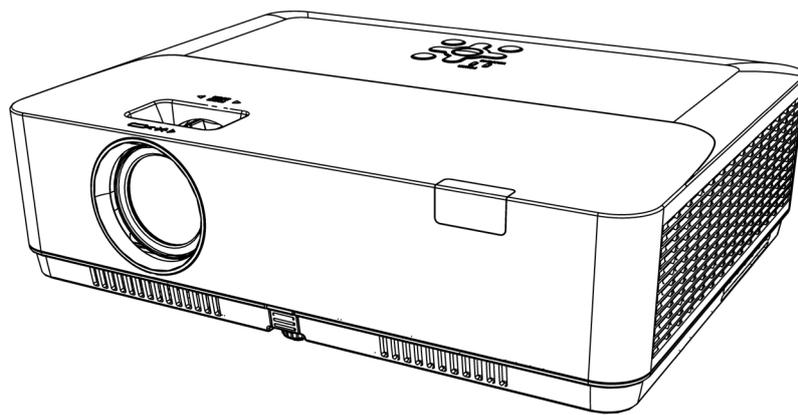


EIKI

Multimedia projector

Service manual



Model: EK-121W
EK-120U

Content

Content.....	2
Safety instruction	3
Circuit protection.....	6
Thermal switch	6
Indicator status	7
Key lock, PIN code lock reset.....	8
Standby mode instruction	9
Maintenance and cleaning	10
Filter counter reset.....	11
How to check the lamp usage time.....	12
Lamp replacement.....	13
Replace the Lamp.....	13
Lamp counter reset.....	14
Mechanical disassembly.....	15
Adjustment	21
Adjustment after replacement parts	21
Service Mode.....	22
Enter Service Mode.....	22
How to operate.....	22
Error history log.....	23
Electrical adjustment.....	24
Trouble shooting	27
Appendix-Specification.....	40
Appendix-Serial control	41
Appendix-Parts location & Mechanical components list diagram.....	46
Appendix-Accessories.....	50
Appendix-PCB diagram	51
Appendix-Schematic diagram	54
Appendix-Chassis block diagram	55

Safety instruction

Technicians need to read and follow the "safety precautions" and "important safety tips" strictly in the service manual in the maintenance process.



Caution

The service manual is only for experienced technicians, rather than the general public.

The service manual does not include the warning about the non-technicians or to inform the danger they may occur in the maintenance process.

When the product is powered on, it can only be repaired or processed by experienced professional technicians. Any other person who attempts to repair the products involved in the service manual may result in serious injury or even death.



Caution

Please take UV radiation measures to protect your eyes and skins in the maintenance process.

NOTE

Preventive measures:

- Please make sure to set the High land off when using the projector at altitudes below 1400 meters, or it may shorten the life of internal components or even cause functional failure.
- Please make sure to set the High land on when using the projector at altitudes above 1400 meters but below 2700 meters, or it may shorten the life of internal components or even cause functional failure.
- Never install the projector in a place higher than 2700 meters, or it may shorten the life of internal components or even cause functional failure.
- Some more details about operation guidance, please refer to the projector setup menu.
- Please consult the dealer or authorized service center for preventive measures if you want to use the projector in high altitude area.

Lead-free solder (Pb Free)

The projector uses the PCB board of lead-free solder.

Please use the PCB board of lead-free solder to prevent the harm to the global environment.

Notes

- Lead-free solder: The Sn-Ag-Cu (tin - Silver - copper) is with a higher melting point (about 217°C) than the standard solder. In general, the melting point will be 30 °C to 40°C higher. And you should select the soldering iron with temperature limit, and the temperature may reach 370°C ± 10°C.
- Lead-free solder precautions: The Sn-Ag-Cu lead-free solder (SN Ag Cu) will splash when it is heated to high temperature (at about 600°C or higher).
- The PCB board about our product are all lead-free solder. When it is necessary to use leaded solder, please make sure to remove the lead-free solder before, or ensure that the lead-free solder will be heated to completely melt, and then coated with leaded solder.
- Please check whether there is excess solder material on the components' surface which may flow to the other side after welding PCB board into a double layer.

Identification of PCB board for lead-free soldering materials

The logo just as shown in the figure below will be engraved or printed on the PCB board' surface or back when using the lead-free soldering materials.



FCC Caution

Note: This equipment 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 equipment 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment 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 equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Use of shielded cable is required to comply with class B limits in Subpart B of Part 15 of FCC Rules.

Do not make any changes or modifications to the equipment unless otherwise specified in the instructions. If such changes or modifications should be made, you could be required to stop operation of the equipment.

Safety precautions

1.1 General policy:

- DO NOT attempt to make a circuit modification for the sake of safety for long time.
- Unplug the power cord from the power outlet before removing the projector.
- Please use the random supply line correctly, and make sure that the line must be earthed.
- Use insulation transformer on the ac power cord before maintenance.
- DO NOT touch any rotating parts of the projector (cooling fan, etc.) when the lid is removed and the power is powered on.
- Please pay attention to the original layout of the wire in the maintenance process. Once there is a short circuit, please replace all the pin the maintenance processarts that are overheated and damaged due to short circuit.
- Make sure to install the protective devices, such as: insulation barrier, insulation paper, screen and insulation R-C connection, etc. after the maintenance is completed.
- Please check for the leakage after the maintenance is completed to prevent customers from electric shock.

1.2 Leakage check:

1. Be ready to measure circuit in figure 1 below.
Make sure your voltmeter are of the same properties as described in table 2.
2. Connect the circuit as figure 2 shows. Plug the power cord into an electrical outlet.
3. Connect M1 to T1 as figure 2 shows, and measure the voltage.
4. Connect M1 to T2, and measure the voltage again.
5. The read value of the voltmeter must be 0.375 volts or less in step 3 and 4. This means that the current must be 0.75 mA or less.
6. If the read values exceed the above criteria, the projector must be repaired and re-examination in order to prevent the risk of electric shock before returning to the customer.

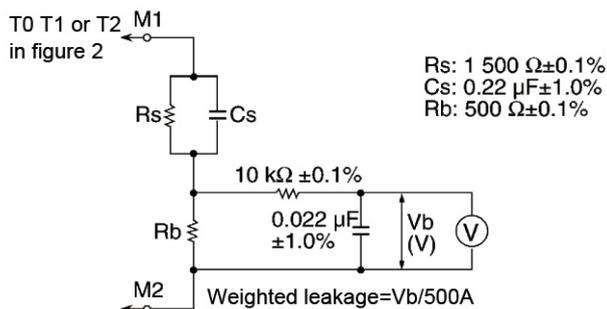


Figure 1

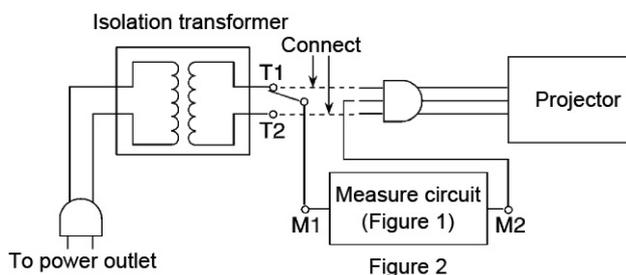


Figure 2

	Property	
Voltmeter (rmsvalue)	Accuracy	≤ 2%
	Input resistance	≥ 1MΩ
	Input capacitance	≤ 200pF
	Frequency range	15hz to 1MHZ

Table 2

1.3 UV and UHP lamps preventive measures:

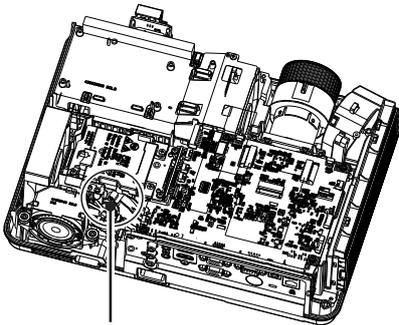
- Be sure to unplug the power cord from the power outlet when replacing the lamp.
- The lamp will reach to rather high temperature during the lighting process. You need spend some time to cool lamp off completely before replacing it. As it emit a small amount of UV radiation, avoid looking direct at the light source.
- There will be high pressure in the lamp internal component. So it may lead to an explosion just for your abnormal operation
- DO NOT touch the lamp wires during maintenance as there is much high pressure in the lamp internal component.

Circuit protection

The projector has the following security operation circuit protection functions. If there is any abnormal in the inside of the projector, the following protection circuit action will make your projector shut down automatically .

Thermal switch

- The thermal switch inside the projector is used to detect abnormal temperature inside the projector. When the internal temperature is close to 100°C ($\pm 5^\circ\text{C}$), the thermal switch will cut off the lamp power to stop power supply.
- If the thermal switch is off, you can not turn on the projector. Please reset thermal switch.



Thermal switch
PN:63730176

Indicator status

When the temperature inside the projector is too high or the cooling fan stops rotating or loss of power, the projector will shut down automatically.

LED indicator



❶ POWER indicator

- the power indicator turns steady red when the projector is in standby mode,
- the power indicator turns steady green during the working time.
- the power indicator is flashing green when the projector is in power management mode
- the power indicator is flashing red when the projector is in cooling mode.
- the power indicator turns steady yellow when the projector power is abnormal.

❷ WARNING indicator

- the indicator is flashing red when the internal temperature of the projector exceeds the operating range.

■ Light indicator status

See on P.26

Key lock , PIN code lock reset

This projector provides Key lock, PIN code lock and LOGO PIN code lock ensure your projector's operation safety. Only when users enter the correct password can you open your projector when you have set up the three security features. You won't start the projector without password. In case of the above issues, please reset such three security features according to the following reset procedure, and then re-check.

Function	Description
Key lock	Set up it on the top panel or remote controller. Select the Key lock function will make you unable to power on your projector . Initial setup: Closed caption Off
PIN code lock	Prevent unauthorized personnel from operating your projector. Initial Password: 111
LOGO PIN code lock	Prevent unauthorized personnel from changing the LOGO. Initial Password: 111

If forget all password, thus please following the steps to reset PIN lock or LOGO PIN lock:

1. Un-plug the projector
2. Press OK and Power button at same time then plug on AC power cord.
3. The unit will be reseted to default password: 111

Standby mode instruction

The projector has three kinds of standby mode, namely Eco.mode, Normal mode and Network mode. In the three mode, the following functions will be limited as shown in the table.

Please switch to Standby mode on the Setting menu.

ECO. mode.....Some function will be disabled once your projector is in ECO. standby mode to reduce power consumption. Network and RS-232C serial communication will be unavailable except the power on command during that mode.

Normal modeEven in standby mode, there are no restraint on network function and serial communication function.

Network mode.....In order to reduce power consumption, some functions in standby mode will be limited. Under network standby mode, network function is not available and RS-232C serial communication function (except boot command) is not available.

	LAN	RS232C	Keypad	Remote Controler
ECO	x	Δ	Δ	Δ
Normal	√	√	Δ	Δ
Network	*x	Δ	Δ	Δ

x: No Control Δ: Power On command Only √: All commands are active

*x: Power On command is active with "Wake On LAN" software.

- The "Wake On LAN" software and its manual can be downloaded from EIKI global website

<https://global.eiki.com/>

File Name : Software_WakeOnLAN

Maintenance and cleaning

Before replacing components

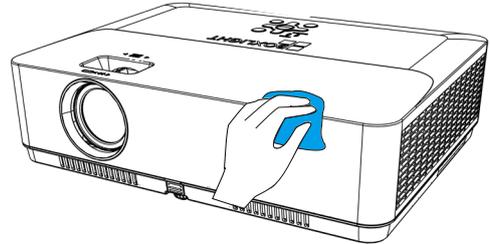
- o Please make sure to cut off the power and unplug the power cord from the power outlet when you make maintenance or replacement of components about your projector.

Maintenance

■ Clean the cabinet of your projector

Unplug the AC power cord before cleaning.

Gently wipe the projector surface with a soft dry cleaning cloth. When the cabinet is heavily soiled, use a small amount of mild detergent and finish with a soft dry cleaning cloth. Avoid using an excessive amount of cleaner. Abrasive cleaners, solvents, or other harsh chemicals might scratch the surface of the cabinet. When the projector is not in use, put the projector in a pouch to protect it from dust and scratches.

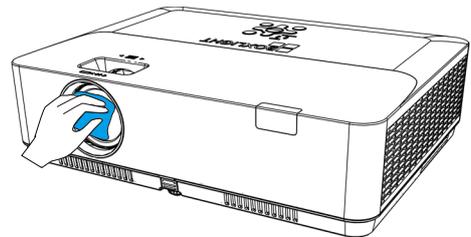


■ Clean the Projection lens

Unplug the AC power cord before cleaning.

Gently wipe the projection lens with a cleaning cloth that contains non-abrasive camera lens cleaner, or use a lens cleaning paper or commercially available air blower to clean the lens.

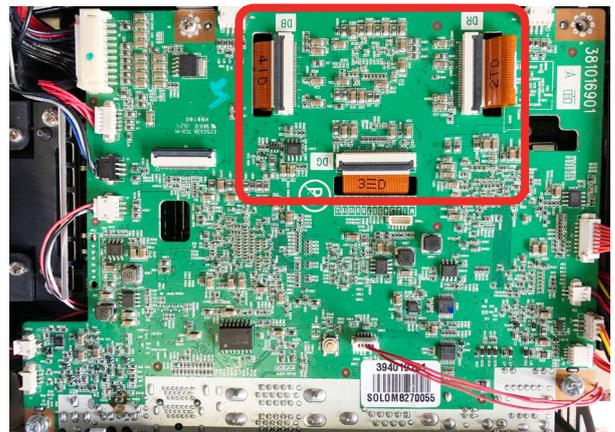
Avoid using an excessive amount of cleaner. Abrasive cleaners, solvents, or other harsh chemicals might scratch the surface of lens.



Note:
Projection window is fragile. Avoid unnecessary collision or excessive force when wiping it, otherwise it may scratch the surface. Please take care!

Note on the Main board

Please do not use your projector at place of dust and smoke. This may affects image quality. Using your projector in place of dust and smoke may lead to piling dusts on lens, LCD panel, and lens components within it. In case like this, please use the air gun to blow the LCD Panel (Look at image) and do not wipe with alcohol and cotton swab.



Filter counter reset

■ Clean the filter

Clean the filter under the following circumstances.

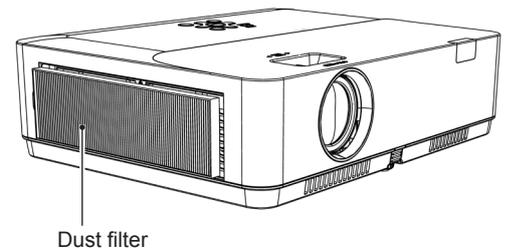
- Clean the filter immediately whenever the replacement information displays or the Filter Warning indicator icon is on.
- Clean the filter immediately when the warning indicator is on as the internal high temperature of the projector due to the clogged filter thus making the projector working failure.

Please follow these steps to clean your filter:

- 1 Power off your projector and unplug from AC power source.
- 2 Remove dust from the surface of the projector and around the air intake hole.
- 3 Remove the Dust filter components.
- 4 Remove the Dust filter from the Dust filter cover.
- 5 Gently clean it with a brush.
- 6 Replace the filter components. Make sure it has been fully inserted.
- 7 Reset the filter counter.

✓ Note:

- Make sure to install the filter component correctly as it may damage the projector due to the dust.
- Replace with the new filter, when the filter is damaged or exiting some dirt even after cleaning it.
- The projector can't power on properly if the filter case is installed correctly.



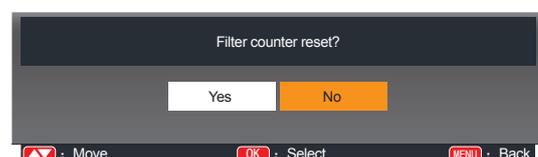
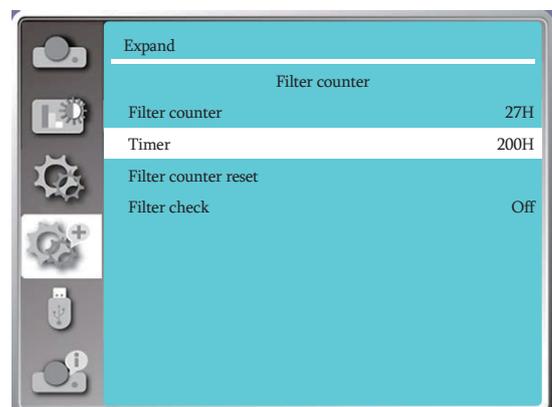
✓ Note:

- Please cut off the power before changing the filter.
- Make sure the projector is stable and in a safe working environment to prevent the filter from falling when you install the filter.
- DO NOT operate the projector once you removing the filter component. Otherwise, the dust attached to the lens assembly will damage the image quality.
- DO NOT place small objects into the air intake as it may result in the projector working failure.
- Replace the filter with the specified type.
- Reset the filter counter after changing the filter, as the projector may power off to ensure the security.
- Please contact the authorized dealer to purchase the the filter component.

■ Reset the filter counter

Reset the filter counter after changing the filter.

1. Press MENU button on the remote controller or on the remote control to display the OSD menu. Press ▲▼ select "Expand" menu, and then press OK button.
2. Press ▲▼ to select <Filter counter>, and then press OK button.
3. Press ▲▼ to select <Filter counter reset> and press OK button. <Filter counter Reset?> appears on screen, and select <Yes> to continue.
4. When <Filter counter Reset? Yes> pops up, select <Yes> to reset the filter counter.



How to check the lamp usage time

It's time to replace the lamp when the lamp usage time (Corresponding value) come to 10,000 hours.

Use the following formula to calculate the lamp usage time .

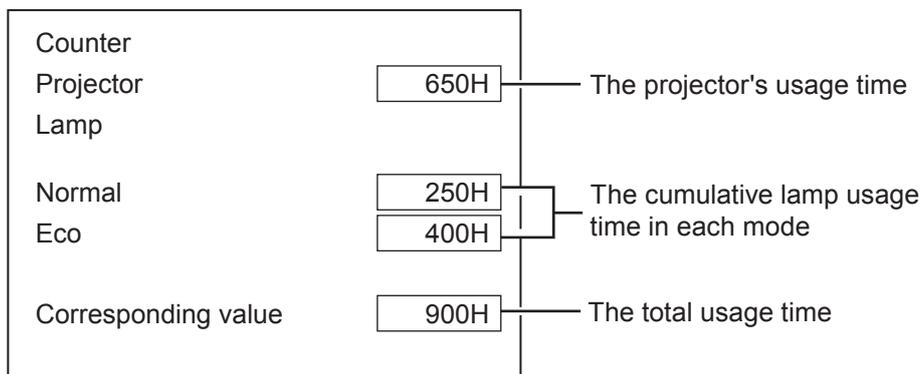
Lamp usage time(Corresponding value)=Teco +Tnormal x 2

Tnormal : Usage time in normal mode

Teco : Usage time in Eco. mode

Follow steps below to check the lamp usage time.

- 1) Press POWER  button more than 20 seconds in the projector or on the remote control.
- 2) The projector's usage time and lamp usage time will be displayed on the screen, just as follows:



Lamp replacement

Replace the lamp

When the projection lamp of the projector reaches its end of life, the Lamp replacement icon appears on the screen. Replace the lamp with a new one of the same type promptly. The timing when the lamp replacement icon appears is depending on the lamp mode.

Lamp replacement icon

Lamp replacement



Replacement lamp can be ordered through your dealer. When ordering a projection lamp, give the following information to the dealer.

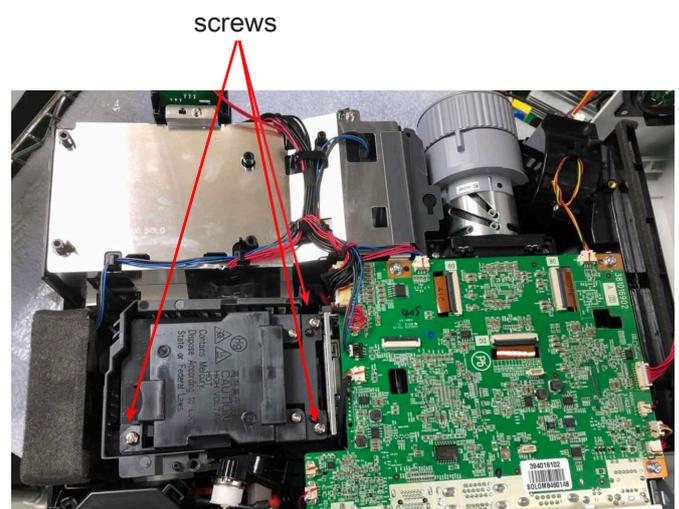
Replacement Lamp Model No.: 22040012

✓Note

- o The lamp is mainly made of glass. It may explode due to external impact of hard object or fall off, which requires careful and correct operation
- o Use the the cross head screw driver to replace the lamp components.
- o Make sure to hold the handle of the lamp component to replace it.
- o Do not replace the lamp after it went dark as it may be broken.
- o The lamp contains mercury. Consult local authorities or dealer the correct old lamp disposal method.

