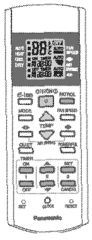
Order No. MAC0612064C8

Service Manual

Air Conditioner

CS-A18GKD CU-A18GKD
CS-A24GKD CU-A24GKD



⚠ WARNING

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

TABLE OF CONTENTS

Panasonic®

1 Safety Precaution

- Read the following “SAFETY PRECAUTIONS” carefully before perform any servicing.
- Electrical work must be installed or serviced by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation or servicing due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

⚠ **WARNING**	This indication shows the possibility of causing death or serious injury.

⚠ **CAUTION**	This indication shows the possibility of causing injury or damage to properties.

- The items to be followed are classified by the symbols:

⃠	This symbol denotes item that is PROHIBITTED from doing.

- Carry out test running to confirm that no abnormality occurs after the servicing. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

⚠ **WARNING**
1. Engage dealer or specialist for installation and servicing. If installation or servicing done by the user is defective, it will cause water leakage, electrical shock or fire.
2. Install according to this installation instruction strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
3. Use the attached accessories parts and specified parts for installation and servicing. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.
4. Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
5. For electrical work, follow the local national wiring standard, regulation and the installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.
6. Use the specified cable and connect tightly for indoor/outdoor connection. Connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
7. Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
8. When connecting the piping, do not allow air or any substances other than the specified refrigerant to enter the refrigeration cycle. Otherwise, this may lower the capacity, cause abnormally high pressure in the refrigeration cycle, and possibly result in explosion and injury. ⃠

9. It is desirable that the amount of residual oil is less than 40 mg/10 m.

10. Do not modify the length of the power supply cord or use of the extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.

⚠ CAUTION

1. The equipment must be earthed. It may cause electrical shock if grounding is not perfect.
2. Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
3. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
4. Pb free solder has a higher melting point than standard solder; typically the melting point is 50 - 70°F (30 - 40°C) higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C).Pb free solder will tend to splash when heated too high (about 1100°F/600°C).

ATTENTION

1. Selection of the installation location. Select an installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance.
2. Power supply connection to the conditioner. Connect the power supply cord of the air conditioner to the mains using one of the following methods.
   Power supply point shall be the place where there is ease for access for the power disconnection in case of emergency.
   In some countries, permanent connection of this room air conditioner to the power supply is prohibited.
   1. Power supply connection to the receptacle using a power plug. Use an approved power plug with earth pin for the connection to the socket.
   2. Power supply connection to a circuit breaker for the permanent connection. Use an approved circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.5 mm contact gap.
3. Do not release refrigerant during piping work for installation, servicing, reinstallation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
4. Installation work. It may need two people to carry out the installation work.
5. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.

2 Specifications

2.1. CS-A18GKD CU-A18GKD

ITEM			UNIT	INDOOR UNIT	OUTDOOR UNIT
Performance Test Condition				NEW JIS	
COOLING	Capacity		kW	5.3 - 5.3	
			BTU/h	18,100 - 18,100	
	EER		W/W	3.08 - 3.01	
			BTU/hW	10.52 - 10.28	
	Noise Level		dB (A)	High 43 - 43, Low 38 - 38	High 53 - 54
HEATING	Capacity		kW	5.65 - 5.70	
			BTU/h	19,300 - 19,400	
	COP		W/W	3.42 - 3.33	
			BTU/hW	11.70 - 11.35	
	Noise Level		dB (A)	High 42 - 42, Low 38 - 38	High 54 - 55
Moisture Removal			l/h	2.9	
			pt/h	6.1	
Air Volume		Lo	m^3/min (ft^3/min)	Cooling; 13.0 (460) - 13.0 (460) Heating; 14.2 (500) - 14.2 (500)	28.6 (1,010) - 30.5 (1,080)
		Me	m^3/min (ft^3/min)	Cooling; 14.4 (510) - 14.4 (510) Heating; 14.8 (520) - 14.8 (520)	—
		Hi	m^3/min (ft^3/min)	Cooling; 15.3 (540) - 15.3 (540) Heating; 16.0 (560) - 16.0 (560)	50.7 (1,790) - 51.7 (1,830)
		SHi	m^3/min (ft^3/min)	Cooling 15.6 (550) - 15.6 (550)	—
Refrigeration Control Device				—	Capillary Tube
Refrigeration Oil			cm^3	—	SUNISO 4GDID or ATMOS M60 or ATMOS 56M (1,000)
Refrigerant (R22)			g (oz)	—	1,710 (60.4)
Dimension		Height	mm (inch)	275 (10-13/16)	750 (29-17/32)
		Width	mm (inch)	998 (39-9/32)	875 (34-7/16)
		Depth	mm (inch)	230 (9-1/16)	345 (13-19/32)
Net Weight			kg (lbs)	11.0 (24)	60.0 (132)
Pipe Diameter		Gas	mm (inch)	12.7 (1/2)	
		Liquid	mm (inch)	6.35 (1/4)	
Standard Length			m (ft)	5 (16.4)	
Pipe Length Range			m (ft)	3 (9.8) ~ 25 (82.0)	
Height Difference			m (ft)	20.0 (65.6)	
Additional Gas Amount			g/m (oz/ft)	20 (0.2)	
Refrigeration Charges Less			m (ft)	7.5 (24.6)	
Drain Hose		Inner Diameter	mm	16	—
		Length	mm	650	—
Compressor		Type		—	Rotary (1 cylinder) rolling piston type
		Motor Type		—	Induction (2-pole)
		Rated Output	kW	—	1.5
Fan		Type		Cross-Flow Fan	Propeller Fan
		Material		ASHT-18	PP
		Motor Type		Transistor (8-poles)	Induction (6-poles)
		Input Power	W	—	116 - 127
		Output Power	W	30	80
		Fan Speed Lo	rpm	Cooling; 1,190 - 1,190 Heating; 1,270 - 1,270	460 - 490
		Fan Speed Me	rpm	Cooling; 1,320 - 1,320 Heating; 1,320 - 1,320	—
		Fan Speed Hi	rpm	Cooling; 1,400 - 1,400 Heating; 1,430 - 1,430	815 - 830
		Fan Speed Shi	rpm	Cooling; 1,430 - 1,430	—
Heat Exchanger		Fin Material		Aluminium (Pre Coat)	Aluminium (Blue Coated)
		Fin Type		Slit Fin	Corrugated Fin
		Row x Stage X FPI		2 x 15 x 21	2 x 28 x 16
		Size (W x H x L)	mm	810 x 315 x 25.4	44 x 711.2 x 791 826
Air Filter		Material		Polypropelene	—
		Type		One-Touch	—

1. Cooling capacities are based on indoor temperature of 27°C D.B. (80.6°F D.B.), 19.0°C W.B. (66.2°F W.B.) and outdoor air temperature of 35°C D.B. (95°F D.B.), 24°C D.B. (75.2°F W.B.)
2. Heating capacities are based on indoor temperature of 20°C D.B. (68°F D.B.) and outdoor air temperature of 7°C D.B. (44.6°F D.B.), 6°C W.B. (42.8°F W.B.)

ITEM		UNIT	
Power Source (Phase, Voltage, Cycle)		ø	Single
		V	220 - 230
		Hz	50
Input Power		kW	Cooling: 1.72 - 1.76 Heating: 1.65 - 1.71
Starting Current		A	44.5
Running Current		A	Cooling: 8.0 - 7.8 Heating: 7.7 - 7.6
Power Factor		%	Cooling: 98 - 98 Heating: 97 - 98
Power factor means total figure of compressor, indoor fan motor and outdoor fan motor.			
*Maximum over current protection		A	10.2
Power Cord	Number of Core		3 (1.5mm^2)
	Length	m	1.9
Thermostat			—
Protection Device			Inner Protector

Note

• Specifications are subject to change without notice for further improvement.

2.2. CS-A24GKD CU-A24GKD

ITEM			UNIT	INDOOR UNIT	OUTDOOR UNIT
Performance Test Condition				NEW JIS	
COOLING	Capacity		kW	7.03 - 7.03	
			BTU/h	24,000 - 24,000	
	EER		W/W	2.77 - 2.72	
			BTU/hW	9.45 - 9.30	
	Noise Level		dB (A)	High 47 - 47, Low 41 - 41	High 53 - 54
HEATING	Capacity		kW	7.80 - 7.80	
			BTU/h	26,600 - 26,600	
	COP		W/W	3.08 - 3.05	
			BTU/hW	10.51 - 10.39	
	Noise Level		dB (A)	High 46 - 46, Low 41 - 41	High 54 - 55
Moisture Removal			l/h	4.0	
			pt/h	8.5	
Air Volume		Lo	m^3/min (ft^3/min)	Cooling; 13.7 (480) - 13.7 (480) Heating; 14.7 (520) - 14.7 (520)	28.1 (990) - 29.9 (1,060)
		Me	m^3/min (ft^3/min)	Cooling; 15.8 (560) - 15.8 (560) Heating; 15.8 (560) - 15.8 (560)	—
		Hi	m^3/min (ft^3/min)	Cooling; 16.8 (590) - 16.8 (590) Heating; 17.6 (620) - 17.6 (620)	49.7 (1,750) - 50.7 (1,790)
		SHi	m^3/min (ft^3/min)	Cooling 17.7 (630) - 17.7 (630)	—
Refrigeration Control Device				—	Capillary Tube
Refrigeration Oil			cm^3	—	SUNISO 4GDID or ATMOS M60 or ATMOS 56M (1,130)
Refrigerant (R22)			g (oz)	—	2,050 (72.4)
Dimension		Height	mm (inch)	275 (10-13/16)	750 (29-17/32)
		Width	mm (inch)	998 (39-9/32)	875 (34-7/16)
		Depth	mm (inch)	230 (9-1/16)	345 (13-19/32)
Net Weight			kg (lbs)	11.0 (24)	63.0 (139)
Pipe Diameter		Gas	mm (inch)	15.8 (5/8)	
		Liquid	mm (inch)	6.35 (1/4)	
Standard Length			m (ft)	5 (16.4)	
Pipe Length Range			m (ft)	3 (9.8) ~ 25 (82.0)	
Height Difference			m (ft)	20.0 (65.6)	
Additional Gas Amount			g/m (oz/ft)	30 (0.3)	
Refrigeration Charges Less			m (ft)	7.5 (24.6)	
Drain Hose		Inner Diameter	mm	16	—
		Length	mm	650	—
Compressor		Type		—	Rotary (1 cylinder) rolling piston type
		Motor Type		—	Induction (2-pole)
		Rated Output	kW	—	2.0
Fan		Type		Cross-Flow Fan	Propeller Fan
		Material		ASHT-18	PP
		Motor Type		Transistor (8-poles)	Induction (6-poles)
		Input Power	W	—	116 - 127
		Output Power	W	30	80
		Fan Speed Lo	rpm	Cooling; 1,280 - 1,280 Heating; 1,380 - 1,380	460 - 490
		Fan Speed Me	rpm	Cooling; 1,480 - 1,480 Heating; 1,480 - 1,480	—
		Fan Speed Hi	rpm	Cooling; 1,570 - 1,570 Heating; 1,650 - 1,650	815 - 830
		Fan Speed Shi	rpm	Cooling; 1,650 - 1,650	—
Heat Exchanger		Fin Material		Aluminium (Pre Coat)	Aluminium (Blue Coated)
		Fin Type		Slit Fin	Corrugated Fin
		Row x Stage X FPI		2 x 15 x 21	2 x 28 x 18
		Size (W x H x L)	mm	810 x 315 x 25.4	44 x 711.2 x 791 826
Air Filter		Material		Polypropelene	—
		Type		One-Touch	—

1. Cooling capacities are based on indoor temperature of 27°C D.B. (80.6°F D.B.), 19.0°C W.B. (66.2°F W.B.) and outdoor air temperature of 35°C D.B. (95°F D.B.), 24°C D.B. (75.2°F W.B.)
2. Heating capacities are based on indoor temperature of 20°C D.B. (68°F D.B.) and outdoor air temperature of 7°C D.B. (44.6°F D.B.), 6°C W.B. (42.8°F W.B.)

ITEM		UNIT	
Power Source (Phase, Voltage, Cycle)		ø	Single
		V	220 - 230
		Hz	50
Input Power		kW	Cooling: 2.54 - 2.58 Heating: 2.53 - 2.56
Starting Current		A	65
Running Current		A	Cooling: 12.3 - 12.2 Heating: 12.2 - 12.2
Power Factor		%	Cooling: 94 - 92 Heating: 94 - 91
Power factor means total figure of compressor, indoor fan motor and outdoor fan motor.			
*Maximum over current protection		A	15.8
Power Cord	Number of Core		3 (2.5mm^2)
	Length	m	1.9
Thermostat			—
Protection Device			Inner Protector

Note

• Specifications are subject to change without notice for further improvement.

3 Features

- High efficiency.
- Compact design.
- Wider range of horizontal discharge air.
- Air Filter with function to reduce dust and smoke.
- Automatic air swing and manual adjusted by Remote Control for horizontal and vertical airflow.
- Long installation piping up to 25 meter.

- **Quality Improvement**
  - Random auto restart after power failure for safety restart operation.
  - Gas leakage detection.
  - Prevent Compressor reverse cycle.
  - Inner protector to protect Compressor.
  - Noise prevention during soft dry operation.
  - Anti-dew formation control (Cooling & Soft Dry).
  - Overload Protection Control (Heating).
    - Outdoor Fan Control.
    - Compressor High Pressure Control.

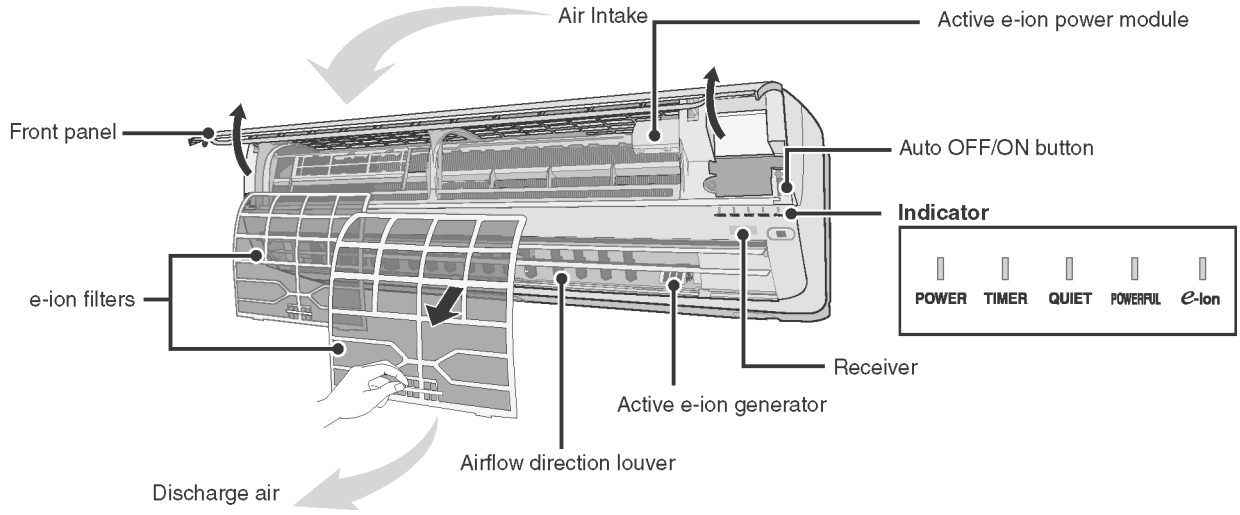
- **Operation Improvement**
  - Quiet mode to provide quiet operation.
  - Powerful mode to reach the desired room temperature quickly.
  - 24-hour timer setting.
  - Patrol sensor automatically detect the air quality. When the air quality is unsatisfactory, e-ion operation will start automatically.
  - e-ion Air purifying System provides clean air by producing negative ions to attract dust which will then be captured at the positively charged e-ion filters.

- **Serviceability Improvement**
  - Removable and washable Front Panel.

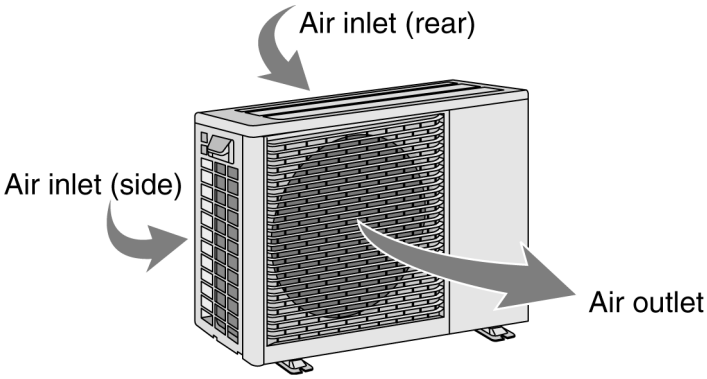
4 Location of Controls and Components

4.1. Product Overview

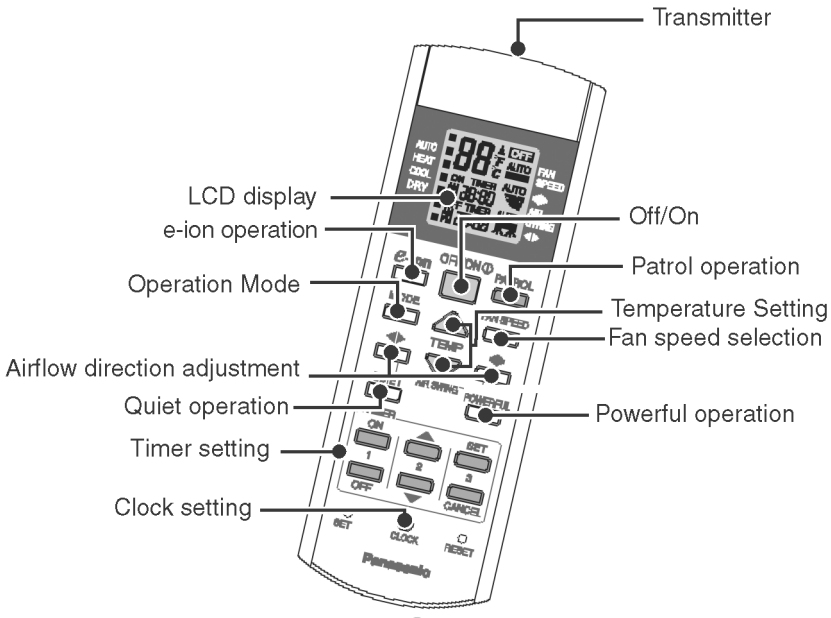
4.1.1. Indoor Unit



4.1.2. Outdoor Unit



4.1.3. Remote Control

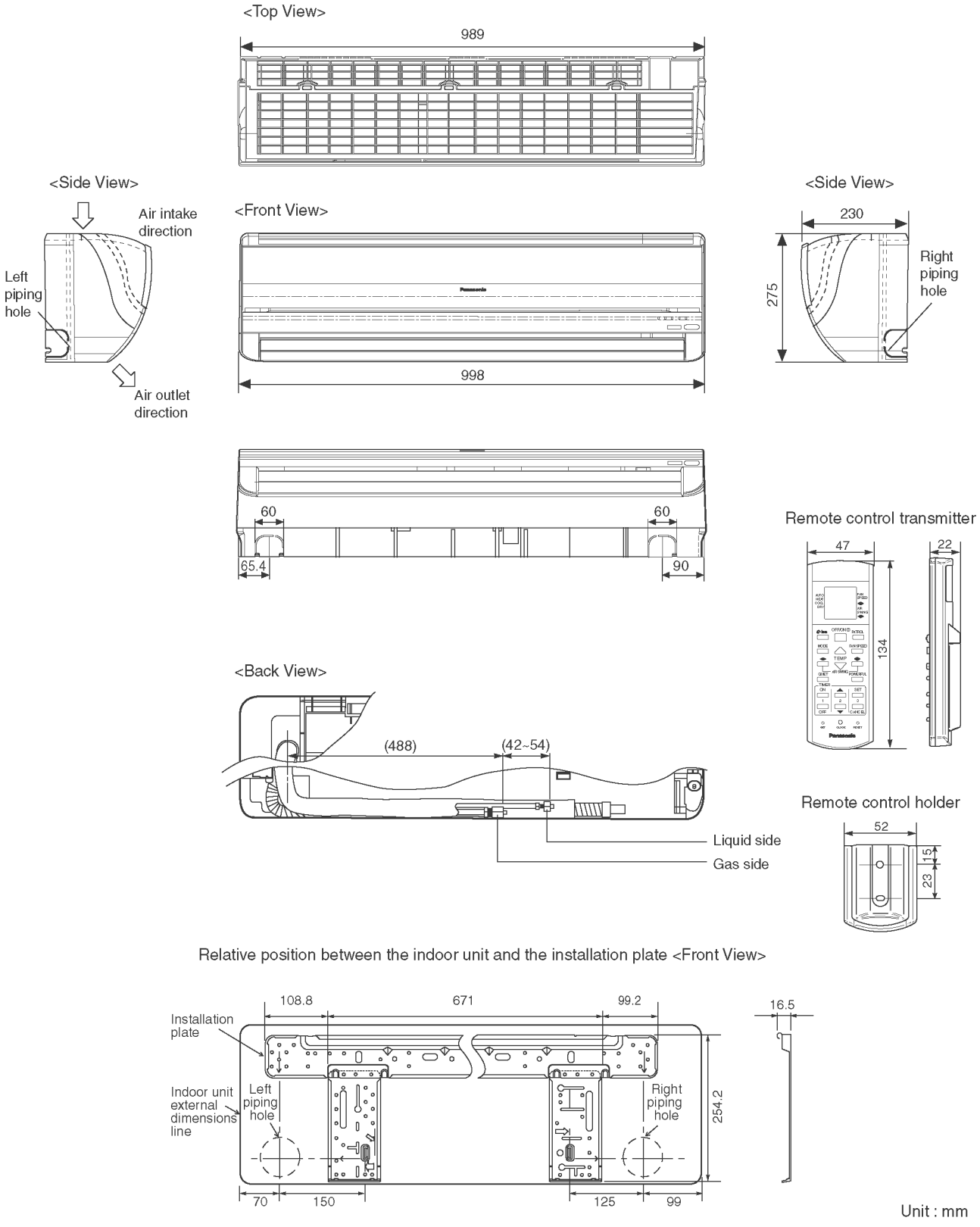


* For normal operation, the SET button is not in use.
* Press RESET button to restore the remote control's default setting.

