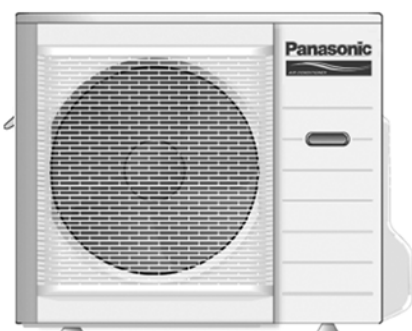
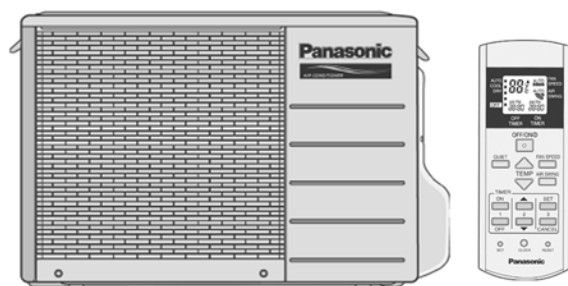


# Service Manual

## Air Conditioner

Indoor Unit    Outdoor Unit  
**CS-PC18HKF    CU-PC18HKF**  
**CS-PC24HKF    CU-PC24HKF**



### **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. Engage dealer or specialist for installation and servicing. If installation or servicing done by the user is defective, it will cause water leakage, electrical shock or fire.	
2. Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electric shock or fire.	
3. Use the attached accessories parts and specified parts for installation and servicing. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.	
4. Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.	
5. For electrical work, follow the local national wiring standard, regulation and the installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.	
6. 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.	
7. Use the specified cable and connect tightly for indoor/outdoor connection. Connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.	
8. 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.	
9. 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.	
10. 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.	
11. 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.	
12. When connecting the piping, do not allow air or any substances other than the specified refrigerant to enter the refrigeration cycle. Otherwise, this may lower the capacity, cause abnormally high pressure in the refrigeration cycle, and possibly result in explosion and injury.	
13. Do not damage or use unspecified power supply cord. Otherwise it will cause fire or electric shock.	
14. 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.	
15. It is desirable that the amount of residual oil is less than 40 mg/10m.	
16. 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.	
17. 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.	
18. Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when refrigerant contacts with fire.	



## 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.<br>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.<br>i. Power supply connection to the receptacle using a power plug. Use an approved power plug with earth pin for the connection to the socket.<br>ii. Power supply connection to a circuit breaker for the permanent connection. Use an approved circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.5 mm contact gap. |  |
| 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 work: It may need two people to carry out the installation work.  |  |
| 10. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.   |  |

## 2 Specifications

### 2.1. CS-PC18HKF CU-PC18HKF

ITEM			UNIT	INDOOR UNIT	OUTDOOR UNIT
Performance Test Condition				NEW JIS	
C O O L I N G	Capacity		kW	5.28 - 5.28	
			BTU/h	18,000 - 18,000	
	EER		W/W	2.65 - 2.58	
			BTU/hW	9.05 - 8.79	
	Noise Level		dB (A)	High 45 - 45, Low 41 - 41	High 56 - 58
Moisture Removal			l/h	2.9	
			pt/h	6.1	
Air Volume	Lo		m <sup>3</sup> /min (ft <sup>3</sup> /min)	12.5 (442) - 12.5 (442)	—
	Me		m <sup>3</sup> /min (ft <sup>3</sup> /min)	14.5 (512) - 14.5 (512)	—
	Hi		m <sup>3</sup> /min (ft <sup>3</sup> /min)	15.8 (558) - 15.8 (558)	30.3 (1,070) - 31.3 (1,100)
Refrigeration Control Device				—	Capillary Tube
Refrigeration Oil			cm <sup>3</sup>	—	SUNISO 4GDID or ATMOS M60 or ATMOS 56M (450)
Refrigerant (R-22)			g (oz)	—	980 (34.6)
Dimension	Height		mm (inch)	275 (10-27/32)	540 (21-9/32)
	Width		mm (inch)	998 (39-5/16)	780 (30-23/32)
	Depth		mm (inch)	230 (9-1/16)	289 (11-13/32)
Net Weight			kg (lbs)	11.0 (24)	39.0 (86)
Pipe Diameter	Gas		mm (inch)	12.7 (1/2")	
	Liquid		mm (inch)	6.35 (1/4")	
Pipe Length Range			m (ft)	3 (9.8) ~ 25 (82.0)	
Height Difference			m (ft)	20 (65.6)	
Additional Gas Amount			g/m (oz/ft)	20 (0.2)	
Refrigeration Charge Less			m (ft)	7.5 (24.6)	
Drain Hose	Inner Diameter		mm	16	—
	Length		mm	650	—
Compressor	Type			—	Rotary (1 cylinder) rolling piston type
	Motor Type			—	Induction (2-poles)
	Rated Output		kW	—	1.5
Fan	Type			Cross-Flow Fan	Propeller Fan
	Material			ASHT-18	PP
	Motor Type			Transistor (8-poles)	Induction (4-poles)
	Input Power		W	—	76.2 - 86.5
	Output Power		W	30	35
	Fan Speed	Lo	rpm	1,150 - 1,150	—
		Me	rpm	1,330 - 1,330	—
		Hi	rpm	1,450 - 1,450	830 - 855
Heat Exchanger	Fin Material			Aluminium (Pre Coat)	Aluminium (Blue Coated)
	Fin Type			Slit Fin	Slit Fin
	Row x Stage x FPI			2 x 15 x 21	2 x 24 x 17
	Size (W x H x L)		mm	25.4 x 315 x 810	702 x 504 x 25.4 722
Air Filter	Material			P. P. HONEY COMB	—
	Type			One-Touch	—

1. Cooling capacities are based on indoor temperature of 27°C D.B. (80.6°F D.B.), 19.0°C W.B. (66.2°F W.B.) and outdoor air temperature of 35°C D.B. (95°F D.B.), 24°C W.B. (75.2°F W.B.)

Item		Unit	
Power Source (Phase, Voltage, Cycle)		Ø	Single
		V	220 - 240
		Hz	50
Input Power		kW	1.99 - 2.05
Starting Current		A	43
Running Current		A	9.8 - 10.0
Maximum current		A	15
Power Factor		%	92 - 85
Power factor means total figure of compressor, indoor fan motor and outdoor fan motor.			
Power Cord	Number of core		3 (1.5 mm <sup>2</sup> )
	Length	m	1.9
Thermostat			Mechanical Control
Protection Device			Inner Protector

Note

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

## 2.2. CS-PC24HKF CU-PC24HKF

ITEM			UNIT	INDOOR UNIT	OUTDOOR UNIT
Performance Test Condition				NEW JIS	
C O O L I N G	Capacity		kW	7.03 - 7.03	
			BTU/h	24,000 - 24,000	
	EER		W/W	2.74 - 2.60	
			BTU/hW	9.34 - 8.89	
	Noise Level		dB (A)	High 48 - 49, Low 42 - 42	High 61 - 63
Moisture Removal			l/h	4.0	
			pt/h	8.5	
Air Volume	Lo		m <sup>3</sup> /min (ft <sup>3</sup> /min)	13.9 (490) - 13.9 (490)	26.6 (940) - 30.2 (1,070)
	Me		m <sup>3</sup> /min (ft <sup>3</sup> /min)	15.5 (550) - 15.5 (550)	—
	Hi		m <sup>3</sup> /min (ft <sup>3</sup> /min)	17.4 (610) - 17.4 (610)	52.0 (1,840) - 54.0 (1,910)
Refrigeration Control Device				—	Capillary Tube
Refrigeration Oil			cm <sup>3</sup>	—	SUNISO 4GDID or ATMOS M60 or ATMOS 56M (1,130)
Refrigerant (R-22)			g (oz)	—	1,400 (49.4)
Dimension	Height		mm (inch)	275 (10-27/32)	750 (29-17/32)
	Width		mm (inch)	998 (39-5/16)	875 (34-15/32)
	Depth		mm (inch)	230 (9-1/16)	345 (13-19/32)
Net Weight			kg (lbs)	11.0 (24)	58.0 (128)
Pipe Diameter	Gas		mm (inch)	15.88 (5/8")	
	Liquid		mm (inch)	6.35 (1/4")	
Pipe Length Range			m (ft)	3 (9.8) ~ 25 (82.0)	
Height Difference			m (ft)	20 (65.6)	
Additional Gas Amount			g/m (oz/ft)	30 (0.3)	
Refrigeration Charge Less			m (ft)	7.5 (24.6)	
Drain Hose	Inner Diameter		mm	16	—
	Length		mm	650	—
Compressor	Type			—	Rotary (1 cylinder) rolling piston type
	Motor Type			—	Induction (2-poles)
	Rated Output		kW	—	2.2
Fan	Type			Cross-Flow Fan	Propeller Fan
	Material			ASHT-18	PP
	Motor Type			Transistor (8-poles)	Induction (6-poles)
	Input Power		W	—	163.1 - 183.0
	Output Power		W	30	80
	Fan Speed	Lo	rpm	1,310 - 1,310	440 - 500
		Me	rpm	1,460 - 1,460	—
		Hi	rpm	1,640 - 1,640	860 - 890
Heat Exchanger	Fin Material			Aluminium (Pre Coat)	Aluminium (Blue Coated)
	Fin Type			Slit Fin	Slit Fin
	Row x Stage x FPI			2 x 15 x 21	2 x 34 x 17
	Size (W x H x L)		mm	25.4 x 315 x 810	815 x 714 x 25.4 835
Air Filter	Material			P. P. HONEY COMB	—
	Type			One-Touch	—

1. Cooling capacities are based on indoor temperature of 27°C D.B. (80.6°F D.B.), 19.0°C W.B. (66.2°F W.B.) and outdoor air temperature of 35°C D.B. (95°F D.B.), 24°C W.B. (75.2°F W.B.)

Item		Unit	
Power Source (Phase, Voltage, Cycle)		Ø	Single
		V	220 - 240
		Hz	50
Input Power		kW	2.57 - 2.70
Starting Current		A	67
Running Current		A	12.5 - 12.8
Maximum current		A	17.2
Power Factor		%	93 - 88
Power factor means total figure of compressor, indoor fan motor and outdoor fan motor.			
Power Cord	Number of core		3 (2.5 mm <sup>2</sup> )
	Length	m	1.9
Thermostat			Mechanical Control
Protection Device			Inner Protector

Note

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



## 3 Features

- **Long Installation Piping**

- Long piping up to 25 meter.

- **Quality Improvement**

- Random auto restart after power failure for safety restart operation.
- Gas leakage detection.
- Prevent Compressor reverse cycle.
- Inner protector to protect compressor.
- Blue coated condenser for high resistance to corrosion.

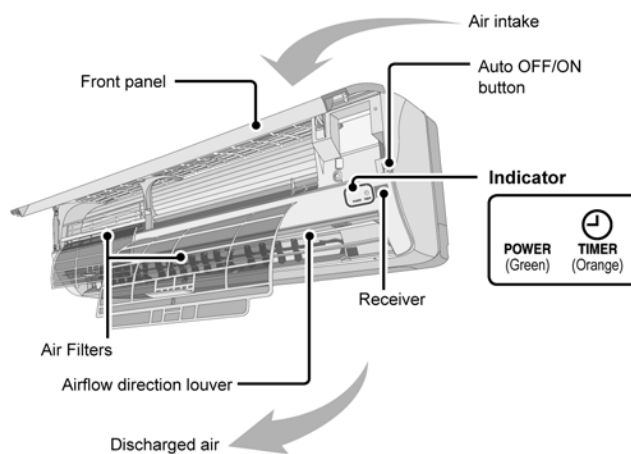
- **Operation Improvement**

- 24-hour timer setting.

