RICOH PJ
WU6480 / X6480
WU6590 / X6590
KU9000 / KX10000
KU7000 / KX8000

2017年11月

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Important Safety Notices

Safety Notices

Important Safety Notices

Prevention of physical injury

1. Before disassembling or assembling parts of the main machine and peripherals, make sure that the power cord of the main machine is unplugged.
2. The wall outlet should be near the machine and easily accessible.
3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.

⚠WARNING

- To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

Health safety conditions

- This machine, which uses a high voltage power source, can generate ozone gas. High ozone density is harmful to human health. Therefore, the machine must be installed in a well-ventilated room.

Observance of electrical safety standards

- This machine and its peripherals must be serviced by a customer service representative who has completed the training course on those models.

Safety and Ecological Notes for Disposal

- Dispose of replaced parts in accordance with local regulations.

Symbols, Abbreviations and Trademarks

This manual uses several symbols and abbreviations. The meaning of those symbols and abbreviations are as follows:

	Screw
	Shoulder screw
	Black screw (TCRU)
	Connector
	FFC (Flat Film Connector)
	Harness clamp
	Clip
	E-ring
	C-ring
	Timing belt
	Spring

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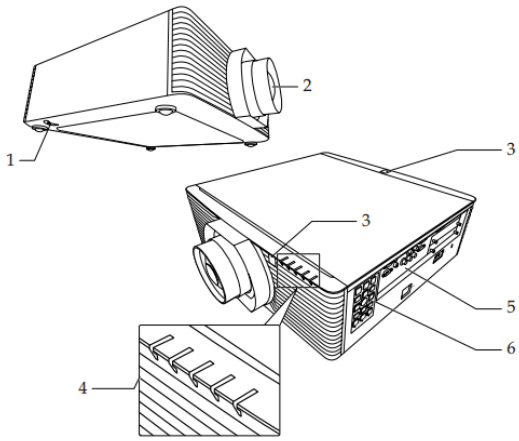
Introduction

Product Overview

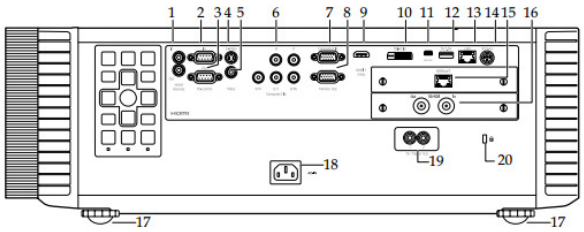


1. Security bar
2. Projection lens (optional)
3. Remote receiver
4. Indicator LED
5. Connection ports
6. Control panel

Note

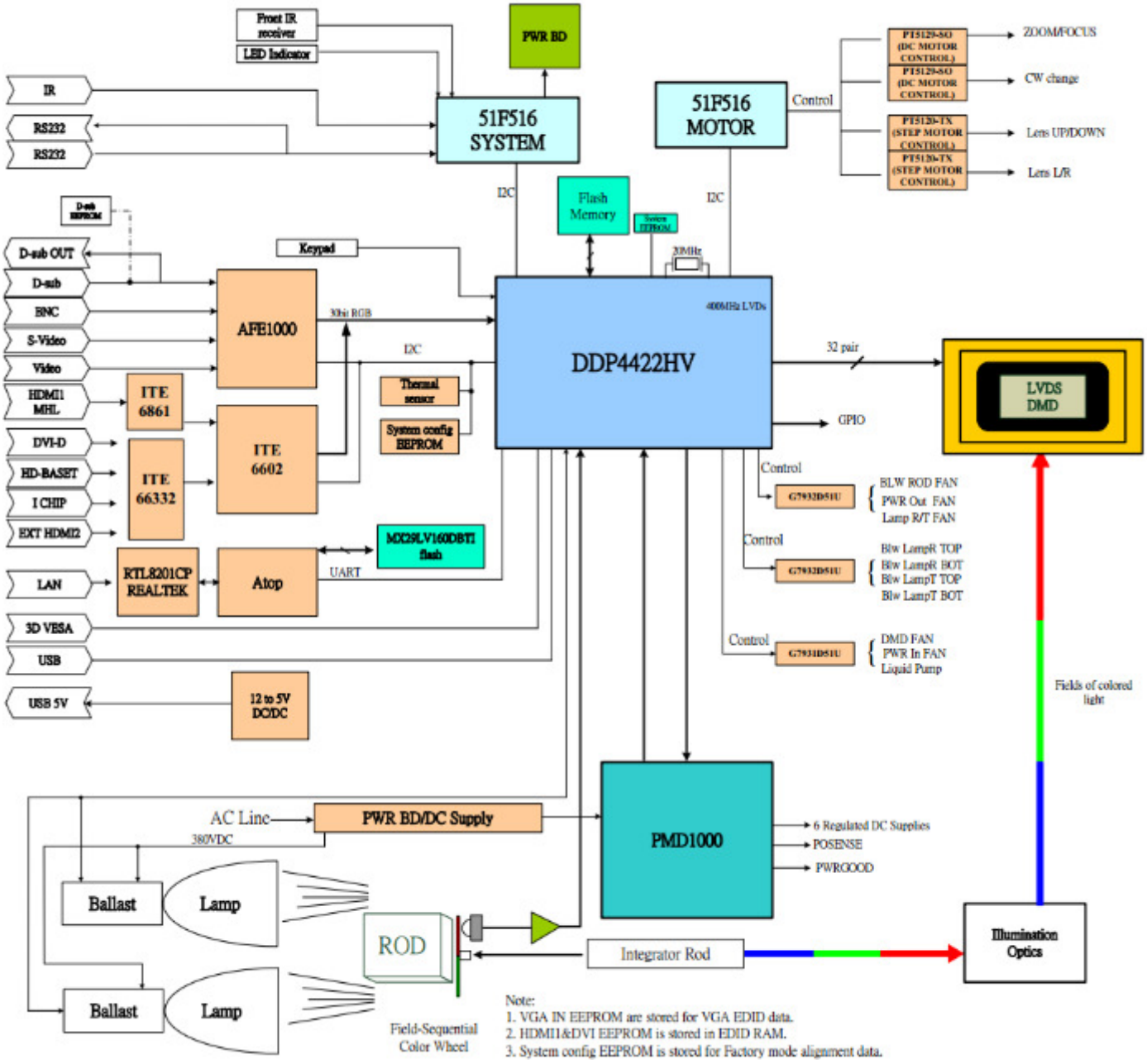
- The interface is subject to model's specifications.
- Compatible with MHL version 2, the charging power 5V@0.9A.
- HDBaseT terminal is available for PJ WU6590/PJ WU6480.
- 3G-SDI terminal is available for PJ WU6590.

Connection Ports



1. Wired remote control In terminal
   Wired remote control Out terminal
2. PC-Contorl (Out) terminal
3. RC-Control (In) terminal
4. S-Video In terminal
5. Video In terminal
6. Computer2 In terminal
7. Computer1 In terminal
8. Monitor Out terminal
9. HDMI 1/MHL terminal
10. DVI-D In terminal
11. Service terminal
12. USB-A terminal
13. LAN terminal
14. 3D sync terminal
15. HDBaseT terminal / Optional slot *
16. 3G-SDI terminal (In/Out) / Optional slot *
17. Adjustable feet
18. AC In socket
19. 12V Trigger Out terminals
20. Anti-theft lock hole (Kensington™ lock)

Diagram


Front IR receiver
LED Indicator
PWR BD
IR
RS232
RS232
51F516 SYSTEM
51F516 MOTOR
Control
PT5129-SO (DC MOTOR CONTROL)
PT5129-SO (DC MOTOR CONTROL)
PT5129-TX (STEP MOTOR CONTROL)
PT5129-TX (STEP MOTOR CONTROL)
ZOOM/FOCUS
CW change
Lens UP/DOWN
Lens L/R
I2C
Flash Memory
I2C
D-sub EEPROM
Keypad
33MHz
D-sub OUT
D-sub
BNC
S-Video
Video
HDMI1 MHL
DVI-D
HD-BASET
I CHIP
EXT HDMI2
LAN
3D VESA
USB
USB 5V
AFE1000
30bit RGB
ITE 6861
ITE 6602
ITE 66332
RTL8201CP REALTEK
Atop
UART
MX29LV160DBTI flash
I2C
Thermal sensor
System config EEPROM
DDP4422HV
400MHz LVDs
32 pair
GPIO
LVDS DMD
Control
G7932D51U
BLW ROD FAN
PWR Out FAN
Lamp R/T FAN
Control
G7932D51U
Blw LampR TOP
Blw LampR BOT
Blw LampT TOP
Blw LampT BOT
Control
G7931D51U
DMD FAN
PWR In FAN
Liquid Pump
12 to 5V DC/DC
Fields of colored light
AC Line
PWR BD/DC Supply
380VDC
PMD1000
6 Regulated DC Supplies
POSENSE
PWRGOOD
Ballast
Lamp
Ballast
Lamp
ROD
Integrator Rod
Illumination Optics
Field-Sequential Color Wheel
Note:
1. VGA IN EEPROM are stored for VGA EDID data.
2. HDMI1&DVI EEPROM is stored in EDID RAM.
3. System config EEPROM is stored for Factory mode alignment data.

Tools

- Screw driver (+): 105
- Screw driver (+): 107
- Screw driver (−): 107
- Hexagonal box driver 5.0 mm
- Pliers
- The projector

Replacement

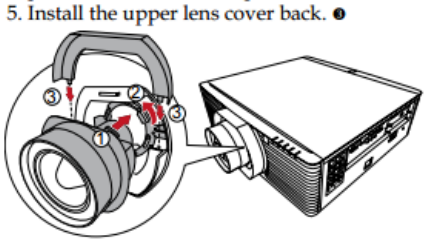
Important

- Remove static electricity before working.
- Work in a clean place.

Lens

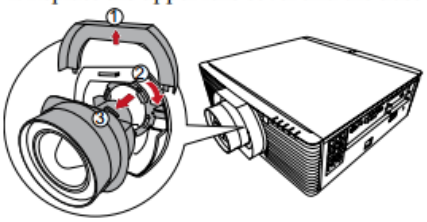
Installing the Projection Lens

1. Remove the front lens cap and rear lens cap from the optional lens.
2. Remove the dust cap and upper lens cover from the projector.
3. Insert the projection lens. ❶
4. Turn the lever counterclockwise until you feel it click into place to lock the lens in position. ❷
5. Install the upper lens cover back. ❶



Removing the Projection Lens

1. Remove the upper lens cover. ❶
2. Turn the lever clockwise to release the lens. ❷
3. Pull out the projection lens. ❶
4. Replace the upper lens cover and the dust cap.



Expansion PCB

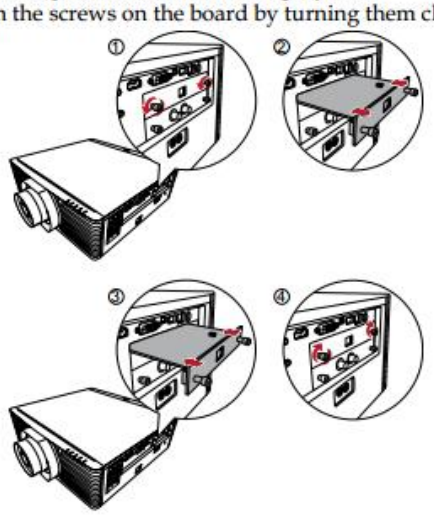
Removing and installing the RICOH PJ Expansion Board

There are 2 optional slots for you to install the expansion board you want. Before removing or installing the expansion board, be sure to turn off the projector, wait until the cooling fans stop, and unplug the power cord.

1. Loosen the screws of the expansion board on the optional slot by turning them counterclockwise.
2. Pull out the expansion board.
3. Insert the expansion board into the projector.
4. Tighten the screws on the board by turning them clockwise.

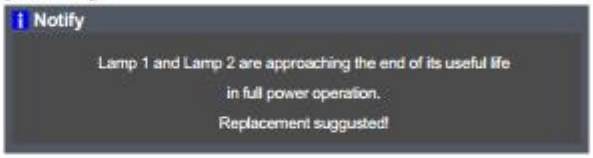
Note

- Do not install 2 Expansion Board for Blending simultaneously. The projector can only recognize one when that happens.
- The Expansion Board can be set to both optional slot.
- Do not leave the optional expansion board uncovered during operation.



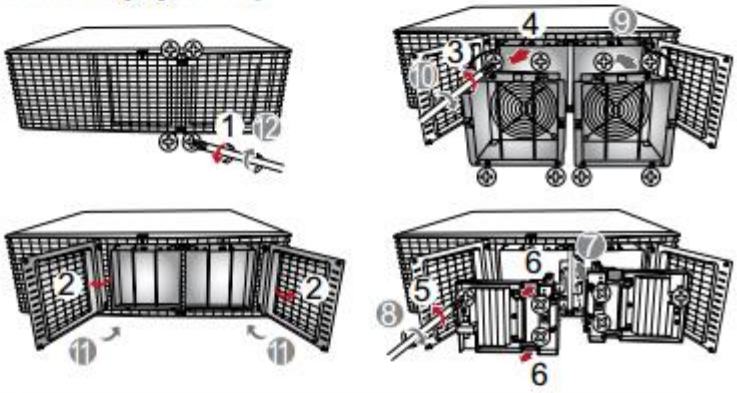
Replacing the Lamp

The projector will detect the lamp life itself. It will show you a warning message



When you see this message, change the lamp as soon as possible. Make sure the projector has been cooled down for at least 60 minutes before changing the lamp.

Warning: To avoid burns, allow the projector to cool for at least 60 minutes before you replace the lamp!



Warning: Do not drop the lamp module or touch the glass parts. The glass parts may shatter and cause injury if it is dropped.

Warning: For continued safety replace with RICOH PJ Replacement Lamp Type 29.

Caution: If the lamp should break, handle with care to avoid injury due to broken pieces and contact your sales representative for repair service.

Lamp Replacing Procedure:

1. Switch off the power to the projector by pressing the ⏻ button.
2. Allow the projector to cool down at least 60 minutes.
3. Disconnect the power cord.
4. Use a screwdriver to remove the screw(s) from the cover.❶
5. Open the cover.❷
6. Remove the screws from the fan.❸
7. Pull out the fan.❹
8. Remove the screw on the lamp module.❺
9. Remove the lamp module carefully by the handle.❻
10. Install the new lamp module by reversing the previous steps. ❼~❿

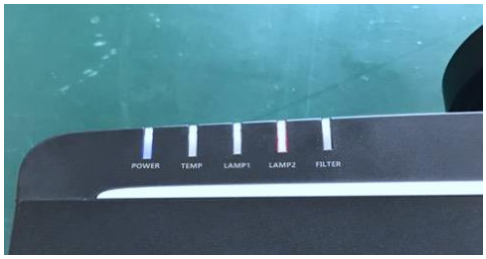
See the lamp's manual for instructions on resetting the lamp time.

1. The lamp may burst if it continues to be used despite the end of its life, or if it receives a strong shock during use.
2. When one Lamp burst, projector shows warning message, then switch to single lamp mode.

Sample :

3. LED indicator message

Sample :



4. Replace with reference to lamp replacement procedure.

To avoid burns, cool off for at least 60 minutes after turning off the power.

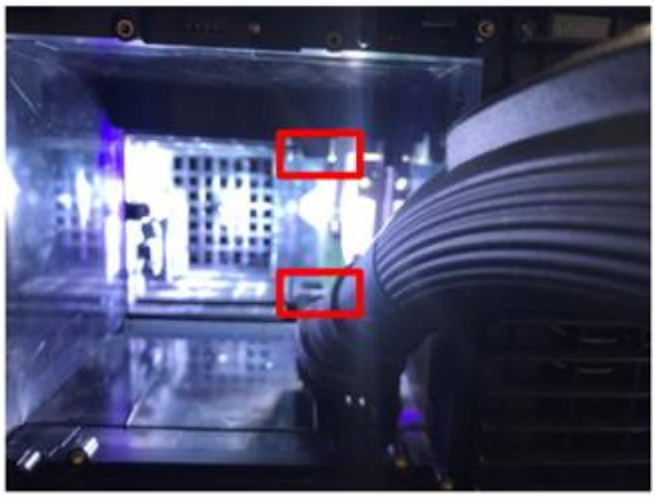
Provide adequate ventilation to avoid inhaling mercury vapor.

Be careful of glass fragments when removing the lamp.

5. Prepare a vacuum cleaner. Recommended: Brush head

Sample :

6. Clean glass fragments with a vacuum cleaner



7. Clean the red part over 20 to 30 seconds carefully in the figure.

8. Install a new lamp

9. Access the OSD menu and switch to dual lamp mode

10. Reset the replacement lamp usage time

Upper cover

1. Remove all screws on the back and bottom of the main unit

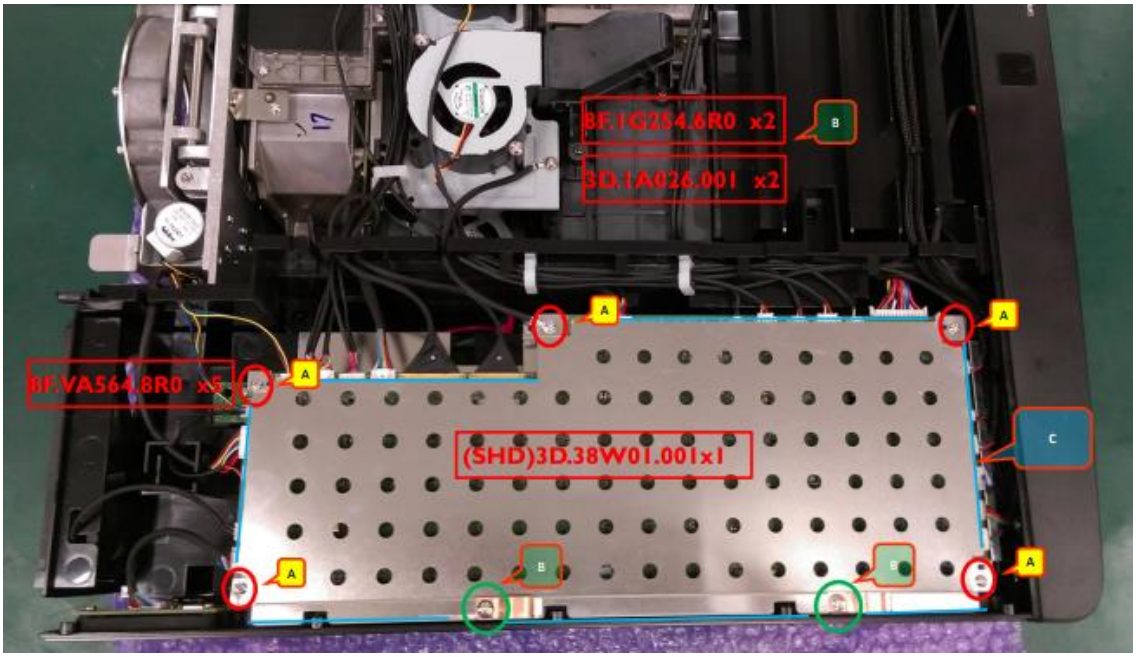
2. Slide the top cover backward and lift it up.

