March 2016 No. U210

MITSUBISHI ELECTRIC

LOSSNAY SYSTEM COMPONENT

HANDBOOK

MODEL

P-133DUE-E

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

Contents

MITSUBISHI ELECTRIC CORPORATION

1. Safety precautions

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

⚠ Warning

Incorrect 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 heed 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 heed this warning may result in electric shock.)


Be sure to follow this instruction.

◇ Modification is prohibited
Do not modify the unit.

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


Prohibited

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

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


Be sure to follow this instruction.

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

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


Be sure to follow this instruction.

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

(Failure to heed 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

Incorrect 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 heed this caution may result in a fall.)


Prohibited

◇ Wear gloves
Wear gloves when servicing.

(Failure to heed 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 or an over-load protection device is installed, if it is not installed, recommend the customer to install one.

- 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. Specifications

■ Function

Install this product between the Lossnay unit and the return air (RA) side duct pipe to switch the air duct between Heat recovery and Bypass ventilation.

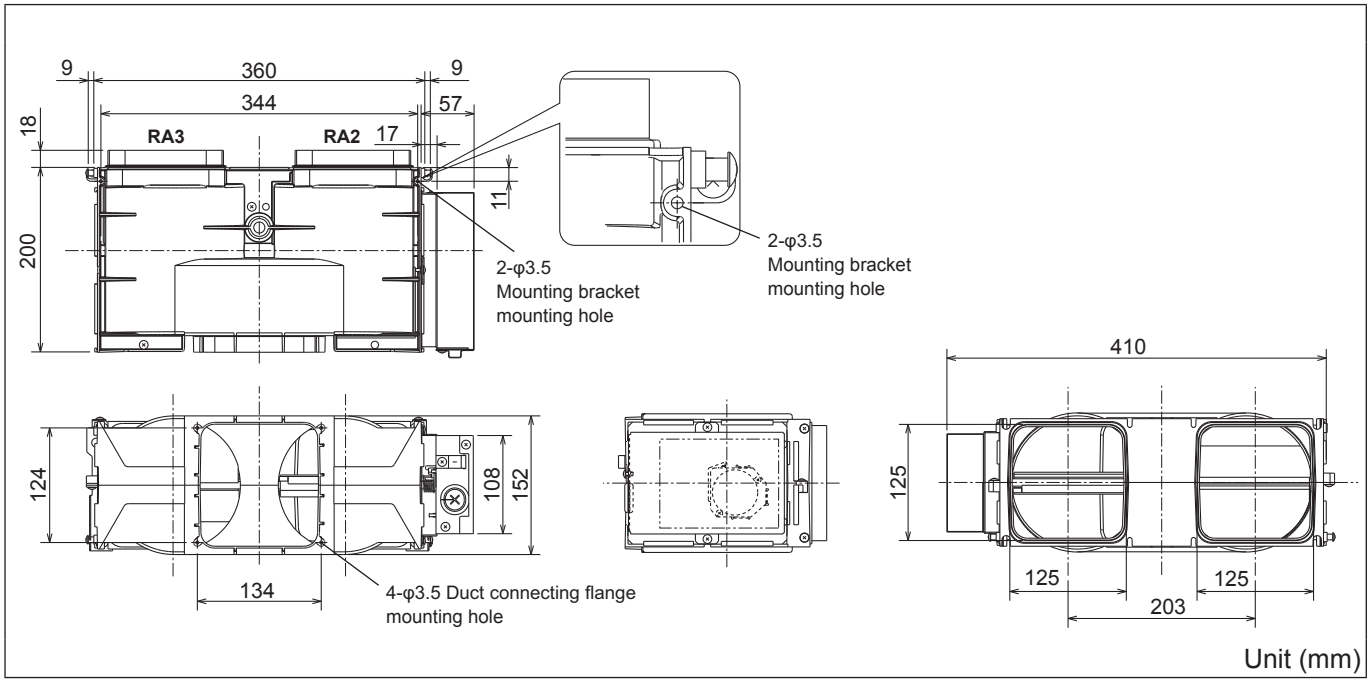
■ Damper operation

Ventilation mode	Power to the damper	Air duct in the damper	
		RA2 side	RA3 side
Heat recovery ventilation	OFF	Open	Close
Bypass ventilation	ON	Close	Open

