# 19” TFT LCD COLOR MONITOR

Service
Service
Service

190VW8FB/93



# Service Manual

## TABLE OF CONTENTS


| Description | Page |
|---|---|
| Important Safety Notice | 2 |
| Technical Data & Power Management | 3 ~ 4 |
| Connection to PC | 5 |
| OSD Menu Control Level Structure | 6 |
| Advanced OSD Adjustment | 7 |
| OSD Attention Signal | 8 |
| Safety and troubleshooting information | 9 |
| Definition of Pixel Defects | 10 ~ 11 |
| Wiring Diagram | 12 |
| Mechanical Instructions | 13 ~ 16 |
| F/W Upload Instructions | 17 ~ 18 |
| DDC Instructions | 18 ~ 19 |
| DDC DATA | 20 |
| Safety Instructions, Warnings and Notes | 21 |

| Description | Page |
|---|---|
| Block Diagram | 22 |
| Scaler Board Schematic Diagram | 23 ~ 27 |
| Power Board Schematic Diagram | 28 ~ 29 |
| Button Board Schematic Diagram | 30 |
| Scaler Board Layout Side View | 31 ~ 32 |
| Power Board Layout Side View | 33 ~ 34 |
| Button Board Layout Side View | 35 |
| Exploded View | 36 |
| Recommended Parts List | 37 ~ 38 |
| Spare Parts List | 39 ~ 41 |
| Different Parts List | 42 |
| General Trouble Shooting Guide | 43 ~ 57 |
| General Product Specification | 58 ~ 71 |
| Safety Check Process | 72 |


## 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 GUIDELINE.

Subject to modification Oct. 12th. 2007 EN :

# 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 - In visible 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 persons 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.)

## 1. General Specification

1.1 Panel characteristic

| | |
|---|---|
| Panel source | : LPL LM190WX1-TLA1<br>: CMO M190A1-L07 |
| Screen type | : TN+film |
| Screen dimensions | : 19 inches (diagonal) 16:10 |

**LPL LM190WX1-TAL1**

| | |
|---|---|
| Resolution | : 1440 x 900 (WXGA+) |
| Outside dimensions | : 427.2(H) X 277.4(V) X 15.3(D) |
| Pixel pitch (mm) | : 0.095(H) * 0.285(V) |
| Color pixel arrangement | : R. G. B. Vertical Stripe |
| Display surface | : Hard-coating (3H), Non-glare type |
| Color depth | : 16.7M colors |
| Backlight | : CCFL edge light system |
| Active area (mm) | : 410.4(H) x 256.5(V) |
| View angle (CR>10) | : >= 160 for H/V (typical) |
| Contrast ratio | : >= 1000 : 1 |
| White luminance | : >= 300 nits (7.0mA) |
| Color gamut | : >= 72% |
| Response time | : 5 ms |

**CMO M190A1-L07**

| | |
|---|---|
| Resolution | : 1440 x 900 (WXGA+) |
| Outside dimensions | : 427.2(H) X 277.4(V) X 17.0(D) |
| Pixel pitch (mm) | : 0.285(H) * 0.285(V) |
| Color pixel arrangement | : R. G. B. Vertical Stripe |
| Display surface | : Hard-coating (3H), Non-glare type |
| Color depth | : 16.7M colors |
| Backlight | : CCFL edge light system |
| Active area (mm) | : 410.4(H) x 256.5(V) |
| View angle (CR>10) | : >= 170(H)/160(V) (typical) |
| Contrast ratio | : >= 850 : 1 |
| White luminance | : >= 300 nits (7.0mA) |
| Color gamut | : >= 72% |
| Response time | : 5 ms |

1.2 Scanning frequencies

| | |
|---|---|
| Horizontal scan range | : 30 - 83 K Hz (automatic) |
| Vertical scan range | : 56 - 76 Hz (automatic) |

1.3 Video

| | |
|---|---|
| Video dot rate | : < 140 MHz (Over 140MHz, Warning message will show up) |
| Input impedance (Analog signal input) | |
| - video | : 75 ohm |
| - Sync | : 2.2K ohm |
| Input signal levels | : 700 mVpp |
| Sync. input signals | : Analog R/G/B separate inputs<br>Separate horizontal and vertical / Composite (H+V) TTL level,<br>Sync On Green (SOG) sync 0.3Vp-p Negative |
| Input impedance (Digital) | : Signal TMDS link (3 channels : Rx0 & Rx1 & RX2-/+) |
| Video interface | : Both Analog and Digital input. It can be switching via OSD option. |

1.5 Physical characteristics

| | |
|---|---|
| Unit dimensions | |
| - Width | : 513.8 mm |
| - Height | : 416.2 mm |
| - Depth | : 213.6 mm |
| Packed unit dimensions | |
| - Width | : 565 mm |
| - Height | : 174 mm |
| - Depth | : 472 mm |
| Packed unit dimensions (China only) | |
| - Width | : 567 mm |
| - Height | : 189 mm |
| - Depth | : 480 mm |
| Weight (monitor only) | : 5 Kg (Including I/F cable 240g) |
| Title angel | : - 5 ° + 2 / - 0 ° ( forward )<br>+ 25 ° + 0 / - 3 ° ( backward ) |
| Swivel angel | : nil |
| Height adjustment | : nil |
| Portrait display | : nil |
| AC input: - voltage | : AC 90 - 264 V, |
| - frequency | : 50 / 60 ± 2 Hz |
| Power consumption | : < 36W maximum |
| Ambient temperature | : 0 to 40 degree C |
| Operating | |
| - Temperature | : 5 to 35 degree C |
| - Humidity | : 85% (max.) |
| - Altitude | : 0 - 3658 m |
| - Air pressure | : 600 - 1000 mBAR |
| Storage | |
| - Temperature | : -20 to 60 degree C |
| - Humidity | : 95% max |
| - Altitude | : 0 - 12192 m |
| - Air pressure | : 300 - 1100 mBAR (Recommend at 5 to 35 degree C, Humidity less then 60%) |
| System MTBF | : 50,000 Hrs |

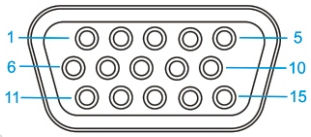
# Technical Data

## 2. Pin Assignment

2.1 PC analog video input with D - sub connector.

Connector type of analog signal cable :
D - Sub male with DDC2B pin assignment.
Blue connector with thumb-operated jackscrews.

Pin assignment :






| PIN No. | SIGNAL | PIN No. | SIGNAL | PIN No. | SIGNAL |
|---|---|---|---|---|---|
| 1 | Red | 6 | Red GND | 11 | Sense (GND) |
| 2 | Green/ SOG | 7 | Green GND | 12 | Bi-directional data |
| 3 | Blue | 8 | Blue GND | 13 | H/H+V sync |
| 4 | Sense (GND) | 9 | DDC +3.3V or +5V | 14 | V-sync |
| 5 | Cable Detect (GND) | 10 | Logic GND | 15 | Data clock |

## Automatic Power Saving

If you have VESA / DPMS compliance display card or software installed in your PC, the monitor can automatically reduce power consumption when power saving function active. And if an input from keyboard, mouse or other devices is detected, the monitor will automatically wake up. The following table shows the power consumption and signaling of this automatic power saving feature:

| Mode | HSYNC | VSYNC | Video | Pwr-cons. | Indication | Rec. time |
|---|---|---|---|---|---|---|
| Power-On | On | On | active | < 36 W | Green LED | -- |
| Off | Off | Off | blanked | < 1 W | Amber LED | < 3 s |
| DC Power Off | | | N/A | < 1 W | LED Off | |

This monitor must comply with the Microsoft On Now specification, with two power management states, as defined by the VESA DPMS document. And must appropriately display the DPMS states. Also comply with Environmental Protection Agency (EPA) Energy Star and TCO03 power management standard strictly.

ENERGY STAR is a U.S. Registered mark. AS AN ENERGY STAR PARTNER, PHILIPS HAS DETERMINED THAT THIS PRODUCT MEETS THE ENERGY STAR GUIDELINES OF ENERGY EFFICIENCY.

## Data Storage

**Factory preset mode:**

This monitor has 15 factory-preset modes as indicated in the following table:

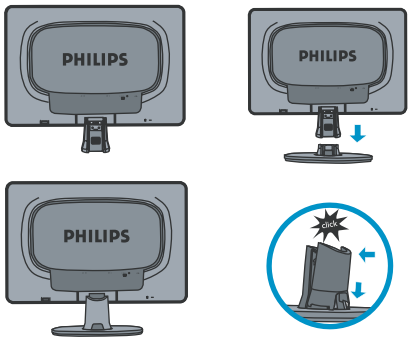
| Item | H.Freq. (KHz) | Mode | Resolution | V.Freq. (Hz) | BW(MHz) |
|---|---|---|---|---|---|
| 1 | 31.469 | IBM VGA 10H | 640x350 | 70.086 | |
| 2 | 31.469 | IBM VGA 3H | 720x400 | 70.087 | |
| 3 | 31.469 | IBM VGA 12H | 640x480 | 59.94 | |
| 4 | 35 | MACINTOSH | 640x480 | 67 | |
| 5 | 37.5 | VESA | 640x480 | 75 | |
| 6 | 35.156 | VESA | 800x600 | 56.25 | |
| 7 | 37.879 | VESA | 800x600 | 60.317 | |
| 8 | 46.875 | VESA | 800x600 | 75 | |
| 9 | 48.363 | VESA | 1024x768 | 60.004 | |
| 10 | 60.023 | VESA | 1024x768 | 75.029 | |
| 11 | 63.981 | VESA | 1280x1024 | 60.02 | |
| 12 | 79.976 | VESA | 1280x1024 | 75.025 | |
| 13 | 55.469 | VESA-reduced blanking mode | 1440x900 | 59.901 | 88.75 |
| 14 | 55.935 | VESA | 1440x900 | 59.887 | 106.5 |
| 15 | 70.635 | VESA | 1440x900 | 74.984 | 136.75 |

# Connection to PC

## 1. Connection to PC

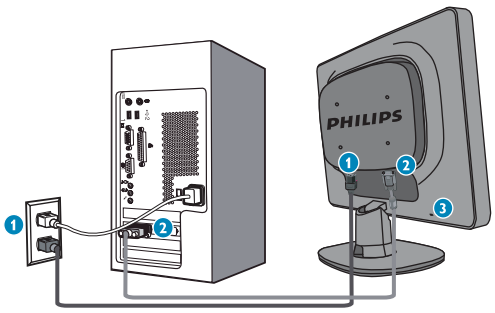
Please follow the steps to connect your LCD Monitor to PC.

a. Assembly LCD Monitor with base




b. Connect to PC

(1) Turn off your computer and unplug its power cable.
(2) Connect the monitor signal cable to the video connector on the back of your computer.
(3) Plug the power cord of your computer and your monitor Into a nearby outlet.
(4) Turn on your computer and monitor. If the monitor Displays an image, installation is complete.

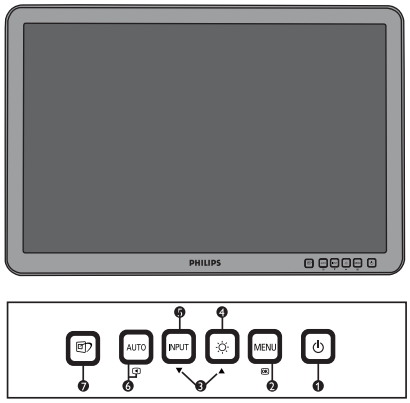



Port definition:
(1) AC power input
(2) VGA input
(3) Kensington anti-thief lock

c. Accessory Pack

| Power cord | VGA cable | EDFU CD |
|---|---|---|

## 2. Function key definition




(1) To switch monitor's power on and off
(2) To access OSD menu
(3) To adjust the OSD menu
(4) To adjust brightness of the display
(5) To change the signal input source
(6) Automatically adjust the horizontal position, vertical position, phase and clock Settings/Return to previous OSD level
(7) SmartImage. There are five modes to be selected: Office Work, Image Viewing, Entertainment, Economy and Off.

## 3. Description of the On Screen Display

On-Screen Display(OSD) is a feature in all Philips LCD monitors. It allows and end user to adjust screen performance or select functions of the monitors directly through an on-screen instruction window. A user friendly on screen display interface is shown as below:


Basic and simple instruction on the control keys.

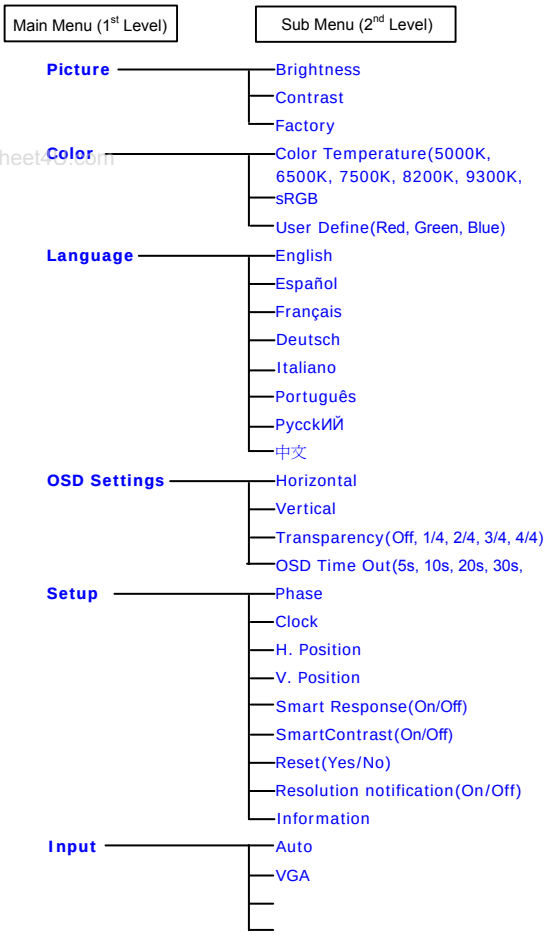
According to the above OSD structure, users can :
press **UP** or **DOWN** buttons to move the cursor,
press **MENU** button to confirm the choice or change,
press **UP** or **DOWN** button to adjust the value,
press **MENU** button to save the changes.
press **AUTO** button to automatically adjust the horizontal position, vertical position, phase and clock setting.

# OSD Menu Control Structure

**4. 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.

4.1 Only available for China Model






**Note:**

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

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

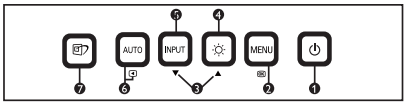
Important with the use of sRGB is that the brightness and contrast of your monitor is fixed to a predefined setting as well as the color gamut. Therefore it is important to select the sRGB setting in the monitor's OSD.

To do so, open the OSD by pressing the OK button on the side of your monitor. More the down button to go to color and press OK again. Use the right button to go to sRGB. Then move the down button and press OK again to exit the OSD.

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.

**Advanced OSD Adjustment**

1. Front control panel

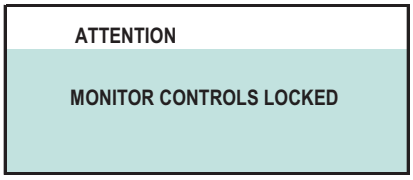



2. To Lock/Unlock OSD function

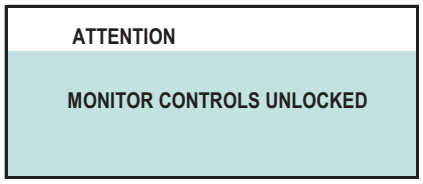
The OSD function can be locked by pressing **MENU** button for more than 10 seconds, the screen shows following windows for 3 seconds.



Every time when you press any button, this message appears on the screen automatically.

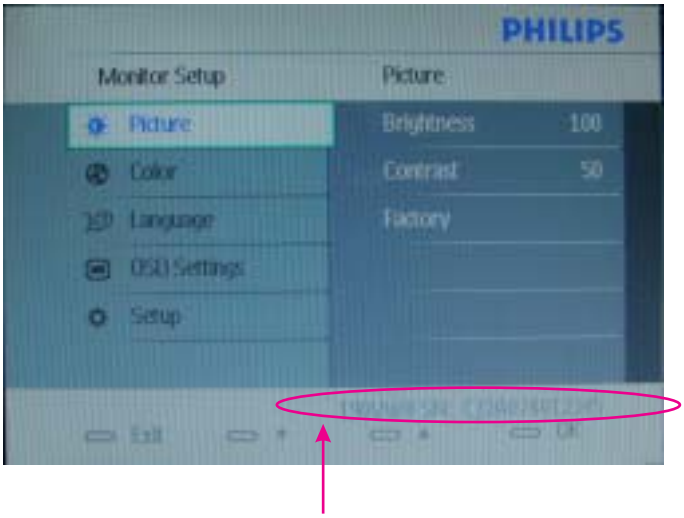



Locked OSD function can be released by pressing **MENU** button for more than 10 seconds. While press **MENU** button for OSD unlocked purpose, the screen will keep showing OSD MAIN MENU LOCKED until OSD function unlocked and screen automatically shows following window for 3 seconds.




3. Access Factory Mode

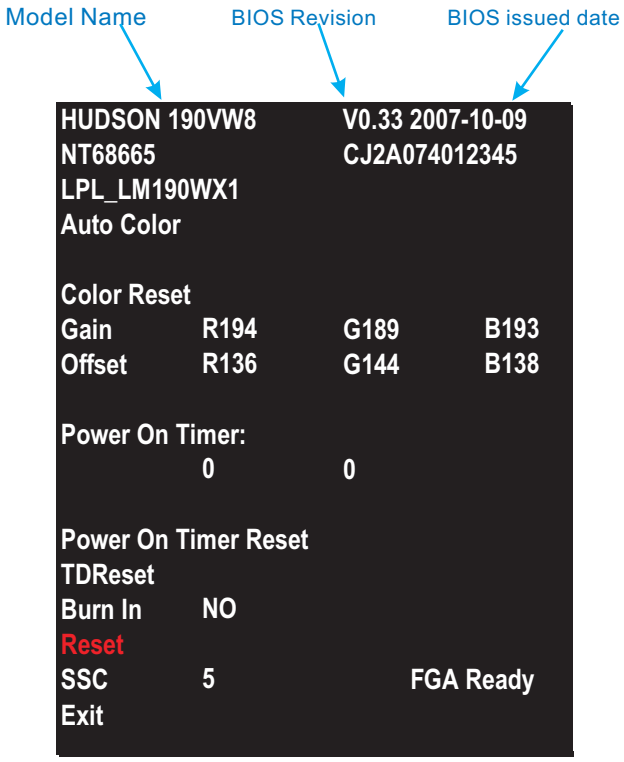
To hold **AUTO** and **POWER** buttons, you can saw the LED light flashing at this time. Then release the **AUTO** button and Keep pressing the **POWER** button. The monitor will power on and LED light give out orange light. Press **MENU** to bring up OSD menu for confirmation as below:




If this message appeared, means monitor already entered the factory mode.

4. Entering Burn-in mode and others

If you access into factory mode, press **MENU-PICTURE-FACTORY,** then press **MENU** to confirm, OSD menu will convert into another format as below:




Move the cursor by **MENU** button, and press the **UP** or **DOWN** button to change the burn-in mode from YES to NO.

Leave factory mode by simply power off the monitor.

*Warning*

* If you only want to enter burn in mode, please don't change any other setting items as above listed.
* Unfortunately, if some settings has been changed by unknown reasons or wrong operation. Please refer to the chapter of "W/B Adjustment" to guide the operator how to restore the default settings or do adjustment.

Appendix:

Explanation of above listed selections.

| Selection | Description |
|---|---|
| Burn in On/Off | Enter Aging Mode |
| Auto Color | Auto Color Adjustment |
| Con | Contrast Adjustment |
| Bri | Brightness Adjustment |
| Gain | ADC Gain Value Adjustment<br>(Auto adjustment by H/W when implement Auto Color function) |
| Offset | ADC Offset Value Adjustment<br>(Auto adjustment by H/W when implement Auto Color function) |
| sRGB | sRGB Color Temperature Gain Value Adjustment |
| 9300K | 9300K Color Temperature Gain Value Adjustment |
| 6500K | 6500K Color Temperature Gain Value Adjustment |
| Color Update | Save All of Color Temperature Gain Value |
| Factory Reset | Memory Recall to Factory Default Settings |

# OSD Attention Signals

**Clock & Phase Adjustment**

Due to the different quality of video signal generated from graphics cards. It is necessary to adjust CLOCK and PHASE functions for the optimal video display of LCD monitor. So maybe some flicker appeared as Fig.1 & 2.

Fig.1

Fig.2



Following steps will guide you to make correct adjustment of CLOCK and PHASE:

a. Restart your computer.
b. Press **MENU** to bring up OSD menu after the OS (Operation System) boot up.
c. Press **UP** or **DOWN** to select the option of **More Settings** and then press **MENU** to bring up its submenu as shown in Fig.3.
d. Select the **Clock** or **Phase** adjustment items in submenu and press **UP** or**DOWN** to adjust.
(If the phenomenon as Fig.1, you should adjust "**Phase**")
(If the phenomenon as Fig.2, you should adjust "**Clock**")
e. Quit OSD by press **MENU** button to save the settings.

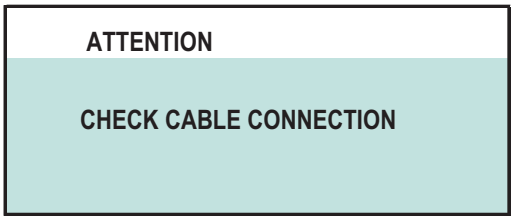

Fig.3

However, CLOCK and PHASE functions are only available while analog video signal is supplied. Operating unit under digital signal state, the video clock information can be obtained from graphics cards directly. Therefor, it is unnecessary to adjust these functions.

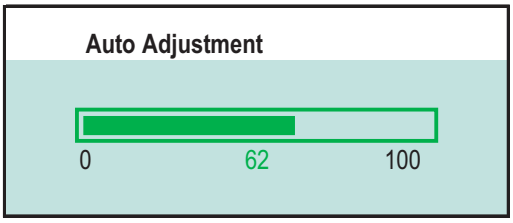
**OSD Attention signal**

The monitor will detect various display situation automatically. When the monitor detects the problems, the screen will show the different warning signals to remind you what is happen to your monitor.

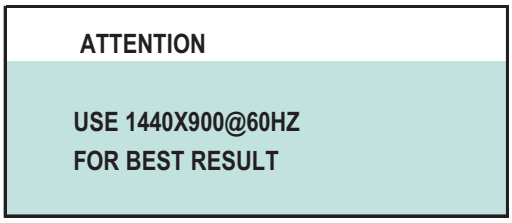
**1. CHECK CABLE CONNECTION**
This screen appears if there is no video signal input. Please check that the signal cable is properly connected to the video card of PC and make sure PC is on.



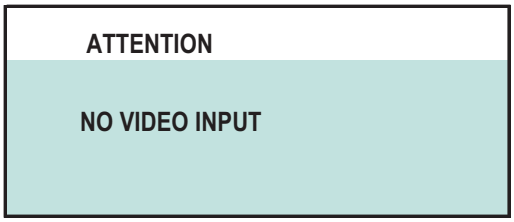

**2. AUTO ADJUSTMENT**
This screen appears when you touch the **AUTO** button. It will disappear when the monitor is properly adjusted.



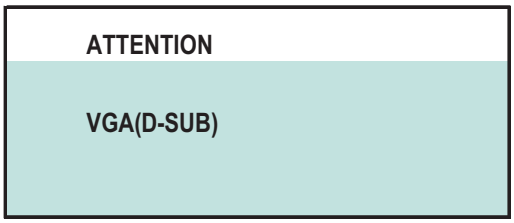

**3. USE 1440X900 FOR BEST RESULT**
This message appears at the top of the OSD window when the video mode input is not the recommended 1440*900. Other modes may result in some picture distortion. Please adjust the video mode to 1440*900 at 60Hz for best display quality.




**4. NO VIDEO INPUT**
When you select video input between AUTO, VGA or DVI signal via INPUT function of OSD menu, if the DVI function you are selecting is not available, following message will appear on the screen.




**5. VGA(D-SUB)**
When you select VGA function, if it's not available, following message will appear on the screen.

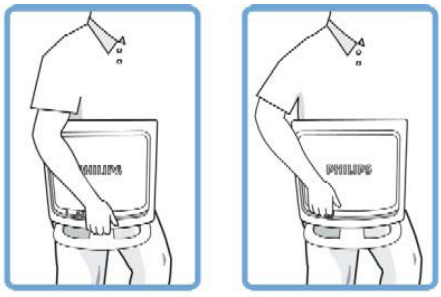


### Safety precautions and maintenance

WARNING: Use of controls, adjustments or procedures other than those specified in this documentation may result in exposure to shock, electrical hazards and/or mechanical hazards.

Read and follow these instructions when connecting and using your computer monitor:

a. To protect your display from possible damage, do not put excessive pressure on the LCD panel. When moving your monitor, grasp the frame to lift; do not lift the monitor by placing your hand or fingers on the LCD panel.
b. Unplug the monitor if you are not going to use it for an extensive period of time.
c. Unplug the monitor if you need to clean it with a slightly damp cloth. The screen may be wiped with a dry cloth when the power is off. However, never use alcohol, solvents or ammonia-based liquids.
d. Consult a service technician if the monitor does not operate normally when you have followed the instructions in this manual.
e. The casing cover should be opened only by qualified service personnel.
f. Keep the monitor out of direct sunlight and away from stoves or any other heat source.
g. Remove any object that could fall into the vents or prevent proper cooling of the monitor's electronics.
h. Do not block the ventilation holes on the cabinet.
i. Keep the monitor dry. To avoid electric shock, do not expose it to rain or excessive moisture.
j. When positioning the monitor, make sure the power plug and outlet are easily accessible.
k. If turning off the monitor by detaching the power cable or DC power cord, wait for 6 seconds before attaching the power cable or DC power cord for normal operation.
l. To avoid the risk of shock or permanent damage to the set, do not expose the monitor to rain or excessive moisture.
m. IMPORTANT: Always activate a screen saver program during your application. If a still image in high contrast remains on the screen for an extended period of time, it may leave an 'after-image' or 'ghost image' on front of the screen. This is a well-known phenomenon that is caused by the shortcomings inherent in LCD technology. In most cases, the afterimage will disappear gradually over a period of time after the power has been switched off. Be aware, that the afterimage symptom cannot be repaired and is not covered under warranty.
o. Warning for lifting monitor - Do not use the area underneath the logo cover to grip or lift the monitor. Placing weight on the logo cover can cause it to break away from the body and cause the monitor to fall. When lifting the monitor, place one hand under the monitor's frame.




○ Do ✕ Don't

* Consult a service technician if the monitor does not operate normally when the operating instructions given in this manual have been followed.

### Installation Locations

Avoid exposure to heat and extreme cold.

Do not store or use the LCD monitor in locations exposed to heat, direct sunlight or extreme cold.

Avoid moving the LCD monitor between locations with large temperature differences. Choose a site that falls within the following temperature and humidity ranges.
Temperature: 0-35°C 32-95°F
Humidity: 20-80% RH

Do not subject the LCD monitor to severe vibration or high impact conditions. Do not place the LCD monitor in the trunk of a car.

Take care not to mishandle this product by either knocking or dropping it during operation or transportation.

Do not store or use the LCD monitor in locations where there is a high level of humidity or in dusty environments. Do not allow water or other liquids to spill on or into the LCD monitor.

### Trouble Shooting

This page deals with problems that can be corrected by the user. If the problem still persists after you have tried these solutions, contact your nearest Philips dealer.

| **Common Problems** | |
|---|---|
| Having this problem | Check these items |
| No Picture<br><br>(Power LED not lit) | a. Make sure the power cord is plugged into the power outlet and into the back of the monitor.<br>b. 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<br><br>(Power LED is amber or yellow) | a. Make sure the computer is turned on.<br>b. Make sure the signal cable is properly connected to your computer.<br>c. Check to see if the monitor cable has bent pins.<br>d. The Energy Saving feature may be activated. |
| Screen says | a. Make sure the monitor cable is properly connected to your computer.<br>(Also refer to the Quick Set-Up Guide).<br>b. Check to see if the monitor cable has bent pins.<br>c. Make sure the computer is turned on. |
| Screen says | a. Make sure the monitor cable is properly connected to your computer. (Also refer to the Quick Set-Up Guide).<br>b. Check to see if the monitor cable has bent pins.<br>c. Make sure the computer is turned on. |
| AUTO button not working properly | a. The Auto Function is designed for use on standard Macintosh or IBM-compatible PCs running Microsoft Windows.<br>b. It may not work properly if using nonstandard PC or video card. |
| **Imaging Problems** | |
| Display position is incorrect | a. Press the Auto button.<br>b. Adjust the image position using the Phase/Clock of More Settings in OSD Main Controls. |
| Image vibrates on the screen | a. Check that the signal cable is properly connected to the graphics board or PC. |
| Vertical flicker appears | a. Press the Auto button.<br>b. Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls. |
| Horizontal flicker appears | a. Press the Auto button.<br>b. Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls. |

# Definition of Pixel Defects

| | |
|---|---|
| The screen is too bright or too dark | Adjust the contrast and brightness on On-Screen Display.(The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicked, please contact your sales representative). |
| 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 peroid of time. |
| Green, red, blue, dark, and white dots remains | The remaining dots are normal characteristic of the liquid crystal used in today's technology. |
| For further assistance, refer to the Consumer Information Centers list and contact your local Philips distributor. | |

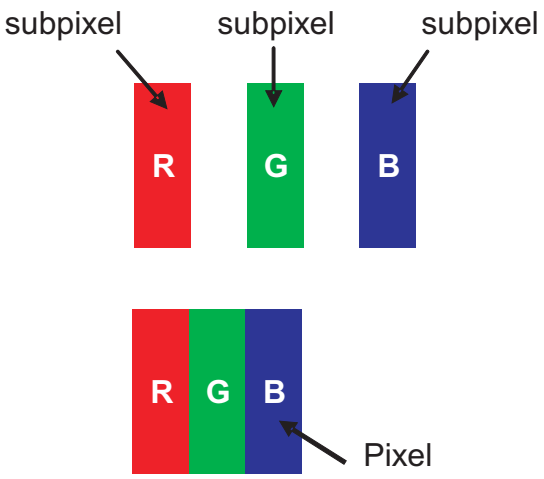


**Definition of Pixel Defects**

This section explains the different types of pixel defects and defines acceptable defect levels of each type. In order to quality for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels.

