

Polaris-PJ1

Machine Codes:

**Y042/Y043/Y044/Y048/Y049
/Y062/Y063/Y064/Y065/Y066**

Field Service Manual

1 July, 2014

Important 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.

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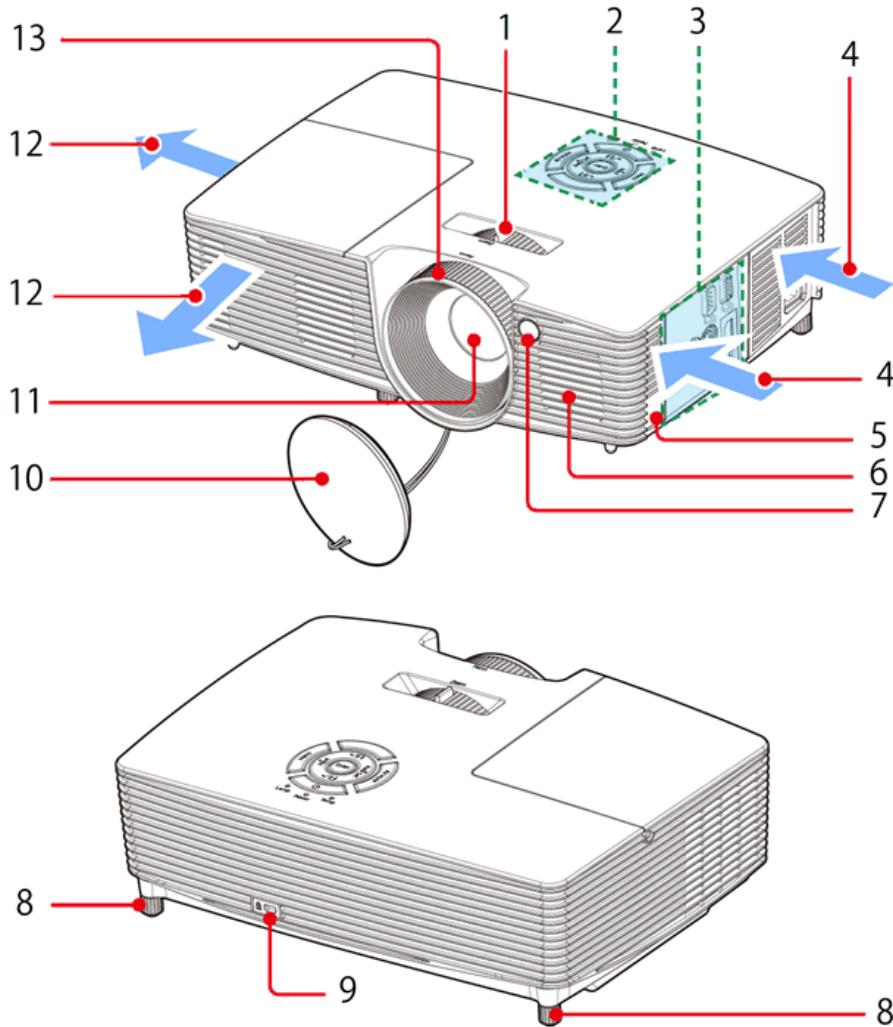
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1. Product Information

Overview

Main Unit

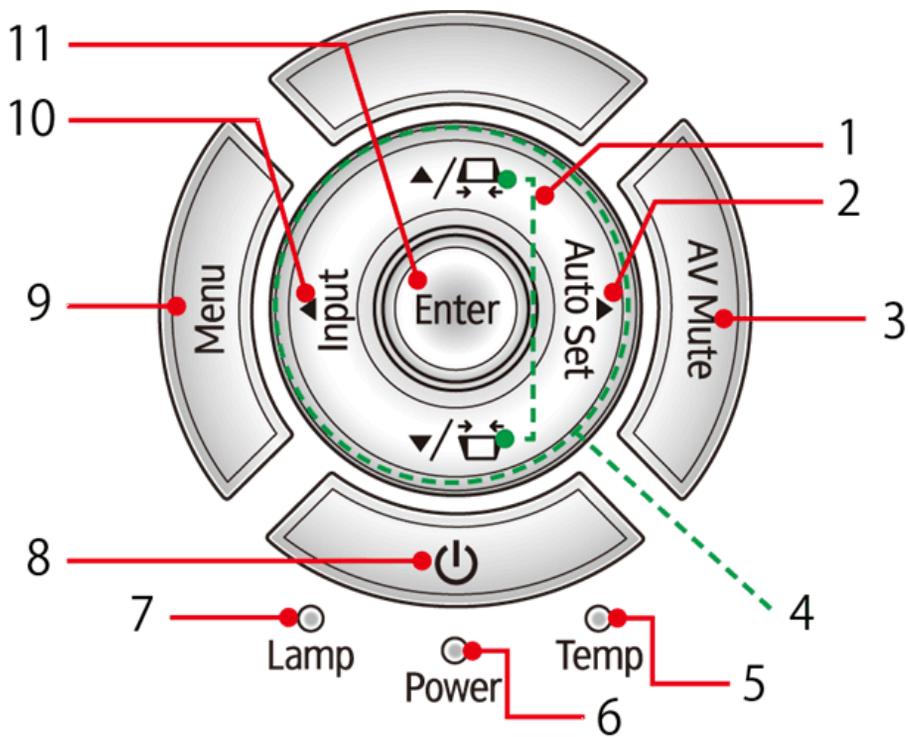


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1. Zoom lever
2. Control panel
3. Connection ports

4. Ventilation (inlet)
5. Security chain opening
6. Speaker
7. Remote Receiver
8. Adjustable feet
9. Anti-theft lock hole (Kensington™ lock)
10. Lens cap
11. Lens
12. Ventilation (outlet)
13. Focus ring

Control Panel

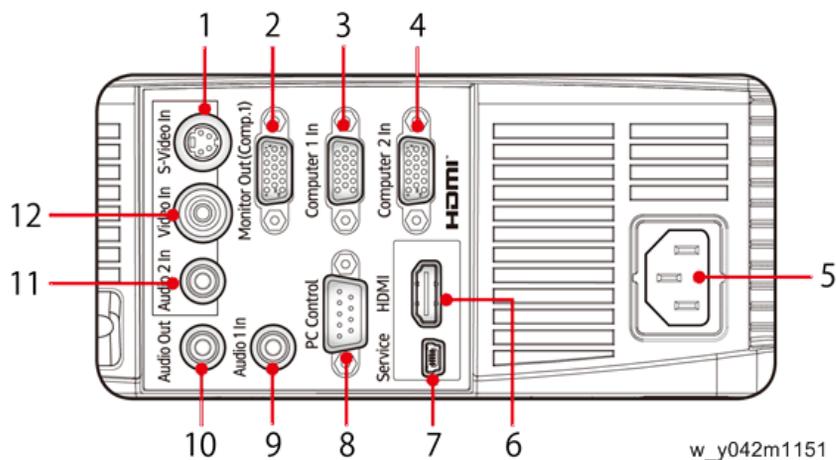


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1. Keystone
2. Auto set
3. AV mute
4. Four directional select keys

5. Temp indicator
6. Power indicator
7. Lamp indicator
8. Power
9. Menu
10. Input
11. Enter

Connection Ports



1. S-Video In terminal
2. Monitor Out terminal
3. Computer 1 In terminal
4. Computer 2 In terminal
5. AC In socket
6. HDMI Input terminal
7. Service terminal
8. PC Control terminal
9. Audio 1 In terminal
10. Audio Out terminal
11. Audio 2 In terminal (For Video and S-Video)
12. Video In terminal

 **Note**

- The interface is subject to model's specifications.

Specifications

General Specifications

No	Item	Description
1	Dimension (W x D x H)	<ul style="list-style-type: none"> 314.3 x 223.6 x 88.2 mm (without feet) 314.3 x 223.6 x 101.7 mm (with feet)
2	Weight	2.5±0.5Kg
3	Power supply	Universal AC: 100V - 240V ± 10%, 50 - 60Hz
4	Power consumption	<ul style="list-style-type: none"> Normal mode: 235W+/-10%@110V AC ECO mode: 197W+/-10%@110V AC Standby mode < 0.5W
5	Keystone correction	+/-40 degree
6	Throw ratio	1.95 - 2.15(D/W)@60"
7	Projection lens	YM99
8	Offset	115% ±5%
9	Lamp life	<p>Normal mode:</p> <ul style="list-style-type: none"> 4500 hours Standard @190W, 50% survival rate <p>ECO mode:</p> <ul style="list-style-type: none"> 6000 hours Typical @160W, 50% survival rate
10	DMD chip & Number of active dots	<ul style="list-style-type: none"> 0.55", S450, Dark Chip 3 Number of active dots: 800x600
11	System controller	TI DDP 4421
12	Video compatibility	<ul style="list-style-type: none"> NTSC: M/J, 3.58MHz, 4.43MHz PAL: B, D, G, H, I, M, N, 4.43MHz SECAM: B, D, G, K, K1, L, 4.25/4.4MHz SDTV: 480i/p, 576i/p, HDTV: 720p(50/60Hz), 1080i(50/60Hz), 1080p(50/60Hz)

No	Item	Description
13	Aspect ratio	<ul style="list-style-type: none"> • 4:3, 16:9, Native, Auto
14	Input signal spec	<ul style="list-style-type: none"> • VGA-in x2 • Composite Video x1 • S-Video x1 • Audio In(stereo), 3.5mm x1 • RS232 x1 • USB, Type B x1 • HDMI V1.4 x 1
15	Temperature	<ul style="list-style-type: none"> • Operating: 5°C to 40 °C • Non-operation: -10°C to 60°C
16	Altitude & Temperature	<p>Operating:</p> <ul style="list-style-type: none"> • 0 to 2,500 ft, 5°C to 35°C • 2,500 to 5,000 ft, 5°C to 30°C • 5,000 to 10,000 ft, 5°C to 25°C

Compatible Mode

Signal	Resolution	V. Frequency [KHz]	H. Frequency [KHz]
VGA	640 x 480	60	31.5
	640 x 480	67	35.0
	640 x 480	72	37.9
	640 x 480	75	37.5
	640 x 480	85	43.3
	640 x 480	120	61.9

Signal	Resolution	V. Frequency [KHz]	H. Frequency [KHz]
SVGA	800 x 600	56	35.1
	800 x 600	60	37.9
	800 x 600	72	48.1
	800 x 600	75	46.9
	800 x 600	85	53.7
	800 x 600	120	77.4
XGA	1024 x 768	60	48.4
	1024 x 768	70	56.5
	1024 x 768	75	60.0
	1024 x 768	85	68.7
	1024 x 768	120	99.0
SXGA	1152 x 864	70	63.8
	1152 x 864	75	67.5
	1152 x 864	85	77.1
	1280 x 1024	60	64.0
	1280 x 1024	72	77.0
	1280 x 1024	75	80.0
	1280 x 1024	85	91.1
Quad VGA	1280 x 960	60	60.0
	1280 x 960	75	75.2
SXGA+	1400 x 1050	60	65.3
UXGA	1600 x 1200	60	75.0

Signal	Resolution	V. Frequency [KHz]	H. Frequency [KHz]
PowerBook G4	640 x 480	60	31.4
	640 x 480	66.6(67)	34.9
	800 x 600	60	37.9
	1024 x 768	60	48.4
	1152 x 870	75	68.7
	1280 x 960	75	75.0
iMac DV (G3)	1024 x 768	75	60.0
WXGA	1280 x 768	60	47.8
	1280 x 768	75	60.3
	1280 x 720	85	68.8
	1280 x 720	60	44.8
	1280 x 720	120	92.9
	1280 x 800	60	49.6
	1280 x 900	60	59.9
WSXGA+	1680 x 1050	60	65.3
	1080p	60	67.5
	1366 x 768	60	47.7
WUXGA	920 x 1200-RB	59.94	74.04

Note

- If the computer compatibility supportive signal is different from User's Manual, refer to User's Manual.

2. Installation

Installation Requirements

Environment/Power Requirements

2

Operating temperature

5°C to 40°C / 41°F to 104°F

Power supply

100 - 240VAC \pm 10%, 50 - 60Hz (Auto-ranging and power factor correction)

Machine Dimensions

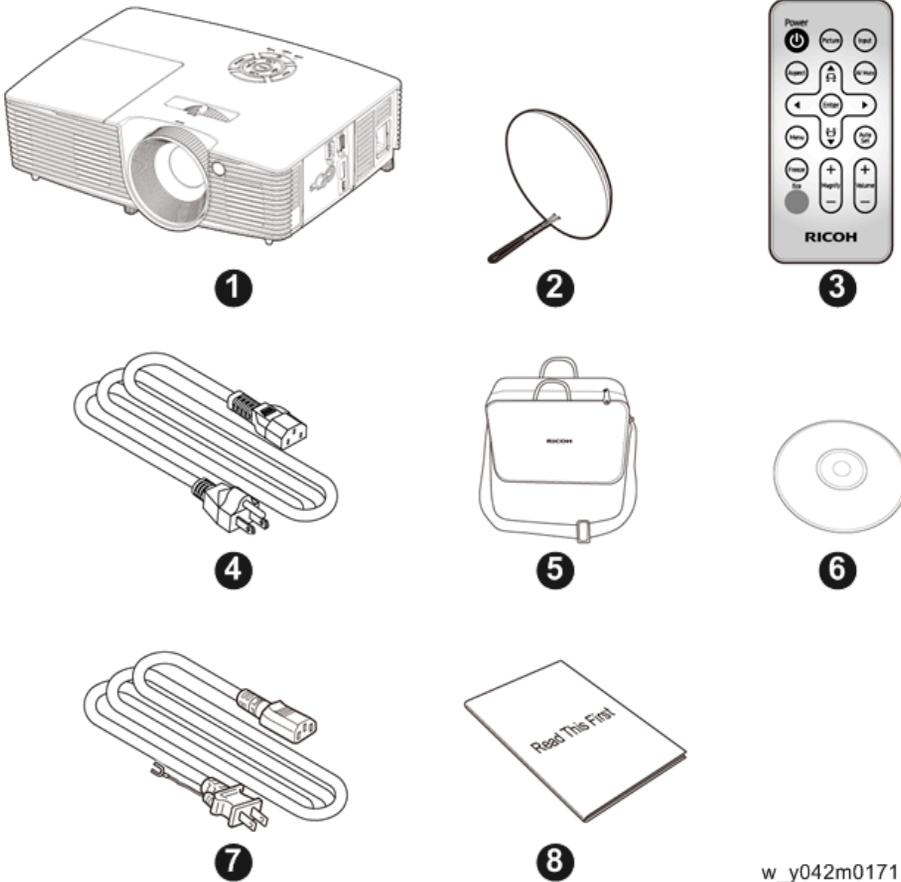
- With feet: 314.3 x 223.6 x 101.7 mm (W x D x H)
- Without feet: 314.3 x 223.6 x 88.2 mm (W x D x H)

Main Machine Installation

The user must set this projector up.

