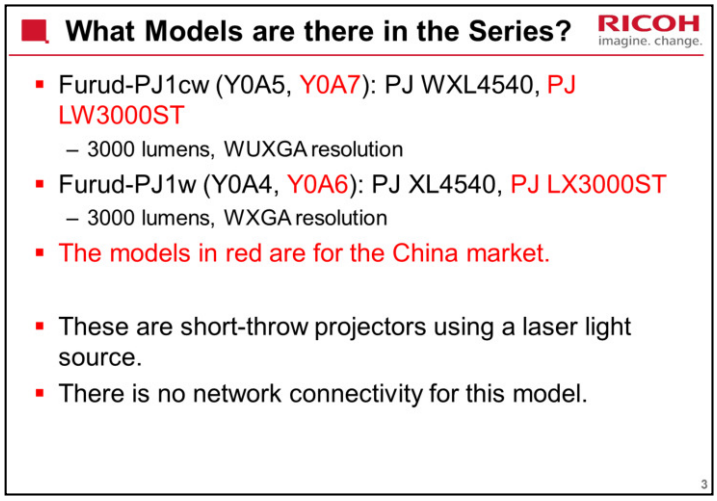
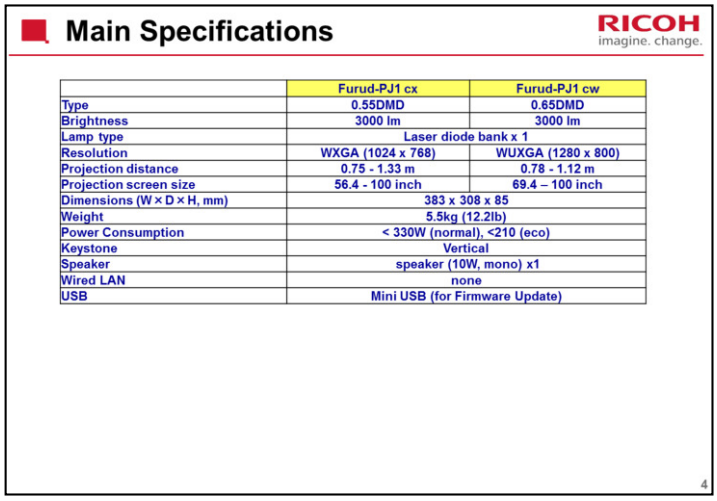

This training course provides service technician training for the Furud-PJ1 series.


This section provides an overview of the machine, and the options that can be installed.

