

# Service Service Service

BDS4241V/00  
BDH4241V/00  
BDH5021V/00



# Service Manual

## Contents

Contents	Page
1 Specification	5
2 Engineering Specification	8
3 Block Diagram	32
4 Circuit	33
5 Exploded View	47
6 Calibration Methods	58
7 Inspection Methods	63
8 Firmware Upgrade Method	95
9 Serial Control Protocols	97
10 Trouble Shooting	101
11 PDP Module Service Manual	109
12 Spare Parts List	186

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**Note:** Repair of these products may only be performed by BDS authorised workshops.



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RoHS :

- 1) PDP Module : RoHS is applied from the 1st delivery except panel of PDP module which has not been defined as of 2006, June. □□□□
- 2) The Rest Material : It is possible to use together without distinguishing. □□□□

## Service Manual Revision

Date	Description	By	Approved
2006.06.16	1st edit (for philips, EU)		
2006.08.08	Exploded view modify (for philips, EU)		
2006.09.15	Spare Parts BOM added incl. 12ncs		

# CONTENTS

◆ SPECIFICATION-----	5
◆ ENGINEERING SPECIFICATION-----	8
◆ BLOCK DIAGRAM-----	32
◆ CIRCUIT -----	33
◆ BOM-----	See Separate Document
◆ EXPLODED VIEW-----	47
◆ CALIBRATION METHODS-----	58
◆ INSPECTION METHODS-----	63
◆ FIRMWARE UPGRADE METHOD-----	95
◆ SERIAL CONTROL PROTOCOLS-----	97
◆ TROUBLE SHOOTING-----	101
◆ PDP MODULE SERVICE MANUAL-----	109



### Main Features

- Pixelworks DNX™ (Digital Natural Expression) technology including Pixelworks DNX™ (Digital Natural Expression) technology dramatically enhances the quality of video images by combining multiple Pixelworks video processing technologies to deliver clear, natural-looking standard and high-definition video images. DNX technology combines sophisticated digital video processing techniques, advanced scaling, motion-adaptive deinterlacing, noise reduction, dynamic edge enhancement, and smoothing of moving lines to deliver a lifelike picture.
- High Brightness and High Contrast Ratio
- Dual HDMI Input (Option)
- Built in Speakers (Option)
- HDMI(High Definition Multimedia Interface) Support Up to 720p, 1080i, 1280x1024/60 Hz(SXGA) (Option)
- DVI(Digital Visual Interface) Support Up to 720p , 1080i , 1280 x 1024 / 60 Hz (SXGA)
- HDCP(High-bandwidth Digital Content Protection) Supported
- Multi-Standard RGB(PC) Monitor Support Up to 720p , 1080i , 1280 x 1024 / 60 Hz (SXGA)
- Multi-Standard Component Signal Compatibility : 480i , 576i , 480p , 576p , 720p , 1080i
- Multi-Standard Video System Supported : NTSC , PAL , SECAM
- Multi-screen display : Normal , PiP/PBP(Option)
- Variable Image size : Auto, Fill All(16:9), Fill Aspect, Zoom, Anamorphic, Wide
- Variable Picture control : Brightness , Contrast , Sharpness , Color , Tint
- Variable Audio control : Volume , Mute , Bass , Treble , Balance
- Video Enhancement features including
  - DCTI(Digital Chroma Transient) / DLTI(Digital Luminance Transient Improvement)
  - Digital luminance peaking and Horizontal Peaking
  - Enhanced sharpness controls
  - Advanced Noise Reduction including progressive sources
  - Flesh Tone Correction (FTC)
  - Chroma Upsampling Error (CUE) correction
  - Improved White and Black-level expansion
  - Digital 3D Comb-filter (Option)
  - Digital brightness, contrast, hue, and saturation control
  - PixelBoost™(Pixelworks) overdrive technology for video format
  - Improved scaler and filters for sharper images
  - Improved multi-region, anamorphic scaling for 4:3<->16:9 aspect ratio conversion
  - Independent vertical and horizontal scalers
  - True 10-bit(1 billion color) processing (Option)
- Deinterlacing features including
  - Improved deinterlacer, supporting SDTV and HDTV, for standard NTSC/PAL/SECAM, 1080i
  - Per-pixel motion-compensated deinterlacing
  - Improved Low-Angle Interpolation
  - Film mode for 3:2/2:2 pull-down materials, including 1080i sources
- Audio Enhancement features including
  - Automatic Volume Correction (AVC)
  - Audio Delay for "Lip Sync" (Option)
  - Spatial Effects
  - Pseudo Stereo
- Multi-Language On Screen Display (OSD)
- Still image function
- Image Sticking Minimum Function
- Sleep Timer
- TeleText support one thousands of pages (1K page)
- Quiet Fanless Operation
- Ultra slim & light design



# PDP Monitor

Item			Specifications		
			BDS4241V/00	BDH4241V/00	BDH5012V/00
Display	Screen Size(Active Area)		42" (920.1(H) x 518.4(V)±0.5mm)		50" (1106.5(H) x 622.1(V)±0.5mm)
	Aspect ratio		16:9		
	Number of Pixels		852 (H) x 480 (V)	1024 (H) x 768 (V)	1366 (H) x 768 (V)
	Pixel Pitch		1.080(H) x 1.080(V) [mm]	0.900(H) x 0.676(V) [mm]	0.810(H) x 0.810(V) [mm]
	Displayable Colors		1 billion (Option)		
	Brightness		1500 cd/m <sup>2</sup>	1200 cd/m <sup>2</sup>	1000 cd/m <sup>2</sup>
	Contrast Ratio		10000:1	8000:1	8000:1
	Color Temperature		9500 K		
	Viewing Angle		Over 160 degrees		
In / Out Terminals	Speaker Output	Internal Speaker (Option)	10W(L) + 10W(R) [RMS] / 8 Ω 2 Way 2 Speaker(A,B,C,D) or 2 Way 4 Speaker (E)		
		External Speaker (Option)	10W(L) + 10W(R) [RMS] / 8 Ω 2 Way 4 Speaker System		
	RS-232C	D-Sub Jack x 1 (9 pin)	TXD + RXD (1:1)		
	HDMI Input (Option)	HDMI Jack x 2 (Type A)	Digital RGB : TMDS (Video + Audio) MAX : Video - 720p , 1080i , 1280 x 1024 / 60 Hz (SXGA) Audio - 48kHz / 2 Channel (L + R)		
	DVI Input	DVI Jack x 1 (24 pin)	Digital RGB : TMDS MAX : 720p , 1080i , 1280 x 1024 / 60 Hz (SXGA)		
		RCA Jack x 1	Audio : 0.5V[rms](Normal) / 2 Channel (L+R)		
	RGB Input	D-Sub Jack x 1 (15 pin)	Analog RGB : 0.7V[p-p](75Ω), H/CS/V : TTL (2.2 kΩ), SOG : 1V[p-p](75Ω) MAX : 720p , 1080i , 1280 x 1024 / 60 Hz (SXGA)		
		RCA Jack x 1	Audio : 0.5V[rms](Normal) / 2 Channel (L+R)		
	Component Input	RCA Jack x 1	Y:1V[p-p](75Ω) , Pb/Cb:0.7V[p-p](75Ω) , Pr/Cr:0.7V[p-p](75Ω) 480i , 576i , 480p , 576p , 720p , 1080i Audio : 0.5V[rms](Normal) / 2 Channel (L+R)		
	Digital Audio Output (Option)	Optical Jack x 1	3V[p-p] ( 75 Ω) 48kHz Sampling ( 4 Hz ~ 22 KHz)		
	Monitor Output	RCA Jack x 1	Video : 1V[p-p] ( 75 Ω) Audio : 0.5V[rms](Normal) / 2 Channel (L + R)		
	S-Video Input	Mini DIN Jack x1 (4 pin)	Y: 1V[p-p] ( 75 Ω) , C: 0.286V[p-p] ( 75 Ω) [NTSC] Y: 1V[p-p] ( 75 Ω) , C: 0.300V[p-p] ( 75 Ω) [PAL / SECAM]		
	Video Input	RCA Jack x 1	Video : 1V[p-p] ( 75 Ω) [ NTSC / PAL / SECAM] Audio : 0.5V[rms](Normal) / 2 Channel (L + R)		
	Scart 1 , 2	Scart Jack x 2 (21 pin) [Full x 1, Half x 1] or RCA Jack x 2	Video : 1V[p-p] ( 75 Ω) Y : 1V[p-p] ( 75 Ω) , C: 0.3V[p-p] ( 75 Ω) RGB : 0.7V[p-p] ( 75 Ω) Audio : 0.5V[rms](Normal) / 2 Channel (L+R)		
General	Power Supply		AC 100V ~ 240V, 50/60Hz		
	Power Consumption (Typical)		290W	350W	450W
	Dimensions (Without Stand) [ W mm x H mm x D mm ]		1028 x 625 x 89.8 (A) 1028 x 625 x 107.4 (B) 1194 x 655 x 105.3 (E)	1028 x 625 x 107.4 (B) 1194 x 655 x 105.3 (E)	1205 x 721 x 114.3 (C) 1205 x 721 x 114.3 (D)
	Weight (Without Stand)		29 kg(A,B) / 31 kg(E)	31 kg(B) / 33 kg(E)	43 kg
Environment Condition	Temperature	Operational	0 ~ 40 °C		
		Storage	-20 ~ 60 °C		
	Humidity	Operational	20 ~ 80% RH (No condensation)		
		Storage	10 ~ 90% RH (NO condensation)		
	Pressure	Operational	800 ~ 1100 hPa (Altitude : 0 ~ 2,000 m)		
		Storage	700 ~ 1100 hPa (Altitude : 0 ~ 3,000 m)		

\* The specifications are subject to change without notice

## External Speaker (Option)

Item	Specifications	
	BDS4241V/00, BDH4241V/00	BDH5021V/00
Dimensions (W x H x D)	113 mm x 626.6 mm x 82.2 mm	90 mm x 721 mm x 68 mm
Weight	5 kg ( L + R )	3 kg ( L + R )
Type	2 Way 4 Speaker System	
Input	10 W ( RMS )	
Impedence	8 $\Omega$	
Output Sound Pressure	87 dB/W/M	
Frequency Response	45 Hz ~ 20 KHz	

*\* The specifications are subject to change without notice*

## Internal Speaker (Option)

Item	Specifications	
Type	2 Way 2 Speaker(A,B,C,D) or 2 Way 4 Speaker (E)	
Input	10 W ( RMS )	
Impedence	8 $\Omega$	
Output Sound Pressure	88 dB/W/M	
Frequency Response	140 Hz ~ 10 KHz	

*\* The specifications are subject to change without notice*

## Accessories

<b>Standard</b>	Owner's Instruction , Remote Controller/AAA Batteries , Power Cord
<b>Option</b>	Foot Stand , Table-Top stand , Wall-Mount Bracket , Ceiling-Mount Bracket , Internal Speaker System , External Speaker System , DVI Cable , VGA(D-SUB) Cable , Audio Cable , Component Cable , RCA Video Cable , RCA Audio Cable , S-Video Cable , Scart Cable, HDMI Cable , Optical Cable , Speaker Cable

*\* The specifications are subject to change without notice*

# WoosungNextier Corp.

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## Engineering Product Specification

MODEL  
(BDS4241V/00, BDH4241V/00, BDH5021V/00)

### PDP – MONITOR

Approved

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WOOSUNG NEXTIER Corp.

DATE : \_\_\_\_\_

\_\_\_\_\_  
DATE : \_\_\_\_\_

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# **TABLE OF CONTENTS**

## **1. SCOPE**

- 1.1 Introduction.
- 1.2 Product Definition.
- 1.3 Mass Production Release.
- 1.4 Change Control.
- 1.5 Service.

## **2. GENERAL SPECIFICATION**

- 2.1 General Spec.
- 2.2 Input / Output Terminal.

## **3. INPUT SIGNAL INTERFACE**

- 3.1 DVI Signal Interface.
- 3.2 RGB Signal Interface.
- 3.3 DVI / RGB Mode Table.
- 3.4 Component Signal Interface.
- 3.5 Component Mode Table.
- 3.6 S-Video Signal Interface.
- 3.7 Composite Signal Interface.
- 3.8 SCART Signal Interface.

## **4. POWER**

- 4.1 Power Supply.

## **5. CONTROLS AND INDICATORS**

- 5.1 Hardware Control.
- 5.2 Remote control.
- 5.3 Menu Control

## **6. PLASMA DISPLAY PANEL(PDP) Specifications**

- 6.1 42"SD Specifications
- 6.2 42"HD Specifications
- 6.3 50"HD Specifications

## **7. DISPLAY CELL DEFECT SPECIFICATION**

- 7.1 42"SD Cell Defect Specifications
- 7.2 42"HD Cell Defect Specifications
- 7.3 50"HD Cell Defect Specifications

## **8. MECHANICAL**

- 8.1 Fan.
- 8.2 Dimension.(without stand)
- 8.3 Weight.

## **9. ENVIRONMENTAL**

- 9.1 42"SD Environmental Conditions.
- 9.2 42"HD Environmental Conditions.
- 9.3 50"HD Environmental Conditions.

## **10. PACKAGING**

- 10.1 Packaging Specifications.
- 10.2 Vibration.
- 10.3 Drop.

## **11. AUDIO SYSTEM**

- 11.1 Internal Speaker System.

## 1. SCOPE

<b>1.1 Introduction</b>	
Product configuration	This specification defines the configuration and performance requirements for the following Plasma Displays.
Plasma Displays	Product Name : PDP-MONITOR Display Type : 42" SD / 42" HD / 50" HD Model Name : BDS4241V/00, BDH4241V/00, BDH5021V/00
<b>1.2 Product Definition</b>	
Top Level Assembly	The top level assembly shall contain : 1. Plasma Display : BDS4241V/00, BDH4241V/00, BDH5021V/00 2. Power Cord 3. Remote Control Unit 4. "AA" Batteries N=2 5. Owner's Instructions 6. DVI & RGB(VGA) Cable 7. Foot Stand 8. Internal Speaker System
<b>1.3 Mass Production Release</b>	
Mass Production Approval	Mass Production shall not begin until Woosung Nextier Corp. has issued a Mass Production Release.
Component Approvals	All exterior plastic components, screen printed components, labels, shipping cartons, protective foam, and printed materials require approval by WoosungNextier Corp. prior to Mass production Release.



<b>1.4 Change Control</b>	
ECR/ECN	All Engineering changes to the product shall be made in accordance with the WoosungNextier Corp. ECR/ECN Procedure
<b>1.5 Service</b>	
Documentation / Service Manual	Complete Spare Parts List, Schematic, Service Manual, and Assembly Drawings shall be provided within one month of Mass Production Release.

## 2. GENERAL SPECIFICATION

<b>2.1 General Spec.</b>			
Display Type	42"SD	42"HD	50"HD
Model Name	BDS4241V/00	BDH4241V/00	BDH5021V/00
Native Resolution & Frequency	852 X 480 @ 60Hz	1024 X 768 @ 60Hz	1366 X 768 @ 60Hz
Input Voltage	AC100V ~ 240V, 50/60Hz	AC100V ~ 240V, 50/60Hz	AC100V ~ 240V, 50/60Hz
<b>2.2 Input/Output Terminal</b>			
DVI Input	DVI_D 24-pin Jack × 1 RCA Jack(L+R) × 1		
RGB Input	D-Sub 15-pin Jack ×1 RCA Jack(L+R) × 1		
Component Input	RCA(YPbPr/YCbCr) Jack × 1 RCA(L+R) Jack × 1		
S-Video Input	Mini DIN S-terminal × 1		
Composite Input	RCA Jack × 1		
SCART Input/Output or	Scart 21-pin Jack × 2 (Full×1, Half×1)		
Monitor Output	RCA Jack × 1		
RS-232C	D-Sub 9-pin Jack × 1		

### 3. INPUT SIGNAL INTERFACE

3.1 DVI Interface	
DVI Input Connector	DVI-D Female Contacts
Audio Input Connector	RCA (L+R) Jack
DVI Video Cable Connector Pin out	Pin 1 TMDS Data 2- Pin 2 TMDS Data 2+ Pin 3 TMDS Data 2/4 Shield Pin 4 TMDS Data 4- Pin 5 TMDS Data 4+ Pin 6 DDC Clock Pin 7 DDC Data Pin 8 NC Pin 9 TMDS Data 1- Pin 10 TMDS Data 1+ Pin 11 TMDS Data 1/3 Shield Pin 12 TMDS Data 3- Pin 13 TMDS Data 3+ Pin 14 +5V Power Pin 15 Ground (+5V) Pin 16 Hot Plug Detect Pin 17 TMDS Data 0- Pin 18 TMDS Data 0+ Pin 19 TMDS Data 0/5 Shield Pin 20 TMDS Data 5- Pin 21 TMDS Data 5+ Pin 22 TMDS Clock Shield Pin 23 TMDS Clock - Pin 24 TMDS Clock +
Sync Signals	Digital, Differential type (TMDS)
DVI Audio Input Level	0.5V[rms] (L+R)
DVI Signal Impedance	
DDC 1/2B	Ver. 1.3

<b>3.2 RGB Interface</b>	
RGB Input Connector	D-Sub 15-Pin Jack (Female)
Audio Input Connector	RCA (L+R) Jack
D-Sub 15-Pin Cable Connector Pin out	Pin 1    Red analog Signal Pin 2    Green analog Signal Pin 3    Blue analog Signal Pin 4    GND Pin 5    GND Pin 6    GND for Red signal Pin 7    GND for Green signal Pin 8    GND for Blue signal Pin 9    NC Pin 10   GND Pin 11   GND Pin 12   SDA (Input only) Pin 13   H-Sync or composited H/V Sync Signal Pin 14   V-Sync Pin 15   SCL (Input only)
RGB Signals	700 mV full scale
RGB Signal Impedance	75 Ohms
RGB Audio Input Level	0.5V[rms] (L+R)
RGB Audio Output Level	0.5V[rms] (L+R)
RGB Sync Signals	TTL 2.2k ohm internal pull-up resistors.
DDC 1/2B	VER 1.3(Optional)

3.3 DVI / RGB Mode Table				
Mode	Resolution	Horizontal Frequency(kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)
VGA	640 x 350	31.460	70.000	25.170
	640 x 400	37.861	85.000	31.500
	720 x 400	31.469	70.000	28.320
	640 x 480	31.460	50.000	25.170
		31.500	60.000	25.175
		37.700	72.000	31.500
		37.500	75.000	31.500
		43.300	85.000	36.000
SVGA	800 x 600	35.100	56.000	36.000
		37.900	60.000	40.000
		48.100	72.000	50.000
		46.900	75.000	49.500
		53.700	85.000	56.250
	832 x 624	49.720	75.000	57.280
XGA	1024 x 768	48.400	60.000	65.000
		56.500	70.000	75.000
		60.000	75.000	78.750
		64.000	80.000	85.500
		68.300	85.000	94.500
	1152 x 870	68.680	75.000	100.000
SXGA	1280 x 1024	64.000	60.000	108.000
SDTV 480p	720 x 480	31.470	59.940	27.000
SDTV 575p	720 x 576	31.250	50.000	27.000
HDTV 720p	1280 x 720	45.000	60.000	74.250
		44.960	59.940	74.180
		37.500	50.000	74.250
HDTV 1080i	1920 x 1080	33.750	30.000	74.250
		33.720	29.970	74.180
		31.250	25.000	74.250
		28.125	25.000	74.250

<b>3.4 Component Interface</b>	
Component Input Connector	RCA(YPbPr/YCbCr) Jack
Audio Input Connector	RCA(L+R) Jack
Component Signal	Y : 1V[p-p] Pb/Cb : 0.7V[p-p] Pr/Cr : 0.7V[p-p]
Component Signal Impedance	75 Ohms
Audio Input	0.5[rms] (L+R)
Audio Input Impedance	470K Ohms
Component Signal Type	EDTV : 525i(480i), 625i(576i) SDTV : 625p(576p), 525p(480p) HDTV : 750p(720p), 1125i(1035i, 1080i)

<b>3.5 Component Mode Table</b>				
Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)
EDTV 480i	720 x 480	15.730	29.970	13.5000
EDTV 575i	720 x 576	15.630	25.000	13.5000
SDTV 480p	720 x 480	31.470	59.940	27.000
SDTV 575p	720 x 576	31.250	50.000	27.000
HDTV 720p	1280 x 720	45.000	60.000	74.250
		44.960	59.940	74.180
		37.500	50.000	74.250
HDTV 1080i	1920 x 1080	33.750	30.000	74.250
		33.720	29.970	74.180
		31.250	25.000	74.250
		28.125	25.000	74.250

<b>3.6 S-Video Interface</b>	
S-Video Input Connector	Mini DIN4-pin
S-Video Signal	Y : 1V[p-p] C : 0.286V[p-p] (NTSC) C : 0.3V[p-p] (PAL/SECAM)
S-Video Signal Impedance	75 Ohms

<b>3.7 Composite Interface</b>	
Composite Input Connector	RCA(Video) Jack
Composite Output Connector	RCA(Video) Jack
Audio Input Connector	RCA(L+R) Jack
Audio Output Connector	RCA(L+R) Jack
Composite Input Signal	V : 1V[p-p]
Composite Output Signal	V : 1V[p-p]
Composite Audio Input Level	0.5[rms] (L+R)
Composite Audio Output Level	0.5[rms] (L+R)
Composite Input Signal Impedance	75 Ohms
Composite Output Signal Impedance	75 Ohms
Composite Audio Input Impedance	470K Ohms
Composite Audio Output Impedance	220K Ohms

<b>3.8 Scart Interface</b>		
Scart Input Connector	Scart 21-pin Jack	
Scart1 21-Pin Cable Connector Pin out	Pin 1	Audio R Out
	Pin 2	Audio R In
	Pin 3	Audio L (or Mono) Out
	Pin 4	Audio Ground
	Pin 5	RGB Ground Blue
	Pin 6	Audio L (or Mono) In
	Pin 7	RGB Blue In
	Pin 8	FUNCTION SWITCHING
	Pin 9	RGB Ground Green
	Pin 10	N.C
	Pin 11	RGB Green In
	Pin 12	N.C
	Pin 13	RGB Ground Red
	Pin 14	Ground Data
	Pin 15	RGB Red In / Chrominance In
	Pin 16	Blanking Signal
	Pin 17	Ground Composite signal
	Pin 18	Ground Blanking Signal
	Pin 19	Composite Video Out
	Pin 20	Composite Video In / Luminance In
	Pin 21	Ground / Shiled
Scart2 21-Pin Cable Connector Pin out	Pin 1	Audio R Out
	Pin 2	Audio R In
	Pin 3	Audio L (or Mono) Out
	Pin 4	Audio Ground
	Pin 5	RGB Ground Blue
	Pin 6	Audio L (or Mono) In
	Pin 7	N.C
	Pin 8	FUNCTION SWITCHING
	Pin 9	RGB Ground Green
	Pin 10	N.C
	Pin 11	N.C
	Pin 12	N.C
	Pin 13	Chrominance Ground



	Pin 14    Ground Data Pin 15    Chrominance In Pin 16    N.C Pin 17    Ground Luminance Pin 18    Ground Pin 19    Composite Video Out Pin 20    Composite Video In / Luminance In Pin 21    Ground / Shiled
Scart1 Input Signal	V : 1V[p-p] RGB : 0.7V[p-p]
Scart2 Input Signal	V : 1V[p-p]
Scart Output Signal	V : 1V[p-p]
Scart Audio Input / Output Level	0.5[rms] (L+R)
Scart Input / Output Signal Impedance	75 Ohms
Scart Audio Input Impedance	470K Ohms
Scart Audio Output Impedance	220K Ohms

## 4. power

4.1 Power Supply			
Model Name	BDS4241V/00	BDH4241V/00	BDH5021V/00
Input Voltage Range	AC 100 ~ 240V	AC 100 ~ 240V	AC 100 ~ 240V
Input Frequency Range	50/60 Hz	50/60 Hz	50/60 Hz
Power Consumption	Tpy : 290W Standby : 7 W	Tpy : 350W Standby : 7 W	Tpy : 450W Standby : 7 W

## 5. CONTROLS AND INDICATORS

5.1 Hardware Controls	
Main Power Switch	None
LED	Power / Standby : Red Operation Lamp : Green
Controls Switch	Input Menu VOL – VOL+ CH – CH+ Power
Infrad Receiver	Arrival Distance : Min 7m Resonance Frequency : 38 KHz
5.2 Remote Control	
Distance	7 m
Angle	30 degrees angle on each side of the sensor

<b>5.3 Menu Controls</b>		
SCART / Video / S-Video Input	Image	Brightness, Contrast, Sharpness, Color, Tint, Image Preset
	Screen	Size, Freeze, Sticking Minimum
	Setup	Language, Sleep Timer, OSD Settings(Transparency, Timeout)
	Audio	Volume, Treble, Bass, Balance, Mute, Audio Preset
Component Input	Image	Same above
	Screen	Same above
	Setup	Same above
	Audio	Same above
RGB Input	Image	Brightness, Contrast, Phase, Frequency, Sharpness, Image Preset
	Screen	Size, H Position, V Position, Auto, Freeze, Sticking Minimum
	Setup	Same above
	Audio	Same above
DVI Input	Image	Brightness, Contrast, Sharpness, Image Preset
	Screen	Size, Freeze, Sticking Minimum
	Setup	Same above
	Audio	Same above

## 6. PLASMA DISPLAY PANEL (PDP) SPECIFICATIONS

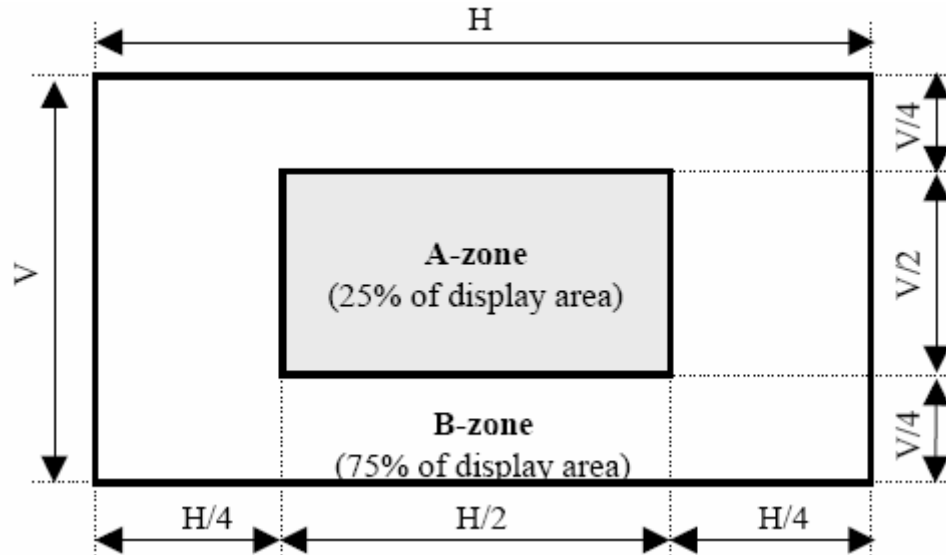
6.1 42" SD Specifications	
Panel Type	42V7
Number of Pixels	852(H) × 480(V) pixels (1pixel = 3 RGB cells)
Pixel Pitch	1.080 mm (H) × 1.080 mm (V)
Cell Pitch	0.320 mm (H) × 1.080mm (V)
Display Area	920.1mm (H) × 518.4mm (V) ± 0.5mm
Outline Dimension	1005(H) × 597(V) × 60.6(D) ± 1mm
Pixel Type	RGB Closed type
Number of Gradations	(R)1024 × (G)1024 × (B)1024
Aspect Ratio	16:9
Peak Brightness	Typical 1,500cd/m <sup>2</sup>
Contrast Ratio(in Dark Room)	Typical 10,000:1
Life-time	More than 60,000 Hours of continuous operation

6.2 42" HD Specifications	
Panel Type	42X3
Number of Pixels	1024(H) × 768(V) (1pixel=3 RGB cells)
Pixel Pitch	0.900 mm (H) × 0.676 mm (V)
Cell Pitch	0.300 mm (H) × 0.676 mm (V)(Green Cell basis)
Display Area	921.5mm (H) × 519.0mm (V) ± 0.5mm
Outline Dimension	1005(H) × 597(V) × 60.7(D) ± 1mm
Pixel Type	RGB Closed type
Number of Gradations	(R)1024 × (G)1024 × (B)1024
Aspect Ratio	16:9
Peak Brightness	Typical 1,200cd/m <sup>2</sup>
Contrast Ratio(in Dark Room)	Typical 8,000:1
Expected Life-time	More than 60,000 Hours of continuous operation

<b>6.3 50" HD Specifications</b>	
Panel Type	50X3
Number of Pixels	1366(H) × 768(V) (1pixel=3 RGB cells)
Pixel Pitch	0.810 mm (H) × 0.810 mm (V)
Cell Pitch	0.270 mm (H) × 0.810 mm (V)(Green Cell basis)
Display Area	1106.5mm (H) × 622.1mm (V) ± 0.5mm
Outline Dimension	1190(H) × 700(V) × 58(D) ± 1mm
Pixel Type	RGB Closed (Well)type
Number of Gradations	(R)1024 × (G)1024 × (B)1024
Aspect Ratio	16:9
Peak Brightness	Typical 1,000cd/m <sup>2</sup>
Contrast Ratio(in Dark Room)	Typical 8,000:1
Expected Life-time	More than 60,000 Hours of continuous operation

## 7. Display Cell Defect Specification

### 7.1 42" SD Cell Defect Specifications



Defect	Specification		
	Number of Cell Defects (N)		Distance between two defects (D)
Non-Ignition Dot <sup>(1)</sup> + Unstable Dot <sup>(2)</sup>	A-zone	<ul style="list-style-type: none"><li>▶ Total <math>N \leq 3</math> [cells / full screen]</li><li>▶ <math>N \leq 2</math> [cells / each R,G,B screen]</li><li>▶ <math>N = 0</math> [adjacency of 2-cells / full-white screen]</li></ul>	<ul style="list-style-type: none"><li>▶ A-Zone : <math>\geq 100\text{mm}</math></li><li>▶ B-Zone : <math>N \leq 2</math> ( 100mm Circle/screen:2points allowed)</li><li>▶ A, B Zone overlap:<math>N \leq 2</math> ( 100mm Circle/screen:2points allowed)</li></ul>
	B-zone	<ul style="list-style-type: none"><li>▶ Total <math>N \leq 6</math> [cells / full screen]</li><li>▶ <math>N \leq 3</math> [cells / each R,G,B screen]</li><li>▶ <math>N \leq 2</math> [adjacency of 2-cells / full-white screen] = 0 [adjacency of 3-cells / full-white screen]</li></ul>	
Uncontrollable Dot <sup>(3)</sup>	A-zone	<ul style="list-style-type: none"><li>▶ <math>N \leq 0</math> [cells / cells/each R,G,B screen]</li></ul>	
	B-zone	<ul style="list-style-type: none"><li>▶ Total <math>N \leq 2</math> [cells / full screen]</li><li>▶ <math>N \leq 2</math> [cells / each R,G,B screen]</li></ul>	
Non-Extinguishing Dot <sup>(4)</sup>	A-zone	<ul style="list-style-type: none"><li>▶ <math>N = 0</math></li></ul>	
	B-zone	<ul style="list-style-type: none"><li>▶ <math>N = 0</math></li></ul>	
<ul style="list-style-type: none"><li>▶ Total sum of all defects <math>N \leq 17</math> [cells / full-white screen]</li></ul>			
Stain <sup>(5)</sup>	<ul style="list-style-type: none"><li>▶ <math>1 \leq D \leq 5</math>, <math>N \leq 3</math> (Stain distance : <math>\leq 50\text{mm}</math>)</li><li>▶ <math>D &gt; 5</math>, <math>N = 0</math> (Stain distance : <math>\geq 50\text{mm}</math>)</li></ul>		<ul style="list-style-type: none"><li>▶ D : mm</li></ul>

<sup>(1)</sup> **Non-Ignition Dot**(Dark Defect) is defined as “A cell of which more than 50% area is not ignited”

<sup>(2)</sup> **Unstable Dot** (Flickering) is defined as “A cell which repeats On and Off”

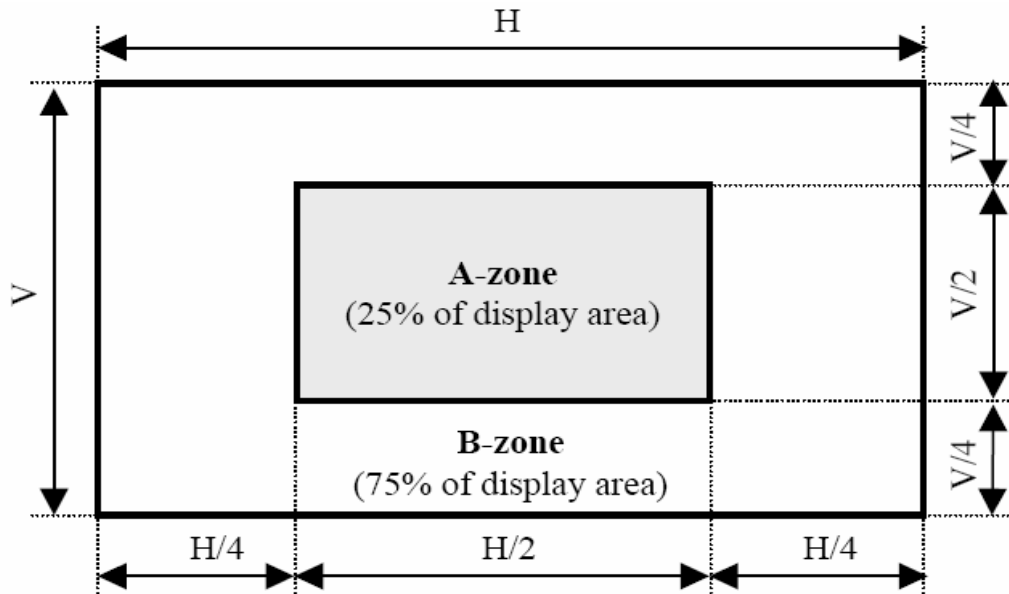
<sup>(3)</sup> **Uncontrollable Dot** is defined as “A cell which is distinctly brighter or darker than other cells around it” and/or “A cell of which color is distinctly different from that of other cells around it”

<sup>(4)</sup> **Non-Extinguishing Dot** (brightness defect) is defined as “A cell of which more than 50% area is always ON”

<sup>(5)</sup> **Stain** is defined as “A blob due to local color contamination in white or simple color pattern”

\*The decision distance is 3H away from the panel, intensity of illumination is between 100 Lux and 200 Lux.

## 7.2 42" HD Cell Defect Specifications



Defect	Specification		
	Number of Cell Defects (N)		Distance between two defects (D)
Non-Ignition Dot <sup>(1)</sup> + Unstable Dot <sup>(2)</sup>	A-zone	<ul style="list-style-type: none"><li>▶ Total <math>N \leq 2</math> [cells / full screen]</li><li>▶ <math>N \leq 2</math> [cells / each R,G,B screen]</li><li>▶ <math>N \leq 2</math> [adjacency of 2-cells / full-white screen]</li></ul>	▶ D : $\geq 25\text{mm}$ , $N \leq 1$
	B-zone	<ul style="list-style-type: none"><li>▶ Total <math>N \leq 6</math> [cells / full screen]</li><li>▶ <math>N \leq 5</math> [cells / each R,G,B screen]</li><li>▶ <math>N \leq 2</math> [adjacency of 2-cells / full-white screen]</li><li>▶ <math>N = 0</math> [adjacency of 3-cells / full-white screen]</li></ul>	
Uncontrollable Dot <sup>(3)</sup>	A-zone	▶ $N \leq 0$ [cells/each R,G,B screen]	
	B-zone	▶ Total $N \leq 2$ [cells / full screen]	
Non-Extinguishing Dot <sup>(4)</sup>	A-zone	▶ $N = 0$	
	B-zone	▶ $N = 0$	
▶ Total sum of all defects $N \leq 10$ [cells / full-white screen]			

<sup>(1)</sup> **Non-Ignition Dot**(Dark Defect) is defined as “A cell of which more than 50% area is not ignited”

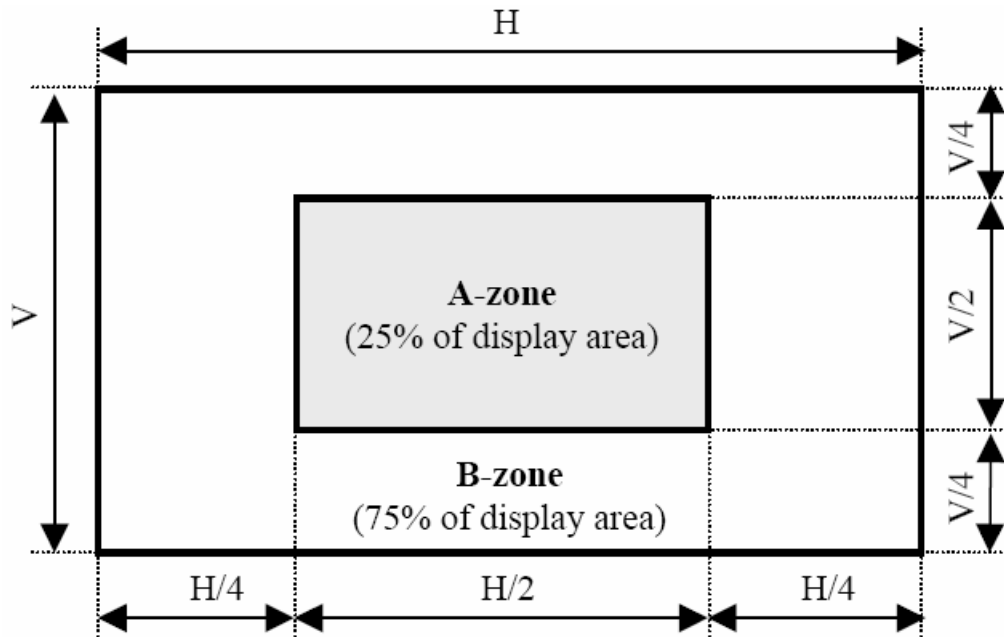
<sup>(2)</sup> **Unstable Dot** (Flickering) is defined as “A cell which repeats On and Off”

<sup>(3)</sup> **Uncontrollable Dot** is defined as “A cell which is distinctly brighter or darker than other cells around it” and/or “A cell of which color is distinctly different from that of other cells around it”

<sup>(4)</sup> **Non-Extinguishing Dot** (brightness defect) is defined as “A cell of which more than 50% area is always ON”

\* The decision distance is 3H away from the panel, intensity of illumination is between 100 Lux and 200 Lux.

### 7.3 50" HD Cell Defect Specifications



Defect	Specification		
	Number of Cell Defects (N)		Distance between two defects (D)
Non-Ignition Dot <sup>(1)</sup> + Unstable Dot <sup>(2)</sup>	A-zone	<div>▶ N ≤ 4 [cells / full-white screen]</div> <div>▶ N ≤ 2 [adjacency of 2-cells / full-white screen]</div> <div>= 0 [adjacency of 3-cells / full-white screen]</div>	<div>▶ N ≤ 1</div> <div>[cells / 25mm-diameter-circle / full-white screen] for A/B-zone</div> <div><sup>(3)</sup> The defect of adjacent 2-cells is defined as one defect.</div>
	B-zone	<div>▶ N ≤ 11[cells / full-white screen]</div> <div>▶ N ≤ 2 [adjacency of 2-cells / full-white screen]</div> <div>= 0 [adjacency of 3-cells / full-white screen]</div>	
Uncontrollable Dot <sup>(3)</sup>	A-zone	▶ N ≤ 2 [cells / full-white screen]	
	B-zone	▶ N ≤ 3 [cells / full-white screen]	
Non-Extinguishing Dot <sup>(4)</sup>	A-zone	▶ N = 0 [cells / full-black screen]	
	B-zone	▶ N = 0 [cells / full-black screen]	
▶ Total sum of all defects N ≤ 18 [cells / full-white screen]			
Stain <sup>(5)</sup>	<div>▶ N ≤ 6 , for the stain of which longer-axis length is 5mm or shorter.</div> <div>▶ N = 0 , for the stain of which longer-axis length is longer than 5mm.</div>		<div>▶ D ≥ 50 mm</div>

<sup>(1)</sup> **Non-Ignition Dot**(Dark Defect) is defined as “A cell of which more than 50% area is not ignited”

<sup>(2)</sup> **Unstable Dot** (Flickering) is defined as “A cell which repeats On and Off”

<sup>(3)</sup> **Uncontrollable Dot** is defined as “A cell which is distinctly brighter or darker than other cells around it” and/or “A cell of which color is distinctly different from that of other cells around it”

<sup>(4)</sup> **Non-Extinguishing Dot** (brightness defect) is defined as “A cell of which more than 50% area is always ON”

<sup>(5)</sup> **Stain** is defined as “A blob due to local color contamination in white or simple color pattern”



## 8. MECHANICAL

8.1 Fan			
Fans	N/A (No Fans are used in the unit)		
8.2 Dimensions (without stand)			
Model Name	BDS4241V/00	BDH4241V/00	BDH5021V/00
Width	1028mm	1028mm	1206.7mm
Height	625mm	625mm	721mm
Depth	89.8mm	107.4mm	117.3mm
8.4 Weight(without stand)			
Model Name	BDS4241V/00	BDH4241V/00	BDH5021V/00
Net Weight	28Kg	30Kg	42Kg

## 9. ENVIRONMENTAL

<b>9.1 42"SD Environmental Conditions</b>	
Operating Temperature Range	0°C to +55°C
Storage Temperature	-20°C to 60°C (Packing condition)
Operating Relative Humidity	20% to 80% (Non-Condensing)
Storage Relative Humidity	10% to 90% (Non-Condensing)
Operating Atmospheric Pressure	800~1100hpa (Altitude : 0 ~ 2,000 m)
Storage Atmospheric Pressure	700~1100hpa (Altitude : 0 ~ 3,000 m)

<b>9.2 42"HD Environmental Conditions</b>	
Operating Temperature Range	0°C to +40°C
Storage Temperature	-20°C to 60°C (Packing condition)
Operating Relative Humidity	20% to 80% (Non-Condensing)
Storage Relative Humidity	10% to 90% (Non-Condensing)
Operating Atmospheric Pressure	800~1100hpa (Altitude : 0 ~ 2,000 m)
Storage Atmospheric Pressure	700~1100hpa (Altitude : 0 ~ 3,000 m)

<b>9.3 50"HD Environmental Conditions</b>	
Operating Temperature Range	0°C to +40°C
Storage Temperature	-20°C to 60°C (Packing condition)
Operating Relative Humidity	20% to 80% (Non-Condensing)
Storage Relative Humidity	10% to 90% (Non-Condensing)
Operating Atmospheric Pressure	800~1100hpa (Altitude : 0 ~ 2,000 m)
Storage Atmospheric Pressure	700~1100hpa (Altitude : 0 ~ 3,000 m)

## 10. PACKAGING

10.1 Package Specifications			
Model Name	BDS4241V/00	BDH4241V/00	BDH5021/00
Ink	The ink shall not rub off after a suitable drying time.		
Shipping Carton Type	One Piece Construction		
Carton Material	Double Wall Vertical Flute 16 kg/cm2 burst strength.		
Handle	Cartons shall incorporate four holes on sides sides for handling.		
Width	TBD	TBD	TBD
Height	TBD	TBD	TBD
Depth	TBD	TBD	TBD
Gross Weight	TBD	TBD	TBD
10.2 Vibration			
	Bottom		Back and Sides
Vibration Frequency	5-30Hz	30-50Hz	5-50Hz
Acceleration	1.1G	0.7G	0.7G
Duration	15minutes / 1 cycle		15minutes / 1 cycle
Test Time	75minutes		15minutes
Vibration Test Data			
10.3 Drop			
Bottom	30cm		
Four Bottom Edges (one side support)	40cm (another side edge support at 15cm height )		
Drop Test Data			

**11. AUDIO SYSTEM**

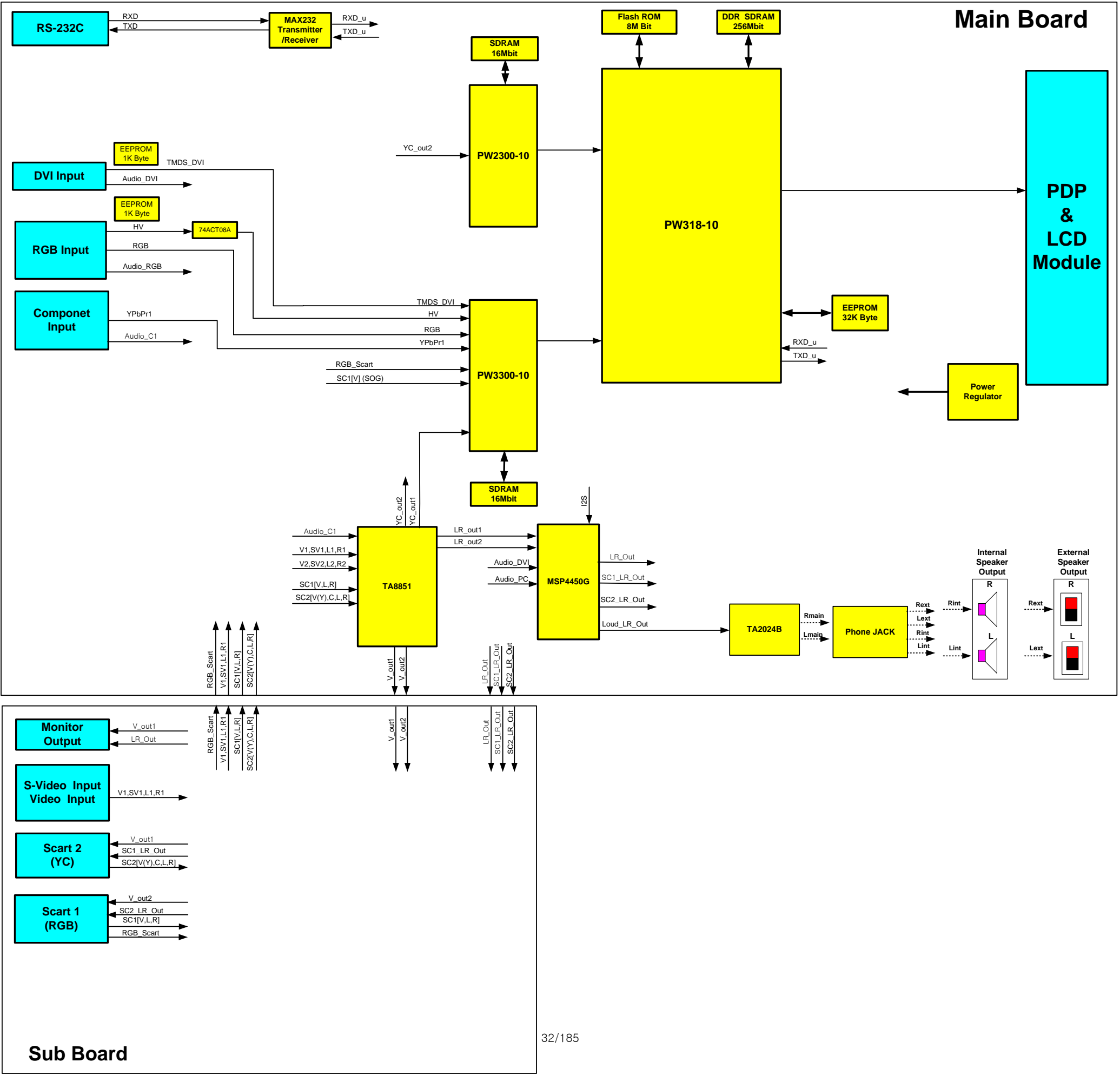
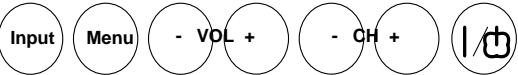
<b>11.1 Internal Speaker System</b>	
Type	2 Way 2 Speaker System
Input	10 W (RMS)
Impedence	8 ohm
Output Sound Pressure	88 dB/W/M
Frequency Response	140 Hz ~ 10 KHz

BLOCK DIAGRAM  
Model : Philips Europe

Ver.03

2006.04.04

Control Board



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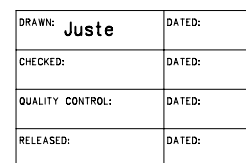
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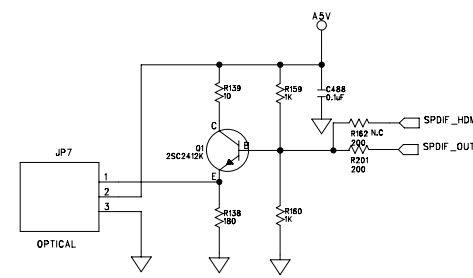
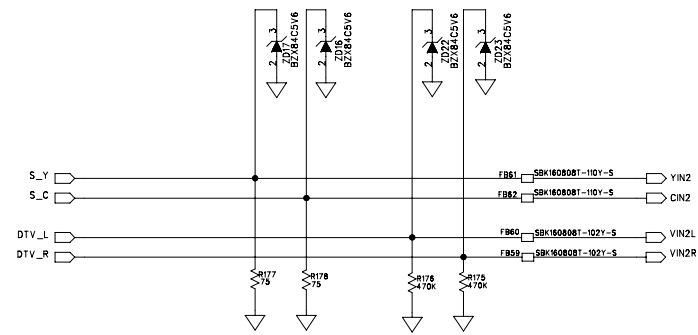
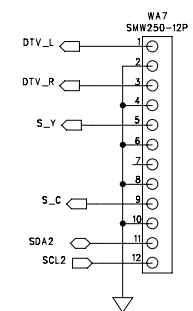
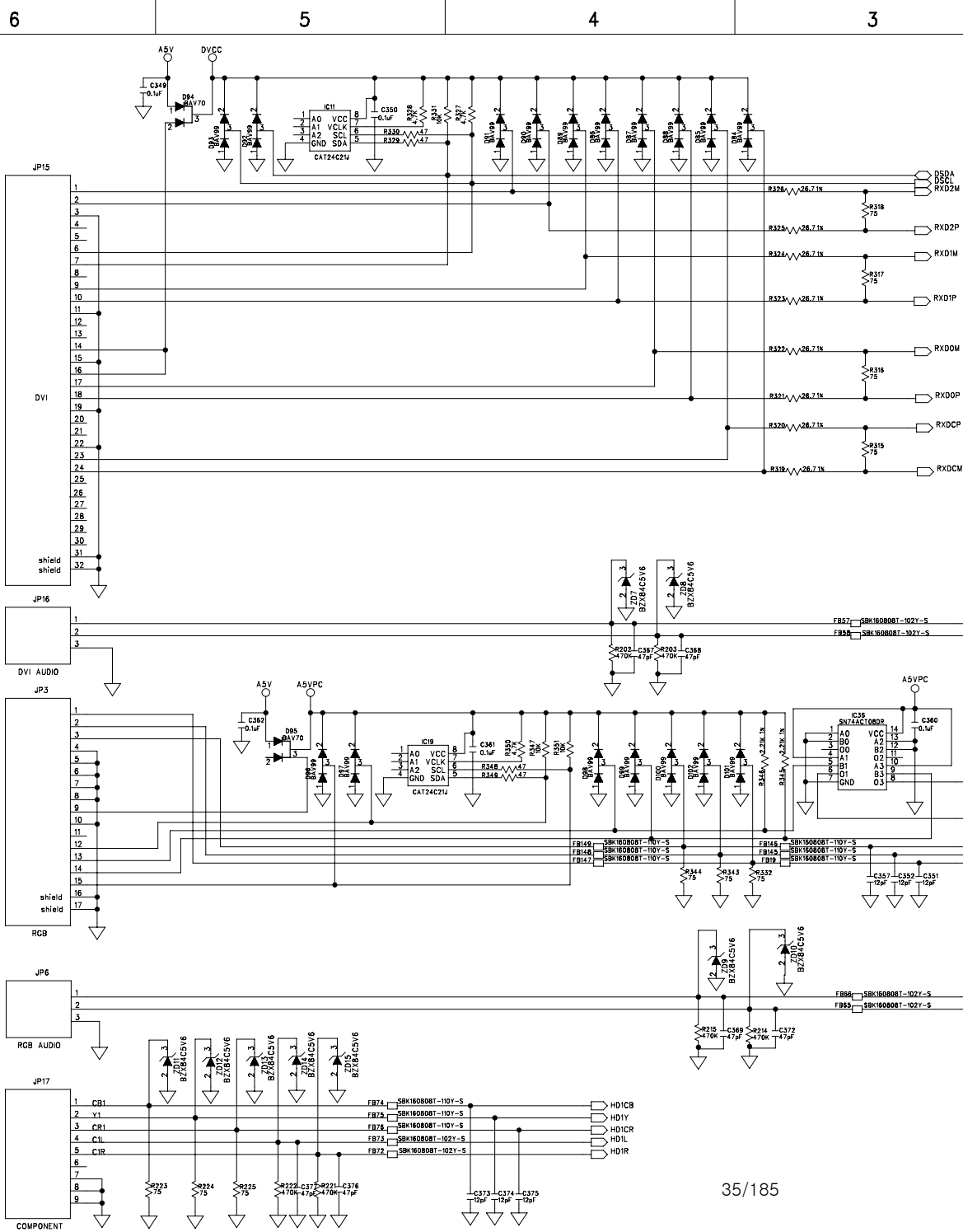
WoosungNextier Corp.

