 000 36957
D935	093G15062	FMW-2156	9965 000 36958
Q901	057G60035	STP8NK80ZFP	9965 000 36959
D931	093G60267	SP10100	9965 000 36957
D935	093G15062	FMW-2156	9965 000 36958
IC901	056G564911	IC TEA1532AT S08	9965 000 36960
U811	056G60810	0Z9938	9965 000 36059
Q874	057G41712T	KEC 2N3904S-RTK/PS	9965 000 36961
Q886	057G7592	RK7002	9965 000 36033
Q885	057G7592	RK7002	9965 000 36033
Q883	057G7592	RK7002	9965 000 36033
Q881	057G7592	RK7002	9965 000 36033

17" LCD Color Monitor

Q871	057G7592	RK7002	9965 000 36033
Q873	057G7604B	PDTA144WK SOT346	9965 000 36962
Q841	057G76314	AM9945N	9965 000 36100
Q821	057G76314	AM9945N	9965 000 36100
RJ827	061L0805000	CHIPR 0OHM -5% 1/10W	9965 000 35984
R849	061L0805000	CHIPR 0OHM -5% 1/10W	9965 000 35984
R829	061L0805000	CHIPR 0OHM -5% 1/10W	9965 000 35984
R822	061L0805100	CHIPR 10 OHM -5% 1/10W	9965 000 36012
R823	061L0805100	CHIPR 10 OHM -5% 1/10W	9965 000 36012
R842	061L0805100	CHIPR 10 OHM -5% 1/10W	9965 000 36012
R843	061L0805100	CHIPR 10 OHM -5% 1/10W	9965 000 36012
R954	061L0805100	CHIPR 10 OHM -5% 1/10W	9965 000 36012
R836	061L08051002F	CHIP 10K OHM 1/8W 1%	9965 000 36020
R855	061L08051002F	CHIP 10K OHM 1/8W 1%	9965 000 36020
R856	061L08051002F	CHIP 10K OHM 1/8W 1%	9965 000 36020
R835	061L08051002F	CHIP 10K OHM 1/8W 1%	9965 000 36020
R941	061L0805102	CHIPR 1K OHM -5% 1/10W	9965 000 36963
R851	061L0805102	CHIPR 1K OHM -5% 1/10W	9965 000 36963
R888	061L0805102	CHIPR 1K OHM -5% 1/10W	9965 000 36963
R886	061L0805102	CHIPR 1K OHM -5% 1/10W	9965 000 36963
R884	061L0805102	CHIPR 1K OHM -5% 1/10W	9965 000 36963
R882	061L0805102	CHIPR 1K OHM -5% 1/10W	9965 000 36963
R831	061L0805102	CHIPR 1K OHM -5% 1/10W	9965 000 36963
R801	061L0805103	CHIPR 10K OHM -5% 1/10W	9965 000 36964
R804	061L0805103	CHIPR 10K OHM -5% 1/10W	9965 000 36964
R807	061L0805103	CHIPR 10K OHM -5% 1/10W	9965 000 36964
R880	061L0805103	CHIPR 10K OHM -5% 1/10W	9965 000 36964
R887	061L0805104	CHIPR 100K OHM -5% 1/10W	9965 000 36965
R802	061L0805104	CHIPR 100K OHM -5% 1/10W	9965 000 36965
R872	061L0805104	CHIPR 100K OHM -5% 1/10W	9965 000 36965
R885	061L0805104	CHIPR 100K OHM -5% 1/10W	9965 000 36965
R883	061L0805104	CHIPR 100K OHM -5% 1/10W	9965 000 36965
R881	061L0805104	CHIPR 100K OHM -5% 1/10W	9965 000 36965
R819	061L0805105	CHIP 1M OHM 5% 1/8W	9965 000 36013
R912	061L0805105	CHIP 1M OHM 5% 1/8W	9965 000 36013
R946	061L08051103F	110KOHM 1% 1/10W	9965 000 36966
R853	061L0805122	1.2KOHM -5%,1/8W,0805	9965 000 36967
R833	061L0805122	1.2KOHM -5%,1/8W,0805	9965 000 36967
R923	061L0805123	CHIP 12KOHM 1/8W	9965 000 36968
R914	061L08051241F	CHIP 1.24K OHM 1/10W 1%	9965 000 36969
R916	061L0805152	CHIPR 1.5K OHM -5% 1/10W	9965 000 36970
R873	061L0805202	CHIP 2KOHM 1/8W	9965 000 36971
R816	061L0805203	CHIPR 20KOHM -5% 1/8W	9965 000 36972
R865	061L08052320F	CHIP 232OHM	9965 000 36973
R815	061L0805303	CHIP 30K OHM 1/8W	9965 000 36974
R813	061L08053302F	CHIP 33KOHM 1/8W 1%	9965 000 36975

17" LCD Color Monitor

R874	061L0805331	CHIP 330 OHM 5% 1/10W	9965 000 36976
R917	061L0805333	CHIP 33KOHM 1% 1/8W	9965 000 36977
R811	061L0805335	3.3M 0805	9965 000 36978
R943	061L08055101F	CHIP 5.1K OHM 1/10W 1%	9965 000 36979
R812	061L0805624	CHIP 620KOHM 5% 0805 1/8W	9965 000 36980
R825	061L0805752	CHIP 7.5K OHM 1/10W	9965 000 36981
R837	061L0805752	CHIP 7.5K OHM 1/10W	9965 000 36981
R944	061L08059101F	CHIP 9.1K OHM 1/10W 1%	9965 000 36982
R945	061L08059101F	CHIP 9.1K OHM 1/10W 1%	9965 000 36982
R926	061L1206000	CHIPR 0 OHM -5% 1/8W	9965 000 36067
R918	061L1206000	CHIPR 0 OHM -5% 1/8W	9965 000 36067
R907	061L1206103	CHIP 10KOHM 5% 1/4W	9965 000 36016
R904	061L1206155	1.5M/0805	9965 000 36983
R910	061L1206155	1.5M/0805	9965 000 36983
R937	061L1206182	CHIP 1.8KOHM	9965 000 36984
R931	061L1206229	CHIP 2.2OHM 5% 1/8W	9965 000 36985
R932	061L1206229	CHIP 2.2OHM 5% 1/8W	9965 000 36985
R927	061L1206472	CHIP 4.7KOHM 5% 1/4W	9965 000 36986
R902	061L1206684	CHIPR 680K OHM -5% 1/8W	9965 000 36024
R901	061L1206684	CHIPR 680K OHM -5% 1/8W	9965 000 36024
R900	061L1206684	CHIPR 680K OHM -5% 1/8W	9965 000 36024
C838	065G080510231	1000PF 50V NPO	9965 000 36991
C861	065G080510231	1000PF 50V NPO	9965 000 36991
C822	065G080510232	CHIP 1000P 50VX7R 0805	9965 000 36038
C823	065G080510232	CHIP 1000P 50VX7R 0805	9965 000 36038
C842	065G080510232	CHIP 1000P 50VX7R 0805	9965 000 36038
C843	065G080510232	CHIP 1000P 50VX7R 0805	9965 000 36038
C887	065G080510322	CHIP 0.01UF 25V X7R 0805	9965 000 36039
C885	065G080510322	CHIP 0.01UF 25V X7R 0805	9965 000 36039
C883	065G080510322	CHIP 0.01UF 25V X7R 0805	9965 000 36039
C881	065G080510322	CHIP 0.01UF 25V X7R 0805	9965 000 36039
C819	065G080510322	CHIP 0.01UF 25V X7R 0805	9965 000 36039
C913	065G080510422	0.1UF -10% 25V X7R 080	9965 000 36040
C955	065G080510422	0.1UF -10% 25V X7R 080	9965 000 36040
C951	065G080510422	0.1UF -10% 25V X7R 080	9965 000 36040
C812	065G080510422	0.1UF -10% 25V X7R 080	9965 000 36040
C914	065G080510522	CHIP 1UF 25V X7R 0805	9965 000 36073
C841	065G080510522	CHIP 1UF 25V X7R 0805	9965 000 36073
C846	065G080510522	CHIP 1UF 25V X7R 0805	9965 000 36073
C874	065G080510522	CHIP 1UF 25V X7R 0805	9965 000 36073
C915	065G080512322	CHIP 12NF 25V X7R 0805	9965 000 36992
C860	065G080522122	CHIP 220PF 25V X7R 0805	9965 000 36993
C847	065G080522322	CHIP 0.022UF 25V X7R 0805	9965 000 36043
C831	065G080533132	CHIP 330P 50V X7R 0805	9965 000 36994
C865	065G080533332	CHIP 0.033UF 50V	9965 000 36995
C917	065G080533422	0.33UF -10% 25V X7R 0805	9965 000 36074