5 Dimensions

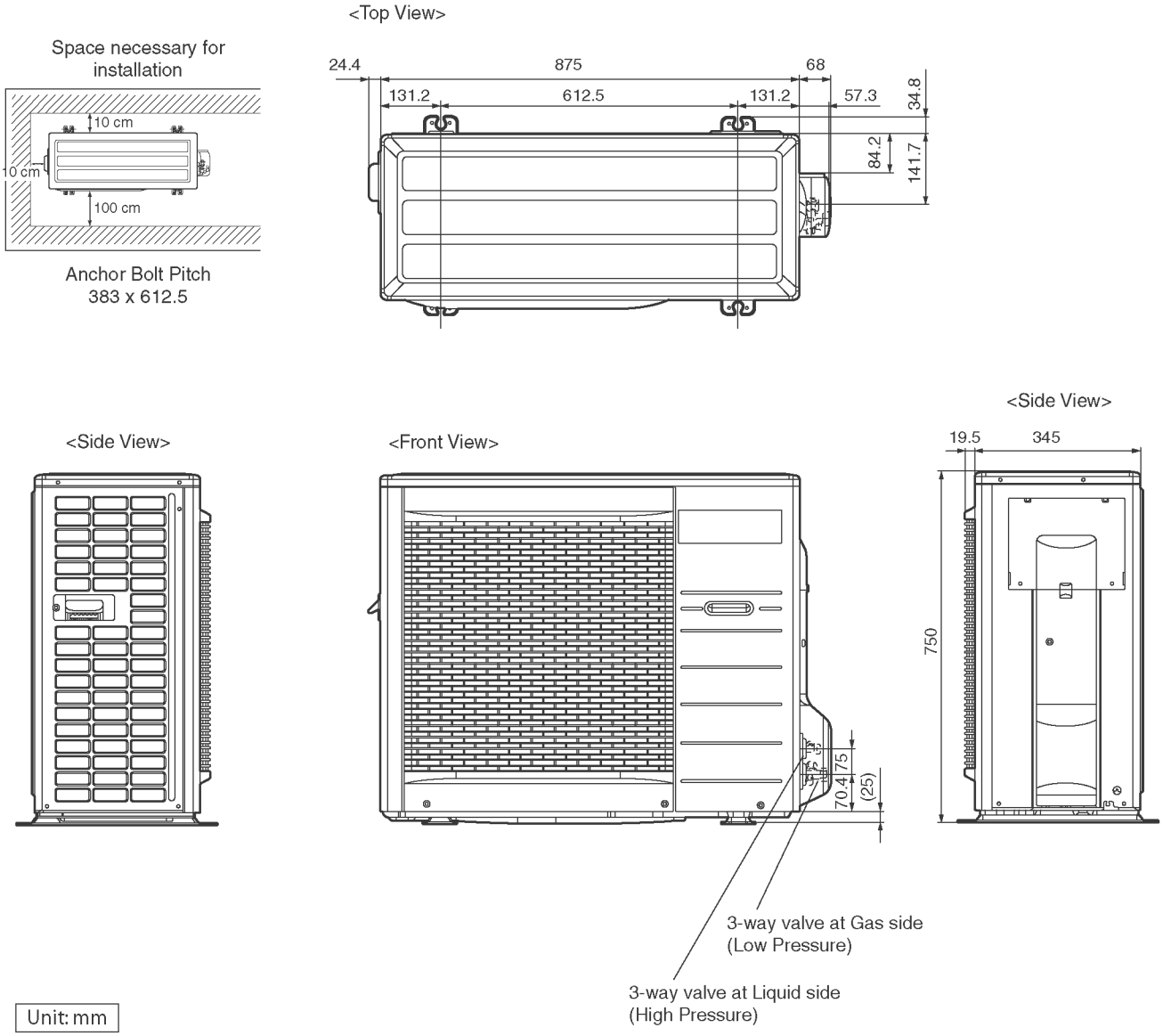
5.1. Indoor Unit

CS-A18GKD CS-A24GKD



5.2. Outdoor Unit

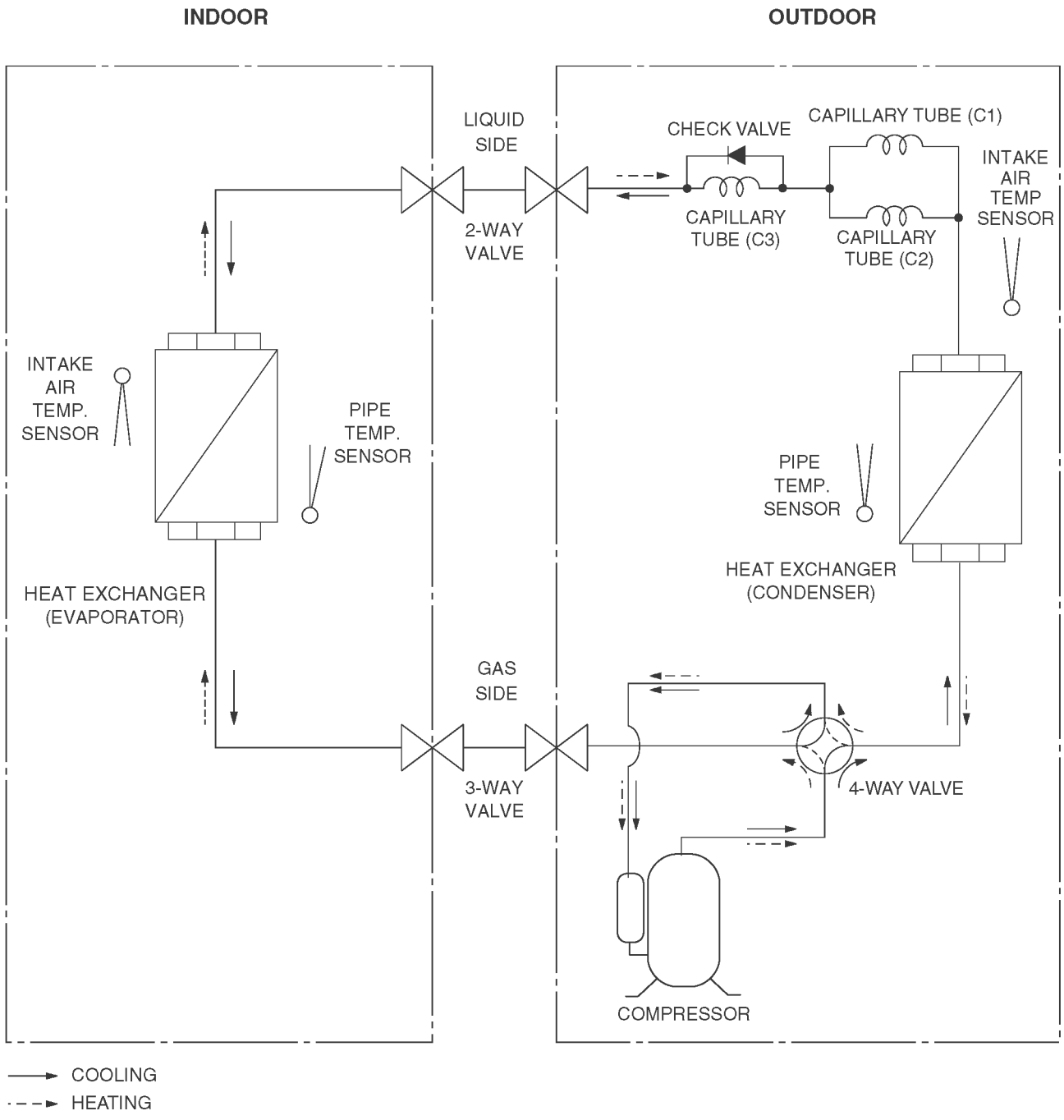
CU-A18GKD CU-A24GKD



Unit: mm

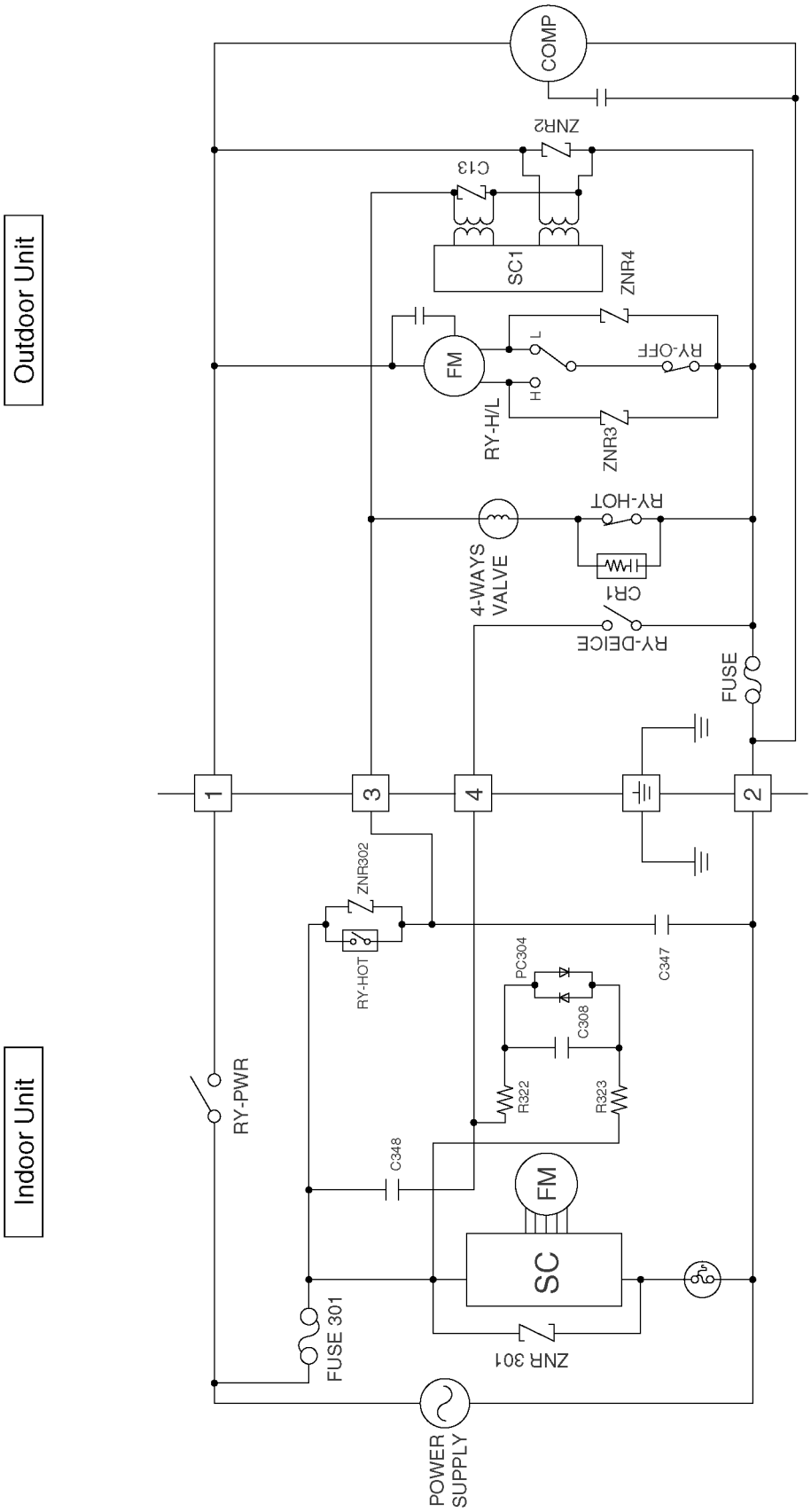
6 Refrigeration Cycle Diagram

CS-A18GKD CU-A18GKD
CS-A24GKD CU-A24GKD



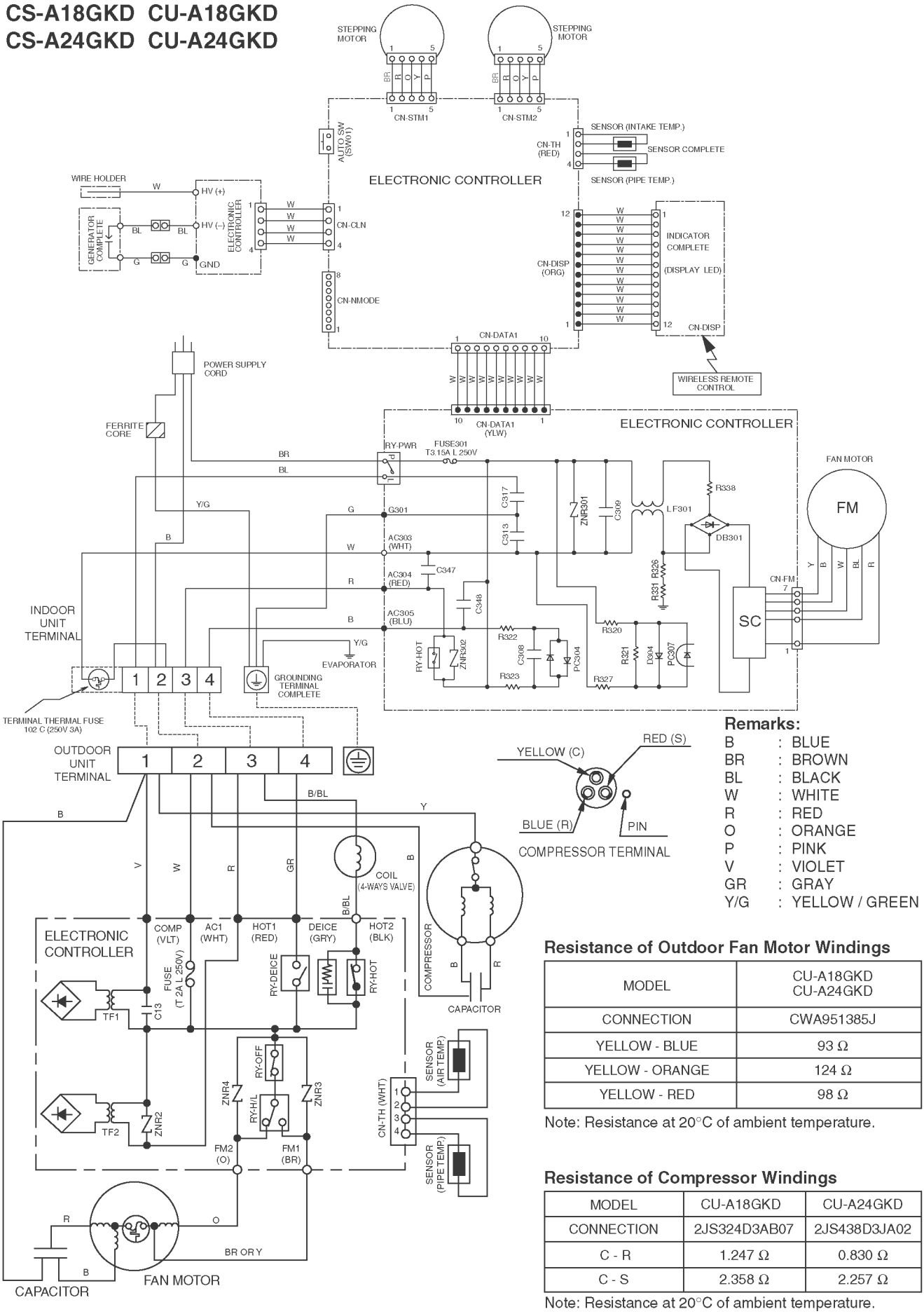
7 Block Diagram

CS-A18GKD CU-A18GKD
CS-A24GKD CU-A24GKD



8 Wiring Connection Diagram

CS-A18GKD CU-A18GKD
CS-A24GKD CU-A24GKD



Remarks:

B	:	BLUE
BR	:	BROWN
BL	:	BLACK
W	:	WHITE
R	:	RED
O	:	ORANGE
P	:	PINK
V	:	VIOLET
GR	:	GRAY
Y/G	:	YELLOW / GREEN

Resistance of Outdoor Fan Motor Windings

MODEL	CU-A18GKD CU-A24GKD
CONNECTION	CWA951385J
YELLOW - BLUE	93 Ω
YELLOW - ORANGE	124 Ω
YELLOW - RED	98 Ω

Note: Resistance at 20°C of ambient temperature.

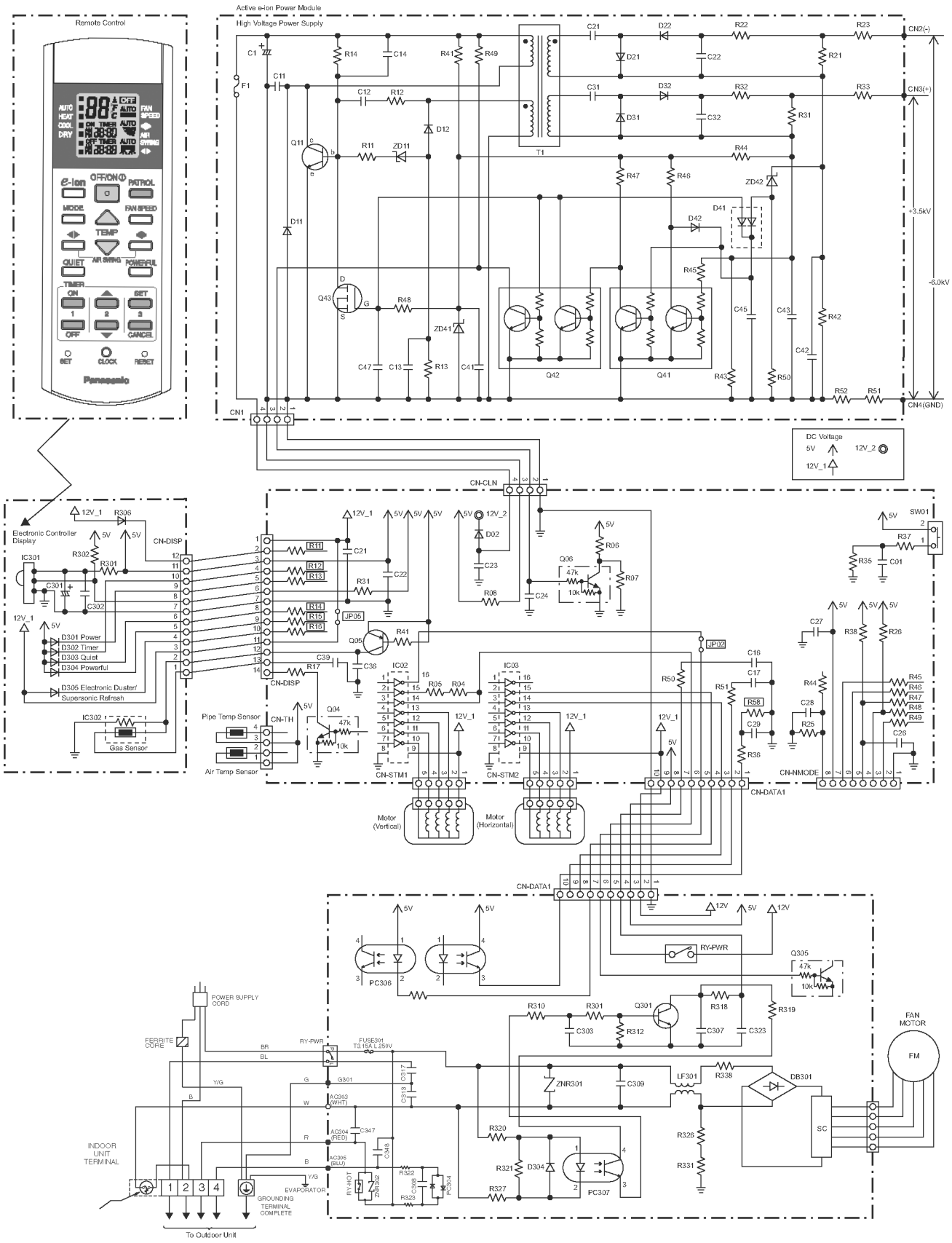
Resistance of Compressor Windings

MODEL	CU-A18GKD	CU-A24GKD
CONNECTION	2JS324D3AB07	2JS438D3JA02
C - R	1.247 Ω	0.830 Ω
C - S	2.358 Ω	2.257 Ω

Note: Resistance at 20°C of ambient temperature.

9 Electronic Circuit Diagram

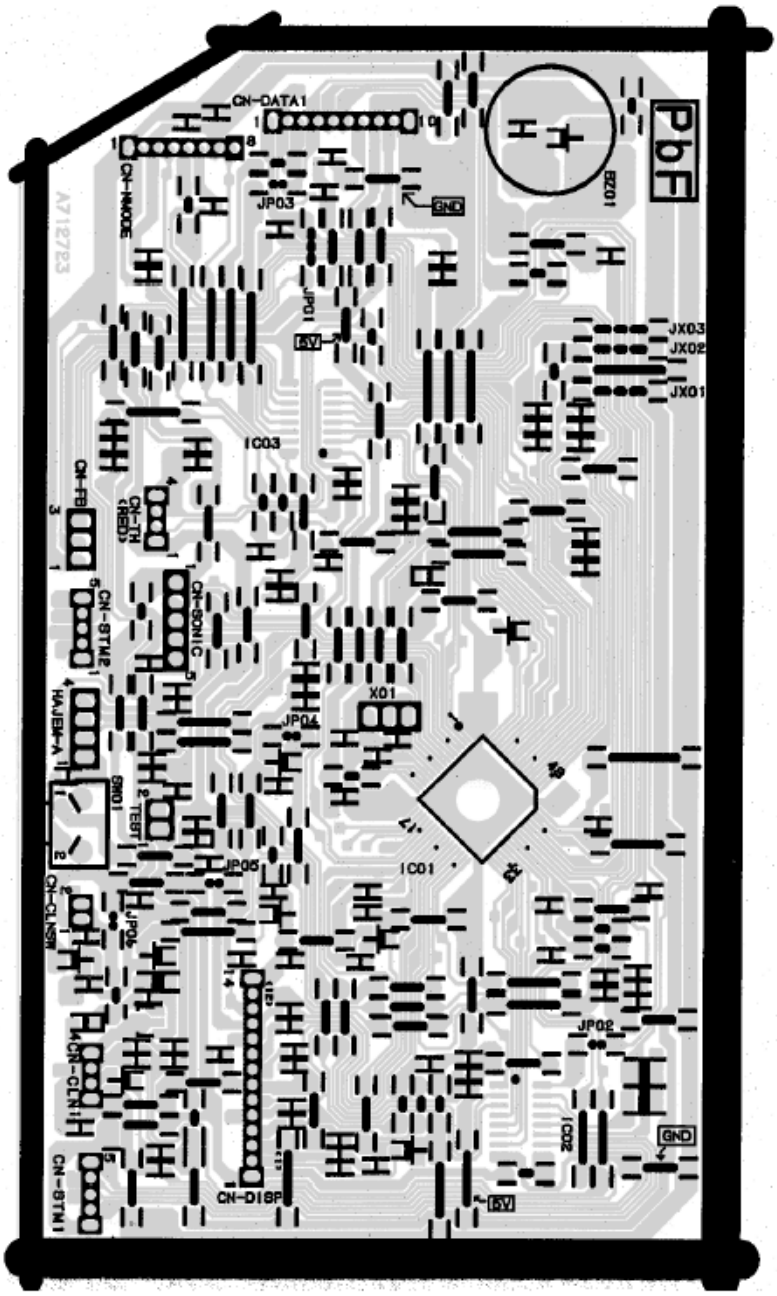
CS-A18GKD CU-A18GKD
CS-A24GKD CU-A24GKD



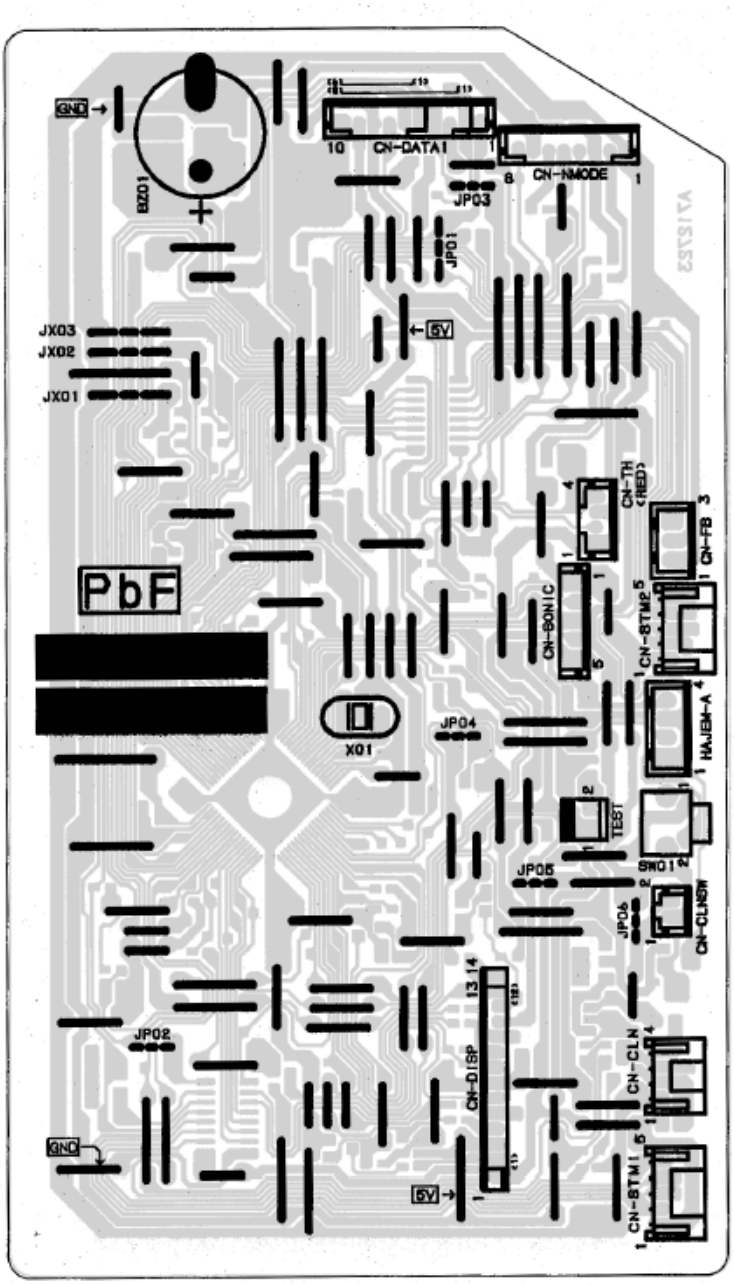
10 Printed Circuit Board

10.1. Indoor Unit (Main Printed Circuit Board)

TOP VIEW



BOTTOM VIEW


GND
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1
CN-NMODE
8
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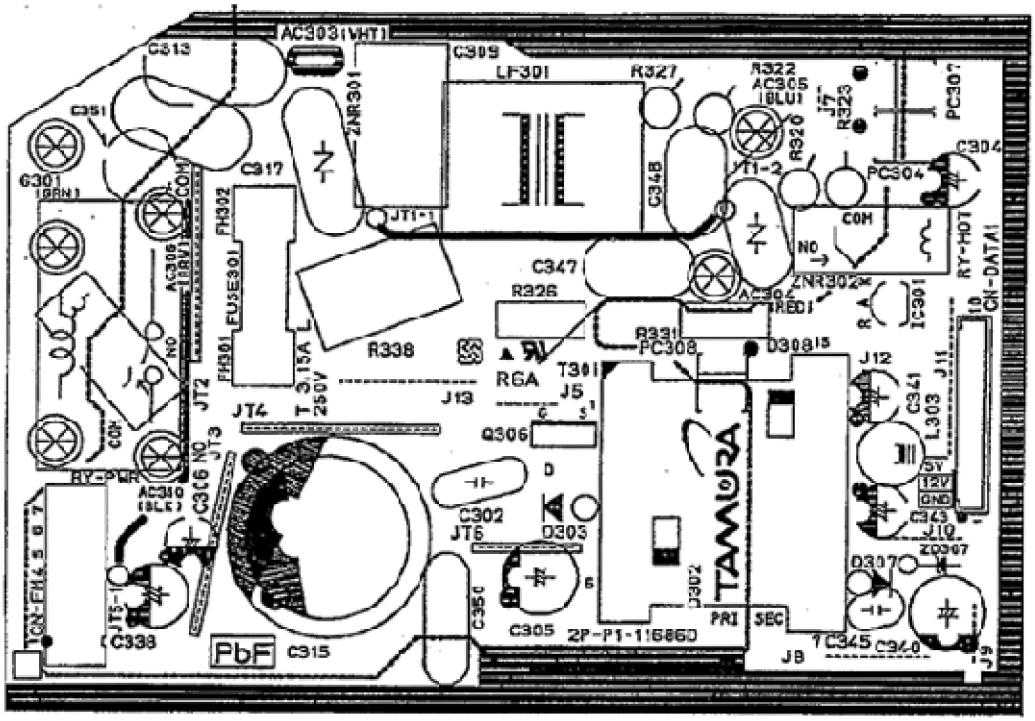
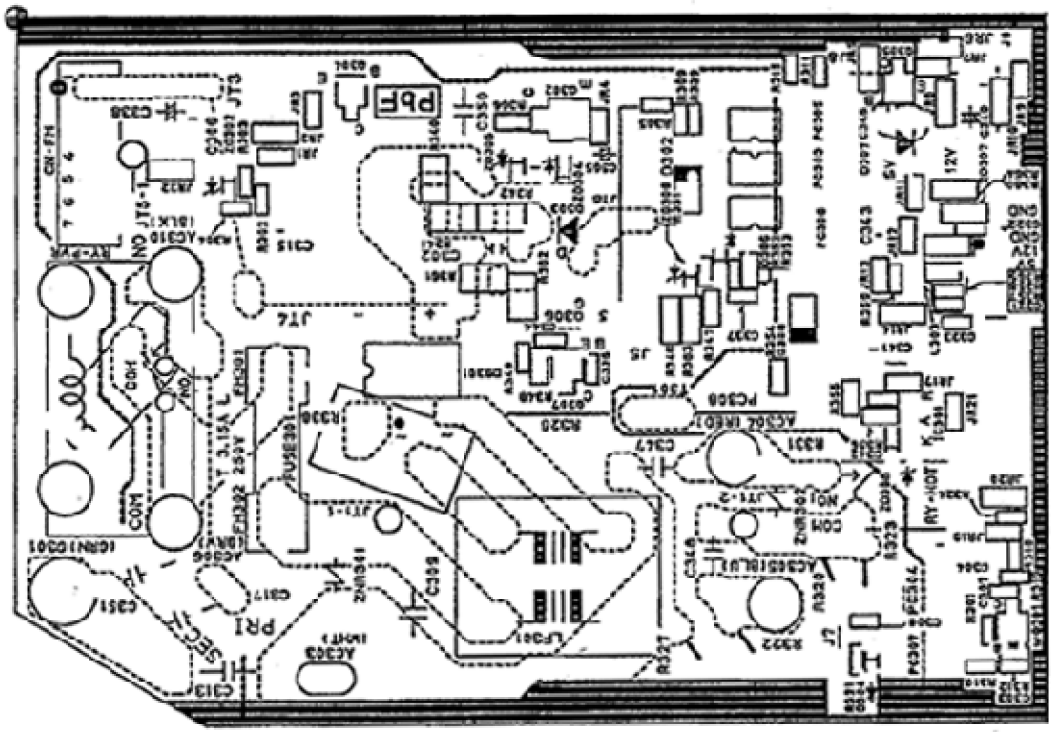
JP03
JP01
5V
JX03
JX02
JX01
PbF
X01
JP04
CN-TH
(RED)
CN-FB
CN-SONIC
CN-STM25
HAJEM-A
TEST
SW01
JP05
JP06
CN-CLNSW
JP02
CN-DISP
13
14
CN-CLN
GND
5V
CN-STM1

10.2. Indoor Unit (Power Printed Circuit Board)

TOP VIEW

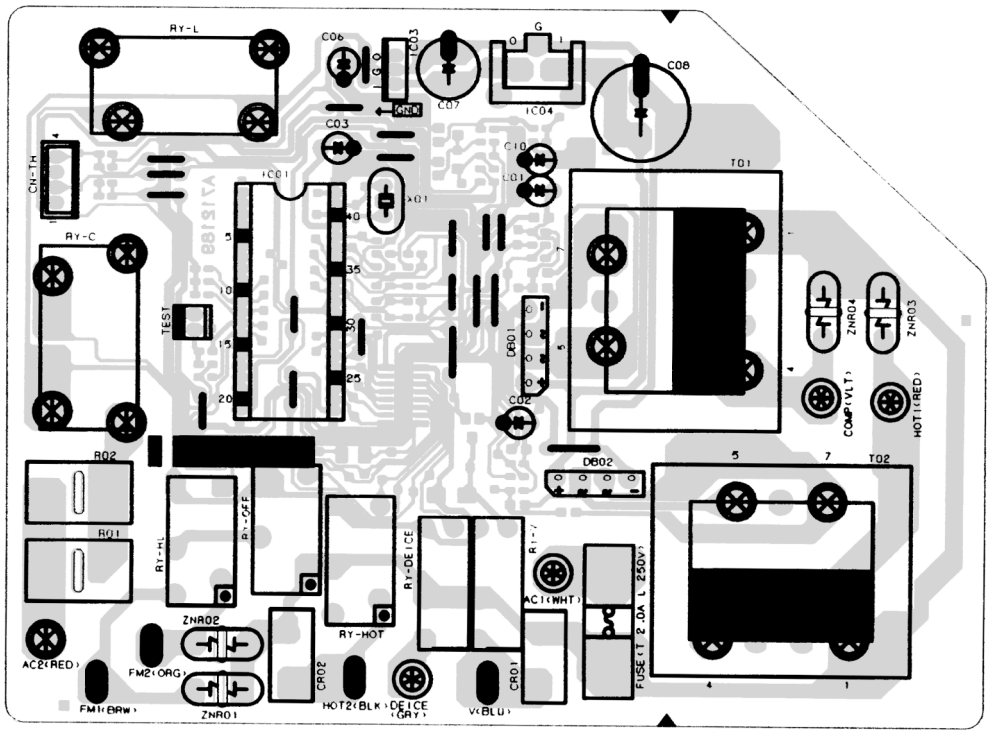


BOTTOM VIEW

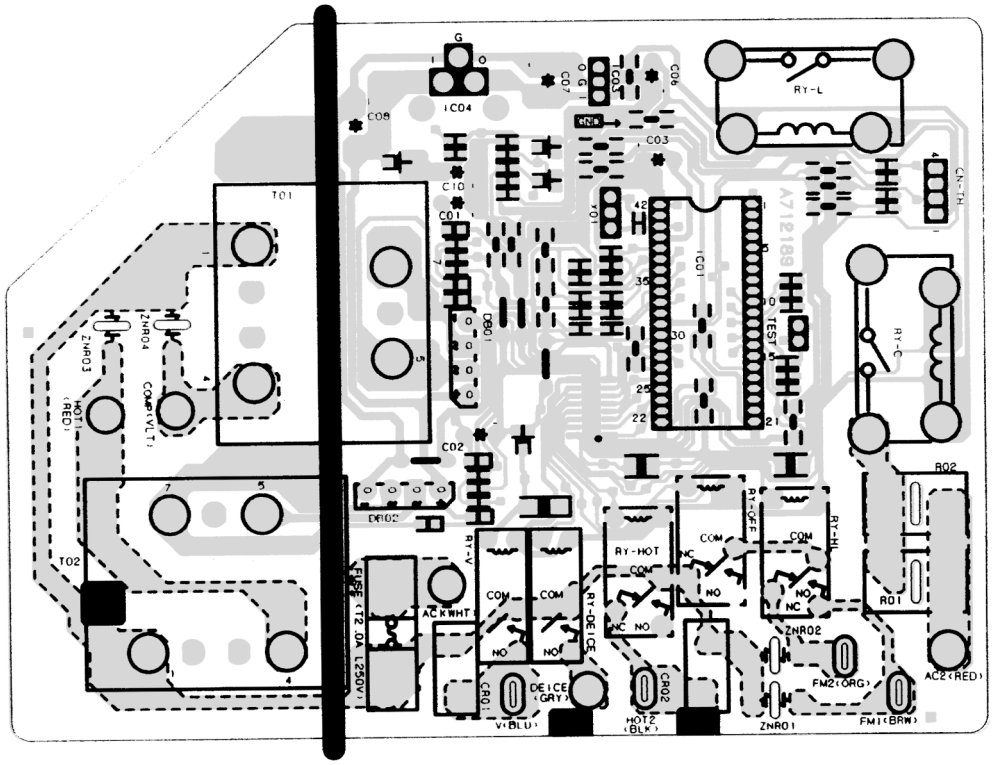


10.3. Outdoor Unit (Main Printed Circuit Board)

TOP VIEW

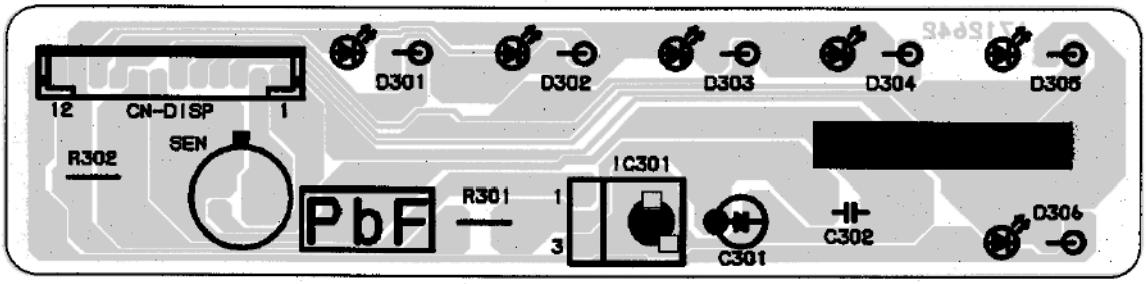


BOTTOM VIEW

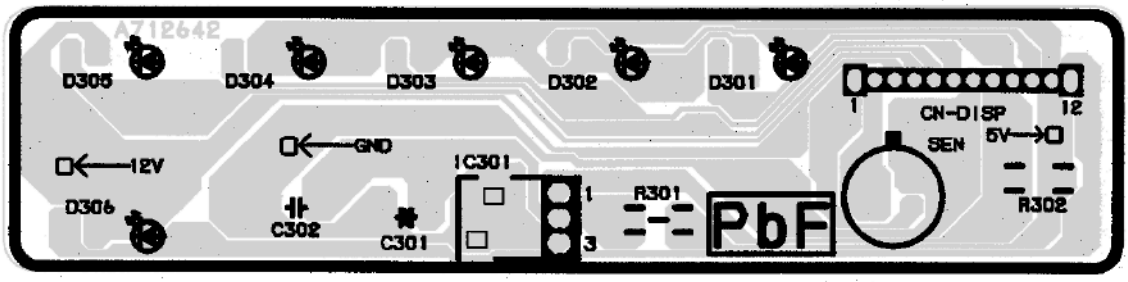


10.4. Indicator panel

TOP VIEW



BOTTOM VIEW



11 Installation Instruction

SELECT THE BEST LOCATION

INDOOR UNIT

- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Recommended installation height for indoor unit shall be at least 2.5 m.

