July 2021 No. U295-C

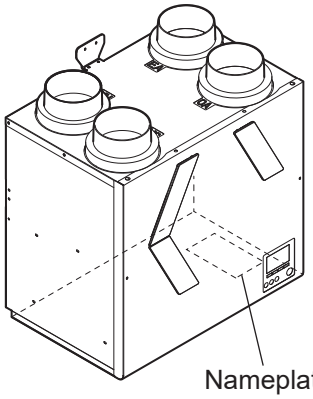
MITSUBISHI ELECTRIC

## LOSSNAY HEAT RECOVERY VENTILATOR

# HANDBOOK

**MODELS**

**VL-250CZPVU-L-E**
**VL-250CZPVU-R-E**
**VL-350CZPVU-L-E**
**VL-350CZPVU-R-E**
**VL-500CZPVU-L-E**
**VL-500CZPVU-R-E**
**VL-250CZPVU-L-ERT**
**VL-250CZPVU-R-ERT**
**VL-350CZPVU-L-ERT**
**VL-350CZPVU-R-ERT**
**VL-500CZPVU-L-ERT**
**VL-500CZPVU-R-ERT**




* The figure shows VL-350CZPVU-R-E.

**RC cover** (Optional)
**P-RCC-E**

**Silencer box** (Optional)
**P-250SB-E**
**P-350SB-E**
**P-500SB-E**

**Filter** (Optional)

| | | |
|---|---|---|
| **P-250F-E** | **P-350F-E** | **P-500F-E** |
| **P-250SF-E** | **P-350SF-E** | **P-500SF-E** |
| **P-250MF-E** | **P-350MF-E** | **P-500MF-E** |
| **P-250PF-E** | **P-350PF-E** | **P-500PF-E** |
| **P-250PFH-E** | **P-350PFH-E** | **P-500PFH-E** |
| **P-250NF-E** | **P-350NF-E** | **P-500NF-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 improperly 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 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

Qualified electricians shall conduct electric work in accordance with your local electric work regulations and the installation manuals.

(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

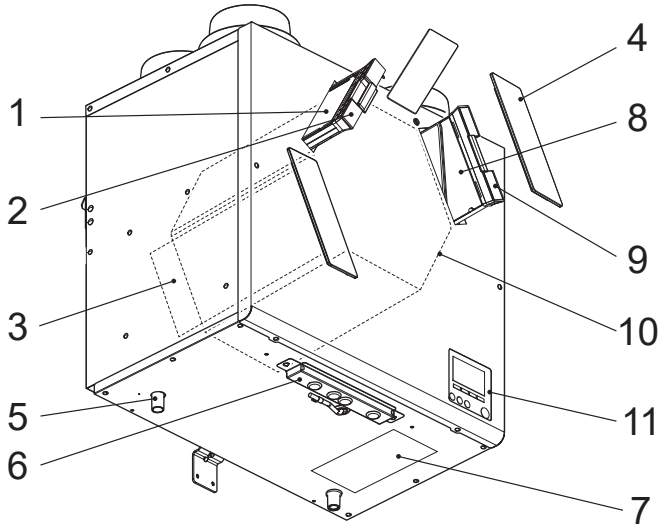
- Inspect the earth condition, and repair it if it is incomplete. Make sure that a power supply isolator and an overload protection device are installed. If they are not installed, recommend the customer to install them.

- 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

| New model | Previous model | Changes from the previous model |
|---|---|---|
| VL-250CZPVU-L-ERT | VL-250CZPVU-L-E | To meet certification requirements of the destination countries, Instruction Manual and Installation Manual are provided in the local languages: Russian, Kazakh, Armenian, and Ukrainian. The structure and characteristic values of the product are not changed. |
| VL-250CZPVU-R-ERT | VL-250CZPVU-R-E | |
| VL-350CZPVU-L-ERT | VL-350CZPVU-L-E | |
| VL-350CZPVU-R-ERT | VL-350CZPVU-R-E | |
| VL-500CZPVU-L-ERT | VL-500CZPVU-L-E | |
| VL-500CZPVU-R-ERT | VL-500CZPVU-R-E | |

# 3. Names and functions of components

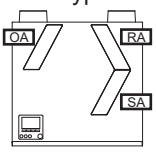
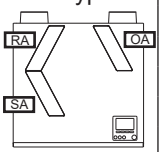



* The figure shows VL-350CZPVU-R-E.

- For L-type (for example, VL-350CZPVU-L-E), filters, controller, and name plate are on the reflected positions.

| No. | Name | Function |
|---|---|---|
| 1 | Exhaust air filter | It prevents the heat exchanger from clogging. |
| 2 | Exhaust air filter case | It holds the exhaust air filter. |
| 3 | Optional air filter case | For the optional filter (See the table below.) |
| 4 | Filter cover | - |
| 5 | Drain pipe attachment | It is connected to the drain pipe. |
| 6 | Control box | It holds the circuit board. |
| 7 | Name plate | It shows product name and serial No. |
| 8 | Outdoor air filter | It removes insects, pollen, dirt, dust, and other particles from the outdoor air that is taken into the room. |
| 9 | Outdoor air filter case | It holds the outdoor air filter. |
| 10 | Heat exchanger (Lossnay core) | It exchanges heat between the supply air and the return air. |
| 11 | Controller | Product operation<br>* The controller can be installed externally. (Use the optional component P-RCC-E for external installation) |

**Optional filter**

| Filter name | MODEL | Applicable model | Location to use | | Main material | Replacement intervals |
|---|---|---|---|---|---|---|
| Replacement filter | P-250F-E | VL-250CZPVU series | RA, OA | L-Type   R-Type   RA: Return Air OA: Outdoor Air SA: Supply Air | PET, acrylic fiber | Three years |
| | P-350F-E | VL-350CZPVU series | | | | |
| | P-500F-E | VL-500CZPVU series | | | | |
| Standard filter | P-250SF-E | VL-250CZPVU series | RA, OA, SA | | Polypropylene, polyester | One year |
| | P-350SF-E | VL-350CZPVU series | | | | |
| | P-500SF-E | VL-500CZPVU series | | | | |
| Medium efficiency filter | P-250MF-E | VL-250CZPVU series | RA, OA, SA | | | One year |
| | P-350MF-E | VL-350CZPVU series | | | | |
| | P-500MF-E | VL-500CZPVU series | | | | |
| PM2.5 filter | P-250PF-E | VL-250CZPVU series | RA, OA, SA | | | For SA installation: One year<br>For OA and RA installations: Six months |
| | P-350PF-E | VL-350CZPVU series | | | | |
| | P-500PF-E | VL-500CZPVU series | | | | |
| PM1 filter | P-250PFH-E | VL-250CZPVU series | RA, OA, SA | | | |
| | P-350PFH-E | VL-350CZPVU series | | | | |
| | P-500PFH-E | VL-500CZPVU series | | | | |
| NOx filter | P-250NF-E | VL-250CZPVU series | SA | | Pulp | Six months |
| | P-350NF-E | VL-350CZPVU series | | | | |
| | P-500NF-E | VL-500CZPVU series | | | | |

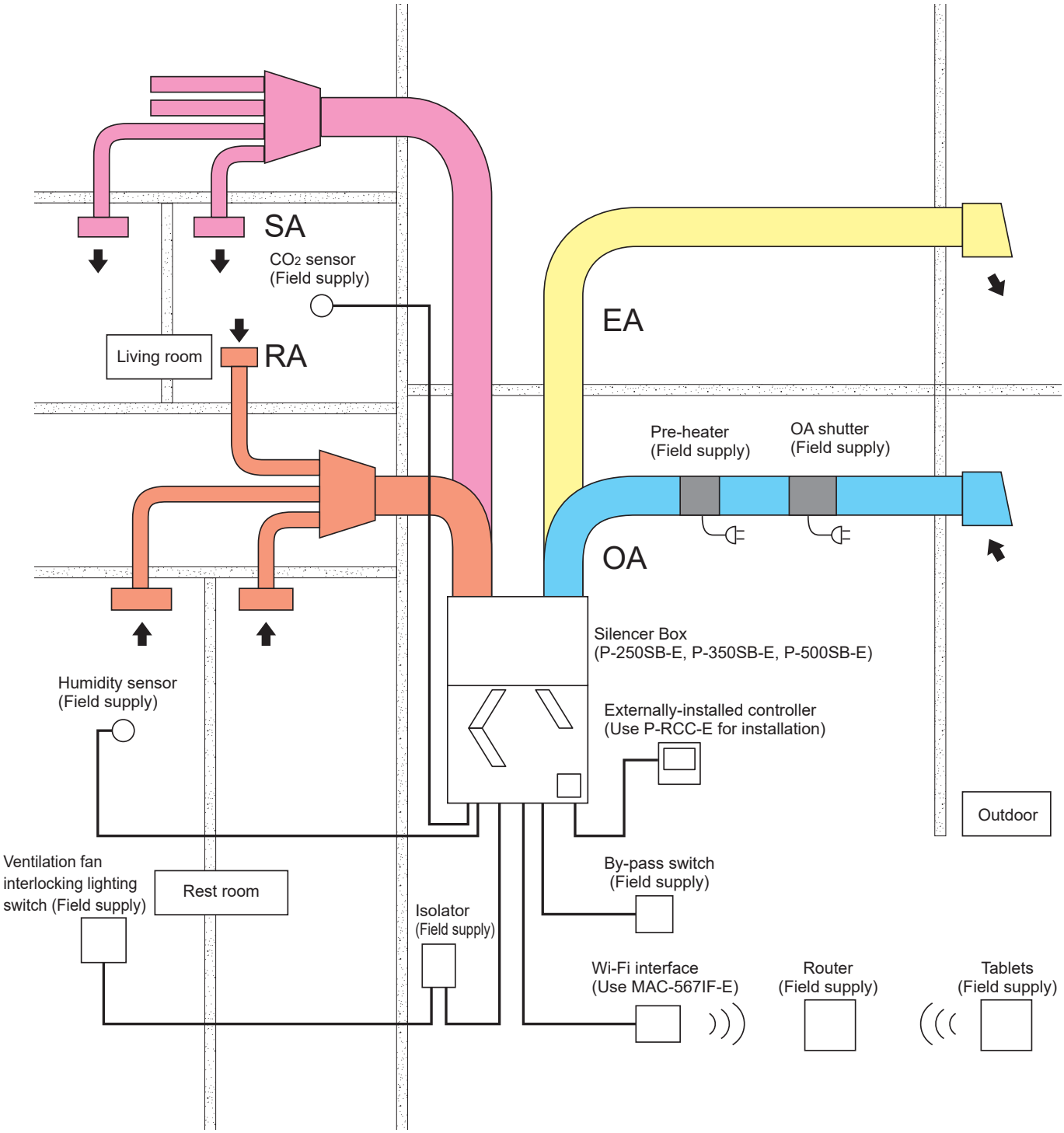
* When a NOx filter and an optional dust catch filter (P-250/350/500SF-E, P-250/350/500MF-E, P-250/350/500PF-E, P-250/350/500PFH-E) are used together, be sure to install a NOx filter on the SA side and a dust catch filter on the OA side.

* Install any of the filters other than NOx filter on the OA and RA side to protect the product.

# Installation example

**Notes**

- Make sure that the exhaust air connection has two or more confluence points with the piping from the bathroom.
- Pre-heaters and electric dampers may be required in your region.
- Read the instructions carefully in advance when using optional components and commercially available components.



# 4. Specifications

| | | |
|---|---|---|
| Model | VL-250CZPVU-L-E, VL-250CZPVU-R-E<br>VL-250CZPVU-L-ERT, VL-250CZPVU-R-ERT | |
| Heat exchange system | Heat recovery ventilating system | |
| Heat exchanger material | Sensible heat exchanger | |
| Cladding | Steel sheet | |
| Heat insulation material | Polyethylene foam | |
| Motor | DC motor | |
| Blower | 180 mm diameter centrifugal fan | |
| Filter | Non-woven fabrics filter | |
| Duct connecting | Synthetic resin | |
| Duct connecting cover | Styrene foam | |
| Outside air condition | Shall be higher than -15°C | |
| Return (Suction) air condition | Shall be lower than 40°C, 95%RH | |
| Surrounding air condition | Indoor temperature and humidity should not exceed the dew point temperature 12°C (e.g. RH 60%, 20°C) | |
| Supply fan operation under low outdoor temperature | -3°C to -15°C: Intermittent operation<br>-15°C or less: Supply air fan stopped. | *Exhaust air fan: continuous operation |
| Function | Heat exchange ventilation/ By-pass ventilation, Fan speed 1,2,3,4<br>The air flow increment by 1% from 25% to 100% | |
| Dimensions (Height x Width x Depth) | 565 mm x 595 mm x 356 mm | |
| Weight | 26 kg | |
| Electrical power supply | 220–240 V 50 Hz/ 220 V 60 Hz | |
| Insulation resistance | 10 MΩ or more | |
| Dielectric strength | 1000 V AC 1 minute | |
| Maximum current [A] | 1.00 | |

■ Specifications

| Ventilation mode | | Heat exchange mode | | | |
|---|---|---|---|---|---|
| Fan speed | | Fan Speed 4 (100%) | Fan Speed 3 (70%) | Fan Speed 2 (50%) | Fan Speed 1 (30%) |
| Running current | [A] | 0.76 | 0.35 | 0.20 | 0.12 |
| Input power | [W] | 106 | 44 | 23 | 11 |
| Air volume | [$m^3$/h] | 250 | 175 | 125 | 75 |
| | [L/s] | 69 | 49 | 35 | 21 |
| External static pressure | [Pa] | 150 | 74 | 38 | 14 |
| Temperature exchange efficiency | [%] | 85 | 87 | 88 | 90 |
| Sound pressure level at 3 m | [dB] | 31 | 22 | 16 | 15 > |

■ Attention

1. The above values are at factory default.
2. The running current, the input power, the efficiency and the noise are based on the rating air volume, and 230 V 50 Hz.
3. The sound pressure level at 3 m is spherical.
4. Temperature exchange efficiency (%) is based on winter conditions.
5. Mitsubishi Electric measures figures in the chart according to EN13141-7:2010, and the characteristic curves are measured by chamber method.

| | | |
|---|---|---|
| Model | VL-350CZPVU-L-E, VL-350CZPVU-R-E<br>VL-350CZPVU-L-ERT, VL-350CZPVU-R-ERT | |
| Heat exchange system | Heat recovery ventilating system | |
| Heat exchanger material | Sensible heat exchanger | |
| Cladding | Steel sheet | |
| Heat insulation material | Polyethylene foam | |
| Motor | DC motor | |
| Blower | 210 mm diameter centrifugal fan | |
| Filter | Non-woven fabrics filter | |
| Duct connecting | Synthetic resin | |
| Duct connecting cover | Styrene foam | |
| Outside air condition | Shall be higher than -15°C | |
| Return (Suction) air condition | Shall be lower than 40°C, 95%RH | |
| Surrounding air condition | Indoor temperature and humidity should not exceed the dew point temperature 12°C (e.g. RH 60%, 20°C) | |
| Supply fan operation under low outdoor temperature | -3°C to -15°C: Intermittent operation<br>-15°C or less: Supply air fan stopped. | *Exhaust air fan: continuous operation |
| Function | Heat exchange ventilation/ By-pass ventilation, Fan speed 1,2,3,4<br>The air flow increment by 1% from 25% to 100% | |
| Dimensions (Height x Width x Depth) | 623 mm x 658 mm x 432 mm | |
| Weight | 32 kg | |
| Electrical power supply | 220–240 V 50 Hz/ 220 V 60 Hz | |
| Insulation resistance | 10 MΩ or more | |
| Dielectric strength | 1000 V AC 1 minute | |
| Maximum current [A] | 1.32 | |

■ Specifications

| Ventilation mode | | Heat exchange mode | | | |
|---|---|---|---|---|---|
| Fan speed | | Fan Speed 4 (100%) | Fan Speed 3 (70%) | Fan Speed 2 (50%) | Fan Speed 1 (30%) |
| Running current | [A] | 1.08 | 0.52 | 0.31 | 0.18 |
| Input power | [W] | 155 | 71 | 37 | 19 |
| Air volume | [$m^3$/h] | 320 | 224 | 160 | 96 |
| | [L/s] | 89 | 62 | 44 | 27 |
| External static pressure | [Pa] | 150 | 74 | 38 | 14 |
| Temperature exchange efficiency | [%] | 85 | 87 | 88 | 90 |
| Sound pressure level at 3 m | [dB] | 35 | 26 | 19 | 15 > |

■ Attention

1. The above values are at factory default.
2. The running current, the input power, the efficiency and the noise are based on the rating air volume, and 230 V 50 Hz.
3. The sound pressure level at 3 m is spherical.
4. Temperature exchange efficiency (%) is based on winter conditions.
5. Mitsubishi Electric measures figures in the chart according to EN13141-7:2010, and the characteristic curves are measured by chamber method.

| | | |
|---|---|---|
| Model | VL-500CZPVU-L-E, VL-500CZPVU-R-E<br>VL-500CZPVU-L-ERT, VL-500CZPVU-R-ERT | |
| Heat exchange system | Heat recovery ventilating system | |
| Heat exchanger material | Sensible heat exchanger | |
| Cladding | Steel sheet | |
| Heat insulation material | Polyethylene foam | |
| Motor | DC motor | |
| Blower | 230 mm diameter centrifugal fan | |
| Filter | Non-woven fabrics filter | |
| Duct connecting | Synthetic resin | |
| Duct connecting cover | Styrene foam | |
| Outside air condition | Shall be higher than -15°C | |
| Return (Suction) air condition | Shall be lower than 40°C, 95%RH | |
| Surrounding air condition | Indoor temperature and humidity should not exceed the dew point temperature 12°C (e.g. RH 60%, 20°C) | |
| Supply fan operation under low outdoor temperature | -3°C to -15°C: Intermittent operation<br>-15°C or less: Supply air fan stopped. | *Exhaust air fan: continuous operation |
| Function | Heat exchange ventilation/ By-pass ventilation, Fan speed 1,2,3,4<br>The air flow increment by 1% from 25% to 100% | |
| Dimensions (Height x Width x Depth) | 632 mm x 725 mm x 556 mm | |
| Weight | 39 kg | |
| Electrical power supply | 220–240 V 50 Hz/ 220 V 60 Hz | |
| Insulation resistance | 10 MΩ or more | |
| Dielectric strength | 1000 V AC 1 minute | |
| Maximum current [A] | 2.3 | |

■ Specifications

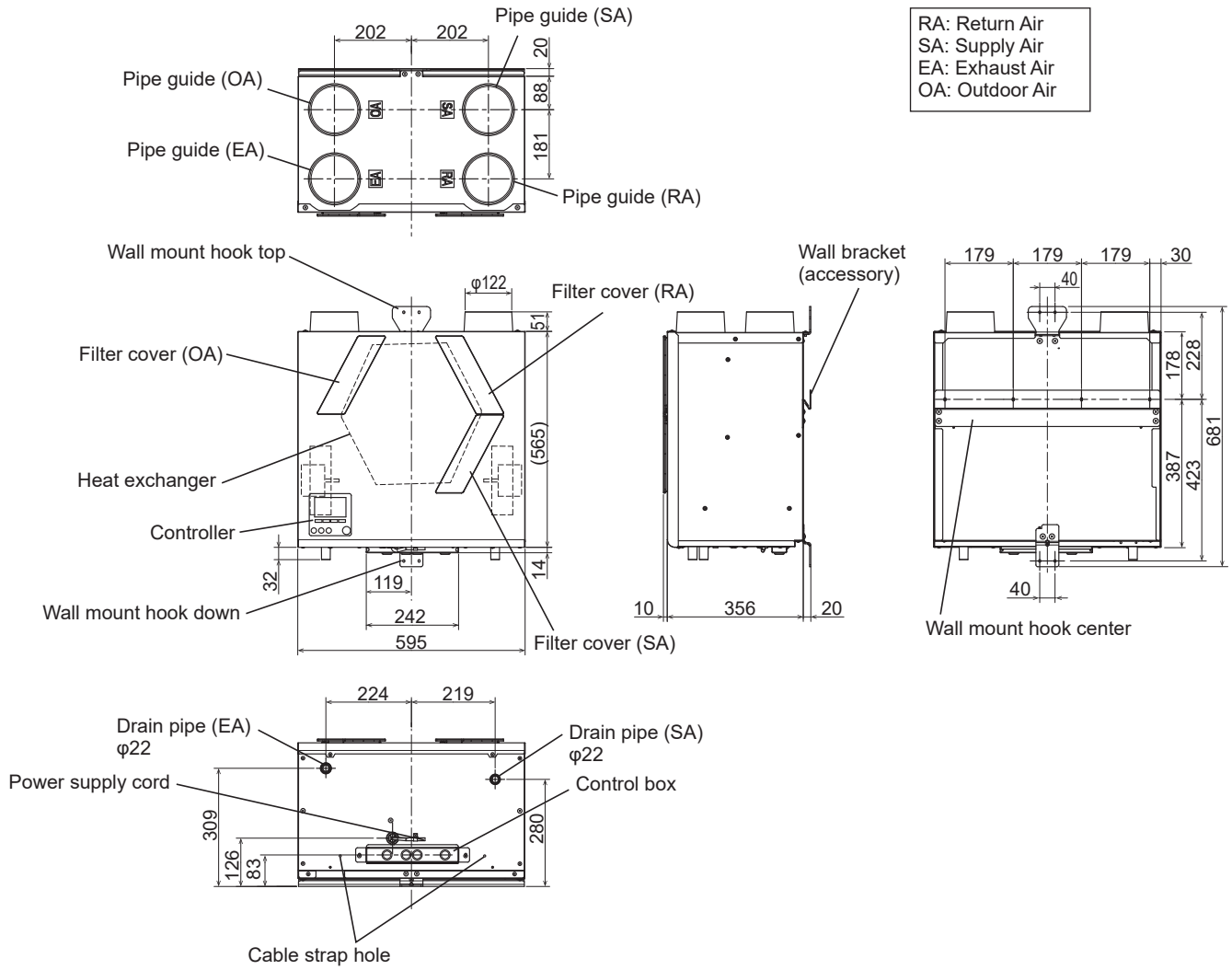
| Ventilation mode | | Heat exchange mode | | | |
|---|---|---|---|---|---|
| Fan speed | | Fan Speed 4 (100%) | Fan Speed 3 (70%) | Fan Speed 2 (50%) | Fan Speed 1 (30%) |
| Running current | [A] | 1.73 | 0.77 | 0.40 | 0.19 |
| Input power | [W] | 275 | 104 | 49 | 21 |
| Air volume | [$m^3$/h] | 500 | 350 | 250 | 150 |
| | [L/s] | 139 | 97 | 69 | 42 |
| External static pressure | [Pa] | 200 | 98 | 50 | 18 |
| Temperature exchange efficiency | [%] | 85 | 87 | 89 | 92 |
| Sound pressure level at 3 m | [dB] | 37 | 29 | 22 | 15 > |

■ Attention

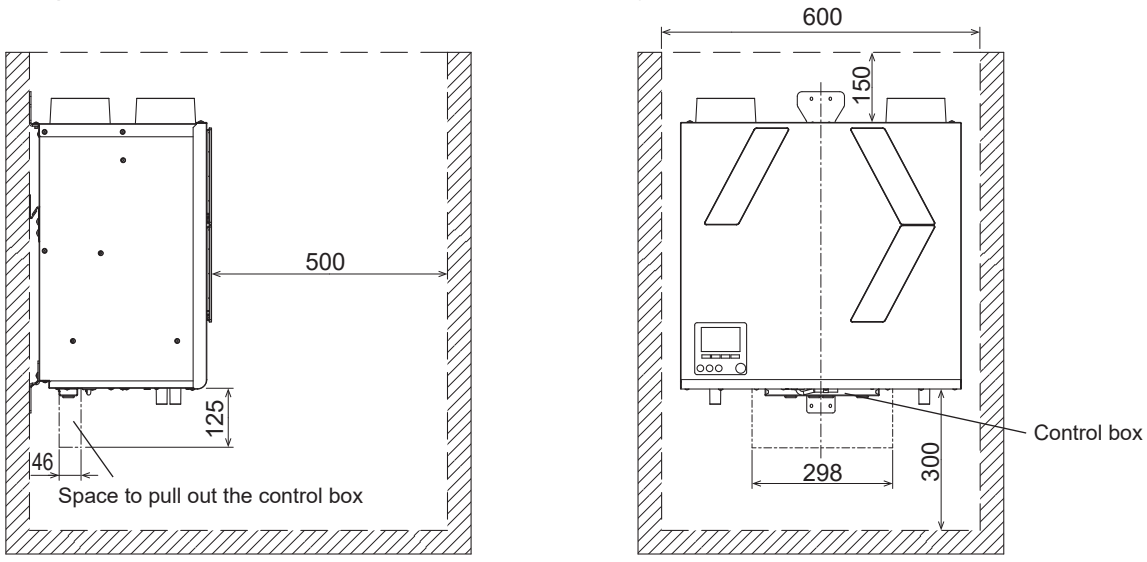
1. The above values are at factory default.
2. The running current, the input power, the efficiency and the noise are based on the rating air volume, and 230 V 50 Hz.
3. The sound pressure level at 3 m is spherical.
4. Temperature exchange efficiency (%) is based on winter conditions.
5. Mitsubishi Electric measures figures in the chart according to EN13141-7:2010, and the characteristic curves are measured by chamber method.

# 5. Outside dimensions

VL-250CZPVU-L-E, VL-250CZPVU-L-ERT

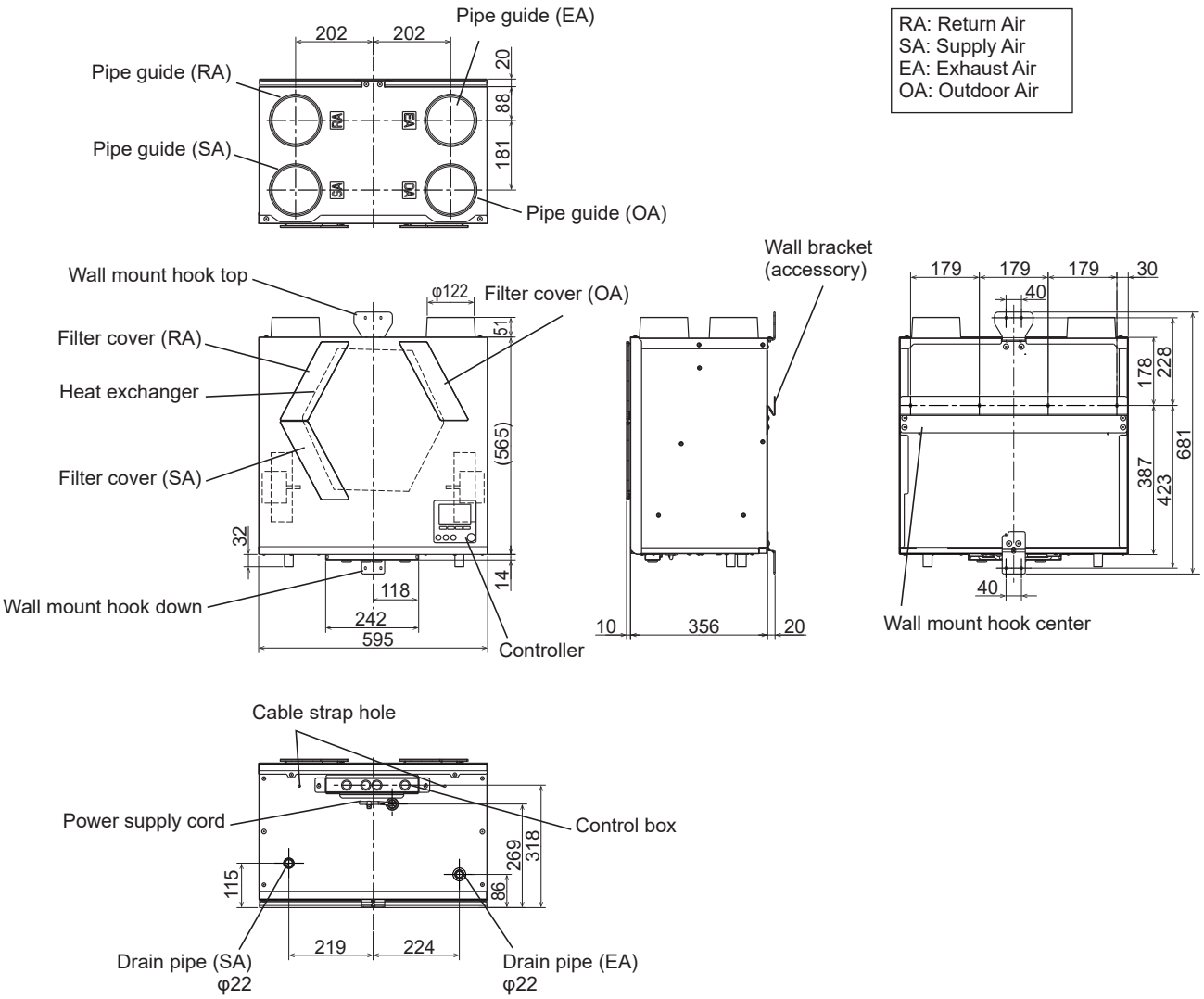



**Working space (Required space around the Lossnay unit)**

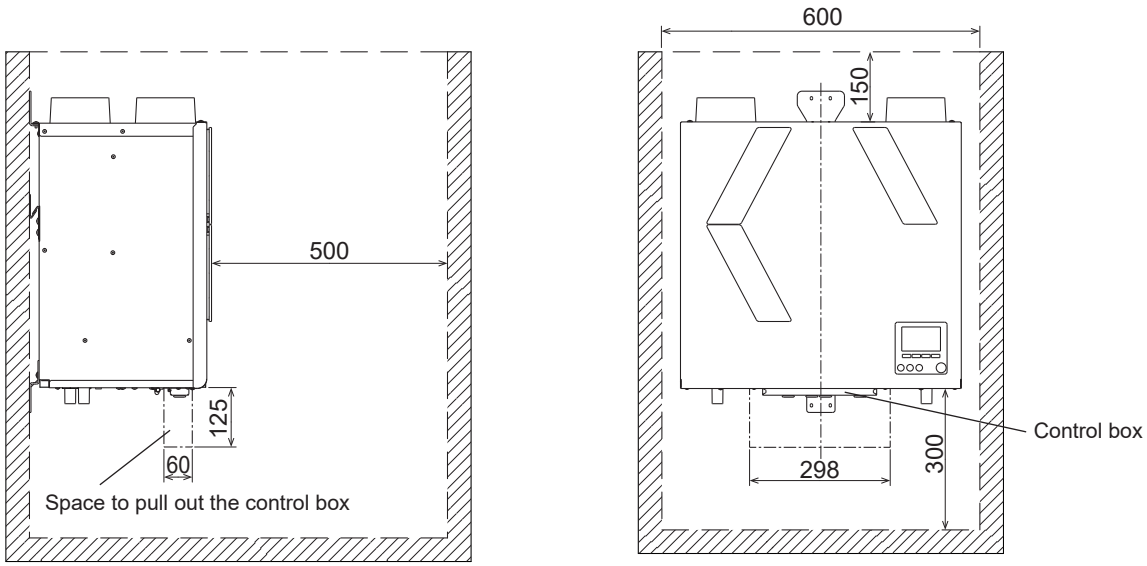



Unit (mm)

VL-250CZPVU-R-E, VL-250CZPVU-R-ERT

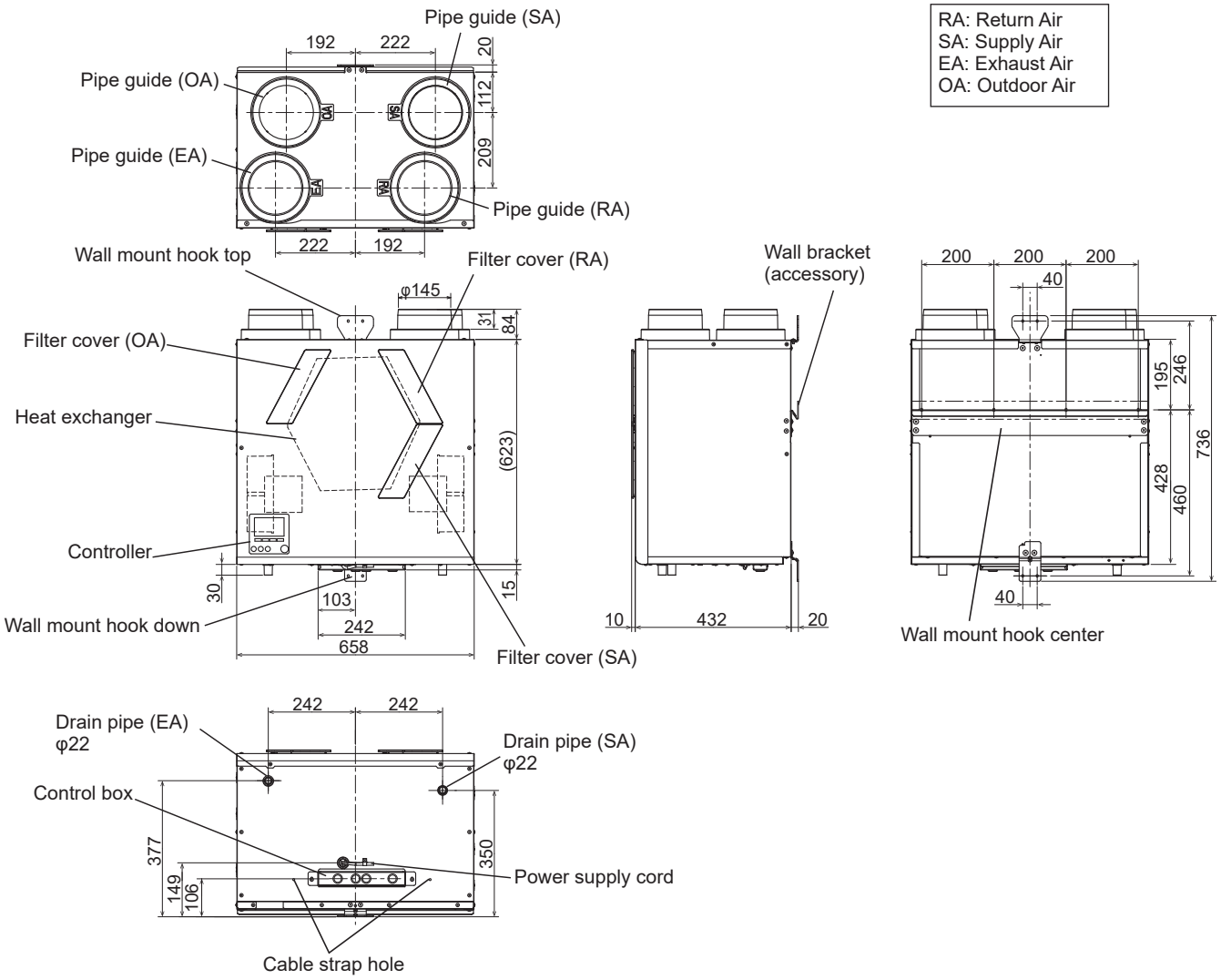



## Working space (Required space around the Lossnay unit)

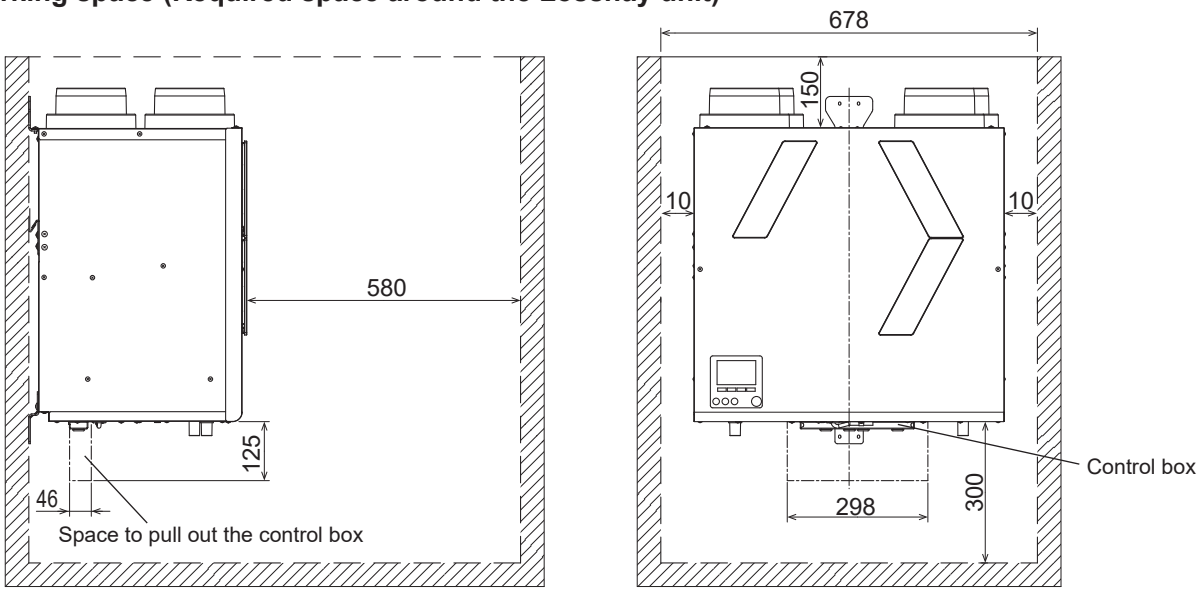



Unit (mm)

VL-350CZPVU-L-E, VL-350CZPVU-L-ERT

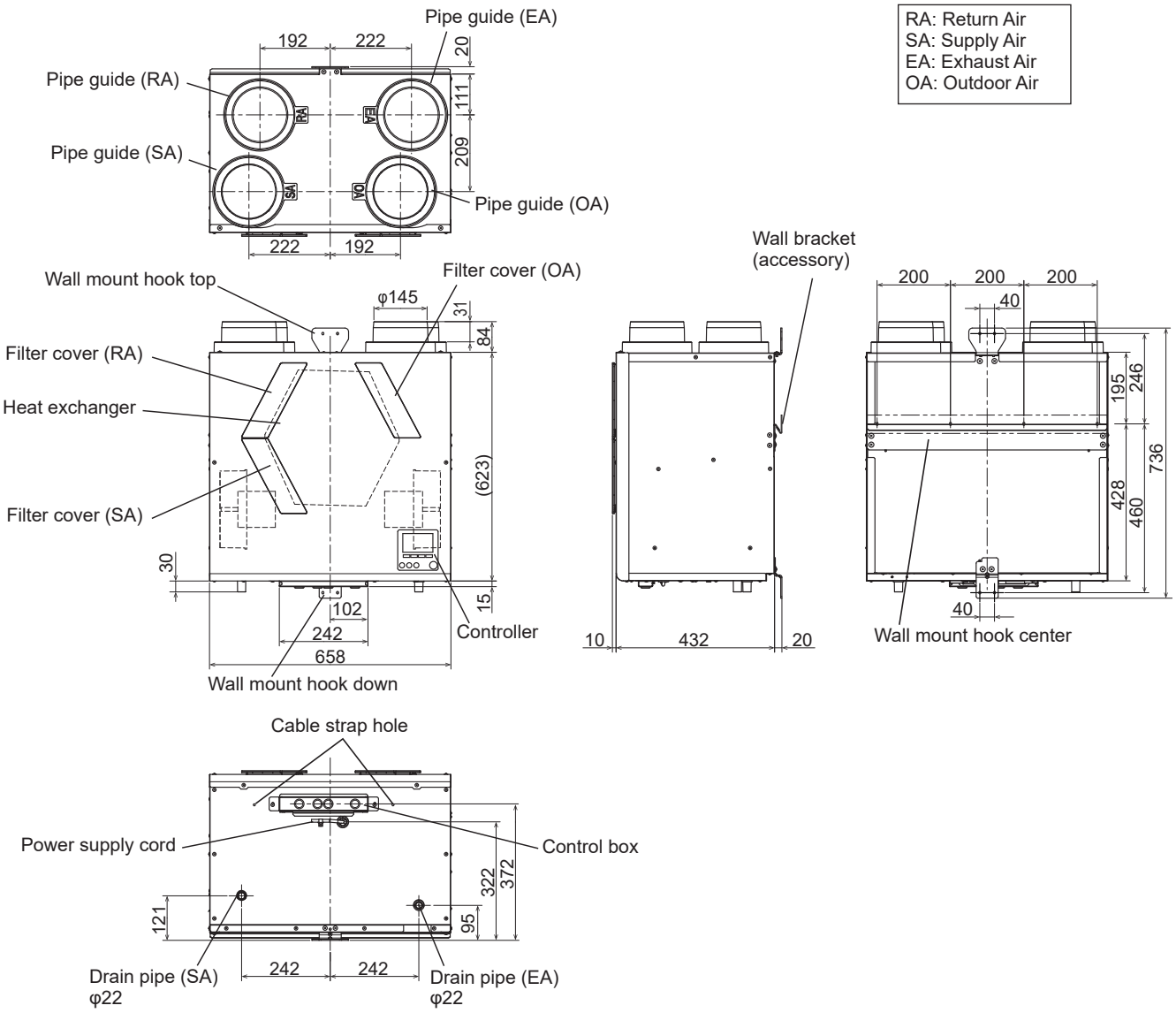



## Working space (Required space around the Lossnay unit)

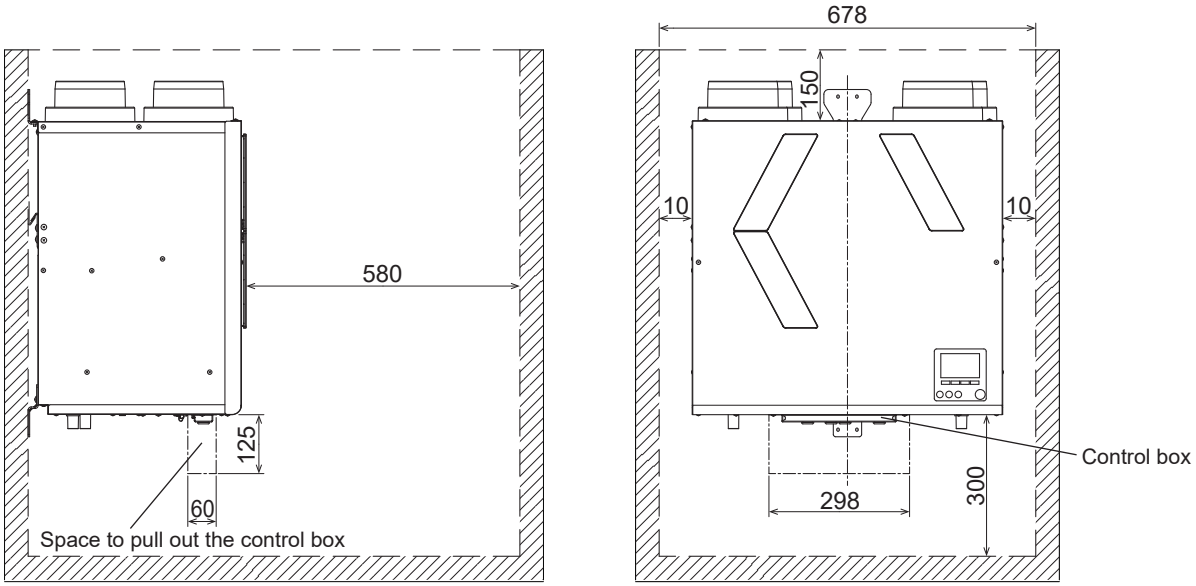



Unit (mm)

VL-350CZPVU-R-E, VL-350CZPVU-R-ERT

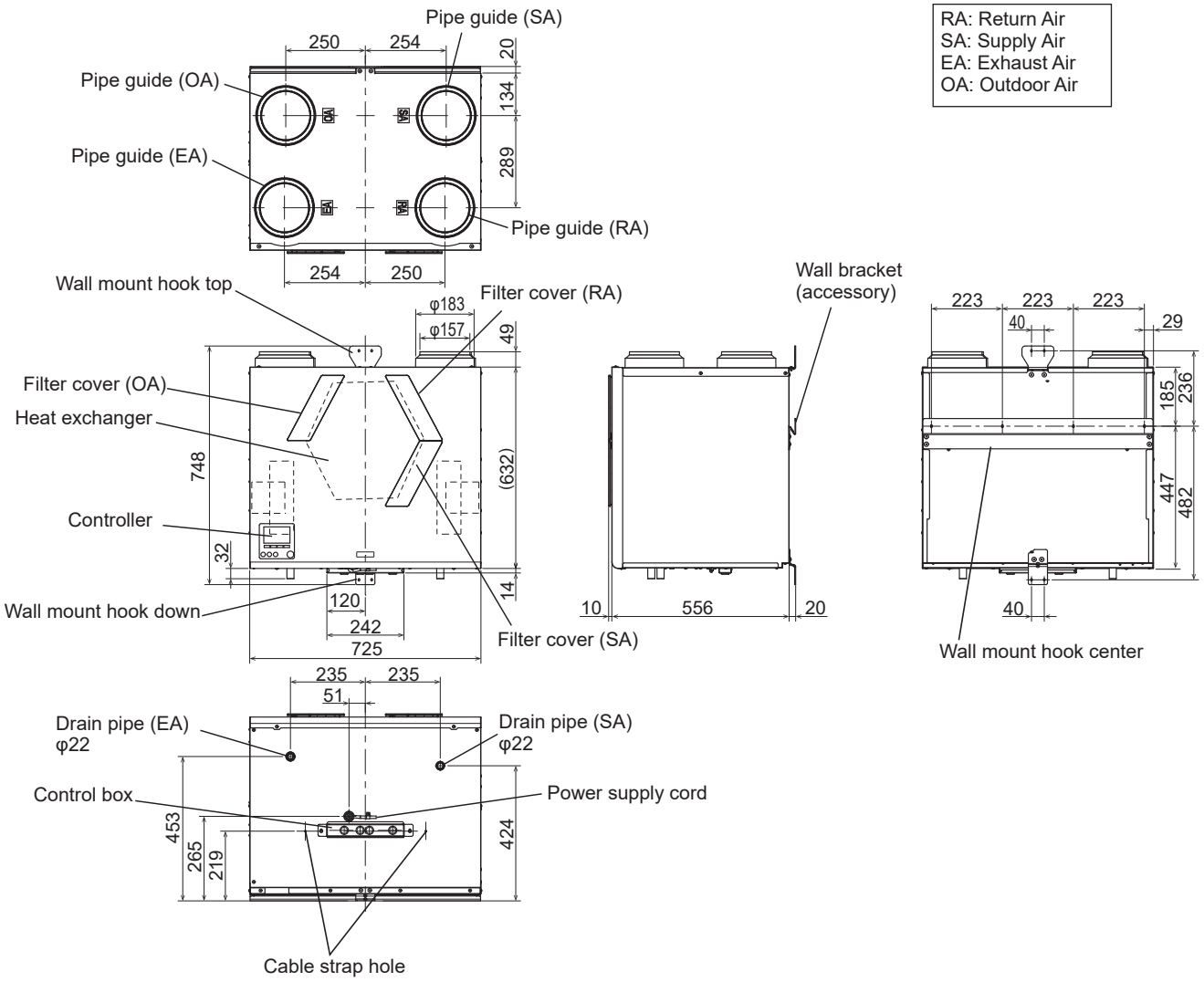



## Working space (Required space around the Lossnay unit)

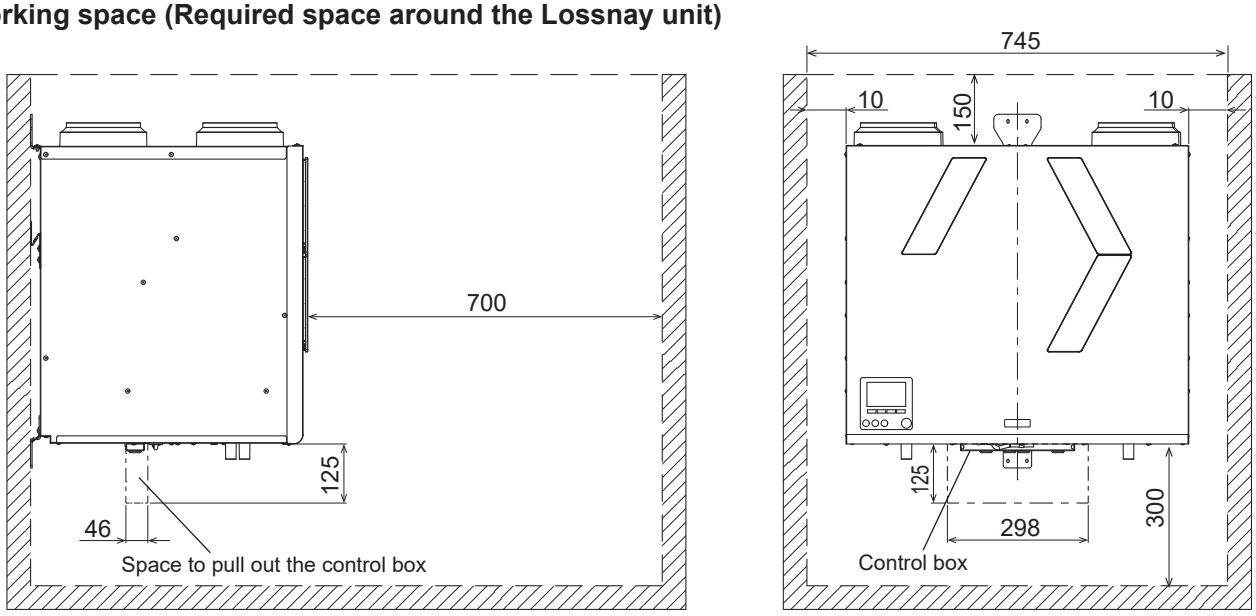



Unit (mm)

VL-500CZPVU-L-E, VL-500CZPVU-L-ERT



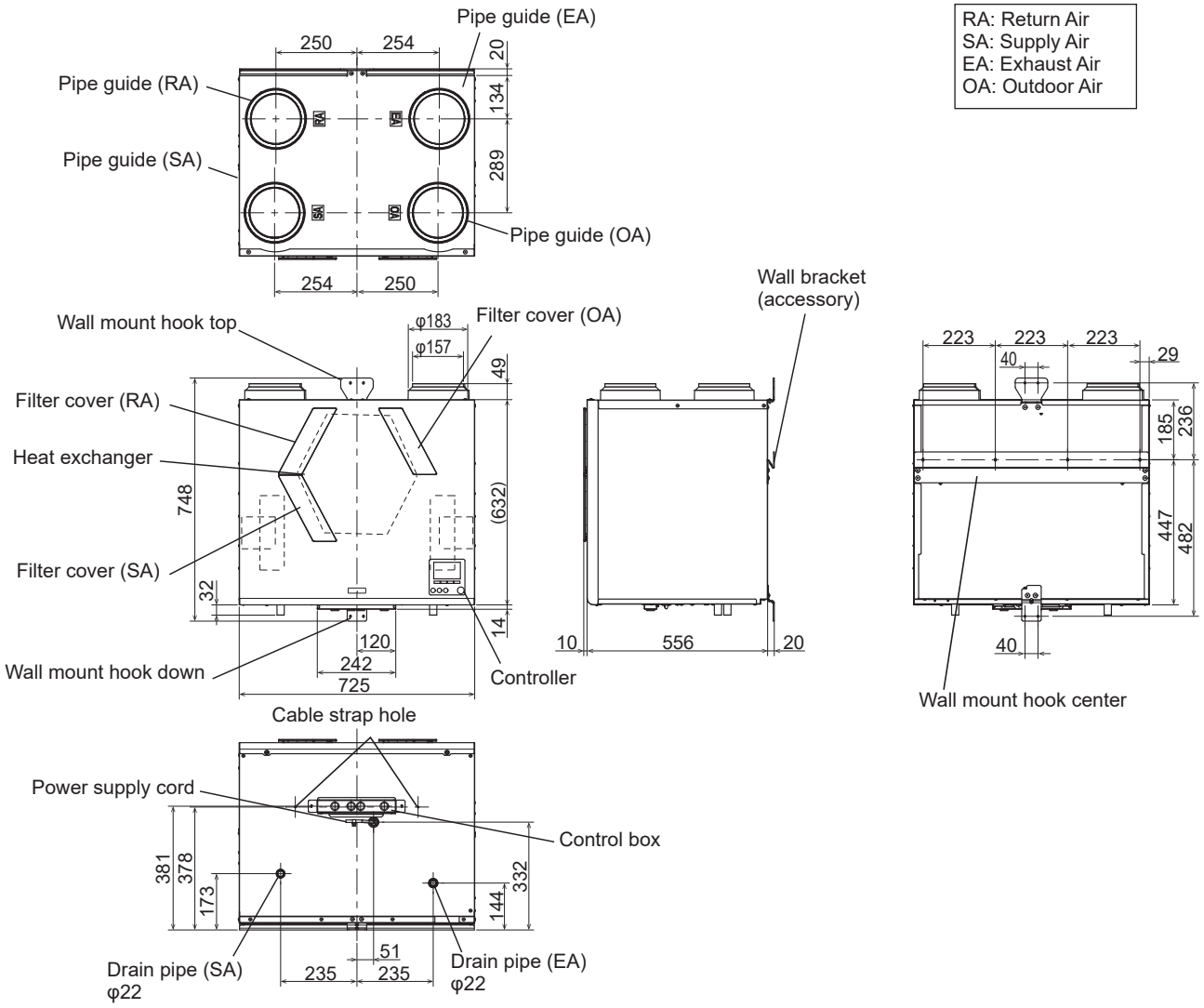

## Working space (Required space around the Lossnay unit)



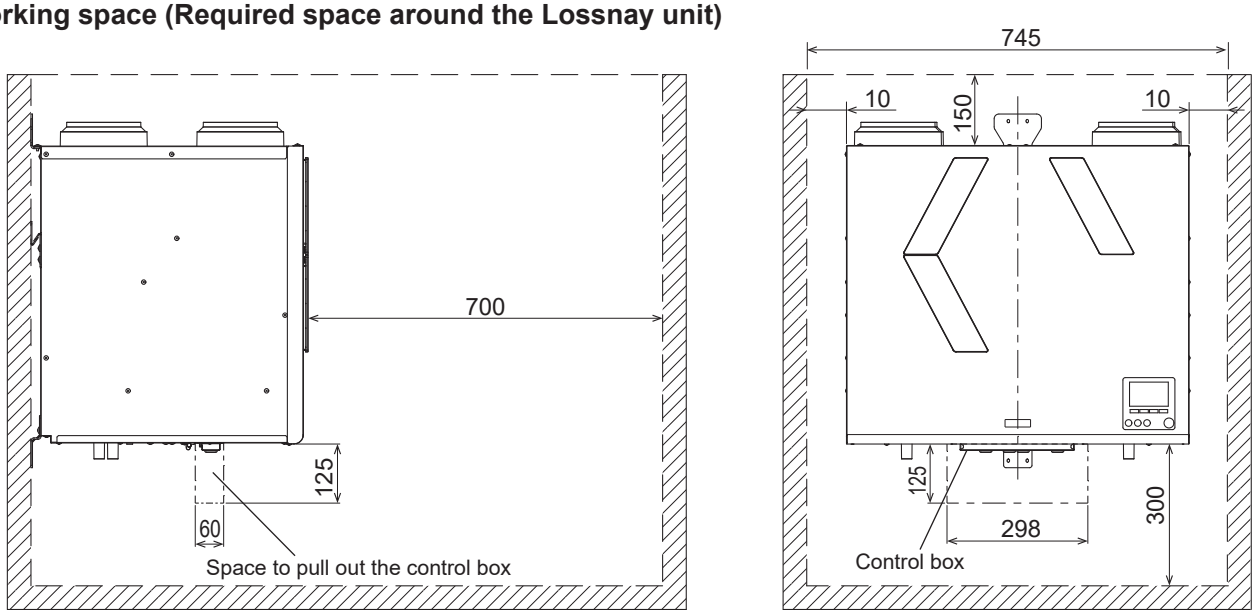

Unit (mm)

VL-500CZPVU-R-E, VL-500CZPVU-R-ERT

RA: Return Air
SA: Supply Air
EA: Exhaust Air
OA: Outdoor Air



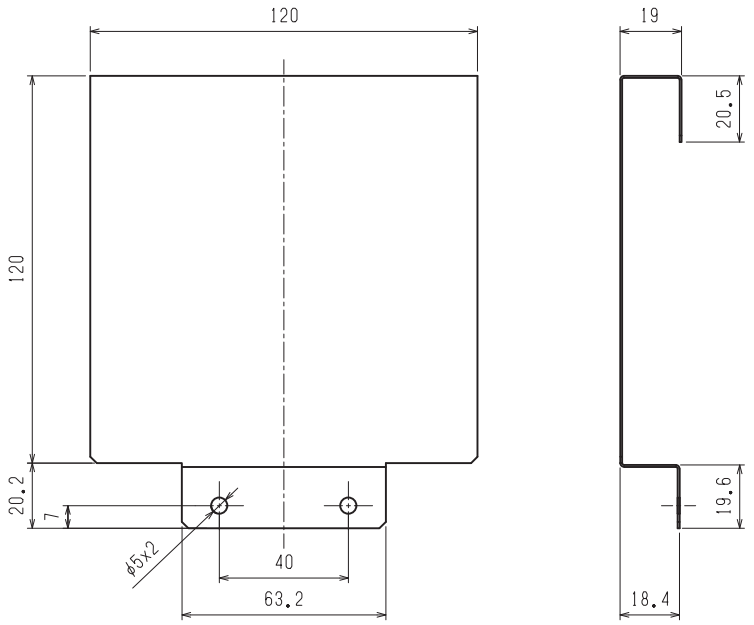

## Working space (Required space around the Lossnay unit)



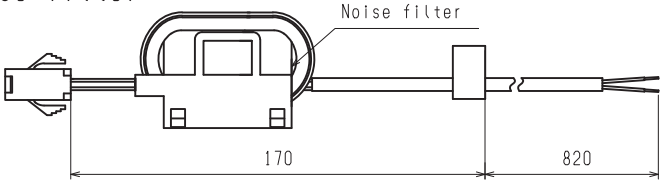

Unit (mm)

P-RCC-E

■ RC cover

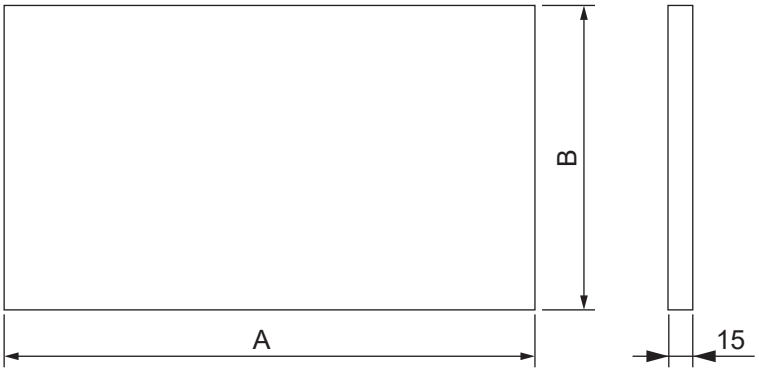



■ Cable with noise filter




Unit (mm)

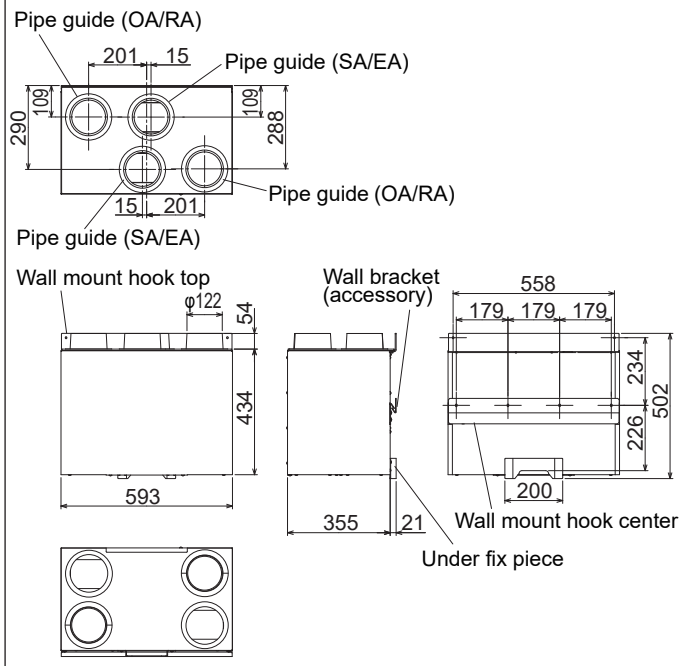
P-250F-E, P-250SF-E, P-250MF-E, P-250PF-E, P-250PFH-E, P-250NF-E, P-350F-E, P-350SF-E, P-350MF-E
P-350PF-E, P-350PFH-E, P-350NF-E, P-500F-E, P-500SF-E, P-500MF-E, P-500PF-E, P-500PFH-E, P-500NF-E




| MODEL | A | B |
|---|---|---|
| P-250F-E | 302 | 178 |
| P-250SF-E, P-250MF-E, P-250PF-E<br>P-250PFH-E, P-250NF-E | 306 | 177 |
| P-350F-E | 377 | 178 |
| P-350SF-E, P-350MF-E, P-350PF-E<br>P-350PFH-E, P-350NF-E | 382 | 177 |
| P-500F-E | 502 | 178 |
| P-500SF-E, P-500MF-E, P-500PF-E<br>P-500PFH-E, P-500NF-E | 506 | 177 |

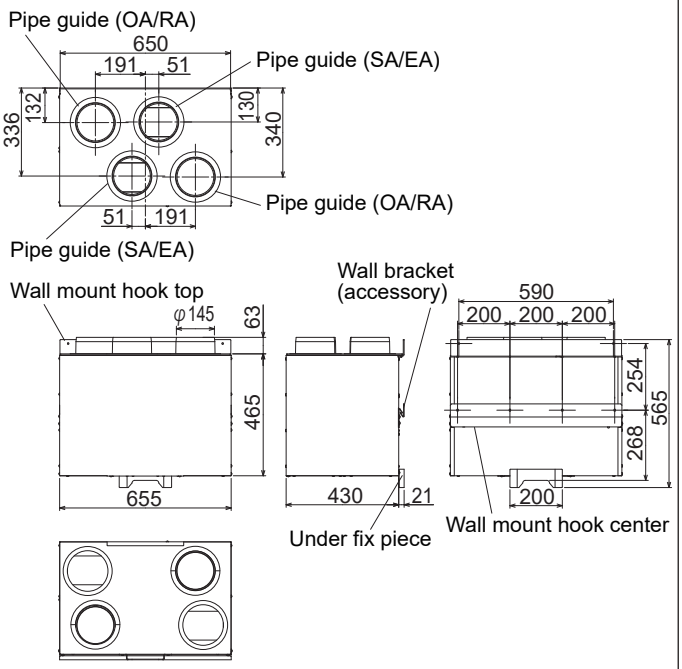
Unit (mm)

P-250SB-E



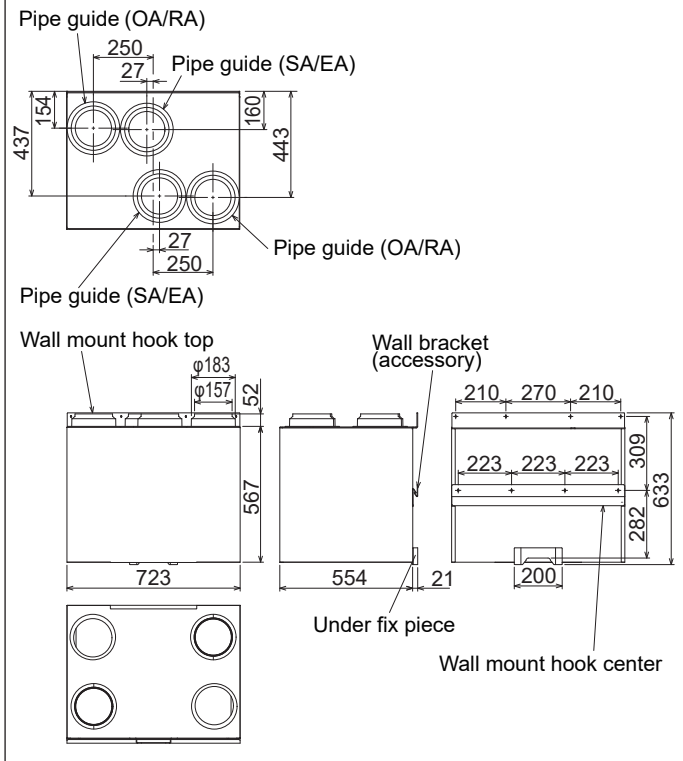

Unit (mm)

P-350SB-E




Unit (mm)

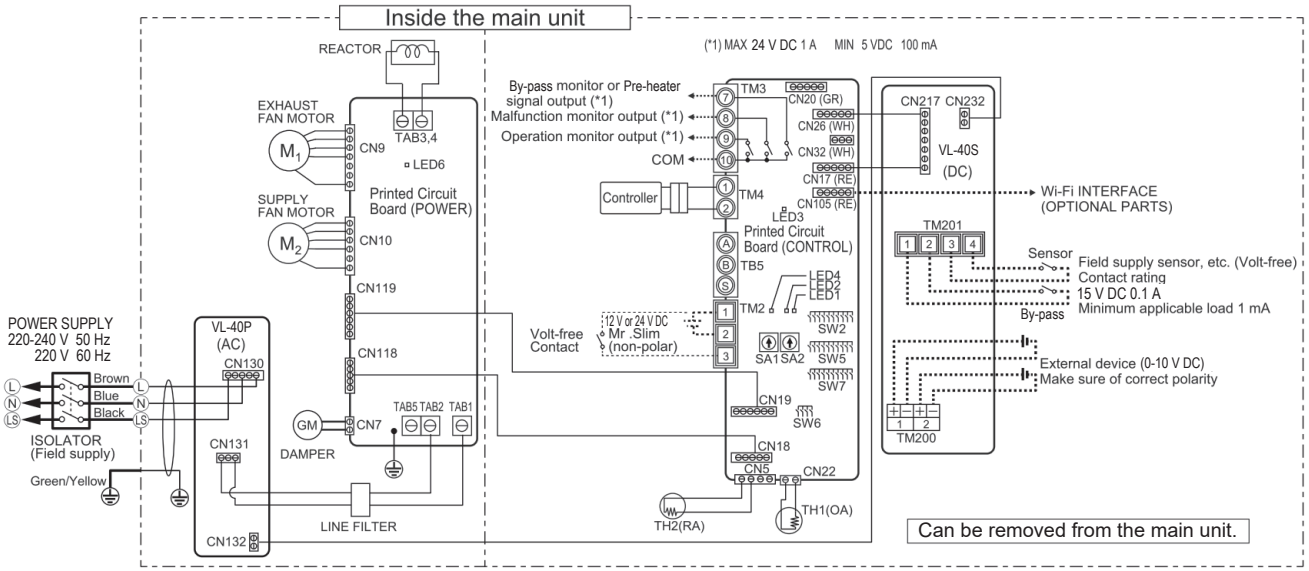
P-500SB-E




Unit (mm)

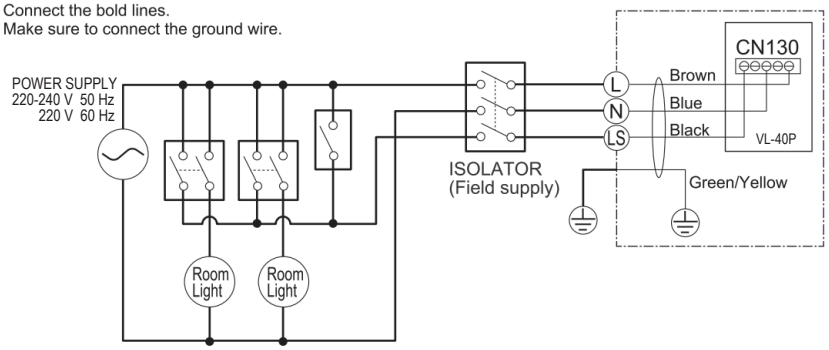
# 6. Electrical wiring diagrams

VL-250CZPVU-L-E, VL-250CZPVU-R-E, VL-350CZPVU-L-E, VL-350CZPVU-R-E, VL-500CZPVU-L-E
VL-500CZPVU-R-E, VL-250CZPVU-L-ERT, VL-250CZPVU-R-ERT, VL-350CZPVU-L-ERT, VL-350CZPVU-R-ERT
VL-500CZPVU-L-ERT, VL-500CZPVU-R-ERT




Wiring example

■ NOTE
1. Connect the bold lines.
2. Make sure to connect the ground wire.