17" LCD Color Monitor

C858	065G080539131	CHIP 390PF 50V	9965 000 36996
C813	065G080556131	CHIP 560PF 50V NPO 0805	9965 000 36997
C941	065G080556221	5600PF/25V/NPO/J	9965 000 36998
D851	093G6433	DIO SIG SM BAV99 (PHSE)R	9965 000 35994
D831	093G6433	DIO SIG SM BAV99 (PHSE)R	9965 000 35994
D833	093G6442PP	BAV70 SOT-23	9965 000 35995
D883	093G6444S	LL4148WP	9965 000 36035
ZD874	093G39S24T	RLZ 5.6B LLDS	9965 000 36079
ZD975	093G39S25T	RLZ5.1B LLDS	9965 000 37002
R952	061G17210052T	100HM 5% 1/4W	9965 000 36987
R915	061G17210052T	100HM 5% 1/4W	9965 000 36987
R871	061G17210352T	CFR 10KOHM -5% 1/4W	9965 000 36988
R861	061G20010452T	100K OHM 1/4W 1%	9965 000 36989
R863	061G20033352T	33KOHM 1% 1/4W	9965 000 36990
R859	061G212Y625KT	MGFR 6.2MOHM -5% 1/2W	9965 000 36083
R839	061G212Y625KT	MGFR 6.2MOHM -5% 1/2W	9965 000 36083
C920	065G1K1025T	1000PF/1KV	9965 000 36999
C931	065G517K3322T	3.3NF 500V	9965 000 37000
C927	067G3056804KT	ELCAP 68UF M 25V 105 KINGNICH	9965 000 37001
C952	067G215B2214KT	LOW E,S,R 220UF -20% 25V	9965 000 36076
FB905	071G5523S	BEAD	9965 000 37004
FB901	071G5529	FERRITE BEAD	9965 000 36053
F902	084G554	FOSE 382-5A 250V SICKMANN	9965 000 37005
F901	084G557GP	FUSE 3.15A 250V	9965 000 37006
ZD951	093G39A3552T	ZENER DIODE P6KE8.2A ZOWIE	9965 000 37007
D926	093G6038T52T	FR103	9965 000 36095
D919	093G6038T52T	FR103	9965 000 36095

17" LCD Color Monitor

Key Board

Location	Part No for TPV	Description	Philips 12NC
	KEPC986KC1P	KEY BOARD ASSY	9965 000 37289
SW3	077G6001GCJ	TACT SWITCH TSPB-2 -NP	9965 000 36000
SW2	077G6001GCJ	TACT SWITCH TSPB-2 -NP	9965 000 36000
SW1	077G6001GCJ	TACT SWITCH TSPB-2 -NP	9965 000 36000
LED1	081G121GP	GP32032ME	9965 000 36001
CN102	088G30237B	PHONE JACK	9965 000 37333
R109	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R101	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R110	061L0603101	CHIPR 100 OHM -5% 1/16W	9965 000 35969
R104	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R103	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R102	061L0603473	RST SM 0603 RC0603 47K PM5 R	9965 000 36003
R106	061L0603473	RST SM 0603 RC0603 47K PM5 R	9965 000 36003
C105	065G060310332	0.01UF -10% 50V X7R	9965 000 36004
C104	065G060310332	0.01UF -10% 50V X7R	9965 000 36004
C103	065G060310332	0.01UF -10% 50V X7R	9965 000 36004
C102	065G060310332	0.01UF -10% 50V X7R	9965 000 36004
C101	065G060310332	0.01UF -10% 50V X7R	9965 000 36004
L101	071G56K121M	CHIP BEAD	9965 000 36567
L102	071G59B121K	CHIP BEAD 120 OHM 0603FBM-11-1	9965 000 36933

Audio Board

Location	Part No for TPV	Description	Philips 12NC
	AUPC986A8P	AUDIO BOARD ASSY	9965 000 37306
C605	067G215L2214N	KY25VB220-M-L8*11.5MM	9965 000 37314
C622	067G215L2214N	KY25VB220-M-L8*11.5MM	9965 000 37314
C602	067G215S1023N	KZE16VB1000-M-L10*20	9965 000 37315
CN601	088G30214K	PHONE JACK 5PIN	9965 000 37328
U601	056G61624	TPA6030A4PWPRG4	9965 000 37316
R602	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R612	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R618	061L0603000	RST SM 0603 JUMP MAX 0R05 R	9965 000 36002
R604	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R617	061L0603102	CHIPR 1K OHM -5% 1/16W	9965 000 35970
R603	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R610	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R611	061L0603103	CHIPR 10K OHM -5% 1/16W	9965 000 35971
R613	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R609	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R606	061L0603104	RST SM 0603 RC0603 100K PM5 R	9965 000 35972
R601	061L0603153	CHIPR 15KOHM -5% 1/10W	9965 000 37322
R615	061L0603153	CHIPR 15KOHM -5% 1/10W	9965 000 37322
R614	061L0603183	CHIP 18K OHM 1/10W	9965 000 37318

R605	061L0603333	CHIP 33K OHM 1/16W	9965 000 37319
R616	061L0603512	CHIP 5.1K OHM 1/16W	9965 000 37320
R608	061L0603512	CHIP 5.1K OHM 1/16W	9965 000 37320
R607	061L0603683	CHIP 68K OHM 1/16W	9965 000 37321
C601	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C604	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C606	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C623	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C624	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C627	065G060310131	CER1 0603 NP0 50V 100P PM5 R	9965 000 37323
C625	065G060310332	0.01UF -10% 50V X7R	9965 000 36004
C607	065G060310332	0.01UF -10% 50V X7R	9965 000 36004
C611	065G060310412	CER2 0603 X7R 16V 100N PM10 R	9965 000 36918
C616	065G060322417	CAP:CER 0.22UF-20%-80% 10V SM	9965 000 37324
C614	065G060347232	CHIP 4700PF 50V X7R	9965 000 37325
C621	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C619	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C617	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C613	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C612	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C610	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C609	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C608	065G060347417	CHIP CAP.CER 0.47UF -20% -80%	9965 000 37326
C626	065G080510537	CHIP 1UF 50V Y5V	9965 000 37327
C620	065G080510537	CHIP 1UF 50V Y5V	9965 000 37327
C618	065G080510537	CHIP 1UF 50V Y5V	9965 000 37327
FB608	071G56K121M	CHIP BEAD	9965 000 36567
FB607	071G56K121M	CHIP BEAD	9965 000 36567
FB604	071G56K121M	CHIP BEAD	9965 000 36567
FB603	071G56K121M	CHIP BEAD	9965 000 36567
FB602	071G56K121M	CHIP BEAD	9965 000 36567
FB601	071G56K121M	CHIP BEAD	9965 000 36567

