HITACHI

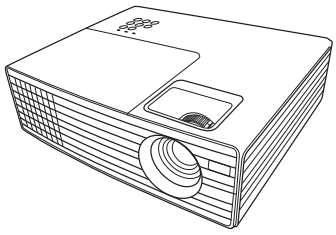
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SERVICE MANUAL

CP-DX250/CP-DX300 (DL1-X25/DL1-X30)

⚠ Warning

The technical information and parts shown in this manual are not to be used for: the development, design, production, storage or use of nuclear, chemical, biological or missile weapons or other weapons of mass destruction; or military purposes; or purposes that endanger global safety and peace. Moreover, do not sell, give, or export these items, or grant permission for use to parties with such objectives. Forward all inquiries to Hitachi Consumer Electronics Co., Ltd.



Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Hitachi Multimedia DLP Projector.
Be sure to read cautionary items described in the manual to maintain safety before servicing.

Service Warning

1. When replace the lamp, to avoid burns to your fingers. The lamp becomes too hot.
2. Never touch the lamp bulb with a finger or anything else. Never drop it or give it a shock. They may cause bursting of the bulb.
3. This projector is provided with a high voltage circuit for the lamp. Do not touch the electric parts of power unit (circuit) and power unit (ballast), after turn on the projector.
4. Do not touch the exhaust fan, during operation.
5. Use the cables which are included with the projector or specified.
6. The pictures and illustrations in this manual are for illustrative purposes.
   They may differ slightly from the projector you work on.

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

Multimedia DLP Projector

December 2012

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Update History

Revision	Chapter	Changes	Date
Rev. 001		Initial version	2012/12/07

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1. Features

The projector integrates high-performance optical engine projection and a user-friendly design to deliver high reliability and ease of use.

The projector offers the following features.
- Presentation timer for better control of time during presentations
- Supports 3D display
- Color Management allowing color adjustments to your liking
- Less than 0.5W power consumption when standby mode is saving
- Wall Color correction allowing projection on surfaces of several predefined colors
- Quick auto search speeding up the signal detecting process
- Multiple sets of preset modes providing choices for different projection purposes
- One-key auto-adjustment to display the best picture quality
- Digital keystone correction to correct distorted images
- Adjustable color management control for data/video display
- High brightness projection lamp
- Ability to display 1.07 billion colors
- Multi-language On-Screen Display (OSD) menus
- Switchable normal and economic modes to reduce the power consumption
- Component HDTV compatibility (YPbPr)

- **The apparent brightness of the projected image will vary depending on the ambient lighting conditions, selected input signal contrast/brightness settings, and is directly proportional to projection distance.**

- **The lamp brightness will decline over time and may vary within the lamp manufacturer's specifications. This is normal and expected behavior.**

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2. Specifications

2.1 Specification Overview

• All specifications are subject to change without notice.

General	
Product name	Projector
Optical	
Resolution	1024 x 768 XGA
Display system	1-CHIP DMD
Lamp	196 W UHP
Electrical	
Power supply	AC 100-120V: 2.9 A, AC 220-240V: 1.4 A
Power consumption	AC 100-120V: 250W, AC 220-240V: 235W
Mechanical	
Weight	Approx. 2.2 kg
Input terminal	
Computer input	
COMPUTER IN1 port	D-Sub 15-pin (female) x 2
COMPUTER IN2 port	
Video signal input	
S-VIDEO port	Mini DIN 4-pin x 1
VIDEO port	RCA x 1
SD/HDTV signal input Analog –	D-Sub <–> Component RCA x 3 (through **COMPUTER IN1**/**COMPUTER IN2** input port)
Digital –	**HDMI** x 1
Audio signal input	
AUDIO IN port	Stereo mini x 1
Output terminal	
MONITOR OUT port	D-Sub 15-pin (female) x 1
AUDIO OUT port	Stereo mini x 1
Speaker	2 watt x 1
Control terminal	
CONTROL port	RS-232 serial control 9 pin x 1
IR receiver	x 1 (Front)
Service terminal	
SERVICE port	USB mini B x 1
Environmental Requirements	
Operating temperature	0℃–40℃ at sea level
Operating relative humidity	10%–90% (without condensation)
Operating altitude	• 0–1499 m at 0℃–35℃ (with **High Altitude Mode 2 (Normal)**) • 1500–3000 m at 0℃–30℃ (with **High Altitude Mode 1 (High)**)

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2.2 Electrical Specification

2.2.1 Timing Table

Supported timing for PC input

Resolution	Mode	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
640 x 480	VGA_60***	59.940	31.469	25.175
	VGA_72	72.809	37.861	31.500
	VGA_75	75.000	37.500	31.500
	VGA_85	85.008	43.269	36.000
800 x 600	SVGA_60***	60.317	37.879	40.000
	SVGA_72	72.188	48.077	50.000
	SVGA_75	75.000	46.875	49.500
	SVGA_85	85.061	53.674	56.250
	SVGA_120* (Reduce Blanking)	119.854	77.425	83.000
1024 x 768	XGA_60***	60.004	48.363	65.000
	XGA_70	70.069	56.476	75.000
	XGA_75	75.029	60.023	78.750
	XGA_85	84.997	68.667	94.500
	XGA_120* (Reduce Blanking)	119.989	97.551	115.500
1152 x 864	1152 x 864_75	75.00	67.500	108.000
1280x720	1280 x 720_60***	60	45.000	74.250
1280 x 768	1280 x 768_60***	59.870	47.776	79.5
1280 x 800	WXGA_60***	59.810	49.702	83.500
	WXGA_75	74.934	62.795	106.500
	WXGA_85	84.880	71.554	122.500
	WXGA_120* (Reduce Blanking)	119.909	101.563	146.25
1280 x 1024	SXGA_60**	60.020	63.981	108.000
	SXGA_75	75.025	79.976	135.000
	SXGA_85	85.024	91.146	157.500
1280 x 960	1280 x 960_60**	60.000	60.000	108
	1280 x 960_85	85.002	85.938	148.500
1360 x 768	1360 x 768_60**	60.015	47.712	85.500
1440 x 900	WXGA+_60**	59.887	55.935	106.500
1400X1050	SXGA+_60**	59.978	65.317	121.750
1600x1200	UXGA**	60.000	75.000	162.000
1680 x 1050	1680 x 1050_60**	59.954	65.290	146.250
640 x 480@67Hz	MAC13	66.667	35.000	30.240
832 x 624@75Hz	MAC16	74.546	49.722	57.280
1024 x 768@75Hz	MAC19	74.93	60.241	80.000
1152 x 870@75Hz	MAC21	75.06	68.68	100.00

- ***Supported timing for 3D signal with Frame Sequential format.**
- ****Supported timing for 3D signal with Top-Bottom and Side-by-Side formats.**
- *****Supported timing for 3D signal with Frame Sequential, Top-Bottom and Side-by-Side formats.**

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Supported timing for HDMI input

Resolution	Mode	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
640 x 480	VGA_60***	59.940	31.469	25.175
	VGA_72	72.809	37.861	31.500
	VGA_75	75.000	37.500	31.500
	VGA_85	85.008	43.269	36.000
800 x 600	SVGA_60***	60.317	37.879	40.000
	SVGA_72	72.188	48.077	50.000
	SVGA_75	75.000	46.875	49.500
	SVGA_85	85.061	53.674	56.250
	SVGA_120* (Reduce Blanking)	119.854	77.425	83.000
1024 x 768	XGA_60***	60.004	48.363	65.000
	XGA_70	70.069	56.476	75.000
	XGA_75	75.029	60.023	78.750
	XGA_85	84.997	68.667	94.500
	XGA_120* (Reduce Blanking)	119.989	97.551	115.500
1152 x 864	1152 x 864_75	75.00	67.500	108.000
1280 x 720	1280x720_60***	60	45.000	74.250
1280 x 768	1280 x 768_60***	59.870	47.776	79.5
1280 x 800	WXGA_60***	59.810	49.702	83.500
	WXGA_75	74.934	62.795	106.500
	WXGA_85	84.880	71.554	122.500
	WXGA_120* (Reduce Blanking)	119.909	101.563	146.25
1280 x 1024	SXGA_60**	60.020	63.981	108.000
	SXGA_75	75.025	79.976	135.000
	SXGA_85	85.024	91.146	157.500
1280 x 960	1280 x 960_60**	60.000	60.000	108
	1280 x 960_85	85.002	85.938	148.500
1360 x 768	1360 x 768_60**	60.015	47.712	85.500
1440 x 900	WXGA+_60**	59.887	55.935	106.500
1400 x 1050	SXGA+_60**	59.978	65.317	121.750
1600 x 1200	UXGA**	60.000	75.000	162.000
1680 x 1050	1680x1050_60**	59.954	65.290	146.250
640x480@67Hz	MAC13	66.667	35.000	30.240
832x624@75Hz	MAC16	74.546	49.722	57.280
1024x768@75Hz	MAC19	75.020	60.241	80.000
1152x870@75Hz	MAC21	75.06	68.68	100.00

- ***Supported timing for 3D signal with Frame Sequential format.**
- ****Supported timing for 3D signal with Top-Bottom and Side-by-Side formats.**
- *****Supported timing for 3D signal with Frame Sequential, Top-Bottom and Side-by-Side formats.**

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Timing	Resolution	Horizontal frequency (KHz)	Vertical frequency (Hz)	Dot Clock Frequency (MHz)
480i*	720 (1440) x 480	15.73	59.94	27
480p	720 x 480	31.47	59.94	27
576i	720 (1440) x 576	15.63	50	27
576p	720 x 576	31.25	50	27
720/50p**	1280 x 720	37.5	50	74.25
720/60p**	1280 x 720	45.00	60	74.25
1080/24P**	1920 x 1080	27	24	74.25
1080/30P	1920 x 1080	33.75	30	74.25
1080/50i***	1920 x 1080	28.13	50	74.25
1080/60i***	1920 x 1080	33.75	60	74.25
1080/50P	1920 x 1080	56.25	50	148.5
1080/60P	1920 x 1080	67.5	60	148.5

- ***Supported timing for 3D signal with Frame Sequential format.**
- ****Supported timing for 3D signal with Frame Packing and Top-Bottom formats.**
- *****Supported timing for 3D signal with Side-by-Side format.**

Supported timing for Component-YPbPr input

Timing	Resolution	Horizontal frequency (KHz)	Vertical Frequency (Hz)	Dot Clock Frequency (MHz)
480i	720 x 480	15.73	59.94	13.5
480p	720 x 480	31.47	59.94	27
576i	720 x 576	15.63	50	13.5
576p	720 x 576	31.25	50	27
720/50p	1280 x 720	37.5	50	74.25
720/60p	1280 x 720	45.00	60	74.25
1080/50i	1920 x 1080	28.13	50	74.25
1080/60i	1920 x 1080	33.75	60	74.25
1080/24P	1920 x 1080	27	24	74.25
1080/30P	1920 x 1080	33.75	30	74.25
1080/50P	1920 x 1080	56.25	50	148.5
1080/60P	1920 x 1080	67.5	60	148.5

Displaying a 1080i(1125i)@60Hz or 1080i(1125i)@50Hz signal may result in slight image vibration.

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Supported timing for Video and S-Video inputs

Video mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Color sub-carrier Frequency (MHz)
NTSC	15.73	60	3.58
PAL	15.63	50	4.43
SECAM	15.63	50	4.25 or 4.41
PAL-M	15.73	60	3.58
PAL-N	15.63	50	3.58
PAL-60	15.73	60	4.43
NTSC4.43	15.73	60	4.43

2.2.2 Characteristics of inputs/outputs

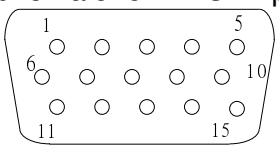
Signal	Parameter	Min	Type	Max	
RDATA GDATA BDATA	Impedance		75		Ohm
	Amplitude		0.7		Volts peak-to-peak
	Black pedestal		0		Volts
	Pixel Clock		165		M Hz
GDATA_SOG	Impedance		75		Ohm
	Amplitude		1		Volts peak-to-peak
	Video amplitude		0.7		Volts peak-to-peak
	Sync amplitude		0.3		Volts peak-to-peak
	Black pedestal		0		Volts
	Pixel Clock		165		M Hz
HDATA	Impedance		1		K ohm
	Amplitude, low level	0		0.8	Volt
	Amplitude, high level	2.5		5	Volt
	Frequency	31		99	K Hz
VDATA	Impedance		1		K ohm
	Amplitude, low level	0		0.8	volt
	Amplitude, high level	2.5		5	Volt
	Frequency	48		120	Hz
SDADATA	Amplitude, low level	0		0.8	volt
	Amplitude, high level	3		5	Volt
SCLDATA	Amplitude, low level	0		0.8	volt
	Amplitude, high level	3		5	Volt
RXD	Amplitude	-25		25	Volt
TXD	Amplitude	-13.2		13.2	Volt
CVBS Luminance	Amplitude, total (video+ sync)		1		Volts peak to peak
	Amplitude, video		0.7		Volts peak to peak
	Amplitude, sync		0.3		Volts peak to peak
	Impedance		75		ohm
CVBS Chroma	Amplitude		700		m Volts peak to peak
	Impedance		75		ohm
Audio	Impedance (audio in)		10		Kohm
	Amplitude (audio in)	0		500	mVolt rms
	Bandwidth	300Hz		16kHz	
	S/N Ratio	40			dB
	Total Harmonic Distortion			10	%

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2.2.3 Electrical Interface Character

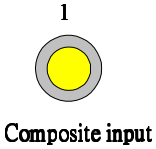
2.2.3.1 Interface Definition：

- 15 pin definition of the mini D-sub female for DDC2B protocol



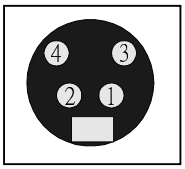
Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
1	Red (Pr)	2	Green (Y)	3	Blue (Pb)	4	NC	5	NC
6	Red return	7	Green return	8	Blue return	9	DDCP 5V	10	GND
11	GND	12	SDA	13	H-sync	14	V-sync	15	SCL

- Video Input



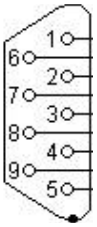
Pin	Definition
1	Composite video input

- S-Video input



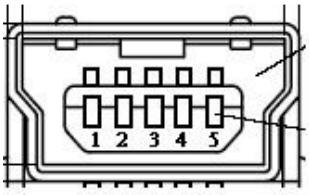
Pin	Definition
1	GND
2	GND
3	Luminance
4	Chroma

- RS232 Control Port



Pin	Definition	Pin	Definition
1	NC	2	RX
3	TX	4	NC
5	GND	6	NC
7	RTSZ	8	CTSZ
9	NC		

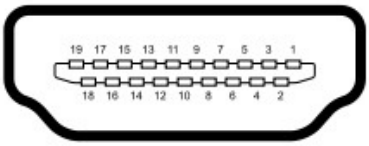
- Mini USB TYPE B



Pin	Definition
1	Vbus
2	D-
3	D+
4	ID
5	GND

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- HDMI Input



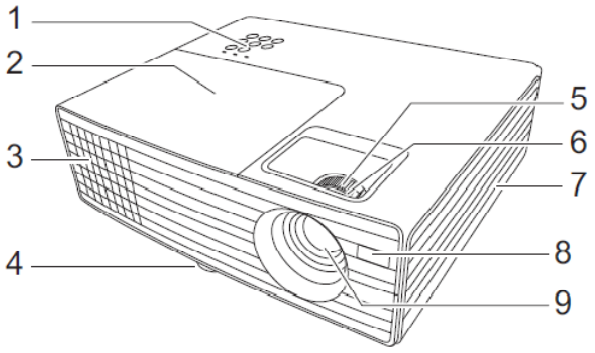
Pin	Pin definition	Pin	Pin definition
1	TMDS Data2+	11	TMDS Clock Shield
2	TMDS Data2 Shield	12	TMDS Clock–
3	TMDS Data2–	13	CEC
4	TMDS Data1+	14	Reserved (N.C. on device)
5	TMDS Data1 Shield	15	SCL
6	TMDS Data1–	16	SDA
7	TMDS Data0+	17	DDC/CEC Ground
8	TMDS Data0 Shield	18	+5V Power
9	TMDS Data0–	19	Hot Plug Detect
10	TMDS Clock+		

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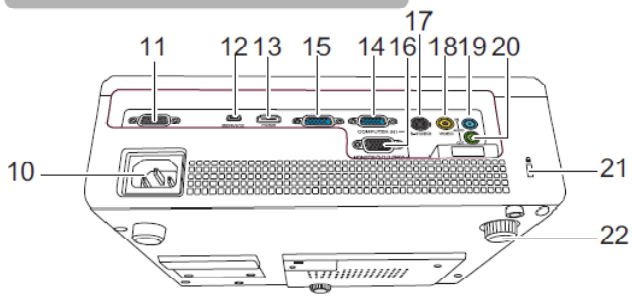
3. Names of Each Part

3.1 Projector Exterior View

Front/upper side



Rear/lower side



1. Control panel (See Control Panel on next page for detail)
2. Lamp cover
3. Vent (heated air exhaust)
4. Front elevator foot
5. Zoom ring
6. Focus ring
7. Vent (cool air intake)
8. Front IR remote sensor
9. Projection lens
10. AC power cord inlet
11. CONTROL port
12. SERVICE port
13. HDMI port
14. COMPUTER IN1 port
15. COMPUTER IN2 port
16. MONITOR OUT port
17. S-VIDEO port
18. VIDEO port
19. AUDIO IN port
20. AUDIO OUT port
21. Security lock slot
22. Rear elevator foot

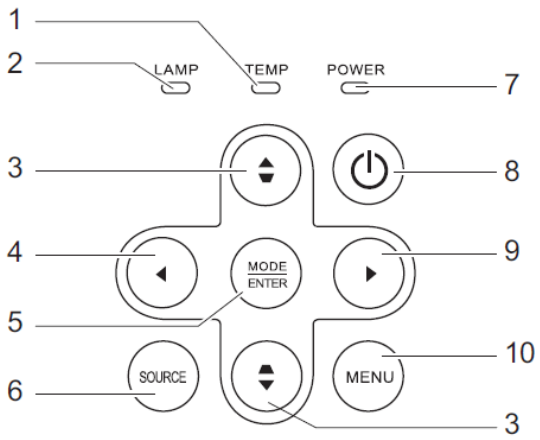
⚠ WARNING

- **THIS APPARATUS MUST BE EARTHED.**
- **When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power plug to an easily accessible socket-outlet near the unit. If a fault should occur during operation of the unit, operate the disconnect device to switch the power supply off, or disconnect the power plug.**

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3.2 Control Panel

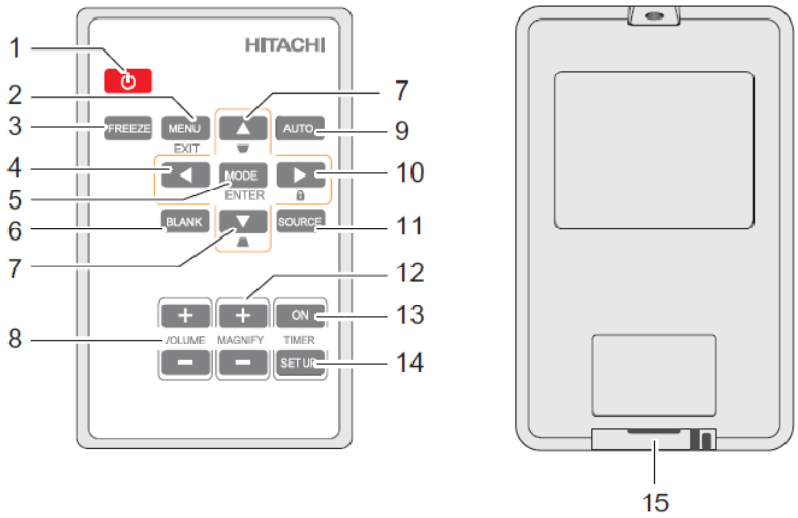


1. **TEMPerature indicator light**
   Lights up red if the projector's temperature becomes too high.
2. **LAMP indicator light**
   Indicates the status of the lamp. Lights up or flashes when the lamp has developed a problem.
3. **Keystone/Arrow keys (▲▼Up, ▼▲Down)**
   Manually corrects distorted images resulting from an angled projection.
4. **◀Left**
   Used to hide the screen picture.
5. **MODE/ENTER**
   Selects an available picture setup mode.
   Enacts the selected On-Screen Display (OSD) menu item.
6. **SOURCE**
   Displays the source selection bar.
7. **POWER indicator light**
   Lights up or flashes when the projector is under operation.
8. ⏻
   Toggles the projector between standby mode and on.
9. **▶Right**
   Activates panel key lock.
   When the On-Screen Display (OSD) menu is activated, the #3, #4, and #9 keys are used as directional arrows to select the desired menu items and to make adjustments.
10. **MENU**
    Turns on the On-Screen Display (OSD) menu. Goes back to previous OSD menu, exits and saves menu settings.