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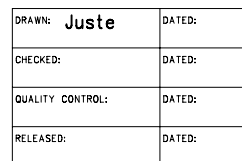
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			03
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CHECKED:	DATED:
QUALITY CONTROL:	DATED:
RELEASED:	DATED:

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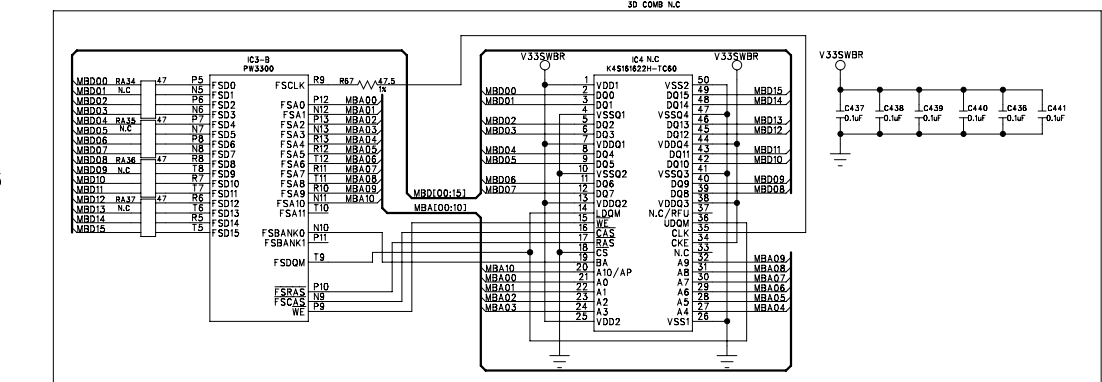
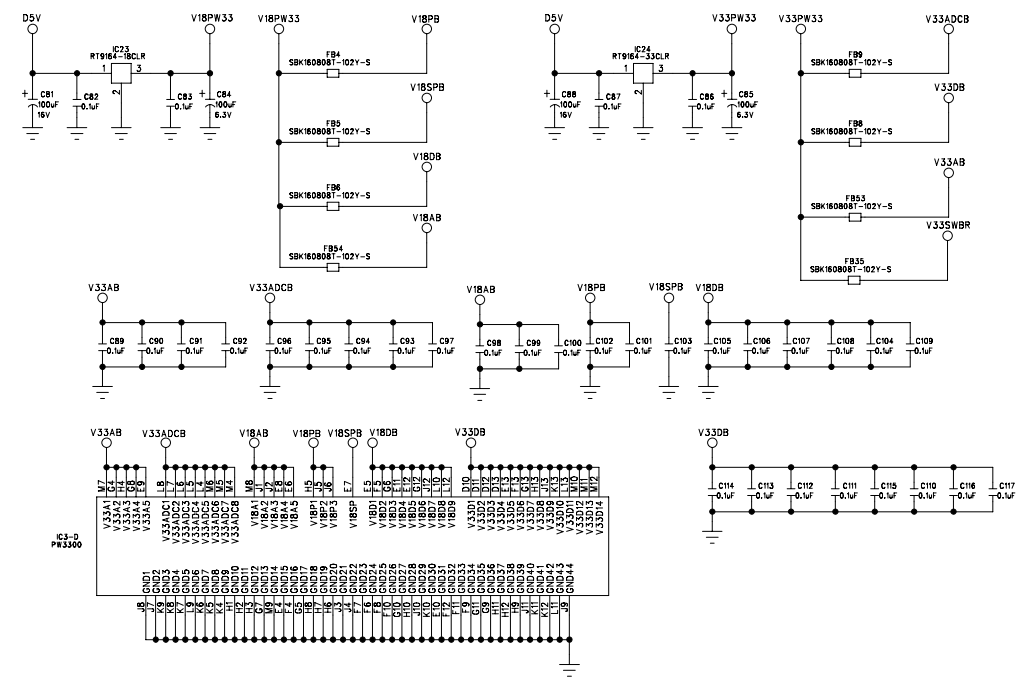




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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



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CHECKED:	DATED:
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RELEASED:	DATED:
CODE:	SIZE:
DRAWING NO:	
REV: 03	
SCALE:	SHEET: 5 OF 9

R57 NC: 0/W 3D COMB  
R58 NC: PCB 02, R58 3.3K :PCB 03  
R63 NC: 0/W DVBT

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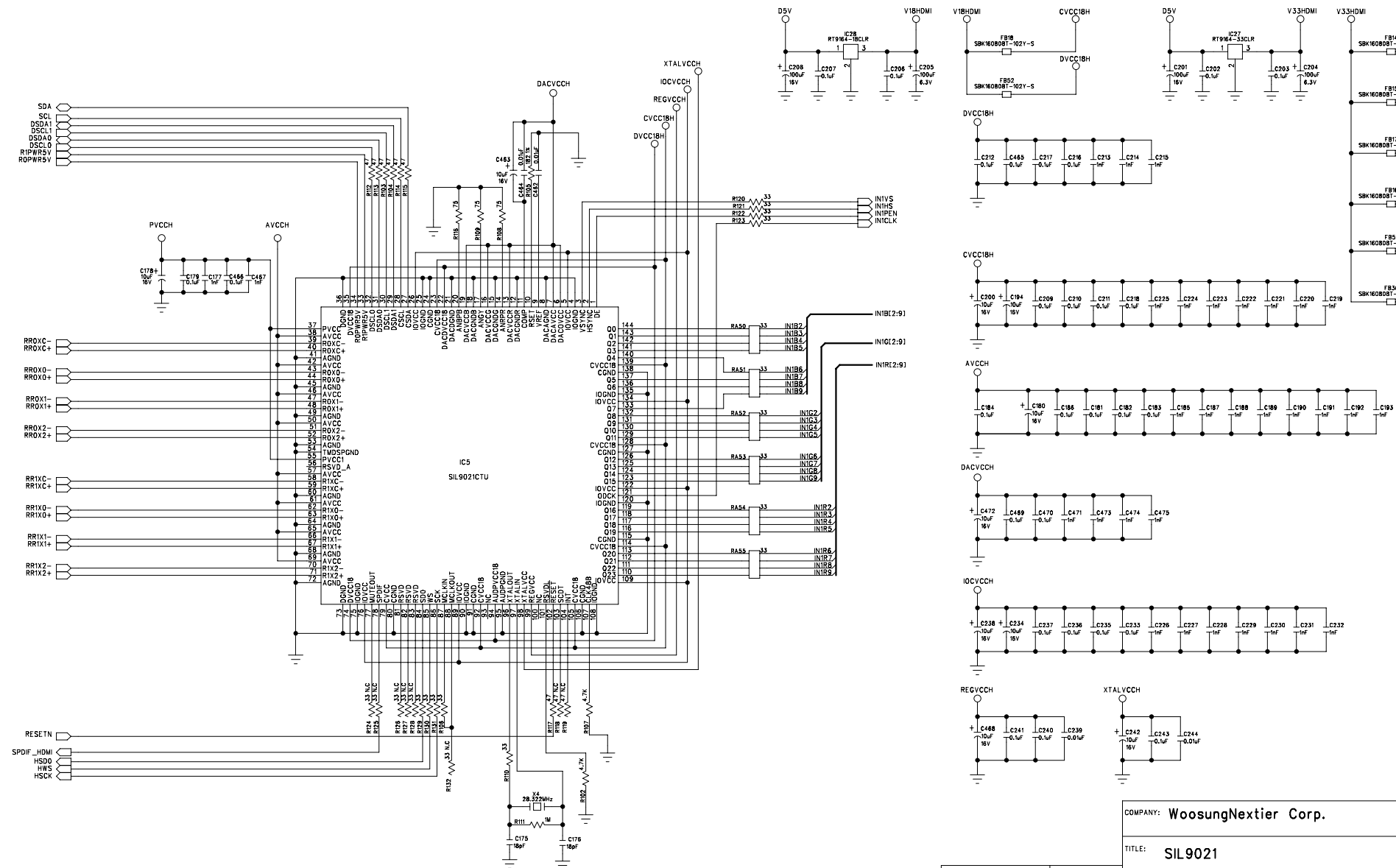
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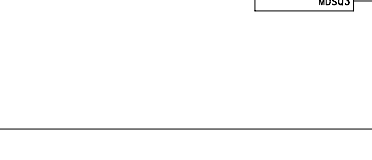
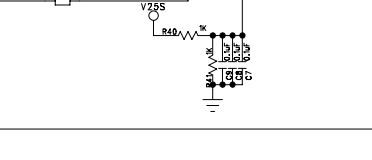
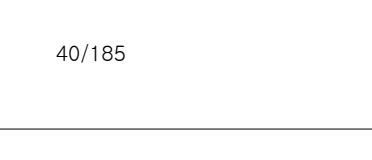
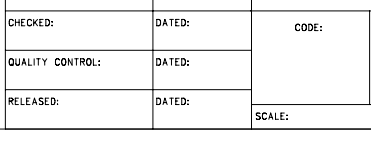
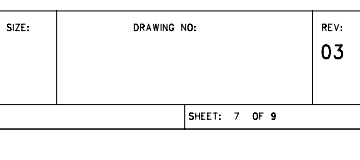
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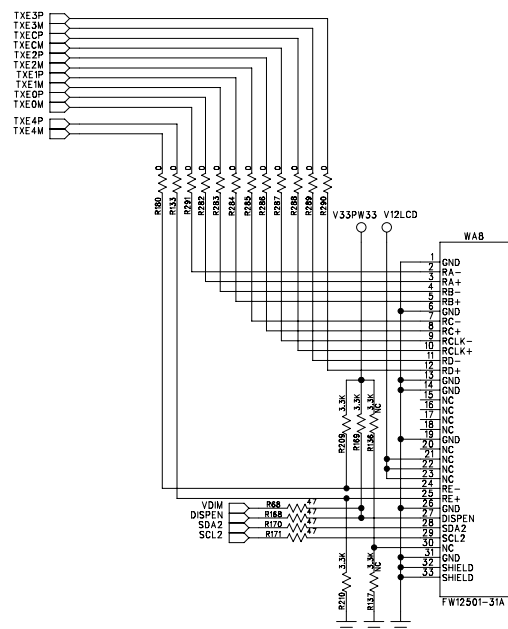
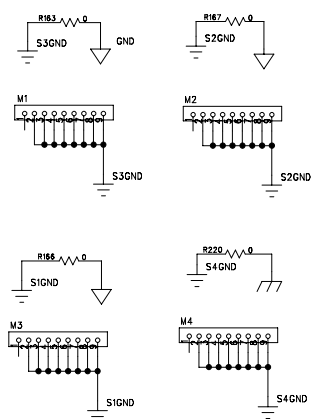
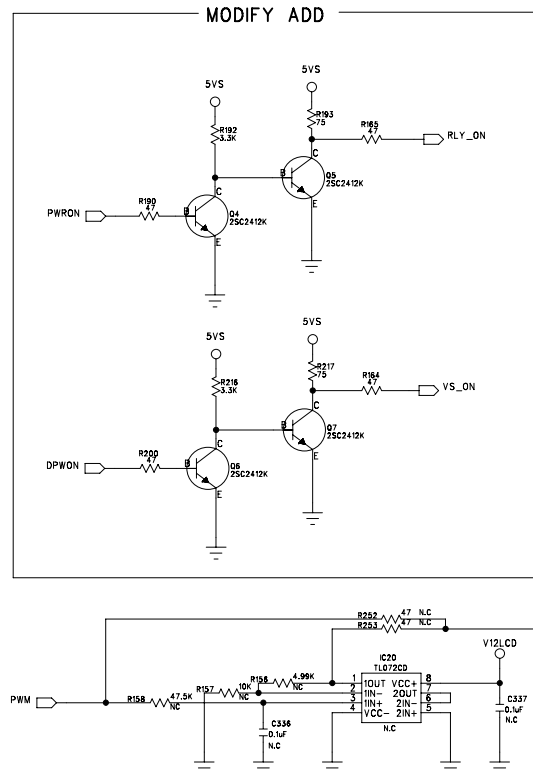
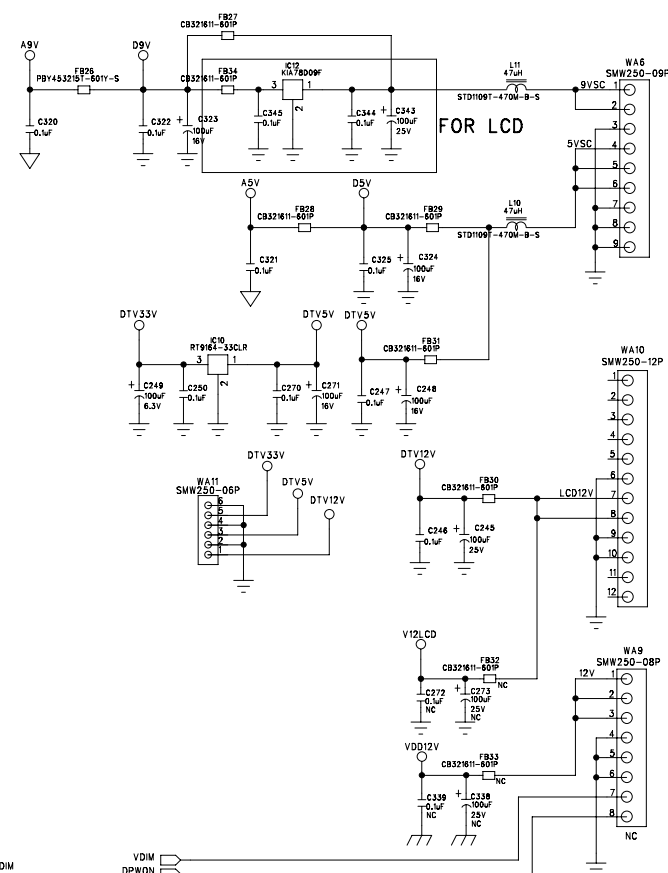
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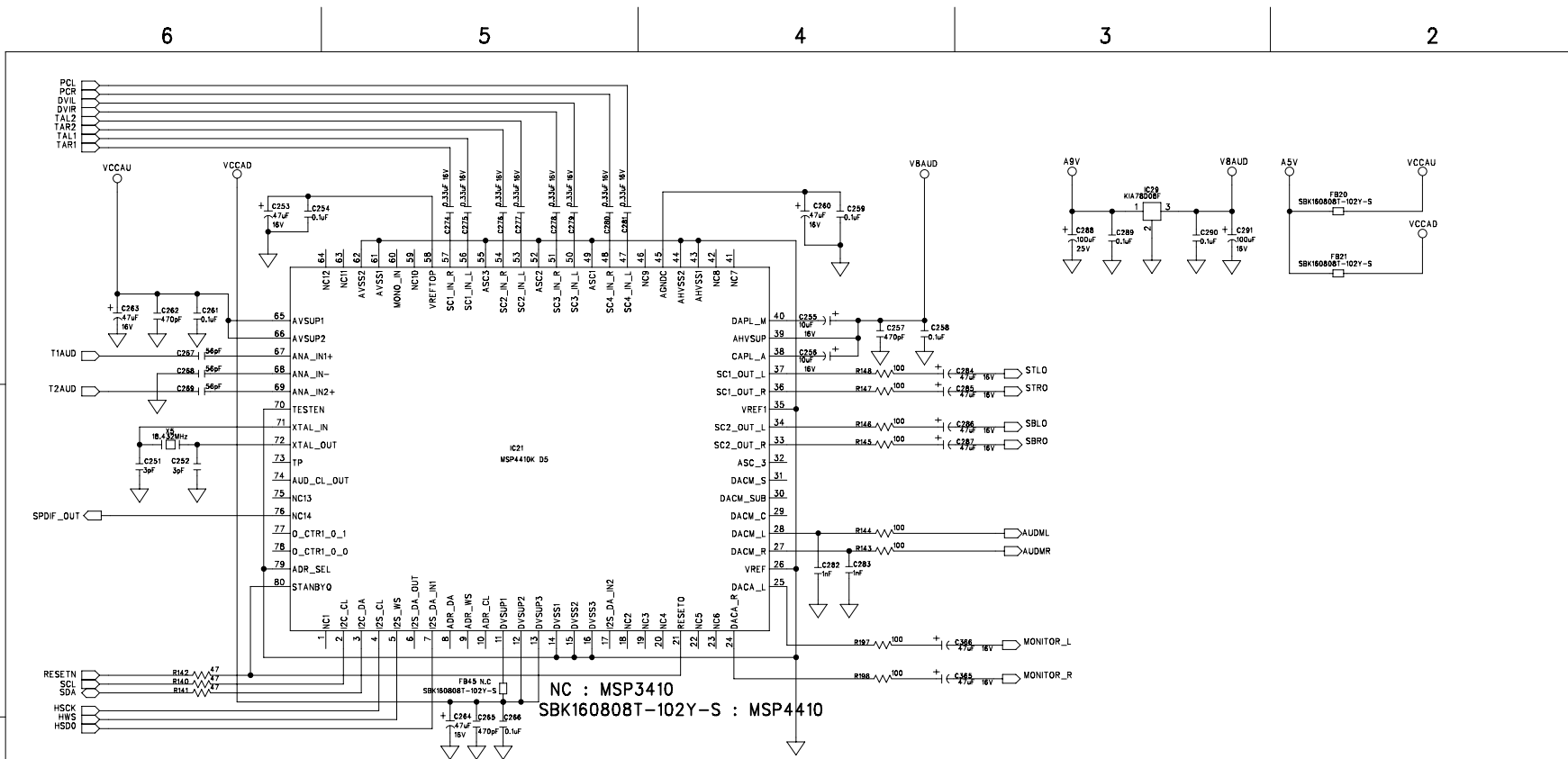
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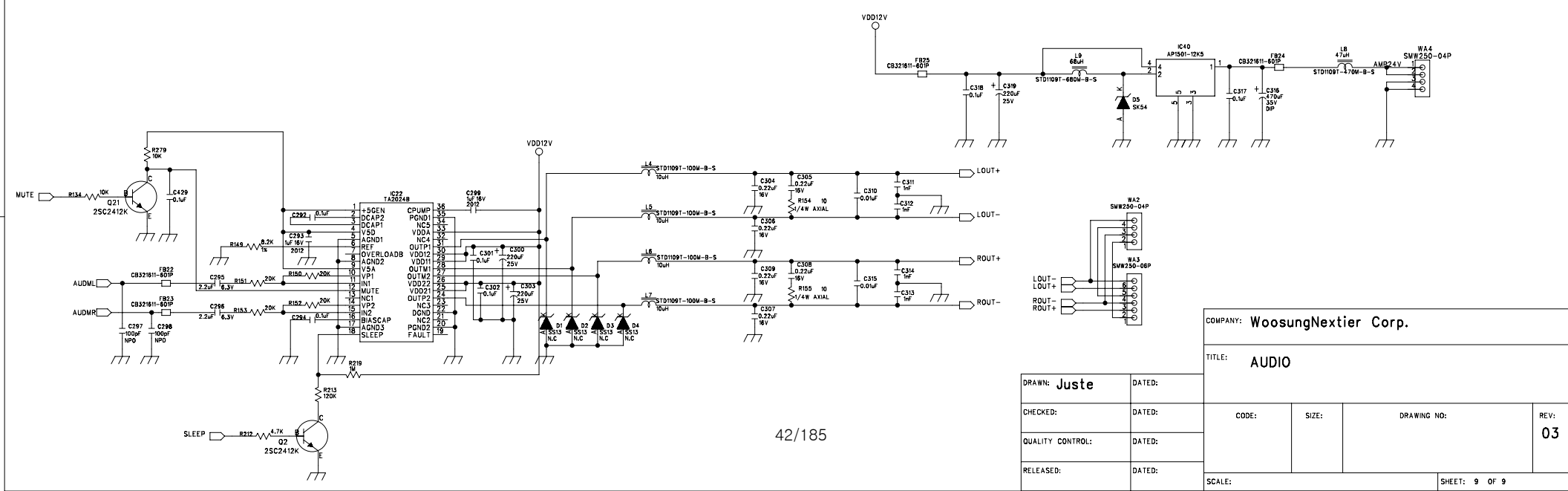
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SCALE:		SHEET: <b>8 OF 9</b>	



REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



NC : MSP3410  
SBK160808T-102Y-S : MSP4410



COMPANY: WoosungNextier Corp.			
TITLE: AUDIO			
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CHECKED:	DATED:
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RELEASED:	DATED:

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REVISION RECORD			
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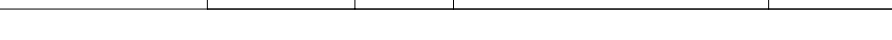
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WoosungNextier Corp.

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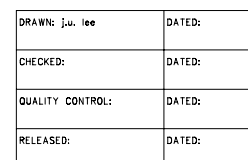


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COMPANY: WoosungNextier. Corp.

TITLE:	Control Key
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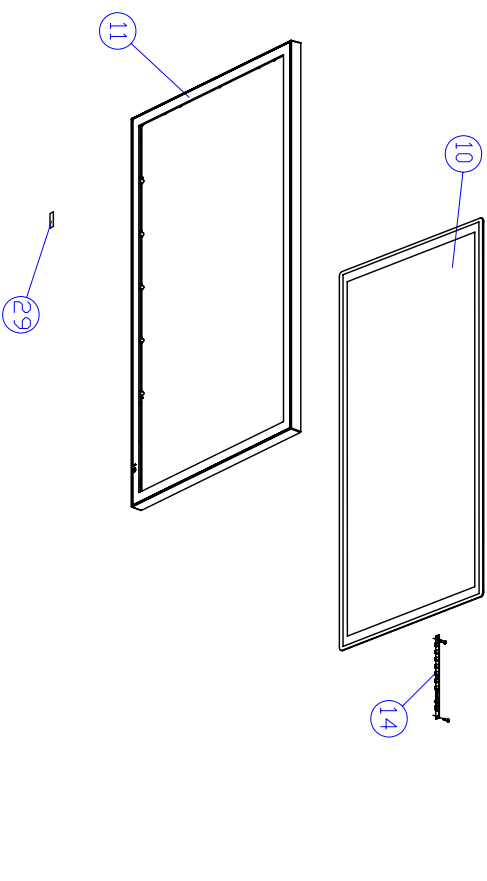
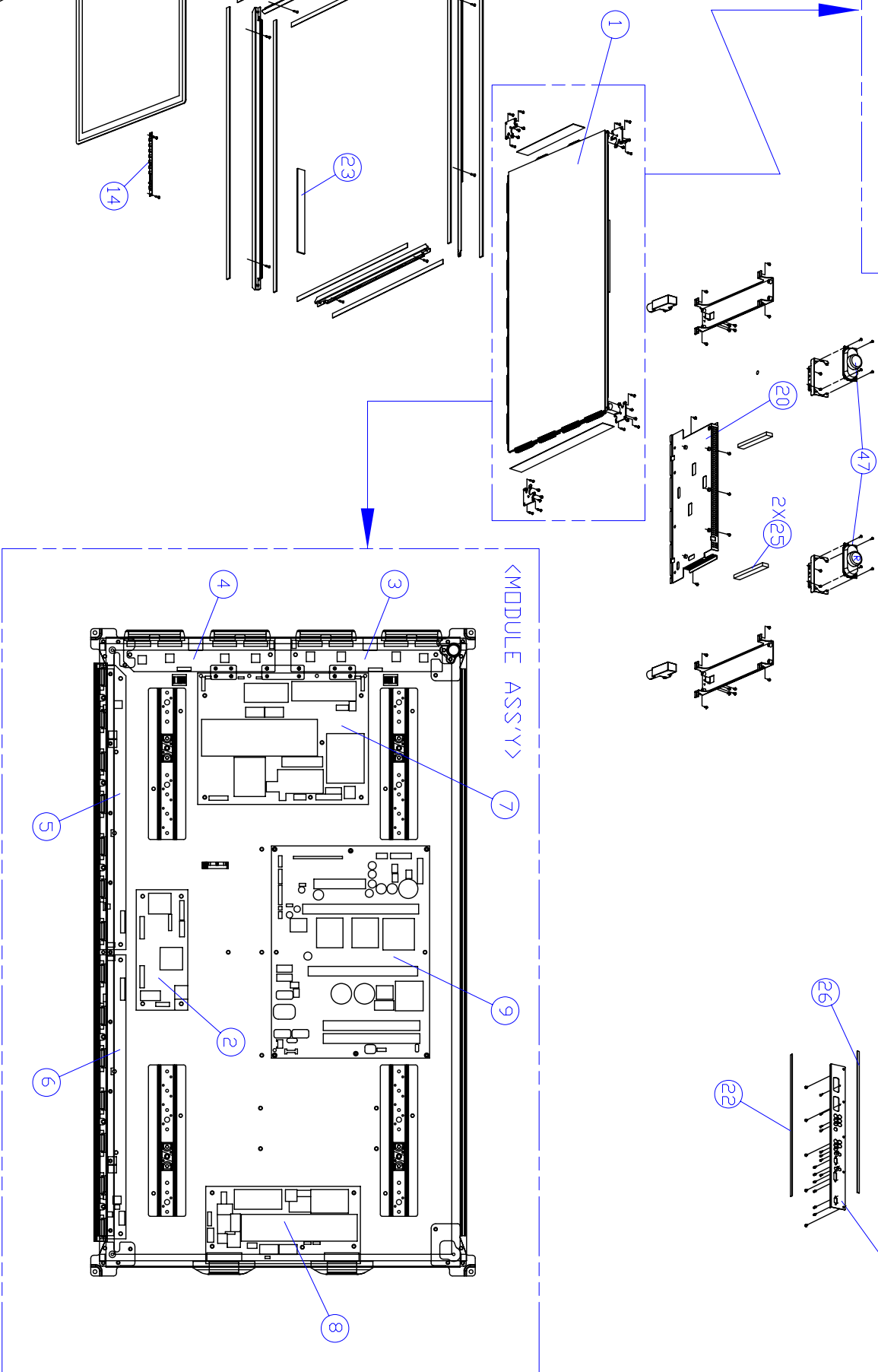
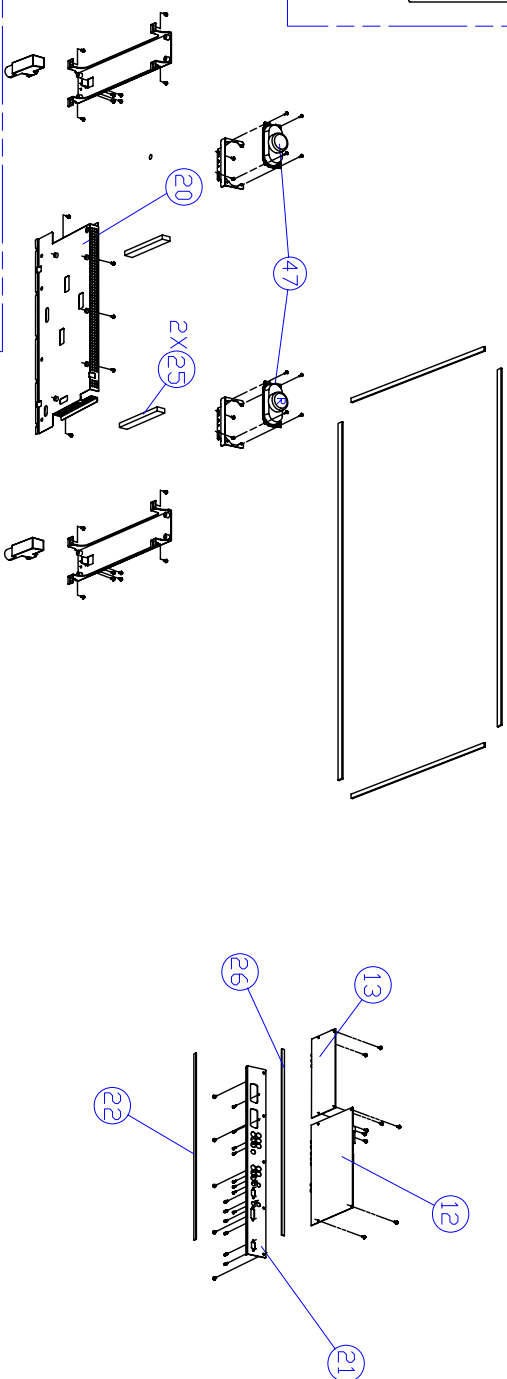
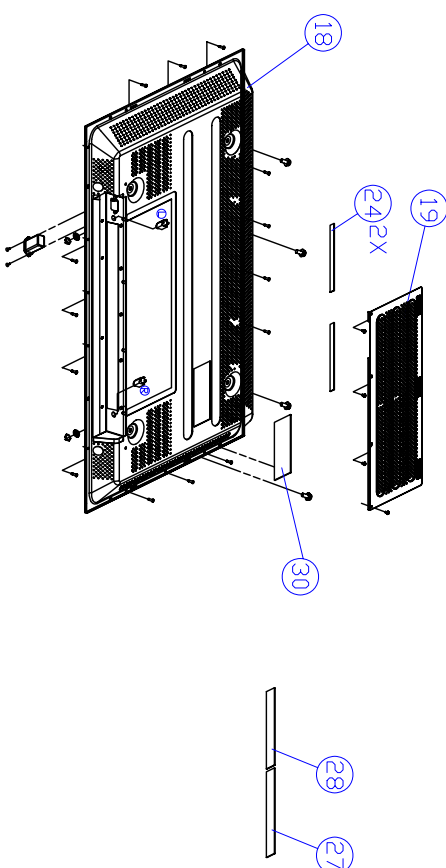
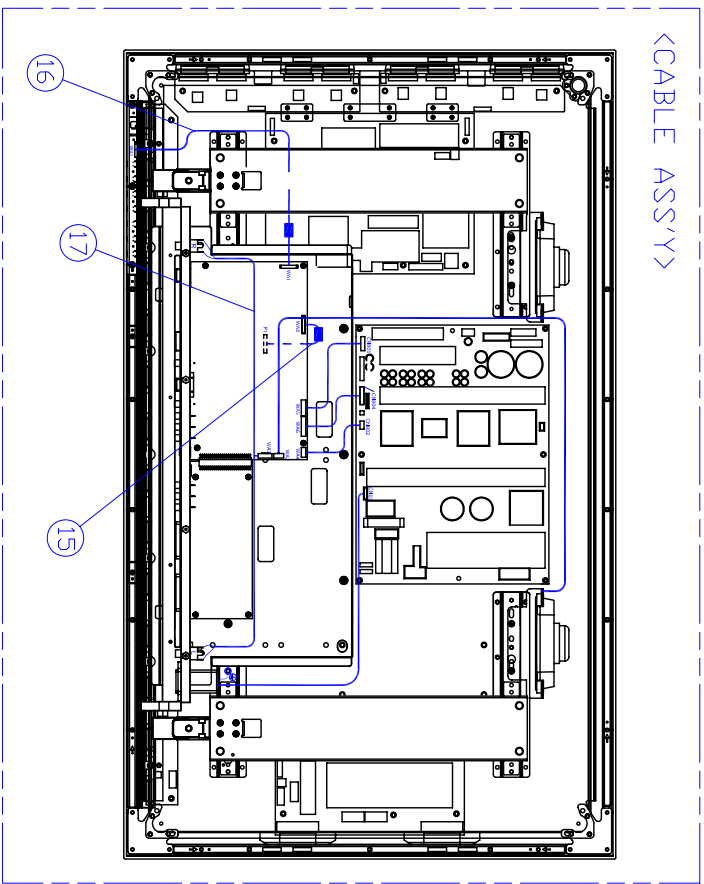

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SCALE:		SHEET: 1 OF 1	
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## EXPLODED VIEW

1. BDS4241V/00(CRS1.1(PCB 02/ PCB 02P, UNICON PSU))---48
2. BDH5021V/00(CRS1.1(PCB 02P, UNICON PSU))-----50
3. BDS4241V/00(CRS2.0(PCB 03, SEM PSU))-----52
4. BDH4241V/00(CRS2.0(PCB 03, SANKEN PSU))-----54
5. BDH5021V/00(CRS2.0(PCB 03, LG PSU))-----56

PRODUCTION RELEASE & REVISIONS			
REV	DESCRIPTION	DATE	BY APP

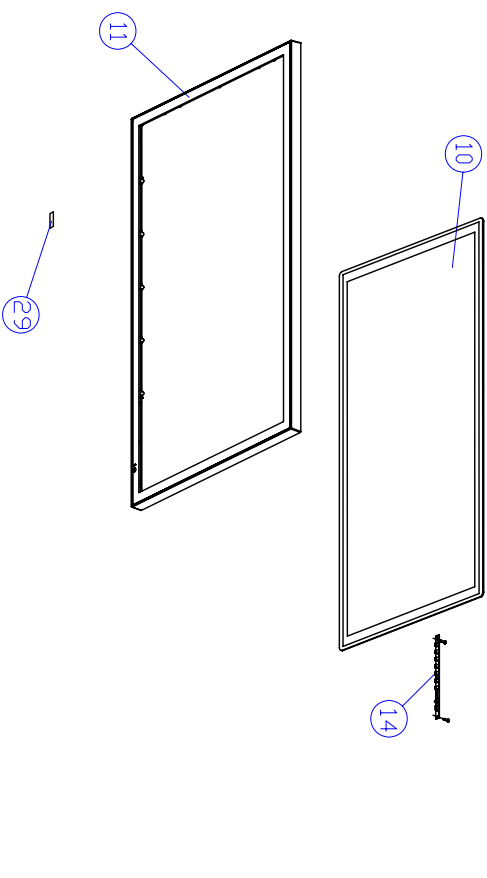
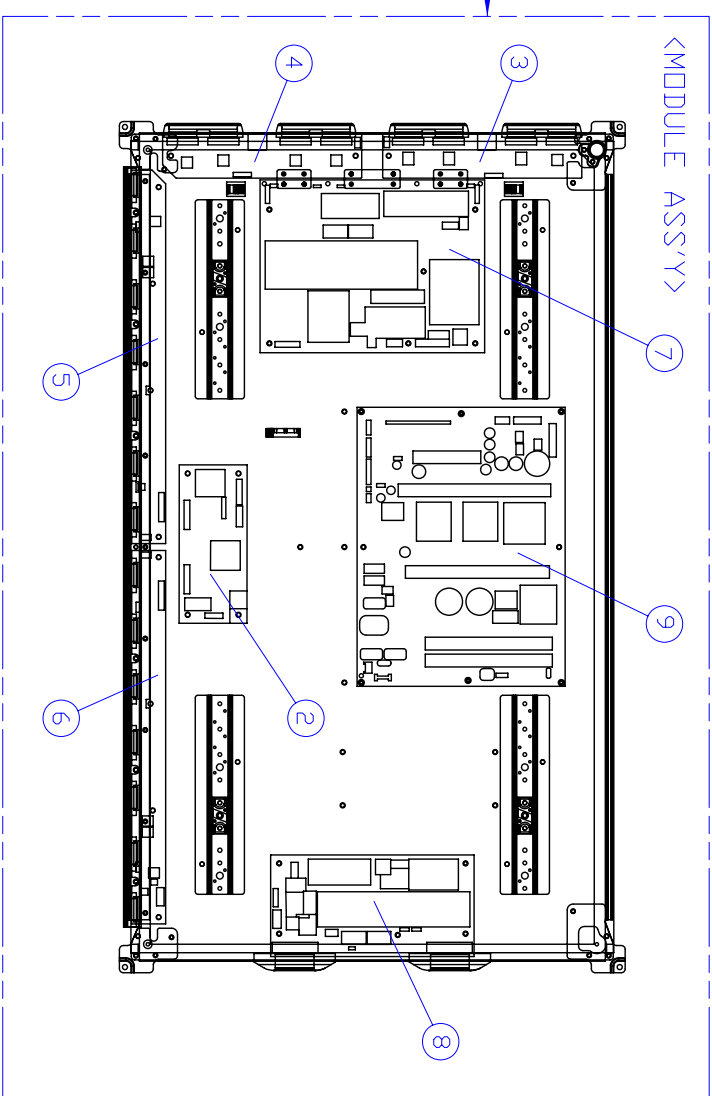
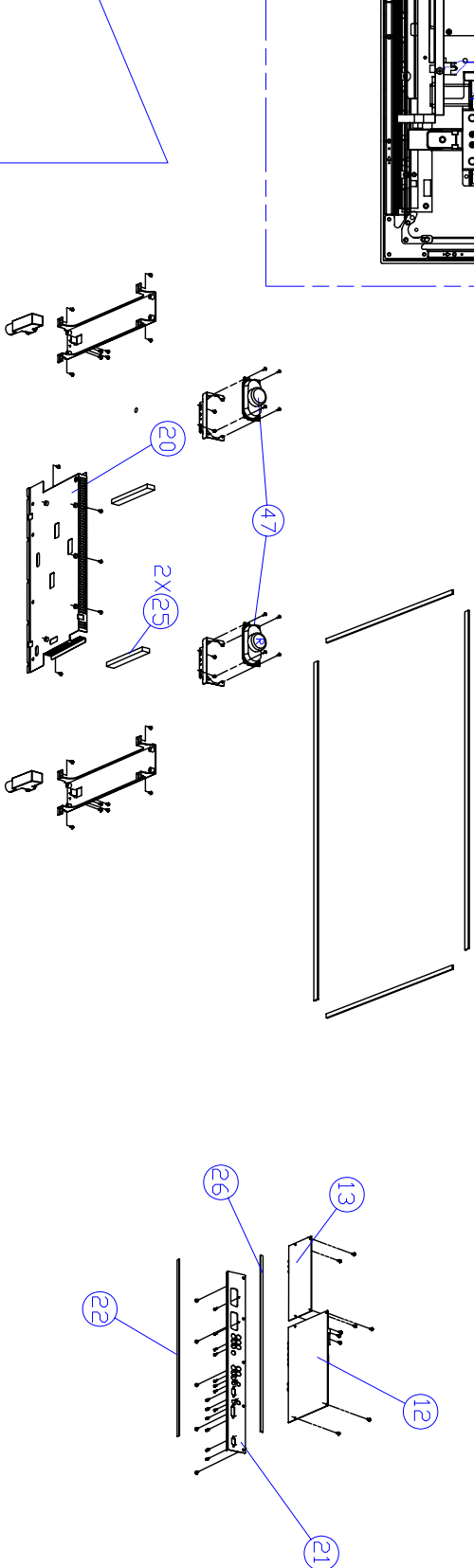
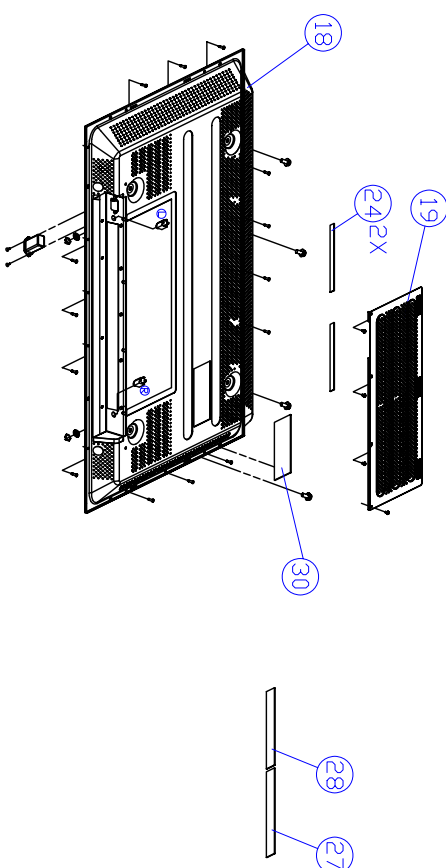
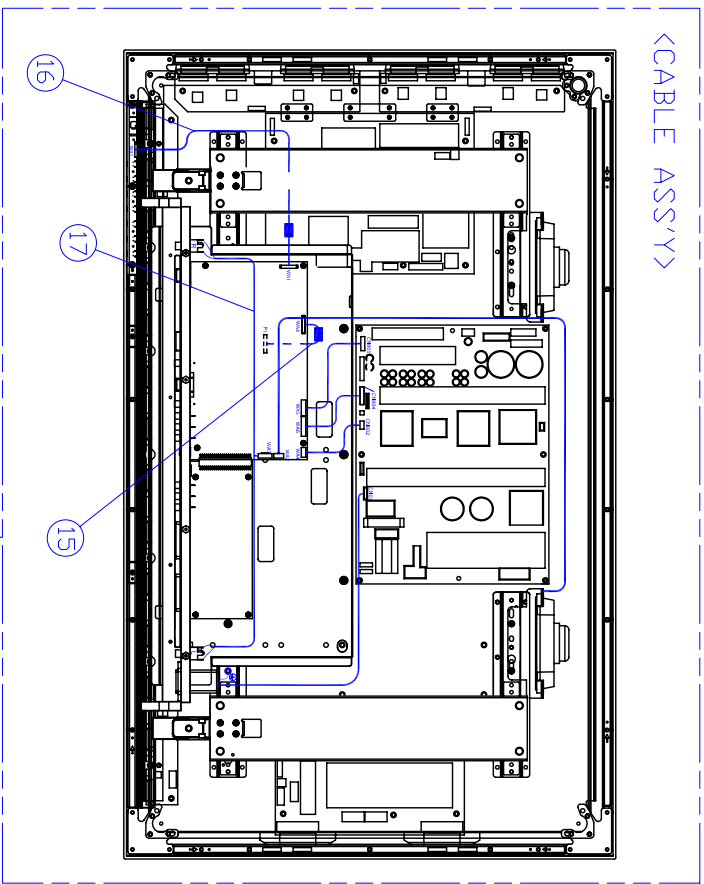
[illegible][illegible]







PRODUCTION RELEASE & REVISIONS			
REV	DESCRIPTION	DATE	BY APP

[illegible][illegible]













## CALIBRATION METHODS

### 1. Application limits

This test is applied to PDP 42" or PDP 50" production of WoosungNextier Corp.

### 2. Application Model : BDS4241V/00,BDH4241V/00,BDH5021V/00

### 3. The General

3.1 All of adjustments is applied in this test of adjustment but for exceptional condition.

3.2 This test of inspection can be modified according to transition of production  
And the alteration can be dependent upon judgment of production Team & R&D Team.

### 4. The Conditional :

This inspection is tested in 20 C of standard temperature, the additional 65%  
Standard humidity.

### 5. The additional :

This test can be questioned to R&D department if you have question.

Registered Date		( )Team Opinion
Distributor	<ul style="list-style-type: none"><li>• Must no distributing Whole words</li><li>• Cover Distributor</li></ul>	
WoosungNextier Corp.		

## 6. Calibration

### 6.1 PSU Test of adjustment

#### 1) Audio Voltage Test of adjustment

(1) Checking that the Audio Voltage Selection switch is selected to 240V.

If it is selected to 30V please switch to 24V.

#### 2) PSU Driving Method Test

(1) Please check that PSU Driving Method Switch of PSU must be selected to “Normal”

## 6.2 TV Tuner Setting

### 1) Model of One Tuner Setting [Depend on Model]

- (1) TV Input can be added up through processing below method.
- (2) Please keep pushing **[Power]** + **[CH+]** button in 7 ~ 8 second after pushing **[Power]** button.
- (3) Please operate adjustment and inspection by selecting TV Input after Checking that TV Input was added up by pushing **[INPUT]** button.
- (4) TV Input can be deleted through processing below method.
- (5) Please keep pushing **[Power]** + **[CH-]** button in 7 ~ 8 second after pushing **[Power]** button.
- (6) Please check that TV input was gone by pushing **[Input]** button.  
And then select the Scart1 input for operating adjustment and inspection

### 2) Model of Two Tuner Setting [Depend on Model]

- (1) Main/Sub TV Tuner can be added up through processing below method.
- (2) Please keep pushing **[Power]** + **[CH+]** button in 7 ~ 8 second after pushing **[Power]** button.
- (3) Please Check that Main TV Input was added up by pushing **[INPUT]** button.
- (4) Please keep pushing **[Power]** + **[VOL+]** button in 7 ~ 8 second after pushing **[Power]** button.
- (5) Please excel PIP or PBP screen by pushing **[SPLIT]** button
- (6) Please select Sub screen by pushing **[S.SELECT]** in remote control
- (7) Please check that Sub TV input was added in sub input by pushing **[Input]** button.  
And then select the TV input for operating adjustment and inspection
- (8) Sub TV Input can be deleted through processing below method.
- (9) Please keep pushing **[Power]** + **[VOL-]** button in 7 ~ 8 second after pushing **[Power]** button.
- (10) Please select Sub screen by pushing **[S.SELECT]** in remote control
- (11) Please check that Sub TV input was deleted in sub input by pushing **[Input]** button.  
And then select the Scart1 Input for operating adjustment and inspection



### 3) Monitor Setting without TV Tuner.[Depend on Model]

- (1) Please delete TV Tuner in Monitor Setting through processing below method
- (2) Please keep pushing [**Power**] + [**CH-**] button in 7 ~ 8 second after pushing [**Power**] button.
- (3) Please check that TV input was gone by pushing [**Input**] button.  
And then select the Scart1 input for operating adjustment and inspection

### 6.3 Panel Selection[Depend on Panel]

- (1) Value of Panel Selection can be changed as like below through  
Pushing [VOL+], [CH-] and [CH+] then [Panel Select] OSD is shown.
- (2) Push [VOL-] or [VOL+] button to select panel.  
000 : 42" SD(Default) panel is selected  
001 : 42" HD panel is selected  
002 : 50" HD panel is selected  
003 : LCD panel is selected
- (2) Please push power button off and power button on after OSD menu is placed  
In the middle of screen by pushing [**MENU**] button - That means panel choice  
Is selected in right.
- (3) If OSD Menu is not placed in the middle of screen return to No.(1) as  
Pushing [VOL+], [CH-] and [CH+] button at the same time.
- (4) Please check the correct panel by viewing OSD Menu after Power On.

## 6.4 Calibration

### 1) RGB Calibration

- (1) Please connect RGB Input to 15 Pin D-sub cable  
(Video Signal Output: **Digital Video Generator VG-848 (ASTRO)**)
- (2) Please adjust Timing of output (Video signal) to **640 x 480 / 75Hz**
- (3) Please adjust pattern (Video signal Output) to **16-Gray**  
(GRAY Direct Key of ASTRO REMOTE BOX)
- (4) Please push **[MENU] + [VOL-] + [VOL+]** at the same time after Power On
- (5) After operating RGB Calibration please adjust output pattern of video signal to 64-gray + RGBW color bar and then check the extent of saturation of RGB color and the difference of RGB color and unnecessary chrominance signal came up in screen. If calibration is wrong after that please return to No.(3).

