February 2019 No. U209-B

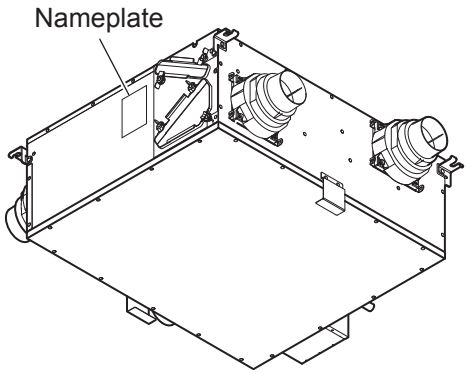
MITSUBISHI ELECTRIC

LOSSNAY

HANDBOOK

MODELS

VL-220CZGV-E
VL-220CZGV-EB
VL-220CZGV-EF



Remote controller (Optional)

PZ-61DR-E

PZ-43SMF-E

Filter (Optional)

P-220SHF-E

P-220EMF-E

P-220F-E

Warning:
Repair work must be performed by the manufacturer, its service agent or a similarly qualified person in order to avoid hazards.

MITSUBISHI ELECTRIC CORPORATION

Contents

1. Safety precautions

- Read the following precautions thoroughly before the maintenance, and then inspect and repair the product in a safe manner.
- The types and levels of danger that may arise if the product is handled incorrectly are described with the warning symbols shown below.

⚠ Warning

Improper handling of the product may result in serious injury or death.

◇ Electric shock

If you must inspect the circuitry while the power is on, do not touch the live parts.

(Failure to observe this warning may result in electric shock.)

Caution against electric shock

◇ Turn off the power supply

Be sure to shut off the power supply isolator before disassembling the unit for repair.

(Failure to observe this warning may result in electric shock.)

Be sure to follow this instruction.

◇ Modification is prohibited

Do not modify the unit.

(Failure to observe this warning may result in electric shock, fire and/or injury.)

Prohibited

◇ Use proper parts and tools

For repair, be sure to use the parts listed in the service parts catalog of the applicable model and use the proper tools.

(Failure to observe this warning may result in electric shock, fire and/or injury.)

Be sure to follow this instruction.

◇ Proper electric work

Use the electric wires designated for electric work, and conduct electric work in accordance with your local "Electric Installation Engineering Standard", the "Indoor Wiring Regulations" and the installation instructions.

(Improper connection or wiring installation may result in electric shock and/or fire.)

Be sure to follow this instruction.

◇ Replace damaged and/or degraded parts

Be sure to replace the power cord and lead wires if they are damaged and/or degraded.

(Failure to observe this warning may result in electric shock and/or fire.)

Be sure to follow this instruction.

◇ Check insulation

Upon completing repair work, always measure the insulation resistance. Verify that it is at least 10 MΩ (with a 500-V DC insulation resistance tester), and then turn on the power.

(Inadequate insulation may result in electric shock.)

Be sure to follow this instruction.

⚠ Caution

Improper handling of the product may result in injury or damage to properties including buildings and equipment.

◇ Caution for injury

Do not work at a location where you do not have a sure footing.

(Failure to observe this caution may result in a fall.)

Prohibited

◇ Wear gloves

Wear gloves when servicing.

(Failure to observe this caution may result in injury to your hands from sharp metal or other edges.)

Be sure to follow this instruction.

Notes for servicing

- Inspect the earth condition, and repair it if it is incomplete. Make sure that a power supply isolator and an overload protection device are installed, if they are not installed, recommend the customer to install them.

- Make sure that the product operates properly upon completion of repair. Clean the product and the surrounding area, and then notify the customer of the completion of repair.

2. Changed points

Item	Previous model		New model
	VL-220CZGV-E	VL-220CZGV-EB	VL-220CZGV-EF
High efficiency supply air filter (P-220SHF-E) Medium efficiency exhaust air filter (P-220EMF-E)	Optional		Included
Exterior heat insulators	Not provided	Provided	Not provided
Others	–		The logo mark NF is added on the nameplate.

3. Specifications

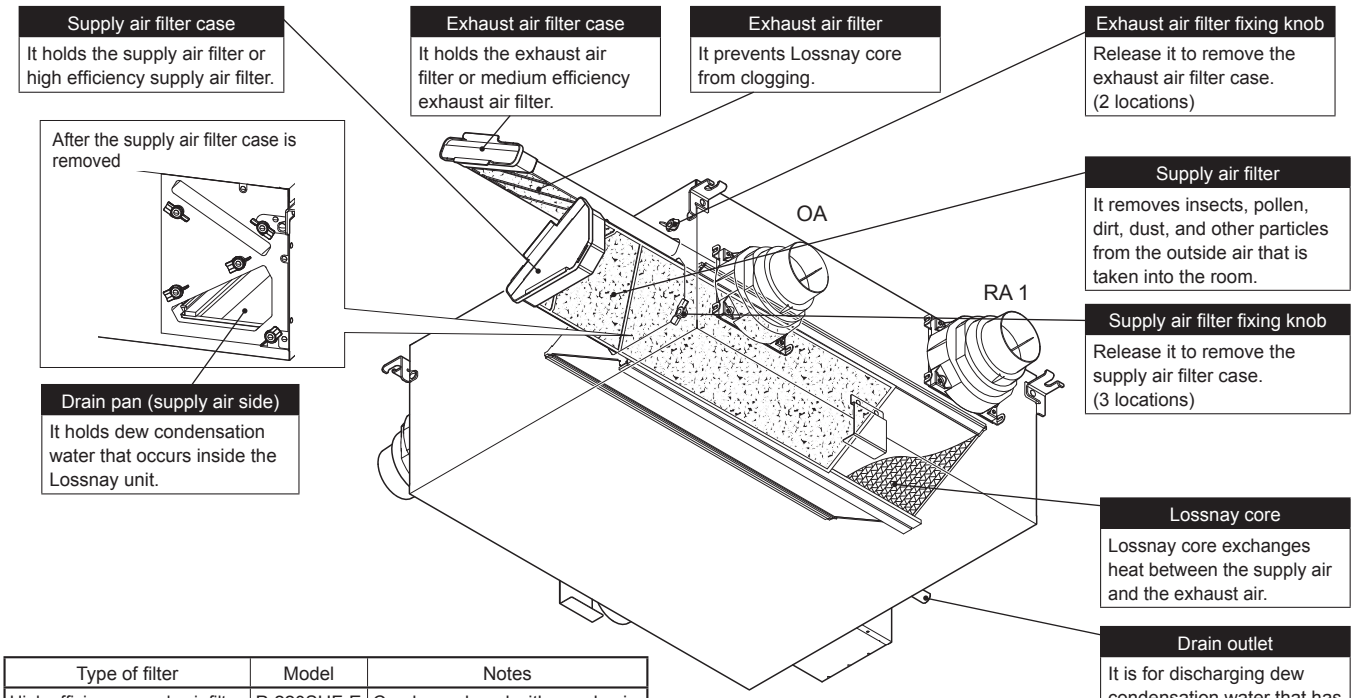
Model name		VL-220CZGV-E, VL-220CZGV-EB, VL-220CZGV-EF			
Heat exchange system		Heat recovery ventilating system			
Heat exchanger material		Water-resistant paper sensible heat exchanger			
Cladding		Galvanized steel sheet			
Heat insulation material		Noncombustibility polyethylene foam			
Motor		EC motor			
Filter		Non-woven fabrics filter (Gravitational method 82%, EN779: 2012: G3)			
Surrounding air condition		Shall be between 0°C and 40°C, 80%RH or less			
Suction air condition		Shall be lower than 40°C, 95%RH			
Supply fan operation under low outdoor temperature		0°C to -5°C: Intermittent operation 24 min ON, 6 min OFF -5°C or less: Continuous supply air stopped			
Function		Heat recovery ventilation/ Bypass ventilation, Fan speed 1,2,3,4 (When the optional motorized damper (P-133DUE-E) is used, bypass ventilation mode can be switched.)			
Electrical power supply		220-240 V/50 Hz, 220 V/60 Hz			
Ventilation mode		Heat recovery mode			
Fan speed		Fan speed 4	Fan speed 3	Fan speed 2	Fan speed 1
Running current (A)		0.60	0.29	0.18	0.11
Input power (W)		80	35	18.5	8.5
Air volume	(m^3/h)	230	165	120	65
	(L/S)	64	46	33	18
External static pressure (Pa)		164	84	44	13
Temperature exchange efficiency (%)		82	84	85	86
Noise (dB)		31	25	19	14
Weight (kg)		VL-220CZGV-E, VL-220CZGV-EF: 31, VL-220CZGV-EB: 32			
Insulation resistance		10 MΩ or more			
Dielectric strength		1000 V AC 1 minute			

Attention:

- The running current, the input power, the efficiency and the noise are based on the rating air volume, and 230 V/50 Hz. The noise is measured at 1.5 m under the center of the unit in an anechoic chamber.
- Temperature exchange efficiency (%) is based on winter condition.
- Mitsubishi Electric measures figures in the chart according to Japan Industrial Standard (JIS B 8628), therefore the characteristic curves are measured by chamber method.

Model name	PZ-61DR-E
Power supply requirement	12 V DC (Supplied from Lossnay unit)
Power consumption	0.3 W
Transmission cable	Non polarized 2-wire (0.3 mm^2 (AWG22) sheathed cable)
Total wiring length	200 m maximum
Number of controllable Lossnay units	15 Lossnay units maximum (Max. 2 remote controllers installable)
Environmental condition	Temperature: 0 to 40°C, Humidity: 30% to 90% relative humidity (no condensation)
Size	120 x 120 x 19 mm
Weight	0.25 kg
Color	Munsell 1.0Y9.2/0.2

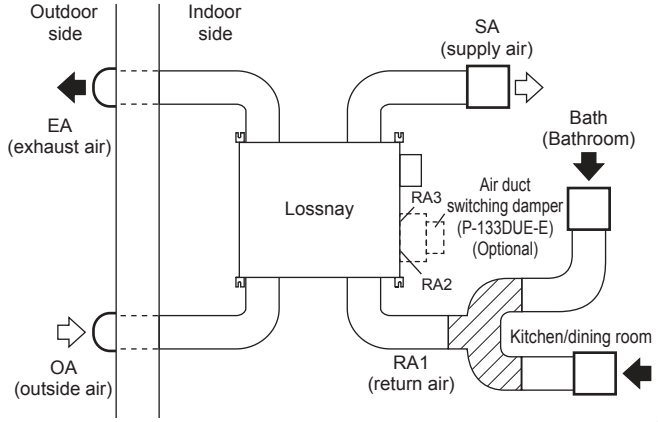
4. Names and functions of components



Type of filter	Model	Notes
High efficiency supply air filter (Contains two sheets)	P-220SHF-E	Can be replaced with supply air filter. (M6 class, EN779:2012)
Medium efficiency exhaust air filter (Contains two sheets)	P-220EMF-E	Can be replaced with exhaust air filter. (G4 class, EN779:2012)
Standard replacement filter (Contains two sheets)	P-220F-E	Can be replaced with supply air filter and exhaust air filter. (G3 class, EN779:2012)

Piping example

• When connecting the RA (return air) to a bathroom, be sure to branch the pipe into two lines and intake return air from two locations, the bathroom and living room (kitchen/dining room).

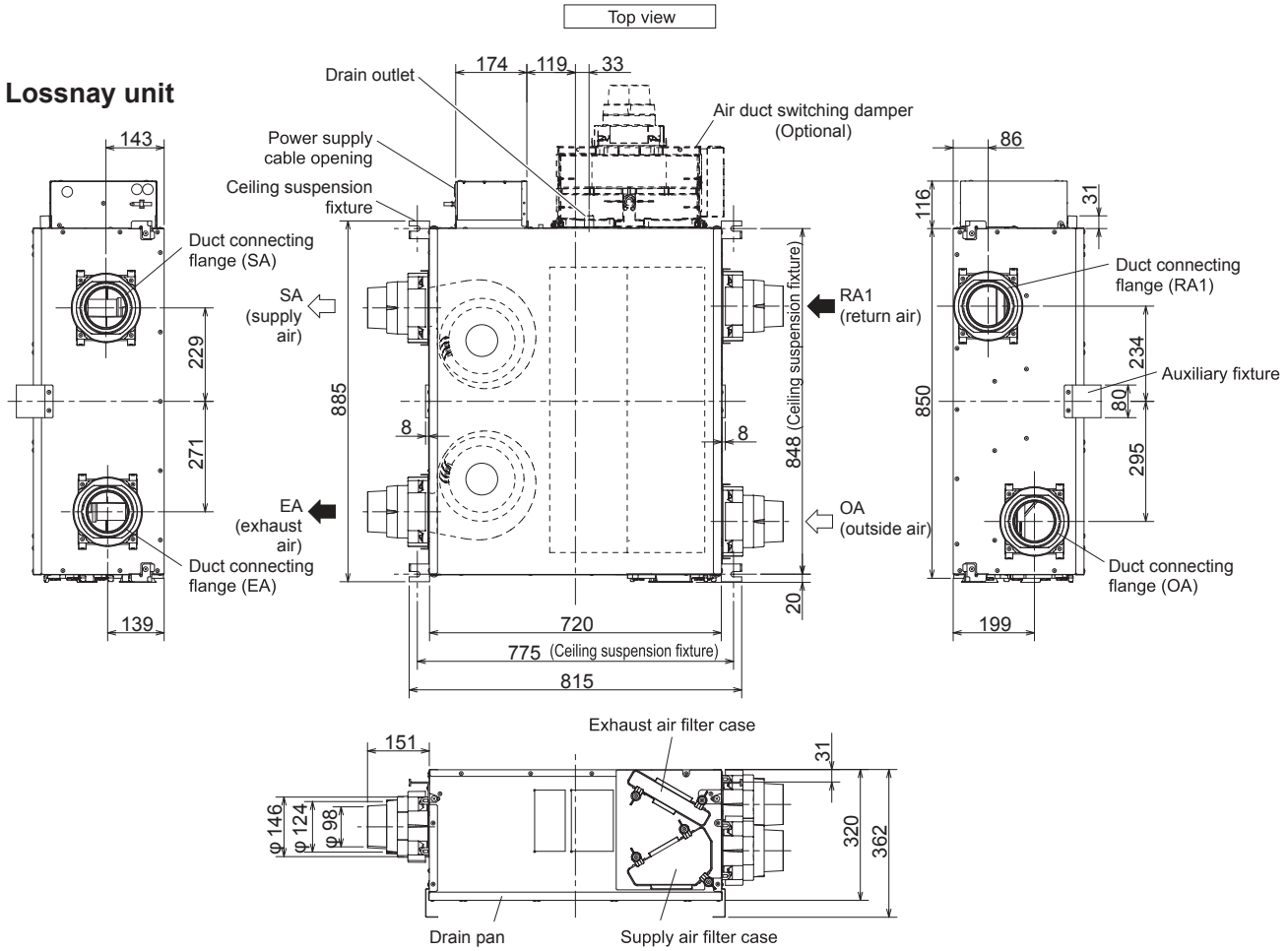


Name of Connection Point		Connection Location
RA (Return air)	RA1	For intake from living room, toilet, wash basin, bathroom, etc.
	RA2*	For optional air duct switching damper (P-133DUE-E) Exclusive for intake from living room, toilet, wash basin, bathroom, etc.
	RA3*	
EA (Exhaust air)		For exhaust air of inside air
OA (Outside air)		For intake of outside air
SA (Supply air)		For air supply opening to living room

* When RA2 and RA3 are used, use grills equipped with filter.

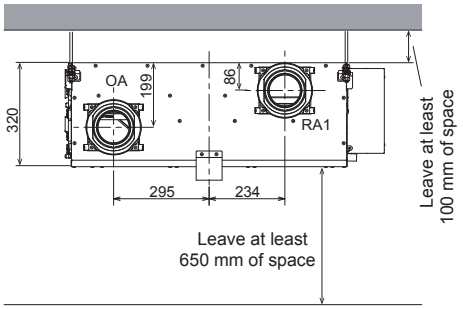
5. Outside dimensions

VL-220CZGV-E, VL-220CZGV-EF

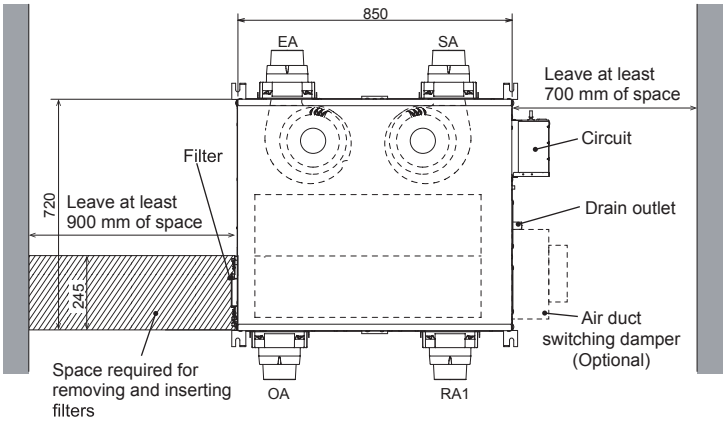


Working space (required space around Lossnay unit)

■ **OA-RA side**



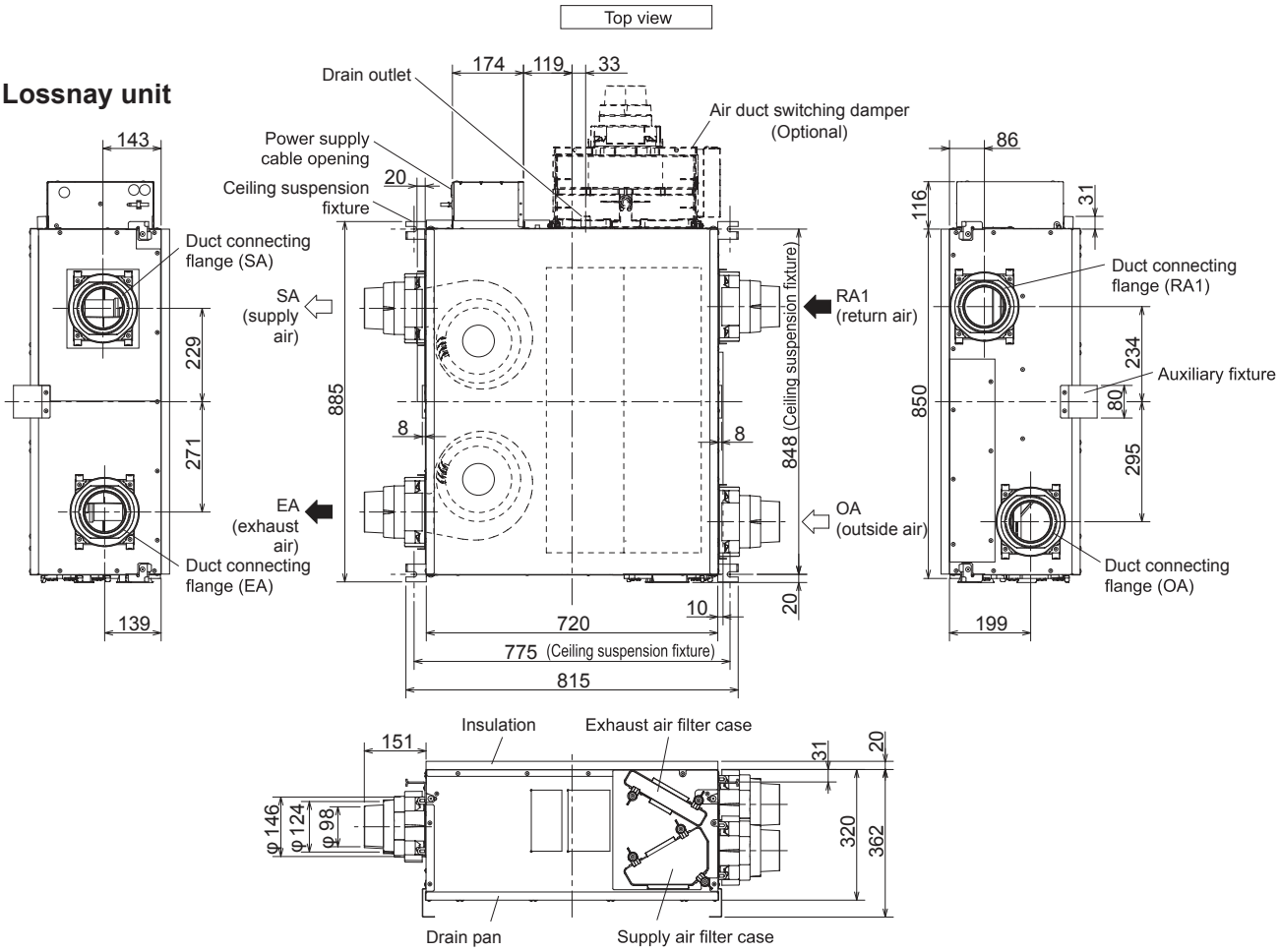
■ **Top side**



Unit (mm)

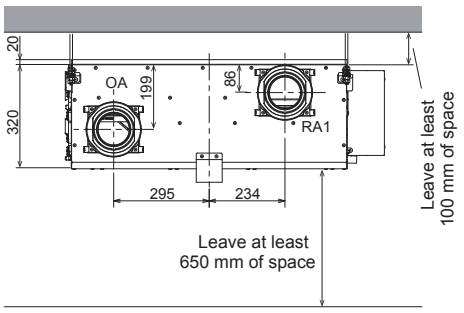
VL-220CZGV-EB

Lossnay unit

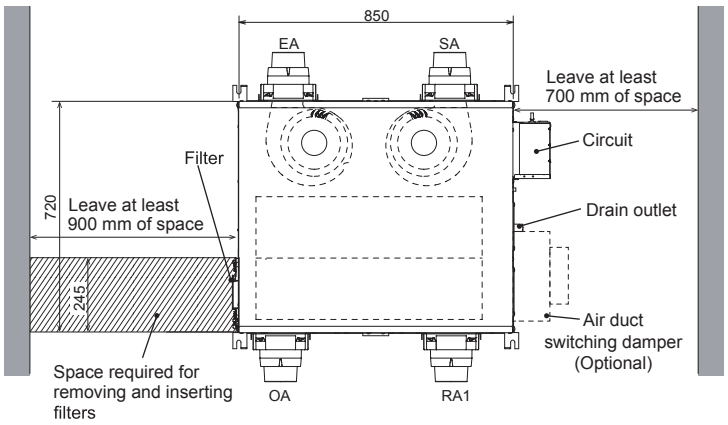


Working space (required space around Lossnay unit)