To replace the lamp, follow the steps below:

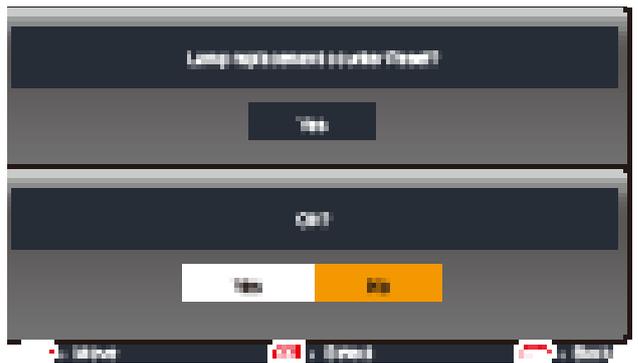
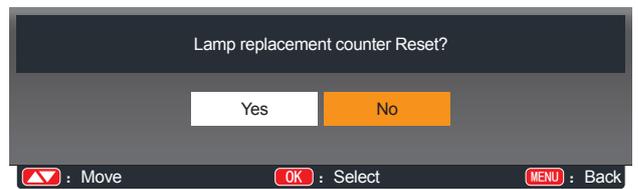
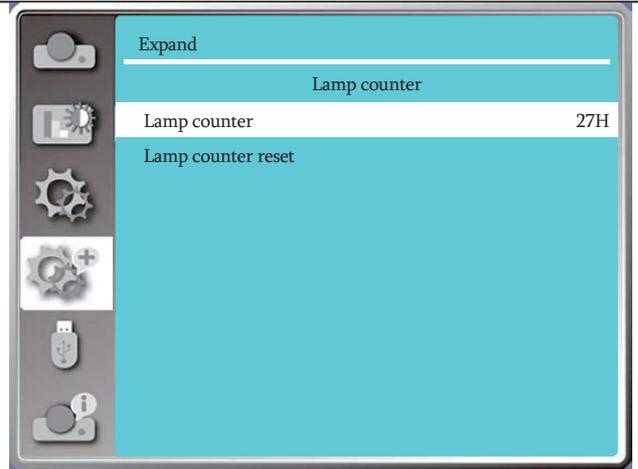
1. Power off the projector and unplug the power cord. Then let the projector cool for at least 45 minutes.
2. Remove the 10 screws to take out the Top Case. (refer to P.16)
3. Make sure the lamp is well protected and loosen 3 screws. Hold the handle to take out the lamp.
4. Install a new lamp with the same model and tighten the 3 screws. Make sure the installation is correct. Put Top Case in place and then tighten the screws.
5. Plug the AC power cord and power on the projector.



Lamp counter reset

Make sure to reset the lamp counter when replacing the lamp. Then the WARNING indicator goes out and the lamp replacement icon will disappear.

1. Press MENU button on the remote controller or on the top control panel to display the OSD menu. Press ▲▼ button to select the "Expand "menu, then press OK button.
2. Press ▲▼ button to select <Lamp counter>, then press OK button.
3. Press ▲▼ button to select <Lamp counter reset>, then press OK button. <Lamp replacement counter Reset ? > appears on screen, and select <Yes> to continue.
4. When <Lamp replacement counter Reset ? Yes > pops up, select <Yes> to reset the lamp counter.



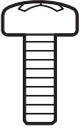
Mechanical disassembly

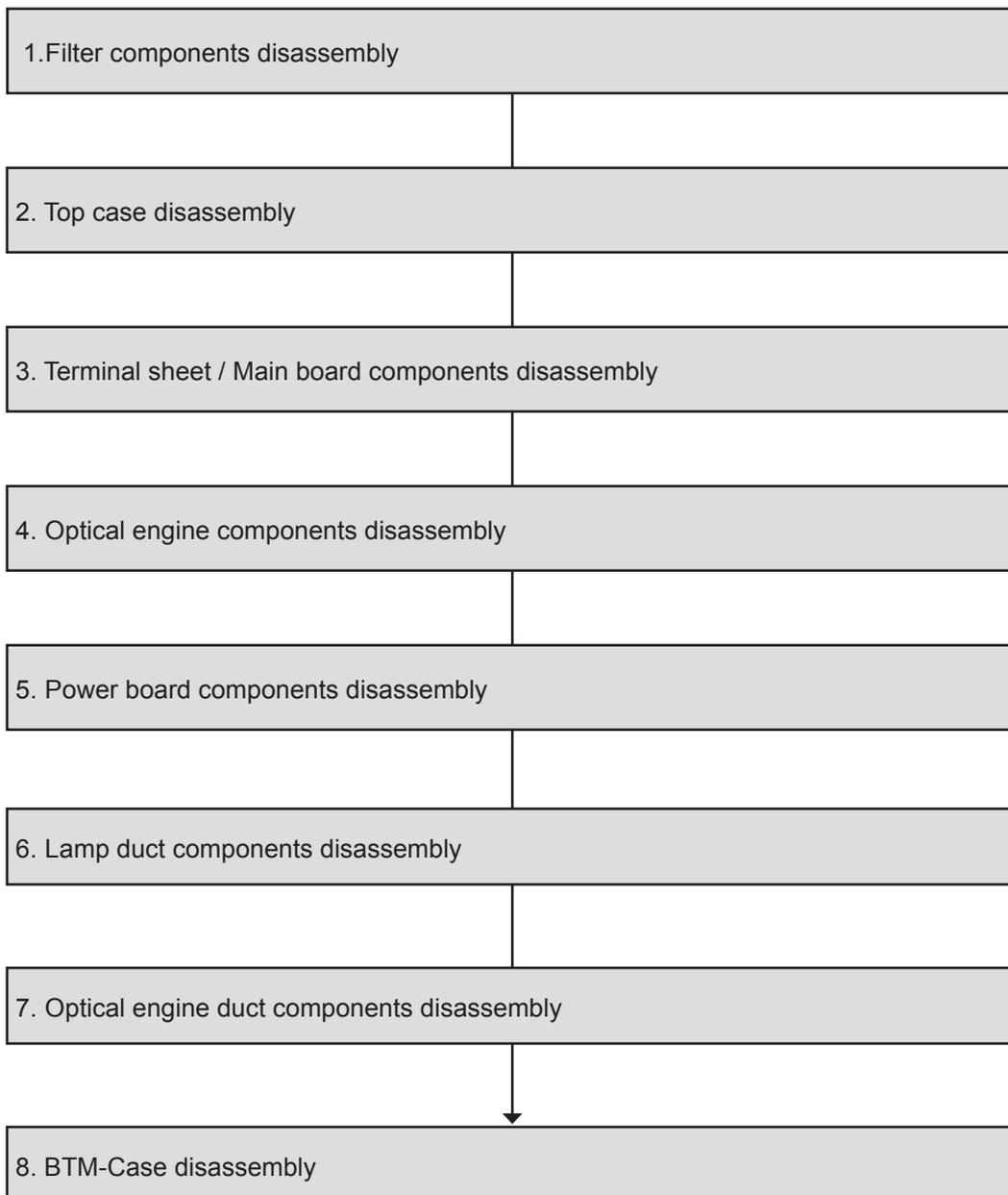
Remove the mechanical groups according to the following procedure. The following steps are the basic processes and some unnecessary steps may be ignored.



Note:

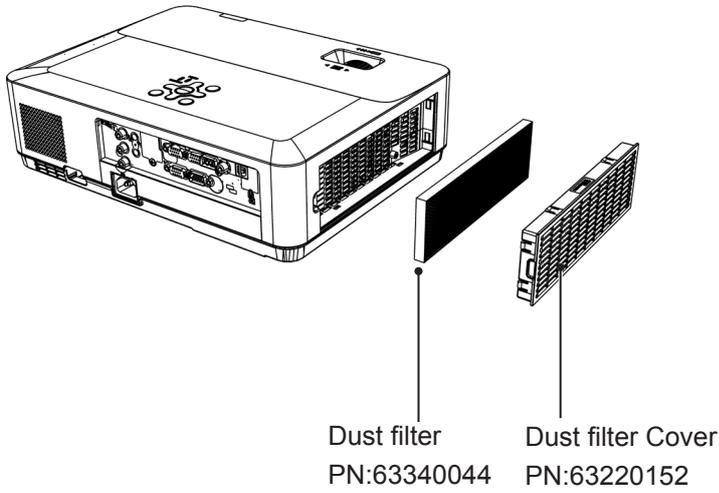
ò Please return parts and screws where it belongs, as it may influence the projector's performance and security.

Screw Description (Type D x L) mm	
Tapping screw-T	Mechanical screw-M
	



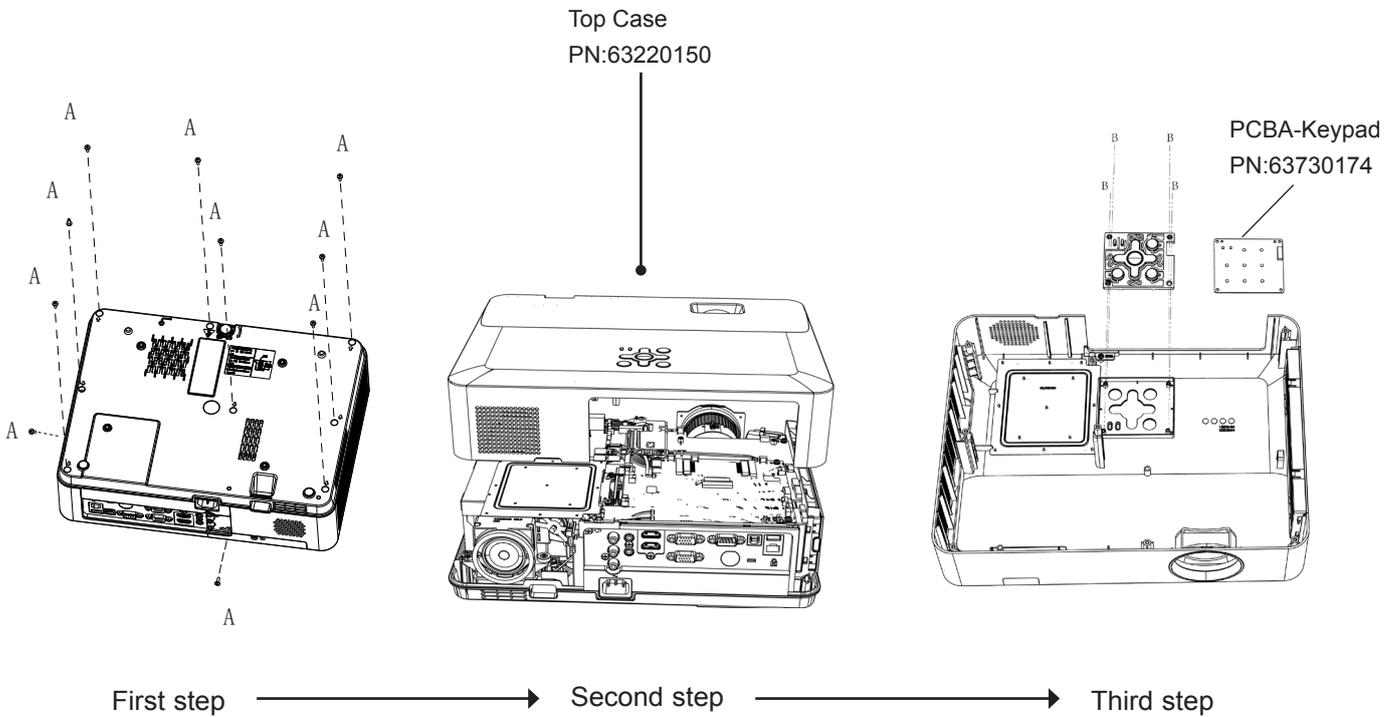
1. Filter disassembly :

1. Remove and take out the dust filter and the dust filter cover.



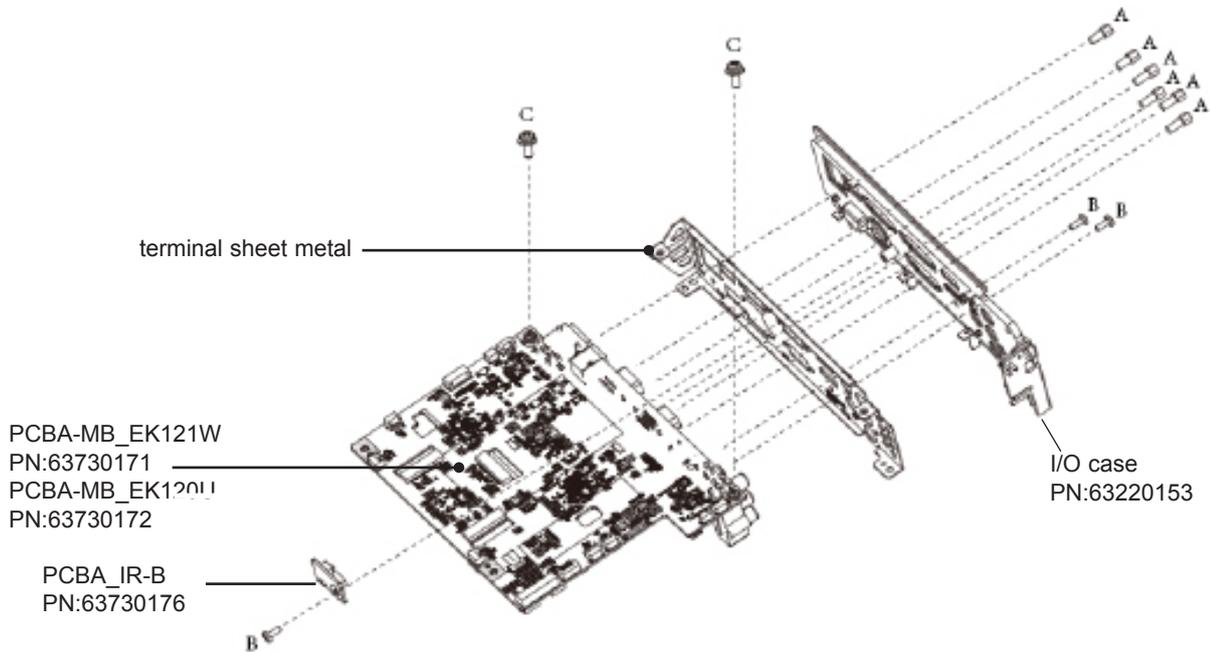
2. Top case disassembly :

1. Remove 10 screws A (T3X8), then take out the Top Case.
2. Remove 4 screws B (T2X5), then take out the keypad components on the Top Case.



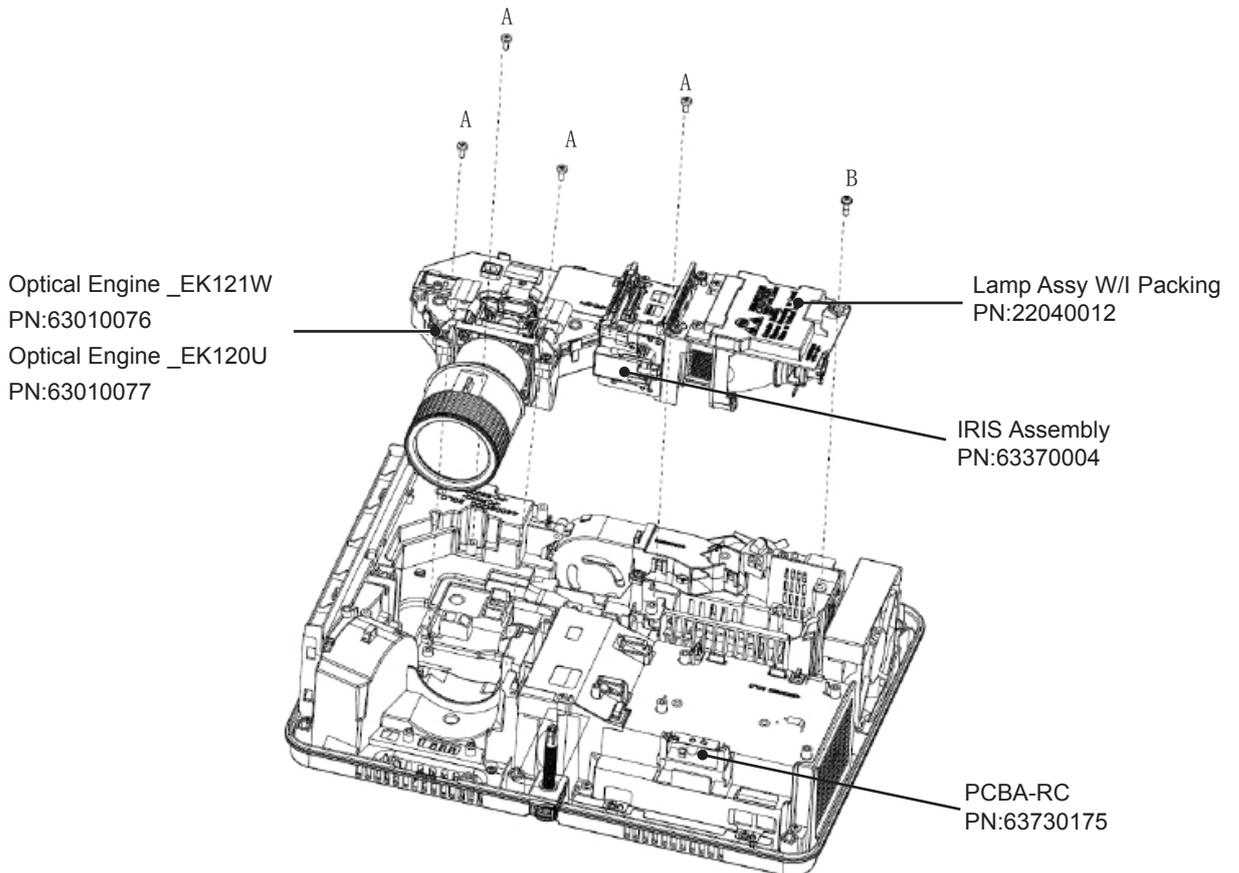
3. Terminal sheet / Main board components disassembly

1. Remove 6 screws A (M3X6), 3 screws B (T3X8) and 2 screws C (M3X8).
2. Then remove the terminal sheet metal and I/O case.