### 2) Component Calibration

- (1) Please connect Component Input to RCA cable  
(Video Signal Output : Digital Video Generator VG-848 (ASTRO))
- (2) Please adjust Timing (Video signal out) to 720 x 576 / 50Hz (576p)
- (3) Please adjust Pattern (Video signal out) to SMPTE Color Bar.
- (4) Please push **[MENU] + [VOL-] + [VOL+]** at the same time after Power On.
- (5) After operating RGB Calibration please adjust output pattern of video signal to 64-gray + RGBW color bar and then check the extent of saturation of RGB color and the difference of RGB color and unnecessary chrominance signal came up in screen. If calibration is wrong after that please return to No.(3).

## Image Board Inspection Methods

### 1. Application Limits

This instruction is applied to the inspection of PDP Products.

### 2. Application Model: BDS4241V/00, BDH4241V/00, BDH5021V/00

### 3. The General

3.1 This test of Inspection is applied to set which is adjusted accurately according to the Inspection of BDS4241V/00, BDH4241V/00, BDH5021V/00

3.2 This test of Inspection can be modified according to transition of production Team and R &D department.

### 4. The Conditional :

This inspection is tested in 20℃ standard temperature, 65% standard humidity.

### 5. The additional :

This inspection can be tested in normal temperature and normal humidity.(15~35℃, 45~85%)

The Registered date		( )team Opinion
Distributor	<ul style="list-style-type: none"><li>• No distributing Whole words</li><li>• Cover distributor</li></ul>	

WoosungNextier Corp.

## 6. Inspection Items

### 6.1 General Specification

- 1) In/Out Terminals Spec.
- 2) Speaker Output Spec.

### 6.2 Inspection of Standardization

- 1) Pattern
- 2) Speaker Output
- 3) Input/Output

### 6.3 Inspection of the function of electric circuit

- 1) LED On/Off Test
- 2) KEY PAD / REMOTE CONTROLLER Test
- 3) SCART 1,2 Input
- 4) VIDEO Input
- 5) Monitor Output
- 6) S-VIDEO Input
- 7) COMPONENT Input
- 8) RGB Input
- 9) DVI Input
- 10) RS232C Control TEST
- 11) Image Menu
- 12) Screen Menu
- 13) Setup Menu
- 14) Sound Menu
- 15) Remote controller Function Key Test :

Mute, Locate, SIZE, SWAP(Swap), A.SWAP(Audio Swap),  
Split Screen, S.SELECT, Input (Input choice),  
Auto(Auto default), I.SIZE(choice of screen size),  
FREEZE(Screen), Recall(Input),  
Sleep(Reservation of Sleep)

## 6.4 Out Going Specification

### 1) Menu Mode Selection.

## 7.1 The test of Inspection

### 1) In/Out Terminals Spec.

NO.	ITEM		SPECIFICATION
1	RS-232C	D-Sub 9-pin x 1	TXD/RXD(1:1)
2	DVI Input	DVI Jack x 1 (24 Pin)	Digital RGB : TMDS MAX : 720p , 1080i , 1280 x 1024 / 60 Hz (SXGA)
		RCA Jack x 1	Audio : 0.5V[rms](Normal)/2 Channel (L+R)
3	RGB Input	D-Sub Jack x 1 (15 Pin)	Analog RGB : 0.7V[p-p](75Ω), H/CS/V:TTL(2.2 kΩ), SOG:1V[p-p](75Ω) MAX : 720p, 1080i, 1280 x 1024 / 60 Hz(SXGA)
		RCA Jack x 1	Audio : 0.5V[rms](Normal)/2 Channel (L+R)
4	Component Input	RCA Jack x 1	Y:1V[p-p](75Ω) Pb/Cb:0.7V[p-p](75Ω), Pr/Cr:0.7V[p-p](75Ω) EDTV : 480i, 576i, 576p, 480p, 720p, 1080i
		RCA Jack x 1	Audio : 0.5V[rms](Normal)/2 Channel (L+R)
5	Monitor Output	RCA Jack x 1	Video : 1V[p-p] (75 Ω) Audio : 0.5V[rms](Normal)/2 Channel (L+R)
6	S-Video Input	Mini DIN Jack x 1 (4 pin)	Y: 1V[p-p] (75 Ω), C: 0.286V[p-p] (75 Ω)[NTSC] Y: 1V[p-p] (75 Ω), C: 0.300V[p-p] (75 Ω)[PAL/SECAM]
7	Video Input	RCA Jack x 1	Video : 1V[p-p] (75 Ω)[NTSC/PAL/SECAM] Audio : 0.5V[rms](Normal)/2 Channel (L+R)
8	Scart 1,2	Scart Jack x 2 (21 pin) [Full x 1, Half x 1]	Video : 1V[p-p] ( 75 Ω) Y : 1V[p-p] ( 75 Ω), C : 0.3V[p-p] ( 75 Ω) RGB : 0.7V[p-p] ( 75 Ω) Audio : 0.5V[rms](Normal)/2 Channel (L+R)

2) Speaker Output Spec.

(1) Internal speaker

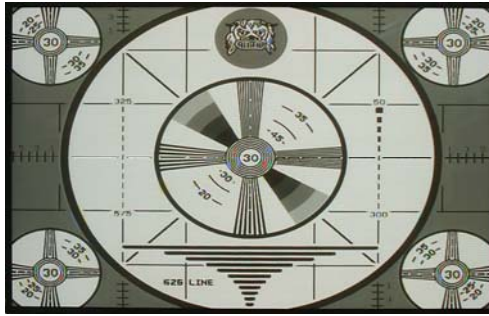
NO.	ITEM	SPECIFICATION	UNIT	REMARK
1	Freq. Response	0.14 ~ 10	KHz	Speaker Output
2	T.H.D	Max. : 5	%	400Hz 10W
3	Output	10 + 10	W	RMS
4	Impedance	8 + 8	$\Omega$	
5	Output sound pressure	88	dB/W/M	

7.2 Inspection of Standardization

1) TEST PATTERN

(1) MONO SCOPE

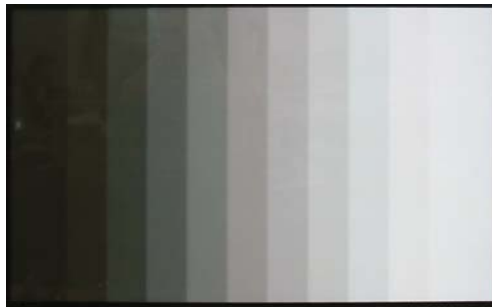
Item	Condition	Standard Value	
Resolution	MONOSCOPE Standard Mode	More than 400 (H)	
OVER SHOOT	Same as above	Can be recognized	
PRE SHOOT	"	"	
Frequency Sync. Range	MONOSCOPE	Horizontal	$\pm 120\text{lines} \sim \pm 480\text{lines}$
		Vertical	- 15lines - 9lines
OVER SCAN	MONOSCOPE The half of Bright. Contrast Max.	Horizontal	Less than +10%
		Vertical	Less than +10%
ON SCREEN Remarking Position	MONOSCOPE	Should not be cut in a picture	
Vertical CENTER Adjustment	RETMA PATTERN (Clear Screen)	The central cross line of RETMA PATTERN PDP Should match the Panel of mechanical CENTER Vertical CENTER $\pm 5\text{mm}$	
Horizontal CENTER Adjustment	Same as above	The Central vertical line of RETMA PATTERN Should balance in left/right. CENTER $\pm 10\text{mm}$	



<MONO SCOPE>

(2) Stair 10-Steps

- Checking the extent of saturation of left & right black & white pattern
- It Should be saturated less than black 2 step, white 2 step in left & right
- Checking unnecessary chrominance signal came up except black & white sync.
- Checking distortion and noise in a screen



< Stair 10-Steps>

(3) Color Bar

- Checking the reiterations of contacting side in each color bar
- Checking the difference of color in each color bar
- Checking the distortion and noise in screen

White	Yellow	Cyan	Green	Magenta	Red	Green	Black
-------	--------	------	-------	---------	-----	-------	-------

<PAL, PAL-M, PAL-N>

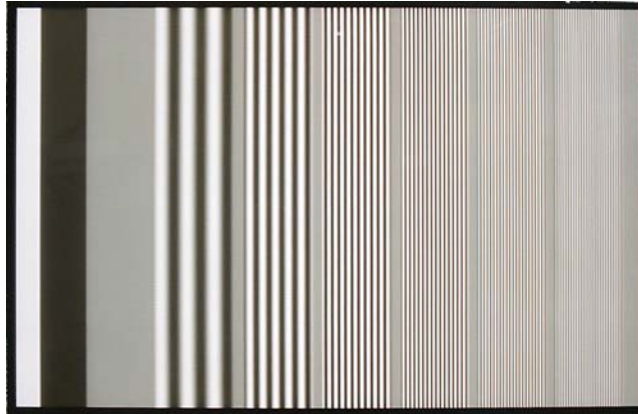
White	Yellow	Cyan	Green	Magenta	Red	blue
-------	--------	------	-------	---------	-----	------

<NTSC,NTSC-4.43MHz>

<Full Color Bar>

(4) Multi Burst

- Checking the range of Frequency Response
- Checking the distortion and noise in screen



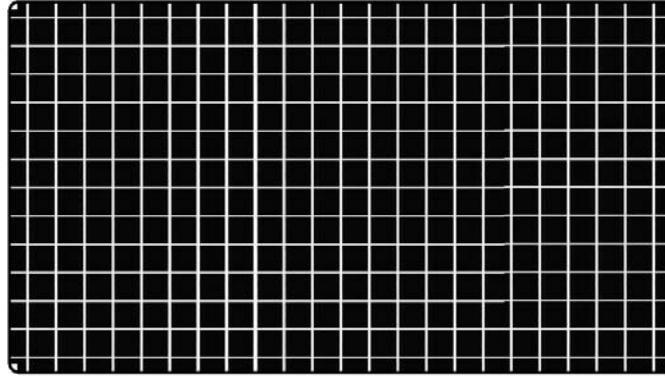
< Multi burst>

Color System	NTSC, NTSC-4.43MHz		PAL, PAL-M, PAL-N, SECAM
Multi-Burst Frequency	0.5-1.0-2.0-3.0-3.58-4.2MHz		0.5-1.0-2.0-3.0-4.0-4.8MHz
Frequency characteristic	Within 1.0dB		Within 1.0dB
Setup	0%	7.5%NTSC only	0%
White REF Signal	714.3mV	714.3mV	700.0mV
Multi-Burst pedestal	357.2mV	384.0mV	385.0mV
Black level	0mV	53.6mV	0mV



(5) Cross Pattern

- Checking something dropped out of horizontal, vertical line
- Checking the same interval between Crosshatch
- Checking the distortion and Noise

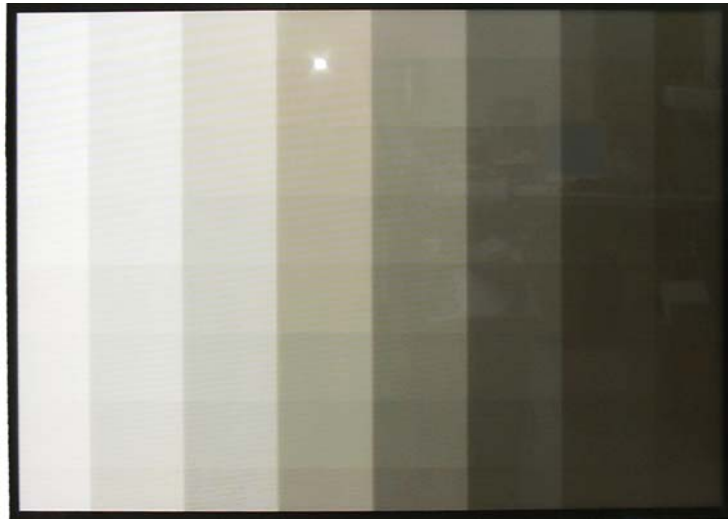


< Cross Pattern 16:9>

		Aspect ratio			
		4:3		16:9	
Line system	White Level 0%setup	525	625	525	625
	White Level 0%setup	714.3mV	700.0mV	714.3mV	700.0mV
	NTSC only	714.3mV	_____	714.3mV	_____
	Black Level 0%setup	0 mV	0 mV	0 mV	0 mV
	Black Level 0%setup NTSC only	53.6 mV	_____	53.6mV	_____
NO. of horizontal crosshatch		17		23	
No. of vertical crosshatch		13		13	
Pulse width					
Horizontal		296ns ± 100ns		296ns ± 100ns	
Vertical		2 lines		2 lines	
Crosshatch width					
Horizontal		2.96us ± 0.3us		2.22us ± 0.3us	
Vertical 525system		36 lines		36 lines	
625system		44 lines		44 lines	

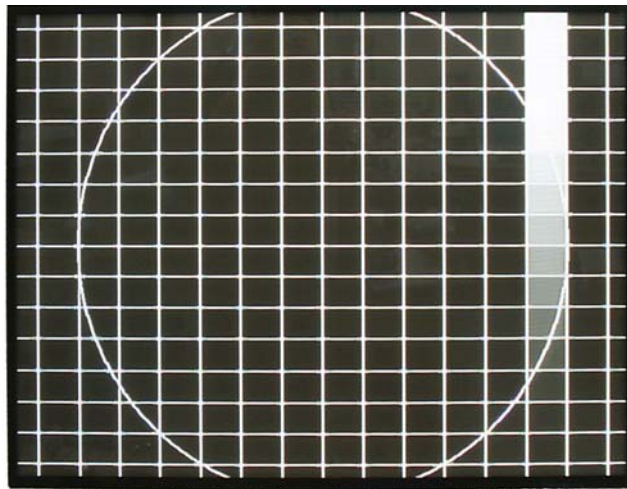
(6) 64-gradation block gray

- Checking the saturation of between splinter
- Seeing the difference of Brightness/Contrast
- Checking the distortion and noise in screen



<64-Gradation Block Gray>

(7) Crosshatch & circle & gray

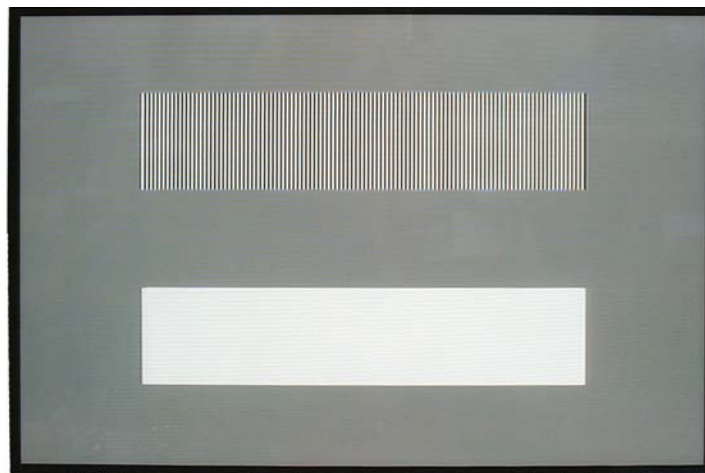


<Crosshatch & Circle & Gray>

- Checking that it is something dropped out of in horizontal, vertical line of crosshatch
- Checking that the interval between crosshatch line is equal
- Checking that printing-out of exact circle shape is right
- Checking brightness, contrast through gray pattern
- Checking that the distortion and noise is in screen

(8) Crosstalk

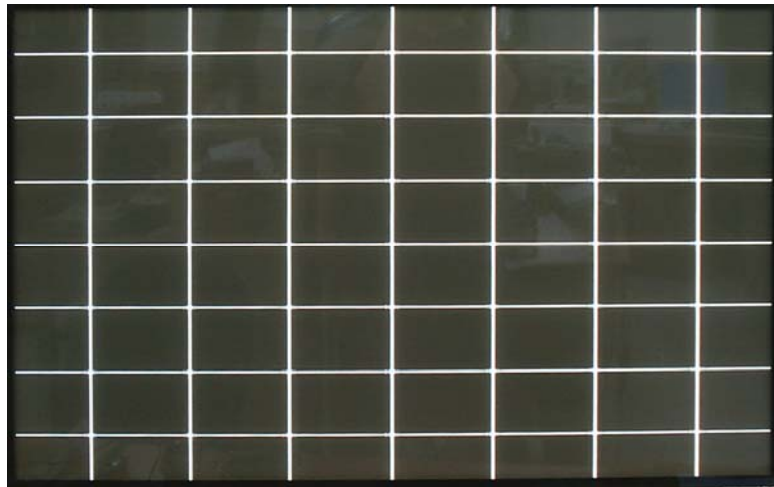
- Checking that Burst line is clear
- Checking that there is no distortion and noise



< Crosstalk>

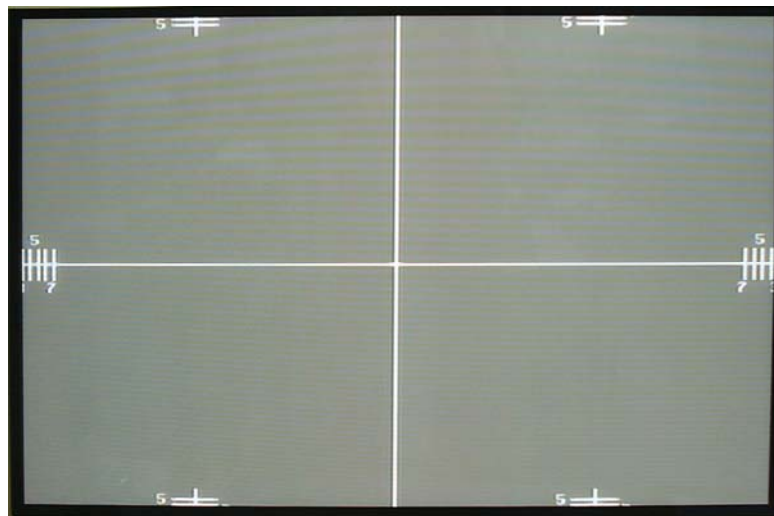
(9) 8-black Crosshatch

- Checking that it is something dropped out of in horizontal, vertical line of crosshatch
- Checking that the interval between line is equal
- Checking that there is no distortion and noise



<8-black Crosshatch>

(10) Display Position

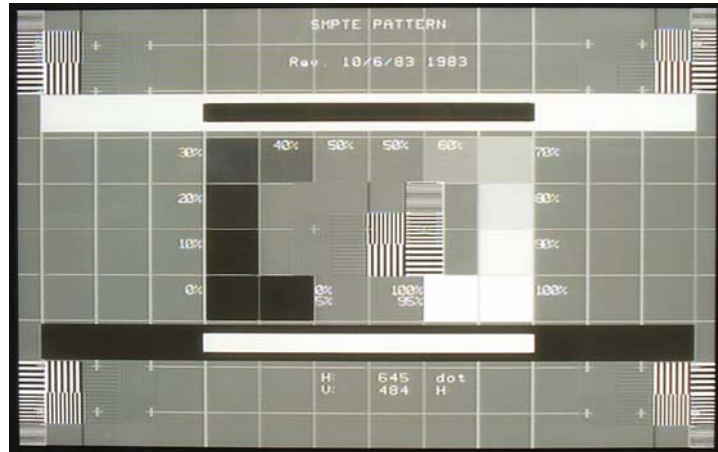


< Display position>

- Checking the balance of left & right & top & bottom in a base of vertical line of center.
- Checking that the horizontal line of center should match the mechanical center of PDP Panel.
- Checking that there is no distortion and noise

(11) SMPTE RP-133

- Checking that it is something dropped out of in horizontal, vertical line of crosshatch
- Checking that there is no problem of handling high frequency Sync.
- Checking Multi-burst Signal Frequency
- Checking that there is no distortion and noise



< SMPTE RP-133>

(12) 256Gray+RGBW Color Bar

- Checking the reiterations of contacting side In each color bar
- Checking that the printing-out of color is right
- Checking the range if Saturation
- Checking that there is no distortion and noise



<256gray+RGBW color bar>

- ※(1)~(5) Pattern is the standard of ShibaSoku (TG-19CC) Signal  
and (1) ~ (5) Pattern is applied to VIDEO and S-VIDEO Input.
- ※(6)~(12) Pattern is the standard of ASTRODESIGN(VG-848) Signal  
and (6) ~ (12) Pattern is applied to RGB, DVI, Component Input.
- ※(6)~(12) Pattern is the standard of MASTER(MSPG-1025S) signal  
and (6)~(12) pattern is applied to SCART1,2 Input.

## 2) Speaker Output

Item	Condition of Inspection	Standard
Signal/Noise Ratio	Sound : 1KHz, more than 30% MODULATION Picture : Black 50mW	More than 37dB
Signal/Buzz Ratio	Sound : 1KHz, more than 30% MODULATION Picture : COLOR BAR 50mW	More than 35dB
Max. Audio output	Sound : 1KHz, 100% MODULATION Volume : Max.	More than 9 W 8Ω Resistance

### 3) Input/Output

Input	Condition	standard
Video Input	Video	No any distortion & noise in Screen
S-Video Input	Y,C	No any distortion & noise in Screen
	Audio	No any noise in audio
Monitor Output	Video	No any distortion & noise in Screen
	Audio (L + R)	No any distortion & noise in Audio
Component Input	Y, Pb(Cb), Pr(Cr)	No any distortion & noise in Screen
	Audio	No any distortion & noise in Audio
R,G,B Input	Analog RGB	No any distortion & noise in Screen
	Audio	No any distortion & noise in Audio
DVI Input	Digital RGB	No any distortion & noise in Screen
	Audio	No any distortion & noise in Audio
SCART1 Input	RGB, CVBS Input	No any distortion & noise in Screen
	Audio	No any distortion & noise in Audio
SCART2 Input	Y/C, CVBS Input	No any distortion & noise in Screen
	Audio	No any distortion & noise in Audio

#### ※ Video Signal Cross-Talk Level

- Should not be hindered by other signal input when signal inputs all inputs of signal

### 7.3 Test of function of electric circuit

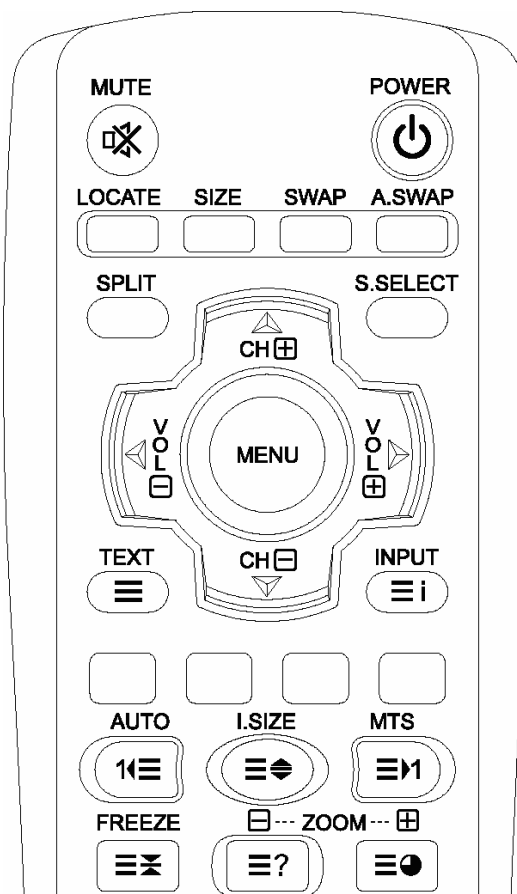
#### 1) LED On/Off Test

- (1) Checking that the stand-by signal -red- is lighting on
- (2) Checking that working condition(power on) -green- is lighting on

#### 2) KEY / REMOCON Test

- (1) Push MENU key of front or remote control and check adjustment like below Box.

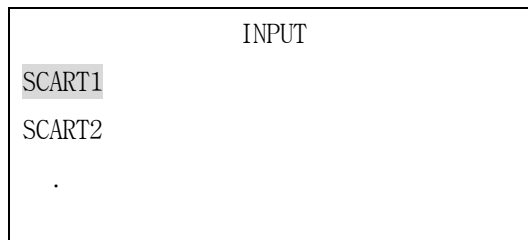
MENU		
Move[-VOL+]	Select[-CH+]	EXIT[Menu]





### 3) SCART 1,2 Input

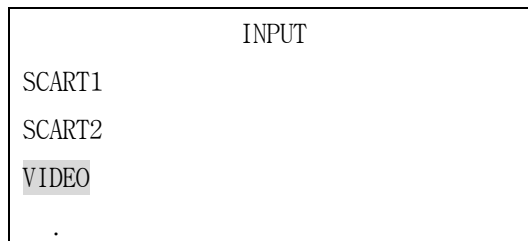
- (1) Please connect DVD Player to one side SCART input as SCART Cable
- (2) Please connect Test of output to other side of SCART as SCART Cable.
- (3) Please power on by pushing [POWER]key or front or remote controller
- (4) Please select SCART 1,2 through [-VOL+], [-CH+] key after pushing [INPUT]key



- (5) Please select RGB, COMPOSITE Out Mode from SETUP MENU of DVD player.
  - (6) Please check the video signal in each mode is good in screen
  - (7) Please check that the Video & Audio signal in other side of SCART is well-being.
  - (8) Please check that Sound is working well by pushing [-VOL+]key of front or remote controller
- \* SCART1 : The mode of RGB, Composite input are tested in all because of Full Scart.
  - \* SCART2 : The mode of Y/C, Composite input is tested because of Half Scart.

### 4) VIDEO Input

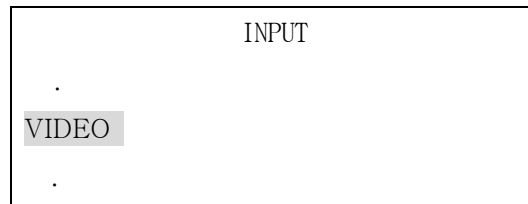
- (1) Please connect the signal of VIDEO Input to VIDEO Input as RCA Cable
- (2) Please power on by pushing [POWER]key of front or remote controller
- (3) Please select VIDEO Input by using [-VOL+] and [-CH+]key after pushing [INPUT]key



- (4) Please check that the video signal in each mode is working well
- (5) Please check that Sound is working well by pushing [-VOL+]key of front or remote controller

#### 5) Monitor Output

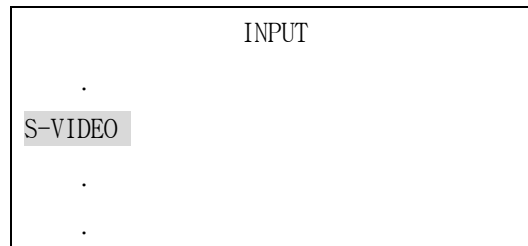
- (1) Please connect VIDEO Input signal to VIDEO Input as RCA Cable
- (2) Please connect the output of test installation to Monitor output as RCA Cable
- (3) After connecting 8  $\Omega$  dummy resistance to speaker output in left, right please connect Multi-Meter to in each edge of dummy resistance
- (4) Please power on by pushing [POWER]key of front or remote controller
- (5) Please select VIDEO through [-VOL+] and [-CH+]key after pushing [INPUT]key



- (6) Please check that All in-coming video signal is working well
- (7) Please check that Video signal is appearing in Monitor Output
- (8) Please adjust Audio sound with max through [-VOL+]key of owner' s remote controller
- (9) Please check that the maximum of incoming Audio signal is more than 8.8V[rms]
- (10) Please check 8  $\Omega$  in left & right of speaker output and Multi-Meter
- (11) Please check that audio sound is good by pushing [-VOL+]key
- (12) Please check that Video signal(V) and Audio signal(R+L) is having right output

#### 6) S-VIDEO Input

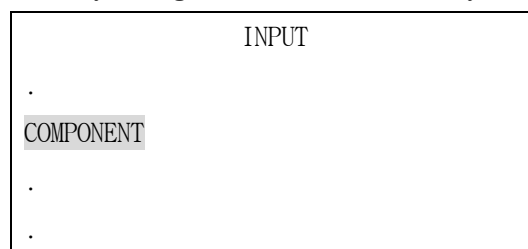
- (1) Please connect S-VIDEO terminal as S-Video Cable to S-VIDEO output
- (2) Please connect Audio input terminal as RCA Audio Cable to Audio output
- (3) Please power on by pushing [POWER]key of front or remote controller
- (4) Please select S-VIDEO by pushing [-VOL+] and [-CH+]key after [INPUT]key



- (5) Please check all video signal in each mode is having good input in screen
- (6) Please check the sound is voiced well by pushing [-VOL+]key

#### 7) COMPONENT Input

- (1) Please connect Video & Audio signal to COMPONENT terminal as COMPONENT Cable
- (2) Please power on by pushing [POWER]key of front or remote controller
- (3) Please select COMPONENT by using [-VOL+] and [-CH+]key after [INPUT]key



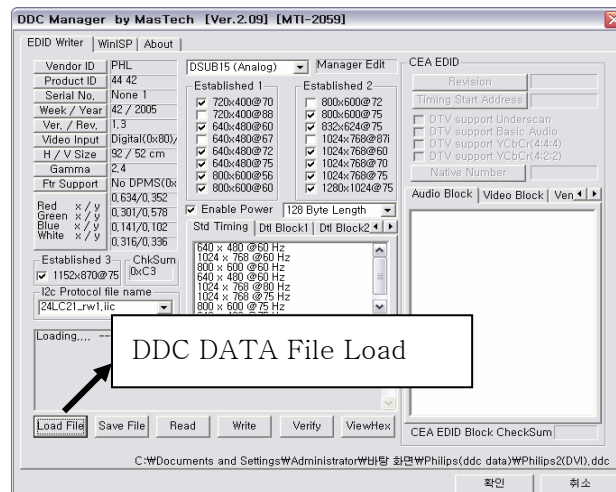
- (4) Please check video signal is appearing in screen well
- (5) Please check that Audio sound is coming out well by pushing [-VOL+]key  
(Please check signal of Component Mode Table)

Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)
EDTV 480i	720 x 480	15.730	29.970	13.5000
EDTV 576i	720 x 576	15.630	25.000	13.5000
SDTV 480p	720 x 480	31.470	59.940	27.000
SDTV 576p	720 x 576	31.250	50.000	27.000
HDTV 720p	1280 x 720	45.000	60.000	74.250
		44.960	59.940	74.180
		37.500	50.000	74.250
HDTV 1080i	1920 x 1080	33.750	30.000	74.250
		33.720	29.970	74.180
		31.250	25.000	74.250
		28.125	25.000	74.250

<Component Mode Table >

8) RGB Input(DDC DATA WRITE is optional per Buyer)

- (1) Please connect the Parallel Port of DDC WRITER and the Parallel Port of PC to Cable.
- (2) Please connect the ANALOG Port of DDC WRITER and the RGB Port of MAIN BOARD to RGB Cable.
- (3) Please send for RGB DDC FILE by pushing LOAD FILE after excellling the DDC WRITE PROGRAM of PC.



- 
- DDC Manager by MaSTech [Ver.2.0] [MTI-2]
- Vendor ID : PHIL  
Product ID : 44 42  
Serial No. : None 1  
Week / Year : 42 / 2005  
Ver. / Rev. : 1.3  
Video Input : Digital (0x000)  
H / V Size : 92 / 52 cm  
Gamma : 2.4  
Fir Support : No DPMS(0x0)
- OSUB15 (Analog)  
DVI-I (Digital)  
OSUB15 + DVI  
DVI2 (Digital)  
OSUB15 + DVI + DVI2  
HDMI (Video/Audio)  
☒ 640x480@75  
☒ 640x600@75  
☒ 800x600@55  
☒ 800x600@60  
☒ 1280x1024@75
- Established 2  
000-000@75  
000-000@75  
830-624@75  
1024x768@67  
1024x768@70  
1024x768@75  
1024x768@75  
1280x1024@75
- Revision  
Timing Start Address  
DTV support Undercan  
DTV support Basic Audio  
DTV support YCbCr4:4:2  
DTV support YCbCr4:2:2  
Native Number  
Audio Block | Video Block | Ver. |
- Red x/y 0.301/0.578  
Green x/y 0.141/0.102  
White x/y 0.315/0.336  
Established 3 - ChkSum 0x3  
0155x870@75  
I2C Protocol file name  
C:\C21\_rwl.ic
- Loading.... --> OK
- Load File Save File Read Write Verify ViewHex
- CEA EDID BlockCheckSum
- C:\Documents and Settings\Administrator\W\H출장\원근\WPhilips\ddc\data\WPhilips2(DVI).ddc
- 확인 취소

- INPUT  
SCART 1  
·  
RGB

- 81/185

Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)
<b>VGA</b>	640 x 350	31.460	70.000	25.170
	640 x 400	37.861	85.000	31.500
	720 x 400	31.469	70.000	28.320
	640 x 480	31.460	50.000	25.170
		31.500	60.000	25.175
		37.700	72.000	31.500
		37.500	75.000	31.500
		43.300	85.000	36.000
<b>SVGA</b>	800 x 600	35.100	56.000	36.000
		37.900	60.000	40.000
		48.100	72.000	50.000
		46.900	75.000	49.500
		53.700	85.000	56.250
	832 x 624	49.720	75.000	57.280
<b>XGA</b>	1024 x 768	48.400	60.000	65.000
		56.500	70.000	75.000
		60.000	75.000	78.750
		64.000	80.000	85.500
		68.300	85.000	94.500
	1152 x 870	68.680	75.000	100.000
<b>SXGA</b>	1280 x 1024	64.000	60.000	108.000

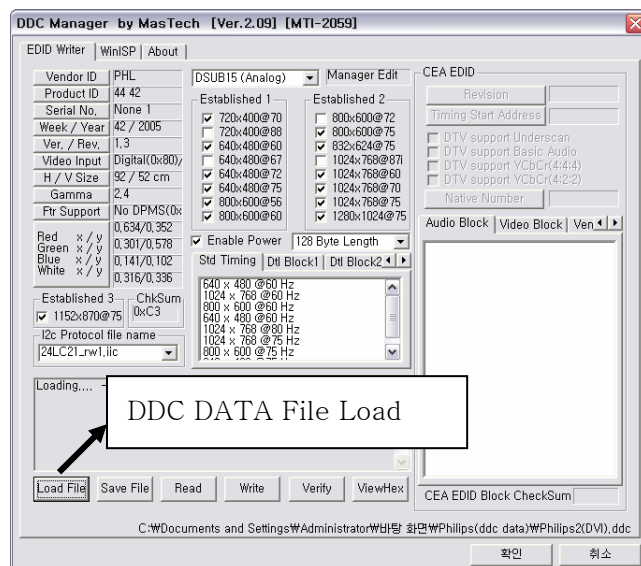
< DVI/RGB Mode Table >

Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)
<b>SDTV 480p</b>	720 x 480	31.470	59.940	27.000
<b>SDTV 576p</b>	720 x 576	31.250	50.000	27.000
<b>HDTV 720p</b>	1280 x 720	45.000	60.000	74.250
		44.960	59.940	74.180
		37.500	50.000	74.250
<b>HDTV 1080i</b>	1920 x 1080	33.750	30.000	74.250
		33.720	29.970	74.180
		31.250	25.000	74.250
		28.125	25.000	74.250

< DVI/RGB Mode Table >

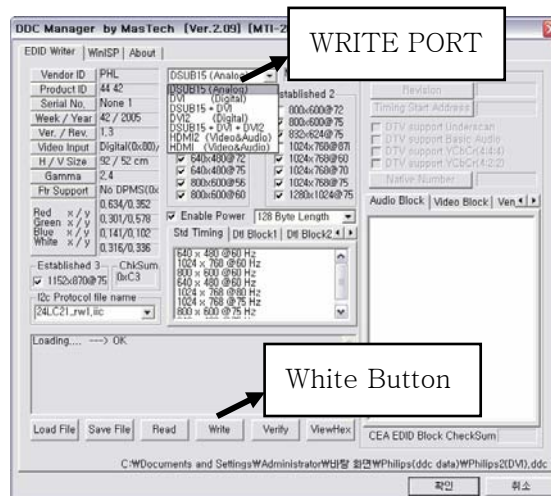
#### 9) DVI Input

- (1) Please connect the Parallel Port of DDC WRITER and the Parallel Port of PC to Cable.
- (2) Please connect the DVI Port1 of DDC WRITER and the DVI Port of MAIN BOARD to DVI Cable.
- (3) Please send for DVI DDC FILE by pushing LOAD FILE after excellling the DDC WRITE PROGRAM of PC.



(4) Please choose Write Port(DVI(Digital)) or DVI2(Digital))

(5) Please change DDC DATA to Write format by pushing "Write" button.



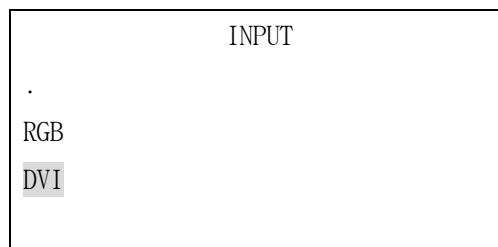
(6) Please check DDC DATA by reading.

(7) Connect ASTRO VG-848H of DVI output to DVI Video input

(8) Connect Audio out- coming of ASTRO VG-848H of DVI to DVI audio input

(9) Please power on PDP TV by pushing front key or "POWER" KEY of REMOCON

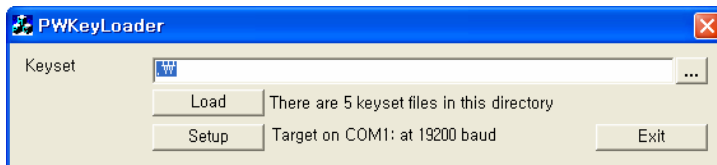
(10) Please select DVI Input by using "-VOL+", "-CH+" key after pushing front KEY or INPUT of REMOCON



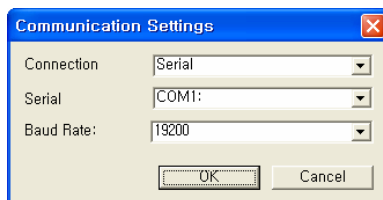
(11) Check DVI video signal is appearing well in screen after moving to DVI Input  
(Check the signal of DVI/RGB Mode Table)



- (12) Please connect the DVI PORT of PC and the DVI PORT of MAIN BOARD to DVI CABLE.
- (13) Please check that the function of frame lock is normal by using the SCROLL KEY in KEY BOARD and by controlling moving speed after exccelling BLIT program of PC.  
(The range of Frequency o Frame lock is 57Hz < Vsync < 61Hz)
- \* Frame lock working condition : Screen should not disappear when the screen be movable.
- (14) Check the sound is good after pushing the front key or “-VOL+” KEY of REMOCON
- (15) Please connect the Serial Port of PC and the RS232C Port of Main Board to 9 Pin D-SUB Cable
- (16) Please execute the PWKeyLoader program



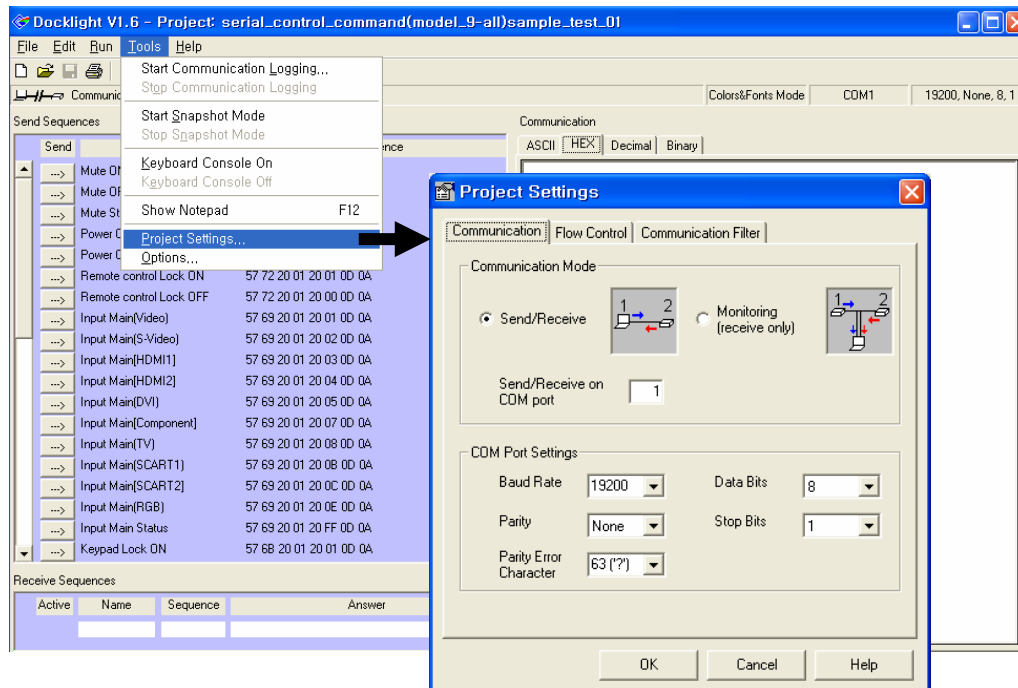
- (17) Please click Setup tap and check the configuration of PWKeyLoader



- (18) Please click Load. Then the HDCP key would be written
- (19) Please connect the DVI output(with HDCP) of DVD Player and DVI input of Main Board to DVI Cable
- (20) Please check that video signal of HDCP is appearing rightly in screen
- (21) Please check that Sound is good by pushing [-VOL+]key of front or remote control

#### 10) RS232C Control TEST

- (1) Please connect the Serial Port of PC and the RS232C Port of Main Board to 9 Pin D-SUB Cable
- (2) Please execute the Docklight.exe
- (3) Please choose Hardware Protocol as below.



- Baud rate : 19,200 bps
- Data bits : 8 bit
- Parity bits : NONE
- Stop bits : 1 bit
- Parity Error Character : Don't care

(4) Please check that RS232C CONTROL works well by putting the HEX MODE in program of Serial Test through referring to Serial Control Protocols Manual.

ex) MUTE ON/OFF TEST (PDP ID : 01)

**Mute : m (0x6d)**

► To Control Mute On/Off

(1) Transmission

[0x57][m][ ][Display ID][ ][Data][CR][LF]

Data = 0(00h) : Off                      -----→57 6D 20 01 20 00 0D 0A

Data = 1(01h) : On                      -----→57 6D 20 01 20 01 0D 0A

(2) OK Ack

[0x06]

(3) Error Ack

[0x15]

► Read Mute Status

(1) Transmission

[0x57][m][ ][PDP ID][ ][0xFF][CR]       -----→57 6D 20 01 20 FF 0D 0A

(2) OK Ack

[Data]

Data = 0(00h) : Off Status

Data = 1(01h) : On Status

(3) Error Ack

[0x15]

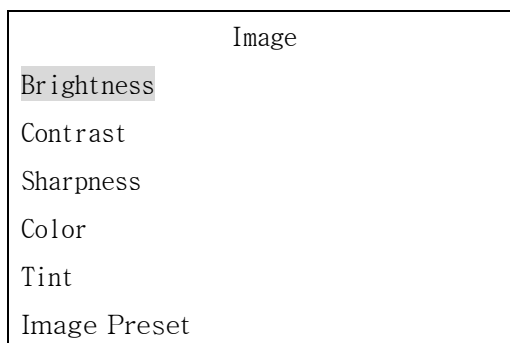
(5) Please check Command for [Operation Time] and [Reversal Image]

(Working at only RS232C CONTROL mode)

- [Operation Time] : Check operation time of PDP
- [Reversal Image] - ON : Check image is reversed
  - OFF : Check image is defaulted

#### 14) Image Menu

(1) Please enter into Image MENU by pushing front key or MENU of REMOCON

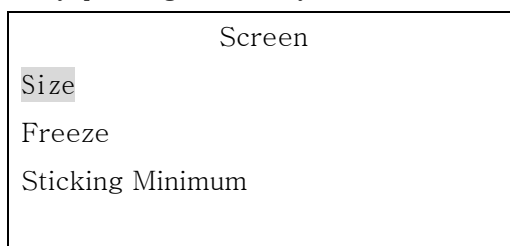


(2) Checking that adjustment can be possible for whatever user want to adjust by pushing front key or “-CH+” , “-VOL+” KEY of REMOCON

- Brightness : Resolution
- Contrast : Contrast
- Sharpness : Clearance
- Color : the tone of color
- Tint : the depth of color
- Image Preset: Image Mode first default

#### 15) Screen

(1) enter into Screen MENU by pushing front key or MENU of REMOCON



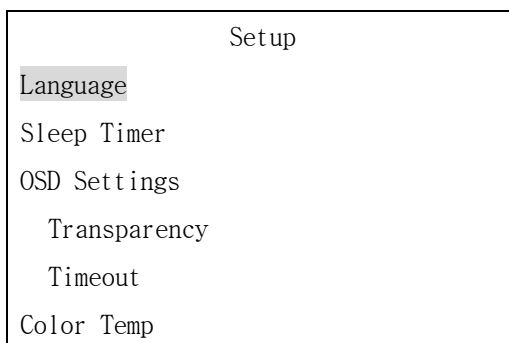
(2) Please check following function can be working after selecting what function you want by Pushing front KEY or “- VOL +” , “- CH +” key of REMOCON

- Size : AUTO, FILL ALL, FILL ASPECT, ZOOM, ANAMORPHIC, WIDE,
- Freeze: Screen still
- Sticking Minimum : Panel Burn-in Protection

(When it is on the working Sticking Minimum function prevents Panel Burn-in by moving screen as the left, the right or Up and down in a interval.)

## 16) Setup Menu

(1) Please enter into Image MENU by pushing front key or MENU of REMOCON



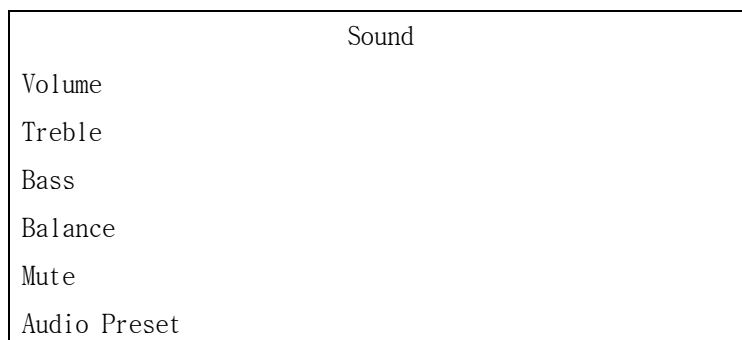
(2) Check that adjustment can be possible for whatever user want to adjust by pushing [-CH+] and [-VOL+]key

- Language : Each country language (This is optional by buyer)
- Sleep Timer : Reservation of sleep time
- OSD Settings
  - \* Transparency : OSD the degree of clearness adjustment
  - \* Timeout : OSD Time adjustment
- Color Temp : Choice color temperature(WARM/NORMAL/COOL)

## 17) Sound Menu

(1) Please check the volume of sound is adjustable by pushing front key or “-VOL+” KEY of REMOCON

(2) Please enter into Sound MENU by pushing front KEY or MENU KEY of REMOCON



(3) Checking that adjustment can be possible for whatever user want to adjust by pushing

- Volume :
- Treble : High sound of Volume
- Bass : Low sound of Volume
- Balance : Sound balance
- Mute : Quiet
- Audio Preset: returning to Audio first Mode

#### 18) Remote controller Function Key Test

(1) Checking following details by pushing function key of REMOCON

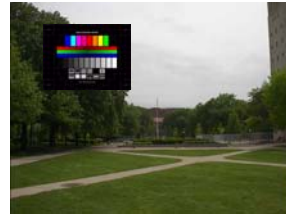
- Mute(Quietly) : Once pushed at one time sound is dead. Once pushed again return to the originated mode.
- Input : It help you see the input mode
- Auto(Auto setting) : It can help H.V position/Phase/Frequency searching automatically in RGB Input
- I.SIZE(Screen size) : It can help screen size change like AUTO,FILL ALL, FILL ASPECT, ZOOM, ANAMORPHIC, WIDE
- FREEZE(Screen freeze) : Once a time screen is frozen and Once pushed again it return to default
- Recall(Input expression) : It help viewing in present input signal
- Sleep(sleep timer) : It can reserve the sleeper time whenever you push button  
( OFF -> 30Minute -> 60Minute -> 90 Minute -> 120 Minute -> 150 Minute -> 180 Minute)

- Split Screen : Picture is changed like below when user push Split key of Remocon

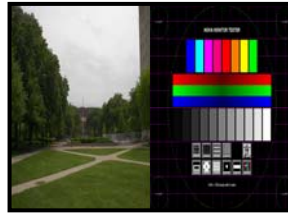
Main



PIP



PBP



-

< Normal -> PIP -> PBP >

- Locate(Screen Position) : Please move PIP Position from PIP Mode
- SIZE : PIP SCREEN Size is changing in PIP Mode
- SWAP(Swap) : This function has main screen switch off sub screen
- A.SWAP(Audio Swap) : This function has sound of main screen switch off sub screen
- S.SELECT : This function help selecting the each screen from Split Screen

#### 7.4 Out Going Specification

##### 1) Menu Mode설정.

##### (1) Scart, Video, S-Video, Component Input

NO.	Menu	Function	Default	REMARK
1	Image Menu	Brightness Contrast Sharpness Color Tint Image Preset	050 050 002 050 050 [-VOL+ ]to Preset Image	
2	Screen Menu	Size Freeze Sticking Minimum	AUTO OFF OFF	
3	Setup Menu	Language Sleep Timer OSD Settings Transparency Timeout Color Temp	Option by buyer 000  000 020 NORMAL	
4	Audio Menu	Volume Treble Bass Balance Mute Audio Preset	30 050 050 050 OFF	

< Table 1 >

※ Image, Screen, Setup, Audio Menu is the same as < Table 1>



(2) RGB Input

NO.	Menu	Function	Default	REMARK
1	Image Menu	Brightness Contrast Phase Frequency Sharpness Image Preset	050 050   002	
2	Screen Menu	Size H Position V Position Auto Freeze Sticking Minimum	AUTO    OFF ON	
3	Setup Menu	Language Sleep Timer OSD Settings Transparency Timeout Color Temp	Option by buyer 000  000 020 NORMAL	
4	Audio Menu	Volume Treble Bass Balance Mute Audio Preset	30 050 050 050 OFF	

< Table 2 >

(3) DVI Input

NO.	Menu	Function	Default	REMARK
1	Image	Brightness Contrast Sharpness Image Preset	050 050 002	
2	Screen	Size Freeze Sticking Minimum	AUTO OFF ON	
3	Setup	Language Sleep Timer OSD Settings Transparency Timeout Color Temp	Option by buyer 000  000 020 NORMAL	
4	Audio	Volume Treble Bass Balance Mute Audio Preset	30 050 050 050 OFF	

< Table 3 >

		WOOSUNGNEXTIER CORP.		EI NO.	
		ENGINEERING INSTRUCTION		PAGE	
		USER FOR DISTRIBUTION		DATE	
REVISION		DATE	DRAFTER	REVISION	
0	Initial	07/22/2005	J.U-Lee	1.0	
1					

## SUBJECT : Firmware Upgrade Manual

- (1) Connect PC and PDP with RS-232C Cable (1:1 Serial cable).



