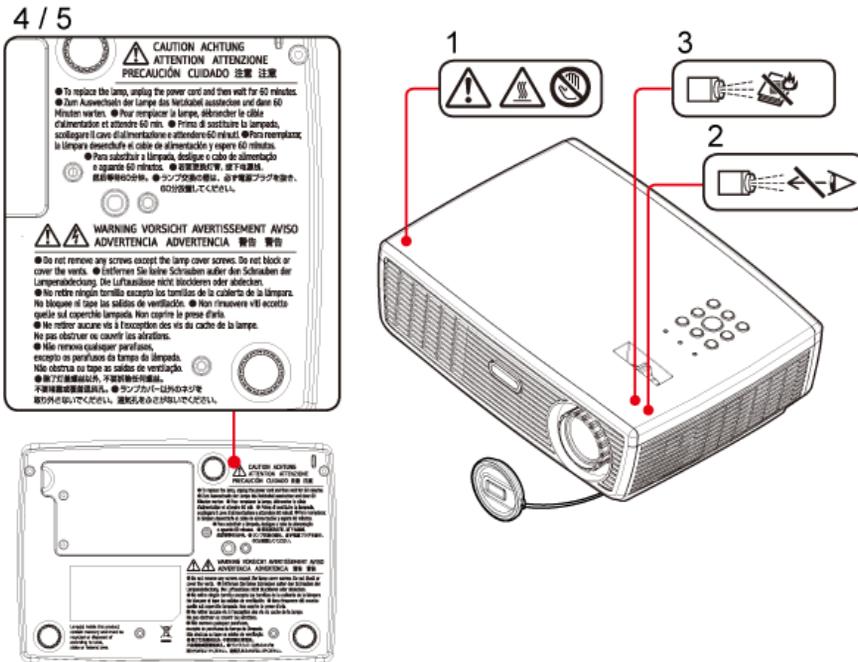


Model Antares-PJ1
Machine Codes:
Y020/Y021/Y022
Field Service Manual

26 August, 2011

Regulation & Safety Notices

Safety Labels of This Machine



1. Do not block the air intake or exhaust. Doing so could cause a fire due to internal overheating. Do not place your hands, face, or other objects near the air exhaust, the lamp cover or the bottom of the unit. Doing so could result in injury and/or damage to the object.
2. Do not look into the lens while the lamp is on. The strong light from the lamp may cause damage to your eyesight.
3. Do not place anything in front of the lens while the projector is operating. Things placed in front of the lens may overheat and burn or start a fire. If you want to temporarily stop the projected image, use the AV mute on the remote control or the keypad.
4. To replace the lamp, unplug the power cord and then wait for 60 minutes.
5. Do not remove any screws except the lamp cover screws. Do not block or cover the vents.

Notice: Users in the United States of America

FCC notice

MODEL NAME: PJ S2130 / PJ X2130 / PJ WX2130

TRADE NAME: DATA PROJECTOR

MODEL NAME: PJ S2130 / PJ X2130 / PJ WX2130

 Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference and
2. this device must accept any interference received, including interference that may cause undesired operation.

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

 **WARNING**

- This product contains a chemical known to the state of California to cause cancer, birth defects or other reproductive harm.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

RESPONSIBLE PARTY: Ricoh Americas Corporation

5 Dedrick Place, West Caldwell, NJ 07006

Phone: 973-882-2000

Notice: Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Caution

Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this projector.

USA Only

LAMP(S) INSIDE THIS PRODUCT CONTAIN MERCURY AND MUST BE RECYCLED OR DISPOSED OF ACCORDING TO LOCAL, STATE OR FEDERAL LAWS.

Notice: Canadian users

This Class B digital apparatus complies with Canadian ICES-003.

Remarque à l'intention des utilisateurs canadiens

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Notice: Users in Turkey

EEE Yönetmeliğine Uygundur.

Bu sistem sarf malzemeleri ve yedek parçaları da dahil olmak üzere EEE Yönetmeliğine Uygundur.

Declaration of Conformity for EU countries

- EMC Directive 2004/108/EC (including amendments)
- Low Voltage Directive 2006/95/EC

Disposal

This product contains substances which are harmful to humans and the environment.

- The lamp contains mercury.

Please dispose of this product or used lamps in accordance with local regulations.

The following information is only for EU-member states:



The use of the symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Remote Control Batteries

WARNING

- Never throw batteries into a fire.

Using the batteries improperly may cause them to explode or leak and may result in serious injury. If battery-leaking fluid contacts skin, wash the fluid off immediately with clean water and consult a doctor. If the fluid spills on an instrument, avoid contact and wipe it off using tissue paper. Then dispose of the used tissue paper as flammable garbage after moistening the tissue with water.

Notes

- Be sure to use AAA (R03) size batteries.
- Dispose of batteries in a designated disposal area.
- Attention should be drawn to the environmental aspects of battery disposal.
- Do not mix different battery types or combine used batteries with new ones.
- If the remote control does not operate correctly, or if the operating range becomes reduced, replace both batteries with new ones.
- If the batteries are dead or if you will not be using the remote control for a long time, remove the batteries to prevent battery acid from leaking into the battery compartment.

Following information is only for EU-member states:



[Disposal of batteries and/or accumulators]

The crossed out wheeled dust bin symbol indicates that batteries and/or accumulators must be collected and disposed of separately from household waste. If the battery or accumulator contains more than the specified values of lead (Pb), mercury (Hg), and/or cadmium (Cd) defined in the Battery Directive (2006/66/EC), then the chemical symbols for lead (Pb), mercury (Hg) and/or cadmium (Cd) will appear below the crossed out wheeled dust bin symbol. By participating in separate collection of batteries, you will help to assure the proper disposal of products and batteries and thus help to prevent potential negative consequences for the environment and human health.

For more detailed information about the collection and recycling programmes available in your country, please contact your local city office or the shop where you purchased the product.

Other Information

Copyrights to Images

When projecting images using the projector, be careful not to infringe the copyright of protected materials.

The following are examples that may infringe the copyright of protected materials.

- Broadcasting images or movies for commercial purposes
- Modifying images or movies using functions such as freeze, magnify, or zoom to broadcast images for commercial purposes or public viewing
- Varying the aspect ratio of images or movies using a function that changes the screen size to broadcast images for commercial purposes or public viewing

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1. Product Information

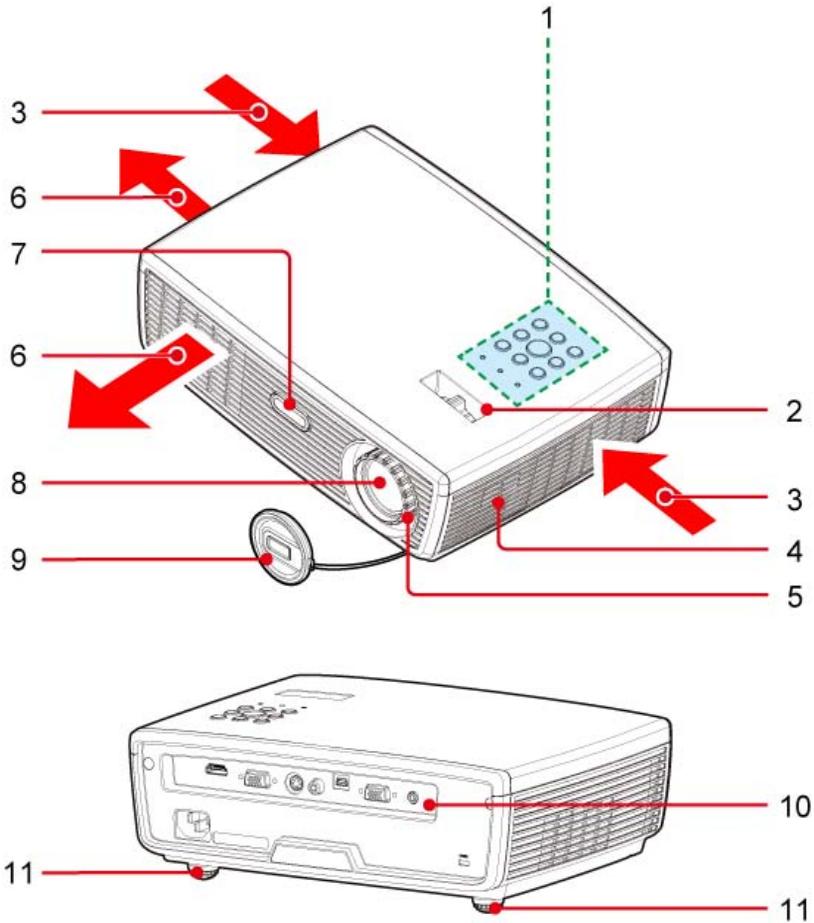
Specifications

See "Appendices" for the following information:

- General Specifications

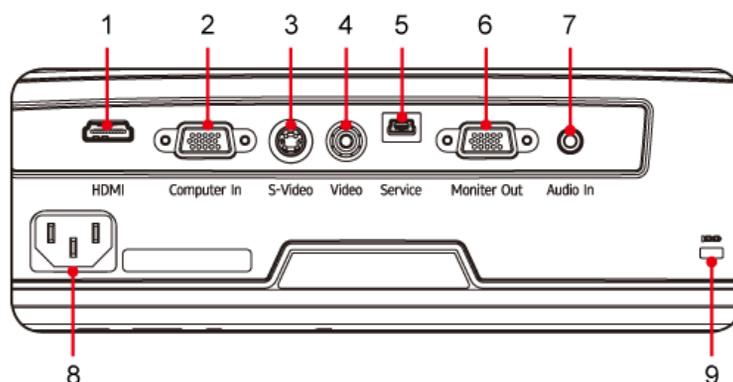
Overview

1



1. Control panel
2. Zoom ring
3. Ventilation (inlet)
4. Speaker
5. Focus ring
6. Ventilation (outlet)
7. Infrared remote sensor
8. Lens
9. Lens cap
10. Connection ports
11. Adjustable feet

Names of the Terminals on the Rear Panel



1. HDMI terminal

Input for digital signals from a HDMI (High-Definition Multimedia Interface) compatible digital source.

2. COMPUTER IN/COMPONENT IN terminal

Input for analog RGB signals from a computer or a component video signal (Y/PB/PR) from video equipment.

3. S-VIDEO IN terminal

Input for S video signals from video equipment.

4. VIDEO IN terminal

Input for video signals from video equipment.

5. SERVICE Port

Use this port to update the firmware.

6. MONITOR OUT terminal

Output for analog RGB signals or component video signal (Y/PB/PR) to another device.

7. AUDIO IN Jack

Input for audio signals from a computer or video equipment.

8. AC IN socket

Connect the supplied power cord.

9. Anti-theft lock hole

2. Installation

Precautions

Follow all warnings, precautions and maintenance as recommended in this user's guide to maximize the life of your unit.

WARNING

- This apparatus must be earthed.
- Do not look into the projector's lens when the lamp is on. The bright light may hurt your eyes.
- To reduce the risk of fire or electric shock, do not expose this projector to rain or moisture.
- Please do not open or disassemble the projector as this may cause electric shock.
- When replacing the lamp, please allow unit to cool down, and follow all replacement instructions.
- This projector will detect the life of the lamp itself. Please be sure to change the lamp when it shows warning messages.
- When switching the projector off, please ensure the cooling cycle has been completed before disconnecting power. Allow 120 seconds for the projector to cool down.
- Do not use lens cap when projector is powered on.
- Turn on the projector first and then the signal sources.
- When the lamp reaches the end of its life, it will burn out and may make a loud popping sound. If this happens, the projector will not turn back on until the lamp module has been replaced. To replace the lamp, follow the procedures listed under "Replacing the Lamp".
- **DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.**
- This product should be operated only from the type of power source which does not exceed the voltage range specified on the rating label and the power cord. If you are not sure of the type of power supply to your home, consult your sales representative or local power company.
- Do not use the polarized plug with an extension cord, receptacle, or other outlet unless the blades can be inserted completely with three wire grounding type to prevent blade exposure. Failure to follow these instructions may result in fire or electric shock.

CAUTION

- Never operate this unit on AC power during a thunderstorm. If you see lightning or hear thunder, never touch the unit, cables and/or peripherals. An electric surge caused by the storm, may result in an electrical shock or damage to the unit.
- Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

- Do not place or keep the projector within the reach of the children. It may fall or tip over, possibly causing serious injury.
- Do not stack other equipment on this product and do not place this product on other equipment. The top and bottom surface of this product increase in temperature during normal use and may damage the other unit.
- Do not use attachments not recommended by the product manufacturer. Use of an incompatible attachments could cause hazards or damage to the product.
- Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product.
- Unplug this product from the wall outlet and take the product to qualified service personnel if you encounter any of the following conditions:
 1. The power supply cord or plug is damaged.
 2. Liquid has been spilled, or objects have fallen into the product.
 3. The product has been exposed to rain or water.
 4. The product does not operate normally when following the operating instructions. Adjust only those controls that are covered by the operating instructions.
 5. The product has been dropped or damaged in any way. (If the cabinet should break, please handle with care to avoid injury.)
- This product incorporates glass components, including a lens and a lamp. If these should break, please handle with care to avoid injury and contact your sales representative for repair service. Avoid any broken pieces of glass since they may cause injury. In the unlikely event that the lamp ruptures, thoroughly clean the area around the projector and discard any edible items placed in that area since they may be contaminated.
- Do not place anything in front of the lens while the projector is operating. Things placed in front of the lens may overheat and burn or start a fire.
- Unauthorized substitutions may result in fire, electric shock, or other hazards. (Only the replacement of the lamp should be made by users.)
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to verify that the product is in proper operating condition.
- Do not leave thermal paper documents or easily deformed items on top of the unit or near the air exhaust for long periods of time.
- The heat from the unit could erase the information on the thermal paper, or cause deformation or warping.
- Do not use the product in a closed installation location. Do not place the product in a box or in any other closed installation location. Otherwise it may overheat, which could result in a risk of fire.

Do

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

2

Do not

Important

- **Contents of this manual are subject to change without prior notice. In no event will the company be liable for direct, indirect, special, incidental, or consequential damages as a result of handling or operating this product.**
- Block the slots and openings on the unit provided for ventilation.
- Use abrasive cleaners, waxes or solvents to clean the unit.
- Use under the following conditions:
 - Extremely heat, cold or humidity.
 - In areas susceptible to excessive dust and dirt.
 - Near any appliance generating a strong magnetic field.
 - In direct sunlight.

3. Replacement and Adjustment

Equipment Needed & Product Overview

- Screw driver (+): 105
- Screw driver (+): 107
- Screw driver (-): 107
- Hex Sleeves 5 mm
- Tweezers
- Projector

★ Important

- **Before you start:** This process requires protection level II. Operators should wear antistatic clothing.

↓ Note

- If you need to replace the main board, you have to record the lamp usage hours before you remove the board.

