Model Mizar-PJ1

Machine Code:

Y058/Y059/Y060/Y061

Y070/Y071/Y072/Y073

Field Service Manual

May, 2015

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.

Symbols, Abbreviations and Trademarks

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

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

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Revision Lists

Revision Lists

Version	Date	Description
V1.10	May, 2015	Y070/Y071/Y072/Y073 models are added

TABLE OF CONTENTS

3. Replacement and Adjustment

4. Troubleshooting

5. Test & Inspection

6. Update

1. Product Information

Overview

Main Unit

Y058/Y059/Y060/Y061/Y070/Y071

y070z0149
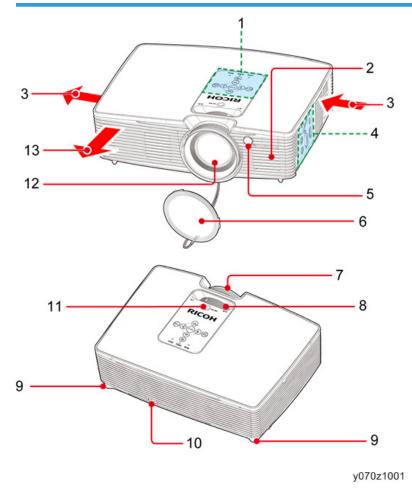
1. Zoom lever

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^{TM} lock)

10. Lens cap

11. Lens

12. Ventilation (outlet)

13. Focus ring

Y072/Y073

y070z1001
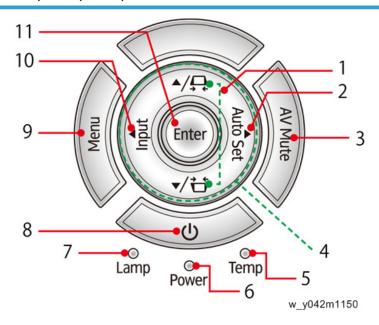
1. Control panel

2. Speaker

1

3. Ventilation (inlet)

4. Connection ports

5. Remote Receiver

6. Lens cap

7. Focus ring

8. Zoom lever

9. Adjustable feet

10. Anti-theft lock hole (Kensington^{TM} lock)

11. Lens Shift

12. Lens

13. Ventilation (outlet)

Control Panel

Y058/Y059/Y060/Y061/Y070/Y071

w_y042m1150
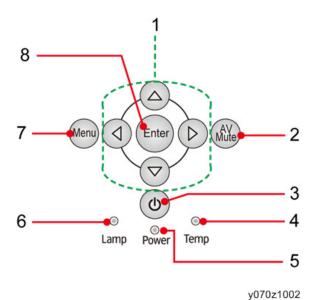
1. Keystone

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

Y072/Y073

y070z1002
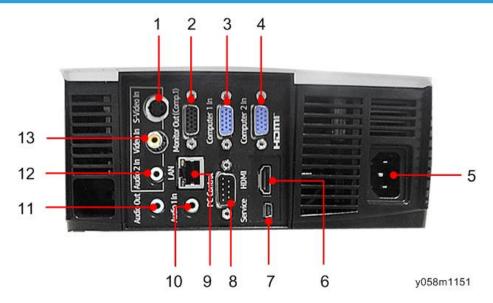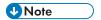
1. Four directional select keys

2. AV mute

3. Power

4. Temp indicator

5. Power indicator

6. Lamp indicator

7. Menu

8. Enter

Connection Ports

Y058/Y059/Y060/Y061

y058m1151
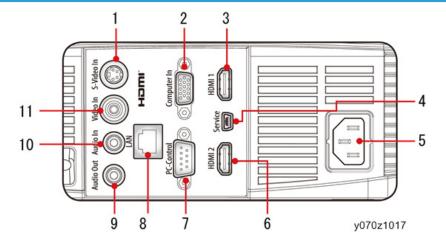
1. S-Video In terminal
2. Monitor Out terminal
3. Computer 1 In terminal
4. Computer 2 In terminal
5. AC In socket
6. HDMI Input terminal
7. Service terminal
8. PC Control terminal
9. LAN terminal
10. Audio 1 In terminal
11. Audio Out terminal
12. Audio 2 In terminal (For Video and S-Video)
13. Video In terminal

⬇ Note

- The interface is subject to model's specifications.
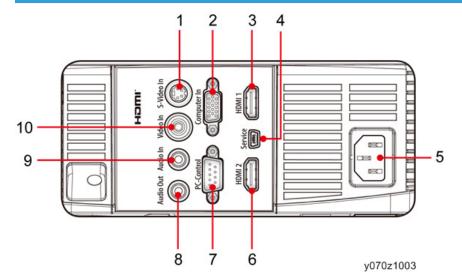
Y070/Y071

1. S-Video In terminal
2. Computer In terminal
3. HDMI 1 Input terminal
4. Service terminal
5. AC In socket
6. HDMI 2 Input terminal
7. PC Control terminal
8. LAN terminal
9. Audio Out terminal
10. Audio In terminal
11. Video In terminal

Y072/Y073

y070z1003

1. S-Video In terminal

2. Computer In terminal

3. HDMI 1 In terminal

4. Service terminal

5. AC In socket

6. HDMI 2 In terminal

7. PC Control terminal

8. Audio Out terminal

9. Audio In terminal

10. Video terminal

Specifications

General Specifications

Item	Description	
	Y058/Y059/Y060/Y061	Y070/Y071/Y072/Y073
Dimension (W x D x H)	• 314.3 x 223.6 x 88.2 mm (without feet) • 314.3 x 223.6 x 101.7 mm (with feet)	• 314.2 x 223.5 x 91.8 mm (without feet) • 314.2 x 223.5 x 105.3 mm (with feet)
Weight	2.5±0.5Kg	Approx. 3.0kg
Power supply	Universal AC: 100V - 240V ± 10%, 50 - 60Hz	

Power consumption	• Bright mode:
	  Typical 330W MAX 363W @110VAC
	  Typical 315W MAX 347W @220VAC
	• ECO mode:
	  Typical 280W MAX 308W @110VAC
	  Typical 265W MAX 292W @220VAC
	  Standby mode < 0.5W @110V/220VAC	