1. Definition of 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.



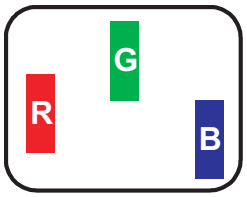

2. Types of Pixel Defects

Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of sub pixel defects within each category.

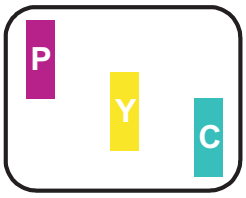
*Bright Dot Defects*

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

One lit red, green or blue sub pixel




Two adjacent lit sub pixels:
- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)



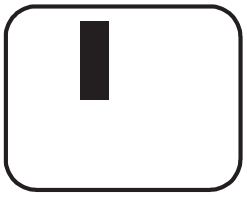

Three adjacent lit sub pixels (one white pixel)


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

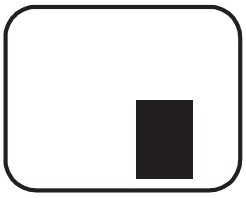
*Black Dot Defects*

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

One dark sub pixel



Two or three adjacent dark sub pixels



# Definition of pixel defects

3. 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.
Perfect Panel - ISO 13406-2 Class II compliant do-defect-free-display.

| BRIGHT DOT DEFECTS | ACCEPTABLE LEVEL |
|---|---|
| *MODEL* | *190VW8* |
| 1 lit subpixel | 3 or fewer |
| 2 adjacent lit subpixels | 1 or fewer |
| 3 adjacent lit subpixels (one white pixel) | 0 |
| Distance between two bright dot defects* | >15mm |
| Total bright dot defects of all types | 3 or fewer |



| BLACK DOT DEFECTS | ACCEPTABLE LEVEL |
|---|---|
| *MODEL* | *190VW8* |
| 1 dark subpixel | 5 or fewer |
| 2 adjacent dark subpixels | 2 or fewer |
| 3 adjacent dark subpixels | 0 |
| Distance between two black dot defects* | >15mm |
| Total black dot defects of all types | 5 or fewer |

| TOTAL DOT DEFECTS | ACCEPTABLE LEVEL |
|---|---|
| *MODEL* | *190VW8* |
| Total bright or black dot defects of all types | 5 or fewer |

Note:

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

# Wiring Diagram

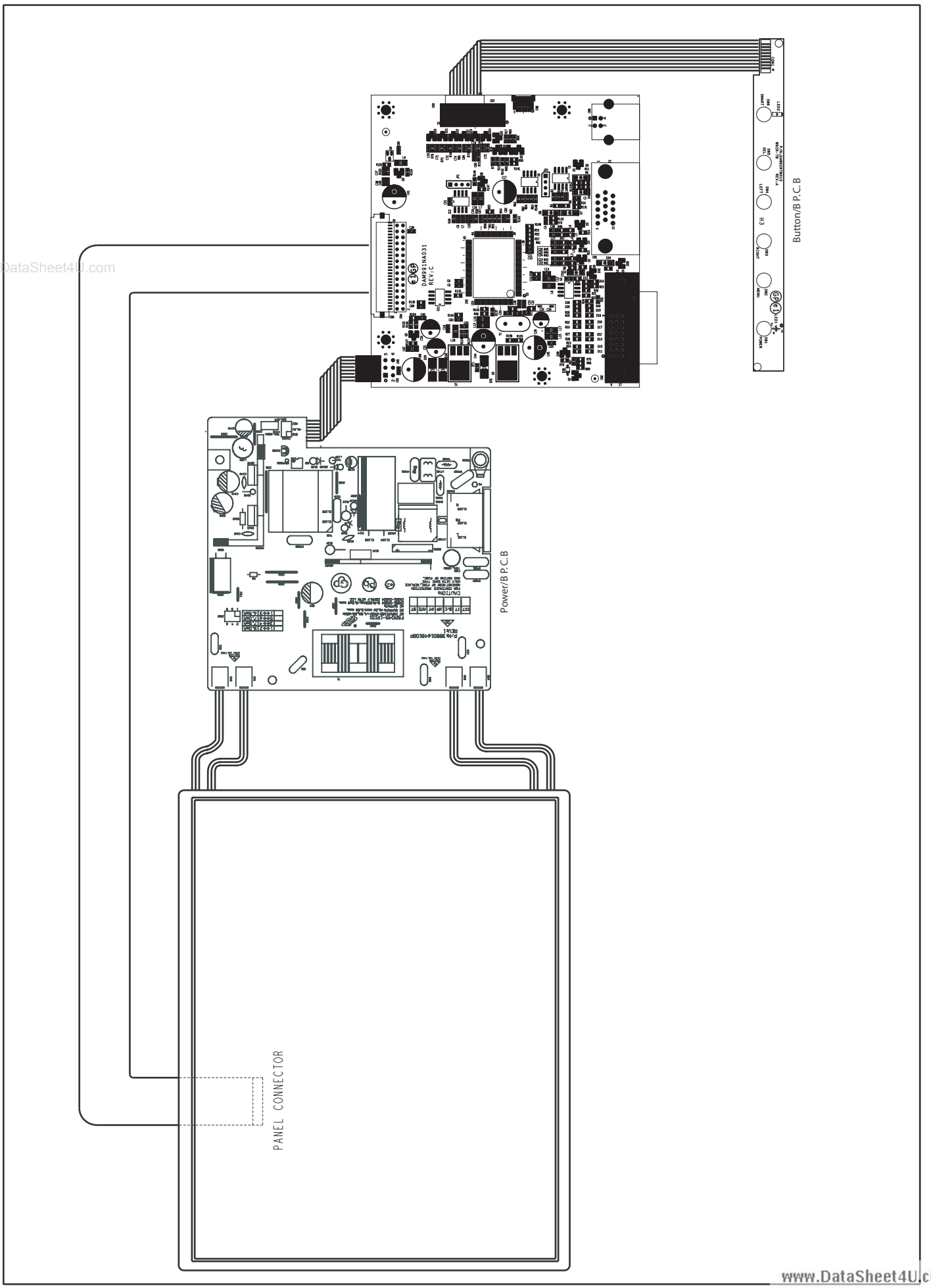



Fig. 1

1. Put down the LCD, all tools prepared.

Fig. 2

2. Take off the hinge cover.

Fig. 3

3. Press the button and take off base.

Fig. 4

4. Take off hinge cover.

Fig. 5

5. Release 4pcs screws from stand neck and take off it.


Fig. 6

6. Separate rear cover from bezel.

# Mechnical instructions

Fig. 7

7. Release 3pcs screws from left side of bezel.

Fig. 8

8. Release 3pcs screws from right side of bezel.

Fig. 9

9. Tear off the tapes and disconnect the MB-BB cable.

Fig. 10

10. Separate bezel from panel.

Fig. 11

11. Release 1pcs screw from Power shielding and take off it.

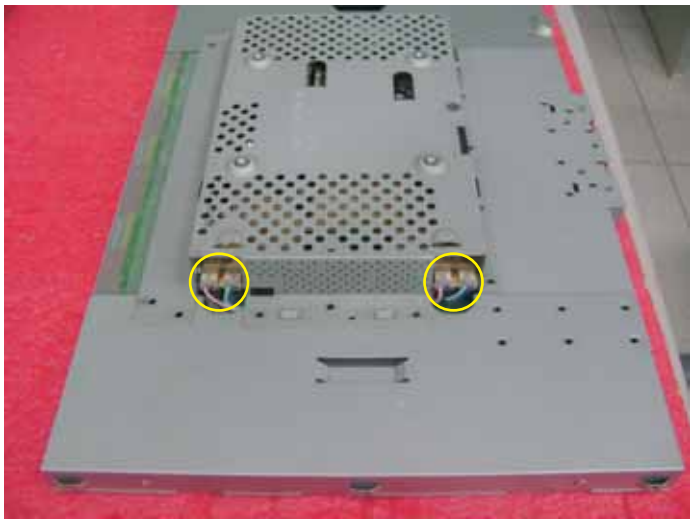


Fig. 12

12. Disconnect the lamp cables.

Fig. 13

13. Release 2pcs screws from left side of panel shielding.

Fig. 14

14. Release 2pcs screws from right side of panel shielding.

Fig. 15

15. Release 2pcs screws from VGA joint.

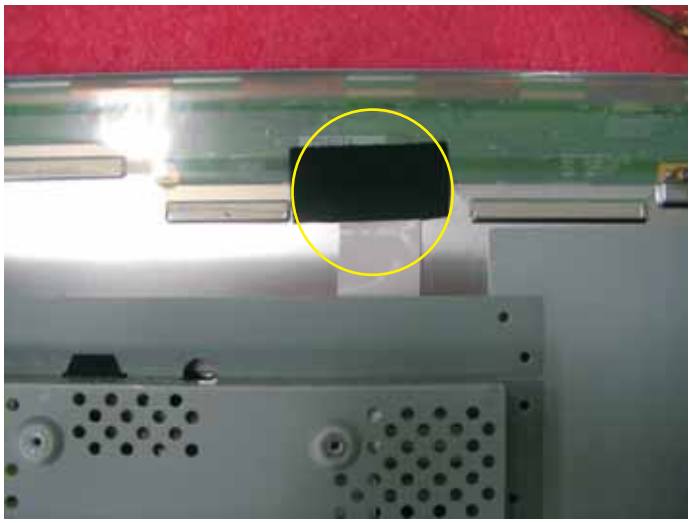


Fig. 16

16. Tear off the tape and disconnect LVDs cable.

Fig. 17

17. Separate panel shielding from panel.

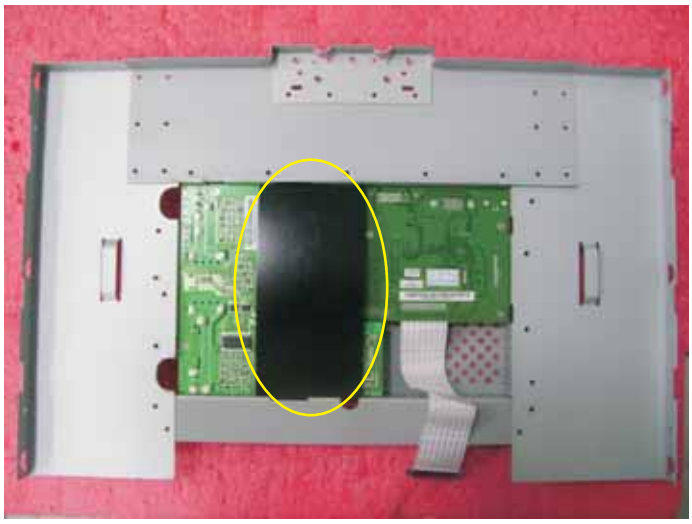


Fig. 18

18. Take off power mylar.

# Mechnical Instructions

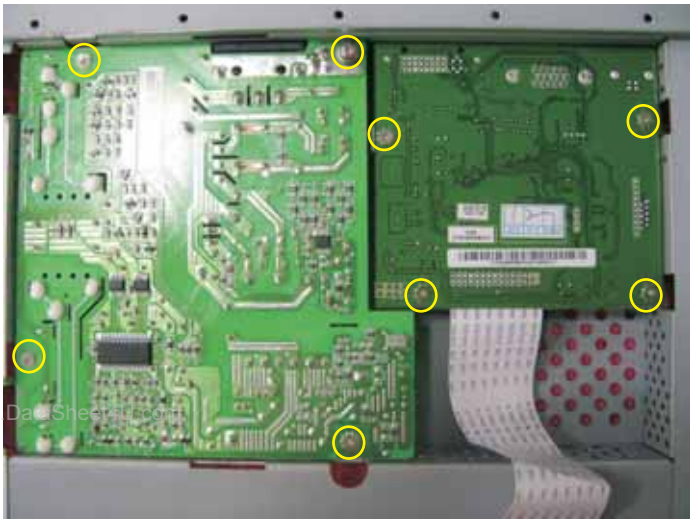


Fig. 19

19. Release 8pcs screws from Main/B and Power/B.

Fig. 22

22. The Power/B.

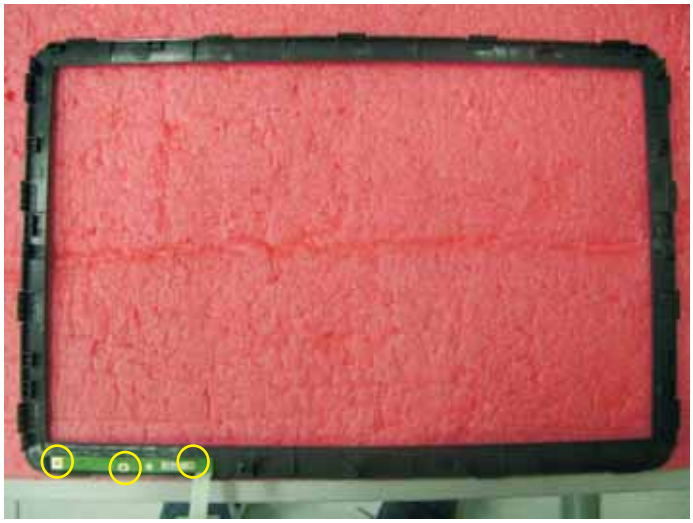


Fig. 20

20. Release 3pcs screws from Button/B and take off it from bezel.

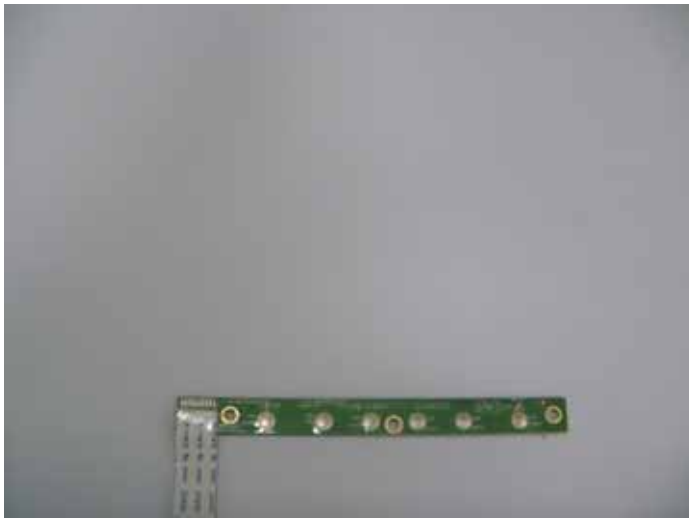


Fig. 23

23. The Button/B.

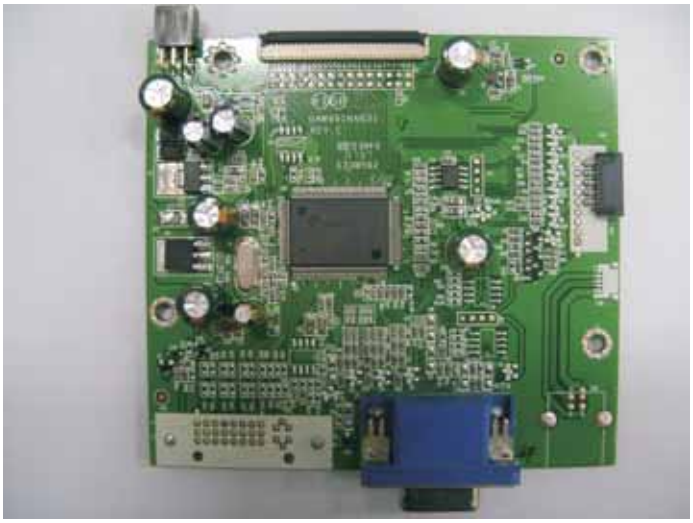


Fig. 21

21. The Main/B.

**F/W upload instruction**

Configuration and procedure (ISP Tool)

"ISP Tool " software is provided by NOVATEK to upgrade the firmware of Scaler IC. It is a windows-based program, which cannot be run in MS-DOS.

System and equipment requirements:
1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 98/2000/XP.
3. ISP software " EasyUSB Writer ".
(Need to install, it can not be performed directly.Double press "EasyUSB WriterV3.0.exe" to start installing,then chose the path that you want to install ,then it will perform automatically.)
4. Firmware uploading tool, as shown in Fig1.

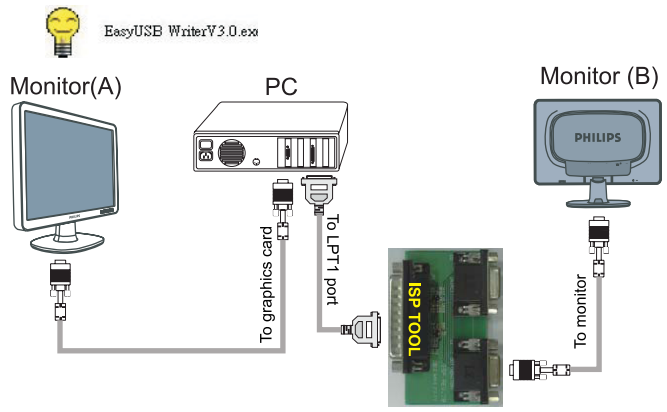



Fig.1

* Connect the firmware uploading tool as Fig.1 shown.
* Before the servicer perform the ISP Tool program, the Communicating connection must be well done.
* When the connection fixed, power on the monitor.

Setup and perform the ISP Tool program

1. Save the software in your PC, and create a shortcut on the desktop.

2. Double click the ISP Tool. exe icon at the desktop then appears window as shown in Fig. 2.

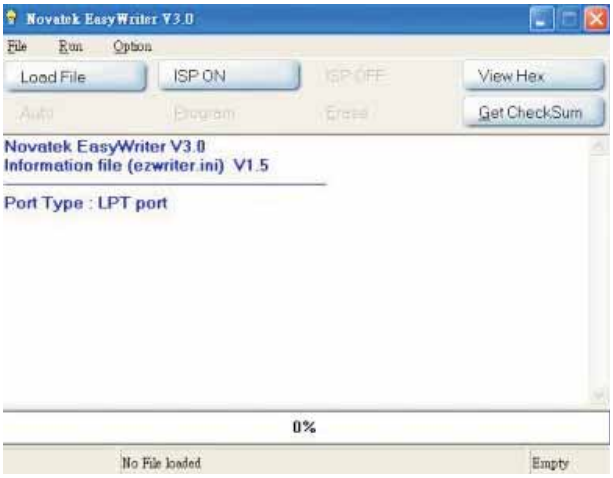



Fig. 2

3. Press the "Load File" button then select the path that save hex file ,then chose file type as "Bank Switch(128K,256K)" as shown in Fig. 3.

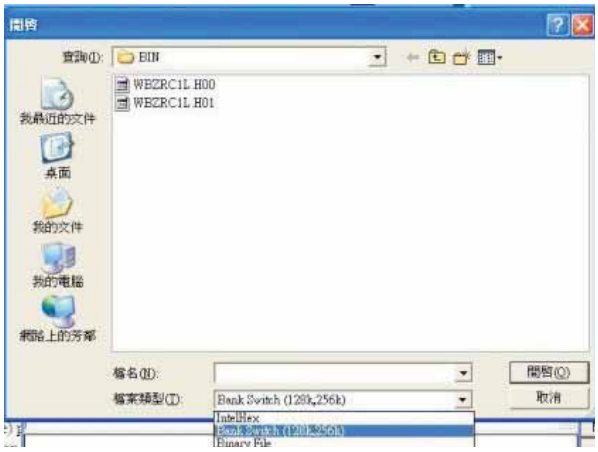



Fig. 3

4. Double press the "H00" file or "H01 file" ,then it acquires the hex file automatically, and a message will be showed in the dialog box to notice the operator. At this moment, please verify the checksum of the hex file with the firmware control table to make sure the suitable file will be used. Mentioned firmware control table will be provided by suppliers shown in Fig. 4.

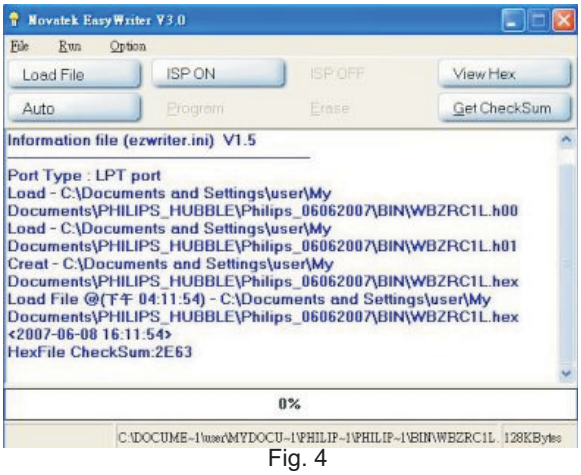



Fig. 4

5. Press the "ISP ON" button ,then the dialog box will has the information "ISP ON" ,else has the information "ISP Fail".If the information is "ISP Fail" ,check the connectivity ,then try it again as shown in Fig. 5



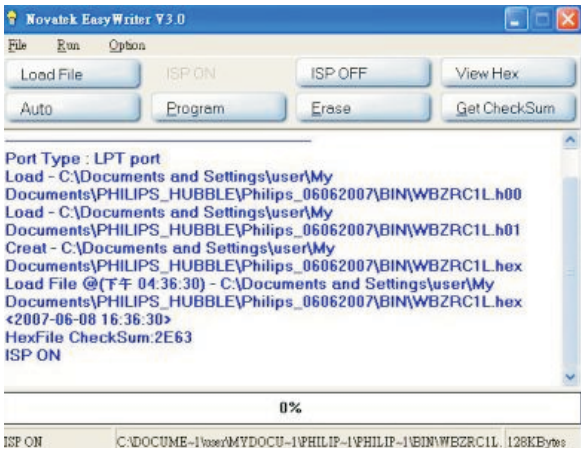



Fig. 5

# Electronic Instructions

6. Press "**Auto**"button of the toolbox. Program will perform the loading process automatically. When the loading process completed, and the dialog box appeared the message of Programing Success. If Program perform fail ,resume step 5.



**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.
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.

* According to the design concept of this product, DDC data will be divided into two parts to deposit in different place:
DDC data of VGA interface are saved in scaler IC.

**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 98/2000/XP.
3. Installation software of " TVI Tool ".
4. Executive program " TVI Tool. exe ".
5. ISP tool kit, as shown in Fig1.
   Including: a. Alignment fixture x 1
   b. Printer cable (LPT type) x 1
   c. D-sub to D-sub cable x 1

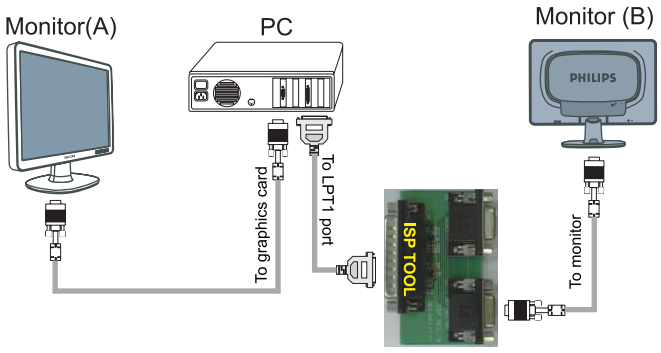
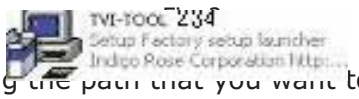



Fig. 1

**Install and setup TVI-TOOL program**

Step 1: Double press the "TVI-TOOL_234.exe".
Step 2: In Company text box key in any word as shown in the Fig.2.




Step 3: Chosing the path that you want to install,then chose the shortcut folder ,press

Step 3: Closing the path that you want to install, then chose the shortcut folder ,press "Install" button ,and it will perform automatically.


Fig.3



**Re-programming Analog DDC IC**

Step 1: After initialize the alignment fixture, connecting all cables. Be using VGA port from monitor.

Step 2: Connect the power code of monitor and power on it.

Step 3: Double check the TVI_TOOL icon to run the TV_TOOL.exe.

Step 4: Click the OPEN icon at the main menu to open the DDC files.

Fig. 4

Step 5: In the "Detailed Timings" BLOCK2 key in the monitor serial number.

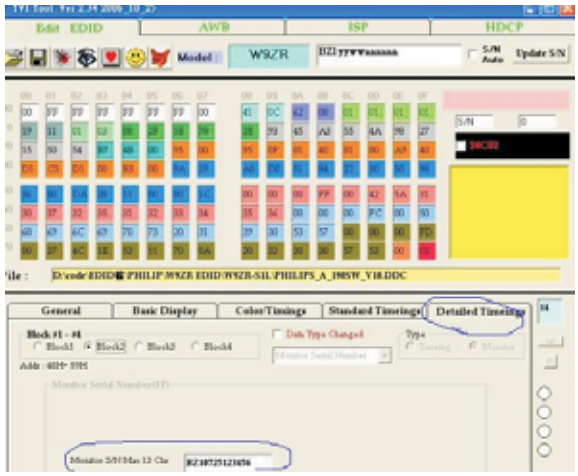


Fig. 5

Step 6: Press "WRITE TO IC " button in the tool bar ,when the DDC data download into the DDC IC, a dialog box will be appeared automatically as shown in below photos.

Fig. 6

Step 7: Power off the monitor.

# DDC Data

**DDC DATA**

THE DISPLAY DATA CHANNEL (DDC_2B) CONTENT INCLUDING:
(Analog mode)

---

128 BYTES OF EDID CODE :

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 41 | 0C |
| 10 | 60 | 08 | 01 | 01 | 01 | 01 | 1B | 11 | 01 | 03 |
| 20 | 0E | 28 | 19 | 78 | 2A | A1 | 50 | A3 | 57 | 4C |
| 30 | 9D | 25 | 11 | 50 | 54 | BF | EE | 80 | 71 | 4F |
| 40 | 95 | 00 | 95 | 0F | 01 | 01 | 01 | 01 | 01 | 01 |
| 50 | 01 | 01 | 01 | 01 | 9A | 29 | A0 | D0 | 51 | 84 |
| 60 | 22 | 30 | 50 | 98 | 36 | 00 | 90 | FA | 10 | 00 |
| 70 | 00 | 1C | 00 | 00 | 00 | FF | 00 | 42 | 5A | 31 |
| 80 | 30 | 37 | 32 | 35 | 30 | 37 | 30 | 37 | 31 | 30 |
| 90 | 00 | 00 | 00 | FC | 00 | 50 | 68 | 69 | 6C | 69 |
| 100 | 70 | 73 | 20 | 31 | 39 | 30 | 56 | 57 | 00 | 00 |
| 110 | 00 | FD | 00 | 38 | 4C | 1E | 53 | 0E | 70 | 0A |
| 120 | 20 | 32 | 30 | 30 | 57 | 53 | 00 | 45 | | |

---

(08-09) ID Manufacturer Name = PHL
(10-11) Product ID Code (Non-Alphanumerical) = 0860 - (2144)
(12-15) Last 5 Digits of Serial Number = NOT SPECIFIED
(16) Week of Manufacture = 27
(17) Year of Manufacture = 2007
(10-17) Complete Serial Number = NOT SPECIFIED
(18) EDID Structure Version Number = 1
(19) EDID Structure Revision Number = 3
(20) VIDEO INPUT DEFINITION : =
Separate Sync, Composite Sync, Sync on Green,
Analog signal, 0.700V/0.300V (1.000 Vp-p)
(21) Maximum Horizontal Image Size = 400mm
(22) Maximum Vertical Image Size = 250mm
(23) Display Gamma = 2.20
(24) DPMS Supported Feature: = Active Off.
Display type = RGB color display

(25-34) CHROMA INFO:
Red x = 0.639 Green x = 0.297
Blue x = 0.146 White x = 0.312
Red y = 0.342 Green y = 0.614
Blue y = 0.067 White y = 0.328

(35) ESTABLISHED TIMING I:
720 x 400 @ 70Hz (VGA, IBM)
640 x 480 @ 60Hz (VESA)
640 x 480 @ 67Hz (MAC II, Apple)
640 x 480 @ 72Hz (VESA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 56Hz (VESA)
800 x 600 @ 60Hz (VESA)

(36) ESTABLISHED TIMING II:
800 x 600 @ 72Hz (VESA)
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (MAC II, Apple)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)

(37) Manufacturer's Reserved Timing:
1152 x 870 @ 75Hz (MAC II, Apple)

(38-53) Standard Timing Identification:
#1: 1152 x 864 @ 75Hz
#2: 1440 x 900 @ 60Hz
#3: 1440 x 900 @ 75Hz
#4: (44) not specified
#5: (46) not specified
#6: (48) not specified
#7: (50) not specified
#8: (52) not specified

(54-71) Detail Timing Description #1: 1440x900
Pixel Clock=106.5MHz

---

Horizontal Image Size=400mm
Vertical Image Size=250mm
Refresh Mode:
Non-Interlaced Normal display, no stereo

HORIZONTAL:
Active Time = 1440 pixels
Blanking Time = 464 pixels
Sync Offset = 80 pixels
Sync Pulse Width = 152 pixels
Border = 0 pixels
Frequency = 55.9 kHz

VERTICAL:
Active Time = 900 lines
Blanking Time = 34 lines
Sync Offset = 3 lines
Sync Pulse Width = 6 lines
Border = 0 lines
Frequency = 59.9 Hz

Sync configuration: Digital separate, V(+), H(-)

(72-89) Monitor Description:

---

Monitor S/N: BZ10725070710

(90-107) Monitor Description:

---

Monitor Name: Philips 190VW

(108-125) Monitor Description:

---

Monitor Range Limits:
Vertical Frequency (min) = 56Hz
Vertical Frequency (max) = 76Hz
Horizontal Frequency (min) = 30KHz
Horizontal Frequency (max) = 83KHz
Maximum Supported Pixel Clock = 140MHz

(127) Checksum OK.

**Safety instruction, warnings and notes**

index of this chapter:
1 Safety Instructions
2 Warnings
3 Notes

1 Safety Instructions

Safety regulations require that during a repair:
a. Connect the set to the AC Power via an isolation transformer (> 800 VA).
b. Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.



Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

a. Route the wire trees correctly and fix them with the mounted cable clamps.
b. Check the insulation of the AC Power lead for external damage.
c. Check the strain relief of the AC Power cord for proper function.
d. Check the electrical DC resistance between the AC Power plug and the secondary side (only for sets which have a AC Power isolated power supply):
 * Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
 * Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
 * Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
 * Switch "off" the set, and remove the wire between the two Pins of the AC Power plug.
e. Check the cabinet for defects, to avoid touching of any inner parts by the customer.

2 Warnings

a. All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠ ). Careless handling during repair can reduce life drastically. Make sure that, during repair,
you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
b. Be careful during measurements in the high voltage section.
c. Never replace modules or other components while the unit is switched "on".
d. When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

3 Notes

3.1 General

Measure the voltages and waveforms with regard to the chassis ground or hot ground, depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative.