■ Characteristics

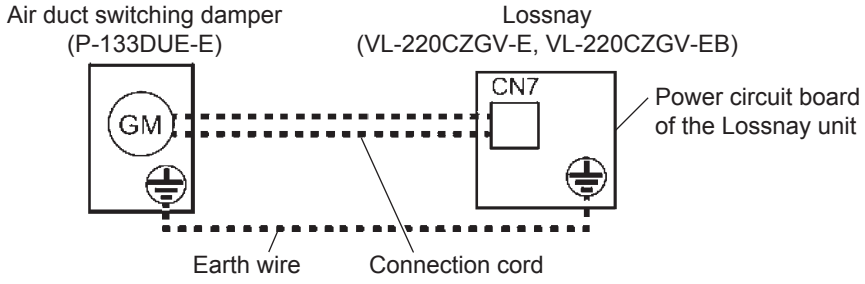
Model name	P-133DUE-E			
Electrical power supply	220 V/50 Hz	230 V/50 Hz	240 V/50 Hz	220 V/60 Hz
Running current (A)	0.014	0.014	0.015	0.012
Input power (W)	2.6	2.8	3.1	2.2
Pressure loss at the air volume of 220 m^3/h (Pa)	RA2 side: 12 RA3 side: 15			
Weight (kg)	2.3			
Applicable duct diameter (mm)	φ100, φ125, φ150			

3. Outside dimensions



Unit (mm)

4. Electrical wiring diagram



5. Troubleshooting

■ Work precautions

- When servicing, be sure to reproduce the malfunction two or three times before starting repairs.
- When servicing, always take care to keep proper footing.
- Before starting the service, the power supply isolator must be turned off. Pay sufficient attention to avoid electrical shock or injury.
- Make sure to connect the power supply wires correctly.

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

5-1 Service flowchart

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

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

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

Note: For the details about the settings of the Lossnay units (VL-220CZGV-E, VL-220CZGV-EB), see the Lossnay handbook.

5-2 Check Details

● **Initial Check Items**

Check the following details if the air duct switching damper does not work after installation is completed.

<Power supply to the Lossnay unit>

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

● **Function check items**

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

<Air duct switching damper>

No.	Problem	Factor	Corrective action
1	The damper does not operate even though the trial operation switch (SW2-1) on the circuit board of the Lossnay unit is turned ON.	The connector between the geared motor and circuit board of the Lossnay unit is disconnected.	Check the connection of the connector (CN7) on the power circuit board of the Lossnay unit. Check the connection of the motor connector of the air duct switching damper.
		The air duct switching damper selector (SW6) on the control circuit board of the Lossnay unit is not set correctly.	Turn off the switch (SW6-1). When operating two Lossnay units, turn off the switch (SW6-1) of both Lossnay units.
		Geared motor failure	Turn on the trial operation switch (SW2-1) on the control circuit board of the Lossnay unit. The geared motor operates in several seconds. If the geared motor does not operate, replace the geared motor.
		Circuit board failure of the Lossnay unit	Disconnect the connector (CN7) from the power circuit board of the Lossnay unit, and check the voltage value between the pins of CN7 when the trial operation switch (SW2-1) is turned ON. (Voltage is output in several seconds after switch ON.) If there is no voltage value, replace both circuit boards of the Lossnay unit.
			If the problem persists, replace the geared motor of the air duct switching damper.

No.	Problem	Factor	Corrective action
2	Even though the remote controller is operated to change the ventilation mode, the ventilation mode is not changed.	The outdoor temperature is 8°C or lower.	When the outdoor temperature is 8°C or lower, the ventilation mode of the Lossnay unit is fixed to the Heat recovery mode.
3	The ventilation mode cannot be switched when Lossnay is operating in the automatic mode.	Temperature condition for Heat recovery mode or Bypass mode is not satisfied.	Check the temperature map. For details, see the installation manual of the Lossnay heat recovery ventilator.
		It has not passed 30 minutes since the ventilation mode (Heat recovery/Bypass) is switched.	Switching of the ventilation mode is controlled in 30 minutes cycle.
		The outdoor temperature is 8°C or lower.	When the outdoor temperature is 8°C or lower, the ventilation mode of the Lossnay unit is fixed to the Heat recovery mode.
4	Abnormal sound or vibration is generated from the air duct switching damper. Operating sound of the damper is large.	The air duct switching damper is not securely installed.	Install the air duct switching damper correctly and securely.
		The duct is nearly disconnected.	Connect the duct securely.
		Abnormal sound is generated from the geared motor.	Replace the geared motor.
		The air duct switching damper generates sounds at the time of the ventilation mode switching.	The damper makes operating sounds. It is normal.

6. Before receiving repair requests

Frequently asked question	Response
The damper does not operate even though the ventilation mode has been switched.	When the outdoor temperature is 8°C or lower, the ventilation mode of the Lossnay unit is fixed to the Heat recovery mode.
Sound is generated from the air duct switching damper.	When ventilation mode has been changed, the air duct switching damper makes operating sounds. It is normal.

