

Service Manual

LCD Projector

Model No. **PT-AE8000U**
PT-AT6000E
PT-AE8000EA
PT-AE8000EH
PT-AE8000EZ



The service technician is required to read and follow the "Safety Precautions" and "Important Safety Notice" in this service manual.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.



WARNING : Use UV Radiation eye and skin protection during servicing

CAUTION

Lithium Battery

Risk of explosion if battery is replaced by an incorrect type,
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Precaution

If using of this projector at high altitudes (above 1,400m), set HIGH ALTITUDE MODE to "ON".
(Refer to "PROJECTOR SETUP menu" in Operating Instructions.)
Failure to observe this may cause malfunctions. Never use this projector at an altitude of 2,700m or higher.
Using this projector at high altitude, consult your dealer or Authorized Service Center about preparations.

About lead free solder (PbF)

This projector is using the P.C.Board which applies lead free solder.
Use lead free solder in servicing from the standpoint of antipollution for the global environment.

Notes:

- Lead free solder: Sn-Ag-Cu (tin, silver and copper) has a higher melting point (approx. 217°C) than standard solder. Typically the melting point is 30~40 °C higher. When servicing, use a high temperature soldering iron with temperature limitation function and set it to 370 ± 10 °C.
- Be precautions about lead free solder. Sn-Ag-Cu (tin, silver and copper) will tend to splash when heated too high (approx. 600°C or higher).
- Use lead free solder for the P.C.Board (specified on it as "PbF") which uses lead free solder. (When you unavoidably use lead solder, use lead solder after removing lead free solder. Or be sure to heat the lead free solder until it melts completely, before applying lead solder.)
- After soldering to double layered P.C.Boards, check the component side for excess solder which may flow onto the opposite side.

About the identification of the lead free solder P.C.Board.

For the P.C.Board which applies lead free solder, the symbol as shown in the figure below is printed or stamped on the surface or the back of P.C.Board.



For US

IMPORTANT SAFETY NOTICE

There are special parts used in Panasonic LCD Projectors which are important for safety. These parts are shaded on the schematic diagram. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of PANASONIC BROADCAST & TELEVISION SYSTEMS COMPANY.

WARNING:

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.

CAUTION : Any unauthorized changes or modifications to this equipment will void the users authority to operate.

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1. Safety Precautions

1.1. General Guidelines

- For continued safety, no modification of any circuit must be attempted.
- Unplug the power cord from the power outlet before disassembling this projector.
- Use correctly the supplied power cord and must ground it.
- It is advisable to use an isolation transformer in the AC power line before the service.
- Be careful not to touch the rotation part (cooling fan, etc.) of this projector when you service with the upper case removed and the power supply turned ON.
- Observe the original lead dress during the service. If a short circuit is found, replace all the parts overheated or damaged by the short circuit.
- After the service, all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations must be properly installed.
- After the service, check the leakage current to prevent the customer from getting an electric shock.

1.2. Leakage Current Check

1. Prepare the measuring circuit as shown in Fig.1.
Be sure to use a voltmeter having the performance described in Table 1.
2. Assemble the circuit as shown in Fig. 2. Plug the power cord in a power outlet.
3. Connect M1 to T1 according to Fig. 2 and measure the voltage.
4. Change the connection of M1 from T1 to T2 and measure the voltage again.
5. The voltmeter must read 0.375 V or lower in both of steps 3 and 4. This means that the current must be 0.75mA or less.
6. If the reading is out of the above standard, the projector must be repaired and rechecked before returning to the customer because of a possibility of an electric shock.

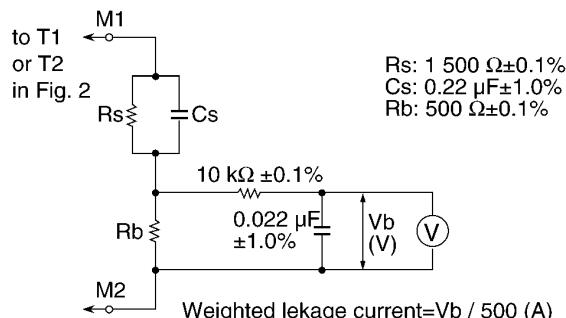


Fig. 1

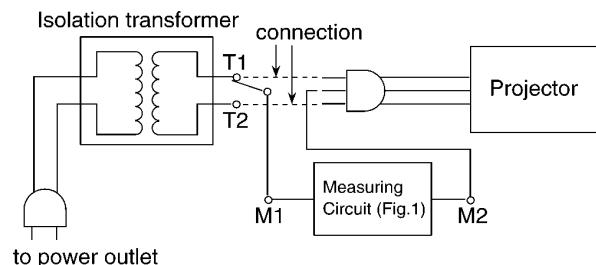


Fig. 2

	Performance
Voltmeter (rms reading)	Accuracy: $\leq 2\%$ Input resistance: $\geq 1\,M\Omega$ Input capacitance: $\leq 200\text{ pF}$ Frequency range: 15 Hz to 1 MHz

Table. 1

1.3. UV Precaution and UHM Lamp Precautions

- Be sure to unplug the power cord from the power outlet when replacing the lamp.
- Because the lamp reaches a very high temperature during its operation, wait until it cools completely when replacing the Lamp Unit.
- The lamp emits small amounts of UV-radiation, avoid direct-eye contact with the light.
- The lamp unit has high internal pressure. If improperly handled, explosion might result.
- Because the high pressure lamp involves a risk of failure, never touch the lamp wire lead during the service.

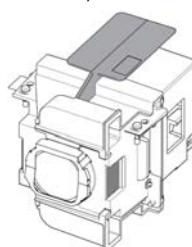


Fig. 3

2. Specifications

Power supply		AC 100-240 V 50 Hz/60 Hz
Power consumption		Less than 310 W During standby (when fan is stopped): 0.08 W
Amps		3.8 A - 1.5 A
LCD panel	Panel size (diagonal)	18.7 mm (0.74")
	Aspect ratio	16 : 9
	Display method	3 transparent LCD panels (RGB)
	Drive method	Active matrix method
	Pixels	2 073 600 (1 920 x 1 080) x 3 panels
Lens		Motorized zoom (2x)/Motorized focus F 1.9 - 3.2, f 22.4 mm - 44.8 mm
Lamp		UHM lamp (220 W)
Luminosity ^{*1}		2 400 lm
Operating environment		Temperature 0 °C - 40 °C (32 °F - 104 °F) When [HIGH ALTITUDE MODE] is set to ON : 0 - 35 °C (32 - 95 °F) Humidity 20% - 80% (no condensation)
Scanning frequency ^{*2} (for RGB signal)	Horizontal scanning frequency	15 kHz - 74 kHz
	Vertical scanning frequency	24 Hz - 85 Hz
	Dot clock frequency	Less than 154 MHz
COMPONENT (YP _B P _R) signals		525i (480i), 625i (576i), 525p (480p), 625p (576p), 750 (720)/60p, 750 (720)/50p, 1 125 (1 080)/60i, 1 125 (1 080)/50i, 1 125 (1 080)/60p, 1 125 (1 080)/50p, 1 125 (1 080)/24p
Color system		7 (NTSC/NTSC 4.43/PAL/PAL-M/PAL-N/PAL60/SECAM)
Projection size		When displaying 3D images 1.02 m - 5.08 m (40" - 200") When displaying 2D images 1.02 m - 7.62 m (40" - 300")
Projection distance		When displaying 3D images 1.2 m - 12.0 m (3'11" - 39'4") (16:9 size) When displaying 2D images 1.2 m - 18.1 m (3'11" - 59'5") (16:9 size)
Screen aspect ratio		16 : 9
Installation		FRONT/DESK, FRONT/CEILING, REAR/DESK, REAR/CEILING (Menu selection method)

*1 : Measurement, measuring conditions and method of notation all comply with ISO21118 international standards.

*2 : For details of video signals that can be projected using this projector, refer to "List of compatible signals" of Operating Instructions.

Terminals	S-VIDEO IN	1 set, Mini DIN 4p Y: 1.0 V [p-p], C: 0.286 V [p-p], 75 Ω
	VIDEO IN	1 set, RCA pin jack 1.0 V [p-p], 75 Ω
	COMPUTER IN	1 set, D-sub HD 15-pin (female) (RGB signal) R.G.B. 0.7 V [p-p], 75 Ω G.SYNC 1.0 V [p-p], 75 Ω HD/SYNC*1 TTL high impedance, automatic positive/negative polarity compatible VD*1 TTL high impedance, automatic positive/negative polarity compatible (Y, P _B /C _B , P _R /C _R signal) Y: 1.0 V [p-p] (including sync), 75 Ω P _B /C _B , P _R /C _R 0.7 V [p-p], 75 Ω
	COMPONENT IN	1 set, RCA pin jack x 3 Y: 1.0 V [p-p] (including sync), 75 Ω P _B /C _B , P _R /C _R 0.7 V [p-p], 75 Ω
	HDMI IN	3 sets, 19-pin HDMI connector (HDCP / Deep color / HDAVI Control Ver. 5 compliant)
	SERIAL	1 set, D-sub 9-pin RS-232C compatible
	TRIGGER / 3D SHUTTER OUT	2 sets, monaural mini jack DC 12 V, max.100 mA (Selectable for input and output by menu operation.)
Cabinet	Moulded plastic (PC+ABS)	
Dimensions	Width	470 mm (18 1/2")
	Height	151 mm (5 15/16")
	Depth	364 mm (14 11/32")
Weight	Approx. 8.7 kg (19.18 lbs.)*2	
Certifications	UL60950-1,2nd Ed. ,C-UL CSA C22.2 No 60950-1, 2nd Ed. Part 15 of the FCC Rules	
Remote control	Power supply	DC 3 V (AA/R6/LR6 battery x 2)
	Operating range	Approx. 7 m (23') (when operated directly in front of signal receptor)
	Weight	125 g (4.4 ozs.) (including batteries)
	Dimensions	Width 48 mm (1 7/8")
		Length 138 mm (5 7/16")
		Height 28.3 mm (1 1/8") (not including surface projection parts)

*1 : HD/SYNC, and VD terminals do not accept tri-level sync signals.

*2 : Average value. Weight varies for each product..

SECTION 1

< Service Information >

**Model No. PT-AE8000U
PT-AT6000E
PT-AE8000EA / AE8000EH / AE8000EZ**

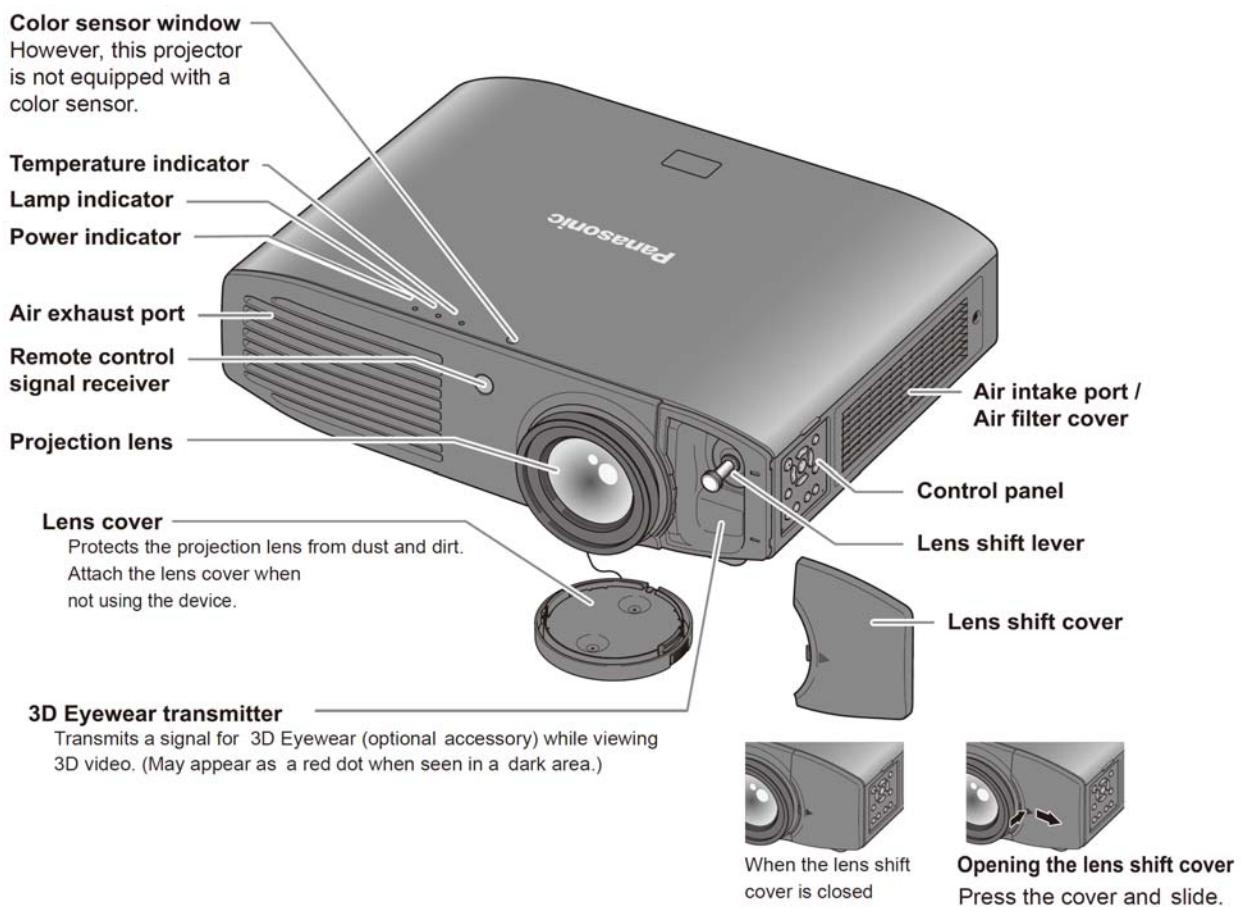
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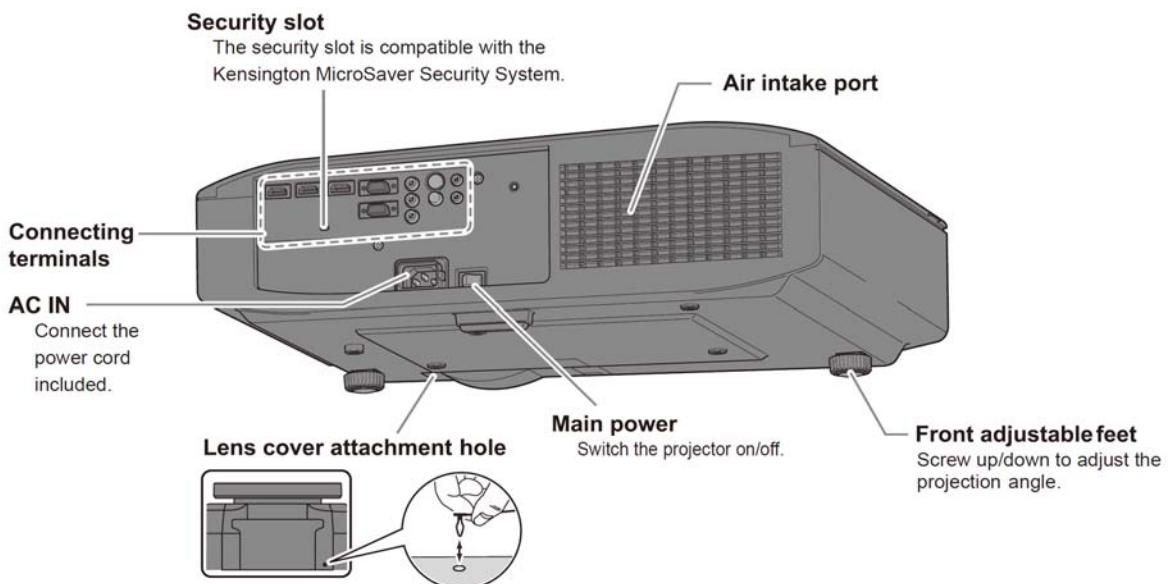
1. Name and function

1.1. Projector body

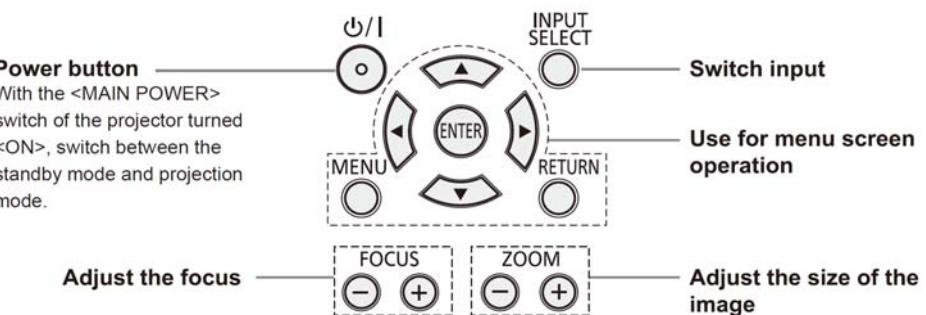
■ Top and front view



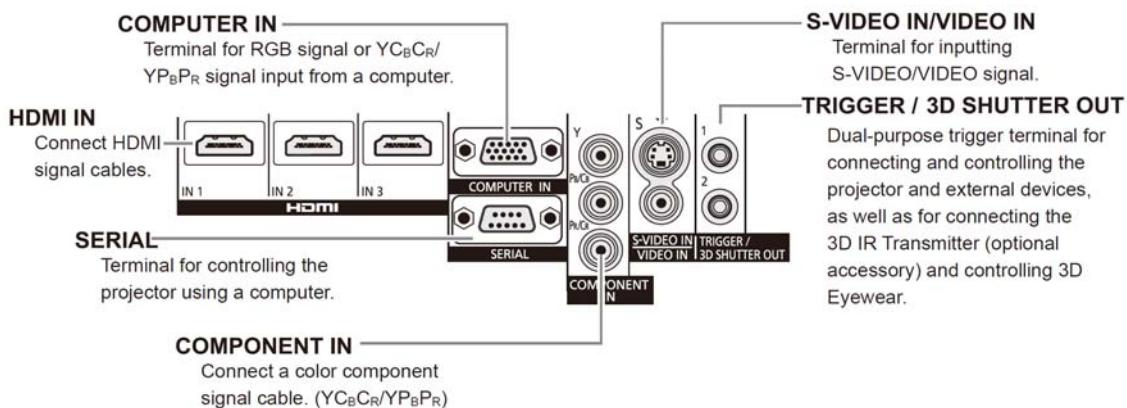
■ Back and bottom view



1.2. Control Panel



1.3. Rear terminals



1.4. Remote control

■ Top

Remote control signal transmitter
Send remote control signal.
Point at the remote control receiver part on the projector when using.



■ Front

With the <MAIN POWER> switch of the projector turned <ON>, switch between the standby mode and projection mode.

Cycle through the [PICTURE MODE].

Display the [VIERA LINK] menu.

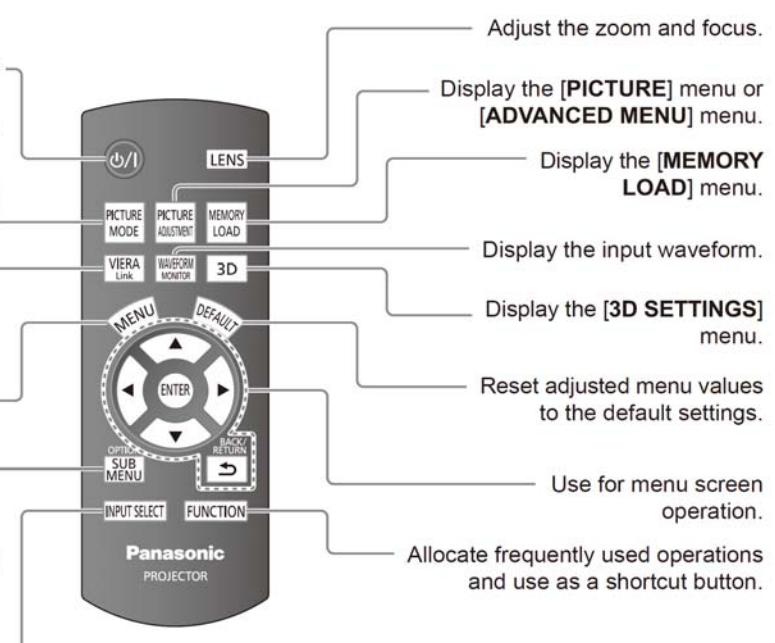
Display the menu screen.

Display menus of external devices when using VIERA Link.

Change the operation mode during gamma adjustment.

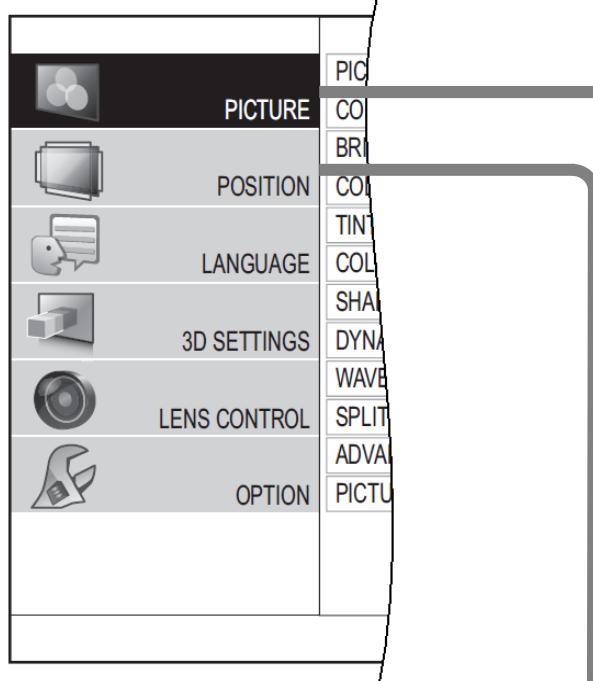
Change the detection level of parallax when the parallax adjustment monitor is displayed (when [Mode3] is set).

Switch the input signals.



2. OSD Menu Navigation

■ MENU MENU (1/2)



● S-VIDEO IN/VIDEO IN

Submenu items	Default setting
[H-POSITION]	[0]
[V-POSITION]	[0]
[ASPECT]	[AUTO]
[WSS] *1	[ON]
[OVER SCAN]	[+7]
[KEYSTONE]	[0]

*1: PAL signal input only

● S-VIDEO IN/VIDEO IN/COMPONENT (YC_BC_R/YP_BP_R) signal input/HDMI

Submenu items	Default setting
[PICTURE MODE]	[NORMAL]
[CONTRAST]	[0]
[BRIGHTNESS]	[0]
[COLOUR]	[0]
[TINT]	[0]
[COLOUR TEMPERATURE]	[0]
[SHARPNESS]	[SIMPLE]
[DYNAMIC IRIS]	[ON]
[WAVEFORM MONITOR]	—
[SPLIT ADJUST]	—
[ADVANCED MENU]	—
[PICTURE MEMORY]	—
[SIGNAL MODE] *1	—

*1: COMPONENT IN/HDMI IN only

● COMPUTER (RGB) signal input

Submenu items	Default setting
[PICTURE MODE]	[NORMAL]
[CONTRAST]	[0]
[BRIGHTNESS]	[0]
[COLOUR TEMPERATURE]	[0]
[SHARPNESS]	[SIMPLE]
[DYNAMIC IRIS]	[ON]
[WAVEFORM MONITOR]	—
[SPLIT ADJUST]	—
[ADVANCED MENU]	—
[PICTURE MEMORY]	—
[SIGNAL MODE]	—

● COMPONENT IN/COMPUTER IN

Submenu items	Default setting
[H-POSITION]	[0]
[V-POSITION]	[0]
[DOT CLOCK] *1	[0]
[CLOCK PHASE] *2	[0]
[ASPECT]	[16:9]
[WSS] *3	[ON]
[OVER SCAN] *4	[0]
[KEYSTONE]	[0]
[AUTO SETUP] *5	—

*1: COMPUTER IN only (exc. 480i, 576i, 480p, 576p)

*2: Exc. 480i/576i

*3: COMPONENT IN (576i, 576p) only

*4: COMPONENT IN and COMPUTER signal (movie based signals) input only

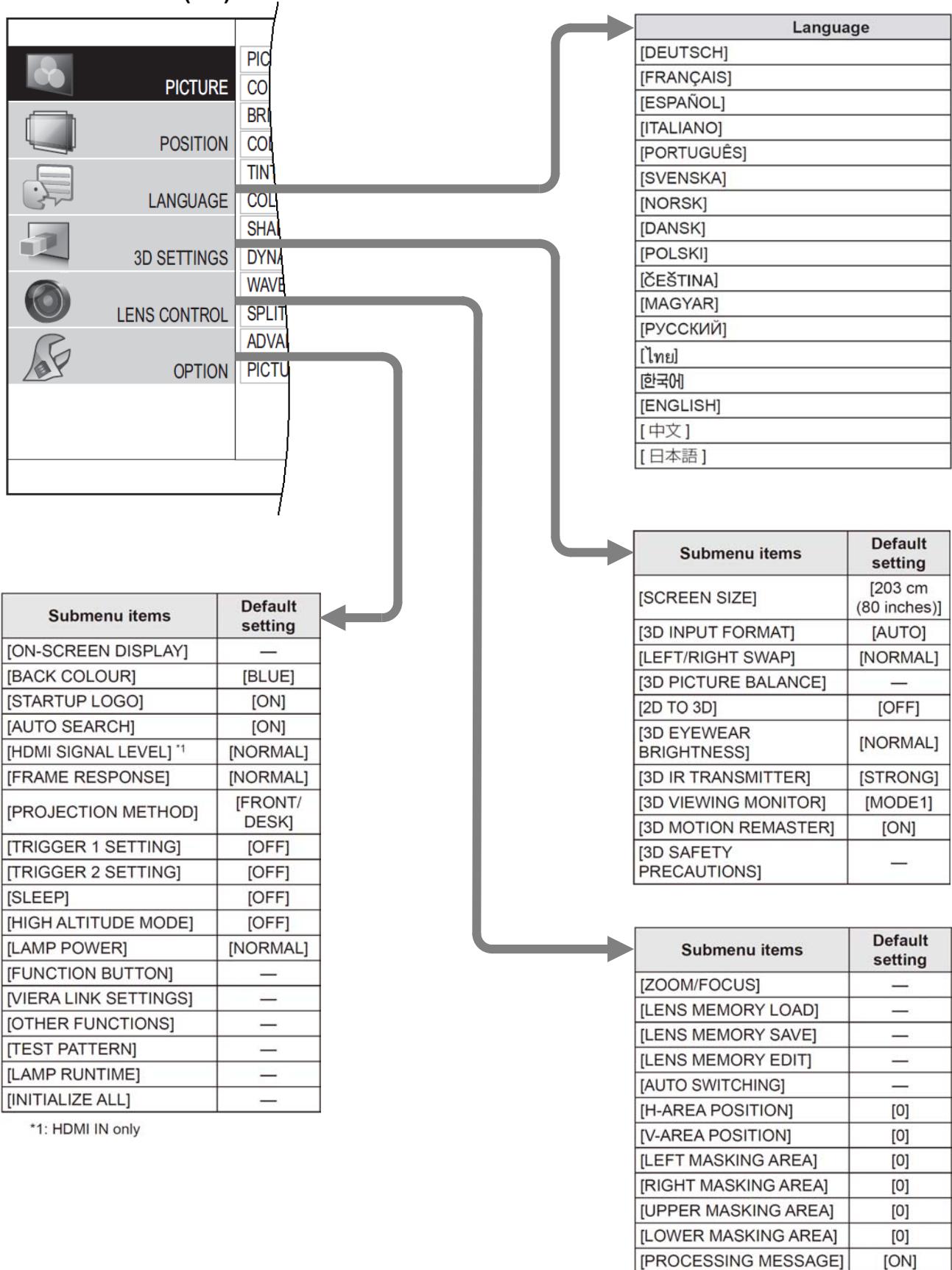
*5: COMPUTER IN (RGB) signals only (exc. movie based signals)

● HDMI IN

Submenu items	Default setting
[H-POSITION]	[0]
[V-POSITION]	[0]
[ASPECT]	[16:9]
[OVER SCAN]	[0]
[KEYSTONE]	[0]

Note : The default settings may be different depending on the picture menu.

