SANYO

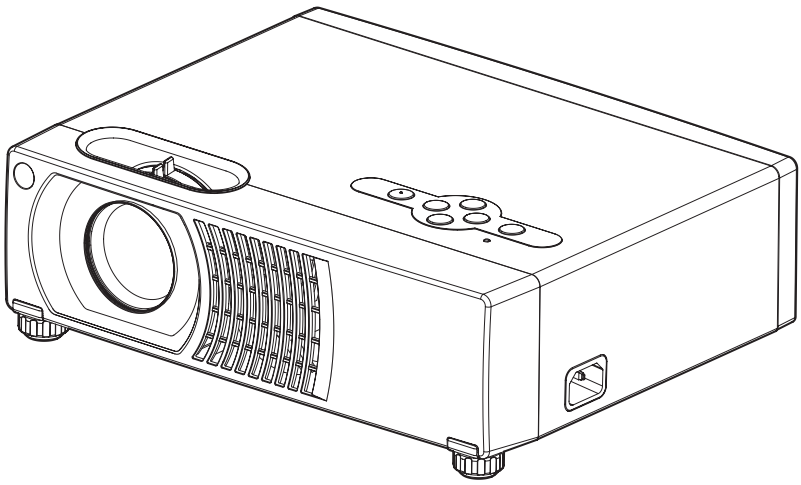
FILE NO.

SERVICE MANUAL

Multimedia Projector

Model No. PLC-WXU10N
U.S.A, Canada,
PLC-WXU10E
Europe, Asia
PLC-WXU10B
U.K.

Original Version



Chassis No. KJ3-WXU10N00
LJ3-WXU10E00
LJ3-WXU10B00

Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual.
If the Original Version Service Manual Chassis No. does not match the unit's, additional Service Literature is required. You must refer to "Notices" to the Original Service Manual prior to servicing the unit.

PRODUCT CODE
1 122 392 00 (KJ3A)
1 122 393 00 (LJ3A)
1 122 393 02 (LJ3C)

REFERENCE NO. SM5110910-00

Safety Instructions

Safety Precautions

WARNING:
The chassis of this projector is isolated (COLD) from AC line by using the converter transformer. Primary side of the converter and lamp power supply unit circuit is connected to the AC line and it is hot, which hot circuit is identified with the line (⏦) in the schematic diagram. For continued product safety and protection of personnel injury, servicing should be made with qualified personnel.

The following precautions must be observed.

1: An isolation transformer should be connected in the power line between the projector and the AC line before any service is performed on the projector.

2: Comply with all caution and safety-related notes provided on the cabinet back, cabinet bottom, inside the cabinet or on the chassis.

3: When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as, control knobs, adjustment covers or shields, barriers, etc.

DO NOT OPERATE THIS PROJECTOR WITHOUT THE PROTECTIVE SHIELD IN POSITION AND PROPERLY SECURED.

4: Before replacing the cabinet cover, thoroughly inspect the inside of the cabinet to see that no stray parts or tools have been left inside.

Before returning any projector to the customer, the service personnel must be sure it is completely safe to operate without danger of electric shock.

Product Safety Notice

Product safety should be considered when a component replacement is made in any area of the projector. Components indicated by mark ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. It is, therefore, particularly recommended that the replacement of there parts must be made by exactly the same parts.

Service Personnel Warning

Eye damage may result from directly viewing the light produced by the Lamp used in this equipment. Always turn off Lamp before opening cover. The Ultraviolet radiation eye protection required during this servicing.
Never turn the power on without the lamp to avoid electric-shock or damage of the devices since the stabilizer generates high voltages (15kV - 25kV) at its starts.
Since the lamp is very high temperature during units operation replacement of the lamp should be done at least 45 minutes after the power has been turned off, to allow the lamp cool-off.

Table of Contents

1 System Introduction

1.1 Technical Specification

	PLC-WXU10
Display Type	3 panel 0.56 inch LCD projector
Resolution(Pixels)	1280 x 800 (1,024,000 dot x 3)
Lens	Manual Zoom (1.2x)
	F1.75~F1.9 f=18.85~22.23mm
Aspect Ratio	16:10(Default)
Screen Size	26.7”-302”
Lamp	210W
Video Compatibility	NTSC3.58,NTSC4.43 PAL-60,PAL-M,N SECAM HDTV(480i/p,576i/p,720p,1080i)
Input Source	D-Sub 15 pin, S-Video, Composite Video, YCbCr, DVI, RCA type x2, RS-232
Output Source	D-Sub 15 pin,
Scanning Frequency	
Horizontal Frequency	15K ~ 80 KHz
Vertical Frequency	50 ~ 85 Hz
Integrated Speaker	2W x 1
Storage Temperature	-20 ~ 60˚C
Operation Temperature	0˚C ~ +35˚C
Power Requirement	AC100~240V,50/60 Hz
Power Consumption	280W
Dimension	298 X 237 X 98 mm
Weight	3.3 Kg(7.3lb)

Note: Designs and specifications are subject to change without prior notice

1.2 Lamp Specification

Product Type: Short arc mercury lamp with reflector.

USHIO's Type	: NSHA210HO or NSHA210HO /C
USHIO's Lamp Driver	: PHG231A2**
(1) Lamp Wattage[normal]mode	: 210W
(2) Lamp Wattage[eco]mode	: 178.5W(TBD)

Initial Characteristics

Initial Burner Characteristics (Reference)

Wattage (W)	Lamp Voltage (V)	Lamp Current (A)	Efficiency (lm/W)	Arc Gap (mm)
AC 210	80	2.6	70	1.0

Lamp Life

The lamp life represents the average number of hours when the illuminance drops to less than 50% of its initial value under the following conditions with specific optical system. The nominal lamp life at 210W is (2000) hours. However, ( ) hour is the temporary lamp life at the beginning of production. USHIO will continue its lamp life measurement.

- The lamp must be operated under the proper temperature condition.
- The lamp must be operated on the USHIO's lamp driver.
- On/Off cycle: 2 hours on, 15 minutes off.
- Ambient temperature should be room temperature (about 25°C)
- Illuminance should be measured on the specific optical system.

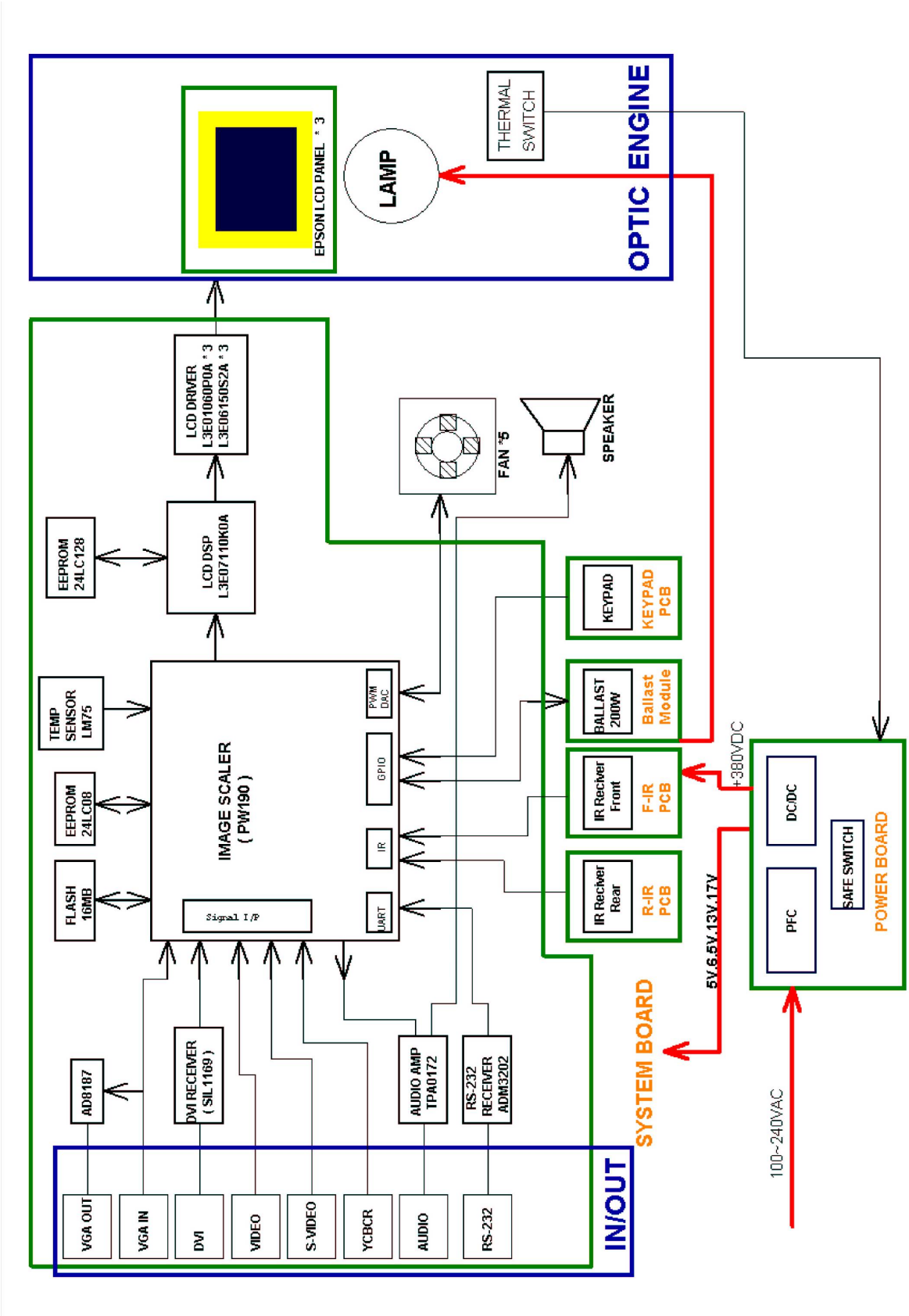
Attention for handling

- Do not touch the lamp until it has cooled completely, because the lamp is very hot during operation and immediately after turned off.
- The lamp has to be fixed firmly to the base or socket.
- Turn off the power supply during maintenance.
- Do not hold the lamp except outer surface of the reflector.
- Wear protective gloves and eyeglasses when handling the lamp.
- Any unusual shock or vibration to the lamp should be avoided.
- The lamp contains the mercury. Its breakage might cause mercury to flow out of the reflector. Please manage provision at the customer's product.
- Do not pull the lead wire and plug by more than 24.5N.
- Please be careful of handling the lamp because it is made of glass.
- Please notice for keeping or handling the lamp, because there is a projection of this lamp with reflector ahead.
- Do not touch the bulb and the mirror area of the reflector.

Attention for use

- Do not close or cover the lamp with any flammable stuff.
- During operation, the lamp is under extremely high pressure. Please manage provision at the customer's product to prevent fragments of bulb and mercury from flowing out of it. If the lamp bursts in case of an emergency, the sound will be occurred.
- Lamp operation should be with the specified lamp driver and the system ONLY.
- Do not look at the lamp directly during operations.
- Do not expose your skin directly. We recommend to you to put on something for protection for your skin. For example, long sleeve shirt, gloves, glassed and so on.
- Do not modify the lamp and never use a lamp that has been modified.
- Any unusual shock or vibration to the lamp should be avoided during operation.
- Do not use any broken lamps.
- Dispose of used lamps according to your local instruction.
- Do not turn on the lamp while the system is opened.
- The lamp contains mercury. If the lamp bursts during operation ventilate the area sufficiently to avoid inhaling harmful mercury fumes.
- Use the lead below 200 ° C to prevent a deterioration of cladding clad of the fluorocarbon resin.
- The lead wire insulation clad shouldn't touch the reflector.
- Exchange the lamp that has already passed the life time immediately.

1.3 PLC-WXU10 System Block Diagram



2 Firmware Upgraded Flow

This chapter provides the information regarding relevant equipments and upgrading procedure for LCD projector firmware upgrade.

Note:

Firmware upgrade process is not necessary. Please check the firmware and composer version before any procedures. During firmware download period, please do not shut down PC or projector, this will cause flash memory's damage. And need to return the unit to manufacturer for flash memory recovery.

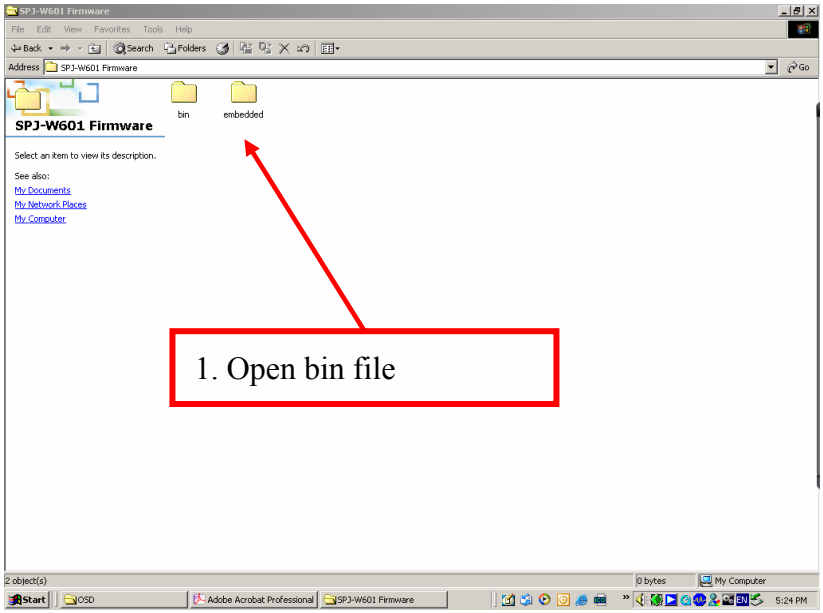
.