Keystone correction	+/-40 degree	
Throw ratio	X5460: 1.95 - 2.15 WX5460: 1.55 - 1.7 HD5450: 1.5 - 1.8 HD1080: 1.068 - 1.451	
Offset	X5460: 14% WX5460: 12.5% HD5450: 17% HD1080: 2 - 13%	

1

Item	Description	
	Y058/Y059/Y060/Y061	Y070/Y071/Y072/Y073
Projection lens	Manual Zoom: 1.1x Manual Focus	Manual Zoom • Y070/Y071: 1.2x • Y072/Y073: 1.36x Manual Focus

Lamp life	• Bright mode:
	
	  3000 hours Standard @250W,50% survival rate
	
	• ECO mode:
	
	  5000 hours Typical @190W,50% survival rate	

DMD chip & Number of active dots	• 0.55", S450
	
	• Number of active dots:
	  1024 x 768
	
	• 0.65", S450
	
	• Number of active dots:
	  1280 x 800
		• 0.65", S600
		
		• Number of active dots:
		  1920 x 1080

System controller	TI DDP 4422	
Video compatibility	• 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)	
Aspect ratio	• 4:3, 16:9, LBX, Native, Auto • 4:3, 16:9 or 16:10,LBX, Native, Auto	

Item	Description	
	Y058/Y059/Y060/Y061	Y070/Y071/Y072/Y073
Input signal spec	- VGA-in x2 - HDMI V1.4 x 1 - Video x1 - Audio In (3.5mm jack, female) x 2 - RS232C male(9pin) x1 - RJ45 x1 - USB, Type B (mini) x1	**Y070/Y071** - D-Sub 15-pin (female) x 1 - Mini DIN 4-pin (S-Video) x1 - RCA Jack (Video In) x1 - D-SUB 9pin RS-232 (male) x1 - RJ45 (LAN Port) x 1 - Audio In (3.5mm phone jack) x1 - Audio Out (3.5mm phone jack) x1 - HDMI V1.4 x2 - USB, Type-B (mini) x1 **Y072/Y073** - D-Sub 15-pin (female) x1 - Mini DIN 4-pin (S-Video) x1 - RCA Jack (Video In) x1 - D-SUB 9pin RS-232 (male) x1 - Audio In (3.5mm phone jack) x1 - Audio Out (3.5mm phone jack) x1 - HDMI V1.4 x2 - USB, Type-B (mini) x1
Temperature	- Operating: 5°C to 40 °C - Non-operation: -10°C to 60°C	Operational Temperatures: 5° to 40°C Storage Temperatures: -20° to 60°C (noncondensing)
Altitude & Temperature	Operating: 0 to 2,500 ft, 5°C to 40°C 2,500 to 5,000 ft, 5°C to 35°C 5,000 to 10,000 ft, 5°C to 30°C	

Compatible Mode

Compatibility	Resolution	Refresh Rate [KHz]
VGA	640 x 480	60
		67
		72
		85
SVGA	800 x 600	56
		60
		72
		75
		85
		120
XGA	1024 x 768	60
		70
		75
		85
		120
HDTV(720p)	1280 x 720	50
		60
		120
WXGA	1280 x 768	60
		75
		85
	1280 x 800	60
	1366 x 768	60

Compatibility	Resolution	Refresh Rate [KHz]
SXGA	1280 x 1024	60
		75
		85
SXGA+	1400 x 1050	60
UXGA	1600 x 1200	60
HDTV(1080p)	1920 x 1080	24
		50
		60
WUXGA	1920 x 1200	60

↓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

Operating temperature

    5°C to 40°C / 41°F to 104°F

Power supply

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

Machine Dimensions

Y058/Y059/Y060/Y061

- 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)

Y070/Y081/Y072/Y073
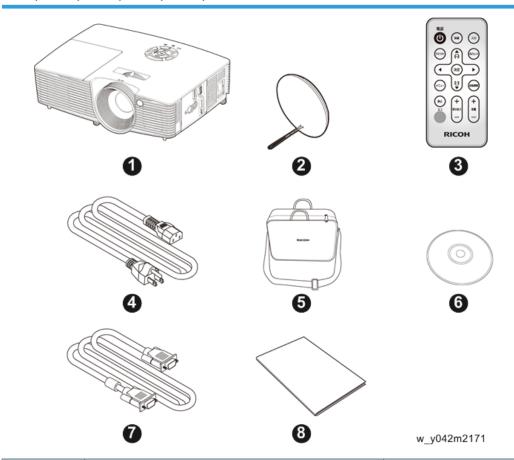
- With feet: 314.2 x 223.5 x 105.3 mm (W x D x H)
- Without feet: 314.2 x 223.5 x 91.8 mm (W x D x H)

Main Machine Installation

The user must set this projector up.

Accessory Check

Y058/Y059/Y060/Y061/Y070/Y071

w_y042m2171
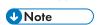
No	Description	Q'ty
1	Projector	1
2	Lens Cap	1
3	Remote Control	1
4	Power Cord	1
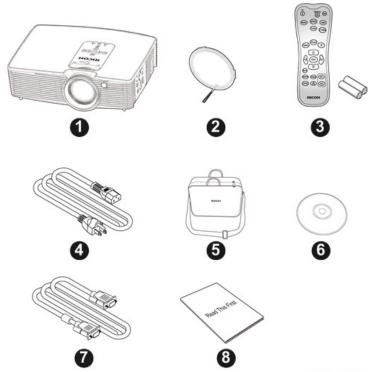
No	Description	Q'ty
5	Carrying Bag	1
6	CD (*)	1
7	RGB Cable	1
8	Read This First	1

(*) 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.

Y072/Y073

y070z1004

No	Description	Q'ty
1	Projector	1
2	Lens Cap	1

No	Description	Q'ty
3	Remote Control (with Batteries)	1
4	Power Cord	1
5	Carrying Bag	1
6	CD-ROM (*)	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.

2

⚠️**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 M4×16 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 56 "Optical engine / Main board assembly").