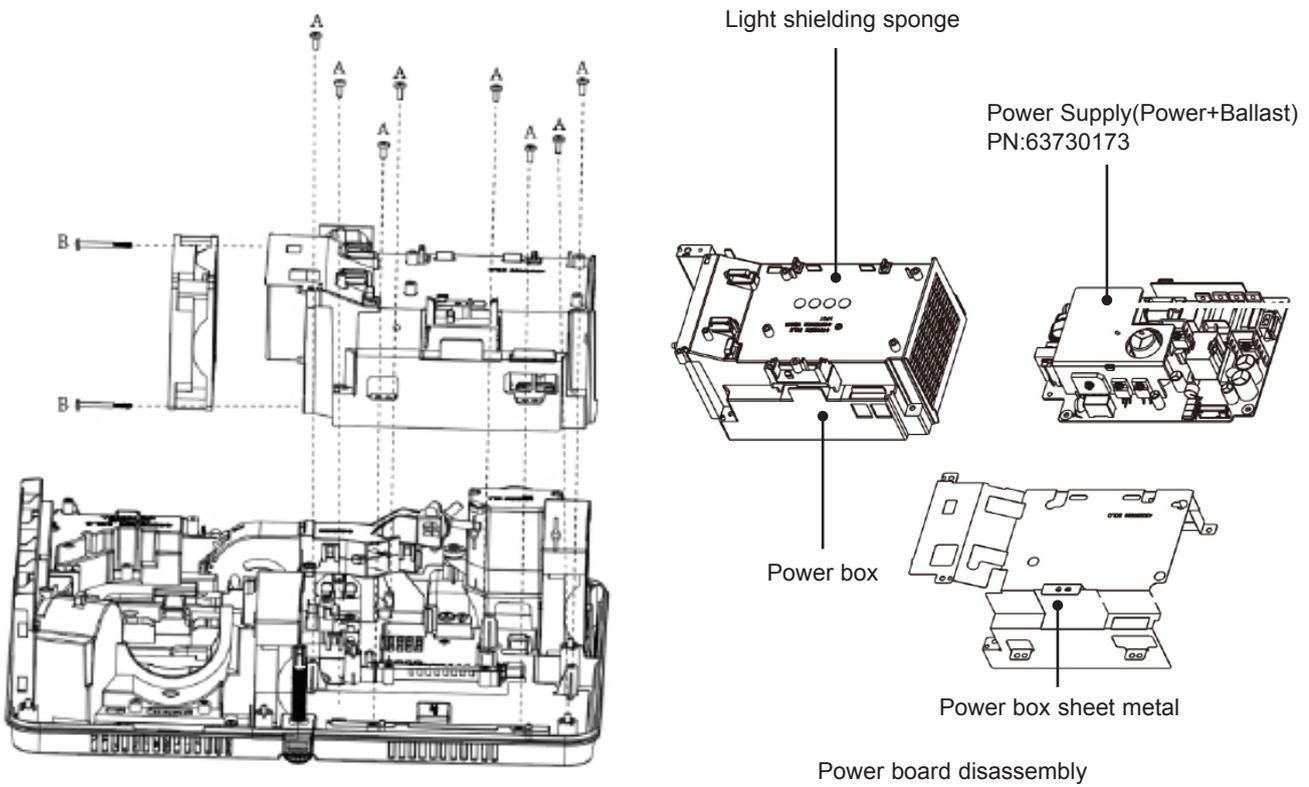
4. optical engine component disassembly :

1. Remove 4 screws A (M3X8), 1 screw B (M3X10), then take out the optical engine component.



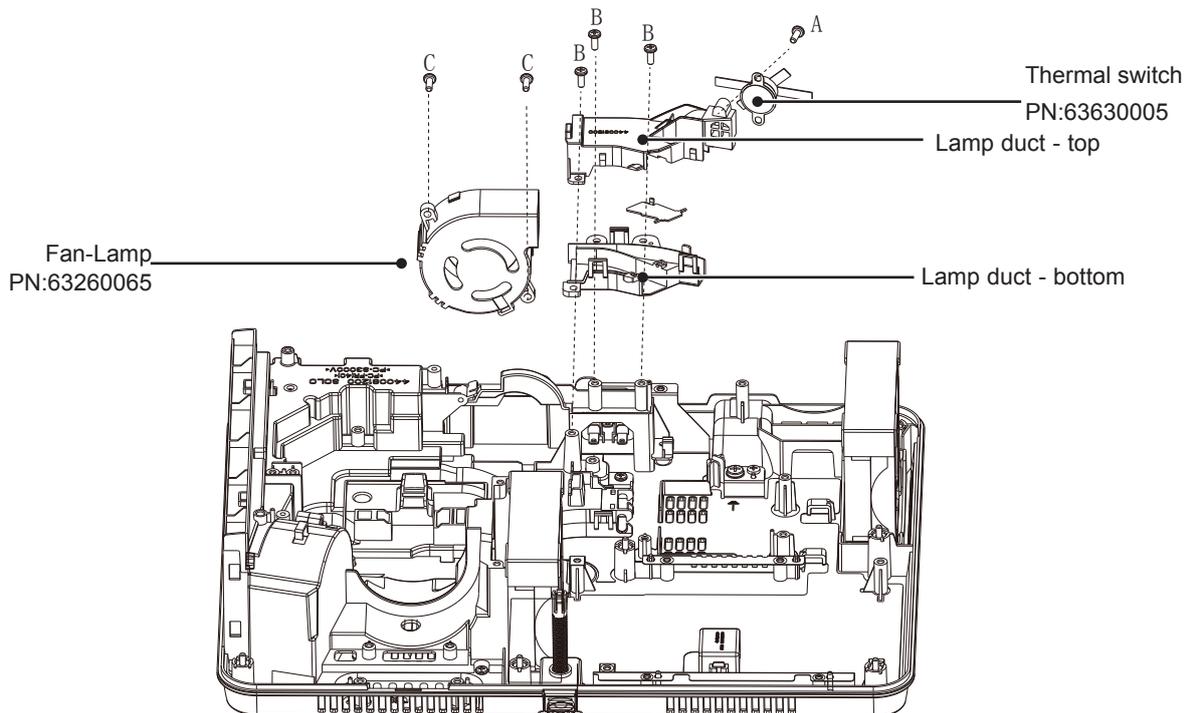
5. Power board component disassembly :

1. Remove 8 screws A (T3X8), 2 screws B (T3X10), then take out the power board component.



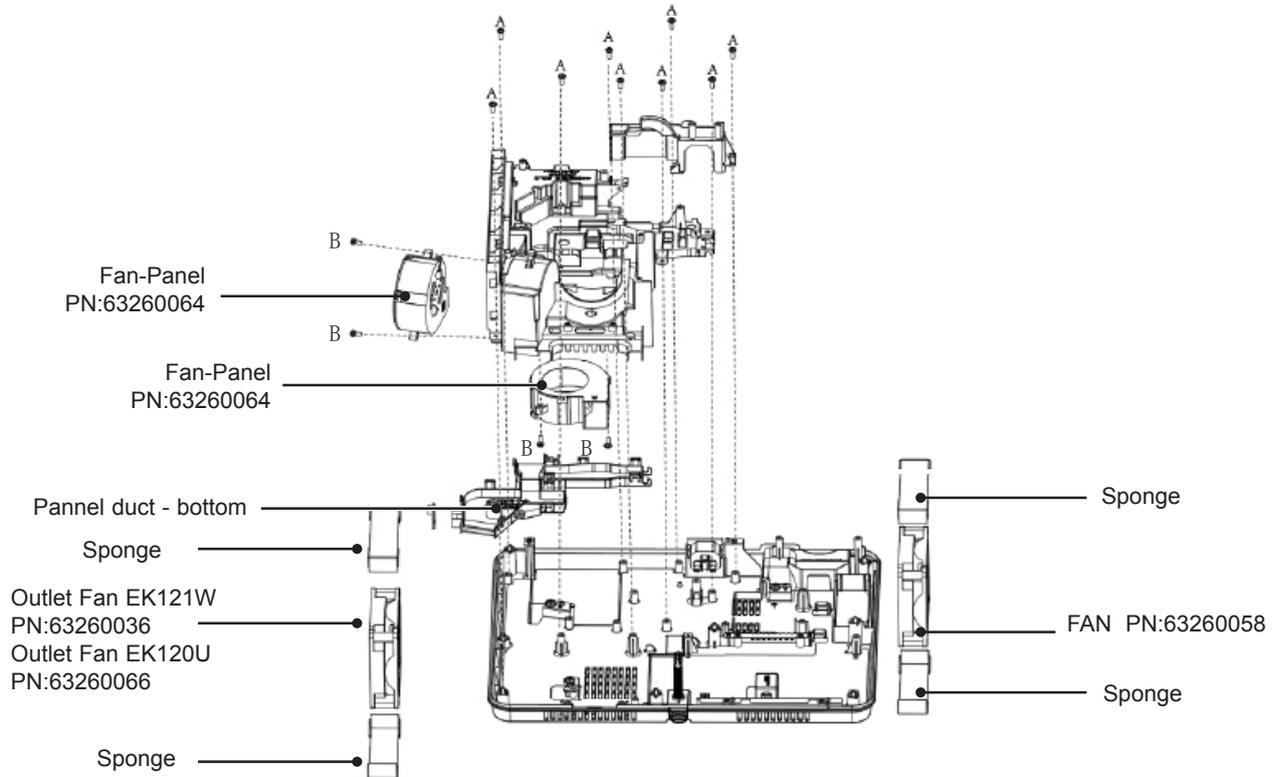
6. Lamp duct component disassembly :

1. Remove 1 screw A (M3X8), then take out the thermal switch.
2. Remove 3 screws B (T3X8), then take out the lamp duct component.
3. Remove the lamp duct buckle, then take out both the top and bottom lamp duct.
4. Remove 2 screw C (T3X8), then take out the Fan-Lamp.

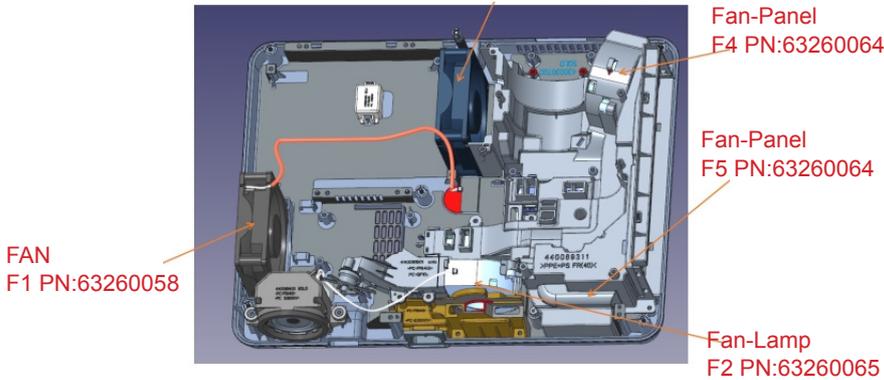


7. Optical engine duct disassembly :

1. Remove 9 screws A (T3X8), then take out the optical engine duct component.
2. Remove 4 screws B (T3X12), then take out the Fan component.

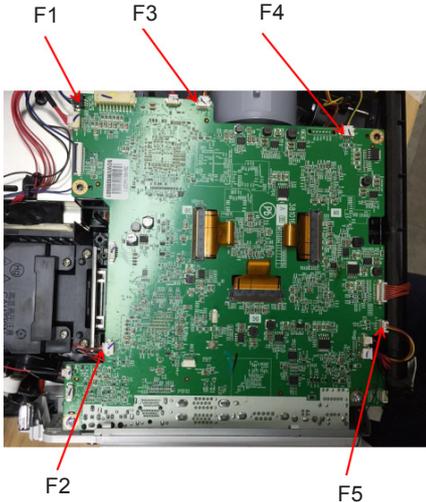


Outlet Fan
F3 WXGA PN:63260036
F3 WUXGA PN:63260066

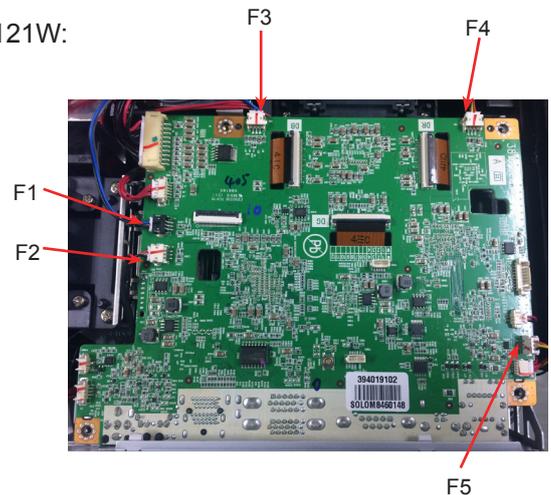


Fan Driver	P/N	Part Name	Spec
F1	63260058	FAN	12V0.21A
F2	63260065	Fan-Lamp	12V0.14A-L
F3	63260036	Outlet Fan EK121W	12V0.21A
F3	63260066	Outlet Fan EK120U	12V0.15A
F4	63260064	Fan-Panel	12V0.15A-R
F5	63260064	Fan-Panel	12V0.15A-R

■ EK-120U:

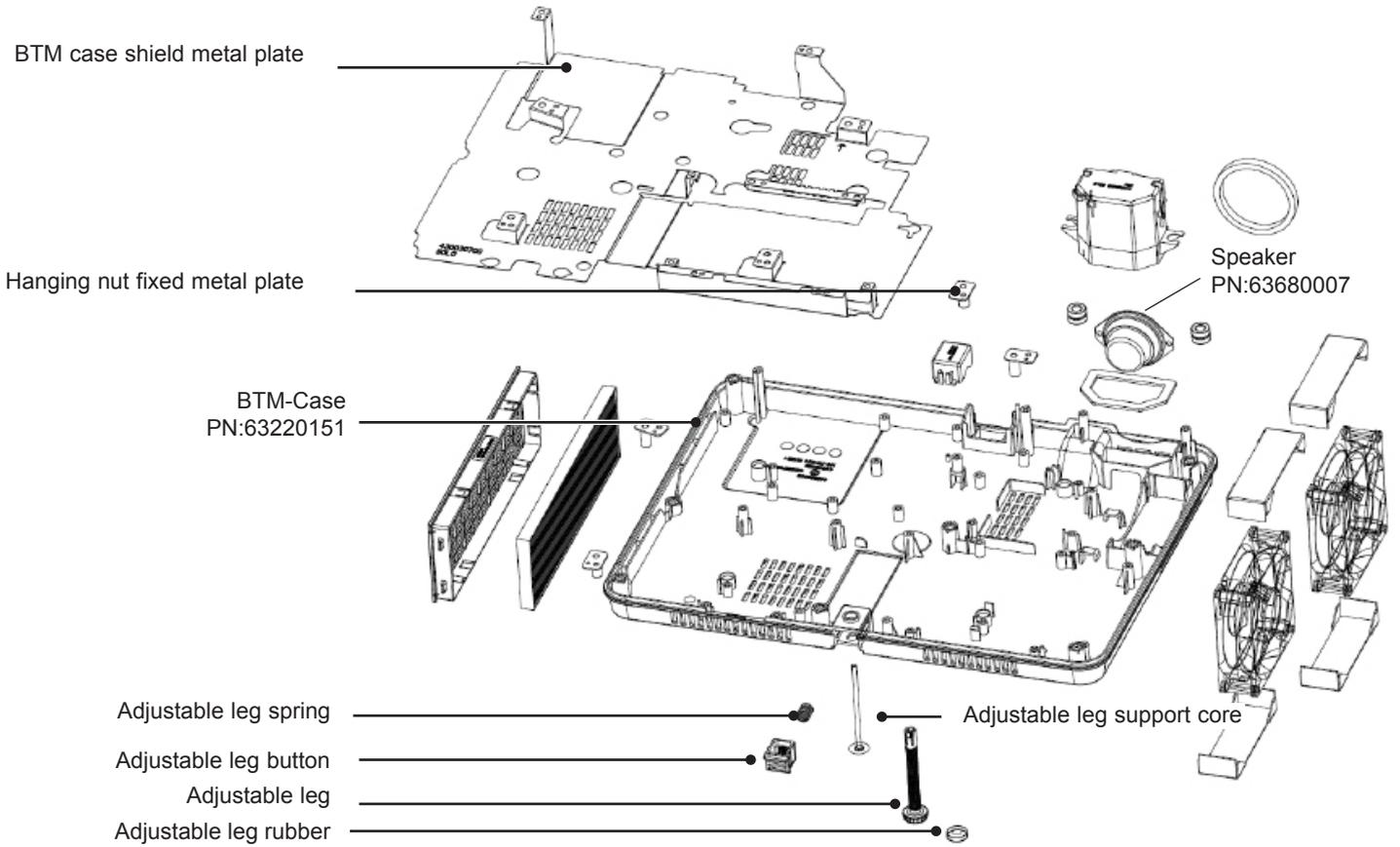


■ EK-121W:



8. BTM-case disassembly :

1. Remove the shield metal plate, adjustable leg and adjustable leg button.



Adjustment

Adjustment after replacement parts

● : Adjustment ○: Check

		Remove / Replace parts						
		LCD/ Prism	Condenser lens(OUT)	Polarizing			POWER board	MAIN board
				R	G	B		
Optical adjustment	Optical center adjustment	○	●					
Electrical adjustment	Fan voltage adjustment							●
	Check and set the screen type	○						●
	Anti-voltage adjustment							●
	Keystone adjustment							●
	EEPROM data transmission * 1							●
	EDID data transmission							●

✓ **Note:**

* 1 When adjusting the EEPROM data transmission, the following data will be transferred from the original data to the new board:

- Service adjustment data (fan voltage regulator / flicker frequency adjustment)
- Uneven color correction data
- Gamma correction data

✓ **Note:**

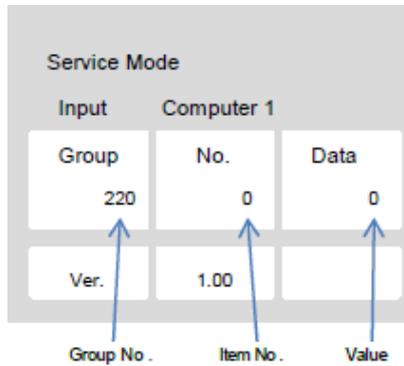
Because the parts have been adjusted from the factory, and by the non-professional adjustments, the projector may be damaged, so the adjustments are not recommended. If you need to adjust, we do not responsible for the damage.

Service Mode

Service adjustment menu operation

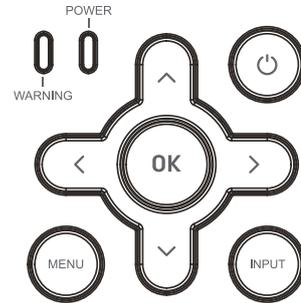
1) Enter Service Mode

Press and hold Menu button and ▼ button for more than 3 seconds. Then Service Mode Menu will display to enter to Service Mode shown as follows.



The screenshot shows a menu titled "Service Mode" with a sub-header "Input Computer 1". Below this, there are three columns: "Group", "No.", and "Data". The "Group" column has a value of "220", the "No." column has a value of "0", and the "Data" column has a value of "0". Below these values, there are three labels: "Group No.", "Item No.", and "Value". Blue arrows point from these labels to their respective values in the menu.

Group	No.	Data
220	0	0
Ver.	1.00	



✓ **Note:**

Be careful not to change the data unintentionally. It may adversely affect product quality.

2) How to operate

Press MENU button to select the "Group" item, and press ▲ or ▼ button to adjust the number. Then press MENU button to select the "No." item, and press ▲ or ▼ button to adjust the number. Adjust "Data" item by repeating the same steps.

3) Exit Service Mode

Press ⏻/| button to exit Service Mode.

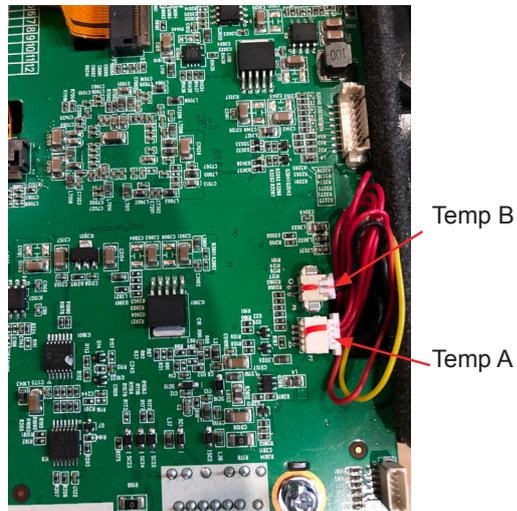
4) Error History Log

Enter Service Mode and choose Group 220.
 Look at the right hand side item "Data Code".
 Press MENU button to select the "No." item.
 Press the ▲ button to change the number.
 No. 0: the last error
 No. 1: the 2nd last error
 No. 2: the 3rd last error
 :
 No. 49: the 50st last error
 Please note, Data Code only shows while the unit has detected problems as following list.
 If the problem is not in this list, it will not been detected.

Data Code	indication	Defective indication details
+1000	Power fail	MB abnormal
+1001		Fan abnormal
+1100	Power management	Power management shutdown
+3000	Lamp lighting up fail	
+3100	Lamp time over	Tnormal>10000H
+2000	External tempA	Sensor tempA over range error
+2001		Sensor tempA read error
+2100	Internal tempB	Sensor tempB over range error
+2102	Temp different B-A error	

Temp.sensor

Sensor	P/N	Detect from
Temp A	63730089	External air
Temp B	63630008	Air intake



Electric adjustment

✓ **Note:**

The circuit has been accurately adjusted at the factory. DO NOT attempt to adjust the following circuit as it may cause serious damage to property and product safety unless you have to adjust it during maintenance. Before adjustment, please turn on the projector to preheat at least 10 minutes.



✓ **Caution:**

Take the UV radiation measures to protect the eyes and skin during maintenance.