16. General Product Specification

CONTENTS

- 1 FOREWORD
- 2 PRODUCT PROFILE
 - 2.1 LCD
 - 2.2 SCANNING FREQUENCIES
 - 2.3 AMBIENT TEMPERATURE : 0 °C - 35 °C
- 3 ELECTRICAL CHARACTERISTICS
 - 3.1 INTERFACE SIGNALS
 - 3.2 INTERFACE
 - 3.3 TIMING REQUIREMENT
 - 3.4 HORIZONTAL SCANNING
 - 3.5 VERTICAL SCANNING
 - 3.6 POWER INPUT CONNECTION
 - 3.7 POWER MANAGEMENT
 - 3.8 DISPLAY IDENTIFICATION
 - 3.9 USB HUB
- 4 VISUAL CHARACTERISTICS
 - 4.1 TEST CONDITIONS
 - 4.2 BRIGHTNESS
 - 4.3 IMAGE SIZE
 - 4.4 BRIGHTNESS UNIFORMITY
 - 4.5 CHECK CROSS TALK (S)
 - 4.6 WHITE COLOR ADJUSTMENT
- 5 MECHANICAL CHARACTERISTICS
 - 5.1 COSMETIC - PHILIPS ID
 - 5.2 MECHANICAL DATA FILES - PROE FILES REQUIRED
 - 5.3 LOCATION OF PHILIPS LOGO - PER PHILIPS MAKE-UP SHEET
 - 5.4 THE GAP BETWEEN PANEL AND FRONT BEZEL < 1.2MM
 - 5.5 LOCATION OF CONTROL ICONS - PER PHILIPS MAKE-UP SHEET
 - 5.6 COLOR FOR RESIN/PAINT - PER PHILIPS MAKE-UP SHEET
 - 5.7 RESINS
 - 5.8 IF PAINT IS USED
 - 5.9 PLASTIC MOLD TOOLING
 - 5.10 PLASTICS FLAMMABILITY
 - 5.11 TEXTURE/GLOSSING OF HOUSING
 - 5.12 TILT AND SWIVEL BASE
 - 5.13 LABEL
 - 5.14 PRODUCT DIMENSION / WEIGHT
 - 5.15 TRANSPORTATION
 - 5.16 PALLET / CONTAINER LOADING
- 6 ENVIRONMENTAL CHARACTERISTICS
 - 6.1 SUSCEPTIBILITY OF DISPLAY TO EXTERNAL ENVIRONMENT
 - 6.2 DISPLAY DISTURBANCES FROM EXTERNAL ENVIRONMENT
 - 6.3 DISPLAY DISTURBANCES TO EXTERNAL ENVIRONMENT
- 7 RELIABILITY
 - 7.1 MEAN TIME BETWEEN FAILURES
- 8 QUALITY ASSURANCE REQUIREMENTS
 - 8.1 ACCEPTANCE TEST
- 9 SERVICEABILITY
- 10 PHILIPS' FLAT PANEL MONITORS PIXEL DEFECT POLICY

- . ANALOG D-SUB INPUT
- . AUTO PICTURE ADJUSTMENT
- . 17 FACTORY PRESET MODES AND 33 PRESET MODES WHICH CAN BE RECOVERED TO PRESET MODES
- . USER FRIENDLY OSD DISPLAY FOR MODE IDENTIFICATION /ADJUSTMENT
- . MAX. RESOLUTION 1280*1024 NON-INTERLACED AT 75 HZ
- . 17" COLOR TFT LCD FLAT PANEL
- . EASY TILT & FOLDABLE BASE
- . FULL RANGE POWER SUPPLY 90 – 264 VAC
- . CE ENVIRONMENTAL POLICY
- . ANTI-GLARE TO REDUCE LIGHT REFLECTION
- . SMART MANAGEMENT AND SMART CONTROL REQUIREMENT
- . POWER MANAGEMENT CAPABILITY
- . AUDIO SUPPORT
- . SOG SUPPORT
- . TCO 03
- . RoHS REQUIRED
- . WEEE REQUIRED

17" LCD Color Monitor

1. FOREWORD

This specification describes a 17" wide SXGA multi-scan color TFT LCD monitor with max. resolution up to 1280*1024/ 75 Hz non-interlaced. All optical characteristics (including WHITE-D, Brightness, and so on) are determined according to panel specification after warming up approximate 30 minutes that brightness stability is optimal, and follow strictly after panel specification.

2. PRODUCT PROFILE

This display monitor unit is a color display monitor enclosed in PHILIPS global styling cabinet, which has an integrated tilt and swivel base.

2.1. LCD

Type NR. : LM170E01-TLBB
Outside dimensions : 358.5(w)*296.5(h)*17.0(d) (Typ) mm
Pitch (mm) : 0.264 x 0.264mm
Color pixel arrangement : RGB vertical stripes
Display surface : low reflection, antiglare with hard coating
Color depth : 16M colors (8 bits)
Backlight : 4 CCFL's
Active area(WxH) : 17" diagonal
View angle : Horizontal $\pm 70^\circ$, Vertical $+75^\circ, -65^\circ$ (CR>10)
Contrast ratio : 700:1(Typ.) 500:1(Min.)
White luminance : Original color 250 nits (Min), 300 nits (Typ.)
Gate IC : Toshiba (TLBB , TLBD)
Source IC : SS (TLBB) , NEC (TLBD)
Response time : 8ms

Type NR. : QD17EL07-Rev11
Outside dimensions : 358.5(w)*296.5(h)*17.0(d)(Max)mm
Pitch (mm) : 0.264 x 0.264mm
Color pixel arrangement : RGB vertical stripes
Display surface : low reflection, antiglare with hard coating
Color depth : 16M colors (8 bits)
Backlight : 4 CCFL's
Active area(WxH) : 17" diagonal
View angle : Horizontal $\pm 70^\circ$, Vertical $+65^\circ, -60^\circ$ (CR>10)
Contrast ratio : 600:1(Typ.) 400:1(Min.)
White luminance : Original color 220nits (Min), 270nits (Typ.)
Gate IC : Novatek NT39328 , Sunplus SPLC1698A
Source IC : Novatek NT39604, Sunplus SPFD6464A
Response time : 8ms

2.2. Scanning frequencies

Hor. : 30 – 88 KHz
Ver. : 56 - 76 Hz
Video dot rate : 165 MHz
Power input : 90-264 V AC, 50/60 \pm 2 Hz
Power consumption : < 57W maximum, 33W (typ.)