Accessory Check

2



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No	Description	Q'ty
1	Projector	1
2	Lens Cap	1
3	Remote Control	1
4	Power Cord	1
5	Carrying Bag	1

No	Description	Q'ty
6	CD (*)	1
7	RGB Cable	1
8	Read This First	1

(*) This supplied CD-ROM contains a user's manual in PDF format.

↓ Note

- Due to different applications in each country, some regions may have different accessories.

Precautions

Please follow all warnings, precautions and maintenance as recommended in this manual to maximize the life of your unit.

WARNING

- This apparatus must be earthed.

WARNING

- Do not look into the projector's lens when the lamp is on. The bright light may hurt your eyes.

WARNING

- To reduce the risk of fire or electric shock, do not expose this projector to rain or moisture.

WARNING

- Do not open or disassemble the projector as this may cause electric shock.

WARNING

- When replacing the lamp, allow unit to cool down at least 60 minutes, and follow all replacement.

WARNING

- Do not use lens cap when projector is powered on.

WARNING

- When the lamp reaches the end of its life, it will burn out and may make a loud popping sound. If this happens, the projector will not turn back on until the lamp module has been replaced. To replace the lamp, follow the procedures listed under "Replacing the Lamp".

⚠ WARNING

- Do not remove the cabinet cover, or you may be exposed to dangerous voltage. Refer servicing to qualified service personnel only.

⚠ WARNING

- This product should be operated only from the type of power source which does not exceed the voltage range specified on the rating label and the power cord. If you are not sure of the type of power supply to your home, consult your sales representative or local power company.

⚠ WARNING

- Do not use the polarized plug with an extension cord, receptacle, or other outlet unless the blades can be inserted completely with three wire grounding type to prevent blade exposure. Failure to follow these instructions may result in fire or electric shock.

⚠ WARNING

- Plastic bags can be dangerous; please do not leave near babies and young children. To avoid the threat of suffocation, please keep away from their nose and mouth.

⚠ WARNING

- Do not ingest battery, Chemical Burn Hazard. The remote control supplied with this product contains a coin cell battery. If the coin cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. Keep new and used batteries away from children. If the battery compartment does not close securely, stop using the product and keep it away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

⚠ WARNING

- Installing the Projector on a Wall or Ceiling:
 1. Do not attempt to clean or replace parts for a machine that is installed in a high location on a wall or ceiling. Doing so may cause it to fall down, resulting in an injury.
 2. Do not open the lamp cover of a machine that is installed on a wall or ceiling. Doing so may cause the lamp cover to fall down. If the lamp is broken, pieces of glass may fall and cause an injury.
 3. Contact your sales or service representative to clean or replace parts for a machine that is installed on a wall or ceiling.
 4. If a machine is incorrectly installed on a wall or ceiling, it may fall down and cause an injury. Contact your sales or service representative if you want to install a machine on a wall or ceiling.
 5. Do not obstruct the machine's vents. Doing so risks fire caused by overheated internal components.

6. For users, do not install the projector by yourself. Contact your sales or service representative if you want to install the projector on a wall or ceiling.
7. For sales or service representatives:
 - Use brackets that are strong enough to support the projector. The projector weighs about 2.6 kg (5.75 lb.).
 - The projector must be installed in a location that is sturdy enough to support the full weight of the projector and brackets.
 - Use only the screws (three M4×1.6 screws) provided with the projector to attach the brackets to the projector.
 - Use all three of the projector's screw holes to attach the brackets. The locations of the screw holes are shown in the illustration below. Make sure that the screws are tightened firmly.

 CAUTION

- This projector will detect the life of the lamp itself. Be sure to change the lamp when it shows warning messages.

 CAUTION

- Never operate this unit on AC power during a thunderstorm. If you see lightning or hear thunder, never touch the unit, cables and/or peripherals. An electric surge caused by the storm, may result in an electrical shock or damage to the unit.

 CAUTION

- Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

 CAUTION

- Do not place or keep the projector within the reach of the children. It may fall or tip over, possibly causing serious injury.

 CAUTION

- Do not stack other equipment on this product and do not place this product on other equipment. The top and bottom surface of this product increase in temperature during normal use and may damage the other unit.

 CAUTION

- Do not use attachments not recommended by RICOH. Use of incompatible attachments could cause hazards or damage to the product.

⚠ CAUTION

- Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult and serious damage to the product.

⚠ CAUTION

- Unplug this product from the wall outlet and take the product to qualified service personnel if you encounter any of the following conditions:
 1. The power supply cord or plug is damaged.
 2. Liquid has been spilled, or objects have fallen into the product.
 3. The product has been exposed to rain or water.
 4. The product does not operate normally when following the operating instructions. Adjust only those controls that are covered by the operating instructions.
 5. The product has been dropped or damaged in any way. (If the cabinet should break, please handle with care to avoid injury.)

⚠ CAUTION

- This product incorporates glass components, including a lens and a lamp. If these should break, please handle with care to avoid injury and contact your sales representative for repair service. Avoid any broken pieces of glass since they may cause injury. In the unlikely event that the lamp ruptures, thoroughly clean the area around the projector and discard any edible items placed in that area since they may be contaminated.

⚠ CAUTION

- Do not place anything in front of the lens while the projector is operating. Things placed in front of the lens may overheat and burn or start a fire.

⚠ CAUTION

- Unauthorized substitutions may result in fire, electric shock, or other hazards. (Only the replacement of the lamp should be made by users.)

⚠ CAUTION

- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to verify that the product is in proper operating condition.

⚠ CAUTION

- Do not leave thermal paper documents or easily deformed items on top of the unit or near the air exhaust for long periods of time.

⚠ CAUTION

- The heat from the unit could erase the information on the thermal paper, or cause deformation or warping.

⚠ CAUTION

- Do not use the product in a closed installation location. Do not place the product in a box or in any other closed installation location. Otherwise it may overheat, which could result in a risk of fire.

Do

- After unpacking this product, read the manual carefully, and follow all the operating and other instructions.
- Turn off the product before cleaning.
- Use a soft cloth moistened with mild detergent to clean the display housing.
- Disconnect the power plug from AC outlet if the product is not being used for a long period of time.

Do not

- Block the slots and openings on the unit provided for ventilation.
- Use abrasive cleaners, waxes or solvents to clean the unit.
- Use under the following conditions:
 - Extremely heat, cold or humidity.
 - In areas susceptible to excessive dust and dirt.
 - Near any appliance generating a strong magnetic field.
 - In direct sunlight.

3. Replacement and Adjustment

Special Tools

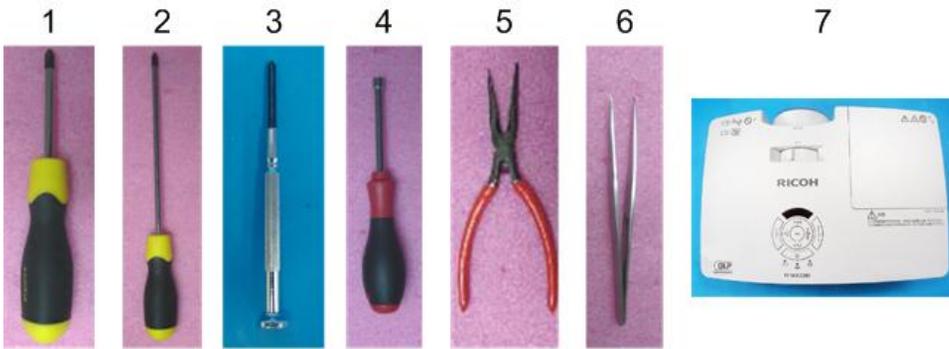
Make sure that engineers are equipped with the following tools, which will be necessary in order to update the firmware, and to perform adjustments that are necessary after replacing the optical engine / main board assembly (page 42 "Optical engine / Main board assembly").

1. USB Cable mini USB to USB (A)
2. Laptop

Equipment Needed

1. Screw bit (+): +No.2 or +No.1
2. Screw bit (+): +No.0
3. Jeweler's Screwdriver (+)
4. Hex sleeves 5 mm
5. Long nose nipper
6. Tweezers
7. Projector

3



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Parts List

Service Parts List

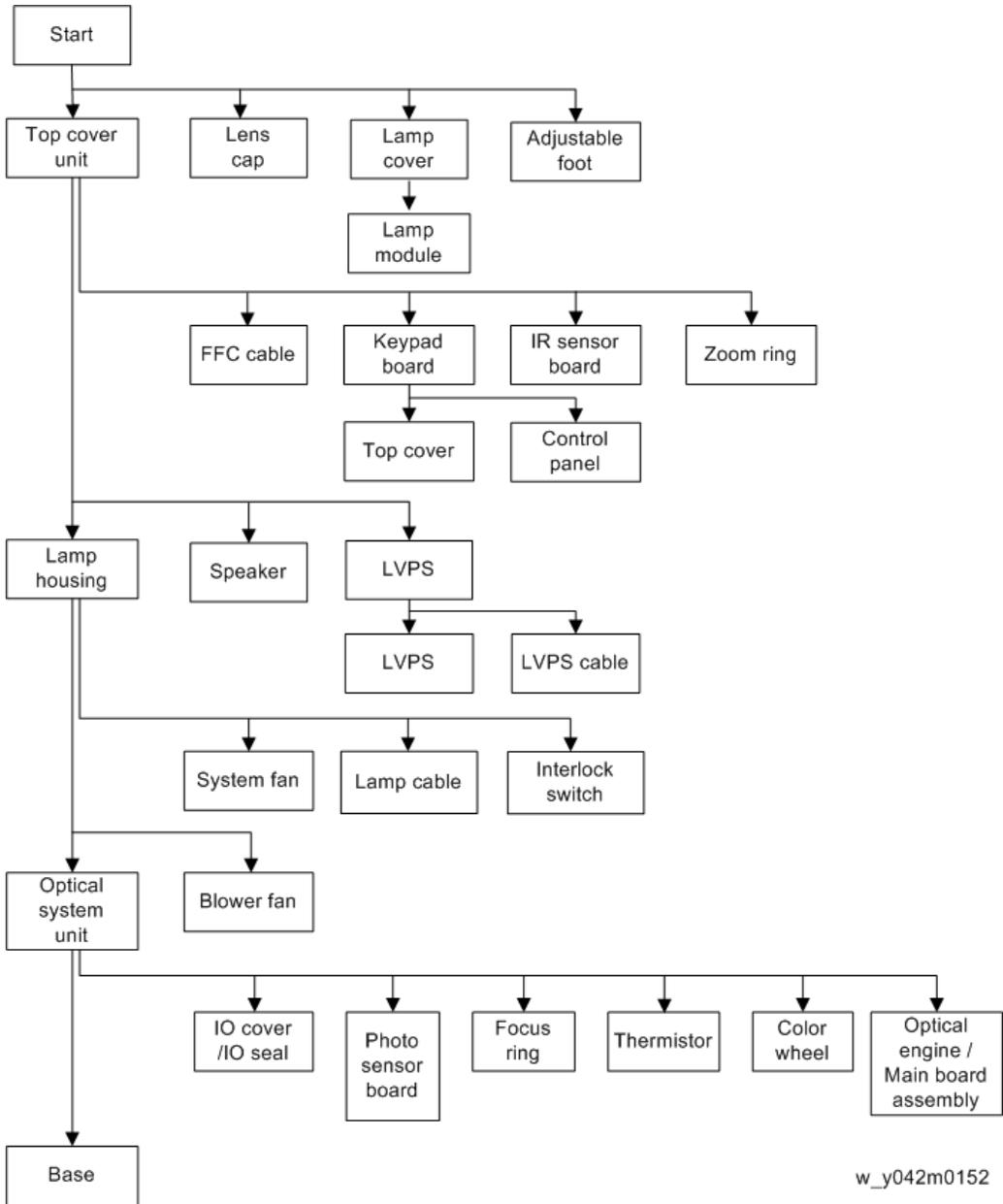
- Lens cap
- Lamp cover
- Lamp module
- Keypad board
- IR sensor board
- FFC cable
- Zoom ring
- Control panel
- Control panel (Enter key)
- Top cover
- I/O cover
- I/O seal
- Speaker
- System fan
- Lamp cable
- Interlock switch
- LVPS
- LVPS cable x2
- Photo sensor board
- Focus ring
- Thermistor
- Color wheel
- Optical engine / Main board assembly (without Focus ring/Photo sensor board/Color wheel/
Heat sink)
- Blower fan
- Base
- Adjustable foot (front) x1
- Adjustable foot (rear) x2

Replaceable Part Hierarchy

The flow chart below shows what parts must be removed to access each replaceable part in the projector.