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3.3 Remote Control



1. ⏻
   Toggles the projector between standby mode and on.
2. **MENU/EXIT**
   Turns on the On-Screen Display (OSD) menu. Goes back to previous OSD menu, exits and saves menu settings.
3. **FREEZE**
   Freezes the projected image.
4. **◀Left**
5. **MODE/ENTER**
   Selects an available picture setup mode.
6. **BLANK**
   Used to hide the screen picture.
7. **Keystone/Arrow keys (▲▼Up, ▼▲Down)**
   Manually corrects distorted images resulting from an angled projection.
8. **VOLUME (+, -)**
   Adjusts the sound level.
9. **AUTO**
   Automatically determines the best picture timings for the displayed image.
10. **▶Right**
    Activates panel key lock.
    When the On-Screen Display (OSD) menu is activated, the #3, #4, and #9 keys are used as directional arrows to select the desired menu items and to make adjustments.
11. **SOURCE**
    Displays the source selection bar.
12. **MAGNIFY (+, -)**
    Magnifies or reduces the projected picture size.
13. **TIMER ON**
    Activates or displays an on-screen timer based on your own timer setting.
14. **TIMER SET UP**
    Enters presentation timer setting directly.
15. **Battery cover**

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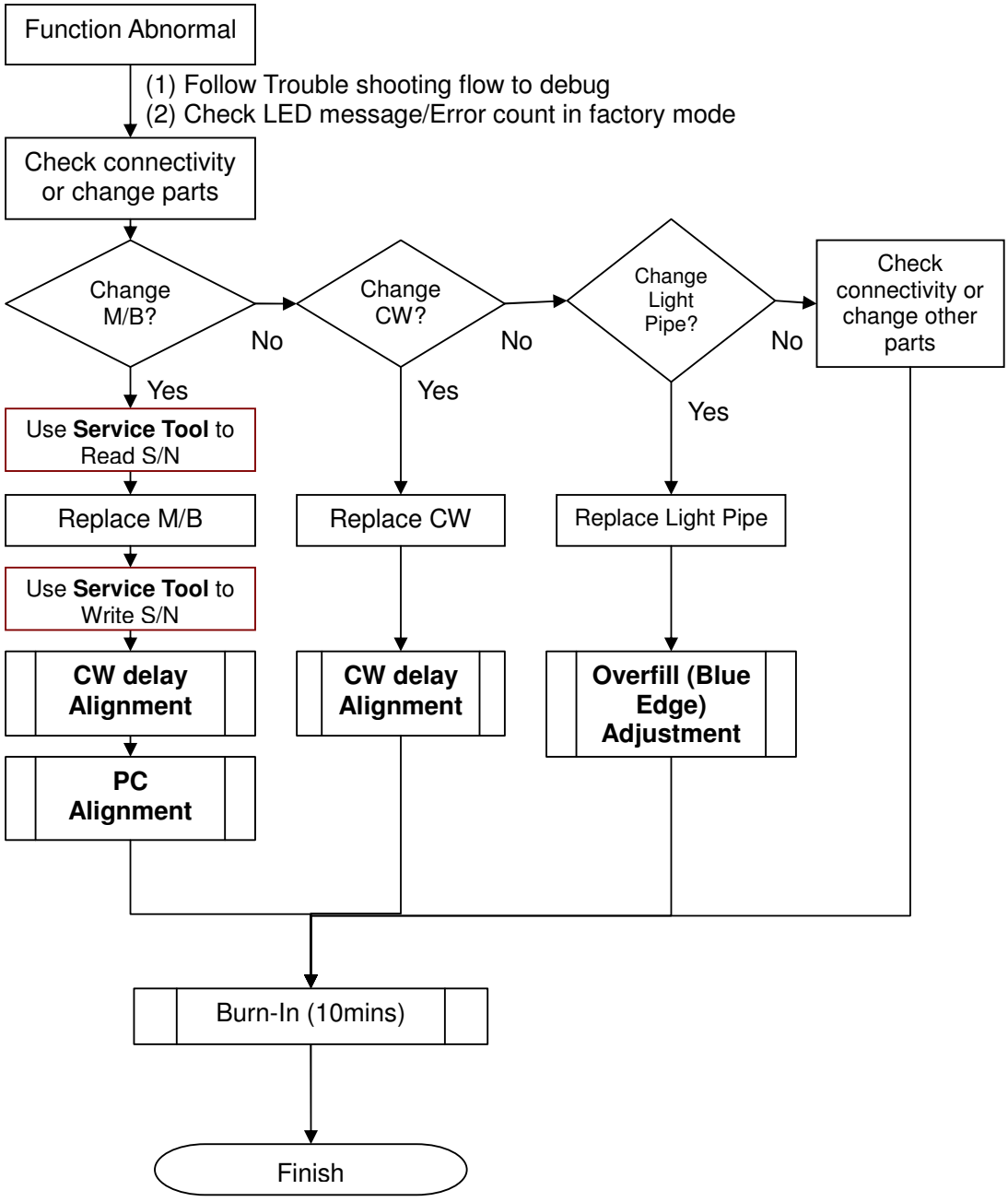
4. Adjustment

4.1 Repair Flow
4.2 Basic Operating For Switching Modes
4.3 Service Tool
4.4 Adjustment and Alignment
  4.4.1 Color Wheel Delay Alignment
  4.4.2 PC Alignment Procedure
  4.4.3 Overfill (Blue-Edge) adjustment

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4.1 Repair Flow



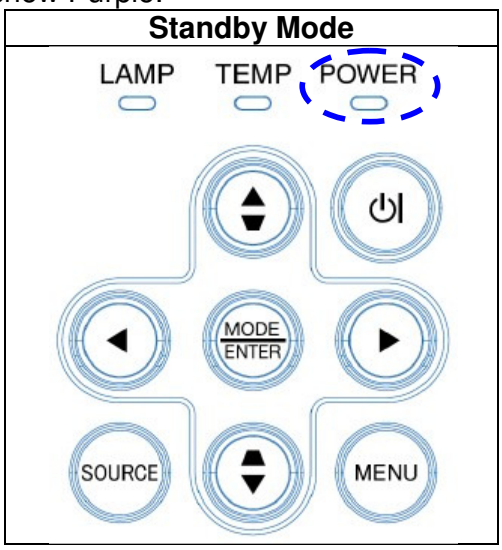
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4.2 Basic Operating For Switching Modes

(1) Standby Mode：

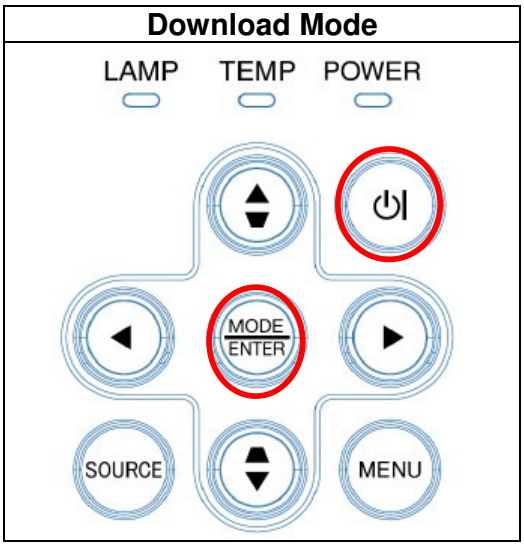
When standby mode, system power consumption will be less than 0.5Watt.
If user wants to enter this mode, user can just plug in power cord. Power LED will show Red for 1 sec then power LED show Purple.



(2) Download Mode：

This mode is applied for Download firmware.

If operators want to enter this mode, they should press and hold **Power** key and **Mode** key together, then plug in power cord. Release the two keypads. Power LED will show red light continuously. In download mode, you can use DLP composer lite program to download new firmware.



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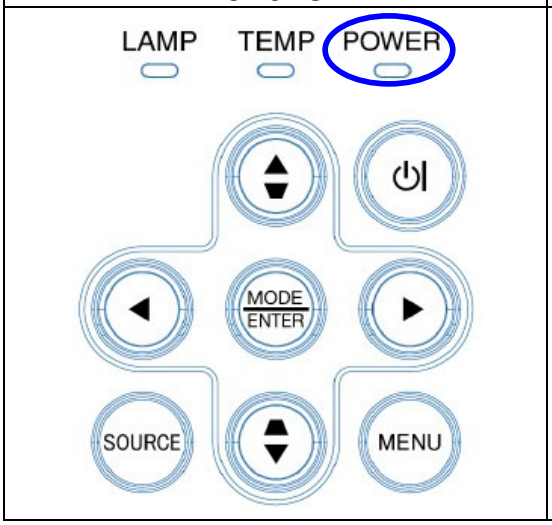
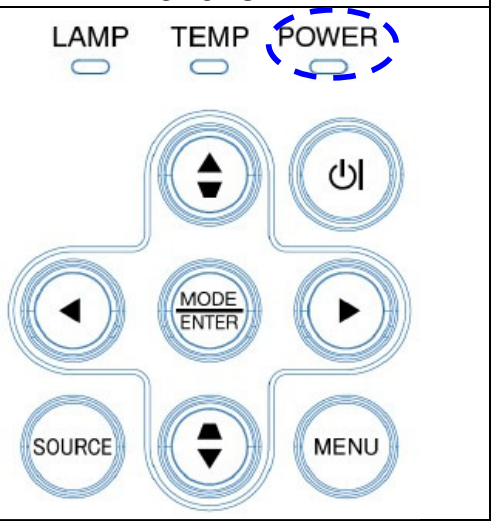
(3) Power On：

User can press Keypad **Power** to turn on projector. User can also use IR remote control to do this action. When turning on, power LED will show blue continuously.

(4) Power Off：

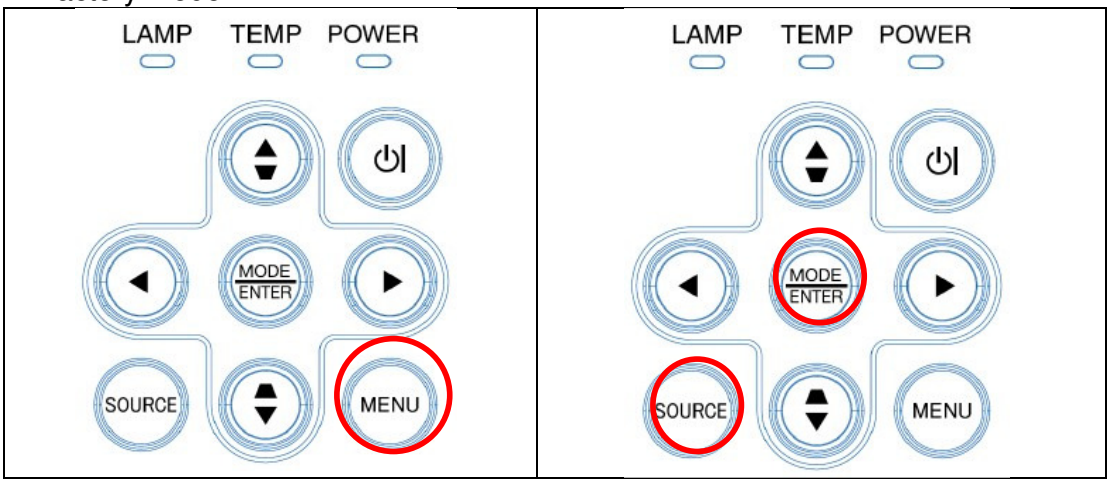
If user wants turn off projector, user can click keypad **Power two times**, or use IR remote control. Then system will cool itself via fans.

During cooling, Power LED will flash Purple (1 time per 1 second). After cooling, System will return to standby and Power LED will show Purple continuously.

Power On	Power Off
	

(5) Method to Enter Factory mode：

1. Press **Menu** key**,** OSD will show the menu image.
2. Then click **SOURCE** key and **MODE/ENTER** key together, system will enter the Factory mode.



<Notice: > Repair center could check Error Count Message in Factory Mode Block 4. (See Section5--Error Count Messages Definition)

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4.3 Service Tool

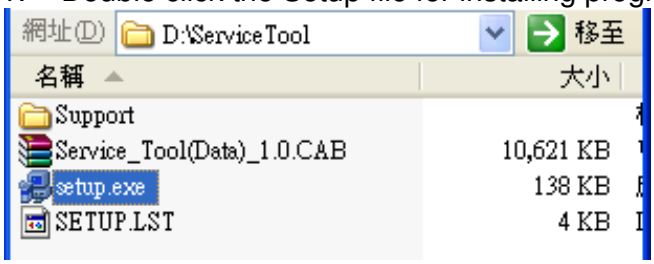
- **When to use service tool:**
  - Before FW re-downloading or replacing a new Main board, need to read data from Main board by service tool.
  - After FW downloading or a replacing a new Main board, need to write data into Main Board by service tool.

- **Service Tool Required :**
  - PC
  - RS-232 cross cable (Cable spec refer to Section 12. RS-232)

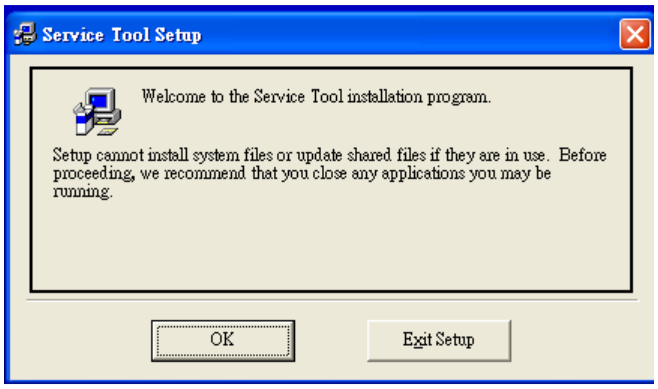
- **Service Tool install procedure (for the first use)**

(1) Installation:

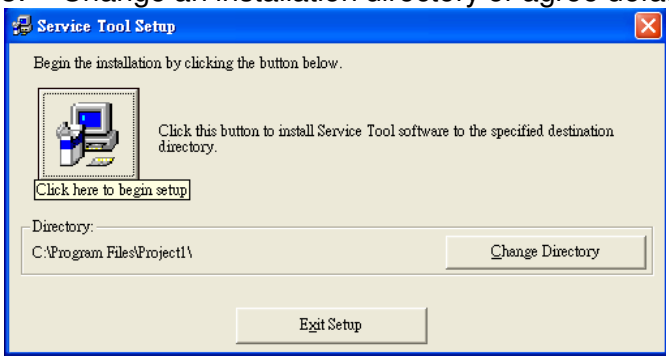
1. Double click the Setup file for installing program.



2. Click “OK.”

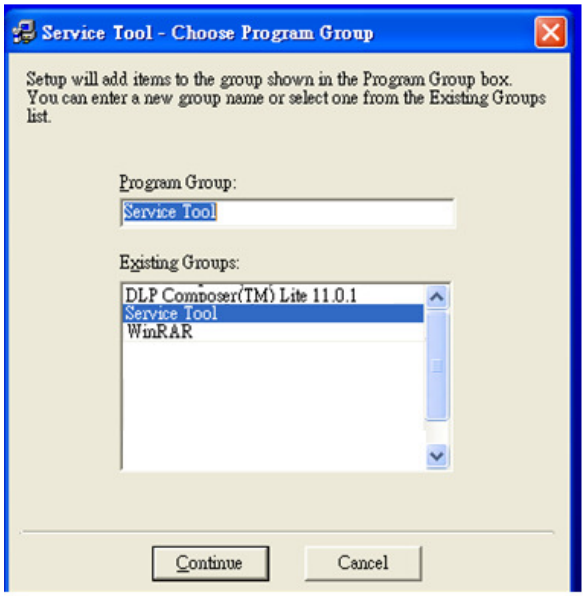


3. Change an installation directory or agree default directory and then click the icon button.



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4. Enter a new group name or select one from the “Existing Groups” list and then click “Continue.”

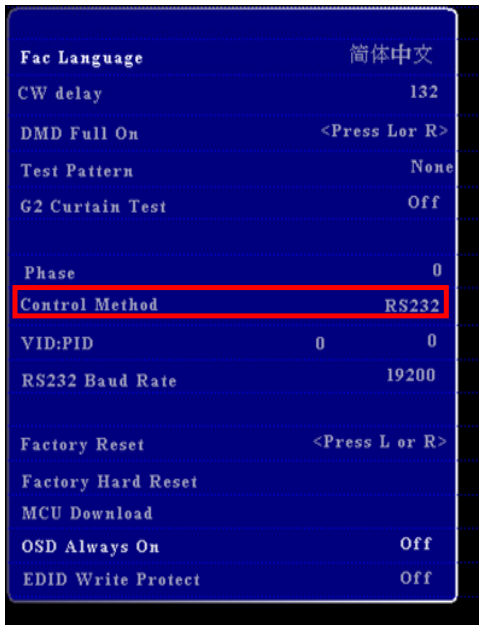


5. Click “OK” and a successful installation is completed.



<Notice: > Before using Service tool, please check the Control Method in Factory Mode Block 1 must be set as “RS232.”



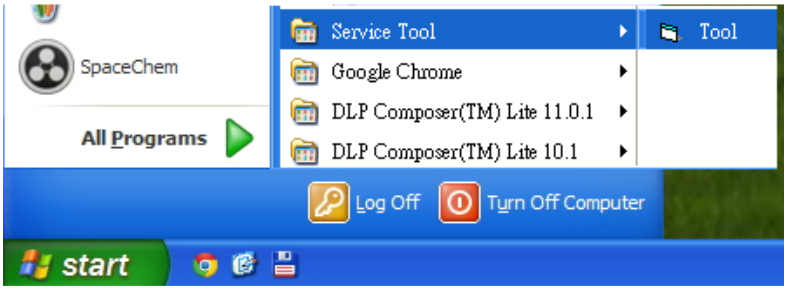


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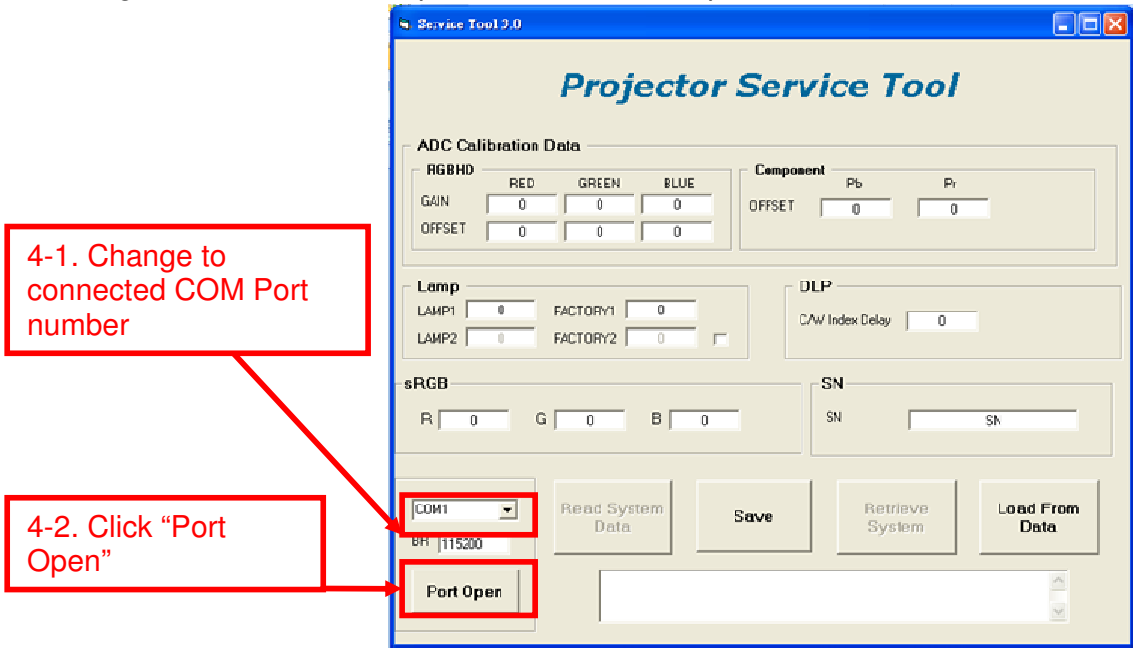
- **How to Use Service Tool**

(1) Read Data From Main Board:

1. Connect PC with projector by a RS232 cable.
2. Turn on projector.
3. From Windows Start Menu -> Select “Service Tool” -> “Tool.”

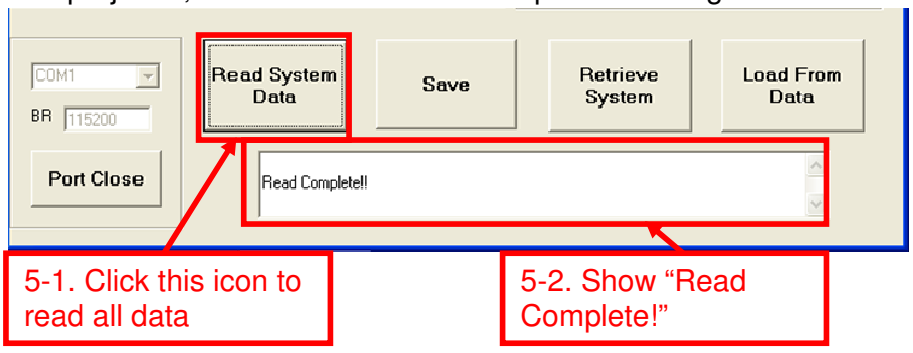


4. Change to connected COM port and Click “Port Open” icon.



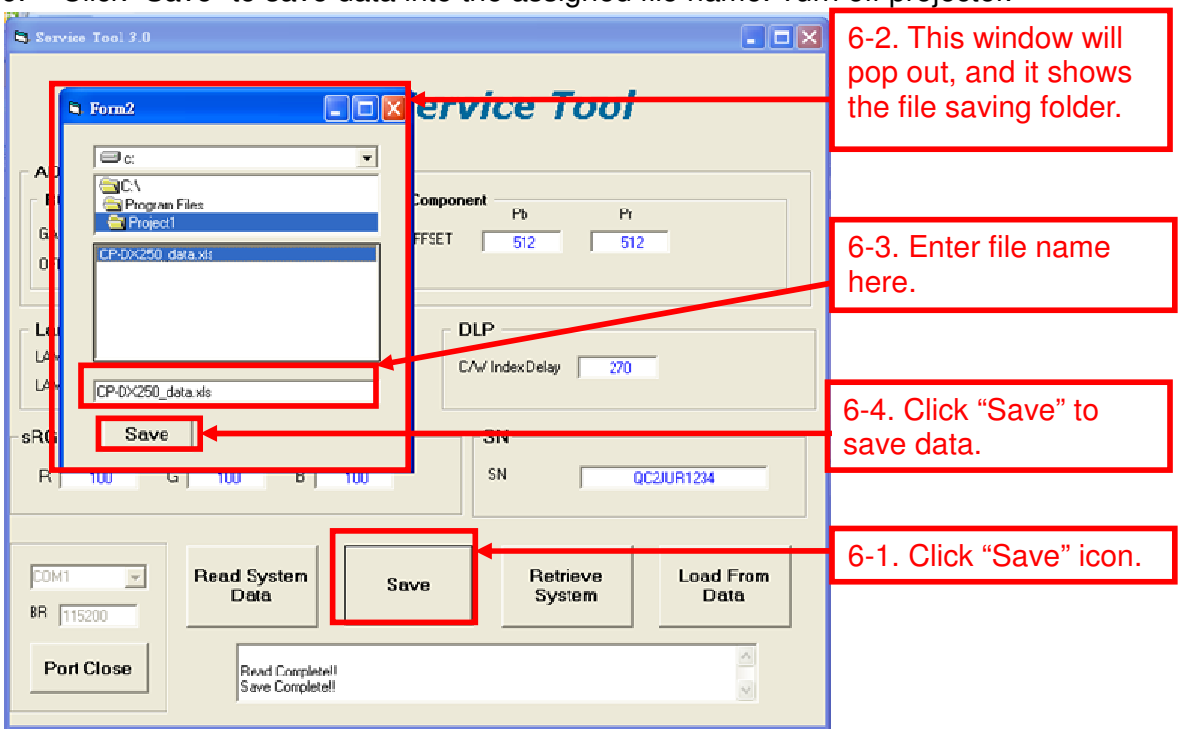
5. Read data from original Main board:

Click “Read system Data”, and it will read the Adjustment data & Serial Number from projector, and show the “Read complete” message in below information block.

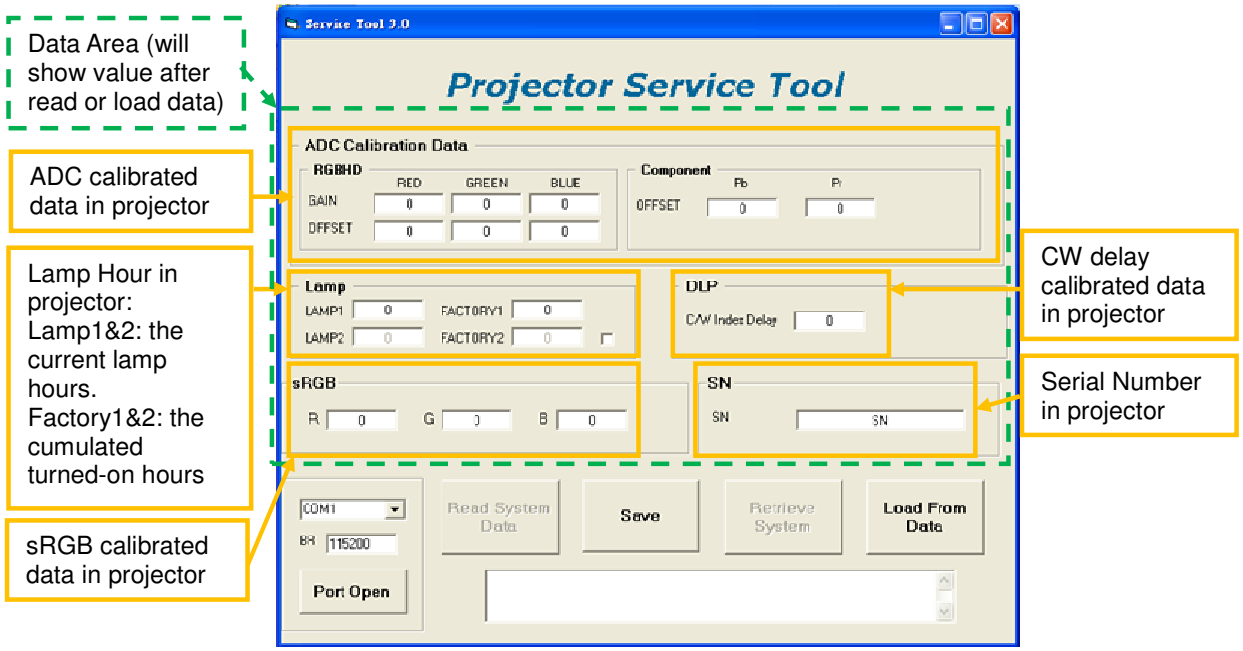


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6. Click “Save” to save data into the assigned file name. Turn off projector.