✓ **Note:**

Make sure to complete these adjustments within 25 minutes to protect against UV radiation.

1. ADC adjustment

Input signal

Computer Signal..... 0.7Vp-p/75 Terminal (XGA16 Gray Scale Mode Diagram)

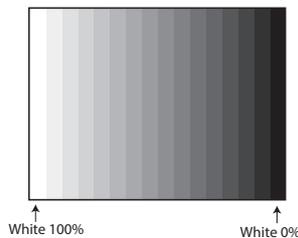
Component Video Signal....1.0Vp-p/75 Terminal (Component Video Signal) (480i 100% Color Bar)

Input signal type

VGA Signal Source Input

1. When choosing VGA channel, input 16 gray scale pattern.
2. Enter service mode, select group 260, item 0, change the setting value from "0" to "1";
3. When OK appears, the adjustment ends.

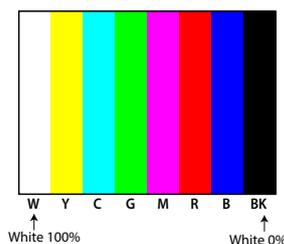
16 Gray Scale Pattern Diagram



Component Video Signal Source Input

1. When choosing COMPONENT channel, enter 8-color 100% color bar map;
2. Enter the service mode, select group 260, item 0, change the setting value from "0" to "1";
3. When OK appears, the adjustment ends.

8-colour 100% color bars map



✓ **Note:**

* The above adjustments should be made when replacing the MainBoard

* Refer to "Service adjustment menu operation" for entering service mode and adjust the service data.

2. Fan Voltage Adjustment

Equipment digital voltmeter

1. Enter the service mode.
2. Select item 250 and adjust the item according to the following, through changing the item numerical test.

Group-Item	Test Point	Adjustment Value
250-0	FAN-A1(F1)	4.0+0.1 Vdc
250-1	FAN-A1(F1)	12.5+0.1 Vdc
250-2	FAN-B1(F2)	4.0+0.1 Vdc
250-3	FAN-B1(F2)	12.5+0.1 Vdc
250-4	FAN-C1(F3)	4.0+0.1 Vdc
250-5	FAN-C1(F3)	12.5+0.1 Vdc
250-6	FAN-D1(F4)	4.0+0.1 Vdc
250-7	FAN-D1(F4)	12.5+0.1 Vdc
250-8	FAN-E1(F5)	4.0+0.1 Vdc
250-9	FAN-E1(F5)	12.5+0.1 Vdc

* The above adjustments should be made when replacing the MainBoard.

3. Pole Voltage Adjustment

1. Enter the service mode.
2. Select Group 30 and change the data values according to the following instructions. Through adjustment Number to get the minimum number to make the screen flicker.

Group-item	adjustment
30 - 3	Red Scintillation
30 - 4	Green scintillation
30 - 5	Blue Scintillation

* The above adjustments should be made when replacing the optical components or MainBoard.

4. Keystone correction

Input signal no signal

1. Adjust the support to a minimum range, then place the projector horizontally and enter service mode.
2. Select group 102, item 3, and set values from "0 to 5".
3. Press the executive key and the Keystone correction will be turned on.
4. When finished, the "OK" information will appear on the screen.
5. Press any key on the projector or remote control and the OK information will disappear. Group 102, item 3, the value will return the initial value of "0".

* The above adjustments should be made when disassembling and assembling the MainBoard.

5. Color correction adjustment

After replacing panel, it is necessary to use 50% or 30% gray scale images to confirm the problem of uneven color. If partial color bias occurs, please set the corresponding service mode to 0. The operation is as follows:

Input signal 50% gray field or 30% gray field

1. Enter the service mode.
2. Select group 32, item 1, and set the value from "1" to "0".

* This operation is required when replacing the optical machine or MainBoard components.

6. White Balance Adjustment

After replacing panel or MainBoard, 16 gray scale is needed to confirm the color deviation of the picture. If the color deviation of the picture occurs, please adjust the white balance manually. The operation is as follows.

input signal 16 Gray Scale Pattern Diagram

1. Enter the service mode.
2. Select Group 35 and change the data values according to the following instructions.
By adjusting the values, we can get the values that make the gray scale color normal.

Group-item adjustment

35 - 0	Red
35 - 1	Green
35 - 2	Blue
35 - 3	Red
35 - 4	Green
35 - 5	Blue

When adjusting, please first adjust the dark level of 16 gray scale, and then adjust the bright level.

0-2 adjustments have obvious influence on dark order.

3-5 adjustments have obvious influence on the brighter order.

* The above adjustments should be made when replacing the optical components or MainBoard.

Trouble shooting

Light indicator and projector state

Light indicator indicates the projector state.

If you have met kinds of unexpected problems when you operate the projector, please do as the following table says to check the operation of the projector. Check light indicator to learn state of your projector to ensure your projector in the best state. Take proper maintenance measures according to the light indicator status.

■ Light indicator status

Check light indicator to learn state of your projector.

Light indicator		State of your projector
WARNING (Red)	POWER (Red / Green / Yellow)	
		Your projector is in Off status (without AC power supply). Your projector detects the main board abnormality.(with AC power supply)
		Your projector is in standby status. Press Power button to turn it on.
		Your projector is in normal status.
		It is in ready status or the lamp is cooling.
		Your projector is in Ready mode.
		Your projector detects the temperature abnormality and switches into cooling mode.
		Your projector detects the temperature abnormality and switches into standby mode.
		Your projector detects the voltage(16.8V) abnormality and switches into standby mode.
		Your projector detects the FAN abnormality and switches into cooling mode.
		Your projector detects the lamp abnormality and switches into cooling mode.
		Your projector detects the lamp abnormality and switches into standby mode.
		Your projector detects its usage time \geq the life of the projector and < 1.1 times of the life of the projector.
		Your projector detects its usage time ≥ 1.1 times of the life of the projector.

 ... Green

 ... Red

 ... Yellow

 ... Turns off

 ... Flashing green

 ... Flashing red

 ... Flashing yellow

✓ Note:

- It is likely to something wrong inside the projector if the warning indicator still on or flashing, after taking measures above. Please turn off the projector, otherwise it may result in electric shock or fire.
- DO NOT turn on the projector when you have checked something abnormal. Unplug the AC power cord quickly, insert again, then turn on the projector. If the projector is shutting down once again, that means that there is some serious problem with it. Do not continue to operate the projector, or it may result in electric shock or fire.

No power

We can identify the abnormal area through light indicator status.
Connect the AC power cord, and press  button to check light indicator.

- All light indicators will be Off indicates the main board abnormal. Please check the main board circuit and component.
 - Check AC power cord, POWER substrate and the thermal switch.
 - The thermal switch will be turned off when the ambient temperature of thermal switch is higher than 100°C.(P.6)

Power on abnormal

Follow the steps below for check:

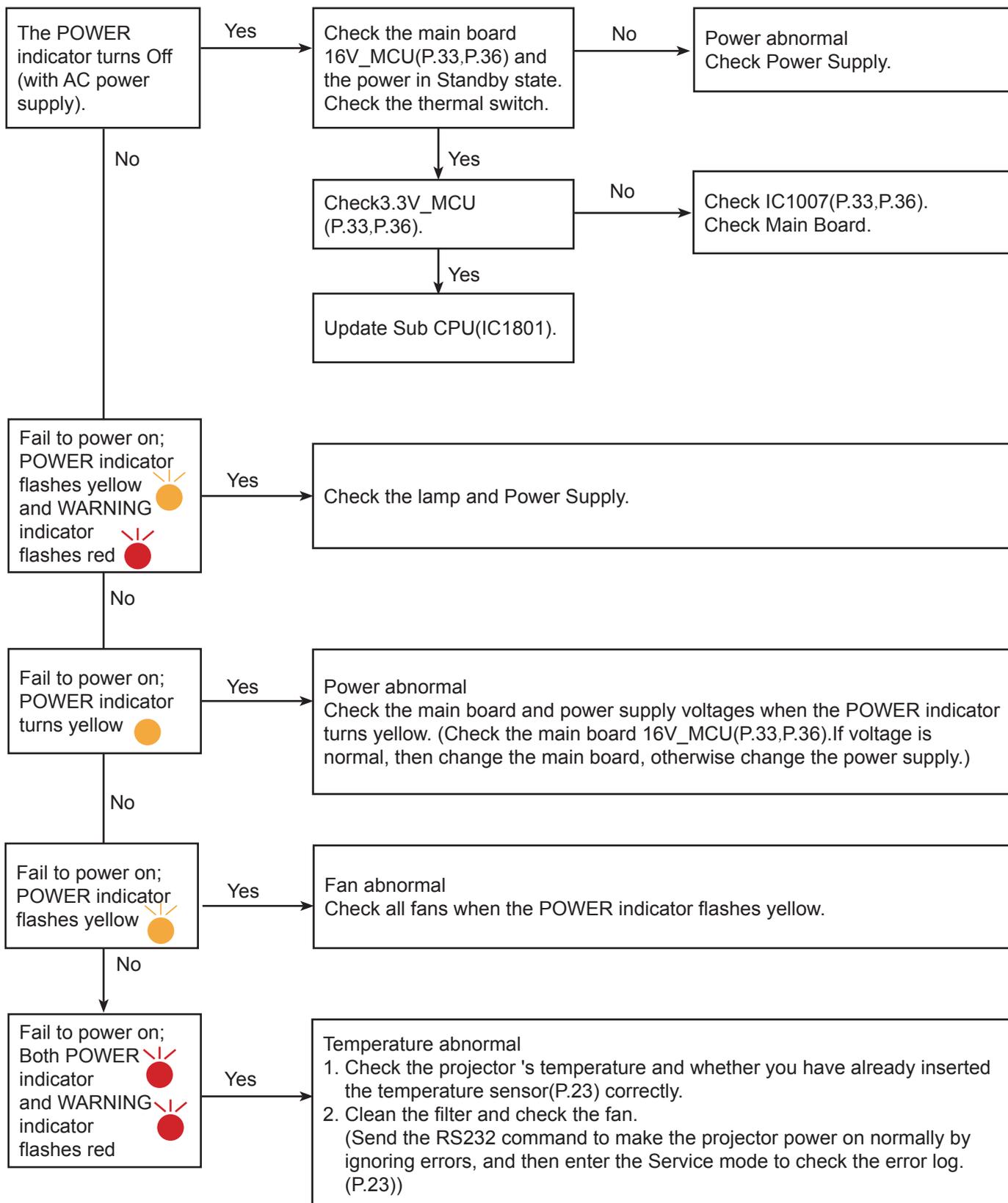
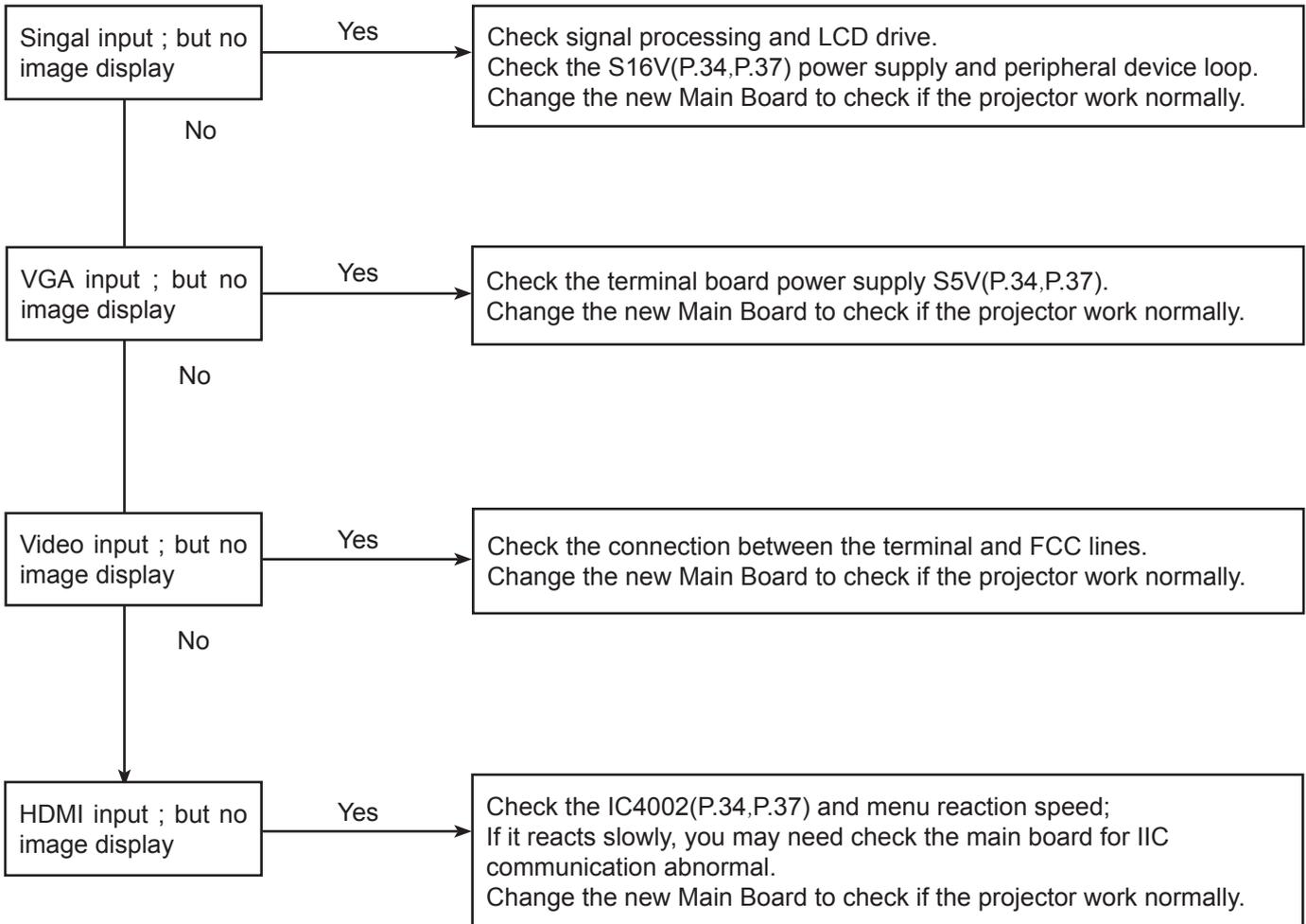


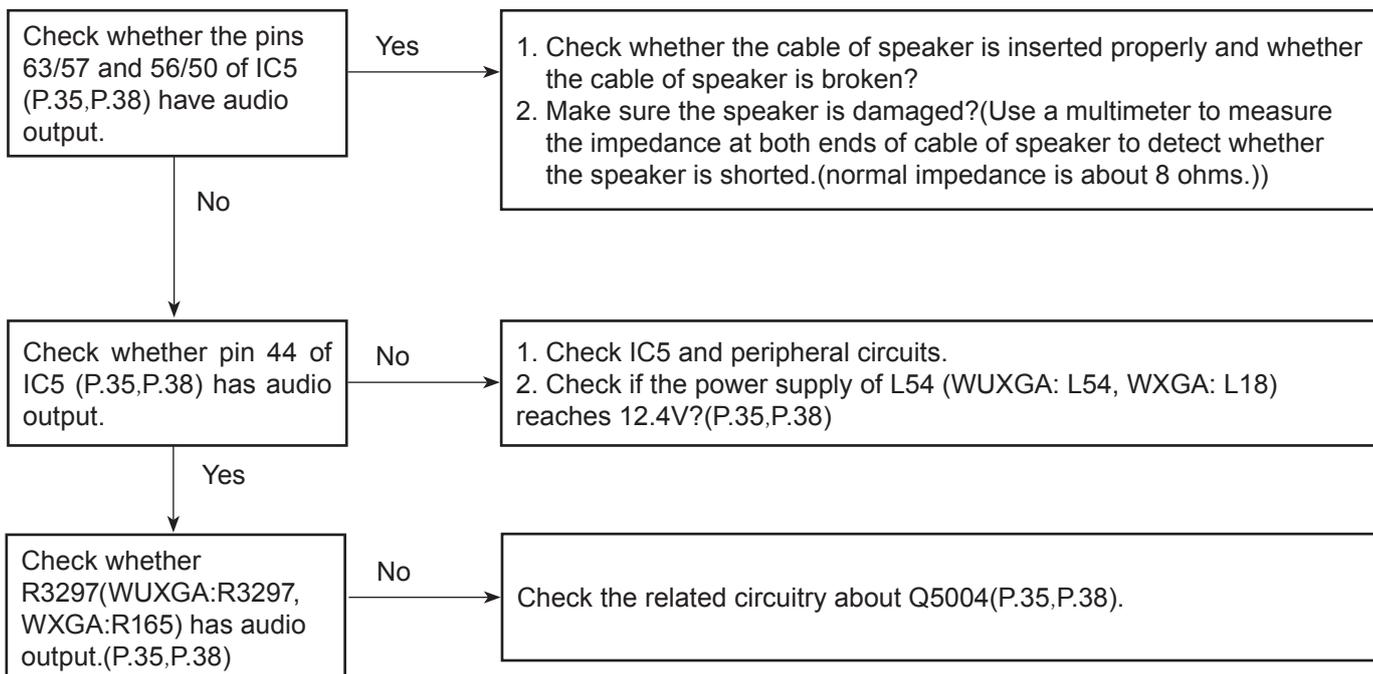
Image display abnormal

Check the image as the following steps.



No sound

Follow the steps below for check:



Trouble shooting

Before calling your dealer or service center for assistance, check the items below once again.

- Make sure you have properly connected the projector to peripheral equipment.
- Make sure all equipment is connected to the AC outlet and the power is turned on.
- If the projector does not project an image when it is connected to a PC, restart the PC.

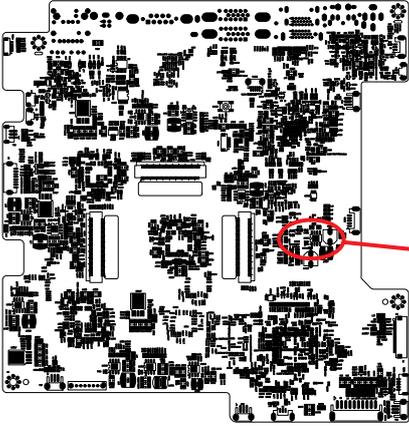
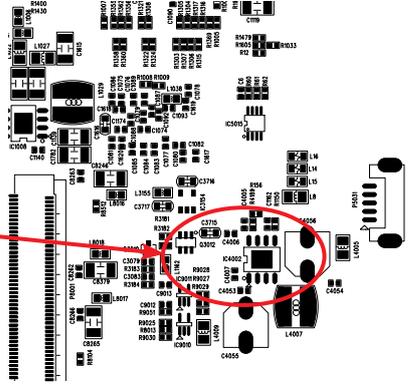
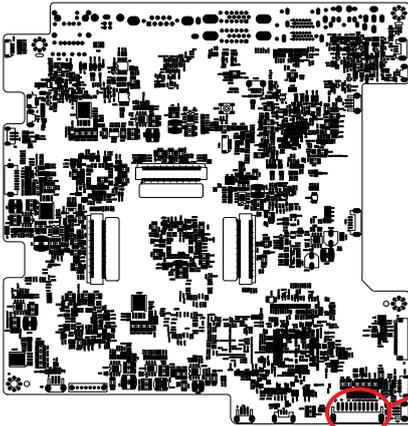
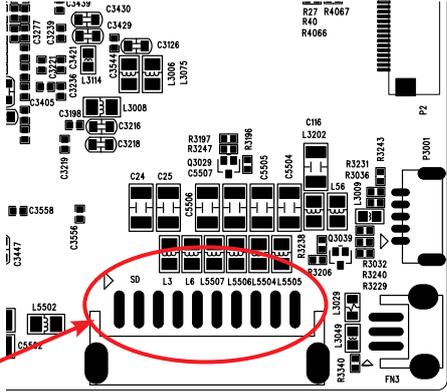
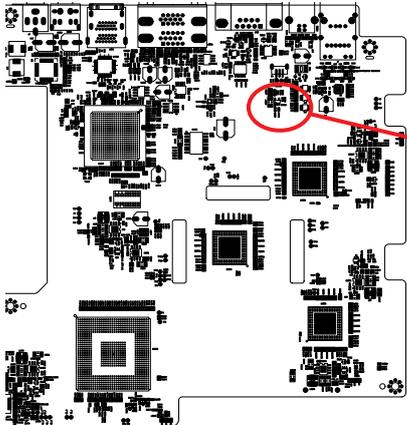
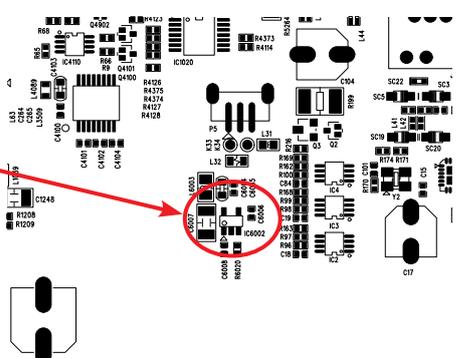
Problems	Solutions
No power	<ul style="list-style-type: none"> - Plug the power cord of the projector into the AC power outlet. - Check whether the POWER indicator lights red. - Only when the POWER indicator lights red you can power on the projector again. - Check the WARNING indicator. If it is blinking red, the projector can not be powered on. - Unlock the "Key lock" function.
No initial displaying	<ul style="list-style-type: none"> - Make sure that Logo function is not set to "Off".
Initial displaying is inconsistent with factory defaults	<ul style="list-style-type: none"> - Make sure that Logo function is not set to "Off" or "User".
Input signals are automatically switched (can't be switched)	<ul style="list-style-type: none"> - Properly adjust the Input search function.
Ambiguous images	<ul style="list-style-type: none"> - Adjust the focus. - Set a more proper projection distance. - Check whether the lens needs to be cleaned. - When moved from an environment with low temperature to the one with higher temperature, water will be condensed on the lens. If so, you have to wait till the condensed water disappears.
Image turns over leftward/ rightward Image turns over upward/ downward	<ul style="list-style-type: none"> - Check the function of "Ceiling/rear". - Check the function of "Ceiling".
Image not bright enough	<ul style="list-style-type: none"> - Check whether the contrast or brightness is adjusted correctly. - Check whether the Image mode is properly selected. - Check the function of lamp brightness adjusting.
No image	<ul style="list-style-type: none"> - Check the connection between Computer or video equipment and the projector. - Check whether the signal from Computer is correct. If connected to certain laptops, the settings of their video adapters need to be changed. You can refer to the operating instructions of the Computer for such modification. - Images can show up only about 20 seconds after the projector is powered on. - Check the input signal, color system, video system or Computer system mode. - Make sure that the temperature doesn't exceed the permitted operating temperature(41°F-104°F [5°C - 40°C]). - If BLANK function is enabled, no image will appear on the screen. You can then press the BLANK button or other button on the remote control.
No HDMI image display	<ul style="list-style-type: none"> - If the image is not projected properly, please switch the settings of "Image", "Sound" or "HDMI EQ setup" in "HDMI setup" menu.