CAUTION: Do not break the front hook. There is a connection harness on the front

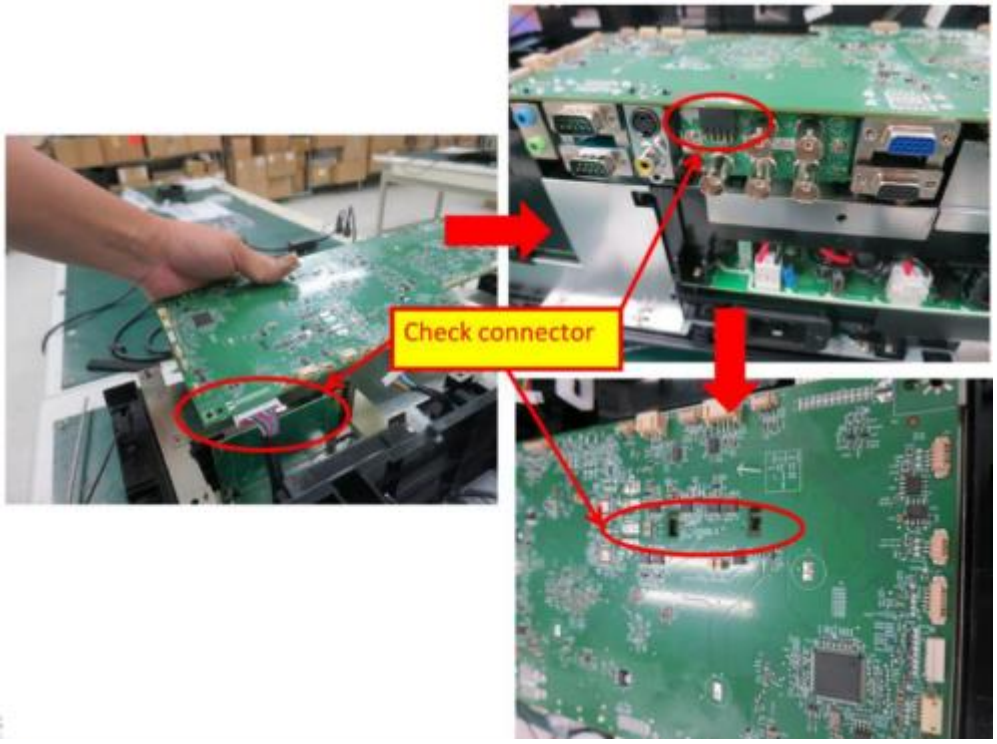
LED PCB and main board on the back side of the cover, and do not pull strongly.

Main PCB

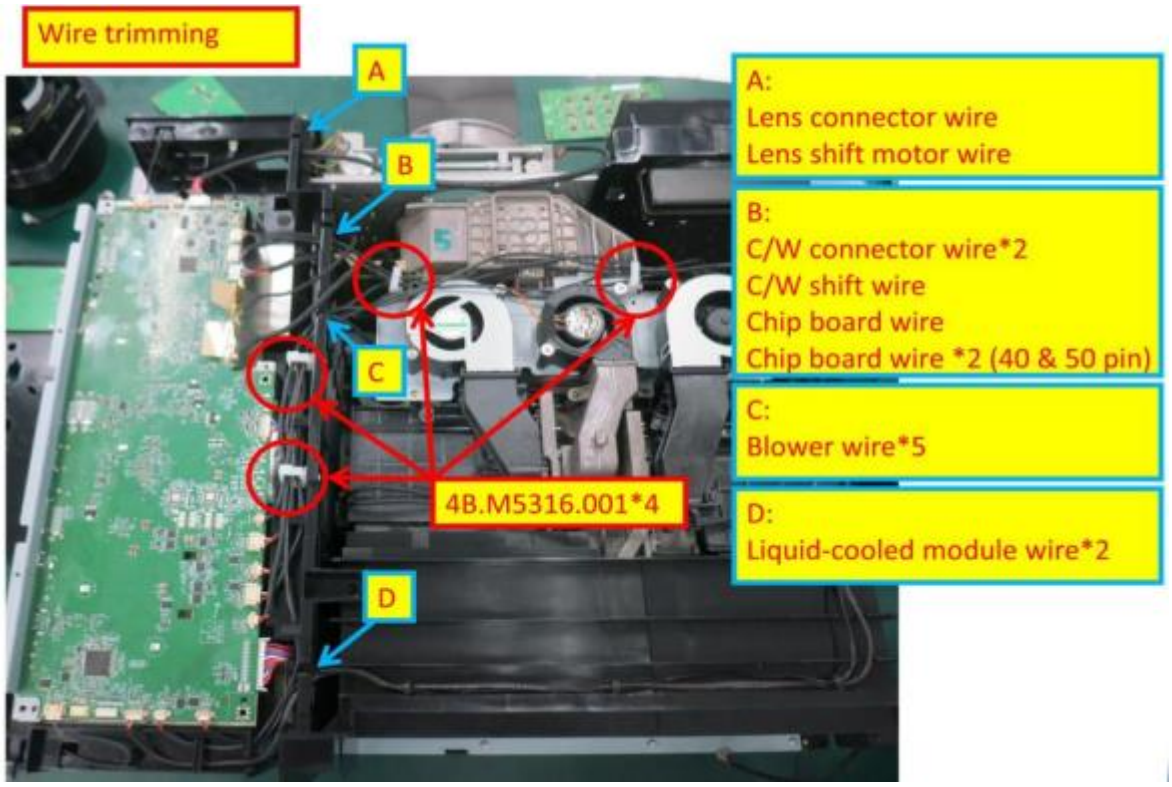
Remove main board shield



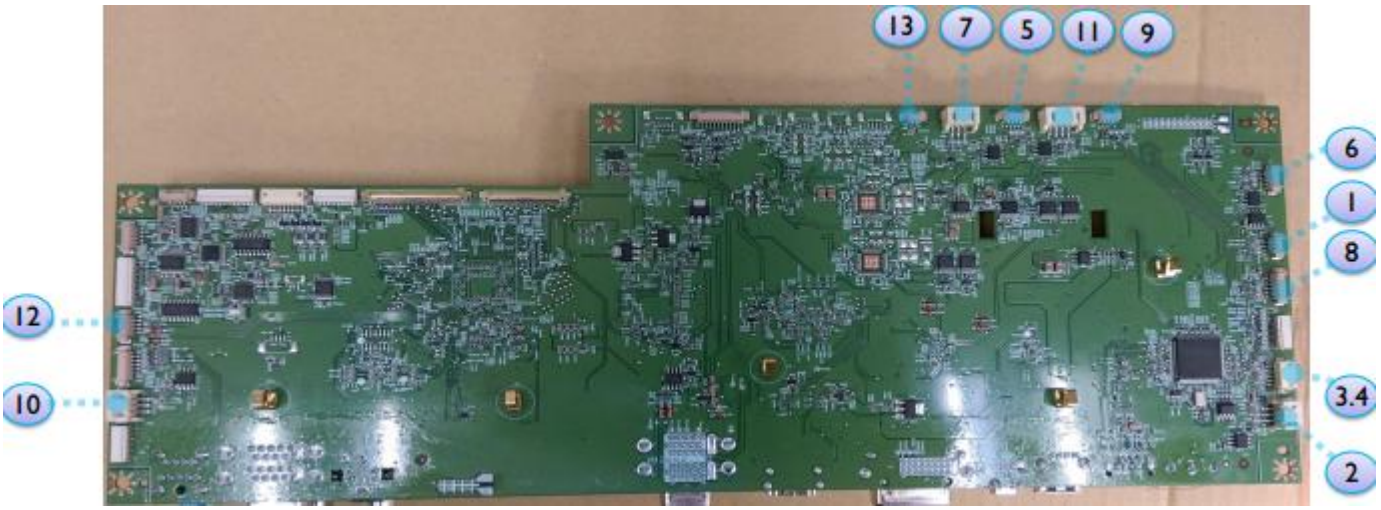
The main board is vertically inserted in the BNC board and the relay PCB. Confirm that the connector is securely connected when assembling.



Wiring around main PCB



Main PCB connectors



1. ROD fan 2. Fan2 (Power Out) 3.4. Lamp fan 1(T)/2(R) 5. Lampfan1(R)_T	6. DMD 7. Lamp fan 2(T)_T 8. Cooling pump 9. Lamp fan 1(R)_B	10. Fan10 (Power IN) 11. Lamp fan 2(T)_B 12. T1 センサー 13. T2 センサー

13. Keypad PCB	17. Lens horizontal shift motor	21. Chip PCB 50pin
14. Front LED PCB	18. Limiter PCB (3in1	22. Chip PCB 40pin
15. Lens relay PCB	19. Color wheel	23. Ballast PCB
16. Lens vertical shift motor	20. Chip PCB power	24. Interlock PCB

CAUTION: Please pay attention to the direction of inserting 21 and 22. In case of mistake, CHIP may break down.

The connector is weak against bending, and if you do not connect firmly, image problems may occur.

1. Power Supply PCB
2. External relay PCB

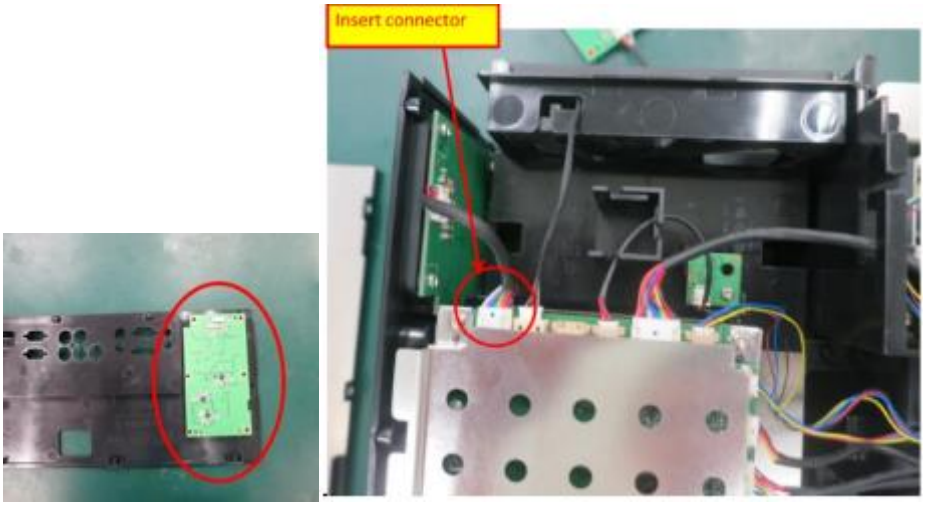
IO PCB

1. Rear screw x2

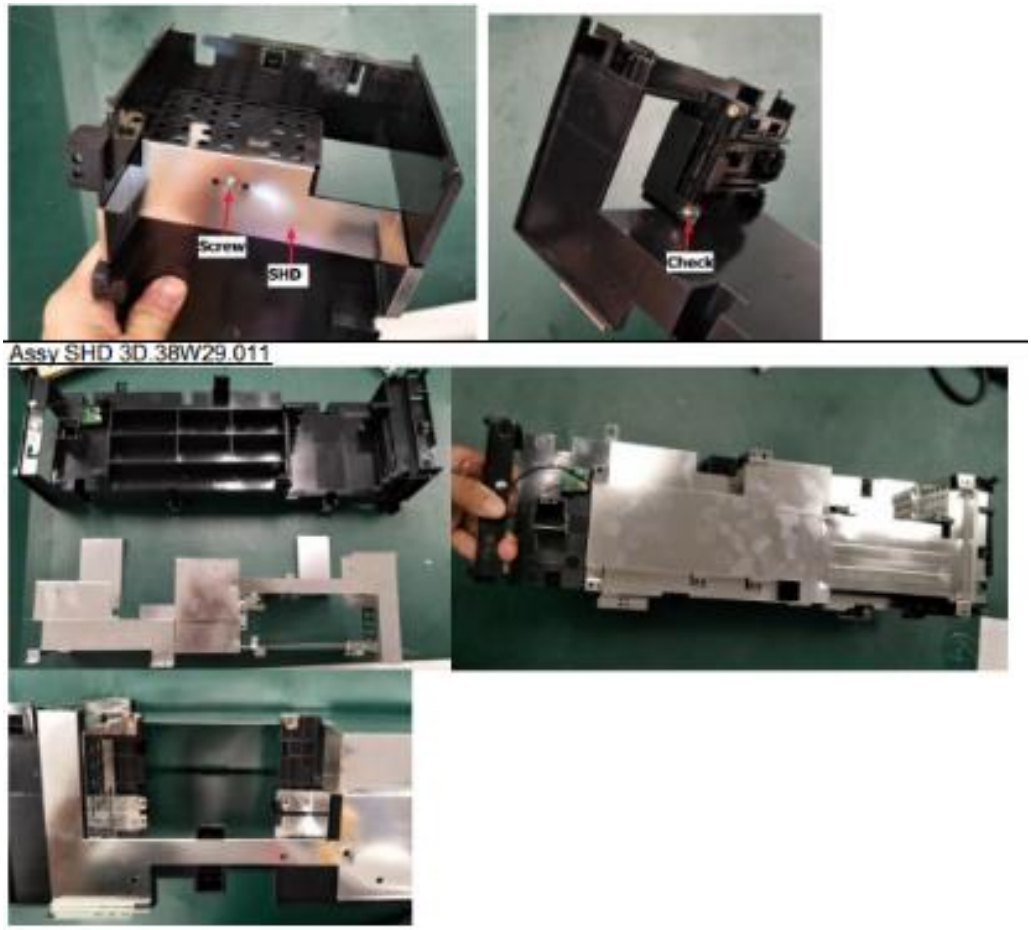
2. I/O connector hex screw x10. (Note: the two HDMI are shorter in length than others)

KEYPAD, KEYPAD PCB

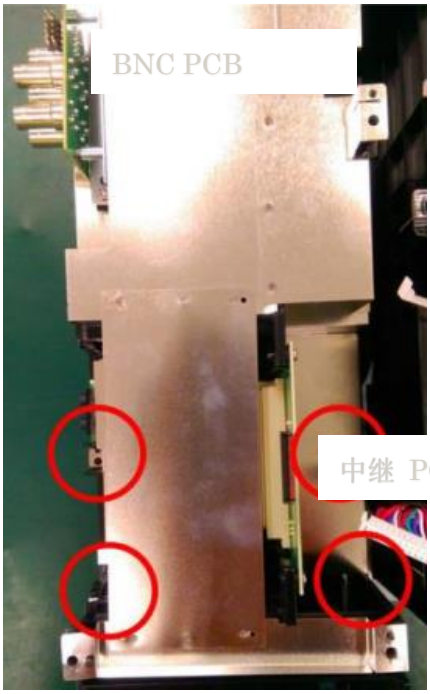
Keypad PCB: I/O cover back, one connector to be connected to the main board

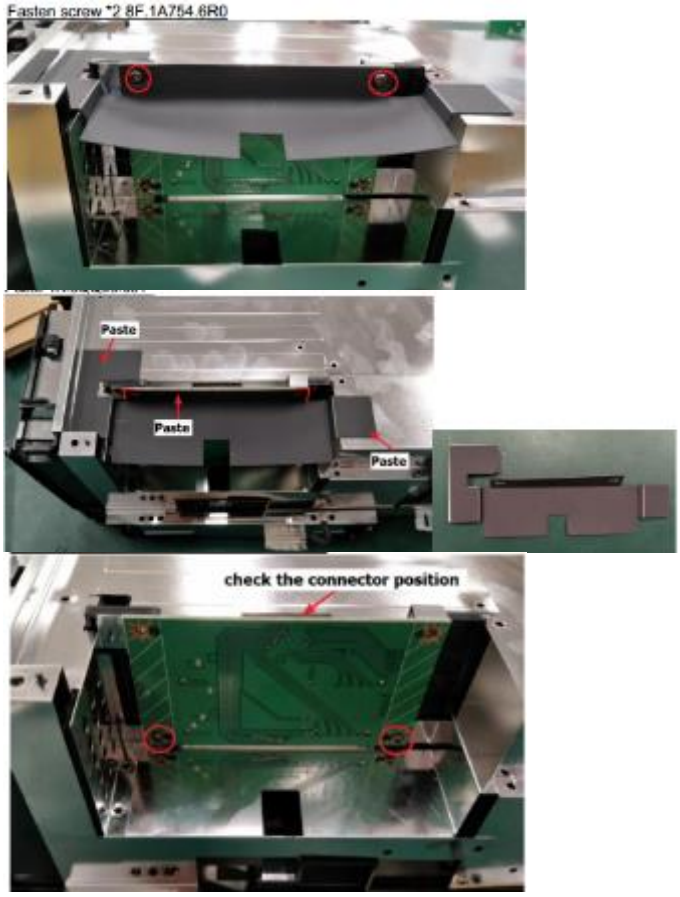


Remove PSU cover

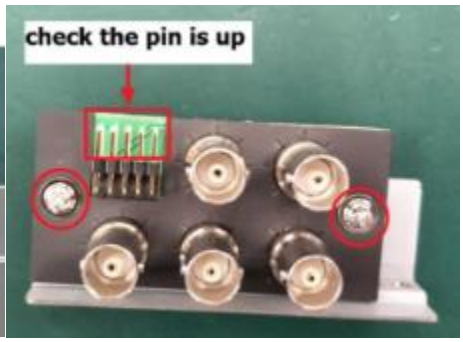


Remove screw x4 from the sheet then remove relay PCB



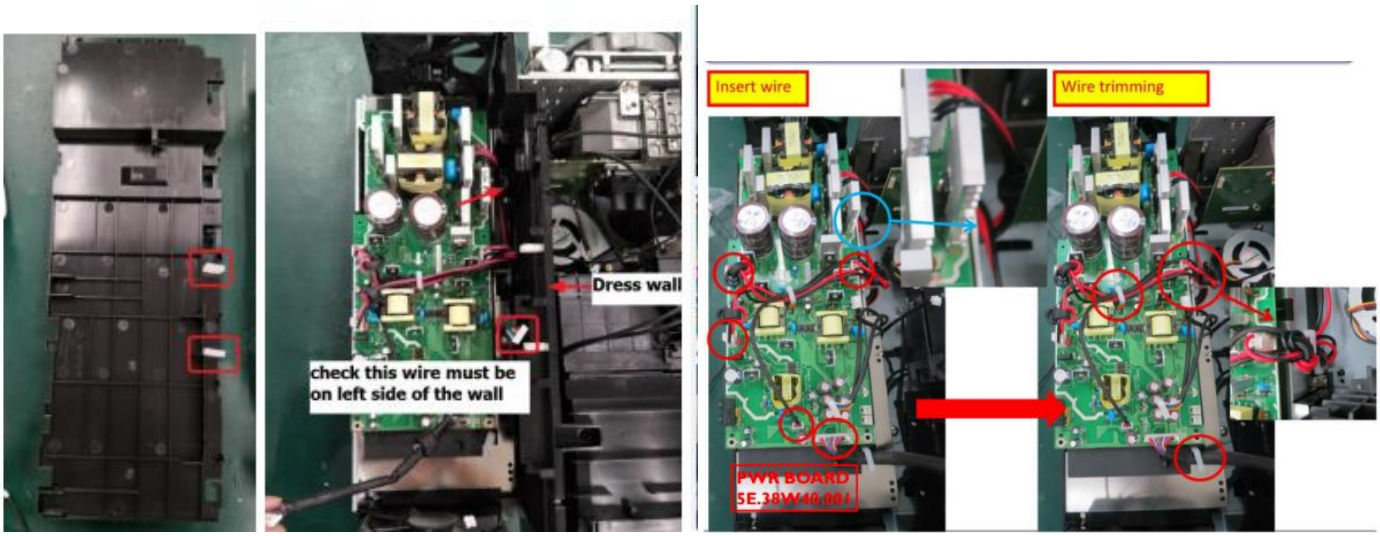


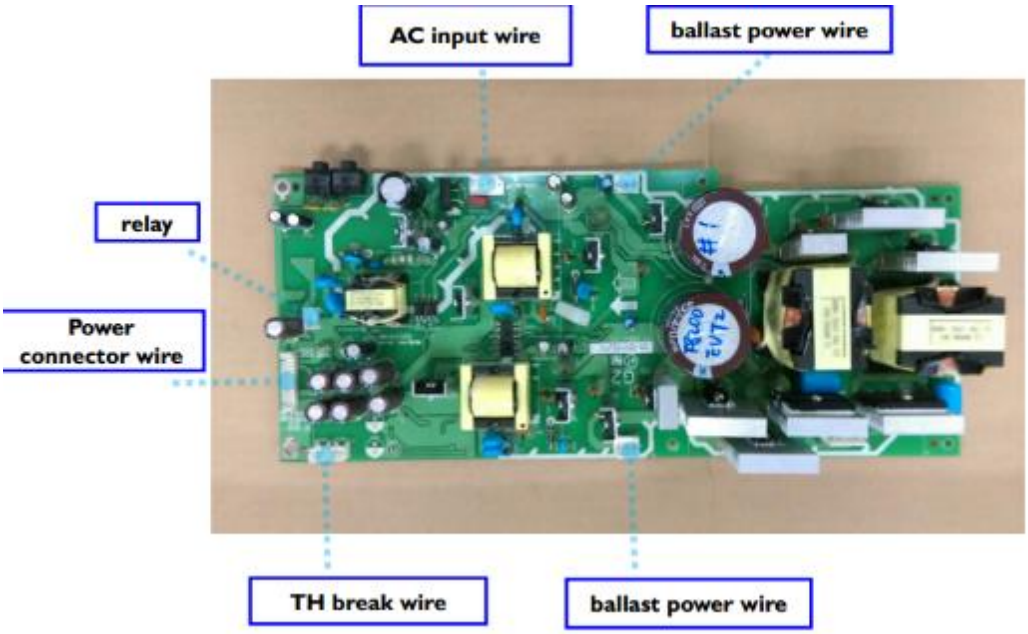
Remove BNC PCB（screw x4）



PSU

Open the power supply cover, remove all the connectors (pay attention when assembling), remove the PSU. CAUTION: Put the harness in the clamp when assembling