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

3

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. Projector

y058m2007

Parts List

Service Parts List
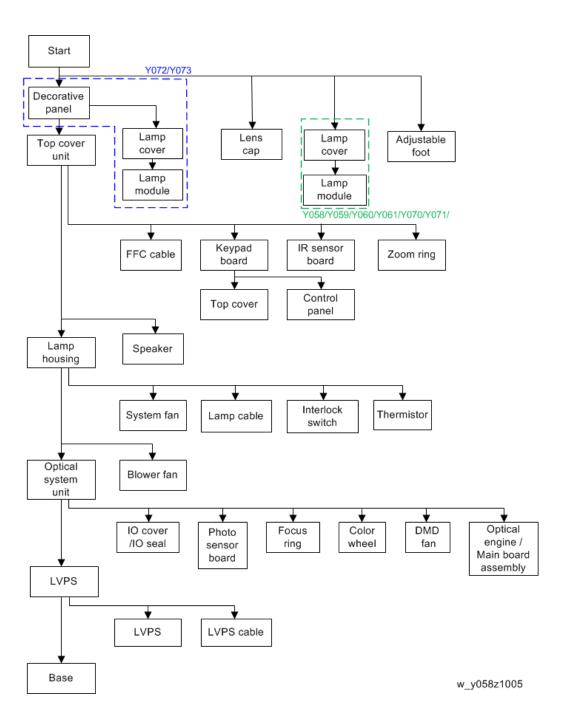
- Lens cap
- Decorative panel
- Lamp cover
- Lamp module
- Keypad board
- IR sensor board
- FFC cable
- Zoom ring
- Control panel
- Control panel (Enter key)
- Top cover
- Speaker
- Thermistor
- System fan
- Lamp cable
- Interlock switch
- Blower fan
- I/O cover
- I/O seal
- Photo sensor board
- Focus ring
- Color wheel
- DMD fan
- Optical engine / Main board assembly (without I/O cover, I/O seal, Focus ring, Photo sensor board, Color wheel, DMD fan, Heat sink)
- LVPS
- LVPS cable x2
- 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.

3

Start

Y072/Y073

Decorative panel

Top cover unit

Lamp cover

Lamp module

Lens cap

Lamp cover

Lamp module

Adjustable foot

Y058/Y059/Y060/Y061/Y070/Y071/

FFC cable

Keypad board

IR sensor board

Zoom ring

Top cover

Control panel

Lamp housing

Speaker

System fan

Lamp cable

Interlock switch

Thermistor

Optical system unit

Blower fan

IO cover /IO seal

Photo sensor board

Focus ring

Color wheel

DMD fan

Optical engine / Main board assembly

LVPS

LVPS

LVPS cable

Base

w_y058z1005

Part Replacement

⭐**Important**

- This process is protective level II. Operators should wear electrostatic chains.
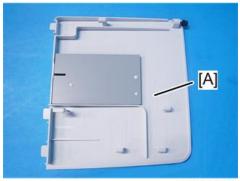
Lamp Cover / Lamp Module

Y058/Y059/Y060/Y061/Y070/Y071

1. Loosen the 1 screw, and then remove the lamp cover [A] (🔩x1).

y058m1008

y058m0154

2. Loosen the 1 screw and unplug the 1 connector, then take off the lamp module [A] (🔩x1, 🔌x1).
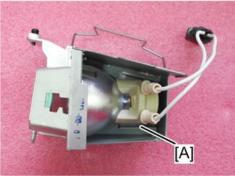
y042m1009

Y072/Y073

1. Slide and remove the decorative panel [A].

y070z1006

2. **Loosen the 1 screw, and then remove the lamp cover [A] (🔩x1).**

y070z1007

3. **Loosen the 1 screw and unplug the 1 connector, then take off the lamp module [A] (🔩x1, 🔌x1).**
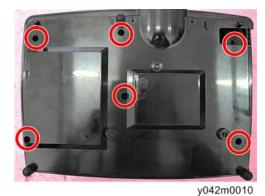
y070z1008
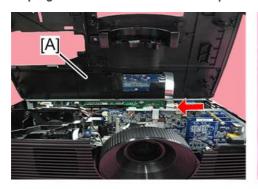
Top Cover Unit

Top cover unit

1. **Remove the 6 screws from the bottom (⌕x6).**

y042m0010

2. **Unplug FFC cable and remove the top cover [A] (⬗x1).**

[A]

[A]

y042m0011

⬇Note
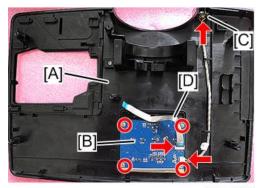
- For Y058/Y059/Y060/Y061/Y070/Y071 models, align the dent part of the zoom ring with the tab part on the optical engine side when attaching the top cover.
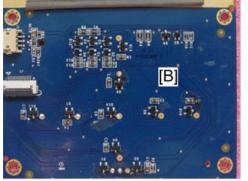
y042m0170
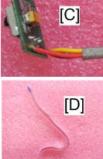
Keypad board / IR sensor board

1. Top cover unit (**page 38 "Top cover unit"**)

2. Separate the keypad board [B] and IR sensor board [C] and FFC cable [D] from the top cover [A] (⊘x4, ⊶x2, ⊷x1).

y042m0012

y042m0013

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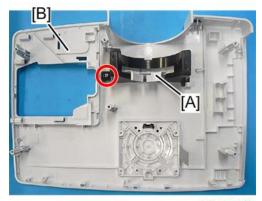
- When removing the IR sensor board, unfasten the 3 tenons.