Part Replacement

Lamp Cover

3



y0201001

1. Loosen 2 screws (red circles) on the Lamp Cover.



y0201002

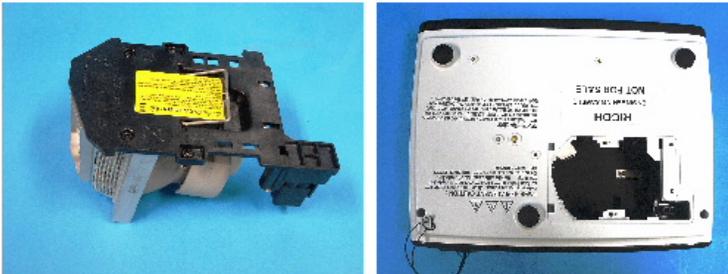
2. Remove the Lamp Cover and tear off the aluminum foil.

Lamp Module



y0201003

1. Loosen 2 screws (red circles) on the Lamp Module.



y0201004

3

2. Take off the Lamp Module.

Top Cover



y0201005

1. Unscrew 2 screws (red circles) from the Bottom Cover.



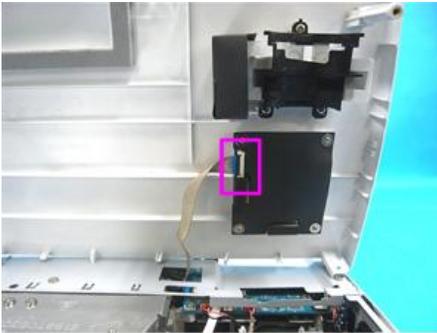
y0201008

2. Unscrew 2 screws (green circles) from the IO Cover.



y0201061

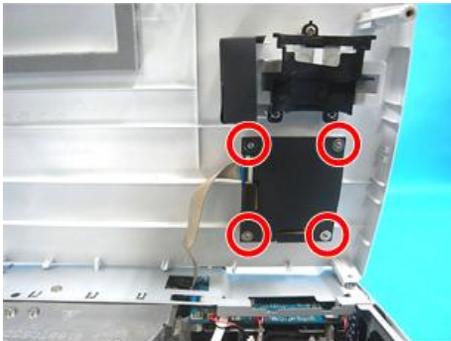
3. Pressing the Top Cover's sides as shown, unhook the catches and remove the Top Cover.



y0201060

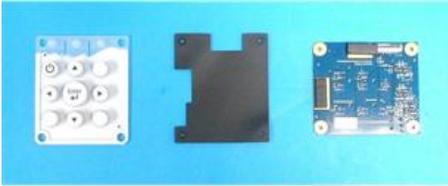
4. Unplug the connector (purple square) of the Keypad Board.

Keypad Board



y0201062

1. Unscrew 4 screws (red circles) from the Top Cover.

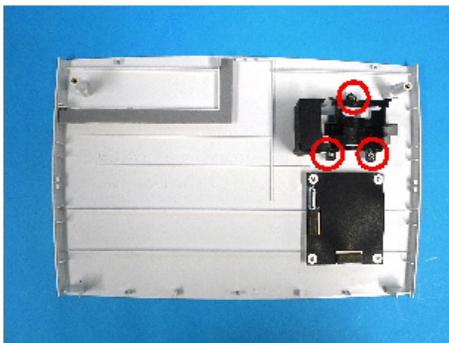


y0201063

2. Remove the Keypad Board.

3

Zoom Ring Module



y0201007

1. Unscrew 3 screws (red circles) from the Top Cover.

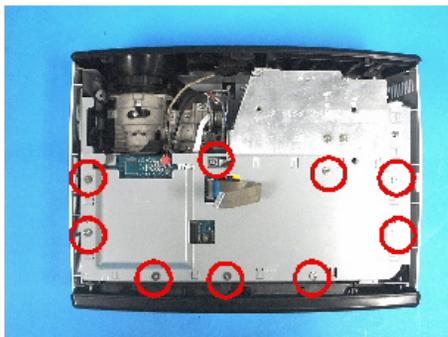


y0201008

2. Remove the Zoom Ring Module.

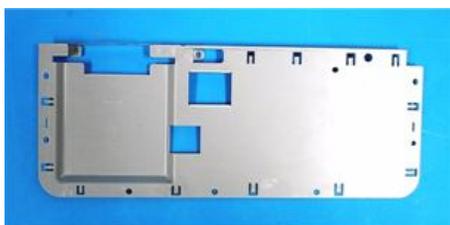
Top Shielding

3



y0201009

1. Unscrew 9 screws (red circles).



y0201010

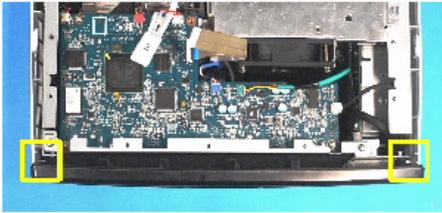
2. Remove the Top Shielding.

IO Cover



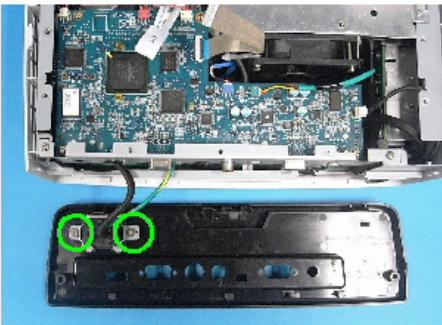
y0201011

1. Unscrew 4 hex screws (red circles).



y0201012

2. Unfasten 2 tenons (yellow squares) and open the IO Cover.



y0201013

3. Unscrew 2 screws (green circles).



y0201014

4. Remove the IO cover.

Note

- Take care of the tenons when you remove the unit.

Main Board

Before you remove the main board, make a note of the lamp usage hours.



y0201015

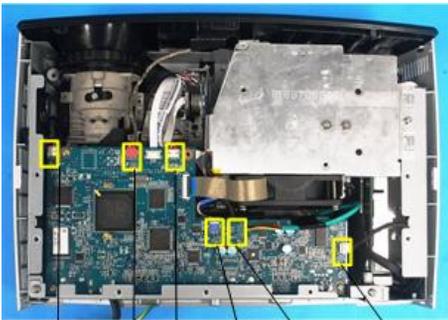
3

1. Unscrew 3 screws (red circles).



y0201065

2. Unplug the connector (green square) of the Color Wheel.



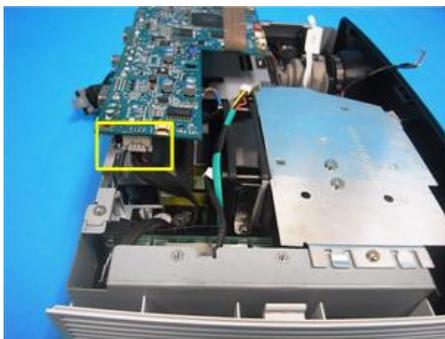
[F] [E] [D] [C] [B] [A]

y0201064

3. Unplug 6 connectors (yellow squares).

Please refer to the table below for details of each connector.

Item	Male Connector on Main Board	Key feature	Figure
A	Lamp Driver (J8)	Black wire tube (5 pin)	 y0201016
B	Fan (J5)	Red/Yellow/Black wire and green wire tube (3 pin)	 y0201017
C	Blower (J6)	Red/Black/White wire, white connector and blue wire tube (3 pin)	 y0201018
D	Photosensor (J17)	Red/Black/White wire, red connector and black wire tube (3 pin)	 y0201019
E	IR (J9)	Red/Black/White wire, red connector and silver wire tube (3 pin)	 y0201020
F	Speaker (J12)	Red/Black wire and black wire tube (2 pin)	 y0201021



y0201022

4. Unplug 1 connector (yellow square).



y0201023

3

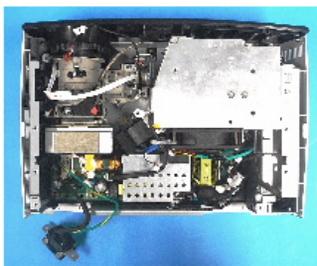
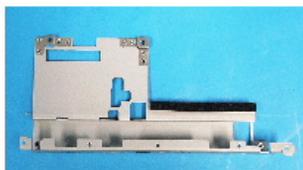
5. Remove the Main Board.

Main Board Shielding



y0201024

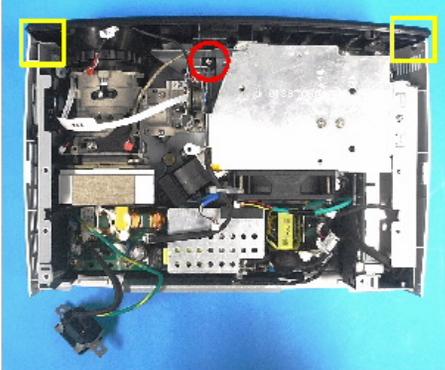
1. Unscrew 2 screws (red circles).



y0201025

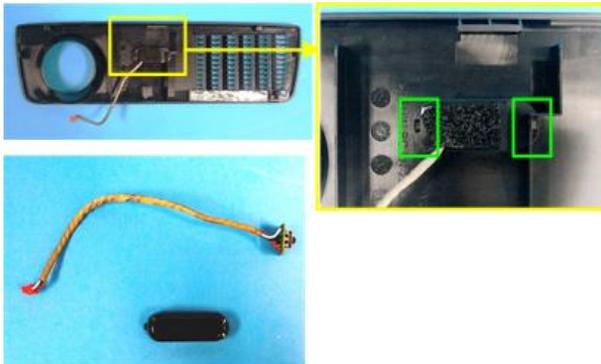
2. Remove the Main Board Shielding.

Front Cover and IR Sensor Board



y0201026

1. Unscrew 1 screw (red circle).
2. Unfasten 2 tenons (yellow squares).
3. Remove the Front Cover.



y0201027

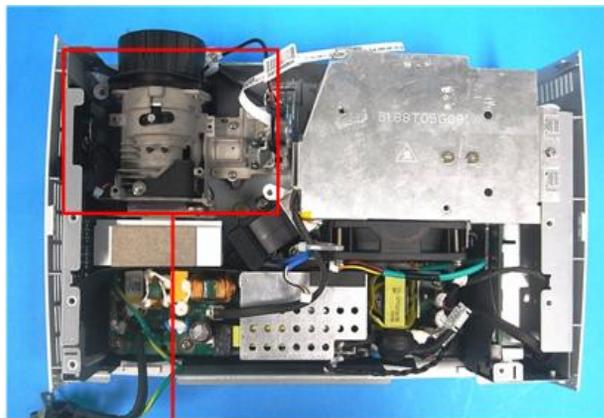
4. Unfasten 2 tenons (green squares) to remove the IR Sensor Board and IR Cover.

↓ Note

- Take care of the tenons when you remove the unit.

Optical Engine

3



y0201028

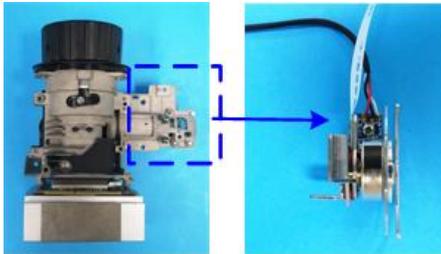
1. Unscrew 4 screws (yellow circles) to remove the Optical Engine.

Color Wheel Module



y0201029

1. Unscrew 2 screws (red circles) to remove the Color Wheel Module.



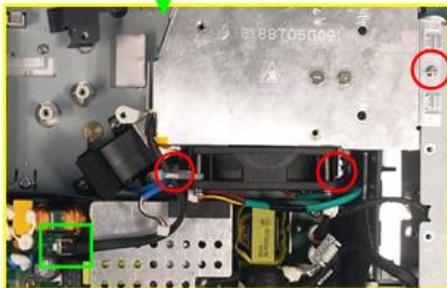
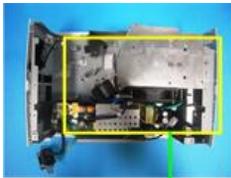
y0201030

↓ **Note**

- Avoid touching the glass parts of the color wheel.

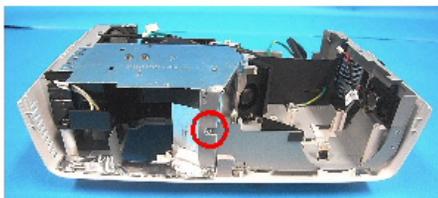
3

Fan and Thermal Switch



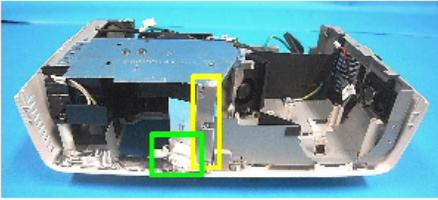
y0201034

1. Unscrew 3 screws (red circles).
2. Unplug the connector (green square) of the Thermal Switch.



y0201035

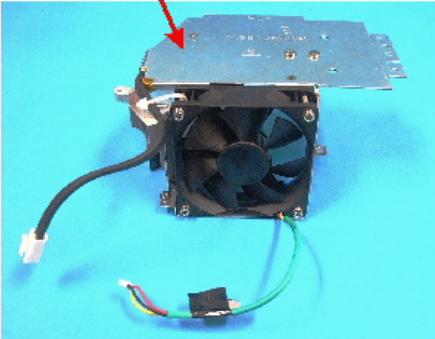
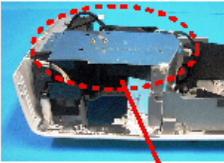
3. Unscrew 1 screw (red circle).



y0201036

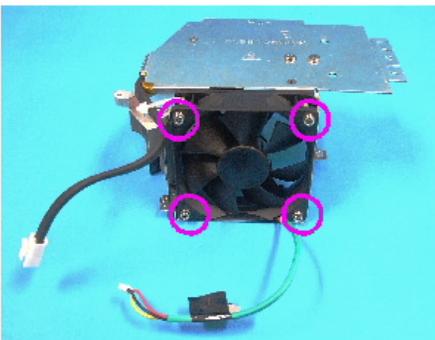
3

4. Remove the sponge and aluminum stickers.



y0201037

5. Take off the Fan.



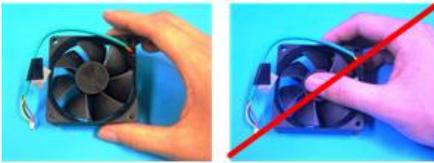
y0201038

6. Unscrew 4 screws (purple circles) to remove the Fan Shielding and Fan.



y0201039

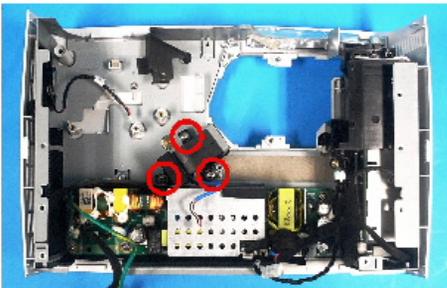
7. Unscrew 1 screw (green circle) to remove the Thermal Switch.



y0201040

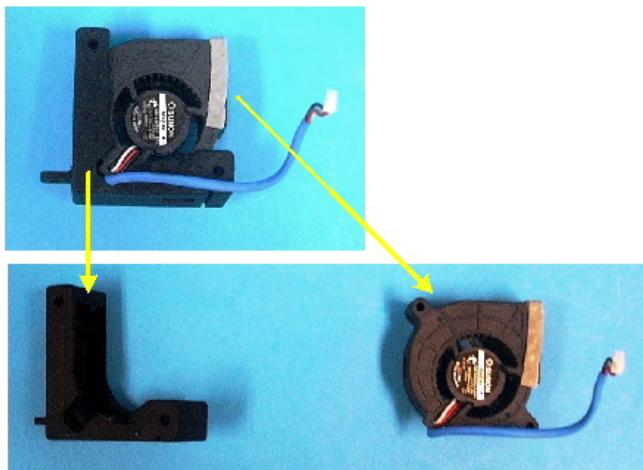
When you hold the fan, do so as shown in the figure on the left, not the one on the right.

