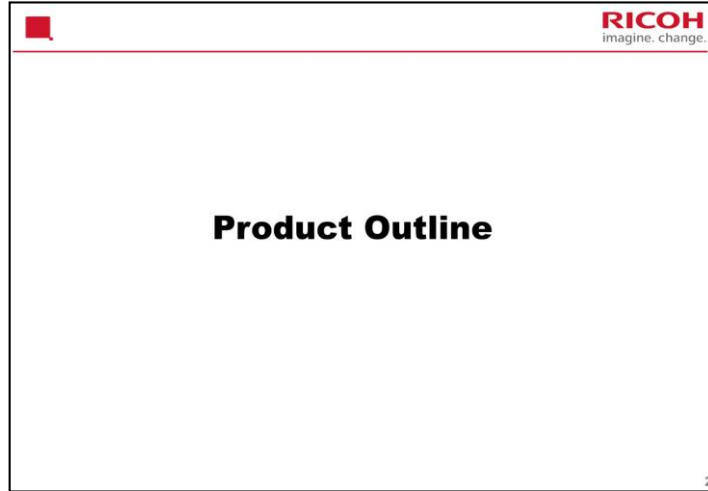




This course explains how to service the Spica-PJ1 projector.  
This is a high-end projector, currently at the top of the range.



No additional notes




## One Model

**RICOH**  
imagine. change.

- Spica-PJ1 cwu (Y092): PJ KU12000
  - WUXGA model
- This is a DLP projector with network function, and interchangeable lenses for short throw, long throw, and standard throw
  - Y136: Replacement Lens Type B1 (short throw)
  - Y137: Replacement Lens Type B2 (short throw)
  - Y138: Replacement Lens Type B3 (short throw)
  - Y139: Replacement Lens Type B4 (standard throw)
  - Y140: Replacement Lens Type B5 (long throw)
  - Y141: Replacement Lens Type B6 (long throw)

3


No additional notes

	<b>Main Points about This Model</b>	<b>RICOH</b> imagine. change.
<ul style="list-style-type: none"><li>▪ High brightness (12,000lm)</li><li>▪ Two mercury lamps<ul style="list-style-type: none"><li>– This avoids interruptions if a lamp fails</li></ul></li><li>▪ 6 types of lens<ul style="list-style-type: none"><li>– Overall throw ratio: 0.84 - 7.2</li></ul></li><li>▪ Compatible with HDBaseT and 3G-SDI</li><li>▪ 360 degrees tilt, portrait mode, curve blending, vertical/horizontal keystone, vertical/horizontal lens shift</li><li>▪ Two interchangeable color wheels<ul style="list-style-type: none"><li>– The standard color wheel is RGBCYM.</li><li>– Can change to an RGBRGB color wheel as an option.</li></ul></li></ul>		
4		

Curve blending: Spica can project images which will look square on cylindrical, spherical or other shapes of screen without distortion. Vertical / horizontal lens shift changes projection without moving the projector.

**Changing the Color Wheel**

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y092m0036

- Remove the color wheel cover.
- Then loosen three screws to remove the color wheel.



y092m0037

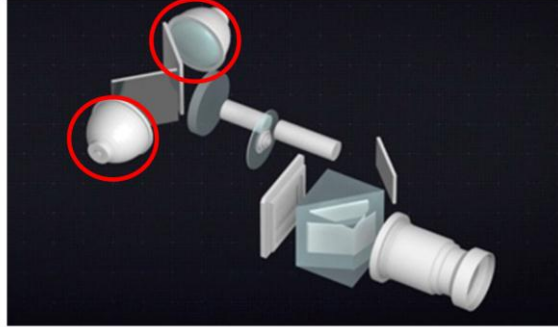


The procedure is in the Parts Replacement section of the service manual.  
Users can also do this procedure.



## Two Lamps

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imagine. change.