Zoom ring (Y058/Y059/Y060/Y061/Y070/Y071)
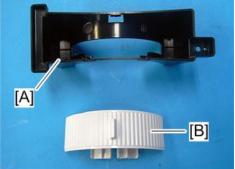
1. **Top cover unit (page 38 "Top cover unit")**

2. **Remove the zoom ring [A] from the top cover [B] (🔩x1).**

y042m1014

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

y042m1015
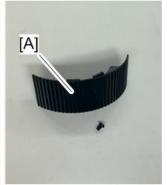
Zoom ring (Y072/Y073)

1. **Top cover unit (page 38 "Top cover unit")**

2. **Zoom Ring [A].**
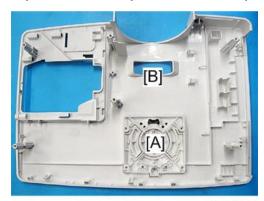
y070z1016
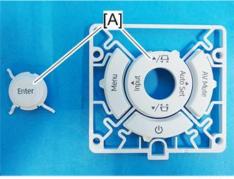
Control panel / Top cover

1. **Keypad board / IR sensor board (page 39 "Keypad board / IR sensor board")**

2. **Separate the control panel [A] and the top cover [B].**
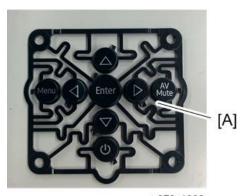
y042m0157

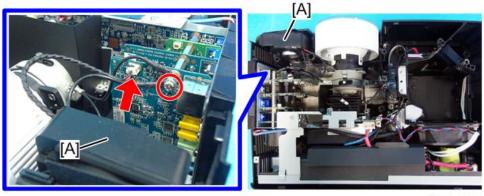**Y058/Y059/Y060/Y061/Y070/Y071**

y070z1010

Y072/Y073

y070z1009

Speaker

1. **Top cover unit (page 38 "Top cover unit")**
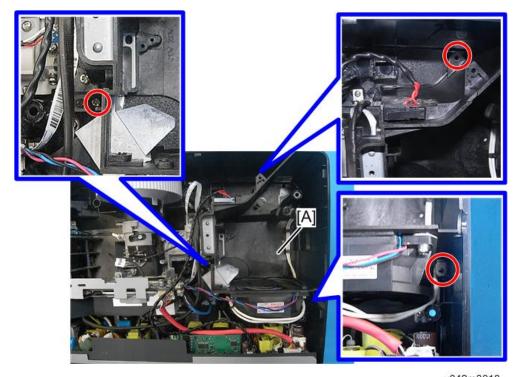
2. Speaker [A] (🔩x1, 🔌x1).

y058m0016

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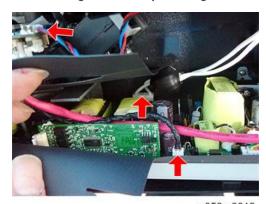

y058m0017

Lamp Housing

Lamp housing

1. Lamp Cover / Lamp Module (**page 35 "Lamp Cover / Lamp Module"**)

2. **Remove the screws on the lamp housing [A] (🔩x3).**
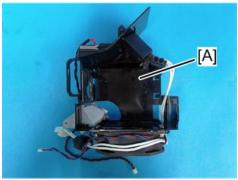

y042m3018

3. **While taking out the lamp housing, remove the connector (🔌x4).**
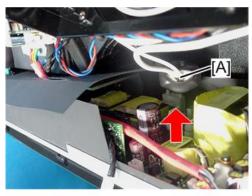

y058m3019

y070z1014

y058m2018

↓Note

- Connecting the lamp cable [A] to the LVPS in advance makes it easier to attach the lamp housing.
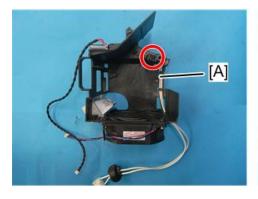

y058m0159

System fan / Interlock switch

1. **Lamp housing (page 43 "Lamp housing")**

3

2. Separate the lamp cable [A] (🔩x1).

y042m1019

3. Separate the system fan [A] (🔩x4).

y042m1020

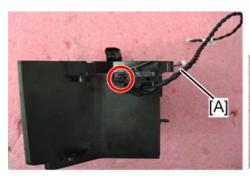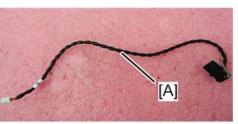**⬇Note**

• Take the fan module as the right gesture.

Correct   Incorrect
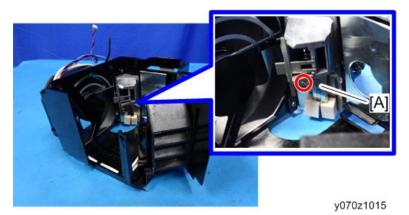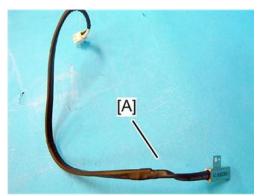

w_y042m0021

4. Separate the interlock switch [A] (🔩x1).

y042m0022

Thermistor

1. Top cover unit (**page 38 "Top cover unit"**)

2. Lamp housing (**page 43 "Lamp housing"**)

3. Thermistor [A] (🔩x1)
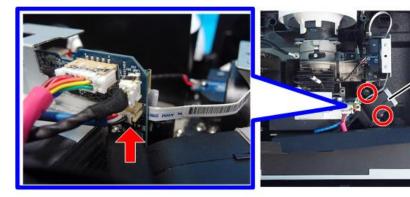

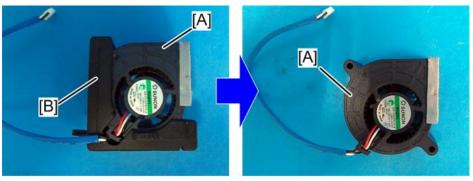y070z1015

y042m2223

Blower Fan

1. Lamp housing (**page 43 "Lamp housing"**)

2. Blower Fan [A] (🔩x2, 🔌x1)

y058m0165

3. Separate the blower fan [A] from the blower holder [B].
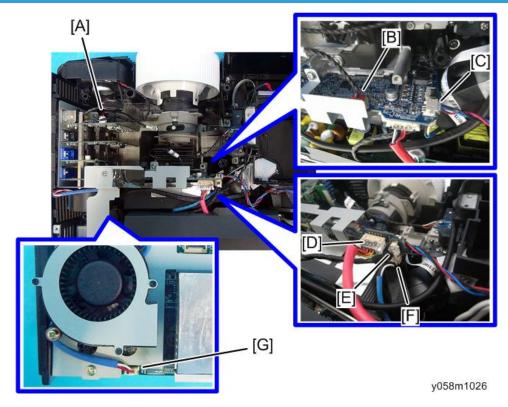

y058m5001

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 74 "Re-write Lamp Hours")