Blower



y0201041

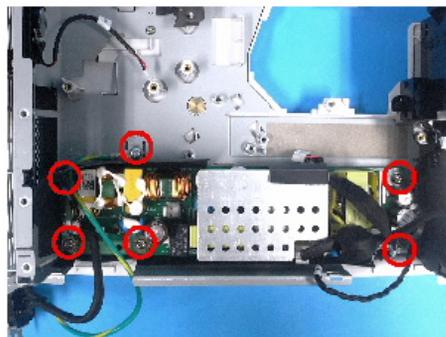
1. Unscrew 3 screws (red circles) to remove the Blower.



y0201042

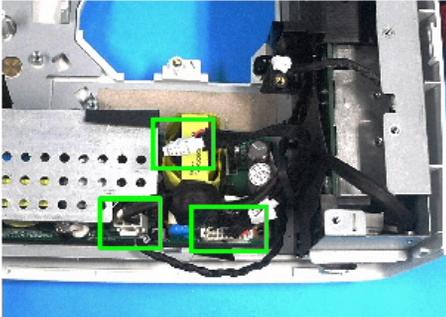
2. Separate the Blower and Blower Rubber.

LVPS



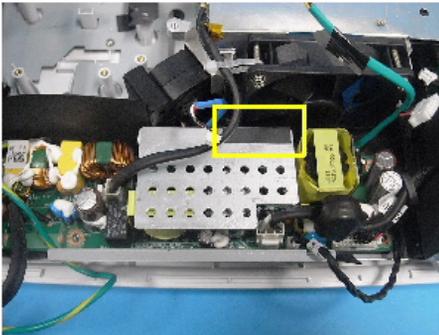
y0201043

1. Unscrew 6 screws (red circles).



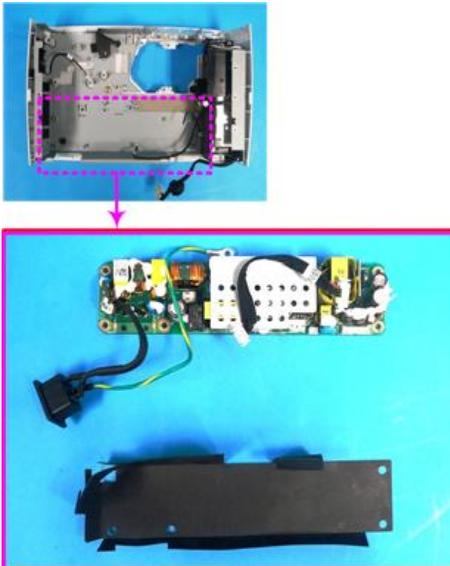
y0201044

2. Unplug 3 connectors (green squares).



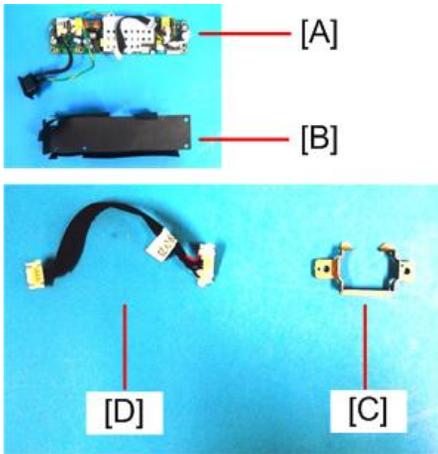
y0201045

3. Remove the black sticker from the LVPS holder.



y0201067

4. Take off the LVPS and LVPS holder.

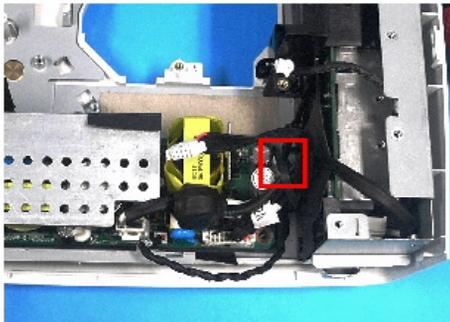


y0201047

1. LVPS [A]
2. LVPS holder [B]
3. AC inlet bracket [C]
4. LVPS to MB cable [D]

5. Remove the LVPS, AC inlet bracket and LVPS to MB cable.

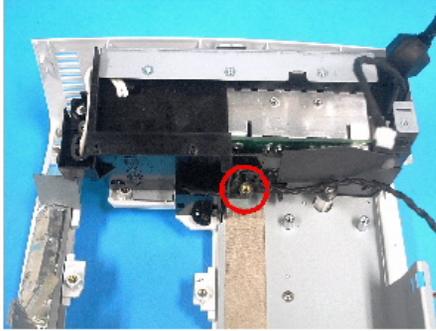
When you assemble the unit, you must do the actions as shown below:



y0201048

1. Use a clamp to fix the Lamp Driver to the LVPS cable (red square).

Interlock Switch



y0201049

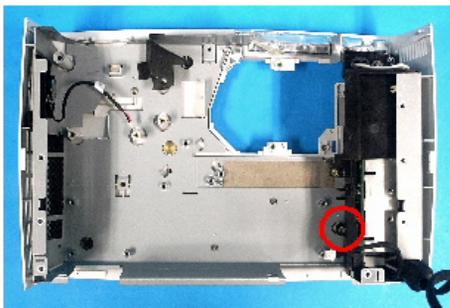
1. Unscrew 1 screw (red circle) to remove the Interlock Switch.



y0201050

Make sure the interlock switch cable can be wedged as shown.

Lamp Driver



y0201051

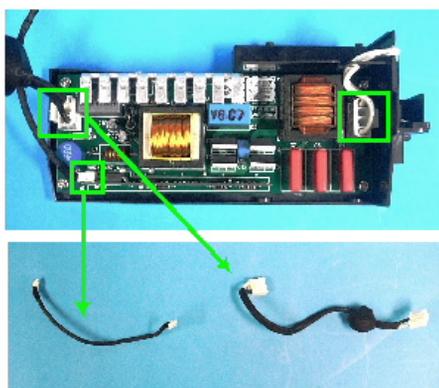
1. Unscrew 1 screw (red circle) to remove the Lamp Driver Module.



y0201052

3

2. Unscrew 4 screws (yellow circles).



y0201053

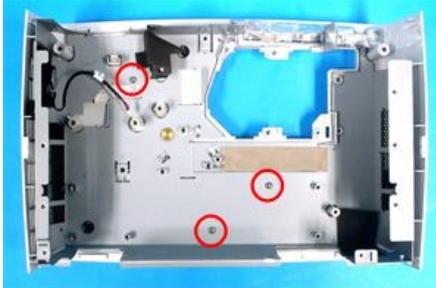
3. Unplug 3 connectors (green squares).



y0201054

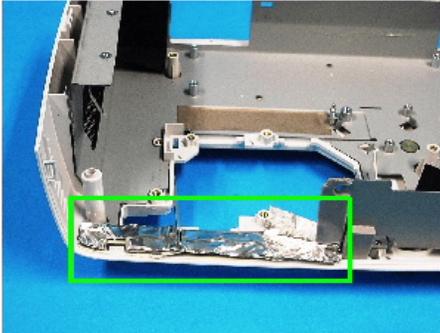
4. Remove the Lamp Driver and Lamp Driver holder.

Bottom Shielding



y0201055

1. Unscrew 3 screws (red circles).



y0201056

2. Remove the aluminum sticker.

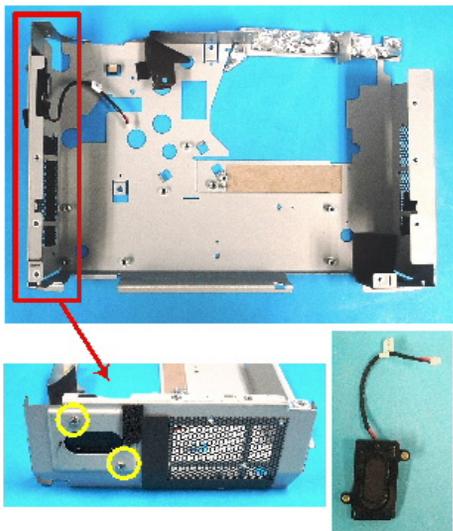


y0201066

3. Remove the Bottom Shielding.

Speaker

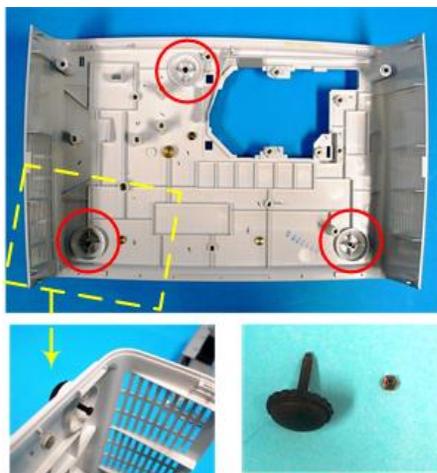
3



y0201057

1. Unscrew 2 screws (yellow circles) to remove the Speaker.

Bottom Cover



y0201058

1. Unscrew 3 nuts (red circles) to remove the Adjustment Feet.

Electrical Adjustment

Adjustment Points vs Part Replaced

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

Adjustment	Parts						
	Main Board	Firmware	Color Wheel	Lamp Module	Optical Engine	Lamp Driver	Blower
Version Update	v	v					
Color Wheel Index	v		v				
PC Calibration	v	v					
Reset Lamp Hours				v			
Re-write Lamp Hours	v						
OSD Reset	v	v					
Rod Adjustment					v		
Waveform Download						v	
Fan RPM Calibration	v	v					v

↓ Note

- If color appears abnormal after changing the main board, please do the Color Wheel Index adjustment.
- See "Service Mode" to get into Service Mode.

Verifying the Operation after Parts Replacement

After parts replacement or repair, check that the projector works properly.

Project images on the screen and check that they are not faulty.

PC Calibration

After replacing the main board or upgrading firmware, "PC Calibration" should be done.

Equipment Needed

- Test signal: 800 × 600@60Hz
- Test Pattern: White/Black



- The calibration pattern should be in full screen mode.

Procedure

1. Get into Service Mode.
2. Select "Analog Settings".
3. Execute "PC Calibration".

Inspection item

- Check if there are lines on the screen.
- Check if there is noise on the screen.
- Horizontal and vertical position of the video should be adjustable to the screen frame.

Criteria

- If there is noise on the screen, the product is considered as defective.
- The screen must appear normal, and there shouldn't be any abnormalities, such as lines.
- Check if the projected image is the same as displayed on the monitor.

Re-write lamp hours

After replacing the main board, adjust the lamp hours.

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

1. Get into Service Mode.
2. Select "Other Settings".

3. Select "Lamp Hours Adjust", and then use the "Left" or "Right" buttons to re-write the lamp hours (Full Mode) back to the value that you noted before you removed the old main board .
4. Select "Lamp Hours(low)", and then use the "Left" or "Right" buttons to re-write the lamp hours (Eco Mode) back to the value that you noted before you removed the old main board.
5. Select "Return to Service Menu" to confirm the setting.

Note

- By repeatedly pressing the "Enter" key, you can select the order of magnitude. Each press goes to the next order in the sequence "1" to "10" to "100" to "1000" and back to "1".

3

Reset lamp hours

After replacing the lamp module, reset the lamp hours.

1. Get into Service Mode.
2. Select "Other Settings".
3. Select "Lamp Hours Adjust", then use the "Left" or "Right" buttons to set the lamp hours (Full Mode) to "0".
4. Select "Lamp Hours(low)", then use the "Left" or "Right" buttons to set the lamp hours (Eco Mode) to "0".
5. Select "Return to Service Menu" to confirm the setting.

Note

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

Waveform download

After replacing the lamp driver, "waveform download" should be done.

1. While pressing the "Power" button, plug in the power cord.
2. When the Power LED flashes blue, release the "Power" button.
3. While the Power LED light alternates red and blue, press the "Power" button and then the projector will download the waveform automatically.
4. After 3 to 5 seconds, the projector will go to the standby mode.

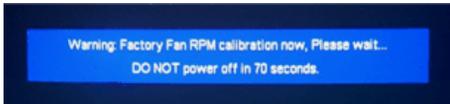
Note

- If the Power LED lights red, the waveform download is finished.
- If the Power LED light alternates red with blue, the download failed. Do it again.

Fan RPM calibration

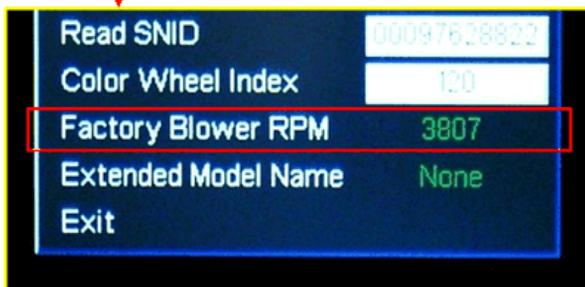
After replacing the main board, blower, or updating the firmware, "Fan RPM Calibration" should be done.

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



y0200070

4. After the logo disappears, the message "Warning Factory Fan RPM Calculation now, please wait...." will be shown on the screen.
5. After 70 seconds, please get into Service Mode to check "Factory Blower RPM".



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6. The value of "Factory Blower RPM" should be from 2880 to 4320rpm.

If the "Factory Blower RPM" value does not appear in Service Mode, please repeat the step again.

OSD reset

After replacing the main board or updating firmware, "OSD reset" should be done.

1. Press the "Menu" button to open the OSD menu.
2. Select "Advanced Settings".
3. Execute "Reset all".
4. Select "OK".

Returns the OSD adjustments and settings to the factory default values.

3

Color wheel index

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

1. Get into Service Mode.
2. Select "Optical Settings".
3. Select "Color Wheel Index", then use the "Left" or "Right" button to adjust the color balance of the projected image.

↓ Note

- By pressing the "Enter" key, the test pattern can be projected.