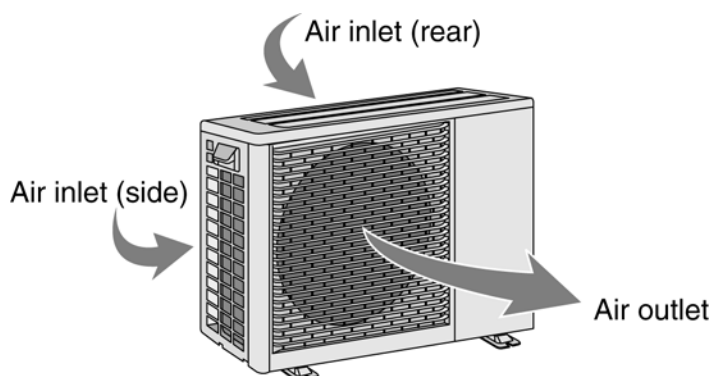
## 4 Location of Controls and Components

### 4.1. Product Overview

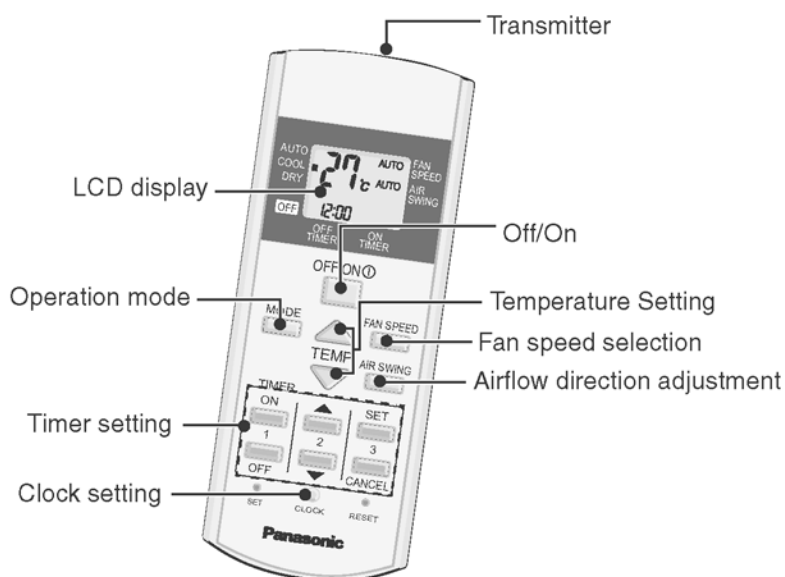
#### 4.1.1. Indoor Unit





#### 4.1.2. Outdoor Unit



#### 4.1.3. Remote Control



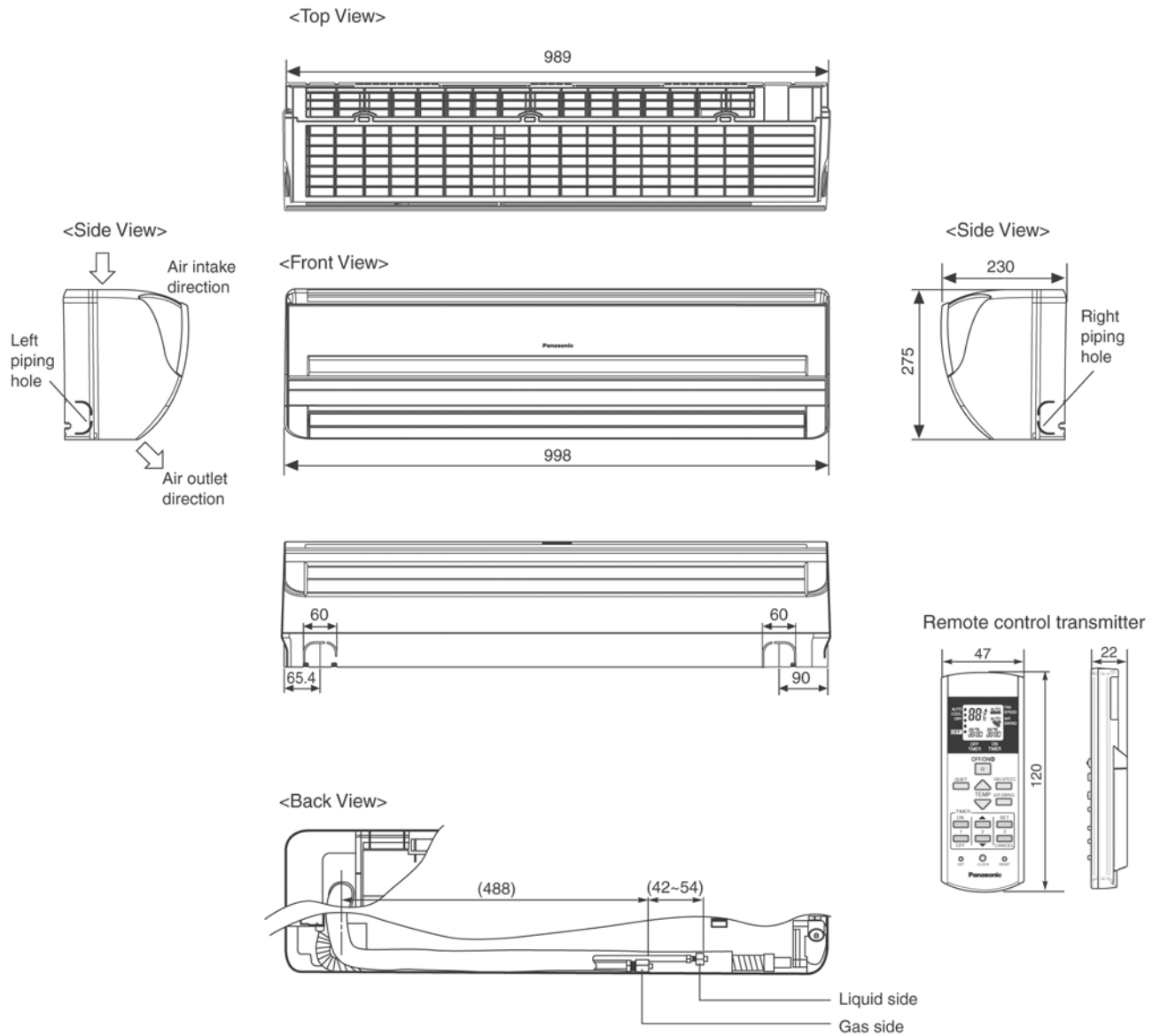
\* For normal operation, the  button is not in use.

\* Press  button to restore the remote control's default setting.

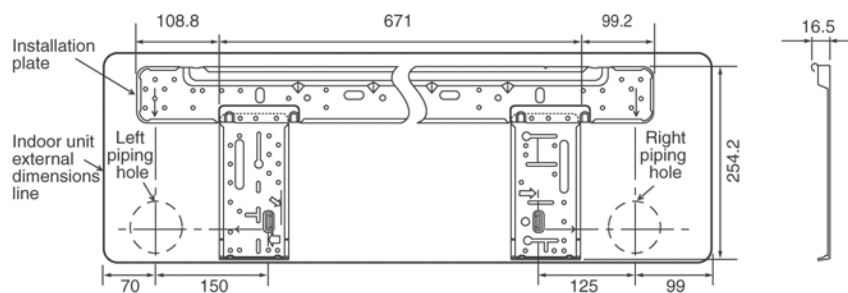
## 5 Dimensions

### 5.1. Indoor Unit

#### CS-PC18HKF CS-PC24HKF



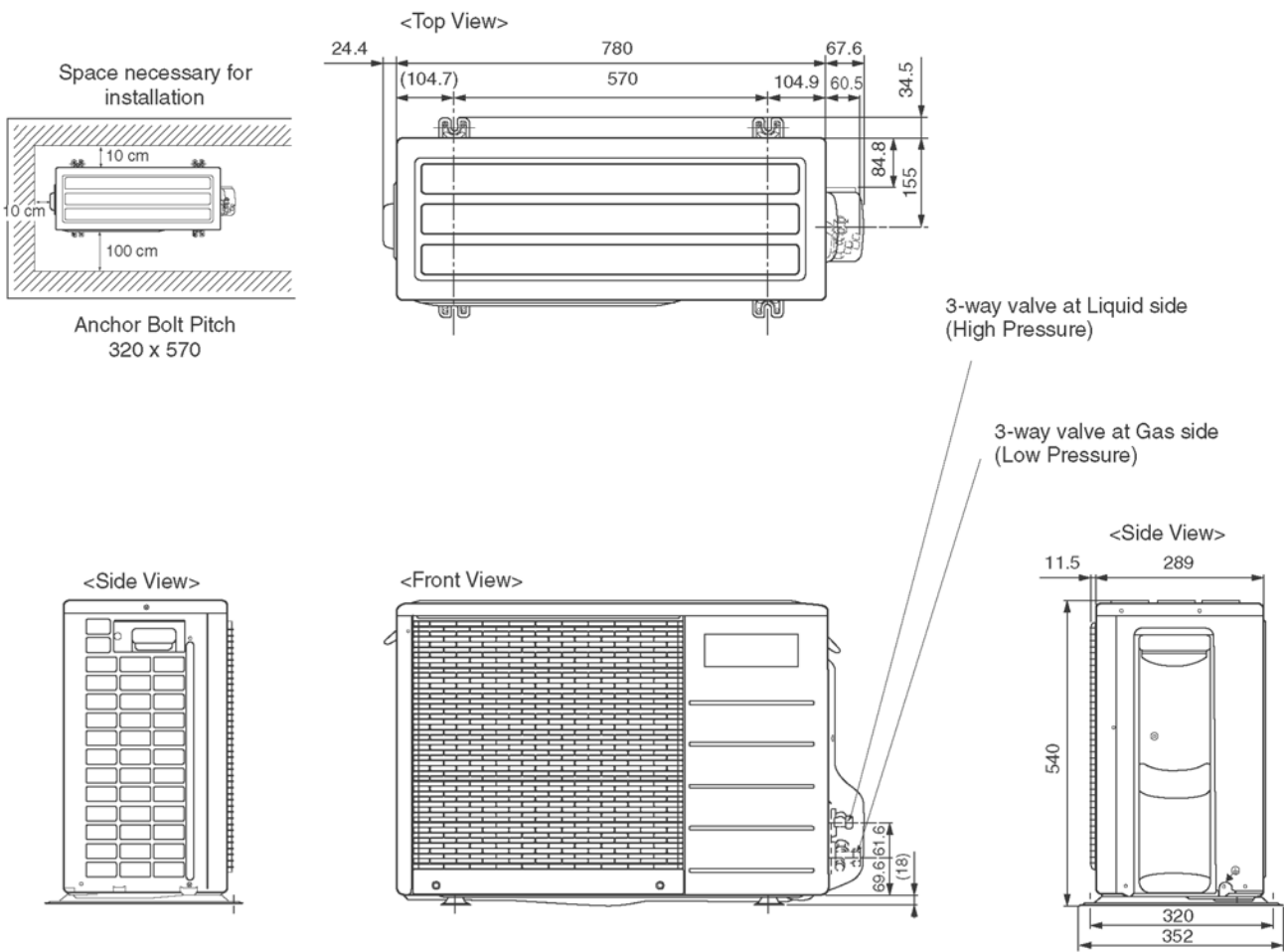
Relative position between the indoor unit and the installation plate <Front View>