OUTDOOR UNIT

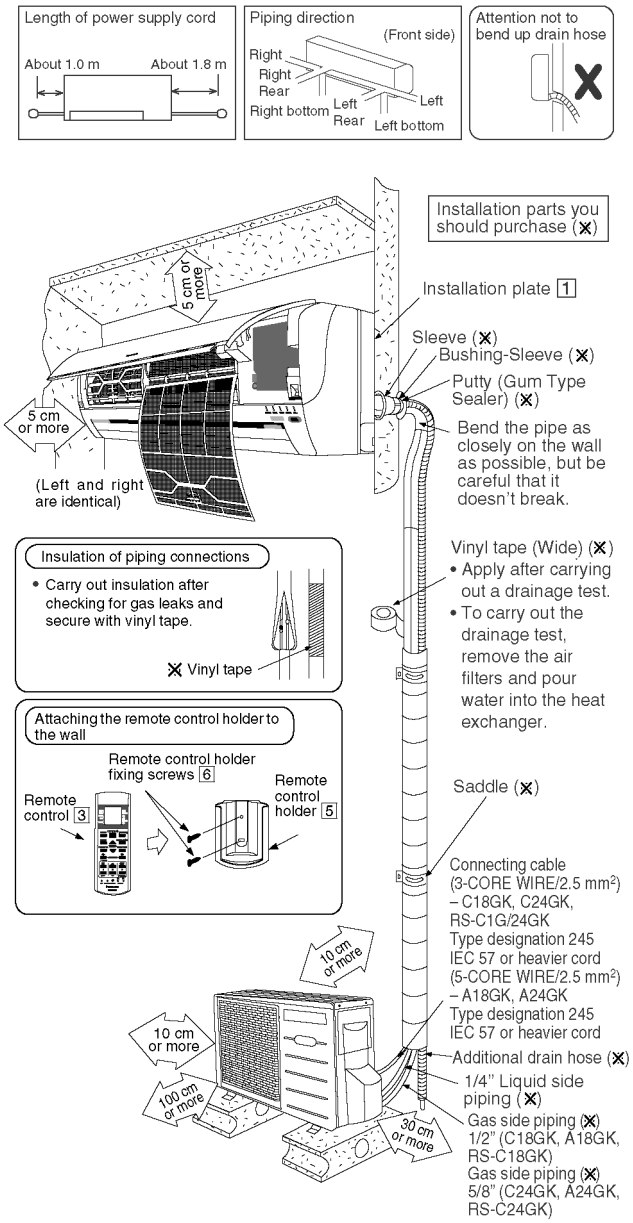
- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If piping length is over 7.5m, additional refrigerant should be added as shown in the table.

Model	Piping size		Rate Length (m)	Max. Elevation (m)	Min. Piping Length (m	Max. Piping Length (m)	Additional Refrigeration (g/m)
	Gas	Liquid					
C18GK, RS-C18GK	1/2”	1/4”	5	20	3	25	20
C24GK, RS-C24GK	5/8”	1/4”	5	20	3	25	30
A18GK	1/2”	1/4”	5	20	3	25	20
A24GK	5/8”	1/4”	5	20	3	25	30

Example: For A24GK

If the unit is installed at a 10m distance, the quantity of additional refrigerant should be 75g....(10 - 7.5)m x 30g/m =75g

Indoor/Outdoor Unit Installation Diagram

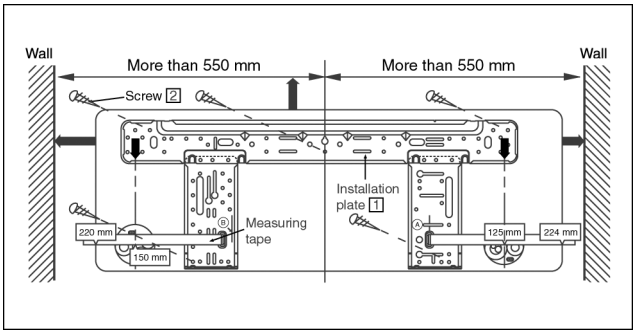


• This illustration is for explanation purposes only. The indoor unit will actually face a different way.

11.1. Indoor Unit

11.1.1. HOW TO FIX INSTALLATION PLATE

The mounting wall is strong and solid enough to prevent it from the vibration.



The centre of installation plate should be at more than 550 mm at right and left of the wall.
The distance from installation plate edge to ceiling should more than 67 mm.
From installation plate left edge to unit's left side is 47 mm.
From installation plate right edge to unit's right is 73 mm.

Ⓑ : For left side piping, piping connection for liquid should be about 126 mm from this line.
: For left side piping, piping connection about 174 mm from this line.
: For left side piping, piping connection about 984 mm from this line.

1. Mount the installation plate on the wall with 5 screws or more.
   (If mounting the unit on the concrete wall, consider using anchor bolts.)
   • Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge

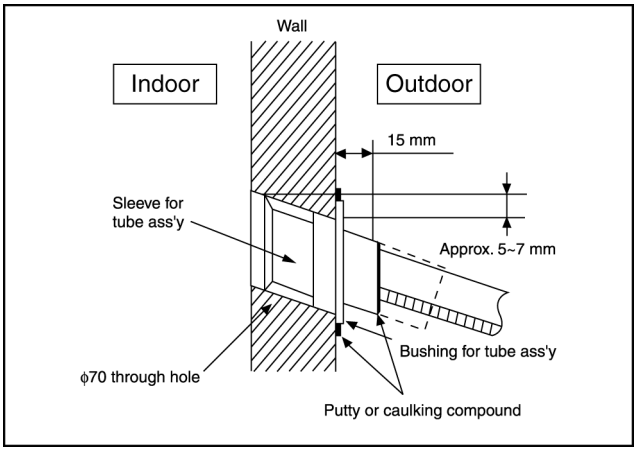
2. Drill the piping plate hole with ø70 mm hole-core drill.
   • Line according to the arrows marked on the lower left and right side of the installation plate. The meeting point of the extended line is the centre of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole centre is obtained by measuring the distance namely 150 mm and 125 mm for left and right hole respectively.
   • Drill the piping hole at either the right or the left and the hole should be slightly slanted to the outdoor side.

11.1.2. TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

1. Insert the piping sleeve to the hole.
2. Fix the bushing to the sleeve.
3. Cut the sleeve until it extrudes about 15 mm from the wall.

Caution
When the wall is hollow, please be sure to use the sleeve for tube ass'y to prevent dangers caused by mice biting the connecting cable.

4. Finish by sealing the sleeve with putty or caulking compound at the final stage.



11.1.3. INDOOR UNIT INSTALLATION

1. **For the right rear piping**

Pull out the Indoor piping
↓
Install the Indoor Unit
↓
Secure the Indoor Unit
↓
Insert the connecting cable

2. **For the right and right bottom piping**

Pull out the Indoor piping
↓
Install the Indoor Unit
↓
Insert the connecting cable
↓
Secure the Indoor Unit

3. **For the embedded piping**

Replace the drain hose

↓

Bend the embedded piping

↓

- Use a spring bender or equivalent to bend the piping so that the piping is not crushed.

Install the Indoor Unit

↓

Cut and flare the embedded piping

↓

- When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.
- Refer to the section "Cutting and flaring the piping".

Pull the connecting cable into Indoor Unit

↓

- The inside and outside connecting cable can be connected without removing the front grille.

Connect the piping

↓

- Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)

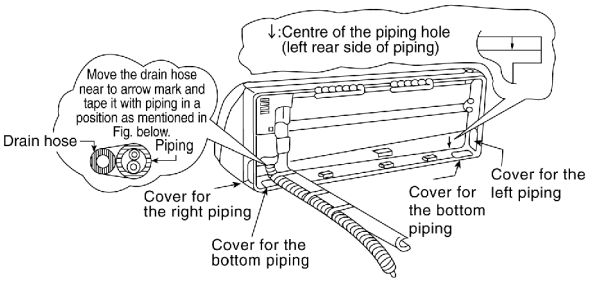
Insulate and finish the piping

↓

- Please refer to "Piping and finishing" column of outdoor section and "Insulation of piping connections" column as mentioned in Indoor/ Outdoor Unit Installation.

Secure the Indoor Unit

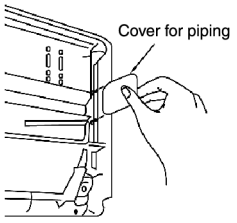
Pull out the piping and drain hose



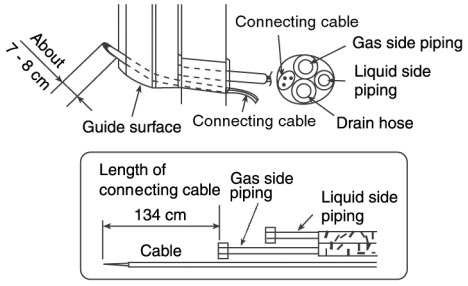
How to keep the cover

In case of the cover is cut, keep the cover at the rear of chassis as shown in the illustration for future reinstallation.

(Left, right and 2 bottom covers for piping.)

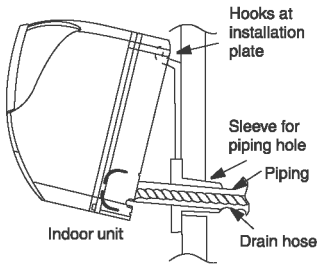


Insert the connecting cable



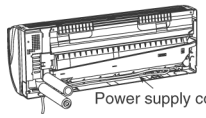
Install the Indoor Unit

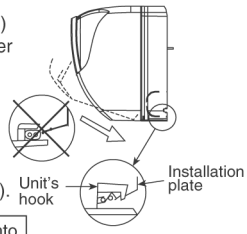
Hook the indoor unit onto the upper portion of installation plate (Engage the indoor unit with the upper edge of the installation plate). Ensure the hooks are properly seated on the installation plate by moving in left and right.



Secure the Indoor Unit

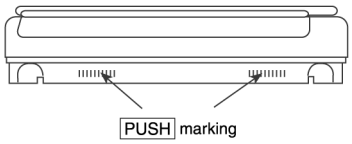
1. Power supply cord arrangement.
   Excess length of power supply cord should bearranged behind the chassis at piping keeping areaas shown in the diagram without tying up in abundle. Ensure that the power supply cord is not clamped inbetween unit's hook (2 position) and installation plate.Ensure that the power supply cord is not stretchedbetween chassis back and installation plate. It maycreate squeak sound.
2. Press the lower left and right side of the unit against the installation plate until hooks engages with their slot (sound click).





Warning: Do not tie up power supply cord into a bundle by band. It may generate heat and cause fire.

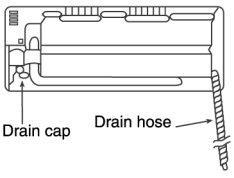
To take out the unit, push the PUSH marking at the bottom unit, and pull it slightly towards you to disengage the hooks from the unit.

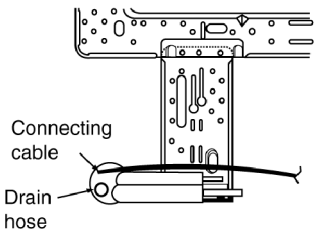


(This can be used for left rear piping and left bottom piping also.)

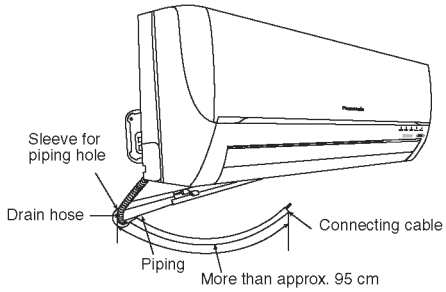
Exchange the drain hose and the cap

Rear view for left piping installation

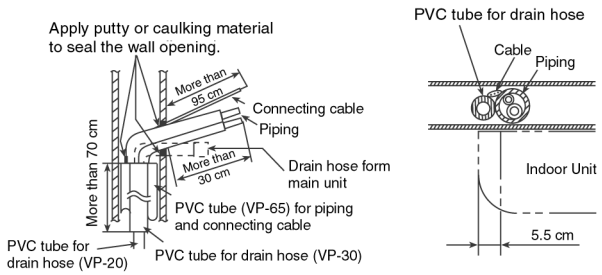




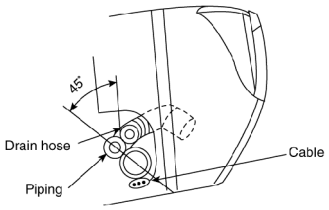
Adjust the piping slightly downwards.



• How to pull the piping and drain hose out, in case of the embedded piping.



• In case of left piping how to insert the connecting cable and drain hose.



(For the right piping, follow the same procedure)

11.1.4. CONNECT THE CABLE TO THE INDOOR UNIT

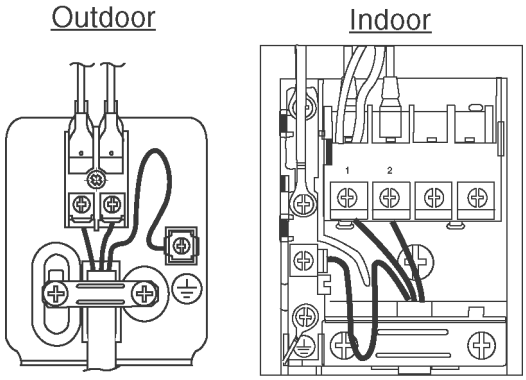
1. The inside and outside connecting cable can be connected without removing the front grille.
2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 × 2.5 mm^2 (C18GK, C24GK, RS/RU-C18/24GK) or 5 × 2.5 mm^2 (A18GK, A24GK) flexible cord, type designation 245 IEC 57 or heavier cord.
   - Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
   - Earth lead wire shall be longer than the other lead wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the anchorage.
   - Secure the cable onto the control board with the holder (clamper).

CS/CU-C18GK, C24GK, RS-C18/24GK

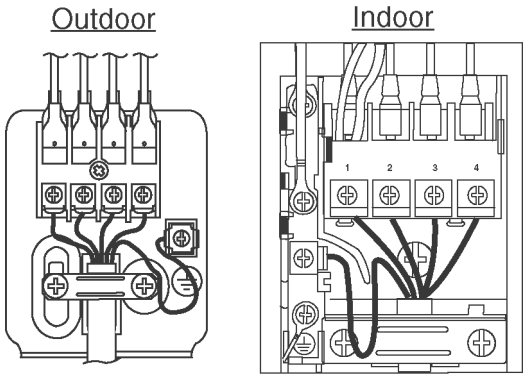
Terminals on the indoor unit	1	2	⏚
Colour of wires			
Terminals on the outdoor unit	1	2	⏚

CS/CU-A18GK, A24GK

Terminals on the indoor unit	1	2	3	4	⏚
Colour of wires					
Terminals on the outdoor unit	1	2	3	4	⏚



C18GK, C24GK, RS-C18/24GK

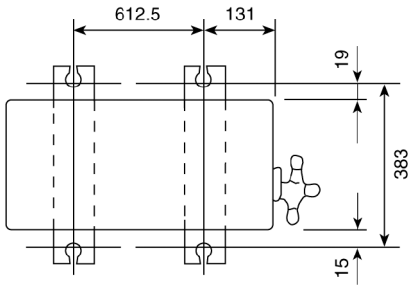


A18GK, A24GK

11.2. Outdoor Unit

11.2.1. INSTALL THE OUTDOOR UNIT

- After selecting the best location, start installation according to Indoor/Outdoor Unit Installation Diagram.
  1. Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (ø10 mm).
  2. When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.

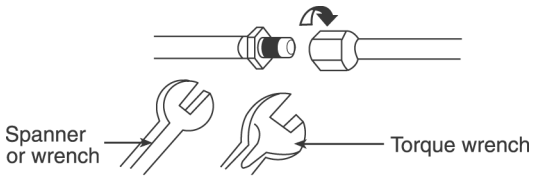


11.2.2. CONNECTING THE PIPING

Connecting The Piping To Indoor Unit

Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe.

(In case of using long piping)



Connect the piping

- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

MODEL	Piping size (Torque)	
	Gas	Liquid
C18GK, A18GK, RS-C18GK	1/2" (55 N•m)	1/4" (18 N•m)
C24GK, A24GK, RS-C24GK	5/8" (65 N•m)	1/4" (18 N•m)

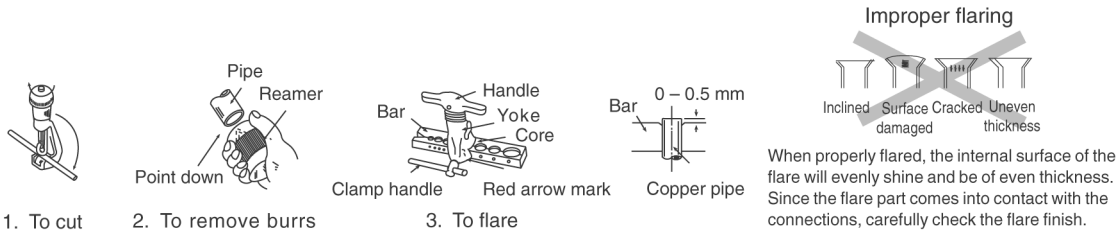
Connect The Piping to Outdoor Unit

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (located at valve) onto the copper pipe.

Align center of piping to valves and then tighten with torque wrench to the specified torque as stated in the table.

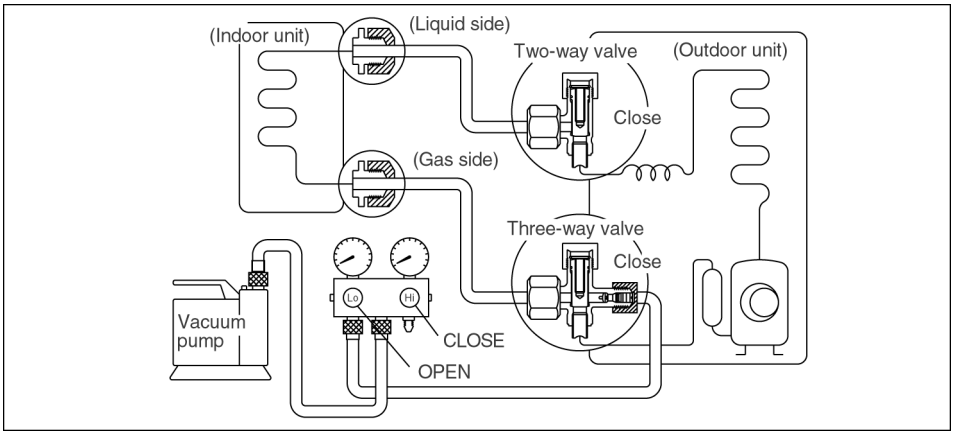
Cutting and Flaring the Piping

1. Please cut using pipe cutter and then remove the burrs.
2. Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
3. Please make flare after inserting the flare nut onto the copper pipes.



11.2.3. EVACUATION OF THE EQUIPMENT

WHEN INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.



1. Connect a charging hose with a push pin to the Low and High side of a charging set and the service port of the 3-way valve.
   • Be sure to connect the end of the charging hose with the push pin to the service port.
2. Connect the center hose of the charging set to a vacuum pump with check valve, or vacuum pump and vacuum pump adaptor.
3. Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.
4. Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
   Note: BE SURE TO FOLLOW THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
5. Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
6. Tighten the service port caps of the 3-way valve at torque of 18 N.m with a torque wrench.
7. Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to “OPEN” using a hexagonal wrench (4 mm).
8. Mount valve caps onto the 2-way valve and the 3-way valve.
   • Be sure to check for gas leakage.

CAUTION
- If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step 3 above take the following measure:
- If the leak stops when the piping connections are tightened further, continue working from step 3.
- If the leak does not stop when the connections are retightened, repair the location of leak.
- Do not release refrigerant during piping work for installation and reinstallation. Take care of the liquid refrigerant, it may cause frostbite.

11.2.4. CONNECT THE CABLE TO THE OUTDOOR UNIT

1. Remove the control board cover from the unit by loosening the screw.
2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 × 2.5 mm^2 (C18GK, C24GK, RS/RU-C18/24GK) or 5 × 2.5 mm^2 (A18GK, A24GK) flexible cord, type designation 245 IEC 57 or heavier cord.

CS/CU-C18GK, C24GK, RS/RU-C18/24GK

Terminals on the indoor unit	1	2	⏚
Colour of wires			
Terminals on the outdoor unit	1	2	⏚

CS/CU-A18GK, A24GK

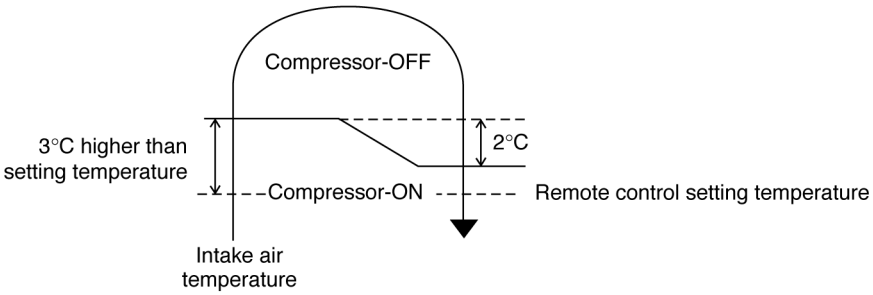
Terminals on the indoor unit	1	2	3	4	⏚
Colour of wires					
Terminals on the outdoor unit	1	2	3	4	⏚

3. Secure the cable onto the control board with the holder (clamper).
4. Attach the control board cover to the original position with the screw.

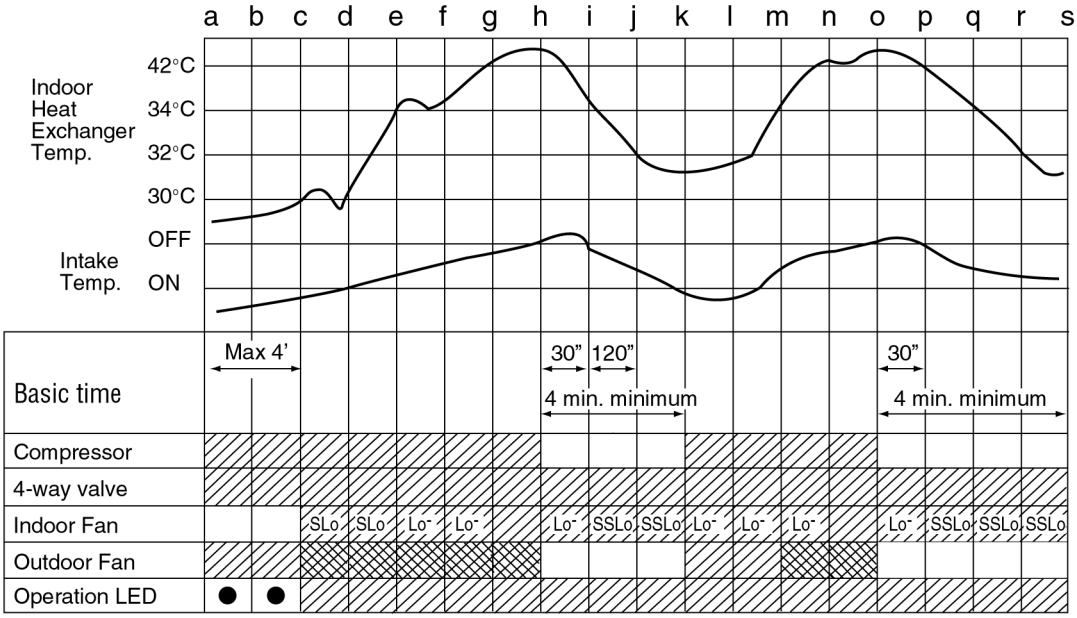
12 Operation and Control

12.1. Heating Operation

- Heating operation can be set using remote control.
- This operation is applied to warm the room temperature reaches the setting temperature set on the remote control.
- The remote control setting temperature, which takes the reading of intake air temperature sensor, can be adjusted from 16°C to 30°C.
- During heating operation, the compressor will stop running and restart as shown in below figure.



12.1.1. Heating Operation Time Diagram



<Description of operation>

a – c : Hot start (Indoor Fan = OFF)

c – d : Hot start (Indoor Fan = SLo)

h – k, o – s : Anti Cold Draft Control

● : Blinking

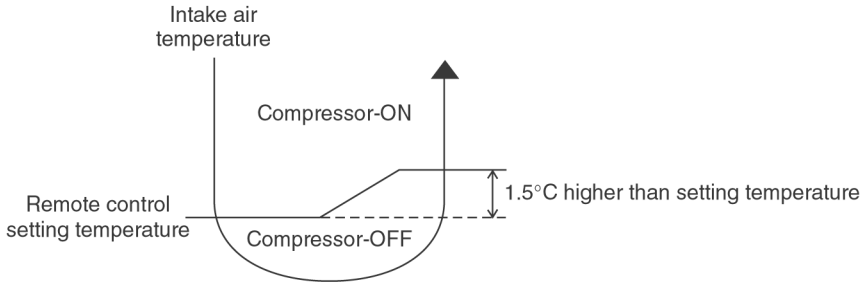
Operation

Stop

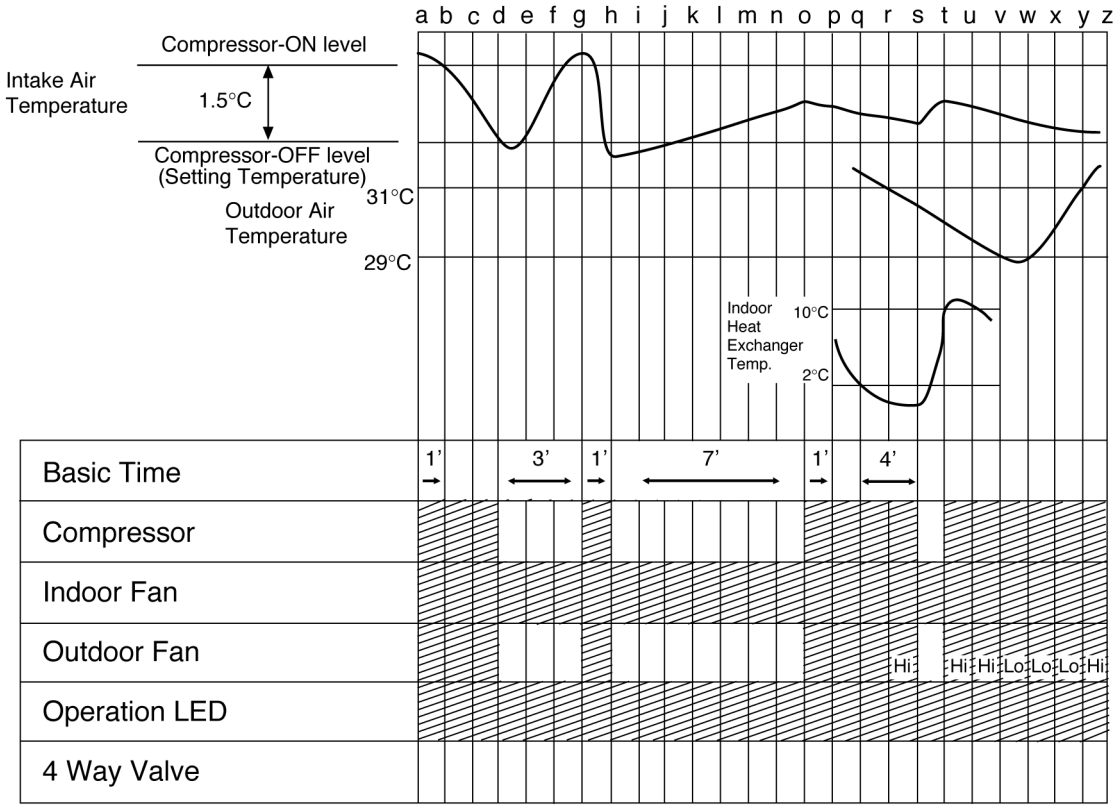
Operation or stop

12.2. Cooling Operation

- Cooling operation can be set using remote control.
- This operation is applied to cool down the room temperature reaches the setting temperature set on the remote control.
- The remote control setting temperature, which takes the reading of intake air temperature sensor, can be adjusted from 16°C to 30°C.
- During cooling operation, the compressor will stop running and restart as shown in below figure.