The parts on the first level (e.g., Lens cap) are accessible without removing any other parts.

The more levels down that a part is, the more parts you need to remove in order to access it.



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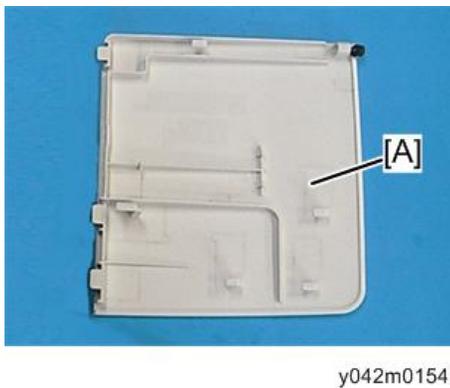
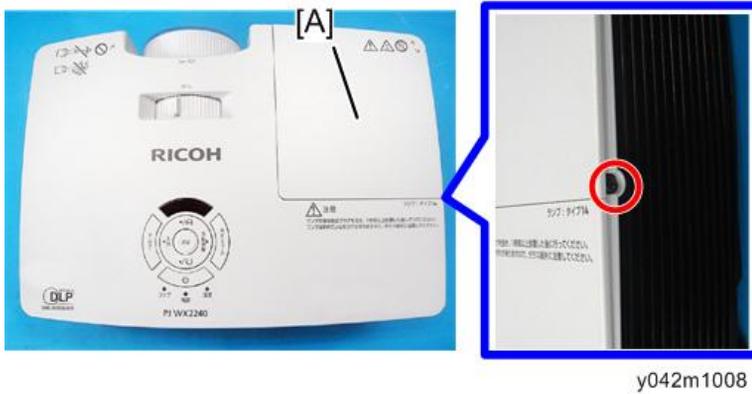
Part Replacement

★ Important

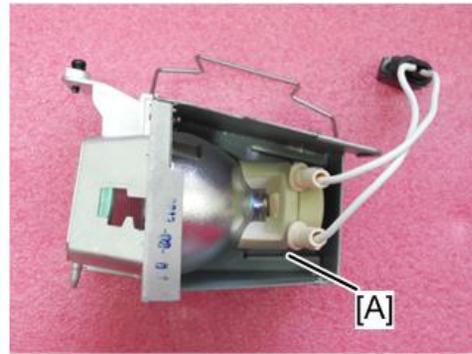
- This process is protective level II. Operators should wear electrostatic chains.

Lamp Cover / Lamp Module

1. Loosen the 1 screw, and then remove the lamp cover [A].



2. Loosen the 1 screw and unplug the 1 connector, then take off the lamp module [A].

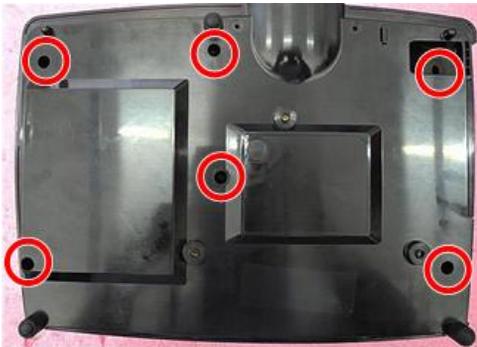


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Top Cover Unit

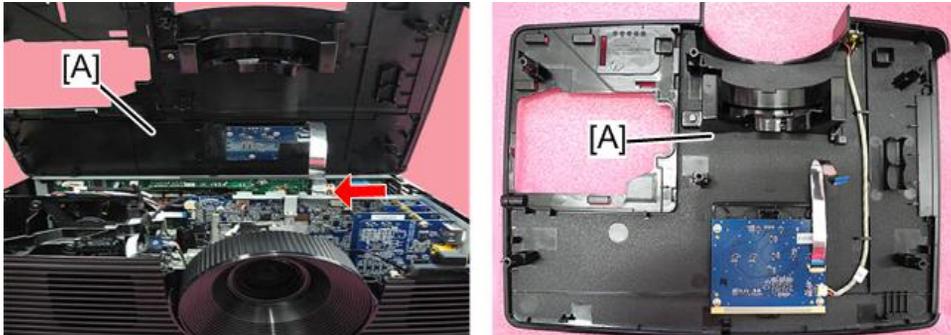
Top cover unit

1. Remove the 6 screws from the bottom cover.



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2. Unplug FFC cable and remove the top cover [A].



y042m0011

Note

- Align the dent part of the zoom ring with the tab part on the optical engine side when attaching the top cover.

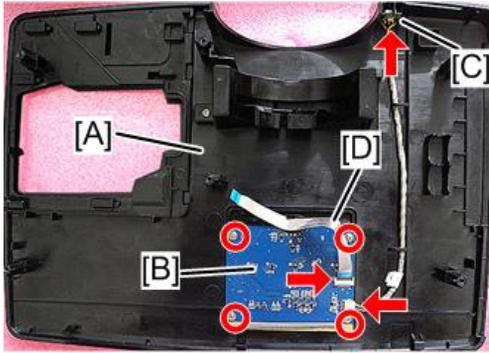


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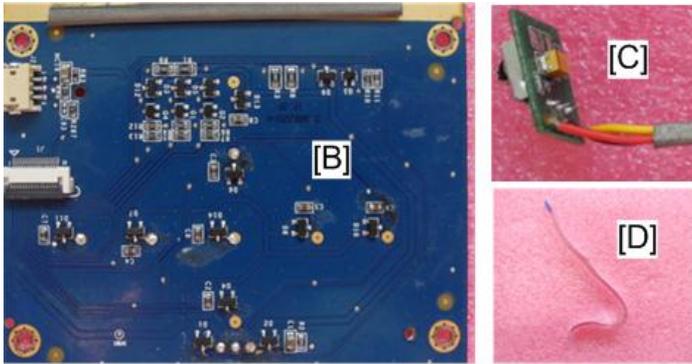
Keypad board / IR sensor board

1. Top cover unit (page 26 "Top cover unit")

2. Remove the 4 screws and 3 connectors and separate the keypad board [B] and IR sensor board [C] and FFC cable [D] from the top cover [A].



y042m0012



y042m0013

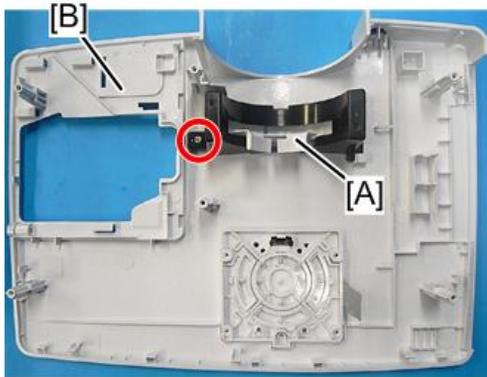
Note

- When removing the IR sensor board, unfasten the 3 tenons.

Zoom ring

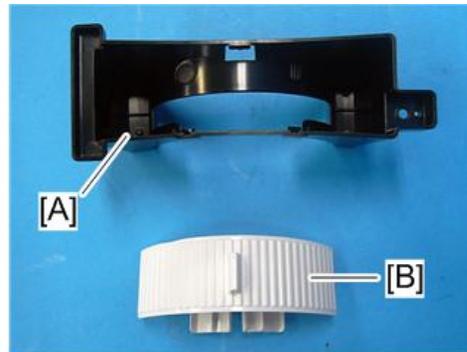
1. Top cover unit (page 26 "Top cover unit")

2. Remove the 1 screw, and then remove the zoom ring [A] from the top cover [B].



y042m1014

3. Separate the bracket [A] and zoom ring [B].

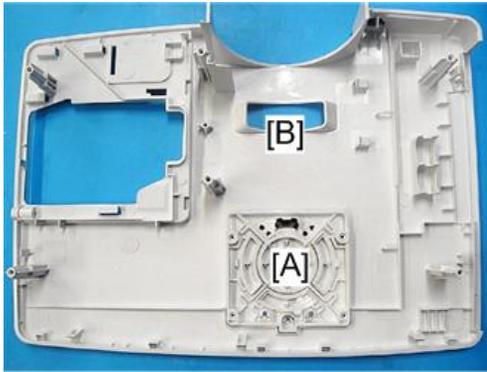


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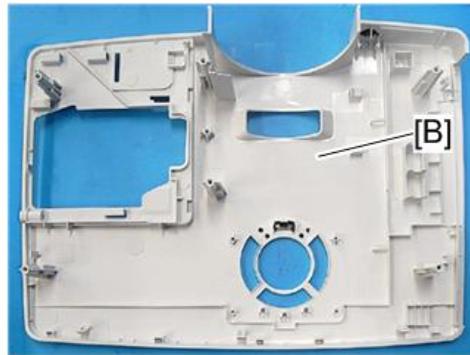
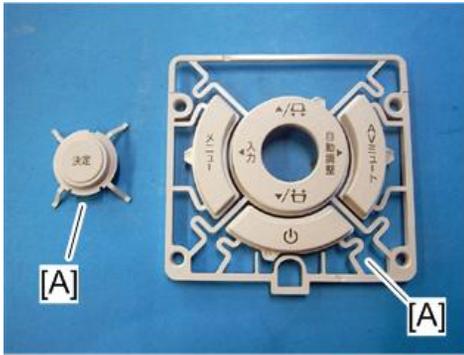
Control panel / Top cover

1. Keypad board / IR sensor board (page 27 "Keypad board / IR sensor board")

2. Separate the control panel [A] and the top cover [B].



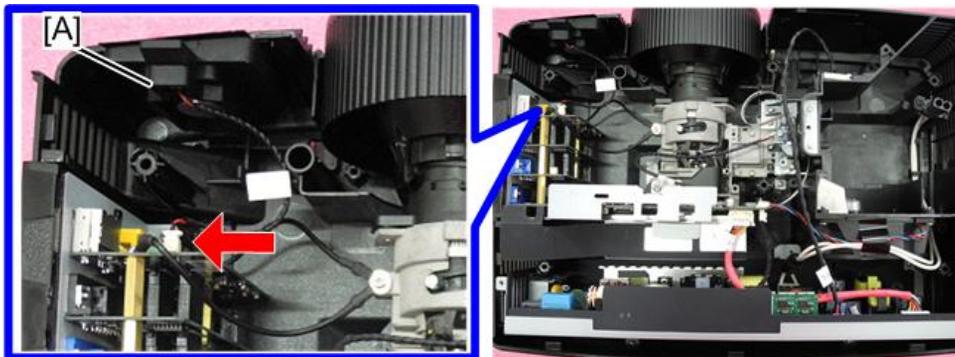
y042m0157



y042m0158

Speaker

1. Top cover unit (page 26 "Top cover unit")
2. Unplug the 1 connector to remove the speaker [A].



y042m0016

3. Separate the rubber [A] and speaker [B].



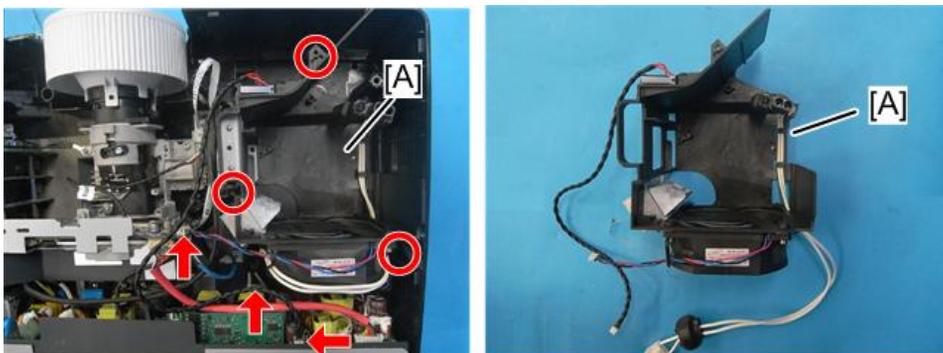
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3

Lamp Housing

Lamp housing

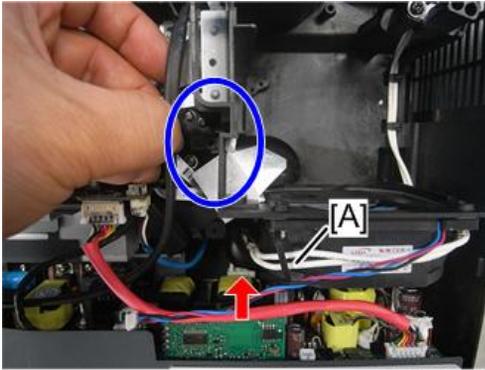
1. Lamp Cover / Lamp Module (page 25 "Lamp Cover / Lamp Module")
2. Top cover unit (page 26 "Top cover unit")
3. Remove the 3 screws and the 3 connectors, and then take out the lamp housing [A].



y042m1018

⬇ Note

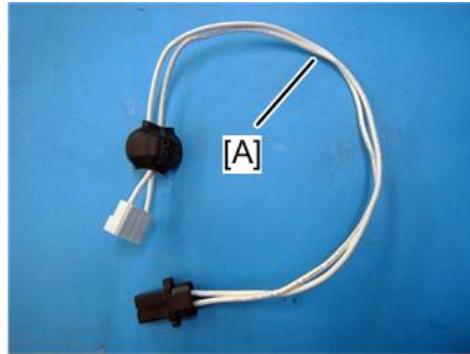
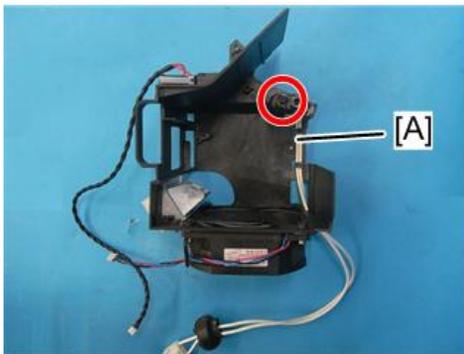
- It is recommended to move the cable out of the way as shown by a blue circle in the following figure when removing or attaching the lamp housing.
- Connecting the lamp cable [A] to the LVPS in advance makes it easier to attach the lamp housing.



y042m0159

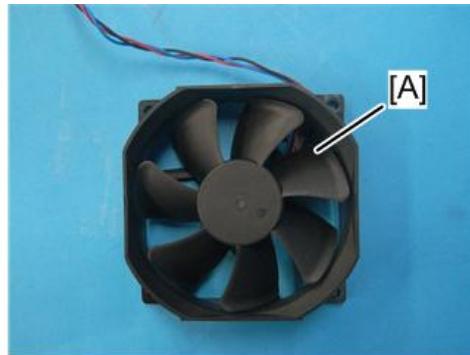
System fan / Interlock switch

1. Lamp housing (page 31 "Lamp housing")
2. Remove the 1 screw to separate the lamp cable [A].



y042m1019

3. Remove the 4 screws to separate the system fan [A].



y042m1020

Note

- Take the fan module as the right gesture.