Connector list

y058m1026

Refer to the table as below for details of each connector.
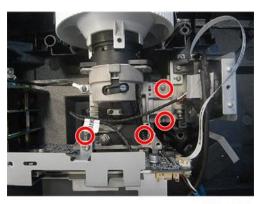
Item	Male Connector on Main Board	Key Feature	Figure
A	Speaker	Red/Black wire (2 pin)	
B*	Photo sensor	Red/Black/White wire, red connector (3 pin)	
C*	System fan	Red/Blue/Black wire (3 pin)	
D	LVPS A	Red wire tube (10 pin)	
E	LVPS B	Black wire tube (5 pin)	

Item	Male Connector on Main Board	Key Feature	Figure
F*	Blower fan	Red/White/Black wire, with blue wire tube (3 pin)	
G	DMD fan	Red/White/Black wire, with blue wire tube (3 pin)	

*Be careful not to connect the connectors B, C, and F to the wrong position because they are the same in the pin shape which is 3-pin.
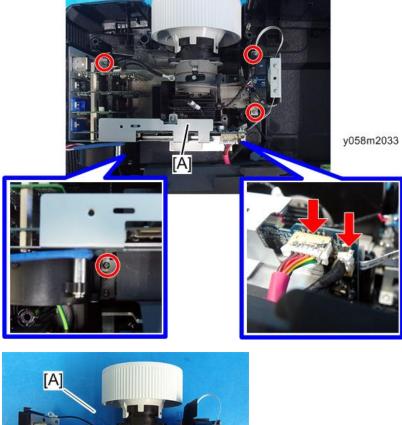
Optical system unit

1. **Speaker (page 42 "Speaker")**
2. **Blower Fan (page 48 "Blower Fan")**
3. **Remove the 4 screws(🔩x4).**
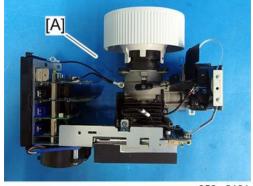

y042m1032

4. **Remove the optical system unit [A] (🔩x4, 🔌x2).**

y058m2033

[A]

[A]

y058m2161

IO cover / IO seal (Y058/Y059/Y060/Y061)

1. **Optical system unit (page 50 "Optical system unit")**

2. **IO Cover (with IO Seal) [A] (hex screw x8)**

y058m1046

IO cover / IO seal (Y070/Y071/Y072/Y073)

1. Optical system unit (**page 50 "Optical system unit"**)
2. **IO Cover (with IO Seal) [A] (hex screw x4)**
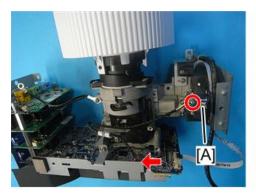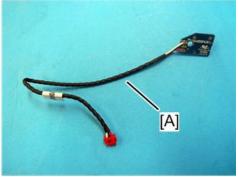
y070z1011

Photo sensor board

1. Optical system unit (**page 50 "Optical system unit"**)

2. **Photo Sensor Board [A] (🔩x1, 🔌x1)**

y042m1034

Focus ring (Y058/Y059/Y060/Y061/Y070/Y071)

1. Optical system unit (**page 50 "Optical system unit"**)
2. Remove the 1 screw and unfasten the 2 tenons, then push out the focus ring [A] (🔩x1).
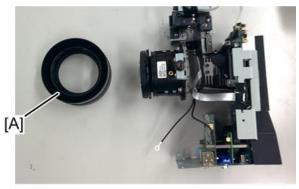
y042m1035

Focus ring (Y072/Y073)

1. Optical system unit (**page 50 "Optical system unit"**)

2. **Rotate and remove the focus ring [A].**
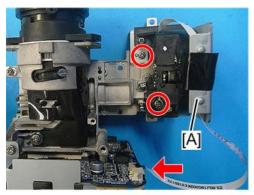
y070z1013

Color wheel
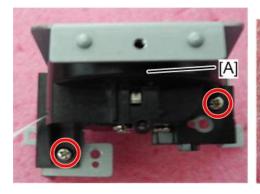
1. **Photo sensor board (page 52 "Photo sensor board")**

2. **Remove the color wheel module and color wheel holder [A] (🔩x2, ⬦x1).**
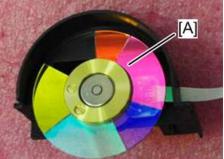
y042m2044

3. **Color Wheel [A] (🔩x2)**

y042m0045

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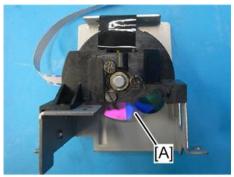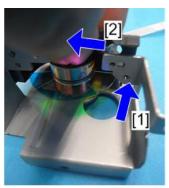
- Make sure that the color wheel [A] does not touch the color wheel holder when removing the color wheel [A].

y042m0175

- It is recommended to slide and remove the color wheel as shown by arrows in the following figure.
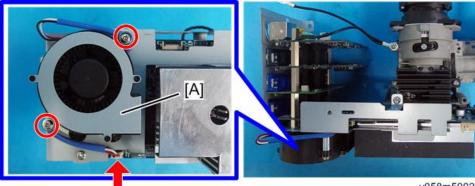
y042m0176

DMD fan (Y058/Y059/Y060/Y061/Y070/Y071)
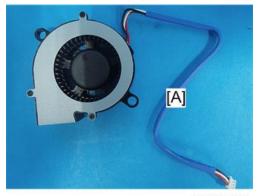
1. **Optical system unit (page 50 "Optical system unit")**