6

No additional notes



## Optional Dust Filters

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7

No additional notes



## Vertical/Horizontal Lens Shift

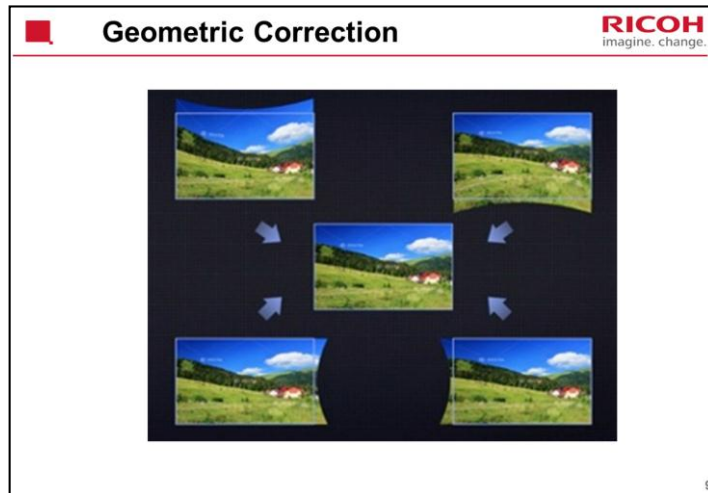
**RICOH**  
imagine. change.



8

No additional notes



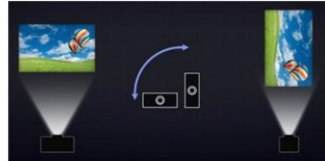


This allows projection on a curved surface without distorting the image.