■ MENU MENU (2/2)



*1: HDMI IN only

Note : The default settings may be different depending on the picture menu

3. Extend mode (EXT OPTION menu)

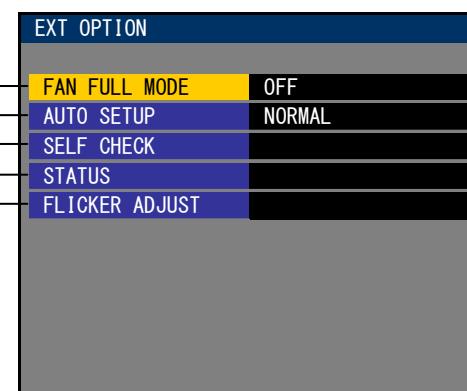
This projector has extend mode "EXT OPTION" menu in addition to standard on-screen menus.

- This mode has Self-Check function, Test Pattern and other functions for Service.

3. 1. Procedure to open / close "EXT OPTION" menu.

1. When the projector is power ON, press "POWER" button on the main unit or remote control unit to display "POWER OFF" confirmation screen.
2. Press the "►" button to select "CANCEL" in the "POWER OFF" confirmation screen.
3. On the main unit or remote control unit, press the buttons in order of "▲", "▼", "▲", "▼" and "ENTER".
4. When "MENU" button is pressed at the "EXT OPTION" mode, Extend-mode is closed.

3. 2. EXT OPTION Menu and Functions



3.SELF CHECK

- The content of self checking are displayed.

(1)	SELF CHECK	S/N SD12345678	(13)
(2)	MM:1.00	SM:1.00	(14)
(3)	F:1.00	IM:1.00	
(4)	XGA60	G-SAVED OK	(15)
(5)	H 48.48KHZ	U-SAVED OK	
(6)	V 60.60HZ	C-SAVED OK	
(7)	----- TEMP -----		
(8)	INTK 22.7/157	INTK ---/-/-	(16)
(9)	EXST 26.6/148	EXST ---/-/-	
(10)	FLTR 88.7/094	FLTR ---/-/-	
(11)	FLTR SENSOR OFFSET	79	
(12)	----- FAN -----		
(13)	INTK OK	EXST OK	(17)
(14)	LAMP OK	PWR OK	
(15)	IRIS OK		
(16)	----- MECHANICAL -----		
(17)	IRIS OK	LENS MEM OK	(18)
(18)	----- LAMP -----		
(19)	LAMP OK	4000H OK	(19)
(20)	COVER OK		
(21)	----- UNIT HISTORY -----		
(22)	TOTAL 11H	RESET 0	(20)
(23)	12H10 52	12H10	
(24)	0H00 0	0H00	(21)
(25)	0H00 0	0H00	

"OK" display becomes red characters when shutting down because abnormality happened time.

- (14)- Software Version (SM : Sub microprocessor, IM : IRIS control microcomputer)
- (15)- Gamma, Color Unevenness and Crosstalk correction data check (Whether data are stored in the flash ROM)
- (16)- Thermo sensor (Intake Air / Exhaust Air / Filter Air) measurement value when thermal shutdown
(deg C/A/D conversion value)

1.FAN FULLMODE

- Setting the cooling fan motor rotation speed.

Switching ON "FAN FULLMODE", the rotation level of the fan becomes high-speed rotation (fixed). Moreover, when "FAN FULLMODE" is ON, changing "HIGH ALTITUDE MODE" in OPTION menu becomes impossible (setting FAN FULLMODE is given priority more than HIGH ALTITUDE MODE).

2.AUTO SETUP

- Setting AUTO SETUP mode.

- NORMAL: Dot clock is adjusted strictly.
- SPECIAL: Dot clock is adjusted roughly.

* Do not usually change initial setting (NORMAL).

(1) - Software Version (MM : Main microprocessor, F:FPGA)

* FPGA (Field Programmable Gate Array)

(2) - Input signal Display

([NO-SYNC] is displayed when there is no input signal).

(3) - Input Horizontal/Vertical signal frequency

(For the RGB/YPBPR Input only)

(4) - The temperature abnormality check

("NG" is displayed for any abnormality)

(5) - Temperature around the air intake port/exhaust port and Filter sensor (deg C/A/D conversion value)

(6) - Filter sensor Difference Correction (A/D conversion) Value

(7) - Rotation check of Intake fan / Lamp fan / Iris fan (Displays "NG" when Fan is abnormal condition)

(8) - Iris condition check (Abnormal condition = "NG")

(9) - Lamp condition check (Abnormal condition = "NG")

(10) - Lamp cover installation check (Abnormal condition="NG")

(11) - Displays the projector cumulative usage time

(12) - Cumulative usage time (actual time) and Number of LAMP ON times

"Current number : Last reset : Reset of last but one"

(13)- Displays the serial number of the projector.

(17)- Rotation check of Exhaust fan and Power fan (Displays "NG" when Fan is abnormal condition)

* When detected abnormal temperature around the air intake port / air exhaust port / LCD block, TEMP indicator turned on. If arriving at the critical temperature, the power supply will shut down automatically (thermal shutdown) and the indicator will flash.

(18)- Lens memory operation abnormality check (Abnormal condition = "NG")

(19)- Judgment for Replacement Time of Lamp (Cumulative Usage more than 4000H is "NG")

* Warning of the lamp cumulative usage time and shutdown use the conversion time for LAMP POWER "NOMAL".

(20)- The number of times that carried out reset of "LAMP RUNTIME"

(21)- Cumulative usage time (conversion for LAMP POWER "NOMAL" time) and Number of LAMP ON times

"Current number : Last reset : Reset of last but one"

4.STATUS

•Display version of each software and each data.

STATUS	
MODEL TYPE	PT-AE800U
SERIAL NUMBER	SA*****
DYNAMIC GAMMA	OK
UNIFORMITY	OK
----- SOFT VERSION -----	
MAIN	1.00
SUB	1.00
IRIS	1.02
FPGA	1.00
FRC ID MAJOR	04000000
FRC ID MINOR	07000000
FRC CONFIG MAJOR	01000000
FRC CONFIG MINOR	00000000
----- DATA VERSION -----	
BITMAP	1.00
ENG FONT	1.00
RUS FONT	1.00
THA FONT	1.00
KOR FONT	1.00
CHI FONT	1.00
JPN FONT	1.00
ET7140 GAMMA	1.00
COLOR MANAGEMENT	1.01
x. v. Color	1.00
OD	1.03
DETAIL CLARITY	1.00

5.FLICKER ADJUST

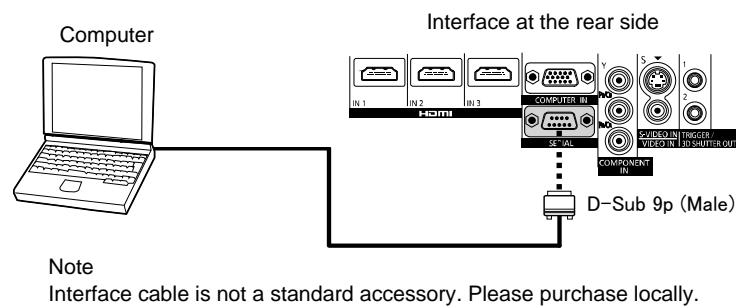
•To enter the flicker adjustment mode.

Note: If replacing the optical parts (Optical block) or A-P.C.Board, adjust to flicker is minimum according to the "SECTION 3 Flicker adjustment".

4. External Controls of SERIAL Connection

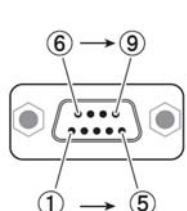
The serial connector which is on the connector panel of the projector conforms to the RS-232C interface specification, so that the projector can be controlled by a personal computer which is connected to this connector.

4. 1. Connecting example



4. 2. Pin assignment and signal

Pin	Name	Signal
①	-	NC
②	TXD	Transmitting data
③	RXD	Receiving data
④	-	NC
⑤	GND	Ground
⑥	-	NC
⑦	CTS	Connected internally
⑧	RTS	
⑨	-	NC

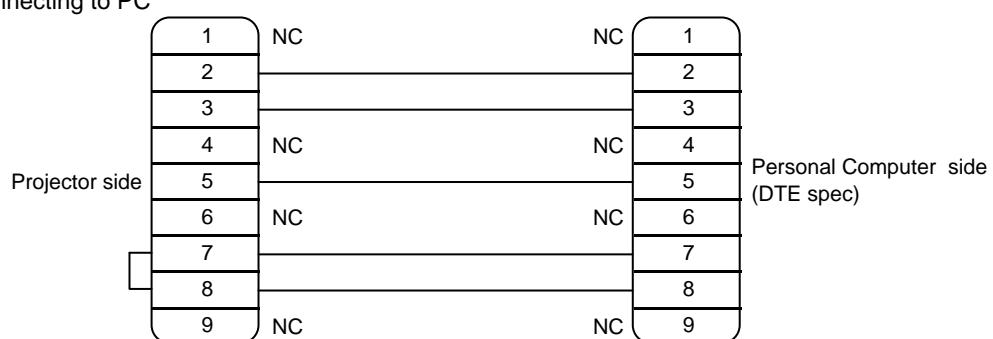


4. 3. Communication condition

Signal level	RS-232C standard
Synchronization	Asynchronous
Baud rate	9 600 bps
Parity	None
Character length	8 bit
Stop bit	1 bit
X Parameter	None
S Parameter	None

4. 4. Specification of cable communication

In case of connecting to PC



4. 5. Basic format

Data streaming from the computer will start with STX, and proceed to command, parameter and end with ETX.

Parameters can be added as necessary.

STX	Command	:	Parameter	ETX
Start byte(02h)	3 bytes	1 byte	1byte - 4 bytes	End (03h)

- The projector can not receive any command for 10 seconds after the lamp is switched on. Wait 10 seconds before sending the command.
- If sending multiple commands, check that a response has been received from the projector for one command before sending the next command.
- When a command which does not require parameters to be sent, the colon (:) is not required.
- If an incorrect command is sent from the personal computer, the ER401 command will be sent from the projector to the personal computer.

4. 6. Control commands

Refer to Operating Instructions of PT-AE8000 / PT-AT6000.

Command	Control contents	Remarks
PON	POWER ON	In standby mode, all commands other than the PON command are ignored. The PON command is ignored during lamp on control.
POF	POWER OFF	If a PON command is received while the cooling fan is operating after the lamp has switched off, the lamp is not turned back on unless approximately 85 seconds have passed in order to protect the lamp.
IIS	SWITCH INPUT	Parameters CP1 = COMPONENT IN SVD = S-VIDEO IN VID = VIDEO IN HD1 = HDMI 1 IN HD2 = HDMI 2 IN HD3 = HDMI 3 IN RG1 = COMPUTER IN
OMN	MENU	Displays the main menu.
OEN	ENTER	Activates the selected items in the menu mode.
OBK	RETURN	Returns to the previous menu or escaping from the menu mode.
OCU OCD OCL OCR	Navigation buttons (▲▼◀▶)	OCU = ▲ cursor OCD = ▼ cursor OCL = ◀ cursor OCR = ▶ cursor
OLE	LENS	Displays the test patterns for adjusting [ZOOM/FOCUS]. ([RETURN] or [MENU] when finishing)
OST	DEFAULT	Resets to the factory default setting.
OFZ	FREEZE	Freezes the projected screen. 0 = OFF, 1 = ON
FC1	FUNCTION BUTTON	Activates the function allocated to the <FUNCTION> button of the remote control.
OSH	BLANK	Turns off the projection temporarily. Sends the command to switch between ON and OFF. Do not rapidly switch between ON/OFF. While the BLANK function is ON, it is switched OFF when any command is received.
OVM	PICTURE	Activates the [PICTURE] menu. Send the command to switch menu items.
OMM	MEMORY LOAD	Displays the [MEMORY LOAD] menu.
OWM	WAVEFORM	Parameter 0 = OFF 1 = FULL SCAN(Y) 2 = FULL SCAN(R) 3 = FULL SCAN(G) 4 = FULL SCAN(B) 5 = SINGLE LINE SCAN(Y) 6 = SINGLE LINE SCAN(R) 7 = SINGLE LINE SCAN(G) 8 = SINGLE LINE SCAN(B)
VS1	ASPECT	Switches the aspect ratio. Aspect ratio is switched each time this command is sent.
VPM	PICTURE MODE	Switches the [PICTURE MODE]. Parameter NOR = NORMAL DYN = DYNAMIC 709 = REC709 DCN = D-CINEMA CN1 = CINEMA1 CN2 = CINEMA2 GM1 = GAME
DPA	PICTURE ADJUST	Displays the individual adjustment screen of the [PICTURE] menu operated immediately before this operation.
DCM	COLOR MANAGEMENT	Displays the [COLOUR MANAGEMENT] menu.
OVL	VIERA LINK	Displays the [VIERA LINK MENU] menu.
OSM	SUB MENU	Displays the SUB MENU of the connected equipment, when [VIERA LINK SETTING] - [VIERA LINK] is [ON], and the "VIERA Link" compatible device and CEC-compatible equipment of other manufacturers is connected. For details on the CEC-compatible equipment of other manufacturers, see operating instructions.

Command	Control contents	Remarks	
KST	KEYSTONE	Displays the individual adjustment screen of [KEYSTONE].	
DAM	ADVANCED MENU	Displays the individual adjustment screen of the [ADVANCED] menu operated immediately before this operation.	
OAS	AUTO SETUP	Operates AUTO SETUP. COMPUTER IN (RGB) signals only (exc. movie based signals)	
OOT	SLEEP	Sets the duration of time after which the power is to be turned off automatically. 0 = OFF 1 = 60MIN. 2 = 90MIN. 3 = 120MIN. 4 = 150MIN. 5 = 180MIN. 6 = 210MIN. 7 = 240MIN.	
O3D	3D SETTINGS	Displays the [3D SETTINGS] menu screen.	
VXX	LENS MEMORY LOAD	LMLI0 = +00000 = LENS MEMORY 1 LMLI0 = +00002 = LENS MEMORY 3 LMLI0 = +00004 = LENS MEMORY 5	LMLI0 = +00001 = LENS MEMORY 2 LMLI0 = +00003 = LENS MEMORY 4 LMLI0 = +00005 = LENS MEMORY 6
	GAMMA ADJUSTMENT	Sets Y ADJUST. (OUTPUT) AGOS0 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15)	d1d2d3d4 = OUTPUT (0000 - 0255)
		Sets R ADJUST. (OUTPUT) AGOS1 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15)	d1d2d3d4 = OUTPUT (0000 - 0255)
		Sets G ADJUST. (OUTPUT) AGOS2 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15)	d1d2d3d4 = OUTPUT (0000 - 0255)
		Sets B ADJUST. (OUTPUT) AGOS3 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15)	d1d2d3d4 = OUTPUT (0000 - 0255)
	TRIGGER 1 (OUTPUT)	Sets GAMMA ADJUSTMENT. (INPUT) AGIS0 = p1p2d1d2d3 p1p2 = POINT (01 - 15)	d1d2d3 = INPUT (001 - 099)
		Switches TRIGGER 1 (OUTPUT) when RS-232C COMMAND LINK is set in the TRIGGER 1 SETTING menu. TROI0 = +00000 = LOW	TROI0 = +00001 = HIGH
		Switches TRIGGER 2 (OUTPUT) when RS-232C COMMAND LINK is set in the TRIGGER 2 SETTING menu. TROI1 = +00000 = LOW	TROI1 = +00001 = HIGH
	3D INPUT FORMAT	Switches the [3D INPUT FORMAT]. DIFI1=+00000 = AUTO DIFI1=+00003 = SIDE BY SIDE	DIFI1=+00001 = NATIVE DIFI1=+00004 = TOP AND BOTTOM

4. 7. Inquiry commands

Refer to Operating Instructions of PT-AE8000 / PT-AT6000.

Command	Control contents	Parameter	
QPW	Power status	000 = OFF	001 = ON
QIN	INPUT signal status	CP1 = COMPONENT IN SVD = S-VIDEO IN VID = VIDEO IN HD1 = HDMI 1 IN HD2 = HDMI 2 IN HD3 = HDMI 3 IN RG1 = COMPUTER IN	
QPM	PICTURE MODE status	NOR = NORMAL DYN = DYNAMIC 709 = REC709 DCN = D-CINEMA CN1 = CINEMA1 CN2 = CINEMA2 GM1 = GAME	
QSH	BLANK status	0 = OFF	1 = ON
QFZ	FREEZE status	0 = OFF	1 = ON
QOT	OFF TIMER status	0 = OFF 1 = 60MIN. 2 = 90MIN. 3 = 120MIN. 4 = 150MIN. 5 = 180MIN. 6 = 210MIN. 7 = 240MIN.	
QWM	WAVEFORM status	Parameter 0 = OFF 1 = FULL SCAN(Y) 2 = FULL SCAN(R) 3 = FULL SCAN(G) 4 = FULL SCAN(B) 5 = SINGLE LINE SCAN(Y) 6 = SINGLE LINE SCAN(R) 7 = SINGLE LINE SCAN(G) 8 = SINGLE LINE SCAN(B)	
QVX:AGOS0	GAMMA ADJUSTMENT status	AGOS0 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15) d1d2d3d4 = OUTPUT (0000 - 0255)	
QVX:AGOS1		AGOS1 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15) d1d2d3d4 = OUTPUT (0000 - 0255)	
QVX:AGOS2		AGOS2 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15) d1d2d3d4 = OUTPUT (0000 - 0255)	
QVX:AGOS3		AGOS3 = p1p2d1d2d3d4 p1p2 = POINT (01 - 15) d1d2d3d4 = OUTPUT (0000 - 0255)	
QVX:AGIS0		AGIS0 = p1p2d1d2d3 p1p2 = POINT (01 - 15) d1d2d3 = INPUT (001 - 099)	
QVX:DIFI1	3D INPUT FORMAT status	DIFI1=+00000 = AUTO DIFI1=+00003 = SIDE BY SIDE	DIFI1=+00001 = NATIVE DIFI1=+00004 = TOP AND BOTTOM

5. Notification for service operation

5. 1. Before service operation

5. 1. 1. LCD panel

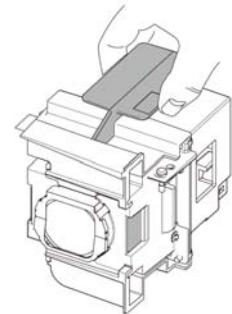
1. The display unit of this projector comprises three LCD panels. Although an LCD panel is a product of high precision technology, some of the pixels on the projected image may be missing or constantly lit.
Please note that this is not a malfunction.
2. Displaying a still image for a longer time may result in an after-image on the LCD panels.
If this happens, display the all white screen in the test pattern for an hour or more.

5. 1. 2. Lamp unit

* Lamp unit as an optional accessories, distribution through commercial channel.

Replacement lamp unit : ET-LAA410

* Do not use any other lamp unit than indicated above.



1. Be careful for handling the lamp because it is made of glass and might be exploded by hitting hard object or fall in down.
2. Philips driver is required for replacing the lamp.
3. When replacing the lamp, make sure to grasp the handle portion of the lamp unit.
4. The lamp might be exploded. Be careful for the case that the blown glasses are scattered around.
The replacement operation should be done with the highest care.
When the projector is set on the ceiling, make sure not to work just under the lamp unit or not to be closer to the lamp.
5. When throwing the lamp away, consult local municipalities about the way to do.

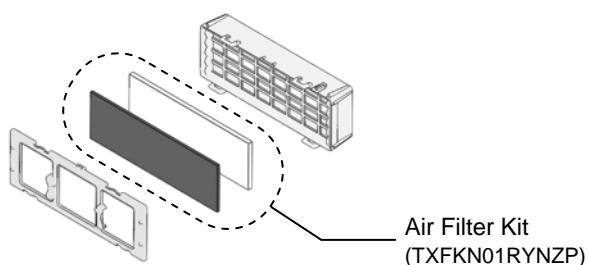
[Attention]

* Please read carefully the page 'CAUTIONS FOR THE SAFETY', 'BEFORE USING', 'CHECK AND REPLACEMENT OF PARTS' on the instruction book to know about lamp unit, how to use lamp and how to replace the lamp unit.

5. 1. 3. Air filter unit

* Clean the Air filter after every 100 hours of usage.

* A replacement air filter kit (TXFKN01RYNZP) is provided with a replacement lamp unit, ET-LAA410.



1. If the air filter is excessively dirty, the internal temperature of the projector increases and may cause malfunction.
2. Do not use the projector without attaching the air filter.
3. The air filter should be replaced when cleaning is ineffective and when replacing the lamp unit.

5. 1. 4. Repair operation

1. When electrifying the projector for the check and adjustment with top case taken off, the strong light emits from the lighting cover and its around.
Wear the anti -ultraviolet rays glasses and shade.
2. While the fan is working, do not pull the plug out nor disconnect the breaker.
* When the monitor of power supply lamp turns red and the fan stops, disconnecting can be done.
3. Repair should be done with the power supply off.
* When replacing the print board, the internal electrical parts can be broken by the static electricity of clothes or human body. Be careful of static electricity and wear the anti-static electricity globes.
4. After finishing the repair, check whether it works properly or not.
5. Check the image with 10 steps or gray scales that can show the gradation and perform self-check.

5. 2. Service

5. 2. 1. Supporting Methods

The basic service policy is shown below.

Service method	Applied parts
Block replacement P.C.Board replacement	<ul style="list-style-type: none"> • Analyses block (* Specified components are replaced) • Optical Block (with projection lens) <ul style="list-style-type: none"> *Projection lens can not be separated from optical block. • K1/K2-P.C.Board (*Specified components are replaced) • P-P.C.Board • B-P.C.Board • H-P.C.Board • M1/M2/M3-P.C.Board
Individual parts supply. Individual parts replacement on	<ul style="list-style-type: none"> • Other electrical parts / Other mechanical parts

5. 2. 2. When change a A-P.C.Board

If replacing A-P.C.Board (assembly), read the ROM data from the old P.C.Board and write it in the new one according to the section 3. "Adjustment".

* Down load the adjustment software from our Projector service web site.

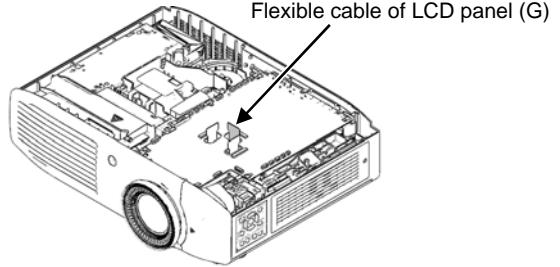
* At this time, if the readout from the old P.C.Board does not succeed, remove IC1022 and IC1023 from the old P.C.Board and install them on the new one.

After replacing A-P.C.Board (assembly), perform each adjustment in reference to SECTION 3 "Adjustments".

5. 2. 3. Identification for type A and type B of Optical block

Please confirm described No. on flexible cable of LCD panel (G).

- L3C07U-96G00 → Select "Type A" of optical block.
- L3C07U-95G00 → Select "Type B" of optical block.



5. 3. Replacement of consumable parts

[Attention] · When replacing the consumable parts, please make sure that the main power is OFF and power cable is disconnected.

5. 3. 1. Replacement timing for lamp unit

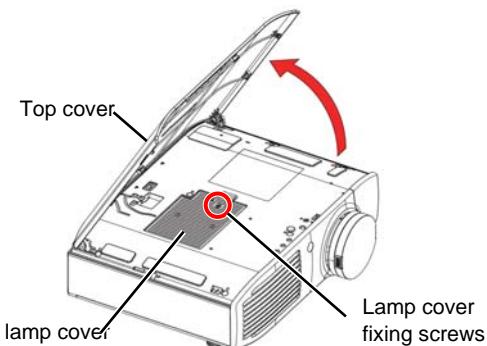
1. Confirm the lamp usage hours with "LAMP RUNTIME" in "Option menu" and replace it periodically.
2. The replacement guideline is every 4000 hours, but it may turn off before 4000 hours depending on lamp's individual characteristic, usage condition, environment and etc. Earlier replacement is recommended.
3. When the lamp is kept using after 4 000 hours without replacement, it automatically turns off after 10 minutes for avoiding failure.

Lamp time	On screen "REPLACE LAMP"	LAMP indicator
Over 3800 hours	The message is displayed for 30 seconds. If you press any button within the 30seconds, the message disappears.	Illuminates red, including when in standby mode.
Over 4000 hours	The message is displayed until you press any button.	

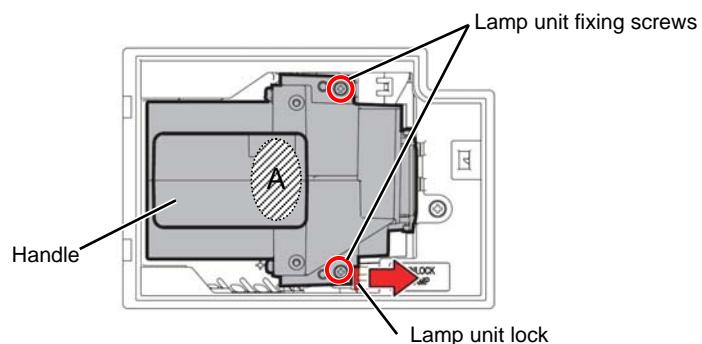
* 4000 hours of use is a rough guideline, but this is not a guarantee.

5. 3. 2. Replacement procedure for lamp unit

1. Confirm that the lamp unit is cooled down completely. (More than 1 hour has passed after main power is off.)
2. Open the top cover in the direction of the arrow.
3. Lamp cover fixing screw is loosened all the way and remove "Lamp cover".