12.2.1. Cooling Operation Time Diagram

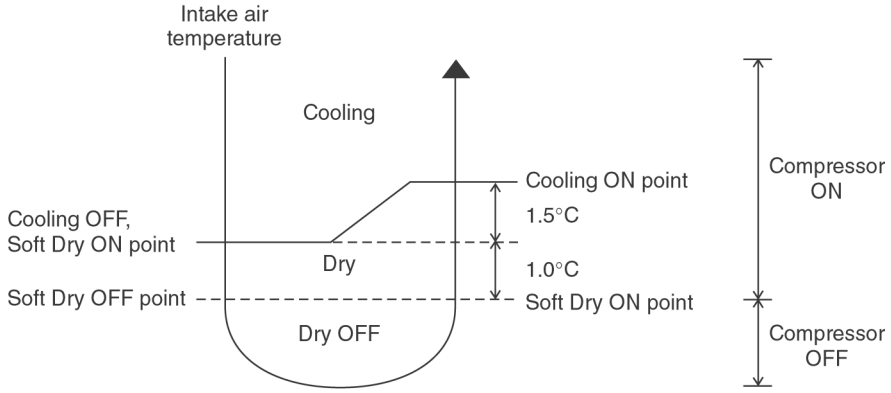


<Description of operation>
d – g : Time Delay Safety Control (waiting for 3 minutes)
g – h : 60 sec. Forced Operation
h – o : 7 min. Time Save Control
q – t : Anti Freezing Control
v – y : Outdoor Fan Control

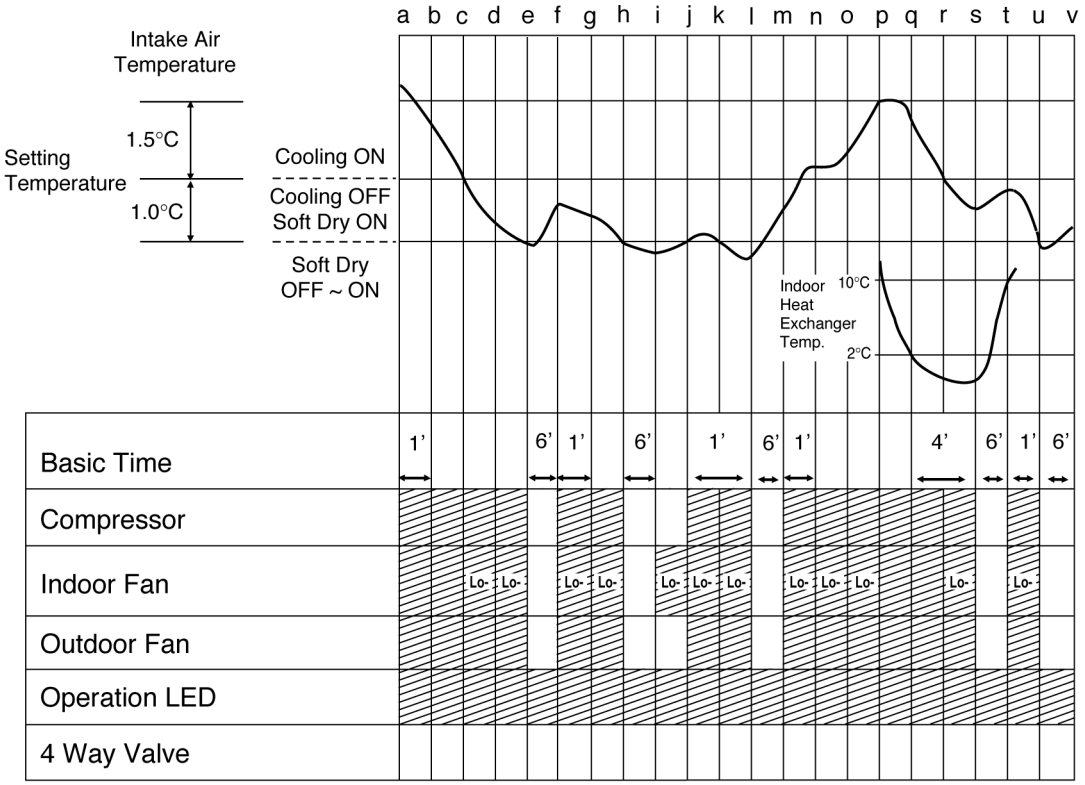
Operation
Stop

12.3. Soft Dry Operation

- Soft Dry operation can be set using remote control.
- Soft Dry operation is applied to dehumidify and to perform a gentle cooling to the room.
- This operation starts when the intake air temperature sensor reaches the setting temperature on the remote control.
- When operation begins, Soft Dry will be switched “ON” for a maximum 10 minutes, then Soft Dry operation will be turned “OFF” for a minimum 6 minutes. After that, the Soft Dry operation will be “ON” and “OFF” based on the setting temperature as shown in below figure.
- However after 3 minutes of compressor off, during Soft Dry “OFF” (within 6 minutes Soft Dry restart control), the indoor unit will start to operate at normal Cooling mode if the intake temperature is higher than Cooling “ON” point.



12.3.1. Soft Dry Operation Time Diagram

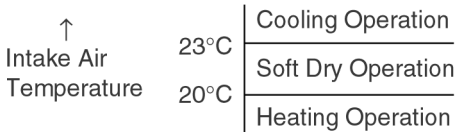


<Description of operation>
a – c, p~r : Cooling Operation
c – p : Soft Dry Operation
e – f : Soft Dry OFF
j – l : 60 sec. Forced Operation
q – t : Anti Freezing Control

Operation
Stop

12.4. Automatic Operation

- Automatic operation can be set using remote control.
- This operation starts to operate with indoor fan at SLo speed for 25 seconds to judge the intake air temperature.
- After judged the temperature, the operation mode is determined by referring to the below standard.



- Then, the unit start to operate at determined operation mode, until it is switched off using remote control, with the setting temperature as shown in below table.

	Setting Temperature (Standard)
Cooling Operation	25°C
Soft Dry Operation	22°C
Heating Operation	21°C

- Operation mode will be determine again for judgement after 1 hour of operation, if the room temperature reaches to set temperature and compressor off time is over 7 minutes 30 seconds continuously.
  * The present operation mode will be continued, if the room temperature does not reach to set temperature (Compressor keeps running) eventhough after 1 hour from automatic operation mode started.

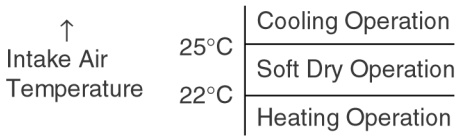
Standard for Determining Operation Mode
2nd Judgement onwards

Present Mode	Judgement	Next Mode		
		Cooling	Soft Dry	Heating
Cooling	23°C: Cooling / Heating	O (Judgement: 23°C & Above)	Not Applicable	O (Judgement: Below 23°C)
Soft Dry	20°C: Soft Dry / Heating	Not Applicable	O (Judgement: 20°C & Above)	O (Judgement: Below 20°C)
Heating	25°C: Cooling / Heating	O (Judgement: 25°C & Above)	Not Applicable	O (Judgement: Below 25°C)

- Automatic Set Temperature
  For each operation, set temperature will automatically set as shown below.
- The setting temperature for all the operations can be changed one level up or one level down from the standard temperature as shown in below table by pressing on the temperature up or temperature down button at remote control.

Operation	Hi	(Standard)	Lo
	(+2°C)	(±0°C)	(-2°C)
Cooling	27°C	25°C	23°C
Soft Dry	24°C	22°C	20°C
Heating	23°C	21°C	19°C

• The operation mode judging temperature and standard setting temperature can be increased by 2°C permanently, by open the circuit of JX03 at printed circuit board indoor unit.



	Setting Temperature (Standard)
Cooling Operation	27°C
Soft Dry Operation	24°C
Heating Operation	23°C

12.5. Operation Control

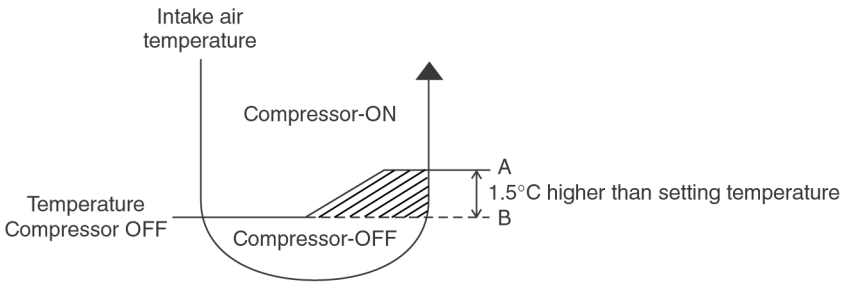
(For 11.5.1. to 11.5.7. information applies only to Cooling and Soft Dry Operation)

12.5.1. Restart Control (Time Delay Safety Control)

- When the thermo-off temperature (temperature which compressor stops to operate) is reached during:-
  - Cooling operation - the compressor stops for 3 minutes (minimum) before resume operation.
  - Soft Dry operation - the compressor stops for 6 minutes (minimum) before resume operation.
- If the operation is stopped by the remote control, the compressor will not turn on within 3 minutes from the moment operation stop, although the unit is turn on again within the period.
- This phenomenon is to balance the pressure inside the refrigerant cycle.

12.5.2. 7 Minutes Time Save Control

- The compressor will start automatically if it has stopped for 7 minutes and the intake air temperature falls between the compressor ON temperature (A) and compressor OFF temperature (B) during the period.
- This phenomenon is to reduce the built up humidity inside a room.

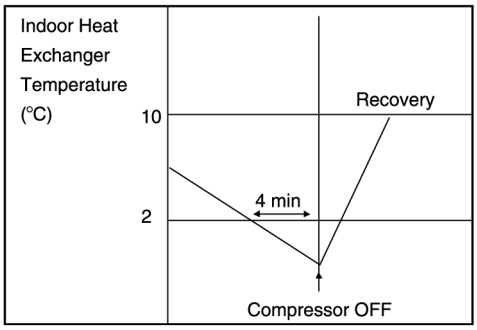


12.5.3. 60 Seconds Forced Operation

- Once the air conditioner is turned on, the compressor will not stop within 60 seconds in a normal operation although the intake air temperature has reached the thermo-off temperature. However, force stop by pressing the OFF/ON operation button at the remote control is permitted.
- The reason for the compressor to force operate at minimum 60 seconds is to allow the refrigerant oil run in a full cycle and return back to the outdoor unit.

12.5.4. Freezing Prevention Control

- If the temperature of the indoor heat exchanger falls below 2°C continuously for 4 minutes or more, the compressor turns off. The fan speed setting remains the same.
- This phenomenon is to protect the indoor heat exchanger from freezing and to prevent higher volume of refrigerant in liquid form returning to the compressor.
- Compressor will restart again when the indoor heat exchanger temperature rises to 10°C (Recovery).
- Restart control (Time Delay Safety Control) will be applied in this Control if the recovery time is too short.



12.5.5. Compressor Reverse Rotation Protection Control

- If the compressor is operating continuously for 5 minutes or longer and the temperature difference between intake air and indoor heat exchanger is 2.5°C or less for continuous 2 minutes, compressor will stop and restart automatically.
- Time Delay Safety Control is activated before the compressor restart.

▲T = Intake air temperature - Indoor heat exchanger temperature

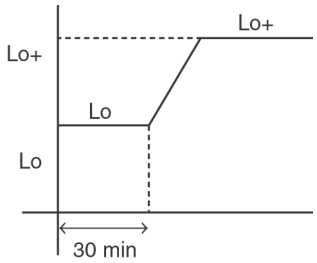
- This is to prevent compressor from rotate reversely when there is an instantaneous power failure.

12.5.6. Starting Current Control

- When the compressor, outdoor fan motor and indoor fan motor are simultaneously started, the indoor fan motor will start to operate at 1.6 second later.
- The reason of the difference is to reduce the starting current flow.

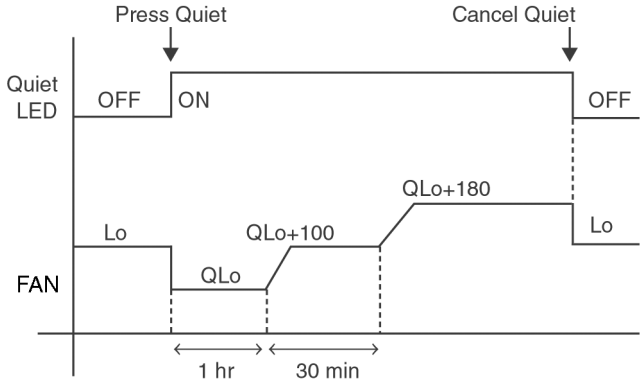
12.5.7. Anti-Dew Formation Control

- Purpose is to prevent dew formation on indoor unit air discharge area.
- When room temperature is constant (±1°C) the following conditions occur for 30 minutes continuously, anti-dew formation will activate:
  - Remote Control setting temperature is less than 25°C.
  - Compressor is on.
  - Cooling operation mode.
  - Indoor Fan motor operate at Low fan speed or QLo.
- This control is cancelled immediately when above condition is changed.
- Anti-Dew formation is control by:
  1. Increasing Air Flow Volume
     a. Lo fan speed
        Lo fan speed is changed to Lo+ after 30 min to prevent dew formation.



b. QLo fan speed

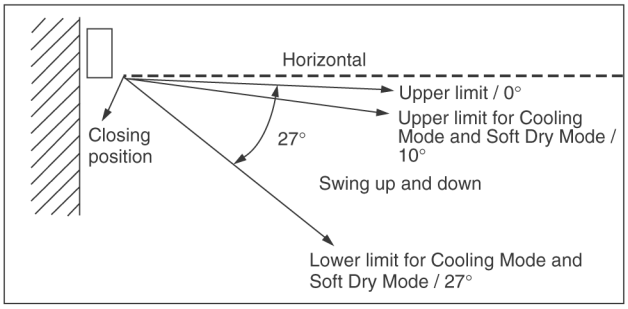
Dew formation may occurs at QLo cool, therefore QLo cool is operated only 1 hr 30 min (1 hr QLo, 30 min QLo +100 rpm). After that, it operates at QLo +180rpm (However Quiet LED remains on).



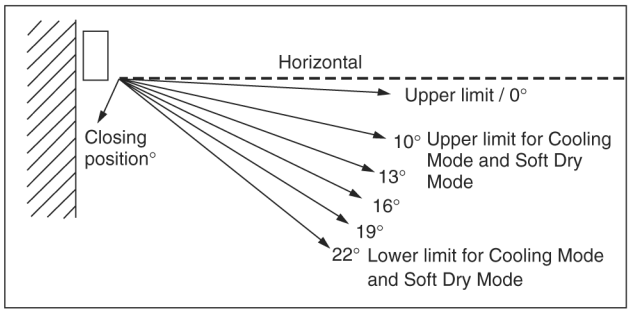
2. Norrowing

Vertical Airflow Direction

– During Anti-dew condensation prevention, Airflow Direction Auto-control angle change from 10° - 38° to 10° - 27° under Cooling and Soft Dry operation mode.



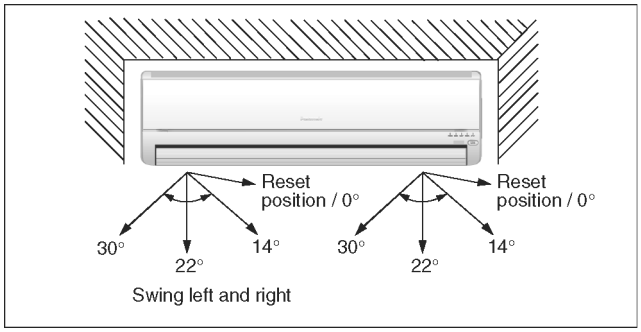
– During Anti-dew condensation prevention, Airflow Direction Manual control angle change from 10°, 14°, 18°, 22°, 27° to 10°, 13°, 16°, 19°, 22° under Cooling and Soft Dry operation mode.



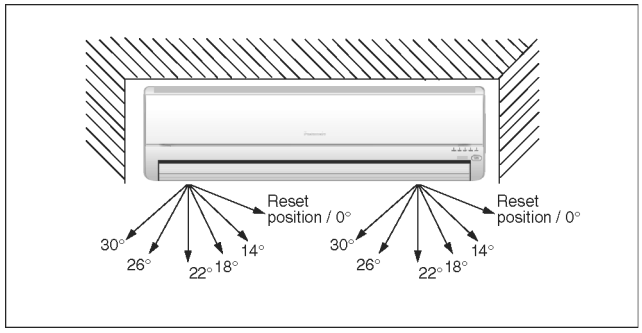
3. Narrowing

Horizontal Airflow Direction

– During Anti-dew condensation prevention, Airflow Direction Auto-control angle change form 0° - 44° to 14° - 30° under Cooling and Soft Dry operation mode.



– During Anti-dew condensation prevention, Airflow Direction Manual control angle change from 0°, 11°, 22°, 33°, 44° to 14°, 18°, 22°, 26°, 30° under Cooling and Soft Dry operation mode.



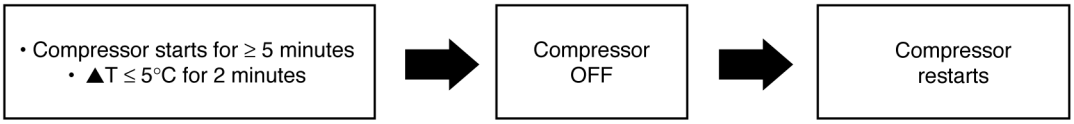
(For 11.5.8 to 11.5.14 information applies only to Heating Operation)

12.5.8. Restart Control (Time Delay Safety Control)

- When the thermo-off temperature (temperature which compressor stops to operate) is reached during:-
  - Heating operation - the compressor stops for 3 minutes (minimum) before resume operation.
- If the operation is stopped by the remote control, the compressor will not turn on within 3 minutes from the moment operation stop, although the unit is turn on again within the period.
- This phenomenon is to balance the pressure inside the refrigerant cycle.

12.5.9. Compressor Reverse Rotation Protection Control

- If the compressor is operating continuously for 5 minutes or longer and the temperature difference between indoor heat exchanger and intake air is 5°C or less for continuous 2 minutes, compressor will stop and restart automatically.
- Time Delay Safety Control is activated before the compressor restart.



▲ T = Indoor heat exchanger temperature - Intake air temperature

- This is to prevent compressor from rotate reversely when there is an instantaneous power failure.

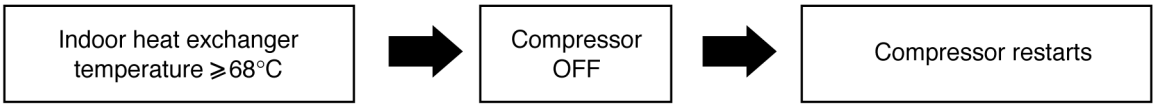
12.5.10. Overload Protection Control

- Outdoor Fan Control
  - If the temperature of the Outdoor Heat Exchanger less than -3°C, Outdoor Fan is ON. The Outdoor Fan stop, when Outdoor Heat Exchanger temperature is Tb or more according to Outdoor Air Temperature region as table below:
    The Outdoor Fan restarts when the indoor heat exchanger temperature falls to 49°C.

Outdoor Air Temperature	<10°C	⩾10°C ~ <15°C	⩾15°C ~ <20°C	⩾20°C ~ <25°C	⩾ 25°C	Outdoor Fan OFF
T_b	⩾5°C	⩾3°C	⩾ 1.5°C	⩾ 0.5°C	⩾ -0.5°C	

During starting of Heating mode and after deice, Outdoor Fan ON for 90 sec. (Hi).

- Compressor High Pressure Control
  - If the indoor heat exchanger becomes 68°C or more, the compressor will stop and restart automatically.
  - Time Delay Safety Control is activated before the compressor restart.

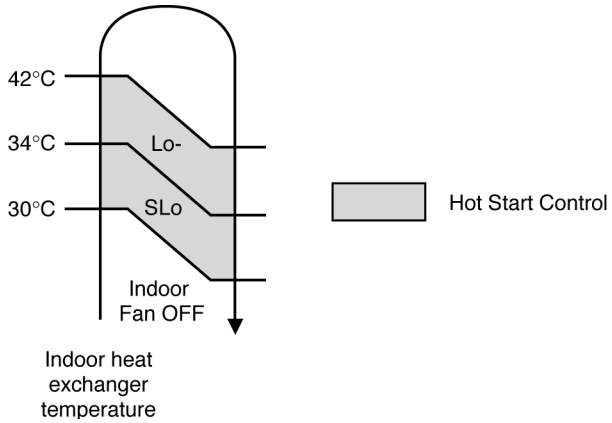


12.5.11. 4-Way Valve Control

- 4-way valve always on during Heating operation. (except deicing operation)
- When the unit is switched off by remote control during Heating operation, the 4-way valve stay at Heating position for 5 minutes.
- This is to prevent the refrigerant flow process sound for being occur.

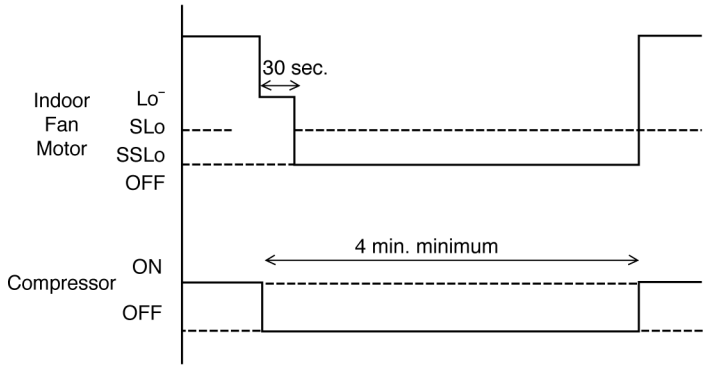
12.5.12. Hot Start Control

- Hot Start Control is to prevent cool air discharge into the room when heating operation start.
- When Heating operation starts, Indoor fan will not start until the indoor heat exchanger reaches 30°C as diagram shown.



- Hot start is completed when indoor heat exchanger rises to 42°C or operation over 4 minutes.

12.5.13. Anti Cold Draft Control



When COMP = Thermal OFF, indoor fan speed immediately changed to Lo⁻ for 30 sec., follow by SSLo speed until COMP = ON.

12.5.14. Deicing Control

Deice starts to prevent frosting at outdoor heat exchanger.

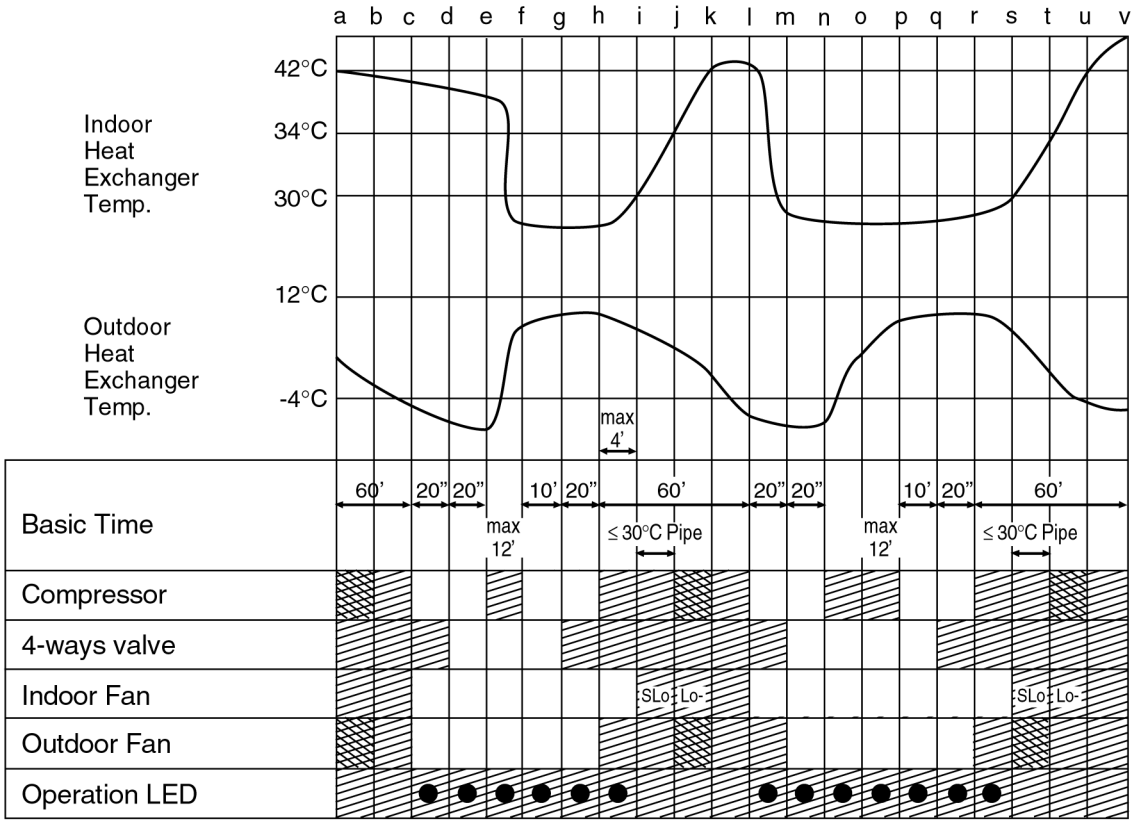
- Normal Deicing
  Deice operation detection commences in Heating operation starts or 60 minutes after previous deice operation. If the outdoor piping temperature drops to -4°C for 50 sec. continuously during compressor is in operation, deice will start.
  (There is no detection during Outdoor Fan stops.)

- Overload Deicing
  During heating operation, if the outdoor Fan OFF duration (due to overload control) is accumulated up to 60 minutes and after compressor starts for 1 minutes, deicing starts.

- Deicing ends when
  (a) 12 minutes after deicing operation starts;
  (b) The outdoor piping temperature rises to about 12°C.

- After deicing operation, compressor stops for 30 seconds and 4-way valve stays at cooling position for 10 seconds.

a) Normal Deicing Time Diagram

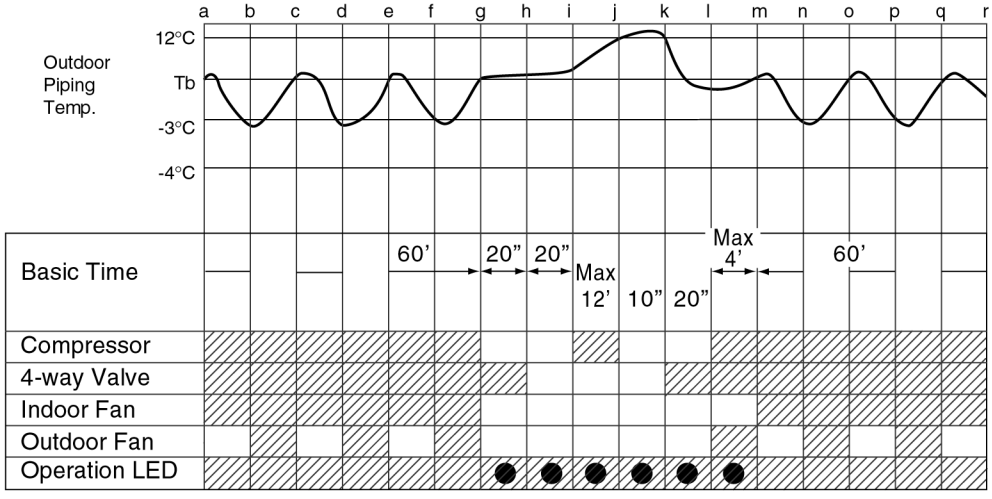


<Description of operation>

a – c : Deicing operation judging condition established
c – e, l – n : Preparation time
e – h : Deicing operation (timer detected)
h – i, r – s : Hot start (no thermo OFF)
i – j, s – t : No thermo OFF (after finished hot start)

● : Blinking
Operation
Stop
Operation or stop

(b) Overload Deicing Time Diagram



<Description of operation>

a – i : Overload control
i – l : Overload deicing
l – m : Hot start
m – r : Overload control
g – i : Preparation for overload deicing (For normal R22 control, operation for g – i is not included, applicable only for new refrigerant model).

● : Blinking
Operation
Stop

12.6. Indoor Fan Speed Control

• Indoor Fan Speed can be set using remote control.

12.6.1. Fan Speed Rotation Chart

Speed		CS-A24GKD	CS-A18GKD
Cool, Dry	Heat		
S Hi	Hi	1650	1430
Hi		1570	1400
Me	Me	1480	1320
Lo+	Lo	1380	1270
Lo		1280	1190
Lo-	Lo-	1070	980
S Lo	S Lo	830	760
	SS Lo	300	300
Q SHi	Q Hi	1550	1330
Q Hi		1470	1300
Q Me	Q Me	1380	1220
	Q Lo	1280	1170
Q Lo		1180	1090

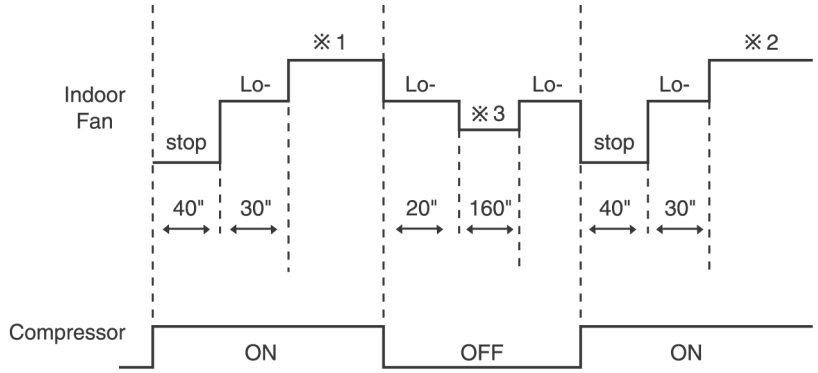
12.6.2. Automatic Fan Speed Control

• When set to Auto Fan Speed, the fan speed is adjusted between maximum and minimum setting as shown in the table.
- Fan speed rotates in the range of Hi, Me and Lo-.
- Deodorizing Control will be activated.