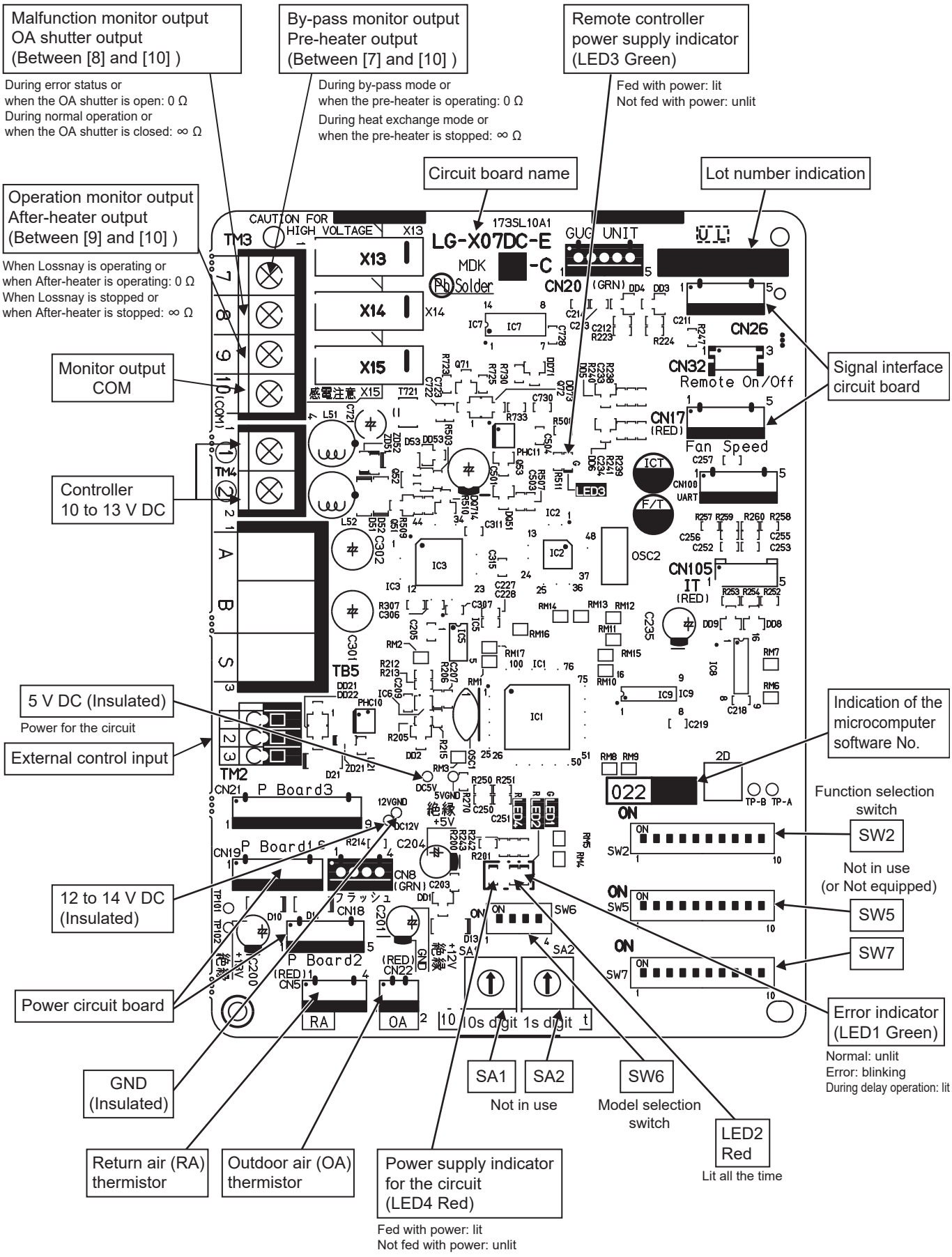

| Definition of symbols | | | |
|---|---|---|---|
| M1 | Motor for exhaust fan | CN18, CN19, CN118, CN119 | Connector |
| M2 | Motor for supply fan | CN130, CN131, CN132, CN232 | Connector |
| GM | Motor for By-pass damper | CN217, CN26, CN32 | Connector |
| TH1 | Thermistor for outside air | CN22 | Connector (Thermistor OA) |
| TH2 | Thermistor for return air | CN5 | Connector (Thermistor RA) |
| TM2 | Terminal block (External control input) | CN7 | Connector (Motor for By-pass damper) |
| TM4 | Terminal block (Remote controller) | | |
| TM3 | Terminal block (Monitor output) | LED1 to LED4 | Inspection indicator lamp |
| TM200 | Terminal block (0-10 V DC) | LED6 | Power supply indicator lamp |
| TM201 | Terminal block (Volt-free) | SA1 | Not in use |
| TAB1, TAB2 | Connector (Power supply) | SA2 | Not in use |
| TAB3, 4 | Connector (Reactor) | SW2 | Function selection Switch |
| TAB5 | Not in use (or Not equipped) | SW5, SW7 | Not in use (or Not equipped) |
| CN9, CN10 | Connector (Fan motor) | SW6 | Model selection switch |
| CN17 to CN20 | Connector | | |
| CN105 | Connector (IT) | SYMBOL ◎ □ | Terminal block |
| | | ◫ | Connector on PCB |

■ Attention
1. Electrical work must be carried out safely and reliably by a professional electrical contractor (properly qualified electrician) in accordance with internal wiring provisions and electrical-equipment technical standards.
2. Use 220 to 240 V AC Power.
3. Use the designated electric wires, and connect them securely so that they do not come loose.
4. Be sure to install the ground wire.
5. Install an all-pole power supply isolator at the power supply side as per local electrical regulations. All supply circuits must be disconnected before obtaining access to the terminal devices. Use the specified size cable and connect the cables securely to prevent disconnection when they are pulled.

# 7. Circuit board diagrams

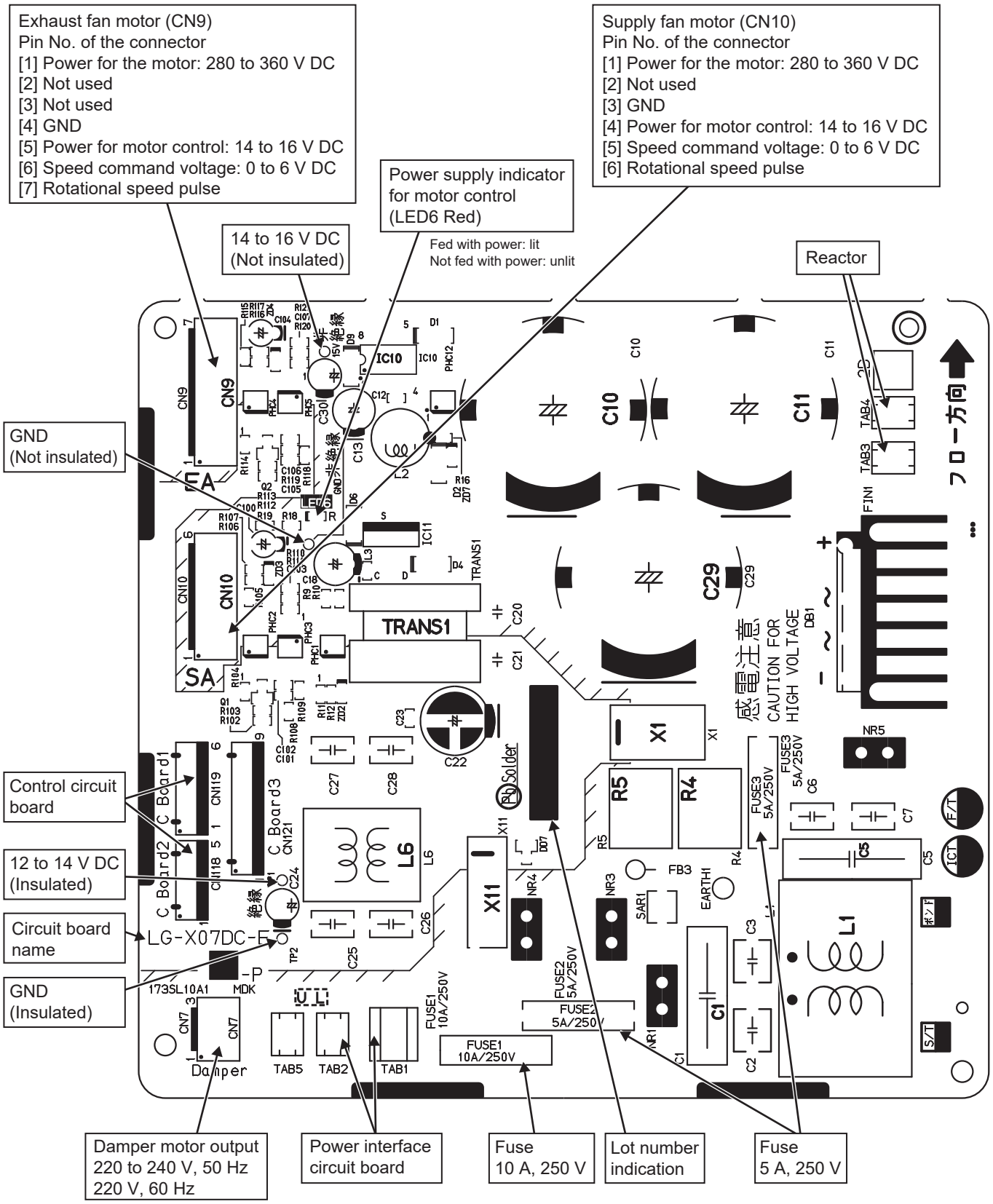
## ● Circuit board diagrams and check points

### (1) Control circuit board



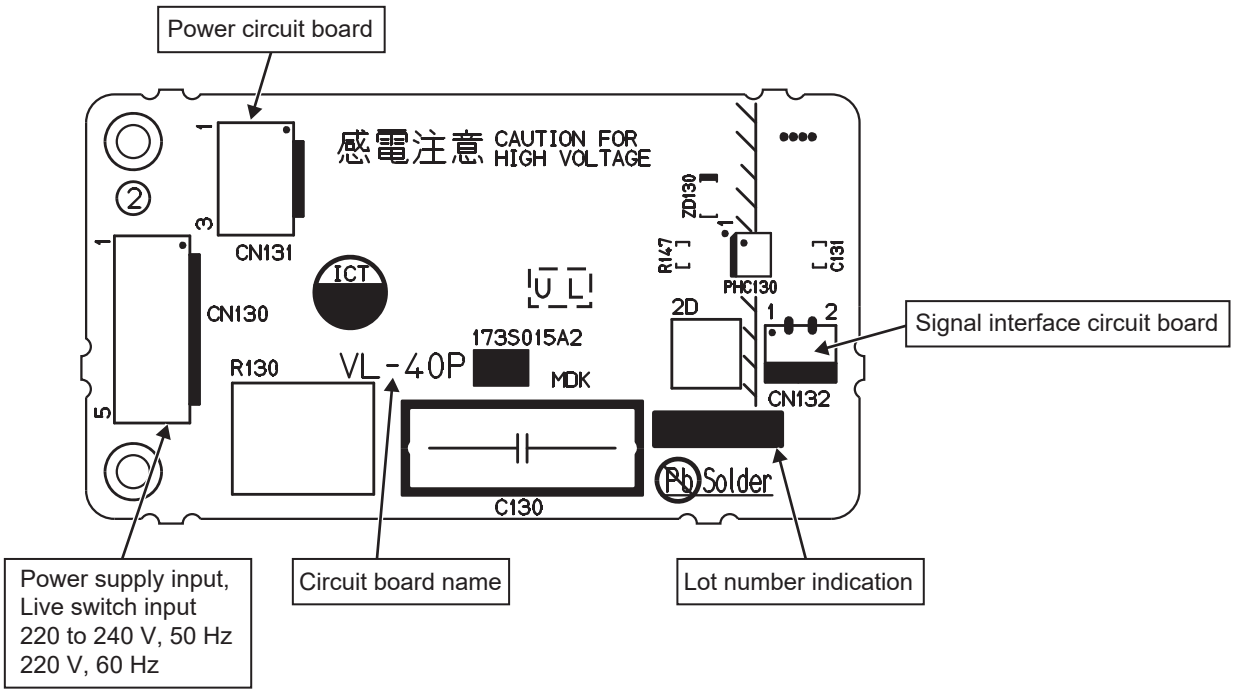
## (2) Power circuit board

**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.

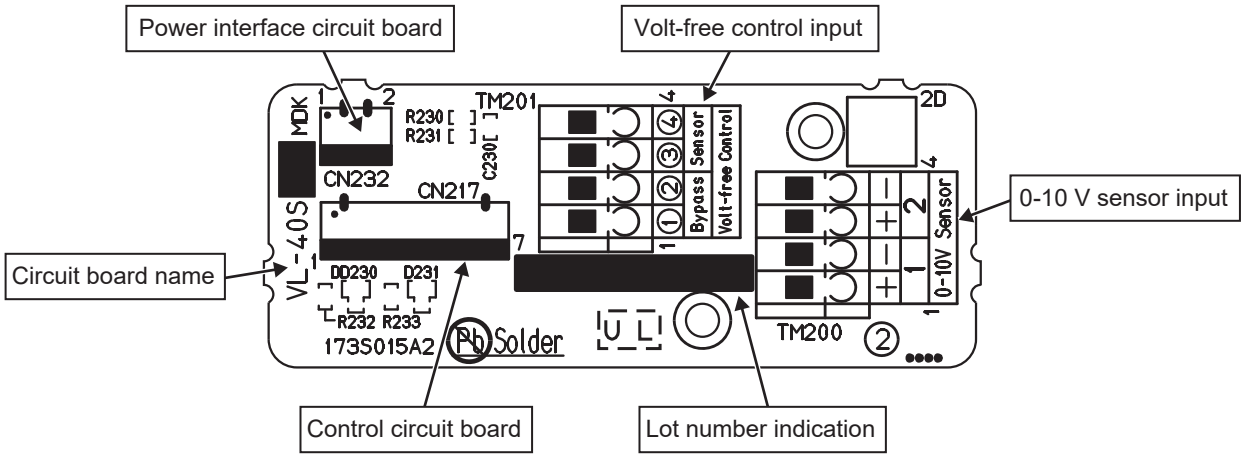


## (3) Power interface circuit board

**Caution:**
The power interface circuit board is not insulated from the power line (high voltage part), except for the connection part (CN132) with the signal interface 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.




## (4) Signal interface circuit board

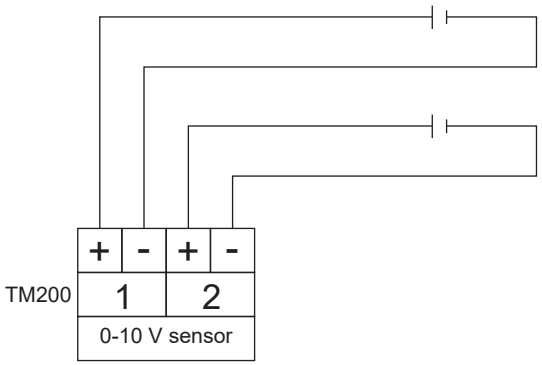


# 8. Principles of operation

## (1) Terminal connection specifications and functions

| Terminal | | | Category | No. | Input/ Output | Terminal rating | Selection requirement | | Wiring example |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Diameter and length of wires | Sensor, switch, etc. | |
| TM200 | 1 | + | Analog input (for sensor) | 1 | Input | Max.: 10 V DC Polarity | 0.5 $mm^2$–0.75 $mm^2$ | 0-10 V DC | Fig. 1 |
| | | - | | | | | | | |
| | 2 | + | Analog input (for sensor) | 2 | Input | | | | |
| | | - | | | | | | | |
| TM201 | 1 | | Volt-free contact (for By-pass switch) | | Input | No-Polarity | 0.5 $mm^2$–0.75 $mm^2$ | Contact rating: 15 V DC, 0.1 A Min. applicable load: 1 mA | Fig. 2 |
| | 2 | | | | | | | | |
| | 3 | | Volt-free contact (for boost switch) | | | | | | |
| | 4 | | | | | | | | |
| TM2 | 1 | | Slim-Lossnay interlocking | | Input | No-Polarity | 0.5 $mm^2$–1.5 $mm^2$ * See the manual of the external device (Slim). | — | Fig. 3 |
| | 2 | | | | | | | | |
| | 3 | | | | | | | | |
| TM3 | 7 | | Volt-free contact signal for By-pass monitor or Pre-heater signal | | Output | Max.: 24 V DC, 1 A Min.: 5 V DC, 0.1 A No-Polarity | 0.5 $mm^2$–0.75 $mm^2$ | Max.: 24 V DC, 1 A Min.: 5 V DC, 0.1 A | Fig. 4 |
| | 8 | | Volt-free contact signal for Malfunction monitor or Outdoor shutter signal | | | | | | |
| | 9 | | Volt-free contact signal for Operation monitor (Exhaust fan, Supply fan, or After-heater) | | | | | | |
| | 10 | | Common | | | | | | |
| TM4 | 1 | | Remote Controller | | In/Out | No-Polarity | 0.3 $mm^2$ Max. 200 m | — | Fig. 5 |
| | 2 | | | | | | | | |
| CN105 | | | IT interconnection Wi-Fi | | In/Out | — | — | — | Fig. 6 |

Fig. 1

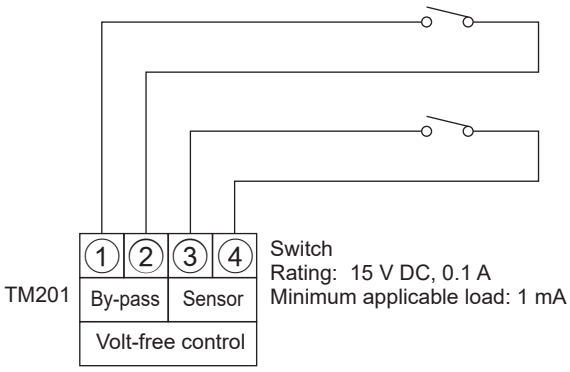



The unit can be operated by the DC power supply input from external devices.

**Notes**

- Misconnection may cause malfunction of external device.
- Be sure to check the polarity.
- Be sure to connect electric wires correctly.
- Terminal block has a seal attached on No. 2 terminals. When using No. 2 terminals, remove the seal.

Fig. 2

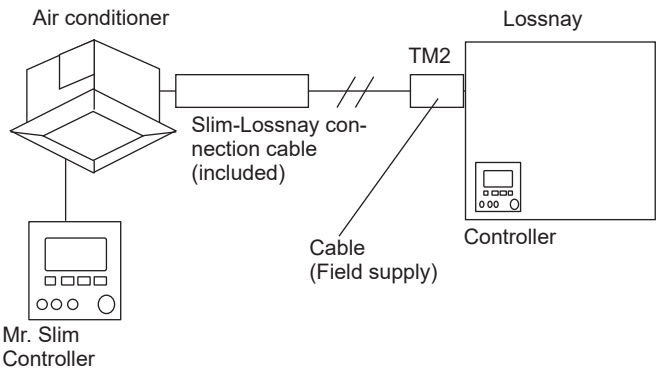


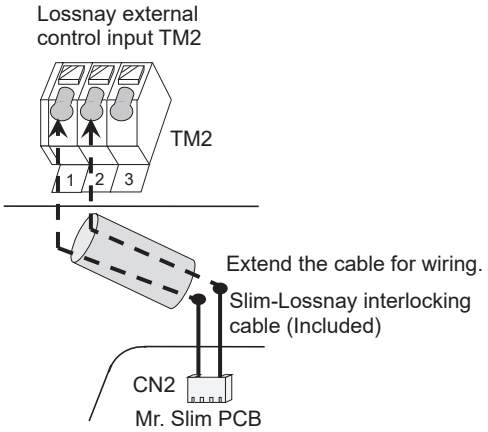

Volt-free contact
When the contact is ON (closed), the signal is input, when the contact is OFF (open), the signal is stopped.

**Note**

- Since the circuit ensures 1 mA when the switch is turned on, the maximum number of switches that can be used for Volt-Free contact input is one when the minimum load capacity is 1 mA.

Fig. 3




You can control the product by Mr. Slim's remote controller. Extend the Slim-Lossnay interlocking cable connected to Mr. Slim PCB. Connect the cable to TM2 of the product.
When interlocked with Mr. Slim, signals from Mr. Slim operate/stop Lossnay. (The product stops regardless of the Enable OFF button setting.)

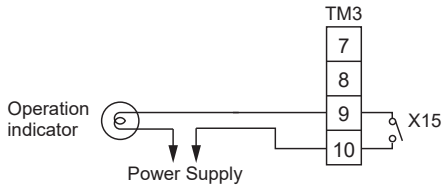
**Notes**

- Be sure to check the setting of Mr. Slim in line with the following.
- At the selection of the remote controller functions of Mr. Slim, check that the Lossnay connectivity setting is set to "Not supported".
- This use method limits the functions is as below.
  - Other external input functions cannot be used together.
  - Interlocking commands from Mr. Slim do not operate the Boost/Purge modes.

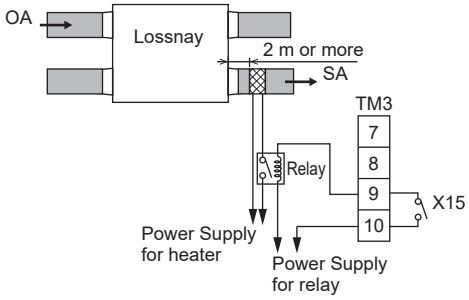
Fig. 4

**<Examples of electric wiring for function setting No. 57 TM3 9–10>**

Function setting value [1]: Exhaust air fan
Function setting value [2]: Supply air fan

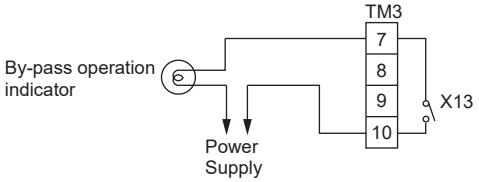



Function setting value [3]: Supply air after-heater

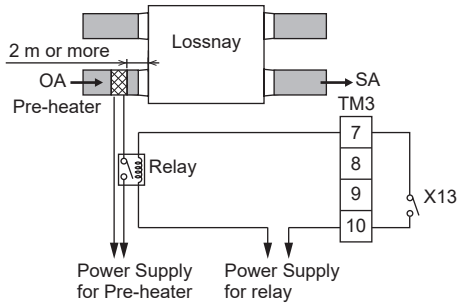



**<Examples of electric wiring for function setting No. 58 TM3 7–10>**

Function setting value [1]: By-pass ventilation

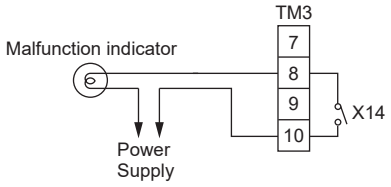



Function setting value [2]: Supply air pre-heater




**<Examples of electric wiring for function setting No. 81 TM3 8–10>**

Function setting value [0]: Malfunction monitor




Function setting value [1]: Outdoor air shutter

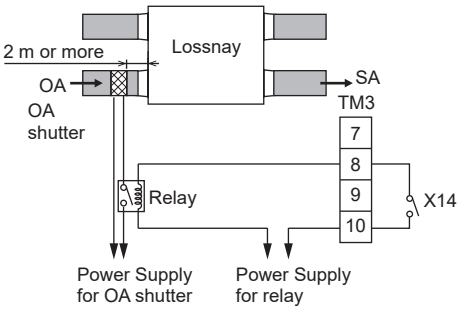
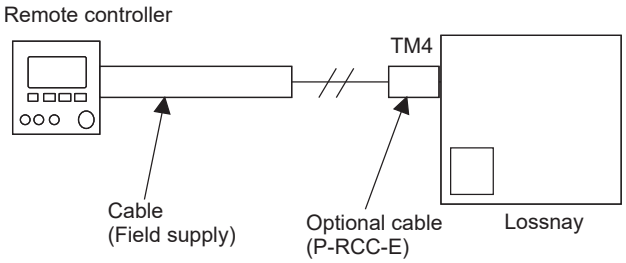


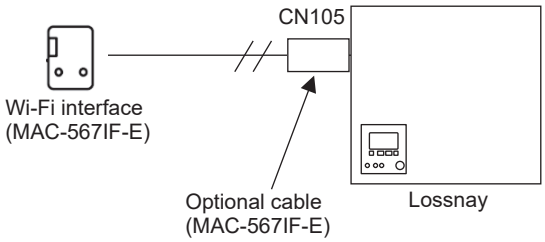

Fig. 5




**Note**

• Remove the controller installed on the product. Install the controller externally with extension cables following the manual attached to P-RCC-E. The product cannot be controlled by multiple remote controllers.

Fig. 6




**Note**

• Applications are not included.

## (2) Function setting list

| Function No. | Function name | Function setting value | | | | | | | | | | Factory default setting | Function description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [0] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | | |
| 1 | 1: Filter maintenance indicator<br>／<br>2: Fan power increase | — | 1: Yes<br>／<br>2: No | 1: No<br>／<br>2: No | 1: Yes<br>／<br>2: Yes | — | — | — | — | — | — | 1 | 1: Set the filter maintenance indication to Show/Hide.<br>2: Set Use/No use of the function that increases the fan output every 1/3 of maintenance interval passes described in “6.4.11 Maintenance interval” of the Installation Manual.<br>- This function cannot be used when the fan output is set to the highest (100%). |
| 2 | Lossnay core maintenance indicator setting | Not available | Available | — | — | — | — | — | — | — | — | 0 | Lossnay core maintenance icon display setting<br>To show the icon<br>1. Set the function No. 86 to “Show”.<br>2. Set the display interval on the “Maintenance interval” screen. |
| 5 | Power recovery mode | — | Stop | Run | Automatic recovery | — | — | — | — | — | — | 3 | Set the operation mode when the power is recovered after a power failure.<br>[1] Stop:<br>Lossnay remains stopped when the power is recovered.<br>[2] Run:<br>Lossnay starts operation when the power is recovered.<br>[3] Automatic recovery:<br>Lossnay returns to the state before interruption. |
| 9 | Delay start setting for air conditioner starting | — | Not available | Available /15 min. | Available /30 min. | — | — | — | — | — | — | 1 | This function delays operation of Lossnay for the specified period of time while the air-conditioner is warming up to mitigate outdoor air load. |
| 13 | Exhaust fan setting during air conditioner defrosting | — | Stop | No Change | — | — | — | — | — | — | — | 1 | Operation status setting of the exhaust fan when the air-conditioner (Mr. Slim) starts defrosting operation while it is interlocked with Lossnay. |
| 36 | Outdoor temperature indication | Hide | Show | — | — | — | — | — | — | — | — | 0 | Set to Show/Hide the temperature detected by the built-in thermistors.<br>Set the settings of “6.4.2.4 Display details” of the Installation Manual also.<br>No. 36:<br>*LO* is displayed when lower than 2°C and *HI* is displayed when 36°C or higher.<br>No. 37:<br>*LO* is displayed when lower than 9°C and *HI* is displayed when 37°C or higher.<br>No. 38:<br>This is the same as No. 37.<br>**Note**<br>If both function settings No. 38 and 84 are [1], only the function setting No. 84: $CO_2$ concentration is displayed on the Main display screen. (Since the same display position is allocated, the priority is given to the indication of function setting No. 84: $CO_2$ concentration.) |
| 37 | Indoor temperature indication | Hide | Show | — | — | — | — | — | — | — | — | 0 | |
| 38 | Supply air (calculated value) temperature indication | Hide | Show | — | — | — | — | — | — | — | — | 0 | |
| 39 | Correction of temperature exchange efficiency (tens digit) | Function setting value: 0 to 9 → Temperature exchange efficiency (tens digit): 0 to 9 | | | | | | | | | | 8 | Set the value of temperature exchange efficiency used for the calculated value of No. 38 Supply air temperature indication.<br>Factory default setting: *85%* |
| 40 | Correction of temperature exchange efficiency (ones digit) | Function setting value: 0 to 9 → Temperature exchange efficiency (ones digit): 0 to 9 | | | | | | | | | | 5 | |

| Function No. | Function name | Function setting value | | | | | | | | | | Factory default setting | Function description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [0] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | | |
| 41 | Correction of outdoor temperature | Function setting value: 0 to 14 →<br>Correction of outdoor temperature: -7°C to 7°C (1°C intervals) | | | | | | | | | | 7 | When No. 36 Outdoor temperature indication and No. 37 Indoor temperature indication are set to *Show*, set the correction value of the temperature shown on the controller.<br>Example: If the temperature detected by the built-in thermistor is 20°C and the correction value is +3°C (the function setting value is 10), the temperature indicated by the controller will be 23°C.<br>**Note**<br>- The indication value is not corrected when *Lo* or *Hi* is displayed.<br>- Correction values are not reflected to the control (such as Auto By-pass) using outdoor/indoor temperatures. |
| 42 | Correction of indoor temperature | Function setting value: 0 to 14 →<br>Correction of indoor temperature: -7°C to 7°C (1°C intervals) | | | | | | | | | | 7 | |
| 57 | External output setting 1 | — | Exhaust air fan monitor | Supply air fan monitor | Supply air after-heater | — | — | — | — | — | — | 1 | Set the ON/OFF conditions of terminal block TM3 9–10.<br>[1] Exhaust air fan monitor:<br>The output turns ON/OFF in line with the operation/stop of the exhaust air fan. (The operation is the same as ON/OFF operation by the controller.)<br>[2] Supply air fan monitor:<br>The output turns ON/OFF in line with the operation/stop of the supply air fan. (Depending on the conditions such as outdoor temperatures, the output can be off automatically.)<br>[3] Supply air after-heater:<br>The output turns ON 10 seconds after the supply air fan operation./ The supply air fan stops three minutes after the output is turned OFF.<br>- Set the setting when supply air after-heaters are connected. |
| 58 | External output setting 2 | — | By-pass ventilation monitor | Supply air pre-heater | — | — | — | — | — | — | — | 1 | Set the ON/OFF conditions of terminal block TM3 7–10.<br>[1] By-pass ventilation monitor:<br>The output turns ON/OFF in line with the status (By-pass/Heat exchange ventilation) of the ventilation mode. (The output turns ON/OFF in line with the operation of the built-in By-pass damper.)<br>[2] Supply air pre-heater:<br>The output turns ON 10 seconds after the supply air fan operation./ The supply air fan stops three minutes after the output is turned OFF.<br>- Set the setting when supply air pre-heaters are connected.<br>- The output turns OFF when the outdoor temperature is 15°C or higher.<br>- The output ON/OFF conditions can be changed by the function settings Nos. 59 and 60. |

| Function No. | Function name | Function setting value | | | | | | | | | | Factory default setting | Function description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [0] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | | |
| 59 | Conditions for pre-heater ON (Supplemental setting for the function setting No. 58 ) | Function setting value: 0 to 15 → Threshold of outdoor temperature: 0°C to -15°C (1°C intervals) | | | | | | | | | | 0 | Set the ON/OFF conditions of the function setting No. 58 [2] Supply air pre-heater.<br>No. 59:<br>Set the threshold of the outdoor temperature that makes the pre-heater turns ON. (The pre-heater turns ON when the temperature becomes lower than the threshold temperature.)<br>No. 60:<br>Set the time to turn OFF the pre-heater after the turning ON. |
| 60 | Conditions for pre-heater OFF (Supplemental setting for the function setting No. 58 ) | 1 hour | 2 hours | 3 hours | 4 hours | 5 hours | — | — | — | — | — | 0 | |
| 81 | External output setting 3 | Mal-function monitor | Outdoor air shut-ter | — | — | — | — | — | — | — | — | 0 | Set the ON/OFF conditions of terminal block TM3 8–10.<br>[0] Malfunction monitor:<br>The output turns ON when a malfunction occurs on the product. (This is used to indicate malfunctions aside from the controller.)<br>[1] Outdoor air shutter:<br>Set the setting so that the output ON/OFF match with the open/closed of the shutter installed on the OA duct.<br>- Output ON (shutter: open) conditions: 10 seconds before starting the supply air fan operation<br>- Output OFF (shutter: closed) conditions: The built-in thermistors detect that the outdoor temperature is -18°C or lower and 20 seconds have elapsed after the supply air fan stopped. |
| 82 | Standard air speed setting |  |  | — | — | — | — | — | — | — | — | 0 | Set the base fan speed.<br>The setting can be changed with the controller. See “6.4.2.7 Control mode” of the Installation Manual. The priority is given to the latest setting. |
| 83 | Manual input priority mode | Not available | Available (See below for time setting.) 0.5 hours | 1.0 hour | 1.5 hours | 2.0 hours | 3.0 hours | 4.0 hours | 5.0 hours | — | — | 0 | Set the base fan speed to a higher priority for the certain period of time. Use this mode when you want to prioritize manual input (input from the controller or MELCloud application) over external input control. |
| 84 | $CO_2$ concentration indication | Hide | Show | — | — | — | — | — | — | — | — | 0 | Set Show/Hide the $CO_2$ concentration values connected to the Analog input 1 of TM200.<br>Set the settings of “6.4.2.4 Display details” and “6.4.5.2 Analog input 1” of the Installation Manual also.<br>**Note**<br>If both function settings No. 38 and 84 are [1], only the function setting No. 84: $CO_2$ concentration is displayed on the Main display screen. (Since the same display position is allocated, the priority is given to the indication of function setting No. 84: $CO_2$ concentration.) |
| 86 | Lossnay core maintenance item display setting | Hide | Show | — | — | — | — | — | — | — | — | 0 | Set to Show/Hide “Lossnay core maintenance indicator setting” on the controller.<br>Use the function No. 2 to configure the Lossnay core maintenance icon display setting. |
| 100 | Initialization | — | Initialize | — | — | — | — | — | — | — | — | 0 | Reset the function settings done by the user to the factory settings. |

In the following conditions, error code 3126 (external device error) is displayed on the controller and the output of the function setting No. 81 “[0] Malfunction monitor” turns ON.
- When the built-in OA thermistor detects 15°C or higher within 15 minutes from the start of output of the supply air pre-heater/after-heater.
- When the built-in OA thermistor detects -10°C or lower 60 minutes after the start of output of the supply air pre-heater/after-heater.

# 9. Troubleshooting

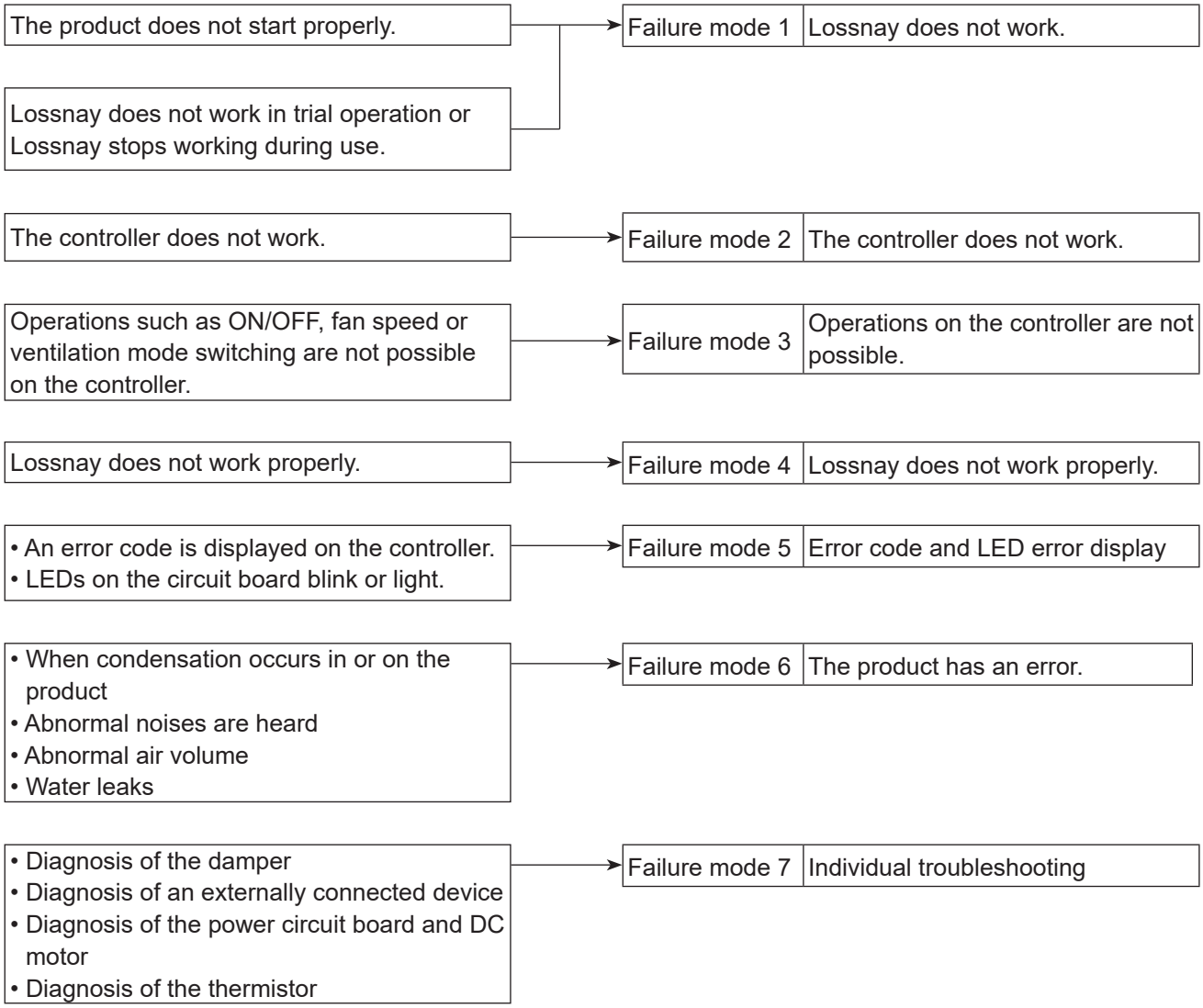
■ **Work precautions**

- When servicing, recreate the malfunction two or three times before starting repairs.
- When servicing, always keep proper footing.
- When servicing, be sure to turn off the circuit breaker. Pay sufficient attention to avoid electric shock or injury.
- Be sure to connect the power supply wires correctly.
- Avoid application of abnormal voltage.
- Before connecting or disconnecting the motor connectors (CN9, CN10), be sure to turn off the circuit breaker and check that the LEDs on the control circuit board are not lit. Otherwise, the circuit board inside the DC motor may get damaged.
- When removing the circuit board, always hold it at both ends and remove carefully in order 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.
- When circuit board failure is considered to be a cause, check closely for any broken section on the copper foil patterns, burning or discoloration of parts.
- After replacing a circuit board, be sure to restore the same controller settings as before the replacement.
- Do not touch the circuit board and fan motor while the LED on the power circuit board is on.
- When the controller or control circuit board is replaced, the information set by the user using the controller will be lost. It is recommended to keep a record of the settings before replacement so that you can restore them. (Settings such as the fan speed might have been recorded during installation on the settings sheet included with the product.)

## (1) Service flowchart

After checking the preliminary check items below, follow the troubleshooting for servicing depending on the failure mode.

| | Preliminary check items | Details |
|---|---|---|
| Service call | 1. Product information | • Model name of the product, circuit board name<br>• Serial number of the product, manufacturing lot number of the circuit board<br>• Microcomputer identification number on circuit board |
| | 2. Condition of trouble | • Fault status (e.g., the fan does not operate.)<br>• Error code display and icon display on the controller<br>• Operation setting of the controller (ventilation mode setting, fan speed setting, etc.) |
| | 3. Frequency of fault occurrence | • Frequency of fault occurrence (frequency of time and date of occurrence, regularity of occurrence, etc.)<br>• Operating time up to fault occurrence<br>• Date of start of use, date of fault occurrence |
| | 4. Timing of fault occurrence | • Controller operation performed before fault occurrence<br>• Operating status, etc. |
| | 5. System settings | • Interlock operation with an external device<br>• Function setting using the controller |
| | 6. With or without working drawings | • System configuration (connection of auxiliary fan, etc.)<br>• Wiring<br>• Record of the Lossnay function setting statuses |




## (2) Checklist

| Failure mode 1 | Lossnay does not work. |
|---|---|

**● Initial check items**

If the product does not start properly, check the following items.

[1] Power

| 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 the appropriate isolator. |
| 3 | Is the designated cable used for the power supply cable? | Use the designated cable. |
| 4 | Is the specified power supplied to the power supply connector? | Use the specified voltage. |
| 5 | Is the power supply cable incorrectly wired, or is there a faulty connection? | Connect the power supply cable securely. |
| 6 | Is the power supply indicator on the control circuit board “LED4 (red)” lit? | Pull out the control circuit board from the product and check the LED indication.<br>The LED lights while power is being supplied.<br>If not lit, check the points above. |

[2] Transmission cables (remote controller cable (when the controller is installed externally), external input signal cable)

| No. | Check item | Corrective action |
|---|---|---|
| 1 | Are the designated cables used for the remote controller cable? (Table [2]-1) | Use the designated cables. |
| 2 | Are the designated parts used for the external input signal cable? (Table [2]-2) | Use the designated parts. |
| 3 | Are the transmission cables wired using multicore cables? | Use the designated transmission cables. |
| 4 | Are multiple transmission cables wired in the same cable duct? | Wire the cables apart from each other. |
| 5 | Is the power supply cable wired at least 50 mm away from transmission cables? | Wire the cables at least 50 mm away from the other cables. |
| 6 | Are the transmission cables connected to the designated terminal blocks? (Tables [2]-1 and [2]-2) | Connect the cables to the specified terminal blocks. |
| 7 | Are the transmission cables incorrectly wired, is there a faulty connection or are screws loose? | Connect them securely, and tighten the screws firmly. |
| 8 | Is the wiring length of the transmission cable within the regulations? (Tables [2]-1 and [2]-2) | Wire the cables within the regulations. |
| 9 | Does the external input signal match the specifications? (Table [2]-2) | Input the signal that matches the specifications. |

Table [2]-1 Remote controller cable specifications

| | |
|---|---|
| Type | Sheathed cable |
| Number of cores | 2-core cable |
| Cable diameter | 0.3 $mm^2$ |
| The wiring length | 200 m or shorter (total length) |
| Terminal block | TM4 [1] [2] |

Table [2]-2 External input specifications

| Function name | Terminal block on the circuit board | Signal specifications (Note 1) | Materials used | The wiring length |
|---|---|---|---|---|
| Analog input 1 | TM200 [1] | 10 V DC | Twisted cable 0.5 $mm^2$ - 0.75 $mm^2$ | Not specified |
| Analog input 2 | TM200 [2] | | | |
| Bypass input | TM201 [1] [2] | Volt-free contact | | |
| Boost input | TM201 [3] [4] | | | |
| Air conditioner (Mr. Slim) control signal | TM2 [1] [2] | Serial signal | Twisted cable 0.5 $mm^2$ - 1.5 $mm^2$ | 500 m |

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

[3] Monitor 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 50 mm away from signal cables? | Wire the cables at least 50 mm away from the other cables. |
| 4 | Are the signal cables connected to the designated terminal blocks? (Table [3]-1) | Connect the cables to the specified terminal blocks. |
| 5 | Are the signal cables incorrectly wired, is there a faulty connection or are screws loose? | Connect them securely, and tighten the screws firmly. |
| 6 | Is the output capacity of the signal cable within rating? (Table [3]-1) | Use the signal cable within rating. |

Table [3]-1 Monitor output specifications

| Terminal block | TM3 [9] [10] | TM3 [7] [10] | TM3 [8] [10] |
|---|---|---|---|
| Function Name (Factory default) (Note 1) | Operation monitor | By-pass ventilation monitor | Malfunction monitor |
| Signal specifications | Volt-free a contact | | |
| Terminal rating | 24 V DC / 1 A | | |
| Min. applicable load | 5 V DC / 100 mA | | |

(Note 1) Output can be changed with function settings.

[4] Function setting

| No. | Check item | Corrective action |
|---|---|---|
| 1 | Is the function selection switch on the circuit board set correctly to suit the required application? | Set the function selection switch (SW2) on the control circuit board correctly. |
| 2 | Is the supplied controller used? | Use the supplied controller.<br>The Lossnay controllers sold separately (PZ-61DR-E, PZ-43SMF-E, etc.) cannot be used. |
| 3 | When the controller is used, are the function selections set correctly to suit the required application? | Set the function selections correctly.<br>After setting the controller functions, operating the model selection switch (SW6) on the control circuit board resets the settings to the initial settings. |

[5] LED Indications on the circuit board

| No. | LED | Contents | Check item | Corrective action |
|---|---|---|---|---|
| 1 | LED1 (green) | Lossnay main unit error indicator | Blinking: Starting up, error occurred | Refer to Failure mode 5. |
| | | | Lit: During delay operation | The unit operates after the delay time has passed. |
| | | | Unlit: Other than above | It is normal. |
| 2 | LED2 (red) | M-NET system Error indication | Lit: No M-NET connection information | It is normal. |
| 3 | LED3 (green) | Controller power supply indicator | Lit: Power supplied to the controller. | It is normal. |
| 4 | LED4 (red) | Control circuit board power supply indicator | Check that this LED is lit. | The LED lights while power is being supplied to the control circuit board. |
| 5 | LED6 (red) | Power circuit board power supply indicator | Check that this LED is lit. | The LED lights while power is being supplied to the power circuit board. (Never touch the board while power is supplied to avoid an electric shock.) |

● **Individual function check items**

If Lossnay does not work in the trial operation or Lossnay stops working during use, check the following items.

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | The fan does not operate even though the trial operation switch (SW2-1) is turned ON. | The connectors between the fan motor and power circuit board are disconnected. | Check the connector (CN9) for the exhaust fan motor and the connector (CN10) for the supply fan motor.<br>* Before connecting or disconnecting the motor connectors (CN9, CN10), be sure to turn off the circuit breaker and check that the LEDs on the control circuit board are not lit. |
| | | The connectors between the control circuit board and power circuit board are disconnected. | Check connection of the following connectors:<br>Control circuit board: CN18, CN19<br>Power circuit board: CN118, CN119 |
| | | The relay connector is disconnected. | Check the relay connector connection.<br>* Before connecting or disconnecting the relay connectors, be sure to turn off the circuit breaker and check that the LEDs on the control circuit board are not lit. |
| | | Fan motor malfunction | Refer to “Failure mode 5 - Error code: 4116” (page 37). |
| | | Circuit board failure | If LED6 on the power circuit board is not lit, check power supply to TAB1 and TAB2. If no error is found with power supply, replace the power circuit board. |
| | | | If the problem persists, replace the DC motor of the fan. |
| | | Power with the rated voltage is not supplied to the product. | Check the power supply voltage. |
| 2 | Though the controller display indicates the fan is running, the fan stops by itself. | Automatic supply air stop/ Automatic supply air intermittent operation is being performed. | The icon “” indicating operation in the protective mode is displayed.<br>Refer to “Display” in Chapter 5 of the Instruction Manual. |
| | | The unit is set to the delay operation. | LED1 (green) on the control circuit board lights.<br>Lossnay operates in 30 minutes (or 15 minutes) after being turned on.<br>Check the function setting No. 9 value of the controller. (Refer to the function No. 9 in “8. (2) Function setting list (page 24)” for details.) |
| | | An interlocked air conditioner (Mr. Slim) is defrosting and the fan is stopped. | The fan has been stopped to prevent cold air from blowing out. When the air conditioner fan starts, the fan of Lossnay starts automatically. The operation status of the exhaust fan can be selected.<br>(Refer to the function No. 13 in “8. (2) Function setting list (page 24)” for details.) |
| | | The ventilation switching damper is operating. | The fan stops while the ventilation switching damper is operating.<br>Also, the fan may stop temporarily to check the damper operation regularly. |
| 3 | Even though the controller is operated to change the fan speed, the fan speed does not change. | Automatic supply air stop/ Automatic supply air intermittent operation is being performed. | The icon “” indicating operation in the protective mode is displayed.<br>Refer to “Display” in Chapter 5 of the Instruction Manual. |

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 4 | Even though the controller is operated to change the ventilation mode, the ventilation switching damper is not moved. | The outdoor air temperature is 8 °C or lower. | When the outdoor air temperature is 8°C or lower, the ventilation mode is fixed to the Heat exchange ventilation mode. |
| 5 | When the ventilation mode is set to automatic ventilation mode, the ventilation switching damper does not operate. | Temperature condition for the Heat exchange ventilation or By-pass ventilation is not satisfied. | Check the temperature map.<br>For details, see "6.4.4 Auto Bypass" of the Installation Manual. |
| | | The outdoor air temperature is 8 °C or lower. | When the outdoor air temperature is 8°C or lower, the ventilation mode is fixed to the Heat exchange ventilation mode. |
| | | The operation mode of the interlocked air conditioner (Mr. Slim) is set to heating or air-blowing operation. | If the operation mode of the interlocked air conditioner is heating or air-blowing operation, the ventilation mode is fixed to the Heat exchange ventilation mode. |

| Failure mode 2 | The controller does not work. |
|---|---|

If the controller does not work, check the following items.

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Nothing is displayed on the screen. The ON/OFF lamp does not blink. | The power of the Lossnay unit is not ON. | Refer to section [1] of “Failure mode 1”. |
| | | Faulty connection of the controller cable | Refer to section [2] of “Failure mode 1”. |
| | | The wiring length of the controller exceeds 200 m. | The wiring length of the controller shall be within 200 m. |
| | | The controller is connected to the incorrect terminal block (TB5 [A] [B]). | Connect the controller cable to the terminal block (TM4 [1] [2]). |
| | | If the above does not solve the problem | Refer to [Nothing is displayed on the controller] (page 33). |
| 2 | The controller continues to display “Please Wait”. Error code “6831” is displayed. | The controller is starting up. | The controller displays “Please Wait” during start-up for maximum three minutes. |
| | | Faulty connection of the controller cable | Refer to section [2] of "Failure mode 1." |
| | | The controller is connected to the incorrect terminal block (TB5 [A] [B]). | Connect the controller cable to the terminal block (TM4 [1] [2]). |
| | | The separately sold controller is connected. | Use the supplied controller. |
| | | Lossnay units and the air conditioner (Mr. Slim) units are connected within the same group. | Assign the Lossnay units and air conditioner (Mr. Slim) units to the different groups. |
| 3 | It takes time for the controller to be fed with power after turning the power to the Lossnay unit ON. | The Lossnay unit is starting up. | The controller is not fed with power during start-up of the Lossnay unit for a maximum of one minute. |

[Nothing is displayed on the controller]

[1] If the ON/OFF lamp does not light (or blink) and nothing is displayed on the LCD screen, check the following:

a. Inter-terminal voltage at the terminal block in the bottom case of the controller is approximately 12 V.
→ Check that the bottom case connector is firmly engaged with the top case connector.

b. Inter-terminal voltage at the terminal block in the bottom case of the controller is approximately 0 V.

• All LEDs on the Lossnay control circuit board are not lit.
→ The power of the Lossnay unit may not turned on. Check the power of the Lossnay unit.

• LED1 on the Lossnay control circuit board blinks 11 times.
→ Check that a 2-core sheathed 0.3 $mm^2$ cable of up to 200 m in length is used for the remote controller cable.
→ Power off the Lossnay unit and check if the controller cable is short-circuited.
If it is short-circuited, check connection between the controller and Lossnay terminal block as well as damage of the controller cable.

[2] If the ON/OFF lamp lights but nothing is displayed on the LCD screen, check the following:

• The ON/OFF lamp remains blinking, or pressing the ON/OFF button after the lamp turns off does not start the Lossnay unit.
→ Power off the Lossnay unit and power it on again after a while.

