Service
Service
Service

Model: 150C5BS/00

Service Manual

Horizontal Frequencies
30 - 61KHz

TABLE OF CONTENTS

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.

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

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飛利浦 PHILIPS PHILIPS

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all Philips Consumer Electronics 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 Consumer Electronics Company will be referred to as Philips.

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line*
(where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

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.

*Broken Line

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 are grounded through wrist band.
- 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 become dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

Technical Data

Product Features

Outstanding front of screen performance
Fast response time capable of handling fast moving pictures
sRGB ensures color matching between display and printouts
XGA 1024 x 768 resolution for sharper display

Design that complements any interior
Elegant, sleek design complements your home d.cor
Compact and slim design saves space and fits anywhere

Best value for money
TCO guarantees the highest safety and ergonomics standards
The lower power consumption than industry average

Great convenience
Embedded power supply eliminates external power adaptors
Auto adjustment for perfect picture display with one touch
Easily adjust display settings with Philips SmartControl
Cable clip manages cables for a tidy work space
Detachable base for easy moving and storage
Screen tilts for comfortable viewing from any angle

Technical Specifications*

LCD PANEL

Type	TFT LCD
Screen size	15" visual (38cm)
Pixel Pitch	0.297 x 0.297 mm
LCD Panel type	1024 x 768 pixels R.G.B. vertical stripe Anti-glare polarizer, hard coated
Ef fective viewing area	304.1 x 228.1 mm
Display Colors	16M colors

SCANNING

Vertical refresh rate	56 Hz-76 Hz
Horizontal Frequency	30 kHz-61 kHz

VIDEO

V ideo dot rate	80 Mhz
Input impedance - Video - Sync	 75 ohm 2K ohm
Input signal levels	700m Vpp
Sync input signal	Separate sync Composite sync Sync on green
Sync polarities	Positive and negative
Input Frequency	XGA Hsync 48- 61 kHz, Vsync 60 - 76 Hz (N.I.) SVGA Hsync 35- 50 kHz, Vsync 56 - 75 Hz (N.I.) VGA Hsync 31- 38 kHz, Vsync 60 - 76 Hz (N.I.)
V ideo interface	Analog (D-Sub)

Optical characteristics

contrast ratio	400:1 (typ.)
Brightness	250 cd/m^2(typ.)
Peak contrast angle	6 o'clock
White Chromaticity	x: 0.283 y: 0.297 (at 9300° K) x: 0.313 y: 0.329 (at 6500° K) x: 0.313 y: 0.329 (at sRGB)
Viewing Angle (C/R>=10)	Upper 45° (typ.) Lower 55° (typ.) Left 65° (typ.) Right 65° (typ.)
Response time	16 ms (typ.)

SRGB

sRGB is a standard for ensuring correct exchange of colors between different devices (e.g. digital cameras, monitors, printers, scanners, etc.)

Using a standard unified color space, sRGB will help represent pictures taken by an sRGBcompatible device correctly on your sRGB enabled Philips monitors. In that way, the colors are calibrated and you can rely on the correctness of the colors shown on your screen.

Important with the use of sRGB is that the brightness and contrast of your monitor is fixed to a predefined setting as well as the color gamut. Therefore it is important to select the sRGB setting in the monitor's OSD.

To do so, open the OSD by pressing the OK button on the front of your monitor. Use the down button to go to Adjust Color and press OK again. Then move the down button to go to sRGB and press OK again.

After this, please do not change the brightness or contrast setting of your monitor. If you change either of these, the monitor will exit the sRGB mode and go to a color temperature setting of 6500K.

For more information on sRGB, please visit: www.srgb.com

Resolution & Preset Modes

Maximum	1024 X 768 at 75Hz
Recommended	1024 X 768 at 60 Hz

15 user definable modes

14 factory preset modes:

H. Freq (kHz)	Resolution	V. freq (Hz)
31.469	640*350	70.086
31.469	720*400	70.087
31.469	640*480	59.940
35.000	640*480	67.000
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
49.700	832*624	75.000
48.363	1024*768	60.004
56.476	1024*768	70.069
60.023	1024*768	75.029

Technical Data

Automatic Power Saving

If you have VESA DPMS compliance display card or software installed in your PC, the monitor can automatically reduce its power consumption when not in use. If an input from a keyboard, mouse or other input device is detected, the monitor will 'wake up' automatically. The following table shows the power consumption and signaling of this automatic power saving feature:

Power Management Definition

VESA Mode	Video	H-sync	V-sync	Power Used	LED color
ON	Active	Yes	Yes	< 20 W	Green
OFF	Blanked	No	No	< 1 W	Amber

This monitor is ENERGY STAR® compliant. As an ENERGY STAR® Partner, PHILIPS has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

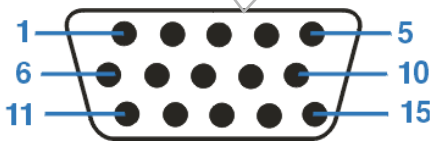
Physical Specification

Dimension (W X H X D) *	360 x 349 x173.5 mm (incl. Pedestal)
Weight	2.97 Kg
Tilt	-5°--25°
Power Supply	100 ---240VAC, 50/60 Hz
Power consumption	18 W* (typ.)
Temperature	5° C to 40°C (operating) -20°C to 60°C (storage)
Relative humidity	20% to 80%
System MTBF	50K hours (excluding CCFL 40K hours)

*This data is subject to change without notice.
*Resolution 1024 X 768, standard size, brightness max., Contrast 50%, full white pattern.

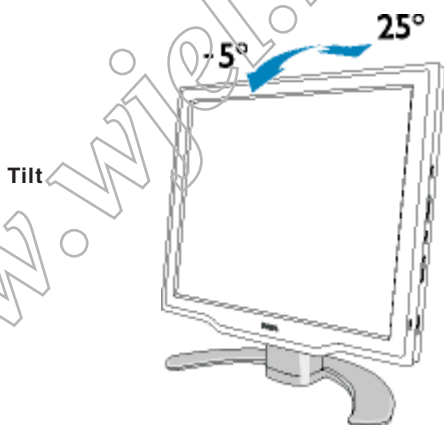
Pin Assignment

The 15-pin D-sub connector(male) of the signal cable(IBM systmes):



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	+5V
2	Green video input/SOG	10	Logic ground
3	Blue video input	11	Ground
4	Sense (GND)	12	Serial data line (SDA)
5	Hot Plug Detect	13	H. Sync / H+V
6	Red video ground	14	V. Sync (VCLK for DDC)
7	Green video ground	15	Data clock line (SCL)
8	Blue video ground		

Physical Function



Energy Star Declaration

This monitor is equipped with a function for saving energy which supports the VESA Display Power Management Signaling (DPMS) standard. This means that the monitor must be connected to a computer which supports VESA DPMS to fulfill the requirements in the NUTEK specification 803299/94. Time settings are adjusted from the system unit by software
.

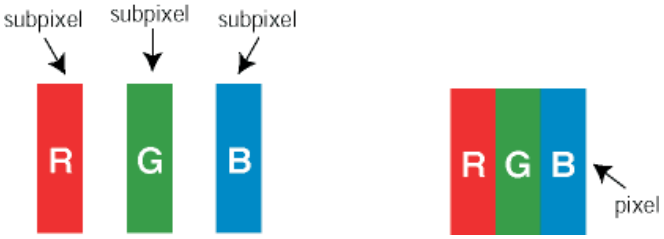
NUTEK	VESA State	LED Indicator	Power Consumption
Normal operation	ON	Green	< 20 W
Power Saving Alternative 2 One step	OFF	Amber	< 1 W

As an ENERGY STAR® Partner, PHILIPS has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

Philips 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 15" 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

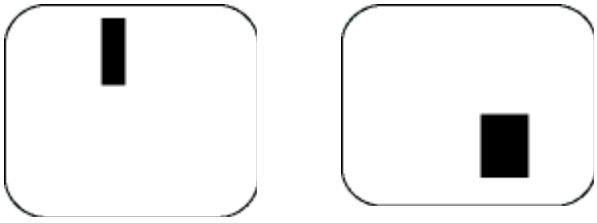
Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of sub pixel defects within each category. Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. These are the types of bright dot defects:

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)

Black Dot Defects Black dot defects appear as pixels or sub pixels that are always dark or 'off'. 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
MODEL	150C5
1 lit subpixel	4 or fewer
2 adjacent lit subpixels	2 or fewer
3 adjacent lit subpixels (one white pixel)	0
Distance between two bright dot defects*	15 mm or more
Total bright dot defects of all types	4 or fewer

BLACK DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	150C5
1 dark subpixel	4 or fewer
2 adjacent dark subpixels	2 or fewer
3 adjacent dark subpixels	1 or fewer
Distance between two black dot defects*	15 mm or more
Total black dot defects of all types	4 or fewer

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	150C5
Total bright or black dot defects of all types	5 or fewer

Note:

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

All Philips monitors are ISO13406-2 Compliant

Troubleshooting

This page deals with problems that can be corrected by the user.

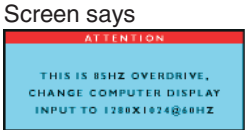
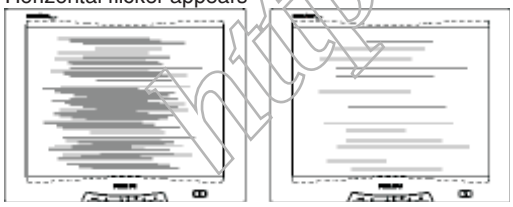
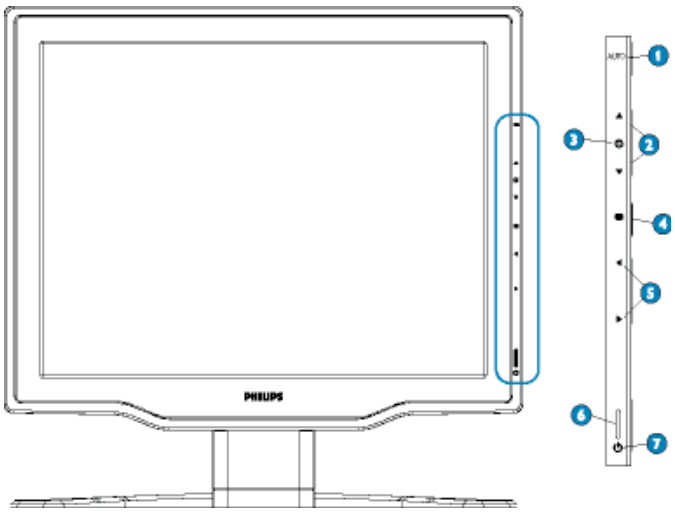
Common Problems	
Having this problem?	Check these items
No Picture (power LED not lit)	• Make sure the power cord is plugged into the power outlet and into the back of the monitor. • First, ensure that the power button on the front of the monitor is in the OFF position, then press it to the ON position
No Picture (Power LED is amber or yellow)	• 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 	• Make sure the monitor cable 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.
Screen says 	• Make sure the vertical sync of input signal is within the range of 56--75Hz. • Change the refresh rate to 56--75Hz within 10 minutes. • Re-power on monitor to start over again if you failed to change the refresh rate within 10 minutes.
AUTO button not working properly	• 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.

Image Problems	
Having this problem?	Check these items
Display position is incorrect	• Press the AUTO button • Adjust the image position using the Horizontal Position and/or Vertical Position in OSD Main Controls.
Image vibrates on the screen	• Check that the signal cable is properly connected to the graphics board or PC.
Vertical flicker appears 	• Press the AUTO button • Eliminate the vertical bars using the Clock Adjustment of VIDEO NOISE in OSD Main Controls.
Horizontal flicker appears 	• Press the AUTO button • Eliminate the horizontal bars using the Phase Adjustment of VIDEO NOISE in OSD Main Controls.
The screen is too bright or too dark	• Adjust the contrast and brightness on OSD Main Controls. (The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicker, please contact your dealer).
An after-image appears	• 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.
An after-image remains after the power has been turned off.	• 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.
Green, red, blue, and white dots remains	• The remaining dots are normal characteristic of the liquid crystal used in today′ s technology.

Front view product description



1 AUTO Automatically adjust the horizontal position, vertical position, phase and clock setting.

2 UP and DOWN buttons are used when adjusting the OSD of your monitor.

3 BRIGHTNESS hotkey. When the UP and DOWN arrow buttons are pressed, the adjustment controls for the BRIGHTNESS will show up.

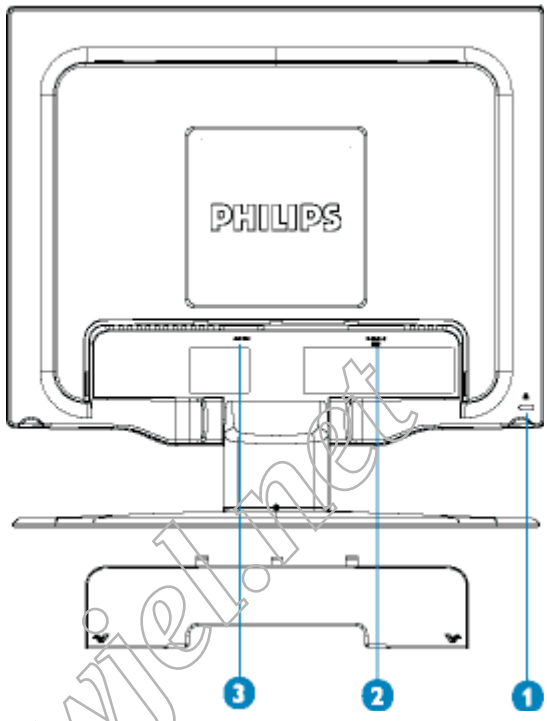
4 OK button which when pressed will take you to the OSD controls.

5 LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

6 Power LED

7 POWER button switches your monitor on.

Back view product description



1 Kensington anti-thief lock

2 VGA input

3 AC power input

Optimizing Performance

For best performance, ensure that your display settings are set at 1024x768, 60Hz.

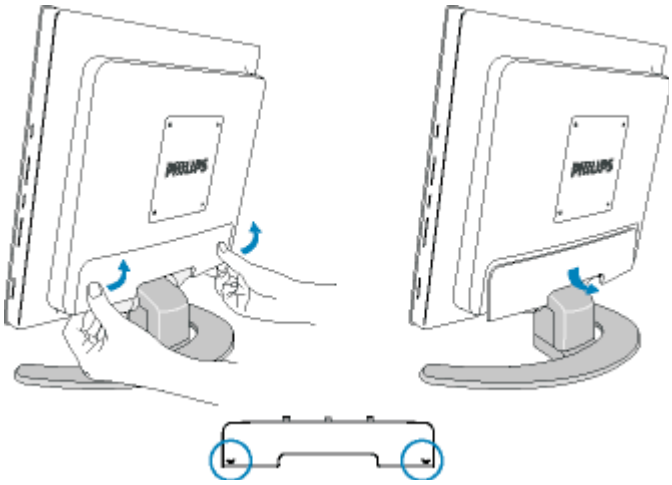
Note: You can check the current display settings by pressing the 'OK' button once. Go into the Product Information. The current display mode is shown on the item called RESOLUTION.

You can also install the Flat Panel Adjust (FP Adjust) program, a program for getting the best performance out of your monitor. This is included on this CD. Step-by-step instructions are provided to guide you through the installtion process. Click on the link to know more about this program.

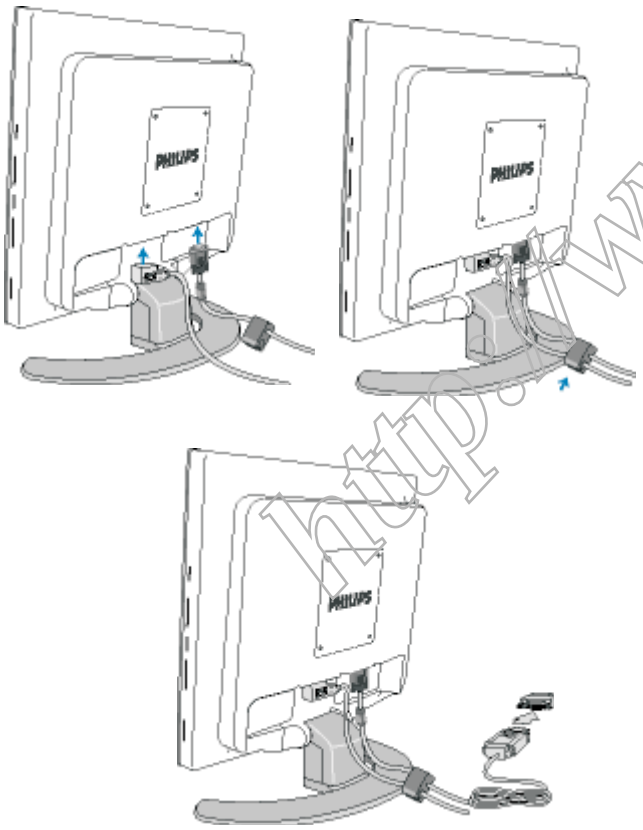
Installations

Connecting to Your PC

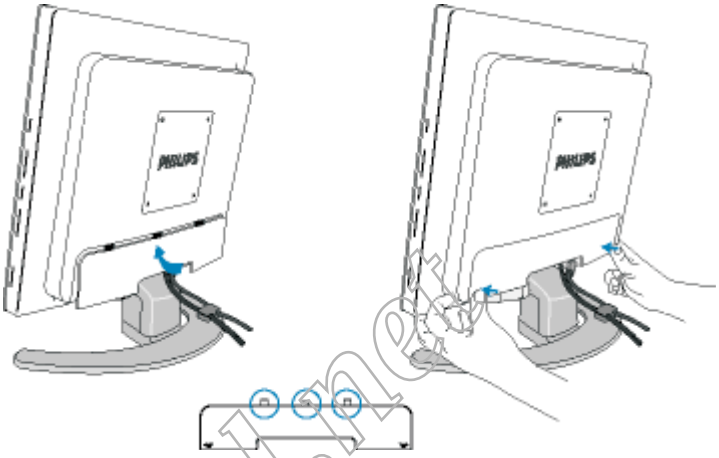
1)



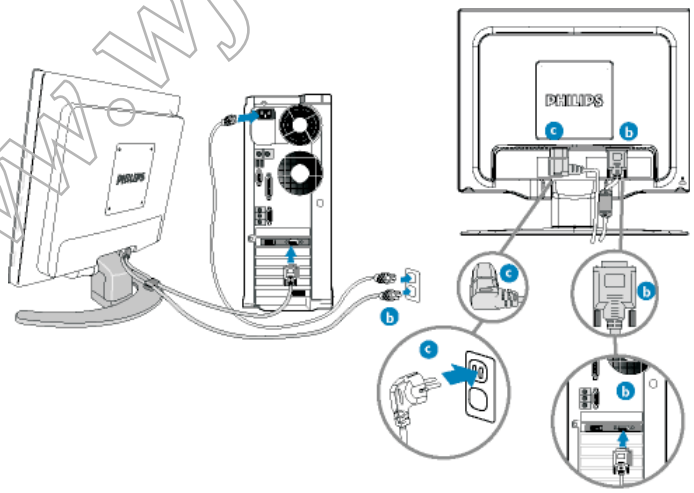
2)



3)



4)



4) 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.

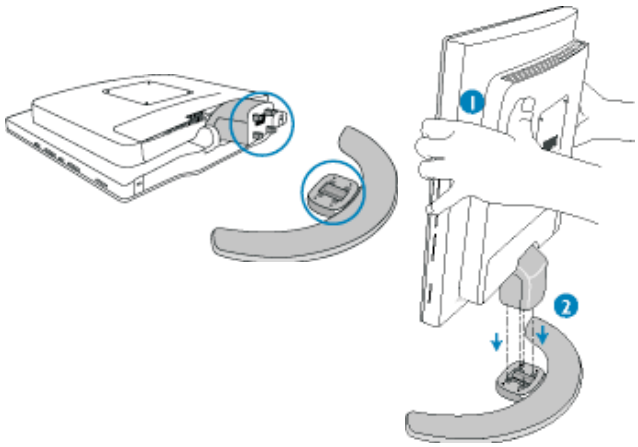
(d) Turn on your computer and monitor. If the monitor displays an image, installation is complete.

Note: If you use an Apple Macintosh, you need to connect the special Mac adapter to one end of the monitor signal cable.

Installations

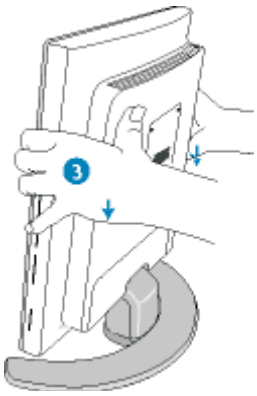
Attaching & Detaching and Removing the base

To attach the base:



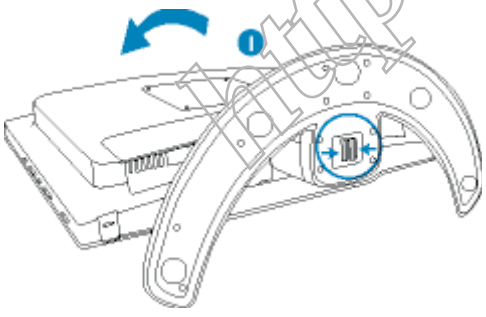
1) Hold the monitor body with both hands.

2) Align four-pronged base attachment unit on the bottom of the screen with the four socket holes on the base.

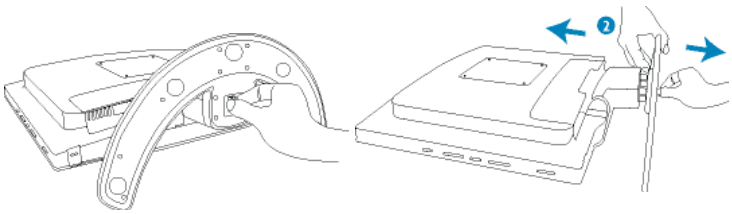


3) Firmly fix screen into the base plate.

To detach the base:

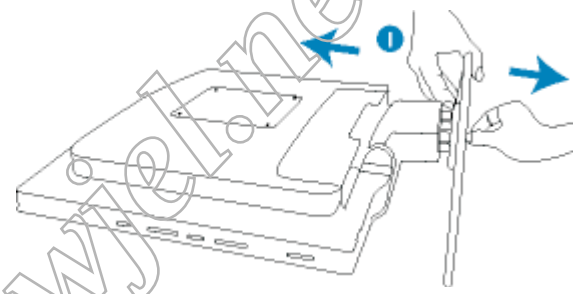


1) Place the monitor face down a smooth surface taking care to avoid scratching or damaging the screen.

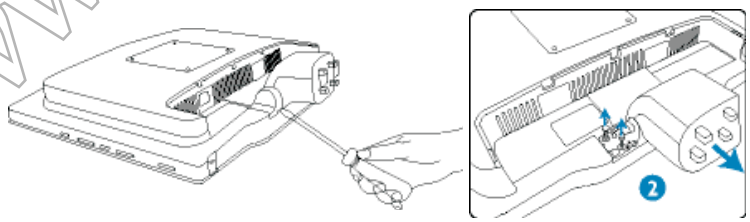


2) Press the release latches on the bottom of the base together and gently remove the attachment unit from the base.

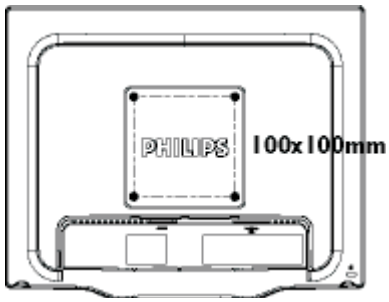
To remove the base for VESA standard mounting applications



1) Detach the screen from the base.



2) Remove the screws and then detach the base attachment unit from the LCD monitor.



Note: This monitor is designed to work with a 100mm x 100mm VESA-compliant mounting interface.

On-Screen Display

Description of the On Screen Display

What is the On-Screen Display?

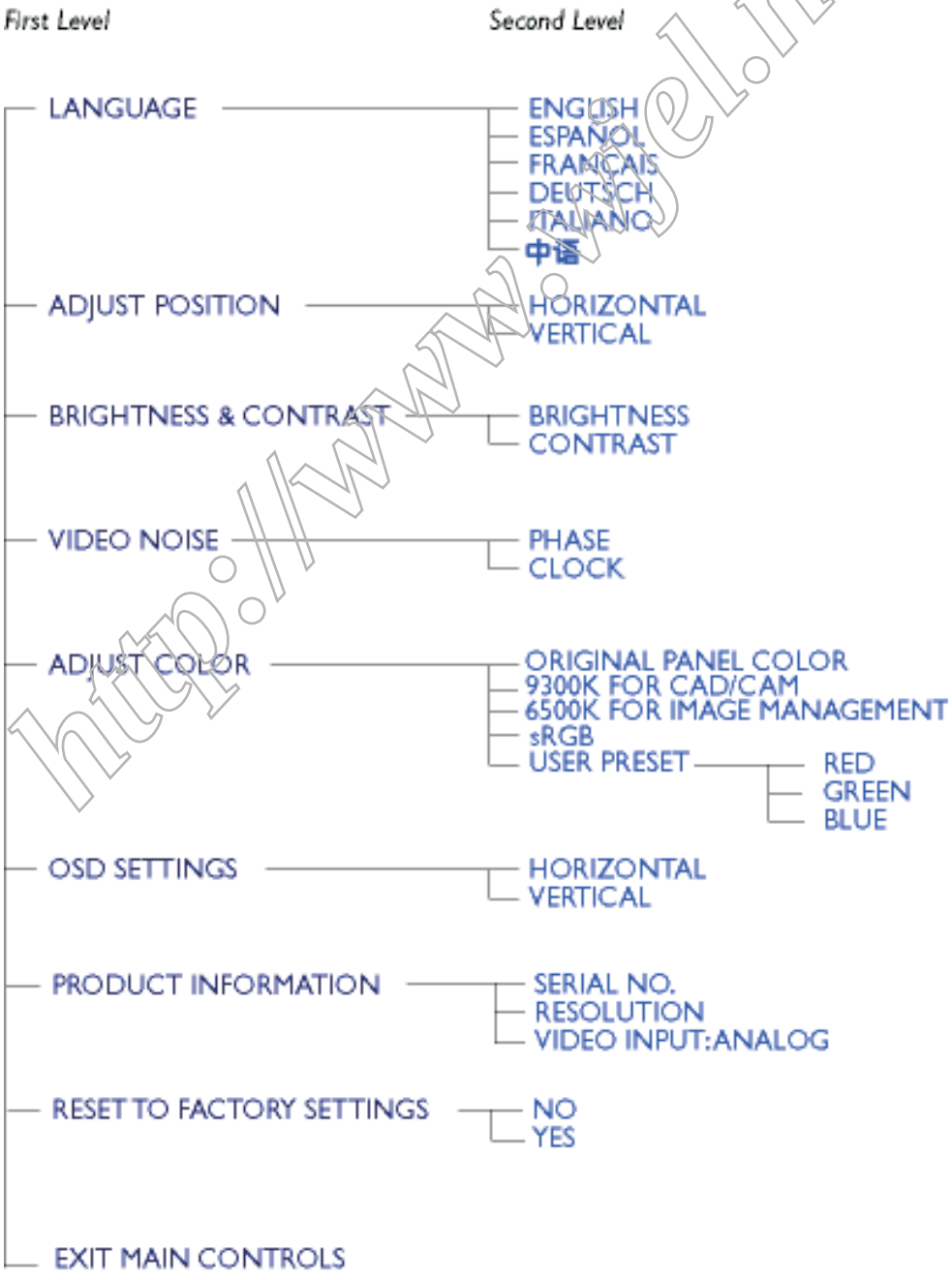
This is a feature in all Philips LCD monitors. It allows an end user to adjust screen performance of the monitors directly through an on-screen instruction window. The user interface provides user friendliness and ease-of-use when operating the monitor.