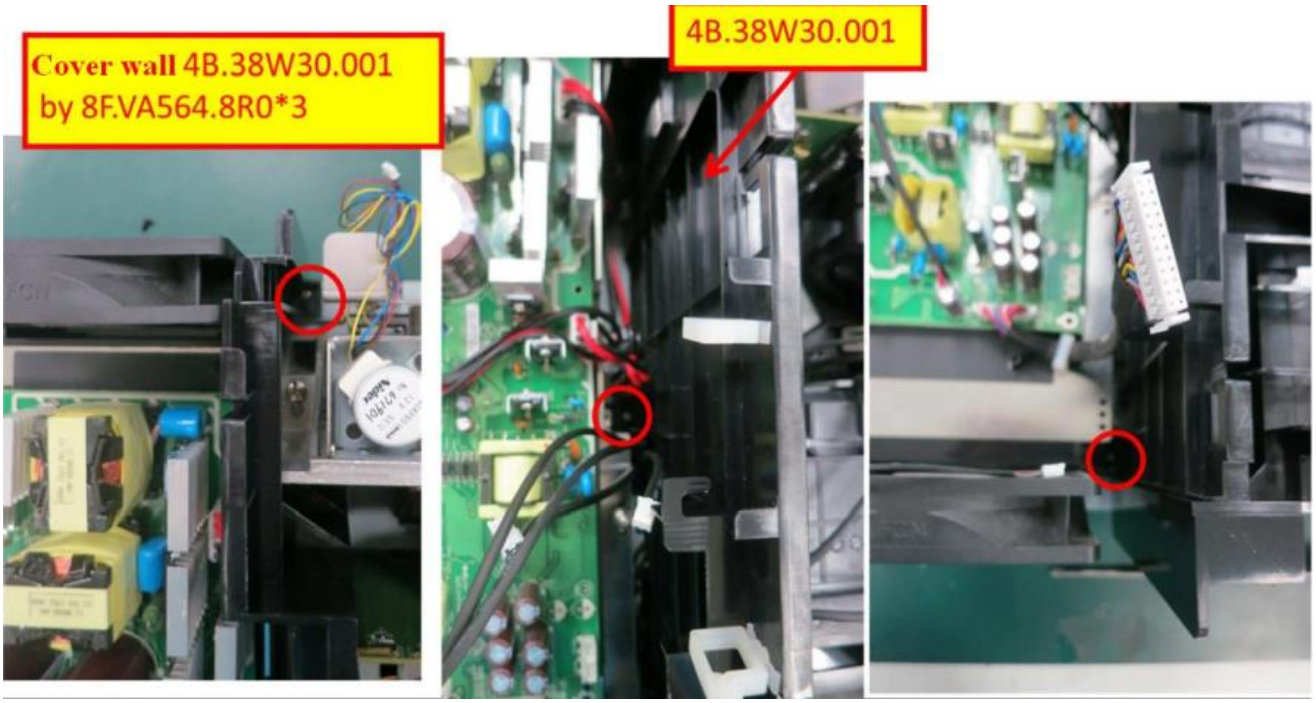
Partition plate

Remove the partition plate separating the PCB and the optical engine. (screw x3)

CAUTION: If you cannot assemble well, check the distribution of the left lamp.

Be careful not to bend or hit the connector of the DMD board when assembling.

It is recommended to record such as photographing the state before disconnection due to complicated arrangement.



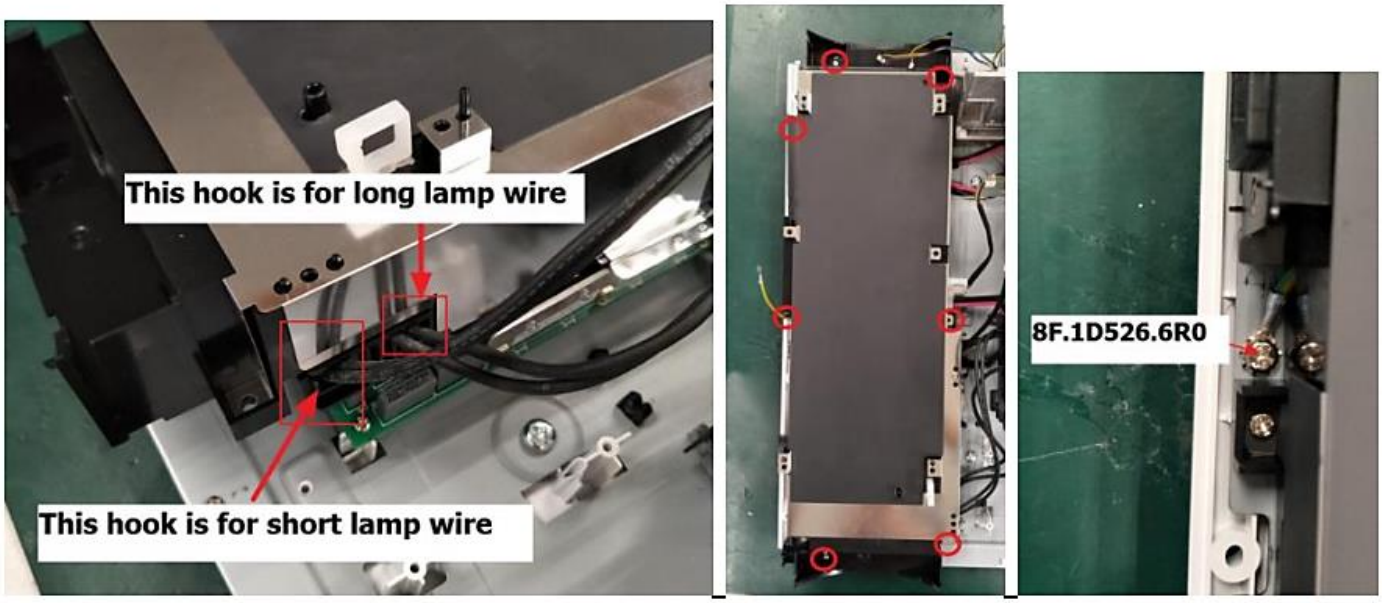
EMI cover

It is necessary to remove the EMI cover to replace the ballast with the EMI board.

Caution:

Although it is possible to remove the cover without removing the partition plate, the lamp harness is short and it may take time to remove it from the hook.

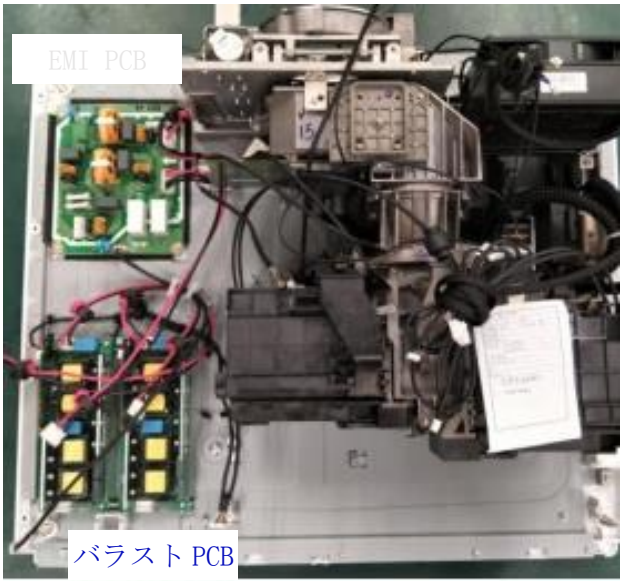
Make sure that all connectors are out of the correct position from inside the cover when assembling.

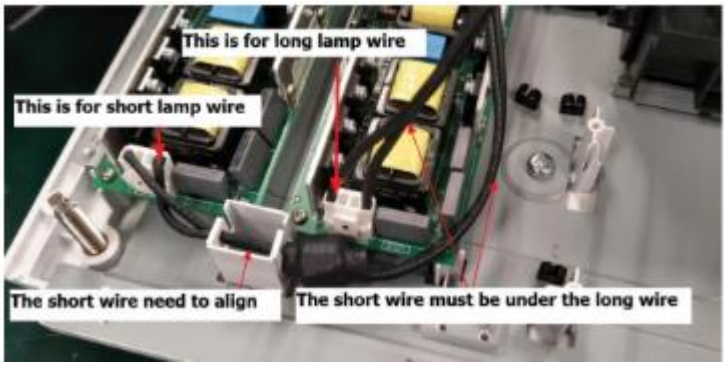


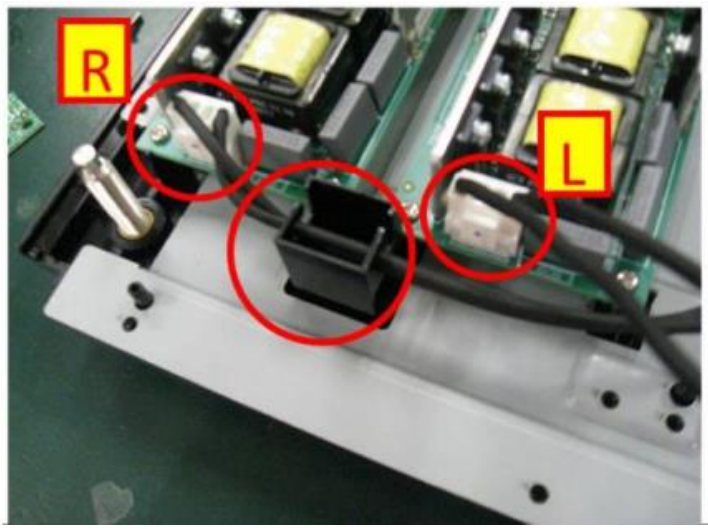
Ballast PCB, EMI PCB

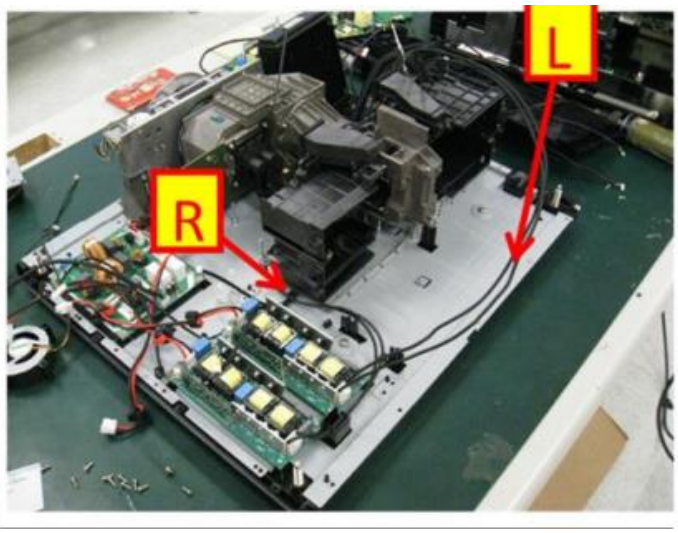
One front EMI PCB on the bottom right side of the main unit, two rear Ballast PCB

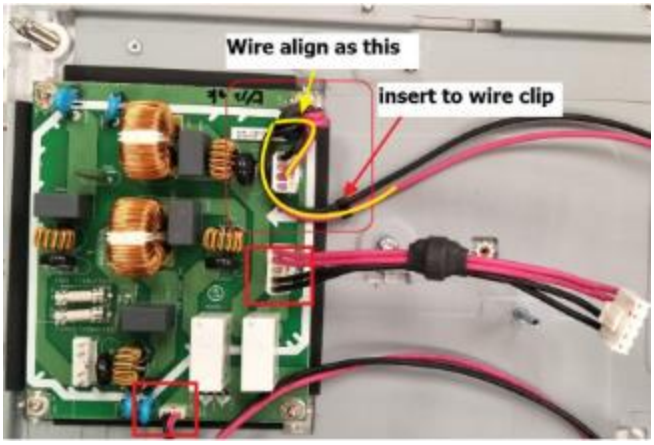
Note: The left ballast PCB corresponds to a short lamp cable and the right ballast corresponds to a long lamp cable. Please note the distribution when assembling.

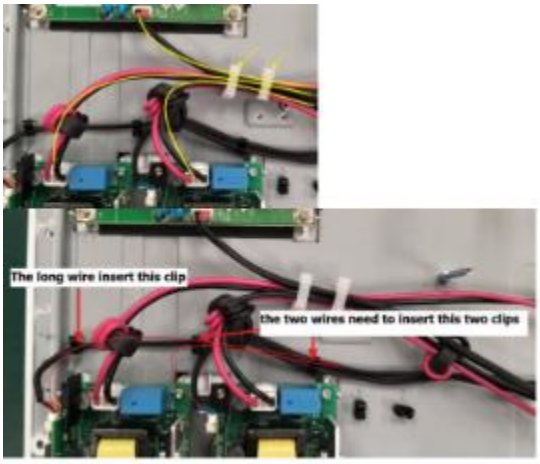




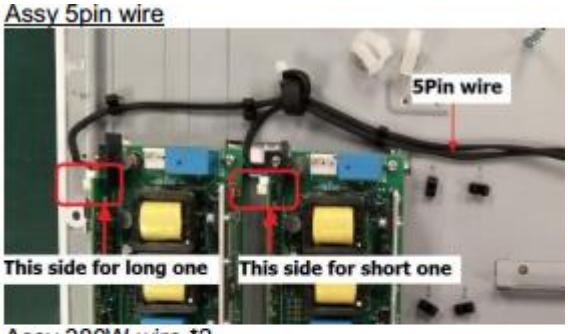




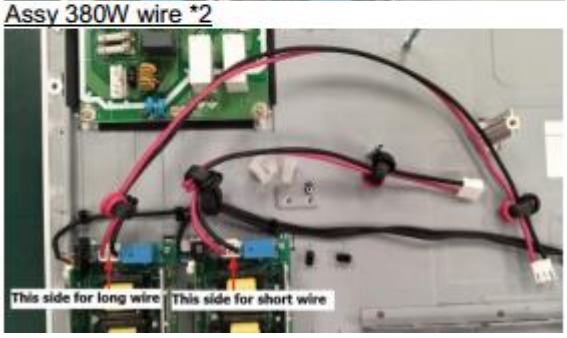


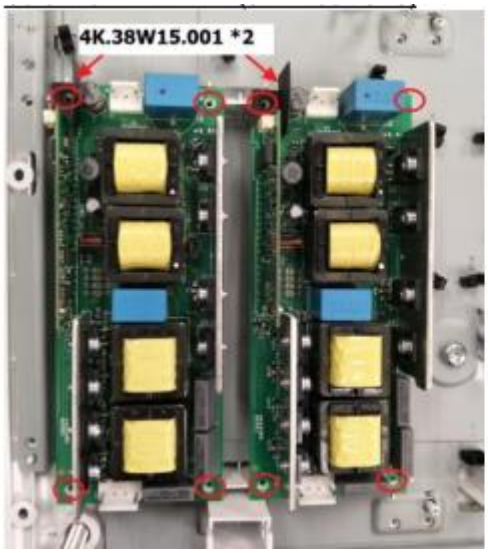


Assy 5pin wire



Assy 380W wire *2

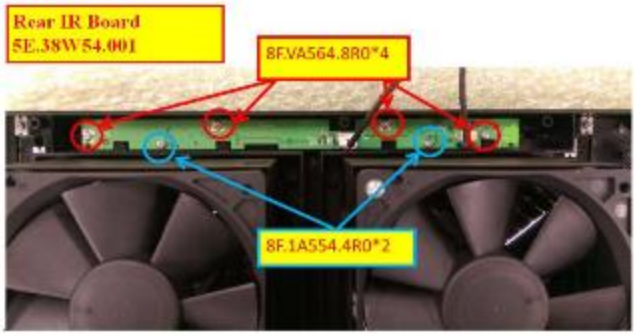


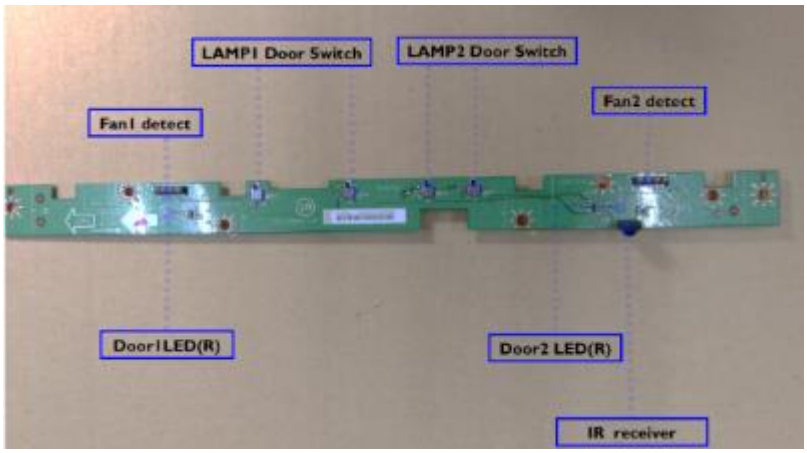


Rear IR sensor, Lamp cover PCB

1. There is a lamp cover PCB behind the rear cover

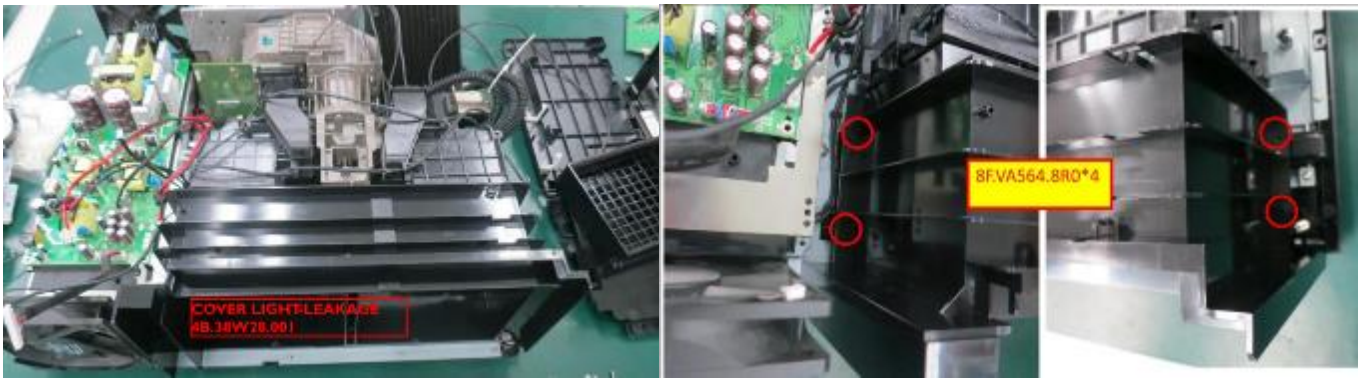
2. 6 screws (Note: screw type is different)





Light cover

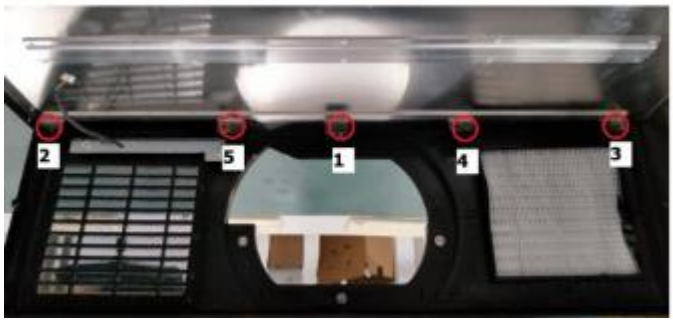
Two screws on each side.