■ **OA-RA side**

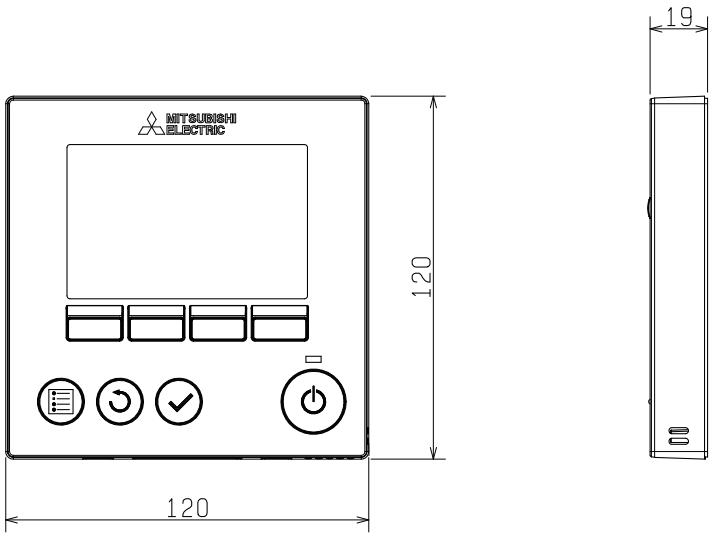


■ **Top side**



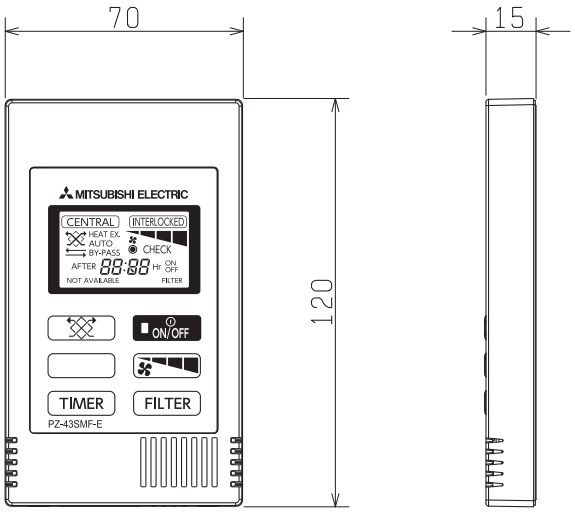
Unit (mm)

PZ-61DR-E



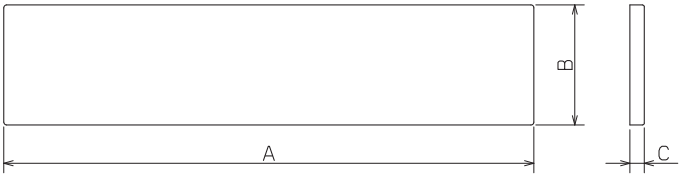
Unit (mm)

PZ-43SMF-E



Unit (mm)

P-220SHF-E, P-220EMF-E, P-220F-E



Model	Dimension			The number of filters per set	Applicable model
	A	B	C		
P-220SHF-E	362	189	15	2	VL-220CZGV-E VL-220CZGV-EB VL-220CZGV-EF
P-220EMF-E	353	183	15	2	
P-220F-E	355	184	15	2	

Note:
• Lossnay unit is provided with one set of the filters.

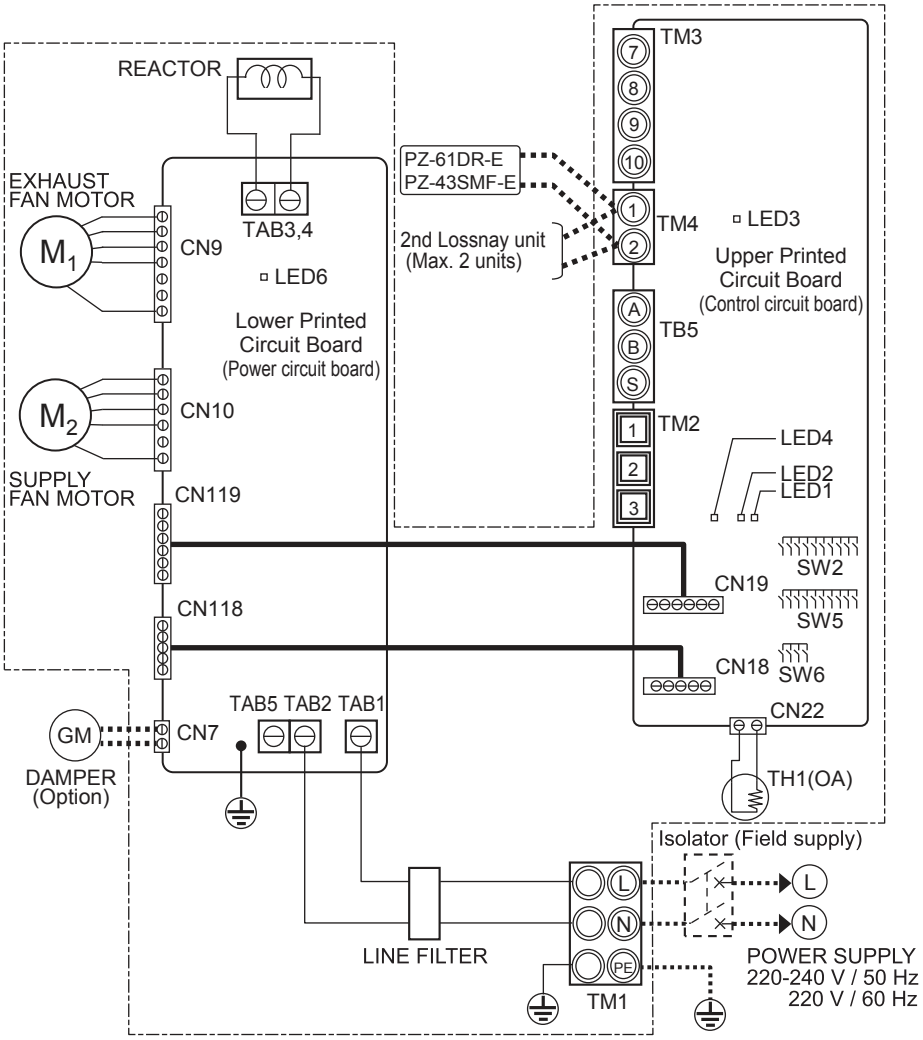
Unit (mm)

6. Electrical wiring diagram

VL-220CZGV-E, VL-220CZGV-EB, VL-220CZGV-EF

* TM1, TM4 shown in dotted lines are field work.
* CN7 (DAMPER) is optional.
* Be sure to connect the earth wire.
* A power supply isolator must be installed.
* Always use an isolator for the main switch power connection.
* Select proper circuit breaker according to the electrical current information in the chart below.

Inrush current after power supply ON	10 ms	6.1 A
	100 ms	3.6 A

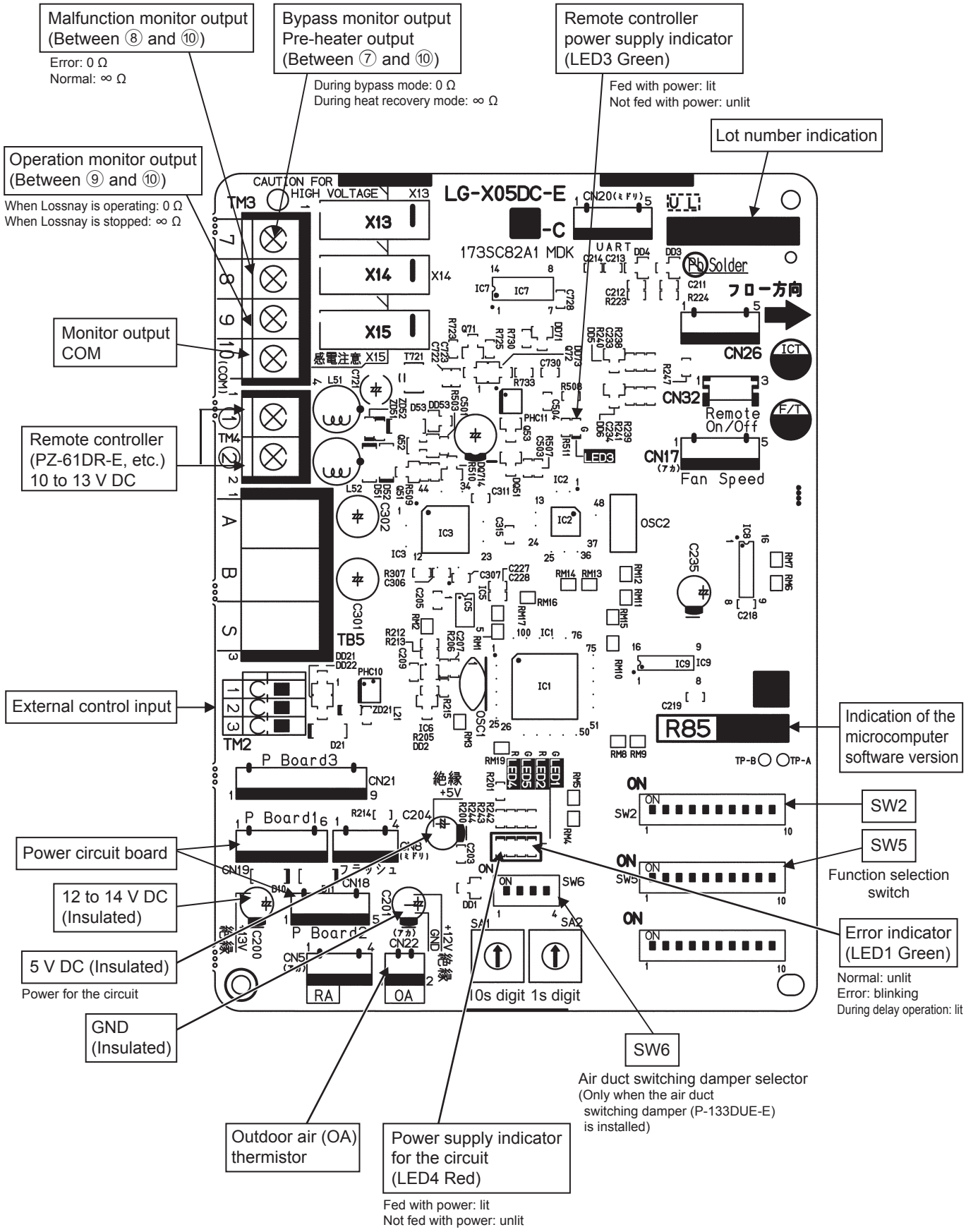


Definition of symbols		
M1: Motor for exhaust fan	TB5: Not in use	CN19: Connector
M2: Motor for supply fan	TAB1, TAB2, (TAB5): Connector (Power supply)	CN119: Connector
GM: Motor for By-pass damper	TAB3,TAB4: Connector (Reactor)	CN22: Connector (Thermistor OA)
TH1: Thermistor for outside air	CN7: Connector (Motor for By-pass damper)(Option)	LED1: Inspection indicator lamp
SW2,5: Switch (Function selection)	CN9: Connector (Fan motor)	LED3: Remote controller power supply indicator lamp
SW6: Switch (Motorized damper (option) selector)	CN10: Connector (Fan motor)	LED4, LED6: Power supply indicator lamp
TM1: Terminal block (Power supply)	CN18: Connector	SYMBOL ◎ □ : Terminal block
TM2: Not in use	CN118: Connector	⊡ : Connector on PCB
TM3: Not in use		
TM4: Terminal block (Transmission cable)		

7. Circuit board diagrams

● Circuit board diagram and check points

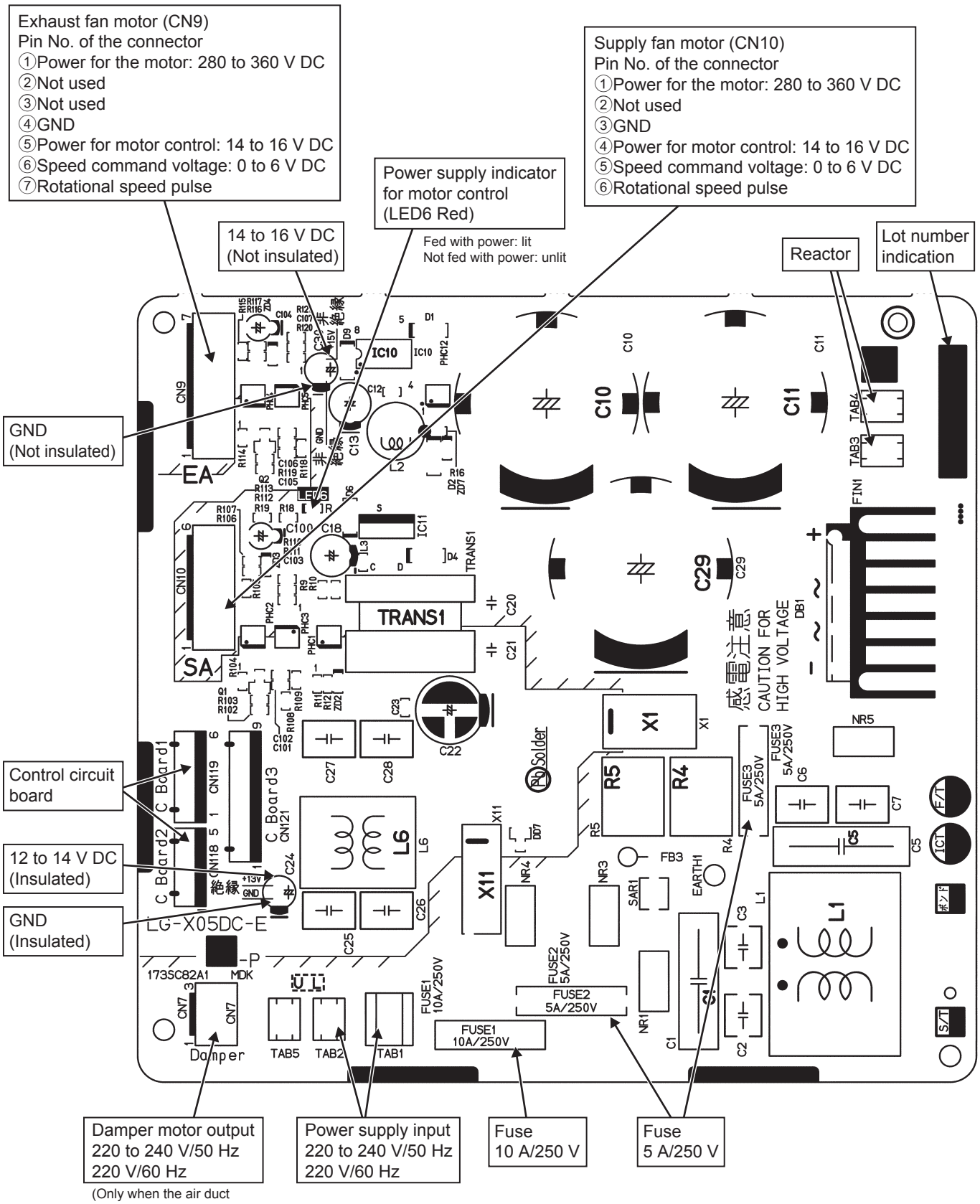
(1) Control circuit board



(2) Power circuit board

Caution:

The power circuit board is not insulated from the power line (high voltage part), except for the connection part (CN118 and CN119) with the control circuit board. Also, even when the power supply is cut off, the capacitor is charged. Therefore, wait for at least five minutes before starting work.



8. Troubleshooting

■ Work precautions

- When removing or touching the cables, circuit board or other parts, make sure to turn off the power supply isolator.
- Even after the power supply isolator is turned off, the capacitor on the circuit board retains high voltage for a while. Therefore, before servicing, wait for at least five minutes, and then use a tester to check that the voltage has dropped.
- Once the power supply is turned off, be sure to wait for at least five minutes before turning the power back on again.
- When servicing, be sure to recreate the malfunction two or three times before starting repairs.
- When servicing, always take care to keep proper footing.
- Before starting the service, always turn off the power supply isolator. Sufficient care must be taken to avoid electric shock or injury.
- Make sure to connect the power supply wires correctly.
- When removing the circuit board, always hold it at both ends and remove carefully so as not to apply force to the surface mounted parts.
- When removing the circuit board, be careful of the metal edges on the board.
- When removing or inserting the connectors for the circuit board, hold the entire housing section. Never pull on the lead wires.
- If it is thought that there is a circuit board malfunction, check for disconnected wires in the print pattern, burnt parts or discoloration.
- If the circuit board is replaced, make sure that the switch settings on the new board are the same as the old board.

∗ The part names in the texts are standardized with the part names in the parts catalog. (There are some exceptions.)

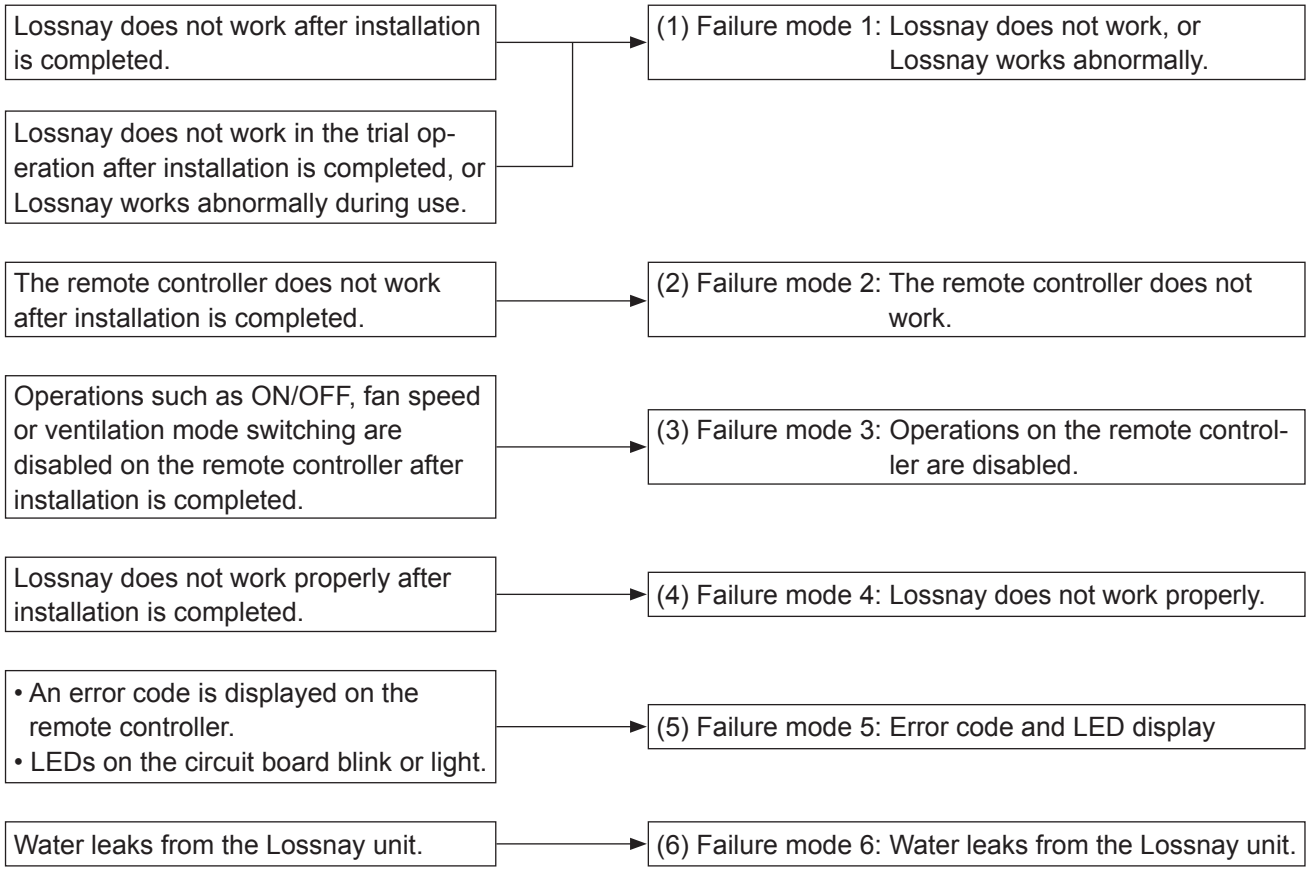
8-1 Service flowchart

After checking the check items below, follow the troubleshooting for servicing.

Applicable Device	Applicable Model
Lossnay Heat Recovery Ventilator	VL-220CZGV-E, VL-220CZGV-EB, VL-220CZGV-EF
Lossnay Remote Controller	PZ-61DR-E, PZ-43SMF-E
Air Duct Switching Damper (Lossnay Heat Recovery Ventilator System Component)	P-133DUE-E

Note: This device (VL-220CZGV-E, VL-220CZGV-EB, VL-220CZGV-EF) is not compatible with M-NET. When connected to M-NET, a malfunction may occur or an error code may be displayed.

No.	Preliminary check item	Details
1	Product information	• Model name of the product • Serial number of the product, manufacturing lot number of the circuit board • Microcomputer software version marked on the circuit board
2	Fault status	• Fault status (For example, the fan does not operate.) • Error code display on the remote controller • Operation setting of the remote controller (ventilation mode setting, fan speed setting, etc.)
3	Frequency of fault occurrence	• Frequency of fault occurrence (frequency of date and time of occurrence, regularity of occurrence, etc.) • Operating time up to fault occurrence • Date of start of use, date of fault occurrence
4	Timing of fault occurrence	• Remote controller operation performed before fault occurrence • Operating status, etc.
5	System settings	• Function selection switch settings of the product • Model name of the Lossnay remote controller, and whether the air duct switching damper is installed or not • Function settings on PZ-61DR-E when PZ-61DR-E is used
6	System drawings	• System Configuration • Wiring • Record of the Lossnay function setting statuses



8-2 Check Details

(1) Failure mode 1: Lossnay does not work, or Lossnay works abnormally.