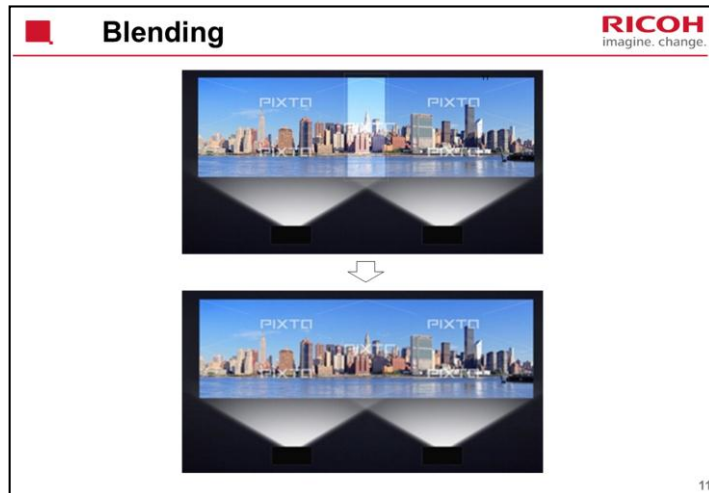
## Tilting, Portrait Mode

**RICOH**  
imagine. change.



10

No additional notes

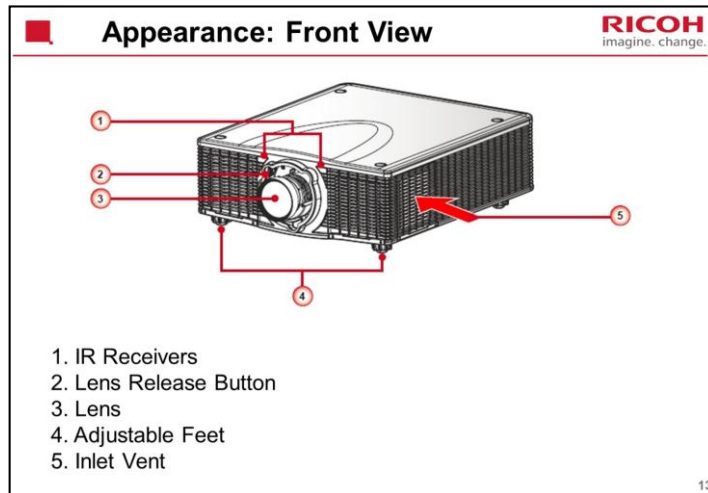


No additional notes

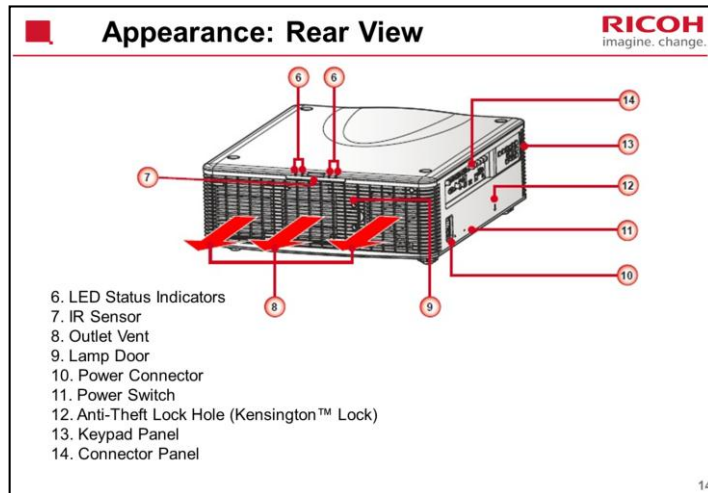


PIP: Picture in Picture – two pictures can be seen at the same time, one as an inset inside the other (see the left side of the slide)

PBP: Picture by Picture – two pictures shown side by side (see the right side of the slide)



No additional notes

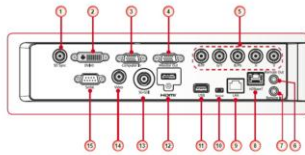


No additional notes



## Terminals

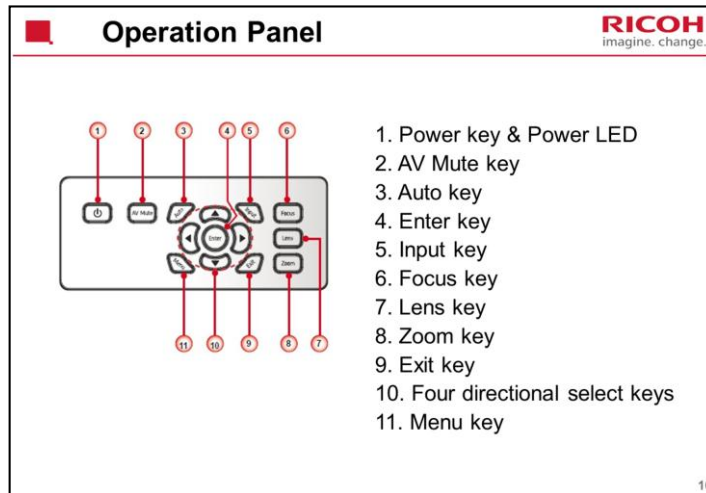
**RICOH**  
imagine. change.



- |                                 |                         |
|---------------------------------|-------------------------|
| 1. 3D Sync OUT Connector        | 9. LAN Connector        |
| 2. DVI-D Connector              | 10. Service Connector   |
| 3. Computer IN Connector        | 11. USB Connector       |
| 4. Monitor OUT Connector        | 12. HDMI Connector      |
| 5. Component/RGBHV IN Connector | 13. 3G-SDI IN Connector |
| 6. REMOTE OUT Connector         | 14. VIDEO IN Connector  |
| 7. REMOTE IN Connector          | 15. Serial Connector    |
| 8. HDBaseT Connector            |                         |

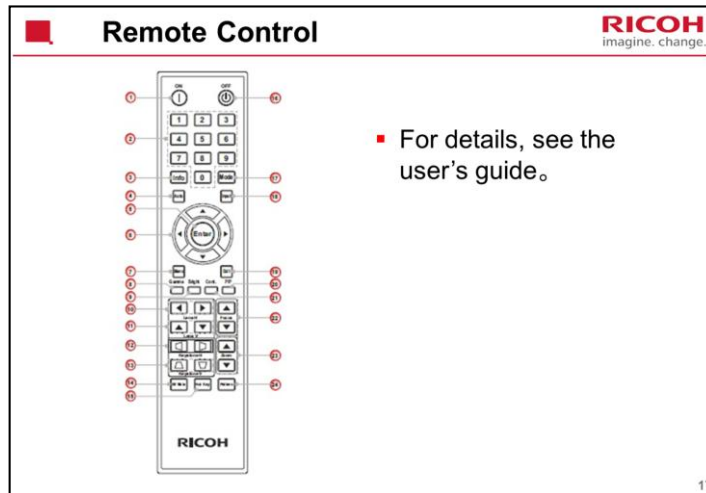
15

No additional notes



Press the Menu button to access the On-Screen Display (OSD) menu, which is sometimes mentioned in the service manual.