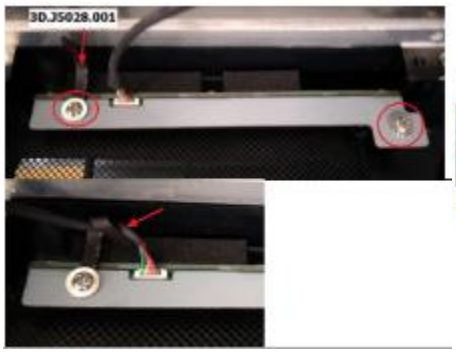
Front cover, Front IR·LED PCB

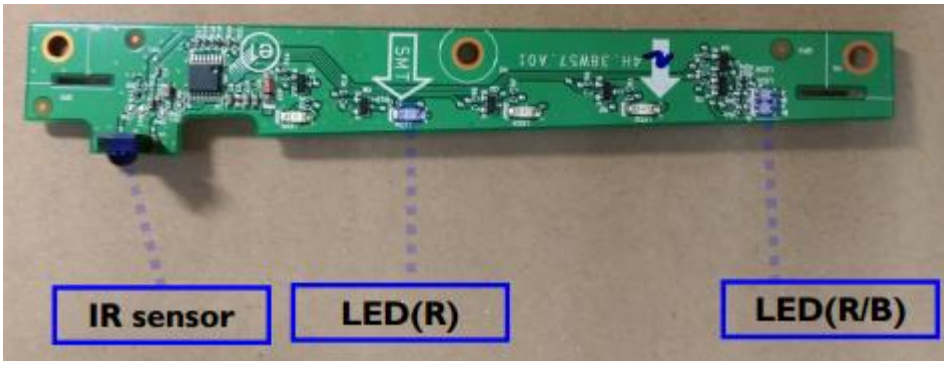
1. Remove the top cover

2. Total 7 screws on the side and upper

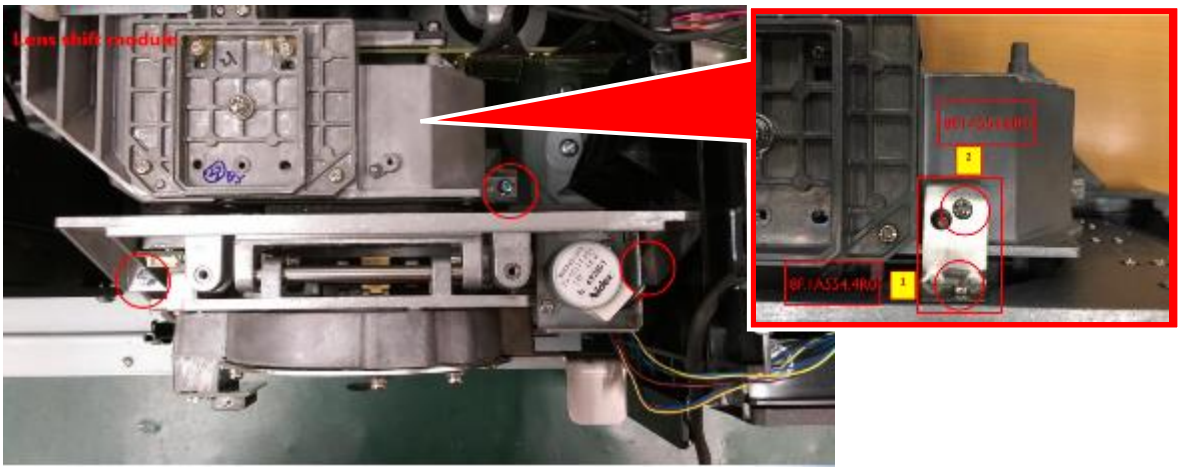


3. Remove the connector and all the screws and take out the front IR · LED PCB.

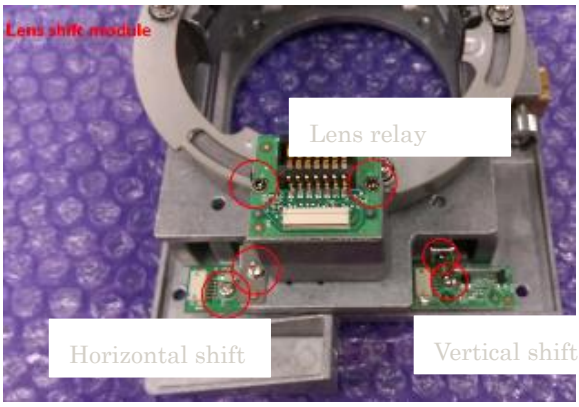




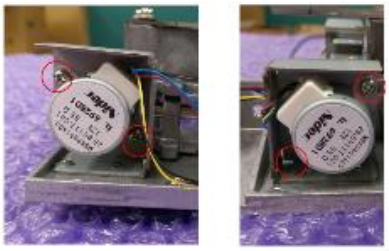
Remove 5 screws, all the connectors and remove the lens shift module from the optical engine



Three PCBs on the left side, horizontal shift PCB, lens relay PCB, vertical shift PCB

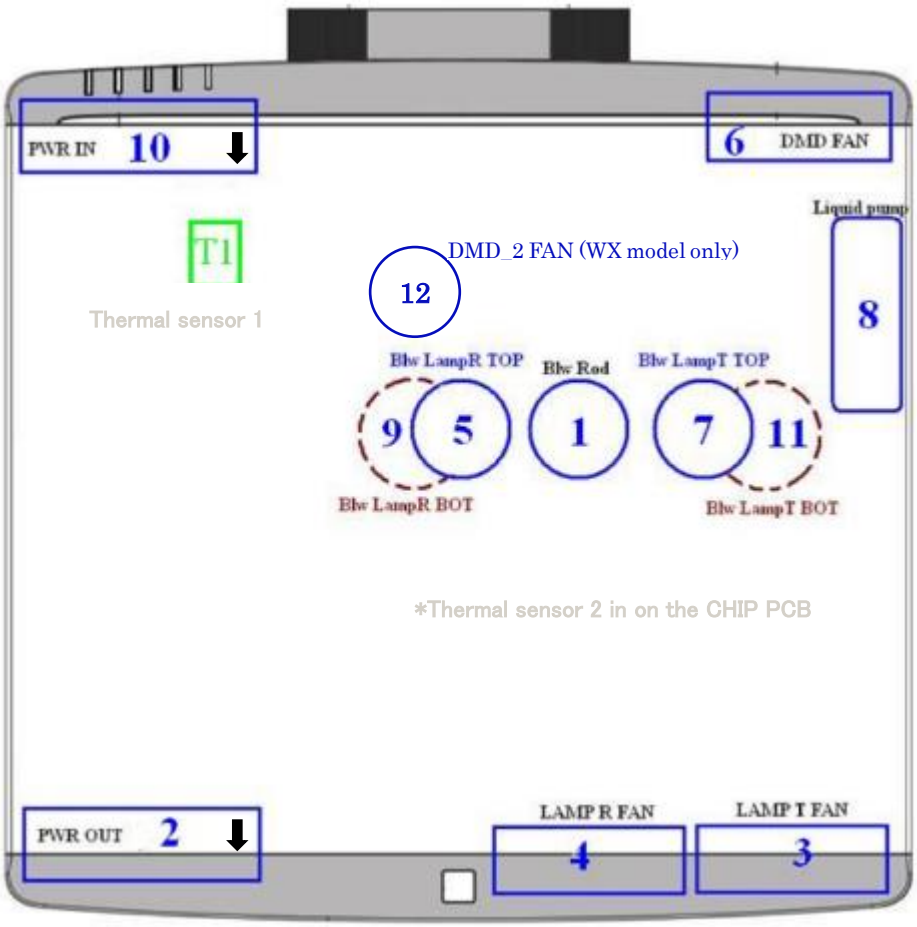


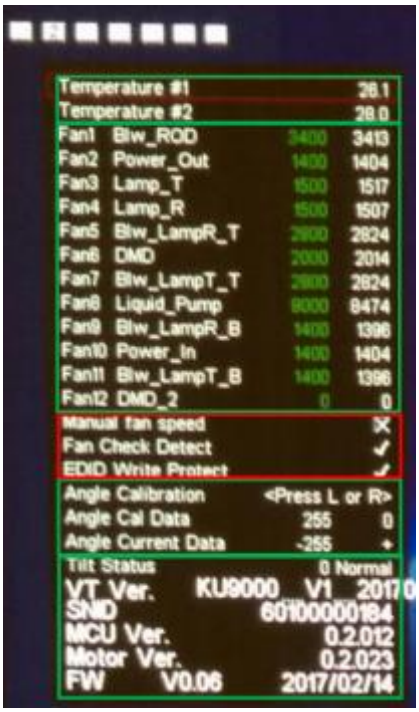
Two motors on the right side, each are fixed by two screws



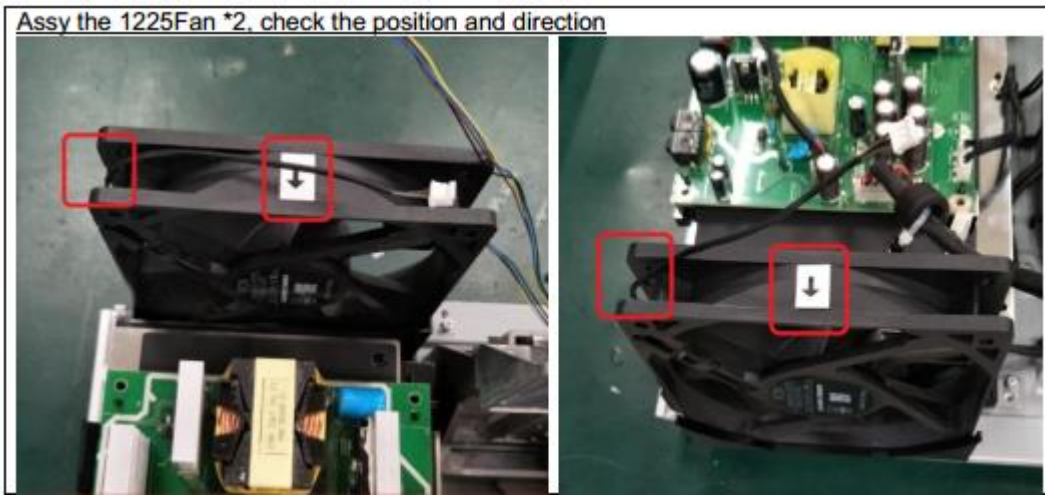
WU model has 11 fans, and WX model has 12 fans.

Fan names in service mode.



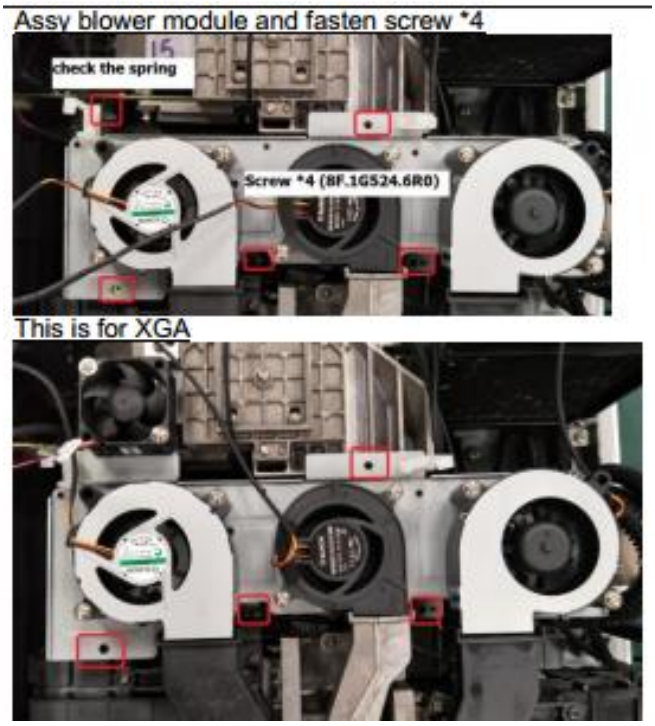


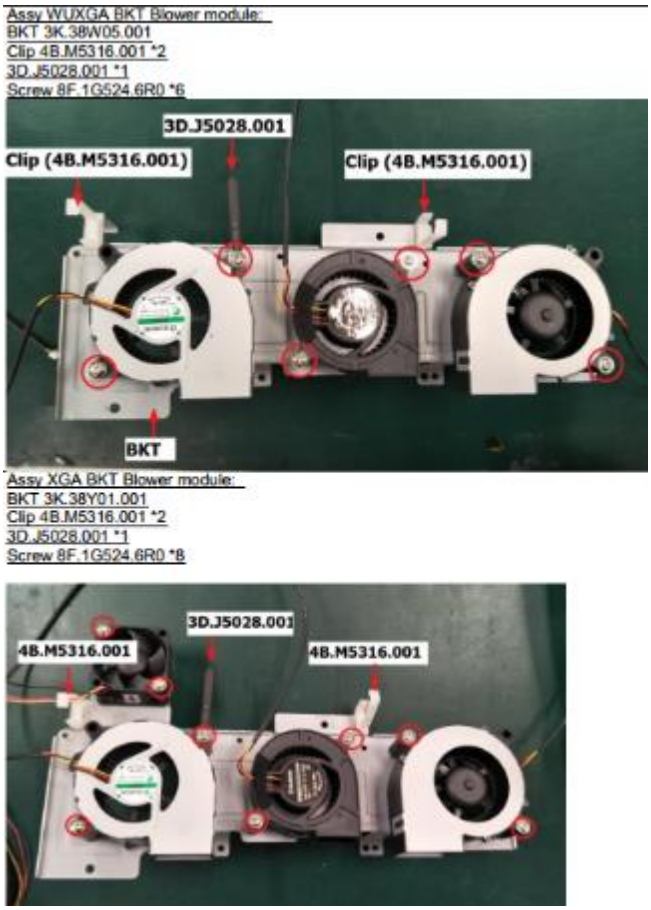
There is a decal on Fan2 and Fan 10. Be careful the direction when re-install them.



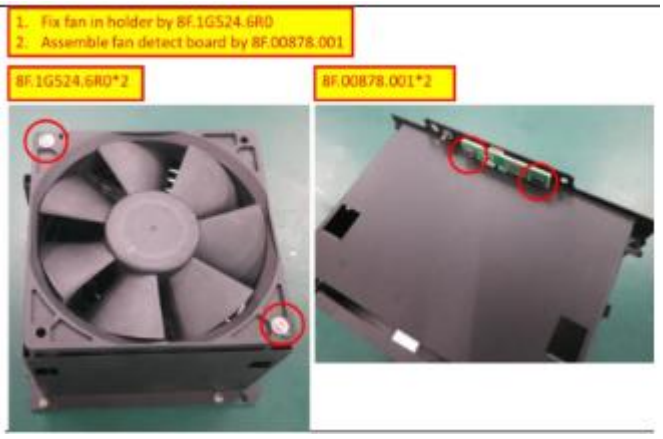
Fan1,5,7,12 can be removed from optical engine as a fan module.

CAUTION: Wiring of the DMD thermistor should pass under the fan module





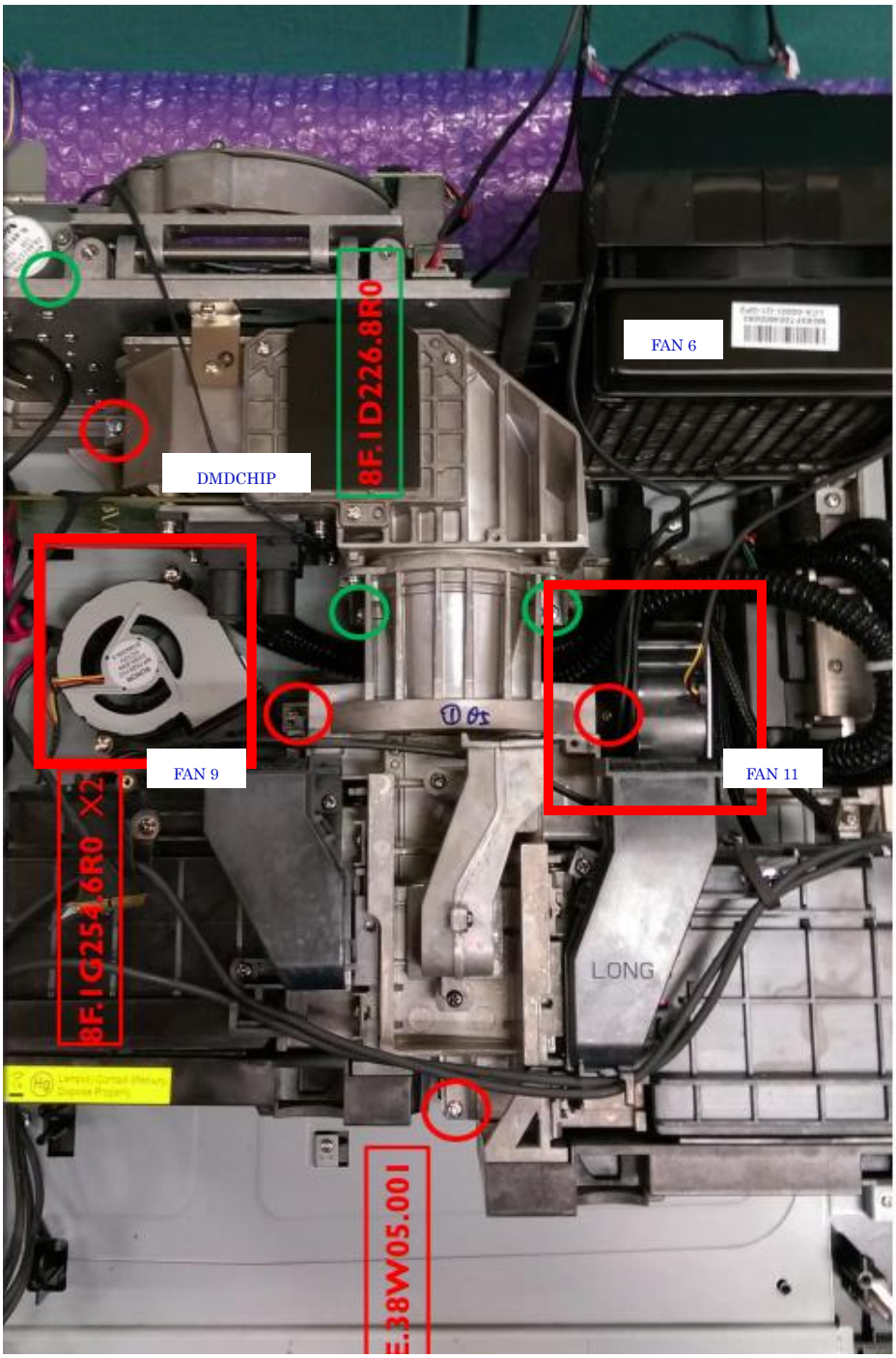
Fan 3,4: Open the back cover and take out the module. Fan detector PCB is on the module.