Tap				S Hi	Hi	Me	Lo+	Lo	Lo-	SLo	SSLo	Stop
Cooling	Normal	Manual	Hi		○							
			Me			○						
			Lo					○				
		Auto			○	○			○			○
	Powerful	Manual		○								
		Auto		○								
Soft Dry		Manual							○			○
		Auto							○			○
Heating	Normal	Manual	Hi	○					○	○	○	○
			Me			○			○	○	○	○
			Lo				○		○	○	○	○
		Auto				○	○		○	○	○	○
	Powerful	Manual		○		○	○		○	○	○	○
		Auto				○	○		○	○	○	○
Auto Mode judgement										○		
Cooling	Quiet	Manual	QHi		(Hi)-100							
			QMe			(Me)-100						
			QLo					(Lo)-100				
		Auto			(Hi)-100	(Me)-100			○			○
Soft Dry	Quiet	Manual							○			○
		Auto							○			○
Heating	Quiet	Manual	QHi	(SHi)-100					○	○	○	○
			QMe			(Me)-100			○	○	○	○
			QLo				(Lo+)-100		○	○	○	○
		Auto				(Me)-100	(Lo+)-100		○	○	○	○

• Auto Fan Speed during Cooling operation:

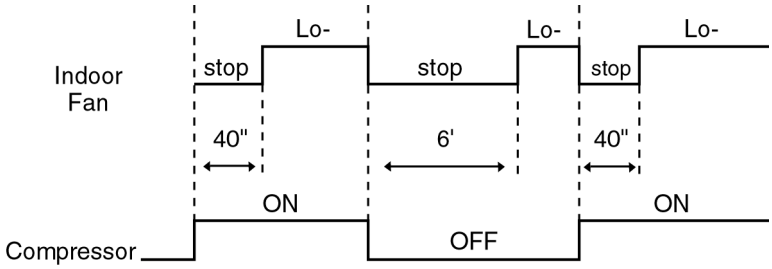
1. Indoor fan will rotate alternately between off and on as shown in below diagram.
2. At the beginning of each compressor start operation, indoor fan will increase fan speed gradually for deodorizing purpose.
3. For the first time the compressor operate, indoor fan will be switched to Hi fan speed from Lo- after 70 seconds from the start of compressor. This cause the room temperature to achieve the setting temperature quickly.
4. During compressor stop, indoor fan will operate at Lo- for the beginning 20 seconds to prevent higher volume of refrigerant in liquid form returning to the compressor.
5. After the compressor at turn off condition for 3 minutes, indoor fan will start to operate at Lo- to circulate the air in the room.
   This is to obtain the actual reading of the intake air temperature.
6. For the resume of compressor operation, indoor fan will operate at Me fan speed to provide comfort and lesser noise environment, after 70 seconds from the restart of compressor.



※ 1 Fan Speed is Hi until the compressor stops (when the room temperature reaches setting temperature).
※ 2 Fan Speed is Me after the compressor restarts.
※ 3 Variable rpm is equivalent to Lo- rpm.

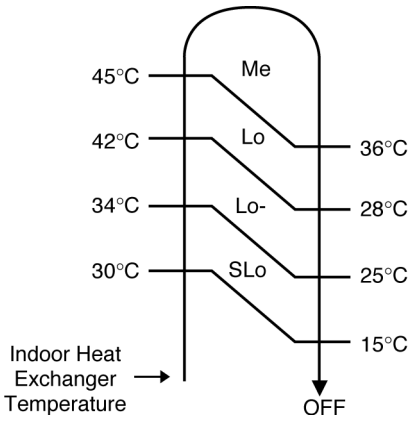
• Auto Fan Speed during Soft Dry operation:

1. Indoor fan will rotate alternately between off and Lo-.
2. At the beginning of each compressor start operation, indoor fan will increase fan speed gradually for deodorizing purpose.
3. When compressor at turn off condition for 6 minutes, indoor fan will start fan speed at Lo- to circulate the air in the room.
   This is to obtain the actual reading of intake air temperature.



• Auto Fan Speed during Heating operation.

1. Indoor fan will rotate in the range of SLo → Me according to the heat exchanger temperature.



12.6.3. Manual Fan Speed Control

- Manual fan speed adjustment can be carried out by using the Fan Speed selection button at the remote control.
- There are 3 types of fan speed settings: Lo, Me, Hi.

12.7. Outdoor Fan Speed Control

- There is 2 speed for outdoor fan motor. Outdoor fan speed can be changed to Hi or Lo according to outdoor temperature.
- For Cooling or Soft Dry operation when outdoor temperature reaches to 31°C (Hi-speed), 29°C (Lo-speed).
- For Heating operation when outdoor temperature reaches to 13.5°C (Hi-speed), 15.5°C (Lo-speed)
- When the air conditioner is turned on, the compressor and the outdoor fan will operate simultaneously.
- Likewise, both compressor and outdoor fan will stop at the same time if the unit is turned off.

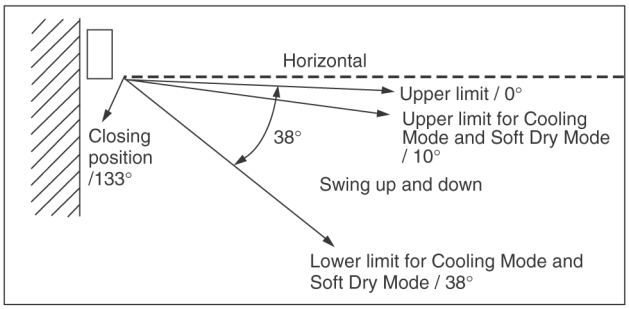
12.8. Vertical Airflow Direction Control

12.8.1. Auto Control

(e-ion, Cooling and Soft Dry Operation condition)

- When the vertical airflow direction is set to Auto using the remote control, the louver swings up and down as shown in the diagram.
- When stopped with remote control, the discharge vent is reset, and stop at the closing position.
- During Cooling operation or Soft Dry operation, indoor fan motor may stop to rotate at certain periods. At that condition, the louver will stop swinging and rest at the upper limit.

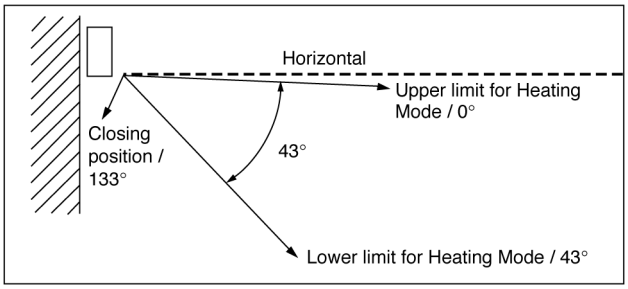
Cooling and Soft Dry Operation



(Heating Operation condition)

- When the piping air temperature reaches 38°C, the
- louver is changed from upper to lower limit. When the
- piping air temperature falls to 35°C, the louver is changed from lower to upper limit.

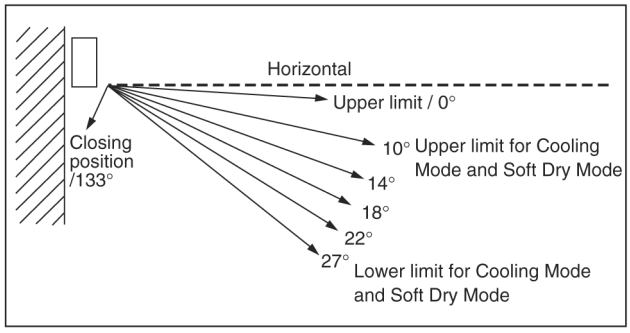
Heating Operation



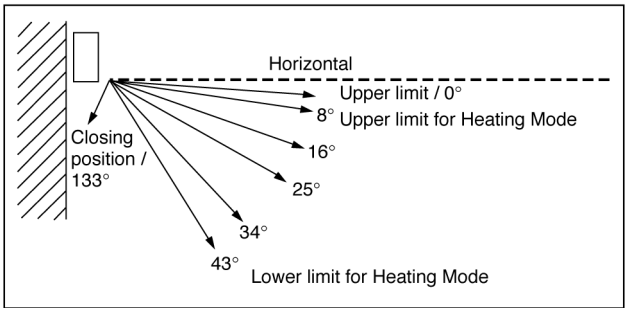
12.8.2. Manual Control

- When the vertical airflow direction is set to Manual using the remote control, the automatic airflow is released and the airflow direction louver move up and down in the range shown in the diagram.
- The louver can be adjusted by pressing the button to the desired louver position.
- When stopped with remote control, the discharge vent is reset, and stop at the closing position.

Cooling and Soft Dry Operation



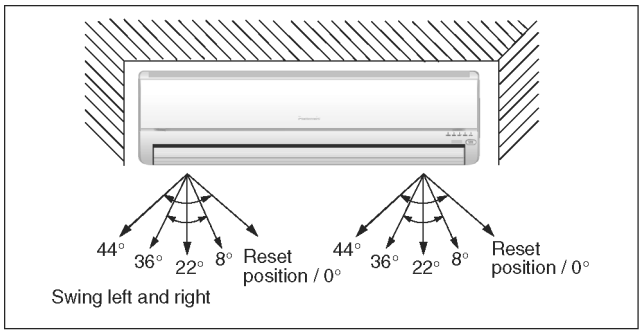
Heating Operation



12.9. Horizontal Airflow Direction Control

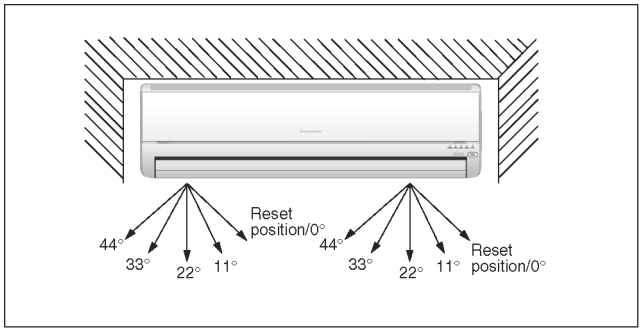
12.9.1. Auto Control

- When the horizontal airflow direction is set to Auto using the remote control, the vanes swings left and right for Cooling and Soft Dry (0°-44°), Heating (8°-36°) as shown in the diagram.
- When stopped with remote control, the discharge vane is reset, and stop at the reset position.
- During Cooling operation or Soft Dry operation, indoor fan motor may stop to rotate at certain periods. At that condition, the vane will stop swinging and rest at 22° angle.
- During Heating operation, the piping air temperature reaches 38°C, the vanes swings left and right. When the piping air temperature falls to 35°C, the vanes will stop swing and rest at 22°.



12.9.2. Manual Control

- When the horizontal airflow direction is set to Manual using the remote control, the automatic airflow is released and the airflow direction vane move left and right in the range shown in the diagram.
  The louver can be adjusted by pressing the button to the desired vane position.
- When stopped with remote control, the vanes is reset, and stopped at reset position.



12.10. Powerful Operation

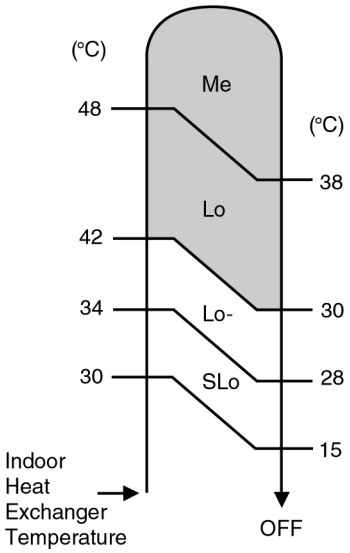
• The Powerful operation is to achieve the setting temperature quickly.

(Cooling and Soft Dry Operation condition)

• When Powerful operation is set, the setting temperature will be automatically decreased 3°C internally against the present setting temperature (Lower temperature limit: 16°C).
• This operation automatically will be running under SHi Fan Speed (Cooling).
• Vertical Airflow Direction:-
  - In “Manual” setting, the vane will automatically shift down 10° lower than previous setting.
  - In “Auto” setting, the vane will automatically swing up and down. However the lower limit will be shifted 10° downward.

(Heating Operation condition)

• When Powerful operation is set, the setting temperature will be automatically increased 3°C against the present setting temperature (Higher temperature: 30°C).
• The Fan Speed will shift as shown below:



- When the Auto Fan speed is selected, the fan speed will automatically change from SLo to Me depending to the Indoor Heat Exchanger Temperature.
- When the manual Fan Speed is selected, the fan speed will change to the fan speed setting when the Indoor Heat Exchanger Temperature reaches 42°C.

Set Fan Speed

• Vertical Airflow Direction:-
  - In “Manual” setting, the vane will automatically shift down 5° lower than previous setting.
  - In “Auto” setting, the vane will automatically shift between upper and lower limit depending on the intake air temperature as Heating Mode, Airflow Direction Auto-Control. However the upper and lower limit will be shifted 5° downward.

• Powerful operation stops when:-
  - Powerful operation has operate for 15 minutes.
  - Powerful button is pressed again.
  - Quiet button is pressed
  - Stopped by OFF/ON operation button.
  - Timer OFF activates.
  - Operating mode is changed.

12.11. Quiet Operation

• The Quiet operation is to provide quiet cooling/heating operation condition compare to normal operation.

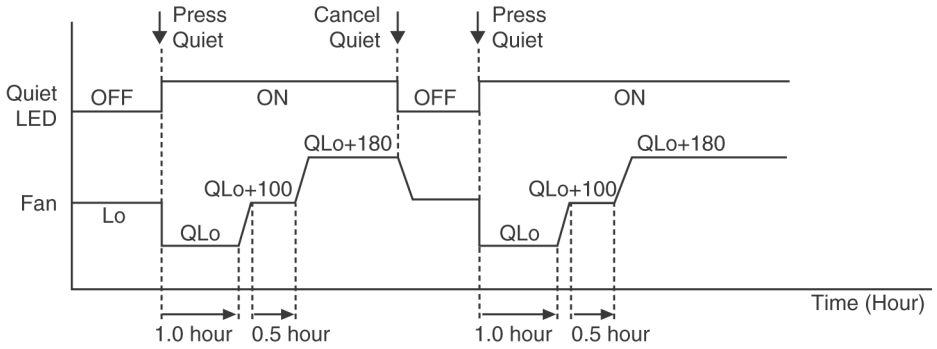
(Cooling and Soft Dry Operation condition)

• Once the Quiet Mode is set at the remote control, Quiet Mode LED illuminates. The sound level will reduce either around 2 dB(A) for Lo fan speed or 3 dB(A) for Hi/Me fan speed against the present sound level operation.

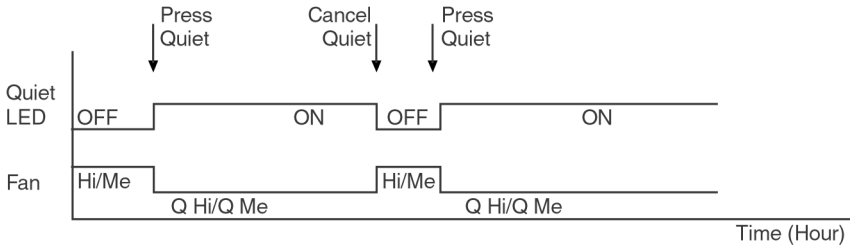
• Dew formation become severe at Quiet Lo cool, therefore Quiet Lo cool is operated only 1hr 30 min (1hr QLo, 30 min QLo + 100 rpm). After that, it goes back to QLo +180 rpm (However Quiet LED remains on).

• Manual Fan Speed:-

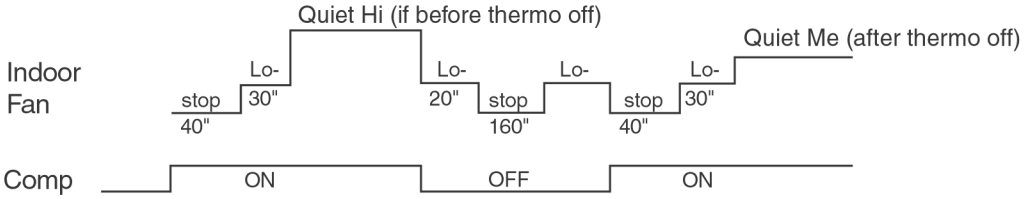
- RPM control during Lo cool



- RPM control during Hi & Me cool

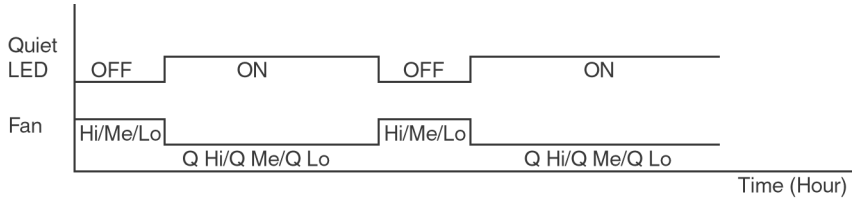


- Auto Fan Speed:-

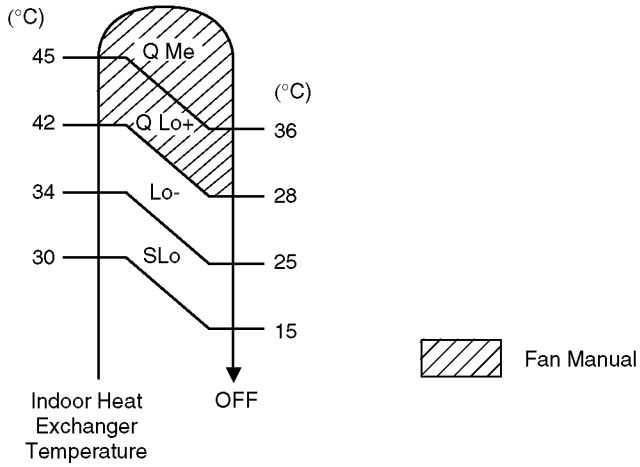


(Heating Operation condition)

- When the Quiet Mode is set at the remote control, Quiet Mode LED illuminates. The sound level will reduce either around 2 dB (Lo) or 3 dB (Hi, Me), against the present sound level operation.
- Quiet setting of fan speed rpm refer to Indoor Fan Speed Control.
- Manual Fan Speed:-
  - Rpm control during Lo, Me & Hi Cool



- Auto Fan Speed:-
  - Rpm control depends on the piping air temperature sensor of Indoor heat exchanger



- Quiet operation stops when:-
  - Quiet/Powerful button is pressed again.
  - Stopped by OFF/ON operation button.
  - Timer OFF activates.

12.12. Timer Control

12.12.1. ON Timer

- When the ON Timer is set by using the remote control, the unit will start to operate slightly before the set time, so that the room will reach nearly to the set temperature by the set time.
- For Cooling and Soft Dry operation, the operation will start 15 minutes before the set time.
- For Heating operation, the operation will start 30 minutes before the set time.
- For Automatic operation, the indoor fan will operate at SLo speed for 25 seconds, 30 minutes before the set time to detect the intake air temperature to determine the operation mode. The operation indication lamp will blink at this time.

12.12.2. OFF Timer

- When the OFF Timer is set by using the remote control, the unit will stop operate according to the desired setting.

Notes

1. By pressing ON/OFF operation button, the ON Timer or OFF Timer setting will not be cancelled.
2. To cancel the previous timer setting, press CANCEL button.
3. To activate the previous timer setting, press SET button.
4. If main power supply is switched off, the Timer setting will be cancelled.

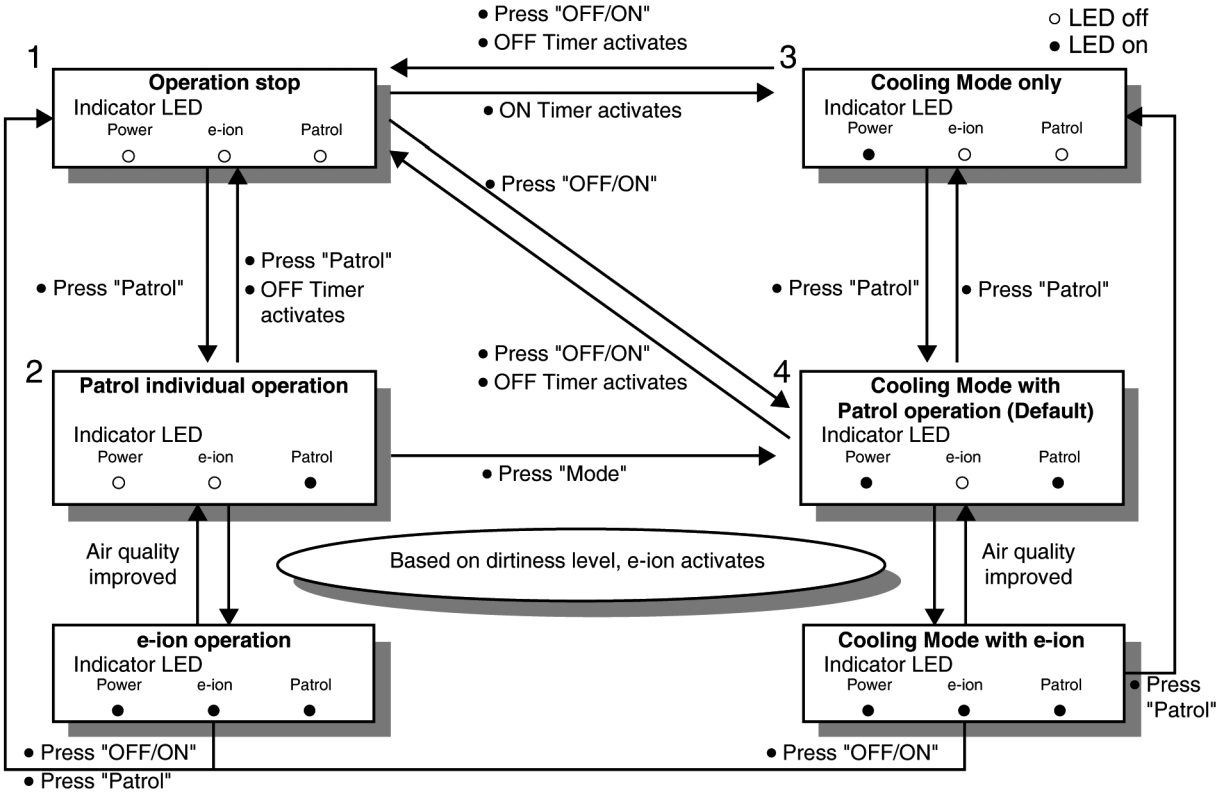
12.13. Random Auto Restart Control

- If there is a power failure during operation, the air conditioner will automatically restart after 3 to 4 minutes when the power is resumed.
- It will start with previous operation mode and airflow direction.
- If there are more than one air conditioner unit in operation and power failure occur, restart time for each unit to operate will be decided randomly using 4 parameters:- intake air temperature, setting temperature, fan speed and air swing louver position.
- This Random Auto Restart Control is not available when Timer is set.
- This control can be omitted by open the circuit of JX02. (Refer printed circuit board indoor unit)

12.14. Remote Control Signal Receiving Sound

- Long beep sound will be heard when:
  - Stopping the air conditioner using ON/OFF switch.
- Short beep sound will be heard for others setting.

12.15. Patrol Operation



A. Purpose

To monitor air dirtiness level by using gas sensor and activates e-ion operation whenever air is dirty.

B. Control Condition

a. Patrol operation start condition

- When the unit operation is started with “OFF/ON” button.
- When the unit stops, “Patrol” button is pressed, Patrol individual operation will start.
- During cooling only operation, “Patrol” button is pressed.

b. Patrol operation stop condition

When any of the following condition is fulfilled:

- When “OFF/ON” button is pressed.
- During any operation with Patrol, "Patrol" button is pressed again.
- When “e-ion” button is pressed.
- When OFF Timer activates.

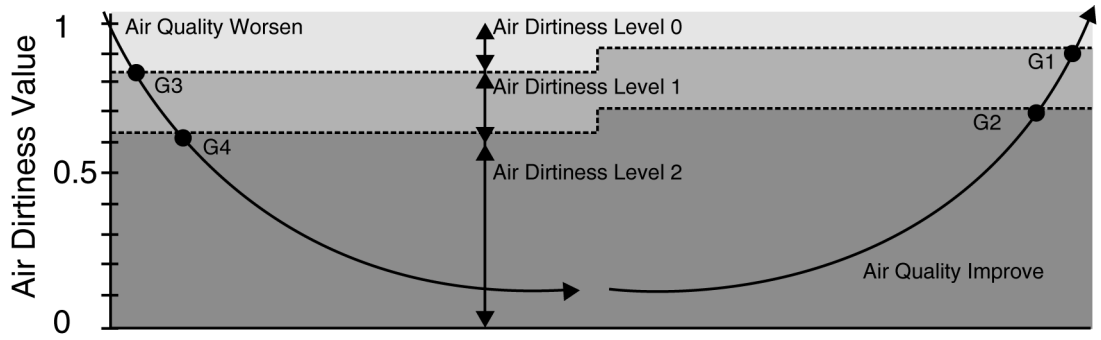
c. Patrol operation disable

- To disable the Patrol Operation during unit start (default) with “OFF/ON” button, press “Patrol” button and hold for 5 seconds, then release.
- To disable the Patrol Operation, press “Patrol” button and hold for 15 seconds, then release.

C. Control Content

a. Gas Sensor Control

- First 2 minutes from Patrol function activates is stabilization time, during stabilization time, no air dirtiness level is monitored. The Air Dirtiness level is set to level 2.
- After that, gas sensor starts to record the resistance value at fixed interval. Higher resistance value indicates cleaner air.
- The air dirtiness level is monitored by comparing the current resistance value with maximum resistance value from time to time to get the Air Dirtiness Value.
- There are 3 air dirtiness level, based on the Air Dirtiness Value:
  - Air Dirtiness level 0: Clean
  - Air Dirtiness level 1: Moderate
  - Air Dirtiness level 2: Contaminated



- Dirtiness level sensitivity adjustment.

  It is possible to change the gas sensor sensitivity, where the Threshold value (G1 ~ G4) will be shifted accordingly:

  1. Press and release “SET” button.
  2. Press “Timer increment” / “Timer decrement” button to select sensitivity. (Low <–> Standard (Default) <–> High)
  3. Confirm setting by pressing “Timer Set” button. LCD returned to original display after 2 seconds.
  4. LCD returned to original display if remote control does not operate for 30 seconds.

b. e-ion Control

- When dirtiness level is 1 or 2, e-ion operation starts.
- If dirtiness level improves from level 2 to level 1, the unit carries out level change after 60 seconds.
- When dirtiness level returns to level 0 continuously for 10 minutes or more, e-ion operation stops.

Dirtiness Level Shift

- For Auto Fan Speed, the fan speed increased based on dirtiness level:

	Dirtiness level	rpm shift	
		Patrol individual operation	Combine operation
e-ion ON	Dirtiness level 0	No change	No change
	Dirtiness level 1	+ 20	+ 20
	Dirtiness level 2	+ 40	+ 40

c. Indoor Fan Control

- During any operation mode combines with Patrol operation, fan speed follows respective operation mode.
- During Patrol individual operation if e-ion starts, only Auto Fan Speed and no Powerful operation is allowed. Even if “Fan Speed” button is pressed, no signal is sent to air conditioner, and no change on LCD display.
- During Patrol individual operation if e-ion stops, Indoor Fan stop operation.

d. Airflow direction (Horizontal, Vertical) Control

- During any operation mode combines with Patrol operation, air flow direction follows respective operation mode.
- During Patrol individual operation if e-ion starts, only Auto Air Swing is allowed. Even if “Air Swing” button is pressed, no signal is sent to air conditioner, and no change on LCD display.
- During Patrol individual operation if e-ion stops, Airflow direction louver closed.

e. Indicator
- When Patrol operation starts, Patrol Sensor indicator ON.
- When e-ion operation starts based on dirtiness level, e-ion indicator ON.

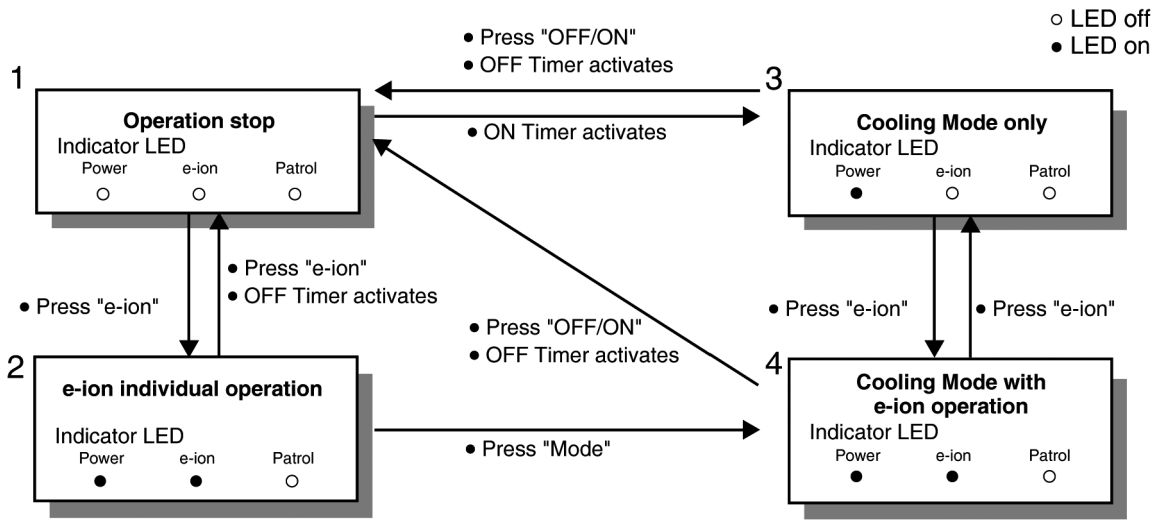
f. Remote Control Receiving Sound

- Normal Operation → Patrol Mode : Beep
- Patrol Mode → Stop : Long Beep
- Patrol Mode → Normal Operation : Beep
- Stop → Patrol : Beep

g. Timer Control
- When ON timer activates when unit stops, previous operation resumes without Patrol operation.
- When ON timer activates during any operation, no change and carry on current operation.
- When OFF timer activates during any operation, all operation stops.

h. Power failure
- During Patrol individual operation, if power failure occurs, after power resumes, Patrol individual operation resumes immediately.
- During combination operation, if power failure occurs, after power resumes combination operation resume immediately.