Rod adjustment

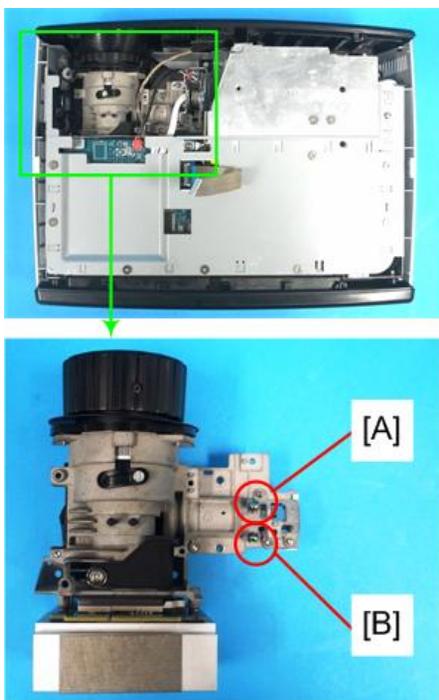
Environment

- The distance between the engine and the screen must be 2.6 M.
- This process should be done in a dark environment (under 2 lux).

Procedure

1. Press the "Menu" button to open the OSD.
2. Select "Display Settings".

3. Select " Whiteboard " in "Wall Color Correction".



y0201059

4. Adjust the screws to readjust the image. (Screw [A] should be adjusted first, and then screw [B]. Adjust until the yellowish or bluish parts disappear.)

Image inspection

- There should be no abnormal color visible to the naked eye at the edges of the image.

Note

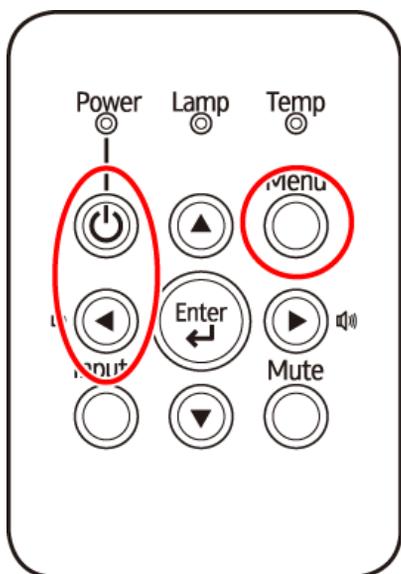
- Avoid over-adjusting the rod.
- After the operation, please use glue to secure the screws.

4. System Maintenance

Service Mode

How to enter the Service Mode

1. Turn on the projector.



2. Press the "Power", "Left", "Left" and "Menu" buttons sequentially.

Note

- You can use the remote controller for this.

Service Mode Settings

Note

- Here is a summary of common terms.

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

Main Menu

Setting Item	Description
Model name	Shows the name of the projector.
SYS FW version	Shows the present system firmware version of the projector.
MCU FW version	Shows the present MCU firmware version of the projector.
Waveform ID	DFU
System hours (full)	Shows the operating hours of the projector.
Lamp Hours (full)	Shows the working hours of the projector in full mode.
Lamp Hour (low)	Shows the working hours of the projector in eco mode.
Factory Reset	DFU
Burn in Test	DFU
Failure Log	Records the times of the failure of power on of the projector such as excessive temperature, lamp failure or fan lock.

Analog Settings

Setting Item	Description
PC Calibration	Using the White/Black test pattern, adjust the RGB color balance for the input signal.
Video Calibration	DFU
PC Red Offset	DFU
PC Green Offset	DFU
PC Blue Offset	DFU
Red Gain	DFU
Green Gain	DFU
Blue Gain	DFU
Video Red Offset	DFU
Video Blue Offset	DFU

Setting Item	Description
Reset Calibration Data	DFU

Optical Settings

Setting Item	Description
Color Wheel Index	Use this to adjust the R/G/B value to improve the image when the color reproduction is not correct.
Spoke On	DFU
Test Pattern	DFU
Waveform Index	DFU
Sequence Group	DFU
Degamma	DFU
Lamp Power Gain	DFU

4

Other Settings

Setting Item	Description
System Hours Adjust	Use this to change operating hours of the projector.
Lamp Hours Adjust	Use this to change the working hours of the projector in full mode.
Lamp Hours(low)	Use this to change the working hours of the projector in eco mode.
Start LOGO	DFU
High Altitude	DFU
AC Plugin Auto Power On	DFU
VGA Out(Standby)	DFU
Closed Caption Select	DFU
SOG Slicer Threshold	DFU
Component Phase	DFU

Setting Item	Description
Temperature Degree	DFU
Dust Chamber Test	DFU
Read SNID	DFU
Color wheel index	Use this to adjust the R/G/B value to improve the image when the color reproduction is not correct.
Factory blower RPM	DFU
Extended model name	DFU

Functional Tests

Equipment Needed

- IBM PC with HDTV resolution
- DVD player with Multi-system, equipped with "Component", "Composite", "S-Video" and "HDMI".
- HDTV Source (720P, 1080P, 1080i)

Video Performance

4

CVBS

Procedure

- Test equipment: DVD player
- Test signal: CVBS



Inspection item

- Video performance test

Inspection Distance

- 1.8M - 2.8M

Criteria

- Check for abnormal color, line distortion, or noise on the screen.

HDTV/ Component

Procedure

- Test equipment: DVD player
- Test signal: Ycbcr/YPbPr

Inspection item

- HDTV performance test

Inspection Distance

- 1.8M - 2.8M

Criteria

- Check for abnormal color, line distortion, or noise on the screen.

Audio test

Procedure

- Test equipment: DVD Player
- Test signal: CVBS

Inspection item

- Audio performance test

Inspection Distance

- 1.8M - 2.8M

Criteria

- Check the sound from the speaker
- Plug the audio cable into the audio in port, and check whether "Volume" is normal.
- Adjust the volume from "0" - "20" by using the remote controller.
- Check the sound from the speaker.
- Check whether the "mute" function is normal.

S-video

Procedure

- Test equipment: DVD player
- Test signal: S-Video

Inspection item

- Video performance test

Inspection Distance

- 1.8M - 2.8M

Criteria

- Check for abnormal color, line distortion, or noise on the screen.
- Check the sound from the speaker.

Others

Functional inspection

Power Key

The power key must operate smoothly.

Remote Controller

Check whether the remote controller can work normally, and that the "Menu", "Left" and "Right" buttons work smoothly.

General

All OSD functions must be checked for functionality. When the OSD menu is displayed, there shall be no visible peaking, ringing, streaking, or smearing artifacts on the screen.

Display Size

All preset modes shall expand to full screen size using OSD Horizontal and Vertical Size controls.

Display Data Channel (DDC)

The purpose of the DDC test is to verify the DDC1/DDC2B operation of the projector and to verify the Plug & Play function.

Acoustic

High-pitched sound from the cooling fan or color wheel is unacceptable.

Check points for exterior and print pattern

Check item	Check point
Text & Pattern	Missing letters & pattern or blurry prints are unacceptable.
Exterior	Dirt, scrape, water ripples and uneven color are unacceptable.
Focus ring/ Zoom ring	Focus ring and Zoom ring should be able to move smoothly.
Logo	Missing logo, missing prints and blurry prints are unacceptable
Screw	All screws must be fixed and of the correct type.
Pedestal	Working properly
Lamp Cover	It should be locked in the correct place.
Plastic Parts	No plastic parts can be broken or damaged.
Safety or warning label	All safety and warning labels should be visible, including all contents.

Check item	Check point
Connector	All interface connectors should be complete and workable.
Adjustable foot	Should be able to adjust this smoothly.

Firmware Update

System Firmware Update

Equipment needed

Software

- DLP Composer Lite (Use DLP Composer Lite 10.3 for example)
- Firmware (*.img)
- Library file

Hardware

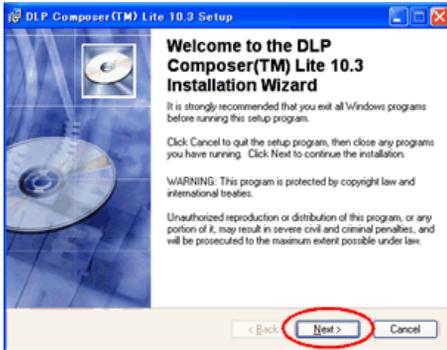
- Projector
Power Cord
- USB Cable mini USB to USB (A)
- PC or Laptop

DLP Composer Lite setup procedure



y0200025

1. Double-click "DLP Composer Lite V10.3 Setup".



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4

2. Click "Next".



y0200027

3. Read "License Agreement".

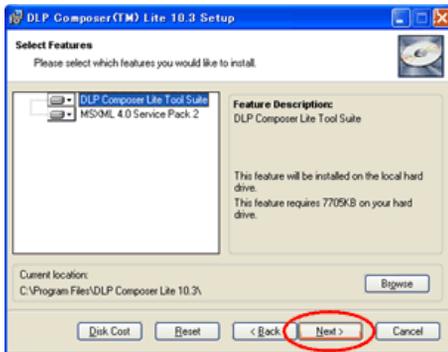
4. Select "I accept and agree to be bound by all the terms and conditions of this License Agreement".

5. Click "Next".



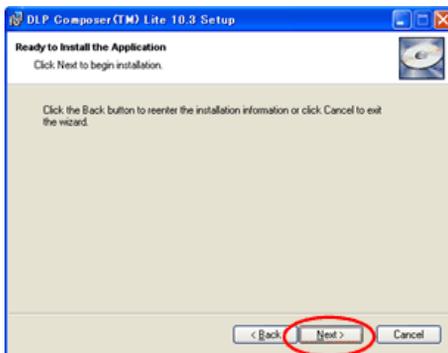
y0200028

6. Click "Next".



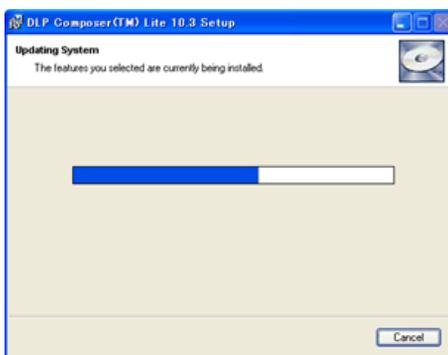
y0200029

7. Click "Next".



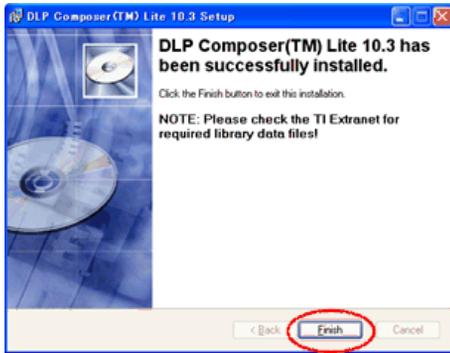
y0200030

8. Click "Next".



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The program is being installed.



y0200032

4

- 9. Click "Finish".
- 10. Click "Yes" to reboot the PC.

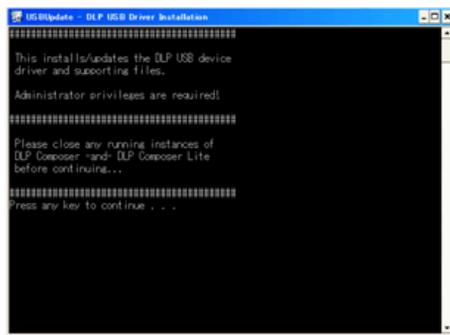
Install DLP device USB driver procedure

- 1. Plug in the power cord.
- 2. Connect the Projector and PC with a mini USB cable.



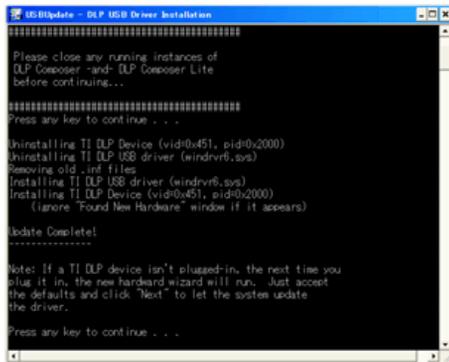
y0200033

- 3. From the "Start" menu, point to "All Programs", point to "DLP Composer(TM) Lite", and then click "Install DLP Device USB Driver".



y0200034

- 4. Press any key to continue.
If the installation is successful, "Update complete!" appears.



y0200035

5. Press any key to continue.

The window closes.

4

Enter the Firmware Update Mode

1. Press the "Power" button, and plug in the power cord.
2. The Power/Lamp/Temp LEDs will light red after around 10 seconds, then release the "Power" button.



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In the FW mode, all LEDs light up.

↓ Note

- If you plug in the power cord while pressing the "Power" button, the Power LED alternately flashes red and blue for a few seconds, then flashes blue for another few seconds, then flashes red for another few seconds, and finally the Power, Lamp, and Temp LEDs light continuously in red.

Connect the Projector to the PC

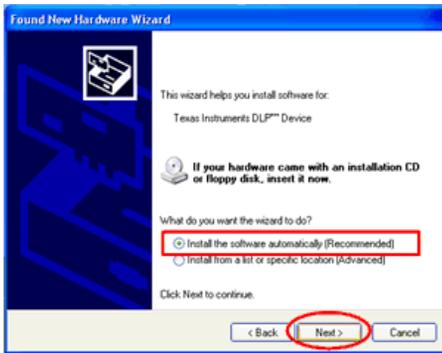
1. Get into firmware update mode.
2. Connect the Projector and PC with a mini USB cable.

The Found New Hardware Wizard appears.



y0200036

3. Select "No, not this time".
4. Click "Next".



y0200037

5. Select "Install the software automatically (Recommended)".

- Click "Next".



y0200038

- Click "Finish".

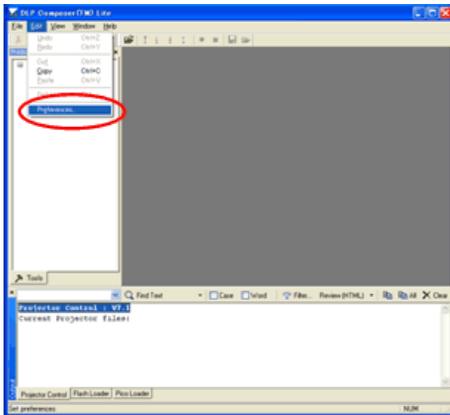
Firmware Update procedure

- Get into firmware update mode.