No Sound	<ul style="list-style-type: none"> - Check the audio cable connection from audio input source. - Adjust the audio source. - Press the VOLUME + button. - Press the Mute button. - When the AUDIO OUT is plugged in, the projector's built-in speaker is not available. - Is the image projected? The sound can only be heard when the image is projected.
The color is abnormal	<ul style="list-style-type: none"> - Check the input signal, color system, video system or computer system mode. - Make sure that Blackboard is not selected in Image Mode menu.
Auto PC adj. function does not work.	<ul style="list-style-type: none"> - Check the input signal. Auto PC adj. function can not work when 480p, 576p, 720p, 480i, 576i, 1080i or 1080p is selected.
The Settings cannot be saved after turning off the projector.	<ul style="list-style-type: none"> - Make sure you have selected "store" after you changed the settings. Some settings can't be saved if "store" is not selected.
Power management function does not work.	<ul style="list-style-type: none"> - Power management function can not work while Freeze or Blank function is running.
Logo function does not work.	<ul style="list-style-type: none"> - Check connections and input source.
Auto setup function does not work.	<ul style="list-style-type: none"> - Make sure no function in the Auto setup menu is set to "Off". - Make sure "On" is not chosen in the Ceiling function.
The image is distorted or disappears.	<ul style="list-style-type: none"> - Use "Auto PC Adjustment" function to automatically adjust Fine sync, Horizontal, Vertical and H.Size. - Adjust the keystone correction in "Keystone" menu.
PIN code dialog box appears at start-up	<ul style="list-style-type: none"> - PIN code lock is being set.
The remote control does not work.	<ul style="list-style-type: none"> - Check the batteries. - Make sure no obstruction is between the projector and the remote control. - Make sure you are not too far from the projector when using the remote control. Maximum operating range is 5 m. - Make sure the code of the remote control is conformed to that of the projector. - Unlock the Key lock function in the Setting menu for the remote control. - Make sure that the projector does not receive any fluorescent light interference.
Indicators light or flash	<ul style="list-style-type: none"> - Refer to indicators and projector condition to check the status of the projector.
"X" mark appears on the screen.	<ul style="list-style-type: none"> - Your operation is invalid. Operate correctly.
Top control cannot be operated.	<ul style="list-style-type: none"> - Unlock the Key lock in Setting -> Key lock.
Unable to unlock the Logo PIN code lock, Key lock or PIN code lock.	<ul style="list-style-type: none"> - Refer to P.8 to reset to default setting.

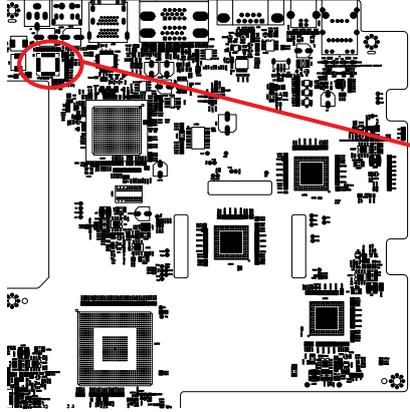
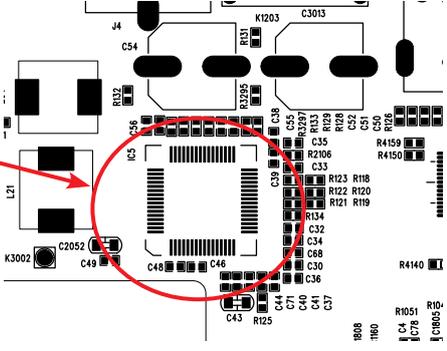
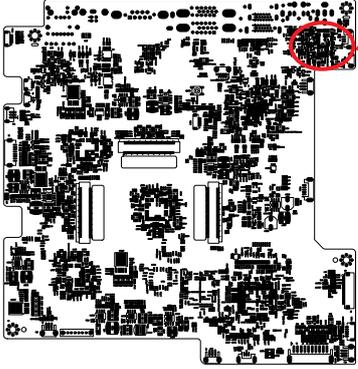
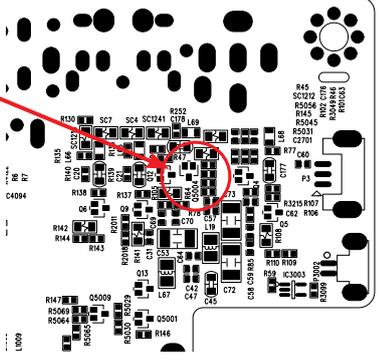
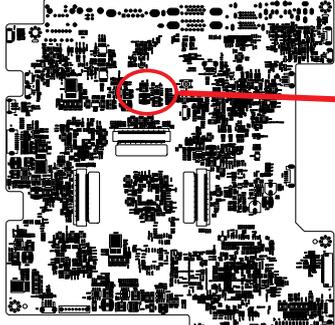
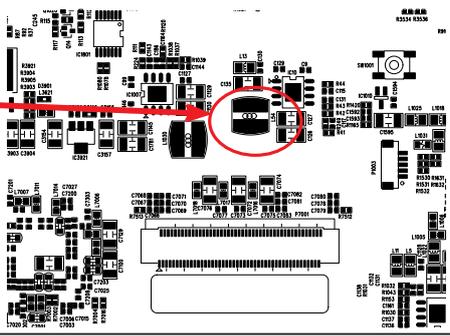
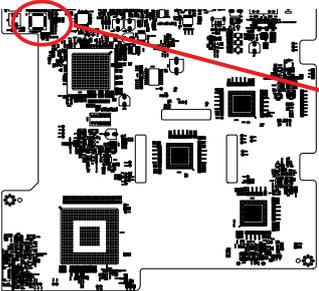
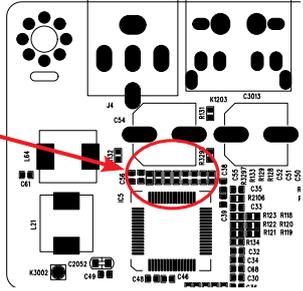
WUXGA:

item	Page	IC loction	IC model	IC PIN#	What volts are norml/NG
1	P.28	16V_MCU Main board (SD PIN1,6,7,8)	16V_MCU	Main board (SD PIN1)	Standby 11.4V (±5%)
			16V_MCU	SD PIN1,6,7,8	Power on 16.8V (±5%)
2	P.28	3.3_MCU	IC8	PIN3	3.3V (±5%)
3	P.28	IC1007	IC1007	PIN3	3.3V (±5%)

WUXGA:

item	Page	IC loction	IC model	IC PIN#	What volts are norml/NG
4	P.29	IC4002	IC4002	PIN3	5.5V (±5%)
			 		
5	P.29	S16V	S16V	Main board (PIN1)	ECO stand by 11.4V (±5%) , Power on 16.8V (±5%)
			 		
6	P.29	S5V	IC6002	PIN5	5V (±5%)
			 		

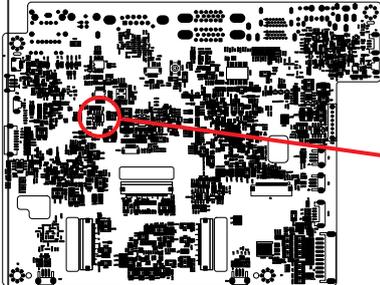
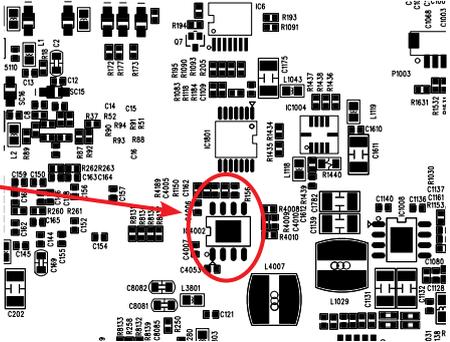
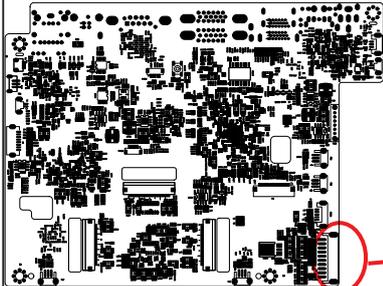
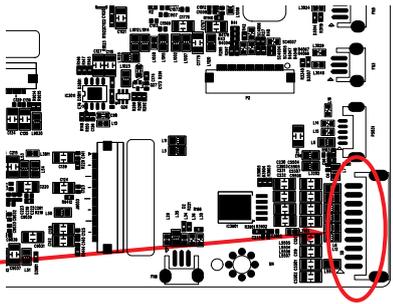
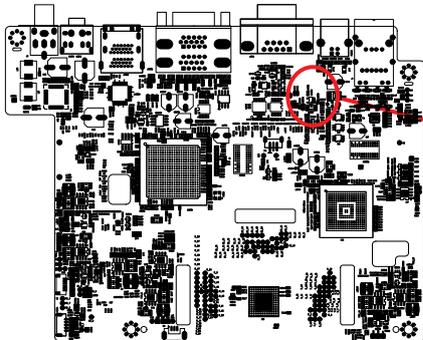
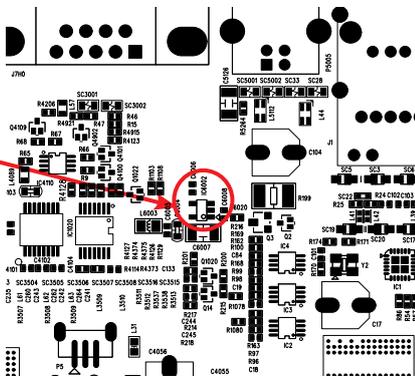
WUXGA:

item	Page	IC loction	IC model	IC PIN#	What volts are norml/NG
7	P.30	IC5	IC5	PIN44、63、57、56、 50	
					
8	P.30	Q5004	Q5004		
					
9	p.30	L54	L54		12.4V
					
					
10	P.30	R3297	R3297		
					
					

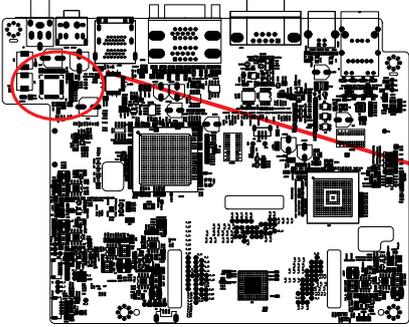
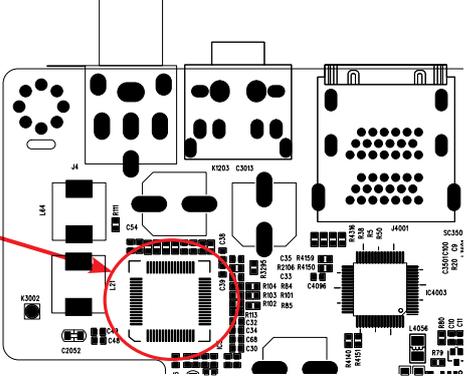
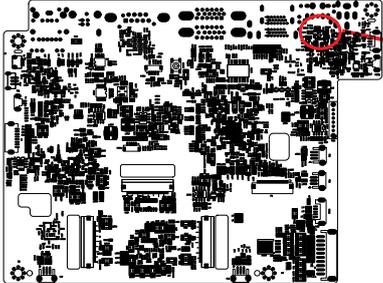
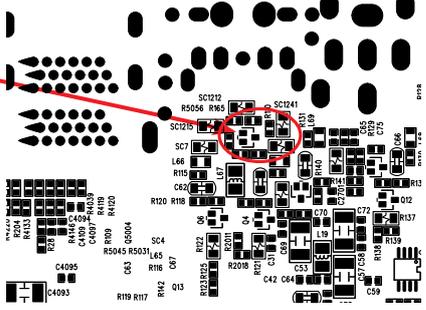
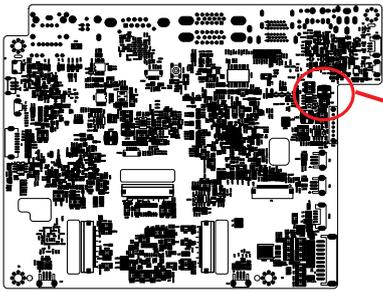
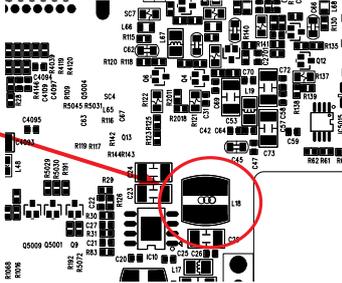
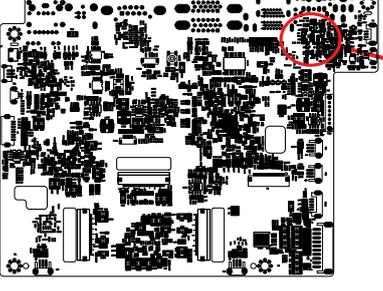
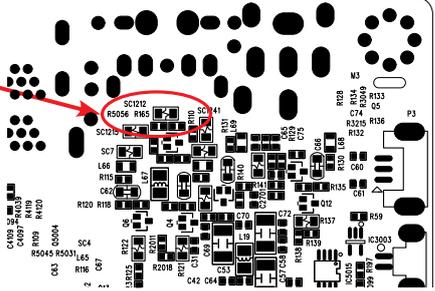
WXGA:

item	Page	IC loction	IC model	IC PIN#	What volts are norml/NG
1	P.28	16V_MCU Main board (SD PIN1,6,7,8)	16V_MCU	Main board (SD PIN1)	Standby 11.4V (±5%)
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2	P.28	3.3_MCU	IC8	PIN3	3.3V (±5%)
3	P.28	IC1007	IC1007	PIN3	3.3V (±5%)

WXGA:

item	Page	IC loction	IC model	IC PIN#	What volts are norml/NG
4	P.29	IC4002	IC4002	PIN3	5.5V (±5%)
			 		
5	P.29	S16V	S16V	Main board (PIN1)	ECO stand by 11.4V (±5%) , Power on 16.8V (±5%)
			 		
6	P.29	S5V	IC6002	PIN5	5V (±5%)
			 		

WXGA:

item	Page	IC loction	IC model	IC PIN#	What volts are norml/NG
7	P.30	IC5	IC5	PIN44、63、57、56、 50	
					
8	P.30	Q5004	Q5004		
					
9	p.30	L18	L18		12.4V
					
10	P.30	R165	R165		
					

Appendix-Specification

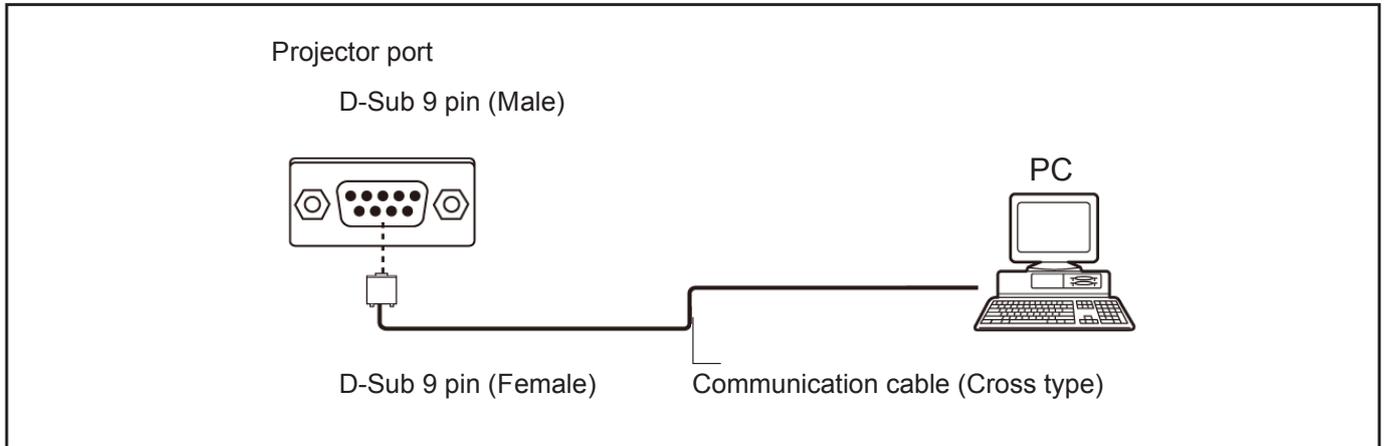
Mechanical properties	Dimensions	345mm(W) x 99mm(H)x 261mm(D)
	Net Weight	3.26Kg
	Adjustable foot	10°
LCD resolution	LCD system	0.64 TFT, active matrix
	LCD resolution	WXGA: 1280x800 / WUXGA: 1920x1200
Compatible signals	Color standard	PAL、SECAM、NTSC、NTSC4.43、PAL-M、PAL-N、PAL-60
	HDTV signal	480i、480p、576i、576p、720p、1080i、1080P
	Scanning frequency	Horizontal frequency: 15 KHz–100 KHz, Vertical frequency: 48-85Hz
Optical elements	Image size (diagonal lines)	30"-300", adjustable
	Projection distance	WXGA: 0.8m-8.4m(W) 1.3m-13.9m(T) WUXGA: 0.8m-8.4m(W) 1.3m-13.9m(T)
	Lens	F=1.7 ~2.11, f=17.5~29.01mm Manual zooming and focusing; Zoom Ratio: 1.66x optics
	Lamp power	225W/150W(ECO. mode)
Terminal	COMPUTER IN	Mini D-sub 15pin x1
	MONITOR OUT	Mini D-sub 15pin x1
	HDMI1	HDMI A type 19 pin
	HDMI2	HDMI A type 19 pin
	LAN	100 Base-TX (100Mbps)/10 Base-T (10Mbps), RJ45
	USB-B	USB connector (B type x1)
	USB-A	USB connector (A type x1)
	RS-232	D-sub 9 pin x1
	AUDIO IN	Mini Stereo 3.5mm x1
	AUDIO OUT	Mini Stereo 3.5mm x1
	MONO(R/L)	RCA connector * 2
VIDEO	RCA connector * 1	
Power	Voltage and power consumption	AC 100–240 V (Max3.6A), 50/60 Hz
	Fuse	6.3A/250V
	Internal speaker	10W RMS 8ohm x1
Remote control	Battery	AAA ALKALINE TYPE x 2
	Operating Range	±15° about 6 m or about 8 m straight
	Dimensions	110mm(L)X50mm(W)X18mm(H)
	Net Weight	38g
Accessories	Owner's Manual Quick Start Guide Remote control and batteries AC power cord (US Type x 1 / Euro Type x 1) VGA cable	

- The aforesaid specification is subject to change without prior notice.
- Liquid crystal panel is made on the basis of high standard, where 99.99% of the pixels are effective.
Due to the nature of the liquid crystal panel, a fraction of the pixels (0.01% or less) may be ineffective.