12.16. e-ion Operation



A. Purpose

This operation provides clean air by producing negative ions to attract dust captured at the positively charged e-ion filters.

B. Control Condition

a. e-ion operation start condition
- During unit running at any operation mode, if “e-ion” button is pressed, combination operation (operation mode + e-ion operation) starts.
- During unit is OFF, if “e-ion” button is pressed, e-ion individual operation starts.

b. e-ion operation stop condition
- When “OFF/ON” button is pressed to stop the operation.
- When “e-ion” button is pressed again.
- When “Patrol” button is pressed.
- When OFF Timer activates.

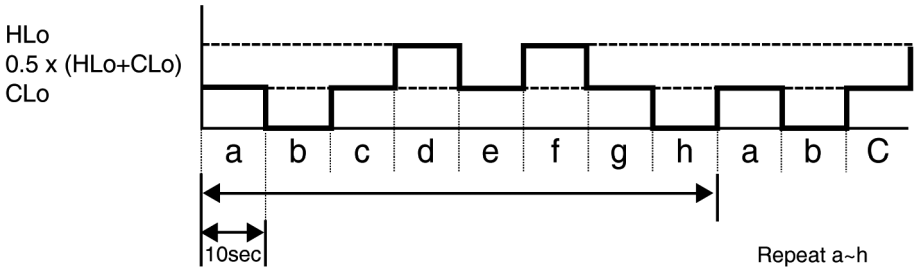
c. e-ion operation pause condition
- When indoor fan stop (during deice, odor cut control, thermostat off, etc.). e-ion operation resume after indoor fan restarts.
- When indoor intake temperature 40°C. e-ion operation resume after indoor intake temperature < 40°C continuously for 30 minutes.

C.Control Content

a. Indoor fan control

- During any operation mode combines with e-ion operation, fan speed follows respective operation mode.
- During e-ion individual operation - only Auto Fan Speed and no Powerful operation is allowed. Even if Fan Speed button is pressed, no signal is sent to air conditioner, and no change on LCD display.

Auto Fan Speed for e-ion operation switches between HLo and CLo at pattern below:



b. Airflow direction control

- During any operation mode combines with e-ion operation, airflow direction follows respective operation mode.
- During e-ion individual operation, only Auto Air Swing is allowed. Even if Air Swing button is pressed, no signal is sent to air conditioner, and no change on LCD display.

c. Timer control

- When ON timer activates when unit stops, previous operation resumes without e-ion operation.
- When ON timer activates during any operation, no change and carry on current operation.
- When OFF timer activates during any operation, all operation stops.

d. Indicator

- When e-ion operation starts, e-ion indicator ON.

e. e-ion Check Mode

- To check if e-ion is malfunctioning, during e-ion operation press “e-ion” button for 15 seconds and release to enter e-ion Check Mode and supplies power to the e-ion Air Purifying System.
- If abnormal discharge is detected at filter (short-circuited) due to water or dust adhesion, etc., the e-ion indicator blinks immediately.

f. Power failure

- During e-ion individual operation, if power failure occurs, after power resumes, e-ion individual operation resumes immediately.
- During combination operation, if power failure occurs, after power resumes, combination operation resume immediately.

g. Error Detection Control

When e-ion indicator blink, it indicates error listed below:

i. e-ion Air Purifying system main connector to PCB is open:

Judgement Method

- During e-ion operation (include during Patrol operation), e-ion Air Purifying system main connector to PCB is opened.

Troubleshooting Methods

- Connect the connector or stop operation (include during Patrol operation) to cancel the blinking.

ii. Abnormal Discharge

Judgement Method

- During e-ion operation, when feedback voltage is -Lo (at microcontroller) is detected, it is judged abnormal discharge and stops power supplies to the e-ion Air Purifying system.
- The unit retries after 30 minutes and repeat for 24 times. (not applicable for e-ion Check Mode)

Troubleshooting Methods
• Press “e-ion” button or “OFF/ON” button to stop the operation and check the e-ion Air Purifying system main connector to PCB.
• After that, press “e-ion” button again to confirm the e-ion indicator not blinking.
• The 24 times counter will be clear after 10 minutes of normal operation or when operation stops.

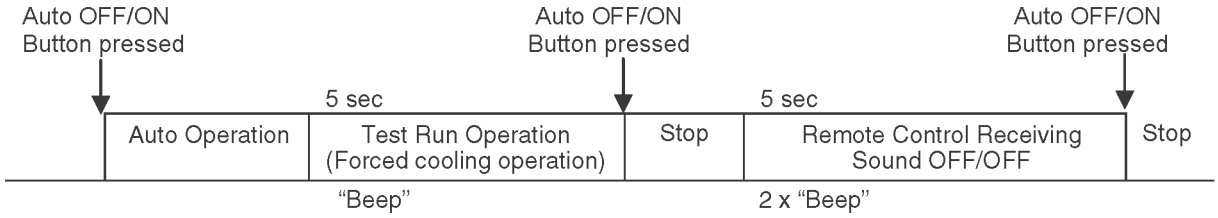
Error Reset Method
• Press “OFF/ON” button to OFF the operation.
• Press AUTO OFF/ON button at indoor unit to OFF the operation.
• OFF Timer activates.
• Press “e-ion” button during e-ion individual mode.
• Power supply reset.

iii. e-ion breakdown
Judgement Method
• When hi-feedback voltage (at microcontroller) supplied to filter during e-ion stop, due to PCB or filter’s high voltage power supply damage.
• Operations except e-ion continue. Both Timer indicator and e-ion indicator blink.

Troubleshooting Method
• Press “e-ion” button or “OFF/ON” button to stop the operation.
• Change main circuit board or filter’s high voltage power supply.
• When lo-feedback voltage supplied to e-ion Air Purifying system during e-ion operation, e-ion indicator and Timer indicators top blinking.

13 Servicing Mode

13.1. Auto OFF/ON Button



1. AUTO OPERATION MODE
   The Auto operation will be activated immediately once the Auto OFF/ON button is pressed. This operation can be used to operate air conditioner with limited function if remote control is misplaced or malfunction.

2. TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)
   The Test Run operation will be activated if the Auto OFF/ON button is pressed continuously for more than 5 seconds. A "beep" sound will occur at the fifth seconds, in order to identify the starting of Test Run operation.

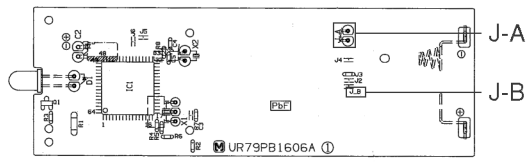
3. REMOTE CONTROL RECEIVING SOUND OFF/ON MODE
   The Remote Control Receiving Sound OFF/ON operation will be activated if (within 20 seconds of Test Run Operation) the Auto OFF/ON button is pressed for more than 5 seconds. 2 "beep" sounds will occur at to identify the starting of Remote Control Receiving Sound Off/On Mode.

   Press "Auto OFF/ON button" to toggle remote control receiving sound.
   • Short "beep": Turn ON remote control receiving sound.
   • Long "beep": Turn OFF remote control receiving sound.

   After Auto OFF/ON Button is pressed, the 20 seconds counter for Remote Control Receiving Sound OFF/ON Mode is restarted.

13.2. Select Remote Control Transmission Code

- There are 4 types of remote control transmission code could be selected and stored in EEPROM of indoor unit. The indoor unit will only operate when received signal with same transmission code from remote control. This could prevent signal interference when there are 2 or more indoor units installed nearby together.
- To change remote control transmission code, short or open jumpers at the remote control printed circuit board.



Remote Control Printed Circuit Board		
Jumper A (J-A)	Jumper B (J-B)	Remote Control No.
Short	Open	A (Default)
Open	Open	B
Short	Short	C
Open	Short	D

- During Remote Control Receiving Sound OFF/ON Mode, press any button at remote control to transmit and store the desired transmission code to the EEPROM.

13.3. Remote Control Button

13.3.1. SET BUTTON

- To check current remote control transmission code
  - Press for more than 10 seconds

- To change the air quality sensor sensitivity
  - Press and release with pointer.
  - Press the Timer Decrement button to select sensitivity:
    1. Low Sensitivity
    2. Standard (Default)
    3. Hi Sensitivity
  - Confirm setting by pressing Timer Set button, a “Beep” sound will be heard. LCD returns to original display after 2 seconds.
  - LCD returns to original display if remote control does not operate for 30 seconds

13.3.2. CLOCK BUTTON

- To change the remote control’s time format.
  - Press for more than 5 seconds

13.3.3. RESET (RC)

- To clear and restore the remote control setting to factory default
  - Press once to clear the memory.

13.3.4. TIMER ▲

- To change indoor unit indicator’s LED intensity
  - Press continuously for 5 seconds.

13.3.5. TIMER ▼

- To change remote control display from Degree Celsius to Degree Fahrenheit.
  - Press continuously for 10 seconds.

14 Troubleshooting Guide

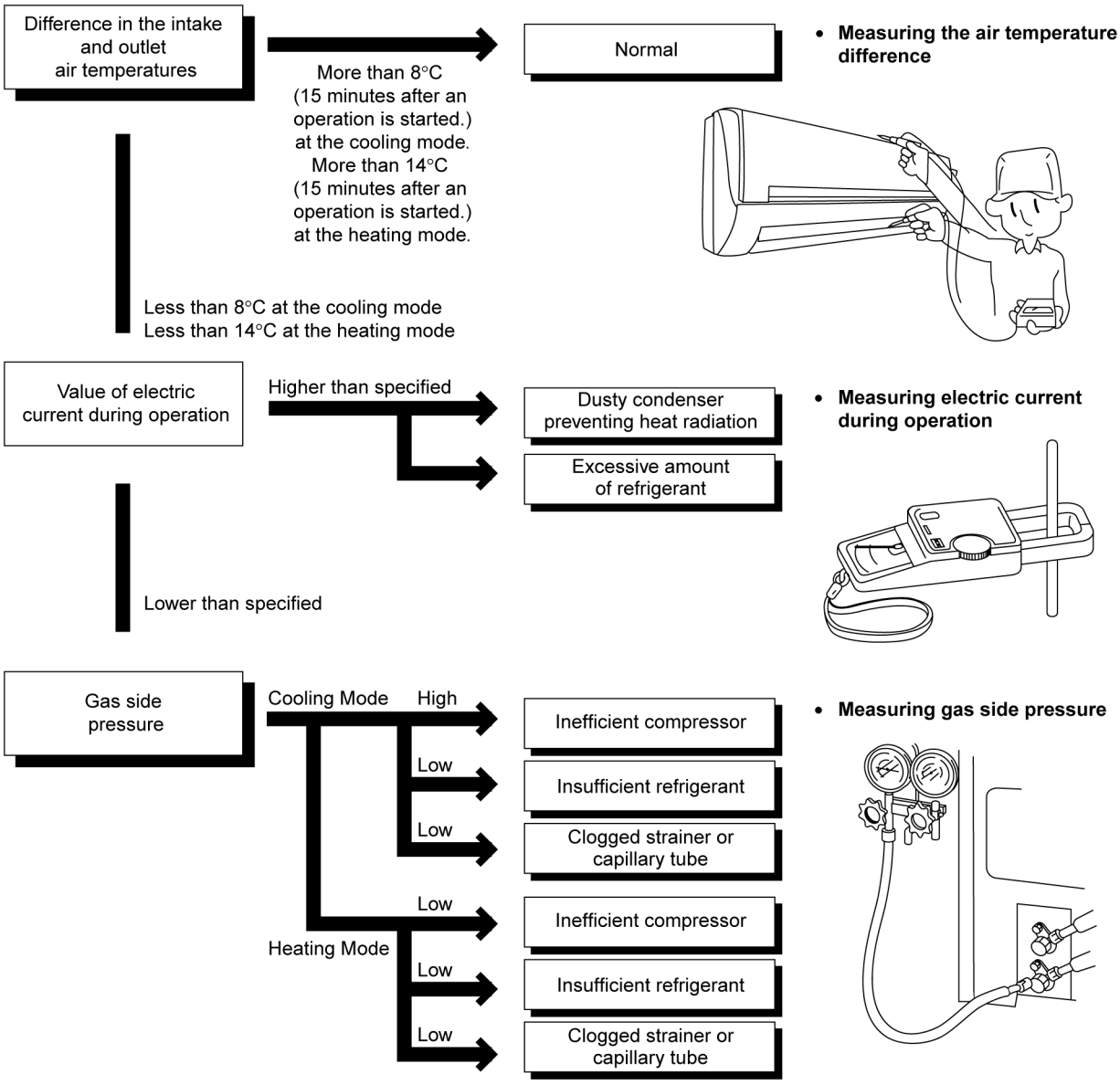
14.1. Refrigeration Cycle System

In order to diagnose malfunctions, make sure that there are no electrical problems before inspecting the refrigeration cycle. Such problems include insufficient insulation, problem with the power source, malfunction of a compressor and a fan.
The normal outlet air temperature and pressure of the refrigeration cycle depends on various conditions, the standard values for them are shown in the table on the right.

Normal Pressure and Outlet Air Temperature (Standard)

	Gas pressure Mpa (kg/cm²G)	Outlet air temperature (°C)
Cooling Mode	0.4 ~ 0.6 (4 ~ 6)	12 ~ 16
Heating Mode	1.5 ~ 2.1 (15 ~ 21)	36 ~ 45

* Condition: Indoor fan speed; High
Outdoor temperature 35°C at the cooling mode and 7°C at the heating mode



14.1.1. Relationship between the condition of the air conditioner and pressure and electric current

Condition of the air conditioner	Cooling Mode			Heating Mode		
	Low Pressure	High Pressure	Electric current during operating	Low Pressure	High Pressure	Electric current during operating
Insufficient refrigerant (gas leakage)	↘	↘	↘	↘	↘	↘
Clogged capillary tube or Strainer	↘	↘	↘	↘	↘	↘
Short circuit in the indoor unit	↘	↘	↘	↗	↗	↗
Heat radiation deficiency of the outdoor unit	↗	↗	↗	↘	↘	↘
Inefficient compression	↗	↘	↘	↗	↘	↘

• Carry out the measurements of pressure, electric current, and temperature fifteen minutes after an operation is started.

14.1.2. Diagnosis methods of a malfunction of a compressor and 4-Way Valve

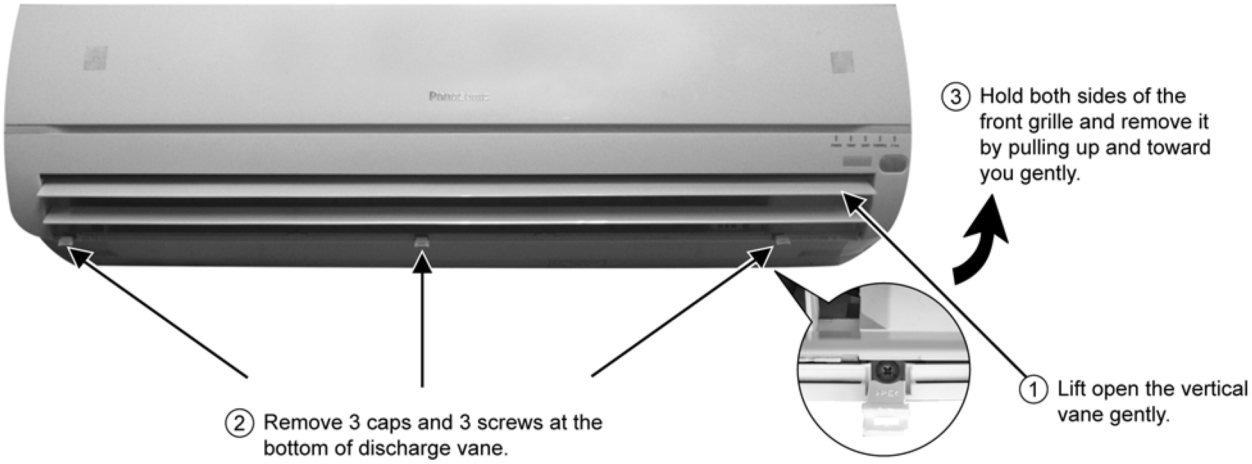
Nature of fault	Symptom
Insufficient compressing of a compressor	• Electric current during operation becomes approximately 20% lower than the normal value. • The discharge tube of the compressor becomes abnormally hot (normally 70 to 90°C). • The difference between high pressure and low pressure becomes almost zero.
Locker compressor	• Electric current reaches a high level abnormally, and the value exceeds the limit of an ammeter. In some cases, a breaker turns off. • The compressor has a humming sound.
Insufficient switches of the 4-way valve	• Electric current during operation becomes approximately 80% lower than the normal value. • The temperature different between from the discharge tube to the 4-way valve and from suction tube to the 4-way valve becomes almost zero.

15 Disassembly and Assembly Instructions

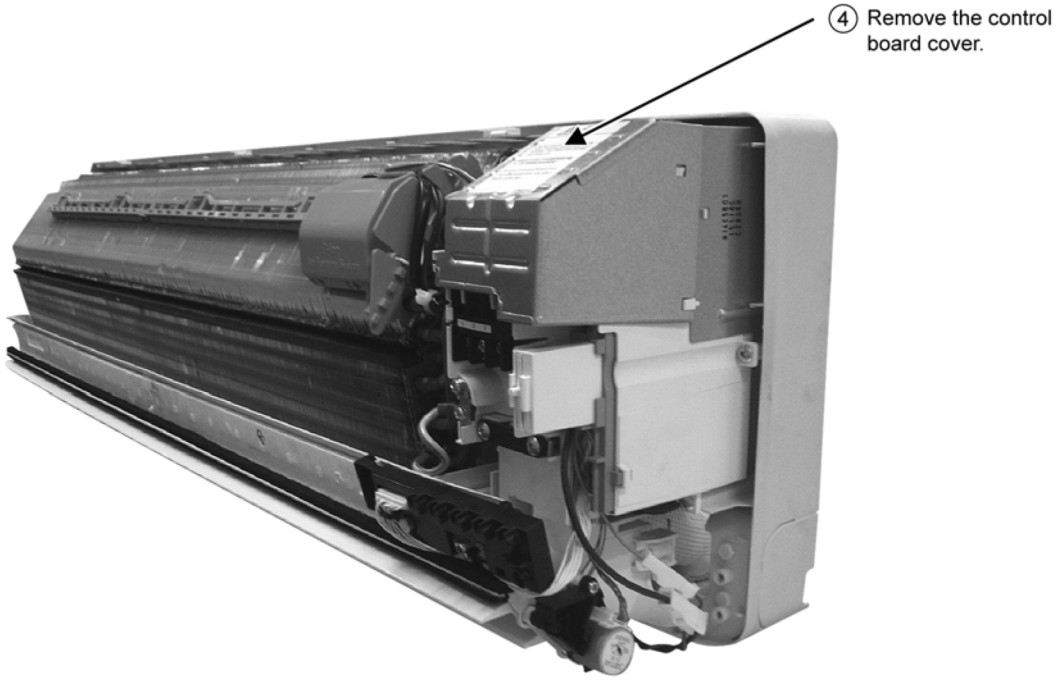
⚠ WARNING

- Cautions! When handling electronic controller, be careful of electrostatic discharge.
- Be sure to return the wiring to its original position.
- There are many high voltage components within the heat sink cover so never touch the interior during operation. Wait at least two minutes after power has been turned off.

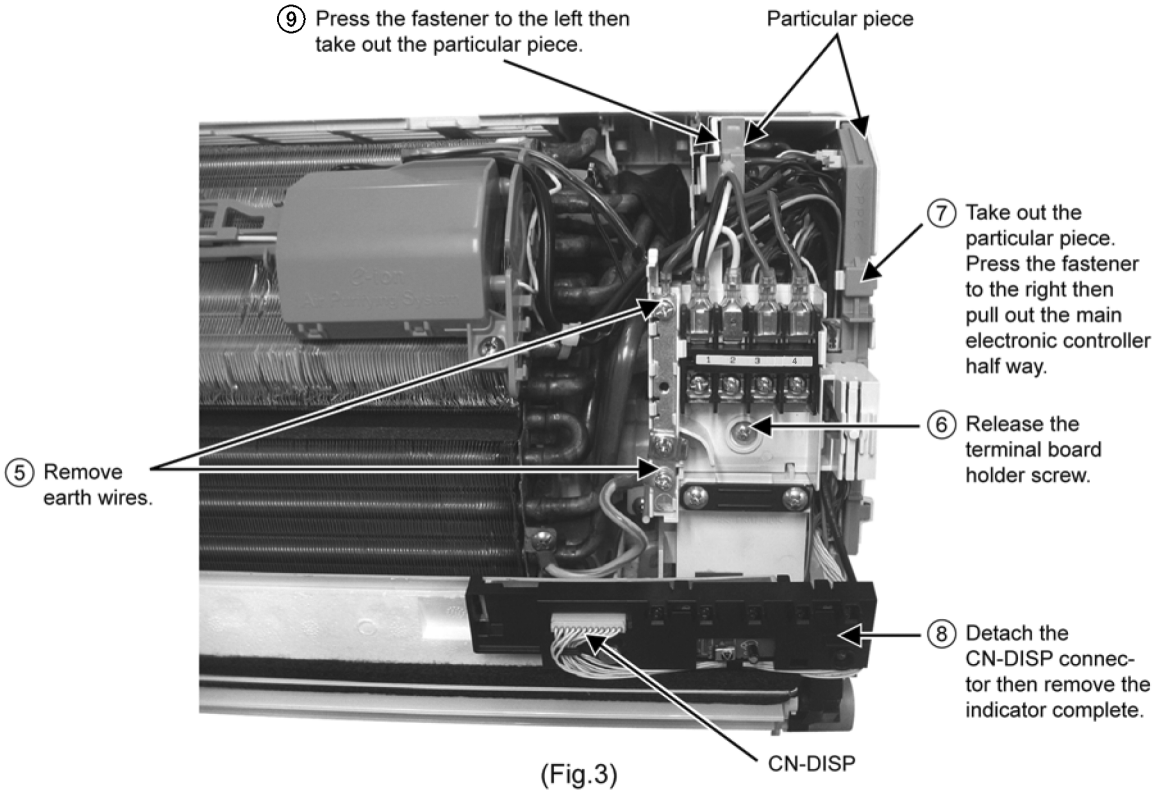
15.1. Indoor Electronic Controllers and Control Board Removal Procedures



(Fig.1)

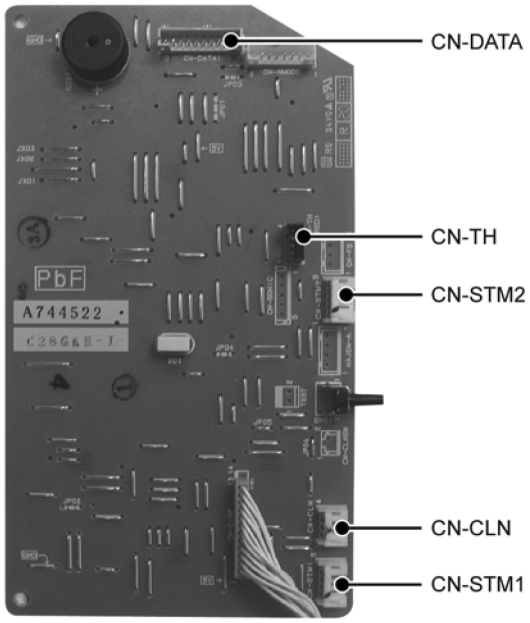


(Fig.2)

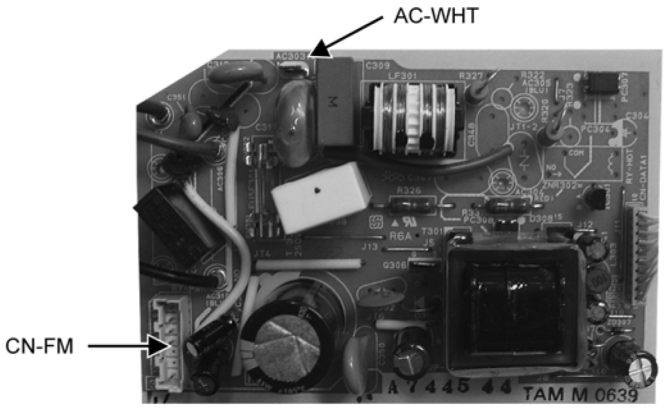


(Fig.3)

⑩ Detach 5 connectors as labeled from the electronic controller. Then pull out slowly while pressing the fastener to the right.

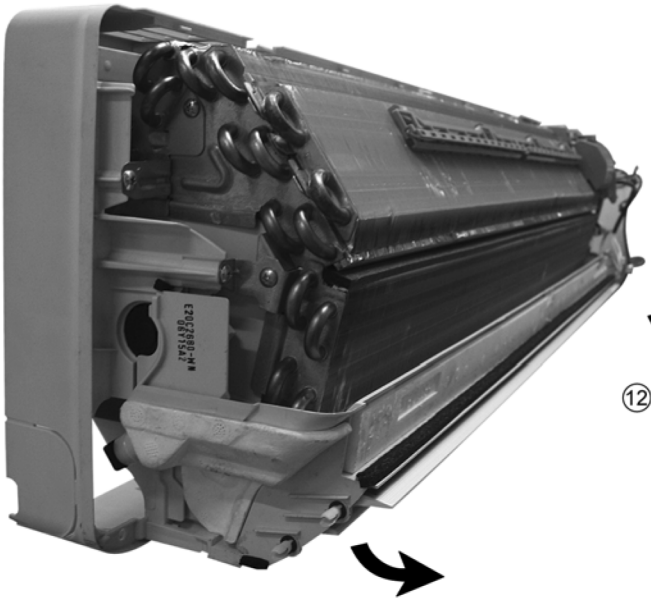


(Fig.4)



⑪ Detach the CN-FM connector from the electronic controller. Then, pull it slowly while pressing the fastener to the left.

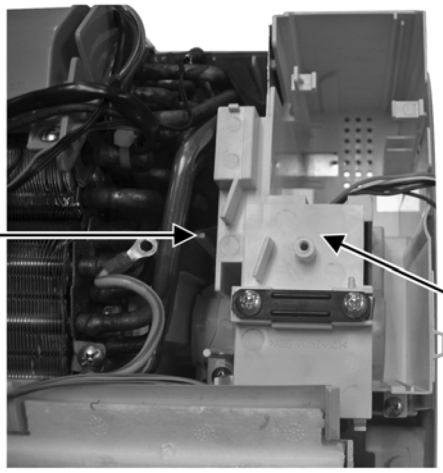
(Fig.5)



⑫ Remove the drain hose from the discharge grille.

⑬ Then pull out the discharge grille downward gently to dismantle it.

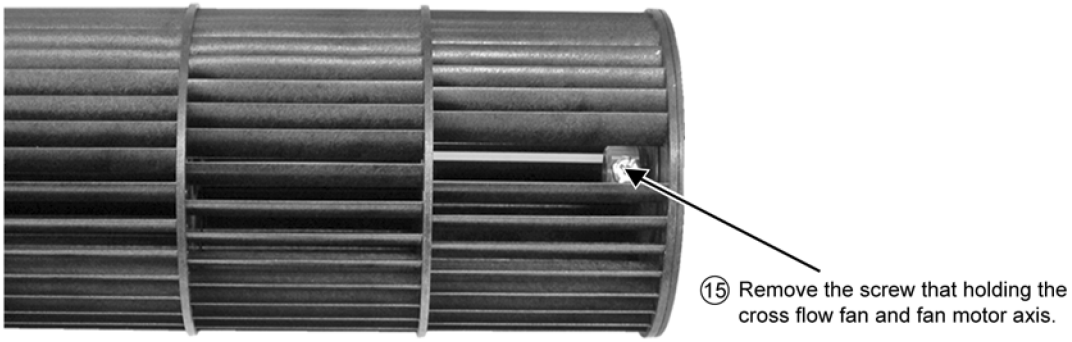
(Fig.6)



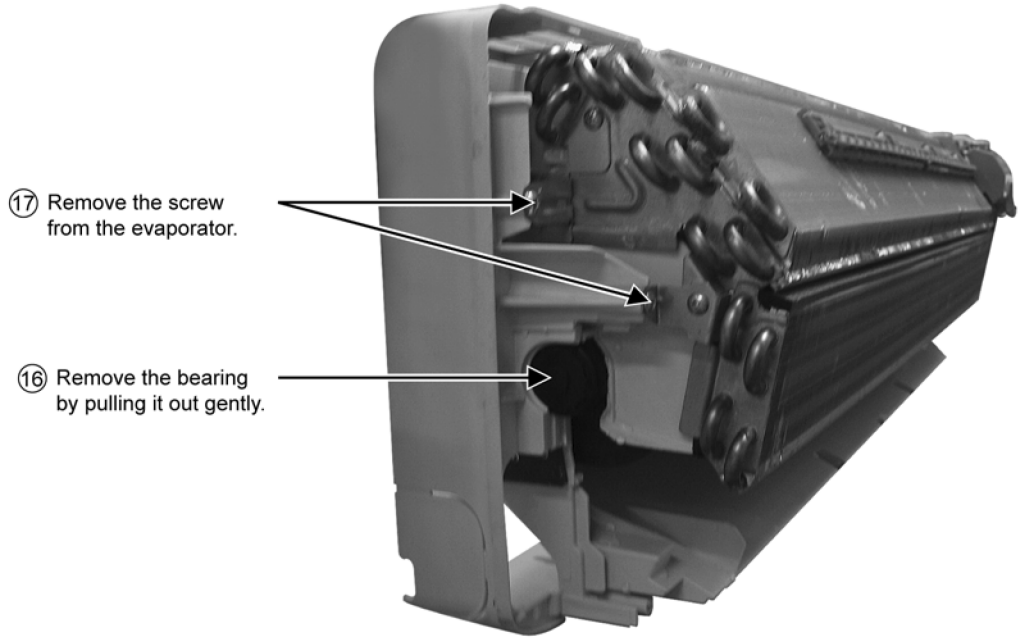
⑭ Remove 3 screws holding the control board. Press down the control board fastener and the whole control board can be remove.

