9-9. SELECTING FUNCTIONS USING THE REMOTE CONTROLLER

Each function can be set according to necessity using the remote controller. The setting of function for each unit can only be done by the remote controller. Select function available from the table 1.

(1) Functions available when setting the unit number to 00

※1 The functions table below are available only when P-series indoor unit and the wired remote controller is used.

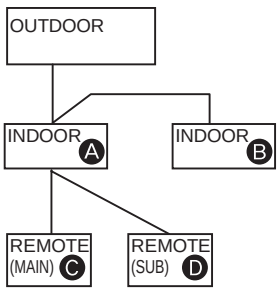
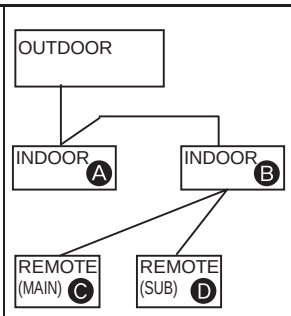
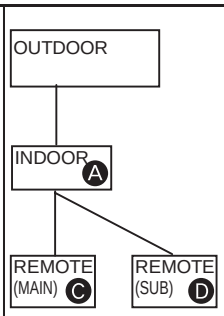
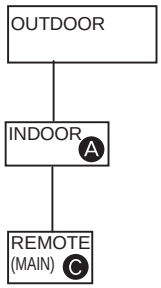
※2 After the power supply returns, the indoor unit does not operate for 3 minutes (Some kind of indoor units operate for 30 seconds, after that, it stops for 3 minutes).
Above operation is normal.

<Table 1> Function selections

Function	Settings	Mode No.	Setting No.	●: Initial setting (when sent from the factory)	Remarks
Power failure automatic recovery	OFF	01	1		The setting is applied to all the units in the same refrigerant system.
	ON ※2		2	●	
Indoor temperature detecting	Average data from each indoor unit	02	1	●	
	Data from the indoor unit with remote controller		2		
	Data from main remote controller		3		
LOSSNAY connectivity	Not supported	03	1	●	
	Supported (Indoor unit does not intake outdoor air through LOSSNAY)		2		
	Supported (Indoor unit intakes outdoor air through LOSSNAY)		3		
Power supply voltage	240V	04	1	●	
	220V,230V		2		
Frost prevention temperature	2℃ (Normal)	15	1	●	
	3℃		2		
Humidifier control	When the compressor operates, the humidifier also operates.	16	1	●	
	When the fan operates, the humidifier also operates.		2		

Meaning of "Function setting"

Mode02:indoor temperature detecting

No	Indoor temperature(ta)=					
No.1	Average data of the sensor on all the indoor units	Initial setting	ta=(A+B)/2	ta=(A+B)/2	ta=A	ta=A
No.2	The data of the sensor on the indoor unit that is connected with remote controller		ta=A	ta=B	ta=A	ta=A
No.3	The data of the sensor on main remote controller		ta=C	ta=C	ta=C	ta=C

10 ELECTRICAL WIRING

External wiring procedure (Fig.1)

Ⓔ Power supply: Single phase 220/230/240V, 50Hz 220V, 60Hz,
Max. Permissive system Impedance : 0.22(Ω)

Note:

① Power supply input: Outdoor unit only. Connect the lines (C), (D) in accordance with the terminal block names to ensure correct polarity.

② As for lines (C), S1 and S2 are for connecting the power source. And S2 and S3 are for signals. S2 is a common cable for the power source and signal.

Wire diameter				Breaker	
(A) Main power line	(B) Earth line	(C) Signal line	(D) Signal line	Interrupting current	Performance characteristic
6.0㎟	6.0㎟	1.5㎟ ※1	1.5㎟	40A	40A, 30mA for 0.1sec. or less

When using twisted wire for the wiring, the use of round terminal is required.

※1 Max 45m("Outdoor unit-Branch box #1" plus "branch box #1-Branch box #2"). If 2.5㎟ used ,Max 55m.

Notes: 1. Wiring size must comply with the applicable local and national code.

2. Power supply cords and Indoor unit/Branch box/Outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)

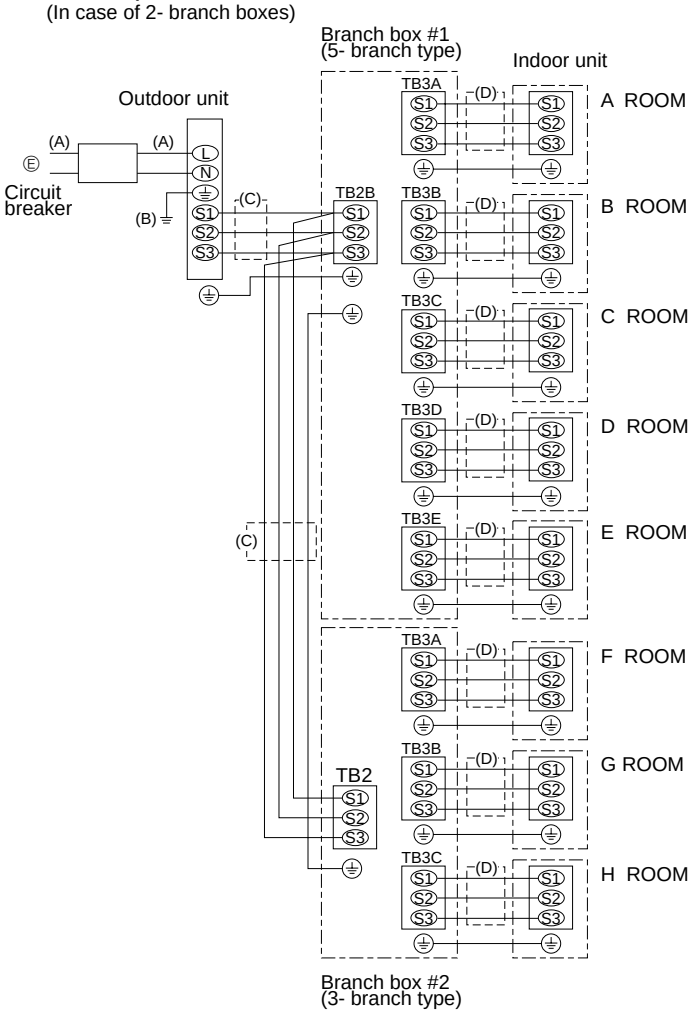
3. Install an earth line longer than power cables.

⚠ Warning:

There is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals when the power is energized. If isolator should be used between indoor unit, branch box and outdoor unit, please use 3-pole type.

Fig.1

<Example>
(In case of 2- branch boxes)



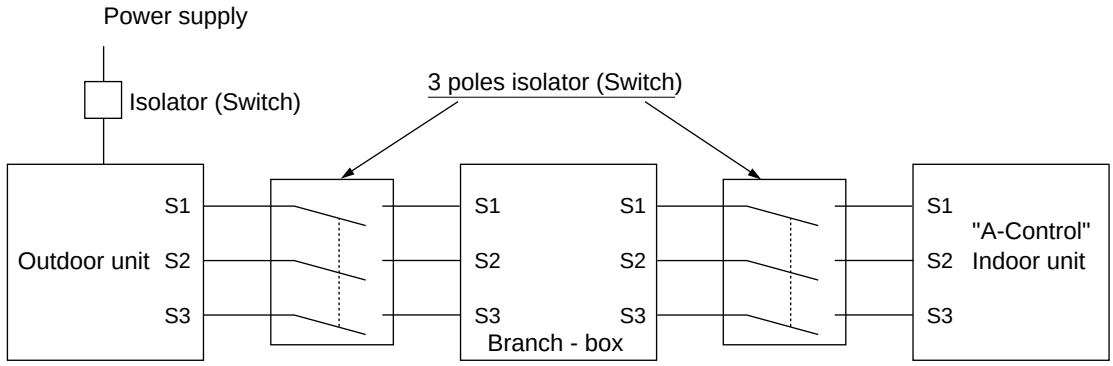
⚠ Warning:

Be sure to connect the power supply cords and connecting wires for the indoor units, outdoor units, branch boxes directly to the units (no intermediate connections).
Intermediate connections can lead to communication errors in the cords or wires and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.
(If an intermediate connection is necessary, be sure to take measures to prevent water from entering the cords and wires.)

IMPORTANT
Make sure that the current leakage breaker is one compatible with higher harmonics.
Always use a current leakage breaker that is compatible with higher harmonics as this unit is equipped with an inverter.
The use of an inadequate breaker can cause the incorrect operation of inverter.

11 WIRING SPECIFICATIONS

⚠ Warning:
In case of A-control wiring, there is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals when the power is energized. If isolator should be used between outdoor unit and branch box / indoor units and branch box, please use 3-pole type.

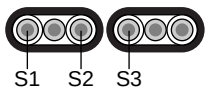


<CAUTION>
After using isolator, be sure to turn off and on the main power supply to reset the system.
Otherwise, outdoor unit may not be able to detect the branch box(es) or indoor units.

WIRING SPECIFICATIONS
(OUTDOOR-BRANCH BOX CONNECTING CABLE)

Cross section of cable	Wire size (㎟)	Number of wires	Polarity	L (m) ※ 6
Round 	2.5	3	Clockwise : S1-S2-S3 ※ Pay attention to stripe of yellow and green.	(50) ※ 2
Flat 	2.5	3	Not applicable (Because center wire has no cover finish)	Not applicable ※ 5
Flat 	1.5	4	From left to right : S1-Open-S2-S3	(45) ※ 3
Round 	2.5	4	Clockwise : S1-S2-S3-Open ※ Connect S1 and S3 to the opposite angle.	(55) ※ 4

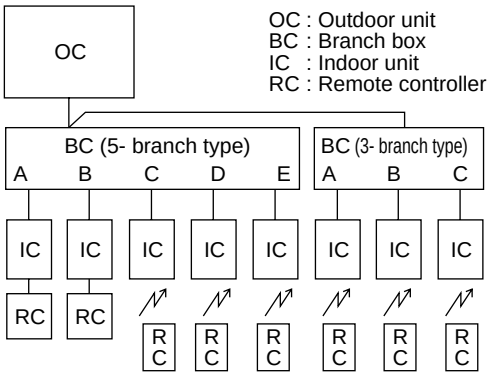
※ 1 : Power supply cords of appliances shall not be lighter than design 60245 IEC or 60227 IEC.
※ 2 : In case that cable with stripe of yellow and green is available.
※ 3 : In case of regular polarity connection (S1-S2-S3), wire size is 1.5 ㎟.
※ 4 : In case of regular polarity connection (S1-S2-S3).
※ 5 : In the flat cables are connected as this picture, they can be used up to 55 m.
※ 6 : Mentioned cable length is just a reference value.
It may be different depending on the condition of installation, humidity or materials, etc.

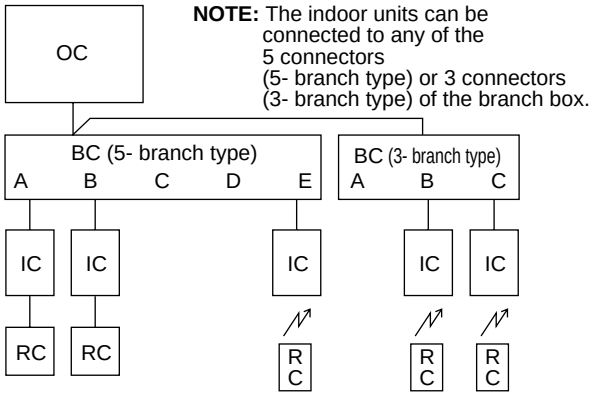


Be sure to connect the outdoor-branch box / indoor units-branch box connecting cables directly to the units (no intermediate connections).
Intermediate connections can lead to communication errors if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.
(If an intermediate connection is necessary, be sure to take measures to prevent water from entering the cables.)