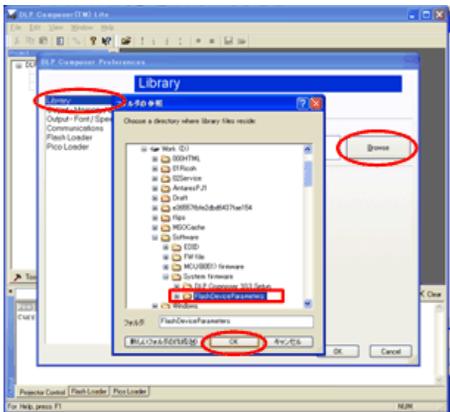
y0200039

2. Double-click "DLP Composer™ Lite 10.3".



y0200040

3. Click "Edit", and then click "Preferences".

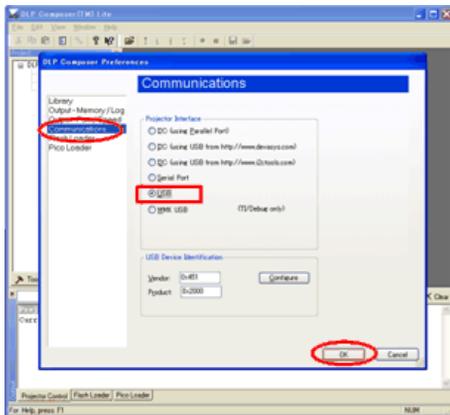


y0200041

4. Click "Library".

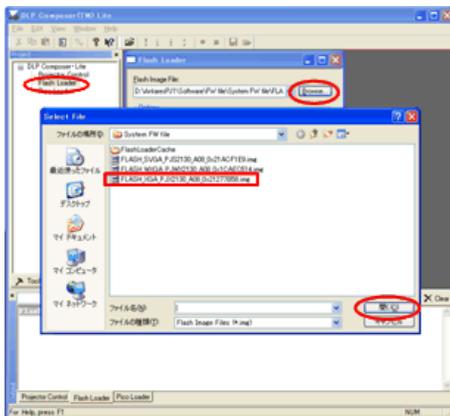
5. Click "Browse" and navigate to the directory where you put the DLP Composer installation files in.

Select "XXX Library" folder, and then click "OK".



y0200042

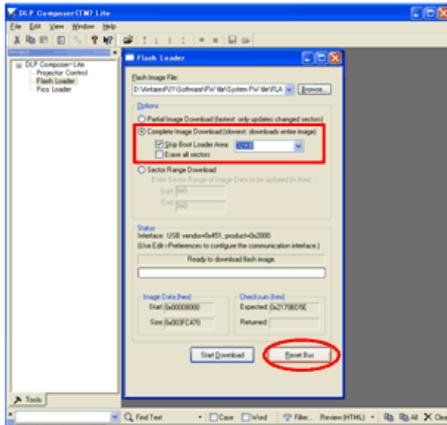
6. Click "Communications".
7. Select "USB" for USB update model.
8. Click "OK".



y0200043

9. Click "Flash Loader".
10. Click "Browse" to search for the firmware file (*.img).

11. Click "Open".

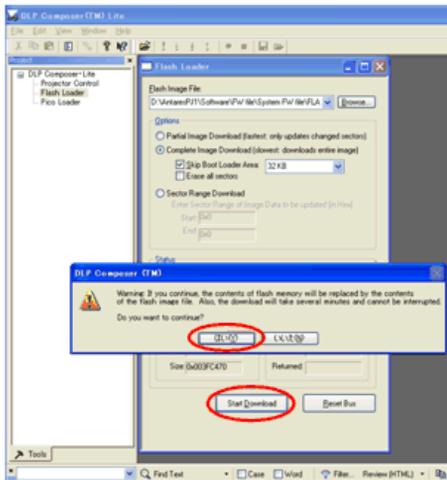


y0200044

12. Select "Complete Image Download".

13. Select "Skip Boot Loader Area" and then select "32 KB".

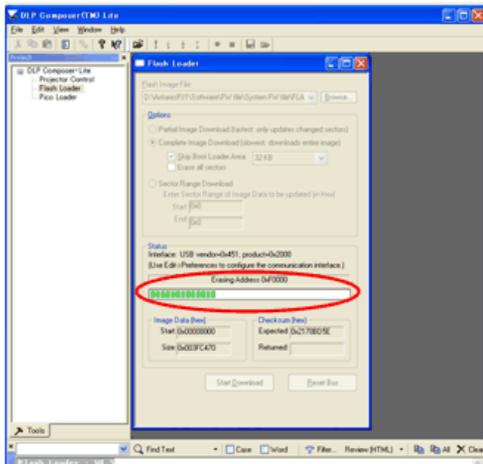
14. Click "Reset Bus" to erase the flash memory.



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

16. Click "Yes".



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After several minutes, the firmware upgrade process is completed and "Download completed" appears on the screen.

17. Unplug the mini USB cable and power cord.

18. Plug in the power cord, then restart the projector and get into Service Mode to check the system firmware version.

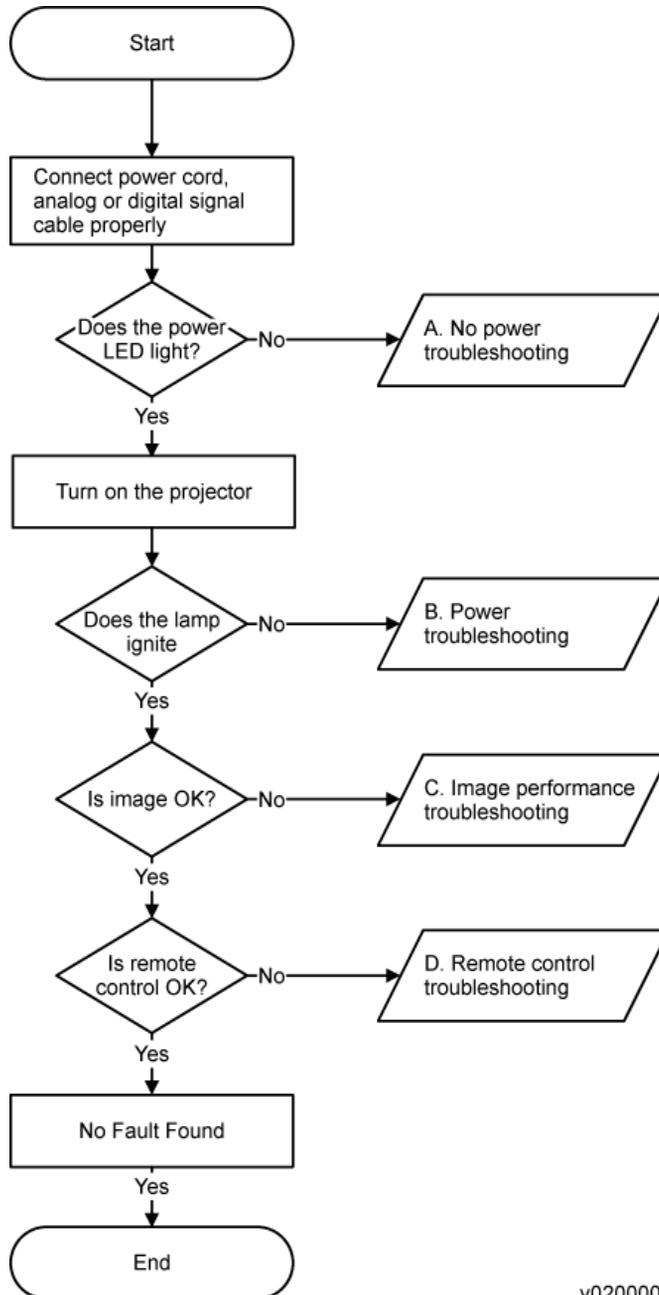
5. Troubleshooting

LED Display

Message	Power LED	Lamp LED	Temp LED
Plug-in Power Cord	Flash Red (100ms)	Flash Red (100ms)	Flash Red (100ms)
Standby Mode	Red	-	-
Power button ON	Blue	-	-
F/W Download Mode	Red	Red	Red
Lamp Ignited	Flash Blue 0.5 second H(On), 0.5 second L(Off)	-	-
Cooling Down	Flash Red 0.5 second H(On), 0.5 second L(Off)	-	-
Warning for Temperature High (On Event)	Blue	-	Red
Warning for Temperature High (On Standby)	Red	-	Red
Error for Lamp Fail(On Event)	Blue	Red	-
Error for Lamp Fail(On Standby)	Red	Red	-
Error for Fan Fail(On Event)	Blue	-	Flash Red 0.5 second H(On),0.5 second L(Off)

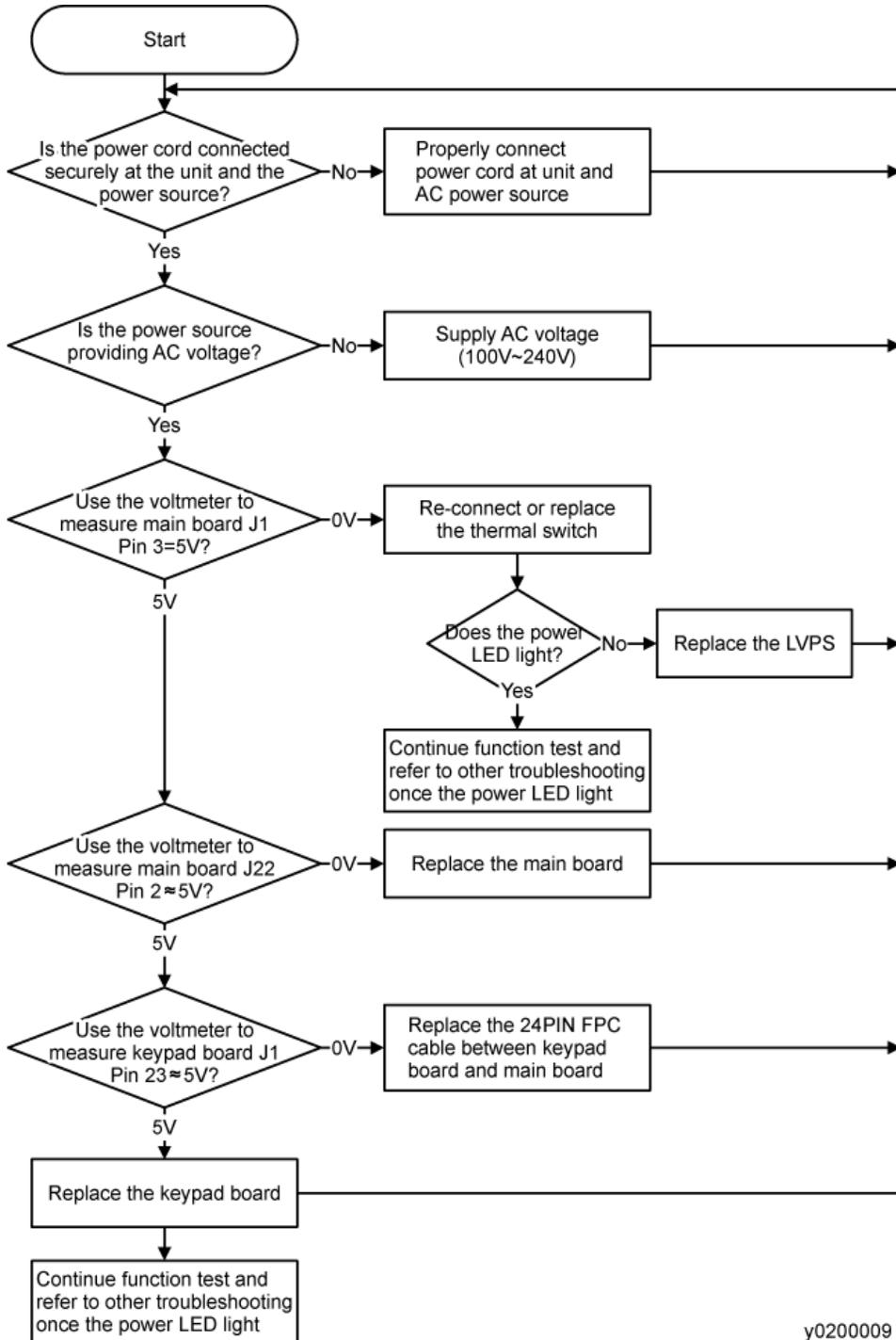
Message	Power LED	Lamp LED	Temp LED
Error for Fan Fail(On Standby)	Red	-	Flash Red 0.5 second H(On),0.5 second L(Off)
Error for Color Wheel fail / Striking Lamp Fail(On Event)	Blue	Flash Red 0.5 second H(ON), 0.5 second L(OFF)	-
Error for Color Wheel fail/ Striking Lamp Fail(On Standby)	Red	Flash Red 0.5 second H(ON),0.5 second L(OFF)	-
Burn In Lamp On	Flash Red 3 second H(On), 1 second L(Off)	-	-
Burn In Lamp Off	Flash Red 1 second H(On), 3 second L(Off)	-	-

Main Procedures



y0200008

A. No Power Troubleshooting



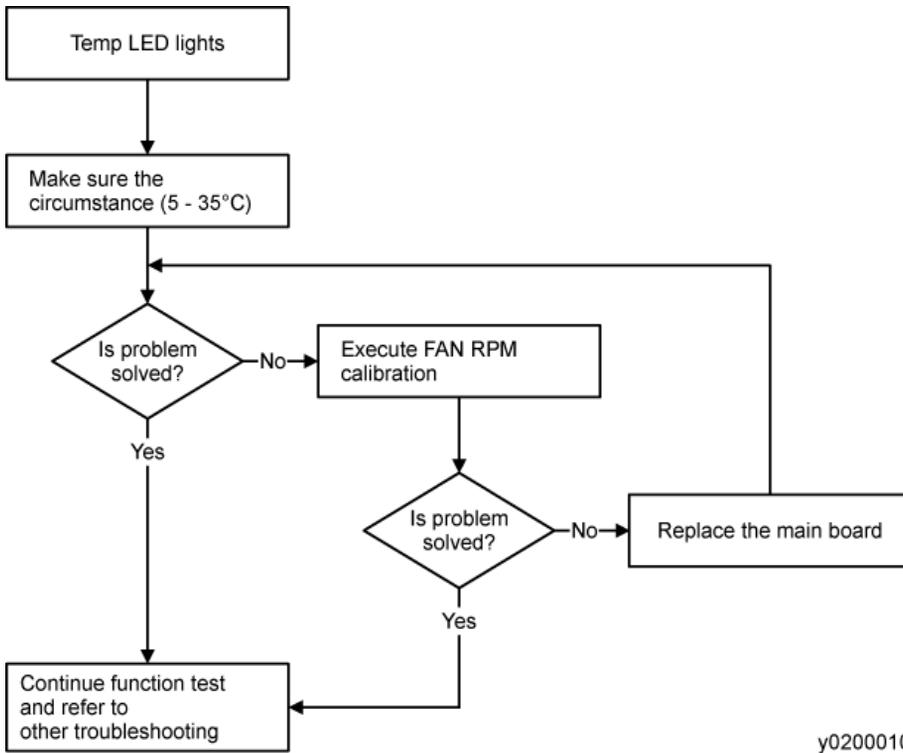
y020009

B. Power Troubleshooting

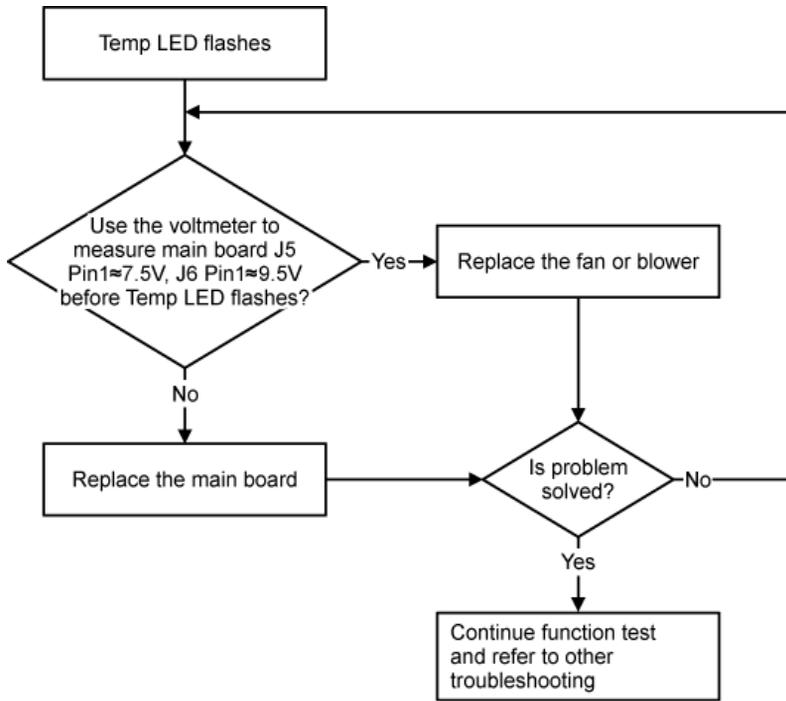
Mark sure all connectors are connected properly.