Serial port

The <Serial Input> terminal of the projector is in accordance with RS-232C, so the projector can be connected to the computer and controlled by the computer.

Connection



The pin layout and signal

D-Sub 9 pin (Male) Appearance diagram	Pin number	Signal name	Description
		①	—
②		RXD	Receive data
③		TXD	Transmission data
④		—	NC
⑤		GND	Ground connection
⑥		—	NC
⑦		RTS	Internal connection
⑧		CTS	
⑨		—	NC

Communication condition

Signal level	Compatible with RS-232C
Synchronization mode	Asynchronous
Baud rate	19 200 bps
Parity check	NO

Character interval	8-bit
Stop bit	1-bit
X Parameters	NO
S Parameters	NO

RS232 control mode

Serial connection

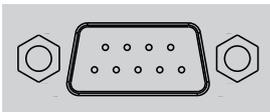
1.1 Port setting

Projector	Setpoint
Communication method	Asynchronous communication
Communication rate	19200
Length	8-bit
Parity check	NO
Stop position	1-bit
Flow control	NO

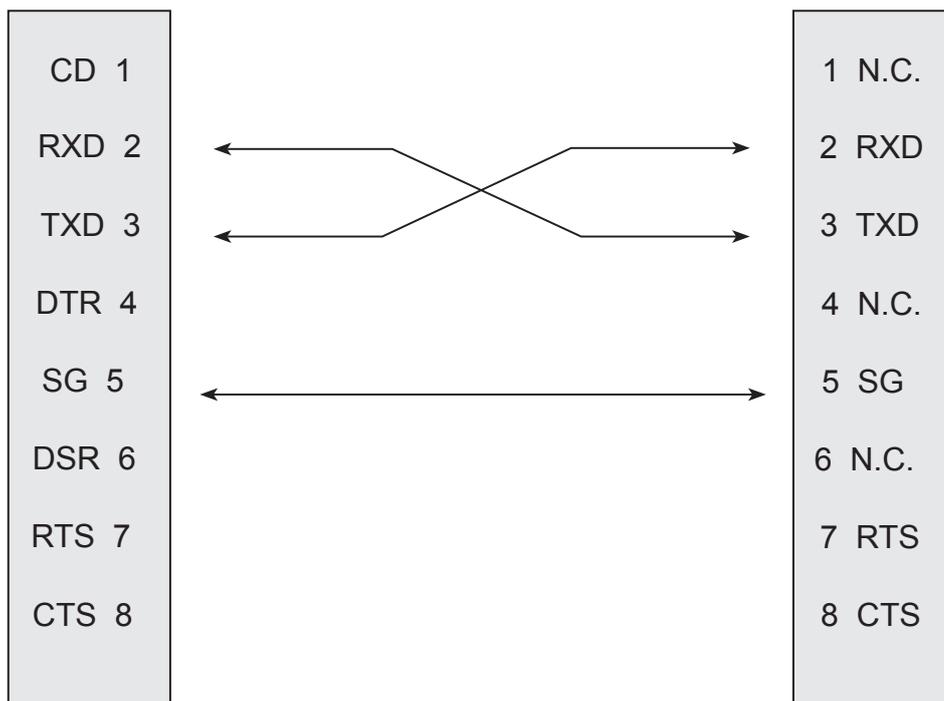
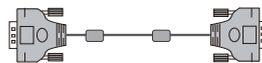
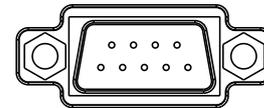
1.2 Connection mode

Can only use RS232 serial cross connect PC and projector.

VGA terminal



Projector terminal



2. Basic commands

Command is case sensitive, and enter Each command ends with [CR] (enter) .

Command	Option	Command	Option
C00	POWER ON	C07	Video
C01	POWER OFF(Immediatly)	C15	NETWORK
C02	POWER OFF	C16	MEMROY VIEWER
C36	HDMI1	C17	USB DISPLAY
C37	HDMI2	C05	VGA

2.1 POWER ON command

Command	"C00"[CR]		
Details	Power ON action. Do nothing when the projector is powered on. Send this command can force the end of the countdown in the countdown state.		
Return Value	Receive Successfully	[ACK] [CR]	
	Receive Unsuccessfully	" ? " [CR]	

2.2 POWER OFF command (Namely Power Off immediatly)

Command	"C01"[CR]		
Details	Power OFF action. Send this command can force your projector to power off during in power on state.		
Return Value	Receive Successfully	[ACK] [CR]	
	Receive Unsuccessfully	" ? " [CR]	

2.3 POWER OFF command

Command	"C02"[CR]		
Details	Power OFF action. A "POWER OFF " dialog box pops up when sending the POWER OFF command, and do once again can force your projector to power off. Send this command can force the end of the countdownthe in the countdown state.		
Return Value	Receive Successfully	[ACK] [CR]	
	Receive Unsuccessfully	" ? " [CR]	

Note: [ACK] "CR" is the return value for receiving valid commands.

Appendix-Serial control

2.4 HDMI 1 command

Command	"C36"[CR]	
Details	Select HDMI Input.	
Return Value	Receive Successfully	[ACK] [CR]
	Receive Unsuccessfully	" ? " [CR]

2.5 VGA command

Command	"C05"[CR]	
Details	Select VGAIN Input	
Return Value	Receive Successfully	[ACK] [CR]
	Receive Unsuccessfully	" ? " [CR]

2.6 NETWORK command

Command	"C15"[CR]	
Details	Select NETWORK Input .	
Return Value	Receive Successfully	[ACK] [CR]
	Receive Unsuccessfully	" ? " [CR]

2.7 MEMORY VIEWER command

Command	"C16"[CR]	
Details	Select MEMORY VIEWER Input .	
Return Value	Receive Successfully	[ACK]CR
	Receive Unsuccessfully	" ? " [CR]

Note: [ACK] "CR" is the return value for receiving valid commands.

2.8 USB Display command

Command	"C17"[CR]	
Details	Select USB Display Input	
Return Value	Receive Successfully	[ACK] [CR]
	Receive Unsuccessfully	" ? " [CR]

2.9 Video command

Command	"C07"[CR]	
Details	Select Video Input	
Return Value	Receive Successfully	[ACK] [CR]
	Receive Unsuccessfully	" ? " [CR]

2.10 HDMI 2 command

Command	"C37"[CR]	
Details	Select HDMI 2 Input.	
Return Value	Receive Successfully	[ACK] [CR]
	Receive Unsuccessfully	" ? " [CR]

Note: [ACK] "CR" is the return value for receiving valid commands.

Parts location &
Mechanical components list
diagram

Important safety instruction

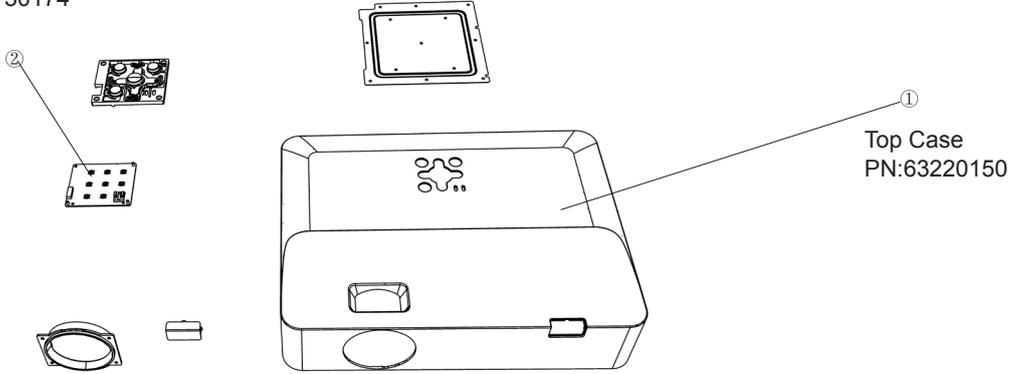
Components identified by international symbol  hold the special security features.
Please use the specified model for replacement .

Please make sure the parts list and the service code in structural parts list diagram before ordering repair parts.

Appendix-Parts location diagram

Top cover component

PCBA-Keypad
PN:63730174



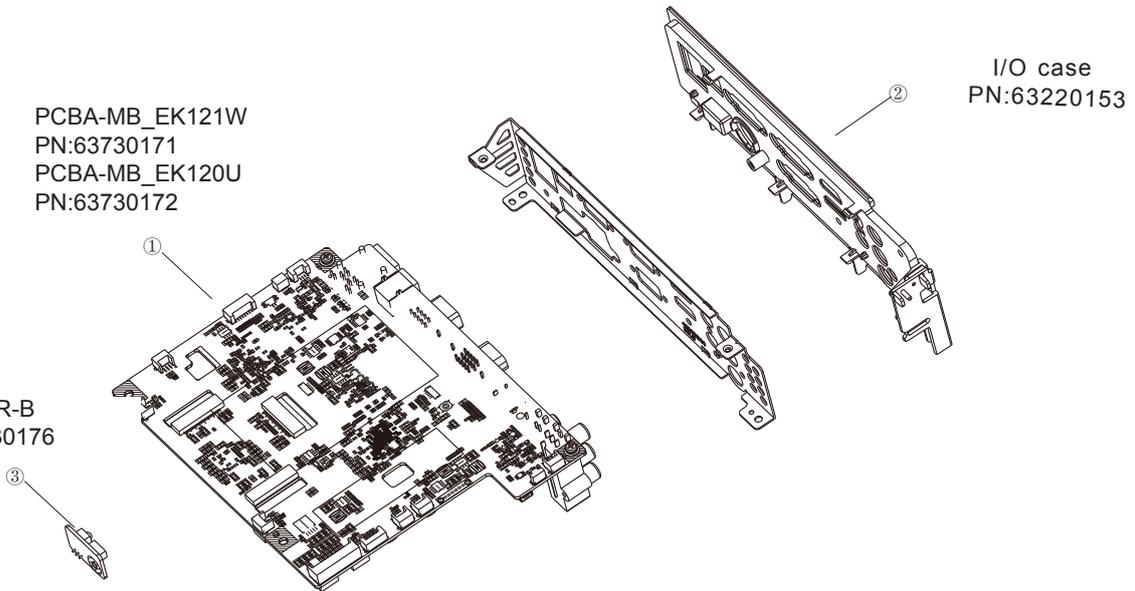
Top Case
PN:63220150

INDEX	PART NAME	PART CODE	QTY
1	Top Case	63220150	1
2	PCBA-Keypad	63730174	1

Main board component

PCBA-MB_EK121W
PN:63730171
PCBA-MB_EK120U
PN:63730172

PCBA_IR-B
PN:63730176

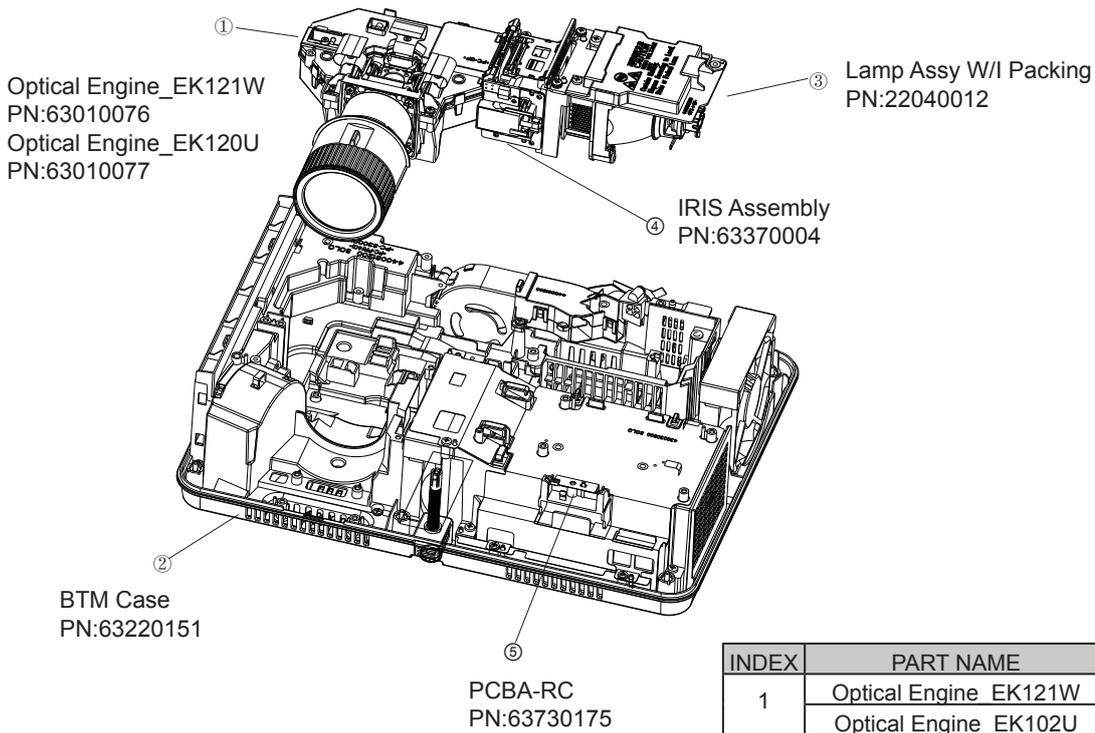


I/O case
PN:63220153

INDEX	PART NAME	PART CODE	QTY
1	PCBA-MB_EK121W	63730171	1
	PCBA-MB_EK102U	63730172	1
2	I/O case	63220153	1
3	PCBA IR-B	63730176	1

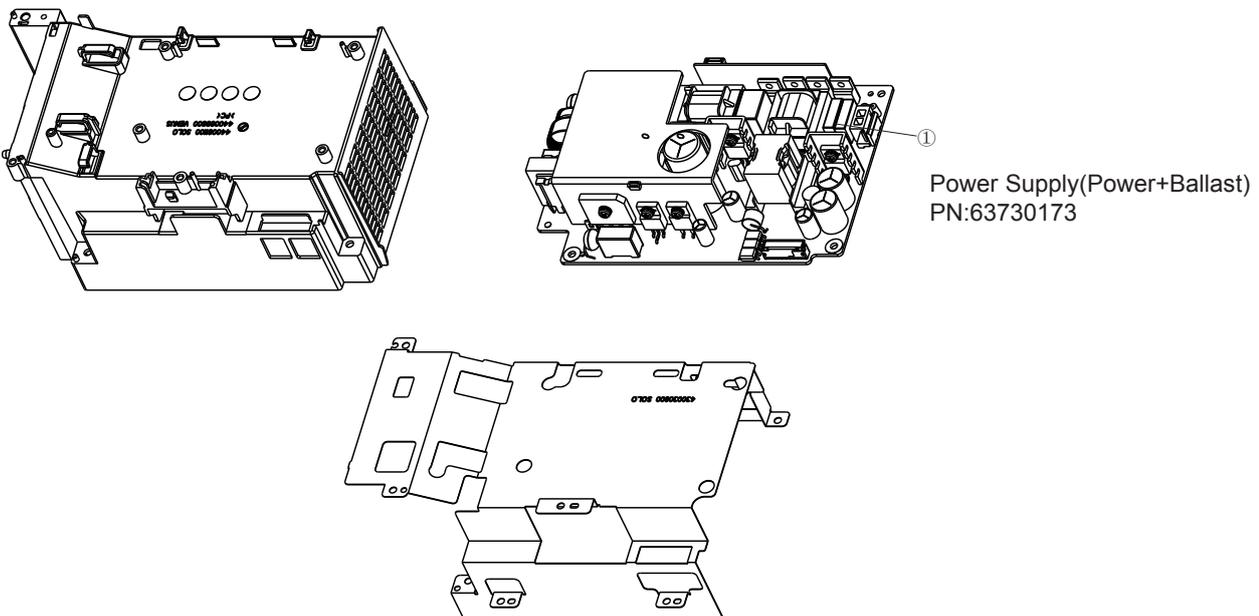
Appendix-Parts location diagram

Optical engine component



INDEX	PART NAME	PART CODE	QTY
1	Optical Engine_EK121W	63010076	1
	Optical Engine_EK120U	63010077	1
2	BTM Case	63220151	1
3	Lamp Assy W/I Packing	22040012	1
4	IRIS Assembly	63370004	1
5	PCBA-RC	63730175	1

Power component

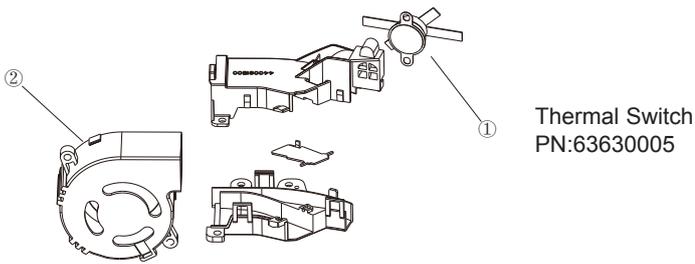


INDEX	PART NAME	PART CODE	QTY
1	Power Supply	63730173	1

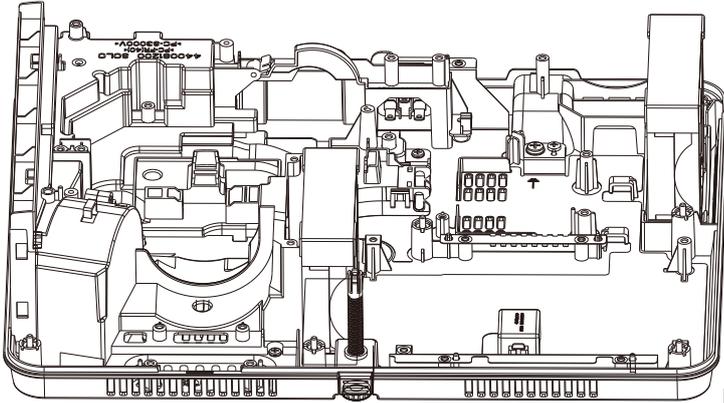
Appendix-Parts location diagram

LCD lamp duct component

Fan-Lamp
PN:63260065



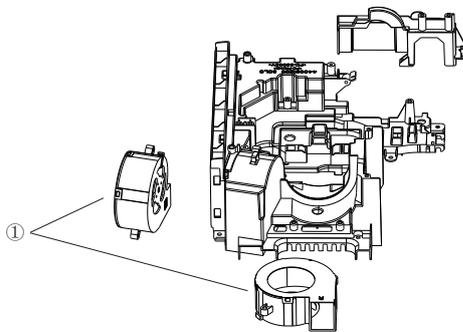
Thermal Switch
PN:63630005



INDEX	PART NAME	PART CODE	QTY
1	Thermal Switch	63630005	1
2	Fan-Lamp	63260065	1

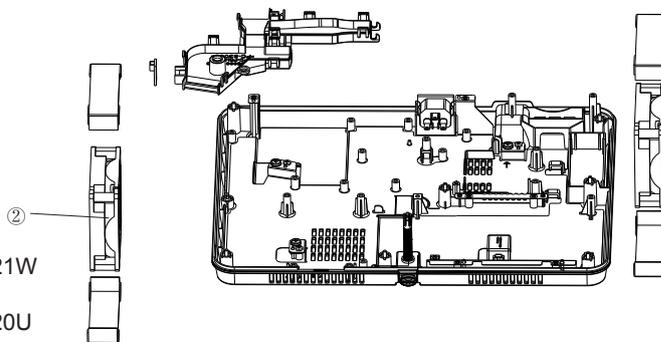
Fan component

Fan-Panel
PN:63260064



FAN
PN:63260058

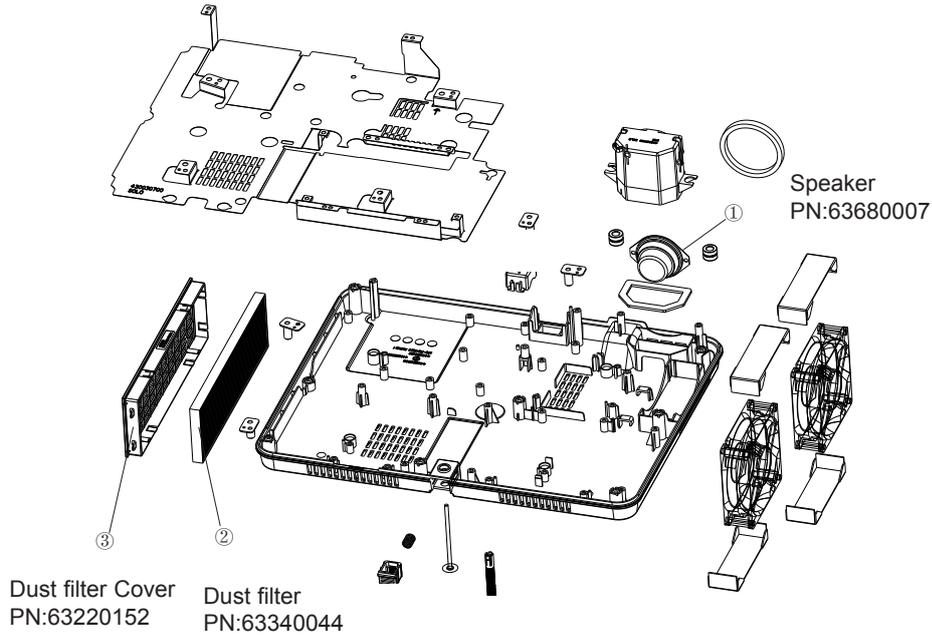
Outlet Fan EK121W
PN:63260036
Outlet Fan EK120U
PN:63260066