(Fig.7)

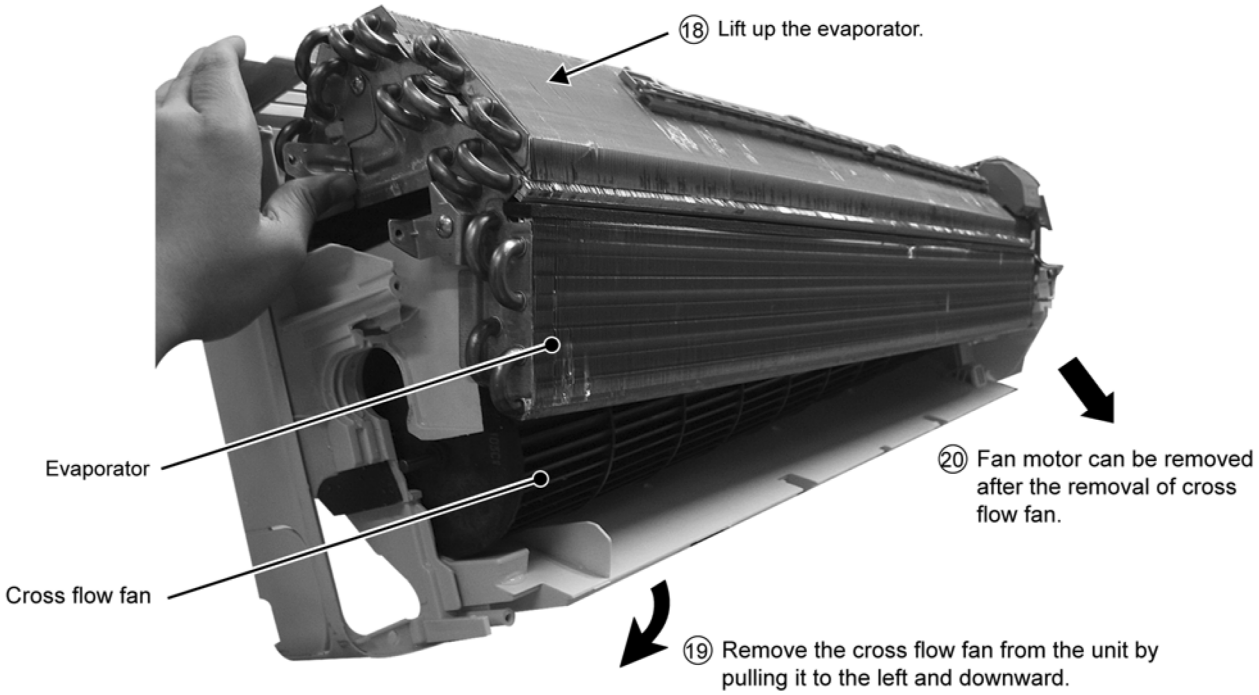
15.2. Indoor Fan Motor and Cross Flow Fan Removal Procedures



(Fig.8)



(Fig.9)


⑱ Lift up the evaporator.
Evaporator
Cross flow fan
⑳ Fan motor can be removed after the removal of cross flow fan.
⑲ Remove the cross flow fan from the unit by pulling it to the left and downward.

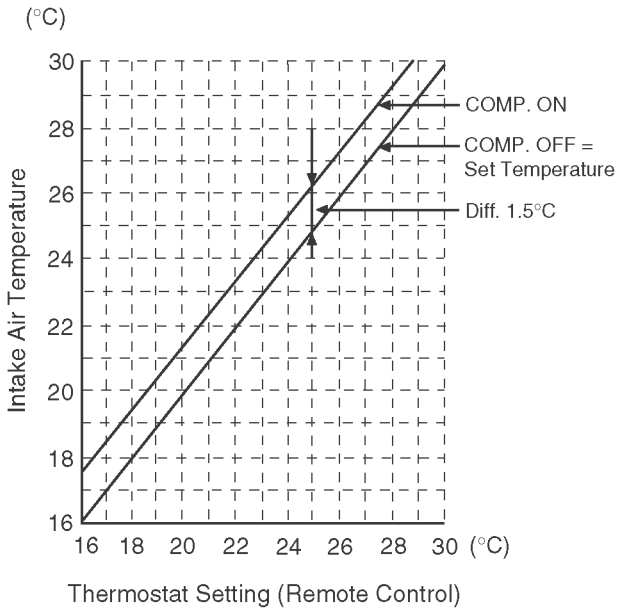
(Fig.10)

16 Technical Data

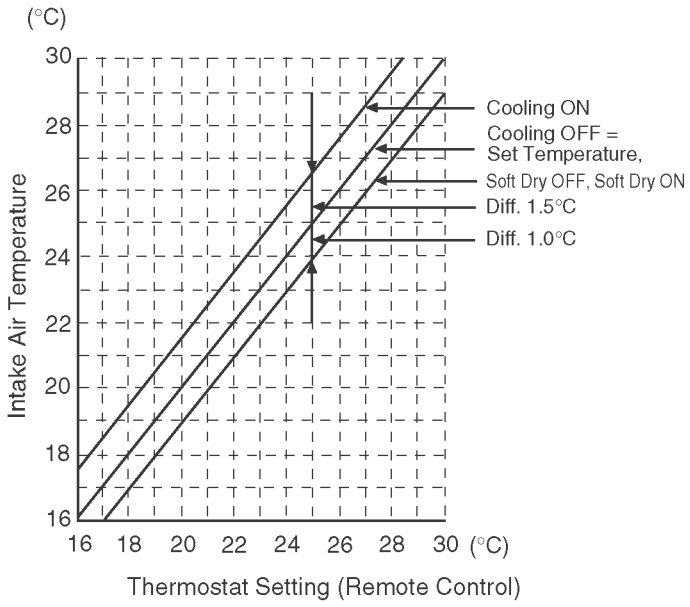
16.1. Thermostat Characteristics

CS-A18GKD CS-A24GKD

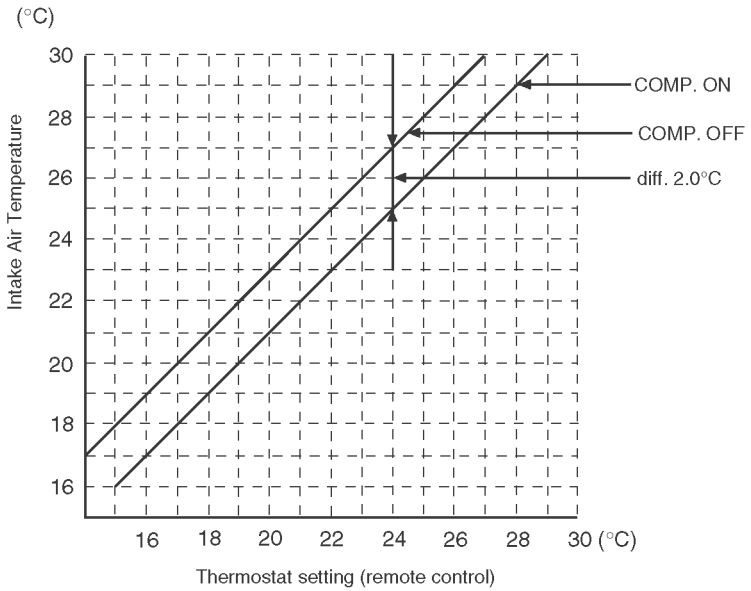
- **Cooling**



- **Soft Dry**



- **Heating**



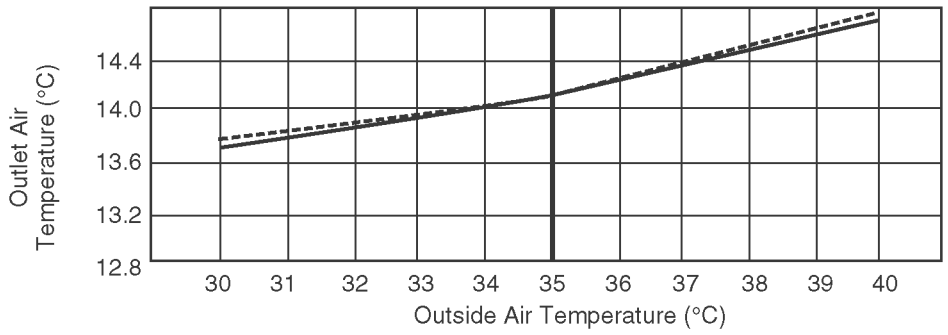
16.2. Operation Characteristics

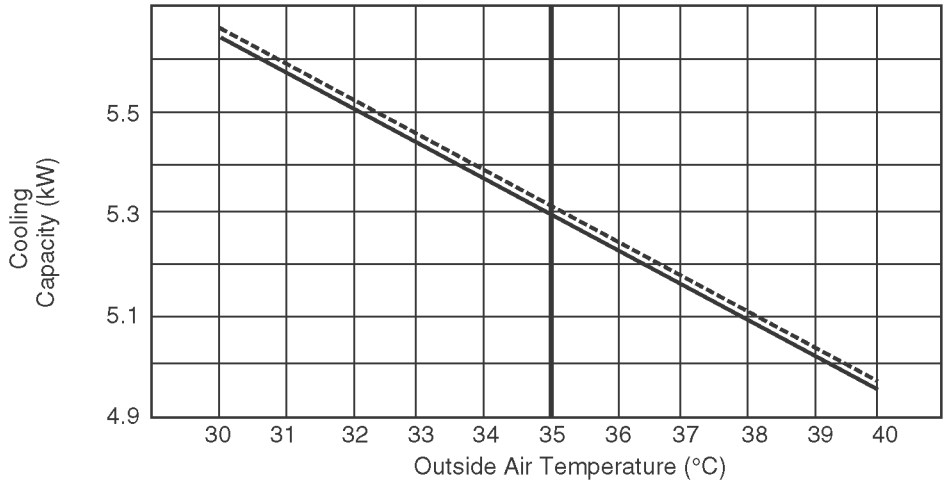
CS-A18GKD CU-A18GKD

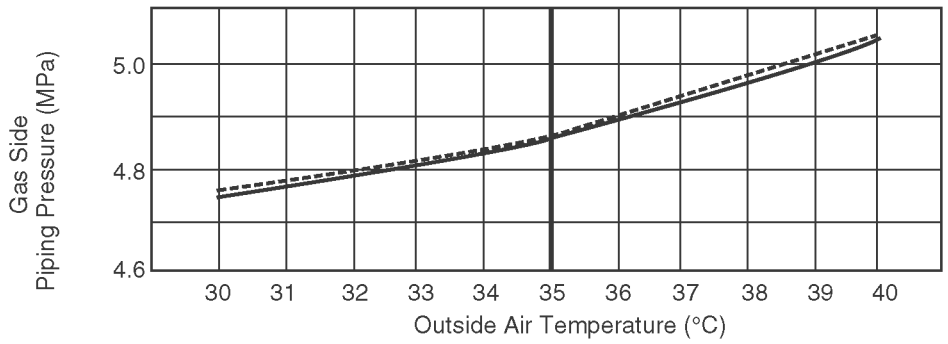
- **Cooling Characteristic**

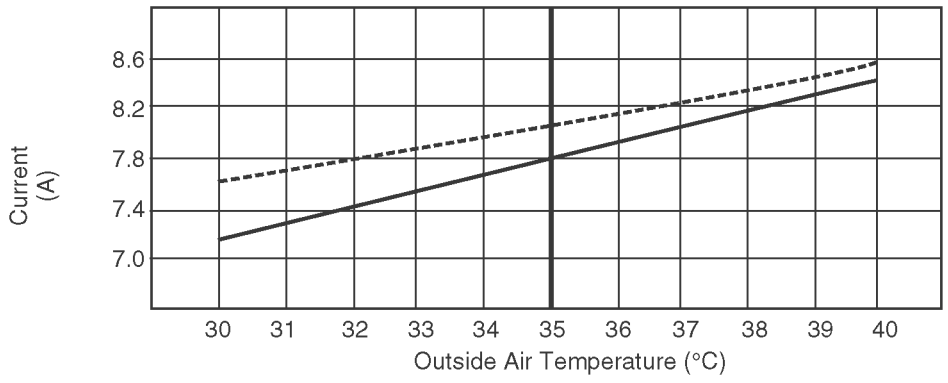
[Condition] Room temperature: 27/19°C
Cooling operation: At High fan
Piping length: 5 m

—— 230V
- - - - - 220V





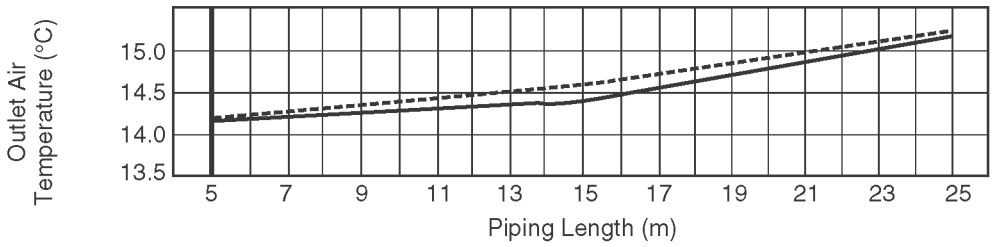


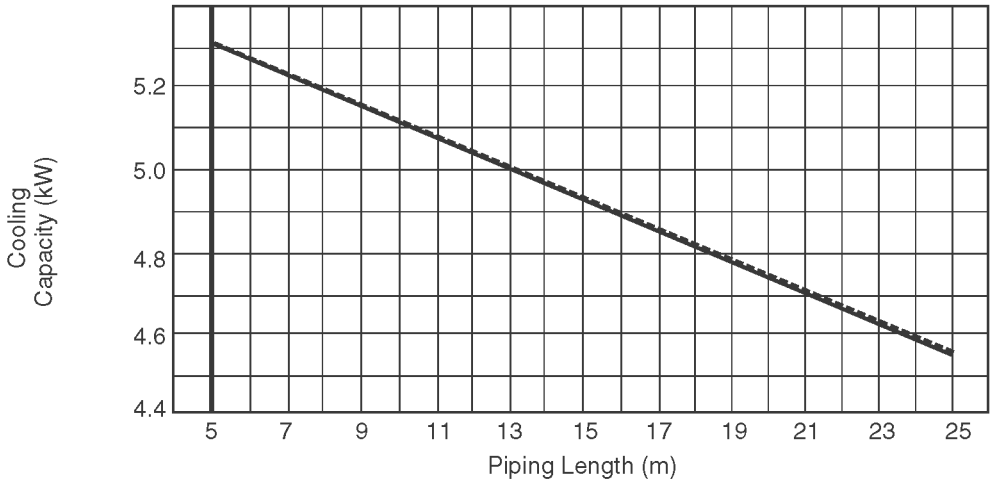


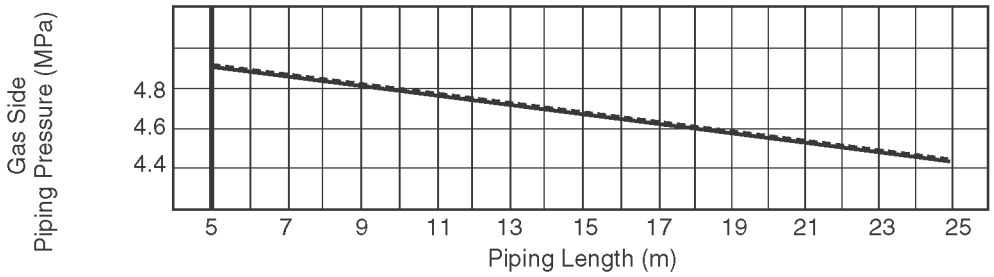
• Piping Length Characteristic

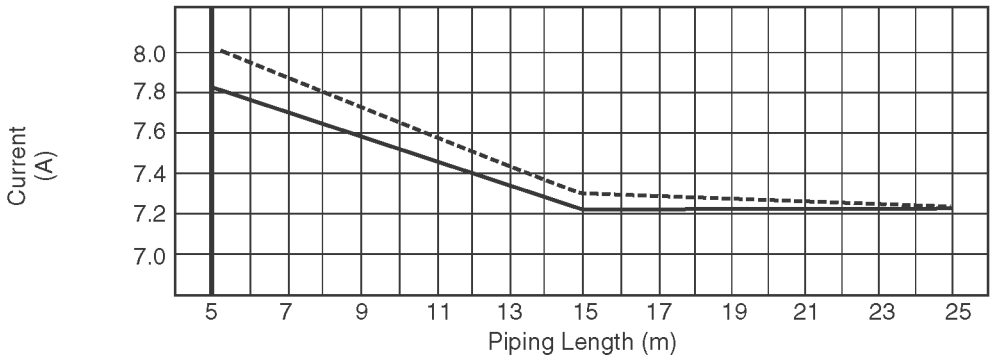
[Condition] Room temperature: 27/19°C
Outdoor temperature: 35/24°C
Cooling opeartion: At High fan

—— 230V
- - - - - 220V





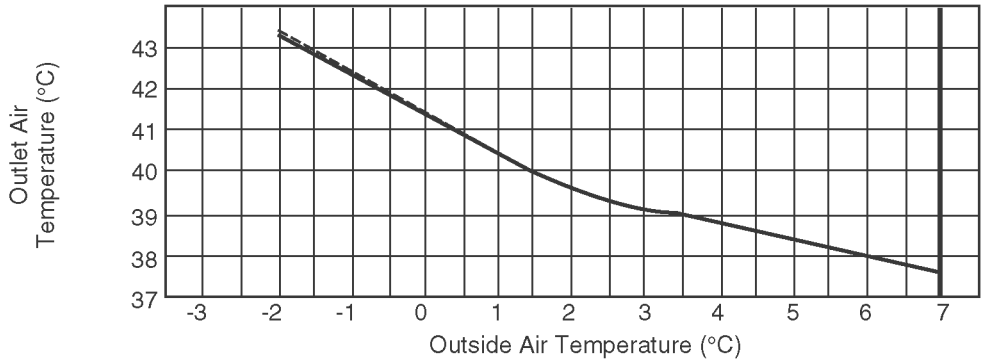


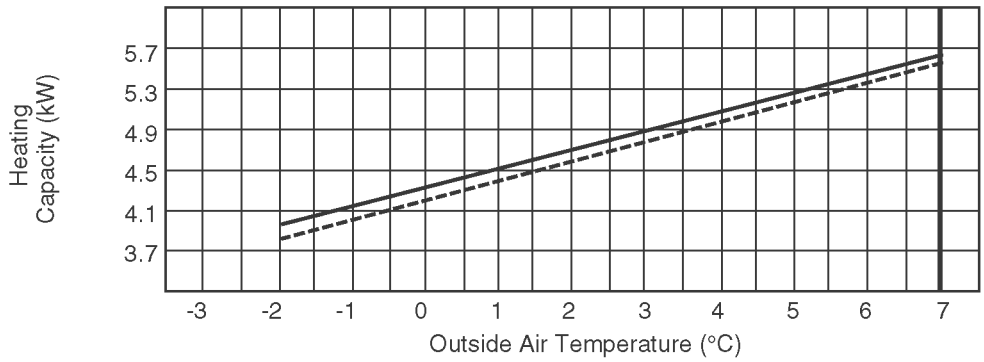


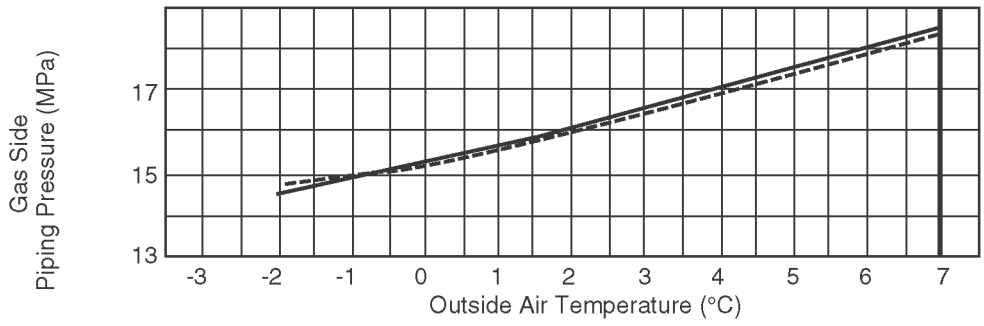
• Heating Characteristic

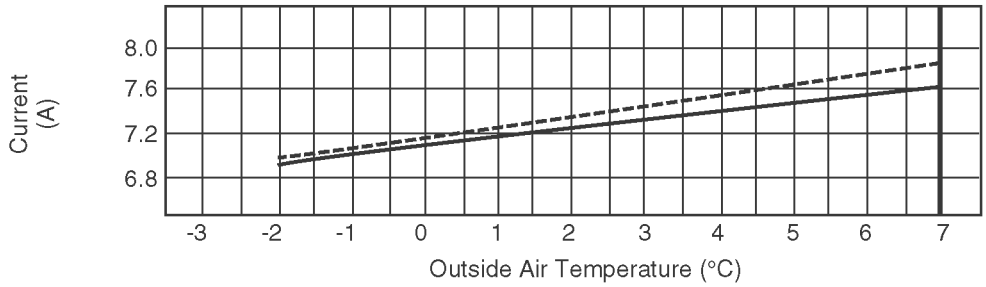
[Condition] Room temperature: 20°C
Heating operation: At High fan
Piping length: 5 m

—— 230V
- - - - - 220V





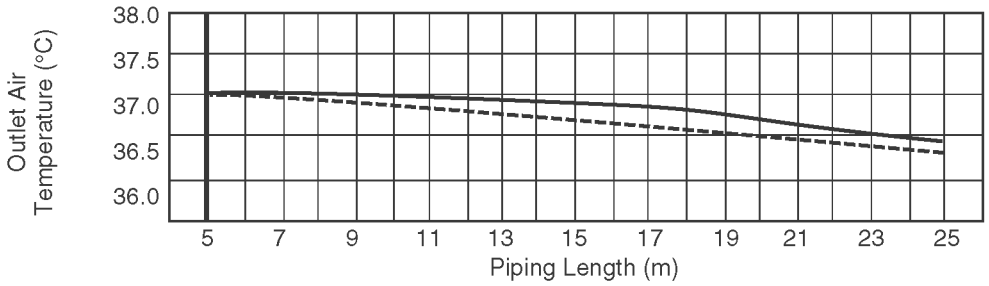


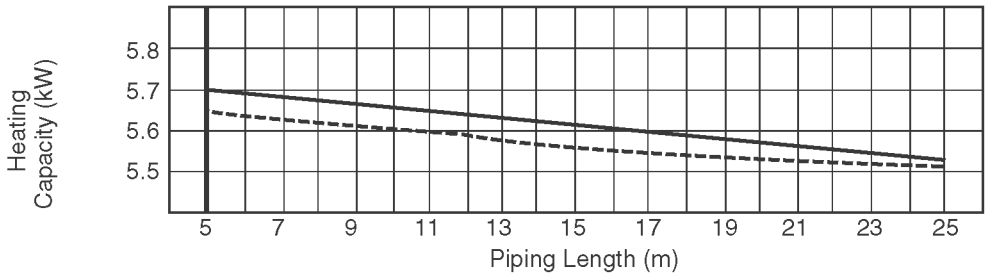


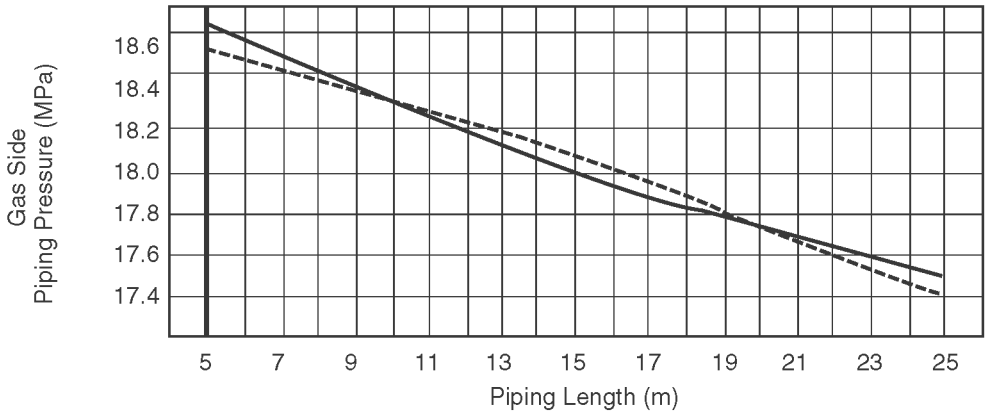
• Piping Length Characteristic (Heating)

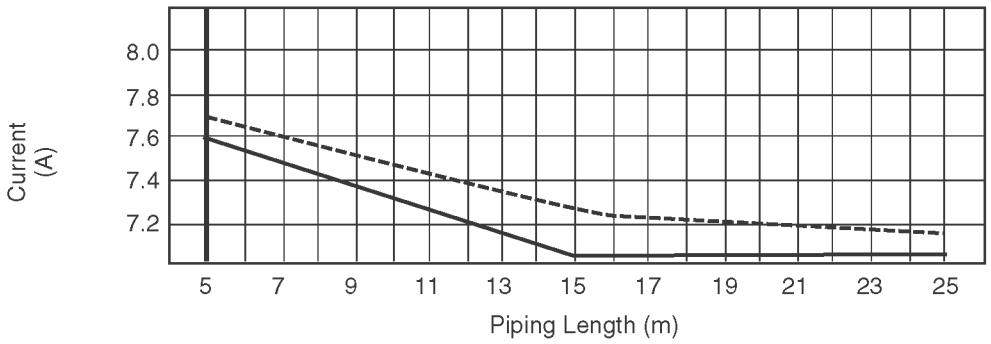
[Condition] Room temperature: 20°C
Outdoor temperature: 7/6°C
Heating opeartion: At High fan

—— 230V
----- 220V







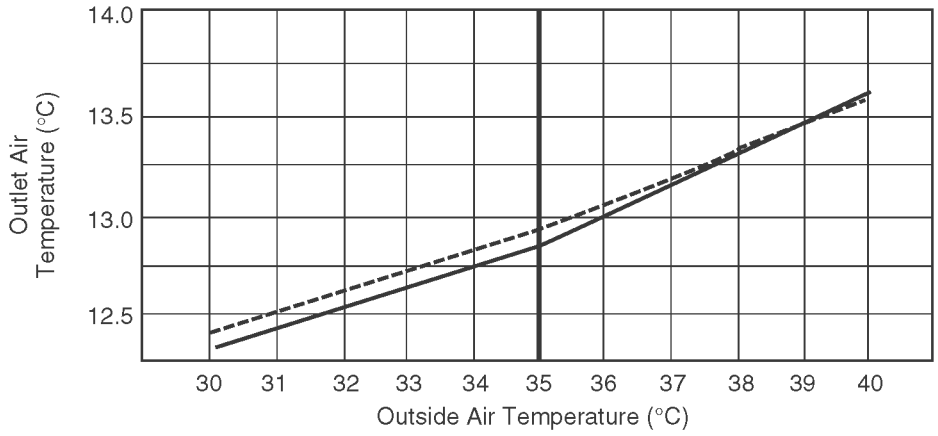


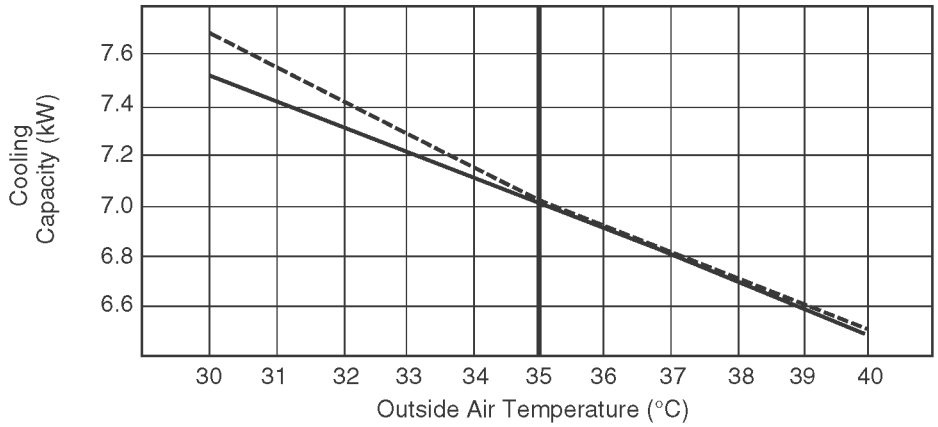
CS-A24GKD CU-A24GKD

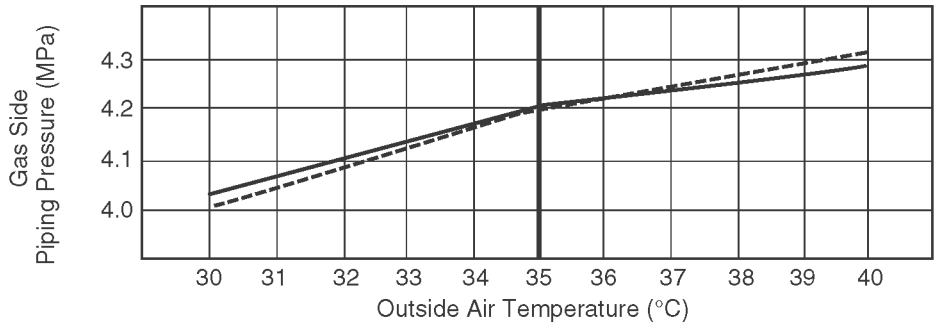
- **Cooling Characteristic**

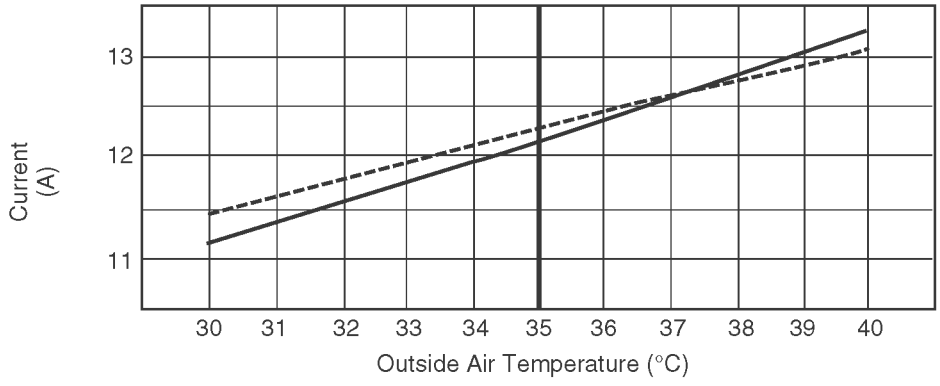
[Condition] Room temperature: 27/19°C
Cooling operation: At High fan
Piping length: 5 m

