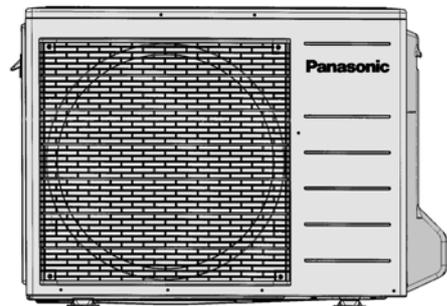
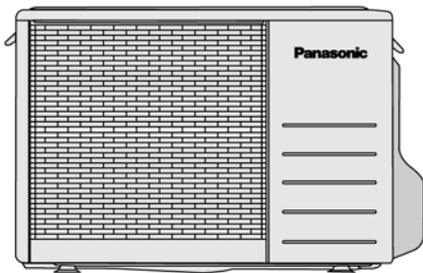


# Service Manual

## Air Conditioner



<b>Indoor Unit</b>	<b>Outdoor Unit</b>
<b>CS-PC12MKF</b>	<b>CU-PC12MKF</b>
<b>CS-PC18MKF</b>	<b>CU-PC18MKF</b>
<b>CS-PC24MKF</b>	<b>CU-PC24MKF</b>

### **⚠ 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.

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# 1 Safety Precautions

- 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.

 <b>WARNING</b>	This indication shows the possibility of causing death or serious injury.
 <b>CAUTION</b>	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 PROHIBITED 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.

 <b>WARNING</b>	
1. Do not modify the machine, part, material during repairing service.	
2. If wiring unit is supplied as repairing part, do not repair or connect the wire even only partial wire break. Exchange the whole wiring unit.	
3. Do not wrench the fasten terminal. Pull it out or insert it straightly.	
4. Engage authorized 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.	
5. Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electric shock or fire.	
6. 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.	
7. 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.	
8. 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.	
9. This equipment is strongly recommended to install with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case equipment breakdown or insulation breakdown.	
10. Use the specified cable 1.5 mm <sup>2</sup> 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.	
11. 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 or fire at the connection point of terminal, fire or electrical shock.	
12. When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosive and injury.	
13. Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit at veranda of high rise building, child may climb up to outdoor unit and cross over the handrail and causing accident.	
14. This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electric shock in case equipment breakdown or insulation breakdown.	
15. Keep away from small children, the thin film may cling to nose and mouth and prevent breathing.	
16. Do not damage or use unspecified power supply cord. Otherwise it will cause fire or electric shock.	
17. Do not modify the length of the power supply cord or use extension cord, and do not share the single outlet with other electric appliances. Otherwise, it will cause fire or electric shock.	
18. During pump down operation, stop the compressor before remove the refrigeration piping. When remove piping while valve at open condition, burst may occur and cause injury.	
19. During installation, before run the compressor, confirm the refrigerant pipes are fixed. Operation of compressor without fixing the piping, setting the valves at open condition, a burst may occur and cause injury.	
20. After completion of installation or service, confirm there is no leakage or refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.	



## WARNING

21. Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when refrigerant contacts with fire.

22. Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.



23. Must not use other parts except original parts described in catalog and manual.



## CAUTION

1. 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.



2. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.

3. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.

4. Do not touch outdoor unit air inlet and aluminium fin. It may cause injury.



5. Select an installation location which is easy for maintenance.

6. Pb free solder has a higher melting point than standard solder; typically the melting point is 50°F – 70°F (30°C – 40°C) higher. Please use a high temperature solder 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).

7. Power supply connection to the air 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.

i. Power supply connection to the receptacle using a power plug. Use an approved 15/16A (3/4~1.5 HP) or 16A (2.0 HP) or 20A (2.5 HP) power plug with earth pin for the connection to the socket.

ii. Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A (3/4~2.0 HP) or 20A (2.5 HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap.

8. Do not release refrigerant during piping work for installation, servicing, reinstallation and during repairing a refrigerant parts. Take care of the liquid refrigerant, it may cause frostbite.



9. Installation or servicing work: It may need two people to carry out the installation or servicing work.

10. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.



11. Do not sit or step on the unit, you may fall down accidentally.



12. Do not touch the sharp aluminum fins or edges of metal parts.

If you are required to handle sharp parts during installation or servicing, please wear hand glove.

Sharp parts may cause injury.



## 2 Specifications

Model		Indoor	CS-PC12MKF		
		Outdoor	CU-PC12MKF		
Performance Test Condition		AHAM			
Power Supply		Phase, Hz	Single, 50		
		V	220	240	
Cooling	Capacity	kW	3.52	3.54	
		BTU/h	12000	12100	
		kJ/h	12670	12740	
	Running Current	A	5.7	5.5	
	Input Power	W	1.21k	1.24k	
	EER	W/W	2.91	2.85	
		BTU/hW	9.9	9.7	
	Power Factor	%	96	94	
	Indoor Noise	dB-A	High: 40; Low: 30		
		Power Level dB	—		
Outdoor Noise	dB-A	High: 51; Low: -	High: 52; Low: -		
	Power Level dB	—	—		
Max Current (A) / Max Input Power (W)		8.1 / 1.75k			
Starting Current (A)		30.0			
Compressor	Type	Rotary (1 cylinder) rolling piston type			
	Motor Type	Induction (2-poles)			
	Output Power	W	1.0k		
Indoor Fan	Type	Cross-flow Fan			
	Material	ASG20K1			
	Motor Type	DC Motor (4-poles)			
	Input Power	W	36	37	
	Output Power	W	24		
	Speed	Lo	rpm	810	
		Me	rpm	940	
Hi		rpm	1120		
SHi		rpm	—		
Outdoor Fan	Type	Propeller Fan			
	Material	PP Resin			
	Motor Type	Induction (6-poles)			
	Input Power	W	80.3	89.1	
	Output Power	W	45		
	Speed	Hi	rpm	875	905
Moisture Removal		L/h (Pt/h)	2.1 (4.4)		
Indoor Airflow	Lo	m <sup>3</sup> /min (ft <sup>3</sup> /m)	6.80 (240)		
	Me	m <sup>3</sup> /min (ft <sup>3</sup> /m)	8.30 (293)		
	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /m)	10.30 (364)		
	SHi	m <sup>3</sup> /min (ft <sup>3</sup> /m)	—		
Outdoor Airflow	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /m)	33.2 (1172)	34.2 (1207)	
Refrigeration Cycle	Control Device	Capillary Tube			
	Refrigerant Oil	cm <sup>3</sup>	ATMOS NM56M or SUNISO 4GDID (430cm <sup>3</sup> )		
	Refrigerant Type	g (oz)	R22, 870 (30.7)		

Model		Indoor	CS-PC12MKF	
		Outdoor	CU-PC12MKF	
Dimension	Height (I/D / O/D)	mm (inch)	290 (11-7/16)	540 (21-9/32)
	Width (I/D / O/D)	mm (inch)	870 (34-9/32)	780 (30-23/32)
	Depth (I/D / O/D)	mm (inch)	204 (8-1/16)	289 (11-13/32)
Weight	Net (I/D / O/D)	kg (lb)	9 (20) / 35 (77)	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4") / 12.70 (1/2")	
	Standard length	m (ft)	7.5 (24.6)	
	Length range (min-max)	m (ft)	3-15 (9.8-49.2)	
	I/D & O/D Height different	m (ft)	5 (16.4)	
	Additional Gas Amount	g/m (oz/ft)	10 (0.1)	
	Length for Additional Gas	m (ft)	7.5 (24.6)	
Drain Hose	Inner Diameter	mm	16	
	Length	mm	550	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre Coat)	
	Fin Type		Slit Fin	
	Row × Stage × FPI		2 × 15 × 21	
	Size (W × H × L)	mm	610 × 315 × 25	
Outdoor Heat Exchanger	Fin Material		Aluminium (Blue Coat)	
	Fin Type		Corrugated Fin	
	Row × Stage × FPI		1 × 20 × 17	
	Size (W × H × L)	mm	22 × 508 × 708.4	
Air Filter	Material		Polypropelene	
	Type		One-touch	
Power Supply			Indoor Power Supply	
Power Supply Cord		A	15	
Thermostat			—	
Protection Device			—	
			Dry Bulb	Wet Bulb
Indoor Operation Range	Maximum		32	23
	Minimum		16	11
Outdoor Operation Range	Maximum		55	31
	Minimum		16	11

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Specification are subjected to change without prior notice for further improvement.

Model		Indoor	CS-PC18MKF		CS-PC24MKF		
		Outdoor	CU-PC18MKF		CU-PC24MKF		
Performance Test Condition			AHAM		AHAM		
Power Supply		Phase, Hz	Single, 50		Single, 50		
		V	220	240	220	240	
Cooling	Capacity	kW	5.28	5.28	7.03	7.03	
		BTU/h	18000	18000	24000	24000	
		kJ/h	19010	19010	25310	25310	
	Running Current	A	9.8	10.0	12.4	12.3	
	Input Power	W	1.99k	2.05k	2.57k	2.70k	
	EER	W/W	2.65	2.58	2.74	2.60	
		BTU/hW	9.05	8.79	9.34	8.89	
	Power Factor	%	92	85	94	91	
	Indoor Noise	dB-A	High: 45; Low: 41		High: 48; Low: 42	High: 49; Low: 42	
		Power Level dB	—		—		
Outdoor Noise	dB-A	High: 56; Low: -	High: 58; Low: -	High: 61; Low: -	High: 63; Low: -		
	Power Level dB	—		—			
Max Current (A) / Max Input Power (W)			12.6 / 2.80k		17.1 / 3.67k		
Starting Current (A)			44.0		60.0		
Compressor		Type	Rotary (1 cylinder) rolling piston type		Rotary (1 cylinder) rolling piston type		
		Motor Type	Induction (2-poles)		Induction (2-poles)		
		Output Power	W	1.5k	2.0k		
Indoor Fan	Type		Cross-flow Fan		Cross-flow Fan		
	Material		ASG20K1		ASG20K1		
	Motor Type		DC Motor (8-poles)		DC Motor (8-poles)		
	Input Power		W	94.8	94.8	94.8	94.8
	Output Power		W	40		40	
	Speed	Lo	rpm	1120	1120	1150	1150
		Me	rpm	1200	1200	1240	1240
Hi		rpm	1280	1280	1390	1390	
SHi		rpm	—	—	—	—	
Outdoor Fan	Type		Propeller Fan		Propeller Fan		
	Material		PP Resin		PP Resin		
	Motor Type		Induction (6-poles)		Induction (6-poles)		
	Input Power		W	87.8	92.4	157.1	172.9
	Output Power		W	45		88	
	Speed	Lo	rpm	—	—	440	500
Hi		rpm	875	905	860	890	
Moisture Removal		L/h (Pt/h)	2.9 (6.1)		4.0 (8.5)		
Indoor Airflow	Lo	m <sup>3</sup> /min (ft <sup>3</sup> /m)	14.30 (505)	14.30 (505)	14.30 (505)	14.30 (505)	
	Me	m <sup>3</sup> /min (ft <sup>3</sup> /m)	15.60 (551)	15.60 (551)	15.70 (554)	15.70 (554)	
	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /m)	16.90 (597)	16.90 (597)	18.10 (639)	18.10 (639)	
	SHi	m <sup>3</sup> /min (ft <sup>3</sup> /m)	—		—		
Outdoor Airflow	Lo	rpm	—	—	26.6 (940)	30.3 (1071)	
	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /m)	31.6 (1120)	32.6 (1150)	55.0 (1940)	57.0 (2010)	
Refrigeration Cycle	Control Device		Capillary Tube		Capillary Tube		
	Refrigerant Oil	cm <sup>3</sup>	ATMOS NM56M or SUNISO 4GDID (450cm <sup>3</sup> )		ATMOS M60 or SUNISO 4GDID (700cm <sup>3</sup> )		
	Refrigerant Type	g (oz)	R22, 1.01k (35.7)		R22, 1.40k (49.4)		

Model		Indoor	CS-PC18MKF		CS-PC24MKF	
		Outdoor	CU-PC18MKF		CU-PC24MKF	
Dimension	Height (I/D / O/D)	mm (inch)	290 (11-7/16)	540 (21-9/32)	290 (11-7/16)	695 (27-3/8)
	Width (I/D / O/D)	mm (inch)	1070 (42-5/32)	780 (30-23/32)	1070 (42-5/32)	875 (34-15/32)
	Depth (I/D / O/D)	mm (inch)	235 (9-9/32)	289 (11-13/32)	235 (9-9/32)	320 (12-5/8)
Weight	Net (I/D / O/D)	kg (lb)	12.0 (26) / 38.0 (84)		12.0 (26) / 56.0 (123)	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4") / 12.70 (1/2")		6.35 (1/4") / 15.88 (5/8")	
	Standard length	m (ft)	5.0 (16.4)		5.0 (16.4)	
	Length range (min~max)	m (ft)	3~25 (9.8~82.0)		3~25 (9.8~82.0)	
	I/D & O/D Height different	m (ft)	20 (65.6)		20 (65.6)	
	Additional Gas Amount	g/m (oz/ft)	20 (0.2)		30 (0.3)	
	Length for Additional Gas	m (ft)	7.5 (24.6)		7.5 (24.6)	
Drain Hose	Inner Diameter	mm	14		14	
	Length	mm	550		550	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre Coat)		Aluminium (Pre Coat)	
	Fin Type		Slit Fin		Slit Fin	
	Row × Stage × FPI		2 × 15 × 21		2 × 15 × 21	
	Size (W × H × L)	mm	810 × 315 × 25.4		810 × 315 × 25.4	
Outdoor Heat Exchanger	Fin Material		Aluminium (Blue Coat)		Aluminium (Blue Coat)	
	Fin Type		Slit Fin		Slit Fin	
	Row × Stage × FPI		2 × 24 × 17		2 × 31 × 17	
	Size (W × H × L)	mm	25.4 × 504 × 693.4: 713.4		25.4 × 714.0 × 826.2: 846.2	
Air Filter	Material		Polypropelene		Polypropelene	
	Type		One-touch		One-touch	
Power Supply			Indoor Power Supply		Indoor Power Supply	
Power Supply Cord		A	16		20	
Thermostat			—		Mechanical	
Protection Device			—		—	
			Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb
Indoor Operation Range	Maximum		32	23	32	23
	Minimum		16	11	16	11
Outdoor Operation Range	Maximum		55	31	55	31
	Minimum		16	11	16	11

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Specification are subjected to change without prior notice for further improvement.

# 3 Features

- **Long Installation Piping**

- Long piping up to 15 meter (PC12MKF) and 25 meter (PC18/24MKF).

- **Easy to use remote control**

- **Quality Improvement**

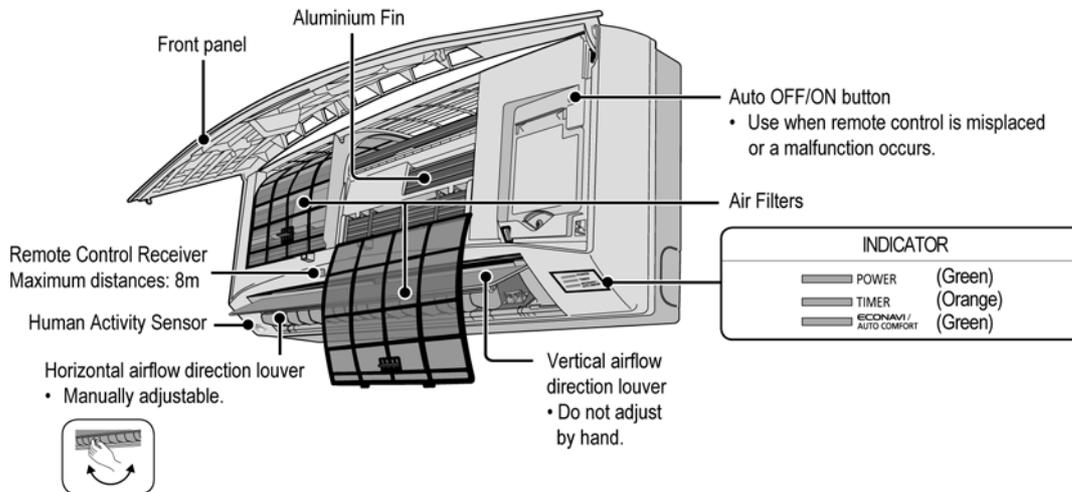
- Random auto restart after power failure for safety restart operation
- Gas leakage protection
- Prevent compressor reverse cycle
- Overload protector to protect Compressor
- Noise prevention during soft dry operation
- Blue Coated Condenser for high resistance to corrosion

- **Operation Improvement**

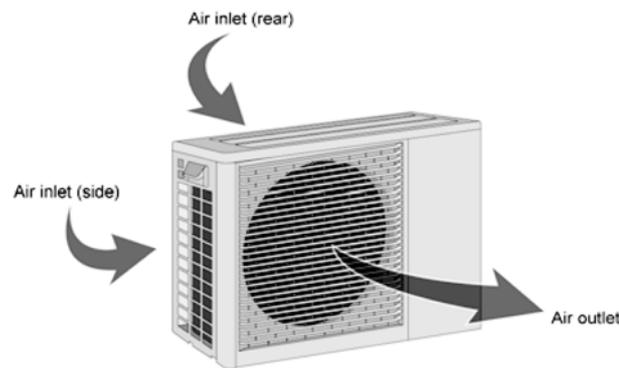
- 24-hour timer setting

# 4 Location of Controls and Components

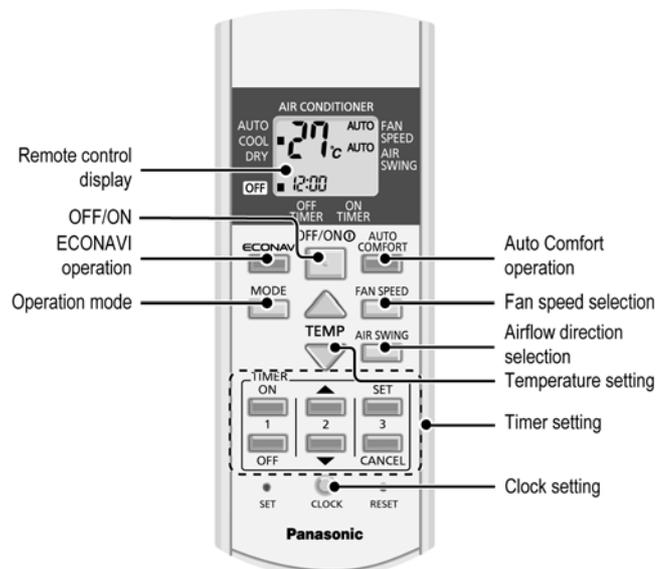
## 4.1. Indoor Unit



## 4.2. Outdoor Unit



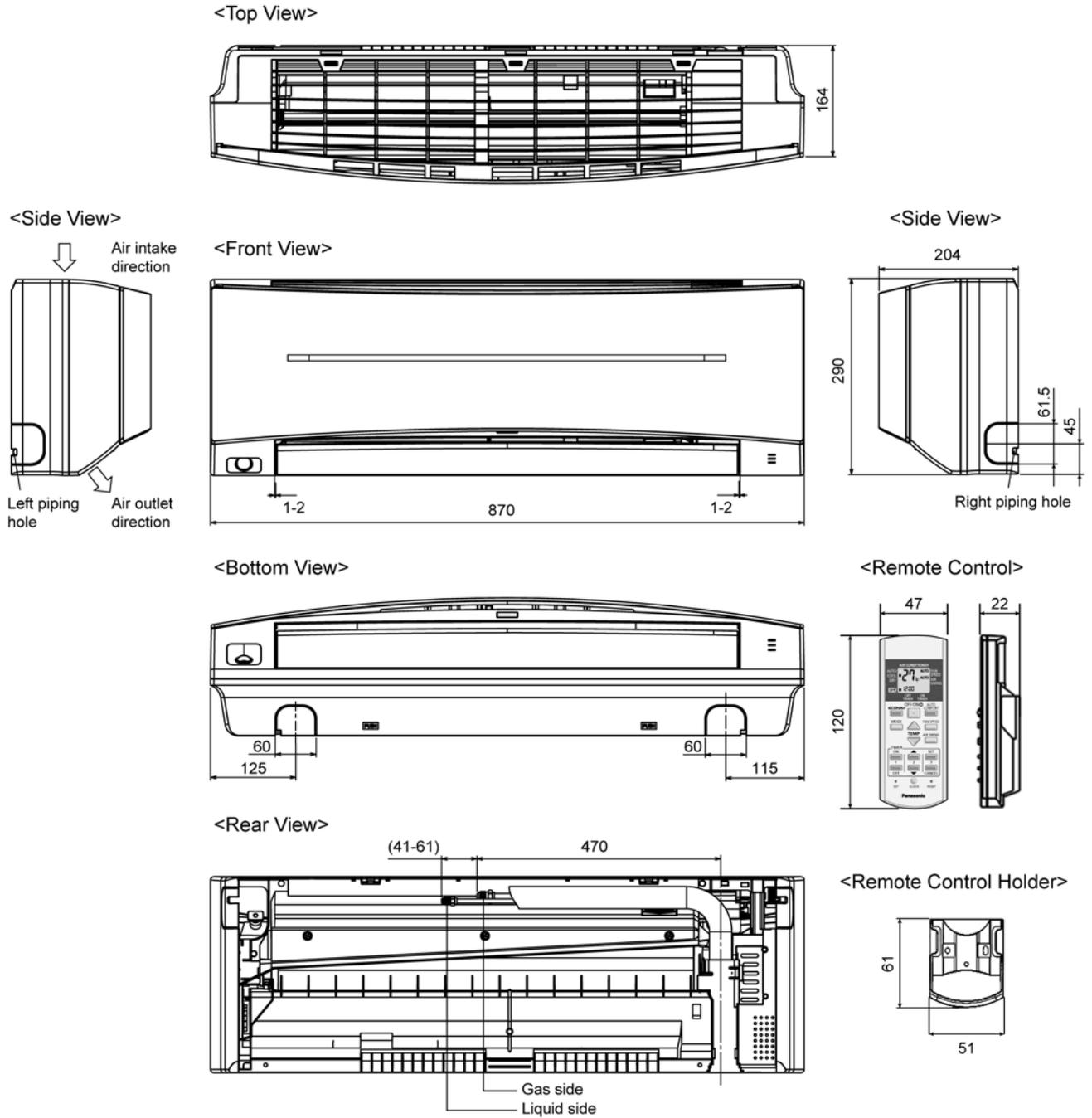
## 4.3. Remote Control



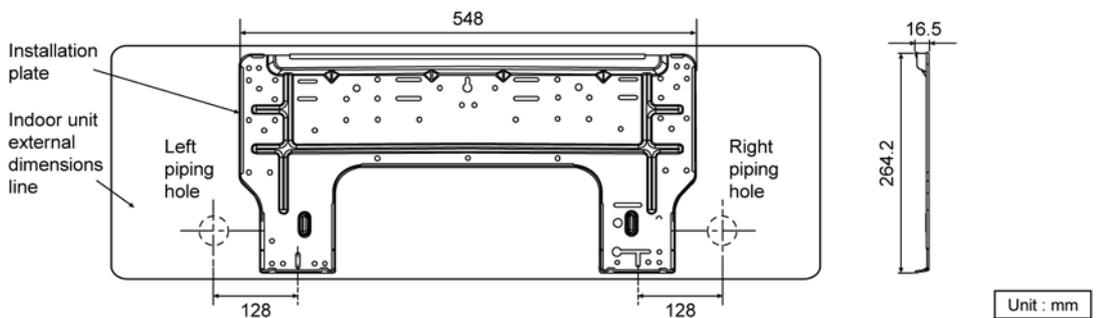
# 5 Dimensions

## 5.1. Indoor Unit

### 5.1.1. CS-PC12MKF

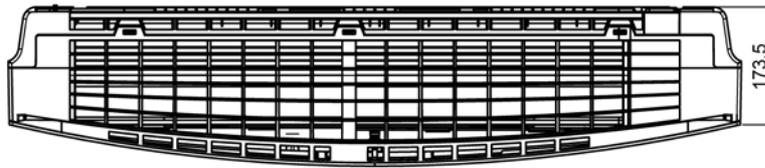


Relative position between the indoor unit and the installation plate <Front View>

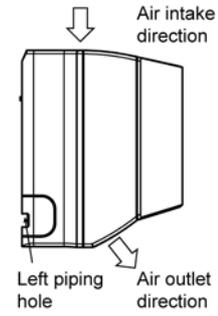


## 5.1.2. CS-PC18MKF CS-PC24MKF

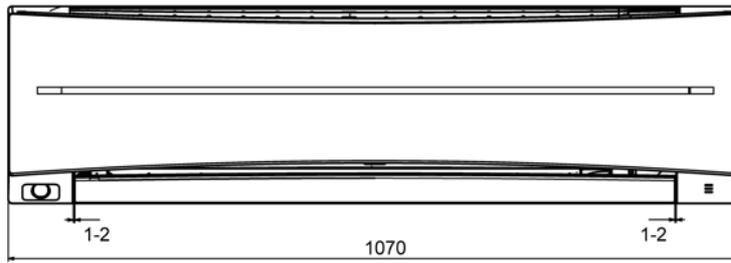
<Top View>



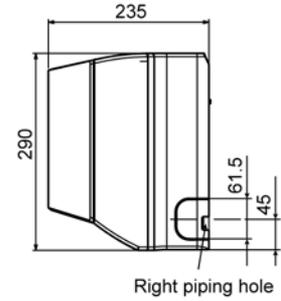
<Side View>



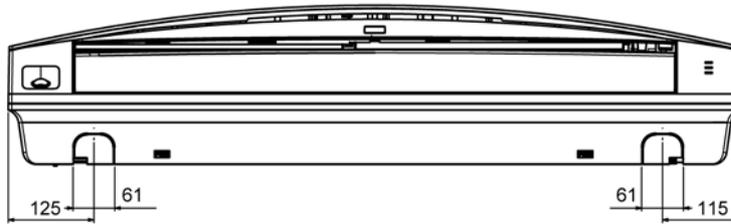
<Front View>



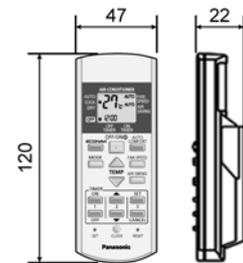
<Side View>



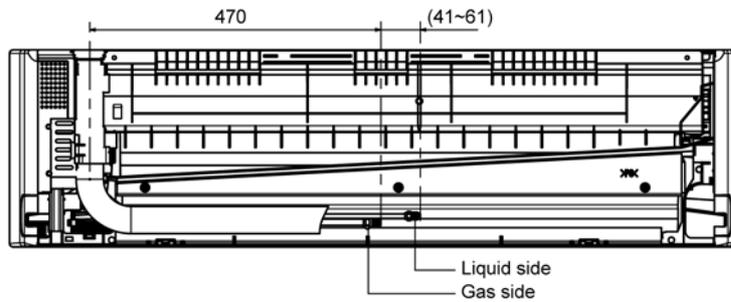
<Bottom View>



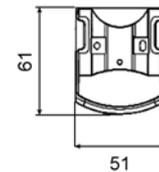
<Remote Control>



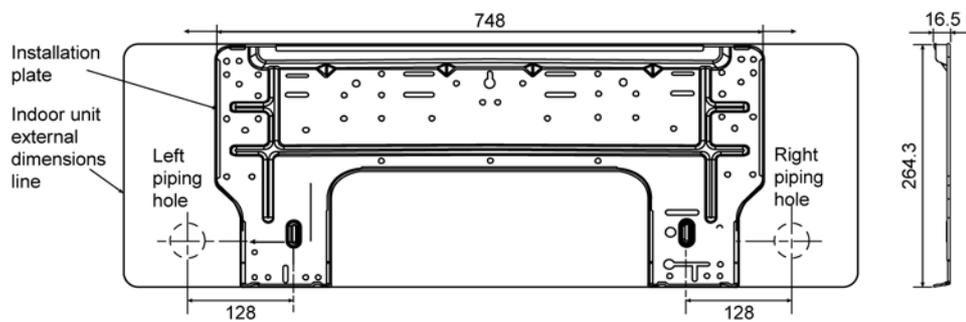
<Rear View>



<Remote Control Holder>



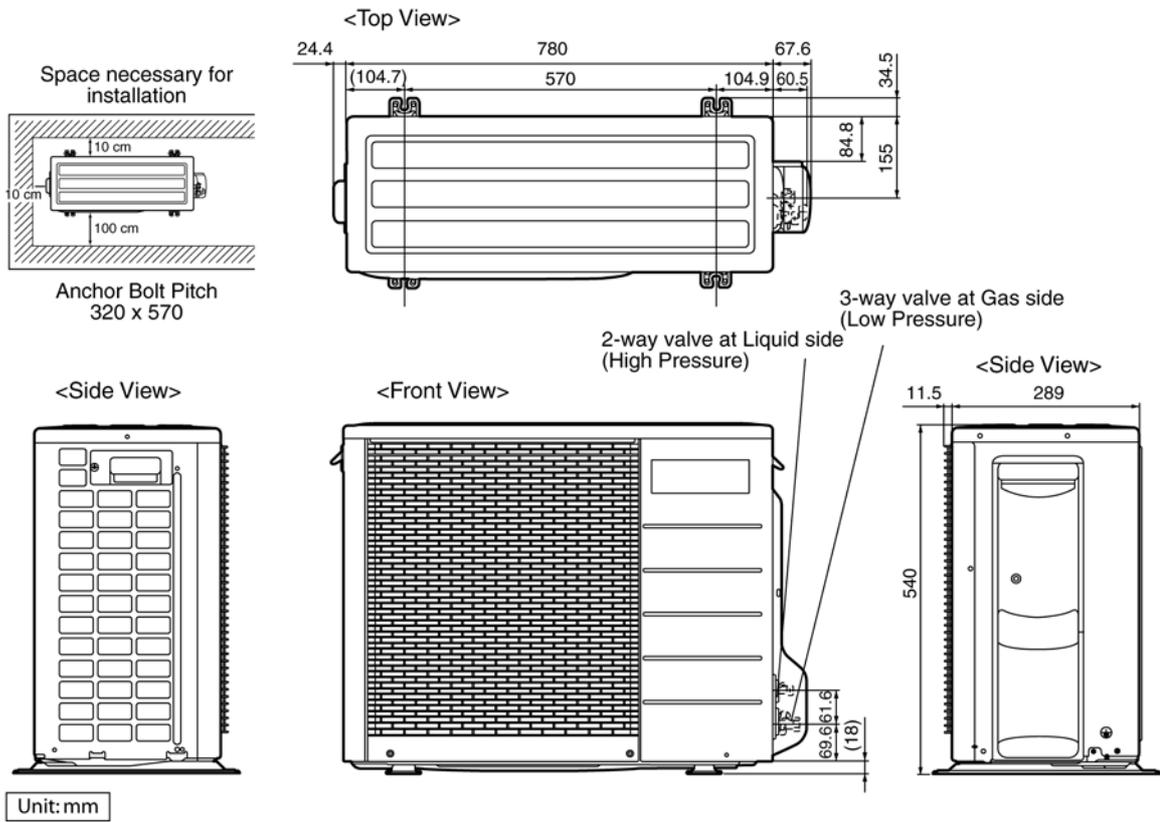
Relative position between the indoor unit and the installation plate <Front View>



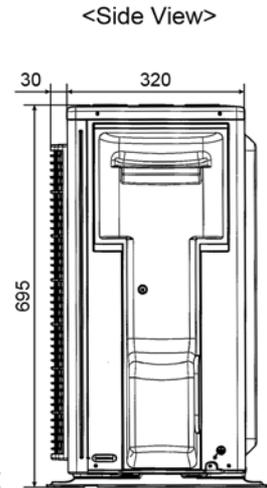
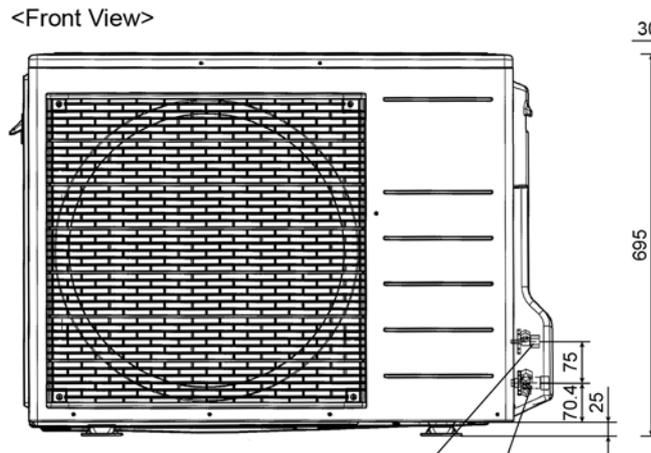
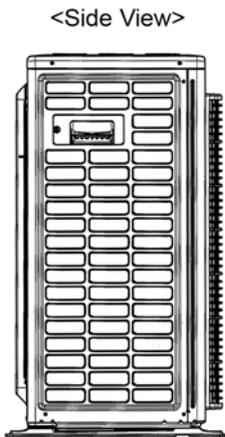
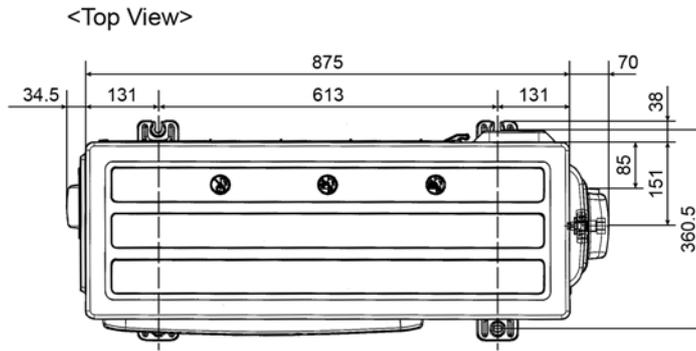
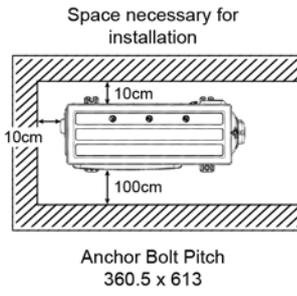
Unit : mm