Unit : mm

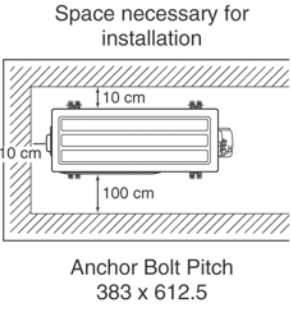
5.2. Outdoor Unit

CU-PC18HKF

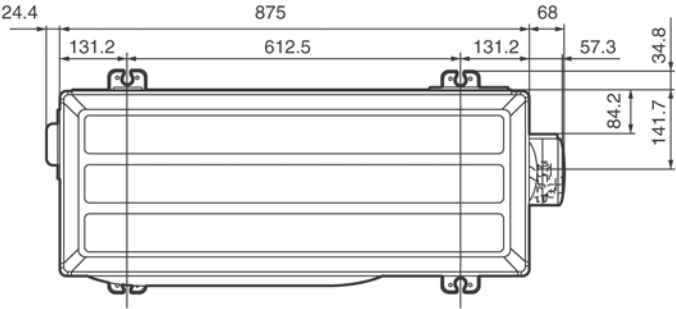


Unit: mm

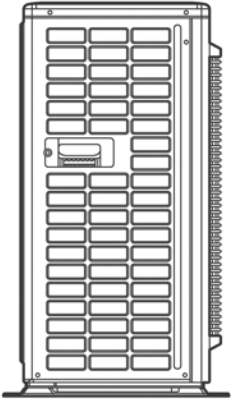
**CU-PC24HKF**



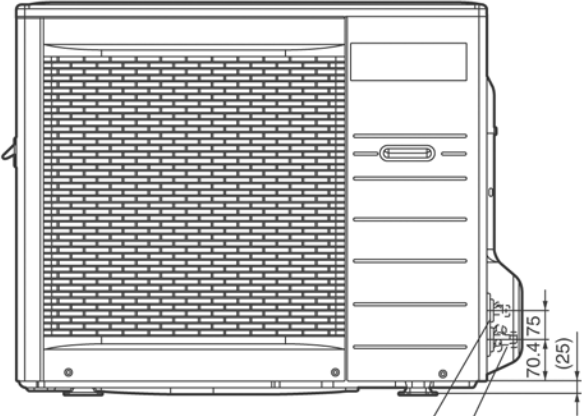
<Top View>



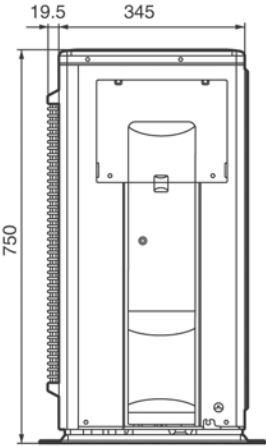
<Side View>



<Front View>



<Side View>



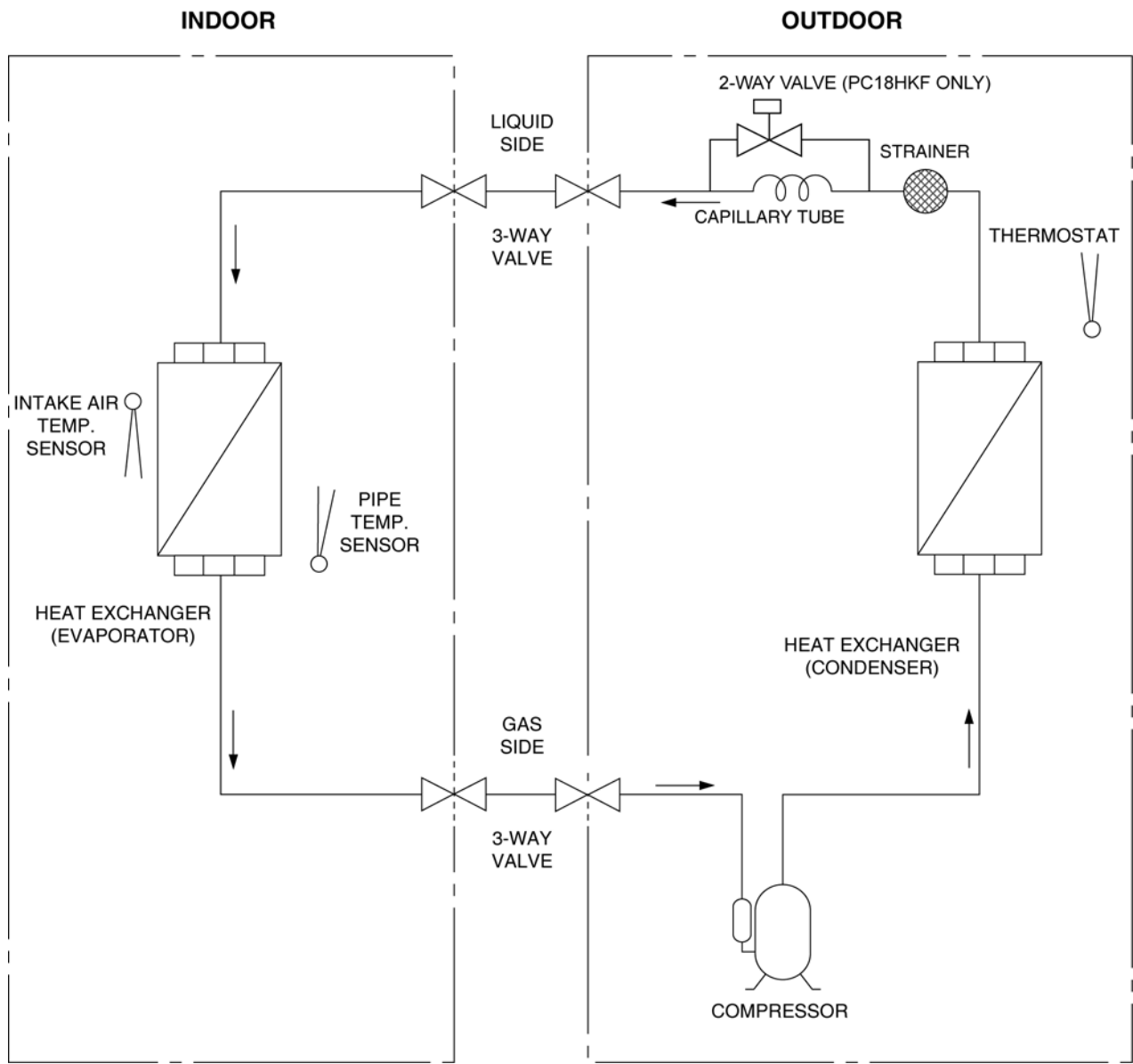
Unit: mm

3-way valve at Gas side  
(Low Pressure)

3-way valve at Liquid side  
(High Pressure)