2. **DMD Fan [A] (🔩x2, 🔌x1)**

y058m5002
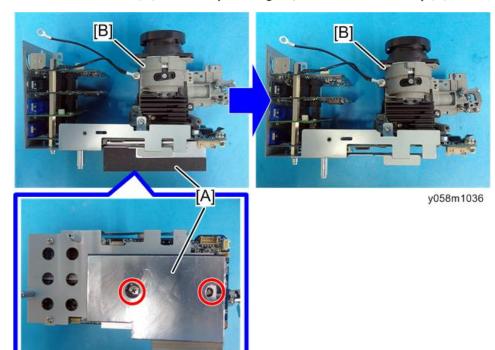
y058m5003

Optical engine / Main board assembly

1. **IO cover / IO seal (page 51 "IO cover / IO seal (Y058/Y059/Y060/Y061)")**

2. **Focus ring (page 53 "Focus ring (Y058/Y059/Y060/Y061/Y070/Y071)")**

3. **Color wheel (page 54 "Color wheel")**

4. **DMD fan (page 55 "DMD fan (Y058/Y059/Y060/Y061/Y070/Y071)")**
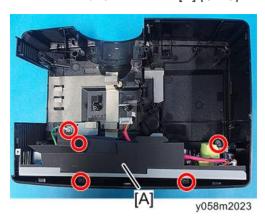
5. Remove the heat sink [A] from the optical engine / main board assembly [B] (🔩x2).

y058m1036

LVPS

1. Optical system unit (**page 50 "Optical system unit"**)
2. Remove the LVPS and holder [A] (🔩x5).

y058m2023
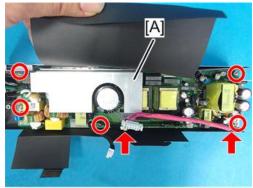
3. Remove the 2 screws(⌘x2).
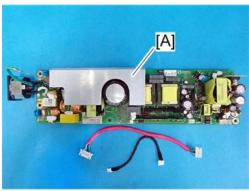
y042m0160

4. Separate the LVPS [A] (⌘x5, ⌸x2).

y058m1024

y058m1025

Base / Adjustable Foot
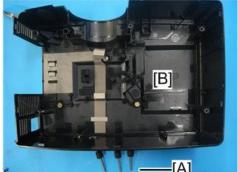
1. LVPS (page 57 "LVPS")
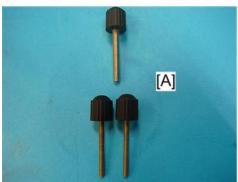
2. **Remove the 3 adjustable feet [A] from the base unit [B].**

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
	Optical engine / Main board assembly	Lamp module	Blower fan	Color wheel	LVPS	After firmware update	
Firmware update	v					-	Chapter 6. (page 81 "Update")
Color wheel index	v			v			Chapter 5. (page 77 "Color Wheel Index")
OSD reset	v	v				v	Chapter 5. (page 79 "OSD Reset")
Re-write lamp usage hours	v						Chapter 5. (page 74 "Re-write Lamp Hours")
Fan calibration	v		v		v	v	Chapter 5. (page 73 "Waveform Download and 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 77 "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	-	-
Power on & lamp lighting	-	Steady light	-	-
Power off (Cooling down)	Flashing	-	-	-
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	-
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

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

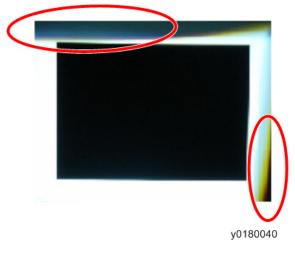(*1) Return to steady lights when the cooling fan is turned off.

4

Main Procedures

No.	Symptom	Procedure
1	No power	• Ensure the power cord and AC power outlet are securely connected • Ensure all connectors are securely connected and aren't broken • Check LVPS • Check Optical engine / Main board assembly
2	Auto shutdown	• 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) • Check Lamp RTB 2: Corrected • Check LVPS • Check Optical engine / Main board assembly b. Fan failed: Power LED (flashes red), Temp LED (flashes red) • Check whether have execute "Fan Calibration" (page 73 "Waveform Download and Fan Calibration") • Check System fan, Blower fan, and DMD fan • Check Optical engine / Main board assembly • Check Color wheel module • Check Photo sensor board c. Over Temp: Power LED (flashes red), Temp LED (light on red) • Check System fan, Blower fan, and DMD fan • Check Optical engine / Main board assembly
3	No light on	• Ensure all connectors are securely connected and aren't broken • Check Lamp cover, Interlock switch • Check Lamp module • Check LVPS • Check Optical engine / Main board assembly • Check Color wheel • Check Photo sensor board

No.	Symptom	Procedure
4	No image	• 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 Optical engine / Main board assembly • Check Color wheel
5	Mechanical noise	• Check Color wheel • Check System fan, Blower fan, and DMD fan
6	Line bar/Line defect	• Check if Optical engine / Main board assembly is assembled properly • Check Optical engine / Main board assembly
7	Image flicker	• Do "Reset " of the OSD menu (page 79 "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 Optical engine / Main board assembly
8	Color abnormal	• Do "Reset" of the OSD Menu (page 79 "OSD Reset") • Adjust "Color Wheel Index" (page 79 "OSD Reset") • Check Optical engine / Main board assembly • Check Color wheel
9	Poor uniformity/ Shadow	• Ensure the projection screen without dirt • Ensure the projection lens is clean • Ensure the brightness is within spec • Check rod alignment • Check Optical engine / Main board assembly
10	Dead pixel/Dust (Out of spec.)	• Ensure the projection screen without dirt • Ensure the projection lens is clean • Clean Optical engine / Main board assembly • Check Optical engine / Main board assembly

4

No.	Symptom	Procedure
11	Garbage image	• Ensure that the signal cables and source work as well • Check Optical engine / Main board assembly
12	Remote controller failed	• Remote controller a. Check Battery b. Check Remote controller c. Check IR sensor board d. Check Optical engine / Main board assembly
13	Function abnormal	• Do "Reset" of the OSD Menu (page 79 "OSD Reset") • Check Optical engine / Main board assembly
14	Audio abnormal	• Ensure that the signal cables and source are work as well • Ensure that your projector is not in "Mute" mode • Check Optical engine / Main board assembly • Check Speaker
15	3D image abnormal	• 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 Optical engine / Main board assembly

4

Rod Adjustment

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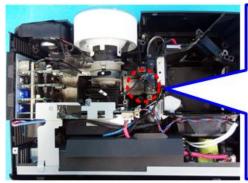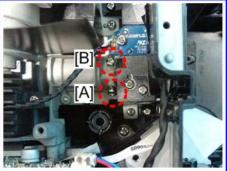

y0180040

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.
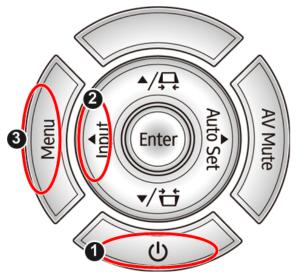
y058m1048