● **Initial Check Items**

Check the following details if Lossnay does not work after installation is completed.

①Power supply

No.	Check Item	Corrective action
1	Is the main power supply on?	Turn the main power supply on.
2	Is the current capacity of the power supply isolator appropriate?	Use an appropriate power supply isolator.
3	Is the designated cable used for the power supply cable?	Use the designated cable.
4	Is the specified power supply supplied to the power supply terminal (TM1)? 220-240 V/50 Hz, 220 V/60 Hz	Supply the designated power supply.
5	Is the power supply cable incorrectly wired, is there a faulty connection or are screws loose?	Connect the cable securely and correctly, and tighten the screws firmly.
6	Is there a faulty connection on the power supply terminals (TM1, TAB1, and TAB2)?	Connect the lead wires securely.
7	Is there a faulty connection on the reactor terminals (TAB3 and TAB4)?	Connect the lead wires securely.
8	Are the power supply indicator lamps (LED4 and LED6, red) lit?	Check the above items.

②Transmission cables (remote controller transmission cable, and external input/output signal cable)

No.	Check Item	Corrective action
1	Are the designated cables used for the remote controller transmission cable? (See Table 2-1.)	Use the designated transmission cables.
2	Are the designated cables used for the external input/output signal cable? (See Table 2-2.)	Use the designated cables.
3	Are the transmission cables wired using multicore cables?	Use the designated transmission cables.
4	Are multiple transmission cables wired in the same piping duct?	Wire the transmission cable away from one another.
5	Is the power supply cable wired at least 5 cm away from transmission cables?	Wire the power supply cable at least 5 cm away from the transmission cables.
6	Are the transmission cables connected to the designated terminal block? (See Table 2-1.)	Connect the transmission cables to the designated terminal blocks.
7	Are the transmission cables incorrectly wired, is there a faulty connection or are screws loose?	Connect the cable securely and correctly, and tighten the screws firmly.
8	Is the wiring length of the transmission cable within the regulations? (See Table 2-1.)	Wire the cables within the regulations.
9	Does the external input signal match the specifications? (See Table 2-2.)	Input the signal that matches the specifications.
10	Is the external input signal input to the Lossnay set as the main Lossnay?	Input the signal to the Lossnay set as the main Lossnay (SW5-10 ON).
11	Is the function selection for the external output signal set correctly?	Set the function selection switches (SW2-8, 5-2, and 5-6) on the circuit board correctly. Set the function settings (No. 57 and 58) of PZ-61DR-E correctly.

Table 2-1
Remote controller transmission cable specifications

Cable	PZ-61DR-E or PZ-43SMF-E transmission cable
Type	Sheathed cable
Number of cores	2-core cable
Cable diameter	0. 3 mm^2 (AWG22)
Total extension	200 m
Terminal block	TM4 ① ②

Table 2-2 External input/output specifications

Function Name	Terminal or connector on the circuit board	Signal specifications	Materials Used	Total extension
External control input (volt-free contact)	TM2 ①③	Level/pulse (Note 1)	Single-lead 0.8 to 1.2 mm dia. or twisted lead 0.5 to 1.5 mm^2	500 m
External control input (12 V DC, 24 V DC)	TM2 ①②	Level/pulse (Note 1)	Single-lead 0.8 to 1.2 mm dia. or twisted lead 0.5 to 1.5 mm^2	(Note 2)
Remote/local switching	CN32 ①③	Level (Note 1)	Remote ON/OFF adaptor (PAC-SE55RA-E)	10 m
Remote ON/OFF input	CN32 ①②			
Fan speed 4 input (volt-free contact)	CN17 ①②	Level (Note 1)	Remote display adaptor (PAC-SA88HA-E)	
Fan speed 3 input (volt-free contact)	CN17 ①③			
Fan speed 2 input (volt-free contact)	CN17 ①④			
Fan speed 1 input (volt-free contact)	CN17 ①⑤			
Bypass mode input (volt-free contact) *Only when P-133DUE-E is installed	CN26 ①②			
Fan speed switching input (0 to 10 V DC)	CN26 ④⑤	Analog		

<Caution>

• When connecting two Lossnay units and using external input/output, input the signals to the Lossnay (SW5-10 ON, with the smallest address setting) set as the main Lossnay.

(Note 1) The input signal must conform to the following specifications:

Level signal Volt-free contact, 12 V DC, 24 V DC, the duration of ON and OFF should be 10-second or more.

Pulse signal Volt-free contact, 12 V DC, 24 V DC, the duration of ON should be 200 msec. or more, and minimum 10-second absence is necessary to the next pulse .

In the case of relay contact input, use a relay having a contact rating of 15 V DC/0.1 A or higher and a minimum applicable load of 1 mA or less.

(Note 2) Check the specifications of the external device.

③Monitor output signal cable

No.	Check Item	Corrective action
1	Is the signal cable wired by multicore cable?	Wire the cable using a 2-core cable.
2	Are the signal cables and transmission cables wired in the same piping duct?	Wire the signal cables away from the transmission cables.
3	Is the power supply cable wired at least 5 cm away from signal cables?	Wire the power supply cable at least 5 cm away from the signal cables.
4	Is the signal cable connected to the designated terminal block? (See Table 3-1.)	Connect the signal cable to the designated terminal block.
5	Is the signal cable incorrectly wired, is there a faulty connection or are screws loose?	Connect the cable securely and correctly, and tighten the screws firmly.
6	Is the output capacity of the signal cable within rating? (See Table 3-1.)	Use the signal cable within rating.
7	Is the function selection for the external output signal set correctly?	Set the function selection switches (SW2-8, 5-2, and 5-6) on the circuit board correctly. Set the function settings (No. 57 and 58) of PZ-61DR-E correctly. (See the Lossnay technical manual.)

Table 3-1 Monitor Output Specifications

Terminal block	TM3 ⑨⑩	TM3 ⑧⑩	TM3 ⑦⑩
Function Name	Operation monitor After-heater	Malfunction monitor	Bypass monitor
Signal specifications	Volt-free contact		
Output rating	240 V AC, 1 A		
	24 V DC, 1 A		
Min. applicable load	220 V AC, 100 mA		
	5 V DC, 100 mA		

④Function setting (See the Lossnay technical manual for details.)

No.	Check Item	Corrective action
1	Is the main Lossnay set correctly?	Check the function selection switch (SW5-10) on the circuit board. When an external signal is input to two Lossnay units, set one of the units as the main Lossnay (SW5-10 ON).
2	Are the function selection switches on the circuit board set correctly to suit the required application?	Set the function selection switches (SW2 and SW5) on the circuit board correctly.
3	Is the applicable model used as the Lossnay remote controller?	Use PZ-61DR-E or PZ-43SMF-E. (The air conditioner remote controller including PAR-31MAA cannot be used.)
4	When PZ-61DR-E is used, are the function selections set correctly to suit the required application?	Set the function selections correctly.
5	Was a function set with the function selection switches on the circuit board after the function is set with PZ-61DR-E?	Set the function again with PZ-61DR-E. For the function that can be set with both PZ-61DR-E and the function selection switches, if the function is set to other than "DIP-SW priority" with PZ-61DR-E, setting with the function selection switches is disabled.

⑤LED Indications on the circuit board

No.	LED	Contents	Check Item	Corrective action
1	LED1 (green)	Lossnay main unit error indicator	Blinking: Starting up, or error occurred	See Failure Mode 5.
			Lit: During delay operation	Lossnay operates after the delay time has passed.
			Unlit: Other than above	It is normal.
2	LED2 (red)	M-NET System error indicator	Unlit	It is normal.
3	LED3 (green)	Remote controller power supply indicator	Lit: Power supplied to the remote controller (Main Lossnay)	The LED goes out when power is supplied to the remote controller from another Lossnay unit in the case of using two Lossnay units.
			Unlit: Power not supplied to the remote controller (Sub Lossnay)	
4	LED4 (red)	Power supply indicator (control circuit board)	Check that this LED is lit	The LED lights while power is being supplied to the control circuit board.
5	LED6 (red)	Power supply indicator (power circuit board)	Check that this LED is lit	The LED lights while power is being supplied to the power circuit board. (Do not touch components on the circuit board when the LED is lit.)

● **Individual function check items**

If Lossnay does not work in the trial operation after installation is completed, or if Lossnay works abnormally during use, check the following items.

No.	Problem	Factor	Corrective action
1	The fan does not operate even though the trial operation switch (SW2-1) on the circuit board is turned ON.	The connectors between the fan motor and circuit board is disconnected.	Check the connector (CN9) for the exhaust fan motor and the connector (CN10) for the supply fan motor.
		The connector between the control circuit board and power circuit board is disconnected.	Check the connector connections (CN18-CN118 and CN19-CN119).
		The temperature around the product is high.	Use the product at a temperature of 40°C or lower.
		Fan motor failure	Check the resistance between the motor leads. (See chapter 8. (8) Motor resistance table (page 28).) If the measured value is significantly different from the values specified in the table, replace the fan motor.
		Circuit board failure	Disconnect the connectors (CN9 and CN10), and check the output voltage of each pin of the connectors within one minute after turning the switch (SW2-1) ON. (One minute later, the error will occur.) (See chapter 7. (2) Power circuit board (page 11).) If the voltage value is abnormal, replace the circuit board. If the problem persists, replace the fan motor.
2	Though the remote controller display indicates the fan is running, the fan stops by itself.	The Lossnay unit is operating in the protective mode (intermittent operation).	When PZ-61DR-E is used, it displays the icon "" that indicates the protective operation is in-progress. For details, see the remote controller manual.
		The Lossnay unit is set to the delay operation.	When PZ-61DR-E is used, it displays the icon "" that indicates the delay operation is in-progress. LED1 (green) on the control circuit board lights. Lossnay operates in 30 minutes (or 15 minutes) after the external signal is input to run. Check the function selection switch (SW5-1) on the circuit board or the function setting (No. 9) of PZ-61DR-E. (See the Lossnay technical manual.)
		The temperature around the product is high.	When the ambient temperature of the product is high (higher than 40°C), the fan may stop to prevent the fan motor from overheating.
3	The fan does not stop even though the remote controller is operated to stop operation.	The after-heater is set to be used.	If the after-heater is set to be used, the fan continues operating for three minutes after the stop operation. Check the function selection switches (SW2-8 and 5-2) on the circuit board or the function settings (No. 57 and 58) of PZ-61DR-E. (See the Lossnay technical manual.)

No.	Problem	Factor	Corrective action
4	Even though the remote controller is operated to change the fan speed, the fan speed does not change.	The indoor negative pressure setting or the indoor positive pressure setting is set.	Check the function selection switches (SW2-4 and 2-5) on the circuit board or the function settings (No. 6 and 7) of PZ-61DR-E. (See the Lossnay installation manual.)
		The external fan speed input is set. (CN17)	When PZ-61DR-E is used, it displays the icon "". Check the fan speed switching input (CN17).
		The external fan speed input is set. (CN26)	When PZ-61DR-E is used, it displays the icon "". Check the function selection switches (SW2-3 and 2-6) on the circuit board or the function setting (No. 63) of PZ-61DR-E. (See the Lossnay technical manual.)
		The system is operating in the protective mode (intermittent operation).	When PZ-61DR-E is used, it displays the icon "" that indicates the protective operation is in-progress. For details, see the remote controller manual.
5	The fan operation is unstable.	The motor rotation speed is under control.	This product controls the motor by detecting the motor rotation speed. The fan operation may be unstable during rotation speed control (for maximum about 10 minutes).
6	The damper does not operate even though the trial operation switch (SW2-1) on the circuit board is turned ON. *Only when the air duct switching damper (P-133DUE-E) is installed.	The connector between the geared motor and circuit board is disconnected.	Check the connection of the connector (CN7) on the power circuit board.
		The air duct switching damper selector (SW6) is not set correctly.	Turn off the switch (SW6-1). When operating two Lossnay units, turn off the switch (SW6-1) of both Lossnay units.
		Geared motor failure of the air duct switching damper	Turn the trial operation switch (SW2-1) ON. The geared motor operates in about several seconds. If the geared motor does not operate, replace the geared motor. (For details about the air duct switching damper, see the handbook for P-133DUE-E.)
		Circuit board failure of the Lossnay unit	Disconnect the connector (CN7) from the power circuit board and check the voltage value between the pins of CN7 when the trial operation switch (SW2-1) is turned ON. (Voltage is output in about several seconds after switch ON.) If there is no voltage value, replace the circuit board.
			If the problem persists, replace the geared motor of the air duct switching damper. (See the handbook for P-133DUE-E.)
7	Even though the remote controller is operated to change the ventilation mode, the ventilation mode is not changed. *Only when the air duct switching damper (P-133DUE-E) is installed.	The outdoor temperature is 8°C or lower.	When the outdoor temperature is 8°C or lower, the ventilation mode is fixed to the Heat recovery mode.
		The signal is input to the Bypass mode switching input (CN26 ①②).	Check the Bypass mode switching input (CN26 ①②). (See the Lossnay technical manual.)

<table>
<tr><th>No.</th><th>Problem</th><th>Factor</th><th>Corrective action</th></tr>
<tr><td rowspan="5">8</td><td rowspan="5">The ventilation mode cannot be switched when Lossnay is operating in the automatic mode.
*Only when the air duct switching damper (P-133DUE-E) is installed.</td><td>Temperature condition for Heat recovery mode or Bypass mode is not satisfied.</td><td>Check the temperature map.
For details, see the Lossnay installation manual.</td></tr>
<tr><td>Temperature condition is not set correctly.</td><td>Set the lower limit to temperatures lower than that of the upper limit.</td></tr>
<tr><td>It has not passed 30 minutes since the ventilation mode is switched.</td><td>Switching of the ventilation mode is controlled in 30 minutes cycle.</td></tr>
<tr><td>The outdoor temperature is 8°C or lower.</td><td>When the outdoor temperature is 8°C or lower, the ventilation mode is fixed to the Heat recovery mode.</td></tr>
<tr><td>The signal is input to the Bypass mode switching input (CN26 ①②).</td><td>Check the Bypass mode switching input (CN26 ①②). (See the Lossnay technical manual.)</td></tr>
<tr><td rowspan="8">9</td><td rowspan="8">The Lossnay unit generates abnormal sounds or vibrations.</td><td>Fan operation failure</td><td>Set the supply/exhaust fan power up setting. (See the Lossnay installation manual.)</td></tr>
<tr><td>The filters (filter assemblies) are not securely installed.</td><td>Check that the filters (filter assemblies) are securely installed.</td></tr>
<tr><td>Filters are clogged.</td><td>Clean the filters.</td></tr>
<tr><td>The Lossnay unit is not securely installed.</td><td>Check that the Lossnay unit is securely installed.</td></tr>
<tr><td>The ceiling suspension fixtures (hangers) or anchor bolts are loosened.</td><td>Retighten the ceiling suspension fixtures (hangers) or anchor bolts.</td></tr>
<tr><td>The ducts are not securely connected.</td><td>Check that the ducts are securely connected.</td></tr>
<tr><td>Foreign matter is stuck to the centrifugal fans.</td><td>Remove the foreign matter.
It may lose the balance of the centrifugal fan.</td></tr>
<tr><td>The Lossnay unit generates sounds at the time of the ventilation mode switching.
*Only when the air duct switching damper (P-133DUE-E) is installed.</td><td>When ventilation mode has been changed, the air duct switching damper makes operating sounds. It is normal.</td></tr>
<tr><td rowspan="5">10</td><td rowspan="5">Air volume is too small.</td><td>Is the air filter clogged?</td><td>Clean the air filter.</td></tr>
<tr><td>Pressure loss in the duct is too high.</td><td>Set the supply/exhaust fan power up setting. (See the Lossnay technical manual.)</td></tr>
<tr><td>The air duct switching damper selector (SW6) is not set correctly after the circuit board is replaced.</td><td>Make the switch (SW6) setting appropriate for the model.
<table>
<tr><th></th><th>SW6-1</th><th>SW6-2</th><th>SW6-3</th><th>SW6-4</th></tr>
<tr><td>Without the damper</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr>
<tr><td>With the damper</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td></tr>
</table></td></tr>
<tr><td>The indoor negative pressure setting or the indoor positive pressure setting is set.</td><td>Check the function selection switches (SW2-4 and 2-5) on the circuit board or the function settings (No. 6 and 7) of PZ-61DR-E. (See the Lossnay technical manual.)</td></tr>
<tr><td>Power supply voltage is low.</td><td>Check the power supply voltage.</td></tr>
</table>

(2) Failure mode 2: The remote controller does not work.

If the remote controller does not work after installation is completed, check the following items.

①PZ-61DR-E

No.	Problem	Factor	Corrective action
1	Nothing is displayed on the remote controller. The ON/OFF lamp does not blink.	The power of the Lossnay unit is not ON.	Check the items described in (1) ①.
		Faulty connection of the remote controller transmission cable	Check the items described in (1) ②.
		Three or more Lossnay units are connected.	Only up to two Lossnay units can be connected.
		The wiring length of the remote controller exceeds 200 m.	The wiring length of the remote controller shall be within 200 m.
		When connecting with two Lossnay units, both Lossnay units are set as the main Lossnay (SW5-10 ON).	Only one Lossnay unit can be set as the main Lossnay.
2	The remote controller continues to display "Please Wait". Error code "6831" is displayed.	The remote controller is starting up.	The remote controller displays "Please Wait" during start-up for maximum four minutes.
		Faulty connection of the remote controller transmission cable	Check the items described in (1) ②.
		PZ-43SMF-E is used together.	PZ-61DR-E and PZ-43SMF-E cannot be used together.
3	It takes time for the remote controller to be fed with power after turning the Lossnay unit ON.	The Lossnay unit is starting up.	The remote controller is not fed with power during start-up of the Lossnay unit for maximum one minute.

②PZ-43SMF-E

No.	Problem	Factor	Corrective action
1	The power indicator "◉" is not displayed.	The power of the Lossnay unit is not ON.	Check the items described in (1) ①.
		Faulty connection of the remote controller transmission cable	Check the items described in (1) ②.
		Three or more Lossnay units are connected.	Only up to two Lossnay units can be connected.
		The wiring length of the remote controller exceeds 200 m.	The wiring length of the remote controller shall be within 200 m.
		When connecting with two Lossnay units, both Lossnay units are set as the main Lossnay (SW5-10 ON).	Only one Lossnay unit can be set as the main Lossnay.
2	"H0" is displayed on the remote controller.	The remote controller is starting up.	The remote controller displays "H0" during start-up for a maximum of one minute.
3	It takes time for the remote controller to be fed with power after turning the Lossnay unit ON.	The Lossnay unit is starting up.	The remote controller is not fed with power during start-up of the Lossnay unit for a maximum of one minute.
4	The inspection number "6801" is displayed on the remote controller.	Faulty connection of the remote controller transmission cable	Check the items described in (1) ②.
		PZ-61DR-E is used together.	PZ-43SMF-E and PZ-61DR-E cannot be used together.

(3) Failure mode 3: Operations on the remote controller are disabled.

● **Initial Check Items**

If the system cannot be operated with the remote controller after installation is completed, check the following items.

No.	Check item	Notes
1	Are the function selection switches (SW2 and SW5) on the Lossnay circuit board set correctly to suit the required application?	Depending on the settings of the function selection switches, Lossnay may automatically operate or stop, or specific operation may be unable to be performed with the remote controller.
2	When PZ-61DR-E is used, are the function selections set correctly to suit the required application?	Depending on the settings of the function selections, Lossnay may automatically operate or stop, or specific operation may be unable to be performed with the remote controller.
3	When PZ-61DR-E is used, are icons and characters displayed on the PZ-61DR-E screen?	Based on the icon and characters, you can check statuses such as the timer operation and protective operation. (See the Lossnay installation manual or remote controller manual.)
4	Is the external input used?	If the interlock mode is set to the "External input priority ON/OFF interlock" and if the external device is operating, the stop operation by PZ-61DR-E is prohibited. (See the Lossnay technical manual.)
		If the Remote/Local switching (CN32) is set to remote, the start/stop operation by the Lossnay remote controller is prohibited. (See the Lossnay technical manual.)
		Priority is given to the operation by the fan speed switching input (CN17) and Bypass mode switching input (CN26, only when P-133DUE-E is installed). (See the Lossnay technical manual.)

● **Individual check items**

If the system cannot be started/stopped using the remote controller after installation is completed, check the following items.