12 SYSTEM CONTROL

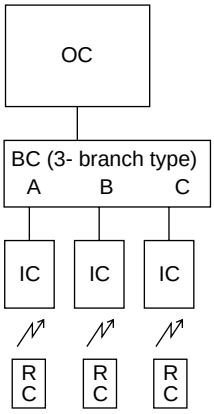
12-1. BASIC SYSTEMS



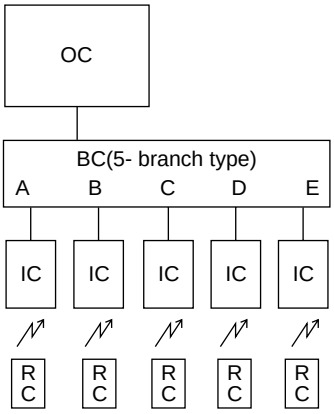


12-2. STANDARD SYSTEMS

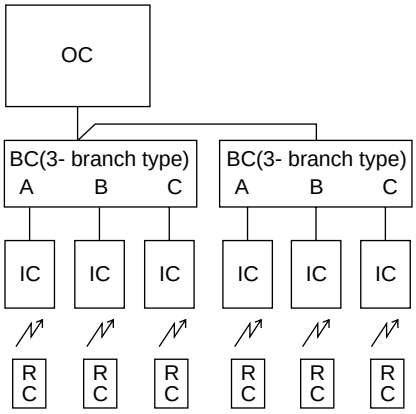
12-2-1. Only 3-branch type



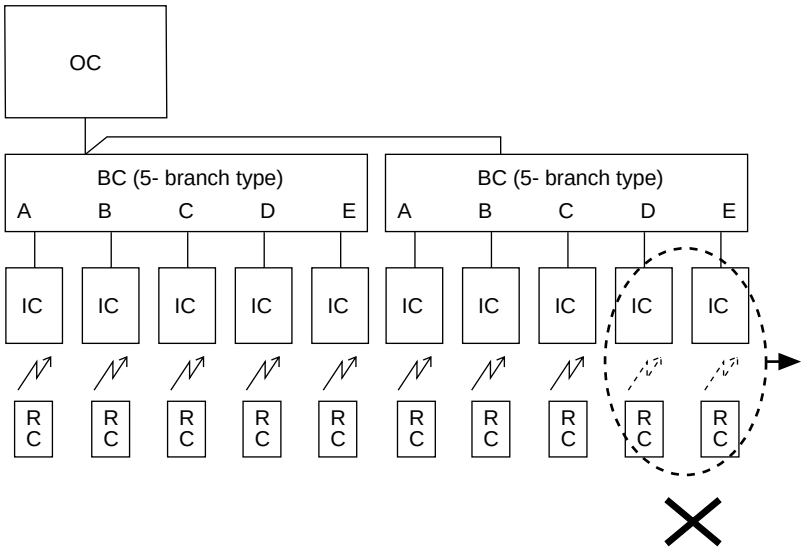
12-2-2. Only 5-branch type



12-2-3. 2- branch boxes (3- branch type)



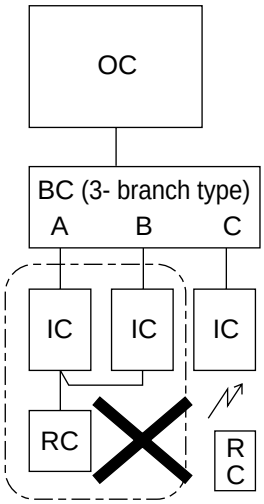
12-2-4. 2- branch boxes (5- branch type, maximum 8 indoor units)



1. Up to 2 branch boxes can be connected to a single outdoor unit.
2. Up to 8 indoor units can be connected to the system.

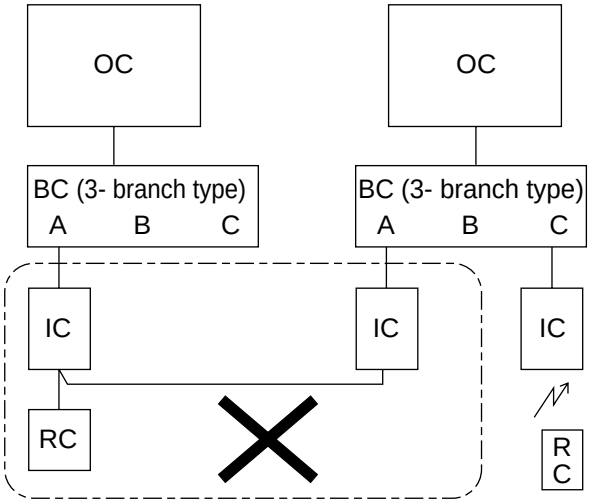
12-3. INCORRECT SYSTEMS

12-3-1. Group operation by single remote controller



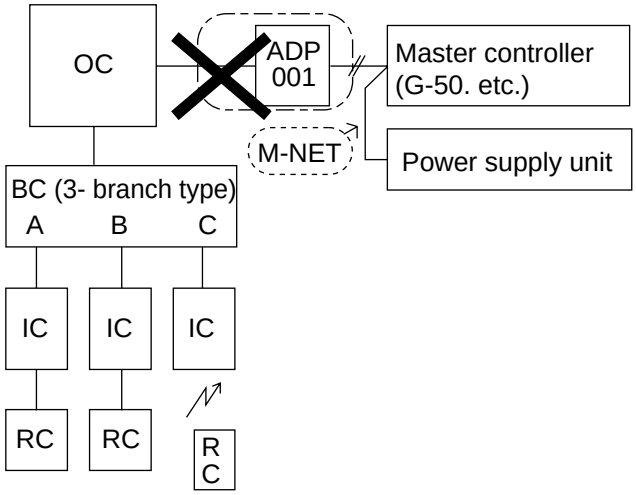
• Plural indoor units cannot be operated by a single remote controller.

12-3-2. Group operation between different refrigerant systems



• Different refrigerant systems cannot be connected together.

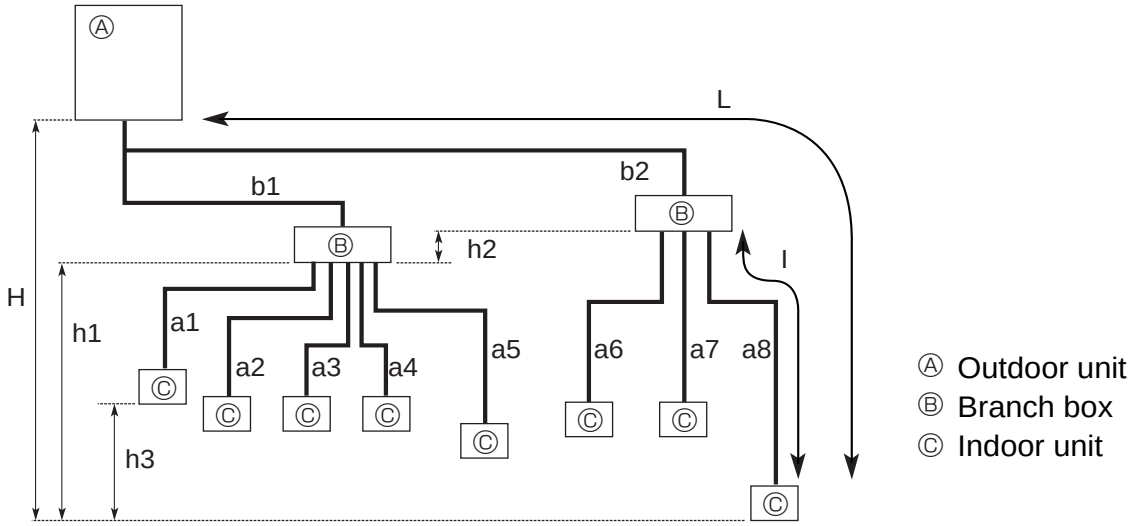
12-3-3. Connection of M-NET adapter to outdoor unit



• A M-NET adapter cannot be connected to an outdoor unit.

13 REFRIGERANT PIPING TASK

13-1. ADDITIONAL REFRIGERANT CHARGE



Permissible length (one-way)	Total piping length	b1 + b2 + a1+ a2 + a3 + a4 + a5 + a6 + a7 + a8 ≦ 115m
	Farthest piping length (L)	b2 + a8 ≦ 70m (b2 ≦ 55m, a8 ≦ 15m)
	Piping length between outdoor unit and branch boxes	b1 + b2 ≦ 55m
	Farthest piping length after branch box (l)	a8 ≦ 15m
	Total piping length between branch boxes and indoor units	a1+ a2 + a3 + a4 + a5 + a6 a7 + a8 ≦ 60m
Permissible height difference (one-way)	In indoor / outdoor section (H) ※1	H ≦ 30m (In case of that outdoor unit is set higher than indoor unit)
		H ≦ 20m (In case of that outdoor unit is set lower than indoor unit)
	In branch box / indoor unit section (h1)	h1 + h2 ≦ 15m
	In each branch unit (h2)	h2 ≦ 15m
	In each indoor unit (h3)	h3 ≦ 12m
Number of bends		| b1 + a1 |,| b1 + a2 |,| b1 + a3 |,| b1 + a4 |,| b1 + a5 |,| b2 + a6 |, | b2 + a7 |,| b2 + a8 | ≦ 15

※1 Branch box should be placed with in the level between the outdoor unit and indoor units.

- Additional charging is not necessary for this unit if the total pipe length (b1 + b2 + a1 + a2 + a3 + a4 + a5 + a6 + a7 + a8) does not exceed 40m.
- If the total pipe length exceeds 40 m, charge the unit with additional R410A refrigerant according to the permitted pipe lengths in the chart on the next page.

After charging the unit with refrigerant, note the added refrigerant amount on the service label (attached to the unit).

Refer to the “installation manual” for more information.

<Table 1>

Total piping length (b1+ b2 + a1+ a2 + a3 + a4 + a5 + a6 + a7 + a8)	40m or less	41 – 50m	51 – 70m	71 – 90m	91 – 115m
Additional refrigerant charging amount	0kg (no need)	0.6kg	1.4kg	2.2kg	3.2kg
※ **Reference (for service)** The amount of refilling refrigerant charge	8.5kg (8.5 + 0)	9.1kg (8.5 + 0.6)	9.9kg (8.5 + 1.4)	10.7kg (8.5 + 2.2)	11.7kg (8.5 + 3.2)

If connecting an indoor unit with ϕ9.52 liquid pipes (model number 71 or more for M-and S-series and model number 60 or more for P-series), the additional refrigerant charging amount in Table 1 must be corrected (add the following ΔR value from the value given in Table 1).

Additional refrigerant charging correction amount
ΔR=0.01 [kg/m] × ϕ9.52 branch pipe (liquid pipe) total length [m]

Example) b1 = 20m, b2 = 25m

Indoor unit A	ϕ9.52 liquid pipe	a1 = 12m
Indoor unit B	ϕ6.35 liquid pipe	a2 = 11m
Indoor unit C	ϕ6.35 liquid pipe	a6 = 14m
Indoor unit D	ϕ9.52 liquid pipe	a7 = 13m

Total piping length : b1 + b2 + a1 + a2 + a6 + a7 = 95m
→ According to Table 1, the additional refrigerant charging amount is 3.2kg.
Because indoor units with ϕ9.52 liquid pipes are connected (indoor units A and D in this example), the additional refrigerant charging amount must be corrected.

Additional refrigerant charging correction amount
ΔR = 0.01 [kg/m] × ϕ9.52 branch pipe (liquid pipe) total length (a1 + a7)
= 0.01 × (12 + 13m)
= 0.25kg

Therefore, the additional refrigerant charging amount is 3.2kg + 0.25kg = 3.45kg.

※ Reference
The refilling amount of refrigerant at servicing

Example) 3.45 + 8.5 = 11.95kg
The amount of refrigerant of initial charge (8.5kg) is added.

Refrigerant collection when relocating the indoor and outdoor units (Pump down)

① Connect gauge manifold valve (pressure gauge included) to the service port near the gas stop valve of the outdoor unit so that the refrigerant pressure can be measured.
② Turn on the power supply (circuit breaker).
③ Close the liquid stop valve, and then perform the test run for cooling operation (SW4-1 : ON and SW4-2 : OFF).
NOTE: Be sure to wait at least 3 minutes after turning on the power supply before setting SW4-1and SW4-2.
If the DIP swiches are set before 3 minutes has elapsed, the test run may not start.
④ Fully close the gas stop valve when the pressure reading on the gauge drops to 0.05–0.00MPa*(approximately 0.5–0.0 kg/cm²)
* If too much refrigerant has been added to the air conditioner system, the pressure may not drop to 0.5 kg/cm² . If this occurs, use a refrigerant collecting device to collect all of the refrigerant in the system, and then recharge the system with the correct amount of refrigerant after the indoor and outdoor units have been relocated.
⑤ Stop the air conditioner operation (SW4-1 : OFF and SW4-2 : OFF).
⑥ Turn off the power supply (circuit breaker).

13-2. PRECAUTIONS AGAINST REFRIGERANT LEAKAGE

13-2-1. Introduction

R410A refrigerant of this air conditioner is non-toxic and non-flammable but leaking of large amount from an indoor unit into the room where the unit is installed may be deleterious.

