# Model Meissa-PJ1

Machine Codes:

Y0AD/Y0AE

# **Field Service Manual**

April, 2016

# **Important Safety Notices**

#### Lead-Free Solder

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

## **WARNING**

 This product is manufactured using lead free solder. DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT! The melting temperature of lead-free solder is higher than that of leaded solder by 86 °F to 104 °F (30 °C to 40 °C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product - especially when soldering large components, through-hole pins, and on PCBs - as the level of heat required to melt lead-free solder is high.

#### **Prevention of Physical Injury**

- 1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine power cord is unplugged.
- 2. The wall outlet should be near the machine and easily accessible.
- 3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
- 4. The machine drives some of its components when it completes the warm-up period. Be careful to keep hands away from the mechanical and electrical components as the machine starts operation.
- 5. Use brackets that are strong enough to support the projector. The projector weighs about 3.1 kg (6.9 lb.).
- 6. The projector must be installed in a location that is sturdy enough to support the full weight of the projector and brackets.

#### **Observance of Electrical Safety Standards**

The machine and its peripherals must be serviced by a customer service representative who has completed the training course on those models.

#### Safety and Ecological Notes for Disposal

1. Dispose of replaced parts in accordance with local regulations.

## **WARNING**

• To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols. A fire or an explosion might occur.

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 or your household waste disposal service.

# TABLE OF CONTENTS

| Important Safety Notices                  | 1  |
|---|----|
| Lead-Free Solder                          | 1  |
| Prevention of Physical Injury             | 1  |
| Observance of Electrical Safety Standards | 1  |
| Safety and Ecological Notes for Disposal  | 2  |
| 1. Product Information                    |    |
| Specifications                            | 5  |
| 2. Installation                           |    |
| Precautions                               | 7  |
| Do  | 9  |
| Do not                                    | 9  |
| 3. Replacement and Adjustment             |    |
| Special Tools                             |    |
| '<br>Equipment Needed & Product Overview  |    |
| Part Replacement                          |    |
| Lamp Cover                                |    |
| Lamp Module                               |    |
| Top Cover                                 | 14 |
| Keypad Board                              |    |
| Zoom Ring Module                          |    |
| Top Shielding                             |    |
| IO Cover                                  |    |
| Main Board, Main Board Shielding          |    |
| Front Cover and IR Sensor Board           |    |
| Optical Engine                            |    |
| Focus Ring                                |    |
| Color Wheel Module                        |    |
| Fan and Thermal Switch                    |    |
| Fan                                       | 24 |
| Thermal Switch                            |    |
| Blower                                    |    |
| PSU                                       |    |
| Interlock Switch                          |    |

| Bottom Shielding. 35   Speaker. 36   Bottom Cover. 37   Required Action after Replacing Parts. 38   Adjustment. 39   Rod Adjustment. 39   Reset lamp hours. 40   4. Troubleshooting 40   LED Display. 41   Main Procedures. 42   A. No Power Troubleshooting. 43   B. Power Troubleshooting. 44   C. Image Troubleshooting. 44   D. Remote Control Troubleshooting. 58   5. Test & Inspection 58 |
|--|
| Speaker  |
| Bottom Cover   |
| Required Action after Replacing Parts. 38   Adjustment. 39   Rod Adjustment. 39   Reset lamp hours. 40 <b>4. Troubleshooting</b> 40   LED Display. 41   Main Procedures. 42   A. No Power Troubleshooting. 43   B. Power Troubleshooting. 44   C. Image Troubleshooting. 49   D. Remote Control Troubleshooting. 58 <b>5. Test &amp; Inspection</b> 58   |
| Adjustment 39   Rod Adjustment 39   Reset lamp hours 40 <b>4. Troubleshooting</b> 40   LED Display 41   Main Procedures 42   A. No Power Troubleshooting 43   B. Power Troubleshooting 44   C. Image Troubleshooting 49   D. Remote Control Troubleshooting 58 <b>5. Test &amp; Inspection</b> 58  |
| Rod Adjustment. 39   Reset lamp hours. 40   4. Troubleshooting 40   LED Display. 41   Main Procedures. 42   A. No Power Troubleshooting. 43   B. Power Troubleshooting. 44   C. Image Troubleshooting. 49   D. Remote Control Troubleshooting. 58   5. Test & Inspection 58  |
| Reset lamp hours   |
| 4. Troubleshooting   LED Display   |
| LED Display  |
| Main Procedures. 42   A. No Power Troubleshooting. 43   B. Power Troubleshooting. 44   C. Image Troubleshooting. 49   D. Remote Control Troubleshooting. 58   5. Test & Inspection 58  |
| A. No Power Troubleshooting  |
| B. Power Troubleshooting   |
| C. Image Troubleshooting   |
| D. Remote Control Troubleshooting  |
| 5. Test & Inspection   |
|  |
| Run In Test  |
| Test Inspection Procedure  |
| Check points   |
| OSD Reset  |
| Calibration  |
| ADC Calibration  |
| Waveform Download61  |
| Fan RPM Calibration  |
| 6. Update  |
| -<br>Firmware Update   |
| Firmware Update63  |
| Equipment needed   |
| DLP Composer Lite setup procedure  |
| Firmware Update Procedure  |