• Pressing the ON/OFF button after the ON/OFF lamp turns off starts the Lossnay unit.
→ The LCD screen of the controller may be faulty. Replace the controller.

| | |
|---|---|
| Failure mode 3 | Operations on the controller are not possible. |

**● Initial check items**

If Lossnay cannot be operated with the controller, check the following items.

| No. | Check item | Note |
|---|---|---|
| 1 | Is the function selection switch on the circuit board set correctly to suit the required application? | Depending on the setting, it may automatically operate or stop, or specific operation may become unusable. |
| 2 | Are icons and characters displayed on the controller screen? | Control mode status such as boost/purge, silent, holiday, manual bypass, protective operation can be checked. |
| 3 | Is the external input used? | The icon "LINK" indicating external input is displayed.<br>Refer to "Display" in Chapter 5 of the Instruction Manual. |

**● Individual check items**

If Lossnay cannot be started/stopped using the controller, check the following items.

[1] Controller

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Lossnay cannot be controlled by the controller. | The power of the Lossnay unit is not ON. | Refer to section [1] of "Failure mode 1". |
| | | Faulty connection of the controller cable | Refer to section [2] of "Failure mode 1". |
| | | Automatic supply air stop/ Automatic supply air intermittent operation is being performed. | The icon "" indicating operation in the protective mode is displayed.<br>Refer to "Display" in Chapter 5 of the Instruction Manual. |
| 2 | The screen display of the controller changes by itself. Even if you press the buttons, the screen returns to the original screen right away. | Faulty connection of the controller cable | Refer to section [2] of "Failure mode 1". |
| 3 | The ventilation mode cannot be changed. | The By-pass ventilation is set to "Skipped". | Change the By-pass ventilation setting to "-". (For details, see "6.4.2.7 Control mode" of the Installation Manual.) |
| 4 | The temperature is not displayed on the controller. | The By-pass ventilation operation is being performed. | The indoor air temperature and/or supply air temperature are not displayed during the By-pass ventilation operation. |
| | | "Sensor value" display is set to "No: Hide" by the display details setting of the controller. | Set "Sensor value" display of the controller to "Yes: Show." (Refer to "6.4.2.4 Display details" in the Installation Manual for details.) |
| | | "Outdoor temperature indication", "Indoor temperature indication", and "Supply air temperature indication" of the controller function setting are set to "0: Hide". | Set "Outdoor temperature indication", "Indoor temperature indication", and "Supply air temperature indication" of the controller display setting to "1: Show".<br>(Refer to the function No. 36 to 38 in "8. (2) Function setting list (page 24)" for details.) |

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 5 | $CO_2$ concentration is not displayed on the controller. | With the function setting No. 84, $CO_2$ concentration indication setting is set to “0: Hide”. | Set the function setting No. 84 to “1: Show”. (Refer to the function No. 84 in “8. (2) Function setting list (page 26)” for details.) |
| | | The By-pass ventilation operation is being performed, or exhaust air fan is being stopped. | Since $CO_2$ concentration cannot be measured correctly in the operation status shown in the left, $CO_2$ concentration is not displayed. |
| | | The detected $CO_2$ concentration is outside the measurement range. | Density lower than 400 ppm is shown as “Lo” and density equal to or higher than 2000 ppm is shown as “2000”. |
| 6 | Indoor, outdoor, and/or supply air temperature indication is shown as “LO” or “HI”. | The indoor and/or outdoor air temperature is outside the measurement range. | • Outdoor air temperature: Temperature lower than 2°C is shown as “LO” and temperature higher than 36 °C is shown as “HI”.<br>• Indoor and supply air temperature: Temperature lower than 9°C is shown as “LO” and temperature higher than 37 °C is shown as “HI”. |

[2] Interlocking with air conditioner (Mr. Slim) or external devices

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Interlock settings cannot be performed with the controller. | The power of the Lossnay unit is not ON. | Refer to section [1] of “Failure mode 1”. |
| | | Faulty connection of the controller cable | Refer to section [2] of “Failure mode 1”. |
| 2 | Interlocking operation is not performed. | The power of the Lossnay unit is not ON. | Refer to section [1] of “Failure mode 1”. |
| | | Faulty connection of the controller cable or external input signal cables | Refer to section [2] of “Failure mode 1”. |
| | | 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. |
| | | The unit is set to the delay operation. | LED1 (green) on the circuit board lights.<br>It starts operation in 30 or 15 minutes after starting operation by the air conditioner or external signal.<br>Check the function setting No. 9 value of the controller. (Refer to the function No. 9 in “8. (2) Function setting list (page 24)” for details.) |
| | | Automatic supply air stop/Automatic supply air intermittent operation is being performed. | The icon “  ” indicating operation in the protective mode is displayed.<br>Refer to “Display” in Chapter 5 of the Instruction Manual. |

| | |
|---|---|
| Failure mode 4 | Lossnay does not work properly. |

● **Initial check items**

If Lossnay does not work properly, check the following items.

| No. | Check item | Note |
|---|---|---|
| 1 | Are the function settings set correctly for the required application? | Depending on the setting, it may automatically operate or stop, or specific operation may become unusable. |
| 2 | Are icons and characters displayed on the controller screen? | Control mode status such as boost/purge, silent, holiday, manual bypass, protective operation can be checked. |
| 3 | Is the external input used? | The icon "LINK" indicating external input is displayed.<br>Refer to "Display" in Chapter 5 of the Instruction Manual. |
| 4 | Have you changed the model selection switch (SW6) on the control circuit board? | Set the model selection switch (SW6) on the control circuit board in accordance with the model name. (Refer to Note 1 in "(3) b. Function selection switch (page 47)" for details.)<br>Operating the model selection switch resets all settings done with the controller to the factory settings. |

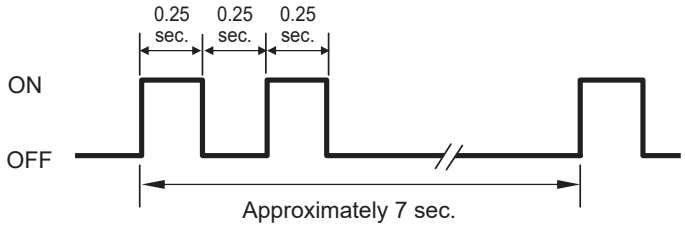
● **Individual check items**

If Lossnay does not work properly, check the following items.

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Actual fan speed of the Lossnay unit differs from the fan speed set with the controller. | Automatic supply air stop/Automatic supply air intermittent operation is being performed. | The icon "" indicating operation in the protective mode is displayed.<br>Refer to "Display" in Chapter 5 of the Instruction Manual. |
| 2 | Even though the controller is operated to change the ventilation mode, the ventilation switching damper is not moved. | The outdoor air temperature is 8°C or lower. | When the outdoor air temperature is 8°C or lower, the ventilation mode is fixed to the Heat exchange ventilation mode. |
| | | The By-pass ventilation is set to "Skipped". | Change the By-pass ventilation setting to "-". (For details, see "6.4.2.7 Control mode" of the Installation Manual.) |

| Failure mode 5 | Error code and LED error display |
|---|---|

An error code displayed on the controller and the number of blinks of LED1 (green) on the control 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 indication example of LED (two blinks)

**Error indication list**

| Error code (Controller display) | LED1 (green) | Error | Cause | Corrective action |
|---|---|---|---|---|
| 0900 | - | Trial operation | The trial operation switch (SW2-1) on the control circuit board is set to "ON". | Check the trial operation switch. |
| 4101 | 11 blinks | Overcurrent error of the controller terminal | Short-circuiting between controller terminals | Check connection between the control circuit board and the controller cable.<br>Check for short-circuit with the transmission cable on the controller wiring. |
| | | | Controller failure | Replace the controller. |
| | | | Circuit board failure | If the problem persists, replace the control circuit board. |
| 4116 | 1 blink | Abnormal rotation of the supply air (SA) fan motor | Foreign substance is attached to the centrifugal fan. | Remove it. |
| | | | The fan touches the casing.<br>[1] Any fixing nut is loose.<br>[2] The casing is deformed or disengaged. | [1] Tighten the nuts.<br>[2] Check for fixing and replace any faulty parts. |
| | | | The SA fan motor connector CN10 on the circuit board is not firmly connected. | Connect the connector securely. |
| | | | The EA fan motor connector CN9 on the circuit board is not firmly connected. | Connect the connector securely. |
| | 2 blinks | Abnormal rotation of the exhaust air (EA) fan motor | The fan cannot be turned manually. | If the fan does not turn, diagnose the DC motors on the EA and SA sides as directed in "[3] Diagnosis of the power circuit board and DC motor" in "Failure mode 7". |
| | | | The following voltages are not output from the connectors on the circuit board.<br>• EA side:<br>Disconnect the connector CN9 and check that the voltage between pins 1 and 4 is 280 to 360 V DC.<br>• SA side:<br>Disconnect the connector CN10 and check that the voltage between pins 1 and 3 is 280 to 360 V DC. | Perform the following diagnosis as directed in "[3] Diagnosis of the power circuit board and DC motor" in "Failure mode 7".<br>• Output detected<br>→ Diagnose the DC motor on the EA and SA sides.<br>• Output not detected<br>→ Diagnose the power circuit board. |

| Error code (Controller display) | LED1 (green) | Error | Cause | Corrective action |
|---|---|---|---|---|
| 5101 | 4 blinks | Outdoor air (OA) thermistor related error | Faulty connection of the thermistor (OA) connector | Check connection of the relay connector and the connector (CN22) on the control circuit board. |
| | | | Thermistor (OA) failure | Disconnect the connector (CN22) on the control circuit board, and check the resistance of the thermistor. If the equivalent thermistor resistance differs greatly from the ambient temperatures, replace the thermistor. (Refer to “[4] Diagnosis of the thermistor (page 46)” in “Failure mode 7”.) |
| 5102 | 5 blinks | Return air (RA) thermistor related error | Faulty connection of the thermistor (RA) connector | Check connection of the relay connector and the connector (CN5) on the control circuit board. |
| | | | Thermistor (RA) failure | Disconnect the connector (CN5) on the control circuit board, and check the resistance of the thermistor. If the equivalent thermistor resistance differs greatly from the ambient temperatures, replace the thermistor. (Refer to “[4] Diagnosis of the thermistor (page 46)” in “Failure mode 7”.) |
| 6201 | - | Controller circuit board failure | Controller failure | Replace the controller. |
| 6202 | - | Controller circuit board failure | Controller clock does not function correctly. | Replace the controller. |
| 6831 | 9 blinks | Controller communication error (no signal) | The controller is connected to the incorrect terminal block (TB5 [A] [B]). | Connect the controller cable to the terminal block (TM4 [1] [2]). |
| | | | Faulty connection of the controller cable | Refer to section [2] of “Failure mode 1”. If the error code does not disappear, investigate noise on the controller cable. |
| | | | | If the problem persists, replace the control circuit board or controller. |
| 6832 | 9 blinks | Controller communication error (synchronization recovery error) | Faulty connection of the controller cable | Refer to section [2] of “Failure mode 1”. If the error code does not disappear, investigate noise on the controller cable. |
| | | | | If the problem persists, replace the control circuit board or controller. |

| Error code (Controller display) | LED1 (green) | Error | Cause | Corrective action |
|---|---|---|---|---|
| 6833 | 9 blinks | Controller communication error (hardware error) | Faulty connection of the controller cable | Refer to section [2] of “Failure mode 1”.<br>If the error code does not disappear, investigate noise on the controller cable. |
| | | | | If the problem persists, replace the control circuit board or controller. |
| 6834 | 9 blinks | Controller communication error (start bit detection error) | Faulty connection of the controller cable | Refer to section [2] of “Failure mode 1”.<br>If the error code does not disappear, investigate noise on the controller cable. |
| | | | | If the problem persists, replace the control circuit board or controller. |
| 7113 | 10 blinks | Function setting error | The model selection switch (SW6) is not set correctly. | Check the model selection switch (SW6).<br>Refer to (Note 1) in “(3) b. Function selection switch (page 47)”. |

| Failure mode 6 | The product has an error. |
|---|---|

[1] When condensation occurs in or on the product

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Condensation occurs on the exterior of the product. | When the surrounding temperature and return air temperature is outside the following range, condensation may occur.<br>• 0 - 40°C, 80%RH or lower<br>• Absolute humidity with the dew point temperature of 12°C (equivalent to 20°C, 60%RH) or lower | • Stop the product temporarily.<br>• Lower the humidity of the room where the product is installed (e.g., by stopping a humidifier).<br>• Condensation may be suppressed by reducing the fan speed. |
| 2 | Condensation occurs around or on the piping duct. | Insufficient heat insulation of piping duct | Use commercial heat insulation materials to insulate the duct.<br>(Refer to the Installation Manual for the insulation procedure.) |
| 3 | Condensation or icing occurs inside the product. | Condensation or icing may occur inside the product depending on the temperature and humidity. | It is normal. |
| 4 | Condensation or icing occurs on the filter. | Condensation or icing may occur inside the product depending on the temperature and humidity. | It is normal. |

[2] Abnormal noises are heard

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Fan touch noise | Foreign substance entering the fan assembly | Remove the foreign substance from the fan. |
| | | Fan damage | Replace the centrifugal fan if it is damaged. |
| | | Loosened or disengaged fan fixing nuts | Tighten the fan fixing nuts. |
| 2 | Air suction sound (bubbling sound) from the drainage parts when draining | The check valves are not installed correctly.<br>* The check valves (commercially available) must be installed to this product. | Install the check valves correctly. |
| | | The check valves are damaged.<br>* The check valves (commercially available) must be installed to this product. | Replace the check valve with a new one (commercially available) if it is damaged. |
| 3 | Wind noise | The filter cases are not inserted to the deepest position correctly. | Insert the filter cases to the deepest position correctly. |
| | | The filter is not attached to the filter case correctly. | Attach the filter to the filter case correctly. |
| 4 | Damper operation noise | A click sound is heard when the unit is switching from Heat exchange ventilation to By-pass ventilation. The sound is due to operation of the solenoid inside the damper motor. | It is normal. |
| | | A slam sound is heard when the unit is switching from Heat exchange ventilation to By-pass ventilation. The sound is due to operation of the damper by a spring. | It is normal. |
| 5 | Abnormal sound is generated from the motor. | Disassemble the product to see the motor and check if it is heard from the motor.<br>(Refer to “11. Overhauling procedures”.) | If the abnormal sound is generated by the motor, replace the DC motor.<br>(The motor may generate abnormal sound due to aging or deterioration caused by the environment.) |

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 6 | The product generates vibration.<br>The product generates vibration noise. | The filter cases are not inserted to the deepest position correctly. | Insert the filter cases to the deepest position correctly. |
| | | Clogged filter | Clean or replace the filters.<br>(Refer to the Instruction Manual for the cleaning procedure.) |
| | | Any fixing screw is loose. | Tighten the screws correctly. |
| | | Vibration noise from the duct pipe | • Check if the duct pipe connection is loose, and reinforce the connection if it is loose.<br>• Check if the duct pipe fixing is loose, and reinforce the fixing if it is loose. |
| | | Pressure loss in the duct pipe is too high. | If there is a foreign substance at any terminal part such as grill or hood, remove it. |
| | | Vibration noise from the drain pipe | • Check if the drain pipe connection is loose, and reinforce the connection if it is loose.<br>• Check if the drain pipe fixing is loose, and reinforce the fixing if it is loose. |
| | | Foreign substance is attached to the fan. | Remove the foreign substance. |
| | | The fan is loose or disengaged. | Tighten the fan. |
| | | The fan is swinging. | Tighten the fan. |
| 7 | Operating noise has increased.<br>Operating noise has decreased. | Check if the fan rotation has increased, decreased or stopped due to Automatic supply air stop/Automatic supply air intermittent operation because of the decrease in outside air temperature.<br>* During icing suppress operation the icon "" is displayed on the controller. | Fan rotation speed may change or the fan may stop due to Automatic supply air stop/Automatic supply air intermittent operation, however, it is normal.<br>* Fan rotation speed may also change immediately after the icing suppress operation ends (the icon disappears from the controller) by returning to the normal operation. |
| | | Check if the symptom is caused by the control mode specifically set. (Refer to the Instruction Manual and Installation Manual for the modes.)<br>* A displayed icon on the controller does not indicate ON/OFF status of the setting. (The icon appears whenever the control is in effect.) | Change the setting if the operation noise is abnormal. |
| | | Check if it is affected by the outdoor wind. | It is normal. |
| | | Check if it is affected by the indoor pressure change due to another air-conditioner. | It is normal.<br>When another ventilator such as a range hood fan operates, the indoor pressure can change and affect the fan speed of the product. |
| | | The filter cases are not inserted to the deepest position correctly. | Insert the filter cases to the deepest position correctly. |
| | | Clogged filter | Clean or replace the filters.<br>(Refer to the Instruction Manual for the cleaning procedure.) |
| | | Foreign substance is attached to the fan. | Remove the foreign substance. |
| | | The fan is loose or disengaged. | Tighten the fan. |
| | | Pressure loss in the duct pipe is too high. | If there is a foreign substance at any terminal part such as grill or hood, remove it. |

[3] Abnormal air volume

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Air volume changed. The product stopped. | Check if the fan rotation has increased, decreased or stopped due to Automatic air supply stop/Automatic air supply intermittent operation because of the decrease in outside air temperature.<br>* During icing suppress operation the icon “ ” is displayed on the controller. | Fan rotation speed may change or the fan may stop due to Automatic supply air stop/Automatic supply air intermittent operation, however, it is normal.<br>* Fan rotation speed may also change immediately after the icing suppress operation ends (the icon disappears from the controller) by returning to the normal operation. |
| | | Check if the symptom is caused by the control mode specifically set. (Refer to the Instruction Manual and Installation Manual for the modes.)<br>* A displayed icon on the controller does not indicate ON/OFF status of the setting. (The icon appears whenever the control is in effect.) | Change the setting if the air volume variation is abnormal. |
| | | Clogged filter | Clean or replace the filters.<br>(Refer to the Instruction Manual for the cleaning procedure.) |
| | | Pressure loss in the duct pipe is too high. | If there is a foreign substance at any terminal part such as grill or hood, remove it. |
| | | Check if it is affected by the indoor pressure change due to another air-conditioner. | It is normal.<br>When another ventilator such as a range hood fan operates, the indoor pressure can change and affect the fan speed of the product. |
| | | The duct pipe is disconnected or loose. | Check if the duct pipe is disconnected or loose, and reinforce the fixing if it is loose. |

[4] Water leak

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 1 | Water leaks from the drain pipe. | Connection between the drain connection port and the drain pipe is loose or has a gap. | Connect the drain pipes securely without any gap. |
| | | The gradient of the drain pipe is not correct. (It should be tilted downward at an angle of 3° or more.) | Connect the drain pipes correctly.<br>(Refer to the Installation Manual for the procedure.) |
| | | The drain cap is disengaged. | Attach the drain cap correctly. |
| | | Condensation occurred in the drain piping. | • Stop the product temporarily.<br>• Lower the humidity of the room where the product is installed (e.g., by stopping a humidifier).<br>• Insulate the drain pipe (e.g., by using insulation materials). |

| No. | Symptom | Cause | Corrective action |
|---|---|---|---|
| 2 | Water leaks from the duct pipe. | The pipe guide and duct are not caulked with silicone with no gap. | If there is a gap, caulk it using silicone. (Refer to the Installation Manual for the procedure.) |
| | | Condensation occurs around the pipe guide or in the pipe guide. | Use commercial heat insulation materials to insulate the duct. (Refer to the Installation Manual for the insulation procedure.) |
| | | The gradient of the duct pipe is not correct. (It should be tilted upward for 1/30 or more from outdoors to indoors to prevent rain drops, snow, or mist from entering the unit.) | Connect the duct correctly. |
| | | Rain drops, snow, or mist enters the unit. | • Stop the product temporarily in case of a hard rain, snow, or dense mist.<br>• Use an outdoor hood which prevents rain drops or snow from entering the unit. |

| Failure mode 7 | Individual troubleshooting |
|---|---|

[1] Diagnosis of the damper

| No. | Symptom | Diagnosis method | Corrective action |
|---|---|---|---|
| 1 | Damper motor failure | Disassemble the product to see the damper assembly. (Refer to “11. Overhauling procedures”.)<br>Check if the damper operates in the trial operation mode.<br>(Refer to “6.7 Trial operation” in the Installation Manual for details of the trial operation mode.) | If the damper does not operate, replace the damper assembly. |
| 2 | Damper adhesion | Disassemble the product to see the damper assembly. (Refer to “11. Overhauling procedures”.)<br>Open and close the damper plate manually and check if a foreign substance is adhered to the damper plate and/or the damper plate is adhered. | Remove the foreign substance or cause of adhesion. |

[2] Diagnosis of an externally connected device

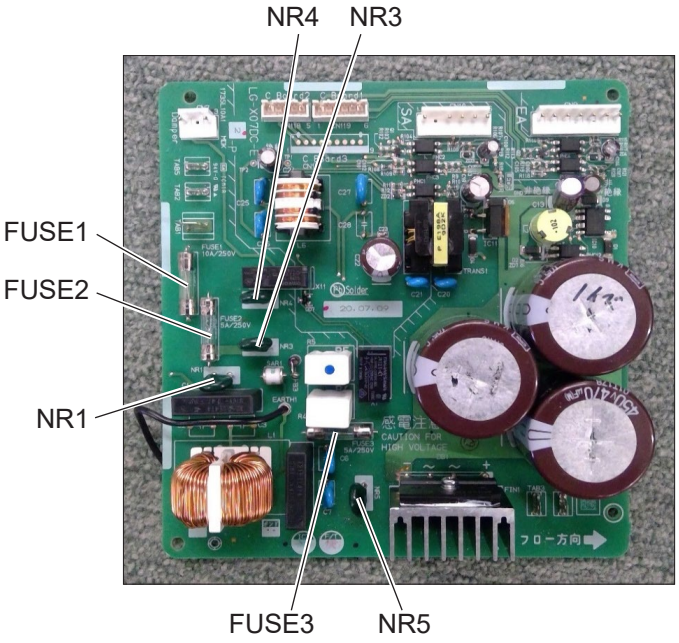
| No. | Symptom | Diagnosis method | Corrective action |
|---|---|---|---|
| 1 | Lossnay operation is not correct for the analog signal sent from the external device connected to TM200 on the signal interface circuit board. | Check if connection with the external device is disconnected or loose. | Connect the external device correctly. |
| | | Check that terminal block connection is correct. | Connect the terminals correctly. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | Power (low-voltage output) is not supplied from the externally connected device. | Check the external device. * TM200 is a low-voltage input terminal. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | Lossnay setting is incorrect. | Check the controller settings. (Refer to “6.4.5 External input” of the Installation Manual.) |
| 2 | Lossnay operation is not correct for the contact signal sent from the external device connected to TM201 on the signal interface circuit board. | Check if connection with the external device is disconnected or loose. | Connect the external device correctly. |
| | | Check that terminal block connection is correct. | Connect the terminals correctly. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | No signal (volt-free contact signal) is supplied from the externally connected device. | Check the external device. * TM201 is the contact input terminal. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | Lossnay setting is incorrect. | Check the controller settings. (Refer to “6.4.5 External input” of the Installation Manual.) |
| 3 | Lossnay operation is not correct for the signal sent from the air conditioner (Mr. Slim) connected to TM2 on the control circuit board. | Check if connection with the air conditioner is disconnected or loose. | Connect the air conditioner (Mr. Slim) correctly. |
| | | Check that terminal block connection is correct. | Connect the terminals correctly. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | The air conditioner (Mr. Slim) setting is incorrect. | Check the setting of the air conditioner (Mr. Slim). |
| 4 | External device operation is not correct for the signal sent to the external device connected to TM3 on the control circuit board. | Check if connection with the external device is disconnected or loose. | Connect the external device correctly. |
| | | Check that terminal block connection is correct. | Connect the terminals correctly. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | Check if the externally connected device is faulty. | Check the external device. |
| | | Lossnay setting is incorrect. | Check the controller setting. (Refer to the functions No. 57, 58, 81 in “8. (2) Function setting list” (page 25 and 26).) |
| 5 | The externally installed controller connected to TM4 on the control circuit board cannot be turned on. | Check if connection with the externally installed controller is disconnected or loose. | Connect the controller correctly. |
| | | Check that terminal block connection is correct. | Connect the terminals correctly. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | Check if the cable between the Lossnay unit and controller is disconnected. | Connect the cable and connector correctly. (Refer to the Installation Manual of P-RCC-E.) |

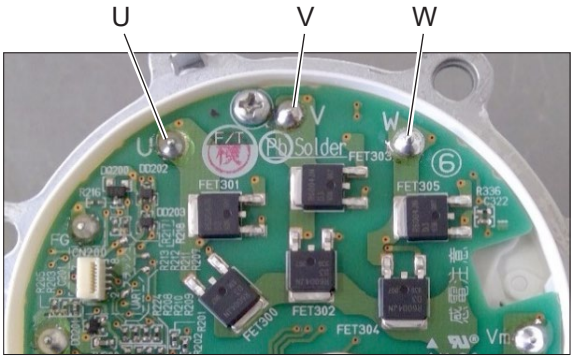
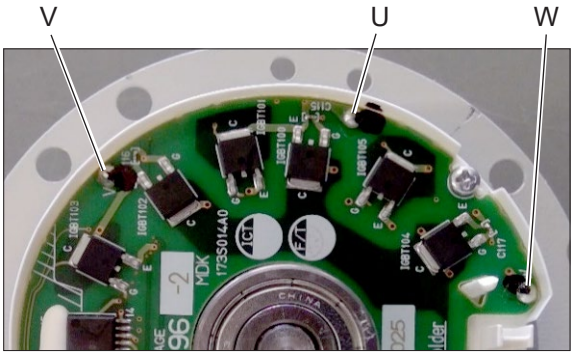
| No. | Symptom | Diagnosis method | Corrective action |
|---|---|---|---|
| 6 | Lossnay operation is not correct for communication with the Wi-Fi interface connected to CN105 on the control circuit board. | Check if connection with the Wi-Fi interface is disconnected or loose. | Connect the Wi-Fi interface correctly. |
| | | Check that connector connection is correct. | Connect the connector correctly. (Refer to “5.2 External device connection use” in the Installation Manual.) |
| | | Check if Wi-Fi communication has an error. | Check the Wi-Fi interface setting. |

[3] Diagnosis of the power circuit board and DC motor
(Diagnosis of the electric components for failures caused by abnormal voltage or lightning strike)

When the product gets faulty due to abnormal voltage or lightning strike, it can be diagnosed in the following procedures.

Precaution
After disassembling the DC motor, it cannot be installed in the product again even if it has no failure.
(This is because the waterproof seal is broken to disassemble the motor.)

| Components | Checklist |
|---|---|
| Power circuit board | 1. Abnormal voltage or lightning strike can randomly damage the following elements:<br>• NR1<br>• NR3<br>• NR4<br>• NR5<br>• FUSE1<br>• FUSE2<br>• FUSE3<br>  <br><br>2. Other check points<br>• Check that the circuit name is correct. (LG-X07DC-E2)<br>• Are any parts discolored to black?<br>• Is any liquid adhered to any parts?<br>• Are there any dead bodies of insects or small animals?<br>• Is the circuit board broken?<br>• Is the solder cracked?<br>• Checking the power supply indicator LED<br>LED6 is lit when power is supplied.<br>• Voltage check<br>With 15 V power supply, voltage at both ends of C30 should be 14 - 16 V DC.<br>• SA fan motor drive check<br>Voltage between pins 1 and 3 of CN10 should be 280 - 360 V DC.<br>Voltage between pins 3 and 4 of CN10 should be 14 - 16 V DC.<br>• EA fan motor drive check<br>Voltage between pins 1 and 4 of CN9 should be 280 - 360 V DC.<br>Voltage between pins 4 and 5 of CN9 should be 14 - 16 V DC. |

| Components | Checklist |
|---|---|
| DC motor | 1. Remove the motor cover, and measure resistance at the following points to check for coil breakage:<br>(Measure the resistance with the motor connectors (CN9, CN10) disconnected from the power circuit board.)<br><VL-250 type><br>• Between V and U...102.8 Ω<br>• Between V and W...102.8 Ω<br>• Between W and U...102.8 Ω<br><VL-350 type, VL-500 type><br>• Between V and U...27.8 Ω<br>• Between V and W...27.8 Ω<br>• Between W and U...27.8 Ω<br>* Resistance in a 30 °C atmosphere<br>  <br><br><Circuit board in the DC motor for VL-250 type><br>  <br><br><Circuit board in the DC motor for VL-350 type and VL-500 type><br>2. Other check points<br>• Are any parts discolored to black?<br>• Is any liquid adhered to any parts?<br>• Is the circuit board broken?<br>• Is the solder cracked? |

[4] Diagnosis of the thermistor

Remove the thermistor connector (RA thermistor: CN15, OA thermistor: CN22) from the control circuit board, and measure resistance to detect a failure.

| Resistance (reference) | Reference temperature for failure detection |
|---|---|
| Open (100 kΩ or higher) | It is abnormal. |
| Shorted (1.0 kΩ or lower) | It is abnormal. |
| 3.0 kΩ | 30°C |
| 4.2 kΩ | 20°C |
| 6.0 kΩ | 10°C |
| 8.8 kΩ | 0°C |
| 20.6 kΩ | -10°C |
| 32.8 kΩ | -20°C |
| 53.9 kΩ | -30°C |

## (3) Setting status record

**● Record of the Lossnay setting** Date:

a. Basic information

| | | |
|---|---|---|
| Installed location | : | |
| Model name of the product | : | VL- ( 250 • 350 • 500 ) CZPVU- ( L • R ) - ( E • ERT ) |
| Address setting | : | |
| Manufacturing lot number of the circuit board | : | (Number on the circuit board) |
| Microcomputer software number on circuit board | : | (Symbol on the circuit board) |
| Interlock setting | : ( Yes / No ) | Model: |

b. Function selection switch

Enter the settings of the function selection switch (SW2) and model selection switch (SW6) on the circuit board.

| SW2 | ON | OFF |
|---|---|---|
| 1 | □ | □ |
| 2 | □ | □ |
| 3 | □ | □ |
| 4 | □ | □ |
| 5 | □ | □ |
| 6 | □ | □ |
| 7 | □ | □ |
| 8 | □ | □ |
| 9 | □ | □ |
| 10 | □ | □ |

| SW6 | ON | OFF |
|---|---|---|
| 1 (Note 1) | □ | □ |
| 2 (Note 1) | □ | □ |
| 3 (Note 1) | □ | □ |
| 4 (Note 1) | □ | □ |

(Note 1) Model selection switch (SW6)

| Model | SW6-1 | SW6-2 | SW6-3 | SW6-4 |
|---|---|---|---|---|
| VL-250 type | ON | OFF | OFF | OFF |
| VL-350 type | OFF | ON | OFF | OFF |
| VL-500 type | ON | ON | OFF | OFF |

c. Function setting

When the functions are set by using the controller, fill in the setting values.
Setting of the function numbers not mentioned in this table is prohibited.

| Function No. | Setting value |
|---|---|
| 1 | (1) |
| 2 | (0) |
| 5 | (3) |
| 9 | (1) |
| 13 | (1) |
| 36 | (0) |
| 37 | (0) |

| Function No. | Setting value |
|---|---|
| 38 | (0) |
| 39 | (8) |
| 40 | (5) |
| 41 | (7) |
| 42 | (7) |
| 51 | (3) |
| 52 | (0) |

| Function No. | Setting value |
|---|---|
| 53 | (6) |
| 54 | (1) |
| 57 | (1) |
| 58 | (1) |
| 59 | (0) |
| 60 | (0) |
| 81 | (0) |

| Function No. | Setting value |
|---|---|
| 82 | (0) |
| 83 | (0) |
| 84 | (0) |
| 86 | (0) |

( ): Factory default

d. External input/output

Fill in usage of the external input/output on the circuit board.

| Terminal block | Terminal name | In use | Not in use | Connection target |
|---|---|---|---|---|
| TM200 [1] | Analog input 1 | □ | □ | |
| TM200 [2] | Analog input 2 | □ | □ | |
| TM201 [1] [2] | Bypass input | □ | □ | |
| TM201 [3] [4] | Boost input | □ | □ | |
| TM2 [1] [2] | External control input | □ | □ | |
| TM3 [9] [10] | Monitor output | □ | □ | |
| TM3 [7] [10] | By-pass ventilation monitor | □ | □ | |
| TM3 [8] [10] | Malfunction monitor | □ | □ | |

# 10. Service inspection list

| Inspection item | Check result |
|---|---|
| Is the power cable connected correctly? | |
| Are the cables to the external devices connected correctly? | |
| Is the product installed correctly? | |
| Is the product grounded correctly? | |
| Are the drain pipes connected correctly? | |
| Does controller display work correctly? | |
| After replacing the control circuit board or controller, setting the operation mode and functions is necessary.<br>Set them as directed in the Instruction Manual and Installation Manual to suit the required application. | |
| Are the SA and EA fans rotating? | |
| Does Lossnay operate without abnormal noise? | |

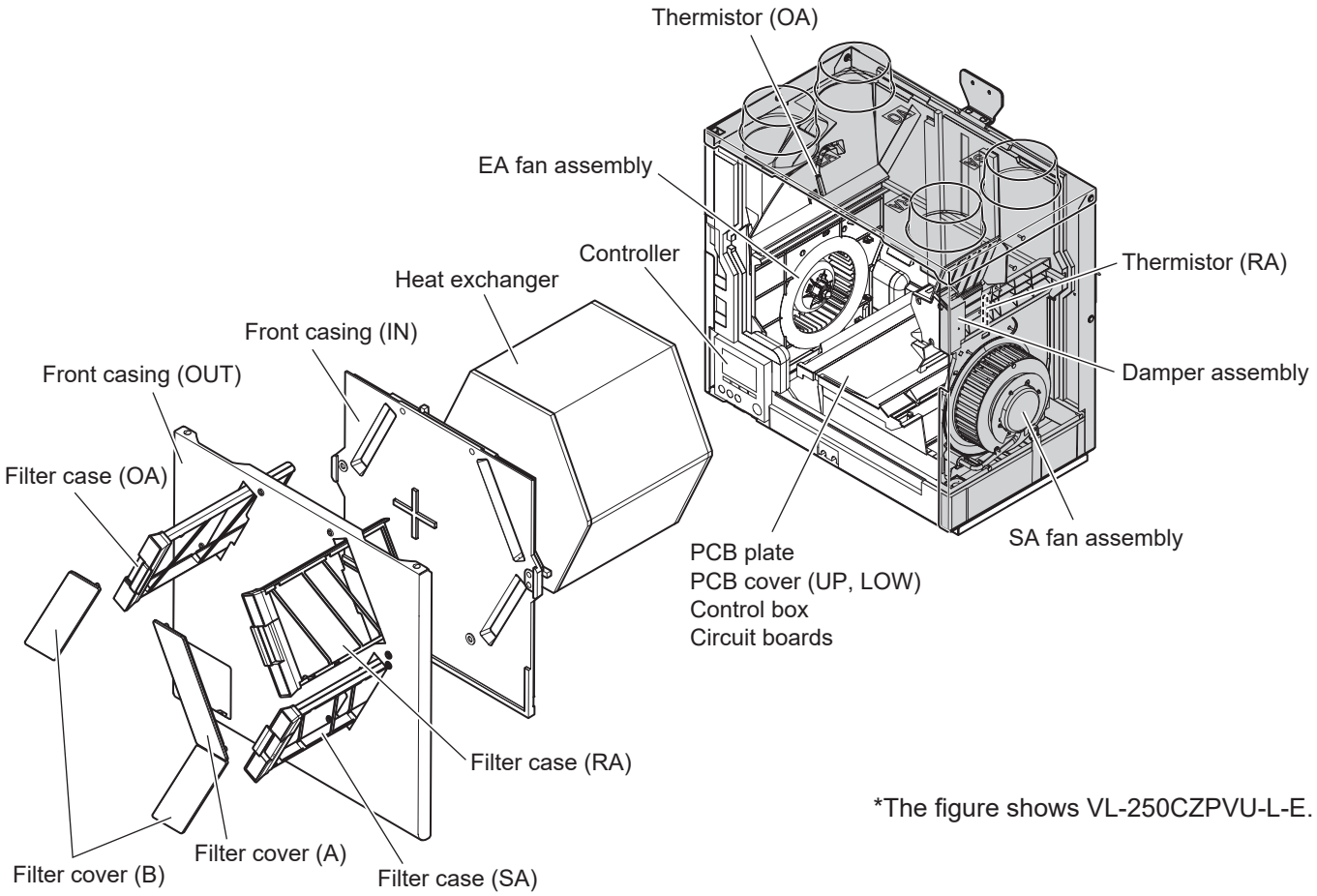
# 11. Overhauling procedures

■ **Work precautions**

- When touching the electric components such as circuit boards and fan motors, do not touch the components for more than 5 minutes after power-off, and then start working. If LED4 on the circuit board is lit, do not touch the electric components.
- Before replacing parts or components, follow the instructions described in the troubleshooting.
- When servicing, always keep proper footing.
- When servicing, be sure to turn off the circuit breaker. Pay sufficient attention to avoid electric shock or injury.
- Be sure to connect the power supply wires correctly.
- Avoid application of abnormal voltage.
- Pay attention not to drop the parts or components.
- When the tightening torque for assembling is specified, be sure to tighten to the specified tightening torque.
- After connecting the lead wires, make sure that they are securely connected.
- After completing repairs, check that the product operates properly.

∗ **Always wear a pair of gloves when servicing.**

## <Outer and inner view of the product>




*The figure shows VL-250CZPVU-L-E.

## 11-1 VL-250CZPVU-L type, VL-250CZPVU-R type

**Note:** The following procedure applies to the **VL-250CZPVU-L** type. For VL-250CZPVU-R type, the components are placed in the right-left opposite positions.

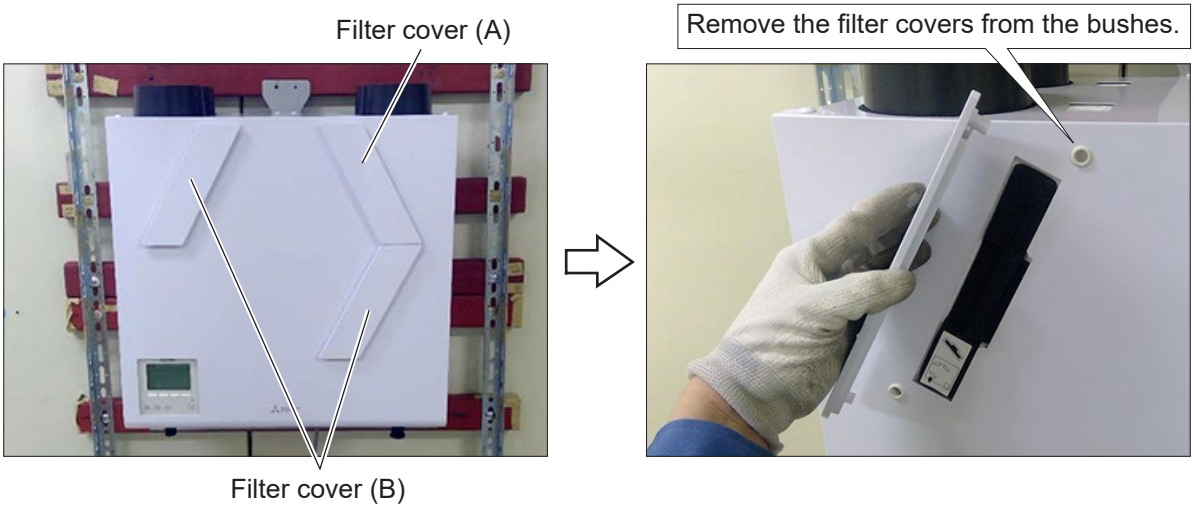
### (1) Turn off the power supply

[1] Stop the operation.

[2] Turn off the circuit breaker on the distribution board.

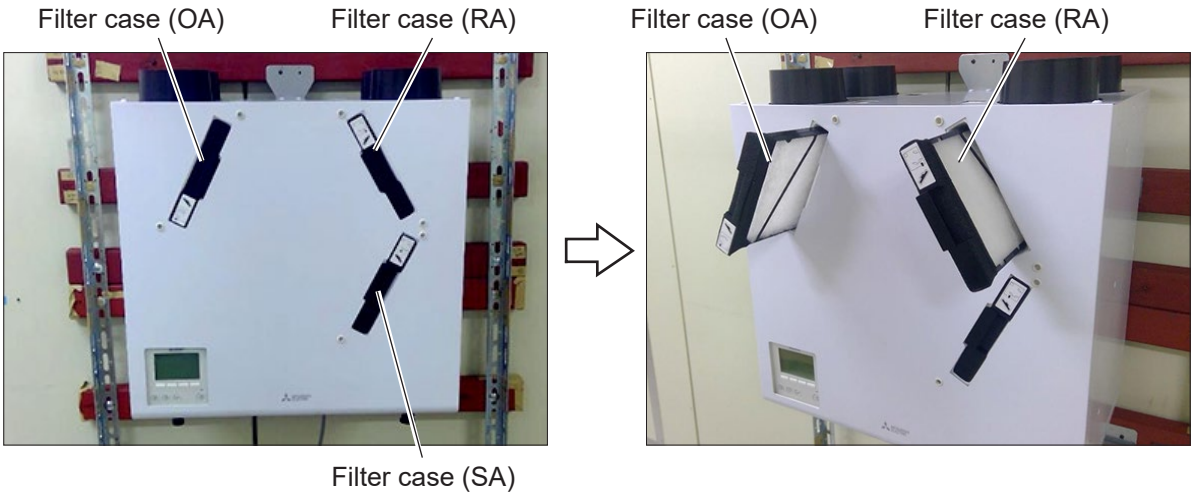
### (2) Remove the heat exchanger

[1] Remove the filter cover (A) (1 pc.) and filter covers (B) (2 pcs.).
**Note:** For VL-250CZPVU-R, remove the filter covers (A) (2 pcs.) and filter cover (B) (1 pc.).




[2] Pull out the filter cases (OA) and (RA).

Precaution
To prevent the front casing (IN) from dropping, pull out the filter case (SA) with the front casing (IN) after removing the front casing (OUT). (Refer to [4].)




Assembly precaution
When installing the filter cases, be sure to return the filter cases to the original positions. (Check the position with the label attached to each filter case.)

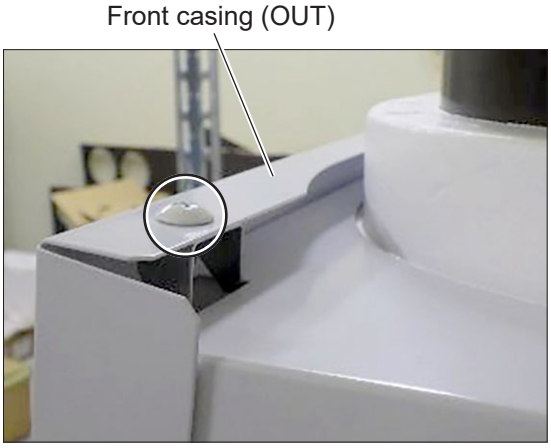
[3] Remove the front casing (OUT).

a. Remove the screws from the bottom side.
(2 screws: Special (spl) screw PT 4x10 (painted), indicated by ○)

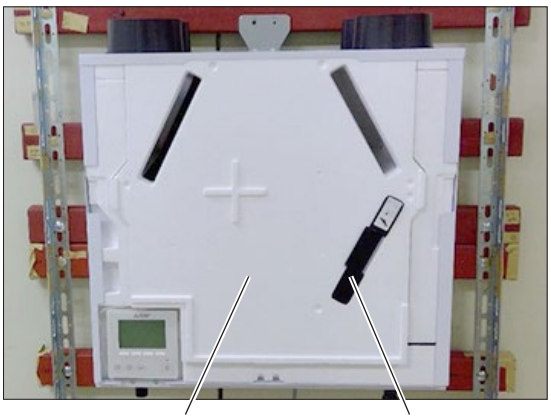
Tightening torque
○ : 1.5 ± 0.2 N·m


b. Open the bottom part of the front casing (OUT) a little bit, and raise it diagonally upward to unhook the top hook.


Precaution
Do not remove the screws (indicated by ◯) on the top of the front casing (OUT).



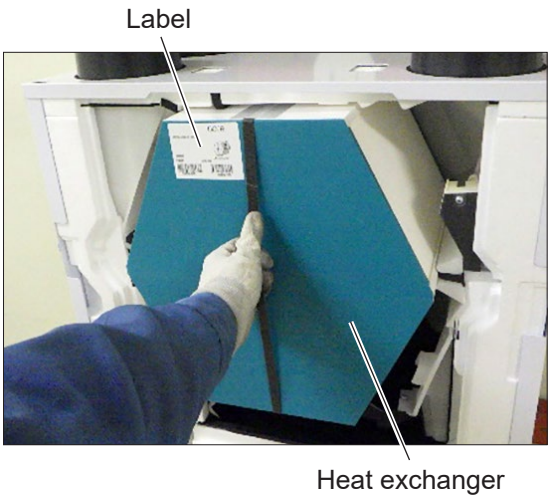
[4] Remove the front casing (IN) and filter case (SA).



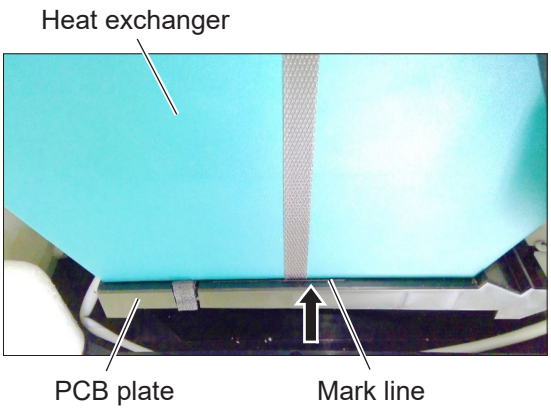

[5] Hold the band of the heat exchanger and pull it out.

Precaution
The heat exchanger is heavy. Be careful not to remove the band.
(The heat exchanger may drop and cause an injury.)

Assembly precaution
When installing the heat exchanger, its label should come to this end and face up as shown in the picture.




Assembly precaution
Insert the heat exchanger to the mark line on the PCB plate.



## (3) Remove the PCB cover

[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the bypass plate.

a. Remove the screw.
(1 screw: Spl screw PTT 4X14, indicated by ○)

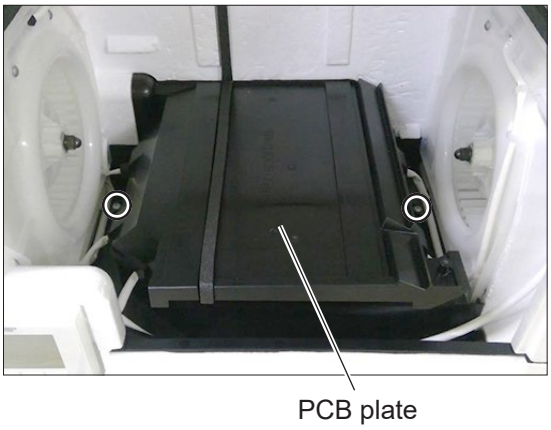
Tightening torque
○ : 1.2 ± 0.2 N·m

b. Unhook the bypass plate from the top hook (indicated by □).

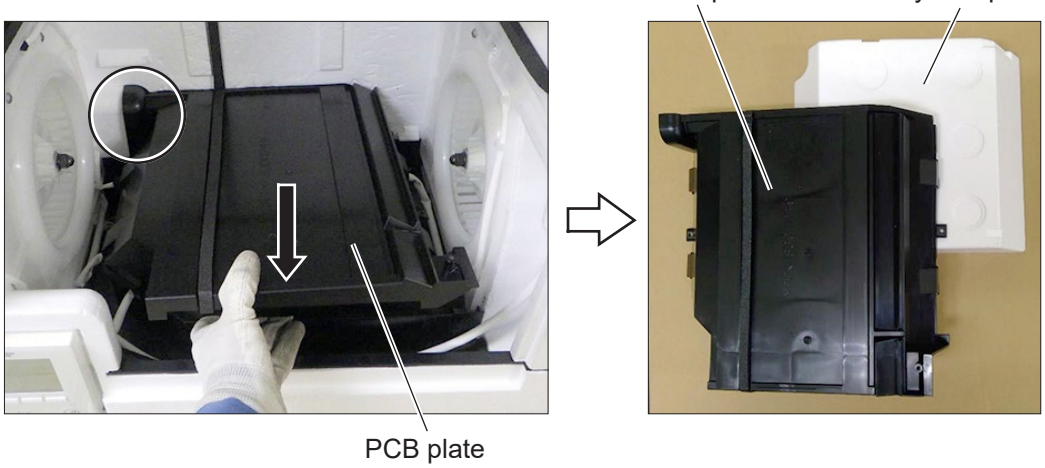

[3] Remove the PCB plate.

a. Remove the screws.
(2 screws: Spl screw PTT 4X14, indicated by ○)

Tightening torque
○ : 1.2 ± 0.2 N·m




b. Raise this side of the PCB plate a little bit and pull it until the hook at the deepest location (indicated by ○) is unhooked to remove the PCB plate.
* Remove the styrene part together.



[4] Remove the lead wires.

a. Remove the lead wires from the styrene grooves (indicated by ○).

Precaution
Be careful not to damage the styrene.

b. Pull out the lead wires stored in the outer side of the PCB cover (UP).


[5] Remove the PCB cover (UP).

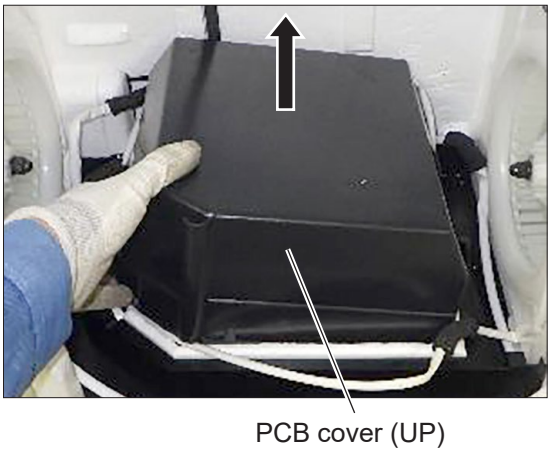
a. Remove the screws.
(2 screws: Spl screw PTT 4X14, indicated by ○)

Precaution
Screws are located where it is not easy to see them.

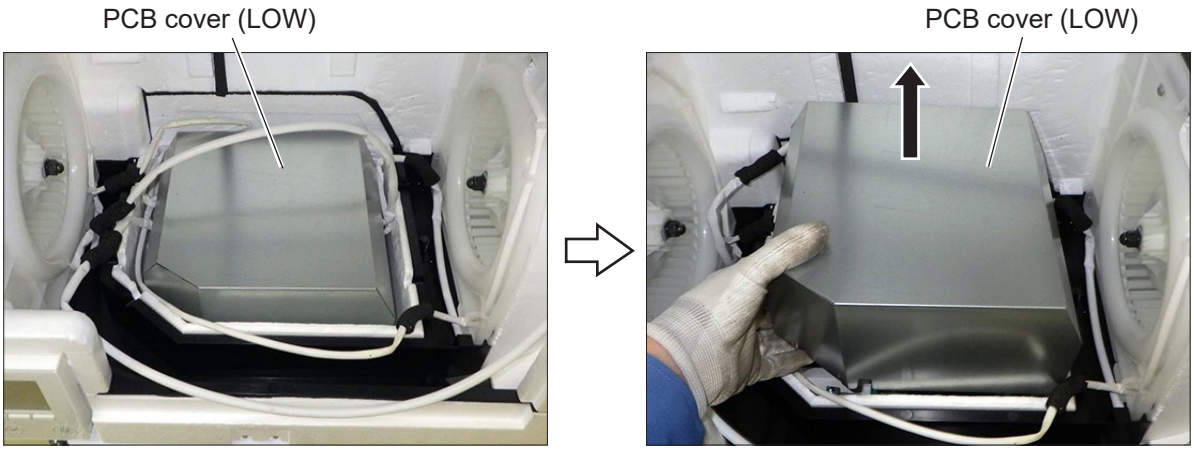
Tightening torque
○ : 1.2 ± 0.2 N·m


b. Remove the PCB cover (UP).

Assembly precaution
Be sure to attach the PCB cover (LOW) before installing the PCB cover (UP).

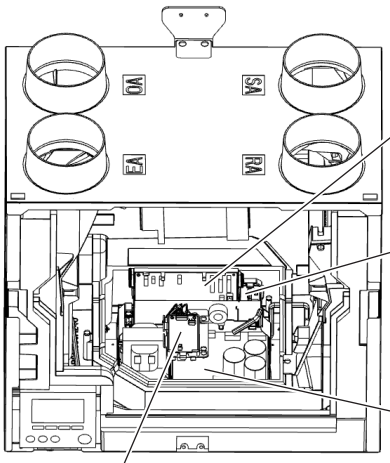


[6] Remove the PCB cover (LOW).




■ **Reference: Circuit board locations within the control box**

**< VL-250CZPVU-L type >**



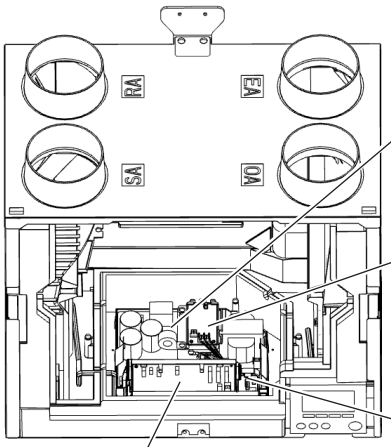

Control circuit board (X07DC-E2-C)

Signal interface circuit board (VL-40S)

Power circuit board (X07DC-E2-P)

Power interface circuit board (VL-40P)

**< VL-250CZPVU-R type >**




Power circuit board (X07DC-E2-P)

Power interface circuit board (VL-40P)

Signal interface circuit board (VL-40S)

Control circuit board (X07DC-E2-C)

## (4) Remove the thermistor

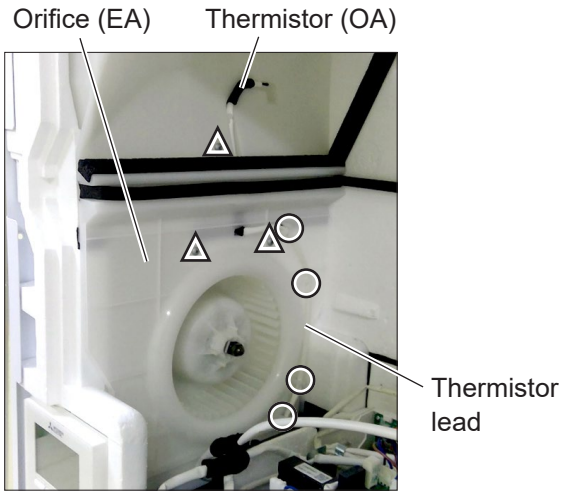
[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

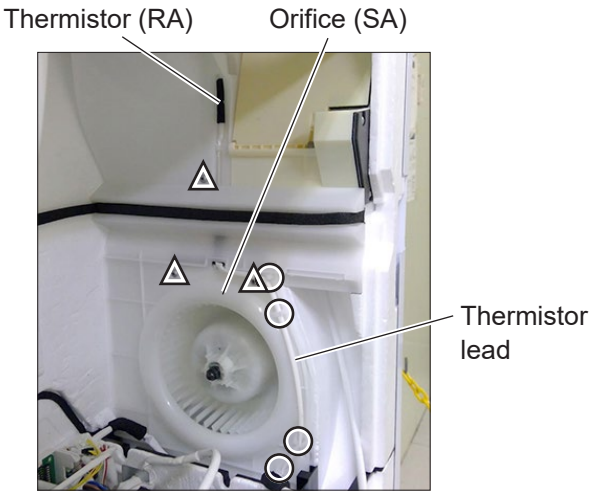
[3] Unhook the thermistor lead from the hooks on the orifice (indicated by ○).

[4] Remove the screws.
(3 screws: Spl screw PTT 4X14, indicated by △)

Tightening torque
△ : 1.1 ± 0.2 N·m




**<For thermistor (OA)>**




**<For thermistor (RA)>**

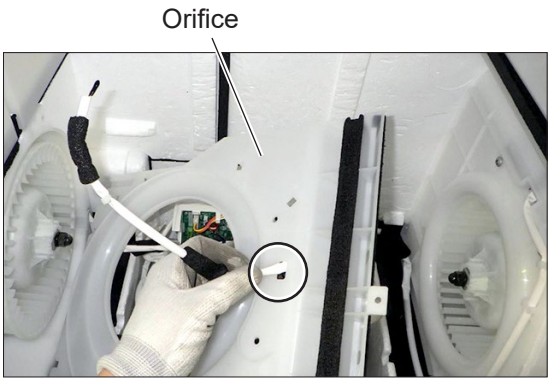
[5] Remove the orifice from the bottom groove (indicated by ○).


*The picture shows the orifice (EA).

[6] Remove the thermistor from the groove.

[7] Remove the thermistor with the orifice.

[8] Remove the thermistor from the hole of the orifice (indicated by ○).

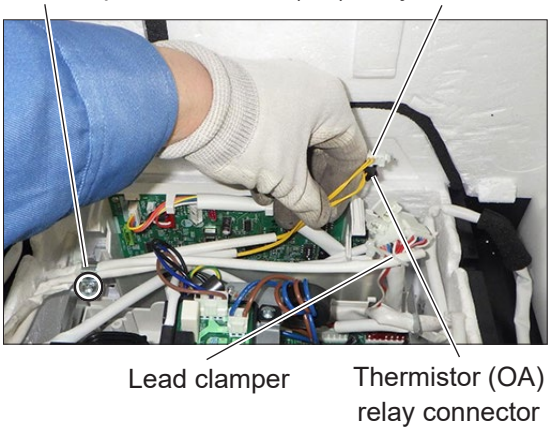



*The picture shows the orifice (EA).

[9] Disconnect the thermistor relay connector.

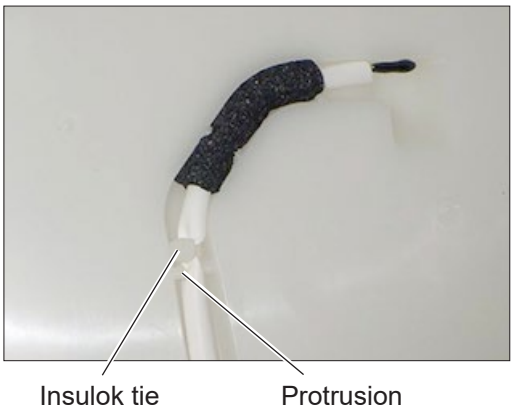
[10] Remove the thermistor lead from the lead clamper.

[11] Remove the metal clip fixing screw.
(1 screw: indicated by ○)

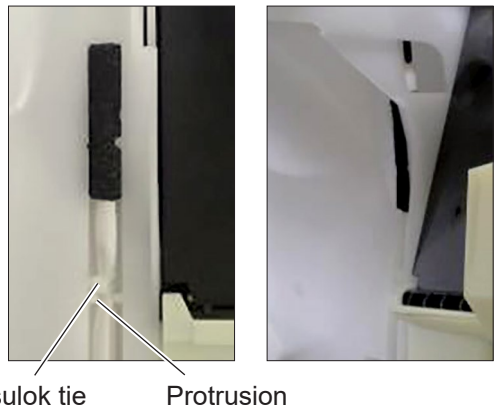



Assembly precaution
When attaching the thermistor, align the insulok tie with the protrusion in the groove as shown in the picture.

**<For thermistor (OA)>**




**<For thermistor (RA)>**




## (5) Remove the damper assembly

[1] Remove the heat exchanger. ··· Refer to (2).

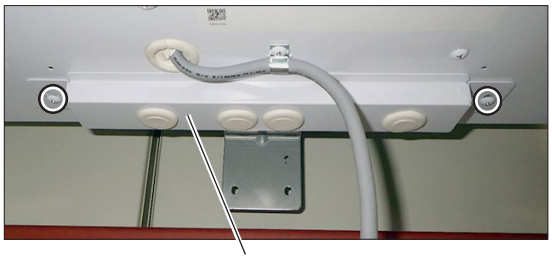
[2] Remove the PCB cover. ··· Refer to (3).