## 5.2. Outdoor Unit

### 5.2.1. CU-PC12MKF CU-PC18MKF



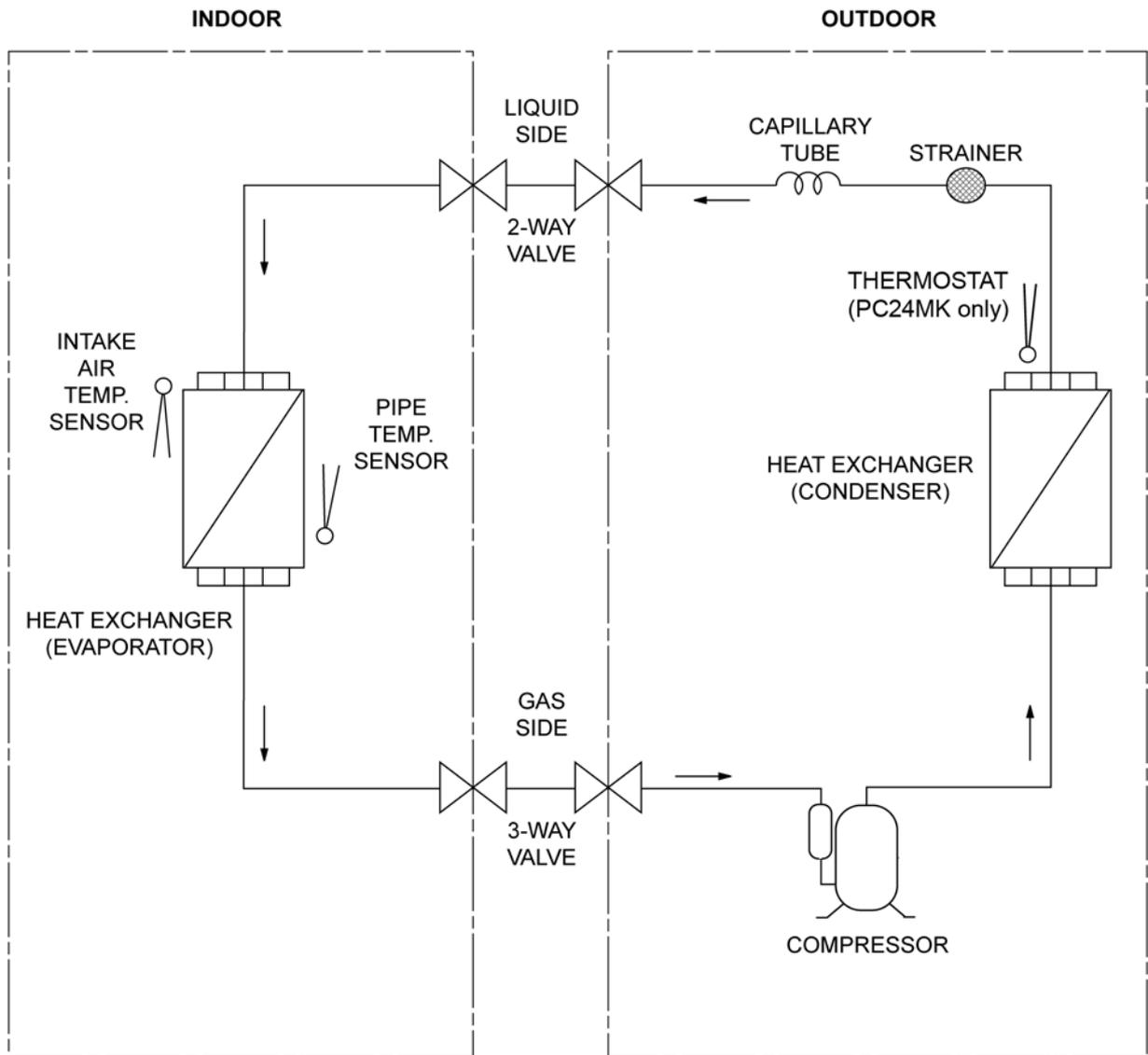
## 5.2.2. CU-PC24MKF



Unit : mm

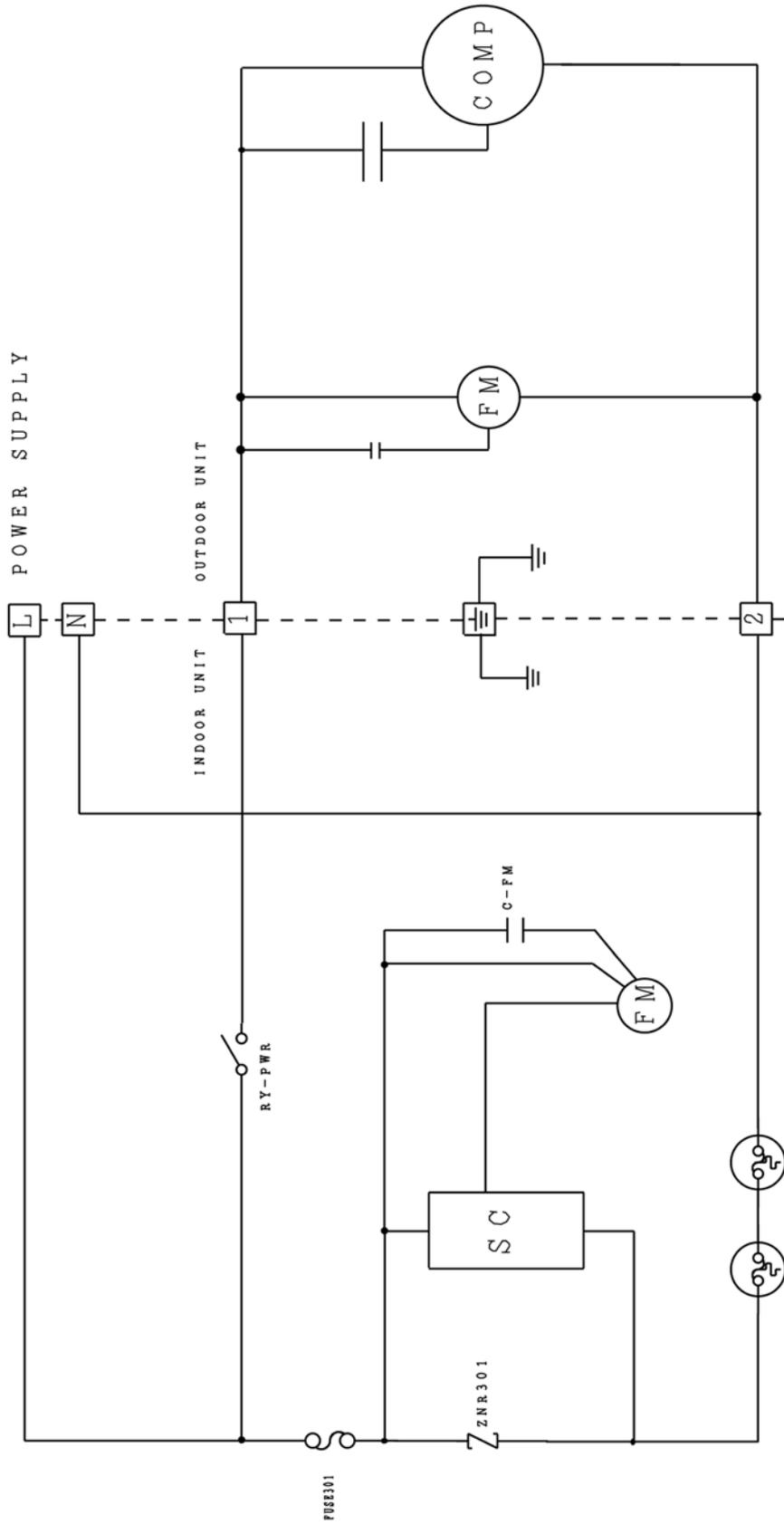
3-way valve at Gas side  
(Low Pressure)  
2-way valve at Liquid side  
(High Pressure)

# 6 Refrigeration Cycle Diagram

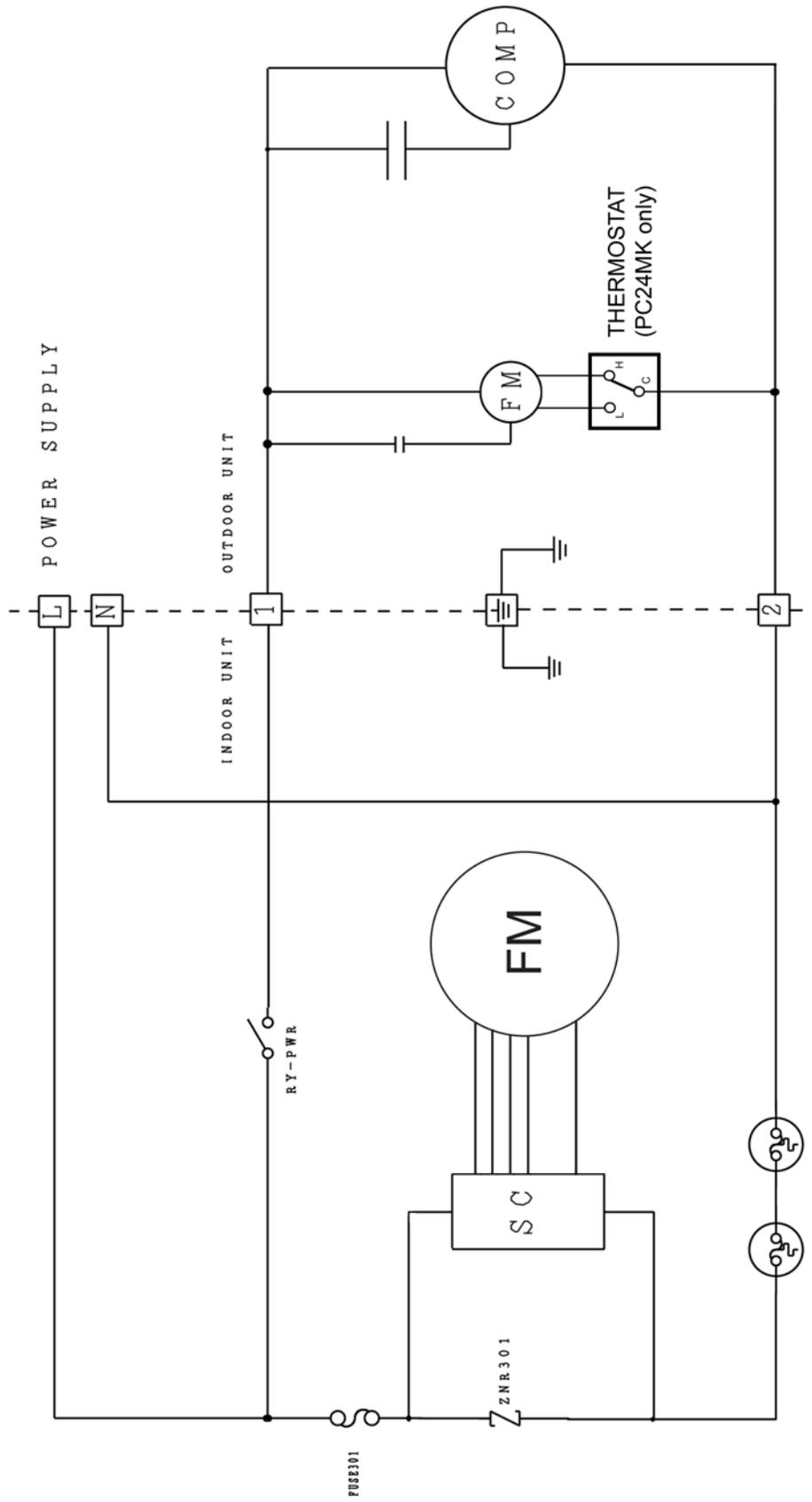


# 7 Block Diagram

## 7.1. CS-PC12MKF

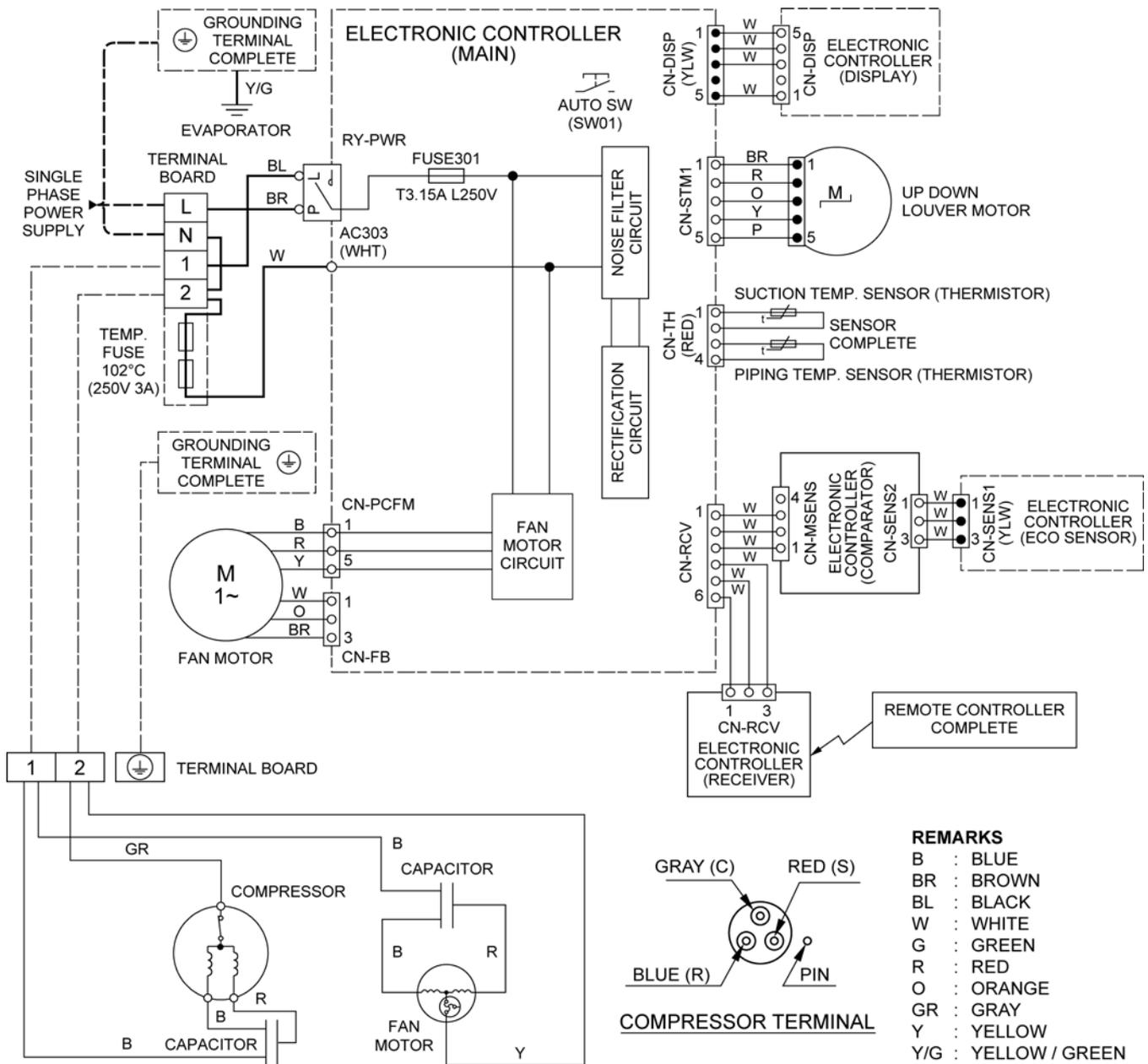


## 7.2. CS-PC18MKF CS-PC24MKF



# 8 Wiring Connection Diagram

## 8.1. CS-PC12MKF CU-PC12MKF



**Resistance of Indoor Fan Motor Windings**

MODEL	CS-PC12MKF
CONNECTION	CWA921434
BLUE-YELLOW	351.3 Ω
YELLOW-RED	343.9 Ω

Note: Resistance at 25°C of ambient temperature.

**Resistance of Compressor Windings**

MODEL	CU-PC12MKF
CONNECTION	2KS210D5AA06
C - R	2.279 Ω
C - S	3.526 Ω

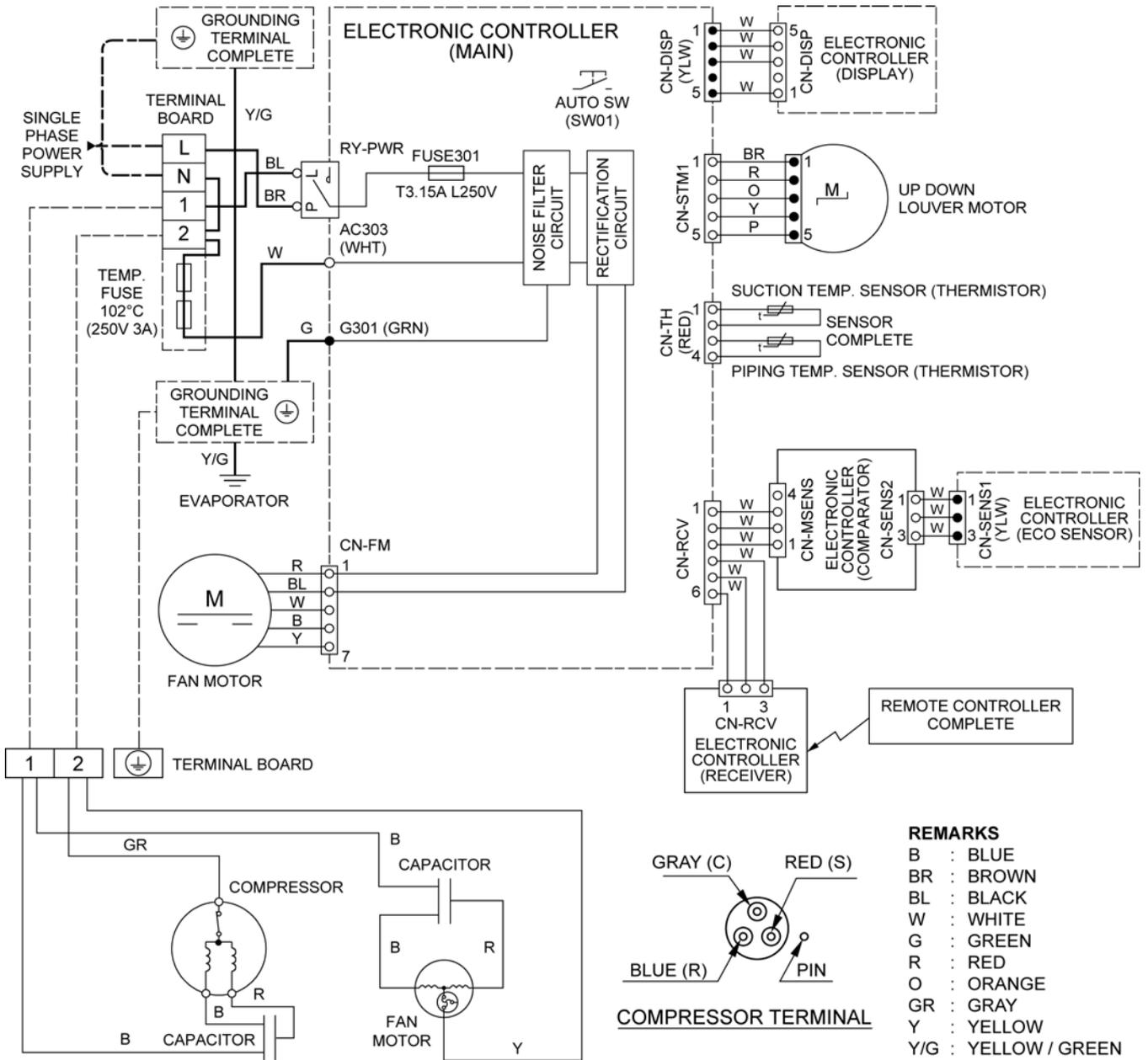
Note: Resistance at 20°C of ambient temperature.

**Resistance of Outdoor Fan Motor Windings**

MODEL	CU-PC12MKF
CONNECTION	CWA951676
BLUE-YELLOW	198 Ω
YELLOW-RED	293 Ω

Note: Resistance at 25°C of ambient temperature.

## 8.2. CS-PC18MKF CU-PC18MKF



### Resistance of Outdoor Fan Motor Windings

MODEL	CU-PC18MKF
CONNECTION	CWA951676
BLUE-YELLOW	198 Ω
YELLOW-RED	293 Ω

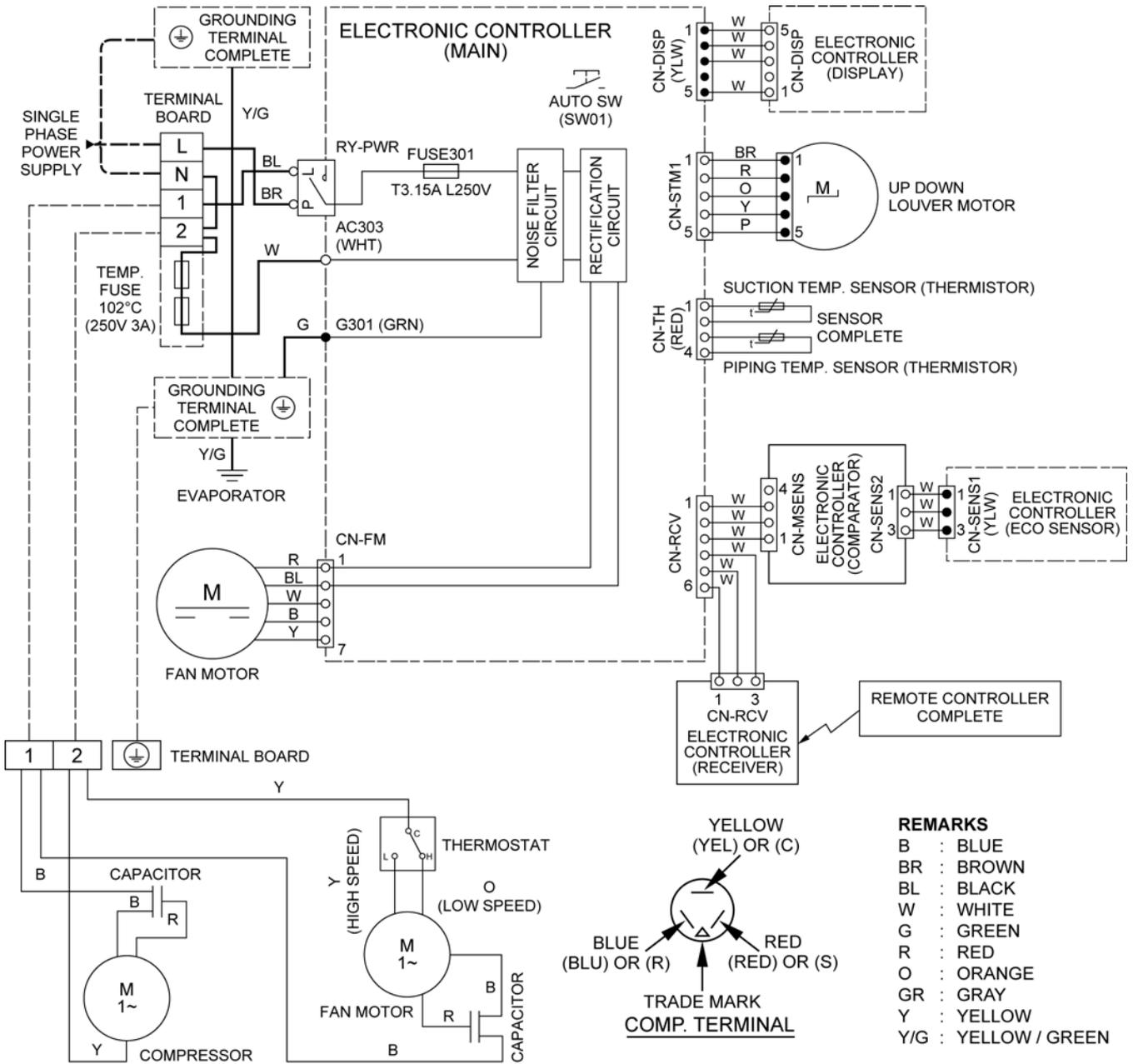
Note: Resistance at 25°C of ambient temperature.

### Resistance of Compressor Windings

MODEL	CU-PC18MKF
CONNECTION	2KS324D5AB06
C - R	1.642 Ω
C - S	4.316 Ω

Note: Resistance at 20°C of ambient temperature.

### 8.3. CS-PC24MKF CU-PC24MKF



**Resistance of Outdoor Fan Motor Windings**

MODEL	CU-PC24MKF
CONNECTION	CWA951689
BLUE-YELLOW	64 Ω
YELLOW-ORANGE	90 Ω
YELLOW-RED	55 Ω

Note: Resistance at 25°C of ambient temperature.

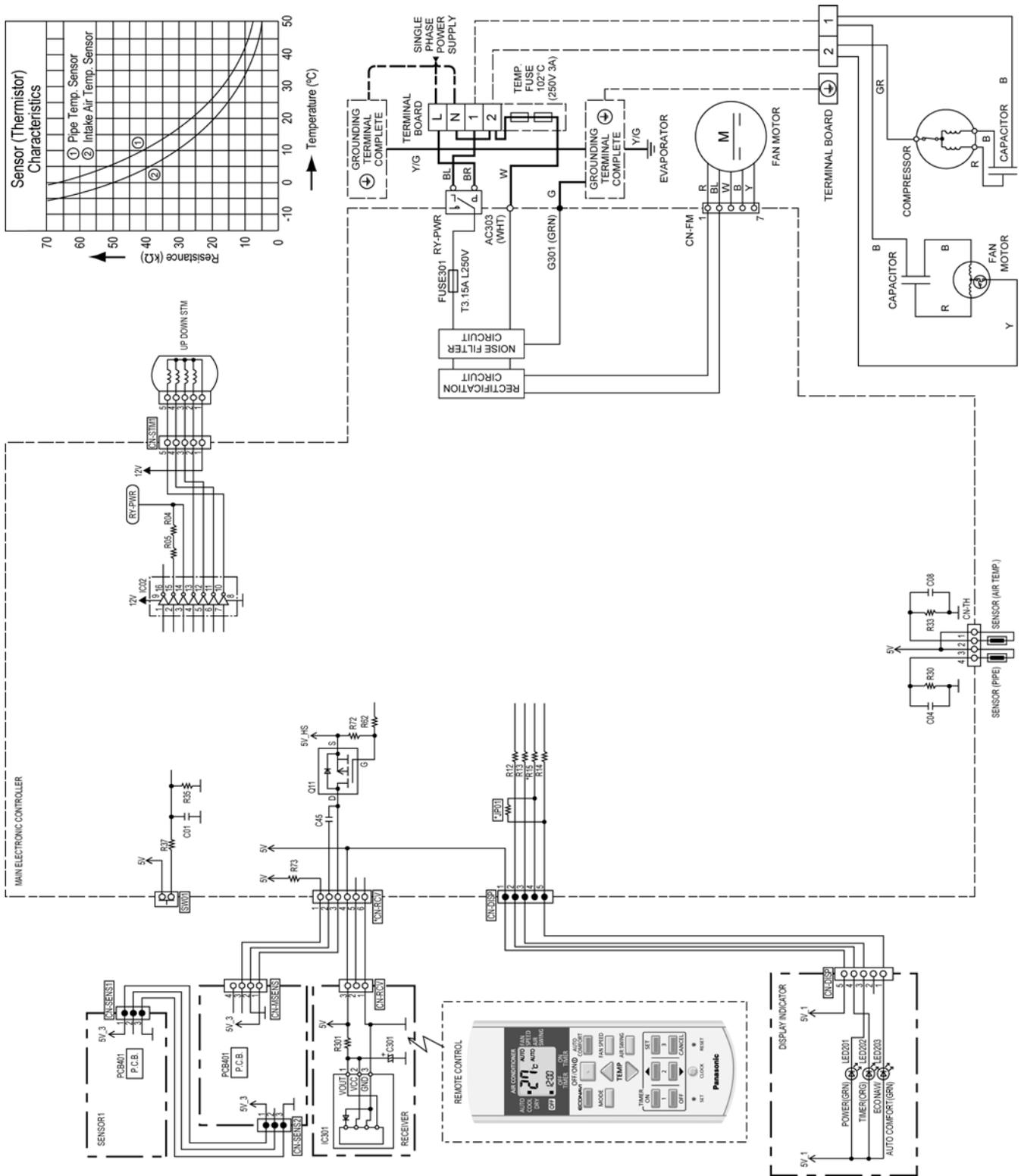
**Resistance of Compressor Windings**

MODEL	CU-PC24MKF
CONNECTION	2JS438D3CB04
C - R	1.121 Ω
C - S	2.535 Ω

Note: Resistance at 20°C of ambient temperature.



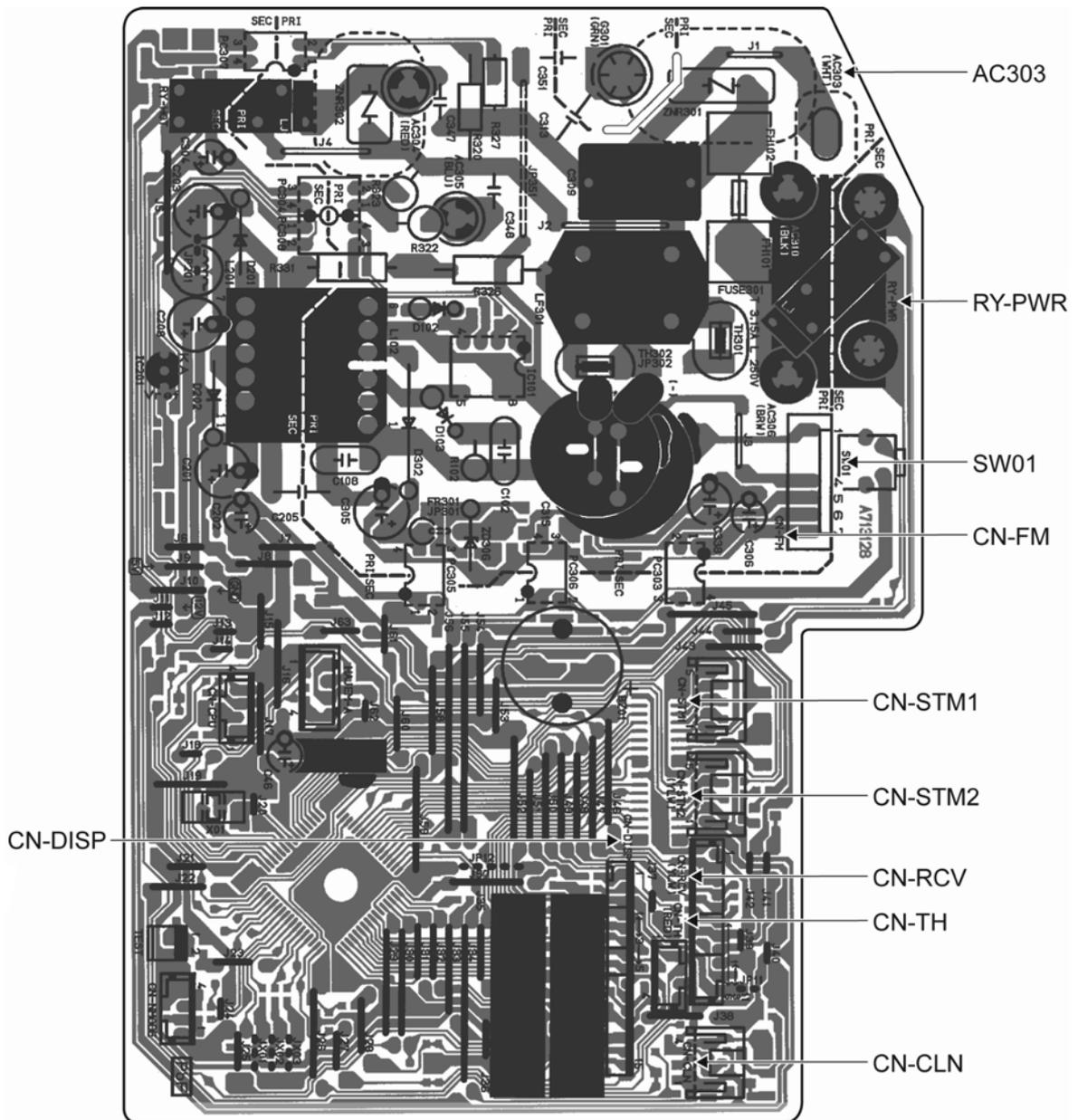
## 9.2. CS-PC18MKF CU-PC18MKF



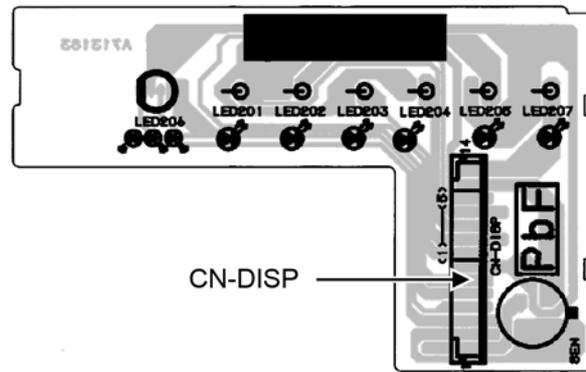




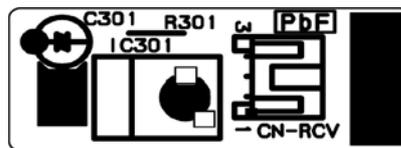
### 10.1.1.2. CS-PC18MKF CS-PC24MKF



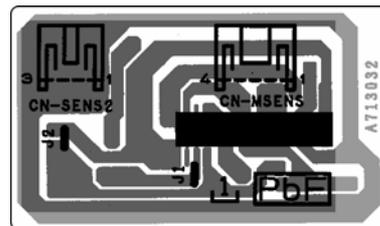
## 10.2. Indicator Printed Circuit Board



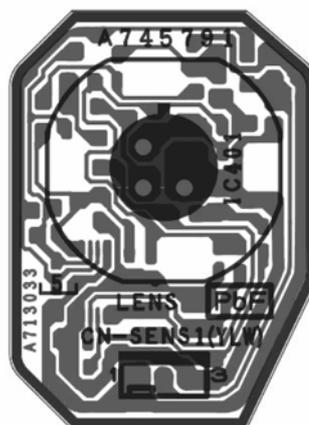
## 10.3. Receiver Printed Circuit Board



## 10.4. Comparator Printed Circuit Board



## 10.5. Human Activity Sensor Printed Circuit Board



# 11 Installation Instruction

## 11.1. Select The Best Location

### 11.1.1. Indoor Unit

- Do not install the unit in excessive oil fume area such as kitchen, workshop and etc.
- 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.