INDEX	PART NAME	PART CODE	QTY
1	Fan-Panel	63260064	2
2	Outlet Fan EK121W	63260036	1
	Outlet Fan EK120U	63260066	1
3	FAN	63260058	1

Appendix-Parts location diagram

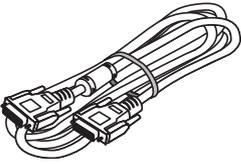
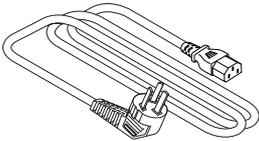
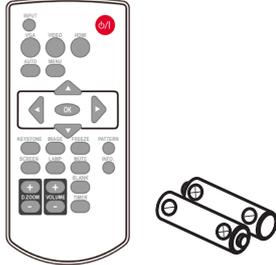
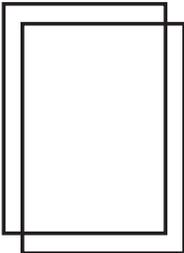
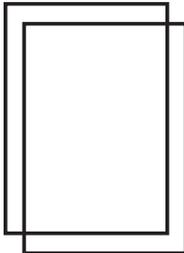
Bottom cover component



INDEX	PART NAME	PART CODE	QTY
1	Speaker	63680007	1
2	Dust filter	63340044	1
3	Dust filter Cover	63220152	1

● Accessories

Make sure your projector is equipped with the following accessories.

VGA cable	AC Power cord (US Type x 1 / Euro Type x 1)	Remote control with batteries (AAA*2)
	 Note: The power cord specifications differs according to customers' location.	
Warranty card	Quick Start Card	
		

Important safety instruction

Components identified by International symbol  hold the special security features.
Please use the specified model for replacement .

■ Low voltage and high voltage warning

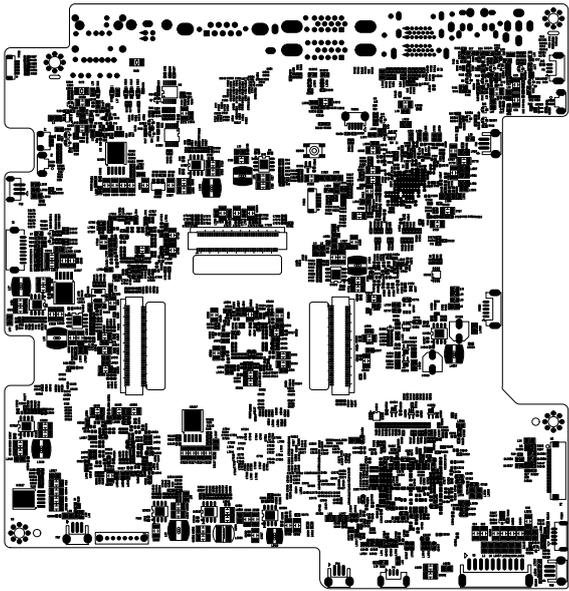
- The power supply circuit includes a circuit unit to separate the power supply from ground.
- The circuit has two kinds: high-voltage circuit and the low-voltage circuit. Please take the following precautions against it.
- This diagram is the final version before production. Changes maybe made without notice.

■ Preventive measure

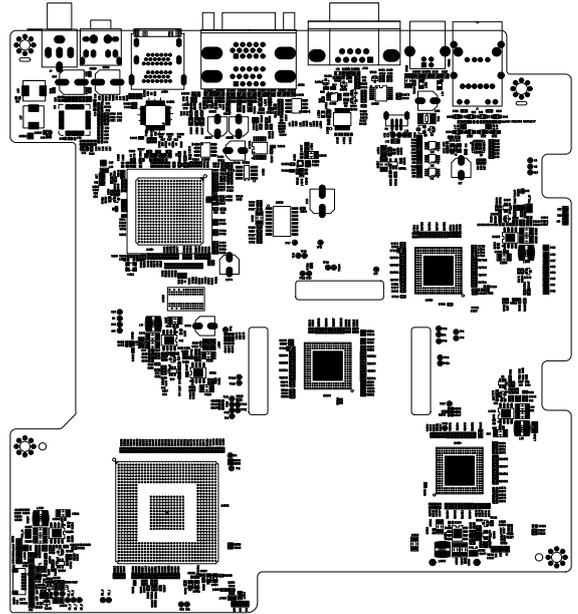
- DO NOT touch the parts of high voltage area or area between low voltage and high voltage , as it may cause risks of electric shock.
- DO NOT short circuit, high voltage and low voltage circuit, otherwise the fuse will be disconnected and damage the components.
- DO NOT connect the parts such as an oscilloscope in the high voltage area and the low voltage area to protect the fuse. Connecting the parts under measure from surface to the ground .
- When removing the movement, make sure to unplug the power cord from outlet.
- Please check service codes for this part in structural parts list diagram, when ordering components .

Appendix-PCB diagram

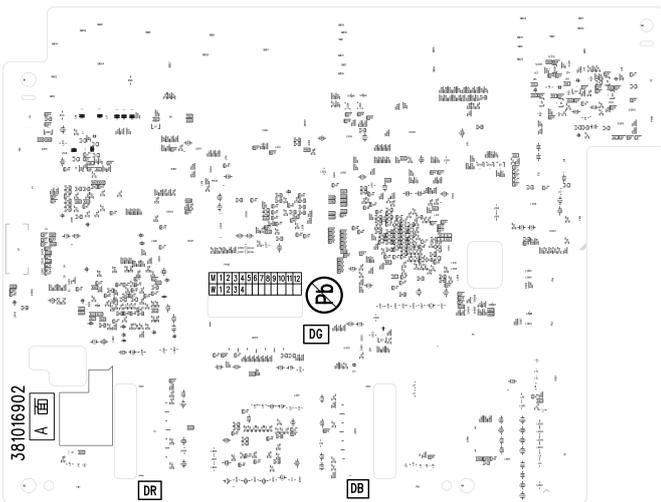
Main board PCB (Top)(WUXGA)



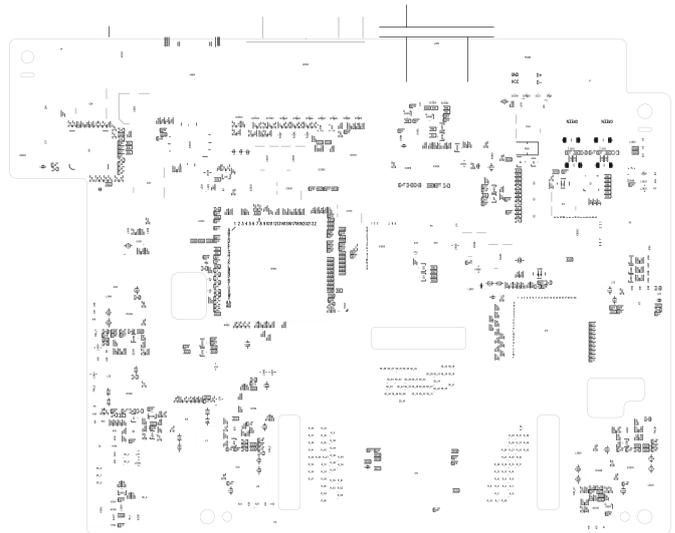
Main board PCB (Bottom)(WUXGA)



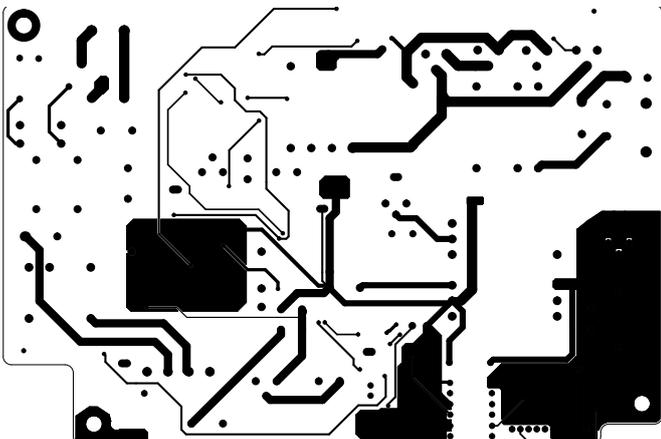
Main board PCB (Top)(WXGA)



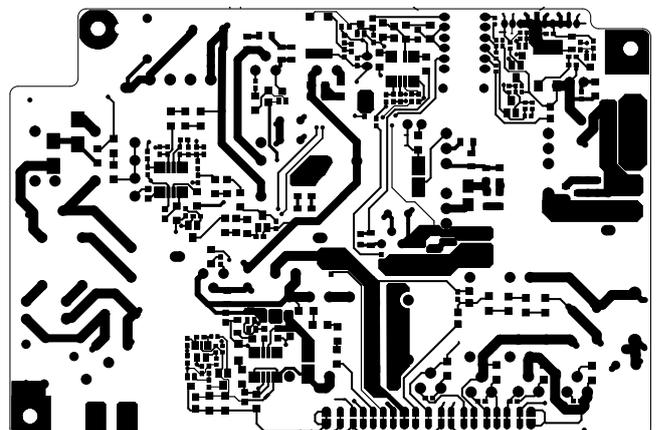
Main board PCB (Bottom)(WXGA)



Power board (Top)

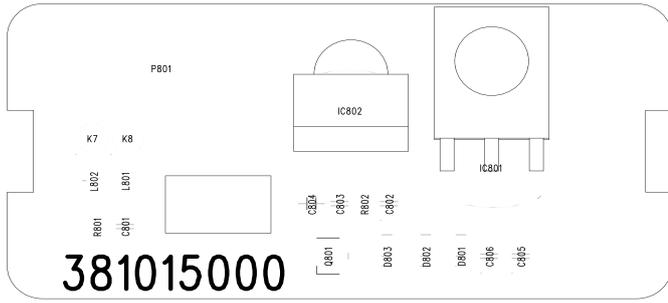


Power board (Bottom)

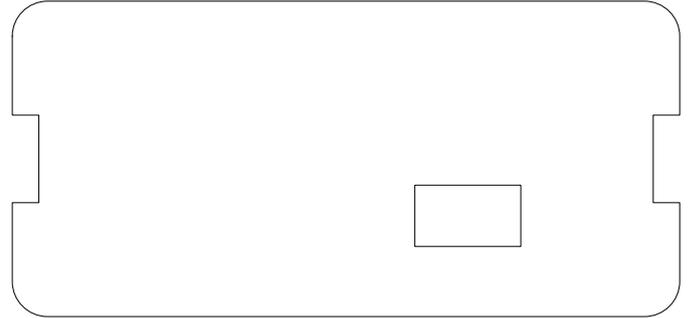


Appendix-PCB diagram

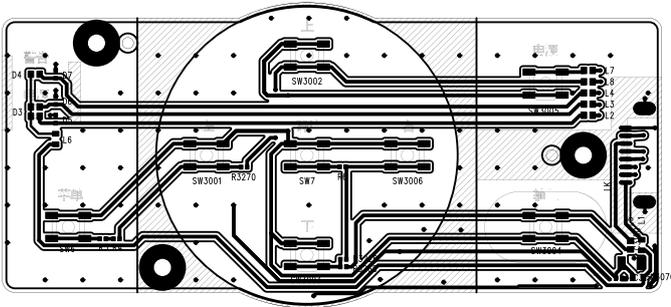
Front remote control (Top)



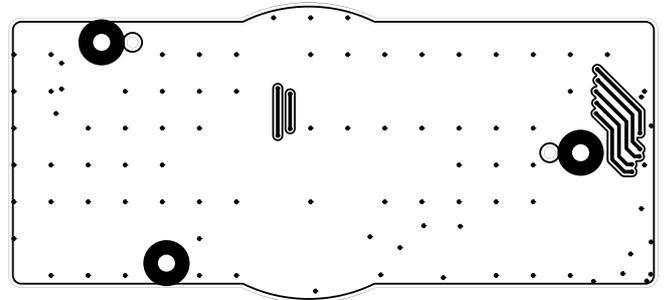
Front remote control (Bottom)



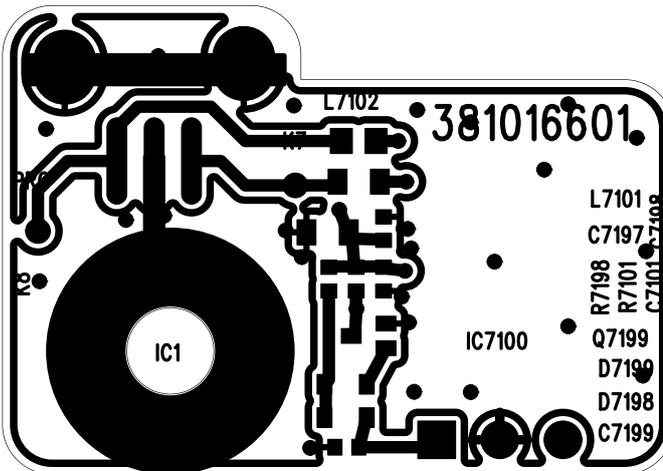
Keypad (Top)



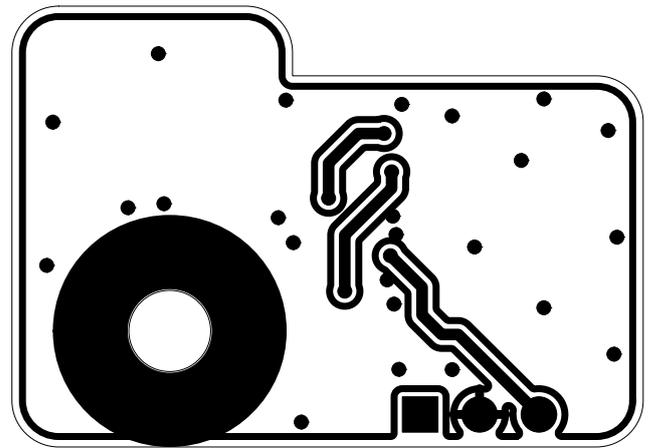
Keypad (Bottom)



Rear remote control (Top)

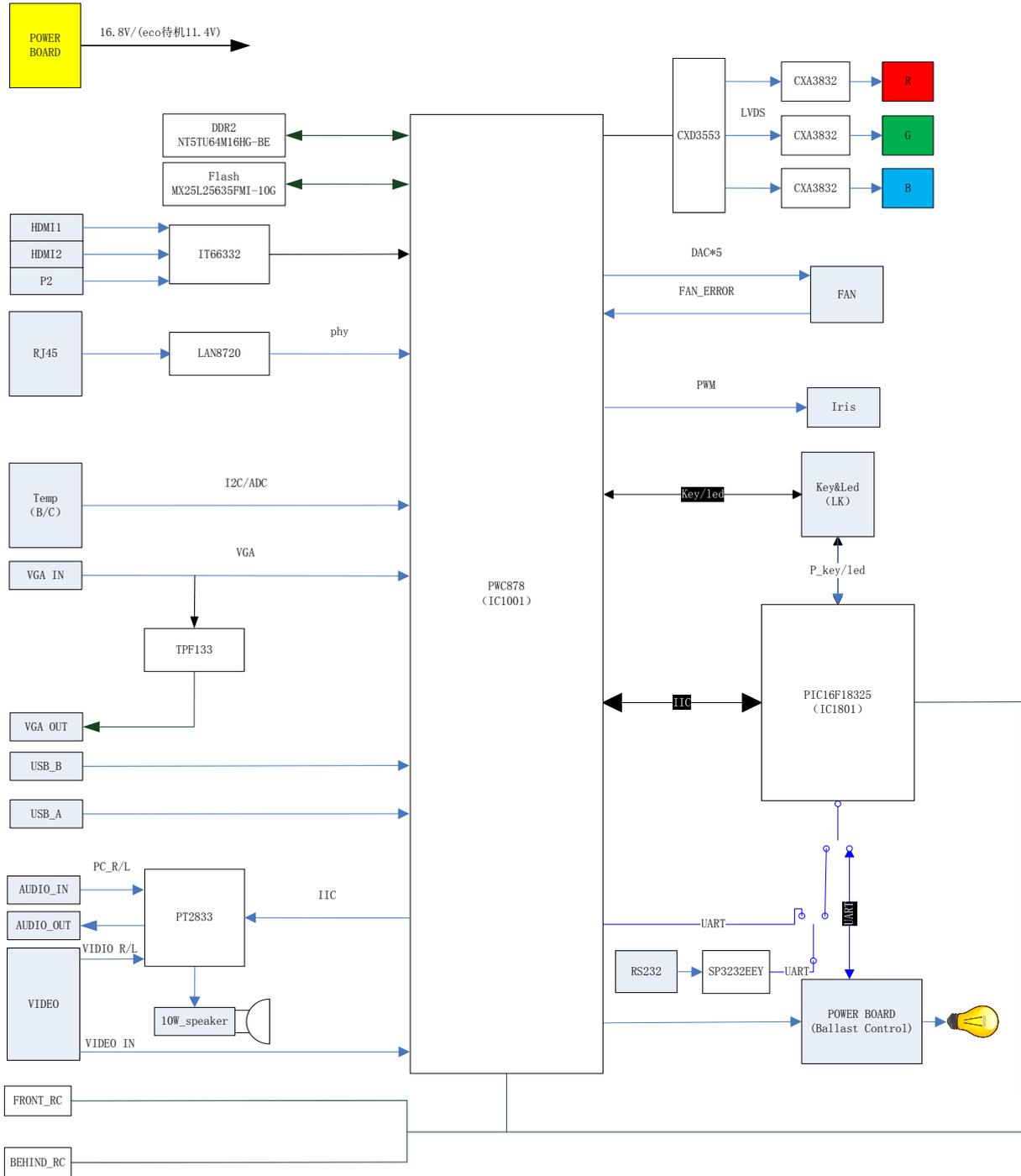


Rear remote control (Bottom)