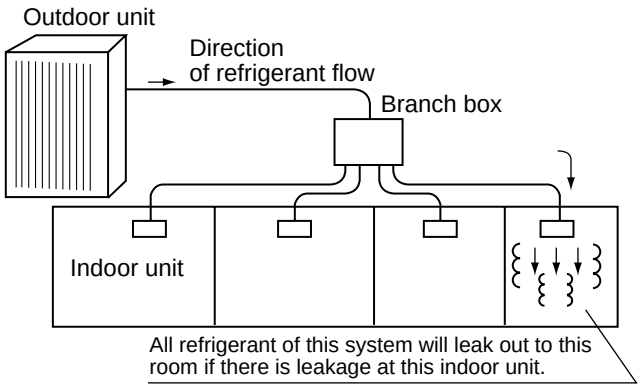
To prevent possible injury, the rooms should be large enough to keep the R410A concentration specified by KHK: (a high pressure gas safety association) installation guidelines S0010 as follows.

Maximum concentration

Maximum refrigerant concentration of R410A of a room is 0.3 kg/m³ accordance with the installation guidelines. To facilitate calculation, the maximum concentration is expressed in units of kg/m³ (kg of R410A per m³)

Maximum concentration of R410A: 0.3kg/m³

(KHK installation guidelines S0010)



13-2-2. Confirming procedure of R410A concentration

Follow (1) to (3) to confirm the R410A concentration and take appropriate treatment, if necessary.

(1) Calculate total refrigerant amount by each refrigerant system.

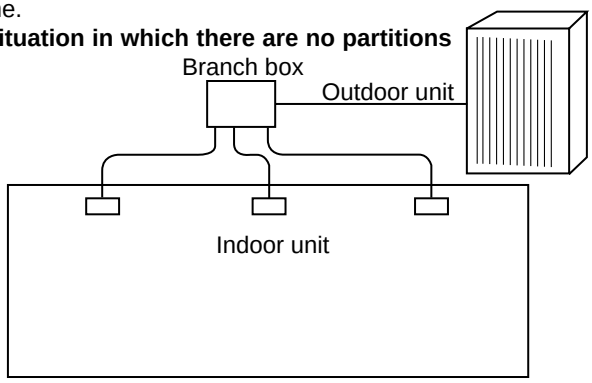
Total refrigerant amount is precharged refrigerant at ex-factory plus additional charged amount at field installation.

Note:
When single refrigeration system is consists of several independent refrigeration circuit, figure out the total refrigerant amount by each independent refrigerant circuit.

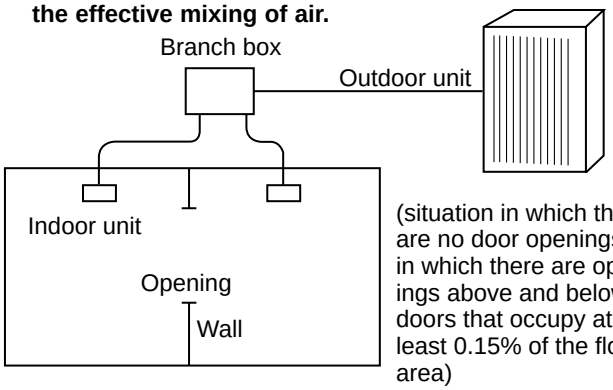
(2) Calculate room volumes (m³) and find the room with the smallest volume

The part with ▭ represents the room with the smallest volume.

(a) Situation in which there are no partitions

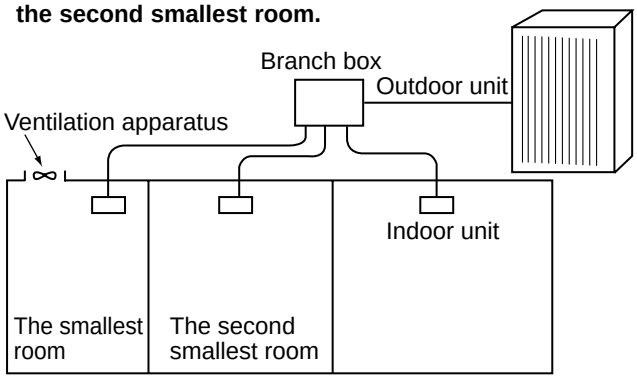


(b) There are partitions, but there are openings that allow the effective mixing of air.



(situation in which there are no door openings or in which there are openings above and below doors that occupy at least 0.15% of the floor area)

(c) If the smallest room has mechanical ventilation apparatus that is linked to a household gas detection and alarm device, the calculations should be performed for the second smallest room.



(3) Use the results of calculations (1) and (2) to calculate the refrigerant concentration:

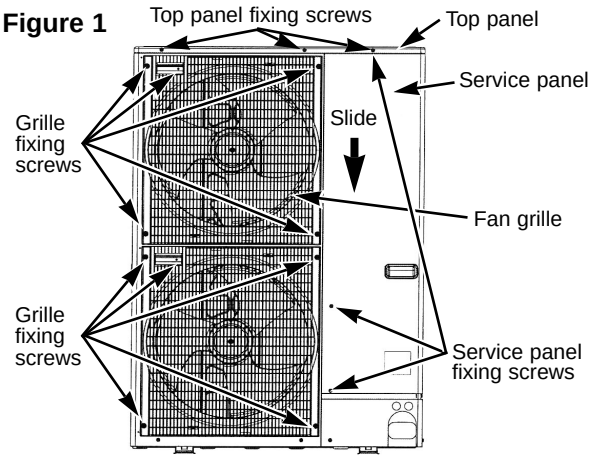
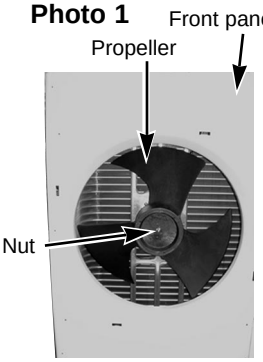
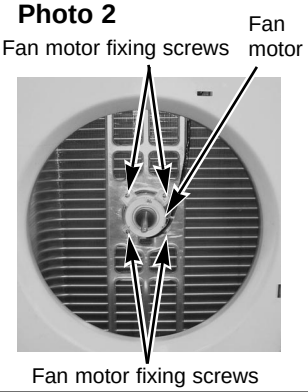
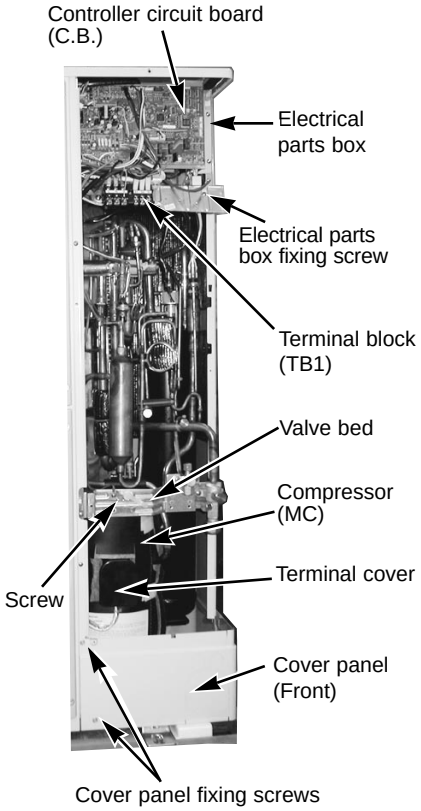
$$\frac{\text{Total refrigerant in the refrigerating unit (kg)}}{\text{The smallest room in which an indoor unit has been installed (m}^3\text{)}} \leqq \text{Maximum concentration(kg/m}^3\text{)}$$

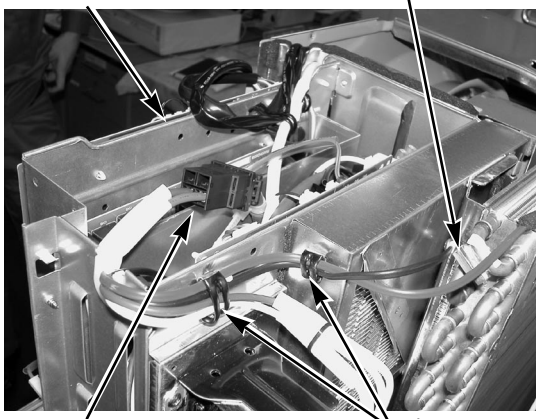
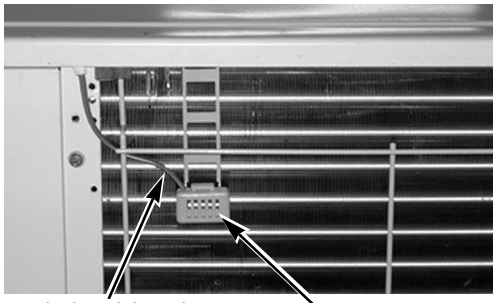
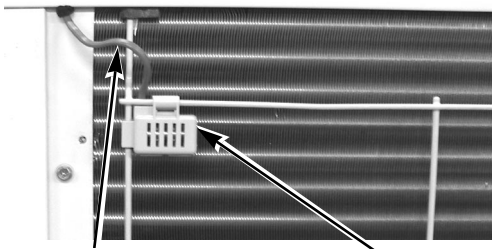
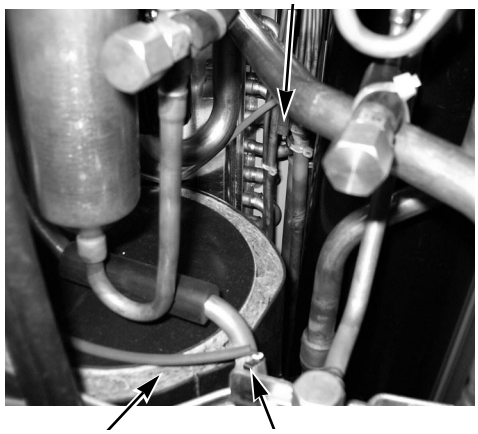
Maximum concentration of R410A:0.3kg/m³

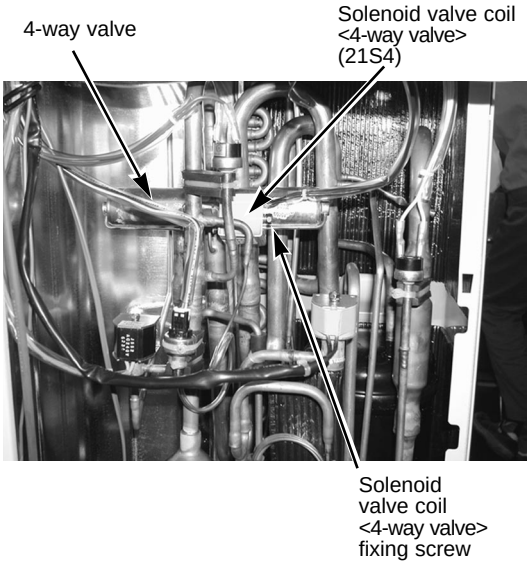
If the calculation results do not exceed the maximum concentration, perform the same calculations for the larger second and third room, etc., until it has been determined that the maximum concentration does not exceed in each room.