- (2) Remove AC Power Cord from PDP for Power off.
- (2) Run "C:\.....\FlashUpgrader.exe".
- (3) Click "Flash" button.



- (4) Connect AC Power Cord of PDP.
- (5) Right after connecting AC Power Cord, automatically up-grading.



- (6) After finishing Up-grade, click " Close " button to end program.
  - (7) Remove RS-232C Cable ( 1:1 Serial Cable).
  - (8) Remove and reconnect AC Power Cord of PDP.
  - (9) Turn on PDP and Check the Panel Selection.
  - (10) If Panel Selection not corrected, Check whether appropriate panel is selected or not in OSD Menu opened in a screen after Power On.
  - (12) Panel Selection can be changed by pushing down [VOL+], [CH-] and [CH+] button at the same time as like below.
- 42" SD(Default) → 42" HD → 50" HD → LCD**
- (13) First Power Off and then Power On by Pushing down [Power] button if OSD Menu is stationed in the middle of screen
  - (14) Check whether appropriate panel is selected or not in OSD Menu opened in a screen after Power On.

-The End-

# Serial Control Protocols

2005,11,22 Ver.03

## ● How to connect a external equipment

Connect COM Port (9Pin D-Sub Port) of PC and RS-232C of PDP with RS-232C Cable(1:1 Serial cable)

## ● Hardware Protocol

Baud rate : 19,200 bps

Data bits : 8 bit

Parity bits : NONE

Stop bits : 1 bit

Handshake : NONE

## ● Transmission Formats

This is the format that the computer will send to the display to execute commands (such as Mute on, Mute off, etc.). The format for this command transmission is as follows:

[Manufacturer ID][Command][ ][PDP ID][ ][Data][CR]

Name	Description	ASCII code
Manufacturer ID	The ID of the Manufacturer	0x57
Command	The command to control the PDP	
[ ]	Space	0x20
PDP ID	The ID of the PDP, from [001~254]	0x01~ 0xFE
[ ]	Space	0x20
Data	The data to be transmitted with the command	
CR	Carriage Return	0x0D

## ● OK Acknowledgement

The acknowledgement will be sent by the display to the computer to verify that the command has been successfully received and executed. This format for this acknowledgement is as follows:

[0x06]

## ● Error Acknowledgement

The Error Values will be sent by the display to the computer to verify that the command has been successfully received and executed. This format for this Error Values is as follows:

[0x15]

## ● ASCII code

(American Standard Code for Information Interchange)

*	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	TAB	LF	VT	FF	CR	SO	SI
1	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
2		!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{		}	~	

Example 1: 'A' character = 4th row, 1st column => Hex : **0x41** , Decimal : **65**

## ● HOW to Choose PDP ID number.

The adjustment range of Set ID is 001 ~ 255.

- ▶ To Choose PDP ID number
  - (1) Transmission  
[0x57][?][ ][0x00][ ][Data][CR]  
Data = 001(01h)  
.  
.  
Data = 128(80h)  
.  
.  
Data = 254(FEh)
  - (2) OK Ack  
[0x06]
  - (3) Error Ack  
[0x15]
- ▶ Read PDP ID number
  - (1) Transmission  
[0x57][?][ ][0x00][ ][0xFF][CR]
  - (2) OK Ack  
[Data]  
Data = 001(01h)  
.  
.  
Data = 128(80h)  
.  
.  
Data = 254(FEh)
  - (3) Error Ack  
[0x15]

## ● Command List

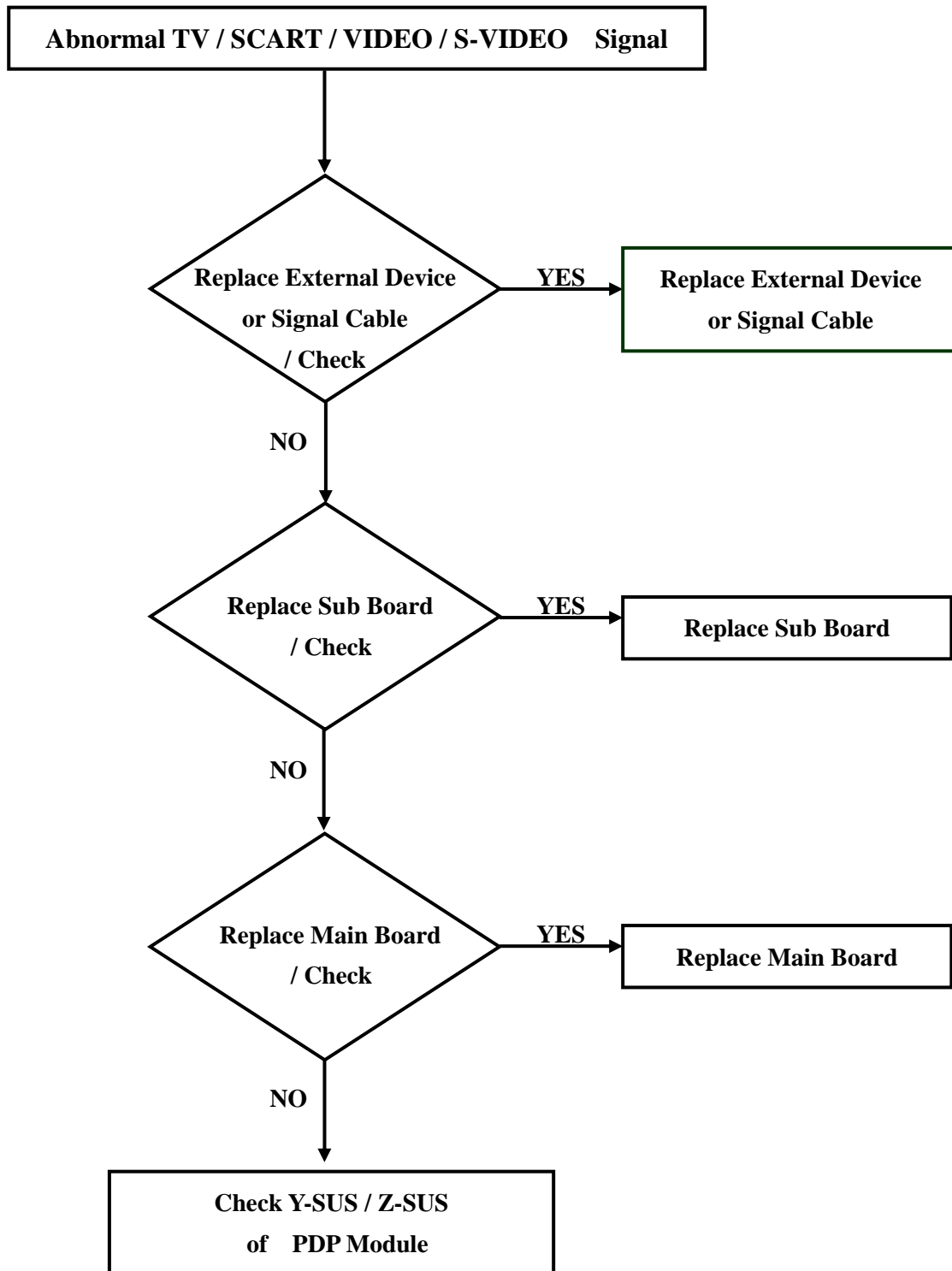
Name	Command	Data(HEX)	Name	Command	Data(HEX)
1. Mute	m (0x6d)	00h ~ 01h	2. Power	p (0x70)	00h ~ 01h
3. Remote Control Lock	r (0x72)	00h ~ 01h	4. Input (Main)	i (0x69)	01h ~ 0Eh
5. Keypad Lock	k (0x6b)	00h ~ 01h			
<b>1. Mute : m (0x6d)</b> ▶ To Control <u>Mute</u> On/Off (1) Transmission [0x57][m][ ][PDP ID][ ][Data][CR] Data = 0(00h) : Off Data = 1(01h) : On (2) OK Ack [0x06] (3) Error Ack [0x15] ▶ Read <u>Mute</u> Status (1) Transmission [0x57][m][ ][PDP ID][ ][0xFF][CR] (2) OK Ack [Data] Data = 0(00h) : Off Status Data = 1(01h) : On Status (3) Error Ack [0x15]			<b>2. Power : p (0x70)</b> ▶ To Control Power On/Off of the PDP TV (1) Transmission [0x57][p][ ][PDP ID][ ][Data][CR] Data = 0(00h) : Off Data = 1(01h) : On (PDP ID=[0x00] Fix) (2) OK Ack [0x06]:Off , [0xBE...0xBF...0xEF..]:On (3) Error Ack [0x15]:Off , [X]:On ▶ Read Power Status (1) Transmission [0x57][p][ ][PDP ID][ ][0xFF][CR] (2) OK Ack [Data] Data = X(Don't care) : Off Status Data = 1(01h) : On Status (3) Error Ack [0x15]		
<b>3. Remote Control Lock : r (0x72)</b> ▶ To Control <u>Remote Control Lock</u> On/Off (1) Transmission [0x57][r][ ][PDP ID][ ][Data][CR] Data = 0(00h) : Off Data = 1(01h) : On (2) OK Ack [0x06] (3) Error Ack [0x15] ▶ Read <u>Remote Control Lock</u> Status (1) Transmission [0x57][r][ ][PDP ID][ ][0xFF][CR] (2) OK Ack [Data] Data = 0(00h) : Off Status Data = 1(01h) : On Status (3) Error Ack [0x15]			<b>4. Input(Main) : i (0x69)</b> ▶ To select Input(Main) of the PDP TV (1) Transmission [0x57][i][ ][PDP ID][ ][Data][CR] Data = 08(08h) : TV (Option) Data = 11(0Bh) : SCART 1 or VIDEO 1 Data = 12(0Ch) : SCART 2 or VIDEO 2 Data = 01(01h) : VIDEO Data = 02(02h) : S-VIDEO Data = 07(07h) : COMPONENT Data = 14(0Eh) : RGB Data = 05(05h) : DVI Data = 03(03h) : HDMI 1 (Option) Data = 04(04h) : HDMI 2 (Option) (2) OK Ack [0x06] (3) Error Ack [0x15] ▶ Read Input(Main) Status (1) Transmission [0x57][i][ ][PDP ID][ ][0xFF][CR] (2) OK Ack [Data] Data = 08(08h) : TV (Option) Data = 11(0Bh) : SCART 1 or VIDEO 1 Data = 12(0Ch) : SCART 2 or VIDEO 2 Data = 01(01h) : VIDEO Data = 02(02h) : S-VIDEO Data = 07(07h) : COMPONENT Data = 14(0Eh) : RGB Data = 05(05h) : DVI Data = 03(03h) : HDMI 1 (Option) Data = 04(04h) : HDMI 2 (Option) (3) Error Ack [0x15]		

<p><b>5. Keypad Lock : k (0x6b)</b></p> <p>► To Control <u>Keypad Lock</u> On/Off</p> <p>(1) Transmission  <b>[0x57][k][ ][PDP ID][ ][Data][CR]</b>  Data = 0(00h) : Off  Data = 1(01h) : On</p> <p>(2) OK Ack  <b>[0x06]</b></p> <p>(3) Error Ack  <b>[0x15]</b></p> <p>► Read <u>Keypad Lock</u> Status</p> <p>(1) Transmission  <b>[0x57][k][ ][PDP ID][ ][0xFF][CR]</b></p> <p>(2) OK Ack  <b>[Data]</b>  Data = 0(00h) : Off Status  Data = 1(01h) : On Status</p> <p>(3) Error Ack  <b>[0x15]</b></p>	

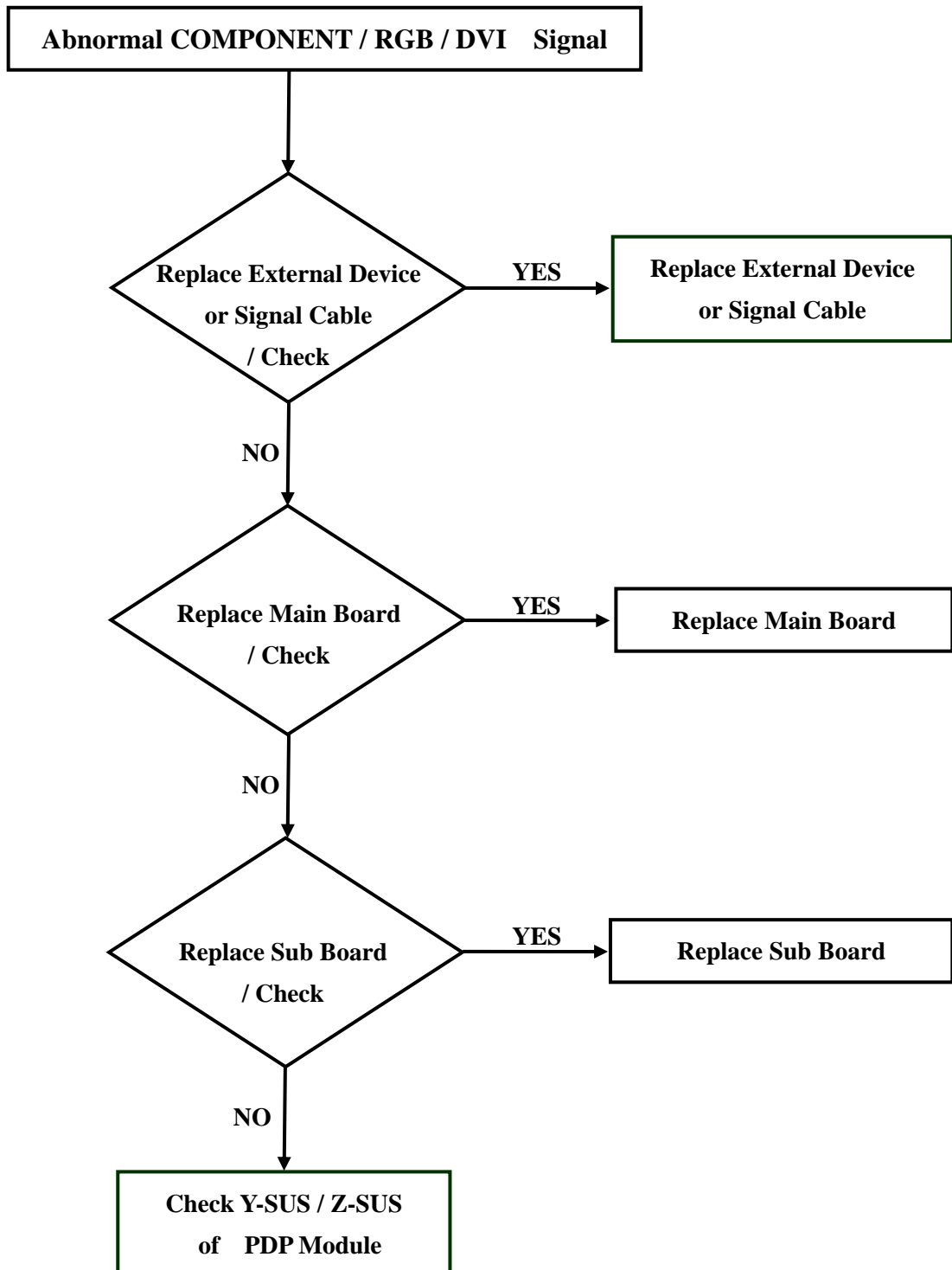


# Trouble Shooting

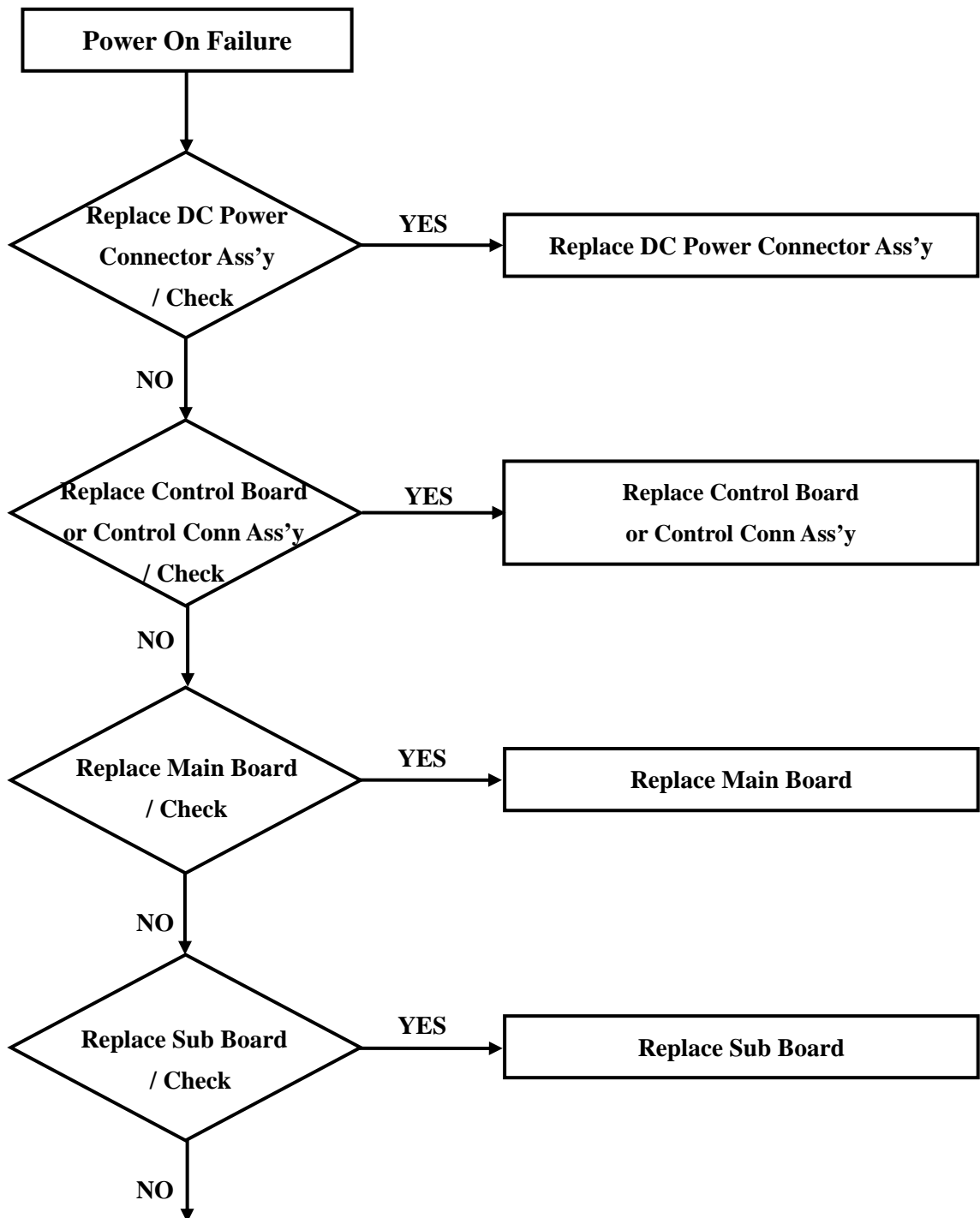
**< Abnormal TV / SCART / VIDEO / S-VIDEO Signal >**



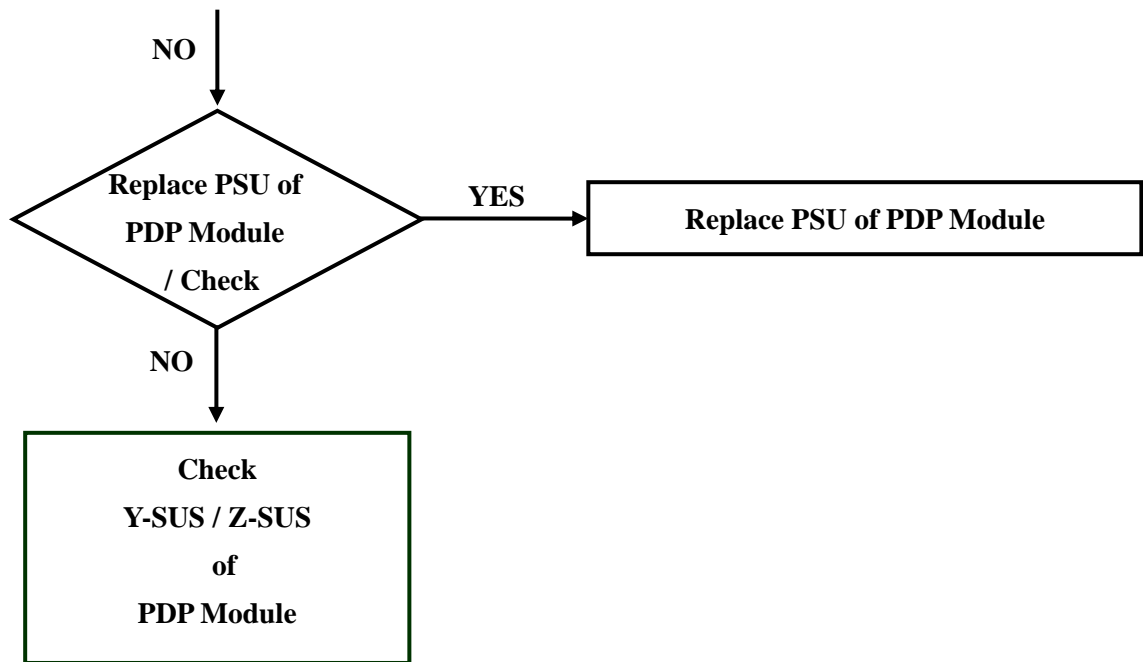
**< Abnormal COMPONENT / RGB / DVI / HDMI Signal >**



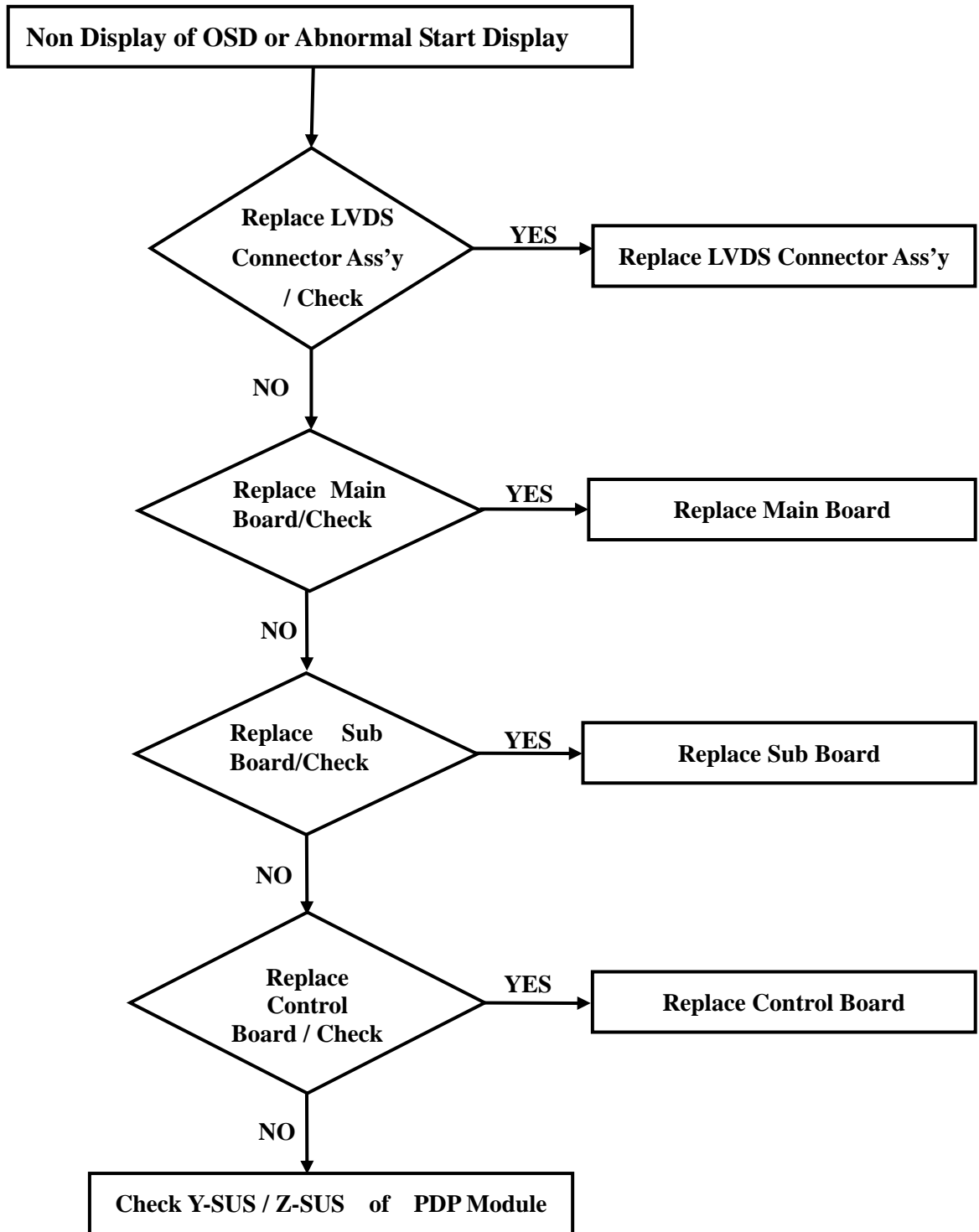
< **Power On Failure** >(Continued)



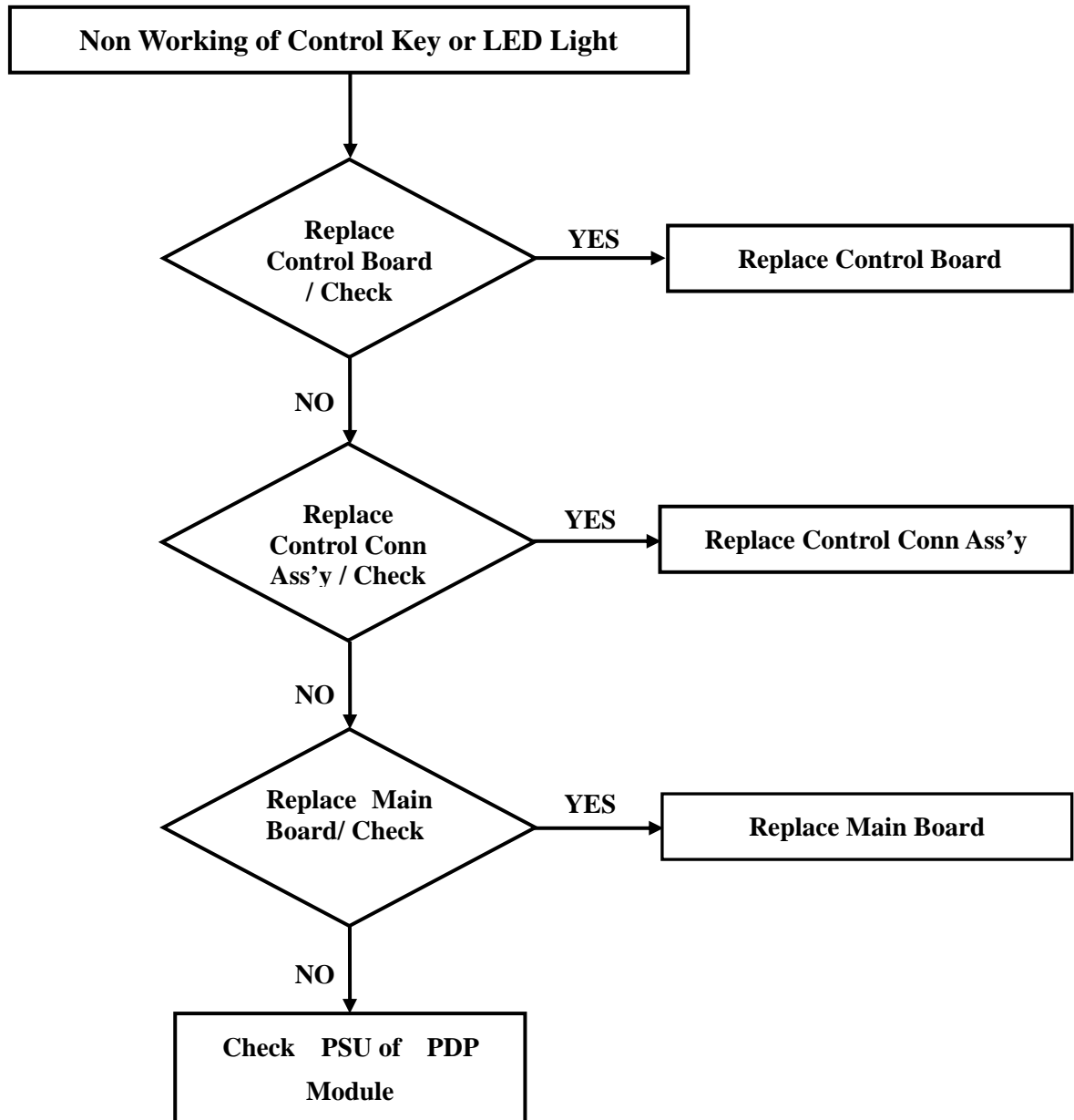
**< Power On Failure >**



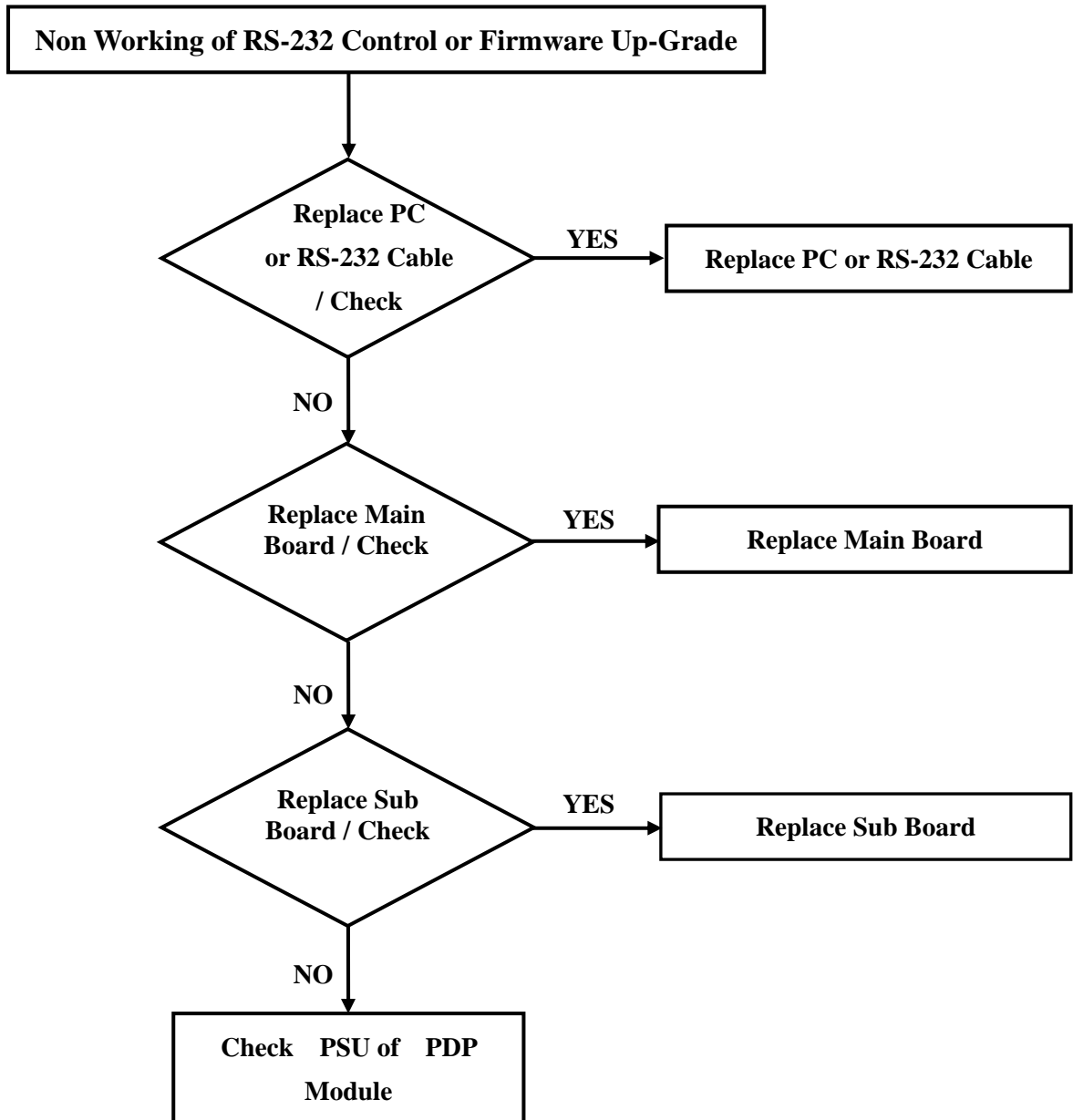
< Non Display of OSD or Abnormal Starting Display >



**<Non Working of Control Key or LED Light>**



**<Non Working of RS-232 Control or Firmware Up-Grade>**





## **PDP MODULE SERVICE MANUAL**

- 1. PDP42V7#### -----112**
- 2. PDP42X3#### -----135**
- 3. PDP50X3#### -----161**

### **CAUTION**

- 1. BEFORE SERVICING THE PDP MODULE,  
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.
- 2. WHEN REPLACEMENT PARTS ARE REQUIRED, BE SURE TO USE  
REPLACEMENT PARTS SPECIFIED BY THE MANUFACTURER.

# 1. PDP42V7#### Module

## CONTENTS

- I . **Safety Precautions/Technical Feature**
  - II . **Formation and Specification of Module**
  - III . **Adjustment**
  - IV . **Trouble Shooting**
    - 1. **Checking for No Picture**
    - 2. **Hitch Diagnosis Following Display Condition**
      - 2-1. All or 1/2 of the screen doesn't be shown
      - 2-2. Screen doesn't be shown as Data TCP
      - 2-3. It is generated unusual pattern of Data TCP IC unit
      - 2-4. Regular Stripe is generated about the quantity of one Data TCP IC or more
      - 2-5. Screen doesn't be shown at all as Scan FPC
      - 2-6. Regular stripe is generated at regular interval on the whole screen
      - 2-7. Data copy is generated to stripe direction
      - 2-8. One or more stripe is generated on the screen
      - 2-9. One or more horizontal line is generated on screen
      - 2-10. Lightness of screen is wholly darken though there is input-signal-pattern
      - 2-11. Different color is shown partially during full-white-screen or electric discharge is generated during full-black-screen
      - 2-12. Some lightness of some color doesn't not generated well
    - 3. **Checking for component damage**
      - 3-1. Y IPM(IC15) or Z IPM(IC2) damage
      - 3-2. Pass Top FET(Y B/D: HS2) damage
      - 3-3. FET Ass'y(Y B/D: HS1) damage
      - 3-4. SCAN IC(Y DRV B/D: IC1~8) damage
      - 3-5. TCP damage
      - 3-6. Crystal(CTRL B/D: X1) damage
    - 4. **Shift breakdown component compatibility consideration**
      - 4-1. Scan IC follows in application, compatibility of Y DRV Top, Bottom B/D
  - V . **Block Diagram**
  - VI . **Safety Components List**
  - VII . **Records of Revision for Boards, Components and ROM DATA**
- \* Annexing : Schematic Diagram**

## I . Safety Precautions/Technical Feature

### 1. Safety Precautions

When servicing of PDP Module, it should be not enforced into another way aside next rule, or a unaccustomed person should not repairing.

When using/handling this PDP Module, pay attention to the below warning and cautions.

#### **Warning**

Indicates a hazard that may lead to death or injury if the warning is ignored and the product is handled incorrectly.

#### **Caution**

Indicates a hazard that can lead to injury or damage to property if the caution is ignored and the product is handled incorrectly.

#### 1) WARNING

- (1) Do not touch Signal and Power Connector while this product operates.  
Do not touch EMI ground part and Heat Sink of Film Filter.
- (2) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.
- (3) Do not use this product in locations where the humidity is extremely high, where it may be splashed with water, or where flammable materials surround it.  
Do not install or use the product in a location that does not satisfy the specified environmental conditions. This may damage the product and may cause a fire.
- (4) If a foreign substance (such as water, metal, or liquid) gets inside the product, immediately turn off the power.  
Continuing to use the product, it may cause fire or electric shock.
- (5) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power.  
Continuing to use the product, it may cause fire or electric shock.
- (6) Do not disconnect or connect the connector while power to the product is on. It takes some time for the voltage to drop to a sufficiently low level after the power has been turned off.  
Confirm that the voltage has dropped to a safe level before disconnecting or connecting the connector.
- (7) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.
- (8) Do not damage or modify the power cable. It may cause fire or electric shock.

(9) If the power cable is damaged, or if the connector is loose, do not use the product: otherwise, this can lead to fire or electric shock.

(10) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

(11) PDP Module uses a high voltage (Max.450V dc). Keep the cautions concerning electric shock and do not touch the Device circuitry when handling the PDP Unit. And because the capacitor of the Device circuitry may remain charged at the moment of Power OFF, standing by for 1 minute is required in order to touch the Device circuitry.

#### 2) CAUTIONS

- (1) Do not place this product in a location that is subject to heavy vibration, or on an unstable surface such as an inclined surface. The product may fall off or fall over, causing injuries.
- (2) Before disconnecting cable from the product, be sure to turn off the power. Be sure to hold the connector when disconnecting cables. Pulling a cable with excessive force may cause the core of the cable to be exposed or break the cable, and this can lead to fire or electric shock.
- (3) This product should be moved by two or more persons. If one person attempts to carry this product alone, he/she may be injured.
- (4) This product contains glass. The glass may break, causing injuries, if shock, vibration, heat, or distortion is applied to the product.
- (5) The temperature of the glass of the display may rise to 80°C or more depending on the conditions of use.  
If you touch the glass inadvertently, you may be burned.
- (6) If glass surface of the display breaks or is scratched, do not touch the broken pieces or the scratches with bare hands. You may be injured.
- (7) PDP Module requires to be handled with care not to be touched with metal or hard materials, and must not be stressed by heat or mechanical impact.
- (8) There are some exposed components on the rear panel of this product. Touching these components may cause an electric shock.
- (9) When moving the product, be sure to turn off the power and disconnect all the cables. While moving the product, watch your step. The product may be dropped or all, leading to injuries of electric shock.

- (10) In order to protect static electricity due to C-MOS circuitry of the Drive part, wear a wrist band to protect static electricity when handling.
- (11) If cleaning the Panel, wipe it with a soft cloth moistened with water or a neutral detergent and squeezed, being careful not to touch the connector part of the Panel. And don't use chemical materials like thinner or benzene.
- (12) If this product is used as a display board to display a static image, "image sticking" occurs. This means that the luminance of areas of the display that remain lit for a long time drops compared with luminance of areas that are lit for a shorter time, causing uneven luminance across the display. The degree to which this occurs is in proportion to the luminance at which the display is used. To prevent this phenomenon, therefore, avoid static images as much as possible and design your system so that it is used at a low luminance, by reducing signal level difference between bright area and less bright area through signal processing.
- (13) Because PDP Module emits heat from the Glass Panel part and the Drive circuitry, the environmental temperature must not be over 40°C.  
The temperature of the Glass Panel part is especially high owing to heat from internal Drive circuitry. And because the PDP Module is driven by high voltage, it must avoid conductive materials.
- (14) If inserting components or circuit board in order to repair, be sure to fix a lead line to the connector before soldering.
- (15) If inserting high-power resistor(metal-oxide film resistor or metal film resistor) in order to repair, insert it as 10mm away as from a board.
- (16) During repairs, high voltage or high temperature components must be put away from a lead line.
- (17) This is a Cold Chassis but you had better use a cold transformer for safety during repairs. If repairing electricity source part, you must use the cold transformer.
- (18) Do not place an object on the glass surface of the display. The glass may break or be scratched.
- (19) This product may be damaged if it is subject to excessive stresses (such as excessive voltage, current, or temperature). The absolute maximum ratings specify the limits of these stresses.
- (20) The recommended operating conditions are conditions in which the normal operation of this product is guaranteed. All the rated values of the electrical specifications are guaranteed within these conditions.  
Always use the product within the range of the recommended operating conditions. Otherwise, the reliability of the product may be degraded.
- (21) This product has a glass display surface. Design your system so that excessive shock and load are not applied to the glass. Exercise care that the vent at the corner of the glass panel is not damaged.  
If the glass panel or vent is damaged, the product is inoperable.
- (22) Do not cover or wrap the product with a cloth or other covering while power is supplied to the product.
- (23) Before turning on power to the product, check the wiring of the product and confirm that the supply voltage is within the rated voltage range. If the wiring is wrong or if a voltage outside the rated range is applied, the product may malfunction or be damaged.
- (24) Do not store this product in a location where temperature and humidity are high. This may cause the product to malfunction. Because this product uses a discharge phenomenon, it may take time to light (operation may be delayed) when the product is used after it has been stored for a long time. In this case, it is recommended to light all cells for about 2 hours (aging).
- (25) This product is made from various materials such as glass, metal, and plastic. When discarding it, be sure to contact a professional waste disposal operator.
- (26) If faults occur due to arbitrary modification or disassembly, LG Electronics is not responsible for function, quality or other items.
- (27) Use of the product with a combination of parameters, conditions, or logic not specified in the specifications of this product is not guaranteed. If intending to use the product in such a way, be sure to consult LGE in advance.
- (28) Within the warranty period, general faults that occur due to defects in components such as ICs will be rectified by LGE without charge. However, IMAGE STICKING due to misapplying the above (12) provision is not included in the warranty. Repairs due to the other faults may be charged for depending on responsibility for the faults.
- (29) In assembling Module into SET, in case Film Filter and as a protective film is bared, static electricity of exfoliated protective film which is bared from beginning X-Board down ward getting TCP to no getting TCP should not influence on TCP.  
Also Filter after protective film is bared or in the storage can be charged with electricity, so the EMI ground part of Film Filter should be used after Grounding.

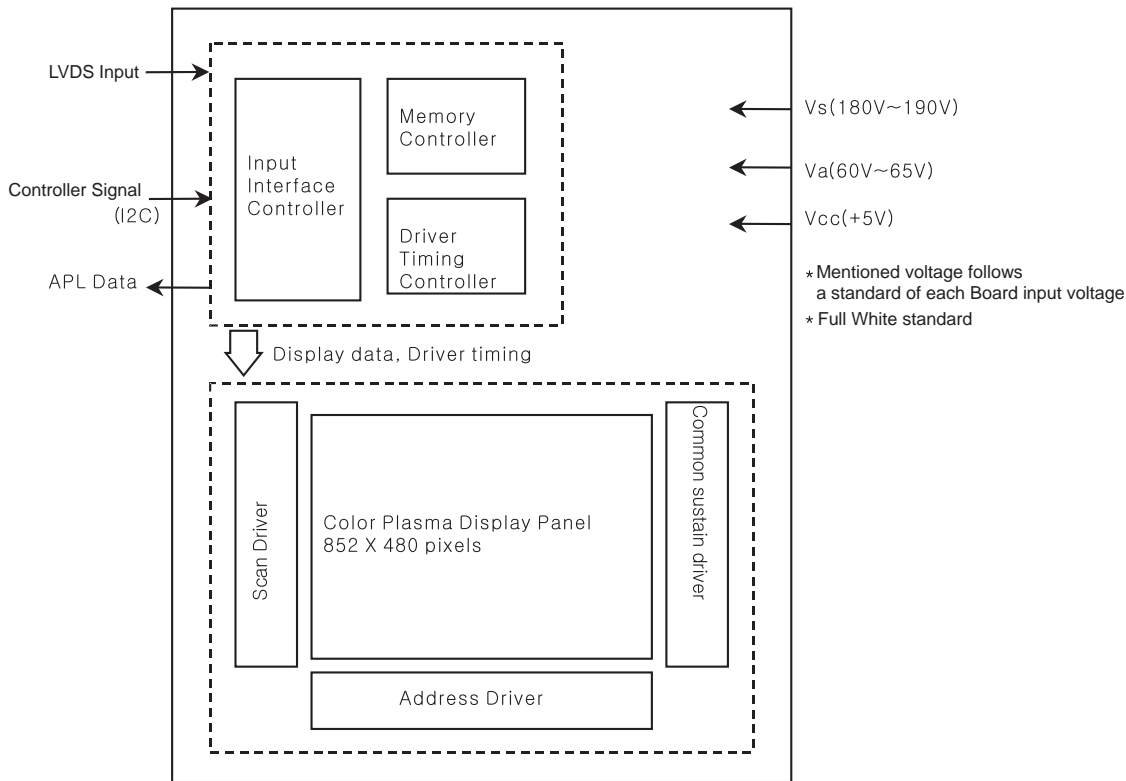
## 2. Technical Feature

PDP Module is a display device to be divided into a Panel part and a Drive part. The Panel part consists of Electrodes, Phosphor, various dielectrics and gas, and the Drive part includes electronic circuitry and PCB.  
PDP42V7#### model produced in the LG electronic is 42inches color Plasma display module of WVGA(852(H)x480(V)), and it is a display device giving concrete to bright image by using AC Plasma technology of LG electronic.

### 1) General Specification

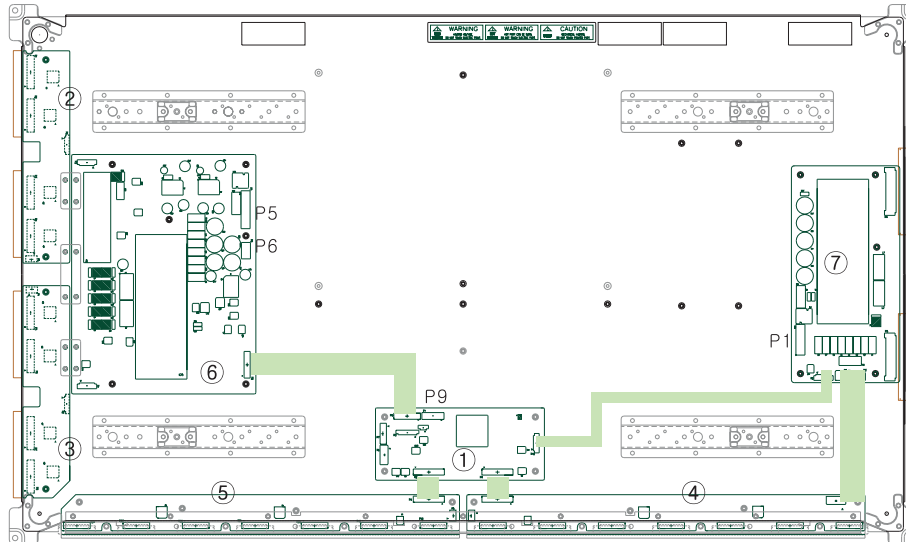
(1) Model Name	: PDP42V7####
(2) Number of Pixel	: 852(H) x 480(V) (1pixel=3 RGB cells)
(3) Pixel Pitch	: 1080 $\mu$ m(H) x 1080 $\mu$ m(V)
(4) Cell Pitch	: 320 $\mu$ m(H) x 1080 $\mu$ m(V) (Base: Green Cell)
(5) Display area	: 920.1(H) x 518.4(V) $\pm$ 0.5mm
(6) Outline dimension	: 1005(H) x 597(V) x 60.6(D) $\pm$ 1mm
(7) Color arrangement	: RGB Closed type
(8) Number of COLRO	: (R)1024 x (G)1024 x (B)1024
(9) Weight	: 14.7Kg $\pm$ 0.5Kg
	: 100Kg $\pm$ 5Kg(5EA/1BOX)
(10) Aspect Ratio	: 16:9
(11) Peak Brightness	: Typical 1500dc/nf(1/10 White Window)
	: Avergae 100:1(Light room 100 Lx at center)
(12) Contrast Ratio	: Typical 10000:1(Dark room 1/10 White Window)
	(White Window Pattern at Center)
(13) POWER CONSUMPTION	: Typical 200 W(Full White) * Note 1)
(14) Lifetime	: Over 60,000 Hrs (Initial brightness 1/2)

### 2) Block Diagram



\* Note 1) It can be changed maximum 300W according to input image.