Functions :

- (1) D-SUB: analog R/G/B separate inputs, H/V sync separated, Composite (H+V) TTL level, SOG sync
- (2) DVI_A: NA
- (3) DVI_D: NA

2.3 Ambient temperature : 0 °C - 35 °C

3. Electrical characteristics

3.1 Interface signals

The input signals can be applied in three different modes :

1). D-Sub Analog

Input signal : Video, Hsync., Vsync

Video : 0.7 Vp-p, input impedance, 75 ohm @DC

Sync. : Separate sync TTL level , input impedance 2.2k ohm terminate

Hsync: Positive/Negative

Vsync: Positive/Negative

Composite sync TTL level, input impedance 5k ohm terminate
(Positive/Negative)

Sync on green video 0.3 Vp-p Negative (Video 0.7 Vp-p Positive)

2). Intel DVI Digital

NA

3). Audio

Input signal: 500mVrms

Loudspeaker (Impedance: 16 Ohm +/-15%): 2W+2W stereo for RMS Power

Frequency range: 320Hz - 13KHz

Headphone connection will mute speakers

3.2 Interface

3.2.1 D-Sub Cable

Length : 1.8 M +100/- 0 mm (fixed)

Connector type : D-Sub male with DDC2B pin assignments.

Blue connector thumb-operated jack screws

pin assignment :

PIN No.	SIGNAL
1	Red
2	Green/ SOG
3	Blue
4	Sense (GND)
5	Cable Detect
6	Red GND
7	Green GND
8	Blue GND
9	DDC +5V
10	GND
11	Sense (GND)
12	Bi-directional data
13	H/H+V sync
14	V-sync
15	Data clock

17" LCD Color Monitor

3.2.2 DVI Cable NA

3.2.3 Audio Cable

Length. : 1.8 M +/- 50 mm
 Connector type. : 3.5-mini jack with lime color on the both end.

3.2.4 Software control functions via OSD/control adjustable functions:

(1) PC Analog only Signal Input Mode

Adjustable functions:

1 st LEVEL	2 nd LEVEL	3rd LEVEL
MONITOR SETUP		
Exit		
Brightness & Contrast	Brightness Contrast	
Color	Original Color, 9300K,6500K, sRGB, User Define	
Position & Size	Horizontal Vertical Size	Full Screen
		Native Mode
		Fill with Aspect
Input Selection	Analog (D-Sub)	
More Settings	Language	/00 : English, Espanol, Frencais, Deutsch, Italiano, , Russian /27 : English, Espanol, Frencais, Portuguess, S-Chinese /69,/75,/93,/96 : English, Espanol, Frencais, Deutsch, Italiano, , S-Chinese
	Phase/ Clock	Phase
		Clock
	Audio Options	Stand-alone (On, Off) Mute (On, Off)
	OSD Settings	Horizontal Vertical
Reset	No Yes	
Serial No.:		
(Serial No.)		
Timing Mode		
Up/Down to Move, <u>ok</u> to Confirm		

Remark : " To move " at OSD window right-bottom.

" To adjust " at OSD window left-bottom.

Remark : Color Temperature factory default setting = 6500K for all regions.

Remark: Audio Selection - Stand-alone – On: Isolate video and audio control input

Stand-alone – Off: Integrate video and audio control input

Mute – On: Turn off Audio input

Mute – Off: Turn on Audio input

Reset - No: Exit

Yes: Auto adjustment for displaying timing mode and recall factory preset

(2) Digital interface OSD: NA

17" LCD Color Monitor

3.3 Timing requirement

3.3.1 Mode storing capacity

Factory preset modes : 17

Preset modes : 33

3.3.1.1 Factory preset modes:

Item	H.Freq. (KHz)	Mode	Resolution	V.Freq. (Hz)	Item	H.Freq. (KHz)	Mode	Resolution	V.Freq. (Hz)
1	31.469	DOS	720x400	70.087	11	60.023	VESA	1024x768	75.029
2	31.469	VESA	640x480	59.940	12	67.500	VESA	1152x864	75.000
3	37.861	VESA	640x480	72.809	13	60.000	VESA	1280x960	60.000
4	37.500	VESA	640x480	75.000	14	63.981	VESA	1280x1024	60.020
5	35.156	VESA	800x600	56.250	15	79.976	VESA	1280x1024	75.025
6	37.879	VESA	800x600	60.317	16	35.000	MACINTOSH	640x480	67.000
7	48.077	VESA	800x600	72.188	17	49.700	MACINTOSH	832x624	75.000
8	46.875	VESA	800x600	75.000	18				
9	48.363	VESA	1024x768	60.004	19				
10	56.476	VESA	1024x768	70.069	20				

3.3.1.2

Preset Modes

MODE NO.	1	2	3	4
RESOLUTION	640 x 350	720 x 400	640 x 480	640 x 480
Dot clock (MHz)	25.175	28.321	25.175	30.24
f h	31.469kHz	31.468kHz	31.5kHz	35 kHz
A (us)	31.778(800 dots)	31.78(900dots)	31.778(800 dots)	28.571 (864 dots)
B (us)	3.813(96 dots)	3.813(108dots)	3.813(96 dots)	2.116 (64 dots)
C (us)	1.907(48 dots)	1.907(54dots)	1.907(48 dots)	3.175(96 dots)
D (us)	25.422(640 dots)	25.42(720dots)	25.422(640 dots)	21.164(640 dots)
E (us)	0.636(16 dots)	0.636(18dots)	0.636(16 dots)	2.116(64 dots)
f v	70Hz(70.09)	70Hz(70.085)	60Hz	67Hz
O (ms)	14.27(449 lines)	14.27(449 lines)	16.683 (525 lines)	15 (525 lines)
P (ms)	0.064(2 lines)	0.064(2 lines)	0.064 (2 lines)	0.086(3 lines)
Q (ms)	1.907(60 lines)	1.080(34 lines)	1.049 (33 lines)	1.114(39 lines)
R (ms)	11.12(350 lines)	12.71(400 lines)	15.253 (480 lines)	13.714(480 lines)
S (ms)	1.175(37 lines)	0.381(13 lines)	0.317 (10 line)	0.086(3 line)
SYNC. H/V	+/-	-/+	- / -	- / -
POLARITY				
SEP. SYNC	Y	Y	Y	Y

17" LCD Color Monitor

MODE NO.	5	6	7	8
RESOLUTION	640 x 480	640 x 480	640x480	800 x 600
Dot clock(MHz)	31.500	31.501	36	36
f h	37.861kHz	37.5kHz	36kHz	35.2kHz
A (us)	26.413(832 dots)	26.667 (840 dots)	23.111 (832 dots)	28.444(1024 dots)
B (us)	1.270(40 dots)	2.032 (54 dots)	1.556 (56 dots)	2.000 (72 dots)
C (us)	3.810(120 dots)	3.81 (120 dots)	2.222 (80 dots)	3.556 (128 dots)
D (us)	20.317(640 dots)	20.317 (640 dots)	17.778 (640 dots)	22.222(800 dots)
E (us)	1.016(32 dots)	0.508 (26 dots)	1.555 (56 dots)	0.666 (24 dots)
f v	72.809Hz	75Hz	85Hz	56Hz
O (ms)	13.735(520 lines)	13.333 (500 lines)	11.763 (509 lines)	17.778 (625 lines)
P (ms)	0.079(3 lines)	0.08 (3 lines)	0.069 (3 lines)	0.057 (2 lines)
Q (ms)	0.528(20 lines)	0.427 (16 lines)	0.578 (25 lines)	0.626 (22 lines)
R (ms)	12.678(480 lines)	12.8 (480 lines)	11.093 (480 lines)	17.06 (600 lines)
S (ms)	0.45(17 lines)	0.026 (1 lines)	0.023 (1 lines)	0.02 (1line)
SYNC. H/V	-/-	- / -	-/-	+ / +
POLARITY				
SEP . SYNC	Y	Y	Y	Y