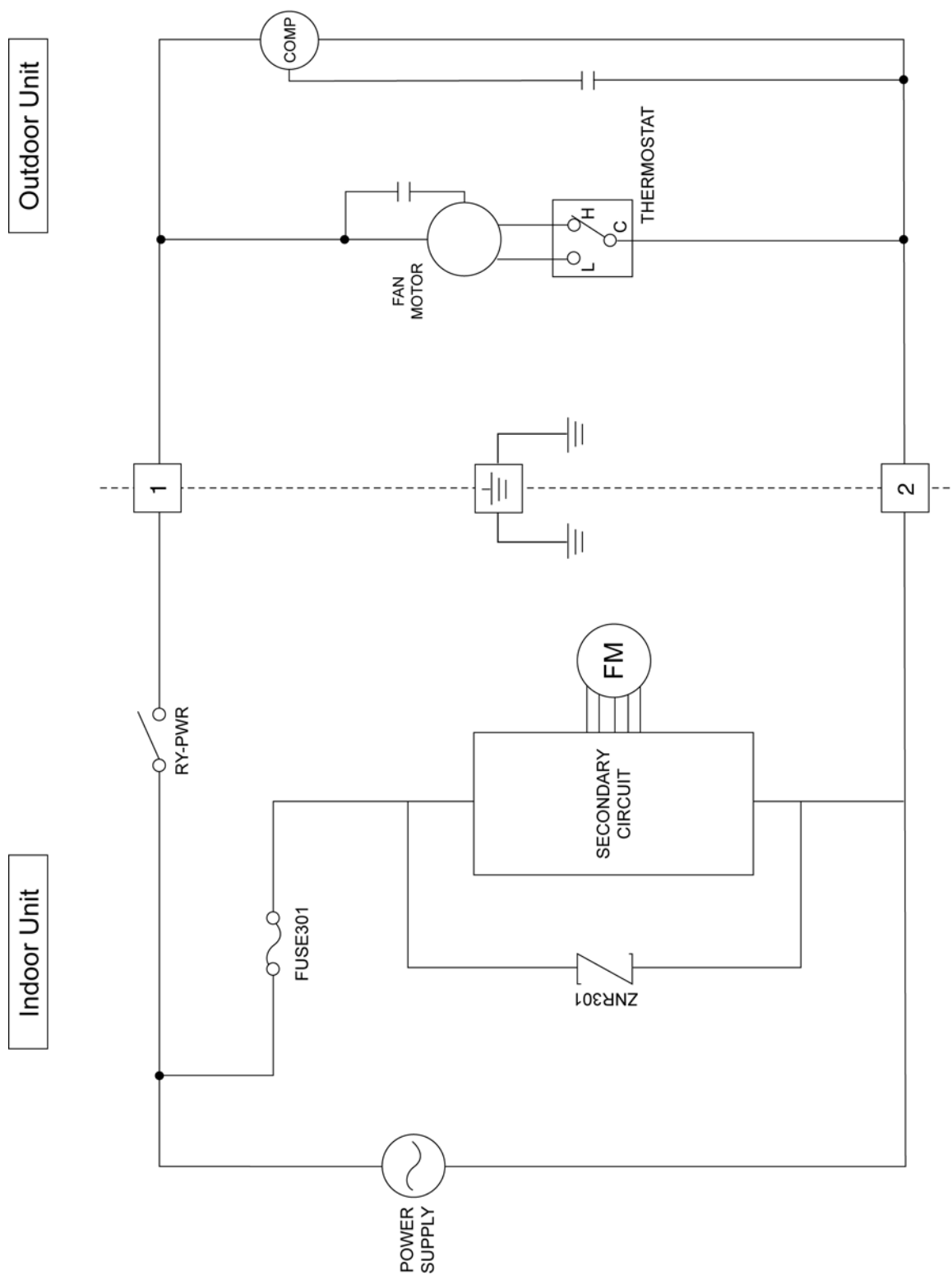
# 6 Refrigeration Cycle Diagram

CS-PC18HKF CU-PC18HKF  
CS-PC24HKF CU-PC24HKF



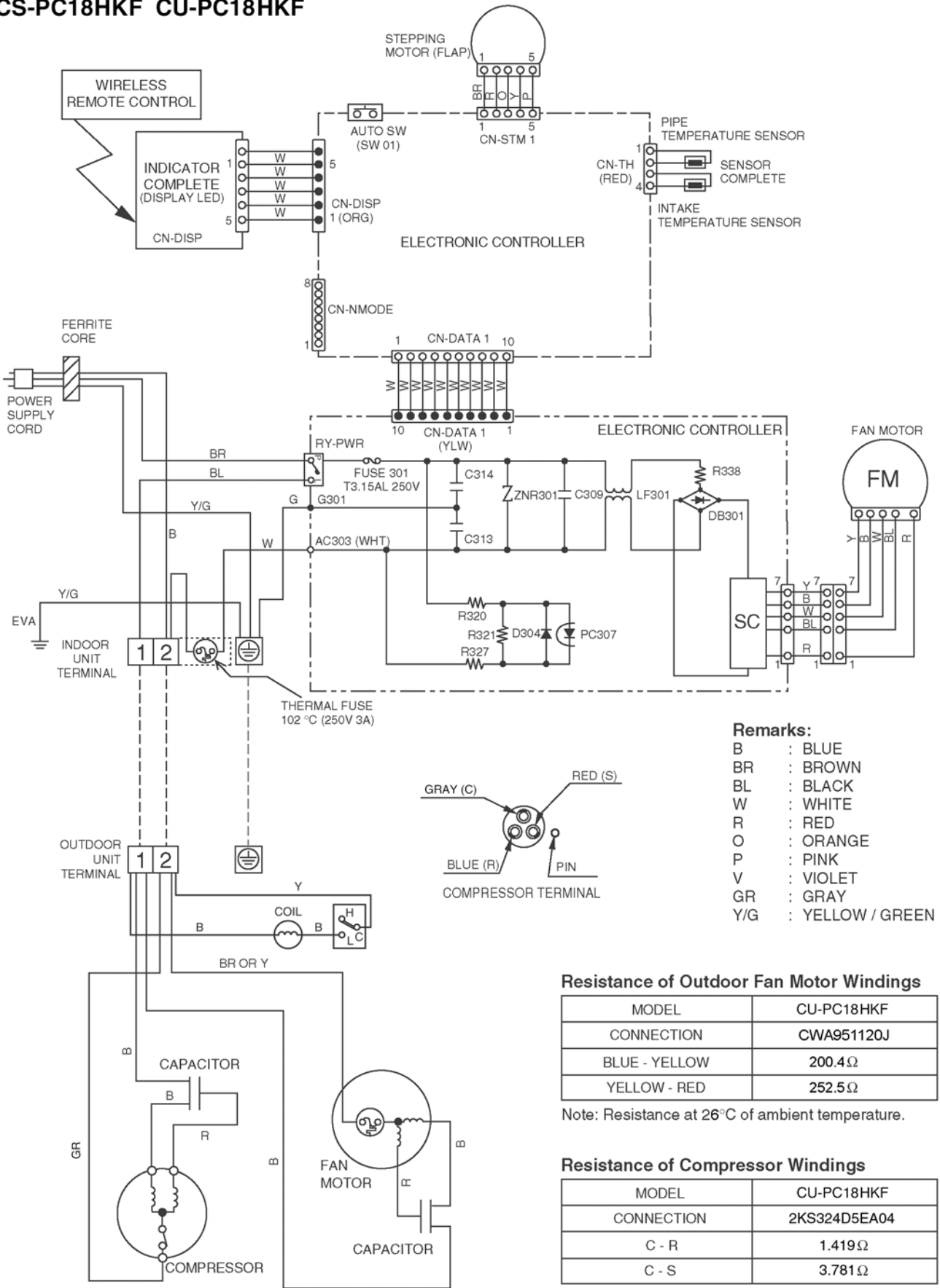
## 7 Block Diagram

**CS-PC18HKF CU-PC18HKF**  
**CS-PC24HKF CU-PC24HKF**



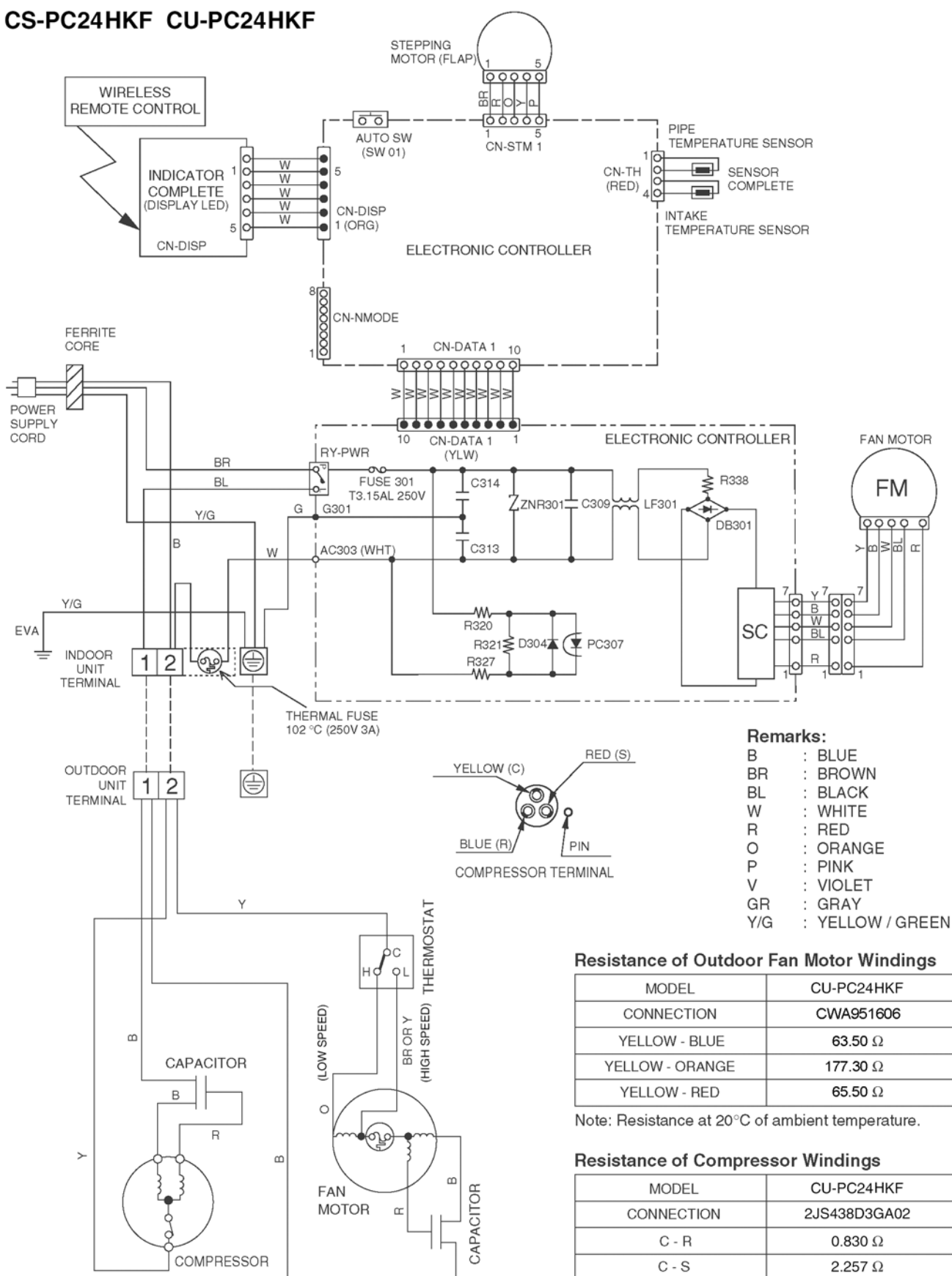
# 8 Wiring Connection Diagram

## CS-PC18HKF CU-PC18HKF





# CS-PC24HKF CU-PC24HKF



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

## Resistance of Outdoor Fan Motor Windings

MODEL	CU-PC24HKF
CONNECTION	CWA951606
YELLOW - BLUE	63.50 Ω
YELLOW - ORANGE	177.30 Ω
YELLOW - RED	65.50 Ω

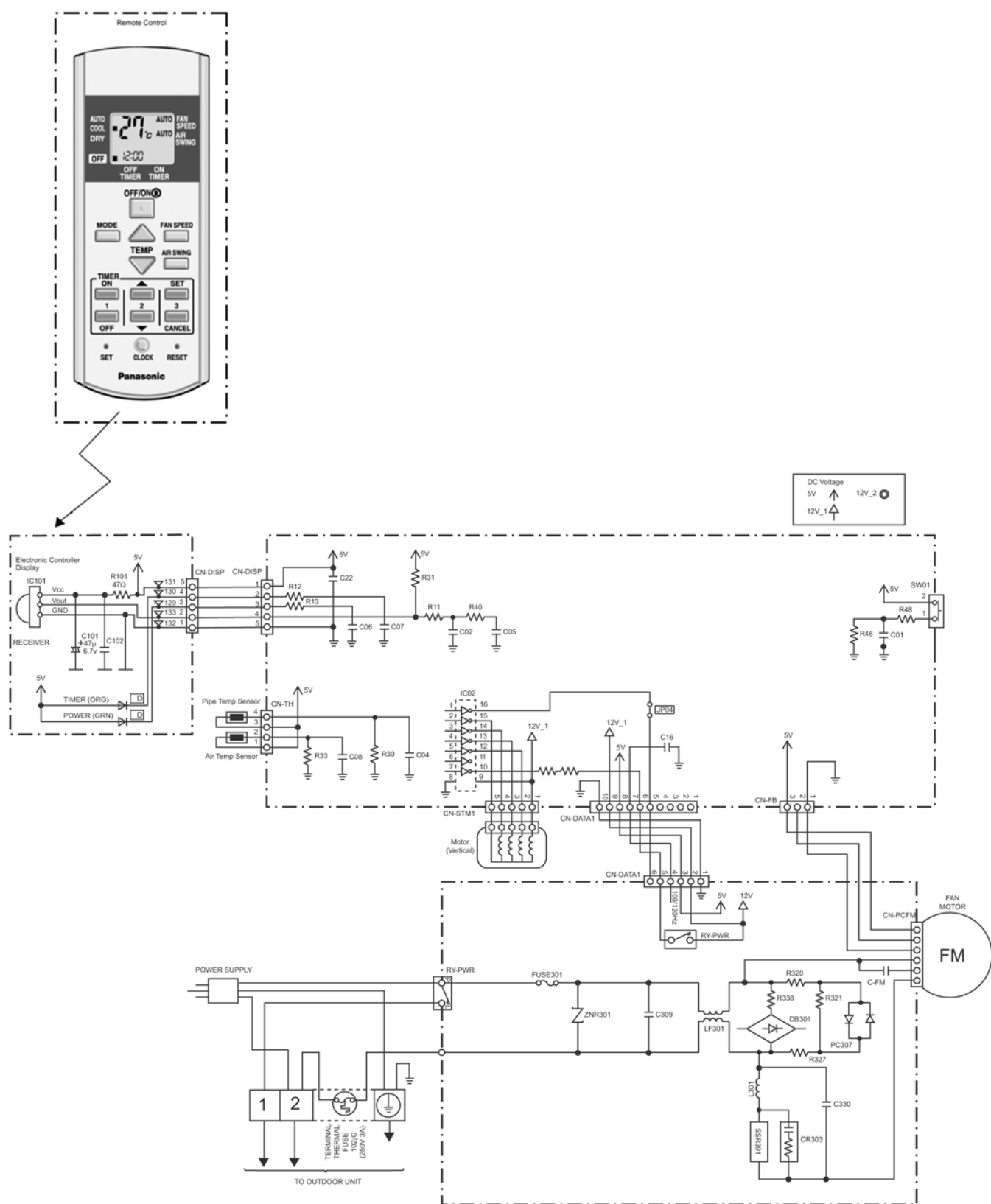
Note: Resistance at 20°C of ambient temperature.