2.1 Setup Tool/Equipment

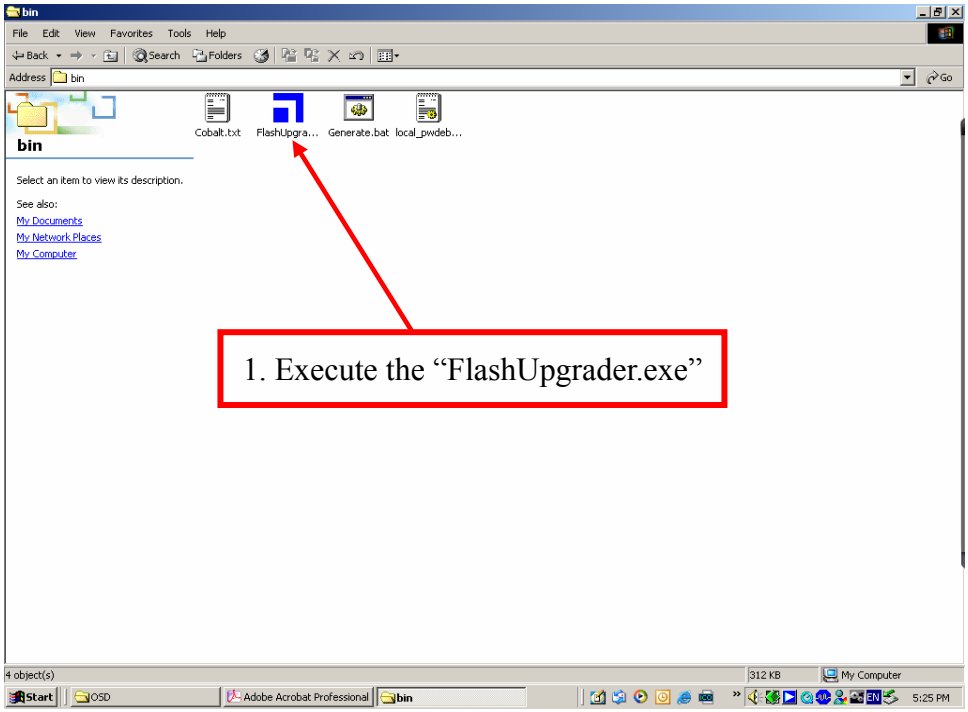
- Computer
- RS232 Cable
- Power Cord

2.2 Upgrading Procedure

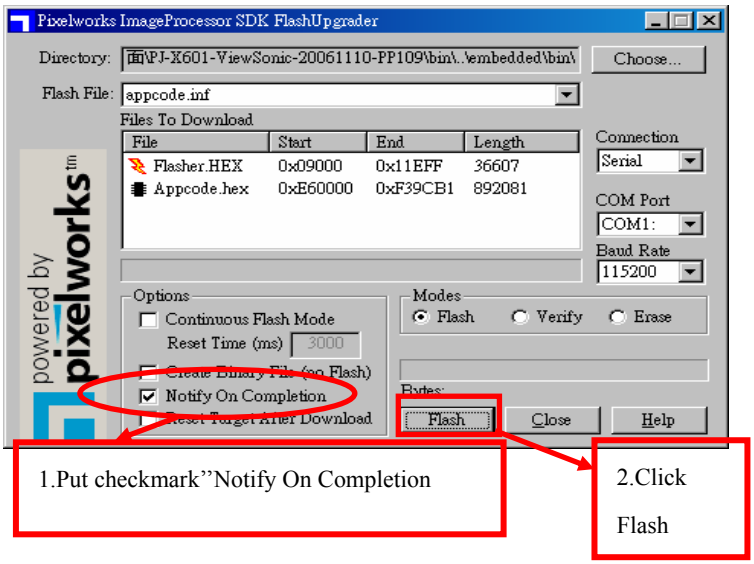
1. Connect COM1 of PC and RS232 port of LCD projector.
2. Select where the firmware is for download and Open “Bin” file



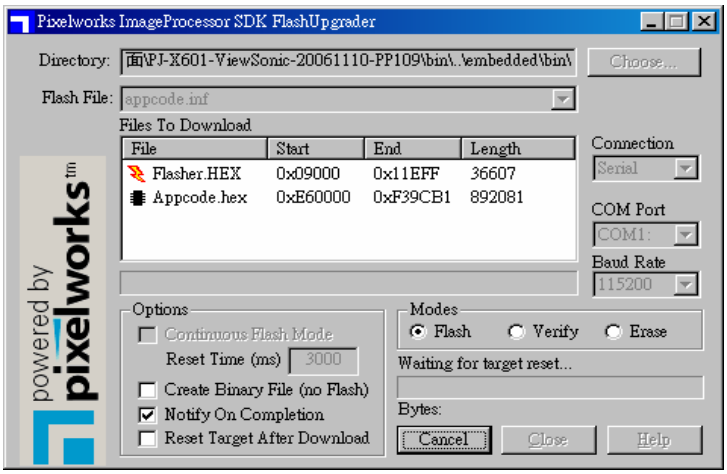
3. Execute “FlashUpgrader.exe” file on the PC.



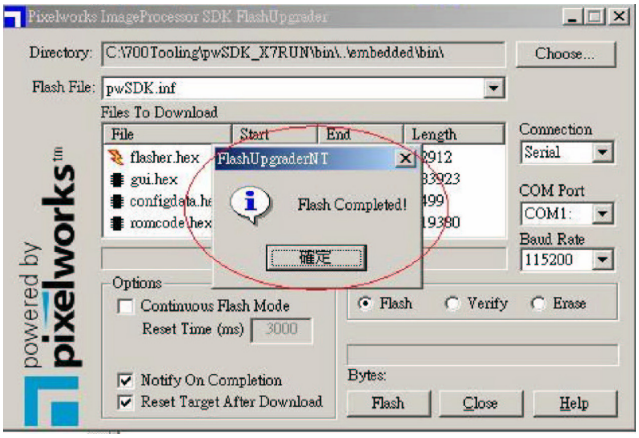
4. Make sure”Notify On Completion’’ is with a check



5. Press Menu and Power buttons constantly and then give power supply. Power LED will become green. That indicates the projector is in the download mode. At this moment, you can release these two buttons. Click the “Flash”, wait for download.



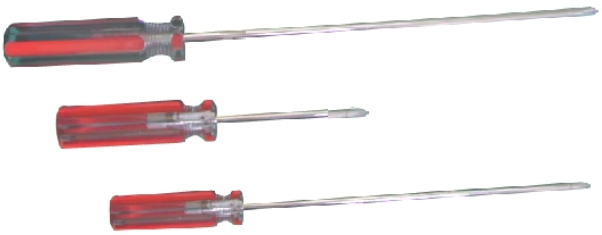
6. Firmware upgrades completion as below. Remove RS232 cable and power cable



Attention: Please execute the default setting to recover the default value.

3 Machine Disassembly and Replacement

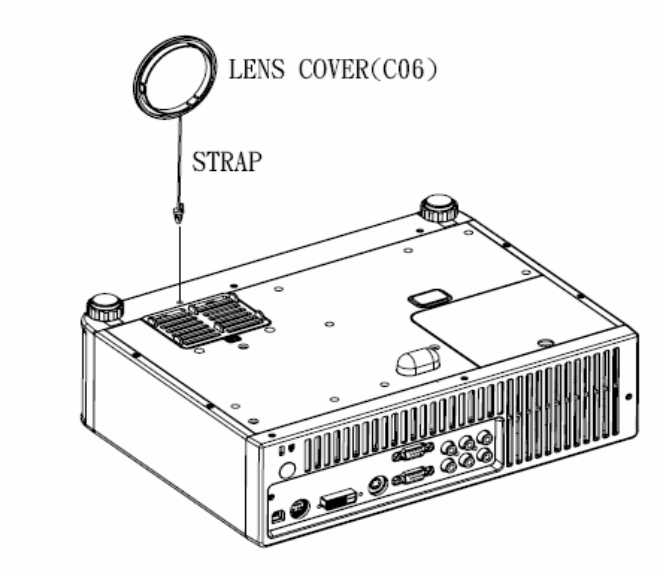
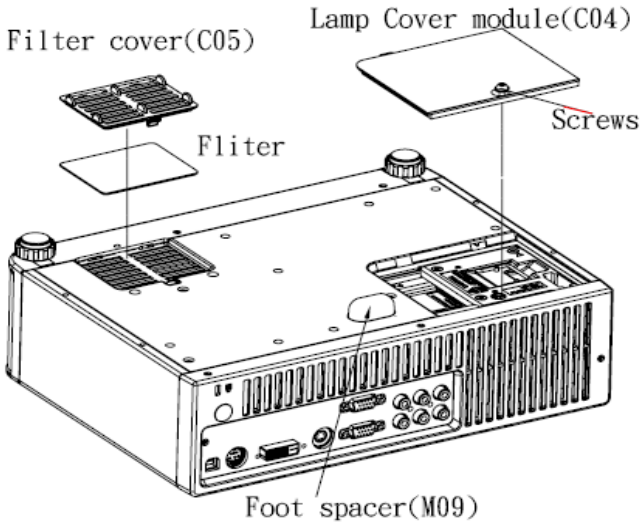
3.1 Tools

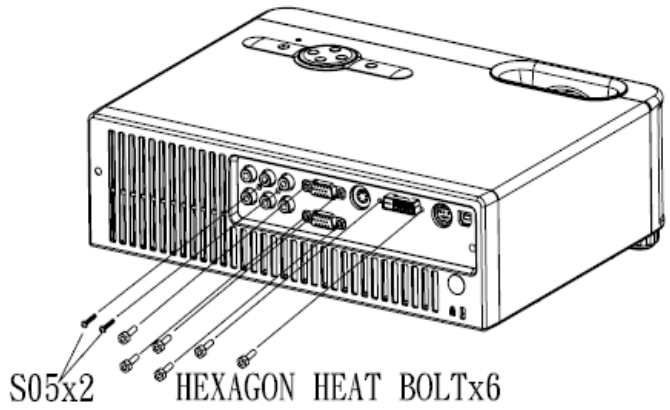
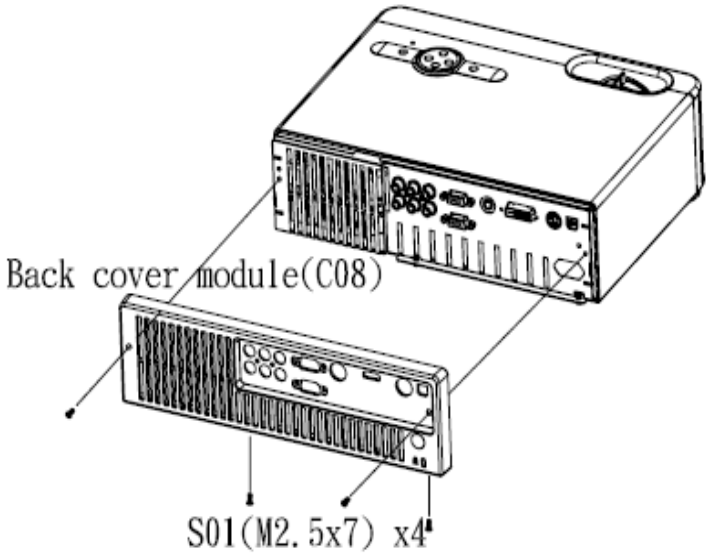
Item	Photo
Long Nose Nipper	
Hex Sleeves 5mm	
Screw Bit(+):107 Screw Bit(+):101 Screw Bit(+):102	
Anti-static wrist strap	
Anti-static wrist gloves	

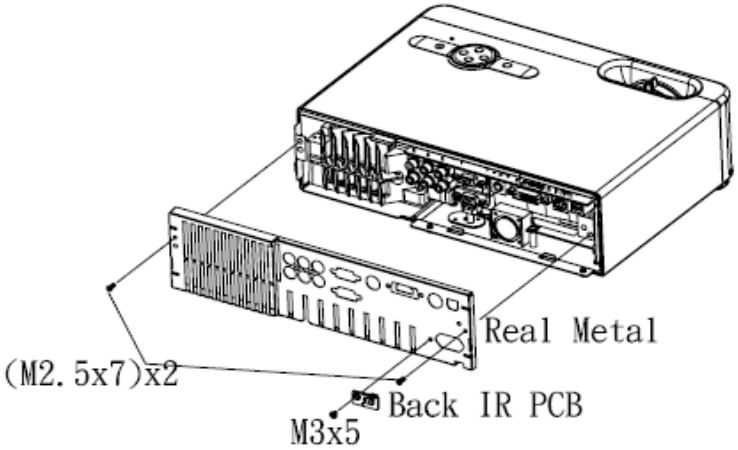
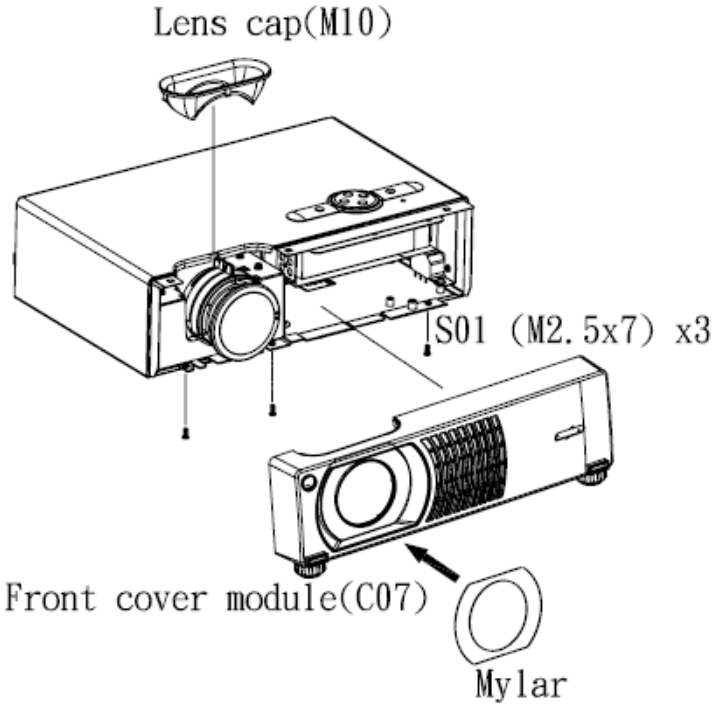
3.2 Disassembly Procedure