[3] Remove the orifice (SA). ··· Refer to (4).

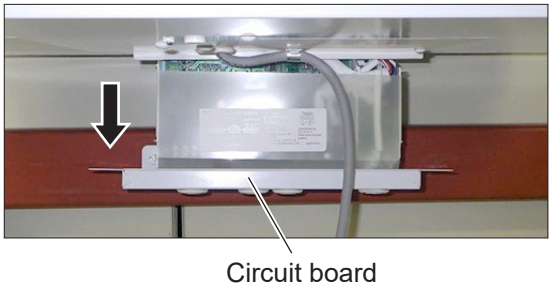
[4] Lower the circuit board (control circuit board) to provide a work space for disconnecting and connecting the connectors.

a. Remove the circuit board fixing screws from the bottom side of the product.
(2 screws: Spl screw PT 4X10 (painted), indicated by ○)

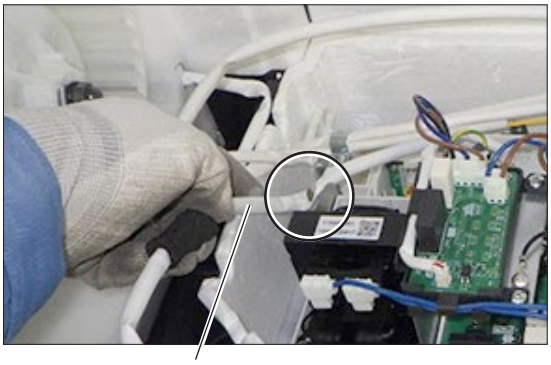
Tightening torque
○ : 1.5 ± 0.2 N·m



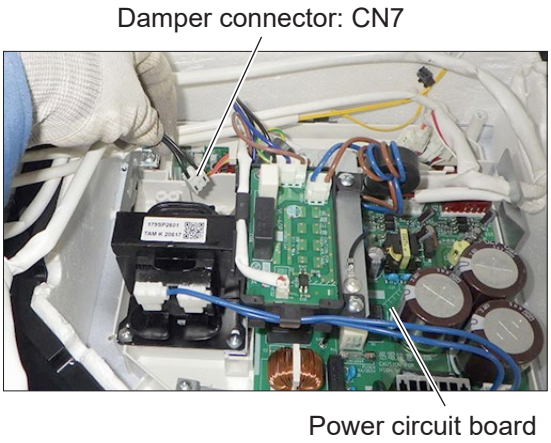

b. Lower the circuit board.



[5] Remove the damper lead from the metal plate hook of the control box (indicated by ○).

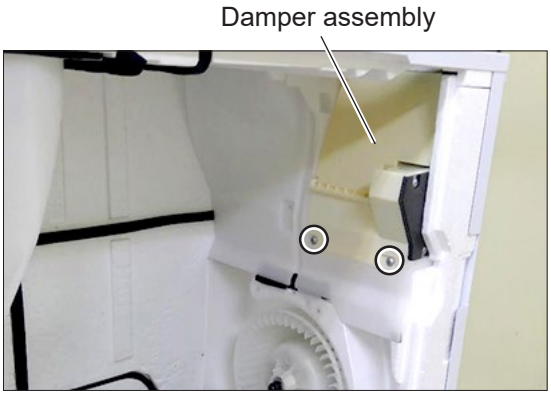



[6] Disconnect the damper lead connector from the power circuit board.



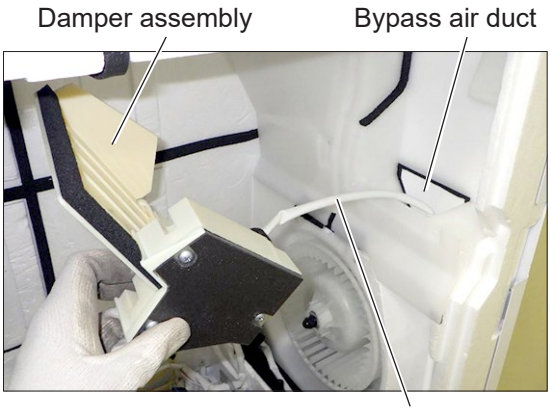

[7] Remove the damper assembly fixing screws.
(2 screws: Spl screw PTT 4X14, indicated by ○)

Tightening torque
○ : 1.1 ± 0.2 N·m




[8] Remove the damper assembly.

[9] Remove the damper lead from the bypass air duct.



## (6) Remove the fan assembly

[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

[3] Remove the orifice and thermistor. ··· Refer to (4).

[4] Lower the circuit board (control circuit board) to provide a work space for disconnecting and connecting the connectors. ··· Refer to (5) [4].

[5] Remove the lead clip fixing screw to disconnect the connector.

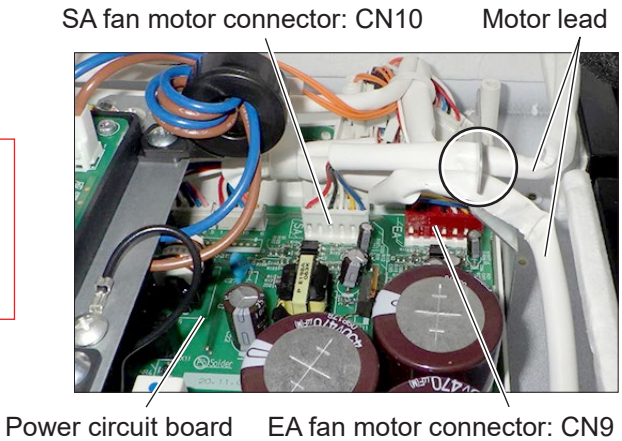
(1 screw: PTT screw 4x12, indicated by ○)

*** VL-250CZPVU-L type only**


[6] Disconnect the motor lead connectors from the power circuit board.
SA fan motor connector: CN10
EA fan motor connector: CN9

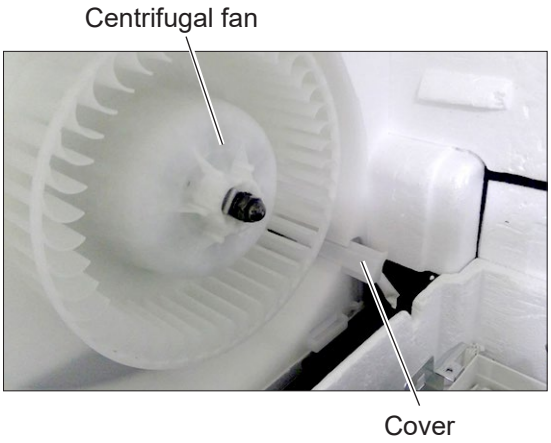
Precaution
When disconnecting the motor connectors, make sure that the power supply is turned off. Even when the fan motor is stopped, disconnecting the live-line connectors will cause a motor malfunction.

[7] Remove the motor leads from the metal plate hook of the control box (indicated by ○).




* Steps **[8]** through **[12]** refers to the **EA fan assembly**. Disassemble the **SA fan assembly** in the similar manner.

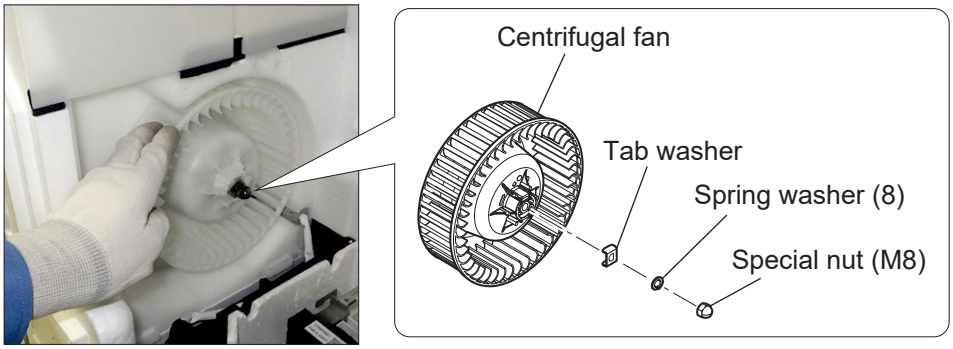
[8] Remove the cover by sliding it.



[9] Remove the special nut (M8) and spring washer.

Tightening torque:
2.3 ± 0.2 N·m

[10] Remove the tab washer and centrifugal fan.




[11] Remove the special washer (8).

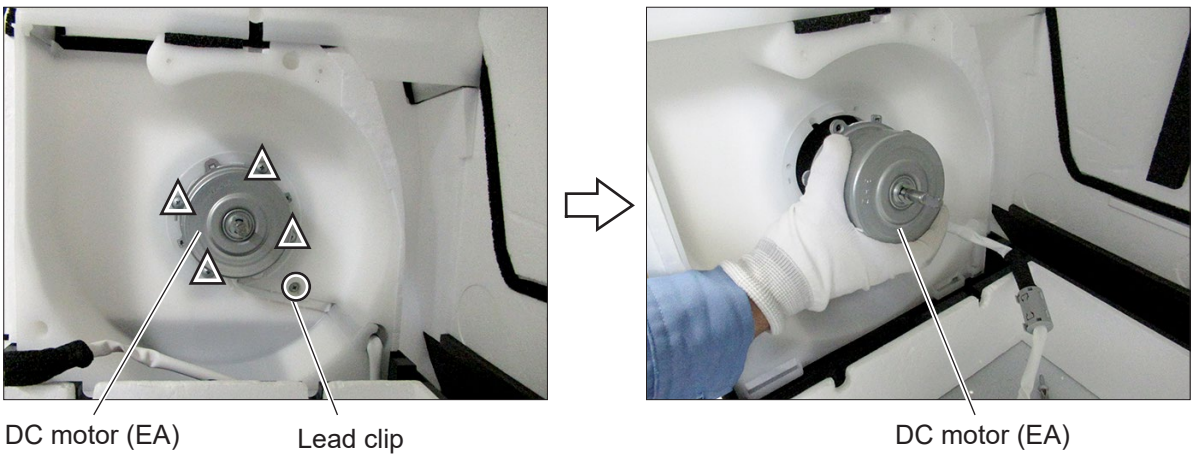

[12] Remove the DC motor (EA).

a. Remove the lead clip fixing screw.
(1 screw: PTT screw 4x8, indicated by ○)

Tightening torque
○ : 0.8 ± 0.2 N·m

b. Remove the motor fixing screws.
(4 screws: Spl screw PTT 4X14, indicated by △)

Tightening torque
△ : 1.2 ± 0.2 N·m

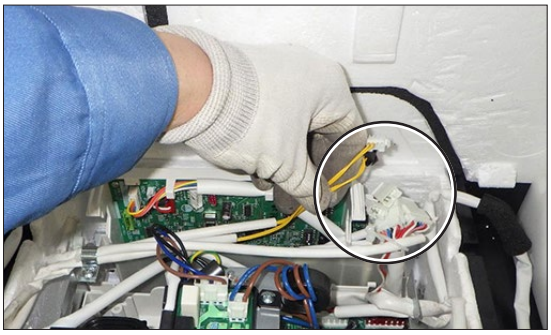


## (7) Remove the circuit board and power supply cord

[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

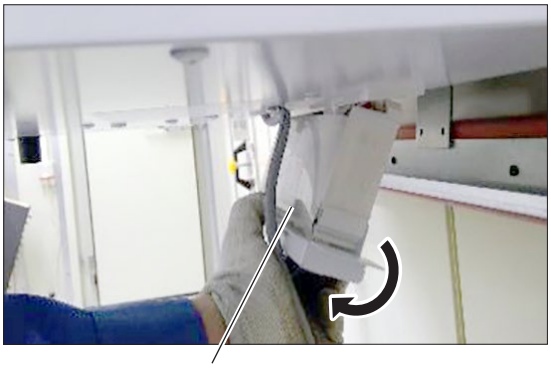
[3] Disconnect the relay connectors (indicated by ○).



[4] Remove the circuit board (control circuit board).

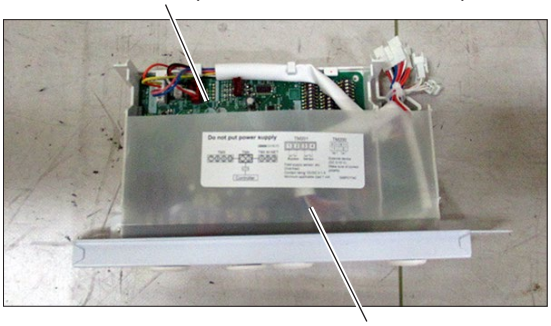
a. Remove the circuit board fixing screws. … Refer to (5) [4] a.

b. Tilt the circuit board to this side and unhook the hook at the top of it.



Circuit board

Circuit board (X07DC-E2-C, VL-40S)



Insulating sheet

Precaution for replacing the circuit board
- Refer to the leaflet supplied with the service circuit board, and set the DIP switches on the circuit board.
- When the circuit board is replaced, the controller settings will be initialized. Perform the controller settings according to the settings sheet included with the product. If the settings sheet is not available, keep a record of the settings before replacement so that you can restore them.

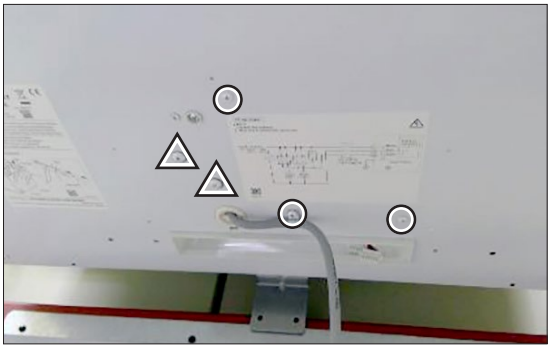
[5] Remove the control box (power circuit board).

a. Disconnect the motor lead connectors from the power circuit board. ... Refer to (6) [6] and [7].

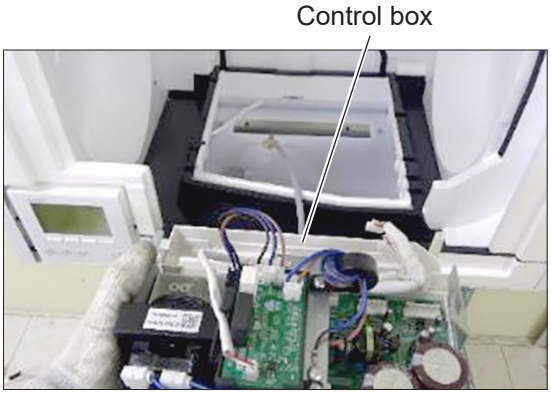
b. Disconnect the damper lead connector from the power circuit board. ... Refer to (5) [5] and [6].

c. Remove the screws from the bottom side of the product.
(3 screws: Spl screw PTT 4X12 (painted), indicated by ○)
(2 screws: Spl screw PT 5X10 (painted), indicated by △)

Tightening torque
○ : 1.1 ± 0.2 N·m
△ : 2.7 ± 0.5 N·m



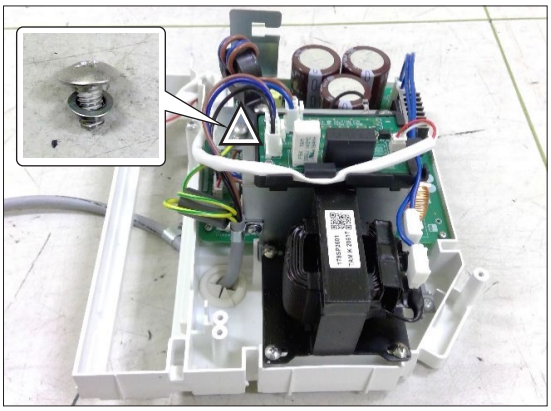
d. Remove the control box.




[6] Disconnect the power supply cord.

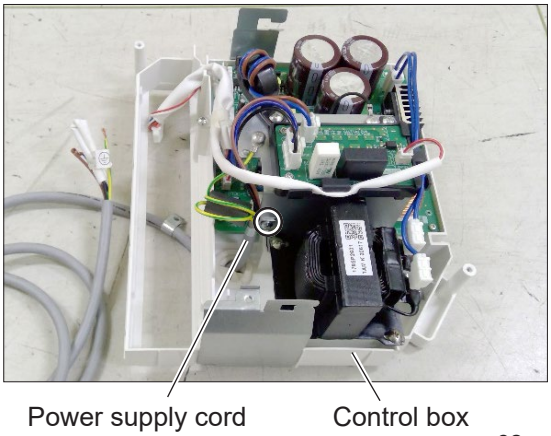
a. Remove the earth screw and washer.
(1 screw: PT screw 4x8 (BS), indicated by △)
(1 washer: Spring washer)

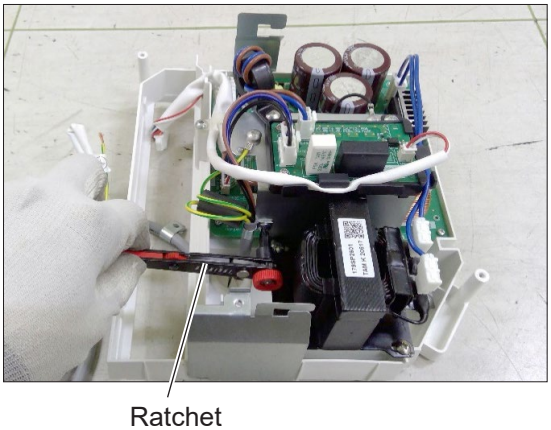
Tightening torque
△ : 0.96 ± 0.14 N·m



b. Use a ratchet to remove the screw.
(1 screw: PT screw 4x10, indicated by ○).

Tightening torque
○ : 1.5 ± 0.2 N·m



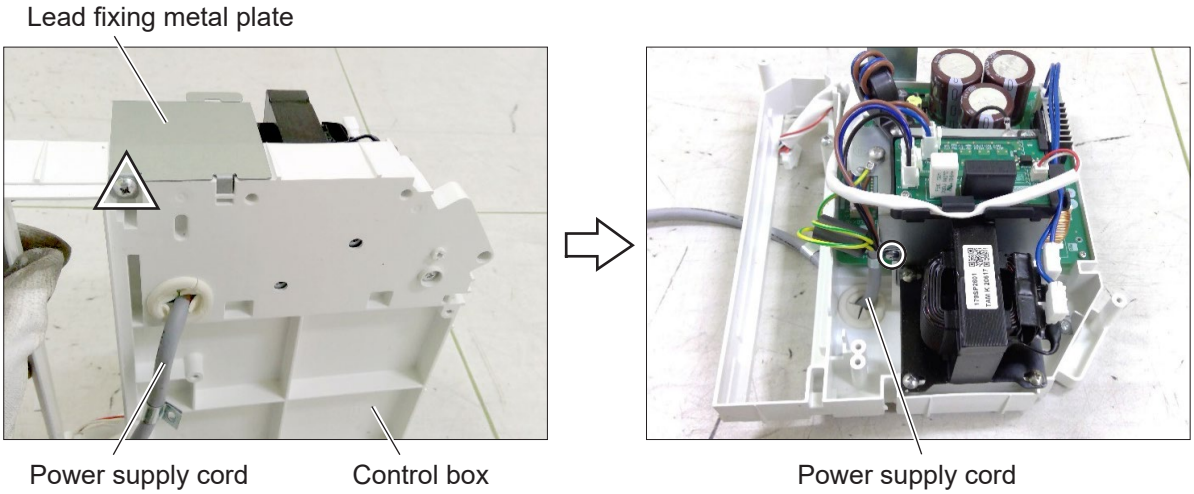
**<When not using the ratchet>**

b. Remove the screw and remove the lead fixing metal plate.
(1 screw: PTT screw 4x12, indicated by △)

| Tightening torque |
| --- |
| △ : 1.1 ± 0.2 N·m |

c. Remove the screw.
(1 screw: PT screw 4x10, indicated by ○)

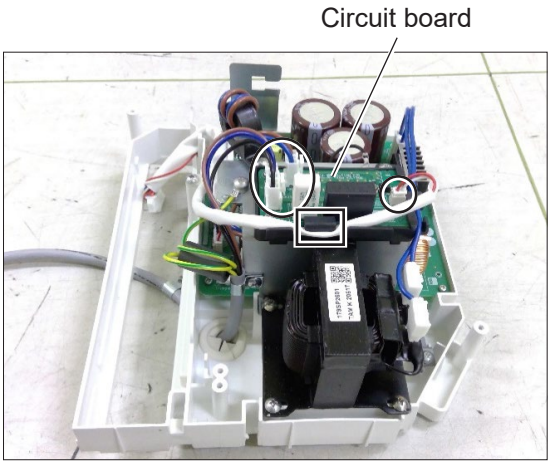
| Tightening torque |
| --- |
| ○ : 1.5 ± 0.2 N·m |




[7] Remove the circuit board (power interface circuit board).

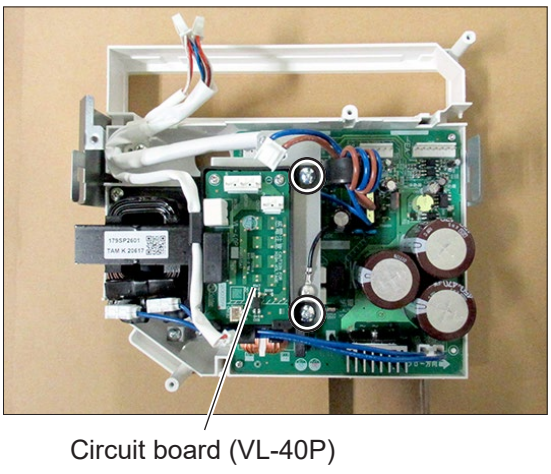
a. Disconnect the connectors (indicated by ○) from the circuit board.

b. Remove the lead wire from the hook (indicated by □).




c. Remove the circuit board fixing screws.
(2 screws: PT screw 4x10, indicated by ○)

| Tightening torque |
| --- |
| ○ : 1.5 ± 0.2 N·m |



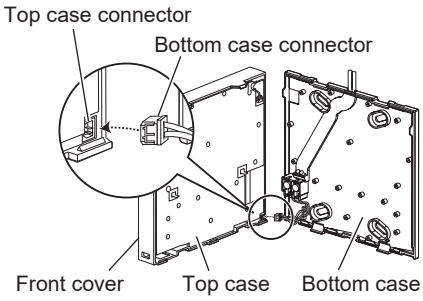
## (8) Remove the controller

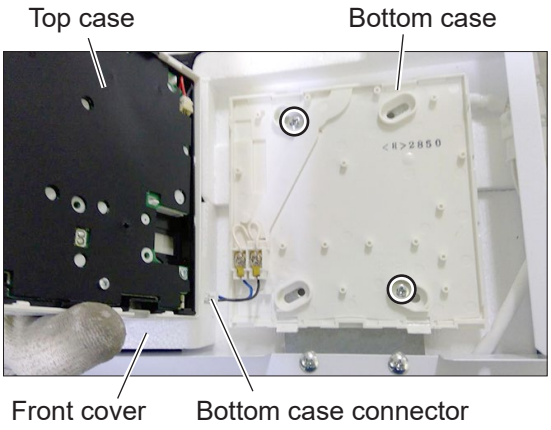
* The pictures show **VL-250CZPVU-R-E**.

[1] Open the tabs in the slits at the bottom of the controller (at 2 locations indicated by ○) using a flat-head screwdriver and open the front cover.


[2] Open the front cover and disconnect the bottom case connector.

Assembly precaution
Be sure to connect the connectors when installing the front cover.

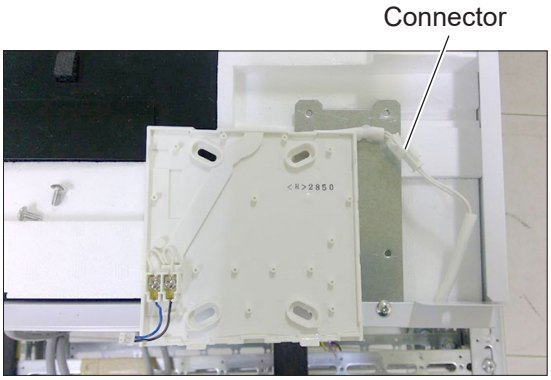



[3] Remove the screws.
(2 screws: PT screw 4x6, indicated by ○)

Tightening torque
○ : 1.5 ± 0.2 N·m

[4] Disconnect the connector of controller cable.



## (9) Restoring wire connection

### ■ Wiring order inside the control box

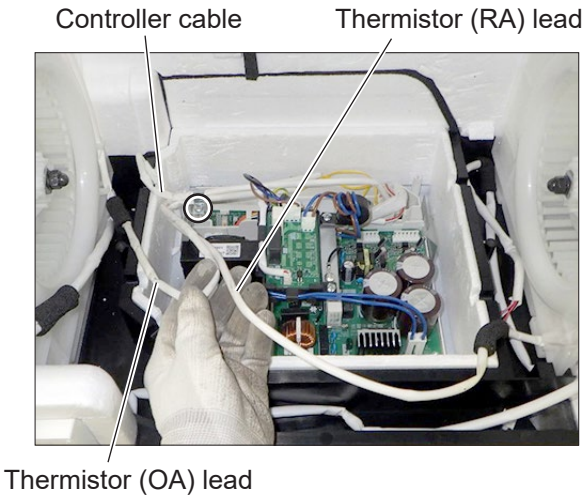
Assembly precaution
If the lead wires are ordered in a wrong way, they cross each other and may affect the electrical characteristics.

[1] Thermistor connectors

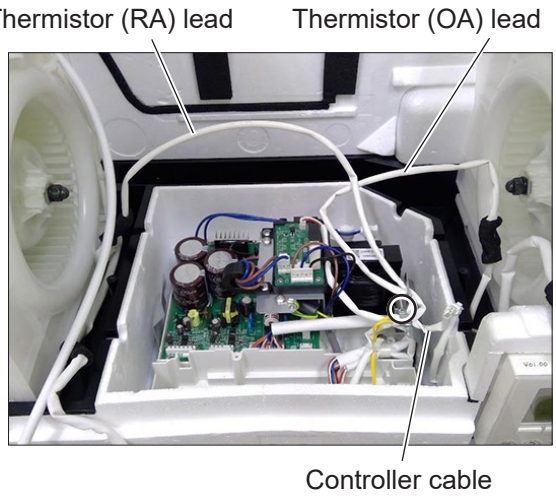
a. Connect the thermistor relay connectors.

b. Bind the thermistor leads with the lead clamper. ··· Refer to (4) [10].

c. Tighten the screw (1 screw, indicated by ○) to fix the thermistor leads and controller cable with the metal clip.




**< VL-250CZPVU-L type >**

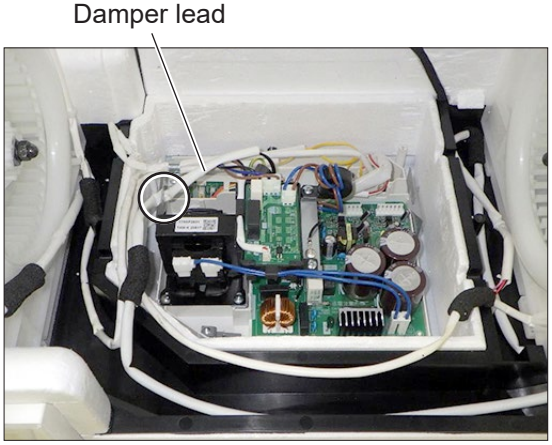



**< VL-250CZPVU-R type >**

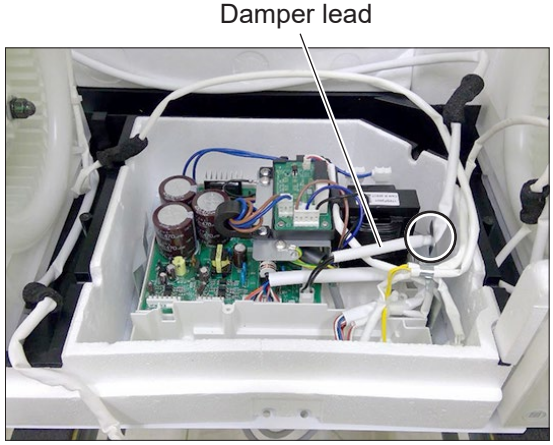
[2] Damper connector

a. Connect the damper connector to CN7 on the power circuit board.

b. Fix the damper lead to the metal plate hook of the control box (indicated by ○).




**< VL-250CZPVU-L type >**




**< VL-250CZPVU-R type >**

[3] Motor connectors

a. Connect the SA fan motor connector (white) to CN10 on the power circuit board.

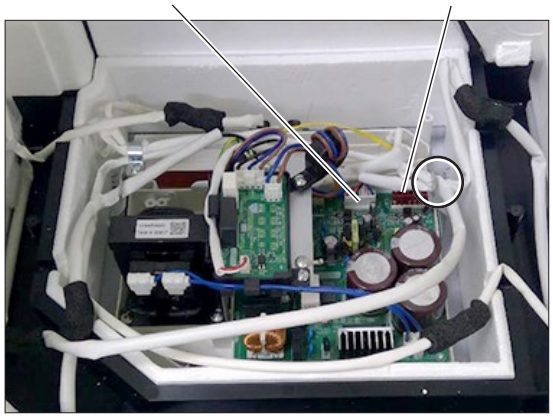
b. Connect the EA fan motor connector (red) to CN9 on the power circuit board.

c. Fix the motor leads to the metal plate hook of the control box (indicated by ○).

d. Tighten the lead clip fixing screw. ... Refer to (6) [5].

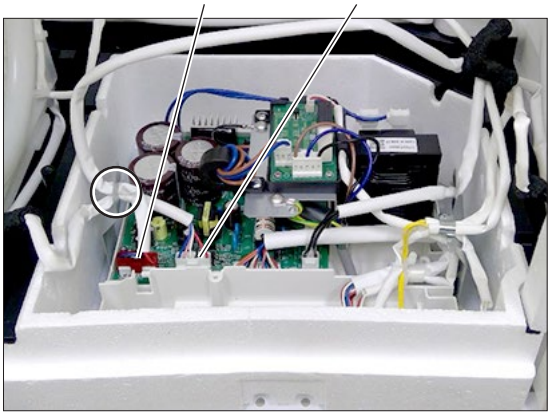
*** VL-250CZPVU-L type only**

SA fan motor connector EA fan motor connector



**< VL-250CZPVU-L type >**

EA fan motor connector SA fan motor connector

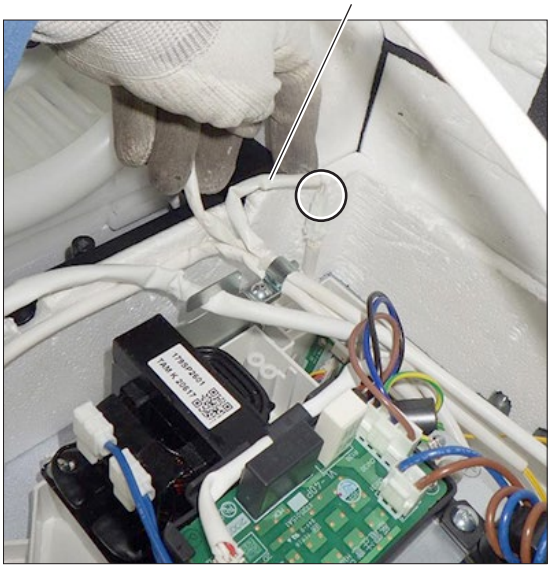


**< VL-250CZPVU-R type >**

[4] Before attaching the PCB cover (LOW), put away the controller cable wires (indicated by ○) so that they may not get pinched.

Assembly precaution
The plate metal of the PCB cover (LOW) may cut the controller cable wires.

Controller cable

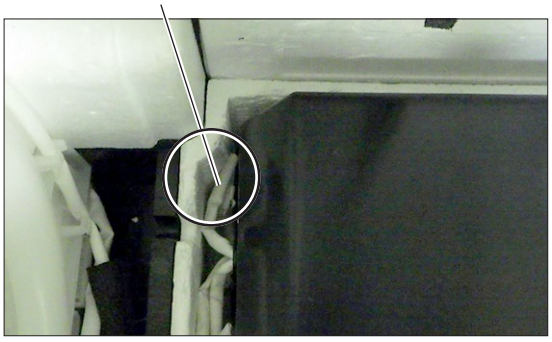


## ■ How to arrange the lead wires after attaching the PCB covers (LOW and UP)

Assembly precaution
Be careful not to damage the styrene when fitting the lead wires into the styrene grooves.

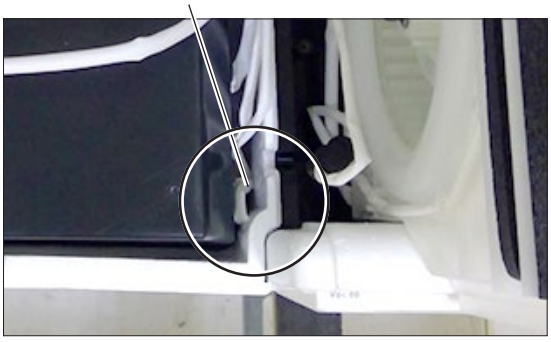
[1] Put the controller cable in the corner (indicated by ○).

Controller cable



**< VL-250CZPVU-L type >**

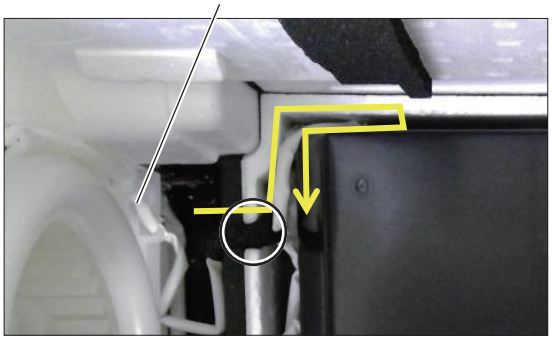
Controller cable



**< VL-250CZPVU-R type >**

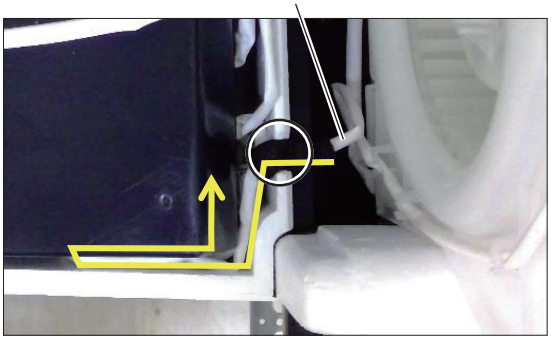
[2] Fit the part of the thermistor (OA) lead wrapped with packing into the styrene groove (indicated by ○), and put the extra part of the lead in the corner.

Thermistor (OA) lead



**< VL-250CZPVU-L type >**

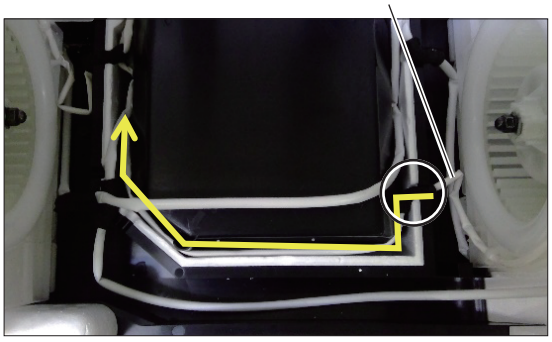
Thermistor (OA) lead



**< VL-250CZPVU-R type >**

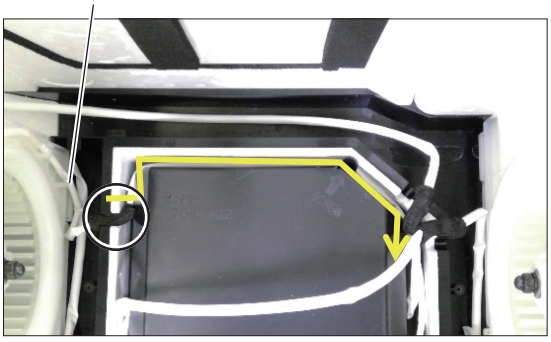
[3] Fit the part of the thermistor (RA) lead wrapped with packing into the styrene groove (indicated by ○), and store the extra part of the lead in the outer side of the PCB cover (UP).

Thermistor (RA) lead



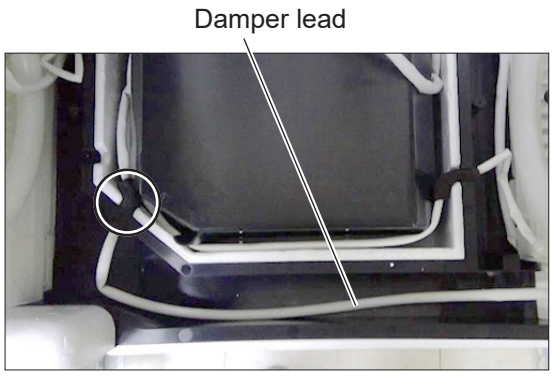
**< VL-250CZPVU-L type >**

Thermistor (RA) lead

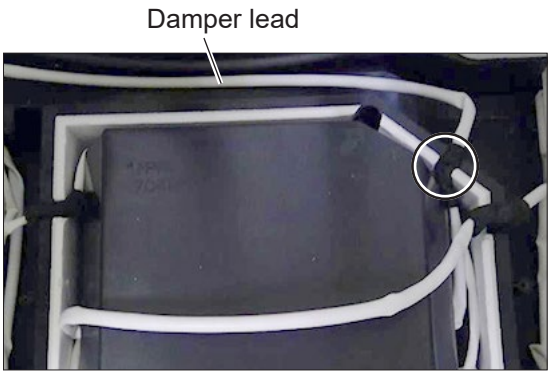


**< VL-250CZPVU-R type >**

[4] Fit the part of the damper lead wrapped with packing into the styrene groove (indicated by ○).

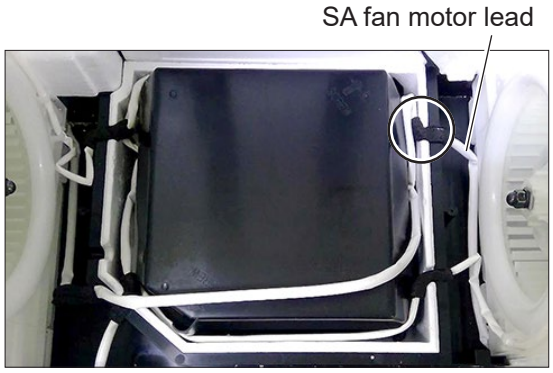



**< VL-250CZPVU-L type >**

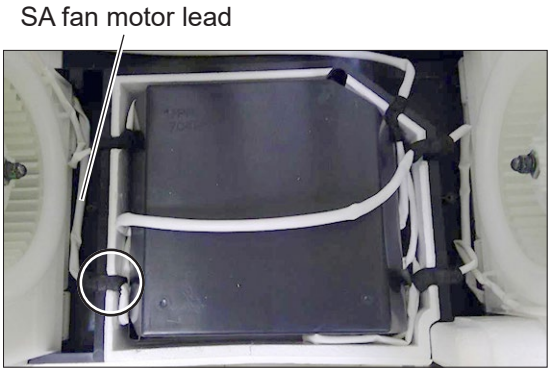



**< VL-250CZPVU-R type >**

[5] Fit the part of the SA fan motor lead wrapped with packing into the styrene groove (indicated by ○).



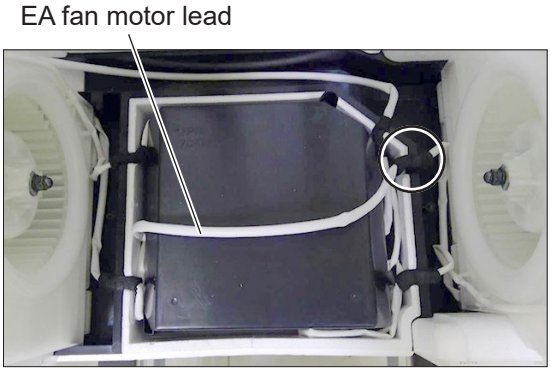

**< VL-250CZPVU-L type >**




**< VL-250CZPVU-R type >**

[6] Fit the part of the EA fan motor lead wrapped with packing into the styrene groove (indicated by ○).
* Pass the lead over the PCB cover (UP).


**< VL-250CZPVU-L type >**




**< VL-250CZPVU-R type >**

## ✻ When reassembling

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

## 11-2 VL-350CZPVU-L type, VL-350CZPVU-R type

**Note:** The following procedure applies to the **VL-350CZPVU-L** type. For VL-350CZPVU-R type, the components are placed in the right-left opposite positions.

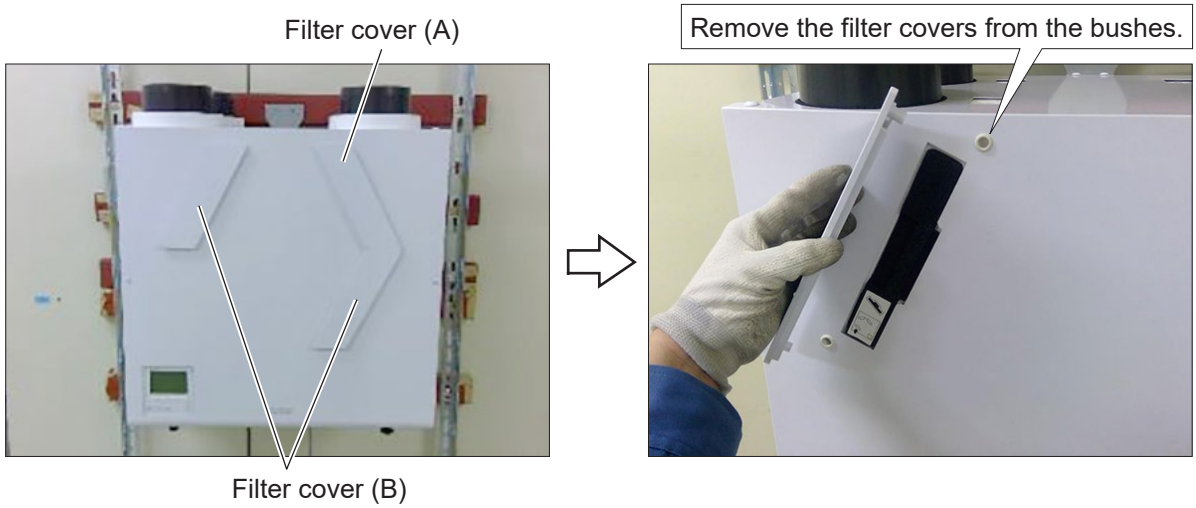
### (1) Turn off the power supply

[1] Stop the operation.

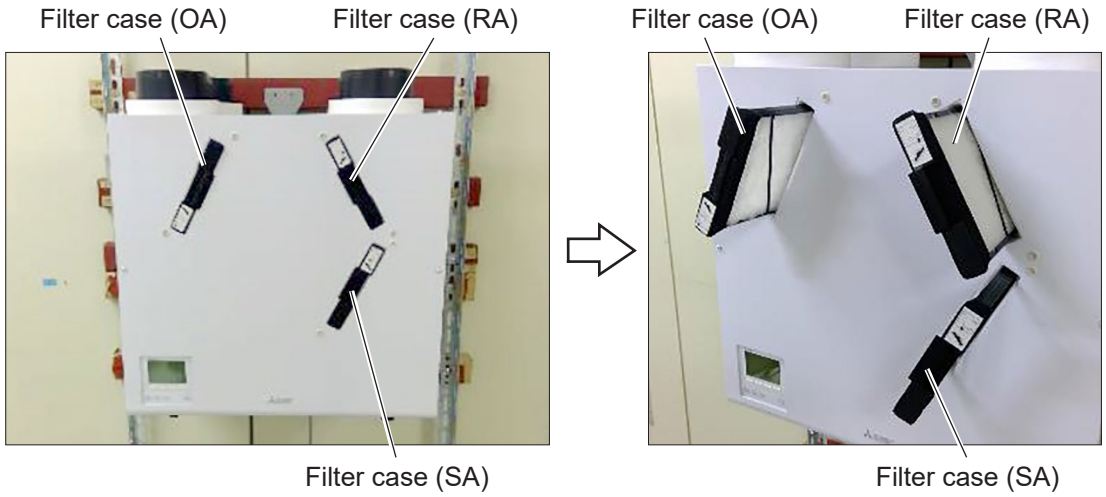
[2] Turn off the circuit breaker on the distribution board.

### (2) Remove the heat exchanger

[1] Remove the filter cover (A) (1 pc.) and filter covers (B) (2 pcs.).
**Note:** For VL-350CZPVU-R, remove the filter covers (A) (2 pcs.) and filter cover (B) (1 pc.).




[2] Pull out the filter cases (OA), (RA), and (SA).




Assembly precaution
When installing the filter cases, be sure to return the filter cases to the original positions.
(Check the position with the label attached to each filter case.)

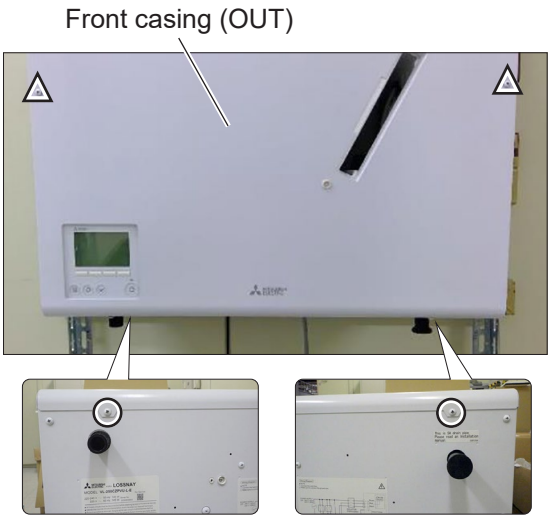
[3] Remove the front casing (OUT).

a. Remove the screws from the bottom side.
(2 screws: Spl screw PT 4X10 (painted), indicated by ○)

Tightening torque
○ : 1.5 ± 0.2 N·m

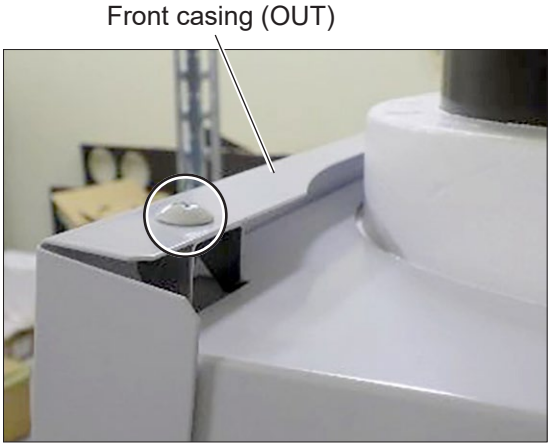
b. Remove the screws and washers from the front side.
(2 screws: Spl screw PT 4X10 (painted), indicated by △)
(2 washers: Special washer (3))

Tightening torque
△ : 1.5 ± 0.2 N·m




c. Open the bottom part of the front casing (OUT) a little bit, and raise it diagonally upward to unhook the top hook.

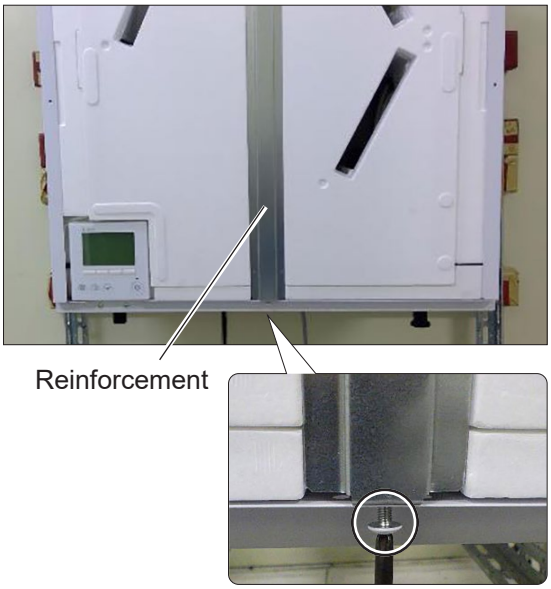

Precaution
Do not remove the screws (indicated by ◯) on the top of the front casing (OUT).



[4] Remove the reinforcement.

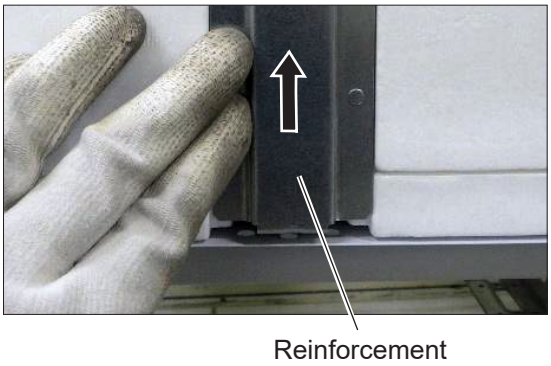
a. Remove the reinforcement fixing screw.
(1 screw: Spl screw PT 5X10 (painted), indicated by ○)

Tightening torque
○ : 2.7 ± 0.5 N·m

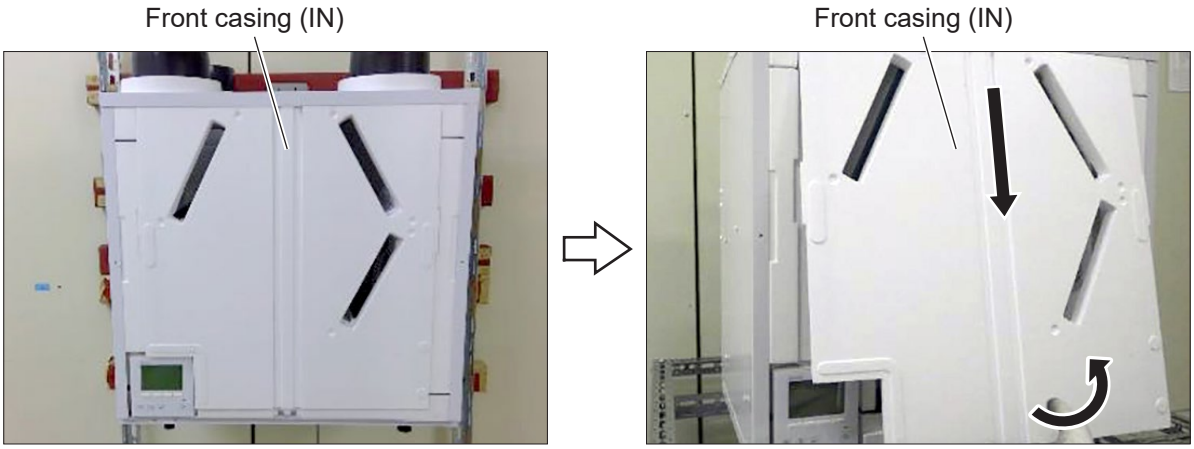



b. Remove the reinforcement by sliding it upward.

Precaution
Be careful not to drop the reinforcement due to reaction from the plate.
(It may cause an injury or damage to properties.)



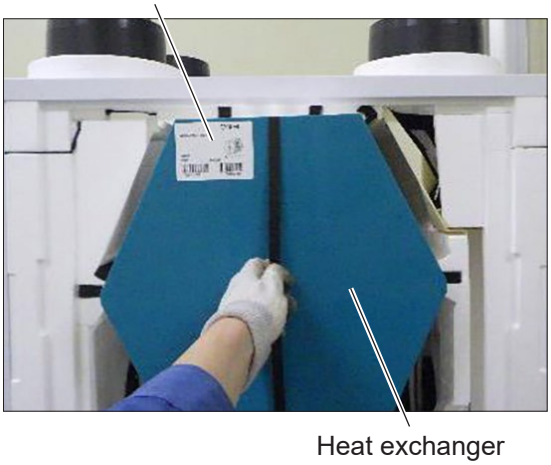

[5] Hold the lower part of the front casing (IN) and open it a little bit, and then remove it by sliding it downward.



[6] Hold the band of the heat exchanger and pull it out.

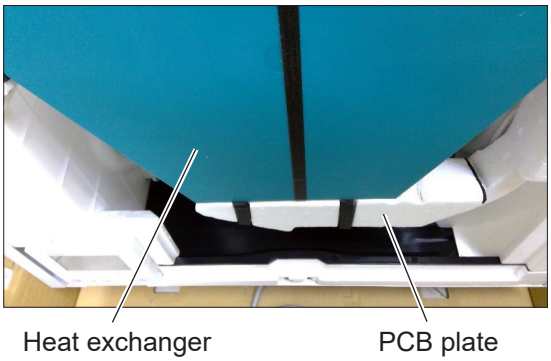
Precaution
The heat exchanger is heavy. Be careful not to remove the band.
(The heat exchanger may drop and cause an injury.)

Assembly precaution
When installing the heat exchanger, its label should come to this end and face up as shown in the picture.

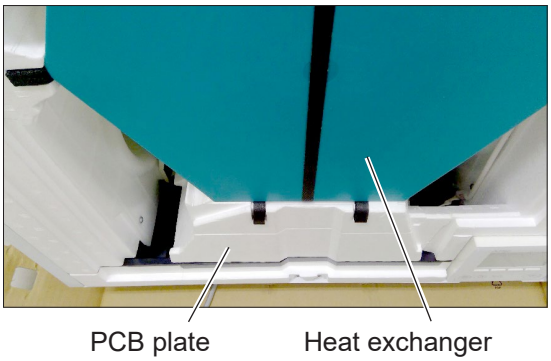



Assembly precaution
Insert the heat exchanger to the position shown in the pictures.

**< VL-350CZPVU-L type >**




**< VL-350CZPVU-R type >**



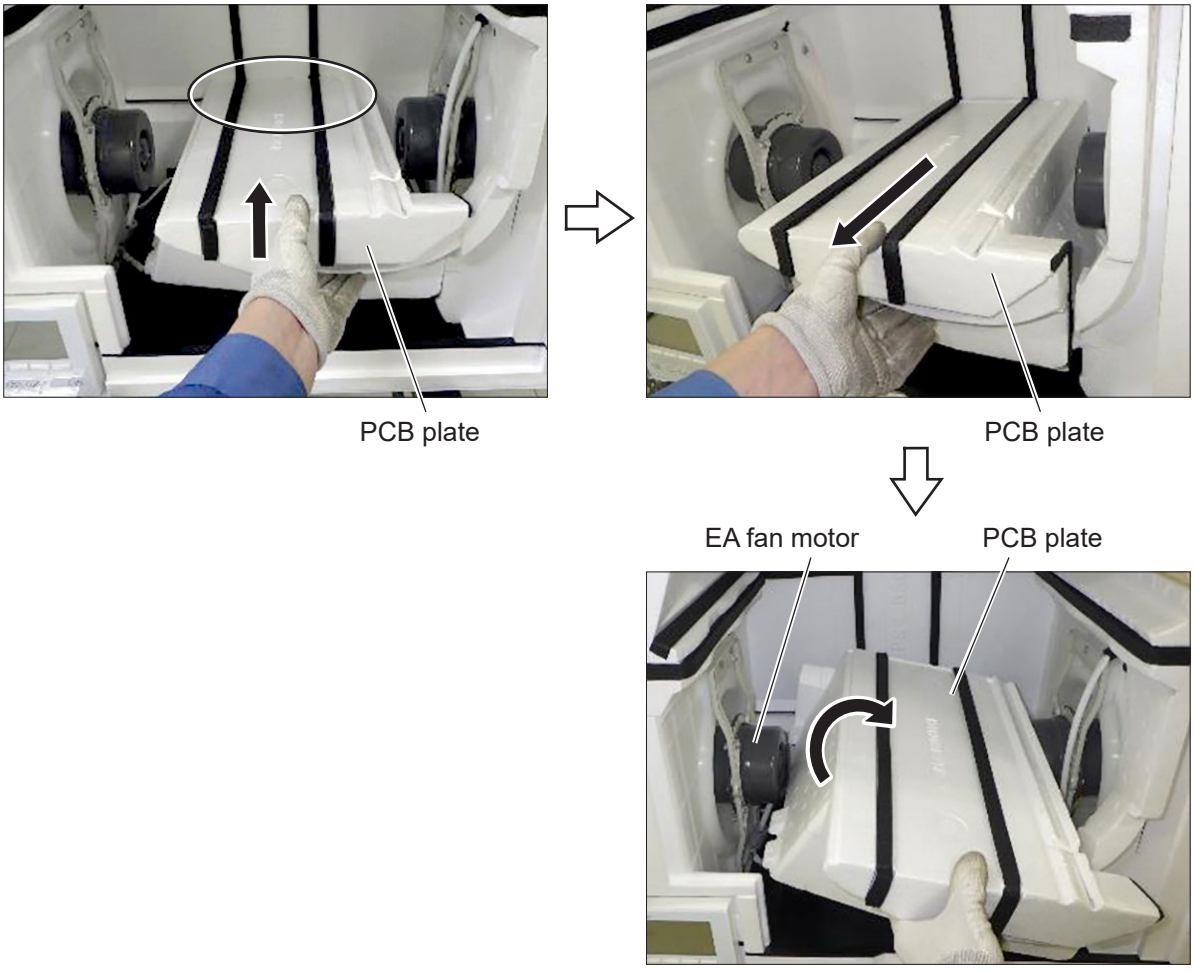
## (3) Remove the PCB cover

[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB plate.

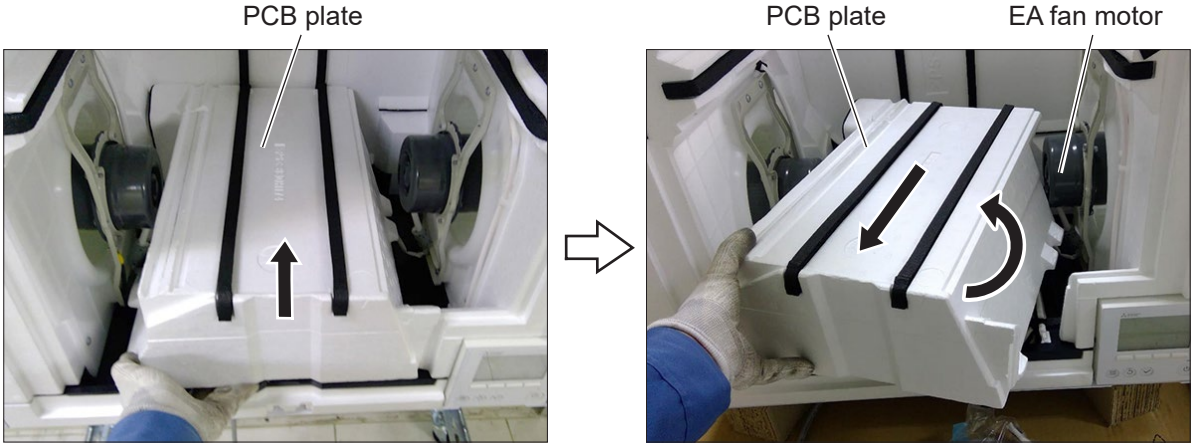
### For VL-350CZPVU-L type

Raise this side of the PCB plate a little bit and pull it until the hook at the deepest location (indicated by ○) is unhooked, and then remove the PCB plate by rotating it.




### For VL-350CZPVU-R type

Raise the PCB plate a little bit and pull it so that it is not disturbed by the EA fan motor, and then remove the PCB plate by rotating it.



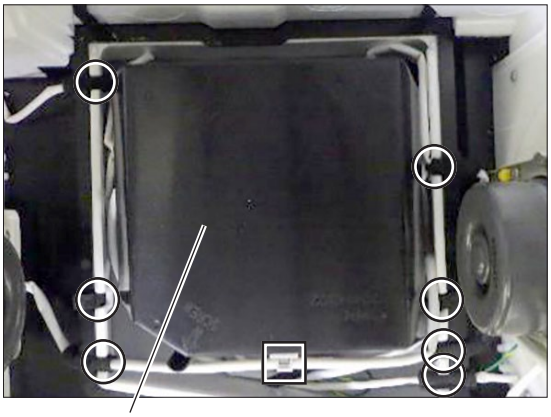
[3] Remove the lead wires.

a. Remove the lead wires from the styrene grooves (indicated by ○).