①PZ-61DR-E

No.	Problem	Factor	Corrective action
1	When connecting with two Lossnay units, either one or both of Lossnay units do not operate.	The power of the Lossnay unit is not ON.	Check the items described in (1) ①.
		Faulty connection of the remote controller transmission cable	Check the items described in (1) ②.
		The remote controller transmission cables are not correctly connected between the terminals (TM4 ①②) of the Lossnay units.	Connect the remote controller transmission cables correctly between the terminals (TM4 ①②) of the Lossnay units.
		The system is operating in the protective mode (intermittent operation).	For details, see the Lossnay technical manual.
2	The screen display of the remote controller changes by itself. Even if you press the buttons, the screen returns to the original screen right away.	Faulty connection of the remote controller transmission cable	Check the items described in (1) ②.
3	The outdoor temperature display of PZ-61DR-E blink.	The outdoor temperature is outside the measurement range.	In the following cases, the temperature display blinks. Outdoor temperature: 0°C or lower, 38°C or higher

②Interlocking with external devices

No.	Problem	Factor	Corrective action
1	Lossnay interlock settings cannot be performed with the remote controller.	The power of the Lossnay unit is not ON.	Check the items described in (1) ①.
		Faulty connection of the remote controller transmission cable	Check the items described in (1) ②.
2	Lossnay does not perform interlock operation.	The power of the Lossnay unit is not ON.	Check the items described in (1) ①.
		Faulty connection of the remote controller transmission cable or external input/output signal cables	Check the items described in (1) ②.
		The Lossnay unit is not set for interlock operation.	Set the interlock setting.
		The terminal block connected and the type of external signal do not match (charged or volt-free)	Check the type of external signal and the connections of the external control input terminal (TM2).
		The type of external signal and input setting do not match (level signal or pulse signal).	Check the type of external signal and the setting of the input (level or pulse). (See the Lossnay technical manual.)
		The Lossnay unit is set to the delay operation.	When PZ-61DR-E is used, it displays the icon "" that indicates the delay operation is in-progress. LED1 (green) on the control circuit board lights. The Lossnay unit starts operation in 30 minutes (or 15 minutes) after starting operation by the external signal. Check the function selection switch (SW5-1) on the circuit board or the function setting (No. 9) of PZ-61DR-E. (See the Lossnay technical manual.)
		The interlock mode of the Lossnay unit is set to "ON Interlock" or "OFF Interlock".	Check the interlock mode setting. (See the Lossnay technical manual.)
		When using two Lossnay units, no Lossnay unit is set to the main Lossnay.	When using two Lossnay units, set one Lossnay unit as the main Lossnay (SW5-10 ON) to input external control signal. (See the Lossnay technical manual.)
		When using two Lossnay units, external control signal is input to a Lossnay unit other than the main Lossnay.	
		The Lossnay unit is operating in the protective mode (intermittent operation).	For details, see the Lossnay technical manual.

(4) Failure mode 4: Lossnay does not work properly.

● **Initial Check Items**

If Lossnay does not work properly after installation is completed, check the following items.

No.	Check item	Notes
1	Are the function selection switches (SW2 and SW5) on the Lossnay circuit board set correctly to suit the required application?	Depending on the settings of the function selection switches, Lossnay may automatically operate or stop, or specific operation may be unable to be performed with the remote controller.
2	When PZ-61DR-E is used, are the function selections set correctly to suit the required application?	Depending on the settings of the function selections, Lossnay may automatically operate or stop, or specific operation may be unable to be performed with the remote controller.
3	When PZ-61DR-E is used, are icons and characters displayed on the PZ-61DR-E screen?	Based on the icon and characters, you can check statuses such as the timer operation and protective operation. (See the Lossnay installation manual or remote controller manual.)
4	Is the external input used?	If the interlock mode is set to the "External input priority ON/OFF interlock" and if the external device is operating, the stop operation by PZ-61DR-E is prohibited. (See the Lossnay technical manual.)
		If the Remote/Local switching (CN32) is set to remote, the start/stop operation by the Lossnay remote controller is prohibited. (See the Lossnay technical manual.)
		Priority is given to the operation by the fan speed switching input (CN17) and Bypass mode switching input (CN26, only when P-133DUE-E is installed). (See the Lossnay technical manual.)

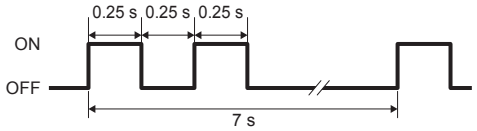
● **Individual check items**

If Lossnay does not work after installation is completed, check the following items.

No.	Problem	Factor	Corrective action
1	Actual fan speed of the Lossnay unit differs from the fan speed set with the remote controller.	The signal is input to the fan speed input (CN17).	Check the fan speed input (CN17). (See the Lossnay technical manual.)
		The signal is input to the fan speed switching input (CN26 ④⑤).	Check the fan speed switching input (CN26 ④⑤). (See the Lossnay technical manual.)
		Function setting (No. 8) of PZ-61DR-E "Max. fan speed setting during the first 30 minutes" is enabled.	Lossnay operates at fan speed 4 for 30 minutes when operation starts. (See the Lossnay technical manual.)
		The indoor negative pressure setting or the indoor positive pressure setting is set.	Check the function selection switches (SW2-4 and 2-5) on the circuit board or the function settings (No. 6 and 7) of PZ-61DR-E. (See the Lossnay installation manual.)
		The system is operating in the protective mode (intermittent operation).	When PZ-61DR-E is used, it displays the icon "" that indicates the protective operation is in-progress. For details, see the remote controller manual.
2	Even though the remote controller is operated to change the ventilation mode, the ventilation mode is not changed.	The outdoor temperature is 8°C or lower.	When the outdoor temperature is 8°C or lower, the ventilation mode is fixed to the Heat recovery mode.
		The signal is input to the Bypass mode switching input (CN26 ①②).	Check the Bypass mode switching input (CN26 ①②). (See the Lossnay technical manual.)

(5) Failure mode 5: Error code and LED display

An error code displayed on the remote controller (PZ-61DR-E or PZ-43SMF-E) and blinking or illumination of LED1 (green) on the circuit board show the type of an error.
The LED blink interval is 0.25 seconds for both on and off. The display duration is approximately 7 seconds.



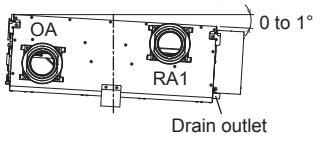
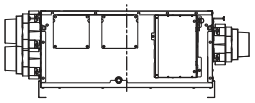
Error display example: Two blinks

Error display list

Error Code	LED1 (green)	Symptom	Cause	Corrective action
0900	—	Trial operation	The trial operation switch (SW2-1) on the circuit board is set to "ON".	Check the trial operation switch. (See the Lossnay installation manual.)
4101	11 blinks	Overcurrent error of the remote controller terminal	Shorting between remote controller terminals	Check the remote controller wiring.
			Two Lossnay units are set as the main Lossnay (SW5-10 ON).	Only one Lossnay unit can be set as the main Lossnay. (See the Lossnay technical manual.)
			Circuit board failure	Replace the circuit board.
			Remote controller failure	Replace the remote controller.
4116	1 blink	Abnormal rotation of the supply fan motor (Centrifugal fan does not work, insufficient motor speed, excessive motor speed, or rotation detected when operation is stopped)	Faulty connection of the supply fan motor connector (CN10) on the power circuit board	Check the connector (CN10) connection.
			Faulty connection of the connectors (CN18 - CN118 and CN19 - CN119) between the control circuit board and power circuit board	Check the connector connections (CN18 - CN118 and CN19 - CN119).
			The temperature around the product is high.	Use the product at a temperature of 40°C or lower.
			The motor and centrifugal fan are not fixed securely.	Check the installation state of the motor and centrifugal fan, and fix them securely.
			Deformed centrifugal fan	Replace the centrifugal fan.
			Foreign objects around the centrifugal fan	Check the air course and around the centrifugal fan, and remove any foreign matter.
			Fan motor failure	Replace the fan motor.
			Circuit board failure	Replace the circuit board.
	2 blinks	Abnormal rotation of the exhaust fan motor (Centrifugal fan does not work, insufficient motor speed, excessive motor speed, or rotation detected when operation is stopped)	Faulty connection of the exhaust fan motor connector (CN9) on the power circuit board	Check the connector (CN9) connection.
			Faulty connection of the connectors (CN18 - CN118 and CN19 - CN119) between the control circuit board and power circuit board	Check the connector connections (CN18 - CN118 and CN19 - CN119).
			The temperature around the product is high.	Use the product at a temperature of 40°C or lower.
			The motor and centrifugal fan are not fixed securely.	Check the installation state of the motor and centrifugal fan, and fix them securely.
			Deformed centrifugal fan	Replace the centrifugal fan.
			Foreign objects around the centrifugal fan	Check the air course and around the centrifugal fan, and remove any foreign matter.
			Fan motor failure	Replace the fan motor.
			Circuit board failure	Replace the circuit board.

<table>
<tr><th>Error Code</th><th>LED1 (green)</th><th>Symptom</th><th>Cause</th><th>Corrective action</th></tr>
<tr><td rowspan="2">5101</td><td rowspan="2">4 blinks</td><td rowspan="2">Outdoor air (OA) thermistor related error</td><td>Faulty connection of the thermistor connector (CN22) on the control circuit board</td><td>Check the connector (CN22) connection.</td></tr>
<tr><td>Thermistor failure</td><td>Disconnect the connector (CN22), and check the resistance of the thermistor.
If the equivalent thermistor resistance differs greatly from the ambient temperatures, replace the thermistor. (See (7) Temperatures and thermistor resistance table (page 28).)</td></tr>
<tr><td rowspan="4">6801</td><td rowspan="4">9 blinks</td><td rowspan="4">PZ-43SMF-E communication error</td><td>Multiple PZ-43SMF-E transmission cables are wired using multicore cables.</td><td>Using the applicable cable, wire the transmission cable away from one another.</td></tr>
<tr><td>The power supply cable is too close to the PZ-43SMF-E transmission cable.</td><td>Wire the power supply cable at least 5 cm away from the transmission cable.</td></tr>
<tr><td>Faulty connection of the PZ-43SMF-E transmission cable</td><td>Check the transmission cable connections.</td></tr>
<tr><td>The wiring length of the PZ-43SMF-E transmission cable is longer than specified (200 m or more).</td><td>Check the wiring length of the transmission cable.</td></tr>
<tr><td>6831</td><td>9 blinks</td><td>PZ-61DR-E communication error (no reception)</td><td>Faulty connection of the PZ-61DR-E transmission cable</td><td>Check the items described in (1) ②.
If the error re-occurs, check for noise on the transmission cable.
If the above does not correct the problem, replace the Lossnay circuit board or PZ-61DR-E remote controller.</td></tr>
<tr><td>6832</td><td>9 blinks</td><td>PZ-61DR-E communication error (synchronization recovery error)</td><td>Faulty connection of the PZ-61DR-E transmission cable</td><td>Check the items described in (1) ②.
If the error re-occurs, check for noise on the transmission cable.
If the above does not correct the problem, replace the Lossnay circuit board or PZ-61DR-E remote controller.</td></tr>
<tr><td>6833</td><td>9 blinks</td><td>PZ-61DR-E communication error (hardware error)</td><td>Faulty connection of the PZ-61DR-E transmission cable</td><td>Check the items described in (1) ②.
If the error re-occurs, check for noise on the transmission cable.
If the above does not correct the problem, replace the Lossnay circuit board or PZ-61DR-E remote controller.</td></tr>
<tr><td>6834</td><td>9 blinks</td><td>PZ-61DR-E communication error (start bit detection error)</td><td>Faulty connection of the PZ-61DR-E transmission cable</td><td>Check the items described in (1) ②.
If the error re-occurs, check for noise on the transmission cable.
If the above does not correct the problem, replace the Lossnay circuit board or PZ-61DR-E remote controller.</td></tr>
<tr><td rowspan="2">7113</td><td rowspan="2">10 blinks</td><td rowspan="2">Function setting error</td><td>Two Lossnay units are set as the main Lossnay (SW5-10 ON).</td><td>Only one Lossnay unit can be set as the main Lossnay.
(See the Lossnay technical manual.)</td></tr>
<tr><td>The air duct switching damper selector (SW6) is not set correctly.</td><td>Make the switch (SW6) setting appropriate for the model.
<table>
<tr><th></th><th>SW6-1</th><th>SW6-2</th><th>SW6-3</th><th>SW6-4</th></tr>
<tr><td>Without the damper</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr>
<tr><td>With the damper</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td></tr>
</table></td></tr>
</table>

(6) Failure mode 6: Water leaks from the Lossnay unit.

No.	Problem	Factor	Corrective action
1	Water leaks from the Lossnay unit.	Is the drain pipe tilted downward at an angle of 1° or more?	Tilt the drain pipe at an angle of 1° or more.
		Is the drain hose securely connected?	Connect the drain hose securely.
		Is the drain pan clogged with dust?	Remove dust.
		Is the drain pipe insulated for prevention from freezing?	Insulate the drain pipe securely.
		Is the Lossnay unit installed at the angle as shown below? **Drain outlet direction** Tilt 0 to 1° towards drain discharge side  **Duct connecting flange direction** Horizontal (within ±1°) 	Install the Lossnay unit as shown in the left diagram.
		Does dew condense on the exterior surface?	• Check that the Lossnay unit and duct pipe are installed on the interior side of the insulating layer in the attic. • Check that the duct and drain pipes are insulated.
2	Water leaks from the duct pipe.	Is each duct pipe tilted toward the outside for 1/30 or more?	Tilt each duct pipe for 1/30 or more.
		Is the duct connecting flange insulated up to the base?	Follow the installation manual and insulate the duct connecting flange securely.
		Is the duct securely connected to the Lossnay unit and duct connecting flange?	Connect the duct securely.

*For details of drain and duct pipes, see the installation manual.

(7) Temperatures and thermistor resistance table

Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)
-30	53.9 to ∞	-7	18.0	8	9.5	23	5.4	38	3.1
⋮	⋮	-6	17.2	9	9.2	24	5.1	39	3.1
-20	32.8	-5	16.5	10	8.8	25	5.0	40	3.0
-19	31.2	-4	15.7	11	8.5	26	4.8	41	2.8
-18	29.8	-3	15.1	12	8.1	27	4.7	42	2.7
-17	28.4	-2	14.5	13	7.8	28	4.5	43	2.7
-16	27.1	-1	13.8	14	7.6	29	4.3	44	2.6
-15	25.8	0	13.3	15	7.3	30	4.2	45	2.5
-14	24.7	1	12.8	16	7.0	31	4.0	46	2.4
-13	23.6	2	12.2	17	6.7	32	3.9	47	2.3
-12	22.5	3	11.7	18	6.5	33	3.7	48	2.2
-11	21.5	4	11.2	19	6.3	34	3.6	49	2.2
-10	20.6	5	10.7	20	6.0	35	3.5	50	2.1
-9	19.7	6	10.3	21	5.8	36	3.4	⋮	⋮
-8	18.8	7	10.0	22	5.6	37	3.2	90	0 to 0.7

* Measure the outdoor air (OA) thermistor resistance across pin No. 1 and 2 of CN22.

(8) Motor resistance table

⚠ **Cautions**:

- Before disconnecting the motor connectors, make sure that the power is turned OFF and the circuit board is discharged adequately.
- Even after the power supply is cut off, the capacitor is charged. Therefore, high voltage is applied to the motor for a while. Make sure that the LEDs on the circuit board are turned OFF before starting work.
- Never touch the circuit board while the power is ON. It causes electric shock and failure of the unit.

Replace the fan motor in the following cases.

①If it is hard to rotate the motor shaft by hand

②If the resistance between the motor leads is significantly different from the values specified in the table below
*Before measuring the resistance, the motor connectors must be disconnected from the circuit board.

Lead color	Black-Red	Black-White	Black-Yellow	Black-Brown
Normal resistance	About 440 MΩ	About 40 kΩ	About 90 kΩ	∞

9. Before receiving repair requests

Frequently asked question	Response
Lossnay does not operate.	①If the breaker on the distribution board is turned off, turn it on. ②If the ON/OFF button on the remote controller is set to OFF, set it to ON. It takes one to four minutes for the remote controller to be fed with power after turning the Lossnay unit ON.
Operating noise has increased.	①If the filters are not securely installed, re-install them. ②If the filters are clogged, clean them. ③When the outdoor hood is blocked, remove the obstacle.
The air volume is low.	If the filters are clogged, clean them.
Bubbling sound is heard from the Lossnay unit.	Dew condensation water in the drain pipe is sometimes sucked into wind pressure of the Lossnay unit and may not be easily discharged. Operate Lossnay at the low fan speed, and dew condensation water in the drain pipe will be easily discharged and the sound will stop.
Dew condensation water is pooled in the filter case.	Dew condensation water may be pooled depending on the use environment. It is normal.
The loudness of the operation sound differs in each room.	The loudness of the sound may be different depending on the pipe length in each room. It is normal.
The wind sometimes stops.	The system is operating in the protective mode (intermittent operation). It is normal. (See the Lossnay instruction manual.)
The air supply wind is cold.	The air supply wind becomes cold depending on the outside air condition. It is normal.
The ventilation mode cannot be switched. *Only when the air duct switching damper (P-133DUE-E) is installed.	When the outdoor temperature is 8°C or lower, the ventilation mode is fixed to the Heat recovery mode.

10. Service inspection list

Location	Inspection	Check Result
Electric wiring	Is the power supply wire connected to the terminal block securely?	
	Is the wiring correct?	
Product	Is the main unit mounted securely?	
	Is the earth cable installed?	
	Does the product operate as described in the instruction manual when operating the remote controller?	
	Are the air supply fan and air exhaust fan operating?	
	Does the product operate without abnormal vibrations or noise?	

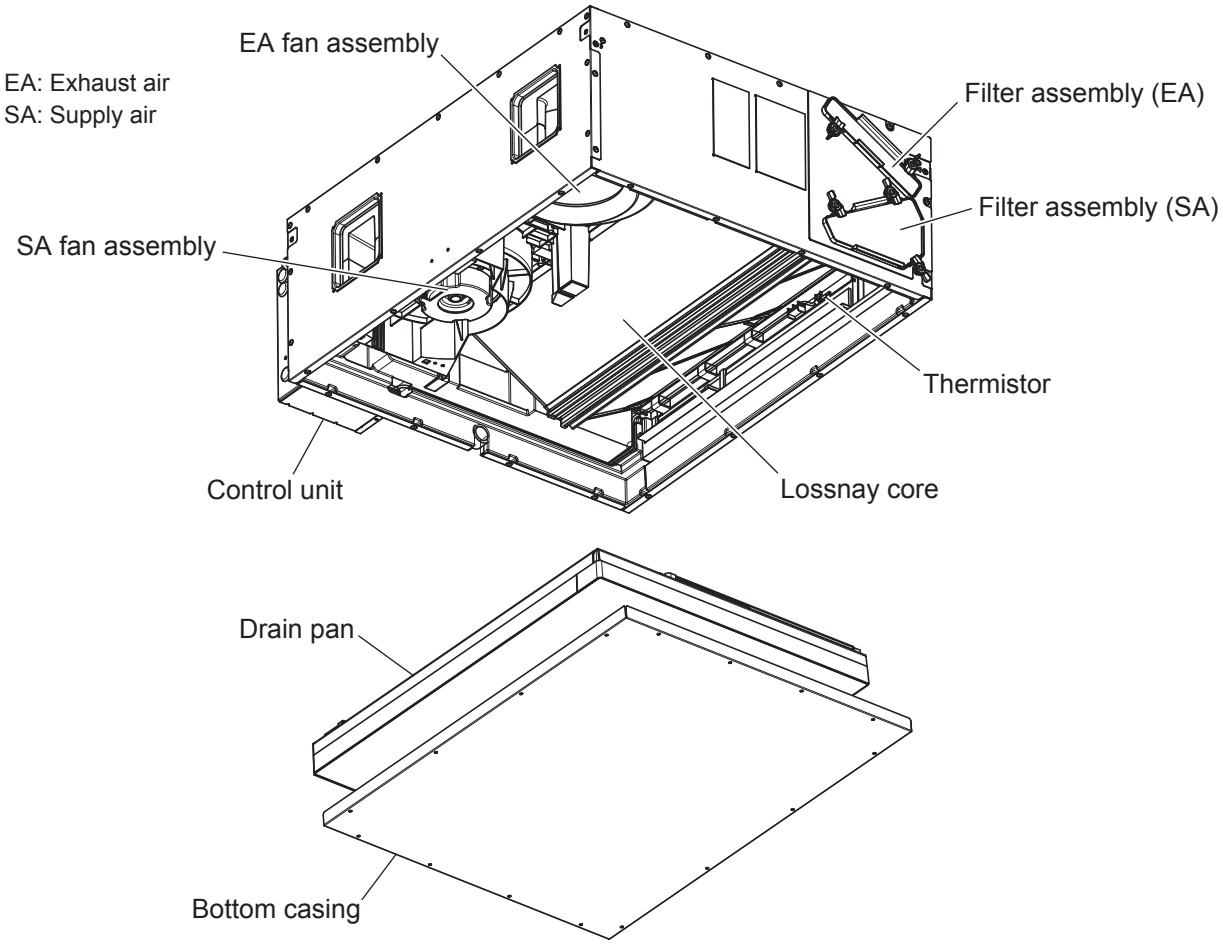
11. Overhauling procedures

■ Work precautions

- Before replacing parts, repair troubled sections according to the instructions described in the troubleshooting.
- When servicing, always keep proper footing.
- When servicing, always turn off the power supply isolator. Pay sufficient attention to avoid electrical shock or injury. Even after the power supply isolator is turned off, the capacitor on the circuit board retains high voltage for a while. Therefore, before servicing, wait for at least five minutes, and then use a tester to check that the voltage has dropped.
- Once the power supply is turned off, be sure to wait for at least five minutes before turning the power back on again.
- When removing the circuit board, always hold it at both ends and remove carefully so as not to apply force to the surface mounted parts.
- When removing the circuit board, be careful of the metal edges on the board.
- When removing or inserting the connectors for the circuit board, hold the entire housing section. Never pull on the lead wires.
- If it is thought that there is a circuit board malfunction, check for disconnected wires in the print pattern, burnt parts or discoloration.
- If the circuit board is replaced, make sure that the switch settings on the new board are the same as the old board.
- Always connect the power wire properly.
- After completing repairs, check that the unit operates properly.
- Always wear gloves when servicing.

* The part names in the texts are standardized with the part names in the parts catalog. (There are some exceptions.)

<Internal view and major components>



(1) Turn off the power

① Shut down the unit.

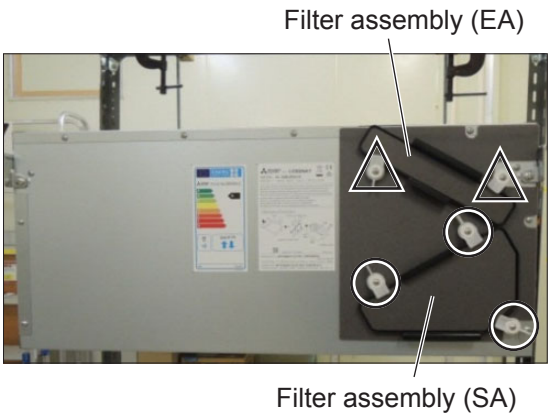
② Turn off the power supply isolator.