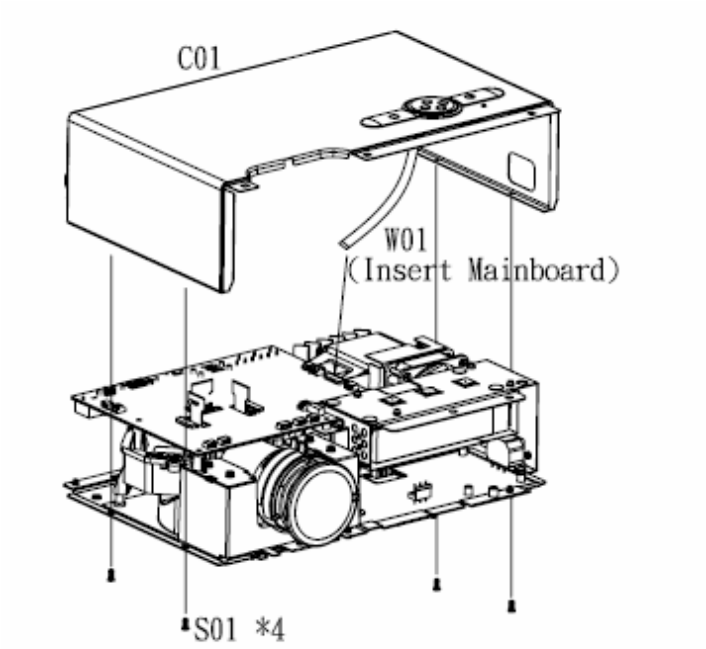
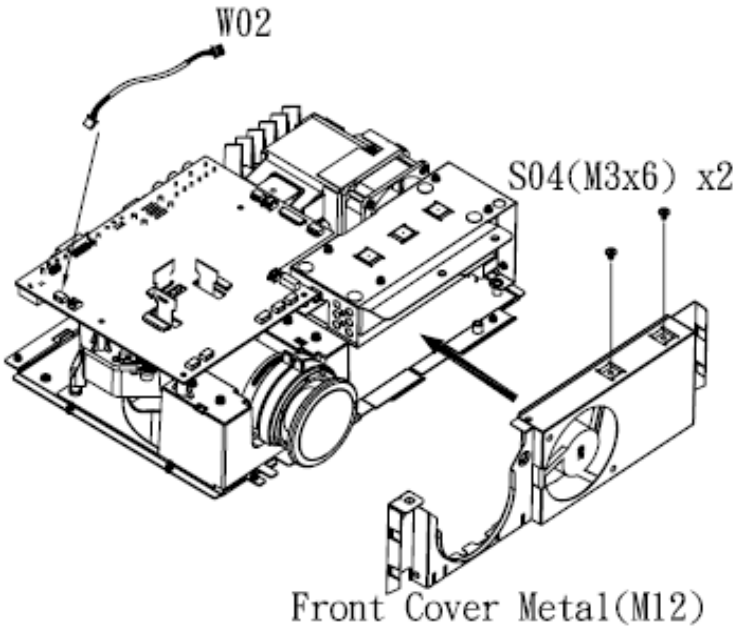
Warning

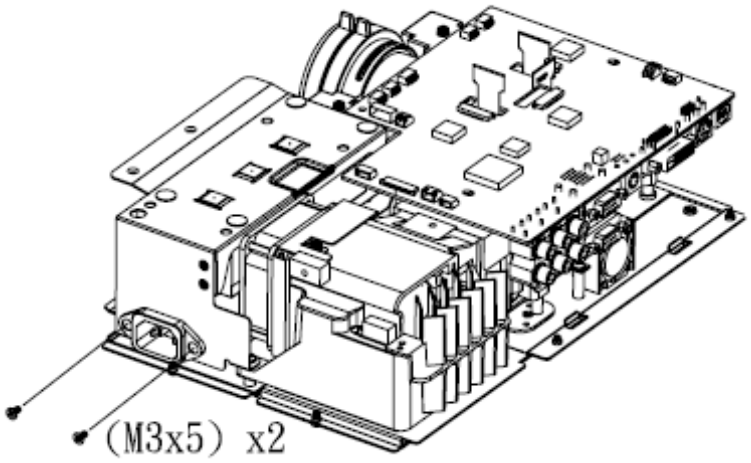
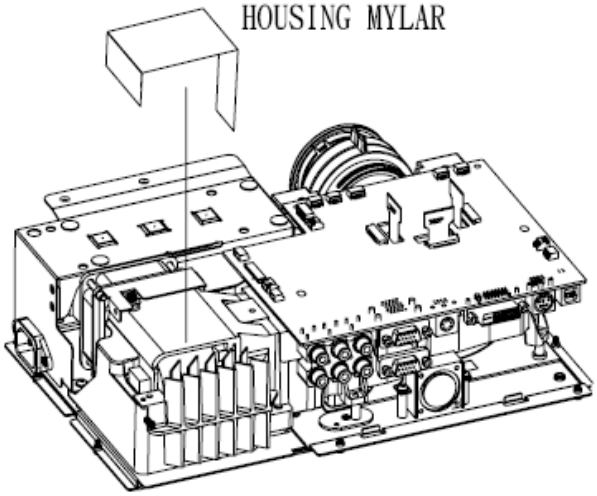
- Put on the Static Electricity Ring when starting for repair.
- Repair Environment suggest in Clean-room class 10000. Do not remove Optical Engine or LCD panel outside the clean room. Please return the optical engine to supplier if your repair condition can not meet the requirement.
- While screwing or unscrewing screws, please keep the screwdriver straight. Keeping screwdriver inclined will damage the screw holes.
- Please turn off the power before replacing any parts.
- Please wait for the projector lamp cooling down and turn off the power before changing it. Never touch or hit the lamp module when replacing the lamp.
- When you replace the projector lamp, never touch the new lamp with your bare hands. The invisible residue left by the oil on your hands may shorten the lamp life. Use lint-free gloves or finger cots are recommended.

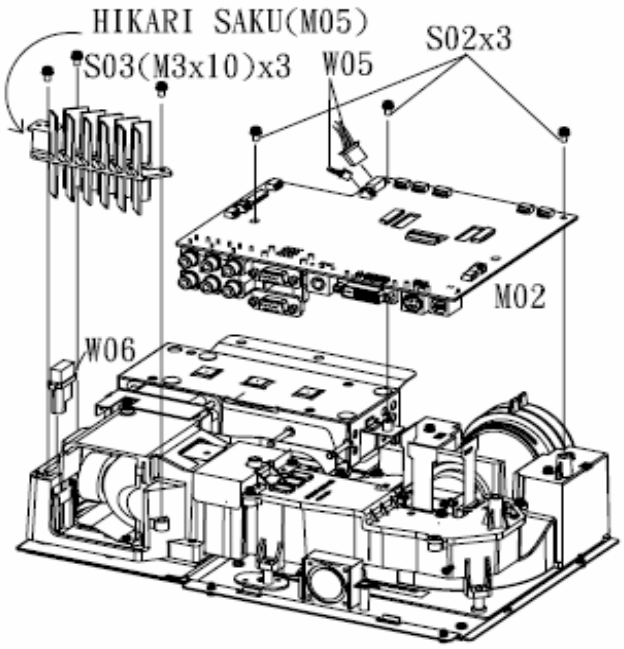
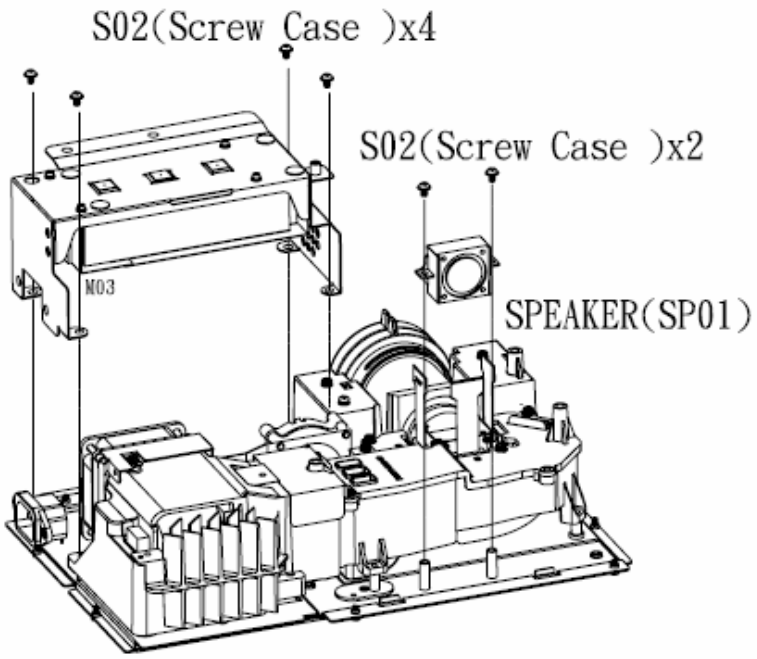
Step	Figure	Description
1		Press the power button to shutdown the projector and disconnect the power cord. If the lamp is hot, please do not start any procedure until the projector lamp cools down. Remove the Lens Cover with strap from the cabinet bottom.
2		1.Turn the projector over and remove the filter by pulling the latches upward 2.Gently clean the filter by using a brush or rinse it softly 3.When rinsing the filter ,dry it well.Replace the filter properly.make sure that the filter is fully inserted to the projector. 4.Remove the one screw on the lamp cover and open the lamp cover

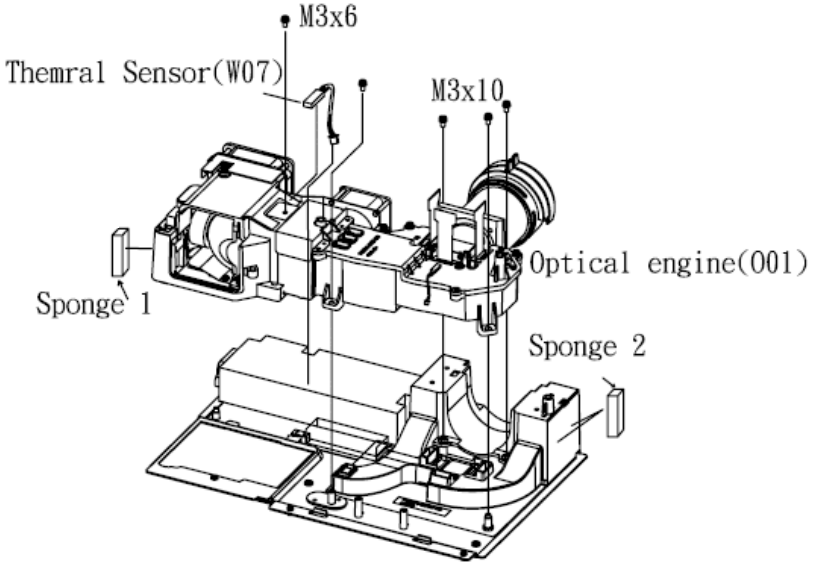
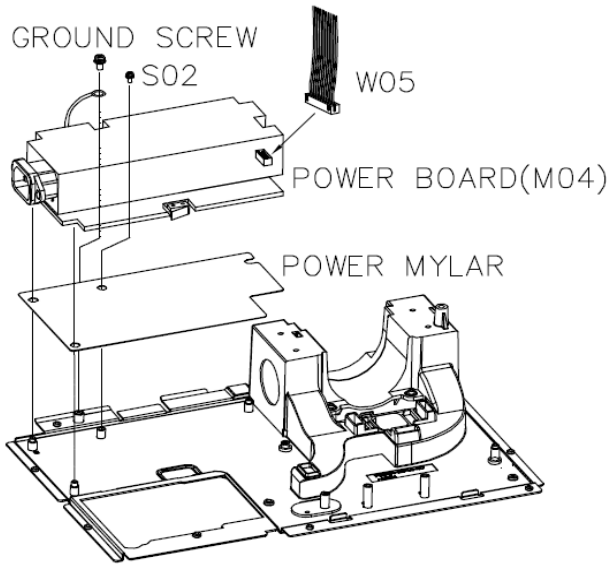
Step	Figure	Description
3		Remove the hexagon heat bolt*6 on the back cover Remove the screws S05 * 2 on the back cover
4		Remove screws S01 and than take back cover away.

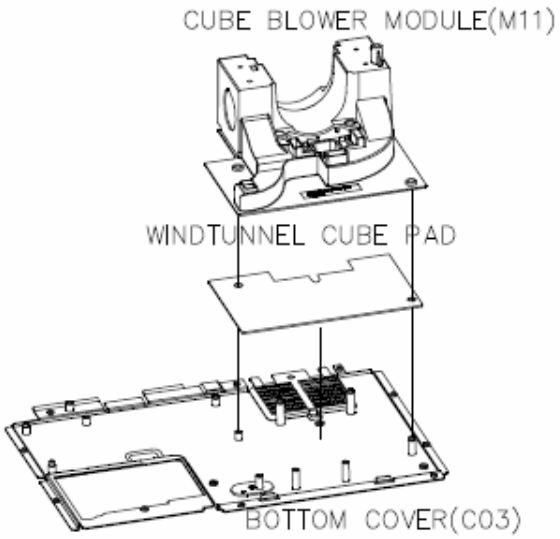
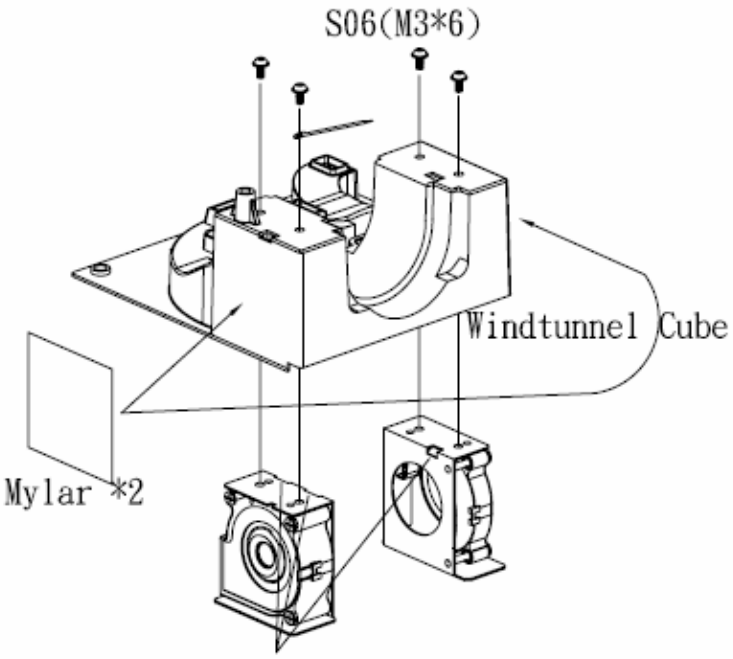
Step	Figure	Description
5		1. Remove the screws 2. Remove the real metal and back IR PCB
6		1. Remove the screws S01*3 on the front cover 2. Remove the lens cap 3. Remove the front cover module Note: Lens cap should be Removed as the front cover module above.