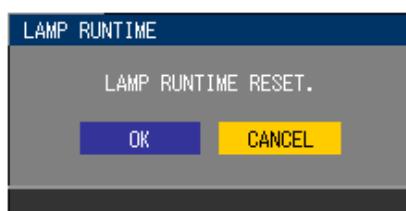
4. Use a Phillips screwdriver to unscrew the lamp unit fixing screws (2 screws) until loose.
5. Hold the handle of the lamp unit and with the lamp unit lock held in the direction of the red arrow, carefully pull it out of the projector unit in a vertical motion.



6. Insert the new lamp unit in correct direction. Tighten the two lamp unit fixing screws securely with a Phillips screwdriver.
* Press down on the A part firmly when inserting the lamp unit.
7. Attach the lamp cover, and tighten the two lamp cover fixing screws securely with Phillips screwdriver.
8. Close the top cover of the projector.

5. 3. 3. Reset procedure of the lamp use time

1. Insert the power plug into a power outlet, and press the <ON> side of the <MAIN POWER> switch to turn on the power.
2. Press the <MENU> button to display the menu screen, and select [OPTION] with the ▲▼ buttons.
3. Press the <ENTER> button, and select [LAMP RUNTIME] with the ▲▼ buttons.
4. Hold the <ENTER> button down for 3 seconds.
5. Select [OK] with the ▲▼ buttons and then press the <ENTER> button.
* LAMP RUNTIME is reset to "0" and the projector prepares to power off.
After a short while, the projector enters power off (standby) mode.

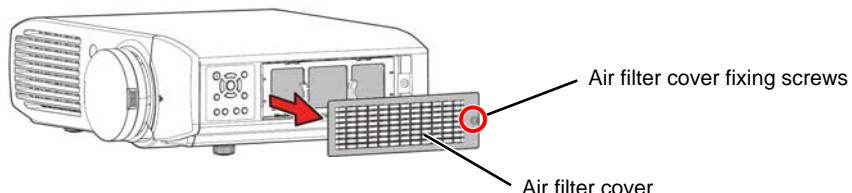


5. 3. 4. Air filter unit maintenance

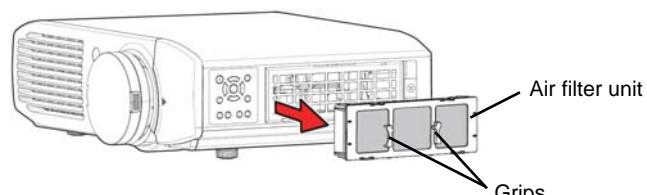
1. If too much dust accumulates in the air filter the internal temperature of the projector cannot be maintained at the normal level.
2. Confirmation message is displayed on the screen, and at the same time <TEMP> illuminates red.
The power is cut off automatically after a while.

5. 3. 5. Cleaning procedure for Air filter unit

1. Using a Phillips screwdriver to turn the fixing screw of the air filter cover until loose and remove the cover.

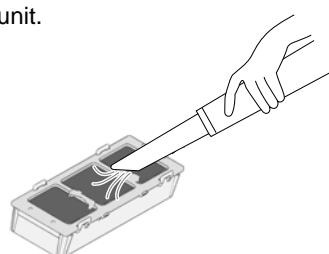


2. Hold the grips on the air filter unit, and remove the unit towards arrow.



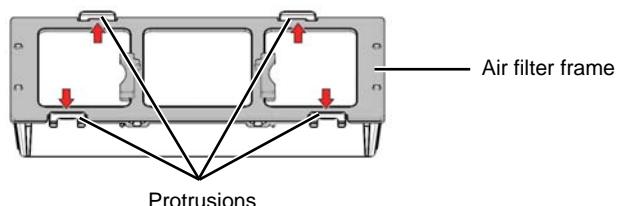
3. Vacuum the dirt and dust, from the air filter unit.

* Do not wash the air filter unit.



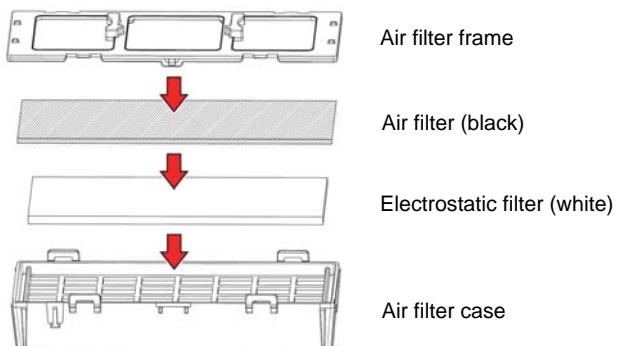
5. 3. 6. Replacement procedure for Air filter kit

1. Press the protrusions of air filter unit removed from the projector in the direction of the arrow and remove the air filter frame.



2. Replace the Air filter kit (air filter/electrostatic filter).

* Ensure you attach the electrostatic filter and air filter in the correct order.



6. Troubleshooting

6. 1. Summary of shut down system

When the abnormality of the lamp and the abnormality of the fan occurred, possess a shut down function to make a standby state for safety promptly.

Monitor LED indication	Shut down Detection	Presumed Factor	OSD Warning Indication
No flashing or blinking	Power fuse => 8A 250V	Blown out of the fuse (with some reason)	—
	Thermal fuse => More than 105 degrees C	Blown out of the fuse (with some reason)	—
	IIC bus =>FPGA initialized error =>Communication error	Communication line is disconnection in A-P.C.Board.	—
	No FAN sense signal	Connector is disconnected Fan abnormal	—
	Each FAN sense signal: => Rotation speed is slower than 50% of target for more than 10 seconds.	Fan speed abnormal	—
	IRIS sense signal => Unresponsiveness is more than 1 minute	Iris unit abnormal Iris drive circuit abnormal	—
All indicator Illuminating	Interlock SW => Abnormal :OFF	Lamp unit cover is not installed.	—
TEMP indicator Flashing red	Intake air temperature sensor: => Under -36 degrees C	Connection problem with Intake air temperature sensor. Faulty temperature sensor.	—
	Exhaust air temperature sensor: => Under -36 degrees C	Connection problem with Exhausting air temperature sensor. Faulty temperature sensor.	—
	Intake air temperature sensor: => More than 43 degrees C	Intake air temperature error High temperature of environment Intake air window is closed	More than 41 degrees C =>"TEMPERATURE WARNING" lower than 39 degrees C => Warring cancel
	Exhaust air temperature sensor: => More than 79 degrees C	Exhausting air temperature error: Closed ventilator High altitude mode is not on.	More than 77 degrees C =>"TEMPERATURE WARNING" lower than 75 degrees C => Warring cancel
	Filter air temperature sensor: => More than threshold ** degrees C	Filter clogging Closed Intake High altitude mode is not on	"Air filter cleaning"
LAMP indicator Flashing red	Lamp status => Lamp is off during the status other than normal one	Failed lamp ON, lamp abnormal condition Ballast block faulty, Hot restart	—
LAMP LED Lights	Lamp hours => Over 4000 hours (Shuts down after 10 minutes.)	Lamp usage hour is over the guideline.	Over 3800 hours => "Replace lamp"

Value “**” is changed by “Lamp mode”, or “Fan mode” and “Setting attitude”

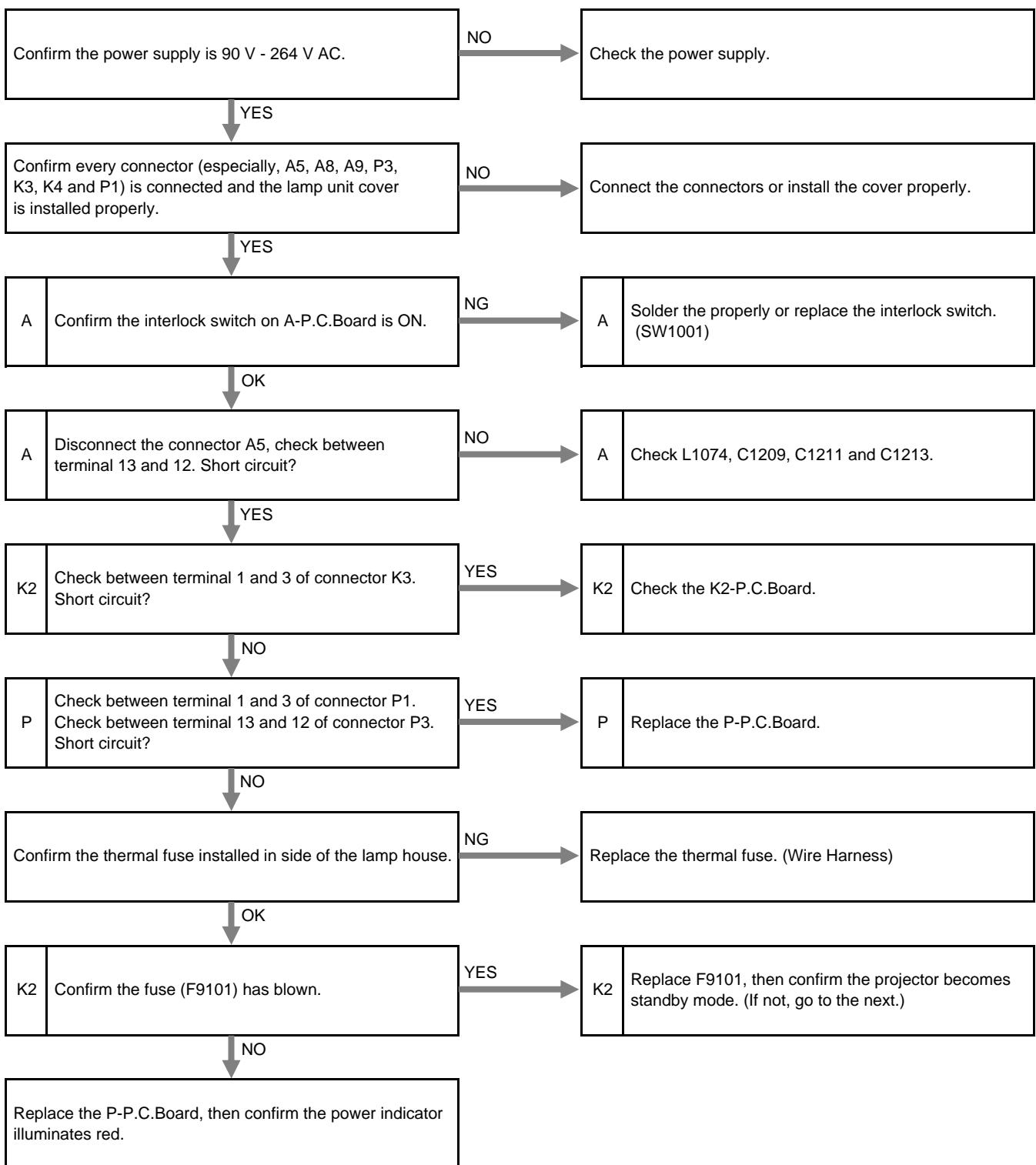
6. 2. Troubleshooting flow

* The letters in the left of inspection items indicate the P.C. Boards or Modules related to their respective descriptions.

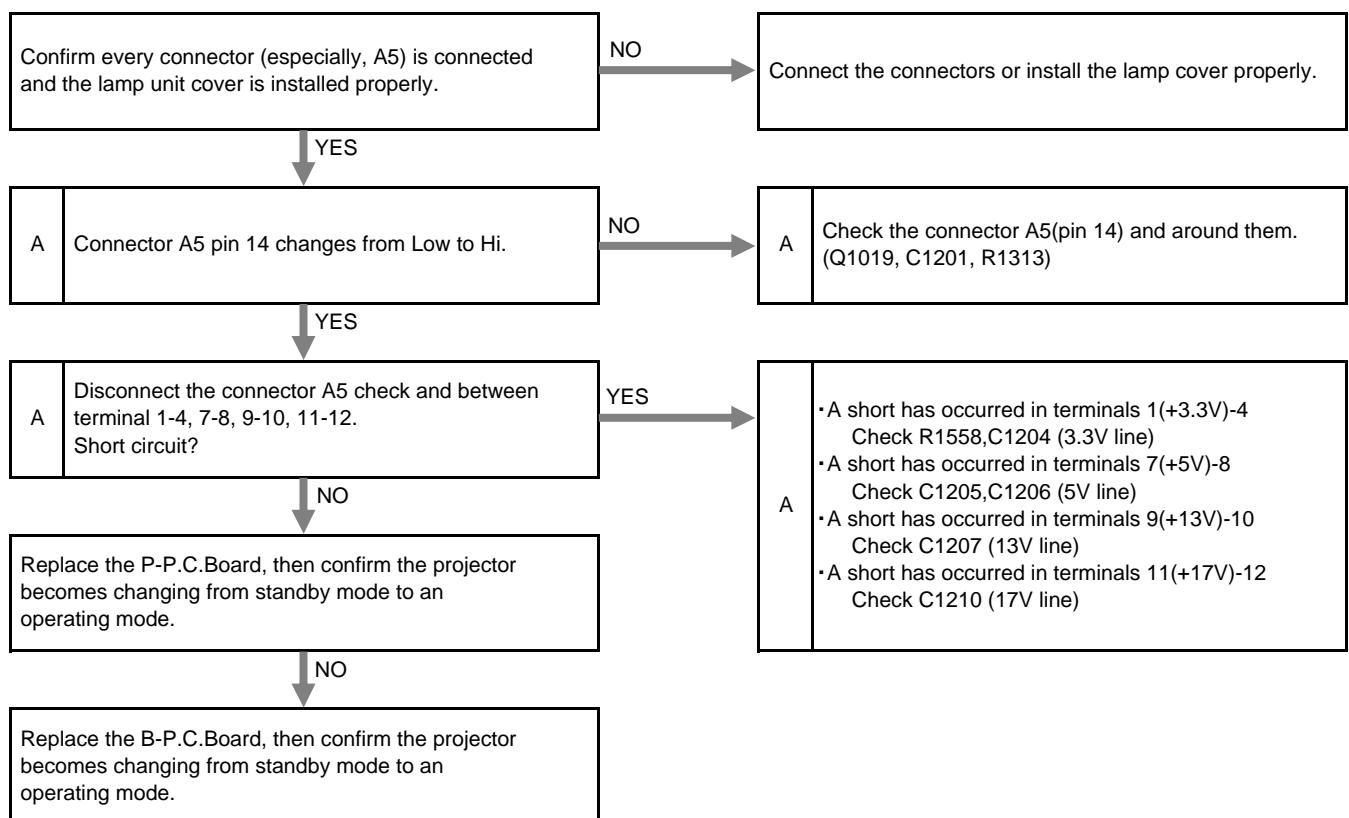
* Inspection should be done with "ON" to interlock switch. (inter lock detection)

Push the interlock switch to the ON state, and paste the adhesive tape.

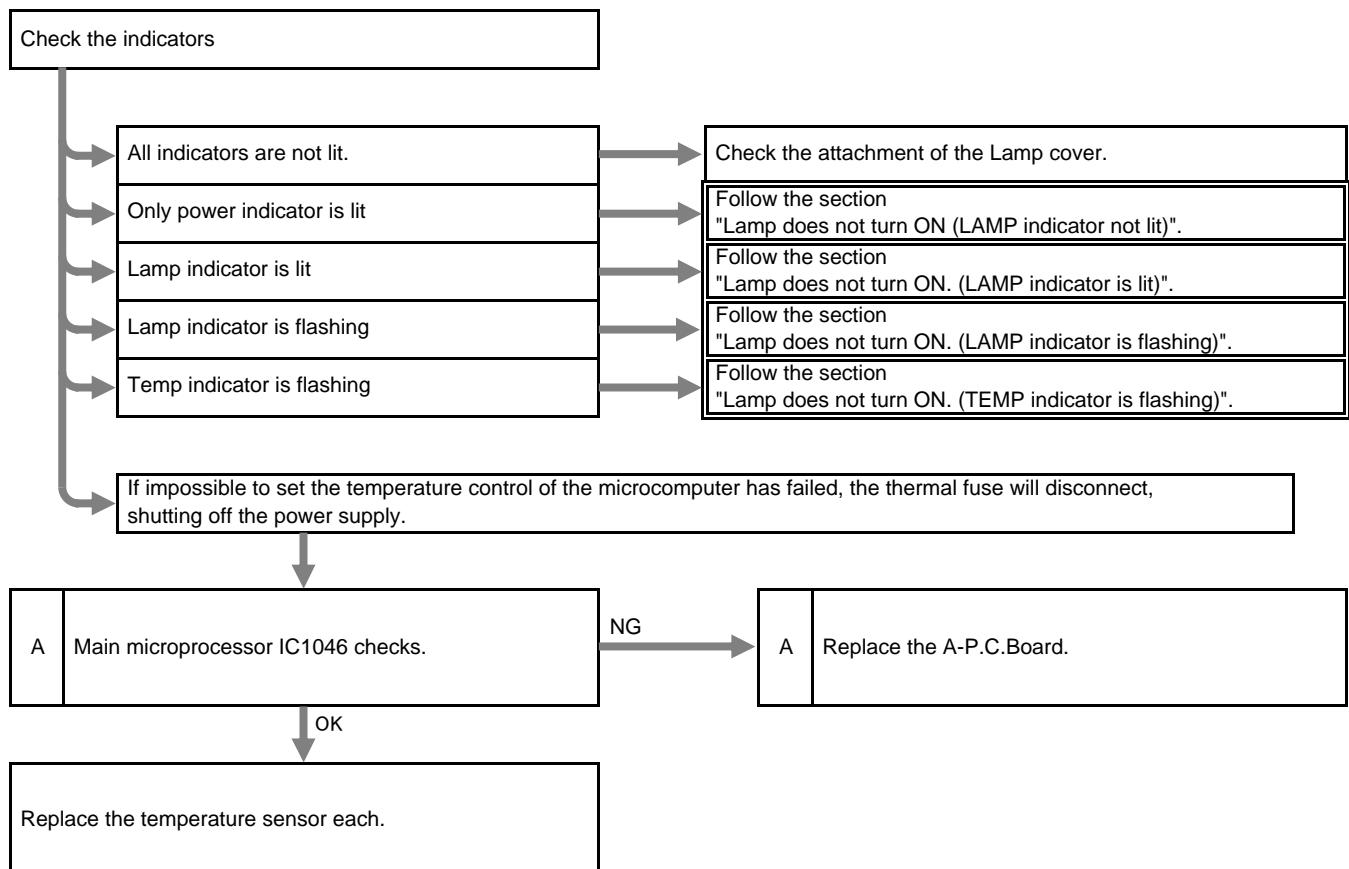
■ The projector does not become standby mode. (The power indicator does not illuminate red.)



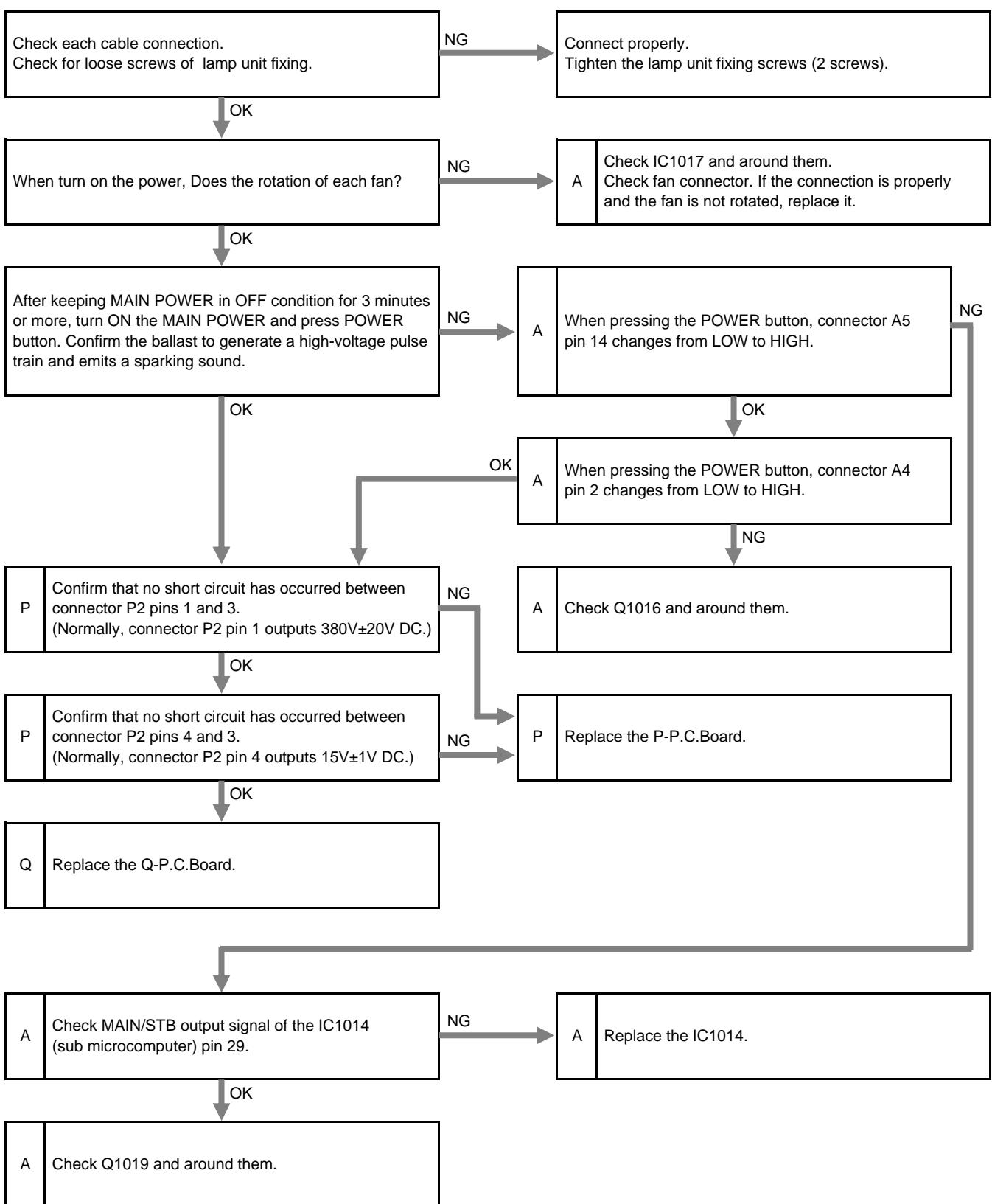
■ The projector does not change from standby mode to an operating mode.
(The power indicator does not change from red to green.)



■ A shutdown occurs.



● Lamp does not turn ON (LAMP indicator not lit)



● Lamp does not turn ON (LAMP indicator is lit)

After keeping MAIN POWER in OFF condition for 3 minutes or more, turn ON the MAIN POWER and press POWER button. Then confirm the lamp lights up.

NG

Replace the lamp unit.

OK

If the lamp goes out approximately 10 minutes after it lights up, the cumulative usage time of it exceeds 4 000 hours. Replace the lamp unit.

● Lamp does not turn ON. (LAMP indicator is flashing)

After keeping MAIN POWER in OFF condition for 3 minutes or more, turn ON the MAIN POWER and press POWER button. Then confirm the lamp lights up.

NG

Replace the lamp unit.

NG

B Replace the B-P.C.Board.

● Lamp does not turn ON. (TEMP indicator is flashing)

Check whether the air inlet port and air exhaust port not been blocked.

NG

Do not cover air intake port or air exhaust port. Install the projector so that cold air or hot air from air conditioners does not come in to direct contact with the air intake port or air exhaust port.

OK

Check whether the air filter unit is not clogged.

NG

Cleaning the air filter unit.

OK

Check each temperature sensor connector cable connection.

NG

Connect a connector properly.

OK

Check each temperature sensor.

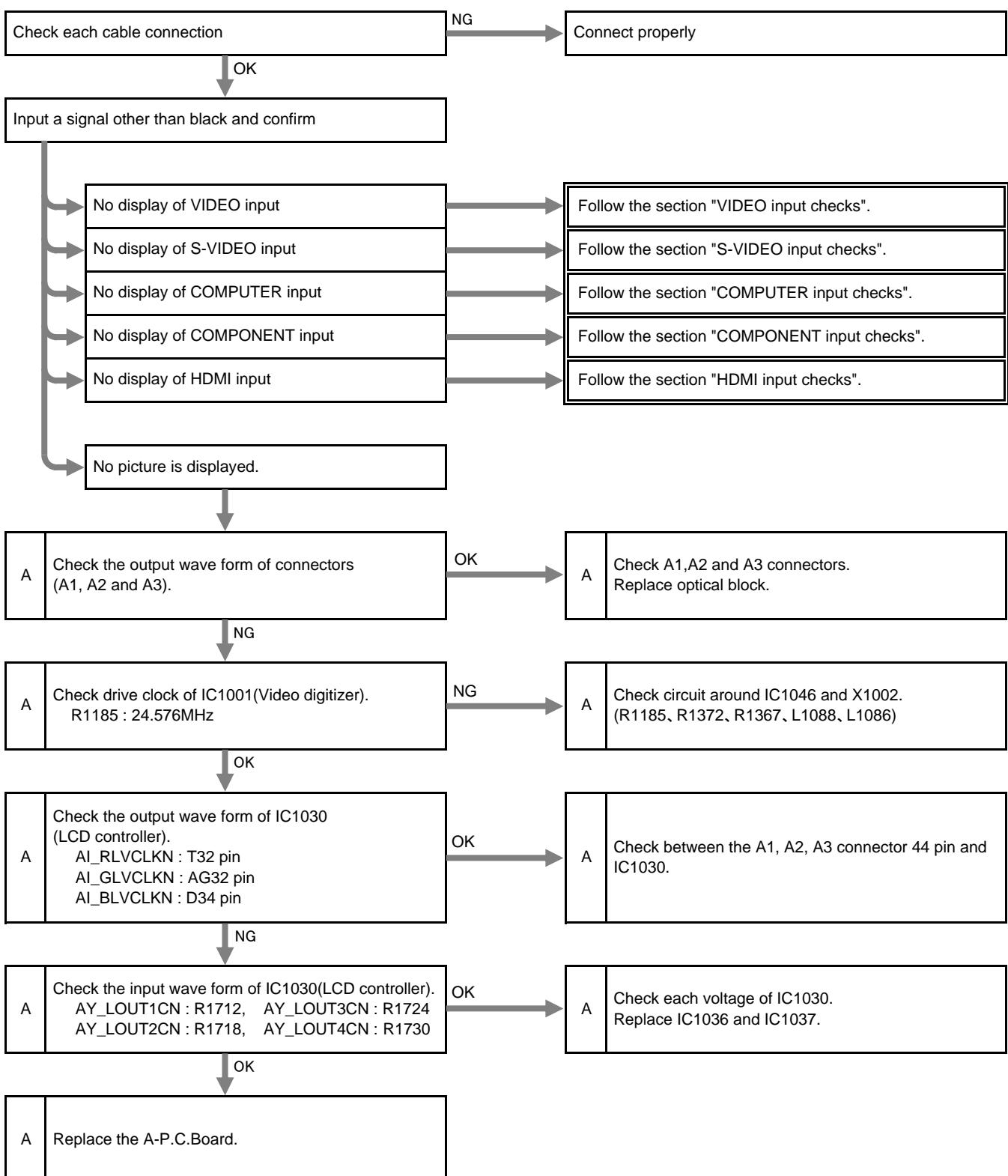
NG

Replace temperature sensor.