## II . Formation and Specification of Module



No	Connector	Input Voltage & Signal
1	P1[Z SUS B/D]	5V, Va, Vs
2	P5[Y SUS B/D]	Vs
3	P6[Y SUS B/D]	5V
4	P9[CTRL B/D]	Control Signal

No	Part No.		Description
①	6871QCH053A	PWB(PCB) ASS'Y	LVDS CTRL B/D ASS'Y
	6871QCH073A	PWB(PCB) ASS'Y	HITACHI COPPER LVDS CTRL B/D ASS'Y
	6871QCH053B	PWB(PCB) ASS'Y	LVDS OUTER SIDE CTRL B/D ASS'Y
	6871QCH053C	PWB(PCB) ASS'Y	PB-FREE FFC & CON LVDS OUTER SIDE CTRL B/D ASS'Y
②	6871QDH084A	PWB(PCB) ASS'Y	YDRV TOP B/D ASS'Y
	6871QDH105A	PWB(PCB) ASS'Y	HITACHI COPPER YDRV TOP B/D ASS'Y
③	6871QDH085A	PWB(PCB) ASS'Y	YDRV BTM B/D ASS'Y
	6871QDH106A	PWB(PCB) ASS'Y	HITACHI COPPER YDRV BTM B/D ASS'Y
④	6871QRH055A	PWB(PCB) ASS'Y	XR B/D ASS'Y
	6871QRH055B	PWB(PCB) ASS'Y	PB-FREE FFC & CON XR B/D ASS'Y
	6871QRH066A	PWB(PCB) ASS'Y	HITACHI COPPER XR B/D ASS'Y
⑤	6871QLH047A	PWB(PCB) ASS'Y	XL B/D ASS'Y
	6871QLH047B	PWB(PCB) ASS'Y	PB-FREE FFC & CON XL B/D ASS'Y
	6871QLH056A	PWB(PCB) ASS'Y	HITACHI COPPER XL B/D ASS'Y
⑥	6871QYH036A	PWB(PCB) ASS'Y	YSUS B/D ASS'Y
	6871QYH036B	PWB(PCB) ASS'Y	PB-FREE FFC & CON YSUS B/D ASS'Y
	6871QYH050A	PWB(PCB) ASS'Y	HITACHI COPPER YSUS B/D ASS'Y
⑦	6871QZH041A	PWB(PCB) ASS'Y	ZSUS B/D ASS'Y
	6871QZH052A	PWB(PCB) ASS'Y	HITACHI COPPER ZSUS B/D ASS'Y

※ The composition and specification of Initial production module  
Revision information refers to 'VII Revision for Boards, Components and ROM DATA'

## III . Adjustment

### 1. Application Object

This standard is applied to the PDP42V7#### PDP Module which is manufactured by the manufacturing team of PDP promotion department or elsewhere.

### 2. Notes

- (1) Without any special specification, the Module should be at the condition of preliminaries more than 10minutes before adjusting.
  - Service signal : 100% Full White signal
  - Service DC voltage : Vcc: 5V, Va: 65V, Vs: 187V
  - DC/DC Pack voltage : Vsc=115V  
-Vy: -85V
  - Preliminaries environment : Temp (25±5°C), Relative humidity (65±10%)
- (2) Module should get the Aging for the equilibrium after finish the assembling. Aging condition is shown below.
  - Service signal: 100% Full White, Red, Green, Blue pattern signal(Service time of each pattern : within 5minutes/cycle)
  - Service DC voltage : Match the voltage with the set up voltage in the first adjustment.
  - Aging time : More than 30 minutes
  - Aging environment : Temp (25±2°C), Relative humidity- Less than 65%
- (3) Module adjustment should be followed by below sequence.
  - Setting up the Vsc/-Vy voltage(Vsc=115V, -Vy=-85V)
  - Adjusting the voltage wave form(Refer to adjustment)
  - 25±5°C, 65±10%
- (4) Without any special specification, you should adjust the Module in the environment of Temp (25±5°C) and Relative humidity (65±10%)

**Caution)** If you let the still image more than 10 minutes(especially The Digital pattern or Cross Hatch Pattern which has clear gradation), after image can be presented in the black level part of screen.

## 3. Adjustment after Assembling

### 3-1. Using Tools

- (1) Digital oscilloscope : More than 200MHz
- (2) DVM(Digital Multimeter) : Fluke 87 or similar one
- (3) Signal generator : VG-825 or similar one
- (4) DC power supply or PSU
  - DC power supply for Vs (1) : Should be changeable between 0V to 200V/ more than 10A
  - DC power supply for Va (1) : Should be changeable between 0V to 100V/ more than 5A
  - DC power supply for 5V (1) : Should be changeable between 0V to 10V/ more than 10A
  - DC-DC Converter Jig (1) : The Jig which has equivalent voltage output of PDP42V7#### Module after taking the Vs, Va, 5V voltage
  - Voltage stability of power supply : Within ±1% for Vs/Va, within ±3% for 5V

### 3-2. Connection diagram of measuring instrument and setting up the initial voltage

- (1) For connection diagram of measuring instrument, refer to Fig. 1.(Connection diagram of measuring instrument that adjusting the voltage wave form)
- (2) Setting up the initial voltage(Voltage Label)  
Vcc: 5V, Va: 65V, Vs: 187V  
But, Initially setting up voltage can be changed by the set up range according to the Module's characteristic.

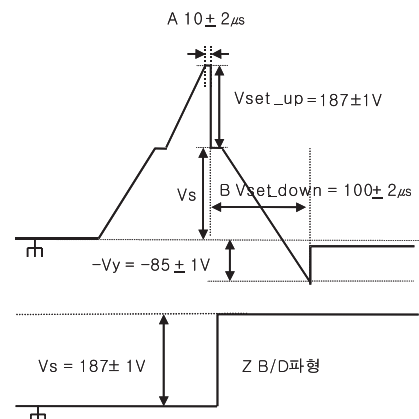
### 3-3. How to Adjust

#### (1) Adjusting Vset-up Voltage Wave form

- ① Connect the measuring instrument to be (Fig. 1).
- ② Turn on the measuring instrument with Caution of (Fig. 1).
- ③ Connect the oscilloscope probe to B39(Bead) of Y B/D bottom and GND.
- ④ Turn the VR1 of Y B/D and make the "A" waveform Fig. 2 to be 10±2μs.

#### (2) Adjusting Vset-down Voltage Wave form

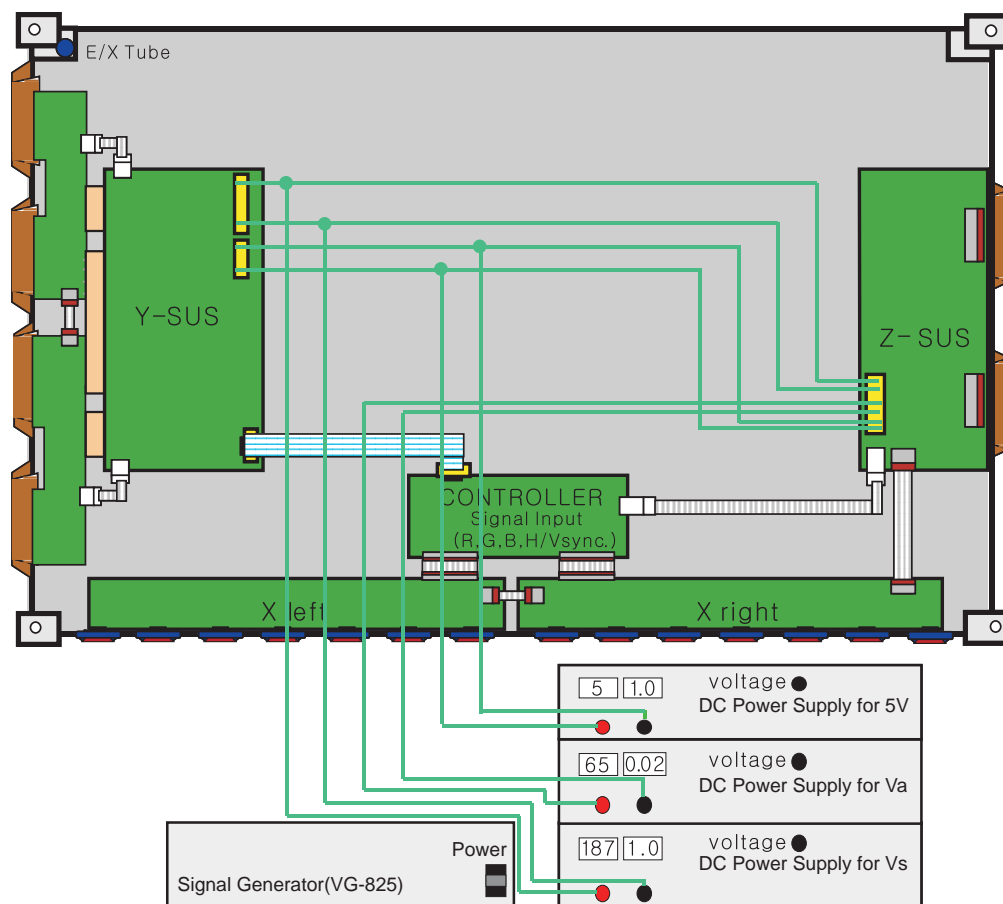
- ① Turn the VR2 of YSUS B/D and make the "B" waveform Fig. 2 to be 100±2μs.



(Fig. 2) Y, Z set-up Waveform

#### (3) Checking the DC/DC pack voltage

- ① Convert the signal of signal generator to the 100% Full White signal.
- ② Connect the GND terminal of DVM to the right leg of R53 on the Y B/D and set the Plus terminal to the left leg of R53 to check the Vsc voltage(115±1V) and when there is abnormality in voltage turn the variable resistor(VR3) of DC/DC Pack(Vsc) PS1 on Y B/D to adjust.
- ③ Connect the GND terminal of DVM to the right leg of R78 on the Y B/D and set the Plus terminal to the left leg of R78 to check the -Vy voltage(-85±1V) and when there is abnormality in voltage turn the variable resistor(VR4) of DC/DC Pack(-Vy) PS1 on Y B/D to adjust.



- <Caution>**
- (1) The power of the signal generator should be turned on before turning on the power of DC power supply.
  - (2) The voltage of DC power supply, in standard of Module input voltage, should be preset as below.  
Vcc: 5V, Va: 65V, Vs: 187V
  - (3) The power of power supply must turned on by this sequence. Reverse direction When turning off.  
\* Module on : 5V  $\Rightarrow$  Va  $\Rightarrow$  Vs, Module off: Vs  $\Rightarrow$  Va  $\Rightarrow$  5V
  - (4) Signal generator should be selected with 852\*480(WVGA) mode.

※ Also the PSU(Power Supply Unit) use is possible

(Fig. 1) Connection diagram of measuring instrument

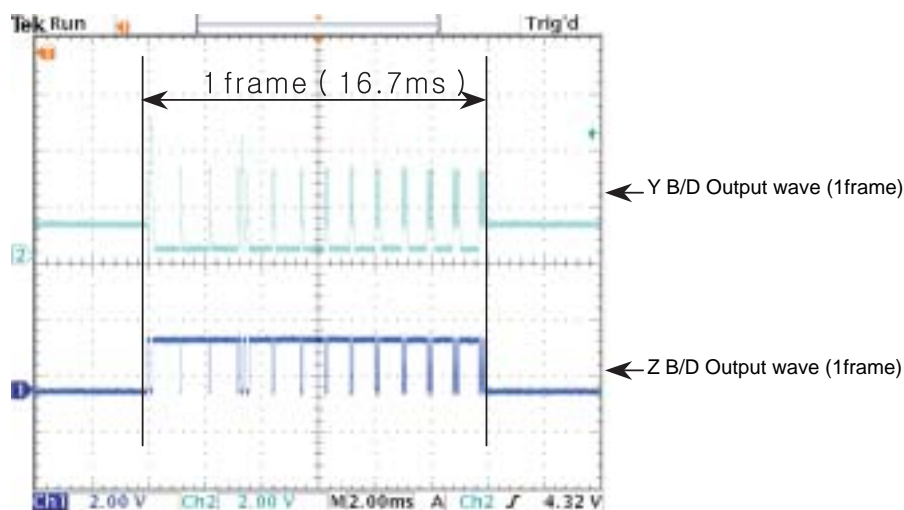


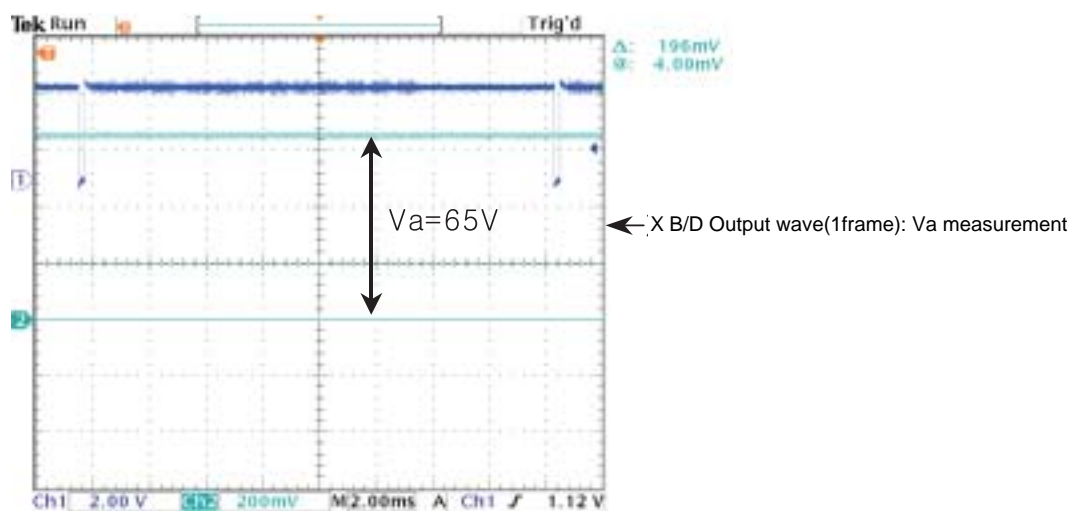
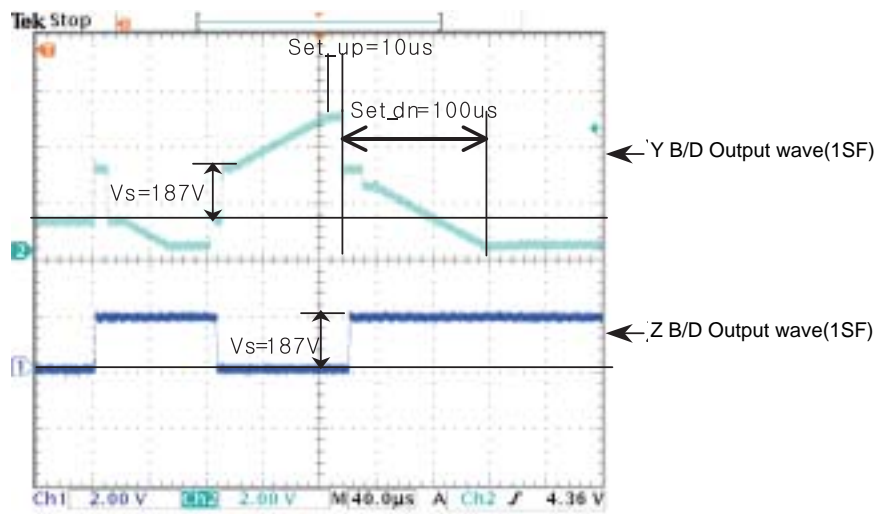
## IV . Trouble Shooting

### 1. Checking for no Picture

A screen doesn't display at all and condition of black pattern or power off.

- (1) Check whether the CTRL B/D LED(D1, D2, D3, D4, D5) is turned on or not.
- (2) Check the power and signal cable of CTRL B/D.
- (3) X B/D, Y B/D, Z B/D is well plugged in.
- (4) Check the connection of X B/D, Y B/D and Z B/D to CTRL B/D.
- (5) Measure the output wave of X, Y, Z B/D with oscilloscope(more than 200MHz)  
and find the trouble of B/D by comparing the output wave with below figure.
  - Measure Point fo Y B/D : Bead B39
  - Measure Point fo Z B/D : Bead B28
  - Measure Point fo X B/D : P3
- (6) Check the SCAN(Y side) IC
- (7) Check the DATA(X side) TCP IC
- (8) Replace the CTRL B/D.
- (9) Check the Fuse of Y, Z B/D is open and replace when open.
- (10) Check the input voltage. ( $V_{cc}=5V/V_a=65V/V_s=187V$ )





## 2. Hitch Diagnosis Following Display Condition

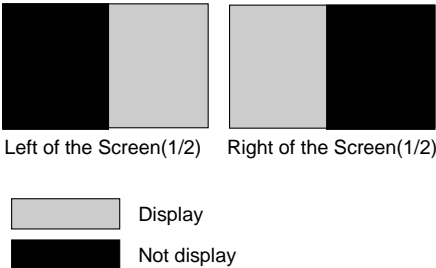
### 2-1. All or 1/2 of the screen doesn't be shown

- (1) In case of all of the screen doesn't be shown, Confirm the 8pin connection of X B/D to Z B/D is well plugged in which is correspond
- (2) In case of 1/2 of the screen doesn't be shown
  - ① XR B/D
    - Confirm the 60pin connection of CTRL B/D to XR B/D is well plugged in which is correspond
  - ② XL B/D
    - Confirm the 5pin connection of XR B/D to XL B/D is well plugged in which is correspond
    - Confirm the 60pin connection of CTRL B/D to XL B/D is well plugged in which is correspond
- (3) Replace relevant X B/D.

※ Relationship between screen and X B/D

Screen		X B/D
Left of the Screen 1/2	<-->	Right X B/D
Right of the Screen 1/2	<-->	Left X B/D

※ Screen Display Form



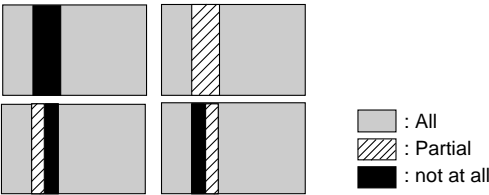
※ 1/4 of the screen doesn't be shown  
Equality with 2-1

### 2-2. The screen doesn't be shown as Data TCP

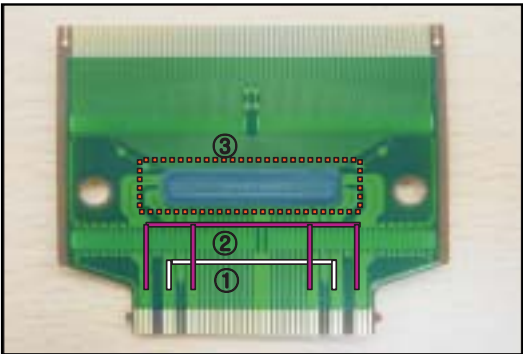
- (Include not be shown part of DataTCP quantity or a part)
- (1) The problem between Data TCP and X B/D is more possible that the screen is not be shown as data TCP.
  - (2) Confirm the connector of Data TCP is well connected to X B/D. Correspond to the part that screen is not showing
  - (3) Confirm whether the Data TCP is failed.  
(Inclusion examination with the naked eye(IC Burnt and others))
    - ① IC is Fail: Replace the Module
    - ② In case of shorting the X B/D by foreign or PCB pattern is open: When TCP IC is not Fail, replace the X B/D.

※ Example of the screen display form

(Anything of the 14 Data TCP can be shown beside below pictures)



※ How to examine Data TCP IC



- Change '①(Va Power)' into CATHOD, '②(GND)' into ANODE and then examine the Diode to the forward or reverse direction.
- Burnt of '③(IC)' and others examine with the naked eye.

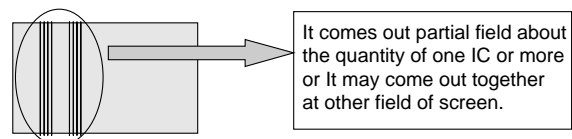
### 2-3. It Generates Unusual Pattern of Data TCP IC unit

- (1) In case of generating unusual pattern of Data TCP IC unit as below picture, there is problem in the Signal(CLK, data, STB) or connector that is input into Data TCP IC
- (2) In case of <case 1>
  - Confirm the connection of Data TCP connector and IC Fail.
  - Replace the relevant X B/D.
- (3) In case of <case 2>, <case 3>
  - Confirm the connection of Data TCP connector and connector that is connected from CTRL to X B/D.
  - Check the foreign on the CTRL B/D and X B/D.
  - Replace the relevant X B/D or CTRL B/D.
- (4) In case of <case 4>, <case 5>
  - Confirm the connector that is connected from CTRL to X B/D
  - Replace relevant X B/D or CTRL B/D
  - Confirm the connection of Z B/D and XR B/D(8pin), XR B/D and XL B/D(5pin) power connector.

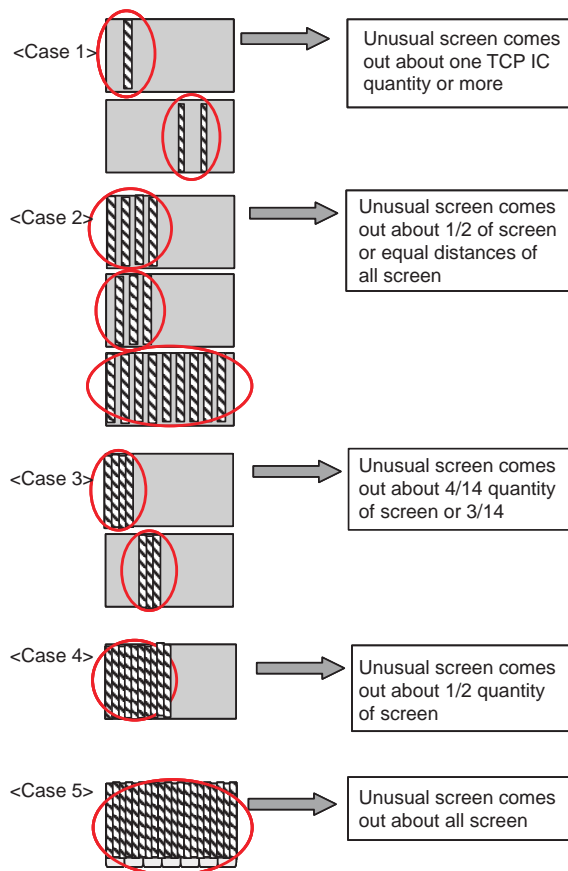
### 2-4. Regular Stripe is Generated about the Quantity of one Data TCP IC or more

- (1) In case of generating regular stripe about the quantity of one Data TCP IC or more, check the connection of connector or foreign.
- (2) Confirm the connection connector/foreign of XB/D or CTRL B/D to X B/D correspond to unusual screen.
- (3) Replace relevant XB/D or CTRL B/D.

#### \* Screen Display Form



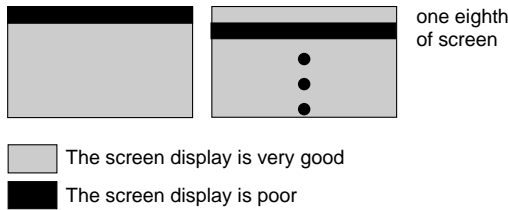
#### \* Screen Display Form



2-5. The screen display has a problem for Scan FPC.

- (1) It's may be a problem between Scan FPC and Y DRV B/D.
- (2) Check the connection of Y DRV B/D and Scan FPC.
- (3) If the Scan IC is failed, replace the Y DRV B/D.

\* Screen Display Form



\* Check a method of SCAN IC

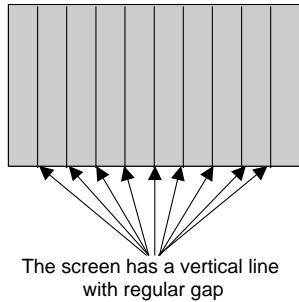


Change the Vpp Pin into ANODE and GND Pin into CATHOD and then test the Diode with forward or reverse direction.

2-6. The screen has a vertical line with regular gap.  
(A vertical stripe flash at especial color)

- (1) This is a problem about CTRL B/D.
- (2) Replace the CTRL B/D.

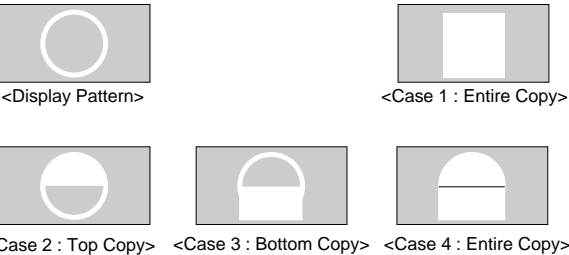
\* Screen Display Form



2-7. A data copy is happened into vertical direction

- (1) In this case, it's due to incorrect marking of scan wave.
- (2) Replace the Y DRV B/D or Y B/D.

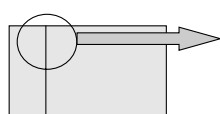
\* Screen Display Form



**2-8. The screen has one or several vertical line**

- (1) In this case, It isn't a problem about CTRL B/D or X B/D.
- (2) It may cause followings.
  - It's out of order a panel
  - Open or short of DATA TCP FPC attached panel
  - It's out of order a DATA TCP attached panel
- (3) Replace Module.

### \* Screen Display Form

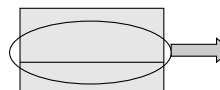


It may show several vertical lines in a quarter or other division part of screen including left case.

**2- 9. The screen has one or several horizontal line**

- (1) In this case, it isn't a problem about CTRL B/D or Y B/D.
- (2) It may cause followings.
  - It's out of order a panel
  - Open or short of SCAN FPC attached panel
  - It's out of order a SCAN IC attached panel
- (3) Replace Y DRV B/D

**\* Screen Display Form**



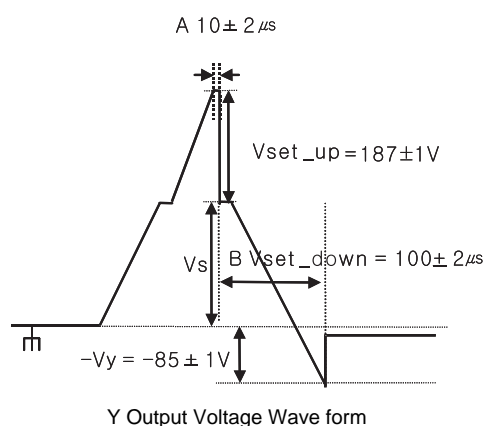
It may show several horizontal lines including left case.

**2-10. The screen displays input signal pattern but the brightness is dark**

- (1) In this case, Z B/D operation isn't complete.
- (2) Check the power cord of Z B/D.
- (3) Check the connector of Z B/D and CTRL B/D.
- (4) Replace the CTRL B/D or Z B/D.

**2-11. The screen displays other color partially on full white screen or happens discharge partially on full black screen.**

- (1) Check the declination of Y B/D set up, set down wave.
  - (2) Measure each output wave with oscilloscope(more than 200MHz) and compare the data with below figure data. Adjust the Y B/D Set\_up(A) and Set\_down(B) declination by changing VR1 and VR2 as same writing on the adjustment label.
- Measuring Point of Y B/D : B39



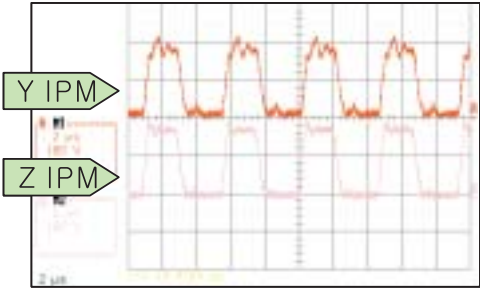
## 2-12. It doesn't display a specified brightness at specified color

- (1) Check the connector of CTRL B/D input signal.
- (2) Replace the CTRL B/D.

### 3. Checking for Component Damage

#### 3-1. Y IPM(IC 15) or Z IPM(IC 2) Damage

- When the internal Sustain\_IGBT or ER\_FET of Y IPM(IC 15) or Z IPM(IC 2) is damaged, VS FUSE is open and screen doesn't be shown.
  - Test Point: B32~GND(Y B/D), B28~GND(Z B/D)
  - Wave format: B32(Y B/D) or B28(Z B/D) has no output wave.

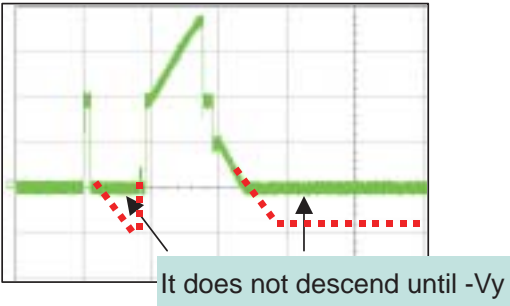


<IPM Normal Output Wave>

- Measure position: Sustain section enlarge the after measuring B32 wave of Y B/D and B28 wave of Z B/D. (Full White Pattern)

#### 3-2. Pass Top FET(Y B/D: HS2) Damage

- When Pass Top FET is damaged, electric discharge of entire screen is generated.
  - Test Point: Enlarge the after measuring GND~B32(Y B/D)
  - Wave format: When the Set\_dn does not descend until -Vy.



<When the Pass Top FET is damaged>

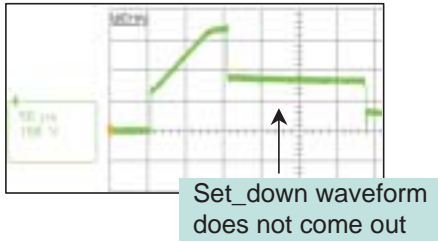
#### 3-3. FET Ass'y(Y B/D: HS1) Damage

- When Set\_Up FET is damaged, screen doesn't be shown
  - Test Point: Enlarge the after measuring GND~B32(Y B/D)
  - Wave format: Set\_up waveform does not come out.

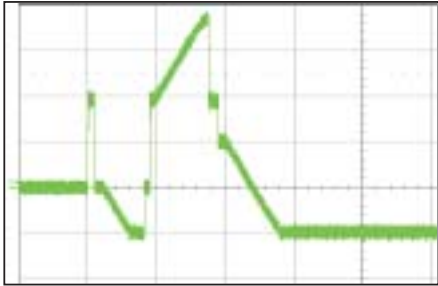


<When the Set\_Up FET is damaged>

- When Set\_Down FET is damaged, electric discharge of entire screen is generated.
  - Test Point: Enlarge the after measuring GND~B32(Y B/D)
  - Wave format: Set\_down waveform does not come out.



<When the Set\_Down FET is damaged>



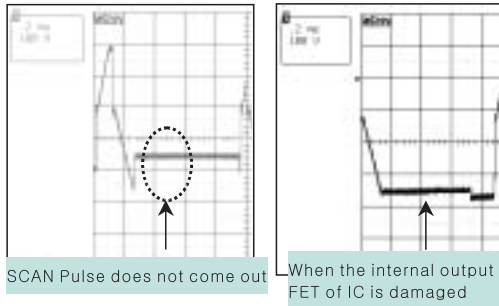
<Reset section normal output wave>

- Measure position: Reset section enlargement wave of B32(Y B/D) (Full White Pattern)

### 3-4. SCAN IC(Y DRV B/D: IC1~8) Damage

- (1) In case of SCAN IC poor, one horizontal line may open at screen.

- Test Point: ICT measurment of GND~Y DRV B/D output
- Wave format: As shown below figure.



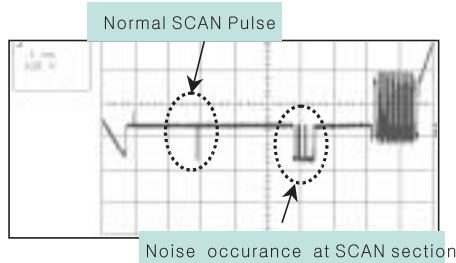
<When SCAN IC is poor>

- (2) Screen may not shown when SCAN IC is damaged by SCAN IC poor, external electricity or spark.

- Test Point: ICT measurment of GND~Y DRV B/D output
- Wave format: Output wave format isn't output (You can see the damage for Y DRV B/D Top or Bottom's SCAN IC)

- (3) Screen shaken horizontally when Y DRV B/D Top and Bottom cable is poor

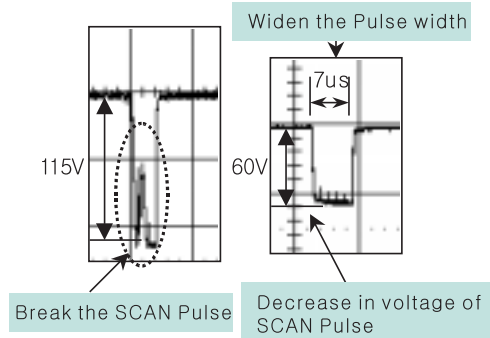
- Test Point: ICT measurment of GND~Y DRV B/D output
- Wave format: As shown below figure.



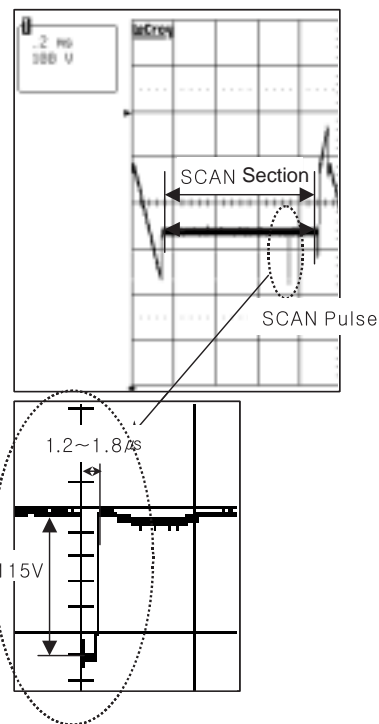
<When Y DRV B/D Top and Bottom cable is poor>

- (4) In case of shorting the SCAN IC output by a dust, foreign substance, it may overlap two horizontal lines on screen.

- Test Point: ICT measurment of GND~Y DRV B/D output
- Wave format: As shown below figure.



<When SCAN IC output is short>



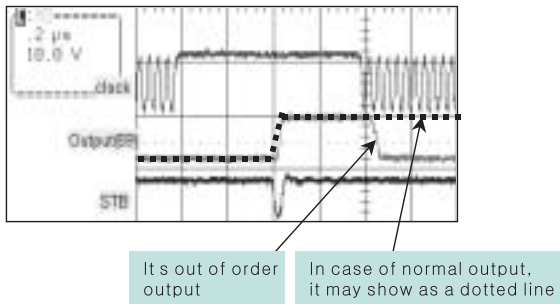
<SCAN IC Normal Output Wave >

- Measurment position: SCAN section enlarge the after measuring output ICT of Y DRV B/D.  
(Full White Pattern)



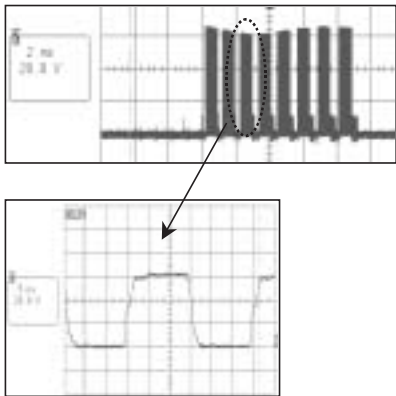
### 3-5. TCP Damage

- (1) In case of shorting or opening the IC output of TCP, it may show one or several vertical lines.
  - Test Point: Enlarge the after measuring output TP of GND~TCP
  - Wave format: As shown output below figure.



<When IC output of COF is poor>

- (2) In case of being damage IC of TCP or power resistance, the screen doesn't be shown or happens discharge partially.
  - Test Point: Enlarge the after measuring output TP of GND~TCP
  - Wave format: Output wave doesn't come out

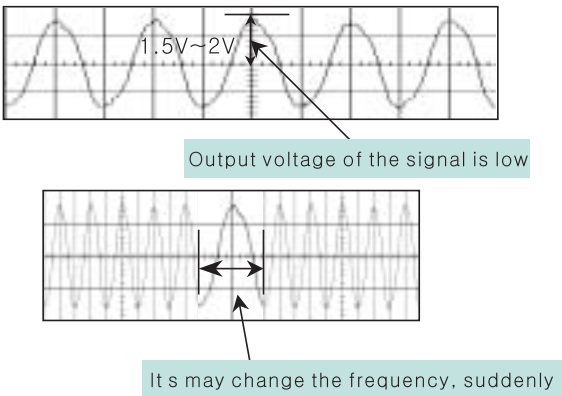


<TCP Normal Output Wave >

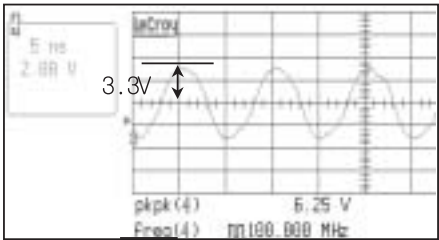
- Measurement position: Enlarge the after measuring output TP of TCP (Full White Pattern)

### 3-6. Crystal(CTRL B/D: X1) Damage

- (1) When Crystal is damage, the screen doesn't be shown.
  - Test Point: Measuring 3pin of GND~Crystal(CTRL B/D: X1)
  - Wave format: Output wave doesn't come out
- (2) In case of unusual launch of the Crystal, it may blink the screen.
  - Wave format: As shown below figure



<When Crystal is poor>



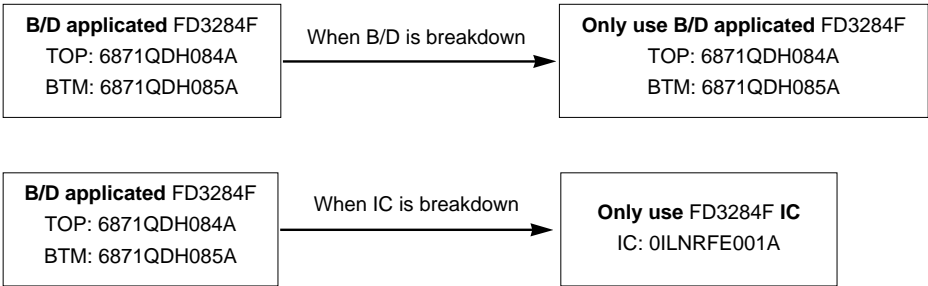
<Crystal Normal Output Wave >

- Measurement position: Measuring output 3pin of Crystal(X1: 100MHz) on CTRL B/D (Full White Pattern)

4. Shift breakdown component compatibility consideration

4-1. Scan IC follows in application, compatibility of Y DRV Top, Bottom B/D

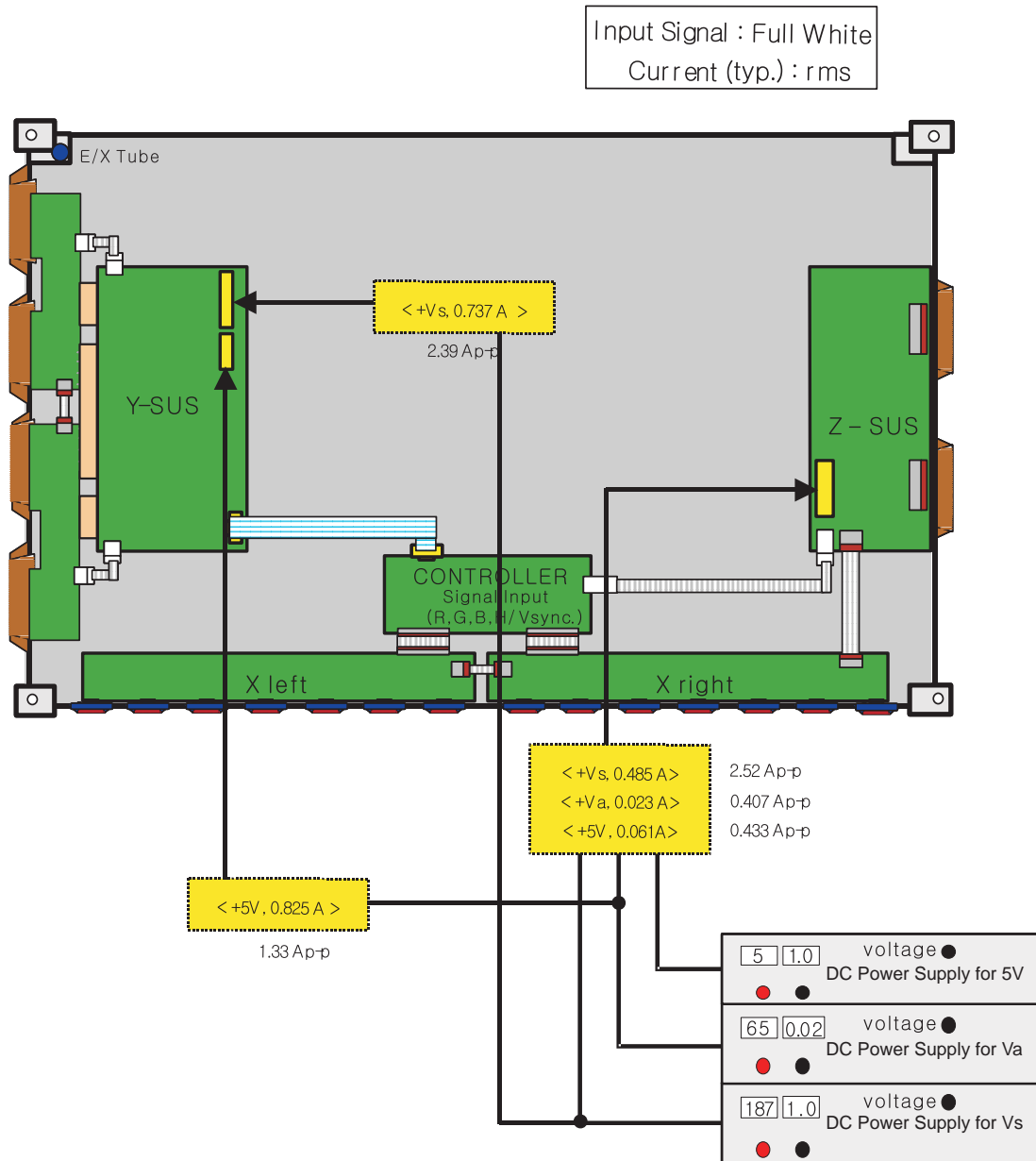
- (1) When B/D applicated FD3284F is breakdown, you must mutually only replace Top B/D and Bottom B/D applicated FD3284F.
- (2) When IC of B/D applicated FD3284F IC is breakdown, you must only replace FD3284F IC.  
Different IC application being not right



\* When replacing the IC, notice  
To prevent dust, fix the same IC after removing the silicon  
and then it again stick the IC.

Silicon Part No.: 7254Q00002A(Tube Type)  
7254Q00002B(Can Type)


## V . Block Diagram










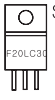
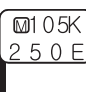
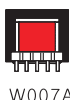
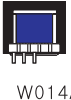













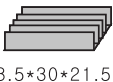
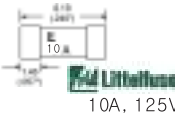



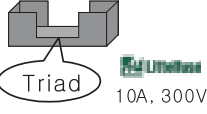











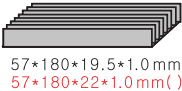





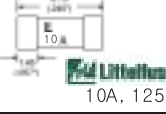

English

















## VI. Safety Components List

(1) The safety components list of PDP42V7#### Model is as below.

(2) A component of  mark is important to keep product's security. Therefore in exchanging a component, appointed component is necessary used.

(3)  is an abbreviated word which is instead of <Safety>-mark.

	C27,28,31,34,58	C26,53,56,59,64,68,69	IC200
	 Samwha	 Samwha	 NATIONAL
D17	C 8~10,21,25,40~42	 T1	 T3
 SHINDENGEN 20A/300V SF20LC30	 Panasonic	 GET Plus 15V 10pin W007A ( )	 GET Plus Vy, Vsc 6pin W014A ( )
 L1,2	 FL1	 IC15	 HS1
 GET Plus( ) 0.6uH 6140QD0013A	 GET Plus( ) 60uH 33.5 turns	 Heat Sink(IPM) 57*180*19.5*1.0mm ( ) 57*180*22*1.0mm ( )	 Heat Sink(FET) 99.5*30*25*1.5mm
 IC9,11	 HS2	 FS1	 FS2
 Photo Coupler AUK SPC717M( )	 Heat Sink 68.5*30*21.5*1.0	 10A, 125V	 T2.0AH 250V( ) T4.0AH 250V( )
 Fuse holder	 T4		
 Triad 10A, 300V	 GET Plus Vy, Vscw 6pin W014A ( ) W013A ( )		
	C9,10,11,12,13	D1	C1,2,3,4,5,6,7,8
	 Samwha	 SHINDENGEN 20A/300V SF20LC30	 Panasonic
 L1,2	 FL1	 IC2	 FS1
 GET Plus( ) 0.6uH 6140QD0013A	 GET Plus( ) 60uH 33.5 turns	 Heat Sink(IPM) 57*180*19.5*1.0mm ( ) 57*180*22*1.0mm ( )	 T2.0AH 250V( ) T4.0AH 250V( )
 FS2	 FS3	 Fuse holder	
 T6.3AH 250V( ) T4.0AH 250V( )	 10A, 125V	 Triad 10A, 300V	

	 42 Glass	 42 Frame	 FPC
 Panel	 Asahi glass Front:978(W)*550(H) Back:958(W)*570(H)	 1005(W)*597(H)	 YoungPoong Y0serise ( ) Daeduck GDS F1-0 ( )
 Film Filter(Optional)			
 LG Chem. ( ) Mitsui Chem( )			
	 Thermal Pad	 TCP	 TCP Heat Sink
 X B/D	 Dow Corning TP 2460 ( )	 UBE Industries (CSII) ( ) Flammability : VTM-0	 898*19*20.7*1.0

## VII. Records of Revision for Boards, components and ROM DATA

### 1. Boards

No.	Date	Board	Part Number	Note
1	2005.03.04	LVDS CTRL B/D ASS'Y	6871QCH053A	Initial Product
2	2005.03.04	HITACHI COPPER LVDS CTRL B/D ASS'Y	6871QCH073A	Initial Product
3	2005.03.04	LVDS OUTER SIDE CTRL B/D ASS'Y	6871QCH053B	Initial Product
4	2005.03.04	PB-FREE FFC & CON LVDS OUTER SIDE CTRL B/D ASS'Y	6871QCH053C	Initial Product
5	2005.03.04	YDRV TOP B/D ASS'Y	6871QDH084A	Initial Product
6	2005.03.04	HITACHI COPPER YDRV TOP B/D ASS'Y	6871QDH105A	Initial Product
7	2005.03.04	YDRV BTM B/D ASS'Y	6871QDH085A	Initial Product
8	2005.03.04	HITACHI COPPER YDRV BTM B/D ASS'Y	6871QDH106A	Initial Product
9	2005.03.04	XR B/D ASS'Y	6871QRH055A	Initial Product
10	2005.03.04	PB-FREE FFC & CON XR B/D ASS'Y	6871QRH055B	Initial Product
11	2005.03.04	HITACHI COPPER XR B/D ASS'Y	6871QRH066A	Initial Product
12	2005.03.04	XL B/D ASS'Y	6871QLH047A	Initial Product
13	2005.03.04	PB-FREE FFC & CON XL B/D ASS'Y	6871QLH047B	Initial Product
14	2005.03.04	HITACHI COPPER XL B/D ASS'Y	6871QLH056A	Initial Product
15	2005.03.04	YSUS B/D ASS'Y	6871QYH036A	Initial Product
16	2005.03.04	PB-FREE FFC & CON YSUS B/D ASS'Y	6871QYH036B	Initial Product
17	2005.03.04	HITACHI COPPER YSUS B/D ASS'Y	6871QYH050A	Initial Product
18	2005.03.04	ZSUS B/D ASS'Y	6871QZH041A	Initial Product
19	2005.03.04	HITACHI COPPER ZSUS B/D ASS'Y	6871QZH052A	Initial Product

2. COMPONENTS

No.	Date	COMPONENT	Part Number	Remark
1	2005.03.04	Y IPM(YSUS B/D: IC15)	4921QP1031A	Initial Product
2	2005.03.04	Z IPM(ZSUS B/D: IC2)	4921QP1031A	Initial Product
3	2005.03.04	SCAN IC(YDRV B/D: IC1~8)	0ILNRF001A	Initial Product
4	2005.03.04	TCP	0ILNRD1002A	Initial Product
5	2005.03.04	FET(Y B/D: HS1)	4921QF2007A	Initial Product (Set_up/Set_dn FET Ass' y)

English

3. ROM DATA

No.	Date	ROM Data Version	Contents
1	2005.03.04	42V73DN03	Inner Type LVDS Initial ROM Data
2	2005.03.04	42V73LV03	External Type LVDS Initial ROM Data



## **2. PDP42X3#### Module**

### **CONTENTS**

- I . Safety Precautions**
- II . Technical Feature**
- III. Formation and Specification of Module**
  - 1. Formation of Module**
  - 2. Information of Boards**
  - 3. Label information of Module**
- IV. Adjustment**
- V. Trouble Shooting**
  - 1. Checking for No Picture**
  - 2. Hitch Diagnosis Following Display Condition**
    - 2-1. 1/2 of the screen doesn't be shown
    - 2-2. 1/4 of the screen doesn't be shown
    - 2-3. Screen doesn't be shown as Data TCP
    - 2-4. It is generated unusual pattern of Data TCP IC unit
    - 2-5. Screen doesn't be shown at all as Scan FPC
    - 2-6. Regular stripe is generated at regular interval on the whole screen
    - 2-7. Data copy is generated to stripe direction
    - 2-8. The screen has one several vertical line
    - 2-9. The screen has one or several horizontal line
    - 2-10. Lightness of screen is wholly darken though there is input-signal-pattern
    - 2-11. The screen displays other color partially on full white screen or happens Mis-discharge partially on full black screen.
    - 2-12. It doesn't display a specified brightness at specified color
  - 3. Checking for component damage**
    - 3-1. Y IPM(IC18) or Z IPM(IC2) damage
    - 3-2. FET Ass'y(Y B/D : HS2) damage
    - 3-3. SCAN IC(Y DRV B/D : IC1~10) damage
    - 3-4. TCP damage
    - 3-5. Crystal(CTRL B/D : X1) damage
- VI. Critical Components List**
- VII. Records of Revision for Boards, Components and ROM DATA**

**\* Annexing : Schematic Diagram**

## I . Safety Precautions

When servicing of PDP Module, it should be not enforced into another way aside next rule, or a unaccustomed person should not repairing.

