Model Sirius-PJ1

Machine Codes:
Y013/Y014

Field Service Manual

12 January, 2012

Important Safety Notices

⚠CAUTION

- RISK OF ELECTRIC SHOCK DO NOT OPEN
- TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

	This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside of this unit.
	This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

⚠WARNING

- HEAT SINK MAY BE ENERGIZED. TEST BEFORE TOUCHING.
- The heat sink located on the power board is electrified. A ⚠ mark is attached to the primary heat sink. Pay attention to this area.

During servicing carefully observe the following.

1. OBSERVE ALL PRECAUTIONS

   Items and locations that require special care during servicing, such as the cabinet, chassis, and parts are labelled with individual safety instructions. Carefully comply with these instructions and all precautions in the instruction manual.

2. BE CAREFUL OF ELECTRIC SHOCK

   The chassis carries an AC voltage. If you touch the chassis while it is still live, you will get a severe shock. If you think the chassis is live, use an isolating transformer or gloves, or pull out the plug before replacing any parts.

3. USE SPECIFIED PARTS

   The components have been chosen for minimum flammability and for specific levels of resistance value and ability to withstand voltage. Replacement parts must match these original specifications. Parts whose specifications are particularly vital to safe use and maintenance of the set are marked ⚠ on the circuit diagrams and parts list.

   Substitution of these parts can be dangerous for you and the customer, so use only specified parts.

4. REMOUNT ALL PARTS AND RECONNECT ALL WIRES AS ORIGINALLY INSTALLED

   For safety, insulating tape and tubes are used throughout, but some lift-off parts on the printed wiring board require special attention.

All wires are positioned away from high-temperature and high-voltage parts, and, if removed for servicing, they must be retuned precisely to their original positions.

5. LAMP

   Be very careful of the lamp because it generates high heat while it is used at high voltage. When replacing the bulb, make sure it is cool enough.

6. LENS

   Do not look into the lens during projection. This is important to avoid damage to the eyes.

7. SERVICING

   At the time of repair or inspection services, use an earth band (wrist band), without fail.

8. RUN A COMPLETE SAFETY CHECK AT THE COMPLETION OF SERVICING

   After completion of servicing, confirm that all screws, parts, and wiring, removed or disconnected for servicing, have been returned to their original positions. Also examine if the serviced sections and peripheral areas have suffered from any damage as a result of servicing. In addition, check the insulation between external metallic parts and the blades of wall outlet plugs. This examination is indispensable in confirming complete establishment of safety.

   Insulation check:

   Pull out the plug from the wall outlet to disconnect the connection cable. Then turn on the POWER switch. Use a 500V ohmmeter (Note 2) and make sure that the insulation resistance is 1MΩ or more between each terminal of the plug and exposed external metal (Note 1). If the measured value is below the specified level, then it is necessary to inspect and fix the machine.

   Note 1: Exposed external metal....RGB input terminals, control terminals, etc.

   Note 2: If a 500V ohmmeter is not available for an unavoidable reason, then use a circuit tester or the like for inspection.

Symbols and Trademarks

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

	See or Refer to
	Screw
	Connector

Trademarks

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Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

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4. System Maintenance

5. Troubleshooting

1. Product Information

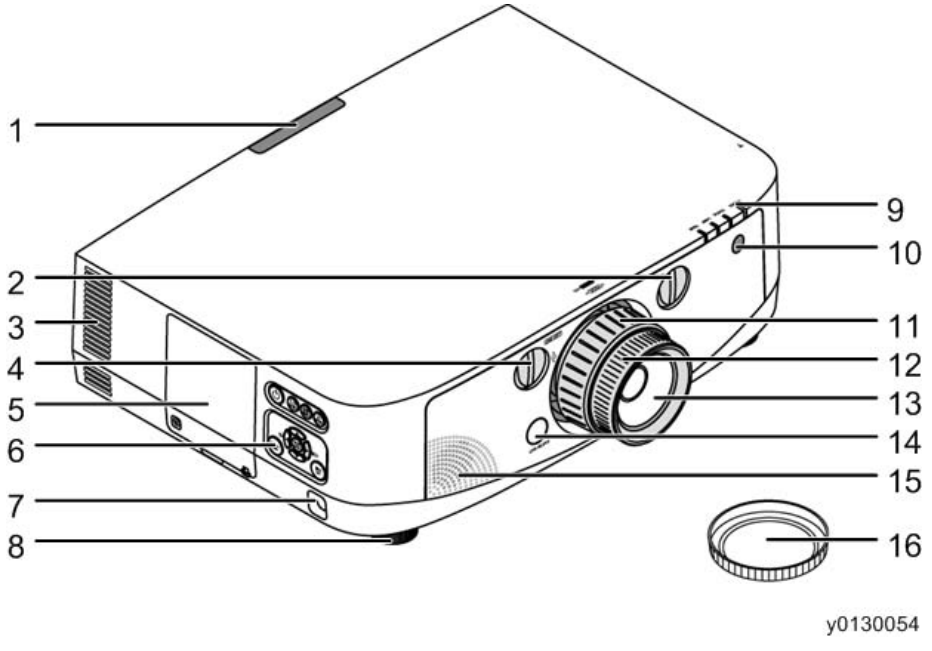
Specifications

See "Appendices" for the following information:

- General Specifications

Overview

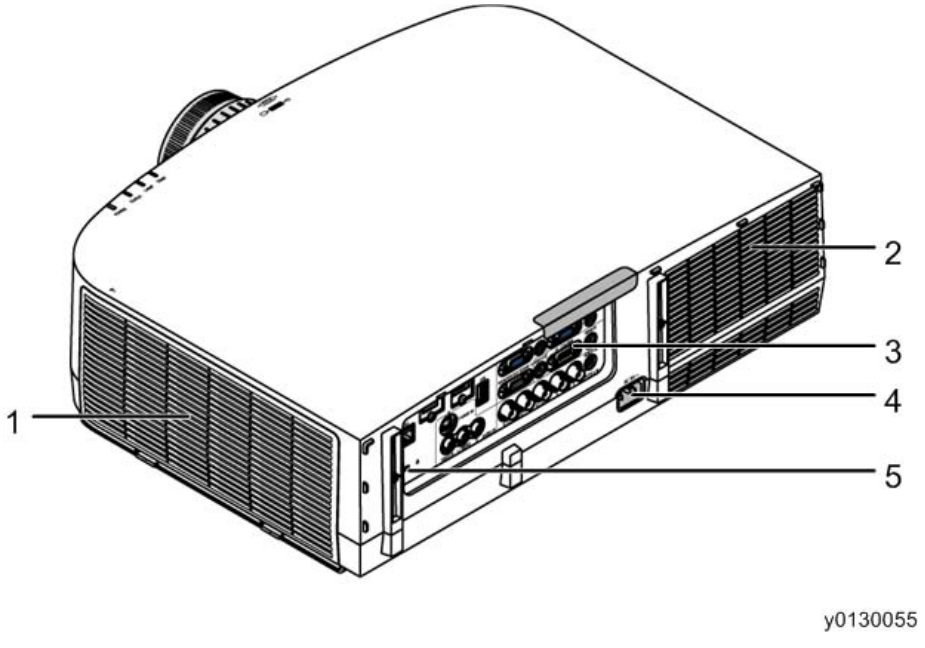
Front and Top View



1	Remote Sensor (rear)
2	Lens Shift Dial (horizontal)
3	Ventilation (outlet)
4	Lens Shift Dial (vertical)
5	Lamp Cover
6	Control Panel
7	Security Bar
8	Adjustable Tilt Foot
9	Indicator Section
10	Remote Sensor (front)
11	Zoom Lever/Zoom Ring

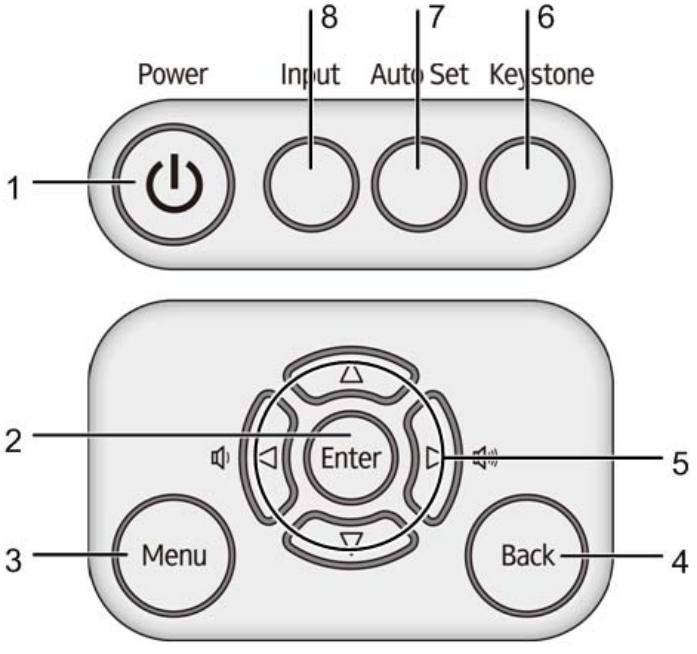
12	Focus Ring
13	Lens
14	Lens Release Button
15	Monaural Speaker
16	Lens Cap

Rear View



1	Ventilation (inlet) / Filter Cover The wireless LAN unit's USB (LAN) port is located inside here.
2	Ventilation (outlet)
3	Terminal Panel
4	AC Input
5	Built-in Security Slot

Control Panel



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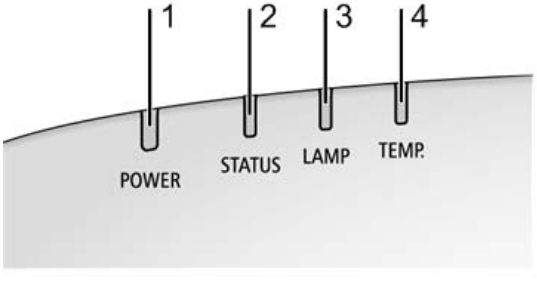
1	Power Button	Turns the projector on and then off (standby). To turn the projector off (standby), then press the Power button one time. When the confirmation message appears on the screen, press the Power button again.
2	Enter Button	Proceeds to the next hierarchical menu in the currently displayed on-screen menu. Applies the selected item while the confirmation message is displayed.
3	Menu Button	Displays an on-screen menu for setting or adjusting a variety of items.
4	Back Button	Returns to the previous hierarchical menu in the currently displayed on-screen menu. When the cursor is placed over the main menu, the menu closes. When a confirmation message appears, the operation is canceled.

5	▲▼◀▶/ Volume Buttons◀▶	• While an on-screen menu is displayed, you can use the ▲, ▼, ◀, and ▶ buttons to select the item you want to set or adjust. • If no on-screen menu is displayed, you can use the ◀ and ▶ buttons to adjust the volume.
6	Keystone Button	Corrects horizontal and vertical keystone distortions.
7	Auto Set Button	Automatically adjust the projector to an optimal state for projection of a computer screen image.
8	Input Button	Detects the signal input. Automatically checks for signal inputs in the following order: COMPUTER 1→COMPUTER 2→COMPUTER 3→HDMI→DisplayPort→VIDEO→S-VIDEO→Viewer→COMPUTER 1. If it detects a signal input, it projects the input.

Indicator



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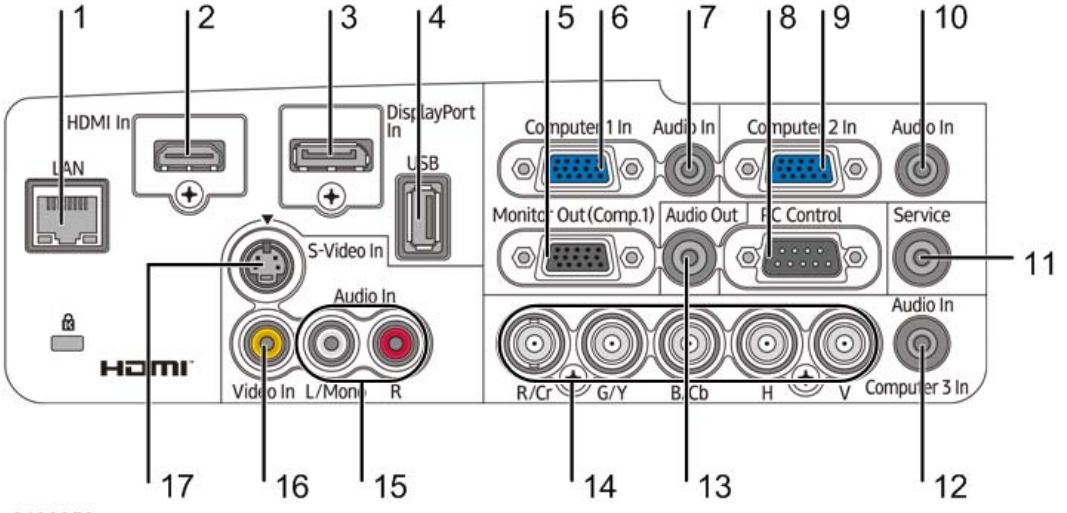
1	Power Indicator
2	STATUS Indicator
3	LAMP Indicator
4	TEMP. Indicator

Names of the Terminals on the Rear Panel



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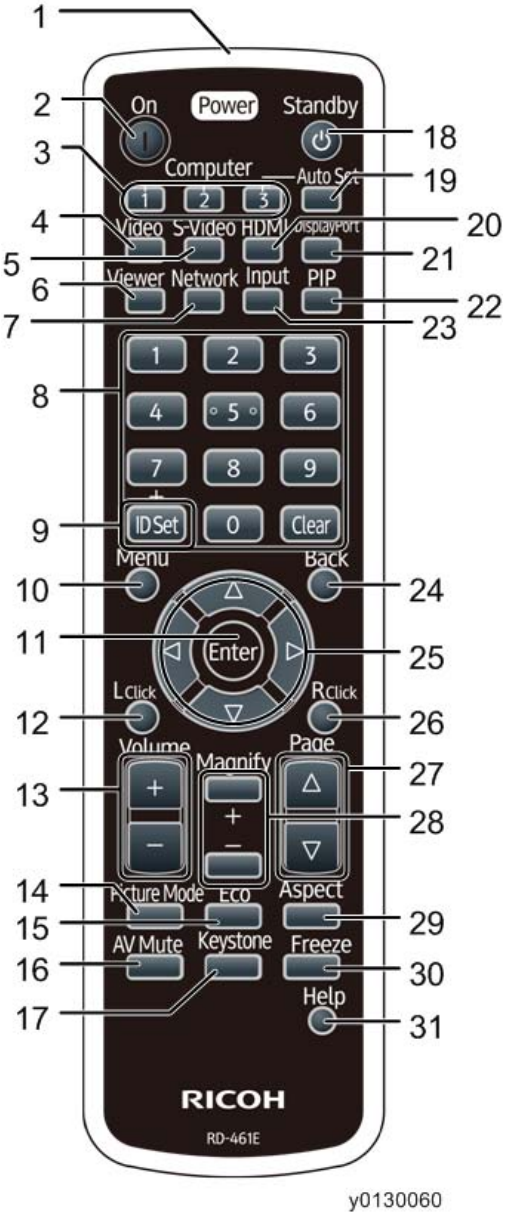
1	LAN Port (RJ-45)
2	HDMI IN Connector (Type A)
3	DisplayPort IN Connector
4	USB Port (Type A)
5	MONITOR OUT (COMP. 1) Connector (Mini D-Sub 15 Pin)
6	COMPUTER 1 IN/ Component Input Connector (Mini D-Sub 15 Pin)
7	COMPUTER 1 AUDIO IN Mini Jack (Stereo Mini)
8	PC CONTROL Port (D-Sub 9 Pin) Use this port to connect a PC or control system. This enables you to control the projector using serial communication protocol.
9	COMPUTER 2 IN / Component Input Connector (Mini D-Sub 15 Pin)
10	COMPUTER 2 AUDIO IN Mini Jack (Stereo Mini)
11	Service Connector (Stereo Mini)
12	COMPUTER 3 AUDIO IN Mini Jack (Stereo Mini)
13	AUDIO OUT Mini Jack (Stereo Mini)

14	COMPUTER 3 IN/Component (R/Cr, G/Y, B/Cb, H, V) Connectors (BNC × 5)
15	VIDEO/S-VIDEO AUDIO IN L/MONO, R (RCA)
16	VIDEO IN Connector (RCA)
17	S-VIDEO IN Connector (Mini DIN 4 Pin)

Part Names of the Remote Controller



1	Infrared Transmitter	–
2	Power On Button	Confirm that the projector is in standby (the Power indicator is lit orange*), and then turn it on. * When Standby mode is set to "Normal".

3	Computer 1/2/3 Button	Select the COMPUTER1/2/3 input or a component.
4	Video Button	Select the VIDEO input.
5	S-Video Button	Select the S-VIDEO input.
6	Viewer Button	Select the Viewer.
7	Network Button	Select the Network.
8	Numeric Keypad Button/Clear Button	The remote controller that comes with this projector can be used to control multiple projectors. These buttons are used to enter the ID (or set the control ID) of an individual projector. The Clear button can be used to clear the set control ID.
9	ID Set Button	The remote controller that comes with this projector can be used to control multiple projectors. These buttons are used to set the control ID of an individual projector.
10	Menu Button	Displays an on-screen menu for setting or adjusting a variety of items.
11	Enter Button	Proceeds to the next hierarchical menu in the currently displayed on-screen menu. Applies the selected item while the confirmation message is displayed.
12	L Click Button*	This button is used to operate the computer when an optional mouse receiver is connected. The button acts as the left mouse button.
13	Volume (+)(−) Button	Adjusts the volume of the internal speaker. Also adjusts the volume of the output sent to the audio output port. Pressing the button again resets the volume.
14	Picture Mode Button	Advances to the next adjustable video item in the adjustment menu each time this button is pressed.
15	Eco Button	Displays the economy mode selection screen.
16	AV Mute Button	Turns off both video and audio temporarily. Pressing the button again turns the video and audio back on.
17	Keystone Button	Corrects horizontal and vertical keystone distortions.

18	Power Standby Button	Pressing the Power button once displays the power-off confirmation message. Pressing the Power button a second time turns the projector off (standby).
19	Auto Set Button	Automatically adjust the projector to an optimal state for projection of a computer screen image.
20	HDMI Button	Select the HDMI input.
21	Display Port Button	Select the Display Port.
22	PIP Button	Projects two video images at the same time. There are two different ways to do this: • Use "Picture-in-Picture" to project a smaller video image within a larger video image • Use "Picture-by-Picture" to project two video images side-by-side
23	Input Button	Detects the signal input. Automatically checks for signal inputs in the following order: COMPUTER 1→COMPUTER 2→COMPUTER 3→HDMI→DisplayPort→VIDEO→S-VIDEO→Viewer→COMPUTER 1. If it detects a signal input, it projects the input.
24	Back Button	Returns to the previous hierarchical menu in the currently displayed on-screen menu. When the cursor is placed over the main menu, the menu closes. When a confirmation message appears, the operation is canceled.
25	▲▼◀▶ Button	Used to navigate an on-screen menu or to adjust the screen position when using partial zoom buttons to zoom in on the screen. If an optional mouse receiver is connected to the PC, the button acts as a computer mouse.
26	R Click Button*	This button is used to operate the computer when an optional mouse receiver is connected. The button acts as the right mouse button.
27	Page △/▽ Button*	Used to switch between thumbnail screens on the viewer when the mouse receiver that comes with the projector is connected to the computer. Used to scroll the screen or switch between PowerPoint screens.
28	Magnify (+)(−) Button	Used to zoom in and out on the screen.

29	Aspect Button	Displays a set of aspect adjustment items.
30	Freeze Button	Displays the current video image as a still image. Pressing the button again returns to normal video display.
31	Help Button	Displays the information screen.

* The Page △/▽, ▲▼◀▶, L Click and R Click buttons work only when a USB cable is connected with your computer.

2. Installation

Installation Requirements

⚠WARNING

- Do not cover the lens with the lens cap or equivalent while the projector is on. Doing so can lead to melting of the cap due to the heat emitted from the lamp.
- Do not place any objects which are easily affected by heat in front of the projector lens. Doing so could lead to the object melting from the heat that is emitted from the lamp.

Do not tilt the projector to the left or right. Doing so may result in a malfunction. There is no limit on the tilt angle upward or downward. Select an appropriate option for [FAN MODE] according to the installation angle.

- If the tilt angle is between 60 and 120 degrees, [FAN MODE] – [SETTING] must be set to 'Vertical Tilt Up'.

Fire and Shock Precautions

- Ensure that there is sufficient ventilation and that vents are unobstructed to prevent the build-up of heat inside your projector. Allow at least 4 inches (10cm) of space between your projector and a wall.
- Do not try to touch the ventilation outlet on the left front (when seen from the front) as it can become heated while the projector is turned on and immediately after the projector is turned off. Parts of the projector may become temporarily heated if the projector is turned off with the Power button or if the AC power supply is disconnected during normal projector operation.

  Use caution when picking up the projector.

- Prevent foreign objects such as paper clips and bits of paper from falling into your projector. Do not attempt to retrieve any objects that might fall into your projector. Do not insert any metal objects

such as a wire or screwdriver into your projector. If something should fall into your projector, disconnect it immediately and have the object removed by qualified service personnel.

- Do not place any objects on top of the projector.
- Do not touch the power plug during a thunderstorm. Doing so can cause electrical shock or fire.
- The projector is designed to operate on a power supply of 100-240V AC 50/60 Hz. Ensure that your power supply fits this requirement before attempting to use your projector.
- Do not look into the lens while the projector is on. Serious damage to your eyes could result.
- Keep any items (magnifying glass etc.) out of the light path of the projector. The light path being projected from the lens is extensive, therefore any kind of abnormal object that can redirect light coming out of the lens can cause an unpredictable outcome, such as a fire or injury to the eyes.
- Do not place any objects which are easily affected by heat in front of a projector exhaust vent.

  Doing so could lead to the object melting or getting your hands burned from the heat that is emitted from the exhaust.
- Handle the power cord carefully. A damaged or frayed power cord can cause electric shock or fire.
  - Do not use any power cord other than the one supplied with the projector.
  - Do not bend or tug the power cord excessively.
  - Do not place the power cord under the projector or any heavy object.
  - Do not cover the power cord with soft materials such as rugs.
  - Do not heat the power cord.
  - Do not handle the power plug with wet hands.
- Turn off the projector, unplug the power cord and have the projector serviced by qualified service personnel under the following conditions:
  - When the power cord or plug is damaged or frayed.
  - If liquid has been spilled into the projector, or if it has been exposed to rain or water.
  - If the projector does not operate normally when you follow the instructions described in the user's manual.
  - If the projector has been dropped or the cabinet has been damaged.
  - If the projector exhibits a distinct change in performance, it indicates a need for service.
- Disconnect the power cord and any other cables before carrying the projector.
- Turn off the projector and unplug the power cord before cleaning the cabinet or replacing the lamp.
- Turn off the projector and unplug the power cord if the projector is not to be used for an extended period of time.
- When using a LAN cable:

For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

⚠CAUTION

- Do not use the tilt-foot for purposes other than originally intended. Misuses such as gripping the tilt-foot or hanging on the wall can cause damage to the projector.
- Do not send the projector in the soft case by parcel delivery service or cargo shipment. The projector inside the soft case could be damaged.
- Select [HIGH] in Fan mode if you continue to use the projector for consecutive days. (From the menu, select [SETUP] → [OPTIONS(1)] → [FAN MODE] → [MODE] → [HIGH].)
- Before using Direct Power Off, be sure to allow at least 20 minutes immediately after turning on the projector and starting to display an image.
- Do not unplug the power cable from the wall outlet or projector when the projector is powered on. Doing so can cause damage to the AC IN connector of the projector and (or) the prong plug of the power cable.
- To turn off the AC power supply when the projector is powered on, use a power strip equipped with a switch and a breaker.
- Do not turn off the AC power for 60 seconds after the lamp is turned on and while the Power indicator is blinking blue. Doing so could cause premature lamp failure.

Caution on Handling the Optional Lens

When shipping the projector with the lens, remove the lens before shipping the projector. Always attach the dust cap to the lenses whenever they are not mounted on the projector. The lens and the lens shift mechanism may encounter damage caused by improper handling during transportation.

Do not hold the lens part when carrying the projector. Doing so could cause the focus ring to rotate, resulting in accidental dropping of the projector.

Lamp Replacement

- Use the specified lamp for safety and performance.

Note

- **US Residents**
- The lamp in this product contains mercury. Please dispose according to Local, State or Federal Laws.

⚠CAUTION

- DO NOT TOUCH THE LAMP immediately after it has been used. It will be extremely hot. Turn the projector off and then disconnect the power cord. Allow at least one hour for the lamp to cool before handling.
- When removing the lamp from a ceiling-mounted projector, make sure that no one is under the projector. Glass fragments could fall if the lamp has been burned out.

About High Altitude Mode

- Set [FAN MODE] to [HIGH ALTITUDE] when using the projector at altitudes approximately 5500 feet/1600 meters or higher.
- Using the projector at altitudes approximately 5500 feet/1600 meters or higher without setting to [HIGH ALTITUDE] can cause the projector to overheat and the protector could shut down. If this happens, wait a couple of minutes and turn on the projector.
- Using the projector at altitudes less than approximately 5500 feet/1600 meters and setting to [HIGH ALTITUDE] can cause the lamp to overcool and the image to flicker causing the image to flicker. Switch [FAN MODE] to [AUTO].
- Using the projector at altitudes approximately 5500 feet/1600 meters or higher can shorten the life of optical components such as the lamp.

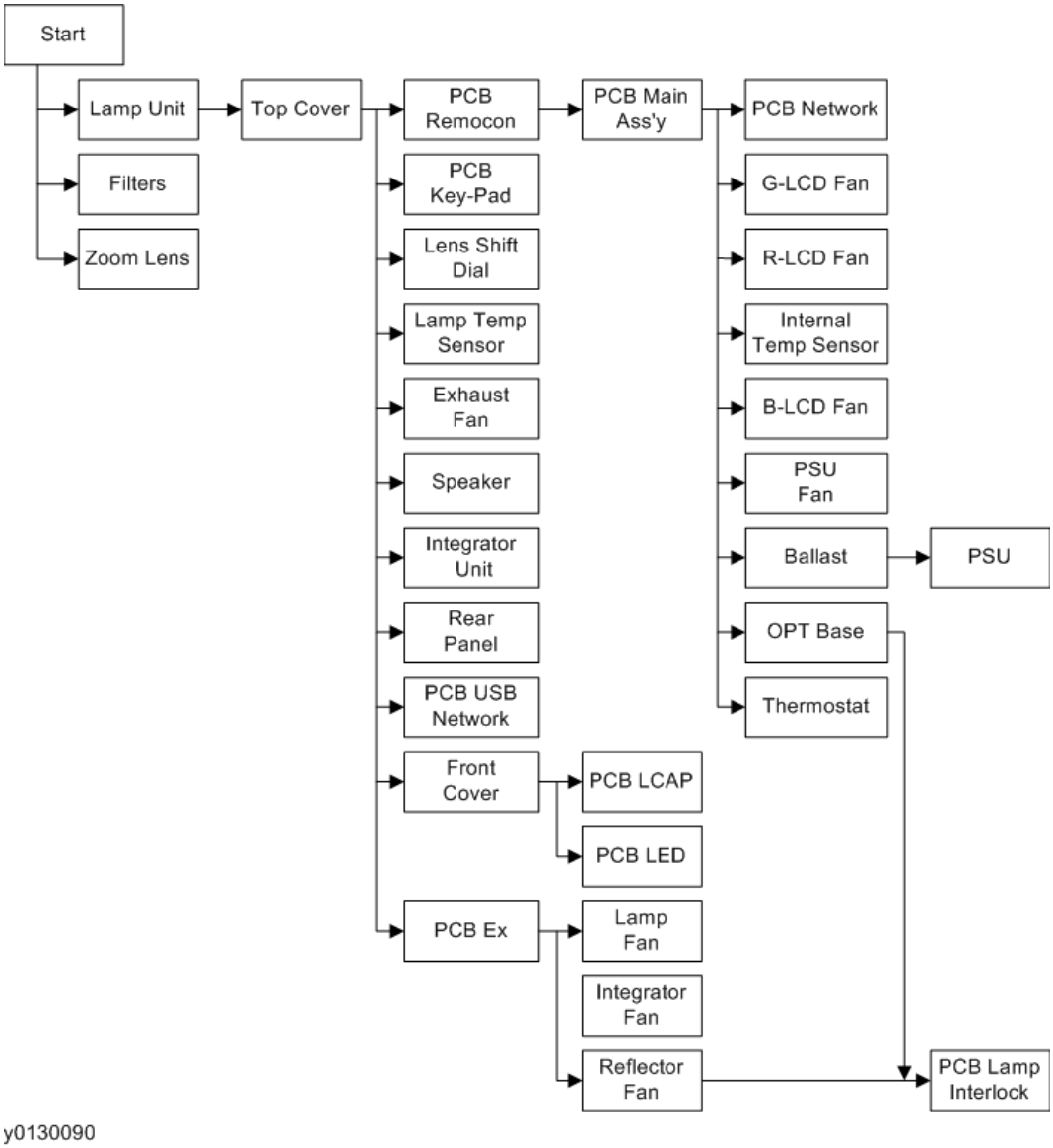
3. Replacement and Adjustment

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., Lamp cover) 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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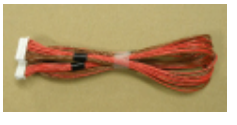
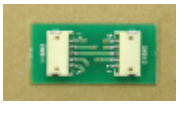
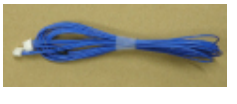
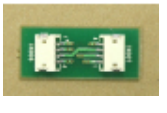
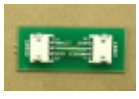
Special Tools

- RS232C cable (Cross)
- LAN cable (Category 5 or higher)

Jigs for adjustment of the optical axis

Item name	Application	Q'ty	Part No.	Appearance
Extension connector (40P)	For LCD PANEL	3	Y0135213	
Extension connector PWB (40P)	For LCD PANEL	3	Y0135214	
Extension connector (18P)	For Power supply (PS UNIT) (POPS : 600mm)	1	Y0135211	
Extension connector PWB (18P)	For Power supply (PS UNIT)	1	Y0135212	
Extension connector (5P)	For Power supply (BS UNIT) (POLM : 900mm)	1	Y0135207	
Extension connector PWB (5P)	For Power supply (BS UNIT)	1	Y0135208	
Extension connector (4P)	For LCAP PWB (POLCAP : 900mm) For FAN (POFAN2 : 900W)	2	Y0135205	
Extension connector PWB (4P)	For LCAP PWB For FAN	2	Y0135206	

Item name	Application	Q'ty	Part No.	Appearance
Extension connector (3P)	For FAN (POFAN1/POFAN3/ POFAN4/ POFAN8:900mm)	4	Y0135203	
Extension connector PWB (3P)	For FAN	4	Y0135204	
Extension connector (2P)	For THERMISTOR (POTH1/ POTH3 : 900mm)	2	Y0135201	
Extension connector PWB (2P)	For THERMISTOR	2	Y0135202	
SPACER FL T0.1 (PB52)	Spacer for FL adjustment (this is one of the optical axis adjustments)	–	Y0133120	
SPACER FL T0.2 (PB52)		–	Y0133121	
SPACER FL T0.3 (PB52)		–	Y0133122	
SPACER FL T0.5 (PB52)		–	Y0133123	
SPACER FL T1.0 (PB52)		–	Y0133124	
SPACER RL2 T0.1 (PB52)	Spacer for RL2 adjustment (this is one of the optical axis adjustments)	–	Y0133125	
SPACER RL2 T0.2 (PB52)		–	Y0133126	
SPACER RL2 T0.3 (PB52)		–	Y0133127	
SPACER RL2 T0.5 (PB52)		–	Y0133128	
SPACER RL2 T1.0 (PB52)		–	Y0133129	

Cautions:

- How to install the FFC cable

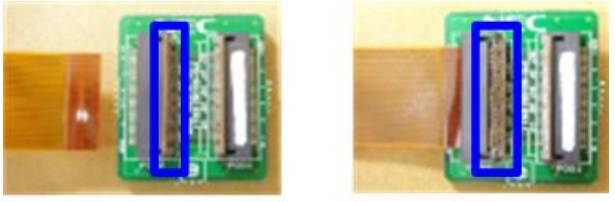


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Photo seen from above

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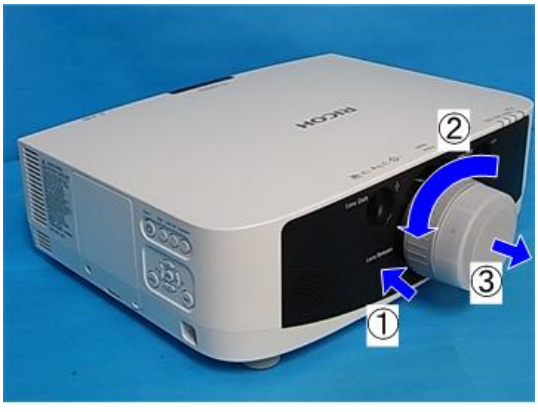
Insert the FFC cable in the relevant connector on the PWB.