7. Service inspection list

Location	Inspection	Check Result
Electric wiring	Is the wiring correct? Is the connector (CN7) securely connected to the power circuit board of the Lossnay unit?	
Product	Is the air duct switching damper installed securely?	
	Does the product operate as described in the installation and instruction manual when operating the remote controller?	
	Is the pulley of the geared motor securely engaged in the hole of the GM arm?	
	Does the product operate without abnormal vibrations or noise?	

8. Overhauling procedures

■ Work precautions

- Before replacing parts, repair troubled sections according to the instructions described in the troubleshooting.
- When servicing, always keep proper footing.
- When servicing, the power supply isolator must be turned off. Pay sufficient attention to avoid electrical shock or injury.
- Always connect the power wire properly.
- After completing repairs, check that the unit operates properly.
- Always wear gloves when servicing.

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

8-1 Disassembly procedures

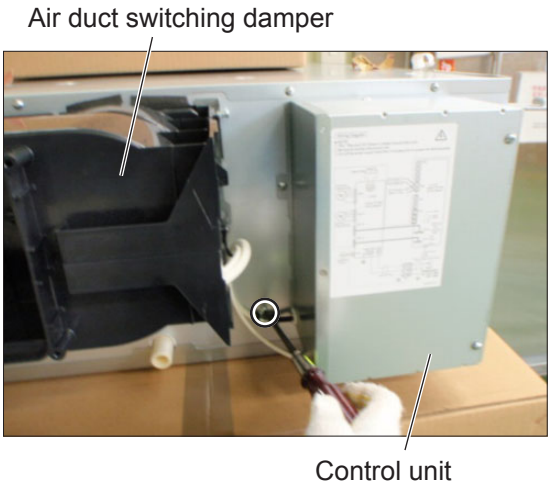
(1) Turn off the power

① Shut down the unit.

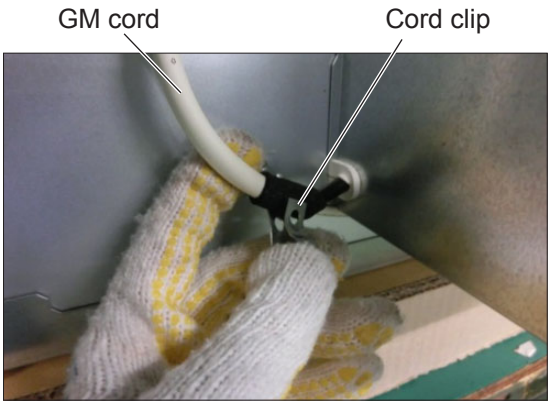
② Turn off the power supply isolator.

(2) Unfasten the GM cord

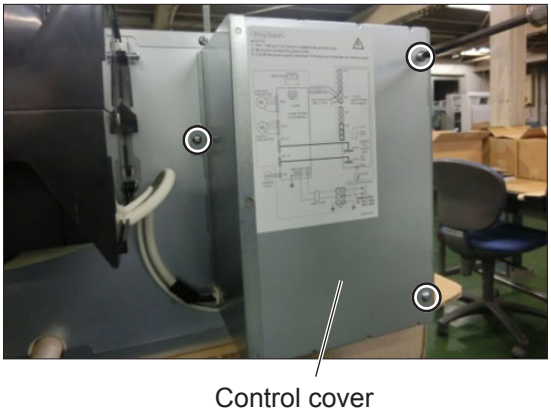
①Unscrew the cord clip fixing screw (one PTT screw 4×10, indicated by ○) that is located beside the control unit of the Lossnay unit.



②Remove the cord clip from the GM cord.



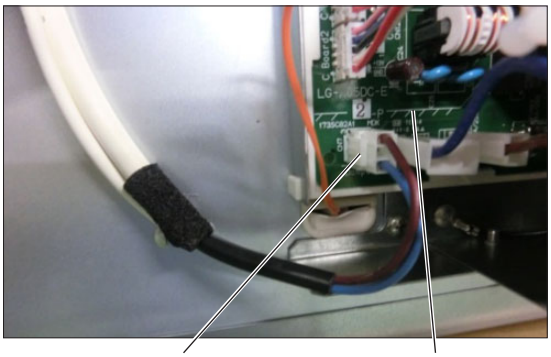
③Unscrew the screws (three PT screws 4×8, indicated by ○), and remove the control cover of the Lossnay unit.



④Remove the cord bush.