Basic and simple instruction on the control keys.

When you press the OK button on the side 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.

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.



1. General points

1.1 During the test and measuring, supply a distortion free AC mains Voltage to the apparatus via an isolated transformer with low internal resistance.

1.2 All measurements mentioned hereafter are carried out at a Normal mains voltage (90 - 132 VAC for USA version, 195 -264 VAC for EUROPEAN version, or 90 - 264 VAC for the model with full range power supply, unless otherwise stated.)

1.3 All voltages are to be measured or applied with respect to ground, unless otherwise stated.
Note: don't use heat-sink as ground.

1.4 The test has to be done on a complete set including LCD panel after 30 minutes warm-up at least in a room with temperature of 25 +/- 5 degree C.

1.5 All values mentioned in this test instruction are only applicable of a well aligned apparatus, with correct signal.

1.6 The letters symbols (B) and (S) placed behind the test instruction denotes (B): carried out 100% inspection at assembly line (S): carried out test by sampling

1.7 The white balance (color temperature), has to be tested in subdued lighted room.

1.8 Repetitive power on/off cycle are allowed except it should be avoided within 6 sec.

2. Input signal

2.1 Signal type
Video: 0.7 Vp-p linear, positive polarity
Sync. : TTL level, separate, positive or negative polarity
Signal source: pattern generator format as attachment (table 1 to 14)
Reference generator: Quantum 802BT or VTG 1250

2.2 Allowed signal mode specified

PRESET VIDEO RESOLUTION

Dot rate (MHz)	H.freq (KHz)	Mode	Resolution	V.freq (Hz)
25.175	31.469	VGA	640 * 350	70.087
28.322	31.469	VGA	720 * 400	70.087
25.175	31.469	VGA	640 * 480	59.940
30.240	35.000	MACINTOSH	640 * 480	66.667
31.500	37.861	VESA	640 * 480	72.809
31.500	37.500	VESA	640 * 480	75.000
36.000	35.156	VESA	800 * 600	56.250
40.000	37.879	VESA	800 * 600	60.317
50.000	48.077	VESA	800 * 600	72.188
49.500	46.875	VESA	800 * 600	75.000
57.300	49.700	MACINTOSH	832 * 624	75.000
65.000	48.363	VESA	1024 * 768	60.004
75.000	56.476	VESA	1024 * 768	70.069
78.750	60.023	VESA	1024 * 768	75.029

3. AC Adaptor

3.1 Setup the AC I/P at 90VAC, and Output DC loading at 12V 1.6 Amp, 3V3 1Amp, The DC output voltages are 3.3V +/- 0.16V DC, and 12VDC (+11V ~ 16 V)

4. Display Adjustment

4.1 Auto color adjustment (B)

Apply a 640 * 480 / 60Hz signal with 16 level grey test pattern, set brightness control at 100%, and contrast control at 50%.
Adjust the R. G. B offset, and gain to calibrate the color smoothly and 64-grey level distinguishable.

4.2 Color temperature adjustment (B)

Apply a 1024 * 768, 48.36kHz / 60Hz signal with white pattern.
Set brightness control at 100%, and contrast control at 50%.
Adjust the R.G. B gain in factory setting to reach special color temperature on center of screen.
The 1931 CIE chromaticity (X, Y) co-ordinates shall be:

	9300°K	6500°K
x (center)	0.283 ± 0.005	0.313 ± 0.005
y (center)	0.297 ± 0.005	0.329 ± 0.005

Use Minolta CA-110 for color coordinates and luminance check.
Luminance is > 200 nits in the center of the screen at original panel color.

4.3 Adjustment of sRGB

Apply a 1024*768 / 60Hz signal with white pattern, set brightness control at 100%, and contrast control at 50%.
Adjust the R, G, B Sub-Gain, for the screen center, the 1931 CIE chromaticity (X, Y) co-ordinates shall be:

	sRGB
x(center)	0.313 ± 0.005
y(center)	0.329 ± 0.005
Ynits	180 ± 10

4.4 EEPROM presetting (B)
After finishing all the adjustment, set:
Brightness control to 100%
Contrast control to 50%
OSD position at middle of screen
COLOR ADJUST to 6500°K

Safety Test Requirement

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both *Hipot* and *Ground Continuity* testing.

HI-POT TEST INSTRUCTION

1.Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.

1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.

2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.

2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: <=0.09+Rohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. Limitation	5 mA	
Ramp time (Tester)	set at 2 seconds		

2.2.1 The minimum test duration for Quality Control Inspector must be 1 minute.

2.2.2 The test voltage must be maintained within the specified voltage + 5%.

2.2.3 There must be no breakdown during the test.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

3. Equipments and Connection

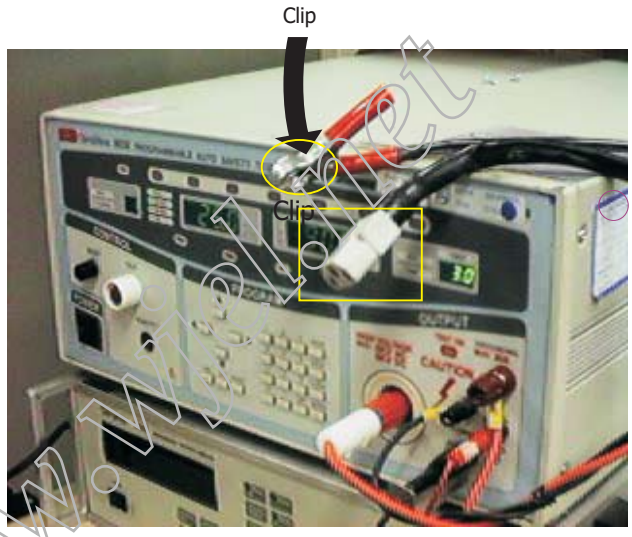
3.1. Equipments

For example :

- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

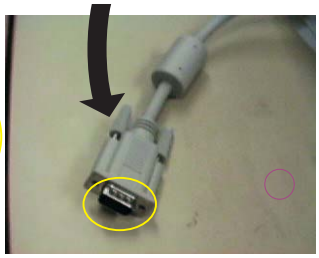
3.2. Connection

* Turn on the power switch of monitor before Hipot and Ground Continuity testing.



(ChenHwa 9032 tester)

Video cable



Connect the "video cable" or "grounding screw" to the CLIP on your tester.

Grounding screw

Connect the power cord to the monitor.

Power outlet

(Rear view of monitor)

4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

Front View

Fig. 1

Back View

Fig. 2

Step 1:
-Unscrew the four screws as shown in Fig. 3.
- Remove the base.
- Unscrew the three screws as shown in Fig. 4.

Fig. 3

Fig. 4

Step 2: Remove the front bezel
- Use thin "I" type screwdriver to open 2 clicks on bottom side as shown in Fig. 5.
- Use thin "I" type screwdriver to open 3 clicks on right and left side as shown in Fig. 6.
- Use thin "I" type screwdriver to open 4 clicks on top side as shown in Fig. 7.

Fig. 5

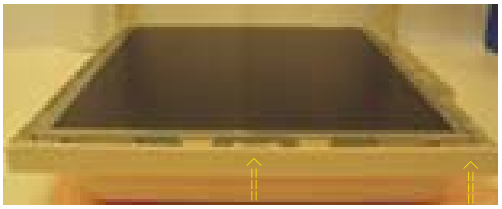


Fig. 6

Fig. 7

Mechanical Instructions

Fig. 8

Step 3: Remove the Back Cover shown as Fig. 9 & Fig. 10.

Fig. 9

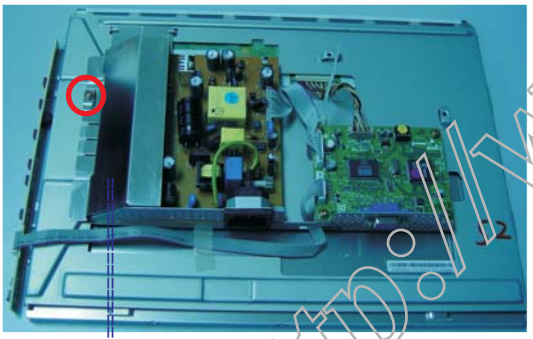


Fig. 10

Step4:

- Unscrew on screw, remove the shield inverter as shown in Fig.10.
- Unscrew seven screws as shown in Fig. 11.
- Unconnect 3 cables as shown in Fig. 11.

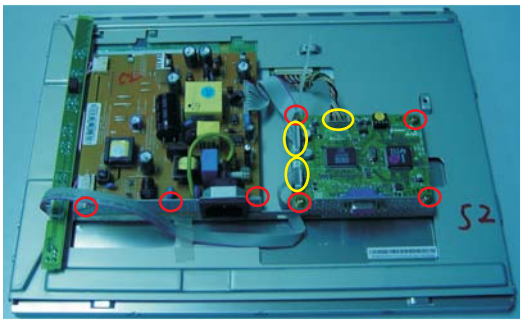
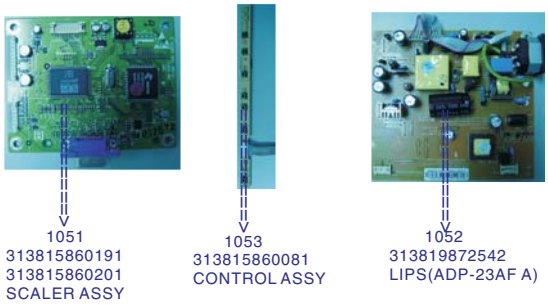


Fig. 10



LCD Panel

1050 823827714731 TFT-LCD MOD LM150X08-A4
1050 932221135682 TFT-LCD CLAA150XP01 (CPT0) B

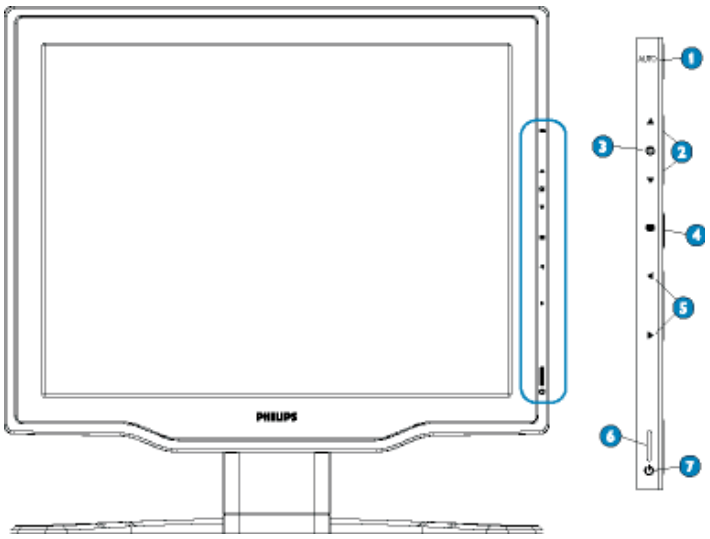
****

In warranty, it is not allowed to disassembly the LCD panel, even the backligh unit defect.
Out of warranty, the replacment of backlight unit is a correct way when the defect is cused by backlight (CCFL,Lamp).

****

Factory Mode & Aging Mode

Front View



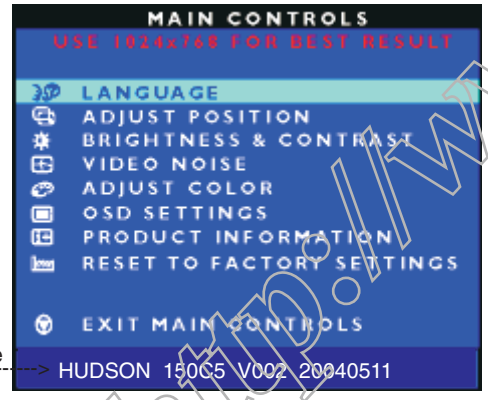
HUDSON 150C5 V200 20040705

S - BR:	185	255									
S - CO:	100	130	160								
9300K	R	Xxx	G	Xxx	B	Xxx					
6500K	R	Xxx	G	Xxx	B	Xxx					
SRGB	R	Xxx	G	xxx	B	xxx	B	255	C	128	
OFF2	R	Xxx	G	xxx	B	xxx					
GAI	R	Xxx	G	xxx	B	xxx	M	255	m	200	
A-SUB		OK!	OSDTIMER			60					
			IDX :			7					
OFF1	R	Xxx	G	xxx	B	xxx					
SC: ADD:			VAL:		READ		WRITE				
PANEL:	3	HS 1.LG (7) 2. CPT (28) 3. HS (28) 4. QDI (28)									
	1024x768	@74Hz	59KHz								

How to enter Factory Mode

1. Turn off the monitor.

2. [Push "AUTO " & "OK" buttons at the same time and hold it] + [Press power " ⏻ " button until comes out "Windows screen"] => then release all button, then press "OK" button, wait until the OSD menu with Characters HUDSON 150C5 V002 20040511 (below OSD menu) come on the Screen of the monitor (see Fig. 2).



Factory Mode Indicator

Factory Menu
Cursor can move on gray color area

BL : Black level value
SUB- BRI : Brightness value range(Min Max)
SUB- CON : Contrast value range(Min Mid Max)
SRGB- B : Brightness of sRGB
SRGB- C : Contrast of sRGB
Gain- m : Minimum value of User Gain
Gain- M : Maximum value of User Gain
AUTO- SUB : To do Auto color function when push Menu key in white pattern
OSD TIMER: OSD time out control(sec)
IDX : Limit current of inverter (CPT: 28) (LG:7)
Panel TYPE :PLS reference section 2.9.6
SCALER : Read/Write scaler register
Panel : HS (Hannstar panel)
CPT (CPT panel)
LG (LG. Philips panel)

How to Access Aging Mode

Step 1 : Turn off LCD monitor, and disconnect Interface Cable between Monitor and PC.
Step 2 : [Push "AUTO" & "OK" buttons at the same time and hold it] +[Press power " ⏻ " button untill comes out " AGING screen"] => then release all buttons.

Bring up:

After 15 seconds, bring up:

After 15 seconds, bring up:

After 15 seconds, bring up:

---
repeatly
Connect Signal cable again=> go back to normal display

Warning Message

Item	Attention Signals	Display Time	Condition	Active off
1	CANNOT DISPLAY THIS VIDEO MODE, CHANGE COMPUTER DISPLAY INPUT TO 1024 X 768 @60Hz	30 mins	This warning appears when the input signal from your computer is not in a standard video mode or is out of the monitor's scanning range. After 30 mins, monitor enters sleeping mode.	No
2	NO VIDEO INPUT	30 mins	This message appears when there is no signal input but with cable while AC to DC while power on. After 30 mins, monitor enters sleeping mode.	Yes show floating menu "ATTENTION SIGNAL OFF"
3	CHECK CABLE CONNECTION	30 mins	This message appears when a signal cable is disconnected while monitor is working. After 30 mins, monitor enters sleeping mode	Yes show floating menu "ATTENTION SIGNAL OFF"
4	ENTER SLEEP MODE	3 secs	This message appears when monitor is about to enter power saving mode.	No
5	WAITING FOR AUTOMATIC ADJUSTMENT	Till auto adjustment finished	This message is displayed when the auto adjustment button is pressed. It disappears when automatic adjustments are completed.	No
6	USE 1024 x 768 FOR BEST RESULT	On top of OSD main menu	The message will show up at the top of the OSD main menu in red color when the input resolution is not the 1024 X 768.	Yes
7	OSD MAIN CONTROLS LOCKED	3 secs / or till "OSD MAIN CONTROLS UNLOCKED" appear	This message will appear 3 seconds to indicate the OSD MAIN CONTROLS status when to lock or un-lock it by pressing "MENU(OK)" button for more than 10 seconds while there is video input from PC. This function provides the alternative that user can lock all the OSD main control in case user don't want the OSD performance setting to be changed, for instance, during commercial exhibition.	No function when push 10 secs (if OSD lock then attention off, not any message and only attention on)
8	OSD MAIN CONTROLS UNLOCKED	3 secs	This message will appear 3 seconds to indicate the OSD MAIN CONTROLS status when to lock or un-lock it by pressing "MENU(OK)" button for more than 10 seconds while there is video input from PC.	No function when push 10 secs.
9	ATTENTION SIGNAL ON ATTENTION SIGNAL OFF	3 secs 3 secs	This message will appear 3 seconds to indicate the attention signals in ON or OFF status when to switch this function on or off by pressing the AUTO button for more than 10 seconds while at no video input from PC.	Yes
10	THIS IS 85 Hz OVERSCAN, CHANGE COMPUTER DISPLAY INPUT TO 1024 X 768@60Hz	10 mins	This message will appear 5 seconds in every 60 seconds for 10 minutes when the input of PC video timing is at 85 Hz mode. Remark: AUTO is still functional in this mode.	No
11	The window of " OSD MAIN CONTROLS"	60 secs	This message will appear when the "OK" button is pressed.	Yes
12	The window of "brightness"	60 secs	This message will appear when the "BRIGHTNESS" button is pressed.	Yes
13	"SELECTED INPUT NOT AVAILABLE"	5 secs	When just on input(analog or digital), press"input switch" or hot key, then after show this warning message 5 sec, return to original input.	TBD

0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

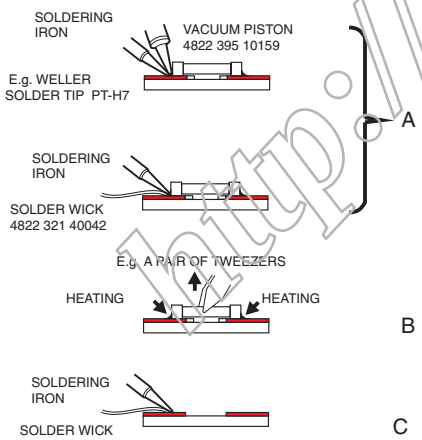
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

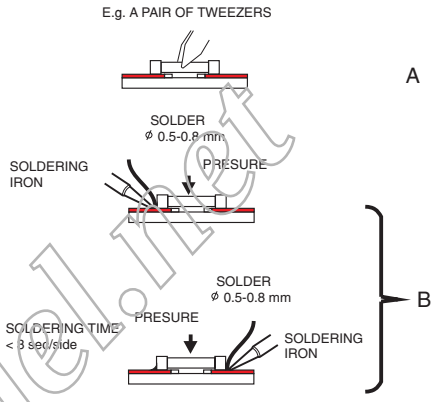
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should Preferably be equipped with a thermal control (soldering temperature: 225 degree V to 250 degree C.
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 2A)
- Next complete the soldering of the terminals of the component. (See Fig. 2B)

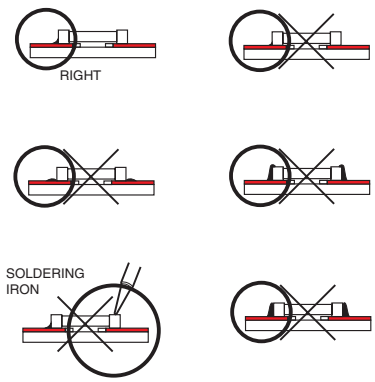
Fig. 2 MONUTING



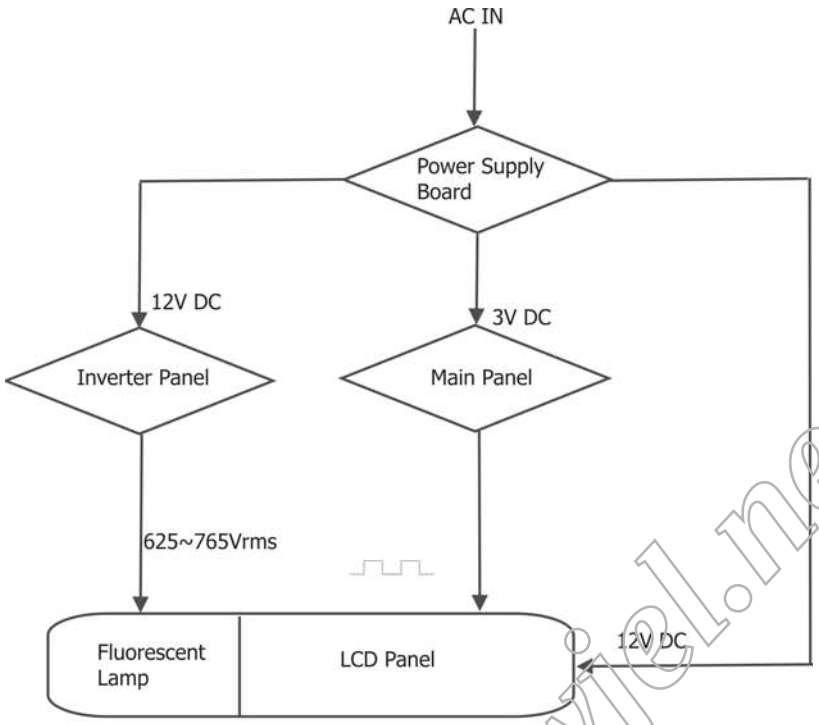
2. Caution when attaching SMDs

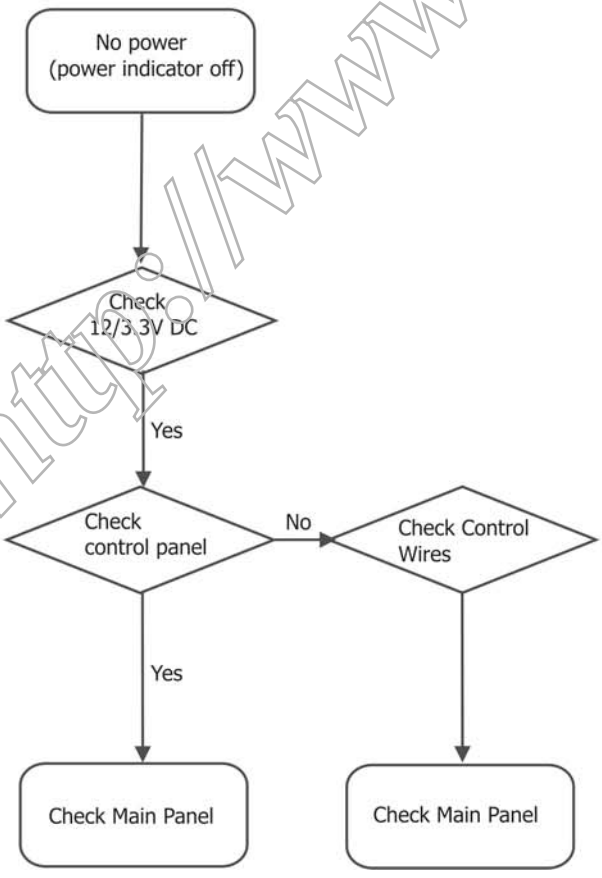
- When soldering the SMDs terminals, do not touch them directly with the soldering iron. The soldering should be directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30W) should preferably be equipped with a thermal control (soldering temperature: 225 degree C to 250 degree C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMDs cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (See Fig. 3).