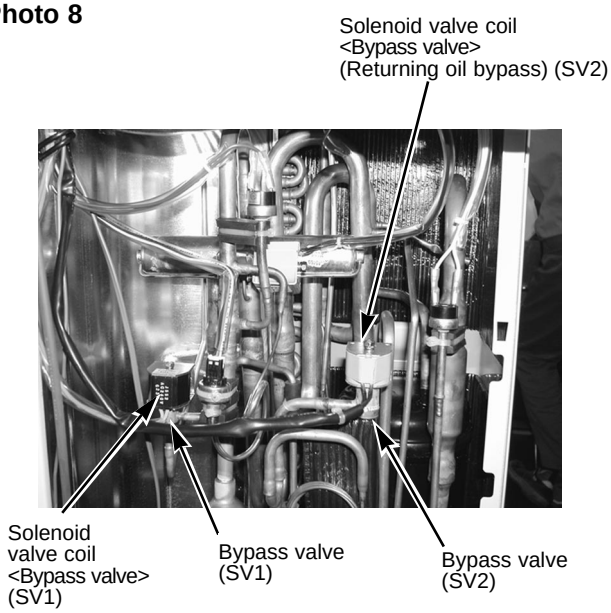
14 DISASSEMBLY PROCEDURE

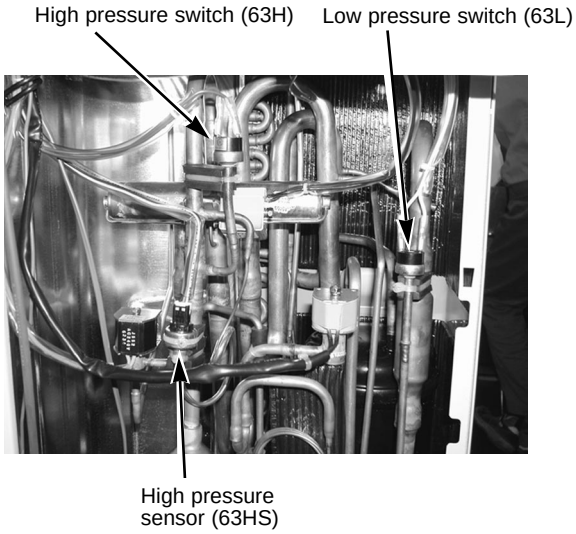
OUTDOOR UNIT : MXZ-8A140VA/ MXZ-8A140VA$_1$/ MXZ-8A140VA$_2$/ MXZ-8A140VA$_3$

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
1. Removing the service panel and top panel (1) Remove 3 service panel fixing screws (5 × 10) and slide the hook on the right downward to remove the service panel. (2) Remove screws (3 for front, 3 for rear/5 × 10) of the top panel and remove it.	**Figure 1** 
2. Removing the fan motor (MF1, MF2) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 5 fan grille fixing screws (5 × 10) to detach the fan grille. (See figure 1.) (4) Remove a nut (for right handed screw of M6) to detach the propeller. (See photo 1.) (5) Disconnect the connectors, CNF1 and CNF2 on controller circuit board in electrical parts box. (6) Remove 4 fan motor fixing screws (5 × 25) to detach the fan motor. (See photo 2.)	**Photo 1**  **Photo 2** 
3. Removing the electrical parts box (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the indoor/outdoor connecting wire from terminal block. (4) Remove all the following connectors from controller circuit board; fan motor, thermistor <Outdoor pipe>, thermistor <Discharge>, thermistor <Outdoor 2-phase pipe>, thermistor <Outdoor>, high pressure switch, high pressure sensor, low pressure switch, solenoid valve coil <4-way valve> and solenoid valve coil <Hot gas bypass>, solenoid valve coil <Returning oil bypass>. Then remove a screw (4 × 8) from the valve bed to remove the lead wire. Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing> • Fan motor (CNF1, CNF2) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <Outdoor 2-phase pipe, Outdoor> (TH7/6) • High pressure switch (63H) • High pressure sensor (63HS) • Low pressure switch (63L) • Solenoid valve coil <4-way valve> (21S4) • Solenoid valve coil <Bypass valve> (SV1) • Solenoid valve coil (Returning oil bypass) <Bypass valve> (SV2) (5) Remove the terminal cover and disconnect the compressor lead wire. (6) Remove an electrical parts box fixing screw (4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.	**Photo 3** 

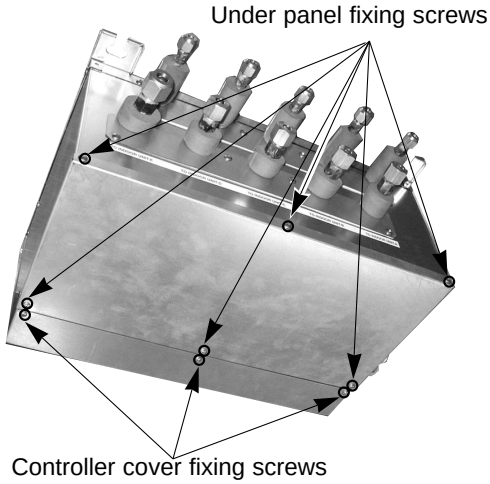
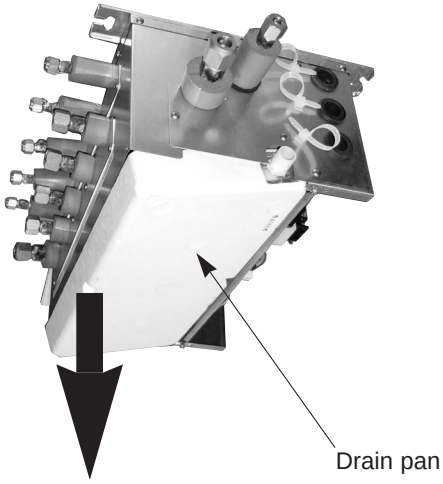
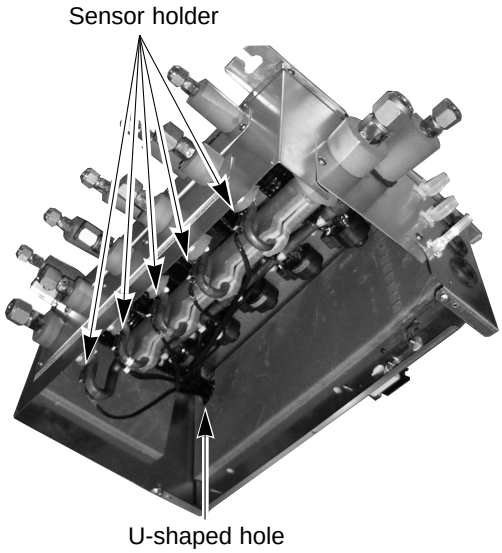
OPERATING PROCEDURE	PHOTOS
4. Removing the thermistor <Outdoor 2-phase pipe> (TH6) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (5) Pull out the thermistor <Outdoor 2-phase pipe> (TH6) from the sensor holder. Note: In case of replacing thermistor <Outdoor 2-phase pipe> (TH6), replace it together with thermistor <Outdoor> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.	**Photo 4** Thermistor <Outdoor 2-phase pipe> (TH6) Controller circuit board (C.B.)  ※ This connecter is not equipped with MXZ-8A140VA$_1$/VA$_2$/VA$_3$. Clamp
5. Removing the thermistor <Outdoor> (TH7) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.	**Photo 5** **MXZ-8A140VA/VA$_1$/VA$_2$**  Lead wire of thermistor <Outdoor> (TH7) Sensor holder **MXZ-8A140VA$_3$**  Lead wire of thermistor <Outdoor> (TH7) Sensor holder
6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) (1) Remove the service panel. (See figure 1.) (2) Disconnect the connectors, TH3 (white) and TH4 (white), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (4) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) from the sensor holder.	**Photo 6** Thermistor <Outdoor pipe> (TH3)  Compressor (MC) Thermistor <Discharge> (TH4)

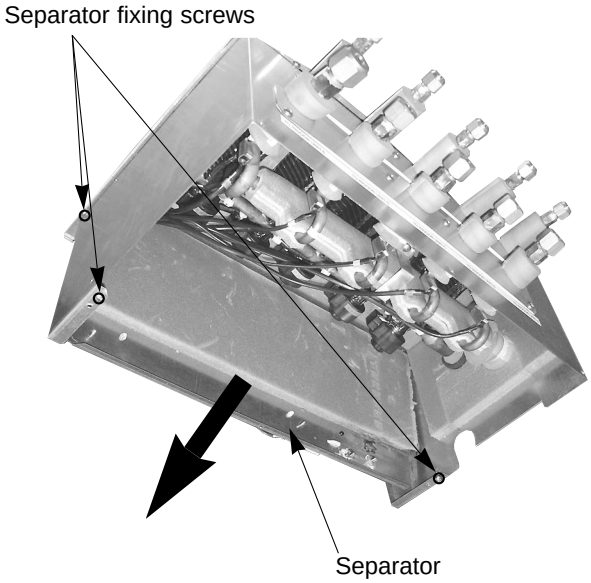
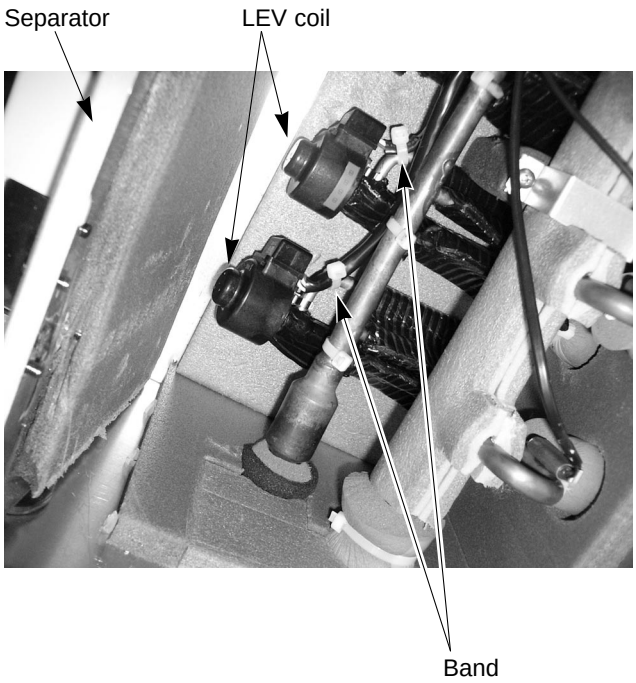
OPERATING PROCEDURE	PHOTOS
7. Removing the solenoid valve coil <4-way valve> (21S4) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) **[Removing the solenoid valve coil <4-way valve>]** (3) Remove 4-way valve solenoid coil fixing screw (M5 × 6 for MXZ-8A140VA(1), M4 × 6 for MXZ-8A140VA2/3). (4) Remove the solenoid valve coil <4-way valve> by sliding the coil toward you. (5) Disconnect the connector 21S4 (green) on the controller circuit board in the electrical parts box.	**Photo 7** 
8. Removing the 4-way valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (4) Remove 4 right side panel fixing screws (5 × 10) in the rear of the unit and then remove the right side panel. (5) Remove the solenoid valve coil <4-way valve>. (See photo 7.) (6) Recover refrigerant. (7) Remove the welded part of 4-way valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. Note 3: When installing the 4-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.	

OPERATING PROCEDURE	PHOTOS
9. Removing solenoid valve coil <Bypass valve> (SV1) and bypass valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 4.) (4) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (5) Remove the bypass valve coil fixing screw (M4 × 6). (6) Remove the solenoid valve coil <Bypass valve> (SV1) by sliding the coil upward. (7) Recover refrigerant. (8) Remove the welded part of bypass valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel.	**Photo 8** 
10. Removing solenoid valve coil (Returning oil bypass) <Bypass valve> (SV2) and bypass valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 4.) (4) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (5) Remove the bypass valve coil fixing screw (M5 × 6). (6) Remove the solenoid valve coil (Returning oil bypass) <Bypass valve> (SV2) by sliding the coil upward. (7) Recover refrigerant. (8) Remove the welded part of bypass valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel.	

OPERATING PROCEDURE	PHOTOS
11. Removing the high pressure switch (63H) and low pressure switch (63L) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 4.) (4) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (5) Pull out the lead wire of high pressure switch and low pressure switch. (6) Recover refrigerant. (7) Remove the welded part of high pressure switch and low pressure switch. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. Note 3: When installing the high pressure switch and low pressure switch, cover them with a wet cloth to prevent them from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.	**Photo 9** 
12. Removing the high pressure sensor (63HS) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 4.) (4) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (5) Pull out the lead wire of high pressure sensor. (6) Recover refrigerant. (7) Remove the welded part of high pressure sensor. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. Note 3: When installing the high pressure sensor, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.	