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 firmware 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 77 "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	DFU
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 77 "Color Wheel Index")
Spoke On	DFU
Test Pattern	DFU
Waveform Index	DFU
Sequence Group	DFU
Gamma	DFU
Lamp Power Gain	DFU
Lamp Power Mode	DFU

Other Settings

Setting Item	Description
System Hours (total)	Use this to change operating hours of the projector. (page 74 "Re-write Lamp Hours")
Lamp Hours (DD+ED)	Use this to change the working hours of the projector in DD + ED. (page 74 "Re-write Lamp Hours")
Lamp Hours (full)	Use this to change the working hours of the projector in full mode. (page 74 "Re-write Lamp Hours")
Lamp Hours (eco)	Use this to change the working hours of the projector in eco mode. (page 74 "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.
EQ 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
Factory Blower RPM	Read only
Lamp Blower Fan Volt (1/10)	Read only

Setting Item	Description
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

EQ Settings

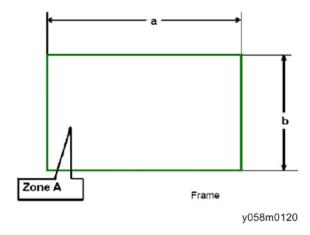| Setting Item	Description
Set EQ Value	DFU
Get EQ Value	Read only
EQ_Red	Read only
EQ_Green	Read only
EQ_Blue	Read only

5

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.
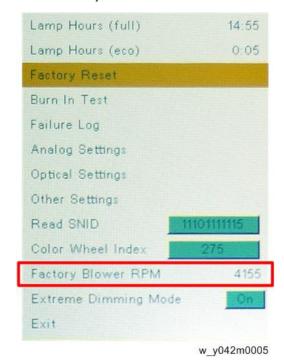- Screen size: 60 inches diagonal.

Zone Definition

y058m0120

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

Calibration

Waveform Download and Fan Calibration

After replacing LVPS, 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 blue, release the "Power" key.**

3. **When the "Power LED" flashes red, press the "Power" key.**

   The projector will run and finish fan calibration and waveform download automatically.

4. **After several minutes, the projector power will turn on automatically and the fan Information will appear on the screen, the fan calibration and auto waveform is finished.**

5. **Get into service mode.(page 67 "How to Enter the Service Mode")**

6. **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 4000-4800.

Re-write Lamp Hours

After replacing the optical engine/main board assembly, you must rewrite the lamp hours.
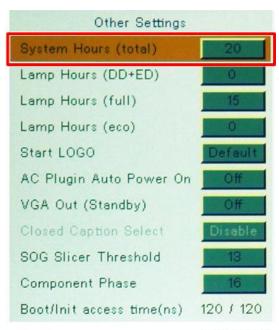
Write down the lamp hours before the replacement and put back the same value after replacing the board.

1. **Get into service mode. (page 67 "How to Enter the Service Mode")**
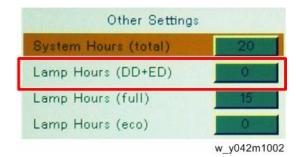2. **Select "Other Settings", and then press the "Enter" key.**

w_y042m1000

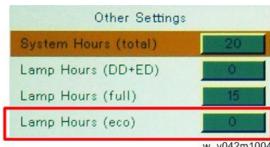3. **Select "System Hours (total)", then use the "Left" or "Right" keys to re-write the System Hours.**

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.**

w_y042m1003

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

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 67 "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.**

Lamp Hours (full)	15:20
Lamp Hours (eco)	0:05
Factory Reset	
Burn In Test	
Failure Log	
Analog Settings	
Optical Settings	
Other Settings	
Read SNID	11101111115
Color Wheel Index	275
Factory Blower RPM	4155
Extreme Dimming Mode	On
Exit	

w_y042m00169

y058m5004

↓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

5

Test Inspection Procedure
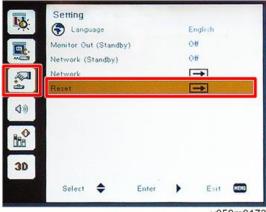
Check points

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

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.**

y058m0173

5

6. Update

Firmware Update

Equipment Needed

Software

- DLP Composer Lite
- Firmware (*.img)
- HD26FlashDeviceParameters

  ⬇ Note

  - Download "DLP Composer Lite" and "HD26FlashDeviceParameters" from website to update FW procedure.

Hardware

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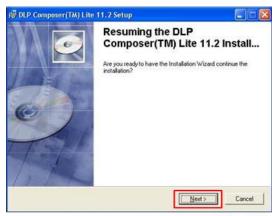2. Power cord
3. USB Cable mini USB to USB (A)
4. PC / Laptop

y058m1049

Firmware Update Procedure

DLP composer lite setup procedure
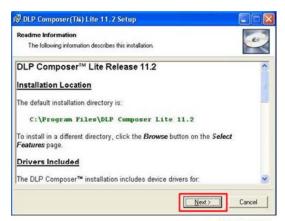
1. **Execute "DLP Composer Lite v** Setup" Program.**

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".**
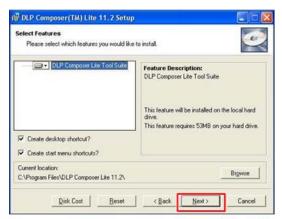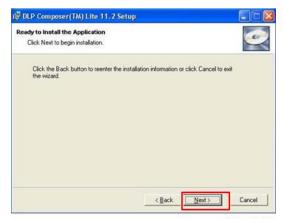

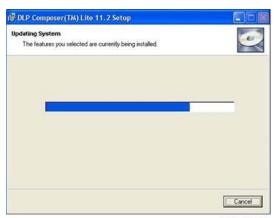w_y042m0052

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.