Precaution
Be careful not to damage the styrene.

b. Pull out the lead wires stored in the outer side of the PCB cover (UP).

c. Remove the lead wire from the lead clamper (indicated by □).

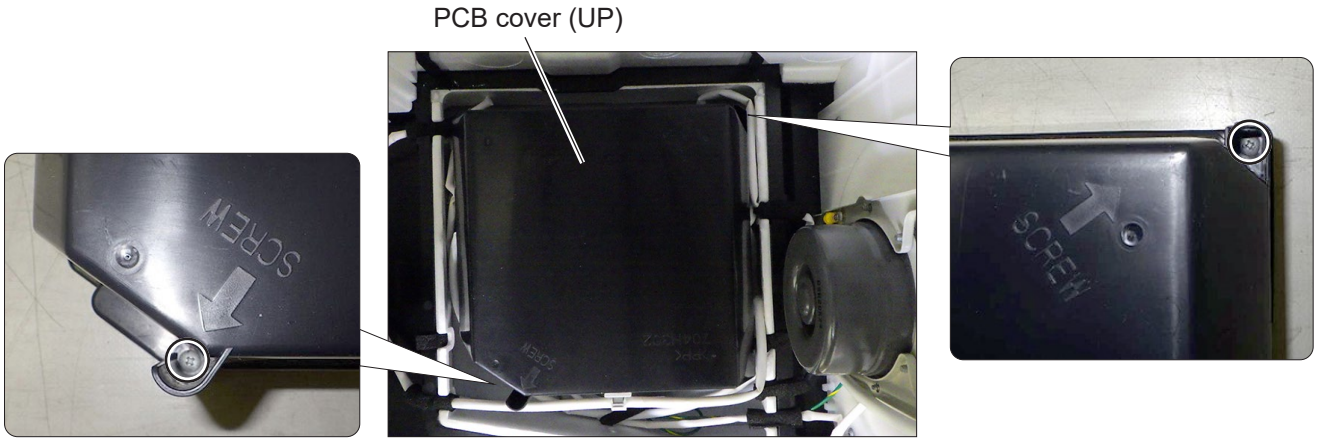



[4] Remove the PCB cover (UP).

a. Remove the screws.
(2 screws: Spl screw PTT 4X12, indicated by ○)

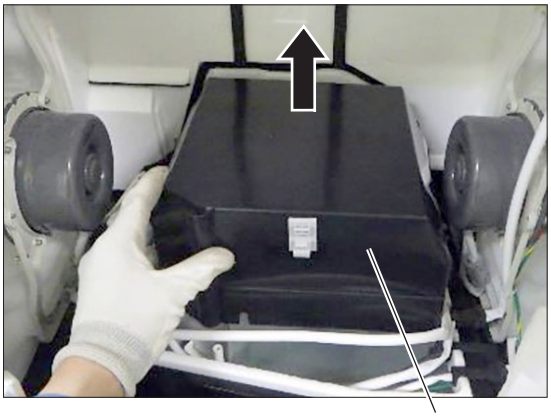
Precaution
Screws are located where it is not easy to see them.

Tightening torque
○ : 1.2 ± 0.2 N·m

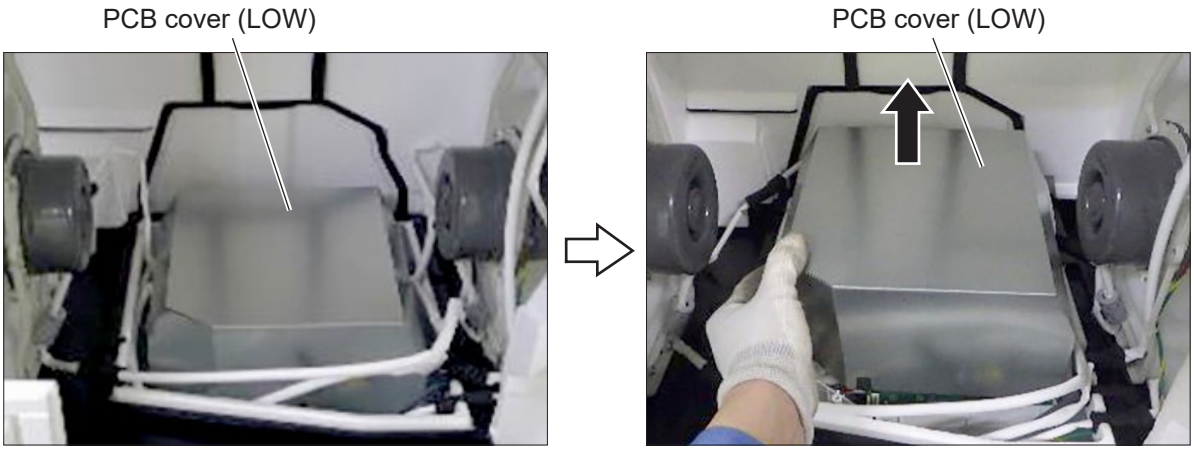



b. Remove the PCB cover (UP).

Assembly precaution
Be sure to attach the PCB cover (LOW) before installing the PCB cover (UP).



[5] Remove the PCB cover (LOW).




■ **Reference: Circuit board locations within the control box** ··· Refer to 11-1 (page 55).

## (4) Remove the fan assembly

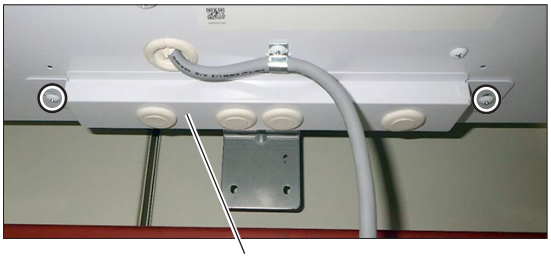
[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

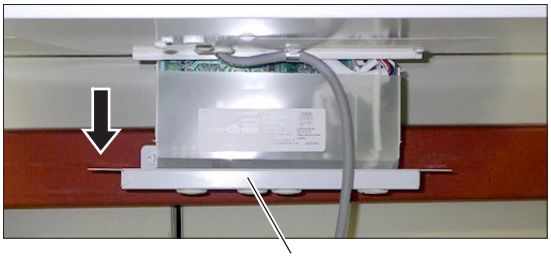
[3] Lower the circuit board (control circuit board) to provide a work space for disconnecting and connecting the connectors.

a. Remove the circuit board fixing screws from the bottom side of the product.
(2 screws: Spl screw PT 4X10 (painted), indicated by ○)

| Tightening torque |
| --- |
| ○ : 1.5 ± 0.2 N·m |




b. Lower the circuit board.

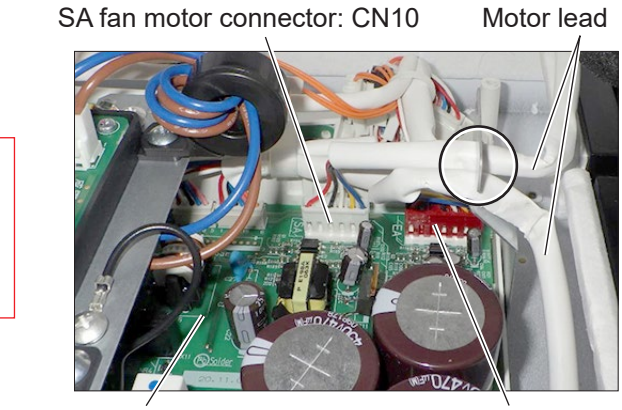


[4] Remove the lead clip fixing screw to disconnect the connector.
(1 screw: PTT screw 4x12, indicated by ○)
*** VL-350CZPVU-L type only**


[5] Disconnect the motor lead connectors from the power circuit board.
SA fan motor connector: CN10
EA fan motor connector: CN9

Precaution
When disconnecting the motor connectors, make sure that the power supply is turned off. Even when the fan motor is stopped, disconnecting the live-line connectors will cause a motor malfunction.

[6] Remove the motor leads from the metal plate hook of the control box (indicated by ○).




## For the EA fan assembly

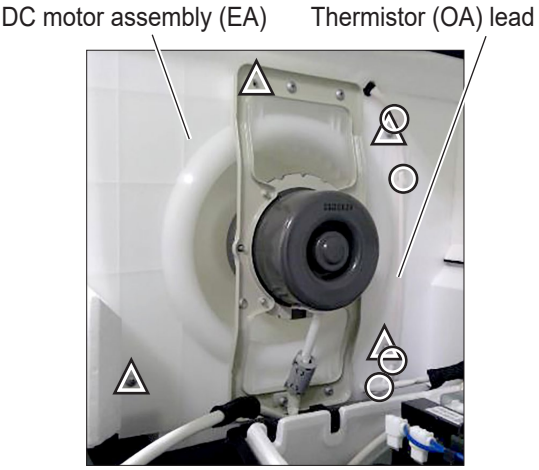
[7] Remove the DC motor assembly (EA).

a. Unhook the thermistor (OA) lead from the hooks on the orifice (indicated by ○).

b. Remove the screws.
(4 screws: Spl screw PPT 4x30, indicated by △)

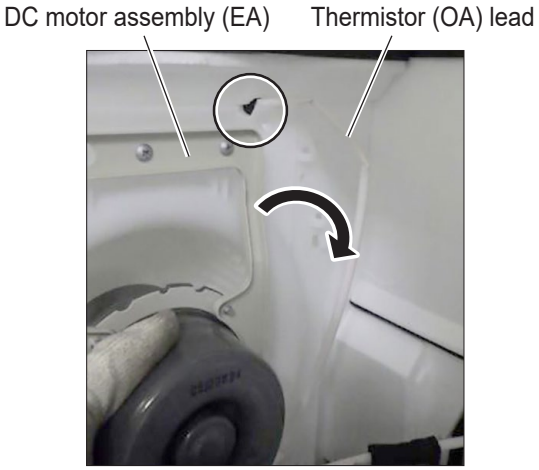
Tightening torque
△ : 1.1 ± 0.2 N·m

* There are spacers (4 spacers: 6x15) behind the DC motor assembly (EA).




c. Remove the DC motor assembly (EA).

Precaution
Be careful not to catch the thermistor (OA) lead by the notch (Indicated by ○).



## For the SA fan assembly

[7] Remove the DC motor assembly (SA).

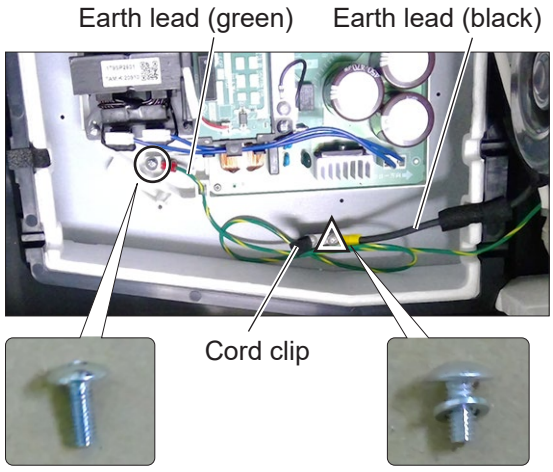
a. Remove the earth lead (green) fixing screw.
(1 screw: PT screw 4x10, indicated by ○)

Tightening torque
○ : 1.5 ± 0.2 N·m

b. Raise the cord clip fixing the earth lead (green).

c. Remove the earth lead (black) fixing screw.
(1 screw: PT screw 4x8 (BS) with washer, indicated by △)

Tightening torque
△ : 0.96 ± 0.14 N·m




d. Unhook the thermistor (RA) lead from the hooks on the orifice (indicated by ○).

e. Cut the insulok tie fixing the damper lead and earth lead (green).

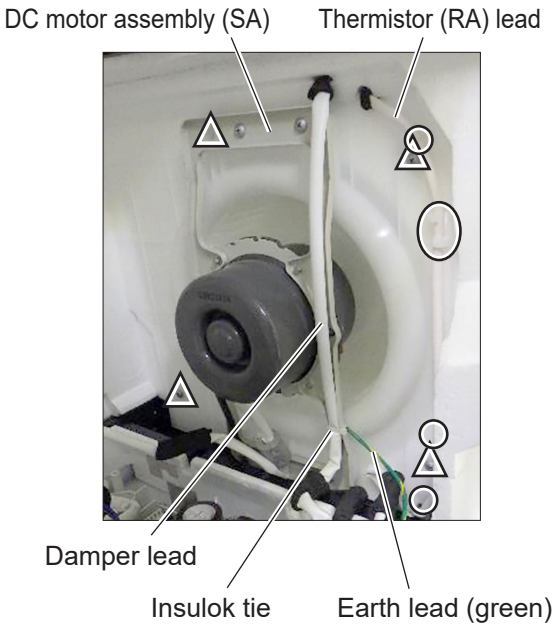
Precaution
Take care not to cut the lead wires.

Assembly precaution
When installing the damper lead and earth lead (green), be sure to fix them with an insulok tie.

f. Remove the screws.
(4 screws: Spl screw PPT 4x30, indicated by △)

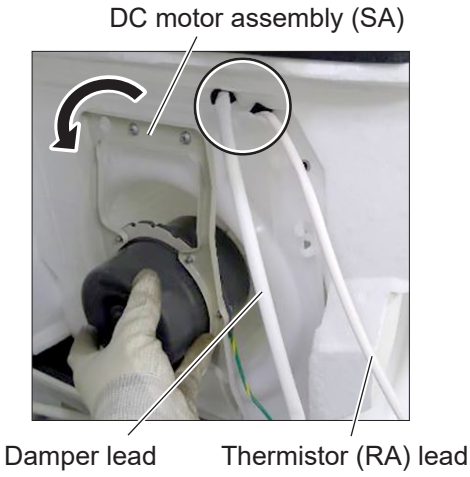
Tightening torque
△ : 1.1 ± 0.2 N·m

*There are spacers (4 spacers: 6x15) behind the DC motor assembly (SA).




g. Remove the DC motor assembly (SA).

Precaution
Be careful not to catch the damper lead and thermistor (RA) lead by the notch (indicated by ○).



* Steps **[8]** through **[12]** refers to the **DC motor assembly (EA)**. Remove the centrifugal fan for the **DC motor assembly (SA)** in the similar manner.

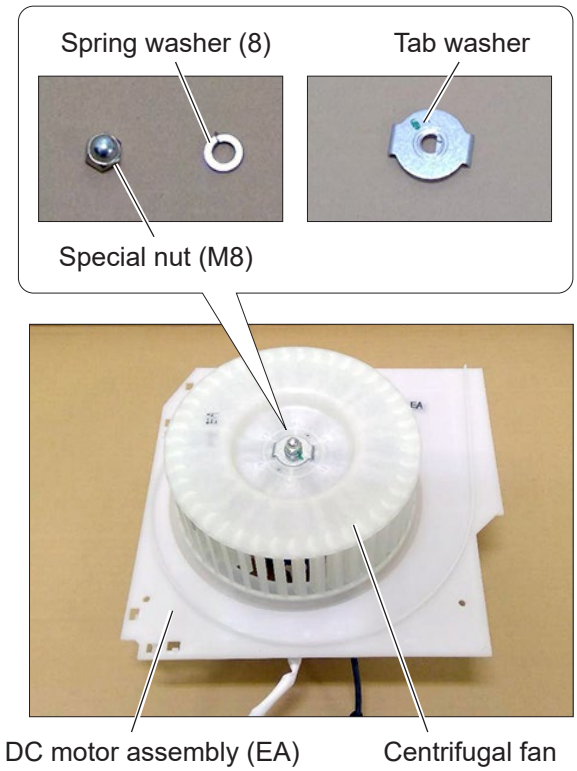
[8] Remove the special nut (M8).

Tightening torque:
2.3 ± 0.2 N·m

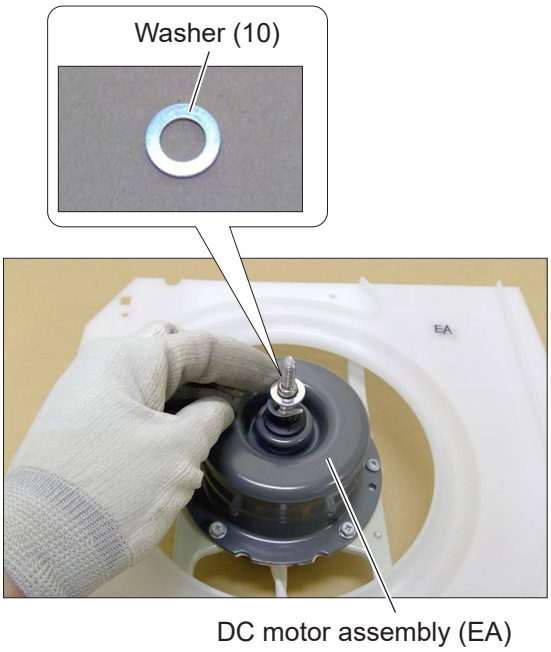
[9] Remove the spring washer (8).

[10] Remove the tab washer.

[11] Remove the centrifugal fan.




[12] Remove the washer (10).



## (5) Remove the thermistor

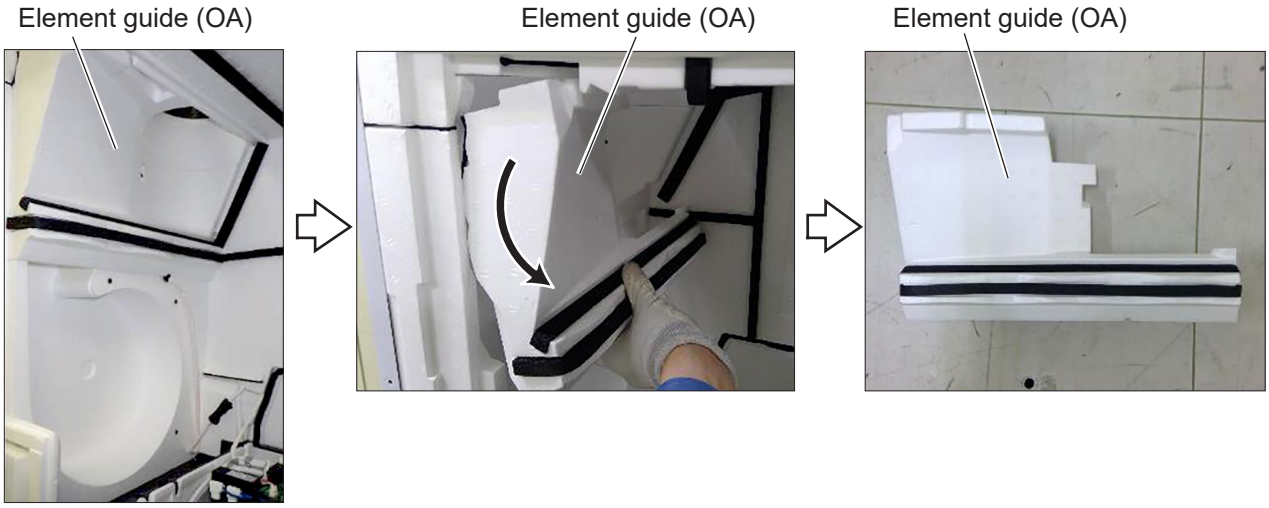
[1] Remove the heat exchanger. ... Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

**For the thermistor (OA)**

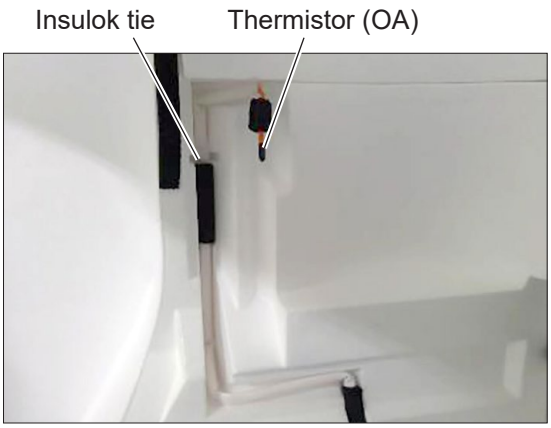
[3] Remove the DC motor assembly (EA). ··· Refer to (4).

[4] Remove the element guide (OA) by sliding it as shown in the pictures.

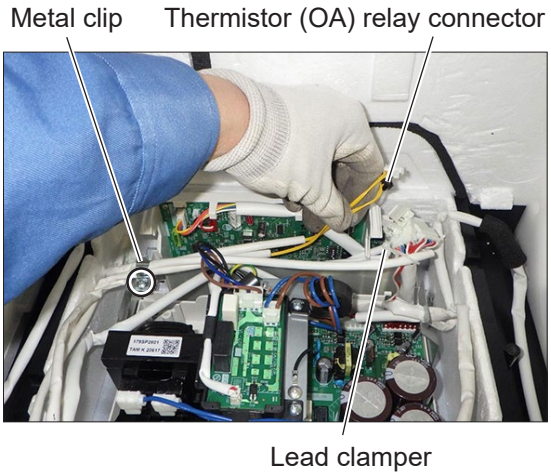



[5] Remove the thermistor (OA).

Assembly precaution
When attaching the thermistor, align the insulok tie with the groove and fix the thermistor as shown in the picture.



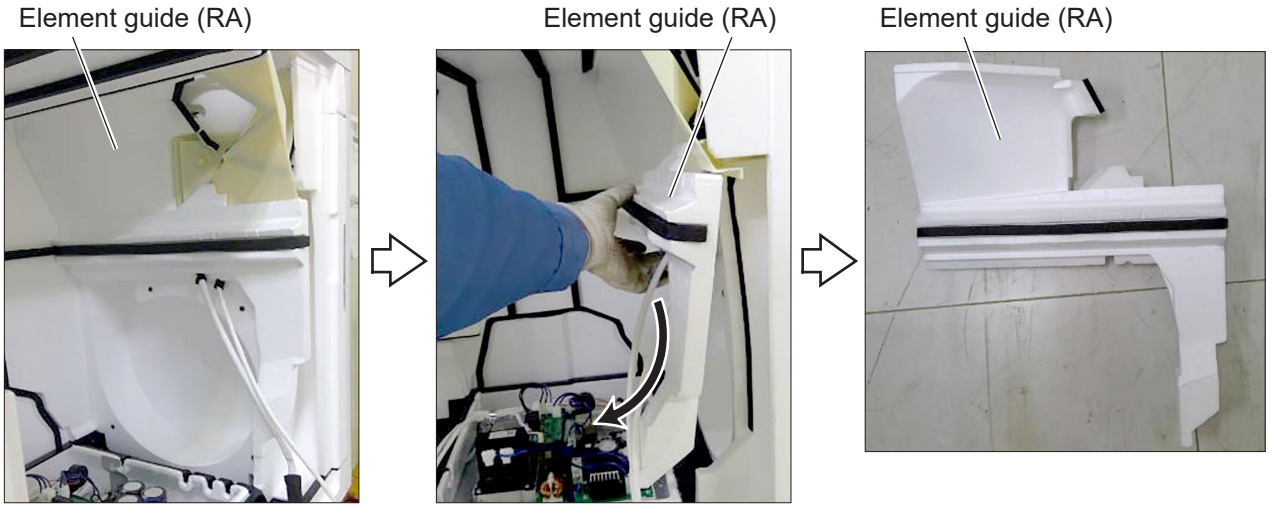

a. Disconnect the thermistor (OA) relay connector.
b. Remove the thermistor (OA) lead from the lead clamper.
c. Remove the metal clip fixing screw.
(1 screw: indicated by ○)



## For the thermistor (RA)

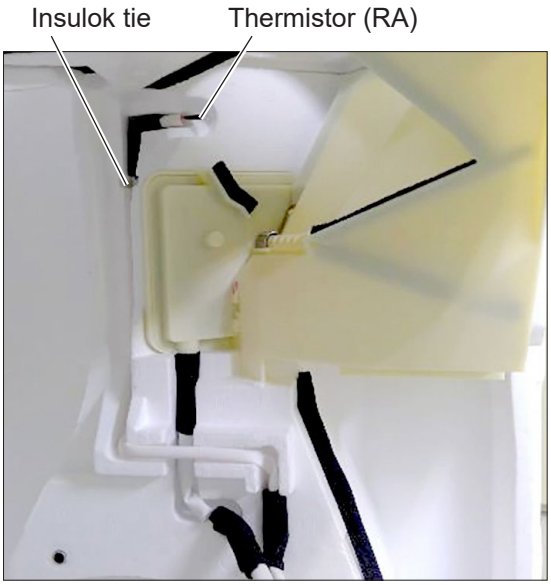
[3] Remove the DC motor assembly (SA). ··· Refer to (4).

[4] Remove the element guide (RA) by sliding it as shown in the pictures.




[5] Remove the thermistor (RA).

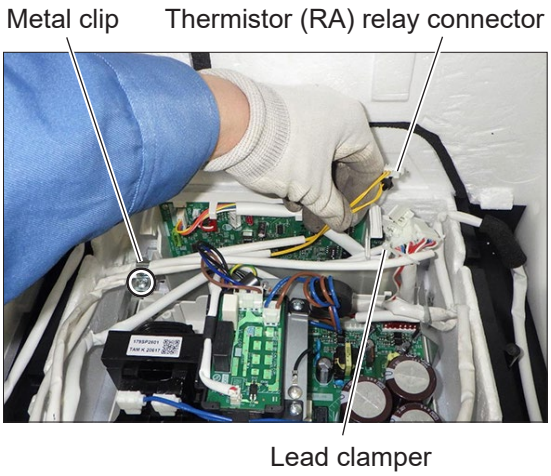
Assembly precaution
When attaching the thermistor, align the insulok tie with the groove and fix the thermistor as shown in the picture.




a. Disconnect the thermistor (RA) relay connector.

b. Remove the thermistor (RA) lead from the lead clamper.

c. Remove the metal clip fixing screw.
(1 screw: indicated by ○)



## (6) Remove the damper assembly

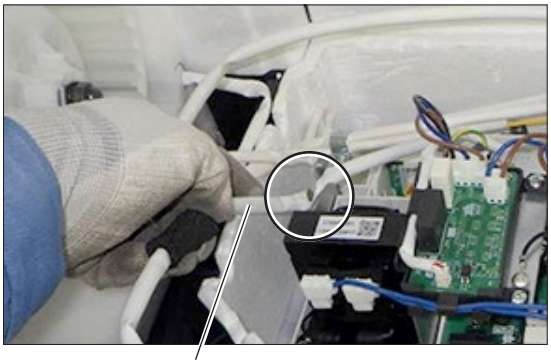
[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

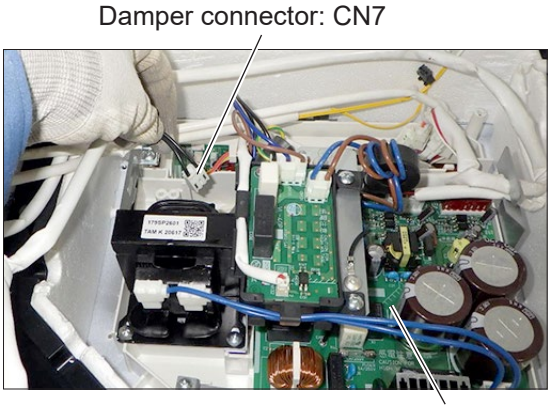
[3] Remove the DC motor assembly (SA). ··· Refer to (4).

[4] Remove the thermistor (RA). ··· Refer to (5).

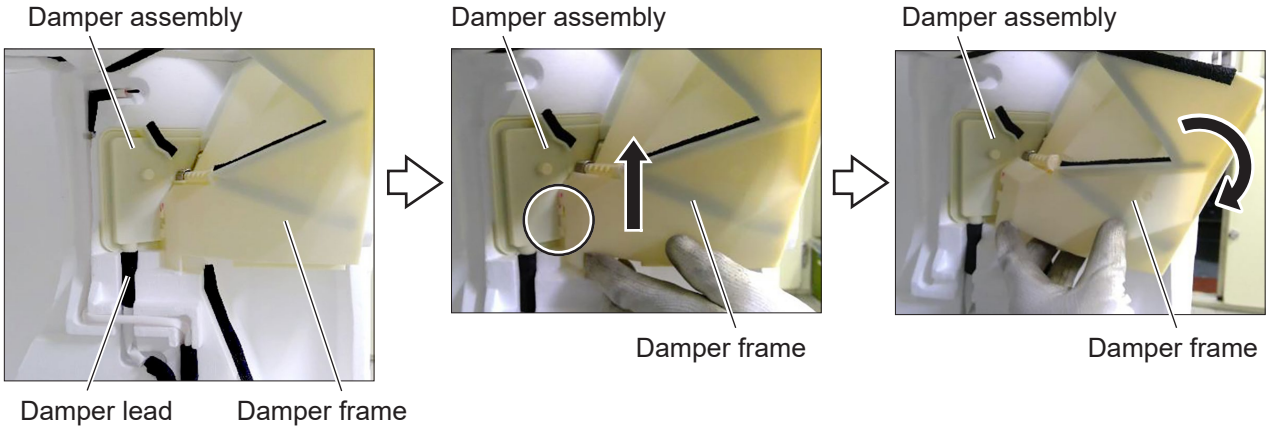
[5] Remove the damper lead from the metal plate hook of the control box (indicated by ○).



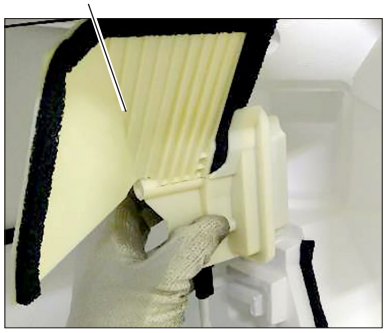

[6] Disconnect the damper lead connector from the power circuit board.




[7] Slide the notch of the damper frame (indicated by ○) upward to unhook from the hook on the damper assembly.




[8] Remove the damper lead from the groove and then remove the damper assembly.



## (7) Remove the circuit board and power supply cord··· Refer to 11-1 (7).

**Note:** When removing the control box (power circuit board), be sure to remove the screws of the earth lead (green), (black). ··· Refer to 11-2 (4) [7] (For the SA fan assembly).

## (8) Remove the controller··· Refer to 11-1 (8).

## (9) Restoring wire connection

### ■ Wiring order inside the control box

Assembly precaution
If the lead wires are ordered in a wrong way, they cross each other and may affect the electrical characteristics.

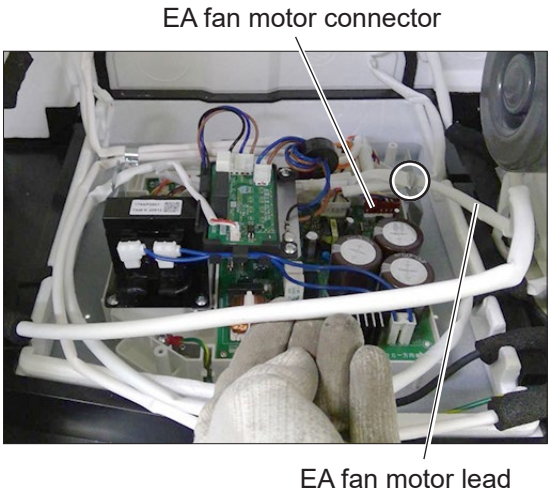
[1] Connect the connectors except for the EA fan motor connector.

[2] Connect the EA fan motor connector (red) to CN9 on the power circuit board.

Assembly precaution
Pass the EA fan motor lead over the other lead wires.

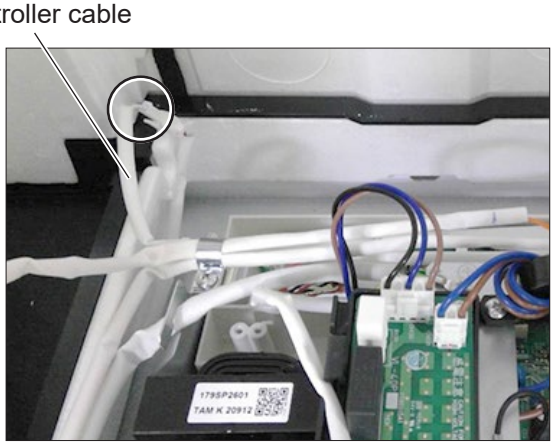
[3] Fix the EA fan motor lead to the metal plate hook of the control box (indicated by ○).

[4] Tighten the lead clip fixing screw. ··· Refer to (4) [4].
* **VL-350CZPVU-L type only**

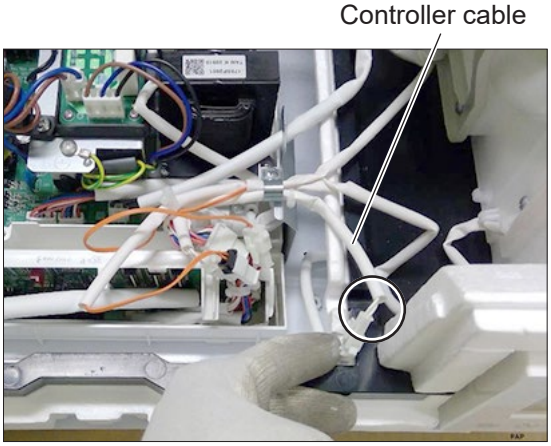



[5] Before attaching the PCB cover (LOW), put away the controller cable wires (indicated by ○) so that they may not get pinched.

Assembly precaution
The plate metal of the PCB cover (LOW) may cut the controller cable wires.




**< VL-350CZPVU-L type >**



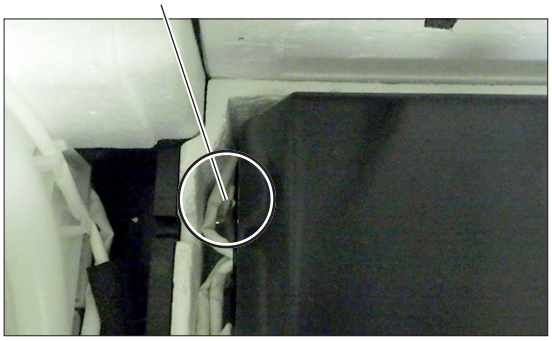

**< VL-350CZPVU-R type >**

## ■ How to arrange the lead wires after attaching the PCB covers (LOW and UP)

Assembly precaution
Be careful not to damage the styrene when fitting the lead wires into the styrene grooves.

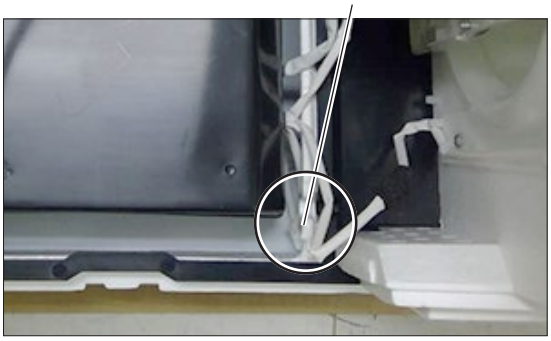
[1] Put the controller cable in the corner (indicated by ○).

Controller cable



**< VL-350CZPVU-L type >**

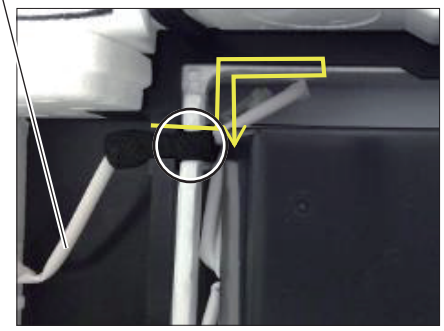
Controller cable



**< VL-350CZPVU-R type >**

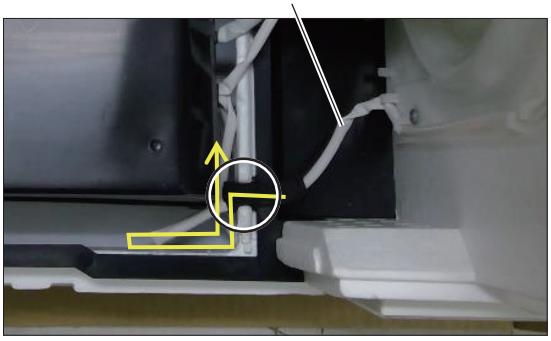
[2] Fit the part of the thermistor (OA) lead wrapped with packing into the styrene groove (indicated by ○), and put the extra part of the lead in the corner.

Thermistor (OA) lead



**< VL-350CZPVU-L type >**

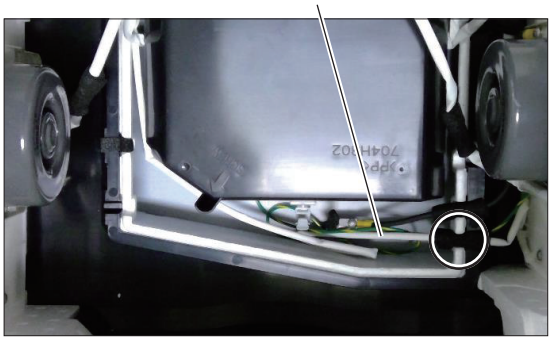
Thermistor (OA) lead



**< VL-350CZPVU-R type >**

[3] Fit the part of the thermistor (RA) lead wrapped with packing into the styrene groove (indicated by ○).
* Fit it into the same groove as the earth lead (green).

Thermistor (RA) lead



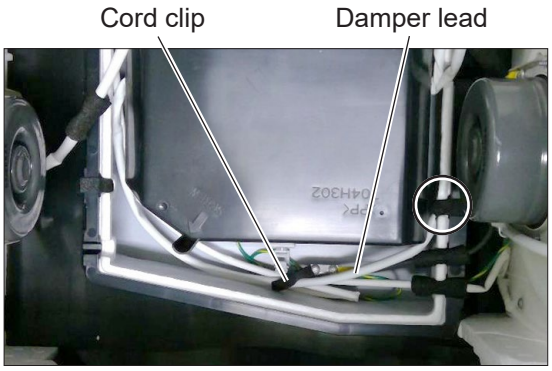
**< VL-350CZPVU-L type >**

Thermistor (RA) lead

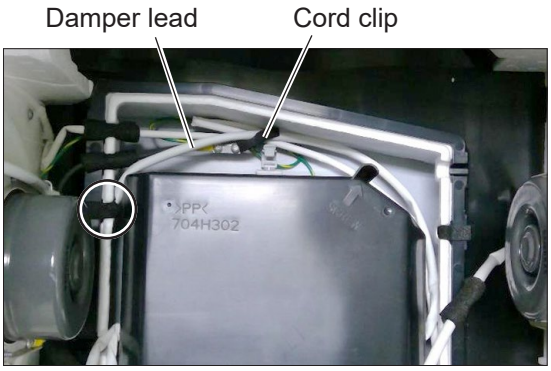
**< VL-350CZPVU-R type >**

[4] Fit the part of the damper lead wrapped with packing into the styrene groove (indicated by ○).

[5] Fix the extra damper lead together with the earth lead (green) and thermistor (RA) lead using the cord clip.

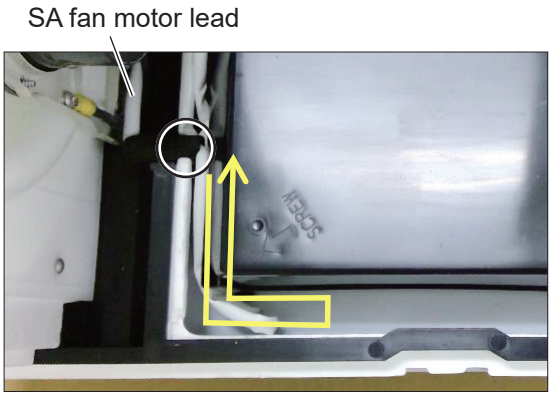



**< VL-350CZPVU-L type >**

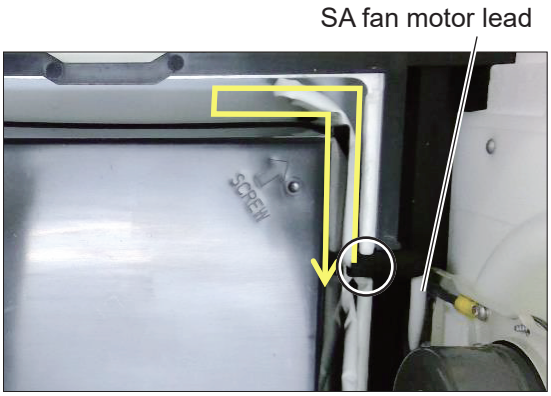



**< VL-350CZPVU-R type >**

[6] Fit the part of the SA fan motor lead wrapped with packing into the styrene groove (indicated by ○), and put the extra part of the lead in the corner.




**< VL-350CZPVU-L type >**

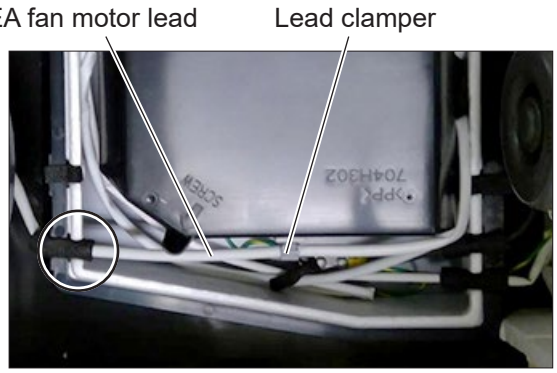



**< VL-350CZPVU-R type >**

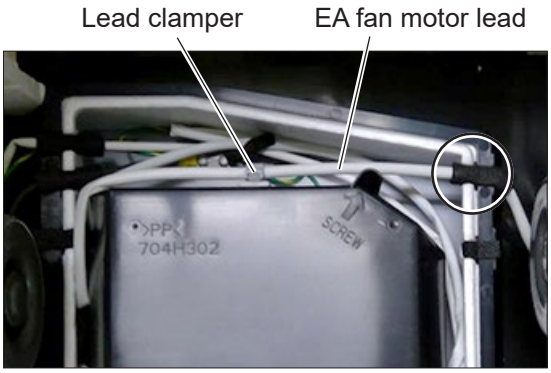
[7] Fit the part of the EA fan motor lead wrapped with packing into the styrene groove (indicated by ○).

[8] Fix the EA fan motor lead with the lead clamper.

[9] Store the extra part of the lead in the outer side of the PCB cover (UP).




**< VL-350CZPVU-L type >**




**< VL-350CZPVU-R type >**

## ✻ When reassembling

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

## 11-3 VL-500CZPVU-L type, VL-500CZPVU-R type

**Note:** The following procedure applies to the **VL-500CZPVU-L** type. For VL-500CZPVU-R type, the components are placed in the right-left opposite positions.

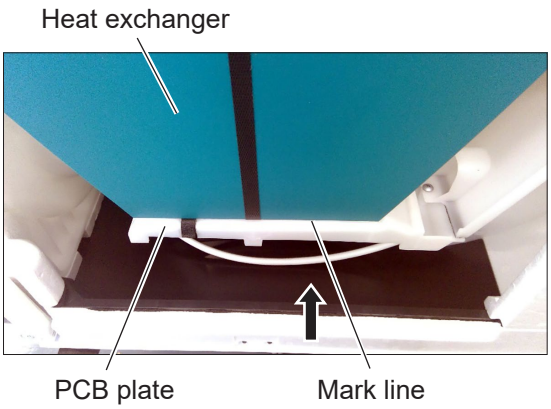
### (1) Turn off the power supply

[1] Stop the operation.

[2] Turn off the circuit breaker on the distribution board.

### (2) Remove the heat exchanger··· Refer to 11-1 (2).

Assembly precaution
Insert the heat exchanger to the mark line on the PCB plate.




### (3) Remove the PCB cover

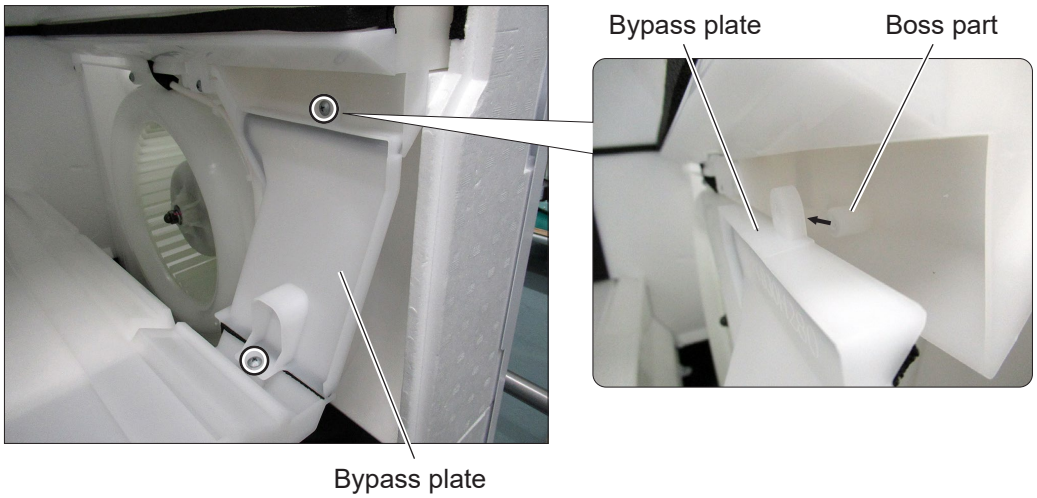
[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the bypass plate.

a. Remove the screws.
(2 screws: Spl screw PTT 4X14, indicated by ○)

Tightening torque
○ : 1.2 ± 0.2 N·m

b. Disengage the bypass plate from the boss part on the upper side.

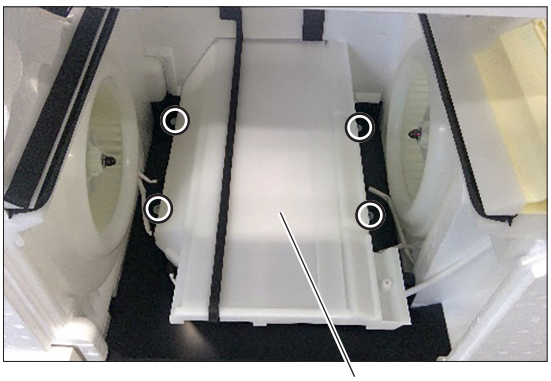



Assembly precaution
When installing the bypass plate, tighten the upper screw (to the boss part) before tightening the lower screw.

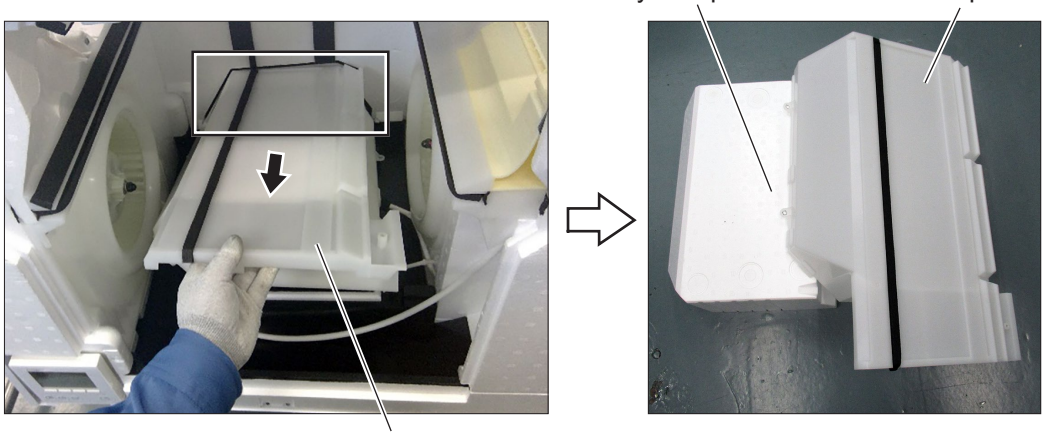
[3] Remove the PCB plate.

a. Remove the screws.
(4 screws: Spl screw PTT 4X14, indicated by ○)

Tightening torque
○ : 1.2 ± 0.2 N·m




b. Raise this side of the PCB plate a little bit to disengage it from the back casing (indicated by □), and then pull out the PCB plate.
* Remove the styrene part together.

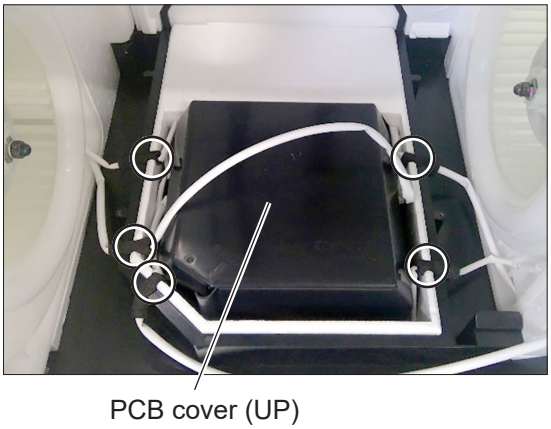



[4] Remove the lead wires.

a. Remove the lead wires from the styrene grooves (indicated by ○).

Precaution
Be careful not to damage the styrene.

b. Pull out the lead wires stored in the outer side of the PCB cover (UP).

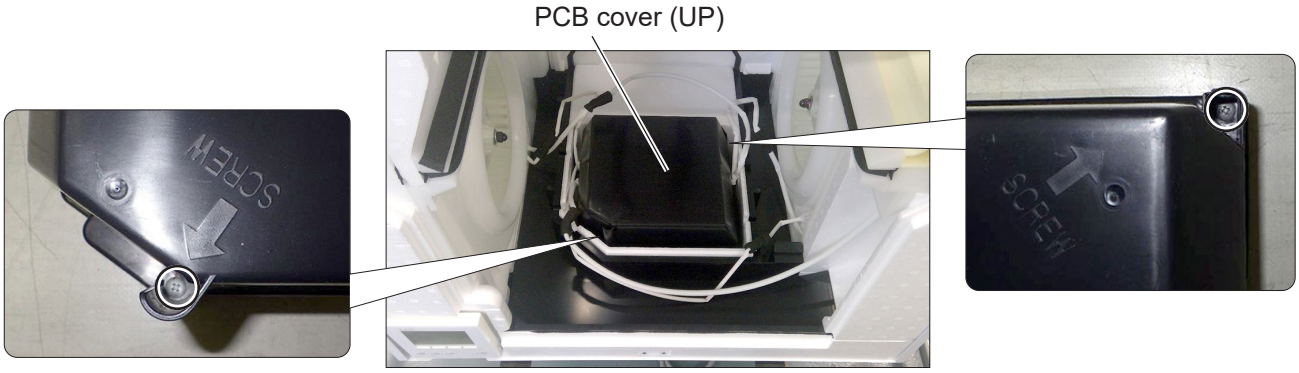


[5] Remove the PCB cover (UP).

a. Remove the screws.
(2 screws: Spl screw PTT 4X14, indicated by ○)

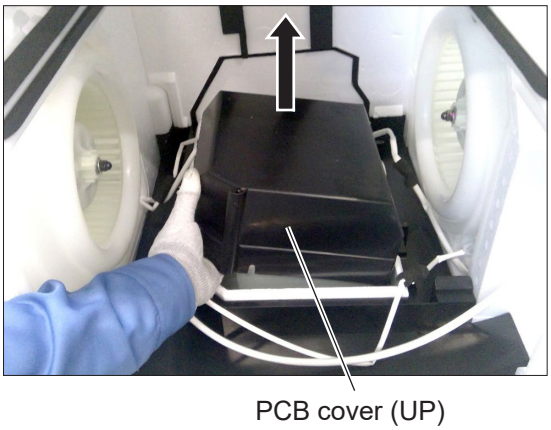
Precaution
Screws are located where it is not easy to see them.

Tightening torque
○ : 1.2 ± 0.2 N·m

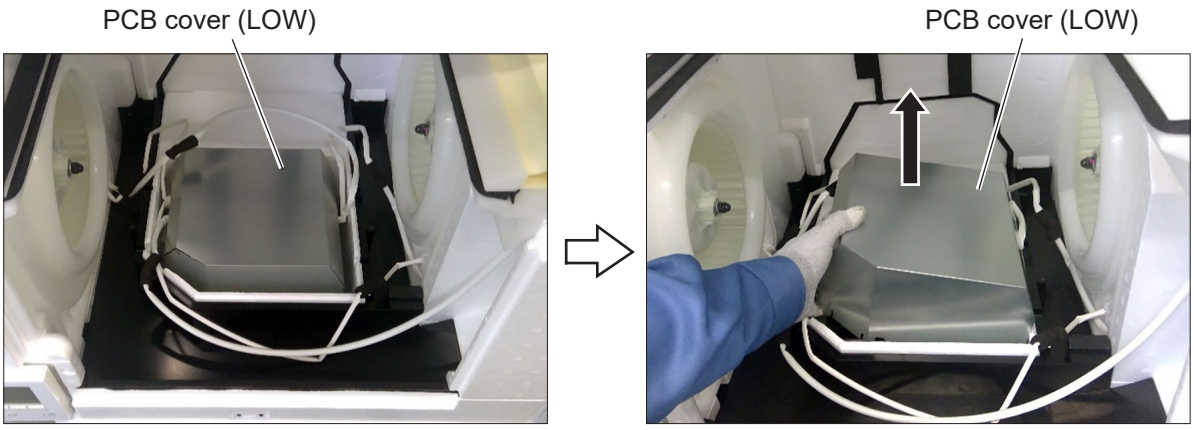



b. Remove the PCB cover (UP).

Assembly precaution
Be sure to attach the PCB cover (LOW) before installing the PCB cover (UP).




[6] Remove the PCB cover (LOW).




■ **Reference: Circuit board locations within the control box** ··· Refer to 11-1 (page 55).

## (4) Remove the thermistor

[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

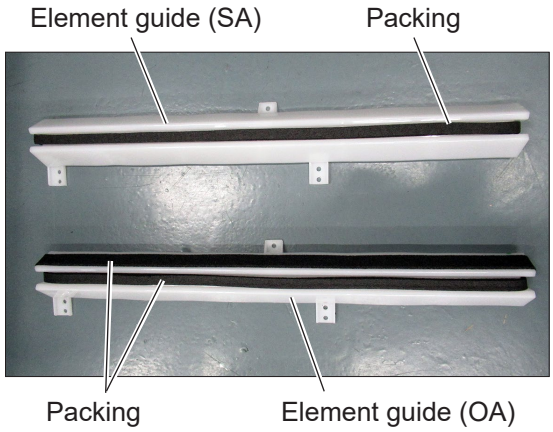
[3] Remove the screws and remove the element guide.
(3 screws: Spl screw PTT 4X14, indicated by ○)

Tightening torque
○ : 1.1 ± 0.2 N·m


**<For thermistor (OA)>**


**<For thermistor (RA)>**

Assembly precaution
Attach the element guide to the original position.
(Even though the element guides (OA, SA) have the same shape, another piece of packing is attached on the element guide (OA).)




[4] Remove the thermistor lead from the groove.
* Pull out the thermistor (RA) from the hole (indicated by ○).


**<For thermistor (OA)>**


**<For thermistor (RA)>**

[5] Unhook the thermistor lead from the hooks on the orifice (indicated by ○).

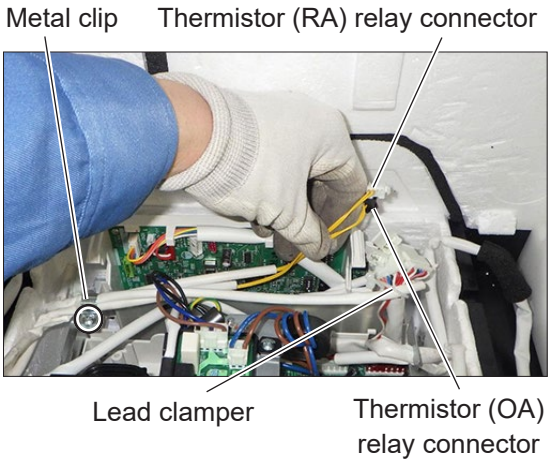

**<For thermistor (OA)>**


**<For thermistor (RA)>**

[6] Disconnect the thermistor relay connector.

[7] Remove the thermistor lead from the lead clamper.

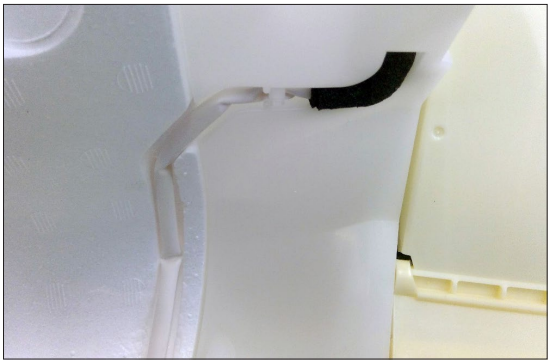
[8] Remove the metal clip fixing screw.
(1 screw: indicated by ○)




Assembly precaution
Attach the thermistor as shown in the picture.

**<For thermistor (OA)>**

**<For thermistor (RA)>**



## (5) Remove the damper assembly

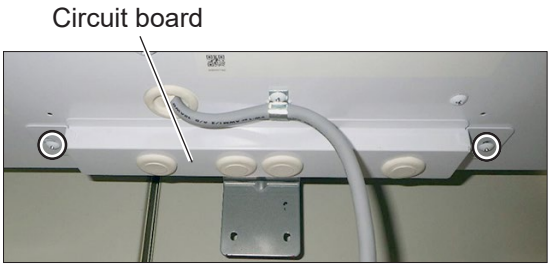
[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

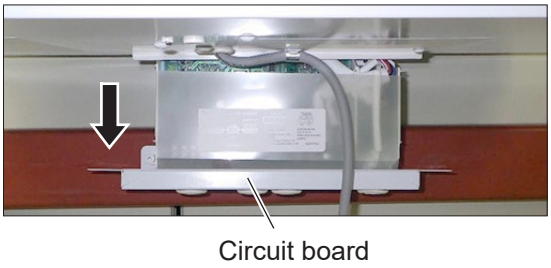
[3] Lower the circuit board (control circuit board) to provide a work space for disconnecting and connecting the connectors.

a. Remove the circuit board fixing screws from the bottom side of the product.
(2 screws: Spl screw PT 4X10 (painted), indicated by ○)

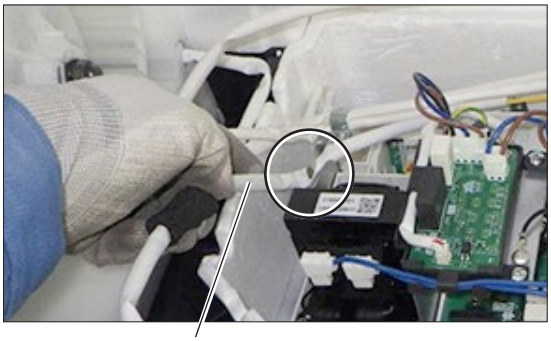
Tightening torque
○ : 1.5 ± 0.2 N·m



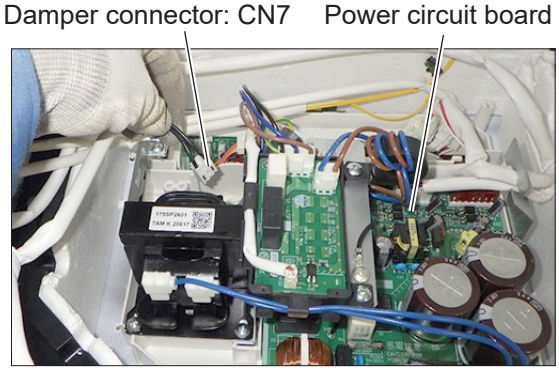

b. Lower the circuit board.




[4] Remove the damper lead from the metal plate hook of the control box (indicated by ○).



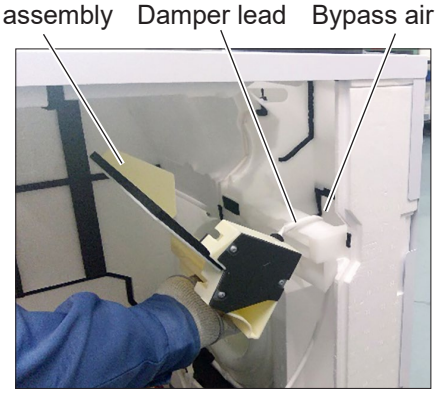

[5] Disconnect the damper lead connector from the power circuit board.