BRANCH BOX : PAC-AK50BC PAC-AK30BC

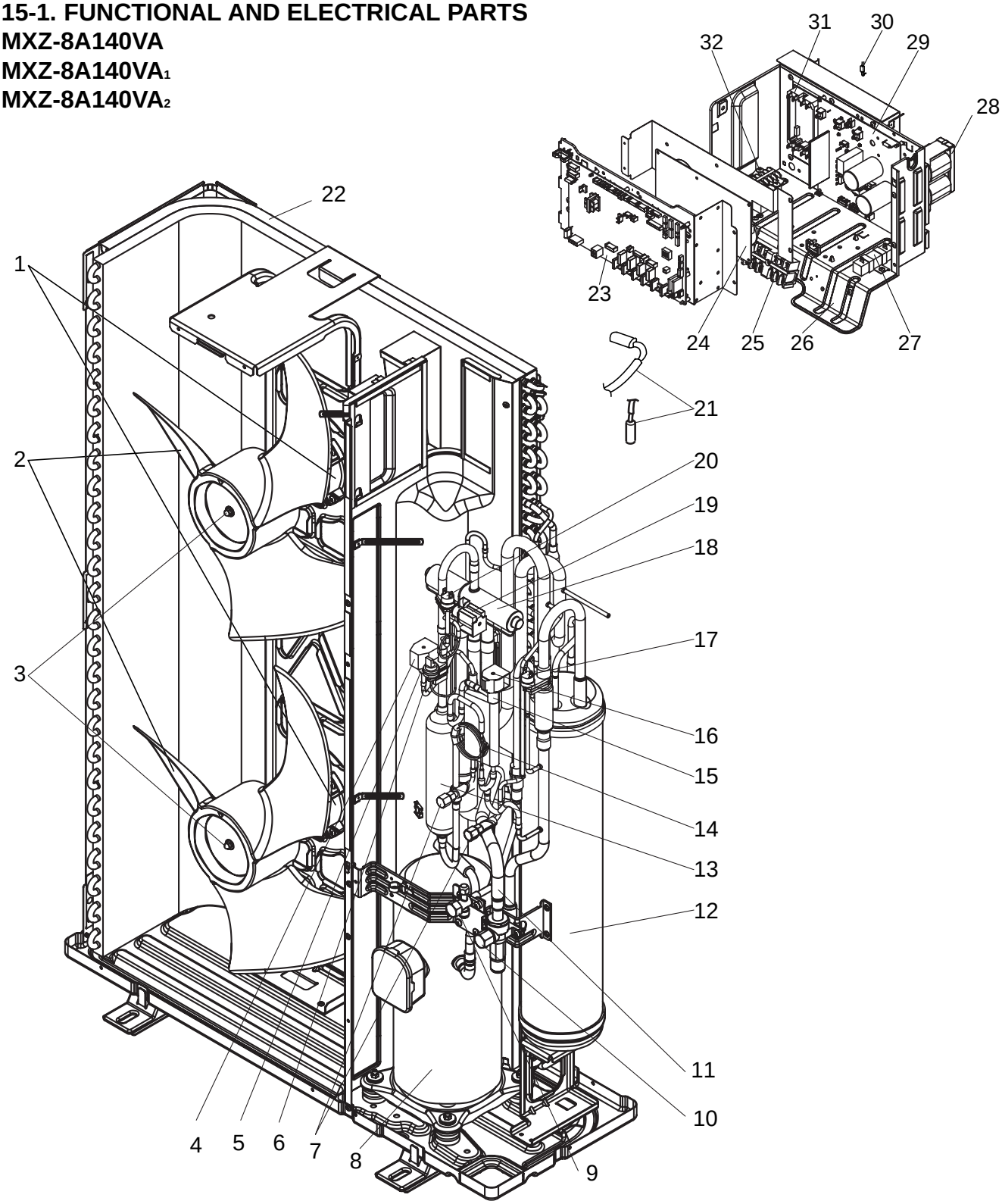
OPERATING PROCEDURE	PHOTOS
1. Removing the controller cover and under panel (1) Remove 3 controller cover fixing screws (4 × 10) to detach the cover. (See photo 1.) (2) Remove 6 under panel fixing screws (4 × 10) to remove the panel. (See photo 1.)	**Photo 1** 
2. Removing the drain pan (1) Remove the under panel. (See photo 1.) (2) Remove the drain hose. (3) Incline the side of the drain pan that faces the piping to remove the pan. **※ When removing the drain pan, be careful with remaining water on the pan.** **Also, be careful not to make cracks on the pan.**	**Photo 2** 
3. Removing the thermistors (TH-A–E) (1) Remove the controller cover. (See photo 1.) (2) Remove the under panel. (See photo 1.) (3) Pull out the thermistors, TH-A–E, from the sensor holders mounted on the gas pipe. (See photo 3.) (4) Pull out those thermistors through the U-shaped hole to the board side. (5) Loosen the side clamps of the board and disconnect the connectors on the board.	**Photo 3** 

OPERATING PROCEDURE	PHOTOS
4. Removing the LEV coil (LEV-A–E) (1) Remove the controller cover. (See photo 1.) (2) Remove the under cover. (See photo 1.) (3) Remove 4 separator fixing screws (4 × 10) in the side of the branch box. (See photo 4.) (4) Tilt the separator to the board side. (See photo 4.) (5) Loosen the side clamps of the board and disconnect the connectors on the board. (6) Pull out the lead wire through the U-shaped hole. (See photo 3.) (7) Cut the band that fixes the lead wire to pull out the LEV coil (LEV-A–E). (See photo 5.)	**Photo 4**  **Photo 5** 

15 PARTS LIST (non-RoHS compliant)

15-1. FUNCTIONAL AND ELECTRICAL PARTS

MXZ-8A140VA
MXZ-8A140VA$_1$
MXZ-8A140VA$_2$

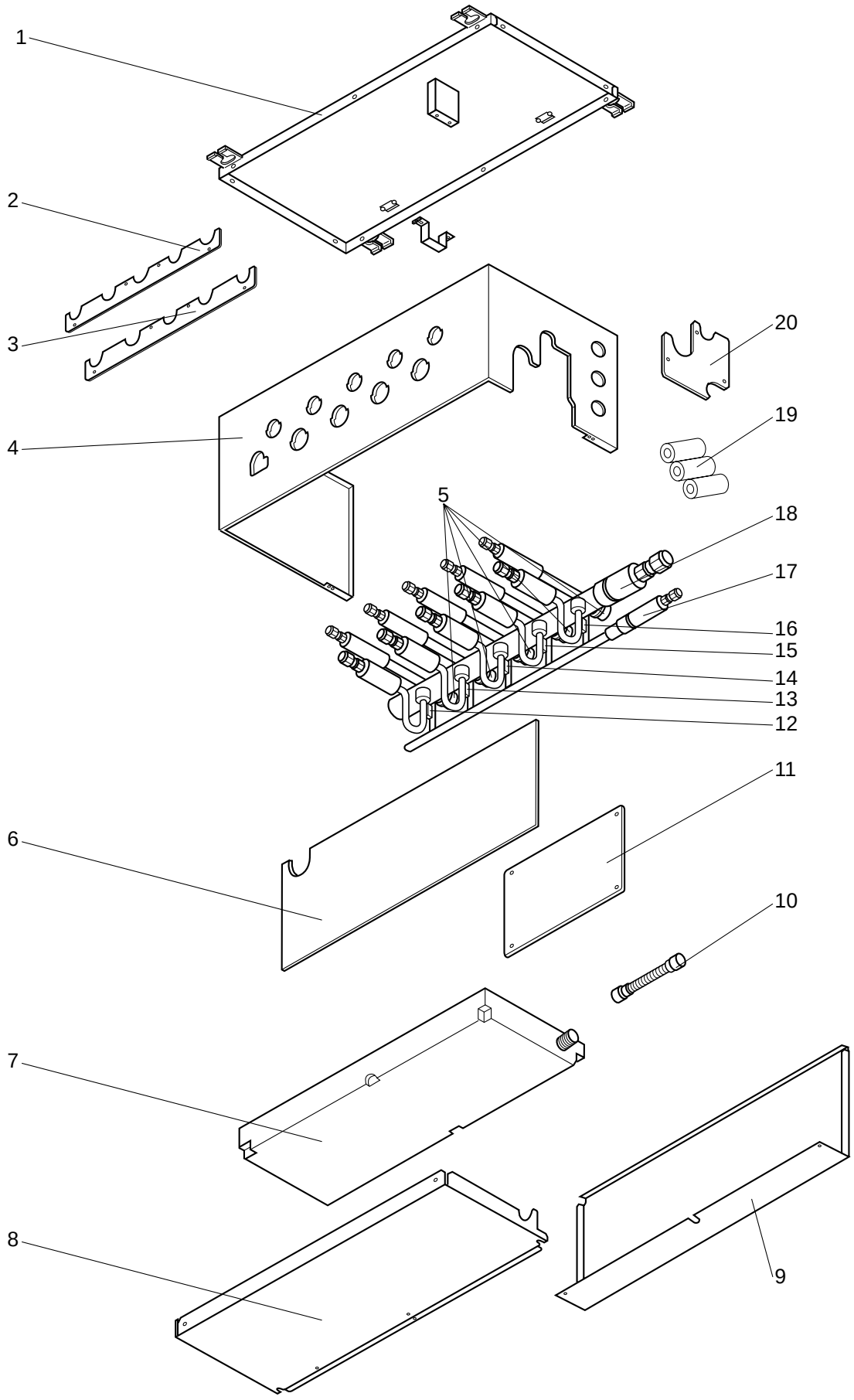


No.	Part No.	Part Name	Specification	Q'ty/set MXZ-8A140			Remarks	Wiring Diagram Symbol	Recommended Q'ty
				VA	VA$_1$	VA$_2$			
1	R01 E41 221	FAN MOTOR		2	2			MF1,MF2	
	R01 E44 221	FAN MOTOR				2		MF1,MF2	
2	R01 E01 115	PROPELLER		2	2	2			
3	R01 E02 097	NUT		2	2	2			
4	T7W E08 242	SOLENOID VALVE COIL		1	1	1		SV1	

Part numbers that are circled are not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty/set MXZ-8A140			Remarks	Wiring Diagram Symbol	Recommended Q'ty
				VA	VA_1	VA_2			
5	T7W E05 428	SOLENOID VALVE (SV1)		1	1			SV1	
	R01 E12 428					1		SV1	
6	T7W E04 208	HIGH PRESSURE SENSOR		1	1	1		63HS	
7	R01 E06 413	CHARGE PLUG		2	2	2			
8	T97 410 742	COMPRESSOR	ANB33FDCMT	1	1	1		MC	
9	R01 E09 410	STOP VALVE	3/8	1	1	1			
10	T7W E05 411	BALL VALVE	5/8	1	1				
	R01 E09 411		5/8			1			
11	R01 E03 450	STRAINER		1	1	1			
12	T7W E14 440	ACCUMULATOR		1	1				
	R01 E34 440					1			
13	T7W E01 490	OIL SEPARATOR		1	1				
	R01 E09 490					1			
14	R01 E22 425	CAPILLARY TUBE	2.5 × 0.8 × 1000	1	1	1			
15	R01 E03 428	SOLENOID VALVE (SV2)		1	1				
	R01 E11 428					1			
16	T7W E00 242	SOLENOID VALVE COIL		1	1			SV2	
	T7W E10 242					1		SV2	
17	R01 25T 209	LOW PRESSURE SWITCH		1	1	1		63L	
18	R01 E06 403	FOUR-WAY VALVE		1					
	R01 E24 403				1				
	R01 E26 403					1			
19	T7W A01 242	SOLENOID VALVE COIL		1	1			21S4	
	T7W E29 242	(FOUR-WAY VALVE)				1		21S4	
20	T7W E02 208	HIGH PRESSURE SWITCH		1	1			63H	
	R01 E04 208					1		63H	
21	R01 E75 202	THERMISTOR		1				TH6,TH7	
	T7W E43 202	(OUTDOOR 2PHASE PIPE, OUTDOOR)			1	1		TH6,TH7	
22	R01 E78 408	HEAT EXCHANGER		1	1	1			
23	T7W E24 315	CONTROLLER CIRCUIT BOARD		1	1			C.B.	
	R01 H77 310					1		C.B	
24	T7W E07 346	NOISE FILTER CIRCUIT BOARD		1				N.F.	
	T7W E14 346				1	1		N.F.	
25	T7W E16 716	TERMINAL BLOCK	6P(L, N, ⏚, S1, S2, S3)	1	1	1		TB1	
26	–	ELECTRICAL PARTS BOX		1	1	1	(BK00B055G26)		
27	T7W E01 234	RESISTOR		1	1	1		RS	
28	T7W E03 259	REACTOR		1	1			DCL	
	T7W E09 259					1		DCL	
29	T7W E12 313	POWER CIRCUIT BOARD		1				P.B.	
	T7W E26 313				1	1		P.B.	
30	R01 E65 202	THERMISTOR (HEATSINK)		1	1	1		TH8	
31	T7W E00 233	ACTIVE FILTER MODULE		1	1			ACTM	
	T7W E01 233					1		ACTM	
32	T7W E02 259	RELAY		1	1	1		52C	
㉝	T7W 520 239	FUSE	250V 6.3A	4	4			FUSE1~4	
	R01 E02 239		250V 6.3A			4		FUSE1~4	
㉞	T7W E05 254	MAIN SMOOTHING CAPACITOR		1	1			CE	
	T7W E09 254					1		CE	
㉟	R01 E00 201	THERMISTOR (DISCHARGE)		1	1	1		TH4	
㊱	R01 E66 202	THERMISTOR (OUTDOOR PIPE)		1	1	1		TH3	
㊲	R01 E21 425	CAPILLARY TUBE (SV2)	4 × 2.4 × 250	1	1	1			