Let the embossed part (framed part in blue, shown below) fall down in the direction of the red arrow.

* The embossed part for fixing the FFC cable is fragile. Handle it with care when installing or removing the FFC cable.

Parts Replacement

Zoom Lens



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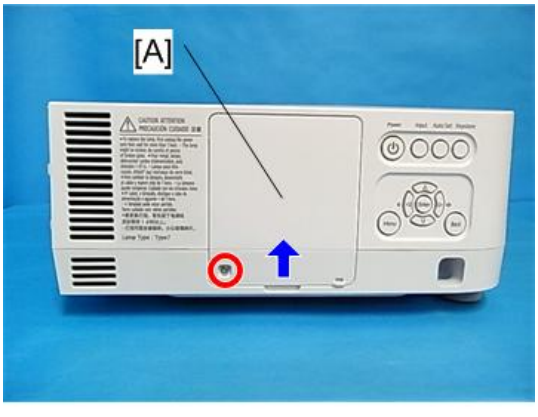
1. **Zoom lens**

   Remove in the order 1 to 3.

Lamp Unit



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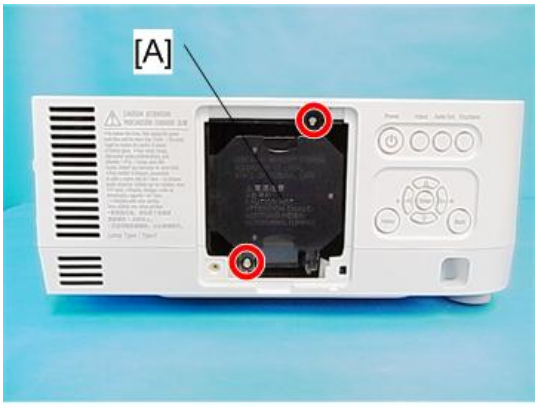
1. **Loosen the screw and remove the Lamp cover [A] (×1).**



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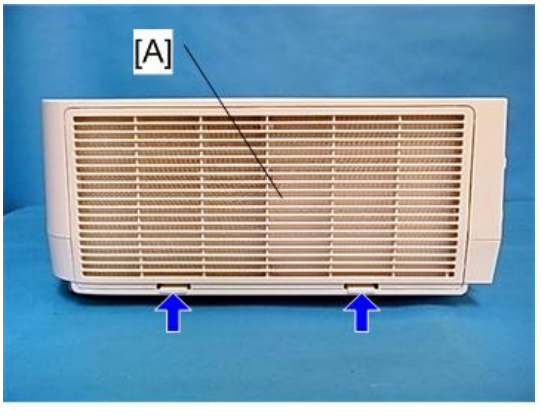
2. **Loosen the screws and remove the Lamp unit [A] (×2).**

Filters



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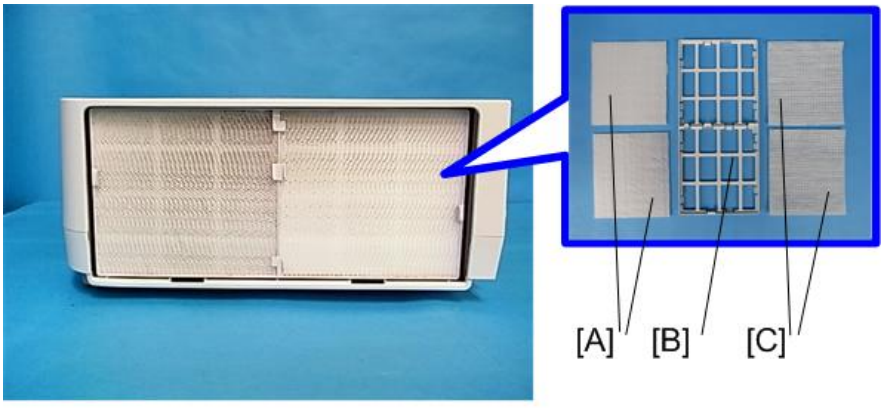
1. **Remove the Filter cover [A].**



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2. **Remove the Filters.**

   [A] : Air filter A

   [B] : Filter holder

   [C] : Air filter B

Note

- When installing filter [A] in the holder, align the notch of the filter with the projection on the holder.

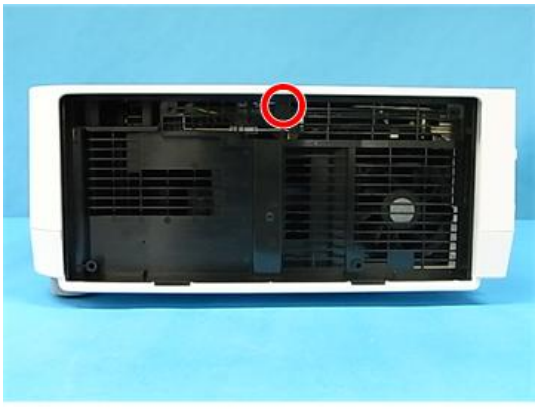
Top Cover

⚠CAUTION

- Before removing the top cover, make sure to remove the lamp unit. (Failure to do so may cause a problem to occur when reassembling the projector.)
- The PCB KEY-PAD [A] and the PCB EX [B] attached to the TOP COVER are connected through a cable. Therefore, removing the top cover should be done with utmost care.

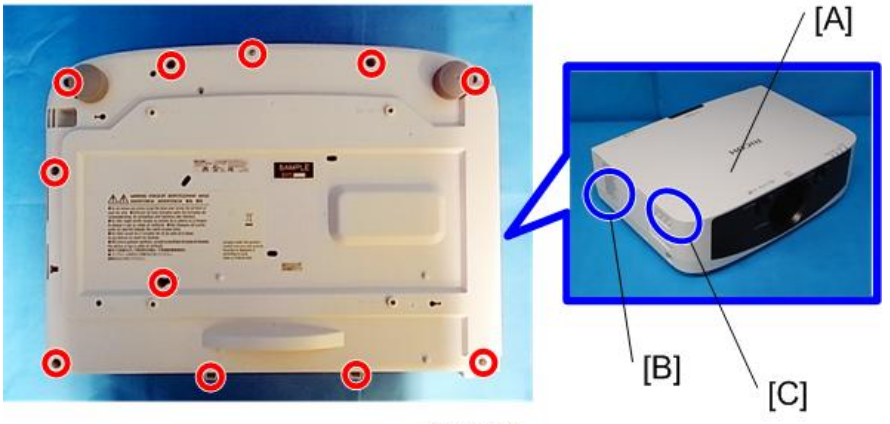
1. **Remove the Lamp unit (☞ p.29).**

2. **Remove the Filters (☛ p.30).**



y0131091

3. **Loosen the screw.**

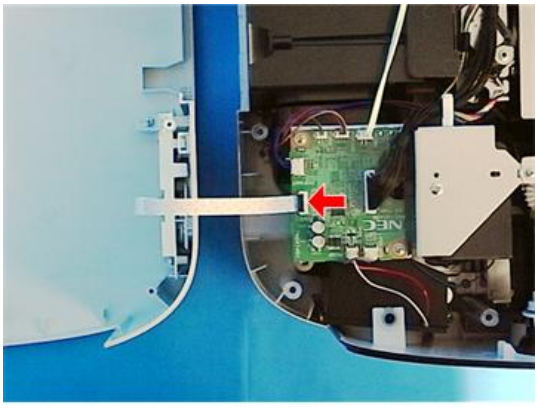


y0131092

4. **Top cover [A] (×11)**

[B] : It might be difficult to remove the cover due to projections inside the chassis. Be careful not to damage the cover or other parts when removing the cover from inside the chassis.

[C] : There is a cable connecting the Top Cover to the main unit. Exercise care when removing the Top Cover. (See the steps below.)

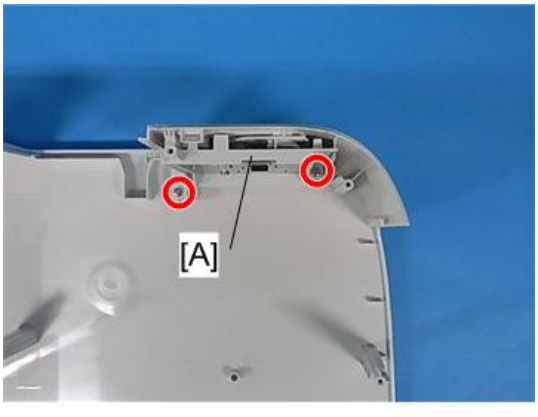


y0131093

5. Disconnect the cable.

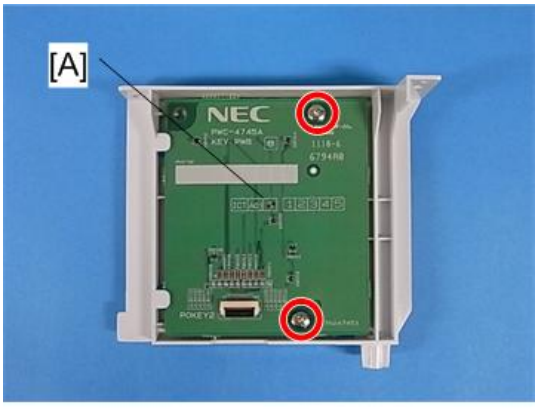
PCB Key-Pad

1. Top cover (p.31).



y0131094

2. Remove the Holder [A] (×2).

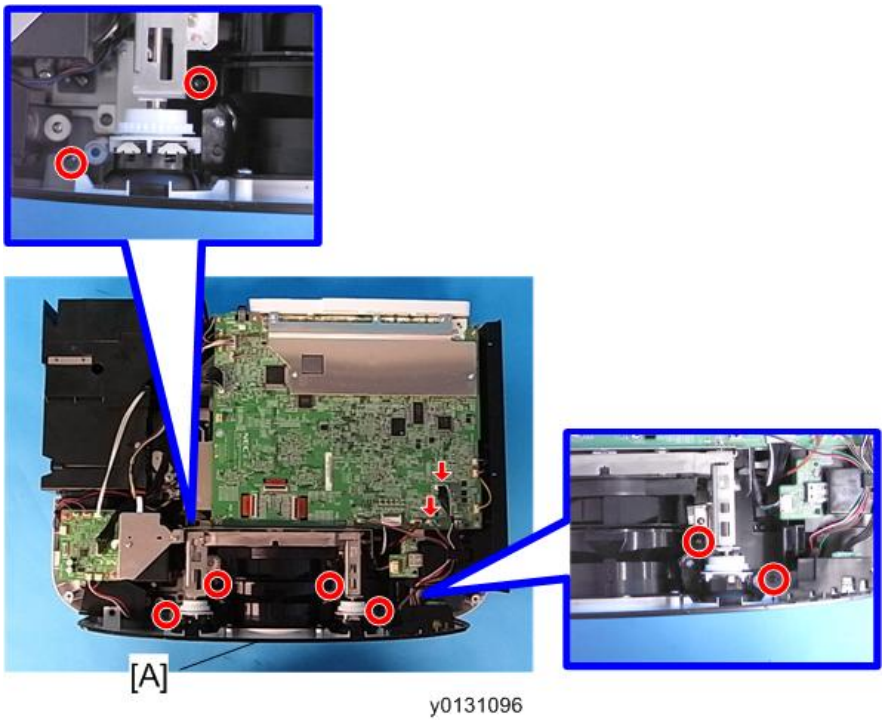


y0131095

3. Remove the PCB Key-Pad [A] (×2).

Front Cover

1. Top cover (p.31).

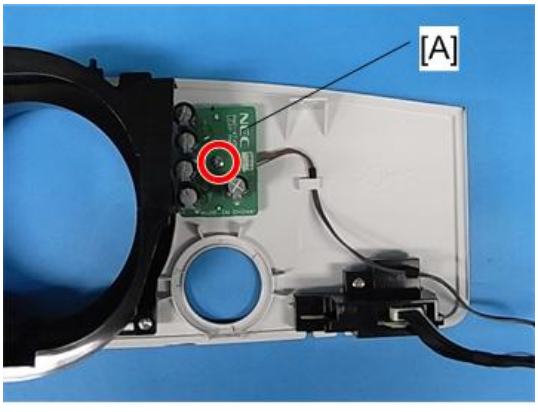


y0131096

2. Front Cover [A] (×4, ×2).

PCB LCAP

1. Front Cover (☛ p.34).

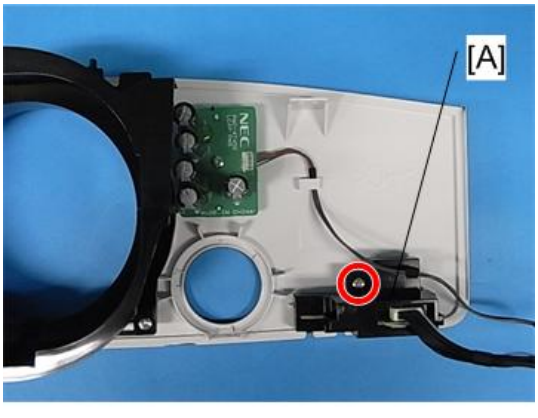


y0131097

2. Remove the PCB LCAP [A] (×1).

PCB LED

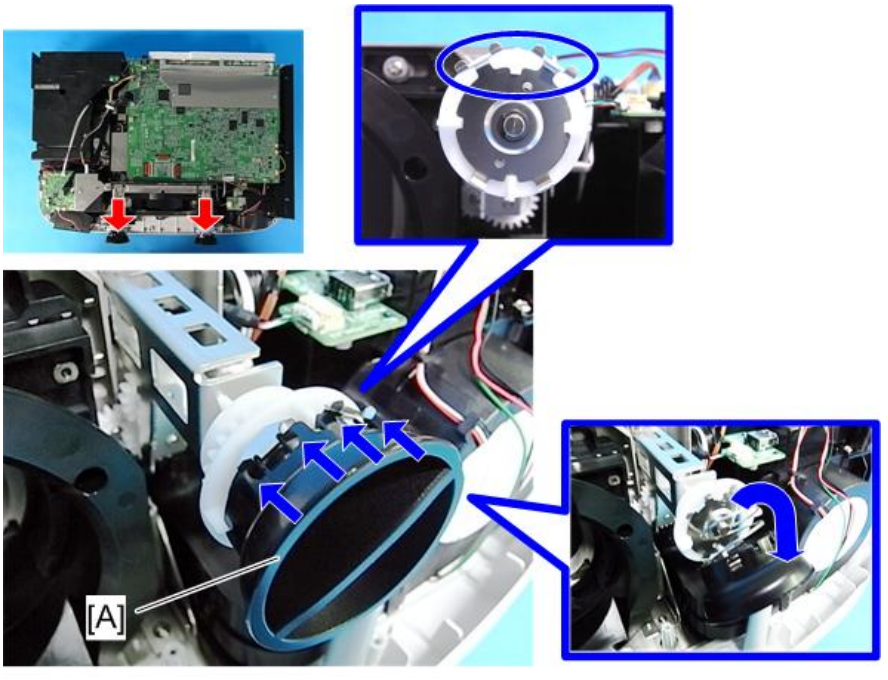
1. Front Cover (☛ p.34).



y0131098

2. Remove the PCB LED [A] (×1).

Lens Shift Dial

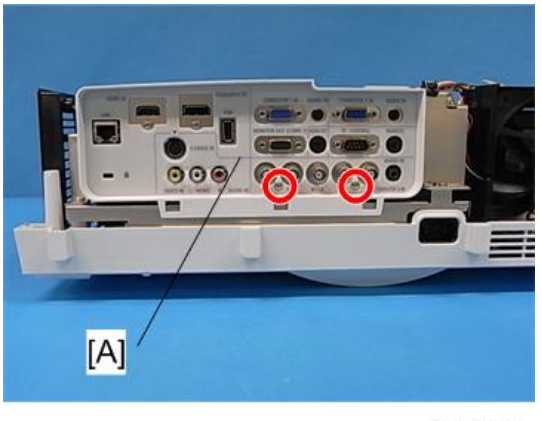


y0131099

1. Remove the Lens Shift Dial.

Rear Panel

1. Top cover (☛ p.31).

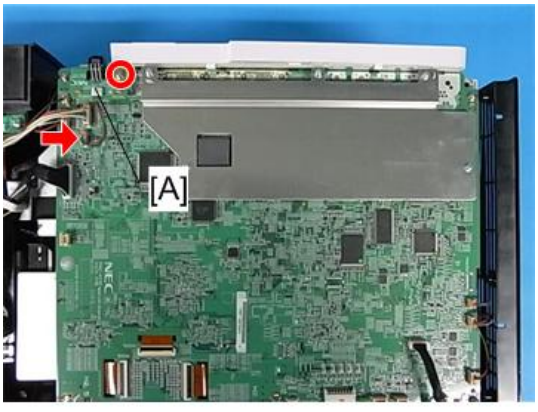


y0131100

2. Rear panel [A] (×2).

PCB Remocon

1. Top cover (☛ p.31).

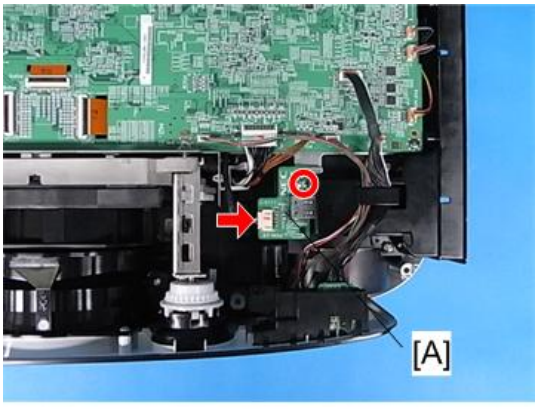


y0131101

2. Remove the PCB Remocon [A] (×1, ×1).

USB Network Board

1. Top cover (☛ p.31).



y0131102

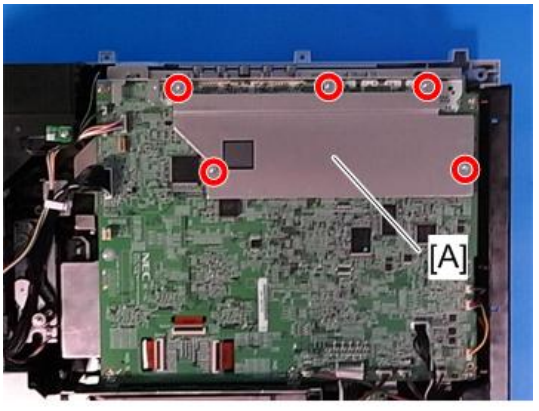
2. Remove the USB Network Board (×1, ×1)

PCB Main Ass'y

Note

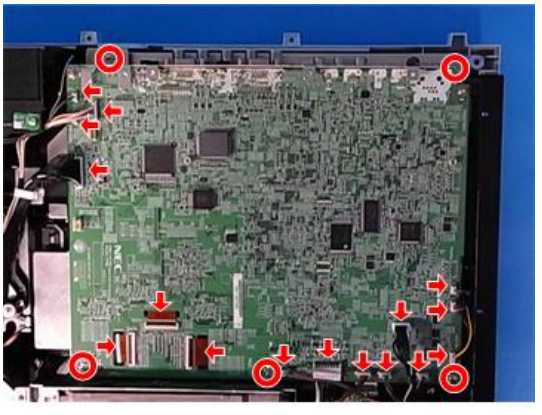
- Replacing the PCB Main Ass'y involves making adjustments to the software (refer to Electrical Adjustment). Before removing the Ass'y, be sure to read (or copy) all data.

1. **Rear panel (☛ p.36).**
2. **Remove the PCB Remocon (☛ p.37).**



y0131103

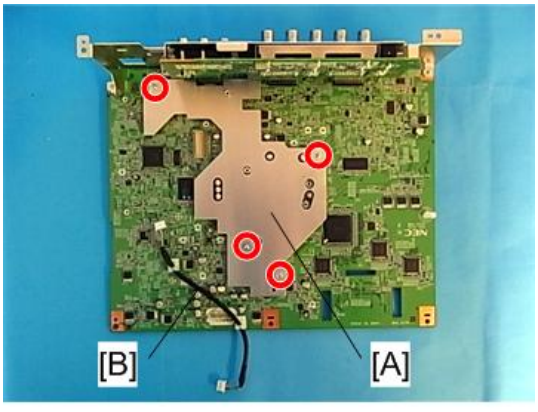
3. **Remove the bracket [A] (×5).**



y0131104

4. **Remove the PCB Main Ass'y and PCB Network unit (×5, ×16).**

5. **Remove the PCB Network (p.39).**



y0131105

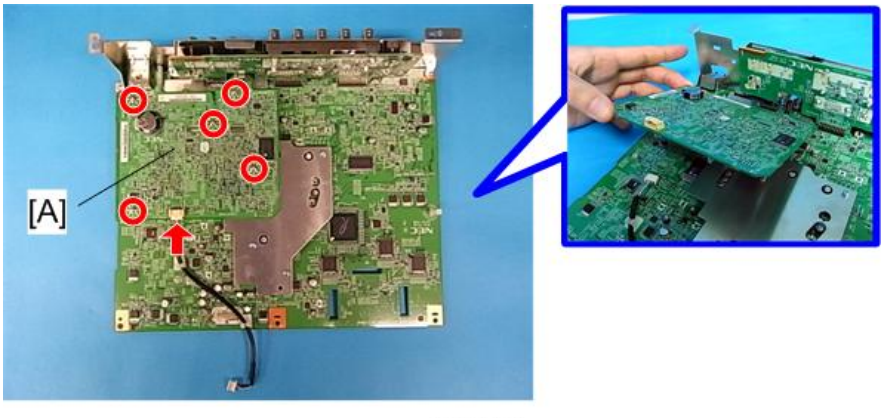
6. **Remove the bracket [A] and cable [B] (×4).**

PCB Network

⚠CAUTION

- Keep the PCB Network away from conductive materials such as metal.

1. **Remove the PCB Main Ass'y (p.38).**

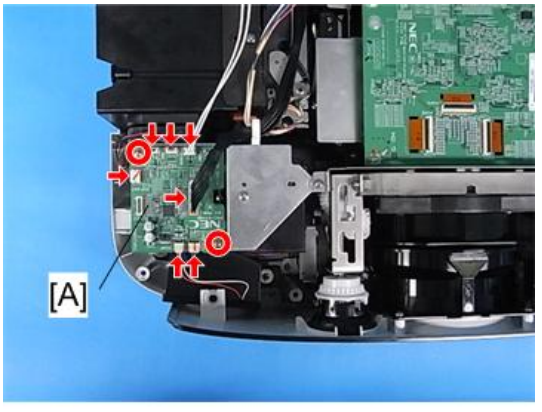


y0131106

2. **Remove the PCB Network [A] (×5, ×1).**

PCB EX

1. Top cover (☛ p.31).

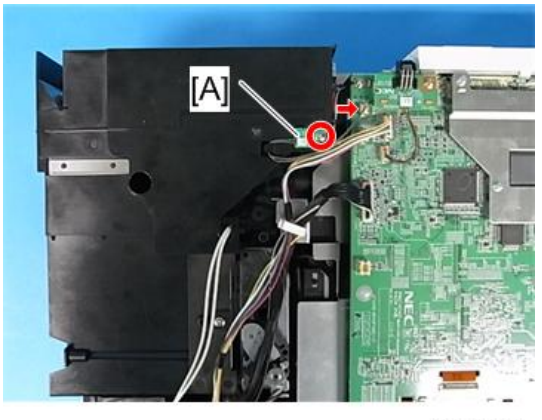


y0131107

2. Remove the PCB EX (×2, ×7).

Lamp Temp Sensor

1. Top cover (☛ p.31).



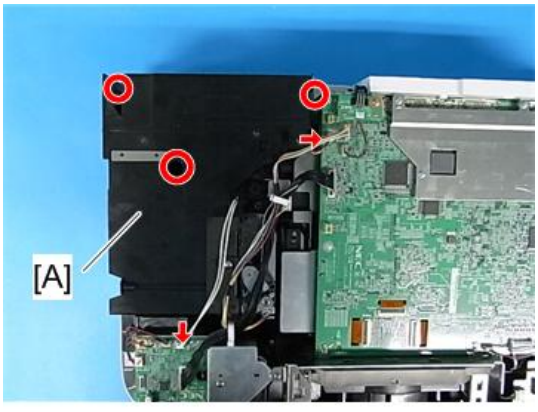
y0131108

2. Remove the Lamp Temp Sensor (×1, ×1).

Exhaust Fan

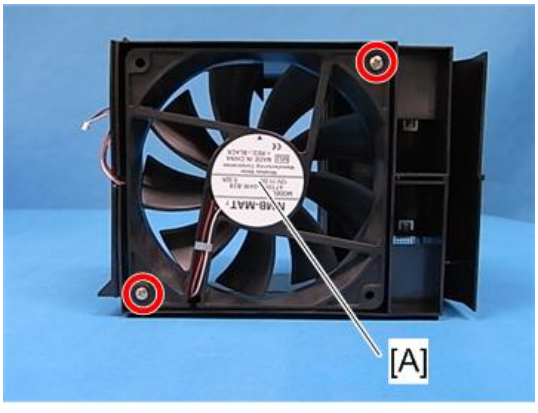
1. Top cover (☛ p.31).

2. Remove the Lamp Temp Sensor (☛ p.40).



y0131109

3. Remove the Fan Unit (×3, ×2).



y0131110

4. Remove the Exhaust fan (×2).

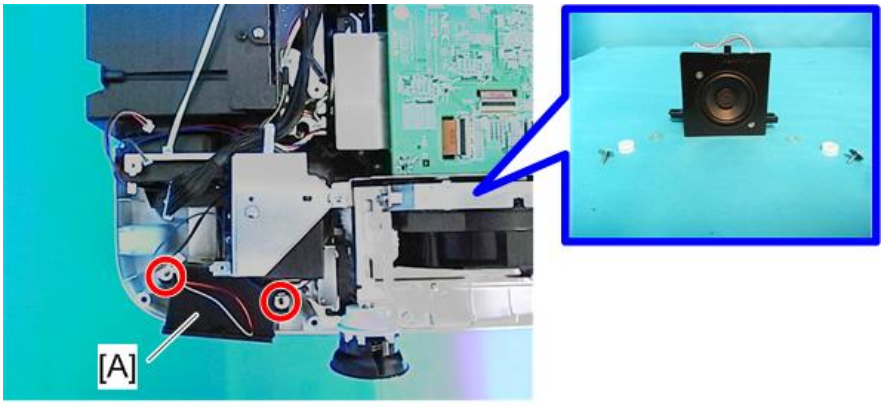
Note

- When installing the fan on the holder, make sure to install it in the correct orientation.

Speaker

1. Front Cover (☛ p.34).

2. Remove the PCB EX (☛ p.40).

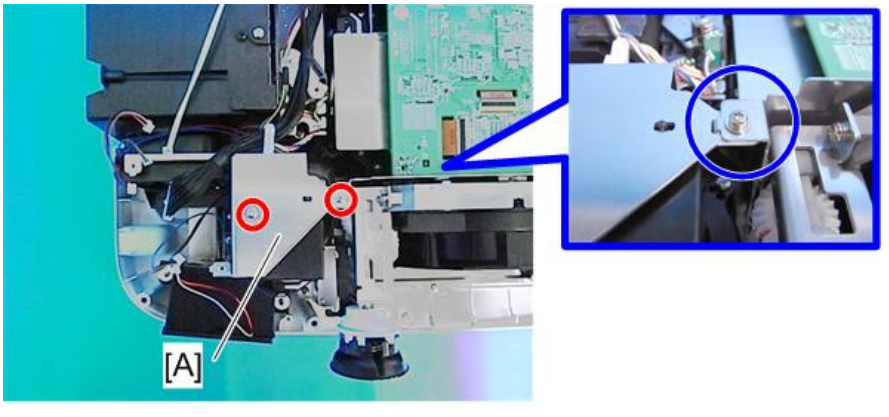


y0131111

3. Remove the Speaker [A] (×2).

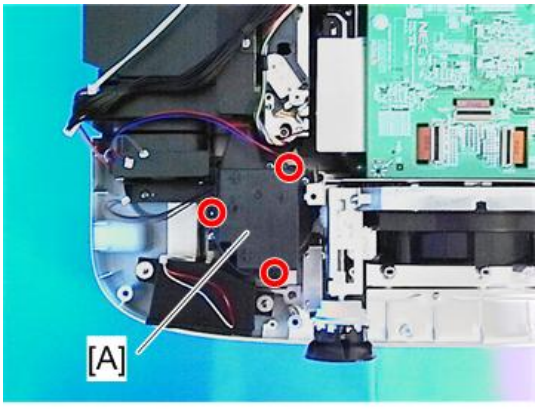
Lamp Fan

1. Remove the PCB EX (☛ p.40).



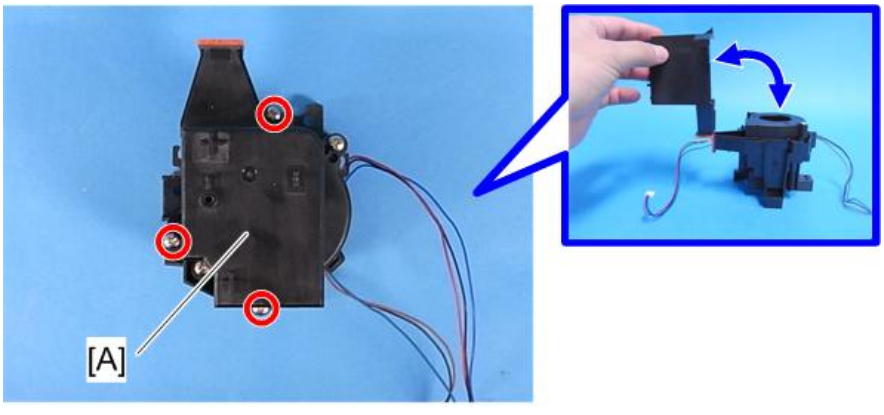
y0131112

2. Remove the bracket [A] (×2).



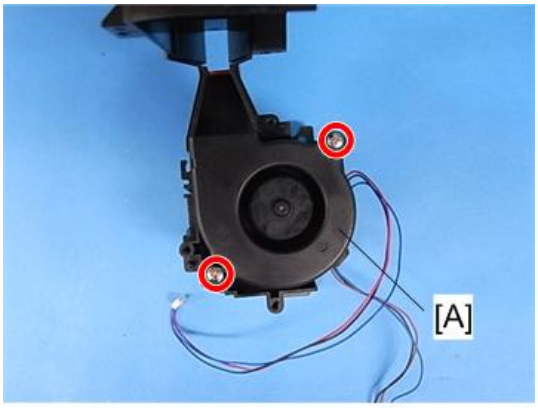
y0131113

3. Remove the Fan Unit [A] (×3).



y0131114

4. Open the holder [A] (×3).



y0131115

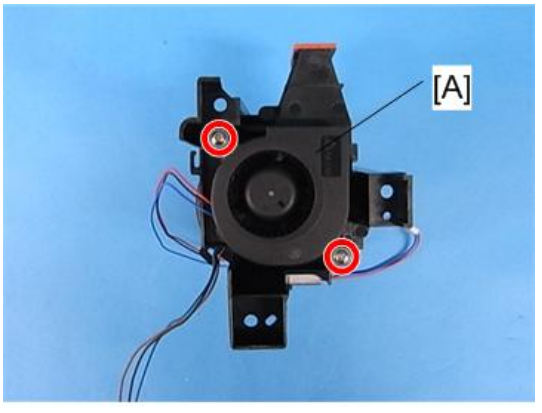
5. **Remove the Lamp Fan [A] (×2).**

Note

- When installing the fan on the holder, make sure to install it in the correct orientation.