(2) Remove the filter assemblies

①Turn the fixing knobs (three locations at the SA side, indicated by ○) to remove the filter assembly (SA).

②Turn the fixing knobs (two locations at the EA side, indicated by △) to remove the filter assembly (EA).

Precaution
Dew condensation water and dust accumulating inside may fall. When removing the filter assemblies, be careful not to let dew condensation water and dust fall, and firmly support the filter case with both hands without tilting it.



(3) Remove the drain pan

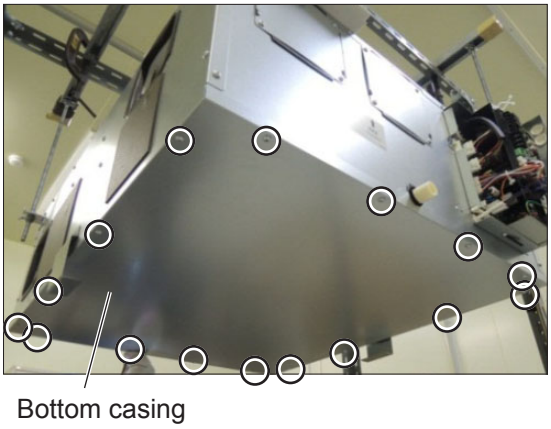
①Remove the hose band that fixes the drain hose to the drain outlet, and then disconnect the drain hose.

Precaution
Drain water may be generated inside the drain outlet and drain hose. Therefore, when disconnecting the drain hose, be careful not to let drain water spill.

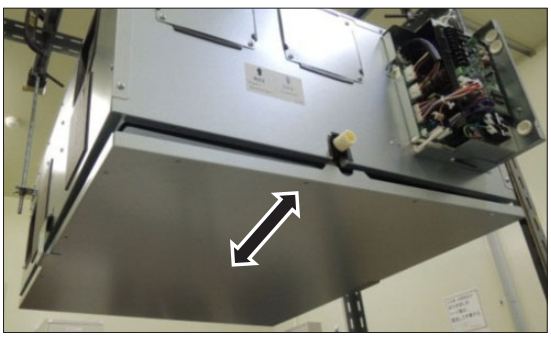
Tightening torque:
1.47 to 2.94 N·m

②Unscrew the bottom casing fixing screws (16 PTT screws 4×10, indicated by ○).

Tightening torque:
1.5 ± 0.2 N·m



③Slide the bottom casing in the direction of the arrow to remove it.

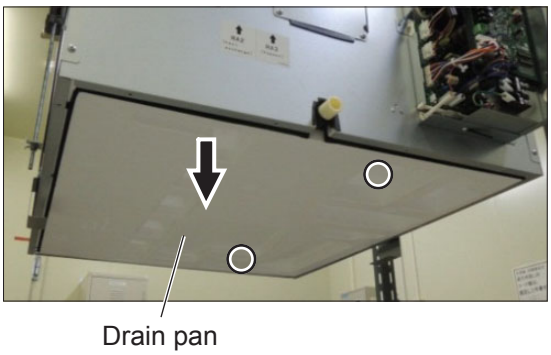


④Unscrew the screws (two PTT screws 4×25) and washers (two special washers 4.2), indicated by ○, and then pull out the drain pan in the direction of the arrow.

Precaution
Drain water may be generated inside the drain pan. Therefore, when removing the drain pan, be careful not to let drain water spill.

Assembly precaution
When attaching the drain pan, tighten screws after inserting the drain pan until it reaches the same position as the product contour.

Tightening torque:
1.1 ± 0.2 N·m

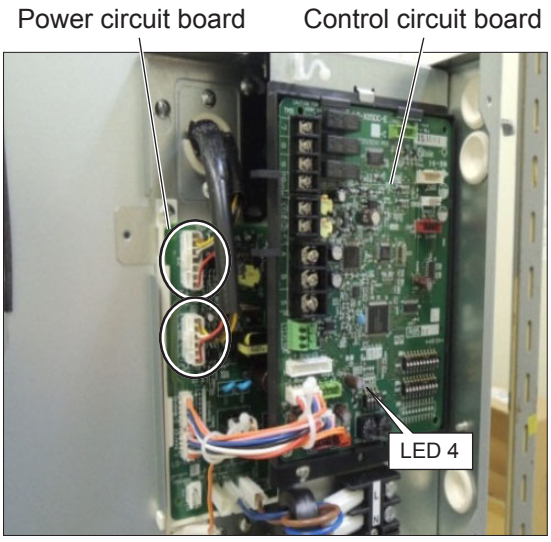


(4) Remove the motor leads

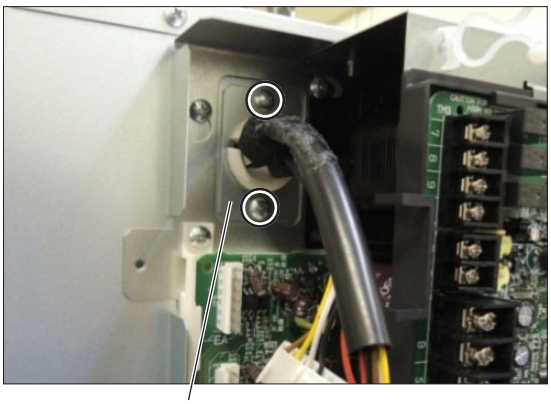
①Unscrew the screws (three PT screws 4×8, indicated by ○), and remove the control cover.

②Check that LED4 (red) on the control circuit board is OFF.

③Disconnect motor lead connectors (CN9 and CN10, indicated by ○) from the power circuit board.



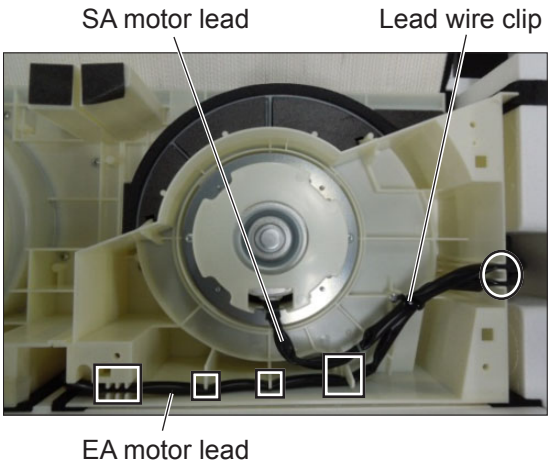
④Unscrew the screws (two PT screws 4×8, indicated by ○), and remove the lead cover.



(5) Remove the SA fan assembly

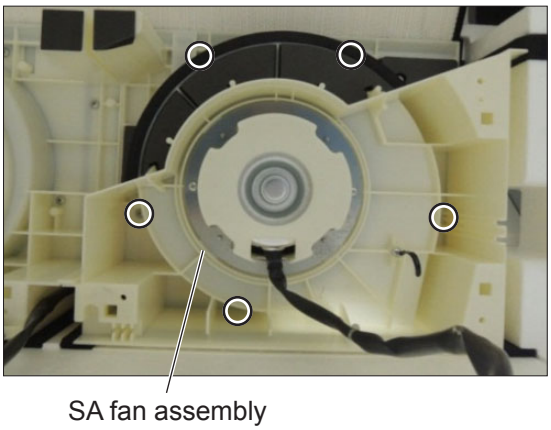
①Unfasten the motor leads from the lead wire clip.

Assembly precaution
Run the EA motor lead through guides A (four locations, indicated by □), and the EA and SA motor leads through guide B (indicated by ○). Securely fasten them with the lead wire clip.



②Unscrew the screws (five PTT screws 4×14, indicated by ○), and remove the SA fan assembly.

Tightening torque:
1.1 ± 0.2 N·m

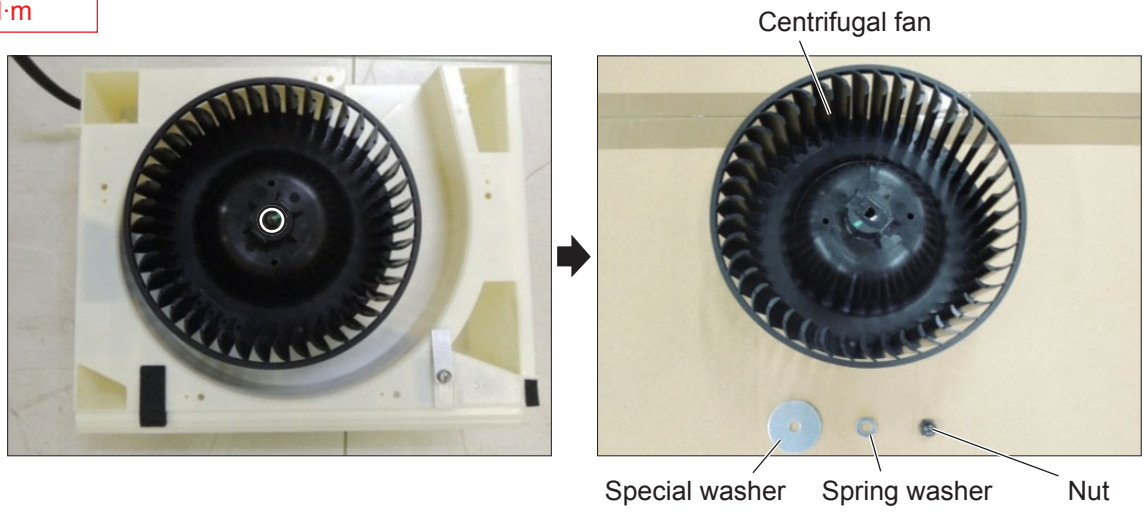


(6) Remove the motor (DC) from the SA fan assembly

①Remove the nut (special nut (M8)) that fixes the centrifugal fan to the motor shaft, and remove the spring washer, centrifugal fan, and special washer.

Assembly precaution
Reattach the parts to the motor shaft in the order of special washer, centrifugal fan, and spring washer. Finally, tighten them with the nut.

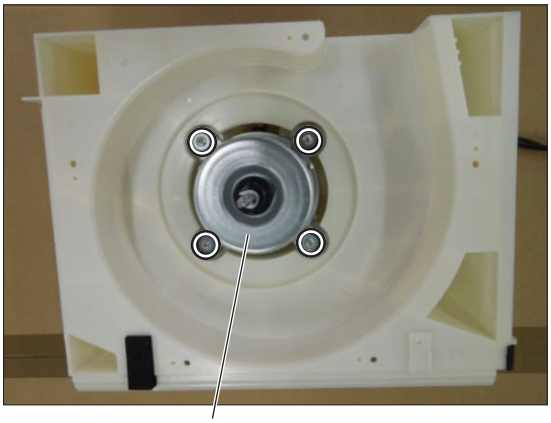
Tightening torque:
2.3 ± 0.2 N·m



②Unscrew the screws (four PTT screws 4×25, indicated by ○), and remove the motor (DC).

Assembly precaution
- Different types of motors (for SA fan and EA fan) are provided for this product. When installing the motors, be careful not to confuse between them.
- Different connector parts are used for the motors.
  (Motor (DC) (for SA fan): six-pin connector
  Motor (DC) (for EA fan): seven-pin connector)

Tightening torque:
1.1 ± 0.2 N·m



(7) Remove the Lossnay core

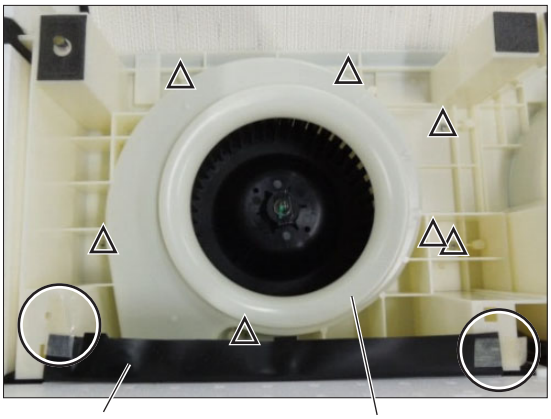
①Remove the fixing tapes for the sheet (two locations, indicated by ○).

②Unscrew the screws (seven PTT screws 4×14, indicated by △), and remove the fan casing (orifice) of the EA fan assembly.

Precaution
Drain water may drip. Handle the fan casing (orifice) with care.

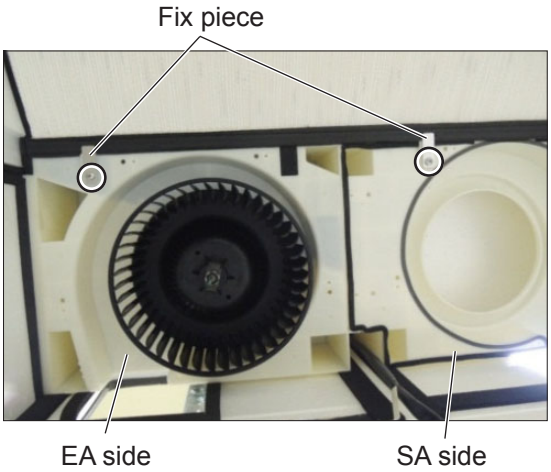
Assembly precaution
If the fixing tapes cannot be affixed again, use commercially available tapes to fix the sheet to the fan casing.

Tightening torque:
1.1 ± 0.2 N·m



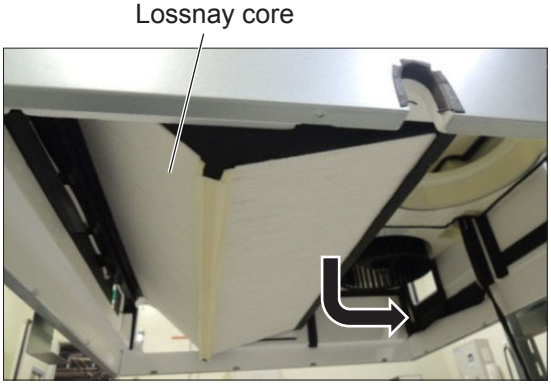
③Loosen the screws (two PTT screws 4×14, indicated by ○), and turn the fix pieces by 90°.

Tightening torque:
1.1 ± 0.2 N·m

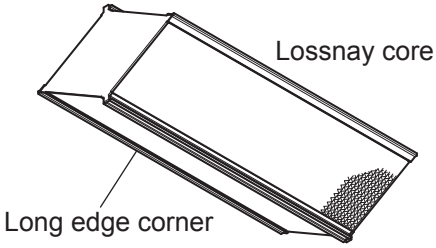


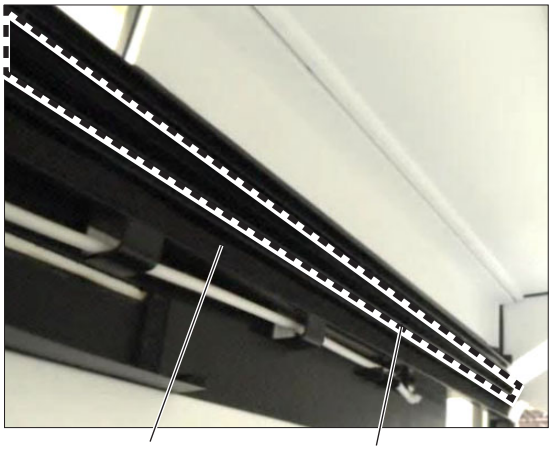
④Take out the Lossnay core in the direction of the arrow.

Precaution
Dew condensation water may drip. Handle the Lossnay core with care.

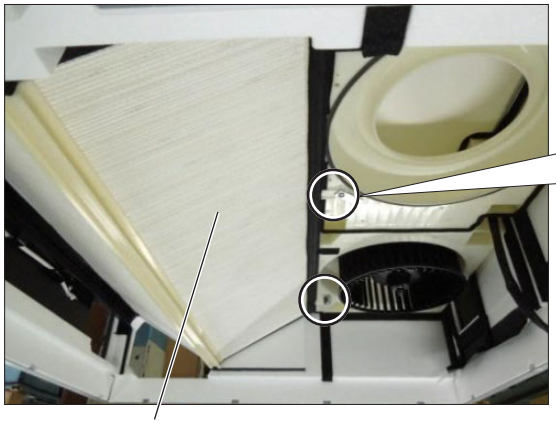


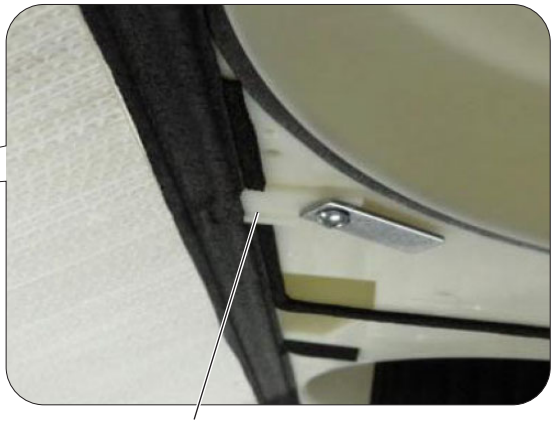
Assembly precaution (1) for installing the Lossnay core
Match the long edge corner of the Lossnay core with the groove at the center of the side frame.





Assembly precaution (2) for installing the Lossnay core
Insert the Lossnay core into the main unit while pressing it hard against the side frame, and make sure that the edge corner of the Lossnay core is securely inserted into the convex parts of the fan casing (two locations, indicated by ○).

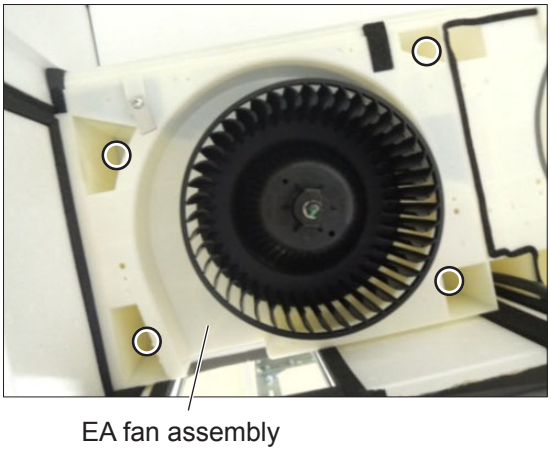




(8) Remove the EA fan assembly

- Unscrew the screws (four PTT screws 4×25, indicated by ○), and remove the EA fan assembly.

Tightening torque:
1.5 ± 0.2 N·m



(9) Remove the motor (DC) from the EA fan assembly

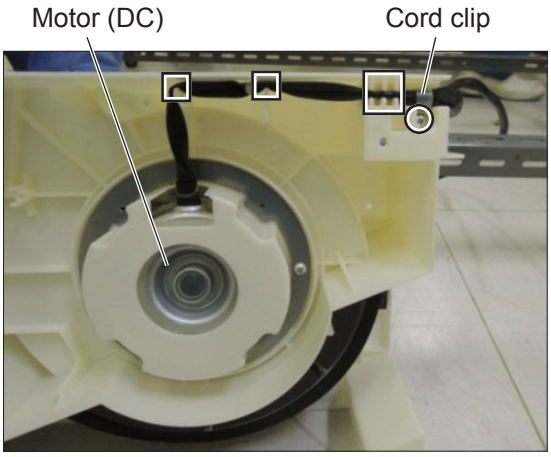
①Remove the nut (special nut (M8)) that fixes the centrifugal fan to the motor shaft, and remove the spring washer, centrifugal fan, and special washer. → See (6) ①.

②Unscrew the screw (one PTT screw 4×14, indicated by ○), and remove the cord clip.

Assembly precaution
Run the motor lead through the guides (three locations, indicated by □), and make sure the motor lead is securely in place.

Tightening torque:
1.1 ± 0.2 N·m

③Remove the motor (DC). → See (6) ②.

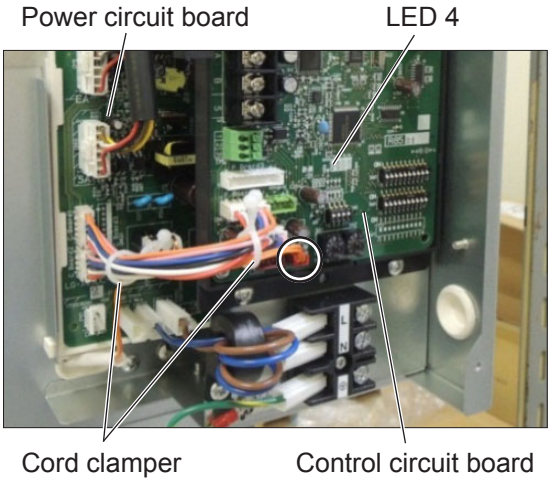


(10) Remove the Thermistor

①Check that LED4 (red) on the control circuit board is OFF.

②Disconnect the thermistor lead connector (CN22, indicated by ○) from the control circuit board.

③Remove the thermistor lead from the cord clampers.

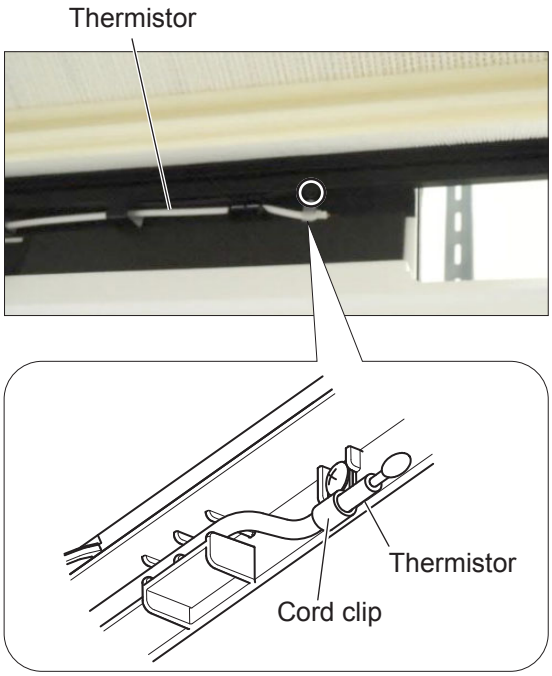


④Unscrew the screw (one PTT screw 4×14, indicated by ○), and remove the cord clip.