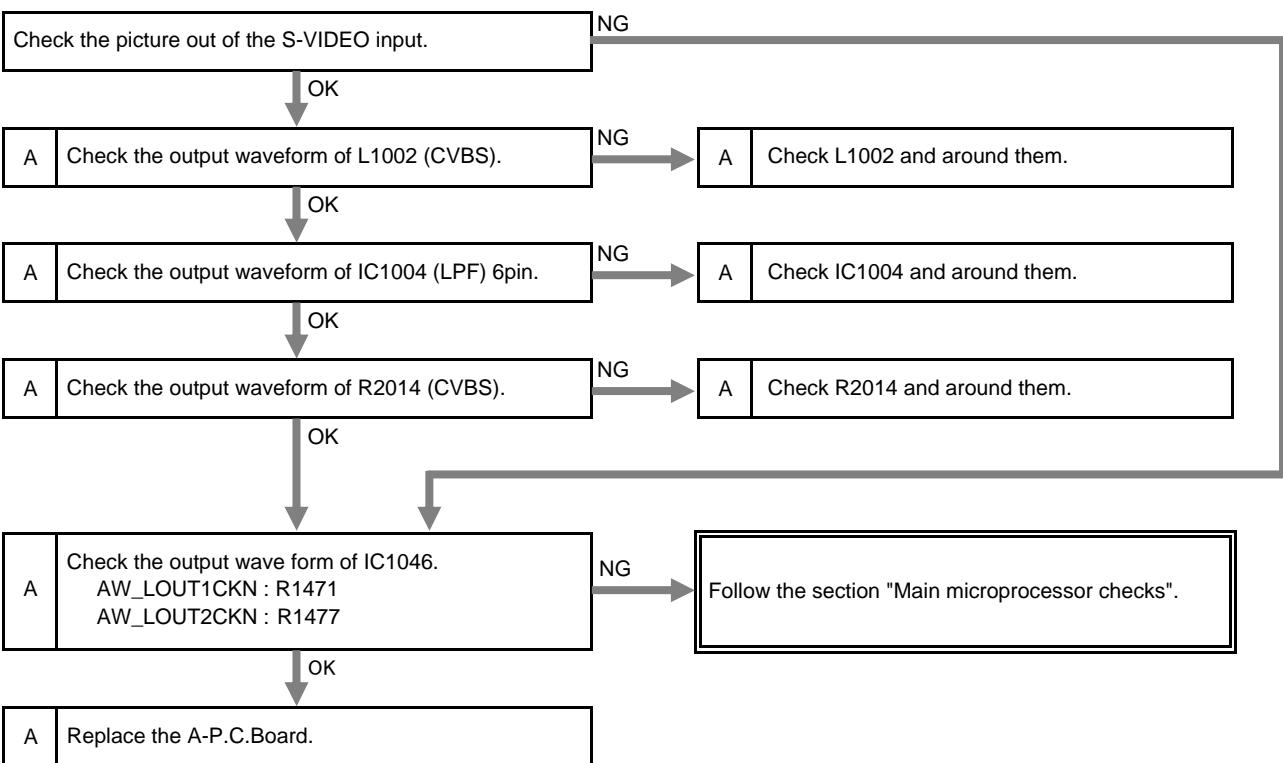
OK

A Replace the A-P.C.Board.

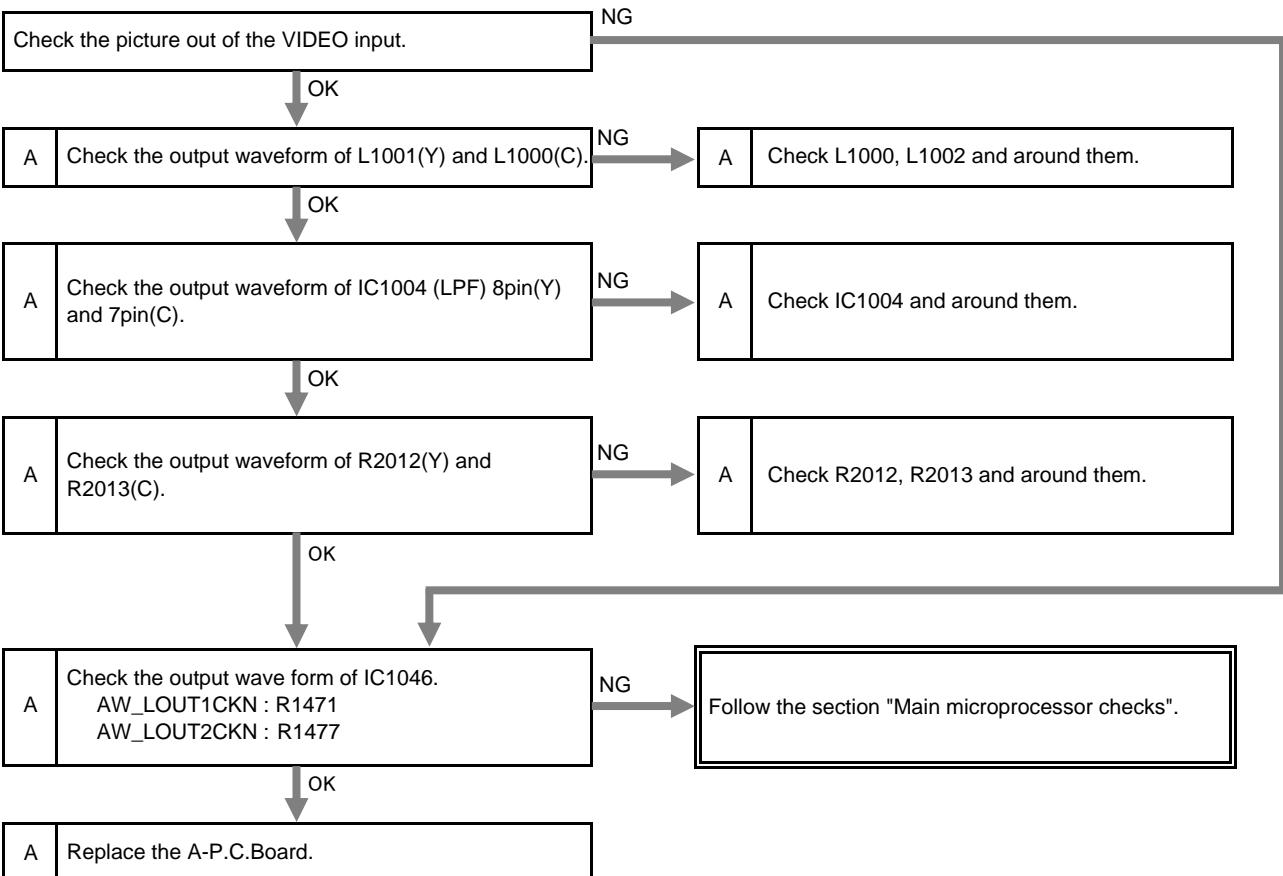
■ No picture or abnormal picture is output



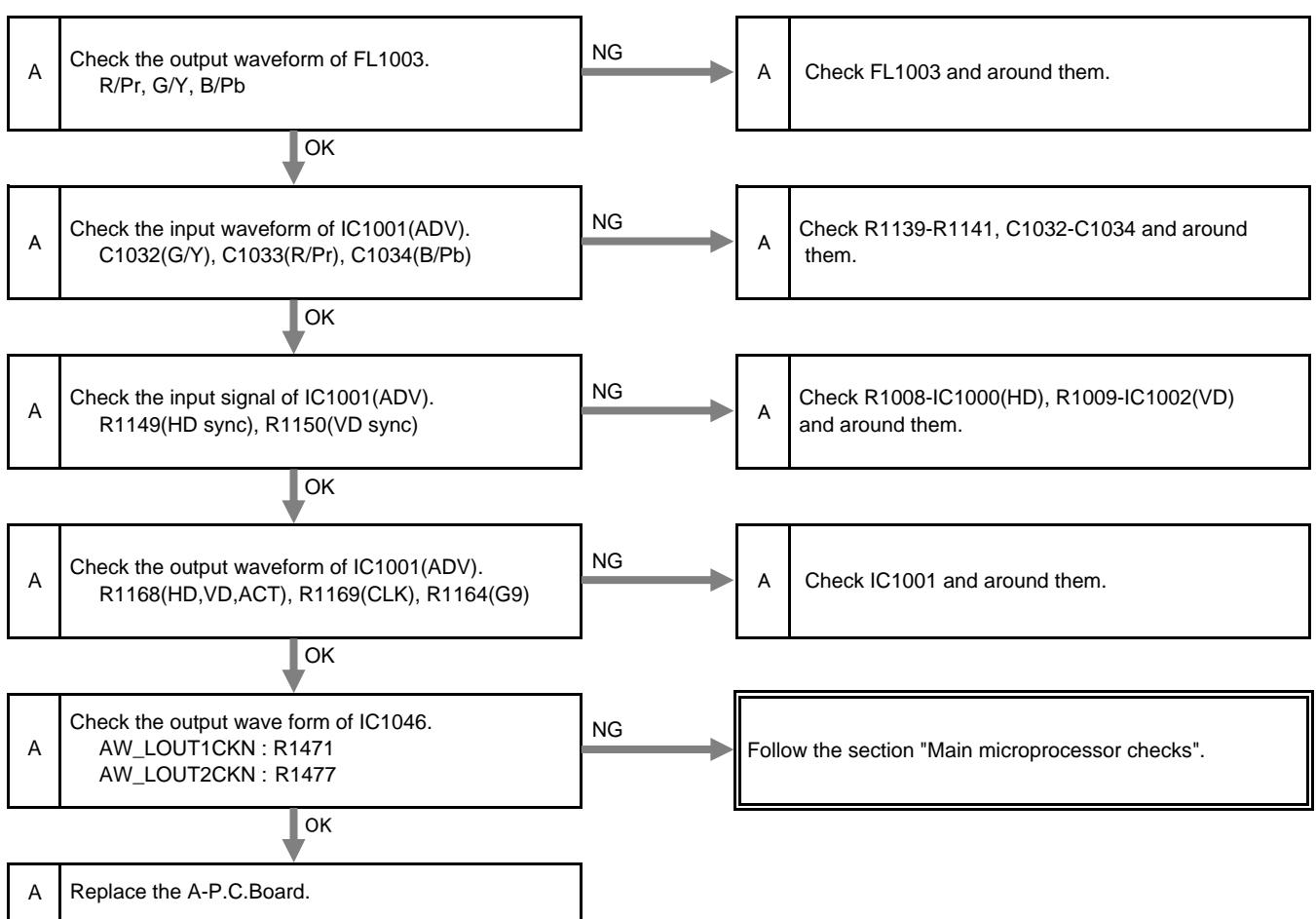
● VIDEO Input checks



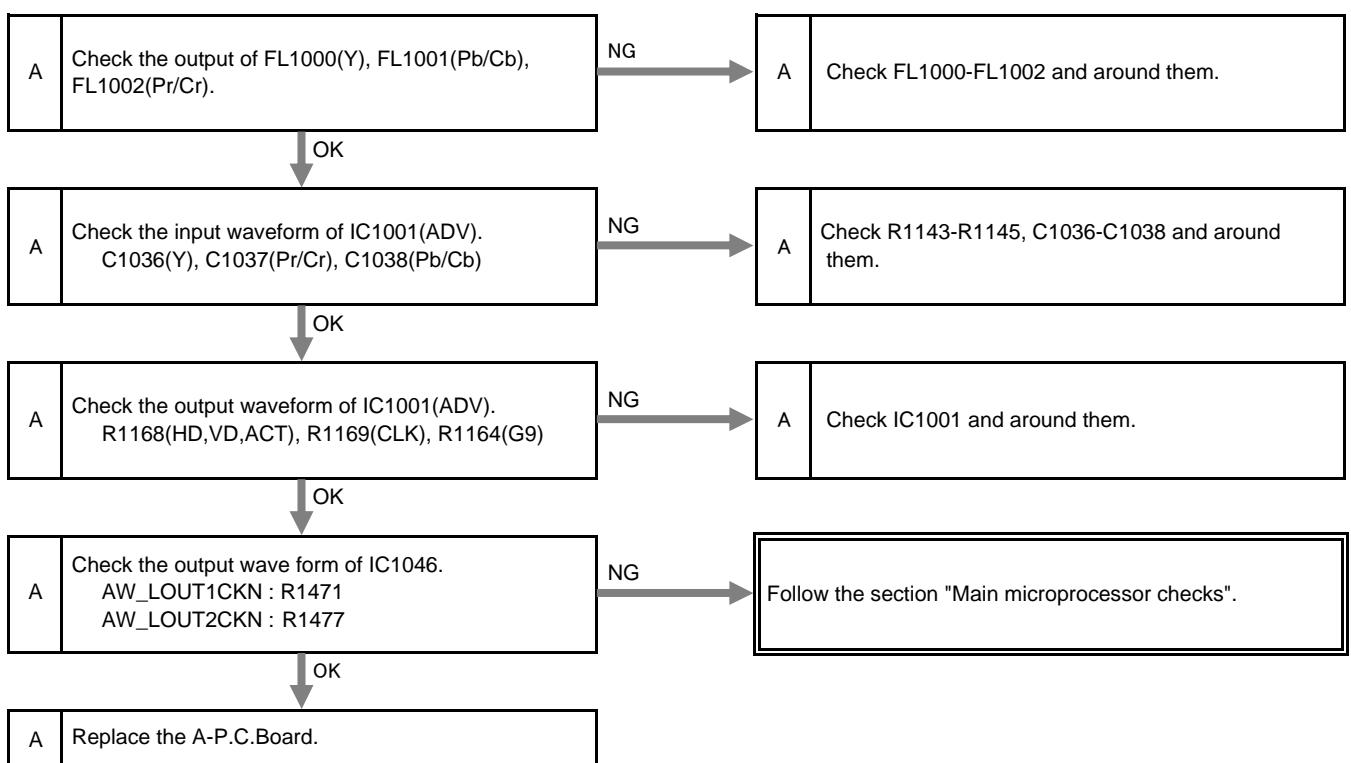
● S-VIDEO Input checks



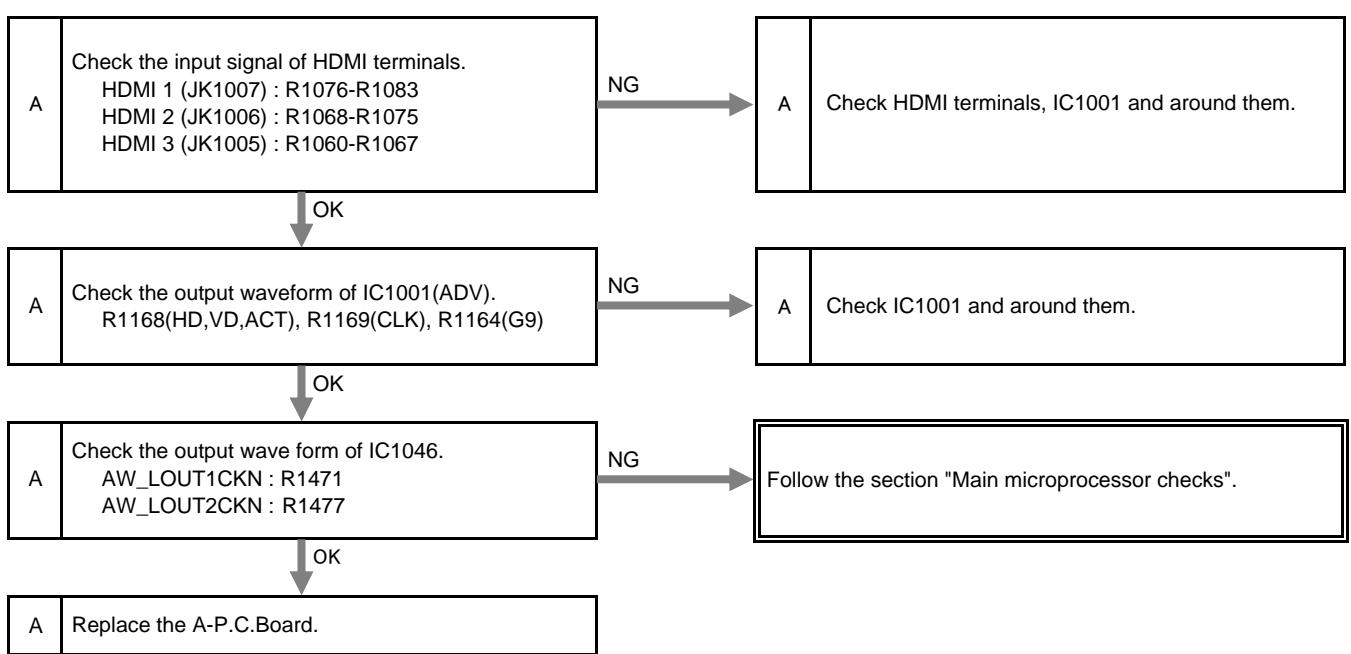
● COMPUTER Input checks



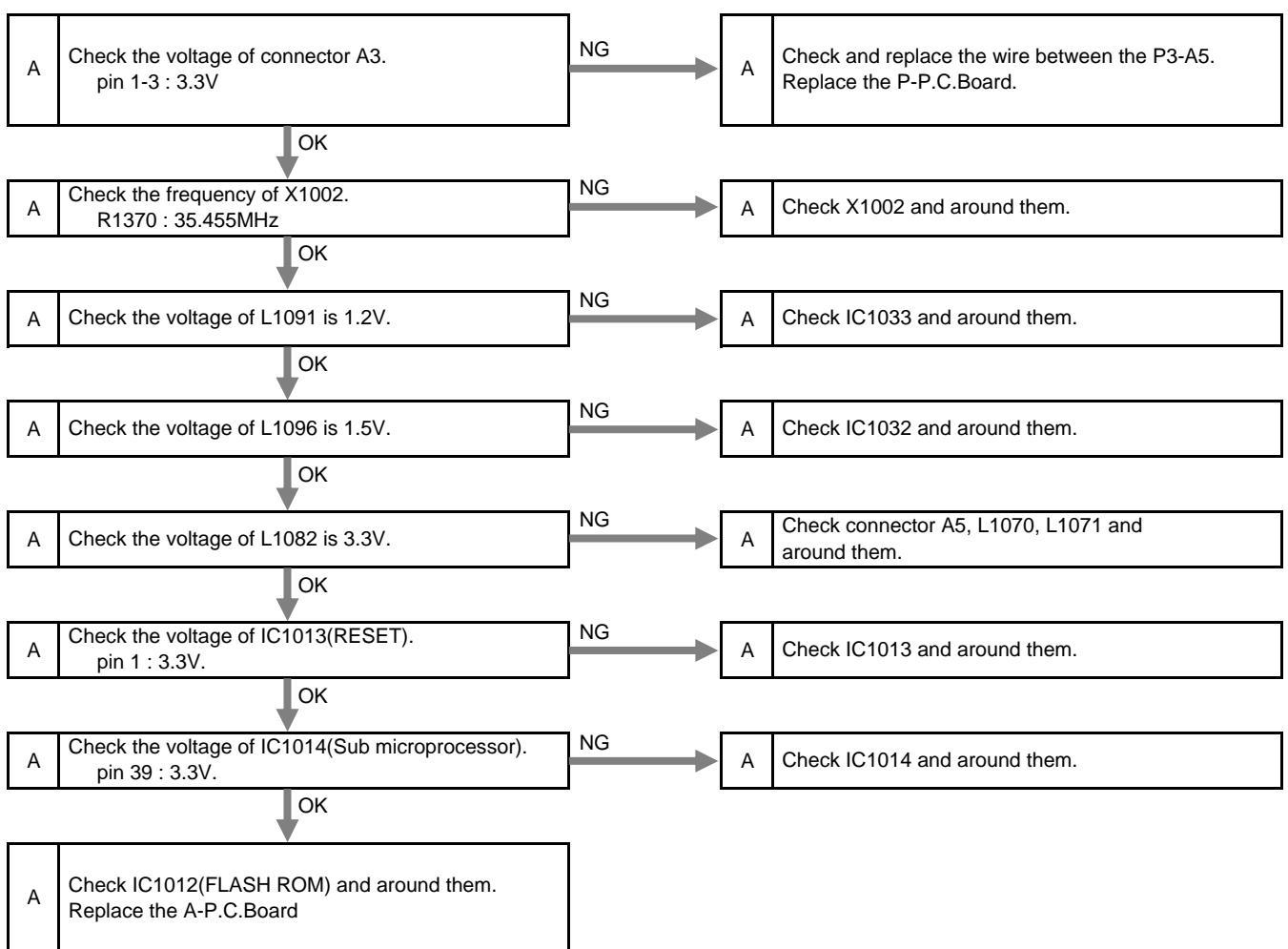
● COMPONENTI Input checks



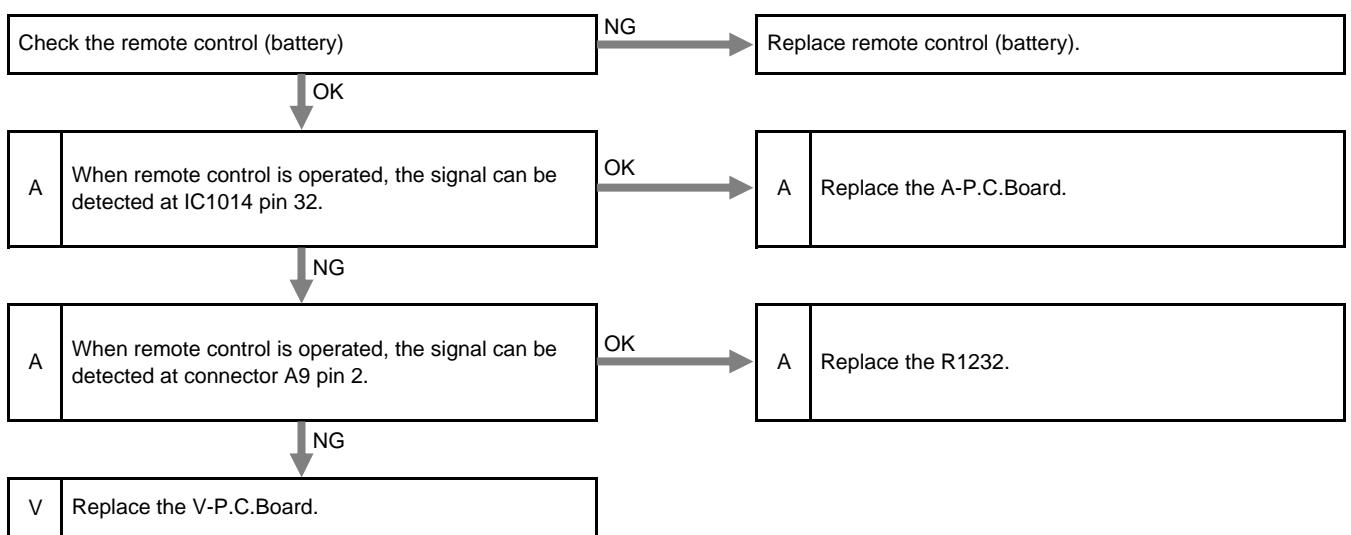
● HDMI Input checks



● Main microprocessor checks



■ Remote control does not work



SECTION 2

<Disassembly Procedures>

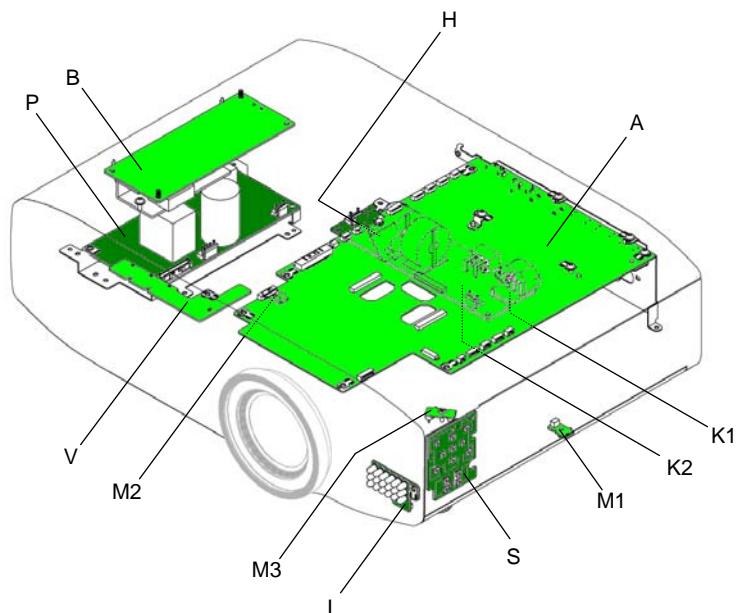
Model No. **PT-AE8000U**
PT-AT6000E
PT-AE8000EA / AE8000EH / AE8000EZ

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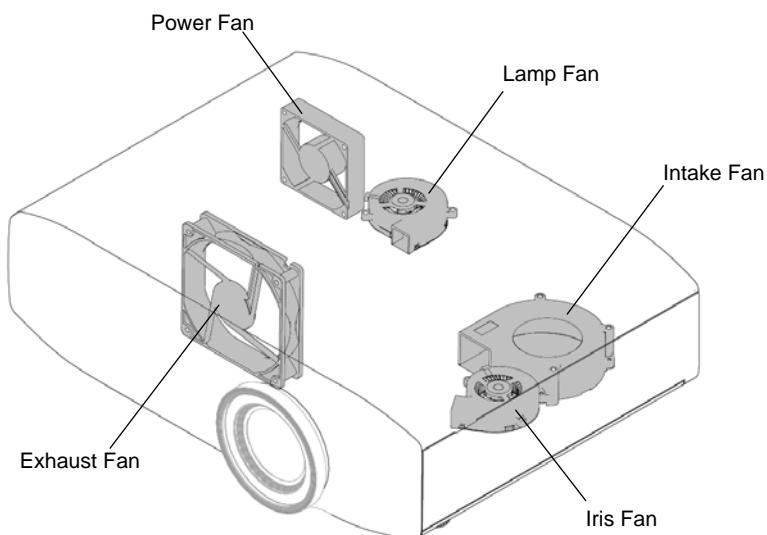
1. Parts Location

1. 1. Electrical Parts Location (P.C.Board)



Board Name	Function summary	Board Name	Function summary
A	Image processing system / Microcomputer	M2	Temp sensor (Exhaust)
S	Control Panel	M3	Temp sensor (Air flow)
V	Indicator LED	B	Ballast power / Ballast control
L	3D-IR transmitter	P	Power supply (DC-DC)
H	Iris position sensor	K1	AC Inlet
M1	Temp sensor (Intake)	K2	Line Filter

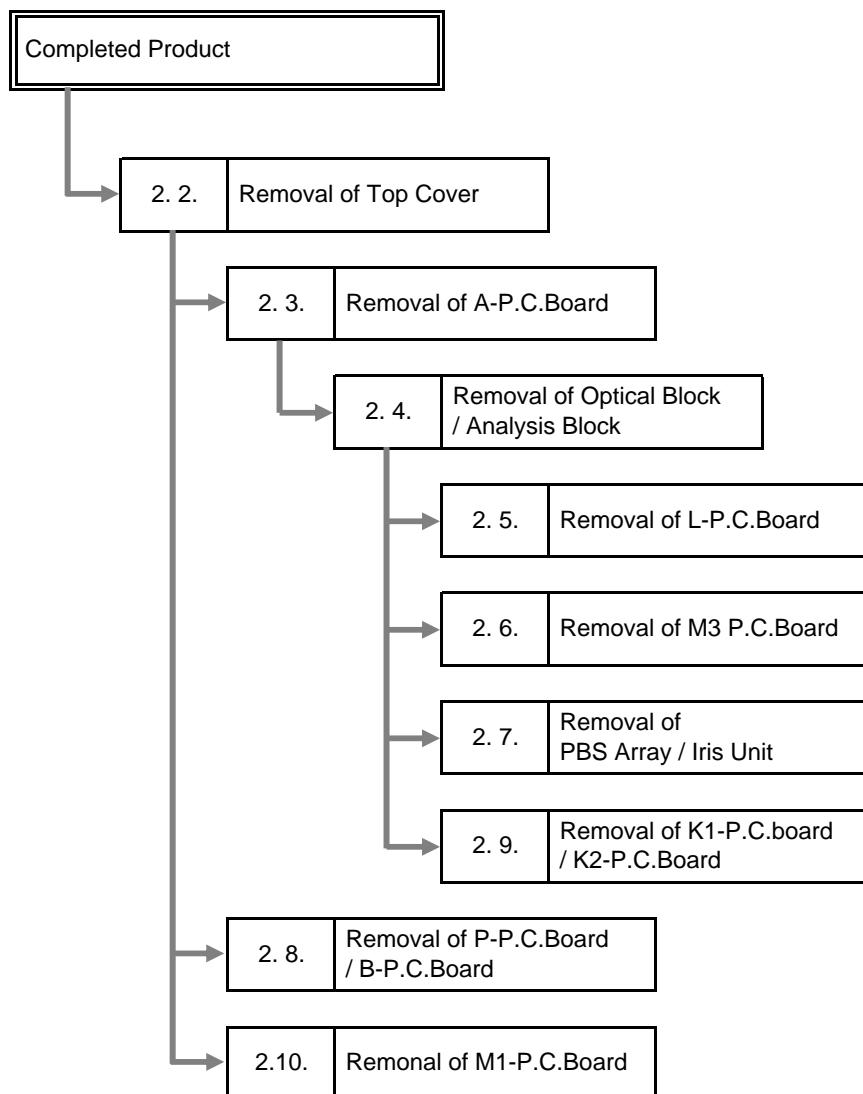
1. 2. Electrical Parts Location (Fan)



2. Disassembly Instructions

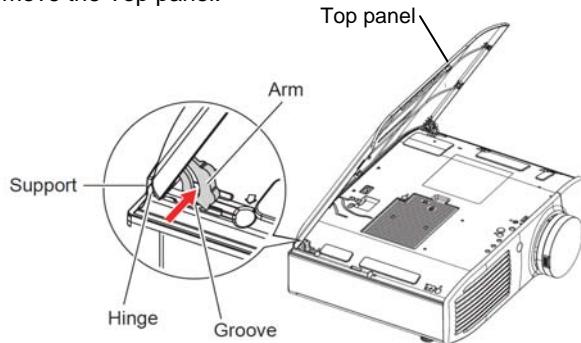
2. 1. Flowchart for Disassembly

- * Before Disassembly the projector, turn off the POWER switch and disconnect the power plug from the wall outlet.
- * To assemble, reverse the disassembly procedures.
- * When tore off sticky tapes, please use a new thing without reusing it on the occasion of assembling.
- * Description of the illustration may be different from the real.