Integrator Fan

1. **Remove the Fan Unit (p.42)**



y0131116

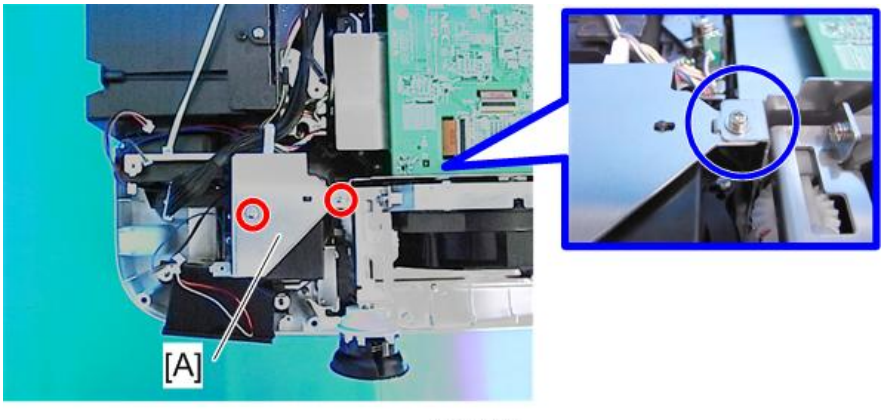
2. **Remove the Integrator Fan [A] (×2).**

Note

- When installing the fan on the holder, make sure to install it in the correct orientation.

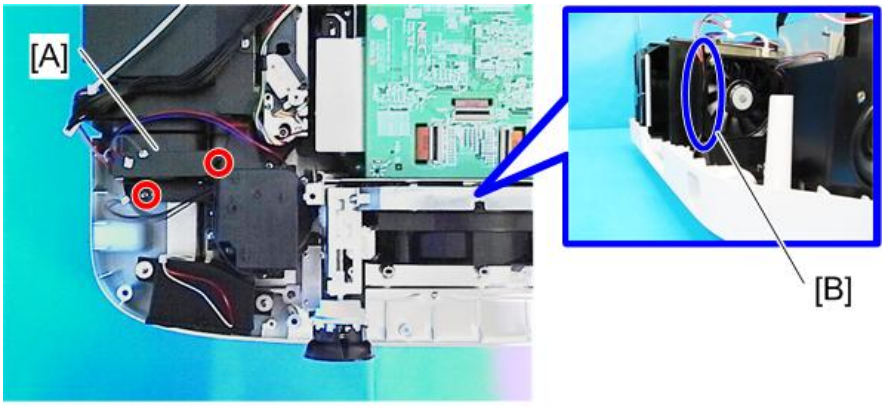
Reflector Fan

1. **Remove the PCB EX-(p.40).**



y0131112

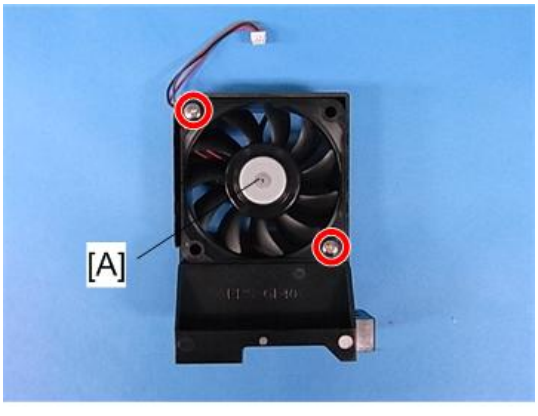
2. **Remove the bracket [A] (×2).**



y0131117

3. **Remove the Fan Unit [A] (×2).**

[B] : When assembling the projector, route the PCB Lamp Interlock cable along the space beside the Lamp Fan Unit.



y0131118

4. **Remove the Reflector Fan [A] (×2).**

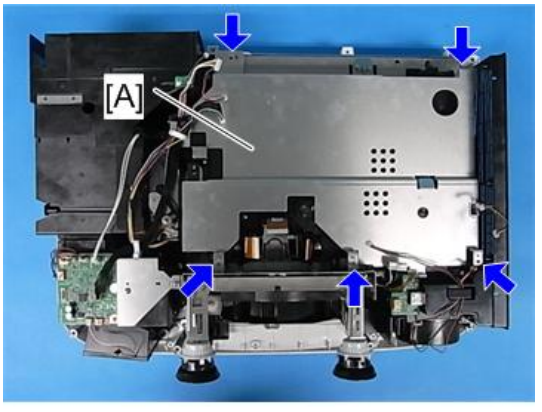
Note

- When installing the fan on the holder, make sure to install it in the correct orientation.

G-LCD Fan

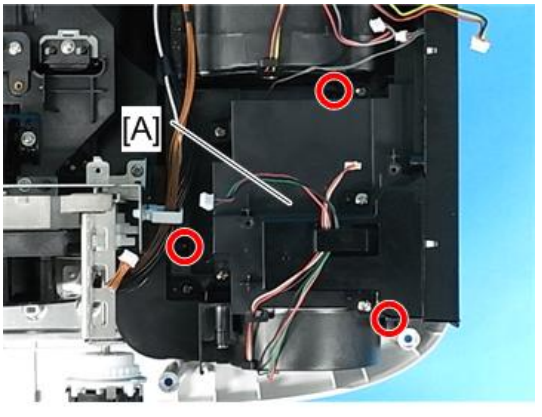
1. **Front Cover (p.34).**
2. **Remove the USB Network Board (p.37).**

3. **Remove the PCB Main Ass'y (p.38).**



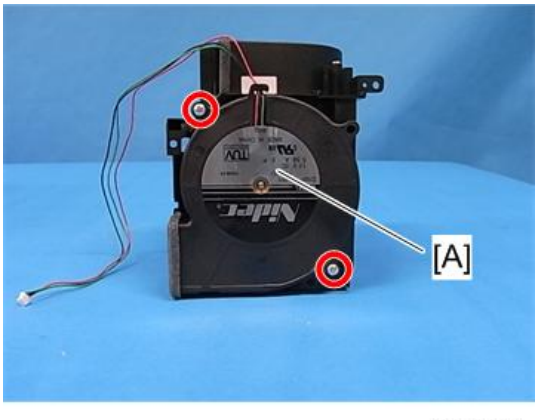
y0131119

4. **Remove the bracket [A].**



y0131120

5. **Remove the Fan Unit [A] (×3).**



y0131121

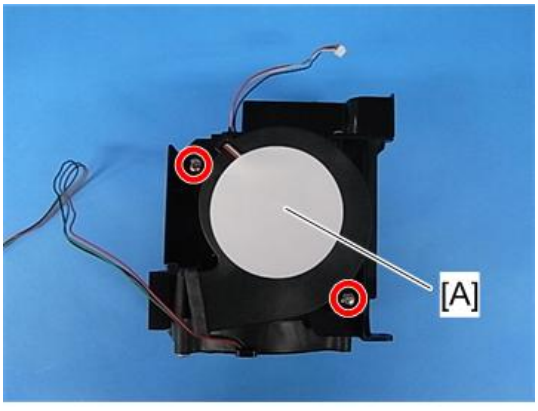
6. **Remove the G-LCD Fan [A] (×2).**

Note

- When installing the fan on the holder, make sure to install it in the correct orientation.

R-LCD Fan

1. **Remove the Fan Unit (p.45).**



y0131122

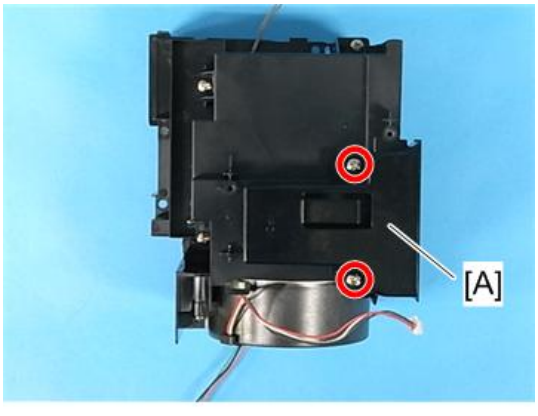
2. **Remove the R-LCD Fan [A] (×2).**

Note

- When installing the fan on the holder, make sure to install it in the correct orientation.

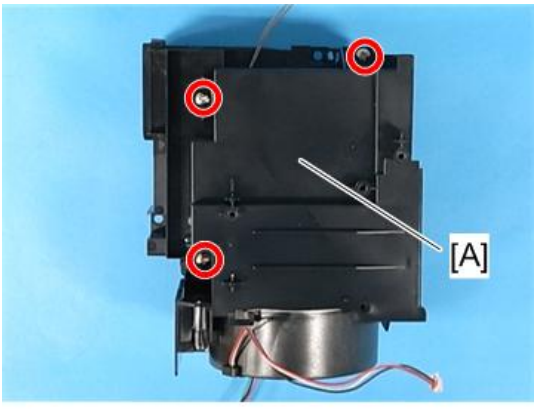
Internal Temp Sensor

1. **Remove the Fan Unit (p.45).**



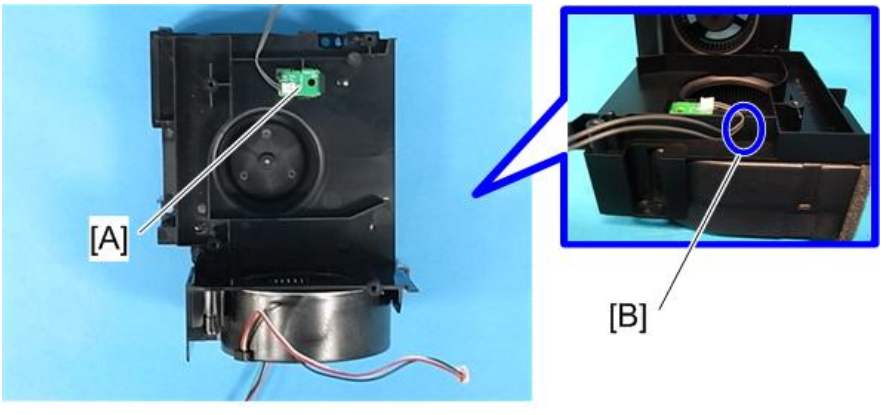
y0131123

2. **Remove the Cover [A] (×2).**



y0131124

3. **Remove the Duct cover & Duct (F) [A] (×3).**



y0131125

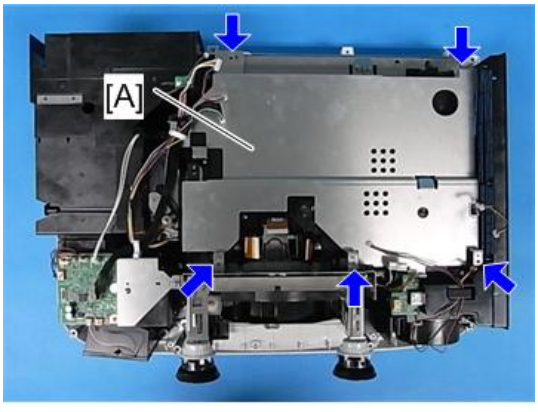
4. **Remove the Internal Temp Sensor [A].**

   [B] : When assembling the projector, route the cable through the notch.

B-LCD Fan

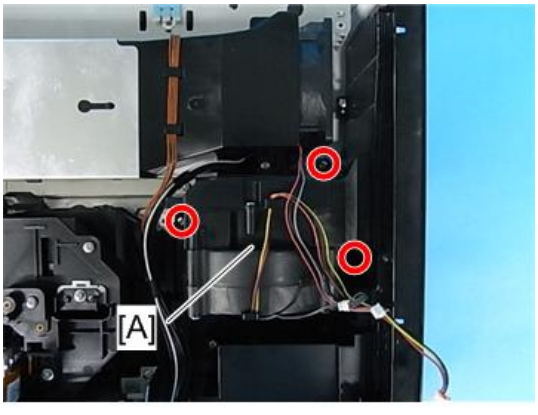
1. **Remove the USB Network Board (p.37).**

2. Remove the PCB Main Ass'y (☞ p.38).



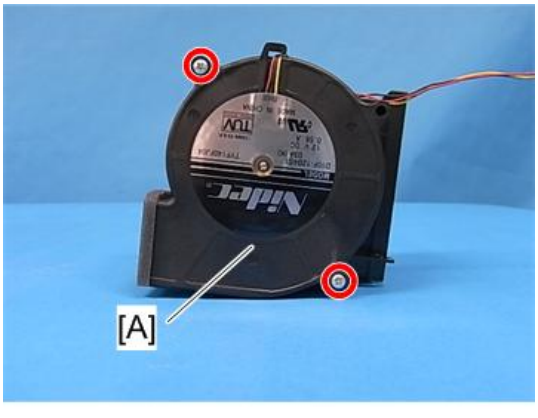
y0131119

3. Remove the bracket [A].



y0131126

4. Remove the Fan Unit [A] (×3).



y0131127

5. **Remove the DC Fan [A] (×2).**

Note

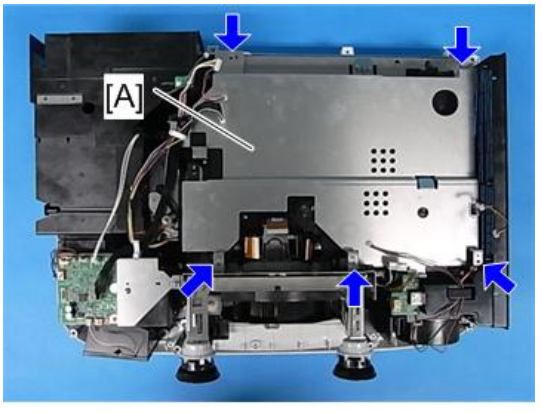
- When installing the fan on the holder, make sure to install it in the correct orientation.

PS-Converter

⚠CAUTION

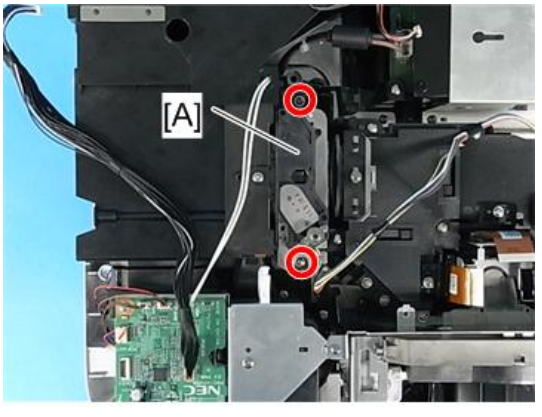
- When removing or installing the IRIS Unit, be careful not to damage the Integrator.

1. **Remove the USB Network Board (p.37).**
2. **Remove the PCB Main Ass'y (p.38).**



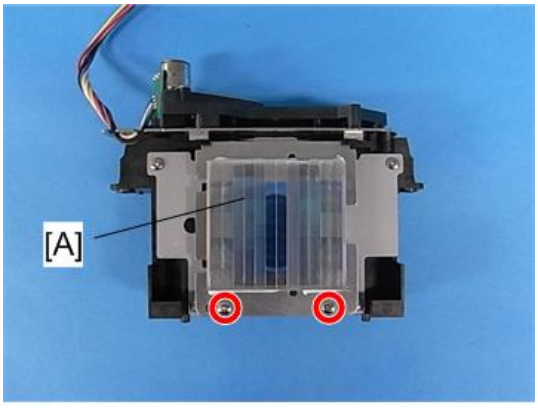
y0131119

3. **Remove the bracket [A].**



y0131128

4. **Remove the Integrator unit [A] (×2).**



y0131129

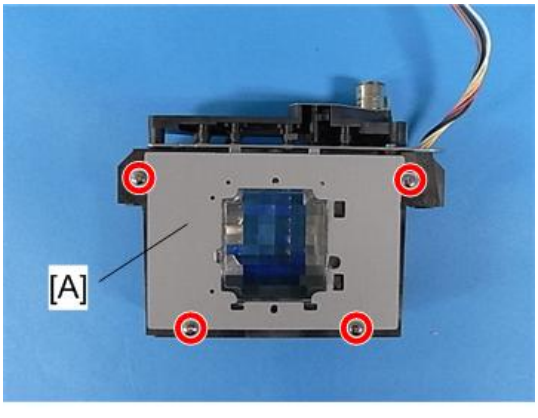
5. **Remove the PS-Converter [A] (×2).**

Integrator 1

⚠CAUTION

- Carefully handle the removed Integrator to avoid damaging it.

1. **Remove the PS-Converter (p.50).**



y0131130

2. **Remove the Integrator 1 [A] (×4).**

Note

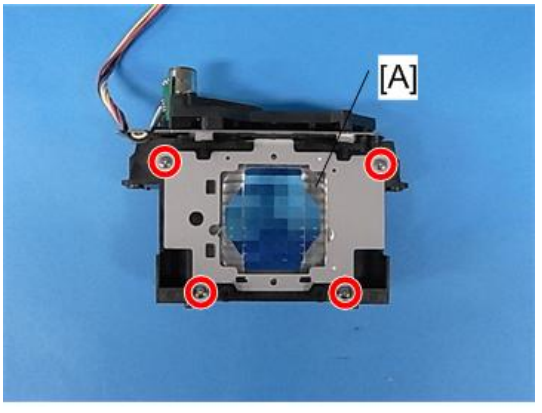
- When mounting Integrator 1, press it up against the area shown in the lower right of the figure, then screw it into place.

Integrator 2

⚠CAUTION

- Carefully handle the removed Integrator to avoid damaging it.

1. **Remove the PS Converter (☛ p.50).**

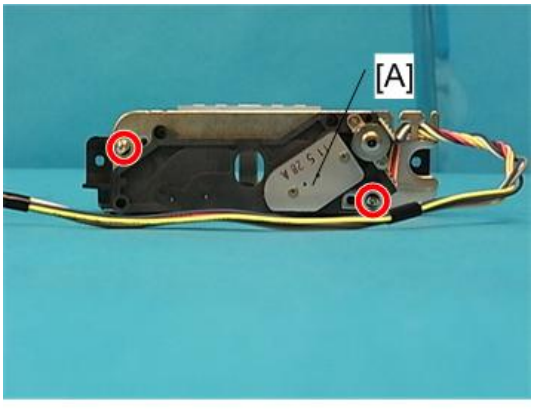


y0131131

2. **Remove the Integrator 2 [A] (×4)**

IRIS Unit

1. **Remove the Integrator unit (☛ p.50).**



y0131132

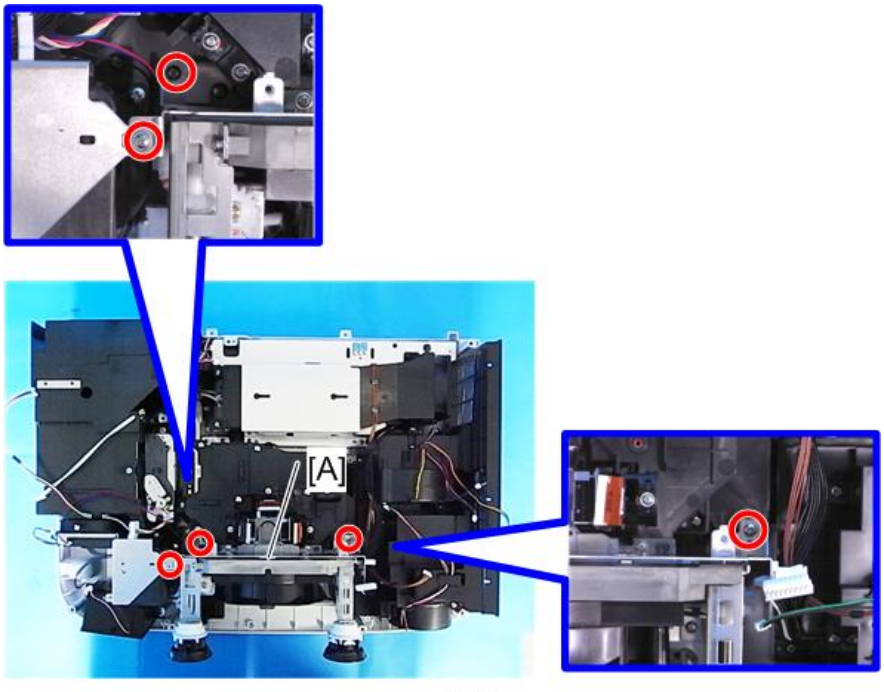
2. **Remove the IRIS unit [A] (×2).**

OPT Base

Note

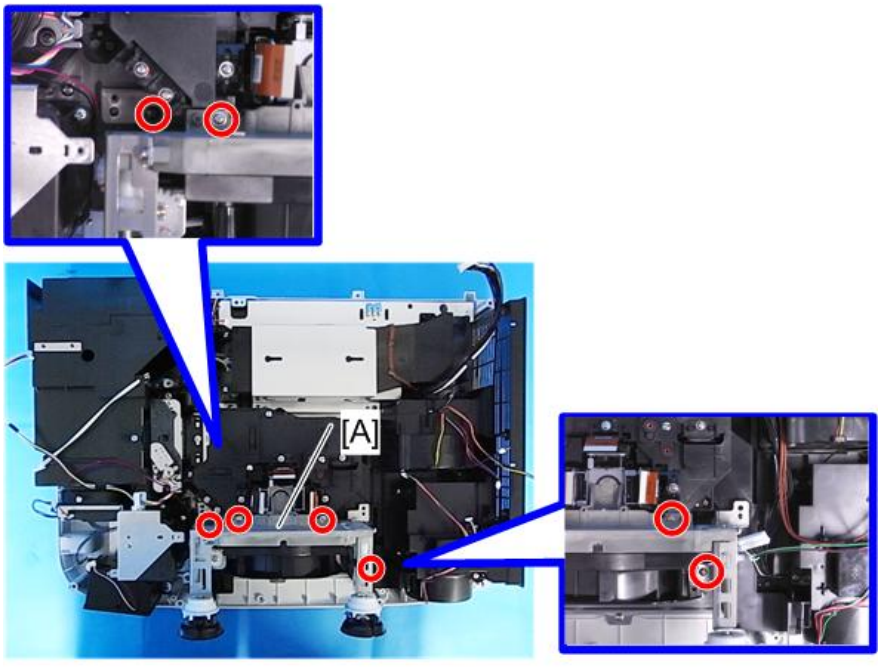
- After replacing the OPT base, you must make adjustments to the software (refer to Electrical Adjustment) and the optical axis (refer to Optical Parts Adjustment).

1. **Front Cover (☛ p.34).**
2. **Remove the USB Network Board (☛ p.37).**
3. **Remove the PCB Main Ass'y (☛ p.38).**
4. **Remove the PCB EX (☛ p.40).**



y0131133

5. Remove the bracket [A] (×3).

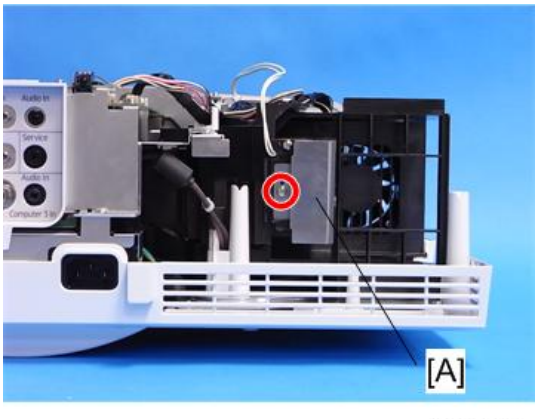


y0131134

6. Remove the OPT Base [A] (×4).

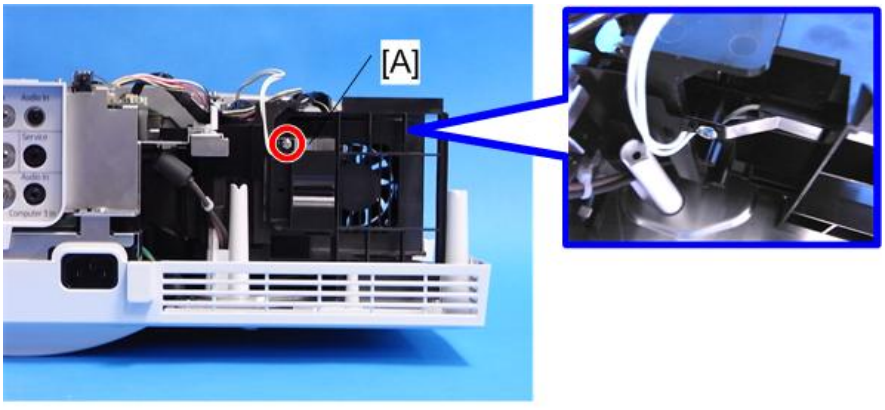
Thermostat

1. Remove the Exhaust Fan unit (p.40).



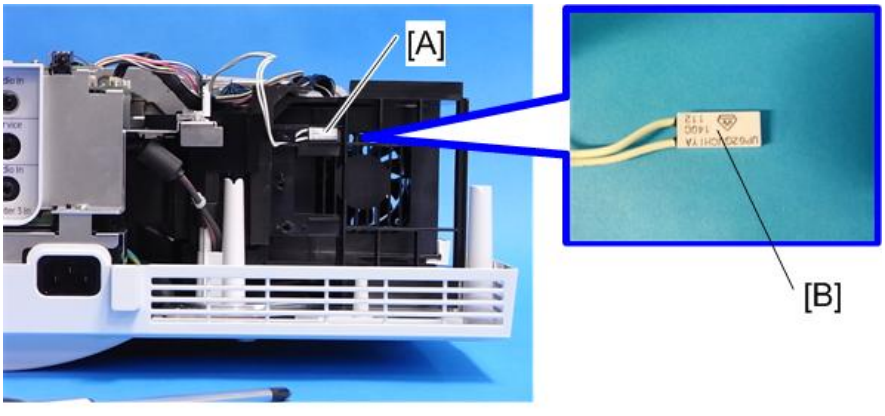
y0131136

2. Remove the barrier and guard [A] (×1).



y0131137

3. Remove the barrier and spring [A] (×1).



y0131138

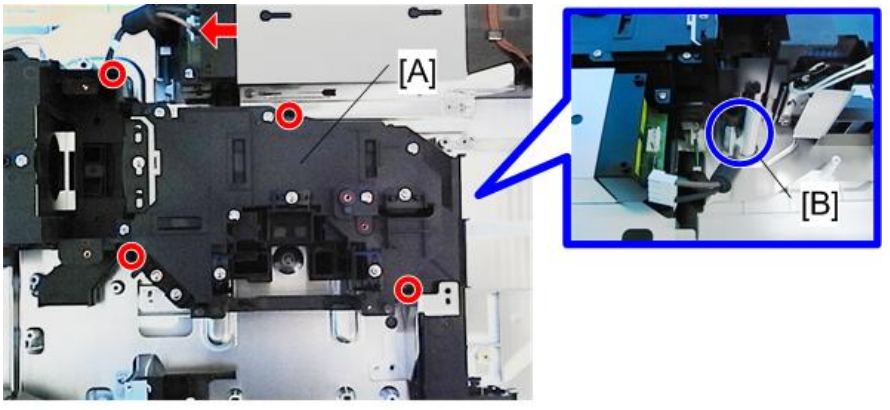
4. Remove the Thermostat [A].

   [B] : When assembling the projector, position the print side of the Thermostat to face you.

PCB Lamp Interlock

1. Front Cover (p.34).
2. Remove the Exhaust Fan (p.40).
3. Remove the Lamp and Integrator Fan unit (p.42).
4. Remove the Reflector Fan (p.44).
5. Remove the G and R-LCD Fan unit (p.45).
6. Remove the B-LCD Fan (p.48).

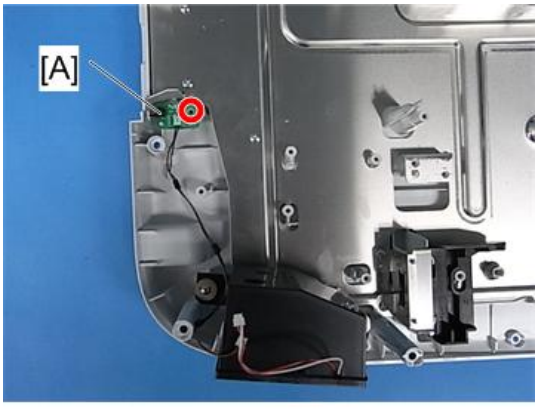
7. **Remove the Integrator unit (☛ p.50).**



y0131135

8. **Remove the Engine unit [A] (×4, ×1).**

   [B] : When assembling the projector, route the cable as shown in the figure.



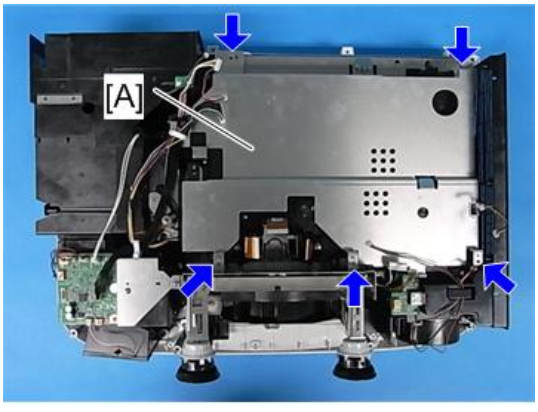
y0131139

9. **Remove the PCB Lamp Interlock [A] (×1).**

PSU Fan

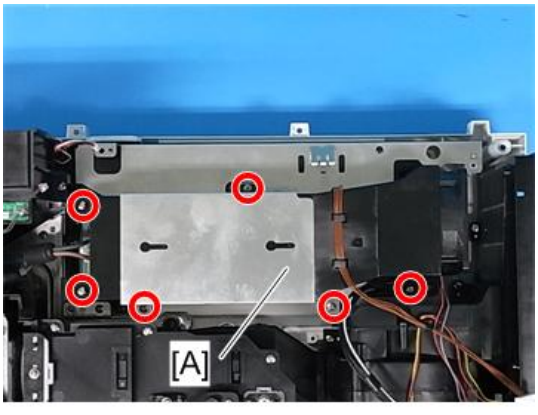
1. **Remove the USB Network Board (☛ p.37)**

2. Remove the PCB Main Ass'y (p.38).



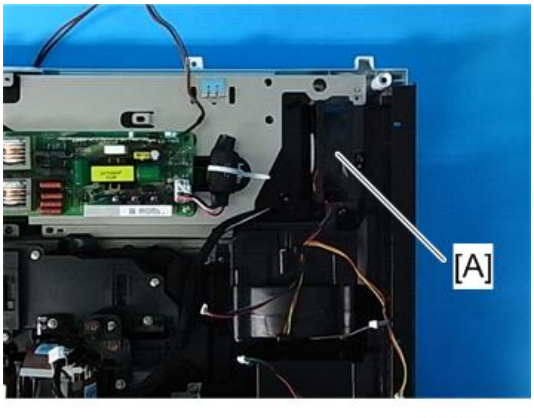
y0131119

3. Remove the bracket [A].



y0131141

4. Remove the bracket [A] (×6).



y0131142

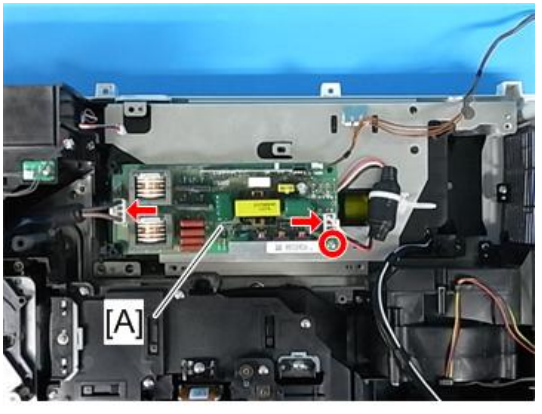
5. **Remove the PSU Fan [A].**

Note

- When installing the fan on the holder, make sure to install it in the correct orientation.

Power Supply-Ballast

1. **Remove the PSU Fan (p.56).**



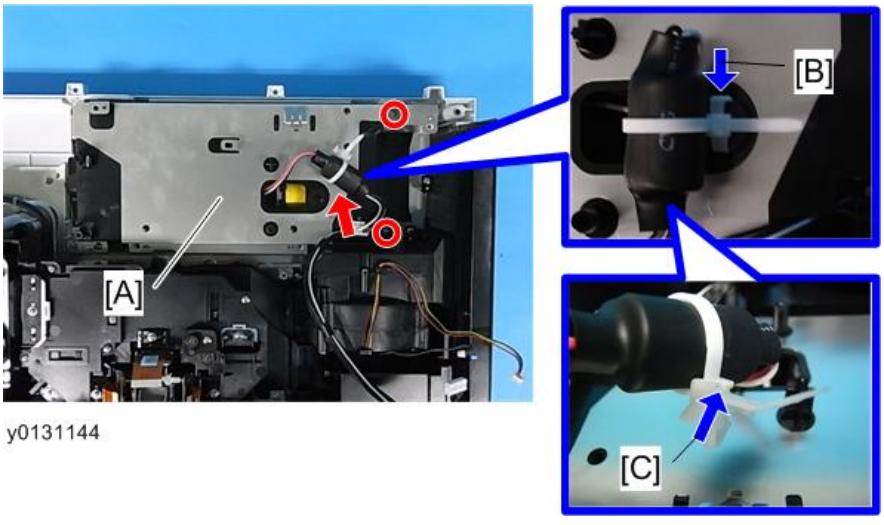
y0131143

2. **Remove the Power supply-ballast [A] (×1, ×2).**

Power Supply-DC

1. **Remove the PSU Fan (p.56).**

2. **Remove the Power supply-ballast (p.58).**

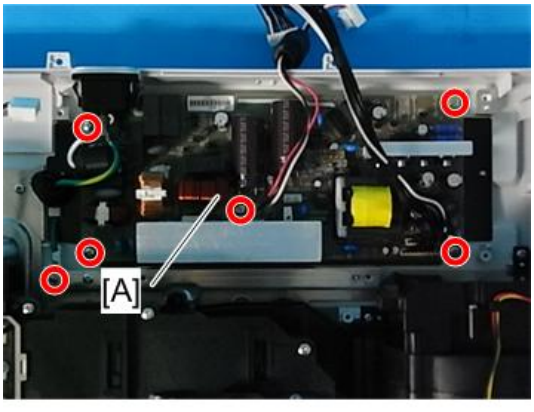


y0131144

3. **Remove the bracket [A] (×2).**

   [B] : Press the pin in the direction of the arrow and remove the core from the bracket.