## Resistance of Compressor Windings

MODEL	CU-PC24HKF
CONNECTION	2JS438D3GA02
C - R	0.830 Ω
C - S	2.257 Ω

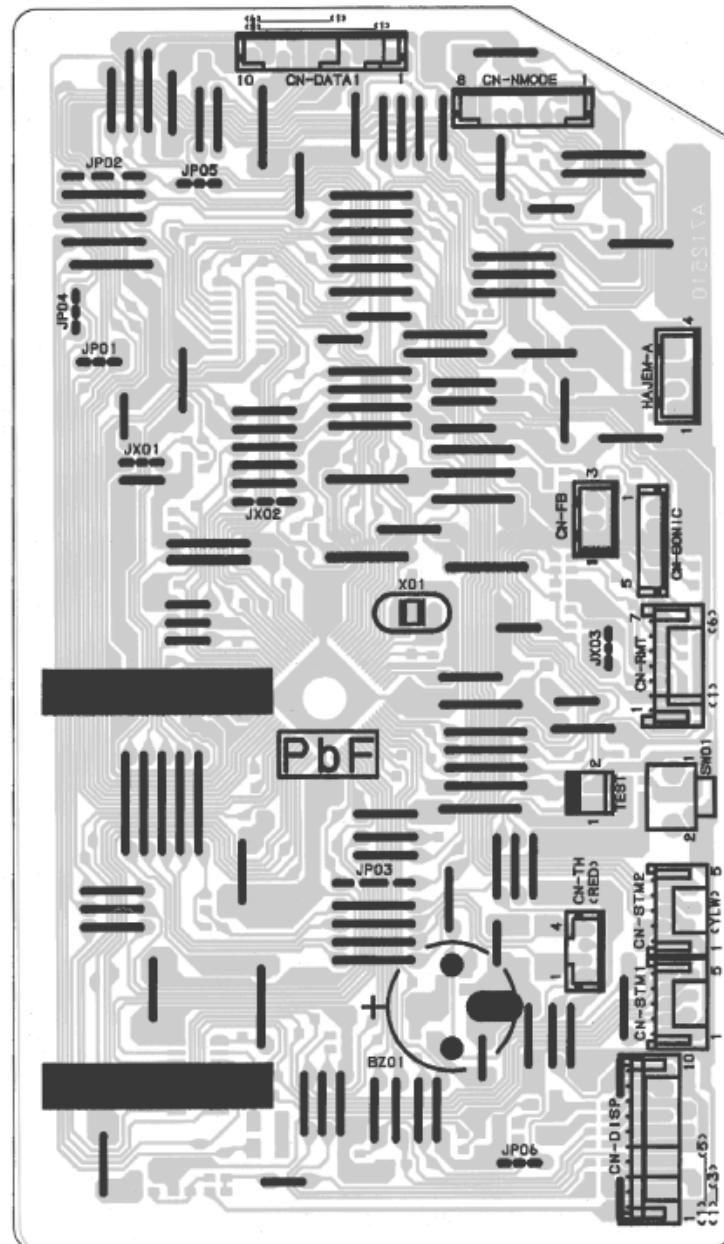
Note: Resistance at 20°C of ambient temperature.

# 9 Electronic Circuit Diagram

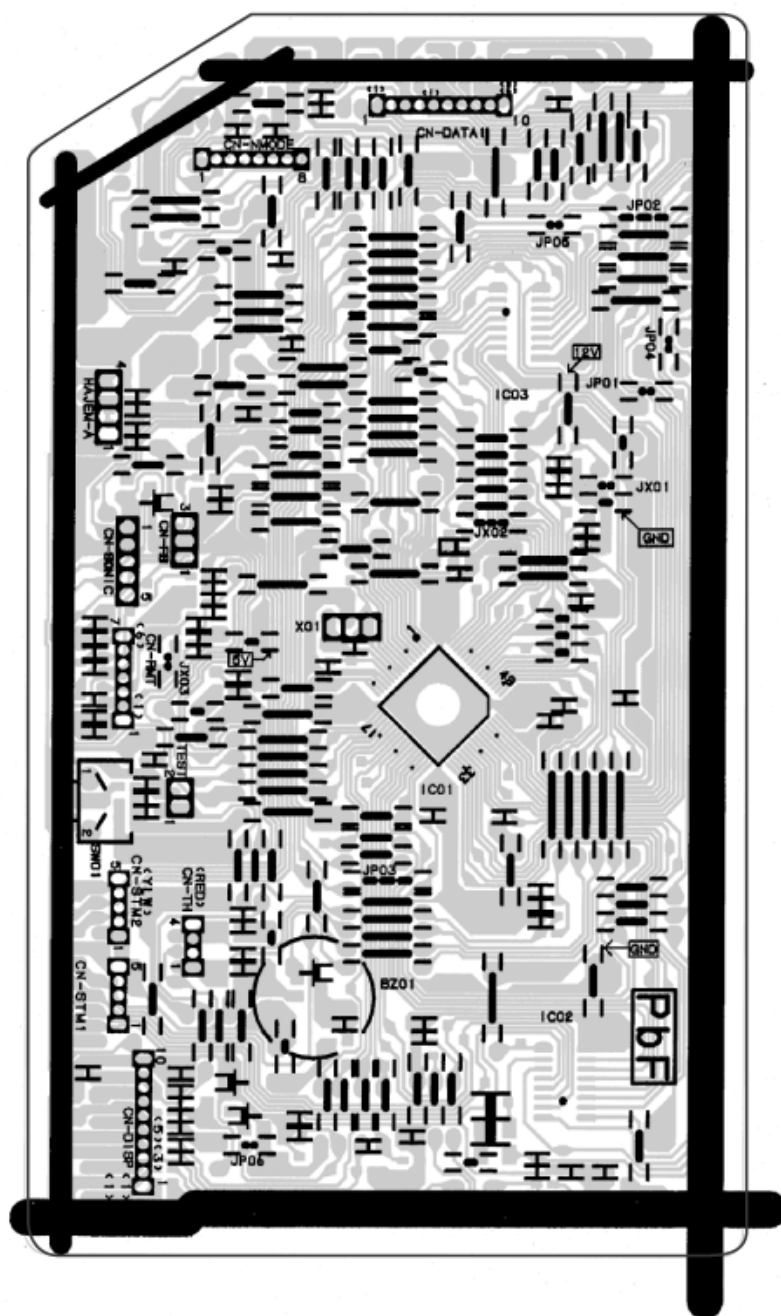


## 10.1. Main Printed Circuit Board

**TOP VIEW**



**BOTTOM VIEW**





10.3. Indicator panel

TOP VIEW



BOTTOM VIEW



# 11 Installation Instruction

## 11.1. Select The Best Location

### 11.1.1. Indoor Unit

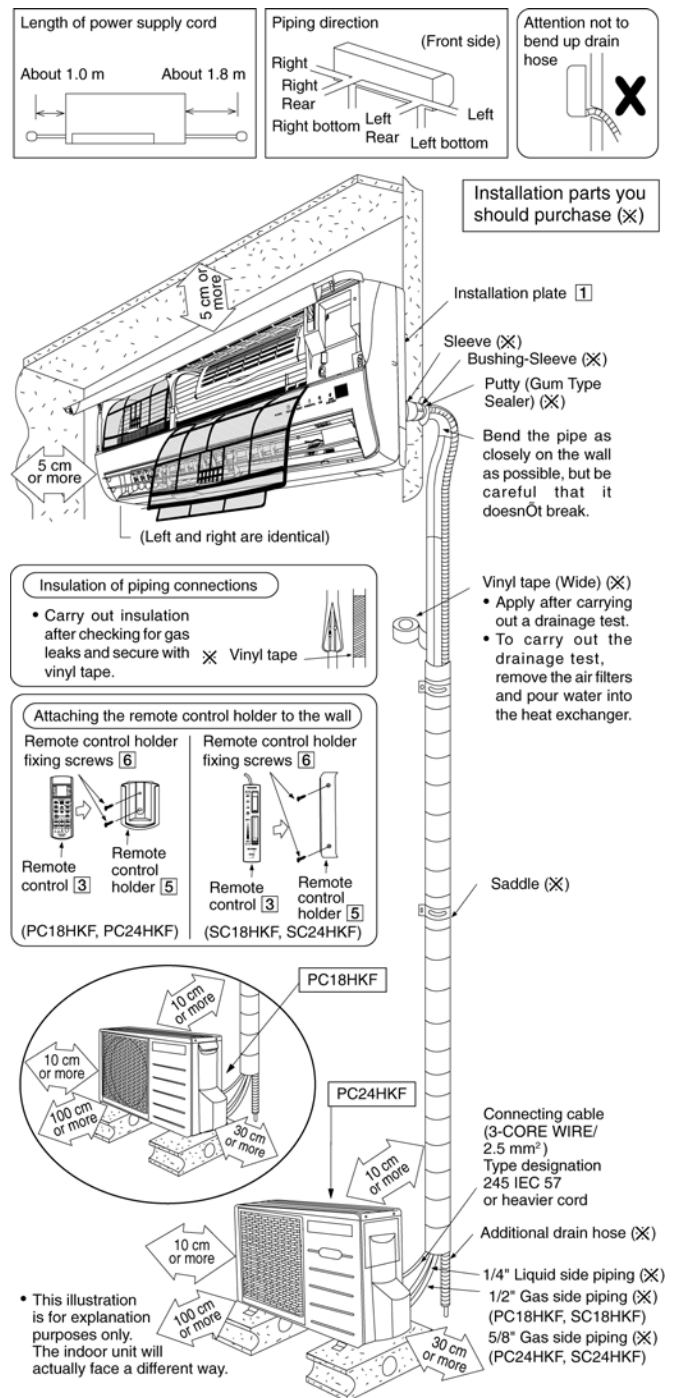
- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install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

### 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 7.5m, additional refrigerant should be added as shown in the table.

Model	Piping size		Rated Length (m)	Max. Elevation (m)	Min. Piping Length (m)	Max. Piping Length (m)	Additional Refrigerant (g/m)
	Gas	Liquid					
PC18HKF SC18HKF	1/2"	1/4"	5	20	3	25	20
PC24HKF SC24HKF	5/8"	1/4"	5	20	3	25	30

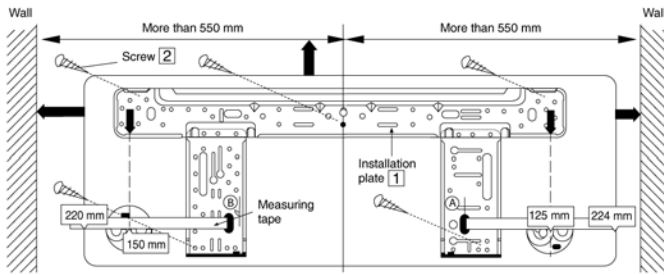
### 11.1.3. Indoor/Outdoor Unit Installation Diagram



## 11.2. Indoor Unit

### 11.2.1. How to Fix Installation Plate

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



The center of installation plate should be at more than 550 mm at right and left of the wall.