The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on

3.2 Schematic Notes

All resistor values are in ohms and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 Kohm).

Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).

All capacitor values are given in micro-farads ( $X10^{-6}$), nano-farads (n= $X10^{-9}$), or pico-farads (p= $X10^{-12}$).

Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).

An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.

The correct component values are listed in the Electrical Replacement Parts List. Therefore, always check this list when there is any doubt.

3.3 Lead Free Solder

Philips CE is going to produce lead-free sets (PBF) from 1.1.2005 onwards.
Lead-free sets will be indicated by the PHILIPS-lead-free logo on the Printed Wiring Boards (PWB):


Figure 2-1 Lead-free logo

This sign normally has a diameter of 6 mm, but if there is less space on a board also 3 mm is possible.

In case of doubt wether the board is lead-free or not (or with mixed technologies), you can use the following method:
 * Always use the highest temperature to solder, when using SAC305 (see also instructions below).
 * De-solder thoroughly (clean solder joints to avoid mix of two alloys).

**Caution**: For BGA-ICs, you must use the correct temperature profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *http://www.atyourservice.ce.philips.com/*
You will find this and more technical information within the "Magazine", chapter "Workshop information".
For additional questions please contact your local repair desk.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

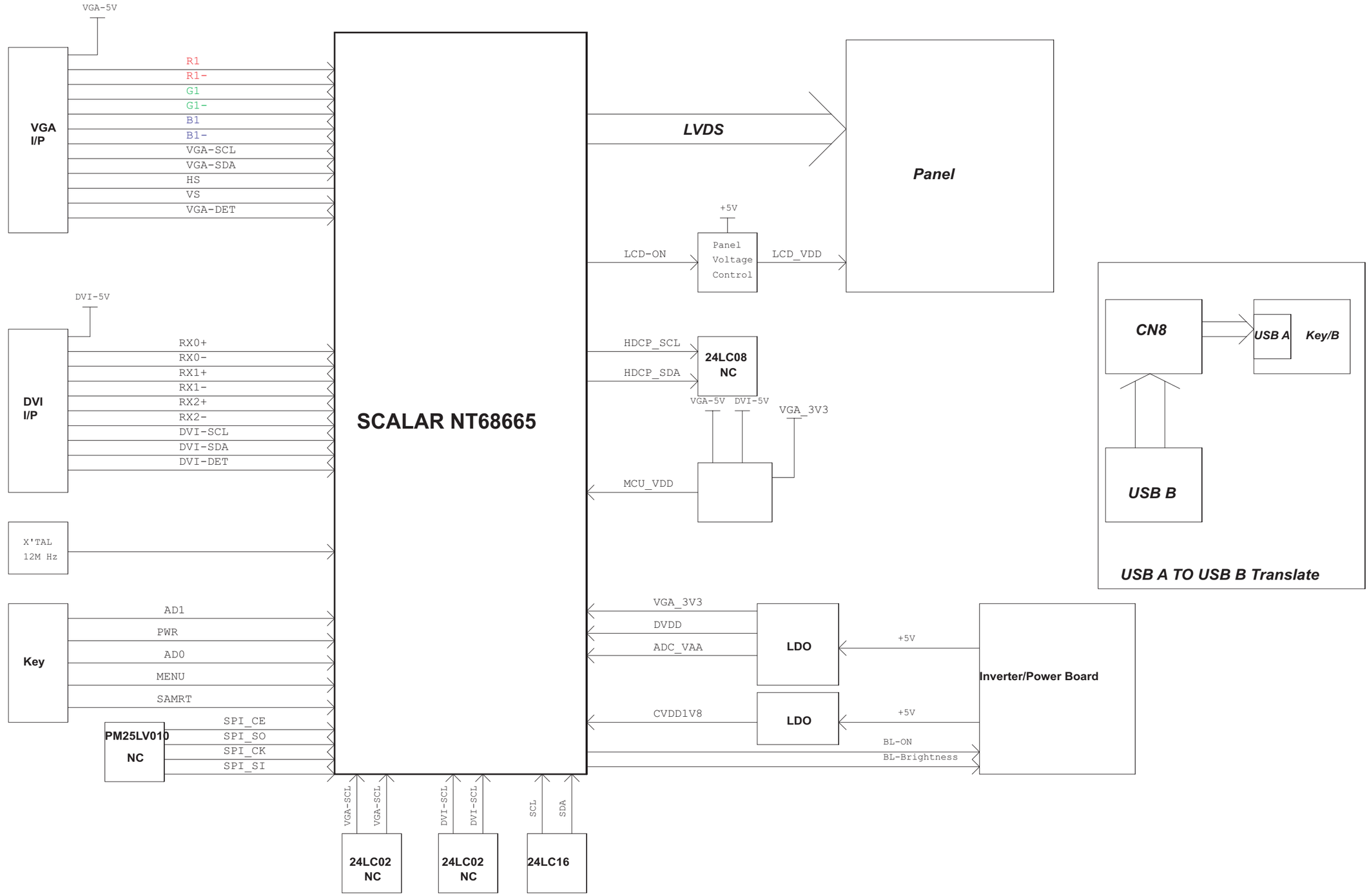
Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment.
In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.

Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able
 - To reach at least a solder-tip temperature of 400 degree C.
 - To stabilise the adjusted temperature at the solder-tip.
 - To exchange solder-tips for different applications.

# Block Diagram



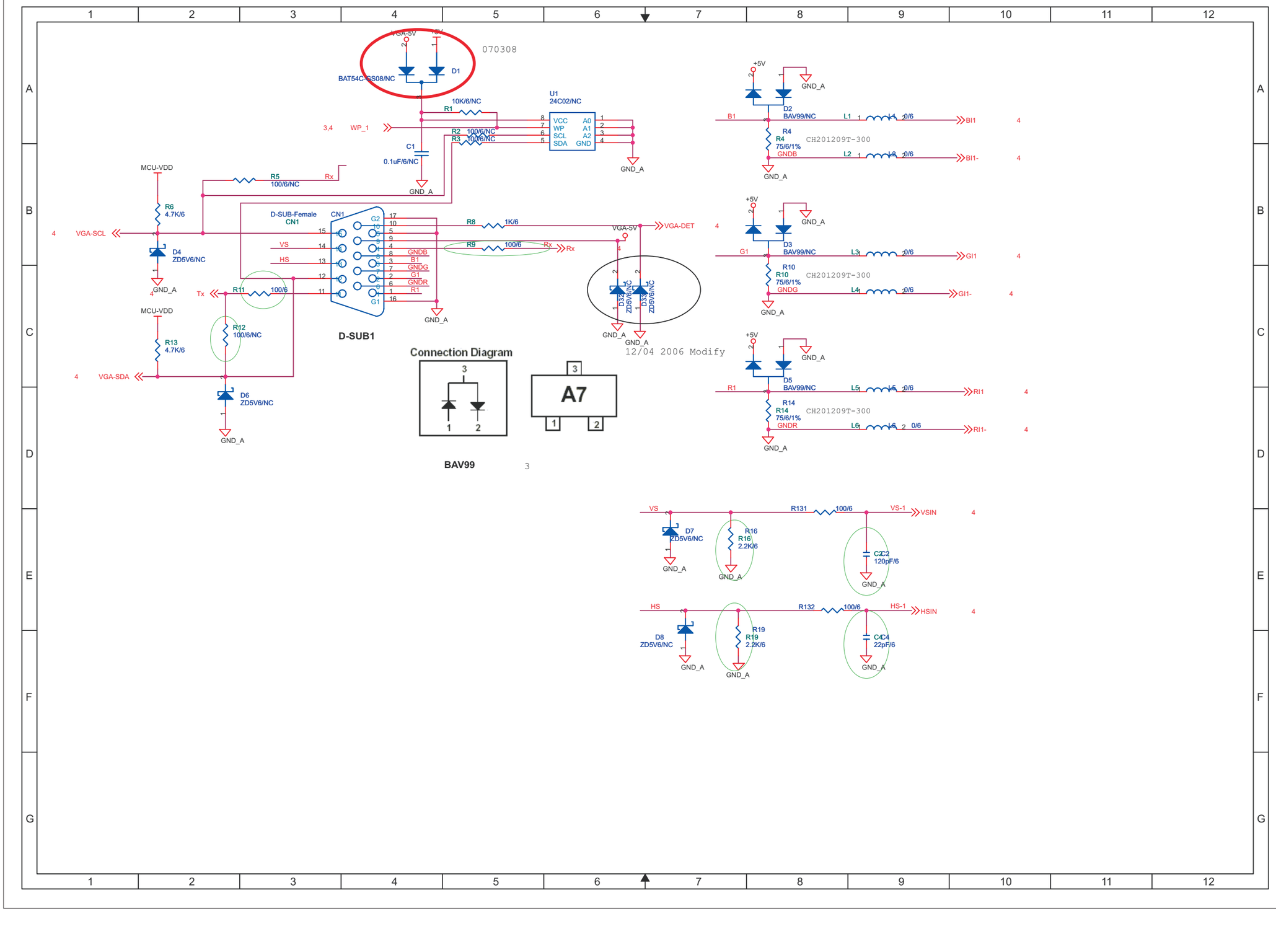




# Schematic Diagram(Scaler Board - VGA Input)







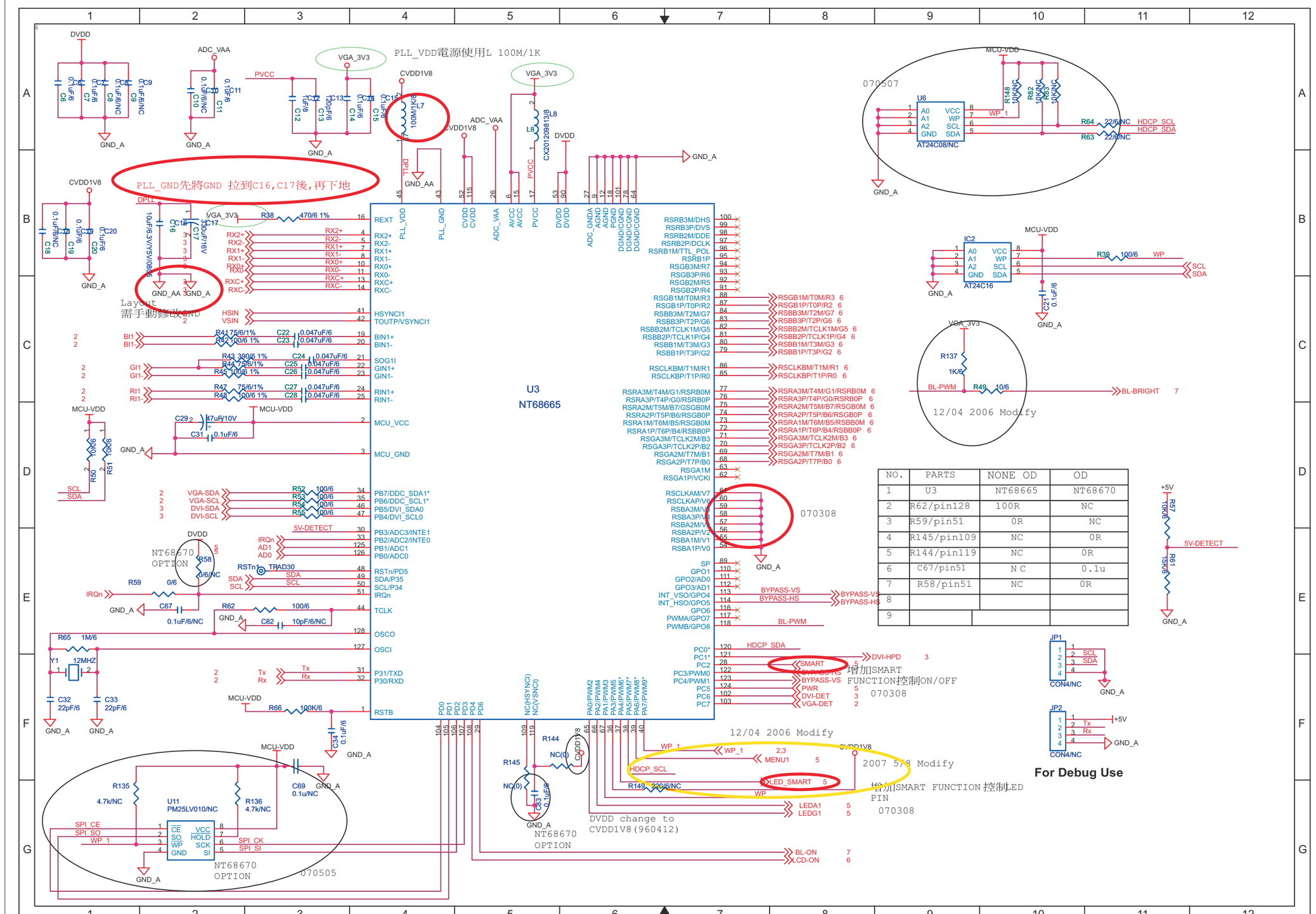

**S-A1**

| | |
|---|---|
| C1 | B4 |
| C2 | E8 |
| C4 | E8 |
| CN1 | B3 |
| D1 | A4 |
| D2 | A7 |
| D3 | B7 |
| D4 | B2 |
| D5 | C7 |
| D6 | C2 |
| D7 | D7 |
| D8 | E7 |
| D32 | C6 |
| D33 | C6 |
| L1 | A8 |
| L2 | B8 |
| L3 | B8 |
| L4 | C8 |
| L5 | C8 |
| L6 | D9 |
| R1 | A5 |
| R2 | A5 |
| R3 | A5 |
| R4 | A7 |
| R5 | B2 |
| R6 | B2 |
| R8 | B5 |
| R9 | B5 |
| R10 | B7 |
| R11 | C3 |
| R12 | C2 |
| R13 | C2 |
| R14 | C7 |
| R16 | E7 |
| R19 | E7 |
| R131 | E8 |
| R132 | E8 |
| U1 | A5 |

# Schematic Diagram(Scaler Board - Scaler NT 68665)








| NO. | PARTS | NONE OD | OD |
|---|---|---|---|
| 1 | U3 | NT68665 | NT68670 |
| 2 | R62/pin128 | 100R | NC |
| 3 | R59/pin51 | 0R | NC |
| 4 | R145/pin109 | NC | 0R |
| 5 | R144/pin119 | NC | 0R |
| 6 | C67/pin51 | N C | 0.1u |
| 7 | R58/pin51 | NC | 0R |
| 8 | | | |
| 9 | | | |

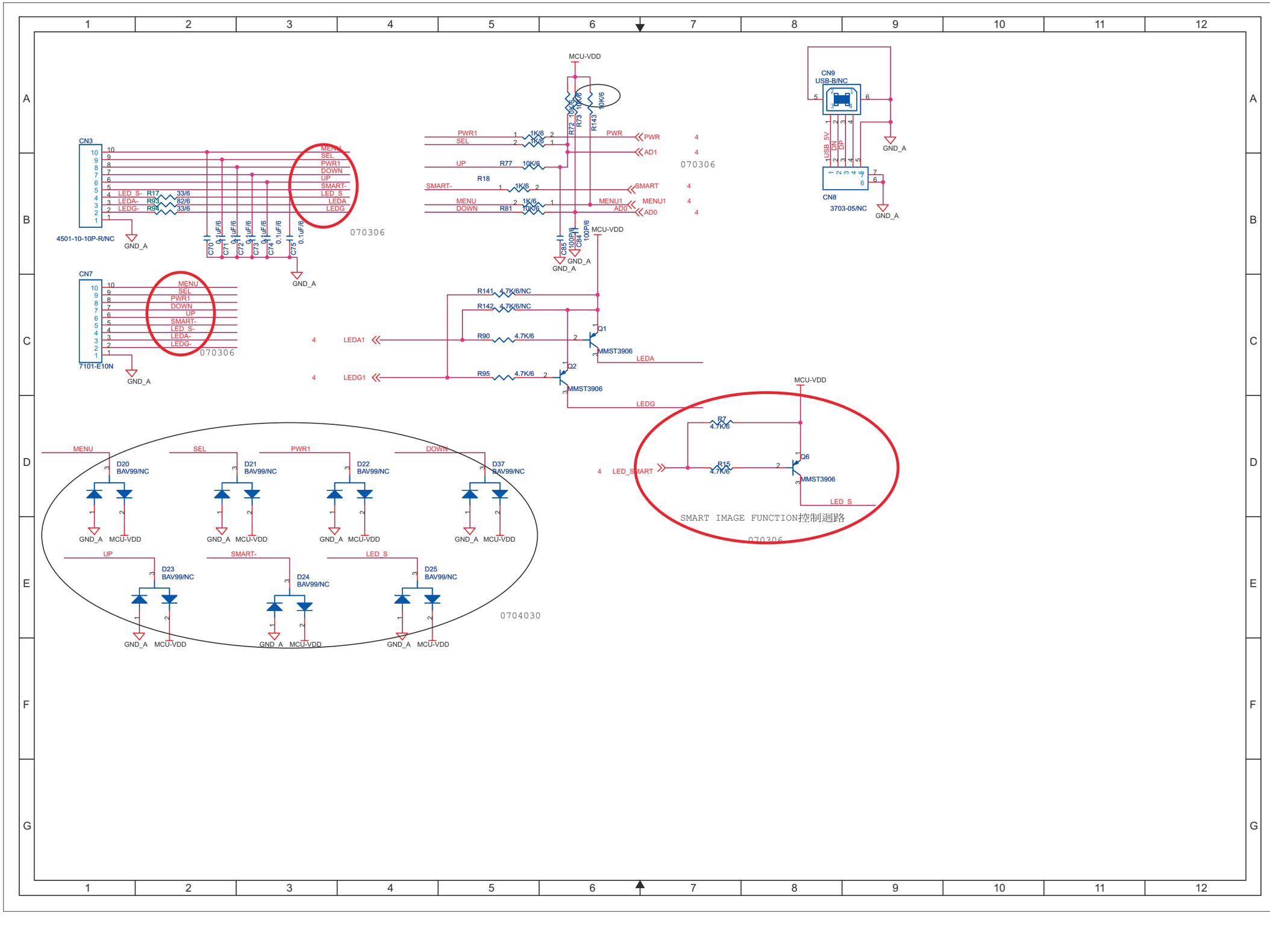
## S-A2

| | | | |
|---|---|---|---|
| C6 | A1 | R39 | B10 |
| C7 | A1 | R41 | C2 |
| C8 | A1 | R42 | C2 |
| C9 | A1 | R43 | C2 |
| C10 | A2 | R44 | C2 |
| C11 | A2 | R45 | C2 |
| C12 | A3 | R47 | C2 |
| C13 | A3 | R48 | C2 |
| C14 | A3 | R49 | C9 |
| C15 | A4 | R50 | D1 |
| C16 | B2 | R51 | D1 |
| C17 | B2 | R52 | D3 |
| C18 | B1 | R53 | D3 |
| C19 | B1 | R54 | D3 |
| C20 | B1 | R55 | D3 |
| C21 | C10 | R57 | D11 |
| C22 | C3 | R58 | E2 |
| C23 | C3 | R59 | E2 |
| C24 | C3 | R61 | E11 |
| C25 | C3 | R62 | E3 |
| C26 | C3 | R63 | A10 |
| C27 | C3 | R64 | A10 |
| C28 | C3 | R65 | E1 |
| C29 | C2 | R66 | F3 |
| C31 | D2 | R82 | A10 |
| C32 | F1 | R83 | A10 |
| C33 | F1 | R135 | F1 |
| C34 | F3 | R136 | F2 |
| C67 | E2 | R137 | C9 |
| C69 | F3 | R144 | F5 |
| C82 | E3 | R145 | F5 |
| C83 | F5 | R148 | A10 |
| IC2 | B9 | R149 | F6 |
| JP1 | E10 | RSTn1 | E3 |
| JP2 | F10 | U11 | G2 |
| L7 | A4 | U3 | B4 |
| L8 | A5 | U6 | A9 |
| R38 | B3 | Y1 | E1 |

# Schematic Diagram(Scaler Board - Key USB)








## S-A3

| | |
|---|---|
| C70 | B2 |
| C71 | B2 |
| C72 | B2 |
| C73 | B3 |
| C74 | B3 |
| C75 | B3 |
| C84 | B6 |
| C85 | B6 |
| CN3 | A1 |
| CN7 | B1 |
| CN8 | B8 |
| CN9 | A8 |
| D20 | D1 |
| D21 | D2 |
| D22 | D3 |
| D23 | E1 |
| D24 | E3 |
| D25 | E4 |
| D37 | D5 |
| Q1 | C6 |
| Q2 | C6 |
| Q6 | D7 |
| R7 | D7 |
| R15 | D7 |
| R17 | B2 |
| R18 | B5 |
| R72 | A6 |
| R73 | A6 |
| R74 | A5 |
| R75 | A5 |
| R77 | B5 |
| R79 | B5 |
| R81 | B5 |
| R90 | B5 |
| R93 | B2 |
| R94 | B2 |
| R95 | B5 |
| R141 | B5 |
| R142 | B5 |
| R143 | A6 |

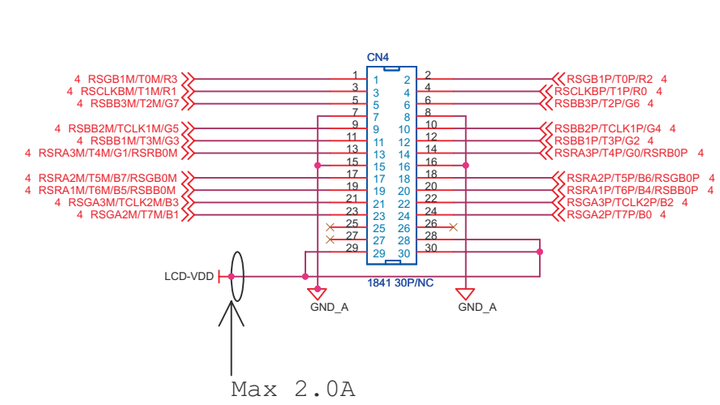
# Schematic Diagram(Scaler Board - Panel Output)

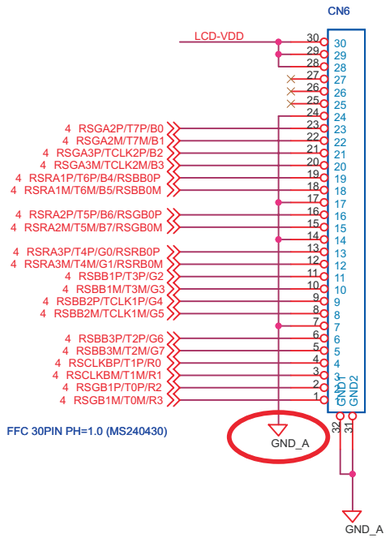


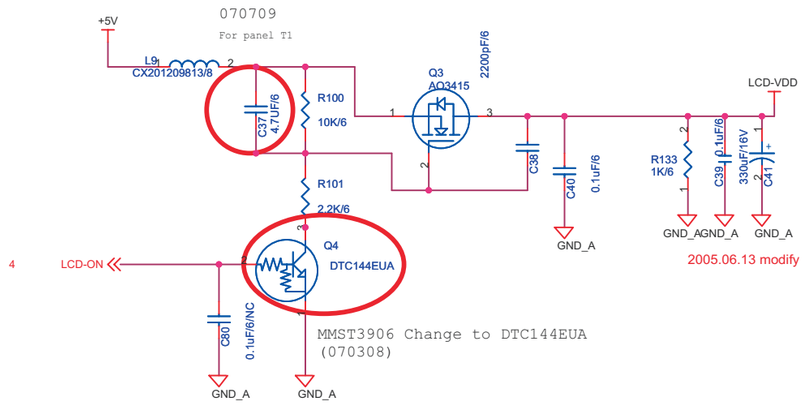


**S-A4**

| | |
|---|---|
| C37 | D2 |
| C38 | D4 |
| C39 | D5 |
| C40 | D4 |
| C41 | D5 |
| C80 | E2 |
| CN4 | A3 |
| CN6 | A8 |
| L9 | D2 |
| Q3 | D3 |
| Q4 | E2 |
| R100 | D2 |
| R101 | D2 |
| R133 | D5 |



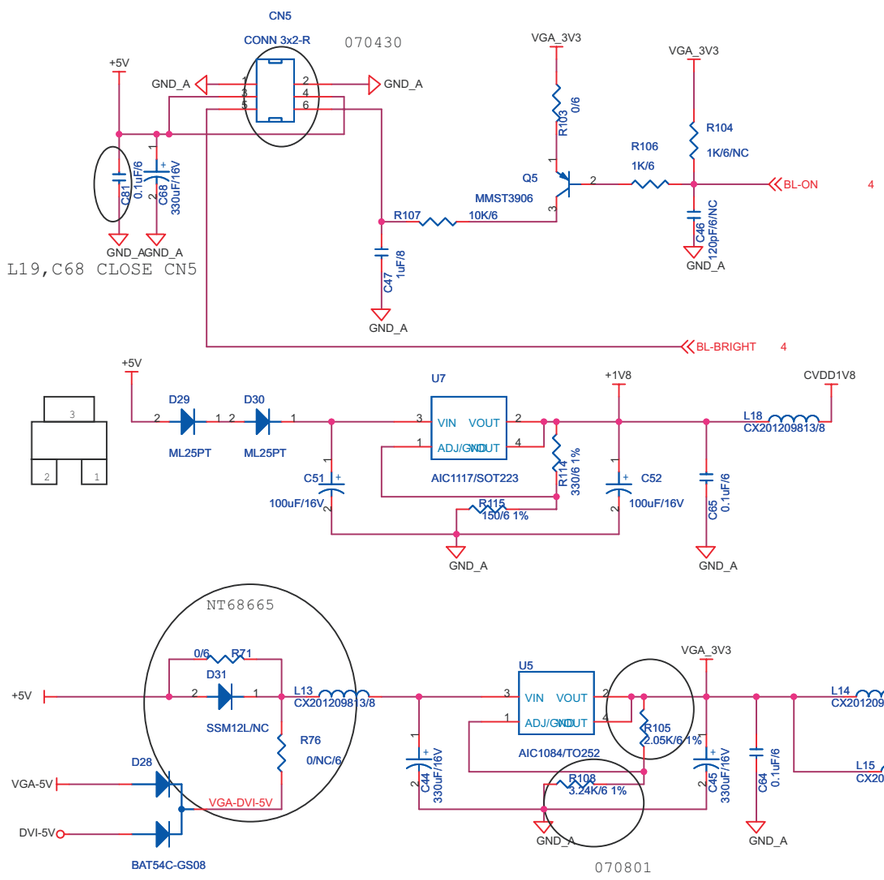



# Schematic Diagram(Scaler Board - Power)








| NO. | PARTS | NT68665 | NT68670 |
|---|---|---|---|
| 1 | D31 | NC | ADD |
| 2 | R71 | 0R | NA |
| 3 | R76 | NA | 0R |
| 4 | | | |
| 5 | | | |
| | | | |
| | | | |
| | | | |
| | | | |

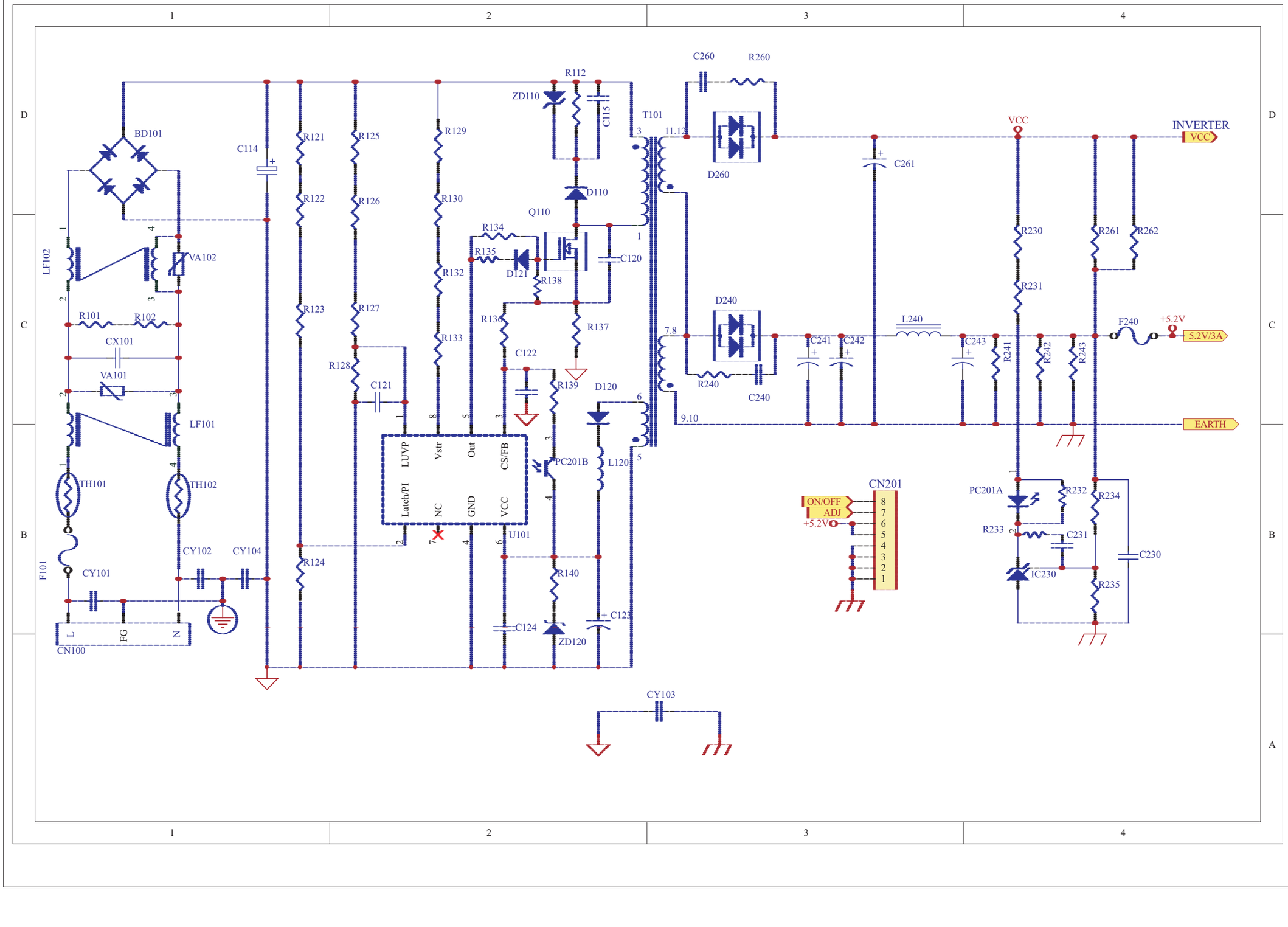
**S-A5**

| | |
|---|---|
| C44 | D3 |
| C45 | D5 |
| C46 | B5 |
| C47 | B3 |
| C51 | C2 |
| C52 | C4 |
| C64 | D5 |
| C65 | B5 |
| C68 | A1 |
| C81 | A1 |
| CN5 | A2 |
| D28 | D1 |
| D29 | B2 |
| D30 | B2 |
| D31 | D2 |
| D38 | A7 |
| D39 | B8 |
| L13 | D2 |
| L14 | D6 |
| L15 | D6 |
| L17 | A8 |
| L18 | B5 |
| Q5 | A4 |
| Q7 | A7 |
| R67 | B7 |
| R68 | B7 |
| R69 | A8 |
| R70 | B8 |
| R71 | D2 |
| R76 | D2 |
| R103 | A4 |
| R104 | A5 |
| R105 | D4 |
| R106 | A4 |
| R107 | B3 |
| R108 | D4 |
| R114 | C4 |
| R115 | C3 |
| U5 | D4 |
| U7 | B3 |