<Note :> Tool overview:



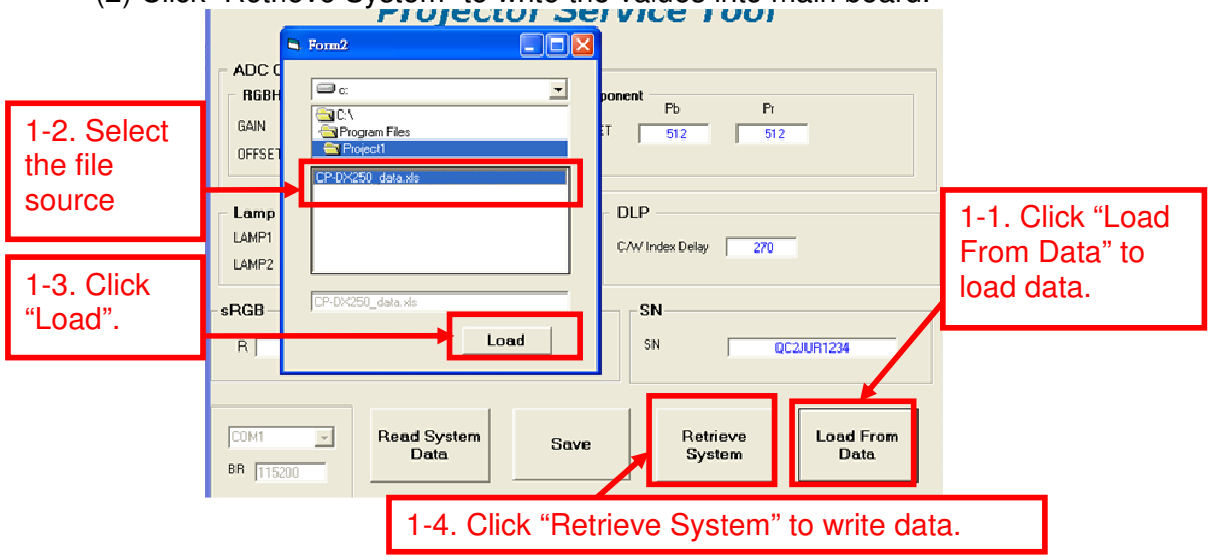
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(2) Write Data into Main Board:

1. After changing Main board, or download firmware, reconnect power cable and RS-232 cable into Projector.

2. "Load From data" & "Retrieve System" :

(1) Click "Load From data" and select load file.
(2) Click "Retrieve System" to write the values into main board.



3. After data is written back, it shows the "Write complete" message in below information block and it is finished.



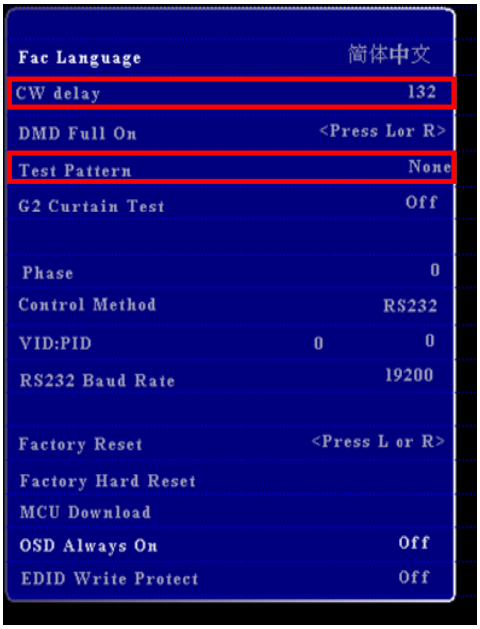
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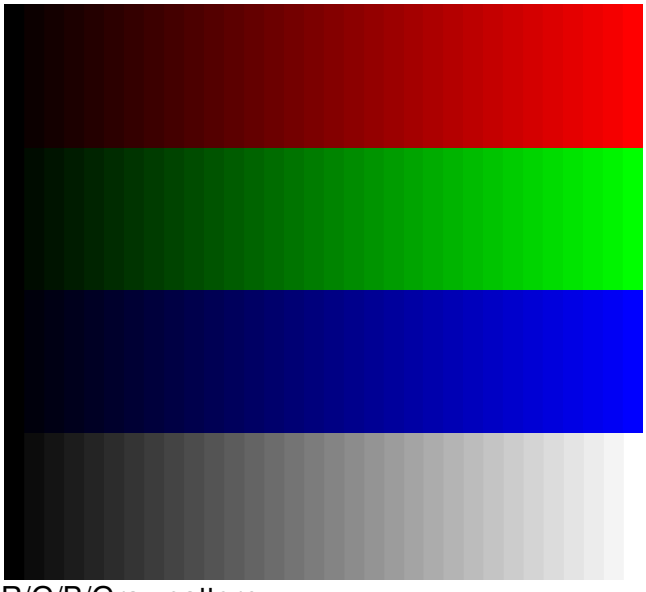
4.4 Adjustment and Alignment

4.4.1 Color Wheel Delay Alignment

Procedure:
1. Enter Factory Mode
2. Enter Block 1
3. Connect PC and display R/G/B/Gray Test Pattern (RGBRAMP).
4. Change CW Delay by adjusting the pattern to smooth.
5. Restore the screen.







R/G/B/Gray pattern

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4.4.2 PC Alignment Procedure

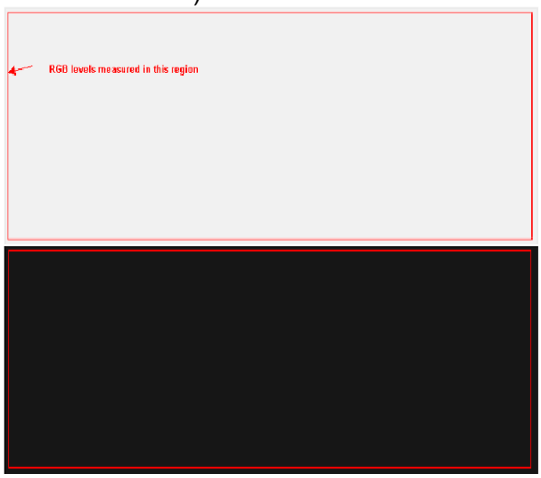
Equipment：

- Pattern generator

  (Notice: If uses PC, the signal level is calibrated to this PC)

OSD Default value：

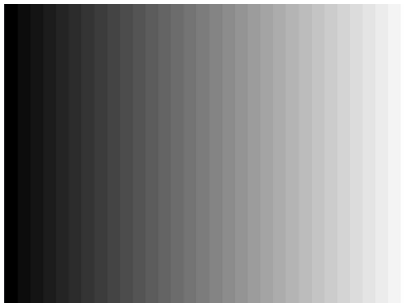
Item	Value
Cal R Offset	512
Cal G Offset	512
Cal B Offset	512
Cal R Gain	1024
Cal G Gain	1024
Cal B Gain	1024
YPbPr R Offset	512
YPbPr B Offset	512



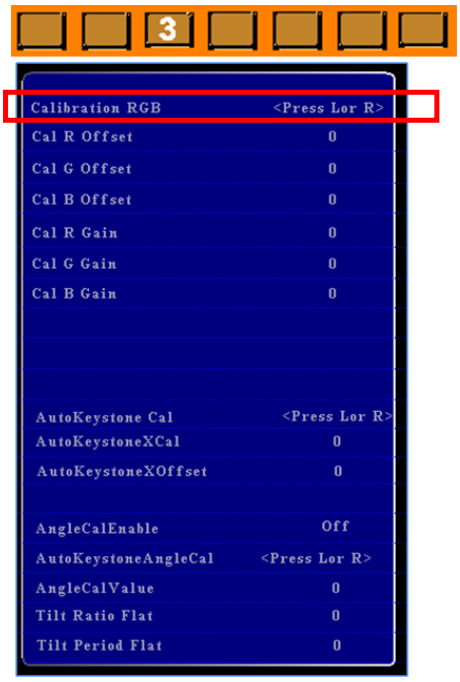
Pattern: A near white color (240/255, 240/255, 240/255) and a near black color (16/255, 16/255, 16/255)

Procedure：

1. Connect power cord, D-sub cable, and pattern generator(or PC) into projector
2. Turn on projector.
3. Change **Timing** of pattern generator:
   Timing: 1024*768 @60Hz (XGA models)
4. Change Pattern of pattern generator:
   Pattern: A near white color (240/255, 240/255, 240/255) and a near black color (16/255, 16/255, 16/255).
5. Press “Auto” to catch the full screen
6. Enter Factory Mode:
7. Choose Block 3.
8. Press Left or Right key on "**Calibration RGB**". The signal level, "16/255" and "240/255" are caught and the ADC range, min and max level are calculating from them.
9. Change Pattern of pattern generator to 32 levels of Gray. Check the pattern if all steps appear.
10. Done



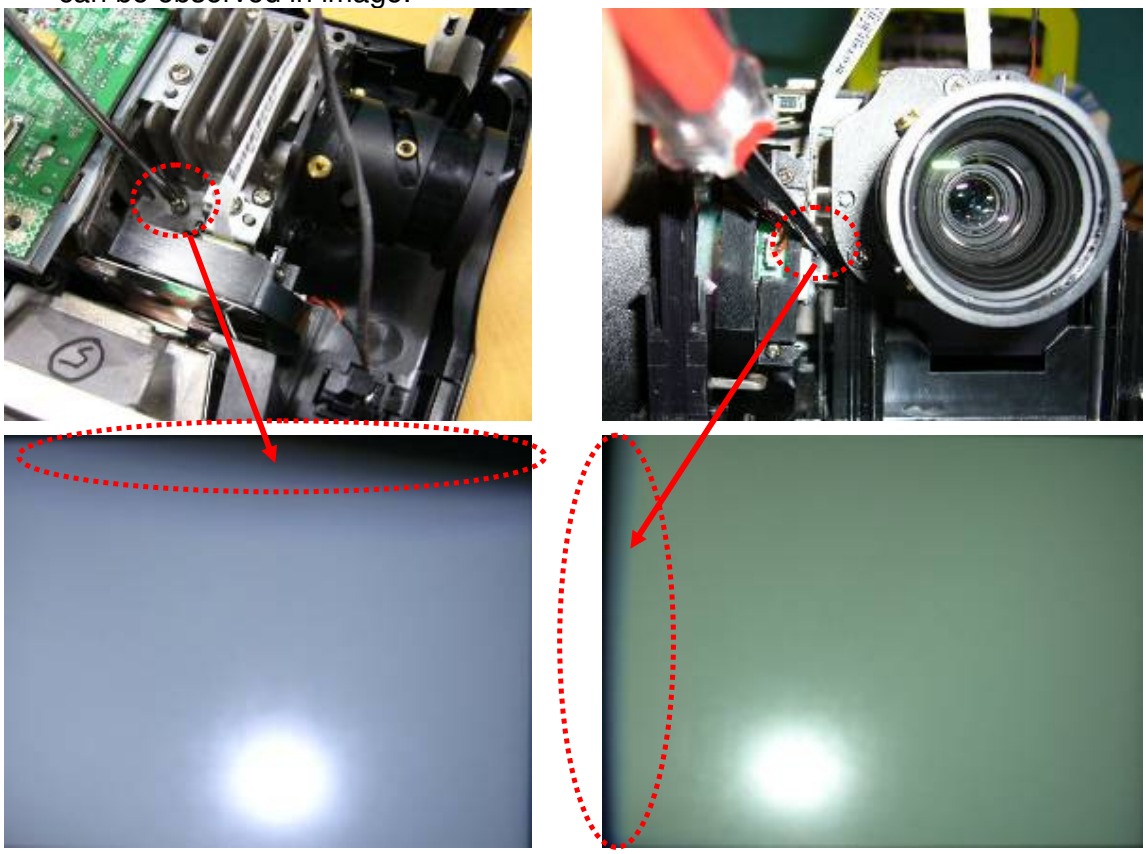
32 Gray pattern



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4.4.3 Overfill (Blue-Edge) adjustment

1. “Full White Pattern” is suggested for this alignment.
2. Adjust 2 Overfill adjustment screws (upper side / lower front side of Optical Engine) behind Color Wheel.
3. Alignment Criteria is to adjust these 2 screws until “No Dark Edges” and “No Shadows” can be observed in image.



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5. Troubleshooting

5.1 Basic Trouble Shooting for End Customer

⑦ The projector does not turn on.

Cause	Remedy
There is no power from the power cord.	Plug the power cord into the AC inlet on the projector, and plug the power cord into the power outlet. If the power outlet has a switch, make sure that it is switched on.
Attempting to turn the projector on again during the cooling process.	Wait until the cooling down process has completed.

⑦ No picture

Cause	Remedy
The video source is not turned on or connected correctly.	Turn the video source on and check that the signal cable is connected correctly.
The projector is not correctly connected to the input signal device.	Check the connection.
The input signal has not been correctly selected.	Select the correct input signal with the **SOURCE** key on the projector or remote control.

⑦ Blurred image

Cause	Remedy
The projection lens is not correctly focused.	Adjust the focus of the lens using the focus ring.
The projector and the screen are not aligned properly.	Adjust the projection angle and direction as well as the height of the projector if necessary.

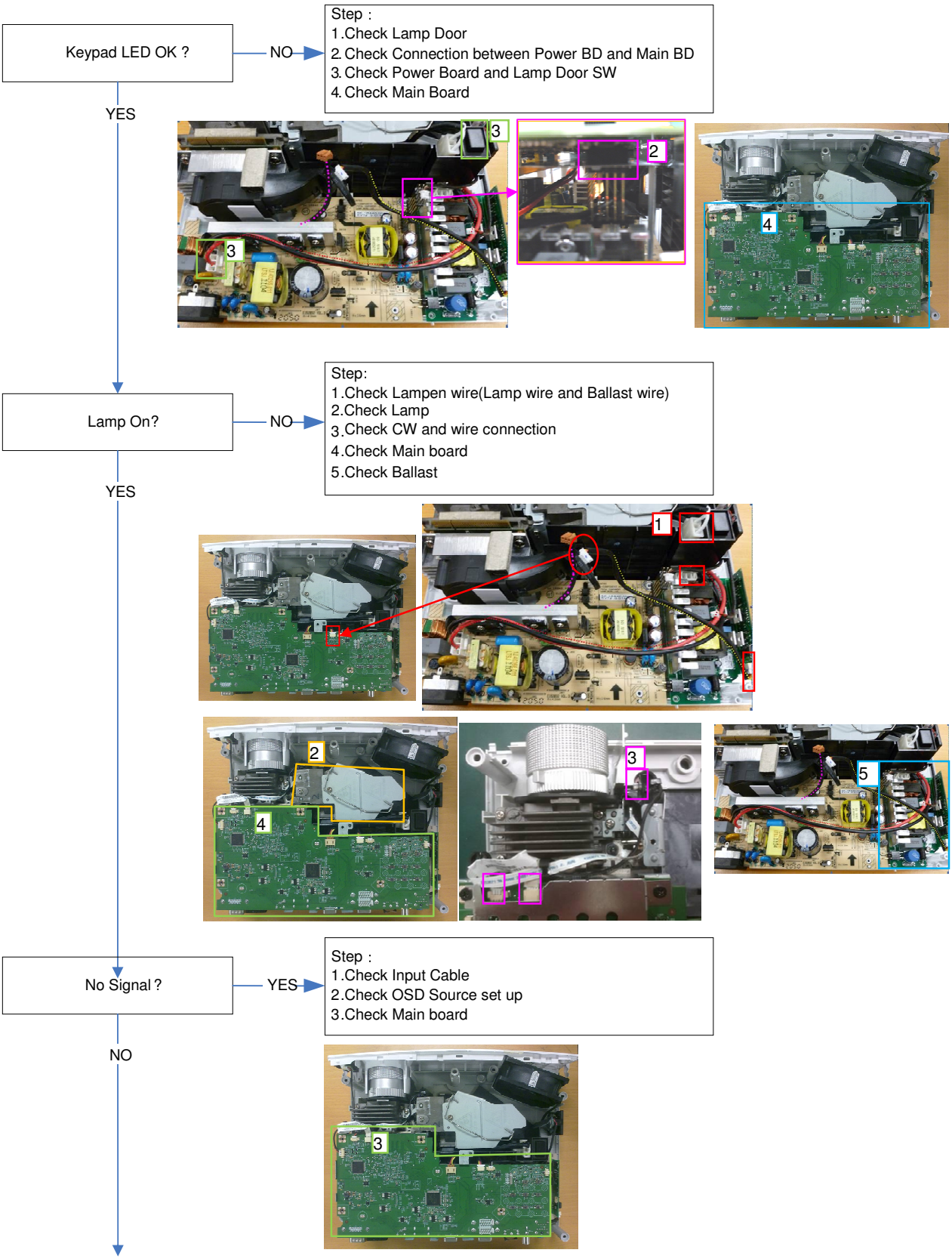
⑦ Remote control does not work

Cause	Remedy
The battery is out of power.	Replace the battery with a new one.
There is an obstacle between the remote control and the projector.	Remove the obstacle.
You are too far away from the projector.	Stand within 4 meters (~13 feet) of the projector.

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5.2 System Analysis Flow



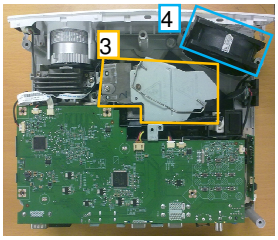
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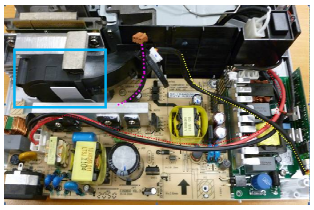
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Power Auto Turn Off? → YES

Step :
1.Check OSD Lamp Hours
2.Check Lamp Door
3.Check Lamp still light or not?
4.Check Fan still spin or not?
5.Check Thermal status

NO

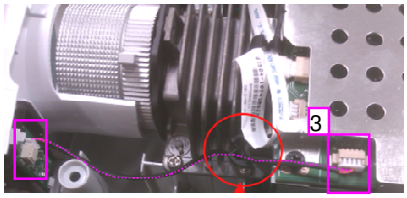




IR Remote Control NG ? → YES

Step :
1.Check Remote module battery
2.Check Remote module
3.Check IR wire between Main board and IR board
4.Check IR Receiver on IR board

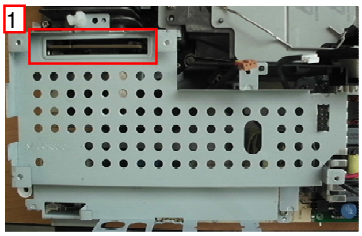
NO

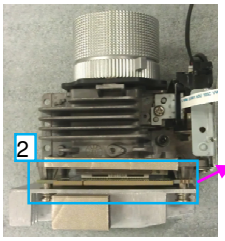


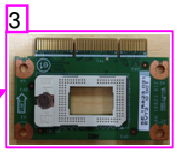


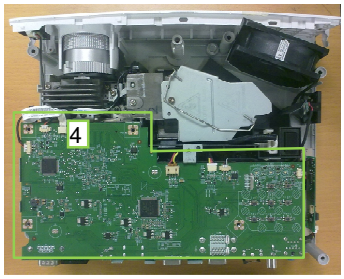
Pixel Fail ? → YES

1. Check the connection between Main BD and Chip BD
2. Check the connection between OP engine and DMD Chip
3. Check Chip board
4. Check Main board





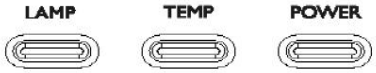




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5.3 LED Messages Definition

LED Usage:



LED Name	Detailed Description
Power LED	Display the power on/off sequence status Purple: Power Off (Blue + Red) Blue : Power On Blink : Warming up/Shutting Down & Cooling / Error Code
Temperature Status LED	Display the Thermal status (Fan Fail, Over Temperature, etc.) Red : Thermal Over Temperature Blink : Error Code
Lamp Status LED	Display the Lamp status (Lamp fail, Lamp spoil etc.) Red : Lamp Fail Blink : Error Code

LED Indicator Table (LED Messages Definition):

Power	Temp	Lamp	Status
System Messages			
P	-	-	Stand-by
B	-	-	Powering up
B	-	-	Normal operation
P	-	-	Normal power-down cooling
R	-	-	FW Download
B	-	R	CW start fail
R	-	-	Scaler shutdown fail(data abord)
Lamp Error Messages			
-	-	R	Lamp error in normal operation
-	-	R	Lamp is not lit up
Thermal Error Messages			
R	R	-	Fan 1 error (the actual fan speed is ±25% outside the desired speed)
R	R	-	Fan 2 error (the actual fan speed is ±25% outside the desired speed)
B	R	-	Temperature 1 error (over limited temperature)
B	R	-	Thermal Sensor 1 open error
B	B	-	Thermal Sensor 1 short error
B	B	-	Thermal IC #1 I2C Connection error

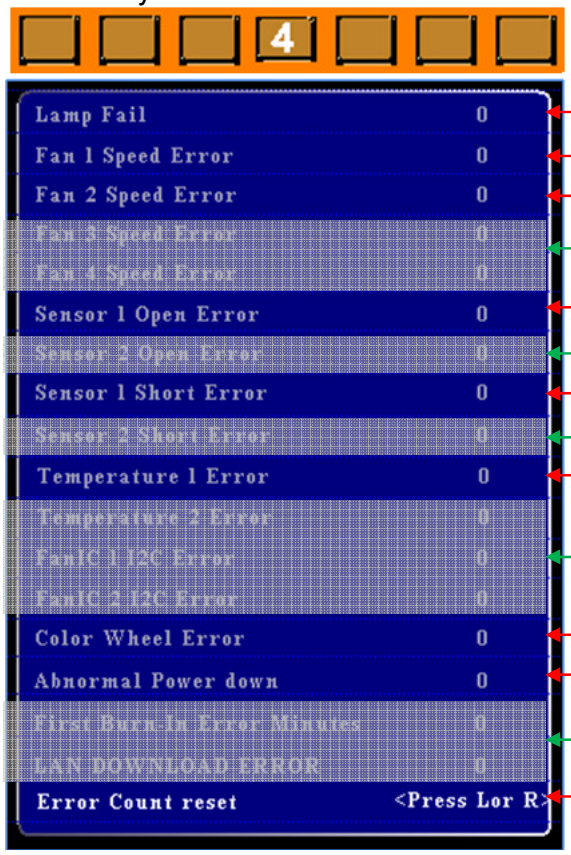
<Note :> The relationship between **LED Messages** and **Error Count Messages**:
Fan 1 error = Fan 1 Speed Error
Fan 2 error = Fan 2 Speed Error
Thermal Sensor 1 open error = Sensor 1 Open Error
Thermal Sensor 1 short error = Sensor 1 Short Error

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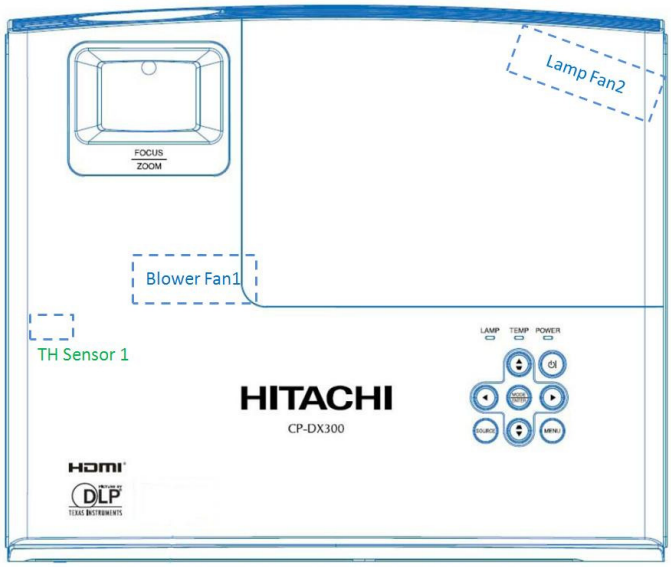
5.4 Error Count Messages Definition

In Factory Mode Block 4:



- LAMP Fail : LAMP OFF
- FAN 1 Speed Error : Blower FAN speed error (speed over± 20%)
- FAN 2 Speed Error : Lamp FAN speed error (speed over± 20%)
- These items aren't in use.
- Sensor 1 Open Error : Main Board sensor error
- This item isn't in use.
- Sensor 1 Short Error : Main Board sensor error
- This item isn't in use.
- Temperature 1 Error : over limited temperature
- These items aren't in use.
- Color Wheel Error: Color wheel wire connect abnormal
- Abnormal Power down: Abnormal shut down
- These items aren't in use.
- **<Notice:>** Once the error count is reset, it can never restore the count.