Fan 9 is at the left side of optical engine, and behind the CHIP PCB.

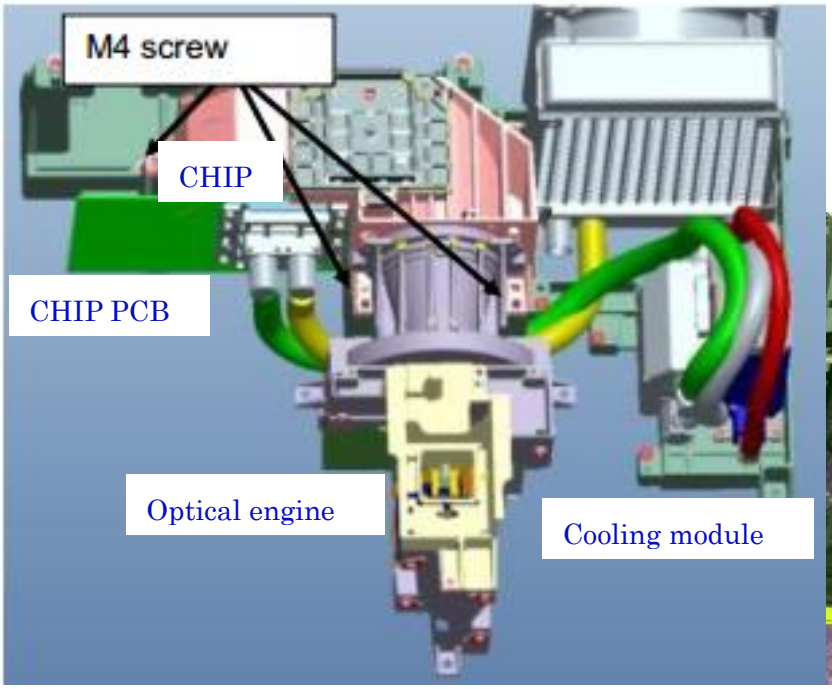
Fan 11 is at the right side of optical engine . Install the right lamp house before install Fan11.

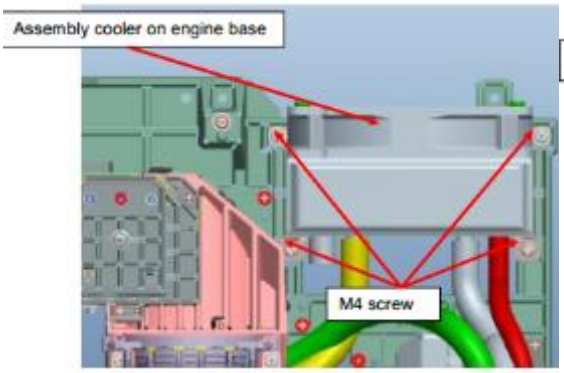
Fan 6 cannot be seperated from the colling module.

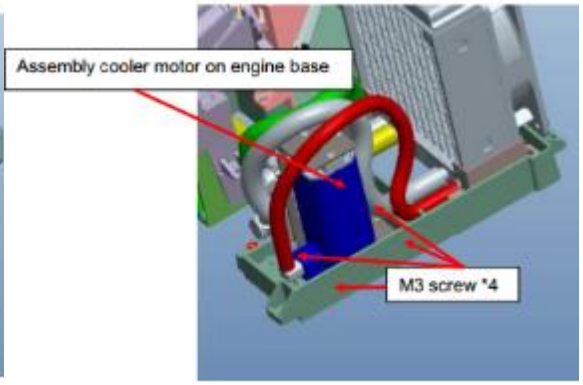


Optical Engine, Cooling module, DMD CHIP

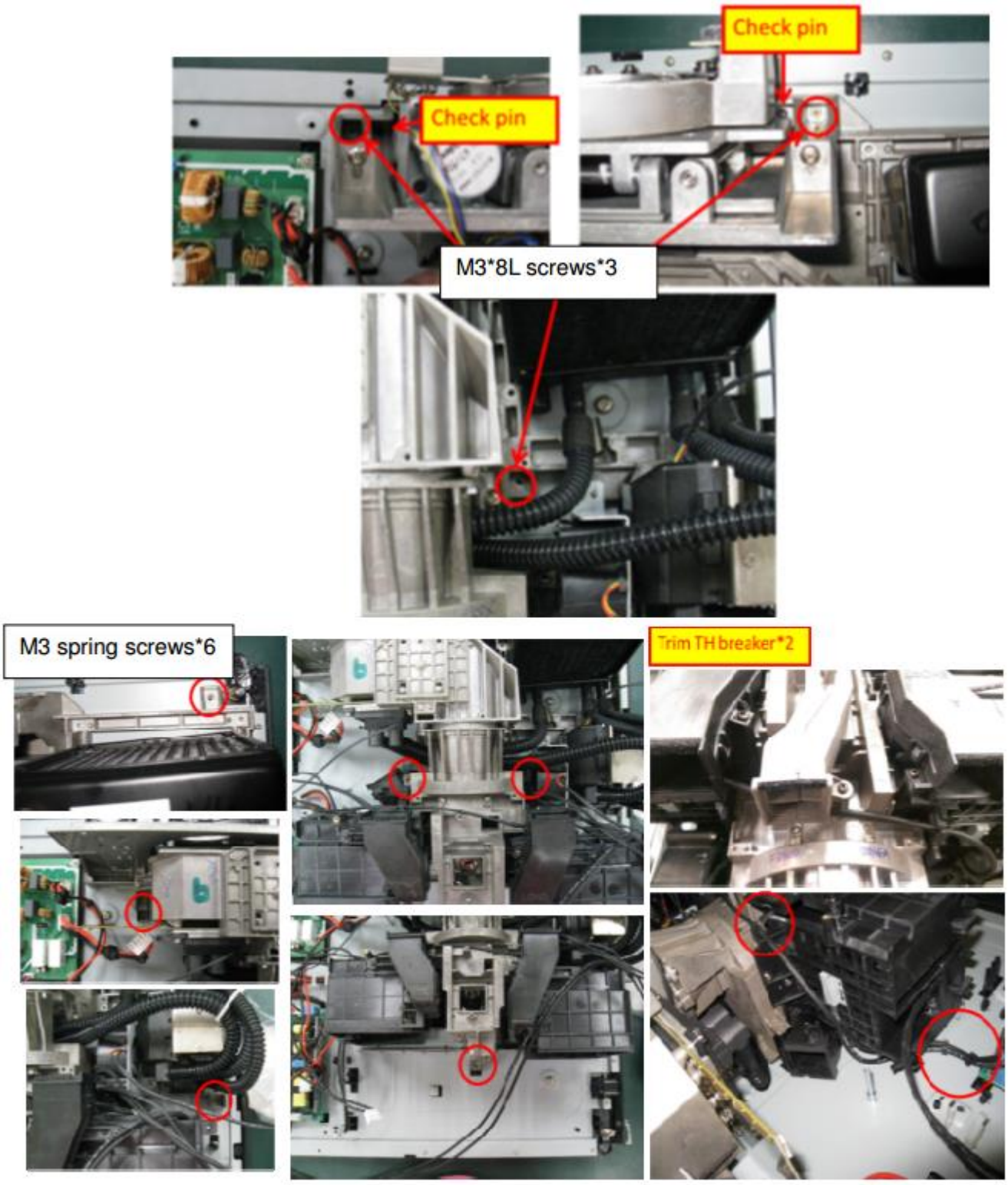
The tube of the cooling module passes under the optical engine, and the head is fixed to the DMD CHIP.



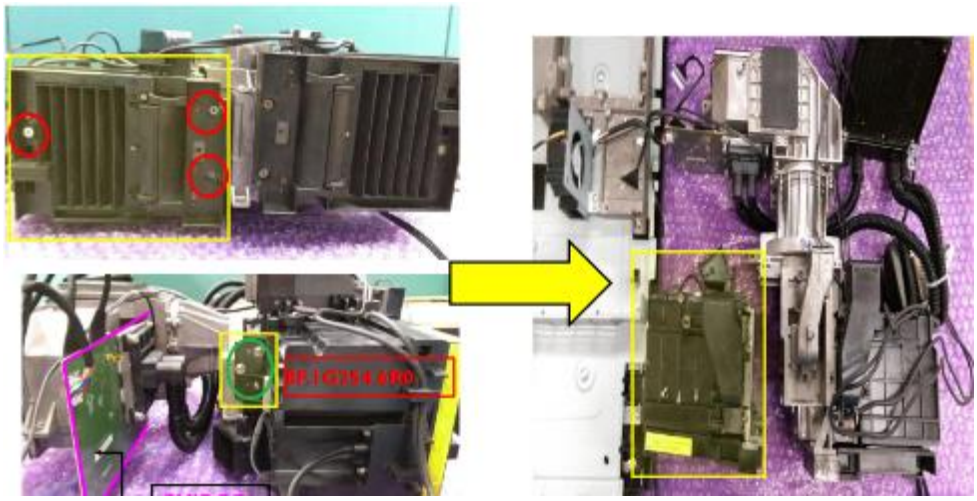




Total 9 screws for fixing the engine module.



When removing the water cooling module from the engine, first remove the left lamp house to access the head screw.



Remove the fixing screw of the head to separate the water cooling module from the engine.

CAUTION: Do not press the head strongly when assembling to prevent CHIP breakage.

Be careful not to break a thin thermistor cable.

Remove DMD CHIP cover and take out the CHIP.

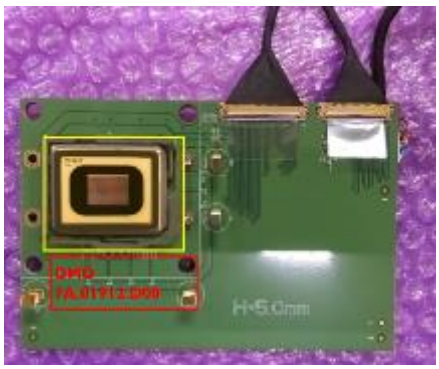
Caution:

Do exchanging the CHIP in a clean environment.

Do not touch the CHIP directly. Handle carefully so as not to damage it.

Re-apply the grease if possible

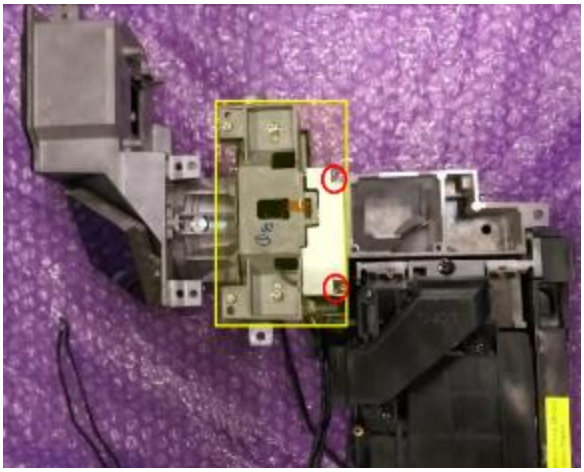
Do not pull or bend the connector strongly as this may cause image problems. Please note that you do not misunderstand the direction of insertion.

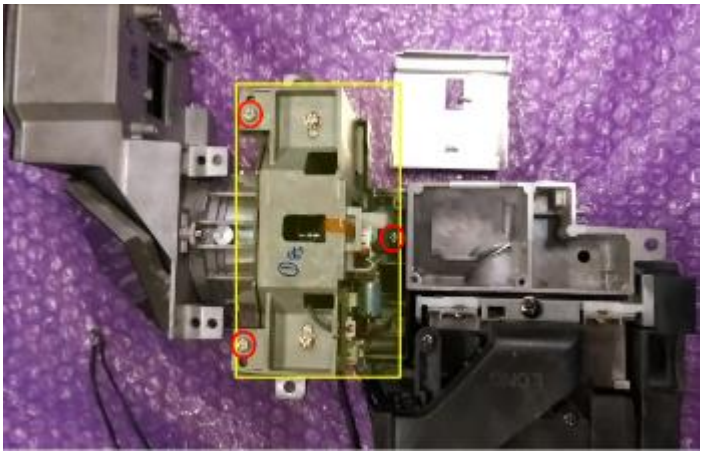


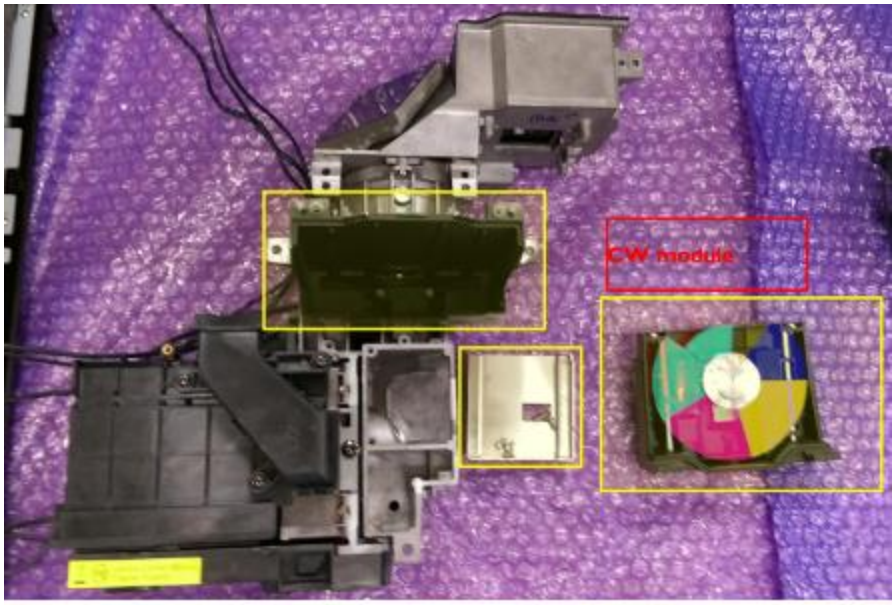
Color wheel

Open the color wheel cover and remove the color wheel module.

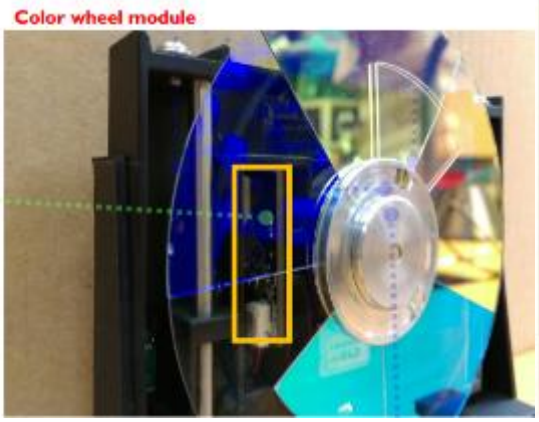
Caution: Do not touch the color wheel directly. Handle carefully to avoid damage

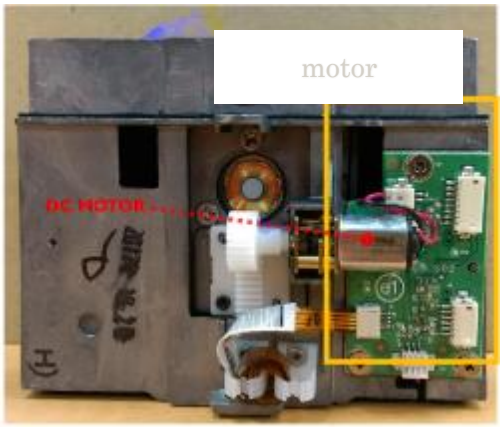






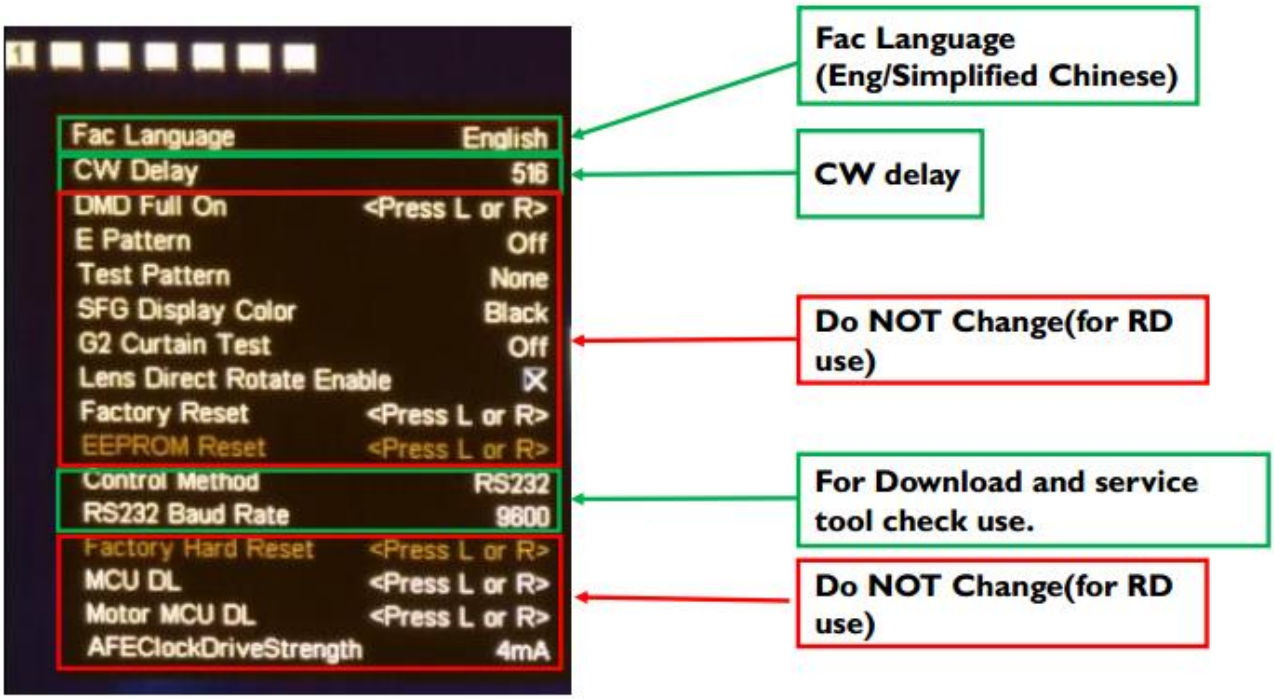
CW sensor PCB

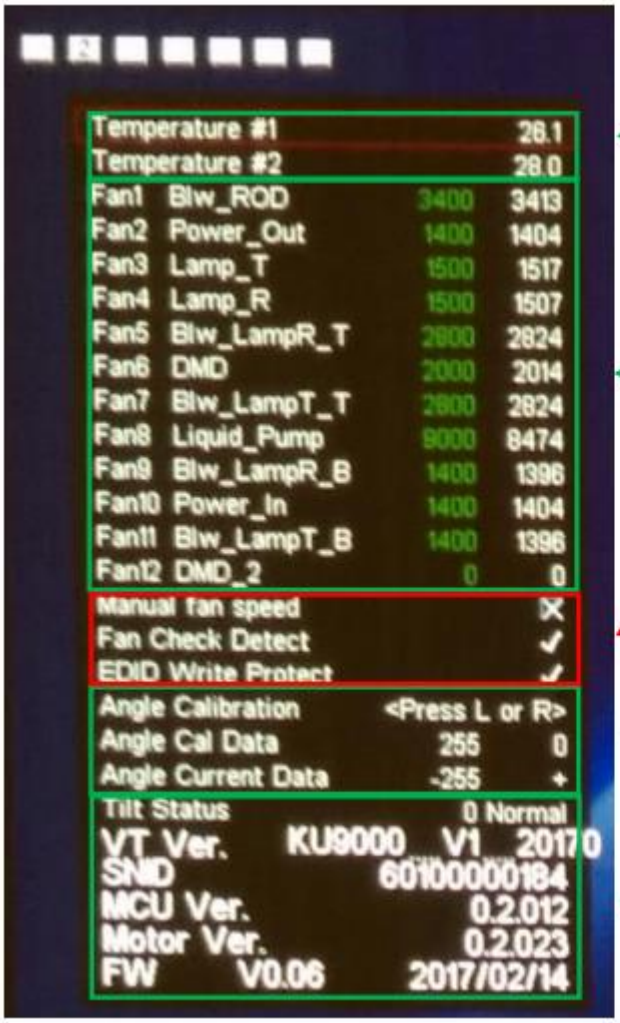




Press the power button, left, left, Menu button sequentially.