Check LED indicator.

If temp LED lights

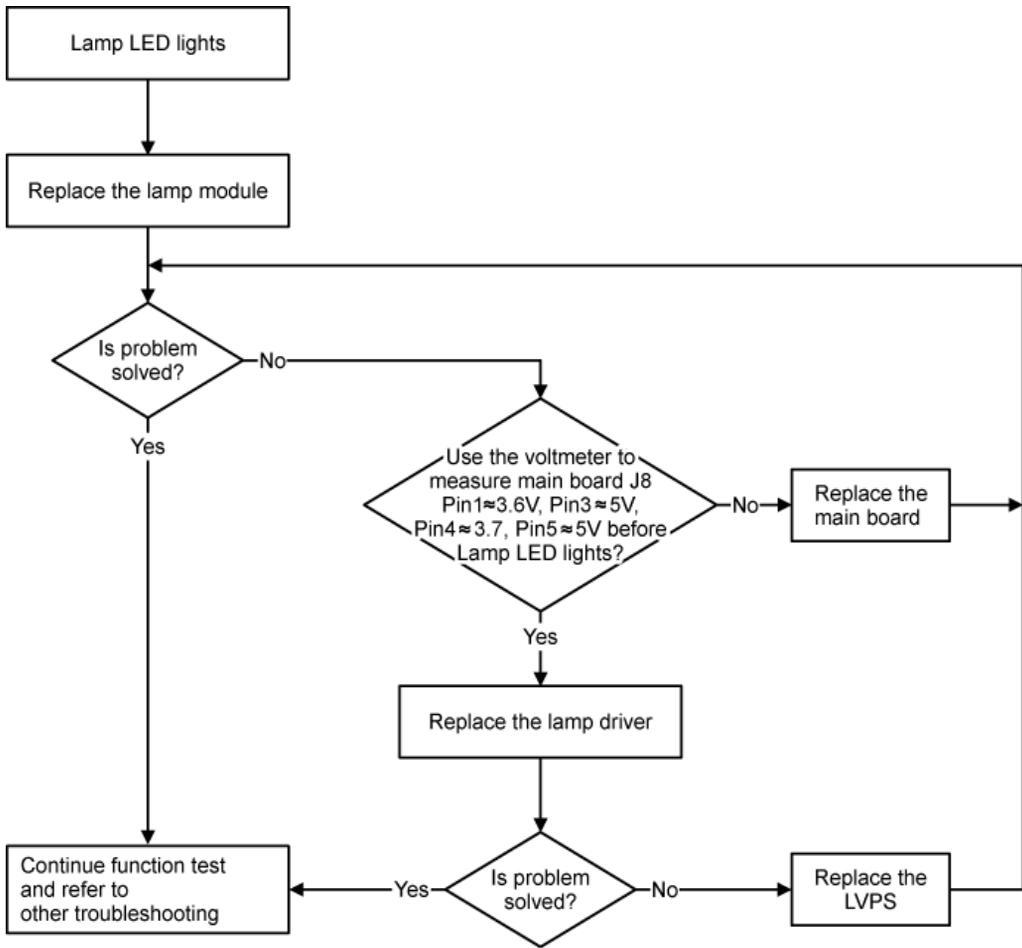


If temp LED flashes



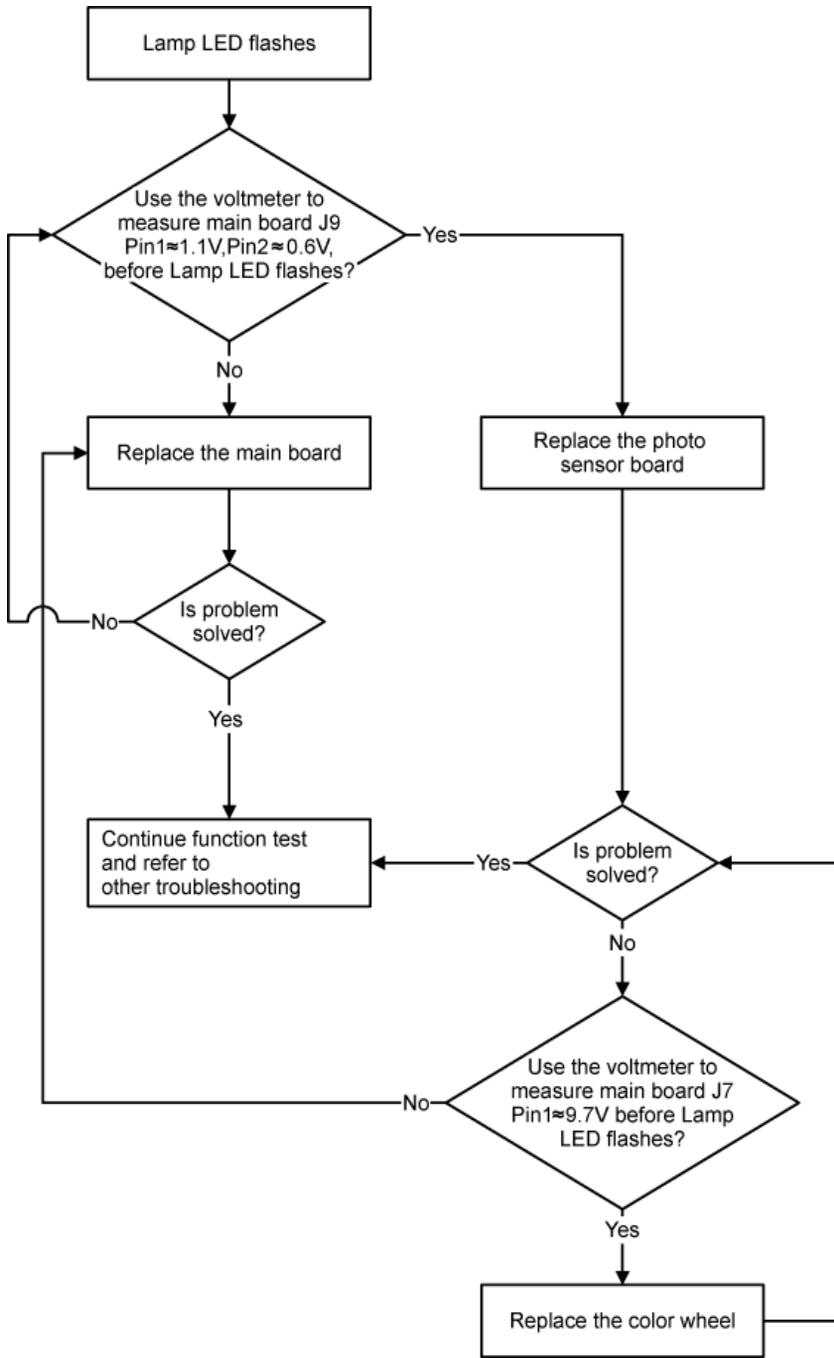
y0200011

If lamp LED lights

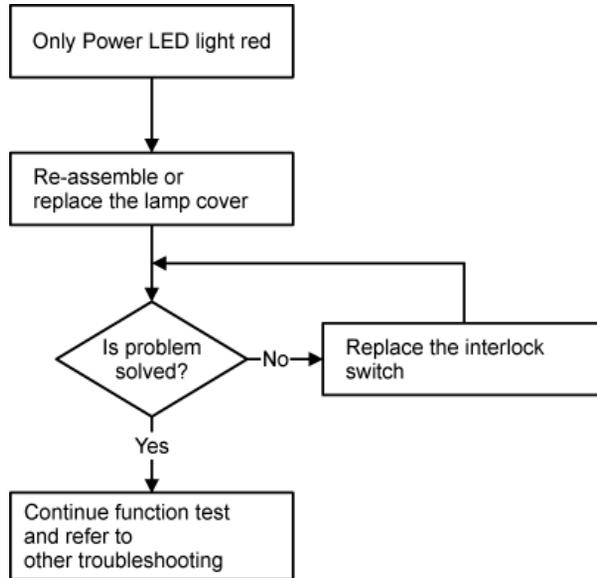


y0200012

If lamp LED flashes



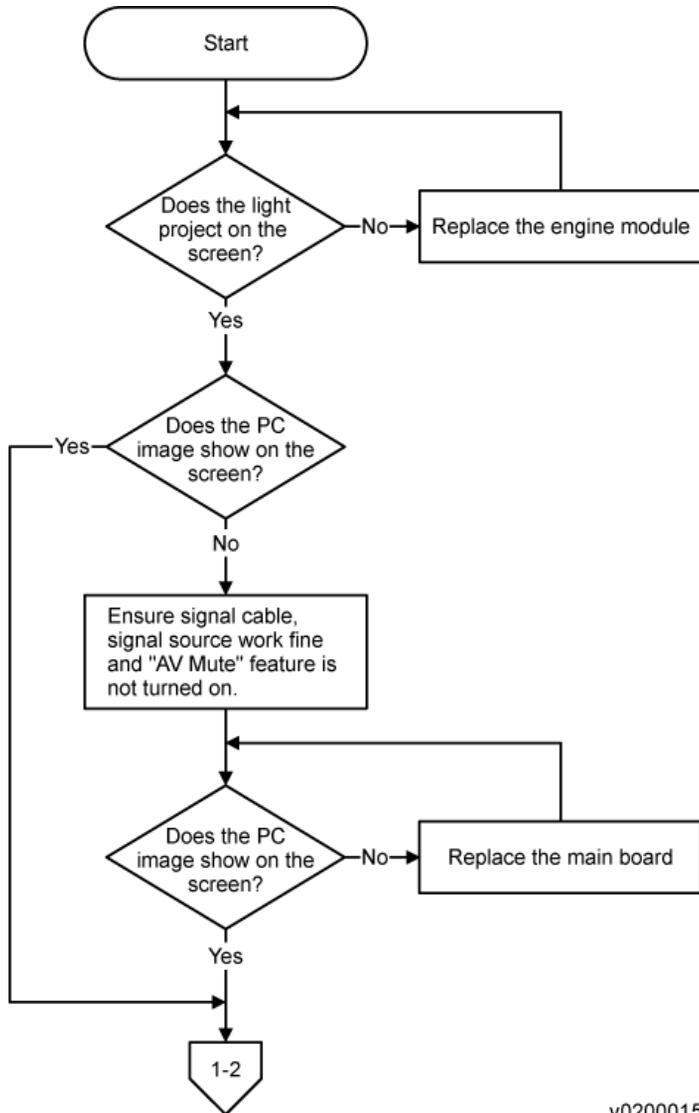
y0200013

Only power LED light red

y0200014

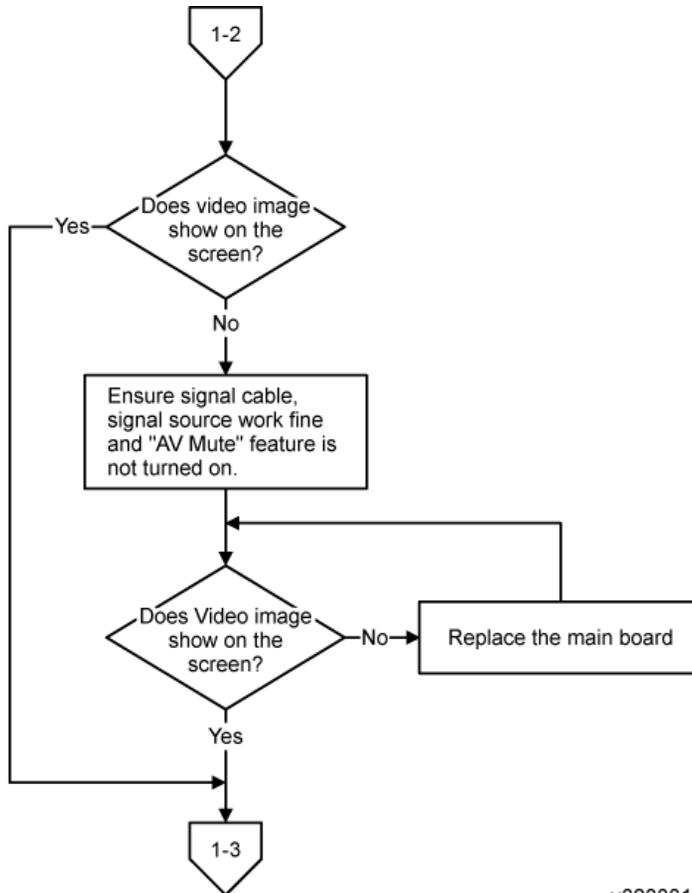
C. Image Troubleshooting

1-1 (Does the PC image show on the screen?)



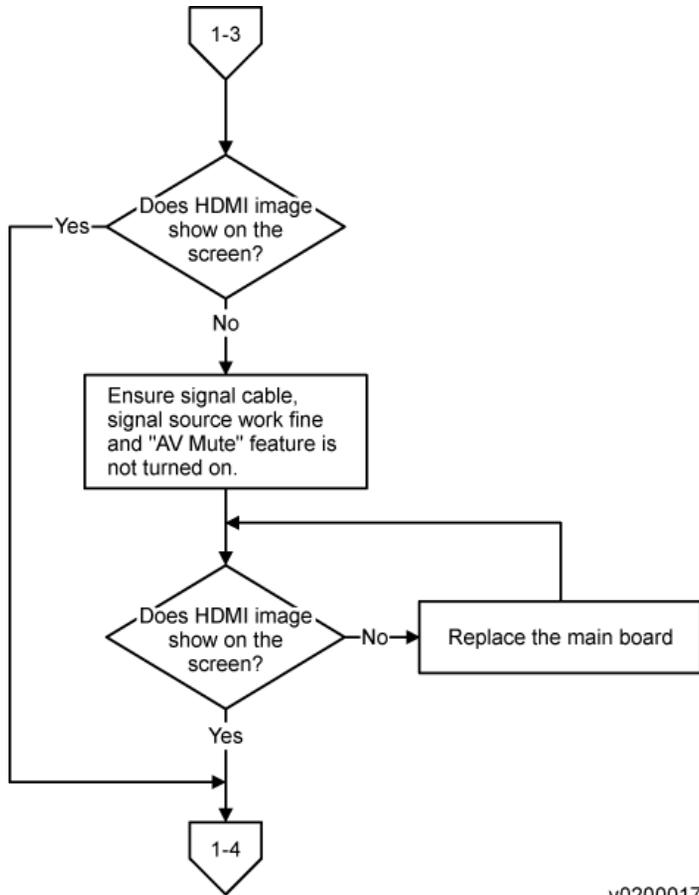
y0200015

1-2 (Does video image show on the screen?)