Fig. 3 Examples

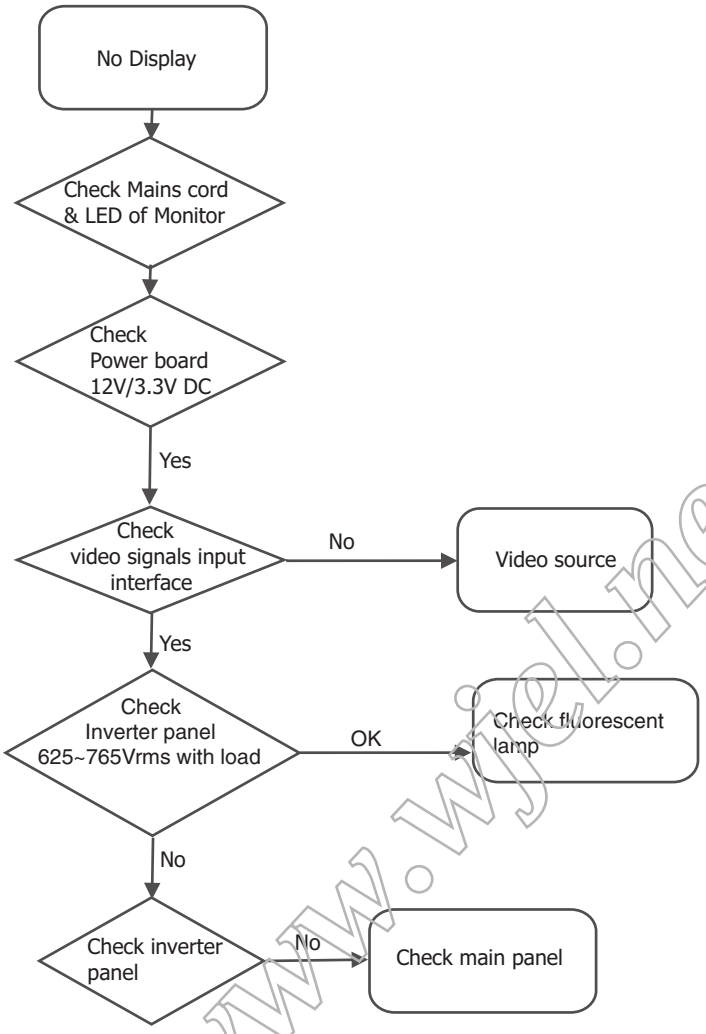


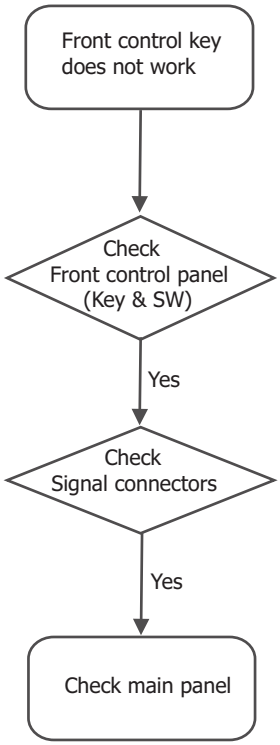
Repair Flow Chart



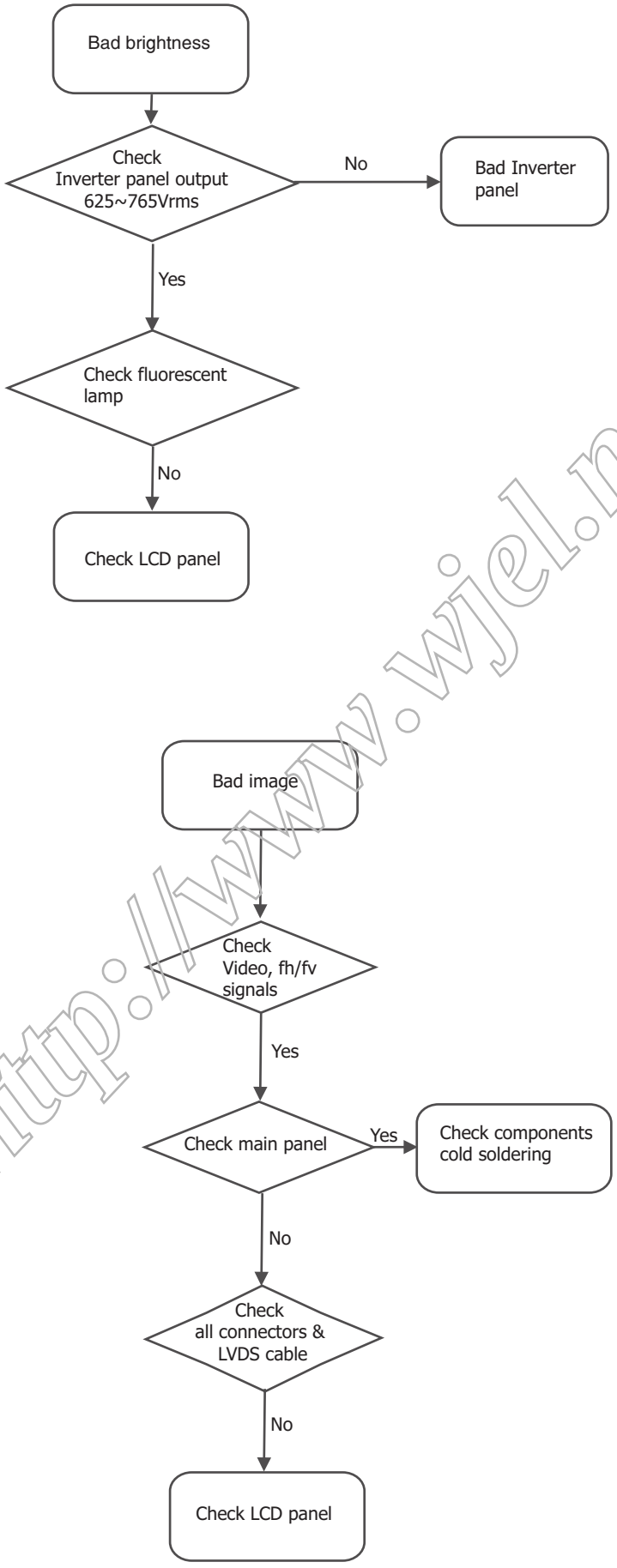


Repair Flow Chart-2

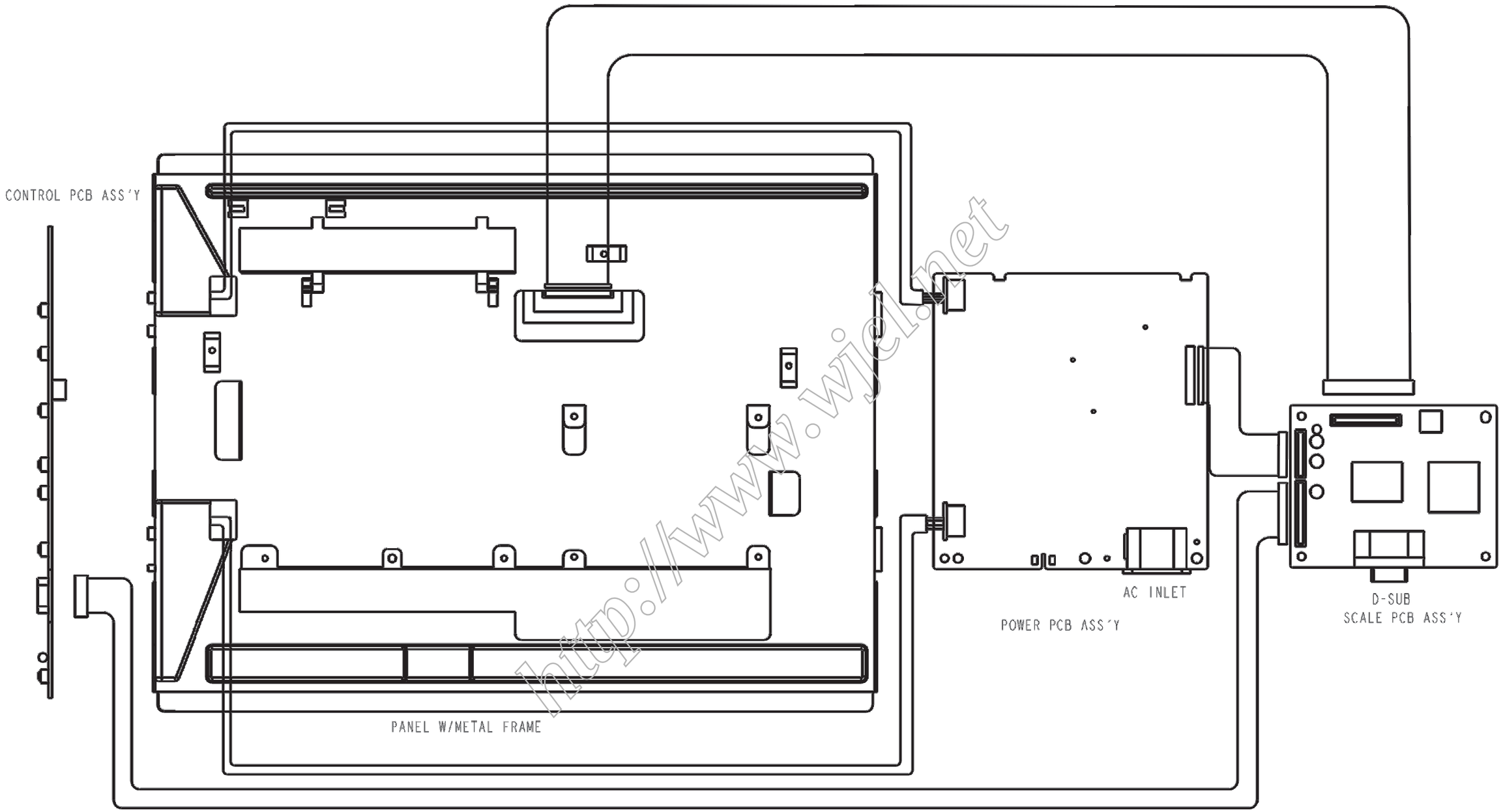




Repair Flow Chart-3

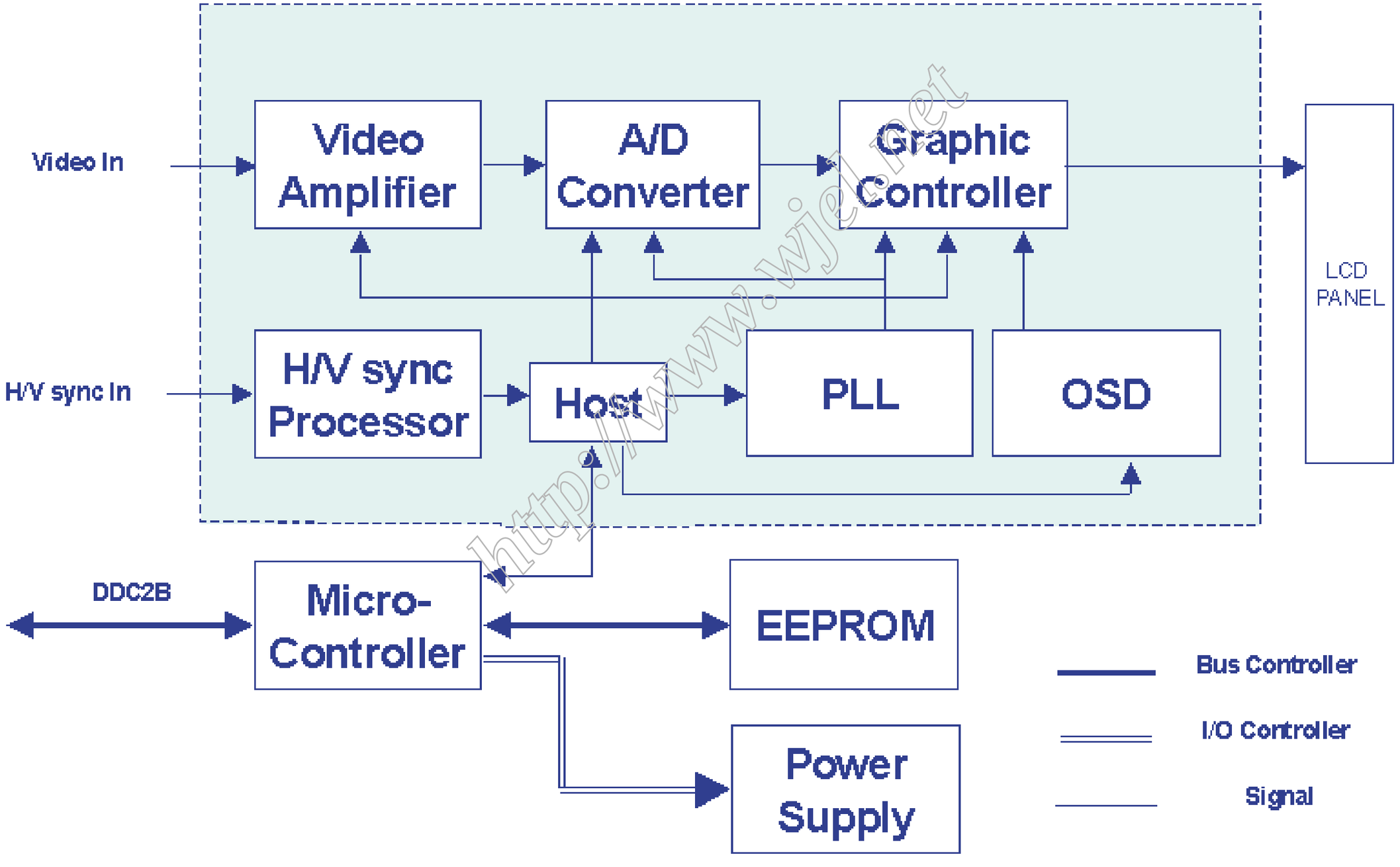


Wiring Diagram



Platform

Functional Block

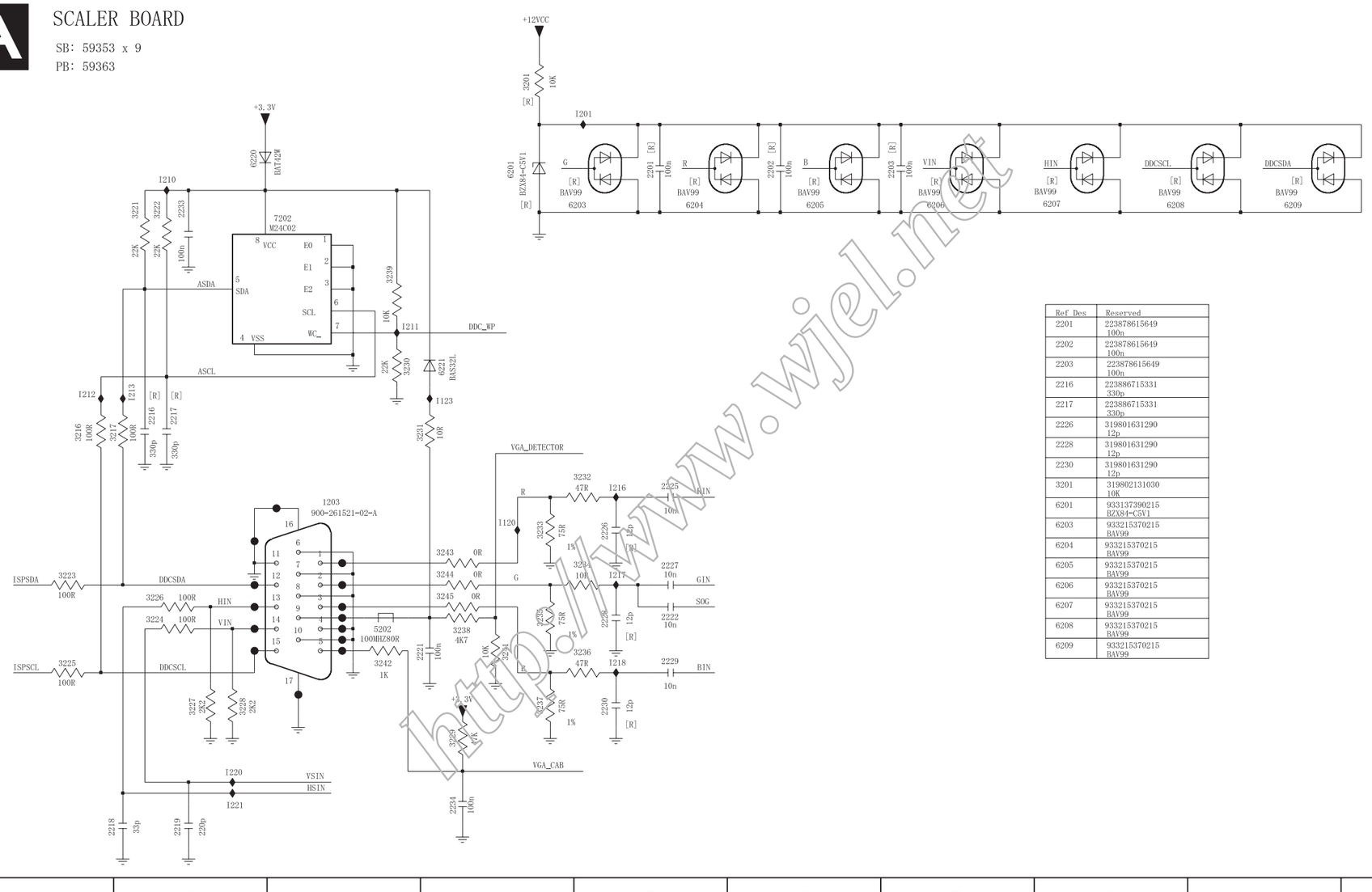


Scaler Schematic Diagram-1

SCALER BOARD

SB: 59353 x 9

PB: 59363



Ref Des	Reserved
2201	223878615649 100n
2202	223878615649 100n
2203	223878615649 100n
2216	223886715331 330p
2217	223886715331 330p
2226	319801631290 12p
2228	319801631290 12p
2230	319801631290 12p
3201	319802131030 10K
6201	933137390215 BZX84-C5V1
6203	933215370215 BAV99
6204	933215370215 BAV99
6205	933215370215 BAV99
6206	933215370215 BAV99
6207	933215370215 BAV99
6208	933215370215 BAV99
6209	933215370215 BAV99

1203 D3
2201 B5
2202 B6
2203 B7
2216 D2
2217 D2
2218 F2
2219 F2
2221 E4
2222 E5
2225 D5
2226 D5
2227 E5
2228 E5
2229 E5
2230 E5
2233 B2
2234 F4
3201 A4
3216 D1
3217 D2
3221 B2
3222 B2
3223 E1
3224 E2
3225 E1
3226 E2
3227 E2
3228 E2
3229 F4
3230 C3
3231 D4
3232 D5
3233 D4
3234 E5
3235 E4
3236 E5
3237 E4
3238 E4
3239 C3
3241 E4
3242 E3
3243 D4
3244 E4
3245 E4
5202 E3
6201 B4
6203 B5
6204 B5
6205 B6
6206 B7
6207 B8
6208 B8
6209 B9
6220 B2
6221 C4
7202 B3
I120 D4
I123 C4
I201 B5
I210 B2
I211 C3
I212 C1
I213 C2
I216 D5
I217 E5
I218 E5
I220 F2
I221 F2

EXCEPT 1203 WERE CHIP COMPONENTS.

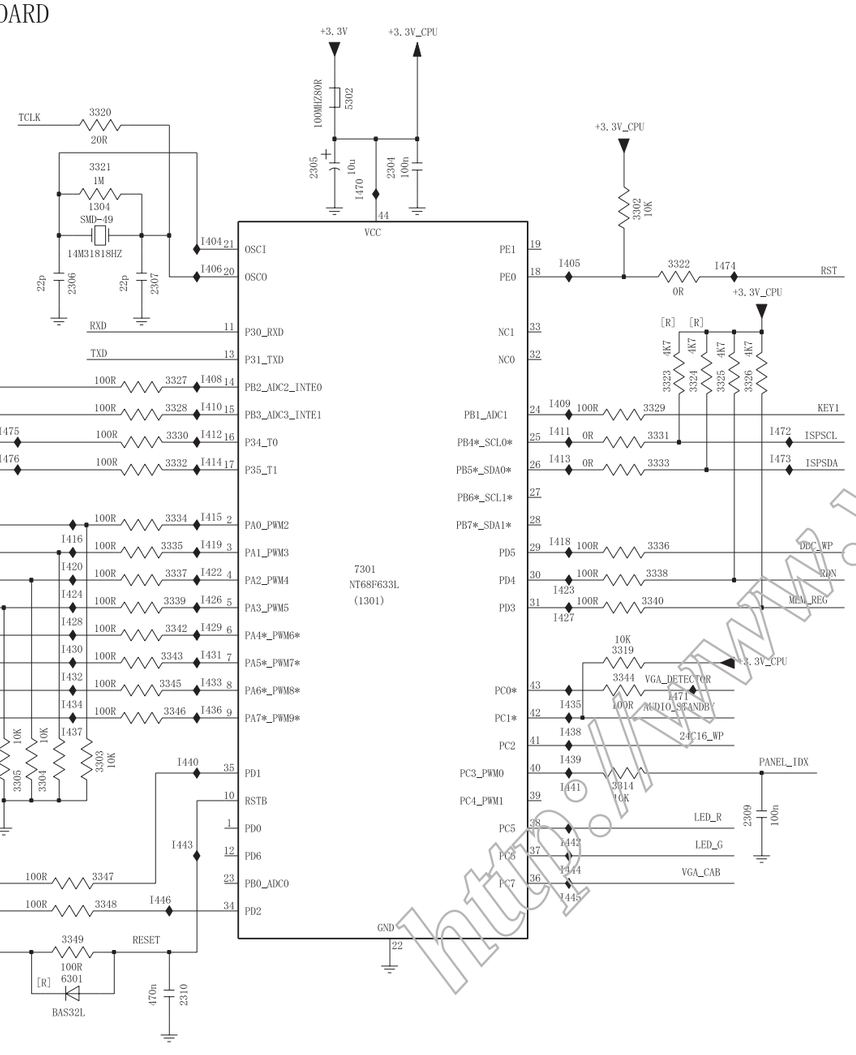
CHN ECO-	SETNAME XH4 (HUDSON4-150C5)		
CLASS_NO	DSUB 150C5BS/00	3138 158 6019	1
2004-05-28 3			
NAME Jerry Chen/Joss Hung	SUPERS.	4 10 130 - *** A3	1
MGr CHECK ********	DATE 2004-05-28	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000	

Scaler Schematic Diagram-2

SCALER BOARD

SB: 59353 x 9

PB: 59363



Ref Des	Reserved
1303	313816876941 JFE63173
2308	223878615649 100n
3310	319802131030 10K
3323	212211805665 4K7
3324	212211805665 4K7
3354	319802131030 10K
6301	933913910115 BAS32L

1303 C9 I411 C5
1304 B2 I412 C3
2304 A4 I413 C5
2305 A3 I414 C3
2306 B2 I415 C3
2307 B2 I416 C2
2308 D8 I417 C9
2309 E6 I418 C5
2310 E3 I419 C3
2313 A7 I420 C2
3302 A5 I421 C9
3303 D2 I422 C3
3304 D2 I423 C5
3305 D2 I424 C2
3306 A8 I425 D9
3307 A8 I426 D3
3308 B8 I427 D5
3309 B8 I428 D2
3310 B7 I429 D3
3311 E1 I430 D2
3312 E1 I431 D3
3314 E5 I432 D2
3319 D5 I433 D3
3320 A2 I434 D2
3321 A2 I435 D5
3322 B5 I436 D3
3323 B5 I437 D2
3324 B5 I438 D5
3325 B5 I439 D5
3326 B6 I440 D3
3327 B3 I441 D5
3328 C3 I442 E5
3329 C5 I443 E3
3330 C3 I444 E5
3331 C5 I445 E5
3332 C3 I446 E3
3333 C5 I470 A4
3334 C3 I471 D5
3335 C3 I472 C6
3336 C5 I473 C6
3337 C3 I474 B5
3338 C5 I475 C2
3339 D3 I476 C2
3340 D5
3341 A8
3342 D3
3343 D3
3344 D5
3345 D3
3346 D3
3347 E2
3348 E2
3349 E2
3350 D1
3351 D1
3352 D1
3353 D1
3354 D2
5302 A4
6301 E2
7301 C4
7302 A9
I401 A8
I402 A8
I403 B8
I404 B3
I405 B5
I406 B3
I407 B8
I408 B3
I409 C5
I410 C3

EXCEPT 1303,7302 WERE CHIP COMPONENTS.