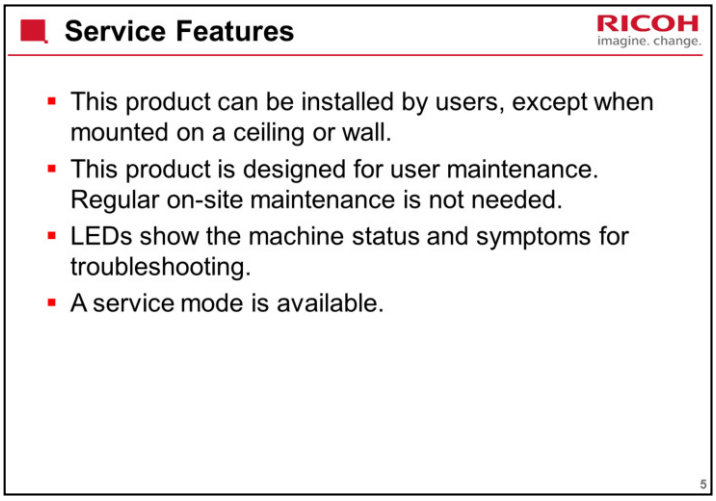



No additional notes

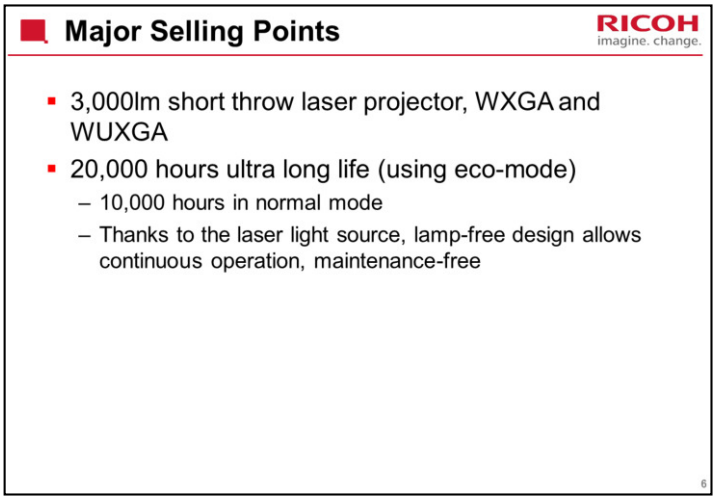



| | Furud-PJ1 cx | Furud-PJ1 cw |
|---|---|---|
| Type | 0.55DMD | 0.65DMD |
| Brightness | 3000 lm | 3000 lm |
| Lamp type | Laser diode bank x 1 | |
| Resolution | WXGA (1024 x 768) | WUXGA (1280 x 800) |
| Projection distance | 0.75 - 1.33 m | 0.78 - 1.12 m |
| Projection screen size | 56.4 - 100 inch | 69.4 – 100 inch |
| Dimensions (W × D × H, mm) | 383 x 308 x 85 | |
| Weight | 5.5kg (12.2lb) | |
| Power Consumption | < 330W (normal), <210 (eco) | |
| Keystone | Vertical | |
| Speaker | speaker (10W, mono) x1 | |
| Wired LAN | none | |
| USB | Mini USB (for Firmware Update) | |

See the specifications table in the service manual for more details.

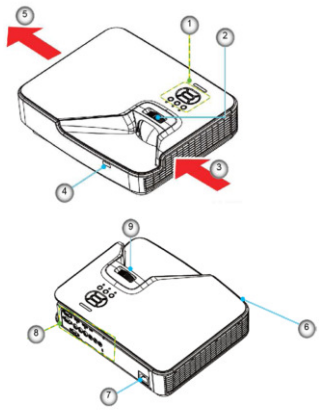



No additional notes




No additional notes

## External View

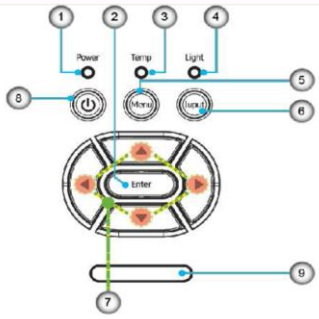



1. Control Panel
2. Focusing Ring
3. Ventilation (inlet)
4. IR Receiver
5. Ventilation (outlet)
6. Speaker
7. Power Socket
8. Input / Output Connections
9. Lens

No additional notes

## Operation Panel

RICOH
imagine. change.




1. Power LED
2. Enter key
3. Temp LED
4. Light LED
5. menu key
6. Input key
7. Four Directional Select Keys
8. Power/Standby button
9. IR Receiver

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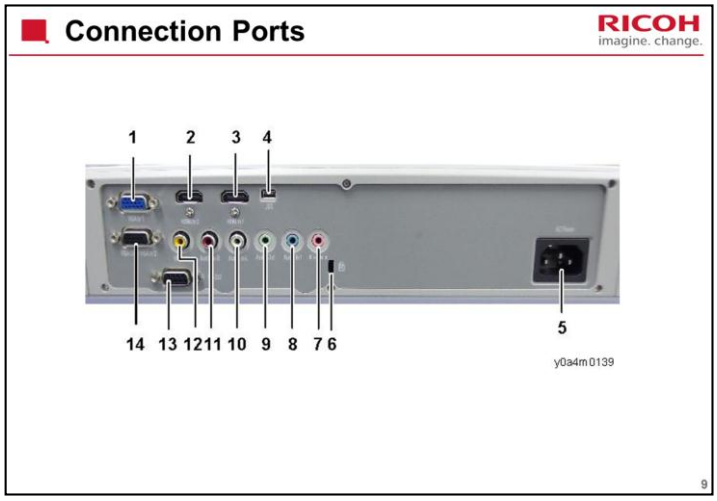
No additional notes




1. Computer-In/YPbPr Connector (PC Analog Signal/Component Video Input/HDTV/YPbPr)
2. HDMI2 Input Connector
3. HDMI1 Input Connector
4. USB socket for firmware update
5. Power Socket
6. Kensington Lock Port
7. Microphone Input Connector
8. Audio Input 1 Connector (3.5mm mini jack)
9. Audio Output Connector (3.5mm mini jack)
10. Audio Input 2 (left) Connector
11. Audio Input 2 (right) Connector
12. Video Input Connector
13. PC Control (9-pin DIN Type)
14. Monitor-Out Connector