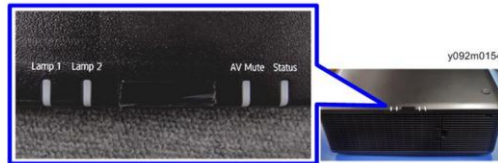


No additional notes



## Front Panel LEDs


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- The status of these LEDs tells you about the machine condition.
- See the 'LED Indicators' section of the service manual for details on the meanings of the various states of these LEDs,


18

No additional notes



## How to Enter Service Mode

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imagine. change.



The first screenshot shows the main OSD menu with 'OPTION' highlighted. The second screenshot shows the 'OPTION' menu with 'Service' highlighted. The third screenshot shows the physical remote control with the 'ENTER' button highlighted.


- In the OSD menu, select 'OPTION'.
- Select 'SERVICE'.
- When 'Enter Service Code' appears, press the "Left [1]", "Down [2]", "Right [3]" and "Up [4]" buttons sequentially.
- See the 'Service Mode' section of the service manual for a list of functions in the service mode menu.

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No additional notes

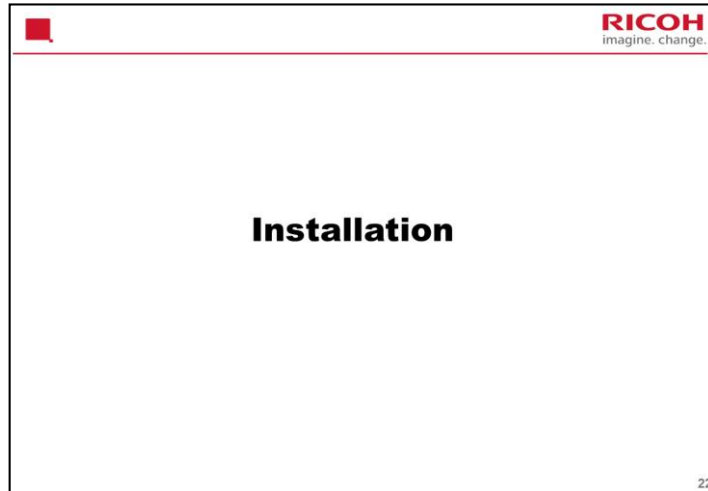


No additional notes

	<b>General Specifications</b>	<b>RICOH</b> imagine. change.
■	Native Resolution: WUXGA (1920x1200)	
■	Screen size: 50 to 500 inches	
■	Contrast ratio: Up to 5000:1	
■	Brightness: 12,000 lm (typical: 11,000 lm)	
■	Lamp life (only guaranteed in ceiling and tabletop mode) – 1500 Hours (Normal Mode), 2000 Hours (ECO Mode)	
■	<b>Throw ratio</b>	
–	0.84-1.02 (Replacement Lens Type B1)	
–	1.02-1.36 (Replacement Lens Type B2)	
–	1.2-1.5 (Replacement Lens Type B3)	
–	1.5-2.0 (Replacement Lens Type B4), standard lens	
–	2.0-4.0 (Replacement Lens Type B5)	
–	4.0-7.2 (Replacement Lens Type B6)	
■	<b>Power Consumption</b>	
–	< 1150W in Normal Brightness mode	
–	< 920W in ECO mode	

21

For more details, see the field service manual.



This projector is installed by the customer. However, please study the installation procedure in the user's guide to be familiar with the procedure, because some customers may need help.

This section is basically the same as the Deneb-PJ1.




## Installation by the Customer

**RICOH**  
imagine. change.

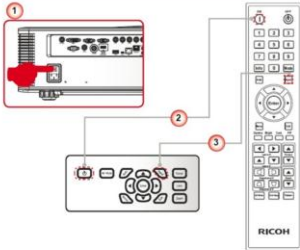
- This projector is installed by the customer.
- However, please study the installation procedure in the user's guide to be familiar with the procedure, because some customers may need help.
- Keep 25.4 cm (10 inches) clear around the vents to allow air circulation through the machine.

23

No additional notes



## Turning the Power On



1. Plug in the power cable and turn on the power switch next to the cable inlet.
2. Turn on the lamp by pressing the power button on the control panel or on the remote control.
  - The Status LED will slowly blink green.
3. Turn on and connect the source that you want to display on the screen (computer, video player, etc). Press 'Input' on the remote control or operation panel and select the source.