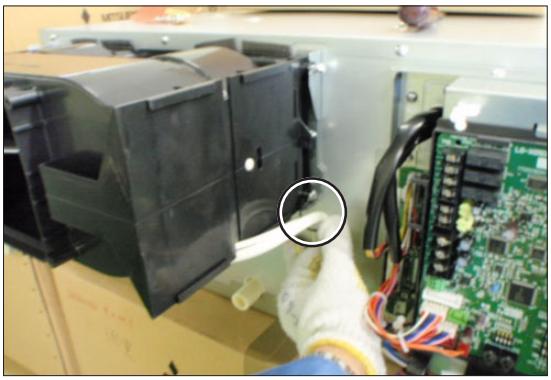
Cord bush

⑤Disconnect the connector (CN7) from the power circuit board of the Lossnay unit.

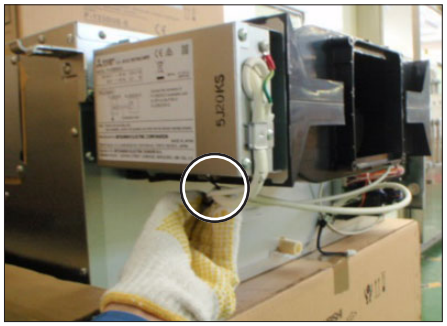


CN7 Power circuit board

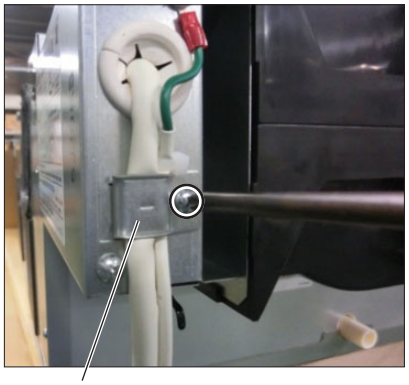
⑥Unfasten the GM cord from the lead wire clip (black, control unit side) (Indicated by ○).



⑦Unfasten the GM cord from the lead wire clip (black, geared motor side) (Indicated by ○).



⑧Unscrew the screw (one PTT screw 4×8, indicated by ○) to remove the fix piece.

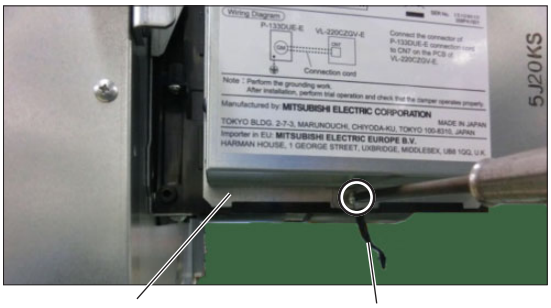


Fix piece

(3) Remove the GM cover

①Unscrew the lower screw (one PTT screw 4×8, indicated by ○) of the base (GM).

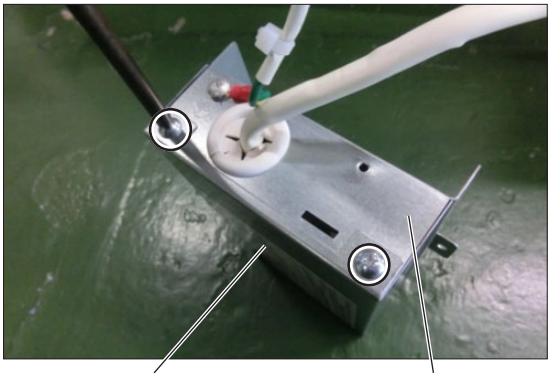
Precaution
The lead wire clip (black) comes off with the screw.
Pay attention not to lose it.



Base (GM) Lead wire clip (black)

②Unscrew the upper screw (one PTT screw 4×8, indicated by ○), and remove the base (GM).

③Unscrew the front side screws (two PTT screws 4×8, indicated by ○) of the GM cover.



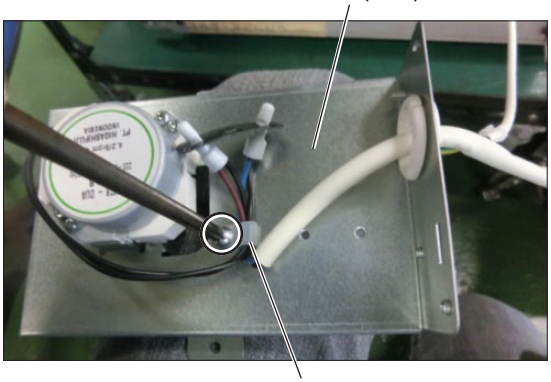
GM cover Base (GM)

④Unscrew the back side screw (one PTT screw 4×8, indicated by ○), and remove the GM cover.