Precaution
When removing the thermistor without removing the Lossnay core, a short-legged screw driver is required. At this time, be careful not to damage the Lossnay core.

Tightening torque:
1.1 ± 0.2 N·m

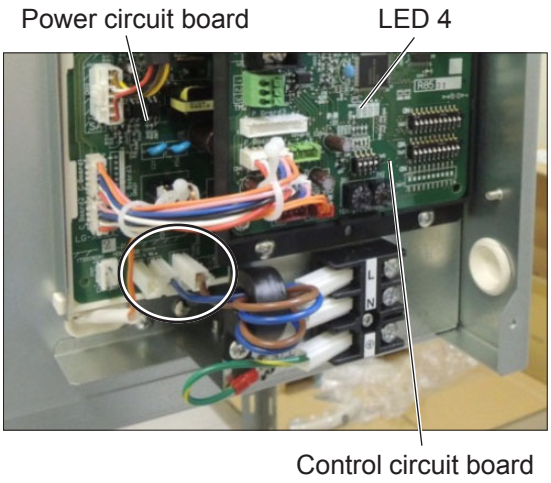
⑤Remove the thermistor from the main unit.



(11) Remove the terminal block

①Check that LED4 (red) on the control circuit board is OFF.

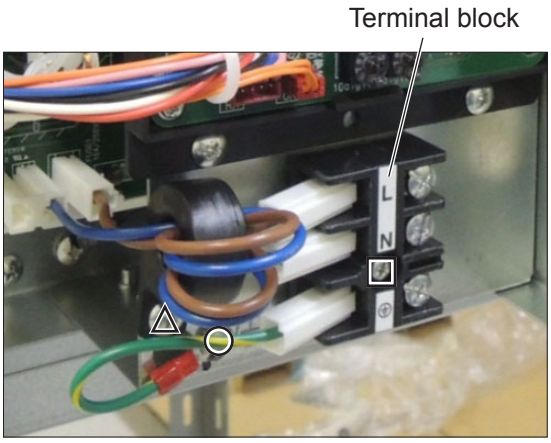
②Disconnect the connectors (TAB1 and TAB2, indicated by ○) from the power circuit board.



③Unscrew the screw (one PT screw 4×8 BS, indicated by ○), and remove the lock washer and earth wire.

④Unscrew the screws (one PT screw 4×8, indicated by △, and one PPT screw 4×20, indicated by □), and remove the terminal block with lead wires .

Tightening torque:
□: 1.1 ± 0.2 N·m

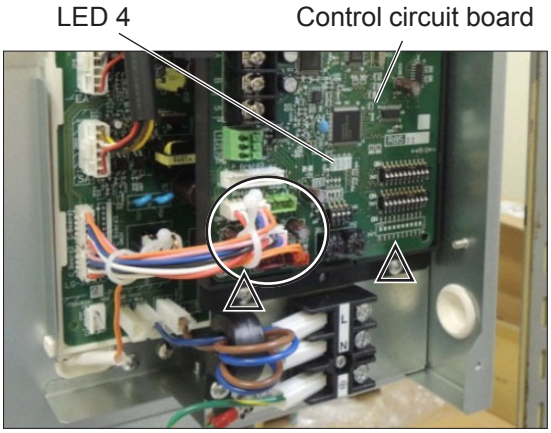


(12) Remove the circuit boards

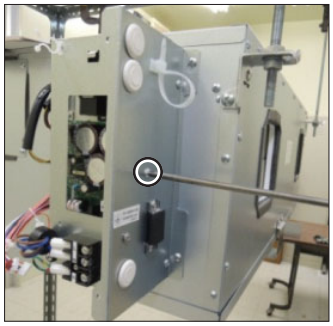
①Check that LED4 (red) on the control circuit board is OFF.

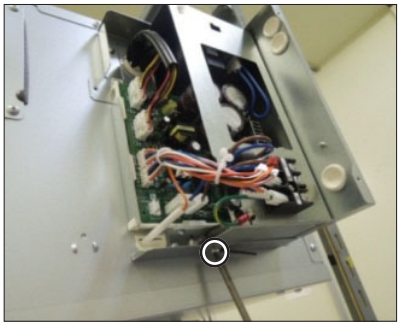
②Disconnect the connectors (indicated by ○) from the control circuit board.

③Unscrew the screws (two PT screws 4×8, indicated by △), and remove the control circuit board.



④Unscrew the screws (three PT screws 4×8, indicated by ○), and remove the control unit.

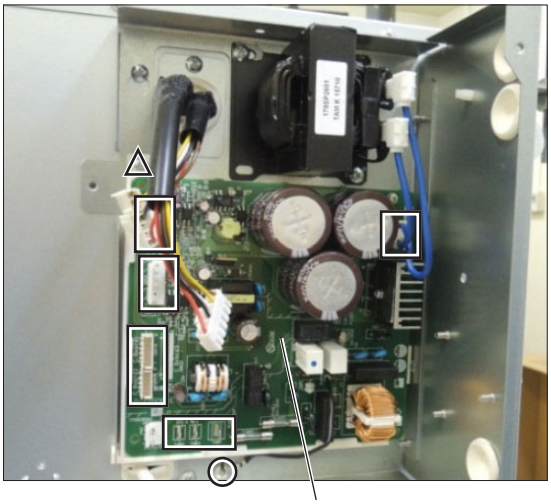




⑤Disconnect the connectors (indicated by □) from the power circuit board.

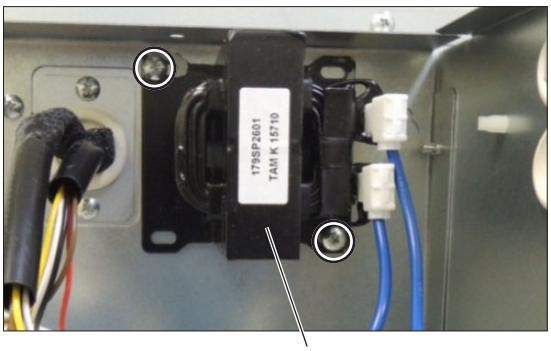
⑥Unscrew the screw (one PT screw 4×8 BS, indicated by ○), and remove the lock washer and earth wire.

⑦Unscrew the screw (one PT screw 4×8, indicated by △), and remove the power circuit board.



Power circuit board

⑧Unscrew the screws (two PT screws 4×8, indicated by ○), and remove the reactor.



Reactor

✻ When reassembling

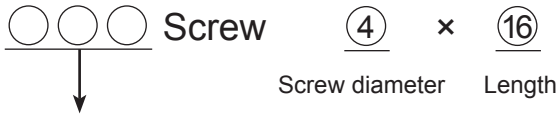
- Reassemble the unit in the reverse order of disassembly.
- After reassembly, always make a test run to be sure that the unit operates properly.

12. Parts catalog

Please note the following when using the parts catalog.

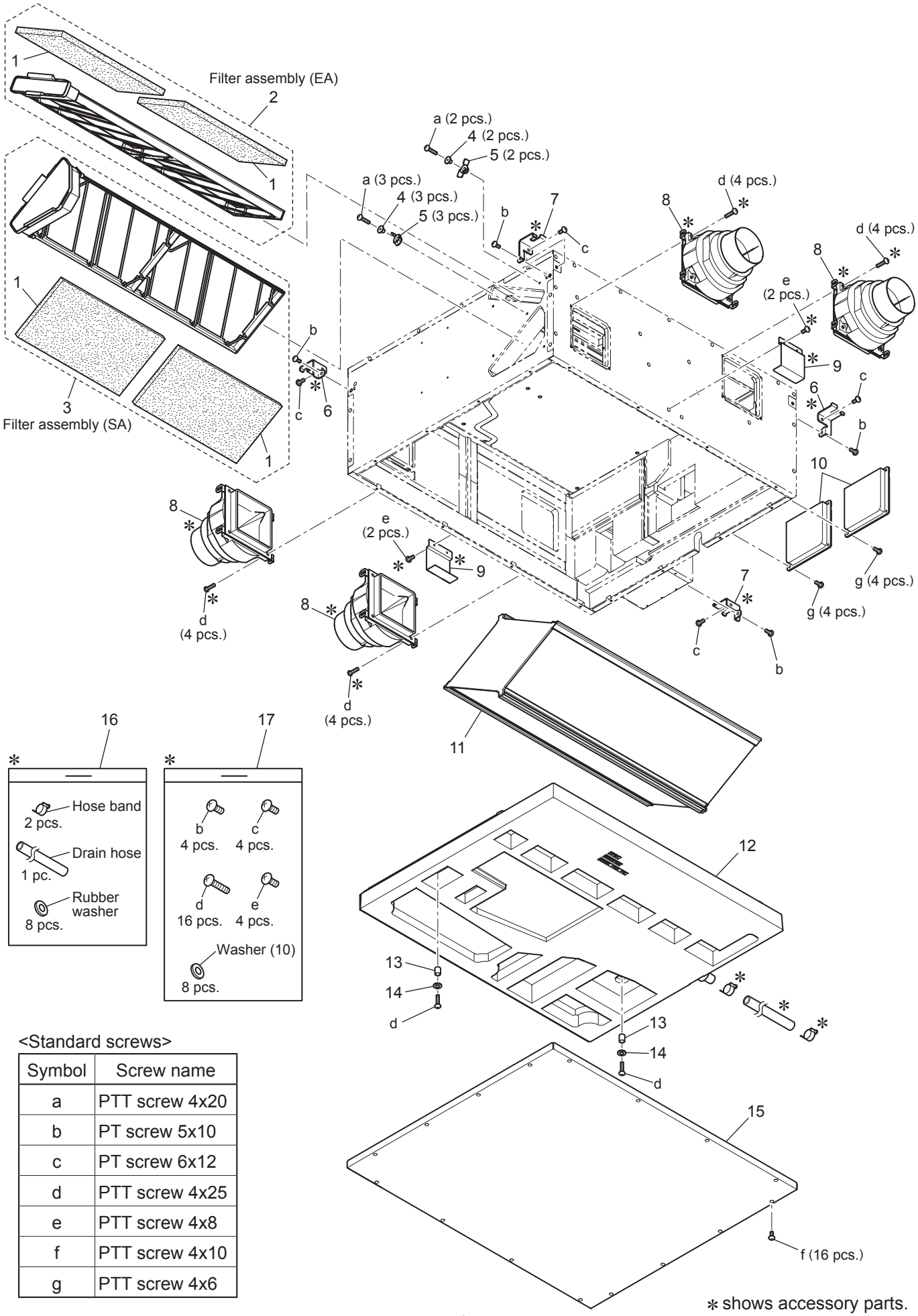
1. When ordering parts, always indicate the part number, part name, and the number of parts required.
2. It may take time for you to receive the parts. Make an inquiry about a rush order.
3. Specifications may be subject to change without notice.
4. Parts marked with ⚠ and ▒▒ are critical for safety.
5. To maintain safety and performance, always replace the parts with the parts prescribed.

Description of screw abbreviations



Abbreviation	Description
PC screw	Cross recess flat head machine screw
PRC screw	Cross recess oval head machine screw
PP screw	Cross recess pan head machine screw
SW · PP screw	Cross recess pan head screw with spring washer
PPT screw	Cross recess tapping screw
PCT screw	Cross recess flat head tapping screw
PTT screw	Cross recess truss head tapping screw
PT screw	Cross recess truss head machine screw
SET screw	Slotted head stop screw
SQ · SET screw	Square head stop screw
P · SET screw	Pan head stop screw
PMT screw	Primer truss head screw
HS · SET screw	Hexagon head stop screw
P · R · W screw	Cross recess round wood screw
P · C · W screw	Cross recess flat head wood screw
P · R · C · W screw	Cross recess round and flat wood screw
R · W screw	Slotted round wood screw
PW · PP screw	Cross recess pan head screw with small washer
SW-PW · PP screw	Cross recess pan head machine screw with spring washer and flat washer

VL-220CZGV-E



<Standard screws>

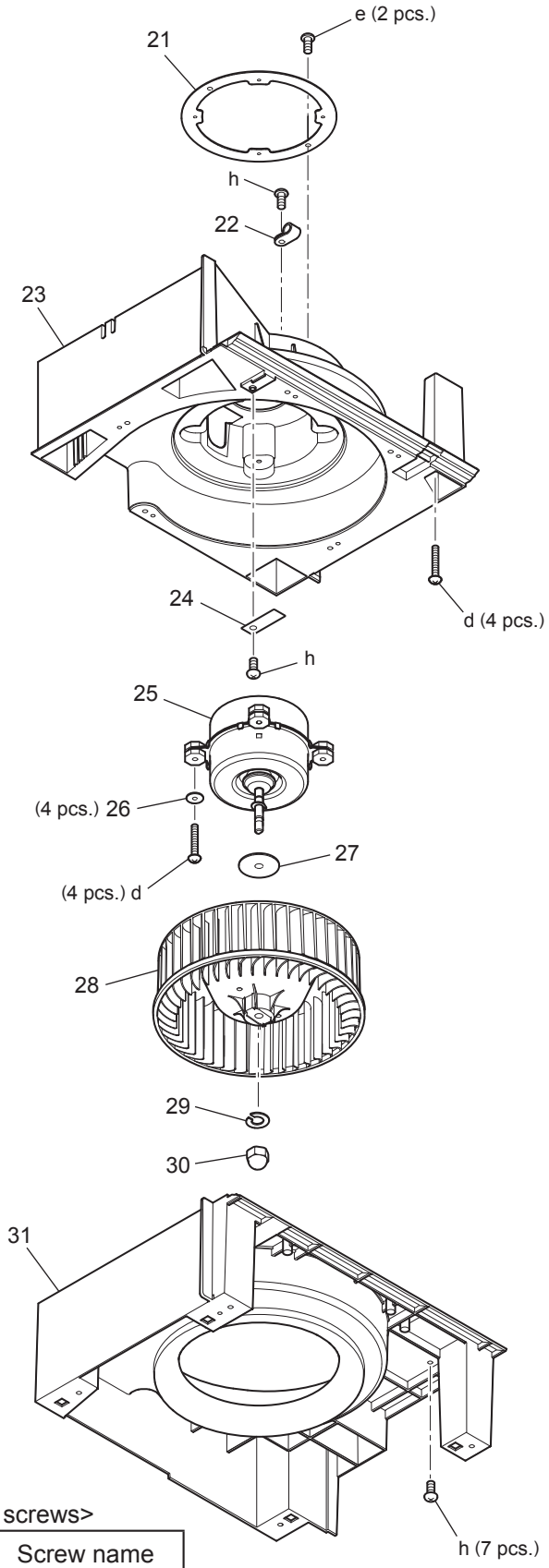
Symbol	Screw name
a	PTT screw 4x20
b	PT screw 5x10
c	PT screw 6x12
d	PTT screw 4x25
e	PTT screw 4x8
f	PTT screw 4x10
g	PTT screw 4x6

∗ shows accessory parts.

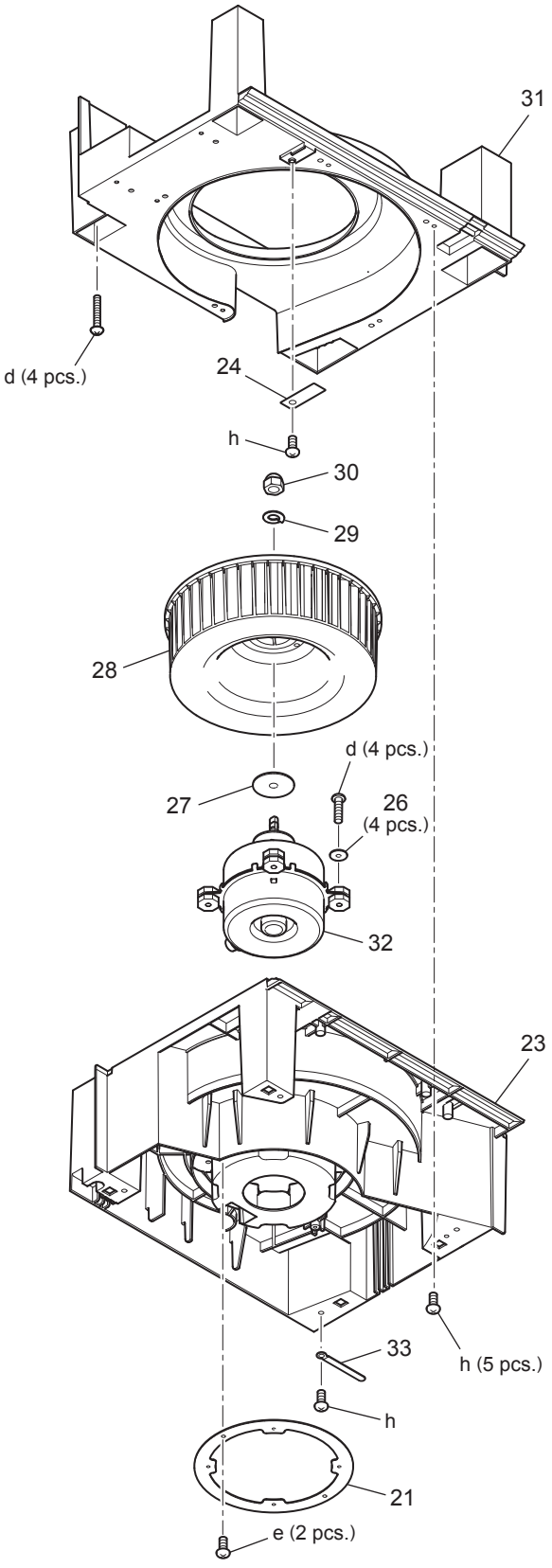
VL-220CZGV-E

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
1	Filter	W36 002 717	4	⚠	
2	Filter assembly	W36 002 718	1	⚠	EA
3	Filter assembly	W36 002 719	1	⚠	SA
4	Bush	W36 002 682	5		
5	Fixing knob	W36 002 681	5		
6	Hanger L	W36 002 380	2		
7	Hanger R	W50 004 380	2		
8	Flange	W36 002 305	4		
9	Auxiliary fixture	W36 002 830	2		
10	Cover	W36 002 831	2		
11	Lossnay core	W36 002 714	1	⚠	
12	Drain pan	W36 002 832	1		
13	Spacer	W00 000 208	2		6x10
14	Special washer (4)	W00 000 166	2		
15	Bottom casing	W36 002 833	1		
16	Hose in bag	W36 002 893	1		
17	Screws in bag	W36 002 894	1		

Air exhaust (EA) fan assembly



Air supply (SA) fan assembly

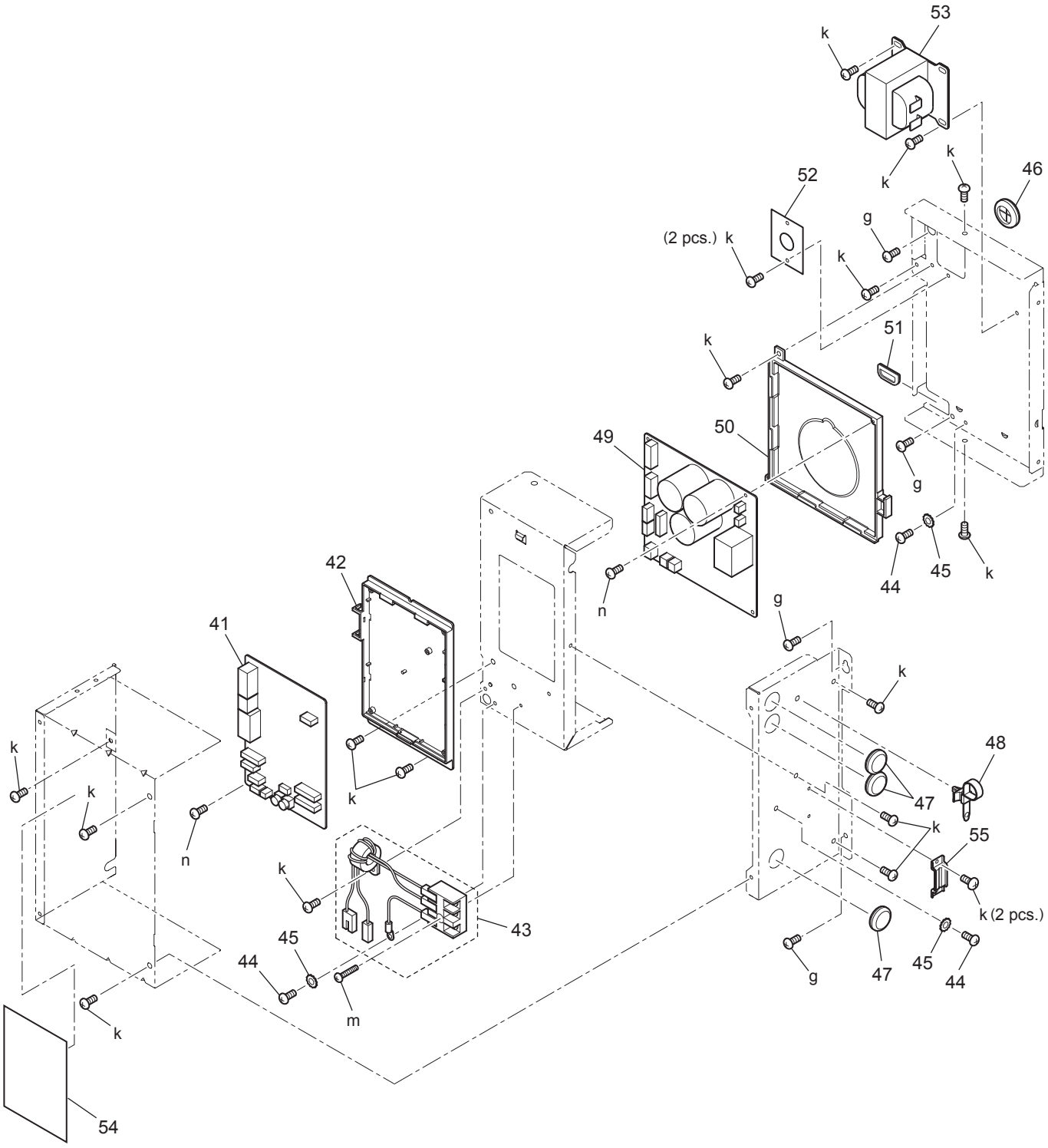


<Standard screws>

Symbol	Screw name
d	PTT screw 4x25
e	PTT screw 4x8
h	PTT screw 4x14

VL-220CZGV-E

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
21	Motor fix plate	W36 002 713	2		
22	Cord clip	W00 000 261	1		
23	Fan casing	W36 002 483	2		
24	Fix piece	W50 005 717	2		
25	DC motor	W36 002 450	1	⚠	EA
26	Special washer (4)	W00 000 161	8		
27	Special washer (8)	W50 003 477	2		φ40 (Outer dia.)
28	Centrifugal fan	W36 002 480	2	⚠	
29	Spring washer (8)	W00 000 126	2		
30	Special nut (M8)	W00 000 120	2		
31	Fan casing (Orifice)	W36 002 484	2		
32	DC motor	W36 002 451	1	⚠	SA
33	Lead wire clip	W00 000 238	1		