# **1. Product Information**

# **Specifications**

Refer to the user manual.

1. Product Information

# 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.

## 

- 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.

#### 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 handing 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.

2. Installation

# 3. Replacement and Adjustment

# **Special Tools**

Make sure that engineers are equipped with the following tools, which will be necessary in order to update the firmware, and to perform adjustments that are necessary after replacing the optical engine or main board.

1. RS-232C cable (cross)

2. PC/Laptop

# Equipment Needed & Product Overview

- 1. Screw driver (+): 105
- 2. Screw driver (+): 107
- 3. Screw driver (-): 107
- 4. Hex Sleeves 5 mm
- 5. Tweezers
- 6. Projector



# Part Replacement

## Lamp Cover

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





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### Lamp Module

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



y0201003

2. Take out the Lamp Module.



y0201004

### Top Cover

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



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



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



y082z0003

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



y082z0004

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## Keypad Board

1. Remove a tape [A] at the corner of black sheet.



2. Remove 4 screws (red circles) from the Top Cover.



y082z0006

3. Disassemble the key pad module.



#### Zoom Ring Module

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



y0201007

2. Remove the Zoom Ring Module.



## Top Shielding

1. Remove 9 screws (red circles).



y0201009

2. Remove the Top Shielding.





#### IO Cover

1. Remove 4 hex screws (red circles).



y082z0008

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



y0201012

3. Remove the IO cover.



y082z0009

#### Vote

• Take care of the hooks when you remove the unit.

#### Main Board, Main Board Shielding

#### 🔂 Important

- Before you remove the main board, make a note of the lamp usage hours.
- 1. Remove 4 screws (red circles).



y082z0010

2. Unplug the FFC (red square) of the Color Wheel.



3. Unplug 6 connectors.



Refer to the table below for details of each connector.

| ltem | Male Connector on<br>Main Board | Key feature   | Figure   |
|------|---------------------------------|---|----------|
| A    | Ballast                         | Black wire tube (5 pin)   | y0201016 |
| В    | Fan                             | Red/Yellow/Black wire and green<br>wire tube (3 pin)                | y0201017 |
| С    | Blower                          | Red/Black/White wire, white<br>connector and blue wire tube (3 pin) | y0201018 |
| D    | Photo sensor                    | Red/Black/White wire, red<br>connector and black wire tube (3 pin)  | y0201019 |
| E    | IR sensor                       | Red/Black/White wire, red<br>connector and silver wire tube (3 pin) | y0201020 |

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| ltem | Male Connector on<br>Main Board | Key feature                                   | Figure |
|------|---------------------------------|---|--------|
| F    | Speaker                         | Yellow/White wire and black wire tube (2 pin) | A      |

4. Remove 2 screws (red circles).



5. Unplug 1 connector (yellow square) at the rear side of Main Board.



6. Remove the Main Board with the shielding.

7. Separate Main Board and Main Board Shielding.



#### Front Cover and IR Sensor Board

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



y082z0017

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



#### Vote

• Take care of the hooks when you remove the unit.