### 11.1.2. Outdoor Unit

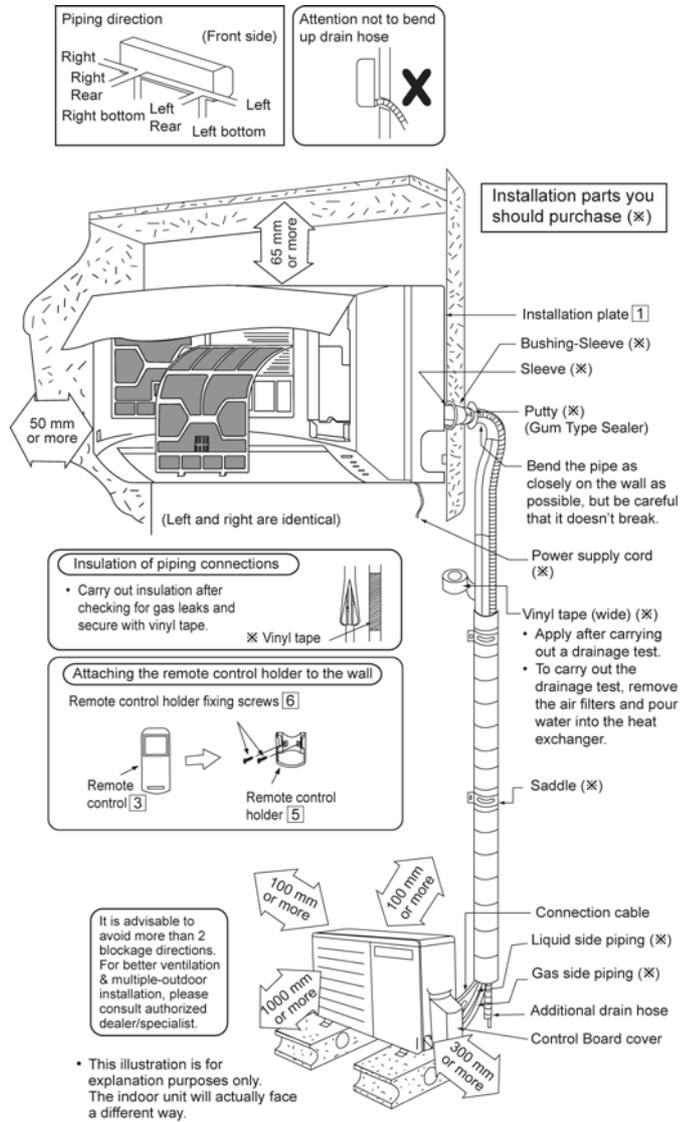
- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other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

Model	Horse Power (HP)	Piping size		Std Length (m)	Max. Elevation (m)	Min. Piping Length (m)	Max. Piping Length (m)	Additional Refrigerant (g/m)	Piping Length for add. gas (m)
		Gas	Liquid						
PC12***	1.5HP	12.7mm (1/2")	6.35mm (1/4")	7.5	5	3	15	10	7.5
PC18***	2.0HP	15.88mm (5/8")		20	3	25	20	7.5	
PC24***	2.5HP			20	3	25	30	7.5	

Example: For PC12\*\*\*

If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 25g ....  $(10-7.5) \text{ m} \times 10\text{g/m} = 25\text{g}$ .

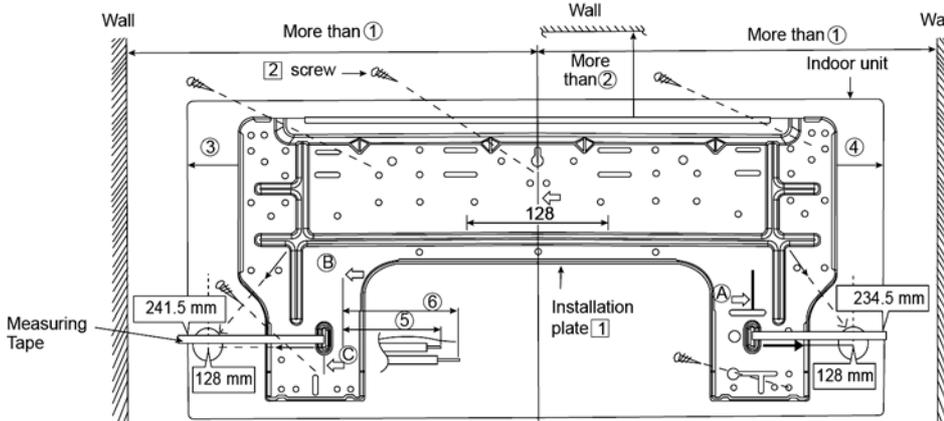
### 11.1.3. Indoor/Outdoor Unit Installation Diagram



## 11.2. Indoor Unit

### 11.2.1. How To Fix Installation Plate

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



Model	Dimension					
	①	②	③	④	⑤	⑥
PC12***	485 mm	82 mm	165 mm	158 mm	43 mm	95 mm
PC18***, PC24***	585 mm	83 mm	165 mm	158 mm	109 mm	159 mm

The centre of installation plate should be at more than ① at right and left of the wall.

The distance from installation plate edge to ceiling should more than ②.

From installation plate left edge to unit's left side is ③.

From installation plate right edge to unit's right is ④.

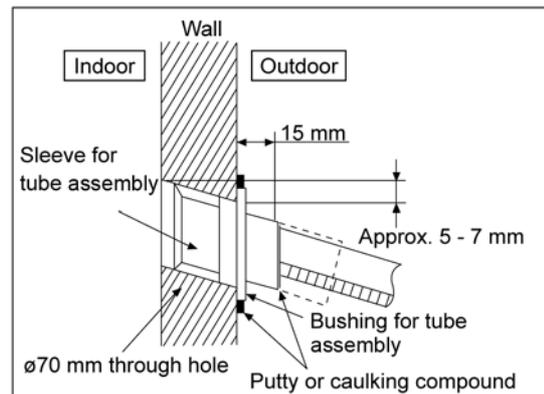
**B** :For left side piping, piping connection for liquid should be about ⑤ from this line.

:For left side piping, piping connection for gas should be about ⑥ from this line.

- Mount the installation plate on the wall with 5 screws or more (at least 5 screws).  
(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.
- Drill the piping plate hole with  $\varnothing 70$  mm hole-core drill.
  - Putting measuring tape at position as shown in the diagram above.  
The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively. Another method is intersection point of arrow mark extension.  
The meeting point of the extension arrow mark is the hole center position.
  - Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side. (refer to step 11.2.2)

### 11.2.2. To Drill A Hole In The Wall And Install A Sleeve Of Piping

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

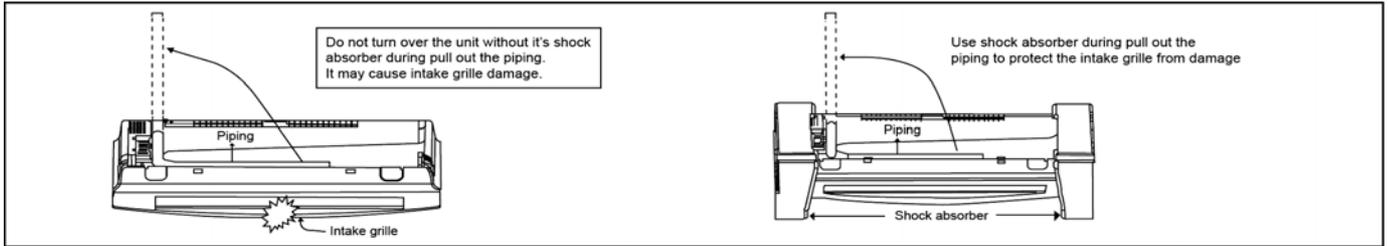


#### **CAUTION**

- !** When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

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

### 11.2.3. Indoor Unit Installation



#### 11.2.3.1. For the right rear piping

- Step-1** Pull out the Indoor piping
- Step-2** Install the Indoor Unit
- Step-3** Secure the Indoor Unit
- Step-4** Insert the power supply cord and connection cable
  - Insert the cables from bottom of the unit through the control board hole until terminal board area.

#### 11.2.3.2. For the right and right bottom piping

- Step-1** Pull out the Indoor piping
- Step-2** Install the Indoor Unit
- Step-3** Insert the power supply cord and connection cable
  - Insert the cables from bottom of the unit through the control board until terminal board area.
- Step-4** Secure the Indoor Unit

#### 11.2.3.3. For the embedded piping

- Step-1** Replace the drain hose
- Step-2** Bend the embedded piping
  - Use a spring bender or equivalent to bend the piping so that the piping is not crushed.
- Step-3** Pull the connection cable into Indoor Unit
  - The power supply cord and indoor unit and outdoor unit connection cable can be connected without removing the front grille.
- Step-4** Cut and flare the embedded piping
  - When determining the dimensions if the piping, slide the unit all the way to the left on the installation plate.
  - Refer to the section "Cutting and flaring the piping"
- Step-5** Install the Indoor unit
- Step-6** Connect the piping
  - Please refer to "Connection the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation).
- Step-7** Insulate and finish the piping
  - Please refer to "Insulation of piping connection" column as mentioned in indoor/outdoor unit installation.
- Step-8** Secure the indoor unit

**Right Rear piping**

Tape it with piping in a position as mentioned in Fig. below.

**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.)

**Right and Right Bottom piping**

Tape it with piping in a position as mentioned in Fig. below.

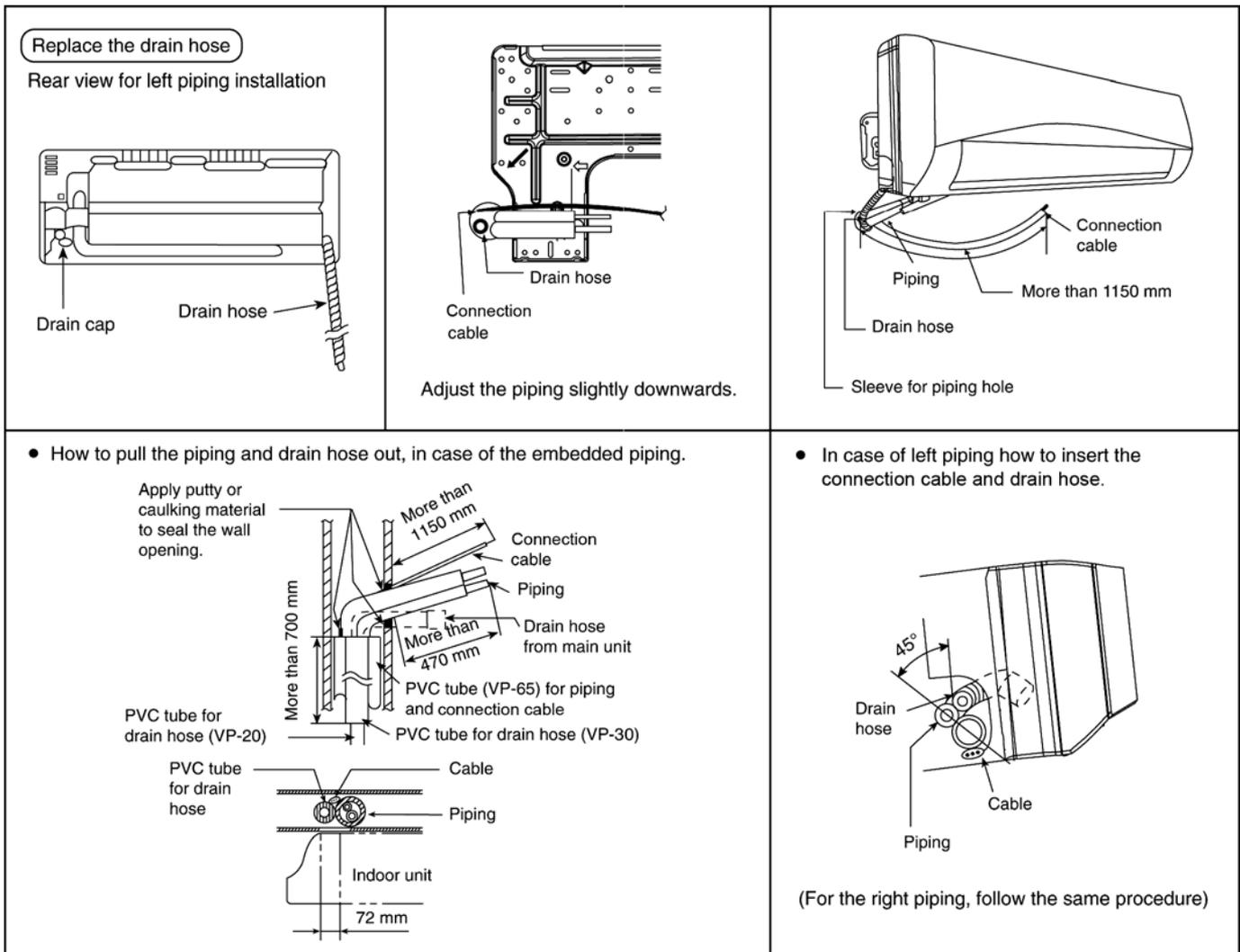
**Install the indoor unit**  
Hook the indoor unit onto the upper portion of installation plate. (Engage the indoor unit with the upper edge of the installation plate). Ensure the hooks are properly seated on the installation plate by moving it in left and right.

**Secure the Indoor Unit**  
Press the lower left and right side of the unit against the installation plate until hooks engages with their slot (sound click).

**Insert the connection cable**

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 botom piping also.)

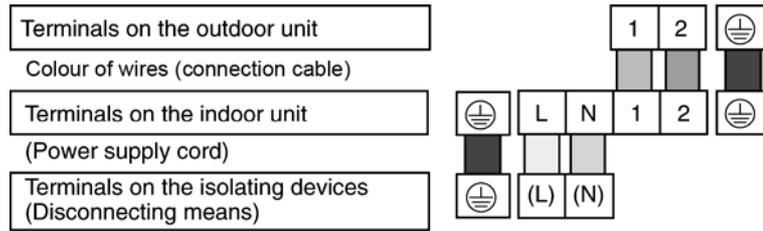


#### 11.2.4. Connect the Cable to the Indoor Unit

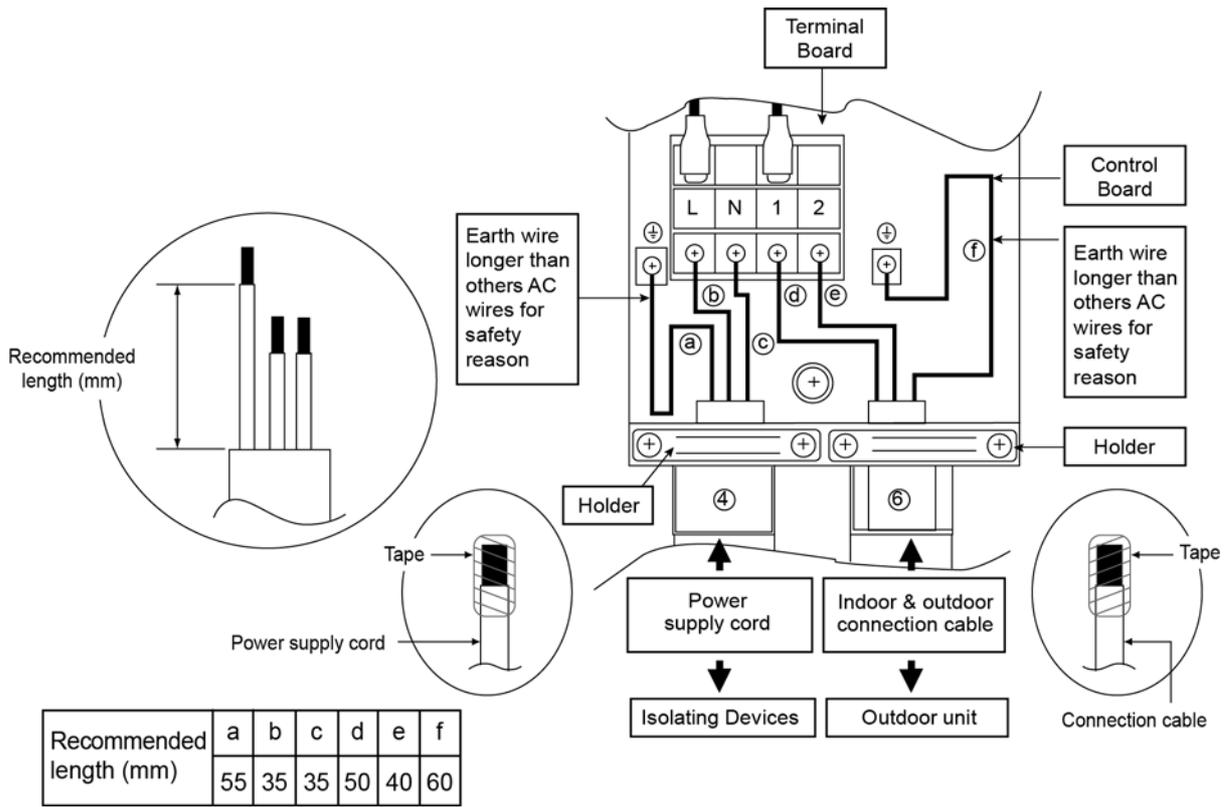
The power supply cord, indoor and outdoor and outdoor unit connection cable can be connected without removing the front grille.

1. Install the indoor unit on the installing holder that mounted on the wall,
2. Open the front panel and grille door by loosening the screw.
3. Cable connection to the power supply through Isolating Devices (Disconnecting means).
  - Connect the approved polychloroprene sheathed **power supply cord** 3 x 1.5mm<sup>2</sup> (1.5HP) or 3 x 2.5mm<sup>2</sup> (2.0~2.5HP), type designation 245 IEC 57 or heavier cord to the terminal board, and connect the other end of the cable to Isolating Devices (Disconnecting means).
  - Do not use joint power supply cord. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.
  - In unavoidable case, joining of power supply cord between isolating devices and terminal board of air conditioner shall be done by using approved socket and plug rated 15/16A (1.5HP) or 16A (2.0HP) or 20A (2.5HP). Wiring work to both socket and plug must follow to national wiring standard.
4. Bind all the power supply cord lead wire with tape and route the power supply cord via the left escapement.
5. **Connection cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 x 1.5 mm<sup>2</sup> (1.5HP) or 3 x 2.5 mm<sup>2</sup> (2.0 ~ 2.5HP) flexible cord, type designation 245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.
6. Bind all the indoor and outdoor connection cable with tape and route the connecting cable via the right escapement.

7. Remove the tapes and connect the power supply cord and connecting cable between indoor unit and outdoor unit according to the diagram below.



- Secure the power supply cord and connection cable onto the control board with the holder.
- Close grille door by tighten with screw and close the front panel.

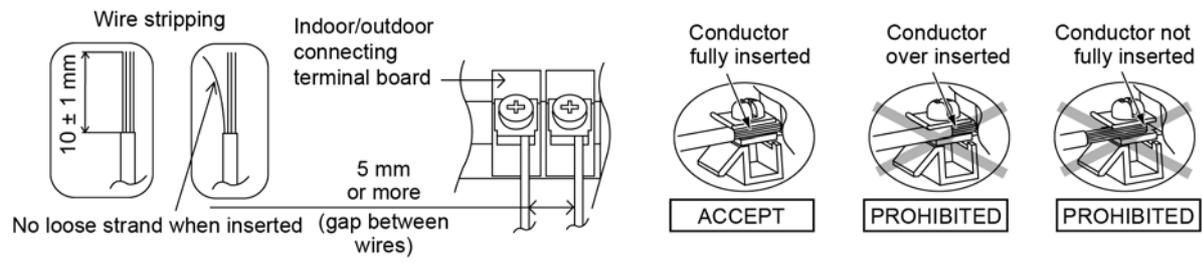


**⚠ WARNING**  
 ⚡ This equipment must be properly earthed.

Note:

- Isolating Devices (Disconnecting means) should have minimum 3.0mm contact gap.
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than the other AC wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the anchorage.

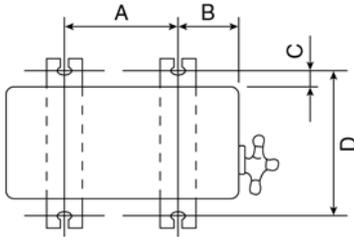
### 11.2.5. Wire Stripping And Connecting Requirement



## 11.3. Outdoor Unit

### 11.3.1. 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 ( $\varnothing 10$  mm).
  2. When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.



Model	A	B	C	D
PC12***, PC18***	570 mm	105 mm	18.5 mm	320 mm
PC24***	613 mm	131 mm	16 mm	360.5 mm

### 11.3.2. Connecting The Piping

#### 11.3.2.1. Connecting The Piping To Indoor

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

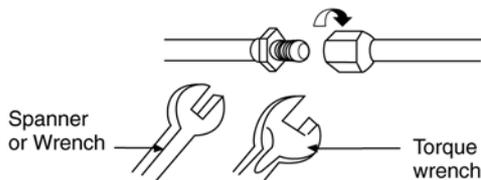
- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

#### 11.3.2.2. Connecting The Piping To Outdoor

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge.

Make flare after inserting the flare nut (locate 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.

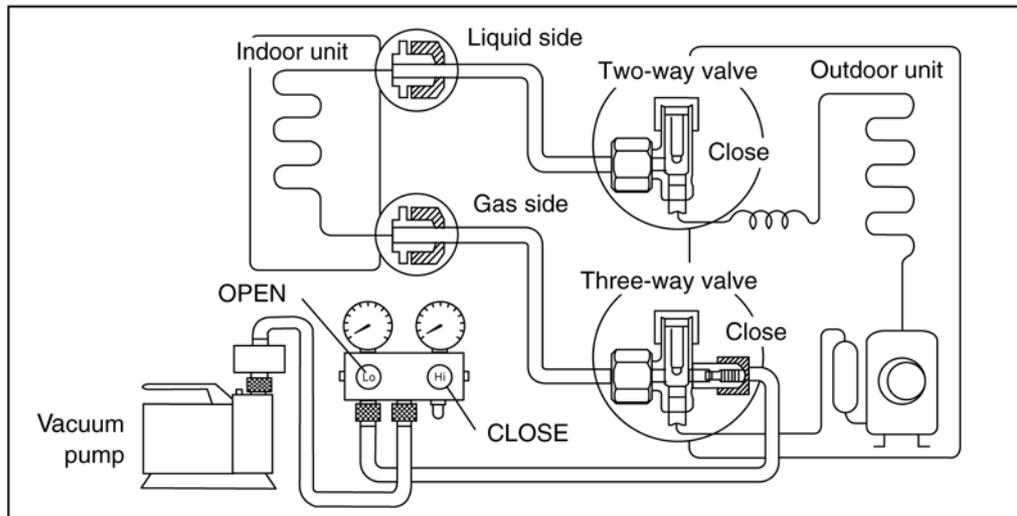


Do not overtighten, overtightening may cause gas leakage

Piping size	Torque
6.35 mm (1/4")	[18 N•m (1.8 kgf.m)]
9.52 mm (3/8")	[42 N•m (4.3 kgf.m)]
12.7 mm (1/2")	[55 N•m (5.6 kgf.m)]
15.88 mm (5/8")	[65 N•m (6.6 kgf.m)]
19.05 mm (3/4")	[100 N•m (10.2 kgf.m)]

### 11.3.3. 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 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.
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.
 

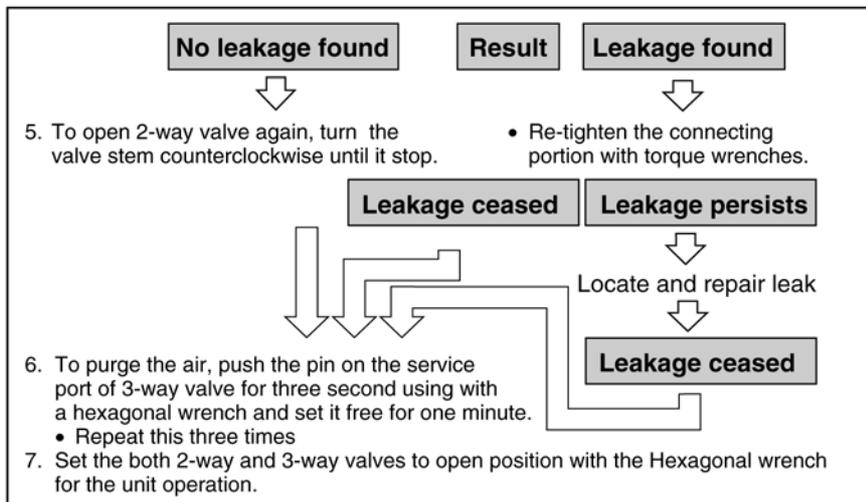
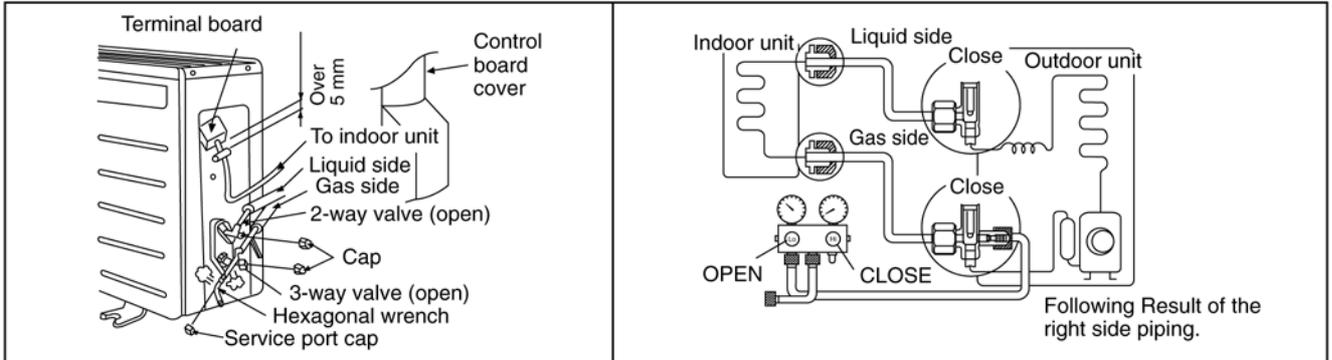
Note : BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
5. Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
6. Tighten the service port caps of the 3-way valve at a torque of 18 N•m with a torque wrench.
7. Remove the valve caps 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.

- 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 location of leak.
  - Do not release refrigerant during piping work for installation and reinstallation.
  - Take care of the liquid refrigerant, it may cause frostbite.

### 11.3.4. Air Purging Of The Piping And Indoor

The remaining air in the Refrigeration cycle which contains moisture may cause malfunction on the compressor.

1. Remove the caps from the 2-way and 3-way valves.
2. Remove the service-port cap from the 3-way valves.
3. To open the valve, turn the valve stem of 2-way valve counter-clockwise approx. 90° and hold it there for ten seconds, then close it.
4. Check gas-leakage of the connecting portion of the pipings.
  - For the left pipings, refer to item 4(A).



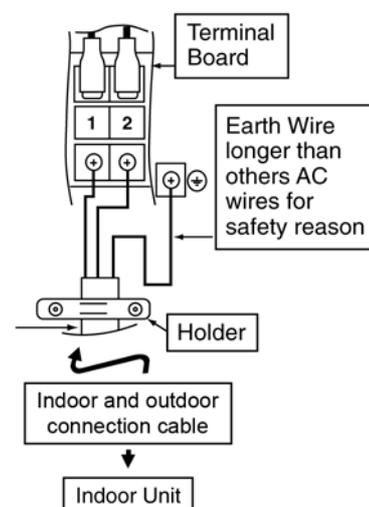
- 4(A). Checking gas leakage for left piping
- 1) a. Connect the manifold gauge to the service port of 3-way valve.
    - b. Measure the pressure.
  - 2) a. Keep it for 5-10 minutes.
    - b. Ensure that the pressure indicated on the gauge is the same as that of measured during the first time.

### 11.3.5. Connect The Cable To The Outdoor Unit

1. Remove the control board cover from the unit by loosening the screw.
2. **Connection cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed  $3 \times 1.5 \text{ mm}^2$  (1.5HP)  $3 \times 2.5 \text{ mm}^2$  (2.0 ~ 2.5HP) flexible cord, type designation 245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.

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

3. Secure the cable onto the control board with the holder (clammer).
4. Attach the control board cover back to the original position with the screw.
5. For wire stripping and connection requirement, refer to instruction ⑤ of indoor unit.



**⚠ WARNING**  
 ⚡ This equipment must be properly earthed.

- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

### 11.3.6. Pipe Insulation

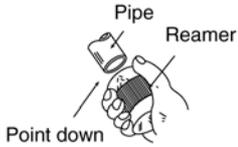
1. Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
2. If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6mm or above.

### 11.3.7. Cutting And Flaring The Piping

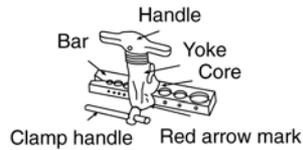
1. Please cut using pipe cutter and then remove the burrs.
2. Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
3. Please make flare after inserting the flare nut onto the copper pipes.



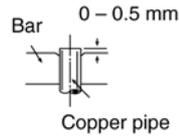
1. To cut



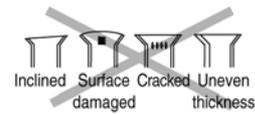
2. To remove burrs



3. To flare



#### ■ Improper flaring ■

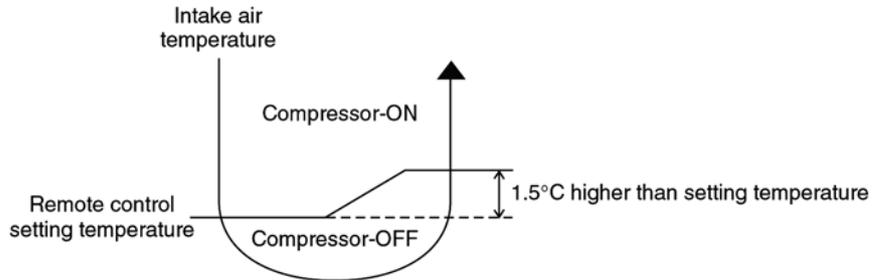


When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connections, carefully check the flare finish.

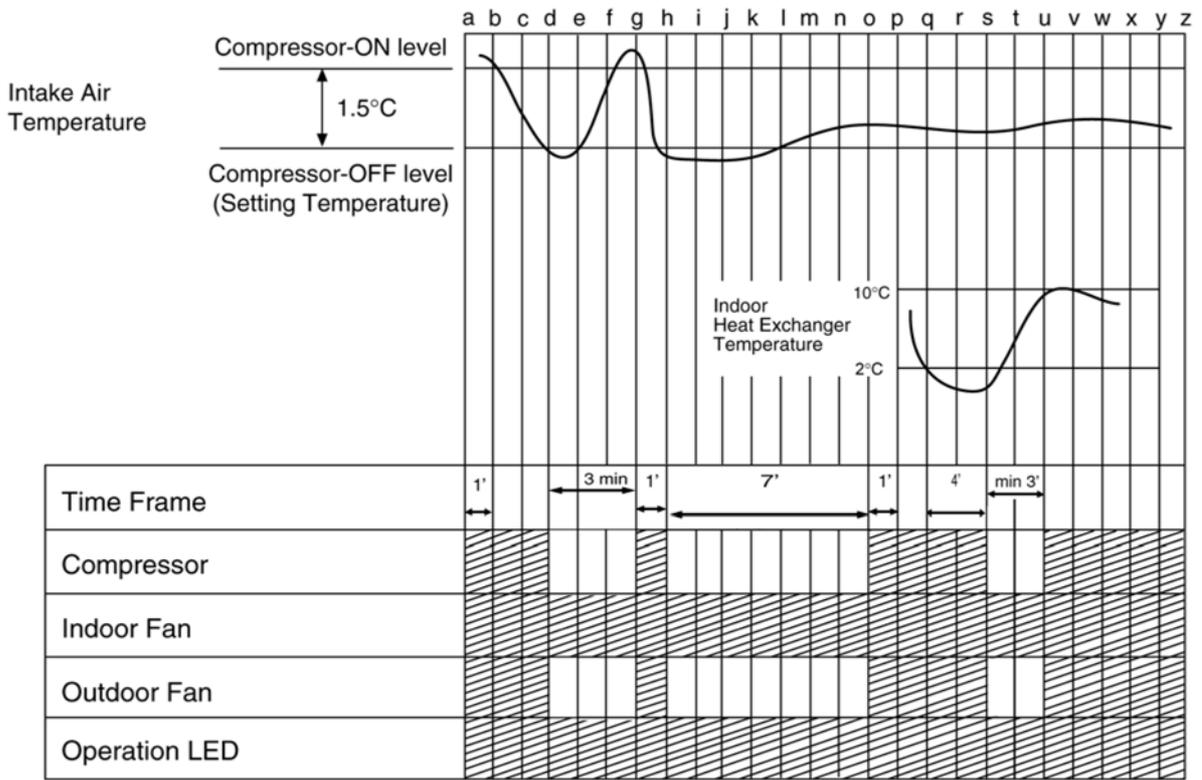
# 12 Operation and Control

## 12.1. 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 figure below.



### 12.1.1. Cooling Operation Time Diagram (For PC12MKF)

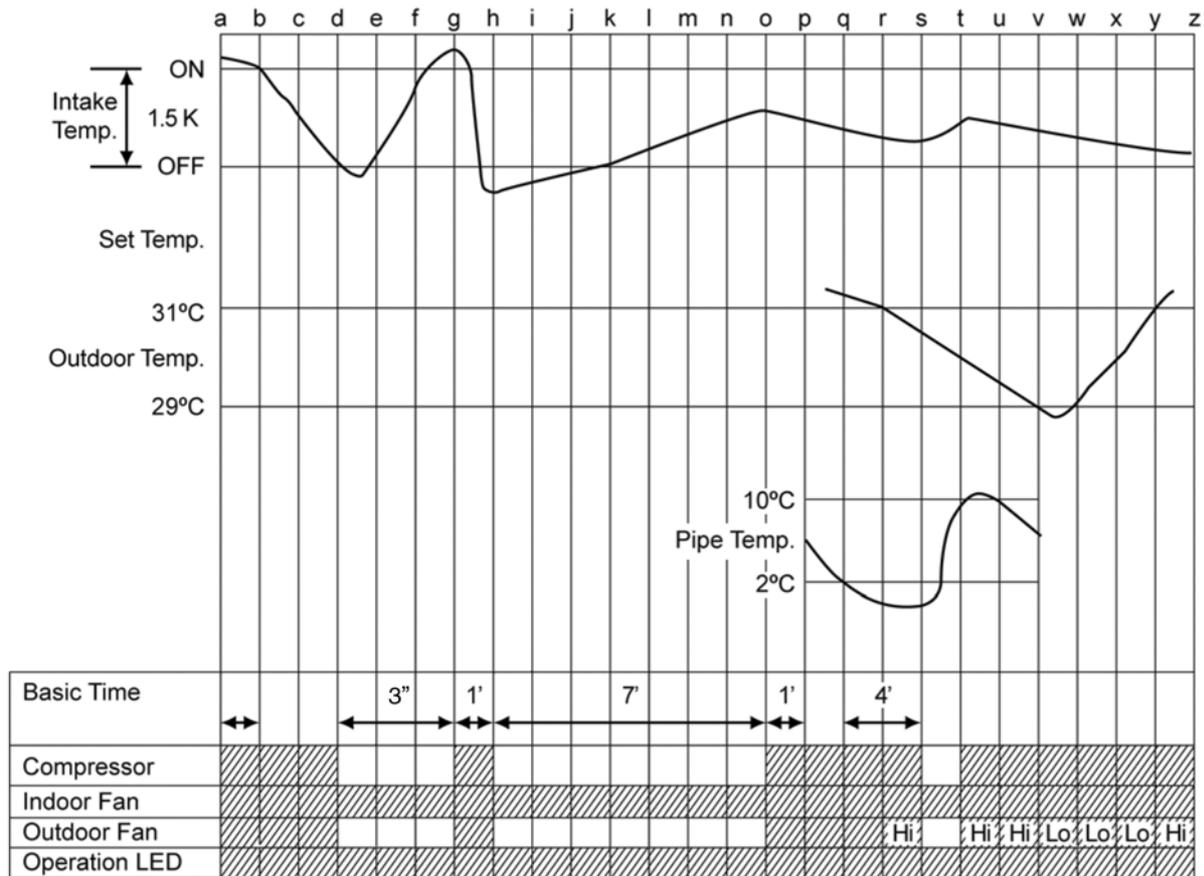


<Description of operation>

- a - b, g - h : Minimum 60 seconds forced operation
- d - g, s - u : Minimum 3 minutes restart control (Time Delay Safety Control)
- h - o : Maximum 7 minutes time save control
- q - u : Freeze Prevention Control



## 12.1.2. Cooling Operation Time Diagram (For PC18MKF, PC24MKF)



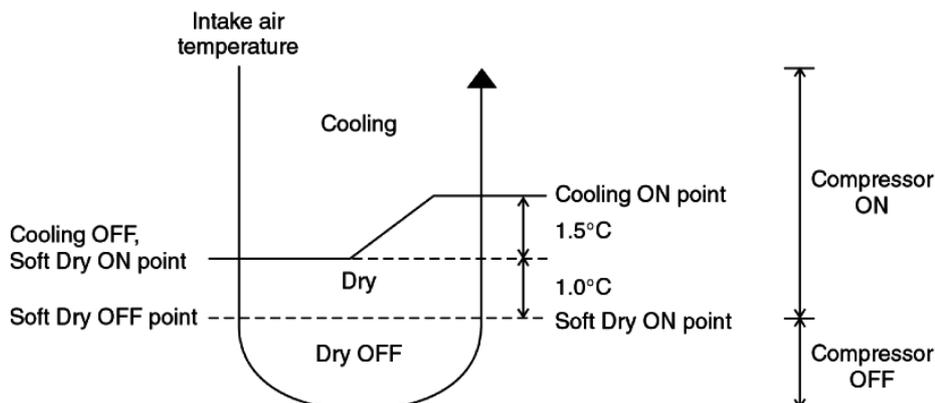
### <Description of operation>

- d - g : restart control (waiting for 3 min.)
- a - b, g - h, o - p : 60 sec. forcible operation.
- h - o : 7 min. time save control.
- q - t : freeze prevention control.
- v - y : outdoor fan control.