Correct

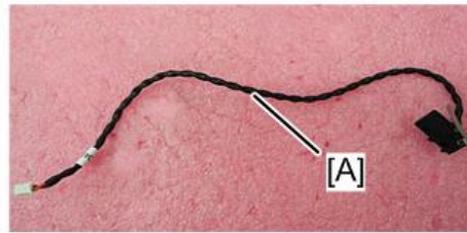


Incorrect



w_y042m0021

4. Remove the 1 screw to separate the interlock switch [A].

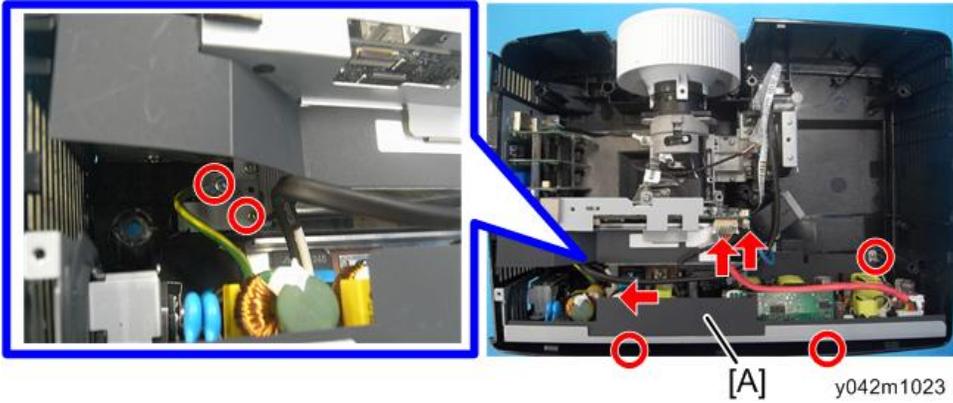


y042m0022

LVPS

1. Lamp housing (page 31 "Lamp housing")

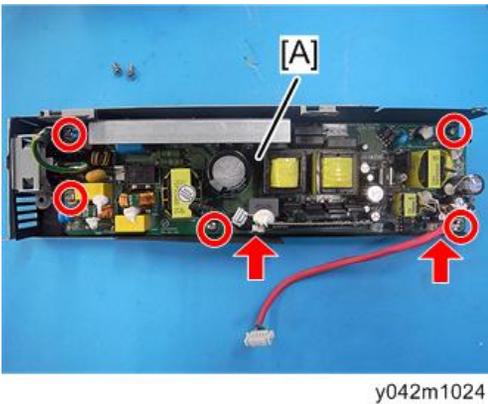
2. Remove the 5 screws and 3 connectors to remove the LVPS and holder [A].

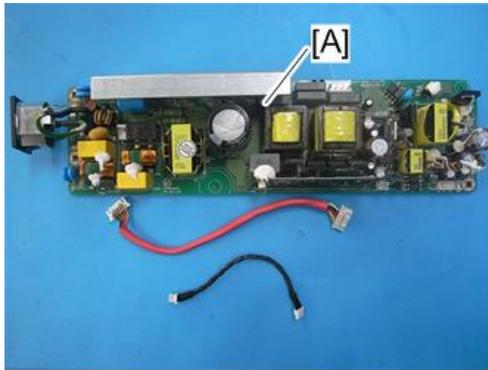


3. Remove the 2 screws.



4. Remove the 5 screws and 2 connectors to separate the LVPS [A].





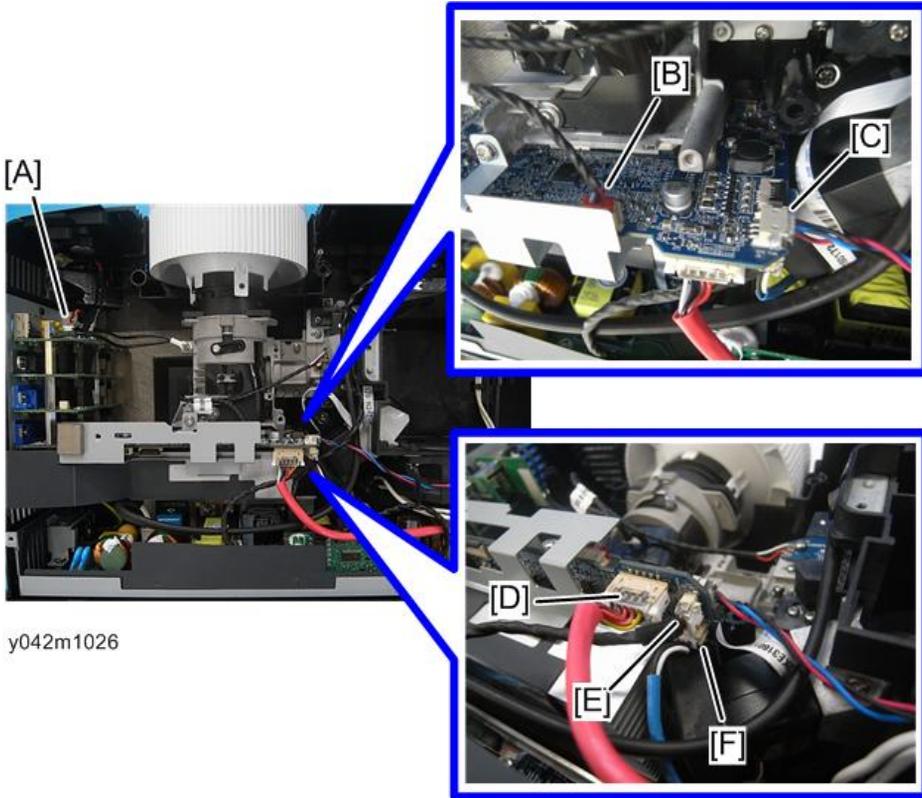
y042m1025

Optical System Unit

↓ Note

- If you need to replace the optical engine / main board assembly, you have to get into service mode and record the lamp usage hour. (page 62 "Re-write Lamp Hours")

Connector list



y042m1026

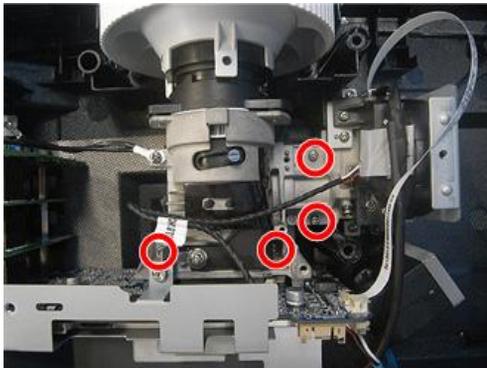
Refer to the table as below for details of each connector.

Item	Male Connector on Main Board	Key Feature	Figure
A	Speaker	Red/Black wire (2 pin)	
B	Photo sensor	Red/Black/White wire, red connector (3 pin)	
C	System fan	Red/Blue/Black wire (3 pin)	
D	LVPS A	Red wire tube (10 pin)	

Item	Male Connector on Main Board	Key Feature	Figure
E	LVPS B	Black wire tube (5 pin)	
F	Blower fan	Red/White/Black wire, with blue wire tube (3 pin)	

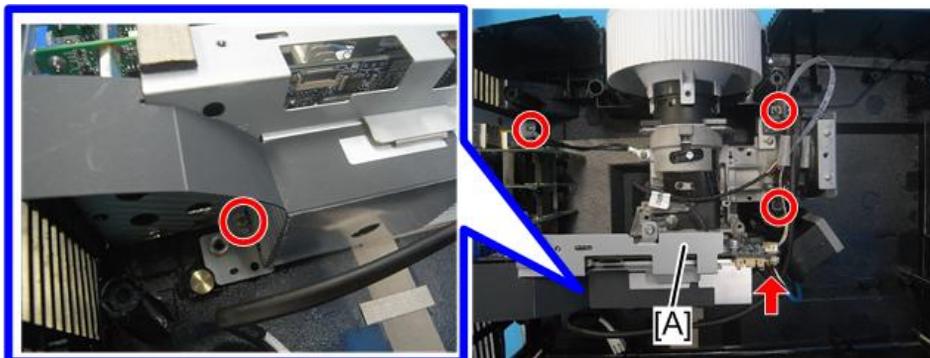
Optical system unit

1. Speaker (page 30 "Speaker")
2. LVPS (page 33 "LVPS")
3. Remove the 4 screws.

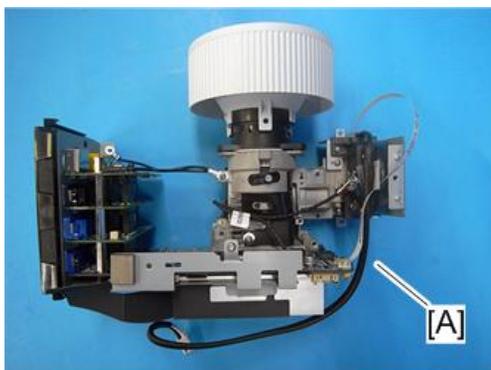


y042m1032

4. Remove the 4 screws and 1 connector to remove the optical system unit [A].



y042m1033



y042m0161

IO cover / IO seal

1. Optical system unit (page 37 "Optical system unit")
2. Remove the 8 hex screws to remove IO cover (with IO seal) [A].

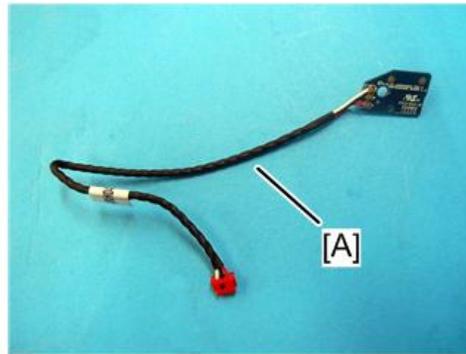
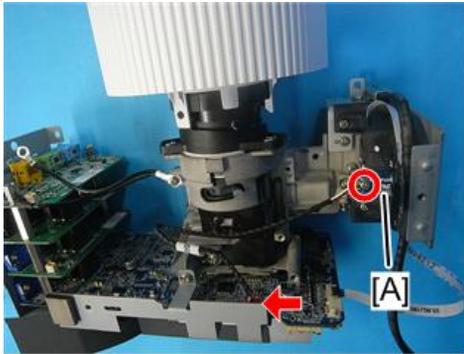


y042m1046

Photo sensor board

1. Optical system unit (page 37 "Optical system unit")

- Remove the 1 screw and 1 connector to remove the photo sensor board [A].

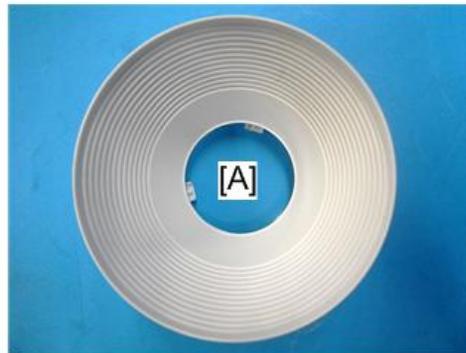
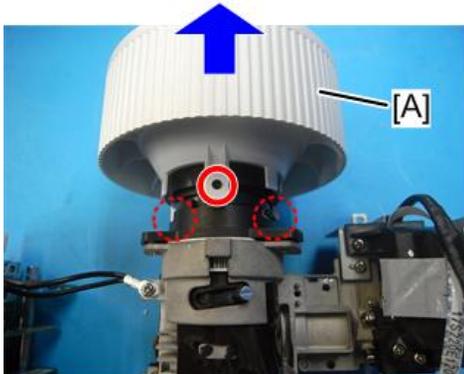


y042m1034

3

Focus ring

- Optical system unit (page 37 "Optical system unit")
- Remove the 1 screw and unfasten the 2 tenons, then push out the focus ring [A].