#### **Optical Engine**

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



y082z0019

#### **Focus Ring**

1. Remove 3 screws (red circles) to remove the Focus Ring.



#### Color Wheel Module

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



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Note

• Avoid touching the glass parts of the color wheel.



y0201030

#### Fan and Thermal Switch

#### Fan

1. Remove 3 screws (red circles).

2. Unplug the connector (green square) of the Thermal Switch.



y082z0022

3. Remove 1 screw (red circle).



y082z0023

4. Remove the aluminum sticker.



5. Take out the Fan with lamp housing.



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



y0201038



Coloritant 🔁

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

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#### Thermal Switch

1. Remove 1 screw (red circle) to remove the Thermal Switch.





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### Blower

1. Remove 3 screws (red circles).



y082z0027

2. Separate the Blower and Blower Rubber.



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#### PSU

1. Remove 6 screws (red circles).



y082z0028

2. Remove the AC inlet bracket.



3. Unplug 2 connectors (red squares).



y082z0030

4. Release 2 cables from the clamp.

[A]: PSU to Ballast, [B]: PSU to Main Board (this is already disconnected when removing the main board)



y082z0031

5. Remove the black sticker [A] from the PSU holder.



y082z0032

6. Take out the PSU.





7. Tear off the glue parts (red squares), and then take out the PSU holder of main frame.



y082z0034



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

1. Use a clamp to fix the Ballast to the PSU cable (red square).



### Interlock Switch

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



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C Important

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



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### Ballast

1. Remove 1 screw (red circle) to remove the Ballast Module.



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• Be careful not to lose a clamp.



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2. Remove 4 screws (red circles).



3. Unplug 3 connectors (red squares).



4. Remove the Ballast and Ballast holder.



5. Remove 1 screw to remove the cable (Ballast to Lamp Module).


# **Bottom Shielding**

1. Remove 6 screws (red circles).



y082z0041

2. Tear off the black sticker.



y082z0042

3. Remove the Bottom Shielding.



y082z0043

# Speaker

1. Remove the Speaker Module.



y082z0045

2. Separate the Speaker and Speaker Rubber.



y082z0046

#### Notes for reinstallation

Speaker module is fixed by putting the 3 hooks of speaker rubber in the main frame. Make sure that you position the speaker rubber's salient in the positioning hole [A], and then fix the speaker module with 3 hooks.



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# **Bottom Cover**

1. Remove the Adjustment Feet (red circles).





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# **Required Action after Replacing Parts**

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

| Adjustment           | Changed parts    |          |                |                   |         |        |
|----------------------|------------------|----------|----------------|-------------------|---------|--------|
|                      | Main<br>Board    | Firmware | Lamp<br>Module | Optical<br>Engine | Ballast | Blower |
| Version Update       | v                | v        |                |                   |         |        |
| ADC Calibration      | v <sup>(*)</sup> | v(*)     |                |                   |         |        |
| Reset Lamp Hours     |                  |          | v              |                   |         |        |
| OSD Reset            | v                | v        |                |                   |         |        |
| Rod Adjustment       |                  |          |                | v <sup>(*)</sup>  |         |        |
| Waveform<br>Download |                  |          |                |                   | v       |        |
| Fan RPM Calibration  | v                | v        |                |                   |         | v      |

(\*) This action is not always required. Perform it only if the situation demands it.

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

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

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# Adjustment

## **Rod Adjustment**

#### Environment

- The size of the screen is 60".
- This process should be done in a dark environment (under 2 lux).

#### Procedure

- 1. Change the screen to "white screen".
- 2. Adjust the screws to readjust the image. (Screw [A] should be adjusted first, and then screw [B]. Adjust until the yellowish or bluish parts disappear.)



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#### 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.

### **Reset lamp hours**

After replacing the lamp module, reset the lamp hours.

- 1. Press the "Power > Left > Right > Menu" keys to get into service mode.
- 2. Select "Other Settings".
- 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.

#### Vote

• 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".