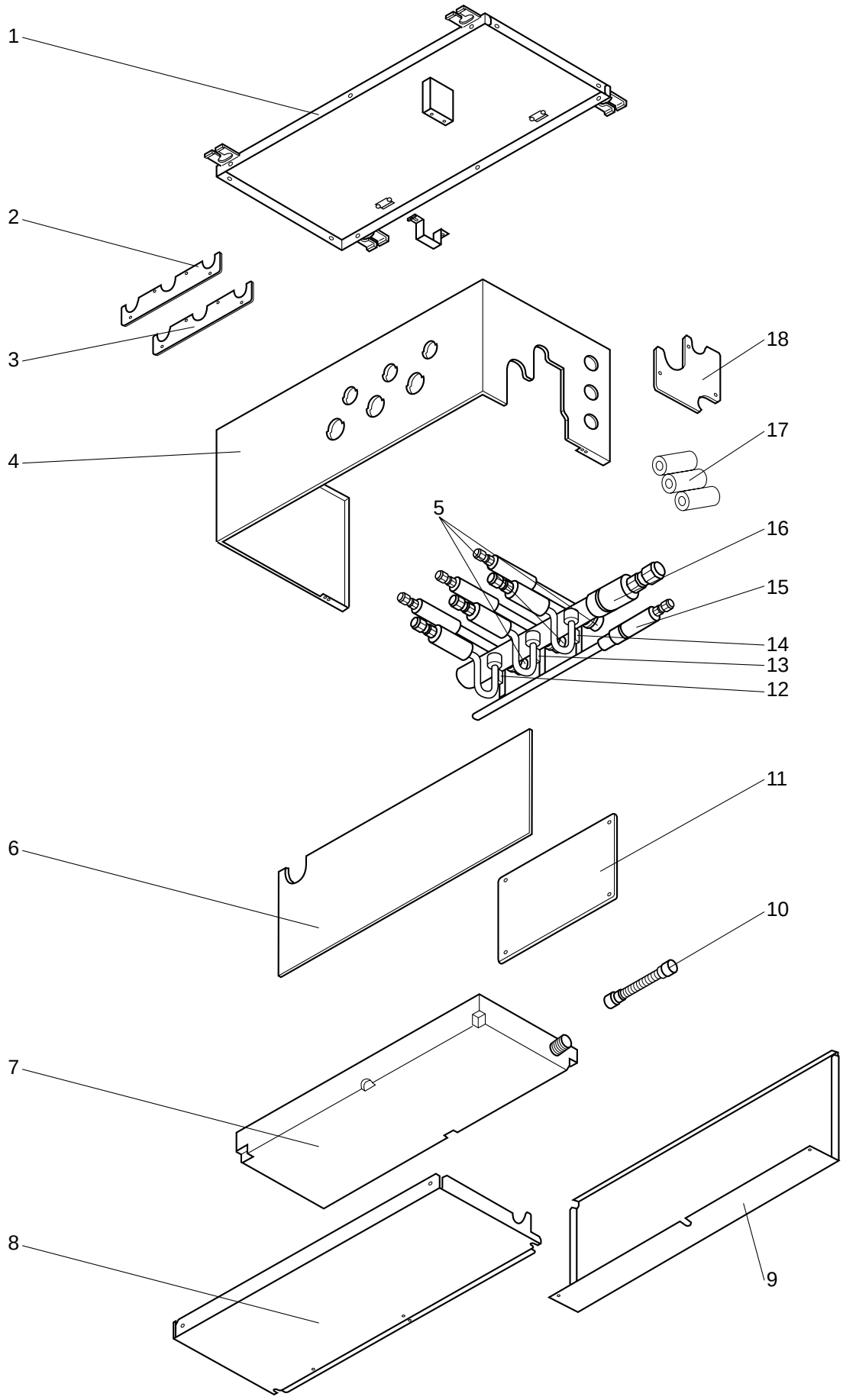
15-2. FUNCTIONAL PARTS
BRANCH BOX : PAC-AK50BC



Part numbers that are circled are not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty/set	Remarks	Wiring Diagram Symbol	Recom-mended Q'ty
				PAC-AK50BC			
1	T7W E04 641	TOP PANEL		1			
2	T7W E05 689	COVER-L		1			
3	T7W E07 689	COVER-G		1			
4	T7W E13 661	SIDE PANEL		1			
5	R01 E16 242	LEV COIL		5		LEV-A–E	
6	–	SEPARATOR		1	(RG02N539G06)		
7	T7W E18 529	DRAIN PAN		1			
8	T7W E01 669	UNDER PANEL		1			
9	T7W E04 689	CONTROLLER COVER		1			
10	T7W E01 527	DRAIN HOSE		1			
11	R01 H48 310	CONTROLLER BOARD		1		B.C	
12	T7W E38 202	THERMISTOR-A		1		TH-A	
13	T7W E39 202	THERMISTOR-B		1		TH-B	
14	T7W E40 202	THERMISTOR-C		1		TH-C	
15	T7W E41 202	THERMISTOR-D		1		TH-D	
16	T7W E42 202	THERMISTOR-E		1		TH-E	
17	T7W E13 401	LEV ASSY		1			
18	T7W E01 419	HEADER-G ASSY		1			
19	T7W E00 660	PIPE COVER (SET)		1			
20	T7W E09 689	COVER-U		1			
㉑	T7W E14 716	TERMINAL BLOCK	3P(S1, S2, S3)	1		TB2B	
㉒	T7W E23 716	TERMINAL BLOCK	3P(S1, S2, S3)	5		TB3A–E	
㉓	R01 E02 239	FUSE	250V 6.3A	1		F1	

15-3. FUNCTIONAL PARTS
BRANCH BOX : PAC-AK30BC

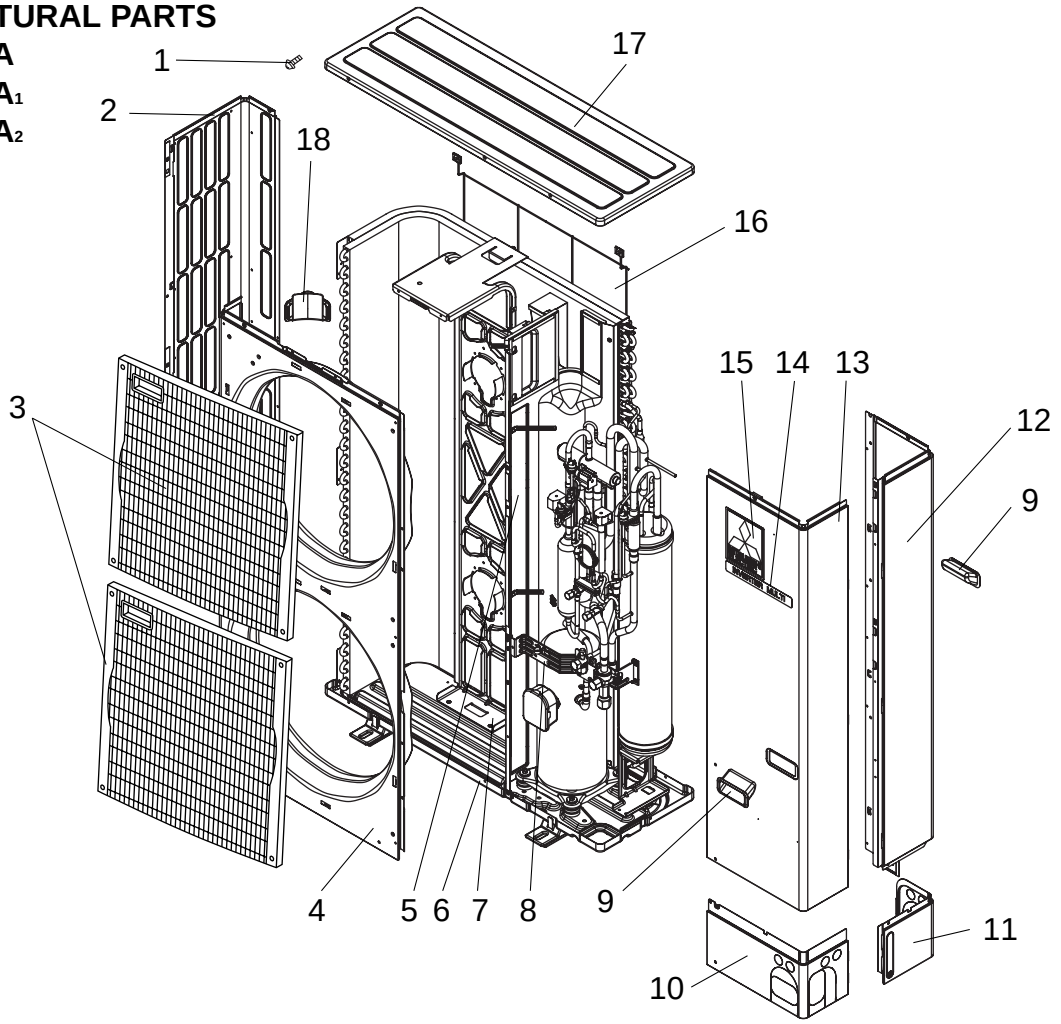


Part numbers that are circled are not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty/set	Remarks	Wiring Diagram Symbol	Recom-mended Q'ty
				PAC-AK30BC			
1	T7W E04 641	TOP PANEL		1			
2	T7W E06 689	COVER-L		1			
3	T7W E08 689	COVER-G		1			
4	T7W E14 661	SIDE PANEL		1			
5	R01 E16 242	LEV COIL		3		LEV-A–C	
6	–	SEPARATOR		1	(RG02N539G06)		
7	T7W E18 529	DRAIN PAN		1			
8	T7W E01 669	UNDER PANEL		1			
9	T7W E04 689	CONTROLLER COVER		1			
10	T7W E01 527	DRAIN HOSE		1			
11	R01 H48 310	CONTROLLER BOARD		1		B.C	
12	T7W E38 202	THERMISTOR-A		1		TH-A	
13	T7W E39 202	THERMISTOR-B		1		TH-B	
14	T7W E40 202	THERMISTOR-C		1		TH-C	
15	T7W E14 401	LEV ASSY		1			
16	T7W E02 419	HEADER-G ASSY		1			
17	T7W E00 660	PIPE COVER (SET)		1			
18	T7W E09 689	COVER-U		1			
⑲	T7W E14 716	TERMINAL BLOCK	3P(S1, S2, S3)	1		TB2B	
⑳	T7W E23 716	TERMINAL BLOCK	3P(S1, S2, S3)	3		TB3A–C	
㉑	R01 E02 239	FUSE	250V 6.3A	1		F1	