When using/handling this PDP Module, pay attention to the below warning and cautions.

### **Warning**

Indicates a hazard that may lead to death or injury if the warning is ignored and the product is handled incorrectly.

### **Caution**

Indicates a hazard that can lead to injury or damage to property if the caution is ignored and the product is handled incorrectly.

## 1. WARNING

- (1) Do not touch Signal and Power Connector while this product operates.  
Do not touch EMI ground part and Heat Sink of Film Filter.
- (2) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.
- (3) Do not use this product in locations where the humidity is extremely high, where it may be splashed with water, or where flammable materials surround it.  
Do not install or use the product in a location that does not satisfy the specified environmental conditions. This may damage the product and may cause a fire.
- (4) If a foreign substance (such as water, metal, or liquid) gets inside the product, immediately turn off the power.  
Continuing to use the product, it may cause fire or electric shock.
- (5) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power.  
Continuing to use the product, it may cause fire or electric shock.
- (6) Do not disconnect or connect the connector while power to the product is on. It takes some time for the voltage to drop to a sufficiently low level after the power has been turned off.  
Confirm that the voltage has dropped to a safe level before disconnecting or connecting the connector.
- (7) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.
- (8) Do not damage or modify the power cable. It may cause fire or electric shock.

(9) If the power cable is damaged, or if the connector is loose, do not use the product : otherwise, this can lead to fire or electric shock.

(10) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

(11) PDP Module uses a high voltage (Max.450V dc). Keep the cautions concerning electric shock and do not touch the Device circuitry when handling the PDP Unit. And because the capacitor of the Device circuitry may remain charged at the moment of Power OFF, standing by for 1 minute is required in order to touch the Device circuitry.

## 2. CAUTIONS

- (1) Do not place this product in a location that is subject to heavy vibration, or on an unstable surface such as an inclined surface. The product may fall off or fall over, causing injuries.
- (2) Before disconnecting cable from the product, be sure to turn off the power. Be sure to hold the connector when disconnecting cables. Pulling a cable with excessive force may cause the core of the cable to be exposed or break the cable, and this can lead to fire or electric shock.
- (3) This product should be moved by two or more persons. If one person attempts to carry this product alone, he/she may be injured.
- (4) This product contains glass. The glass may break, causing injuries, if shock, vibration, heat, or distortion is applied to the product.
- (5) The temperature of the glass of the display may rise to 80°C or more depending on the conditions of use.  
If you touch the glass inadvertently, you may be burned.
- (6) If glass surface of the display breaks or is scratched, do not touch the broken pieces or the scratches with bare hands. You may be injured.
- (7) PDP Module requires to be handled with care not to be touched with metal or hard materials, and must not be stressed by heat or mechanical impact.
- (8) There are some exposed components on the rear panel of this product. Touching these components may cause an electric shock.
- (9) When moving the product, be sure to turn off the power and disconnect all the cables. While moving the product, watch your step. The product may be dropped or all, leading to injuries of electric shock.

- (10) In order to protect static electricity due to C-MOS circuitry of the Drive part, wear a wrist band to protect static electricity when handling.
- (11) If cleaning the Panel, wipe it with a soft cloth moistened with water or a neutral detergent and squeezed, being careful not to touch the connector part of the Panel. And don't use chemical materials like thinner or benzene.
- (12) If this product is used as a display board to display a static image, "image sticking" occurs. This means that the luminance of areas of the display that remain lit for a long time drops compared with luminance of areas that are lit for a shorter time, causing uneven luminance across the display.  
The degree to which this occurs is in proportion to the luminance at which the display is used. To prevent this phenomenon, therefore, avoid static images as much as possible and design your system so that it is used at a low luminance, by reducing signal level difference between bright area and less bright area through signal processing.
- (13) Because PDP Module emits heat from the Glass Panel part and the Drive circuitry, the environmental temperature must not be over 40°C.  
The temperature of the Glass Panel part is especially high owing to heat from internal Drive circuitry. And because the PDP Module is driven by high voltage, it must avoid conductive materials.
- (14) If inserting components or circuit board in order to repair, be sure to fix a lead line to the connector before soldering.
- (15) If inserting high-power resistor(metal-oxide film resistor or metal film resistor) in order to repair, insert it as 10mm away as from a board.
- (16) During repairs, high voltage or high temperature components must be put away from a lead line.
- (17) This is a Cold Chassis but you had better use a cold transformer for safety during repairs. If repairing electricity source part, you must use the cold transformer.
- (18) Do not place an object on the glass surface of the display. The glass may break or be scratched.
- (19) This product may be damaged if it is subject to excessive stresses (such as excessive voltage, current, or temperature). The absolute maximum ratings specify the limits of these stresses.
- (20) The recommended operating conditions are conditions in which the normal operation of this product is guaranteed. All the rated values of the electrical specifications are guaranteed within these conditions.  
Always use the product within the range of the recommended operating conditions. Otherwise, the reliability of the product may be degraded.
- (21) This product has a glass display surface. Design your system so that excessive shock and load are not applied to the glass. Exercise care that the vent at the corner of the glass panel is not damaged.  
If the glass panel or vent is damaged, the product is inoperable.
- (22) Do not cover or wrap the product with a cloth or other covering while power is supplied to the product.
- (23) Before turning on power to the product, check the wiring of the product and confirm that the supply voltage is within the rated voltage range. If the wiring is wrong or if a voltage outside the rated range is applied, the product may malfunction or be damaged.
- (24) Do not store this product in a location where temperature and humidity are high. This may cause the product to malfunction. Because this product uses a discharge phenomenon, it may take time to light (operation may be delayed) when the product is used after it has been stored for a long time. In this case, it is recommended to light all cells for about 2 hours (aging).
- (25) This product is made from various materials such as glass, metal, and plastic. When discarding it, be sure to contact a professional waste disposal operator.
- (26) If faults occur due to arbitrary modification or disassembly, LG Electronics is not responsible for function, quality or other items.
- (27) Use of the product with a combination of parameters, conditions, or logic not specified in the specifications of this product is not guaranteed. If intending to use the product in such a way, be sure to consult LGE in advance.
- (28) Within the warranty period, general faults that occur due to defects in components such as ICs will be rectified by LGE without charge. However, IMAGE STICKING due to misapplying the above (12) provision is not included in the warranty. Repairs due to the other faults may be charged for depending on responsibility for the faults.
- (29) In assembling Module into SET, in case Film Filter and as a protective film is bared, static electricity of exfoliated protective film which is bared from beginning X-Board down ward getting TCP to no getting TCP should not influence on TCP. Also Filter after protective film is bared or in the storage can be charged with electricity, so the EMI ground part of Film Filter should be used after Grounding.

### 3. Warning label for PDP Module

#### 1) PCB Warning label

(1)Warning



Warning against any dangers under certain circumstance.

(2)Hot surface



Warning against any possibilities of injury or burn due to high temperature under certain circumstance.

(3)Dangerous voltage



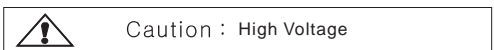
Warning against the possibility of electric shock under certain circumstance.

(4)Electrostatic sensitive devices



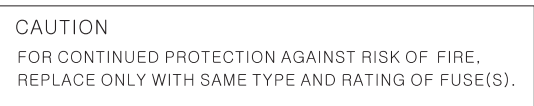
Warning against any possibilities of electric shock/high temperature by touching under certain circumstance

(5)Caution sentence



Warning against high voltage under certain position.

(6) Fuse Caution sentence



The fuse should be replaced with the same type and rating to prevent fire under certain circumstance

#### 2) Safety precautions on Module

(1)High Voltage



Warning against the danger of electric shock when touching due to dangerous high voltage.

(2)Hot Surface



Warning against the danger of burn when touching due to high temperature parts.

(3)Wound



Caution against the danger of mechanical injuries.

## II . Technical Feature

PDP Module is a display device to be divided into a Panel part and a Drive part. The Panel part consists of Electrodes, Phosphor, various dielectrics and gas, and the Drive part includes electronic circuitry and PCB.

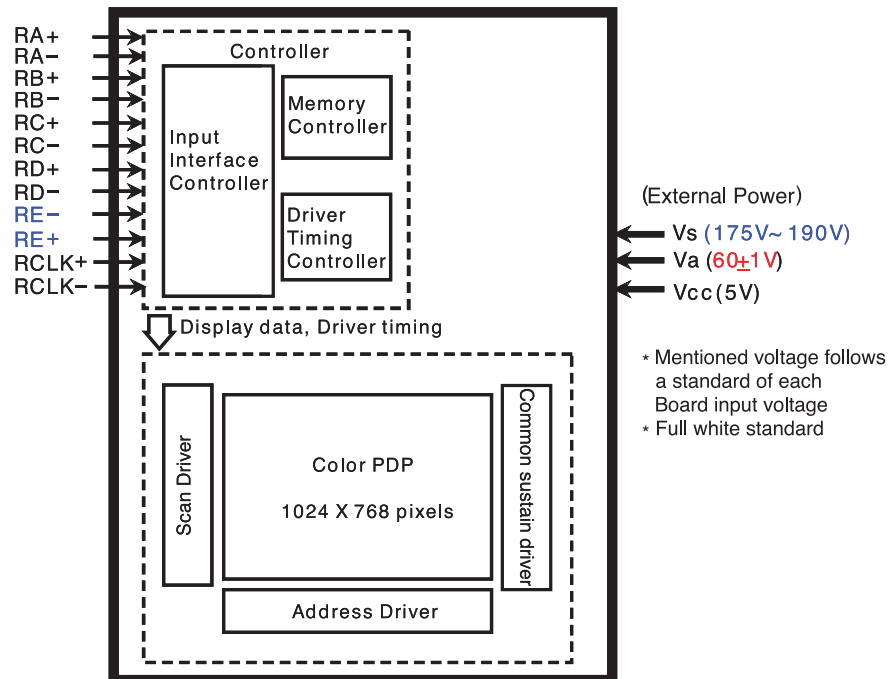
PDP42X3#### model produced in the LG electronics is 42inches color Plasma display module of Wide XGA(1024(H) x 768(V)), and it is a display device giving concrete to bright image by using AC Plasma technology of LG electronics.

### 1) General Specification

(1) Model Name	: PDP42X3####
(2) Number of Pixel	: 1024(H) × 768(V) (1pixel=3 RGB cells)
(3) Pixel Pitch	: 900 $\mu$ m(H) × 676 $\mu$ m(V)
(4) Cell Pitch	: 300 $\mu$ m(H) × 676 $\mu$ m(V) (Base : Green Cell)
(5) Display area	: 921.6(H) × 519.2(V)±0.5(mm)
(6) Outline dimension	: 1005(H) × 597(V)× 61.2(D)±1(mm)
(7) Color arrangement	: RGB Closed(Well) type
(8) Number of COLRO	: (R)1024 × (G)1024 × (B)1024(10,737,400,000)
(9) Weight	: 15.3±0.5(Kg) : Net : 113.5±5(Kg) : 5EA/1BOX
(10) Aspect Ratio	: 16:9
(11) Peak Brightness	: Typical 1200cd/㎡(1% White Window) : Typical 140:1(Light room 100 Lx at center)
(12) Contrast Ratio	: Typical 10,000:1(Dark room 1% White Window) (White Window Pattern at Center)
(13) POWER CONSUMPTION	: Max 330 W(Full White)
(14) Lifetime	: Over 60,000 Hrs (Initial brightness 1/2)

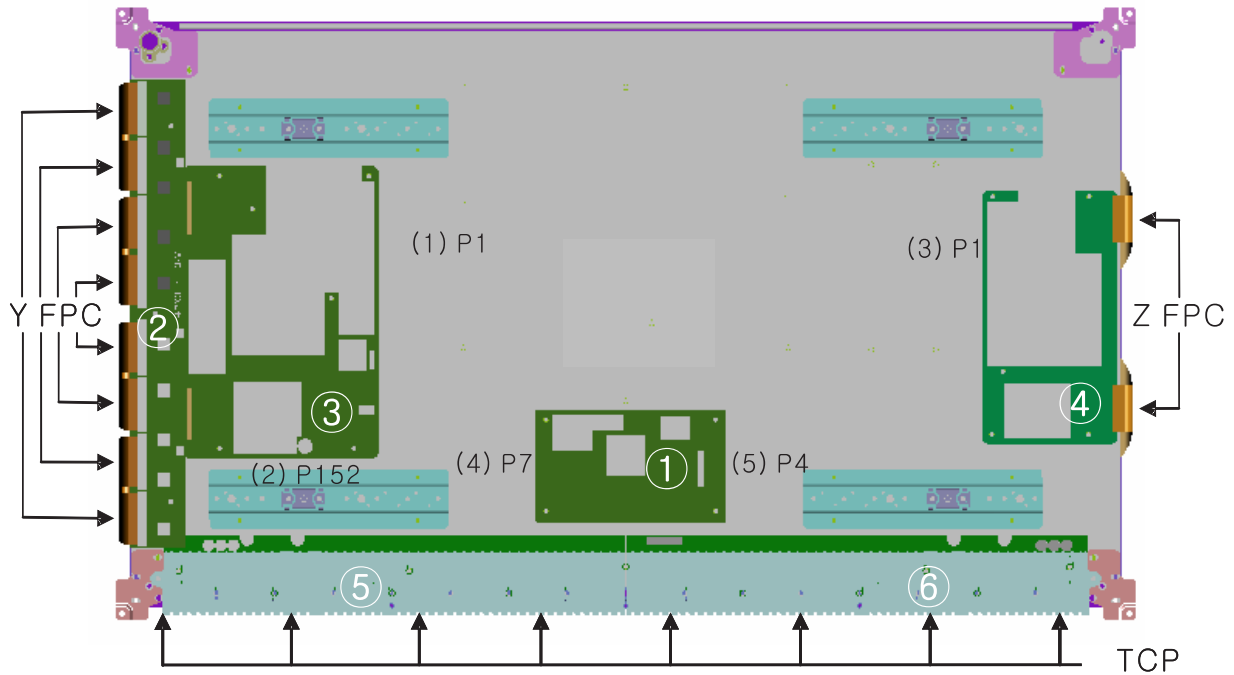
### 2) Block Diagram

(LVDS Input)



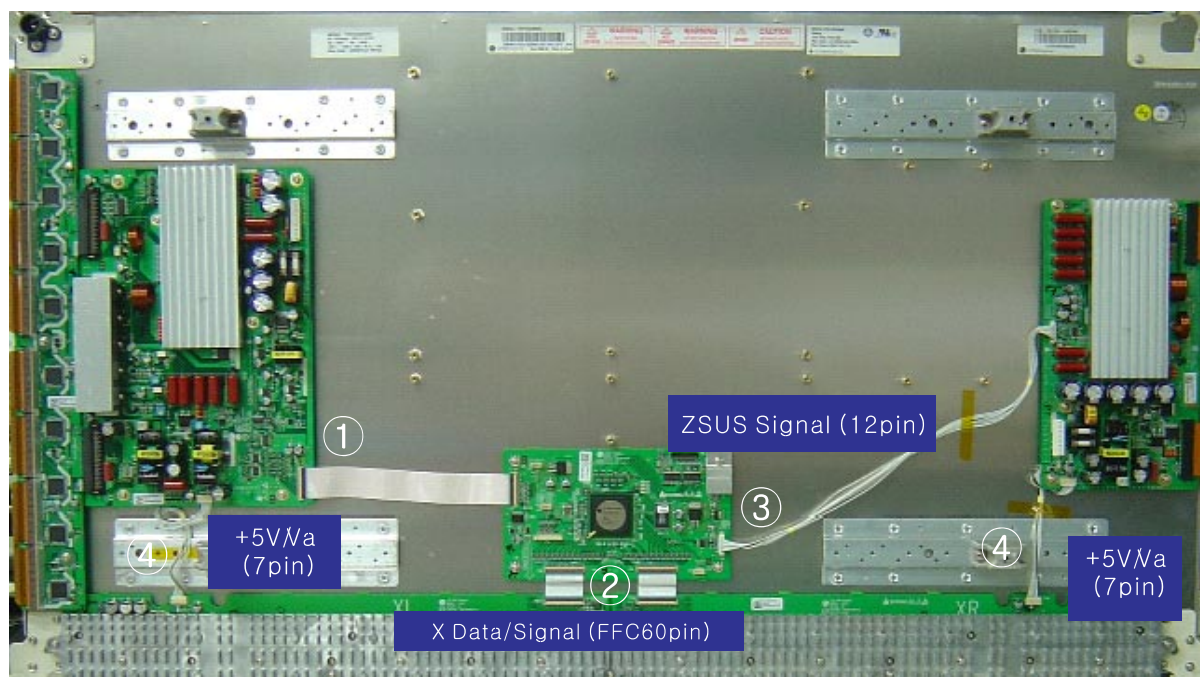
### III. Formation and Specification of Module

#### 1. Formation of Module



No	Connector	Input Voltage & Signal
(1)	P1 [Y SUS B/D]	5V, Va, Vs
(2)	P152 [Y SUS B/D]	5V, Va
(3)	P1 [Z SUS B/D]	5V, Va, Vs
(4)	P7 [CTRL B/D]	5V
(5)	P4 [CTRL B/D]	Video Signal

No	Part No		Description
①	6871QCH077A	PWB(PCB) ASS'Y	CTRL B/D ASS'Y
②	6871QDH117A	PWB(PCB) ASS'Y	Y DRV B/D ASS'Y
③	6871QYH053A	PWB(PCB) ASS'Y	Y SUS B/D ASS'Y
④	6871QZH056A	PWB(PCB) ASS'Y	Z SUS B/D ASS'Y
⑤	6871QLH059A	PWB(PCB) ASS'Y	XL B/D ASS'Y
⑥	6871QRH068A	PWB(PCB) ASS'Y	XR B/D ASS'Y

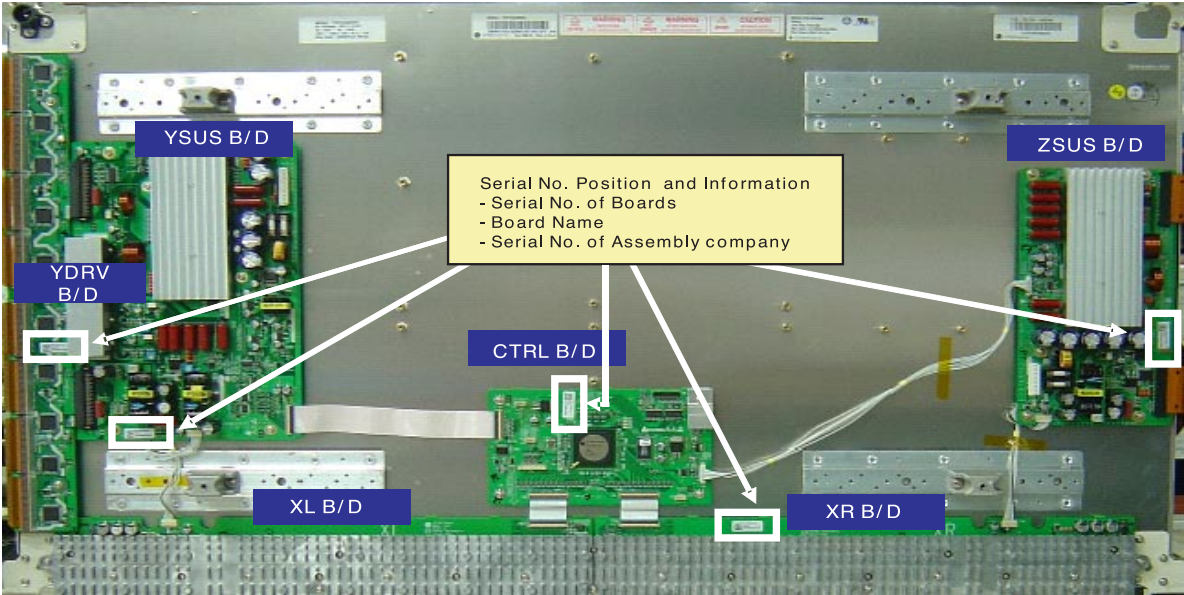


No	Part No.	EA	SPECIFICATION	Note
①	6850QV0006A	1EA	Y B/D<-->CTRL B/D P=0.5MM 50PIN L180MM AU PLATING	
②	6850QX0014P	1EA	X B/D <-->CTRL B/D P=0.5MM 60PIN L60MM AU	
③	6631Q12005N	1EA	1.25MM PITCH 12PIN L360MM UL1061-28AWG YEON-HO	
④	6631Q15003F	2EA	1.5MM PITCH 7PIN L150MM UL1061-26AWG YEON-HO	



2. Information of Boards

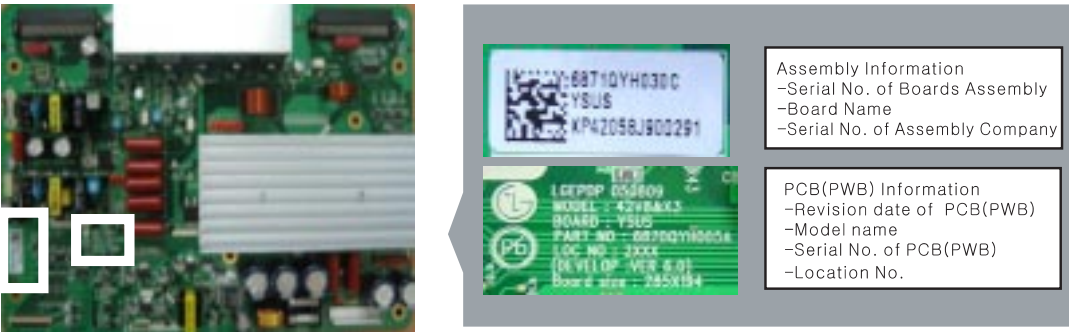
1) 42X3 PDP Module



2) CTRL B/D

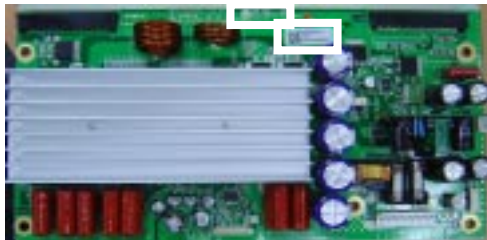


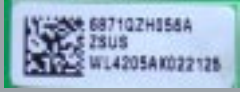

3) Y SUS B/D



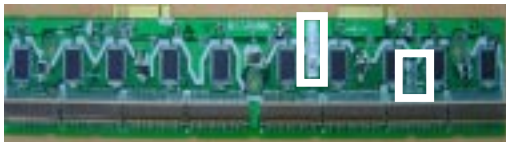




4) Z SUS B/D



	<b>Assembly Information</b> -Serial No. of Boards Assembly -Board Name -Serial No. of Assembly Company
	<b>PCB(PWB) Information</b> -Revision date of PCB(PWB) -Model name -Serial No. of PCB(PWB) -Location No.

5) Y DRV B/D



	<b>Assembly Information</b> -Serial No. of Boards Assembly -Board Name -Serial No. of Assembly Company
	<b>PCB(PWB) Information</b> -Revision date of PCB(PWB) -Model name -Serial No. of PCB(PWB) -Location No.

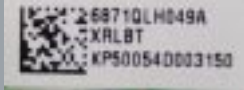

6) XL, XR B/D

XL

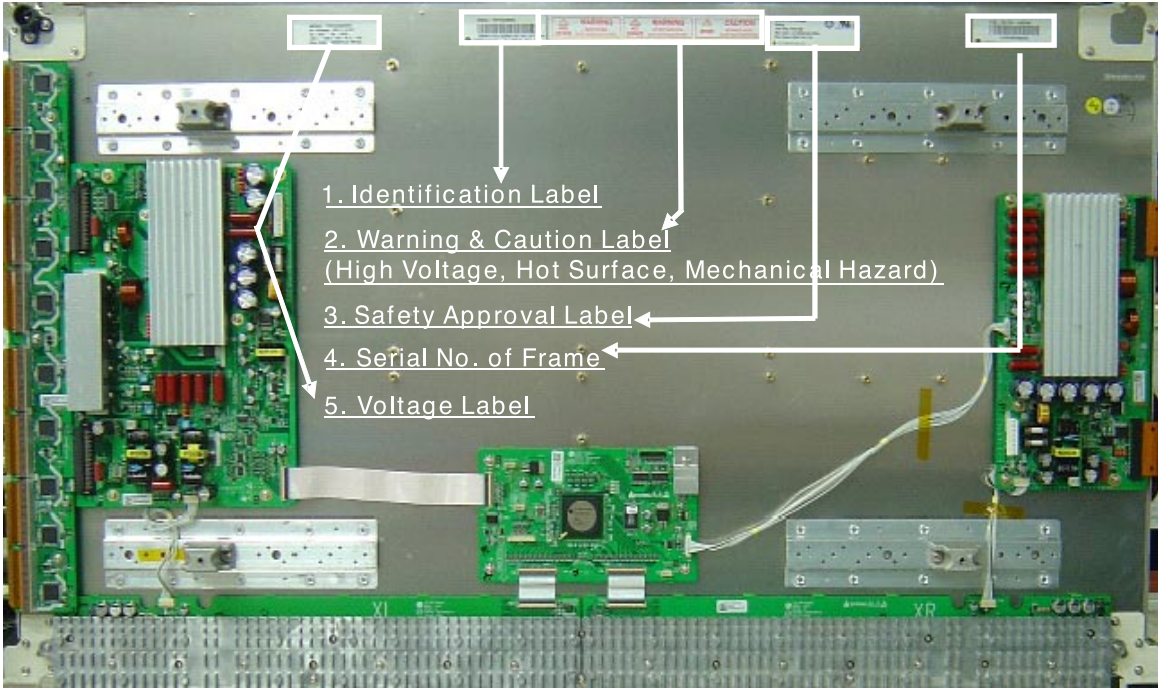


XR

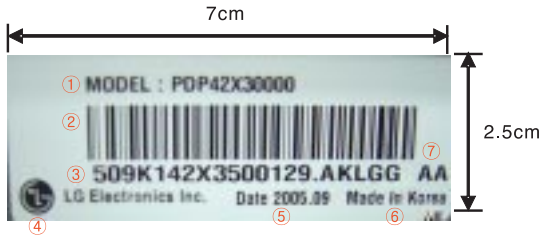


	<b>Assembly Information</b> -Serial No. of Boards Assembly -Board Name -Serial No. of Assembly Company
	<b>PCB(PWB) Information</b> -Revision date of PCB(PWB) -Model name -Serial No. of PCB(PWB) -Location No.

3. Label Information of Module

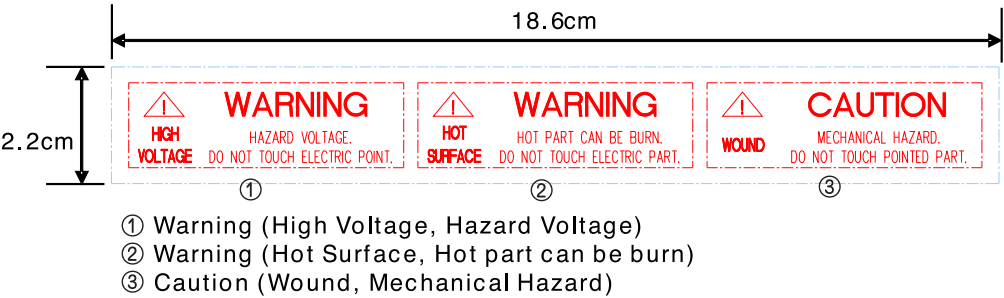


1) Identification Label

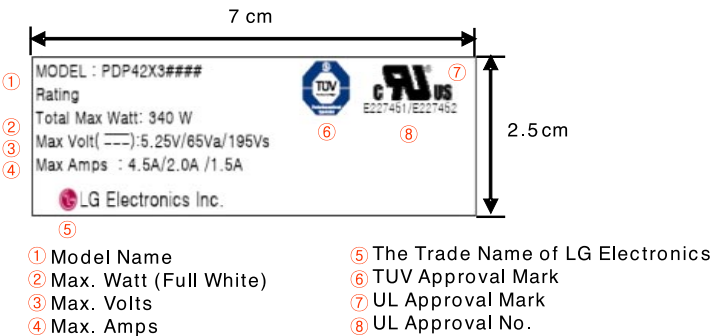


- ① Model Name
- ② Bar Code (Code 128, Contains the manufacture No.)
- ③ Manufacture No.
- ④ The trade name of LG Electronics
- ⑤ Manufactured date (Year & Month)
- ⑥ The place Origin
- ⑦ Model Suffix

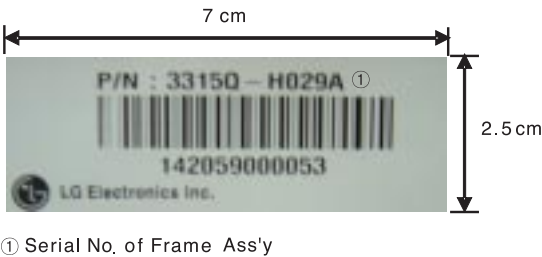
2) Warning & Caution Label (High Voltage, Hot Surface, Mechanical Hazard)



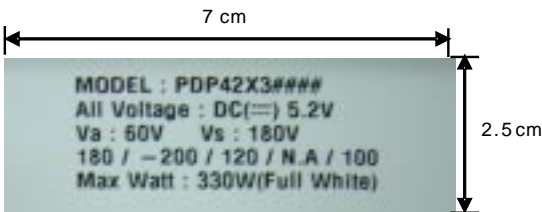
3) Safety Approval Label



4) Serial No. of Frame



5) Voltage Label (Model Name & Operational Voltage)



## IV. Adjustment

### 1. Application Object

This standard is applied to the PDP42X3#### PDP Module which is manufactured of PDP promotion department or elsewhere.

### 2. Notes

- (1) Without any special specification, the Module should be at the condition of preliminaries more than 10minutes before adjusting.
  - ① Service signal : 100% Full White signal
  - ② Service DC voltage : Vcc : 5V, Va : 60V, Vs : 180V
  - ③ DC/DC Pack voltage : Vsc : 120V, Vzb : 100V, -Vy : -200V
  - ④ Preliminaries environment : Temp ( $25 \pm 5^{\circ}\text{C}$ ), Relative humidity ( $65 \pm 10\%$ )
- (2) Aging shall be performed of module in order for characteristics stabilization after completion of assembling adjustment. Conditions of aging are as follows.
  - ① Service signal : 100% Full White, Red, Green, Blue pattern signal(Service time of each pattern : within 5minutes/cycle)
  - ② Service DC voltage : Match the voltage with the set up voltage in the first adjustment.
  - ③ Aging time : More than 4Hrs
  - ④ Aging environment : Temp ( $25 \pm 2^{\circ}\text{C}$ ), Relative humidity-Less than 75%
- (3) Module adjustment should be followed by below sequence.
  - ① Initial voltage setting.(Vs : 180V, Va : 60V, Vcc : 5V)
  - ② Vscan Voltage adjustment (120V)
  - ③ -Vy Voltage adjustment (200V)
  - ④ Y set\_up Waveform adjustment.
  - ⑤ Y set\_down Waveform adjustment.
  - ⑥ Vzb Voltage adjustment (100V)

But the above item may be altered by consideration of mass productivity.  
(There shall be consultation and agreement of Research Office / Development Office / QA / Production Department in case when altering sequence order.)
- (4) Without any special specification, you should adjust the Module in the environment of Temp ( $25 \pm 5^{\circ}\text{C}$ ) and Relative humidity ( $65 \pm 10\%$ )

**Caution)** If you let the still image more than 10 minutes(especially The Digital pattern or Cross Hatch Pattern which has clear gradation), after image can be presented in the black level part of screen.

### 3. Adjustment after Assembling

#### 3-1. Using Tools

Conditions of aging are as follows.

- (1) Digital oscilloscope : More than 200MHz
- (2) DVM(Digital Multimeter) : Fluke 187 or similar one
- (3) Signal generator : VG-828 or similar one
- (4) DC power supply
  - DC power supply for Vs (1) : Should be changeable between 0V to 200V/ more than 10A
  - DC power supply for Va (1) : Should be changeable between 0V to 100V/ more than 5A
  - DC power supply for 5V (1) : Should be changeable between 0V to 10V/ more than 10A
  - DC-DC Converter Jig(1) : Vs, Va, 5V Jig with corresponding output to each voltage Pin arrangement of PDP42X3#### Module after the input of voltage.
  - Voltage stability of power supply : Within  $\pm 1\%$  for Vs/Va, within  $\pm 3\%$  for 5V

#### 3-2. Connection diagram of measuring instrument and setting up the initial voltage

- (1) The Connection diagram  
Refer to (Fig.1) Connection diagram of measuring instrument.
- (2) Setting up the initial voltage : Refer to Voltage Label  
Vcc : 5V, Va : 60V, Vs : 180V  
But, Initially setting up voltage can be changed by the set up range according to the Module's characteristic.

#### 3-3. How to Adjust

1. Connect the measuring instrument to be (Fig.1).
2. How to adjust Y SUS( Adjustment should be done after setting Vs/Va to the set voltage)

##### (1) -Vy Voltage adjustment

- ① Measure and adjust the voltage between -Vy TP on top of the DD\_pack on the Y SUS B/D .
- ② Turn the variable resistor of -Vy DD\_pack(PS101) on Y SUS B/D to set to ( $-200 \pm 0.5\text{V}$ ).

##### (2) Vscan Voltage adjustment

- ① Measure and adjust the voltage between Vsc TP on right of the P4 on the Y SUS B/D .
- ② Turn the variable resistor of Vscan DD\_pack(PS102) on Y SUS B/D to set to ( $120 \pm 0.5\text{V}$ ).

##### (3) Connect the oscilloscope probe Waveform point on Y DRV B/D and the GND.

**(4) Y set-up voltage waveform adjustment.**

- ① Turn the VR3 on Y SUS B/D so that Vsp voltage A of (Fig. 2) be  $150 \pm 1V$ .

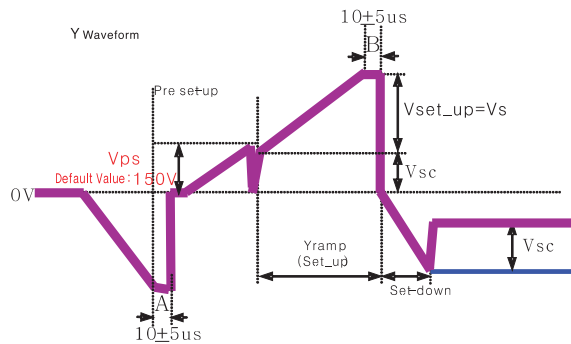
**(5) Y set-down voltage waveform adjustment.**

- ① Turn the VR2(Set\_dn\_Vy) on Y SUS B/D so that waveform A of (Fig. 2) be  $10 \pm 5 \mu s$ .

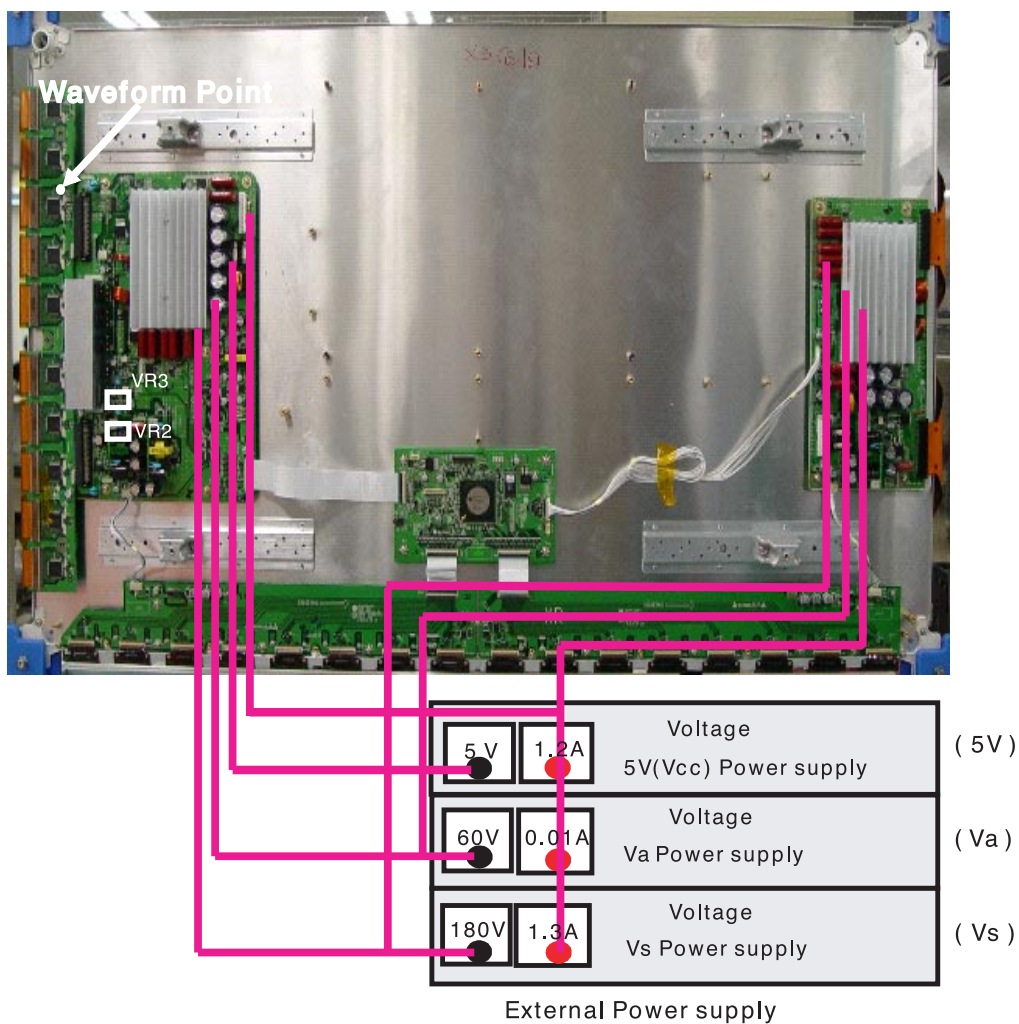
**3. How to adjust Z SUS (Adjustment should be done after setting Vs/Va to the set voltage)**

**(1) Vz b(Z bias) voltage adjustment.**

- ① For the Vz b voltage, measure and adjust the voltage between the frame GND and Vz bias point(Q18 Drain) in left side on Z SUS B/D.
- ② Turn the variable resistor of Vz b DD\_Pack(PS101) on Z SUS B/D to set to  $100 \pm 0.5V$ .



(Fig. 2) Y set-up Waveform



**<Caution>**

- (1) The power of the signal generator should be turned on before turning on the power of DC power supply.
- (2) The voltage of DC power supply, in standard of Module input voltage, should be preset as below.  
(Vs dc : 180V, Va dc : 60V, 5V dc : 5V)
- (3) The power of power supply must turned ON/OFF by this sequence.  
\* Module on : 5V → Va → Vs, \* Module off : Vs → Va → 5V
- (4) Signal generator should be selected with 1024 x 768 mode.

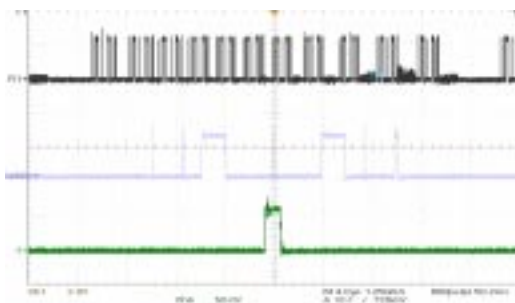
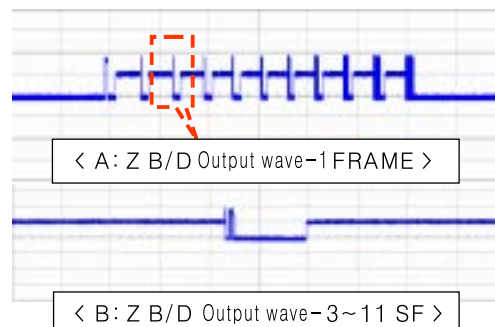
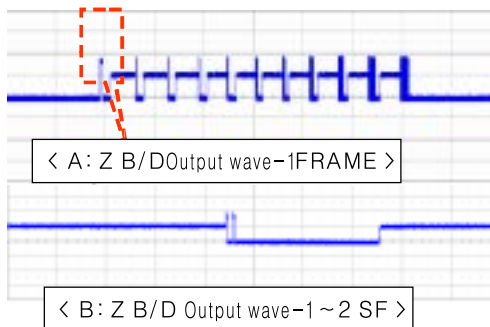
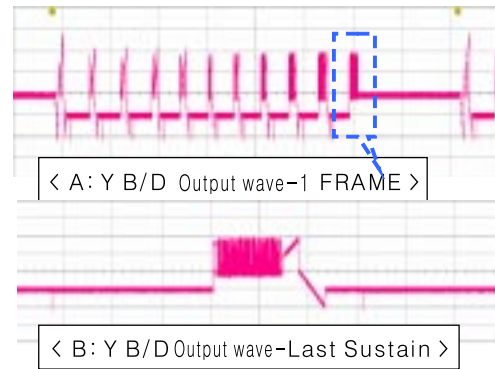
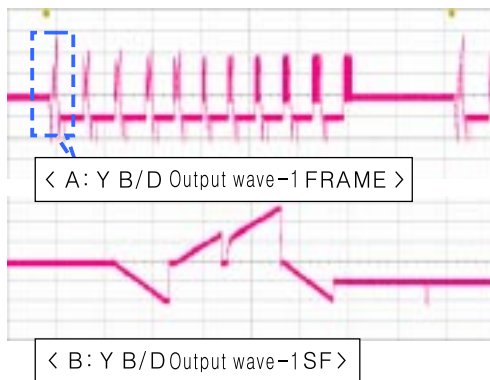
(Fig. 1) Connection diagram of measuring instrument

## V. Trouble Shooting

### 1. Checking for No Picture

A screen doesn't display at all and condition of black pattern or power off.

- (1) Check whether the CTRL B/D LED(D12, D13, D14) is turned on or not.
- (2) Check the power and signal cable of CTRL B/D.
- (3) X B/D, Y B/D, Z B/D is well plugged in.
- (4) Check the connection of X B/D, Y B/D and Z B/D to CTRL B/D.
- (5) Measure the output wave of X, Y, Z B/D with oscilloscope(more than 200MHz) and find the trouble of B/D by comparing the output wave with below figure.
  - Measure Point fo Y B/D : TP(Waveform on Y DRV B/D)
  - Measure Point fo Z B/D : TP(Bead B28)
- (6) Check the SCAN(Y side) IC
- (7) Check the DATA(X side) TCP IC
- (8) Replace the CTRL B/D.



- ← < X B/D Output wave-1 FRAME >
- ← < X B/D Output wave-1 SF >
- ← < X B/D Output wave-Extension >



## 2. Hitch Diagnosis Following Display Condition

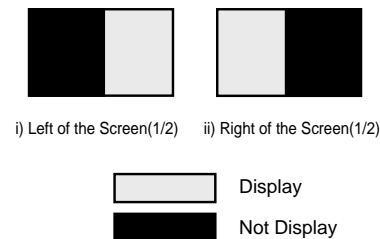
### 2-1. 1/2 of the screen doesn't be shown

- (1) Check the power connector of X B/D, corresponding to the screen failure part.
- (2) Check the connector between CTRL B/D and X B/D, corresponding to the screen failure part.
- (3) Replace the corresponding X B/D. For X B/D replacement, check the TCP is correctly connected.

#### ※ Relationship between screen and X B/D

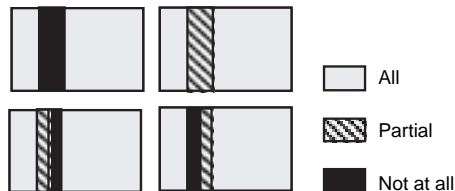
Screen	X B/D
Left of the Screen 1/2	↔ Right X B/D
Right of the Screen 1/2	↔ Left X B/D

#### ※ Screen Display Form



#### ※ Screen display form

(Anything of the 16 Data TCP can be shown beside below pictures)



### 2-4. It is generated Unusual Pattern of Data TCP IC unit

- (1) If it happens as line shape or dot shape, screw the X B/D again, and if no change, replace the X B/D.
- (2) In case of <case 1>
  - Check the connection of Data TCP connector
  - Replace the corresponding X B/D or CTRL B/D.
- (3) In case of <case 2>, <case 3>
  - Check connector connecting the CTRL B/D to relevant X B/D.
  - Replace the relevant X B/D or CTRL B/D.

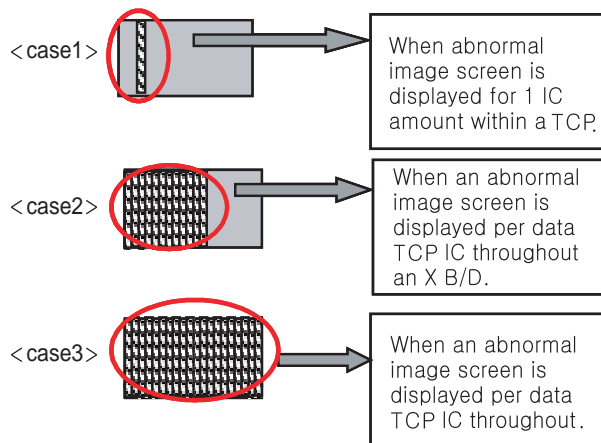
### 2-2. 1/4 of the screen doesn't be shown

Identical to 2-1

### 2-3. Screen doesn't be shown as Data TCP (Include not be shown part of Data TCP quantity or a part)

- (1) If there is no change after replacement of cable between CTRL B/D and X B/D, replace CTRL B/D.
- (2) Check Data TCP failures, corresponding part to screen failure, and if no defects, connect the corresponding TCP again.
- (3) If the corresponding Data TCP fails, Module should be replaced.

#### ※ Screen Display Form



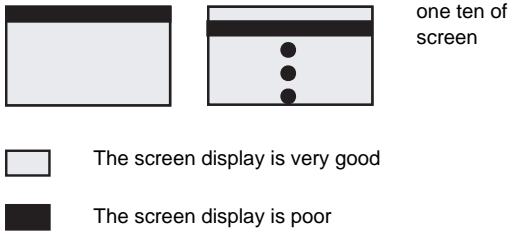
※ After separating TCP HEAT SINK, replace Silicon tape when the TCP IC marks in Silicon tape of H/S feel hard.(silicon tape, 7250SC0010A, TP-2460 DOW CORNING 8.0MM T0.75 NON GRAY (L 218.4) THERMAL PAD FOR 42X3 H/S)



2-5. Screen doesn't be shown at all as Scan FPC.

- (1) It's may be a problem between Scan FPC and Y DRV B/D.
- (2) Check the connection of Y DRV B/D and Scan FPC.
- (3) If the Scan IC is failed, replace the Y DRV B/D.

※ Screen Display Form



※ Check a method of SCAN IC

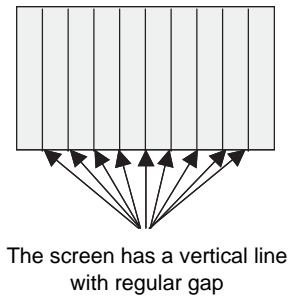


Change the Vpp Pin into ANODE and GND Pin into CATHOD and then test the Diode with forward or reverse direction.

2-6. Regular stripe is generated at regular internal on the whole screen.  
(A vertical stripe flash at especial color)

- (1) This is a problem about CTRL B/D.
- (2) Replace the CTRL B/D.

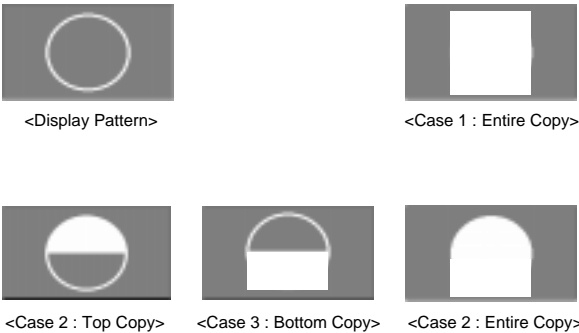
※ Screen Display Form



2-7. Data copy is generated to stripe direction.

- (1) In this case, it's due to incorrect marking of scan wave.
- (2) Replace the Y DRV B/D or Y B/D.

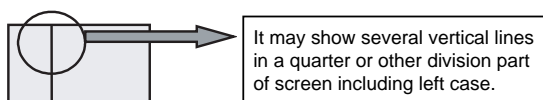
※ Screen Display Form



## 2-8. The screen has one several vertical line.

- (1) In this case, It isn't a problem about CTRL B/D or X B/D.
- (2) It may cause followings.
  - It's out of order a panel
  - Open or short of DATA TCP attached panel
  - It's out of order a DATA TCP IC attached panel
- (3) Replace Module.

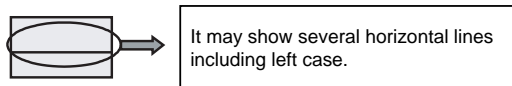
### ※ Screen Display Form



## 2-9. The screen has one or several horizontal line.

- (1) In this case, it isn't a problem about CTRL B/D or Y B/D.
- (2) It may cause followings.
  - It's out of order a panel
  - Open or short of SCAN FPC attached panel
  - It's out of order a SCAN IC attached panel
- (3) Replace Module.