# Schematic Diagram(Power Board)







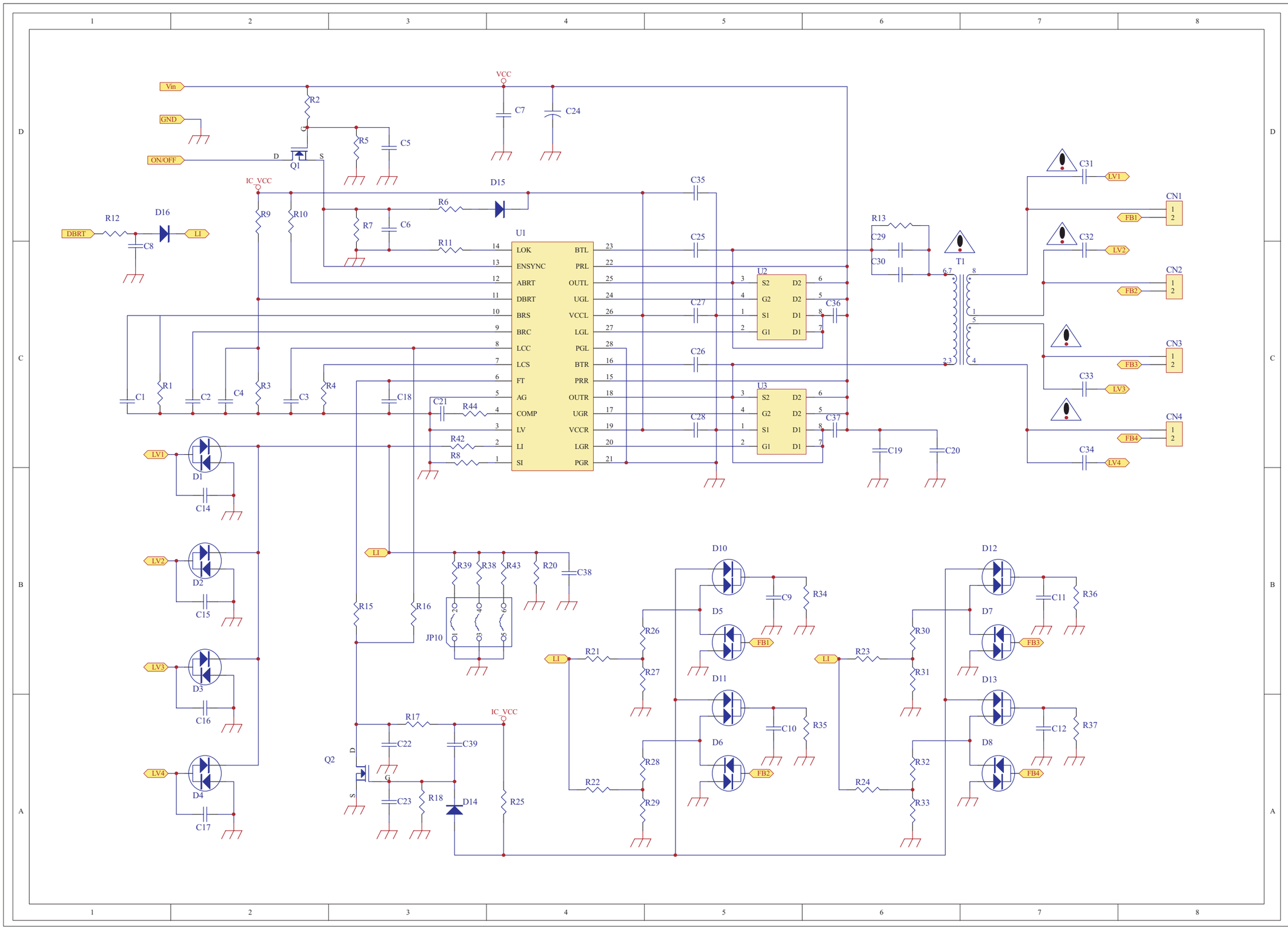

## P-A

| | |
|---|---|
| BD101 | D1 |
| C114 | D1 |
| C115 | D2 |
| C120 | C2 |
| C121 | C2 |
| C122 | C2 |
| C123 | B2 |
| C124 | B2 |
| C230 | B4 |
| C231 | B4 |
| C240 | C3 |
| C241 | C3 |
| C242 | C3 |
| C243 | C4 |
| C260 | D3 |
| C261 | D3 |
| CN100 | A1 |
| CN201 | B3 |
| CX101 | C1 |
| CY101 | B1 |
| CY102 | B1 |
| CY103 | A3 |
| CY104 | B1 |
| D110 | D2 |
| D120 | C2 |
| D121 | C2 |
| D240 | C3 |
| D260 | D3 |
| F101 | B1 |
| F101 | B1 |
| F240 | C4 |
| IC230 | B4 |
| L120 | B2 |
| L240 | C3 |
| LF101 | B1 |
| LF101 | C1 |
| LF102 | C1 |
| PC201A | B4 |
| PC201B | B2 |
| Q110 | D2 |
| R101 | C1 |
| R102 | C1 |
| R112 | D2 |
| R121 | D1 |
| R122 | D1 |
| R125 | D2 |
| R126 | D2 |
| R127 | C2 |
| R129 | D2 |
| R130 | D2 |
| R132 | C2 |
| R133 | C2 |
| R134 | C2 |
| R135 | C2 |
| R136 | C2 |
| R138 | C2 |
| R139 | C2 |
| R140 | B2 |
| R230 | C4 |
| R231 | C4 |
| R232 | B4 |
| R233 | B4 |
| R234 | B4 |
| R235 | B4 |
| R240 | C3 |
| R241 | C4 |
| R242 | C4 |
| R243 | C4 |
| R260 | D3 |
| R261 | C4 |
| R262 | C4 |
| T101 | D3 |
| TH101 | B1 |
| TH102 | B1 |
| U101 | B2 |
| VA101 | C1 |
| VA102 | C1 |

# Schematic Diagram(Power Board)








## P-B

| | | | |
|---|---|---|---|
| C1 | C1 | FB4 | A7 |
| C2 | C2 | FB4 | C8 |
| C3 | C2 | JP10 | B3 |
| C4 | C2 | L1 | D2 |
| C5 | D3 | L1 | B3 |
| C6 | D3 | L1 | B4 |
| C7 | D4 | L1 | B6 |
| C8 | C1 | LV1 | C1 |
| C9 | B5 | LV1 | D8 |
| C10 | A5 | LV2 | B1 |
| C11 | B7 | LV2 | C8 |
| C12 | A7 | LV3 | B1 |
| C14 | B2 | LV3 | C8 |
| C15 | B2 | LV4 | A1 |
| C16 | A2 | LV4 | C8 |
| C17 | A2 | Q1 | D2 |
| C18 | C3 | Q2 | A3 |
| C19 | C6 | R1 | C1 |
| C20 | C6 | R1 | C2 |
| C21 | C3 | R2 | D2 |
| C22 | A3 | R3 | C2 |
| C23 | A3 | R4 | C3 |
| C24 | D4 | R5 | D3 |
| C25 | D5 | R6 | D3 |
| C26 | C5 | R7 | D3 |
| C27 | C5 | R8 | C3 |
| C28 | C5 | R9 | D2 |
| C29 | D6 | R10 | D2 |
| C30 | C6 | R11 | C3 |
| C31 | D7 | R11 | D3 |
| C32 | D7 | R12 | D1 |
| C33 | C7 | R13 | D6 |
| C34 | C7 | R15 | B3 |
| C35 | D5 | R16 | B3 |
| C36 | C6 | R17 | A3 |
| C37 | C6 | R18 | A3 |
| C38 | B4 | R20 | B4 |
| C39 | A3 | R21 | B4 |
| CN1 | D8 | R22 | A4 |
| CN2 | C8 | R23 | B6 |
| CN3 | C8 | R24 | A6 |
| CN4 | C8 | R25 | A4 |
| D10 | B5 | R26 | B5 |
| D11 | B5 | R27 | B5 |
| D12 | B7 | R28 | A5 |
| D13 | B7 | R29 | A5 |
| D14 | A3 | R30 | B6 |
| D15 | D4 | R31 | B6 |
| D16 | D1 | R32 | A6 |
| D16 | B2 | R33 | A6 |
| D2 | B2 | R34 | B6 |
| D3 | B2 | R35 | A6 |
| D4 | A2 | R36 | B7 |
| D5 | B5 | R37 | A7 |
| D6 | A5 | R38 | B4 |
| D7 | B7 | R39 | B3 |
| D8 | A7 | R42 | C3 |
| FB1 | B5 | R43 | B4 |
| FB1 | D8 | R44 | C3 |
| FB2 | A5 | T1 | C7 |
| FB2 | C8 | U1 | D4 |
| FB3 | B7 | U2 | C5 |
| FB3 | C8 | U3 | C5 |

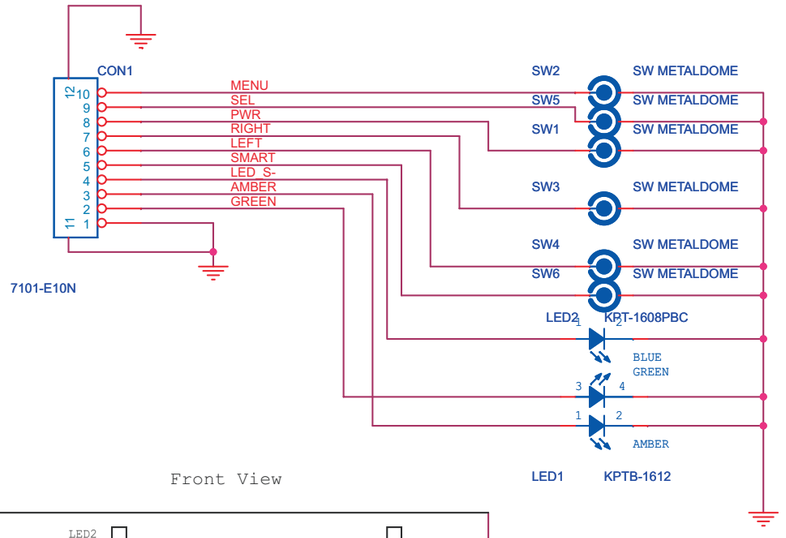
# Schematic Diagram(Button Board)



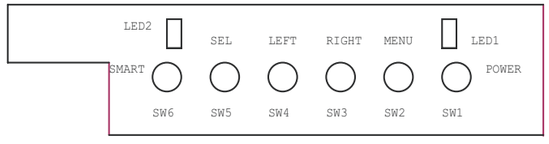


**B-1**

| | |
|---|---|
| CON1 | C2 |
| LED1 | E5 |
| SW1 | D5 |
| SW3 | D5 |
| SW4 | D5 |
| SW6 | D5 |
| LED2 | D5 |
| SW2 | C5 |
| SW5 | C5 |



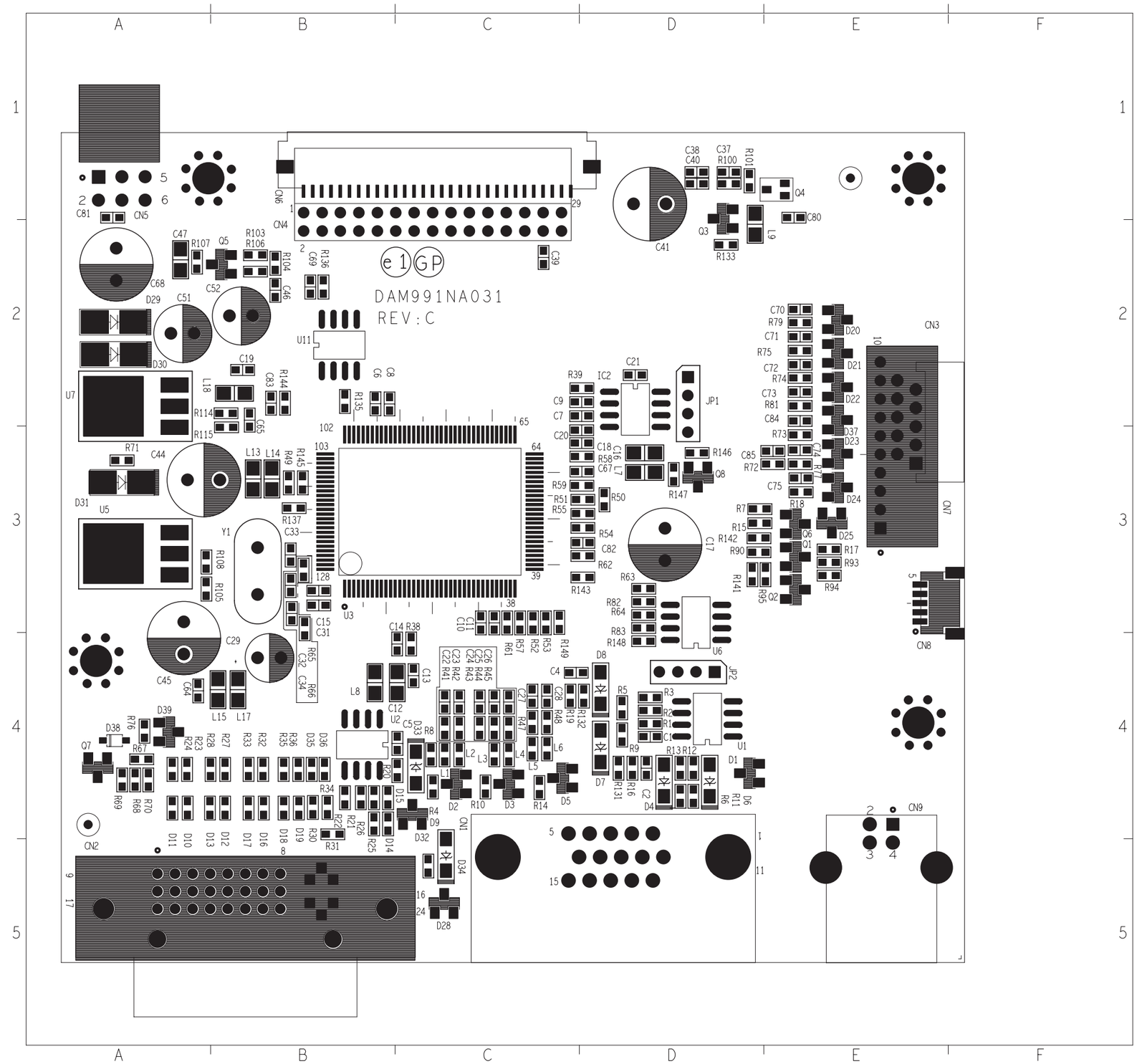

Front View



# Layout Side View (Scaler Board)








S-A

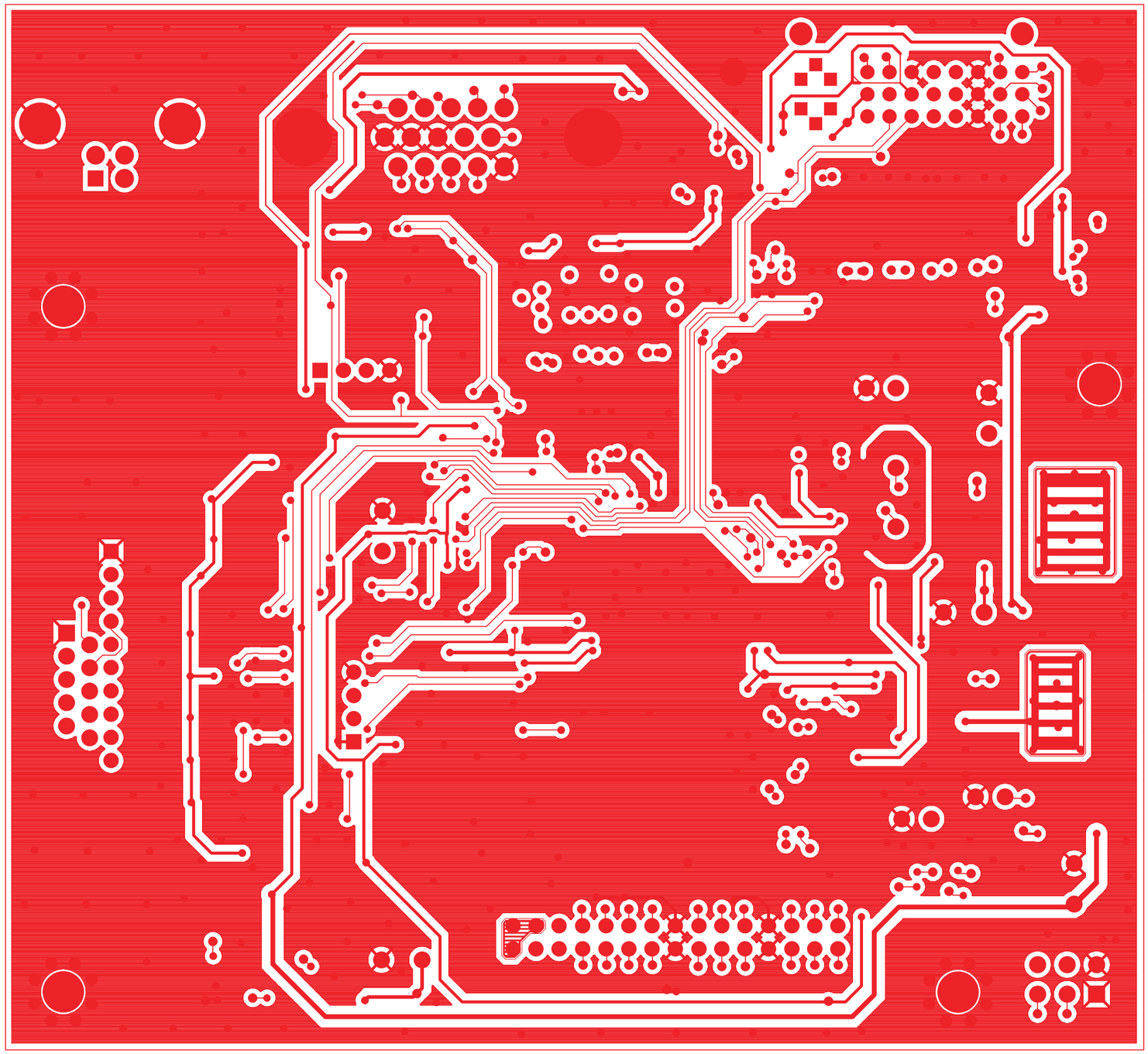
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| C1 | D4 | CN1 | C4 | Q2 | E3 | R62 | D3 |
| C2 | D4 | CN2 | A5 | Q3 | D2 | R63 | D3 |
| C4 | C4 | CN3 | E2 | Q4 | E1 | R64 | D3 |
| C5 | C4 | CN4 | B2 | Q5 | B2 | R65 | B4 |
| C6 | B2 | CN5 | A1 | Q6 | E3 | R66 | B4 |
| C7 | C2 | CN6 | B1 | Q7 | A4 | R67 | A4 |
| C8 | B2 | CN7 | E3 | Q8 | D3 | R68 | A4 |
| C9 | C2 | CN8 | E4 | R1 | D4 | R69 | A4 |
| C10 | C3 | CN9 | E4 | R2 | D4 | R70 | A4 |
| C11 | C3 | D1 | D4 | R3 | D4 | R71 | A3 |
| C12 | B4 | D2 | C4 | R4 | C4 | R72 | D3 |
| C13 | C4 | D3 | C4 | R5 | D4 | R72 | D3 |
| C14 | C3 | D4 | D4 | R6 | D4 | R73 | E3 |
| C15 | B3 | D5 | C4 | R8 | C4 | R74 | E2 |
| C16 | D3 | D6 | D4 | R9 | D4 | R75 | E2 |
| C17 | D3 | D7 | D4 | R10 | C4 | R76 | A4 |
| C18 | D3 | D8 | D4 | R11 | D4 | R77 | E3 |
| C19 | B2 | D9 | C4 | R12 | D4 | R79 | E2 |
| C20 | C3 | D12 | B5 | R13 | D4 | R81 | E2 |
| C21 | D2 | D13 | B5 | R14 | C4 | R82 | D3 |
| C22 | C4 | D14 | B5 | R15 | D3 | R83 | D3 |
| C23 | C4 | D15 | C4 | R16 | D4 | R90 | D3 |
| C24 | C4 | D16 | B5 | R17 | E3 | R93 | E3 |
| C25 | C4 | D17 | B5 | R18 | E3 | R94 | E3 |
| C26 | C4 | D18 | B4 | R19 | C4 | R95 | D3 |
| C27 | C4 | D19 | B4 | R20 | B4 | R95 | E3 |
| C28 | C4 | D20 | E2 | R21 | B4 | R100 | D1 |
| C29 | B4 | D21 | E2 | R22 | B4 | R101 | D1 |
| C31 | B3 | D22 | E2 | R23 | A4 | R103 | B2 |
| C31 | B4 | D23 | E3 | R24 | A4 | R104 | B2 |
| C32 | B4 | D24 | E3 | R25 | B5 | R105 | B3 |
| C33 | B3 | D25 | E3 | R26 | B4 | R106 | B2 |
| C34 | B4 | D28 | C5 | R27 | B4 | R107 | A2 |
| C37 | D1 | D29 | A2 | R28 | B4 | R108 | B3 |
| C38 | D1 | D30 | A2 | R30 | B4 | R114 | A2 |
| C39 | C2 | D31 | A3 | R31 | B5 | R115 | A3 |
| C40 | D1 | D32 | C5 | R32 | B4 | R131 | D4 |
| C41 | D2 | D33 | C4 | R33 | B4 | R132 | D4 |
| C44 | A3 | D34 | C5 | R34 | B4 | R133 | D2 |
| C45 | A4 | D35 | B4 | R35 | B4 | R135 | B2 |
| C46 | B2 | D36 | B4 | R36 | B4 | R136 | B2 |
| C47 | A2 | D37 | E3 | R38 | C3 | R137 | B3 |
| C51 | A2 | D38 | A4 | R39 | C2 | R141 | D3 |
| C52 | B2 | D39 | A4 | R41 | C4 | R142 | D3 |
| C64 | A4 | IC2 | D2 | R42 | C4 | R143 | C3 |
| C65 | B2 | JP1 | D2 | R43 | C4 | R143 | D3 |
| C67 | D3 | JP2 | D4 | R44 | C4 | R144 | B2 |
| C68 | A2 | L2 | C4 | R45 | C4 | R145 | B3 |
| C69 | B2 | L3 | C4 | R47 | C4 | R146 | D3 |
| C70 | E2 | L4 | C4 | R48 | C4 | R147 | D3 |
| C71 | E2 | L5 | C4 | R49 | B3 | R148 | D4 |
| C72 | E2 | L6 | C4 | R50 | D3 | R149 | C4 |
| C73 | E2 | L7 | D3 | R51 | C3 | U11 | B2 |
| C74 | E3 | L8 | B4 | R52 | C4 | U11 | D4 |
| C75 | E3 | L9 | E2 | R53 | C4 | U2 | B4 |
| C80 | E1 | L13 | B3 | R54 | D3 | U3 | B3 |
| C81 | A1 | L14 | B3 | R55 | C3 | U5 | A3 |
| C82 | D3 | L15 | B4 | R57 | C4 | U6 | D4 |
| C83 | B2 | L17 | B4 | R58 | D3 | U7 | A2 |
| C84 | E2 | L18 | A2 | R59 | C3 | Y1 | B3 |
| C85 | D3 | Q1 | E3 | R61 | C4 | | |

# Layout Side View (Scaler Board)





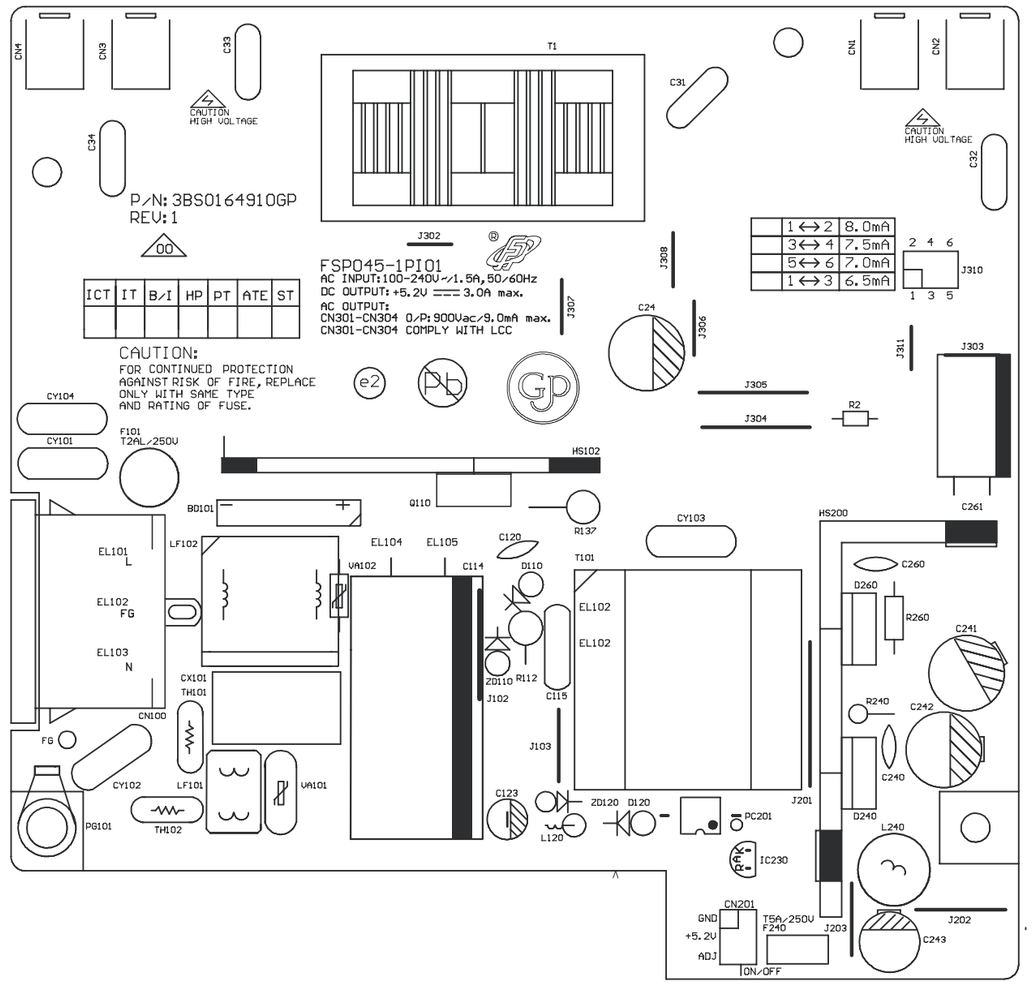
S-B



# Layout Side View (Power Board)







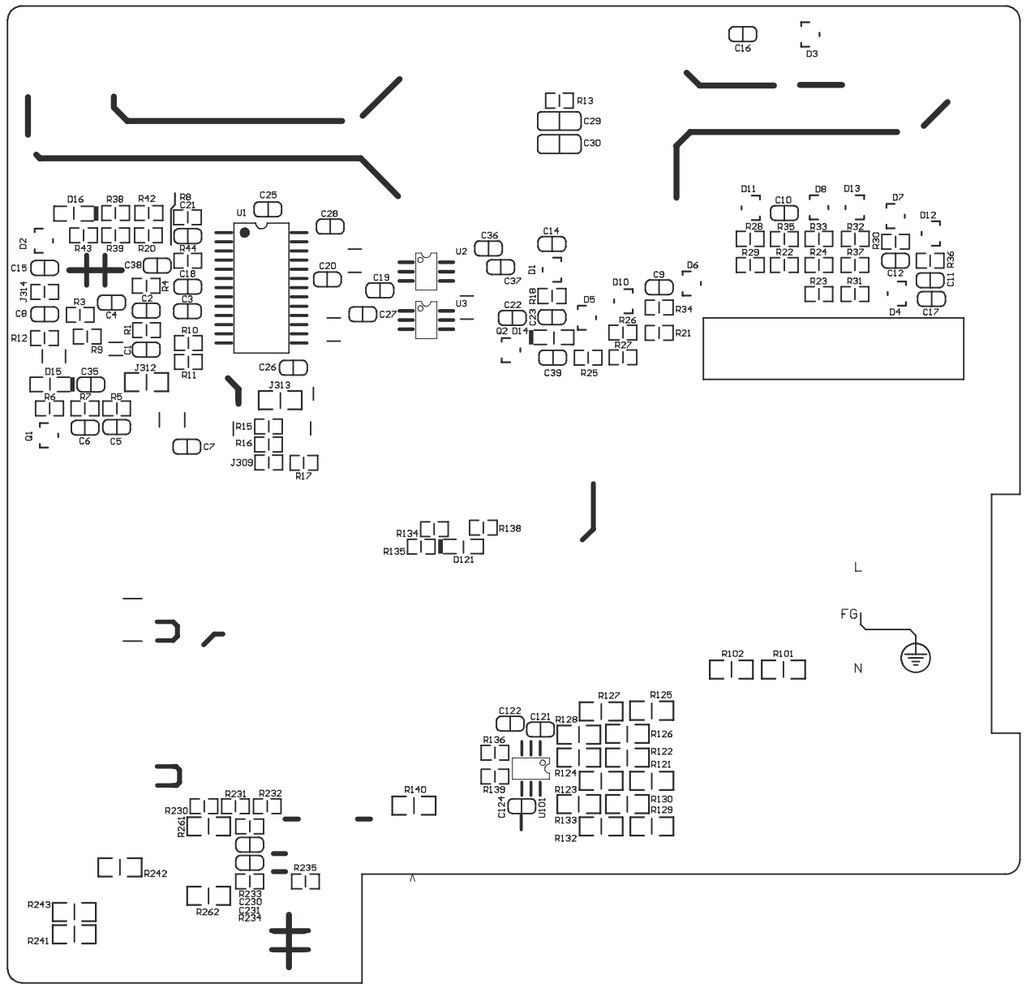

**P-A**

| | | | |
|---|---|---|---|
| BD101 | D1 | R112 | D2 |
| C114 | D1 | R121 | D1 |
| C115 | D2 | R122 | D1 |
| C120 | C2 | R123 | C1 |
| C121 | C2 | R125 | D2 |
| C122 | C2 | R126 | D2 |
| C123 | B2 | R127 | C2 |
| C124 | B2 | R128 | C2 |
| C230 | B4 | R129 | D2 |
| C231 | B4 | R130 | D2 |
| C240 | C3 | R132 | C2 |
| C241 | C3 | R133 | C2 |
| C242 | C3 | R134 | C2 |
| C243 | C4 | R135 | C2 |
| C260 | D3 | R136 | C2 |
| C261 | D3 | R137 | C2 |
| CN100 | A1 | R138 | C2 |
| CN201 | B3 | R139 | C2 |
| CX101 | C1 | R140 | B2 |
| CY101 | B1 | R230 | C4 |
| CY102 | B1 | R231 | C4 |
| CY103 | A3 | R232 | B4 |
| CY104 | B1 | R233 | B4 |
| D110 | D2 | R234 | B4 |
| D120 | C2 | R235 | B4 |
| D121 | C2 | R240 | C3 |
| D240 | C3 | R241 | C4 |
| D260 | D3 | R242 | C4 |
| F101 | B1 | R243 | C4 |
| F240 | C4 | R260 | D3 |
| IC230 | B4 | R261 | C4 |
| L120 | B2 | R262 | C4 |
| L240 | C3 | T101 | D2 |
| LF101 | B1 | TH101 | B1 |
| LF102 | C1 | TH102 | B1 |
| PC201 | B2 | U101 | B2 |
| PC201 | B4 | VA101 | C1 |
| Q110 | D2 | VA102 | C1 |
| R101 | C1 | ZD110 | D2 |
| R102 | C1 | ZD120 | A2 |