When a white block is displayed on top, expand the menu with direction key and OK key.





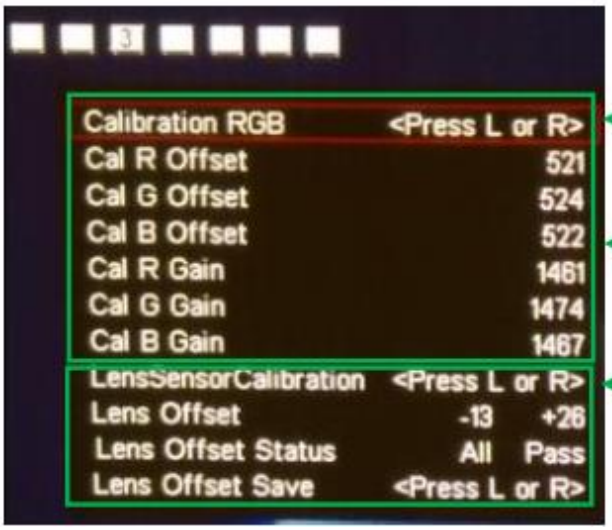
TH Sensor Monitor

Current Fan Speed Monitor

Do NOT Change(for RD use)

angel calibration:
1.replaced main board
2.reassembled KU9000

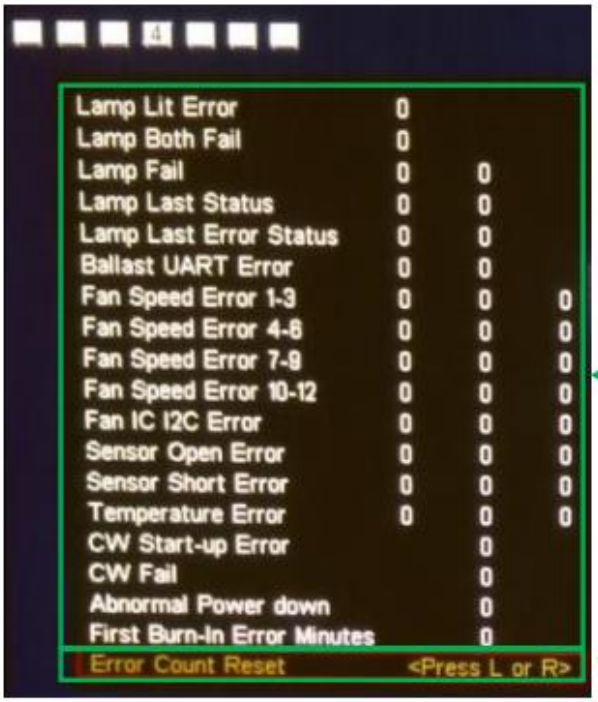
Model name
Motor Version
VT version(RD use)
F/W version



RGB Calibration:
MB replace

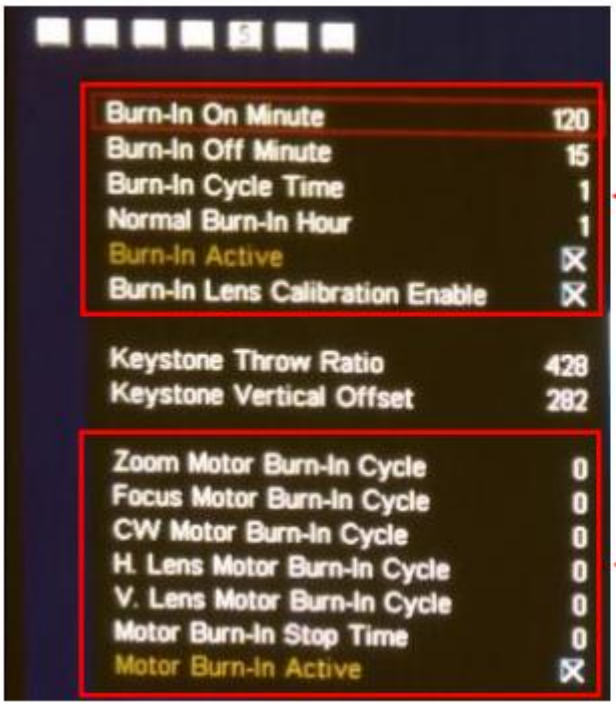
RGB Calibration Value Display

Lens Calibration:
1.Lens shift module reassembly
2.Lens shift motor reassembly



Error code message

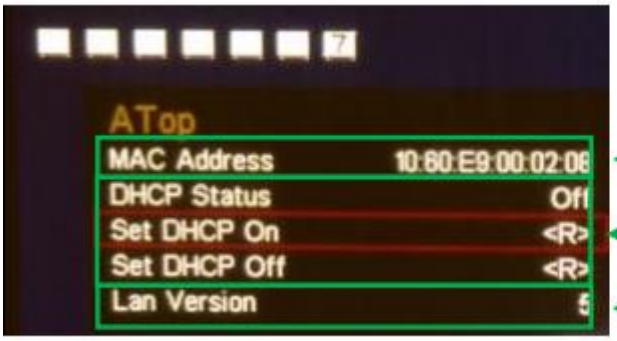
Error Count Reset
(need to reset when repair finish)
Notice:
Once pressing reset, projector will erase all error count record in this page.



Do NOT Change
(For Factory Burn-In and Life time test)

Do NOT Change
(For Factory Burn-In lens zoom/focus, lens H/V shift, CW Vshift)

Do Not Change



Address information

DHCP turn on/off

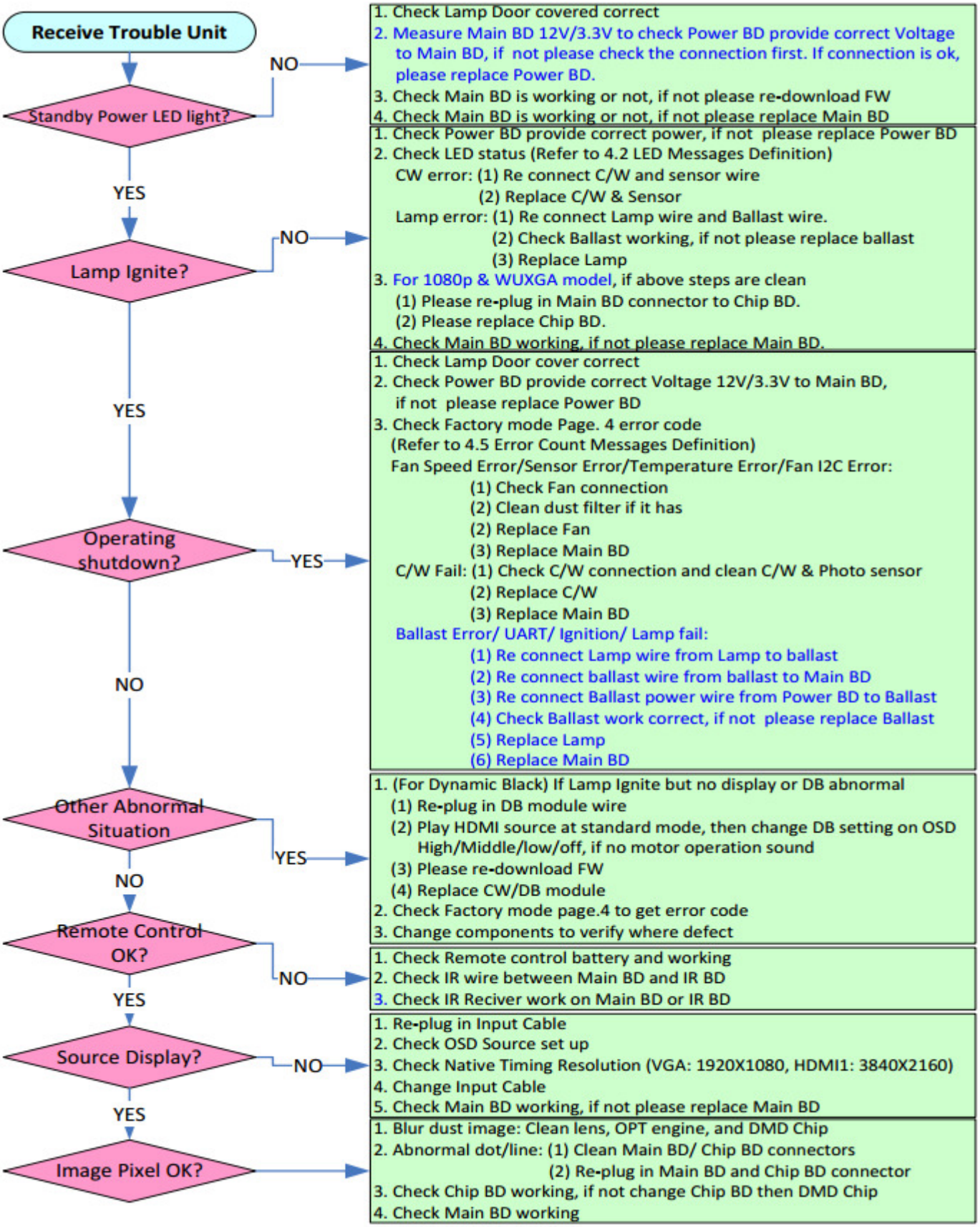
Lan version

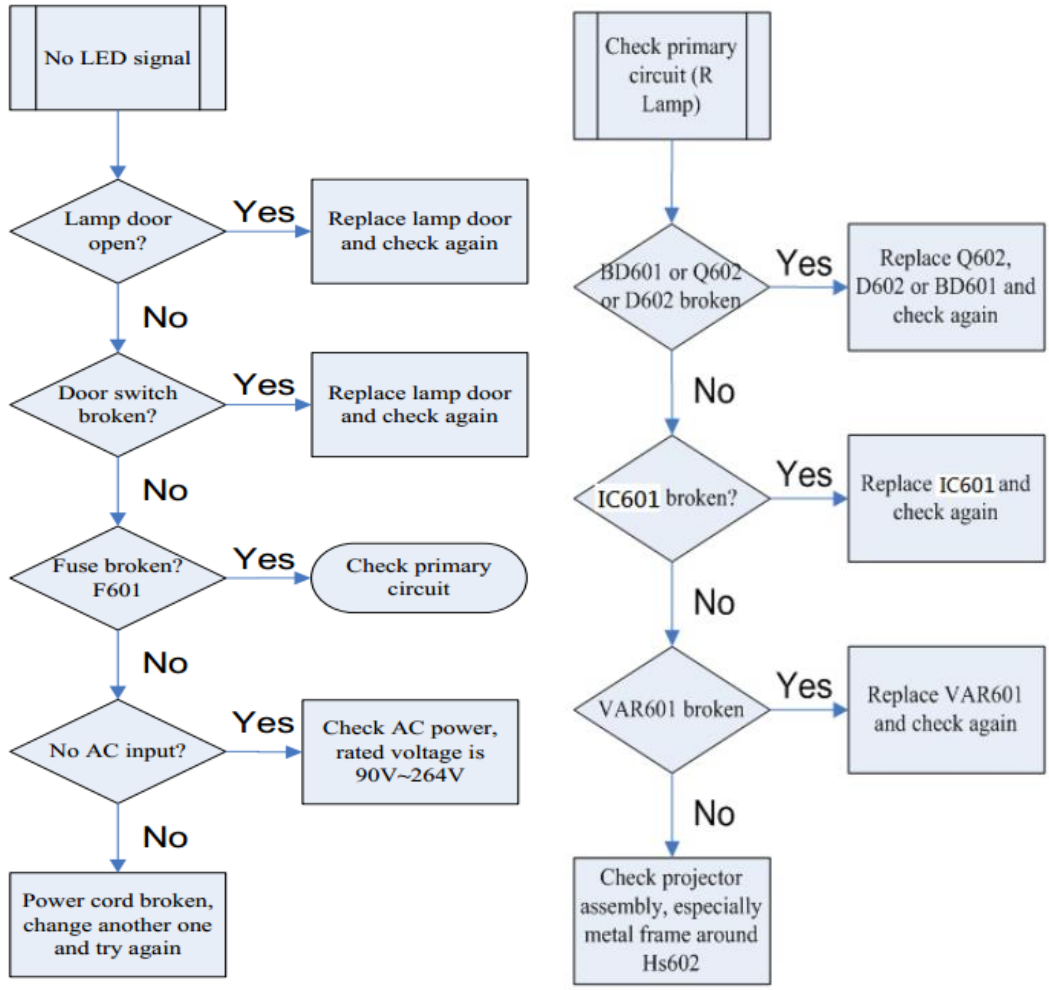
Action	Spare parts					Memo
	Main PCB	Color wheel	OP engine	Lens shift module	Lamp	
Calibration RGB	v	v	v			Only if abnormal color issue
CW delay	v	v				Only if abnormal color issue
Lamp time reset	v				v	
Angle Calibration	v					Only when abnormal auto-keystone function
Lens Sensor Calibration	v			v		Do it after changing the limit sensor on shift module.

Please check whether the projector is working correctly after replacing the parts Please check whether the projected image is normal.

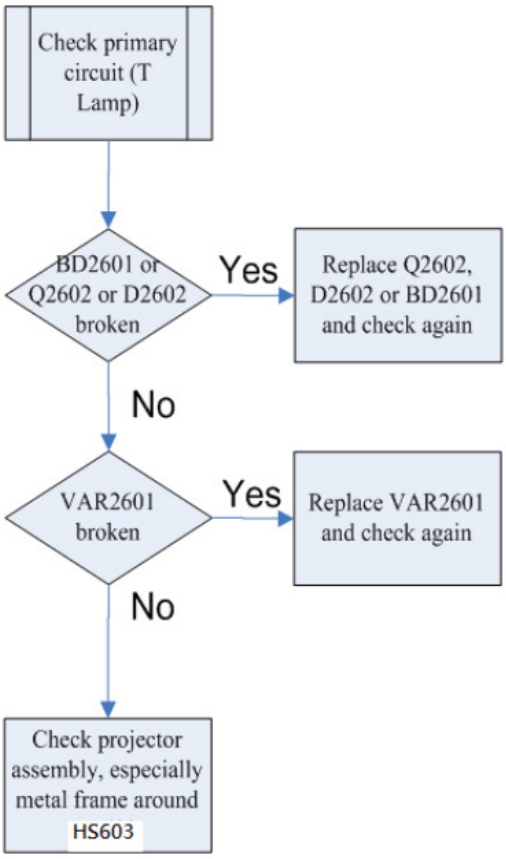
Perform error counter reset after repair is completed.