MODE NO.	9	10	11	12
RESOLUTION	800 x 600	800 x 600	800 x 600	800 x 600
Dot clock(MHz)	40	50	49.498	56.251
f h	37.9kHz	48.077kHz	46.9kHz	53.7kHz
A (us)	26.4 (1056 dots)	20.80 (1040dots)	21.333(1056 dots)	18.631(1048 dots)
B (us)	3.2 (128 dots)	2.400 (120 dots)	1.616 (80 dots)	1.138 (64 dots)
C (us)	2.2 (88 dots)	1.280 (64 dots)	3.232 (160 dots)	2.702 (152 dots)
D (us)	20 (800 dots)	16.00 (800 dots)	16.162 (800 dots)	14.222 (800 dots)
E (us)	1 (40 dots)	1.120 (56 dots)	0.323 (16 dots)	0.569 (32 dots)
f v	60Hz	72Hz(72.188)	75Hz	85Hz
O (ms)	16.579 (628 lines)	13.85 (666 lines)	13.333 (625 lines)	11.756(631 lines)
P (ms)	0.106 (4 lines)	0.125 (6 lines)	0.064 (3 lines)	0.056 (3 lines)
Q (ms)	0.607 (23 lines)	0.478 (23 lines)	0.448 (21 lines)	0.503 (27 lines)
R (ms)	15.84 (600 lines)	12.48 (600 lines)	12.8 (600 lines)	11.179 (600 lines)
S (ms)	0.026 (1 line)	0.770 (37 line)	0.021 (1 line)	0.018 (1 lines)
SYNC. H/V	+ / +	+ / +	+ / +	+ / +
POLARITY				
SEP . SYNC	Y	Y	Y	Y

MODE NO.	13	14	15	16
RESOLUTION	832 x 624	1024 x 768	1024 x 768	1024 x 768
Dot clock(MHz)	57.28	65	75	78.75
f h	49.7kHz	48.363kHz	56.5kHz	60kHz
A (us)	20.11(1152 dots)	20.677(1344 dots)	17.707(1328 dots)	16.66 (1312dots)
B (us)	1.117(64 dots)	2.092(136 dots)	1.813(136 dots)	1.219 (96 dots)
C (us)	3.91(224 dots)	2.462(160 dots)	1.920(144 dots)	2.235 (176 dots)
D (us)	14.52(832 dots)	15.754(1024 dots)	13.653(1024 dots)	13.003(1024 dots)
E (us)	0.563(32 dots)	0.369(24 dots)	0.321 (24 dots)	0.203 (16 dots)
f v	75Hz	60.004Hz	70.004Hz	75Hz (75.000)
O (ms)	13.41(667 lines)	16.666(806 lines)	14.272(806 lines)	13.328 (800 lines)
P (ms)	0.06(3 lines)	0.124(6 lines)	0.106(6 lines)	0.05(3 lines)
Q (ms)	0.784(39 lines)	0.600(29 lines)	0.514(29 lines)	0.446 (28 lines)
R (ms)	12.55(624 lines)	15.880(768 lines)	13.599(768 lines)	12.80 (768 lines)
S (ms)	0.016(1 lines)	0.062(3 lines)	0.053(3 lines)	0.017 (1 line)
SYNC. H/V	+/+	- / -	-/-	+ / +
POLARITY				
SEP . SYNC	Y	Y	Y	Y

17" LCD Color Monitor

MODE NO.	17	18	19	20
RESOLUTION	1024 x 768	1024 x 768	1152 x 864	1152 x 864
Dot clock(MHz)	83.096	94.5	79.9	94.5
f h	61.1kHz	68.7kHz	54.0kHz	63.9kHz
A (us)	16.367 (1360dots)	14.561(1376 dots)	18.523(1480 dots)	15.661(1480 dots)
B (us)	1.348 (112 dots)	1.016 (96 dots)	1.952(156 dots)	1.016(96 dots)
C (us)	2.022 (168 dots)	2.201 (208 dots)	1.352(108 dots)	1.116(105 dots)
D (us)	12.323(1024 dots)	10.836(1024 dots)	14.418(1152 dots)	12.19(1152 dots)
E (us)	0.674 (56 dots)	0.508 (48 dots)	0.801(64 dots)	1.339(127 dots)
f v	76Hz	85Hz	60Hz	70Hz
O (ms)	13.142 (803 lines)	11.765 (808 lines)	16.671(900lines)	14.283(912lines)
P (ms)	0.049 (3 lines)	0.044 (3 lines)	0.148(8 lines)	0.047(3lines)
Q (ms)	0.507 (31 lines)	0.524 (36 lines)	0.445(24 lines)	0.689(44 lines)
R (ms)	12.57 (768 lines)	11.183 (768lines)	16.004(864 lines)	13.531(864 lines)
S (ms)	0.016 (1 line)	0.014 (1 line)	0.074(4 lines)	0.016(1 lines)
SYNC. H/V	+ / +	+ / +	+ / +	+ / +
POLARITY				
SEP. SYNC	Y	Y	Y	Y

MODE NO.	21	22	23	24
RESOLUTION	1152 x 864	1152 x 870	1152 x 900	1152 x 900
Dot clock(MHz)	108	100	94.5	108
f h	67.5kHz	68.7kHz	61.8kHz	71.8kHz
A (us)	14.815(1600 dots)	14.56 (1456 dots)	16.169(1528 dots)	13.926 (1054dots)
B (us)	1.185 (128 dots)	1.28 (128 dots)	1.354 (128 dots)	1.185 (128 dots)
C (us)	2.37 (256 dots)	1.44(144 dots)	2.201 (208 dots)	1.778 (192 dots)
D (us)	10.667 (1152 dots)	11.52 (1152 dots)	12.19 (1152 dots)	10.667 (1152 dots)
E (us)	0.593 (64 dots)	0.32 (32 dots)	0.424 (40 dots)	0.296 (32 dots)
f v	75Hz	75Hz	66Hz	76Hz
O (ms)	13.333 (900 lines)	13.333 (916 lines)	15.151 (937lines)	13.132 (943 lines)
P (ms)	0.044 (3 lines)	0.044 (3 lines)	0.065 (4 lines)	0.111 (8 lines)
Q (ms)	0.474 (32 lines)	0.568(39 lines)	0.501 (31 lines)	0.46 (33 lines)
R (ms)	12.8 (864 lines)	12.678 (870 lines)	14.552 (900lines)	12.533 (900 lines)
S (ms)	0.015 (1 lines)	0.043 (4 line)	0.033 (2 line)	0.028 (2 lines)
SYNC. H/V	- / -	- / -	Serr-	+ / +
POLARITY				
SEP. SYNC	Y	Y	Y	Y