The distance from installation plate edge to ceiling should more than 67 mm.

From installation plate left edge to unit's left side is 47 mm.

From installation plate right edge to unit's right is 73 mm.

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

- Mount the installation plate on the wall with 5 screws or more.  
 (If mounting the unit on the concrete wall, consider using anchor bolts.)
  - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.
- Drill the piping plate hole with  $\phi 70$  mm hole-core drill.
  - Line according to the arrows marked on the lower left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 150 mm and 125 mm for left and right hole respectively.
  - Drill the piping hole at either the right or the left and the hole should be slightly slanted to the outdoor side.

### 3. For the embedded piping

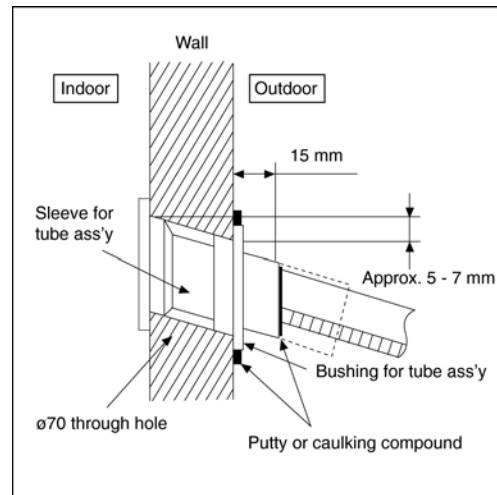
### 11.2.2. To Drill a Hole In The Wall And Install a Sleeve of Piping

- 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

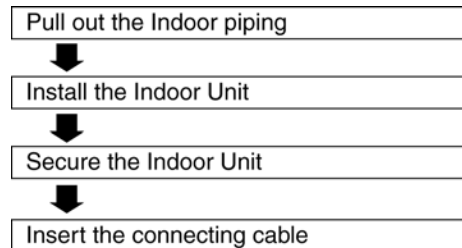
When the wall is hollow, please be sure to use the sleeve for tube ass'y to prevent dangers caused by mice biting the connecting cable.

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

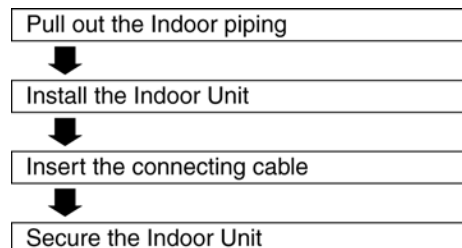


### 11.2.3. Indoor Unit Installation

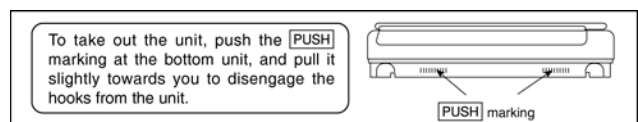
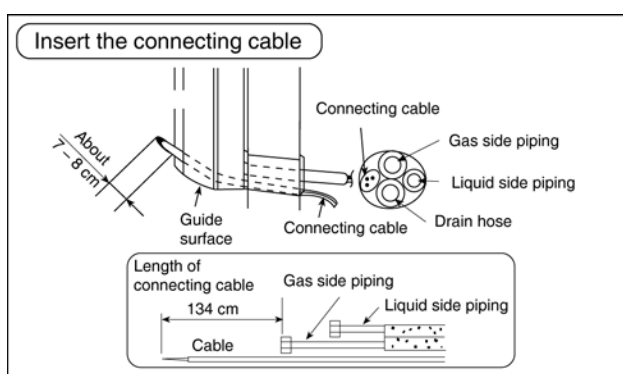
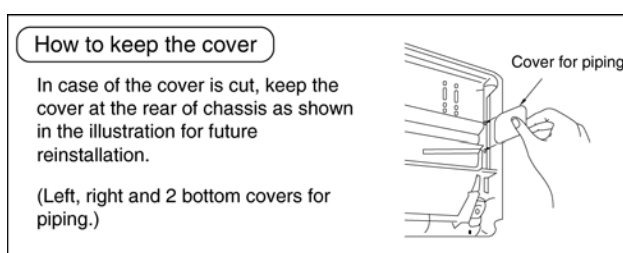
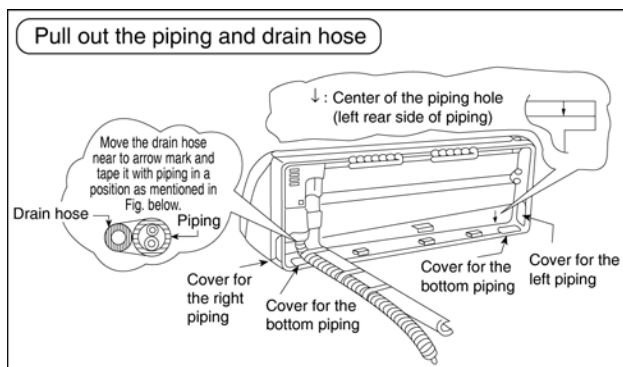
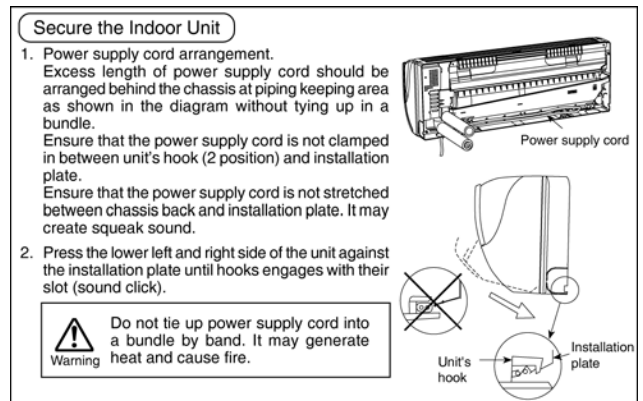
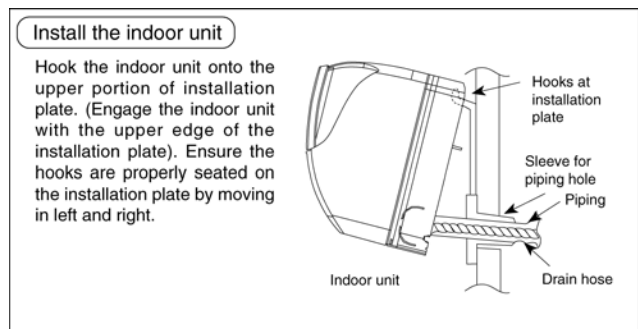
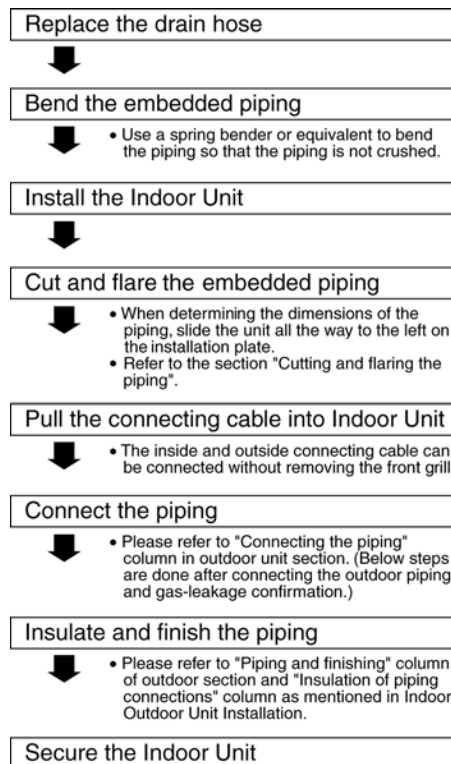
#### 1. For the right rear piping



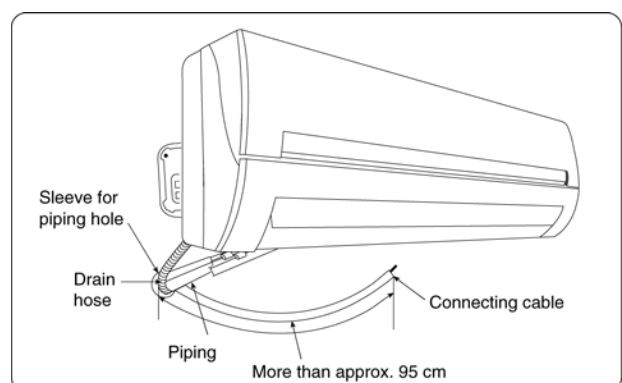
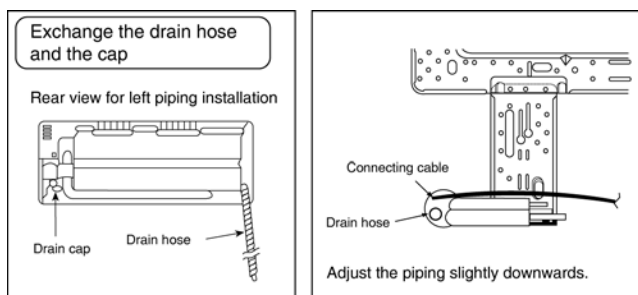
#### 2. For the right and right bottom piping

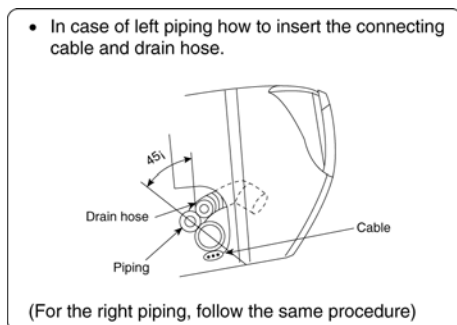
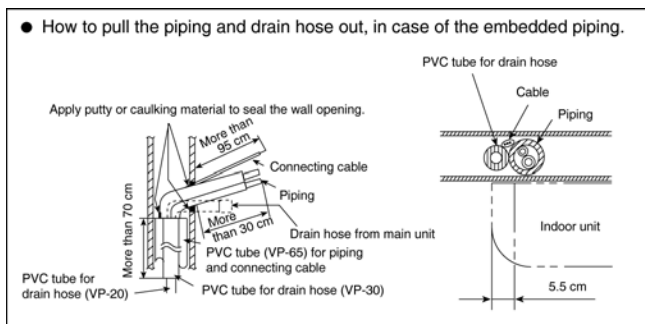






(This can be used for left rear piping and left bottom piping also.)



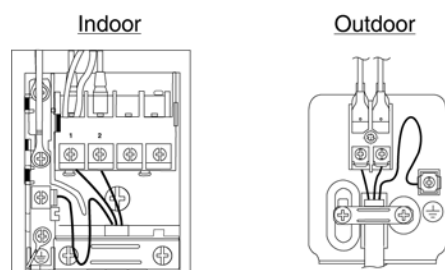


## 11.2.4. Connect the Cable to the Indoor Unit

1. The inside and outside connecting cable can be connected without removing the front grille.
  2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed  $3 \times 2.5 \text{ mm}^2$  flexible cord, type designation 245 IEC 57 or heavier cord.
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
  - Earth lead wire shall be longer than the other lead wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the anchorage.