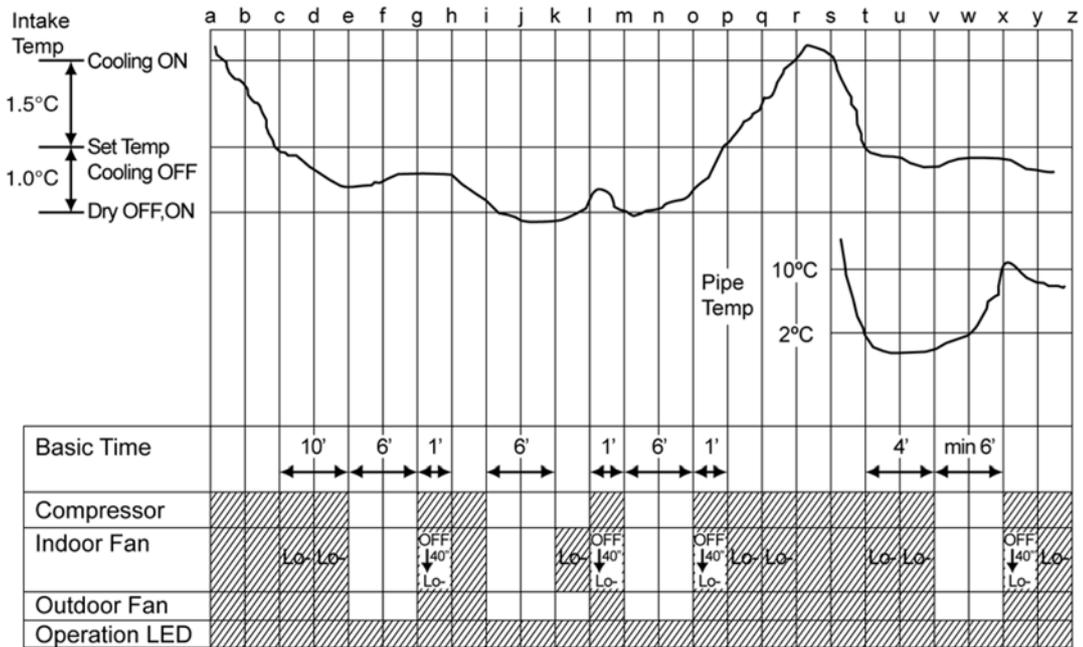


## 12.2. Soft Dry Operation

- 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  $-1.5^{\circ}\text{C}$  from 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 figure below.
- 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.



### 12.2.1. Soft Dry Operation Time Diagram (For PC12MKF)

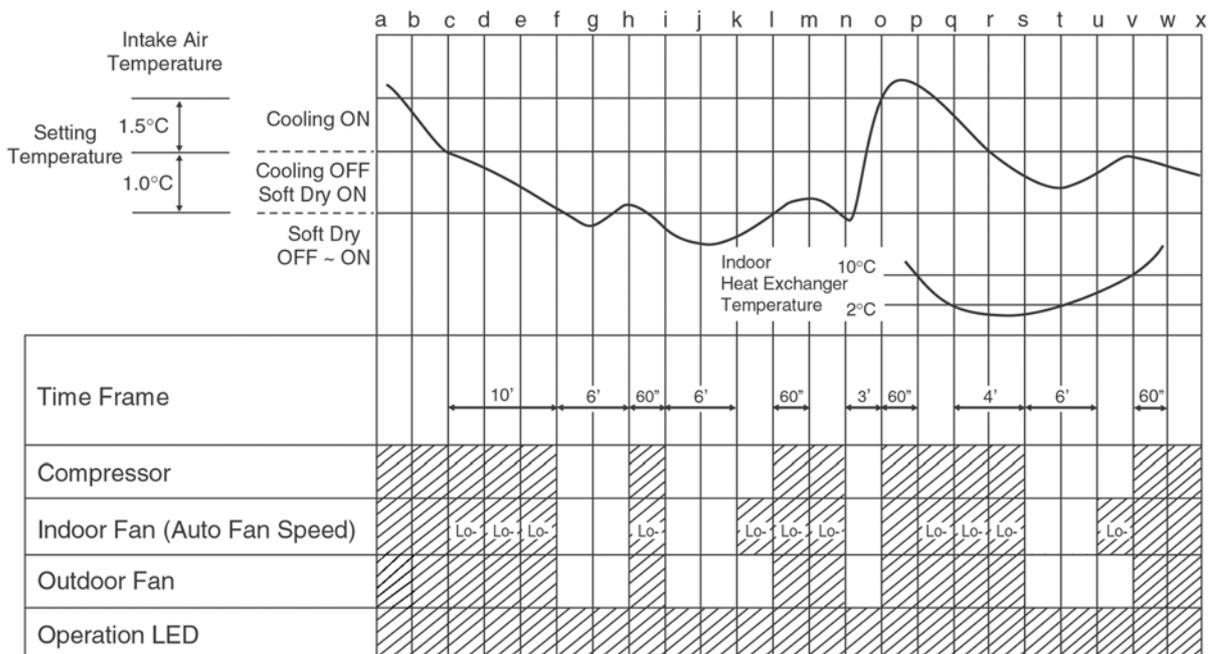


<Description of operation>

- a - c : Minimum 3 minutes restart control (Time Delay Safety Control) - Cooling operation.
- c - e : 10 minutes dry operation.
- e - g, i - k, m - o, v - x : Minimum 6 minutes restart control (Time Delay Safety Control) - Soft Dry operation.
- g - h, l - m, o - p : Minimum 60 seconds force operation.
- t - x : Freeze Prevention Control.

Operation  
 Stop

### 12.2.2. Soft Dry Operation Time Diagram (For PC18MKF, PC24MKF)



<Description of operation>

- h - i, l - m, o - p, v - w : Minimum 60 seconds forced operation
- n - o : Minimum 3 minutes restart control (Time Delay Safety Control) - Cooling operation
- f - h, i - k, s - u : Minimum 6 minutes restart control (Time Delay Safety Control) - Soft dry operation
- q - v : Freeze Prevention Control

Operation  
 Stop

### 12.3. Automatic Operation

- Automatic operation can be set using remote control.
- This operation starts to operate with indoor fan at SLo speed for 20 seconds to judge the intake air temperature.
- After judged the temperature, the operation mode is determined by referring to the below standard.

Intake Air Temperature	↑	23°C	Cooling Operation
	↓		Soft Dry Operation

- 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 table below.

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

- 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.

		Cooling	Soft Dry
Higher	→ +2°C	27°C	24°C
Standard	→ ±0°C	25°C	22°C
Lower	→ -2°C	23°C	20°C

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

Intake Air Temperature	↑	25°C	Cooling Operation
	↓		Soft Dry Operation

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

## 12.4. Indoor Fan Speed Control

- Indoor Fan Speed can be set using remote control.

### 12.4.1. Fan Speed Rotation Chart

Speed	Fan Speed (rpm)		
	CS-PC12MKF	CS-PC18MKF	CS-PC24MKF
Hi	1120	1280	1390
Me	940	1200	1240
H Lo	850	1180	1210
C Lo	810	1120	1150
Lo-	770	850	970
S Lo	750	670	750

### 12.4.2. 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 and Me.
  - Deodorizing Control will be activated.

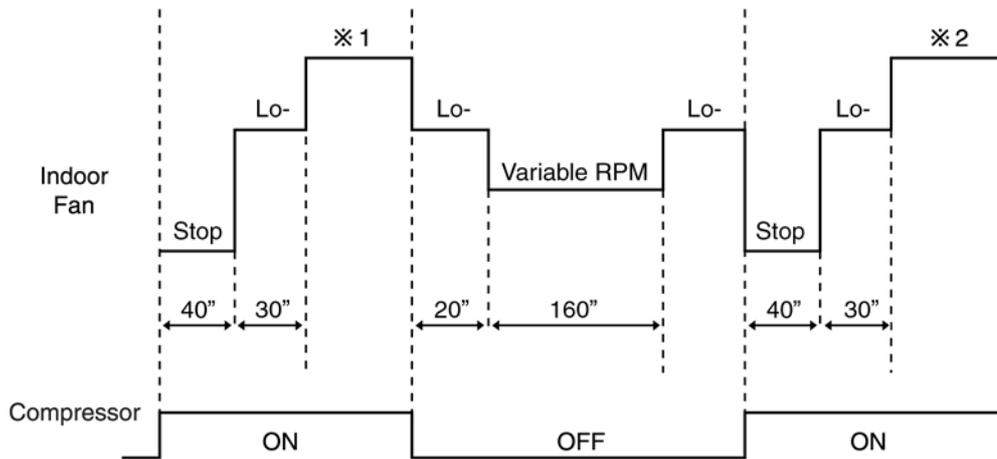
(For PC12MKF)

Speed Mode			SHi	Hi	Me	HLo	CLo	Lo-	SLo	Stop
Cooling	Normal	Manual	Hi	○						
			Me		○					
			Lo				○			
		Auto		○	○			○		○
Soft Dry	Normal	Manual						○		○
		Auto						○		○
Mode Judgement									○	

(For PC18MKF, PC24MKF)

Speed Mode			SHi	Hi	Me	HLo	CLo	Lo-	SLo	Stop
Cooling	Normal	Manual	Hi	○						
			Me		○					
			Lo				○			
		Auto		○	○			○		○
Soft Dry	Normal	Manual						○		
		Auto						○		
Mode Judgement									○	

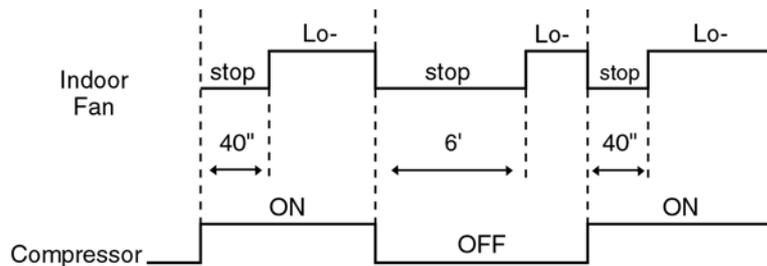
- Auto Fan Speed during cooling operation:
  - Indoor fan will rotate alternately between off and on as shown in below diagram.
  - At the beginning of each compressor start operation, indoor fan will increase fan speed gradually for deodorizing purpose.
  - For the first time the compressor operate, 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.
  - During compressor stop, indoor fan will operate at Lo for the beginning 3 minutes to prevent higher volume of refrigerant in liquid form returning to the compressor.
  - 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.
  - 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.

• 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.



### 12.4.3. 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.

### 12.4.4. Indoor Fan Motor RPM Abnormal Control

- Immediate after the fan motor is started, rpm abnormal control is performed once every second.
- During fan motor on, if fan motor feedback  $\geq 2550$  or  $< 50$  rpm continuously for 10 seconds, the fan motor error counter increased; fan motor is then stopped and restarted. If the fan motor error counter increased to 7, the air conditioner will stop.

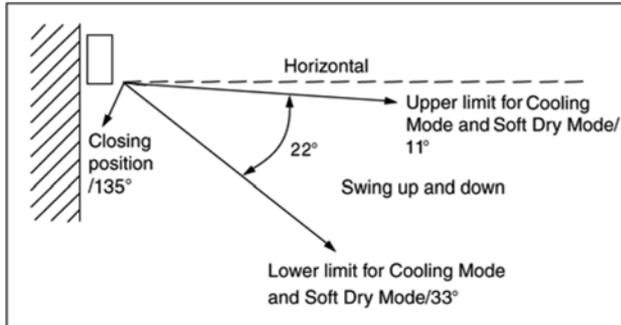
## 12.5. Outdoor Fan Speed Control

- Outdoor fan speed can be changes to Hi or Lo according to outdoor temperature. (For PC24MK)
- There is only one speed for outdoor fan motor. (For PC12MK & PC18MK)
- 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.

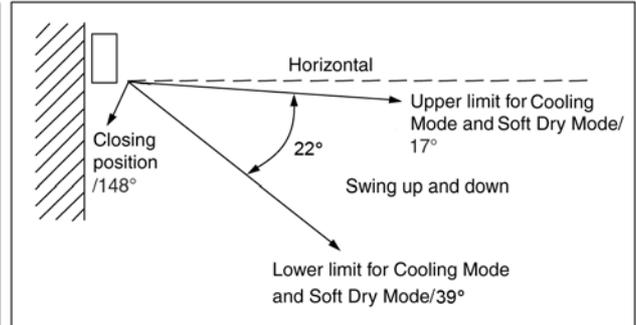
## 12.6. Vertical Airflow Direction Control

### 12.6.1. Auto Control

- 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 stop operation using the 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.



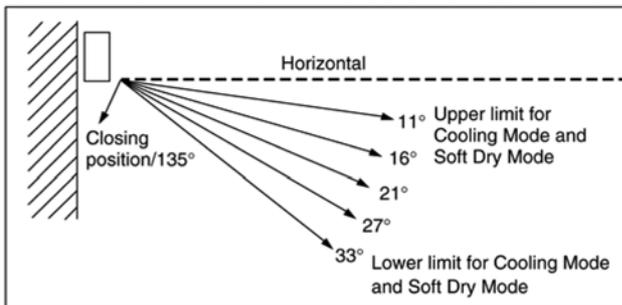
PC12MKF



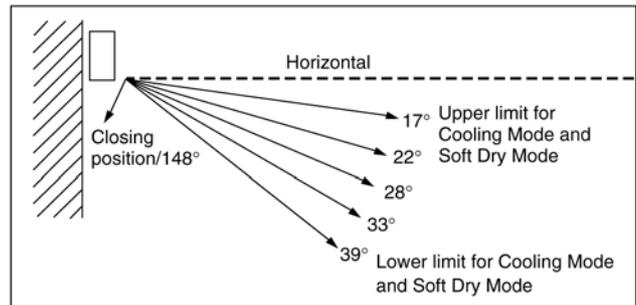
PC18MKF, PC24MKF

### 12.6.2. 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 stop operation using the remote control, the discharge vent is reset, and stop at the closing position.



PC12MKF



PC18MKF, PC24MKF

## 12.7. Horizontal Airflow Direction Control

- The horizontal airflow direction louvers can be adjusted manually by hand.

## 12.8. Timer Control

### 12.8.1. 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 Automatic operation, the indoor fan will operate at SLo speed for 20 seconds, 15 minutes before the set time to detect the intake air temperature to determine the operation mode. The power LED will blink at this time.

### 12.8.2. 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.

## **12.9. Random Auto Restart Control**

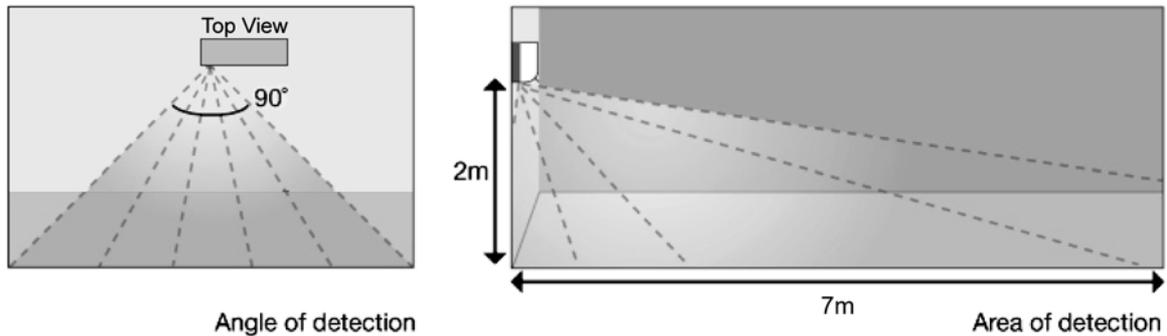
- If there is a power failure during operation, the air conditioner will automatically restart after 3 to 4 minutes when the power is resumed.
- It will start with previous operation mode and airflow direction.
- If there are more than one air conditioner unit in operation and power failure occur, restart 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 to printed circuit board indoor unit).

## **12.10. Remote Control Signal Receiving Sound**

- Short beep sound will be heard when turn ON the air conditioner or enabling other operations.
- Long beep sound will be heard when turn OFF the air conditioner or disabling other operations.

## 12.11. ECONAVI & AUTO COMFORT Operation

- A Pyroelectric infrared sensor is used to detect injection strength variation of infrared at setting area to determine the presence or absence of human and its activity level. Human detection area is shown in figure below:



- ECONAVI & AUTO COMFORT operation – Human presence/absence detection outlined flow

Process infrared sensor output signal

Human detection (movement) every 3 seconds.



Human detection records

Records human detection (movement) result for 30 seconds and determine its activity level i.e. Hi/Lo.



Presence / absence detection

Compares current and previous human detection result every 30 seconds to determine the presence or absence of human.



Presence / absence determination

Based on human presence / absence detection, if human presence detection showed within 30 minutes, it is recognised that human is present. If human absence detection showed continuously for more than 30 minutes, it is recognised that no human is present.

- ECONAVI & AUTO COMFORT Sensor abnormality detection

1. Connector pulled out (disconnected), Wire cut Abnormality (Fix Output at Hi)

a. Abnormal judgment start condition.

Start from ECONAVI & AUTO COMFORT Sensor power ON, and end after 30 seconds.

b. Control content.

Judge ECONAVI & AUTO COMFORT Sensor power level every 100ms.

c. Abnormal Judgment condition.

When ECONAVI & AUTO COMFORT Sensor has continues for 25 seconds Hi level.

2. Circuit Abnormal (Fix Output Lo)

a. Abnormal judgment start condition.

After ECONAVI & AUTO COMFORT Sensor unit power ON, and after pressed 70 seconds.

b. Control content.

Judge ECONAVI & AUTO COMFORT Sensor power level every 100ms.

c. Abnormal Judgment condition.

When ECONAVI & AUTO COMFORT Sensor has continues at Lo level for 25 seconds.

3. Abnormal treatment

Any one of the above self-diagnosis result is abnormal

- Abnormal counter +1 and ECONAVI & AUTO COMFORT Sensor power supply OFF.

- After ECONAVI & AUTO COMFORT Sensor unit power is OFF for 5 seconds, Retry the ECONAVI & AUTO COMFORT operation.

- When Abnormal counter reach 4 counts, ECONAVI & AUTO COMFORT sensor abnormality is confirmed.

(Abnormal counter is cleared when sensor power ON and maintain normal for 120 seconds and above or Clear Anormal counter by power reset)

- Save ECONAVI & AUTO COMFORT Sensor Abnormality (no Timer LED blinking).

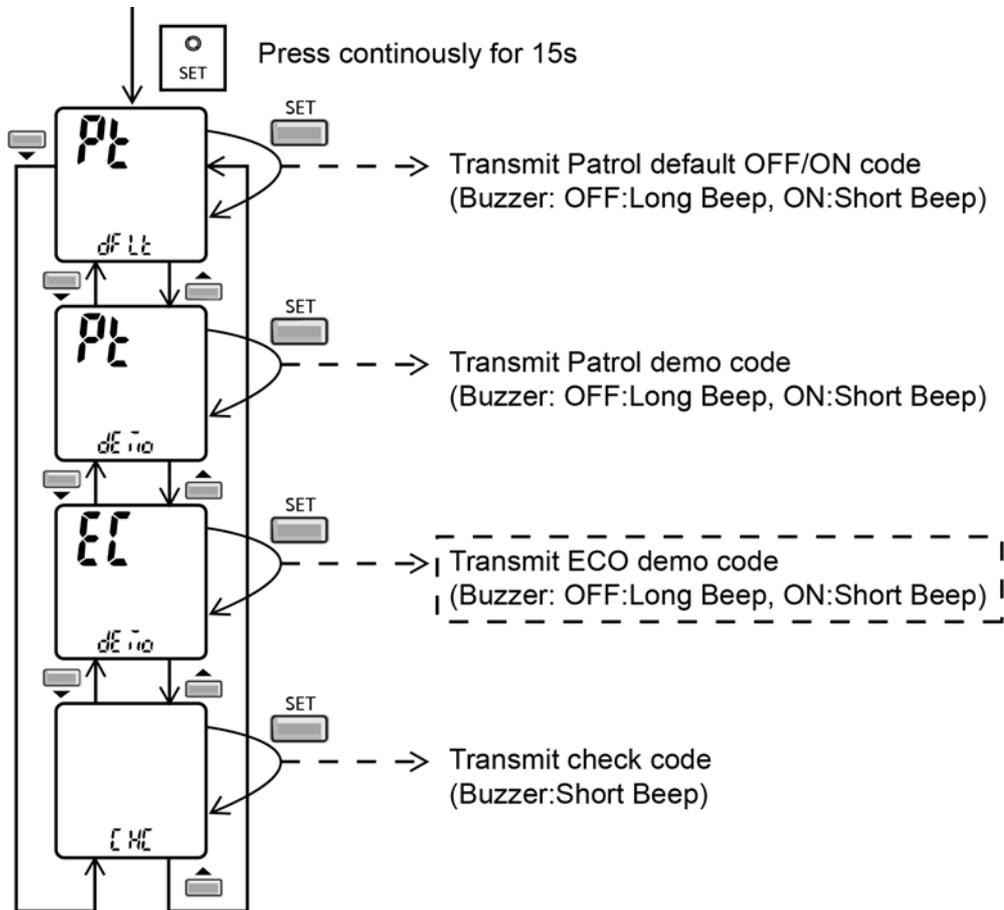
- ECONAVI & AUTO COMFORT Sensor operation OFF, but ECONAVI & AUTO COMFORT LED maintain ON.

- The unit still operate as normal.

- Sensor error counter can be cleared only after power supply reset or AC Reset button on the remote control is pressed.

- ECONAVI & AUTO COMFORT Demo Mode

- Press "Set" button continuously for 15 seconds by using pointer during Air Conditioner is OFF condition to enter internal setting mode.
- Press "Timer Decrement" button to select "EC demo".
- Press "Timer Set" button to toggle ECONAVI & AUTO COMFORT Demo mode.
- Short "beep": Turn ON ECONAVI & AUTO COMFORT Demo mode.
- Long "beep": Turn OFF ECONAVI & AUTO COMFORT Demo mode.



Control details:

- During ECONAVI & AUTO COMFORT Demo mode, operation LED ON and horizontal vane will set to Auto Swing.
  - When Hi activity judge, Fan speed change to Hi Fan and ECONAVI & AUTO COMFORT LED ON.
  - When Lo activity judge, Fan speed change to Lo Fan and ECONAVI & AUTO COMFORT LED OFF.
  - No setting temperature adjustment.
- During ECONAVI & AUTO COMFORT operation, the internal setting temperature and fan speed are adjusted in order to provide comfort and energy saving.
- ECONAVI Start condition.
    - Press ECONAVI button.
  - ECONAVI Stop Conditon
    - Press ECONAVI button again.
    - OFF Timer activates.
    - Press OFF/ON button to turn off the air conditioner.
    - Press AUTO OFF/ON button to turn off the air conditioner.
  - AUTO COMFORT Start condition.
    - Press AUTO COMFORT button.

- **AUTO COMFORT Stop condition.**
  - Press AUTO COMFORT button again.
  - OFF Timer activates.
  - Press OFF/ON button to turn off the air conditioner.
  - Press AUTO OFF/ON button to turn off the air conditioner.
- **ECONAVI & AUTO COMFORT operation could ON when any of the following conditions is fulfilled:**
  - During forced cooling or forced heating operation.
  - During e-ion or individual patrol operation.
- **Power Failure**
  - ECONAVI & AUTO COMFORT operation will be resuming after recovered from power failure.
- **Timer Operation**
  - When unit is turn on by ON Timer and ECONAVI & AUTO COMFORT operation is ON during previous operation before OFF, ECONAVI & AUTO COMFORT operation will not be ON automatically.
  - When unit is turn on by ON Timer and ECONAVI & AUTO COMFORT operation is OFF during previous operation before OFF, ECONAVI & AUTO COMFORT operation will not be ON automatically.
- **Other Information**
  - ECONAVI & AUTO COMFORT, Powerful and Quiet cannot be operated at the same time.
  - ECONAVI & AUTO COMFORT sensor initialized time is 70 seconds from power supplied to ECONAVI & AUTO COMFORT sensor, or 70 seconds from the operation start.

**ECONAVI** — To optimize energy saving  
**AUTO COMFORT** ..... To maximize comfort

Heat Source & Movement	<i>Low</i>	<i>High</i>	<i>Normal</i>	<i>None</i>
Set Temperature	+0.3°C			+2°C
Set Fan Speed	+1 tap*	-1°C	+1 tap	≤ Medium Fan

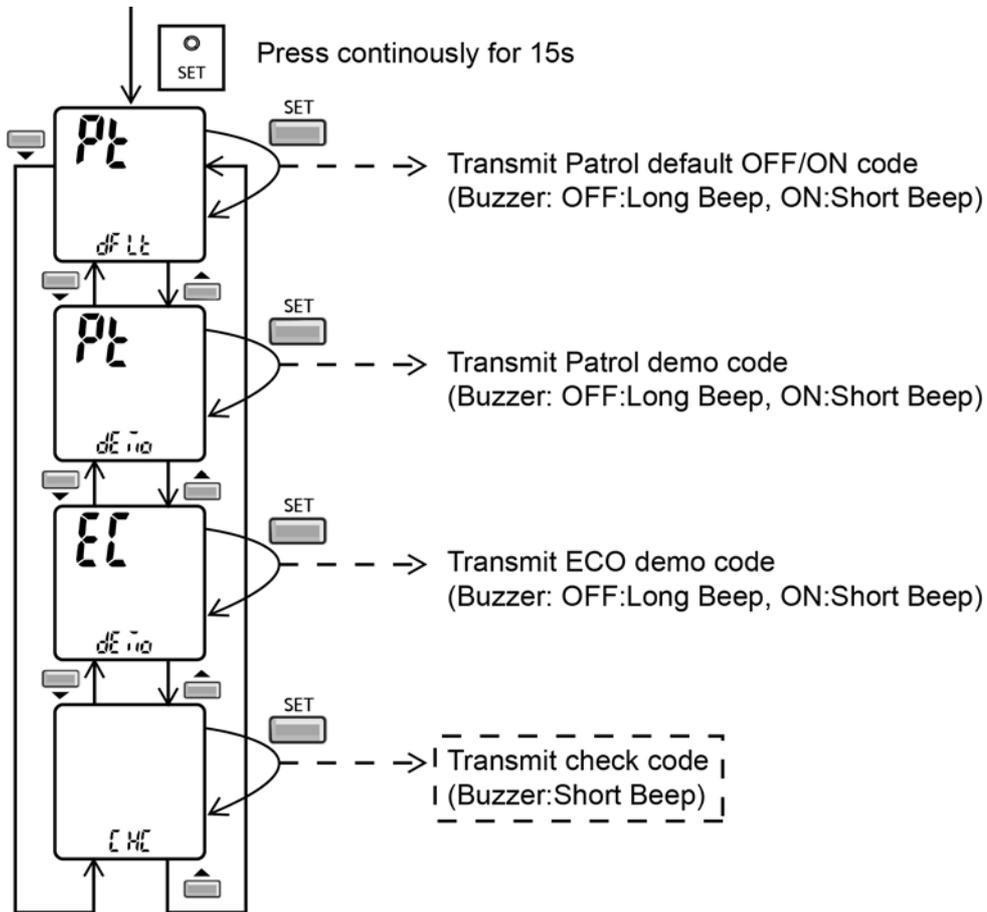
\* For first 15 minutes or until set temperature is reached.

- ECONAVI & AUTO COMFORT Sensor abnormality check mode
- Purpose is to improve sensor serviceability when sensor is malfunction.

1. Control starting condition

When all of the conditions are formed

- Not in ECONAVI & AUTO COMFORT Demo mode.
- ECONAVI & AUTO COMFORT mode ON.
- When ECONAVI & AUTO COMFORT sensor check mode signal is received; the procedure of selection is as shown:
  - Press "Set" button continuously for 15 seconds by using pointer to enter internal setting mode.
  - Press "Timer Decrement" button to select "CHC".
  - Confirm setting by pressing "Timer Set" button, a "beep" sound will be heard.



2. Control ending condition.

When any of the conditions are formed

- Operation stops.
- "Timer Cancel" button pressed.
- When ECONAVI & AUTO COMFORT sensor check mode signal is not received for more than 30 seconds.

3. Control content

- During ECONAVI & AUTO COMFORT mode ON, when check signal is received, if (1) or (2) is detected.
- ECONAVI & AUTO COMFORT LED start blinking (ECONAVI & AUTO COMFORT sensor operation stops but the unit operates as normal) and ECONAVI & AUTO COMFORT sensor abnormal code is memorized (the 4 times counter is ignored)
- The blinking of ECONAVI & AUTO COMFORT LED can be cancelled by pressing ECONAVI & AUTO COMFORT button again.
- Sensor error counter can be cleared only after power supply reset or "AC Reset" button on remote control is pressed.

However, if there is no ECONAVI & AUTO COMFORT sensor abnormally happen, ECONAVI & AUTO COMFORT sensor operation will continues as normal.

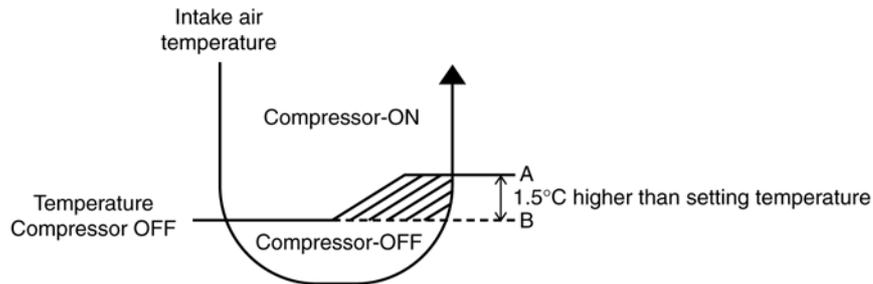
# 13 Protection Control

## 13.1. 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.

## 13.2. 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.



## 13.3. 60 Seconds Forced Operation

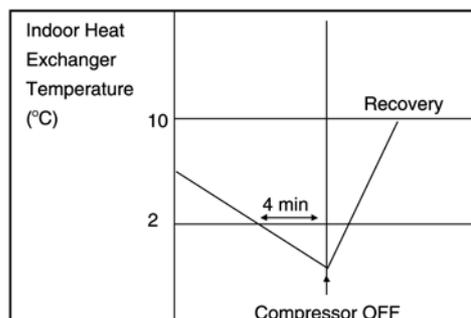
- Once the air conditioner is turned on, the compressor will not stop within 60 seconds in a normal operation although the intake air temperature has reached the thermo-off temperature. However, force stop by pressing the OFF/ON operation button at the remote control is permitted.
- The reason for the 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.

## 13.4. 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.

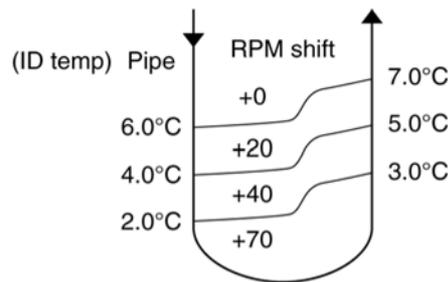
## 13.5. Freeze Preventive Control

- 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 from 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.



- (For PC12MKF only)

The current fan speed will change to freeze prevention speed after 70 seconds compressor on. The fan speed will be increased according to the indoor pipe temperature the figure below.