Fan and Sensor placement:



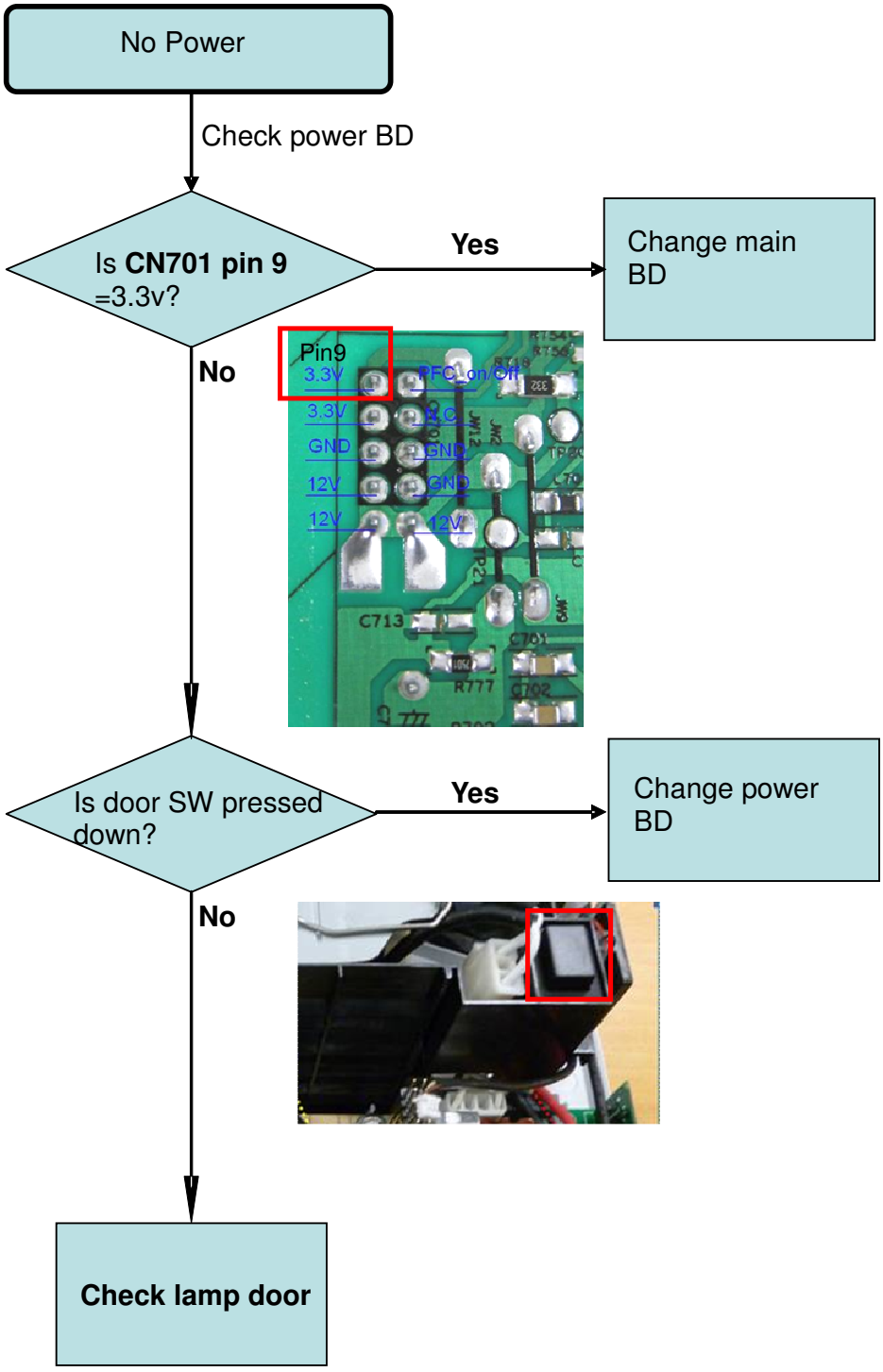
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5.5 Power Supply Trouble Shooting Guide

This document is prepared to be a guide to repair trouble sets, some problems happen more frequently are taken as examples.

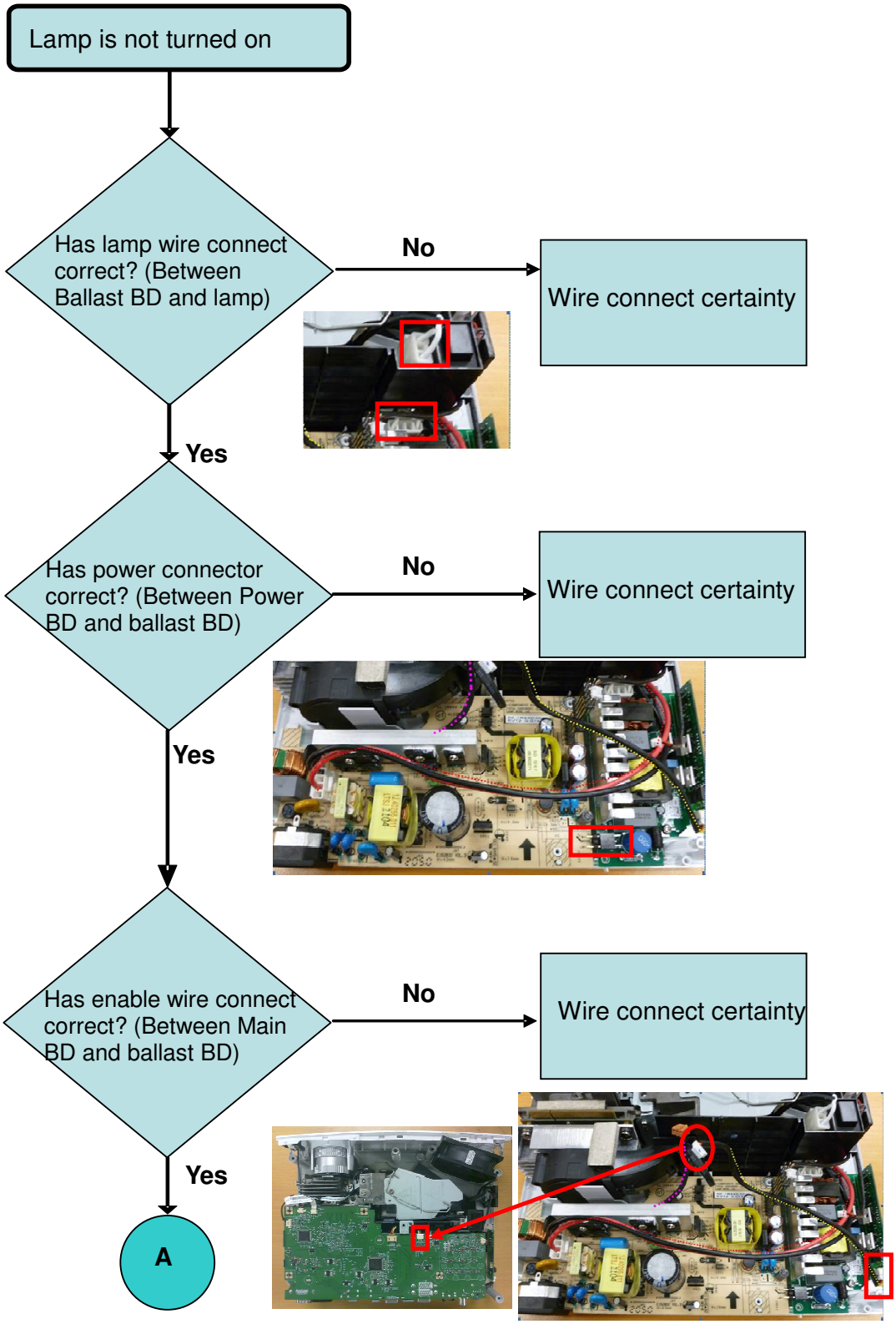
5.5.1 Problems

(1) No power



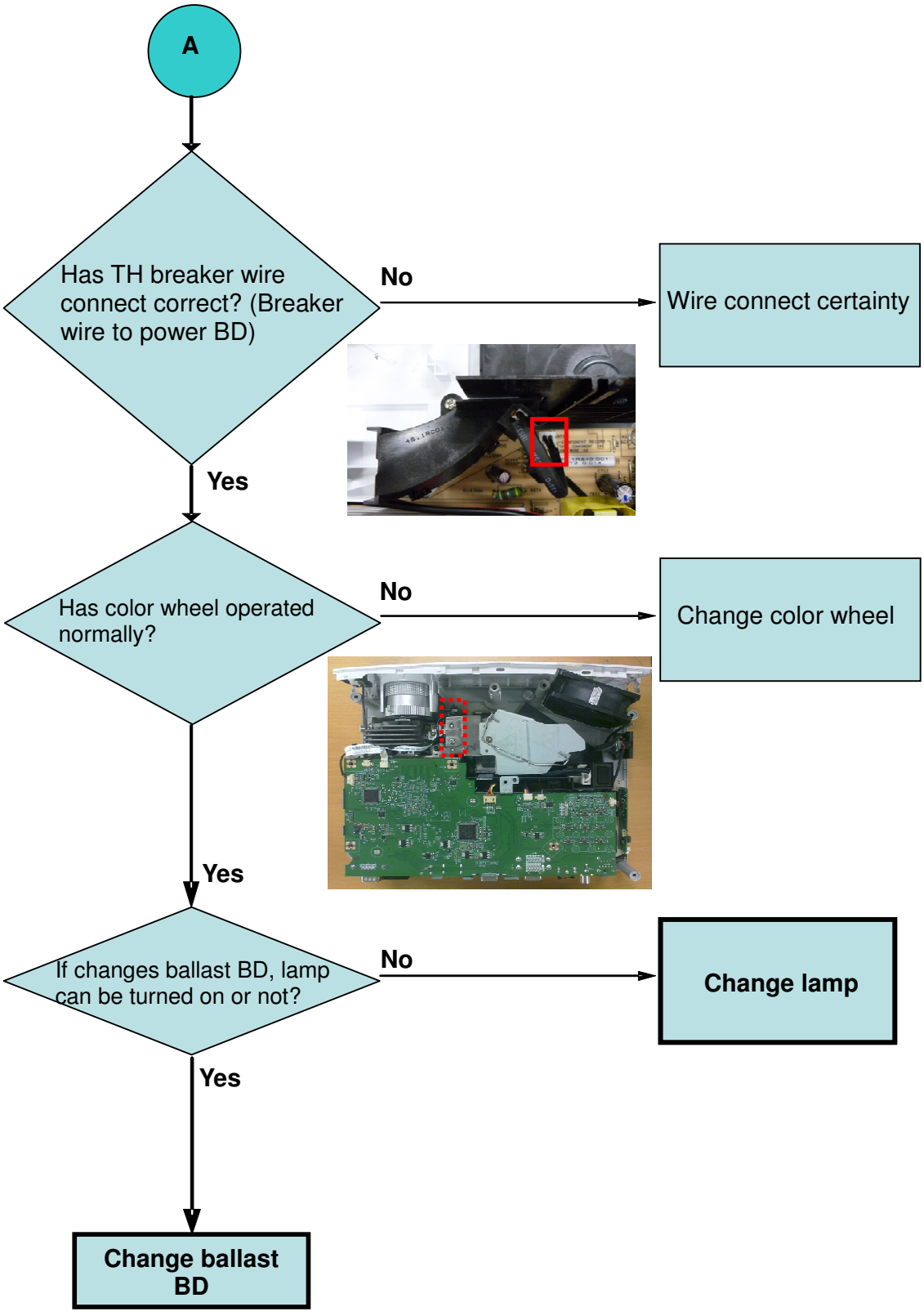
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(2) Lamp is not turned on



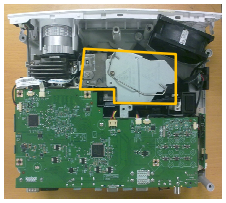
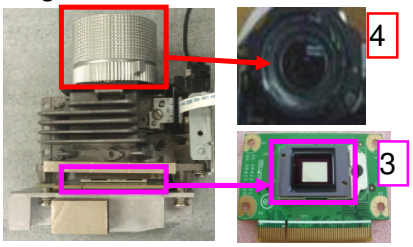
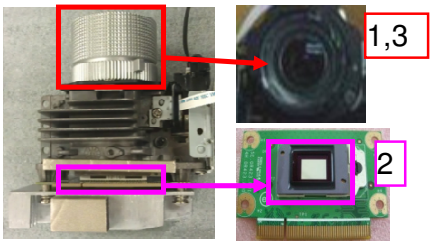
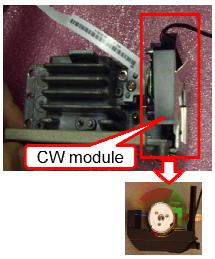
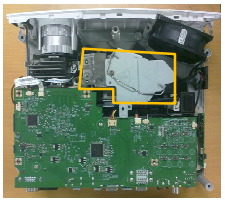
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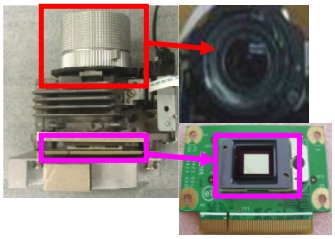
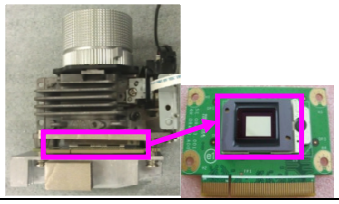


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5.6 Optical Trouble Shooting Guide

No.	Item	Trouble Shooting Guide
1	Brightness	1. Change lamp 
2	Uniformity	1. Change lamp
3	FOFO Contrast	1. Check PC Alignment 2. Check if in user's menu, brightness & contrast are default 3. Clean DMD 4. Clean Projection Lens 
4	ANSI Contrast	1. Clean Projection Lens 2. Clean DMD Chip 3. Change Projection Lens 
5	Color	1. Check Color Wheel delay (Refer to "Section 4-- Color Wheel Delay Alignment" process 2. Replace CW if necessary 
6	Color Uniformity	1. Change lamp 
7	Blue Edge	1. Refer to "Section 4-- Overfill (Blue-Edge) adjustment" process
8	Blue/Purple Border	1. Refer to "Section 4-- Overfill (Blue-Edge) adjustment" process

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9	Focus	1. Change Projection Lens 2. Check parallel between Projection Lens datum and DMD Chip 
10	Dust	Clean DMD Chip 
11	Horizontal/Vertical Strips	1. Check connector between Chip BD and Main BD 2. Re-install DMD with Chip BD 3. Change new Chip BD 4. Change new DMD Chip
12	Pixel Fail	Change new DMD

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6. Service Points

6.1 Maintenance

Cleaning the lens

Clean the lens whenever you notice dirt or dust on the surface.
• Use a canister of compressed air or air gun to remove dust.
• If there is dirt or smears, use lens-cleaning paper or moisten a soft cloth with pure alcohol and gently wipe the lens surface.
<Notice: > Be sure the lens must be cooling to environment temperature while wiping it.
CAUTION: Never rub the lens with abrasive materials.

Clean the surface of LP & DMD

• Use air gun to remove dust.
• If some material cannot be cleaned by air on DMD glass, use lens-cleaning paper or moisten with pure alcohol to wipe slowly and slightly.

Cleaning the projector case

Before you clean the case, turn the projector off using the proper shutdown procedure and unplug the power cord.
• To remove dirt or dust, wipe the case with a soft, lint-free cloth.
• To remove stubborn dirt or stains, moisten a soft cloth with water and a neutral pH detergent. Then wipe the case.
CAUTION: Never use wax, alcohol, benzene, thinner or other chemical detergents. These can damage the case.

Storing the projector

If you need to store the projector for an extended time, please follow the instructions below:
• Make sure the temperature and humidity of the storage area are within the recommended range for the projector.
• Retract the adjuster feet.
• Remove the battery from the remote control.
• Pack the projector in its original packing or equivalent.

Transporting the projector

It is recommended that you ship the projector with its original packing or equivalent.

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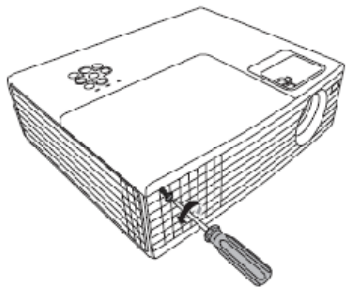
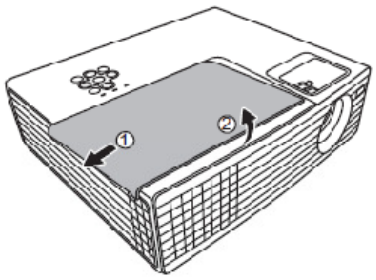
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6.2 Replacing The Lamp

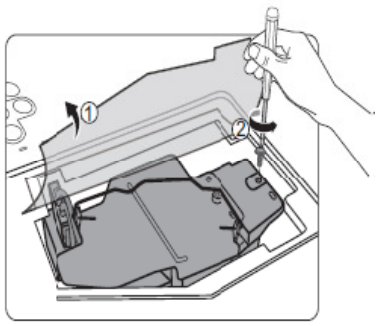
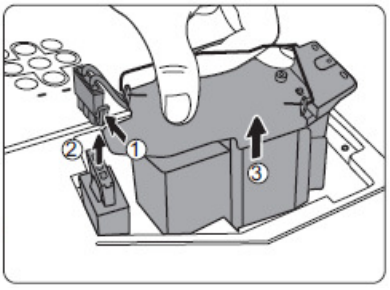
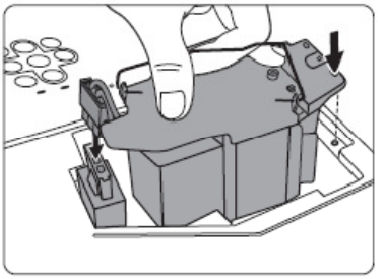
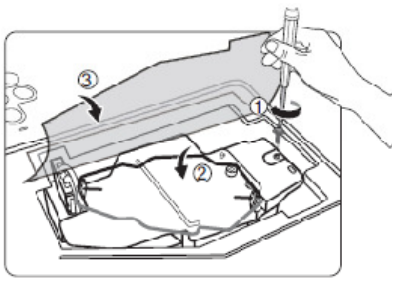
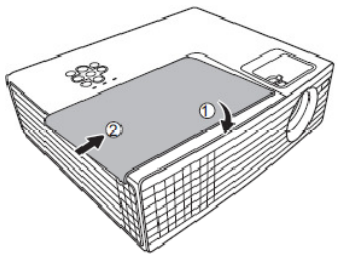
Prepare a new lamp.
Type number: DT01461.
WARNING
- The projector uses a high-pressure mercury lamp (Hg-Lamp).
- The lamp can break with a loud bang, or burn out, if jolted or scratched, handled while hot, or worn over time. Note that each lamp has a different lifetime, and some may burst or burn out soon after you start using them.

Hg - Lamp contains mercury. Manage in accordance with local disposal laws. See www.lamprecycle.org
- To reduce the risk of electrical shock, always turn the projector off and disconnect the power cord before changing the lamp.
- To reduce the risk of severe burns, allow the projector to cool for at least 45 minutes before replacing the lamp.
- To reduce the risk of injuries to fingers and damage to internal components, use caution when removing lamp glass that has shattered into sharp pieces. Before replacing the lamp, clean the lamp compartment and dispose of cleaning materials. Be careful of sharp edges in the lamp compartment. Wash hands after lamp replacement.
- If the lamp should break (it will make a loud bang when it does), ventilate the room well, and make sure not to inhale the gas or fine particles that come out from the projector's vent holes, and not to get them into your eyes or mouth.
- Only certified lamps are tested with this projector. Use of other lamps may cause electrical shock and fire.
- Be sure to place the projector on a flat surface to replace the lamp.

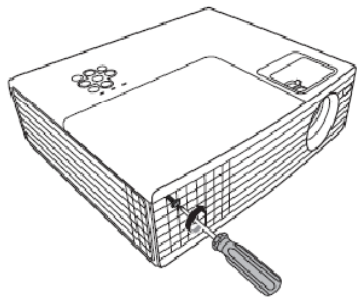
- **Replace Process:**

1. Turn the power off and disconnect the power cord from the wall socket. If the lamp is hot, avoid burns by waiting for approximately 45 minutes until the lamp has cooled. 2. Prepare a new lamp. If the projector is mounted in a high position, or if the lamp has broken, also ask the dealer to replace the lamp. 3. Loosen the screw of the lamp door. Refer to the right figure to identify the screw.	
4. Remove the lamp door from the projector. **WARNING** • **Do not turn the power on with the lamp door removed.** • **Do not insert your fingers between the lamp and the projector. It may cause injuries.**	

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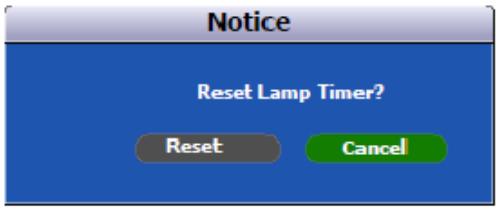
5. Remove the protection film. Loosen the screw that secures the lamp. Refer to the right figure to identify the screw.	
6. Disconnect the lamp's wire connector from the projector, and then slowly pick up the lamp by the handle. **CAUTION** • **Pulling it too quickly may cause the lamp to break and scatter broken glass in the projector.** • **Do not place the lamp in locations where water might splash on it, children can reach it, or near flammable materials.** • **Do not insert your hands into the projector after the lamp is removed. If you touch the optical components inside, it could cause color unevenness and distortion of the projected images.**	
7. Insert the new lamp into the lamp compartment and make sure it fits in the projector. Connect the new lamp's wire connector to the projector.	
8. Tighten the screw that secures the lamp. **CAUTION** • **Loose screw may cause a bad connection, which could result in malfunction.** • **Do not over tighten the screw.** 9. Ensure the handle is fully laid flat and locked in place. 10. Replace the new protection film that comes with the new lamp.	
11. Replace the lamp door on the projector.	

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12. Tighten the screw that secures the lamp door. **CAUTION** • **Loose screw may cause a bad connection, which could result in malfunction.** • **Do not over tighten the screws.**	
13. Restart the projector. **CAUTION** **Do not turn the power on with the lamp door removed.**	

6.3 Resetting the Lamp Timer

(After changing a new lamp, need to reset lamp timer.)