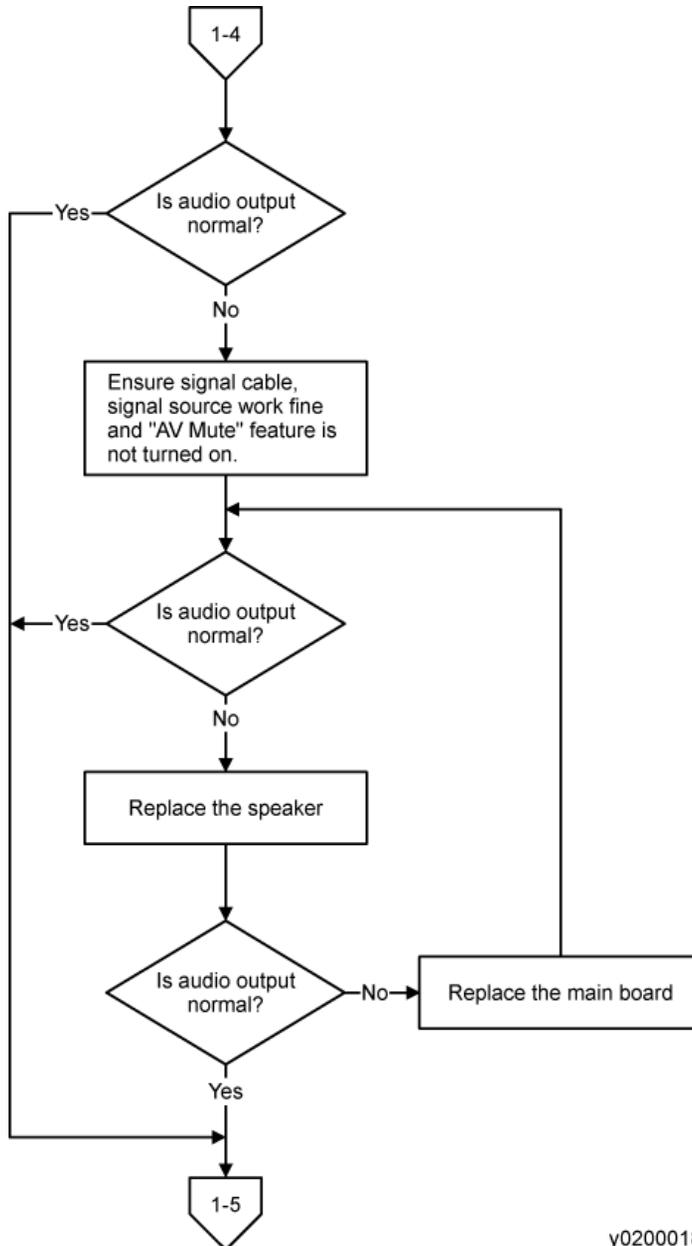
y0200016

1-3 (Does HDMI image show on the screen?)



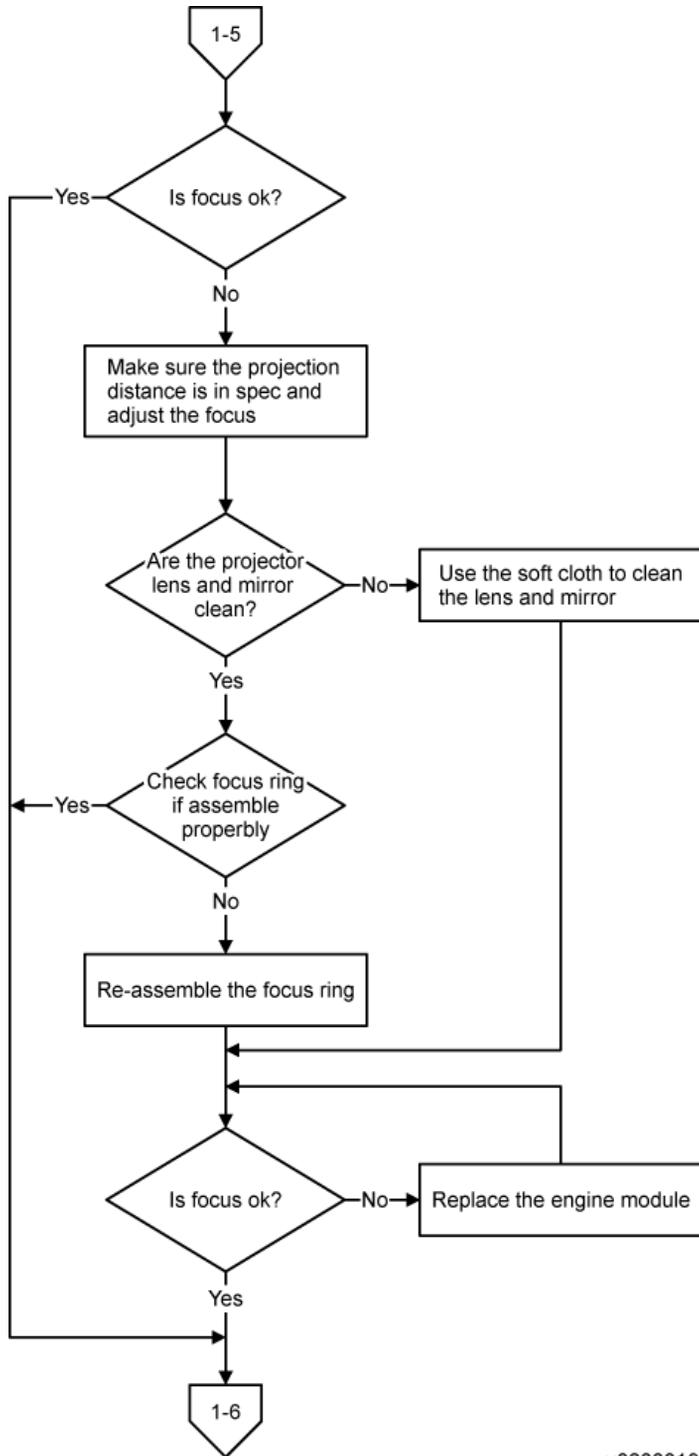
y0200017

1-4 (Is audio output normal?)

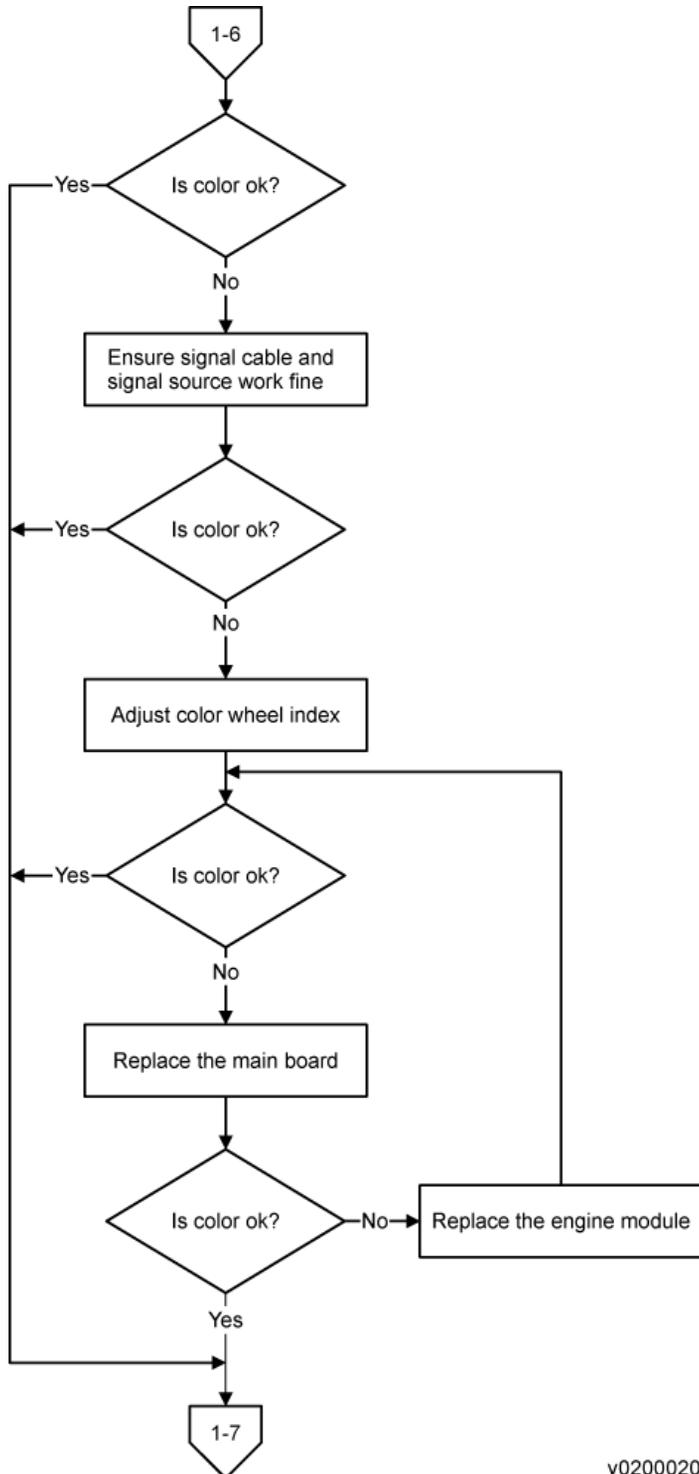


y0200018

1-5 (Is focus ok?)

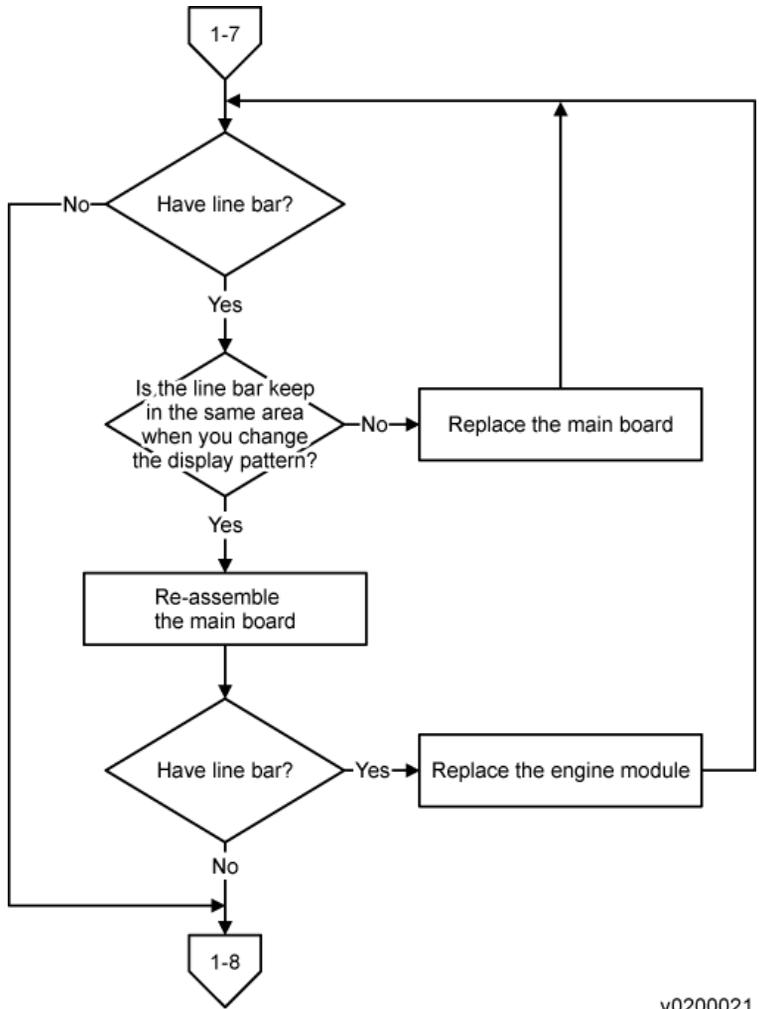


1-6 (Is color ok?)



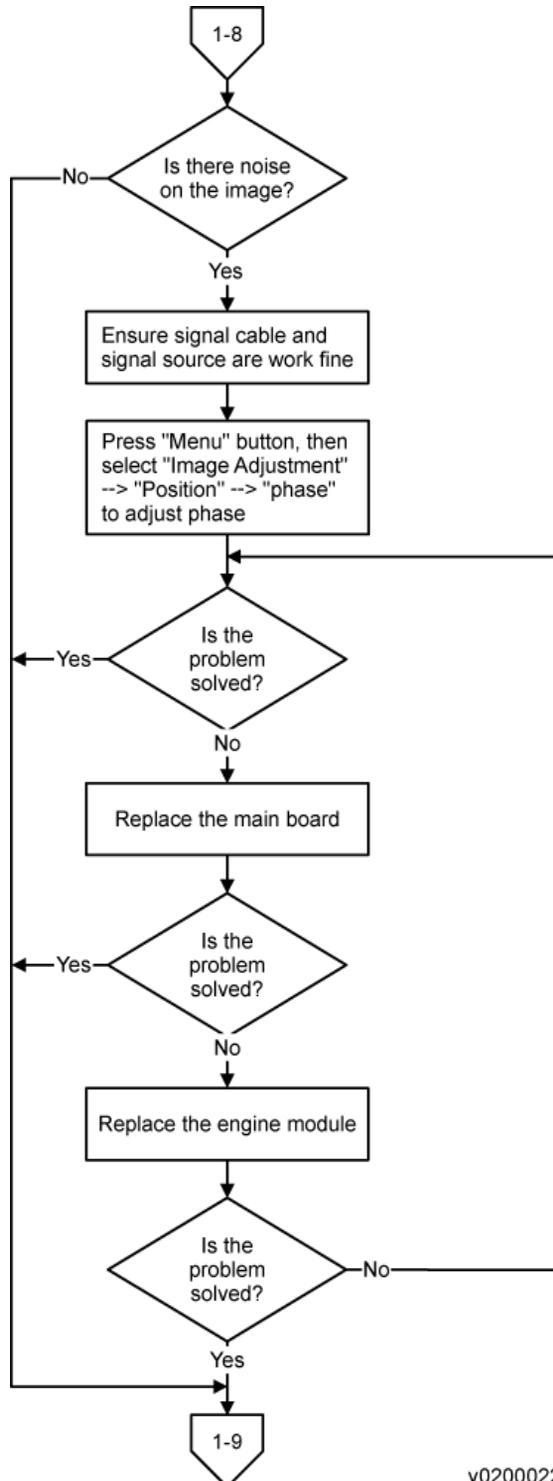
y0200020

1-7 (Have line bar?)