# Layout Side View (Power Board)







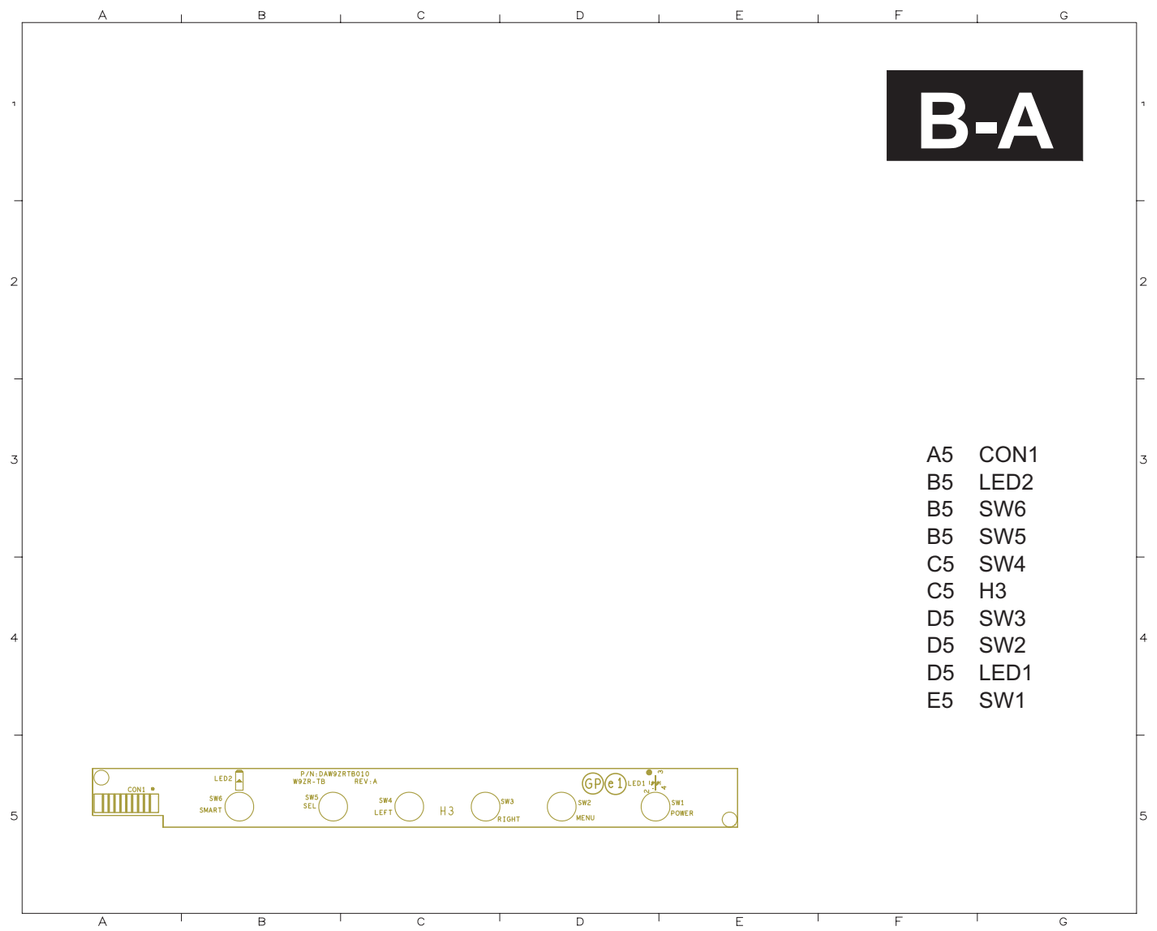

## P-B

| | | | | | |
|---|---|---|---|---|---|
| C1 | C1 | CN4 | C8 | R5 | D3 |
| C2 | C2 | D1 | B2 | R6 | D3 |
| C3 | C2 | D2 | B2 | R7 | D3 |
| C4 | C2 | D3 | B2 | R8 | C3 |
| C5 | D3 | D4 | A2 | R9 | D2 |
| C6 | D3 | D5 | B5 | R10 | D2 |
| C7 | D4 | D6 | A5 | R11 | C3 |
| C8 | C1 | D7 | B7 | R12 | D1 |
| C9 | B5 | D8 | A7 | R13 | D6 |
| C10 | A5 | D10 | B5 | R15 | B3 |
| C11 | B7 | D11 | B5 | R16 | B3 |
| C12 | A7 | D12 | B7 | R17 | A3 |
| C14 | B2 | D13 | B7 | R18 | A3 |
| C15 | B2 | D14 | A3 | R20 | B4 |
| C16 | A2 | D15 | D4 | R21 | B4 |
| C17 | A2 | D16 | D1 | R22 | A4 |
| C18 | C3 | FB1 | B5 | R23 | B6 |
| C19 | C6 | FB1 | D8 | R24 | A6 |
| C20 | C6 | FB2 | A5 | R25 | A4 |
| C21 | C3 | FB2 | C8 | R26 | B5 |
| C22 | A3 | FB3 | B7 | R27 | B5 |
| C23 | A3 | FB3 | C8 | R28 | A5 |
| C24 | D4 | FB4 | A7 | R29 | A5 |
| C25 | D5 | FB4 | C8 | R30 | B6 |
| C26 | C5 | L1 | D2 | R31 | B6 |
| C27 | C5 | L1 | B3 | R32 | A6 |
| C28 | C5 | L1 | B4 | R33 | A6 |
| C29 | D6 | L1 | B6 | R34 | B6 |
| C30 | C6 | LV1 | C1 | R35 | A6 |
| C31 | D7 | LV1 | D8 | R36 | B7 |
| C32 | D7 | LV2 | B1 | R37 | A7 |
| C33 | C7 | LV2 | C8 | R38 | B3 |
| C34 | C7 | LV3 | B1 | R38 | B4 |
| C35 | D5 | LV3 | C8 | R39 | B3 |
| C36 | C6 | LV4 | A1 | R42 | C3 |
| C37 | C6 | LV4 | C8 | R43 | B4 |
| C38 | B4 | Q1 | D2 | R44 | C3 |
| C39 | A3 | R1 | C1 | U1 | D4 |
| CN1 | D8 | R2 | D2 | U2 | C5 |
| CN2 | C8 | R3 | C2 | U3 | C5 |
| CN3 | C8 | R4 | C3 | | |

# Layout Side View (Button Board)







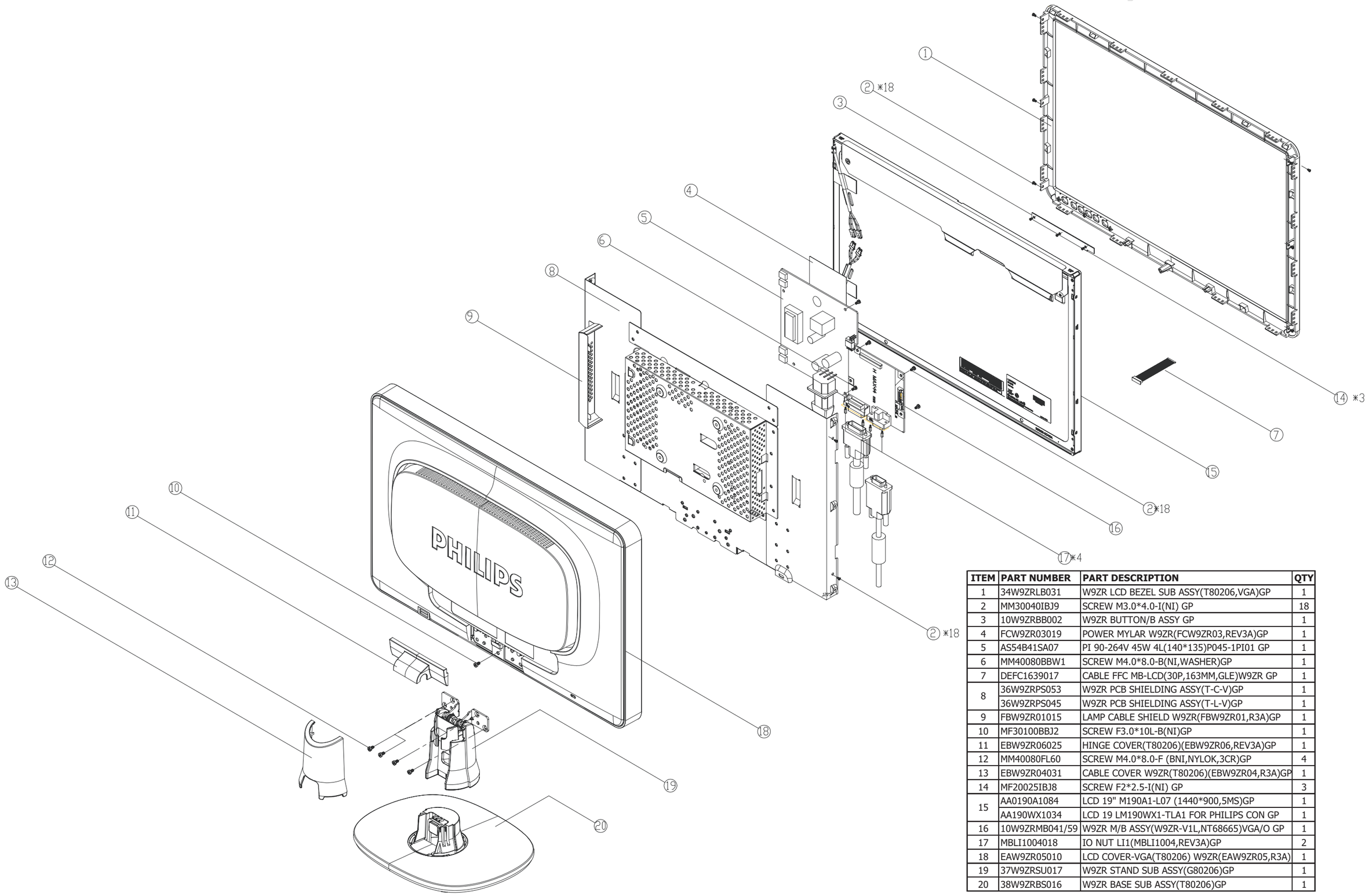




# Exploded View








| ITEM | PART NUMBER | PART DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 34W9ZRLB031 | W9ZR LCD BEZEL SUB ASSY(T80206,VGA)GP | 1 |
| 2 | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | 18 |
| 3 | 10W9ZRBB002 | W9ZR BUTTON/B ASSY GP | 1 |
| 4 | FCW9ZR03019 | POWER MYLAR W9ZR(FCW9ZR03,REV3A)GP | 1 |
| 5 | AS54B41SA07 | PI 90-264V 45W 4L(140*135)P045-1PI01 GP | 1 |
| 6 | MM40080BBW1 | SCREW M4.0*8.0-B(NI,WASHER)GP | 1 |
| 7 | DEFC1639017 | CABLE FFC MB-LCD(30P,163MM,GLE)W9ZR GP | 1 |
| 8 | 36W9ZRPS053 | W9ZR PCB SHIELDING ASSY(T-C-V)GP | 1 |
| | 36W9ZRPS045 | W9ZR PCB SHIELDING ASSY(T-L-V)GP | 1 |
| 9 | FBW9ZR01015 | LAMP CABLE SHIELD W9ZR(FBW9ZR01,R3A)GP | 1 |
| 10 | MF30100BBJ2 | SCREW F3.0*10L-B(NI)GP | 1 |
| 11 | EBW9ZR06025 | HINGE COVER(T80206)(EBW9ZR06,REV3A)GP | 1 |
| 12 | MM40080FL60 | SCREW M4.0*8.0-F (BNI,NYLOK,3CR)GP | 4 |
| 13 | EBW9ZR04031 | CABLE COVER W9ZR(T80206)(EBW9ZR04,R3A)GP | 1 |
| 14 | MF20025IBJ8 | SCREW F2*2.5-I(NI) GP | 3 |
| 15 | AA0190A1084 | LCD 19" M190A1-L07 (1440*900,5MS)GP | 1 |
| | AA190WX1034 | LCD 19 LM190WX1-TLA1 FOR PHILIPS CON GP | 1 |
| 16 | 10W9ZRMB041/59 | W9ZR M/B ASSY(W9ZR-V1L,NT68665)VGA/O GP | 1 |
| 17 | MBLI1004018 | IO NUT LI1(MBLI1004,REV3A)GP | 2 |
| 18 | EAW9ZR05010 | LCD COVER-VGA(T80206) W9ZR(EAW9ZR05,R3A) | 1 |
| 19 | 37W9ZRSU017 | W9ZR STAND SUB ASSY(G80206)GP | 1 |
| 20 | 38W9ZRBS016 | W9ZR BASE SUB ASSY(T80206)GP | 1 |

## RSPL FOR 190VW8FB/93/(W9ZR-V1L)
## 1 P/N: 1W9ZRVPL011(LPL PANEL)

| Part Name | | Philips P/N | Techview P/N | Description | Q'ty | Location | Remark |
|---|---|---|---|---|---|---|---|
| **Electronic Components:** | LCD panel | 996510007665 | AA190WX1034 | LCD 19 LM190WX1-TLA1 FOR PHILIPS CON GP | 1 | Item 15 in exploded view | LPL PANEL |
| | MB-LCD cable | 996510007666 | DEFC1639017 | CABLE FFC MB-LCD(30P,163MM,GLE)W9ZR GP | 1 | Item 7 in exploded view | |
| | MB-LCD cable | 996510007667 | DEFC1639025 | CABLE FFC MB-LCD(30P,163MM)W9ZR PTI GP | 1 | | 2nd source |
| | MB-BB Cable | | DEFC4529026 | CABLE FFC MB-BB(10P/10P,452MM)W9ZR PTI | 1 | | |
| | MB-BB Cable | | DEFC4529034 | CABLE FFC MB-BB(10P/10P,452MM)W9ZR GLE | 1 | | 2nd source |
| | IC | 996510007639 | AJ68665^F04 | IC(128P)NT68665MFG-128(165MHZ,QFP) GP | 1 | U3 | VGA,DVI signal dealer |
| | IC | 996510007622 | AKE10800018 | IC EEPROM(8P)24BC16-SI(2048*8,SOIC8) GP | 1 | IC2 | Store timing table, HDCP information |
| | IC | 996500044124 | AKE10800R01 | IC EEPROM(8P) BR24L16F-WE2(2K*8,SOP8)GP | 1 | IC2 | Store timing table, HDCP information |
| | IC | 996500044125 | AKE3A8S0Y10 | IC EEPROM(8P)24LC16BT-I(2K*8,100KHZ) GP | 1 | IC2 | Store timing table, HDCP information |
| | IC | 996500045091 | AL001084021 | IC(3P) AIC1084PE(TO-252) GP | 1 | U5 | Power translation, scaler IC power supply. |
| | IC | 996500045092 | AL001084099 | IC(3P)SMD AP1084DLA(T0-252) GP | 1 | U5 | Power translation, scaler IC power supply. |
| | IC | 996510007624 | AL001117086 | IC(3P) AIC1117PY(SOT-223) GP | 1 | U7 | Power translation, scaler IC power supply. |
| | IC | 996510007625 | AL1117EL100 | IC(3P) ATC AP1117EL-13(SOT-223) GP | 1 | U7 | Power translation, scaler IC power supply. |
| | TRANSISTOR | 996510007626 | BA001440Z87 | TRANSISTOR SMD PDTC144EU (50V,30MA)GP | 1 | Q4 | |
| | TRANSISTOR | 996500044115 | BA001440ZB8 | TR CHDTC144EUPT(50V,30MA)SOT-323 GP | 1 | Q4 | |
| | TRANSISTOR | 996510007627 | BA001520Z05 | TR CHDTC152EUPT(50V,70MA)SOT-323 GP | 1 | Q4 | |
| | TRANSISTOR | 996510007628 | BA039060013 | TR SMD MMBT3906LT1G(40V,200MA) GP | 5 | Q1,Q2,Q5,Q6,Q7 | |
| | TRANSISTOR | 996500044110 | BA039060Z10 | TR,SMD PMBS3906(40V,200MA) GP | 5 | Q1,Q2,Q5,Q6,Q7 | |
| | TRANSISTOR | 996510002084 | BA039060Z28 | TRANSISTOR,SMD SST3906(40V,200MA) GP | 5 | Q1,Q2,Q5,Q6,Q7 | |
| | TRANSISTOR | 996510007629 | BAM34150Z08 | TR MOSFET AO3415(-20V,-4A)SOT-23 GP | 1 | Q3 | |
| | | | | | | | |
| **Mechanical Components:** | Stand | 996510007632 | 37W9ZRSU017 | W9ZR STAND SUB ASSY(G80206)GP | 1 | Item 19 in exploded view | |
| | DVI&D-SUB to shielding | | MBLI1004018 | IO NUT LI1(MBLI1004,REV3A)GP | 2 | Item 17 in exploded view | |
| | PCBAs to metal shielding | | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | 12 | Item 2 in exploded view | |
| | Panel to L/R bracket | | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | 6 | Item 2 in exploded view | |
| | Hinge Cover | 996510007633 | EBW9ZR06025 | HINGE COVER(T80206)(EBW9ZR06,REV3A)GP | 1 | Item 11 in exploded view | |
| | Base | 996510007634 | 38W9ZRBS016 | W9ZR BASE SUB ASSY(T80206)GP | 1 | Item 20 in exploded view | |
| | | | | | | | |
| **PCBA:** | Power Board | 996510007671 | AS54B41SA07 | PI 90-264V 45W 4L(140*135)P045-1PI01 GP | 1 | Item 5 in exploded view | |
| | Main Board | 996510009170 | 10W9ZRMB041 | W9ZR M/B ASSY(W9ZR-V1L,NT68665)VGA/O GP | 1 | Item 16 in exploded view | 21W9ZRMB050 |
| | Bios | | AZW9ZRBL015 | W9ZR-V1L SW BIOS (NT68665)LPL | 1 | | |
| | Button Board | 996510007673 | 10W9ZRBB002 | W9ZR BUTTON/B ASSY GP | 1 | Item 3 in exploded view | 23W9ZRBB005 |
| | | | | | | | |
| **Cabinets:** | Front Bezel Assembly | 996510009171 | 34W9ZRLB031 | W9ZR LCD BEZEL SUB ASSY(T80206,VGA)GP | 1 | Item 1 in exploded view | |
| | Back Cover Assembly | 996510009172 | EAW9ZR05010 | LCD COVER-VGA(T80206) W9ZR(EAW9ZR05,R3A) | 1 | Item 18 in exploded view | |
| | | | | | | | |
| **Accessories:** | VGA cable | 996510007677 | DDW9ZRPC009 | CABLE VGA BLACK(15/15P 1.8M)W9ZRGP | 1 | | |
| | Power Cord | 996500044139 | DM333181S01 | POWER CORD B 1.8M SP-506/10A (CHN) GP | 1 | | |
| | Manual | | HGW9ZR03012 | QSG+CD W9ZR-V1(HGW9ZR03,R3A)GP | 1 | | |
| | LCD film | | JXW9VA01014 | LCD FILM 430*285 W9VA-A4(JXW9VA01,R3A)GP | 1 | | |
| | | | | | | | |
| **Packing Material:** | EPE bag | | HAW9ZR01014 | EPE BAG W9ZR(HAW9ZR01,R3A)GP | 1 | | |
| | Carton | 996510009173 | HFW9ZR07017 | CARTON W9ZR-V1(HFW9ZR07,R3A)CN_GP | 1 | | |
| | Cushion-L | 996510007680 | HBW9ZR01015 | END CAP-L W9ZR-C1/S1(HBW9ZR01,REV3A)GP | 1 | | |
| | Cushion-R | 996510007652 | HBW9ZR02011 | END CAP-R W9ZR-C1/S1(HBW9ZR02,REV3A)GP | 1 | | |
| | Cushion-T | 996510009174 | HBW9ZR03018 | END CAP-T W9ZR-C1/S1(HBW9ZR03,REV3A)GP | 1 | | |
| | | | | | | | |

# Recommended Spare Part List

## RSPL FOR 190VW8FB/93(W9ZR-V1M)
## 1 P/N: 1W9ZRVPL002(CMO PANEL)



| Part Name | | Philips P/N | Techview P/N | Description | Q'ty | Location | Remark |
|---|---|---|---|---|---|---|---|
| **Electronic Components:** | LCD panel | 996510007631 | AA0190A1084 | LCD 19" M190A1-L07 (1440*900,5MS)GP | 1 | Item 15 in exploded view | CMO PANEL |
| | MB-LCD cable | 996510007666 | DEFC1639017 | CABLE FFC MB-LCD(30P,163MM,GLE)W9ZR GP | 1 | Item 7 in exploded view | |
| | MB-LCD cable | 996510007667 | DEFC1639025 | CABLE FFC MB-LCD(30P,163MM)W9ZR PTI GP | 1 | | 2nd source |
| | MB-BB Cable | | DEFC4529026 | CABLE FFC MB-BB(10P/10P,452MM)W9ZR PTI | 1 | | |
| | MB-BB Cable | | DEFC4529034 | CABLE FFC MB-BB(10P/10P,452MM)W9ZR GLE | 1 | | 2nd source |
| | IC | 996510007639 | AJ68665^F04 | IC(128P)NT68665MFG-128(165MHZ,QFP) GP | 1 | U3 | VGA,DVI signal dealer |
| | IC | 996510007622 | AKE10800018 | IC EEPROM(8P)24BC16-SI(2048*8,SOIC8) GP | 1 | IC2 | Store timing table, HDCP information |
| | IC | 996500044124 | AKE10800R01 | IC EEPROM(8P) BR24L16F-WE2(2K*8,SOP8)GP | 1 | IC2 | Store timing table, HDCP information |
| | IC | 996500044125 | AKE3A8S0Y10 | IC EEPROM(8P)24LC16BT-I(2K*8,100KHZ) GP | 1 | IC2 | Store timing table, HDCP information |
| | IC | 996500045091 | AL001084021 | IC(3P) AIC1084PE(TO-252) GP | 1 | U5 | Power translation, scaler IC power supply. |
| | IC | 996500045092 | AL001084099 | IC(3P)SMD AP1084DLA(T0-252) GP | 1 | U5 | Power translation, scaler IC power supply. |
| | IC | 996510007624 | AL001117086 | IC(3P) AIC1117PY(SOT-223) GP | 1 | U7 | Power translation, scaler IC power supply. |
| | IC | 996510007625 | AL1117EL100 | IC(3P) ATC AP1117EL-13(SOT-223) GP | 1 | U7 | Power translation, scaler IC power supply. |
| | TRANSISTOR | 996510007626 | BA001440Z87 | TRANSISTOR SMD PDTC144EU (50V,30MA)GP | 1 | Q4 | |
| | TRANSISTOR | 996500044115 | BA001440ZB8 | TR CHDTC144EUPT(50V,30MA)SOT-323 GP | 1 | Q4 | |
| | TRANSISTOR | 996510007627 | BA001520Z05 | TR CHDTC152EUPT(50V,70MA)SOT-323 GP | 1 | Q4 | |
| | TRANSISTOR | 996510007628 | BA039060013 | TR SMD MMBT3906LT1G(40V,200MA) GP | 5 | Q1,Q2,Q5,Q6,Q7 | |
| | TRANSISTOR | 996500044110 | BA039060Z10 | TR,SMD PMBS3906(40V,200MA) GP | 5 | Q1,Q2,Q5,Q6,Q7 | |
| | TRANSISTOR | 996510002084 | BA039060Z28 | TRANSISTOR,SMD SST3906(40V,200MA) GP | 5 | Q1,Q2,Q5,Q6,Q7 | |
| | TRANSISTOR | 996510007629 | BAM34150Z08 | TR MOSFET AO3415(-20V,-4A)SOT-23 GP | 1 | Q3 | |
| | | | | | | | |
| **Mechanical Components:** | Stand | 996510007632 | 37W9ZRSU017 | W9ZR STAND SUB ASSY(G80206)GP | 1 | Item 19 in exploded view | |
| | DVI&D-SUB to shielding | | MBLI1004018 | IO NUT LI1(MBLI1004,REV3A)GP | 2 | Item 17 in exploded view | |
| | PCBAs to metal shielding | | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | 12 | Item 2 in exploded view | |
| | Panel to L/R bracket | | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | 6 | Item 2 in exploded view | |
| | Hinge Cover | 996510007633 | EBW9ZR06025 | HINGE COVER(T80206)(EBW9ZR06,REV3A)GP | 1 | Item 11 in exploded view | |
| | Base | 996510007634 | 38W9ZRBS016 | W9ZR BASE SUB ASSY(T80206)GP | 1 | Item 20 in exploded view | |
| | | | | | | | |
| **PCBA:** | Power Board | 996510007671 | AS54B41SA07 | PI 90-264V 45W 4L(140*135)P045-1PI01 GP | 1 | Item 5 in exploded view | |
| | Main Board | | 10W9ZRMB059 | W9ZR M/B ASSY(W9ZR-V1L,NT68665)VGA/O GP | 1 | Item 16 in exploded view | 21W9ZRMB050 |
| | Bios | | AZW9ZRBM119 | W9ZR-V1M SW BIOS (NT68665)CMO | 1 | | |
| | Button Board | 996510007673 | 10W9ZRBB002 | W9ZR BUTTON/B ASSY GP | 1 | Item 3 in exploded view | 23W9ZRBB005 |
| | | | | | | | |
| **Cabinets:** | Front Bezel Assembly | 996510009171 | 34W9ZRLB031 | W9ZR LCD BEZEL SUB ASSY(T80206,VGA)GP | 1 | Item 1 in exploded view | |
| | Back Cover Assembly | 996510009172 | EAW9ZR05010 | LCD COVER-VGA(T80206) W9ZR(EAW9ZR05,R3A) | 1 | Item 18 in exploded view | |
| | | | | | | | |
| **Accessories:** | VGA cable | 996510007677 | DDW9ZRPC009 | CABLE VGA BLACK(15/15P 1.8M)W9ZRGP | 1 | | |
| | Power Cord | 996500044139 | DM333181S01 | POWER CORD B 1.8M SP-506/10A (CHN) GP | 1 | | |
| | Manual | | HGW9ZR03012 | QSG+CD W9ZR-V1(HGW9ZR03,R3A)GP | 1 | | |
| | LCD film | | JXW9VA01014 | LCD FILM 430*285 W9VA-A4(JXW9VA01,R3A)GP | 1 | | |
| | | | | | | | |
| **Packing Material:** | EPE bag | | HAW9ZR01014 | EPE BAG W9ZR(HAW9ZR01,R3A)GP | 1 | | |
| | Carton | 996510009173 | HFW9ZR07017 | CARTON W9ZR-V1(HFW9ZR07,R3A)CN_GP | 1 | | |
| | Cushion-L | 996510007680 | HBW9ZR01015 | END CAP-L W9ZR-C1/S1(HBW9ZR01,REV3A)GP | 1 | | |
| | Cushion-R | 996510007652 | HBW9ZR02011 | END CAP-R W9ZR-C1/S1(HBW9ZR02,REV3A)GP | 1 | | |
| | Cushion-T | 996510009174 | HBW9ZR03018 | END CAP-T W9ZR-C1/S1(HBW9ZR03,REV3A)GP | 1 | | |
| | | | | | | | |