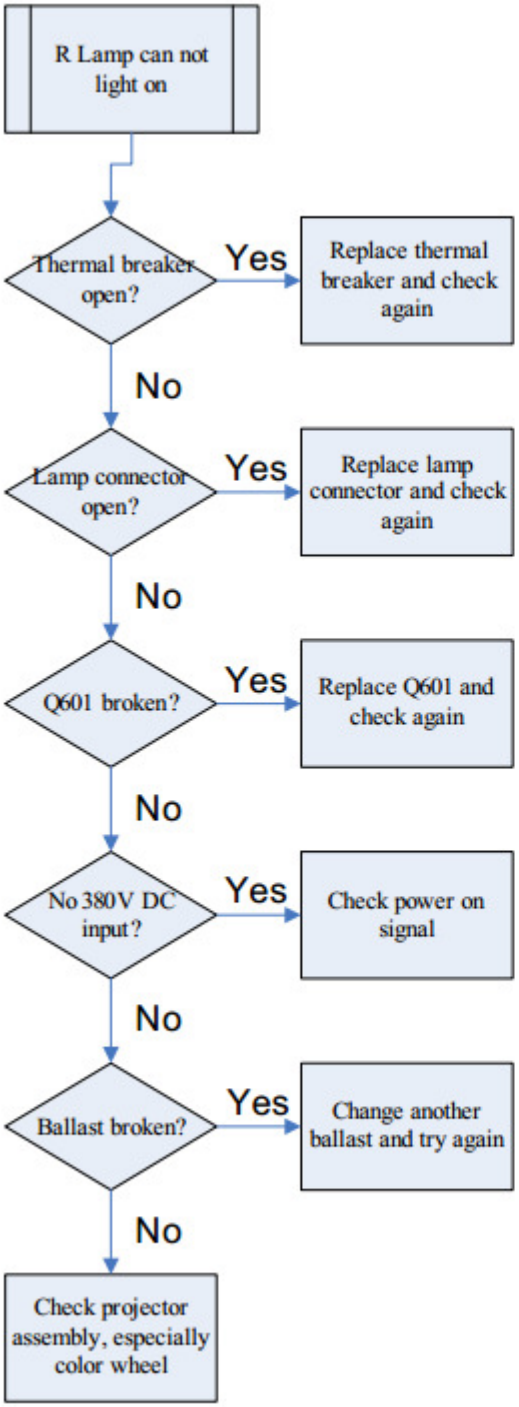
Troubleshooting

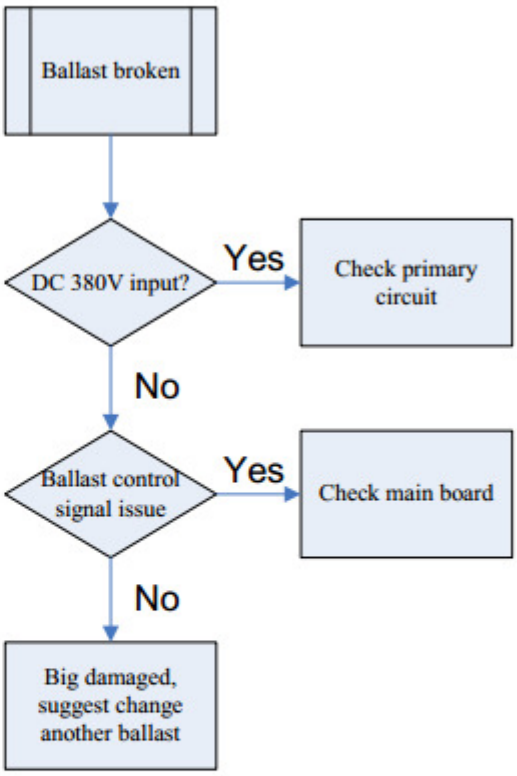


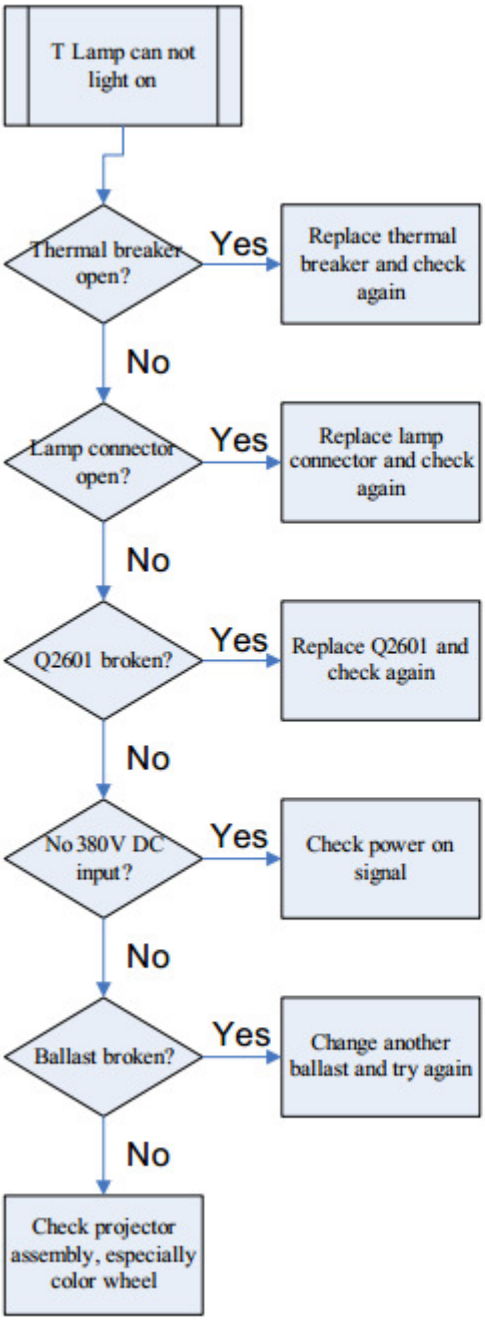

No LED signal
Lamp door open?
Yes
Replace lamp door and check again
No
Door switch broken?
Yes
Replace lamp door and check again
No
Fuse broken? F601
Yes
Check primary circuit
No
No AC input?
Yes
Check AC power, rated voltage is 90V~264V
No
Power cord broken, change another one and try again

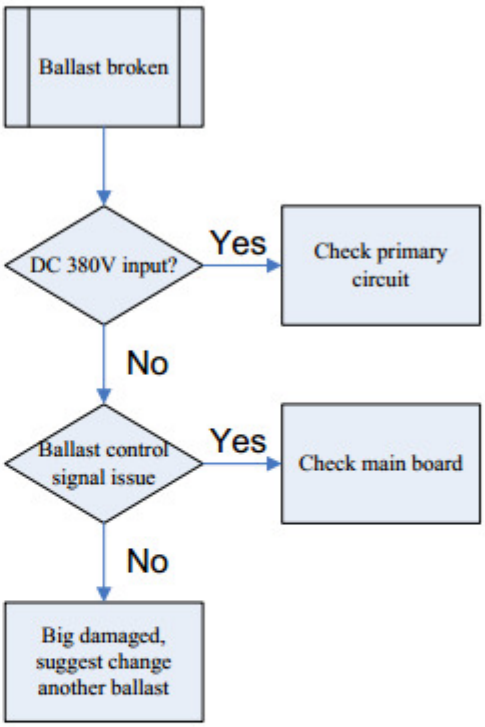
Check primary circuit (R Lamp)
BD601 or Q602 or D602 broken
Yes
Replace Q602, D602 or BD601 and check again
No
IC601 broken?
Yes
Replace IC601 and check again
No
VAR601 broken
Yes
Replace VAR601 and check again
No
Check projector assembly, especially metal frame around Hs602


Check primary circuit (T Lamp)
BD2601 or Q2602 or D2602 broken
Yes
Replace Q2602, D2602 or BD2601 and check again
No
VAR2601 broken
Yes
Replace VAR2601 and check again
No
Check projector assembly, especially metal frame around HS603


R Lamp can not light on
Thermal breaker open?
Yes
Replace thermal breaker and check again
No
Lamp connector open?
Yes
Replace lamp connector and check again
No
Q601 broken?
Yes
Replace Q601 and check again
No
No 380V DC input?
Yes
Check power on signal
No
Ballast broken?
Yes
Change another ballast and try again
No
Check projector assembly, especially color wheel


Ballast broken
DC 380V input?
Yes
Check primary circuit
No
Ballast control signal issue
Yes
Check main board
No
Big damaged, suggest change another ballast


T Lamp can not light on
Thermal breaker open?
Yes
Replace thermal breaker and check again
No
Lamp connector open?
Yes
Replace lamp connector and check again
No
Q2601 broken?
Yes
Replace Q2601 and check again
No
No 380V DC input?
Yes
Check power on signal
No
Ballast broken?
Yes
Change another ballast and try again
No
Check projector assembly, especially color wheel


Ballast broken
DC 380V input?
Yes
Check primary circuit
No
Ballast control signal issue
Yes
Check main board
No
Big damaged, suggest change another ballast

Indicator

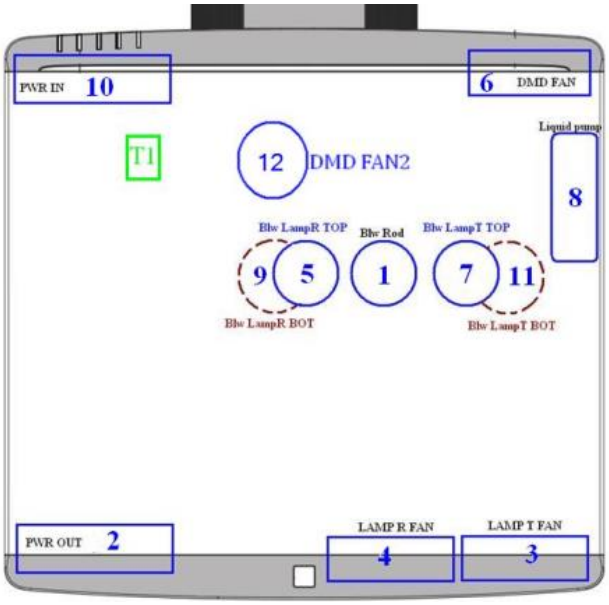
LED Name	Detailed Description
Power LED	Display the power on/off sequence status
Temperature Status LED	Display the Thermal status (Fan Fail, Over Temperature, etc.)
Lamp1/2 Status LED	Display the Lamps status (Lamp fail, Lamp spoil etc.)
Filter LED	**Display the filter or liquid pump status**

	Power_LED	Power_LED	Temp_LED	Lamp1_LED	Lamp2_LED	Filter_LED
	BLUE	RED	RED	RED	RED	RED
Power Plug		Flash ON to OFF	Flash ON to OFF	Flash ON to OFF	Flash ON to OFF	Flash ON to OFF
Standby	--	ON	--	--	--	--
Power button ON	ON	--	--	--	--	--
Lamp retry	flashing	--	--	--	--	--
Cooling state	--	flashing	--	--	--	--
Power button OFF: Cooling completed; Standby Mode	--	ON	--	--	--	--
Firmware Download	--	ON	ON	ON	ON	ON
Thermal sensor error. OSD shows "Projector Overheated"	ON	--	ON	--	--	--
Fan lock error OSD shows red "Fan Fail, Will automatically turn off soon"	ON	--	flashing	--	--	--
Lamp1 error (Lamp, ballast)	ON	--	--	ON	--	--
Lamp2 error (Lamp, ballast)	ON	--	--	--	ON	--
Both lamp error(Lamp, ballast)	ON			ON	ON	
Color Wheel fail	ON	--	--	flashing	--	--
Filter Blocked	ON	--	--	--	--	ON
Liquid Pump Warning	ON		ON			ON

Error Count Messages Definition

Error Count	Definition	Specification
LAMP_R Fail error	LAMP_R OFF	DETECT LAMPLIT
LAMP_T Fail error	LAMP_T OFF	DETECT LAMPLIT
Fan1 BLW_ROD Speed Error	BLW_ROD FAN SPEED ERROR	SPEED OVER ± 25%
Fan2 POWER_Out Speed Error	POWER_Out FAN SPEED ERROR	SPEED OVER ± 25%
Fan3 Lamp_T Speed Error	Lamp_T FAN SPEED ERROR	SPEED OVER ± 25%
Fan4 Lamp_R Speed Error	Lamp_R Fan SPEED ERROR	SPEED OVER ± 25%
Fan5 BLW Lamp_R_T Speed Error	BLW Lamp_R_T Fan SPEED ERROR	SPEED OVER ± 25%
Fan6 DMD Speed Error	DMD Fan SPEED ERROR	SPEED OVER ± 25%
Fan7 BLW_LAMPT_T Speed Error	BLW_LAMPT_T FAN SPEED ERROR	SPEED OVER ± 25%
Fan8 Liquid_Pump	Liquid_Pump FAN SPEED ERROR	SPEED OVER ± 25%
Fan9 BLW_LampR_B	BLW_LampR_ FAN SPEED ERROR	SPEED OVER ± 25%
Fan10 Power in	Power in FAN SPEED ERROR	SPEED OVER ± 25%
Fan11 BLW_LampT_B	BLW_LampT_B FAN SPEED ERROR	SPEED OVER ± 25%
Fan12 DMD2 Speed Error	DMD Fan2 SPEED ERROR	SPEED OVER ± 25%
Sensor 1 Open Error	Main Board SENSOR ERROR	DETECT Sensor 1
Sensor 1 Short Error	Main Board SENSOR ERROR	DETECT Sensor 1
Temperature 1 Error	over limited temperature	DETECT Sensor 1
FANIC 1 I2C ERROR	I2C communication error	DETECT Fan IC

Note: Fan and Sensor placement please refer below Figure.



f	Detailed Description
1	BLW ROD
2	POWER OUT
3	LAMP T(2)
4	LAMP R(1)
5	LAMP R(1) –TOP
6	DMD
7	BLW LAMP T(2)-TOP
8	Liquid pump
9	BLW Lamp R(1)- BOT
10	POWER IN
11	BLW Lamp T(2)-BOT
12	DMD FAN2
T1	thermal sensor

Firmware upgrade

- **Download Tools Required：**

Software required：

1. PC system：Windows XP, Windows Vista/Windows 7 (32-bits/64 bits)
2. Download Program : "DLP Composer Lite" v11.0 or later version
3. New version FW file(*.img)

Hardware required：

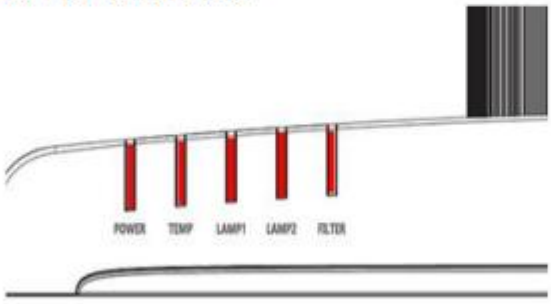
1. PC or Notebook：With RS-232 or USB Connection
2. USB Download cable:

- **Firmware Download Procedure：**

1. Connect USB cable to PC and projector.

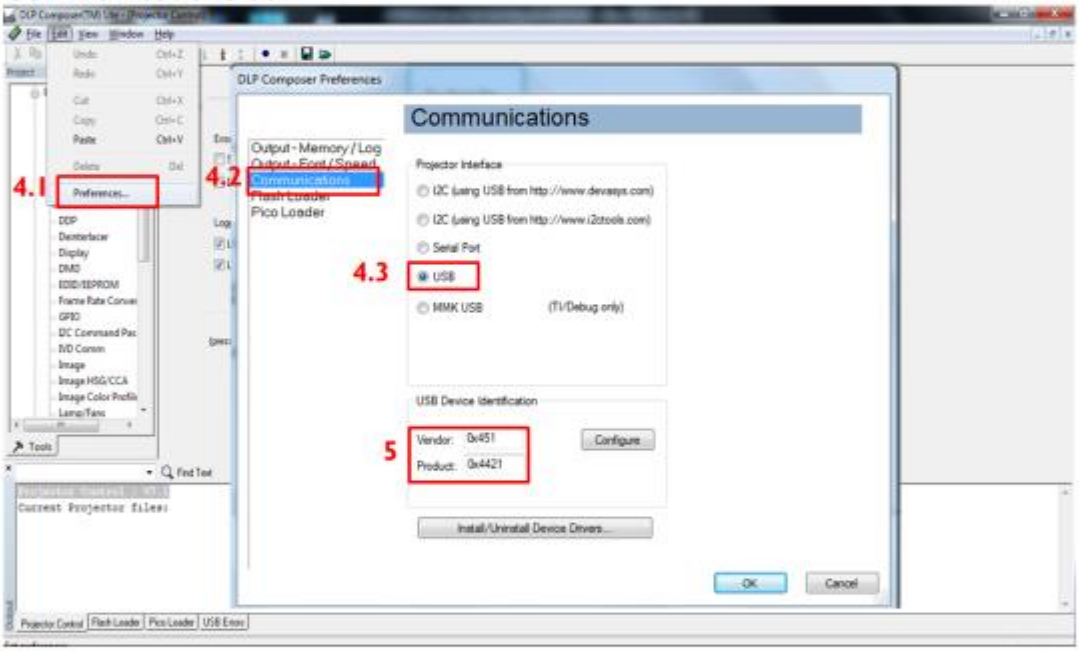
2. Enter F/W Download Mode.
   a. Press keypad **POWER** and **ENTER** together.

   b. Plug in power cord and wait about 3 seconds.
   c. All LED shows red.

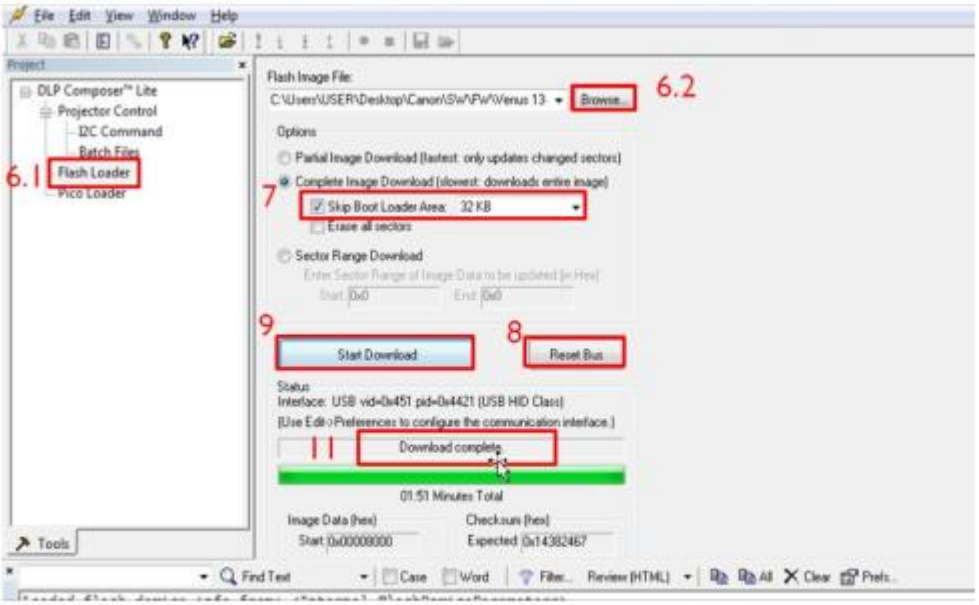


   d. Release the two keypads.
3. Execute "DLP Composer(TM) program.

4. Communications set :



5. Set the USB Device Identification:
   → Vendor :0x451
   → Product:0x4421
6. Click on “Flash Loader” and browse the image file (new version firmware)
7. Make sure to check “Skip Boot loader area (64KB)”
8. Press “Reset Bus” and check the status which should show “Bus Reset”
9. Press “Start Download” to begin update new firmware
10. Press “Yes” to continue.
11. When LED from 5 lights to 1 light, download complete.



Note!!: Don't unplug the power cord or cut off system power until power LED back to standby .

Service Tool Upgrade SOP

Hardware required

1. Standard RS232 Download cable
2. Personal computer or laptop computer

Software required

1. RICOH Service Tool→setup.exe (It supports RICOH series projector only)

Use this Service tool to:

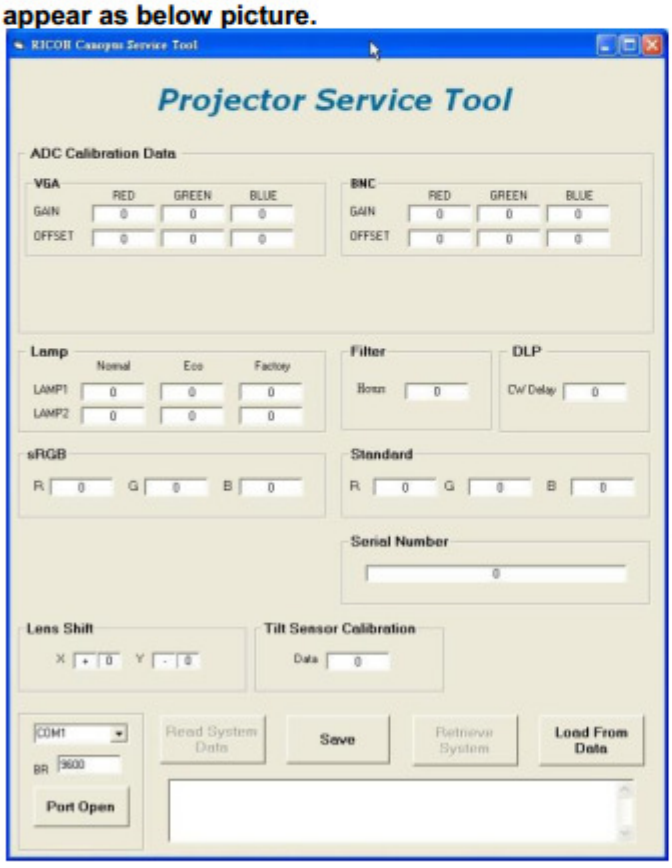
Retrieve and rewrite adjustment value into new main board when replacing main board or upgrading new FW version for repair (refer to step1 to 7).

Upgrade procedure:

Step 1: Prepare the download equipment: RS232 cable connect to PC and projector

Step 2: Plug power cord into projector, and turn on the projector.

Step 3: Install service tool and execute "RICOH Canopus ServiceTool.exe", and it will appear as below picture.



Step 4: Change to RS232 connected COM port and Click "Port Open" icon.

Step 5: Read data from original Main board:
Click "Read System Data" and it will read the adjustment data from projector.