MODE NO.	25	26	27	28
RESOLUTION	1280 x 960	1280 x 960	1280 x 1024	1280 x 1024
Dot clock(MHz)	108	129.895	108	117
f h	60kHz	75kHz	64kHz	71.7kHz
A (us)	16.667(1800 dots)	13.307(1728 dots)	15.63 (1688 dots)	13.949(1632 dots)
B (us)	1.037(112 dots)	1.047 (136 dots)	1.037 (112 dots)	0.957 (112 dots)
C (us)	2.889(312 dots)	1.725 (224 dots)	2.296 (248 dots)	1.915 (224 dots)
D (us)	11.852(1280 dots)	9.857 (1280 dots)	11.852 (1280 dots)	10.94 (1280 dots)
E (us)	0.889(96 dots)	0.678 (88 dots)	0.445 (48 dots)	0.137 (16 dots)
f v	60Hz	75Hz	60Hz	67Hz
O (ms)	16.667(1000 lines)	13.333(1002 lines)	16.661(1066 lines)	14.883 (1067lines)
P (ms)	0.05(3 lines)	0.039 (3 lines)	0.047 (3 lines)	0.112 (8 lines)
Q (ms)	0.600(36 lines)	0.48 (36 lines)	0.594 (38 lines)	0.46 (33 lines)
R (ms)	16(960 lines)	12.774 (960 lines)	16.005(1024 lines)	14.28 (1024 lines)
S (ms)	0.017(1 lines)	0.04 (3 lines)	0.015 (1 line)	0.028 (2 lines)
SYNC. H/V	+ / +	+ / +	+ / +	+ / +
POLARITY				
SEP. SYNC	Y	Y	Y	Y

17" LCD Color Monitor

MODE NO.	29	30	31	32
RESOLUTION	1280 x 1024	1280 x 1024	1280 x 1024	960x720
Dot clock(MHz)	130.223	135	138.008	57.58
F h	76kHz	80kHz	81.1kHz	44.76kHz
A (us)	13.15 (1712 dots)	12.504(1688 dots)	12.326(1664 dots)	22.34(1286 dots)
B (us)	1.024 (133 dots)	1.067(144 dots)	0.474 (64 dots)	1.72(99 dots)
C (us)	1.905 (248 dots)	1.837(248 dots)	2.133 (288 dots)	2.58(148 dots)
D (us)	9.83 (1280 dots)	9.481(1280 dots)	9.481 (1280 dots)	16.67(960 dots)
E (us)	0.399(51 dots)	0.119(16 dots)	0.238 (32 dots)	0.856(49 dots)
F v	72Hz	75Hz	76Hz	60Hz
O (ms)	14 (1064 lines)	13.329(1066 lines)	13.139(1066 lines)	16.667(746 lines)
P (ms)	0.02 (2 lines)	0.038(3 lines)	0.099 (8 lines)	0.067(2.9 lines)
Q (ms)	0.5 (38 lines)	0.475(38 lines)	0.394 (32 lines)	0.495(22 lines)
R (ms)	13.468(1024 lines)	12.804(1024 lines)	12.622(1024 lines)	16.081(720 lines)
S (ms)	0.012 (0 line)	0.012 (1 line)	0.024(2 lines)	0.0228(1 lines)
SYNC. H/V	+ / +	+/+	- / -	-/+
POLARITY				
SEP. SYNC	Y	Y	Y	Y

MODE NO.	33
RESOLUTION	960X720
Dot clock (MHz)	72.42
F h	56.4kHz
A (us)	17.73(1284 dots)
B (us)	1.44(104 dots)
C (us)	2.21(160 dots)
D (us)	13.256(960 dots)
E (us)	0.780(56 dots)
F v	75Hz
O (ms)	13.333(752 lines)
P (ms)	0.053(3 lines)
Q (ms)	0.5(28 lines)
R (ms)	12.766(720 lines)
S (ms)	0.0184(1 lines)
SYNC. H/V	- / +
POLARITY	
SEP. SYNC	Y

3.4 Horizontal scanning

Sync polarity : Positive or Negative
 Scanning frequency : 30 – 83 KHz

3.5 Vertical scanning

Sync polarity : Positive or Negative
 Scanning frequency : 56 - 76 Hz

3.6 Power input connection

Power cord length : 1.8 M
 Power cord type : 3 leads power cord with protective earth plug.

3.7 Power management

17" LCD Color Monitor

The monitor must comply with the Microsoft On Now specification, with two power management states, as defined by the VESA DPMS document. The monitor must appropriately display the DPMS state.

Mode	HSYNC	VSYNC	Video	Pwr-cons.	Indication	Rec. time
Power-On	On	On	Active	< 57 W (max) 33W (typ.)	Green LED	--
Off	Off	Off	blanked	< 1 W	Amber LED	< 3 s
DC Power Off			N/A	< 1 W	LED Off	

3.8 Display identification

In accordance with VESA Display Channel Standard Ver.1.0 and having DDC 2B capability

3.9 USB Hub NA

4. Visual characteristics

4.1 Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

- (1) Input signal: As defined in 3.3, 1280 x 1024 non-interlaced mode (75K/60Hz), signal sources must have 75 ohm output impedance.
- (2) Luminance setting: controls to be set to 200 nits with full screen 100 % duty cycle white signal
- (3) Warm up: more than 30 minutes after power on with signal supplied.
- (4) Ambient light: 400 -- 600 lux.
- (5) Ambient temperature: 25 ± 5 °C

4.2 Brightness

≥250 nits (at panel color temperature, at center of the screen, set contrast and brightness at maximum.)

4.3 Image size

Actual display size 337.9 x 270.3 mm (acc. To SHT 191 & leaflet)

4.4 Brightness uniformity

Set contrast at 100% and turn the brightness to get average above 200 nits at centre of the screen. Apply the Fig 1; it should comply with the following formula:

$$\frac{B_{\min}}{B_{\max}} \times 100\% > 75\%$$

Where B_max =Maximum brightness
B_min = Minimum brightness

4.5 Check Cross talk (S)

Apply Pattern 2. Set contrast and brightness at 100 %.
Measure YA. Then output Pattern 3 and measure YB. The cross talk value:

$$\frac{ABS(YA - YB)}{YA} \times 100\% < 2.0\%$$

4.6 White color adjustment

17" LCD Color Monitor

There are three factory preset white color 9300K, 6500K, sRGB.

Apply full gray64 pattern, with brightness in 100 % position and the contrast control at 50 % position. The 1931 CIE Chromaticity (color triangle) diagram (x,y) coordinate for the screen center should be:

Product spec.

9300K CIE coordinates	X = 0.283 ± 0.02	Y = 0.297 ± 0.02
6500K/ sRGB CIE coordinates	X = 0.313 ± 0.02	Y = 0.329 ± 0.02
sRGB CIE coordinates	X = 0.313 ± 0.02	Y = 0.329 ± 0.02

Production alignment spec.

9300K CIE coordinates	X = 0.283 ± 0.005	Y = 0.297 ± 0.005
6500K/ sRGB CIE coordinates	X = 0.313 ± 0.005	Y = 0.329 ± 0.005
sRGB CIE coordinates	X = 0.313 ± 0.005	Y = 0.329 ± 0.005

Quality Inspection spec.

9300K CIE coordinates	X = 0.283 ± 0.015	Y = 0.297 ± 0.015
6500K/ sRGB CIE coordinates	X = 0.313 ± 0.015	Y = 0.329 ± 0.015
sRGB CIE coordinates	X = 0.313 ± 0.015	Y = 0.329 ± 0.015

5 Mechanical characteristics

- | | |
|---|---------------------------|
| 5.1 Cosmetic - | Philips ID |
| 5.2 Mechanical data files - | ProE files required |
| 5.3 Location of Philips logo - | Per Philips make-up sheet |
| 5.4 The gap between Panel and front bezel < 0.8mm | |
| 5.5 Location of Control icons - | Per Philips make-up sheet |
| 5.6 Color for resin/paint - | Per Philips make-up sheet |

5.7 Resins

- RoHS required
- WEEE required.