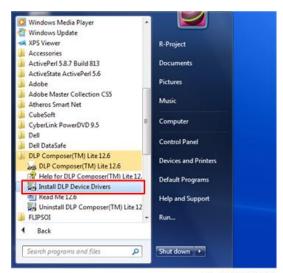1. While holding down the "Power" key, plug in the power cord.

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

y058m0058

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".**
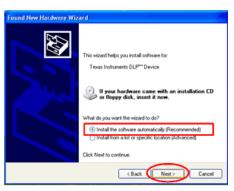

w_y042m0061

4. Click "Finish".

w_y042m0062

Connect the projector to the PC

1. **Get into firmware download mode.(page 84 "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
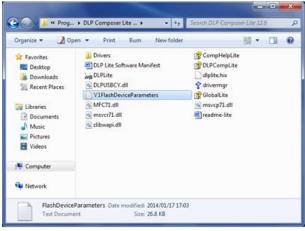
5. **Click "Finish".**

y0200038

Firmware update procedure

1. **Execute the "DLP Composer^{TM} Lite **" file.**
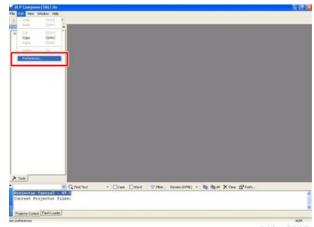

w_y042m0064

2. **Select the file "V1FlashDeviceParameters".**

3. **Put "V1FlashDeviceParameters" file into the folder where you setup "DLP Composer Lite ＊＊".**
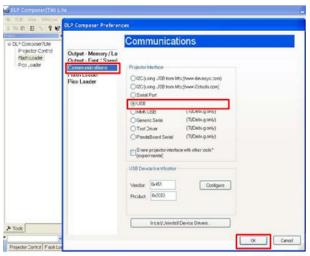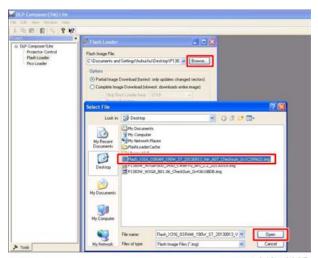

y058m1063

4. **Click "Edit" and "Preferences".**

w_y042m0065

5. **Click "Communications" and select "USB" then click "OK".**
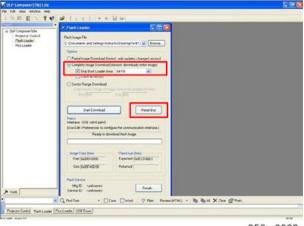

w_y042m0066

6. **Choose "Flash Loader" and click "Browse" to search the firmware file (*.img) and click "Open".**
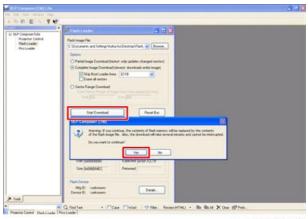

w_y042m0067

7. **Select the item "Skip Boot Loader Area" and select "64KB" then click "Reset Bus" to erase the flash memory.**

y058m0068

8. **If the firmware is ready, click "Start Download" to execute the firmware update.**

9. **Click "Yes" to erase the flash memory. .**

w_y042m0069

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

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w_y042m0070

10. Unplug USB cable and power cord.

Check system firmware version

1. Re-plug in power cord, and then restart the projector.

2. Get into the Service Mode. (page 67 "How to Enter the Service Mode")

3. Check the system firmware version.

y058m1071

Network Firmware Update

Equipment Needed

Software

- ***_Network firmware_***.bin (*.bin)

  Note

  - Updating Network firmware, use the version of IE7.0 or higher.

Hardware

1. Projector
2. Power cord
3. LAN Cable
4. PC / Laptop

y058m5015

Network Firmware Update Procedure

Confirm the projector IP

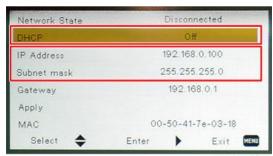1. Plug the power cord and LAN cable into the projector.

y058m5012

2. Turn on the projector, then press "Menu" key to get into OSD menu.

3. Use the down key to select "Setting".

y058m5013

4. Select "Network", and then press the "Enter" key.

5. **Make sure that "DHCP" is "Off".**

y058m5014

6. **Write down the IP address and subnet mask: 192.168.0.100 and 255.255.255.0, in this example.**

PC network setting

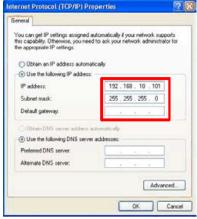1. **Double click "Local area connection", then choose "Properties".**

w_y041m0034

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2. **Select "Internet protocol (TCP/IP)", and then click "Properties".**

w_y041m0035

3. **Modify the IP address to 192.168.0.101, and modify the subnet mask to 255.255.255.0.**

w_y041m0036

The subnet mask of the PC must be the same as the projector.

The HOST ID or IP address (192.168.0.XXX) of the PC must be different from the projector IP address written down earlier.
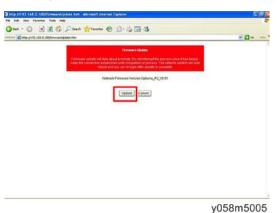
4. **Click "OK".**

5. **Click "Close" to quit the setting screen.**

Network firmware update procedure

1. **Execute "Internet Explorer".**

2. **Visit "http:// 192.168.0.100/firmwareUpdate.htm".**

3. Click "Update".
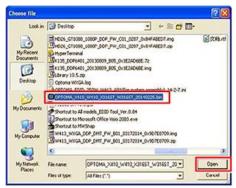

y058m5005

4. Click "Browse".

y058m5006

5. Select the network firmware file (*.bin) which you saved, and then click "Open".

y058m5007

6. **Click "Update" to start updating.**

y058m5008

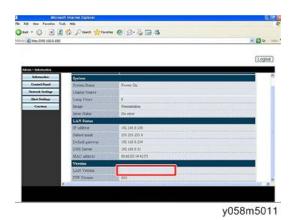The following appears when the firmware update procedure is complete.

y058m5009

7. **Click "Re Login".**

8. **Enter "admin" for password.**

y058m5010

The projector network firmware version will appear.

y058m5011

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MEMO