2. 2. Removal of Top Cover

1. Remove the Top panel.

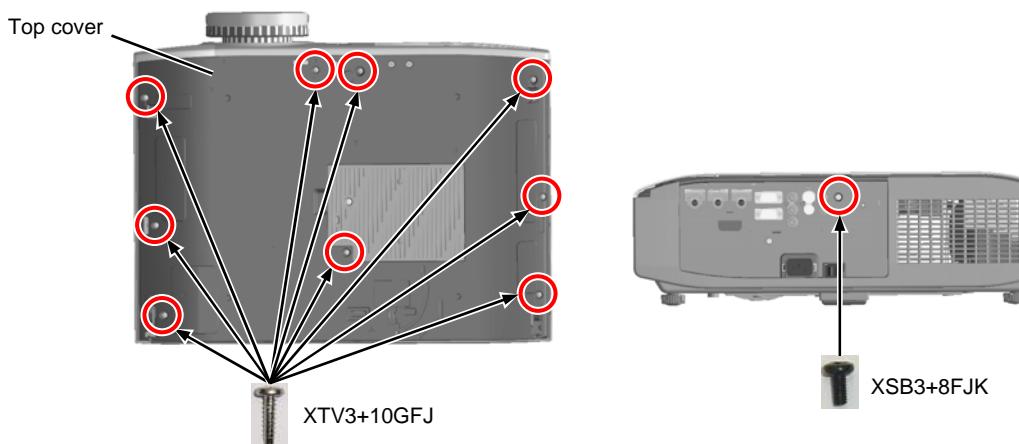


- 1) Hold the top cover as shown in the diagram.
- 2) While pushing the arm in the direction of the arrow (inside projector), pull out from the groove.

* Attaching the top panel

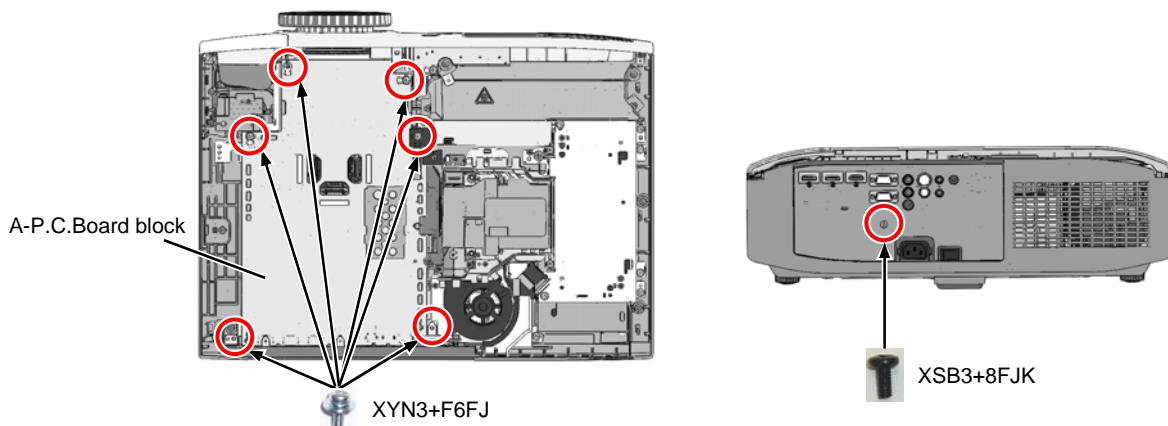
- 1) Hold the top cover as shown in the diagram.
- 2) Align the hinge with the support.
- 3) while pushing the arm in the direction of the arrow (inside projector) push it into the groove.

2. Unscrew the 9 screws on the top side and 1 screw on the rear side.

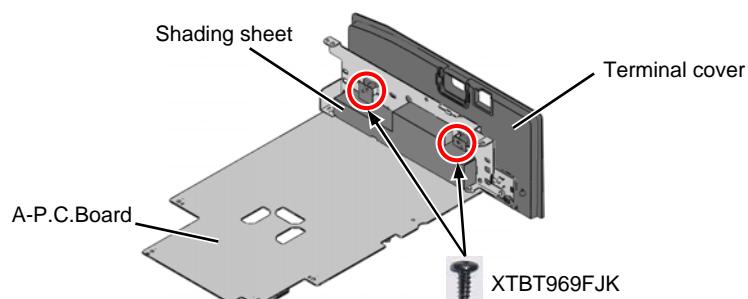


2. 3. Removal of A-P.C.Board

1. Remove the Top Cover according to the section 2.2 "Removal of Top Cover".
2. Unscrew the 7 screws and remove the A-P.C.Board block.

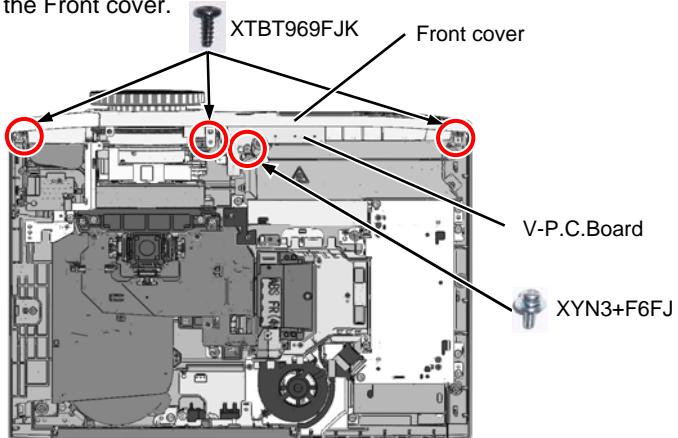


3. Unscrew the 2 screws and remove the Terminal cover and Shading sheet.

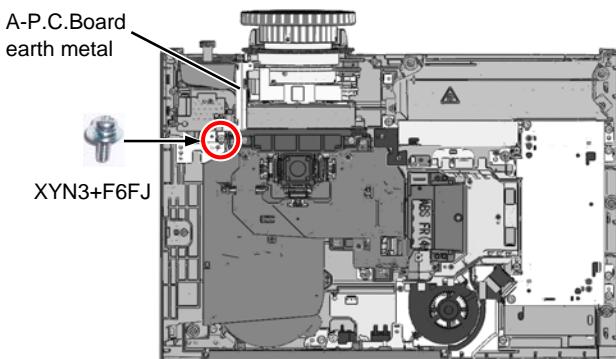


2. 4. Removal of Optical Block / Analysis Block

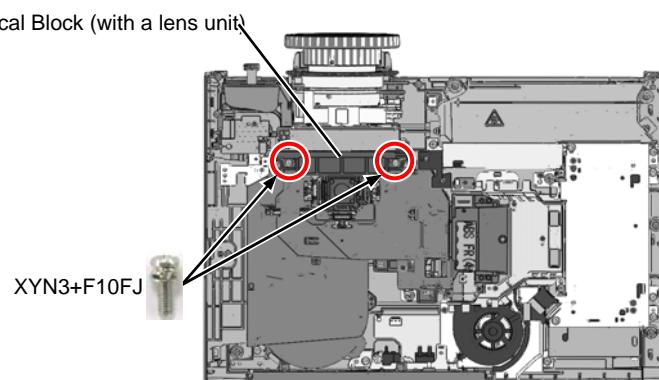
1. Remove the A-P.C.Board block according to the steps 1 through 2 in the section 2.3. "Removal of A-P.C.Board".
2. Loosen the 2 screws and remove the Lamp unit.
3. Unscrew the 1 screw and remove the V-P.C.Board.
4. Unscrew the 3 screws and remove the Front cover.



5. Unscrew the 1 screw and remove the A-P.C.Board earth metal.

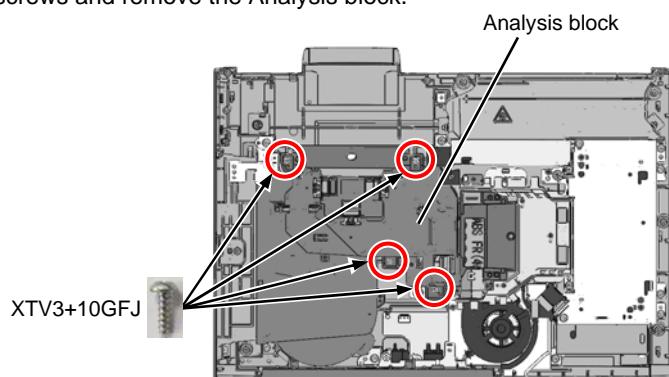


6. Unscrew the 2 screws and remove the Optical block.



* There is not enough space between the Analysis block and Optical block. Be careful not to damage nor dirty precision components (LCD panel, incidence polarizer, etc.) when removing.

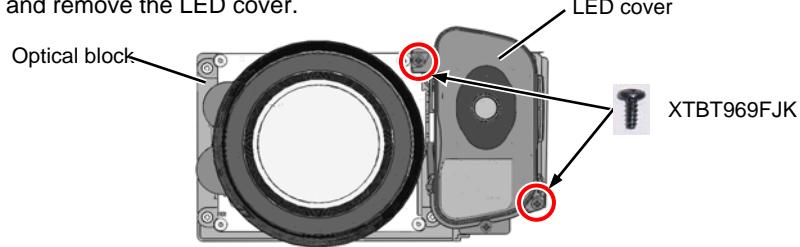
7. Unscrew the 4 screws and remove the Analysis block.



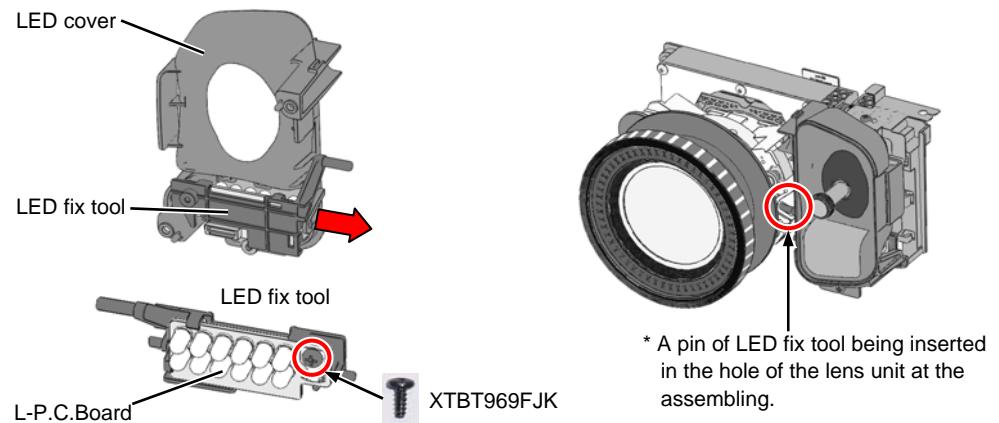
* The incidence polarizer is installed in the Analysis block. Be careful not to shift the installation position nor damage it.

2. 5. Removal of L-P.C.Board

1. Remove the Optical block according to the steps 1 through 6 in the section 2.4. "Removal of Optical Block / Analysis Block".
2. Unscrew the 2 screws and remove the LED cover.

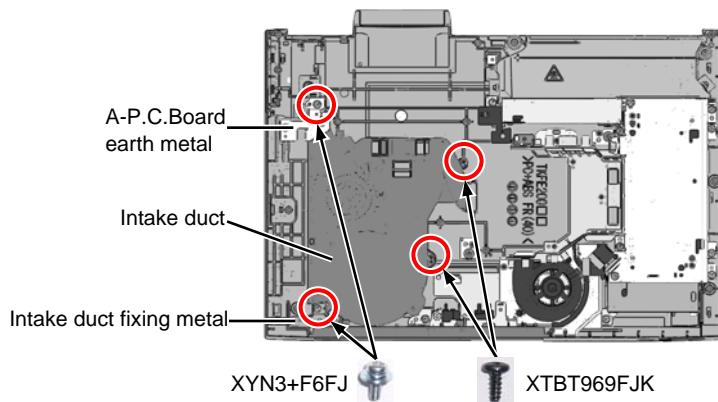


3. While pushing the LED cover in the direction of the arrow, and remove a LED fix tool.
4. Unscrew the 1 screw and remove the L-P.C.Board.



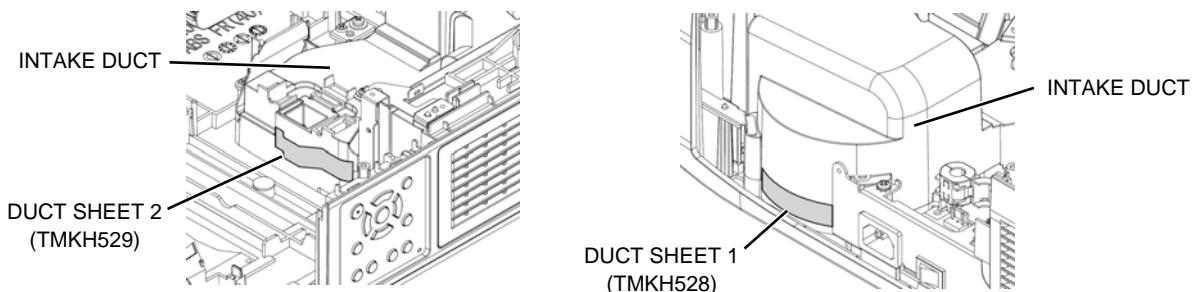
2. 6. Removal of M3 P.C.Board

1. Remove the Analysis block according to the section 2.4. "Removal of Optical Block / Analysis Block".
2. Unscrew the 1 screw and remove the A-P.C.Board earth metal.
3. Unscrew the 3 screws and remove the Intake duct.

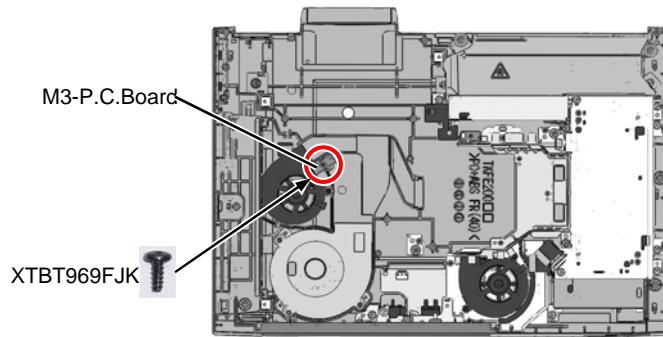


Note : Duct sheets is removed before removing intake duct.

When assembling, please replace with new duct sheets.



4. Unscrew the 1 screw and remove the M3-P.C.Board.

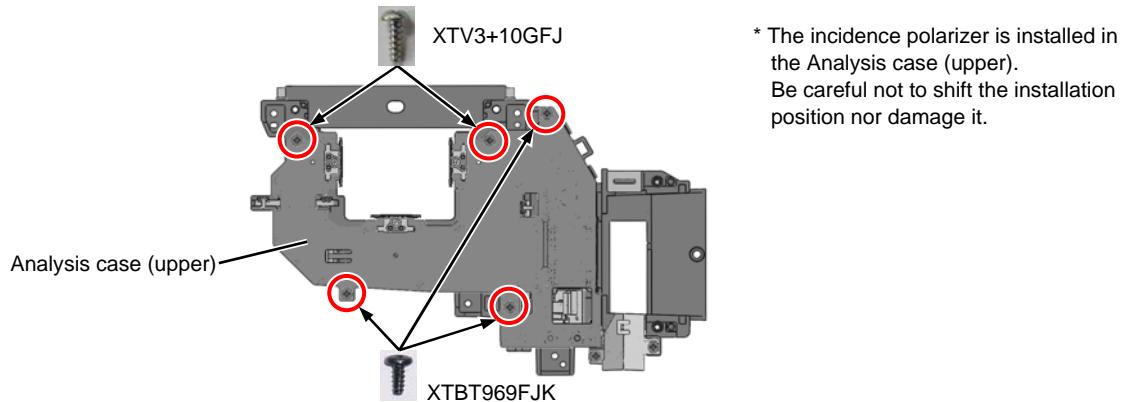


2. 7. Removal of PBS Array / Iris Unit

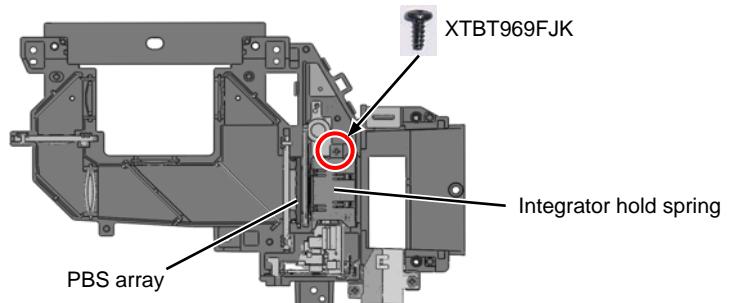
1. Remove the Analysis block according to the section 2.4. "Removal of Optical Block / Analysis Block".

2. Unscrew the 5 screws and remove the Analysis case (upper).

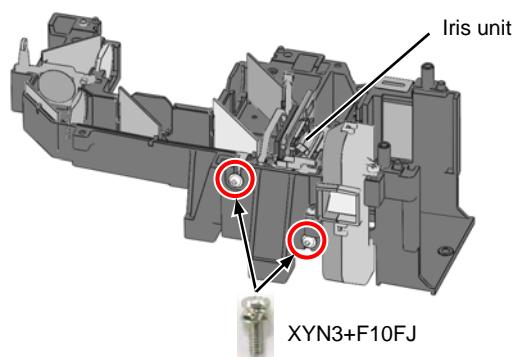
* Can be removal of PBS Array.



3. Unscrew the 1 screw and remove the Integrator hold spring.

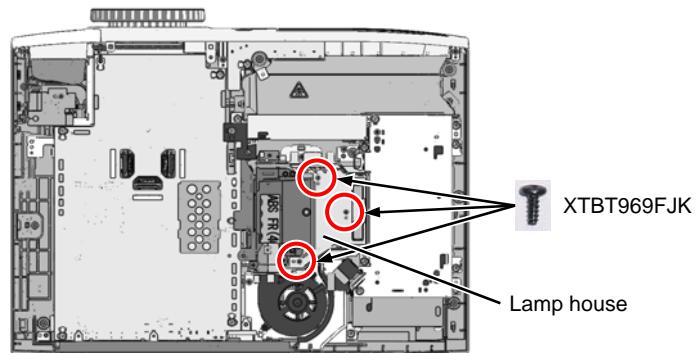


4. Unscrew the 2 screws and remove the Iris unit.

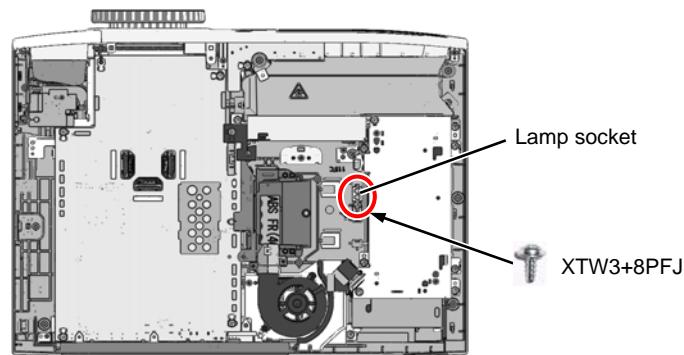


2. 8. Removal of P-P.C.Board / B-P.C.Board

1. Remove the Top Cover according to the section 2.2 "Removal of Top Cover".
2. Loosen the 2 screws and remove the Lamp unit.
3. Unscrew the 3 screws and remove the Lamp house.

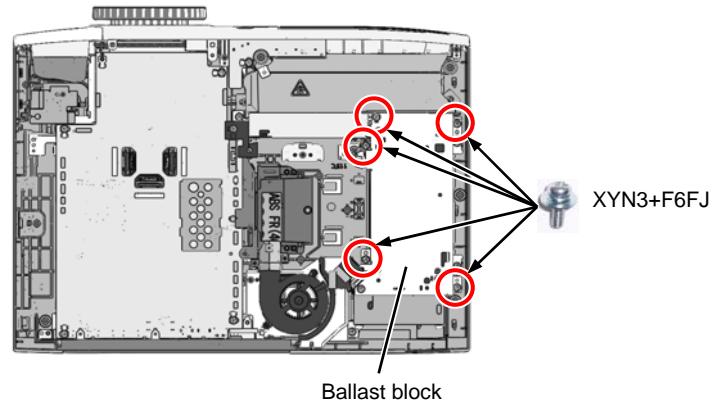


4. Unscrew the 1 screw and remove the Lamp socket.

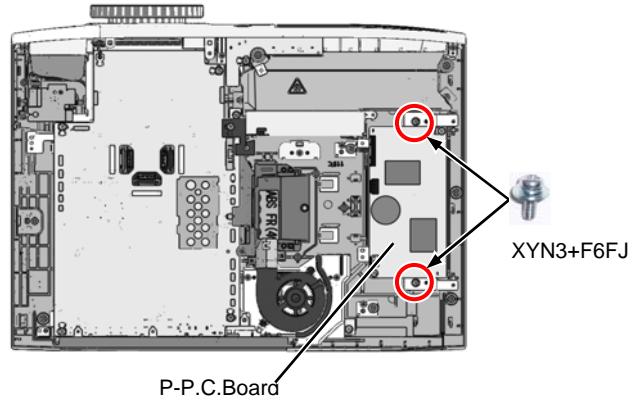


5. Unscrew the 5 screws and remove the Ballast block.

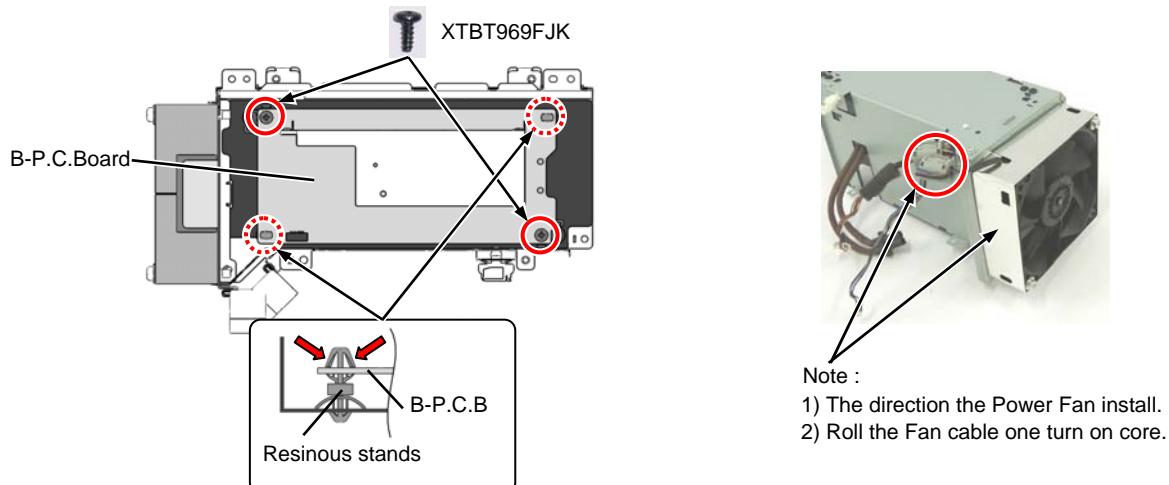
* Remove the P2 connector.