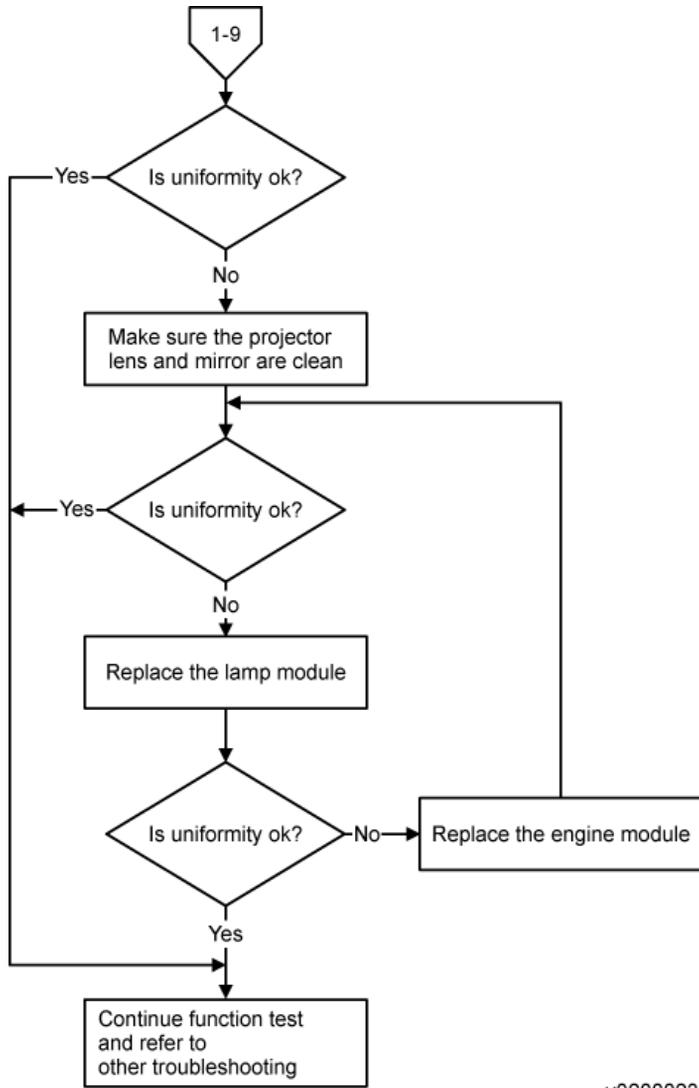
y0200021

1-8 (Is there noise in the image?)



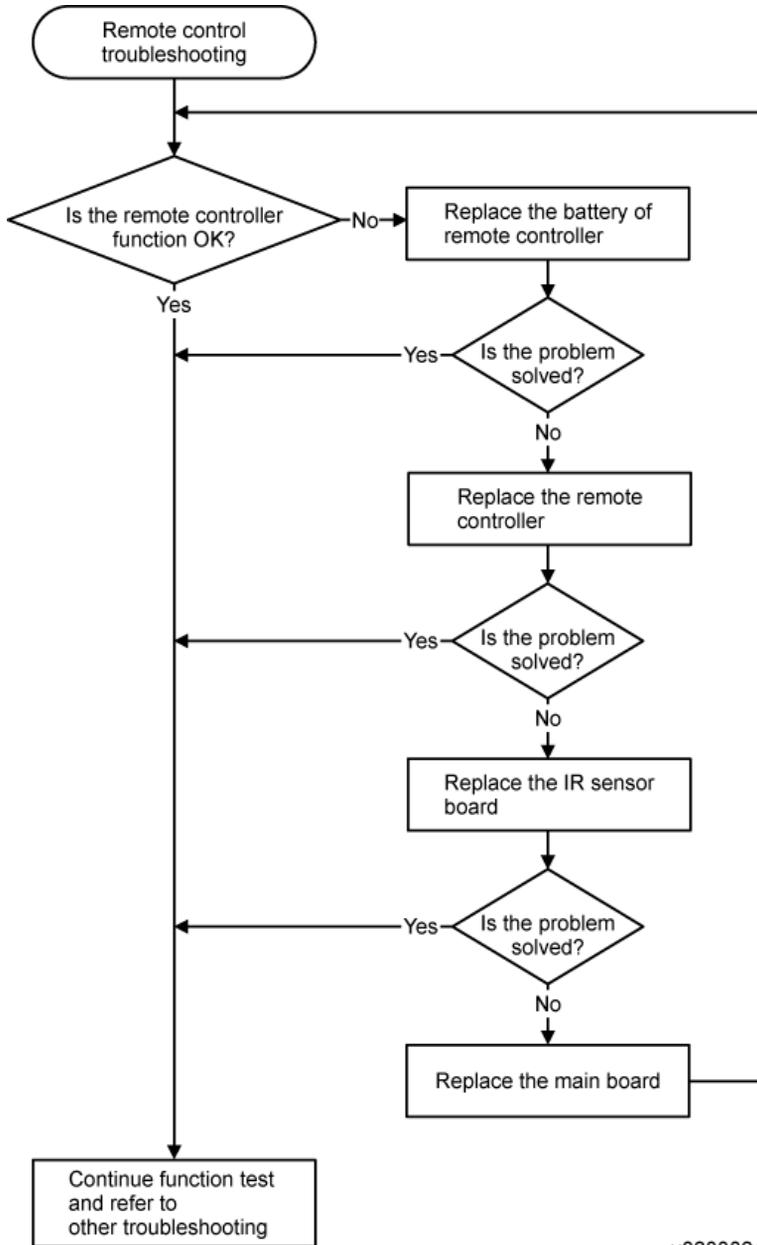
y0200022

1-9 (Is uniformity ok?)



y0200023

D. Remote Control Troubleshooting



y0200024

Model Antares-PJ1
Machine Codes:
Y0020/Y021/Y022

Appendices

24 October, 2011

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1. Appendix: Specifications

General Specifications

1

List of General Specifications

Item	Specification
Consumption Power	203W (ECO mode) / 258W (Full mode)
Weight	5.5 lbs (2.5 Kg)
Dimensions (WxHxD)	286x100x208 mm (include protruding parts)
Environmental Considerations	Operational Temperatures : 41° to 95°F (5° to 35°C), 20% to 80% humidity (non-condensing) Storage Temperatures : -4° to 140°F (-20° to 60°C), 20% to 80% humidity (non-condensing)
Projection System	Y022/Y021: Single DLP® 0.55" chip Y020: Single DLP® 0.65" chip
Resolution	Y022: 800 × 600 pixels (SVGA) Y021: 1024 × 768 pixels (XGA) Y020: 1280 × 800 pixels (WXGA)
Lens	Y022/Y021: F# 2.41 - 2.55, f=21.79 - 23.99 mm, 1.1X Zoom Lens Y020: F# 2.50 - 2.67, f=21.86 mm - 24 mm, 1.1X Zoom Lens
Lamp	High-pressure mercury lamp (200W)
Lamp Life	3000 hours typical (Full Mode) 4000 hours typical (ECO Mode)
Projection screen size	30 - 300 inch
Projection distance	Y022/Y021: 1.19 - 13.11 m (Focus range) Y020: 1.0 - 10.98m (Focus range)
Speaker	2W (Mono)

Item		Specification
Connection terminal	COMPUTER1 IN terminal	Mini D sub 15 pin RGB / Y/PB / PR (dual use)
	MONITOR OUT terminal	Mini D sub 15 pin
	HDMI terminal	HDMI terminal
	S-VIDEO terminal	Mini DIN 4 pin
	VIDEO terminal	RCA Pin Jack, 1 V (p-p), 75 ohm
	AUDIO IN terminal	3.5 mm diameter mini-jack for COMPUTER IN/VIDEO/S-VIDEO (multiple use)

Note

- This model complies with the above specifications.
- Designs and specifications are subject to change without notice.
- This model may not be compatible with features and/or specifications that may be added in the future.

Separately sold product

- PJ Replacement Lamp Type 2

List of Supported Signals

VGA Analog

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
(1) VGA Analog - PC Signal				
VGA	640 × 480	60	31.47	25.18
	640 × 480	72	37.86	31.50
	640 × 480	75	37.50	31.50
	640 × 480	85	43.27	36.00

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
	640 × 480	119.51	61.61	-
SVGA	800 × 600	56	35.20	36.00
	800 × 600	60	37.88	40.00
	800 × 600	72	48.08	50.00
	800 × 600	75	46.88	49.50
	800 × 600	85	53.67	56.25
XGA	1024 × 768	119.85	77.20	-
	1024 × 768	60	48.36	65.00
	1024 × 768	70	56.48	75.00
	1024 × 768	75	60.02	78.75
	1024 × 768	85	68.67	94.50
SXGA	1152 × 864	119.804	98.80	-
	1152 × 864	70	63.80	94.50
	1152 × 864	75	67.50	108.00
	1280 × 1024	85	77.10	121.50
	1280 × 1024	60	63.98	108.00
	1280 × 1024	72	77.90	134.60
	1280 × 1024	75	79.98	135.00
QuadVGA	1280 × 960	85	91.15	157.50
	1280 × 960	60	60.00	108.00
SXGA+	1400 × 1050	75	75.00	126.00
UXGA	1600 × 1200	60	65.32	121.75
PowerBook G4	640 × 480	60	75.00	162.00
PowerBook G4	640 × 480	60	31.50	25.17

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
PowerBook G4	800 x 600	66.6(67)	35.00	30.24
PowerBook G4	1024 x 768	60	37.88	40.00
PowerBook G4	1152 x 870	60	48.36	65.00
PowerBook G4	1280 x 960	75	68.68	100.00
PowerBook G4	1024 x 768	75	75.20	126.00
i Mac (G3)	1024 x 768	75	60.30	80.00
(2) VGA Analog - Extended Wide				
WXGA	1280 x 768	60	47.78	79.50
	1280 x 768	75	60.29	102.25
	1280 x 768	85	68.63	117.50
	1280 x 720	60	44.80	74.25
	1280 x 800	60	49.60	83.50
	1440 x 900	60	55.90	106.50
	1680 x 1050	60	65.30	146.25
	1366 x 768	60	47.74	85.50
	1920 x 1080-RB	60	66.60	138.50
	1024 x 600	60	37.30	50.40
(3) VGA Analog - Component Signal				
480i	720 x 480	59.94 (29.97)	27.00	-
480p	720 x 480	59.94	31.47	-
576i	720 x 576	50 (25)	27.00	-
576p	720 x 576	50	31.25	-
720p	1280 x 720	60	45.00	-
720p	1280 x 720	50	37.50	-

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
1080i	1920 x 1080	60 (30)	33.75	-
1080i	1920 x 1080	50 (25)	33.75	-
1080i	1920 x 1080	60	67.50	-
1080i	1920 x 1080	50	56.25	-

HDMI Digital

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
(1) HDMI - PC Signal (Same as DVI)				
VGA	640 x 480	60	31.47	25.18
	640 x 480	72	37.86	31.50
	640 x 480	75	37.50	31.50
	640 x 480	85	43.27	36.00
	640 x 480	119.51	61.61	-
	800 x 600	56	35.20	36.00
SVGA	800 x 600	60	37.88	40.00
	800 x 600	72	48.08	50.00
	800 x 600	75	46.88	49.50
	800 x 600	85	53.67	56.25
	800 x 600	119.85	77.20	-
	1024 x 768	60	48.36	65.00
XGA	1024 x 768	70	56.48	75.00
	1024 x 768	75	60.02	78.75
	1024 x 768	119.804	98.80	-
SXGA	1152 x 864	75	67.50	108.00

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
	1152 x 864	85	77.10	121.50
	1280 x 1024	60	63.98	108.00
	1280 x 1024	72	77.90	134.60
	1280 x 1024	75	79.98	135.00
	1280 x 1024	85	91.15	157.50
QuadVGA	1280 x 960	75	75.00	126.00
PowerBook G4	640 x 480	60	31.50	25.17
PowerBook G4	640 x 480	66.6(67)	35.00	30.24
PowerBook G4	800 x 600	60	37.88	40.00
PowerBook G4	1024 x 768	60	48.36	65.00
PowerBook G4	1152 x 870	75	68.68	100.00
PowerBook G4	1280 x 960	75	75.20	126.00
i Mac (G3)	1024 x 768	75	60.30	80.00

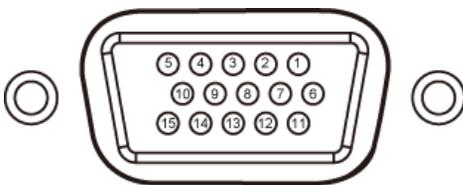
HDMI Digital

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
(2) HDMI Analog - Extended Wide				
WXGA	1280 x 768	60	47.78	79.50
	1280 x 768	75	60.29	102.25
	1280 x 768	85	68.63	117.50
	1280 x 720	60	44.80	74.25
	1280 x 800	60	49.60	83.50
	1440 x 900	60	55.90	106.50
	1680 x 1050	60	65.30	146.25

Modes	Resolution	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
	1366 x 768	60	47.74	85.50
	1920 x 1080-RB	60	66.60	138.50
	1920 x 1080-EIA	60	66.60	148.50
	1024 x 600	60	37.30	50.40
(3) HDMI Analog - Video Signal				
480i	720 x 480 (1440 x 480)	59.94 (29.97)	27.00	-
480p	720 x 480	59.94	31.47	-
576i	720 x 576 (1440 x 576)	50 (25)	27.00	-
576p	720 x 576	50	31.25	-
720p	1280 x 720	60	45.00	-
720p	1280 x 720	50	37.50	-
1080i	1920 x 1080	60 (30)	33.75	-
1080i	1920 x 1080	50 (25)	33.75	-
1080p	1920 x 1080	60	67.50	-
1080p	1920 x 1080	50	56.25	-
1080p	1920 x 1080	24/23.98	27.00	-

Configurations of Terminals

Terminal : Analog RGB (Mini D-sub 15 pin)



Mini D sub 15 Pin connector

Pin No.	Pin description
1	Red (R/Cr) Input/R Output
2	Green (G/Y) Input/G Output
3	Blue (B/Cb) Input/B Output
4	ICP download / NC
5	Ground (Horiz.sync.)
6	Ground (Red)
7	Ground (Green)
8	Ground (Blue)
9	DDC 5V / NC
10	Ground (Ver. sync.)
11	ICP download
12	DDC Data / NC
13	Horiz. sync. Input / Output (Composite H/V sync. Input)
14	Vert. sync. Input / Output
15	DDC CLK / NC