—— 230V
- - - - - 220V





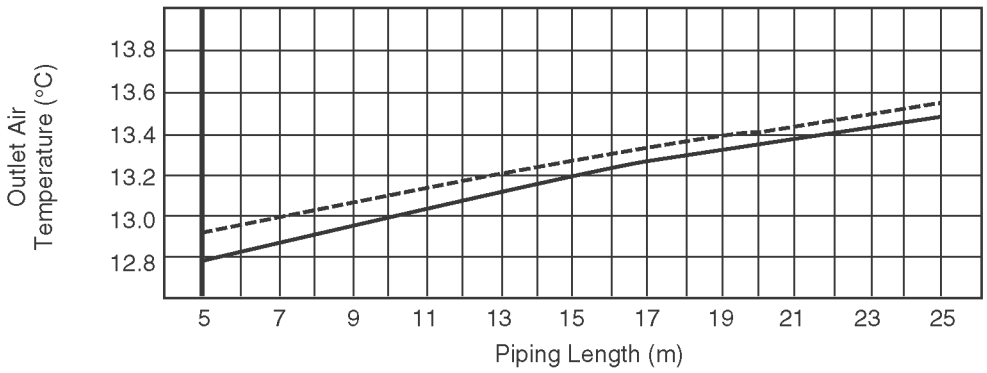


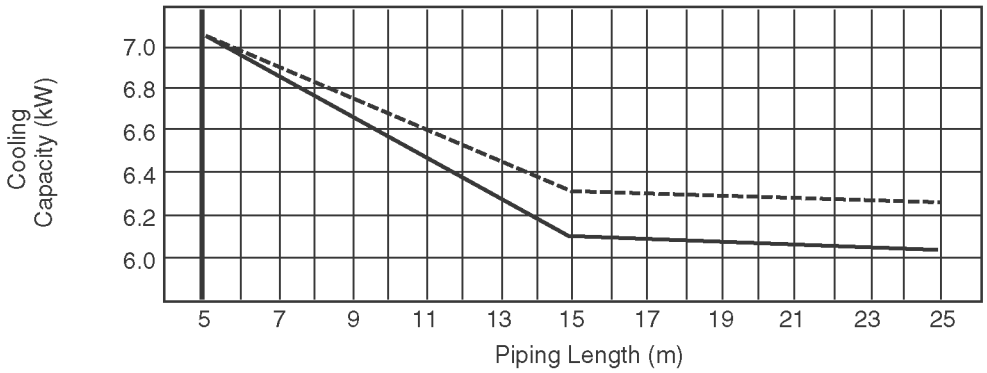


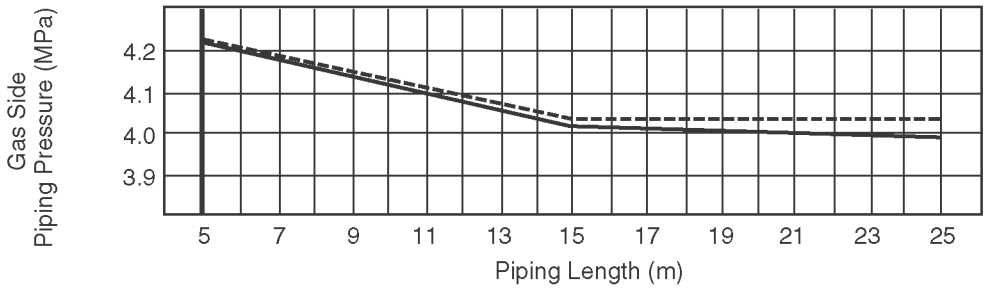
• Piping Length Characteristic

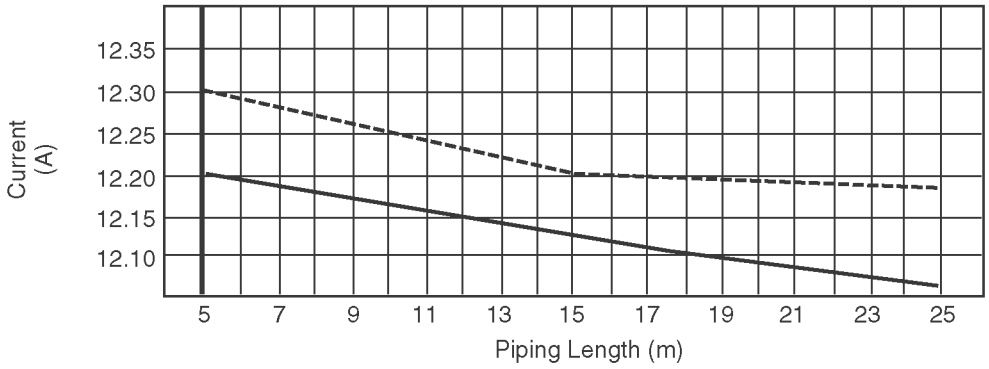
[Condition] Room temperature: 27/19°C
Outdoor temperature: 35/24°C
Cooling opeartion: At High fan

—— 230V
----- 220V





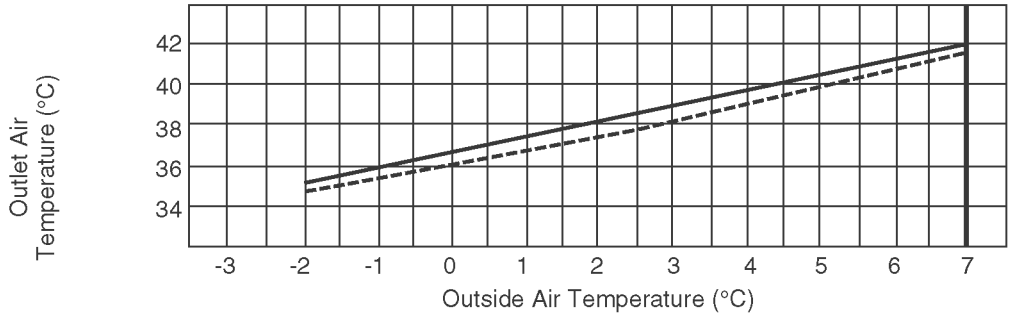


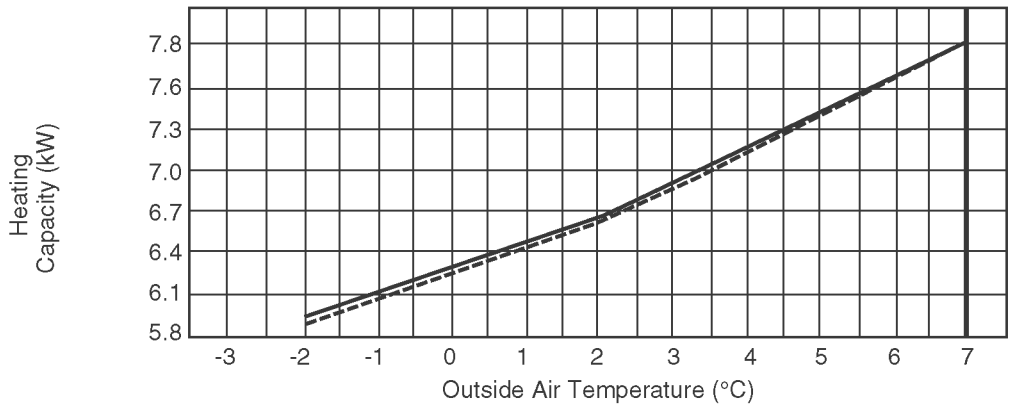


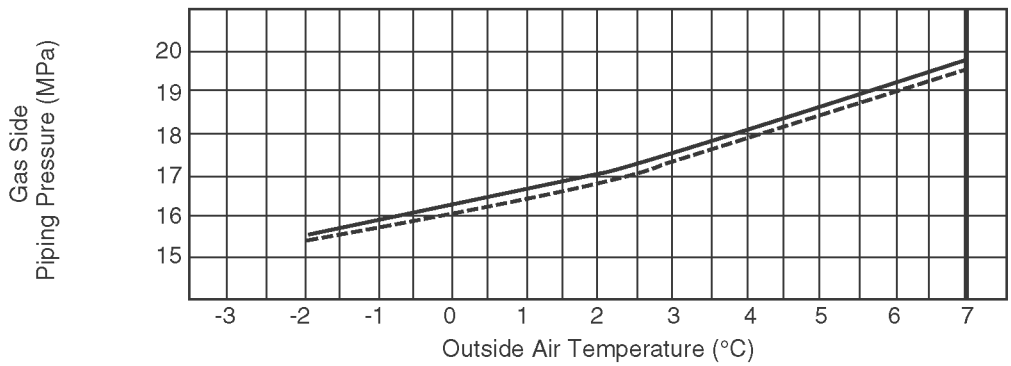
• Heating Characteristic

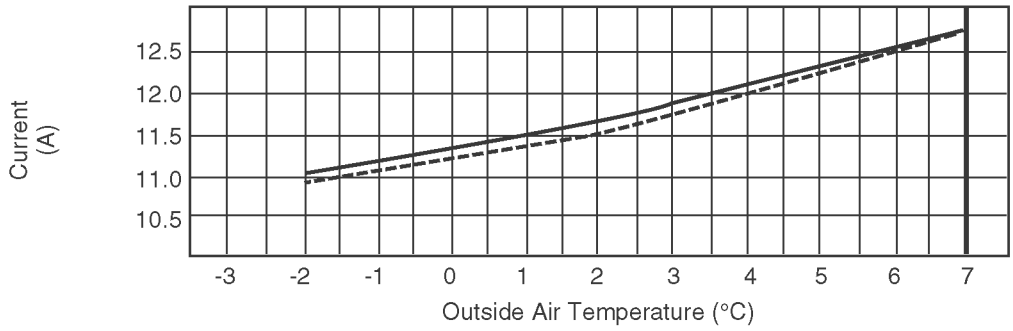
[Condition] Room temperature: 20°C
Heating operation: At High fan
Piping length: 5 m

—— 230V
----- 220V





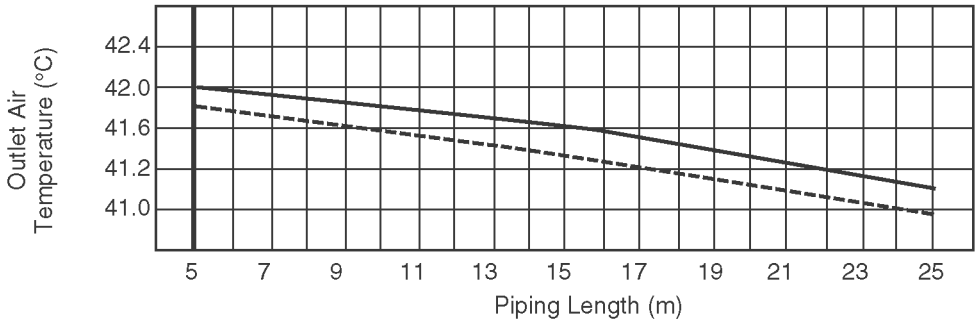


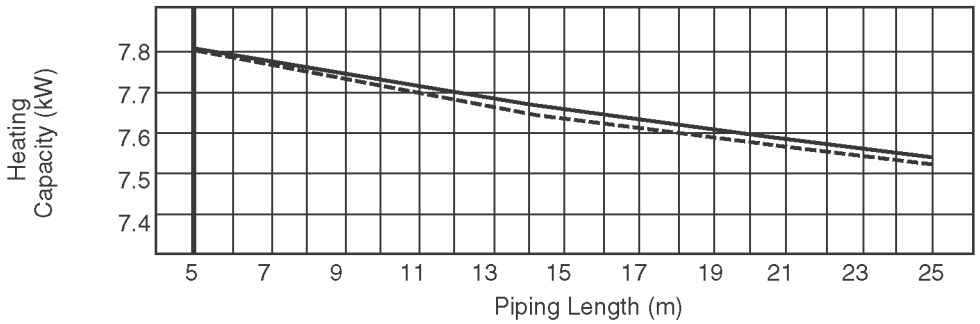


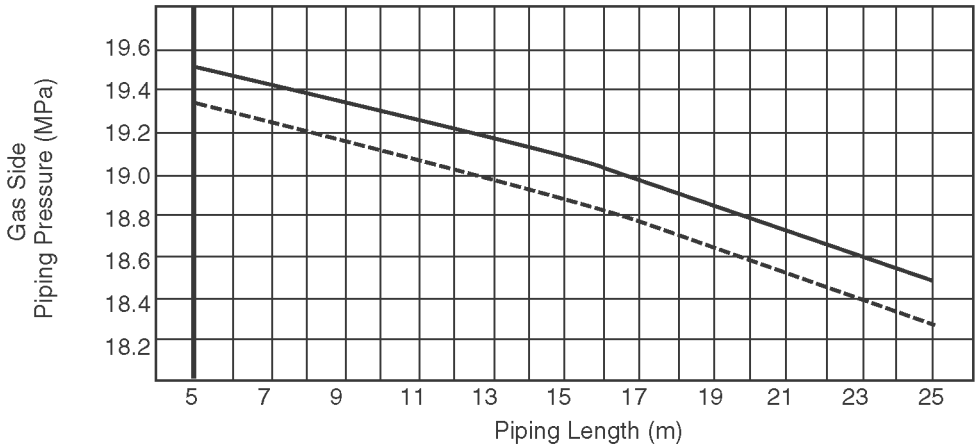
• Piping Length Characteristic (Heating)

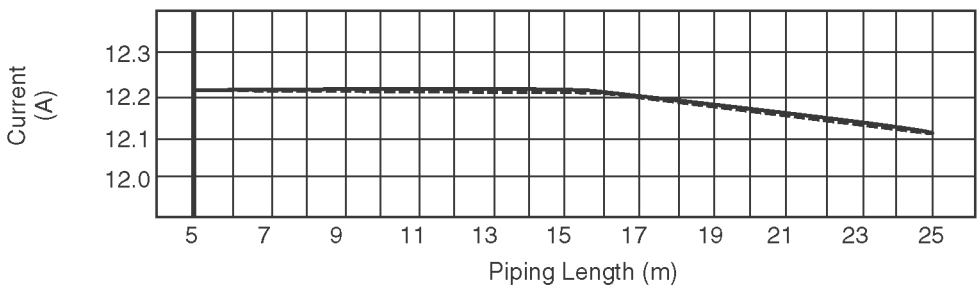
[Condition] Room temperature: 20°C
Outdoor temperature: 7/6°C
Heating opeartion: At High fan

—— 230V
----- 220V





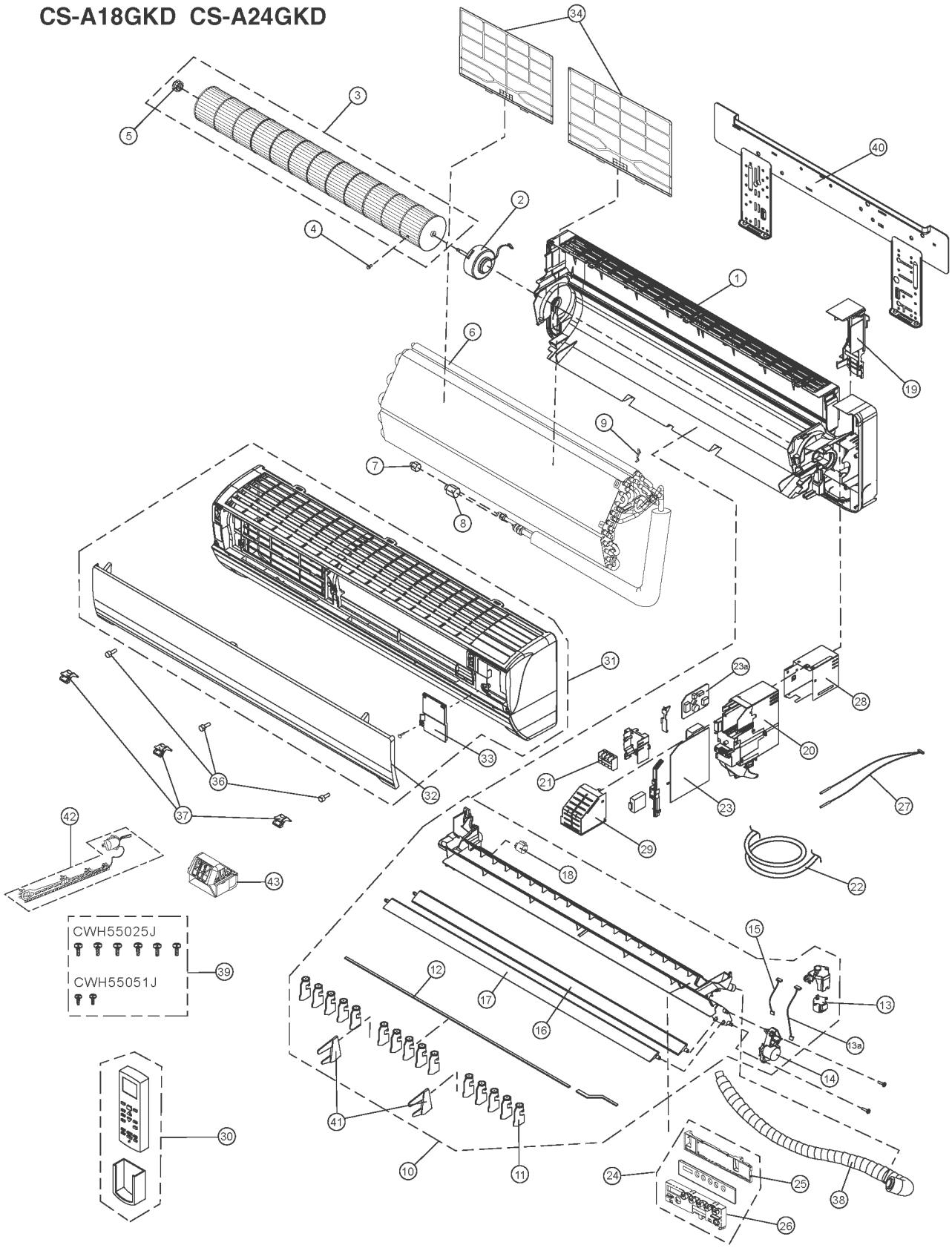




17 Exploded View and Replacement Parts List

17.1. Indoor Unit

CS-A18GKD CS-A24GKD



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

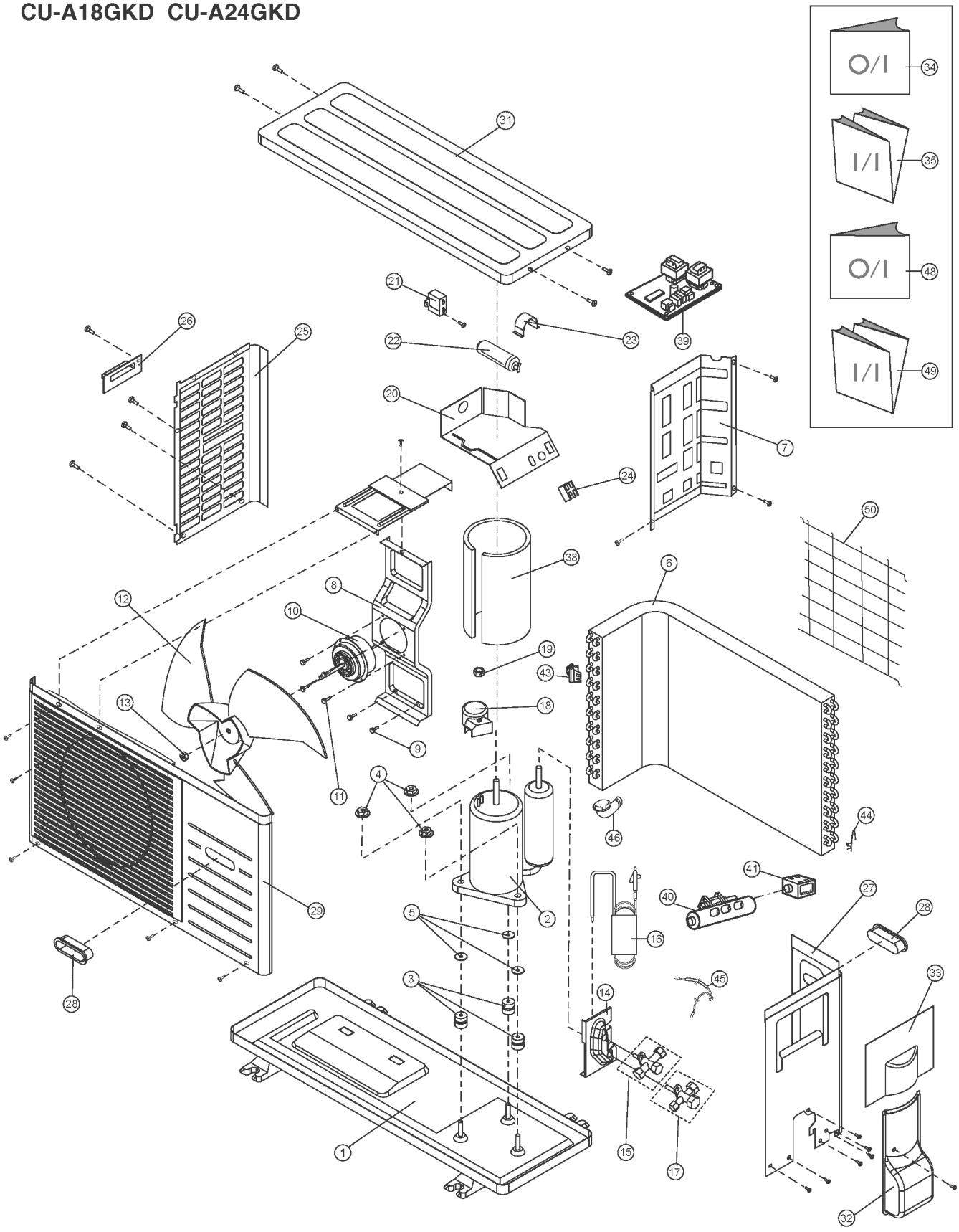
REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-A18GKD	CS-A24GKD	REMARKS
1	CHASSY COMPLETE	1	CWD50C1520	←	
2	FAN MOTOR	1	CWA981149J	←	0
3	CROSS FLOW FAN COMPLETE	1	CWH02C1010	←	
4	SCREW - CROSS FLOW FAN	1	CWH551146	←	
5	BEARING ASS'Y	1	CWH64K007	←	
6	EVAPORATOR	1	CWB30C2148	CWB30C1572	
7	FLARE NUT (1/4″)	1	CWT251026	←	
8	FLARE NUT (1/2″) (5/8″)	1	CWT25007	CWT251036	
9	INTAKE AIR SENSOR HOLDER	1	CWH32143	←	
10	DISCHARGE GRILLE COMPLETE	1	CWE20C2683	←	
11	VERTICAL VANE	15	CWE241088	←	
12	CONNECTING BAR	1	CWE261025	←	
13	AIR SWING MOTOR	1	CWA98260+MJ	←	0
13a	LEAD WIRE - AIR SWING MOTOR	1	CWA67C3977	←	
14	AIR SWING MOTOR	1	CWA98K1008	←	0
15	LEAD WIRE - AIR SWING MOTOR	1	CWA67C4445	←	
16	HORIZONTOL VANE	1	CWE241152C	←	
17	HORIZONTOL VANE	1	CWE241153C	←	
18	CAP - DRAIN TRAY	1	CWH521096	←	
19	BACK COVER CHASIS	1	CWD932162B	←	
20	CONTROL BOARD CASING	1	CWH102334	←	
21	TERMINAL BOARD COMPLETE	1	CWA28C2069	←	0
22	POWER SUPPLY CORD	1	CWA20C2622	CWA20C2606	
23	ELECTRONIC CONTROLLER - MAIN	1	CWA73C2660	CWA73C2658	0
23a	ELECTRONIC CONTROLLER - POWER	1	CWA744555	←	0
24	INDICATOR COMPLETE	1	CWE39C1174	←	0
25	INDICATOR HOLDER	1	CWD932818	←	
26	INDICATOR HOLDER	1	CWD932817	←	
27	SENSOR COMPLETE	1	CWA50C2122	←	0
28	CONTROL BOARD TOP COVER	1	CWH131209	←	
29	CONTROL BOARD FRONT COVER	1	CWH131210	←	
30	REMOTE CONTROL COMPLETE	1	CWA75C2992	←	0
31	FRONT GRILLE COMPLETE	1	CWE11C3669	←	0
32	INTAKE GRILLE COMPLETE	1	CWE22C1361	←	
33	GRILLE DOOR	1	CWE141076	←	
34	E-ION FILTER	2	CWD00K1002	←	
36	SCREW - FRONT GRILLE	3	XTT4+16CFJ	←	
37	CAP - FRONT GRILLE	3	CWH521062A	←	
38	DRAIN HOSE	1	CWH851063	←	
39	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C067	←	
40	INSTALLATION PLATE	1	CWH36K1007	←	
41	FULCRUM	2	CWH621047	←	
42	E-ION AIR PURIFYING SYSTEM	1	CWH14C5600	←	0
43	ION-GENERATOR	1	CWH94C0014	←	0

(NOTE)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 061).
- "O" marked parts are recommended to be kept in stock.

17.2. Outdoor Unit

CU-A18GKD CU-A24GKD



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY.	CU-A18GKD	CU-A24GKD	REMARKS
1	CHASSY ASS'Y	1	CWD50K2087	←	
2	COMPRESSOR	1	2JS324D3AB07	2JS438D3JA02	O
3	ANTI - VIBRATION BUSHING	3	CWH50055	←	
4	NUT - COMPRESSOR UNIT	3	CWH561049	←	
5	PACKING	3	CWB81043	←	
6	CONDENSER	1	CWB32C2042	CWB32C2044	
7	SOUND PROOF BOARD ASS'Y	1	CWH151051	←	
8	FAN MOTOR BRACKET	1	CWD541055	←	
9	SCREW - FAN MOTOR BRACKET	3	CWH551198	←	
10	FAN MOTOR	1	CWA951385J	←	O
11	SCREW - FAN MOTOR MOUNT	3	CWH55252J	←	
12	PROPELLER FAN ASS'Y	1	CWH03K1017	←	
13	NUT - PROPELLER FAN	1	CWH561038J	←	
14	HOLDER COUPLING	1	CWH351036	←	
15	2-WAY VALVE (LIQUID)	1	CWB021361	←	O
16	TUBE ASS'Y (CAPILLARY TUBE & CHECK VALVE)	1	CWT01C3391	CWT01C3390	
17	3-WAY VALVE (GAS)	1	CWB011212	CWB011213	O
18	TERMINAL COVER	1	CWH171012	←	
19	NUT- TERMINAL COVER	1	CWH7080300J	←	
20	CONTROL BOARD CASING	1	CWH102206	←	
21	CAPACITOR - F.M	1	DS441355NPQA	←	O
22	CAPACITOR - COMP	1	CWA312079	←	O
23	HOLDER CAPACITOR	1	CWH30060	←	
24	TERMINAL BOARD ASS'Y	1	CWA28K1070J	←	
25	CABINET SIDE PLATE (L)	1	CWE041255A	CWE041082A	
26	HANDLE	1	CWE161010	←	
27	CABINET SIDE PLATE (R)	1	CWE041083A	←	
28	HANDLE	2	CWE16000E	←	
29	CABINET FRONT PLATE ASS'Y	1	CWE06K1043	←	
31	CABINET TOP PLATE ASS'Y	1	CWE03K1009A	←	
32	CONTROL BOARD COVER	1	CWH131168	←	
33	CONTROL BOARD COVER COMPLETE	1	CWH131169A	←	
34	OPERATION INSTRUCTIONS	1	CWF565500	←	
35	INSTALLATION INSTRUCTIONS	1	CWF613102	←	
38	SOUND PROOF MATERIAL	1	CWG302221	←	
39	ELECTRONIC CONTROLLER	1	CWA743367	←	O
40	4-WAY VALVE ASS'Y	1	CWB001026J	←	O
41	V-COIL COMPLETE	1	CWA43C2121J	←	O
43	HOLDER SENSOR	1	CWH32089	←	
44	HOLDER SENSOR	1	CWH32074	←	
45	SENSOR COMPLETE	1	CWA50C618	←	
46	DRAIN HOSE	1	CWG87C900	←	
48	OPERATION INSTRUCTIONS	1	CWF565501	←	
49	INSTALLATION INSTRUCTIONS	1	CWF613103	←	
50	WIRE NET	1	CWD041041A	←	

(NOTE)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 061).
- "O" marked parts are recommended to be kept in stock.

[PHAAM] Printed in Malaysia
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