15-4. STRUCTURAL PARTS

MXZ-8A140VA
MXZ-8A140VA$_1$
MXZ-8A140VA$_2$

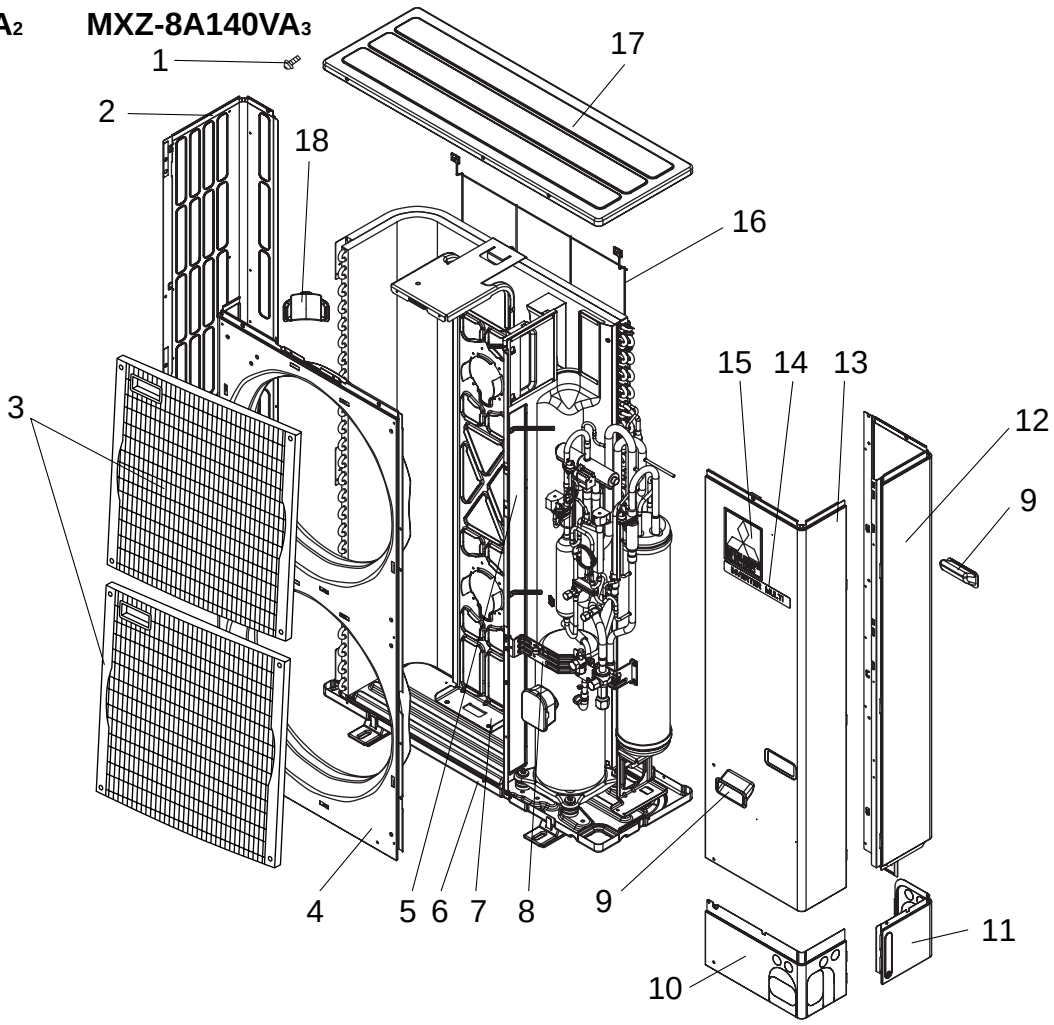


No.	Part No.	Part Name	Specification	Q'ty/set MXZ-8A140 VA,VA$_1$	Q'ty/set MXZ-8A140 VA$_2$	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	–	F.ST SCREW	(5×10)	38	38	(DG12F536H10)		
2	R01 E02 662	SIDE PANEL (L)		1				
	T7W E02 662				1			
3	T7W E02 691	FAN GRILLE		2	2			
4	T7W E02 667	FRONT PANEL		1	1			
5	–	SEPARATOR		1	1	(BK00C143G80)		
6	R01 E14 686	BASE ASSY		1	1			
7	R01 E07 130	MOTOR SUPPORT		1				
	R01 E25 130				1			
8	–	VALVE BED ASSY		1	1	(BK00C142G15)		
9	R01 30L 655	HANDLE		2	2			
10	R01 E00 658	COVER PANEL (FRONT)		1				
	R01 E13 658				1			
11	R01 E01 658	COVER PANEL (REAR)		1				
	R01 E11 658				1			
12	T7W E12 661	SIDE PANEL (R)		1				
	R01 E24 661				1			
13	T7W E03 668	SERVICE PANEL		1	1			
14	–	LABEL (BRAND)		1	1	(JG79C259H01)		
15	–	LABEL (MITSUBISHI)		1	1	(DG79R130H01)		
16	R01 E01 698	REAR GUARD		1	1			
17	R01 E04 641	TOP PANEL		1	1			
18	R01 E00 655	HANDLE		1	1			

16 RoHS PARTS LIST

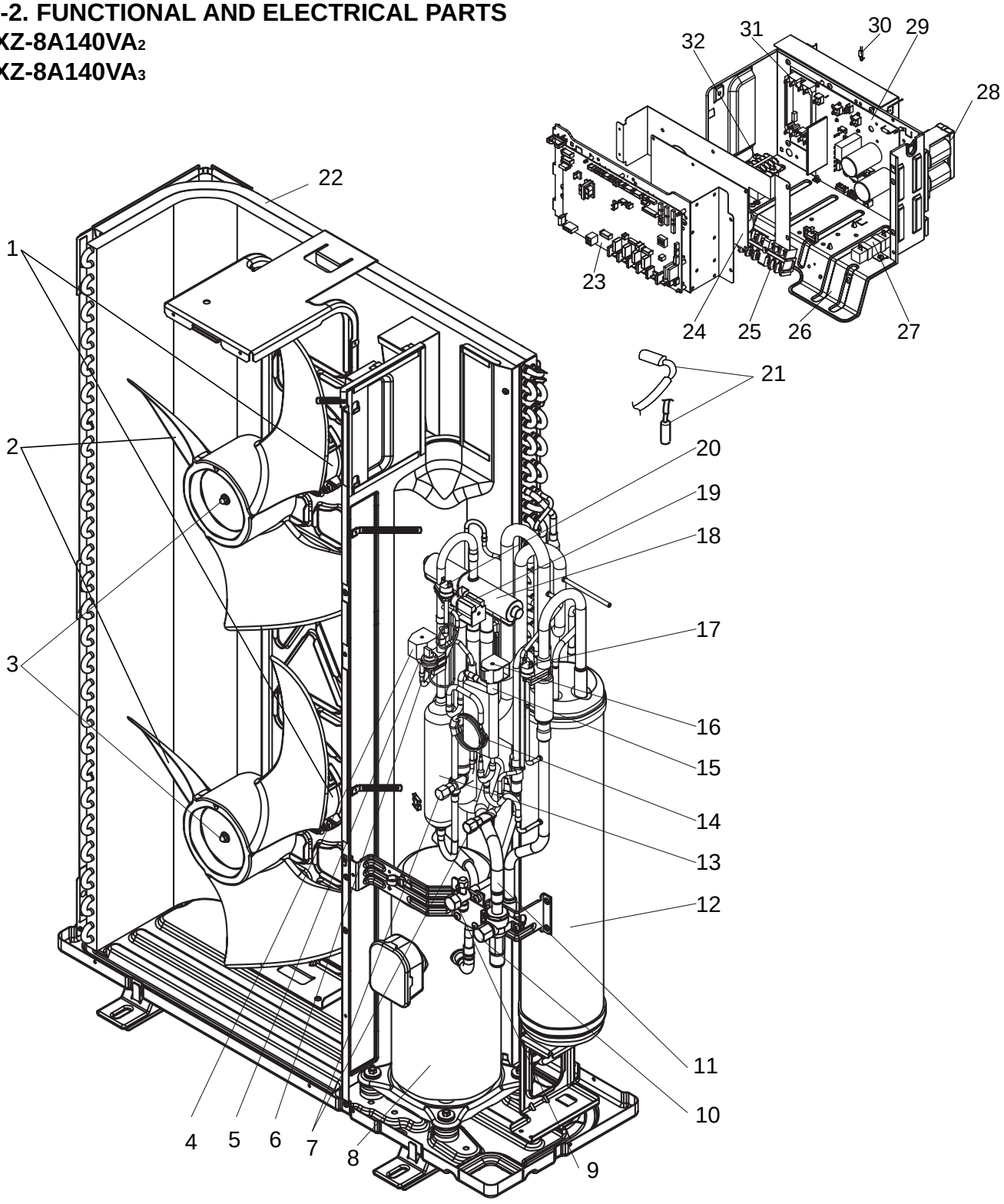
16-1. STRUCTURAL PARTS

MXZ-8A140VA2 MXZ-8A140VA3



No.	RoHS	Part No.	Part Name	Specification	Q'ty/set	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
					MXZ-8A140VA2/3			
1	G	–	F.ST SCREW	(5X10)	38	(DG12F536H10)		
2	G	T7W E03 662	SIDE PANEL (L)		1			
3	G	T7W E03 691	FAN GRILLE		2			
4	G	T7W E06 667	FRONT PANEL		1			
5	G	–	SEPARATOR		1	(BK00C143G99)		
6	G	R01 E31 686	BASE ASSY		1			
7	G	R01 E27 130	MOTOR SUPPORT		1			
8	G	–	VALVE BED ASSY		1	(BK00C142G15)		
9	G	R01 E01 655	HANDLE		2			
10	G	R01 E13 658	COVER PANEL (FRONT)		1			
11	G	R01 E11 658	COVER PANEL (REAR)		1			
12	G	R01 E32 661	SIDE PANEL (R)		1			
13	G	T7W E08 668	SERVICE PANEL		1			
14	G	–	LABEL (BRAND)		1	(JG79C259H01)		
15	G	–	LABEL (MITSUBISHI)		1	(DG79R130H01)		
16	G	R01 E07 698	REAR GUARD		1			
17	G	R01 E14 641	TOP PANEL		1			
18	G	R01 E02 655	HANDLE		1			

16-2. FUNCTIONAL AND ELECTRICAL PARTS
MXZ-8A140VA2
MXZ-8A140VA3

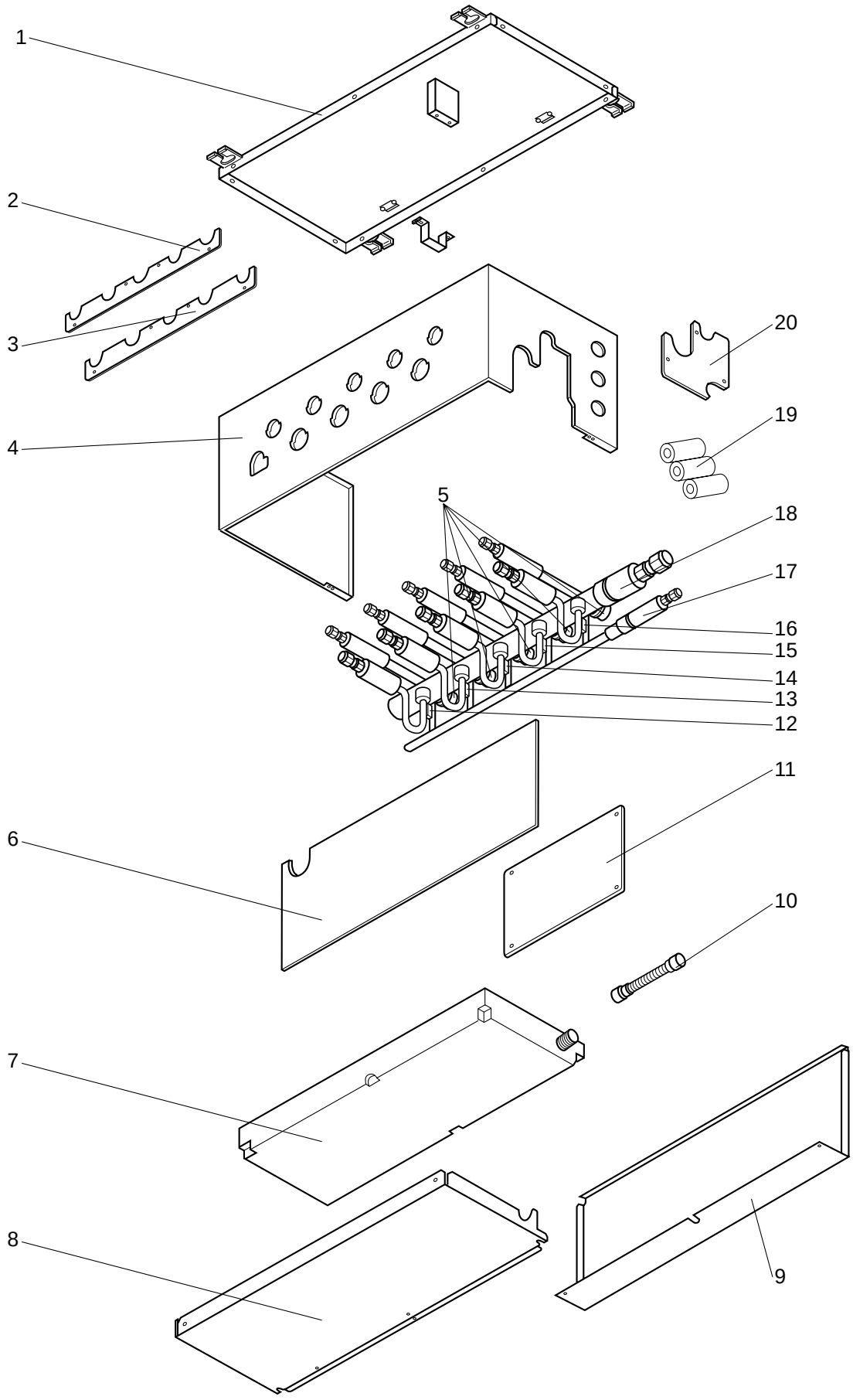


No.	RoHS	Part No.	Part Name	Specification	Q'ty/set MXZ-8A140 VA2	Q'ty/set MXZ-8A140 VA3	Remarks	Wiring Diagram Symbol	Recommended Q'ty
1	G	R01 E44 221	FAN MOTOR		2			MF1,MF2	
	G	T7W E27 763	FAN MOTOR			2		MF1,MF2	
2	G	R01 E08 115	PROPELLER FAN		2	2			
3	G	R01 E09 097	NUT		2	2			
4	G	T7W E32 242	SOLENOID VALVE COIL		1			SV1	
	G	T7W E38 242	SOLENOID VALVE COIL			1		SV1	

Part numbers that are circled are not shown in the figure.