6. Unscrew the 2 screws and remove the P-P.C.Board.

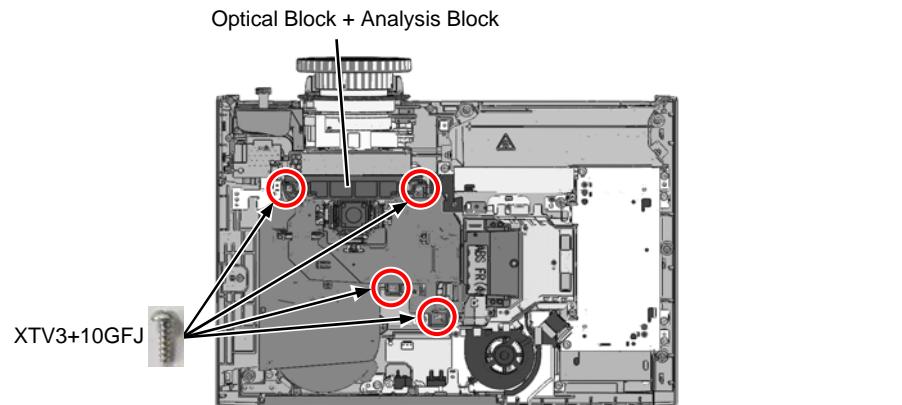


7. Unscrew the 2 screws and while pressing to shut each hook of the 2 resinous stands, remove the B-P.C.Board.

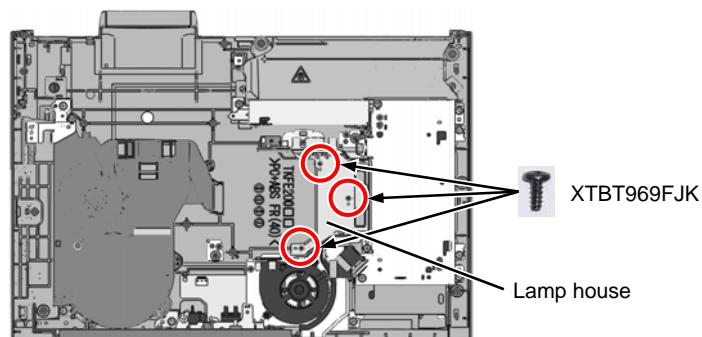


2. 9. Removal of K1-P.C.board / K2-P.C.Board

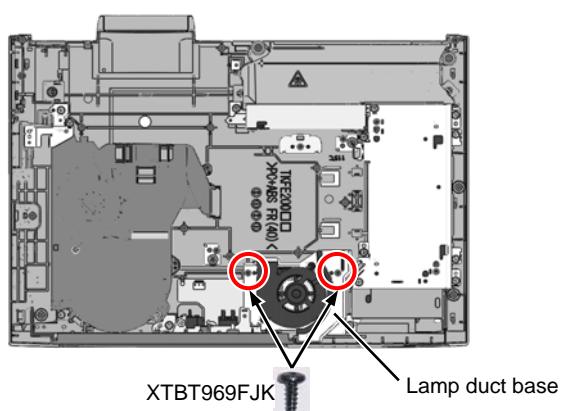
1. Remove the A-P.C.Board earth metal according to the steps 1 through 5 in the section 2.4. "Removal of Optical Block / Analysis Block".
2. Unscrew the 4 screws and remove the Optical Block and Analysis Block.



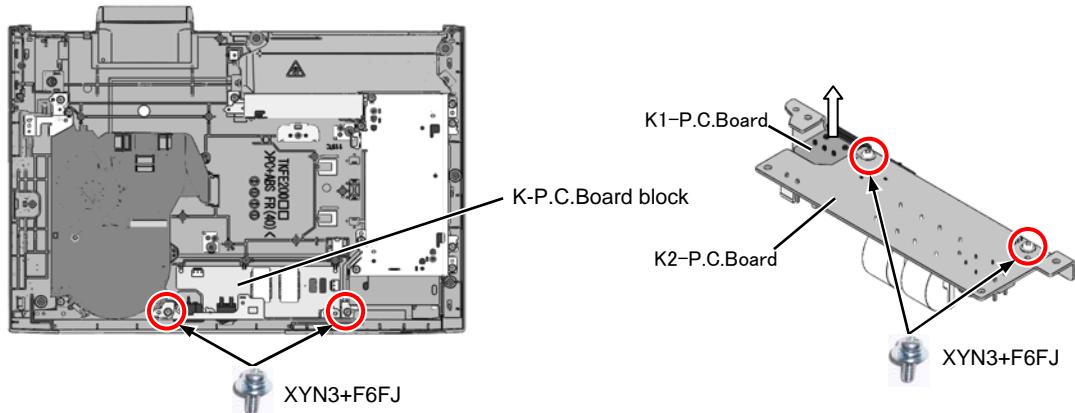
3. Unscrew the 3 screws and remove the Lamp house.



4. Unscrew the 2 screws and remove the Lamp duct base.



5. Unscrew the 2 screws and remove the K-P.C.Board block.

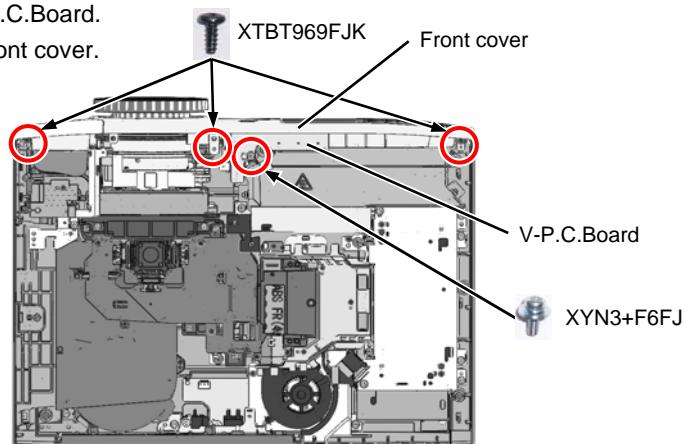


2.10. Removal of M1-P.C.Board

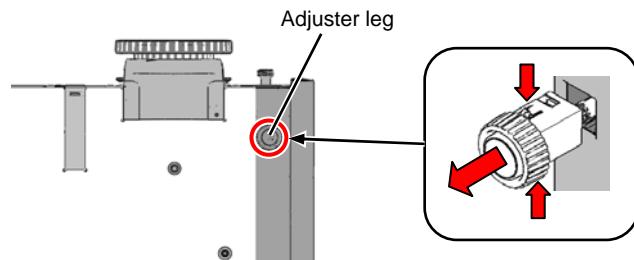
1. Remove the Top Cover according to the section 2.2 "Removal of Top Cover".

2. Unscrew the 1 screw and remove the V-P.C.Board.

3. Unscrew the 3 screws and remove the Front cover.

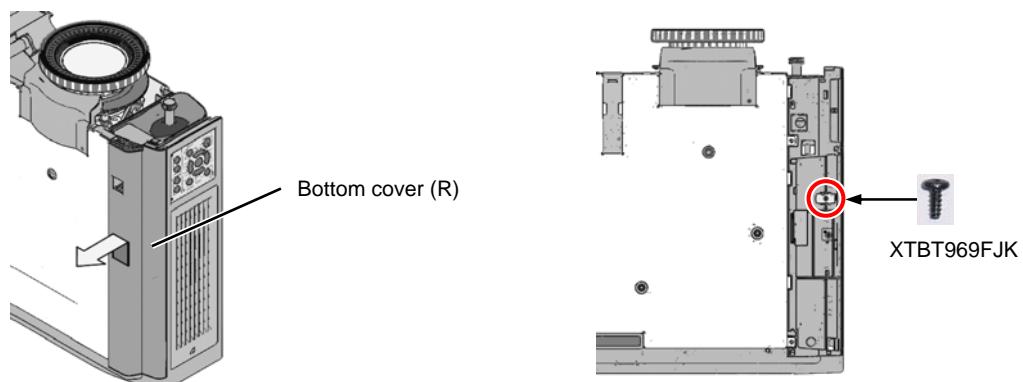


4. While pressing to shut each hook of the Adjuster leg, remove the Adjuster leg (lens side).



5. Remove the Bottom cover (R).

6. Unscrew the 1 screw and remove the M1-P.C.Board.



SECTION 3

< Adjustments >

**Model No. PT-AE8000U
PT-AT6000E
PT-AE8000EA / AE8000EH / AE8000EZ**

CONTENTS

1. Adjustment items and procedure	ADJ-2
1. 1. Flicker Adjustment	
1. 2. Data Transfer	
1. 3. Model Information Setup	
1. 4. Model Information Setup	
1. 5. Clog Sensor calibration	
2. Microprocessor update procedure	ADJ-7
2. 1. Update by serial Terminal Connection	

1. Adjustment item and a procedure

When the following components in this projector are replaced, adjustments are required. Adjust each item according to the table below.

Adjustment Items	Replaced parts	Remarks
1. 1. Flicker Adjustment	OPTICAL BLOCK / A-P.C.Board	
1. 2. Data Transfer	A-P.C.Board	Save data to a PC before A-P.C.B exchange and write it into a new A-P.C.B.
1. 3. Model Information Setup	A-P.C.Board	
1. 4. Serial Number Setup	A-P.C.Board	
1. 5. Clog Sensor Calibration	A-P.C.Board / M3-P.C.board	After the "1.2.Data Transfer" has been completed, please adjust it.

1. 1. Flicker Adjustment

1. 1. 1. Adjustment Procedure

1. Select "FLICKER ADJUST" on "EXT OPTION" menu and press "ENTER" button on the main unit or remote control unit.
2. "DESK setting (blue)" is displayed when entering the adjustment mode.
3. Setting value is increased and decreased with the right-arrow "◀" and left-arrow "▶" buttons.
- Adjust the setting value to minimize the flicker on the screen.
4. The pattern (adjustment display) is switched with the up-arrow "▲" and down-arrow "▼" buttons.
- There are 6 patterns of "DESK setting (blue)", "DESK setting (red)", "DESK setting (green)", "CEILING setting (blue)", "CEILING setting (red)" and "CEILING setting (green)".
5. Press "MENU" button on the main unit or remote control unit.
- When "MENU" button is pressed, the setting value at that time is saved into this projector and the adjustment mode is canceled.

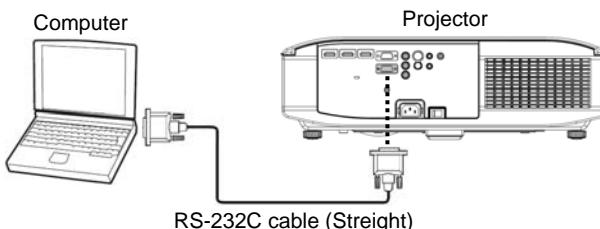
1. 2. Data Transfer

1. 2. 1. Required equipments

1. PC : Use to transfer the backup data.
2. Communication cable : D-sub 9pin (male/emale RS-232C straight)
3. Software : [Service ORCA11.exe] Adjustment software is downloaded from the projector service homepage.

1. 2. 2. Preparation

1. Connect the RS-232C terminal of projector and PC with a RS-232C cable.

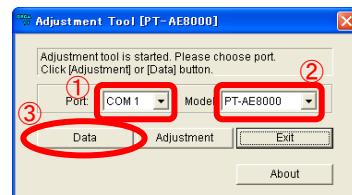


1. 2. 3. Backup the Data (It is before A-P.C.Board exchange)

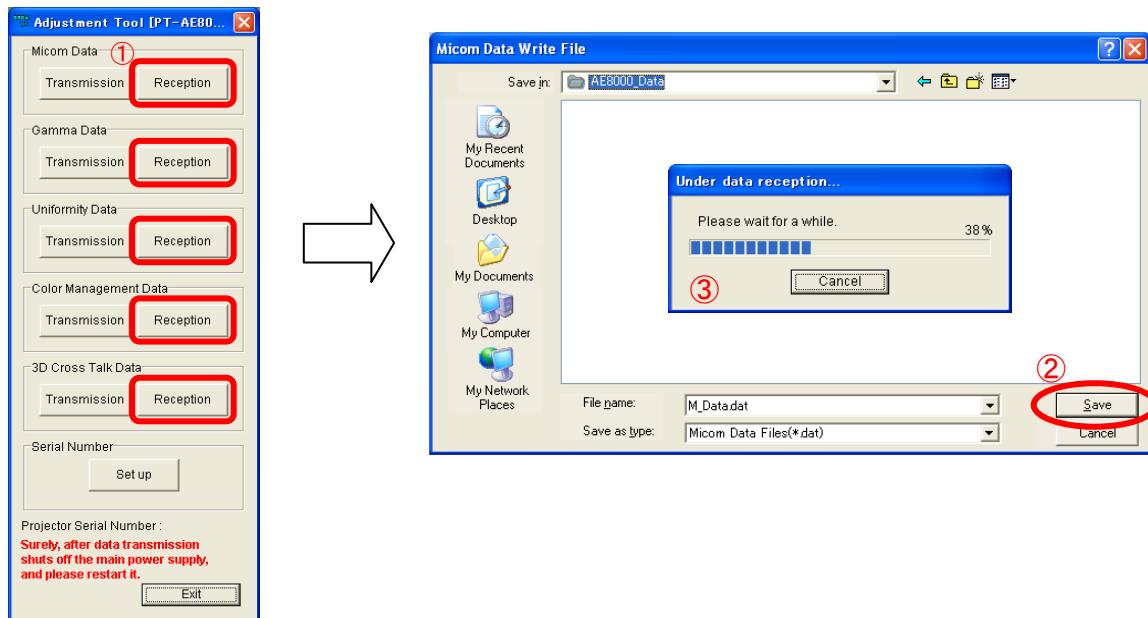
1. Switch the projector to "Standby" mode (POWER indicator is Lighting in red).
2. Start up service software [Service ORCA11.exe] with a computer.
3. Select language and click the [OK] button.



4. 1) Select the Serial Port of the computer.
- 2) Select a model number.
(Case of AT6000, select the AE8000.)
- 3) Click the [Data] button.

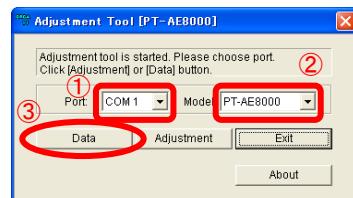


5. 1) Click the [Reception] button of Micom Data.
- 2) Select the save place and click the [Save] button.
- 3) When the progress bar reaches the right-side end, the save of data is completion.
- 4) Save the each data in the same procedure as 1-3.

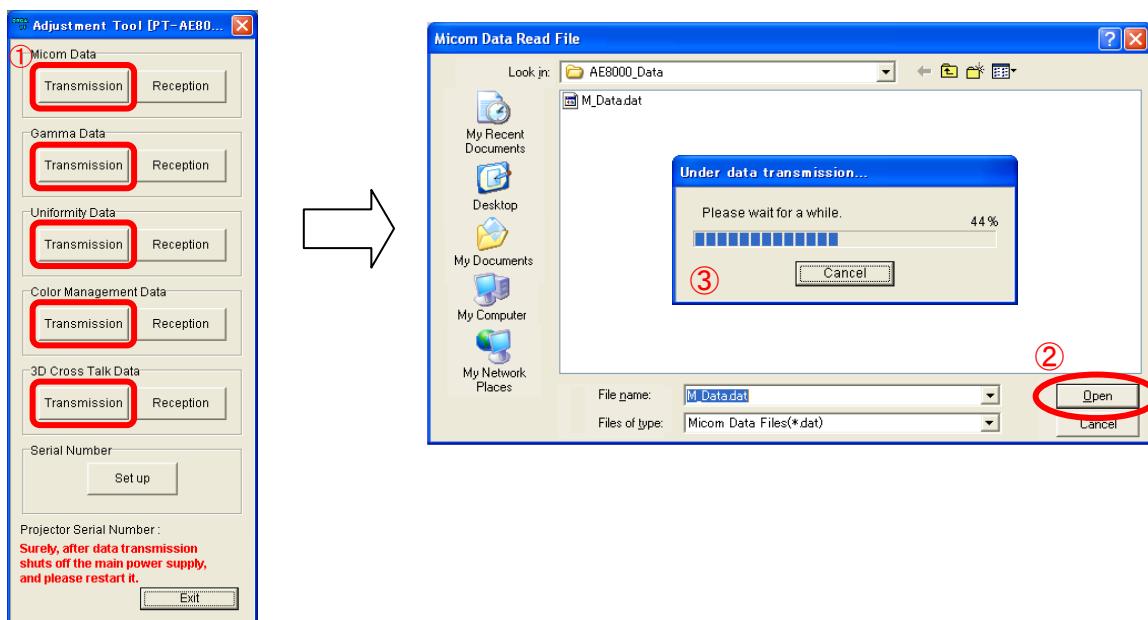


1. 2. 4. Restore the Backup EEPROM Data (After A-P.C.Board exchange)

1. Switch the projector to "Standby" mode (POWER indicator is Lighting in red).
2. Start up service software [Service ORCA11.exe] with a computer.
3. Select language and click the [OK] button.
4. 1) Select the Serial Port of the computer.
2) Select a model number.
(Case of AT6000, select the AE8000.)
3) Click the [Data] button.



5. 1) Click the [Transmission] button of Micom Data.
- 2) Select the file and click the [OPEN] button.
- 3) When the progress bar reaches the right-side end, the transmission of data is completion.
- 4) Restore the each data in the same procedure as 1-3.



6. If the restoration of data is completed, turn the MAIN POWER off then MAIN POWER on.

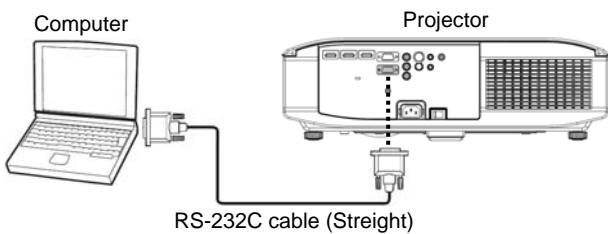
1. 3. Model Information Setup

1. 3. 1. Required equipments

1. PC : Use it as adjustment use.
2. Communication cable : D-sub 9pin (male/emale RS-232C straight)
3. Software : [Service ORCA11.exe] Adjustment software is downloaded from the projector service homepage.

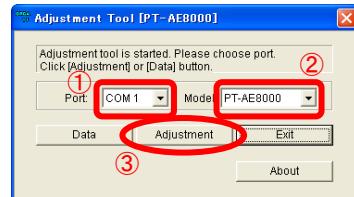
1. 3. 2. Preparation

1. Connect the RS-232C terminal of projector and PC with a RS-232C cable.

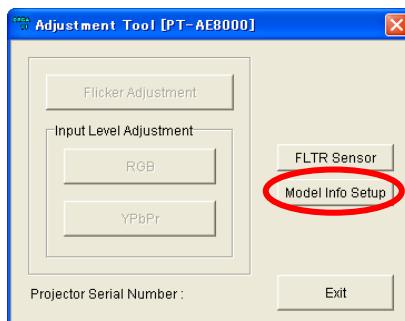


1. 3. 3. Setting method

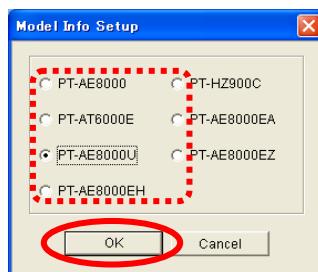
1. Switch the projector to "Standby" mode (POWER indicator is Lighting in red).
2. Start up service software [Service ORCA11.exe] with a computer.
3. Select language and click the [OK] button.
4. 1) Select the Serial Port of the computer.
2) Select a model number.
(Case of AT6000, select the AE8000.)
- 3) Click the [Adjustment] button.



5. Click the [Model Info Setup] button.



6. Put a checkmark in an applicable model, and click the [OK] button.



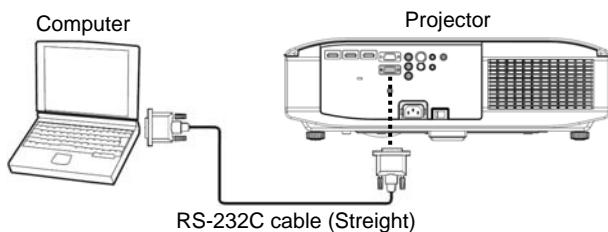
1. 4. Serial Number Setup

1. 4. 1. Required equipments

1. PC : Use it as adjustment use.
2. Communication cable : D-sub 9pin (male/emale RS-232C straight)
3. Software : [Service ORCA11.exe] Adjustment software is downloaded from the projector service homepage.

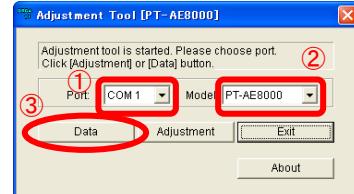
1. 4. 2. Preparation

1. Connect the RS-232C terminal of projector and PC with a RS-232C cable.

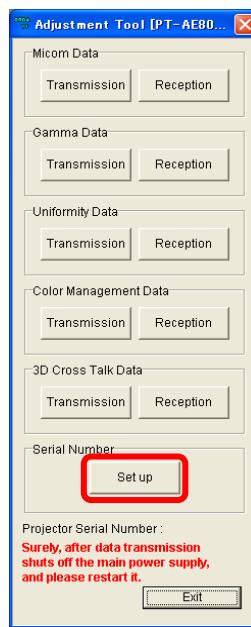


1. 4. 3. Setting method

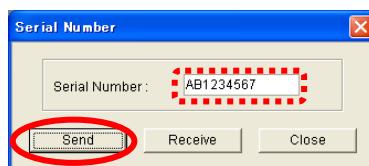
1. Switch the projector to "Standby" mode (POWER indicator is Lighting in red).
2. Start up service software [Service ORCA11.exe] with a computer.
3. Select language and click the [OK] button.
4. 1) Select the Serial Port of the computer.
2) Select a model number.
(Case of AT6000, select the AE8000.)
3) Click the [Data] button.



5. Click the [Set up] button of Serial Number.



6. Input the product serial number, and click the [Send] button.



1. 5. Clog Sensor Calibration

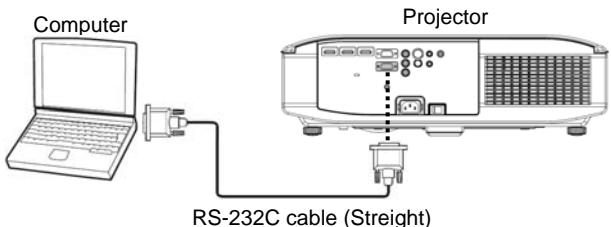
- * This operation should be done with the main body is completely assembled and set on the floor and the adjuster legs are set in the main body. (A state of Disassembly, cannot correct it.)
- * Install the projector so that cold air or hot air from air conditioners does not come in to direct contact with the air intake port or air exhaust port.
- * Please carry it out after "Data Transfer" of Micom Data.

1. 5. 1. Required equipments

1. PC : Use it as adjustment use.
2. Communication cable : D-sub 9pin (male/female RS-232C straight)
3. Software : [Service ORCA11.exe] Adjustment software is downloaded from the projector service homepage.

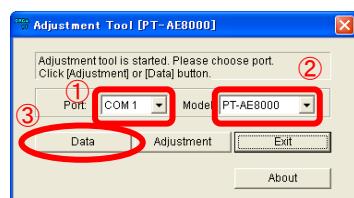
1. 5. 2. Preparation

1. Please clean the air filter before starting the steps.
The air filter should be replaced when cleaning is ineffective.
(If the filter is dirty and clogged, the correction may not be completed properly.)
2. Connect the RS-232C terminal of projector and PC with a RS-232C cable.

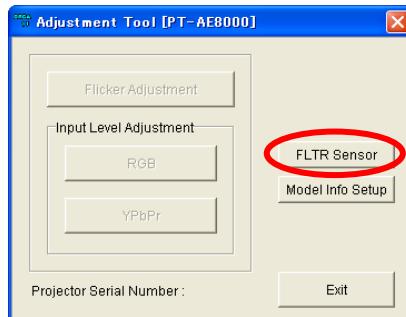


1. 5. 3. Adjustment method

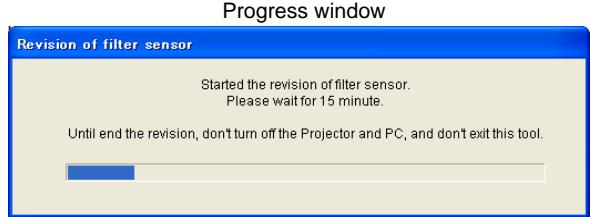
1. Push the power button of the projector and let a lamp turn on. (The signal input is unnecessary.)
* Push the INPUT SELECT button, and please stop "Auto-signal search".
2. Start up service software [Service ORCA11.exe] with a computer.
* Please close another software before using the "Service software".
3. Select language and click the [OK] button.
4. 1) Select the Serial Port of the computer.
2) Select a model number.
(Case of AT6000, select the AE8000.)
3) Click the [Adjustment] button.



5. Click the [FLTR Sensor] button.



6. Select the sea level height of the work place and click the [Do Now] button.



- * When error message is displayed,
 - 1) Turn off the main power supply, and please turn on the main power supply again.
 - 2) Please carry it out from 1 procedure once again.

7. In approx. 15 minutes, the "Sensor correction" window closes automatically and completes the correction.
* Turn off the main power supply, and please turn on the main power supply again.

2. Microprocessor update procedure

- * The update is done by SERIAL terminal connection.
- * During update, prevent PC from going into stand-by or shut down.

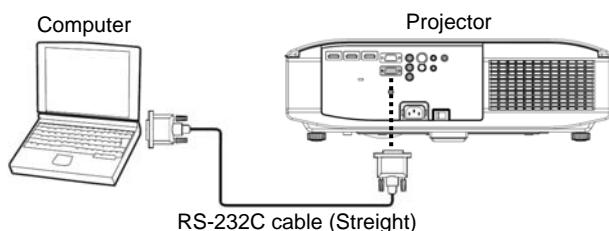
2. 1. Update by the SERIAL terminal connection

2. 1. 1. Equipment to be used

1. Computer : Use it for the transfer of update data.
2. Communication cable : D-sub 9pin (male/female RS-232C straight)
3. Firmware update tool : [PgSendORCA11.exe] Update tool is downloaded from the projector service homepage.
4. Microprocessor Software: Please download the file from the projector service homepage to the PC.