### 13.6. 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

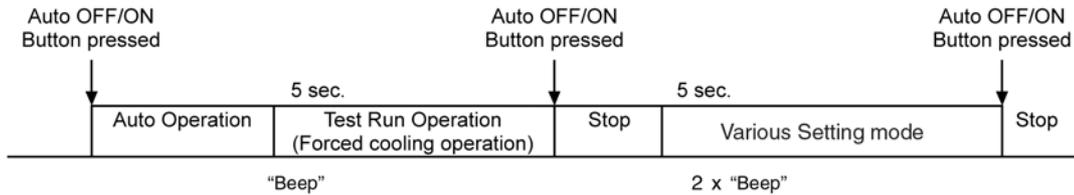
- This is to prevent compressor from rotate reversely when there is an instantaneous power failure.
- If this condition happens continuously for 5 times within 50 minutes, unit will turns off with TIMER LED blinks.
- The 5 times counter can be reset when either one of the following condition happen:
  - Unit is OFF by remote control or AUTO OFF/ON button.
  - Indoor intake temperature - indoor piping temperature >5°C for 1 minute or more.
  - Operation mode change.
- The unit could be ON by pressing OFF/ON button at remote control but the TIMER LED will continue blinking.
- TIMER LED blinking will reset if:
  - Indoor intake temperature - indoor piping temperature >5°C for 1 minute or more.
  - Power supply reset.

### 13.7. Dew Prevention control

- To prevent dew formation at indoor unit discharge area.
- This control will be activated if:-
  - Cooling mode.
  - Remote Control setting temperature is less than 25°C.
  - Fan speed is at CLo.
  - Room temperature is constant ( $\pm 1^\circ\text{C}$ ) for 60 minutes (PC12MKF) or 30 minutes (PC18/24MKF).
  - Compressor is continuously running.
- Fan speed will be adjusted accordingly in this control.
  - Fan speed will be increased slowly if the unit is in quiet mode but no change in normal cooling mode.
- Dew prevention stop condition
  - Remote control setting temperature is more than 25°C.
  - Fan speed is not set to CLo.

# 14 Servicing Mode

## 14.1. 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 malfunctioned.

### 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 second, in order to identify the starting of this operation.

### 3. VARIOUS SETTING MODE

The Various Setting Mode 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 be heard to identify the starting of this operation.

Under Various Setting mode, user could perform the following operation:

#### i) Remote control receiving sound OFF/ON

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.

#### ii) Remote Control Number switch

- 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 Various Setting mode, after select the transmission code combination of remote control, press any button at remote control to transmit and store the desired transmission code to the EEPROM.
- After signal is received, the various setting mode is cancelled and return to normal operation.
- If there is no code is transmitted or Auto OFF/ON button is not pressed within 20 seconds, the Various Setting mode will be cancelled.

## **14.2. Remote Control Button**

### **14.2.1. SET BUTTON**

- To check remote control transmission code and store the transmission code to EEPROM.
  - Press "SET" button for more than 10 seconds by using pointer.
  - Press "TIMER SET" button until a "beep" sound is heard as confirmation of transmission code change.

### **14.2.2. RESET**

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

### **14.2.3. TIMER ▲**

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

### **14.2.4. TIMER ▼**

- To change remote control display from Degree Celsius (°C) to Degree Fahrenheit (°F).
  - Press continuously for 10 seconds.

# 15 Troubleshooting Guide

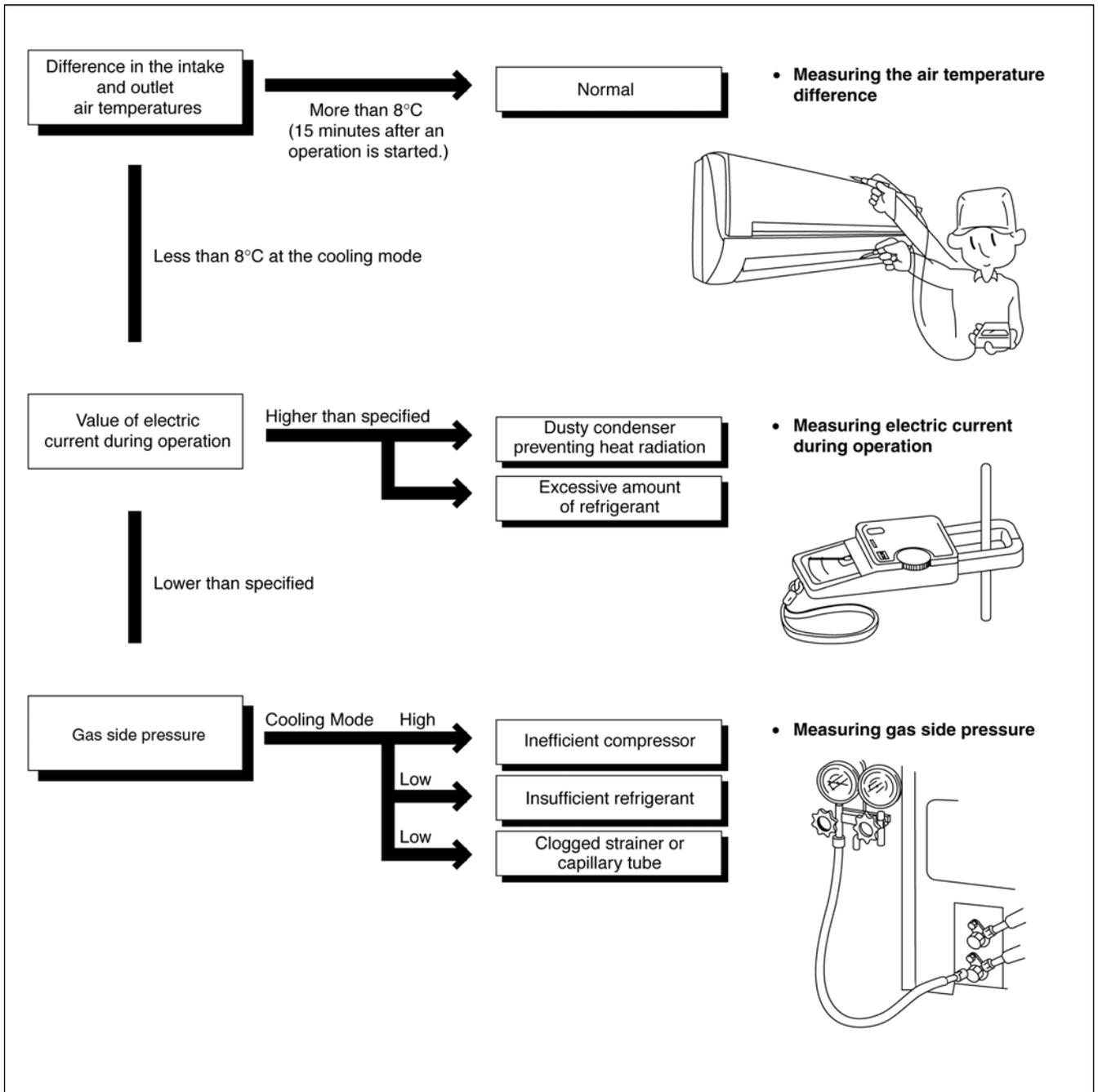
## 15.1. Refrigeration cycle system

In order to diagnose malfunctions, ensure the air conditioner is free from 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 to the right.

Normal Pressure and Outlet Air Temperature (Standard)

	Gas pressure Mpa (kg/cm <sup>2</sup> G)	Outlet air temperature (°C)
Cooling Mode	0.4 ~ 0.6 (4 ~ 6)	12 ~ 16

\* Condition: Indoor fan speed = High  
Outdoor temperature = 35°C



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

Condition of the air conditioner	Cooling Mode		
	Low Pressure	High Pressure	Electric current during operation
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.

### 15.1.2. Diagnosis methods of a malfunction of a compressor

Nature of fault	Symptom
Insufficient compressing of a compressor	<ul style="list-style-type: none"> <li>• Electric current during operation becomes approximately 20% lower than the normal value.</li> <li>• The discharge tube of the compressor becomes abnormally hot (normally 70 to 90°C).</li> <li>• The difference between high pressure and low pressure becomes almost zero.</li> </ul>
Locked compressor	<ul style="list-style-type: none"> <li>• Electric current reaches a high level abnormally, and the value exceeds the limit of an ammeter. In some cases, a breaker turns off.</li> <li>• The compressor has a humming sound.</li> </ul>

# 16 Disassembly and Assembly Instructions

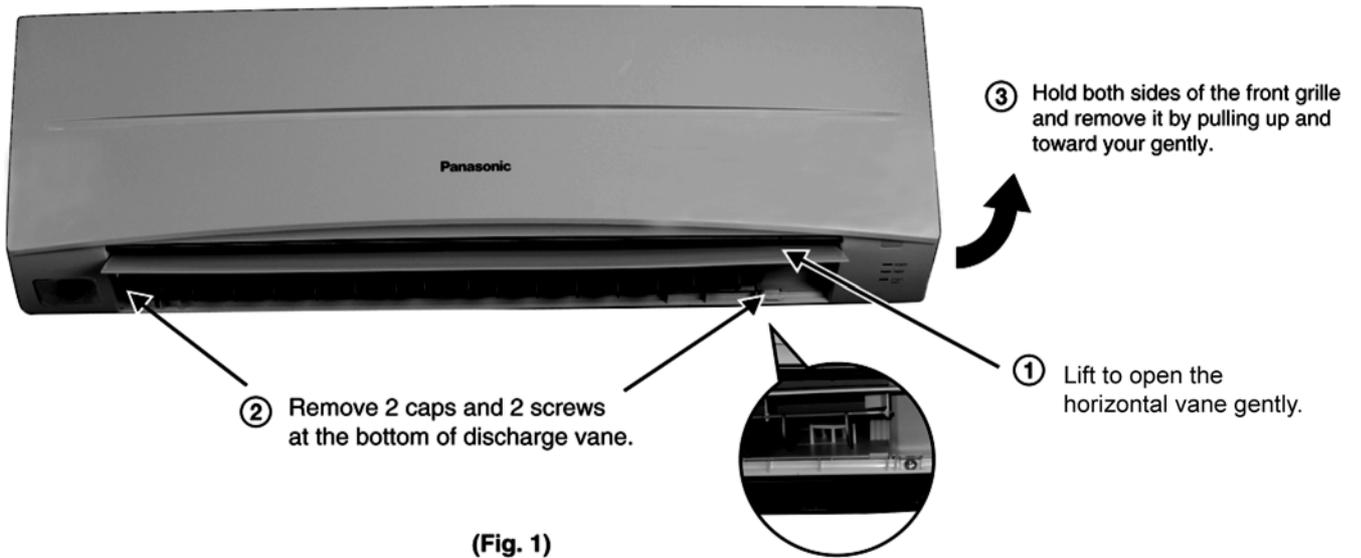
**⚠ WARNING**

High Voltage is generated in the electrical parts area by the capacitor. Ensure that the capacitor has discharged sufficiently before proceeding with repair work. Failure to heed this caution may result in electric shocks.

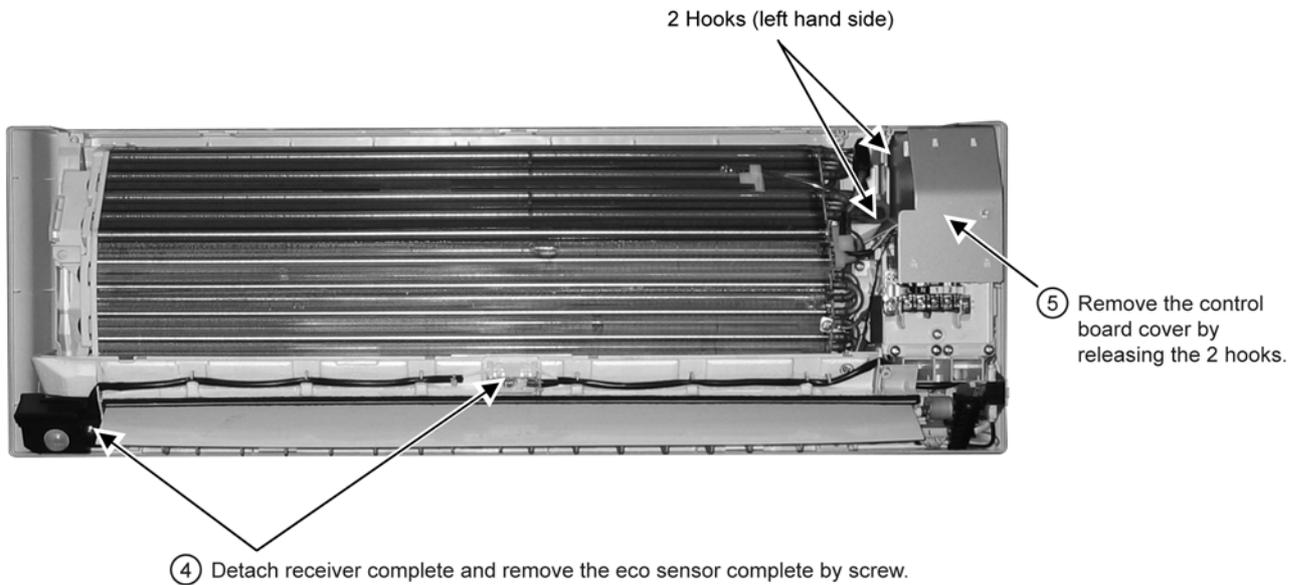
## 16.1. CS-PC12MKF

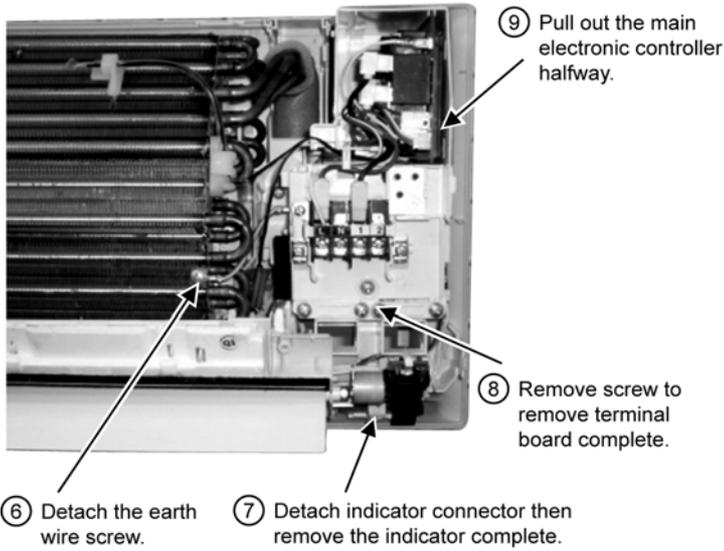
### 16.1.1. Indoor Electronic Controllers and Control Board Removal Procedures

#### 16.1.1.1. To remove Front Grille

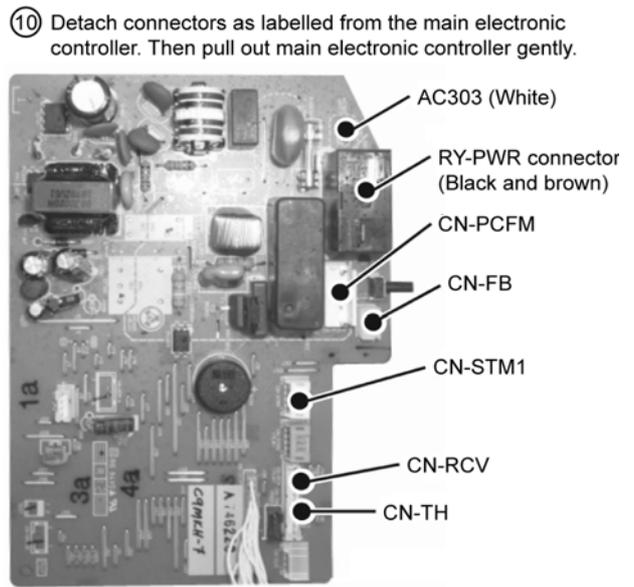


#### 16.1.1.2. To remove Electronic Controller



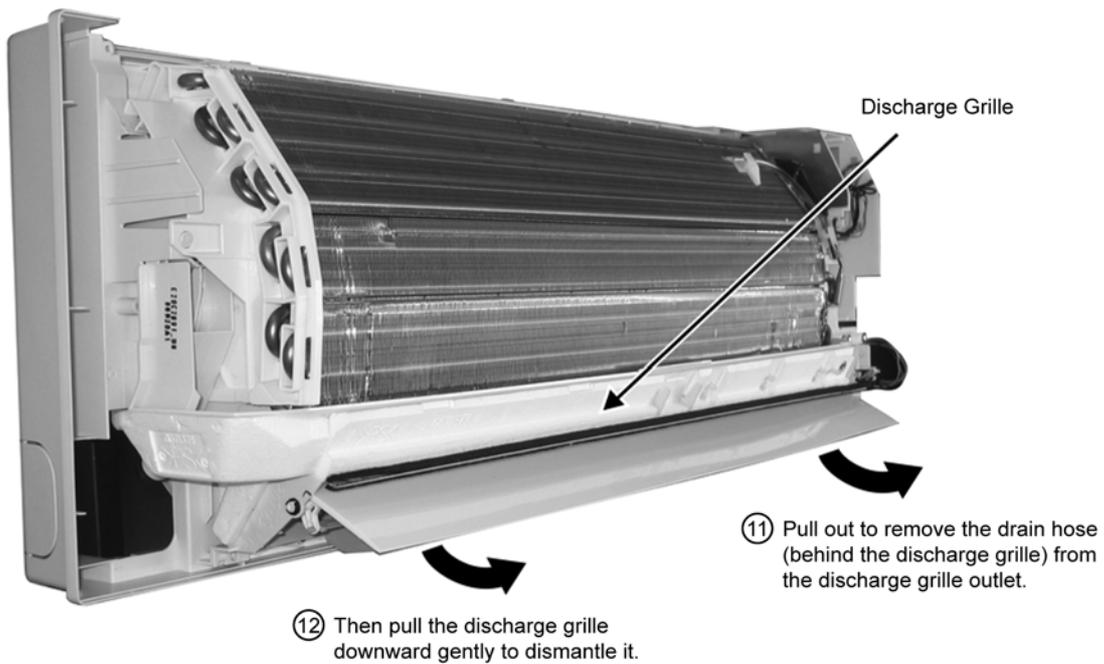


(Fig. 3)



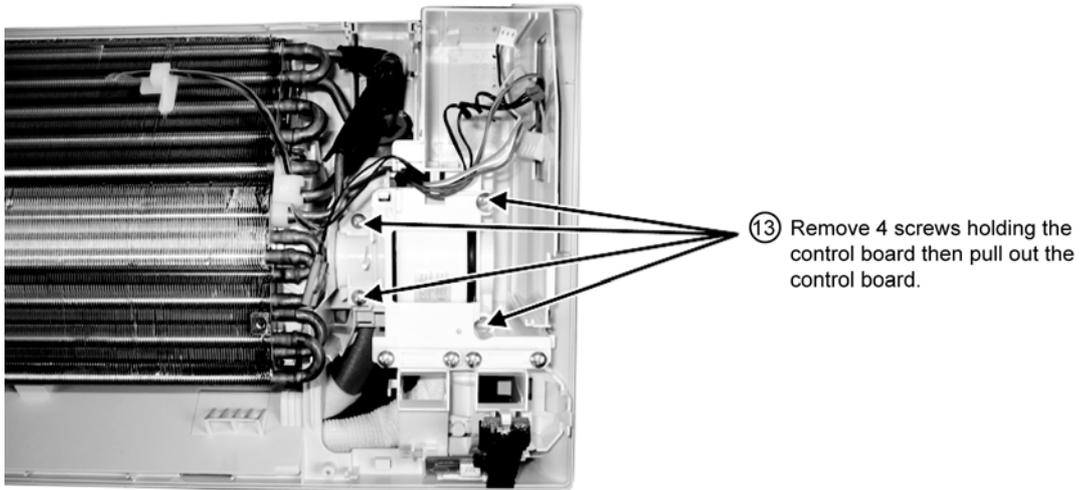
(Fig. 4)

### 16.1.1.3. To remove Discharge Grille



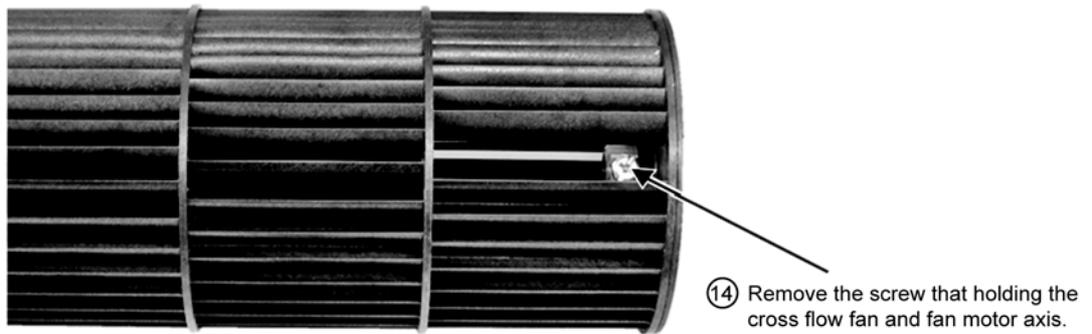
(Fig. 5)

#### 16.1.1.4. To remove Control Board

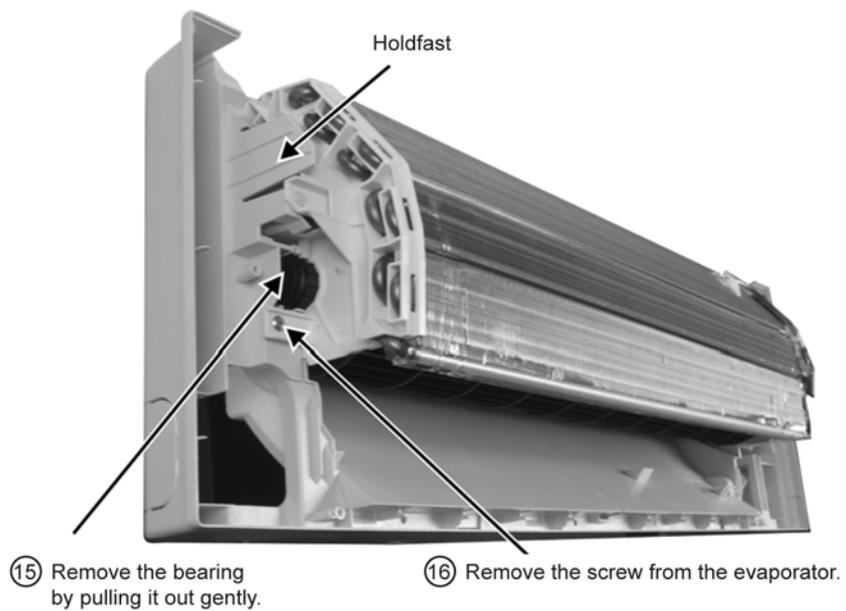


(Fig. 6)

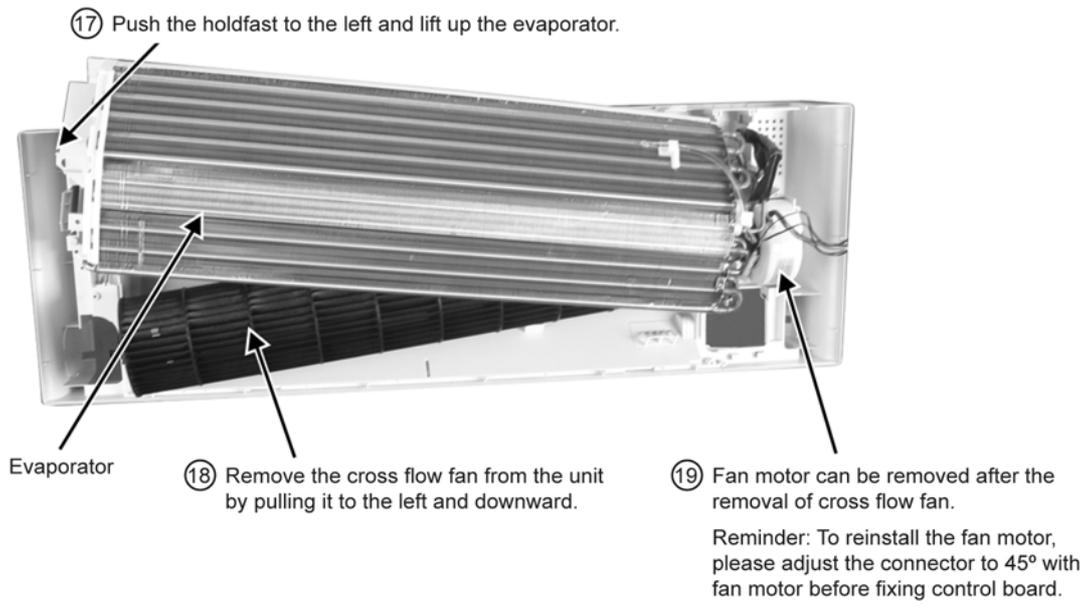
#### 16.1.1.5. To remove Cross Flow Fan and Indoor Fan Motor



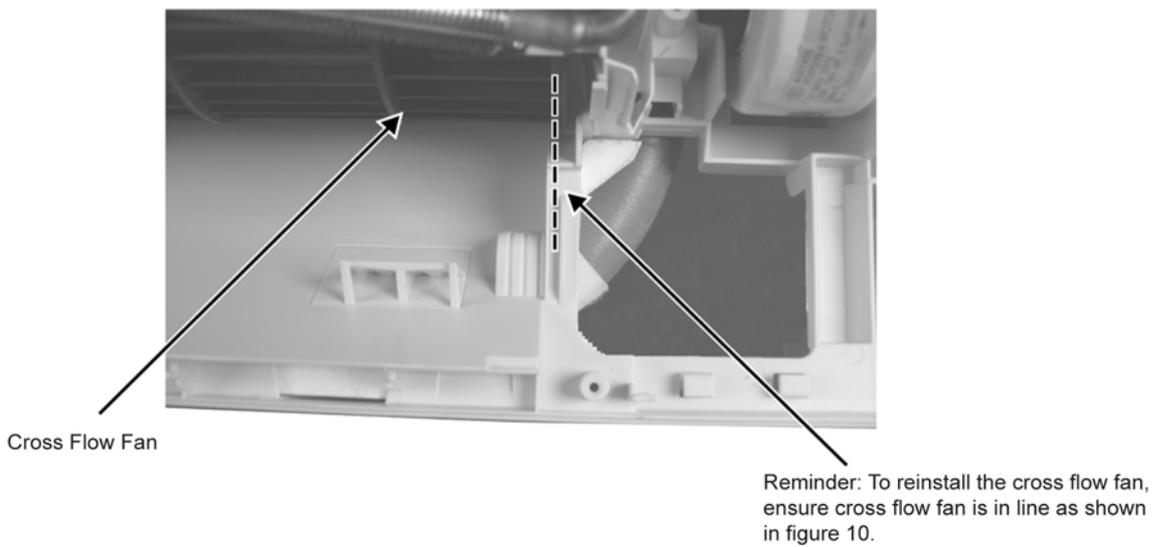
(Fig. 7)



(Fig. 8)



(Fig. 9)

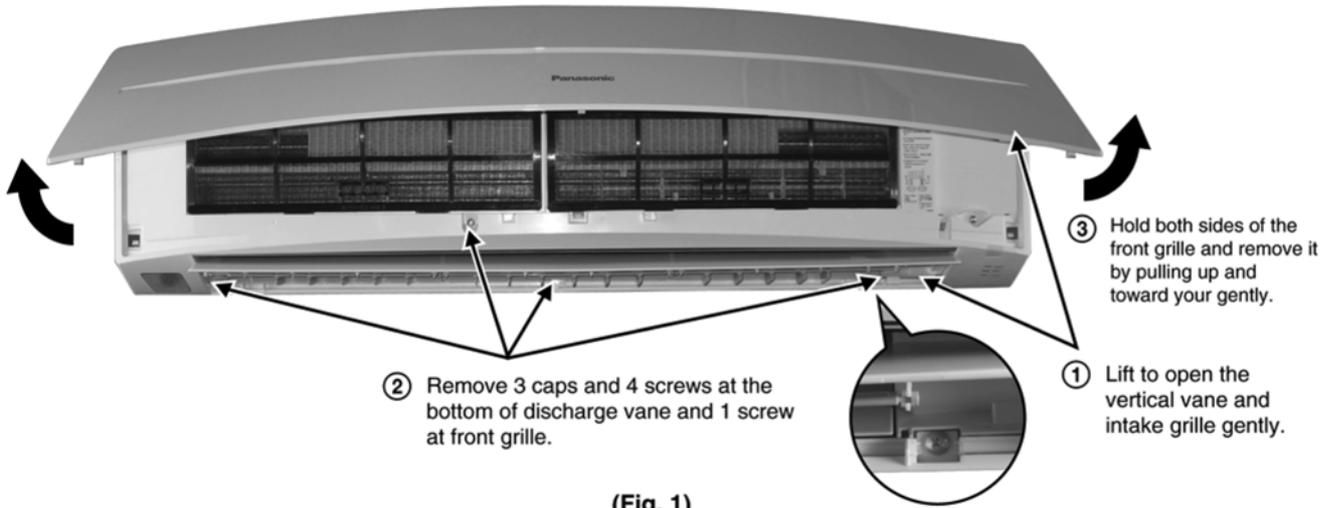


(Fig. 10)

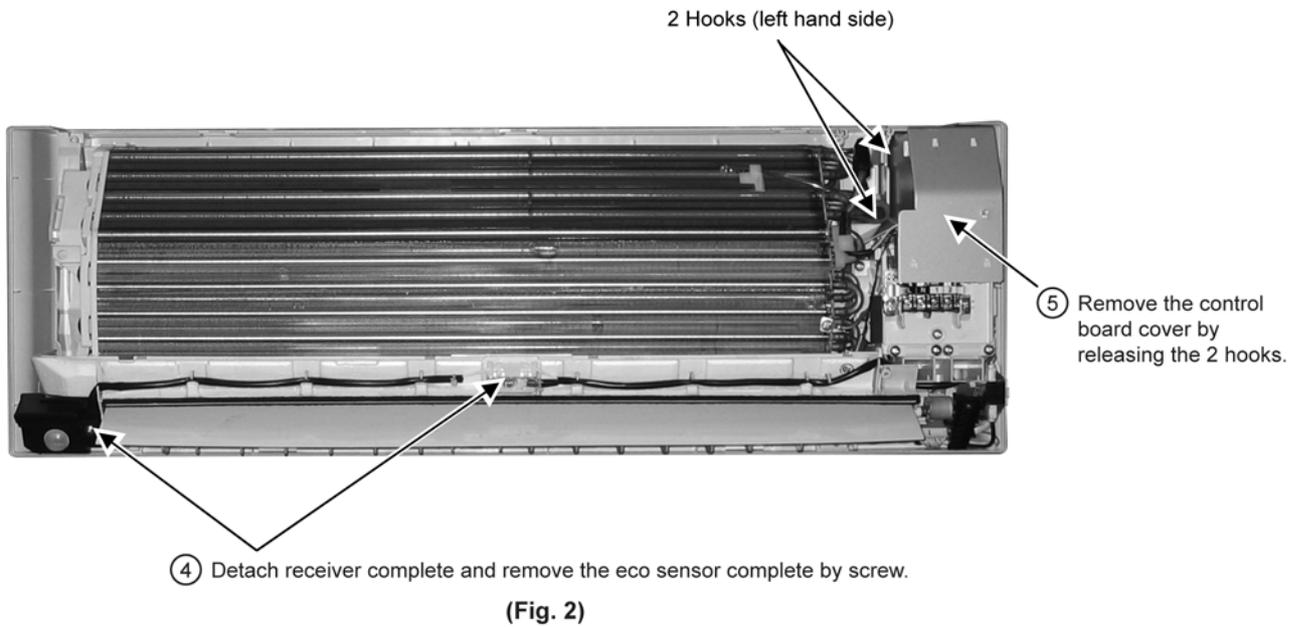
## 16.2. CS-PC18MKF CS-PC24MKF

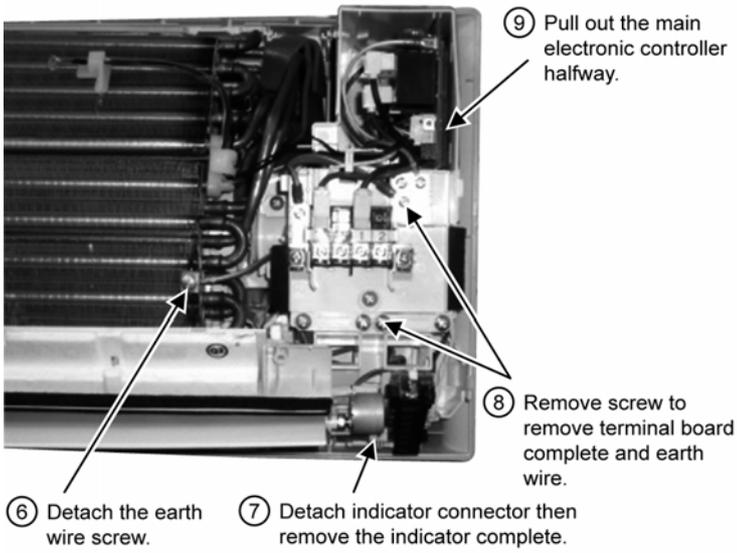
### 16.2.1. Indoor Electronic Controllers and Control Board Removal Procedures