14. After the startup logo, open the On-Screen Display (OSD) menu. 15. Go to the **SYSTEM SETTING**: **ADVANCED** > **Lamp Settings** menu. Press **MODE/ENTER** on the projector or remote control. The **Lamp Settings** page is displayed. 16. Press to highlight **Reset lamp timer** and press **MODE/ENTER** on the projector or remote control. A warning message is displayed asking if you want to reset the lamp timer. 17. Highlight Reset and press **MODE/ENTER** on the projector or remote control. The lamp time will be reset to '0'. **CAUTION** **Do not reset if the lamp is not new or replaced as this could cause damage.**	

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6.4 Screw / Torque List

Screw for Mechanical parts:								
Type	Description				Torque	Where use	Q'ty	total Q'ty
	Type	Head	Length	Surface	(N-m)		Unit	
M2.5	MACH	PAN	10	Zn	0.29+/- 0.05	lamp door	1	1
M3	TAP	PH	6	Ni	0.54+/- 0.05	Power board == lower case	2	16
						Ballast == lower case	2	
						nozzle == lower case	1	
						Upper case == Lamp box	1	
						Lamp box == lower case	1	
						Upper case == lower case	5	
						OPT housing == lower case	3	
						K-lock	1	
	TAP	FPH	6	Zn	0.54+/- 0.05	main board == main bracket	4	7
						Upper case == bracket	1	
						h-sink == bracket	1	
						Rear case == HDMI	1	
	TAP	FH	6	Ni	0.29+/- 0.05	front case == lower case	2	2
M4	MACH	PAN	6	Ni	0.54+/- 0.05	main bracket == Power board	1	1
							Sum=	27
Standoff								
Type	description				Torque	Where use	Q'ty	total Q'ty
	Type	Head	Length	Surface	(N-m)		Unit	
#4-40	MACH	hex	8	NI	0.17+/- 0.05	rear case == D-sub	8	8
Screw for Optical Engine:								
Type	Description				Torque	Where use	Q'ty	total Q'ty
	Type	Head	Length	Surface	(N-m)		Unit	
M2	MACH	PH	3	B-NI	0.245+/-0.049	CW Shield == BKT Link Lamp	1	3
						Clip LP == HSG DMD	1	
						Baffle LP == HSG DMD	1	
	MACH	PH	4	B-NI	0.245+/-0.049	ILL HSG == HSG DMD	2	2
	MACH	PH	8	B-NI	0.245+/-0.049	LP Adjustment	2	2
M3	MACH	PAN	5	NI	0.392+/-0.049	CW Module == HSG DMD	1	1
	MACH	PAN	5	NI	0.392+/-0.049	BKT Link Lamp == HSG DMD	2	2
	MACH	PH	7.5	NI	0.588+/-0.049	H-Sink == HSG DMD	4	4
M2	MACH	RH	3.5	B-NI	0.215+/-0.049	Clip CM Front == ILL HSG	1	1
M2	MACH	PH	3	B-NI	0.245+/-0.049	CW Sensor BD == BKT CW	1	2
						CW CVR == BKT CW	1	
	MACH	PH	4	B-NI	0.245+/-0.049	CW CVR == BKT CW	1	1
	MACH	FPH	3	B-NI	0.147+/-0.049	CVR Anti Dust == CVR CW	1	1
M2.5	MACH	FPH	5.6	NI	0.343+/-0.049	CW == BKT CW	3	3
M2	MACH	PH	3	B-NI	0.245+/-0.049	Ring Zoom == Lens	2	2
M3	MACH	PAN	4	NI	0.294+/-0.049	Lens == HSG DMD	3	3
M2	MACH	PH	3	B-NI	0.245+/-0.049	Cover Lamp == HLD Lamp	2	2
M3	MACH	PAN	4	NI	0.392+/-0.049	Clip Lamp == HLD Lamp	3	5
						FIN == HLD Lamp	1	
						Clip FG VS. HLD Lamp	1	
	MACH	HEX	6	B-NI	0.49+/-0.049	Plate Lamp == HLD Lamp	1	1
	MACH	PAN	6	NI	0.637+/-0.049	Lamp Module == HSG DMD	1	1
							Sum=	36

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7. Wiring Diagram

Assembly Key Point and Wiring diagram

7.1 Module Assembly Key Point – Optical Engine

7.1.1 Assembly LP Module

7.1.1.1 Assembly LP Module to HSG DMD

i. Assembly “Clip LP” and lock with screw well (Fig. 7-1).
ii. Press CLIP of RE_BKT_LP first, and then push it into the hole (Fig. 7-2).
iii. Placed LP Module on LP datum of “DMD HSG” and pre-assembly of Overfill adjustment screws well (Fig. 7-3).
iv. Assembly “Baffle LP” first (Fig. 7-4) & push “Baffle LP” to hook DMD HSG (Fig. 7-5).
v. When Lock the screw of Baffle LP, the hand must push the left corner of Baffle LP before (Fig. 7-6).
vi. Lock the screw of Baffle LP well then release the hand (Fig. 7-7).
vii. Assembly two Overfill adjustment screws (M2, 8L) to HSG DMD (Fig. 7-8): Assemble "Horizontal adjustment screw" as first, and then "Vertical adjustment screw". Refer Chapter 4.4.3, "Overfill (Blue-Edge) adjustment" to adjust the projected image if necessary.

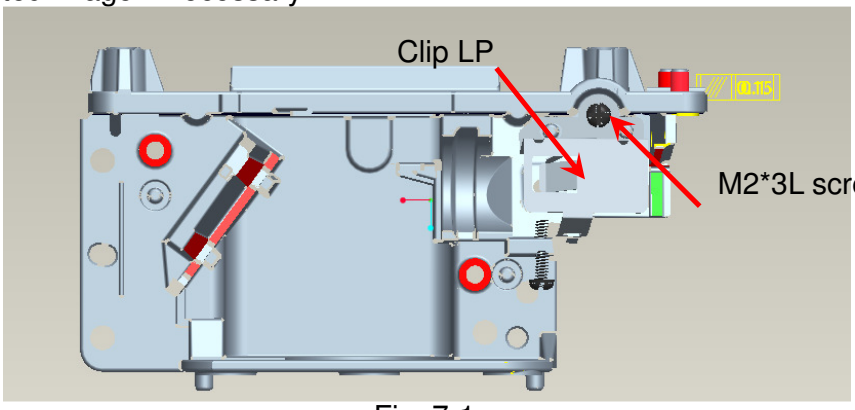


Fig. 7-1

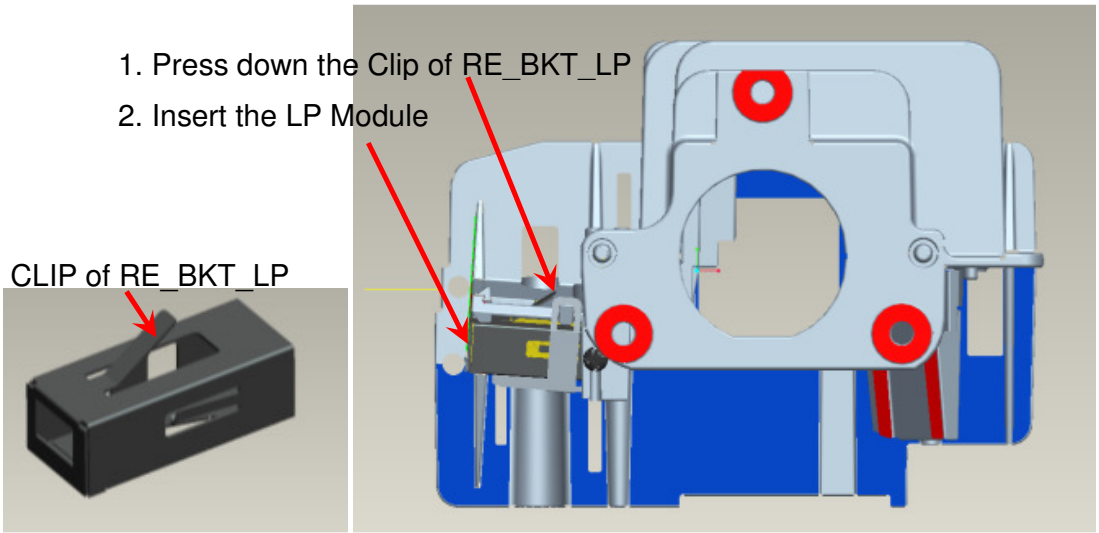


Fig. 7-2

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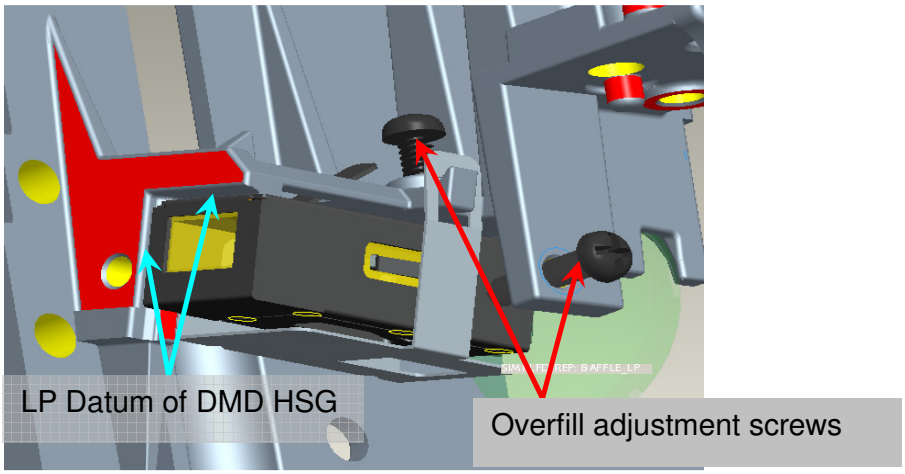


Fig. 7-3

1. Place Clips on BKT surface

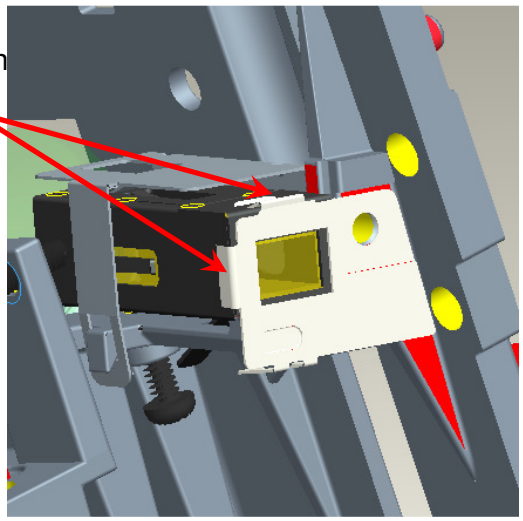


Fig. 7-4

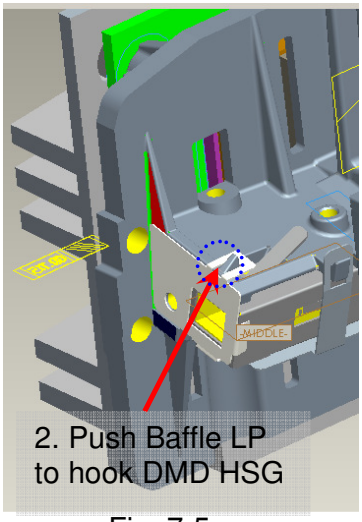


Fig. 7-5

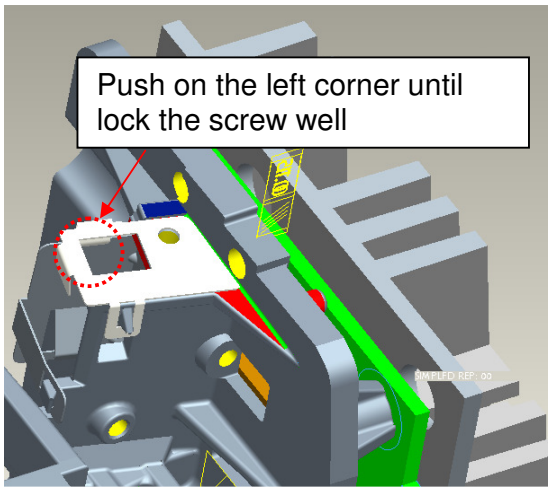


Fig. 7-6

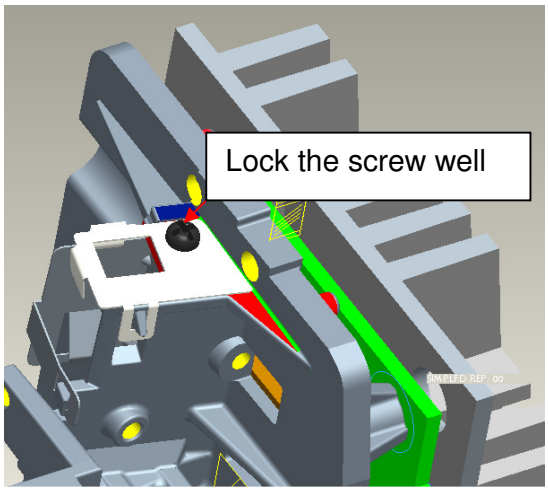


Fig. 7-7

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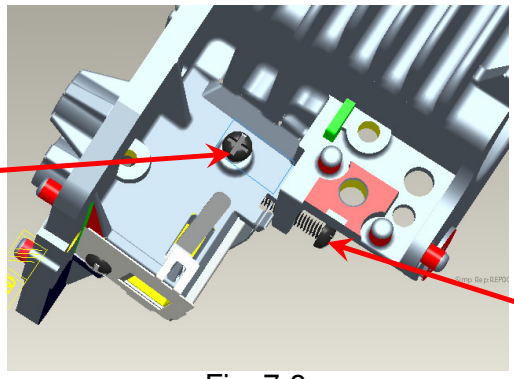


Fig. 7-8

7.1.2 ILL HSG and DMD HSG Assembly:

7.1.2.1 To assemble "ILL HSG" (and its attachments) with "DMD HSG", cover over on "AL" and then lock with screws (Fig. 7-9, 7-10)

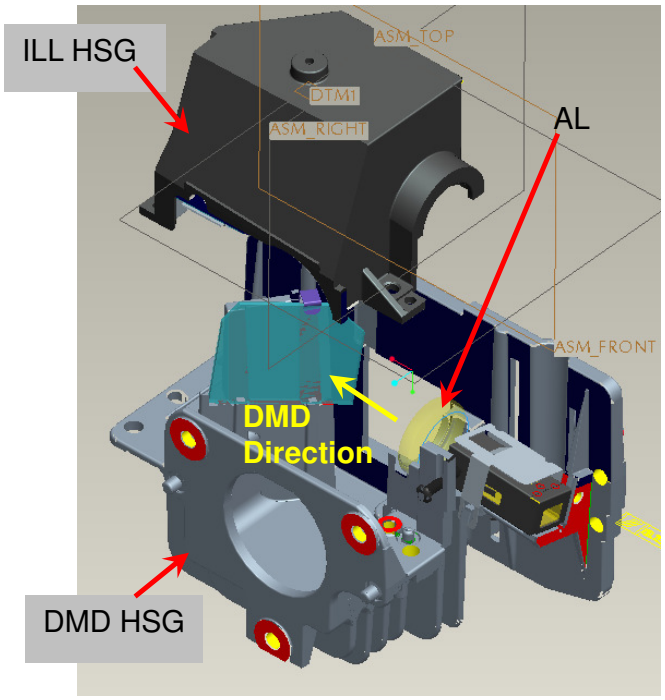


Fig. 7-9

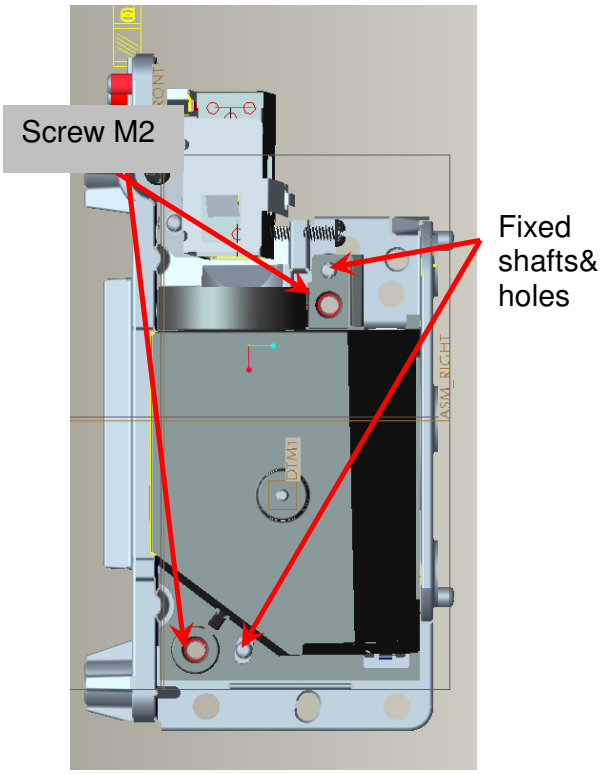


Fig. 7-10

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7.1.3 DMD and Chip B/D Module:

7.1.3.1 Judge Chip B/D and DMD alignment keying first (Fig. 7-11, 7-12).

7.1.3.2 Alight keying and Assemble DMD to Chip B/D (Fig. 7-13).

7.1.3.3 Push DMD slightly and use screwdriver rotate clockwise Switch to lock (close notation) DMD on Chip B/D (Fig. 7-14).

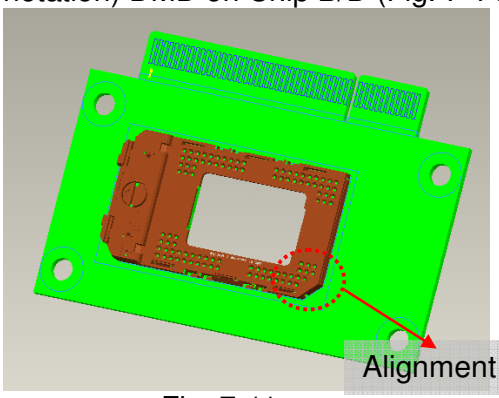


Fig. 7-11

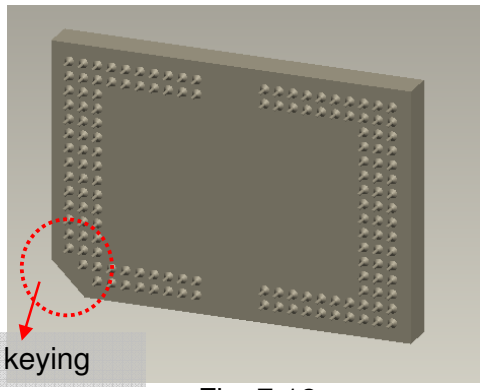


Fig. 7-12

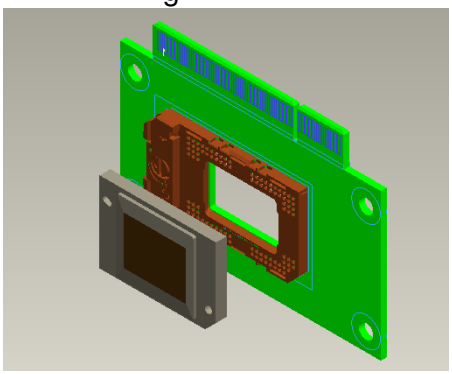


Fig. 7-13

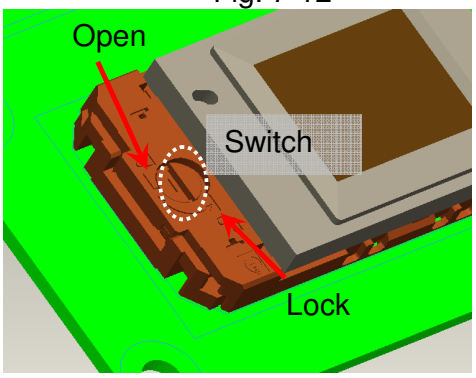


Fig. 7-14

7.1.4 Assembly Optical Engine:

7.1.4.1 Assemble Chip B/D Module to “DMD HSG” (Fig. 7-15).

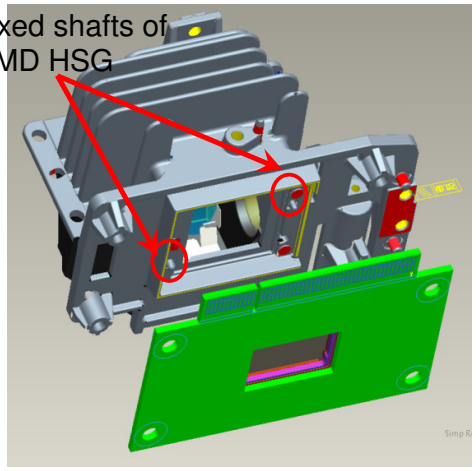


Fig.7-15-1

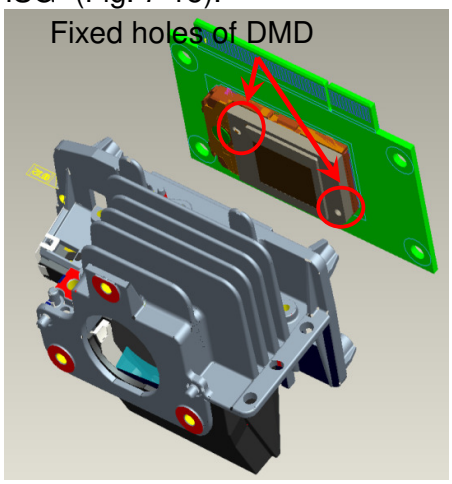


Fig.7-15-2

7.1.4.2 Assemble Heat-sink to contact DMD (Fig. 7-16-1,7-16-2).

i. Press center of Heat-sink before assemble spring screw, then keeps press until spring screw assembly finish.

ii. Pre-fastening Sequence: [1] - [2] - [3] - [4].

iii. Fastening Sequence: [2] - [1] - [4] - [3].

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iv. Screw Torque must be confirmed to be 0.539-0.637 N-m.