   [C] : Push the stopper up in the direction of the arrow and remove the band from the core.



y0131145

4. **Remove the Power supply-DC (×6).**

Replacement of Optical Parts

Adjustments needed after the replacement of parts are as specified in the table below.

● : Adjustment needed

○ : Need checking

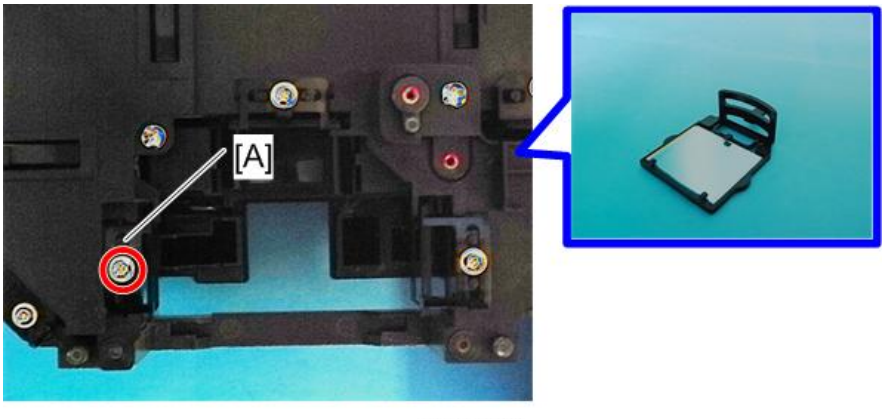
Adjustment parts	Disassembly/replacement of parts			
	Polarizing parts			OPT BASE
	R	G	B	
FL1 adjustments				○
RL2 adjustments				○
M1 adjustments				○
POLARIZER R SASSY	●			●
POLARIZER G SASSY		●		●
POLARIZER B SASSY			●	●

Polarizer-B

⚠CAUTION

- Polarizer B cannot be removed from the holder. Do not touch the polarizer.

1. **Remove the OPT Base (☛ p.53).**

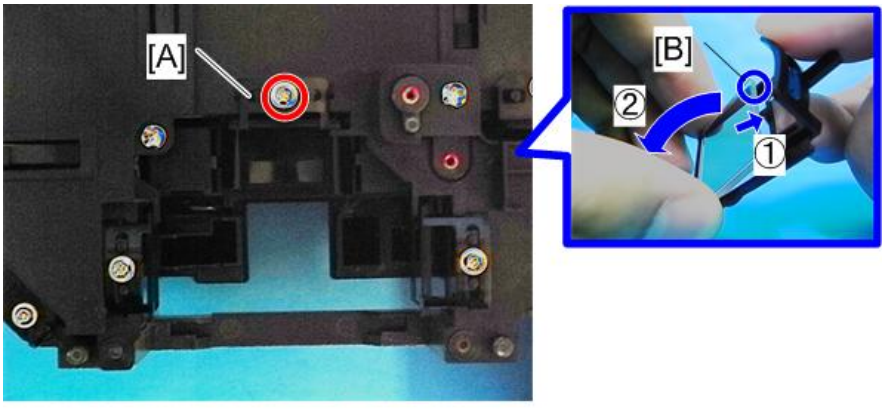


y0131146

2. **Remove the Polarizer-B [A] (×1).**

Polarizer-G

1. **Remove the OPT Base (p.53).**



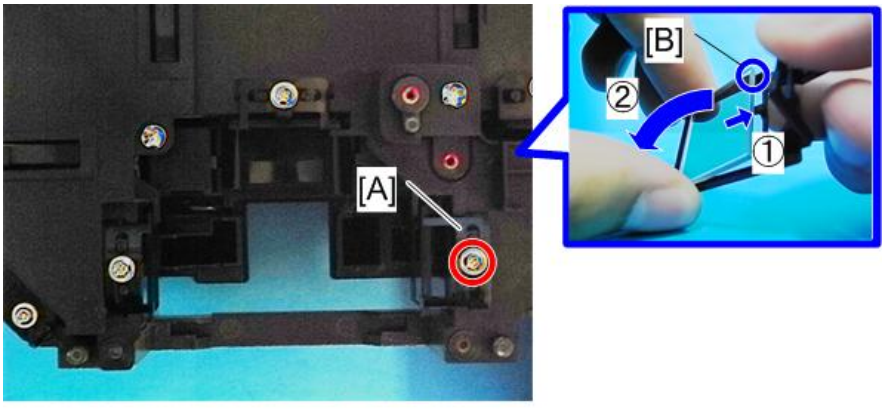
y0131147

2. **Remove the Polarizer-G [A] (×1).**

   [B] : Make sure to note the direction in which the Polarizer-G is set in the holder. You will notice a mark in the area enclosed by the blue circle in the figure.

Polarizer-R

1. **Remove the OPT Base (p.53).**



y0131148

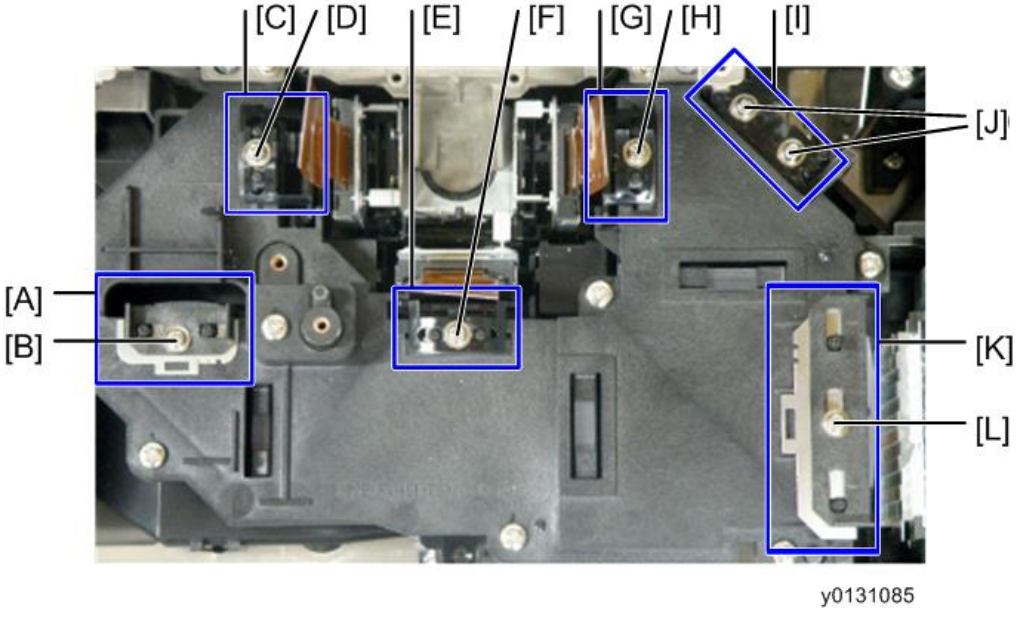
2. **Remove the Polarizer-R [A] (×1).**

   [B] : Make sure to note the direction in which the Polarizer-R is set in the holder. You will notice a mark in the area enclosed by the blue circle in the figure.

Optical Parts Adjustment

Adjustments needed after the replacement of polarization plates.

Adjusting and fixing parts



[A] : RL2

[B] : RL2 Fixing screw

[C] : Polarization plate (R)

[D] : Polarization plate fixing screw (R)

[E] : Polarization plate (G)

[F] : Polarization plate fixing screw (G)

[G] : Polarization plate (B)

[H] : Polarization plate fixing screw (B)

[I] : M1

[J] : M1 Fixing screw

[K] : FL1

[L] : FL1 Fixing screw

Adjustment of the optical axis (Shadow adjustment)

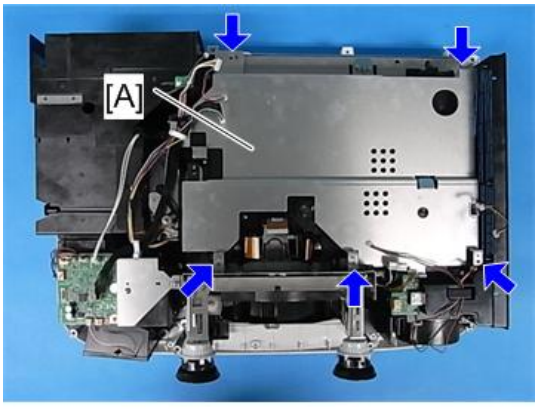
If the projection test succeeds after the Polarization plates are replaced, there is no need to perform Shadow Adjustment.

1. **Top cover (☛ p.31).**

   ⚠CAUTION

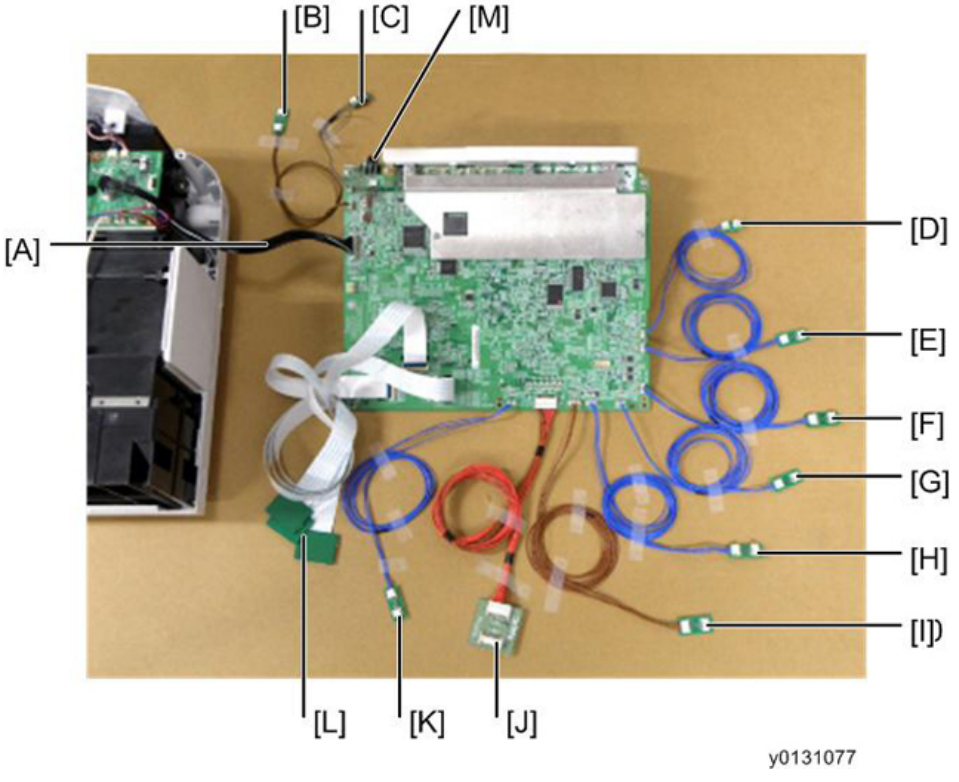
   - The PCB Main Ass'y and the PCB Key-Pad (TOP COVER) are connected through a 10P connector.

2. **Remove the PCB Main Ass'y (☛ p.38).**



y0131119

3. Remove the bracket [A].



[A] : To EX PWB POEX (40P) (The cable connected to the projector is used as it is.)

[B] : To FAN POFAN8 (3P)

[C] : To TH3 PWB POTH3 (2P)

[D] : To TH1 PWB POTH1 (2P)

[E] : To FAN POFAN1 (3P)

[F] : To FAN POFAN2 (4P)

[G] : To FAN POFAN4 (3P)

[H] : To LCAP PWB POLCAP (4P)

[I] : To BS UNIT POLM (5P)

[J] : To PS UNIT POPS (18P)

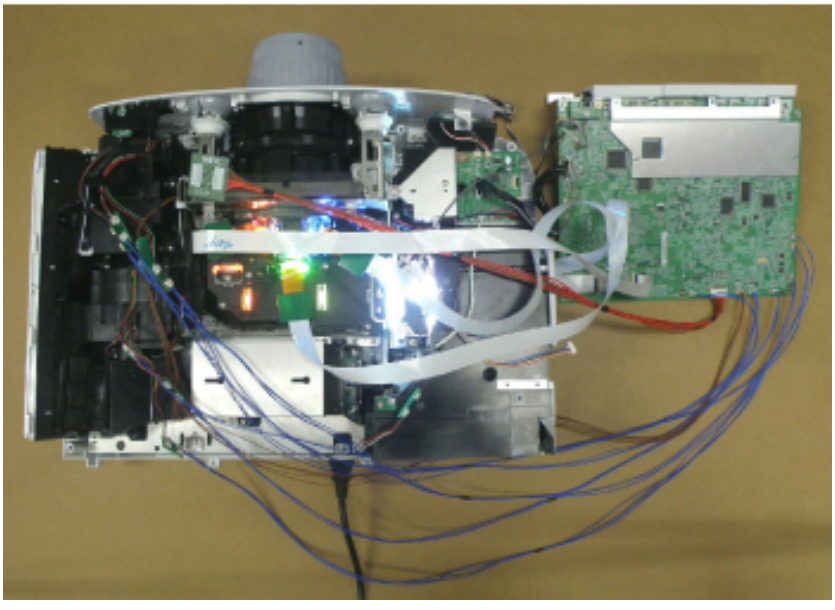
[K] : To FAN POFAN3 (3P)

[L] : To R/G/B LCD (40P)

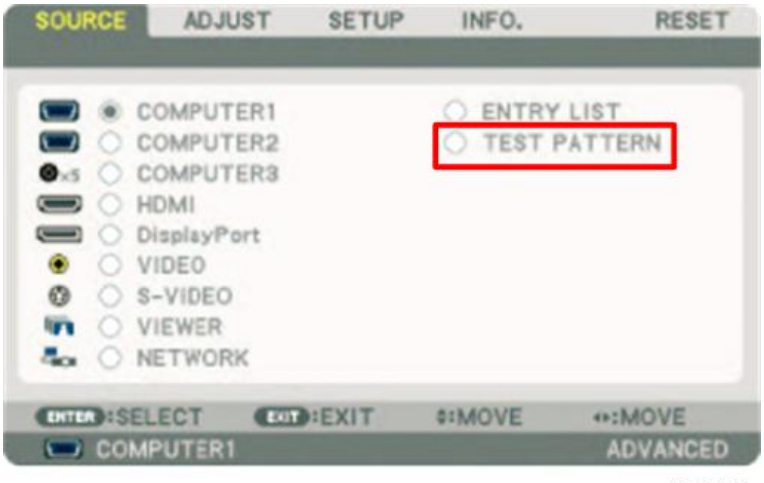
[M] : To IRIS Unit

* Refer to “Special Tools”.

4. **Connect the extension connectors to the PCB Main Ass'y that has been removed.**



5. **Connect the respective connectors of the projector with the extension connector PWB (×13).**



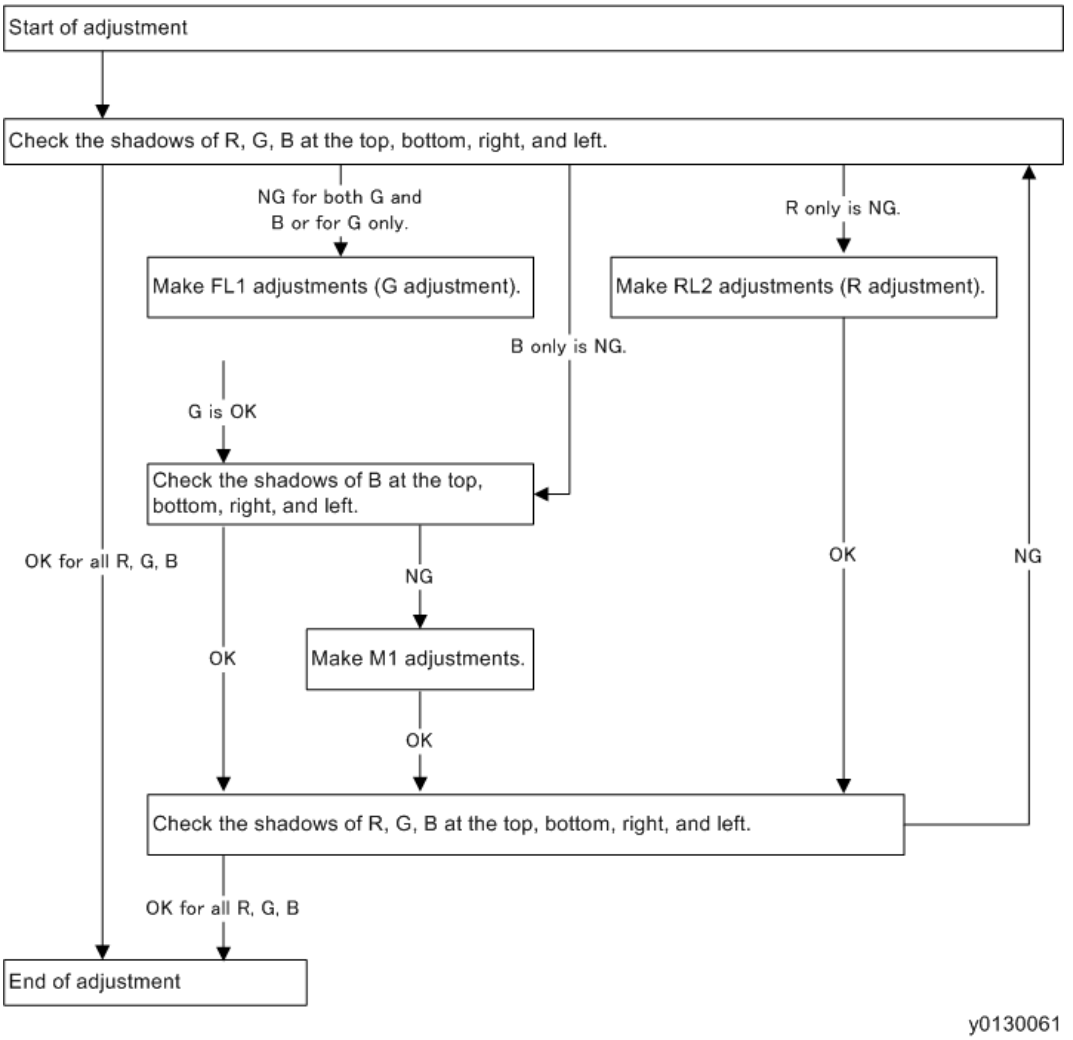
y0131079

6. **Start the projector. Display an internal pattern (all-white signal).**

   (Select the test pattern in the Source screen.)

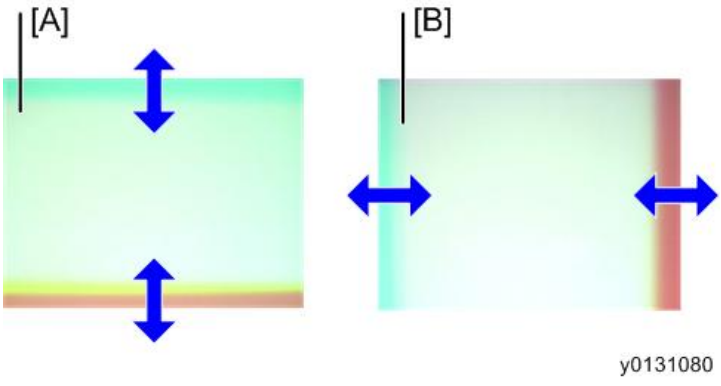
7. **Make shadow adjustments.**
8. **After the completion of adjustments, recover the original status.**

Shadow adjustment flow



Handling of margin in shadow adjustment

During shadow adjustment, adjust the margin so that it is balanced vertically and horizontally. If adjustments are carried out from the LCD panel, this margin cannot be seen directly. Therefore, try to move the shadow until its top, bottom, right, or left part appears. By doing so, examine how much shadow is existing vertically and horizontally. Stop moving the shadow where its margin seems to be well balanced.



[A] : Shadow in vertical direction

[B] : Shadow in vertical direction

Neutral setup position for each adjuster block

- FL1

  Vertical: The state when the holder (FL) maintains the height of one (FL) T1.0 spacer and one T0.5 spacer.

  Horizontal: Bosses of OPT COVER are located in the right and left holder (FL) holes, each in the center position.

- RL2

  Vertical: The state when the holder (RL2) maintains the height of one (RL2) T1.0 spacer and one T0.5 spacer.

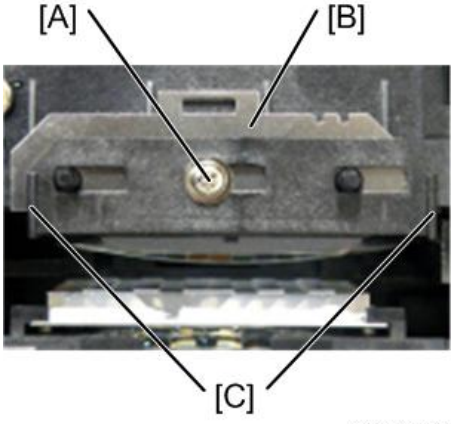
  Horizontal: Bosses of OPT COVER are located in the right and left holder (RL2) holes, each in the center position.

- M1

  The outer edge plane of the separator base is joined with the edge plane of the holder (M1).

Operation of each adjusting part (see "Adjusting and fixing parts")

FL adjustment



y0131081

[A] : Fixing screw

[B] : Spacer (FL)

[C] : Handle part of the holder (FL1)

Vertical direction:

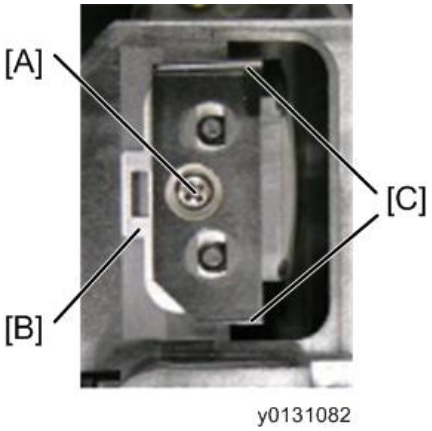
1. Loosen the FL1 fixing screw (in 1 position).
2. Change the spacer (FL) thickness and adjust the shadow margin so that it is vertically equalized. Arrange the spacers so that the total quantity of spacers is as small as possible.
   * The upper limit of the amount of spacers (thickness) in total is 5 mm.

Horizontal direction:

1. Hold the handle part of the holder (FL1) by hand, and move the holder to the right and left in order to adjust the shadow margin so that it is horizontally equalized.
2. After adjustments, fix the FL1 fixing screw (1 position).

   The tightening torque shall be 0.35 ± 0.05N • m.

RL2 adjustment



y0131082

[A] : Fixing screw

[B] : Spacer (RL2)

[C] : Handle part of the holder (RL2)

Vertical direction:

1. Loosen the RL2 fixing screw (1 position).
2. Change the spacer (RL2) thickness and adjust the shadow margin until it is vertically equalized.

   Arrange the spacers so that the total number of spacers is as small as possible.

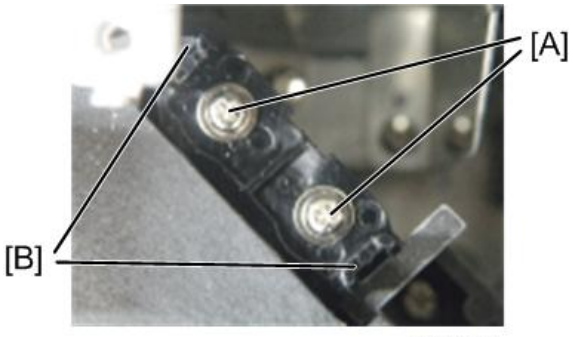
   * The upper limit of the amount of spacers (thickness) in total is 2mm.

Horizontal direction:

1. Hold the handle part of the holder (RL2) by hand, and move the holder to the right and left in order to adjust the shadow margin so that it is horizontally equalized.
2. After adjustments, fix the RL2 fixing screw (1 position).

   The tightening torque shall be 0.35 ± 0.05N • m.

M1 adjustment



[A] : Fixing screw

[B] : Handle part of the holder (M1)

1. Loosen the M1 fixing screws (2 positions).
2. Grip the handle part of the holder (M1) by hand, and move the holder to the right and left in order to adjust the shadow position both vertically and horizontally so that it is equally positioned. Make adjustments, paying attention to the directions that M1 rotates and drops down.
3. After adjustments, fix the M1 fixing screws (2 positions).

   The tightening torque shall be 0.35 ± 0.05N • m.

Shadow adjustment for each color

- Vertical shadow adjustment for G and B

  Move the holder (FL1) vertically and eliminate the vertical shadow. (Equally balanced in vertical directions)

(Make adjustments until the portions in magenta or reddish color are eliminated vertically and uniformly in the projector screen.)

- Horizontal shadow adjustment for G and B

  Move the holder (FL1) horizontally and eliminate the horizontal shadow. (Equally balanced in horizontal directions)

  (Make adjustments until the portions in magenta or reddish color are eliminated horizontally and uniformly in the projector screen.)

- Shadow adjustment for B only

  It is possible to adjust the fall. Move the holder (M1) and eliminate the shadows in all directions. (Equalize the shadows both vertically and horizontally.)

  (Make adjustments until the portions in amber or yellowish color are eliminated vertically, horizontally, and uniformly in the projector screen.)

- Horizontal shadow adjustment for R

  Move the holder (RL2) horizontally and eliminate the horizontal shadow. (Equally balanced in horizontal directions)

  (Make adjustments until the portions in cyan are eliminated horizontally and uniformly in the projector screen.)

- Vertical shadow adjustment for R

  Move the holder (RL2) vertically and eliminate the vertical shadow. (Equally balanced in vertical directions)

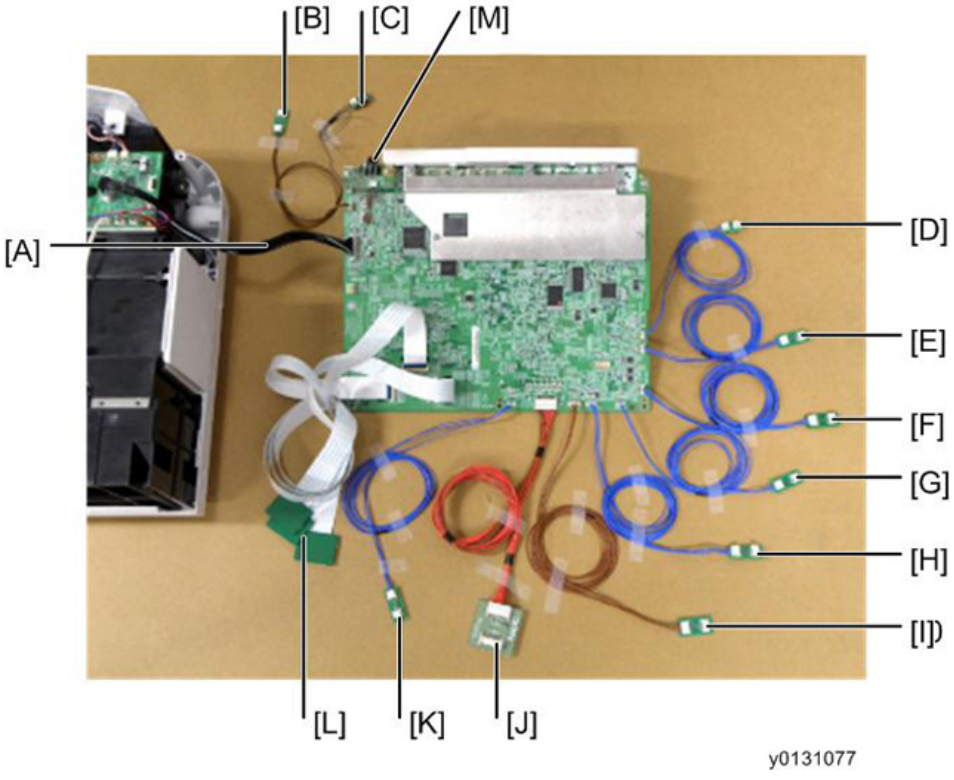
  (Make adjustments until the portions in cyan color are eliminated vertically and uniformly in the projector screen.)

- Cleaning after shadow adjustments

  When the lamp is turned off after the adjustment of the polarizing plate, about 30 seconds of cooling shall be carried out. Then the power supply is turned off.

Adjustment of the polarization plate (Contrast adjustment)

Outlined description of adjusting work



[A] : To EX PWB POEX (40P) (The cable connected to the projector is used as it is.)

[B] : To FAN POFAN8 (3P)

[C] : To TH3 PWB POTH3 (2P)

[D] : To TH1 PWB POTH1 (2P)

[E] : To FAN POFAN1 (3P)

[F] : To FAN POFAN2 (4P)

[G] : To FAN POFAN4 (3P)

[H] : To LCAP PWB POLCAP (4P)

[I] : To BS UNIT POLM (5P)

[J] : To PS UNIT POPS (18P)

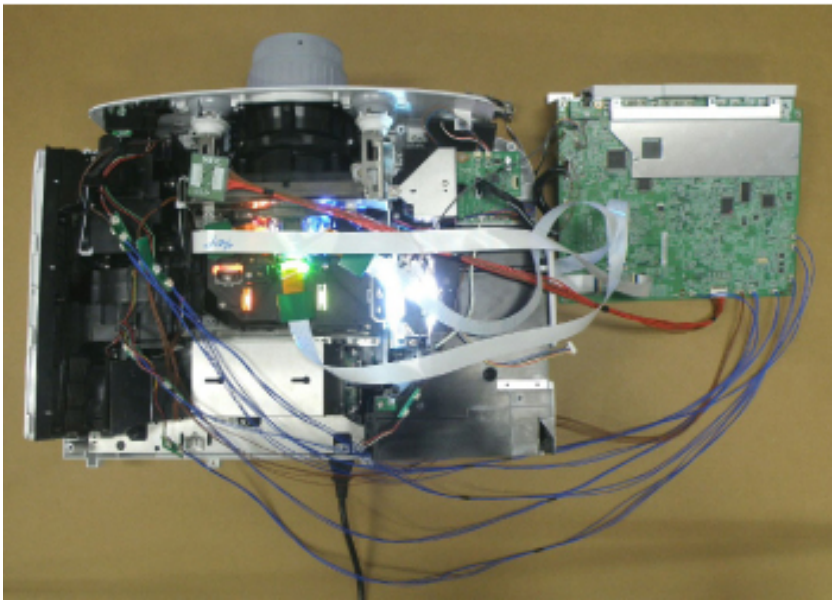
[K] : To FAN POFAN3 (3P)

[L] : To R/G/B LCD (40P)

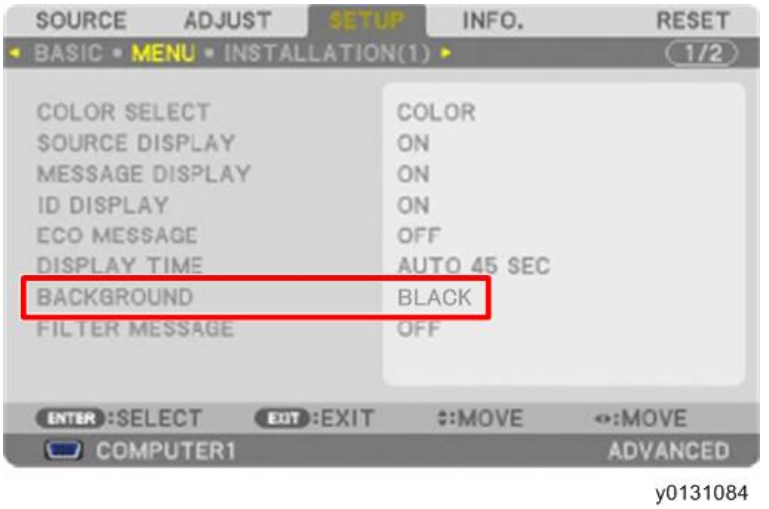
[M] : To IRIS Unit

* Refer to “Special Tools”.