[6] Remove the element guide (SA). ... Refer to (4) [3].

[7] Remove the damper assembly.

[8] Remove the damper lead from the bypass air duct.



## (6) Remove the fan assembly

[1] Remove the heat exchanger. ··· Refer to (2).

[2] Remove the PCB cover. ··· Refer to (3).

[3] Remove the thermistor and element guide. ··· Refer to (4).

[4] Lower the circuit board (control circuit board) to provide a work space for disconnecting and connecting the connectors. ··· Refer to (5) [3].

[5] Remove the lead clip fixing screw to disconnect the connector.

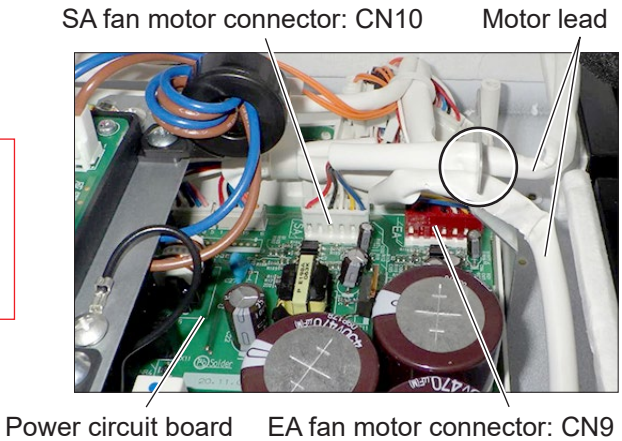
(1 screw: PTT screw 4x12, indicated by ○)

*** VL-500CZPVU-L type only**


[6] Disconnect the motor lead connectors from the power circuit board.
SA fan motor connector: CN10
EA fan motor connector: CN9

Precaution
When disconnecting the motor connectors, make sure that the power supply is turned off. Even when the fan motor is stopped, disconnecting the live-line connectors will cause a motor malfunction.

[7] Remove the motor leads from the metal plate hook of the control box (indicated by ○).



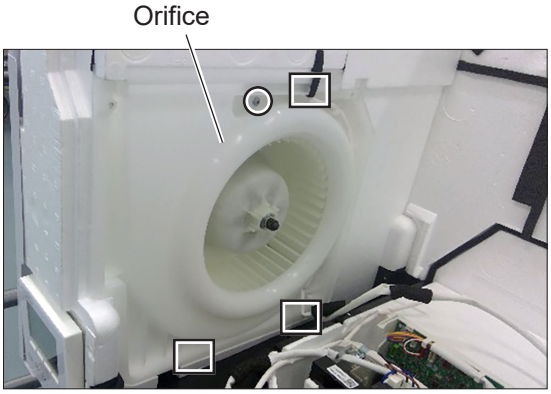

* Steps **[8]** through **[13]** refers to the **EA fan assembly**. Disassemble the **SA fan assembly** in the similar manner.

[8] Remove the orifice.

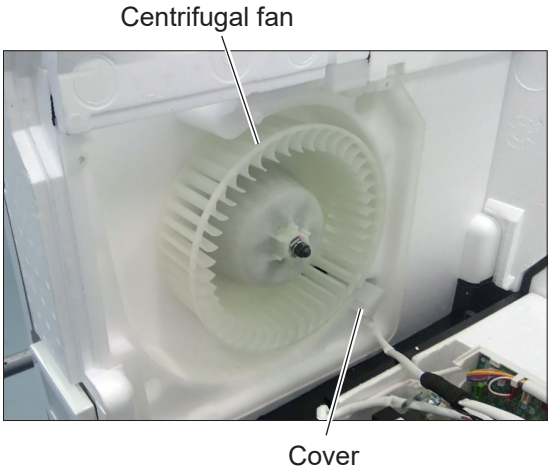
a. Remove the screw.
(1 screw: Spl screw PTT 4X14, indicated by ○)

Tightening torque
○ : 1.1 ± 0.2 N·m

b. Disengage the tabs (three locations, indicated by □) and remove the orifice.



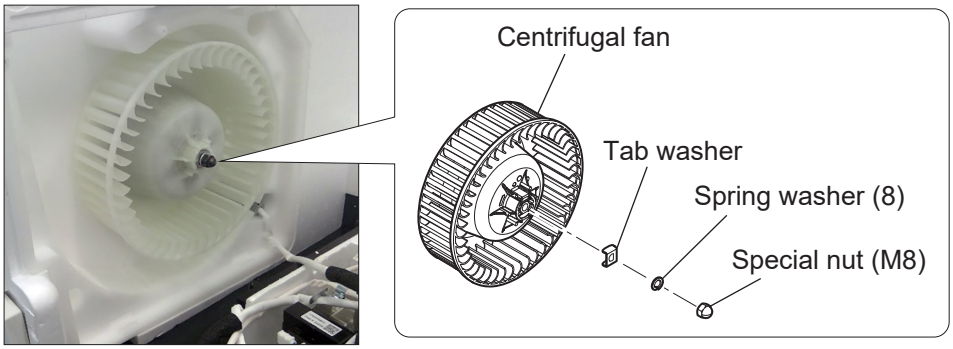
[9] Remove the cover by sliding it.



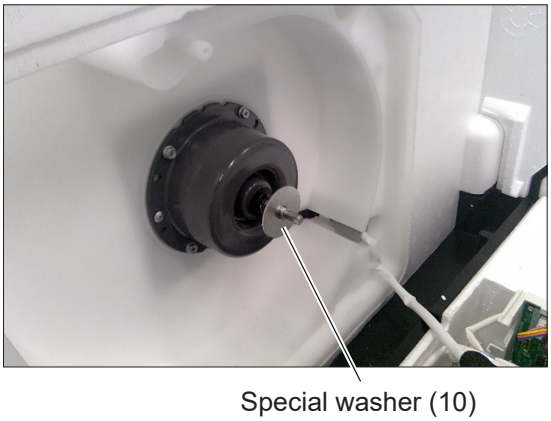

[10] Remove the special nut (M8) and spring washer (8).

Tightening torque:
2.3 ± 0.2 N·m

[11] Remove the tab washer and centrifugal fan.




[12] Remove the special washer (10).



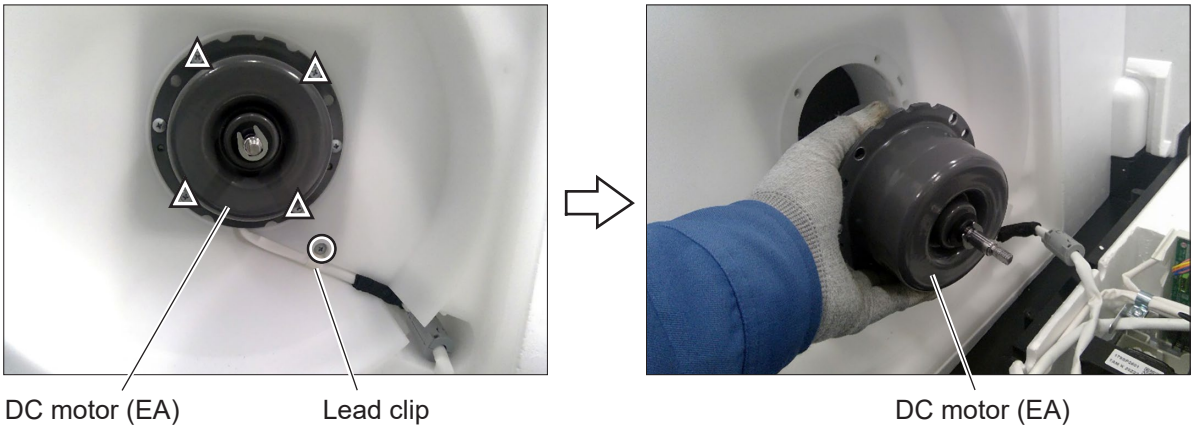
[13] Remove the DC motor (EA).

a. Remove the lead clip fixing screw.
(1 screw: PTT screw 4x8, indicated by ○)

| Tightening torque |
| --- |
| ○ : 0.8 ± 0.2 N·m |

b. Remove the motor fixing screws.
(4 screws: Spl screw 4x16, indicated by △)

| Tightening torque |
| --- |
| △ : 1.5 ± 0.2 N·m |



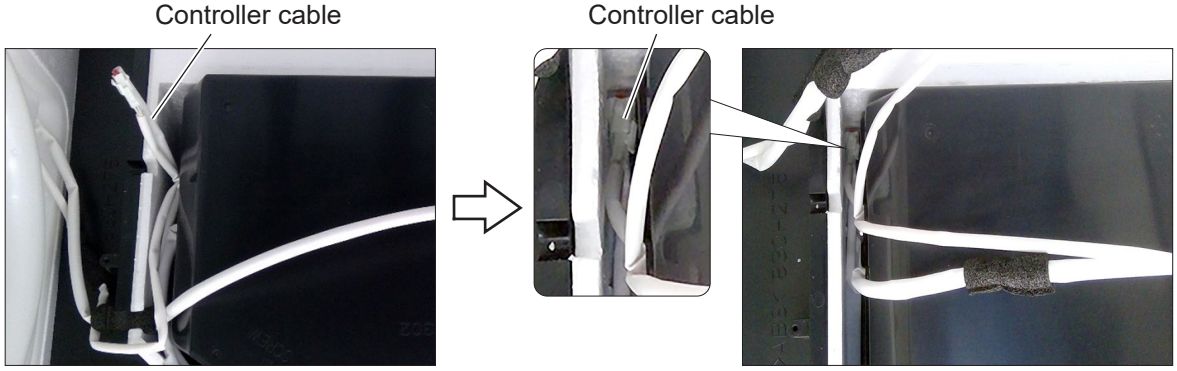

## (7) Remove the circuit board and power supply cord··· Refer to 11-1 (7).

## (8) Remove the controller··· Refer to 11-1 (8).

## (9) Restoring wire connection··· Refer to 11-1 (9).

Precautions when storing the controller cable after attaching the PCB cover (LOW and UP)
(For VL-500CZPVU-L type)

- Tuck the controller cable into the deepest position until the cable touches the bottom metal plate.




- Tuck the controller cable with a long tool. (Do not use sharp tools including screwdrivers to avoid damaging the controller cable.)

## ✻ When reassembling

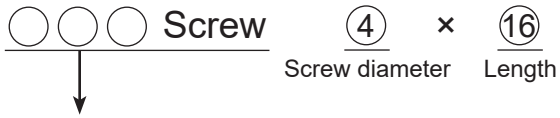
- Reassemble the unit in the reverse order of disassembly.
- After reassembly, always make a test run to make sure that the unit operates properly.

# 12. Parts catalog

## Please note the following when using the parts catalog.

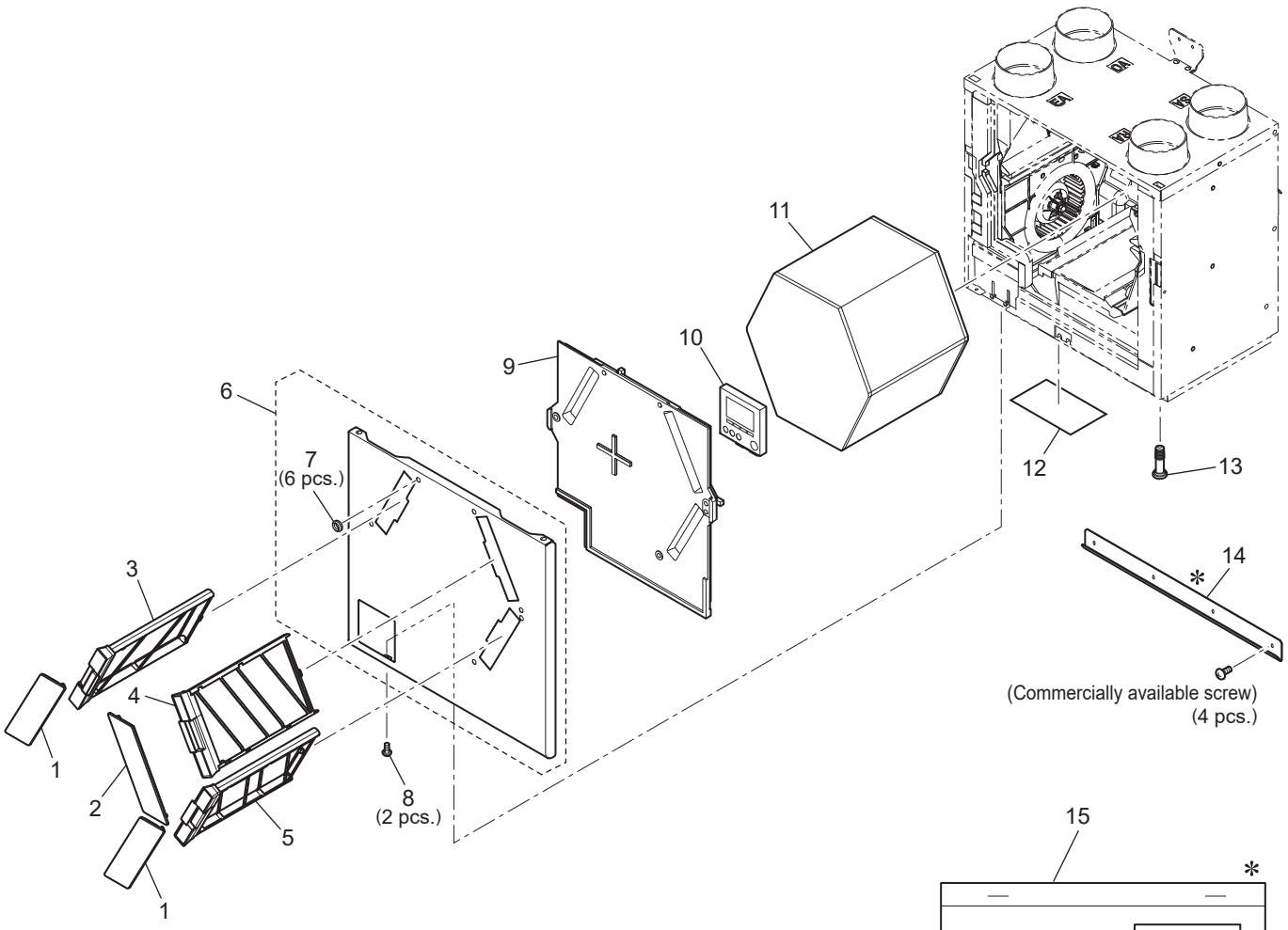
1. When ordering parts, the part number, part name, and the number of parts are required.
2. It may take time for you to receive the parts. Make an inquiry about a rush order.
3. Specifications may be subject to change without notice.
4. Parts marked with ⚠ and ▒▒▒ are critical for safety.
5. To maintain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

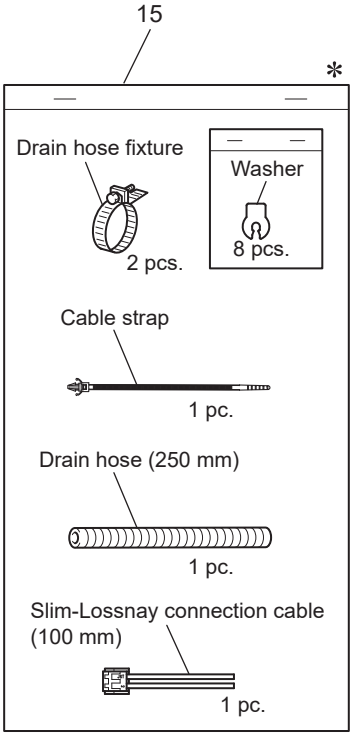
### Description of screw abbreviations




| 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-250CZPVU-L-E

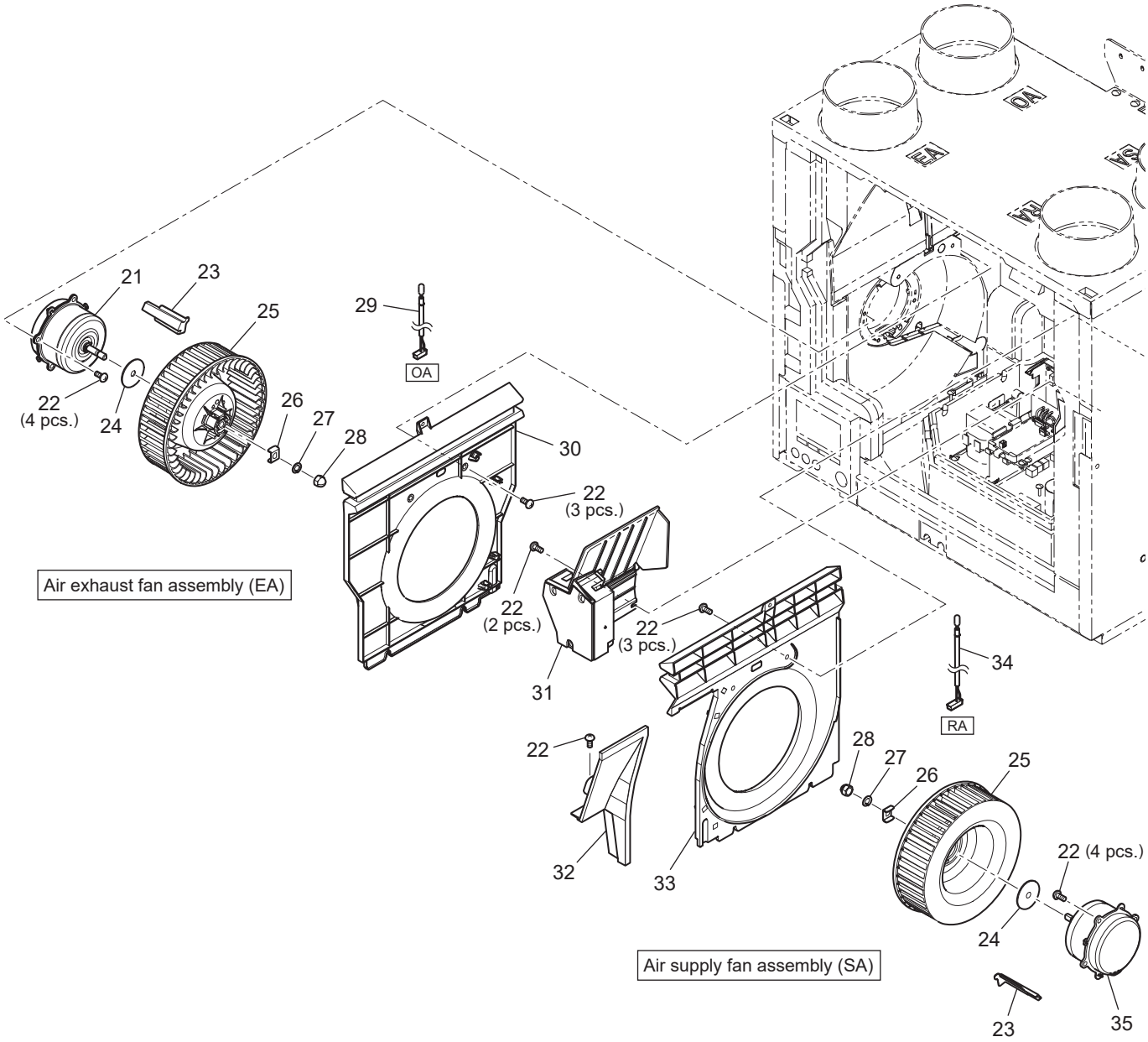



* shows accessory parts.

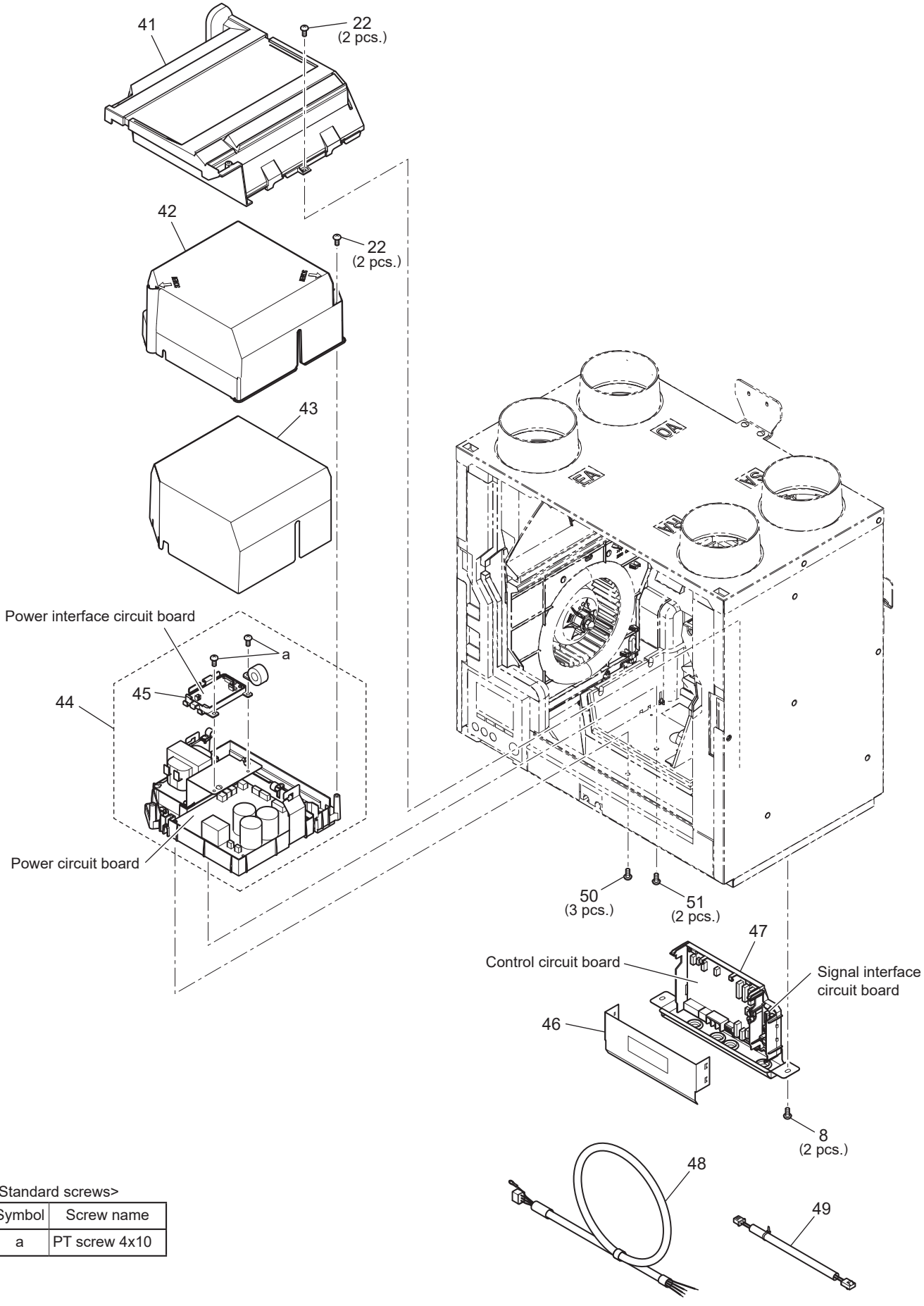
## VL-250CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 2 | | |
| 2 | Filter cover (A) | W36 008 718 | 1 | | |
| 3 | Filter case (OA) | W36 008 719 | 1 | | |
| 4 | Filter case (RA) | W36 008 720 | 1 | | |
| 5 | Filter case (SA) | W36 008 721 | 1 | | |
| 6 | Front casing (OUT) | W36 008 830 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 008 831 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 008 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 008 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


OA
EA
RA
21
23
25
29
OA
22
(4 pcs.)
24
26
27
28
30
22
(3 pcs.)
22
(2 pcs.)
31
22
(3 pcs.)
34
RA
22
28
27
26
25
22 (4 pcs.)
32
33
24
35
23
Air exhaust fan assembly (EA)
Air supply fan assembly (SA)

VL-250CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (EA) | W36 008 453 | 1 | ⚠ | |
| 22 | Spl screw PTT 4x14 | W36 008 046 | 21 | | |
| 23 | Cover | W36 008 832 | 2 | | |
| 24 | Special washer (8) | W50 003 477 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 008 480 | 2 | ⚠ | Dia. 180mm |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 008 167 | 1 | ⚠ | OA |
| 30 | Orifice (EA) | W36 008 833 | 1 | | |
| 31 | Damper assembly | W36 008 715 | 1 | ⚠ | |
| 32 | Bypass plate | W36 008 835 | 1 | | |
| 33 | Orifice (SA) | W36 008 834 | 1 | | |
| 34 | Thermistor | W36 008 168 | 1 | ⚠ | RA |
| 35 | DC motor (SA) | W36 008 454 | 1 | ⚠ | |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-250CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 836 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
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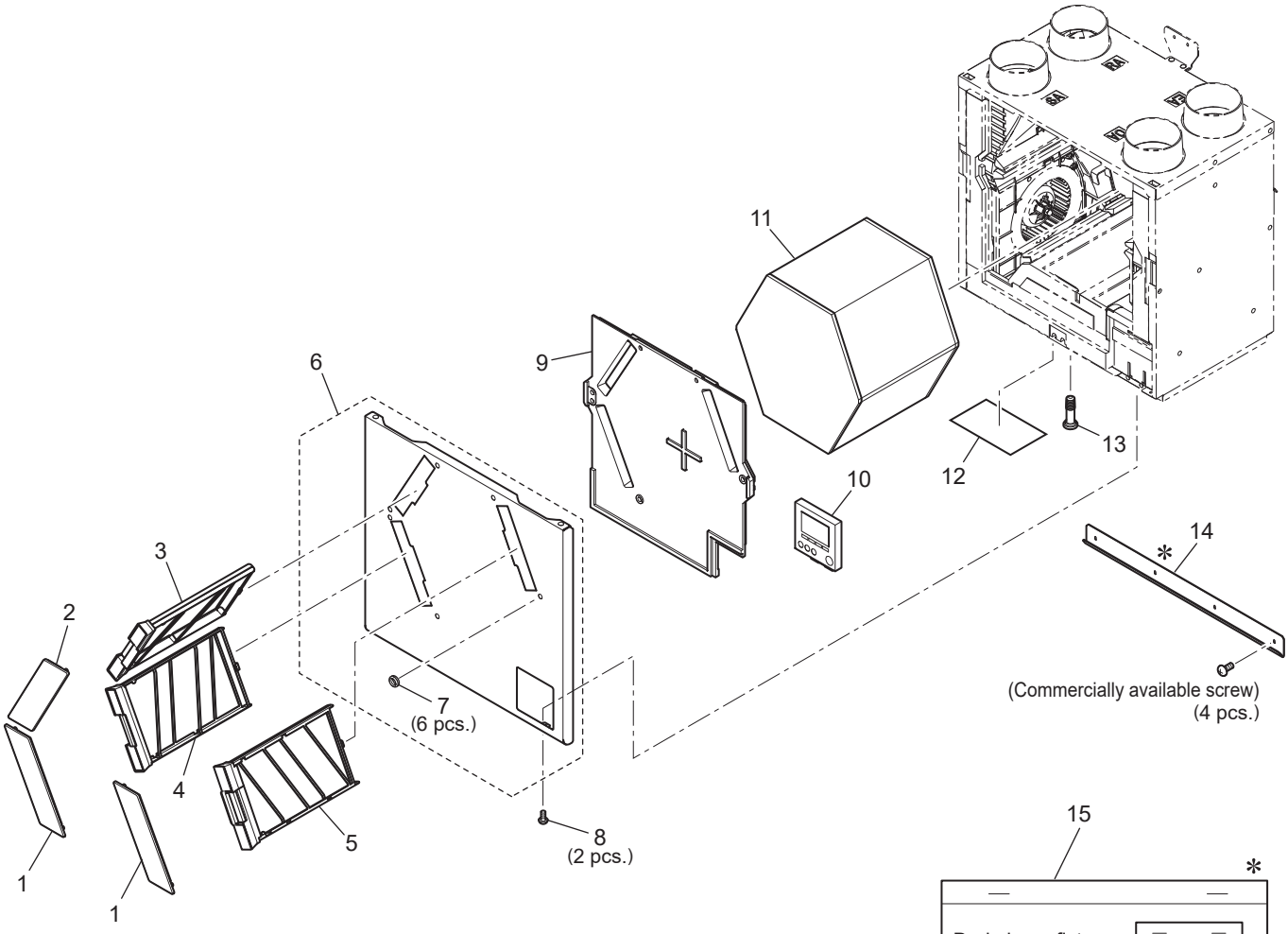
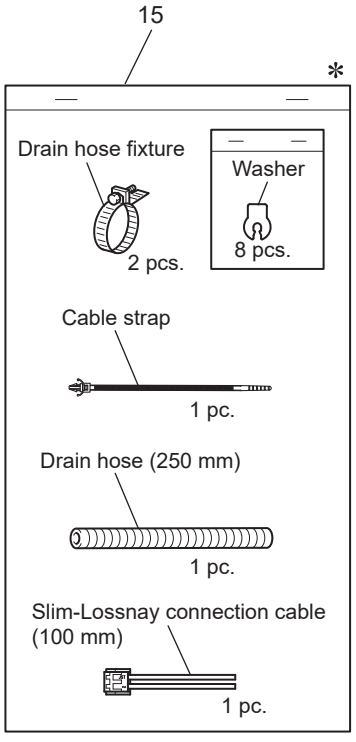
# VL-250CZPVU-R-E

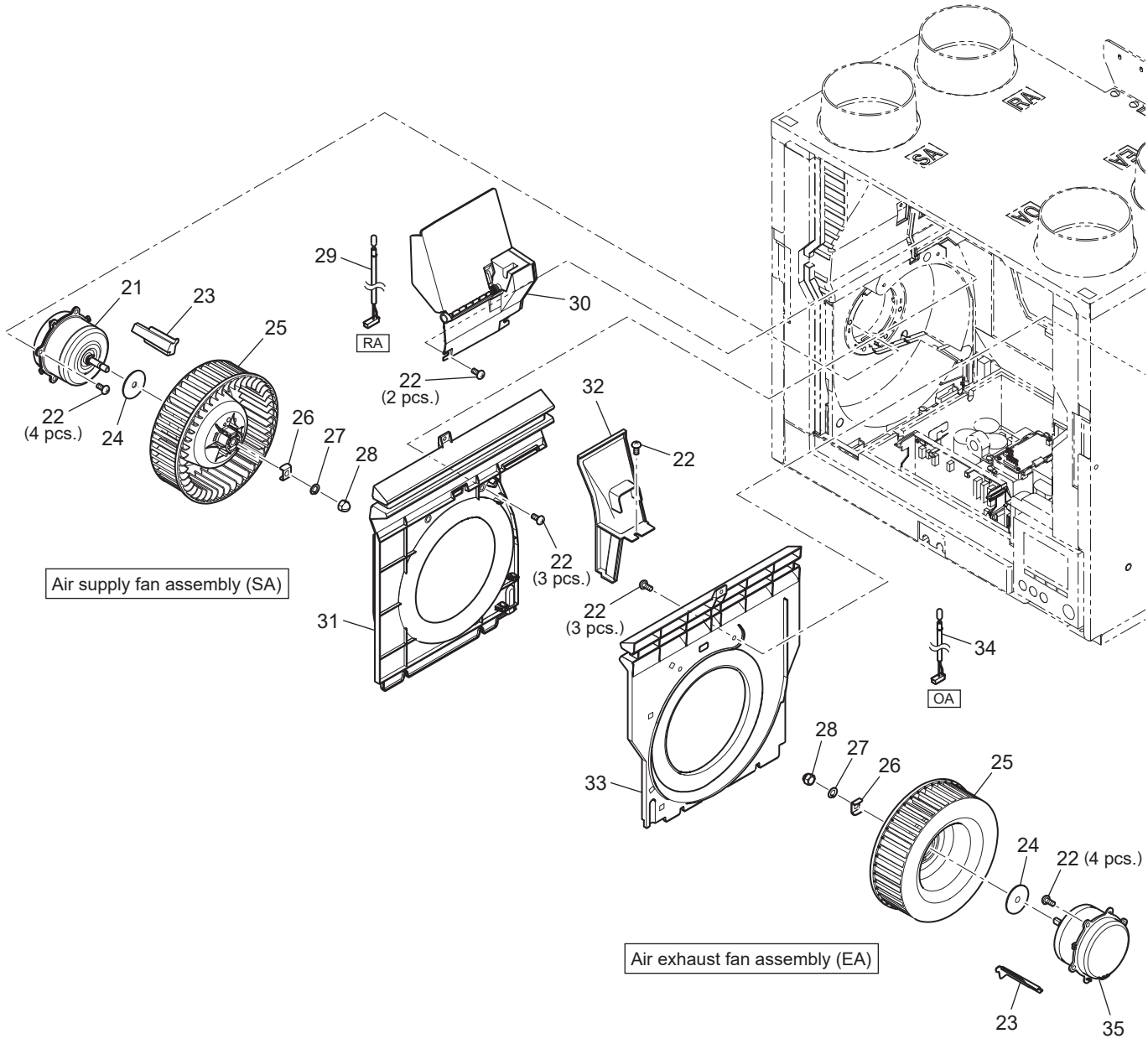



* shows accessory parts.

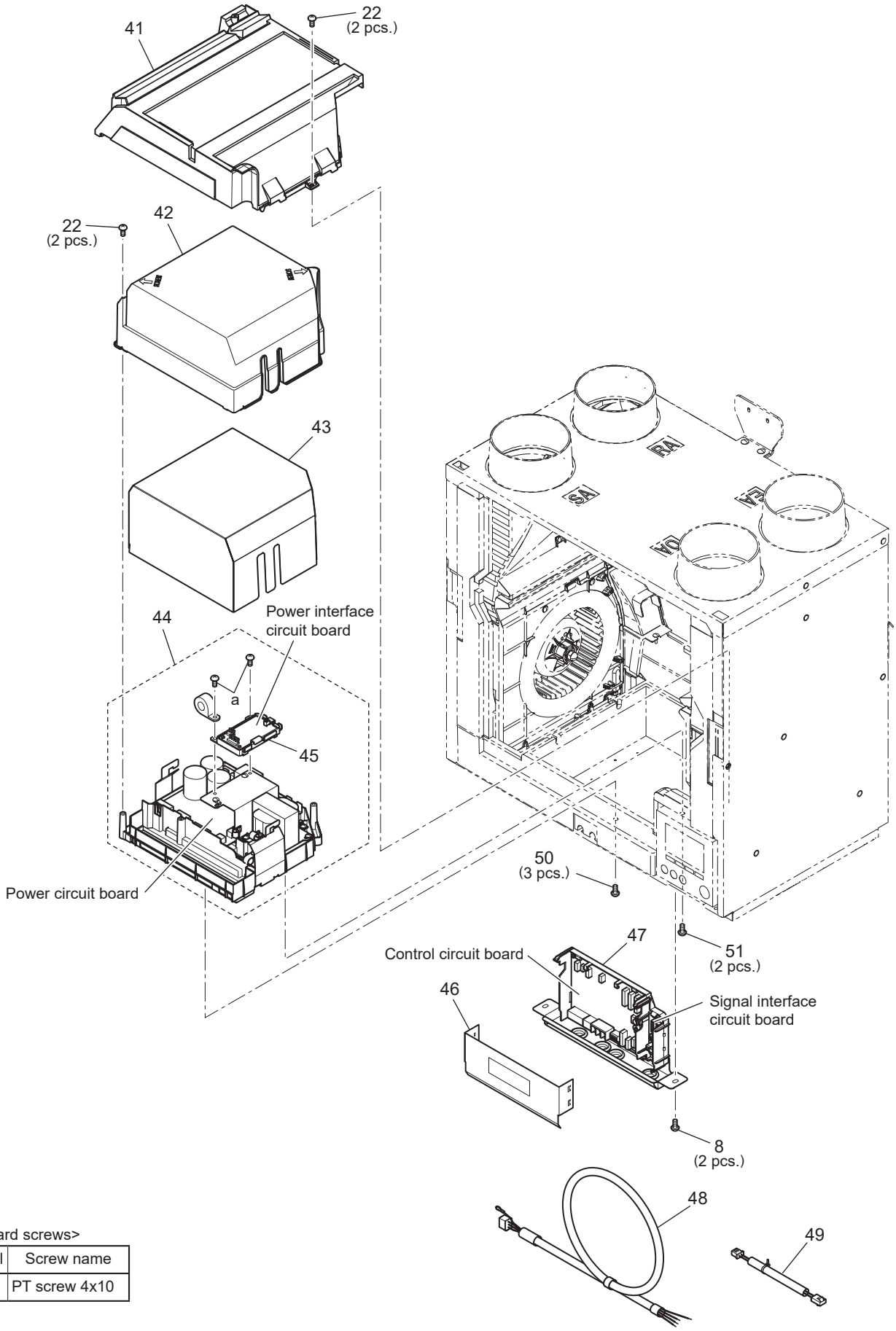
## VL-250CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (A) | W36 008 718 | 2 | | |
| 2 | Filter cover (B) | W36 008 717 | 1 | | |
| 3 | Filter case (RA) | W36 008 723 | 1 | | |
| 4 | Filter case (SA) | W36 008 724 | 1 | | |
| 5 | Filter case (OA) | W36 008 725 | 1 | | |
| 6 | Front casing (OUT) | W36 008 837 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 008 838 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 008 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 008 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


RA
SA
OA
21
23
25
29
30
22
(2 pcs.)
22
(4 pcs.)
24
26
27
28
32
22
22
(3 pcs.)
31
22
(3 pcs.)
34
28
27
26
25
24
22 (4 pcs.)
33
23
35
Air supply fan assembly (SA)
Air exhaust fan assembly (EA)

## VL-250CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (SA) | W36 008 454 | 1 | ⚠ | |
| 22 | Spl screw PTT 4x14 | W36 008 046 | 21 | | |
| 23 | Cover | W36 008 832 | 2 | | |
| 24 | Special washer (8) | W50 003 477 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 008 480 | 2 | ⚠ | Dia. 180mm |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 008 169 | 1 | ⚠ | RA |
| 30 | Damper assembly | W36 008 715 | 1 | ⚠ | |
| 31 | Orifice (SA) | W36 008 834 | 1 | | |
| 32 | Bypass plate | W36 008 835 | 1 | | |
| 33 | Orifice (EA) | W36 008 833 | 1 | | |
| 34 | Thermistor | W36 008 167 | 1 | ⚠ | OA |
| 35 | DC motor (EA) | W36 008 453 | 1 | ⚠ | |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-250CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 836 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 238 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 239 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 232 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
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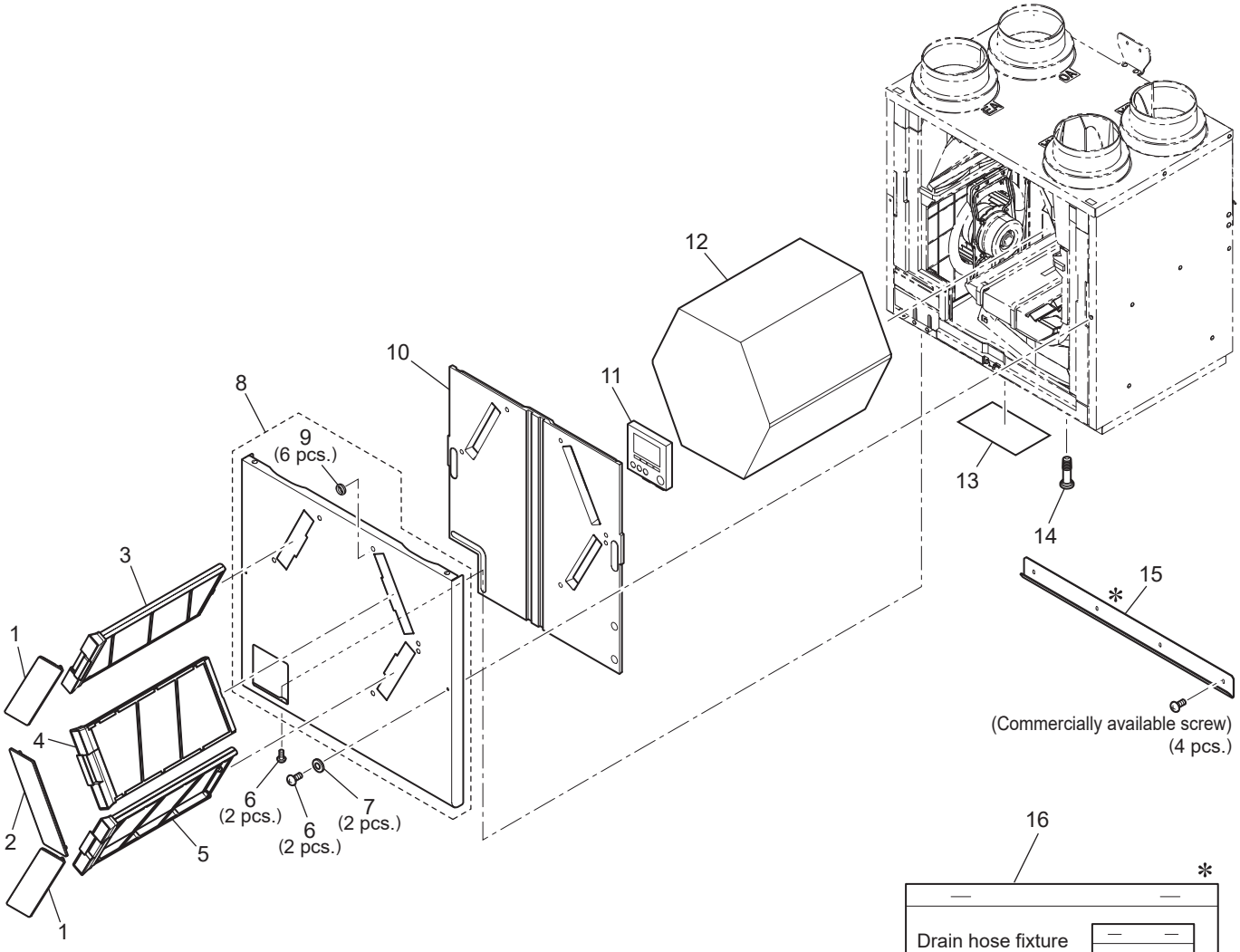
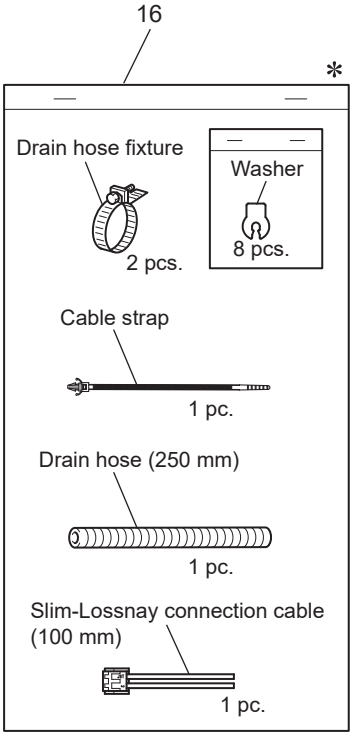
# VL-350CZPVU-L-E

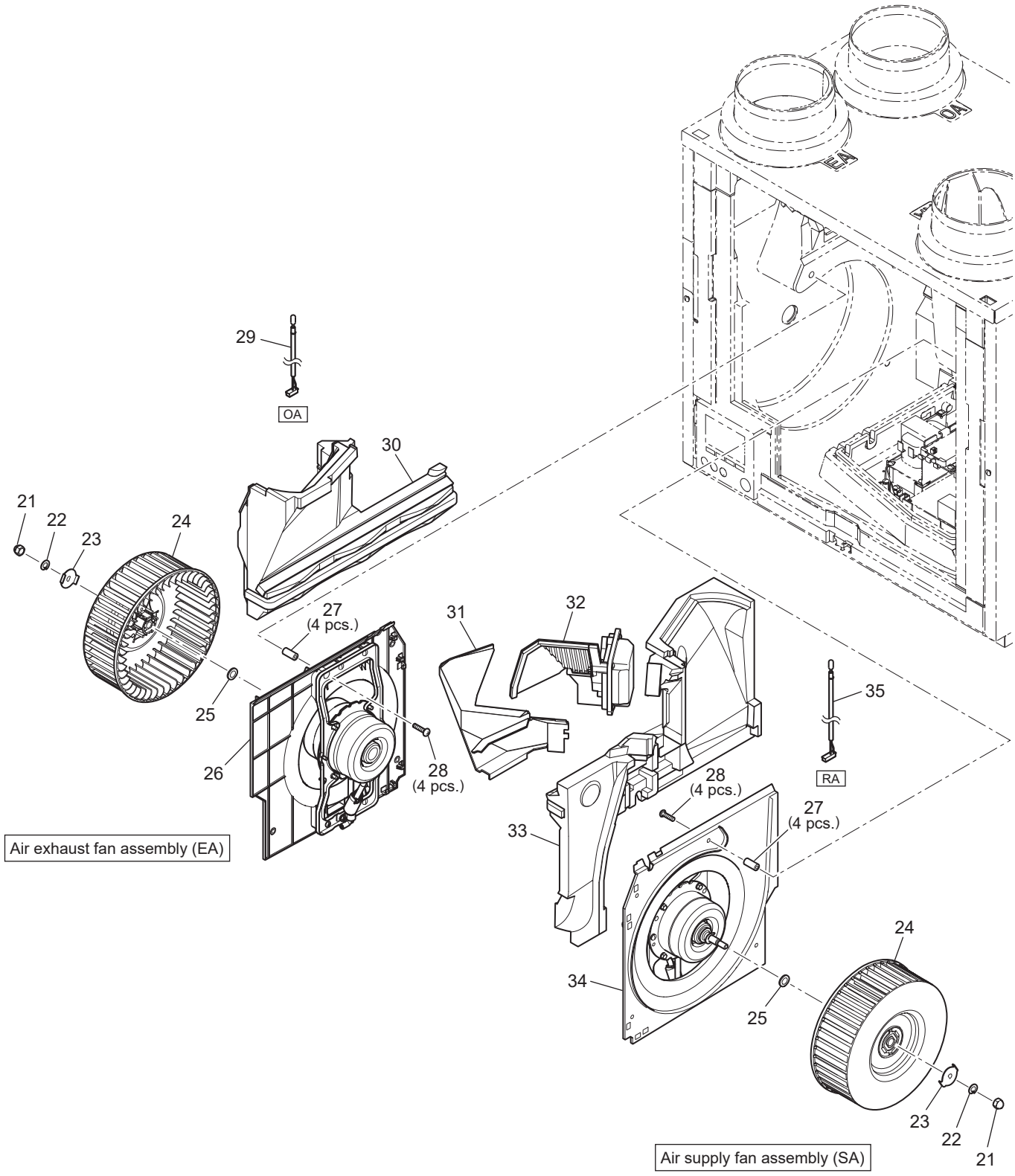



∗ shows accessory parts.

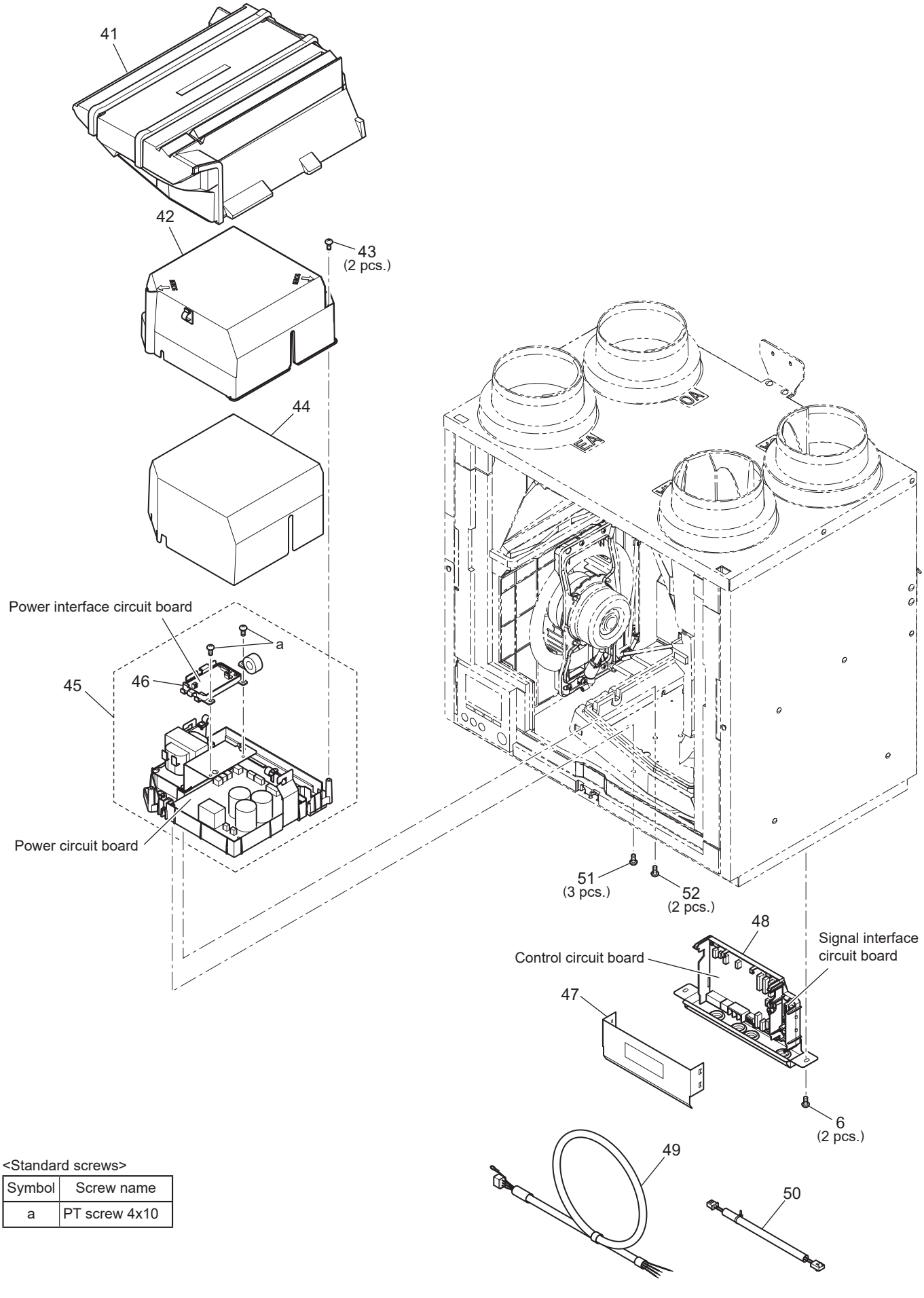
VL-350CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 2 | | |
| 2 | Filter cover (A) | W36 008 718 | 1 | | |
| 3 | Filter case (OA) | W36 008 726 | 1 | | |
| 4 | Filter case (RA) | W36 008 727 | 1 | | |
| 5 | Filter case (SA) | W36 008 728 | 1 | | |
| 6 | Spl screw PT 4x10 | W36 008 045 | 6 | | |
| 7 | Special washer (3) | W00 000 167 | 2 | | |
| 8 | Front casing (OUT) | W36 008 839 | 1 | | |
| 9 | Bush | W36 008 225 | 6 | | |
| 10 | Front casing (IN) | W36 008 840 | 1 | | |
| 11 | Controller | W36 008 722 | 1 | ⚠ | |
| 12 | Heat exchanger | W36 008 711 | 1 | ⚠ | |
| 13 | Wiring diagram | W36 008 358 | 1 | | |
| 14 | Drain cap | W36 008 309 | 1 | | |
| 15 | Wall bracket | W36 008 381 | 1 | | |
| 16 | Parts in bag | W36 008 588 | 1 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |


EA
OA
29
OA
30
21
22
23
24
27
(4 pcs.)
25
26
28
(4 pcs.)
Air exhaust fan assembly (EA)
31
32
35
RA
28
(4 pcs.)
27
(4 pcs.)
33
34
24
25
23
22
21
Air supply fan assembly (SA)

VL-350CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | Special nut (M8) | W36 008 067 | 2 | | |
| 22 | Spring washer (8) | W00 000 126 | 2 | | |
| 23 | Tab washer | W00 000 134 | 2 | | |
| 24 | Centrifugal fan | W36 008 481 | 2 | ⚠ | Dia. 210mm |
| 25 | Washer (10) | W36 008 071 | 2 | | |
| 26 | DC motor assy (EA) | W36 008 729 | 1 | ⚠ | With fan casing |
| 27 | Spacer | W36 008 095 | 8 | | 6X15 |
| 28 | Spl screw PPT 4x30 | W36 008 047 | 8 | | |
| 29 | Thermistor | W36 008 170 | 1 | ⚠ | OA |
| 30 | Element guide (OA) | W36 008 841 | 1 | | |
| 31 | Damper frame | W36 008 716 | 1 | | |
| 32 | Damper assembly | W36 008 731 | 1 | ⚠ | |
| 33 | Element guide (RA) | W36 008 842 | 1 | | |
| 34 | DC motor assy (SA) | W36 008 730 | 1 | ⚠ | With fan casing |
| 35 | Thermistor | W36 008 171 | 1 | ⚠ | RA |



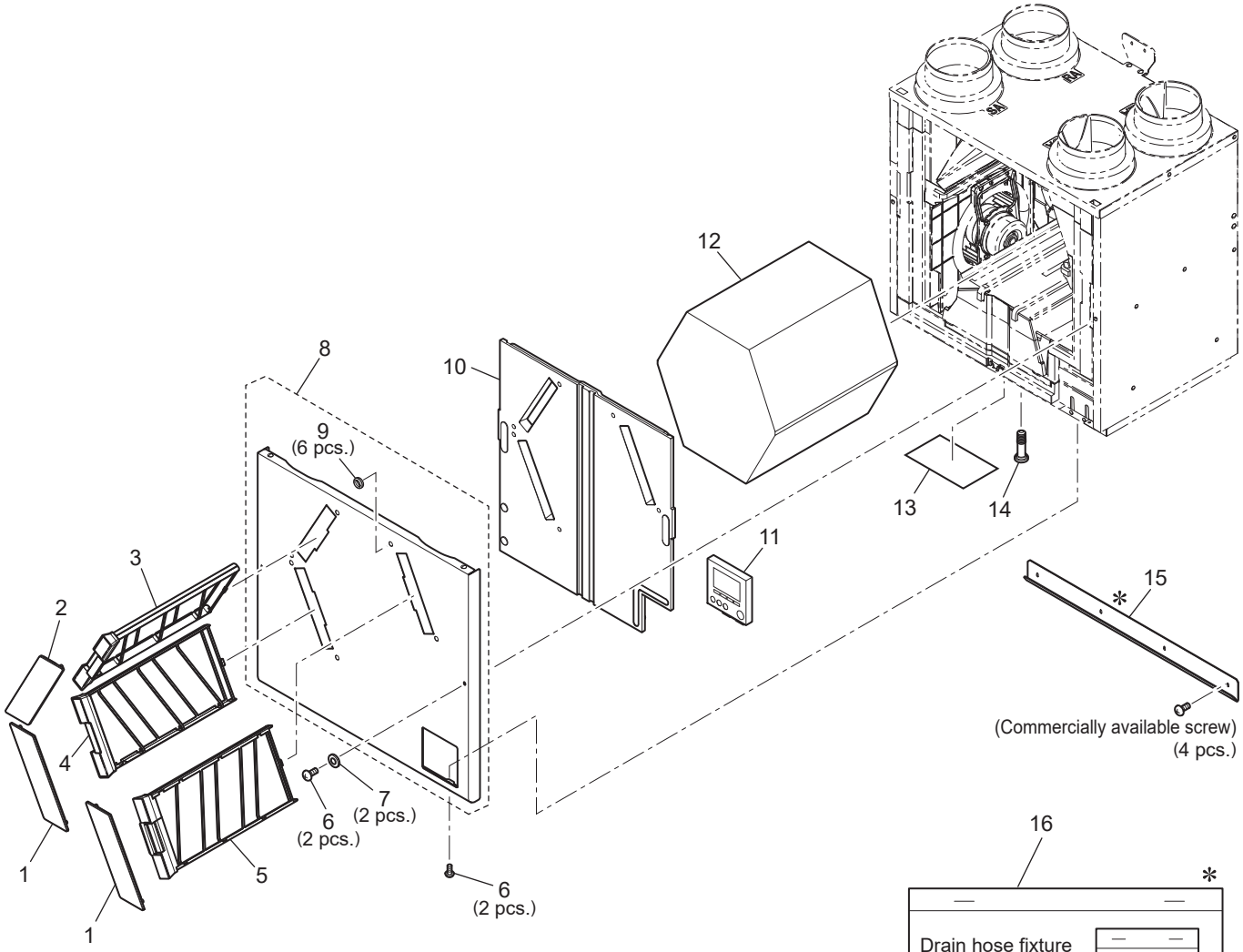

<Standard screws>

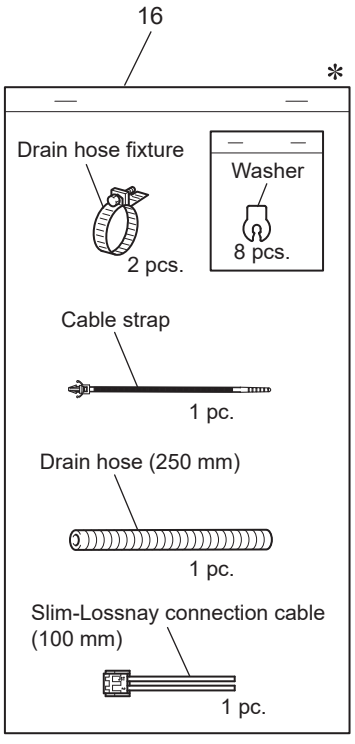
| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-350CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 843 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | Spl screw PTT 4x12 | W00 000 045 | 2 | | |
| 44 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 45 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 46 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 47 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 48 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 49 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 50 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 51 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 52 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
| | | | | | |
| | | | | | |

# VL-350CZPVU-R-E




* shows accessory parts.