### ※ Screen Display Form

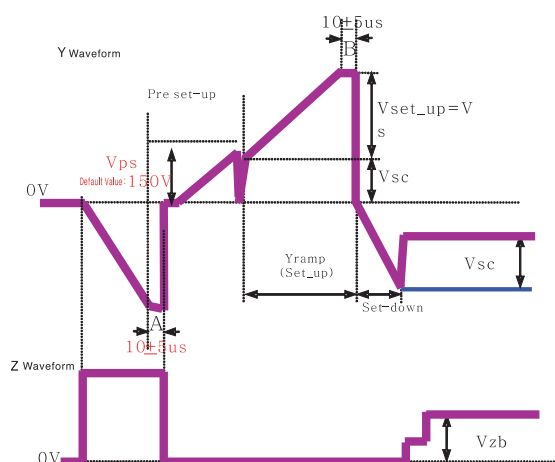


## 2-10. Lightness of screen is wholly darkened though there is input-signal-pattern

- (1) In this case, Z B/D operation isn't complete.
- (2) Check the power cord of Z B/D.
- (3) Check the connector of Z B/D and CTRL B/D.
- (4) Replace the CTRL B/D or Z B/D.

## 2-11. The screen displays other color partially on full white screen or happens Mis-discharge partially on full black screen.

- (1) Check the declination of Y B/D set up, set down wave.
- (2) Measure each output wave with oscilloscope (more than 200MHz) and compare the data with below figure data. The slope of set\_up in B/D is VR3, The slope of set\_down is VR2, The voltage of -Vy and Vscan is respectively PS101 and PS 102. for these, Vz of Z B/D adjust as indicated in Label by making Z B/D of Waveform variable.
  - Measuring Point of Y B/D : Waveform on Y DRV B/D
  - Measuring Point of Z B/D : B28



※ The set value of above A and B can be adjusted with in the variable range considering the mass production capability because it is a Typ. Value.

## 2-12. It doesn't display a specified brightness at specified color

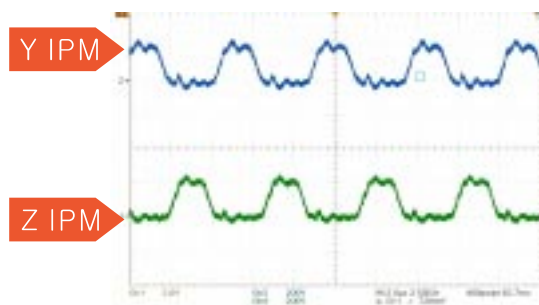
- (1) Check the connector of CTRL B/D input signal.
- (2) Replace the CTRL B/D.

### 3. Checking for Component Damage

#### 3-1. Y IPM(IC18) or Z IPM(IC2) Damage

- (1) When the internal Sustain FET or ER FET of Y B/D IPM(IC18) or Z B/D IPM(IC2) is damaged, screen doesn't be shown or Mis - discharge of partial screen is generated.

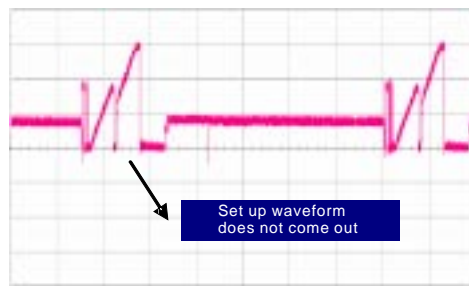
- Test Point : Enlarge after measuring  
GND ~ Waveform(Y DRV B/D),  
GND ~ B28(Z B/D).
- Wave format : Y DRV B/D in Waveform or B28(Z B/D) has no output wave.



<Fig. 1 IPM Normal Output Wave>

- (2) When Set\_Down FET/Pass\_Top FET(1st, 3rd, 4th, 5th FFT of HS2 ) is damaged, Mis - discharge of entire screen is generated.

- Test Point : Enlarge after measuring  
GND ~ Waveform(Y DRV B/D)
- Wave format : As shown fig. 3

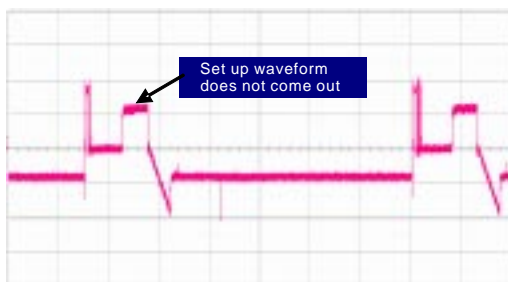


<Fig. 3 When the Set\_Down FET is damaged>

#### 3-2. FET Ass'y(Y B/D : HS2) Damage

- (1) When Set\_Up FET(2nd FFT of HS2 ) is damaged, screen doesn't be shown.

- Test Point : Enlarge after measuring  
GND ~ Waveform(Y DRV B/D)
- Wave format : As shown fig. 2

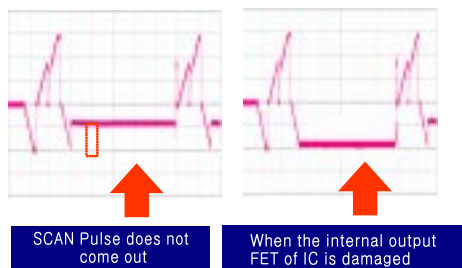


<Fig. 2 When the Set\_Up FET is damaged>

### 3-3. SCAN IC(Y DRV B/D : IC1~10) Damage

- (1) In case of SCAN IC poor, one horizontal line may open at screen.

- Test Point: Enlarge after measuring  
GND ~ Output ICT on Y DRV B/D
- Wave format : As shown fig. 4



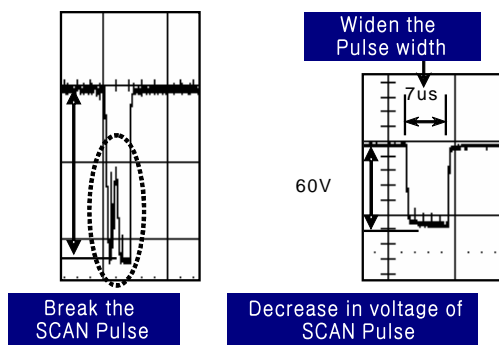
<Fig. 4 When SCAN IC is poor>

- (2) Screen may not shown when SCAN IC is damaged by SCAN IC poor, external electricity or spark.

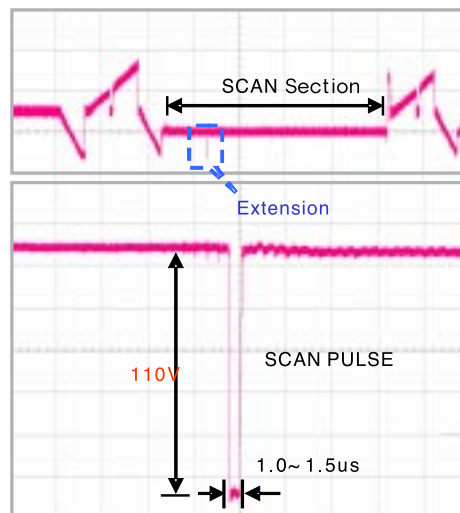
- Test Point : Enlarge after measuring  
GND ~ Output ICT on Y DRV B/D
- Wave format : Output wave format isn't output  
(You can see the damage for Y DRV B/D's SCAN IC)

- (3) In case of shorting the SCAN IC output by a dust, foreign substance, it may overlap two horizontal lines on screen.

- Test Point : Enlarge after measuring  
GND ~ Output ICT on Y DRV B/D
- Wave format : As shown fig. 5



<Fig. 5 When SCAN IC output is short>

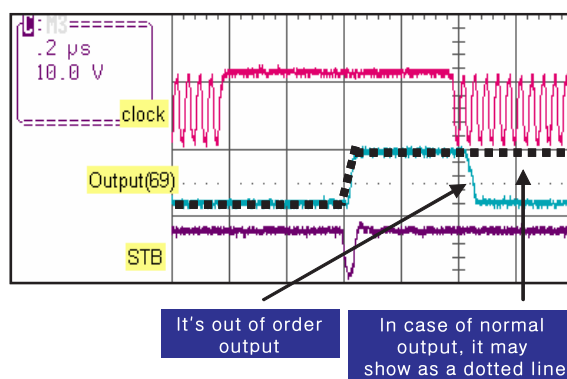


<Fig. 6 SCAN IC Normal Output Wave >

### 3-4. TCP Damage

- (1) In case of shorting or opening the IC output of TCP, it may show one or several vertical lines.

- Test Point : Enlarge after measuring  
Output TP of GND ~ TCP
- Wave format : As shown output fig. 7  
In case of normal wave output, when STB signal is generated, maintain High output. And when STB signal is generated again must be fall Low. But when IC of TCP is poor, STB signal is not generated Output falls with Low.

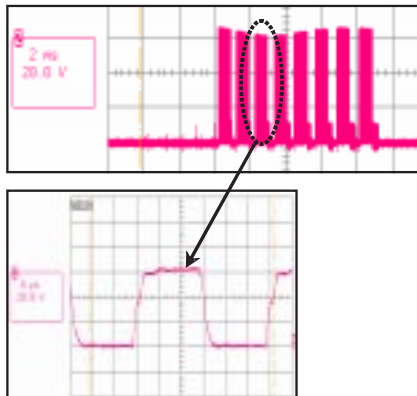


<Fig. 7 When IC output of COF is poor>

- ※ Remove SR before measuring because the output TP of TCP is covered with SR. Insulate again with insulating tape after measuring.

(2) In case of IC damage, corresponding IC inside of TCP, pictures by IC unit inside of TCP will not appear or Mis - discharge. In most cases, the burnt mark can be seen when IC failure occurs.

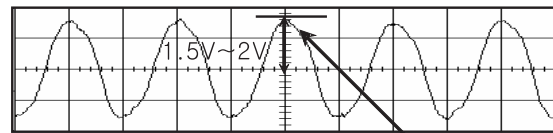
- Test Point : Enlarge after measuring output of GND ~ TCP
- Wave format : Output wave doesn't come out



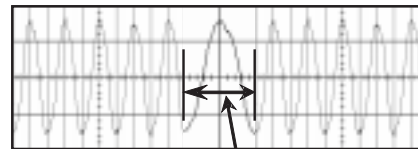
<Fig. 8 TCP Normal Output Wave >

(2) In case of unusual launch of the Crystal, it may blink the screen.

- Test Point : Enlarge after Measuring  
3pin of GND ~ Crystal(CTRL B/D: X1)
- Wave format : As shown fig. 10



Output voltage of the signal is low



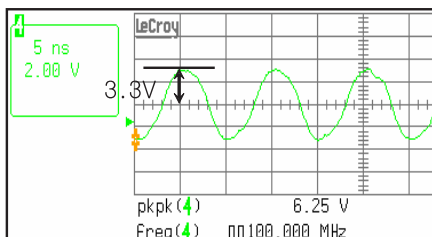
It's may change the frequency, suddenly

<Fig. 10 When Crystal is poor>

### 3-5. Crystal(CTRL B/D : X1) Damage

(1) When Crystal is damage, the screen doesn't be shown.


- Test Point : Enlarge after Measuring  
3pin of GND ~ Crystal(CTRL B/D: X1)
- Wave format : Output wave doesn't come out













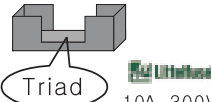













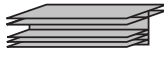







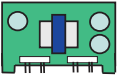
















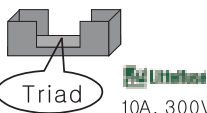



<Fig. 9 Crystal Normal Output Wave >







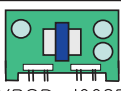


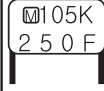









## VI. Critical Components List

(1) The critical components list of PDP42X3#### Model is as below.

(2) A component of  mark is important to keep product's security. Therefore in exchanging a component, appointed component is necessary used.

(3)  is an abbreviated word which is instead of <Safety>mark.

	C27, C28, 31, 34, 36	C54, 63	C143
	 Samwha	 Samwha	 Samwha
IC101	 FS1	 Fuse holder(FS2,3)	 FS2,3
 NATIONAL	 10A, 125V	 Triad 10A, 300V	 T4.0AH, 250V
 FL1	 L1	 L2	 IC18
 ·GET Plus 60uH 6200JB8011J	 ·GET Plus 0.3uH D0019A	 ·GET Plus 0.75uH D0020A	 Heatsink(IPM) 150*62*19.5(mm)
 HS2	 T101	 PS101	 T20 on PS101(DD9A)
 Heat Sink 111*30*25 (mm)	 ·GET Plus 6170Q - W007A, 15uH	 ·LG Innotek YPCD-J009A	 ·SamWha Tecom. 0047X-F, 1mH ·DONG HEUNG ELECTRONICS LID22-543A, 1mH
 PS102	 T20 on PS102(DD3D)	 T20 on PS102(DD3G)	 P20 on PS101, PS102
 ·LG Innotek YPCD-J003D YPCD-J003G	 ·SamWha Tecom. 0047W-F, 940uH	 ·SamWha Tecom. 0047Y-F, 940uH ·DONG HEUNG ELECTRONICS LID22-544A, 940uH	 Optical Isolator ·Auk Corp. SPC717M ·NEC LTD PS2701 or PS2701-1
 C8, 9, 10, 16, 37, 41, 42	C4	C51, 55	 ·LITE-ON Technology Corp. LTV-357T
 ·SUNG HO ELECTRONCS CORP. MPE 250V 3.3uF	 ·SUNG HO ELECTRONCS CORP. MPE 400V 1.0uF	 ·Matsushita Electric Ind. ECQE 250V 1.0uF	
	C7, 10, 11, 12, 13	C29, 30	 FS3
	 Samwha	 Samwha	 10A, 125V
 Fuse holder(FS1, 2)	 FS1, 2	 FL1	FL2
 Triad 10A, 300V	 T4.0AH, 250V	 ·GET Plus 6200JB8011J	 NIGATA STC682D

 <p>·GET Plus 0.3uH D0019A</p>	 <p>·GET Plus 0.75uH D0020A</p>	 <p>Heatsink(IPM) 150*62*19.5(mm)</p>	 <p>Optical Isolator ·Auk Corp. SPC717M  ·NEC LTD PS2701 or PS2701-1 ·LITE-ON  Technology Corp. LTV-357T</p>
 <p>·LG Innotek YPCD-J003D YPCD-J003G</p>	 <p>·SamWha Tecom. 0047W-F, 940uH</p>	 <p>·SamWha Tecom. 0047Y-F, 940uH ·DONG HEUNG ELECTRONICS LID22-544A, 940uH</p>	
<p>C111</p>  <p>·Matsushita Electric Ind. ECQE 250V 1.0uF</p>	 <p>MPE 335K2E ·SUNG HO ELECTRONCS CORP. MPE 250V 3.3uF</p>	 <p>Panel</p>	
 <p>1005*597 (mm)</p>	 <p>·LG Chem. ·SKC Co.Ltd. ·Mitsui Chem.</p>	 <p>·YoungPoong : <b>YO'serise</b> ·Daeduck GDS : <b>F1-0</b> ·ACT Co.,Ltd.: A1, A2, A3 ·Yeu Hwan Technology Co., Ltd.: D1, M1, N1, T1, mm4, mm5</p>	 <p>Asahi glass Front : 978*550*2.8(mm) Back : 958*570*2.8(mm)</p>
	 <p>·Dow Corning TP 2460</p>	 <p>·UBE Industries (C)S(I) Flammability : VTM-0</p>	 <p>·454*70*24 (2EA) ·454*62*24 (2EA)</p>

## English

## 1. Boards

[illegible]



## 2. COMPONENTS

No.	Date	Board	Part Number	Note
1	2005.10.01	Y SUS IPM(IC18)	4921QP1041A	Initial Product
2	2005.10.01	Z SUS IPM(IC2)	4921QP1041A	Initial Product
3	2005.10.01	Pass TOP/Reset heat-sink Ass'y	4921QF5005A	Initial Product
4	2005.10.01	DDPACK (PS101)	6871QEH029A	Initial Product
5	2005.10.01	DDPACK (PS102)	6871QEH023G	Initial Product
6	2005.10.01	MCM LGPCMx05A	6001QV0007A	Initial Product
7	2005.10.01	CRYSTAL(X1)	6212AB4610A	Initial Product
8	2005.10.01	TCP	0ILNR00150A	Initial Product
9	2005.10.01	80ch scan IC	0ILMRFE001C	Initial Product
10	2005.10.01	98PIN CONNECTORYSUS IPM(IC18)	6630X60132A	Initial Product

### 3. ROM DATA

[illegible]

## **3. PDP50X3#### Module**

### **CONTENTS**

- I . Safety Precautions**
- II . Technical Feature**
- III. Formation and Specification of Module**
  - 1. Formation of Module**
  - 2. Information of Boards**
  - 3. Label information of Module**
- IV. Adjustment**
- V. Trouble Shooting**
  - 1. Checking for No Picture**
  - 2. Hitch Diagnosis Following Display Condition**
    - 2-1. 1/3 of the screen doesn't be shown
    - 2-2. 1/4 of the screen doesn't be shown
    - 2-3. Screen doesn't be shown as Data TCP
    - 2-4. It is generated unusual pattern of Data TCP IC unit
    - 2-5. Screen doesn't be shown at all as Scan FPC
    - 2-6. Regular stripe is generated at regular interval on the whole screen
    - 2-7. Data copy is generated to stripe direction
    - 2-8. The screen has one several vertical line
    - 2-9. The screen has one or several horizontal line
    - 2-10. Lightness of screen is wholly darken though there is input-signal-pattern
    - 2-11. The screen displays other color partially on full white screen or happens Mis-discharge partially on full black screen.
    - 2-12. It doesn't display a specified brightness at specified color
  - 3. Checking for component damage**
    - 3-1. Y IPM(IC201, IC202) or Z IPM(IC7, IC5) damage
    - 3-2. FET Ass'y(Y B/D : HS1, HS2, HS3) damage
    - 3-3. SCAN IC(Y DRV B/D : IC1~6, IC101~IC106) damage
    - 3-4. TCP damage
    - 3-5. Crystal(CTRL B/D : X2) damage
  - 4. Shift breakdown component compatibility consideration**
    - 4-1. Scan IC follows in application, compatibility of Y DRV Top, Bottom B/D
- VI. Safety Components List**
- VII. Records of Revision for Boards, Components and ROM DATA**
- \* Annexing : Schematic Diagram**

## I . Safety Precautions

When servicing of PDP Module, it should be not enforced into another way aside next rule, or a unaccustomed person should not repairing.

When using/handling this PDP Module, pay attention to the below warning and cautions.

### **Warning**

Indicates a hazard that may lead to death or injury if the warning is ignored and the product is handled incorrectly.



### **Caution**

Indicates a hazard that can lead to injury or damage to property if the caution is ignored and the product is handled incorrectly.

### 1) WARNING

- (1) Do not touch Signal and Power Connector while this product operates.
- (2) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.
- (3) Do not use this product in locations where the humidity is extremely high, where it may be splashed with water, or where flammable materials surround it.  
Do not install or use the product in a location that does not satisfy the specified environmental conditions. This may damage the product and may cause a fire.
- (4) If a foreign substance (such as water, metal, or liquid) gets inside the product, immediately turn off the power.  
Continuing to use the product, it may cause fire or electric shock.
- (5) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power.  
Continuing to use the product, it may cause fire or electric shock.
- (6) Do not disconnect or connect the connector while power to the product is on. It takes some time for the voltage to drop to a sufficiently low level after the power has been turned off.  
Confirm that the voltage has dropped to a safe level before disconnecting or connecting the connector.
- (7) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.
- (8) Do not damage or modify the power cable. It may cause fire or electric shock.

- (9) If the power cable is damaged, or if the connector is loose, do not use the product : otherwise, this can lead to fire or electric shock.

- (10) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

- (11) PDP Module uses a high voltage (Max.450V dc). Keep the cautions concerning electric shock and do not touch the Device circuitry when handling the PDP Unit. And because the capacitor of the Device circuitry may remain charged at the moment of Power OFF, standing by for 1 minute is required in order to touch the Device circuitry.

### 2) CAUTIONS

- (1) Do not place this product in a location that is subject to heavy vibration, or on an unstable surface such as an inclined surface. The product may fall off or fall over, causing injuries.
- (2) Before disconnecting cable from the product, be sure to turn off the power. Be sure to hold the connector when disconnecting cables. Pulling a cable with excessive force may cause the core of the cable to be exposed or break the cable, and this can lead to fire or electric shock.
- (3) This product should be moved by two or more persons. If one person attempts to carry this product alone, he/she may be injured.
- (4) This product contains glass. The glass may break, causing injuries, if shock, vibration, heat, or distortion is applied to the product.
- (5) The temperature of the glass of the display may rise to 80°C or more depending on the conditions of use.  
If you touch the glass inadvertently, you may be burned.
- (6) If glass surface of the display breaks or is scratched, do not touch the broken pieces or the scratches with bare hands. You may be injured.
- (7) PDP Module requires to be handled with care not to be touched with metal or hard materials, and must not be stressed by heat or mechanical impact.
- (8) There are some exposed components on the rear panel of this product. Touching these components may cause an electric shock.
- (9) When moving the product, be sure to turn off the power and disconnect all the cables. While moving the product, watch your step. The product may be dropped or all, leading to injuries of electric shock.

- (10) In order to protect static electricity due to C-MOS circuitry of the Drive part, wear a wrist band to protect static electricity when handling.
- (11) If cleaning the Panel, wipe it with a soft cloth moistened with water or a neutral detergent and squeezed, being careful not to touch the connector part of the Panel. And don't use chemical materials like thinner or benzene.
- (12) If this product is used as a display board to display a static image, "image sticking" occurs. This means that the luminance of areas of the display that remain lit for a long time drops compared with luminance of areas that are lit for a shorter time, causing uneven luminance across the display.  
The degree to which this occurs is in proportion to the luminance at which the display is used. To prevent this phenomenon, therefore, avoid static images as much as possible and design your system so that it is used at a low luminance, by reducing signal level difference between bright area and less bright area through signal processing.
- (13) Because PDP Module emits heat from the Glass Panel part and the Drive circuitry, the environmental temperature must not be over 40°C.  
The temperature of the Glass Panel part is especially high owing to heat from internal Drive circuitry. And because the PDP Module is driven by high voltage, it must avoid conductive materials.
- (14) If inserting components or circuit board in order to repair, be sure to fix a lead line to the connector before soldering.
- (15) If inserting high-power resistor(metal-oxide film resistor or metal film resistor) in order to repair, insert it as 10mm away as from a board.
- (16) During repairs, high voltage or high temperature components must be put away from a lead line.
- (17) This is a Cold Chassis but you had better use a cold transformer for safety during repairs. If repairing electricity source part, you must use the cold transformer.
- (18) Do not place an object on the glass surface of the display. The glass may break or be scratched.
- (19) This product may be damaged if it is subject to excessive stresses (such as excessive voltage, current, or temperature). The absolute maximum ratings specify the limits of these stresses.
- (20) The recommended operating conditions are conditions in which the normal operation of this product is guaranteed. All the rated values of the electrical specifications are guaranteed within these conditions.  
Always use the product within the range of the recommended operating conditions. Otherwise, the reliability of the product may be degraded.
- (21) This product has a glass display surface. Design your system so that excessive shock and load are not applied to the glass. Exercise care that the vent at the corner of the glass panel is not damaged.  
If the glass panel or vent is damaged, the product is inoperable.
- (22) Do not cover or wrap the product with a cloth or other covering while power is supplied to the product.
- (23) Before turning on power to the product, check the wiring of the product and confirm that the supply voltage is within the rated voltage range. If the wiring is wrong or if a voltage outside the rated range is applied, the product may malfunction or be damaged.
- (24) Do not store this product in a location where temperature and humidity are high. This may cause the product to malfunction. Because this product uses a discharge phenomenon, it may take time to light (operation may be delayed) when the product is used after it has been stored for a long time. In this case, it is recommended to light all cells for about 2 hours (aging).
- (25) This product is made from various materials such as glass, metal, and plastic. When discarding it, be sure to contact a professional waste disposal operator.
- (26) If faults occur due to arbitrary modification or disassembly, LG Electronics is not responsible for function, quality or other items.
- (27) Use of the product with a combination of parameters, conditions, or logic not specified in the specifications of this product is not guaranteed. If intending to use the product in such a way, be sure to consult LGE in advance.
- (28) Within the warranty period, general faults that occur due to defects in components such as ICs will be rectified by LGE without charge. However, IMAGE STICKING due to misapplying the above (12) provision is not included in the warranty. Repairs due to the other faults may be charged for depending on responsibility for the faults.

### 3. Warning label for PDP Module

#### 1) PCB Warning label

(1)Warning



Warning against any dangers under certain circumstance.

(2)Hot surface



Warning against any possibilities of injury or burn due to high temperature under certain circumstance.

(3)Dangerous voltage



Warning against the possibility of electric shock under certain circumstance.

(4)Electrostatic sensitive devices



Warning against any possibilities of electric shock/high temperature by touching under certain circumstance

(5)Caution sentence



Careful touching before inspection.

(6) Fuse Caution sentence



The fuse should be replaced with the same type and rating to prevent fire under certain circumstance

#### 2) Safety precautions on Module

(1)High Voltage



Warning against the danger of electric shock when touching due to dangerous high voltage.

(2)Hot Surface



Warning against the danger of burn when touching due to high temperature parts.

(3)Wound



Caution against the danger of mechanical injuries.

## II . Technical Feature

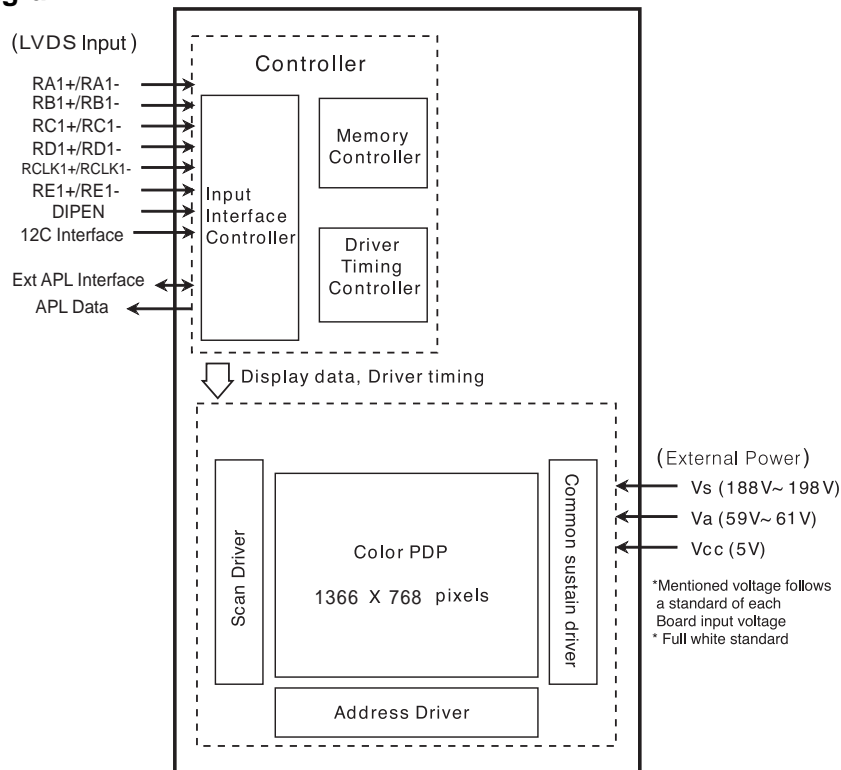
PDP Module is a display device to be divided into a Panel part and a Drive part. The Panel part consists of Electrodes, Phosphor, various dielectrics and gas, and the Drive part includes electronic circuitry and PCB.

PDP50X3#### model produced in the LG electronics is 50inches color Plasma display module of Wide XGA(1366(H) x 768(V)), and it is a display device giving concrete to bright image by using AC Plasma technology of LG electronics.

### 1) General Specification

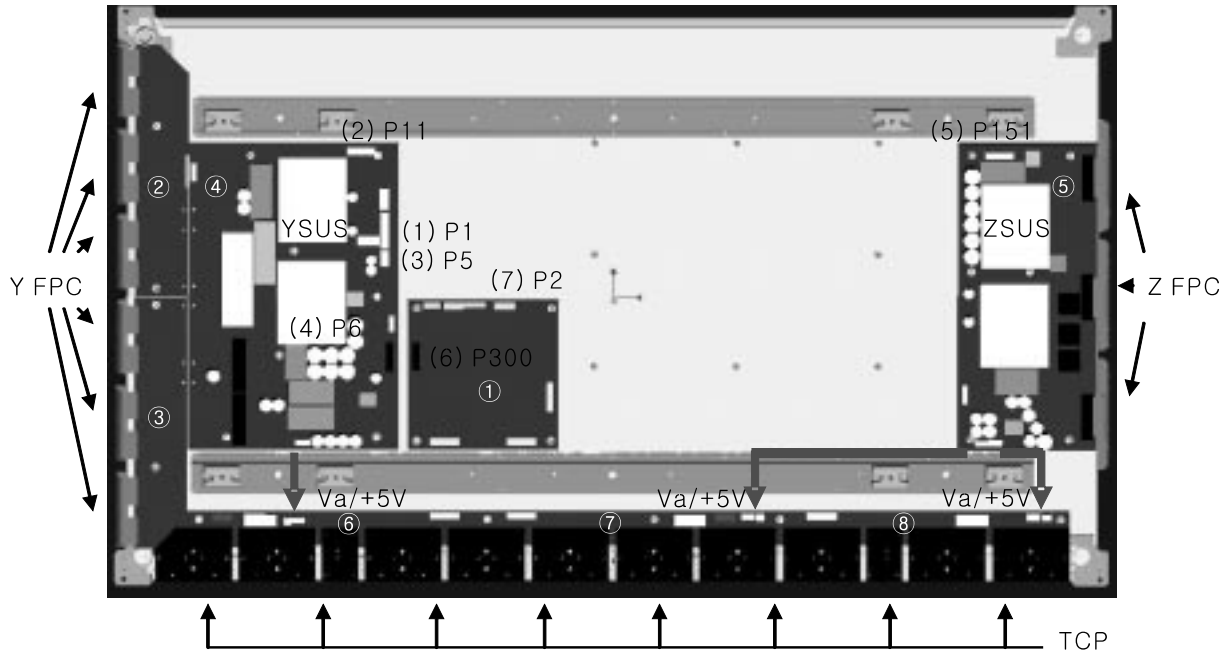
(1) Model Name	: PDP50X3####
(2) Number of Pixel	: 1366(H) × 768(V) (1pixel=3 RGB cells)
(3) Pixel Pitch	: 810 $\mu$ m(H) × 810 $\mu$ m(V)
(4) Cell Pitch	: 270 $\mu$ m(H) × 810 $\mu$ m(V) (Base : Green Cell)
(5) Display area	: 1106.5(H) × 622.1(V) $\pm$ 0.5(mm)
(6) Outline dimension	: 1190(H) × 700(V) x 58(D) $\pm$ 1(mm)
(7) Color arrangement	: RGB Closed(Well) type
(8) Number of COLRO	: (R)1024 × (G)1024 × (B)1024(10,737,000,000)
(9) Weight	: 22.0 $\pm$ 0.5(Kg) : Net : 127 $\pm$ 5(Kg) : 5EA/1BOX
(10) Aspect Ratio	: 16:9
(11) Peak Brightness	: Typical 1000cd/ $m^2$ (1% White Window) : Typical 90:1(Light room 100 Lx at center)
(12) Contrast Ratio	: Typical 10,000:1(Dark room 1% White Window) (White Window Pattern at Center)
(13) POWER CONSUMPTION	: Max 400 W(Full White)
(14) Lifetime	: Over 60,000 Hrs (Initial brightness 1/2)

### 2) Block Diagram



### III. Formation and Specification of Module

#### 1. Formation of Module

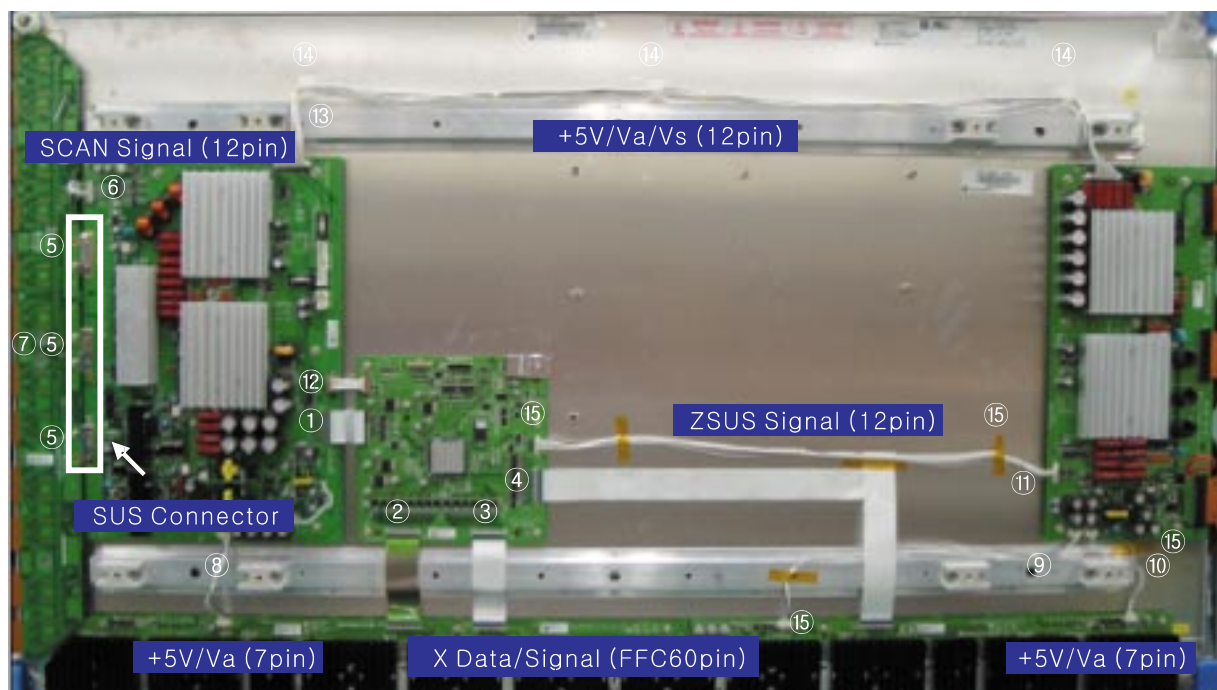


English

No	Connector	Input Voltage & Signal
(1)	P1[Y SUS B/D]	Va, Vs
(2)	P11[Y SUS B/D]	5V, Va, Vs
(3)	P5[Y SUS B/D]	5V
(4)	P6[Y SUS B/D]	5V
(5)	P151[Z SUS B/D]	5V, Va, Vs
(6)	P300[CTRL B/D]	5V
(7)	P2[CTRL B/D]	Video Signal

No	Part No.		Description
①	6871QCH059A	PWB(PCB) ASS'Y	LVDS CTRL B/D ASS'Y
②	6871QDH088A	PWB(PCB) ASS'Y	Y DRV UPPER B/D ASS'Y
③	6871QDH089A	PWB(PCB) ASS'Y	Y DRV LOWER B/D ASS'Y
④	6871QYH039A	PWB(PCB) ASS'Y	Y SUS B/D ASS'Y
⑤	6871QZH044A	PWB(PCB) ASS'Y	Z SUS B/D ASS'Y
⑥	6871QLH049A	PWB(PCB) ASS'Y	X LEFT B/D ASS'Y
⑦	6871QXH030A	PWB(PCB) ASS'Y	X CENTER B/D ASS'Y
⑧	6871QRH057A	PWB(PCB) ASS'Y	X RIGHT B/D ASS'Y

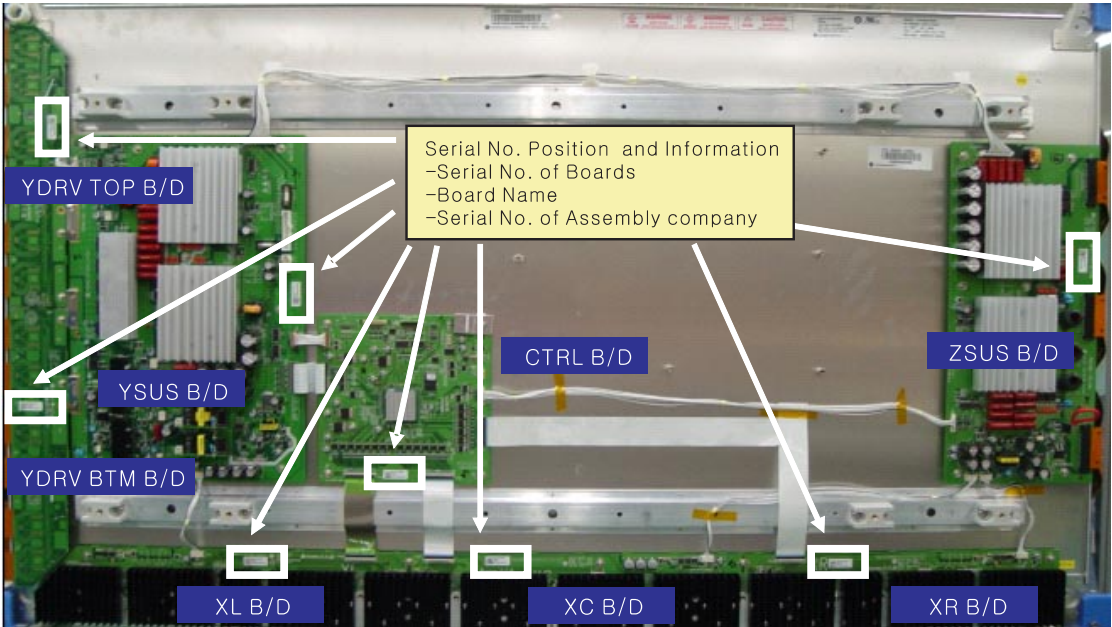




No	Part No.	EA	SPECIFICATION	Note
①	6850QV0001D	1EA	LG CABLE 30PIN 1.0MM PITCH 80MM	
②	6850QX0017B	1EA	0.5PITCH 60PIN 100MM FFC NON GROUND SHIELD TYPE	
③	6850QX0020A	1EA	LG CABLE 60PIN 0.5MM PITCH 100MM	
④	6850QX0014D	1EA	X B/D <--> CTRL B/D P=0.5MM 60PIN 530MM LG CABLE	
⑤	6630B00024A	3EA	SUS CONNECTOR FINE ALTEC NON NONE FOR V7,SHORT	
⑥	6631Q12008A	1EA	1.25MM 12PIN L50MM UL1061-28AWG YEON HO	
⑦	6631Q12005Q	1EA	1.25MM PITCH L40MM UL1061-28AWG, TAPPING	
⑧	6631Q15003E	1EA	1.5MM PITCH 7PIN L90MM UL1061-26AWG YEON-HO	
⑨	6631Q15003B	1EA	1.5MM PITCH 7PIN L340MM UL1061-24AWG	
⑩	6631Q15003C	1EA	1.5MM PITCH 7PIN L130MM UL1061-26AWG YEON-HO	
⑪	6631Q12005P	1EA	1.25MM L520MM UL1061-28AWG YEON-HO	
⑫	6631Q20002A	1EA	2.0MM 8PIN L40MM UL1007-24AWG LG CABLE	
⑬	6631Q25027B	1EA	2.5MM 12PIN L900MM UL1007-24AWG YEON HO	
⑭	4930Q00003A	3EA	CABLE HOLDER FOR 60X5(DONGABESTECH,DAAQC-02)	
⑮	7250QE0001A	0.25M	SINGLE FIXING COM. 10MMX33M	

2. Information of Boards

1) 50X3 PDP Module



2) CTRL B/D



3) YSUS B/D



4) ZSUS B/D



6871QZH044A  
ZSUS  
KP50054K001289

Assembly Information

- Serial No. of Boards Assembly
- Board Name
- Serial No. of Assembly Company

LGE PDP 050303  
MODEL : 50X3  
BOARD : Z\_SUS  
PARTNO : 6870QZC004A  
LOC NO : 3XXX

PCB(PWB) Information

- Revision date of PCB(PWB)
- Model name
- Serial No. of PCB(PWB)
- Location No.

5) YDRV TOP, BTM B/D

YDRV TOP



6871QDH088A  
YDRVTP  
KP50054I003085

Assembly Information

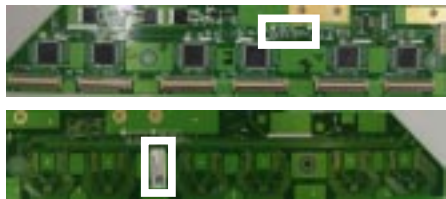
- Serial No. of Boards Assembly
- Board Name
- Serial No. of Assembly Company

LGE PDP 050126  
MODEL : 50X3  
BOARD : YDRV\_TOP  
PART NO : 6870QDC004A  
LOC NO : 7XXX

PCB(PWB) Information

- Revision date of PCB(PWB)
- Model name
- Serial No. of PCB(PWB)
- Location No.

YDRV BTM



6) XL, XC, XR B/D

XL



XC



XR



6871QLH049A  
XRLBT  
KP50054D003150

Assembly Information

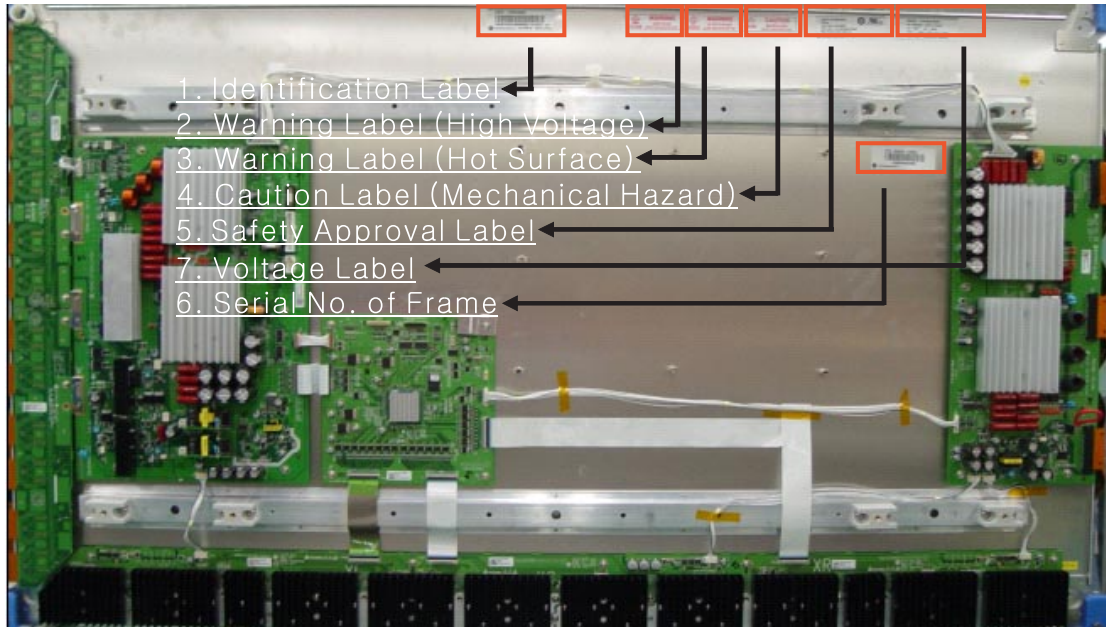
- Serial No. of Boards Assembly
- Board Name
- Serial No. of Assembly Company

LGE PDP 050312  
MODEL : 50X3  
BOARD : XL  
PARTNO : 6870QMC004C  
LOC NO : 4XXX

PCB(PWB) Information

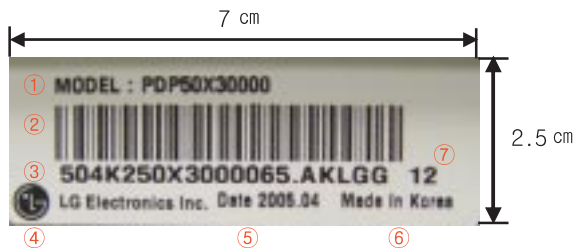
- Revision date of PCB(PWB)
- Model name
- Serial No. of PCB(PWB)
- Location No.

### 3. Label Information of Module



English

#### 1) Identification Label



- ① Model Name
- ② Bar Code (Code 128, Contains the manufacture No.)
- ③ Manufacture No.
- ④ The trade name of LG Electronics
- ⑤ Manufactured date (Year & Month)
- ⑥ The place Origin
- ⑦ Model Suffix

#### 2) Warning Label (High Voltage)





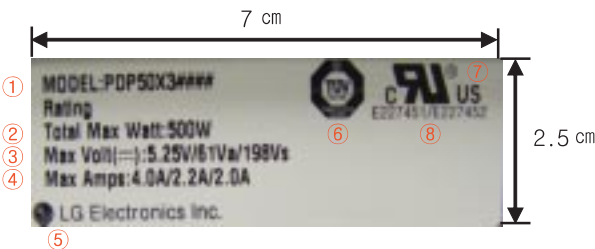
3) Warning Label (Hot Surface)



4) Caution Label (Mechanical Hazard)

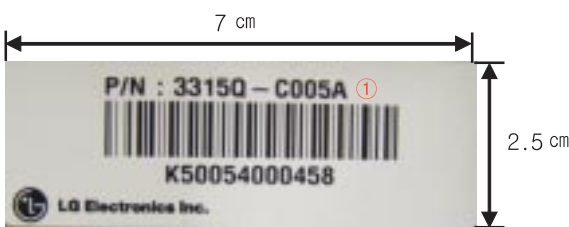


5) Safety Approval Label



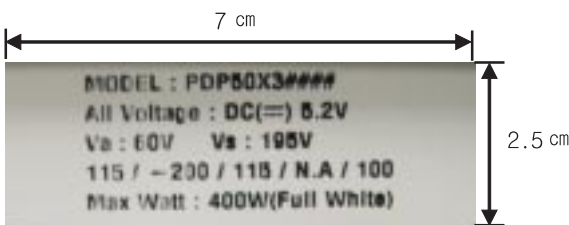
- |                          |                                    |
|--------------------------|------------------------------------|
| ① Model Name             | ⑤ The Trade Name of LG Electronics |
| ② Max. Watt (Full White) | ⑥ TUV Approval Mark                |
| ③ Max. Volts             | ⑦ UL Approval Mark                 |
| ④ Max. Amps              | ⑧ UL Approval No.                  |

6) Serial No. of Frame



- ① Serial No of Frame Assy

7) Voltage Label (Model Name & Operational Voltage)



## IV. Adjustment

### 1. Application Object

This standard is applied to the PDP50X3#### PDP Module which is manufactured of PDP promotion department or elsewhere.

### 2. Notes

- (1) Without any special specification, the Module should be at the condition of preliminaries more than 10minutes before adjusting.
  - ① Service signal : 100% Full White signal
  - ② Service DC voltage : Vcc: 5V, Va: 60V, Vs: 195V
  - ③ DC/DC Pack voltage : Vsc: 115V, Vz = 100V, -Vy : -200V
  - ④ Preliminaries environment : Temp ( $25 \pm 5^{\circ}\text{C}$ ), Relative humidity ( $65 \pm 10\%$ )
- (2) Aging shall be performed of module in order for characteristics stabilization after completion of assembling /adjustment. Conditions of aging are as follows.
  - ① Service signal : 100% Full White, Red, Green, Blue pattern signal(Service time of each pattern : within 5minutes/cycle)
  - ② Service DC voltage : Match the voltage with the set up voltage in the first adjustment.
  - ③ Aging time : More than 4Hrs
  - ④ Aging environment : Temp ( $25 \pm 2^{\circ}\text{C}$ ), Relative humidity-Less than 75%
- (3) Module adjustment should be followed by below sequence.
  - ① Initial voltage setting.(Vs=195V, Va=60V, Vcc=5V)
  - ② -Vy Voltage adjustment (200V)
  - ③ Vscan Voltage adjustment (115V)
  - ④ Y ramp Waveform adjustment.
  - ⑤ Y set\_up Waveform adjustment.
  - ⑥ Y set\_down Waveform adjustment.
  - ⑦ Vz = Voltage adjustment (100V)  
But the above item may be altered by consideration of mass productivity.  
(There shall be consultation and agreement of Research Office / Development Office / QA / Production Department in case when altering sequence order.)
- (4) Without any special specification, you should adjust the Module in the environment of Temp ( $25 \pm 5^{\circ}\text{C}$ ) and Relative humidity ( $65 \pm 10\%$ )

**Caution)** If you let the still image more than 10 minutes(especially The Digital pattern or Cross Hatch Pattern which has clear gradation), after image can be presented in the black level part of screen.

### 3. Adjustment after Assembling

#### 3-1. Using Tools

Conditions of aging are as follows.

- (1) Digital oscilloscope : More than 200MHz
- (2) DVM(Digital Multimeter) : Fluke 187 or similar one
- (3) Signal generator : VG-828 or similar one
- (4) DC power supply
  - DC power supply for Vs (1) : Should be changeable between 0V to 200V/ more than 10A
  - DC power supply for Va (1) : Should be changeable between 0V to 100V/ more than 5A
  - DC power supply for 5V (1) : Should be changeable between 0V to 10V/ more than 10A
  - DC-DC Converter Jig(1) : Vs, Va, 5V Jig with corresponding output to each voltage Pin arrangement of PDP50X3#### Module after the input of voltage.
  - Voltage stability of power supply : Within  $\pm 1\%$  for Vs/Va, within  $\pm 3\%$  for 5V

#### 3-2. Connection diagram of measuring instrument and setting up the initial voltage

- (1) For connection diagram of measuring instrument, refer to (Fig.1) Connection diagram of measuring instrument
- (2) Setting up the initial voltage  
Vcc: 5V, Va: 60V, Vs: 195V  
But, Initially setting up voltage can be changed by the set up range according to the Module's characteristic.