GM cover

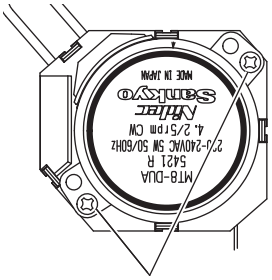
(4) Remove the geared motor

①Unscrew the screw (one PTT screw 4×8, indicated by ○), and remove the cord clip.



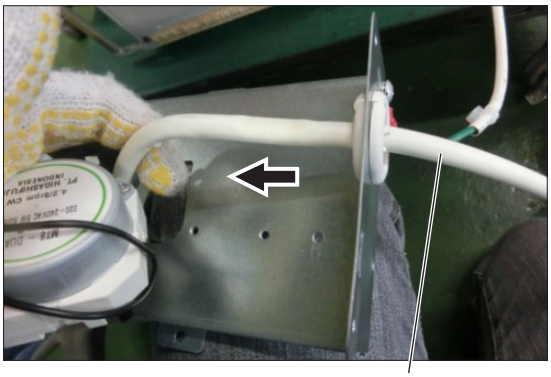
②Unscrew the screws (two PPT screws 4×25, indicated by ○), and remove the geared motor.

Precaution
Pay attention not to unscrew the following screws.



Do not unscrew these screws.

③Pull out the GM cord in the direction of the arrow.

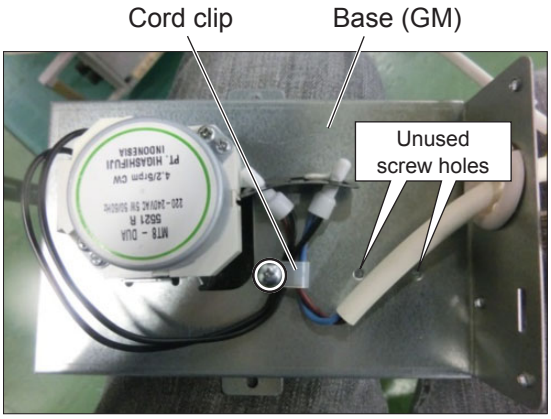


8-2 Assembly procedures

Reassemble the unit in the reverse order of disassembly according to the following procedures.

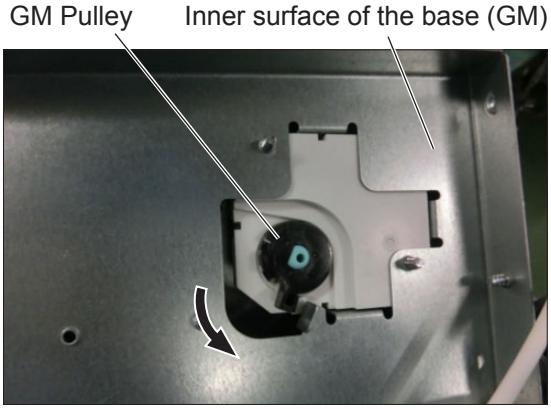
①Attach the cord clip to the base (GM) with the screw (one PTT screw 4×8, indicated by ○).

Assembly precaution
Fasten the cord clip in the screw hole near the geared motor. The cord clip must be positioned correctly as shown in the picture.



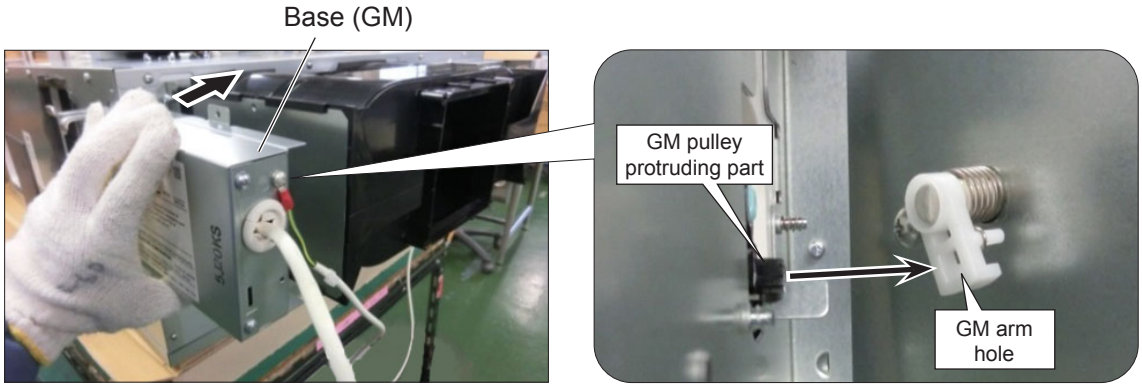
②Before mounting the base (GM), make sure that the direction of the GM pulley is as shown in the picture.