## LED Indicators

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

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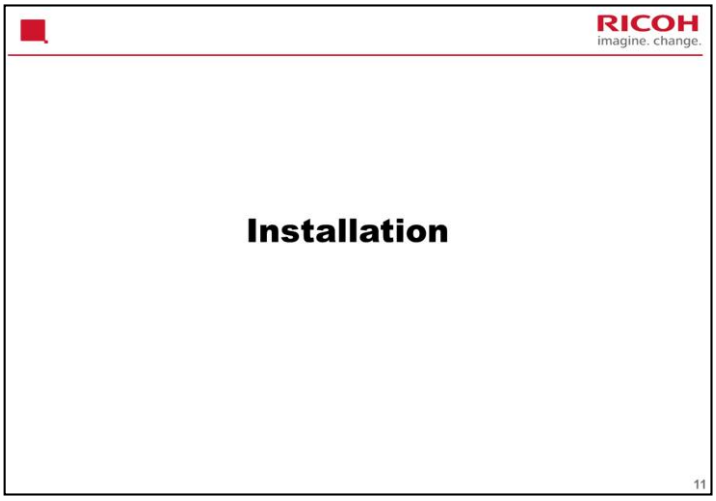
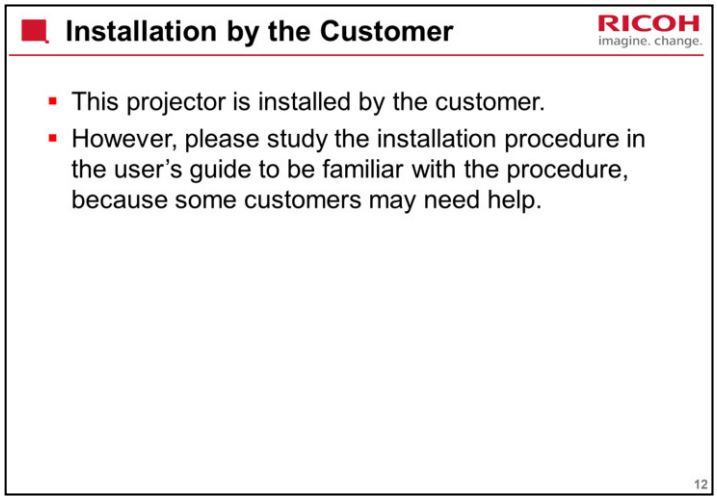
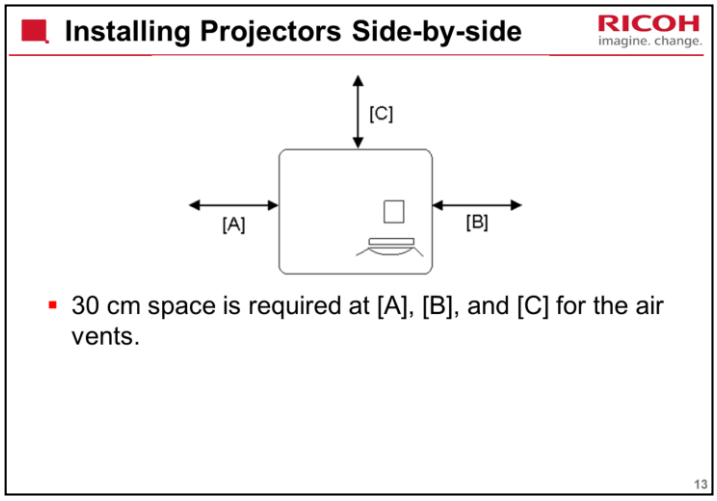
No additional notes




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.