24

No additional notes





## Turning the Power Off

**RICOH**  
imagine. change.



1. Press the power button on the remote control or the operation panel. 'Power off?' will be displayed. Press OFF key again' will be displayed. Press the power button again within 3 seconds, or the message will disappear.
  - When you press for the second time, the projector will shut down.
2. The cooling fans will execute the cooling cycle for about 180 seconds and the green and red status LEDs will both flash. The projector has entered standby mode. Do not try to turn power on again until the cooling cycle has finished.
  - If you wish to turn the projector back on, you must wait until the projector has completed the cooling cycle and has entered standby mode. Once in standby mode, press the power button either on the control panel or on the remote control to restart the projector.
3. Turn off the power switch, then disconnect the power cord.
  - When switching the projector off, please ensure the cooling cycle has been completed before disconnecting power. Allow 180 seconds for the projector to cool down.
  - Do not turn the projector on immediately after the power off procedure.

25

No additional notes



## Important Notes

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imagine. change.

- Remove the projector lens before transporting the projector.

26

No additional notes



---

# Maintenance

27

No additional notes



## Tools Required

**RICOH**  
imagine. change.

- You need the following tools to update the firmware, and to make adjustments after replacing the optical engine or main board.
  - RS-232C cable (female/cross)
  - LAN cable
  - Portable PC

28

No additional notes



## Caution

**RICOH**  
imagine. change.

- Operators should wear straps for discharging static electricity when disassembling the machine.
- When removing or disassembling the optical engine, please note that specific environmental conditions (clean room) are required.

29

No additional notes




## After Replacing Components

**RICOH**  
imagine. change.


- After replacing certain parts, some adjustment procedures must be performed.
- This training course only explains the main points, so see the table in the “Required Action After Replacing Parts” section for which adjustments are required and where to find them in the manual.
  - Whenever you replace a component, check this table to see if you have to do any of these procedures. The text in the Replacement and Adjustments procedures does not always refer to this table.

30

No additional notes





## Removing the Projector Lens



Incorrect

Correct



- Note the correct way to hold the assembly.
  - Do not touch the motors.
- Users can replace the lens. There are several types of lens, as mentioned earlier.

31

No additional notes



## Replacing the Main Board

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imagine. change.

- If the color appears abnormal after changing the Main Board Module, do the color wheel index adjustment.

32

No additional notes






## Replacing the Lamp - 1

**RICOH**  
imagine. change.


- When the lamp reaches its end of life, 'Lamp Warning, lamp life exceeded' is displayed. Replace the lamp as soon as possible.
- Allow the projector to cool for at least 30 minutes before you open the lamp cover.
- Replace with a lamp of the same type.
  - Replacement Lamp Type 25

33


No additional notes



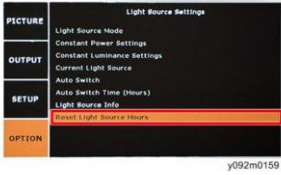
## Replacing the Lamp - 2



imagine. change.



y092m0158



y092m0159

■ After you replace the lamp, do the Reset Lamp Hours procedure.

- In the OSD screen, select 'OPTION'.
- Then select Light Source Hours, then Reset Light Source Hours.
- After that, you can select Lamp 1, Lamp 2, or both lamps

34

No additional notes




## Replacing a Fan

**RICOH**  
imagine. change.


- After changing one of the following fans, do a fan calibration:
  - Fan 5, Fan 6, Fan 7, Fan 8, Fan 10
  - See 'Calibration' in the service manual.
  - If the calibration fails, change the fan

35

No additional notes



## Updating the System Firmware



- **Equipment Needed**
  - Firmware Download Software (called OPFU, or One Package Firmware Update)
    - Download this software, and run it to automatically update the firmware all at once.
  - Hardware
    - LAN cable (Category 5e)
    - PC or Laptop with 32-bit Windows
  - Procedure
    - Disable Windows Firewall
    - Set the HDD sleep timer for longer than 2 hours (it takes 2 hours to update the firmware)
    - Windows 7: Run as an administrator
    - Follow the 'Firmware Update Process' in the manual.

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The detailed procedure is in the System Maintenance – System Firmware Update section of the service manual.



The End