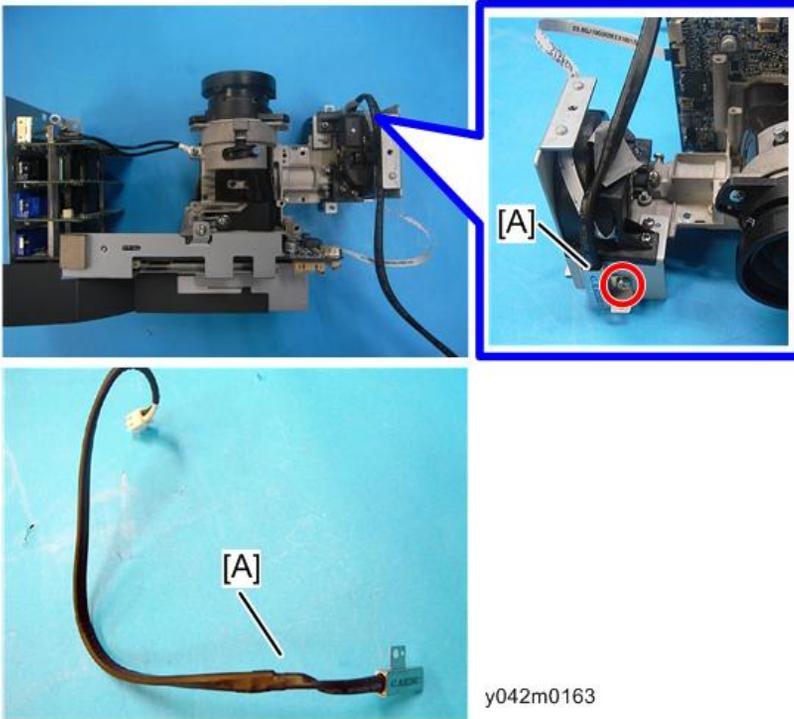


y042m1035

Thermistor

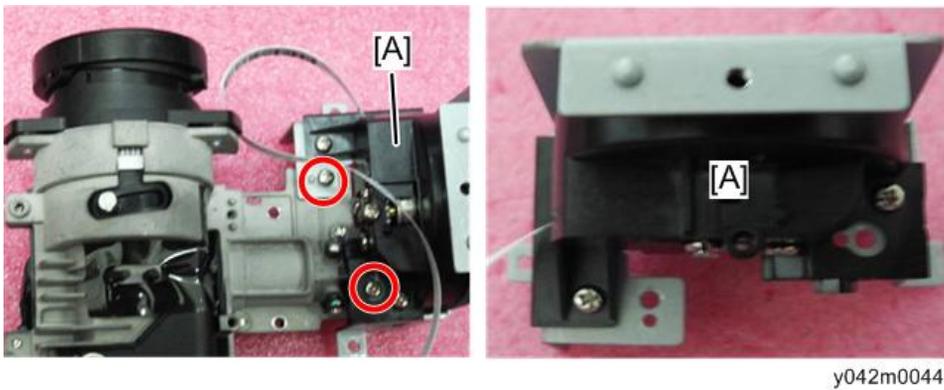
- Optical system unit (page 37 "Optical system unit")

2. Remove the 1 screw to remove the thermistor [A].

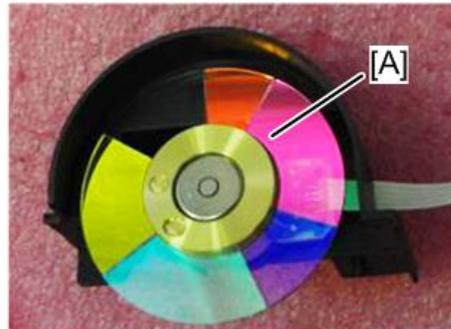
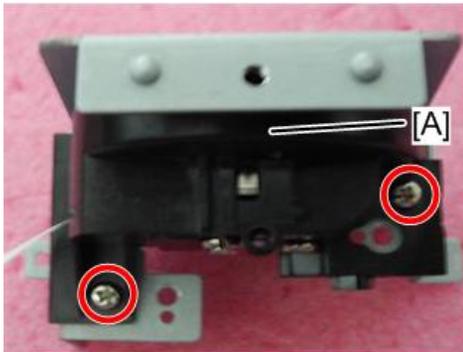


Color wheel

1. Photo sensor board (page 38 "Photo sensor board")
2. Thermistor (page 39 "Thermistor")
3. Remove the 2 screws to remove the color wheel module and color wheel holder [A].



4. Remove the 2 screws to remove the color wheel [A].

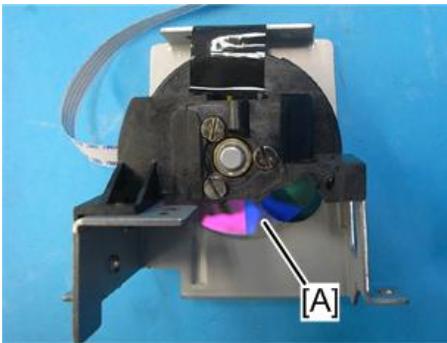


y042m0045

3

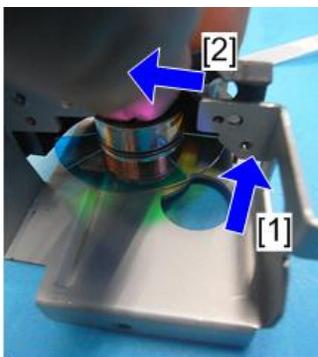
↓ Note

- Make sure that the color wheel [A] does not touch the color wheel holder when removing the color wheel [A].



y042m0175

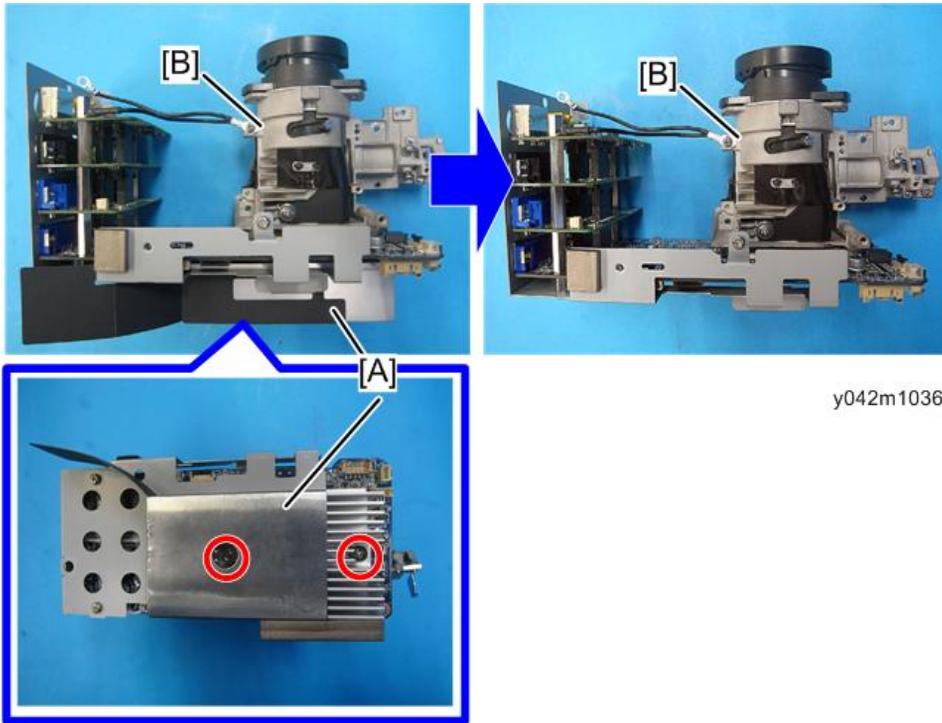
- It is recommended to slide and remove the color wheel as shown by arrows in the following figure.



y042m0176

Optical engine / Main board assembly

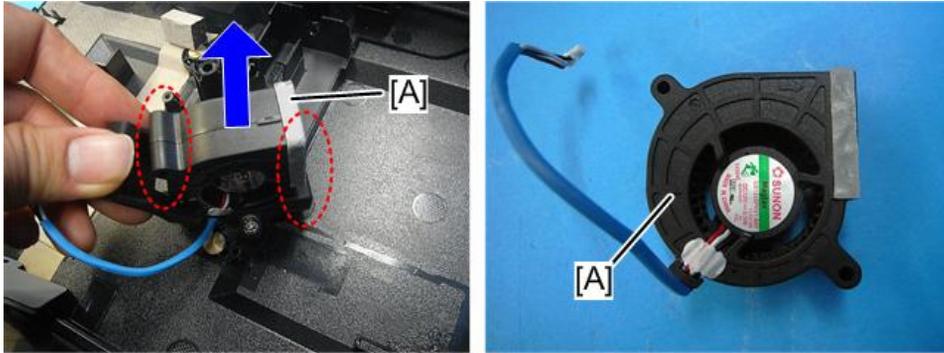
1. IO cover / IO seal (page 38 "IO cover / IO seal")
2. Focus ring (page 39 "Focus ring")
3. Color wheel (page 40 "Color wheel")
4. Remove the 2 screws to remove the heat sink [A] from the optical engine / main board assembly [B].



Blower Fan

1. Optical system unit (page 37 "Optical system unit")

2. Remove 2 points (as shown by red circles in the following figure) from the blower holder to remove the blower fan [A].

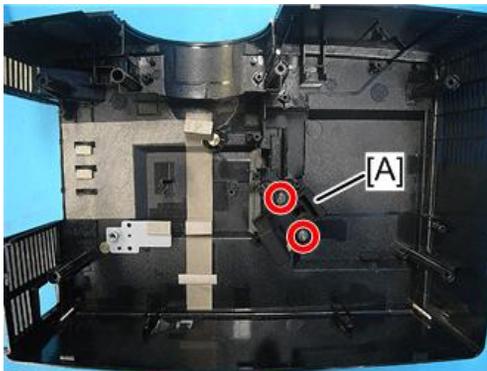


y042m0165

3

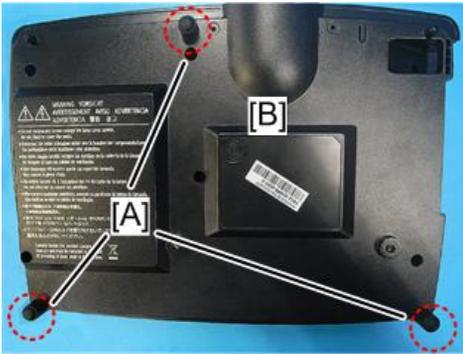
Base / Adjustable Foot

1. Blower Fan (page 42 "Blower Fan")
2. Remove the 2 screws to remove the blower holder [A].

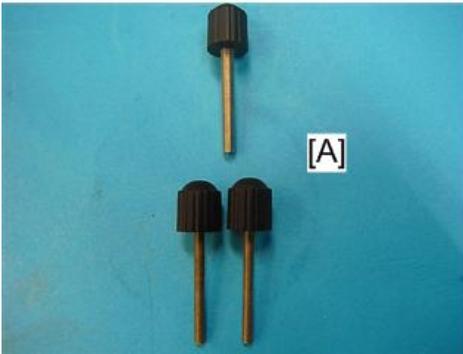
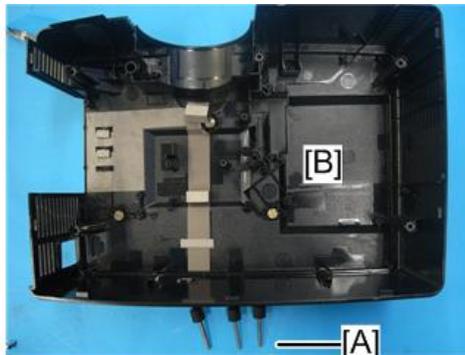


y042m0166

3. Remove the 3 adjustable feet [A] from the base unit [B].



y042m0167



y042m0168

Note

- The front adjustable foot is different in size from the rear adjustable feet.

Required Action After Replacing Parts

After replacing parts, please execute the related items shown in the table below.

Action after repair	Changed parts				Software	Description page
	Main board (Optical engine / Main board assembly)	Lamp module	Blower fan	Color wheel	After firmware update	
Firmware update	v				v	Chapter 6. (page 67 "Firmware Update")
ADC calibration	v				v	Chapter 5. (page 60 "ADC Calibration")
Color wheel index	v			v		Chapter 5. (page 65 "Color Wheel Index")
OSD reset	v	v			v	Chapter 5. (page 66 "OSD Reset")
Re-write lamp usage hours	v					Chapter 5. (page 62 "Re-write Lamp Hours")
Fan calibration	v		v		v	Chapter 5. (page 59 "Fan Calibration")

↓ Note

- After parts replacement or repair, check that the projector works properly.
- Project images on the screen and check that they are not faulty.