**>> MAIN BOARD ASSY**

| | | |
|---|---|---|
| | 996510009170 | W9ZR M/B ASSY(W9ZR-V1L,NT68665)VGA/O GP |
| | | 21W9ZRMB050 W9ZR-V1L M/B Schematic(C3A) |
| | | W9ZR M/B S/S ASSY(W9ZR-V1L,68665)VGA/OGP |
| | | PCB M/B W9ZR(2L,98*90,REV C)NT68665 GP |
| | | DAM991NA031 W9ZR PCB M/B(Gerber file & Board File) |
| CN6 | | CONN SMD FFC 30P 1R FS(P1.0,H2.24) GP |
| CN6 | | CONN SMD FFC 30P 1R FS(P1.0,H2.0)GP |
| C6 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C7 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C11 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C14 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C15 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C19 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C20 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C21 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C31 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C34 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C39 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C40 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C64 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C65 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C70 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C71 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C72 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C73 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C74 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C75 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C81 | | CAP CHIP 0.1U,25V(+80-20%,Y5V,0603) GP |
| C2 | | CAP CHIP 120P 50V(+-5%,NPO,0603) GP |
| C13 | | CAP CHIP 120P 50V(+-5%,NPO,0603) GP |
| C4 | | CAP CHIP 22P 50V(+-5%,NPO,0603) GP |
| C32 | | CAP CHIP 22P 50V(+-5%,NPO,0603) GP |
| C33 | | CAP CHIP 22P 50V(+-5%,NPO,0603) GP |
| C12 | | CAP CHIP 1U 25V(+-10%,X7R,0805)GP |
| C47 | | CAP CHIP 1U 25V(+-10%,X7R,0805)GP |
| C16 | | CAP CHIP 10U 6.3V(+80%-20%,Y5V,0805) GP |
| C22 | | CAP CHIP 0.047UF 16V(+-10%,X7R,0603) GP |
| C23 | | CAP CHIP 0.047UF 16V(+-10%,X7R,0603) GP |
| C24 | | CAP CHIP 0.047UF 16V(+-10%,X7R,0603) GP |
| C25 | | CAP CHIP 0.047UF 16V(+-10%,X7R,0603) GP |
| C26 | | CAP CHIP 0.047UF 16V(+-10%,X7R,0603) GP |
| C27 | | CAP CHIP 0.047UF 16V(+-10%,X7R,0603) GP |
| C28 | | CAP CHIP 0.047UF 16V(+-10%,X7R,0603) GP |
| C38 | | CAP CHIP 2200P 50V(+-10%,X7R,0603)GP |
| C84 | | CAP CHIP 100P 50V(+-5%,NPO,0603) GP |
| C85 | | CAP CHIP 100P 50V(+-5%,NPO,0603) GP |
| C37 | | CAP CHIP 4.7U 10V(+80%-20%,Y5V,0603)GP |
| D28 | | DIODE SMD SS1030CPT(30V,0.2A,SHTKY) GP |
| D39 | | DIODE SMD SS1030CPT(30V,0.2A,SHTKY) GP |
| D28 | | DIODE SMD BAT54C(30V,200MA,SCHOTTKY)GP |
| D39 | | DIODE SMD BAT54C(30V,200MA,SCHOTTKY)GP |
| D29 | | DIODE SMD ML25PT (600V,2A) GP |
| D30 | | DIODE SMD ML25PT (600V,2A) GP |
| D38 | | DIODE SMD SW1010CPT(100V,100MA) GP |
| D38 | | DIODE SMD 1SS355(80V,100MA) GP |
| L1 | | RES CHIP 0 1/10W+-5%(0603) GP |
| L2 | | RES CHIP 0 1/10W+-5%(0603) GP |
| L3 | | RES CHIP 0 1/10W+-5%(0603) GP |
| L4 | | RES CHIP 0 1/10W+-5%(0603) GP |
| L5 | | RES CHIP 0 1/10W+-5%(0603) GP |
| L6 | | RES CHIP 0 1/10W+-5%(0603) GP |
| R59 | | RES CHIP 0 1/10W+-5%(0603) GP |
| R71 | | RES CHIP 0 1/10W+-5%(0603) GP |
| R103 | | RES CHIP 0 1/10W+-5%(0603) GP |
| L7 | | EMI FILT CHIP FBMA-11-201209-102 GP |
| L8 | | EMI FILT CHIP FBMA-11-201209-121A40 GP |
| L9 | | EMI FILT CHIP FBMA-11-201209-121A40 GP |
| L13 | | EMI FILT CHIP FBMA-11-201209-121A40 GP |
| L14 | | EMI FILT CHIP FBMA-11-201209-121A40 GP |
| L15 | | EMI FILT CHIP FBMA-11-201209-121A40 GP |
| L17 | | EMI FILT CHIP FBMA-11-201209-121A40 GP |
| L18 | | EMI FILT CHIP FBMA-11-201209-121A40 GP |
| Q1 | 996510007628 | TR SMD MMBT3906LT1G(40V,200MA) GP |
| Q2 | 996510007628 | TR SMD MMBT3906LT1G(40V,200MA) GP |
| Q5 | 996510007628 | TR SMD MMBT3906LT1G(40V,200MA) GP |
| Q6 | 996510007628 | TR SMD MMBT3906LT1G(40V,200MA) GP |
| Q7 | 996510007628 | TR SMD MMBT3906LT1G(40V,200MA) GP |
| Q1 | 996500044110 | TR,SMD PMBS3906(40V,200MA) GP |
| Q2 | 996500044110 | TR,SMD PMBS3906(40V,200MA) GP |
| Q5 | 996500044110 | TR,SMD PMBS3906(40V,200MA) GP |
| Q6 | 996500044110 | TR,SMD PMBS3906(40V,200MA) GP |
| Q7 | 996500044110 | TR,SMD PMBS3906(40V,200MA) GP |
| Q1 | 996510002084 | TRANSISTOR,SMD SST3906(40V,200MA) GP |
| Q2 | 996510002084 | TRANSISTOR,SMD SST3906(40V,200MA) GP |
| Q5 | 996510002084 | TRANSISTOR,SMD SST3906(40V,200MA) GP |
| Q6 | 996510002084 | TRANSISTOR,SMD SST3906(40V,200MA) GP |
| Q7 | 996510002084 | TRANSISTOR,SMD SST3906(40V,200MA) GP |
| Q3 | 996510007629 | TR MOSFET AO3415(-20V,-4A)SOT-23 GP |
| Q4 | 996510007626 | TRANSISTOR SMD PDTC144EU (50V,30MA)GP |
| Q4 | 996500044115 | TR CHDTC144EUPT(50V,30MA)SOT-323 GP |
| Q4 | 996510007627 | TR CHDTC152EUPT(50V,70MA)SOT-323 GP |
| R4 | | RES CHIP 75 1/10W +-1%(0603) GP |
| R10 | | RES CHIP 75 1/10W +-1%(0603) GP |
| R14 | | RES CHIP 75 1/10W +-1%(0603) GP |
| R41 | | RES CHIP 75 1/10W +-1%(0603) GP |
| R44 | | RES CHIP 75 1/10W +-1%(0603) GP |
| R47 | | RES CHIP 75 1/10W +-1%(0603) GP |
| R6 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R7 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R13 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R15 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R67 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R68 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R90 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R95 | | RES CHIP 4.7K 1/10W +-5%(0603) GP |
| R8 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R18 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R74 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R75 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R79 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R106 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R133 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R137 | | RES CHIP 1K 1/10W +-5%(0603) GP |
| R9 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R11 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R39 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R52 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R53 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R62 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R131 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R132 | | RES CHIP 100 1/10W +-5%(0603) GP |
| R16 | | RES CHIP 2.2K 1/10W +-5%(0603) GP |
| R13 | | RES CHIP 2.2K 1/10W +-5%(0603) GP |
| R101 | | RES CHIP 2.2K 1/10W +-5%(0603) GP |
| R93 | | RES CHIP 82,1/10W,+-5%(0603) GP |
| R49 | | RES CHIP 10 1/10W +-5%(0603)GP |
| R38 | | RES CHIP 470 1/10W +-1%(0603) GP |
| R42 | | RES CHIP 100 1/10W+-1%(0603)GP |
| R45 | | RES CHIP 100 1/10W+-1%(0603)GP |

# Spare Part List

| | | |
|---|---|---|
| R48 | | RES CHIP 100 1/10W+-1%(0603)GP |
| R43 | | RES CHIP 390 1/10W+-1%(0603) GP |
| R50 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R51 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R57 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R72 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R73 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R77 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R81 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R100 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R107 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R143 | | RES CHIP 10K 1/10W +-5%(0603) GP |
| R61 | | RES CHIP 15K 1/10W +-5%(0603) GP |
| R65 | | RES CHIP 1M 1/10W +-5% (1608) GP |
| R66 | | RES CHIP 100K 1/10W +-5%(0603) GP |
| R69 | | RES CHIP 20 1/10W +-5%(0603) GP |
| R105 | | RES CHIP 2.05K 1/10W +-1%(0603) GP |
| R108 | | RES CHIP 3.24K 1/10W +-1%(0603) GP |
| R114 | | RES CHIP 330 1/10W +-1%(0603) GP |
| R115 | | RES CHIP 150,1/10W,+-1%(0603) GP |
| IC2 | 996510007622 | IC EEPROM(8P)24BC16-SI(2048*8,SOIC8) GP |
| IC2 | 996500044124 | IC EEPROM(8P) BR24L16F-WE2(2K*8,SOP8)GP |
| IC2 | 996500044125 | IC EEPROM(8P)24LC16BT-I(2K*8,100KHZ) GP |
| U3 | 996510007639 | IC(128P)NT68665MFG-128(165MHZ,QFP) GP |
| U5 | 996500045091 | IC(3P) AIC1084PE(TO-252) GP |
| U5 | 996500045092 | IC(3P)SMD AP1084DLA(T0-252) GP |
| U7 | 996510007624 | IC(3P) AIC1117PY(SOT-223) GP |
| U7 | 996510007625 | IC(3P) ATC AP1117EL-13(SOT-223) GP |
| R17 | | RES CHIP 33 1/10W +-5%(0603) GP |
| R94 | | RES CHIP 33 1/10W +-5%(0603) GP |
| CN1 | | CONN D-SUB 15P 3R FR(P1.15,H12.55) GP |
| CN1 | | CONN D-SUB 15P 3R FR(P1.15,H12.55) GP |
| CN5 | | CONN DIP HEADER 6P 2R MR(P2.5,H6.0) GP |
| CN7 | | CONN DIP HEADER 10P 2R FR(P1.0,H3.0)GP |
| C17 | | CAP EC 330U 16V(+-20%,105C,8*11,LESR)GP |
| C41 | | CAP EC 330U 16V(+-20%,105C,8*11,LESR)GP |
| C44 | | CAP EC 330U 16V(+-20%,105C,8*11,LESR)GP |
| C45 | | CAP EC 330U 16V(+-20%,105C,8*11,LESR)GP |
| C68 | | CAP EC 330U 16V(+-20%,105C,8*11,LESR)GP |
| C17 | | CAP EC 330U 16V(+-20%,125C,8*11,2KH)GP |
| C41 | | CAP EC 330U 16V(+-20%,125C,8*11,2KH)GP |
| C44 | | CAP EC 330U 16V(+-20%,125C,8*11,2KH)GP |
| C45 | | CAP EC 330U 16V(+-20%,125C,8*11,2KH)GP |
| C68 | | CAP EC 330U 16V(+-20%,125C,8*11,2KH)GP |
| C29 | | CAP EC 47U 10V(+-20%,105C,5*11,2K)OSTGP |
| C29 | | CAP EC 47U 10V(+-20%,105C,5*11,2000H)GP |
| C51 | | CAP EC 100U 16V(+-20%,105C,6*11,3KHR) GP |
| C52 | | CAP EC 100U 16V(+-20%,105C,6*11,3KHR) GP |
| Y1 | | XTAL DIP 12MHZ(+-30PPM,HC-49/S TYPE) GP |

**>> BUTTON BOARD ASSY**

| | |
|---|---|
| 996510007673 | W9ZR BUTTON/B ASSY GP |
| | 23W9ZRBB005 W9ZR BUTTON/B Schematic(A3A) |
| | PCB BUTTON/B W9ZR TB(2L,110*10,REVB) GP |
| | DAW9ZRTB028 W9ZR PCB BUTTON/B(Gerber file & Boarc |
| | METAL DOME SWITCH W9ZR(FCW9ZR01,R3A) GP |
| | METAL DOME SWITCH |
| LED1 | LED(SMD) Y/G(KPTB-1612YSGC) GP |
| LED2 | LED(SMD) BLUE(KPT-1608PBC-A) GP |
| | CABLE FFC MB-BB(10P/10P,452MM)W9ZR PTI |
| | CABLE FFC MB-BB(10P/10P,452MM)W9ZR GLE |

**>> POWER BOARD ASSY**

| | |
|---|---|
| 996510007671 | PI 90-264V 45W 4L(140*135)P045-1PI01 GP |

**>> LCD MODULE ASSY**

| | |
|---|---|
| | W9ZR LCD MODULE (T-C-V)ASSYGP |
| 996510009171 | W9ZR LCD BEZEL SUB ASSY(T80206,VGA)GP |
| | LCD BEZEL(VGA,T80206) W9ZR(EAW9ZR02,R3A) |
| | BUTTON-T W9ZR(80206) (EBW9ZR07,REV3A)GP |
| | W9ZR PCB SHIELDING ASSY(T-C-V)GP |
| | LCD BRACKET(T-C-V)W9ZR(FAW9ZR07,R3A)GP |
| | SHIELD MYLAR W9ZR(FCW9ZR02,REV3A)GP |
| | SHIELD MYLAR |
| 996510007632 | W9ZR STAND SUB ASSY(G80206)GP |
| | HINGE ASSY W9ZR(FAW9ZR01,REV3A)GP |
| | HINGE ASSY |
| | SCREW M4.0*8-B(NI,NYLOK)GP |
| | STAND W9ZR(80206) (EBW9ZR03,REV3A)GP |
| | CLIP W9ZR(80206) (EBW9ZR05,REV3A)GP |
| 996510009172 | LCD COVER-VGA(T80206) W9ZR(EAW9ZR05,R3A) |
| | LAMP CABLE SHIELD W9ZR(FBW9ZR01,R3A)GP |
| | LAMP CABLE SHIELD W9ZR |
| | POWER MYLAR W9ZR(FCW9ZR03,REV3A)GP |
| | POWER MYLAR |
| | IO NUT LI1(MBLI1004,REV3A)GP |
| | IO NUT LI1 |
| | SCREW F2*2.5-I(NI) GP |
| | SCREW M3.0*4.0-I(NI) GP |
| | SCREW M4.0*8.0-B(NI,WASHER)GP |

**>> MISCELLANEOUS ASSY**

| | |
|---|---|
| | W9ZR MISCELLANEOUS ASSY(T)GP |
| 996510007633 | HINGE COVER(T80206)(EBW9ZR06,REV3A)GP |
| | SCREW M4.0*8.0-F (BNI,NYLOK,3CR)GP |
| | SCREW F3.0*10L-B(NI)GP |
| 996510007666 | CABLE FFC MB-LCD(30P,163MM,GLE)W9ZR GP |
| 996510007667 | CABLE FFC MB-LCD(30P,163MM)W9ZR PTI GP |

**>> PANEL KIT ASSY**

| | |
|---|---|
| | W9ZR-V1M PANEL KIT ASSY(VGA/O)CMO |
| 996510007631 | LCD 19" M190A1-L07 (1440*900,5MS)GP |
| | W9ZR-V1M SW BIOS (NT68665)CMO |
| | W9ZR SW EDID IMAGE(NT68665/NT68670)AU |

**>> PACKING ASSY**

| | |
|---|---|
| | W9ZR-V1 PACKING(190VW8FB/93/CN)GP |
| 996510007634 | W9ZR BASE SUB ASSY(T80206)GP |
| | BASE W9ZR(80206) (EBW9ZR02,REV3A)GP |
| | RUBBER-A FOOT W9ZR(GAW9ZR01,R3A) GP |
| | RUBBER-B FOOT W9ZR(GAW9ZR02,R3A) GP |
| | CABLE COVER W9ZR(T80206)(EBW9ZR04,R3A)GP |
| 996510007677 | CABLE VGA BLACK(15/15P 1.8M)W9ZRGP |
| 996500044139 | POWER CORD B 1.8M SP-506/10A (CHN) GP |
| | EPE BAG W9ZR(HAW9ZR01,R3A)GP |
| | EPE BAG |
| 996510007680 | END CAP-L W9ZR-C1/S1(HBW9ZR01,REV3A)GP |
| 996510007652 | END CAP-R W9ZR-C1/S1(HBW9ZR02,REV3A)GP |
| 996510009174 | END CAP-T W9ZR-C1/S1(HBW9ZR03,REV3A)GP |
| | TRAVEL CARD L7ZI(HCL7ZI04,REV3A) GP |
| | TRAVEL CARD |
| | 3C LABEL L9V(HCL9V020,REV3A)8MM |
| | HI-POT LABEL L70L(HCL70021,REV3A)GP |
| | HI-POT LABEL |
| | ENERGY START STICKER W0ZR(HCW0ZR04,3A)GP |
| | ENERGY START STICKER |
| | RATING LABEL W9ZR-V1(HCW9ZR05,R3A)GP |
| | RATING LABEL |
| | CARTON LABEL W0ZR(HCW0ZR03,REV3A)GP |
| | CARTON LABEL |
| | QC PASS LABEL W0ZR(HCW0ZR11,3A)GP |
| | QC PASS LABEL |
| | WARRANTY W0ZR(HDW0ZR01,REV3A)CHINA GP |
| 996510009173 | CARTON W9ZR-V1(HFW9ZR07,R3A)CN_GP |
| | SPACE PLATE1270*1000 W9ZR(HFW9ZR02,3A)GP |
| | PAPER BOARD 1260*990 W9ZR(HFW9ZR03,3A)GP |
| | SPACE PLATE 850*1000 W9ZR(HFW9ZR05,3A) |
| | PAPER BOARD 830*980 W9ZR(HFW9ZR06,3A) |
| | QSG+CD W9ZR-V1(HGW9ZR03,R3A)GP |
| | TYPE L7ZI-A1(JXL7ZI04,REV3A)(72MM) GP |
| | HANDLE UPPER W9C-B1(JXW9C001,REV3A)GP |
| | HANDLE UPPER |
| | HANDLE DOWN W9C-B1(JXW9C002,REV3A)GP |
| | HANDLE DOWN |
| | LCD FILM 430*285 W9VA-A4(JXW9VA01,R3A)GP |
| | LCD FILM |

# Different Part List



## 19 inch monitor different parts list

| Item | Part Number | Part Description | 2nd source | 190VW8FB/93/CN(W9ZR-V1M) | 190VW8FB/93/CN(W9ZR-V1L) |
|---|---|---|---|---|---|
| 1 | 24W9ZRLA051 | W9ZR LCD MODULE (T-C-V)ASSYGP | | V | |
| | 24W9ZRLA042 | W9ZR LCD MODULE (T-L-V)ASSYGP | | | V |
| 2 | 2AW9ZRPTM22 | W9ZR-V1M PANEL KIT ASSY(VGA/O)CMO | | V | |
| | 2AW9ZRPTL25 | W9ZR-V1L PANEL KIT ASSY(VGA/O)LPL | | | V |
| 3 | 36W9ZRPS053 | W9ZR PCB SHIELDING ASSY(T-C-V)GP | | V | |
| | 36W9ZRPS045 | W9ZR PCB SHIELDING ASSY(T-L-V)GP | | | V |

# General Trouble Shooting Guide



1 No display, but LED is ON or LED is amber (yellow)

2 Monitor drives (inf file)

3 Screen size not correct

4 Picture too large or small

5 Unstable picture / Picture flickers

6 Out of H / V Sync.

7 Picture too bright

8 Picture too dim

9 No power / LED is off

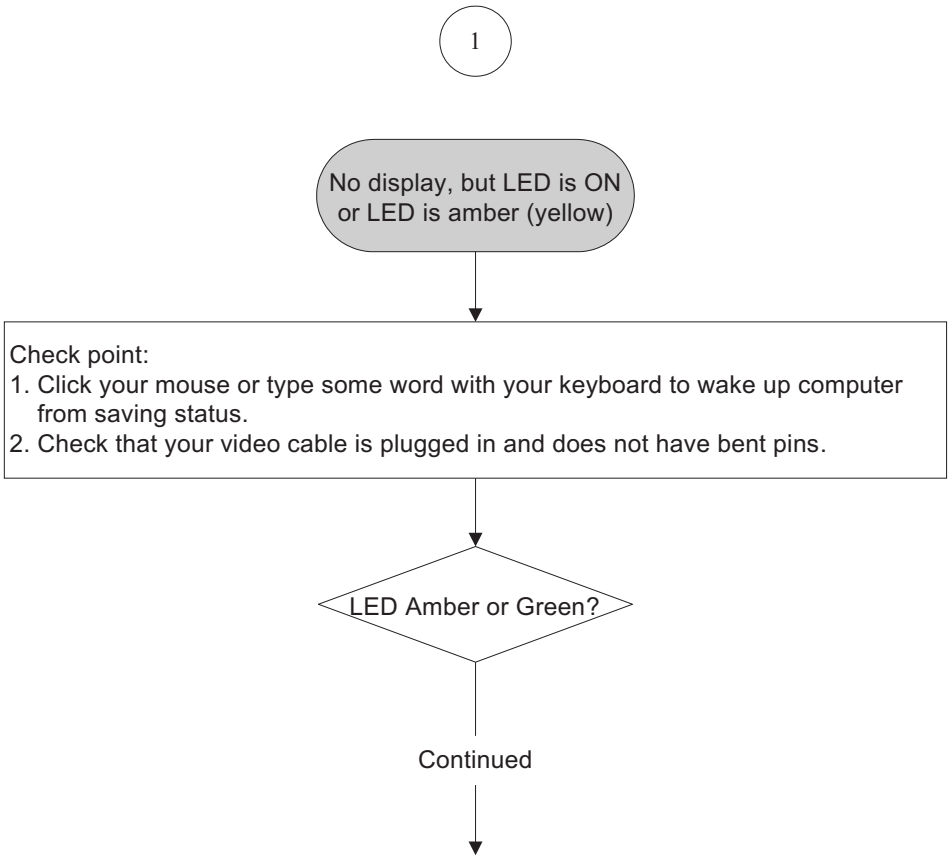
10 Missing color

11 OSD main menu locked

12 Jitter / Video Noise

13 Power management function is not active

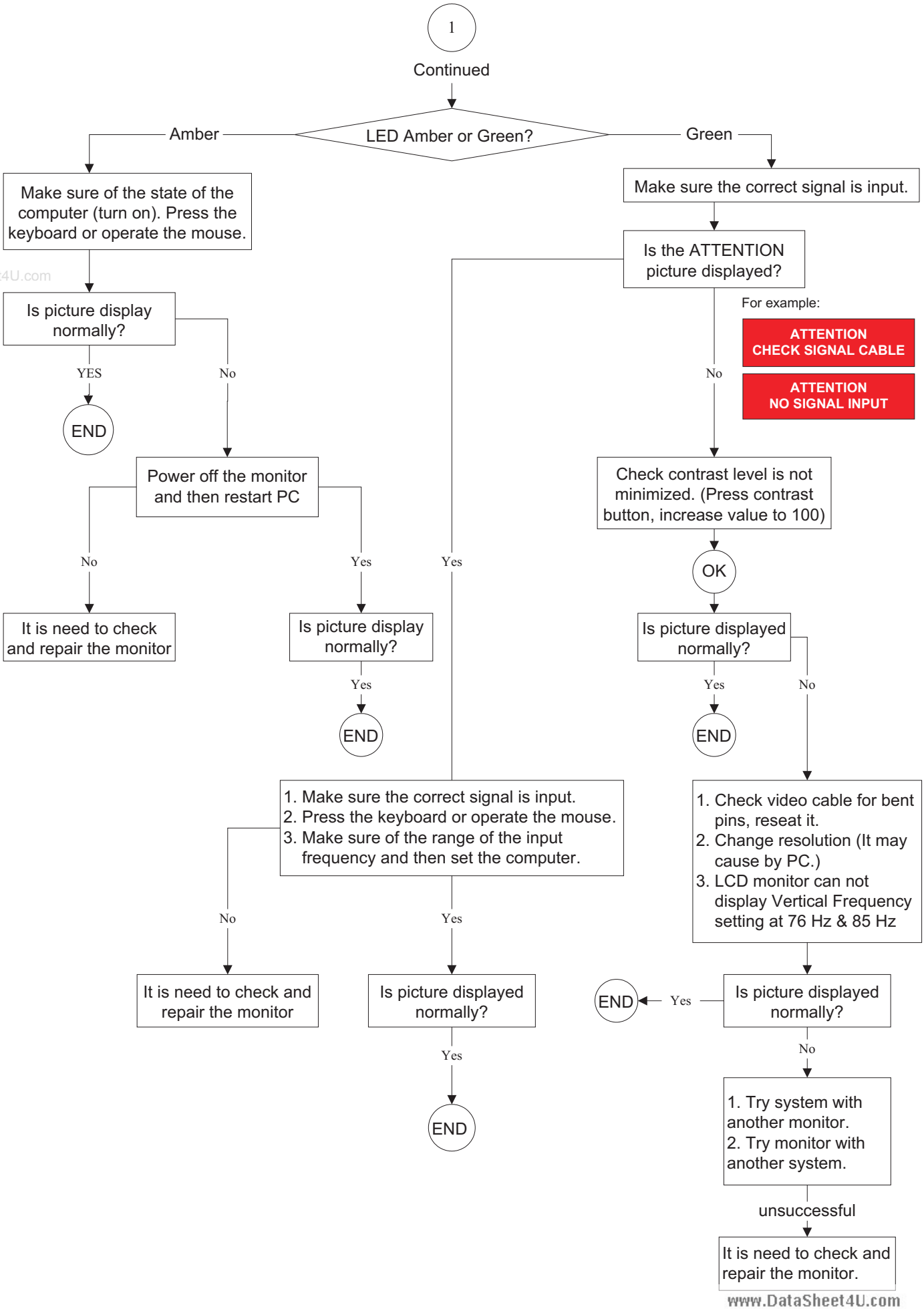
# General Trouble Shooting Guide






Note:
Do not set screen saver – at “14” minutes.
It will cause “ no display” problem as above mentioned.
Action: Change timer setting of screen saver or disable screen saver.

# General Trouble Shooting Guide



# General Trouble Shooting Guide

2

Monitor drivers (inf file)

**FOR WINDOWS 95/98/2000/ME OR LATER**

Philips's monitors build in VESA DDC2B feature to support Plug & Play requirement for Windows 95/98/2000/Me. You can install the information file(.inf) in order to select your Philips monitor from "Monitor" dialog box in Windows 95/98/2000/Me to activate Plug & Play application. The installation procedure based on Windows 95 OEM Release 2, 98, Me and 2000 is specified as follows, (in case of connecting the monitor to the PC compliant with VESA standard with the designated signal cable, the PC reads display pixels, frequency and color feature of this monitor to optimize the picture for the monitor automatically.)

DDC: Abbreviation for Display Data Channel

**** Windows NT 4.0 does not require driver (inf file) for monitor.****

**For Windows 95**

For Windows 95 drivers, your monitor is listed under manufacture name "Philips Business Electronics Co.".

1. Start Windows 95
2. Click the 'Start' button, point to 'setting', and then click 'control panel'.
3. Double click the 'display' Icon.
4. Choose the 'setting' tab then click 'advanced…'
5. Choose 'monitor' button, point to 'change…' then click 'have disk…'.
6. Click 'browse…' button then choose the appropriate drive F:(CD-ROM Drive) then click 'ok' button.
7. Click the 'ok' button then choose your monitor model and click the 'ok'.
8. Click 'close' button.

**For Windows 98**

For Windows 98 drivers, our monitors are listed under 2 manufactures name "Philips", and "Philips Consumer Electronics Co." Please select "Philips" when you would like to set up your monitor in Windows setting, if you can not find the right model name just as the label indication on the back of set. For those set that have been issued since the release of Window 98, drivers can be found in CD-ROM under the directory path of "\pc\driver\" or it may be downloaded at http://www.philips.com. Once you have installed the new driver, Windows will add a new manufacture name "Philips Business Electronics" in your system.

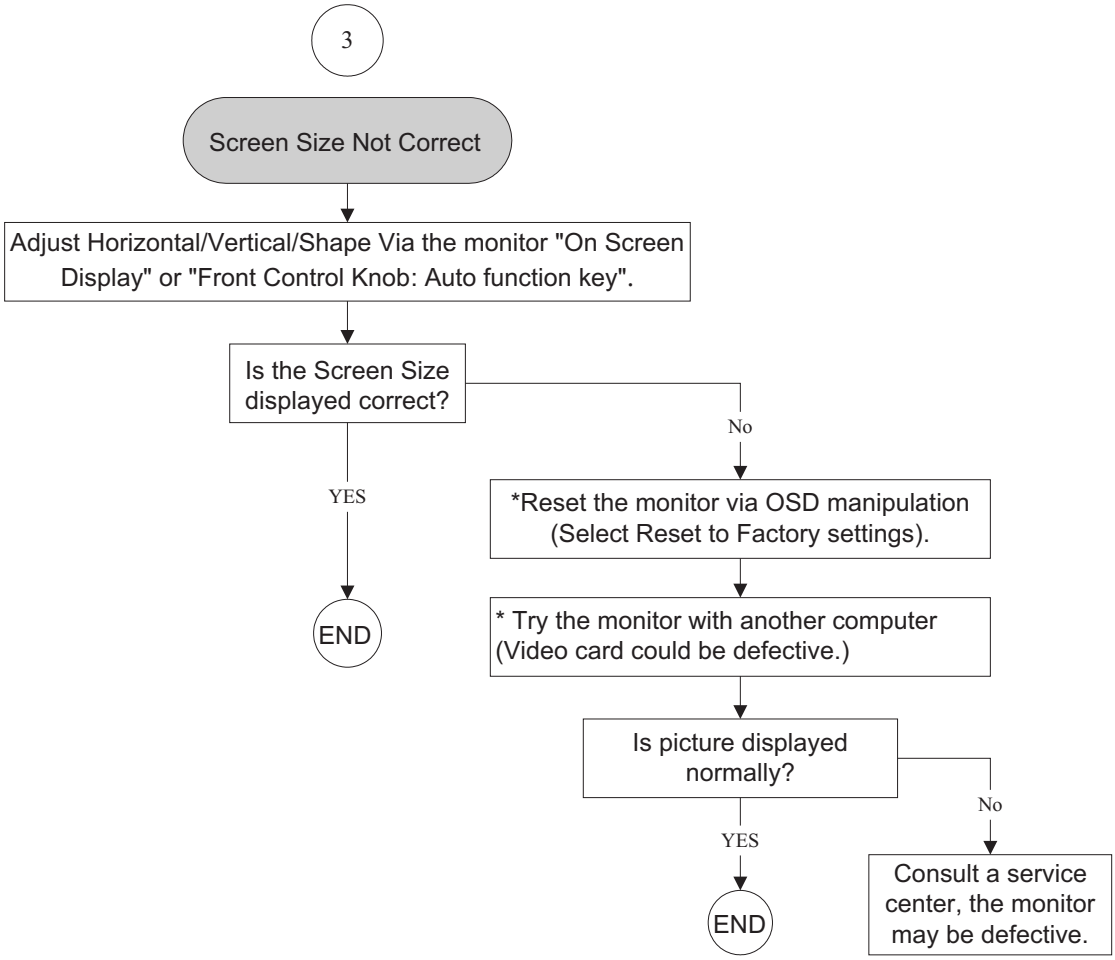
1. Start Windows 98
2. Click the 'Start' button, point to 'setting', and then clock 'control panel'.
3. Double click the 'display' Icon.
4. Choose the 'setting' tab then click 'advanced…'
5. Choose 'monitor' button, point to 'change…' then click 'next'.
6. Choose 'display a list of all the drivers in a specify location, so you can select the driver you want', then click 'next' and then click 'have disk…'
7. Click 'browse…' button then choose the appropriate drive F: (RD-ROM Drive) then click 'ok" button.
8. Click the 'ok' button then choose your monitor model and click the 'next' button.
9. Click 'finish' button then click 'close' button.