1. **Connect the extension connectors to the PCB Main Ass'y that has been removed.**



2. **Connect the respective connectors of the projector with the extension connector PWB (×13).**



y0131084

3. **Start the projector. Display an internal pattern (all-black signal).**

   (Select Install and Setup on the menu screen and set the background at Black Background.)

4. **Adjust the polarization plate.**

5. **After the completion of adjustments, return the projector to its original state.**

Method of adjustment (see "Adjusting and fixing parts")

1. Loosen the polarizing plate set screw (in one position) with a Phillips screwdriver.

2. Turn to move the polarizer (folder with a boss). (Manual)

   Display an all-black screen, stop it where the screen becomes darkest, and fix the polarizer set screw (one position).

   The tightening torque shall be 0.35 ± 0.05N • m.

   Follow the steps of (1) and (2) above in the order of the Green, Red, and Blue Channels.

Cooling after the adjustment of the polarizing plate

When the lamp is turned off after the adjustment of the polarizing plate, about 30 seconds of cooling shall be carried out. Then the power supply is turned off.

Electrical Adjustment

Adjustments needed after the replacement of Main PWB is as specified in the table below.

● : Adjustments needed

○ : Data Read/Write

Data writing		
	Data for each model	●
	EDID Data	●
	Serial number and Model number	●
Data Read/Write		
	Flicker Data	○
	VT Data	○
	Uniformity Data	○
	Color Correction Data	○
	Multi Data	○
	Usage Time Data	○
Flicker adjustment		
	Floor	●
Usage Time setup		●

Important

- Procedures for the replacement of the PCB Main Ass'y
- When all data can be copied
  - Before the replacement of PCB Main Ass'y

    Copying of all data
  - After the replacement of PCB Main Ass'y
    1. Data writing for each model is carried out
    2. PCB Main Ass'y adjustments (writing of copied All Data)
    3. EDID data writing is carried out

4. Data writing for Serial number and Model number

- When all data cannot be copied
  - After the replacement of PCB Main Ass'y
    1. Data writing for each model is carried out
    2. PCB Main Ass'y adjustments (Flicker adjustments, Usage Time setup)
    3. EDID data writing is carried out
    4. Data writing for Serial number and Model number

Model-Specific Data Writing Procedure

Model-specific data writing procedure

Writing procudures shall be performed from step 1 to step 2.

1. **Writing the model-specific VerUpField data**

   Writing software : PJUpgrader2vupf.exe

   File name to be written : ********_vupf_V000001.bin

2. **Writing the model-specific product data**

   Writing software : PJUpgrader2.exe

   File name to be written : *********_Data_V102025.bin

3. **Initial setting of writing software**

   [COM port]: Set the COM port of the used PC (this is explained in the following procedure).

   [Baud rate]: Match the setting of the PJ

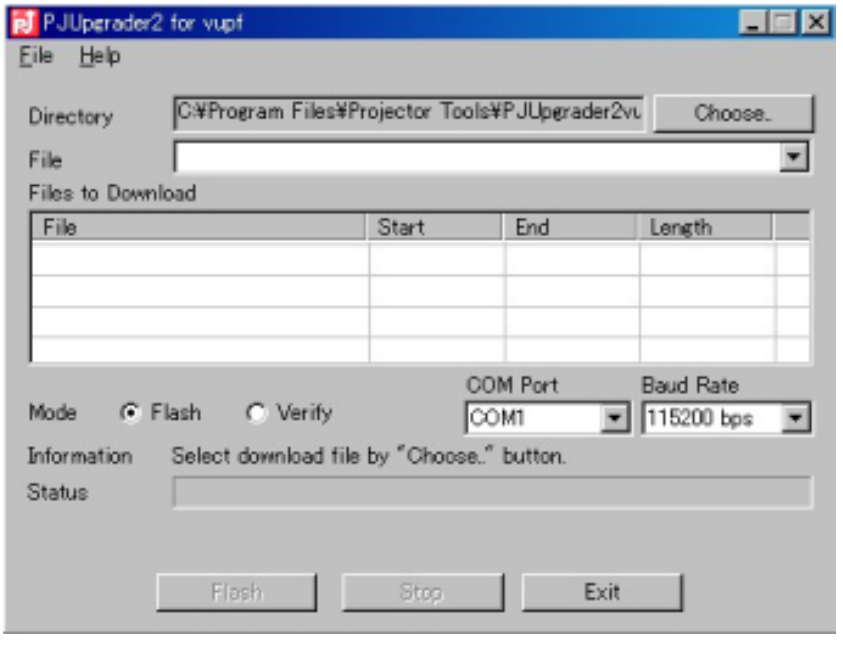
Operation Procedure

Prior to operation, install the writing software (PJUpgrader2vupf.exe and PJUpgrader2.exe) and copy the files for the model (********_vupf_V000001.bin and ********_Data_V102025.bin).

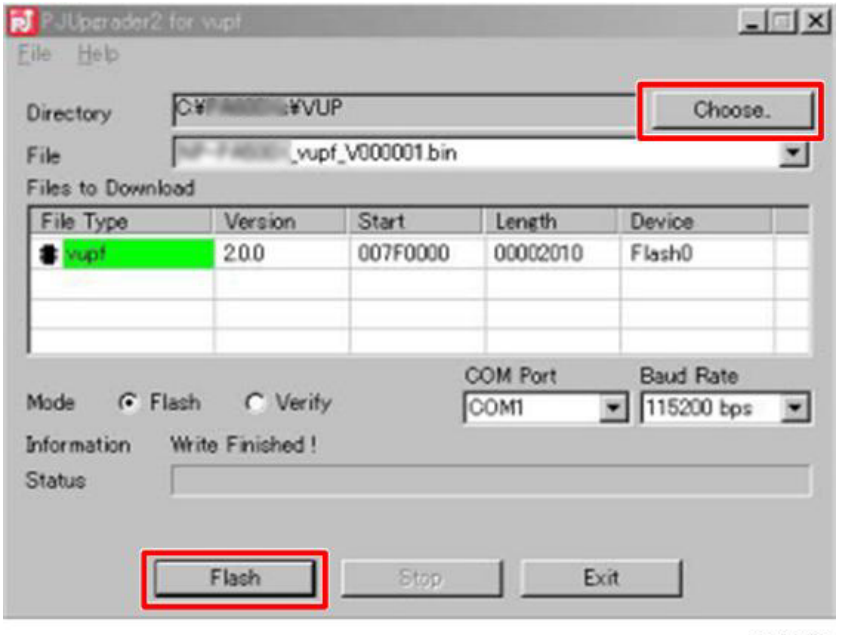
Model-specific VerUpField data

1. **Connect the projector to a PC with a PC control cable.**
2. **Turn the power ON, pressing the [ENTER] and [BACK] keys of the main unit simultaneously. (AC source turned on)**

3. Release the [ENTER] and [BACK] keys when the Power LED blinks in green.



4. Start up PJUpgrader2vupf.exe previously installed.



y0131031

5. Press [choose....] button to select the file (********_vupf_V000001.bin) to be written.
6. Check that the set and PC are properly connected each other, then press [Flash] button. Message "Do you start flash write?" is displayed.

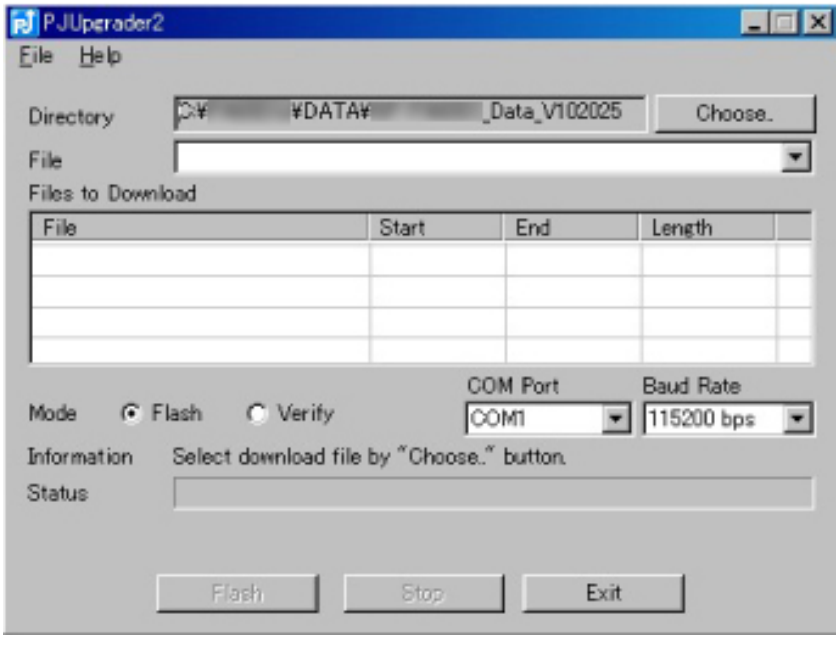
7. **When [Yes(Y)] button is pressed, writing is started.**

   (Progress bar showing writing situation is displayed.)

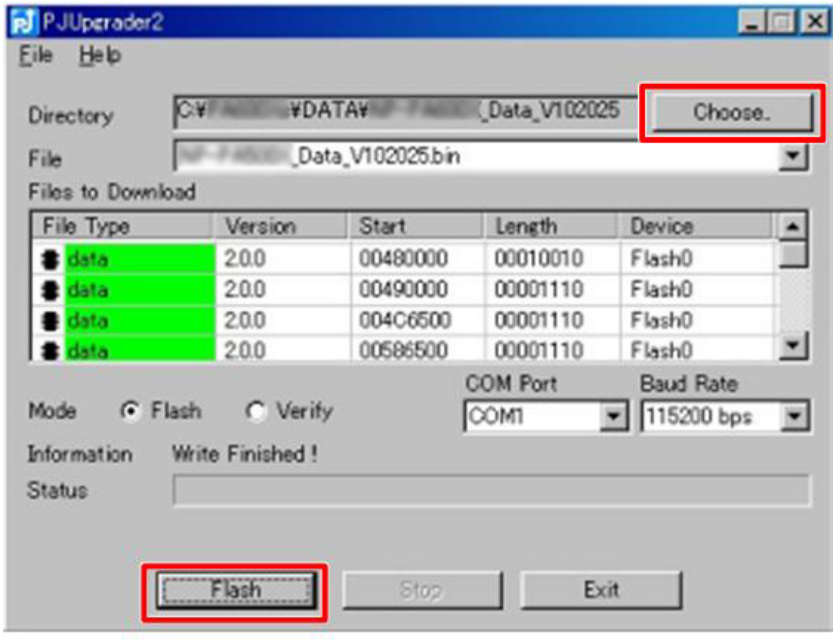
8. **Message "Write Finished!" is displayed, when completed. Press [OK] button to finish the operation.**

Model-specific production data

1. **Connect projector to PC with a PC control cable.**
2. **Turn the power ON, pressing the [BACK] and [MENU] keys of the main unit simultaneously. (AC source turned on)**
3. **Release the [BACK] and [MENU] keys when the Power LED blinks in green.**



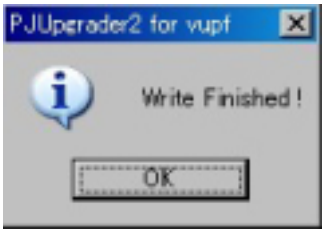
4. **Start up PJUpgrader2.exe copied previously.**



y0131035

5. **Press [choose....] button to select the file (********_Data_V102025.bin) to be written.**
6. **Check that the set and PC are properly connected each other, then press [Flash] button. Message "Do you start flash write?" is displayed.**
7. **When [Yes(Y)] button is pressed, writing is started.**

   (Progress bar showing writing situation is displayed.)



8. **Message "Write Finished!" is displayed, when completed. Press [OK] button to finish the operation.**

Error Messages

- Header information is illegal. (-308)

  Check the selected file.

  PJUpgrader2 for vupf cannot rewrite the firm data

- Attestation failure. (-1001)

  When rewriting the version up field, it is required to set the projector in writing only mode in advance. (You pressed the wrong buttons when turning on the projector.)
- The model information of the file conflicts with that of the connected projector. (-1002)

  Check the projector connecting to the selected file.

  The projector connected is not that the selected file can write for.

Procedure for rewriting EDID data

Outline software descriptions

This is PC control software to rewrite EDID data of PCB Main Ass'y supporting PJ X6180N/WX6170N.

Equipment to be used and environment

Equipment to be used

- EDID rewriting software

  EDIDWrite.exe

  PJUpgrader2.exe
- EDID data (HDMI) ("***" in the file name denotes the version.)

  PJ-X6180N_EDID_HDMI_V***.bin

  PJ-WX6170N_EDID_HDMI_V***.bin
- EDID data (Analog) ("***" in the file name denotes the version.)

  PJ-X6180N_EDID_DSUB_V***.bin

  PJ-WX6170N_EDID_DSUB_V***.bin
- EDID data (Display Port) ("***" in the file name denotes the version.)

  PJ-X6180N_EDID_DP_V***.bin

  PJ-WX6170N_EDID_DP_V***.bin
- PC

  A Windows XP / 2000 operable PC, which enables a serial cable and RGB (analog) video connection with the projector.
- Serial cable

  D-SUB9pin-D-SUB9pin, Cross (reverse) cable

Software installation procedures

1. **Installing PJUpgrader2**

   Execute “PJUpgrader2_***.exe”.

   Proceed installing following the instructions.

   * When the previous version is installed, uninstall it first. And install the new version.
2. **Installing EDIDwriter**

   Copy all files of “EDIDwriter” into any folder.
3. **Installing EDIDdata**

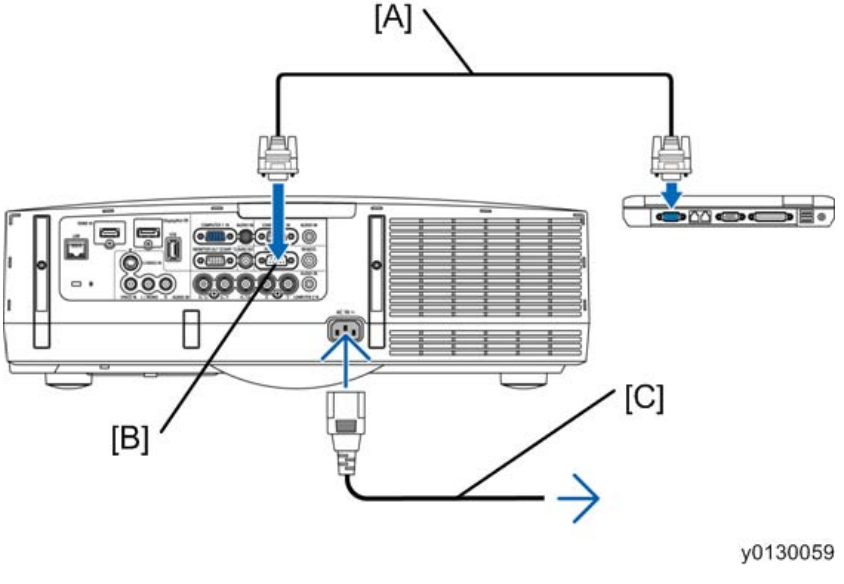
   Copy each EDID data to any folder, and execute.

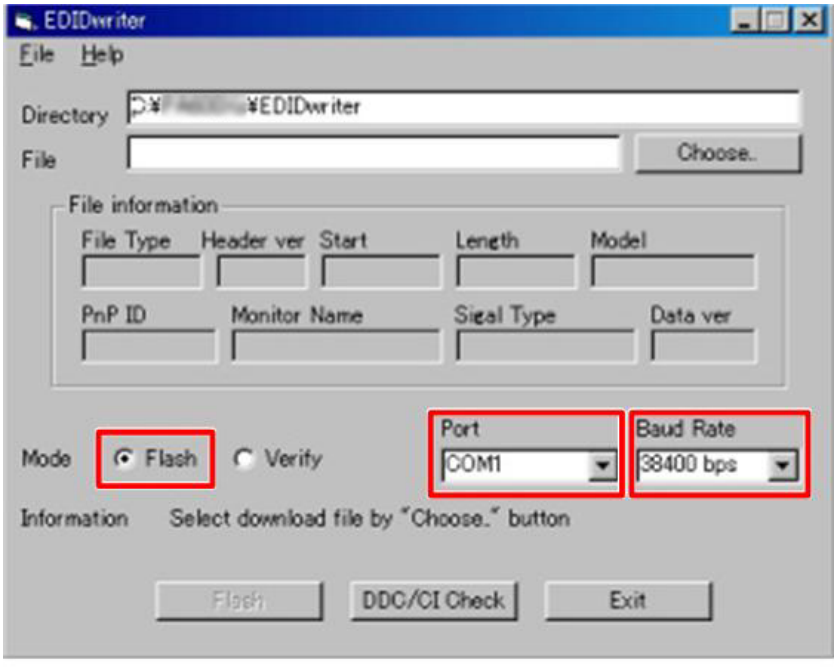
Rewrite procedure

Change the data as specified below.

1. Rewrite HDMI terminal EDID.
2. Rewrite D-SUB terminal EDID.
3. Rewrite DP (Display Port) terminal EDID.

Rewriting HDMI terminal EDID





y0131037

1. **Initial setting**

   Set the power supply of the projector main unit under the STANDBY conditions.

   Connect the projector and the PC with a serial cable, referring to "Equipment to be used and environment". Then activate "EDIDwriter".

   [A] : Serial cable

   [B] : PC CONTROL

   [C] : Power cord (supplied)

   - Mode

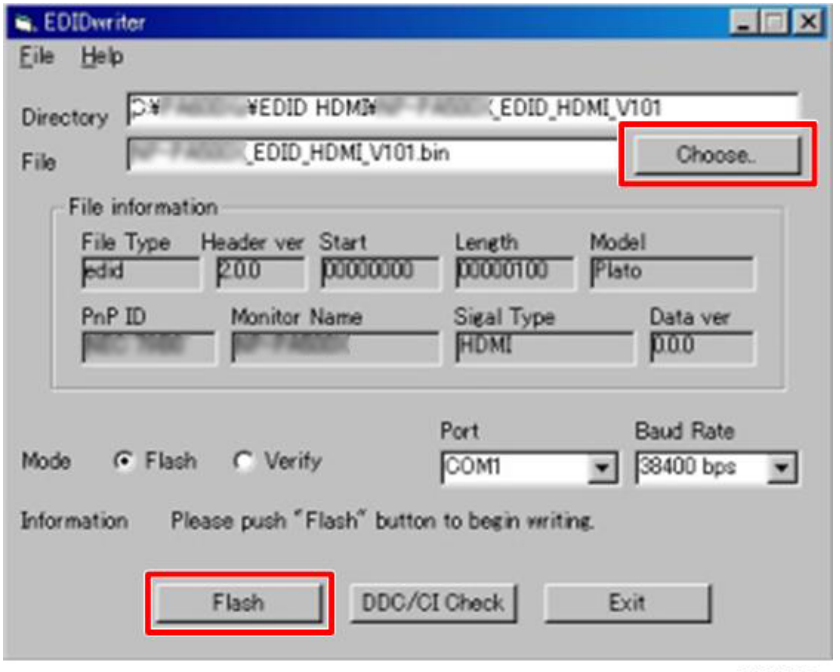
     Select "Flash".

   - Port

     Select the corresponding Com Port for the target PC.

   - Baud Rate

     Match the setting of the PJ



y0131038

2. Selecting a writing file

Click "Choose.." button to select the file.

* Select HDMI EDID data from File name "*****yyyy_EDID_HDMI_VxxxD.bin". (yyyy:Model, xxx:version).

- Comparison Table of Model Names and EDID File Names of HDMI

Model Name	EDID File Name
PJ-X6180N	PJ-X6180N_EDID_HDMI_V***.bin
PJ-WX6170N	PJ-WX6170N_EDID_HDMI_V***.bin

* The asterisks *** of the fine name denote a version.

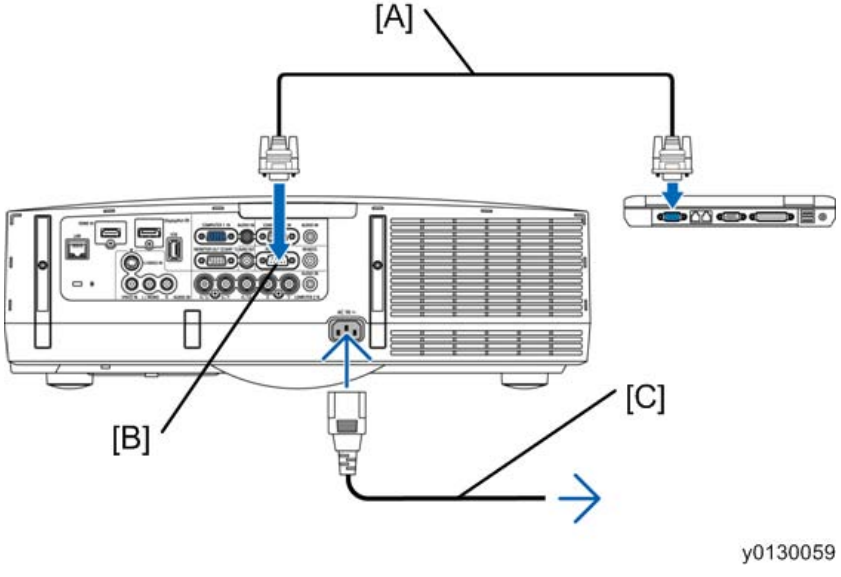
3. **Rewriting data**

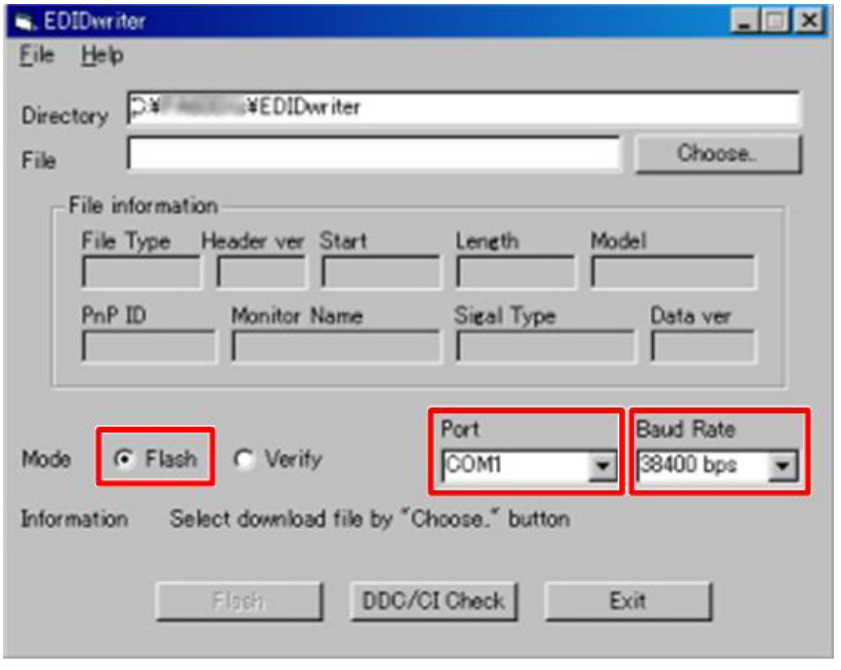
   Make sure that the projector and the PC are properly connected, and then click "Flash" button. Rewriting HDMI terminal EDID is started.

   When writing is completed, the message "Write Finished!" will be displayed.

   Click "OK" button to finish the procedure.

Rewriting D-SUB terminal EDID





y0131040

1. Initial setting

Set the power supply of the projector main unit under the STANDBY conditions.

Connect the projector and the PC with a serial cable, referring to "2Equipment to be used and environment". Then activate "EDIDwriter".

[A] : Serial cable

[B] : PC CONTROL

[C] : Power cord (supplied)

- Mode

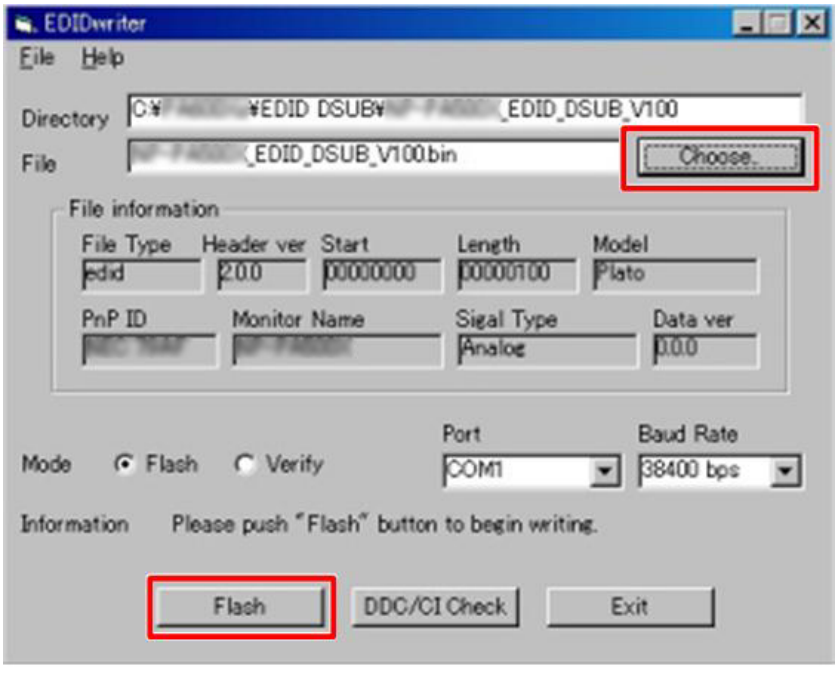
  Select "Flash".

- Port

  Select the corresponding Com Port for the target PC.

- Baud Rate

  Match the setting of the PJ



y0131041

2. Selecting a writing file

Click "Choose.." button to select the file.

* Select D-SUB EDID data from File name "******yyyy_EDID_DSUB_Vxxxbin". (yyyy:Model series name, xxx: version)

- Comparison Table of Model Names and Analog EDID File Names

Model Name	EDID File Name
PJ-X6180N	PJ-X6180N_EDID_DSUB_V***bin
PJ-WX6170N	PJ-WX6170N_EDID_DSUB_V***bin

* The asterisks *** of the fine name denote a version.

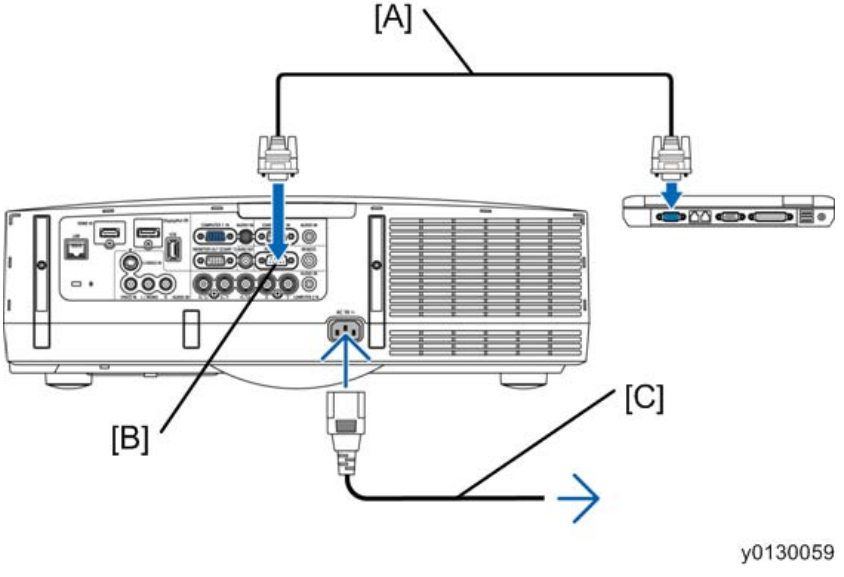
3. **Rewriting data**

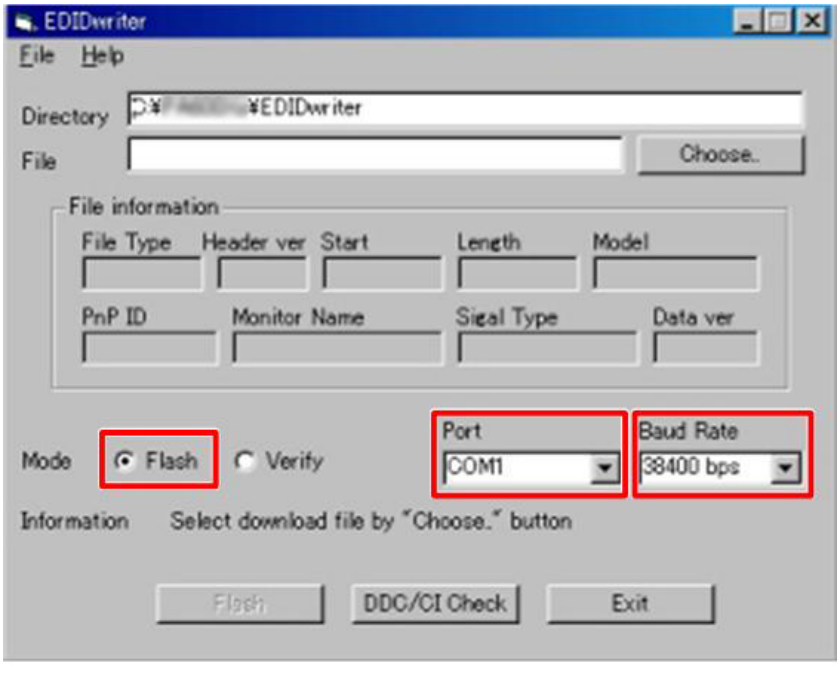
Make sure that the projector and the PC are properly connected, and then click "Flash" button. Rewriting HDMI terminal EDID is started.

When writing is completed, the message "Write Finished!" will be displayed.

Click "OK" button to finish the procedure.

Rewriting DP (Display Port) terminal EDID





y0131043

1. **Initial setting**

   Set the power supply of the projector main unit under the STANDBY conditions.

   Connect the projector and the PC with a serial cable, referring to "Equipment to be used and environment". Then activate "EDIDwriter".

   [A] : Serial cable

   [B] : PC CONTROL

   [C] : Power cord (supplied)

   - Mode

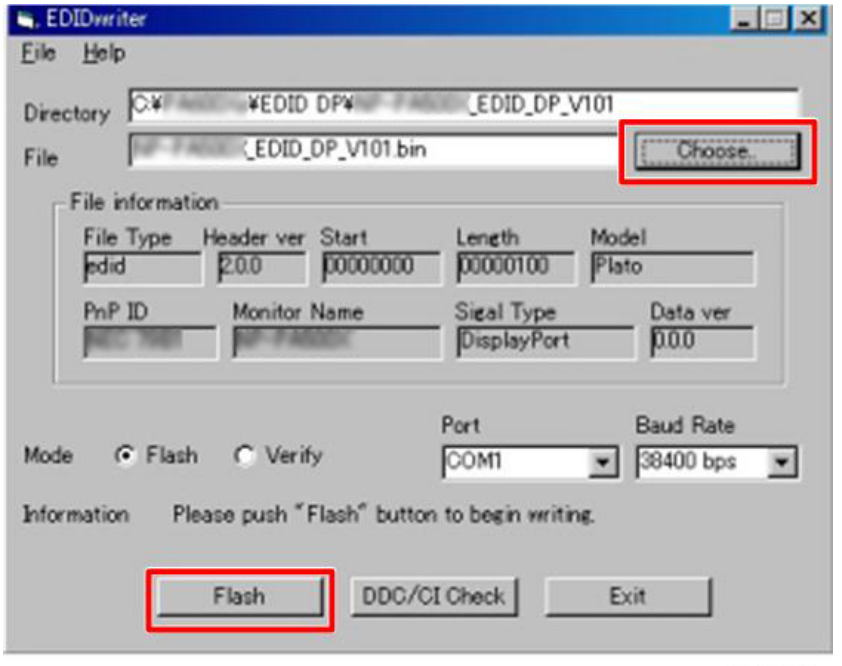
     Select "Flash".

   - Port

     Select the corresponding Com Port for the target PC.

   - Baud Rate

     Match the setting of the PJ



y0131044

2. Selecting a writing file

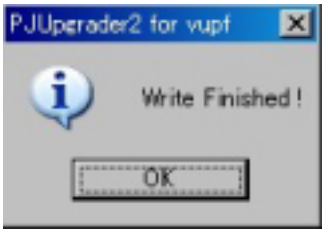
Click "Choose.." button to select the file.

* Select DP EDID data from File name "*****yyyy_EDID_DP_Vxxx.bin". (yyyy:Model, xxx: version).