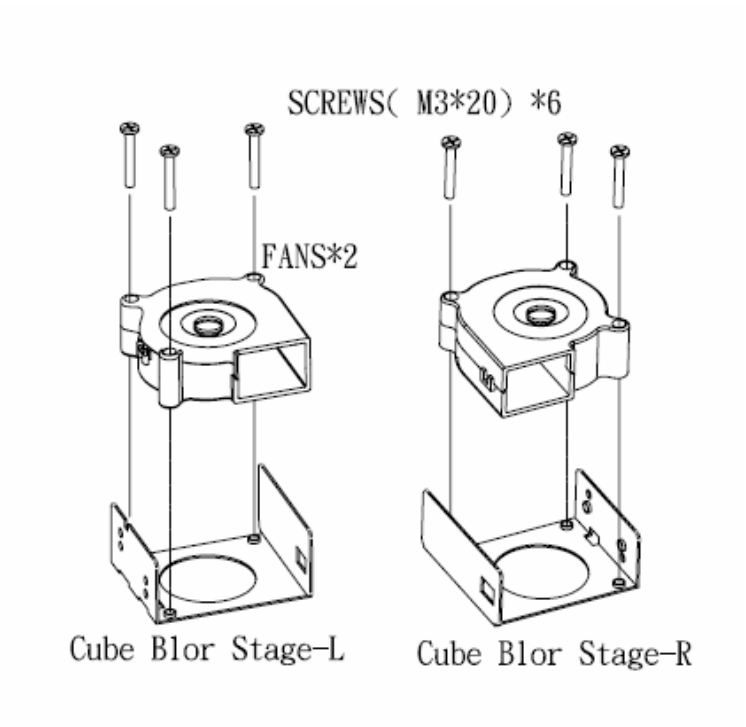
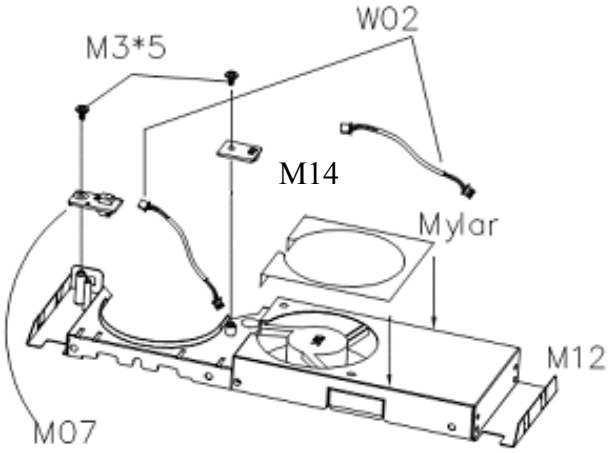
Step	Figure	Description
7		1. Remove the screws S01*4 on the top cover 2. Remove the W02 3. Remove the top cover C01
8		Remove the screws S04*2 and front cover metal

Step	Figure	Description
9		Remove the screws as shown.
10		Remove the housing mylar

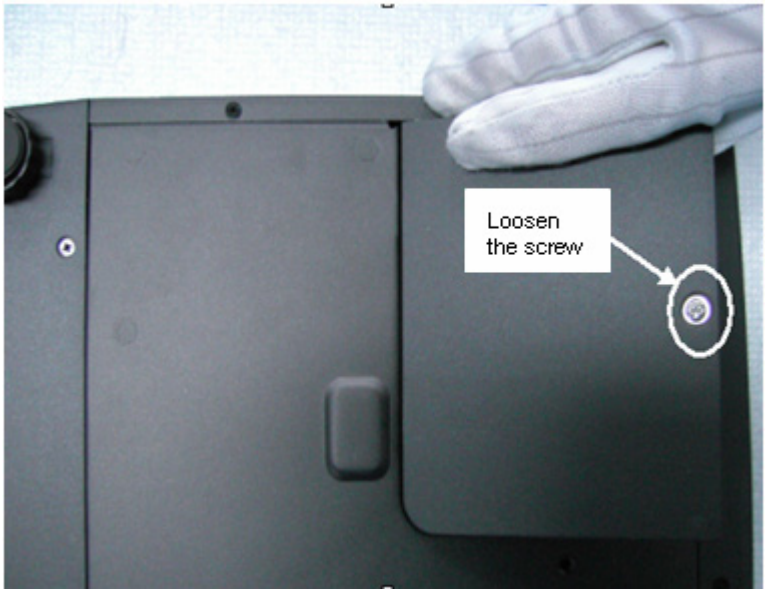
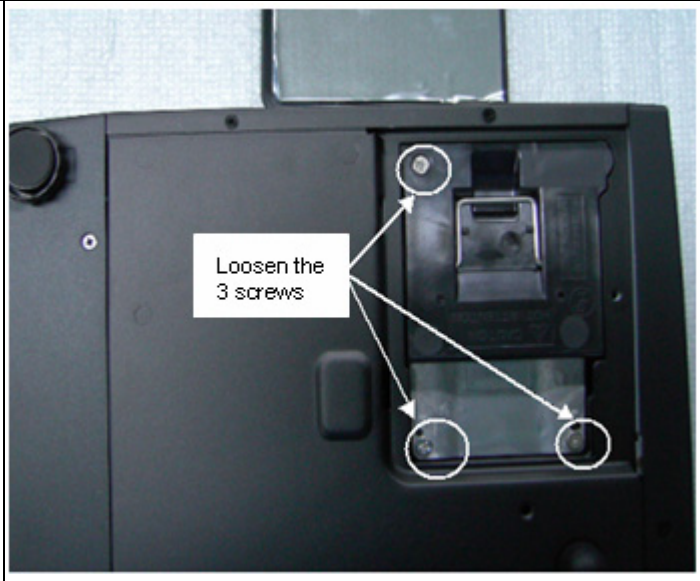
Step	Figure	Description
11		1. Remove the screws S02*3 2. 2.Remove the main board NOTES:(The W05 should be removed main board above) 3.Remove W06 and Hikari Saku
12		1.Remove the ballast module 2.Remove the speaker

Step	Figure	Description
13		Remove the thermal sensor on the Optical engine Remove the Optical engine
14		Loosen screws and remove the power board module from bottom cover

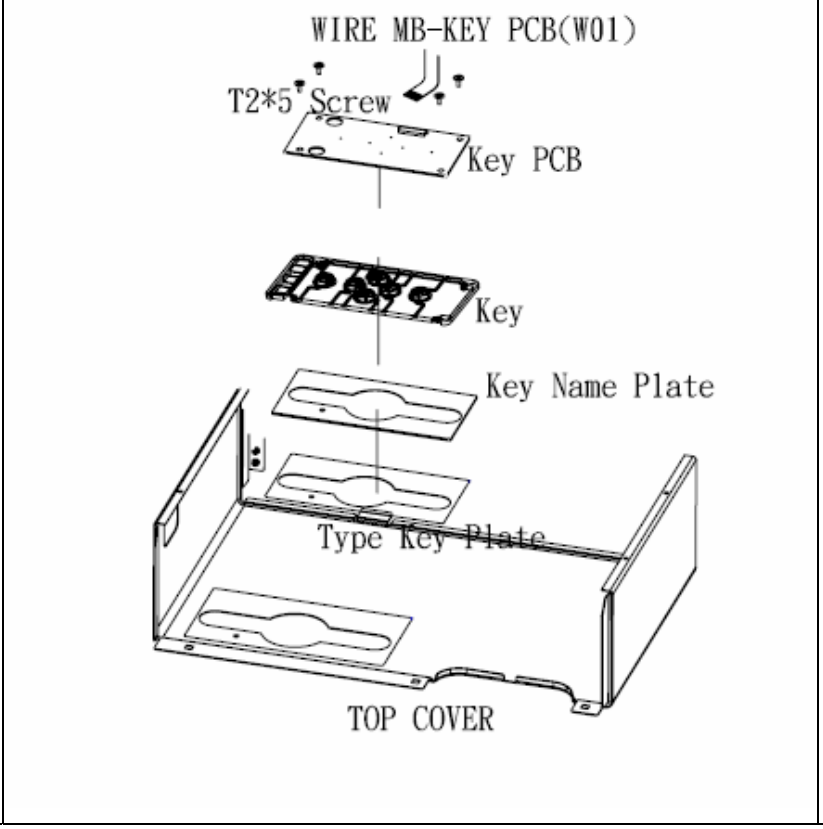
Step	Figure	Description
15		Remove the cube blower module
16		Loosen the screws S06 to remove fans.

Step	Figure	Description
17		Loosen the screws to remove fans as shown.
18		Loosen the screws(M3*5) to remove the front IR PCB (M7).

3.3 Disassembly Lamp Module

Step	Figure	Description
1		● Turn off the projector. ● Unplug the power cord. ● Loosen the screw ● Remove the lamp cover.
2		● Loosen the three screws of lamp module ● Pull the lamp module out by lamp handle. ● Insert the new lamp module into the projector and tighten the screws. ● Replace the lamp cover and tighten the screws. ● Reset the lamp timer. Press **MENU**, **PressDown botton>** go to **setting> Lamp Counter Reset > Press Right Button**, and press **MENU** back. Note: Turn on the projector. If the lamp does not turn on after the warm-up period, please reinstall the lamp.

3.4 Disassembly the keypad

Step	Figure	Description
1		**Disassembly the speaker** ● Disconnect the W01 with keypad ● Remove the screws (T2*5x4) ● Take the Key PCB off.

4 Troubleshooting and Verifying the Repair

This chapter provides technicians with electronic background how to maintain the product. Moreover, you can get the appropriate operation to solve some complicated problems of component repairing and professional problems.

4.1 Troubleshooting

Warning

- Do not directly look into the lens to avoid eyesight damages.
- The projector is equipped with ventilation holes (intake) and ventilation holes (exhaust). Do not block or place anything near these slots, or internal heat build-up may occur, causing picture degradation or damage to the projector.

Confirm Software and hardware

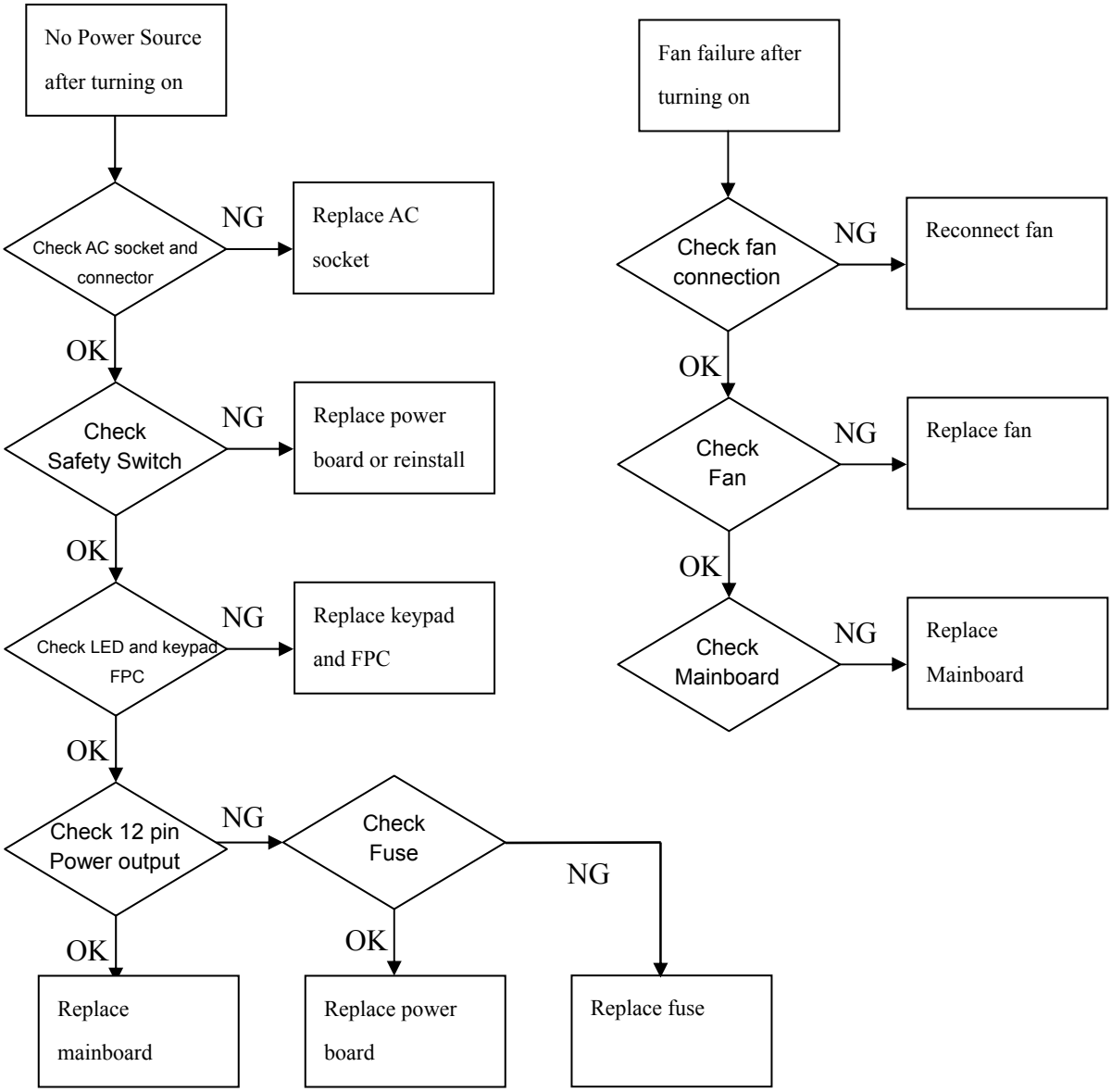
(1) Confirm FW version and lamp using hours