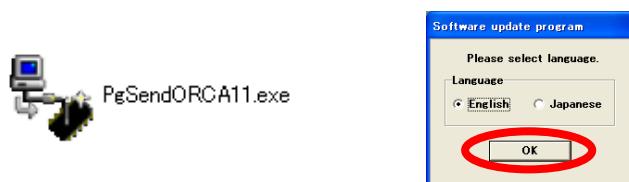
2. 1. 2. Preparation

1. Connect the RS-232C terminal of projector and PC with a RS-232C cable.

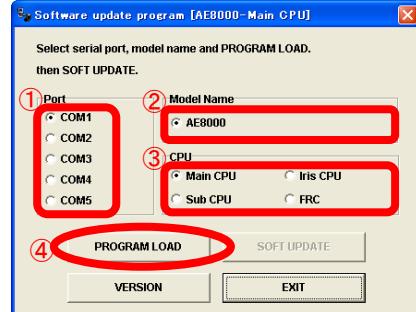


2. 1. 3. Update procedure

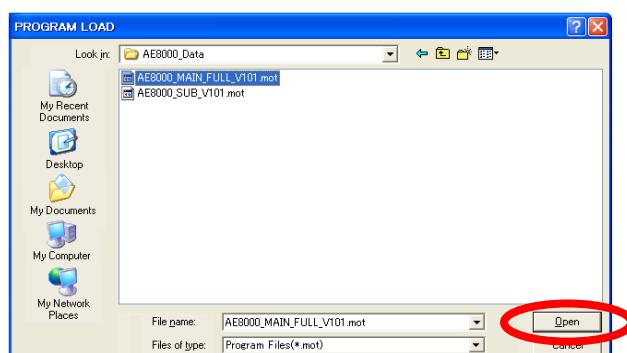
1. Switch the projector to "Standby" mode (POWER indicator is Lighting in red).
2. Start up firmware update tool [PgSendORCA11.exe] with a computer.
3. Select language and click the [OK] button.



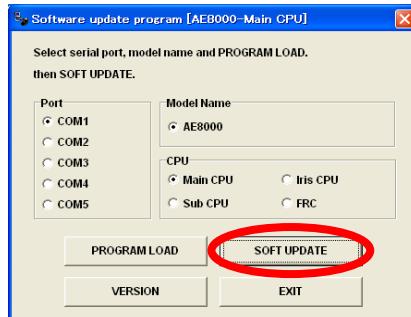
4. 1) Select the Serial Port of the computer.
- 2) Select the model number.
(Case of AT6000, select the AE8000.)
- 3) Select the CPU(Central Processing Unit) to update.
- 4) Click the [PROGRAM LOAD] button.



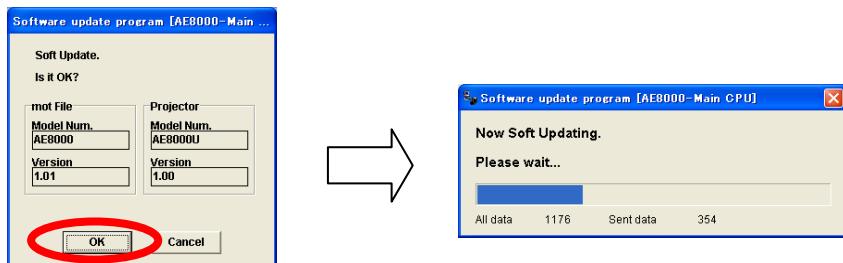
5. Appoint the microcomputer software that downloaded in a computer beforehand, and click the [Open] button.



6. Click the [SOFT UPDATE] button.



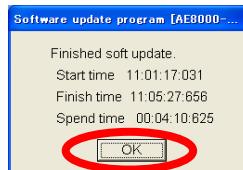
7. Click the [OK] button and start update.



* When updated the software of FRC(Frame Creation), a version is not displayed.



8. Click the [OK] button after completion message is displayed.



* Reboot Projector, and please confirm whether the version of the Microprocessor Software is updated definitely, with sub menu " STATUS " of the main menu " EXT OPTION " .

Status menu (example)

STATUS	
MODEL TYPE	PT-AE8000U
SERIAL NUMBER	SA*****
DYNAMIC GAMMA	OK
UNIFORMITY	OK
----- SOFT VERSION -----	
MAIN	1.00
SUB	1.00
IRIS	1.02
FPGA	1.00
FRC ID MAJOR	04000000
FRC ID MINOR	07000000
FRC CONFIG MAJOR	01000000
FRC CONFIG MINOR	00000000
----- DATA VERSION -----	
BITMAP	1.00
	1.00

Ver 4.7

Diagram labels pointing to specific fields:

- Main microprocessor software version (points to Main version 1.00)
- Sub microprocessor software version (points to Sub version 1.00)
- Iris microprocessor software version (points to Iris version 1.02)
- Field Programmable Gate Array software version (points to FPGA version 1.00)
- Frame creation microprocessor software version (points to FRC ID MINOR 07000000)
- FRC ID MINOR : 07000000 (points to FRC ID MINOR value)
- FRC ID MAJOR : 04000000 (points to FRC ID MAJOR value)

SECTION 4

< Schematic Diagram >

Model No. PT-AE8000U
PT-AT6000E
PT-AE8000EA / AE8000EH / AE8000EZ

CONTENTS

1. BLOCK DIAGRAM	DIA-2
1.1. Power Supply	
1.2. Signal Processing	
2. INTERCONNECTION BLOCK DIAGRAM	DIA-4
3. SCHEMATIC DIAGRAM	DIA-5
3.1. A -P.C.Board	
3.2. S / V / L -P.C.Board	
4. CIRCUIT BOARDS DIAGRAM	DIA-9
4.1. A -P.C.Board	
4.2. S / V / L -P.C.Board	

Important Safety Notice

Components identified by the international symbol \triangle have special characteristics important for safety.
When replacing any of these components, use only the manufacturer's specified ones.

■ Notes

1. Resistor

All the resistors are carbon 1/4W resistors, unless marked as follows.

The unit of resistance is an OHM [Ω] ($K=1\ 000\ M=1\ 000\ 000$).

\circ	: Nonflammable	\square	: Metal Oxide
\triangle	: Solid	\circ	: Metal Film
\boxtimes	: Wire Wound	\otimes	: Fuse

2. Capacitor

\otimes	: Temperature Compensation	N^-	: Electrolytic
N^+	: Polyester	N^{P}	: Bipolar
N^{P}	: Metalized Polyester	D	: Dipped Tantalum
\boxtimes	: Polypropylene	Z	: Z-Type

3. Coil

The unit of inductance is a H, unless otherwise noted.

4. Test Point

\bullet	: Test Point
-----------	--------------

5. HOT and COLD indications

The power circuit board contains a circuit area using a separate power supply to isolate the ground connection.
The circuit is defined by HOT and COLD indications in the schematic diagram. Take the precautions below:

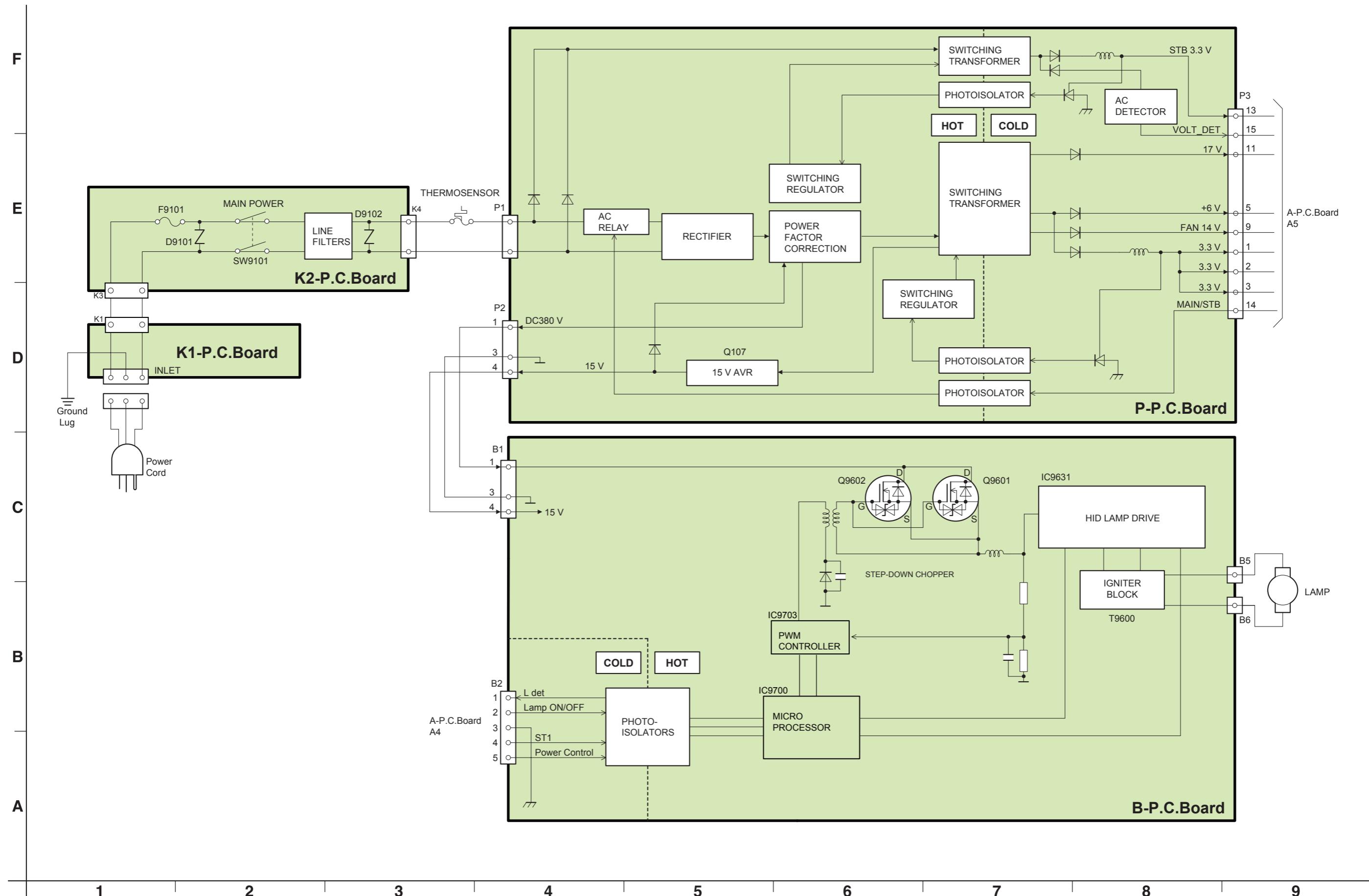
6. This schematic diagram is the latest at the time of printing and the subject to change without notice.

■ Precautions

1. NEVER touch the HOT part or the HOT and COLD parts at the same time, or you may get an electric shock.
2. NEVER short-circuit the HOT and COLD circuits, or the fuse may blow and the parts may break.
3. NEVER connect an instrument such oscilloscope to the HOT and COLD circuit simultaneously, or the fuse may blow.
 Connect the ground of instruments to the ground of the circuit being measured.
4. MAKE SURE to unplug the power cord from the power outlet before removing the chassis.
5. When ordering parts, please check the part number of the "Replacement Parts List".