#### 16.2.1.1. To remove Front Grille

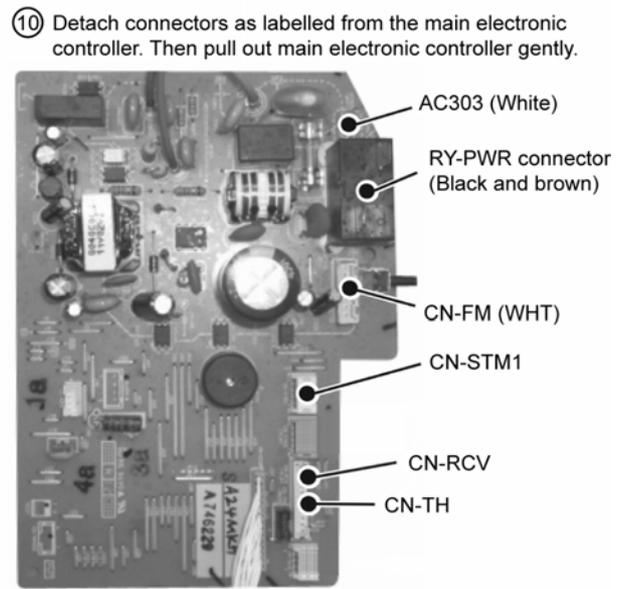


#### 16.2.1.2. To remove Electronic Controller



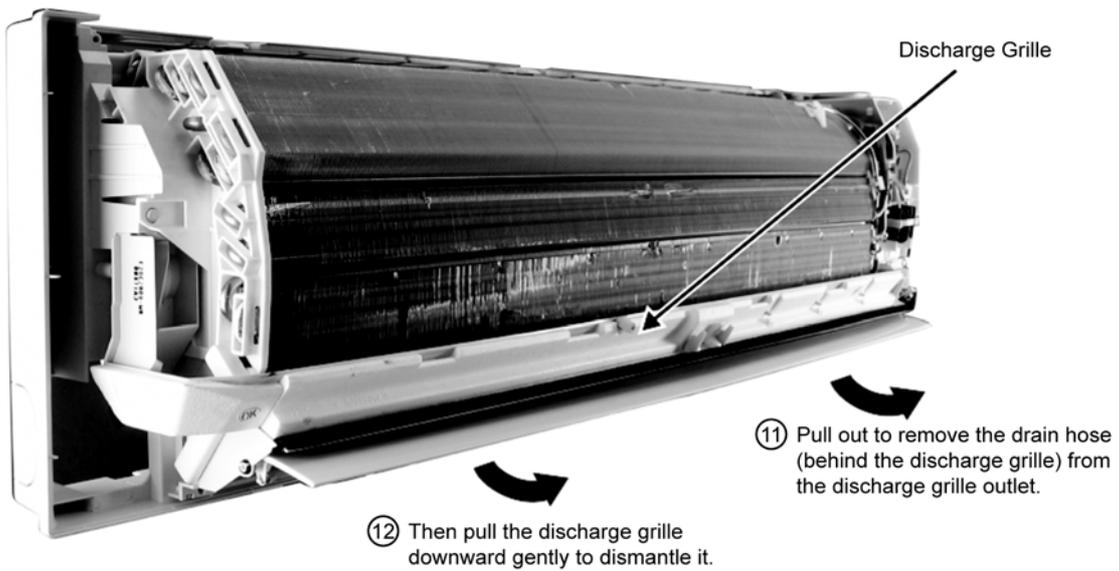


(Fig. 3)



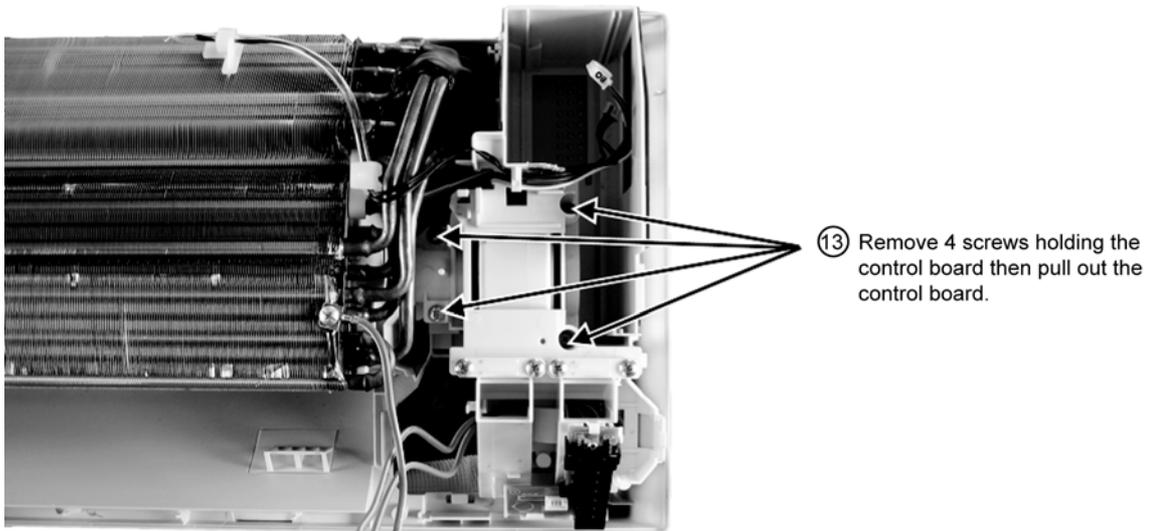
(Fig. 4)

### 16.2.1.3. To remove Discharge Grille



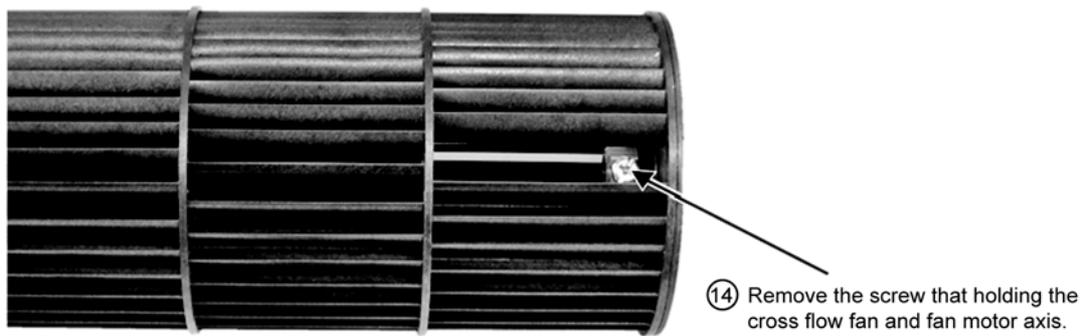
(Fig. 5)

#### 16.2.1.4. To remove Control Board

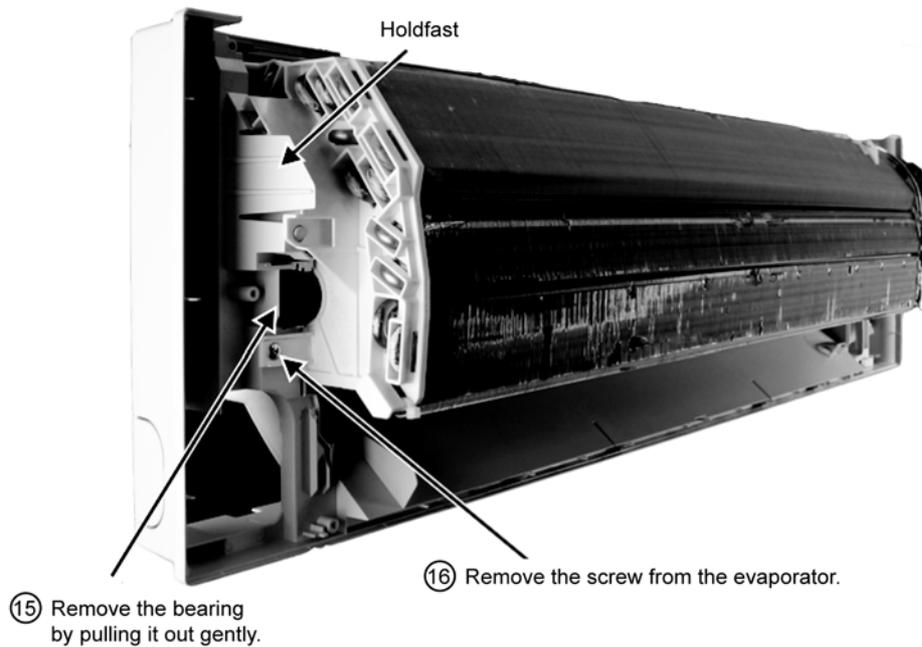


(Fig. 6)

#### 16.2.1.5. To remove Cross Flow Fan and Indoor Fan Motor

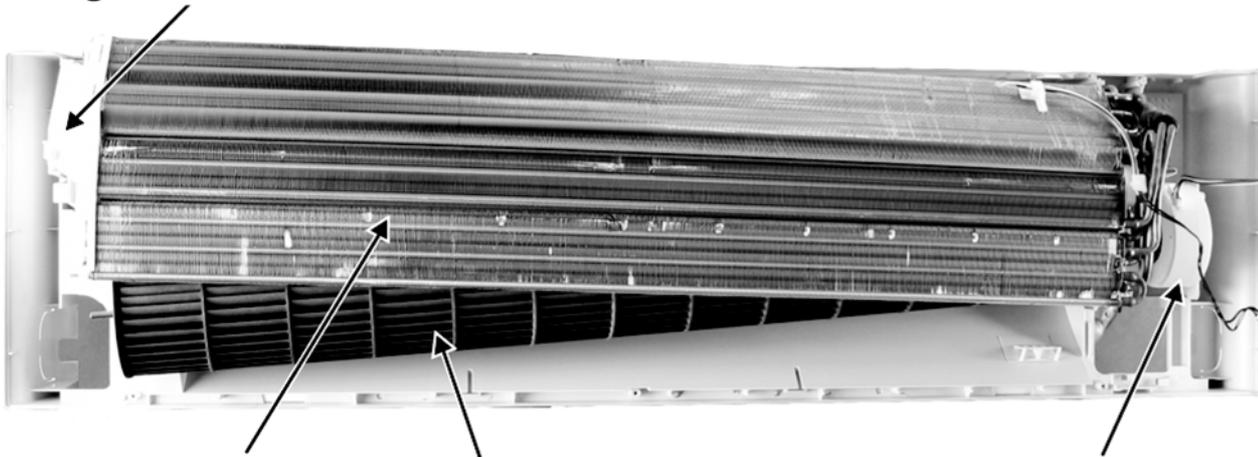


(Fig. 7)



(Fig. 8)

⑰ Push the holdfast to the left and lift up the evaporator.



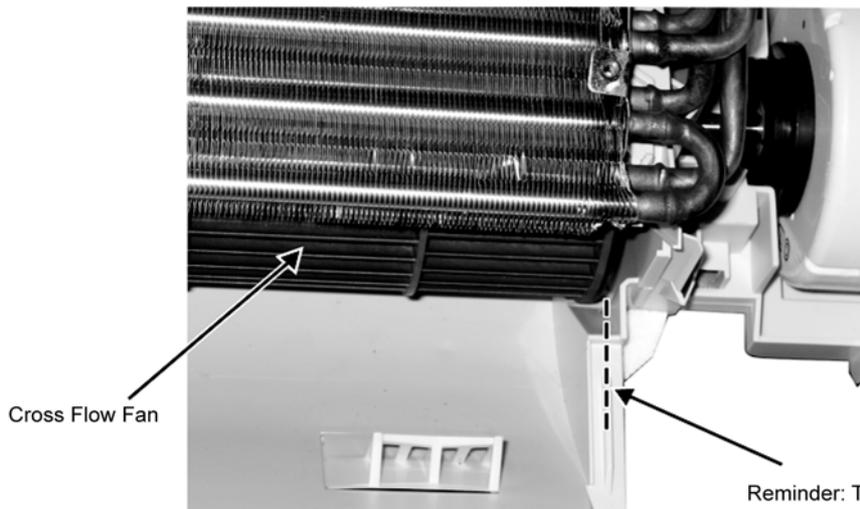
Evaporator

⑱ Remove the cross flow fan from the unit by pulling it to the left and downward.

⑲ Fan motor can be removed after the removal of cross flow fan.

Reminder: To reinstall the fan motor, please adjust the connector to 45° with fan motor before fixing control board.

(Fig. 9)



Cross Flow Fan

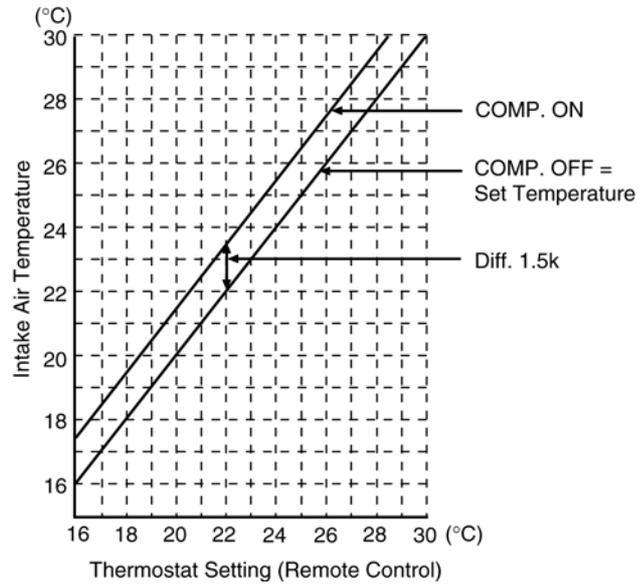
Reminder: To reinstall the cross flow fan, ensure cross flow fan is in line as shown in figure 10.

(Fig. 10)

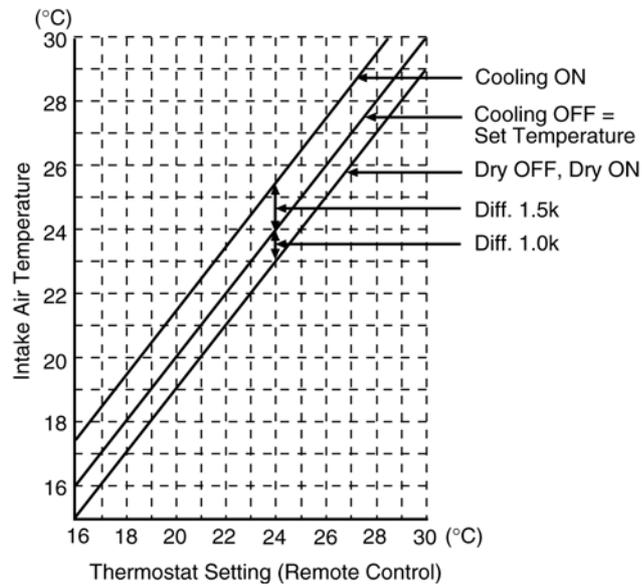
# 17 Technical Data

## 17.1. Thermostat Characteristics

### Cooling



### Soft Dry



## 17.2. Operation Characteristics

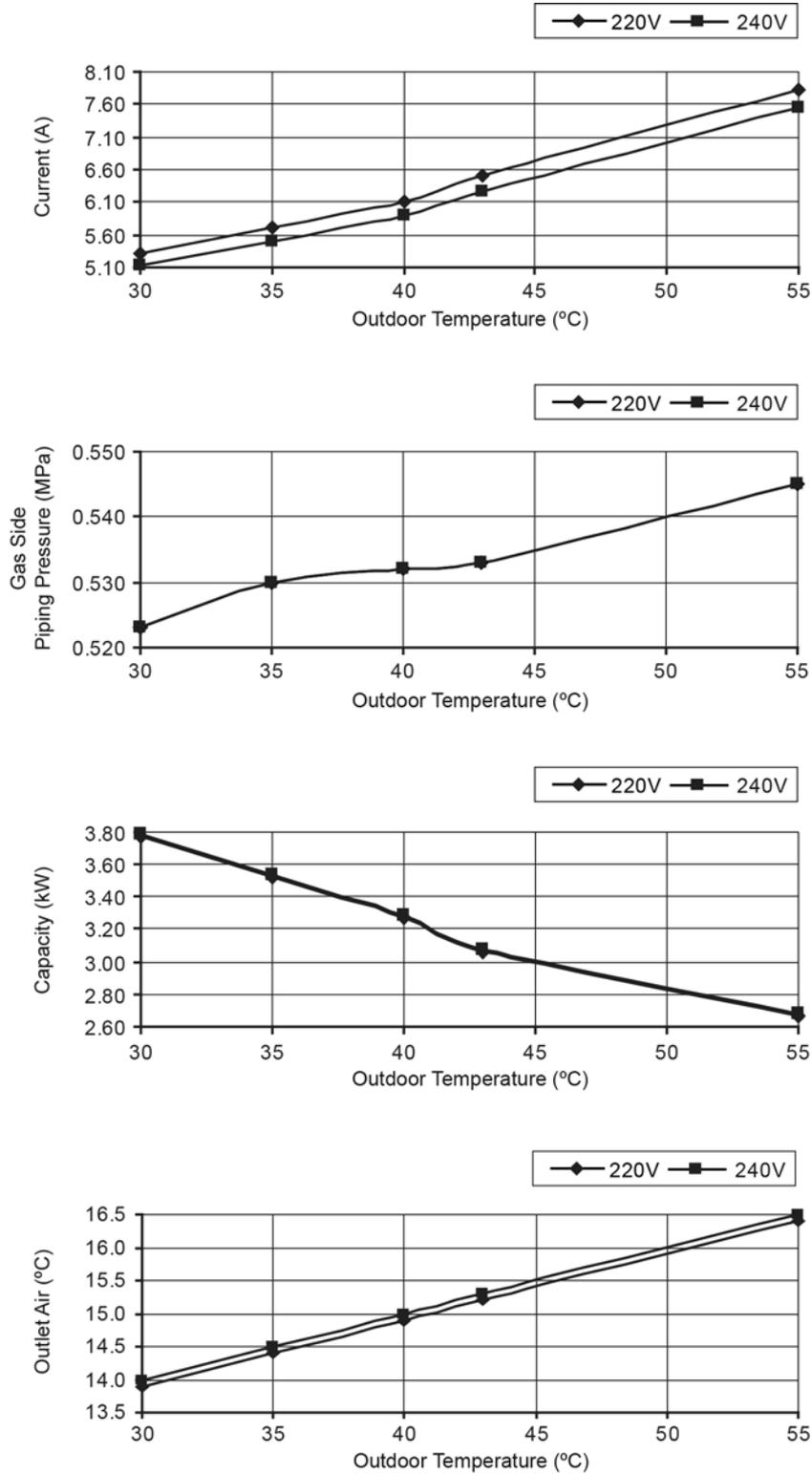
### 17.2.1. CS-PC12MKF CU-PC12MKF

#### • Cooling Characteristics

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)

Cooling condition: At High fan

Piping length: 7.5m

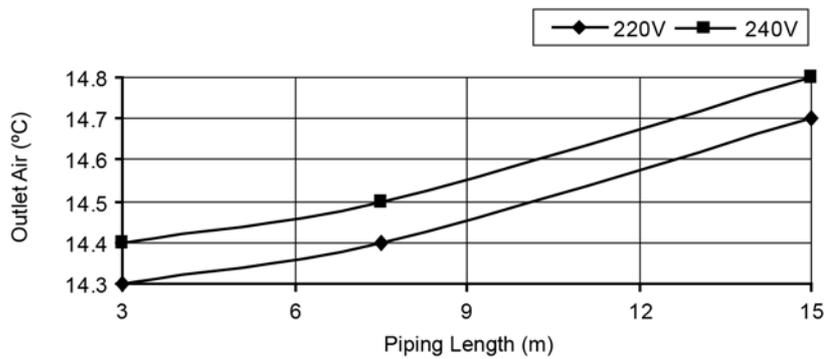
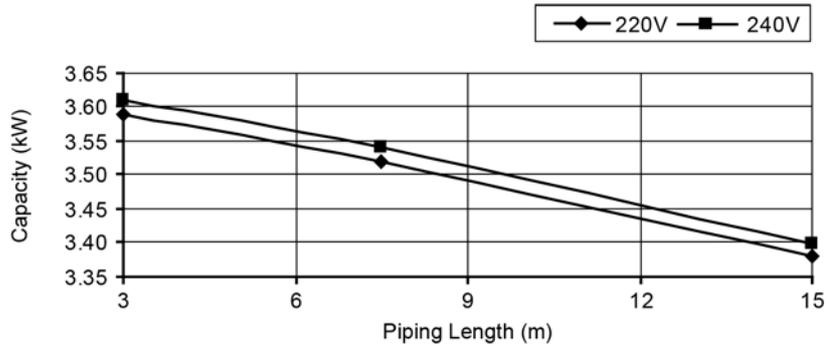
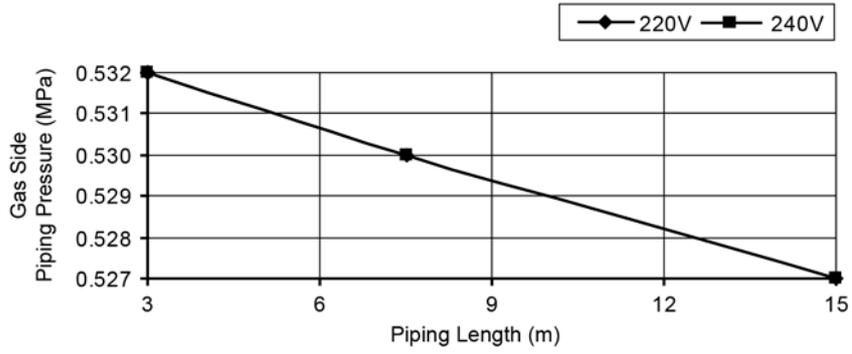
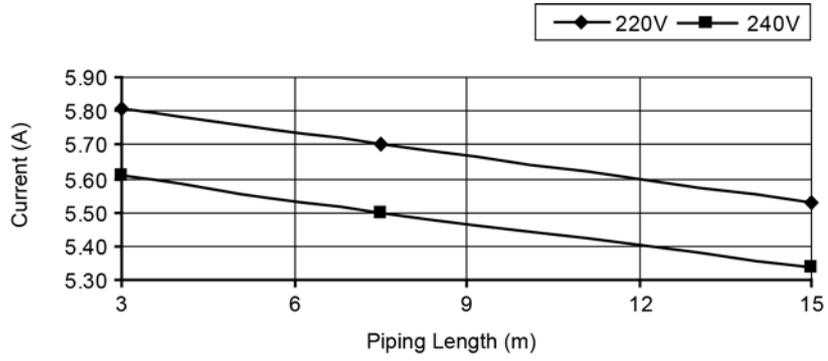


• Piping Length Characteristics

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)

Cooling condition: At High fan

Piping length: 7.5m



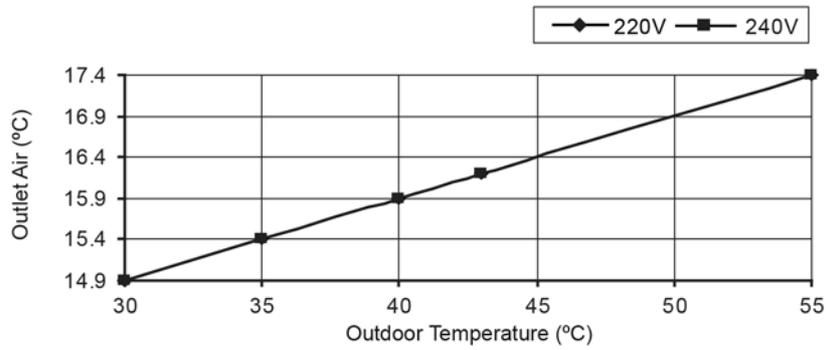
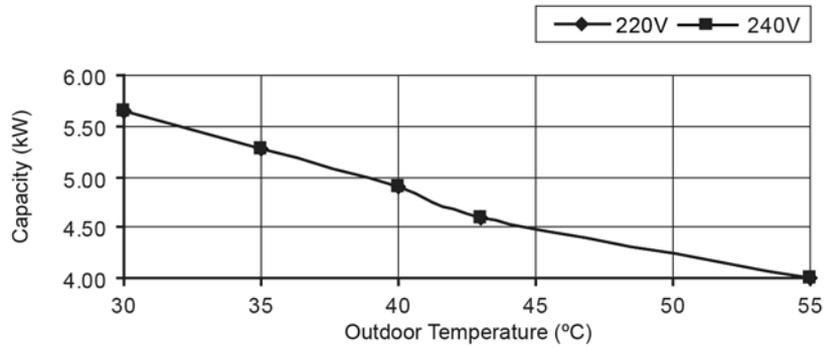
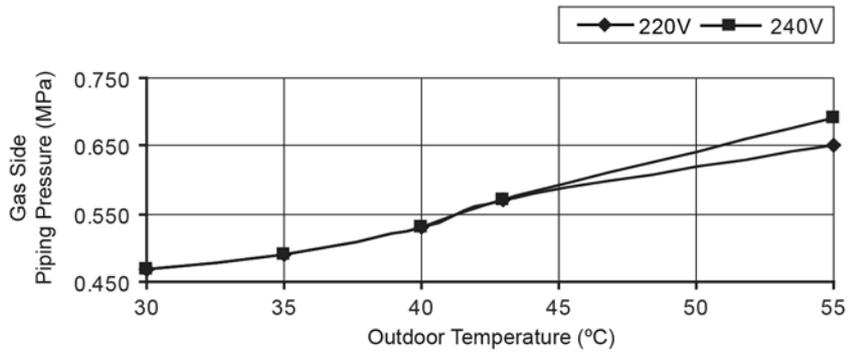
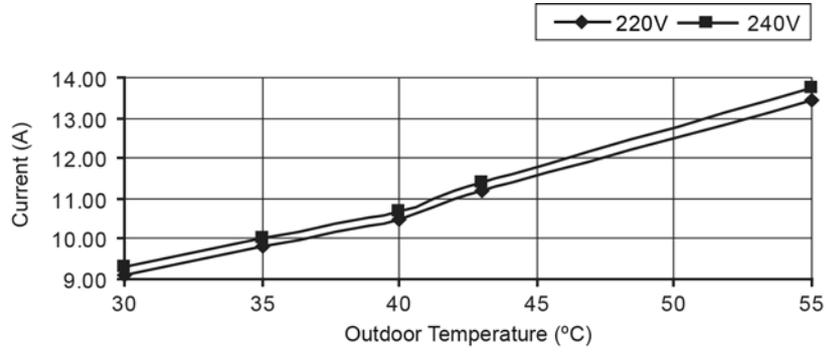
## 17.2.2. CS-PC18MKF CU-PC18MKF

### • Cooling Characteristics

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)

Cooling condition: At High fan

Piping length: 5.0m

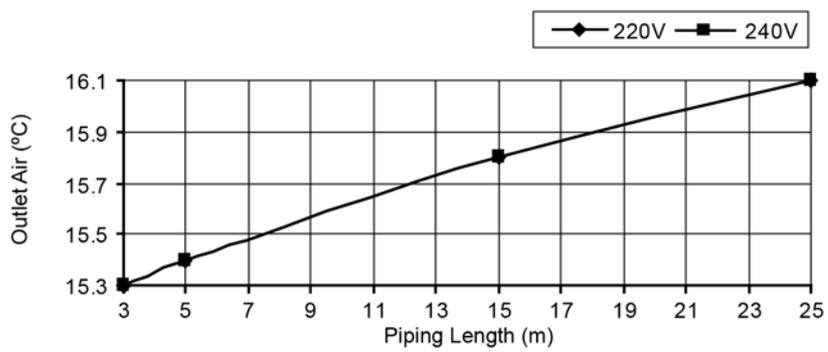
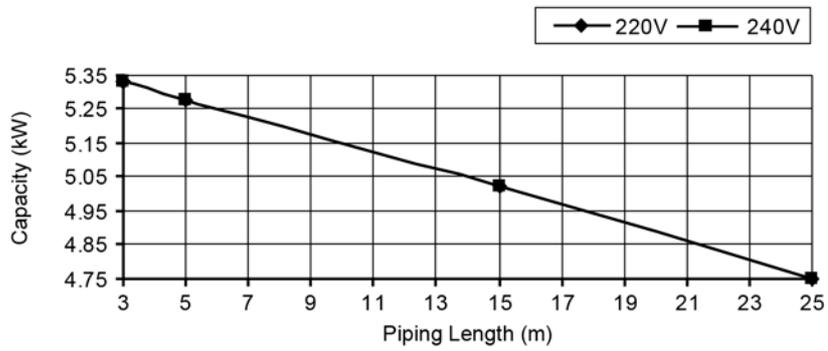
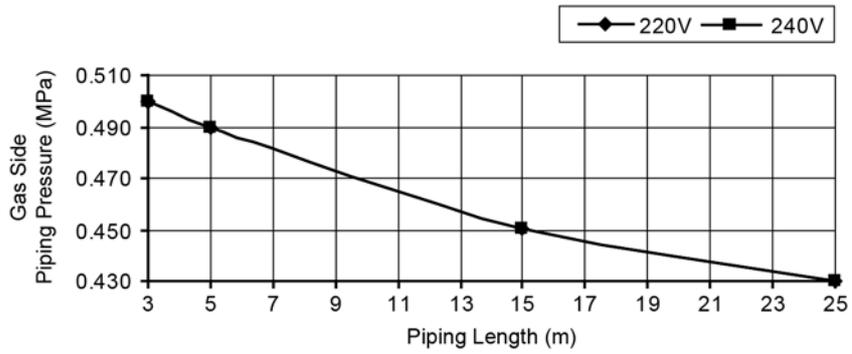
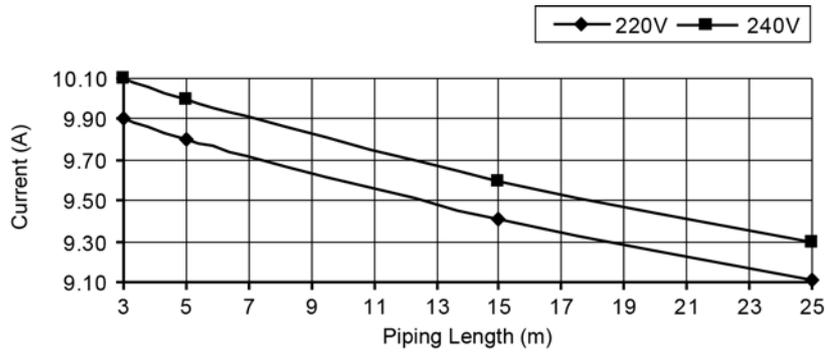


• Piping Length Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)

Cooling condition: At High fan

Piping length: 5.0m



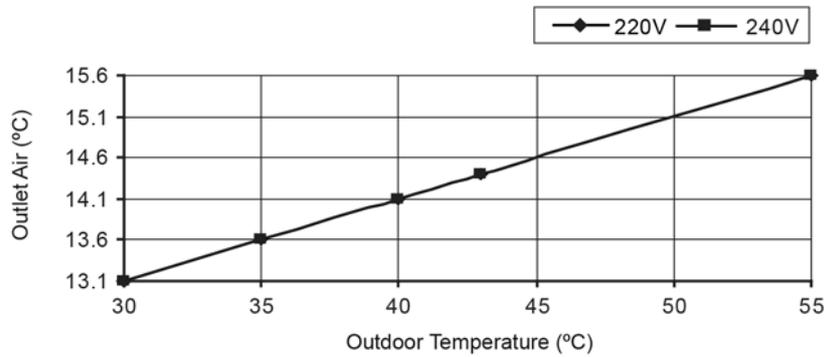
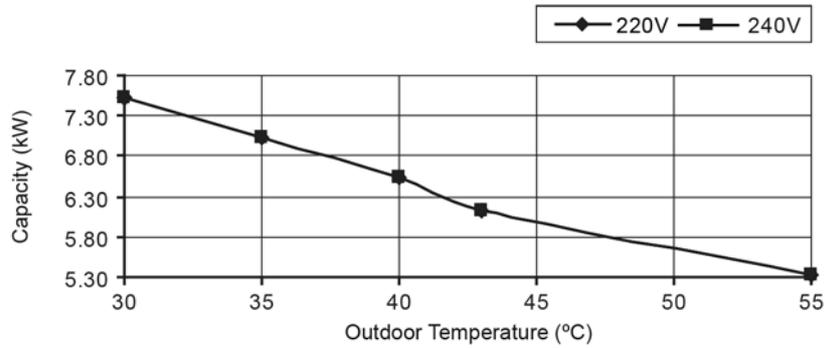
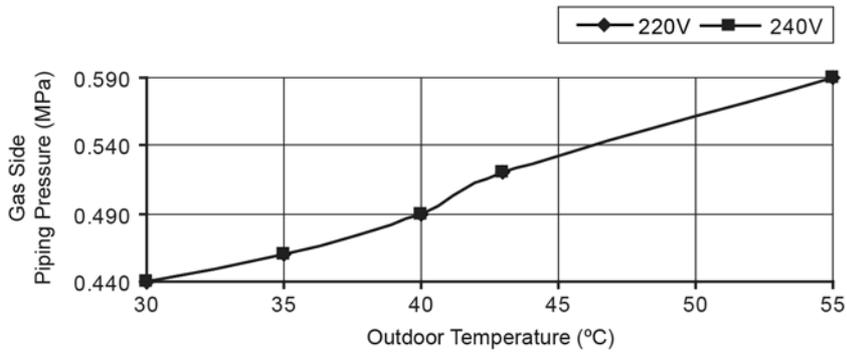
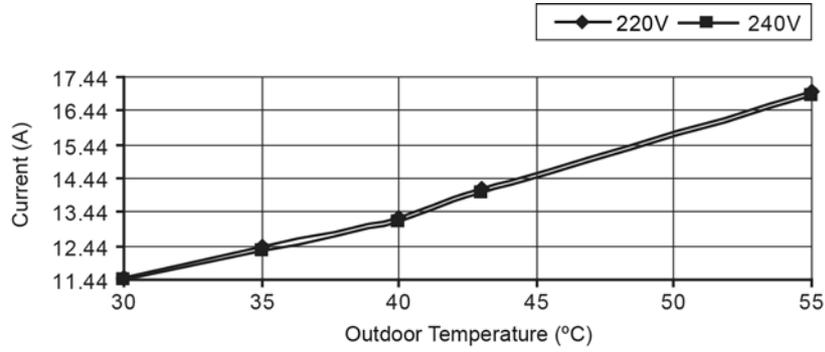
### 17.2.3. CS-PC24MKF CU-PC24MKF

#### • Cooling Characteristics

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)