VL-350CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (A) | W36 008 718 | 2 | | |
| 2 | Filter cover (B) | W36 008 717 | 1 | | |
| 3 | Filter case (RA) | W36 008 732 | 1 | | |
| 4 | Filter case (SA) | W36 008 733 | 1 | | |
| 5 | Filter case (OA) | W36 008 734 | 1 | | |
| 6 | Spl screw PT 4x10 | W36 008 045 | 6 | | |
| 7 | Special washer (3) | W00 000 167 | 2 | | |
| 8 | Front casing (OUT) | W36 008 844 | 1 | | |
| 9 | Bush | W36 008 225 | 6 | | |
| 10 | Front casing (IN) | W36 008 845 | 1 | | |
| 11 | Controller | W36 008 722 | 1 | ⚠ | |
| 12 | Heat exchanger | W36 008 711 | 1 | ⚠ | |
| 13 | Wiring diagram | W36 008 358 | 1 | | |
| 14 | Drain cap | W36 008 309 | 1 | | |
| 15 | Wall bracket | W36 008 381 | 1 | | |
| 16 | Parts in bag | W36 008 588 | 1 | | |
| | | | | | |
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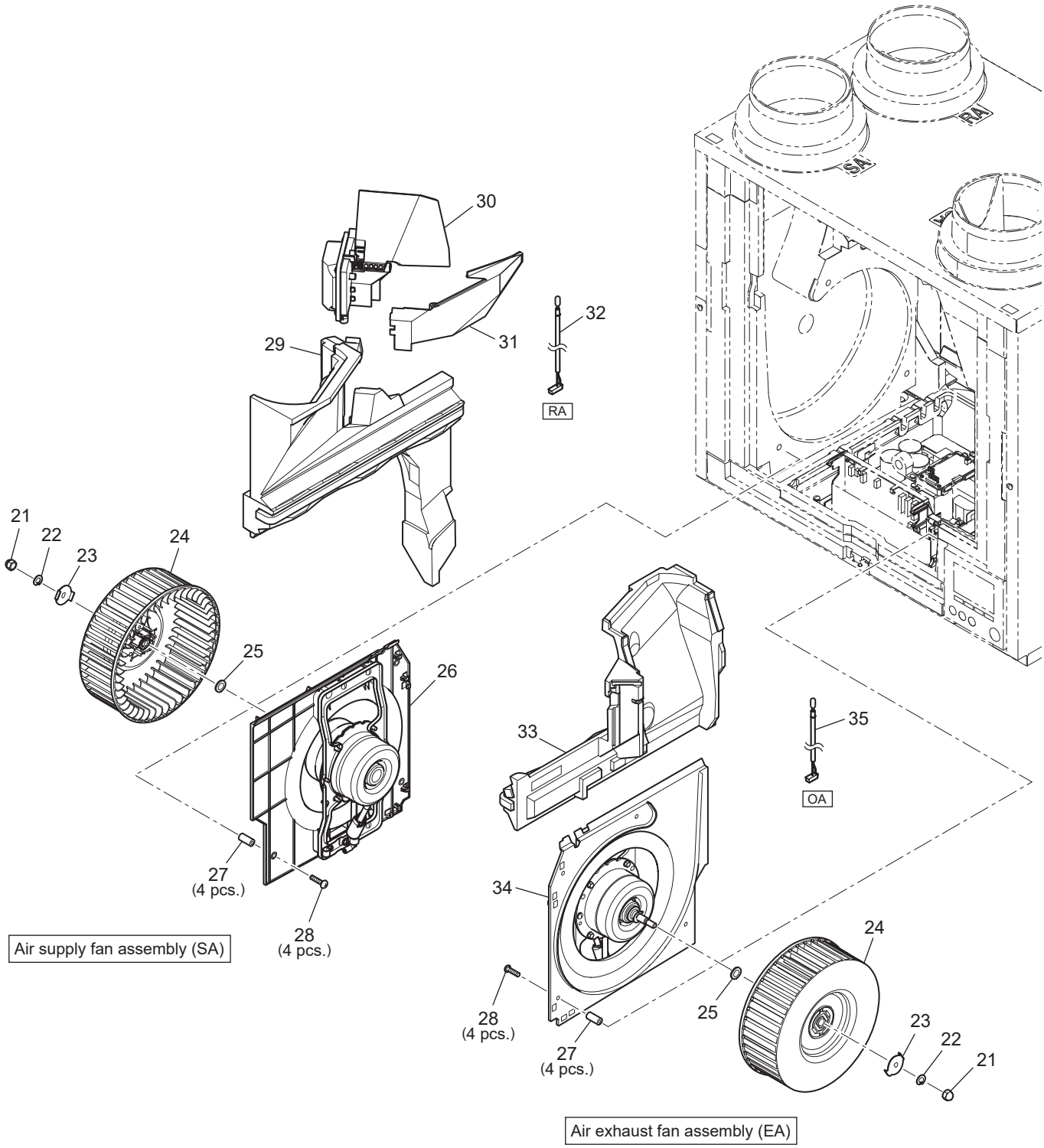
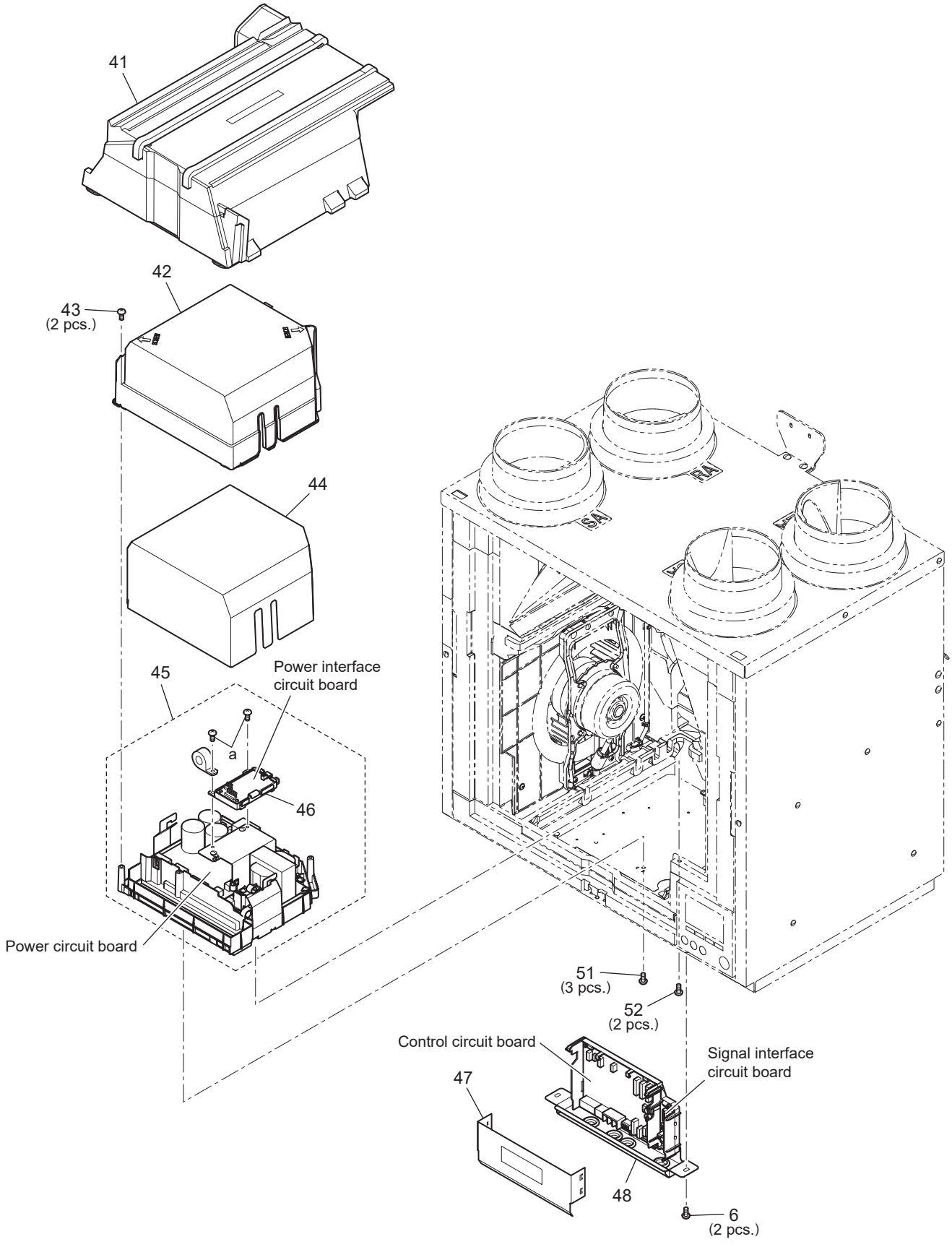

RA
SA
30
31
32
29
RA
21
22
23
24
25
26
27
(4 pcs.)
28
(4 pcs.)
Air supply fan assembly (SA)
33
35
OA
34
28
(4 pcs.)
27
(4 pcs.)
25
24
23
22
21
Air exhaust fan assembly (EA)

VL-350CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | Special nut (M8) | W36 008 067 | 2 | | |
| 22 | Spring washer (8) | W00 000 126 | 2 | | |
| 23 | Tab washer | W00 000 134 | 2 | | |
| 24 | Centrifugal fan | W36 008 481 | 2 | ⚠ | Dia. 210mm |
| 25 | Washer (10) | W36 008 071 | 2 | | |
| 26 | DC motor assy (SA) | W36 008 730 | 1 | ⚠ | With fan casing |
| 27 | Spacer | W36 008 095 | 8 | | 6X15 |
| 28 | Spl screw PPT 4x30 | W36 008 047 | 8 | | |
| 29 | Element guide (RA) | W36 008 842 | 1 | | |
| 30 | Damper assembly | W36 008 731 | 1 | ⚠ | |
| 31 | Damper frame | W36 008 716 | 1 | | |
| 32 | Thermistor | W36 008 172 | 1 | ⚠ | RA |
| 33 | Element guide (OA) | W36 008 841 | 1 | | |
| 34 | DC motor assy (EA) | W36 008 729 | 1 | ⚠ | With fan casing |
| 35 | Thermistor | W36 008 170 | 1 | ⚠ | OA |



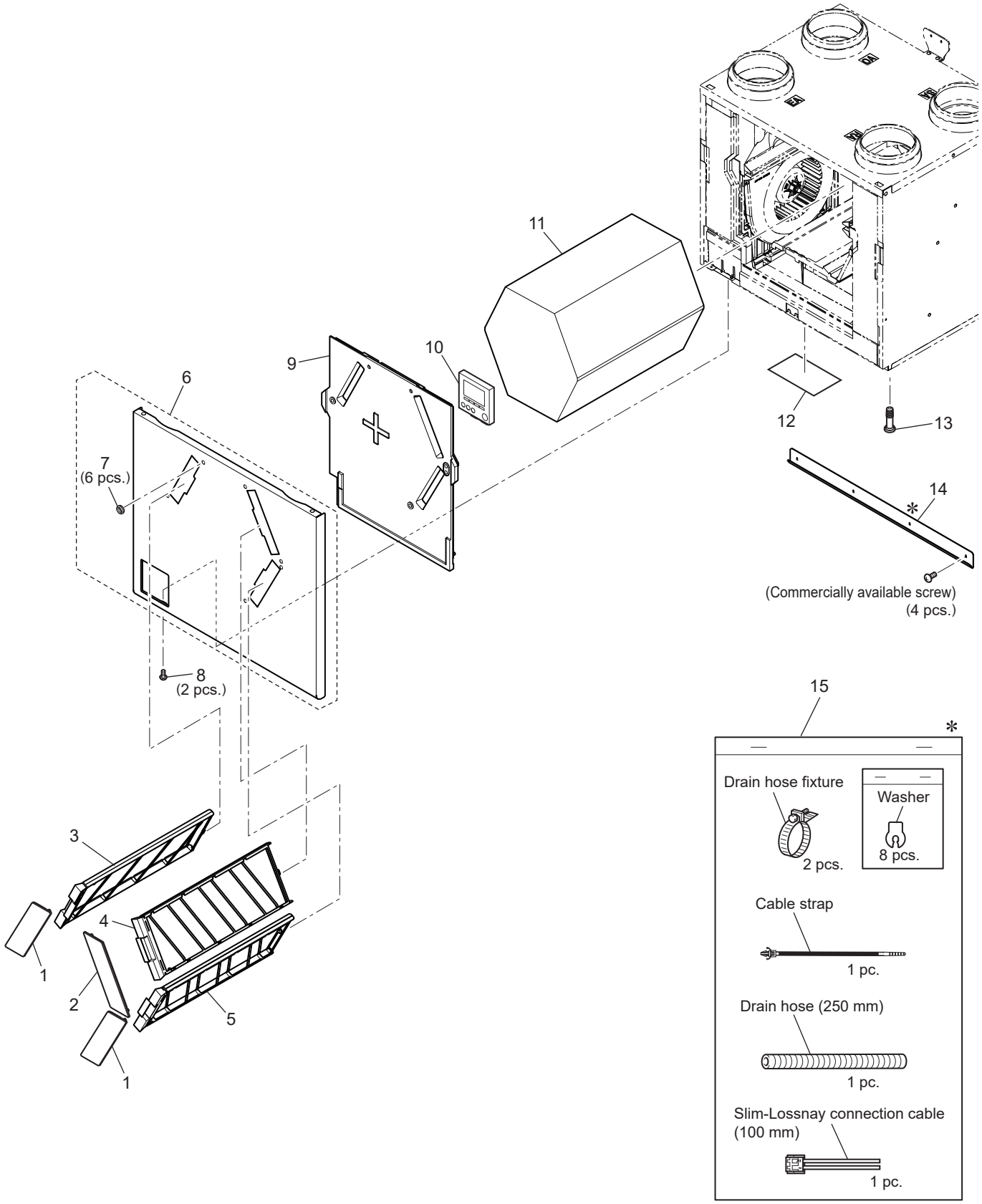

<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-350CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 843 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | Spl screw PTT 4x12 | W00 000 045 | 2 | | |
| 44 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 45 | Control box | W36 008 238 | 1 | ⚠ | Power, Power interface |
| 46 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 47 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 48 | Circuit board | W36 008 239 | 1 | ⚠ | Control, Signal interface |
| 49 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 50 | Lead wire | W36 008 232 | 1 | ⚠ | Controller |
| 51 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 52 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
| | | | | | |
| | | | | | |

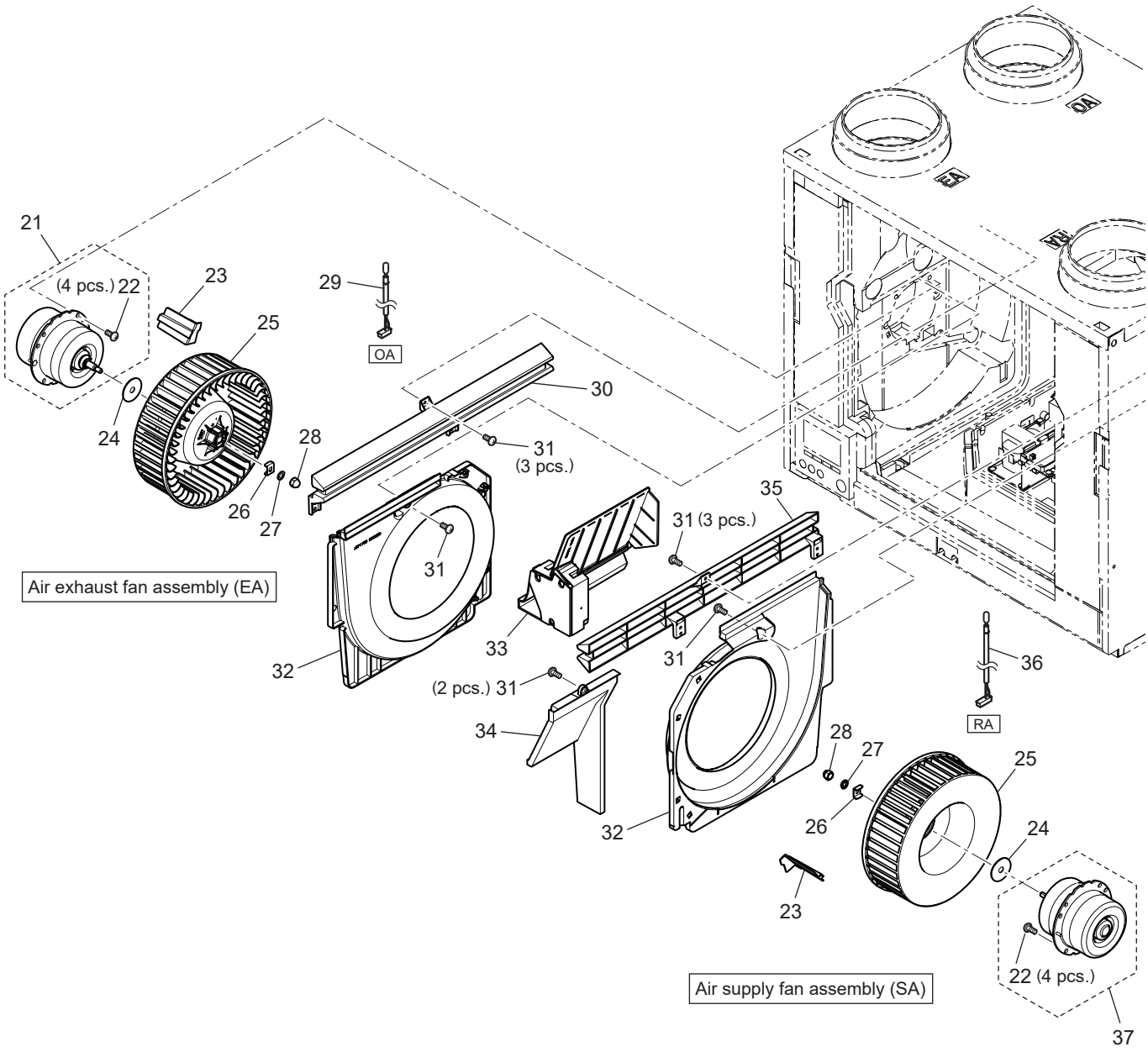
# VL-500CZPVU-L-E




* shows accessory parts.

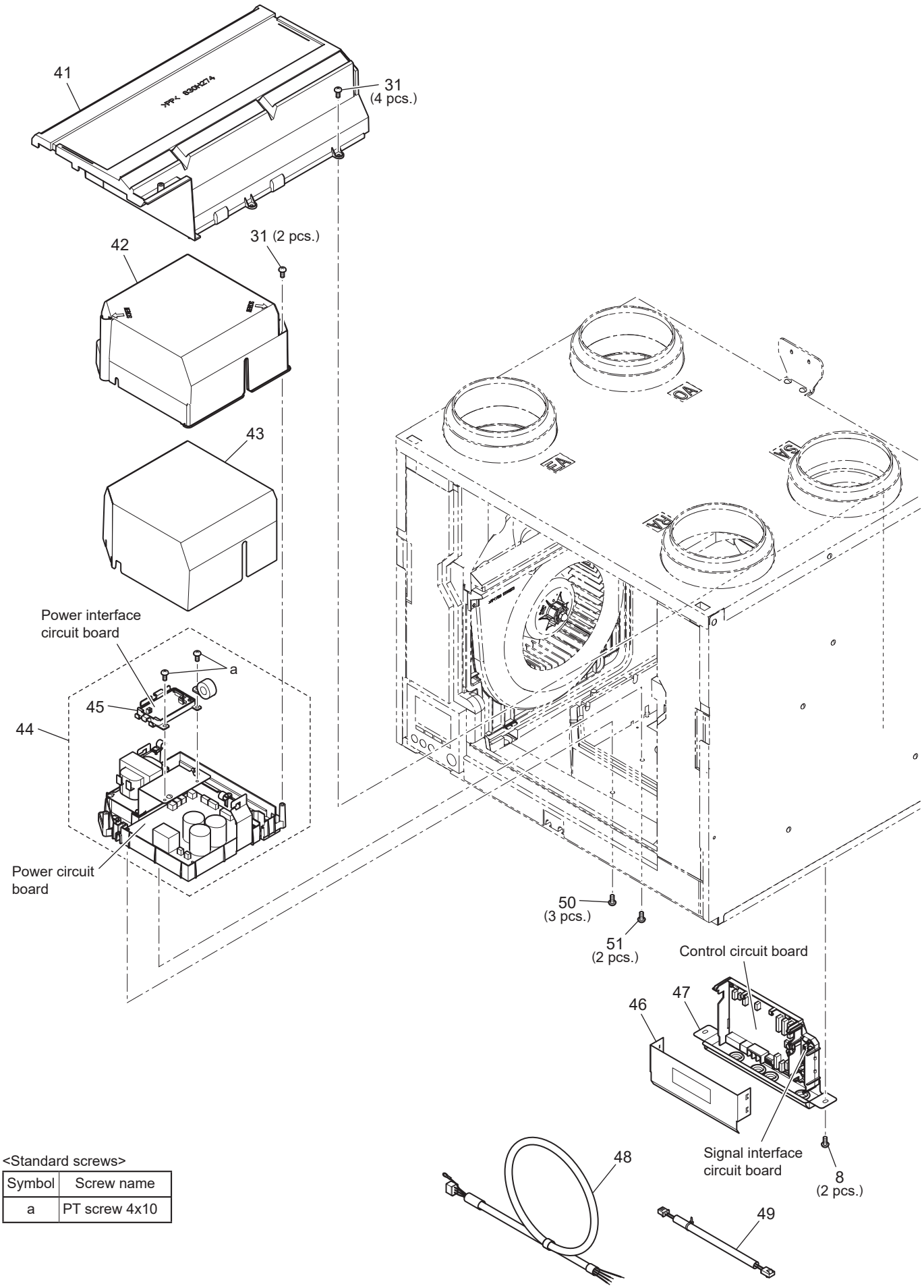
VL-500CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 2 | | |
| 2 | Filter cover (A) | W36 008 718 | 1 | | |
| 3 | Filter case (OA) | W36 009 717 | 1 | | |
| 4 | Filter case (RA) | W36 009 718 | 1 | | |
| 5 | Filter case (SA) | W36 009 719 | 1 | | |
| 6 | Front casing (OUT) | W36 009 833 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 009 830 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 009 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 009 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


21
(4 pcs.) 22
23
25
24
26
27
28
29
OA
30
31
(3 pcs.)
Air exhaust fan assembly (EA)
31
32
33
34
(2 pcs.) 31
35
31 (3 pcs.)
31
36
RA
28
27
26
25
24
23
32
22 (4 pcs.)
37
Air supply fan assembly (SA)
OA
EA
RA

VL-500CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (EA) | W36 009 454 | 1 | ⚠ | |
| 22 | Spl screw 4x16 | W36 009 018 | 8 | | |
| 23 | Cover | W36 009 836 | 2 | | |
| 24 | Special washer (10) | W50 003 478 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 009 480 | 2 | ⚠ | Dia. 230mm |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 009 168 | 1 | ⚠ | OA |
| 30 | Element guide (OA) | W36 009 837 | 1 | | |
| 31 | Spl screw PTT 4x14 | W36 008 046 | 16 | | |
| 32 | Orifice | W36 009 834 | 2 | | |
| 33 | Damper assembly | W36 009 715 | 1 | ⚠ | |
| 34 | Bypass plate | W36 009 832 | 1 | | |
| 35 | Element guide (SA) | W36 009 835 | 1 | | |
| 36 | Thermistor | W36 009 167 | 1 | ⚠ | RA |
| 37 | DC motor (SA) | W36 009 453 | 1 | ⚠ | |
| | | | | | |
| | | | | | |
| | | | | | |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-500CZPVU-L-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 009 831 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
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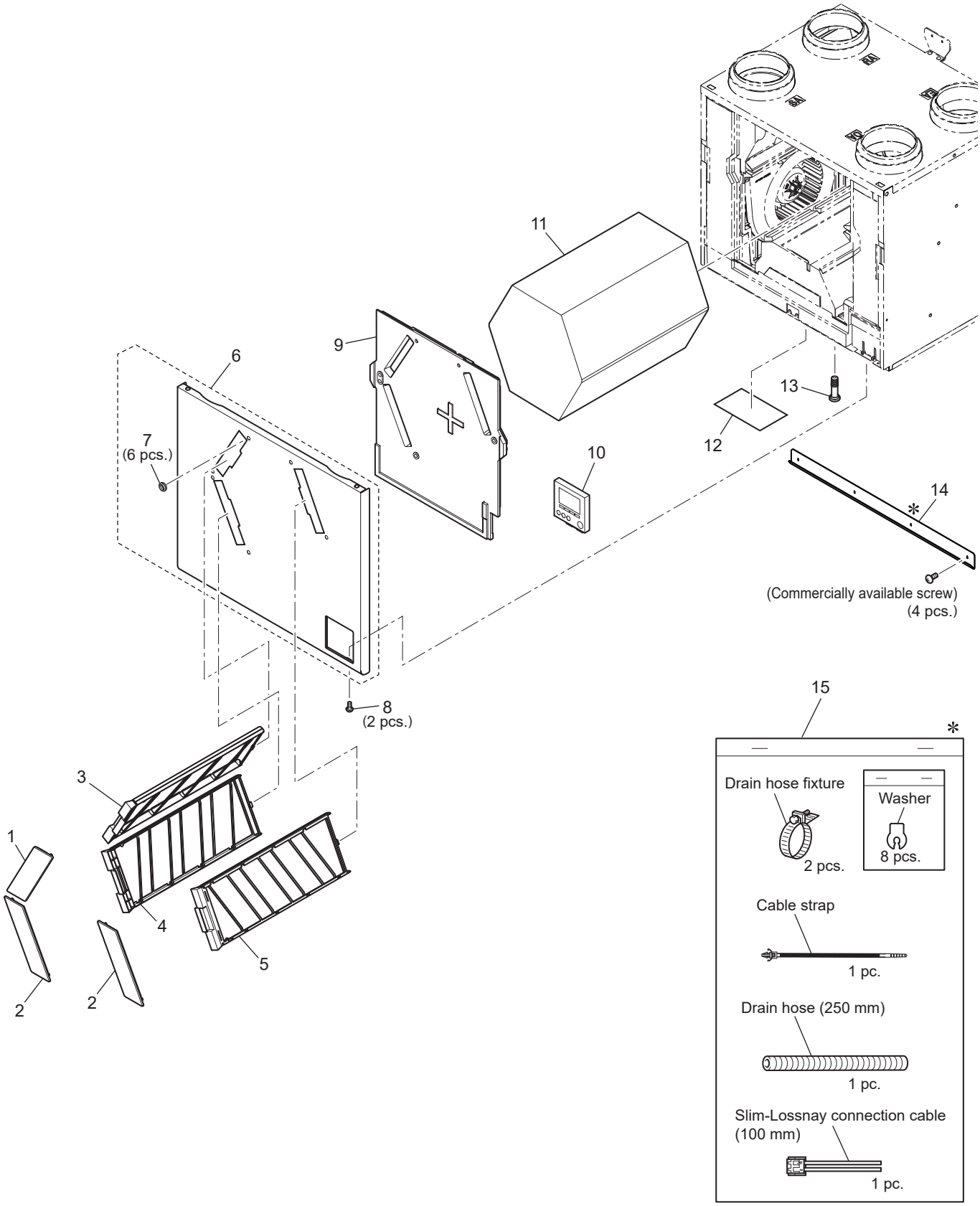
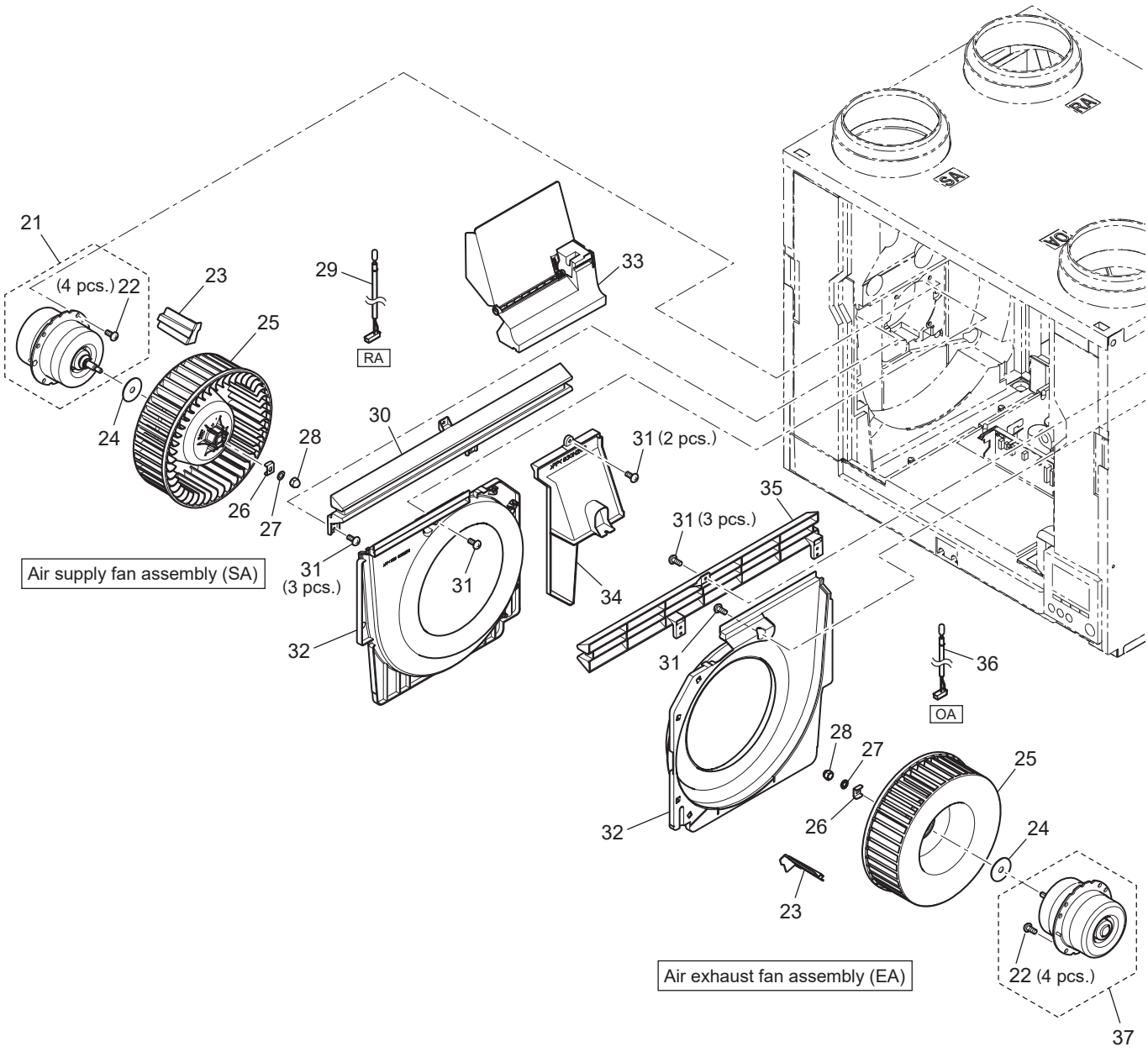
# VL-500CZPVU-R-E




* shows accessory parts.

VL-500CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 1 | | |
| 2 | Filter cover (A) | W36 008 718 | 2 | | |
| 3 | Filter case (RA) | W36 009 720 | 1 | | |
| 4 | Filter case (SA) | W36 009 721 | 1 | | |
| 5 | Filter case (OA) | W36 009 722 | 1 | | |
| 6 | Front casing (OUT) | W36 009 839 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 009 838 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 009 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 009 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


RA
SA
OA
21
(4 pcs.)
22
23
25
24
29
RA
33
30
28
26
27
31 (2 pcs.)
31
(3 pcs.)
31
34
32
Air supply fan assembly (SA)
35
31 (3 pcs.)
31
32
36
OA
28
27
26
25
24
23
22 (4 pcs.)
37
Air exhaust fan assembly (EA)

VL-500CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (SA) | W36 009 453 | 1 | ⚠ | |
| 22 | Spl screw 4x16 | W36 009 018 | 8 | | |
| 23 | Cover | W36 009 836 | 2 | | |
| 24 | Special washer (10) | W50 003 478 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 009 480 | 2 | ⚠ | Dia. 230 |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 009 169 | 1 | ⚠ | RA |
| 30 | Element guide (SA) | W36 009 835 | 1 | | |
| 31 | Spl screw PTT 4x14 | W36 008 046 | 16 | | |
| 32 | Orifice | W36 009 834 | 2 | | |
| 33 | Damper assembly | W36 009 715 | 1 | ⚠ | |
| 34 | Bypass plate | W36 009 832 | 1 | | |
| 35 | Element guide (OA) | W36 009 837 | 1 | | |
| 36 | Thermistor | W36 009 168 | 1 | ⚠ | OA |
| 37 | DC motor (EA) | W36 009 454 | 1 | ⚠ | |
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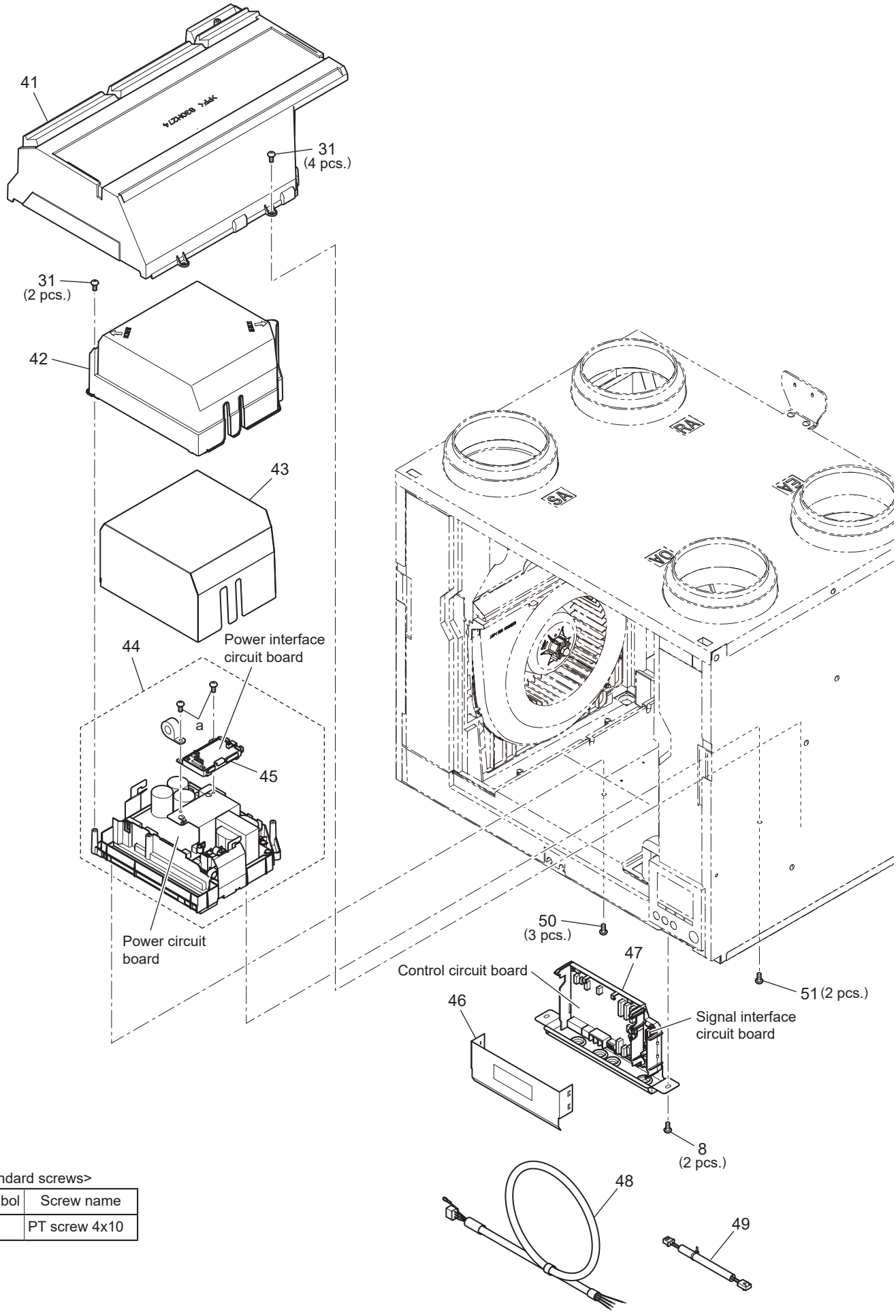
| | | | | | |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-500CZPVU-R-E

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 009 831 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
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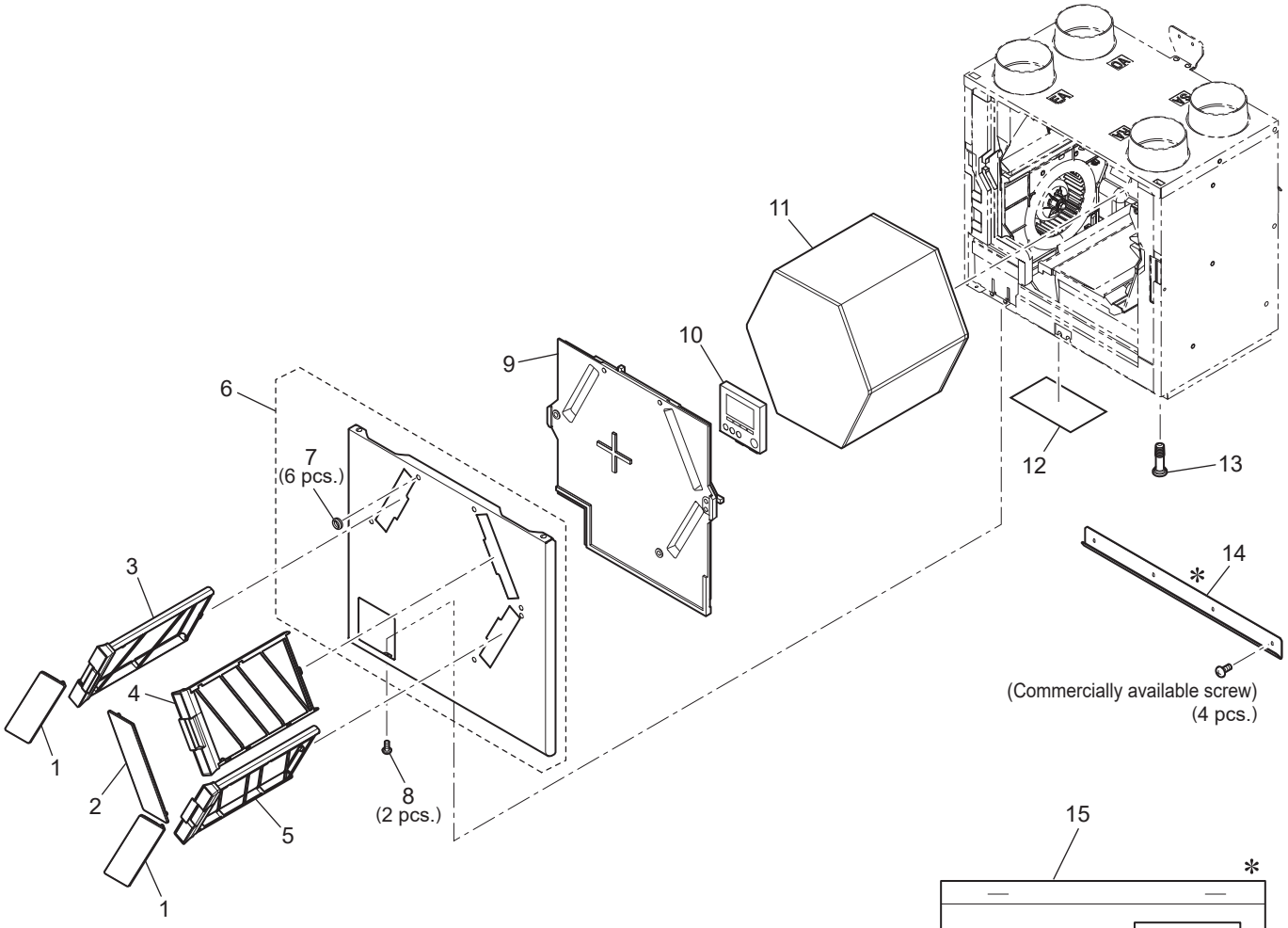
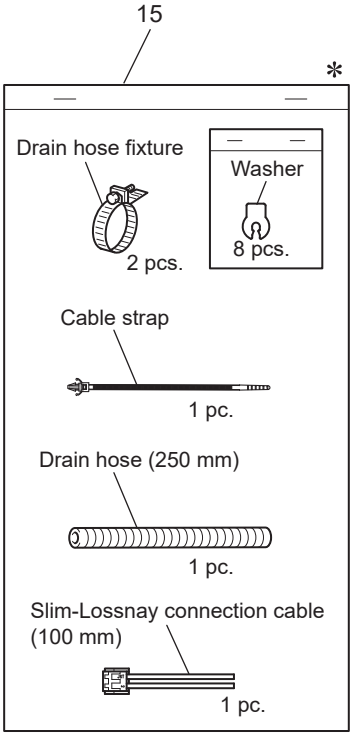
# VL-250CZPVU-L-ERT

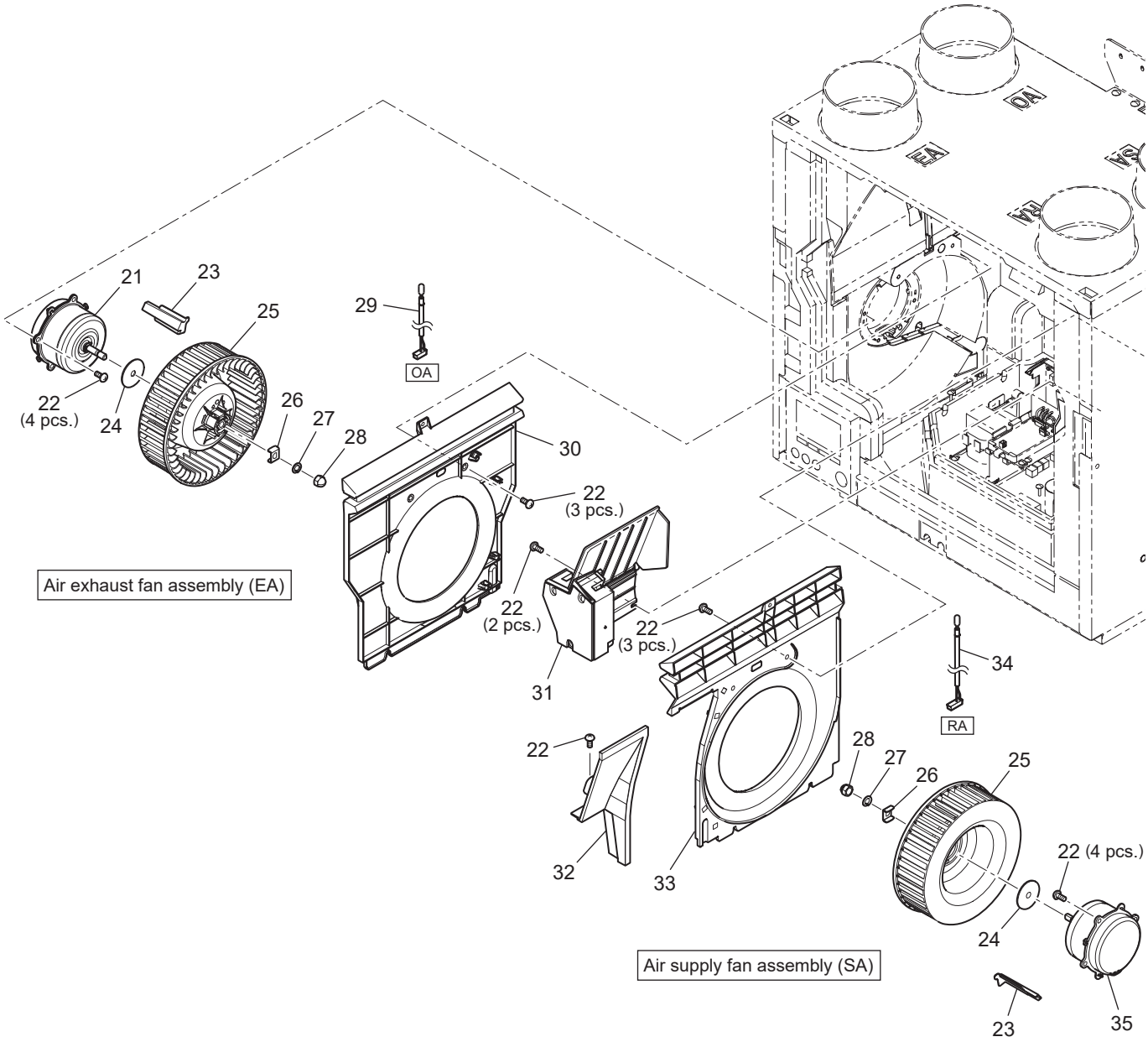



* shows accessory parts.

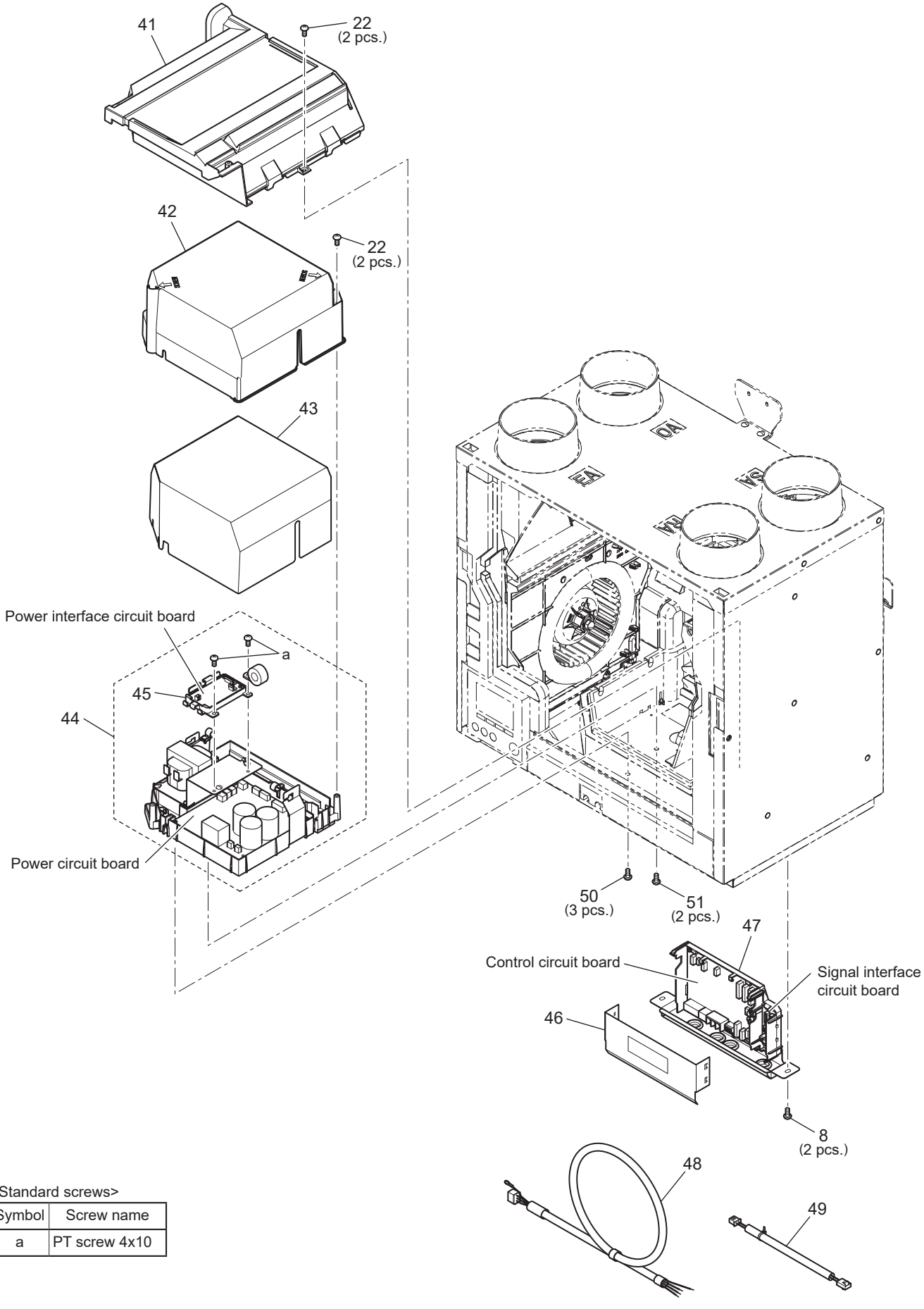
## VL-250CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 2 | | |
| 2 | Filter cover (A) | W36 008 718 | 1 | | |
| 3 | Filter case (OA) | W36 008 719 | 1 | | |
| 4 | Filter case (RA) | W36 008 720 | 1 | | |
| 5 | Filter case (SA) | W36 008 721 | 1 | | |
| 6 | Front casing (OUT) | W36 008 830 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 008 831 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 008 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 008 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


OA
EA
RA
21
23
25
29
22
(4 pcs.)
24
26
27
28
30
22
(3 pcs.)
22
(2 pcs.)
31
22
(3 pcs.)
34
RA
22
28
27
26
25
22 (4 pcs.)
32
33
24
35
23
Air exhaust fan assembly (EA)
Air supply fan assembly (SA)

## VL-250CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (EA) | W36 008 453 | 1 | ⚠ | |
| 22 | Spl screw PTT 4x14 | W36 008 046 | 21 | | |
| 23 | Cover | W36 008 832 | 2 | | |
| 24 | Special washer (8) | W50 003 477 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 008 480 | 2 | ⚠ | Dia. 180mm |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 008 167 | 1 | ⚠ | OA |
| 30 | Orifice (EA) | W36 008 833 | 1 | | |
| 31 | Damper assembly | W36 008 715 | 1 | ⚠ | |
| 32 | Bypass plate | W36 008 835 | 1 | | |
| 33 | Orifice (SA) | W36 008 834 | 1 | | |
| 34 | Thermistor | W36 008 168 | 1 | ⚠ | RA |
| 35 | DC motor (SA) | W36 008 454 | 1 | ⚠ | |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-250CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 836 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
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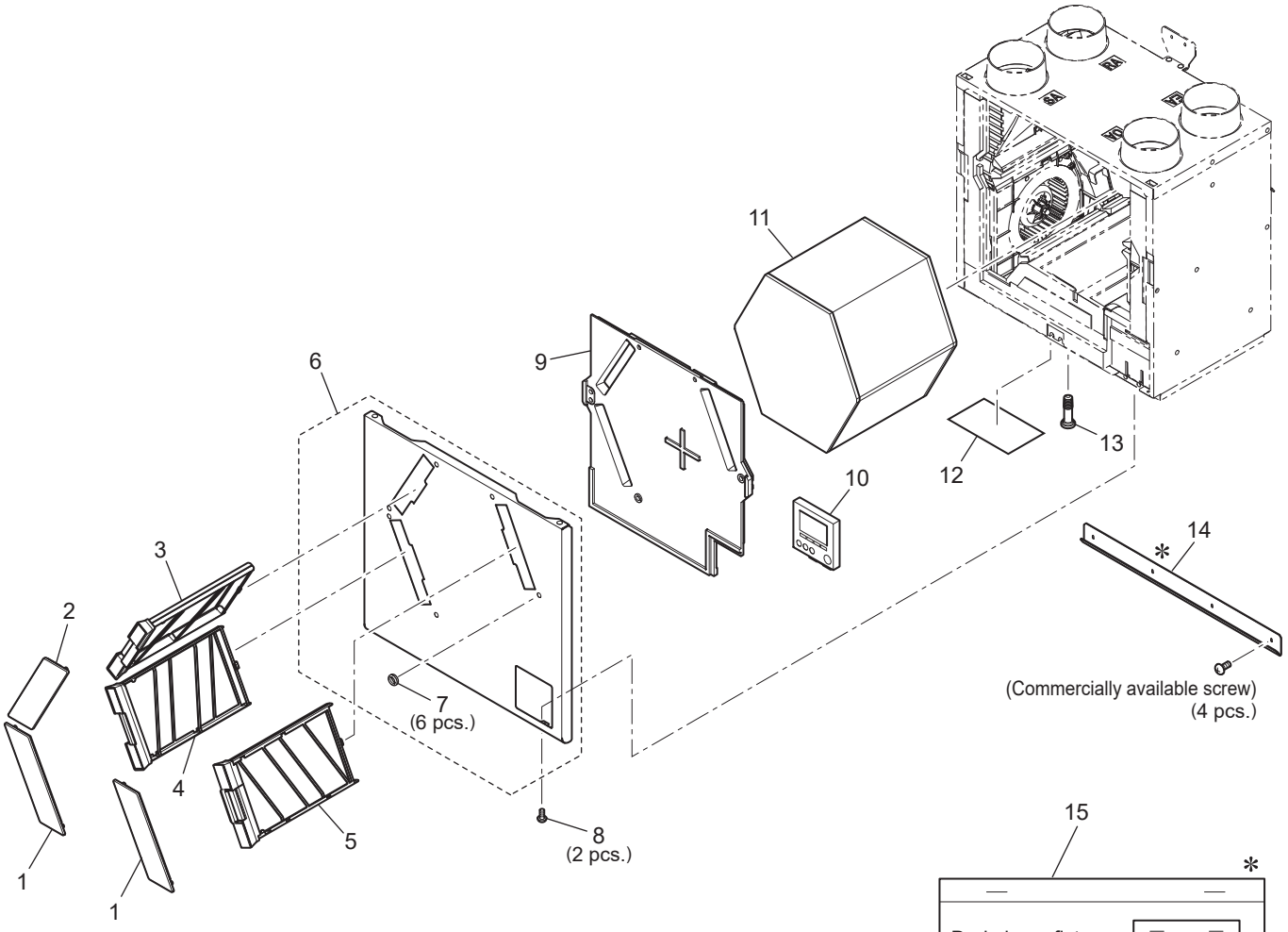
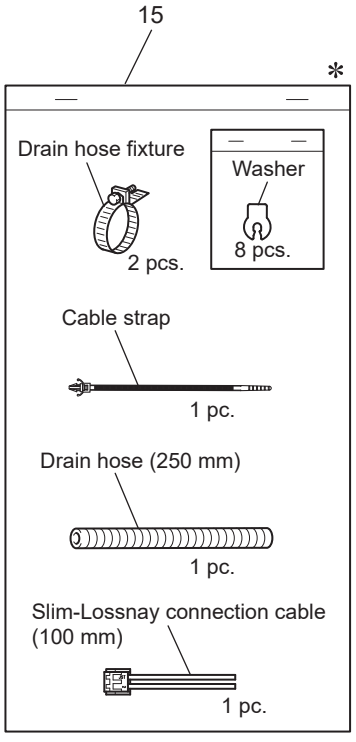
| | | | | | |
| | | | | | |

# VL-250CZPVU-R-ERT

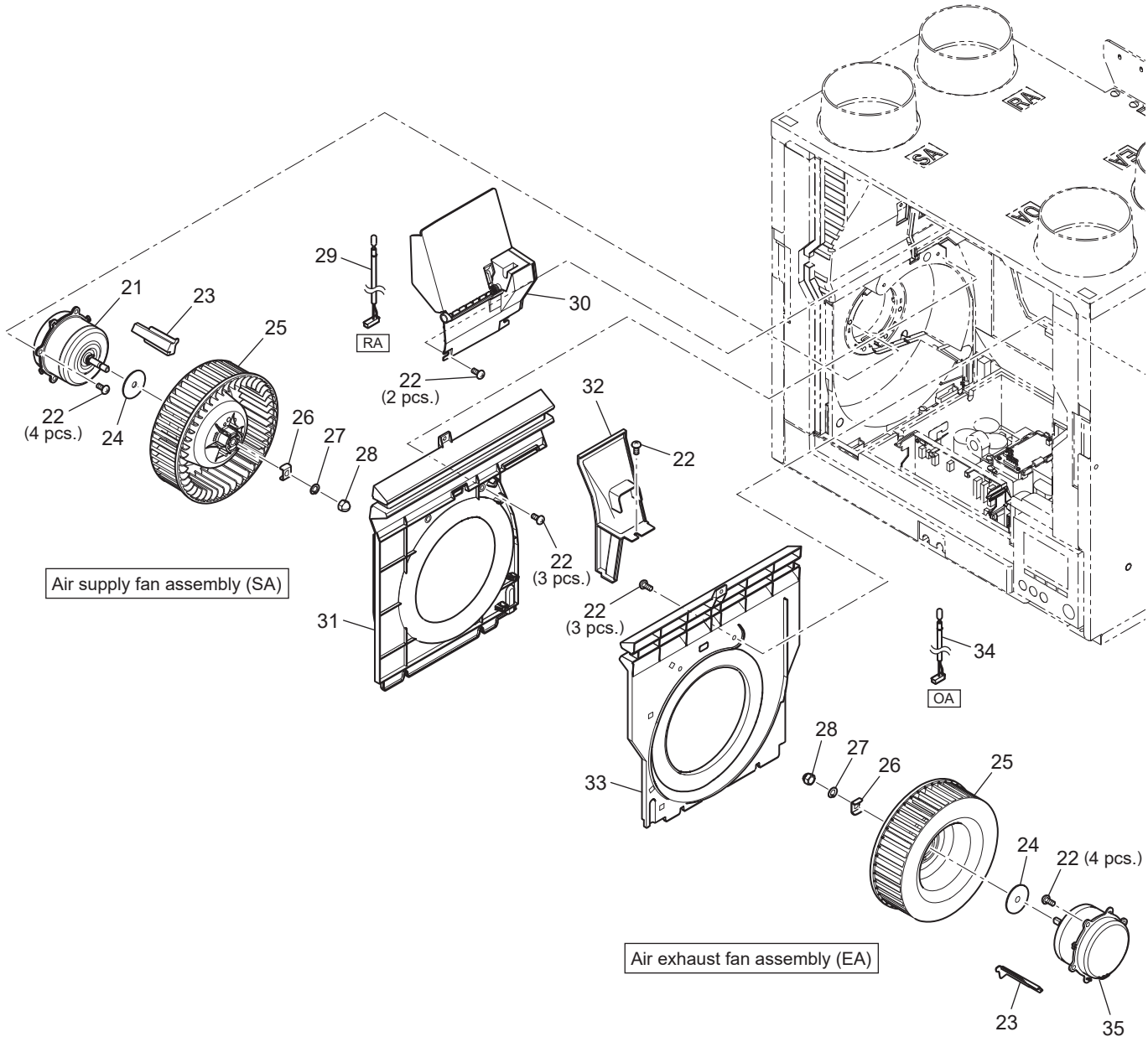



* shows accessory parts.