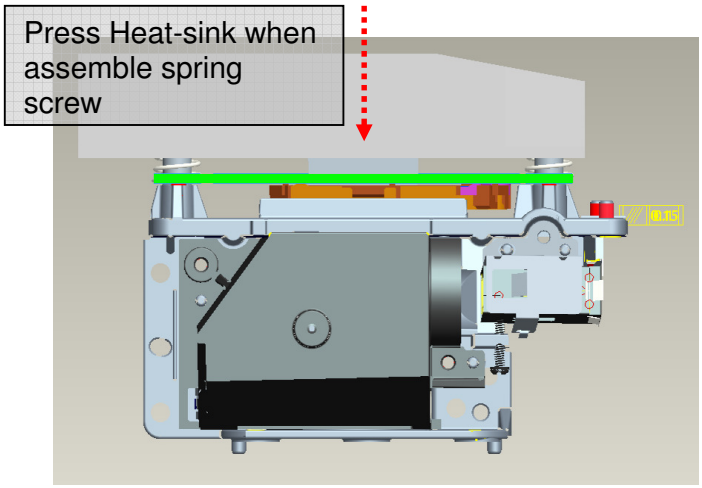


Fig. 7-16-1

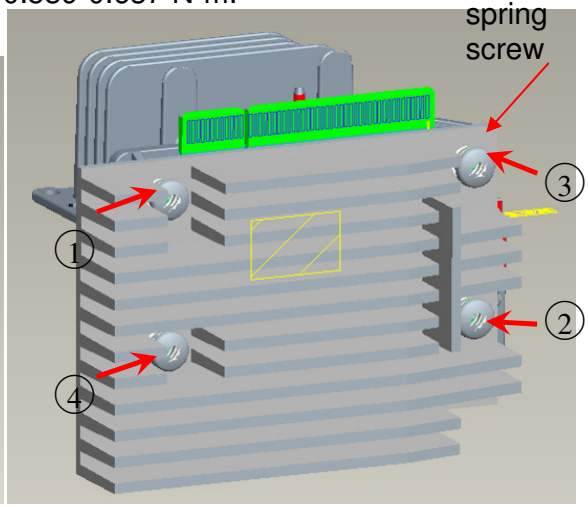


Fig. 7-16-2

7.1.4.3 Assemble “CW Module” to “DMD HSG” and lock with screws well (Fig.7-17).

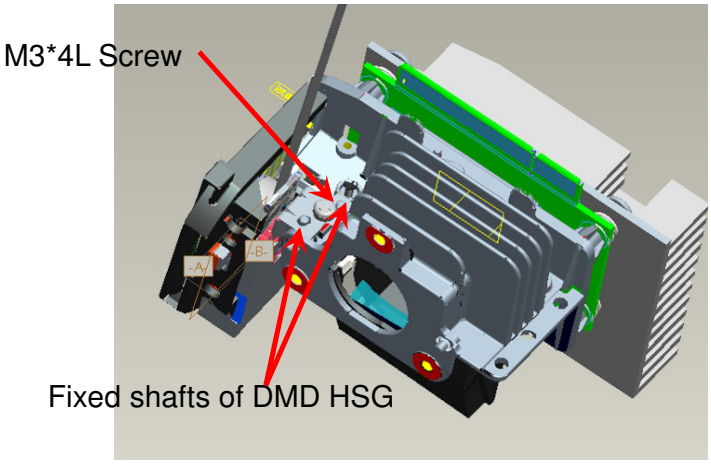


Fig.7-17

7.1.4.4 Assemble “BKT Link Lamp & CW shield” on “DMD HSG” and then lock with screws well (Fig. 7-18).

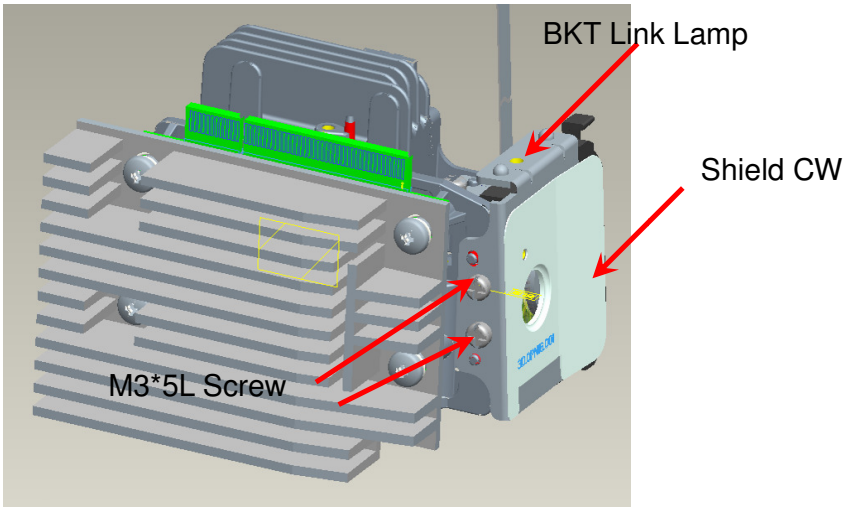


Fig. 7-18

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7.1.4.5 Assemble “PL Lens” and lock with screws well (Fig. 7-19).

i. Assemble Lens and the Assembly direction must be horizontal, and do not impact CM.
ii. Pre-fasten Screws firstly. Screw Torque must be confirmed to be 0.098-0.196 N-m. (Fig. 7-19)
iii. Fasten the Screws well. Screw Torque must be confirmed to be 0.245-0.343 N-m. (Fig. 7-19)

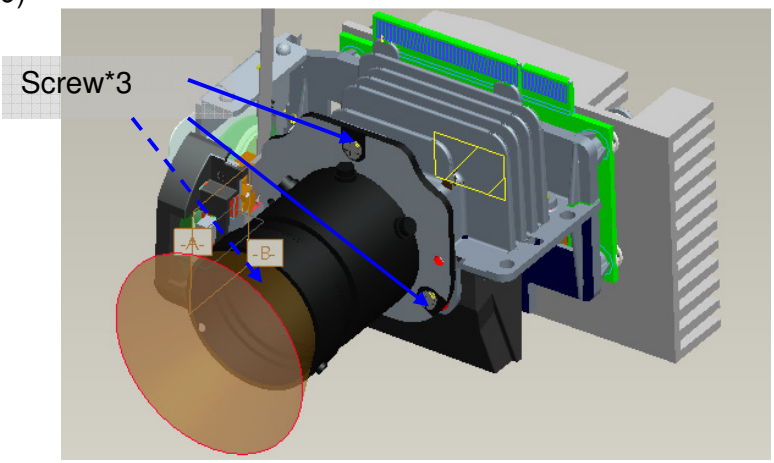


Fig.7-19

7.1.4.6 Assemble “Ring Zoom” and lock with screws well (Fig. 7-20).

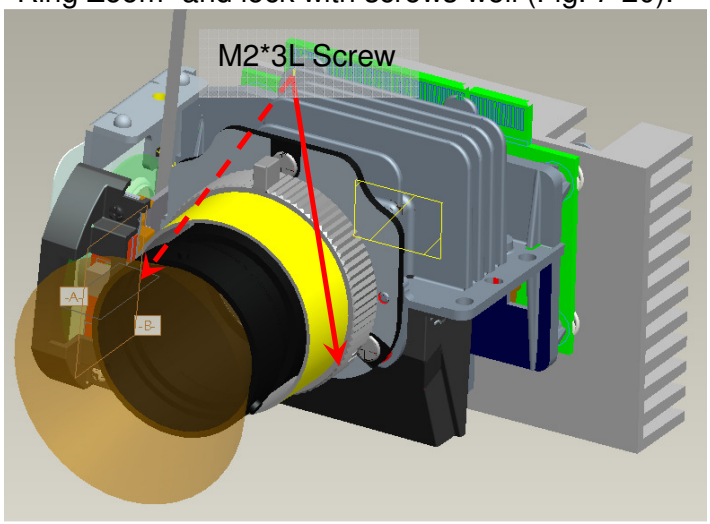


Fig.7-20

7.1.4.7 Assemble “Ring Focus” well (Fig. 7-21). Notice the 3 shafts (on PL) and 3 holes (on Focus Ring) must be matched and then insert the ring into PL.

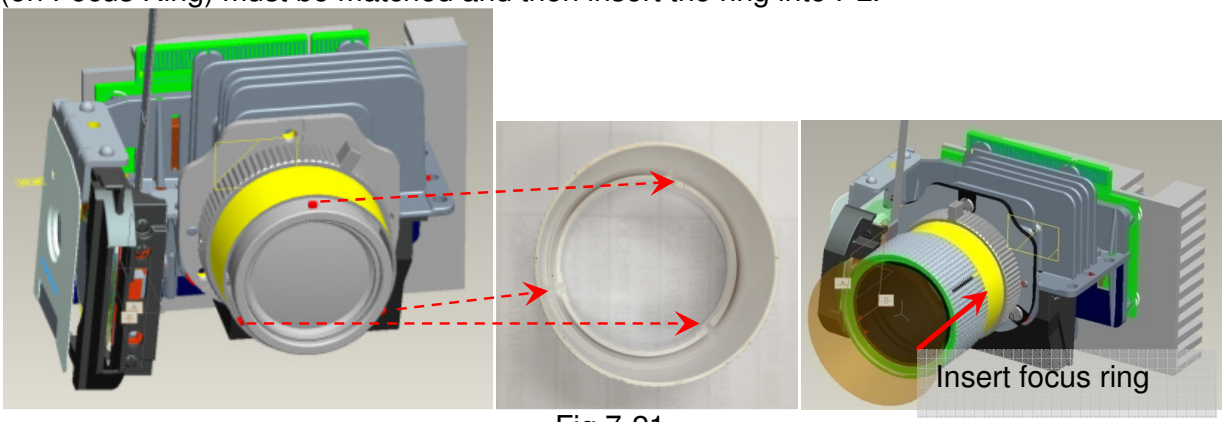
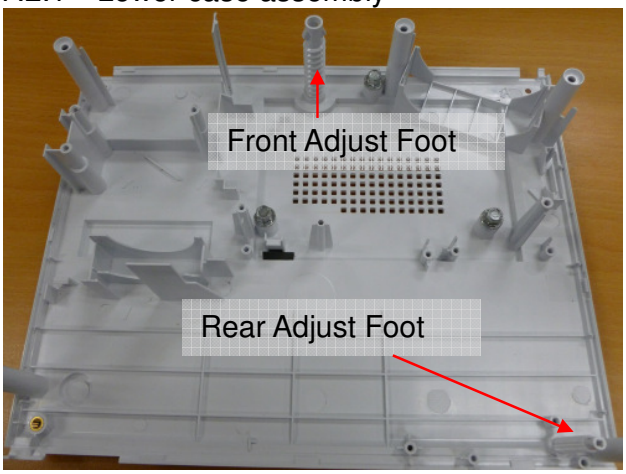


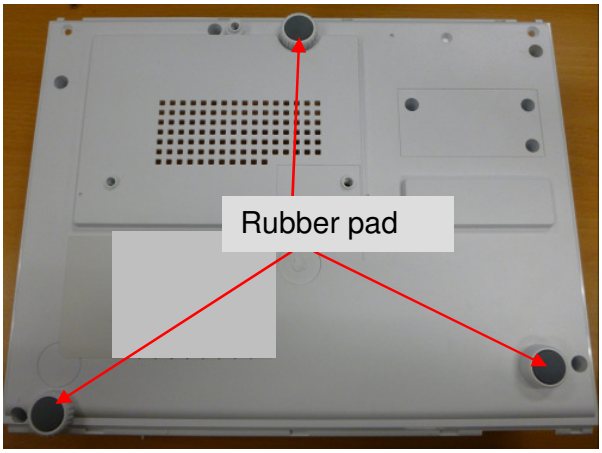
Fig.7-21

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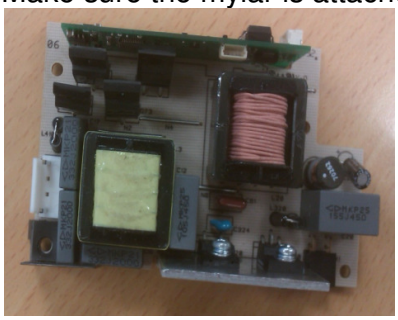
7.2 Module Assembly Key Point – Mechanical Parts

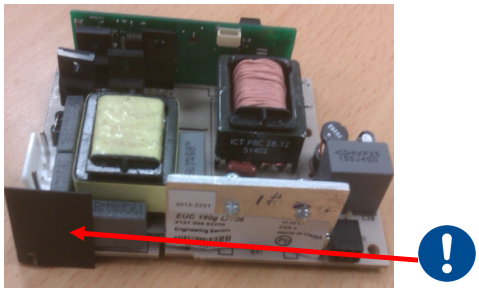
7.2.1 Lower case assembly





7.2.2 (1) Make sure the mylar is attached to the ballast.

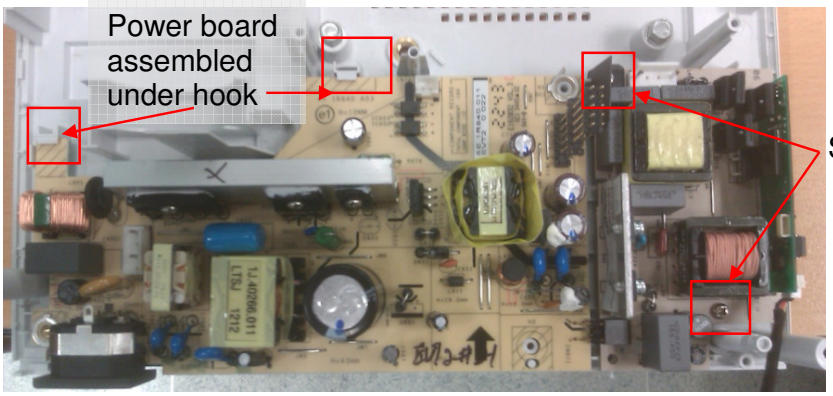




(2) Assemble power board with ballast cable on lower case

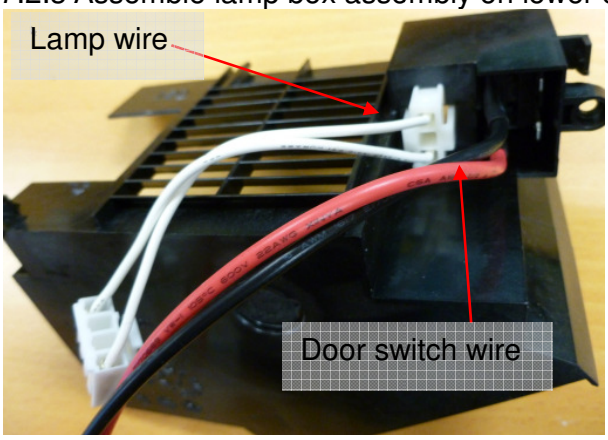


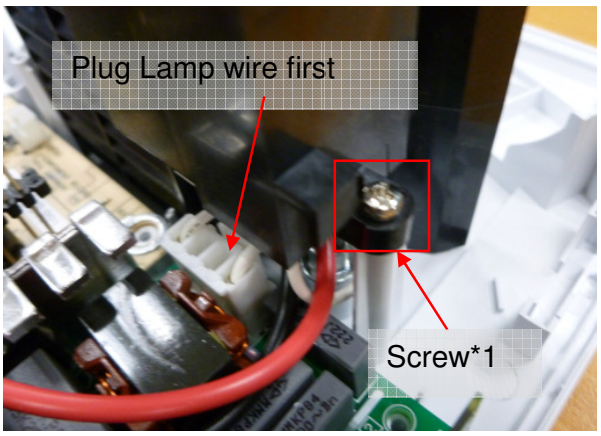
Notice : Connect power board and ballast board first

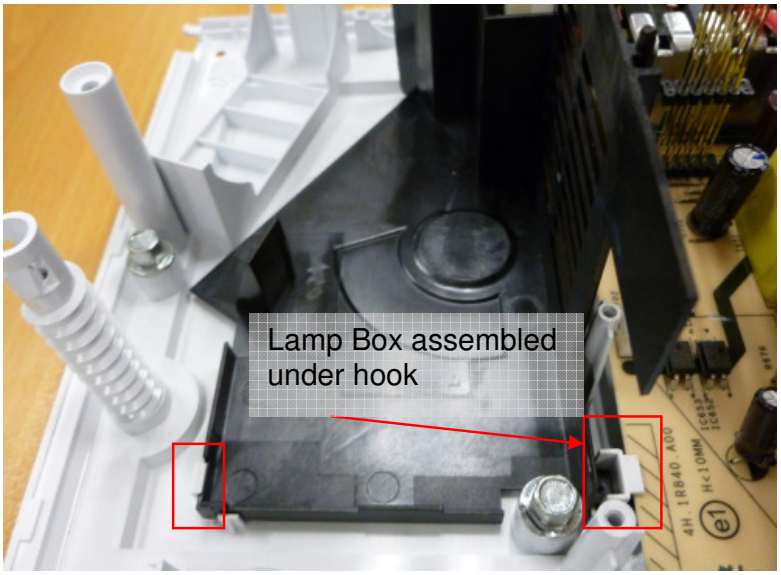


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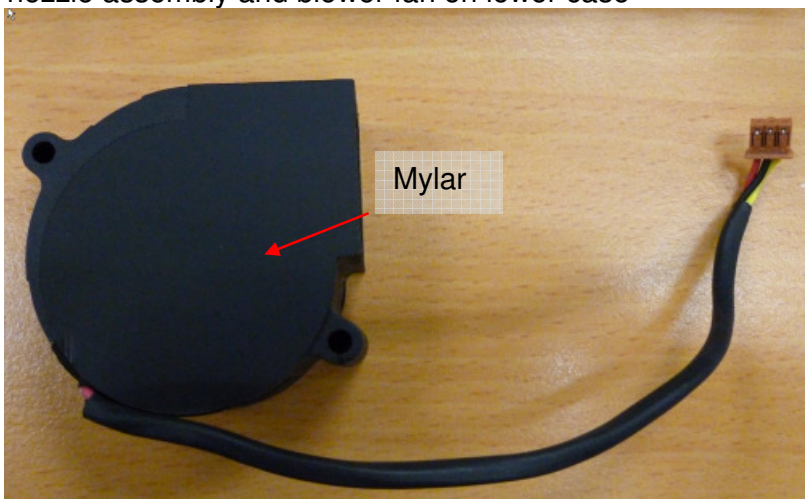
7.2.3 Assemble lamp box assembly on lower case



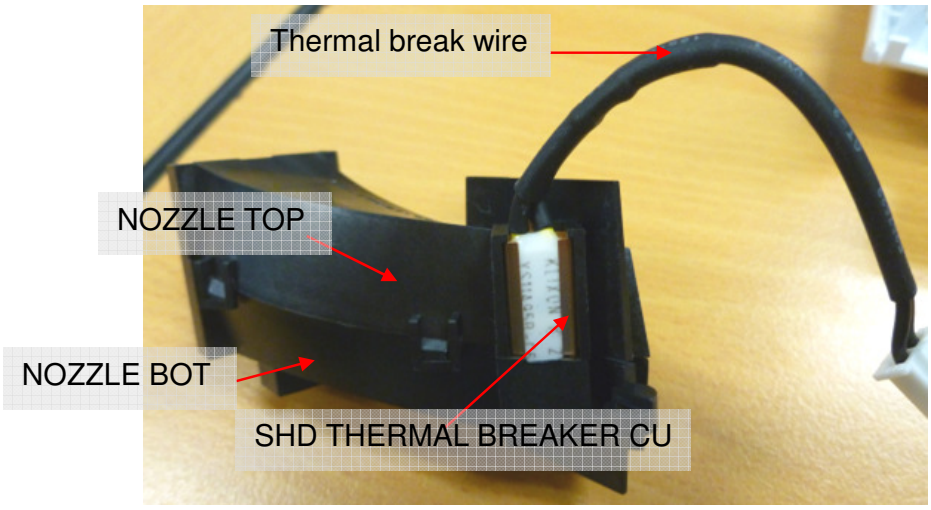




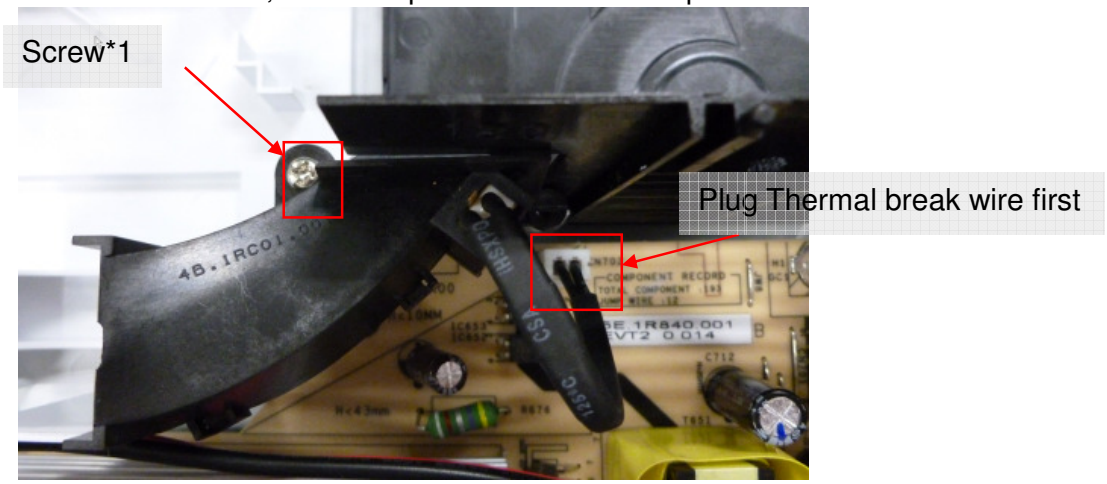
7.2.4 Assemble nozzle assembly and blower fan on lower case

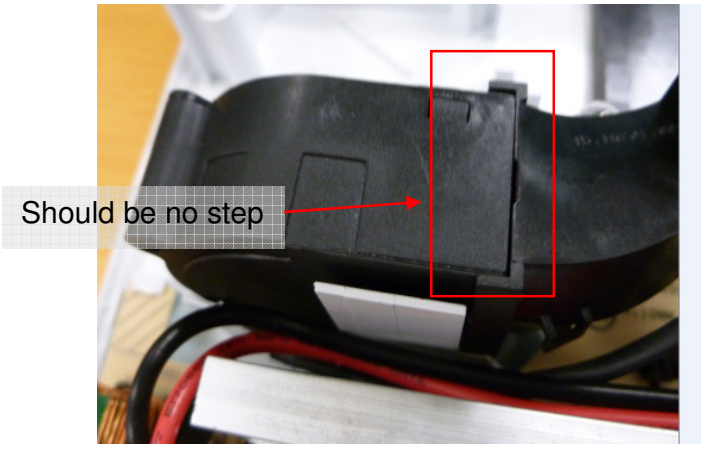


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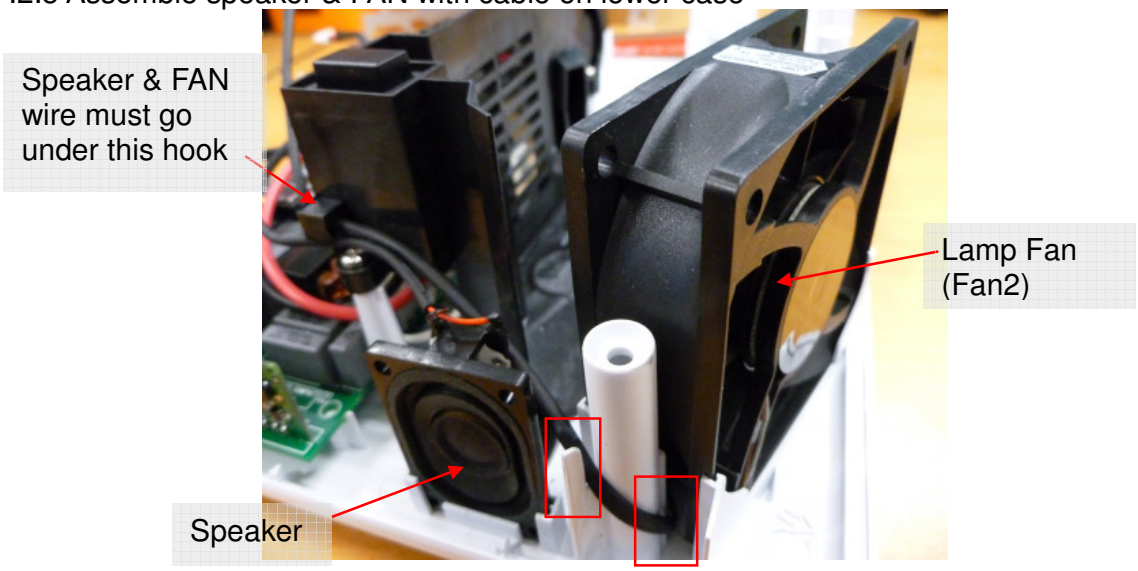
Insert the thermal breaker wire first, and then put nozzle in correct position.