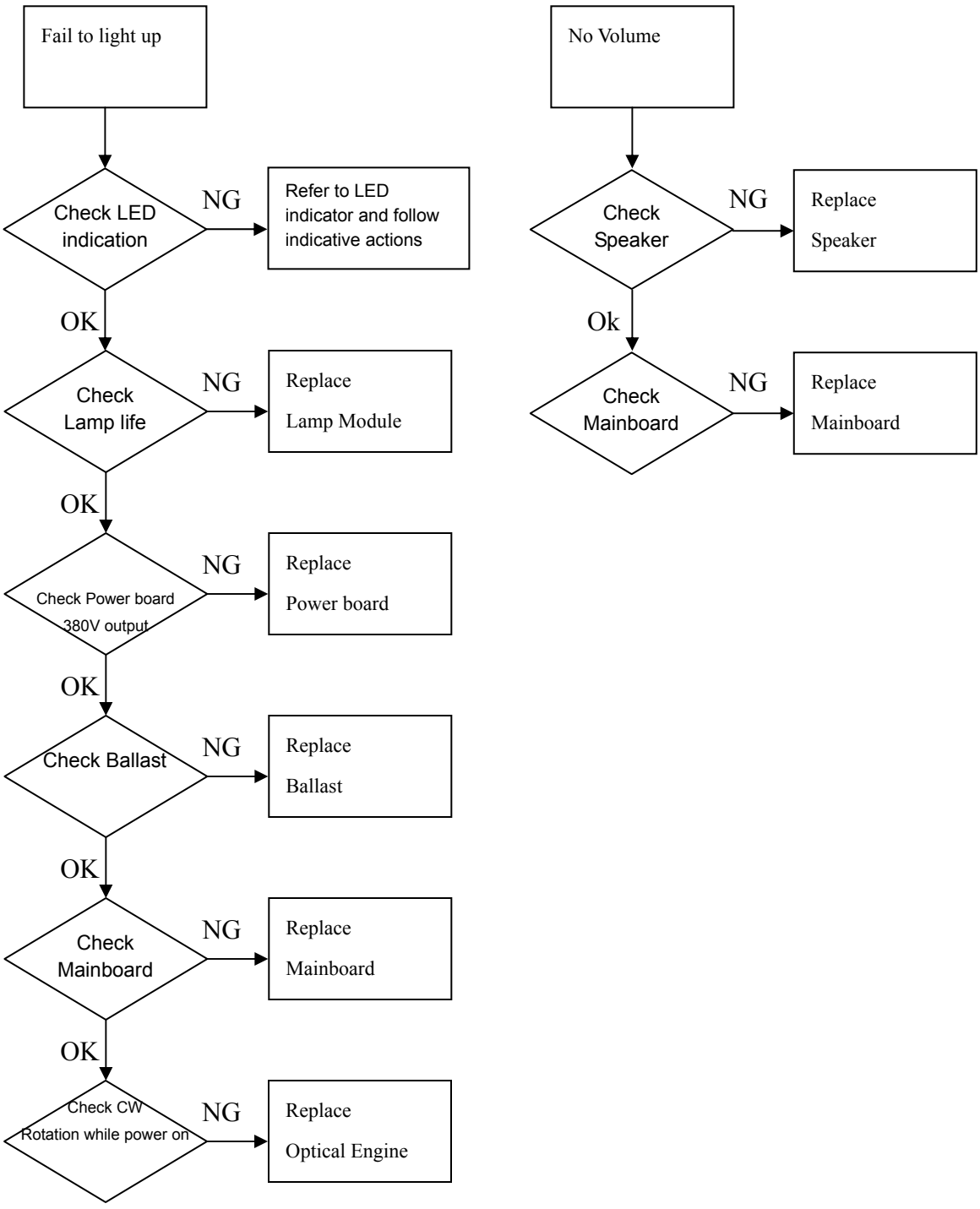
(2) Confirm LED indicator

Projector Status	LED Type				Meaning
	Power LED		Lamp LED		
	Color	Status	Color	Status	
Standby	Green	Flashing	-	Off	The projector is powered and ready.
Lamp waiting	Green	On	-	Off	Preparing lamp ignition.
Lamp on	Green	On	Green	On	The lamp is in good condition.
Lamp ignition failure	Green	On	Red	Flashing	The lamp ignition failed at turning on. The lamp ignition failed during normal operation.
Fan lock	Amber	On	Green	On	Fan locked. The lamp will turn off.
Over Temperature	Green	On	Green / Amber	Flashing	Temperature is too high. The lamp will turn off and the fan will spend a while to cool the system.
Over temperature (Filter)	-	-	-	-	Temperature is too high. Please clean up the filter. OSD shows “Please clean up filter”.
	Green	On	Green / Amber	Flashing	Temperature is too high. Please clean up the filter. System will power down and spend a while to cool the system. OSD shows “Warning! PJ temperature is too high.”
Cooling	Green	On	Green	Flashing	Cooling the system.
Lamp Replacement	Green	On	Green / Red	Flashing	The lamp draws to an end. Please replace the lamp with a new one promptly.

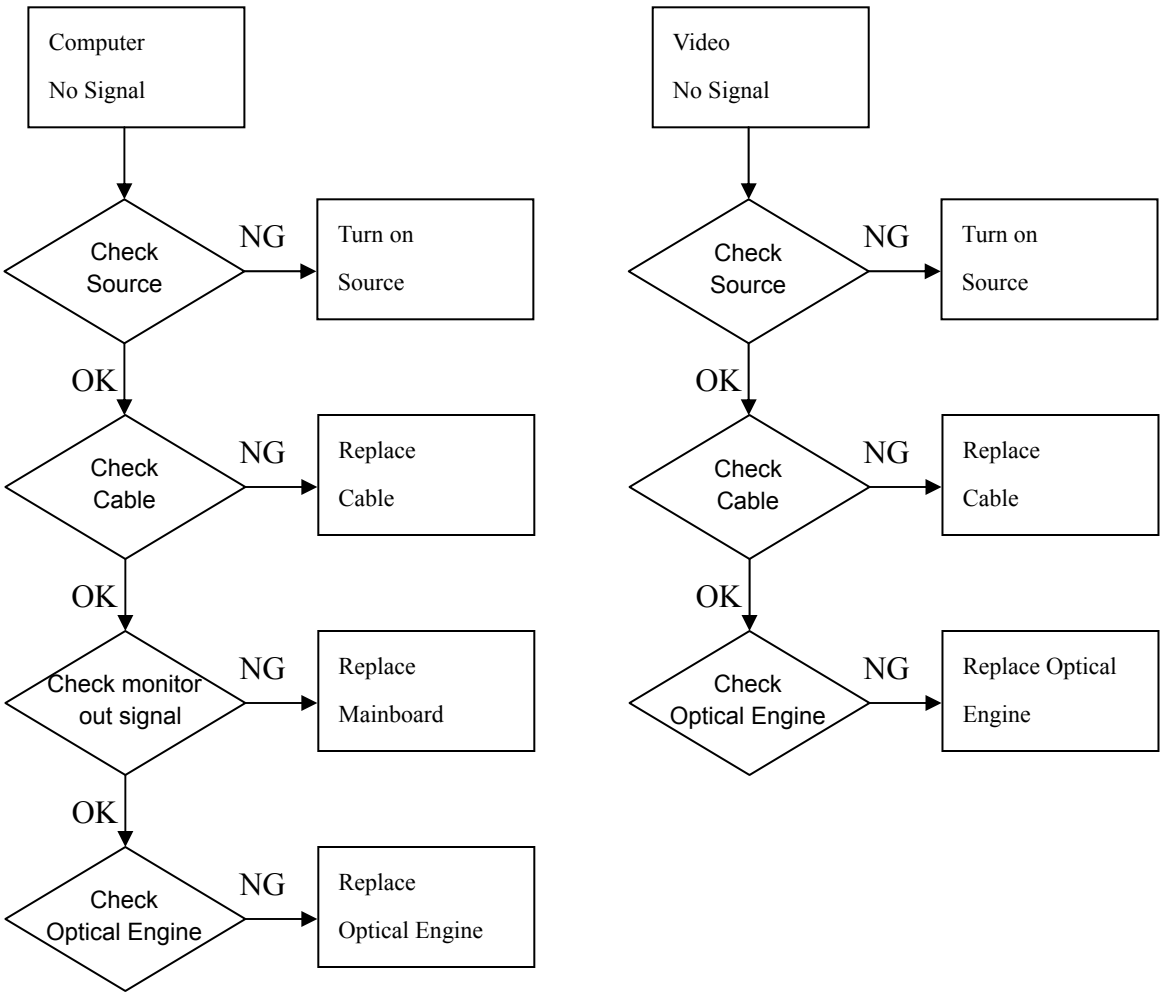
(3) Confirm cable connection well.

Power Source Troubleshooting:




Fail to light up
Check LED indication
NG
Refer to LED indicator and follow indicative actions
OK
Check Lamp life
NG
Replace Lamp Module
OK
Check Power board 380V output
NG
Replace Power board
OK
Check Ballast
NG
Replace Ballast
OK
Check Mainboard
NG
Replace Mainboard
OK
Check CW Rotation while power on
NG
Replace Optical Engine
No Volume
Check Speaker
NG
Replace Speaker
Ok
Check Mainboard
NG
Replace Mainboard

Video Signal Troubleshooting



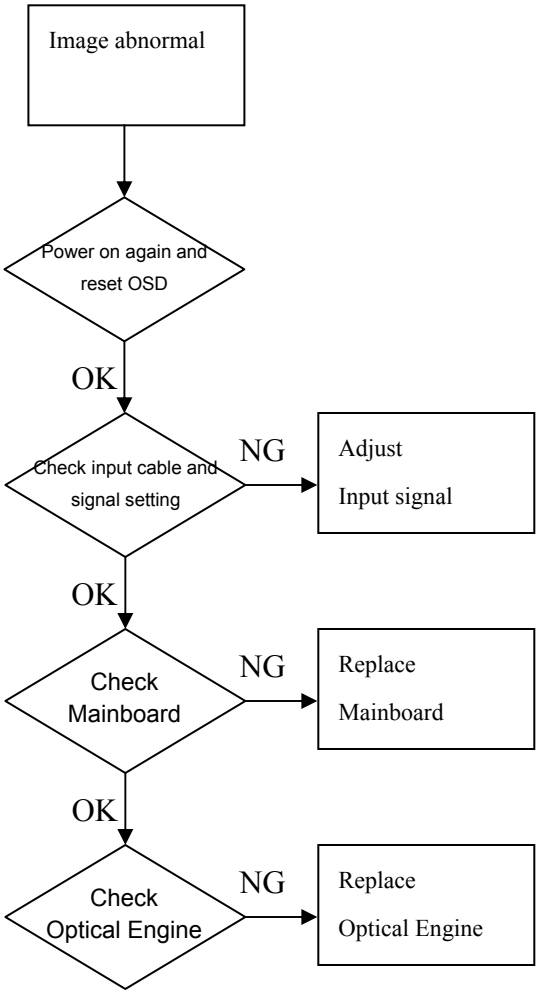
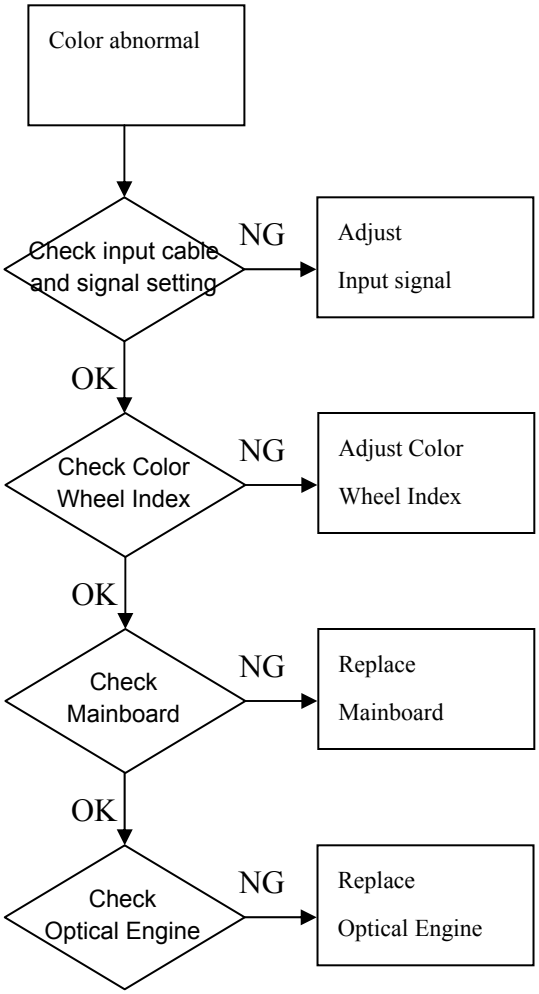
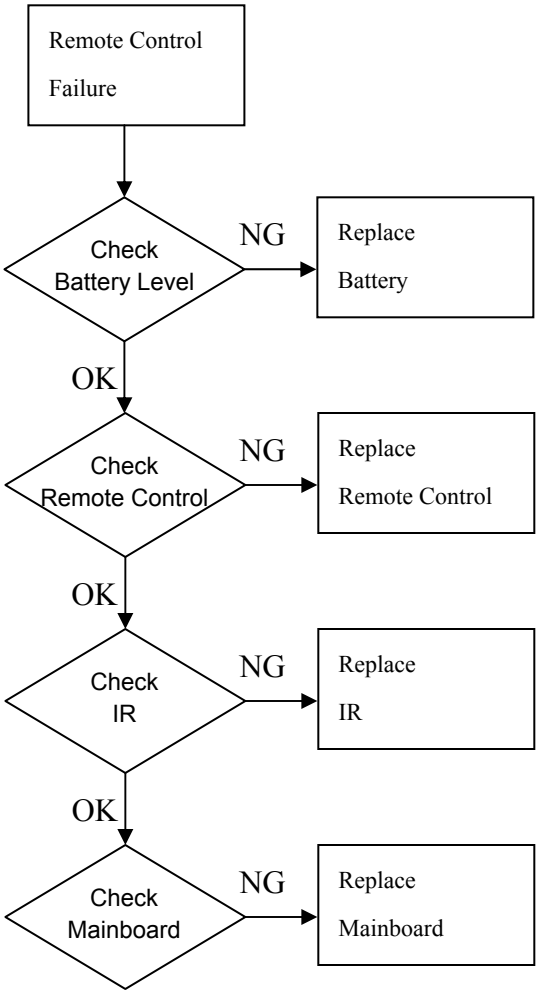
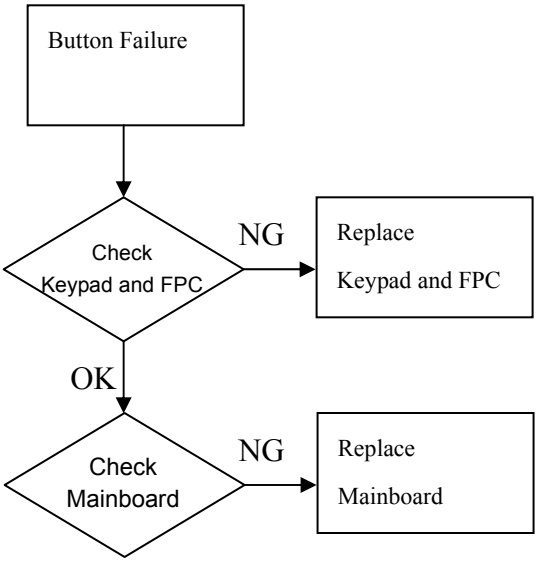


Image abnormal
Power on again and reset OSD
OK
Check input cable and signal setting
NG
Adjust
Input signal
OK
Check Mainboard
NG
Replace
Mainboard
OK
Check Optical Engine
NG
Replace
Optical Engine


Color abnormal
Check input cable and signal setting
NG
Adjust
Input signal
OK
Check Color Wheel Index
NG
Adjust Color
Wheel Index
OK
Check Mainboard
NG
Replace
Mainboard
OK
Check Optical Engine
NG
Replace
Optical Engine

Operation Function Troubleshooting





4.2 Verifying the Repair

After repairing projector (Dissembling and assembling projector), Repair center should verify the quality of repaired unit.