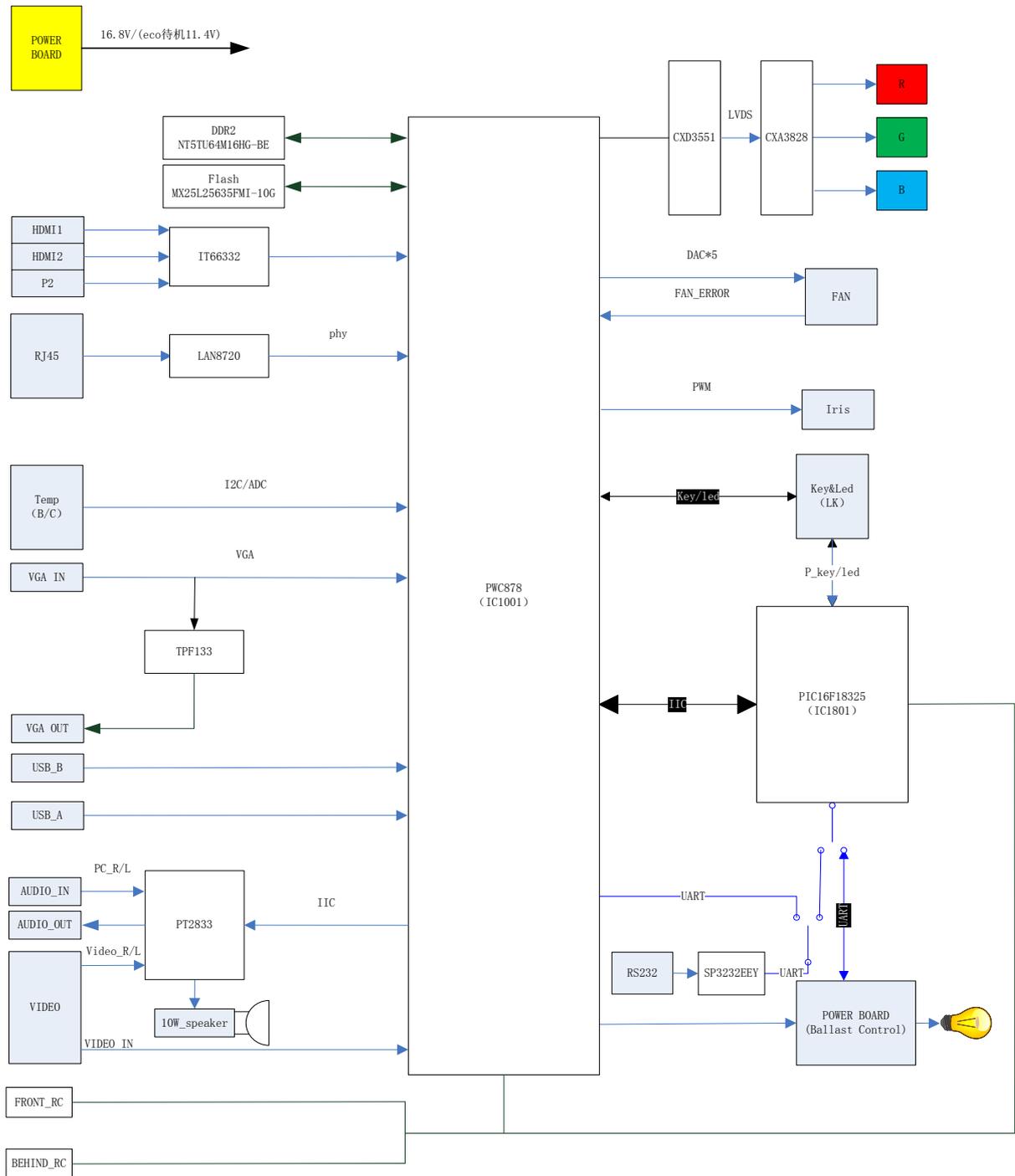
Appendix-Schematic diagram

WUXGA:



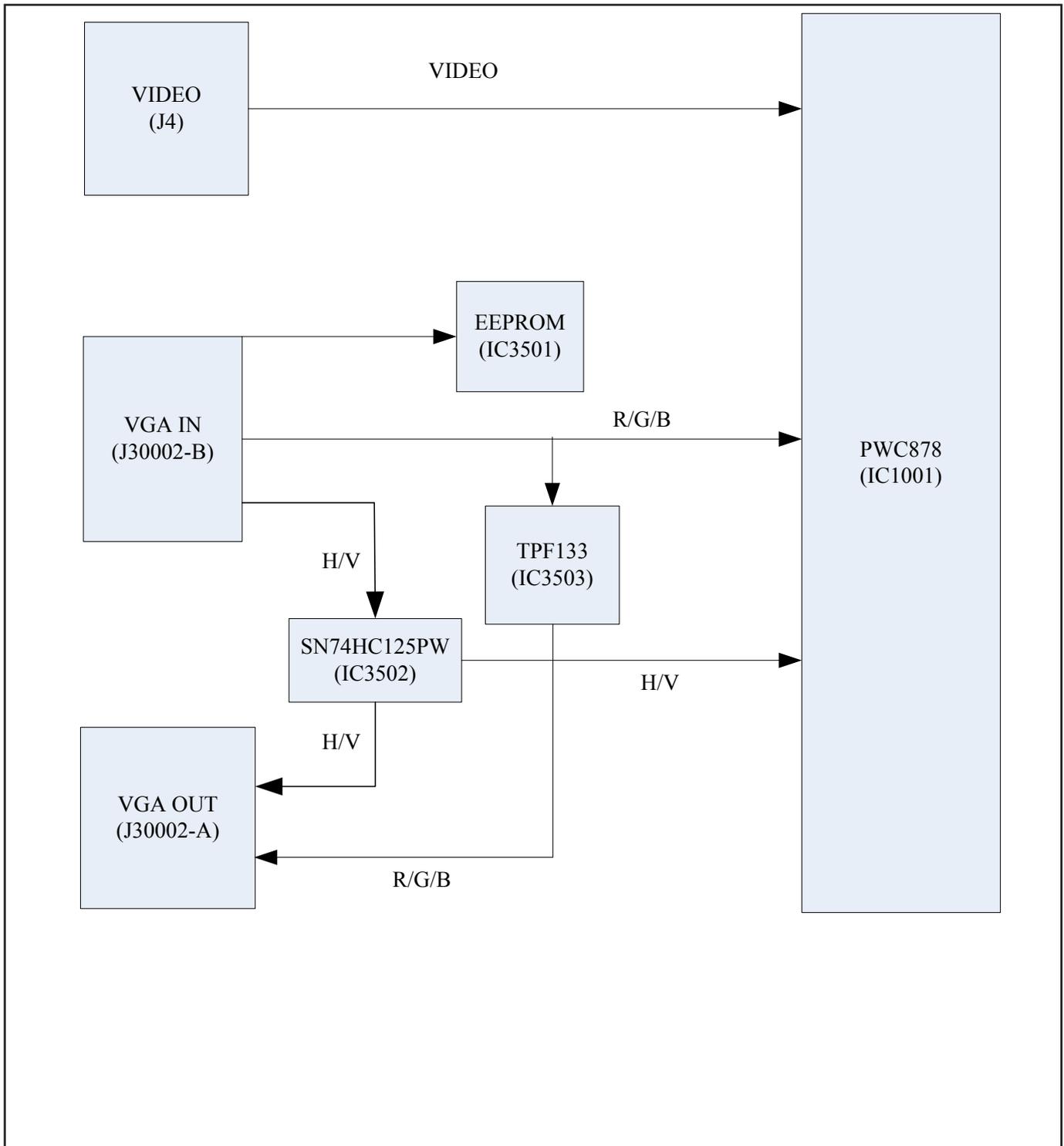
Appendix-Schematic diagram

WXGA:

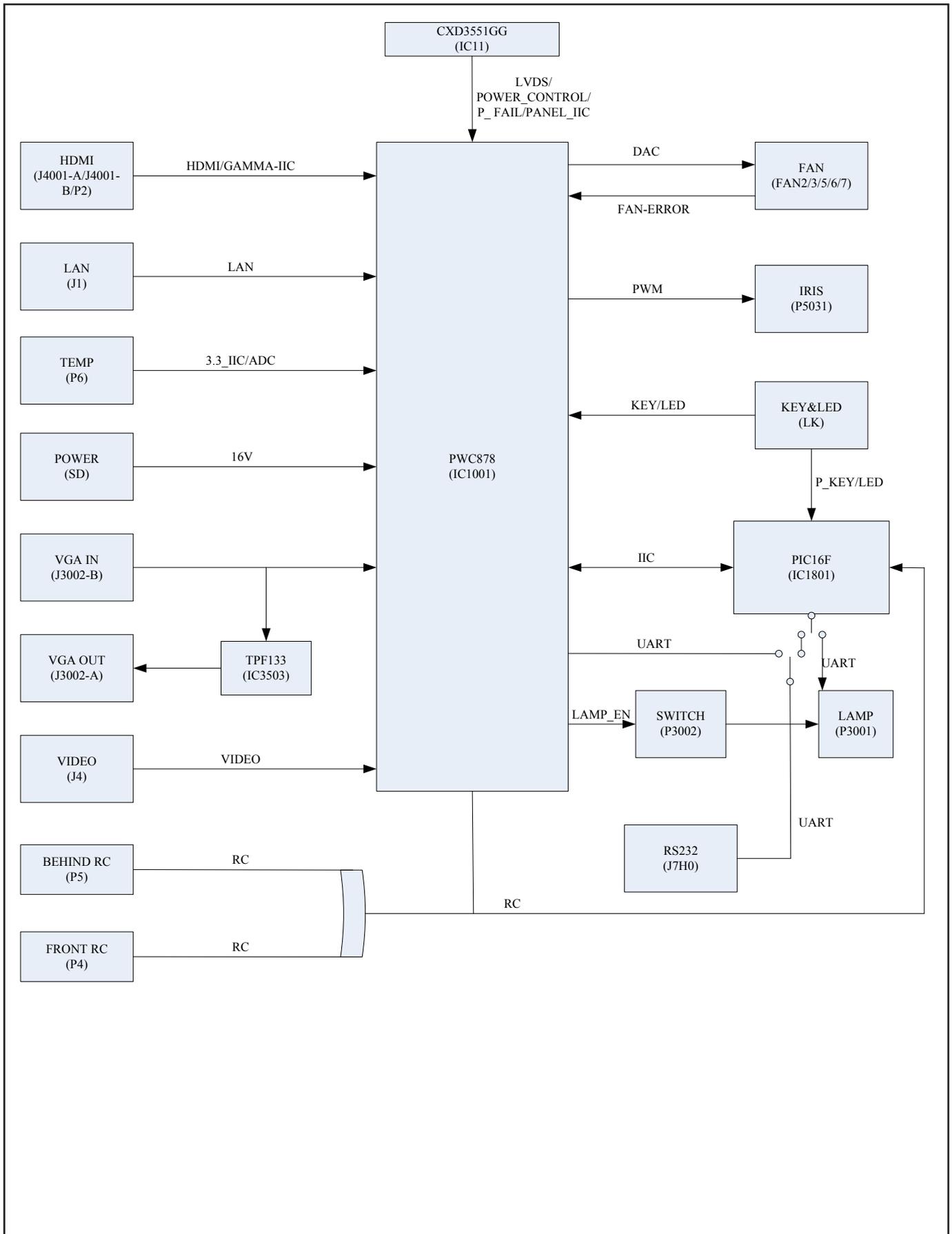


Appendix-Chassis block diagram

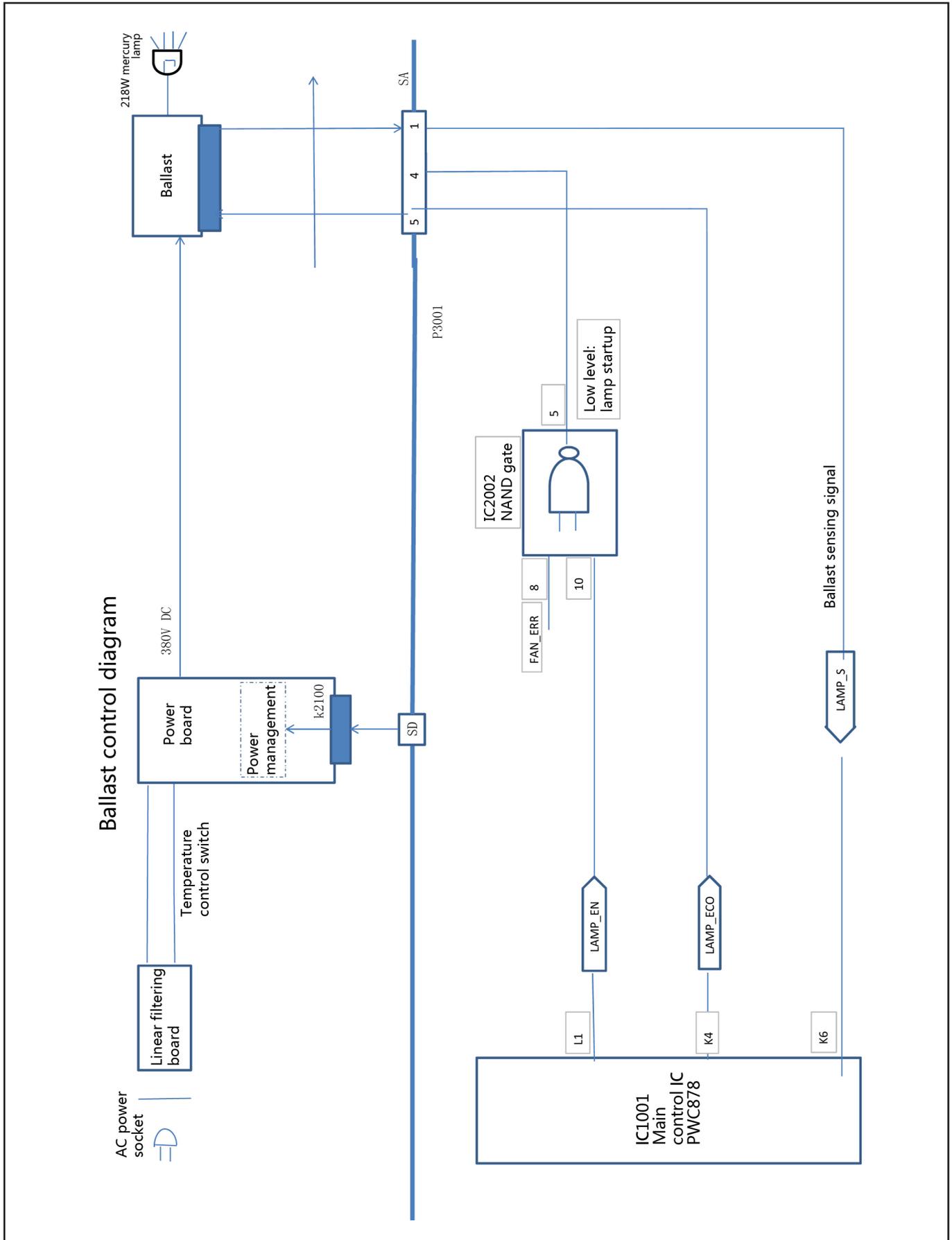
Video input loop control diagram in Main Board



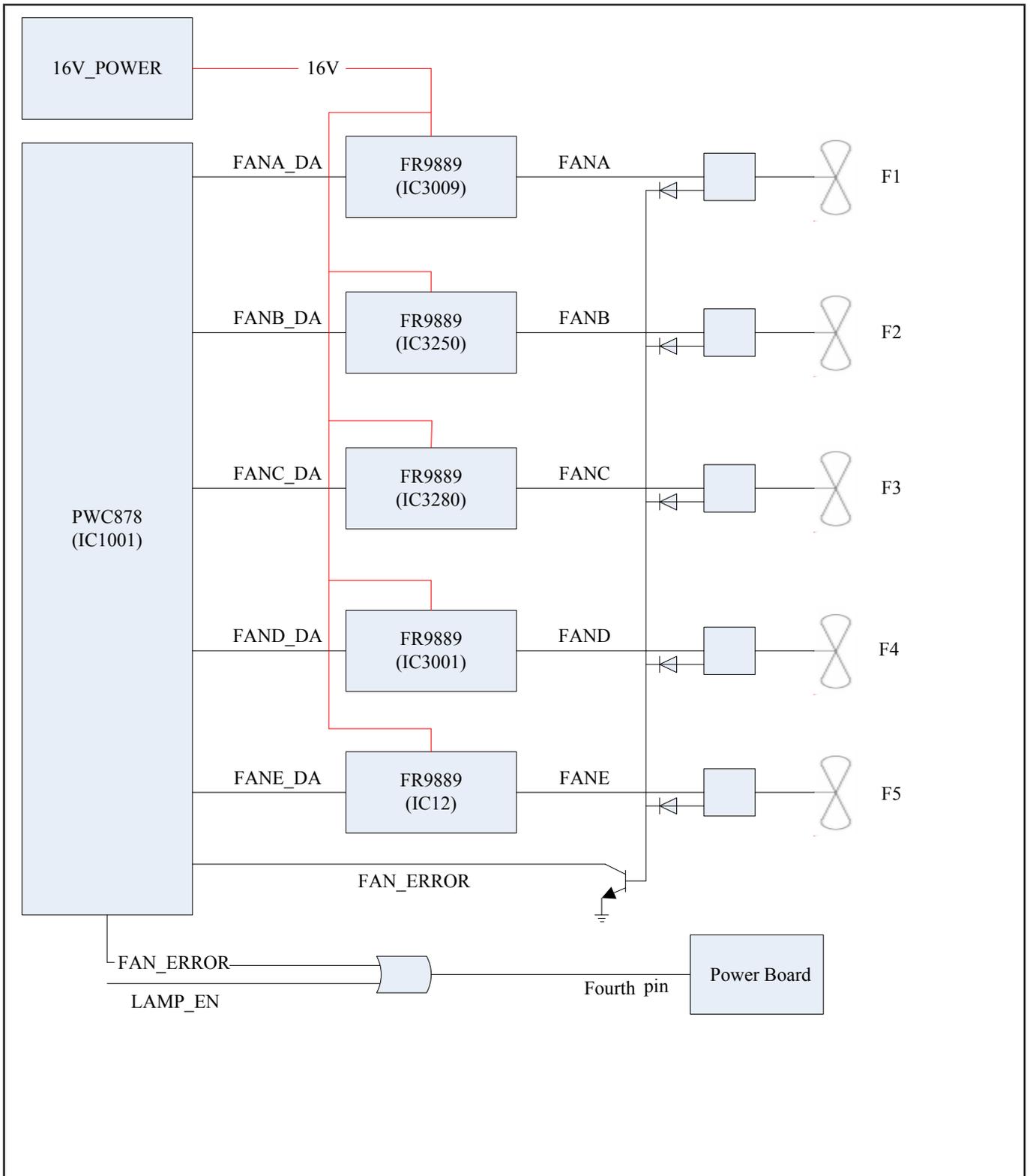
MCU loop control diagram in Main Board



Ballast control diagram in Power Board



Fan control diagram in Main Board



Item	Category	Description	EK-120U	EK-121W	Part Number
1	Board Assembly	PCBA-MB_EK-120U(GP)	v		63730172
2		PCBA-MB_EK-121W(GP)		v	63730171
3		PCBA - KeyPad (GP)	v	v	63730174
4		PCBA - IR-B(GP)	v	v	63730176
5		PCBA - TempA	v	v	63730089
6		Thermal Wire - Temp B(GP)	v	v	63630008
7		Thermal Switch	v	v	63630005
8		Power supply (GP)	v	v	63730173
9		IRIS Assembly(GP)	v	v	63370004
10		PCBA - RC (GP)	v	v	63730175
11	Optical Engine/ Lamp Ass'y	Optical Engine - EK-120U (GP)	v		63010077
12		Optical Engine - EK-121W (GP)		v	63010076
13		Lamp Assy W/I Packing for ELMP-41	v	v	22040012
14	Blower/Fan/ Cabinet/Others	Out-let Fan EK-120U(GP) 12V0.15A	v		63260066
15		Out-let Fan EK-121W(GP) 12V0.21A		v	63260036
16		Fan-Panel (GP) 12V0.15A-R	v	v	63260064
17		Fan-Lamp (GP) 12V0.14A-L	v	v	63260065
18		FAN_Line220 12V0.21A	v	v	63260058
19		Speaker	v	v	63680015
20		Top Case (GP)	v	v	63220150
21		BTM-Case (GP)	v	v	63220151
22		I/O Case (GP)	v	v	63220153
23		Dust filter Cover (GP)	v	v	63220152
24		Dust filter (GP)	v	v	63340044
25	Packing	Carton (GP)	v	v	63340093
26		EPE Cushion-Left (GP)	v	v	63340101
27		EPE Cushion-Right (GP)	v	v	63340102
28	Accessory	Remote Control EN_RU (GP)	v	v	63910016
29		Power Cord 1830mm (US)	v	v	13650009
30		Power Cord 1830mm (Europe)	v	v	13650011
31		Power Cord 1830mm (Australia)	v	v	13650013
32		Power Cord 1830mm (UK)	v	v	13650012