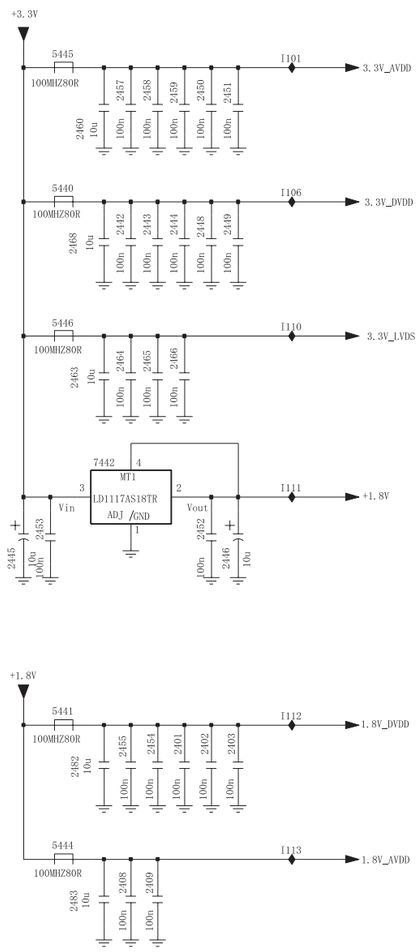
CHN ECO-		SETNAME XH4 (HUDSON4-150C5)	
CLASS_NO	MICRO 150C5BS/00	3138 158 6019	1 ———
2004-05-28 3			
NAME Jerry Chen/Joss Hung		SUPERS. 4	10 130 - 2 *** A3
MGr CHECK ********		DATE 2004-05-28	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000

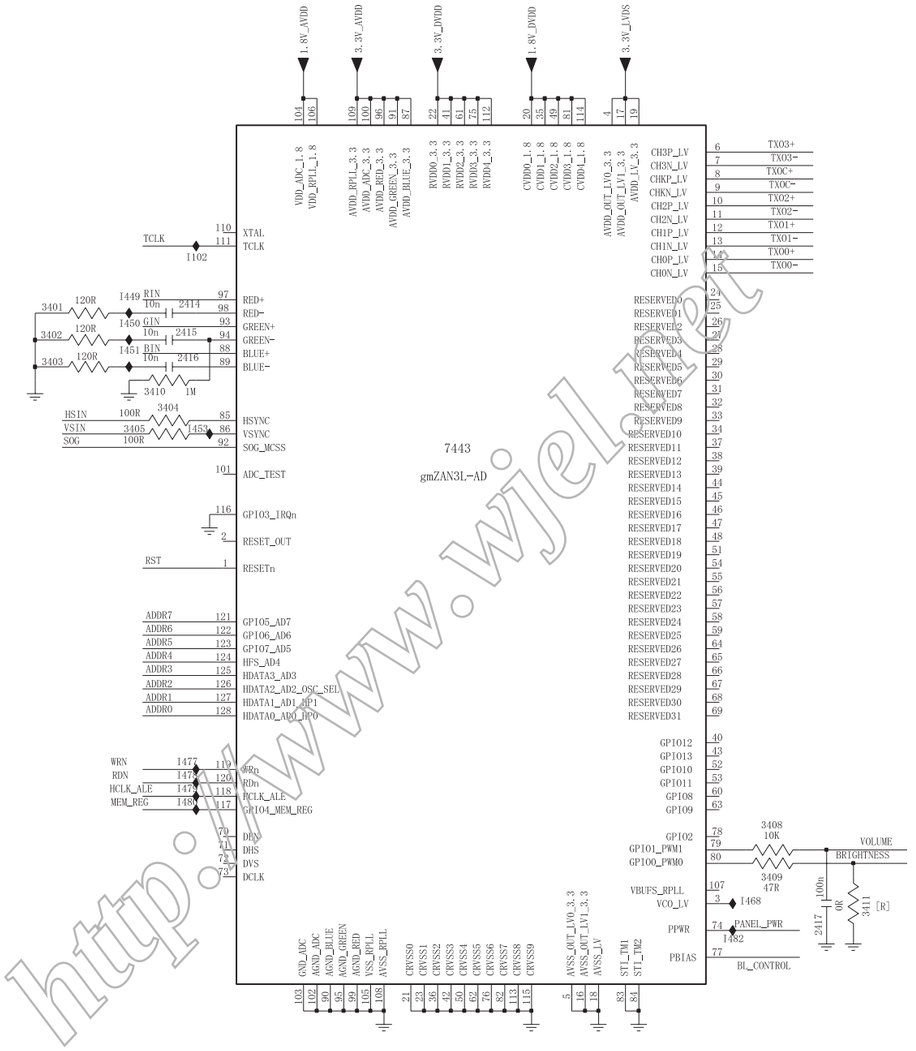
Scaler Schematic Diagram-3

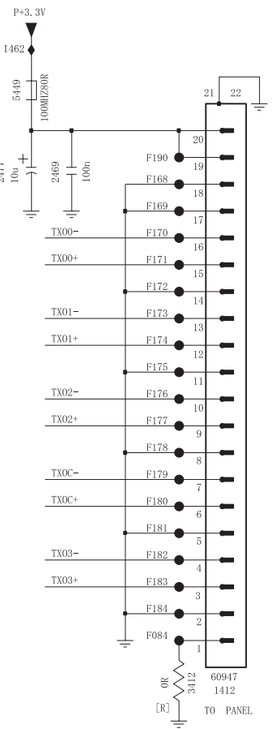
SCALER BOARD

SB: 59353 x 9

PB: 59363







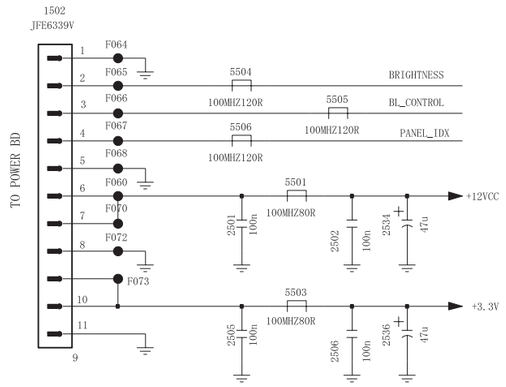
Ref Des	Reserved
3411	232270296001 0R
3412	232270296001 0R

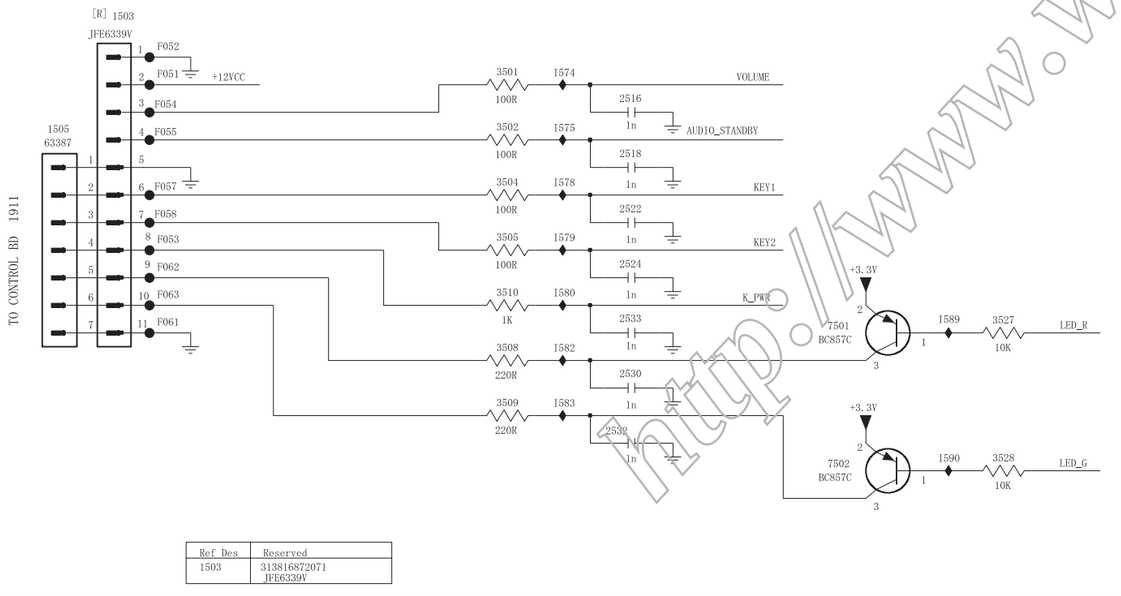
1412 E9	I102 B4	3403 B3	F168 B9
2401 E1	I106 B2	3404 C4	F169 C9
2402 E1	I110 C2	3405 C4	F170 C9
2403 E2	I111 D2	3408 E7	F171 C9
2408 F1	I112 E2	3409 E7	F172 C9
2409 F1	I113 F2	3410 C4	F173 C9
2414 B4	I449 B4	3411 E8	F174 C9
2415 B4	I450 B4	3412 E9	F175 C9
2416 B4	I451 B4	5440 B1	F176 D9
2417 E7	I453 C4	5441 E1	F177 D9
2442 C1	I462 B8	5444 F1	F178 D9
2443 C1	I468 E7	5445 B1	F179 D9
2444 C1	I477 E4	5446 C1	F180 D9
2445 D1	I478 E4	5449 B8	F181 D9
2446 D2	I479 E4	7442 D1	F182 D9
2448 C1	I480 E4	7443 C6	F183 E9
2449 C2	I482 E7	F084 E9	F184 E9
2450 B1		F168 B9	F190 B9
2451 B2		F169 C9	I101 B2
2452 D1		F170 C9	
2453 D1		F171 C9	
2454 E1		F172 C9	
2455 E1		F173 C9	
2457 B1		F174 C9	
2458 B1		F175 C9	
2459 B1		F176 D9	
2460 B1		F177 D9	
2463 C1		F178 D9	
2464 C1		F179 D9	
2465 C1		F180 D9	
2466 C1		F181 D9	
2468 C1		F182 D9	
2469 B9		F183 E9	
2477 B8		F184 E9	
2482 E1		F190 B9	
2483 F1		I101 B2	

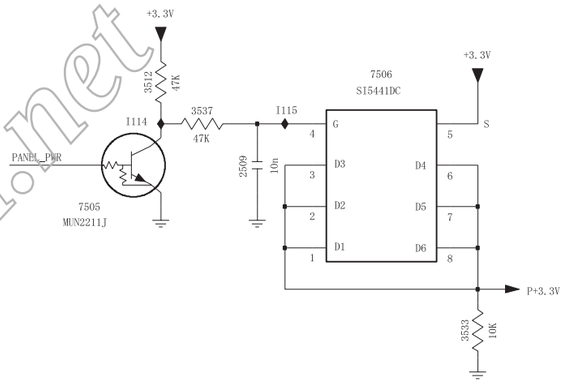
CHN ECO-	SETNAME XH4 (HUDSON4-150C5)		
CLASS_NO	Scaler	3138 158 6019	1
2004-05-28 3	150C5BS/00		
NAME Jerry Chen/Joss Hung	SUPERS. 4	10	130 - 3 *** A3
MGr CHECK ********	DATE 2004-05-28		

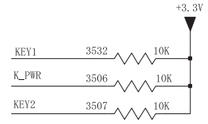
Scaler Schematic Diagram-4

SCALER BOARD
SB: 59353 x 9
PB: 59363









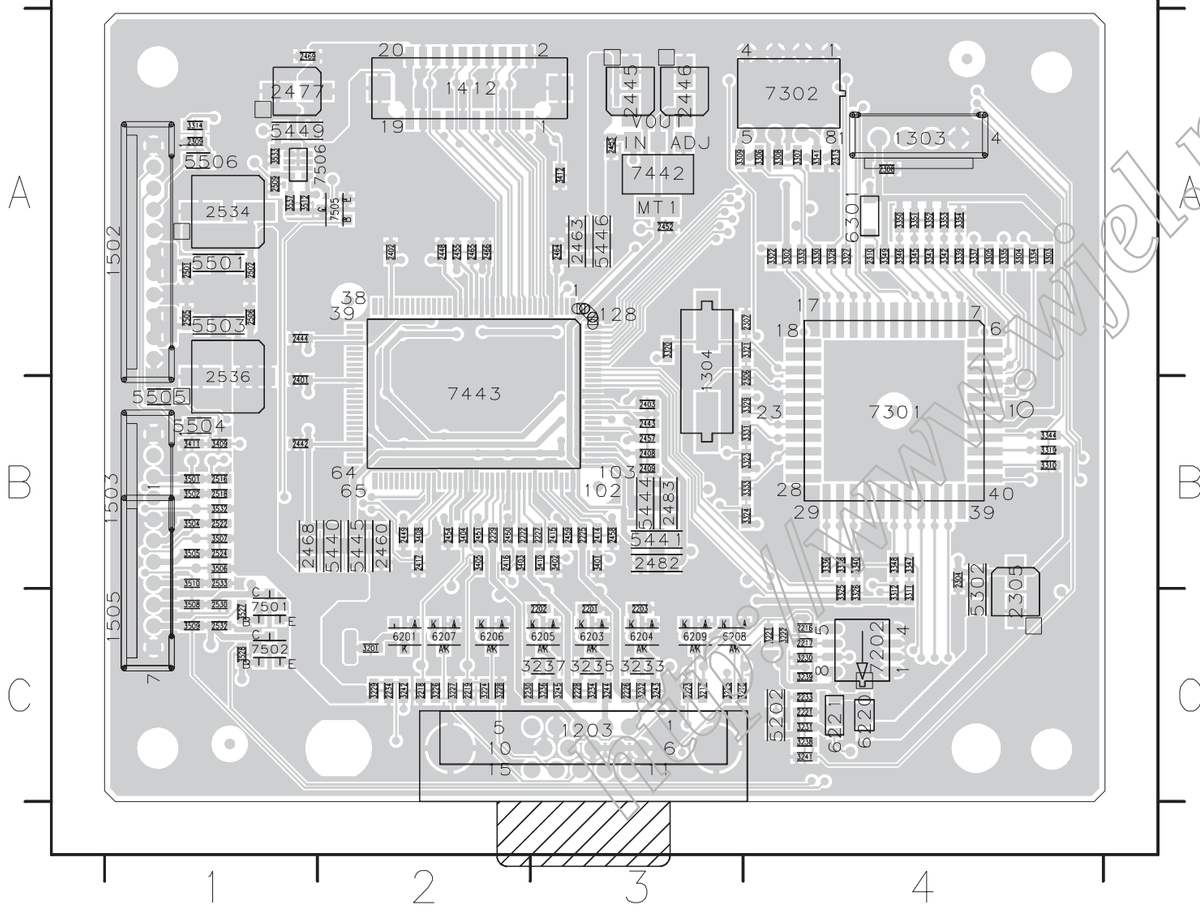
Ref Des	Reserved
1503	313816872071 JFE6339V

1502 B1
1503 D1
1505 D1
2501 C2
2502 C3
2505 C2
2506 C3
2509 C8
2516 D4
2518 D4
2522 E4
2524 E4
2530 E4
2532 F4
2533 E4
2534 C3
2536 C3
3501 D3
3502 D3
3504 D3
3505 E3
3506 E8
3507 E8
3508 E3
3509 F3
3510 E3
3512 B8
3527 E6
3528 F6
3532 E8
3533 D9
3537 C8
5501 B2
5503 C2
5504 B2
5505 B3
5506 B2
7501 E5
7502 F5
7505 C7
7506 B9
F051 D1
F052 D1
F053 E1
F054 D1
F055 D1
F057 D1
F058 E1
F060 B1
F061 E1
F062 E1
F063 E1
F064 B1
F065 B1
F066 B1
F067 B1
F068 B1
F070 C1
F072 C1
F073 C2
I114 C7
I115 B8
I574 D3
I575 D3
I578 D3
I579 E3
I580 E3
I582 E3
I583 F3
I589 E5
I590 F5

EXCEPT 1502, 1503, 1505 WERE CHIP COMPONENTS.

CHN ECO-		SETNAME XH4 (HUDSON4-150C5)	
CLASS_NO	CONNECTOR 150C5BS/00		3138 158 6019
2004-05-28 3			1
NAME Jerry Chen/Joss Hung		SUPERS. 4	130 - 4 A3
CHECK		DATE 2004-05-28	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000

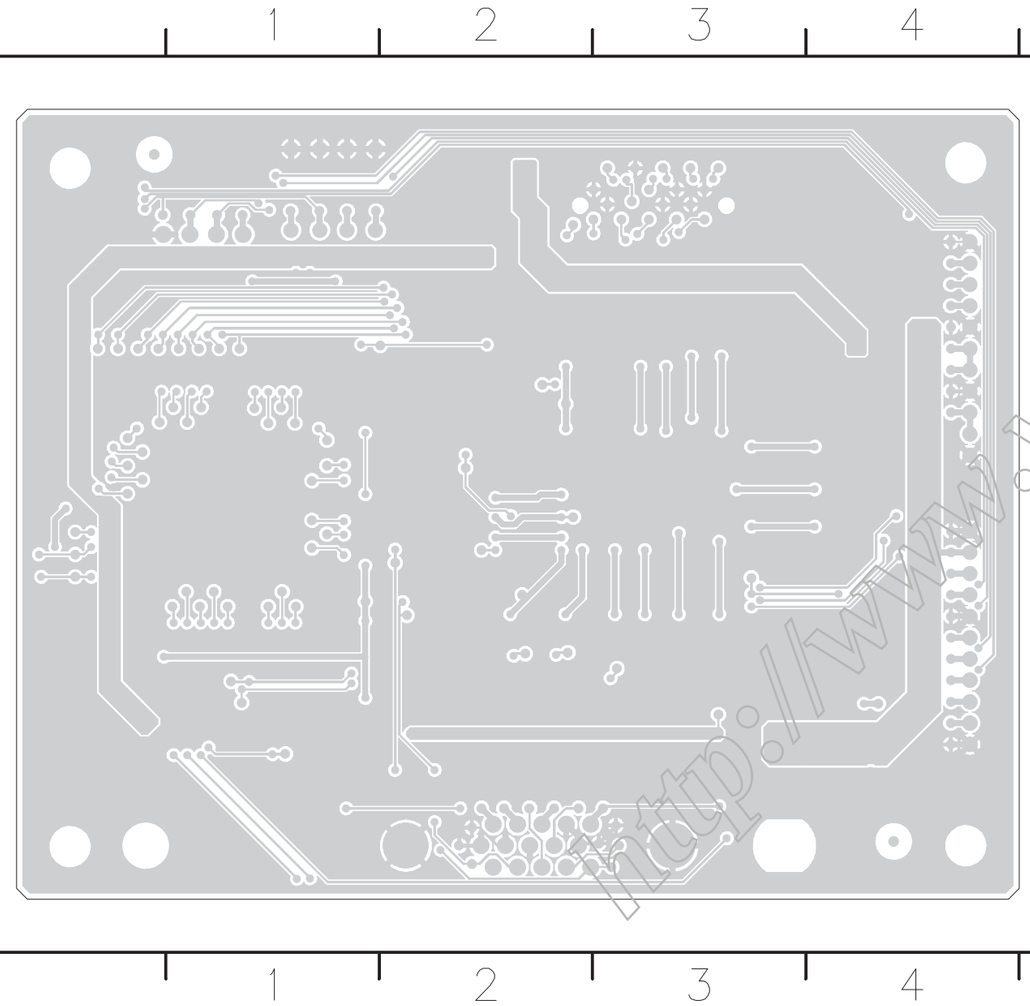
Scaler Board C.B.A-1



1203	C3	2451	B2	3235	C3	3346	A4	6204	C3
1303	A4	2452	A3	3236	C3	3347	B4	6205	C3
1304	A3	2453	A3	3237	C3	3348	B4	6206	C2
1412	A2	2454	B2	3238	C4	3349	A4	6207	C2
1502	A1	2455	A2	3239	C4	3350	A4	6208	C3
1503	B1	2457	B3	3241	C4	3351	A4	6209	C3
1505	C1	2458	B3	3242	C2	3352	A4	6220	C4
2201	C3	2459	B3	3243	C3	3353	A4	6221	C4
2202	C3	2460	B2	3244	C3	3354	A4	6301	A4
2203	C3	2463	A3	3245	C3	3401	B3	7202	C4
2216	C4	2464	A3	3302	A4	3402	B3	7301	B4
2217	C4	2465	A2	3303	A4	3403	B2	7302	A4
2218	C2	2466	A2	3304	A4	3404	B2	7442	A3
2219	C2	2468	B1	3305	A4	3405	B2	7443	B2
2221	C4	2469	A1	3306	A4	3408	B2	7501	C1
2222	B2	2477	A1	3307	A4	3409	B1	7502	C1
2225	B3	2482	B3	3308	A4	3410	B3	7505	A2
2226	C3	2483	B3	3309	A3	3411	B1	7506	A2
2227	B3	2501	A1	3310	B4	3412	A3		
2228	C3	2502	A1	3311	C4	3501	B1		
2229	B2	2505	A1	3312	C4	3502	B1		
2230	C2	2506	A1	3314	A1	3504	B1		
2233	C4	2509	A1	3319	B4	3505	B1		
2234	C2	2516	B1	3320	A3	3506	B1		
2304	B4	2518	B1	3321	A4	3507	B1		
2305	C4	2522	B1	3322	A4	3508	C1		
2306	B4	2524	B1	3323	B4	3509	C1		
2307	A4	2530	C1	3324	B4	3510	B1		
2308	A4	2532	C1	3325	C4	3512	A1		
2309	A1	2533	B1	3326	C4	3527	C1		
2310	A4	2534	A1	3327	A4	3528	C1		
2313	A4	2536	B1	3328	A4	3532	B1		
2401	B1	3201	C2	3329	B4	3533	A1		
2402	A2	3216	C3	3330	A4	3537	A1		
2403	B3	3217	C3	3331	B4	5202	C4		
2408	B3	3221	C4	3332	A4	5302	C4		
2409	B3	3222	C4	3333	B4	5440	B2		
2414	B3	3223	C3	3334	A4	5441	B3		
2415	B3	3224	C2	3335	A4	5444	B3		
2416	B2	3225	C3	3336	B4	5445	B2		
2417	B2	3226	C2	3337	A4	5446	A3		
2442	B1	3227	C2	3338	B4	5449	A1		
2443	B3	3228	C2	3339	A4	5501	A1		
2444	A1	3229	C2	3340	B4	5503	A1		
2445	A3	3230	C4	3341	A4	5504	B1		
2446	A3	3231	C4	3342	A4	5505	B1		
2448	A2	3232	C3	3343	A4	5506	A1		
2449	B2	3233	C3	3344	B4	6201	C2		
2450	B2	3234	C3	3345	A4	6203	C3		

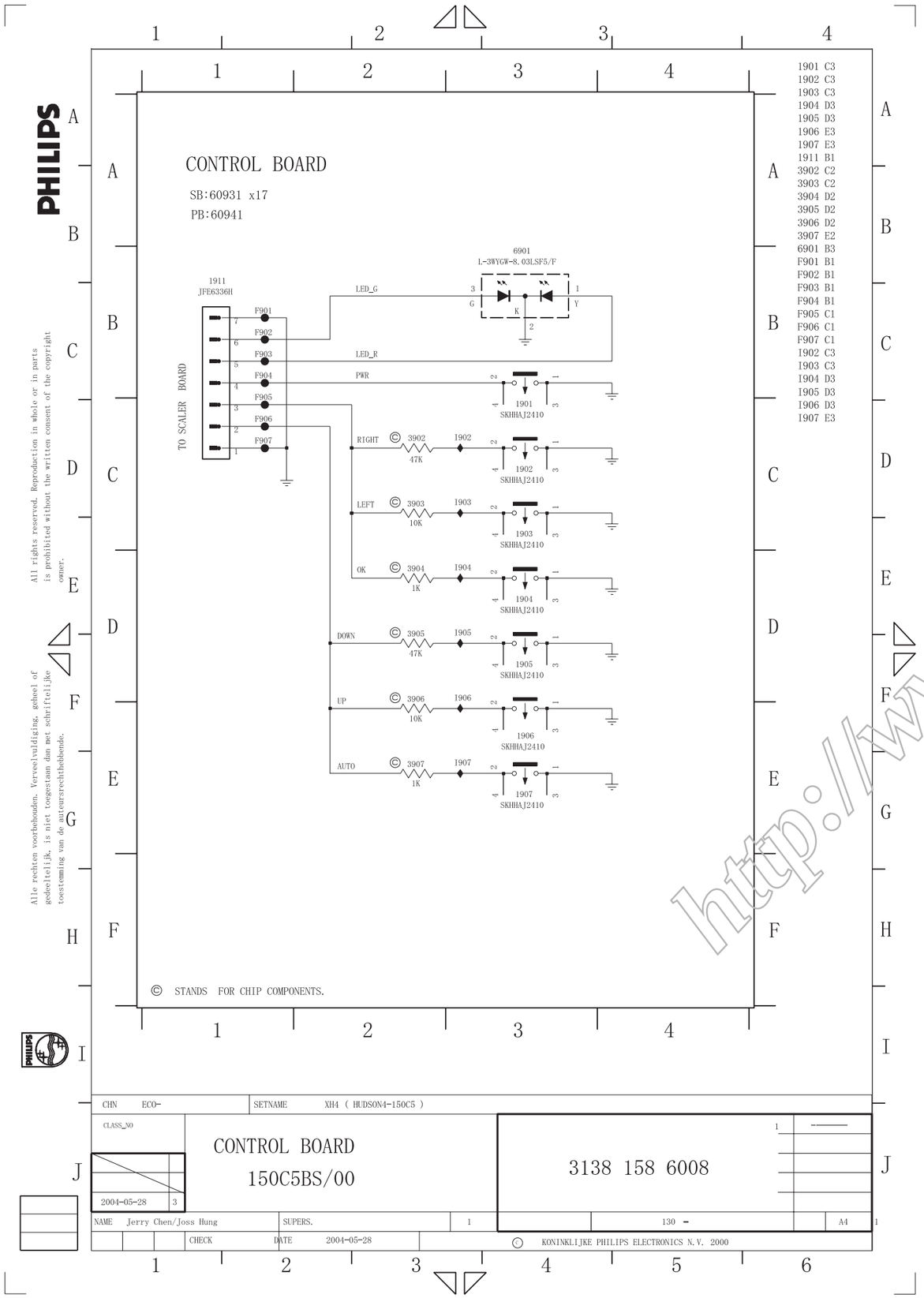
CN: ECO-000632	LCD 150S5		
CLASS NO. 3XX000	Scaler Board LCD 150S5	3138 103 5935	3 2004-05-17 2 ~~2004-02-13~~ 1 ~~2003-11-24~~
2003-11-24 3			
NAME Jerry Chen/Joss	SUPERS 2	10 132 - 1	A3
CHECK	DATE 2003-11-24	© Philips Electronics N.V.	