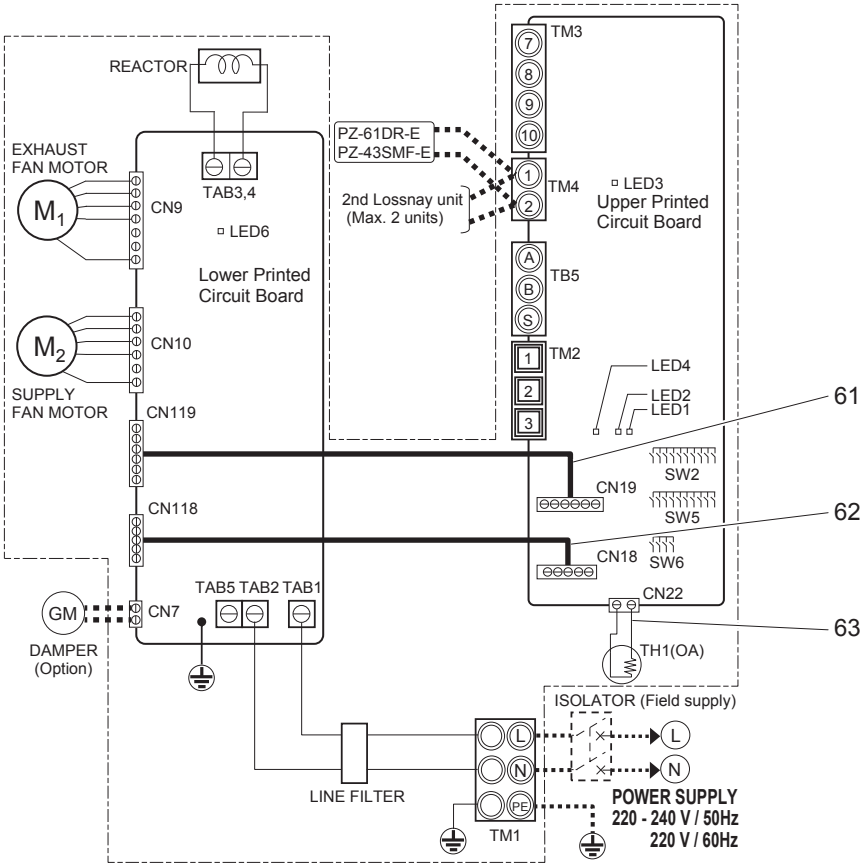


<Standard screws>

Symbol	Screw name
g	PTT screw 4x6
k	PT screw 4x8
m	PPT screw 4x20
n	PPT screw 3x8

VL-220CZGV-E

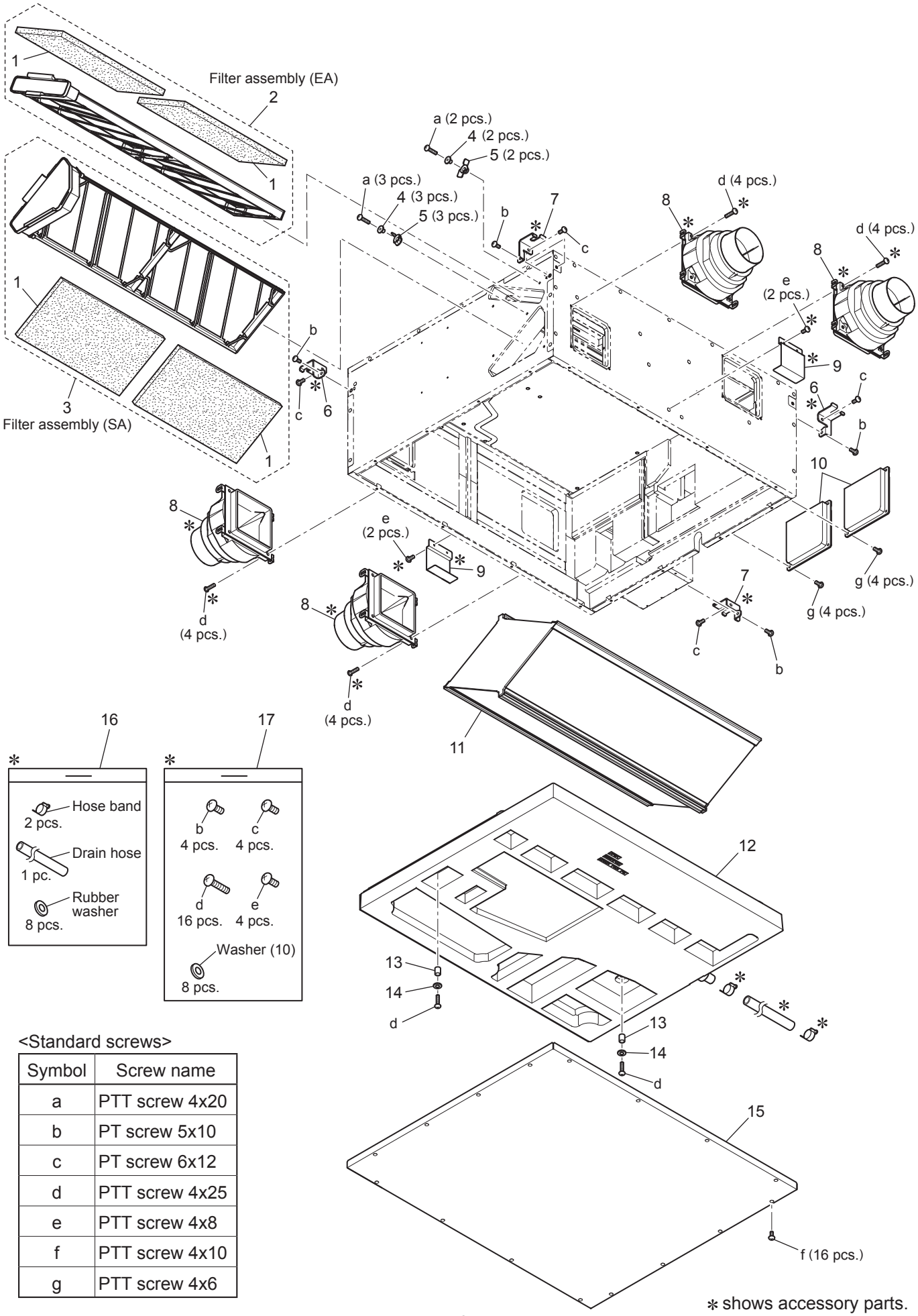
No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
41	Circuit board	W36 002 172	1	⚠	LG-X05DC-E2-C
42	PCB fix plate	W50 004 381	1		
43	Terminal block	W36 002 213	1	⚠	With lead wires
44	PT screw 4x8 BS	W00 000 011	3		
45	Lock washer (4)	W00 000 082	3		
46	Cord bush	W00 000 277	1		
47	Cord bush	W00 000 270	3		
48	Cord band	W00 000 258	1		
49	Circuit board	W36 002 171	1	⚠	LG-X05DC-E2-P
50	PCB case	W50 004 383	1		
51	Bush	W00 000 278	1		
52	Lead cover	W36 002 715	1		
53	Reactor	W50 004 179	1	⚠	White・AC10A
54	Wiring diagram	W36 002 358	1		
55	Cord clip	W00 000 264	1		


REACTOR
EXHAUST FAN MOTOR
M1
CN9
TAB3,4
LED6
Lower Printed Circuit Board
M2
CN10
SUPPLY FAN MOTOR
CN119
CN118
GM
CN7
DAMPER (Option)
TAB5 TAB2 TAB1
PZ-61DR-E
PZ-43SMF-E
2nd Lossnay unit (Max. 2 units)
TM3
TM4
LED3
Upper Printed Circuit Board
TB5
TM2
LED4
LED2
LED1
CN19
SW2
SW5
CN18
SW6
CN22
TH1(OA)
61
62
63
ISOLATOR (Field supply)
LINE FILTER
TM1
POWER SUPPLY
220 - 240 V / 50Hz
220 V / 60Hz

VL-220CZGV-E

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
61	Lead wire	W36 002 214	1	⚠	CN19-CN119
62	Lead wire	W36 002 215	1	⚠	CN18-CN118
63	Thermistor	W36 002 167	1	⚠	OA

VL-220CZGV-EB



<Standard screws>

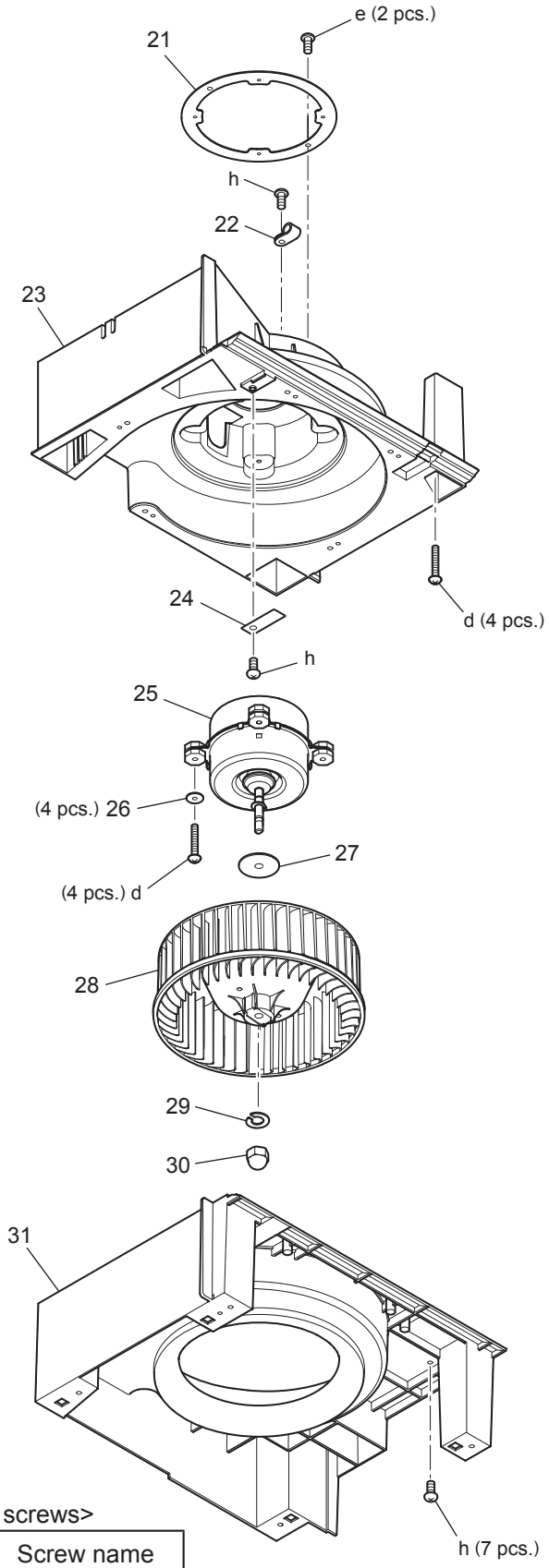
Symbol	Screw name
a	PTT screw 4x20
b	PT screw 5x10
c	PT screw 6x12
d	PTT screw 4x25
e	PTT screw 4x8
f	PTT screw 4x10
g	PTT screw 4x6

* shows accessory parts.

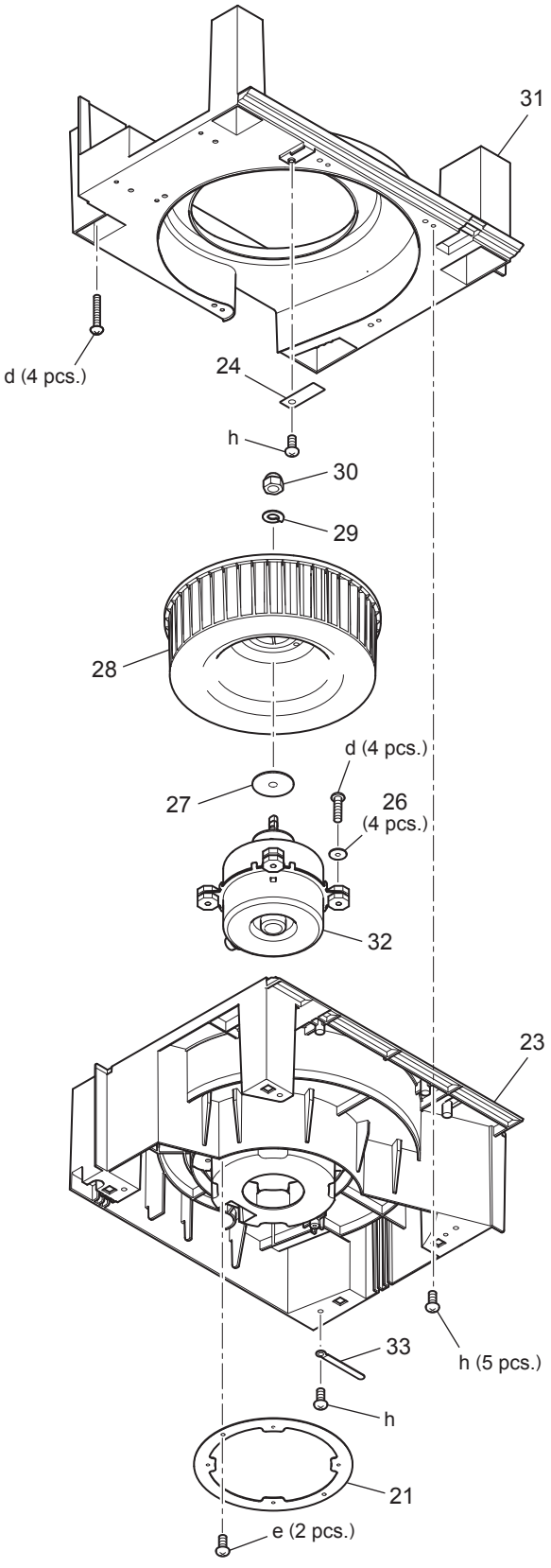
VL-220CZGV-EB

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
1	Filter	W36 002 717	4	⚠	
2	Filter assembly	W36 002 718	1	⚠	EA
3	Filter assembly	W36 002 719	1	⚠	SA
4	Bush	W36 002 682	5		
5	Fixing knob	W36 002 681	5		
6	Hanger L	W36 002 380	2		
7	Hanger R	W50 004 380	2		
8	Flange	W36 002 305	4		
9	Auxiliary fixture	W36 002 830	2		
10	Cover	W36 002 831	2		
11	Lossnay core	W36 002 714	1	⚠	
12	Drain pan	W36 002 832	1		
13	Spacer	W00 000 208	2		6x10
14	Special washer (4)	W00 000 166	2		
15	Bottom casing	W36 002 833	1		
16	Hose in bag	W36 002 893	1		
17	Screws in bag	W36 002 894	1		

Air exhaust (EA) fan assembly



Air supply (SA) fan assembly

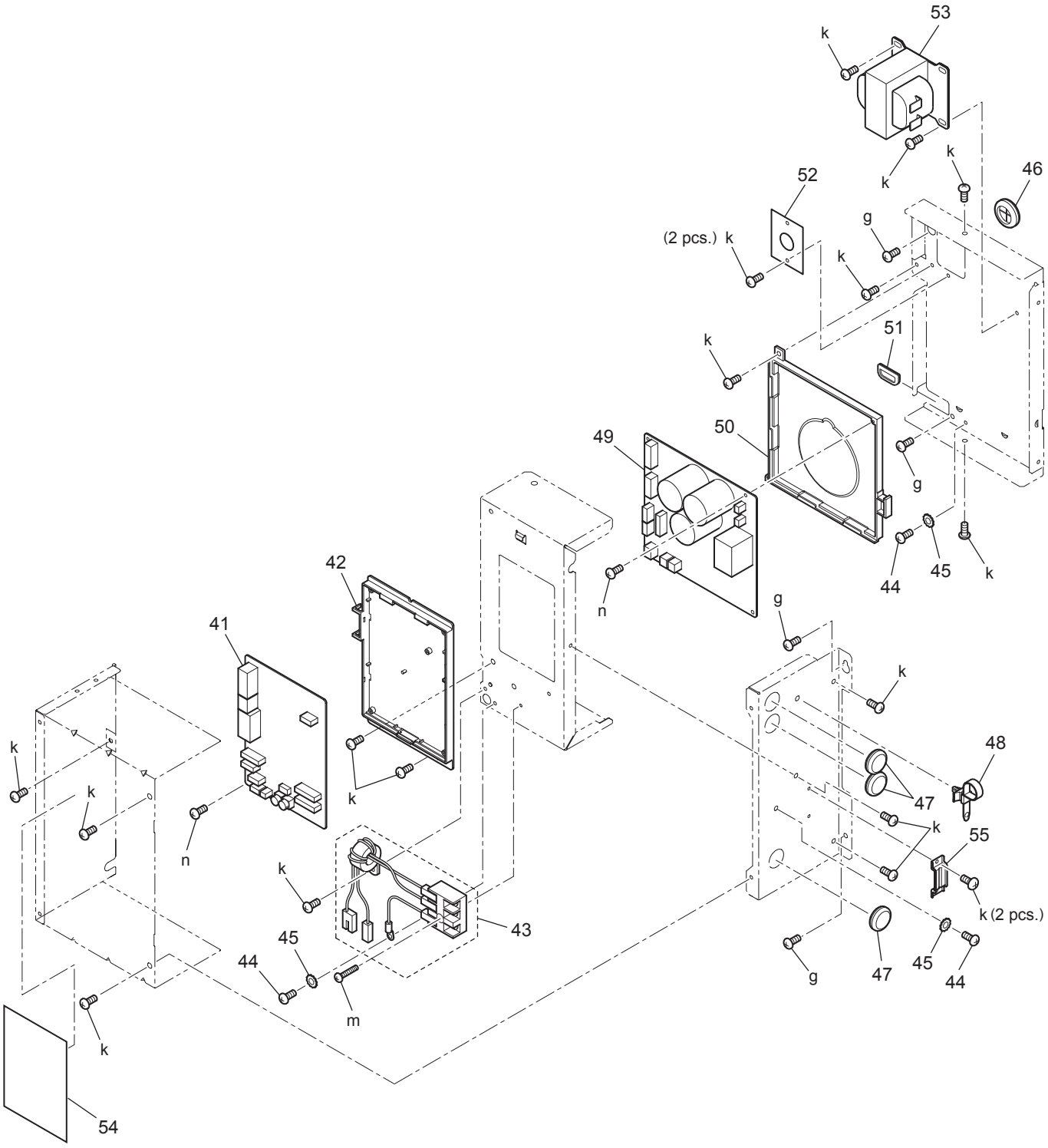


<Standard screws>

Symbol	Screw name
d	PTT screw 4x25
e	PTT screw 4x8
h	PTT screw 4x14

VL-220CZGV-EB

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
21	Motor fix plate	W36 002 713	2		
22	Cord clip	W00 000 261	1		
23	Fan casing	W36 002 483	2		
24	Fix piece	W50 005 717	2		
25	DC motor	W36 002 450	1	⚠	EA
26	Special washer (4)	W00 000 161	8		
27	Special washer (8)	W50 003 477	2		φ 40 (Outer dia.)
28	Centrifugal fan	W36 002 480	2	⚠	
29	Spring washer (8)	W00 000 126	2		
30	Special nut (M8)	W00 000 120	2		
31	Fan casing (Orifice)	W36 002 484	2		
32	DC motor	W36 002 451	1	⚠	SA
33	Lead wire clip	W00 000 238	1		

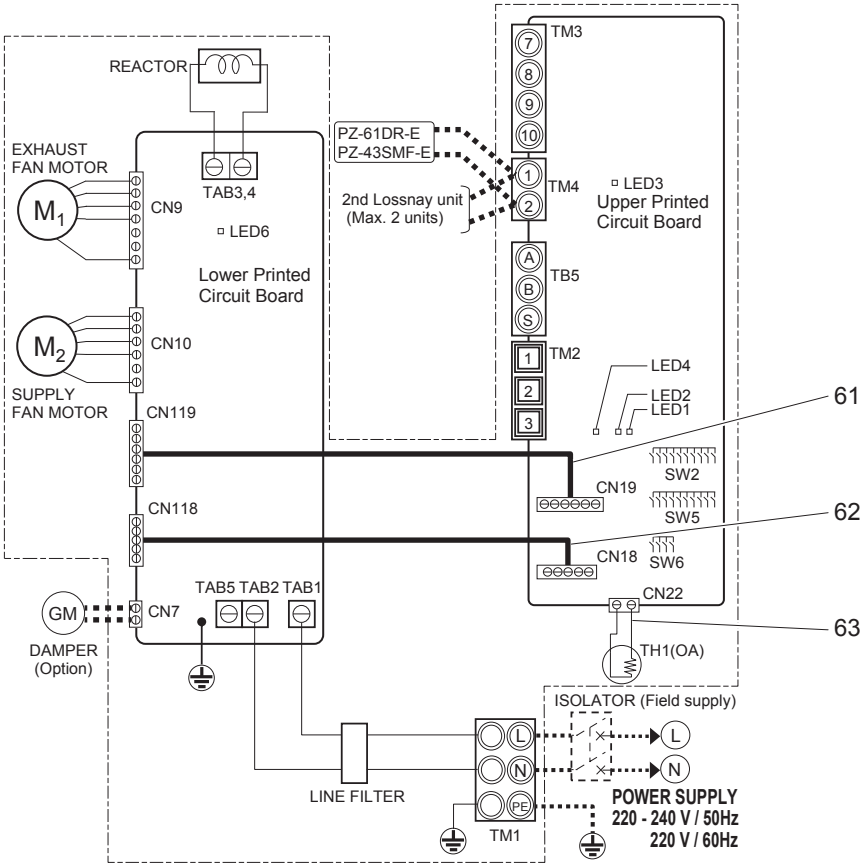


<Standard screws>

Symbol	Screw name
g	PTT screw 4x6
k	PT screw 4x8
m	PPT screw 4x20
n	PPT screw 3x8