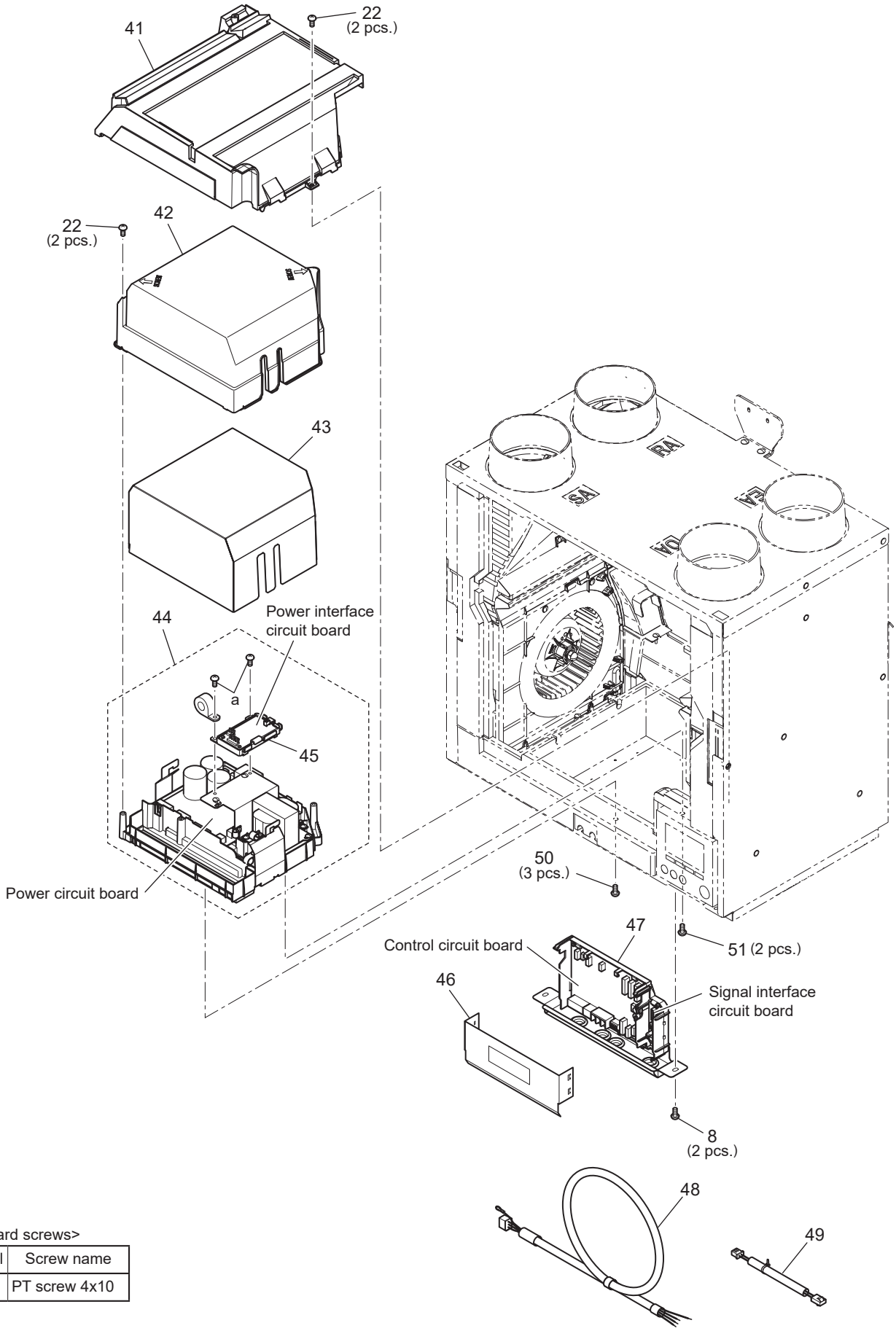
## VL-250CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (A) | W36 008 718 | 2 | | |
| 2 | Filter cover (B) | W36 008 717 | 1 | | |
| 3 | Filter case (RA) | W36 008 723 | 1 | | |
| 4 | Filter case (SA) | W36 008 724 | 1 | | |
| 5 | Filter case (OA) | W36 008 725 | 1 | | |
| 6 | Front casing (OUT) | W36 008 837 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 008 838 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 008 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 008 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


RA
SA
OA
21
23
25
29
RA
30
22
(2 pcs.)
22
(4 pcs.)
24
26
27
28
32
22
22
(3 pcs.)
31
22
(3 pcs.)
34
OA
28
27
26
25
33
24
22 (4 pcs.)
23
35
Air supply fan assembly (SA)
Air exhaust fan assembly (EA)

## VL-250CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (SA) | W36 008 454 | 1 | ⚠ | |
| 22 | Spl screw PTT 4x14 | W36 008 046 | 21 | | |
| 23 | Cover | W36 008 832 | 2 | | |
| 24 | Special washer (8) | W50 003 477 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 008 480 | 2 | ⚠ | Dia. 180mm |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 008 169 | 1 | ⚠ | RA |
| 30 | Damper assembly | W36 008 715 | 1 | ⚠ | |
| 31 | Orifice (SA) | W36 008 834 | 1 | | |
| 32 | Bypass plate | W36 008 835 | 1 | | |
| 33 | Orifice (EA) | W36 008 833 | 1 | | |
| 34 | Thermistor | W36 008 167 | 1 | ⚠ | OA |
| 35 | DC motor (EA) | W36 008 453 | 1 | ⚠ | |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-250CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 836 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 238 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 239 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 232 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
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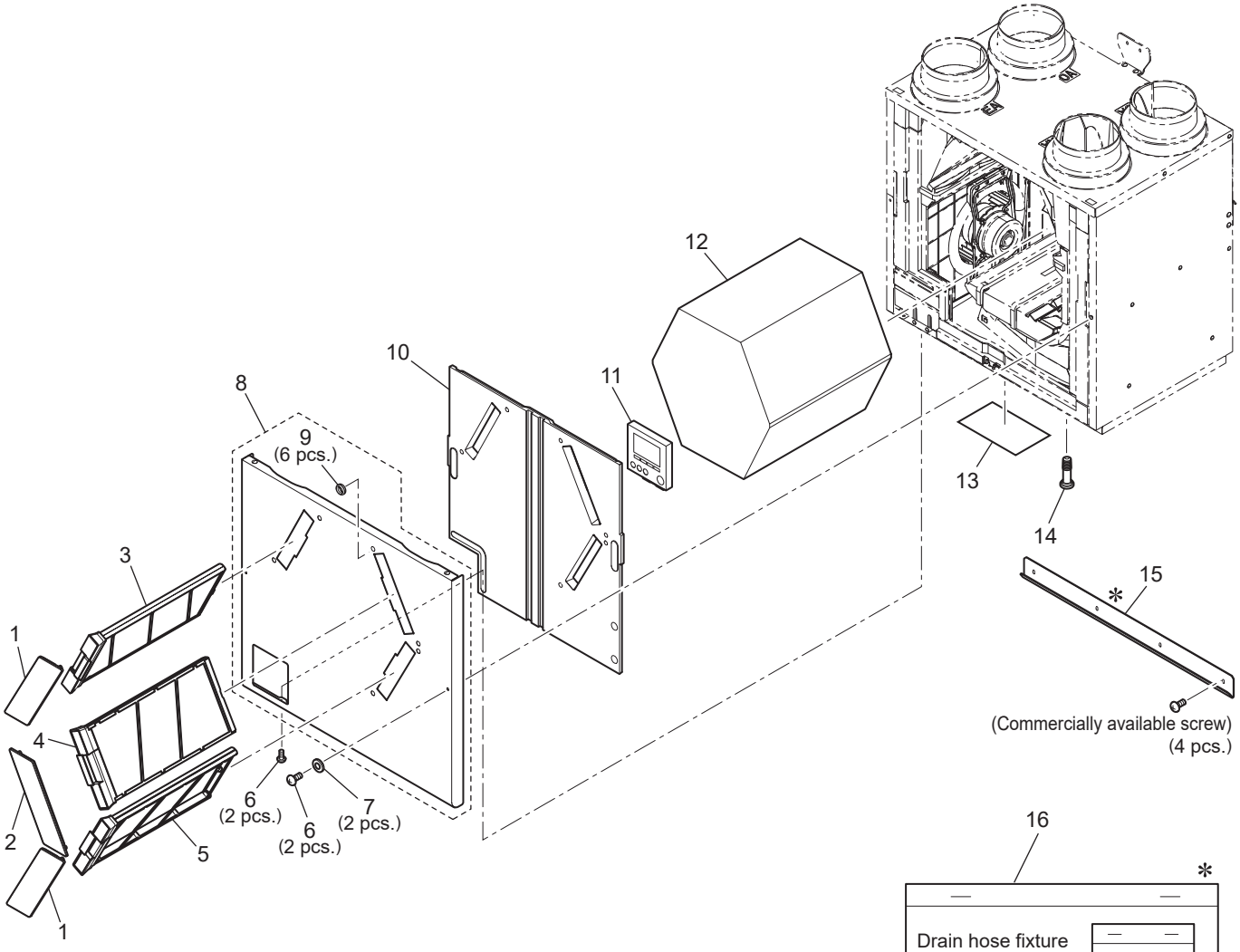
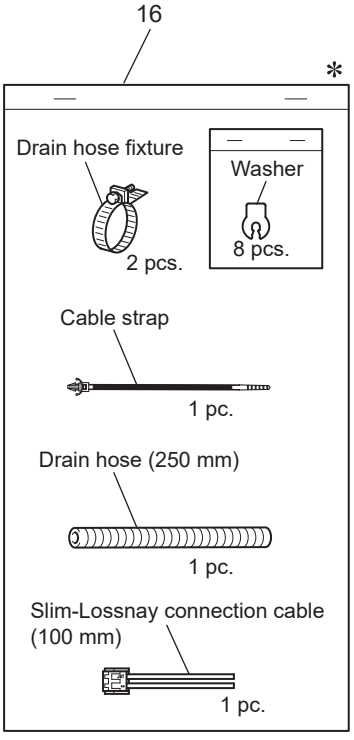
| | | | | | |
| | | | | | |

# VL-350CZPVU-L-ERT




* shows accessory parts.

VL-350CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 2 | | |
| 2 | Filter cover (A) | W36 008 718 | 1 | | |
| 3 | Filter case (OA) | W36 008 726 | 1 | | |
| 4 | Filter case (RA) | W36 008 727 | 1 | | |
| 5 | Filter case (SA) | W36 008 728 | 1 | | |
| 6 | Spl screw PT 4x10 | W36 008 045 | 6 | | |
| 7 | Special washer (3) | W00 000 167 | 2 | | |
| 8 | Front casing (OUT) | W36 008 839 | 1 | | |
| 9 | Bush | W36 008 225 | 6 | | |
| 10 | Front casing (IN) | W36 008 840 | 1 | | |
| 11 | Controller | W36 008 722 | 1 | ⚠ | |
| 12 | Heat exchanger | W36 008 711 | 1 | ⚠ | |
| 13 | Wiring diagram | W36 008 358 | 1 | | |
| 14 | Drain cap | W36 008 309 | 1 | | |
| 15 | Wall bracket | W36 008 381 | 1 | | |
| 16 | Parts in bag | W36 008 588 | 1 | | |
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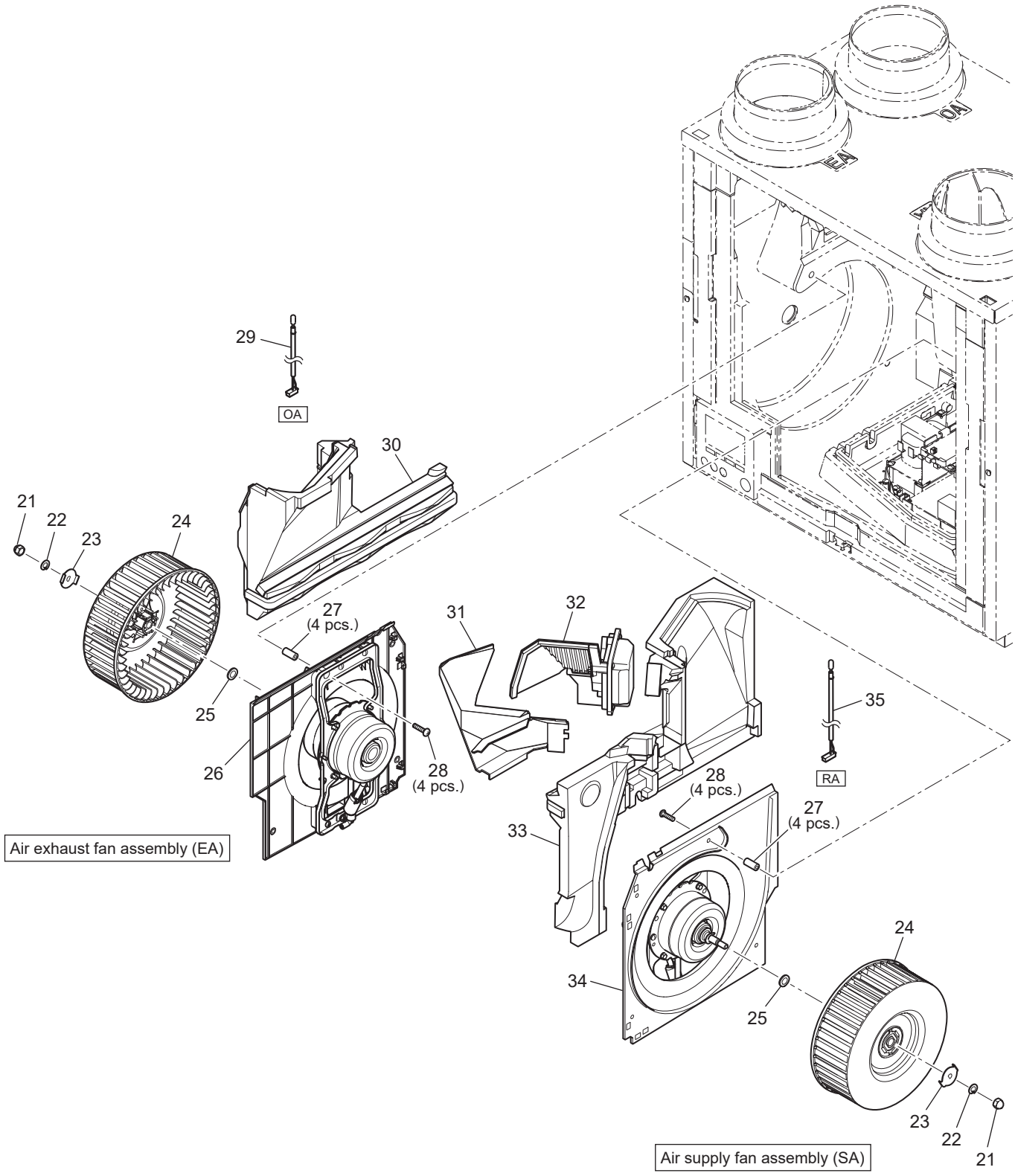
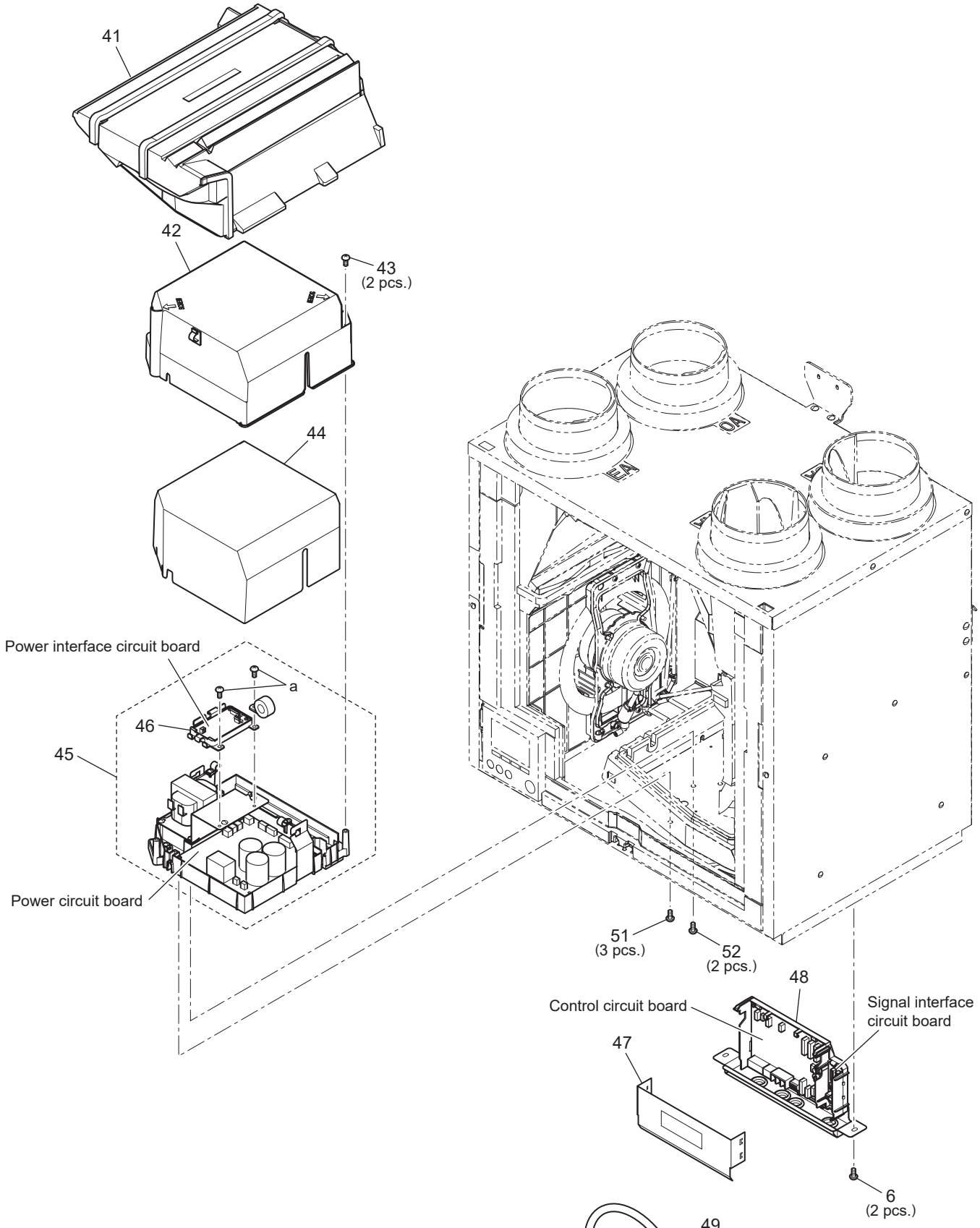

EA
OA
29
OA
30
21
22
23
24
27
(4 pcs.)
25
26
28
(4 pcs.)
Air exhaust fan assembly (EA)
31
32
35
RA
28
(4 pcs.)
27
(4 pcs.)
33
34
25
24
23
22
21
Air supply fan assembly (SA)

## VL-350CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | Special nut (M8) | W36 008 067 | 2 | | |
| 22 | Spring washer (8) | W00 000 126 | 2 | | |
| 23 | Tab washer | W00 000 134 | 2 | | |
| 24 | Centrifugal fan | W36 008 481 | 2 | ⚠ | Dia. 210mm |
| 25 | Washer (10) | W36 008 071 | 2 | | |
| 26 | DC motor assy (EA) | W36 008 729 | 1 | ⚠ | With fan casing |
| 27 | Spacer | W36 008 095 | 8 | | 6X15 |
| 28 | Spl screw PPT 4x30 | W36 008 047 | 8 | | |
| 29 | Thermistor | W36 008 170 | 1 | ⚠ | OA |
| 30 | Element guide (OA) | W36 008 841 | 1 | | |
| 31 | Damper frame | W36 008 716 | 1 | | |
| 32 | Damper assembly | W36 008 731 | 1 | ⚠ | |
| 33 | Element guide (RA) | W36 008 842 | 1 | | |
| 34 | DC motor assy (SA) | W36 008 730 | 1 | ⚠ | With fan casing |
| 35 | Thermistor | W36 008 171 | 1 | ⚠ | RA |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-350CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 843 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | Spl screw PTT 4x12 | W00 000 045 | 2 | | |
| 44 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 45 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 46 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 47 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 48 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 49 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 50 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 51 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 52 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
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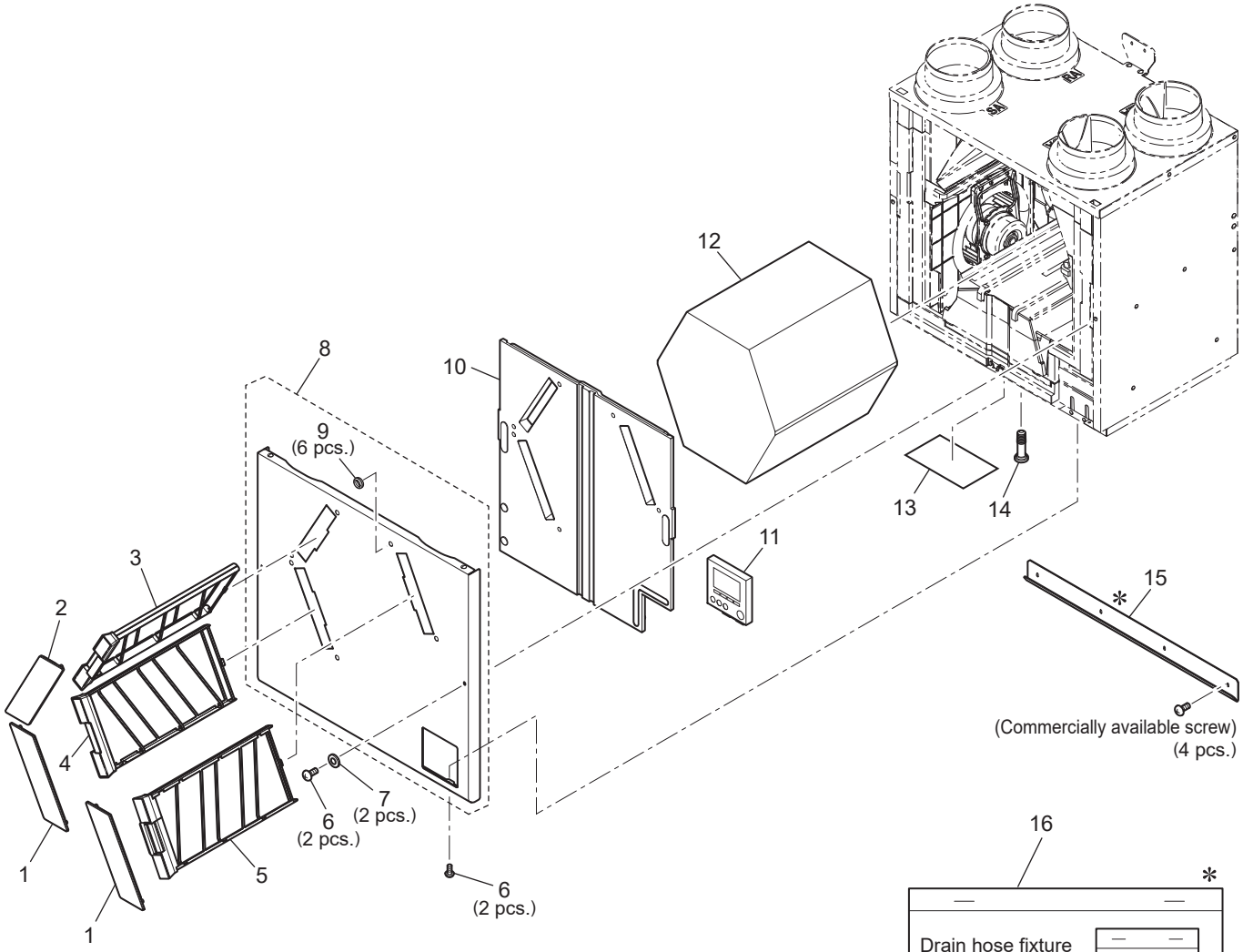
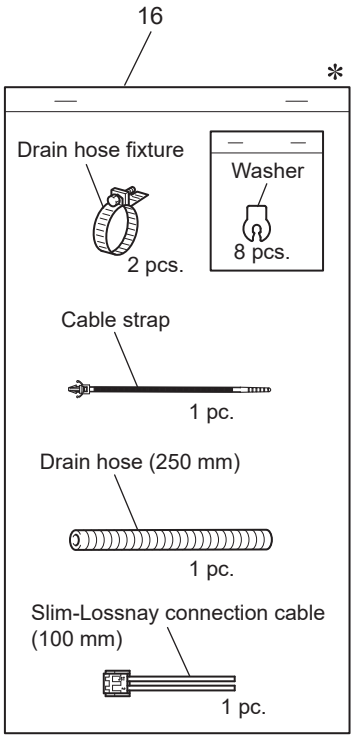
# VL-350CZPVU-R-ERT




* shows accessory parts.

## VL-350CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (A) | W36 008 718 | 2 | | |
| 2 | Filter cover (B) | W36 008 717 | 1 | | |
| 3 | Filter case (RA) | W36 008 732 | 1 | | |
| 4 | Filter case (SA) | W36 008 733 | 1 | | |
| 5 | Filter case (OA) | W36 008 734 | 1 | | |
| 6 | Spl screw PT 4x10 | W36 008 045 | 6 | | |
| 7 | Special washer (3) | W00 000 167 | 2 | | |
| 8 | Front casing (OUT) | W36 008 844 | 1 | | |
| 9 | Bush | W36 008 225 | 6 | | |
| 10 | Front casing (IN) | W36 008 845 | 1 | | |
| 11 | Controller | W36 008 722 | 1 | ⚠ | |
| 12 | Heat exchanger | W36 008 711 | 1 | ⚠ | |
| 13 | Wiring diagram | W36 008 358 | 1 | | |
| 14 | Drain cap | W36 008 309 | 1 | | |
| 15 | Wall bracket | W36 008 381 | 1 | | |
| 16 | Parts in bag | W36 008 588 | 1 | | |
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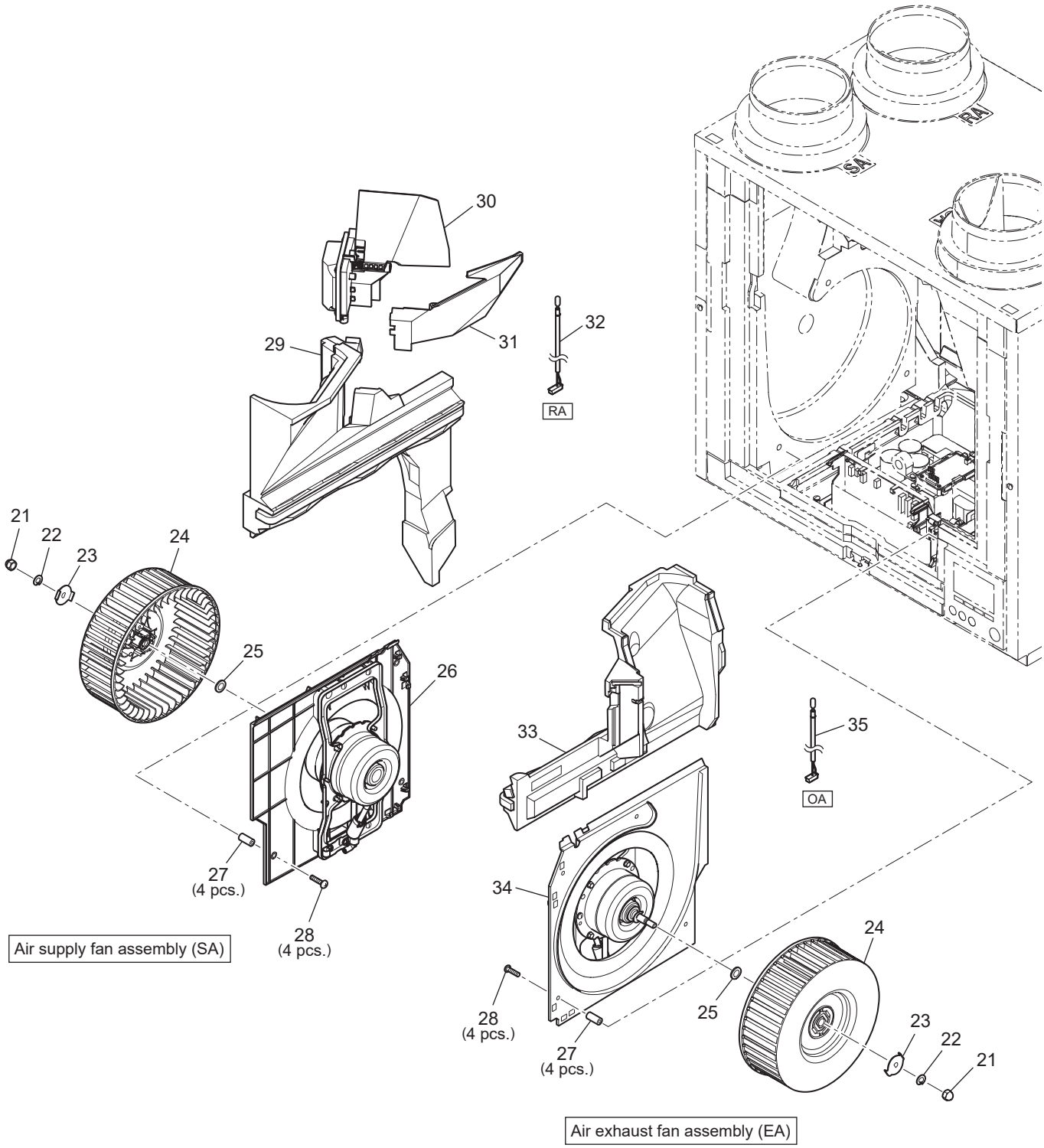
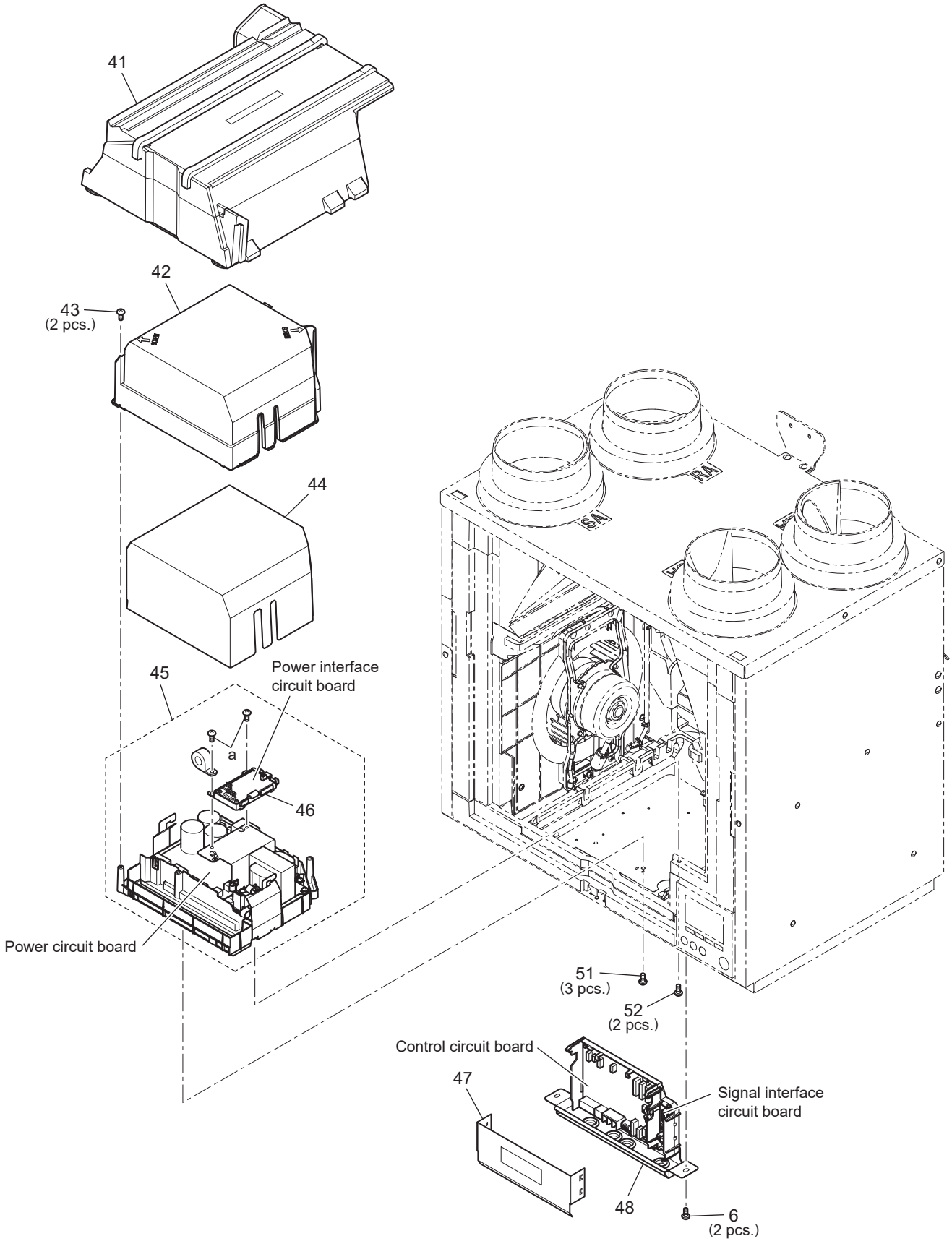

SA
RA
30
31
29
32
RA
21
22
23
24
25
26
27
(4 pcs.)
28
(4 pcs.)
Air supply fan assembly (SA)
33
35
OA
34
28
(4 pcs.)
27
(4 pcs.)
25
24
23
22
21
Air exhaust fan assembly (EA)

VL-350CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | Special nut (M8) | W36 008 067 | 2 | | |
| 22 | Spring washer (8) | W00 000 126 | 2 | | |
| 23 | Tab washer | W00 000 134 | 2 | | |
| 24 | Centrifugal fan | W36 008 481 | 2 | ⚠ | Dia. 210mm |
| 25 | Washer (10) | W36 008 071 | 2 | | |
| 26 | DC motor assy (SA) | W36 008 730 | 1 | ⚠ | With fan casing |
| 27 | Spacer | W36 008 095 | 8 | | 6X15 |
| 28 | Spl screw PPT 4x30 | W36 008 047 | 8 | | |
| 29 | Element guide (RA) | W36 008 842 | 1 | | |
| 30 | Damper assembly | W36 008 731 | 1 | ⚠ | |
| 31 | Damper frame | W36 008 716 | 1 | | |
| 32 | Thermistor | W36 008 172 | 1 | ⚠ | RA |
| 33 | Element guide (OA) | W36 008 841 | 1 | | |
| 34 | DC motor assy (EA) | W36 008 729 | 1 | ⚠ | With fan casing |
| 35 | Thermistor | W36 008 170 | 1 | ⚠ | OA |




<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

## VL-350CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 008 843 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | Spl screw PTT 4x12 | W00 000 045 | 2 | | |
| 44 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 45 | Control box | W36 008 238 | 1 | ⚠ | Power, Power interface |
| 46 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 47 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 48 | Circuit board | W36 008 239 | 1 | ⚠ | Control, Signal interface |
| 49 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 50 | Lead wire | W36 008 232 | 1 | ⚠ | Controller |
| 51 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 52 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
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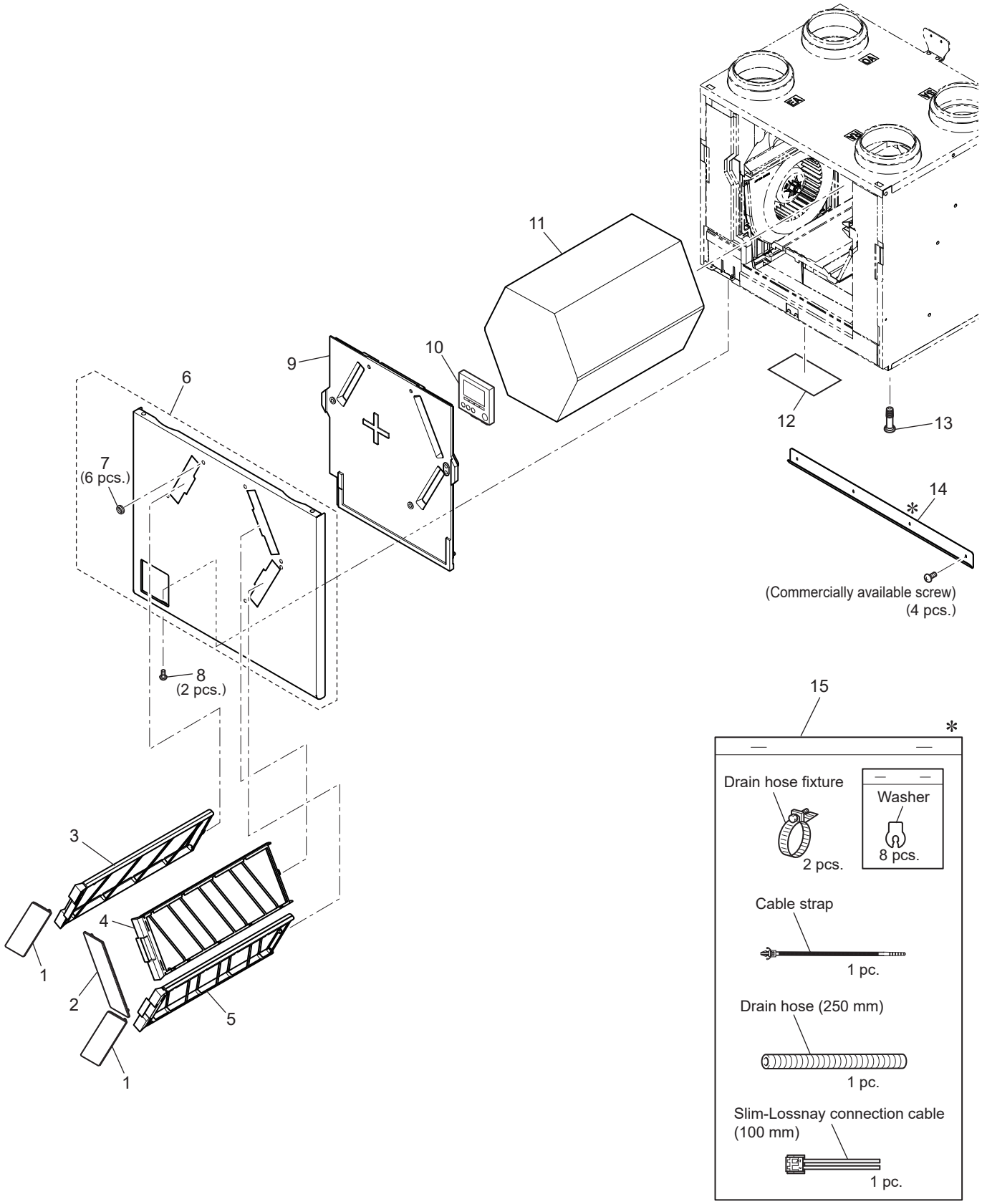
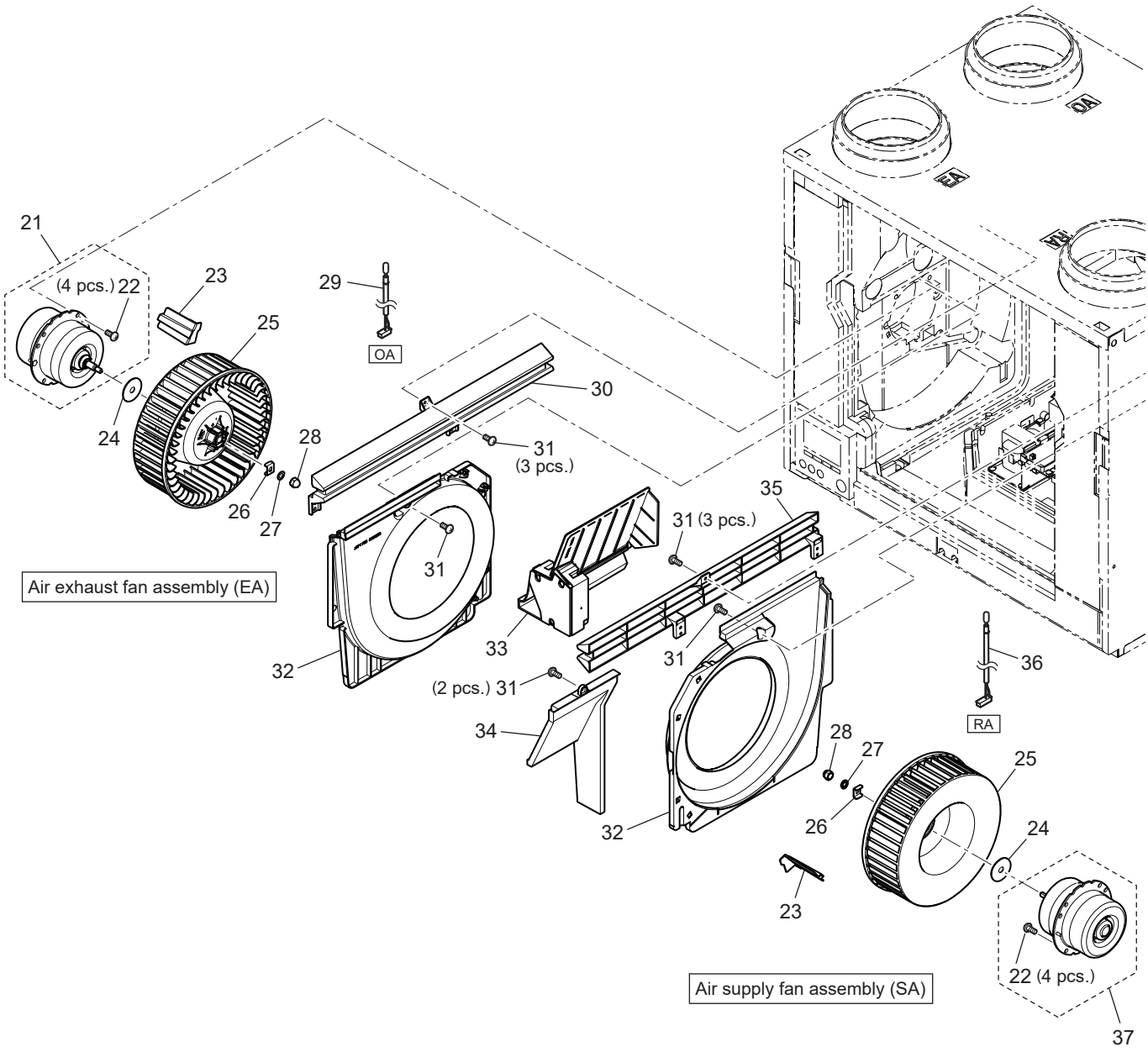
# VL-500CZPVU-L-ERT




* shows accessory parts.

## VL-500CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 2 | | |
| 2 | Filter cover (A) | W36 008 718 | 1 | | |
| 3 | Filter case (OA) | W36 009 717 | 1 | | |
| 4 | Filter case (RA) | W36 009 718 | 1 | | |
| 5 | Filter case (SA) | W36 009 719 | 1 | | |
| 6 | Front casing (OUT) | W36 009 833 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 009 830 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 009 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 009 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


21
(4 pcs.) 22
23
25
24
26
27
28
29
OA
30
31
(3 pcs.)
31
32
Air exhaust fan assembly (EA)
33
34
(2 pcs.) 31
35
31 (3 pcs.)
31
32
36
RA
28
27
26
25
24
23
22 (4 pcs.)
37
Air supply fan assembly (SA)
OA
EA
RA

VL-500CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (EA) | W36 009 454 | 1 | ⚠ | |
| 22 | Spl screw 4x16 | W36 009 018 | 8 | | |
| 23 | Cover | W36 009 836 | 2 | | |
| 24 | Special washer (10) | W50 003 478 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 009 480 | 2 | ⚠ | Dia. 180mm |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 009 168 | 1 | ⚠ | OA |
| 30 | Element guide (OA) | W36 009 837 | 1 | | |
| 31 | Spl screw PTT 4x14 | W36 008 046 | 16 | | |
| 32 | Orifice | W36 009 834 | 2 | | |
| 33 | Damper assembly | W36 009 715 | 1 | ⚠ | |
| 34 | Bypass plate | W36 009 832 | 1 | | |
| 35 | Element guide (SA) | W36 009 835 | 1 | | |
| 36 | Thermistor | W36 009 167 | 1 | ⚠ | RA |
| 37 | DC motor (SA) | W36 009 453 | 1 | ⚠ | |
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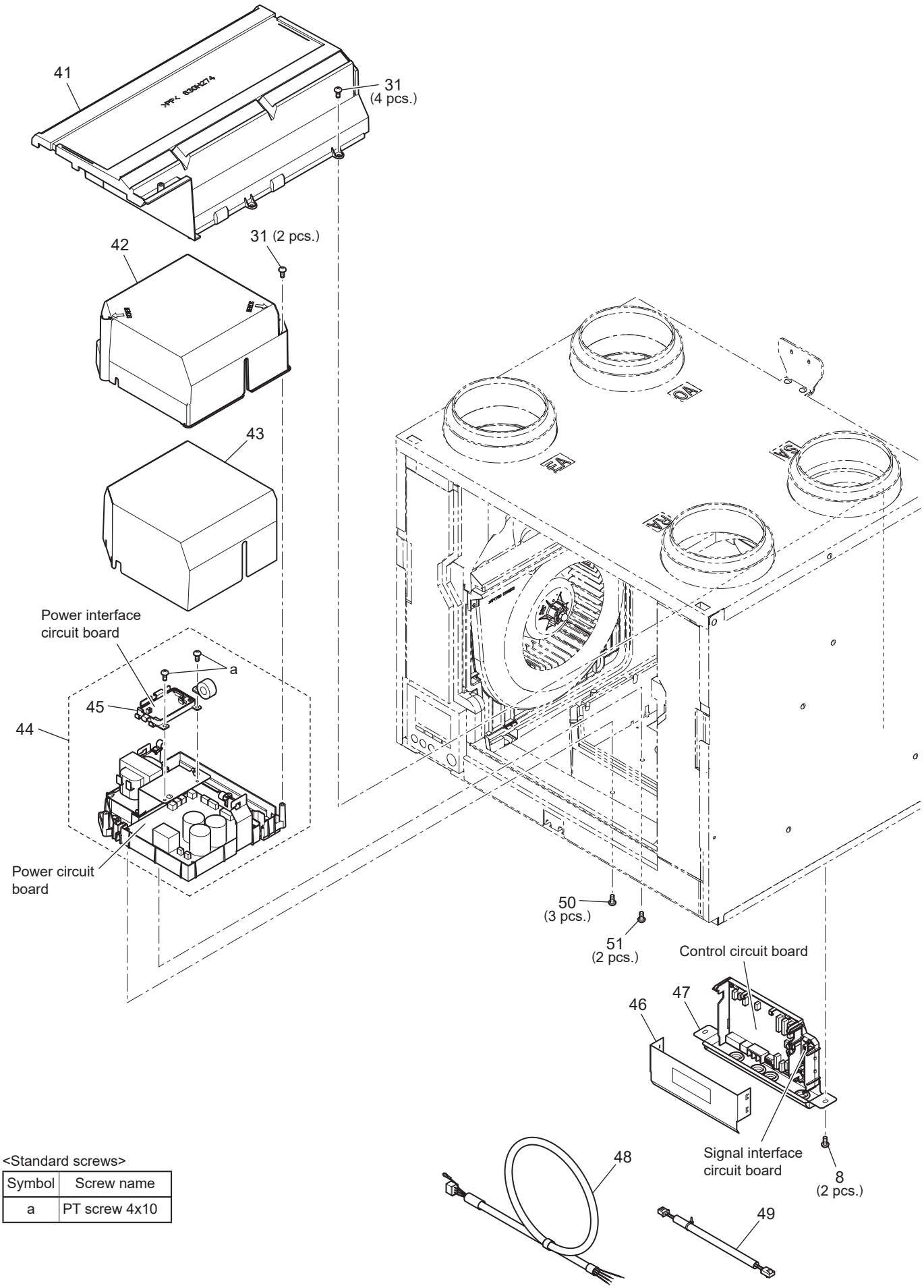


<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-500CZPVU-L-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 009 831 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
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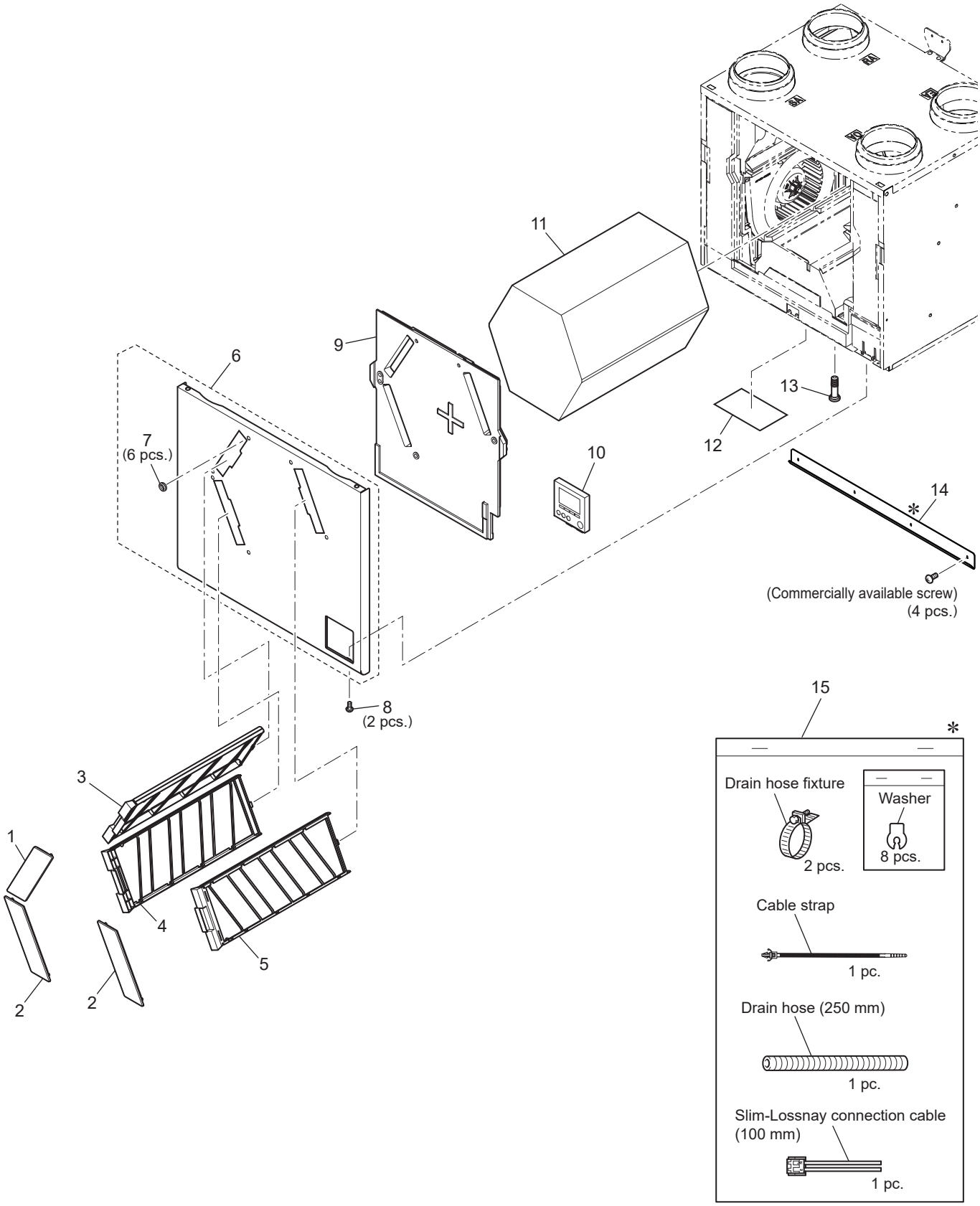
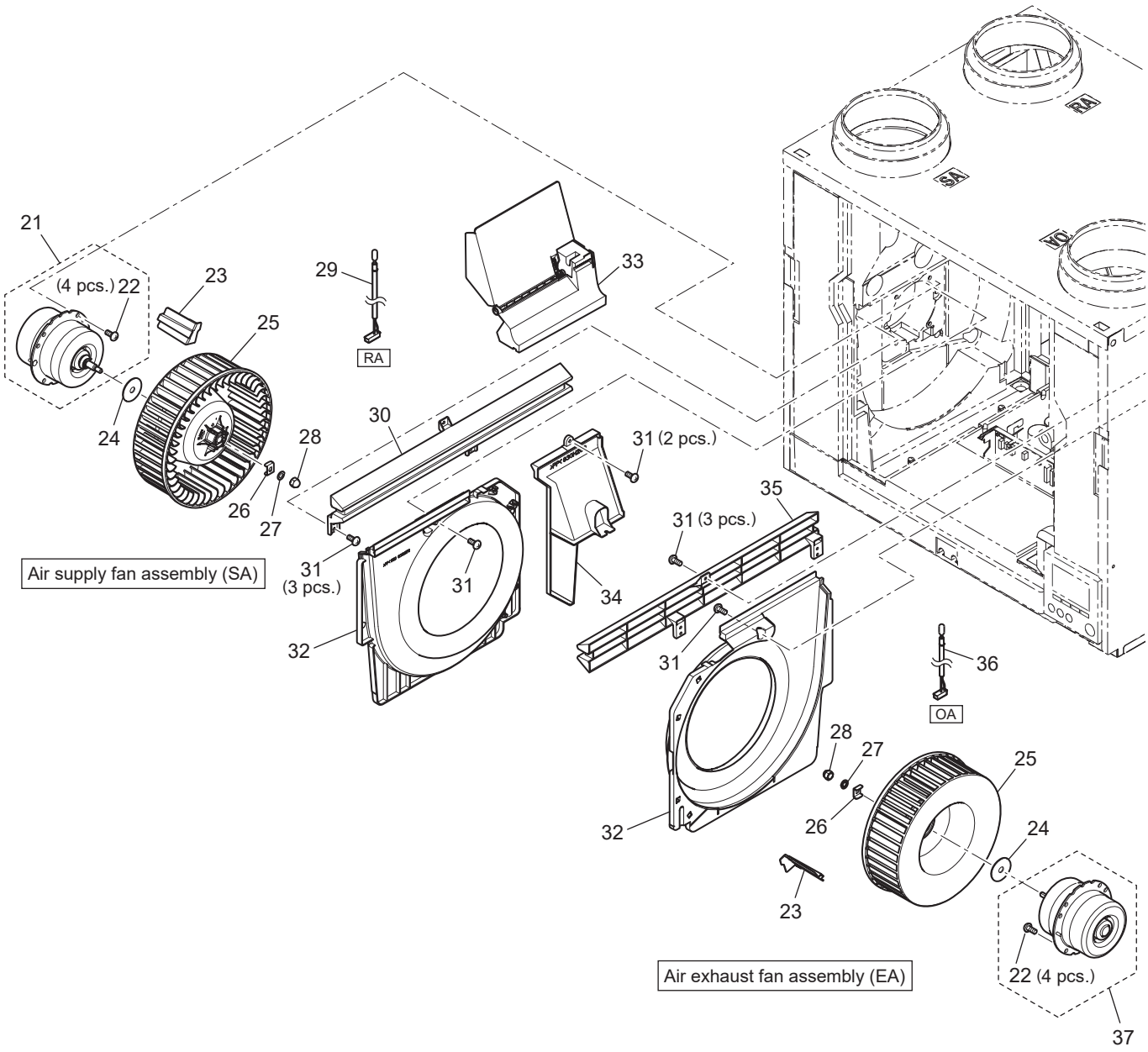
# VL-500CZPVU-R-ERT




* shows accessory parts.

## VL-500CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 1 | Filter cover (B) | W36 008 717 | 1 | | |
| 2 | Filter cover (A) | W36 008 718 | 2 | | |
| 3 | Filter case (RA) | W36 009 720 | 1 | | |
| 4 | Filter case (SA) | W36 009 721 | 1 | | |
| 5 | Filter case (OA) | W36 009 722 | 1 | | |
| 6 | Front casing (OUT) | W36 009 839 | 1 | | |
| 7 | Bush | W36 008 225 | 6 | | |
| 8 | Spl screw PT 4x10 | W36 008 045 | 4 | | |
| 9 | Front casing (IN) | W36 009 838 | 1 | | |
| 10 | Controller | W36 008 722 | 1 | ⚠ | |
| 11 | Heat exchanger | W36 009 710 | 1 | ⚠ | |
| 12 | Wiring diagram | W36 008 358 | 1 | | |
| 13 | Drain cap | W36 008 309 | 1 | | |
| 14 | Wall bracket | W36 009 380 | 1 | | |
| 15 | Parts in bag | W36 008 588 | 1 | | |


21
(4 pcs.)
22
23
25
24
26
27
28
29
RA
30
31 (2 pcs.)
31
(3 pcs.)
31
32
33
34
Air supply fan assembly (SA)
35
31 (3 pcs.)
31
32
36
OA
28
27
26
25
24
23
22 (4 pcs.)
37
Air exhaust fan assembly (EA)
RA
SA
OA

VL-500CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 21 | DC motor (SA) | W36 009 453 | 1 | ⚠ | |
| 22 | Spl screw 4x16 | W36 009 018 | 8 | | |
| 23 | Cover | W36 009 836 | 2 | | |
| 24 | Special washer (10) | W50 003 478 | 2 | | Dia. 40mm |
| 25 | Centrifugal fan | W36 009 480 | 2 | ⚠ | Dia. 180mm |
| 26 | Tab washer | W36 008 077 | 2 | | |
| 27 | Spring washer (8) | W00 000 129 | 2 | | |
| 28 | Special nut (M8) | W00 000 067 | 2 | | Left-handed |
| 29 | Thermistor | W36 009 169 | 1 | ⚠ | RA |
| 30 | Element guide (SA) | W36 009 835 | 1 | | |
| 31 | Spl screw PTT 4x14 | W36 008 046 | 16 | | |
| 32 | Orifice | W36 009 834 | 2 | | |
| 33 | Damper assembly | W36 009 715 | 1 | ⚠ | |
| 34 | Bypass plate | W36 009 832 | 1 | | |
| 35 | Element guide (OA) | W36 009 837 | 1 | | |
| 36 | Thermistor | W36 009 168 | 1 | ⚠ | OA |
| 37 | DC motor (EA) | W36 009 454 | 1 | ⚠ | |
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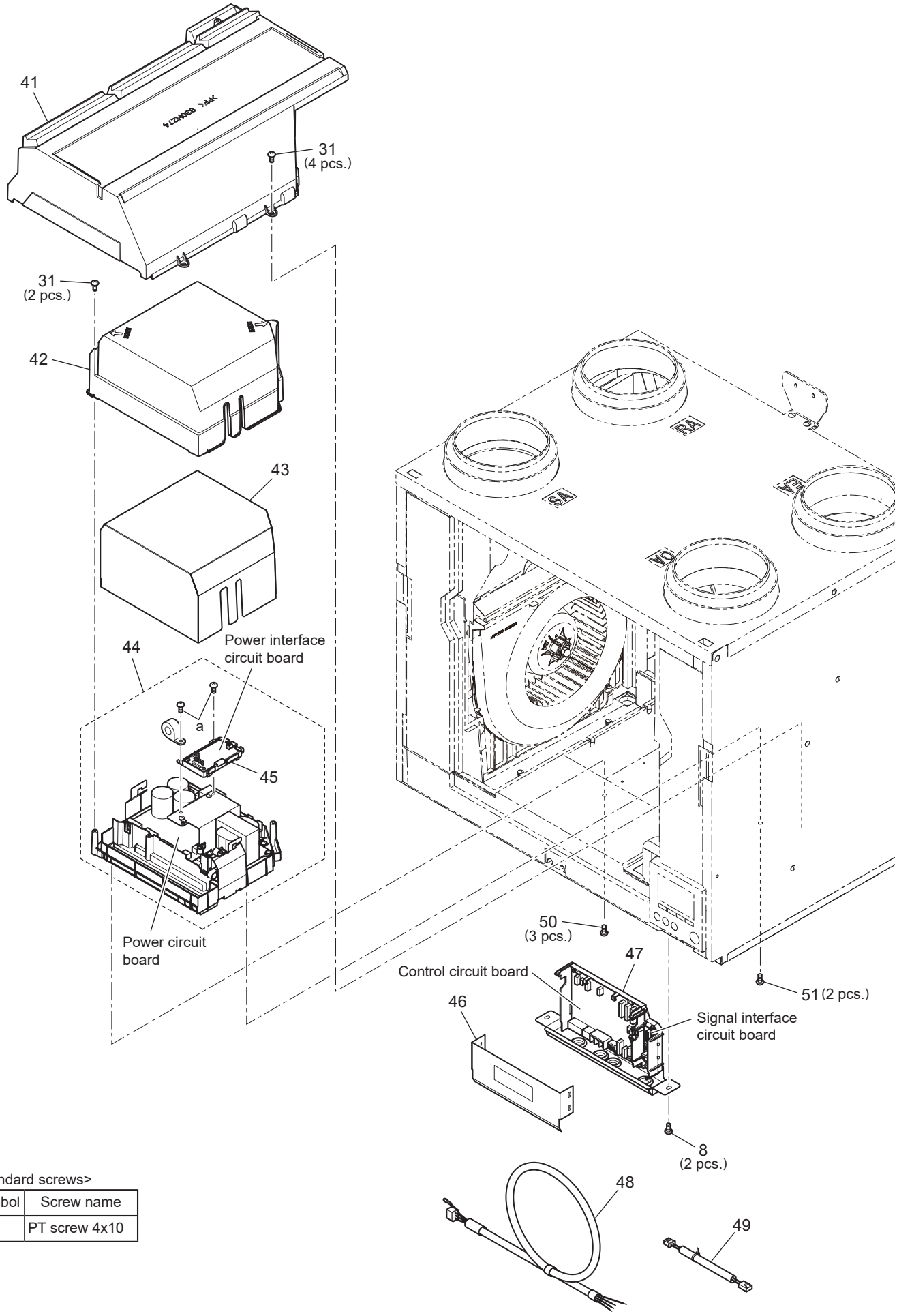


<Standard screws>

| Symbol | Screw name |
|---|---|
| a | PT screw 4x10 |

VL-500CZPVU-R-ERT

| No. | Name of part | Parts No. | Q'ty pcs/unit | Critical for safety | Remarks |
|---|---|---|---|---|---|
| 41 | PCB plate | W36 009 831 | 1 | | |
| 42 | PCB cover (UP) | W36 008 704 | 1 | | |
| 43 | PCB cover (LOW) | W36 008 705 | 1 | | |
| 44 | Control box | W36 008 235 | 1 | ⚠ | Power, Power interface |
| 45 | Circuit board | W36 008 236 | 1 | ⚠ | Power interface |
| 46 | Insulating sheet | W36 008 226 | 1 | ⚠ | |
| 47 | Circuit board | W36 008 237 | 1 | ⚠ | Control, Signal interface |
| 48 | Power supply cord | W36 008 220 | 1 | ⚠ | 1850mm |
| 49 | Lead wire | W36 008 231 | 1 | ⚠ | Controller |
| 50 | Spl screw PTT 4x12 | W36 008 049 | 3 | | |
| 51 | Spl screw PT 5x10 | W36 008 048 | 2 | | |
| | | | | | |
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