(1) Signal test (Each I/O can function normally)

Connect all connector to the jacks one after the other to check whether each channel can project normally

I/O port	**Monitor In (WXGA)**
Test Equipment	Standard Pattern generator (Ex. Quantum data)
Signal format	1280*800 60Hz

I/O port	**Video**
Test Equipment	Standard Pattern generator (Ex. Quantum data) or DVD player
Signal format	NTSC

I/O port	**S-Video**
Test Equipment	Standard Pattern generator or DVD player
Signal format	480i

I/O port	**USB**
Test Equipment	PC and Remote controller
Test method	1. Connect PC (laptop) VGA output to projector. Set PC (laptop) output signal to projector 2. Connect projector USB to PC. Press remote controller page up/down to scroll presentation file up and down (ex Microsoft office series)

I/O port	**Audio input**
Test Equipment	Connect audio input to audio output of DVD player
Signal format	480i

(2) Operation test

Buttons operation

Button description	Test criteria
Power button	1. Mechanical motion (Up & Down) should be free from getting stuck when pressing the button 2. Press “power” button and projector will switch on
Menu/Enter	1. Mechanical motion (Up & Down) should be free from getting stuck when pressing the button. 2. Press Menu/Enter button can make projector function normally.
4-way button (Auto/Source)	1. Mechanical motion (Up & Down) should be free from getting stuck when pressing the 4-way button. 2. Press Menu/Enter button can make projector function normally.

Foot adjuster operation

Foot adjuster.	Test criteria
Foot adjuster button	Foot adjusters should stretch downward smoothly by pressing the foot adjuster buttons on the two sides

Zoom ring and Focus ring

Ring	Test criteria
Zoom ring	Mechanical motion of rotating Zoom ring to the end of right and left by hand should be free from getting stuck.
Focus ring	The feeling of rotating Focus ring to the end of right and left by hand should free from seizing

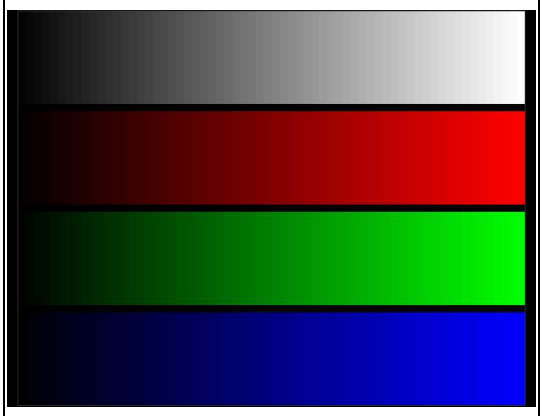
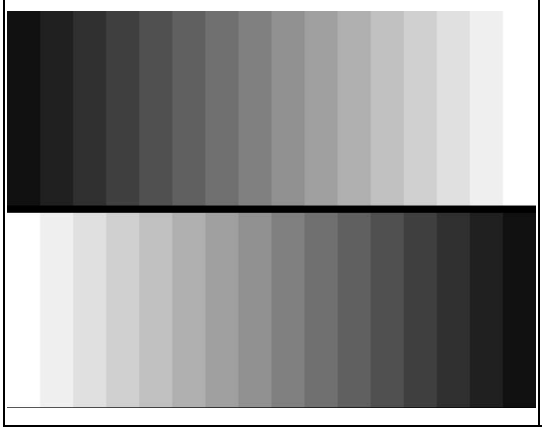
(3) Image Quality

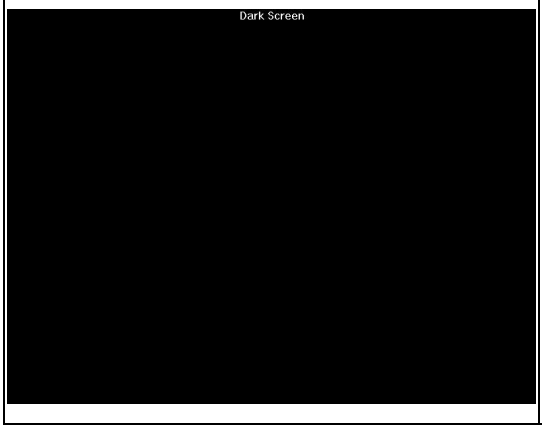
Projected image size: 60 inches (diagonal length)

Zoom ring: Adjust zoom ring to wide (Maximum projection size)

VGA

I/O port	Monitor In (WXGA)
Test Equipment	Standard Pattern generator (Ex. Quantum data)
Signal format	1280*800 60Hz
Projected image size	60” in diagonal length

Test Pattern	Test criteria
	Full white Apparent color strip, bend and streak corner on the projected image are not allowable
	**256 level RGB** --256 level of RGB color should be distinguishable, at least Red color scales should be. -- For each RGB 256 levels, Noise or color deviation in R, G, and B single level respectively are acceptable.
	**16 gray level** --16 level of gray level color should be distinguishable --When Gamma selected to “RGB” Not distinguishable of 2 brightest levels /2 darkest levels are acceptable.

	**Gray 10** Blemish, stain are not allowable on the projected screen
	**Full darkness** Light leak in the non-effective area. Should be less than 0.7 lux(<0.7lux)

S-Video

I/O port	S-Video
Test Equipment	Standard Pattern generator (Ex. Quantum data)&DVD player
Signal format	480i
Criteria	No apparent color deviation on the projected image

Video

I/O port	Video
Test Equipment	Standard Pattern generator (Ex. Quantum data)&DVD player
Criteria	No apparent color deviation on the projected image

(4) Resolution

I/O port	WXGA
Test Equipment	PC
Test Method	1. Rotate Zoom ring to wide mode (Maximum projected image) 2. Fix projector to set diagonal length of projected image to 60”. 3. Adjust focus ring to make resolution of 4 corners and center are balanced. 4. Check he characters should be recognized easily. 5. Rotate Zoom ring to tele mode (Minimum projected image) 6. Adjust focus ring to make resolution of 4 corners and center are balanced. 7. Check the characters should be recognized easily.

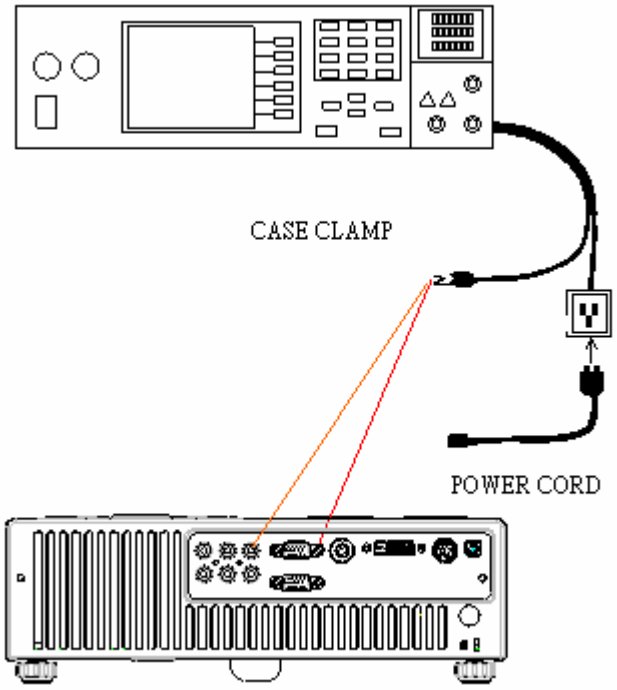
(5) Front and Rear infrared sensor

Device	Front and Rear infrared
Test Equipment	Remote controller
Test method	1. Cover front sensor and operate remote controller to test rear sensor 2. Cover rear sensor and operate remote controller to test front sensor

(6) Brightness measurements

Test items	Brightness measurements
Test Equipment	Chroma automatic system (The alternative is CL-200)
Test method	Measure 9 points
Criteria	Marketing spec 20% off

(7) Safety test equipments

Test items	Safety test
Test Equipment	Safety analyzer
Test method	1. Clamp the metal shell of VGA connector 2. Plug the power cord to socket 
Test criteria	GND 30A 3sec 100mΩ DCW 2506V 1sec 250uA Single Step OFF

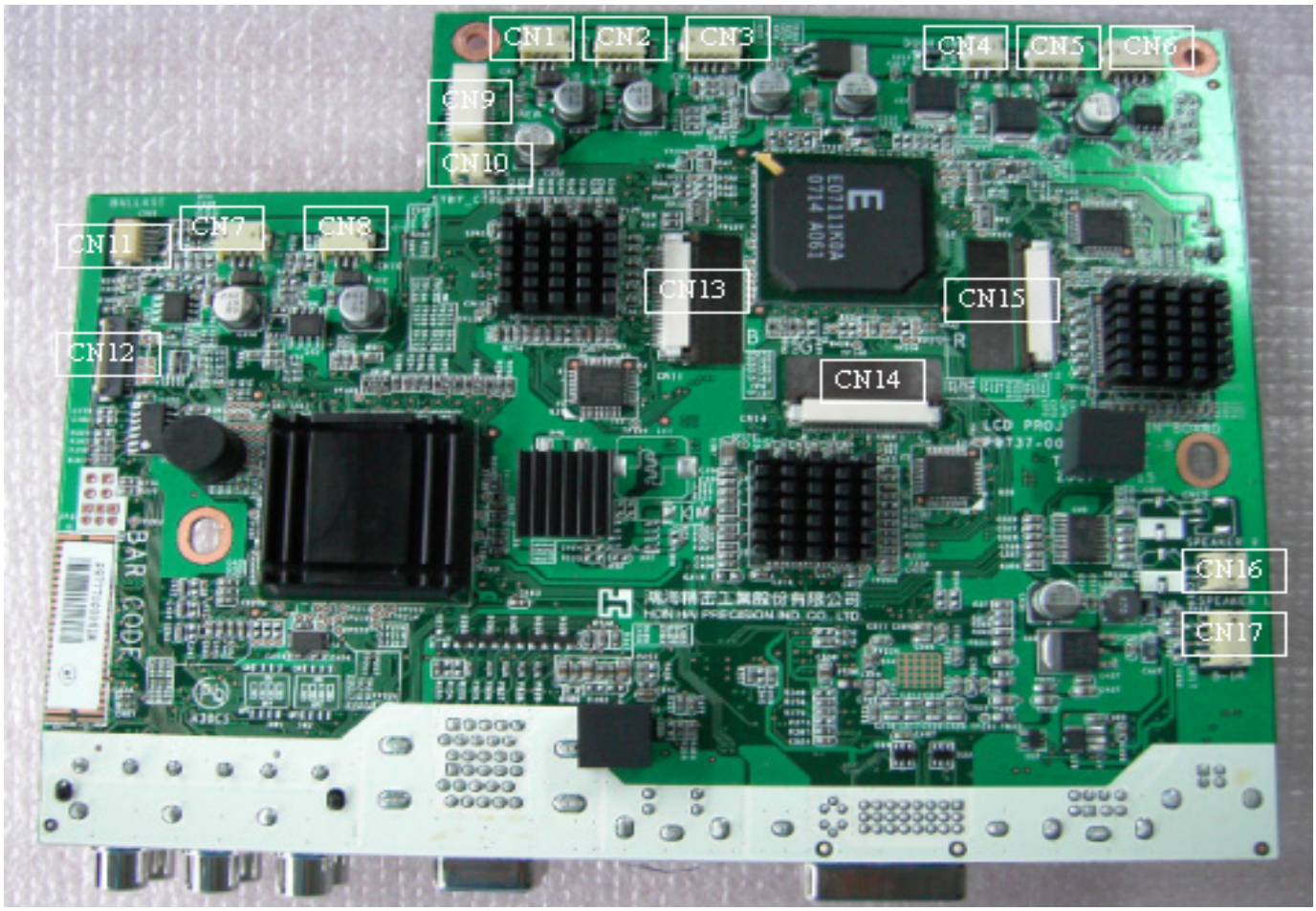
(8) Cosmetic standard for repaired projector

Follow cosmetic standard for repair center.

5 Connector Information

This section provides each connector location on boards and function of each board. They will be useful for your detecting the defective boards.