VL-220CZGV-EB

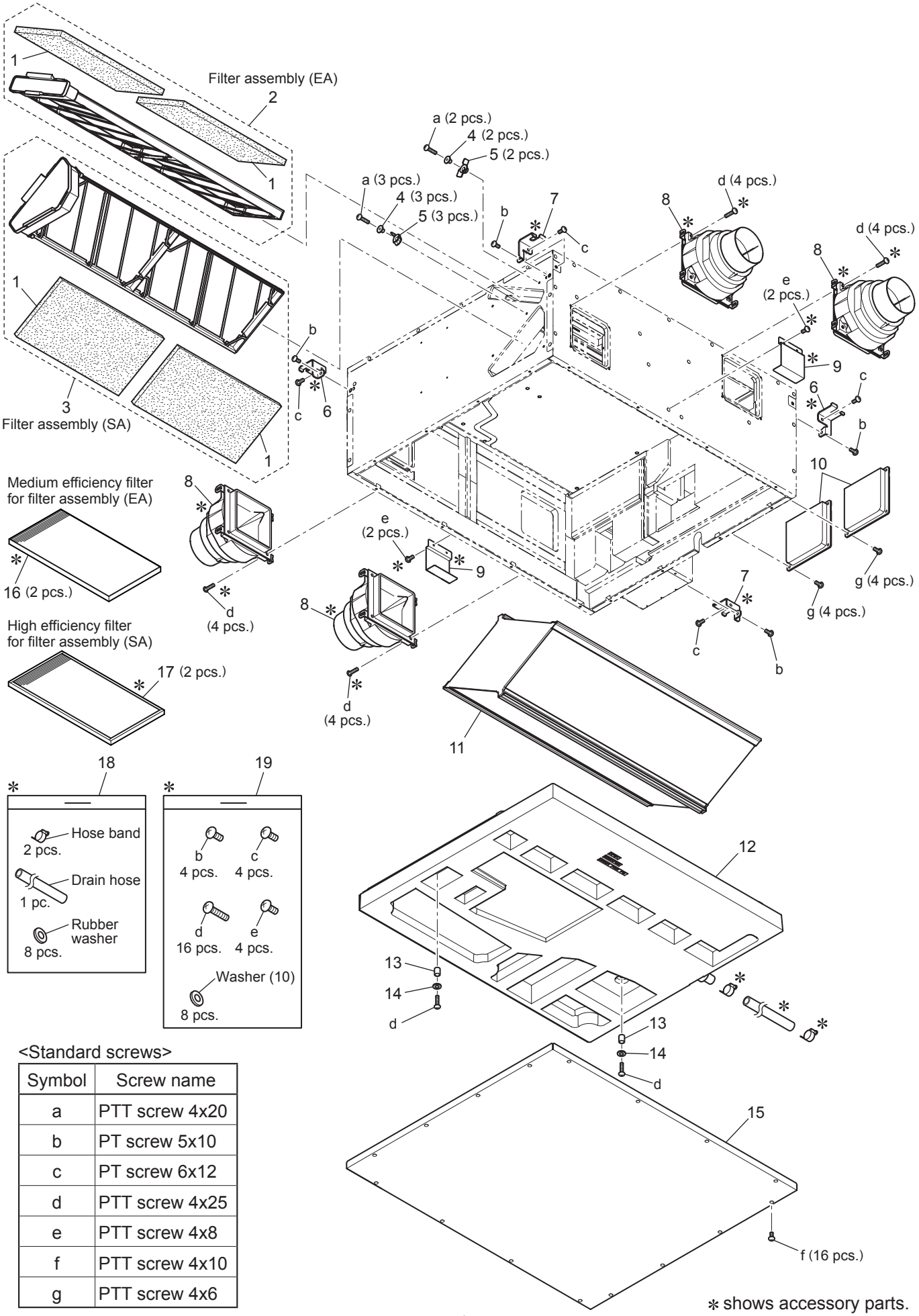
No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
41	Circuit board	W36 002 172	1	⚠	LG-X05DC-E2-C
42	PCB fix plate	W50 004 381	1		
43	Terminal block	W36 002 213	1	⚠	With lead wires
44	PT screw 4x8 BS	W00 000 011	3		
45	Lock washer (4)	W00 000 082	3		
46	Cord bush	W00 000 277	1		
47	Cord bush	W00 000 270	3		
48	Cord band	W00 000 258	1		
49	Circuit board	W36 002 171	1	⚠	LG-X05DC-E2-P
50	PCB case	W50 004 383	1		
51	Bush	W00 000 278	1		
52	Lead cover	W36 002 715	1		
53	Reactor	W50 004 179	1	⚠	White・AC10A
54	Wiring diagram	W36 002 358	1		
55	Cord clip	W00 000 264	1		


REACTOR
EXHAUST FAN MOTOR
M1
CN9
TAB3,4
LED6
Lower Printed Circuit Board
M2
CN10
SUPPLY FAN MOTOR
CN119
CN118
GM
CN7
DAMPER (Option)
TAB5 TAB2 TAB1
PZ-61DR-E
PZ-43SMF-E
2nd Lossnay unit (Max. 2 units)
TM3
TM4
LED3
Upper Printed Circuit Board
TB5
TM2
LED4
LED2
LED1
61
CN19
SW2
SW5
62
CN18
SW6
CN22
63
TH1(OA)
ISOLATOR (Field supply)
LINE FILTER
TM1
POWER SUPPLY
220 - 240 V / 50Hz
220 V / 60Hz

VL-220CZGV-EB

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
61	Lead wire	W36 002 214	1	⚠	CN19-CN119
62	Lead wire	W36 002 215	1	⚠	CN18-CN118
63	Thermistor	W36 002 167	1	⚠	OA

VL-220CZGV-EF



<Standard screws>

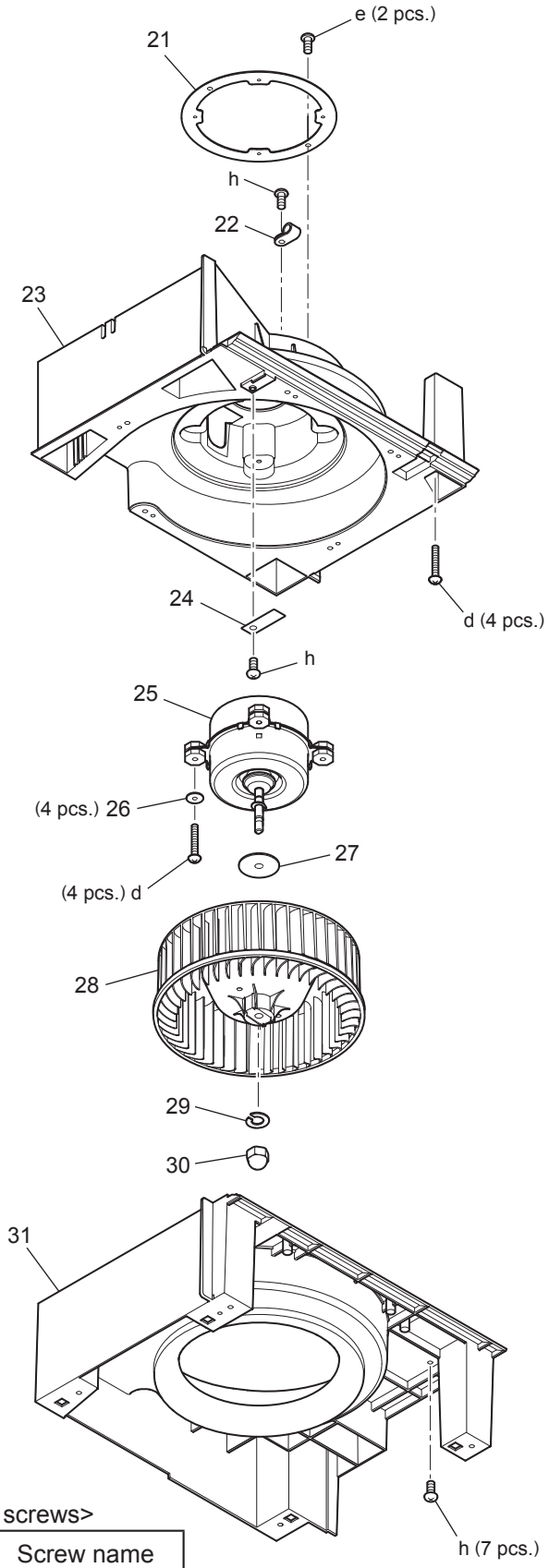
Symbol	Screw name
a	PTT screw 4x20
b	PT screw 5x10
c	PT screw 6x12
d	PTT screw 4x25
e	PTT screw 4x8
f	PTT screw 4x10
g	PTT screw 4x6

* shows accessory parts.

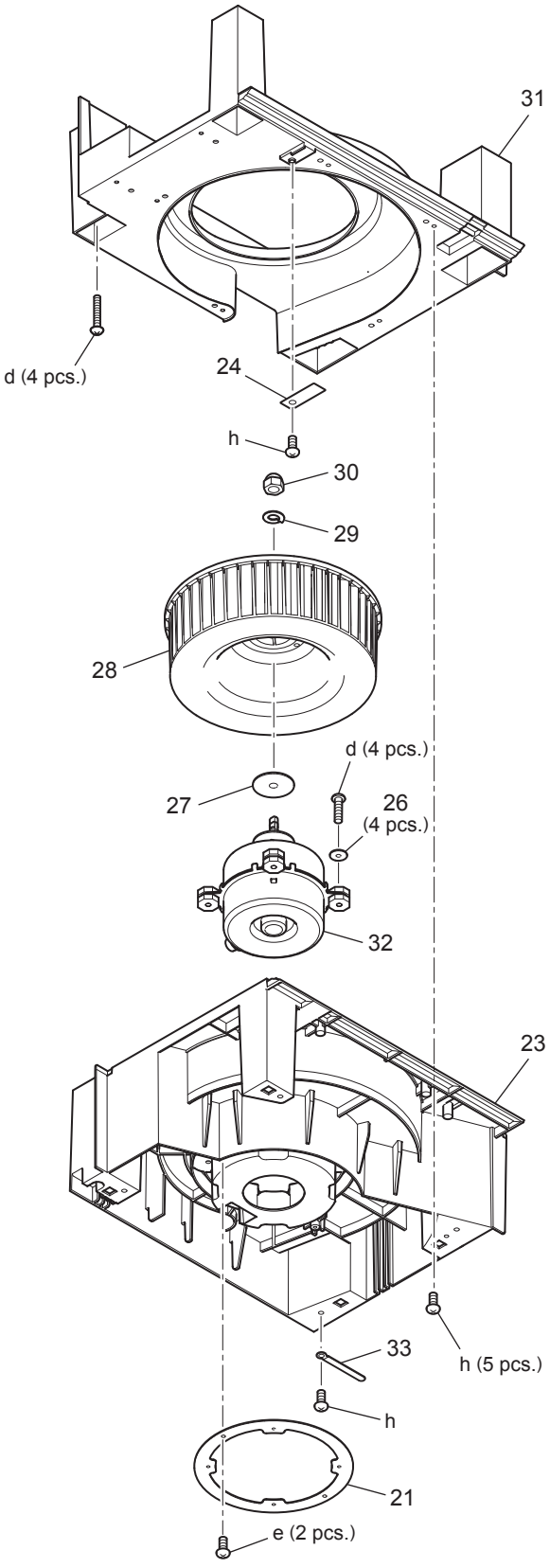
VL-220CZGV-EF

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
1	Filter	W36 002 717	4	⚠	
2	Filter assembly	W36 002 718	1	⚠	EA
3	Filter assembly	W36 002 719	1	⚠	SA
4	Bush	W36 002 682	5		
5	Fixing knob	W36 002 681	5		
6	Hanger L	W36 002 380	2		
7	Hanger R	W50 004 380	2		
8	Flange	W36 002 305	4		
9	Auxiliary fixture	W36 002 830	2		
10	Cover	W36 002 831	2		
11	Lossnay core	W36 002 714	1	⚠	
12	Drain pan	W36 002 832	1		
13	Spacer	W00 000 208	2		6x10
14	Special washer (4)	W00 000 166	2		
15	Bottom casing	W36 002 833	1		
16	M efficiency filter	W36 002 720	2	⚠	EA
17	H efficiency filter	W36 002 721	2	⚠	SA
18	Hose in bag	W36 002 893	1		
19	Screws in bag	W36 002 894	1		

Air exhaust (EA) fan assembly



Air supply (SA) fan assembly

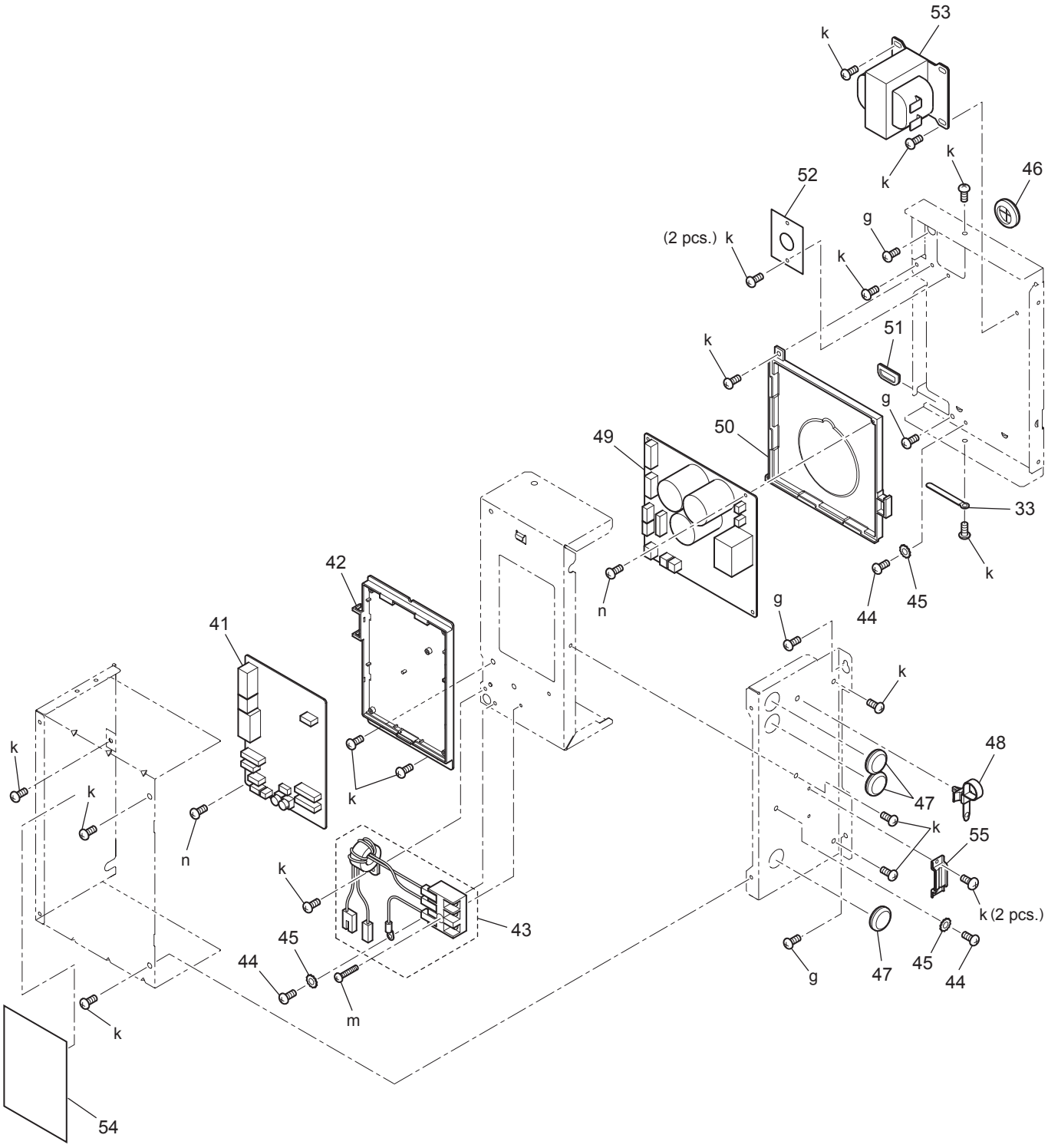


<Standard screws>

Symbol	Screw name
d	PTT screw 4x25
e	PTT screw 4x8
h	PTT screw 4x14

VL-220CZGV-EF

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
21	Motor fix plate	W36 002 713	2		
22	Cord clip	W00 000 261	1		
23	Fan casing	W36 002 483	2		
24	Fix piece	W50 005 717	2		
25	DC motor	W36 002 450	1	⚠	EA
26	Special washer (4)	W00 000 161	8		
27	Special washer (8)	W50 003 477	2		φ 40 (Outer dia.)
28	Centrifugal fan	W36 002 480	2	⚠	
29	Spring washer (8)	W00 000 126	2		
30	Special nut (M8)	W00 000 120	2		
31	Fan casing (Orifice)	W36 002 484	2		
32	DC motor	W36 002 451	1	⚠	SA
33	Lead wire clip	W00 000 238	2		

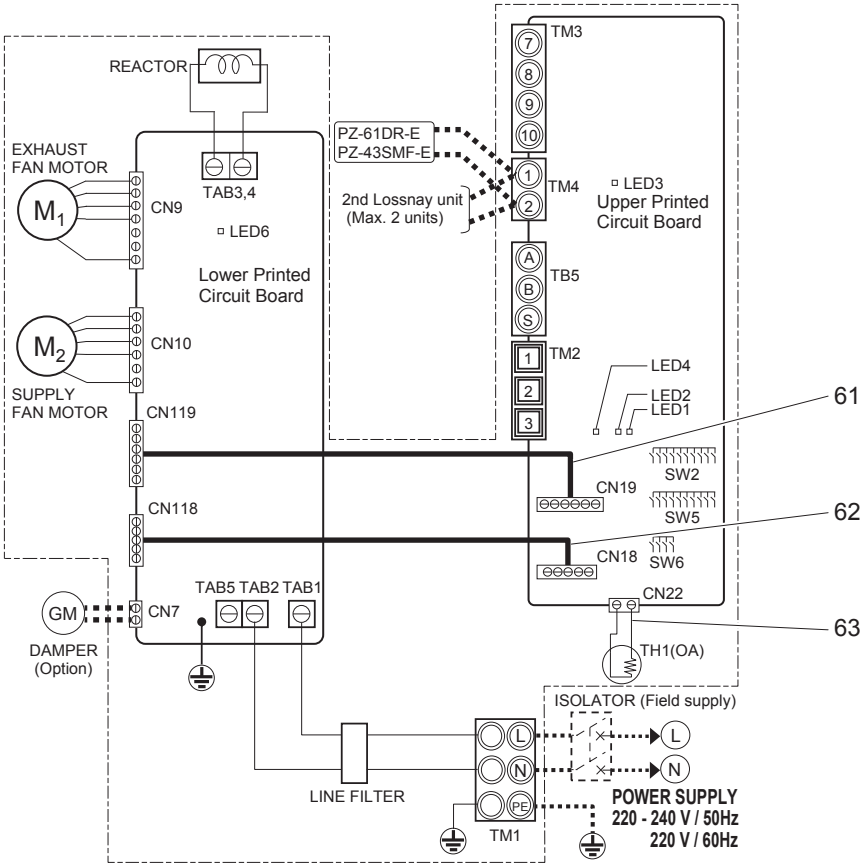


<Standard screws>

Symbol	Screw name
g	PTT screw 4x6
k	PT screw 4x8
m	PPT screw 4x20
n	PPT screw 3x8

VL-220CZGV-EF

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
41	Circuit board	W36 002 172	1	⚠	LG-X05DC-E2-C
42	PCB fix plate	W50 004 381	1		
43	Terminal block	W36 002 213	1	⚠	With lead wires
44	PT screw 4x8 BS	W00 000 011	3		
45	Lock washer (4)	W00 000 082	3		
46	Cord bush	W00 000 277	1		
47	Cord bush	W00 000 270	3		
48	Cord band	W00 000 258	1		
49	Circuit board	W36 002 171	1	⚠	LG-X05DC-E2-P
50	PCB case	W50 004 383	1		
51	Bush	W00 000 278	1		
52	Lead cover	W36 002 715	1		
53	Reactor	W50 004 179	1	⚠	White・AC10A
54	Wiring diagram	W36 002 359	1		
55	Cord clip	W00 000 264	1		


REACTOR
EXHAUST FAN MOTOR
M1
CN9
TAB3,4
LED6
Lower Printed Circuit Board
M2
CN10
SUPPLY FAN MOTOR
CN119
CN118
GM
CN7
DAMPER (Option)
TAB5 TAB2 TAB1
PZ-61DR-E
PZ-43SMF-E
2nd Lossnay unit (Max. 2 units)
TM3
TM4
LED3
Upper Printed Circuit Board
TB5
TM2
LED4
LED2
LED1
CN19
SW2
SW5
CN18
SW6
CN22
TH1(OA)
61
62
63
ISOLATOR (Field supply)
LINE FILTER
TM1
POWER SUPPLY
220 - 240 V / 50Hz
220 V / 60Hz

VL-220CZGV-EF

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
61	Lead wire	W36 002 214	1	⚠	CN19-CN119
62	Lead wire	W36 002 215	1	⚠	CN18-CN118
63	Thermistor	W36 002 167	1	⚠	OA