- If color appears abnormal after changing the main board, do the color wheel index adjustment. (page 65 "Color Wheel Index")

4. Troubleshooting

LED Display

LED status and meanings

Message	Power LED		Lamp LED	Temp LED
	Red	Blue	Red	Red
Standby state (Input power cord)	Steady light	-	-	-
Power on (Warming up)	-	Flashing 0.5 sec off 0.5 sec light	-	-
Power on & lamp lighting	-	Steady light	-	-
Power off (Cooling down)	Flashing 0.5 sec off 0.5 sec light (*1)	-	-	-
Quick resume (100 sec.)	-	Flashing 0.25 sec off 0.25 sec light	-	-
Temperature error (Over temperature on event)	-	Steady light	-	Steady light
Temperature error (Over temperature on standby)	Steady light	-	-	Steady light
Lamp error (Lamp failed on event)	-	Steady light	Steady light	-

Message	Power LED		Lamp LED	Temp LED
	Red	Blue	Red	Red
Lamp error (Lamp failed on standby)	Steady light	-	Steady light	-
Fan error (Fan failed on event)	-	Steady light	-	Flashing
Fan error (Fan failed on standby)	Steady light	-	-	Flashing
Error (Color wheel fail / Striking lamp fail on event)	-	Steady light	Flashing	-
Error (Color wheel fail / Striking lamp fail on standby)	Steady light	-	Flashing	-

(* 1) Return to steady lights when the cooling fan is turned off.

Main Procedures

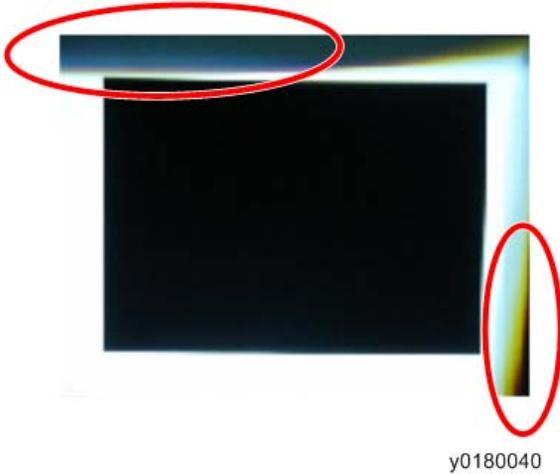
No.	Symptom	Procedure
1	No power	<ul style="list-style-type: none"> • Ensure the power cord and AC power outlet are securely connected • Ensure all connectors are securely connected and aren't broken • Check LVPS • Check Main board
2	Auto shutdown	<ul style="list-style-type: none"> • Ensure the projector is not put on a soft pad and the air vent is not blocked a. Lamp failed: Power LED(flashes red), Lamp LED (lights red) <ul style="list-style-type: none"> • Check Lamp • Check LVPS • Check Main board b. Fan failed: Power LED (flashes red), Temp LED (flashes red) <ul style="list-style-type: none"> • Check whether have execute "Fan Calibration" (page 59 "Fan Calibration") • Check System fan and Blower fan • Check Main board • Check Color wheel module • Check Photo sensor board c. Over Temp: Power LED (flashes red), Temp LED (light on red) <ul style="list-style-type: none"> • Check System fan and Blower fan • Check Main board
3	No light on	<ul style="list-style-type: none"> • Ensure all connectors are securely connected and aren't broken • Check Lamp cover, Interlock switch • Check Lamp module • Check LVPS • Check Main board • Check Color wheel • Check Photo sensor board

No.	Symptom	Procedure
4	No image	<ul style="list-style-type: none"> • Ensure the signal cable and source work (If you connect multiple sources at the same time, use the "Source" button switch) • Ensure all connectors are securely connected and aren't broken • Check Main board • Check DMD chip • Check Color wheel • Check Optical engine
5	Mechanical noise	<ul style="list-style-type: none"> • Check Color wheel • Check System fan and Blower fan
6	Line bar/Line defect	<ul style="list-style-type: none"> • Check if the Main board and the DMD board are assembled properly • Check Main board • Check DMD chip
7	Image flicker	<ul style="list-style-type: none"> • Do "Reset" of the OSD menu (page 66 "OSD Reset") • Ensure that the signal cables and source are work as well • Check Lamp module • Check Color wheel • Check Photo sensor and clean Photo sensor • Check Main board
8	Color abnormal	<ul style="list-style-type: none"> • Do "Reset" of the OSD Menu (page 66 "OSD Reset") • Adjust "Color Wheel Index" (page 66 "OSD Reset") • Check Main board • Check Color wheel
9	Poor uniformity/ Shadow	<ul style="list-style-type: none"> • Ensure the projection screen without dirt • Ensure the projection lens is clean • Ensure the brightness is within spec • Check rod alignment • Check Optical engine

No.	Symptom	Procedure
10	Dead pixel/Dust (Out of spec.)	<ul style="list-style-type: none"> • Ensure the projection screen without dirt • Ensure the projection lens is clean • Clean DMD chip and Optical engine • Check DMD chip • Check Optical engine
11	Garbage image	<ul style="list-style-type: none"> • Ensure that the signal cables and source work as well • Check Main board
12	Remote controller failed	<ul style="list-style-type: none"> • Remote controller <ol style="list-style-type: none"> a. Check Battery b. Check Remote controller c. Check IR sensor board d. Check Main board
13	Function abnormal	<ul style="list-style-type: none"> • Do "Reset" of the OSD Menu (page 66 "OSD Reset") • Check Main board
14	Audio abnormal (For the projector has speaker)	<ul style="list-style-type: none"> • Ensure that the signal cables and source are work as well • Ensure that your projector is not in "Mute" mode • Check Main board • Check Speaker
15	3D image abnormal	<ul style="list-style-type: none"> • Ensure the using 3D glasses is good and you must face the projection • Ensure the signal source is 3D format • Ensure the 3D function of projector OSD is on and 3D sync invert is on • Check Main board

Rod Adjustment

If either of the defects ringed in red appears when projecting an image, perform the adjustment described below.



4

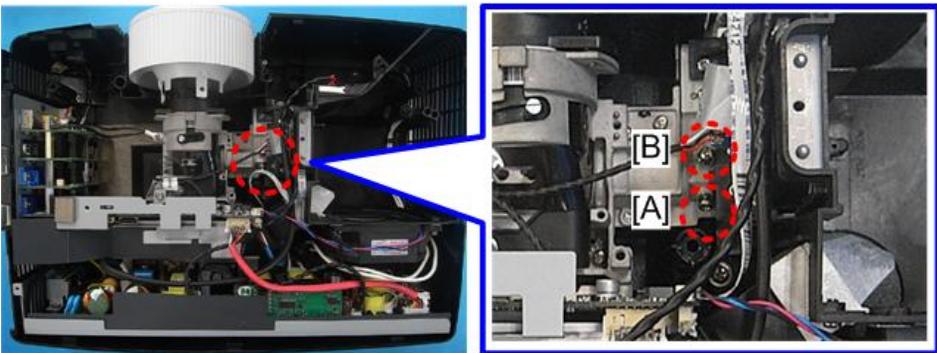
Environment

- The size of screen is 60.
- This process should be done in a dark environment (under 2 lux).

Procedure

1. Display a "white" pattern.
2. Adjust the screws to readjust the image.

Screw [A] should be adjusted first, and then Screw [B]. Adjust until the yellowish or bluish parts disappear.

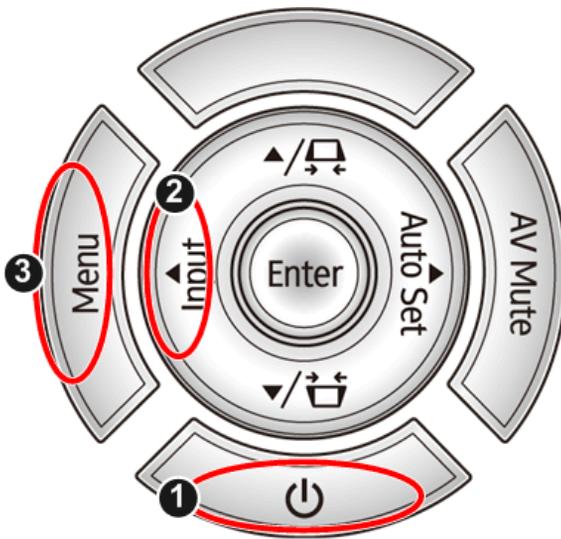


5. Test & Inspection

Service Mode

How to Enter the Service Mode

1. Turn on the projector.
2. Press the "Power [1]", "Left [2]", "Left [2]" and "Menu [3]" keys sequentially.



w_y042m00153

↓ Note

- You can use the remote controller to enter the service mode in the same way.
- To exit from the service mode, press the "Power" key.

Service Mode Settings

↓ Note

- Here is a summary of common terms.

Term	What It Means
DFU	Denotes "Design/Factory Use". Do not change this value.

Service Menu

Setting Item	Description
Model Name	Read only Shows the name of the projector.
DDP ver.	Read only Shows the present DDP version of the projector.
MCU ver.	Read only Shows the present MCU firmware version of the projector.
Waveform ID	Read only
System Hours (total)	Read only
Lamp Hours (DD+ED)	Read only
Lamp Hours (full)	Read only
Lamp Hours (eco)	Read only
Factory Reset	DFU
Burn In Test	DFU
Failure Log	Records the times of the failure of power on of the projector such as excessive temperature, lamp failure or fan lock.
Analog Settings	See the below table.
Optical Settings	See the below table.
Other Settings	See the below table.
Read SNID	DFU
Color Wheel Index	Use this to adjust the R/G/B value to improve the image when the color reproduction is not correct. (page 65 "Color Wheel Index")
Factory Blower RPM	Read only Shows the factory blower RPM values of the projector.
Extreme Dimming Mode	DFU

Analog Settings

Setting Item	Description
PC Calibration	Use this to adjust the R/G/B value to improve the image when the color reproduction is not correct. (page 60 "ADC Calibration")
Video Calibration	DFU
PC Red Offset	DFU
PC Green Offset	DFU
PC Blue Offset	DFU
Red Gain	DFU
Green Gain	DFU
Blue Gain	DFU
Video Red Offset	DFU
Video Blue Offset	DFU
Reset Calibration Data	DFU

Optical Settings

Setting Item	Description
Waveform ID	Read only
Color Wheel Index	Use this to adjust the R/G/B value to improve the image when the color reproduction is not correct. (page 65 "Color Wheel Index")
Spoke On	DFU
Test Pattern	DFU
Waveform Index	DFU
Sequence Group	DFU
Gamma	DFU
Lamp Power Gain	DFU

Setting Item	Description
Lamp Power Mode	DFU

Other Settings

Setting Item	Description
System Hours (total)	Use this to change operating hours of the projector. (page 62 "Re-write Lamp Hours")
Lamp Hours (DD+ED)	Use this to change the working hours of the projector in DD + ED. (page 62 "Re-write Lamp Hours")
Lamp Hours (full)	Use this to change the working hours of the projector in full mode. (page 62 "Re-write Lamp Hours")
Lamp Hours (eco)	Use this to change the working hours of the projector in eco mode. (page 62 "Re-write Lamp Hours")
Start LOGO	DFU
AC Plugin Auto Power On	DFU
VGA Out (Standby)	DFU
Closed Caption Select	DFU
SOG Slicer Threshold	DFU
Component Phase	DFU
Boot/Init access time(ns)	Read only
Thermal Setting	See the below table.
Dust Chamber Test	DFU

Thermal Settings

Setting Item	Description
System Fan Volt (1/10)	Read only
System Fan RPM	Read only

Setting Item	Description
Factory Blower RPM	Read only
Lamp Blower Fan Volt (1/10)	Read only
Lamp Blower Fan RPM	Read only
Temperature Degree	Read only
Current Lamp Voltage	Read only
Fan Zeta Value (1/100)	DFU
High Altitude	DFU
Lamp Power Mode	DFU

Test Equipment and Conditions

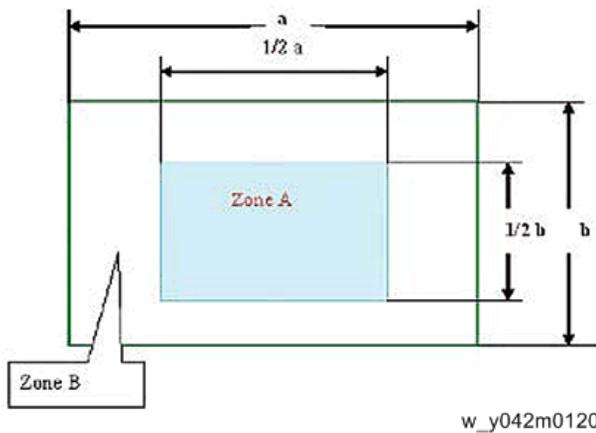
Test Equipment Needed

- PC support HDTV resolution & Independent graphic card
- Blue- ray DVD player support "S-Video", "3D source files", "HDMI" and "Video"
- Illuminance meter
- Video generator

Recommended Test Condition

- Ambient brightness: Dark room less than 2 lux.
- Product must be warmed up for 3 minutes.
- Screen size: 60 inches diagonal.

Zone Definition



< Figure: Zone A (as green line) Definition >

Calibration

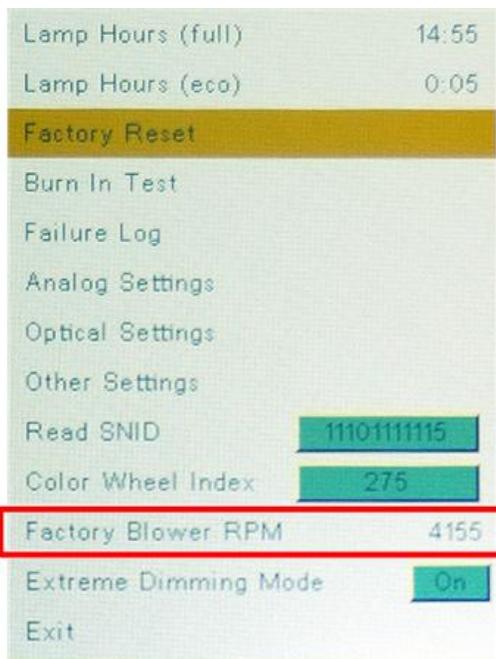
Fan Calibration

After replacing the optical engine / main board assembly, the blower fan, or updating the firmware, do the following steps.