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

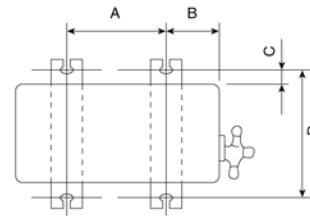
- Secure the cable onto the control board with the holder (clammer).



## 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 ( $\phi 10$  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
PC18HKF, SC18HKF	570	105	18.5	320
PC24HKF, SC24HKF	612.5	131	19	383

### 11.3.2. Connecting the Piping

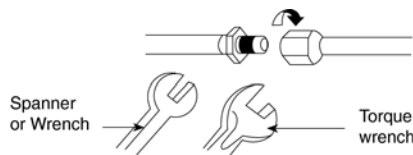
#### Connecting The Piping To Indoor Unit

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

(In case of using long piping)

#### Connect the piping

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



MODEL	Piping size (Torque)	
	Gas	Liquid
PC18HKF, SC18HKF	1/2" (55 N•m)	1/4" (18 N•m)
PC24HKF, SC24HKF	5/8" (65 N•m)	1/4" (18 N•m)

**CAUTION**  
 Do not over tighten, over tightening cause gas leakage.

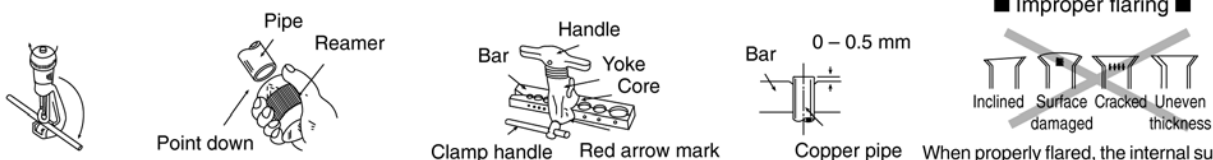
#### Connecting The Piping To Outdoor Unit

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (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.

#### Cutting And Flaring The Piping

- Please cut using pipe cutter and then remove the burrs.
- 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.
- Please make flare after inserting the flare nut onto the copper pipes.



1. To cut

2. To remove burrs

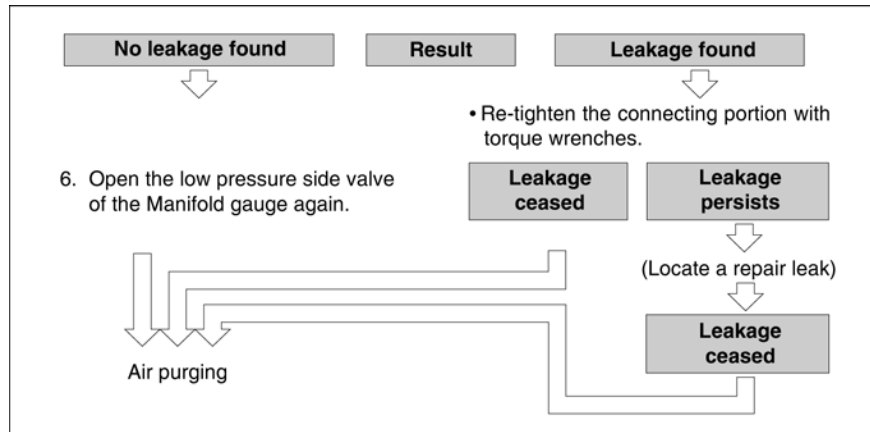
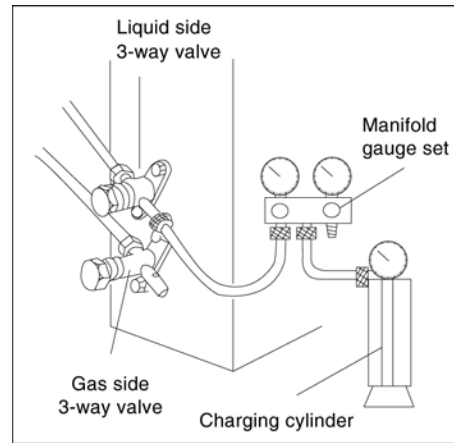
3. To flare

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.

### 11.3.3. Air Purging of the Pipings and Indoor Unit

#### 1) Checking a gas leakage

1. Remove the service port caps from both 3-way valves.
2. Connect the Manifold gauge set to the service port of liquid side 3-way valve.
3. Connect the Charging Cylinder to the Manifold gauge set and open the valve of the Cylinder.
4. Open the low pressure side valve of the Manifold gauge for approx. 10 seconds and then close.
5. Check gas-leakage of the connecting portion of pipings with the gas-leak detector.



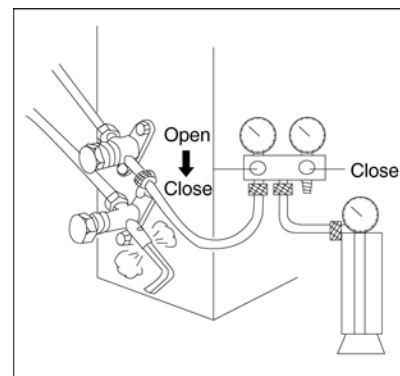
#### <For the left pipings>

- 1) Measure the pressure.
- 2) Keep it for 5-10 minutes.
  - Ensure if the pressure indicated on the gauge is as same as that of measured at first time.

#### 2) Air purging

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

1. To purge the air, push the pin on the Gas side 3-way valve for three seconds with a Hexagonal wrench and set it free for one minute.
  - Repeat this for three times.
2. To balance the refrigerant, close the low pressure side valve on the Manifold gauge and release refrigerant from the piping through service port until the gauge indicates 0.5 - 0.3 MPa.
3. Set both 3-way valves to open position with the Hexagonal wrench for the unit operation.



### 11.3.4. Connect the Cable to the Outdoor Unit

1. Remove the control board cover from the unit by loosening the screw.
2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed  $3 \times 2.5 \text{ mm}^2$  flexible cord, type designation 245 IEC 57 or heavier cord.

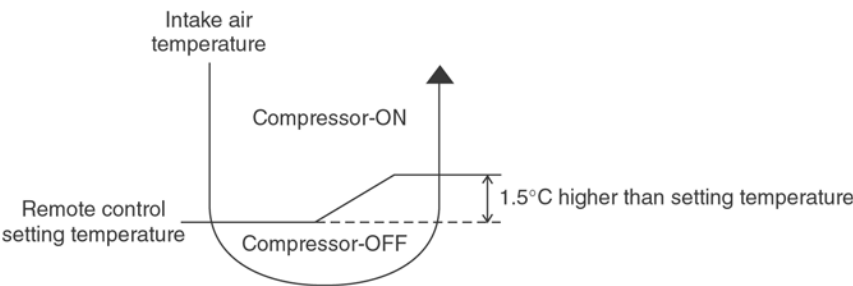
Terminals on the indoor unit	1	2	
Colour of wires			
Terminals on the outdoor unit	1	2	

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

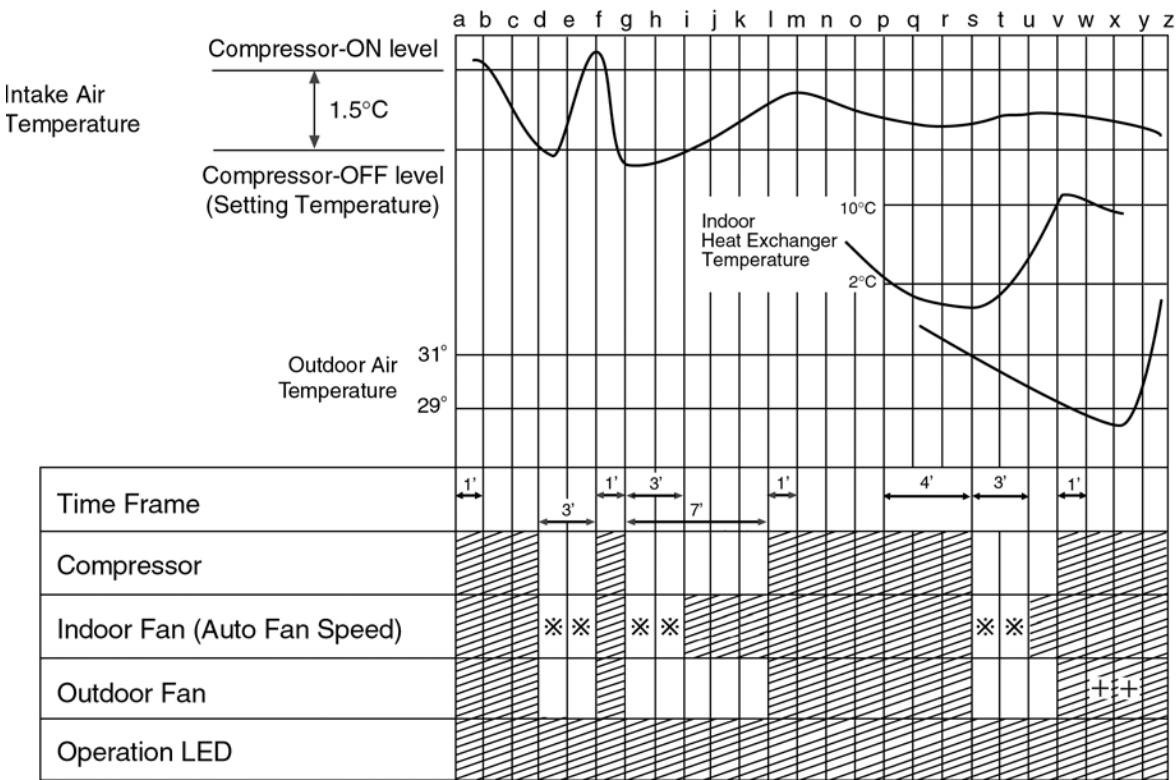
# 12 Operation Control

## 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 below figure.



### 12.1.1. Cooling Operation Time Diagram



<Description of operation>

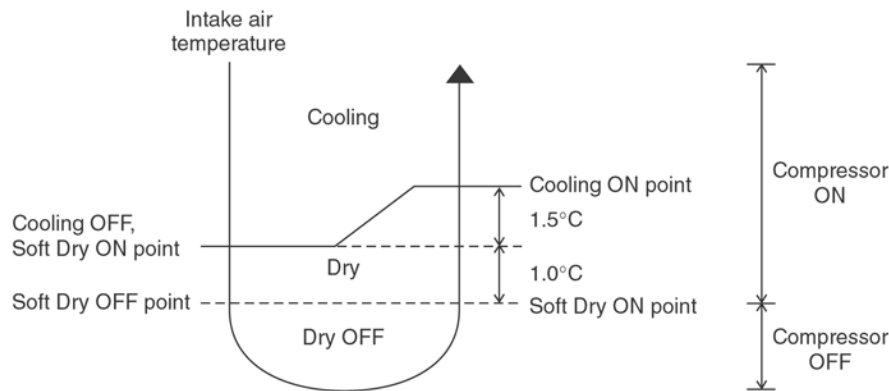
- a – b, f – g, l – m, v – w : Minimum 60 seconds forced operation
- d – f, g – i, s – u : Minimum 3 minutes restart control (Time Delay Safety Control)
- g – l : Maximum 7 minutes time save control
- p – v : Anti-Freezing Control
- (⊗) d – f, g – i, s – u : Indoor fan rotates at Lo- for 20 seconds and off for 160 seconds.
- (+) w-y : Outdoor fan rotates at Lo (Outdoor fan control)