Assembly precaution
Rotate the GM pulley in the arrow direction until it stops.

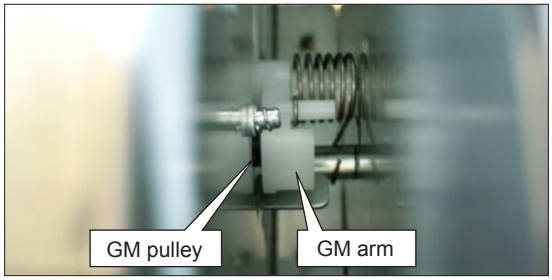


③Mount the base (GM) with the screws (two PTT screws 4×8). → See 8-1 (3) ① and ②.

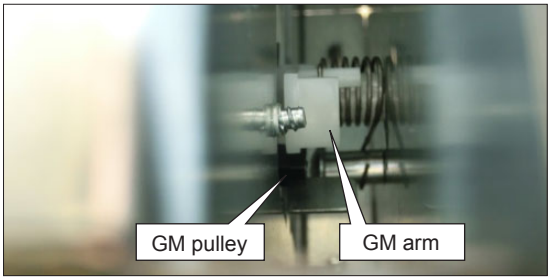
Assembly precautions
- Mount the base (GM) straight while matching the upper and lower screw holes.
- When tightening the lower screw of the base (GM), make sure to attach the lead wire clip (black).
- Mount the base (GM) so that the GM pulley protruding part fits in the GM arm hole.



④After mounting the base (GM), make sure that the GM pulley protruding part fits in the GM arm hole.



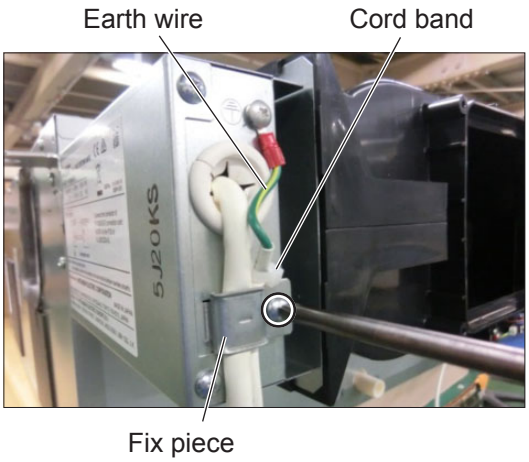
<The GM pulley properly fits in the hole.>



<The GM pulley does not fit in the hole.>

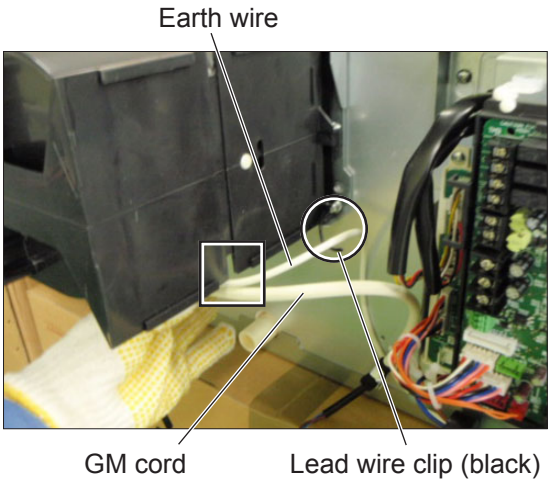
⑤Attach the fix piece with the screw (one PTT screw 4×8, indicated by ○).

Assembly precaution
Attach the fix piece so that the cord band for the earth wire is placed on the earth screw side.



⑥Fasten the GM cord and earth wire with the lead wire clip (black, control unit side) (Indicated by ○).

Assembly precaution
Run the GM cord and the earth wire through the front notch. (Indicated by □)



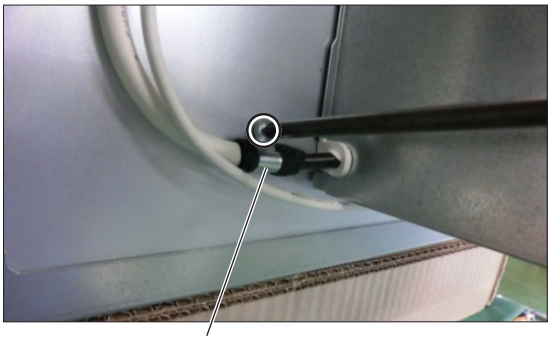
⑦Attach the control cover of the Lossnay unit with the screws (three PT screws 4×8). → See 8-1 (2) ③.