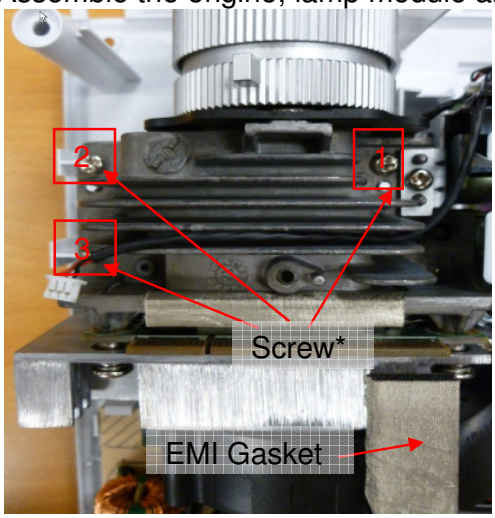


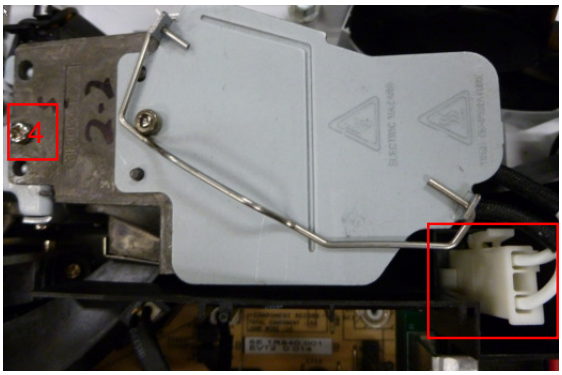
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7.2.5 Assemble speaker & FAN with cable on lower case

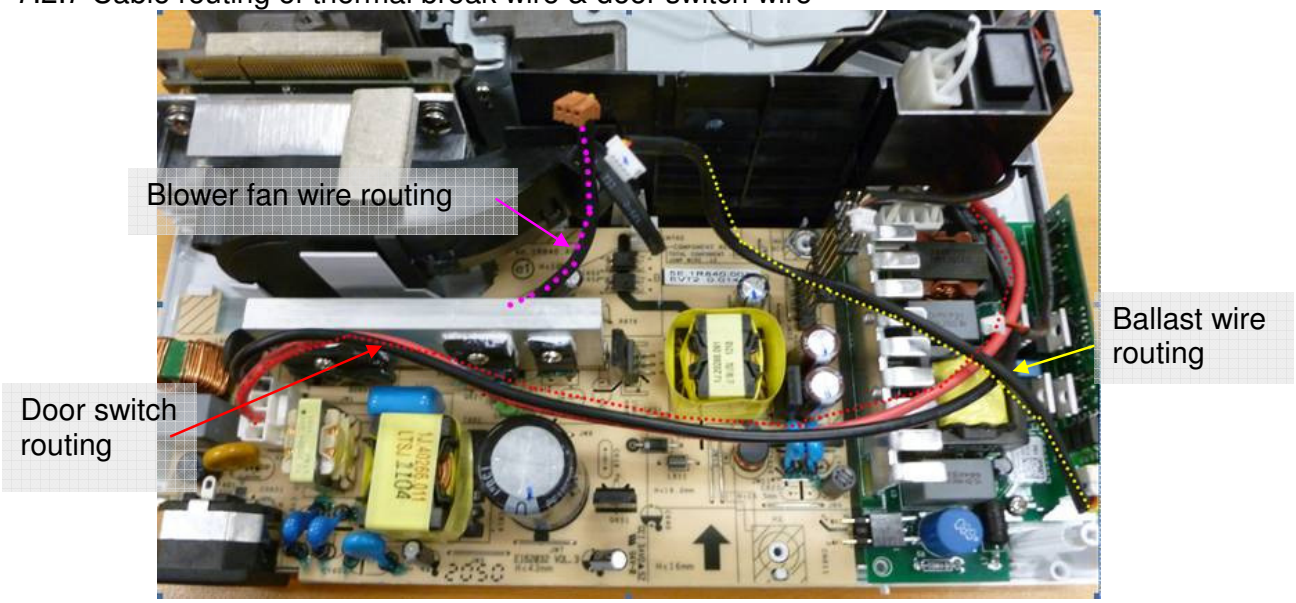


7.2.6 Assemble the engine, lamp module and EMI gasket on lower case.



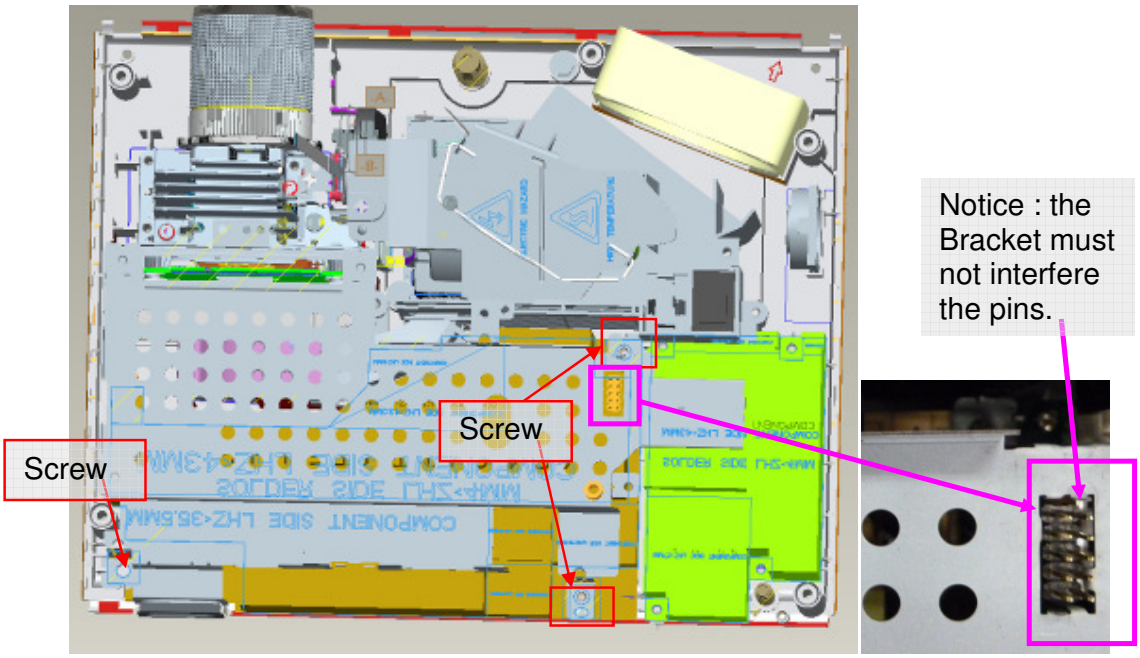


7.2.7 Cable routing of thermal break wire & door switch wire

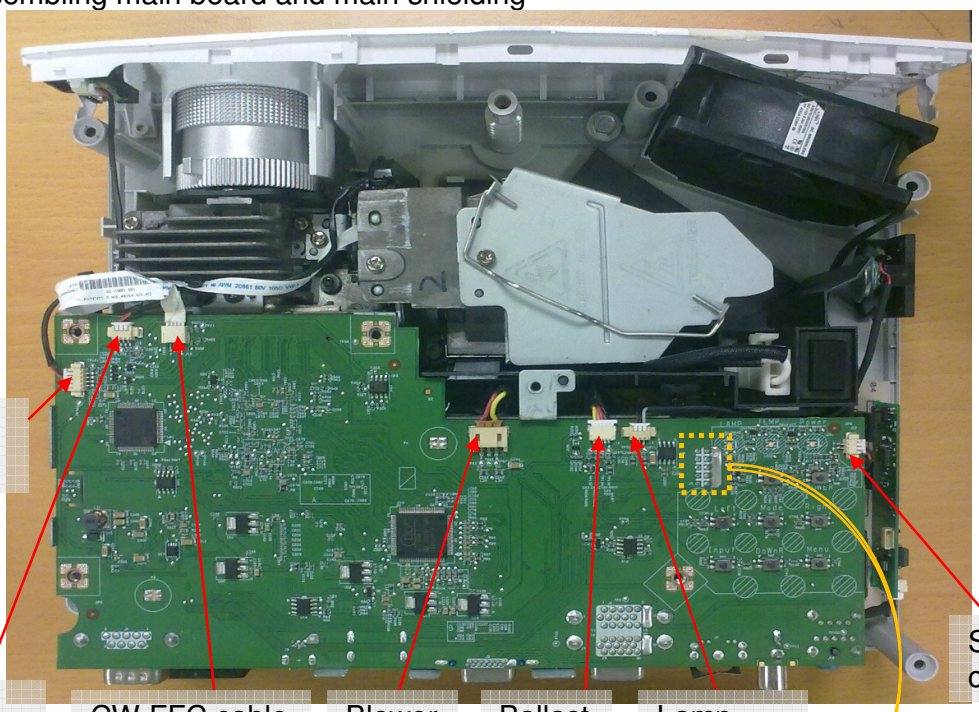


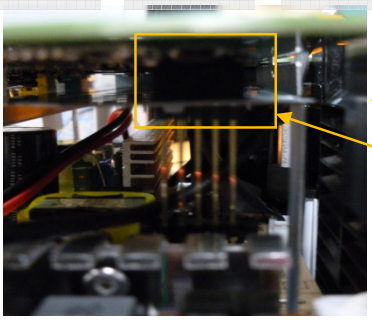
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7.2.8 Assemble main bracket

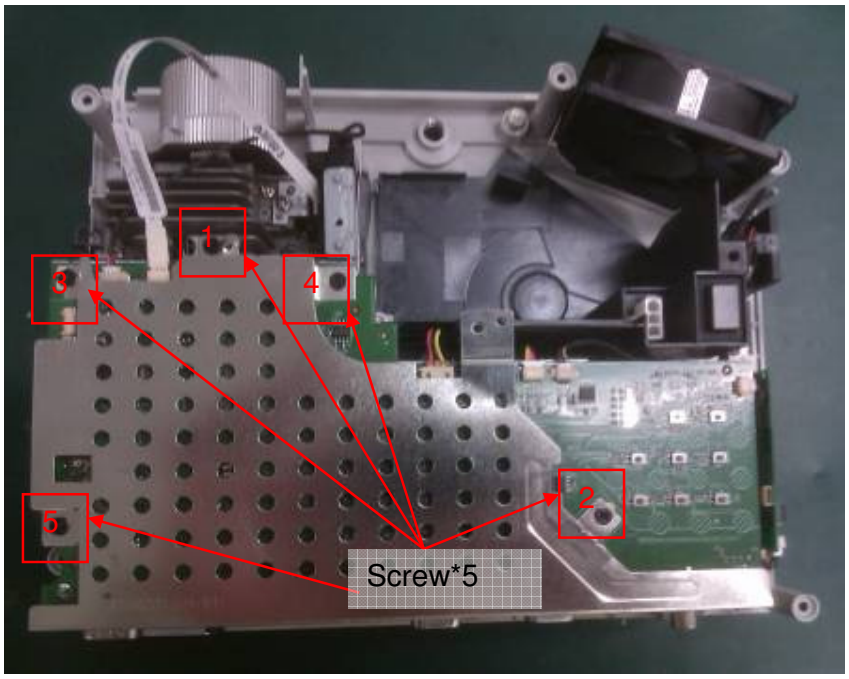


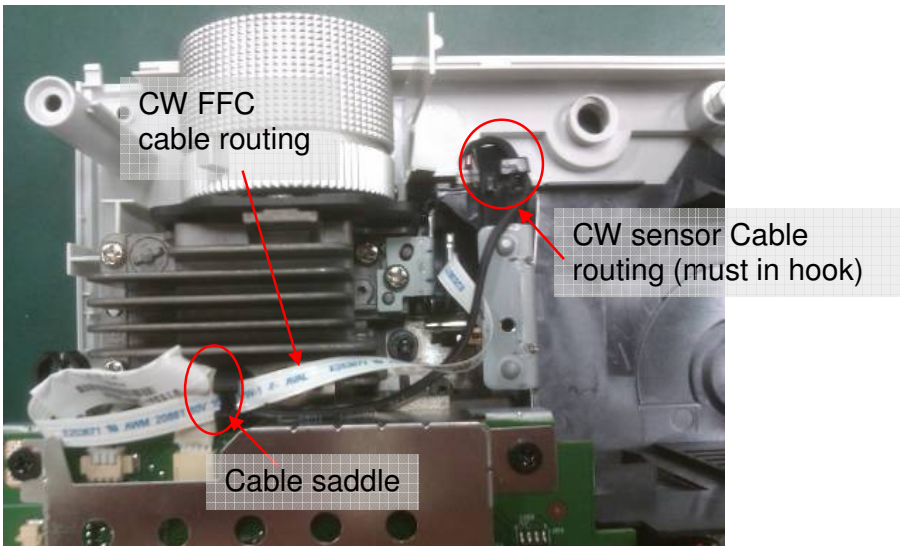
7.2.9 Assembling main board and main shielding



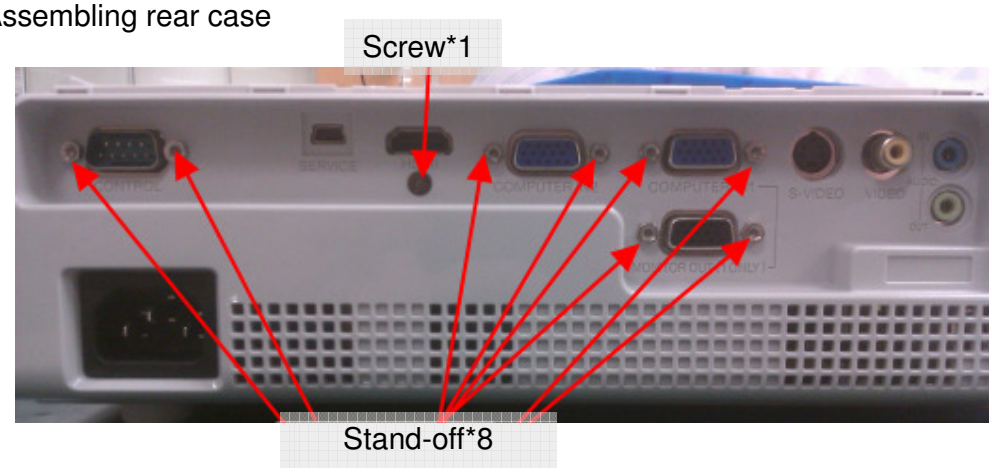


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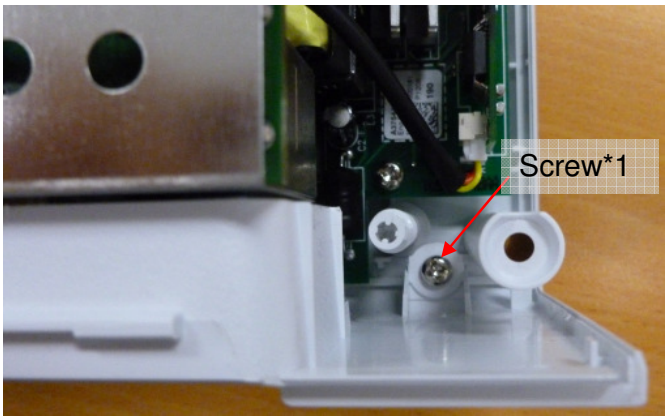


7.2.10 Assembling rear case



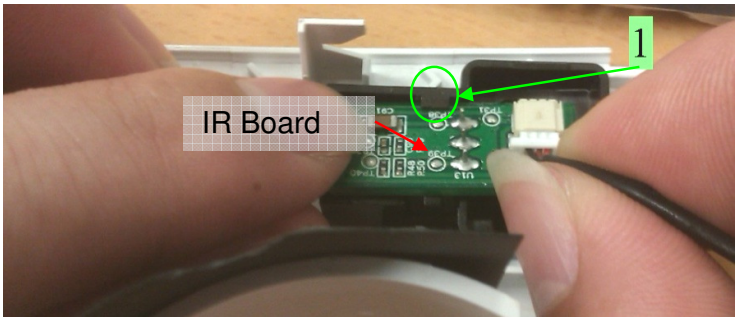
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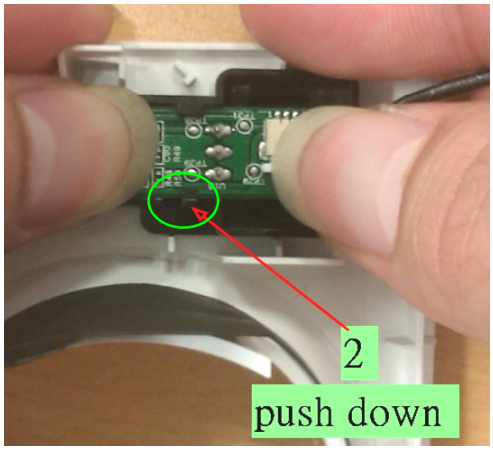
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7.2.11 Assembling front case

Assemble IR board on IR lens





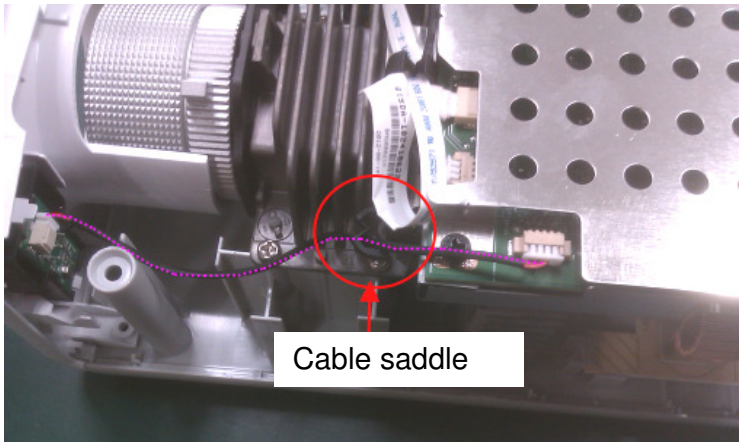
Assemble front case on lower case



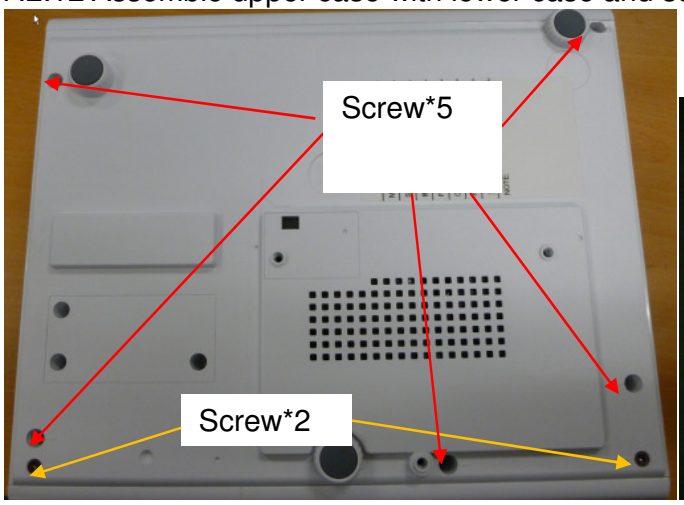
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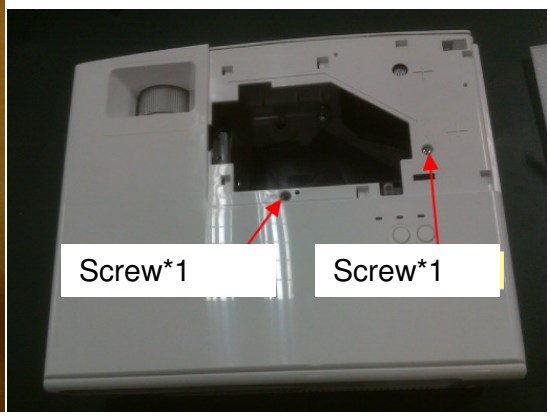
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Insert wire of IR board
Make sure wire route as shown, and fix the wire in cable saddle , please keep spare wire on left side of the picture.

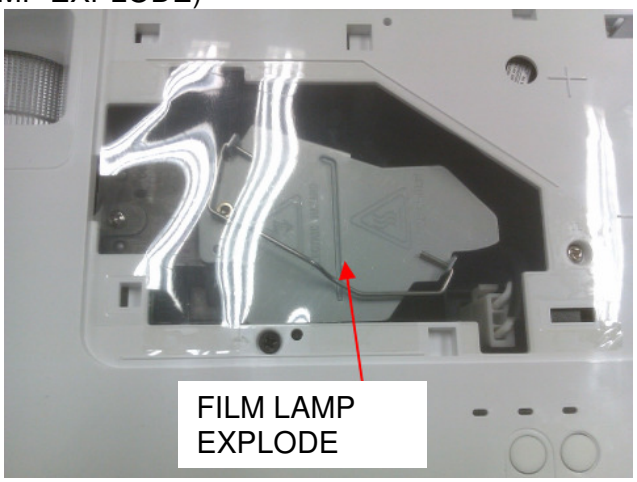


7.2.12 Assemble upper case with lower case and screws on.



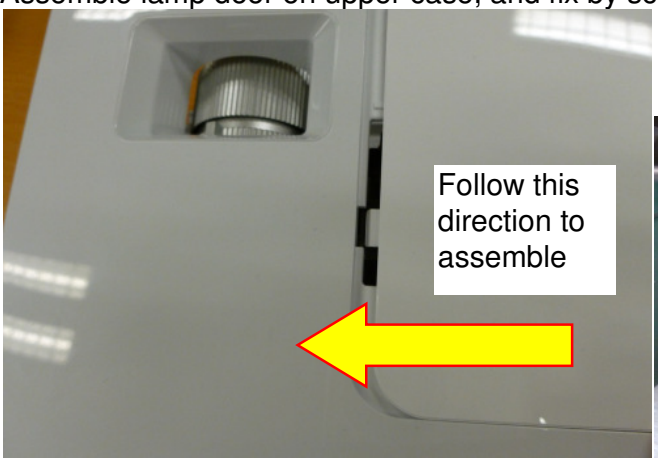


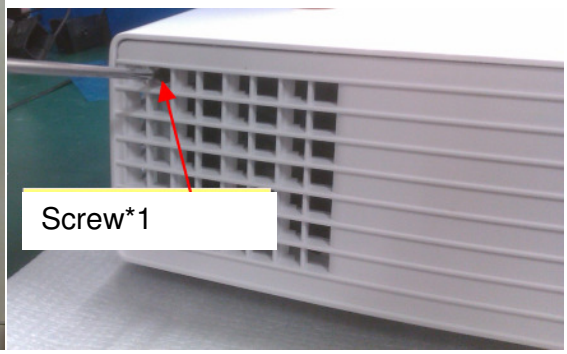
7.2.13 Assemble lamp door
Paste mylar (FILM LAMP EXPLODE)



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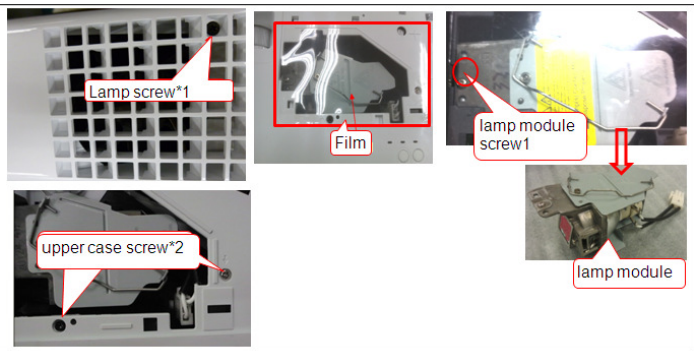
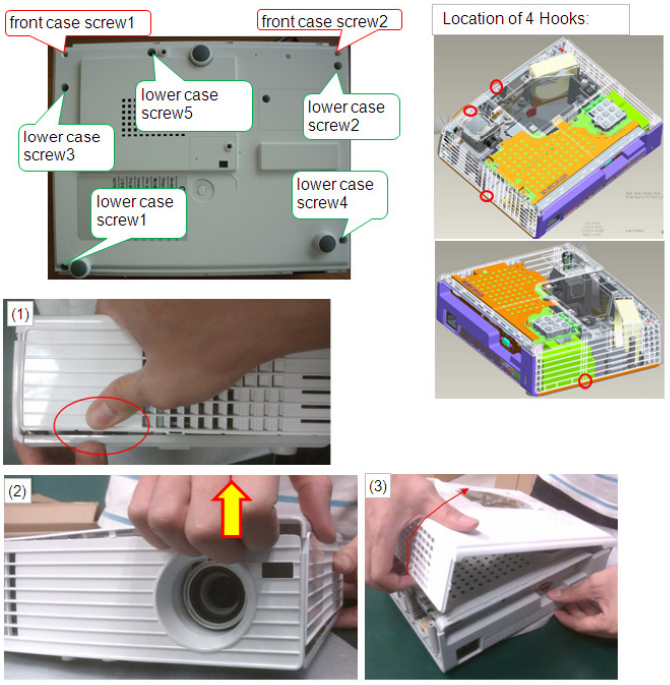
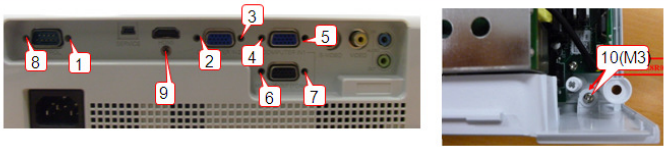
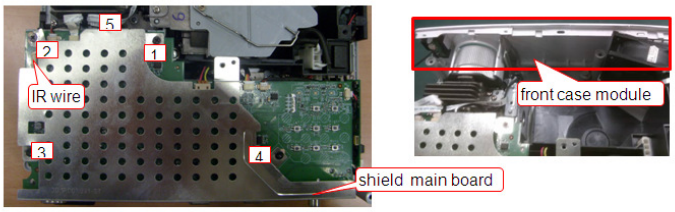
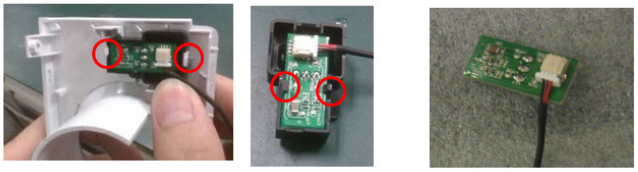
Assemble lamp door on upper case, and fix by screw*1 on front case side.