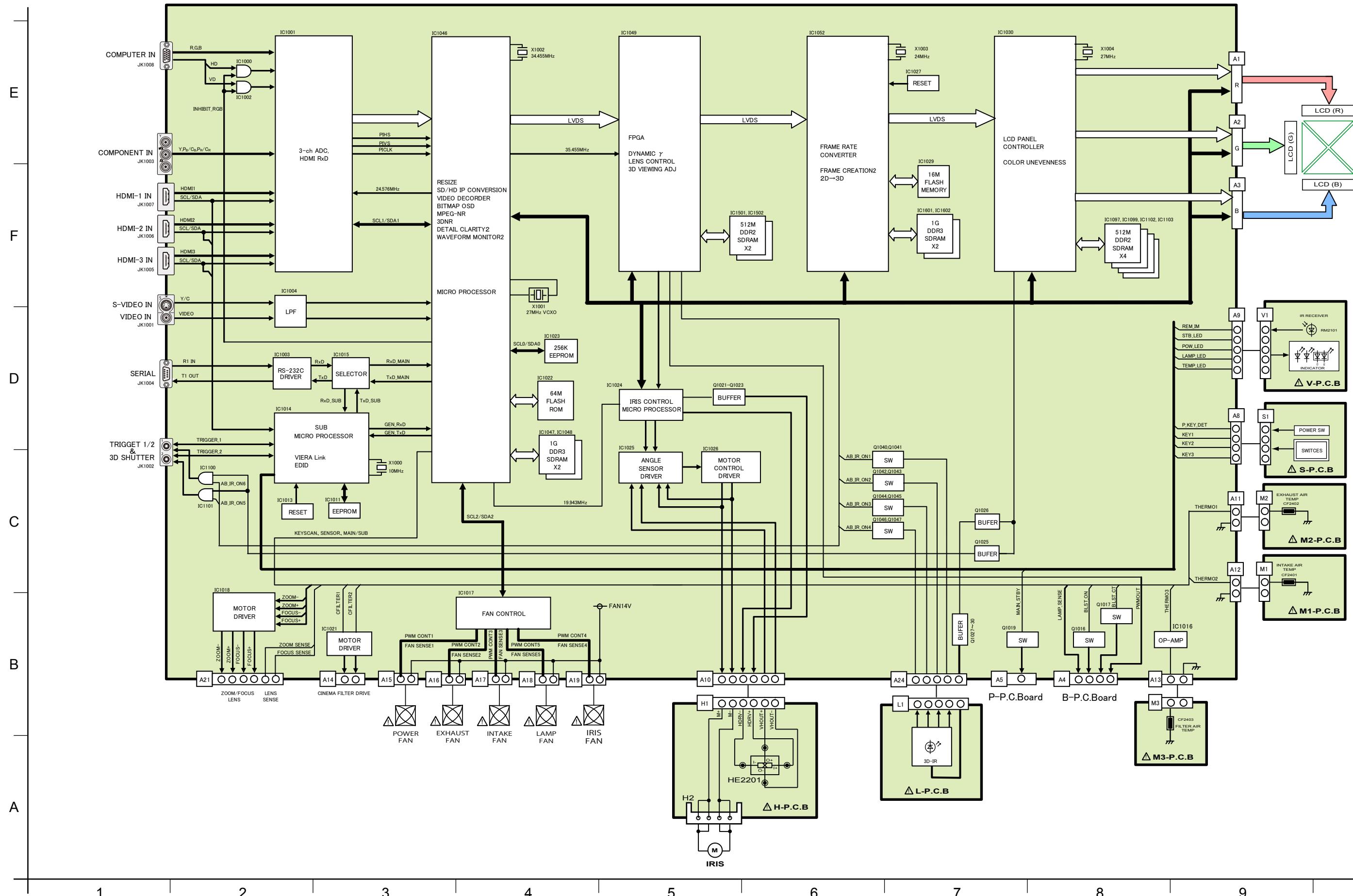
1. Block Diagram

1.1. Power Supply

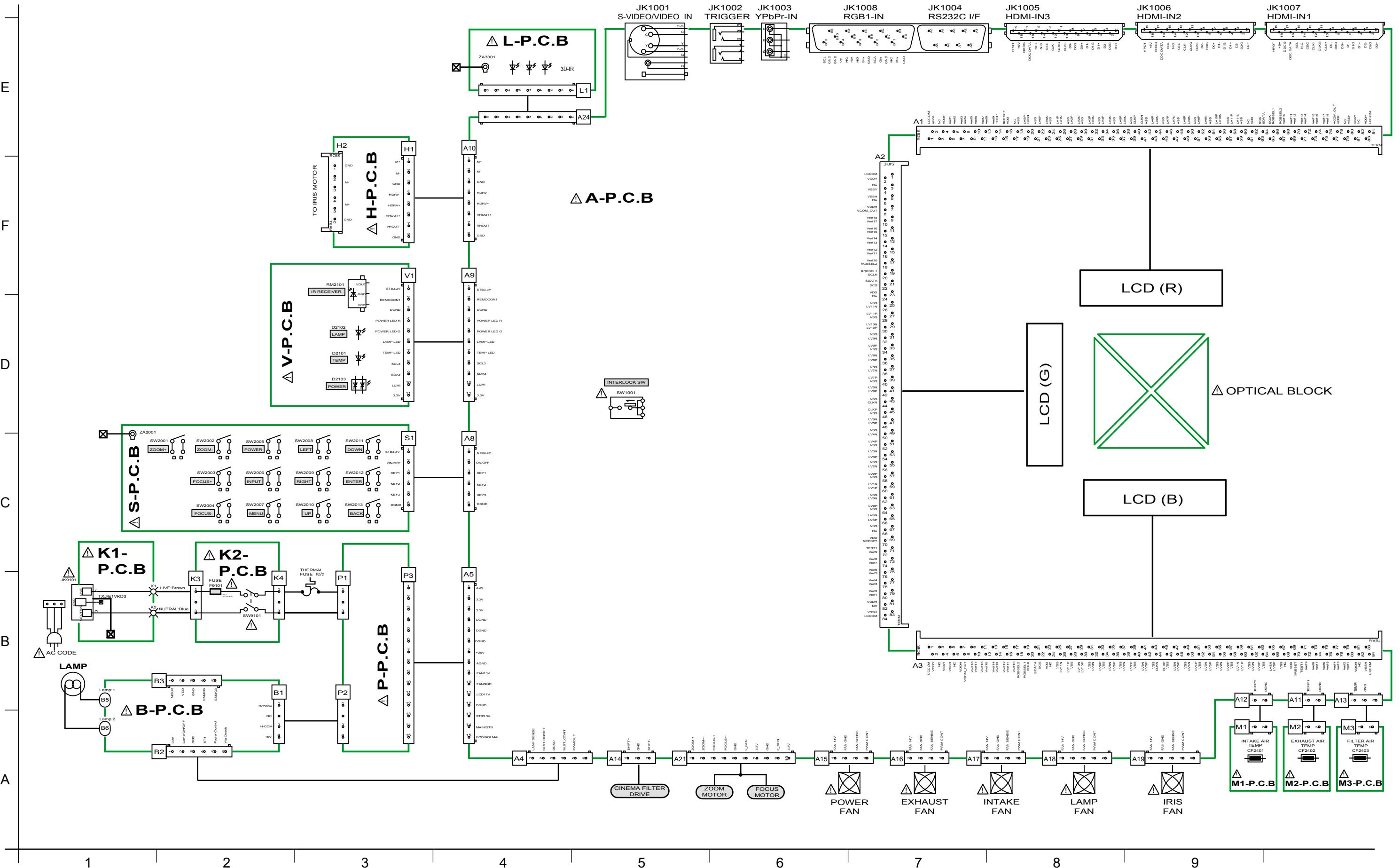


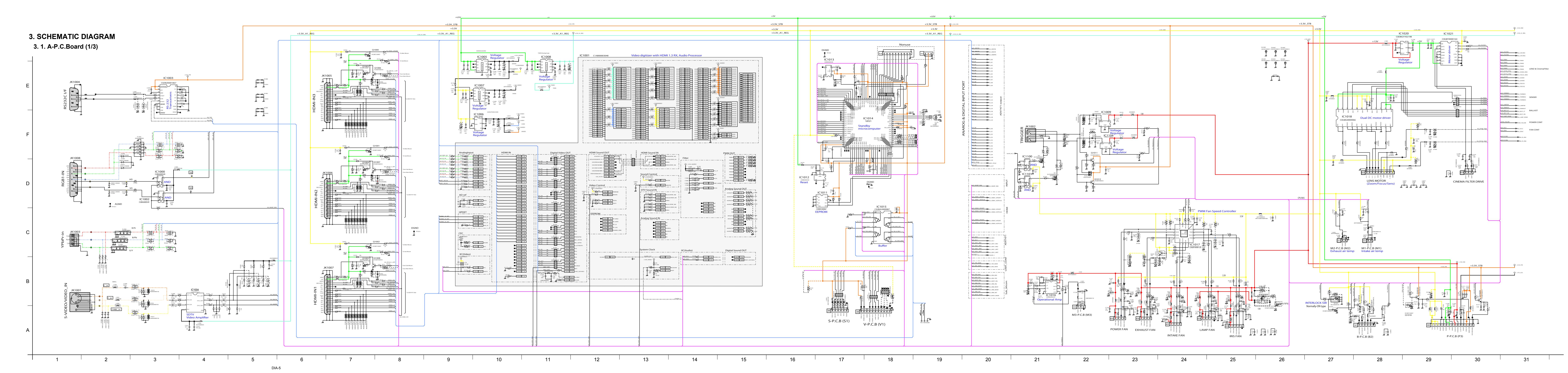
1. BLOCK DIAGRAM

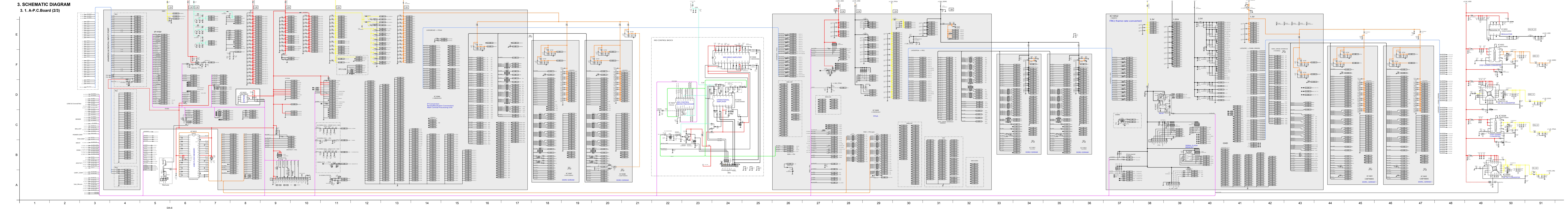
1.2. Signal Processing



2. INTERCONNECTION BLOCK DIAGRAM

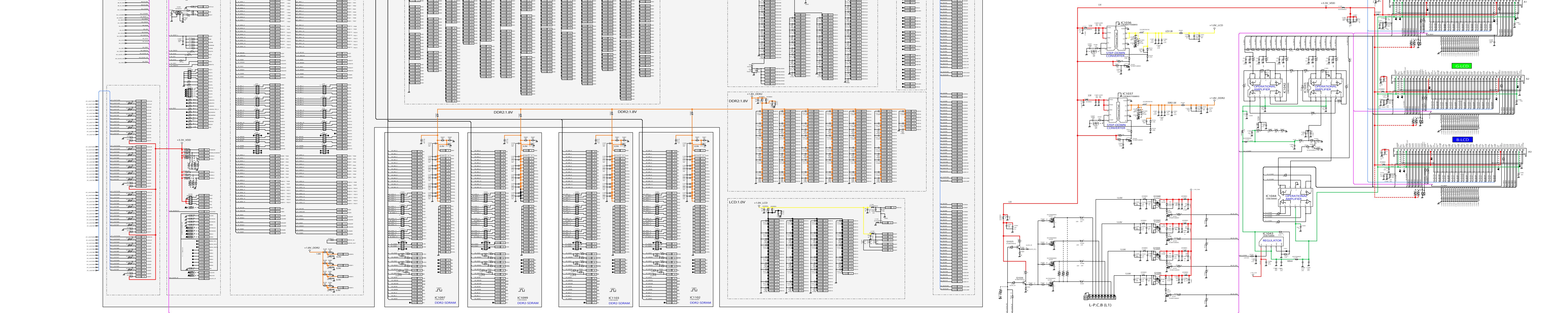






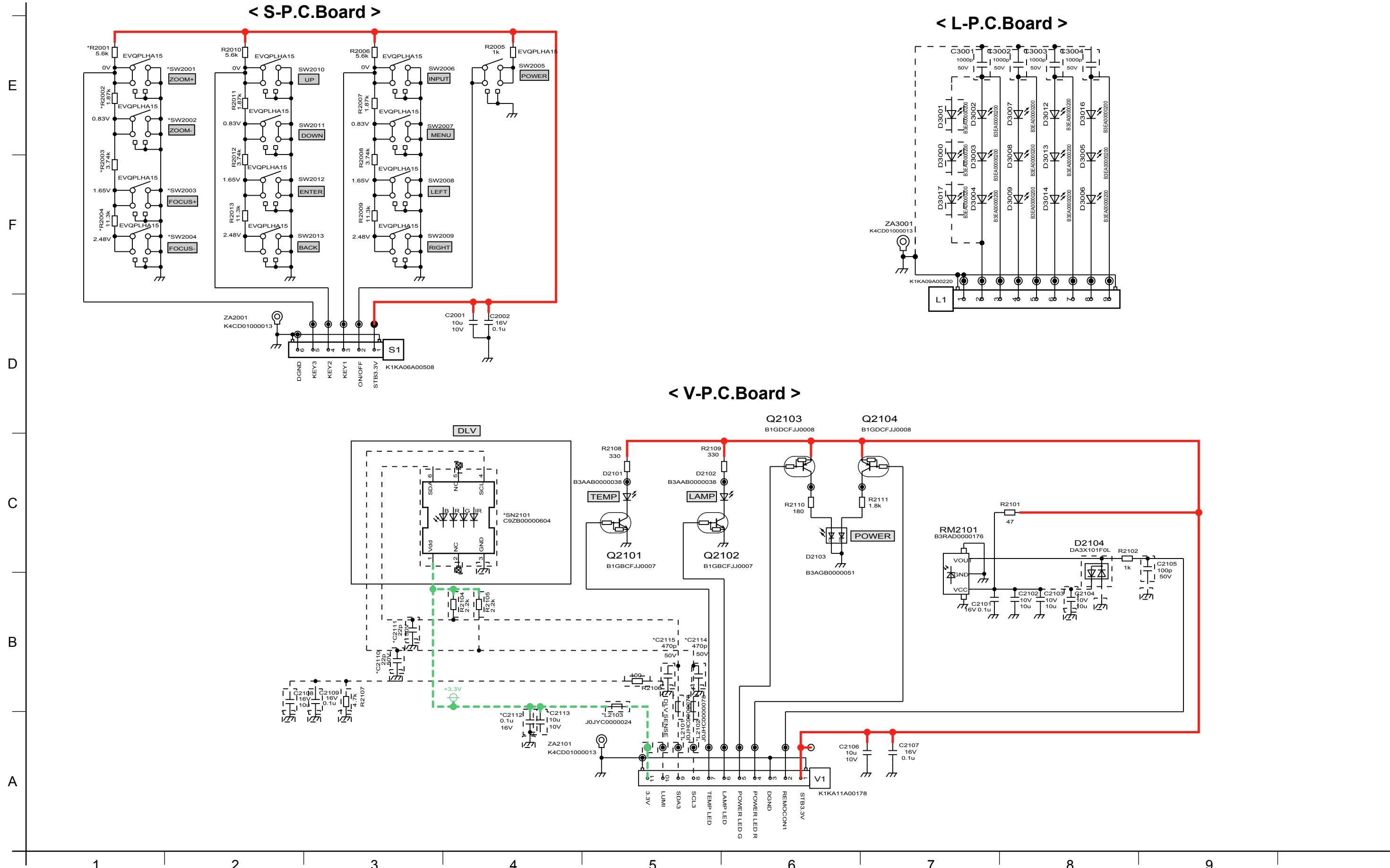
3. SCHEMATIC DIAGRAM

3.1. A-P.C. Board (3/3)



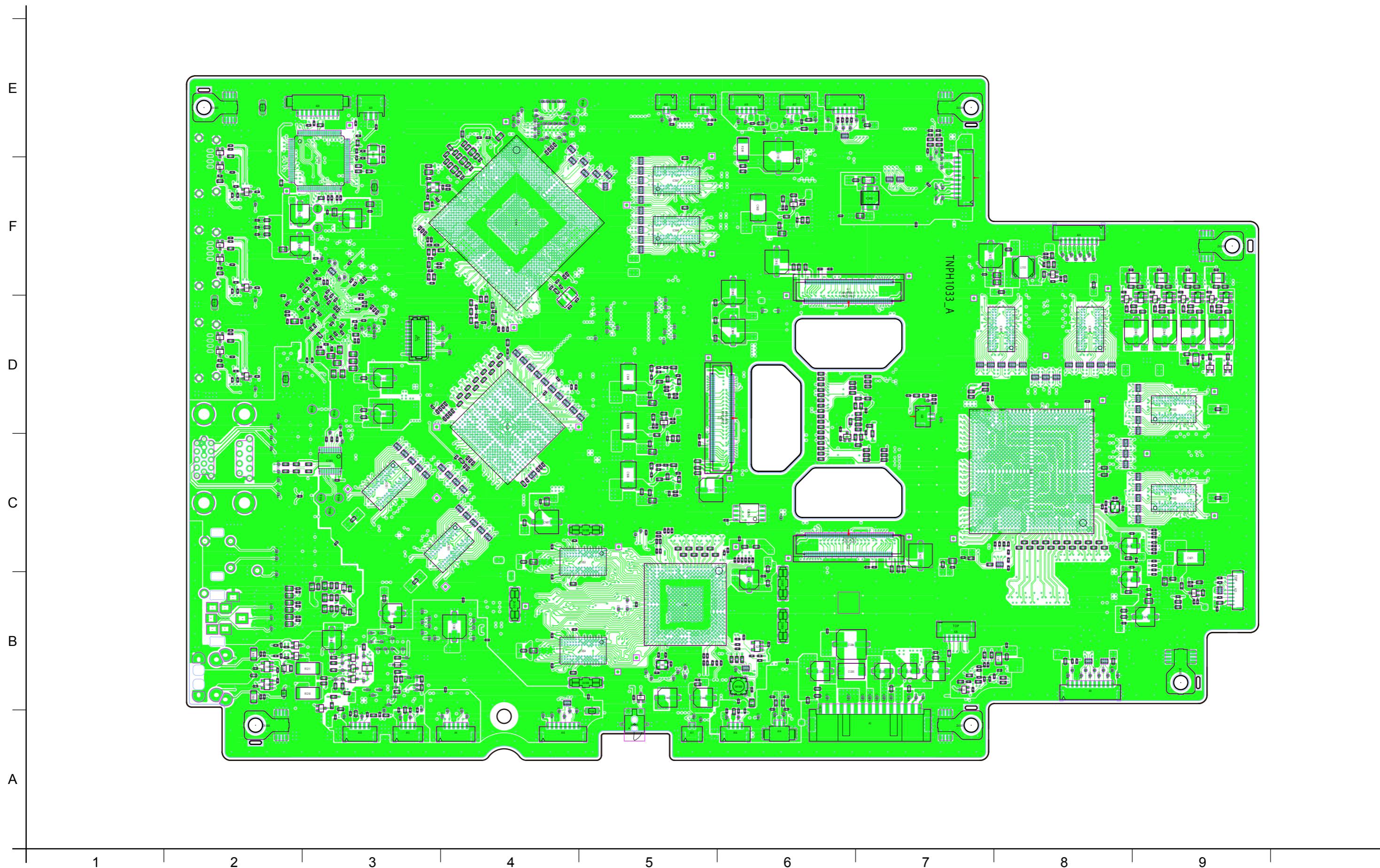
3. SCHEMATIC DIAGRAM

3. 2. S-P.C.Board / L-P.C.Board / V-P.C.Board



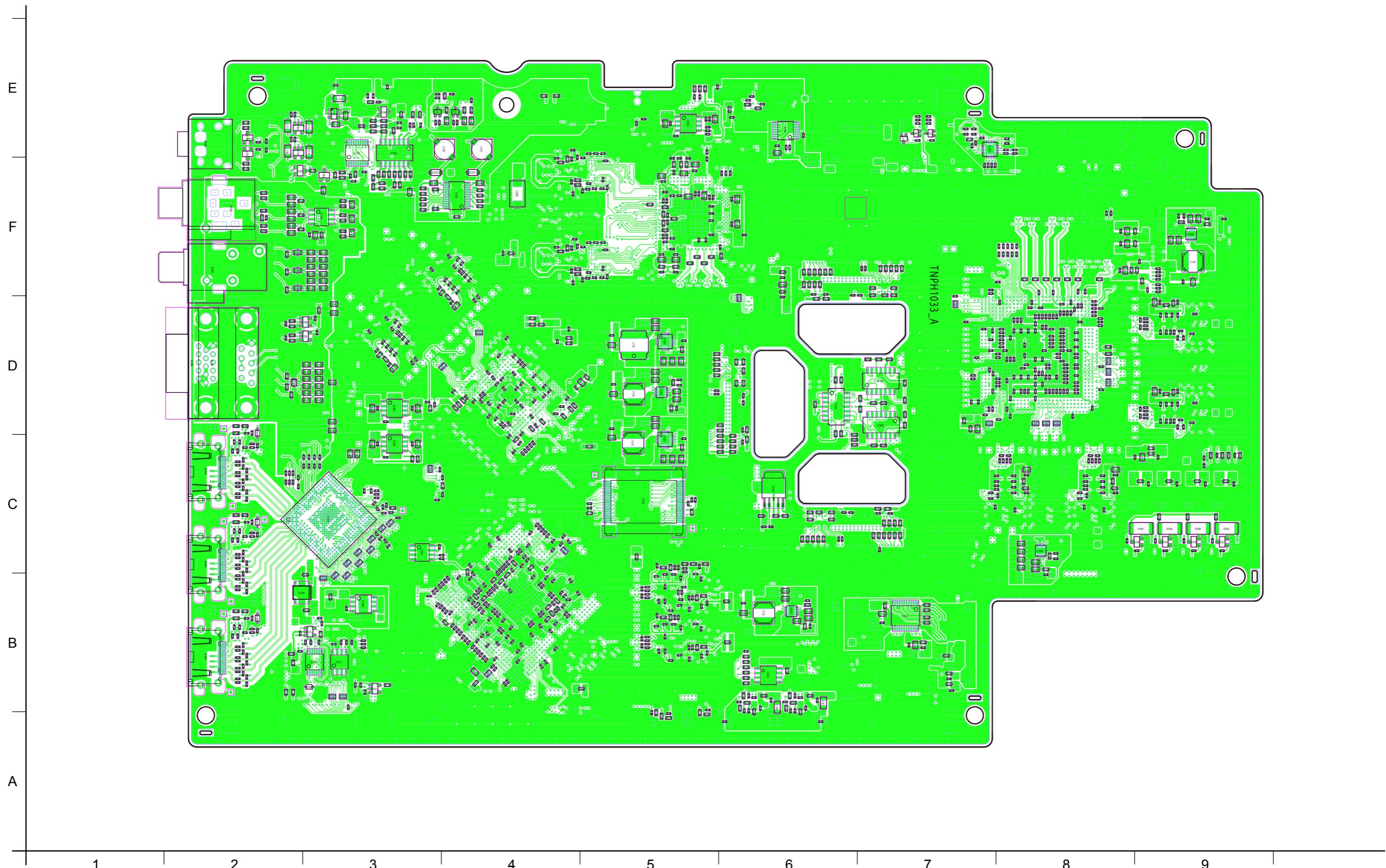
4. CIRCUIT BOARDS DIAGRAM

4. 1. A-P.C.Board (A_Side)



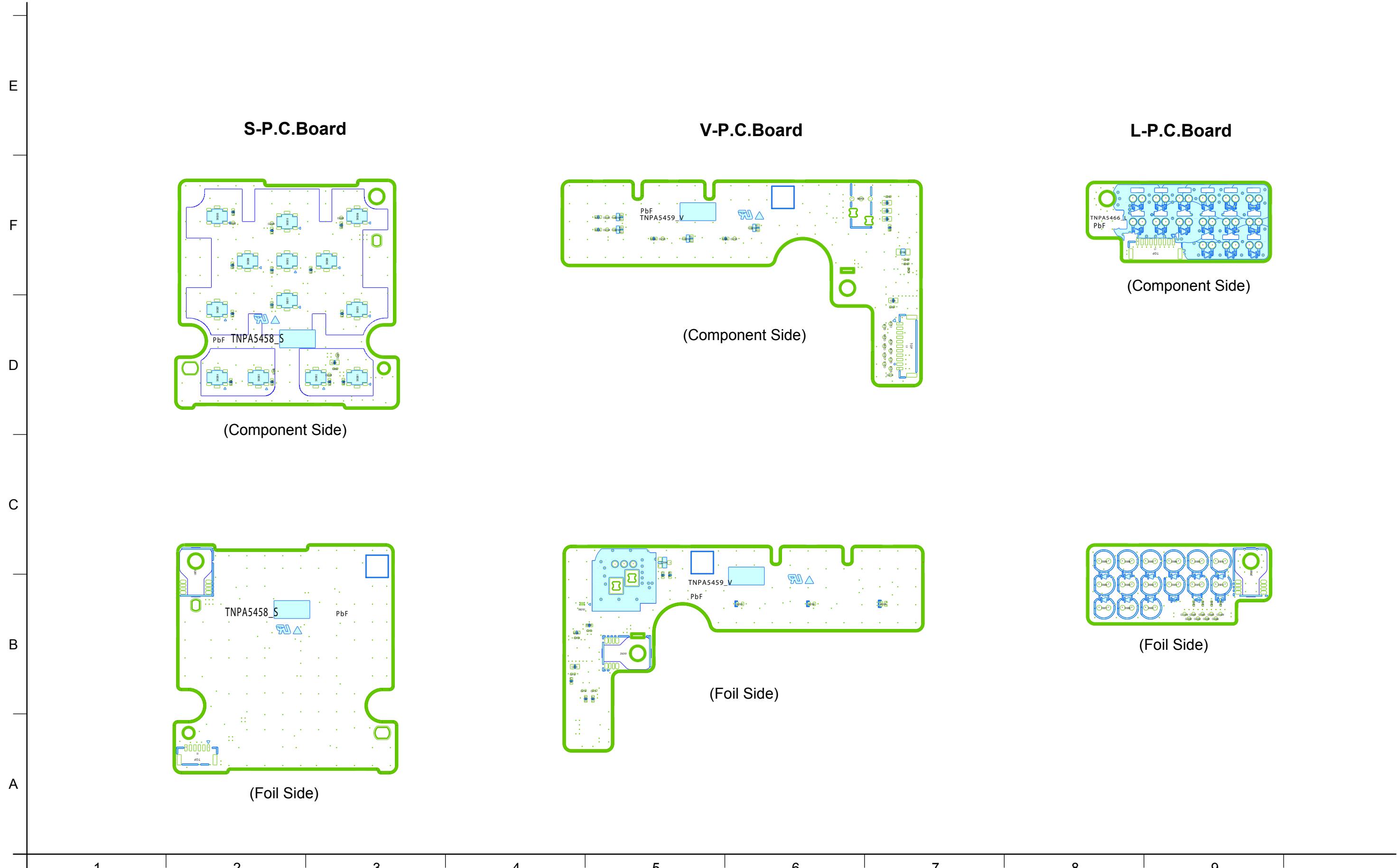
4. CIRCUIT BOARDS DIAGRAM

4. 1. A-P.C.Board (B_Side)



4. CIRCUIT BOARDS DIAGRAM

4. 2. S-P.C.Board / V-P.C.Board / L-P.C.Board



SECTION 5

< Exploded Views & Parts List >

Model No. **PT-AE8000U**

PT-AT6000E

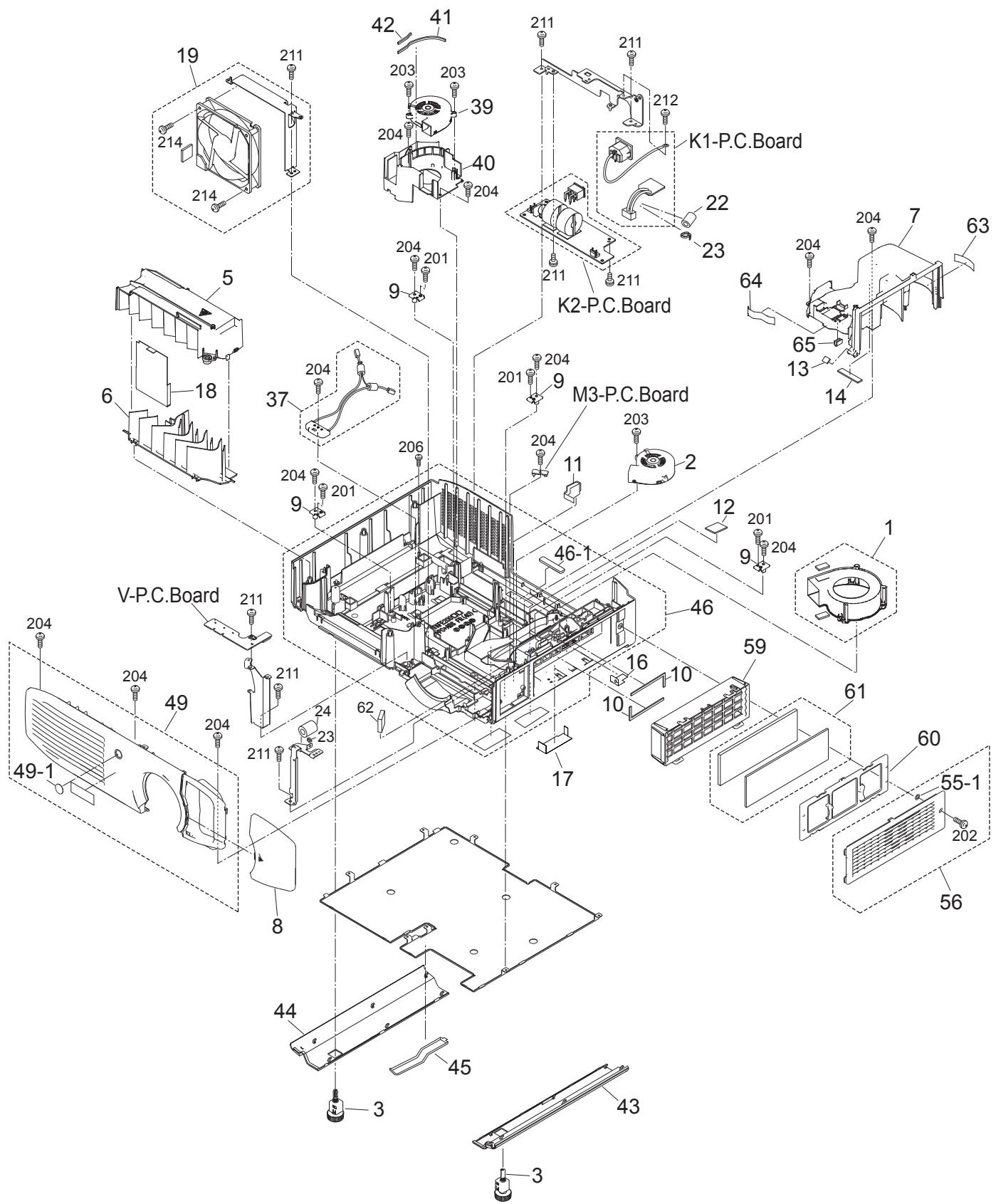
PT-AE8000EA / AE8000EH / AE8000EZ

CONTENTS

1. Exploded Views	SPL-2
1. 1. Parts Location	
1. 2. Packing Parts	
2. Replacement Parts List	SPL-6

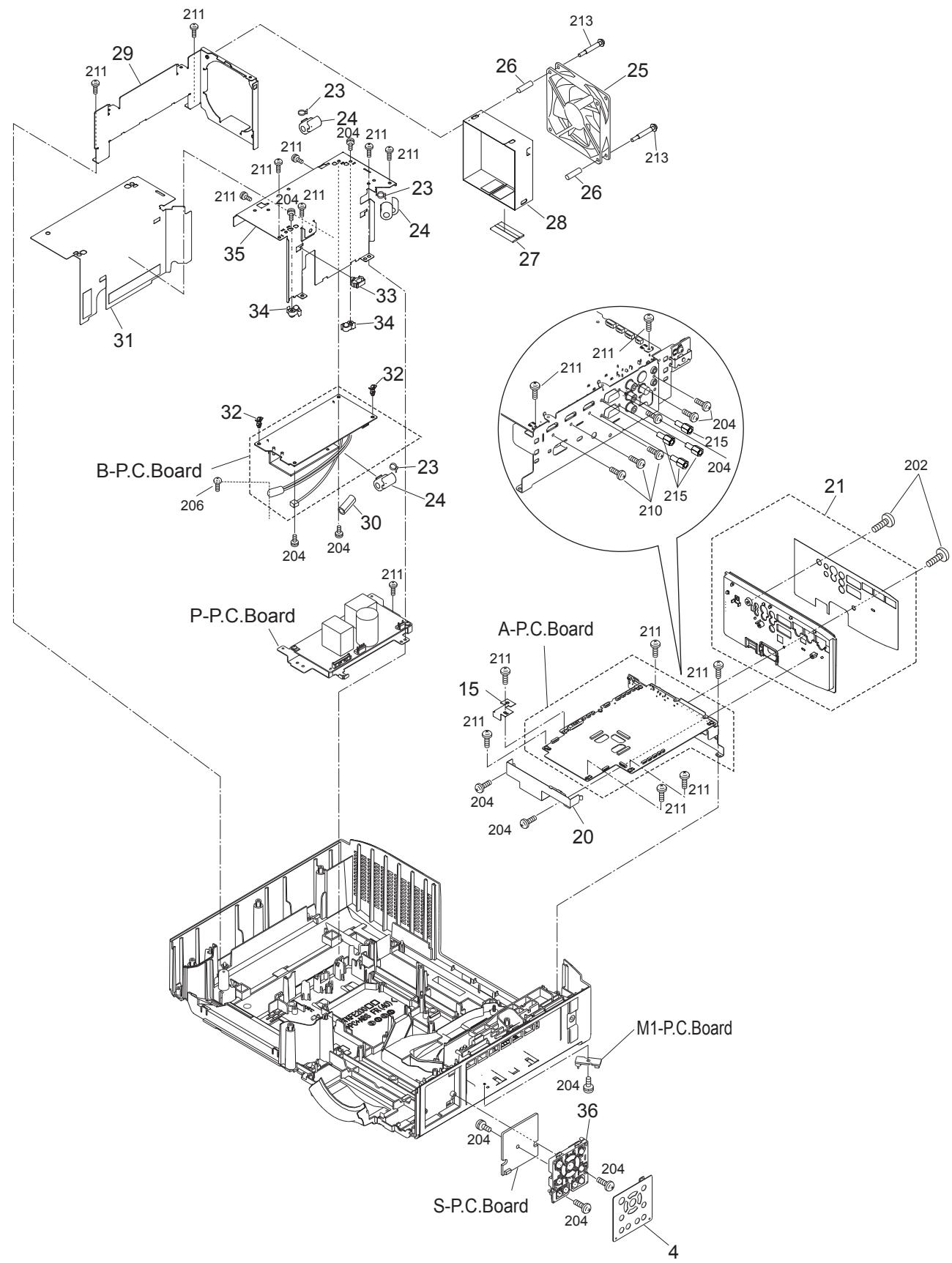
1. Exploded Views

1.1. Part Location (1/3)



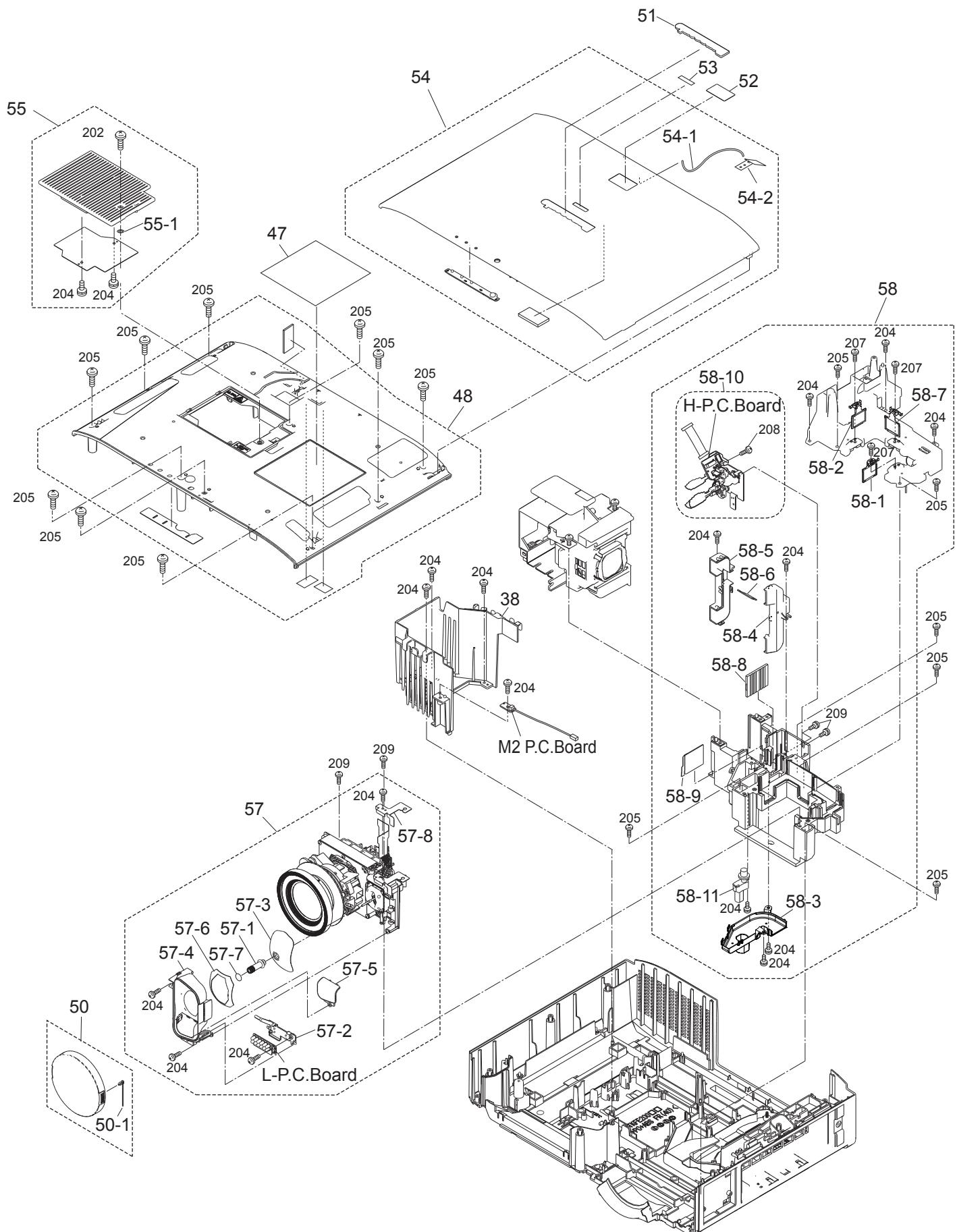
1. Exploded Views

1.1. Part Location (2/3)

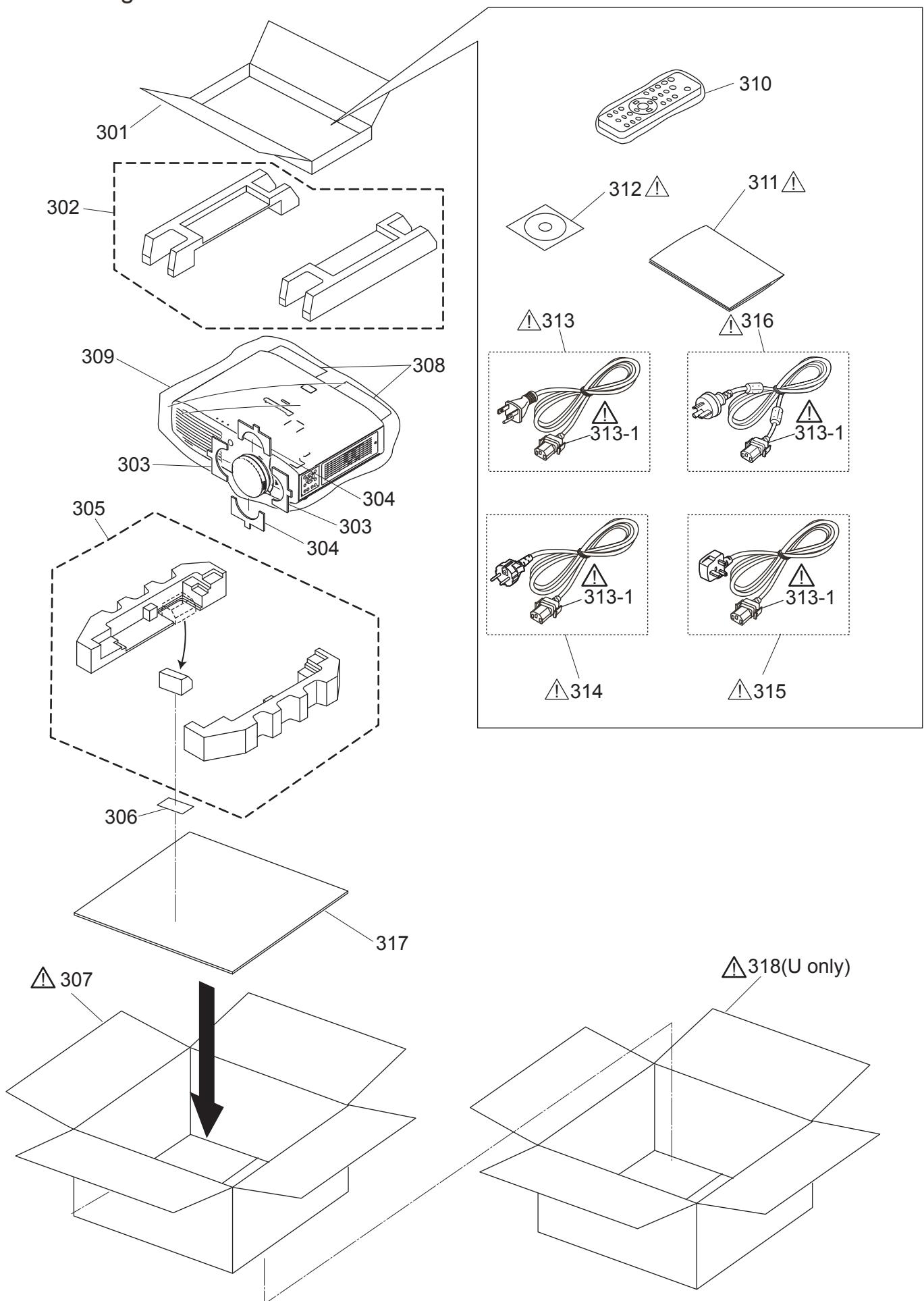


1. Exploded Views

1.1. Part Location (3/3)



1.2. Packing Parts



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