5.8 If paint is used

- Rohs required
- WEEE require

5.9 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.

5.10 Plastics flammability

- All Plastics to be Flame Retardant UL 94-V0 or Better (if monitor weighs less than 18kg; UL94-V0 is

OK).

- All major plastic parts (bezel, back cover) need to be molded from same resin.

5.11 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

5.12 Tilt and swivel base

Tilt angle: -5° max (forward) and $+25^\circ$ min. (backward)

5.13 Label

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

5.14 Product dimension / Weight

- Unit dimension (incl. pedestal) : 382 (W) * 390 (H) * 200 (D) mm
- Packed unit dimension (carton)
 - : 449 (W) * 489 (H) * 182 (D) mm for all regions except China, ndia
 - : 460 (W) * 499 (H) * 189 (D) mm for China, India
- Net weight : 4.8 Kg (Including I/F cable 240 g)
- Gross weight : 5.7 Kg for all regions except China, India
: 6.3 Kg for China, India

5.15 Transportation

Transportation standards refer to 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.

5.15.2 Transportation Test_

The overall test refer to TYE-M0002. Vibration, drop test should be performed at ambient temperature (20°C to 23°C) and relative humidity (40% to 65%).

A. Transportation test specification for all regions except China/India

- Package test
 1. Random Vibration test
 2. Drop test
 3. Cold Drop test (for design reference)
- Un-package test
 1. Sine vibration (operating)
 2. Half sine shock test (non operation)

B. Transportation test specification for China/India

- Package test
Random Vibration test
Drop test
Cold Drop test (for design reference)

- Un-package test
- Sine vibration (operating)
Half sine shock test (non operation)

5.16 Pallet / Container loading

Transportation standards refer to TYE-M0002.

- Air shipment - See below A.
 - Sea container 20'(pallet/slip sheet) - See below B, C.
 - Sea container 40'(pallet/slip sheet) - See below B, C.
 - Sea container 40' High Cube (pallet/slip sheet) - See below B, C.
 - Truck shipment- See below D.
- A. Container loading for Air
B. Container loading for all regions except China. India for Sea
C. Container loading for China. India for Sea
D. Truck loading for other regions

6. Environmental characteristics

The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

Operating

- Temperature : 0 to 35 degree C
- Humidity : 80% max
- Altitude : 0-3658m
- Air pressure : 600-1100 mBAR

Storage

- Temperature : -20 to +60 degree C
- Humidity : 85% max (< 40)
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

Note: recommend at 5 to 35°C, Humidity less than 60 %

6.2 Display disturbances from external environment

According to IEC 801-2 for ESD disturbances

6.3 Display disturbances to external environment

Refer to Safety requirement

7. Reliability

7.1 Mean Time Between Failure

System MTBF (Excluding the LCD panel and CCFL) : 50,000 hrs

8. Quality assurance requirements

8.1 Acceptance test

According to MIL-STD-105D Control II level

AQL: 0.4 (major) 1.5 (minor)
(Please also refer to annual quality agreement)

17" LCD Color Monitor

Customer acceptance criteria: UAW0377/00

9. Serviceability

The serviceability of this monitor should fulfill the requirements, which are prescribed in UAW-0346 and must be checked with the check list UAT-0361.

10 Philips' Flat Panel Monitors Pixel Defect Policy

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	170S7 / 170A7
1 lit subpixels	3
2 adjacent lit subpixels	1
3 adjacent lit subpixels	0
Distance between two bright dot defects	> 15 mm
Total bright dot defects of all types	3

BLACK DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	170A7
1 dark subpixels	4
2 adjacent dark subpixels	2
3 adjacent dark subpixels	0
Distance between two dark dot defects	> 15 mm
Total dark dot defects of all types	4

Total DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	170A7
Total bright or dark dot defect of all type	5

Fig 1: Brightness Uniformity

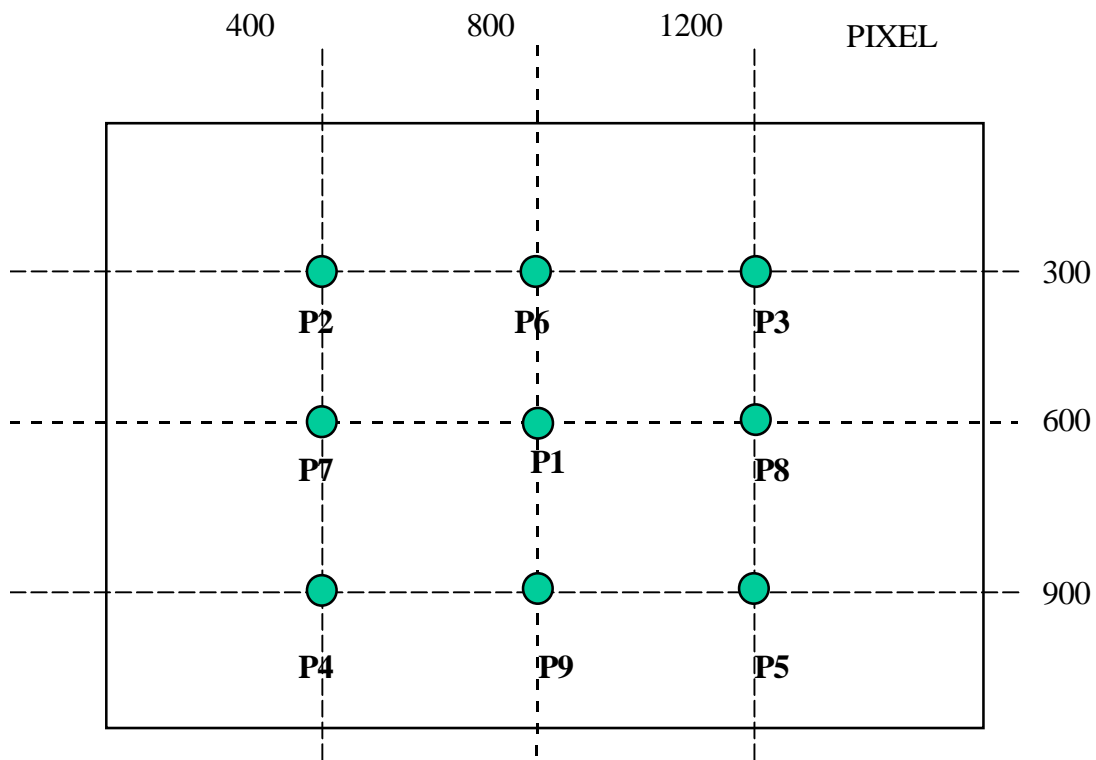


Fig 2: Cross talk pattern

Gray level 46 (64 Gray level)