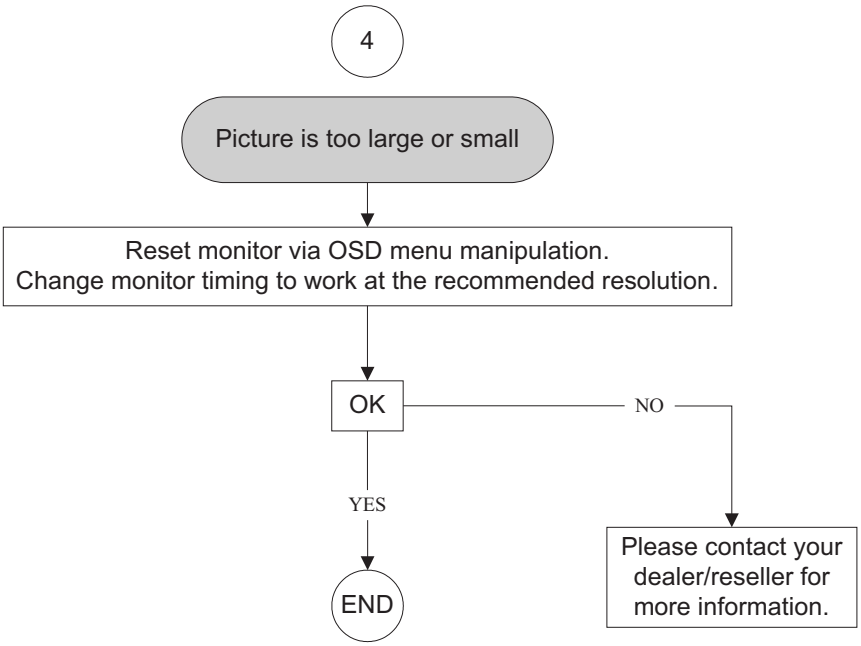
**For Window Me**

1. Start Window Me
2. Click the 'start' button, point to 'setting' , and then click 'control panel'.
3. Double click the 'display' Icon.
4. Choose the 'setting' tab then click 'advanced…'.
5. Choose 'monitor' button, then click 'change…' button.
6. Choose 'specify the location of the driver (advanced)' and click the 'next' button.
7. Choose 'display a list of all the drivers in a specific location, so you can select the driver you want', then click 'next' and then click 'have disk…'.
8. Click 'browse…' button then choose the appropriate drive F: (CD-ROM Drive) then click 'ok' button.
9. Click the 'ok' button then choose your monitor model and click the 'next' button.
10. Click 'finish' button then click 'close' button.

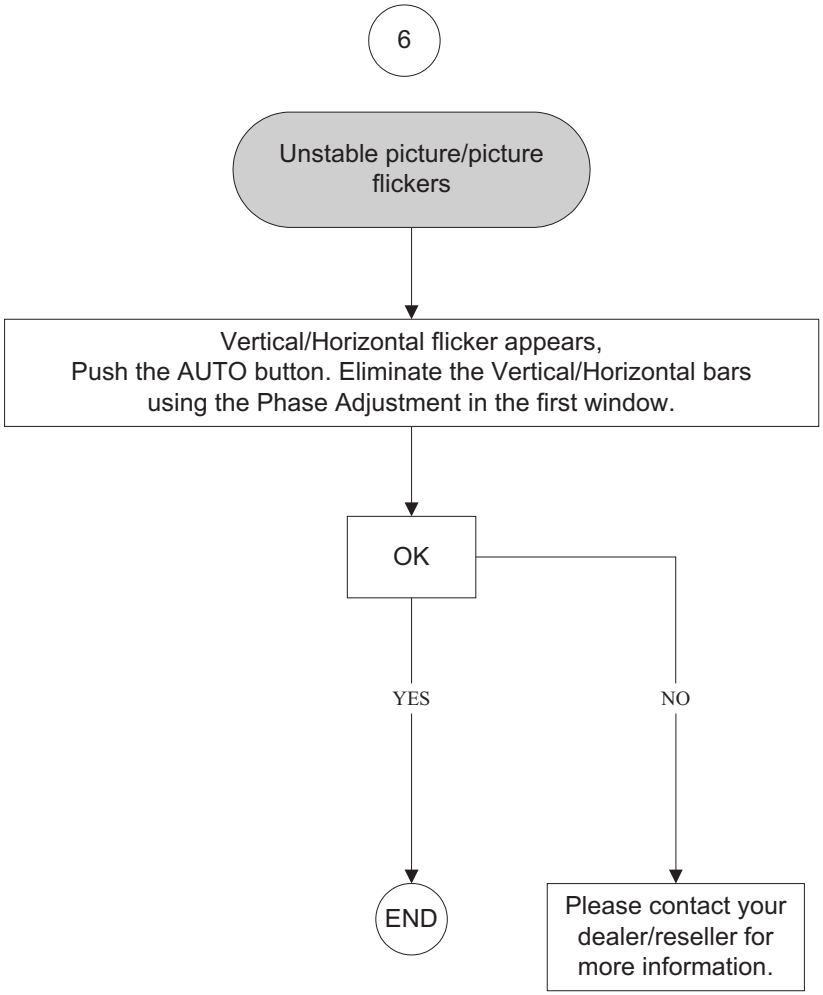
**For Windows 2000**

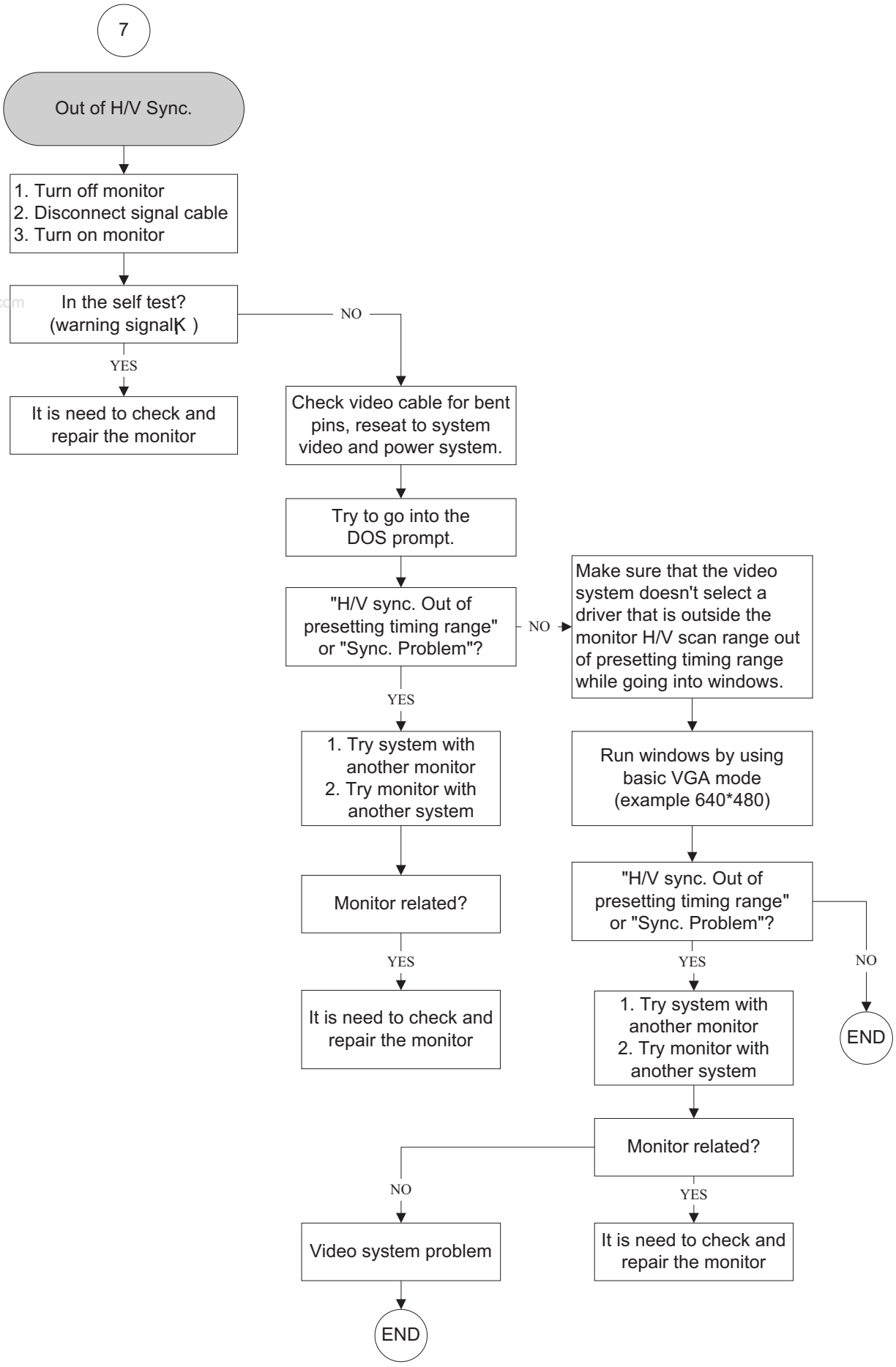
1. Start Windows 2000
2. Click the 'start' button, point to 'setting', and then click 'control panel'.
3. Double click the 'display' Icon.
4. Choose the 'setting' tab then click 'advanced…'.
5. Choose 'monitor;
   - If the 'properties' button is inactive, it means your monitor is properly configured. Please stop installation.
   - If the 'properties' button is active, click 'properties' button.
6. Click 'driver' and then click on 'update driver…' then click on the 'next' button.
7. Choose 'display a list of the known drivers for this device so that I can choose a specific driver' then click 'next' and then click 'have disk…'.
8. Click 'browse…' button then choose the appropriate drive F: (CD-ROM Drive).
9. Click the 'open' button then click the 'ok' button.
10. Choose your monitor model and click the 'next' button.
11. Click 'finish' button and then click the 'close' button. If you can see the 'digital signature not found' window then click the 'yes' button.



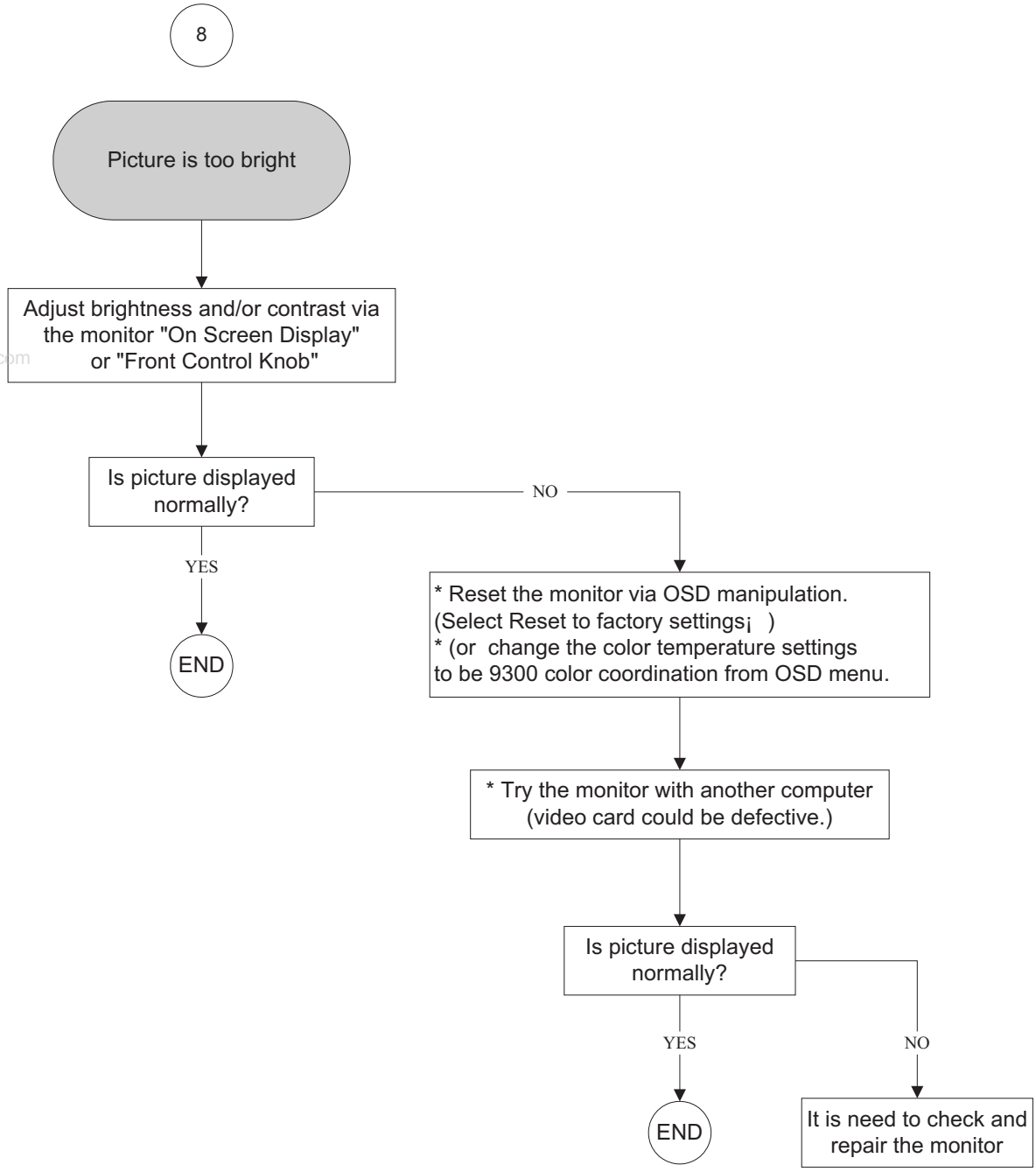



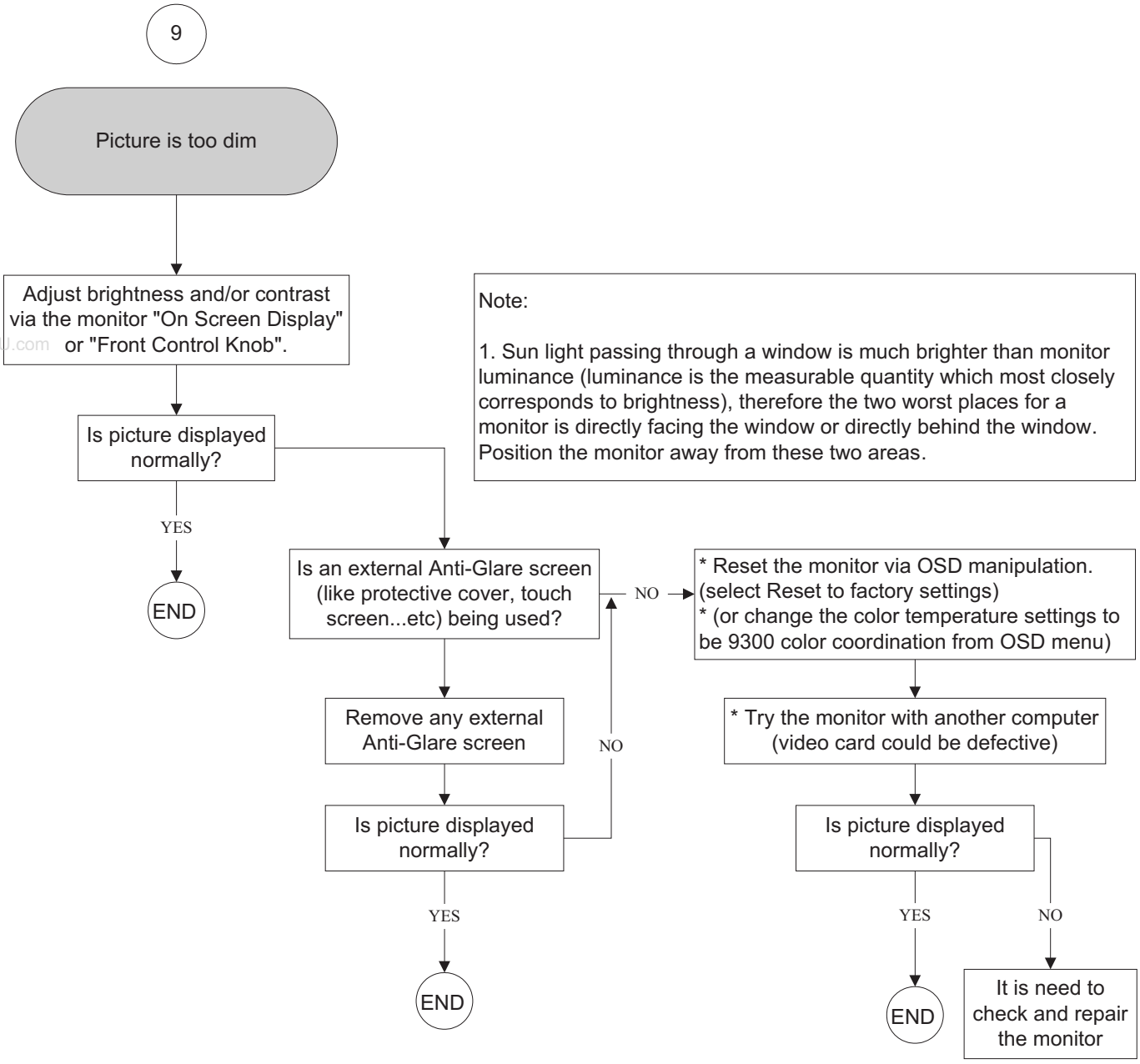
# General Trouble Shooting Guide



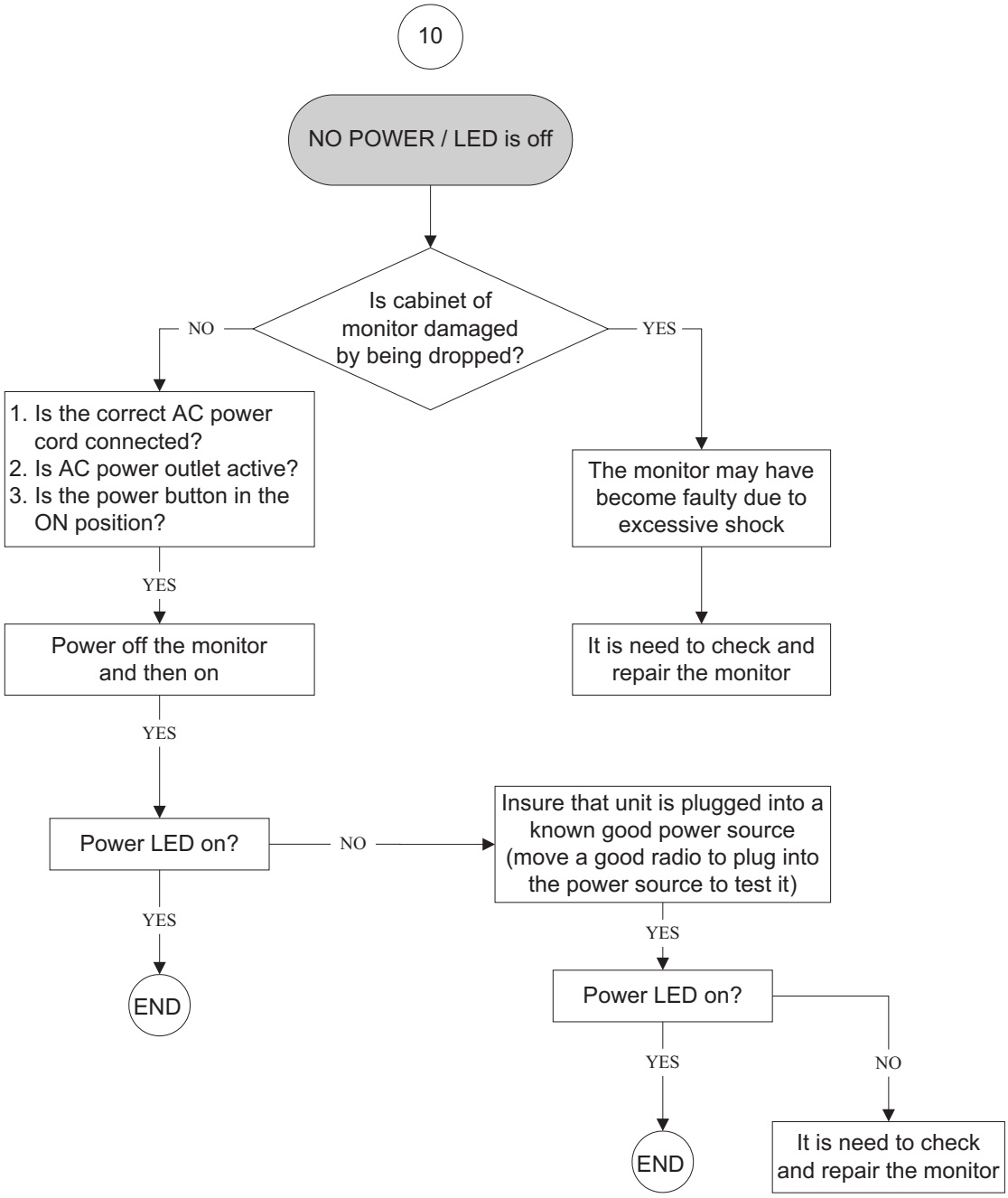


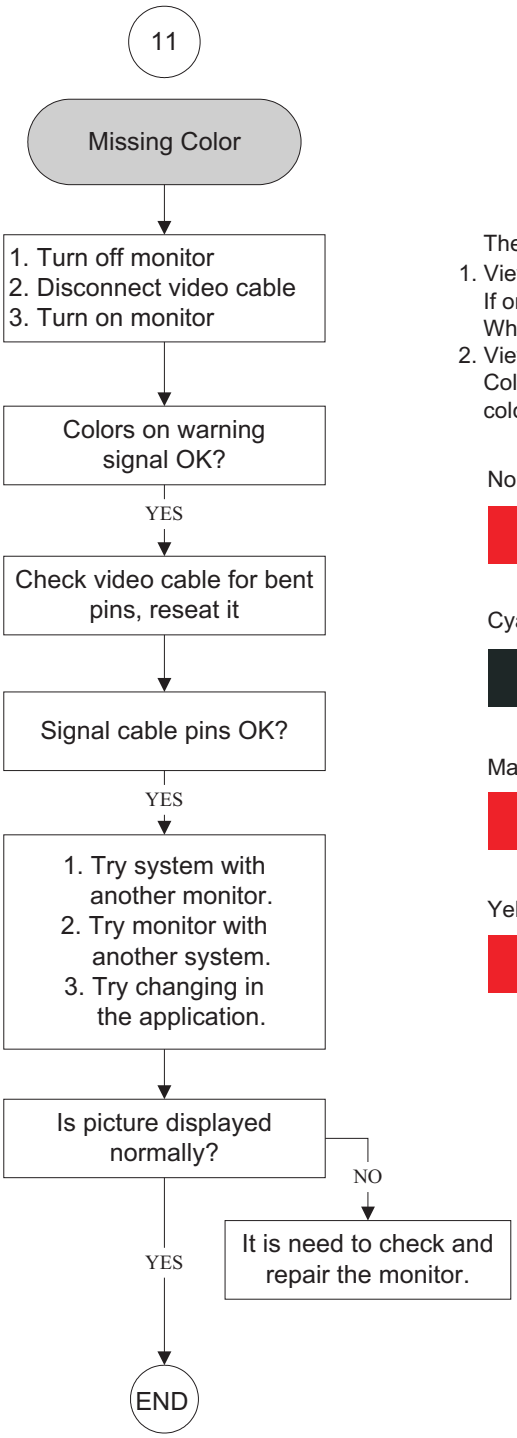
# General Trouble Shooting Guide





# General Trouble Shooting Guide








There are 2 easy ways to determine the Missing color problem.

1. View an image that is supposed to be "White".
   If one of the colors (RGB) is not functioning.
   White can not be produced.
2. View an image that supposed to contain Red, Green and Blue.
   Color problems will be apparent when one or more of these colors can not be displayed.

Normal White:

RED + GREEN + BLUE = WHITE

Cyan Color means that the red sub pixel is missing.

RED + GREEN + BLUE = Cyan

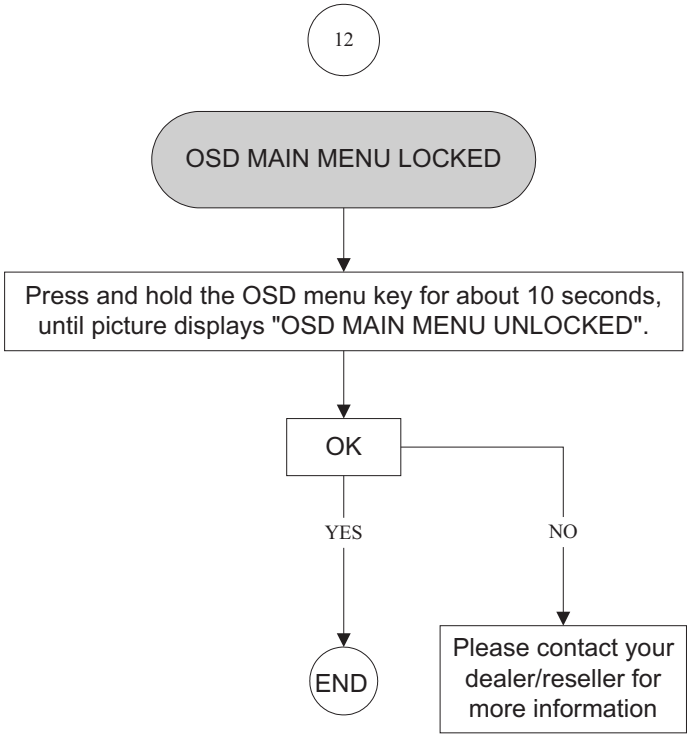
Magenta or Purple Color means that the green sub pixel is missing.

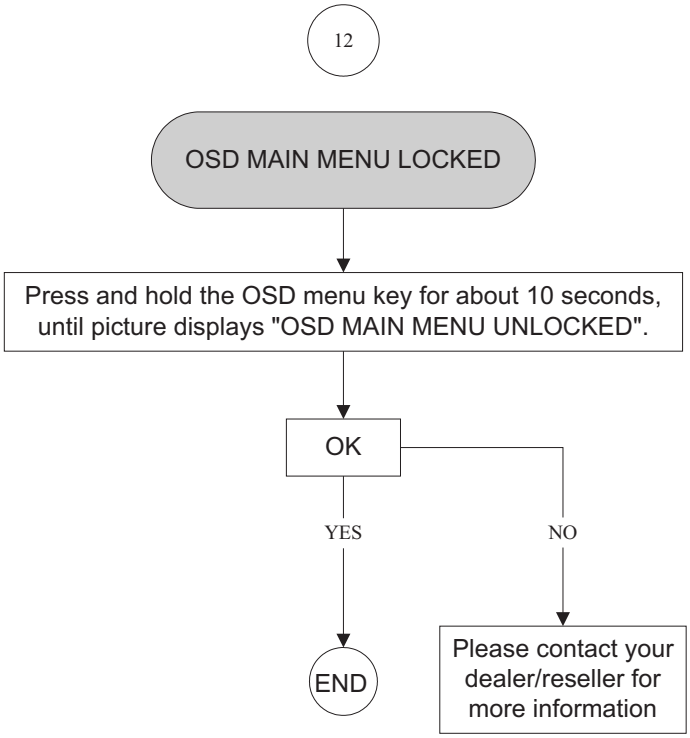
RED + GREEN + BLUE = Magenta

Yellow Color means that the blue sub pixel is missing.