- Comparison Table of Model Names and EDID File Names of HDMI

Model Name	EDID File Name
PJ-X6180N	PJ-X6180N_EDID_DP_V***bin
PJ-WX6170N	PJ-WX6170N_EDID_DP_V***bin

* The asterisks *** of the fine name denote a version.



3. **Rewriting data**

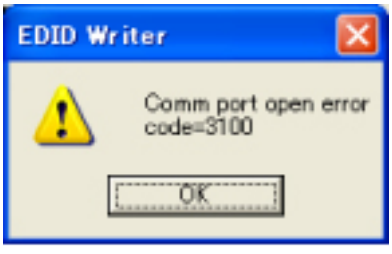
   Make sure that the projector and the PC are properly connected, and then click "Flash" button. Rewriting HDMI terminal EDID is started.

   When writing is completed, the message "Write Finished!" will be displayed.

   Click "OK" button to finish the procedure.

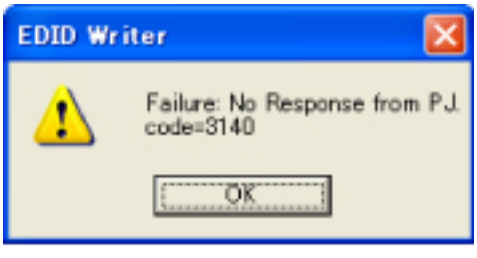
Miscellaneous

Error message



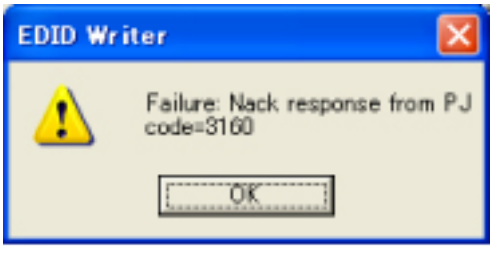
The serial port has failed to open.

Check whether any available serial port has been selected.



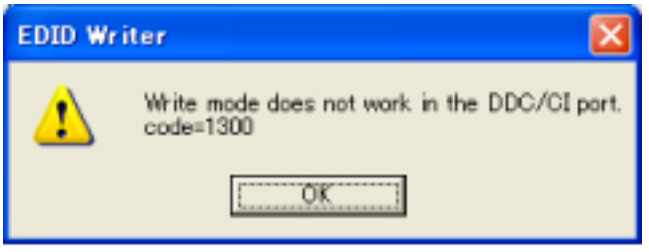
There is no response from the projector.

Check whether the PC and the projector are connected through a serial cable.



There was a Nack response from the projector.

Check the condition of projector power supply and the baud rate.

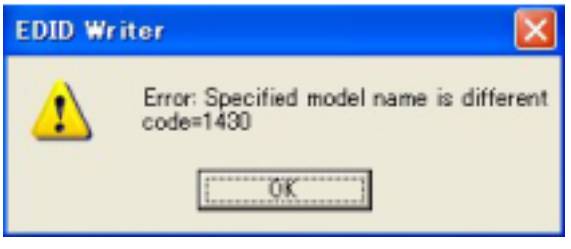


Writing in the EDID of HDMI is impossible from the DDC/CI board.

Select the serial port.

The projector is not found.

Check whether the PC and the projector are connected through an RGB cable.

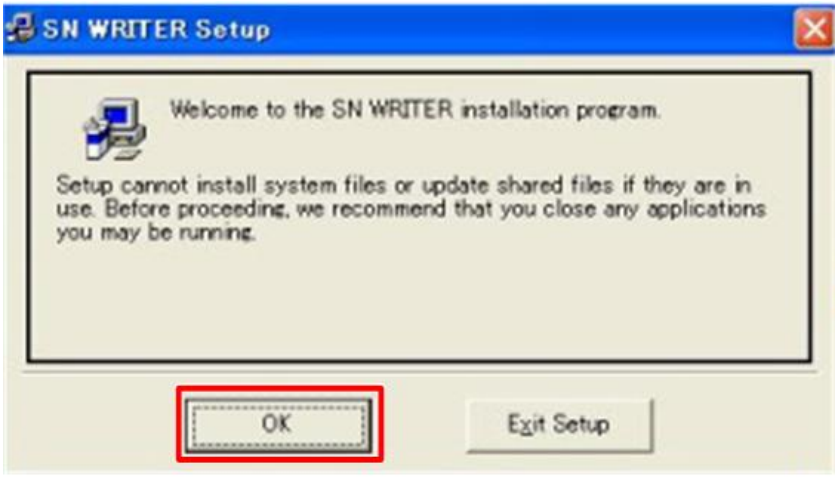


A wrong model is specified.

Check the model.

Procedure for writing of a serial number and a model number

Software installation



y0131052

y0131053

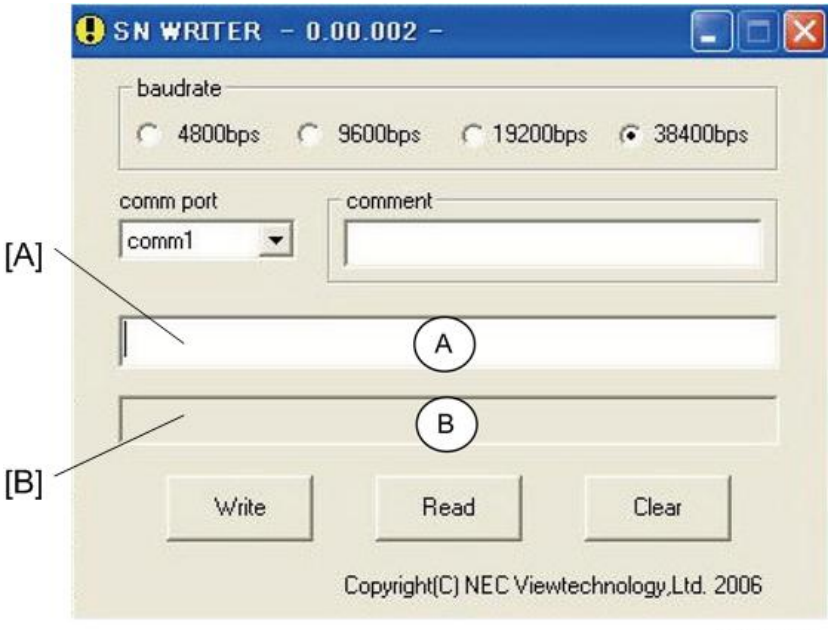
Decompress snwriter000002.zip; and execute the established set-up.exe to install it in the PC.

(For the destination folder for installation, either half-size or full-size font characters are acceptable.)

Writing of a serial number and a model number

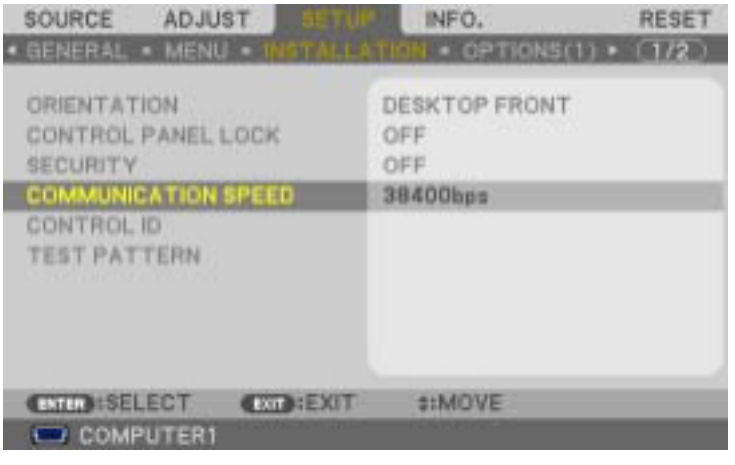
1. **Connect the Projector to computer through an RS-232C cable (Reverse) (D-SUB9pin -D-SUB9pin). Turn on the power supply of the Projector.**

2. Click " snwriter.exe " that is saved in the directory (C:¥Program Files¥Projector Tools¥SN WRITER¥).



y0131055

* In regard to "baud rate" that is indicated in the above-mentioned screen, make confirmation on the menu screen specified below.



3. In the specified format, the model number and the serial number are entered in the column of [A]. When the "Write" button is pressed, these data are transferred to the projector and serial number writing is completed.

Specified format :

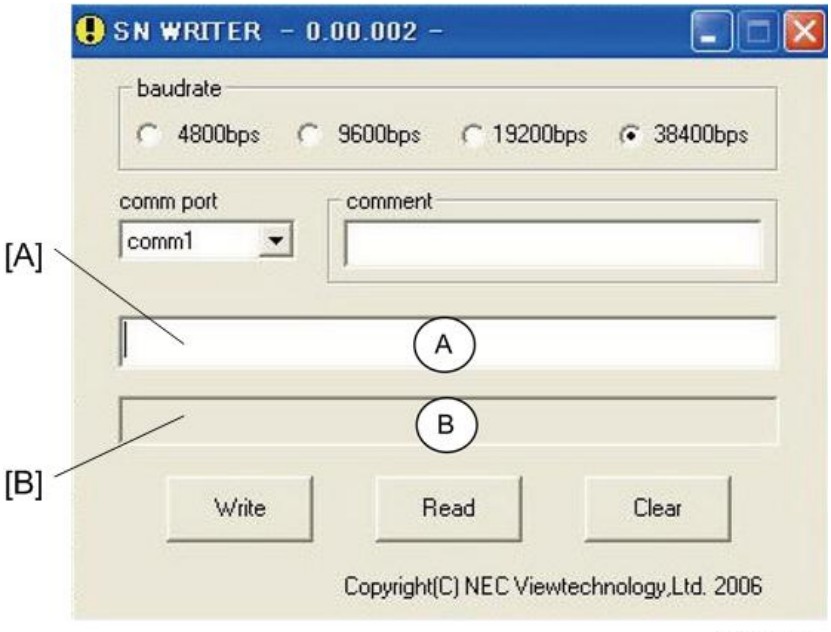
Attach the asterisks ("*") to the head and the tail.

Provide a space between the model number and the serial number.

⚠CAUTION

- After the completion of writing, no verification is performed. Therefore, press the "Read" button separately to confirm the result of writing.

Data readout



The data (model number and serial number) written in the projector are read out.

When the "Read" button is pressed, the data read out of the projector are displayed in Column [B] in the specified format.

PC control software for service

Outline software descriptions

This is the PC control software for servicing adjustments to be conducted during the replacement of the PCB Main Ass'y, OPT BASE, and the LAMP for the LCD projector.

This software makes it possible to perform the following adjustments:

- Adjustment of Flicker
- Modification of usage time for the Usage Time (Lamp, Filter, Panel, and Projector)

- READ/WRITE of factory ADJ data (Flicker, VT, Uniformity, Color Correction, Multi) and Usage Time data

Equipment to be used and environment

Equipment to be used

- The service adjustment software
- Personal computer (under the conditions that Windows XP/2000 is working and either of serial ports COM1 - COM9 is D-SUB9-pin)
- Serial cable (D-SUB9pin-D-SUB9pin, Cross (reverse) cable)

Software installation procedures

This software is composed of the following items:

- Service adjusting software

Follow the instructions below to install the files on the PC.

1. **Copy all files into any folder.**

Repair and adjustment procedures

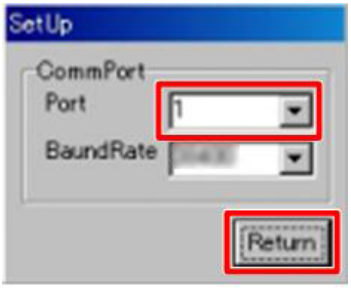
Starting and ending methods for adjustments

Method of adjustment starting

1. **Assume a condition that projector and PC are connected through a serial cable and start the service adjustment software.**

y0131058

2. **Click [Setup] button to open the Setup window.**



y0131059

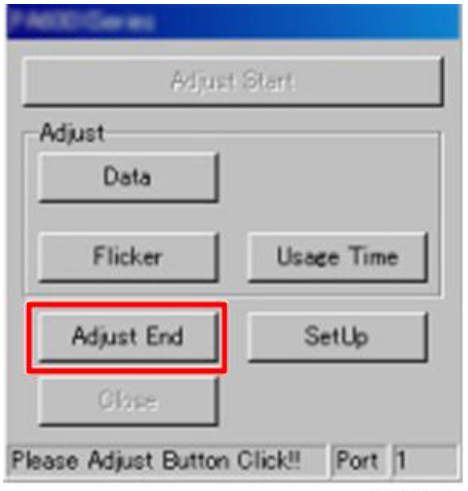
3. **Select the COM port connected to the projector in the [Port] box. The default setting of [Baud Rate] on the projector side is 9600. Press [Return] button when the setting is completed.**

y0131060

4. **Click "Adjust Start" to start initial data reading.**

   * Each adjusting button will be enabled when models are correctly identified.

Method of adjustment ending



y0131061

When the adjustment described below, from the procedure "Replacement of the PCB Main Ass'y", "Replacement of the OPT BASE" and "Miscellaneous" is done, click [Adjust End] button.

* When adjustments of another set are further intended, operation should be started with [Adjust Start].

* If you try to adjust another set without making [Adjust End], there will be an error as a result of model discrimination.

* Click [Close] button to terminate the program.

Replacement of the PCB Main Ass'y

Copy all data when replacing the PCB Main Ass'y.

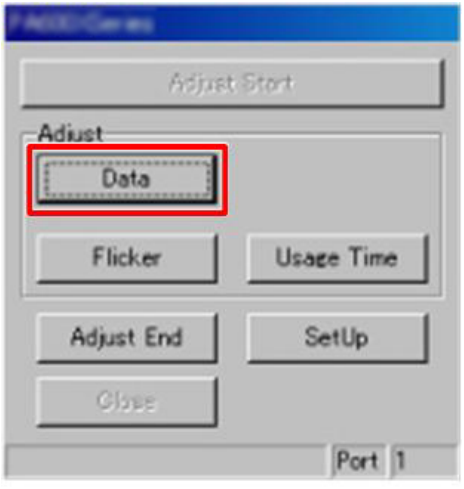
*If All Data Copy is impossible to carry out, refer to "Miscellany (Failure in <All Data Copy> to be performed at the time of PCB Main Ass'y replacement)."

In regard to the replacement of servicing parts for the PCB Main Ass'y, the procedures described below should be followed.

- Before the replacement of PCB Main Ass'y
    1. Copying of all data
- After the replacement of PCB Main Ass'y
    1. Data writing for each model is carried out.
    2. EDID data writing is carried out.
    3. Data writing for Serial number and Model number

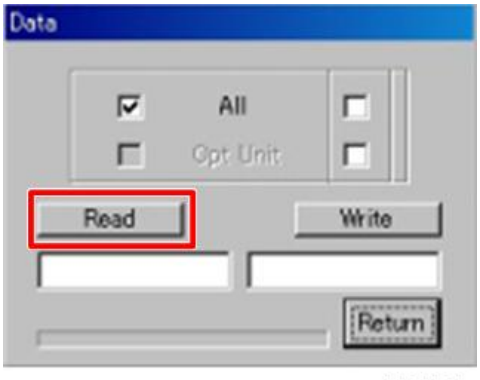
All Data copying

All Data mentioned here denote the respective factory adjusting data (Flicker, VT, Uniformity, Color Correction, Multi), and Usage Time.



y0131062

1. Click [Data] button of the service software with the projector power in standby to open the Data window.



y0131063

2. All Data Read

Read the PCB Main Ass'y data currently used before replacement and save them in a file. Check mark the [All data], and click [Read] button. Name the file and save.

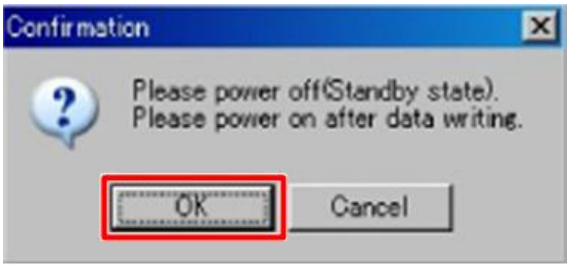
3. The procedure is done when a message box "It completed." is displayed.

* In a certain faulty state, data cannot be saved. In such a case, follow the steps of [Miscellany].

y0131066

4. All Data Write

After exchanging PCB Main Ass'y, click [Write] button to select the saved file.



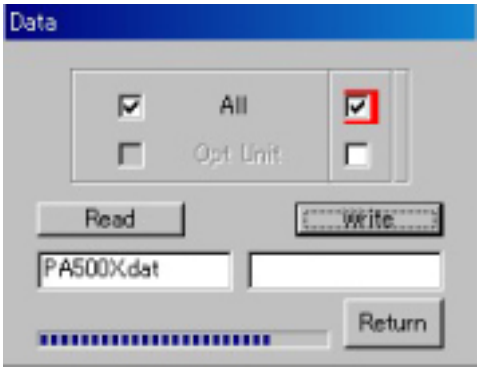
y0131067

5. When a message "Please Power Off (Standby state)." is displayed, make sure that the projector power is in standby, then click [OK] button.

In normal standby mode, the Power indicator is orange and the Status indicator is green.

In power-saving standby mode, the Power indicator is red and the Status indicator is off.

If the projector is not in standby mode, press the Power button one time..



6. **The procedure is done when a message box "It completed." is displayed.**

* When Usage Time Data is written, it is necessary to turn the power supply ON (for one minute) after data writing. Turn the projector power supply ON.

* When executing data writing, [Data] indicated in the main window turns to bold text.

Replacement of the OPT BASE

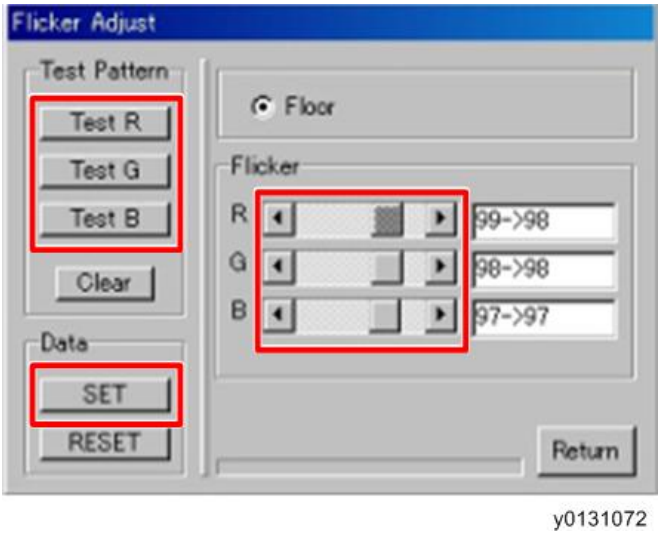
When replacing the OPT BASE.

- Flicker adjustments are carried out.

Adjustment of Flicker

y0131071

1. **Click [Flicker] button of the service software to open the Flicker Adjust window.**
2. **Keeping the projector power supply turned ON, maintain the condition of aging for five minutes.**



y0131072

3. **Check [Floor].**

   Display Red raster signal by clicking [Test R] button in the [Test Pattern] box. Adjust R-scroll bar so that the flicker in the middle of the window becomes smallest.

   Display Green raster signal by clicking [Test G] button in the [Test Pattern] box. Adjust G-scroll bar so that the flicker in the middle of the window becomes smallest.

   Display Blue raster signal by clicking [Test B] button in the [Test Pattern] box. Adjust B-scroll bar so that the flicker in the middle of the window becomes smallest.

   When flicker adjustment is done, click [SET] button in the [Data] box to write the adjusted value.

* When adjustments have been finished ([SET] is clicked), the Floor characters turn to red.

* To restore the data to the state before the adjustment, click [RESET] button. The data will restore to the initial setting, and the characters return to black.

* The value displayed by the side of the scroll bar indicates the original value in the left side of the arrow, the current value in the right side of the arrow.

* The data adjusted with the scroll bar is temporary data. For the projector to store the data, click [SET] button to write in Flash ROM.

Miscellaneous

If <All Data Copy> cannot be accomplished during the replacement of the PCB Main Ass'y, follow the following steps:

In regard to the replacement of servicing parts for the PCB Main Ass'y, the procedures after the completion of replacement (after mounting the PCB Main Ass'y on the product) are described below.

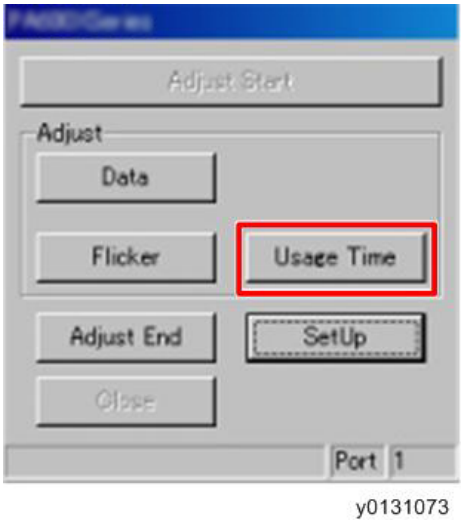
1. Data writing for each model is carried out.
2. PCB Main Ass'y adjustments (Usage Time setup, Flicker adjustments (*1)).

*1 In the case of "Replacement of the OPT BASE", these adjustments are not required.

1. EDID data writing is carried out.
2. Data writing for Serial number and Model number.

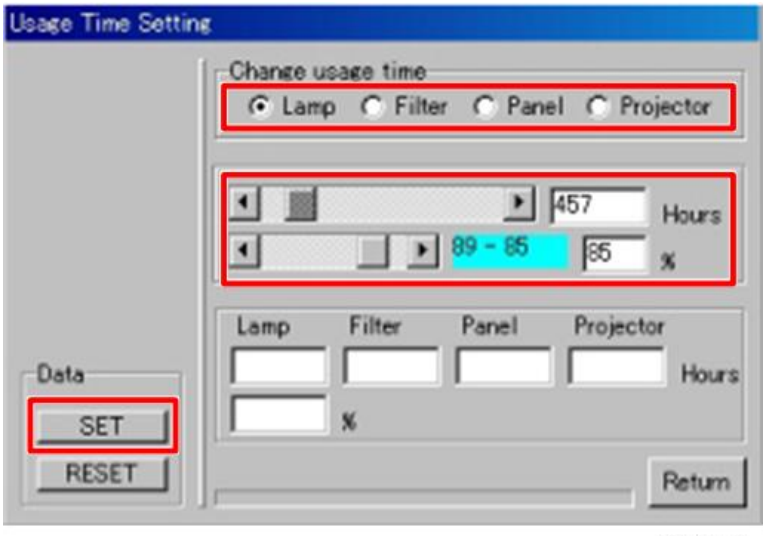
Usage Time Setup

- If the present Usage Time for the Lamp / Projector is different from the actual Usage Time, the following setup is made to recover the correct Usage Time.
- When Usage Time Read / Write is carried out at the time of PCB Main Ass'y replacement, the correct Usage Time is also copied for the Lamp / Projector. Therefore, no more setting is required.
- However, this function should not be used unless the correct Usage Time is known.



y0131073

1. **Click [Usage Time] button of the service software with the projector power in standby to open Usage Time Setting window.**



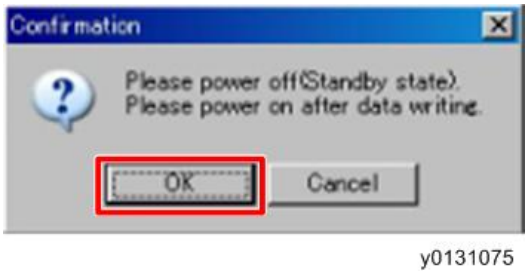
y0131074

2. **Select a type of Usage Time to be changed in the [Change Usage Time]. Set time using the scroll bar, then click [SET] in the Data Box.**

   Using scroll bars, adjust [Hours] and remaining [%] for Lamp Usage Time, and [Hours] for Usage Time.

   * When Usage Time is changed, the changed time will be displayed in the editor below.

   * To restore the time, click [RESET] button. It restores to the initial data.



y0131075

3. **When a message [Please Power Off (Standby state).] is displayed, make sure that the projector power is in standby, then click [OK] button.**

* When writing the Usage Time Data, it is necessary to turn the power supply ON (for one minute) after data writing. Turn the projector power supply ON.

* When changing Usage Time, [Usage Time] indicated in the main window turns to bold text.

Error messages

"TIME OUT (ACK) !"

This is a communication error in conjunction with the projector.

Check the Serial Port Number, BaundRate, and whether the projector main power is turned ON.

"TIME OUT (Data) !", "RsRead Error," , "Data Send Error!!", "DATA READ ERROR",

"Model check Error (Data Read)!!"

This is a communication error in conjunction with the projector.

Check the connection, and error occurrence in the projector, then retry.

In case it occurs 2 or 3 times consecutively, reboot the PC.

"Comm Open Error"

This is a failure in opening the serial port.

Check the Serial Port Number.

Make sure that there is no other application using the same Serial Port.

"TIME OUT (Comm Close Error) !", "Comm Close Error"

This is a failure in closing the serial port.

Confirm if there is any application that occupies the serial port.

In case it occurs 2 or 3 times consecutively, reboot the PC.

"File format error", "Address error"

The data format of the file specified when executing data writing from the file is not correct.

Make sure that it is a file read in PJ X6180N/PJ WX6170N.

"ACK Error!!"

Check the status of the projector, and retry.

* For instance, you may have done an operation with Power OFF, which should have been done with Power ON.

In case it occurs 2 or 3 times consecutively, reboot the PC.

If not recovering from this error after operating the above, the projector may be in trouble.

"Model name error!!"

The target projector is not PJ-X6180N or PJ-WX6170N.

"Model check Error (2)!!"

The current target projector is not the one executed [Adjust Start].

Restart from [Adjust Start], in case adjusting current target projector.

"Comparison error"

The data is not successfully written. Retry writing.

In case it occurs 2 or 3 times consecutively, reboot the PC.

If not recovering from this error after operating the above, the projector may be in trouble.

4. System Maintenance

Firmware Upgrade

A LAN cable is needed to upgrade the firmware.

Before upgrading the firmware, make sure to prepare the following:

- LAN cable
- Notebook PC (on which Internet Explorer 6.0 or later is installed)

Upgrading the firmware

1. **Connect the PC to the projector via a wired or wireless LAN.**

   * You can use PING to check whether the PC is successfully connected to the LAN.

2. **Select [MENU], [INFO.], and then [WIRED LAN] or [WIRELESS LAN] to check the IP address.**

3. **Place the projector in standby mode.**

   * On the projector, set [STANDBY MODE] to [NORMAL].

4. **Start Internet Explorer and open the "http://xxx.xxx.x.xx/upload.html" page.**

   * Replace xxx.xxx.x.xx with the IP address that was confirmed in Step 2.

y0131150

5. **When the "Projector Update" page appears, press the [Browse] button.**

6. Select the file and press the [UPDATE] button.

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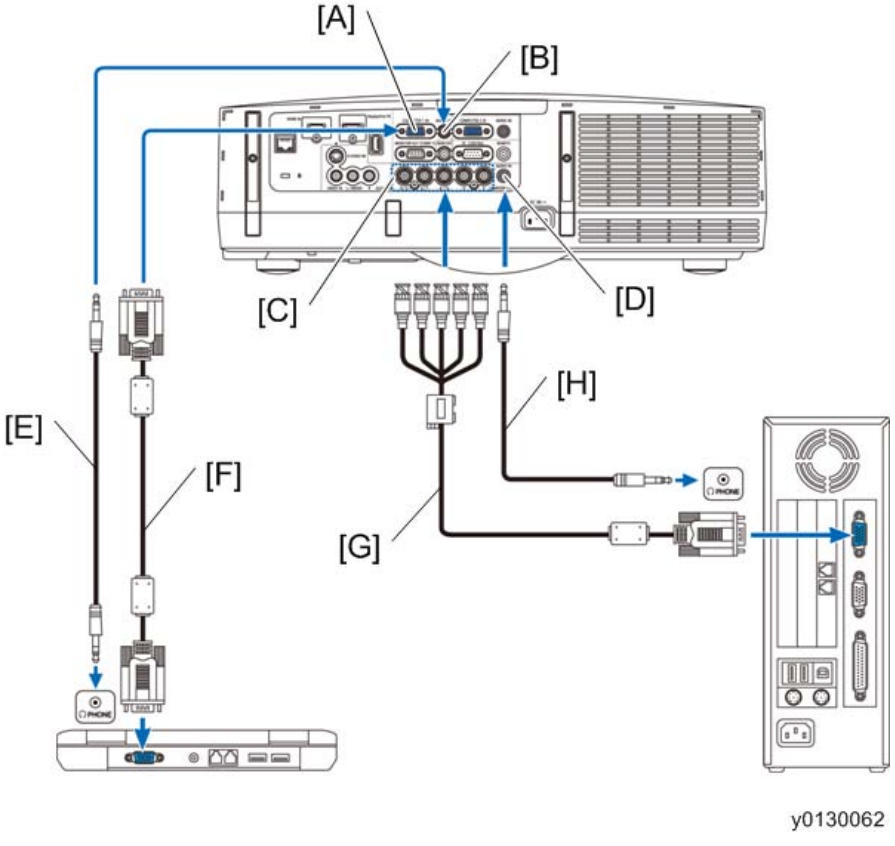
7. When the confirmation dialog box appears, press the [OK] button.
8. When the message "File written successfully" appears in the history section, press the [REBOOT] button to restart the projector.
9. To update multiple files, repeat steps 5 to 7 for each file you want to update.
10. Do not turn off the projector or disconnect the LAN cable before the update is complete. Otherwise, the projector may not restart.

Functional Test

Analog RGB signal connection



[A] : COMPUTER 1 IN

[B] : AUDIO IN

[C] : COMPUTER 3 IN

[D] : AUDIO IN

[E] : Stereo mini-plug audio cable (not supplied)

[F] : Computer cable (VGA) (supplied) to mini D-Sub 15-pin connector on the projector. It is recommended that you use a commercially available distribution amplifier if connecting a signal cable longer than the cable supplied.

[G] : RGB - to - BNC cable (not supplied)

[H] : Stereo mini-plug audio cable (not supplied)

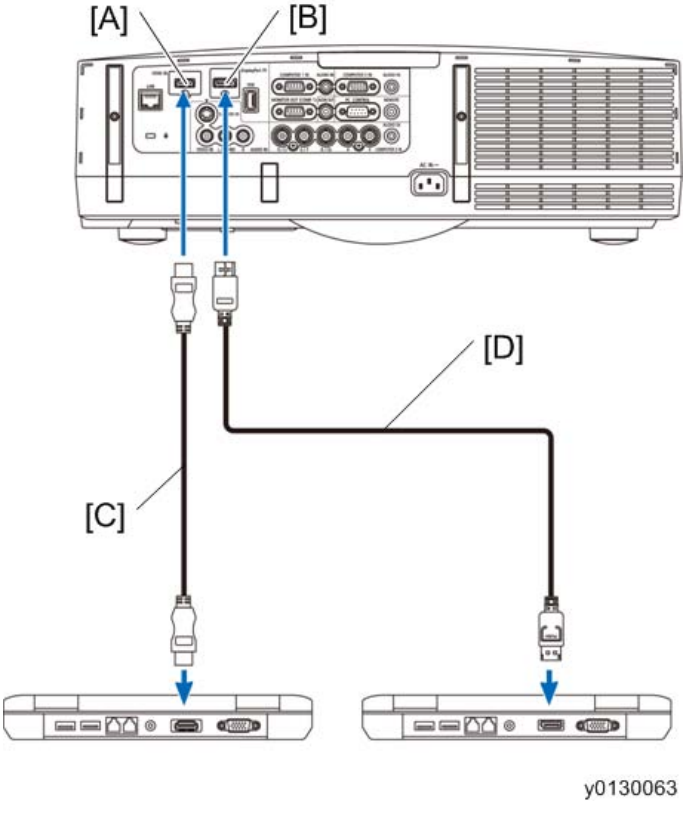
Select the source name for its appropriate input connector after turning on the projector.

Input connector	Input button on the projector cabinet	Button on the remote control
COMPUTER 1 IN	COMPUTER 1	Computer 1
COMPUTER 2 IN	COMPUTER 2	Computer 2
COMPUTER 3 IN	COMPUTER 3	Computer 3

Note

- For Macintosh, use a commercially available pin adapter (not supplied) to connect to your Mac's video port.

Digital RGB signal connection



[A] : HDMI IN

[B] : DisplayPort IN

[C] : HDMI cable (not supplied)

[D] : DisplayPort cable (not supplied)

Select the source name for its appropriate input connector after turning on the projector.