Cooling condition: At High fan

Piping length: 5.0m

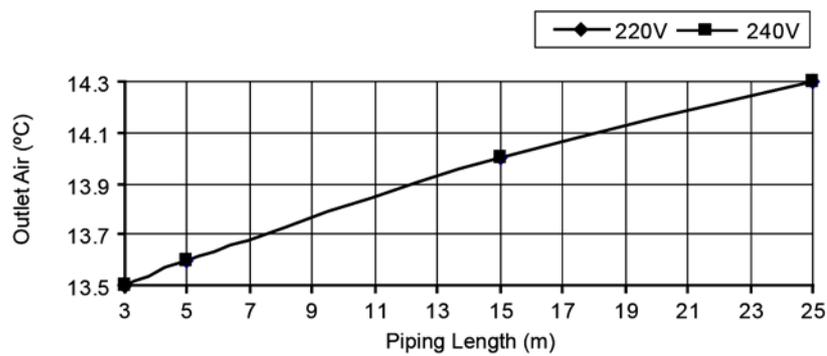
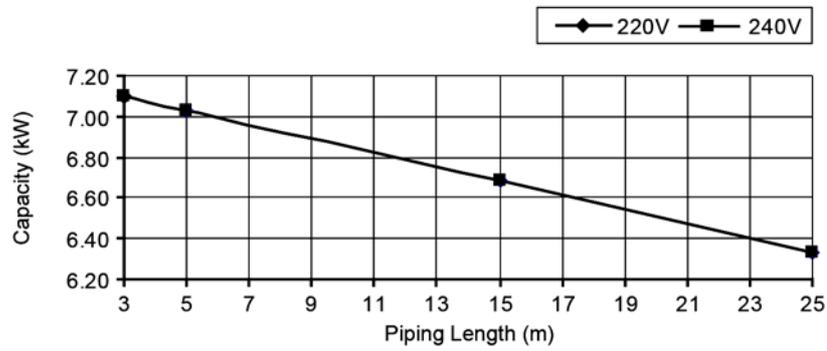
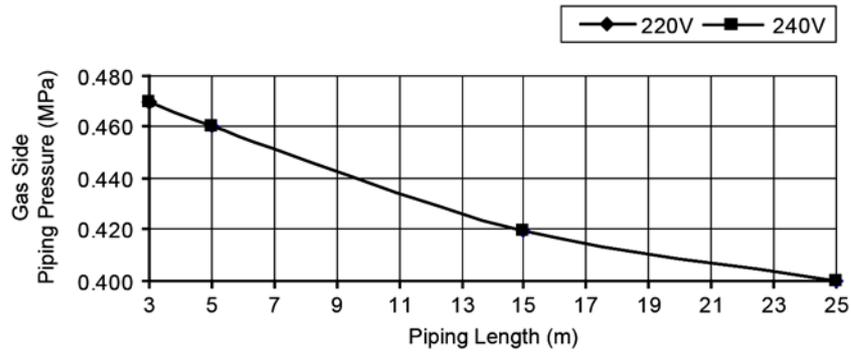
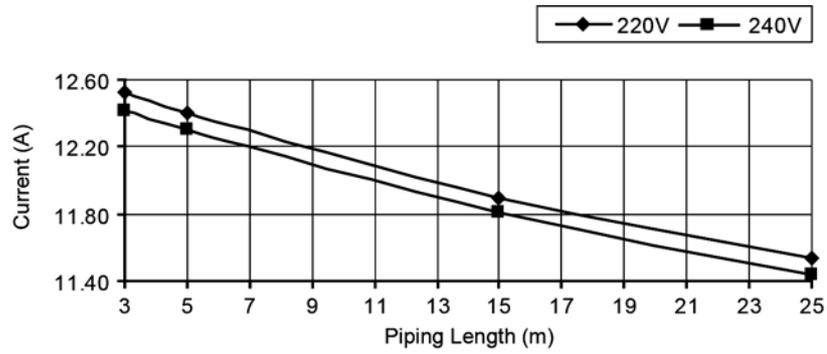


• Piping Length Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)

Cooling condition: At High fan

Piping length: 5.0m



## 17.3. Fan Performance

CS-PC12MKF CU-PC12MKF			Hi	Me	Lo
Indoor	Fan Speed	rpm	1120	940	810
	Air Flow	m <sup>3</sup> /min	10.30	8.30	6.80
		ft <sup>3</sup> /m	364	293	240
Outdoor	Fan Speed	rpm	875 - 905		
	Air Flow	m <sup>3</sup> /min	33.2 - 34.2		
		ft <sup>3</sup> /m	1172 - 1207		

CS-PC18MKF CU-PC18MKF			Hi	Me	Lo
Indoor	Fan Speed	rpm	1280	1200	1120
	Air Flow	m <sup>3</sup> /min	16.90	15.60	14.30
		ft <sup>3</sup> /m	597	551	505
Outdoor	Fan Speed	rpm	875 - 905		
	Air Flow	m <sup>3</sup> /min	31.6 - 32.6		
		ft <sup>3</sup> /m	1120 - 1150		

CS-PC24MKF CU-PC24MKF			Hi	Me	Lo
Indoor	Fan Speed	rpm	1390	1240	1150
	Air Flow	m <sup>3</sup> /min	18.10	15.70	14.30
		ft <sup>3</sup> /m	639	554	505
Outdoor	Fan Speed	rpm	860 - 890	—	440 - 500
	Air Flow	m <sup>3</sup> /min	55.0 - 57.0	—	26.6 - 30.3
		ft <sup>3</sup> /m	1940 - 2010	—	940 - 1071

## 17.4. Cooling Capacity Performance Data

CS/CU-PC12MKF (220V)

CAPACITY		OUTDOOR TEMP. (DBT)																	
		25			30			35			40			43			55		
		Tc	SHc	lpt	Tc	SHc	lpt	Tc	SHc	lpt	Tc	SHc	lpt	Tc	SHc	lpt	Tc	SHc	lpt
23	17.0	3.6661	2.1947	0.9632	3.5200	2.2250	1.0454	3.3141	2.1539	1.1374	3.0652	2.0627	1.2487	2.8811	1.9969	1.3213	2.4587	1.6009	1.6193
	19.0	3.8720	1.8448	1.0212	3.7474	1.8600	1.1035	3.5580	1.8297	1.2052	3.3141	1.7688	1.3213	3.1462	1.7385	1.3988	2.7533	1.6079	1.7614
	22.0	4.2240	1.4242	1.1035	4.1103	1.4647	1.1955	3.9262	1.4700	1.3020	3.6717	1.4446	1.4278	3.4982	1.4393	1.5149	2.9948	1.4147	1.9886
25	17.0	3.6228	2.5900	0.9632	3.4820	2.5545	1.0406	3.2764	2.4682	1.1326	3.0381	2.3771	1.2390	2.8702	2.2957	1.3116	2.4872	1.8241	1.6095
	19.0	3.8720	2.2859	1.0261	3.7421	2.2757	1.1084	3.5362	2.2201	1.2052	3.2926	2.1437	1.3165	3.1247	2.0881	1.3988	2.7315	1.8628	1.7810
	22.0	4.2240	1.7987	1.1084	4.0941	1.8195	1.1955	3.8938	1.8044	1.3020	3.8628	1.7484	1.4230	3.4658	1.7332	1.5101	2.9895	1.6681	1.9834
27	17.0	3.5742	2.9800	0.9680	3.4387	2.9293	1.0406	3.2437	2.8230	1.1326	3.0163	2.7115	1.2294	2.8540	2.6456	1.3020	2.4841	2.1887	1.5997
	19.0	3.8773	2.6861	1.0309	3.7312	2.6558	1.1132	3.5200	2.5696	1.2100	3.2764	2.4834	1.3407	3.0976	2.4073	1.3939	2.6777	2.1074	1.6630
	22.0	4.2187	2.1743	1.1132	4.0779	2.1743	1.2003	3.8667	2.1338	1.3068	3.5904	1.8688	1.4181	3.4334	2.0222	1.5052	2.9712	1.8987	1.9782
29	17.0	3.5686	3.2740	0.9583	3.4387	3.1881	1.0406	3.2384	3.0307	1.1180	3.0434	2.8484	1.2003	2.8917	2.7065	1.2536	2.5495	2.0138	1.4770
	19.0	3.8720	3.0814	1.0261	3.7312	3.0409	1.1084	3.5200	2.9346	1.1955	3.2979	2.8280	1.2826	3.1356	2.7572	1.3358	2.7652	2.4689	1.6020
	22.0	4.2022	2.5745	1.1277	4.0614	2.5647	1.2245	3.8396	2.4985	1.3165	3.5957	2.4228	1.4133	3.4278	2.3771	1.4714	2.9392	2.1958	1.8247
32	17.0	3.5633	3.2690	0.9535	3.4387	3.2183	1.0358	3.0110	2.8181	1.1084	3.0596	2.8635	1.1810	2.9135	2.7266	1.2197	2.5854	2.0465	1.3889
	19.0	3.8667	3.5834	1.0212	3.7312	3.4918	1.1084	3.5200	3.2944	1.1858	3.3141	3.1018	1.2632	3.1627	2.9600	1.3020	2.8107	2.4330	1.5131
	22.0	4.1916	3.2183	1.1422	4.0508	3.1828	1.2390	3.8340	3.0867	1.3262	3.5957	2.9955	1.4084	3.4278	2.9191	1.4520	2.9392	2.6252	1.7485

TC : Cooling Capacitor (kW)

SHC : Sensible Heat Capacity (kW)

IPT : Cooling Power Consumption (kW)

**CS/CU-PC12MKF (240V)**

CAPACITY		OUTDOOR TEMP. (DBT)																	
		25			30			35			40			43			55		
		Tc	SHc	Ipt	Tc	SHc	Ipt	Tc	SHc	Ipt	Tc	SHc	Ipt	Tc	SHc	Ipt	Tc	SHc	Ipt
23	17.0	3.6869	2.2072	2.9870	3.5400	2.2376	1.0714	3.3329	2.1661	1.1656	3.0826	2.0744	1.2797	2.8975	2.0082	1.3541	2.4727	1.6100	1.6595
	19.0	3.8940	1.8553	1.0466	3.7687	1.8705	1.1309	3.5782	1.8401	1.2350	3.3329	1.7789	1.3541	3.1641	1.7484	1.4334	2.7690	1.6171	1.8051
	22.0	4.2480	1.4323	1.1309	4.1337	1.4730	1.2251	3.9485	1.4783	1.3342	3.6926	1.4528	1.4632	3.5181	1.4475	1.5525	3.0118	1.4227	2.0379
25	17.0	3.6434	2.6047	0.9870	3.5018	2.5690	1.0664	3.2950	2.4822	1.1606	3.0554	2.3906	1.2698	2.8865	2.3088	1.3442	2.5014	1.8344	1.6494
	19.0	3.8940	2.2989	1.0515	3.7634	2.2886	1.1358	3.5563	2.2327	1.2350	3.3113	2.1559	1.3491	3.1425	2.0999	1.4334	2.7470	1.8734	1.8252
	22.0	4.2480	1.8089	1.1358	4.1174	1.8298	1.2251	3.9159	1.8146	1.3342	3.8848	1.7583	1.4582	3.4855	1.7431	1.5475	3.0065	1.6776	2.0326
27	17.0	3.5945	2.9970	0.9920	3.4582	2.9460	1.0664	3.2621	2.8391	1.1606	3.0334	2.7269	1.2598	2.8702	2.6607	1.3342	2.4982	2.2012	1.6394
	19.0	3.8993	2.7014	1.0565	3.7524	2.6709	1.1408	3.5400	2.5842	1.2400	3.2950	2.4975	1.3739	3.1152	2.4210	1.4285	2.6929	2.1194	1.7043
	22.0	4.2427	2.1867	1.1408	4.1011	2.1867	1.2301	3.8887	2.1459	1.3392	3.6108	1.8494	1.4533	3.4529	2.0337	1.5426	2.9881	1.9095	2.0273
29	17.0	3.5889	3.2926	0.9821	3.4582	3.2062	1.0664	3.2568	3.0479	1.1458	3.0607	2.8646	1.2301	2.9081	2.7219	1.2846	2.5640	2.0252	1.5137
	19.0	3.8940	3.0989	1.0515	3.7524	3.0582	1.1358	3.5400	2.9513	1.2251	3.3166	2.8440	1.3144	3.1534	2.7729	1.3690	2.7718	2.4830	1.6418
	22.0	4.2261	2.5892	1.1557	4.0845	2.5792	1.2549	3.8614	2.5127	1.3491	3.6161	2.4366	1.4483	3.4473	2.3906	1.5078	2.9559	2.2083	1.8699
32	17.0	3.5835	3.2876	0.9771	3.4582	3.2366	1.0614	3.0281	2.8341	1.1358	3.0770	2.8798	1.2102	2.9301	2.7421	1.2499	2.6001	2.0582	1.4244
	19.0	3.8887	3.6037	1.0466	3.7524	3.5117	1.1358	3.5400	3.3131	1.2152	3.3329	3.1194	1.2946	3.1807	2.9768	1.3342	2.8267	2.4468	1.5506
	22.0	4.2154	3.2366	1.1706	4.0738	3.2009	1.2698	3.8558	3.1042	1.3590	3.6161	3.0125	1.4434	3.4473	2.9357	1.4880	2.9559	2.6401	1.7918

TC : Cooling Capacitor (kW)  
 SHC : Sensible Heat Capacity (kW)  
 IPT : Cooling Power Consumption (kW)

**CS/CU-PC18MKF (220V)**

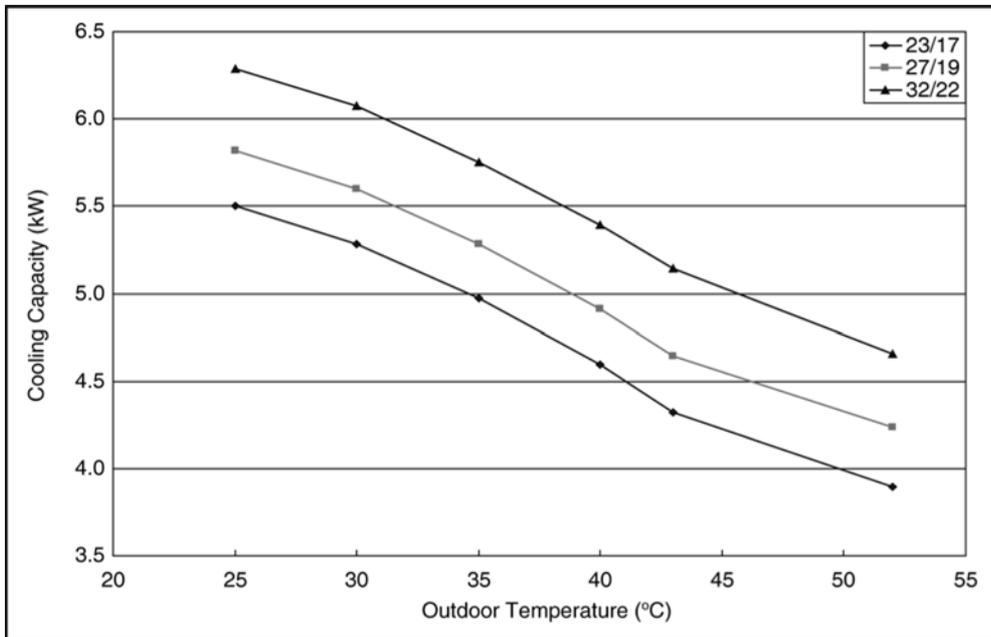
Indoor intake air ambient temperature		Outdoor intake air ambient temperature (D.B./°C)																							
		25°C			30°C			35°C			40°C			43°C			52°C			55°C					
		TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT			
23	DB	WB	KW	KW																					
	17.0	5.4993	3.6075	1.5522	5.2800	3.6575	1.6848	4.9713	3.5408	1.8330	4.5977	3.5180	2.0124	4.3215	3.4057	2.1294	3.8926	2.8204	2.5729	3.6879	2.7304	2.6632			
	19.0	5.0808	3.0326	1.6458	5.6212	3.0576	1.7784	5.3369	3.0076	1.9422	4.9713	3.0167	2.1294	4.7195	2.9648	2.2542	4.3594	2.7899	2.7987	4.1301	2.7419	2.8968			
22.0	6.3360	2.3410	1.7784	6.1654	2.4078	1.9266	5.8892	2.4161	2.0982	5.5074	2.4635	2.3010	5.2475	2.4548	2.4414	4.7415	2.4209	3.1597	4.4921	2.4124	3.2706				
25	17.0	5.4343	4.2573	1.5522	5.2231	4.1990	1.6770	4.9145	4.0574	1.8252	4.5570	4.0539	1.9968	4.3052	3.9156	2.1138	3.9379	3.2209	2.5573	3.7308	3.1110	2.6471			
	19.0	5.8080	3.7574	1.6536	5.6130	3.7408	1.7862	5.3044	3.6491	1.9422	4.9388	3.6563	2.1216	4.6870	3.5612	2.2542	4.3248	3.2618	2.8298	4.0973	3.1770	2.9291			
	22.0	6.3360	2.9576	1.7862	6.1410	2.9910	1.9266	5.8405	2.9660	2.0982	5.7941	2.9821	2.2932	5.1988	2.9562	2.4336	4.7334	2.8701	3.1514	4.4844	2.8452	3.2620			
27	17.0	5.3612	4.8988	1.5600	5.1582	4.8155	1.6770	4.8657	4.6406	1.8252	4.5246	4.6244	1.9812	4.2809	4.5121	2.0982	3.9330	3.8258	2.5418	3.7261	3.7329	2.6310			
	19.0	5.8161	4.4156	1.6614	5.5968	4.3656	1.7940	5.2800	4.2240	1.9900	4.9145	4.2355	2.1606	4.6464	4.1058	2.2464	4.2393	3.7075	2.6423	4.0163	3.5940	2.7351			
	22.0	6.3279	3.5742	1.7940	6.1167	3.5742	1.9344	5.7999	3.5075	2.1060	5.3856	3.5007	2.2854	5.1600	3.4489	2.4258	4.7043	3.2868	3.1432	4.4568	3.2382	3.2535			
29	17.0	5.3531	5.3821	1.5444	5.1582	5.2404	1.6770	4.8576	4.9822	1.8018	4.5652	4.8578	1.9344	4.3377	4.6158	2.0202	4.0365	3.6146	2.3468	3.8242	3.4345	2.4292			
	19.0	5.8080	5.0655	1.6536	5.5968	4.9988	1.7862	5.2800	4.8239	1.9266	4.9470	4.8232	2.0670	4.7033	4.7022	2.1528	4.3635	4.3191	2.5454	4.1340	4.2107	2.6348			
	22.0	6.3035	4.2323	1.8174	6.0923	4.2157	1.9734	5.7593	4.1074	2.1216	5.3937	4.1317	2.2776	5.1419	4.0539	2.3712	4.6536	3.8164	2.8992	4.4088	3.7445	3.0009			
32	17.0	5.3450	5.3737	1.5366	5.1582	5.2904	1.6892	4.5164	4.6322	1.7862	4.5895	4.8837	1.9032	4.3702	4.6504	1.9656	4.0929	3.6651	2.2083	3.8780	3.4900	2.2859			
	19.0	5.7999	5.8903	1.6458	5.5968	5.7403	1.7862	5.2800	5.4154	1.9110	4.9713	5.2900	2.0358	4.7439	5.0480	2.0982	4.4501	4.3480	2.4041	4.2160	4.1491	2.4885			
	22.0	6.2873	5.2904	1.8408	6.0761	5.2321	1.9968	5.7511	5.0738	2.1372	5.3937	5.1085	2.2698	5.1419	4.9788	2.3400	4.6536	4.5938	2.7780	4.4088	4.4772	2.8756			

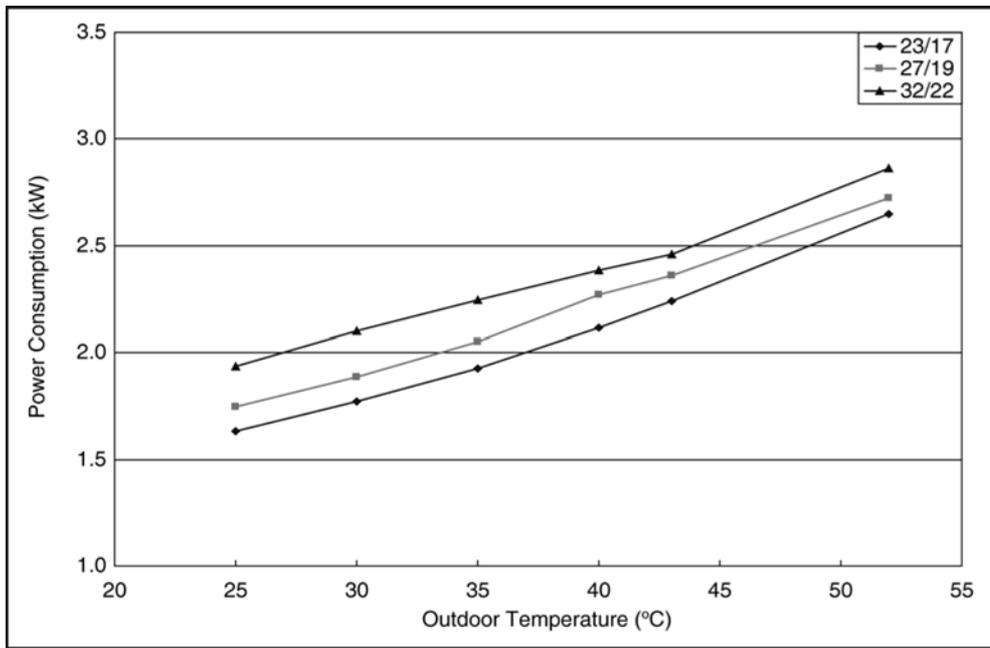
TC : Cooling Capacity (kW)  
 SHC : Sensible Capacity (kW)  
 IPT : Cooling Power Consumption (kW)

**CS/CU-PC18MKF (240V)**

Indoor intake air ambient temperature		Outdoor intake air ambient temperature (D.B./°C)																				
		25°C			30°C			35°C			40°C			43°C			52°C			55°C		
		TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT
DB	WB	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW
23	17.0	5.4993	3.6075	1.5522	5.2800	3.6575	1.6848	4.9713	3.5408	1.8330	4.5977	3.5180	2.0124	4.3215	3.4057	2.1294	3.8926	2.8204	2.6504	3.6879	2.7304	2.7435
	19.0	5.0808	3.0326	1.6458	5.6212	3.0576	1.7784	5.3369	3.0076	1.9422	4.9713	3.0167	2.1294	4.7195	2.9648	2.2542	4.3594	2.7899	2.8831	4.1301	2.7419	2.9842
	22.0	6.3360	2.3410	1.7784	6.1654	2.4078	1.9266	5.8892	2.4161	2.0982	5.5074	2.4635	2.3010	5.2475	2.4548	2.4414	4.7415	2.4209	3.2550	4.4921	2.4124	3.3692
25	17.0	5.4343	4.2573	1.5522	5.2231	4.1990	1.6770	4.9145	4.0574	1.8252	4.5570	4.0539	1.9968	4.3052	3.9156	2.1138	3.9379	3.2209	2.6345	3.7308	3.1110	2.7269
	19.0	5.8080	3.7574	1.6536	5.6130	3.7408	1.7862	5.3044	3.6491	1.9422	4.9388	3.6563	2.1216	4.6870	3.5612	2.2542	4.3248	3.2618	2.9151	4.0973	3.1770	3.0174
	22.0	6.3360	2.9576	1.7862	6.1410	2.9910	1.9266	5.8405	2.9680	2.0982	5.7941	2.9821	2.2932	5.1988	2.9562	2.4336	4.7334	2.8701	3.2464	4.4844	2.8452	3.3604
27	17.0	5.3612	4.8988	1.5600	5.1582	4.8155	1.6770	4.8657	4.6406	1.8252	4.5246	4.6244	1.9812	4.2809	4.5121	2.0982	3.9330	3.8258	2.6185	3.7261	3.7329	2.7103
	19.0	5.8161	4.4156	1.6614	5.5968	4.3656	1.7940	5.2800	4.2240	2.0500	4.9145	4.2355	2.1606	4.6464	4.1058	2.2464	4.2393	3.7075	2.7220	4.0163	3.5940	2.8175
	22.0	6.3279	3.5742	1.7940	6.1167	3.5742	1.9344	5.7999	3.5075	2.1060	5.3856	3.5007	2.2854	5.1500	3.4489	2.4258	4.7043	3.2868	3.2380	4.4568	3.2382	3.3515
29	17.0	5.3531	5.3821	1.5444	5.1582	5.2404	1.6770	4.8576	4.9822	1.8018	4.5652	4.8578	1.9344	4.3377	4.6158	2.0202	4.0365	3.6146	2.4176	3.8242	3.4345	2.5024
	19.0	5.8080	5.0655	1.6536	5.5968	4.9988	1.7862	5.2800	4.8239	1.9266	4.9470	4.8232	2.0670	4.7033	4.7022	2.1528	4.3635	4.3191	2.6222	4.1340	4.2107	2.7142
	22.0	6.3035	4.2323	1.8174	6.0923	4.2157	1.9734	5.7593	4.1074	2.1216	5.3937	4.1317	2.2776	5.1419	4.0539	2.3712	4.6536	3.8164	2.9866	4.4088	3.7445	3.0914
32	17.0	5.3450	5.3737	1.5366	5.1582	5.2904	1.6692	4.5164	4.6322	1.7862	4.5895	4.8837	1.9032	4.3702	4.6504	1.9656	4.0929	3.6651	2.2749	3.8780	3.4900	2.3548
	19.0	5.7999	5.8903	1.6458	5.5968	5.7403	1.7862	5.2800	5.4154	1.9110	4.9713	5.2900	2.0358	4.7439	5.0480	2.0982	4.4501	4.3480	2.4766	4.2160	4.1491	2.5635
	22.0	6.2873	5.2904	1.8408	6.0761	5.2321	1.9968	5.7511	5.0738	2.1372	5.3937	5.1085	2.2698	5.1419	4.9788	2.3400	4.6536	4.5938	2.8618	4.4088	4.4772	2.9623

TC : Cooling Capacity (kW)  
 SHC : Sensible Capacity (kW)  
 IPT : Cooling Power Consumption (kW)



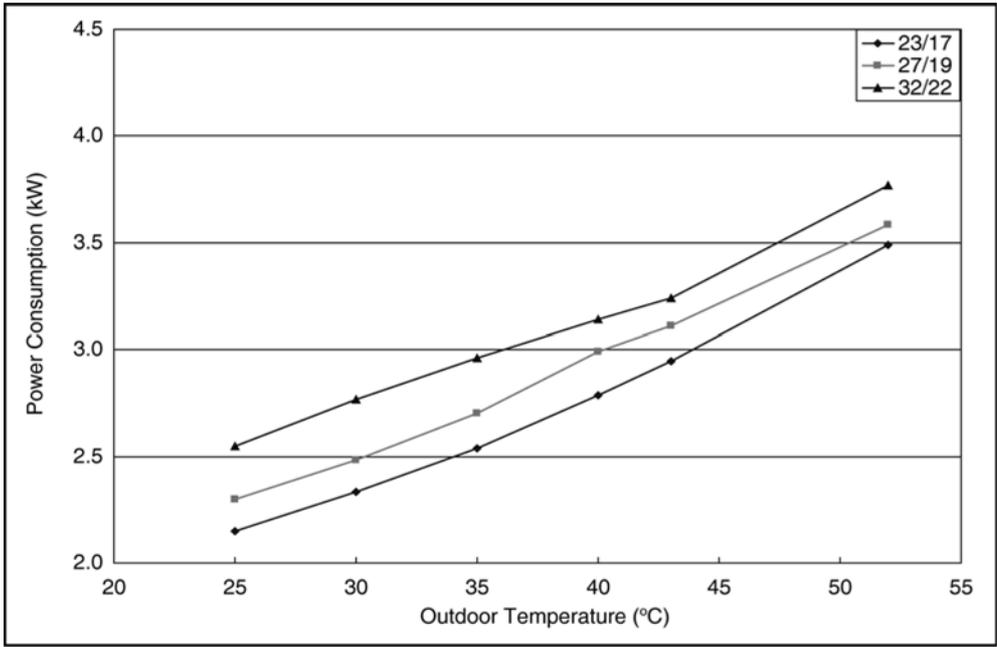


**CS/CU-PC24MKF (220V)**

Indoor intake air ambient temperature		Outdoor intake air ambient temperature (D.B./°C)																							
		25°C			30°C			35°C			40°C			43°C			52°C			55°C					
		TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT			
DB	WB	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW			
23	17.0	7.3220	4.3829	2.1492	7.0300	4.4436	2.3328	6.6190	4.3019	2.5380	6.1215	4.1197	2.7864	5.7538	3.9881	2.9484	5.1828	3.3027	3.3228	4.9105	3.1972	3.4394			
	19.0	7.7330	3.6844	2.2788	7.4842	3.7148	2.4624	7.1057	3.6541	2.6892	6.6190	3.5326	2.9484	6.2837	3.4719	3.1212	5.8043	3.2671	3.6144	5.4989	3.2110	3.7411			
	22.0	8.4360	2.8443	2.4624	8.2089	2.9253	2.6676	7.8412	2.9354	2.9052	7.3328	2.8848	3.1860	6.9867	2.8747	3.3804	6.3130	2.8350	4.0806	5.9811	2.8251	4.2238			
25	17.0	7.2355	5.1724	2.1492	6.9543	5.1015	2.3220	6.5433	4.9295	2.5272	6.0674	4.7473	2.7648	5.7322	4.5853	2.9268	5.2430	3.7718	3.3027	4.9674	3.6431	3.4186			
	19.0	7.7330	4.5851	2.2896	7.4734	4.5448	2.4732	7.0624	4.4335	2.6892	6.5758	4.2816	2.9376	6.2405	4.1703	3.1212	5.7583	3.8197	3.6546	5.4553	3.7204	3.7828			
	22.0	8.4360	3.5933	2.4732	8.1764	3.6338	2.6676	7.7763	3.6035	2.9052	7.7145	3.4921	3.1752	6.9218	3.4618	3.3696	6.3022	3.3609	4.0699	5.9706	3.3317	4.2127			
27	17.0	7.1382	5.9518	2.1600	6.8678	5.8506	2.3220	6.4784	5.6380	2.5272	6.0242	5.4153	2.7432	5.6997	5.2837	2.9052	5.2365	4.4801	3.2827	4.9611	4.3712	3.3978			
	19.0	7.7438	5.3647	2.3004	7.4518	5.3040	2.4840	7.0300	5.1319	2.5700	6.5433	4.9598	2.9916	6.1864	4.8080	3.1104	5.6444	4.3416	3.4124	5.3477	4.2087	3.5322			
	22.0	8.4252	4.3424	2.4840	8.1440	4.3424	2.6784	7.7222	4.2614	2.9160	7.1706	4.0994	3.1644	6.8570	4.0387	3.3588	6.2634	3.8489	4.0593	5.9340	3.7919	4.2017			
29	17.0	7.1273	6.5389	2.1384	6.8678	6.3668	2.3220	6.4676	6.0530	2.4948	6.0782	5.6886	2.6784	5.7754	5.4052	2.7972	5.3743	4.2328	3.0308	5.0918	4.0219	3.1372			
	19.0	7.7330	6.1542	2.2896	7.4518	6.0733	2.4732	7.0300	5.8607	2.6676	6.5866	5.6481	2.8620	6.2621	5.5084	2.9808	5.8098	5.0577	3.2873	5.5045	4.9308	3.4027			
	22.0	8.3927	5.1420	2.5164	8.1115	5.1218	2.7324	7.6681	4.9902	2.9376	7.1814	4.8384	3.1536	6.8461	4.7473	3.2832	6.1959	4.4691	3.7442	5.8701	4.3850	3.8756			
32	17.0	7.1165	6.5287	2.1276	6.8678	6.4275	2.3112	6.0134	5.6279	2.4732	6.1107	5.7190	2.6352	5.8187	5.4457	2.7216	5.4494	4.2920	2.8519	5.1635	4.0869	2.9522			
	19.0	7.7222	7.1563	2.2788	7.4518	6.9741	2.4732	7.0300	6.5794	2.6460	6.6190	6.1947	2.8188	6.3162	5.9113	2.9052	5.9251	5.0917	3.1048	5.6135	4.8588	3.2138			
	22.0	8.3711	6.4275	2.5488	8.0899	6.3567	2.7648	7.6573	6.1644	2.9592	7.1814	5.9822	3.1428	6.8461	5.8303	3.2400	6.1959	5.3795	3.5877	5.8701	5.2429	3.7137			

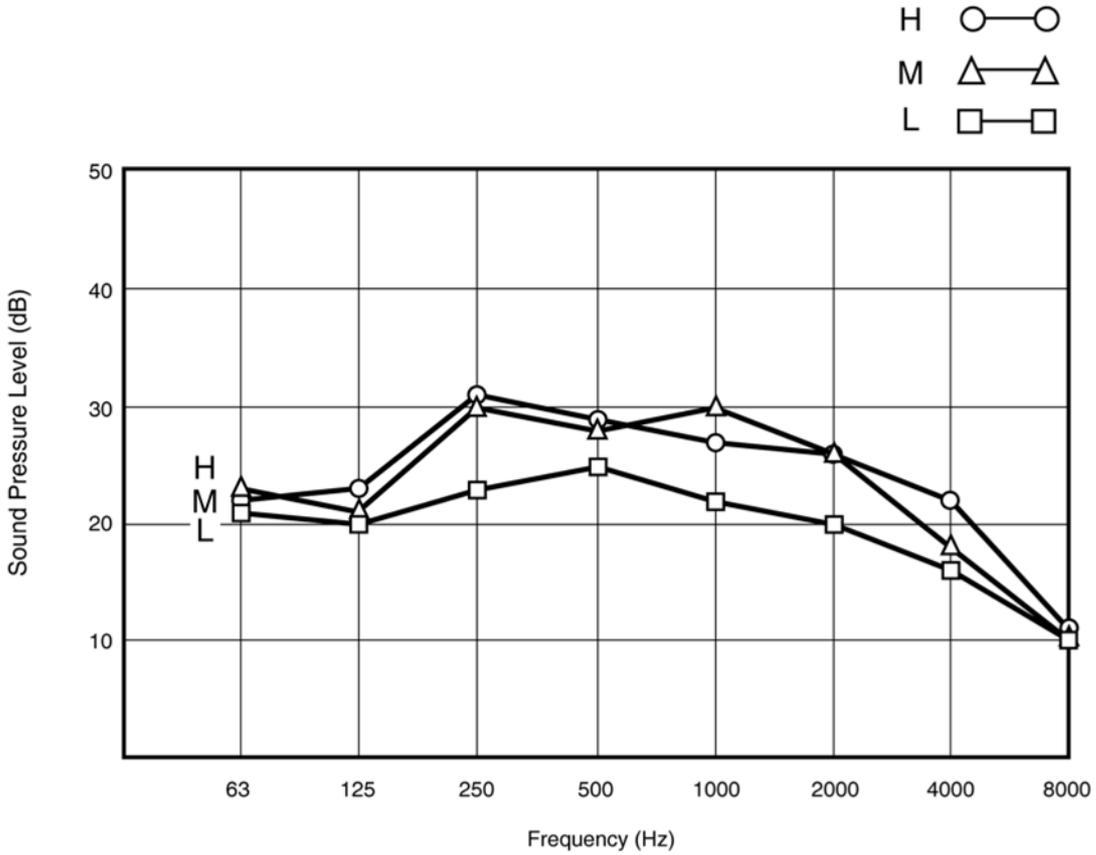
TC : Cooling Capacity (kW)  
 SHC : Sensible Capacity (kW)  
 IPT : Cooling Power Consumption (kW)