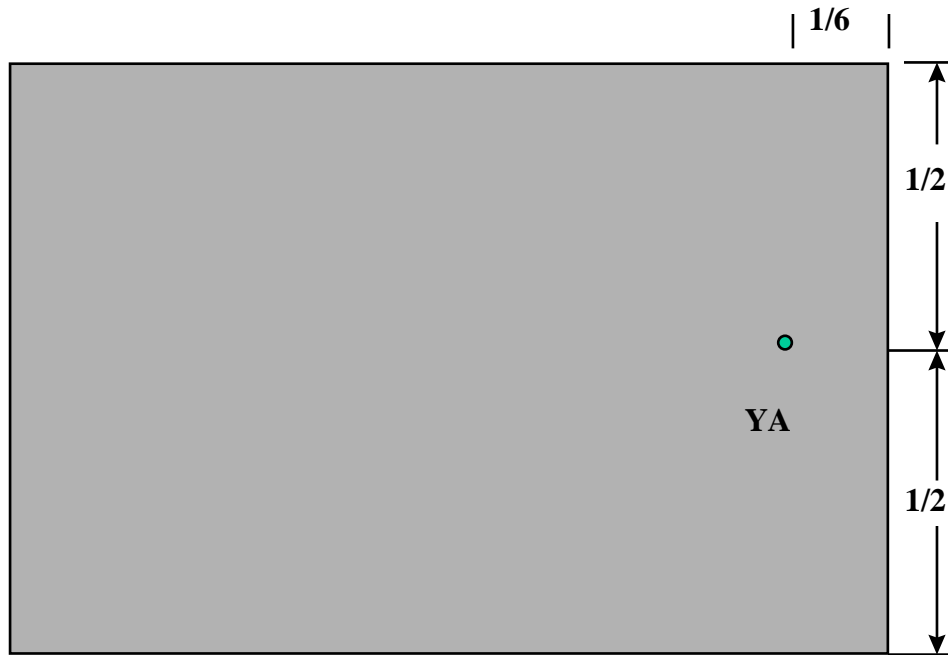
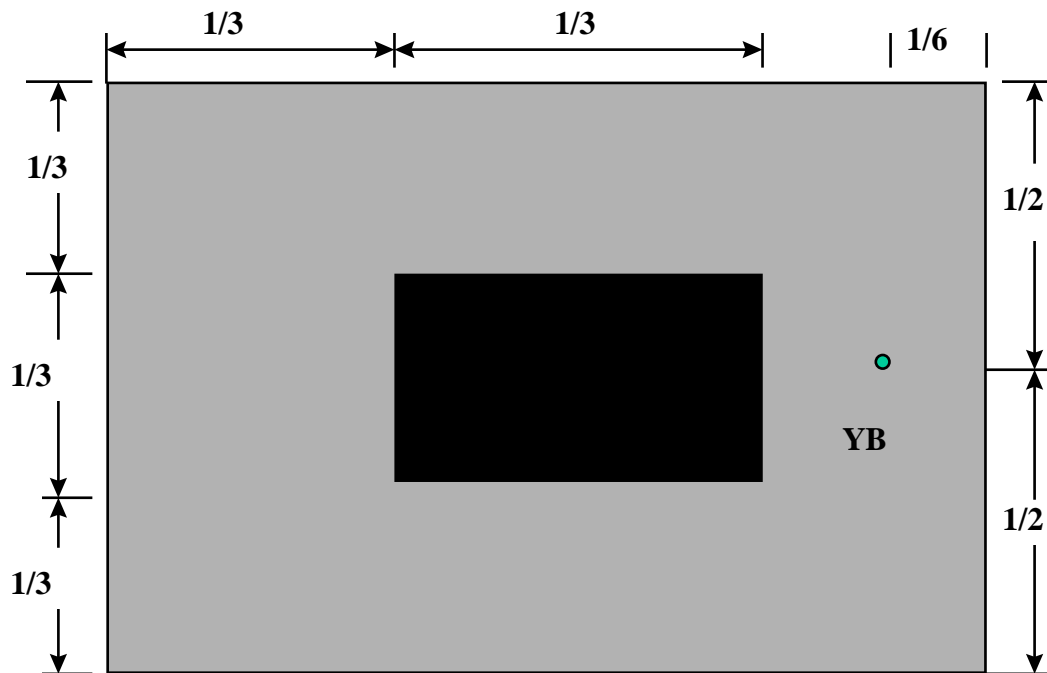
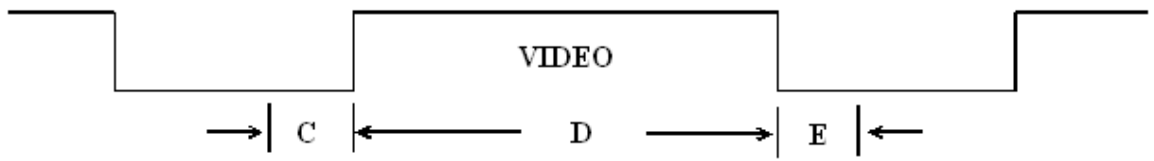


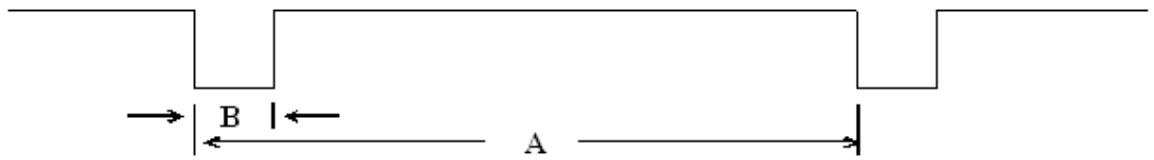
Fig 3: Cross talk Pattern
Center at Gray level 0 (Black)



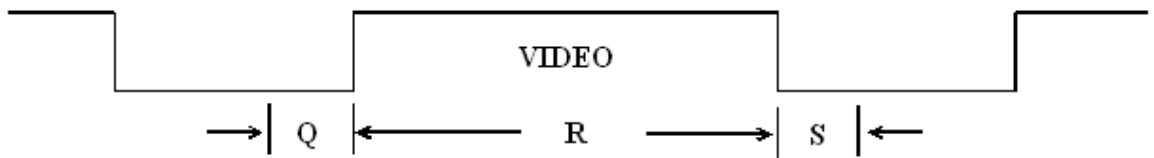
SEPARATE SYNC.



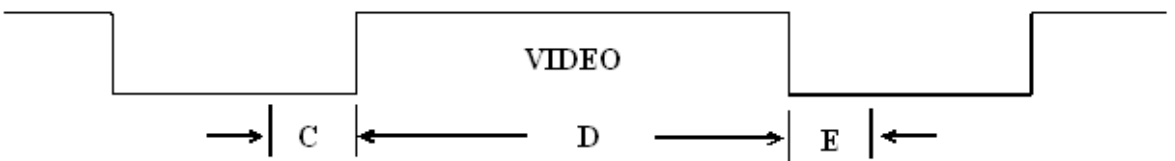
HORIZONTAL



VERTICAL



COMPOSITE SYNC.



HORIZONTAL

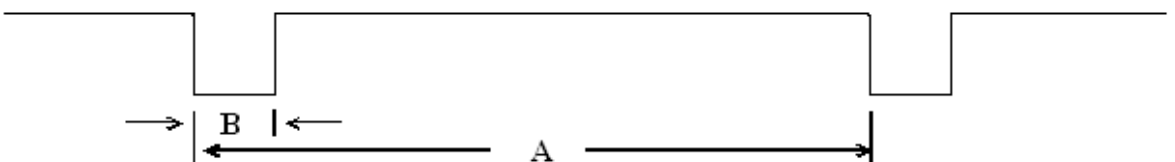


FIG-4 TIMING CHART -1