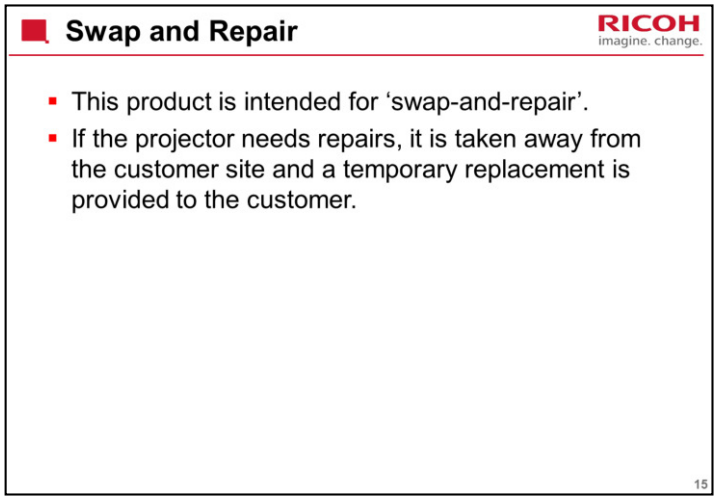



No additional notes

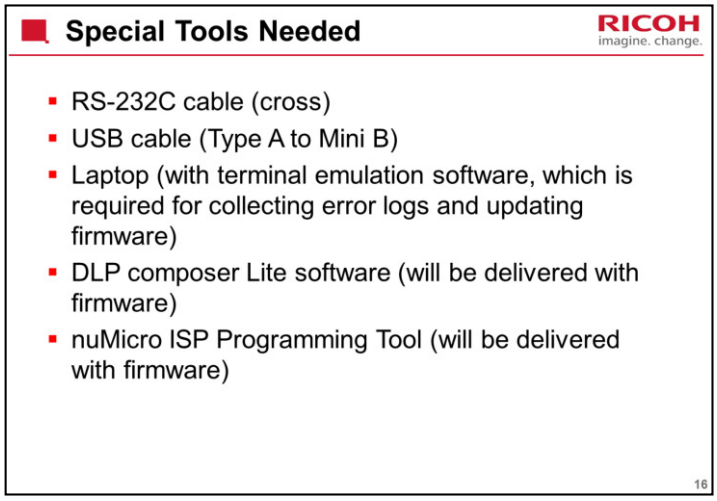



No additional notes

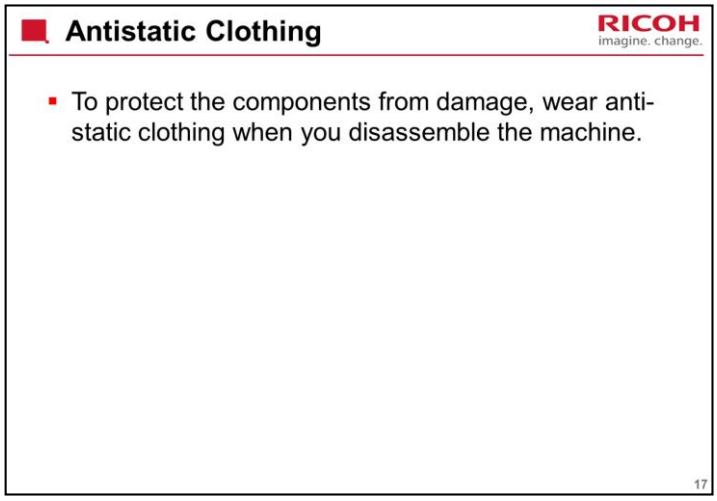

No additional notes



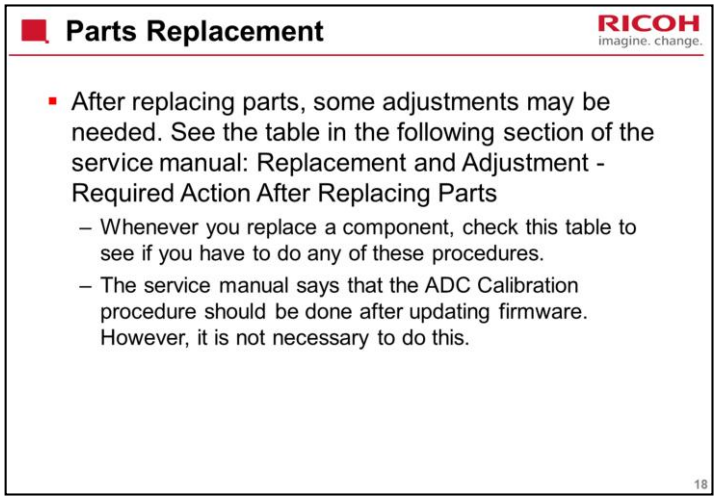

No additional notes




An example of terminal emulation software is Tera Term.




No additional notes




No additional notes

## Removing the Top Cover

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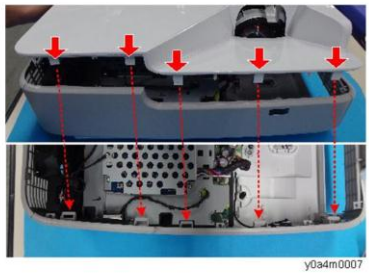
imagine. change.



y0a4m0007

- Take care not to break the hooks when removing this cover.