No.	RoHS	Part No.	Part Name	Specification	Q'ty/set MXZ-8A140		Remarks	Wiring Diagram Symbol	Recommended Q'ty
					VA_2	VA_3			
5	G	R01 E15 428	SOLENOID VALVE (SV1)		1	1			
6	G	R01 E07 208	HIGH PRESSURE SENSOR		1	1		63HS	
7	G	R01 E14 413	CHARGE PLUG		2	2			
8	G	T97 415 742	COMPRESSOR	ANB33FDCMT	1	1		MC	
9	G	R01 E13 410	STOP VALVE	3/8	1	1			
10	G	R01 E11 411	BALL VALVE	5/8	1	1			
11	G	R01 E06 450	STRAINER		1	1			
12	G	R01 E36 440	ACCUMULATOR		1	1			
13	G	R01 E12 490	OIL SEPARATOR		1	1			
14	G	R01 E26 425	CAPILLARY TUBE	2.5 × 0.8 × 1000	1	1			
15	G	R01 E13 428	SOLENOID VALVE (SV2)		1	1			
16	G	T7W E31 242	SOLENOID VALVE COIL		1	1		SV2	
17	G	R01 E00 209	LOW PRESSURE SWITCH		1	1		63L	
18	G	R01 E26 403	FOUR-WAY VALVE		1				
	G	R01 E32 403	FOUR-WAY VALVE			1			
19	G	T7W E29 242	SOLENOID VALVE COIL (FOUR-WAY VALVE)		1	1		21S4	
20	G	R01 E06 208	HIGH PRESSURE SWITCH		1	1		63H	
21	G	R01 E94 202	THERMISTOR(OUTDOOR 2PHASE PIPE, OUTDOOR)		1	1		TH6,TH7	
22	G	R01 E91 408	HEAT EXCHANGER		1	1			
23	G	R01 H77 310	CONTROLLER CIRCUIT BOARD		1			C.B.	
	G	T7W E53 315	CONTROLLER CIRCUIT BOARD			1		C.B.	
24	G	T7W E16 346	NOISE FILTER CIRCUIT BOARD		1			N.F.	
	G	R01 E18 346	NOISE FILTER CIRCUIT BOARD			1		N.F.	
25	G	T7W E29 716	TERMINAL BLOCK	6P(L, N, ⏚, S1, S2, S3)	1	1		TB1	
26	G	—	ELECTRICAL PARTS BOX		1		(BK00B055G26)		
	G	—	ELECTRICAL PARTS BOX			1	(BK00B055G32)		
27	G	R01 E00 234	RESISTOR		1			RS	
28	G	R01 E20 259	REACTOR		1	1		DCL	
29	G	T7W E31 313	POWER CIRCUIT BOARD		1			P.B.	
	G	R01 E64 313	POWER CIRCUIT BOARD			1		P.B.	
30	G	R01 E99 202	THERMISTOR (HEATSINK)		1	1		TH8	
31	G	R01 E09 233	ACTIVE FILTER MODULE		1			ACTM	
	G	R01 E07 233	ACTIVE FILTER MODULE			1		ACTM	
32	G	T7W E10 259	RELAY		1			52C	
㉝	G	R01 E06 239	FUSE	250V 6.3A	4	4		FUSE1~4	
㉞	G	R01 E20 254	MAIN SMOOTHING CAPACITOR		1	1		CE	
㉟	G	R01 E09 201	THERMISTOR (DISCHARGE)		1			TH4	
	G	T7W E03 201	THERMISTOR (DISCHARGE)			1		TH4	
㊱	G	R01 H00 202	THERMISTOR (OUTDOOR PIPE)		1	1		TH3	
㊲	G	R01 E27 425	CAPILLARY TUBE (SV2)	4 × 2.4 × 250	1	1			

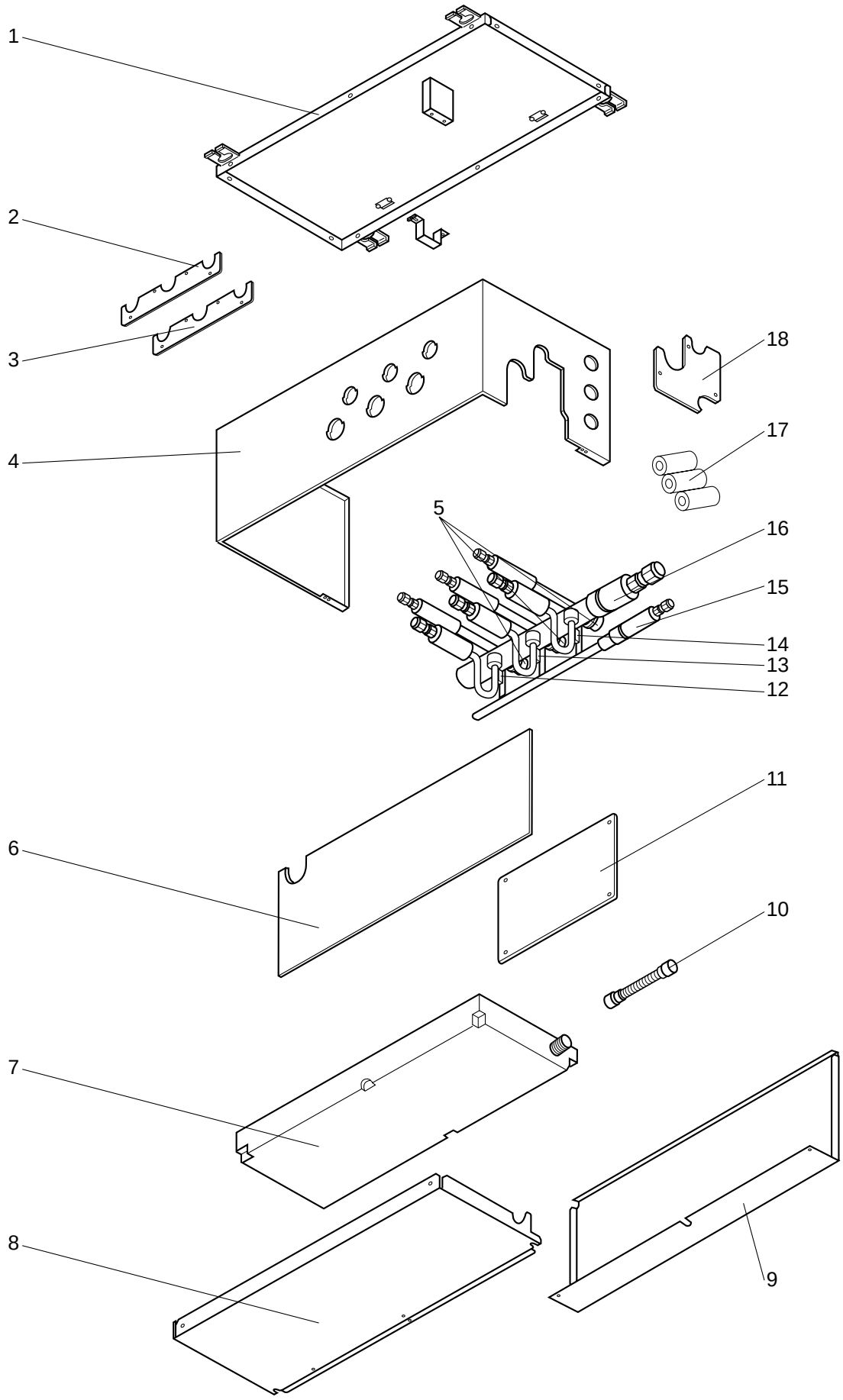
16-3. FUNCTIONAL PARTS
BRANCH BOX : PAC-AK50BC



Part numbers that are circled are not shown in the figure.

No.	RoHS	Part No.	Part Name	Specification	Q'ty/set	Remarks	Wiring Diagram Symbol	Recom-mended Q'ty
					PAC-AK50BC			
1	G	R01 E22 641	TOP PANEL		1			
2	G	R01 E11 689	COVER-L		1			
3	G	R01 E13 689	COVER-G		1			
4	G	R01 E35 661	SIDE PANEL		1			
5	G	R01 E36 242	LEV COIL		5		LEV-A–E	
6	G	–	SEPARATOR		1	(RG02N539G06)		
7	G	R01 E33 529	DRAIN PAN		1			
8	G	R01 E02 669	UNDER PANEL		1			
9	G	R01 E16 689	CONTROLLER COVER		1			
10	G	R01 E07 527	DRAIN HOSE		1			
11	G	R01 H80 310	CONTROLLER BOARD		1		B.C	
12	G	R01 H20 202	THERMISTOR-A		1		TH-A	
13	G	R01 H21 202	THERMISTOR-B		1		TH-B	
14	G	R01 H22 202	THERMISTOR-C		1		TH-C	
15	G	R01 H23 202	THERMISTOR-D		1		TH-D	
16	G	R01 H24 202	THERMISTOR-E		1		TH-E	
17	G	R01 E98 401	LEV ASSY		1			
18	G	R01 E09 419	HEADER-G ASSY		1			
19	G	R01 E01 660	PIPE COVER (SET)		1			
20	G	R01 E15 689	COVER-U		1			
㉑	G	R01 E31 246	TERMINAL BLOCK	3P(S1, S2, S3)	1		TB2B	
㉒	G	R01 E20 246	TERMINAL BLOCK	3P(S1, S2, S3)	5		TB3A–E	
㉓	G	R01 E06 239	FUSE	250V 6.3A	1		F1	

16-4. FUNCTIONAL PARTS
BRANCH BOX : PAC-AK30BC



Part numbers that are circled are not shown in the figure.

No.	RoHS	Part No.	Part Name	Specification	Q'ty/set	Remarks	Wiring Diagram Symbol	Recom-mended Q'ty
					PAC-AK30BC			
1	G	R01 E22 641	TOP PANEL		1			
2	G	R01 E12 689	COVER-L		1			
3	G	R01 E14 689	COVER-G		1			
4	G	R01 E36 661	SIDE PANEL		1			
5	G	R01 E36 242	LEV COIL		3		LEV-A–C	
6	G	–	SEPARATOR		1	(RG02N539G06)		
7	G	R01 E33 529	DRAIN PAN		1			
8	G	R01 E02 669	UNDER PANEL		1			
9	G	R01 E16 689	CONTROLLER COVER		1			
10	G	R01 E07 527	DRAIN HOSE		1			
11	G	R01 H80 310	CONTROLLER BOARD		1		B.C	
12	G	R01 H20 202	THERMISTOR-A		1		TH-A	
13	G	R01 H21 202	THERMISTOR-B		1		TH-B	
14	G	R01 H22 202	THERMISTOR-C		1		TH-C	
15	G	R01 E99 401	LEV ASSY		1			
16	G	R01 E10 419	HEADER-G ASSY		1			
17	G	R01 E01 660	PIPE COVER (SET)		1			
18	G	R01 E15 689	COVER-U		1			
⑲	G	R01 E31 246	TERMINAL BLOCK	3P(S1, S2, S3)	1		TB2B	
⑳	G	R01 E20 246	TERMINAL BLOCK	3P(S1, S2, S3)	3		TB3A–C	
㉑	G	R01 E06 239	FUSE	250V 6.3A	1		F1	

17 OPTIONAL PARTS

17-1. FOR OUTDOOR UNIT

DRAIN SOCKET

Part No.	PAC-SG61DS-E

AIR OUTLET GUIDE

Part No.	PAC-SG59SG-E

※ Need 2 pieces.

AIR GUIDE

Part No.	PAC-SH63AG-E

※ Need 2 pieces.

DRAIN PAN

Part No.	PAC-SG64DP-E

FILTER DRYER (For liquid line : ϕ9.52)

Part No.	PAC-SG82DR-E

※ Only for R410A model (Don't use for R22 model.)

2-BRANCH PIPE (Joint) (In case of using 2-branch boxes)

Part No.	Connection method
MSDD-50AR-E	flare
MSDD-50BR-E	brazing

※ According to the connection method, you can choose the favourite one.

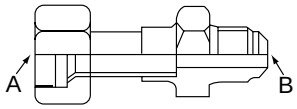
17-2. FOR BRANCH BOX

Different-diameter joint (Optional parts)

Part No.	Connected pipes diameter	Diameter A	Diameter B
	mm	mm	mm
MAC-A454JP	ϕ9.52 → ϕ12.7	ϕ9.52	ϕ12.7
MAC-A455JP	ϕ12.7 → ϕ9.52	ϕ12.7	ϕ9.52
MAC-A456JP	ϕ12.7 → ϕ15.88	ϕ12.7	ϕ15.88
PAC-493PI	ϕ6.35 → ϕ9.52	ϕ6.35	ϕ9.52
PAC-SG76RJ-E	ϕ9.52 → ϕ15.88	ϕ9.52	ϕ15.88

<Reference>
Conversion formula

1/4 inch	ϕ6.35mm
3/8 inch	ϕ9.52mm
1/2 inch	ϕ12.7mm
5/8 inch	ϕ15.88mm
3/4 inch	ϕ19.05mm



Item	Part No.
Special optional cover for outdoor installation of branch box	PAC-AK350CVR-E

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE : TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO100-8310, JAPAN

Distributed in Aug. 2007 No.OC316 REVISED EDITION-D PDF 8
Distributed in Aug. 2006 No.OC316 REVISED EDITION-C PDF 8
Distributed in Feb. 2006 No.OC316 REVISED EDITION-B PDF 9
Distributed in Jun. 2005 No.OC316 REVISED EDITION-A PDF 9
Distributed in Jan. 2005 No.OC316 PDF 9
Made in Japan

New publication, effective Aug. 2007
Specifications subject to change without notice.