Input connector	Input button on the projector cabinet	Button on the remote control
HDMI IN	HDMI	HDMI
DisplayPort	DisplayPort	DisplayPort

⚠CAUTION

- Turn off the power of the computer and projector before connecting.
- Lower the computer's volume setting before connecting an audio cable to the headphones connector. When using with a computer connected to the projector, adjust the volume of both the projector and computer to set the appropriate volume level.
- If the computer has a mini-jack type audio output connector, we recommend connecting the audio cable to that connector.
- When a video deck is connected via a scan converter, etc., the display may not be correct during fast-forwarding and rewinding.

Note

- The Computer 1 and Computer 2 video input connectors support Windows Plug and Play. The Computer 3 video input connector does not support Windows Plug and Play.
- A Macintosh signal adapter (commercially available) may be required to connect a Macintosh computer.
- To connect a Macintosh computer equipped with a Mini DisplayPort to the projector, use a commercially available Mini DisplayPort > DisplayPort converter cable.

Cautions when connecting an HDMI cable

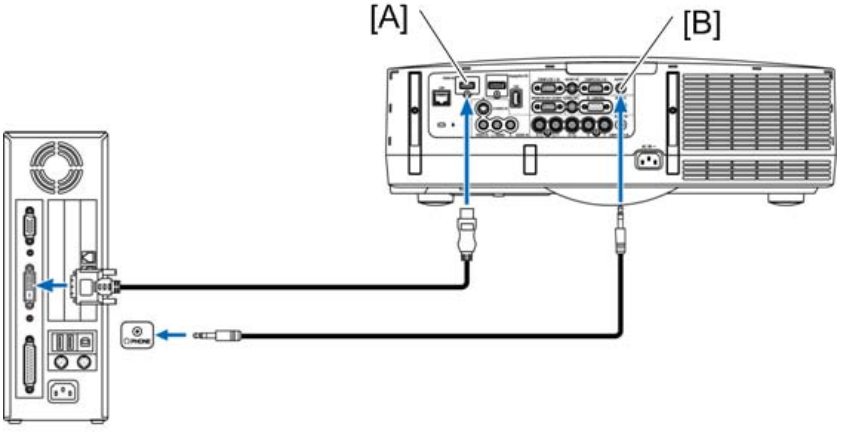
Use a certified High Speed HDMI® Cable or High Speed HDMI® Cable with Ethernet.

Cautions when connecting a DisplayPort cable

- Use a certified DisplayPort cable.
- Depending on the computer, some time may be required until the image is displayed.
- Some DisplayPort cables (commercially available) have locks.
- To disconnect the cable, press the button on the top of the cable's connector, then pull the cable out.

- No power is supplied from the DisplayPort input connector to the connected device.
- When signals from a device that uses a signal converter adapter are connected to the DisplayPort input connector, in some cases the image may not be displayed.
- When the HDMI output of a computer is connected to the DisplayPort input connector, use a converter (commercially available).

Cautions when using a DVI signal



[A] : HDMI IN

[B] : AUDIO IN

When the computer has a DVI output connector, use a commercially available converter cable to connect the computer to the projector's HDMI input connector (only digital video signals can be input). Also, connect the computer's audio output to the projector's Computer 2 audio input connector. In this case, switch the HDMI setting at on-screen menu's audio selection on the projector to [COMPUTER2].

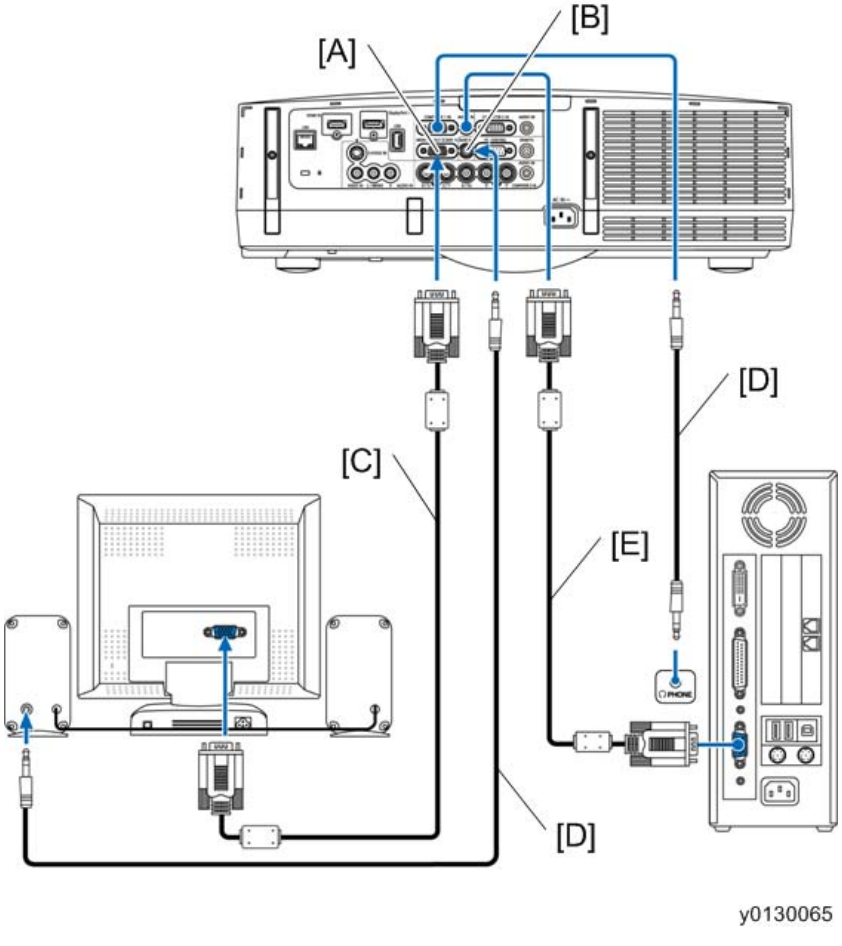
To connect the computer's DVI output connector to the projector's DisplayPort input connector, use a commercially available converter.

⚠CAUTION

- When Viewing a DVI Digital Signal
  - Use a DVI-to-HDMI cable compliant with DDWG (Digital Display Working Group) DVI (Digital Visual Interface) revision 1.0 standard. The cable should be within 197"/5 m long.
  - Turn off the projector and the PC before connecting the DVI-to-HDMI cable.
  - To project a DVI digital signal: Connect the cables, turn the projector on, then select the HDMI input. Finally, turn on your PC. Failure to do so may not activate the digital output of the graphics card resulting in no picture being displayed. Should this happen, restart your PC.

- Some graphics cards have both analog RGB (15-pin D-Sub) and DVI (or DFP) outputs. Use of the 15-pin D-Sub connector may result in no picture being displayed from the digital output of the graphics card.
- Do not disconnect the DVI-to-HDMI cable while the projector is running. If the signal cable has been disconnected and then reconnected, an image may not be correctly displayed. Should this happen, restart your PC.

Connecting an External Monitor



[A] : MONITOR OUT (COMP. 1)

[B] : AUDIO OUT

[C] : Computer cable (VGA) (not supplied)

[D] : Stereo mini-plug audio cable (not supplied)

[E] : Computer cable (VGA) (supplied)

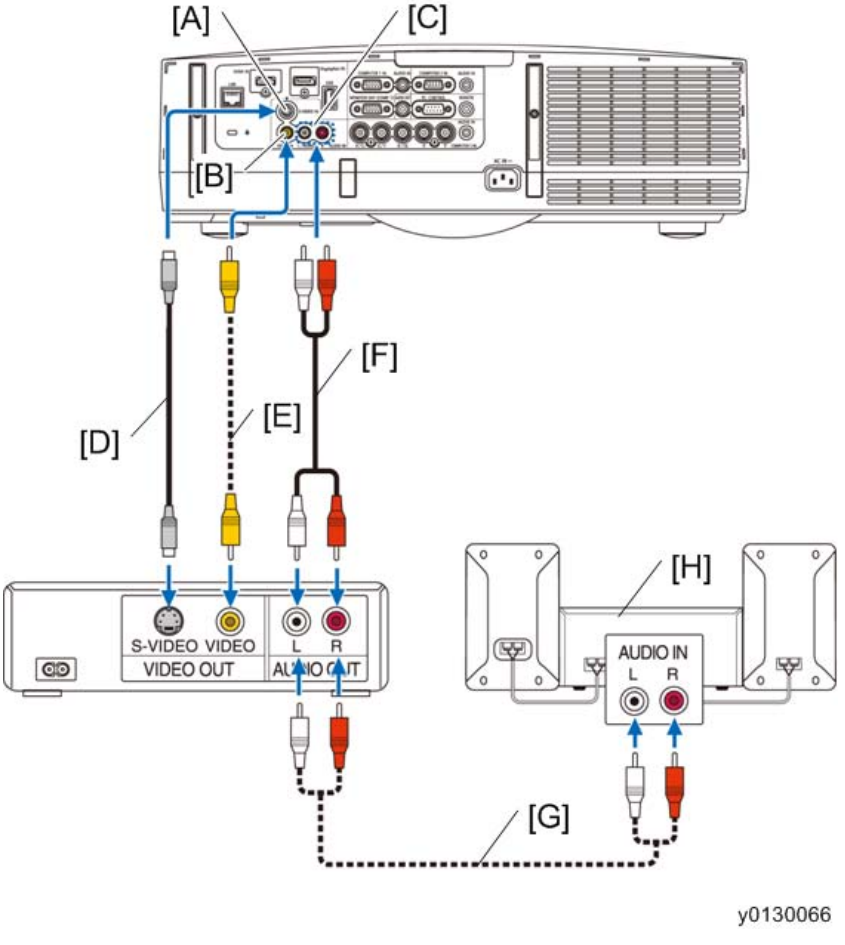
You can connect a separate, external monitor to your projector to simultaneously view on a monitor the computer analog image you're projecting.

⚠CAUTION

- Daisy chain connection is not possible.
- When audio equipment is connected, the projector speaker is disabled.

Connecting Your DVD Player or Other AV Equipment

Connecting Video/S-Video Input



[A] : S-VIDEO IN

[B] : VIDEO IN

[C] : AUDIO IN

[D] : S-Video cable (not supplied)

[E] : Video cable (not supplied)

[F] : Audio cable (not supplied)

[G] : Audio cable (not supplied)

[H] : Audio equipment

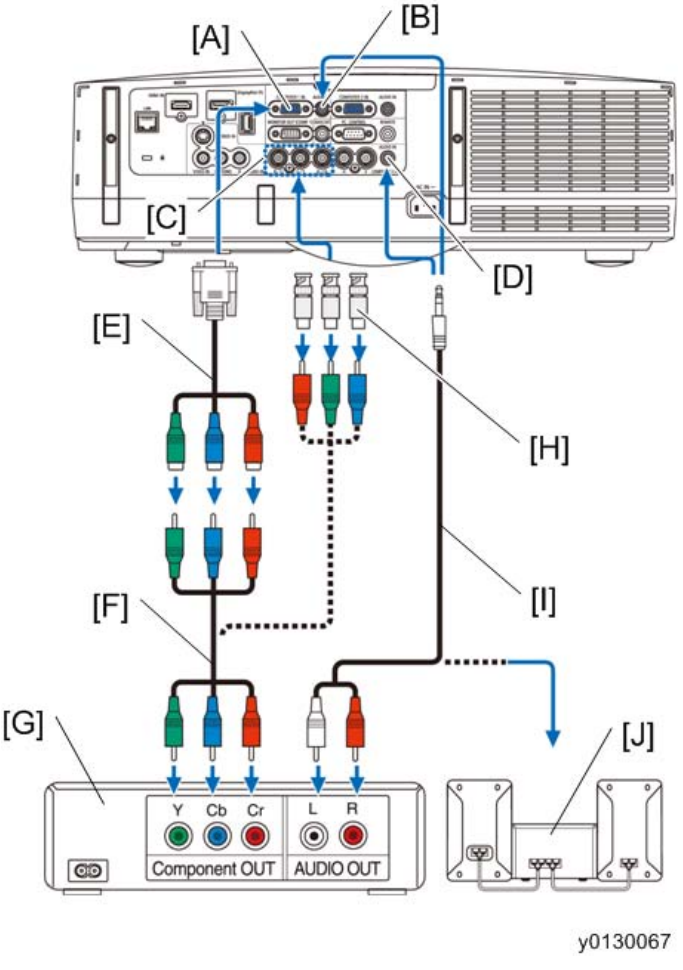
Select the source name for its appropriate input connector after turning on the projector.

Input connector	Input button on the projector cabinet	Button on the remote control
VIDEO IN	VIDEO	Video
S-VIDEO IN	S-VIDEO	S-Video

⚠CAUTION

- The AUDIO IN L and R jacks (RCA) are shared between the Video and S-Video inputs.
- Refer to your VCR owner's manual for more information about your equipment's video output requirements.
- An image may not be displayed correctly when a Video or S-Video source is played back in fast-forward or fast-rewind via a scan converter.
- Video signals can be projected when a video cable (commercially available) is connected to the Computer 3 video input connector's G/Y connector.
- In this case, set the on-screen menu's SETUP > OPTION(1) > SIGNAL SELECT(COMP3) to [VIDEO] and select Computer 3 for the input selection.

Connecting Component Input



[A] : COMPUTER 1 IN

[B] : AUDIO IN

[C] : COMPUTER 3 IN

[D] : AUDIO IN

[E] : 15-pin - to - RCA (female) × 3 cable adapter (ADP-CV1E)

[F] : Component video RCA × 3 cable (not supplied)

[G] : DVD player

[H] : RCA (female) - to - BNC (male) connector (not supplied)

[I] : Stereo mini plug - to - RCA audio cable (not supplied)

[J] : Audio Equipment

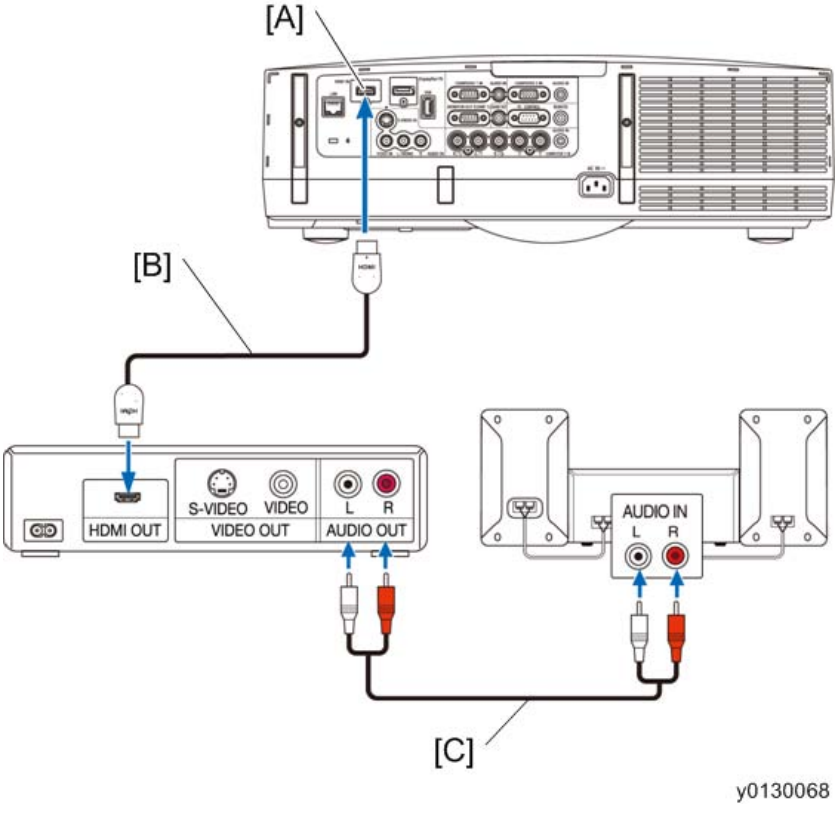
Select the source name for its appropriate input connector after turning on the projector.

Input connector	Input button on the projector cabinet	Button on the remote control
COMPUTER 1 IN	COMPUTER 1	Computer 1
COMPUTER 2 IN	COMPUTER 2	Computer 2
COMPUTER 3 IN	COMPUTER 3	Computer 3

⚠CAUTION

- Normally the computer signal and component signal are identified and switched automatically. If the signal cannot be identified, however, select the signal at [ADJUST] > [VIDEO] > [SIGNAL TYPE] on the projector's on-screen menu. Select "COMPUTER" or "VIDEO" for the Computer 3 video input connector at [SETUP] > [OPTION (1)] > [SIGNAL SELECT(COMP3)].
- To connect to a video device with a D connector, use the separately sold D connector converter adapter (model ADP-DT1E).

Connecting HDMI Input



[A] : HDMI IN

[B] : HDMI cable (not supplied) (Use High Speed HDMI® Cable)

[C] : Audio cable (not supplied)

You can connect the HDMI output of your DVD player, hard disk player, Blu-ray player, or notebook type PC to the HDMI IN connector of your projector.

Note

- The HDMI IN connector supports Plug & Play (DDC2B).

Input connector	Input button on the projector cabinet	Button on the remote control
HDMI IN	HDMI	HDMI

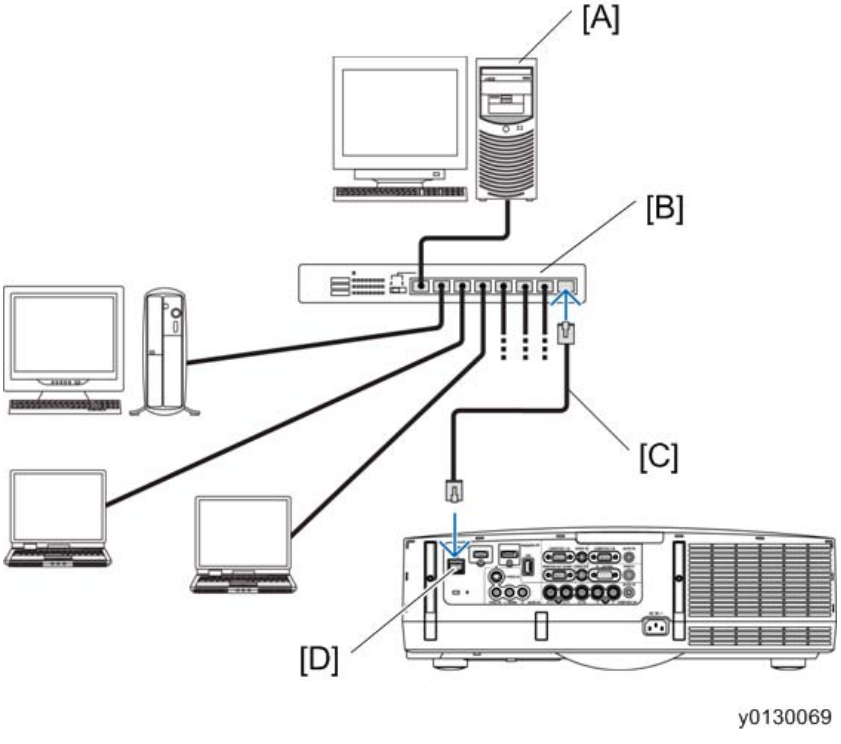
Note

- For users of audio video equipment with an HDMI connector:

- Select “Enhanced” rather than “Normal” if HDMI output is switchable between “Enhanced” and “Normal”.
- This will provide improved image contrast and more detailed dark areas.
- For more information on settings, refer to the instruction manual of the audio video equipment to be connected.

Connecting to a Wired LAN

Example of wired LAN connection



[A] : Server

[B] : Hub

[C] : LAN cable (not supplied) (Use a Category 5 or higher LAN cable.)

[D] : LAN

The projector comes standard with a LAN port (RJ-45) which provides a LAN connection using a LAN cable.

To use a LAN connection, you are required to set the LAN on the projector menu. Select [APPLICATION MENU] > [NETWORK SETTINGS] > [WIRED LAN].

Input signal

Signal level

RGB signal	0.7Vp-p/75Ω
Component signal, wave signal	Y : 1.0Vp-p/75Ω (with Negative Polarity Sync)
	Cb/Cr : 0.7Vp-p/75Ω
VIDEO signal	1.0Vp-p/75Ω
S-VIDEO signal	1.0Vp-p/75Ω (Y signal), 0.286Vp-p/75Ω (C signal burst level)
Sync signal	4.0Vp-p/TTL Level
Audio signal	0.5Vrms/22kΩ or more

RGB supporting frequency

Horizontal sync frequency	15-108kHz (RGB input 24kHz or more)
Vertical sync frequency	48 - 120Hz
Maximum resolution	1920*1200

HDMI digital signal

Maximum resolution	1920*1200 @60Hz

Deep Color (8bit,10bit,12bit), Lip Sync supported

Supported audio

Audio format	LPCM 2ch
Sampling frequency	32/44.1/48/kHz
Sampling bit	16/20/24bit

Display port digital signal

Maximum resolution	1920*1200 @60Hz

Supported audio

Audio format	LPCM 2ch
Sampling frequency	32/44.1/48/kHz
Sampling bit	16/20/24bit

Component signal

The following component signals are supported;

- 576i, 480i, 576p, 480p, (DVD output signal)
- 720p, 1080i, 1080p (HDTV signal)

Video input supporting color system

- NTSC3.58/NTSC4.43/PAL/PAL-M/PAL-N/PAL-60/SECAM

5. Troubleshooting

LED Display

Indicator Messages

Power Indicator

Indicator display		Projector status	Procedure
Off		Power is off.	–
Flashing	Blue (short flashes)	Power up sequence	Wait a while.
	Blue (long flashes)	Off timer (enabled)	–
	Orange (short flashes)	Projector cooling	Wait a while.
Lit	Blue	Power on	–
	Orange	Standby mode (NORMAL or NETWORK STANDBY)	–
	Red	Standby mode (POWER-SAVING)	–

Status Indicator

Indicator display	Projector status	Procedure
Off	No problem, or standby mode (POWER-SAVING or NETWORK STANDBY)	–

Flashing	Red (cycles of 1)	Cover problem	The lamp cover is not properly mounted. Mount it properly.
	Red (cycles of 3)	Power problem	–
	Red (cycles of 4)	Fan problem	The cooling fan has stopped turning. Contact your dealer for repairs.
	Red (cycles of 9)	Iris error	The iris is not operating properly. Contact your dealer for repairs.
Lit	Green	Standby mode (NORMAL)	–
	Orange	Button has been pressed while projector is in key lock mode	The projector's keys are locked. The setting must be canceled to operate the projector.

Lamp Indicator

Indicator display		Projector status	Procedure
Off		The lamp is turned off.	–
Flashing	Green	Preparing to relight lamp after lighting has failed	Wait a while.
	Red	Lamp replacement grace period	The lamp has reached the end of its service life and is now in the replacement grace period (100 hours). Replace the lamp as soon as possible.
	Red (cycles of 6)	Lamp does not light	The lamp has not turned on. Wait at least 1 minute, then turn the power back on. If the lamp still does not light, contact your dealer.
Lit	Red	Lamp usage time exceeded	The lamp has exceeded its usage time. The projector's power cannot be turned on until the lamp is replaced.
	Green	Lamp lit	–

Temp. Indicator

Indicator display		Projector status	Procedure
Off		No problem	
Flashing	Red (cycles of 2)	Temperature problem	The temperature protector has been activated. If the room temperature is high, move the projector to a cool place. If the problem still persists, contact your dealer.
Lit	Orange	High surrounding temperature	The surrounding temperature is high. Lower the room temperature.

If the temperature protector is activated

If the projector's internal temperature rises abnormally, the lamp turns off and the temperature indicator flashes (repeatedly in cycles of 2).

It may happen that the projector's temperature protector is simultaneously activated and the projector's power turns off. If this happens, do the following:

- Unplug the power cord from the power outlet.
- If using in a place where the surrounding temperature is high, move the projector to a different, cool place.
- If there is dust in the ventilation holes, clean.
- Wait as such about 1 hour for the projector's internal temperature to lower.

Service Mode

Mode change

How to enter the Expert Mode

When an accessory remote control is used:

- In the state of Power ON, press the keys in the order of [Help] → [▲] → [◀] → [Help].
- Press the [Menu] key to display the menu and confirm that the conditions of [EXPERT] have been obtained.

How to enter the Service Mode

- In the state of Power ON, press the keys of [Help] → [Enter] → [Help] → [Enter] → [Help] → [Enter] → [Menu] for 3 seconds. Then, the [Password] menu is displayed.
- Press the select keys in the order of [▲] → [▶] → [◀] → [▶] → [▶] → [▶] → [▲] → [▲] → [Enter].
- Press the [Menu] key to display the menu and confirm that the conditions of [Service] have been obtained.

Additional functions

Menus and functions to be added by the Expert Mode

Difference in the menu screen and its functions

- [SOURCE] – [VIEWER]
  - Display of [CHECK PATTERN]
- [SOURCE] – [NETWORK]

  – [IMAGE EXPRESS UTILTY]

  – Setup of [ADVANCED]

  – [DESKTOP CONTROL UTILTY]

  – Setup of [ADVANCED]
  - Setup of [PING]
- [SOURCE] – [NETWORK]
  - Setup of [TEST PATTERN2]
- [ADJUST] – [EXPERT1]

  – Adjustment of [R/Cr-GAIN]

– Adjustment of [G/Yr-GAIN]

– Adjustment of [B/Cb-GAIN]

– Adjustment of [R/Cr-OFFSET]

– Adjustment of [G/Yr-OFFSET]

• Adjustment of [B/Cb-OFFSET]

- [ADJUST] – [EXPERT2]

  – Setup of [SYNC SLICER]

  • Adjustment of [CLAMP TIMING]

- [ADJUST] – [EXPERT3]

  – Adjustment of [Y/C DELAY]

  – Adjustment of [YTR ADJUSTMENT]

  – Adjustment of [CTR ADJUSTMENT]

  – Adjustment of [COLOR MATRIX]

  – Adjustment of [VIDEO FILTER]

  • Adjustment of [SYNCHRONIZE]

- [SETUP] – [INSTALLATION(2)] – [NETWORK SETTINGS] – [WIRELESS LAN] – [ADVANCED]

  – Setup of [MODE (2.4GHz)]

  – Setup of [COMMUNICATION SPEED]

  • Setup of [TRANSMISSION RATE]

- [SETUP] – [INSTALLATION(2)] – [NETWORK SETTINGS] – [NETWORK SERVICE]

  – [HTTP SERVERSETTINGS]

  – Setup of [PORT]

  – [PJLink SETTINGS]

  – Setup of [PORT]

  – Setup of [INITIALIZE]

  – Setup of [SNMP SETTINGS]

  • Setup of [PC CONTROL SETTINGS]

- [SETUP] – [INSTALLATION(2)] – [NETWORK SETTING] – [IEU PORTS]

  • Setup of [FIREWALL]

- [SETUP] – [EXPERT]

  – Setup of [POWER OFF CONFIRMATION]

  – Setup of [3D STEREO VIREWER]

  • Setup of [3D STEREO FILTER]

- [INFO.] – [USAGE TIME]
  - Display of [PROJECTOR HOURS USED]
- [INFO.] – [VERSION(1)]

  – Display of [BIOS]

  – Display of [BIOS2]
  - Display of [HARDWARE1/2/3/4]
- [INFO.] – [VERSION(2)]

  – Display of [BIOS3]
  - Display of [BOOTLOADER3]

Factory reset

- When [RESET] – [ALL DATA (INCLUDING ENTRY LIST)] – [YES] is carried out in Expert Mode, all adjustments and setup values including the contents of registration data in the entry list are restored to the status of factory shipment.
- The data restored to the status of factory shipment as a result of factory reset are all data other than [LANGUAGE], [BACKGROUND], [FILTER MASSAGE], [SCREEN], [MULTI-SCREEN COMP], [SECURITY], [NETWORK SETTING], [CONTROL PANEL LOCK], [CONTROL ID], [COMMUNICATION SPEED], [STANDBY MODE], [FAN MODE], [LAMP LIFE REMAINING], [LAMP HOURS USED], [FILTER HOURS USED] and [PROJECTOR HOURS USED].

Menus and functions to be added by the Service Mode

Difference in the menu screen and its functions

- [SOURCE] – [VIEWER]
  - Display of [CHECK PATTERN]
- [SOURCE] – [NETWORK]

  – [IMAGE EXPRESS UTILTY]

  – Setup of [ADVANCED]

  – [DESKTOP CONTROL UTILTY]

  – Setup of [ADVANCED]
  - Setup of [PING]
- [SOURCE] – [NETWORK]
  - Setup of [TEST PATTERN2]
- [ADJUST] – [EXPERT1]

  – Adjustment of [R/Cr-GAIN]

  – Adjustment of [G/Yr-GAIN]

– Adjustment of [B/Cb-GAIN]

– Adjustment of [R/Cr-OFFSET]

– Adjustment of [G/Yr-OFFSET]

• Adjustment of [B/Cb-OFFSET]

• [ADJUST] – [EXPERT2]

– Setup of [SYNC SLICER]

• Adjustment of [CLAMP TIMING]

• [ADJUST] – [EXPERT3]

– Adjustment of [Y/C DELAY]

– Adjustment of [YTR ADJUSTMENT]

– Adjustment of [CTR ADJUSTMENT]

– Adjustment of [COLOR MATRIX]

– Adjustment of [VIDEO FILTER]

• Adjustment of [SYNCHRONIZE]

• [SETUP] – [INSTALLATION(2)] – [NETWORK SETTINGS] – [WIRELESS LAN] – [ADVANCED]

– Setup of [MODE (2.4GHz)]

– Setup of [COMMUNICATION SPEED]

• Setup of [TRANSMISSION RATE]

• [SETUP] – [INSTALLATION(2)] – [NETWORK SETTINGS] – [NETWORK SERVICE]

– [HTTP SERVERSETTINGS]

– Setup of [PORT]

– [PJLink SETTINGS]

– Setup of [PORT]

– Setup of [INITIALIZE]

– Setup of [SNMP SETTINGS]

• Setup of [PC CONTROL SETTINGS]

• [SETUP] – [INSTALLATION(2)] – [NETWORK SETTING] – [IEU PORTS]

• Setup of [FIREWALL]

• [SETUP] – [EXPERT]

– Setup of [POWER OFF CONFIRMATION]

– Setup of [COLOR UNIFORMITY]

– Setup of [3D STEREO VIREWER]

• Setup of [3D STEREO FILTER]

- [INFO.] – [USAGE TIME]
  - Display of [PROJECTOR HOURS USED]
    - Display of [PANEL HOURS USED]
- [INFO.] – [VERSION(1)]
  - Display of [BIOS]
    - Display of [BIOS2]
- [INFO.] – [VERSION(2)]
  - Display of [BIOS3]
    - Display of [BOOTLOADER3]
- [INFO.] – [OTHERS]
  - Display of [MODEL NAME]
    - Display of [BOOTLOADER3]
- [RESET]
    - Setup of [CLEAR PANEL HOURS]

Factory reset

- When [RESET] – [ALL DATA (INCLUDING ENTRY LIST)] – [YES] is carried out in Service Mode, the language is changed to [ENGLISH] and the language select screen of [LANGUAGE] is displayed.
- This display continues to remain until any required language is selected or each time input signal changeover is carried out.
- The data restored to the status of factory shipment as a result of factory reset are all data other than [SECURITY], [STANDBY MODE], [LAMP LIFE REMAINING], [LAMP HOURS USED], [FILTER HOURS USED], [PROJECTOR HOURS USED], and [PANEL HOURS USED].