Step 6: Click "Save" to save the file.

Step 7: Change new Main board or download a new version firmware:

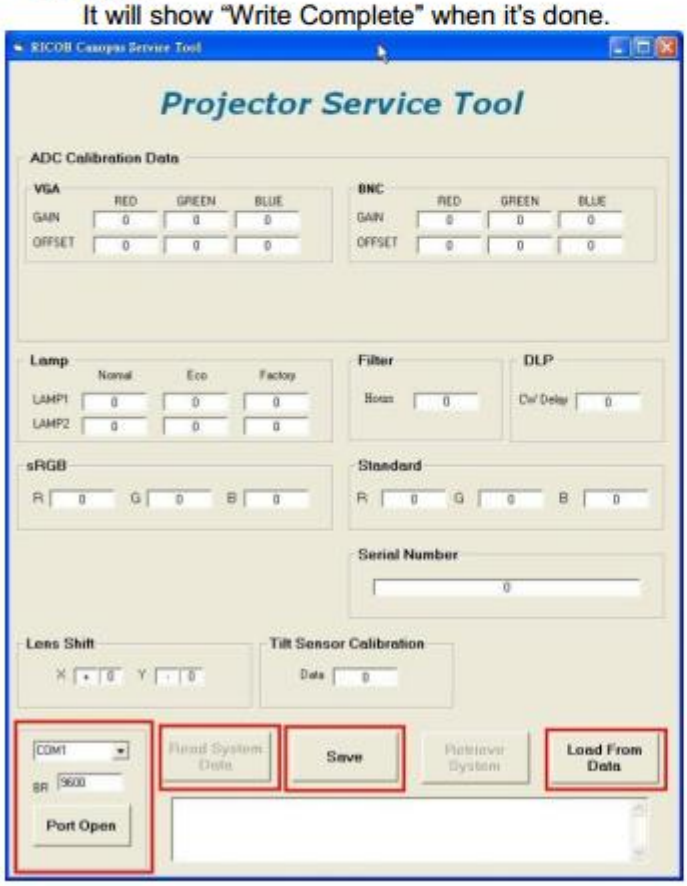
(1) Unplug power cable and RS232 cable from projector, and change new Main board into Projector.

(2) After changing Main board/download a new version firmware, go through Step 1 to Step 4 to execute service tool again.

Step 8: Restore the data to new Main Board:

Click "Load From Data" to load the data saved and "Retrieve System" to write data into new MB.

It will show "Write Complete" when it's done.



RS232 command

Usage of Ricoh projector serial commands Models: Ricoh PJ X6480/WU6480/X6590/WU6590 2017.11.13
Ricoh PJ KX10000/KU9000/KX8000/KU7000

Comunication condition 9600bps, No Parity, 8bit, 1 stop bit

The structure of a command

Sending command **# P I C : 1 CR**

End of command	:	[CR] code(0Dh)
Parameter	:	Adjusting value or adjusting parameter (see Note below)
Delimiter between Command and Parameter	:	":"
Command	:	3 characters (see commnad list)
Header	:	"#"

Response (success) **= P I C : 1 CR**

End of response	:	[CR] code(0Dh)
Parameter	:	the value set actually
	:	"SC0" will return when an execute commnad is sent
Delimiter between Command and Parameter	:	":"
Command	:	the conmmand done
Header	:	"="

Response (Error) **= E R 0 CR**
= [command] : E R 0 CR
Error(s) in the command
Command is ok, error(s) in others
(When current password is incorrect in PLP commnad, ER1will return)

Setting commands

Settting **# P I C : 1 CR**
Put the setting number desired.

Executing commands

Executing **# P O N CR** — No parameter is allowed

Response (success) **= P O N : S C 0 CR**

Inquiring commands

Inquiring **# S P S CR** — No parameter is allowed

Return (success) **= S L T : 3 H 1 5 M** — Time is retuned using "3:15" format (3hours15min.).
= S S V : B 0 2 - M 0 5 - L 0 1 CR — DDP ver – MCU ver – LAN ver

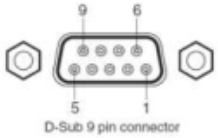
<Caution>

There are some limitations serial commands in stand-by mode.
Only "PON", "SPS" and "SER" commands are allowed in stand-by mode.
Text may be returned in some operations.
Be sure to use the crossover cable sold on the market to connet with a PC.

TELNET support
Control via telnet standard port (TCP:23) is supported.
Please set to [On] following items in [Default settings] > [Standby Settings].
[Network], [Monitor Out], [DC5V Out]
(Otherwise, commands in standby mode are not supported.)

Pin layout of PC cpntrol connector

D-sub 9pin male connector



Pin No.	Signal
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

NC: No connection

		Baisc command	Command with parameter	Parameter	
	Command	Execute / Inquire	[Prm] : parameter	Range*1	Note
Setting commands					
Picture Mode	PIC	#PIC[CR]		0 - 5	
Bright = 0			#PIC:0[CR]		
Presentation = 1			#PIC:1[CR]		
Standard = 2			#PIC:2[CR]		
Vivid = 3			#PIC:3[CR]		
sRGB = 4			#PIC:4[CR]		
DICOM SIM =5			#PIC:5[CR]		
Aspect	SCS	#SCS[CR]		0 - 3	
Auto = 0			#SCS:0[CR]		
4:3 = 1			#SCS:1[CR]		
16:9 = 2			#SCS:2[CR]		
16:10 =3			#SCS:3[CR]		
Source select	INP	#INP[CR]		0 - 8	
Computer 1 = 0			#INP:0[CR]		
Computer 2 (BNC) = 1			#INP:1[CR]		
HDMI 1 /MHL = 2			#INP:2[CR]		
DVI-D = 3			#INP:3[CR]		
Video = 4			#INP:4[CR]		
S-Video = 5			#INP:5[CR]		
HDBaseT = 6			#INP:6[CR]		
HDMI 2/W&B =7			#INP:7[CR]		
3GSDI = 8			#INP:8[CR]		
Projection Mode	PJM	#PJM[CR]		0 - 3	
Standard = 0			#PJM:0[CR]		
Rear = 1			#PJM:1[CR]		
Ceiling = 2			#PJM:2[CR]		
Rear Ceiling = 3			#PJM:3[CR]		
Auto Power Off	NPF	#NPF[CR]		0 - 4	
Off = 0			#NPF:0[CR]		
On(30min)=1			#NPF:1[CR]		
On(20min)=2			#NPF:2[CR]		
On(10min)=3			#NPF:3[CR]		
On(5min)=4			#NPF:4[CR]		
AV Mute	MUT	#MUT[CR]		0 - 1	
Off = 0			#MUT:0[CR]		
On = 1			#MUT:1[CR]		
Color Enhancer	CES	#CES[CR]		0 - 1	
Off = 0			#CES:0[CR]		
On = 1			#CES:1[CR]		
Auto Input Serch	AIS	#AIS[CR]		0 - 1	
Off = 0			#AIS:0[CR]		
On = 1			#AIS:1[CR]		
Auto Power On	APM	#APM[CR]		0 - 1	
Off = 0			#APM:0[CR]		
On = 1			#APM:1[CR]		
Lamp Power	LPM	#LPM[CR]		0 - 1	
ECO = 0			#LPM:0[CR]		
Normal = 1			#LPM:1[CR]		
Lamp Mode	LPD	#LPD[CR]		0 - 1	
Lamp 1 = 0			#LPD:0[CR]		
Lamp 2 = 1			#LPD:1[CR]		
Both = 2			#LPD:2[CR]		
Lamp Switch	LPS	#LPS[CR]		0 - 4	
On Filure Only = 0			#LPS:0[CR]		
At Power-up = 1			#LPS:1[CR]		
24H =2			#LPS:2[CR]		
50H = 3			#LPS:3[CR]		
100H = 4			#LPS:4[CR]		

		Baisc command	Command with parameter	Parameter	
	Command	Execute / Inquire	[Prm] : parameter	Range*1	Note
Setting commands					
Load Lens Memory	LLM	#LLM[CR]		0 - 5	
Load Memory 1 = 0			#LLM:0[CR]		
Load Memory 2 = 1			#LLM:1[CR]		
Load Memory 3 = 2			#LLM:2[CR]		
Load Memory 4 = 3			#LLM:3[CR]		
Load Memory 5 = 4			#LLM:4[CR]		
Load Memory 6 = 5			#LLM:5[CR]		
Executing commands					
Power On	PON	#PON[CR]			
Power Off	POF	#POF[CR]			
PJLink related command					
Set PJLink password	PLP	--	#PLP:[CPW]>[NPW	0-12 Alphanumeric charactoers	[CPW]:Current password, [NPW]:New password Null character: Password Off (See Note2)
Inquiring commands					
Power Status	SPS	#SPS[CR]			0:Standby 1:Prepairing to start projection 5:Power on (Working normal) 7:Cooling
Input source	SIS	#SIS[CR]			0:Computer1 1:Computer2 2:HDMI/MHL 3:DVI-D 4:Video 5:S-Video 6:HDBase-T 7:HDMI2/W&B 8:3GSDI S:Serching E:Others
Error	SER	#SER[CR]			See Note1
Lamp 1 hour (Standard mode equivalent)	SLT	#SLT[CR]			Returns equivalent time using with standard lamp power mode. Format: =SLT:3H15M
Lamp 2 hour (Standard mode equivalent)	SL2	#SL2[CR]			Returns equivalent time using with standard lamp power mode. Format: =SLT:3H15M
Lamp Status	SLS	#SLS:[CR]			1st Character:Lamp1 2nd Character:Lamp2 U:On O:Off V:On(Life time warning) W:Off(Life time
Projector hour	STT	#STT[CR]			Same format as Lamp hour.
Software version	SSV	#SSV[CR]			Returns 3 software verisons (DDP-MCU-LAN) in one line.

<< Note1 >>

Character	Error Type
1st	Lamp1 Error
2nd	Lamp2 Error
3rd	Filter Error
5th	Temperature 1 Error
6th	Color Wheel
7th	DMD Temp
8th	Liquid Pump
9th	Fan 1 Error
10th	Fan 2 Error
11th	Fan 3 Error
12th	Fan 5 Error
13th	Fan 6 Error
14th	Fan 7 Error
15th	Fan 8 Error
16th	Fan 9 Error
17th	Fan 10 Error
18th	Fan 11 Error
19th	Fan 12 Error (XGA only)

E: Error W:Warning O:Ok
No Error: OOOOOOOOOOOOOOOOOOO
Fan 1 error: OOOOOOOOEOOOOOOOOOO
Lamp 2 Warnig (reach life teme but still can be lit) and Lamp2 Error (no lit) : WEOOOOOOOOOOOOOOOOO

<< Note 2>>
PJLink Password Command Expmples:

Off > "abc"	#PLP:>abc[CR]
"abc" > "123"	#PLP:abc>123[CR]
"123" > Off	#PLP:123>[CR]

		Baisc command	Charactor									Hexadecimal									
	Command	Execute / Inquire																			Note
Setting commands																					
Picture Mode	PIC	#PIC[CR]																			
Bright = 0			#	P	I	C	:	0	CR			23	50	49	43	3A	30	0D			
Presentation = 1			#	P	I	C	:	1	CR			23	50	49	43	3A	31	0D			
Standard = 2			#	P	I	C	:	2	CR			23	50	49	43	3A	32	0D			
Vivid = 3			#	P	I	C	:	3	CR			23	50	49	43	3A	33	0D			
sRGB = 4			#	P	I	C	:	4	CR			23	50	49	43	3A	34	0D			
DICOM SIM =5			#	P	I	C	:	5	CR			23	50	49	43	3A	35	0D			
Aspect	SCS	#SCS[CR]																			
Auto = 0			#	S	C	S	:	0	CR			23	53	43	53	3A	30	0D			
4:3 = 1			#	S	C	S	:	1	CR			23	53	43	53	3A	31	0D			
16:9 = 2			#	S	C	S	:	2	CR			23	53	43	53	3A	32	0D			
16:10 =3			#	S	C	S	:	3	CR			23	53	43	53	3A	33	0D			
Source select	INP	#INP[CR]																			
Computer 1 = 0			#	I	N	P	:	0	CR			23	49	4E	50	3A	30	0D			
Computer 2 (BNC) = 1			#	I	N	P	:	1	CR			23	49	4E	50	3A	31	0D			
HDMI 1 /MHL = 2			#	I	N	P	:	2	CR			23	49	4E	50	3A	32	0D			
DVI-D = 3			#	I	N	P	:	3	CR			23	49	4E	50	3A	33	0D			
Video = 4			#	I	N	P	:	4	CR			23	49	4E	50	3A	34	0D			
S-Video = 5			#	I	N	P	:	5	CR			23	49	4E	50	3A	35	0D			
HDBaseT = 6			#	I	N	P	:	6	CR			23	49	4E	50	3A	36	0D			
HDMI 2/W&B =7			#	I	N	P	:	7	CR			23	49	4E	50	3A	37	0D			
3GSDI = 8			#	I	N	P	:	8	CR			23	49	4E	50	3A	38	0D			
Projection mode	PJM	#PJM[CR]																			
Standard = 0			#	P	J	M	:	0	CR			23	50	4A	4D	3A	30	0D			
Rear = 1			#	P	J	M	:	1	CR			23	50	4A	4D	3A	31	0D			
Ceiling = 2			#	P	J	M	:	2	CR			23	50	4A	4D	3A	32	0D			
Rear Ceiling = 3			#	P	J	M	:	3	CR			23	50	4A	4D	3A	33	0D			
Auto Power Off	NPF	#NPF[CR]																			
Off = 0			#	N	P	F	:	0	CR			23	4E	50	46	3A	30	0D			
On(30min)=1			#	N	P	F	:	1	CR			23	4E	50	46	3A	31	0D			
On(20min)=2			#	N	P	F	:	2	CR			23	4E	50	46	3A	32	0D			
On(10min)=3			#	N	P	F	:	3	CR			23	4E	50	46	3A	33	0D			
On(5min)=4			#	N	P	F	:	4	CR			23	4E	50	46	3A	34	0D			
AV Mute	MUT	#MUT[CR]																			
Off = 0			#	M	U	T	:	0	CR			23	4D	55	54	3A	30	0D			
On = 1			#	M	U	T	:	1	CR			23	4D	55	54	3A	31	0D			
Color Enhancer	CES	#CES[CR]																			
Off = 0			#	C	E	S	:	0	CR			23	43	45	53	3A	30	0D			
On = 1			#	C	E	S	:	1	CR			23	43	45	53	3A	31	0D			
Auto Input Serch	AIS	#AIS[CR]																			
Off = 0			#	A	I	S	:	0	CR			23	41	49	53	3A	30	0D			
On = 1			#	A	I	S	:	1	CR			23	41	49	53	3A	31	0D			
Auto Power On	APM	#APM[CR]																			
Off = 0			#	A	P	M	:	0	CR			23	41	50	4D	3A	30	0D			
On = 1			#	A	P	M	:	1	CR			23	41	50	4D	3A	31	0D			

Lamp Power	LPM	#LPM[CR]																					
ECO = 0			#	L	P	M	:	0	CR				23	4C	50	4D	3A	30	0D				
Normal = 1			#	L	P	M	:	1	CR				23	4C	50	4D	3A	31	0D				
Lamp Mode	LPD	#LPD[CR]																					
Lamp 1 = 0			#	L	P	D	:	0	CR				23	4C	50	44	3A	30	0D				
Lamp 2 = 1			#	L	P	D	:	1	CR				23	4C	50	44	3A	31	0D				
Both = 2			#	L	P	D	:	2	CR				23	4C	50	44	3A	32	0D				
Lamp Switch	LPS	#LPS[CR]																					
On Filure Only = 0			#	L	P	S	:	0	CR				23	4C	50	53	3A	30	0D				
At Power-up = 1			#	L	P	S	:	1	CR				23	4C	50	53	3A	31	0D				
24H =2			#	L	P	S	:	2	CR				23	4C	50	53	3A	32	0D				
50H = 3			#	L	P	S	:	3	CR				23	4C	50	53	3A	33	0D				
100H = 4			#	L	P	S	:	4	CR				23	4C	50	53	3A	34	0D				
Load Lens Memory	LLM	#LLM[CR]																					
Load Memory 1 = 0			#	L	L	M	:	0	CR				23	4C	4C	4D	3A	30	0D				
Load Memory 2 = 1			#	L	L	M	:	1	CR				23	4C	4C	4D	3A	31	0D				
Load Memory 3 = 2			#	L	L	M	:	2	CR				23	4C	4C	4D	3A	32	0D				
Load Memory 4 = 3			#	L	L	M	:	3	CR				23	4C	4C	4D	3A	33	0D				
Load Memory 5 = 4			#	L	L	M	:	4	CR				23	4C	4C	4D	3A	34	0D				
Load Memory 6 = 5			#	L	L	M	:	5	CR				23	4C	4C	4D	3A	35	0D				
Executing commands																							
Power On	PON	#PON[CR]	#	P	O	N	CR						23	50	4F	4E	0D						
Power Off	POF	#POF[CR]	#	P	O	F	CR						23	50	4F	46	0D						Set to Normal Standby (Monitor out & LAN control function can be used.)
Inquiring commands																							
Power Status	SPS	#SPS[CR]	#	S	P	S	CR						23	53	50	53	0D						0:Standby 1:Prepairing to start projection 5:Power on (Working normal) 7:Cooling
Input source	SIS	#SIS[CR]	#	S	I	S	CR						23	53	49	53	0D						0:Computer1 1:Computer2 2:HDMI/MHL 3:DVI-D 4:Video 5:S-Video 6:HDBase-T 7:HDMI2/W&B 8:3GSDI S:Serching E:Others
Error	SER	#SER[CR]	#	S	E	R	CR						23	53	45	52	0D						See Note1
Lamp 1 hour (Standard mode equivalent)	SLT	#SLT[CR]	#	S	L	T	CR						23	53	4C	54	0D						Returns equivalent time using with standard lamp power mode. Format: =SLT:3H15M
Lamp 2 hour (Standard mode equivalent)	SL2	#SL2[CR]	#	S	L	2	CR						23	53	4C	32	0D						Returns equivalent time using with standard lamp power mode. Format: =SLT:3H15M
Lamp Status	SLS	#SLS[CR]	#	S	L	S	CR						23	53	4C	53	0D						1st Character:Lamp1 2nd Character:Lamp2 U:On O:Off V:On(Life time warning) W:Off(Life time warning)
Projector hour	STT	#STT[CR]	#	S	T	T	CR						23	53	54	54	0D						Same format as Lamp hour.
Software version	SSV	#SSV[CR]	#	S	S	V	CR						23	53	53	56	0D						Returns 3 software verisons (DDP-MCU-LAN) in one line.

Note1

Character	Error Type
1st	Lamp1 Error
2nd	Lamp2 Error
3rd	Filter Error
5th	Temperature 1 Error
6th	Color Wheel
7th	DMD Temp
8th	Liquid Pump
9th	Fan 1 Error
10th	Fan 2 Error
11th	Fan 3 Error
12th	Fan 5 Error
13th	Fan 6 Error
14th	Fan 7 Error
15th	Fan 8 Error
16th	Fan 9 Error
17th	Fan 10 Error
18th	Fan 11 Error
19th	Fan 12 Error (XGA only)

E: Error W:Warning O:Ok
No Error: OOOOOOOOOOOOOOOOOOO
Fan 1 error: OOOOOOOOEOOOOOOOOOO
Lamp 2 Warnig (reach life teme but still can be lit) and Lamp2 Error (no lit) : WEOOOOOOOOOOOOOOOOO