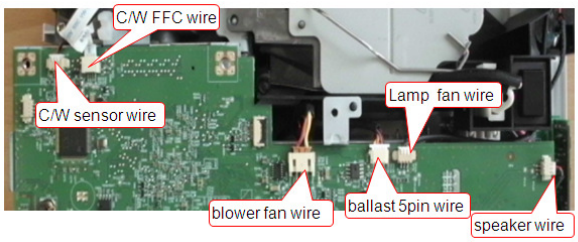
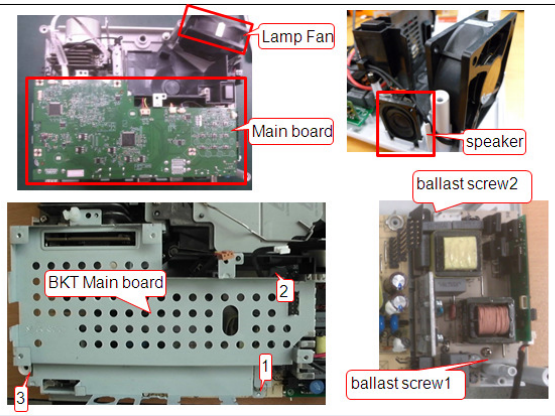
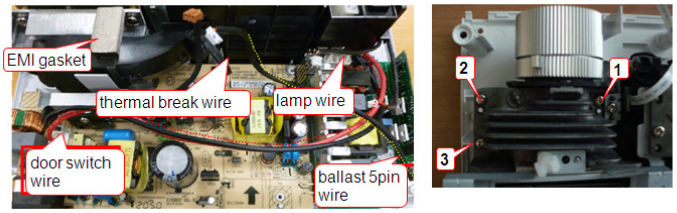
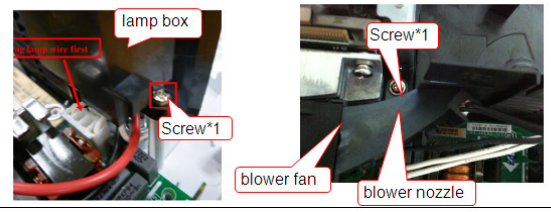
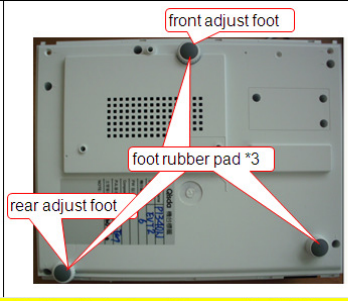
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8. Disassembly Diagram

CP-DX250 series Dismantle SOP					
Step	**Disassemble part**	**SYMBOL No.**	**Step**	**Figure**	**Tool**
1	Lamp screw (front case screw) lamp door lamp film lamp module	3 9 2 1	Disassemble the lamp screw (front case screw)*1 and take off the lamp door. Take off the film. Disassemble the lamp module screw*1 and take off the lamp module. Disassemble the upper case screw*2.		screw driver
2	upper case	4 & 5	Disassemble the front case screw*2. Disassemble the lower case screw* 5 and take off the upper case** (notice to release all hooks between lower case/front case and upper case). **Tips for taking off the upper case: (1) Push inlet side to separate upper case and lower case. (2) Pull upper case until hooks out of lower case. (3) Remove the upper case.		screw driver
3	rear case D-sub screw	8 13	Dismantle D-sub screw*8, HDMI screw*1, and screw*1(M3) on rear case then take off rear case.		screw driver
4	shield main board front case module	n/a 7	Disassemble the screw*5, and take off the shield main board. Extract the IR Wire from mainboard and take off the front case module.		
5	IR BD IR cable	17 n/a	Take off IR BD and IR cable from Front case.		

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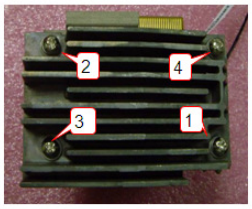
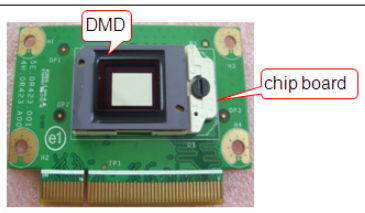
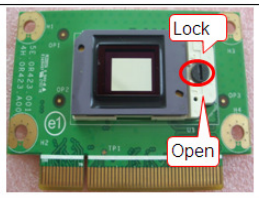
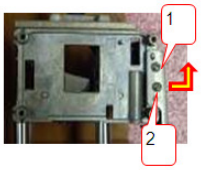
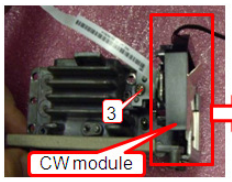
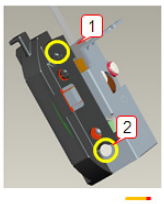
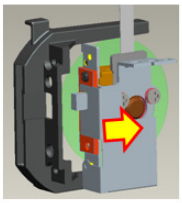
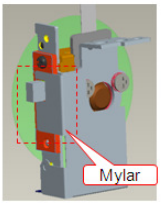
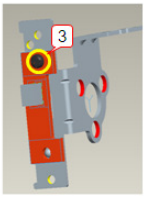
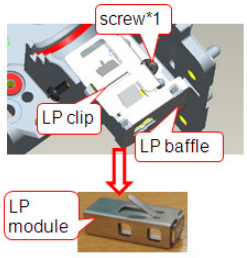
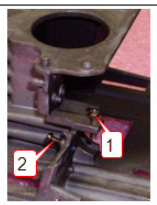
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6	-	-	Dismantle the wires-- C/W FFC wire, C/W sensor wire, blower fan wire, ballast 5pin wire, lamp fan wire, speaker wire from main board. **<Notice: >** Make sure that Metal side of the flat cable(CW FFC wire) facing upward to be seen.		
7	main board, Lamp fan Speaker BKT main board	16 15 23 n/a	Disassemble the main board. Take off the Lamp Fan and speaker. Disassemble the screw*3 and take off the BKT main board. Disassemble the ballast screw*2.		screw driver
8	Power board, ballast ballast 5pin wire EMI gasket	21 20 n/a n/a	Extract the door switch wire, thermal break wire, ballast 5pin wire, lamp wire and take off the Power board and ballast. Take off the EMI gasket*1. Disassemble the screw*3 and take off the Engine module.		screw driver
9	lamp box assembly blower fan blower nozzle assembly	n/a 14 n/a	Disassemble the screw*1, and take off the lamp box assembly. Disassemble the screw*1, take off the blower fan and blower nozzle assembly.		screw driver
10	foot rubber pad, rear adjust foot, front adjust foot, lower case	12 11 10 6	Extract the foot rubber pad*3, rear adjust foot and front adjust foot from the lower case.		screw driver

CP-DX250 series Optical Engine Dismantle SOP

Step	Disassemble part	SYMBOL No.	Step	Figure	Tool
1	Ring Focus	26	Pull the Ring Focus to disassemble it.		

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2	LENS, Ring Zoom	24 25	Take off the LENS screw*3 and and Ring Zoom screw*2. Disassemble the Ring Zoom.	 	screw driver
3	Heat-sink	-	Disassemble the screw*4 Take off the Heat-sink and DMD chip with Chip BD.	 	screw driver
4	DMD chip, chip board	22 18	Rotate to open the switch on socket, and take off the DMD chip from chip board.	 	screw driver
5	BKT Link Lamp & CW shield CW module CW sensor cable	n/a 28 n/a	Disassemble the screw*3 and take off the BKT Link Lamp, CW shield, and CW module. Take off the CW sensor cable.	  	screw driver
6	CW sensor BD	19	Disassemble screw*2 from CW cover. Take off the mylar, disassemble screw*1 from CW bracket and take off CW sensor BD.	   	screw driver
7	LP baffle, LP clip LP module	n/a 27	Disassemble the screw*1. Take off the LP baffle and LP clip. Take off the LP module . Loose the screw*2.	 	screw driver

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9. Replacement Parts List

PRODUCT SAFETY NOTE :
Components marked with a ⚠ have special characteristics important to safety.
Don't degrade the safety of the projector through improper servicing.

The figures in the “SYMBOL No.” column correspond to those in the drawings of the chapter “Disassembly diagram”.

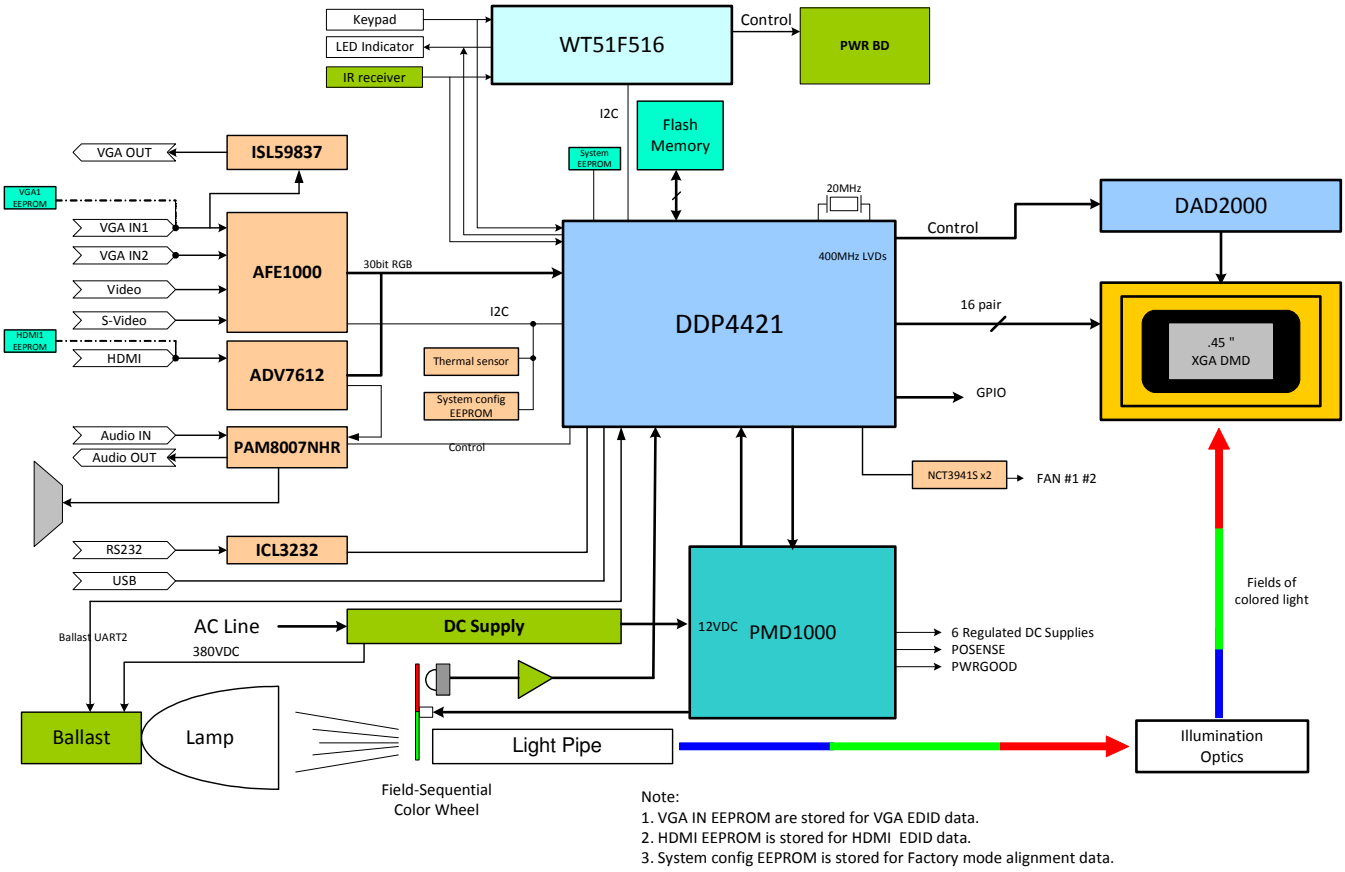
SYMBOL No.	PARTS No.	DESCRIPTION	MOQ (pc)	SYMBOL No.	PARTS No.	DESCRIPTION	MOQ (pc)
(*1) 1	DT01461	LAMP UNIT DL1	36	26	QD76761	FOCUS RING DL1	50
(*1) 2	MN36561	LAMP FILM DL1	100	27	UX39311	LIGHTPIPE MODULE DL1	40
3	MJ22811	SCREW LAMP DOOR	500	(*2) 28	UC01451	CW MODULE DL1	40
(*3) 4	QD76661	UPPER CASE ASS’Y DX300	50				
(*3) 5	QD76651	UPPER CASE ASS’Y DX250	50				
6	QD76681	LOWER CASE ASS’Y DL1	50				
7	QD76701	FRONT CASE ASS’Y DL1	50				
8	QD76631	REAR CASE DL1	50				
(*4) 9	QD76711	LAMP DOOR ASS’Y DL1	50				
(*5) 10	QD76721	FRONT FOOT DL1	50		DN02751	CD MANUAL DL1	50
(*5) 11	QD76741	REAR FOOT DL1	50		QR83571	QUICK START GUIDE DL1	50
12	MQ04641	FOOT PAD DL1	50	⚠	EV02841	POWER SUPPLY CORD US	50
13	MJ22801	STANDOFF D-SUB	1000	⚠	EV02842	POWER SUPPLY CORD EU	50
⚠14	GS02011	DC FAN AB5012DX	50		EW09831	RGB CABLE	50
⚠15	GS02021	DC FAN AD07012DX	50		HL02961	REMOTE CONTROL UNIT DL1	50
16	JP79751	PWB ASS’Y MAIN DL1	30				
17	JP79721	PWB ASS’Y IR DL1	30				
18	JP79731	PWB ASS’Y CHIP DL1	30				
(*2) 19	JP79771	PWB ASS’Y SENSOR DL1	30				
⚠20	HA03471	POWER UNIT BALLAST DL1	30				
⚠21	HA03481	PWB ASS'Y POWER DL1	30				
22	DB01651	IC DMD 0.55 XGA 450	30				
23	GK02051	SPEAKER	50				
24	UX39281	LENS ASS’Y DL1	30				
25	QD76751	ZOOM RING DL1	50				

*1 LAMP UNIT DL1 (no.1) includes one sheet of LAMP FILM DL1 (no.2).
*2 CW MODULE DL1 (no.28) includes a PWB ASS'Y SENSOR DL1 (no.19).
*3 UPPER CASE ASS'Y DX300/DX250 (no.4 and 5) doesn't include LAMP DOOR ASS'Y DL1 (no.9) or LAMP FILM DL1(no.2) but keypad rubber and LED lens.
*4 LAMP DOOR ASS'Y DL1 (no.9) doesn't include SCREW LAMP DOOR (no.3).
*5 FRONT FOOT DL1 (no.10) or REAR FOOT DL1 doesn't include FOOT PAD DL1 (no.12).

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10. Block Diagram



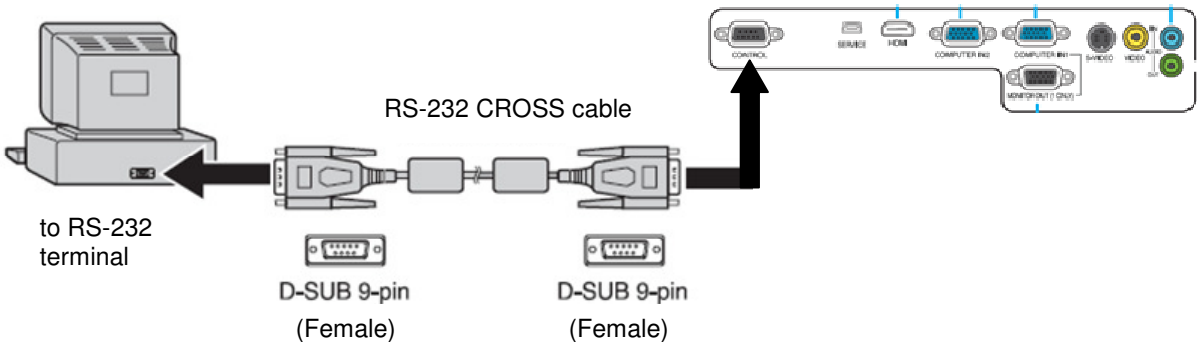
Main board & Input board Block Diagram

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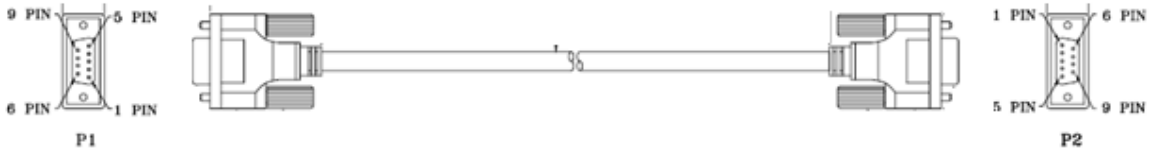
11. RS-232

11.1 RS-232 Connection

1. Below shows the illustration of connection between PC and Projector.



2. Specifications



<Download cable>

<pin assignment for the RS-232 (cross) cable>

Pin	Description	Pin	Description
1	NC	2	RXD
3	TXD	4	NC
5	GND	6	NC
7	RTS	8	CTS
9	NC		

Interface Settings

RS-232 protocol	
Baud Rate	115200 bps
Data Length	8 bit
Parity Check	None
Stop Bit	1 bit
Flow Control	None

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11.2 RS-232 Command List

*(Each input upper case and lower case character should be action)
**<CR> means press Enter key.

Function	Type	Operation	ASCII
Power	Write	Power On	<CR>(pow=on)<CR>
	Write	Power off	<CR>(pow=off)<CR>
	Read	Power Status	<CR>(pow=?)<CR>
Source Selection	Write	COMPUTER/YPbPr	<CR>(sour=RGB)<CR>
	Write	COMPUTER 2/YPbPr2	<CR>(sour=RGB2)<CR>
	Write	HDMI	<CR>(sour=hdmi)<CR>
	Write	Composite	<CR>(sour=vid)<CR>
	Write	S-Video	<CR>(sour=svid)<CR>
	Read	Current source	<CR>(sour=?)<CR>
Audio Control	Write	Mute On	<CR>(mute=on)<CR>
	Write	Mute Off	<CR>(mute=off)<CR>
	Read	Mute Status	<CR>(mute=?)<CR>
	Write	Volume +	<CR>(vol=+)<CR>
	Write	Volume -	<CR>(vol=-)<CR>
	Read	Volume Status	<CR>(vol=?)<CR>
Picture Mode	Write	Bright	<CR>(appmod=bright)<CR>
	Write	Presentation	<CR>(appmod=preset)<CR>
	Write	sRGB	<CR>(appmod=srgb)<CR>
	Write	Game	<CR>(appmod=game)<CR>
	Write	Cinema	<CR>(appmod=cine)<CR>
	Write	User1	<CR>(appmod=user1)<CR>
	Read	Picture Mode	<CR>(appmod=?)<CR>
	Write	Aspect 4:3	<CR>(asp=4:3)<CR>
	Write	Aspect 16:9	<CR>(asp=16:9)<CR>
	Write	Aspect Auto	<CR>(asp=auto)<CR>
	Write	Aspect Real	<CR>(asp=real)<CR>
	Read	Aspect Status	<CR>(asp=?)<CR>
	Write	Auto	<CR>(auto)<CR>
Operation Settings	Write	Projector Position-Front Table	<CR>(pp=FT)<CR>
	Write	Projector Position-Rear Table	<CR>(pp=RE)<CR>
	Write	Projector Position-Rear Ceiling	<CR>(pp=RC)<CR>
	Write	Projector Position-Front Ceiling	<CR>(pp=FC)<CR>
	Read	Projector Position Status	<CR>(pp=?)<CR>
	Write	Quick auto search	<CR>(QAS=on)<CR>
	Write	Quick auto search	<CR>(QAS=off)<CR>
	Read	Quick auto search status	<CR>(QAS=?)<CR>
	Write	Standby Settings-Normal	<CR>(standby=normal)<CR>
	Write	Standby Settings-Saving	<CR>(standby=saving)<CR>
	Read	Standby Settings	<CR>(standby=?)<CR>
Control	Read	Lamp Hour	<CR>(ltim=?)<CR>
	Write	Normal mode	<CR>(lampm=nor)<CR>
	Write	Eco mode	<CR>(lampm=eco)<CR>
	Write	Intelligent Eco mode	<CR>(lampm=leco)<CR>

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Control (continued)	Read	Lamp Mode Status	<CR>(lampm=?)<CR>
	Write	Blank On	<CR>(blank=on)<CR>
	Write	Blank Off	<CR>(blank=off)<CR>
	Read	Blank Status	<CR>(blank=?)<CR>
	Write	Freeze On	<CR>(freeze=on)<CR>
	Write	Freeze Off	<CR>(freeze=off)<CR>
	Read	Freeze Status	<CR>(freeze=?)<CR>
	Write	Menu On	<CR>(menu=on)<CR>
	Write	Menu Off	<CR>(menu=off)<CR>
	Write	Up	<CR>(up)<CR>
	Write	Down	<CR>(down)<CR>
	Write	Right	<CR>(right)<CR>
	Write	Left	<CR>(left)<CR>
	Write	Enter	<CR>(enter)<CR>
	Write	High Altitude mode 1	<CR>(Highaltitude=1)<CR>
	Write	High Altitude mode 2	<CR>(Highaltitude=2)<CR>
	Read	High Altitude mode status	<CR>(Highaltitude=?)<CR>

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Appendix – Abbreviations & Acronyms

A	
A/D	Analog to Digital
AL	Aspheric Lens
B	
BKT	Bracket
C	
C/W, CW	Color Wheel
CM	Concave Mirror
D	
DLP	Digital Light Processing / Texas Instruments®
DMD	Digital Micro mirror Device
F	
FM	Fold Mirror
FW	Firmware
H	
HSG	Housing
I	
ILL	Illumination
L	
LP	Light Pipe
P	
PL	Projection Lens
POM	Pond of Mirrors
R	
RS232	Interface Between Data terminal Equipment and Data Communications Equipment Employing Serial Binary Data Interchange
S	
SVGA	Super Video Graphics Array, A screen resolution of 800 x 600 pixels.
SXGA	Super XGA. A screen resolution of 1280x1024 pixels.
V	
VGA	Video Graphics Array. A screen resolution of 640x480 pixels.
X	
XGA	A screen resolution of 1024x768 pixels.

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HITACHI

CP-DX250/CP-DX300 YK No.0682E

QR83721

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