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No additional notes

## Replacing the Fans

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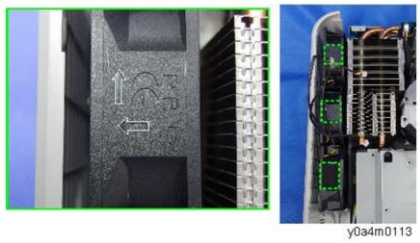
imagine. change.




- Make sure that the markings on the fans are positioned as shown in the above diagram, or the air flow will not be in the correct direction.

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No additional notes

## Replacing the Filter Wheel

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imagine. change.


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- After attaching the cover, pull out the FFC until the black line appears. If the FFC is loose inside the cover, it might come into contact with the filter wheel, causing an error.

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No additional notes

## Optics Engine Layout

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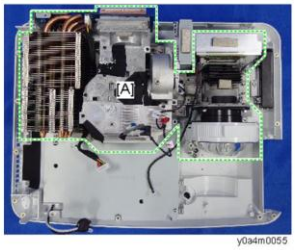
imagine. change.




- The Optics Engine [A] contains the following 3 main modules:
  - Engine Unit
    - Lens Module, DMD Module (DMD Chip, DMD Board)
  - Combiner Unit
    - Heat Sink, Heat Pipe, Laser Bank (Laser Diode, Laser Bank Board), Phosphor Wheel
  - Filter Wheel
- The three main modules of the optics engines can be replaced in the field.
  - For example, if the laser banks don't work, replace the combiner unit.

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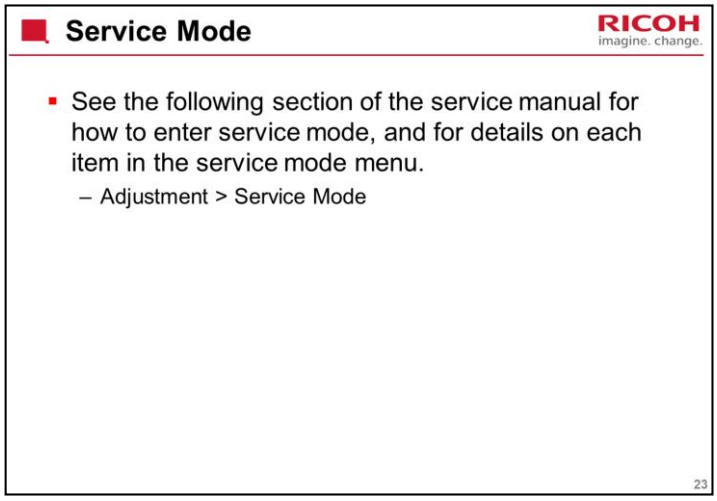
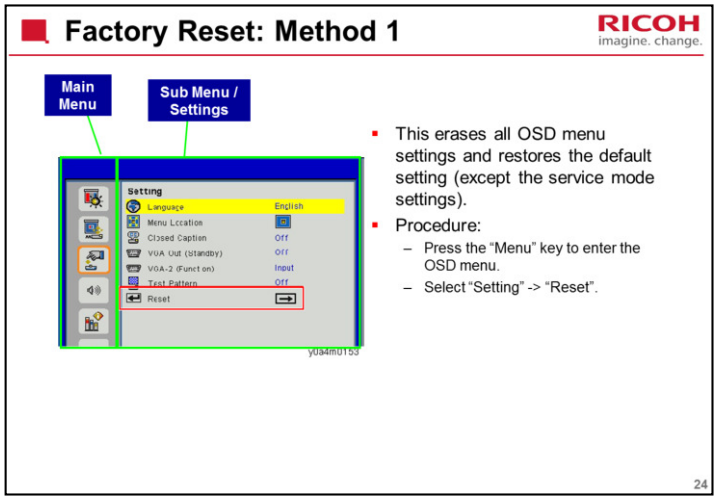
No additional notes




No additional notes




No additional notes

## Factory Reset: Method 2

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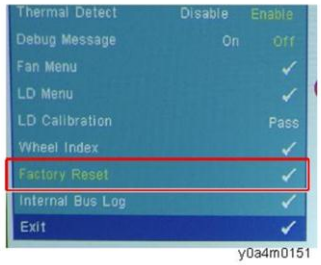
imagine. change.




- This does the same as method 1 on the previous slide.
- Procedure:
  - Get into service mode, and select Factory Reset.