How to withdraw from the mode

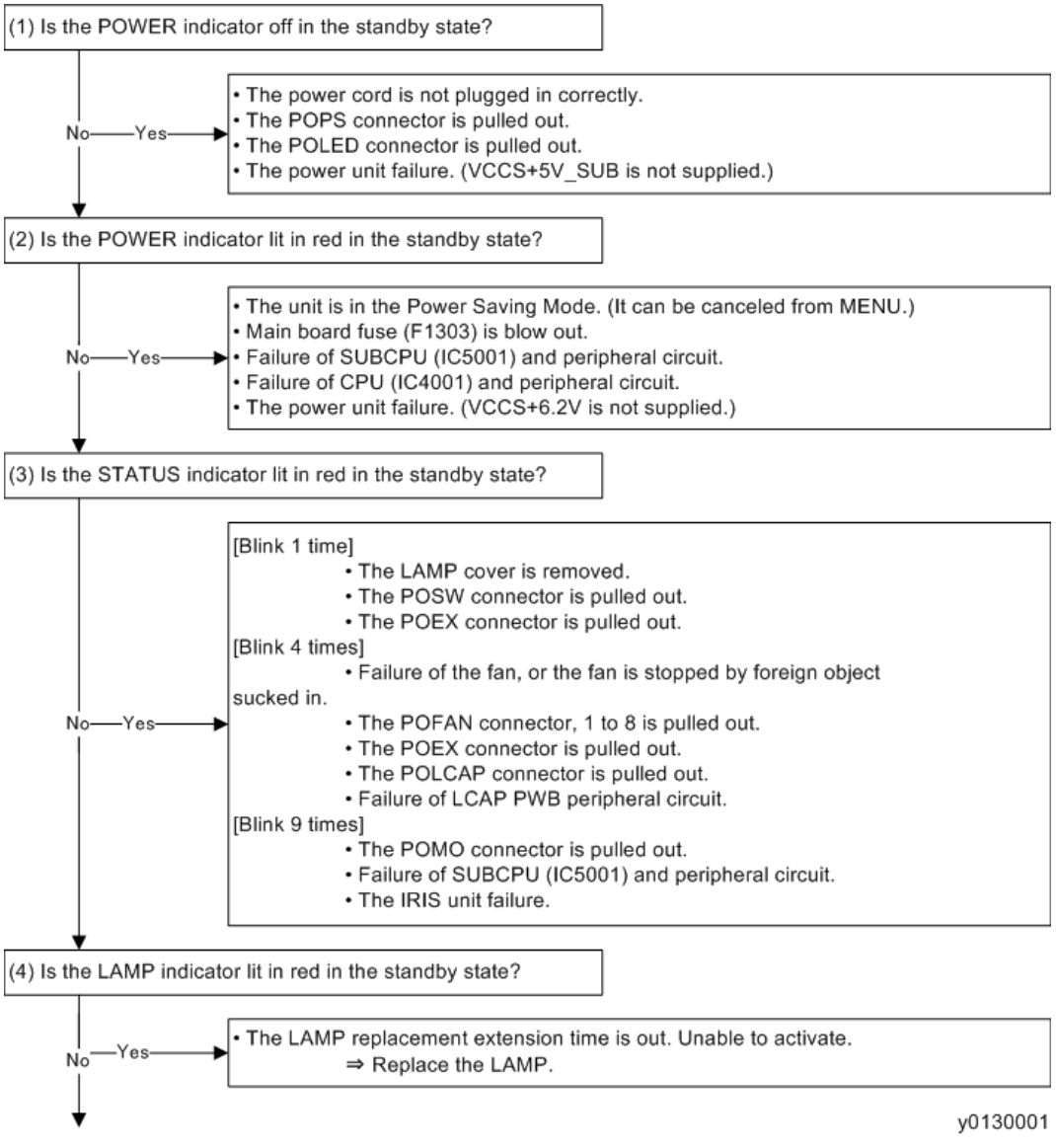
- The previous status is recovered when the [Back] key is pressed in the state that no menu is displayed.
- The previous status is also recovered when the [Standby] key is pressed to recover the standby condition and starting is performed subsequently.

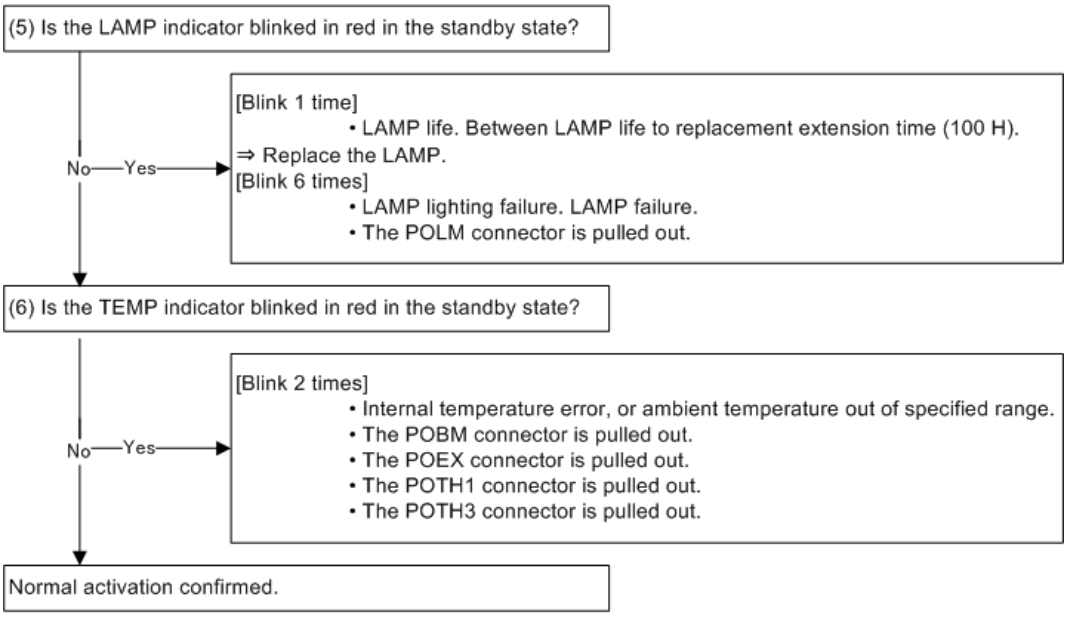
Troubleshooting Guide

Operation check

It is possible to conduct a certain level of fault diagnosis in normal state of operation check.

Before removing the top cover, check the indicator.

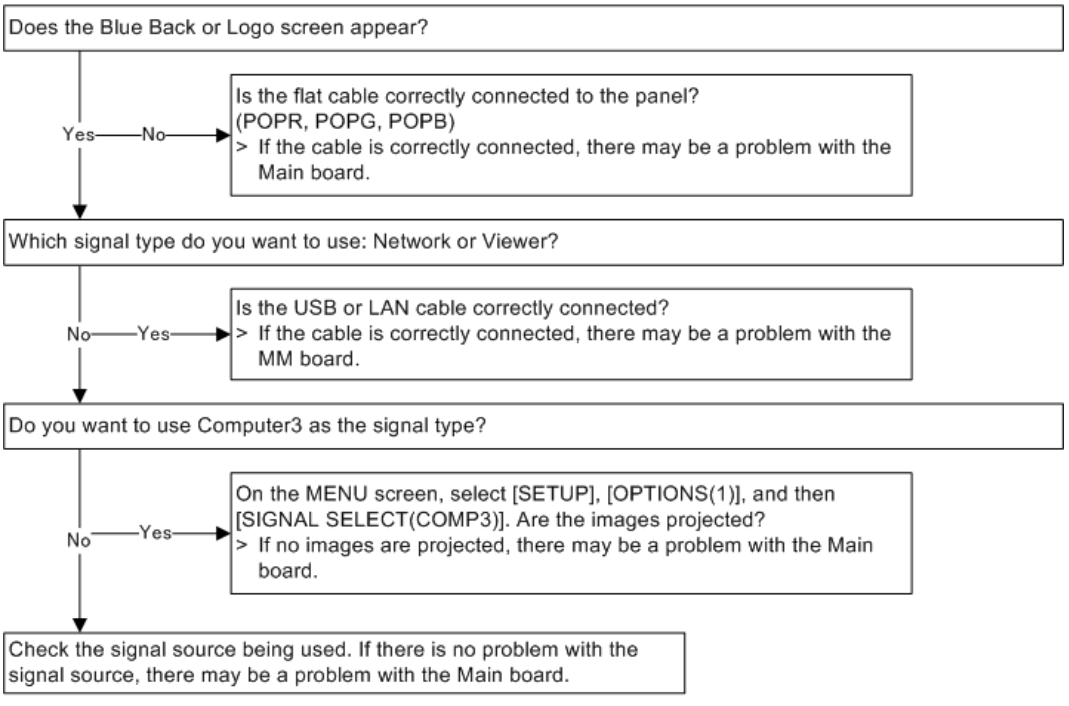




y0130002

For Video

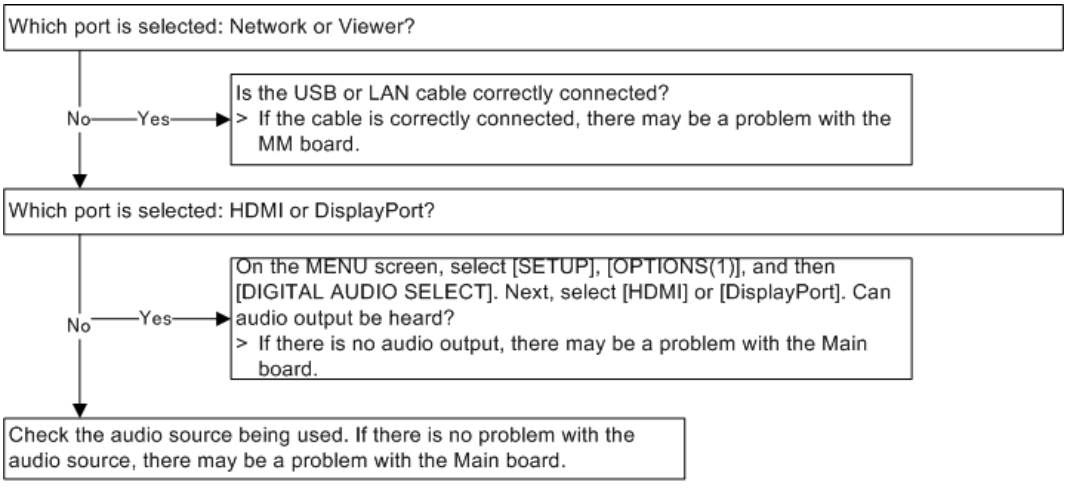
Perform the following check after powering ON the projector.



y0130070

For Audio

Perform the following check after powering ON the projector.



y0130071

Error Log

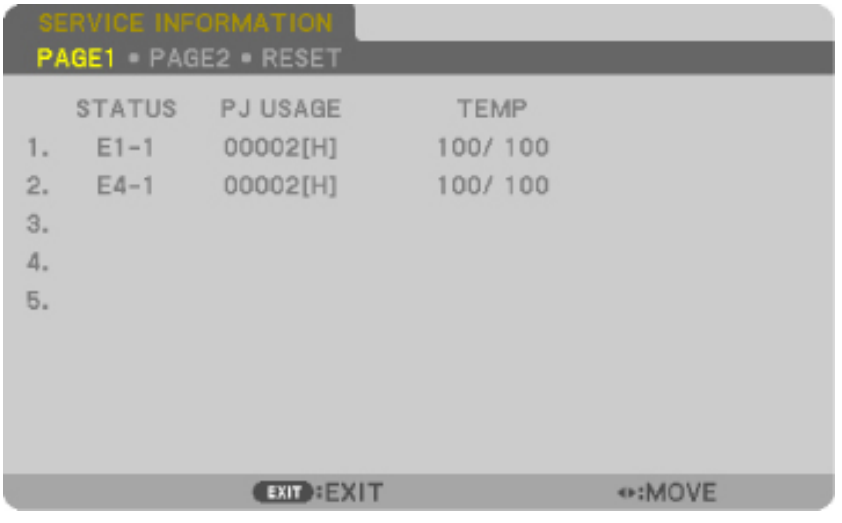
Error Log Screen Image

Displaying the error log screen

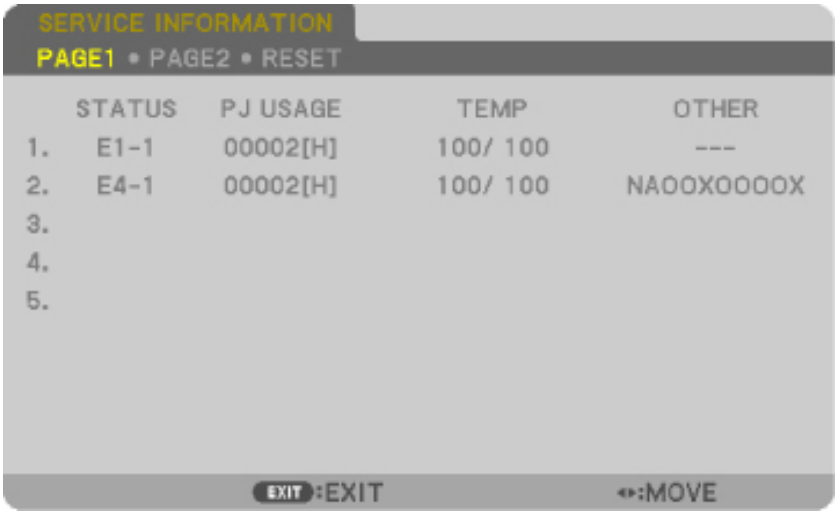
To display the error log screen, press and hold the [MENU] button for five seconds or more in user, expert, or service mode.

Service Information: Page-1

User mode / Expert mode

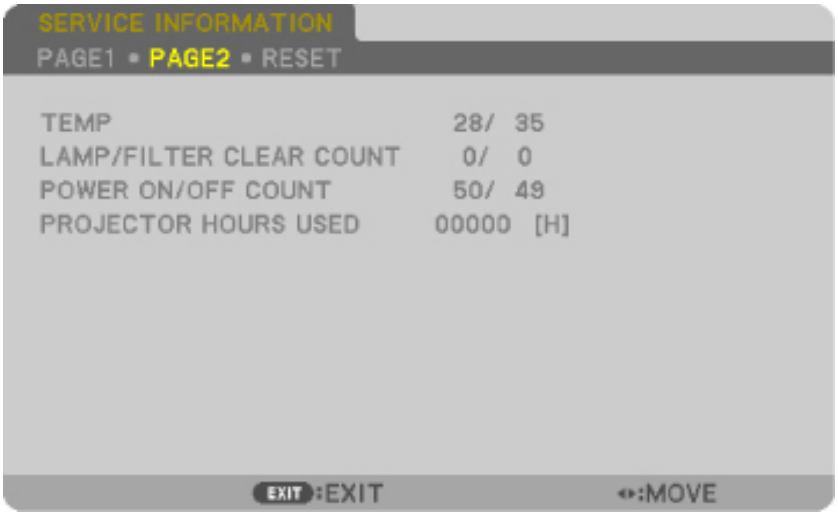


Service mode: Display of other areas added

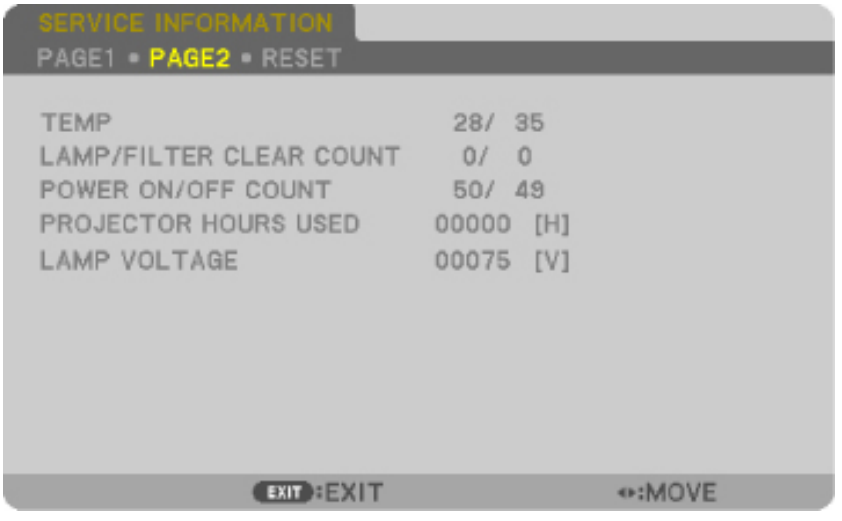


Service Information: Page-2

User mode / Expert mode



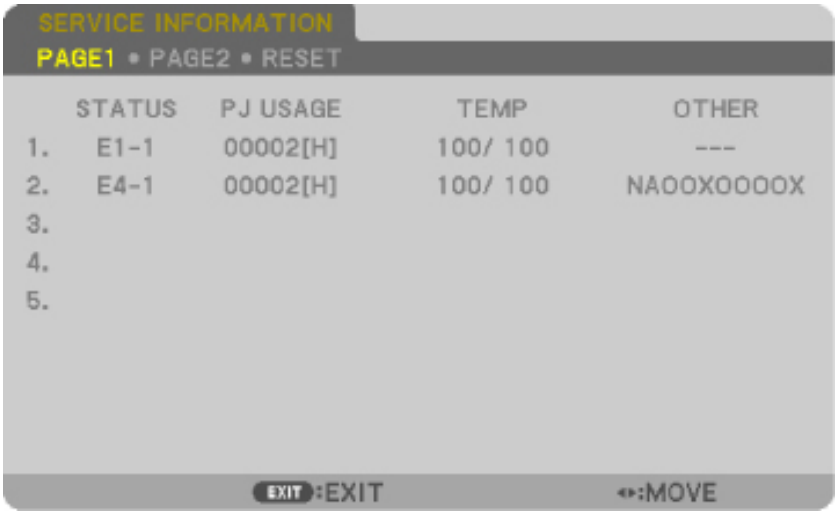
Service mode: Display of lamp voltage added



Service Information: Reset

Not related to the menu mode

Contents of Error Log (Page1) Display



* Cleared with All Data Reset from the service menu.

Status Columns

List of Phenomena caused by Power OFF due to Errors

Display symbol	Meaning	Details	Possible cause
E1-1	Status LED blinking once	Cover malfunction	Lamp cover
E2-1	Status LED blinking twice	Temperature error	Bimetal error
E2-2	Status LED blinking twice	Temperature error	Thermal error
E3-1	Status LED blinking 3 times	Power source error	Nil
E4-1	Status LED blinking 4 times	Fan stop	Nil
E4-2	Status LED blinking 4 times	Super-capacitor error	Nil
E6-1	Status LED blinking 6 times	Lamp failure in lighting (except communication error)	Lamp
E6-3	Status LED blinking 6 times	Lamp failure in lighting (communication error)	Ballast/ connector
E9-1	Status LED blinking 9 times	Iris error (calibration)	Iris

PJ Usage Columns

Display of projector usage time (Projector Hours Used) when an error emerges

TEMP Columns

Display of temperature information when an error emerges

In the order of [Suction Air], [Exhaust Air] from left to right.

Other Columns

* Display of Service Menu only

Display can differ according to the error phenomenon arising.

- For Fan error

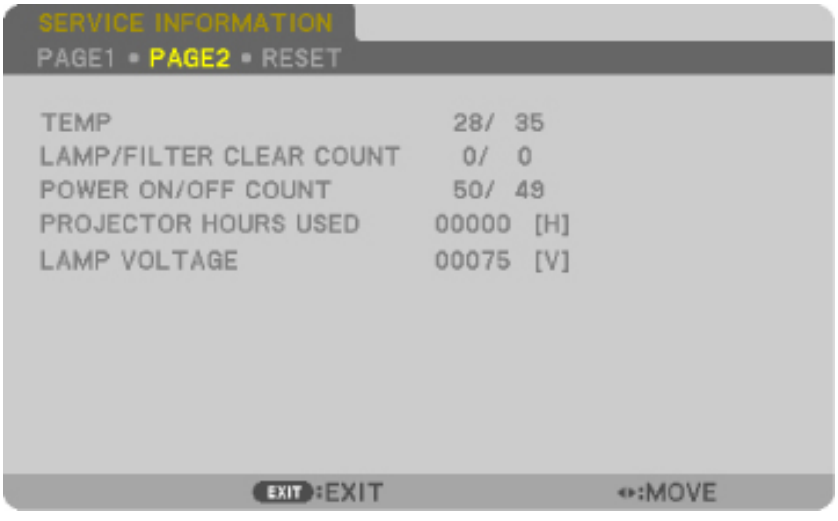
  Symbol consisting of 2 alphanumerical characters plus the number of fans (8 for Plato)

Eco mode (1 character)	Normal	"N"
	Auto	"A"
	Eco	"E"
Fan mode (1 character)	Auto	"A"
	High	"H"
	Altitude	"T"
Error Fan	Normal	"O"
	Error	"X"

- For other errors

  No particular indications

Contents of Error Log (Page2) Display



TEMP Columns

Present temperature information is displayed.

In the order of [Suction Air], [Exhaust Air] from left to right.

Lamp/Filter Clear Count

The number of reset actions is displayed in regard to Lamp Usage / Filter Usage.

Displayed in the order of [No. of reset actions for Lamp Usage] and [No. of reset actions for Filter Usage].

Cleared with All Data Reset from the Service menu.

Power ON/OFF Count

The number of user's lamp ON/OFF actions is displayed.

Initialized with Reset – Clear Lamp Hours.

Projector Hours Used

Present Projector Hours Used is displayed.

The same as Projector Hours Used displayed in the Expert menu.

Lamp Voltage: Indicated exceeding the Service Power

The present status of lamp ballast voltage is displayed.

Contents of Error Log (Reset) Display

ALL DATA

All Data Reset is executed according to the User Menu mode.

MEMO

MEMO

Model Sirius-PJ1

Machine Codes:
Y013/Y014

Appendices

12 January, 2012

TABLE OF CONTENTS

1. Appendix: Specifications

1. Appendix: Specifications

General Specifications

List of General Specifications

Item		Specification
Model name		PJ X6180N/PJ WX6170N
Method		Three primary color liquid crystal shutter projection method
Specifications of main parts		
Liquid crystal panel	Size	PJ X6180N: 0.79" (with MLA) × 3 (aspect ratio: 4:3) PJ WX6170N: 0.75" (with MLA) × 3 (aspect ratio: 16:10)
	Pixels (*1)	PJ X6180N: 786,432 (1024 dots × 768 lines) PJ WX6170N: 1,024,000 (1280 dots × 800 lines)
Projection lenses	Zoom	Manual (zoom range depends on lens)
	Focus	Manual
	Lens shifting	Manual
Light source		330W AC lamp (264W when Eco mode is on)
Optical device		Optical isolation by dichroic mirror, combining by dichroic prism
Light output (*2) (*3)		ECO OFF: PJ X6180N: 6000 lm, PJ WX6170N: 5500 lm ECO ON (80 %)
Contrast ratio (*2) (all white/all black)		2000:1
Screen size (throw distance)		30" to 500" (throw distance depends on lens)
Color reproducibility		10-bit color processing (approx. 1.07 billion colors) (*4)

Item		Specification
Audio output		Built-in 10W monaural speaker
Scanning frequency	Horizontal	15 to 108 kHz or less (24 kHz or greater for RGB inputs), conforming to VESA standards
	Vertical	48 to 120 Hz (50 to 85 Hz for HDMI inputs), conforming to VESA standards
Main adjustment functions		Manual zoom, manual focus, manual lens shift, input signal switching (Computer/HDMI/DisplayPort/ Video/S-Video/Viewer/Network), auto image adjustment, picture enlarging, picture position adjustment, muting (both video and audio), power on/ off, on-screen display/selection, etc.
Max. display resolution (horizontal × vertical)		PJ X6180N/PJ WX6170N: 1920 × 1200 (handled with Advanced AccuBlend)
Input signals	R,G,B,H,V	RGB: 0.7Vp-p/75Ω
		Y: 1.0Vp-p/75Ω (with Negative Polarity Sync)
		Cb, Cr (Pb, Pr): 0.7Vp-p/75Ω
		H/V Sync: 4.0Vp-p/TTL
		Composite Sync: 4.0Vp-p/TTL
		Sync on G: 1.0Vp-p/75Ω (with Sync)
	Composite video	1.0Vp-p/75Ω
	S-Video	Y: 1.0Vp-p/75Ω
		C: 286Vp-p/75Ω
	Component	Y: 1.0Vp-p/75Ω (with Sync)
		Cb, Cr (Pb, Pr): 0.7Vp-p/75Ω
		DTV: 480i, 480p, 720p, 1080i, 1080p (60Hz) 576i, 576p, 720p, 1080i (50Hz)
		DVD: Progressive signal (50/60Hz)
Audio		0.5Vrms/22kΩ or greater

Item		Specification
Input/output connectors		
Computer/ Component	Video input	Mini D-Sub 15-pin × 2, BNC connector × 5
	Video output	Mini D-Sub 15-pin × 1
	Audio input	Stereo mini jack × 3
	Audio output	Stereo mini jack × 1 (common for all signals)
HDMI	Video input	HDMI® Connector type A × 1 Deep Color (color depth): 8-/10-/12-bit compatible Colorimetry: RGB, YcbCr444 and YcbCr422 compatible LipSync compatible, HDCP compatible (*5)
	Audio input	HDMI: Sampling frequency – 32/44.1/48 kHz Sampling bits – 16/20/24 bits
DisplayPort	Video input	DisplayPort × 1 Data rate: 2.7Gbps/1.62Gbps No. lanes: 1 lane/2 lanes/4 lanes Color depth: 6-bit, 8-bit, 10-bit Colorimetry: RGB, YcbCr444 and YcbCr422 compatible HDCP compatible (*5)
	Audio input	DisplayPort: Sampling frequency – 32/44.1/48 kHz Sampling bits – 16/20/24 bits
Video	Video input	RCA × 1
	Audio input	RCA (RCA L/R) × 1
S-Video	Video input	Mini DIN 4-pin × 1
	Audio input	(Common with video audio input connector)
PC control connector		D-Sub 9-pin × 1
USB port		USB type A × 1
USB port for wireless LAN		USB type A × 1

Item		Specification
LAN port		RJ-45 × 1, 10BASE-T/100BASE-TX
Remote connector		Stereo mini jack × 1
Usage environment		Operating temperature: 5 to 40°C (*6) Operating humidity: 20 to 80% (with no condensation)
		Storage temperature: -10 to 50°C (*6) Storage humidity: 20 to 80% (with no condensation)
Power supply		100-240V AC, 50/60Hz
Power consumption	Eco mode off	PJ X6180N/PJ WX6170N: 464W (100-130V)/ 443W (200-240V)
	Eco mode on	PJ X6180N/PJ WX6170N: 372W (100-130V)/ 356W (200-240V)
	Standby	Normal : 16W (100-130V)/18W (200-240V) Network standby mode : 6W Power-saving mode : 0.2W
Rated input current		5.1A - 2.1A
External dimensions		19.7" (width) × 5.7" (height) × 14.1" (depth)/ 499 (width) × 144 (height) × 359 (depth) mm (not including protruding parts)
Weight		PJ X6180N/PJ WX6170N:17.0 lbs/7.7 kg (not including lens)

*1: Effective pixels are more than 99.99%.

*2 This is the light output value (lumens) when the [PRESET] mode is set to [BRIGHT]. If any other mode is selected as the [PRESET] mode, the light output value may drop slightly.

*3 Compliance with ISO21118-2005

*4: Full color (approx. 16.77 million colors or greater) when the HDMI, DisplayPort, viewer or network input connector is selected.

*5: HDMI® (Deep Color, Lip Sync) with HDCP

What is HDCP/HDCP technology?

HDCP is an acronym for High-bandwidth Digital Content Protection. High bandwidth Digital Content Protection (HDCP) is a system for preventing illegal copying of video data sent over a Digital Visual

Interface (DVI). If you are unable to view material via the HDMI input, this does not necessarily mean the projector is not functioning properly. With the implementation of HDCP, there may be cases in which certain content is protected with HDCP and might not be displayed due to the decision/intention of the HDCP community (Digital Content Protection, LLC).

*6: 35 to 40°C – "Forced eco mode"

Note

- These specifications and the product's design are subject to change without notice.

List of Supported Signals

Analog RGB

Signal	Resolution (dots)	Aspect Ratio	Refresh Rate (Hz)
VGA	640 × 480	4 : 3	60/72/75/85/iMac
SVGA	800 × 600	4 : 3	56/60/72/75/85/iMac
XGA	1024 × 768 *1	4 : 3	60/70/75/85/iMac
XGA+	1152 × 864	4 : 3	60/70/75/85
WXGA	1280 × 768 *2	15 : 9	60
	1280 × 800 *2	16 : 10	60
	1360 × 768 *3	16 : 9	60
	1366 × 768 *3	16 : 9	60
Quad-VGA	1280 × 960	4 : 3	60/75/85
SXGA	1280 × 1024	5 : 4	60/75/85
SXGA+	1400 × 1050	4 : 3	60/75
WXGA+	1440 × 900	16 : 10	60
WXGA++	1600 × 900	16 : 9	60
UXGA	1600 × 1200	4 : 3	60/65/70/75
WSXGA+	1680 × 1050	16 : 10	60
WUXGA	1920 × 1200	16 : 10	60 (Reduced Blanking)
HD	1280 × 720 *2	16 : 9	60

Signal	Resolution (dots)	Aspect Ratio	Refresh Rate (Hz)
Full HD	1920 × 1080	16 : 9	60
MAC 13"	640 × 480	4 : 3	67
MAC 16"	832 × 624	4 : 3	75
MAC 19"	1024 × 768	4 : 3	75
MAC 21"	1152 × 870 *4	4 : 3	75
MAC 23"	1280 × 1024	5 : 4	65

HDMI

Signal	Resolution (dots)	Aspect Ratio	Refresh Rate (Hz)
VGA	640 × 480	4 : 3	60
SVGA	800 × 600	4 : 3	60
XGA	1024 × 768 *1	4 : 3	60
HD	1280 × 720 *2	16 : 9	60
WXGA	1280 × 768 *2	15 : 9	60
	1280 × 800 *2	16 : 10	60
	1366 × 768 *3	16 : 9	60
Quad-VGA	1280 × 960	4 : 3	60
SXGA	1280 × 1024	5 : 4	60
SXGA+	1400 × 1050	4 : 3	60
WXGA+	1440 × 900	16 : 10	60
WXGA++	1600 × 900	16 : 9	60
WSXGA+	1680 × 1050	16 : 10	60
UXGA	1600 × 1200	4 : 3	60
Full HD	1920 × 1080	16 : 9	60
WUXGA	1920 × 1200	16 : 10	60 (Reduced Blanking)

Signal	Resolution (dots)	Aspect Ratio	Refresh Rate (Hz)
HDTV(1080p)	1920 × 1080	16 : 9	50/60
HDTV(1080i)	1920 × 1080	16 : 9	50/60
HDTV(720p)	1280 × 720	16 : 9	50/60
SDTV(480p)	720 × 480	4 : 3 / 16 : 9	60
SDTV(576p)	720 × 576	4 : 3 / 16 : 9	50
SDTV(480i)	1440 × 480	4 : 3 / 16 : 9	60
SDTV(576i)	1440 × 576	4 : 3 / 16 : 9	50

DisplayPort

Signal	Resolution (dots)	Aspect Ratio	Refresh Rate (Hz)
VGA	640 × 480	4 : 3	60
SVGA	800 × 600	4 : 3	60
XGA	1024 × 768 *1	4 : 3	60
HD	1280 × 720 *2	16 : 9	60
WXGA	1280 × 768 *2	15 : 9	60
	1280 × 800 *2	16 : 10	60
	1366 × 768 *3	16 : 9	60
Quad-VGA	1280 × 960	4 : 3	60
SXGA	1280 × 1024	5 : 4	60
SXGA+	1400 × 1050	4 : 3	60
WXGA+	1440 × 900	16 : 10	60
WXGA++	1600 × 900	16 : 9	60
WSXGA+	1680 × 1050	16 : 10	60
UXGA	1600 × 1200	4 : 3	60
Full HD	1920 × 1080	16 : 9	60

Signal	Resolution (dots)	Aspect Ratio	Refresh Rate (Hz)
WUXGA	1920 × 1200	16 : 10	60 (Reduced Blanking)
HDTV(1080p)	1920 × 1080	16 : 9	50/60
HDTV(720p)	1280 × 720	16 : 9	50/60
SDTV(480p)	720 × 480	4 : 3 / 16 : 9	60
SDTV(576p)	720 × 576	4 : 3 / 16 : 9	50

Component

Signal	Resolution (dots)	Aspect Ratio	Refresh Rate (Hz)
HDTV(1080p)	1920 × 1080	16 : 9	50/60
HDTV(1080i)	1920 × 1080	16 : 9	50/60
HDTV(720p)	1280 × 720	16 : 9	50/60
SDTV(480p)	720 × 480	4 : 3 / 16 : 9	60
SDTV(576p)	720 × 576	4 : 3 / 16 : 9	50
SDTV(480i)	720 × 480	4 : 3 / 16 : 9	60
SDTV(576i)	720 × 576	4 : 3 / 16 : 9	50

Composite Video/S-Video

Signal	Aspect Ratio	Refresh Rate (Hz)
NTSC	4 : 3	60
PAL	4 : 3	50
PAL60	4 : 3	60
SECAM	4 : 3	50

*1 Native resolution on XGA model (PJ X6180N)

*2 Native resolution on WXGA model (PJ WX6170N)

*3 The projector may fail to display these signals correctly when [NORMAL] is selected for [ASPECT] in the on-screen menu.

The factory default is [NORMAL] for [ASPECT]. To display these signals, select [16:9] for [ASPECT].

*4 The projector may fail to display these signals correctly when [NORMAL] is selected for [ASPECT] in the on-screen menu.

The factory default is [NORMAL] for [ASPECT RATIO]. To display these signals, select [4:3] for [ASPECT].

Note

- Signals exceeding the projector's resolution are handled with Advanced AccuBlend.
- With Advanced AccuBlend, the size of characters and ruled lines may be uneven and colors may be blurred.
- Upon shipment, the projector is set for signals with standard display resolutions and frequencies, but adjustments may be required depending on the type of computer.

MEMO