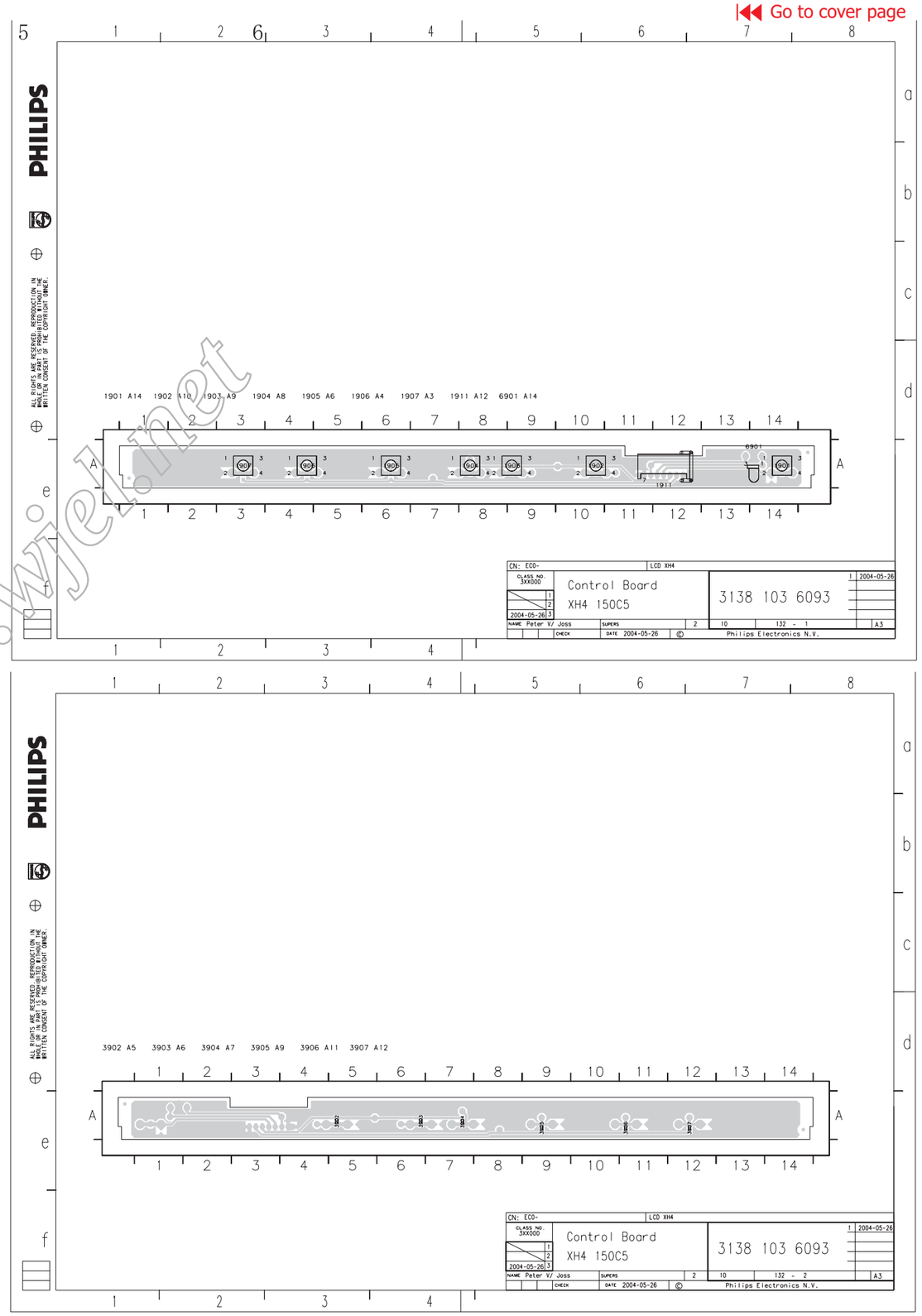
Scaler Board C.B.A-2



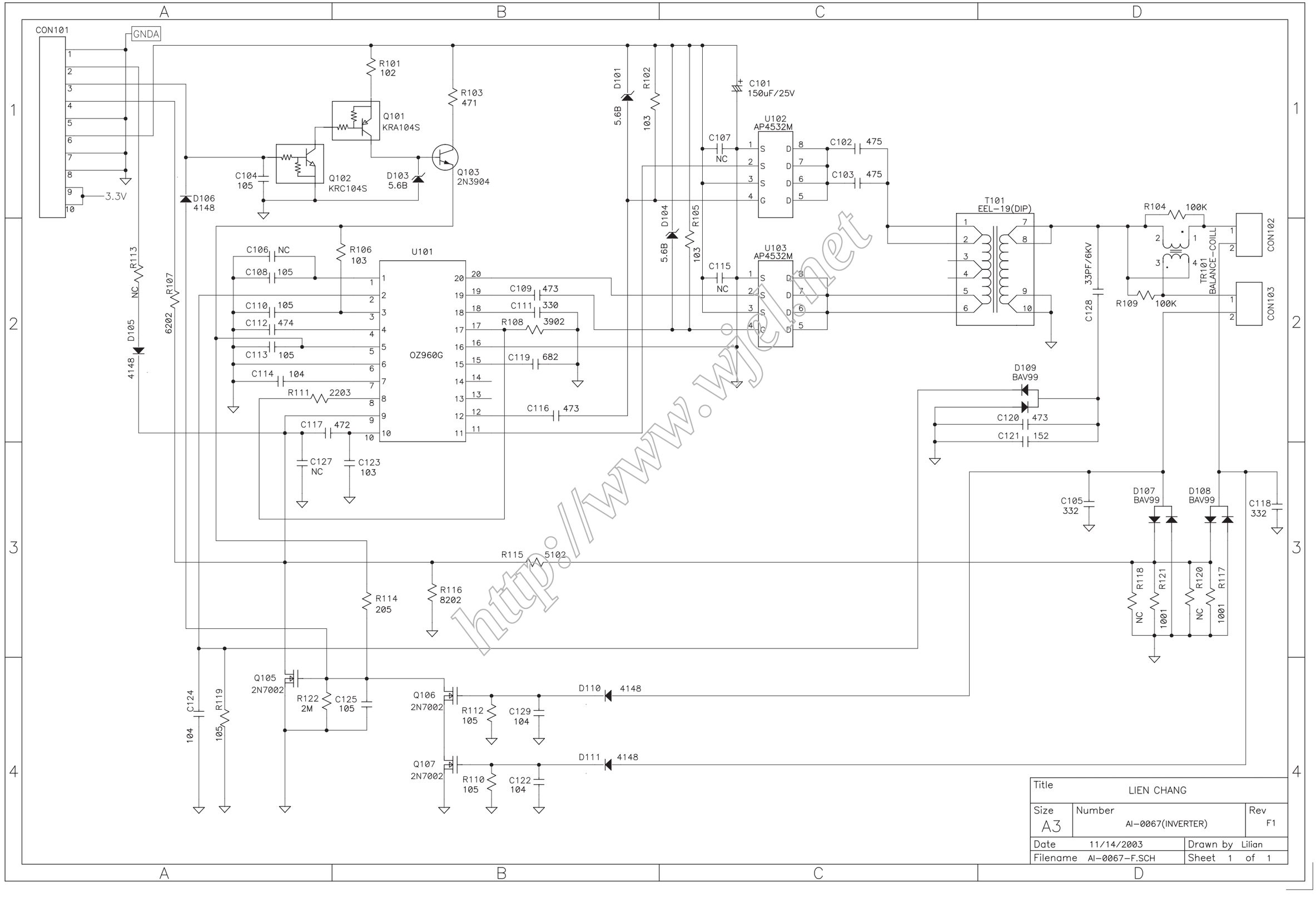
CN: ECO-000632				LCD 150S5			
CLASS NO. 3XX000	Scaler Board LCD 150S5			3138 103 5935		3	2004-05-17
1 / 2 / 2003-11-24 / 3						2	2004-02-13
						1	2003-11-24
NAME Jerry Chen/Joss	SUPERS	2	10	132 - 2			A3
CHECK	DATE 2003-11-24	©	Philips Electronics N.V.				

Control Schematic Diagram & C.B.A

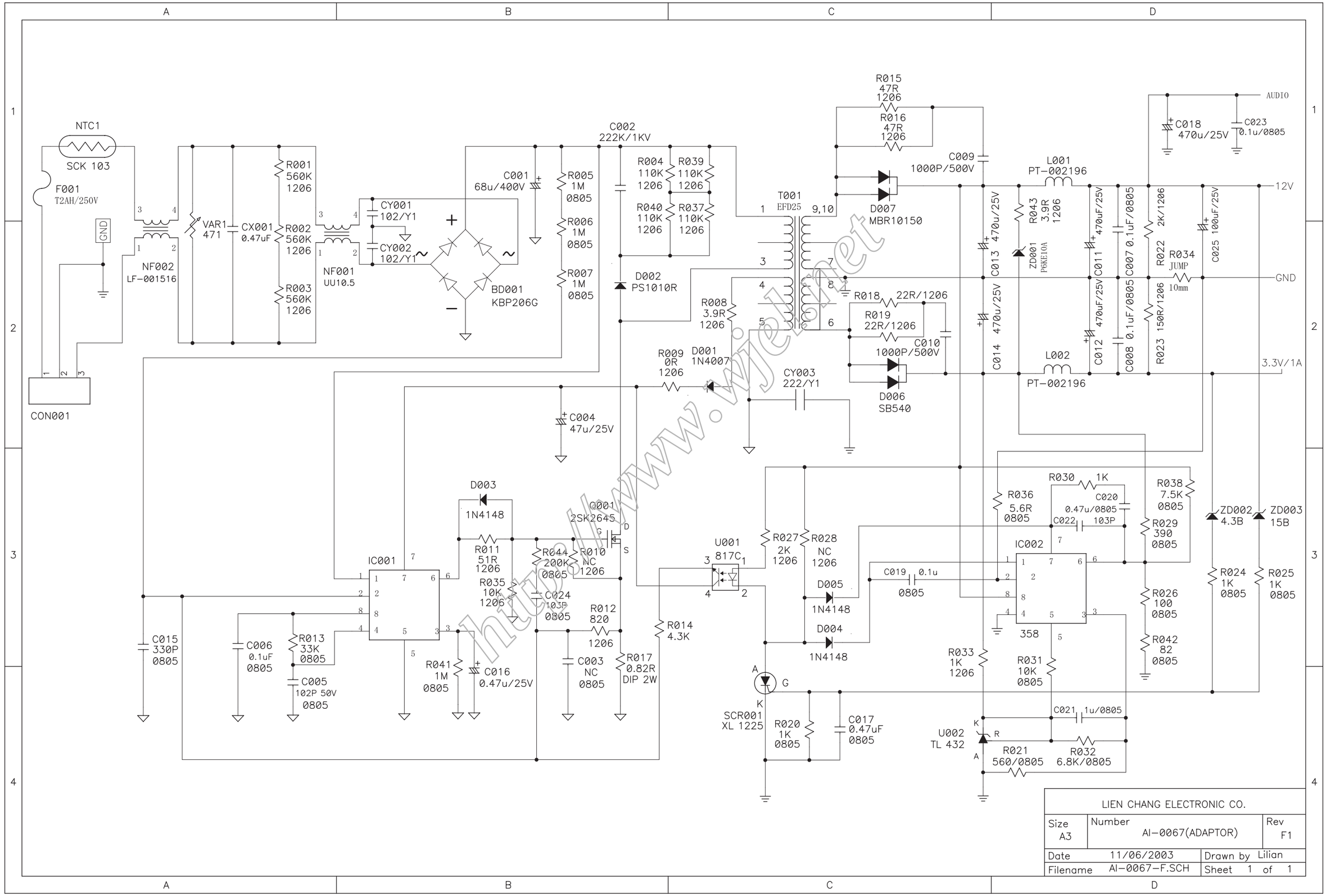




Power Schematic Diagram-1

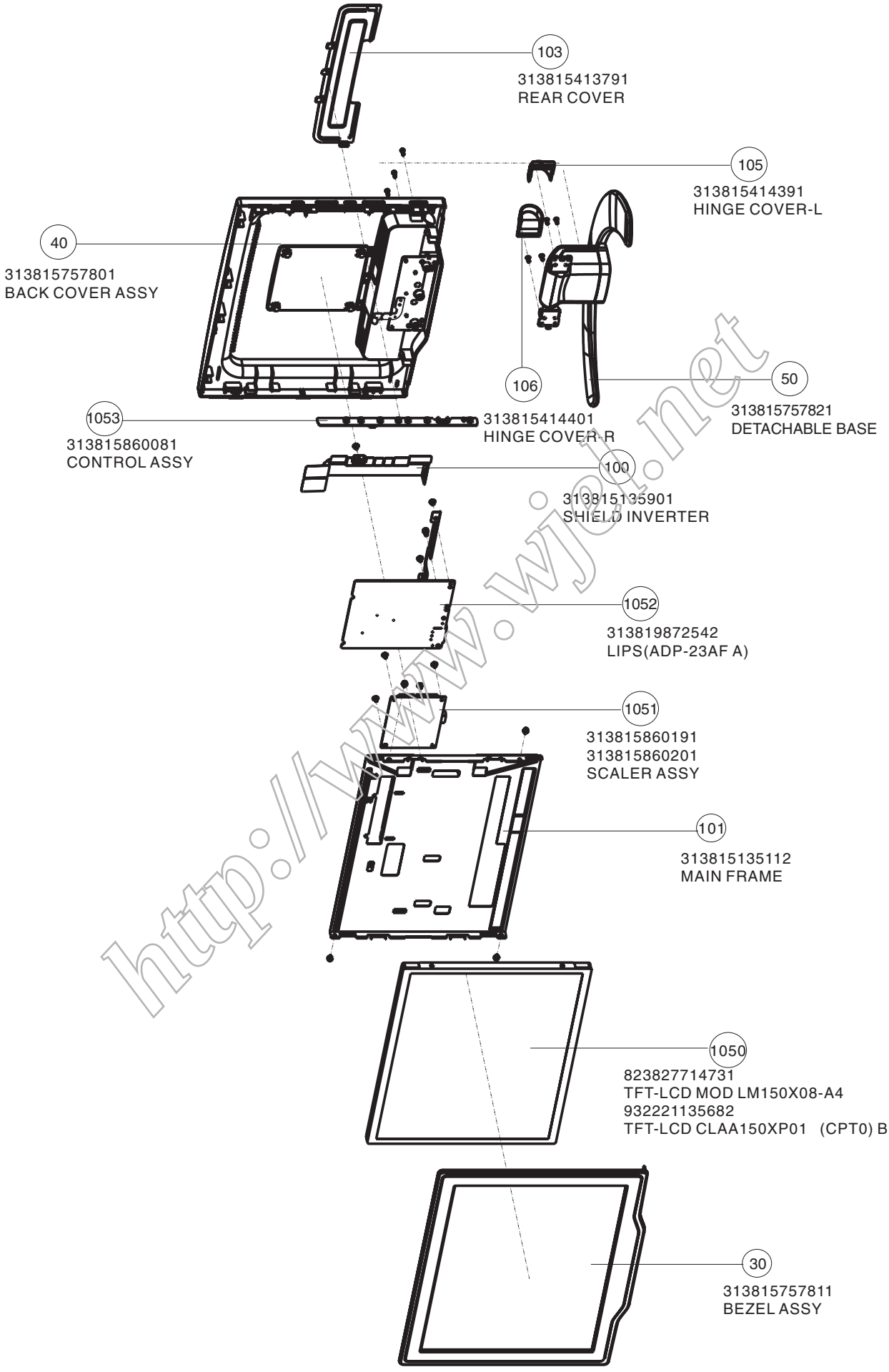


Power Schematic Diagram-2



LIEN CHANG ELECTRONIC CO.	
Size A3	Number AI-0067(ADAPTOR) Rev F1
Date 11/06/2003	Drawn by Lilian
Filename AI-0067-F.SCH	Sheet 1 of 1

Exploded View



Model:150C5BS/00 12NC:863900015512

Mechanical Parts

0030	313815757811	BEZEL ASSY
0031	313815413681	BEZEL
0032	313815408971	LENS-POWER
0040	313815757801	BACK COVER ASSY
0041	313815413671	BACK COVER
0042	313815136161	GROUNDING PLATE
0043	313815414381	BUTTON-CONTROL
0050	313815757821	DETACHABLE BASE
0096	313815408011	GUIDE DC OUT(BLK)
0100	313815135901	SHIELD INVERTER
0101	313815135112	MAIN FRAME
0103	313815413791	REAR COVER
0105	313815414391	HINGE COVER-L
0106	313815414401	HINGE COVER-R
0210	313800991811	PROCESS BOX

Packing Materials

0450	313815637931	CARTON
0451	313815637921	CUSHION-R
0452	313815637911	CUSHION-L
0453	313815621481	P.E.BAG

PCB Assy

1051	313815860191	SCALER ASSY
1051	313815860201	SCALER ASSY
1052	313819872542	LIPS(ADP-23AF A)
1053	313815860081	CONTROL ASSY

Accessory

0602	313811707271	E-D.F.U.
1157	313818878471	MAINSCORD IEC 10A 1M83 DET GY
1158	313819871191	CORD SUB-D 15/1M8/SUB-D 15GY

LCD Panel

1050	823827714731	TFT-LCD MOD LM150X08-A4
1050	932221135682	TFT-LCD CLAA150XP01 (CPT0) B

Miscellanea

0291	313815564341	LABEL-CPU
0295	313815564351	LABEL-EEPROM(L)
0295	313815564361	LABEL-EEPROM(C)
0615	313811707321	HEX CODE OF F/W
4444	313810610405	CD ROM - SERVICE MANUAL
4444	313810610406	SERVICE MANUAL
8161	313819873091	CBLE -017 7/260/7-017 AWG28
8163	313819871221	CBLE-104 20/85/20-032 AWG28

PCB Assy

1051	313815860191	SCALER ASSY
1051	313815860201	SCALER ASSY
1304	243854300093	RES XTL SM 14M31818 7P SMD49 R
2218	223886715339	CER1 0603 NP0 50V 33P PM5 R
2219	223886715221	CER1 0603 NP0 50V 220P PM5 R
2221	223878615649	CER2 0603 X7R 16V 100N PM10 R
2222	223858615636	CER2 0603 X7R 50V 10N PM10 R
2225	223858615636	CER2 0603 X7R 50V 10N PM10 R
2227	223858615636	CER2 0603 X7R 50V 10N PM10 R
2229	223858615636	CER2 0603 X7R 50V 10N PM10 R
2233	223878615649	CER2 0603 X7R 16V 100N PM10 R
2234	223878615649	CER2 0603 X7R 16V 100N PM10 R
2304	223878615649	CER2 0603 X7R 16V 100N PM10 R
2305	202001293721	ELCAP SM RV2 16V 10U PM20 R
2306	223886715229	CER1 0603 NP0 50V 22P PM5 R
2307	223886715229	CER1 0603 NP0 50V 22P PM5 R
2309	223878615649	CER2 0603 X7R 16V 100N PM10 R
2313	223878615649	CER2 0603 X7R 16V 100N PM10 R
2401	223878615649	CER2 0603 X7R 16V 100N PM10 R
2402	223878615649	CER2 0603 X7R 16V 100N PM10 R
2403	223878615649	CER2 0603 X7R 16V 100N PM10 R
2408	223878615649	CER2 0603 X7R 16V 100N PM10 R
2409	223878615649	CER2 0603 X7R 16V 100N PM10 R
2414	223858615636	CER2 0603 X7R 50V 10N PM10 R
2415	223858615636	CER2 0603 X7R 50V 10N PM10 R
2416	223858615636	CER2 0603 X7R 50V 10N PM10 R
2417	223878615649	CER2 0603 X7R 16V 100N PM10 R
2442	223878615649	CER2 0603 X7R 16V 100N PM10 R
2443	223878615649	CER2 0603 X7R 16V 100N PM10 R
2444	223878615649	CER2 0603 X7R 16V 100N PM10 R
2445	202001293721	ELCAP SM RV2 16V 10U PM20 R
2446	202001293721	ELCAP SM RV2 16V 10U PM20 R
2448	223878615649	CER2 0603 X7R 16V 100N PM10 R
2449	223878615649	CER2 0603 X7R 16V 100N PM10 R
2450	223878615649	CER2 0603 X7R 16V 100N PM10 R
2451	223878615649	CER2 0603 X7R 16V 100N PM10 R
2452	223878615649	CER2 0603 X7R 16V 100N PM10 R
2453	223878615649	CER2 0603 X7R 16V 100N PM10 R
2454	223878615649	CER2 0603 X7R 16V 100N PM10 R
2455	223878615649	CER2 0603 X7R 16V 100N PM10 R
2457	223878615649	CER2 0603 X7R 16V 100N PM10 R
2458	223878615649	CER2 0603 X7R 16V 100N PM10 R
2459	223878615649	CER2 0603 X7R 16V 100N PM10 R
2460	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2463	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2464	223878615649	CER2 0603 X7R 16V 100N PM10 R
2465	223878615649	CER2 0603 X7R 16V 100N PM10 R
2466	223878615649	CER2 0603 X7R 16V 100N PM10 R
2468	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2469	223878615649	CER2 0603 X7R 16V 100N PM10 R
2477	202001293721	ELCAP SM RV2 16V 10U PM20 R
2482	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2483	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2501	223878615649	CER2 0603 X7R 16V 100N PM10 R
2502	223878615649	CER2 0603 X7R 16V 100N PM10 R
2505	223878615649	CER2 0603 X7R 16V 100N PM10 R
2506	223878615649	CER2 0603 X7R 16V 100N PM10 R
2509	223858615636	CER2 0603 X7R 50V 10N PM10 R
2516	223858615623	CER2 0603 X7R 50V 1N PM10 R
2518	223858615623	CER2 0603 X7R 50V 1N PM10 R
2522	223858615623	CER2 0603 X7R 50V 1N PM10 R
2524	223858615623	CER2 0603 X7R 50V 1N PM10 R
2530	223858615623	CER2 0603 X7R 50V 1N PM10 R
2532	223858615623	CER2 0603 X7R 50V 1N PM10 R
2533	223858615623	CER2 0603 X7R 50V 1N PM10 R
2534	202001293747	ELCAP SM RV2 25V 47U PM20 R
2536	202001293747	ELCAP SM RV2 25V 47U PM20 R
3216	212211805643	RST SM 0603 RC0603 100R PM5 R
3217	212211805643	RST SM 0603 RC0603 100R PM5 R
3221	212211805674	RST SM 0603 RC0603 22K PM5 R
3222	212211805674	RST SM 0603 RC0603 22K PM5 R
3223	212211805643	RST SM 0603 RC0603 100R PM5 R
3224	212211805643	RST SM 0603 RC0603 100R PM5 R
3225	212211805643	RST SM 0603 RC0603 100R PM5 R
3226	212211805643	RST SM 0603 RC0603 100R PM5 R
3227	212211805661	RST SM 0603 RC0603 2K2 PM5 R
3228	212211805661	RST SM 0603 RC0603 2K2 PM5 R
3229	212211805678	RST SM 0603 RC0603 47K PM5 R
3230	212211805674	RST SM 0603 RC0603 22K PM5 R
3231	212211805635	RST SM 0603 RC0603 10R PM5 R
3232	212211805639	RST SM 0603 RC0603 47R PM5 R
3233	232273467509	RST SM 0805 RC12H 75R PM1 R
3234	212211805635	RST SM 0603 RC0603 10R PM5 R
3235	232273467509	RST SM 0805 RC12H 75R PM1 R
3236	212211805639	RST SM 0603 RC0603 47R PM5 R
3237	232273467509	RST SM 0805 RC12H 75R PM1 R
3238	212211805665	RST SM 0603 RC0603 4K7 PM5 R
3239	212211805669	RST SM 0603 RC0603 10K PM5 R
3241	212211805669	RST SM 0603 RC0603 10K PM5 R
3242	212211805656	RST SM 0603 RC0603 1K PM5 R
3243	212211805631	RST SM 0603 JUMP. MAX 0R05 R
3244	212211805631	RST SM 0603 JUMP. MAX 0R05 R
3245	212211805631	RST SM 0603 JUMP. MAX 0R05 R
3302	212211805669	RST SM 0603 RC0603 10K PM5 R
3303	212211805669	RST SM 0603 RC0603 10K PM5 R
3304	212211805669	RST SM 0603 RC0603 10K PM5 R
3305	212211805669	RST SM 0603 RC0603 10K PM5 R
3306	212211805665	RST SM 0603 RC0603 4K7 PM5 R
3307	212211805665	RST SM 0603 RC0603 4K7 PM5 R
3308	212211805643	RST SM 0603 RC0603 100R PM5 R
3309	212211805643	RST SM 0603 RC0603 100R PM5 R
3311	212211805669	RST SM 0603 RC0603 10K PM5 R
3312	212211805669	RST SM 0603 RC0603 10K PM5 R
3314	212211805669	RST SM 0603 RC0603 10K PM5 R
3319	212211805669	RST SM 0603 RC0603 10K PM5 R
3320	232270462009	RST SM 0603 RC22H 20R PM1 R
3321	212211805689	RST SM 0603 RC0603 1M PM5 R
3322	212211805631	RST SM 0603 JUMP. MAX 0R05 R
3325	212211805665	RST SM 0603 RC0603 4K7 PM5 R
3326	212211805665	RST SM 0603 RC0603 4K7 PM5 R
3327	212211805643	RST SM 0603 RC0603 100R PM5 R
3328	212211805643	RST SM 0603 RC0603 100R PM5 R
3329	212211805643	RST SM 0603 RC0603 100R PM5 R
3330	212211805643	RST SM 0603 RC0603 100R PM5 R
3331	212211805631	RST SM 0603 JUMP. MAX 0R05 R
3332	212211805643	RST SM 0603 RC0603 100R PM5 R
3333	212211805631	RST SM 0603 JUMP. MAX 0R05 R
3334	212211805643	RST SM 0603 RC0603 100R PM5 R
3335	212211805643	RST SM 0603 RC0603 100R PM5 R
3336	212211805643	RST SM 0603 RC0603 100R PM5 R
3337	212211805643	RST SM 0603 RC0603 100R PM5 R
3338	212211805643	RST SM 0603 RC0603 100R PM5 R
3339	212211805643	RST SM 0603 RC0603 100R PM5 R
3340	212211805643	RST SM 0603 RC0603 100R PM5 R
3341	212211805669	RST SM 0603 RC0603 10K PM5 R
3342	212211805643	RST SM 0603 RC0603 100R PM5 R
3343	212211805643	RST SM 0603 RC0603 100R PM5 R
3344	212211805643	RST SM 0603 RC0603 100R PM5 R
3345	212211805643	RST SM 0603 RC0603 100R PM5 R
3346	212211805643	RST SM 0603 RC0603 100R PM5 R

Spare Parts List-2

3347	212211805643	RST SM 0603 RC0603 100R PM5 R
3348	212211805643	RST SM 0603 RC0603 100R PM5 R
3349	212211805643	RST SM 0603 RC0603 100R PM5 R
3350	212211805669	RST SM 0603 RC0603 10K PM5 R
3351	212211805669	RST SM 0603 RC0603 10K PM5 R
3352	212211805669	RST SM 0603 RC0603 10K PM5 R
3353	212211805669	RST SM 0603 RC0603 10K PM5 R
3401	212211805644	RST SM 0603 RC0603 120R PM5 R
3402	212211805644	RST SM 0603 RC0603 120R PM5 R
3403	212211805644	RST SM 0603 RC0603 120R PM5 R
3404	212211805643	RST SM 0603 RC0603 100R PM5 R
3405	212211805643	RST SM 0603 RC0603 100R PM5 R
3408	212211805669	RST SM 0603 RC0603 10K PM5 R
3409	212211805639	RST SM 0603 RC0603 47R PM5 R
3410	212211805689	RST SM 0603 RC0603 1M PM5 R
3501	212211805643	RST SM 0603 RC0603 100R PM5 R
3502	212211805643	RST SM 0603 RC0603 100R PM5 R
3504	212211805643	RST SM 0603 RC0603 100R PM5 R
3505	212211805643	RST SM 0603 RC0603 100R PM5 R
3506	212211805669	RST SM 0603 RC0603 10K PM5 R
3507	212211805669	RST SM 0603 RC0603 10K PM5 R
3508	212211805647	RST SM 0603 RC0603 220R PM5 R
3509	212211805647	RST SM 0603 RC0603 220R PM5 R
3510	212211805656	RST SM 0603 RC0603 1K PM5 R
3512	212211805678	RST SM 0603 RC0603 47K PM5 R
3527	212211805669	RST SM 0603 RC0603 10K PM5 R
3528	212211805669	RST SM 0603 RC0603 10K PM5 R
3532	212211805669	RST SM 0603 RC0603 10K PM5 R
3533	212211805669	RST SM 0603 RC0603 10K PM5 R
3537	212211805678	RST SM 0603 RC0603 47K PM5 R