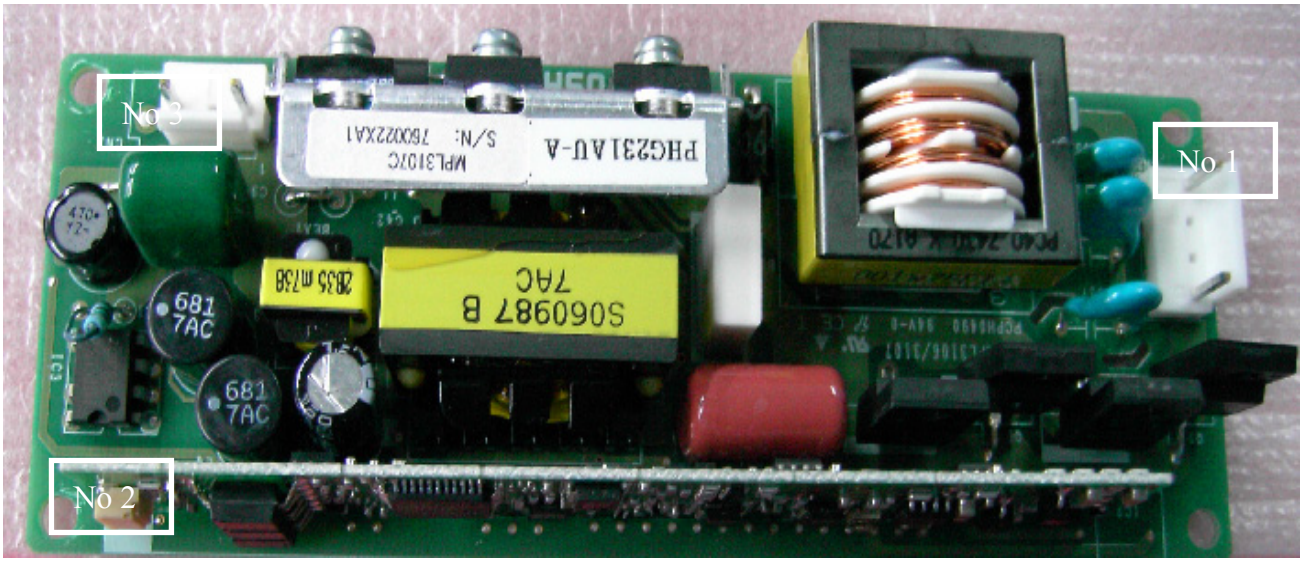
5.1 Main Board



Connector	Description
No 1	Fan2, on the front of projector
No 2	Fan3, on the left of lens.
No 3	Thermal board, on the front cover.
No 4	Safety switch
No 5	Fan4, on the right of lens
No 6	Front IR
No 7	Fan0, near lamp module
No 8	Fan1, near lamp module
No 9	20 pin Power
No 10	Power control
No 11	Ballast control

No 12	Keypad control(FPC)
No 13	R FPCB
No 14	G FPCB
No 15	B FPCB
No 16	Speaker
No 17	Back IR

5.2 Ballast Board



Connector	Description
No 1	Lamp power supply
No 2	Ignite signal connected to Mainboard
No 3	Power supply

5.3 Power board

Connector	Description
No 1	22-pin control
No 2	380V output
No 3	Thermal Sensor
No 4	AC Input

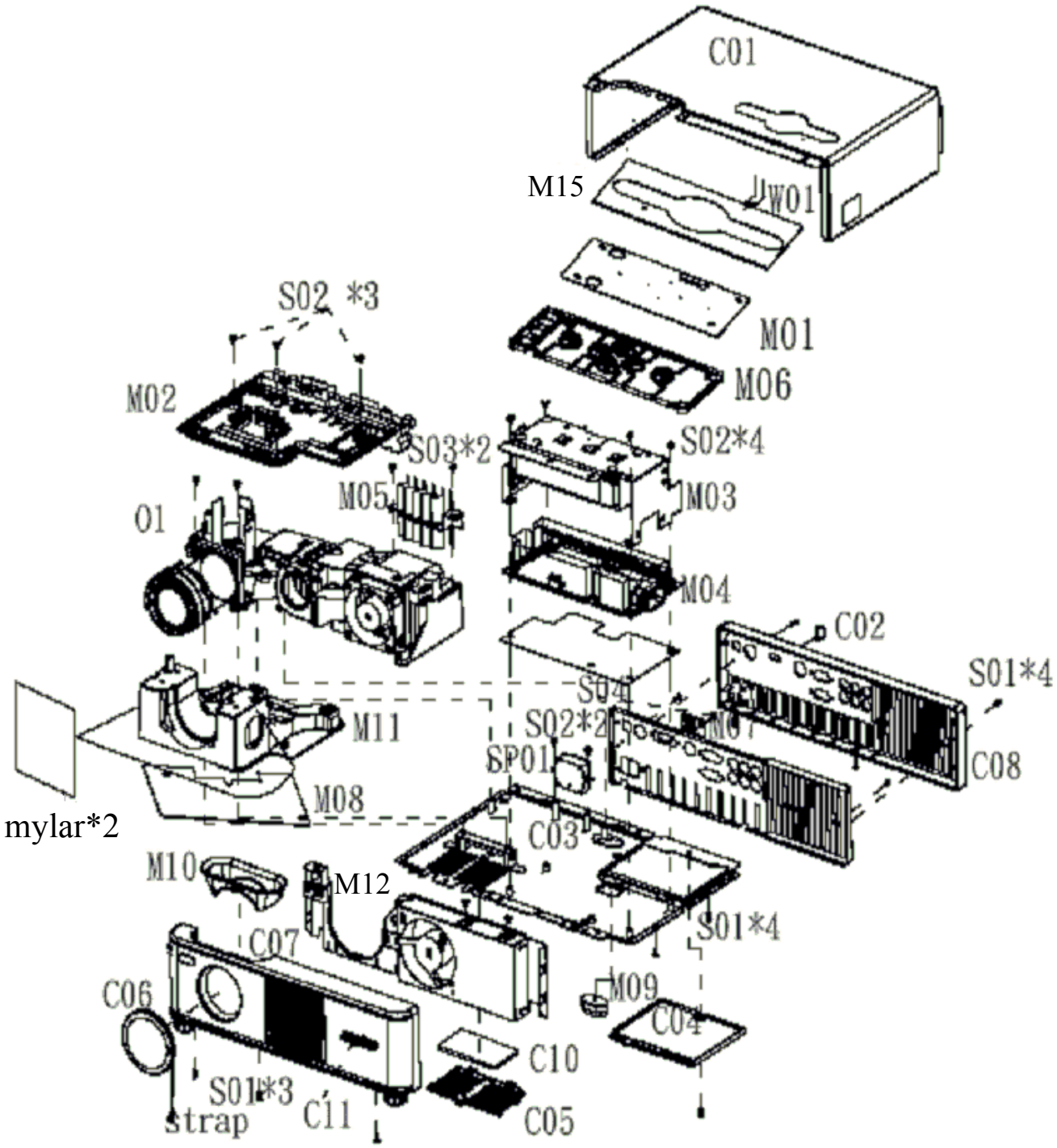
6 FRU (Field Replaceable Unit) List

Introduction

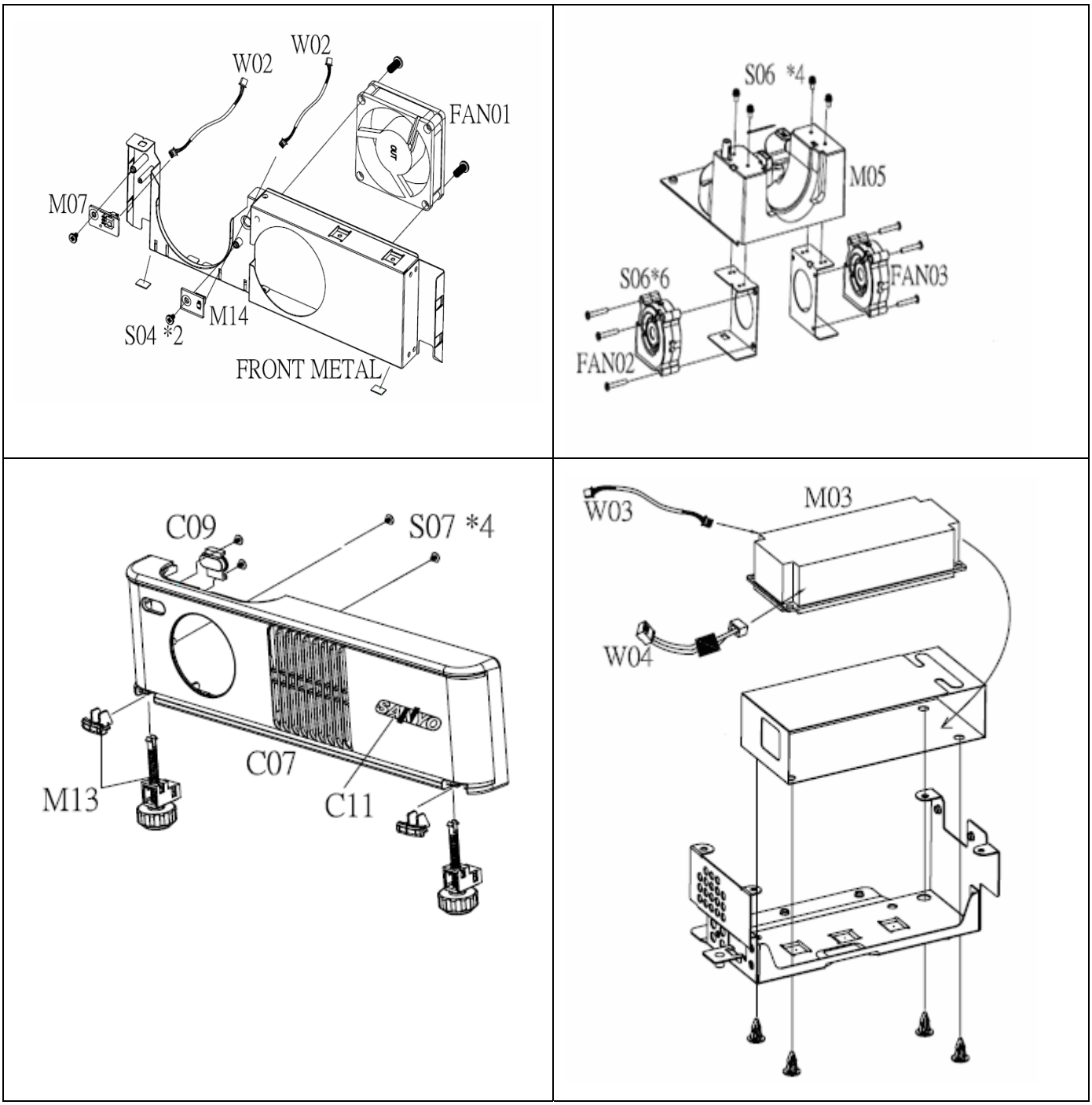
This section is a list of all the FRU removal. Following the FRU table of contents is an enlarged view of the entire projector, which shows the primary FRUs in the projector.

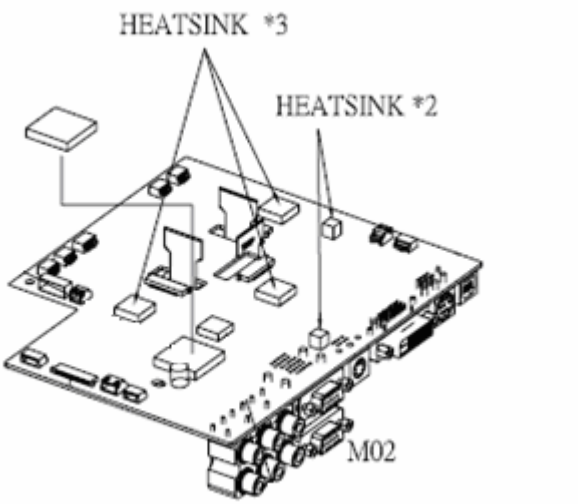
When working on the projector, use appropriate anti-static precautions such as anti-static mats, wrist straps and grounded work surfaces. Failure to do this can destroy static-sensitive components and make the product inoperable.

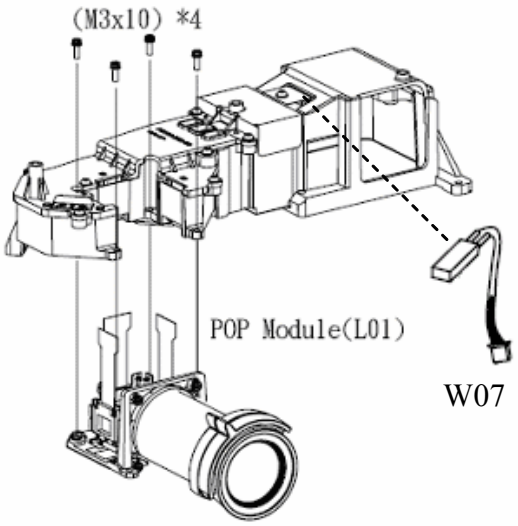
6.1 Mechanical Drawing



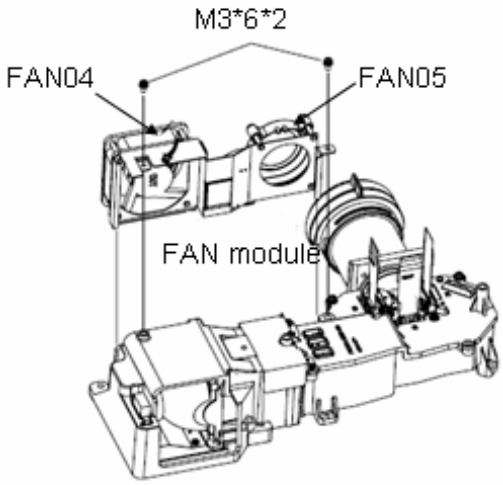
6.2 Other drawing

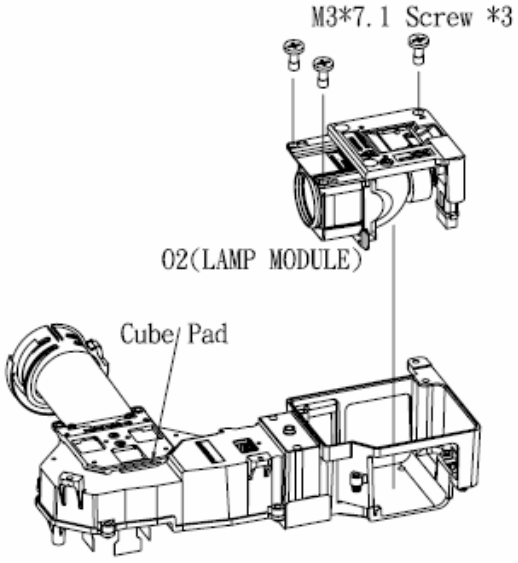


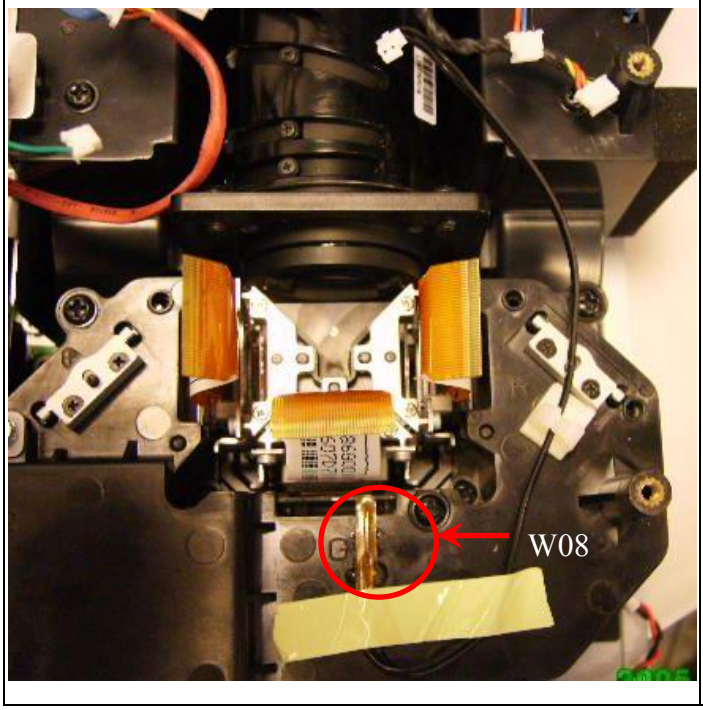




Projection Lens Assy (L02)





	W08 is the UV lens, which is used to detect the temperature of panel.