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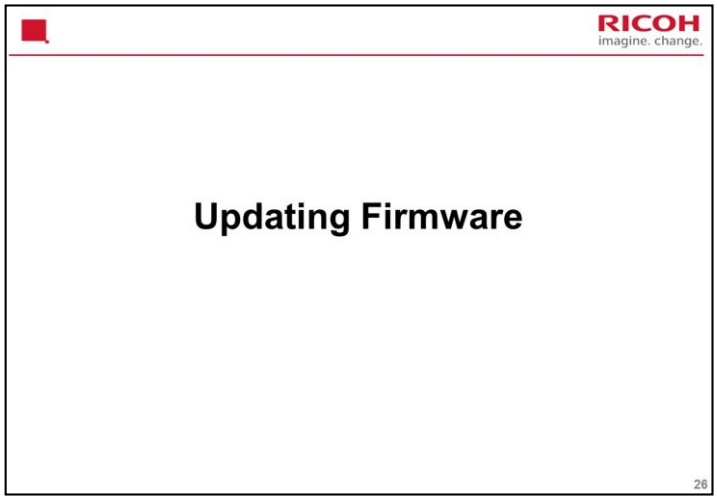
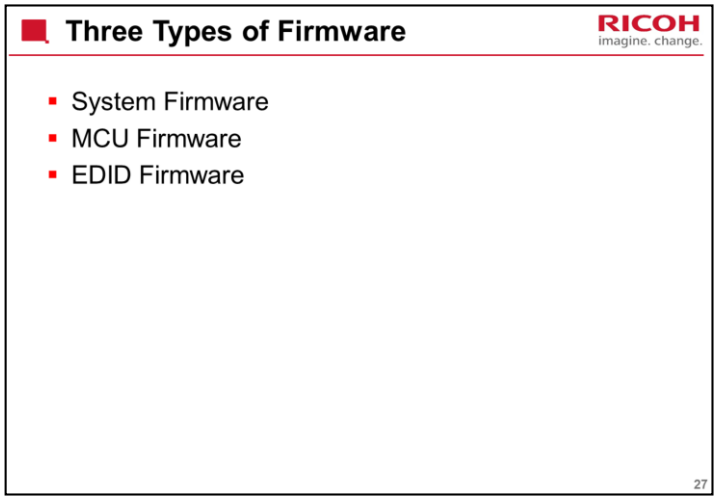
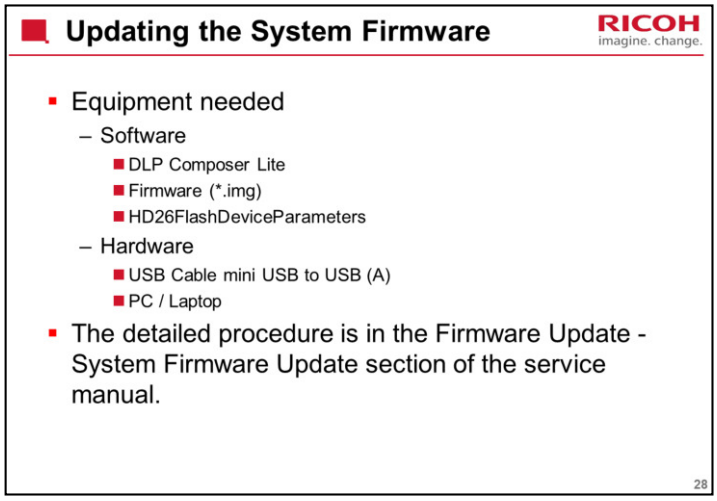
No additional notes



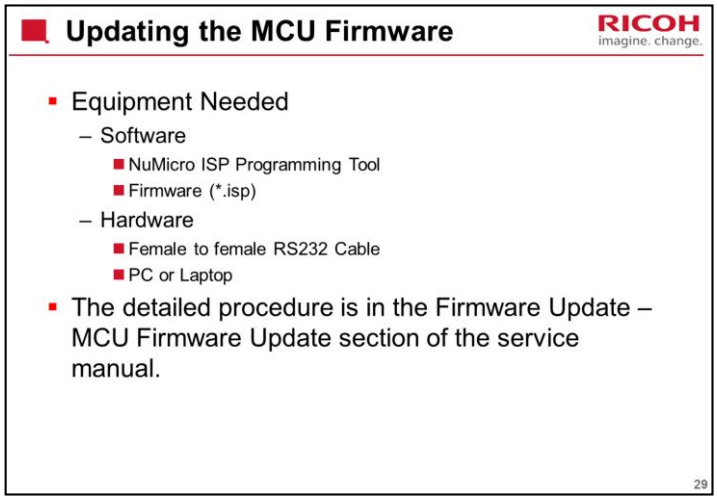

This section explains the basic points about updating the firmware.