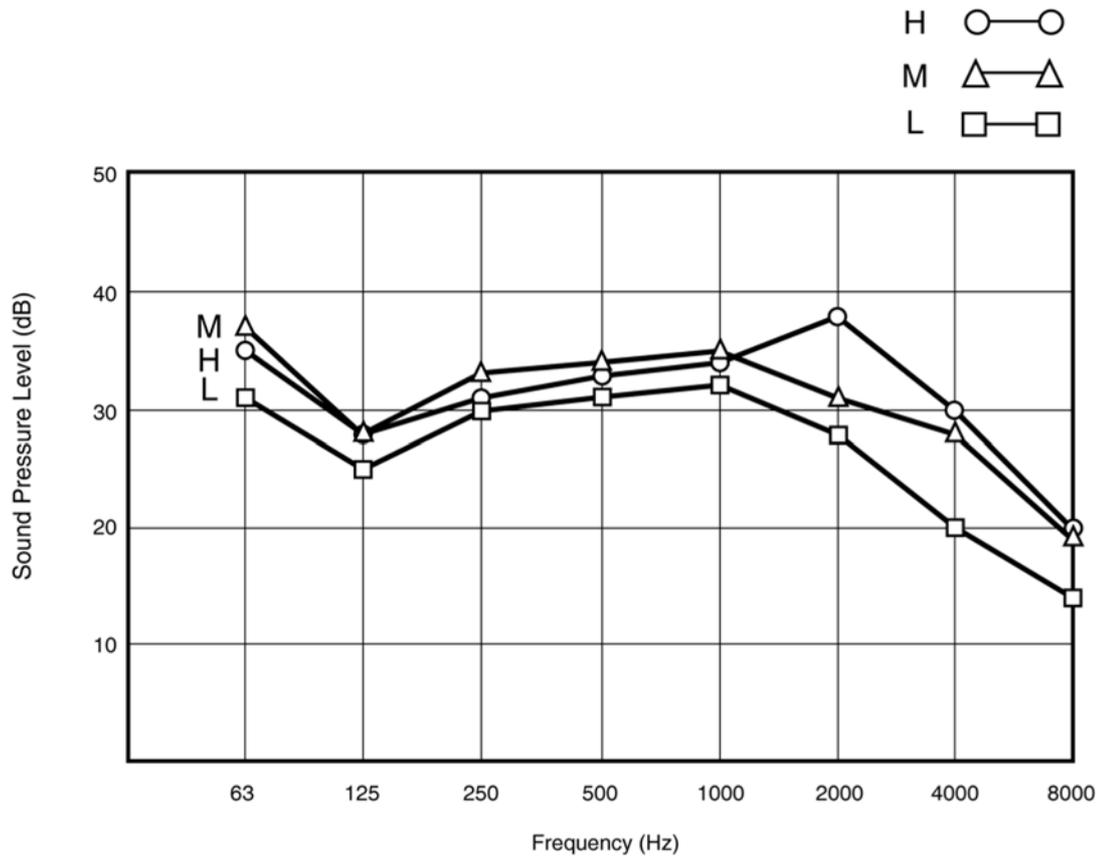




### 17.5. Sound Data

CS-PC18MKF

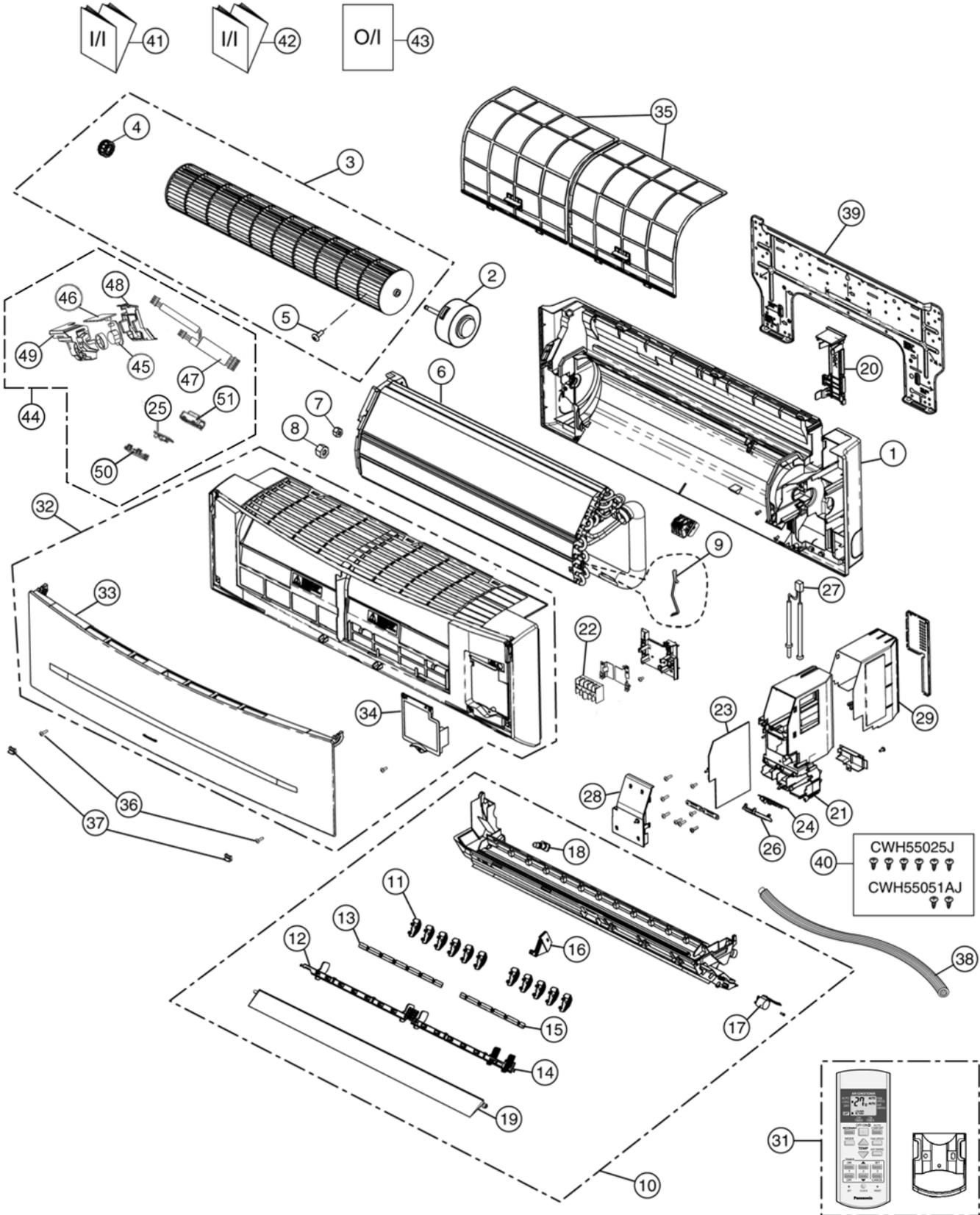




# 18 Exploded View and Replacement Parts List

## 18.1. Indoor Unit

### 18.1.1. CS-PC12MKF



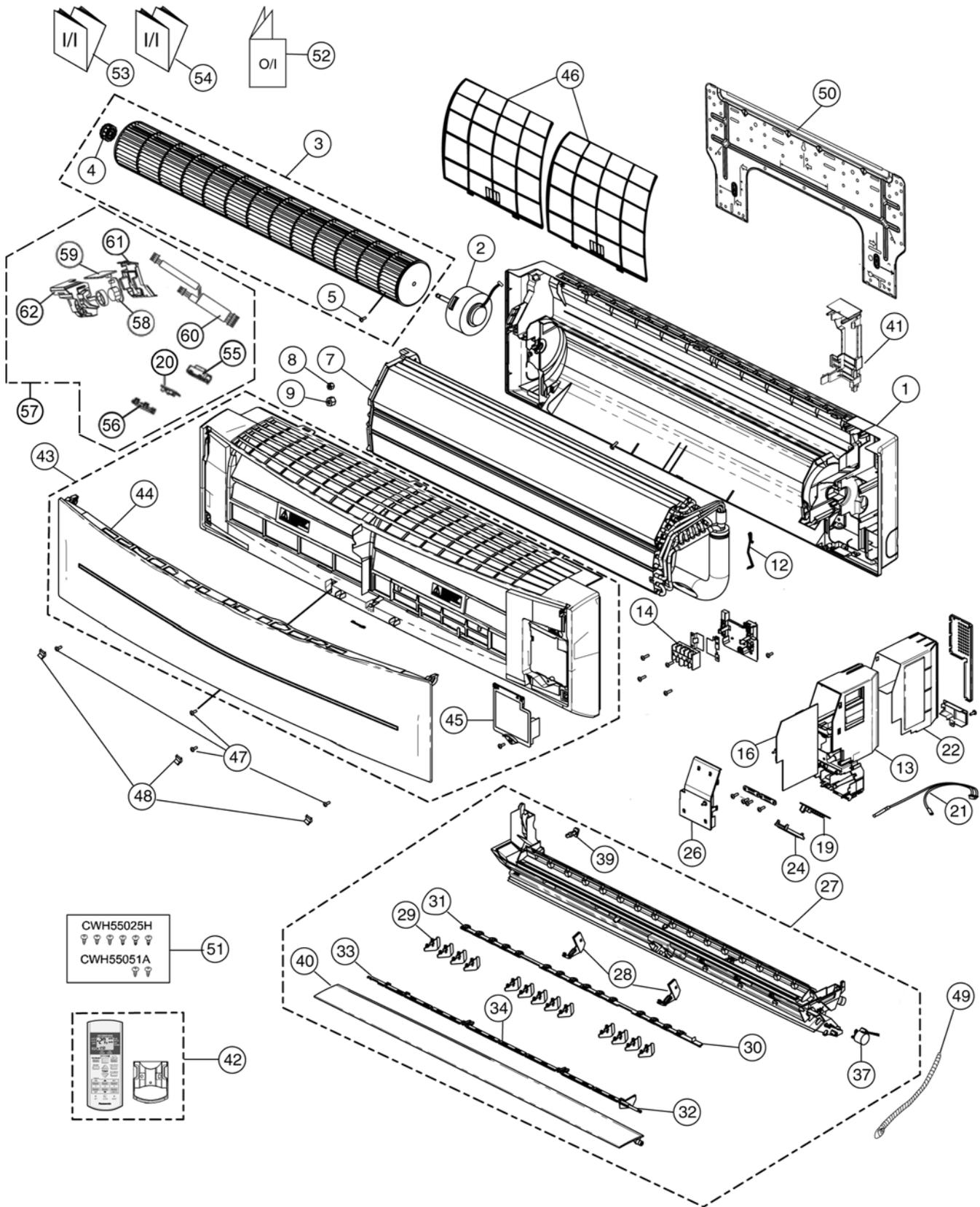
Note:  
 The above exploded view is for the purpose of parts disassembly and replacement.  
 The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-PC12MKF	REMARK
1	CHASSIS COMPLETE	1	CWD50C1653	
2	FAN MOTOR	1	CWA921434	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	
4	BEARING ASS'Y	1	CWH64K007	
5	SCREW - CROSS FLOW FAN	1	CWH551146	
6	EVAPORATOR	1	CWB30C3328	
7	FLARE NUT (LIQUID)	1	CWT251026	
8	FLARE NUT (GAS)	1	CWT251062	
9	HOLDER SENSOR	1	CWH32143	
10	DISCHARGE GRILLE COMPLETE	1	CWE20C3137	
11	VERTICAL VANE	11	CWE241350	
12	CONNECTING BAR	1	CWE261152	
13	CONNECTING BAR	1	CWE261153	
14	CONNECTING BAR	1	CWE261154	
15	CONNECTING BAR	1	CWE261155	
16	FULCRUM	1	CWH621102	
17	AIR SWING MOTOR	1	CWA981264	O
18	CAP - DRAIN TRAY	1	CWH521096	
19	HORIZONTAL VANE	1	CWE24C1268	
20	BACK COVER CHASSIS	1	CWD933233	
21	CONTROL BOARD CASING	1	CWH102370	
22	TERMINAL BOARD COMPLETE	1	CWA28C2397	O
23	ELECTRONIC CONTROLLER - MAIN	1	CWA73C5191	O
24	ELECTRONIC CONTROLLER - INDICATOR	1	CWA746317	O
25	ELECTRONIC CONTROLLER - RECEIVER	1	CWA745288	O
26	INDICATOR HOLDER	1	CWD933021	
27	SENSOR COMPLETE	1	CWA50C2401	O
28	CONTROL BOARD FRONT COVER	1	CWH13C1183	
29	CONTROL BOARD TOP COVER	1	CWH131350	
31	REMOTE CONTROL COMPLETE	1	CWA75C3712	O
32	FRONT GRILLE COMPLETE	1	CWE11C4794	O
33	INTAKE GRILLE COMPLETE	1	CWE22C1508	O
34	GRILLE DOOR	1	CWE14C1029	
35	AIR FILTER	2	CWD001279	
36	SCREW - FRONT GRILLE	2	XTT4+16CFJ	
37	CAP - FRONT GRILLE	2	CWH521194	
38	DRAIN HOSE	1	CWH851173	
39	INSTALLATION PLATE	1	CWH361097	
40	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C067	
41	INSTALLATION INSTRUCTION	1	CWF614761	
42	INSTALLATION INSTRUCTION	1	CWF614762	
43	OPERATING INSTRUCTION	1	CWF567879	
44	SENSOR COMPLETE (ECO)	1	CWA50C2708	
45	ELECTRONIC CONTROLLER (ECO SENSOR)	1	CWA745791	
46	ELECTRONIC CONTROLLER (COMPARATOR)	1	CWA745790	
47	LEAD WIRE - PCB ECO	1	CWA67C8483	
48	COVER FOR PCB ECO (BOTTOM)	1	CWD933193	
49	COVER FOR PCB ECO (UPPER)	1	CWD933192	
50	COVER FOR RECEIVER (UPPER)	1	CWD933022	
51	COVER FOR RECEIVER (BOTTOM)	1	CWD933209	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488).
- "O" marked parts are recommended to be kept in stock.

### 18.1.2. CS-PC18MKF CS-PC24MKF



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.

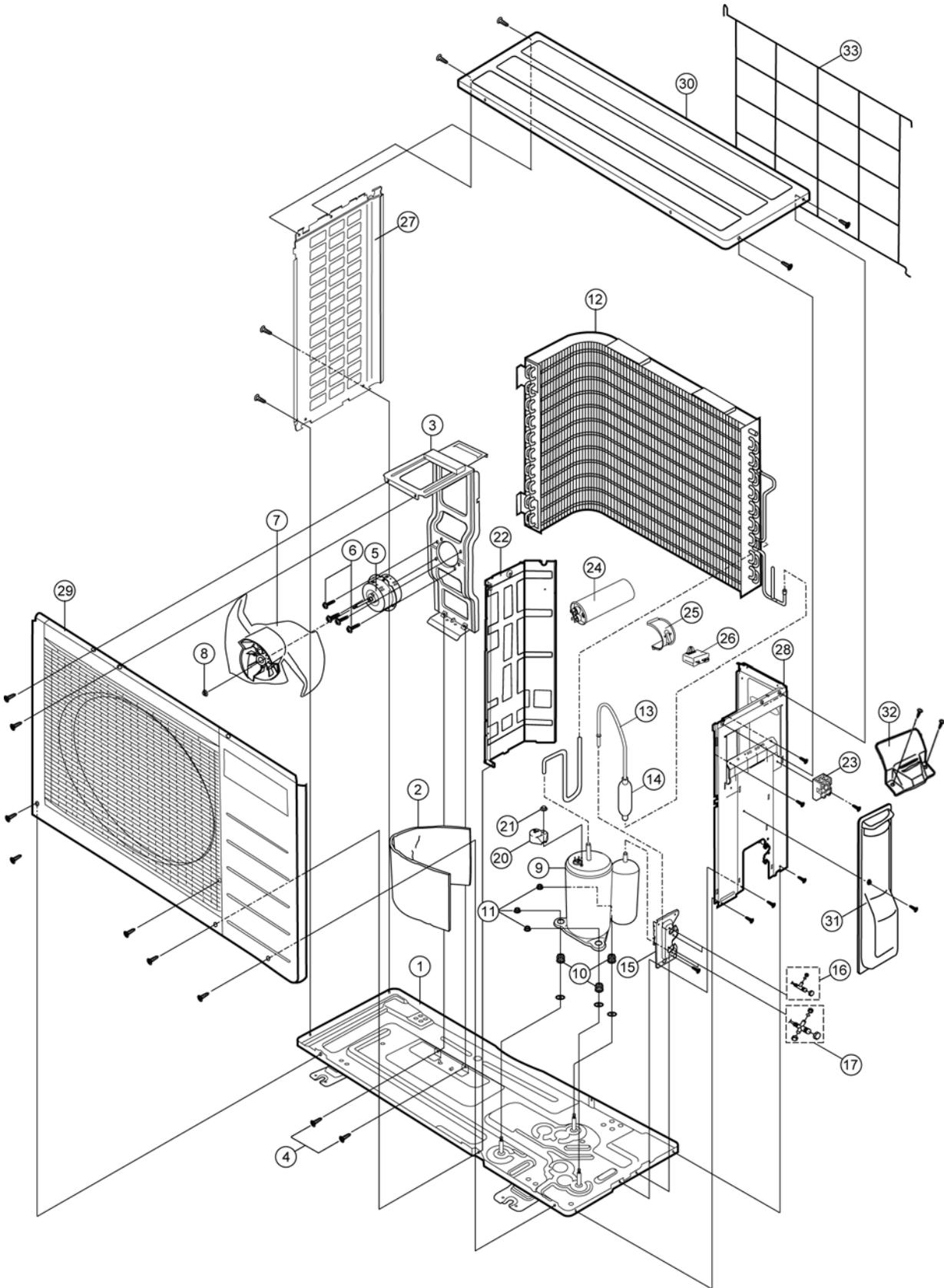
REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-PC18MKF	CS-PC24MKF	REMARK
1	CHASSIS COMPLETE	1	CWD50C1654	←	
2	FAN MOTOR	1	ARW7628AC	ARW7627AC	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1077	←	
4	BEARING ASS'Y	1	CWH64K007	←	
5	SCREW - CROSS FLOW FAN	1	CWH551146	←	
7	EVAPORATOR	1	CWB30C3126	CWB30C3125	
8	FLARE NUT (LIQUID)	1	CWT251026	←	
9	FLARE NUT (GAS)	1	CWT251062	CWT251036	
12	HOLDER SENSOR	1	CWH32143	←	
13	CONTROL BOARD CASING	1	CWH102370	←	
14	TERMINAL BOARD COMPLETE	1	CWA28C2361	CWA28C2362	O
16	ELECTRONIC CONTROLLER - MAIN	1	CWA73C5233	CWA73C5232	O
19	ELECTRONIC CONTROLLER - INDICATOR	1	CWA746317	←	O
20	ELECTRONIC CONTROLLER - RECEIVER	1	CWA745288	←	O
21	SENSOR COMPLETE	1	CWA50C2401	CWA50C2782	O
22	CONTROL BOARD TOP COVER	1	CWH131350	←	
24	INDICATOR HOLDER	1	CWD933021	←	
26	CONTROL BOARD FRONT COVER	1	CWH13C1183	←	
27	DISCHARGE GRILLE COMPLETE	1	CWE20C3163	←	
28	FULCRUM	2	CWH621103	←	
29	VERTICAL VANE	13	CWE241355	←	
30	CONNECTING BAR	1	CWE261230	←	
31	CONNECTING BAR	1	CWE261231	←	
32	CONNECTING BAR	1	CWE261232	←	
33	CONNECTING BAR	1	CWE261233	←	
34	CONNECTING BAR	1	CWE261234	←	
37	A.S.MOTOR, DC SINGLE 12V 300OHM	1	CWA981241	←	O
39	CAP - DRAIN TRAY	1	CWH521096	←	
40	HORIZONTAL VANE	1	CWE24C1295	←	
41	BACK COVER CHASSIS	1	CWD933031	←	
42	REMOTE CONTROL COMPLETE	1	CWA75C3712	←	O
43	FRONT GRILLE COMPLETE	1	CWE11C4801	CWE11C4802	O
44	INTAKE GRILLE COMPLETE	1	CWE22C1512	←	O
45	GRILLE DOOR	1	CWE14C1029	←	
46	AIR FILTER	2	CWD001283	←	
47	SCREW - FRONT GRILLE	4	XTT4+16CFJ	←	
48	CAP - FRONT GRILLE	3	CWH521194	←	
49	DRAIN HOSE	1	CWH851173	←	
50	INSTALLATION PLATE	1	CWH361098	←	
51	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	
52	OPERATING INSTRUCTION	1	CWF567879	←	
53	INSTALLATION INSTRUCTION	1	CWF614761	←	
54	INSTALLATION INSTRUCTION	1	CWF614762	←	
55	COVER FOR RECEIVER (BOTTOM)	1	CWD933209	←	
56	COVER FOR RECEIVER (UPPER)	1	CWD933022	←	
57	SENSOR COMPLETE (ECO)	1	CWA50C2709	←	
58	ELECTRONIC CONTROLLER (ECO SENSOR)	1	CWA745791	←	
59	ELECTRONIC CONTROLLER (COMPARATOR)	1	CWA745790	←	
60	LEAD WIRE - PCB ECO	1	CWA67C8484	←	
61	COVER FOR PCB ECO (BOTTOM)	1	CWD933193	←	
62	COVER FOR PCB ECO (UPPER)	1	CWD933192	←	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488).
- "O" marked parts are recommended to be kept in stock.

## 18.2. Outdoor Unit

### 18.2.1. CU-PC12MKF



**Note:**

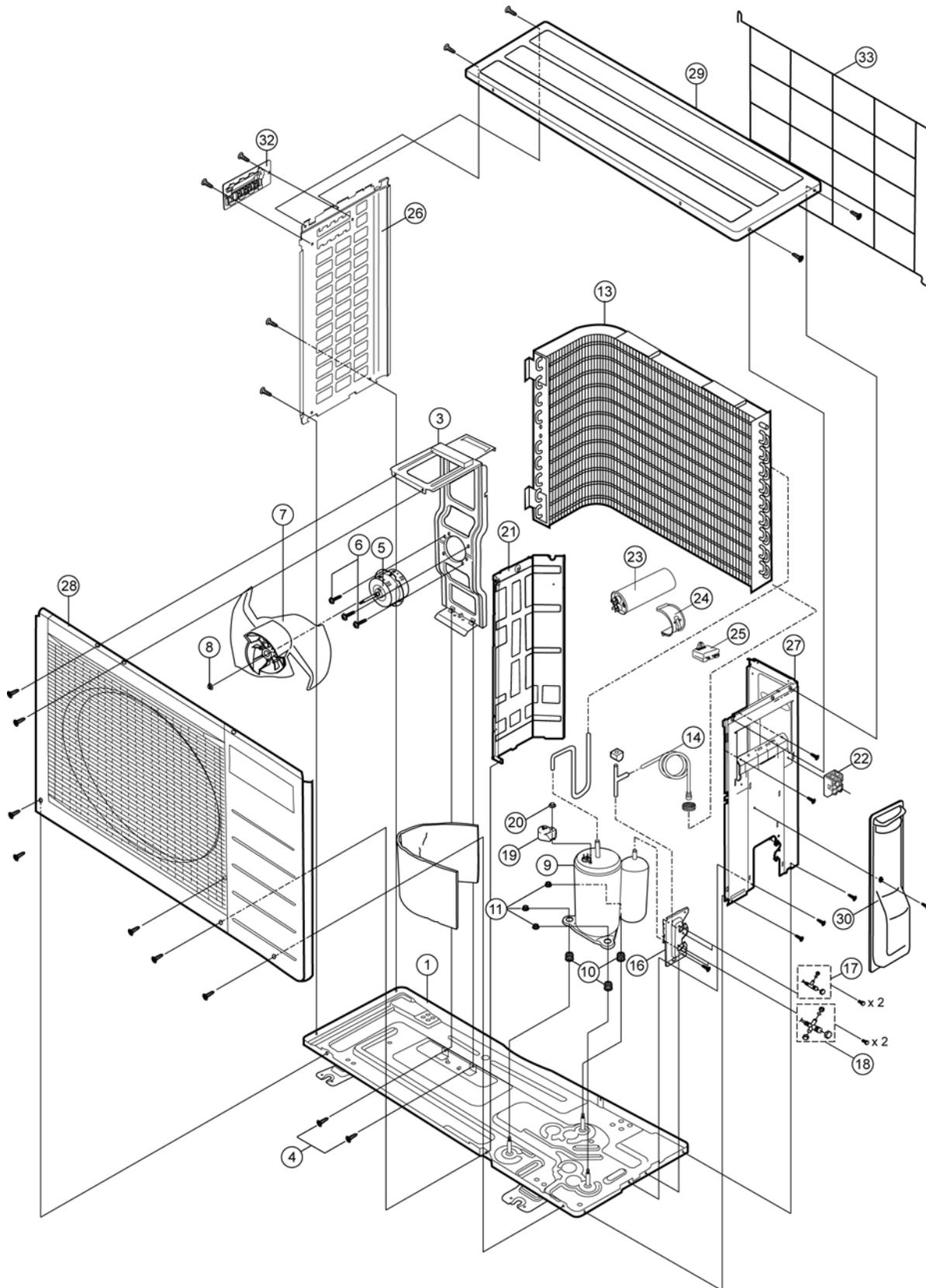
The above exploded view is for the purpose of parts disassembly and replacement.  
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY.	CU-PC12MKF	REMARK
1	CHASSIS ASS'Y	1	CWD50K2088	
2	SOUND PROOF MATERIAL	1	CWG302110	
3	FAN MOTOR BRACKET	1	CWD541030	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	
5	FAN MOTOR	1	CWA951676	O
6	SCREW - FAN MOTOR MOUNT	4	CWH55406J	
7	PROPELLER FAN ASS'Y	1	CWH03K1006	
8	NUT - PROPELLER FAN	1	CWH56053J	
9	COMPRESSOR	1	2KS210D5AA06	O
10	ANTI - VIBRATION BUSHING	3	CWH50055	
11	NUT - COMPRESSOR MOUNT	3	CWH561049	
12	CONDENSER	1	CWB32C2821	
13	CAPILLARY TUBE ASS'Y	1	CWB15K1165	
14	STRAINER	1	CWB111011	
15	HOLDER COUPLING	1	CWH351023	
16	2-WAY VALVE (LIQUID)	1	CWB021362	O
17	3-WAY VALVE (GAS)	1	CWB011482	O
20	TERMINAL COVER	1	CWH171012	
21	NUT - TERMINAL COVER	1	CWH7080300J	
22	SOUND PROOF BOARD	1	CWH151023	
23	TERMINAL BOARD ASS'Y	1	CWA28K1064J	
24	CAPACITOR - COM.	1	F0GAH356A001	O
25	HOLDER CAPACITOR	1	CWH30060	
26	CAPACITOR - F.M	1	DS441205NPQA	O
27	CABINET SIDE PLATE	1	CWE041248A	
28	CABINET SIDE PLATE COMPLETE	1	CWE04C1118	
29	CABINET FRONT PLATE ASS'Y	1	CWE06K1034	
30	CABINET TOP PLATE	1	CWE031014A	
31	CONTROL BOARD COVER COMP	1	CWH13C1064	
32	PLATE - C.B.COVER TERMINAL	1	CWH131295	
33	WIRE NET	1	CWD041111A	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488).
- "O" marked parts are recommended to be kept in stock.

## 18.2.2. CU-PC18MKF



### Note:

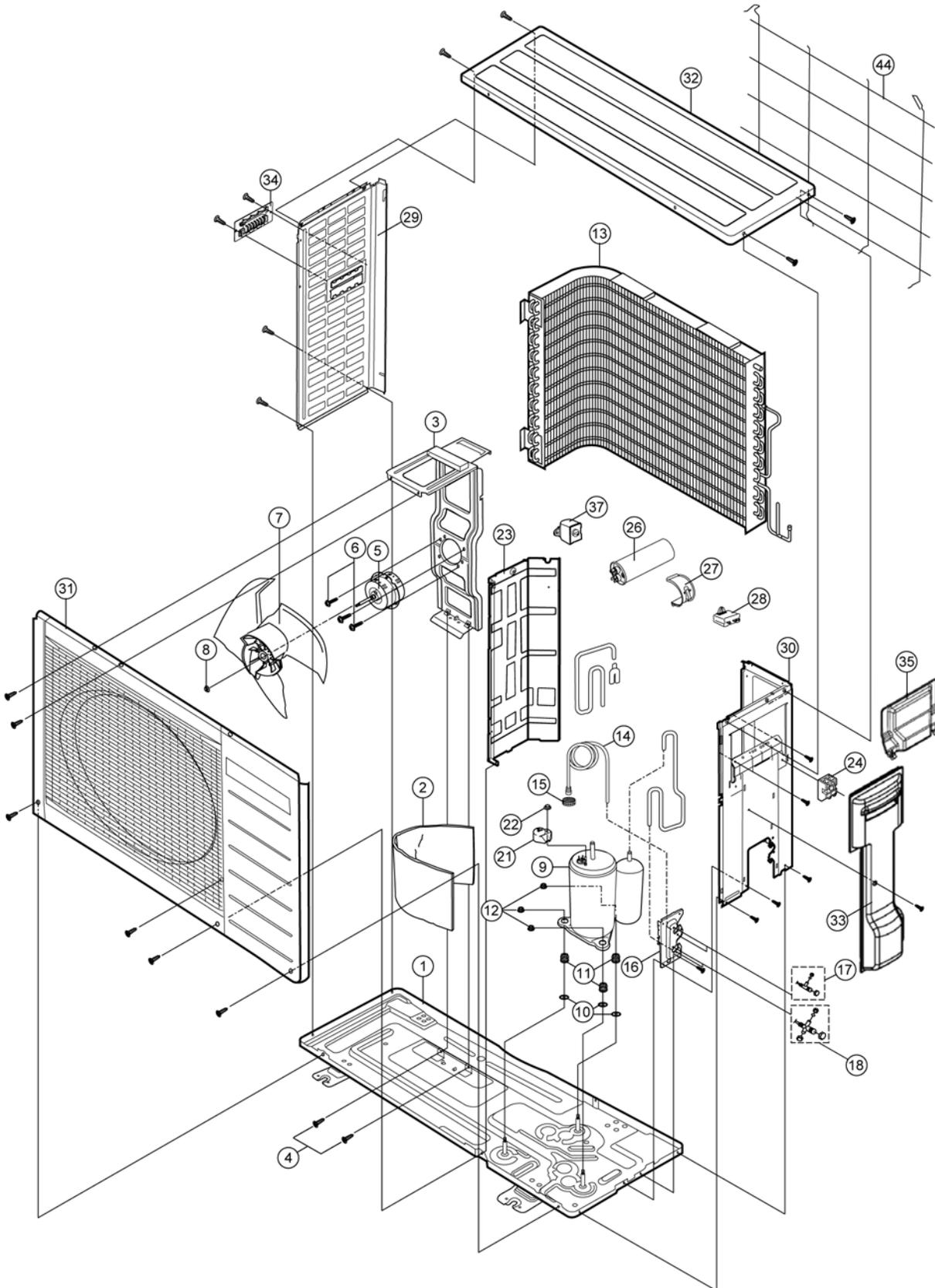
The above exploded view is for the purpose of parts disassembly and replacement.  
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY.	CU-PC18MKF	REMARK
1	CHASSIS ASS'Y	1	CWD50K2088	
3	FAN MOTOR BRACKET	1	CWD541030B	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	
5	FAN MOTOR	1	CWA951676	O
6	SCREW - FAN MOTOR MOUNT	4	CWH55406J	
7	PROPELLER FAN ASS'Y	1	CWH03K1006	
8	NUT - PROPELLER FAN	1	CWH56053J	
9	COMPRESSOR	1	2KS324D5AB06	O
10	ANTI - VIBRATION BUSHING	3	CWH50055	
11	NUT - COMPRESSOR MOUNT	3	CWH561049	
13	CONDENSER	1	CWB32C3166	
14	CAPILLARY TUBE ASS'Y	1	CWB15K1365	
16	HOLDER COUPLING	1	CWH351046	
17	2-WAY VALVE (LIQUID)	1	CWB021362	O
18	3-WAY VALVE (GAS)	1	CWB011482	O
19	TERMINAL COVER	1	CWH171012	
20	NUT - TERMINAL COVER	1	CWH7080300J	
21	SOUND PROOF BOARD	1	CWH151023	
22	TERMINAL BOARD ASS'Y	1	CWA28K1064J	
23	CAPACITOR - COM.	1	DS441456CPND	O
24	HOLDER CAPACITOR	1	CWH301054	
25	CAPACITOR - F.M	1	DS441205NPQA	O
26	CABINET SIDE PLATE	1	CWE041248A	
27	CABINET SIDE PLATE COMPLETE	1	CWE04C1120	
28	CABINET FRONT PLATE ASS'Y	1	CWE06K1034	
29	CABINET TOP PLATE	1	CWE031014A	
30	CONTROL BOARD COVER COMP	1	CWH13C1064	
32	HANDLE	1	CWE161010	
33	WIRE NET	1	CWD041111A	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488).
- "O" marked parts are recommended to be kept in stock.

### 18.2.3. CU-PC24MKF



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-PC24MKF	REMARK
1	CHASSIS ASS'Y	1	CWD52K1248	
2	SOUND PROOF MATERIAL	1	CWG302221	
3	FAN MOTOR BRACKET	1	CWD541154	
4	SCREW - FAN MOTOR BRACKET	4	CWH551217	
5	FAN MOTOR	1	CWA951689	O
6	SCREW - FAN MOTOR MOUNT	3	CWH55252J	
7	PROPELLER FAN ASS'Y	1	CWH03K1017	
8	NUT - PROPELLER FAN	1	CWH561038J	
9	COMPRESSOR	1	2JS438D3CB04	O
10	PACKING	3	CWB81043	
11	ANTI - VIBRATION BUSHING	3	CWH50055	
12	NUT - COMPRESSOR MOUNT	3	CWH561049	
13	CONDENSER	1	CWB32C3108	
14	CAPILLARY TUBE ASS'Y	1	CWB15K1366	
15	STRAINER	1	CWB11025	
16	HOLDER COUPLING	1	CWH351036	
17	2-WAY VALVE (LIQUID)	1	CWB021175	O
18	3-WAY VALVE (GAS)	1	CWB011484	O
21	TERMINAL COVER	1	CWH171012	
22	NUT - TERMINAL COVER	1	CWH7080300J	
23	SOUND PROOF BOARD	1	CWH151237	
24	TERMINAL BOARD ASS'Y	1	CWA28K1064J	
26	CAPACITOR - COM.	1	DS441456CPNC	O
27	HOLDER CAPACITOR	1	CWH30060	
28	CAPACITOR - F.M	1	DS441505NPQB	O
29	CABINET SIDE PLATE	1	CWE041520A	
30	CABINET SIDE PLATE COMPLETE	1	CWE04C1268	
31	CABINET FRONT PLATE ASS'Y	1	CWE06K1077	
32	CABINET TOP PLATE	1	CWE031145A	
33	CONTROL BOARD COVER COMP	1	CWH13C1238	
34	HANDLE	1	CWE161010	
35	CONTROL BOARD COVER (RIGHT-TOP)	1	CWH131409A	
37	THERMOSTAT	1	CWA151061	
44	WIRE NET	1	CWD041160A	

(Note)

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- "O" marked parts are recommended to be kept in stock.