5202	313816874261	TI321611G800-SMD
5302	313816874261	TI321611G800-SMD
5440	313816874261	TI321611G800-SMD
5441	313816874261	TI321611G800-SMD
5444	313816874261	TI321611G800-SMD
5445	313816874261	TI321611G800-SMD
5446	313816874261	TI321611G800-SMD
5449	313816874261	TI321611G800-SMD
5501	313816874261	TI321611G800-SMD
5503	313816874261	TI321611G800-SMD
5504	242254944196	IND FXD 0805 EMI 100MHZ 120R R
5505	242254944196	IND FXD 0805 EMI 100MHZ 120R R
5506	242254944196	IND FXD 0805 EMI 100MHZ 120R R

6220	932217973668	DIO REC SM BAT42W (PAJI) R
6221	933913910115	DIO SIG SM BAS32L (PHSE) R

7202	932214526668	IC SM M24C02-WMN6 (ST00) R
7301	932220582682	IC SM NT68F633L (NOVA) L
7302	932214725682	IC M24C16-WBN6 (ST00) L
7442	932220099685	IC SM LD1117AS18 (ST00) R
7443	932220859671	IC SM GMZAN3L-AD (GEMI) Y
7501	932200429685	TRA SIG SM BC857C (ONSE) R
7502	932200429685	TRA SIG SM BC857C (ONSE) R
7505	932209265685	TRA SIG SM MUN2211J (ONSE) R
7506	932216638668	FET POW SM SI5441DC (VISH) R

PCB Assy

1053	313815860081	CONTROL ASSY

1901	243812900043	SWI TACT H=4.3 BK 100G SKHH B
1902	243812900043	SWI TACT H=4.3 BK 100G SKHH B
1903	243812900043	SWI TACT H=4.3 BK 100G SKHH B
1904	243812900043	SWI TACT H=4.3 BK 100G SKHH B
1905	243812900043	SWI TACT H=4.3 BK 100G SKHH B
1906	243812900043	SWI TACT H=4.3 BK 100G SKHH B
1907	243812900043	SWI TACT H=4.3 BK 100G SKHH B

3902	212211805678	RST SM 0603 RC0603 47K PM5 R
3903	212211805669	RST SM 0603 RC0603 10K PM5 R
3904	212211805656	RST SM 0603 RC0603 1K PM5 R
3905	212211805678	RST SM 0603 RC0603 47K PM5 R
3906	212211805669	RST SM 0603 RC0603 10K PM5 R
3907	212211805656	RST SM 0603 RC0603 1K PM5 R

6901	932219981682	LED VS L-3WYGW-8.03* (KIEL) B

Recommended Parts List

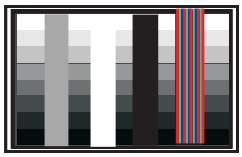
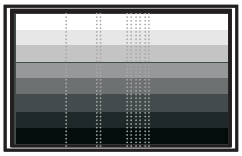
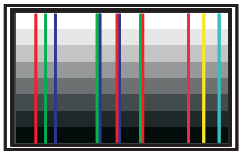
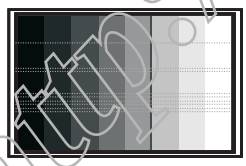
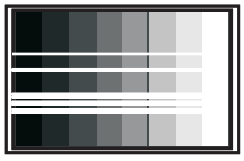
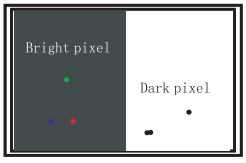
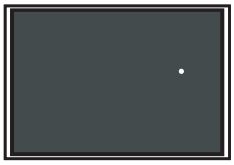
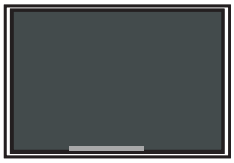
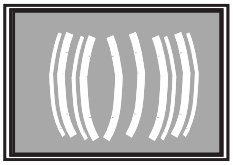
Model:150C5BS/00 12NC:863900015512

0030	313815757811	BEZEL ASSY
0031	313815413681	BEZEL
0032	313815408971	LENS-POWER
0040	313815757801	BACK COVER ASSY
0050	313815757821	DETACHABLE BASE
0096	313815408011	GUIDE DC OUT(BLK)
0100	313815135901	SHIELD INVERTER
0101	313815135112	MAIN FRAME
0103	313815413791	REAR COVER
0105	313815414391	HINGE COVER-L
0106	313815414401	HINGE COVER-R
0210	313800991811	PROCESS BOX
0291	313815564341	LABEL-CPU
0295	313815564351	LABEL-EEPROM(L)
0295	313815564361	LABEL-EEPROM(C)
0450	313815637931	CARTON
0451	313815637921	CUSHION-R
0452	313815637911	CUSHION-L
0453	313815621481	P.E.BAG
0602	313811707271	E-D.F.U.
0615	313811707321	HEX CODE OF F/W
1157	313818878471	MAINSCORD IEC 10A 1M83 DET GY
1158	313819871191	CORD SUB-D 15/1M8/SUB-D 15GY
6220	932217973668	DIO REC SM BAT42W (PAJI) R
6221	933913910115	DIO SIG SM BAS32L (PHSE) R
6901	932219981682	LED VS L-3WYGW-8.03* (KIEL) B
7202	932214526668	IC SM M24C02-WMN6 (ST00) R
7301	932220582682	IC SM NT68F633L (NOVA) L
7302	932214725682	IC M24C16-WBN6 (ST00) L
7442	932220099685	IC SM LD1117AS18 (ST00) R
7443	932220859671	IC SM G.MZAN3L-AD (GEMI) Y
7501	932200429685	TRA SIG SM BC857C (ONSE) R
7505	932209265685	TRA SIG SM MUN2211J (ONSE) R
7506	932216638668	FET POW SM SI5441DC (VISH) R
8161	313819873091	CBLE -017 7/260/7-017 AWG28
8163	313819871221	CBLE-104 20/85/20-032 AWG28

Failure Mode Of Panel

Quick reference for failure mode of LCD panel

this page presents problems that could be made by LCD panel.
It is not necessary to repair circuit board. Simply follow the mechanical instruction on this manual to eliminate failure by replace LCD panel.

Failure description	Phenomenon
Vertical block defect	
Vertical dim lines	
Vertical lines defect (Always bright or dark)	
Horizontal block defect	
Horizontal dim lines	
Horizontal lines defect (Always bright or dark)	
Has bright or dark pixel	
Polarizer has bubbles	
Polarizer has bubbles	
Foreign material inside polarizer. It shows liner or dot shape.	
Concentric circle formed	
Bottom back light of LCD is brighter than normal	
Back light un-uniformity	
Backlight has foreign material. Black or white color, liner or circular type	

PHILIPS

PHILIPS - 150C5
GENERAL PRODUCT
SPECIFICATION

. ANALOG SIGNAL INPUT

. AUTO PICTURE ADJUSTMENT

. 14 FACTORY PRESET MODES AND 15 USER MODES WHICH CAN BE RECOVERED TO PRESET MODES

. USER FRIENDLY OSD DISPLAY FOR MODE IDENTIFICATION /ADJUSTMENT

. DDC2B COMMUNICATION CAPABILITY

. MAX. RESOLUTION 1024 x 768 NON-INTERLACED AT 75 HZ

. 15 " COLOR TFT LCD FLAT PANEL

. EASY TILT & DETACHABLE BASE

. FULL RANGE POWER SUPPLY 90 -264 VAC

. CE ENVIRONMENTAL POLICY

. ANTI-GLARE TO REDUCE LIGHT REFLECTION

. POWER MANAGEMENT CAPABILITY

. TCO 99, TCO 2003

. PROTECTIVE COVER (Option)

General Product Specification

CONTENTS

General Product Specification

PHILIPS

1.0 FOREWORD

This specification describes a 15 " XGA multi-scan color TFT LCD monitor with maximum resolution up to 1024x768/75Hz non-interlaced.

2.0 PRODUCT PROFILE

HUDSON 15 " TFT LCD flat panel monitor
Analog interface
Integrated tilt and Detachable base

2.1 LCD

Type NR.	: LG panel LM150*08
Outline Dimensions	: 326.5(H) * 253.5(V) *11.2(D)mm
Pitch (mm)	: 0.297 x 0.297 mm
Color pixel arrangement	: RGB stripe arrangement
Display surface	: Anti-glare with hard coating(3H)
Number of color	: 6 bits with FRC, 16M colors
Backlight	: CCFL edge-light system
Active area (W x H)	: 304.1x228.1mm(15.0 " diagonal)
Viewing angle (CR ≧10)	: Vertical 100 degree, Horizontal 130 degree typical.
Contrast ratio	: 400 typical.
Luminance of white	: 250 Nits typical

Type NR.	: CPT panel CLAA150XP01
Dimensions	: 326.5(H)*253.5(V)*11.0(D) mm
Pitch (mm)	: 0.297 x 0.297 mm
Color pixel arrangement	: RGB stripe arrangement
Display surface	: Anti-glare with hard coating(3H)
Number of color	: 6 bits with FRC, 16M colors
Backlight	: CCFL edge-light system
Active area(W x H)	: 304.1 x 228.1mm (15.0 " Diagonal)
Viewing angle(CR≧10)	: Vertical 120 degree, Horizontal 140 degree typical.
Contrast ratio	: 500 typical.
Luminance of white	: 250 Nits typical

PHILIPS

Type NR.	: Hannstar panel HSD150MX17
Outline Dimensions	: 326.5(H) * 253.5(V) *10.6(D)mm
Pitch (mm)	: 0.297 x 0.297 mm
Color pixel arrangement	: RGB stripe arrangement
Display surface	: Anti-glare with hard coating(3H)
Number of color	: 6 bits with FRC, 16M colors
Backlight	: CCFL edge-light system
Active area (W x H)	: 304.1x228.1mm(15.0 " diagonal)
Viewing angle (CR ≧10)	: Vertical 100 degree, Horizontal 130 degree typical.
Contrast ratio	: 450 typical.
Luminance of white	: 250 Nits typical

Type NR.	: QDI panel QD15XL13
Dimensions	: 326.5(H)*253.5(V)*10.8(D) mm
Pitch (mm)	: 0.297 x 0.297 mm
Color pixel arrangement	: RGB stripe arrangement
Display surface	: Anti-glare with hard coating(3H)
Number of color	: 6 bits with FRC, 16M colors
Backlight	: CCFL edge-light system
Active area(W x H)	: 304.1 x 228.1mm (15.0 " Diagonal)
Viewing angle(CR≧10)	: Vertical 100 degree, Horizontal 120 degree typical.
Contrast ratio	: 500 typical.
Luminance of white	: 250 Nits typical

General Product Specification

2.2	Scanning frequencies	Hor.: 30 - 61KHz Ver.: 56 - 76 Hz
2.3	Video dot rate	: 79 MHz
2.4	Power input	: 90 - 264 Vac, 50/60 ± 3 Hz
2.5	Power consumption	: < 20 W, (typ : 17W) : AC input power < 1W when DC switch is off.
2.6	Dimensions	: 360W x 349H x 173.5D
2.7	Weight	: 2.97kg(Net weight); 3.36kg (Gross weight)

2.8 Function:
Signal input:
Analog R/G/B separate inputs,
H/V sync separated,
Composite (H+V) TTL level,
SOG sync

2.9 Ambient temperature: 5 - 40 °C

2.10 Safety and EMI requirements

Safety requirement: CCIB/CCEE (China), CE (Europe), CSA (Canada), IEC60950 CB Report, NOMNYCE (Mexico), PSB (Singapore), SEMKO (Nordic), TUV (Germany), UL (USA) GOST (Russia), B-MARK (Poland), DEMKO (Nordic), FIMKO (Nordic), SISIR, CPA (Singapore), EZU (Czech)

EMI requirement: BSMI (Taiwan), C-tick (Australia), CE (Europe), FCC (USA), IC (Canada), VCCI (Japan), CCC (China)

Ergonomic Requirement: ISO13406-2, TUV/GS
TCO99, MPRII (Sweden), Nutek (Sweden)

Power management: EPA, Nutek, E2000.

Environmental & Low Emission: MPRII, TCO99 , TCO 2003

3.0 Electrical characteristics

Compatibility: PC2001, Windows 2000, Windows98/Me, Windows XP, NSTL

3.1 Interface signals

3.1.1 Video

Input signal: Video, H-sync, V-sync
Video: 0.7 Vp-p, input impedance, 75 ohm
Sync. : Separate sync TTL level.
Input impedance: 5k6 ohm
Hor. Sync Positive/Negative
Ver. Sync Positive/Negative

3.1.2 Interface Cable

D-Sub Cable pin assignment:

PIN No.	SIGNAL
1	Red
2	Green/SOG
3	Blue
4	Sense (GND)
5	Test (GND)
6	Red GND
7	Green GND
8	Blue GND
9	+5V
10	Sync GND
11	Sense (GND)
12	Serial data (SDA)
13	H/H+V sync
14	V-sync
15	Data clock (SCL)

3.2 OSD (On Screen Display) function
Adjustable functions:

MAIN CONTROLS
LANGUAGE
ADJUST POSITION
BRIGHTNESS & CONTRAST
VIDEO NOISE
ADJUST COLOR
OSD SETTINGS
PRODUCT INFORMATION
RESET TO FACTORY SETTINGS
EXIT MAIN CONTROLS
MOVE SELECTION THEN ok

LANGUAGE: ENGLISH, ESPANOL, FRANCAIS, DEUTSCH, ITALIANO, S.CHINESE

ADJUST POSITION: HORIZONTAL
VERTICAL

BRIGHTNESS & CONTRAST: Brightness and Contrast adjustment.

VIDEO NOISE: Phase adjustment, Clock adjustment

ADJUST COLOR: Original panel color,
9300K for general use,
6500k for image management,
sRGB
User red green blue adjustable

OSD POSITION: OSD H-position, OSD V-position

PRODUCT INFORMATION: show the product information

RESET TO FACTORY SETTING: recall to Factory preset settings.

3.3 Timing requirement

3.3.1 Mode storing capacity

(1) Factory preset modes : 14
(2) User modes : 15

3.3.2 Factory preset timings

MODE NO.	1	2	3	4
RESOLUTION	640 x 350	720 x 400	640 x 480	640x480
Dot clock (MHz)	25.175	28.321	25.175	30.240
f h	31.469kHz	31.469kHz	31.469kHz	35.0kHz
A (us)	31.78(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)	25.42(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(70.087)	60Hz (59.940)	66.7 Hz(66.667)
O (ms)	14.27(449 lines)	14.27(449 lines)	16.683 (525 lines)	15.000(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)	1.112(35 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)	1.179(37 lines)	0.384(12 lines)	0.317 (10 lines)	0.086(3 lines)
SYNC. H/V POLARITY	+/-	-/+	- / -	+/+ Or -/-
SEP . SYNC	Y	Y	Y	Y

A : H-Total
B : H- Sync width
C : H- Back porch
D : H- Video width
E : H- Front porch

O : V-Total
P : V- Sync width
Q :.V- Back porch
R : V- Video width
S :.V- Front porch

General Product Specification

MODE NO.	5	6	7	8
RESOLUTION	640 x 480	640 x 480	800 x 600	800 x 600
Dot clock(MHz)	31.500	31.500	36.000	40.000
f h	37.861kHz	37.500kHz	35.156kHz	37.879kHz
A (us)	26.413(832 dots)	26.667 (840 dots)	28.44 (1024 dots)	26.40 (1056 dots)
B (us)	1.270(40 dots)	2.032 (64 dots)	2.000 (72 dots)	3.200 (128 dots)
C (us)	4.064(128 dots)	3.810 (120 dots)	3.556 (128 dots)	2.200 (88 dots)
D (us)	20.317(640 dots)	20.317 (640 dots)	22.22 (800 dots)	20.00 (800 dots)
E (us)	0.762(24 dots)	0.508 (16 dots)	0.667 (24 dots)	1.000 (40 dots)
f v	72.809Hz	75Hz (75)	56Hz (56.25)	60Hz (60.316)
O (ms)	13.735(520 lines)	13.333 (500 lines)	17.78 (625 lines)	16.58 (628 lines)
P (ms)	0.079(3 lines)	0.080 (3 lines)	0.057 (2 lines)	0.106 (4 lines)
Q (ms)	0.739(28 lines)	0.427 (16 lines)	0.626 (22 lines)	0.607 (23 lines)
R (ms)	12.678(480 lines)	12.80 (480 lines)	17.07 (600 lines)	15.84 (600 lines)
S (ms)	0.237(9 lines)	0.027 (1 line)	0.028 (1 line)	0.026 (1 line)
SYNC. H/V POLARITY	-/-	- / -	+ / +	+ / +
SEP . SYNC	Y	Y	Y	Y

MODE NO.	9	10	11	12
RESOLUTION	800 x 600	800 x 600	832 x 624	1024 x 768
Dot clock(MHz)	50.000	49.500	57.280	65.000
f h	48.077kHz	46.875kHz	49.722kHz	48.363kHz
A (us)	20.80 (1040dots)	21.333 (1056dots)	20.11 (1152dots)	20.677(1344 dots)
B (us)	2.400 (120 dots)	1.616 (80 dots)	1.117 (64 dots)	2.092(136 dots)
C (us)	1.280 (64 dots)	3.232 (160 dots)	3.911 (224 dots)	2.462(160 dots)
D (us)	16.00 (800 dots)	16.162 (800 dots)	14.52 (832 dots)	15.754(1024 dots)
E (us)	1.120 (56 dots)	0.323 (16 dots)	0.559 (32 dots)	0.369(24 dots)
f v	72Hz (72.188)	75Hz (75.000)	75Hz (74.546)	60.004Hz
O (ms)	13.85 (666 lines)	13.333 (625lines)	13.41 (667 lines)	16.666(806 lines)
P (ms)	0.125 (6 lines)	0.064 (3 lines)	0.060 (3 lines)	0.124(6 lines)
Q (ms)	0.478 (23 lines)	0.448 (21 lines)	0.784 (39 lines)	0.600(29 lines)
R (ms)	12.48 (600 lines)	12.80 (600lines)	12.55 (624 lines)	15.880(768 lines)
S (ms)	0.770 (37 line)	0.021 (1 line)	0.020 (1 lines)	0.062(3 lines)
SYNC. H/V POLARITY	+ / +	+ / +	- / -	-/-
SEP . SYNC	Y	Y	Y	Y

CLASS NO.

15" TFT XGA LCD CMTR
TYPE: 150C5BS/00
BRAND: PHILIPS

8639 000 15512

2004-05-27

NAME Jerry Chen/ Peter V | SUPERS. | 22 | 590 — 10 | 10 | A4

TY | CHECK | DATE 2004-05-27 | Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.

2838 100 05424

MODE NO.	13	14
RESOLUTION	1024 x 768	1024 x 768
Dot clock(MHz)	75.000	78.750
f h	56.476kHz	60.023kHz
A (us)	17.707(1328 dots)	16.66 (1312dots)
B (us)	1.813(136 dots)	1.219 (96 dots)
C (us)	1.920(144 dots)	2.235 (176 dots)
D (us)	13.653(1024 dots)	13.003 (1024dots)
E (us)	0.320(24 dots)	0.203 (16 dots)
f v	70.069Hz	75Hz (75.029)
O (ms)	14.272(806 lines)	13.328 (800 lines)
P (ms)	0.106(6 lines)	0.050 (3 lines)
Q (ms)	0.513(29 lines)	0.466 (28 lines)
R (ms)	13.599(768 lines)	12.795 (768 lines)
S (ms)	0.053(3 lines)	0.017 (1 line)
SYNC. H/V POLARITY	-/-	+/+
SEP . SYNC	Y	Y

General Product Specification

3.3.3 Horizontal scanning

Sync polarity : Positive or Negative
Scanning frequency : 30 - 61 KHz

3.3.4 Vertical scanning

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

3.4 Power input connection

Power cord length : 1.8 M
Power cord type : L-Style type (Right Facing)
3 leads power cord with protective earth plug.

3.5 Power management

The power consumption and the status indication of the set with power management function are as follows,

STATUS	H-sync	V-sync	Video	Power	LED/Remark
On	On	On	Active	<20 W	Green / Winout Audio
Stand-by	Off	On	Blanked	<1W	Amber
Suspend	On	Off	Blanked	<1W	Amber
Off	Off	Off	Blanked	<1W	Amber
DC Power off			N / A	<1W	LED Off

3.6 Display identification

In accordance with DDC requirement, use DDC2B and EDID 3.0 structure 1.3.

PHILIPS

4.0 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, 1024 x 768/75Hz mode (60.023 KHz)
Signal sources must have 75 ohms output impedance.

(2) Luminance setting: Set contrast to 50 % and brightness to100 % with full white pattern.

(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 Resolution

Factory preset modes (14 modes)

Mode	Resolution	H. freq. / V. freq	Standard
1.	640 x 350	31.469Khz/70.087Hz	VGA
2.	720 x 400	31.469Khz/70.087Hz	VGA
3.	640 x 480	31.469Khz/59.940Hz	VGA
4.	640 x 480	35.000Khz/66.667Hz	Macintosh
5.	640 x 480	37.861Khz/72.809Hz	VESA
6.	640 x 480	37.500Khz/75.000Hz	VESA
7.	800 x 600	35.156Khz/56.250Hz	VESA
8.	800 x 600	37.879Khz/60.317Hz	VESA
9.	800 x 600	48.077Khz/72.188Hz	VESA
10.	800 x 600	46.875Khz/75.000Hz	VESA
11.	832 x 624	49.700Khz/75.000Hz	Macintosh
12.	1024 x 768	48.363Khz/60.004Hz	VESA
13.	1024 x 768	56.476Khz/70.069Hz	VESA
14.	1024 x 768	60.023Khz/75.029Hz	VESA

4.3 Brightness: 250 nits (typ.) at maximum contrast and maximum brightness
(At center of the screen, Fig. 1)

4.4 Image size
4.4.1 Actual display size
304.1 x 228.1mm

4.5 Brightness uniformity

Set contrast at 50% and turn the brightness to get above 200 nits.
at center of the screen
Apply the Fig 1, it should comply with the following formula:

$$\frac{\text{Minimum (B1, B2,.., B5)}}{\text{Maximum (B1, B2,.., B5)}} > 75\ \%$$

4.6 White color adjustment

There are two factory preset white color 9300K and 6500K.

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

9300K CIE coordinates X = 0.283 +/- 0.020
Y = 0.297 +/- 0.020

6500K CIE coordinates X = 0.313 +/- 0.020
Y = 0.329 +/- 0.020

4.7 Monitors pixel defect

Refer to Philips' Flat Panel Monitors Pixel Defect Policy

PHILIPS

5.0 Mechanical characteristics

5.1 Controls

Right side: - AC power switch
-OSD function key

Rear: -Video signal cable
-Power cord socket

5.2 Unit dimension / Weight

Set dimension (incl. pedestal): 360W x 349H x 173.5D

Net weight: 2.97 Kg

5.3 Tilt and foldable base

Tilt angle: -5 ° to +25 °

Foldable angle: 90°

5.4 Transportation packages

5.4.1 Shipping dimension/Weight

Carton dimension: 389W x 387H x 115D

Gross weight: 3.36Kg

5.4.2 Block unit / Palletization

layers/block	sets/laye	sets/block unit
6	18	108
5	18	90

General Product Specification

6.0 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 : 5 to 40 degree C
- Humidity : 20% ~ 80%
- Altitude : 0-12,000 feet
- Air pressure : 600-1100 mBAR

Storage

- Temperature : -20 to 60 degree C
- Humidity : 5% ~ 95% (< 40℃)
- Altitude : 0-30,000 feet
- Air pressure : 300-1100 mBAR

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

6.2 Transportation tests

Standard		Philips UAN-D1400	NSTA
Drop Test	Height	67/25 cm	76.0 cm
	Sequence	1 face(btm-67cm) 5 faces(others-25cm) Btm->Btm->Btm->L->F->Rt->Rr->Top	1 corner 3 edge (Room temp) 6 face
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance (Room temp 20°C~23°C, humidity 40%~65%)	
Vibration Test	Sequence	(1) PACKAGING 7 Hz, 1.05 G, 30 min. for transport direction only	
		(2) OPERATING 7 Hz, 10.6 mm, 30 min. for transport direction only	
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance	
Bump Test	For design evaluation only Operating 10 G 11 msec, 1000 cycles Temperature : 23°C Humidity : 60 % Air pressure : 100 kpa (According to DSD draft standard UAN-D636)		

B. regions of China & India

Standard		Philips UAN-D1400	NSTA
Drop Test	Height	a.80\b.60\c.70 cm	76.0 cm
	Sequence	a.Face: Btm->F->L->Rr->Rt(80cm) b.Edge: F-Btm,Rt-Btm,F-Rt Corner:Rt-Btm-F(60cm) c.Btm->Btm(70cm)	1 corner 3 edge (Room temp) 6 face
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance (Room temp 20°C~23°C, humidity 40%~65%)	
Vibration Test	Sequence	(1) 10-30-10 Hz, 0.75mm,5cycles, 15 min. for X,Y,Z	
		(2) 30-55-30 Hz, 0.25mm, 5cycles ,9 min. for X,Y,Z	
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance	
Bump Test	For design evaluation only Operating 100m/s^2, 16 msec, 1000 pulses Bump frequency: 60~80times/min Source:GB9384-97		

6.3 Display disturbances from external environment
According to IEC 801-2 for ESD disturbances

6.4 Display disturbances to external environment

6.4.1 EMI
EMI: FCC, IC, VCCI, CE, C-Tick, MPRII, BSMI, CCC (China)

7.0 Reliability

7.1 Mean time between failures (MTBF)
System MTBF (Excluding the LCD panel and CCFL): 50,000 hrs
CCFL MTBF: 30,000 hrs

8.0 Quality assurance requirements

8.1 Acceptance test

General Product Specification

According to MIL-STD-105D Control II level

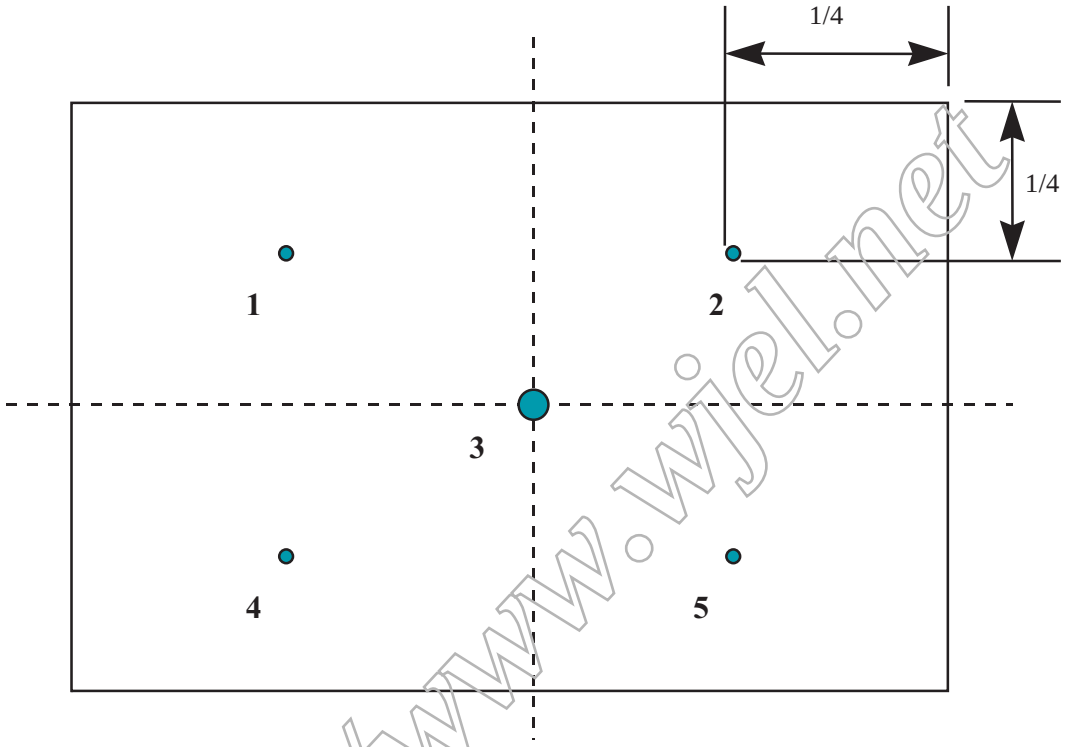
AQL : 0.65 (major)
1.5 (minor)
(Please also refer to annual quality agreement)

9.0 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.