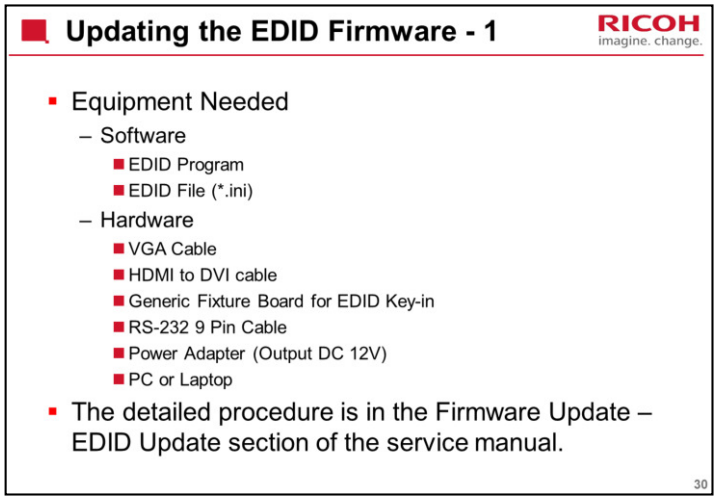

No additional notes




Download "DLP Composer Lite" and "HD26FlashDeviceParameters" from the website that provides the relevant tools for maintenance.




No additional notes

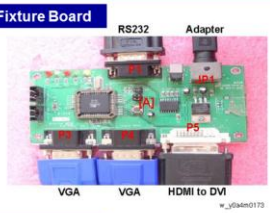



Fixture board, power adapter: See the next slide

## Updating the EDID Firmware - 2

RICOH imagine. change.

**Fixture Board**




**Projector**


- To update the EDID firmware, the projector must first be connected to the PC/Laptop through a special board called the 'Fixture Board'.
  - The RS232C cable goes to the PC/Laptop
  - The two VGA cables and the HDMI to DVI all go to the projector.
- The fixture board is powered with a 12V DC power adapter.
- Consult your supervisor when you need a fixture board and 12V adapter.

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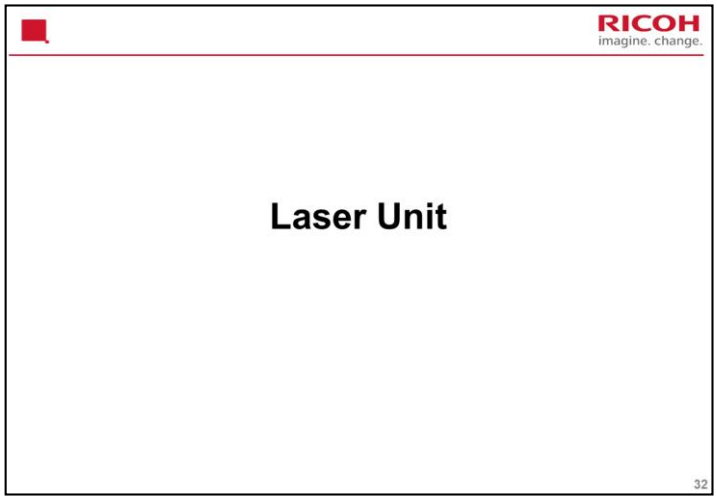
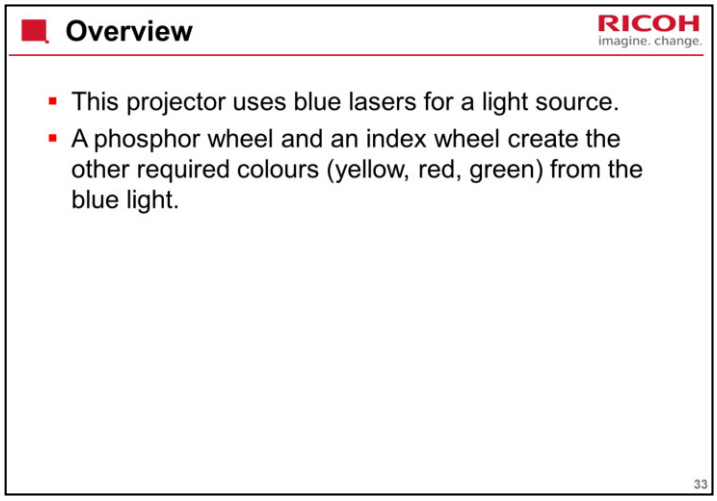
See the procedure in the service manual for details on how all this is connected up.