Assembly precaution
When attaching the control cover, pay attention not to pinch the earth wire. (Indicated by ○)

⑧Fix the cord clip on the control unit side of the Lossnay unit with the screw (one PTT screw 4×10, indicated by ○).

Assembly precaution
Pay attention to the tightening torque because the sheet metal thickness in the cord clip fixing part of the Lossnay unit is thinner than other parts.

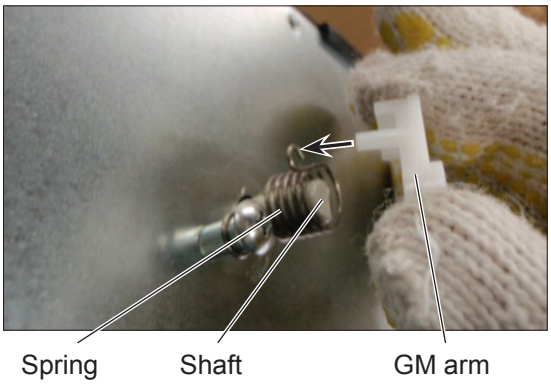
Tightening torque:
1.5±0.2 N·m



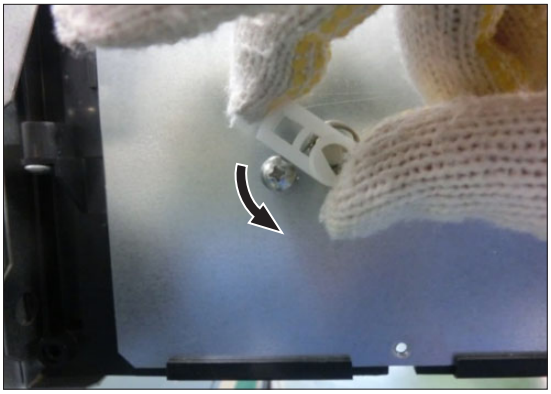
8-3 When the GM arm comes off

When the GM arm comes off during disassembly or assembly, follow the procedures shown below to reattach it.

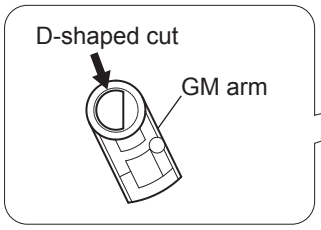
①Insert the protrusion of the GM arm into the hook-shaped part at the spring end.

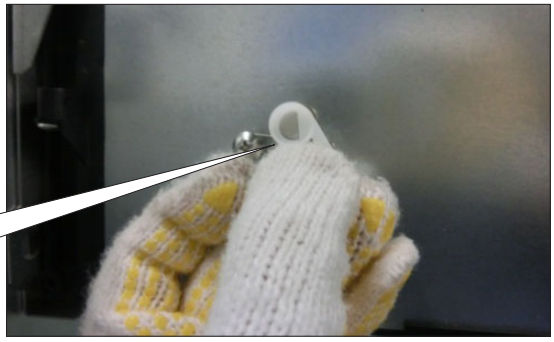


②Rotate the GM arm in the arrow direction while paying attention not to let the spring come off of the GM arm.



③Fit the GM arm into the shaft at the position where the shaft tip shape matches the GM arm hole (D-shaped cut part: See the below illustration.)





8-4 Trial operation

Make sure that no abnormal vibration or noise is generated during operation.

✻ When reassembling

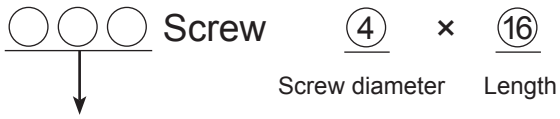
- Reassemble the unit in the reverse order of disassembly.
- After reassembly, always make a test run to be sure that the unit operates properly.