PHILIPS

Fig 1: Brightness and Uniformity



Average: 5 points average

General Product Specification

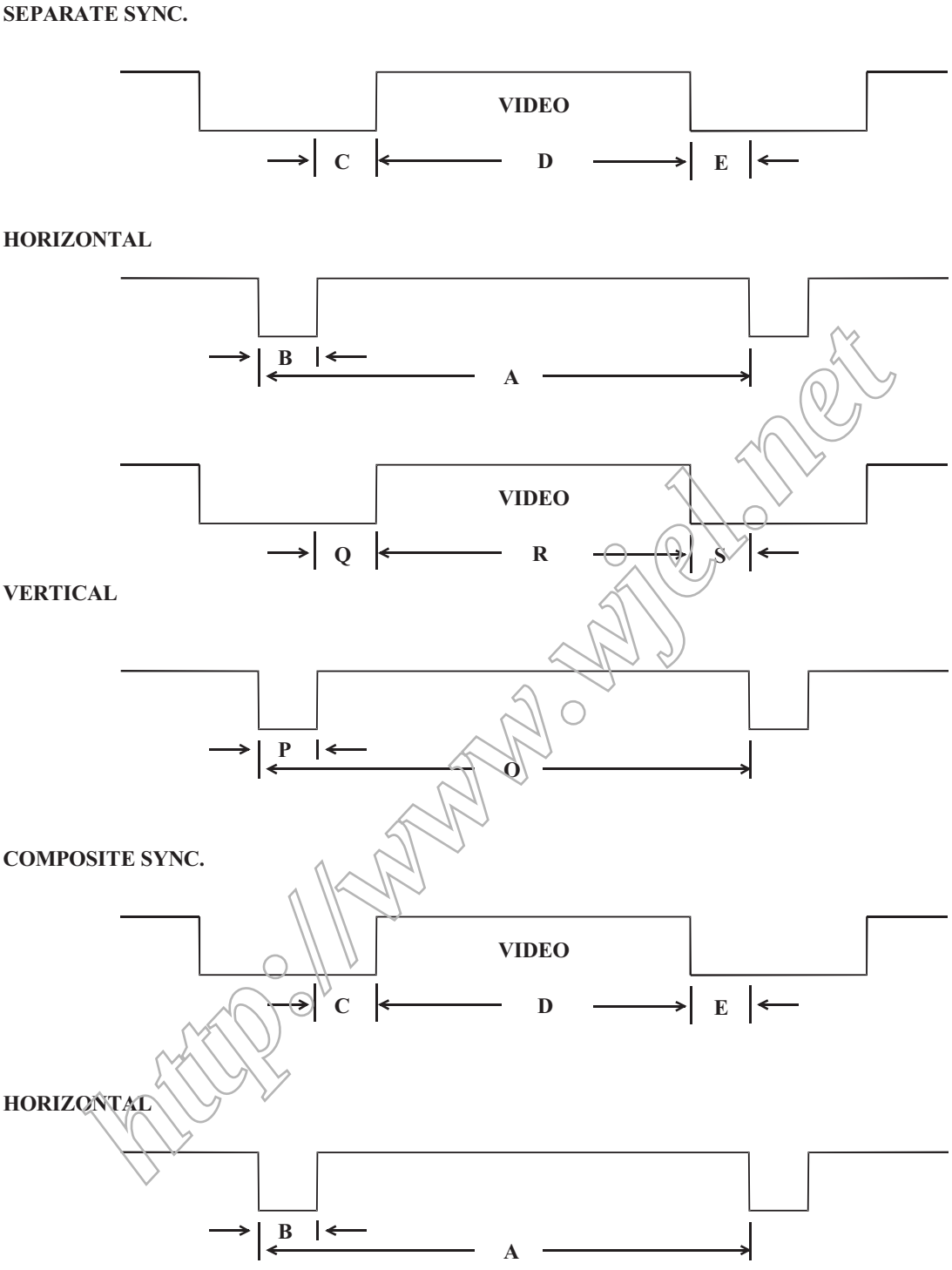


FIG-2 TIMING CHART -1

CLASS NO.	15" TFT XGA LCD CMTR TYPE: 150C5BS/00 BRAND: PHILIPS	8639 000 15512
2004-05-27		

NAME Jerry Chen/ Peter V	SUPERS.	22	590 — 20	10	A4
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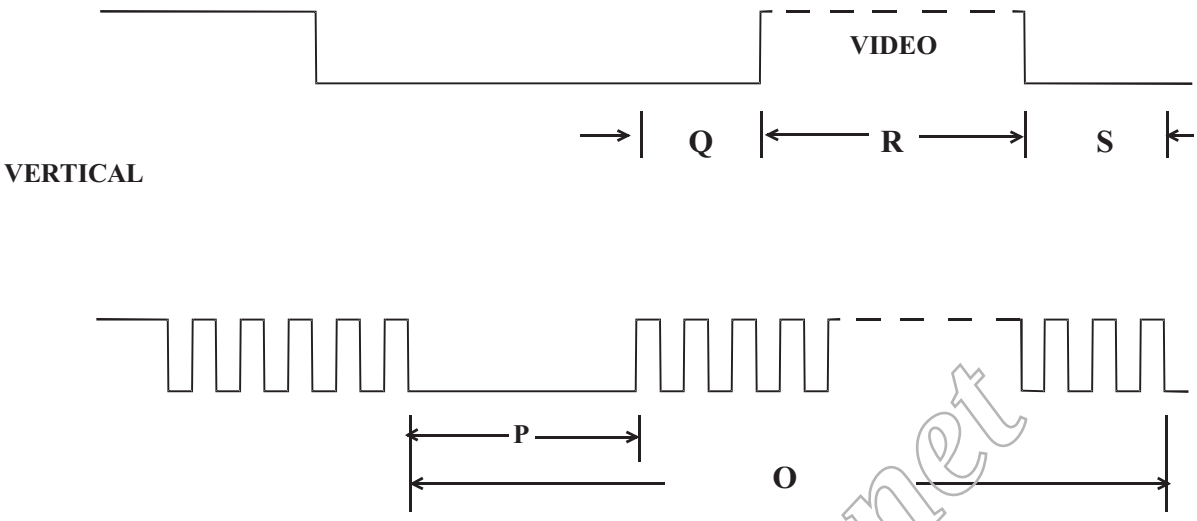


FIG-3 TIMING CHART -2

General Product Specification

PHILIPS

Philips' Flat Panel Monitors Pixel Defect Policy

Philips' Flat Panel Monitors Pixel Defect Policy

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL			
MODEL	150C5	170C5	170X5	190X5
1 lit sub pixel	4 or fewer	4 or fewer	0	2 or fewer
2 adjacent lit sub pixels	2 or fewer	2 or fewer	0	1 or fewer
3 adjacent lit sub pixels (one white pixel)	0	0	0	0
Distance between two bright dot defects*	15 mm or more	15 mm or more	0	15 mm or more
Total bright dot defects of all types	4 or fewer	4 or fewer	0	2 or fewer

BLACK DOT DEFECTS	ACCEPTABLE LEVEL			
MODEL	150C5	170C5	170X5	190X5
1 dark sub pixel	4 or fewer	4 or fewer	4 or fewer	4 or fewer
2 adjacent dark sub pixels	2 or fewer	2 or fewer	1 or fewer	2 or fewer
3 adjacent dark sub pixels	0	0	0	0
Distance between two black dot defects*	15 mm or more	15 mm or more	15 mm or more	5 mm or more
Total black dot defects of all types	4 or fewer	4 or fewer	4 or fewer	4 or fewer

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL			
MODEL	150C5	170C5	170X5	190X5
Total bright or black dot defects of all types	5 or fewer	5 or fewer	4 or fewer	5 or fewer

CLASS NO.

15" TFT XGA LCD CMTR
TYPE: 150C5BS/00
BRAND: PHILIPS

8639 000 15512

2004-05-27

NAME Jerry Chen/ Peter V | SUPERS. | 22 | 590 — 22 | 10 | A4

TY | CHECK | DATE 2004-05-27 | Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.

2838 100 05424

DDC Instructions

General

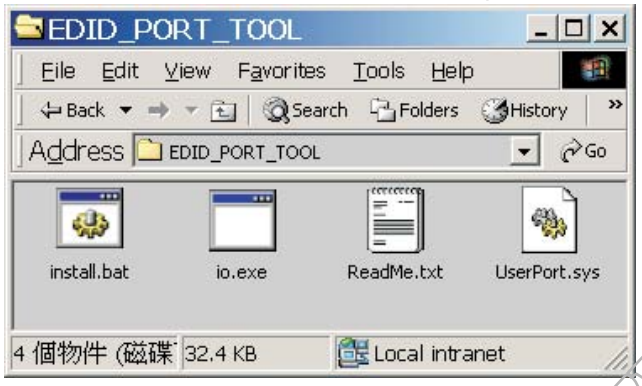
DDC Data Re-programming
In case the DDC data memory IC or main EEPROM which storage all factory settings were replaced due to a defect, the serial numbers have to be re-programmed"Analog DDC IC, & EEPROM".
It is advised to re-soldered DDC IC and main EEPROM from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

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

System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98 .
   You have to Install the EDID_PORT_Tool under Win2000/XP . As Fig. 1 .

Fig. 1



A. Cody the "UserPort.sys" to C:\WINNT\system32\drivers(win2000)

C:\WINDOWS\system32\drivers(winXP)

B. Running " io.exe" everytime, Before you start to programming edid data .

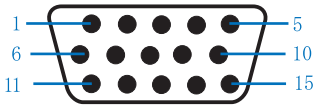
3. EDID46.EXE program

4. A/D Alignment kits (12NC: 3138 106 10079)(as Fig. 2):
   inclusion : a. Alignment box x1

Fig. 2

b. Printer cable x1
c. (D-Sub) to (D-Sub) cable x1
D. (D-Sub) to (DVI) cable x1

Note: The EDID46.EXE is a windows-based program, which cannot be run in MS-DOS.



Pin assignment

15-pin D-Sub Connector

PIN No.	SIGNAL
1	Red video input
2	Green video input / sync on green
3	Blue video input
4	GND
5	GND -Cable detect
6	Red video GND
7	Green video GND
8	Blue video GND
9	DDC +3.3V or +5V
10	Logic GND
11	GND
12	Serial data line (SDA)
13	H-sync / H+V
14	V-sync
15	Data clock line (SCL)

Configuration and procedure

There is no Hardware DDC (DDC IC) anymore. Main EEPROM stores all factory settings and DDC data (EDID code) which is also called Software DDC. The following section describes the connection and procedure for Software DDC application. The main EEPROM can be re-programmed by enabling " factory memory data write" function on the DDC program (EDID46.EXE).

Initialize alignment box

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before running programming software (EDID46.EXE). Following steps show you the procedures and connection.

Step 1: Supply 8-12V DC power source to the Alignment box by plugging a DC power cord .
Step 2: Connecting printer cable and D-Sub cable of monitor as Fig. 3

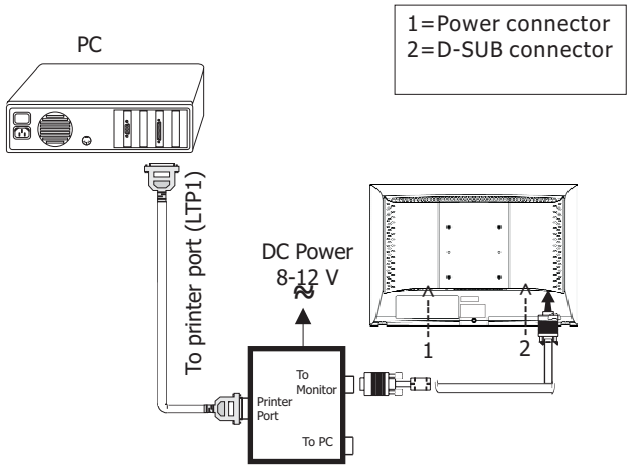


Fig. 3

DDC Instructions

Step 3: Installation of EDID46.EXE

Method 1: Start on DDC program

Start Microsoft Windows.

1. The Program"EDID46.EXE" in service manual cd-rom be copyed to C:\ .
2. Click Start , choose Run at start menu of Windows as shown In Fig. 4.

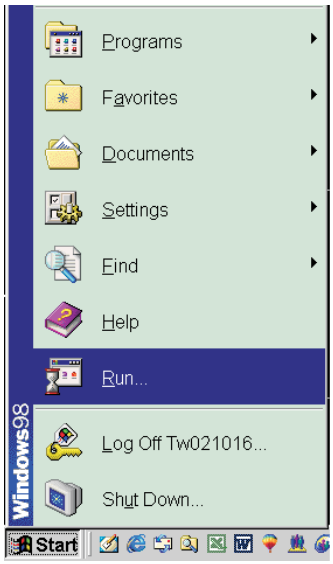


Fig. 4

3. At the submenu, type the letter of your computer's hard disk drive followed by :EDID46 (for example, C:\EDID46, as shown in Fig. 5).

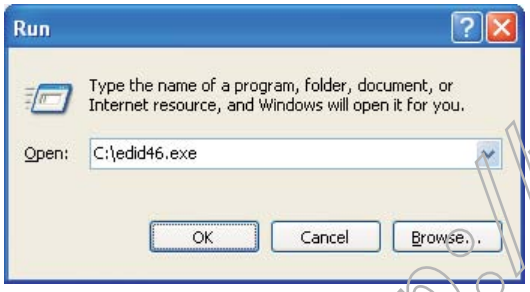


Fig. 5

4. Click OK button. The main menu appears (as shown in Fig. 6). This is for initialize alignment box.

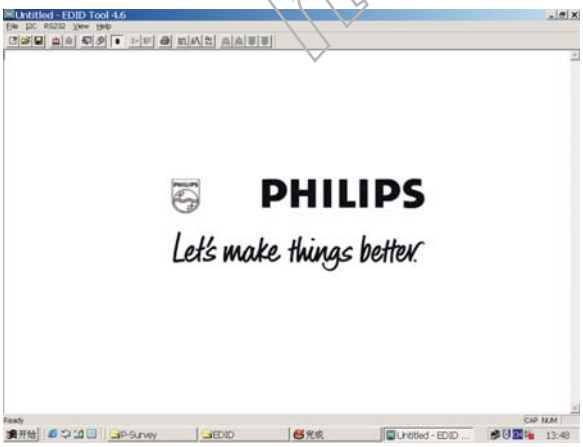


Fig. 6

Note 1: If the connection is improper, you will see the following error message (as shown in Fig. 7) before entering the main menu. Meanwhile, the (read EDID) function will be disable. At this time, please make sure all cables are connected correctly and fixedly, and the procedure has been performed properly.

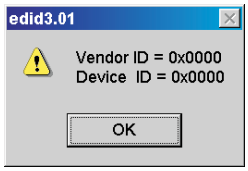


Fig. 7

Note 2: During the loading, EDID46 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen as below. Please confirm following steps to avoid this message.

1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup windows.
4. Cables loosed or poor contact of connection.

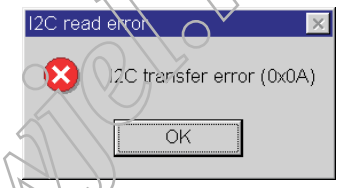


Fig. 8

Re-programming EEPROM(Software DDC IC)

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 9

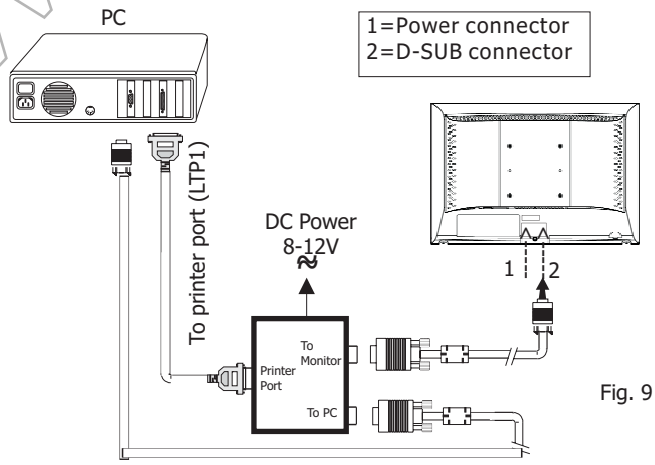


Fig. 9

Step 2: Read DDC data from monitor

1. Click icon as shown in Fig. 10 from the tool bar to bring up the Channels "Configuration Setup" windows as shown in Fig. 11.

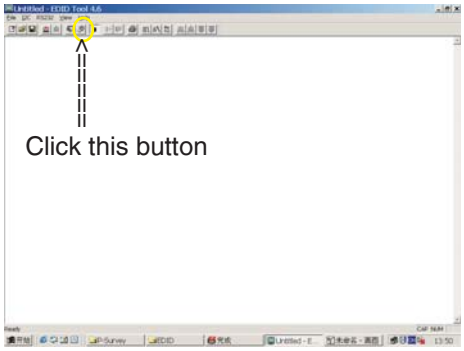


Fig. 10

2. Select the DDC2Bi as the communication channel.
   As shown in Fig. 11.

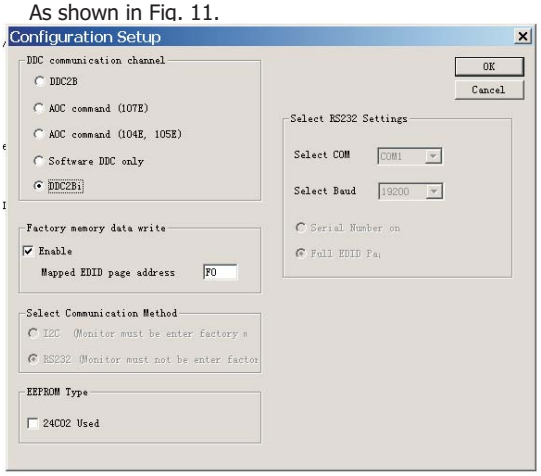


Fig. 11

3. Click OK button to confirm your selection.

4. Click  icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 12.

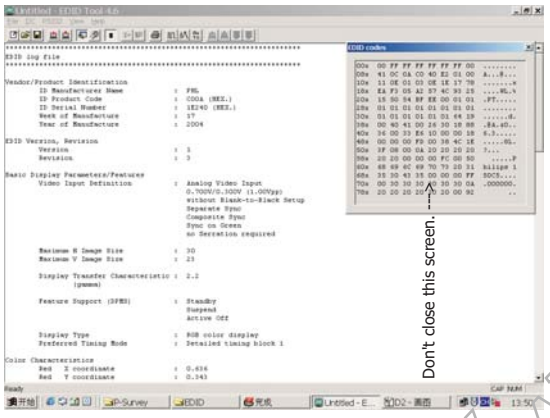


Fig. 12

Step 3: Modify DDC data (verify EDID version, week, year)

Click  (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 13 .
EDID46 DDC application provides the function selection and text change (select & fill out) from Step 1 to Step 9.

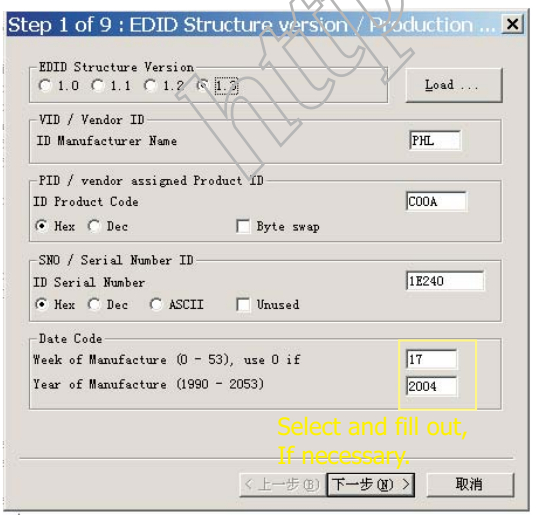


Fig. 13

Step 4: Modify DDC data (Monitor Serial No.)

1. Click Next , bring up Fig. 14.

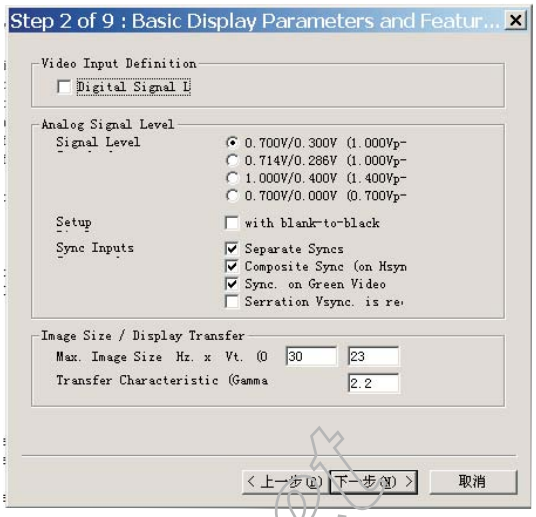


Fig. 14

2. Click Next , bring up Fig. 15.

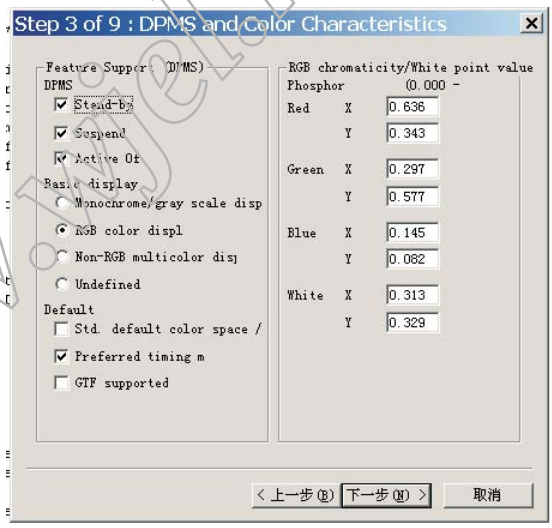


Fig. 15

3. Click Next , bring up Fig. 16.

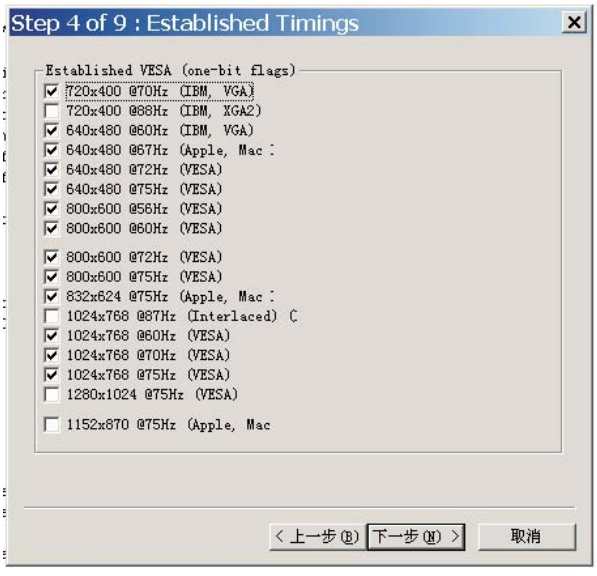


Fig. 16

DDC Instructions

Go to cover page

4. Click Next , bring up Fig. 17.

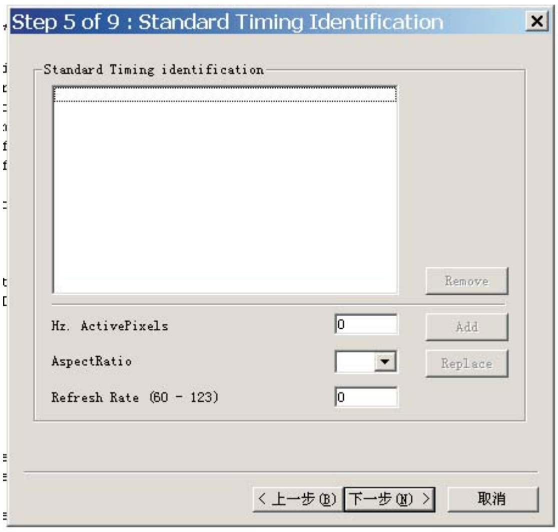


Fig. 17

5. Click Next , bring up Fig. 18.

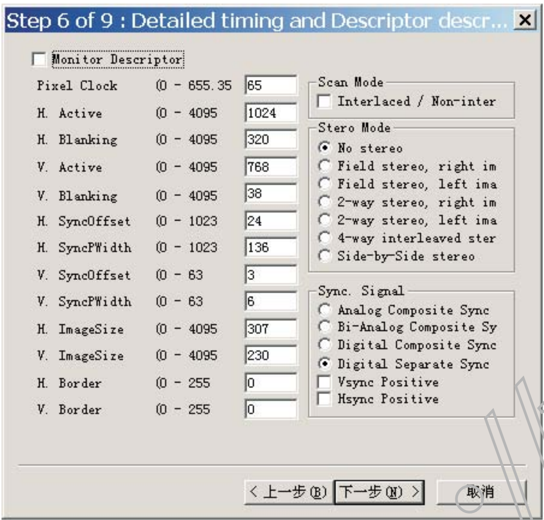


Fig. 18

6. Click Next , bring up Fig. 19.
In this step, please confirm the Descriptor Data Type is Monitor Range Limits, and all the items are same as below.