1. While pressing the "Power" key, plug in the power cord.
2. When the "Power LED" flashes red, release the "Power" key.
3. After 3 to 5 seconds, the projector will power on.

After the logo disappears, the message "Factory Fan RPM Calculation now... Warning: DO NOT unplug while the projector fan is still running" will be shown on the screen.

4. After several minutes, get into service mode.(page 53 "How to Enter the Service Mode")
5. Check "Factory Blower RPM".



w_y042m0005

Note

- If the factory fan value doesn't show in service mode, repeat the step 1-5 again.
- Make sure the "Factory Blower RPM" is 3264-4894.

ADC Calibration

PC calibration

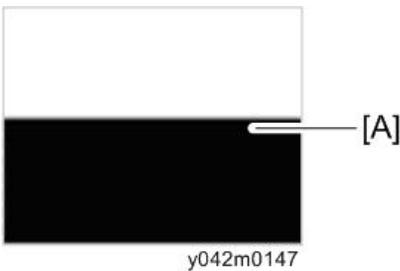
- After replacing the optical engine / main board assembly, do the following steps.
- If you do not have professional equipment such as Quantum Data 802B or CHROMA2327, use a PC that supports HDTV resolution & has an independent graphics card to output the corresponding PC pattern. You can download the "test pattern by PC" from the website as shown below.



w_y042m0136

Procedure

- Test equipment: Video generator.
- Test signal: Analog 1280 x 800@60Hz
- Test Pattern: 94% White(up)/6% Black (down) [A]



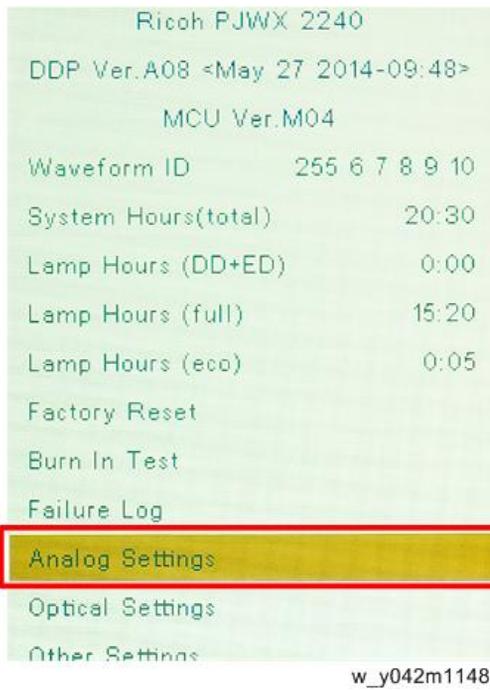
y042m0147

↓ Note

- Calibration pattern should be in full screen.

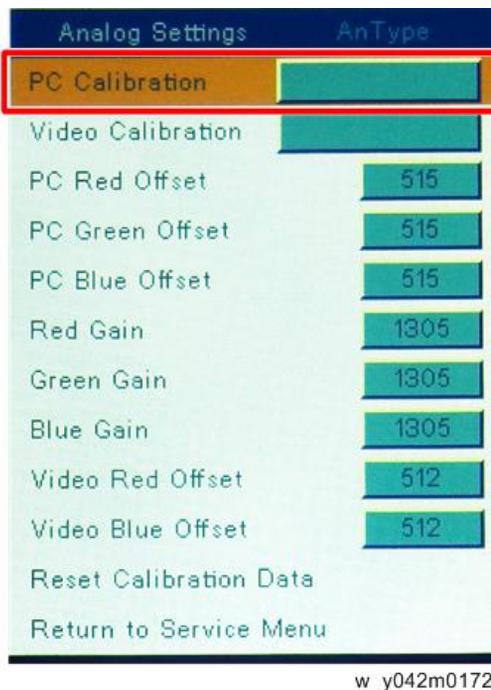
1. Get into Service Mode.(page 53 "How to Enter the Service Mode")

2. Select "Analog Settings".



5

3. Execute "PC Calibration".



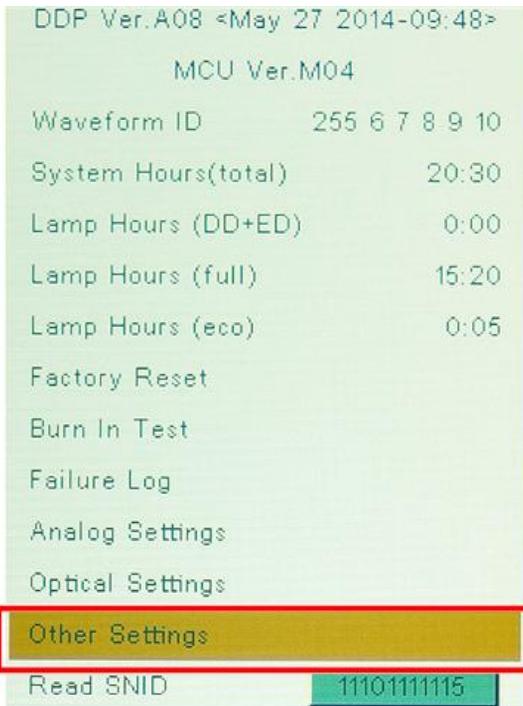
4. Select "Return to Service Menu" to confirm the setting.

Re-write Lamp Hours

After replacing the optical engine/main board assembly, you must rewrite the lamp hours.

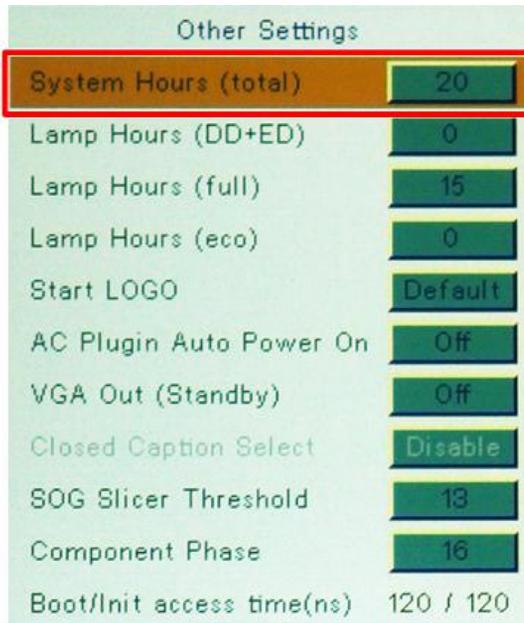
Write down the lamp hours before the replacement and put back the same value after replacing the board.

1. Get into service mode. (page 53 "How to Enter the Service Mode")
2. Select "Other Settings", and then press the "Enter" key.



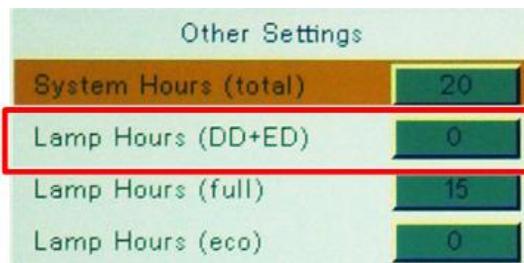
w_y042m1000

3. Select "System Hours (total)", then use the "Left" or "Right" keys to re-write the System Hours.



w_y042m1001

4. Select "Lamp Hours (DD+ED)", then use the "Left" or "Right" keys to re-write the Lamp Hours.



w_y042m1002

5. Select "Lamp Hours (full)", then use the "Left" or "Right" keys to re-write the Lamp Hours.

Other Settings	
System Hours (total)	20
Lamp Hours (DD+ED)	0
Lamp Hours (full)	15
Lamp Hours (eco)	0

w_y042m1003

6. Select "Lamp Hours (eco)", then use the "Left" or "Right" keys to re-write the Lamp Hours.

Other Settings	
System Hours (total)	20
Lamp Hours (DD+ED)	0
Lamp Hours (full)	15
Lamp Hours (eco)	0

w_y042m1004

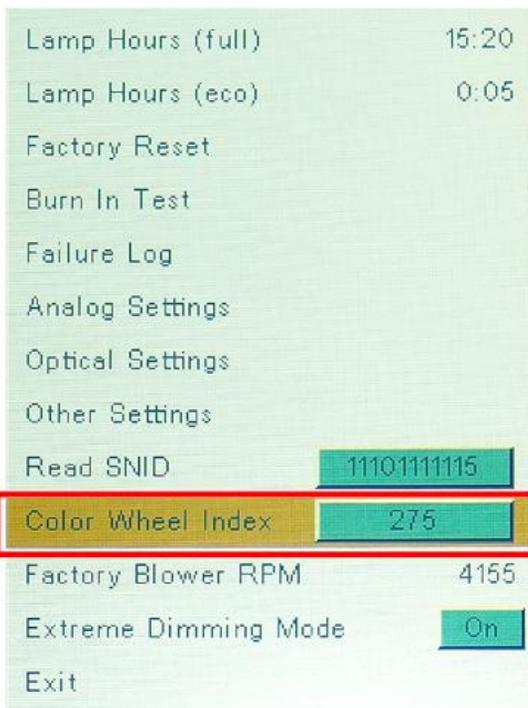
↓ **Note**

- "Left" key = decrease lamp hours
- "Right" key = increase lamp hours
- By repeatedly pressing the "Enter" key, you can select the order of magnitude. Each press steps to the next order in the sequence "1" to "10" to "100" to "1000" and back to "1".

Color Wheel Index

After replacing the optical engine/main board assembly or color wheel, "Color Wheel Index" should be done.

1. Get into service mode. (page 53 "How to Enter the Service Mode")
2. Select "Color Wheel Index", and then use the "Left" or "Right" keys to adjust the color balance of the projected image.



w_y042m00169

↓ Note

- By pressing the "Enter" key, the test pattern can be projected.
- This adjustment procedure can be executed as well in the following steps:
Optical Settings > Color wheel Index

Test Inspection Procedure

Check points

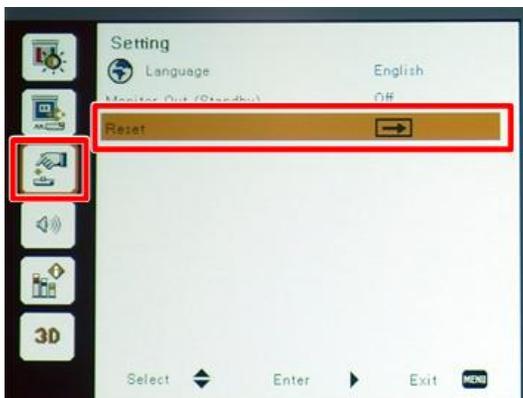
Check item	Check point
Firmware version	All firmware version must be the latest version
TB implementation	Related TB must be implemented
Exterior	The exterior must be undamaged.
Logo	Missing logo, missing prints and blurred prints are unacceptable
Lamp cover	It should be locked in the correct place.
Zoom in/out	The function should work smoothly
Keypad	All keypad keys must operate smoothly

5

OSD Reset

After the final QC step, we have to erase all saved change again and restore the OSD default setting. The following actions will allow you to erase all end-users' settings and restore the default setting:

1. Press the "Menu" key to enter the OSD menu.
2. Select "Setting" and then execute the "Reset" function.



w_y042m0173

6. Update

Firmware Update

Equipment Needed

Software

- DLP Composer Lite 11.2
- Firmware (*.img)
- 11.2 FlashDeviceParameters

Note

- Download "DLP Composer Lite 11.2" and "11.2 FlashDeviceParameters" from website to update FW procedure.

Hardware

1. Projector
2. Power cord
3. USB Cable mini USB to USB (A)
4. PC / Laptop

1



2



3



4



y042m1049

Firmware Update Procedure

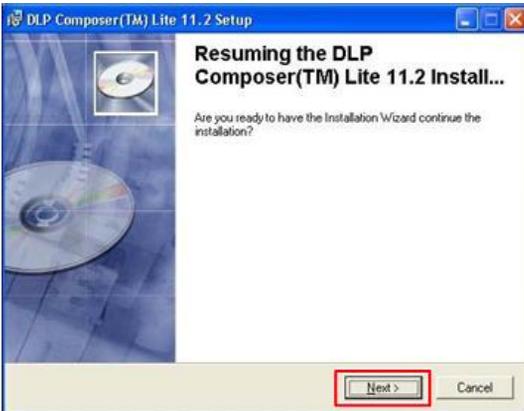
DLP composer lite setup procedure

1. Execute "DLP Composer Lite v * * Setup" Program.



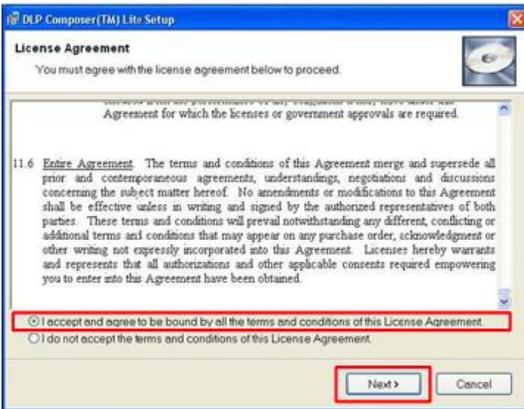
w_y042m0050

2. Click "Next".



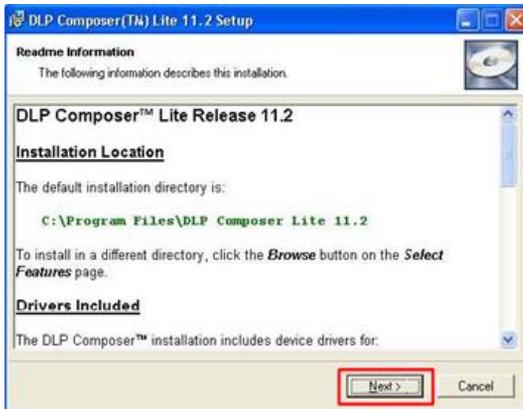
w_y042m0051

3. Read "License Agreement", and then choose "I accept and agree to be bound by all the terms and conditions of this License Agreement" and click "Next".