# LED Display

At the time of "the first standby after the trouble outbreak, it show what kind of malfunction occurred just before that".

|                      | Lamp LED              | Temp LED Standby LED  |                       | by LED                |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Message              | Red                   | Red                   | Red                   | Green                 |
| Standby              | -                     | -                     | Steady Light          | -                     |
| Normal<br>(Power ON) | -                     | -                     | -                     | Steady Light          |
| Cooling state        | -                     | -                     | Flashing<br>(0.5 Sec) | -                     |
| Power up             | -                     | -                     | -                     | Flashing<br>(0.5 Sec) |
| Firmware<br>Download | Steady Light          | Steady Light          | Steady Light          | Steady Light          |
| Over Temp            | -                     | Steady Light          | Steady Light          | -                     |
| Fan lock             | -                     | Flashing<br>(0.5 Sec) | Steady Light          | -                     |
| Lamp Fail            | Steady Light          | -                     | Steady Light          | -                     |
| Color Wheel Fail     | Flashing<br>(0.5 Sec) | -                     | Steady Light          | -                     |

# **Main Procedures**



# A. No Power Troubleshooting



# B. Power Troubleshooting

Mark sure all connectors are connected properly.

Check LED indicator.

#### If temp LED lights



#### If temp LED flashes



If lamp LED lights



If lamp LED flashes



4

### Only power LED light red



# C. Image Troubleshooting





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





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

#### 1-4 (Is audio output normal?)



# 1-5 (Is focus ok?)



### 1-6 (Is color ok?)



#### 1-7 (Have line bar?)



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



#### 1-9 (Is uniformity ok?)





# 5. Test & Inspection

# **Run In Test**

- Temperature: 15°C~35°C
- Ambient brightness: Normal
- Screen size: 60"
- Display mode: ECO mode

After repairing each unit, a Run-in test is necessary (refer to the table below).

| Symptom              | Run-in Time |
|----------------------|-------------|
| Normal repair        | 2 hours     |
| No Fault Found (NFF) | 4 hours     |
| Auto shutdown        | 6 hours     |

#### Get into Burn-In Mode

The settings depend on the type of repairs. For example, in the case of NFF, the run-in time is 11 hours. You have to set the lamp on for 120 min. and lamp off for 15 min for 5 cycles.

| Press the "Power > Left > Right > Menu" keys to get  | into service mode                              |
|--|--|
| Choose "Burn in Test" and press the "Menu" key       |  |
| LampOn(Min)  | Press the "Right" key to adjust the time (120) |
| LampOff(Min)   | Press the "Right" key to adjust the time (15)  |
| Set Burn In Cycle                                    | Press the "Right" key to adjust the cycle      |
| After setting up the time, choose "Enter Burn In Moo | de" and press the "Menu" key.                  |

The projector will start testing.

# **Test Inspection Procedure**

# **Check points**

| Check item       | Check point  |
|------------------|--|
| Firmware version | All firmware version must be the latest version                  |
| Exterior         | The exterior must be undamaged.                                  |
| Logo             | Missing logo, missing prints and blurred prints are unacceptable |
| Lamp cover       | It should be locked in the correct place.                        |
| Zoom in/out      | The function should work smoothly                                |
| Keypad           | All keypad keys must operate smoothly                            |

### **OSD** Reset

After the final QC step, we have to erase all saved change again and restore the OSD default setting. The following actions will allow you to erase all end-users' settings and restore the default setting:

- 1. Enter the OSD menu.
- 2. Select "Options" and then execute the "Reset" function.

# Calibration

## ADC Calibration

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

#### **Equipment Needed**

- Test equipment: Video generator
- Test signal: 1024 × 768@60Hz
- Test Pattern: (240/255)White/(15/255)Black



• The calibration pattern should be in full screen mode.

#### Procedure

- 1. Press the "Power > Left > Right > Menu" keys to get into service mode.
- 2. Select "ADC 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.

### Waveform Download

After replacing the ballast, "waveform download" should be done.

1. Plug in the power cord.

- 2. While pressing the "Up" key, then press "Power" key.
- 3. When The [Temp] LED will flash in red, release the "Up" key.
- 4. The [Temp] and [Lamp] LED light red and after 3 seconds, the projector will turn on automatically.
- 5. The waveform download is completed.

#### Note

• Check whether execute auto Waveform download, if not, repeat the step again.