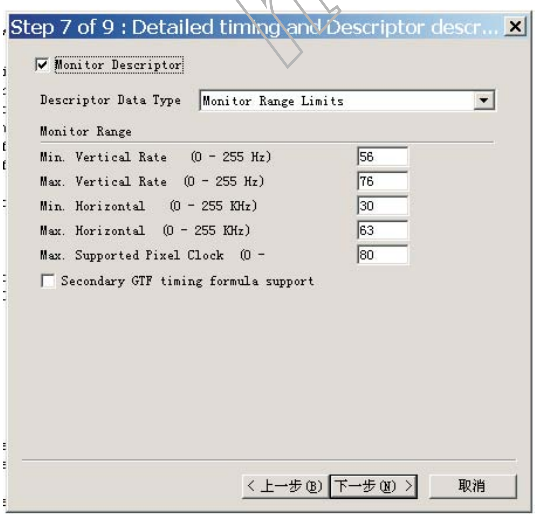


Fig. 19

7. Click Next , bring up Fig. 20.

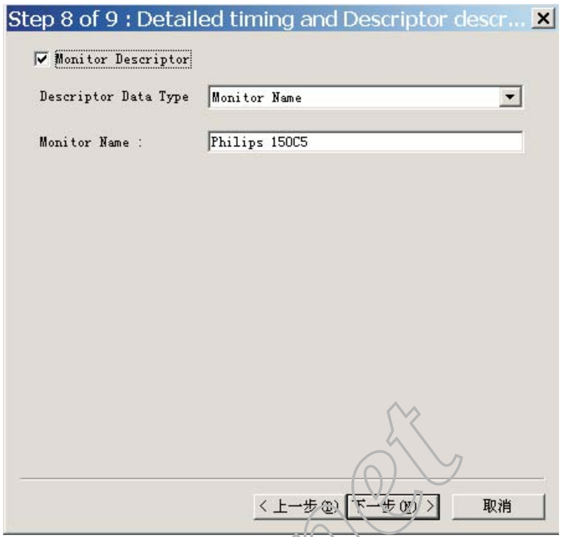


Fig. 20

8. Click Next , bring up Fig. 21.
- Click Finish to exit the Step window.
- Serial number can be filled up at this moment (for example, TY 23456).

NOTE: You must modify the Serial NO. In step 9, otherwise the Serial NO. In OSD Couldn't be modified correctly.

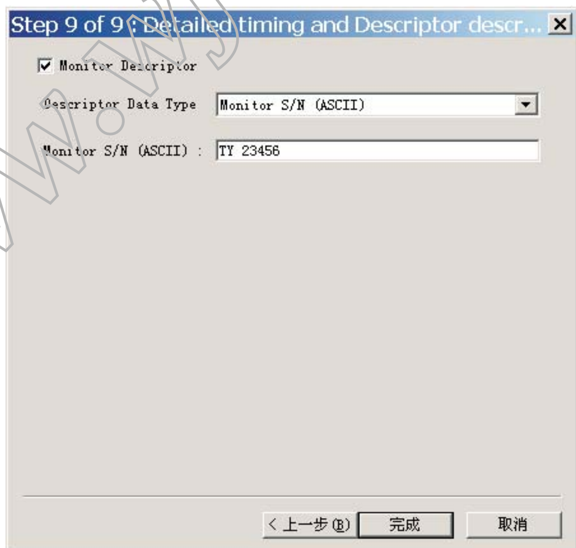


Fig. 21

Step 5: Write DDC data
1. Configuration should be as Fig. 22. And press OK.

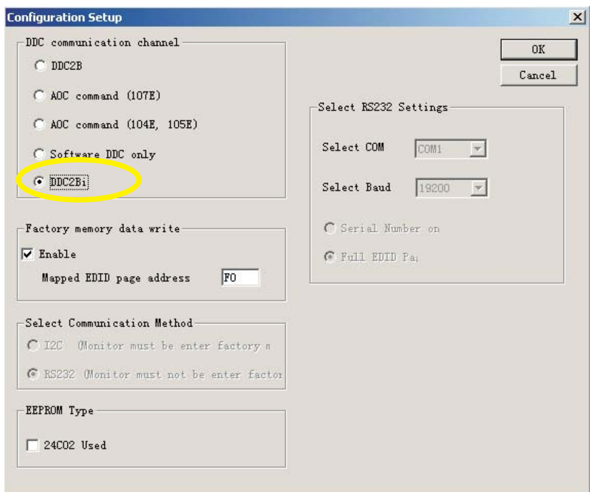


Fig. 22

2. Access Factory Mode

1). Turn off monitor.

2). [Push "AUTO " & " (OK)" buttons at the same time and hold it] + [Press power " ⏻ " button untill comes out "Windows screen"] => then release all button, then press (OK) button, wait until the OSD menu with Characters HUDSON 150C5 V200 20040705 (below OSD menu) come on the Screen of the monitor (see Fig. 23).

Factory Mode Indicator

Fig. 23

3) Push (OK) to exit OSD menu.

4). Click (Write EDID) icon from the tool bar to write DDC data. Bring up " ready" a progressing bar on the left, then bring up the Window as shown in Fig.24, click the " enter" button to finish Writing

Fig.24

4. Confirm Serial Number in User Mode

1) Press the ⏻ button to turn off the monitor. Press the button again to turn on the monitor.
2) Press the"(OK)" button to bring up the OSD main menu.
3) Press the ▼ button to "PRODUCT INFORMATION", press the button to confirm your selection.
4) Confirm the Serial Number ''TY 23456'' is updated as shown in Fig. 25.

PRODUCT INFORMATION	
SERIAL NO. :	TY 23456
RESOLUTION :	1024 X 768 @ 74HZ
VIDEO INPUT :	ANALOG
(OK)	BACK TO MAIN CONTROLS

Fig. 25

Step 6: Save DDC data

Sometimes, you may need to save DDC data as a text file for using in other IC chip. To save DDC data, follow the steps below:

1. Click (Save) icon (or click "file"-> "save as") from the tool bar and give a file name as shown in Fig. 26.
The file type is EDID46 file (*.ddc) which can be open in WordPad. By using WordPad, the texts of DDC data & table (128 bytes, hex code) can be modified. If DDC TEXTS & HEX Table ar completely correct, it can be saved as .ddc flie to re-load it into DDC IC for DDC Data application.

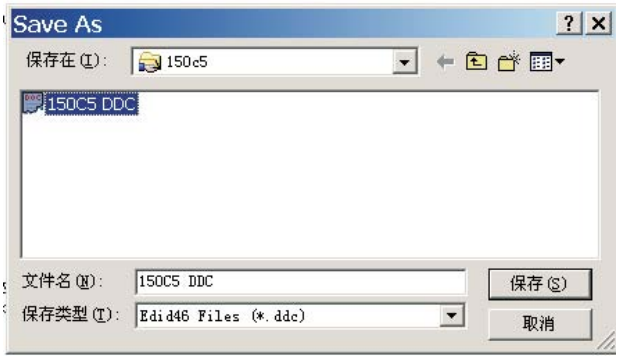


Fig. 26

2. Click Save.

Step 7: Exit DDC program

Pull down the File menu and select Exit as shown in Fig. 26.

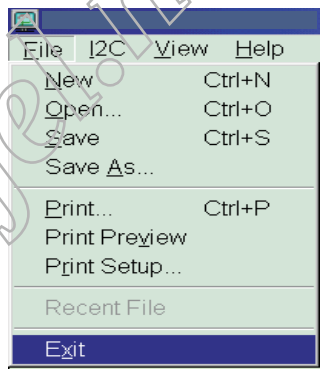


Fig. 26

Step 8: Turn off the monitor, exit the factory mode.

DDC Data

THE DISPLAY DATA CHANNEL (DDC) 2B CONTENT INCLUDING:
(150C5 FOR LG/CPT/QDI/Hannstar PANEL ANALOG)
****
EDID log file
****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : C00A(HEX.)
- ID Serial Number : 123456 (DEC.)
- Week of Manufacture : 17
- Year of Manufacture : 2004

EDID Version, Revision
- Version : 1
- Revision : 3

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.300V (1.00 Vpp)
  Without Blank-to-Black Setup
  Separate Sync
  Composite Sync
  Sync on Green
  No Serration required
- Maximum H Image Size : 30
- Maximum V Image Size : 23
- Display Transfer Characteristic: 2.2 (gamma)
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display
- Preferred Timing Mode : Detailed timing block 1

Color Characteristics
- Red X coordinate : 0.636
- Red Y coordinate : 0.343
- Green X coordinate : 0.297
- Green Y coordinate : 0.577
- Blue X coordinate : 0.145
- Blue Y coordinate : 0.082
- White X coordinate : 0.313
- White Y coordinate : 0.329

Established Timings

Established Timings I :
- 720 x 400 @70Hz (IBM,VGA)
- 640 x 480 @60Hz (IBM,VGA)
- 640 x 480 @67Hz (Apple, Mac II)
- 640 x 480 @72Hz (VESA)
- 640 x 480 @75Hz (VESA)
- 800 x 600 @56Hz (VESA)
- 800 x 600 @60Hz (VESA)

Established Timings II :
- 800 x 600 @72Hz (VESA)
- 800 x 600 @75Hz (VESA)
- 832 x 624 @75Hz (Apple, Mac II)
- 1024 x 768 @60Hz (VESA)
- 1024 x 768 @70Hz (VESA)
- 1024 x 768 @75Hz (VESA)

Manufacturer's timings:

Standard Timing Identification : Unused

Detailed Timing #1
- Pixel Clock (MHz) : 65
- H Active (pixels) : 1024
- H Blanking (pixels) : 320
- V Active (lines) : 768
- V Blanking (lines) : 38
- H Sync Offset (F Porch) (pixels): 24
- H Sync Pulse Width (pixels) : 136
- V Sync Offset (F Porch) (lines) : 3
- V Sync Pulse Width (lines) : 6
- H Image Size (mm) : 307
- V Image Size (mm) : 230
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  : Normal Display, No stereo
  : Digital Separate sync.
  : Negative Vertical Sync.
  : Negative Horizontal Sync.

Standard Timing Identification #2
- Monitor Range Limits
- Min. Vt rate Hz : 56
- Max. Vt rate Hz : 76
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 63
- Max. Supported Pixel : 80

No secondary GTF timing formula supported.

Monitor Descriptor #3
- Monitor Name : Philips 150C5

Monitor Descriptor #4
- Serial Number : TY 123456

Extension Flag : 0

Check sum : 10 (HEX.)

****
EDID data (128 bytes)
****

```
 0: 00  1: ff  2: ff  3: ff  4: ff  5: ff  6: ff  7: 00
 8: 41  9: 0c 10: 0a 11: c0 12: 40 13: e2 14: 01 15: 00
16: 11 17: 0e 18: 01 19: 03 20: 0e 21: 1e 22: 17 23: 78
24: ea 25: f3 26: 05 27: a2 28: 57 29: 4c 30: 93 31: 25
32: 15 33: 50 34: 54 35: bf 36: ee 37: 00 38: 01 39: 01
40: 01 41: 01 42: 01 43: 01 44: 01 45: 01 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: 64 55: 19
56: 00 57: 40 58: 41 59: 00 60: 26 61: 30 62: 18 63: 88
64: 36 65: 00 66: 33 67: e6 68: 10 69: 00 70: 00 71: 18
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 31
104: 35 105: 30 106: 43 107: 35 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 3f 117: 08 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 10
```

Configuration and procedure

"Easywriter " The software is provided by Novatek to upgrade the firmware of CPU.
It is a windows-based program, which cannot be run in MS-DOS.
DDC2BI_ISP TOOL (3138 106 10396) is for the interface between "Parallel Port of PC" and "15 pin-D-SUB connector of Monitor".

System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98/2000/XP.
3. ISP Software " Easywriter "
4. DDC2BI_ISP TOOL (3138 106 10396) as shown in Fig. 1

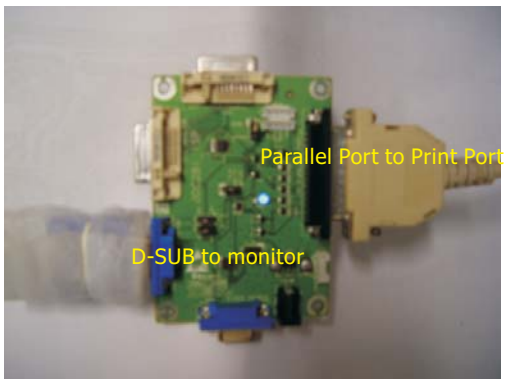


Fig. 1

5. Connect DDC2BI_ISP TOOL and Mains cord to Monitor as shown in Fig. 2.

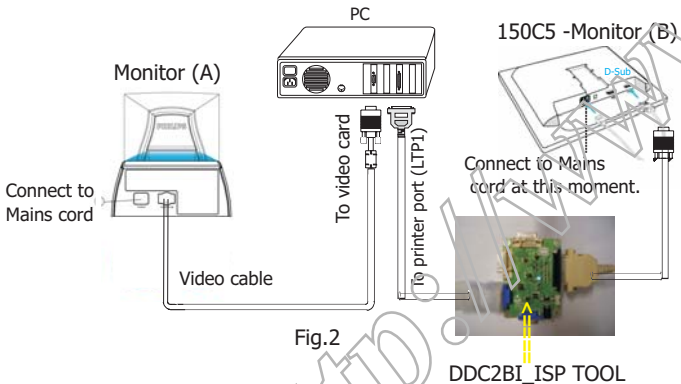


Fig.2

NOTE: You can use A/D alignment kits (12NC: 3138 106 10079) to perform this work also, the connection as shown in Fig. 3.All the perform steps are same as DDC2BI_ISP TOOL.

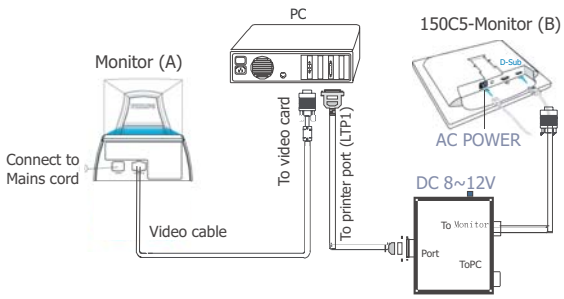


Fig. 3

6. Install and setup the Easywriter program

Step 1 : Make a folder in your PC as shown in Fig. 3.
For example : D:\150C5
Step 2 : Copy ISP Software Easywriter.zip into your folder as shown in Fig.4.
Step 3 : Unzip Easywriter.zip into your folder as shown in Fig. 4.
Step 4 : Double click the EasywriterV2.09.exe icon to install the Application as Fig. 5.

Fig. 4

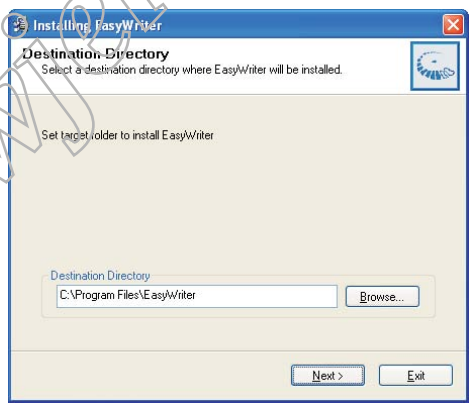


Fig. 5

Step 5 :Copy the 313811707321_141_4902.hex to D:\150C5 shown As Fig. 6.

Fig. 6

Update the firmware

1. Double click the Easywriter.exe icon in desktop then appears window as shown in Fig.7 .

Fig. 7

2. Press the "Load hex" button then select the 313811707321_141_4902 As shown in Fig. 8 and Fig. 9.

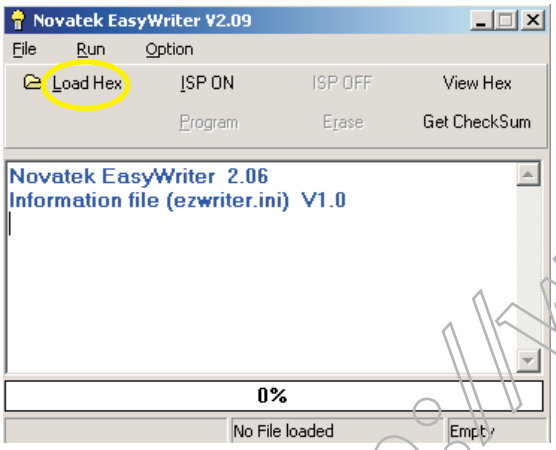


Fig. 8

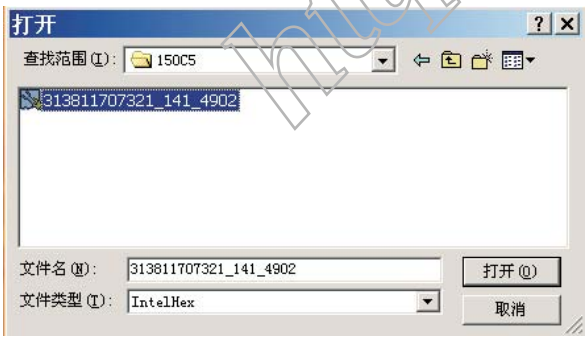


Fig. 9

3. From the menu that appears, choose the "NT68F633(64K)" as shown in Fig. 10.

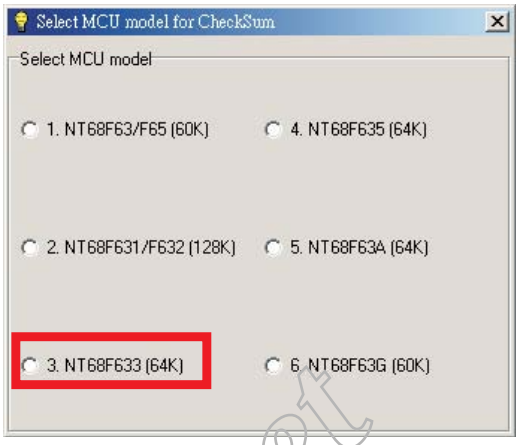


Fig. 10

4 Press the AUTO to running program , the firmware be updated as shown in Fig. 11~12.

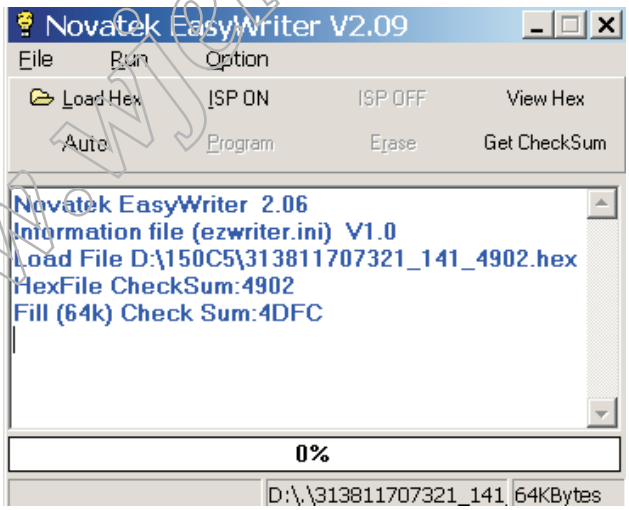


Fig. 11

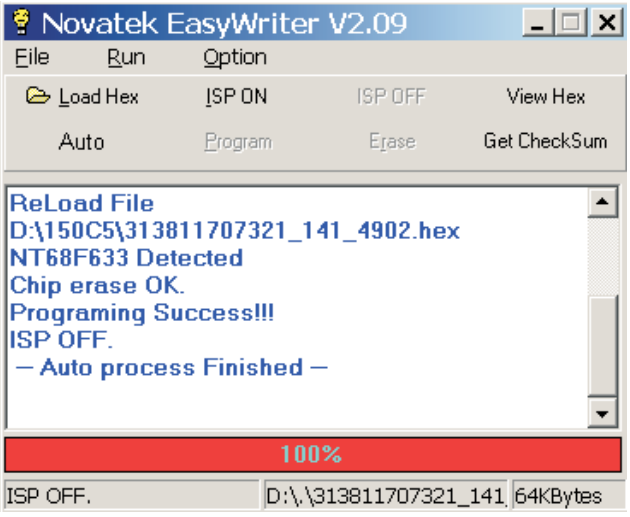


Fig. 12

5 Press the file --> exit to end program , as shown in Fig. 13.

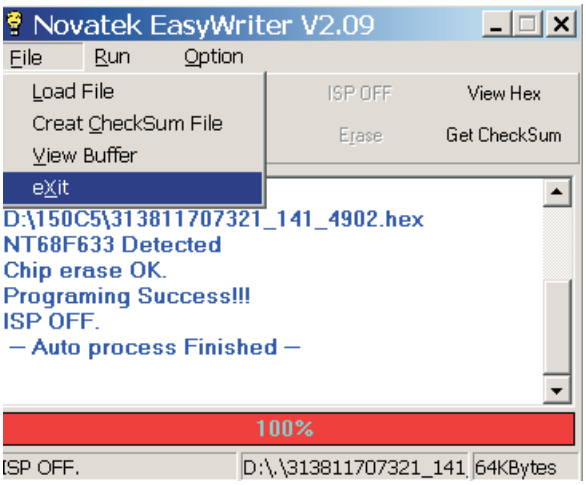


Fig. 13

If there is a warring message coming as shown in Fig 14. , you have to check the AC power, Video cable, or Novatek MCU.

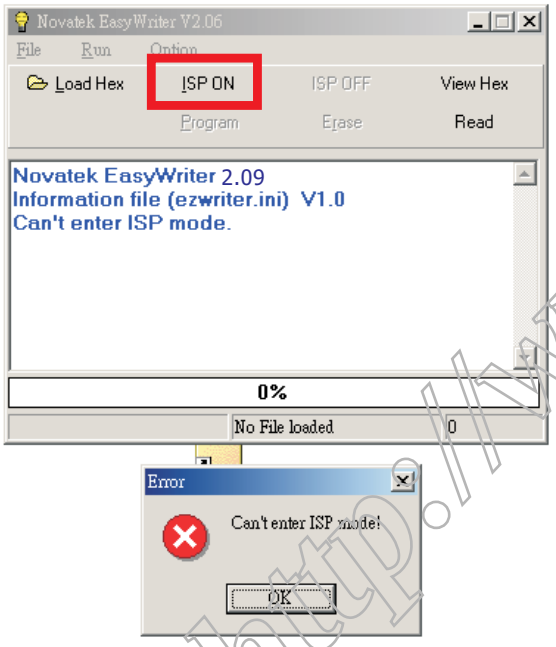


Fig. 14

6. Check the firmware version

1). Turn off monitor.

2). [Push " AUTO " & " (OK) " buttons at the same time and hold it] + [Press power " ⏻ " button untill comes out "Windows screen"] => then release all button, then press (OK) button, wait until the OSD menu You will find, after upgrade, the version have already changed from The former "HUDSON 150C5 V002 20040511" to the Present "HUDSON 150C5 V200 20040705 as shown in Fig. 15 and Fig. 16

Before upgrade

Factory Mode---- Indicator

Fig. 15

After upgrade

Factory Mode---- Indicator

Fig. 16

3) Turn off the monitor, exit the factory mode.

TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Go to cover page

Safety Checks

After the original service problem has been corrected,a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition,which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock Hazard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints,solder splashes,sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord).Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout,lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check all metal control shafts(with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operated without danger of electrical shock.

* Broken line

Implosion

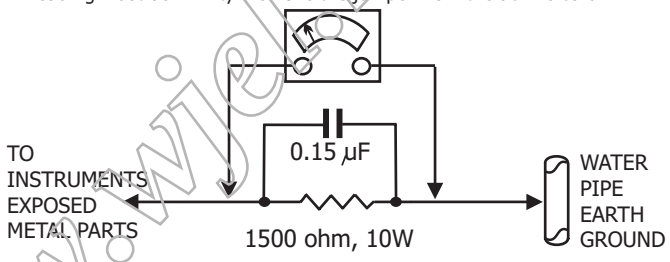
1. All picture tubes used in current model receivers are equipped with an integral implosion system. Care should always be used, and safety glasses worn,whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation

1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry is operating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the manufacturer's rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is regulated correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine is clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement

The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a Philips approved type.

Parts Replacement

Many electrical and mechanical parts in Philips television sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WARNING : Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE : The CRT DAG is not at chassis ground.