6.3 Accessory

Key No.	P/N	Description
	645 096 2004	REMOTE CONTROL
	645 096 8907	WY BAG
	645 096 8952	OWNERS MANUAL(JAPAN)
	645 096 8969	OWNERS MANUAL(US/EU/UK)
	645 096 8983	QUICK SETUP GUIDE
	645 096 8976	OWNERS MANUAL(CHN)
AC CORD	645 096 8693	POWER CORD(JAPAN)
AC CORD	645 096 8709	POWER CORD(CHINA)
AC CORD	645 096 8716	POWER CORD(EUROPE)
AC CORD	645 096 8730	POWER CORD(UK)
AC CORD	645 096 8723	POWER CORD(USA)
CABLE	645 096 8938	S-VIDEO CABLE
CABLE	645 096 8945	D-SUB 15P CABLE

6.4 MISCELLANEOUS/Module

Key No.	P/N	Description
M01	645 096 2011	KEYPAD PCB
M02	645 096 2028	MB(NO WIRE)
M03	645 096 2035	BALLAST MODULE(380V)
M04	645 096 2042	PWR(NO WIRE)
M05	645 096 2059	HIKARI SAKU
M06	645 096 2646	KEY-BUTTON
M07	645 096 2073	FRONT IR PCB&BACK IR PCB
M08	645 096 2080	WINDTUNNEL CUBE PAD
M09	645 096 2097	REAR RUBBER
M10	6450 96 2103	LENS CAP
M11	645 096 2110	CUBE BLOWER MODULE
M12	645 096 2127	FRONT COVER METAL
M13	645 096 2134	FOOT AND COVER
M14	645 096 2141	THERMAL PCB
M15	645 096 2158	KEY NAME PLATE

6.5 Case/Cover/Bracket Assembly

Key No.	P/N	Description
C01	645 096 2165	TOP COVER
C02	645 096 2172	REAR IR COVER
C03	645 096 2189	BOTTOM COVER
C04	645 096 2196	LAMP COVER
C05	645 096 2202	FLITER COVER
C06	645 096 2219	LENS-COVER
C07	645 096 2226	FRONT COVER WITH FOOT
C08	645 096 2233	BACK COVER WITH I/O PLATE
C09	645 096 2240	FRONT IR COVER
C10	645 096 2653	FILTER SPONGE
C11	945 047 8032	BADGE,SANYO*26.2X5.7L26.0

6.6 Optical Device

Key No.	P/N	Description
O01	645 096 2264	OPTICAL ENGINE WITH LAMP
O02	610 336 0362	COMPL,OPTICAL LMP U205W-KJ3A
L01	645 096 2288	POP MODULE
L02	645 096 8853	PROJECTION LENS ASSY

6.7 Fans

Key No.	P/N	Description
FAN01	645 096 2301	FAN_AFB0712MD-F00(L=100MM
FAN02	645 096 2318	FAN_BFB0512LD(L=60MM)
FAN03	645 096 2318	FAN_BFB0512LD(L=60MM)
FAN04	645 096 2325	FAN_AFB0612MD-F00(L=100)
FAN05	645 096 2332	FAN_BFB0512LD(L=80MM)

6.8 Miscellaneous

Key No.	P/N	Description
SP01	645 096 2349	SPEAKER

6.9 Wire

Key No.	P/N	Description
W01	645 096 2356	FFC CABLE
W02	645 096 2363	WIRE 4 PIN(B-IR,F-IR?MB)
W03	645 096 2370	WIRE 5PIN(BALLAST-MB)
W04	645 096 2387	WIRE 2PIN(PWR-BALLAST)
W05	645 096 2394	WIRE 22PIN(PWB-MB)
W06	645 096 2400	WIRE 2PIN(BALLAST-LAMP)
W07	645 096 2417	THEMRAL SENSOR(THEMRAL-MB
W08	645 096 2424	WIRE FILTER SENSOR

6.10 Screws

Key No.	P/N	Description
S01	645 096 2431	S:M2.5X7XE0.7 NI
S02	645 096 2448	SCREW-CASE
S03	645 096 2455	S:M3X10XA2 B
S04	645 096 2462	S:3X5XE1.2 BL
S05	645 096 2479	S:3X10XA2 NI
S06	645 096 2486	S:M3X6XD2 BL
S07	645 096 2509	S:2X4XD1 B

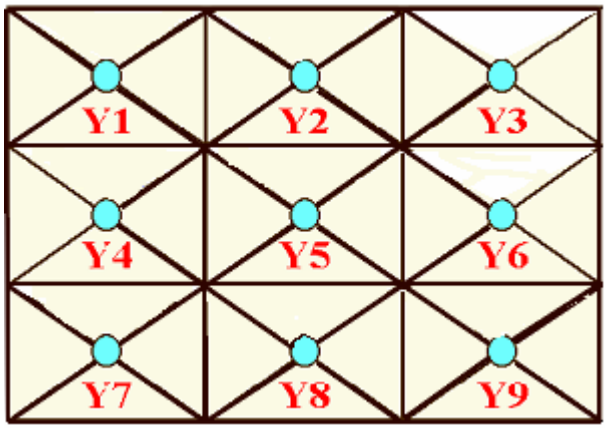
6.11 Carton

Key No.	P/N	Description
CARTON(CHN)	645 096 9027	CARTON PLC-WXU1000C(CHN)
CARTON(EU)	645 096 9010	CARTON PLC-WXU10E(EU)
CARTON(JPN)	645 096 8990	CARTON LP-WXU10J(JPN)
CARTON(UK)	645 097 0085	CARTON(BRITAIN)
CARTON(US)	645 096 9003	CARTON PLC-WXU10N(US)
CUSHION	645 096 8914	EPE(CUSHION-RIGHT)
CUSHION	645 096 8921	EPE(CUSHION-LEFT)

Appendix A: ANSI Lumen Measuring

Chroma 7600 Video Pattern Generator values
Set diaphragm to wide size
Projection test chart to 60 inches (projection distance 2m) and measurement 9 points
Measuring equation: Brightness = [(Y1+Y2+...+Y9)/9] × Projection ratio

DVI Pattern: 102



Appendix B: Service Level Definition

Level 1 : Cosmetic Parts ; Easy To Repair	**Lamp Module / Lens Cap assy**
Level 2 : Module Replacement	**Top Case assy / Low Case assy / Housing R Vent / Housing L Vent assy / Ring Zoom / Lens Deco CVR / Lamp Door / Power assy / Ballast Board assy / Video Board / Driver Board / Keypad assy / FAN assy / Speaker assy / IR sensor assy / thermal sensor**
Level 3 : Board Level Repair or RTV	**Optical Engine (DMD Panel / Color Wheel / lens / light tunnel)**

Level 1: End user can replace by themselves
Level 2: Service Center
Level 3: RTV

Appendix C: Connection Definition

13-1. VGA IN

PIN	DEFINITION
1	R/Pr
2	G/Y
3	B/Pb
4	Ground
5	Ground
6	Ground
7	Ground
8	Ground
9	VCC
10	Ground
11	WC-A
12	EDIDA-SDA
13	Hsync
14	Vsync
15	EDIDA-SCL

13-2. VGA OUT

PIN	DEFINITION
1	R
2	G
3	B
4	NC
5	Ground
6	Ground
7	Ground
8	Ground
9	NC
10	Ground
11	NC
12	NC
13	Hsync
14	Vsync
15	NC

13-3. DVI IN

PIN	DEFINITION
1	RX2-
2	RX2+
3	Ground
4	YL
5	WC-D
6	DVI-SCL
7	DVI-SDA
8	D-Vsync
9	RX1-
10	RX1+
11	Ground
12	Cb
13	Cr
14	+5V
15	Ground
16	+5V
17	RX0-
18	RX0+
19	Ground
20	NC
21	NC
22	Ground
23	RXC-
24	RXC+
C1	R
C2	G
C3	B
C4	D-Hsync
C5	Ground
C6	Ground

13-4. USB

PIN	DEFINITION
1	EOT
2	USB-
3	USB+
4	Ground
5	Ground
6	Ground

Appendix D: Parameter Adjustment (Exchange Main board)

If you change the main board, you have to check image quality of the projector,

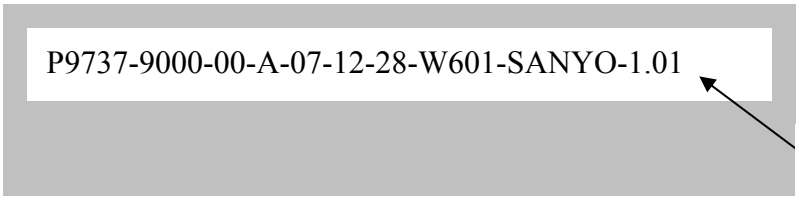
Preparation

Those adjustments “Check color” and “Check flicker” are available from the firmware version 1.01. If those adjustment items do not appear on the engineering mode, you should update the firmware version.

Please check the firmware version in the engineering mode.

Enter the Engineering mode: **First press the power button once. Then press the down button and right button on the panel at the same time.**

The firmware version is indicated at the top of the screen menu in the engineering mode as follows;



CAUTION: Do not change the value of items in the engineering mode. Those items are adjusted in the factory and cannot be restored with the current value.

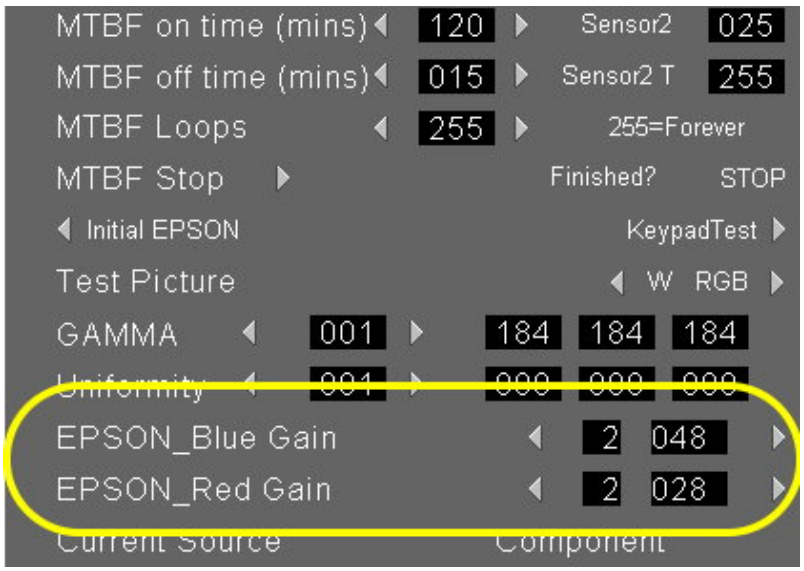
1. Check color

Step 1: Enter the Engineering mode:

Step 2: Choose the **EPSON_Blue Gain** & **EPSON_Red Gain** item.

Step 3: Show the white picture on the screen then press right and left button to adjust white color. (The default value is 2048).

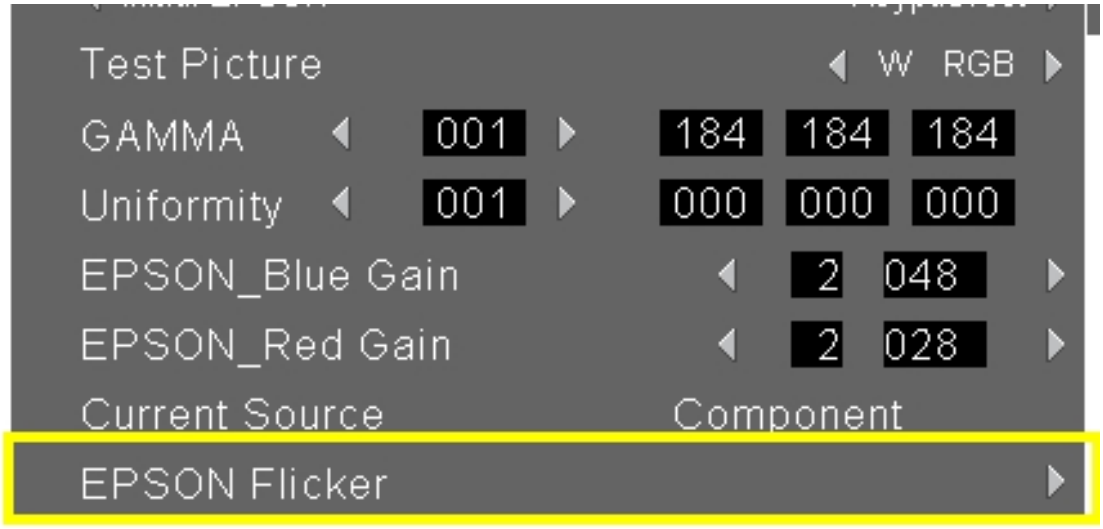
Step 4: Press the Menu button to return the normal screen when you complete the adjustment.



2. Check flicker

Step 1: Enter the Engineering mode.

Choose the **EPSON Flicker** item then press right button on the panel.



Step 2: Adjustment OSD will show on the screen as below.

The OSD disappear at this moment as shown.

i. Choose the " Red Flicker " then press the right and left button to adjust the red color flicker. The value of flicker will be saved automatically when the flicker is the best situation.

ii. Choose the " Green Flicker " then press the right and left button to adjust the green color flicker. The value of flicker will be saved automatically when the flicker is the best situation.

iii. Choose the " Blue Flicker " then press the right and left button to adjust the blue color flicker. The value of flicker will be saved automatically when the flicker is the best situation.

The new value of flicker will be set on the next time and can not be reset to default value. Please choose the *Reset Flicker Value* if you need recovery to default value.

Step 3: Press the Menu button to return the normal screen when you complete the flicker adjustment.

(KJ3A) Jan. 2008 DC 300 Printed in Japan

SANYO Electric Co., Ltd.