### **Fan RPM Calibration**

After replacing the main board, blower fan (blue circle) or upgrade firmware, follow steps as below:

y082m0002

- 1. Plug in the power cord.
- 2. While pressing the "Left" key, then press "Power" key.
- 3. When the logo appears on the screen, release the "Left" key.
- 4. Wait a moment, enter the Service Mode by pressing the keys sequentially as follows; Power > Left >Right > Menu
- 5. Select "Factory Fan RPM" on the service menu and press "Menu" key.
- 6. Check that the value of "Factory RPM" is within the specified range.

# Firmware Update

### Firmware Update

### **Equipment needed**

#### Software

- DLP Composer Lite (Use DLP Composer Lite 11.1 for example)
- Firmware (\*.img)
- 11.1FlashDeviceParameters

#### Hardware

- 1. Projector
- 2. Power Cord
- 3. RS232 Cable
- 4. PC or Laptop



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#### DLP Composer Lite setup procedure

1. Double-click "DLP Composer Lite V11.1 Setup".



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2. Click "Next".



3. Read "License Agreement", and select "I accept and agree to be bound by all the terms and conditions of this License Agreement", and then click "Next".





4. Click "Next".



5. Click "Next".



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6. Click "Next".



y0200030

The program is being installed.



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7. Click "Finish".



#### Firmware Update Procedure

- 1. Hold on the "Power" key, and plug in the power cord.
- 2. The Power/Lamp/Temp LEDs will light red, then release the "Power" key.



In the FW mode, all LEDs light up.

3. Connect projector with RS232 cable to PC.

4. Execute the "DLP ComposerTM Lite 11.1" file.



- 5. Select the file "11.1FlashDeviceParameters".
- 6. Put "11.1FlashDeviceParameters" file into the folder where you setup "DLP Composer Lite 11.1".



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



y0200040

- 8. Click "Communications".
- 9. Select "Serial Port", then click "Configure".
- 10. Select the COM Port which you are using.

| Composer*** Like                                 | -   |   |  |
|--|---|---|--|
| Projector Control<br>Planh Londer<br>Plan Londer | CLD Compare Parlow<br>Output - Memory / Log<br>Parlow<br>Provide Compare<br>Proc Leader | Communications Construction |  |
|  |   | legenment() //// //// //// //////   |  |

y082m0011

"Serial Port Configuration" picture will appear on the screen.

#### 11. Make sure the settings are as below: then click "OK"

- In "Baud Rate" item, select "115200".
- In "Data Bits" item, select "8".
- In "Stop Bits" item, select "1".
- In "Parity" item, select "None".
- In "RTS" item, select "Enable".
- In "CTS" item, select "Disable".
- Key in "2000" into "Read" and "Write" items of "Timeouts (in milliseconds)".

| - Memory / Log<br>- Font / Speed  | Projector Interface   |  |
|---|---|--|
| Serial Port Co  | nfiguration   |  |
| Baud Rate     300       000     600       1200     2400       Date Bits     7       Parky     0.0dd       Even     Even | 4800 9600 9600 14400 9700 13200 0 11520 0 115200 0 11520 0 11520 0 11520 0 11520 | RTS<br>Disable Handshake<br>Enable Toggle<br>CTS<br>Disable Enable<br>Trecouts (in milliseconds)<br>Read: (2000 Write: 2000<br>Debug<br>Enable Debug Logging |
|   | Instal/Uninstal De  | DK. Cancel   |

y082m0012

- 12. Click "Flash Loader".
- 13. Click "Browse" to search for the firmware file (\*.img).
- 14. Click "Open".



y082m0013

15. Select the item "Skip Boot Loader Area" and select "32KB" then click "Reset Bus" to erase the flash memory.

| B conversion description of the  |   |
|--|---|
| in Frith View Window Help  |   |
| 1 Po 12 12 12 12 12 12   |   |
| # 1 1 1 1 × × 1  |   |
|  | CER.  |
| III Di Creatore Pide<br>Prestor Contel<br>Platitador<br>Platitador<br>Platitador<br>Platitador | Intel tooksee State t |

y082m0016

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



y082m0017
17. Click "Yes" to erase the flash memory.



y082m0014

When the firmware upgrade process is finished, "Download Complete" will appear.



y082m0020

- 18. Reconnect the power cord, then restart the projector.
- 19. Get into Service Mode (Power--Left--Right--Menu) to check the system firmware version.

MEMO