9. Parts catalog

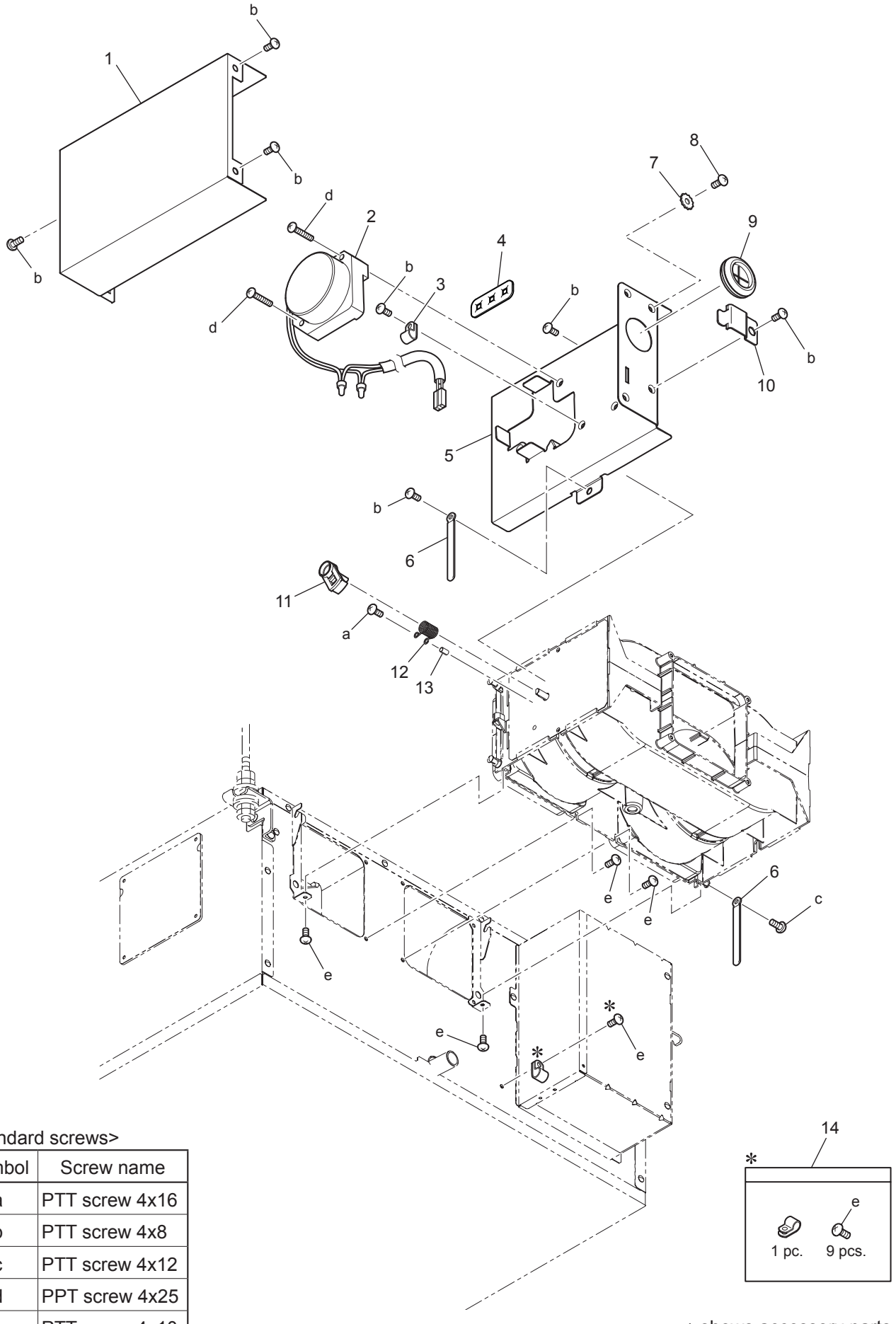
Please note the following when using the parts catalog.

1. When ordering parts, always indicate the part number, part name, and the number of parts required.
2. It may take time for you to receive the parts. Make an inquiry about a rush order.
3. No further notice if the specification changes.
4. Parts marked ⚠ are critical for safety.
5. To maintain safety and performance, always replace the parts with the parts prescribed.

Description of screw abbreviations



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



<Standard screws>

Symbol	Screw name
a	PTT screw 4x16
b	PTT screw 4x8
c	PTT screw 4x12
d	PPT screw 4x25
e	PTT screw 4x10

* shows accessory parts.

P-133DUE-E

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
1	GM cover	Y36 006 682	1		
2	Geared motor	Y36 006 260	1	⚠	With lead wires
3	Cord clip	M35 523 223	1		
4	Cord clamper	M35 830 223	1		
5	Base (GM)	M36 389 686	1		
6	Lead wire clip	M30 409 356	2		
7	Lock washer (4)	H00 013 076	1		
8	PT screw 4×8 BS	H00 011 008	1		
9	Bush	R50 476 225	1		
10	Fix piece	H00 474 395	1		
11	GM arm	M34 712 227	1		
12	Spring	M35 029 156	1		
13	Spacer	Y36 006 095	1		
14	Parts in bag	Y36 006 049	1		