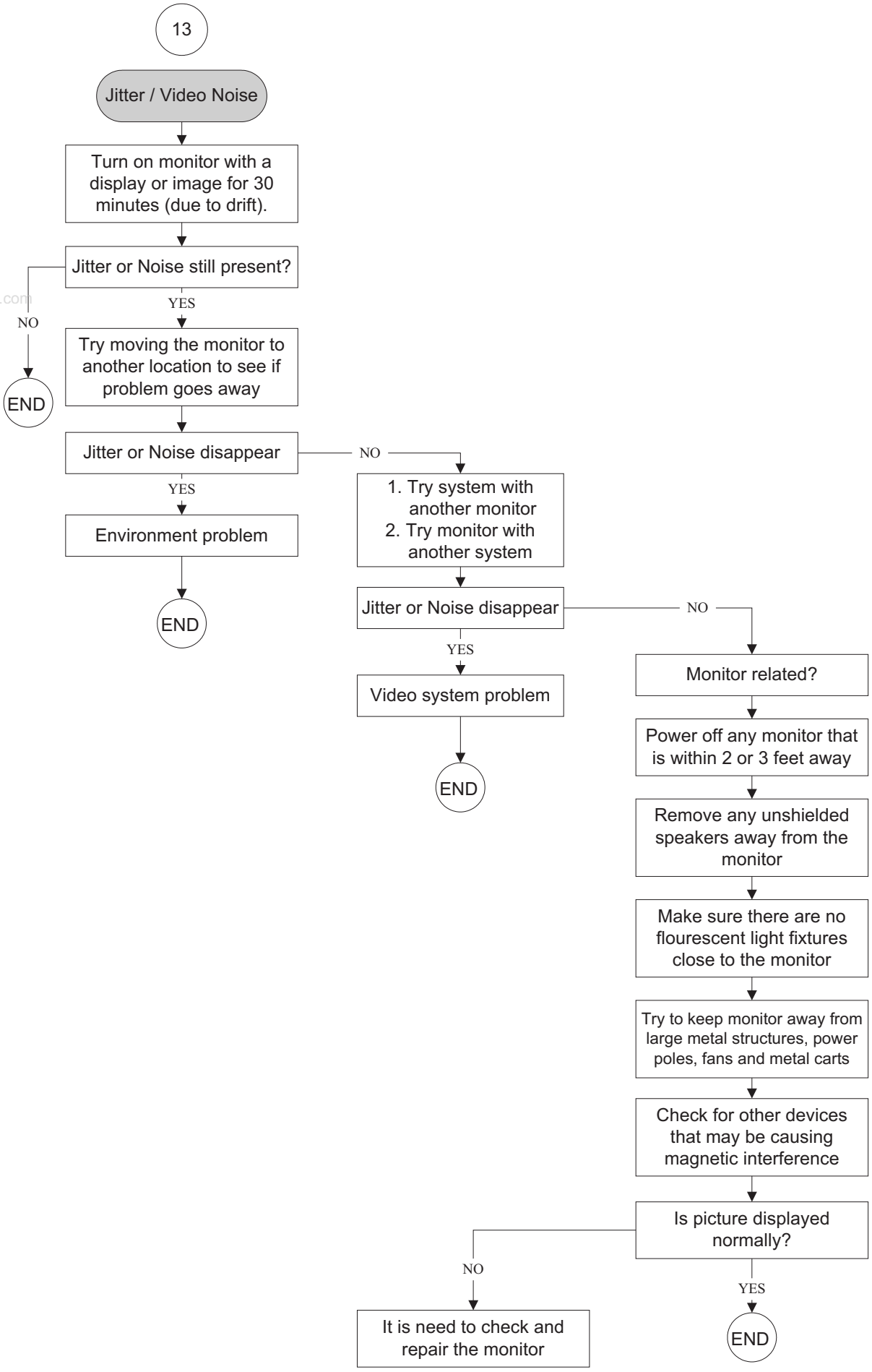
RED + GREEN + BLUE = Yellow

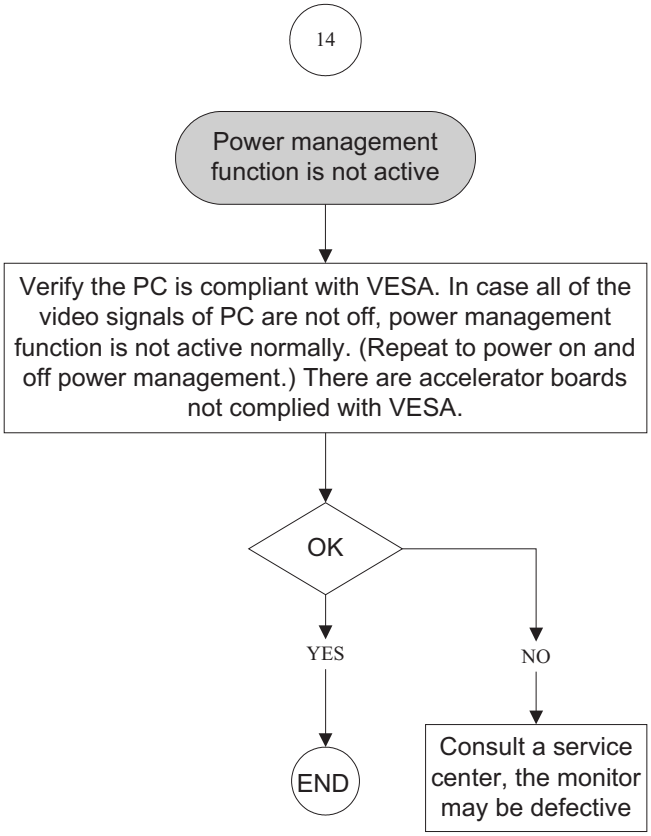
# General Trouble Shooting Guide





# General Trouble Shooting Guide





# General Product Specification

Specification for TVI W9ZR-V1L/V1M
Philips Hudson 8 – 190VW8

19"W TFT LCD Monitor,
30 - 83 kHz, 56 - 76 Hz, Dual input



**Table of Contents**


**1. PRODUCT SPECIFICATION**

1.1 Relationship
1.2 Product Data

**2. MECHANICAL SPECIFICATION**

2.1.1 Monitor Housing
2.1.2 VESA mounting holes
2.1.3 Kensington Slot
2.2 Tilt / Swivel base of the monitor
2.3 Dimensions of monitor
2.4 Dimensions of pallet and quantity

**3. LCD SPECIFICATION**

3.1 LCD specification

**4. COSMETICS APPEARANCE**

4.1 GAP definition
4.2 Panel Offset
4.3 Horizontal tilt

**5. CONNECTORS**

5.1 Video Connection
5.2 PIN Assignment
5.2.1 15 pin mini D-Sub connector

**6. OSD**

6.1 Control of OSD
6.2 Adjustment Parameters

**7. ELECTRICAL SPECIFICATION**

7.1 Power Specification
7.1.1 AC-DC converter
7.1.2 Power Management
7.2 Standard Test conditions
7.3 Test equipment
7.4 Video Generator test sequence
7.5 Analog input
7.6 Optical response time
7.7 Protection circuit
7.8 DDC
7.8.1 DDC Details
7.9 Timings
7.10 Audio Specification

**8. DISPLAY PERFORMANCE**

8.1 Picture performance
8.2 Geometric defects
8.3 Picture stability during warm up
8.4 Scratches
8.5 Viewing angle
8.6 Jitter
8.7 Missing Pixels / missing subpixel
8.8 Newton Ring
8.9 Luminance Output
8.9.1 Luminance Output
8.9.2 Brightness
8.9.3 Brightness Uniformity
8.10 White Uniformity
8.11 Contrast ratio
8.12 White color adjustment
8.13 Distance between TFT LCD monitor and CRT/TFT monitor

**9. ENVIRONMENT**

9.1 Environmental conditions

**10. REGULATORY STANDARDS**

10.1 Safety approvals
10.2 Power management
10.3 Certificates, Reports for the production start

**11. RELIABILITY**

11.1 Reliability of the monitor

**12. CUSTOMIZATION**

12.1 Identity Customization
12.2 EAN /SAP Identification
12.3 Plastic
12.4 Definition of serial number
12.5 Definition of the barcode label
12.6 Accessories

**13. ECR-HANDLING**

# 1. PRODUCT SPECIFICATION

## 1.1 Relationship

Supplier: TVI Model: W9ZR-V1L/V1M
Customer: Philips Model: Hudson 8 -190VW8

- Monitor No: HWS8200Q
- EAN / UPC No: 87 12895 35560 9
- CTN: 190VW8FB/93
- Site Code: CJ (TVE); CU (QCG)

## 1.2 Product Data

19" W TFT LCD monitor



| | |
|---|---|
| Horizontal frequency | 30 - 83 KHz |
| Vertical frequency | 55 – 76 Hz |
| Screen diagonal | 19"W Inch |
| Viewing Angle(CR>10)(H/V) | 160/160 ° |
| Max. opening horizontal picture size | 427.2 mm |
| Max. opening vertical picture size | 277.4 mm |
| Max. active horizontal picture size | 410.4 mm |
| Max. active vertical picture size | 256.5 mm |

# 2. MECHANICAL SPECIFICATION

## 2.1.1 Monitor Housing

The front bezel and the back cabinet are based on TVI OEM tooling and Philips design chin.

## 2.1.2 VESA mounting holes

According to VESA FPMPMI standard.
Holes 100 mm x 100 mm (M 4.0, 0.7 pitch threaded) in the rear center for ARM.

## 2.1.3 Kensington Slot

The monitor is equipped with a 7 mm x 3 mm slot.

## 2.2 Tilt of the monitor

| | |
|---|---|
| Forward | -5 ° +2/- 0 |
| Backward | +25 °+0/- 3 ° |

## 2.3 Dimensions of monitor

The monitor has the following dimensions:
Unit dimension : 513.8mm (W) * 416.2mm (H) * 213.6mm (D)
Packed unit dimension : 565mm (W) * 174.0mm (H) * 472.0mm (D) for WW
: 567mm (W) * 189mm (H) * 480mm (D) for China
Net weight : 5 Kg (Including I/F cable 240 g)
Gross weight : 5.3 Kg for China

# 3. LCD SPECIFICATION

## 3.1 LCD specification

| | LPL | CMO |
|---|---|---|
| **Type NR.** | LPL, LM190WX1-TLA1 | CMO, M190A1-L07 |
| **Outside dimensions** | 427.2(H) x 277.4(V) x 15.3(D) mm(Typ.) | 427.2(w)*277.4(h)*17.0(d) (Typ) mm |
| **Pitch ( mm )** | 0.095*RGB(H)mm x 0.285(V)mm | 0.285 mm x 0.285 mm |
| **Color pixel arrangement** | RGB vertical stripes | RGB vertical stripes |
| **Display surface** | Hard coating (3H), Anti-glare treatment of the front polarizer | low reflection, antiglare with hard coating |
| **Color depth** | 16.7M colors | 16.7M colors ( 6 bits+FRC ) |
| **Backlight** | CCFL edge light system | CCFL edge light system |
| **Active area(WxH)** | 410.4 (H) x 256.5 (V) | 410.4 x 256.5mm (19.05" diagonal) |
| **View angle** | R/L 160(Typ.), U/D 160(Typ.) | 75/75 (min), 85/85 (typ) for Horizontal & 70/70 (min), 80/80 (typ) for Vertical |
| **Contrast ratio** | 1000:1(Typ.) 700:1(Min.) | 850:1(Typ.) 500:1(Min.) |
| **White luminance** | Original color 250 nits (Min), 300 nits (Typ.) | Original color 230 nits (Min), 300 nits (Typ.) |
| **Gate IC** | OKI MT3805VA | Himax ( HX8636A ) |
| **Source IC** | MAGNA D10D3SS639 | Himax ( HX8018A ) |
| **Response time** | 5ms (typ) | 5ms (typ) |



# 4 COSMETICS APPEARANCE

## 4.1 GAP definition

The gap between LCD and front bezel must be **<= 1.0mm**

## 4.2 Panel Offset

Panel Offset: Panel disposition tolerance inside the front bezel must be <=1.0mm

## 4.3 Horizontal tilt

Horizontal tilt between front bezel & LCD shall be <= 1.0mm

# 5. CONNECTORS

## 5.1 Video Connection

The monitor is equipped with a 15 pin mini D-SUB connector.

## 5.2 PIN Assignment

### 5.2.1 15 pin mini D-Sub connector

The PIN assignment of the 15 pin mini D-SUB connector / cable is as follows:

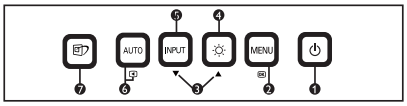
| PIN No. | SIGNAL |
|---|---|
| 1 | Red |
| 2 | Green/ SOG |
| 3 | Blue |

| | |
|---|---|
| 4 | Sense (GND) |
| 5 | Cable Detect (GND) |
| 6 | Red GND |
| 7 | Green GND |
| 8 | Blue GND |
| 9 | DDC +3.3V or +5V |
| 10 | Logic GND |
| 11 | Sense (GND) |
| 12 | Bi-directional data |
| 13 | H/H+V sync |
| 14 | V-sync |
| 15 | Data clock |

## 6. OSD

### 6.1 Control of OSD

The positions and functions of the buttons are defined as below.




### 6.2 Adjustment Parameters

**Hot-key definition**

| | Key | Key Press Time | OSD Timeout | EDFU implement | Service menu |
|---|---|---|---|---|---|
| Monitor Controls Lock | OK(Menu) | 6 sec (lock/unlock) | 3 sec | V | V |
| Factory Mode | AUTO+OK+Power On | Keep pressing when power on | | | V |
| Demo mode for smart image | Smart Image Key | 3 sec (Enter/Quit) | | V | V |
| DDC/CI On/OFF for VISTA | UP+DOWN | 6 sec (lock/unlock) | 3 sec | V | V |

| 1st LEVEL | 2nd LEVEL |
|---|---|
| **MONITOR SETUP** | |
| Exit | |
| Picture | Brightness |
| | Contrast |
| | Factory |
| Color | Color Temperature |

| | |
|---|---|
| | sRGB |
| | User Define |
| Language | РусскИЙ |
| | Chinese(Simple) |
| OSD Settings | Horizontal |
| | Vertical |
| | Transparency |
| | OSD Time Out |
| Setup | Phase |
| | H.Position |
| | V.Position |
| | SmartContrast |
| | Reset |
| Input | Auto |
| | VGA |
| | |
| Serial No.: | CJ2A074012345 |
| (Serial No.) | |
| Timing Mode | |
| **Up/Down to Move, ok to Confirm** | |



## 7. ELECTRICAL SPECIFICATION

### 7.1 Power Specification

#### 7.1.1 AC-DC converter

| | |
|---|---|
| Input voltage | 90- 264V |
| Frequency range | 50/ 60 ± 2 Hz |
| Inrush current | Shall be less than the ratings of critical components (including fuse, rectifiers and surge limiting device) for all conditions of line in voltage. |
| Maximum power consumption: | <36W (Max) |

#### 7.1.2 Power Management

| Mode | HSYNC | VSYNC | Video | Pwr-cons. | Indication | Rec. time |
|---|---|---|---|---|---|---|
| Power-On | On | On | active | < 36 W | Green LED | -- |
| Off | Off | Off | blanked | < 1 W | Amber LED | < 3 s |
| DC Power Off | | | N/A | < 1 W | LED Off | |

### 7.2 Standard Test conditions

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

(1) Input signal : As defined in 3.3, 1440*900, non-interlaced mode (1440*900@60Hz 146.25MHz), signal, sources must have 75 ohm output impedance.
(2) Luminance setting : controls to be set to 300 nits with full screen 100 % duty cycle white signal
(3) Warm up: more than 30 minutes after power on with signal supplied.
(4) Ambient light: 400 -- 600 lux.
(5) Ambient temperature: 20 ± 5 °C

### 7.3 Test equipment

- Personal computer with Windows 98/2000/XP
- Luminance meter Minolta CA110
- Videogenerator: Chroma 2000, 2135, 2250 or equivalent
- Colour analyzer: Minolta or Chroma
- 10 times magnifier
- Ruler / Template
- Thickness gauge
- Watt / Power Meter



### 7.4 Video Generator test sequence

Will be defined by TVI or its subcontracted quality providers.

### 7.5 Analog input

| | |
|---|---|
| Polarity: | positive, negative |
| Impedance: | 75 Ω ± 1% |
| Sync: | HV separate sync, composite sync, |

### 7.6 Optical response time

| | |
|---|---|
| Video Bandwidth: | 140 MHz (dot rate) |
| Typical rise time: | 5 ms |

### 7.7 Protection circuit

The monitor will not be damaged by:

- missing vertical or horizontal sync pulse
- improper vertical or horizontal sync pulse (picture must be black at improper signals, unsynchronized pictures are not allowed)

### 7.8 DDC

The monitor can support DDC 2 B and DDC-CI according to the latest VESA standard.

#### 7.8.1 DDC Details

| | | |
|---|---|---|
| 1 | User visible strings on .inf file | Philips 190VW8 (19inch WIDE LCD MONITOR 190VW8) |
| 2 | Manufacturer ID ( EDID data) | PHL |
| 3 | Product ID, "xxxx" 4 codes | MSB(byte 12): 08 |
| | | LSB (byte 11): 60 |
| 4 | maximum resolution | 1440x900 |
| 5 | Horizontal Frequency Range | 30~83 KHz |
| 6 | Vertical Frequency Range | 55~76Hz |
| 7 | Monitor Name (13 characteries max.) | Philips 190VW |

## 7.9 Timings

Factory preset modes : 15
Preset modes : 48
User modes : 10

Note: 1. Screen displays perfect picture at 15 factory-preset modes.
2. Screen displays visible picture with OSD warning when input modes are the 48 preset modes.

**Factory preset modes (15 modes)**

| Item | H.Freq. (KHz) | Mode | Resolution | V.Freq. (Hz) | BW(MHz) |
|---|---|---|---|---|---|
| 1 | 31.469 | IBM VGA 10H | 640x350 | 70.086 | |
| 2 | 31.469 | IBM VGA 3H | 720x400 | 70.087 | |
| 3 | 31.469 | IBM VGA 12H | 640x480 | 59.94 | |
| 4 | 35 | MACINTOSH | 640x480 | 67 | |
| 5 | 37.861 | VESA | 640x480 | 72.809 | |
| 6 | 37.5 | VESA | 640x480 | 75 | |
| 7 | 43.269 | VESA | 640x480 | 85.008 | |
| 8 | 35.156 | VESA | 800x600 | 56.25 | |
| 9 | 37.879 | VESA | 800x600 | 60.317 | |
| 10 | 48.077 | VESA | 800x600 | 72.188 | |
| 11 | 46.875 | VESA | 800x600 | 75 | |
| 12 | 53.674 | VESA | 800x600 | 85.061 | |
| 13 | 49.7 | MACINTOSH | 832x624 | 75 | |
| 14 | 56.4 | - | 960x720 | 75 | |
| 15 | 44.75 | - | 960x720 | 60 | |
| 16 | 48.363 | VESA | 1024x768 | 60.004 | |
| 17 | 56.476 | VESA | 1024x768 | 70.069 | |
| 18 | 60.023 | VESA | 1024x768 | 75.029 | |
| 19 | 61.08 | IBM XGA-2 | 1024x768 | 75.781 | |
| 20 | 68.677 | VESA | 1024x768 | 84.997 | |
| 21 | | CVT 2.3MA | 1280 x768 | 60 | |
| 22 | 60.289 | CVT 2.3MA | 1280 x768 | 75 | |
| 23 | 54.1 | | 1152x864 | 60 | |
| 24 | 63.851 | VESA | 1152x864 | 70.012 | |
| 25 | 67.5 | VESA | 1152x864 | 75 | |
| 26 | 68.7 | MACINTOSH | 1152x870 | 75 | |
| 27 | 61.845 | SUN WS | 1152x900 | 66.004 | |
| 28 | 71.81 | SUN WS | 1152x900 | 76.15 | |
| 29 | 60 | VESA | 1280x960 | 60 | |
| 30 | 75 | VESA | 1280x960 | 75 | |
| 31 | 63.981 | VESA | 1280x1024 | 60.02 | |
| 32 | 71.691 | SUN WS | 1280x1024 | 67.189 | |
| 33 | 76 | DOS/V | 1280x1024 | 72 | |
| 34 | 79.976 | VESA | 1280x1024 | 75.025 | |
| 35 | 81.13 | SUN WS | 1280x1024 | 76.11 | |
| 36 | 91.1 | VESA | 1280x1024 | 85 | |

| | | | | | |
|---|---|---|---|---|---|
| 37 | 44.772 | - | 1280x720 | 60 | |
| 38 | 52.5 | - | 1280x720 | 70 | |
| 39 | 64 | CVT-reduced blanking | 1400x1050 | 60 | 101 |
| 40 | 80 | CVT | 1400x1050 | 75 | 121.75 |
| 41 | 91.1 | CVT | 1400x1050 | 85 | 156 |
| 42 | 55.469 | VESA-reduced blanking mode | 1440x900 | 59.901 | 88.75 |
| 43 | 55.935 | VESA | 1440x900 | 59.887 | 106.5 |
| 44 | 70.635 | VESA | 1440x900 | 74.984 | 136.75 |
| 45 | 75 | VESA | 1600x1200 | 60 | 161 |
| 46 | 66.587 | CVT 2.3MA-R | 1920x1080 | 60.0 | 138.5 |
| 47 | 65.29 | CVT1.76MW | 1680x1050 | 60 | 146 |
| 48 | | CVT1.76MW-R | 1680x1050 | 60 | 119 |



### 7.10 Audio Specification

N/A

## 8. DISPLAY PERFORMANCE

### 8.1 Picture performance

Optical performance test must be done in a dark room.
Note: Test under standard test conditions unless otherwise specified
Active Image Size (all modes)

### 8.2 Geometric defects

No vertical or/and horizontal line defect.
No cross line defect.

### 8.3 Picture stability during warm up

During 10 - 30 minutes warm up time from cold condition of the monitor
at ambient temperature (25°C ± 5°C) the decrease of brightness must be less than 6 Fl.

### 8.4 Scratches

No scratches and foreign particles visible.

### 8.5 Viewing angle

| | Typical(10:1) |
|---|---|
| Horizontal (Right + Left) | 160° |
| Vertical (Up + Down) | 160° |

### 8.6 Jitter

No jitter visible in each condition. In case of problem a limit sample has to be defined.

### 8.7 Missing Pixels / missing subpixel

| BRIGHT DOT DEFECTS | ACCEPTABLE LEVEL |
|---|---|
| *MODEL* | **190VW8** |
| 1 lit sub-pixel | 3 |
| 2 adjacent lit sub-pixels | 1 |
| 3 adjacent lit sub-pixels (one white pixel) | 0 |
| Distance between two bright dot defects* | ≧25mm |
| Bright dot defects within 20 mm circle | 0 |
| Total bright dot defects of all type | 3 |

| BLACK DOT DEFECTS | ACCEPTABLE LEVEL |
|---|---|
| *MODEL* | **190VW8** |
| 1 dark sub-pixel | 5 |
| 2 adjacent dark sub-pixels | 2 |
| 3 adjacent dark sub-pixels (one white pixel) | 0 |
| Distance between two black dot defects* | ≧15mm |
| Black dot defects within 20 mm circle* | 1 |
| Total black dot defects of all type | 5 |



| TOTAL DOT DEFECTS | ACCEPTABLE LEVEL |
|---|---|
| *MODEL* | **190VW8** |
| Total bright or black dot defects of all type | 5 |

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

### 8.8 Newton Ring

No Newton Rings visible.

### 8.9 Luminance Output

### 8.9.1 Luminance Output

Test resolution: 1440X900 at 75 Hz
Test condition: video input (RGB) = maximum white

### 8.9.2 Brightness

To follow Panel specification. sRGB = 80 ± 10 nits.

### 8.9.3 Brightness uniformity

Set contrast at 100% and turn the brightness to get average above 300 nits at centre of the screen. Apply the Fig 1, it should comply with the following formula:

$$\frac{B\_min}{B\_max} \times 100\% > 75\%$$

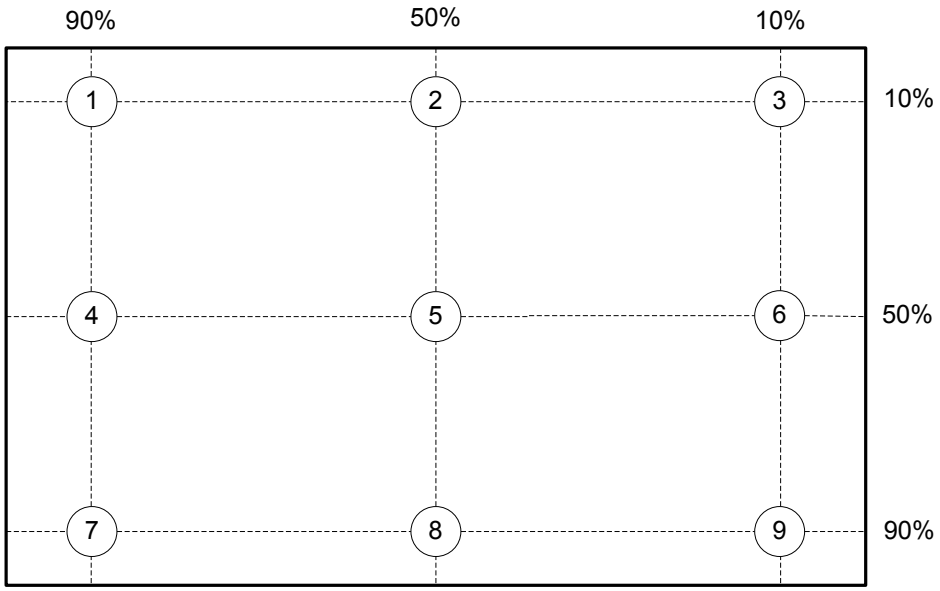
Where B_max = Maximum brightness
B_min = Minimum brightness

## 8.10 White Uniformity

Definition of White Variation (δW):

Measure the luminance of gray level 255 at 9 points

δW = Maximum [L(1), L(2) …… L(9)] / Minimum [L(1), L(2) …… L(9)]






Spec : =< 1.33 (In all ranges)

## 8.11 Contrast ratio

The contrast ration can be calculated by following expression.
Contrast Ratio (CR) = L255 / L0
L255 : Luminance of gray level 255
L0 : Luminance of gray level 0

Typical value: 1000:1

## 8.12 White color adjustment

There are six factory preset white color 11500K, 9300K, 8200K, 7500K, 6500K, sRGB, 5000K

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

**Product specification**

| CIE coordinates | (x,y) |
|---|---|
| 11500K | x = 0.270 ± 0.02 |
| | y = 0.281 ± 0.02 |
| 9300K | x = 0.283 ± 0.02 |
| | y = 0.297 ± 0.02 |
| 8200K | x = 0.291 ± 0.02 |
| | y = 0.306 ± 0.02 |
| 7500K | x = 0.298 ± 0.02 |
| | y = 0.314 ± 0.02 |
| 6500K/sRGB | x = 0.313 ± 0.02 |

| | |
|---|---|
| | y = 0.329 ± 0.02 |
| sRGB | x = 0.313 ± 0.02 |
| | y = 0.329 ± 0.02 |
| 5000K | x = 0.345 ± 0.02 |
| | y = 0.357 ± 0.02 |

**Production alignment spec**

| CIE coordinates | (x,y) |
|---|---|
| 11500K | x = 0.270 ± 0.005 |
| | y = 0.281 ± 0.005 |
| 9300K | x = 0.283 ± 0.005 |
| | y = 0.297 ± 0.005 |
| 8200K | x = 0.291 ± 0.005 |
| | y = 0.306 ± 0.005 |
| 7500K | x = 0.298 ± 0.005 |
| | y = 0.314 ± 0.005 |
| 6500K/sRGB | x = 0.313 ± 0.005 |
| | y = 0.329 ± 0.005 |
| sRGB | x = 0.313 ± 0.005 |
| | y = 0.329 ± 0.005 |
| 5000K | x = 0.345 ± 0.005 |
| | y = 0.357 ± 0.005 |



**Quality Inspection specification**

| CIE coordinates | (x,y), FGA |
|---|---|
| 9300K | x = 0.283 ± 0.015 |
| | y = 0.297 ± 0.015 |
| 6500K/sRGB | x = 0.313 ± 0.015 |
| | y = 0.329 ± 0.015 |
| sRGB | x = 0.313 ± 0.015 |
| | y = 0.329 ± 0.015 |

### 8.13 Distance between TFT LCD monitor and CRT/TFT monitor

Conducted with different modes or frequencies. No interference in a distance down to 25 cm.

## 9. ENVIRONMENT

### 9.1 Environmental characteristics

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

**Operating**
- Temperature : 0 to 35 degree C

- Humidity : 80% max
- Altitude : 0-3658m
- Air pressure : 600-1100 Mbar

**Storage**

- Temperature : -20 to 60 degree C
- Humidity : 95% max
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

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



## 10. REGULATORY STANDARDS

Note: All certificates must be raised under the name of Philips

### 10.1 Safety approvals

- ☑ CB report
- ☑ CE
- ☑ TUV GS
- ☑ TCO'03

### 10.2 Power management

- ☑ Energy Star

### 10.3 Certificates, Reports for the production start

When the first production of the monitor starts the following documents must be sent to Philips by mail. All reports must be raised under "Philips" and have to show W0ZR model name .

- ☑CB report
- ☑CE
- ☑FCC
- ☑Service manual

## 11 RELIABILITY

### 11.1 Reliability of the monitor

The MTBF of the monitor has to be greater than 50.000 hours. The MTBF shall be calculated according to the MIL Standard HBDK 217 E/F. The report about the calculation detail shall be provided on component level before mass- production by TVI. The calculation shall be performed for a primary test/preset mode under ambient temperature of 25°C.

## 12. CUSTOMIZATION

### 12.1 Identity Customization

Refer to SKU

### 12.2 EAN /SAP Identification

Refer to SKU

### 12.3 Plastic

The plastic material of the monitor must be PC-ABS (Front/ back) ABS-HB (base).
Plastic type and color is released as follows:

Refer to MakeUp sheet/ Graphic sheet

### 12.4 Definition of serial number



Refer to Philips' definition

### 12.5 Definition of the barcode label

Refer to Philips' definition

### 12.6 Accessories

Refer to SKU

## 13. ECR-HANDLING

Not any change without approved ECR.
Every ECR to the golden " samples" must be approved by PHILIPS, Even ECR for minor changes must be released by PHILIPS.
For the ECR procedure the vendor has to send an ECR formular, necessary spec updates, datasheets and a photo documentation. On based on documents, PHILIPS has to decide if samples are necessary till release to changes. The vendor also has to proof be certificates and test reports, that the change has no effect on safety, EMI and TCO03.
After testing, PHILIPS has to release or reject the change request.

# Safety Check Process

**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 service 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 form 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 accord). 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 deteriortion 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 1watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans bythe 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 cabinets. 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**

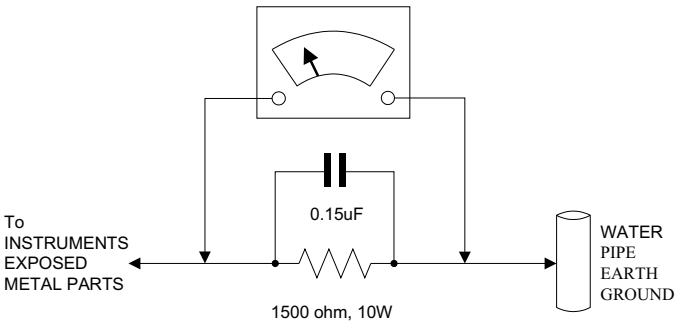
1. All picture tubes used in current model receivers are equipped with an intergral implosion system care should always be used, and safety glasses worn, whenever handling any picture tube. Avoid scratching or other wise damaging the picture tube during installation.
2. Use only replacement tubes specified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

**X-radiation**

1. Be sure procedures and instructions to all your service personal 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 isoperating properly there is no possibility of an X-radiation problem. High voltage should always be kept at the manufacture, rated value-no higher- for optimum performance. Every time a color set is serviced, the brightness should be run up and while monitoring the HV with a meter to be certain that the HV is requation correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV requation are always checked as a standard servicing procedure, and the reason for this prudent routine is cleanly understood by everyone. It is important ot 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 not operate the chassis loner than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operating 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-radiation problem.
8. Most TV receivers contain come types 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 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 types as the original, including suffix letter, or a Philips approved tube.

**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 r=ated 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 should in this service manual may create shock, fire, or other hazards.

**WARNING:** Before removing the back cover, turn the unit OFF and short the HIGH VOLTAGE to the ground.