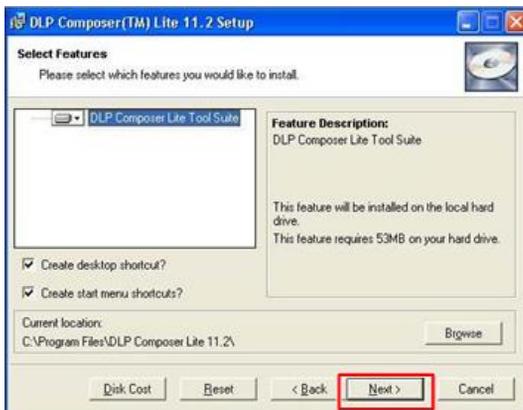
w_y042m0052

4. Click "Next".



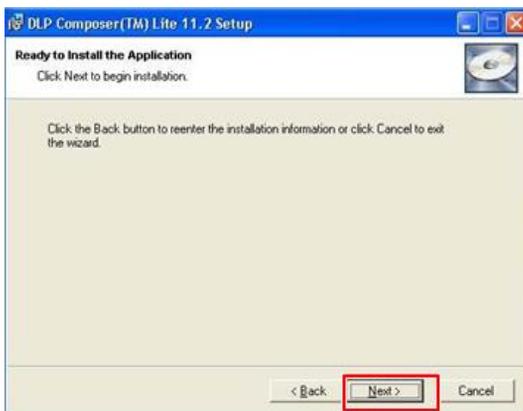
w_y042m0053

5. Click "Next".



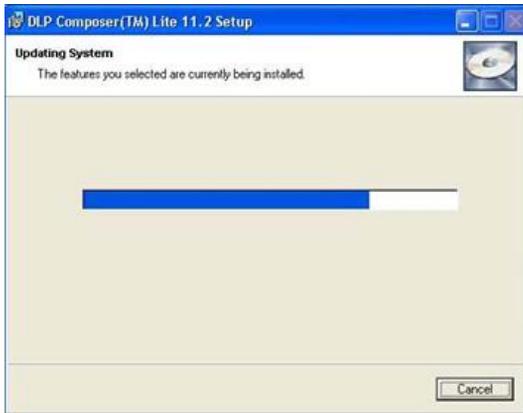
w_y042m0054

6. Click "Next".



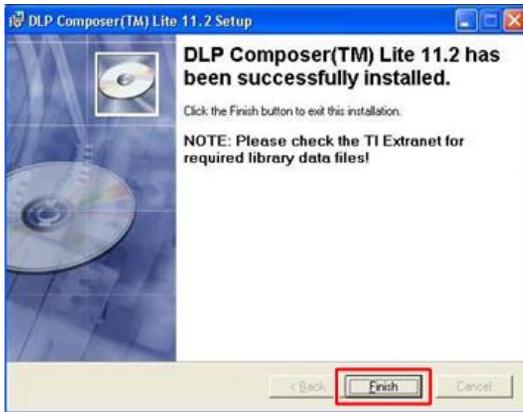
w_y042m0055

The program is executing "installing" status.



w_y042m0056

7. Click "Finish".



w_y042m0057

Get into firmware download mode

Set up the following procedure.

1. Hold on "Power" button and plug in the power cord.

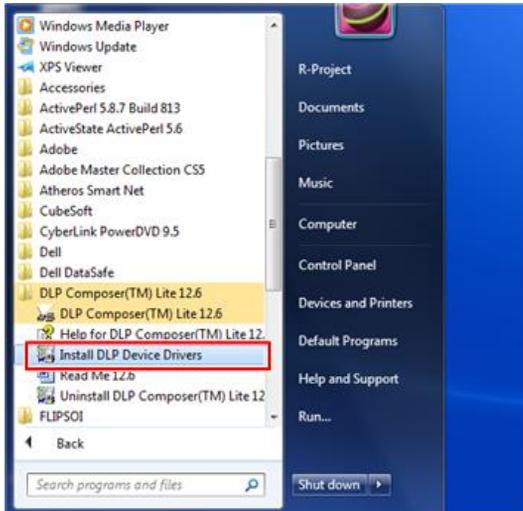
2. After the power LED lights pink, lamp and temp LED light red, then release "Power" button as shown in the photo below.



y042m0058

USB driver update procedure

1. Execute "Install DLP Device Drivers" in start menu.



w_y042m1059

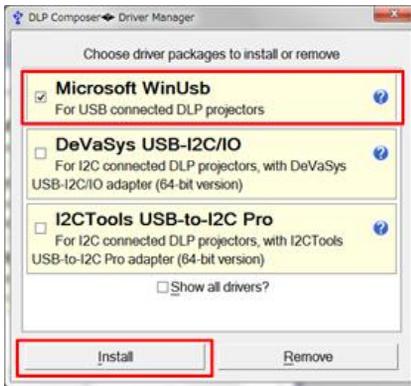
2. Select "Jungo WinDriver (WinVista/Win7), then click "install".



w_y042m1060

Note

- If OS is 64bit, select "Microsoft WinUSB".



w_y042m0174

3. Click "Next".



w_y042m0061

4. Click "Finish".



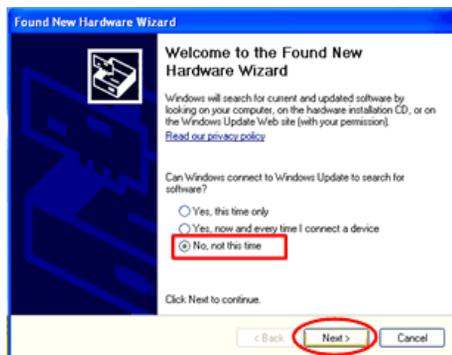
w_y042m0062

Connect the projector to the PC

1. Get into firmware download mode.(page 70 "Get into firmware download mode")
2. Connect the Projector and PC with a mini USB cable.

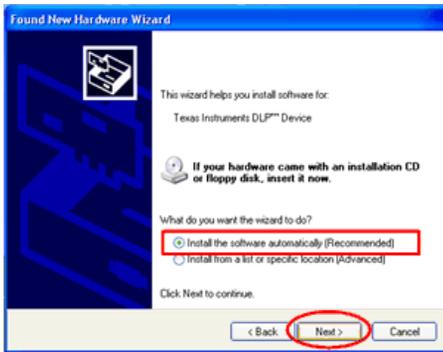
The Found New Hardware Wizard appears.

3. Select "No, not this time", then click "Next".



y0200036

4. Select "Install the software automatically (Recommended)", then click "Next".



y0200037

5. Click "Finish".



y0200038

Firmware update procedure

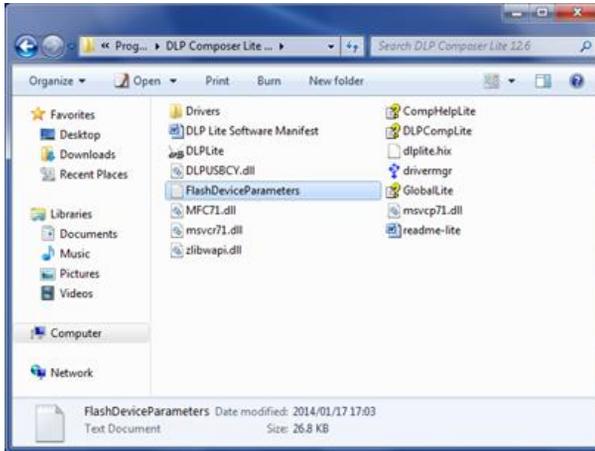
1. Execute the "DLP Composer™ Lite * *" file.



w_y042m0064

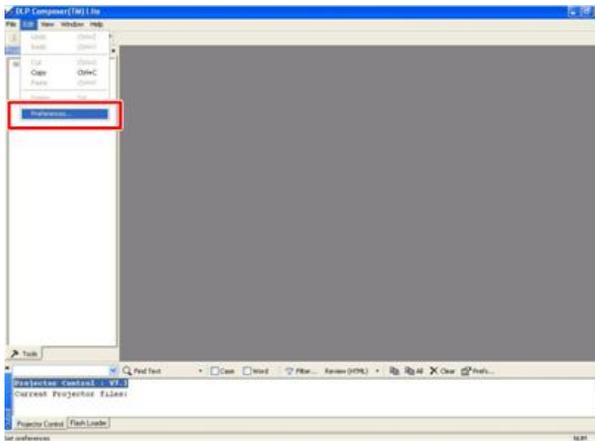
2. Select the file "FlashDeviceParameters".

3. Put "FlashDeviceParameters" file into the folder where you setup "DLP Composer Lite
* * *



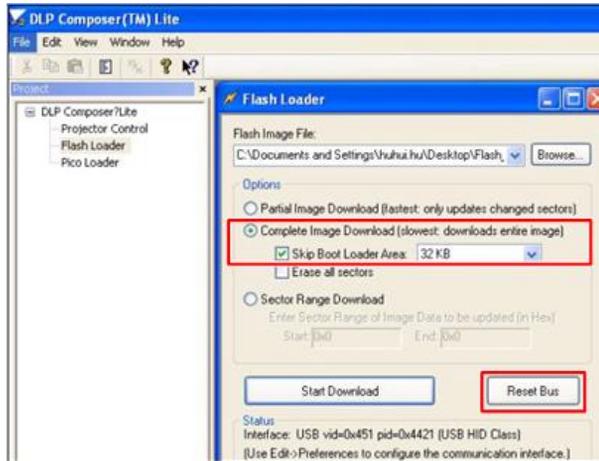
w_y042m1063

4. Click "Edit" and "Preferences".



w_y042m0065

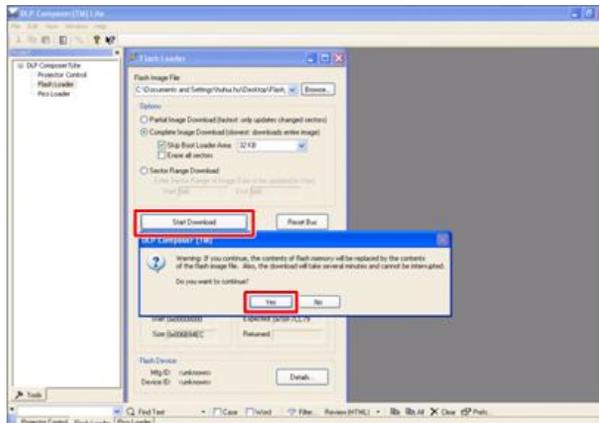
7. Select the item "Skip Boot Loader Area" and select "32KB" then click "Reset Bus" to erase the flash memory.



w_y042m0068

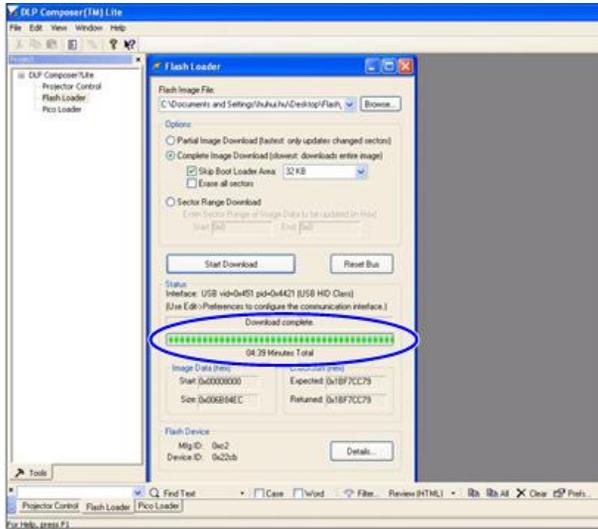
8. If the firmware is ready, click "Start Download" to execute the firmware update.
9. Click "Yes" to erase the flash memory. .

6



w_y042m0069

It takes about several minutes, the firmware update process is finished, "Download completed" will appear on the screen.



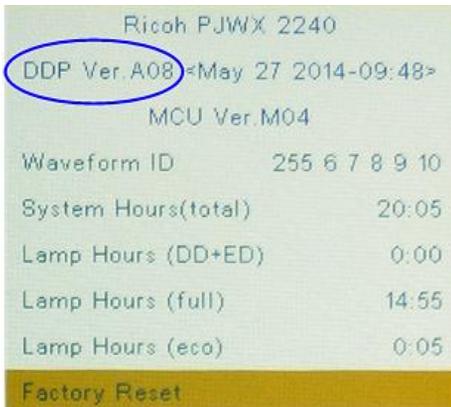
w_y042m0070

10. Unplug USB cable and power cord.

6

Check system firmware version

- 1. Re-plug in power cord, and then restart the projector.
- 2. Get into the Service Mode. (page 53 "How to Enter the Service Mode")
- 3. Check the system firmware version.



w_y042m1071

MEMO

MEMO