#### 3-3. How to Adjust

##### 1. Connect the measuring instrument to be (Fig.1).

##### 2. How to adjust Y SUS( Adjustment should be done after setting Vs/Va to the set voltage)

###### (1) -Vy Voltage adjustment

- ① Measure the voltage between -Vy TP in the lower part D7 and in the upper part Q4 of Y SUS B/D, and adjust it.
- ② Turn the variable resistor of -Vy DD\_pack(PS101) on Y SUS B/D to set to (-200  $\pm 0.5\text{V}$ ).

###### (2) Vscan Voltage adjustment

- ① Measure the voltage between the left Vsc TP and the Drain part of G2 on Y SUS B/D, and adjust.
- ② Turn the variable resistor of V scan DD\_pack(PS102) on Y SUS B/D to set to (115  $\pm 0.5\text{V}$ ).

##### (3) Connect oscilloscope probe B1 and GND on Y sus B/D.

**(4) Y ramp voltage waveform adjustment.**

- ① Turn the VR51 on Y SUS B/D so that waveform A of (Fig. 2) be  $10 \pm 5 \mu s$ .

**(5) Y set-up voltage waveform adjustment.**

- ① Turn VR22 on Y SUS B/D so that waveform B of Figure(2) be  $20 \pm 5 \mu s$ .

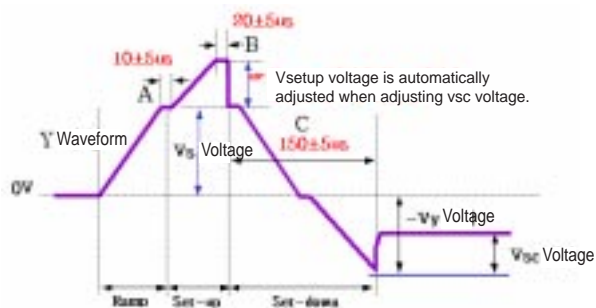
**(6) Y set-down voltage waveform adjustment.**

- ① Turn the variable resistor VR2(Set \_dn\_Vy) on Y SUS B/D so that waveform C of (Fig. 2) be  $10 \pm 5 \mu s$ .

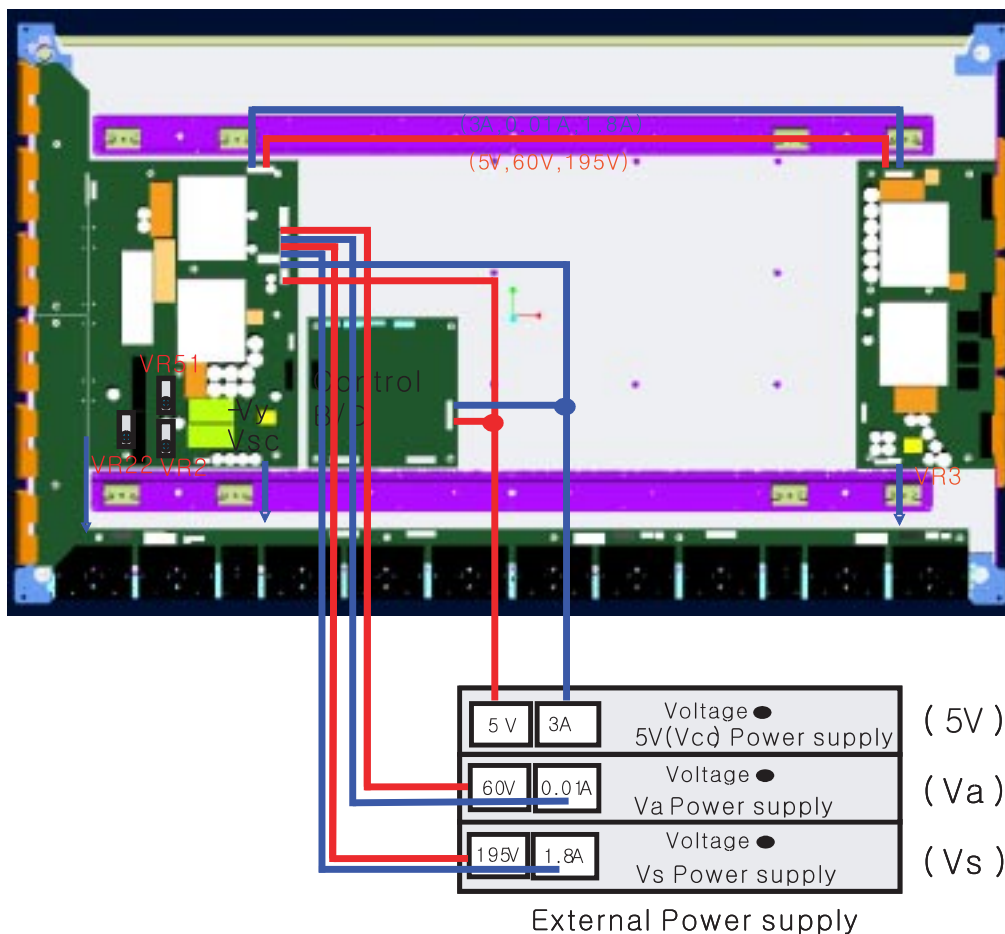
**3. How to adjust ZSUS (Adjustment should be done after setting Vs/Va to the set voltage)**

**(1) Vz b(Z bias) voltage adjustment.**

- ① For Vz b voltage, measure and adjust the voltage by applying each of (-) terminal and (+) terminal in DMM to the both terminals in R111.
- ② Turn the variable resistance of VR3 on Z SUS B/D to set to  $100 \pm 0.5 V$ .



(Fig. 2) Y set-up Waveform



**<Caution>**

- (1) The power of the signal generator should be turned on before turning on the power of DC power supply.
- (2) The voltage of DC power supply, in standard of Module input voltage, should be preset as below.  
(Vs: 195V, Va: 60V)
- (3) The power of power supply must turned on by this sequence. Reverse direction When turning off.  
\* Module on : 5V → Va → Vs, \* Module off : Va → Vs → 5V
- (4) Signal generator should be selected with 1366 x 768 mode.

(Fig. 1) Connection diagram of measuring instrument

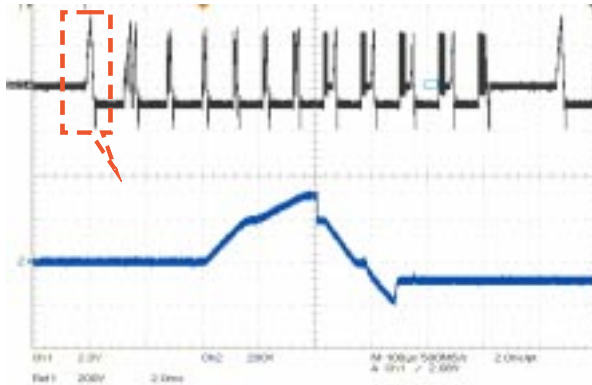


## V. Trouble Shooting

### 1. Checking for No Picture

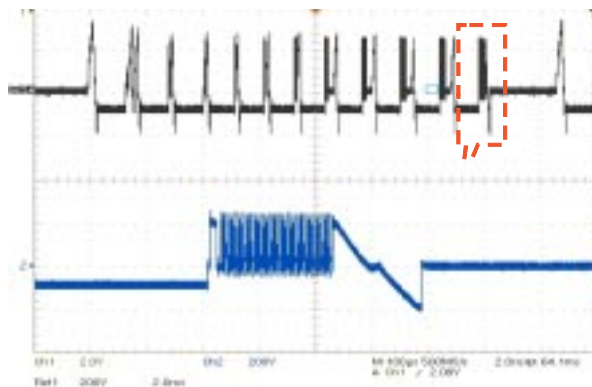
A screen doesn't display at all and condition of black pattern or power off.

- (1) Check whether the CTRL B/D LED[D1,D15] is turned on or not.
- (2) Check the power and signal cable of CTRL B/D.
- (3) X B/D, Y B/D, Z B/D is well plugged in.
- (4) Check the connection of X B/D, Y B/D and Z B/D to CTRL B/D.
- (5) Measure the output wave of X, Y, Z B/D with oscilloscope(more than 200MHz) and find the trouble of B/D by comparing the output wave with below figure.
  - Measure Point fo Y B/D : TP(Bead B1)
  - Measure Point fo Z B/D : TP(Bead B10)
- (6) Check the SCAN(Y side) IC
- (7) Check the DATA(X side) TCP IC
- (8) Replace the CTRL B/D.



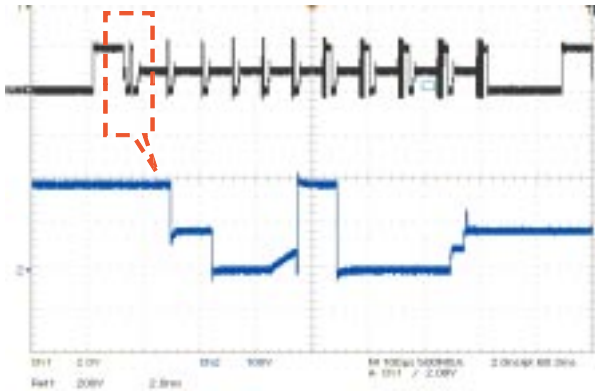
< A: Y B/D Output wave - 1 FRAME >

< B: Y B/D Output wave -1 SF >



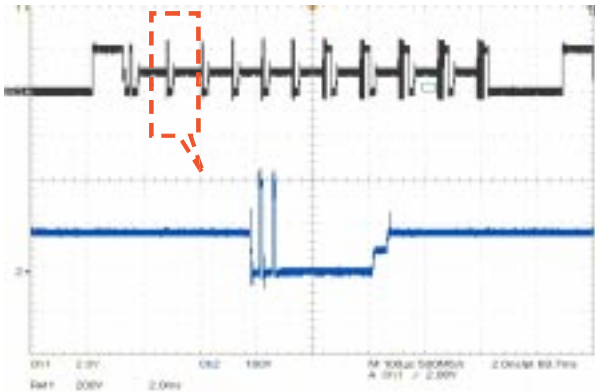
< A: Y B/D Output wave - 1 FRAME >

< B: Y B/D Output wave - Last Sustain >



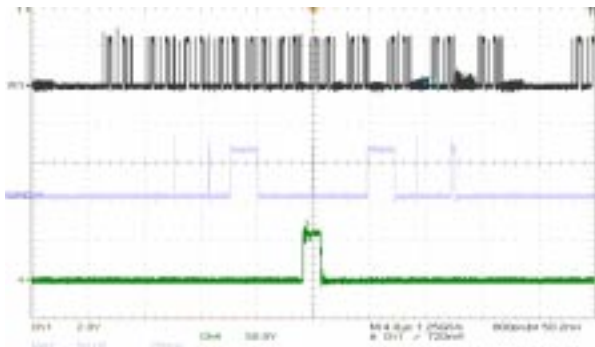
< A: Z B/D Output wave - 1 FRAME >

< B: Z B/D Output wave - 1~2 SF >



< A: Z B/D Output wave - 1 FRAME >

< B: Z B/D Output wave - 3~11SF >



← < X B/D Output wave - 1 FRAME >

← < X B/D Output wave - 1 SF >

← < X B/D Output wave - Extension >

## 2. Hitch Diagnosis Following Display Condition

### 2-1. 1/3 of the screen doesn't be shown

- 1) Check the power connector of X B/D, corresponding to the screen failure part.
- 2) Check the connector between CTRL B/D and X B/D, corresponding to the screen failure part.
- 3) Replace the corresponding X B/D. For X B/D replacement, check the TCP is correctly connected.

#### ※ Relationship between screen and X B/D

Screen	X B/D
Left of the Screen 1/3	↔ Right X B/D
Center of the Screen 1/3	↔ Center X B/D
Right of the Screen 1/3	↔ Left X B/D

#### ※ Screen Display Form

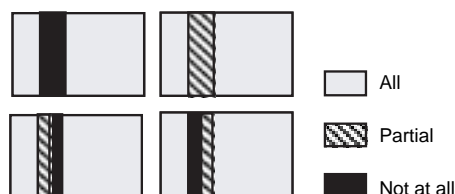


i) Left of the Screen(1/3) ii) Center of the Screen(1/3) iii) Right of the Screen(1/3)



#### ※ The screen display form

(Anything of the 22 Data TCP can be shown beside below pictures)



### 2-4. It is generated Unusual Pattern of Data TCP IC unit

- 1) If it happens as line shape or dot shape, screw the X B/D again, and if no change, replace the X B/D.
- 2) For <case 1>
  - Check the connection of Data TCP connector
  - Replace the corresponding X B/D or CTRL B/D.
- 3) In case of <case 2>, <case 3>
  - Check connector connecting the CTRL B/D to relevant X B/D.
  - Replace the relevant X B/D or CTRL B/D.

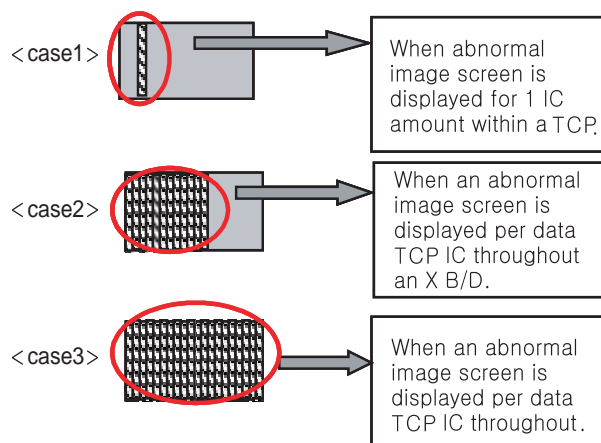
### 2-2. 1/4 of the screen doesn't be shown

Identical to 2-1

### 2-3. Screen doesn't be shown as Data TCP (Include not be shown part of Data TCP quantity or a part)

- 1) If there is no change after replacement of cable between CTRL B/D and X B/D, replace CTRL B/D.
- 2) Check Data TCP failures, corresponding part to screen failure, and if no defects, connect the corresponding TCP again.
- 3) If the corresponding Data TCP fails, Module should be replaced.

#### ※ Screen Display Form

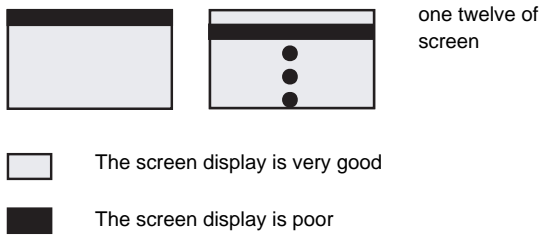


※ After separating TCP HEAT SINK, replace Silicon tape when the TCP IC marks in Silicon tape of H/S feel hard.(silicon tape, 7250SC0006C, TP-2460 DOW CORNING 8.0MM T0.50 NON GRAY,50X3(L363)

2-5. Screen doesn't be shown at all as Scan FPC.

- (1) It's may be a problem between Scan FPC and Y DRV B/D.
- (2) Check the connection of Y DRV B/D and Scan FPC.
- (3) If the Scan IC is failed, replace the Y DRV B/D.

※ Screen Display Form



※ Check a method of SCAN IC

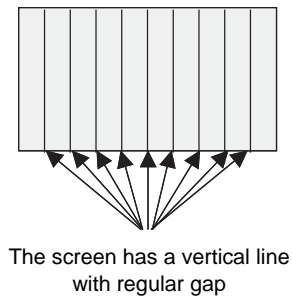


Change the Vpp Pin into ANODE and GND Pin into CATHOD and then test the Diode with forward or reverse direction.

2-6. Regular stripe is generated at regular internal on the whole screen.  
(A vertical stripe flash at especial color)

- (1) This is a problem about CTRL B/D.
- (2) Replace the CTRL B/D.

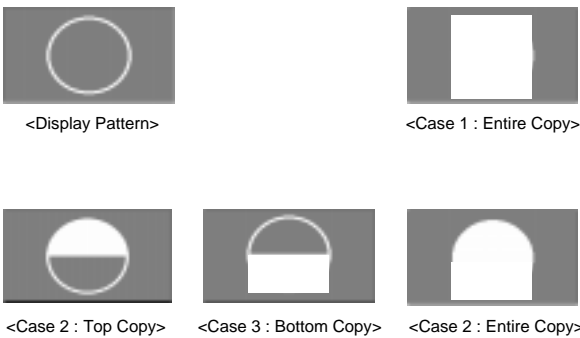
※ Screen Display Form



2-7. Data copy is generated to stripe direction.

- (1) In this case, it's due to incorrect marking of scan wave.
- (2) Replace the Y DRV B/D or Y B/D.

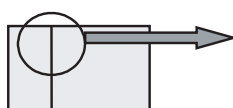
※ Screen Display Form



## 2-8. The screen has one several vertical line.

- (1) In this case, It isn't a problem about CTRL B/D or X B/D.
- (2) It may cause followings.
  - It's out of order a panel
  - Open or short of DATA TCP attached panel
  - It's out of order a DATA TCP IC attached panel
- (3) Replace Module.

### ※ Screen Display Form



It may show several vertical lines in a quarter or other division part of screen including left case.

## 2- 9. The screen has one or several horizontal line.

- (1) In this case, it isn't a problem about CTRL B/D or Y B/D.
- (2) It may cause followings.
  - It's out of order a panel
  - Open or short of SCAN FPC attached panel
  - It's out of order a SCAN IC attached panel
- (3) Replace Module.

### ※ Screen Display Form



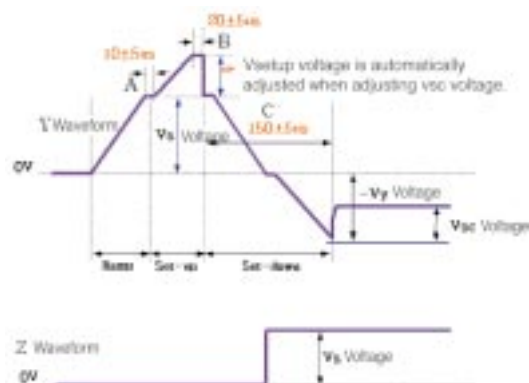
It may show several horizontal lines including left case.

## 2-10. Lightness of screen is wholly darken though there is input-signal-pattern

- (1) In this case, Z B/D operation isn't complete.
- (2) Check the power cord of Z B/D.
- (3) Check the connector of Z B/D and CTRL B/D.
- (4) Replace the CTRL B/D or Z B/D.

## 2-11. The screen displays other color partially on full white screen or happens Mis-discharge partially on full black screen.

- (1) Check the declination of Y B/D set up, set down wave.
- (2) Measure each output wave with oscilloscope(more than 200MHz) and compare the data with below figure data. The slope of ramp in B/D is VR51, The slope of set\_up is VR22, The slope of set\_down is VR2, The voltage of  $-V_y$  and  $V_{scan}$  is respectively PS101 and PS 102. for these,  $V_{zd}$  of Z B/D adjust as indicated in Label by making VR3 variable.
  - Measuring Point of Y B/D : B1
  - Measuring Point of Z B/D : B10



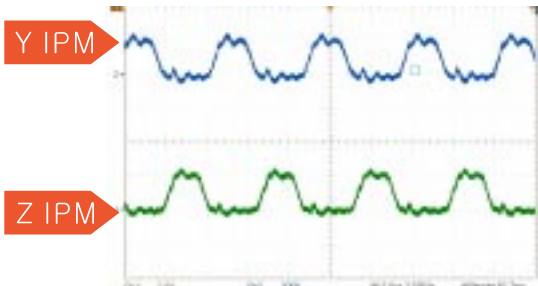
## 12. It doesn't display a specified brightness at specified color

- (1) Check the connector of CTRL B/D input signal.
- (2) Replace the CTRL B/D.

### 3. Checking for Component Damage

#### 3-1. Y IPM(IC201, IC202) or Z IPM(IC7, IC5) Damage

- (1) When the internal Sustain FET or Z SUS IPM(IC7) of Y SUS IPM(IC 202) is damaged, screen doesn't be shown or Mis - discharge of partial screen is generated.
  - Test Point : GND~B1(Y B/D), GND~B10(Z B/D).
  - Wave format : B1(Y B/D) or B10(Z B/D) has no output wave.
- (2) When the internal ER\_FET or Z ER IPM(IC5) of Y ER IPM(IC 201) is damaged, screen doesn't be shown or electric discharge of entire screen is generated.
  - Test Point : GND~B1(Y B/D), GND~B10(Z B/D).
  - Wave format : B1(Y B/D) or B10(Z B/D) has no output wave.



<IPM Normal Output Wave>

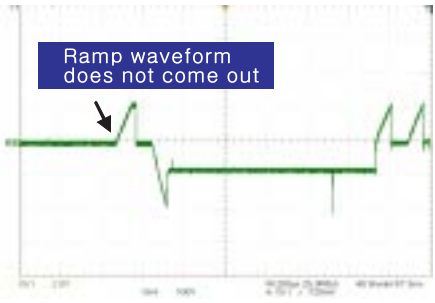
- Measurement position : Sustain section enlarge the after measuring B1 wave of Y B/D and B10 wave of Z B/D. (Full White Pattern)

- (2) When Set\_Down FET/Pass\_Top FET(HS1, HS3) is damaged, Mis - discharge of entire screen is generated.
  - Test Point : Enlarge the after measuring GND~B1(Y B/D)
  - Wave format : As shown fig. 3



<Fig. 3 When the Set\_Down FET is damaged>

- (3) When Ramp FET(HS2) is damaged.
  - Test Point : Enlarge the after measuring GND~B1(Y B/D)
  - Wave format : As shown fig. 4



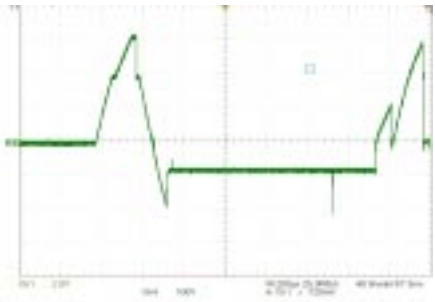
<Fig. 4 When the Ramp FET is damaged>

#### 3-2. FET Ass'y(Y B/D : HS1, HS2, HS3) Damage

- (1) When Pass Set\_Up FET(Q10) is damaged, screen doesn't be shown.
  - Test Point : Enlarge the after measuring GND~B1(Y B/D)
  - Wave format : As shown fig. 2



<Fig. 2 When the Pass Set\_Up FET is damaged>



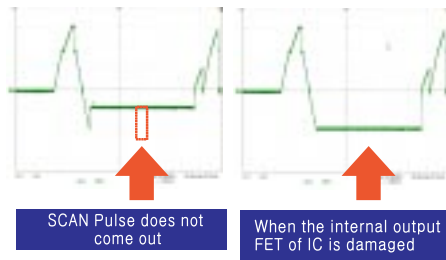
<FET Ass'y normal output wave>

- Measurement position : Reset section enlargement wave of B1(Y B/D) (Full White Pattern)

### 3-3. SCAN IC(Y DRV B/D : IC1~6, IC101~106) Damage

(1) In case of SCAN IC poor, one horizontal line may open at screen.

- Test Point: ICT measurment of GND~Y DRV B/D output
- Wave format : As shown fig. 4



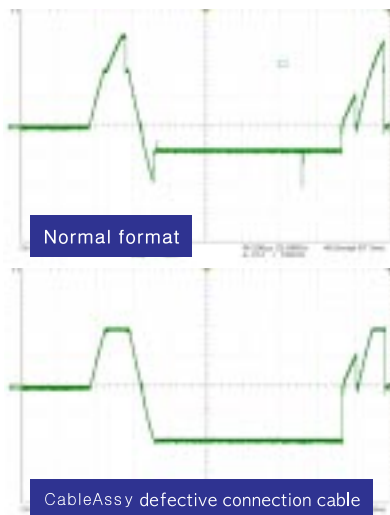
<Fig. 3 When SCAN IC is poor>

(2) Screen may not shown when SCAN IC is damaged by SCAN IC poor, external electricity or spark.

- Test Point : ICT measurment of GND~Y DRV B/D output
- Wave format : Output wave format isn't output (You can see the damage for Y DRV B/D Top or Bottom's SCAN IC)

(3) In case of defects in Ass'y, connecting cable between Y DRV B/D(Top, Bottom) and Ysus, pictures will not appear.

- Test Point : ICT measurment of GND~Y DRV B/D output
- Wave format : As shown fig. 5

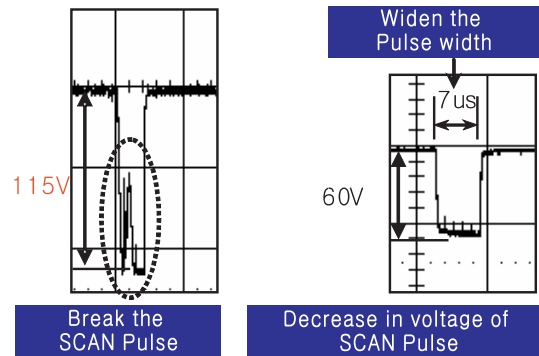


<Fig. 5 In case of defective connection cable between Y DRV B/D(Top, Bottom).>

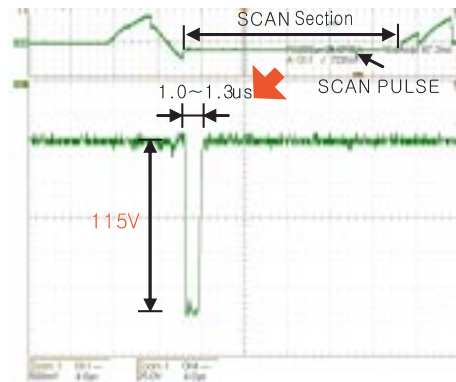
(4) In case of shorting the SCAN IC output by a dust, foreign

substance, it may overlap two horizontal lines on screen.

- Test Point : ICT measurment of GND~Y DRV B/D output
- Wave format : As shown fig. 6
- Measurment position : SCAN section enlarge the after



<Fig. 6 When SCAN IC output is short>



<SCAN IC Normal Output Wave >

measuring output ICT of Y DRV B/D.  
(Full White Pattern)

### 3-4. TCP Damage

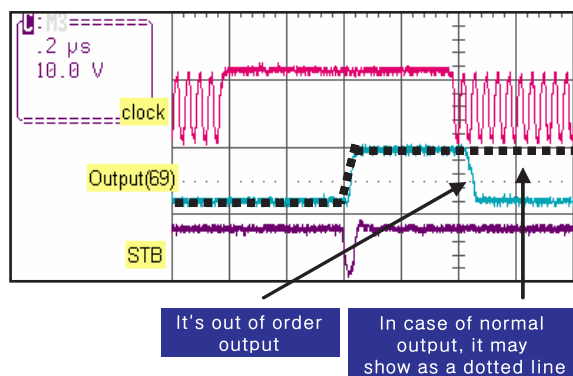
(1) In case of shorting or opening the IC output of TCP, it may show one or several vertical lines.

- Test Point : Enlarge the after measuring output TP of GND~TCP
- Wave format : As shown output fig. 7

In case of normal wave output, when STB signal is generated, maintain High output. And when STB signal is generated again must be fall Low.

But when IC of TCP is poor, STB signal is not generated Output falls with Low.



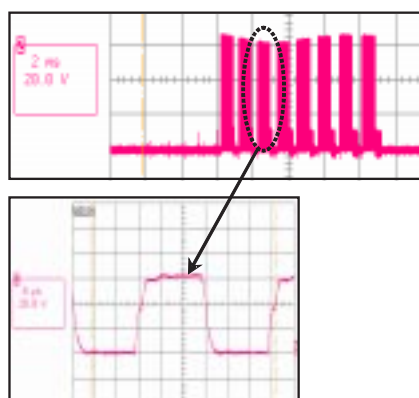


<Fig. 7 When IC output of COF is poor>

※ Remove SR before measuring because the output TP of TCP is covered with SR. Insulate again with insulating tape after measuring.

(2) In case of IC damage, corresponding IC inside of TCP, pictures by IC unit inside of TCP will not appear or Mis - discharge. In most cases, the burnt mark can be seen when IC failure occurs.

- Test Point : Measure the output of GND~TCP before expanding.
- Wave format : Output wave doesn't come out



<TCP Normal Output Wave >

- Measurement position : Enlarge the after measuring output TP of TCP (Full White Pattern)

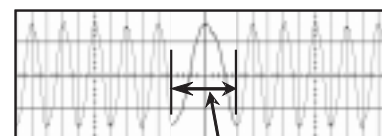
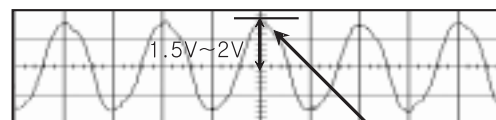
### 3-5. Crystal(CTRL B/D : X2) Damage

(1) When Crystal is damage, the screen doesn't be shown.

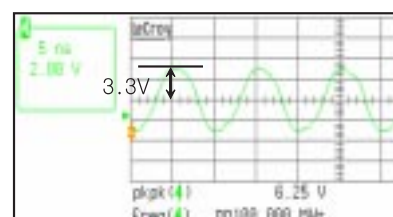
- Test Point : Measuring 3pin of GND~Crystal(CTRL B/D: X2)
- Wave format : Output wave doesn't come out

(2) In case of unusual launch of the Crystal, it may blink the screen.

- Wave format : As shown fig. 8



<Fig. 8 When Crystal is poor>

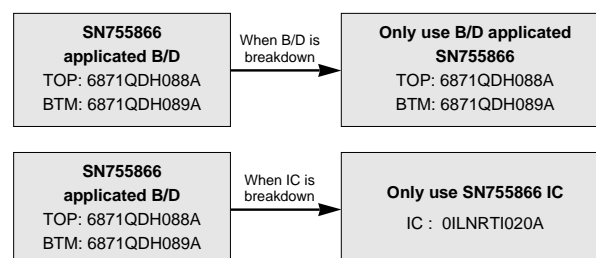


- Measurement position : Measuring output 3pin of Crystal(X2 : 100MHz) on CTRL B/D (Full White Pattern)

## 4. Shift breakdown component compatibility consideration

### 4-1. Scan IC follows in application, compatibility of Y DRV Top, Bottom B/D

- (1) When B/D applied SN755866 is breakdown, you must mutually only replace Top B/D and Bottom B/D applied SN755866.
- (2) When IC of B/D applied SN755866 IC is breakdown, you must only replace SN755866 IC. Different IC application being not right




※ When replacing the IC, notice  
To prevent dust, fix the same IC after removing the silicon  
and then it again stick the IC.


Silicon Part No. : 7254Q00002A (Tube Type)  
7254Q00002B (Can Type)
















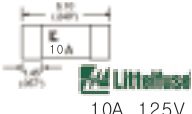
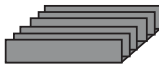




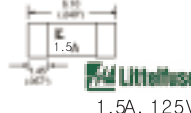
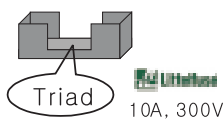








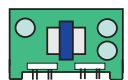
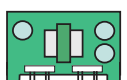













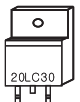




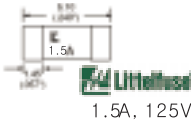







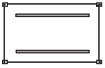

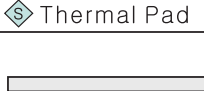








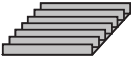
## VI. Safety Components List

(1) The safety components list of PDP50X3#### Model is as below.

(2) A component of  mark is important to keep product's security. Therefore in exchanging a component, appointed component is necessary used.

(3)  is an abbreviated word which is instead of <Safety>mark.

	C26,57,58	C8,9,10,11	C143
	 Samwha	 Samwha	 Samwha
IC101	FL1	D 35,36	 FS2,3
 NATIONAL LM2585S	 NIGATA STC682D	 SHINDENGEN F20LC30	 T4.0AH, 250V
 T101	 L201,202,203	 FS1	 IC201,202
 GET Plus 10pin W020A, 15uH	 GET Plus( ) 0.9uH D0018A	 10A, 125V	 Heatsink(IPM) 100*81*24*1mm
 FS4	 Fuse holder	 FL2	 P20
 1.5A, 125V	 Triad 10A, 300V	 GET Plus( ) Woolim( ) 620QB8011J 60uH	 Optical Isolator Auk Corp. SPC717M( )
 HS1	 HS2,3	 PS101	 PS102
 Heat Sink 112*30*35*1mm	 Heat Sink 60*15*25*1mm	 LG Innotek YPCD-J002D	 LG Innotek YPCD-J003D
 T20	 T20	 P20	
 SamWha Tecom 0047W-F, 940uH	 SamWha Tecom 0047U-F, 1.2mH	 Optical Isolator Auk Corp. SPC717M( )	
	C153,154	C7,23,24,28	C65,74,75
	 Samwha	 Samwha	 Samwha
FL151	D201,202,203	 T2	 L201,202,203
 NIGATA STC682D	 SHINDENGEN F20LC30	 GET Plus 10pin W015A, 3.2mH	 GET Plus( ) 0.9uH D0014A

 <p>FS1</p> <p>1.5A, 125V</p>	 <p>FL152</p> <p>GET Plus( ) Woolim( ) 6200JB8011J</p>	 <p>IC7,5</p> <p>Heatsink(IPM) 100*81*24*1 (mm)</p>	
	 <p>FPC</p>	 <p>50"Frame</p>	 <p>50"Glass</p>
 <p>Panel</p>	 <p>YoungPoongYO'serise( ) DaeduckGDSF1-0 ( ) flammability : 94V-0</p>	 <p>Muyang</p> <p>1190*700*1.5 (mm)</p>	 <p>Asahi glass</p> <p>Front:1164*650*2.5(mm) Back:1144*670*2.5(mm)</p>
	 <p>Thermal Pad</p>	 <p>TCP</p>	 <p>TCP Heat Sink</p>
 <p>X B/D</p>	 <p>Dow Corning TP 2460( )</p>	 <p>UBE Industries (C)S(I) ( ) Flammability : VTM-0</p>	 <p>Heat Sink (TCP) 561*63*30*1.2 (mm)</p>
	 <p>IC1</p>		
 <p>CTRL B/D</p>	 <p>Heat Sink(ASIC) 30*30*4*2 (mm)</p>		

## VII. Records of Revision for Boards, components and ROM DATA

## 1. Boards

[illegible]

## 2. COMPONENTS

No.	Date	Board	Part Number	Note
1	2005.05.01	YSUSIPM(IC201,IC202)	4921QP1038A	Initial Product
2	2005.05.01	ZSUS IPM(IC7,IC5)	4921QP1033A	Initial Product
3	2005.05.01	Y Path FET Ass'y(HS1)	4921QF5004A	Initial Product
4	2005.05.01	DDPACK_D2(PS101)	6871QEH022A	Initial Product
5	2005.05.01	DDPACK_D3(PS102)	6871QEH023A	Initial Product
6	2005.05.01	MCM LGPCMx1224	6001QX0004A	Initial Product
7	2005.05.01	CRYSTAL(X2)	6212AB4004A	Initial Product
8	2005.05.01	TCP	0ILNR00018A	Initial Product

English

### 3. ROM DATA

[illegible]

# Spare Parts List

## Spare Parts List BDH4241V/00

Pos.Nr	Factory Code	12NC	Description 1	Description 2
1	RPPM42X32000	9965 000 39122	DISPLAY, PLASMA COLOUR	PDP42X32000 (X3 HD SANKEN)
2	6871QCH077A	9965 000 41761	ELECTR. UNIT, TV	CTRL ASSY HAND INSERT 42HD 42"
3	6871QDH117A	9965 000 41762	PR.CIRCUIT, T.V.	YDRV ASSY HAND INSERT 42HD 42"
4	6871QLH059A	9965 000 41766	PR.CIRCUIT, T.V.	XRLT ASSY HAND INSERT 42HD 42"
5	6871QRH068A	9965 000 41768	PR.CIRCUIT, T.V.	XRRT ASSY HAND INSERT 42HD 42"
6	6871QYH053B	9965 000 41771	PR.CIRCUIT, T.V.	YSUS ASSY HAND INSERT 42HD 42"
7	6871QZH056B	9965 000 41772	PR.CIRCUIT, T.V.	ZSUS ASSY HAND INSERT 42HD 42"
8	3501Q00201A	9965 000 41773	PR.CIRCUIT, T.V.	42 42X3 SANKEN PSU FOR 42X3 M
9	RPFG42SSSC7	9965 000 39123	PLATE, GLASS	PS08OZ001
10	PDPA3002C0	9965 000 39124	MECH. UNIT, TV	ALL BLACK(PHILIPS), B/D : NEXTIE
11	RPBAMAS4B03	9965 000 39125	PR.CIRCUIT, MONITOR	NP-42MAIN-W/O HDMI,2TUNER-03
12	RPBASBS4D03	9965 000 39126	PR.CIRCUIT, MONITOR	NP-42SUB-2SCART,MONITOR-03
13	RPBACOS4A03	9965 000 39127	PR.CIRCUIT, MONITOR	NP-42CONTROL-S4-03
14	RPCS429313128C	9965 000 39128	CONNECTOR, ELECTRICAL OTHERS	429-31P 31P=280CORE
15	RPCS429141439C	9965 000 34391	CONNECTOR, ELECTRICAL OTHERS	CONN ASS'Y CONTROL 14/480/14 ROH
16	RPCS429633333	9965 000 34392	CONNECTOR, ELECTRICAL OTHERS	CONN ASS'Y SPEAKER 6/330/3 330/3
17	PDPA300351	9965 000 39132	MECH. UNIT, TV	AL3003 1.2T, ADD LEFT RIGHT VENT
18	PDP2400C01	9965 000 34397	BRACKET, PLASTIC	BKT PCB COVER
19	PDP2400Z92	9965 000 39136	BRACKET, PLASTIC	AL5052 1.0T, 582.6 X 255.3 X 49.
20	PDP2401E60	9965 000 34352	BRACKET, PLASTIC	BKT IO NEXTIER-9M
21	PDP3300F10	9965 000 39142	GASKET, PLASTIC	NI GASKET, 498.0 X 8.0 X 2.0T, R
22	PDP3300L00	9965 000 36721	GASKET, PLASTIC	GASKET 1.0T X 280.0 X 30.0, ROHS
23	PDP3300K01	9965 000 36727	GASKET, COPPER	GASKET, 160.0 X 10.0 X 0.5T, ROH
24	PDP3300S00	9965 000 39143	GASKET, PLASTIC	NI GASEKT, 150.0X28.0X12.0, ROHS
25	PDP3300F20	9965 000 39144	GASKET, PLASTIC	AL GASKET, 498.0X8.0X2.0T, ROHS
30	PDP0901L01	9965 000 34367	PLATE, NAME	PLATE PHILIPS
39	RPASRNR09A1	9965 000 36731	REMOTE CONTROL	NR-9A01(PHILIPS)
40	RPASPEUR111	9965 000 36733	CORD, MAINS	G4GFA1D1B01-2200 SEMYOUNG(EUROP
41	RPASPUK1111	9965 000 36732	CORD, MAINS	JB39-00013A SEMYOUNG(UNITED KING
43	RLASCDVIMD0	9965 000 36734	CABLE, CONNECTING	MD-036 (18 1P)DVI-D TO DVI-DCABL
44	RPASCVGA013	9965 000 36735	CABLE, CONNECTING	SM-071-13 15P SIGNAL CABLE 1.5M
45	RPSH1261103	9965 000 39151	ELECTR. UNIT, MONITOR	FB-12611LH-03-9050
46	PDPA100G30	9965 000 34402	FOOT, PLASTIC	ASS'Y FOOT-NX42

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## Spare Parts List BDS4241V/00

Pos. Nr	Factory Code	12NC	Description 1	Description 2
1	RPPM42V7M462	9965 000 41782	DISPLAY, PLASMA COLOUR	PDP42V7M462 (V7), WITH SAMSUNG
2	6871QCH053E	9965 000 41783	PR.CIRCUIT, T.V.	CTRL ASSY HAND INSERT 42V7 C
3	6871QDH084A	9965 000 27809	PR.CIRCUIT, T.V.	Y-D TOP BOARD 42V7
4	6871QDH085A	9965 000 27810	PR.CIRCUIT, T.V.	Y-D BTM BOARD 42V7
5	6871QLH047D	9965 000 27811	PR.CIRCUIT, T.V.	XRLT 42V7 XL
6	6871QRH055D	9965 000 27812	PR.CIRCUIT, T.V.	XRRT 42V7 XR
7	6871QYH036C	9965 000 27813	PR.CIRCUIT, T.V.	YSUS 42V7
8	6871QZH041A	9965 000 27814	PR.CIRCUIT, T.V.	ZSUS 42V7 ZSU
9	3501Q00160A	9965 000 41784	PR.CIRCUIT, T.V.	42 SAMSUNG PSU FOR 42V7 MODUL
10	RPFG42SSSC7	9965 000 39123	PLATE, GLASS	PS08OZ001
11	PDPA3004A0	9965 000 34386	FRONT PANEL, PLASTIC	ASS'Y COVER FRONT
12	RPBAMAS4B03	9965 000 39125	PR.CIRCUIT, MONITOR	NP-42MAIN-W/O HDMI,2TUNER-03
13	RPBASBS4D03	9965 000 39126	PR.CIRCUIT, MONITOR	NP-42SUB-2SCART,MONITOR-03
14	RPBACOS4A03	9965 000 39127	PR.CIRCUIT, MONITOR	NP-42CONTROL-S4-03
15	RPCS429313128C	9965 000 39128	CONNECTOR, ELECTRICAL OTHERS	429-31P 31P=280CORE
16	RPCS429141439C	9965 000 34391	CONNECTOR, ELECTRICAL OTHERS	CONN ASS'Y CONTROL 14/480/14 ROH
17	RPCS429633333	9965 000 34392	CONNECTOR, ELECTRICAL OTHERS	CONN ASS'Y SPEAKER 6/330/3 330/3
18	PDPA300342	9965 000 41785	MECH. UNIT, TV	AL3003 1.2T,1020.0X617.0X65.8,L
19	PDP2400C01	9965 000 34397	BRACKET, PLASTIC	BKT PCB COVER
20	PDP2400Z83	9965 000 41786	MECH. UNIT, TV	AL5052 1.0T, 582.6 X 255.3 X 37
21	PDP2401E60	9965 000 34352	BRACKET, PLASTIC	BKT IO NEXTIER-9M
22	PDP3300F10	9965 000 39142	GASKET, PLASTIC	NI GASKET, 498.0 X 8.0 X 2.0T, R
23	PDP3300J00	9965 000 34400	SHIELD, PROTECTIVE, PLASTIC	SHIELD CONTROL
24	PDP3300K01	9965 000 36727	GASKET, COPPER	GASKET, 160.0 X 10.0 X 0.5T, ROH
25	PDP3300S00	9965 000 39143	GASKET, PLASTIC	NI GASEKT, 150.0X28.0X12.0, ROHS
26	PDP3300F20	9965 000 39144	GASKET, PLASTIC	AL GASKET, 498.0X8.0X2.0T, ROHS
29	PDP0901L01	9965 000 34367	PLATE, NAME	PLATE PHILIPS
40	RPASRNR09A1	9965 000 36731	REMOTE CONTROL	NR-9A01(PHILIPS)
41	RPASPUK1111	9965 000 36732	CORD, MAINS	JB39-00013A SEMYOUNG(UNITED KING
42	RPASPEUR111	9965 000 36733	CORD, MAINS	G4GFA1D1B01-2200 SEMYOUNG(EUROP
44	RLASCDVIMD0	9965 000 36734	CABLE, CONNECTING	MD-036 (18 1P)DVI-D TO DVI-DCABL
45	RPASCVGA013	9965 000 36735	CABLE, CONNECTING	SM-071-13 15P SIGNAL CABLE 1.5M
46	PDPA100G30	9965 000 34402	FOOT, PLASTIC	ASS'Y FOOT-NX42
47	RPSH1261103	9965 000 39151	ELECTR. UNIT, MONITOR	FB-12611LH-03-9050

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## Spare Parts List BDH5021V/00

Pos.Nr	Factory Code	12NC	Description 1	Description 2
1	RPPM50X3T000	9965 000 41804	DISPLAY, PLASMA COLOUR	PDP50X3T000 (50 X3 LG REV.01)
2	6871QCH059A	9965 000 41806	PR.CIRCUIT, T.V.	CTRL ASSY HAND INSERT HAND INS
3	6871QDH088A	9965 000 41809	PR.CIRCUIT, T.V.	YDRV ASSY HAND INSERT 50X3 YDR
4	6871QDH089A	9965 000 41811	PR.CIRCUIT, T.V.	YDRV ASSY HAND INSERT 50X3 YDR
5	6871QLH049A	9965 000 41813	PR.CIRCUIT, T.V.	XRLT ASSY HAND INSERT 50X3 X-L
6	6871QRH057A	9965 000 41814	PR.CIRCUIT, T.V.	XRRT ASSY HAND INSERT 50X3 X-
7	6871QXH030A	9965 000 41815	PR.CIRCUIT, T.V.	XRCT ASSY HAND INSERT _ 50X3 X
8	6871QYH039A	9965 000 41816	PR.CIRCUIT, T.V.	YSUS ASSY HAND INSERT FOR 50X3
9	6871QZH044A	9965 000 41817	PR.CIRCUIT, T.V.	ZSUS ASSY HAND INSERT FOR 50X3
10	6871QIH001A	9965 000 41818	PR.CIRCUIT, T.V.	50" X3 MAIN PSU LG
11	RPPG50TAA01	9965 000 36702	PLATE, GLASS	FG501TAA-01
12	PDPA200J40	9965 000 36703	FRONT PANEL, PLASTIC	ALL BLACK(PHILIPS)B/D:NEXTIER,EN
13	RPBAMAS4B03	9965 000 39125	PR.CIRCUIT, MONITOR	NP-42MAIN-W/O HDMI,2TUNER-03
14	RPBASBS4D03	9965 000 39126	PR.CIRCUIT, MONITOR	NP-42SUB-2SCART,MONITOR-03
15	RPBACOS50H4A03	9965 000 41821	PR.CIRCUIT, T.V.	NP-50CONTROL-H4-03
16	RPCS509313112C	9965 000 39239	CABLE, CONNECTING	509-31P 31P=120CORE
17	RPCS429141448C	9965 000 36706	CABLE, CONNECTING	429-14P 14P=480 CORE
18	RPCS429633333	9965 000 34392	CONNECTOR, ELECTRICAL OTHERS	CONN ASS'Y SPEAKER 6/330/3 330/3
19	RPFZCAT2132	9965 000 36710	CORE, FERRITE	ZCAT2132-1130
20	PDPA300523	9965 000 39235	MECH.UNIIT, TV	AL5052 1.0T, 778X148.9X69.3
21	PDP2402202	9965 000 36712	REAR COVER	AL 3003 1.2T, 1198.0X714.0X70.5
22	PDP2400C01	9965 000 34397	BRACKET, PLASTIC	BKT PCB COVER
23	PDP2401E91	9965 000 39228	BRACKET, PLASTIC	AL5052 1.0T, 9-BOARD, MONITOR
24	PDP2401J14	9965 000 39229	BRACKET, PLASTIC	AL5052 1.0T, 608.6 X 221.0 X 76.
25	PDP3300L00	9965 000 36721	GASKET, PLASTIC	GASKET 1.0T X 280.0 X 30.0, ROHS
26	PDP3300M10	9965 000 39231	GASKET, PLASTIC	AL GASKET 3.0 X 710.0 X 9.0, ROH
27	PDP3300N10	9965 000 39232	GASKET, PLASTIC	AL GASKET 3.0 X 1175.0 X 9.0, RO
28	PDP3300Q10	9965 000 39233	GASKET, PLASTIC	AL GASKET 3.0 X 213.0 X 9.0, ROH
29	PDP3300R10	9965 000 39234	GASKET, PLASTIC	AL GASKET 3.0 X 744.0 X 9.0, ROH
30	PDP3300K01	9965 000 36727	GASKET, COPPER	GASKET, 160.0 X 10.0 X 0.5T, ROH
31	PDP3300F10	9965 000 39142	GASKET, PLASTIC	NI GASKET, 498.0 X 8.0 X 2.0T, R
32	PDP2800X00	9965 000 36730	SPACER, PLASTIC	EVA75%, 36.5 X 20.0 X 20.0, ROHS
33	PDP3300V00	9965 000 39240	GASKET, PLASTIC	NI GASKET, 95.0 X 10.0 X 1.0T, R
34	PDP3300U00	9965 000 39241	GASKET, PLASTIC	NI GASKET, 65.0 X 10.0 X 1.0T, R
35	PDP3300W00	9965 000 39242	GASKET, PLASTIC	NI GASKET, 60.0 X 10.0 X 1.0T, R
36	PDP3300X00	9965 000 39243	GASKET, PLASTIC	NI GASKET, 190.0 X 6.0 X 6.0T, R
37	PDP3300Y00	9965 000 39244	GASKET, PLASTIC	NI GASKET, 275.0 X 6.0 X 6.0T, R
38	PDP3300Z00	9965 000 39245	GASKET, PLASTIC	NI GASKET, 300.0 X 6.0 X 6.0T, R
39	PDP3301000	9965 000 39246	GASKET, PLASTIC	NI GASKET, 130.0 X 6.0 X 6.0T, R
44	PDP0901L01	9965 000 34367	PLATE, NAME	PLATE PHILIPS
57	RPASRNR09A1	9965 000 36731	REMOTE CONTROL	NR-9A01(PHILIPS)
58	RPASPUK1111	9965 000 36732	CORD, MAINS	JB39-00013A SEMYOUNG(UNITED KING
59	RPASPEUR111	9965 000 36733	CORD, MAINS	G4GFCA1D1B01-2200 SEMYOUNG(EUROP
60	RLASCDVIMD0	9965 000 36734	CABLE, CONNECTING	MD-036 (18 1P)DVI-D TO DVI-DCABL

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## Revision List

Manual xxxx xxx xxxx.0  
First release