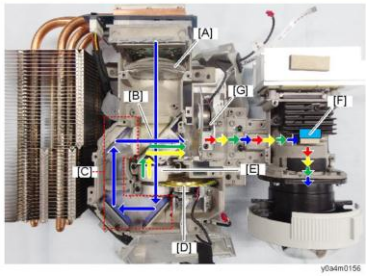

This section briefly describes the technology used in the laser diode units.




No additional notes

## Light Path - 1

RICOH
imagine. change.



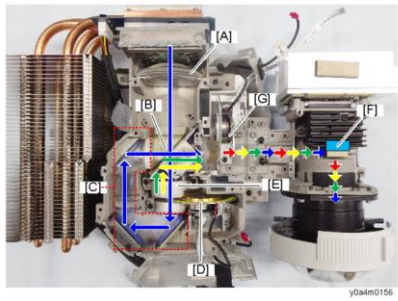

- Blue light from the laser diode banks goes through the afocal lens [A] and the dichroic mirror [B].
- The collimator [E] adjusts the beam before it reaches the phosphor wheel [D].

34

Afocal lens: No convergence, light is transmitted to a distant point as parallel rays.

## Light Path - 2

RICOH
imagine. change.



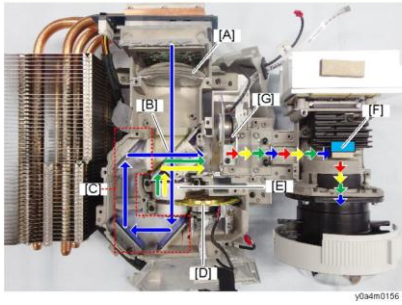

- The phosphor wheel [D] creates green and yellow light from the blue light.
- The green and yellow light are reflected back to the dichroic mirror [B], but the blue light passes straight through.

35

Afocal lens: No convergence, light is transmitted to a distant point as parallel rays.

## Light Path - 3

RICOH
imagine. change.




- The green, yellow, and blue light reaches the filter wheel [G]. This wheel creates red light from the yellow light.
- The four beams (blue, green, yellow, red) reach the DMD [F] and the image is assembled for projection.

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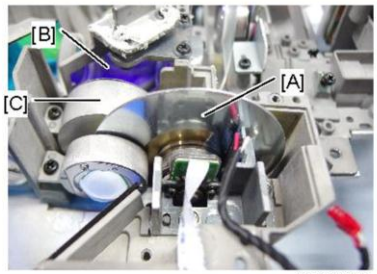
Afocal lens: No convergence, light is transmitted to a distant point as parallel rays.

## Phosphor Wheel

RICOH
imagine. change.

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- The phosphor wheel [A] has three segments: blue transparency, yellow phosphor, green phosphor.
  - [B]: Dichroic mirror, [C]: Collimator

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No additional notes

## Filter Wheel

RICOH
imagine. change.

y0a4m0158

- The filter wheel has 4 segments: green, blue, red, and yellow.
- The blue segment contains a diffuser to reduce the coherence of the blue laser light, for safety purposes.

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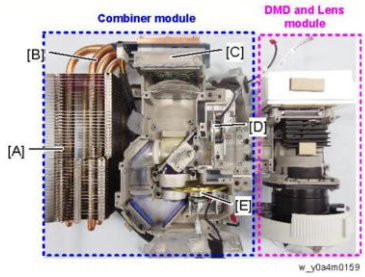
No additional notes

## Combiner Module

RICOH
imagine. change.



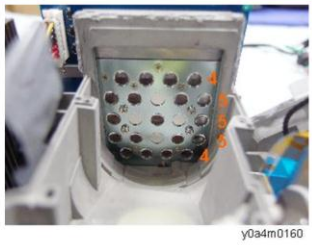

- This module contains the heat sink [A], heat pipe [B], laser bank [C], filter wheel [D], and phosphor wheel [E]

39

No additional notes

## Laser Banks

RICOH
imagine. change.

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- There is one laser bank of 24 laser diodes, cooled by a heat pipe.

40

No additional notes


The End