Operation

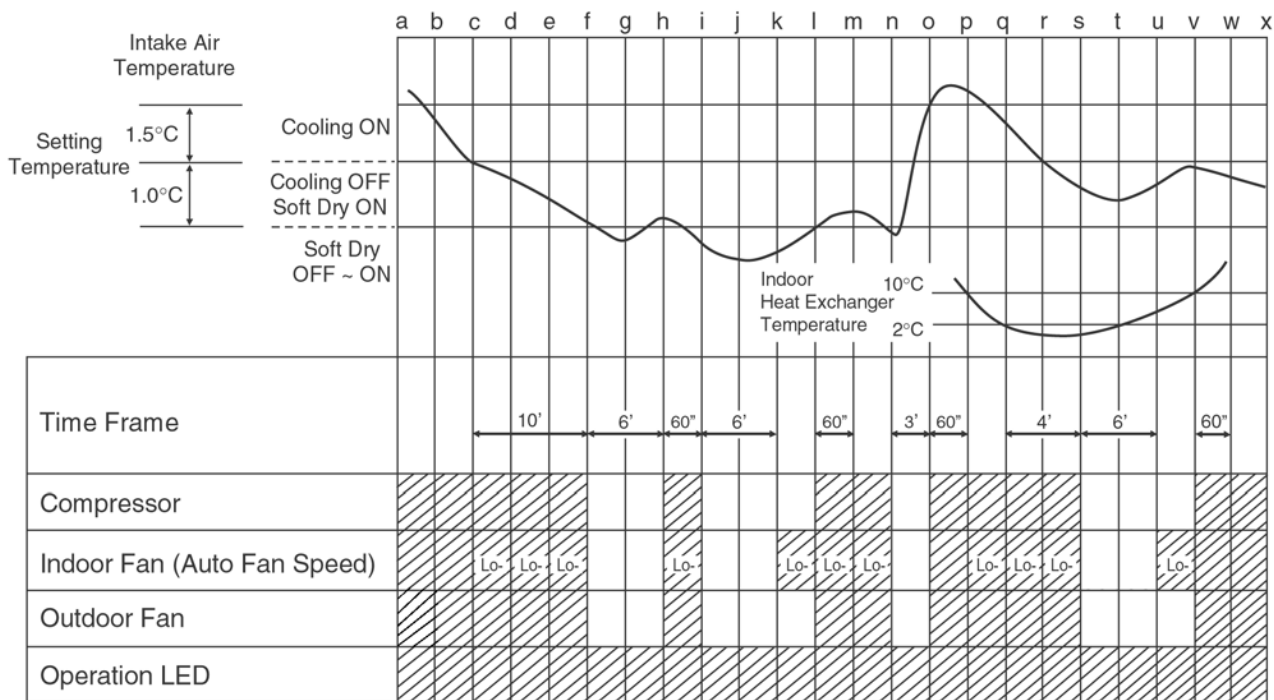
Stop

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 the setting temperature on the remote control.
- When operation begins, Soft Dry will be switched ON for a maximum 10 minutes, then Soft Dry operation will be turned OFF for a minimum 6 minutes. After that, the Soft Dry operation will be ON and OFF based on the setting temperature as shown in below figure.
- However after 3 minutes of compressor off, during Soft Dry OFF (within 6 minutes Soft Dry restart control), the indoor unit will start to operate at normal Cooling mode if the intake temperature is higher than Cooling ON point.



12.2.1. Soft Dry Operation Time Diagram





- <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 : Anti-Freezing 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	↑	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 below table.

	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 printed circuit board indoor unit.

Intake Air Temperature	↑	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

COOL/DRY	CS-PC18HKF	CS-PC24HKF
Hi	1400	1640
Me	1300	1460
Lo+	1280	1400
Lo	1210	1310
Lo-	980	1100
S Lo	780	860

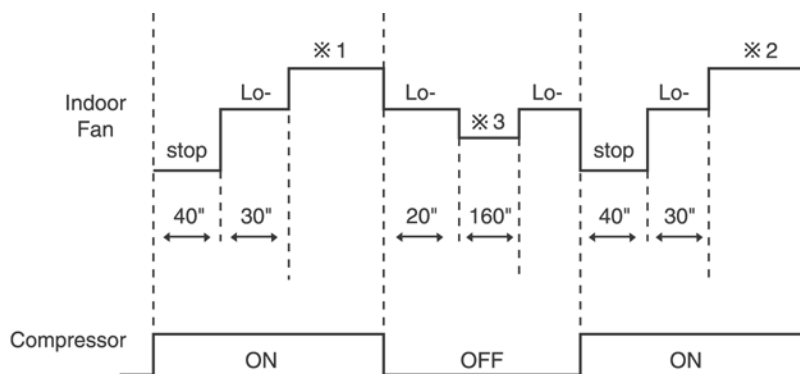
## 12.4.2. Automatic Fan Speed Control

- 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, Me and Lo-.
  - Deodorizing Control will be activated.

Tap				S Hi	Hi	Me	Lo+	CLo	Lo-	SLo	Stop
Cooling	Normal	Manual	Hi		○						
			Me			○					
			Lo				○				
		Auto			○	○			○		○
Soft Dry		Manual							○		○
		Auto							○		○
Auto Mode judgement										○	

### • Auto Fan Speed during cooling operation:

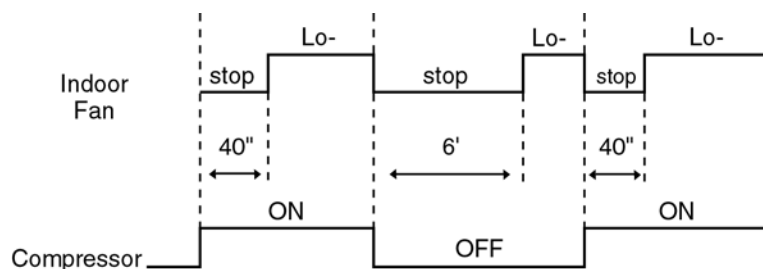
- Indoor fan will rotate alternately between off and on as shown in below diagram.
- At the beginning of each compressor start operation, indoor fan will increase fan speed gradually for deodorizing purpose.
- For the first time the compressor operate, indoor fan will be switched to Hi fan speed from 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.
- ※ 3 Variable rpm is equivalent to Lo- rpm.

### • Auto Fan Speed during Soft Dry operation:

- Indoor fan will rotate alternately between off and Lo-.
- At the beginning of each compressor start operation, indoor fan will increase fan speed gradually for deodorizing purpose.
- 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.

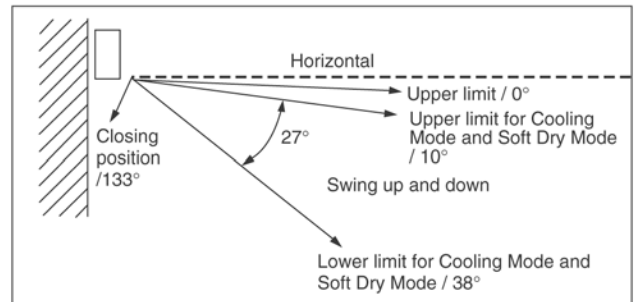
## 12.5. Outdoor Fan Speed Control

- There is only one speed for outdoor fan motor (PC18HK).
- There is 2 speed for outdoor fan motor. Outdoor fan speed can be changed to Hi or Lo according to outdoor temperature (PC24HK).
- For Cooling or Soft Dry operation when outdoor temperature reaches to 31°C (Hi-speed), 29°C (Lo-speed).
- When the air conditioner is turned on, the compressor and the outdoor fan will operate simultaneously.
- Likewise, both compressor and outdoor fan will stop at the same time if the unit is turned off.

## 12.6. Vertical Airflow Direction Control

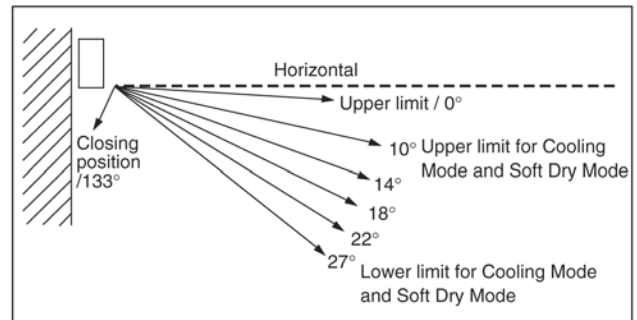
### 12.6.1. Auto Control

- 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 stopped with remote control, the discharge vent is reset, and stop at the closing position.
- During Cooling operation or Soft Dry operation, indoor fan motor may stop to rotate at certain periods. At that condition, the louver will stop swinging and rest at the upper limit.



### 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 stopped with remote control, the discharge vent is reset, and stop at the closing position.



## 12.7. Timer Control

### 12.7.1. 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 operation indication lamp will blink at this time.

### 12.7.2. 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.

## **12.8. Random Auto Restart Control**

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

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

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

## 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

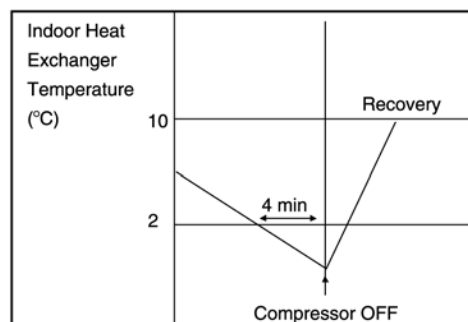
- The compressor will start automatically if it has stopped for 7 minutes and the intake air temperature falls between the compressor ON temperature and compressor OFF temperature during the period.
- This phenomenon is to reduce the built up humidity inside a room.

### 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. Freeze Prevention Control

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



13.5. Compressor Reverse Rotation Protection Control

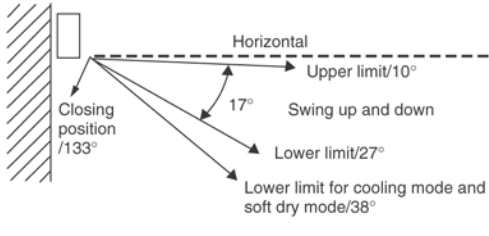
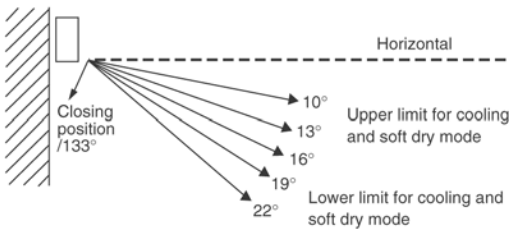
- If the compressor is operating continuously for 5 minutes or longer and the temperature difference between intake air and indoor heat exchanger is 2.5°C or less for continuous 2 minutes, compressor will stop and restart automatically.
- Time Delay Safety Control is activated before the compressor restart.



- s T = Intake air temperature - Indoor heat exchanger temperature
- This is to prevent compressor from rotate reversely when there is an instantaneous power failure.

13.6. Dew Prevention Control

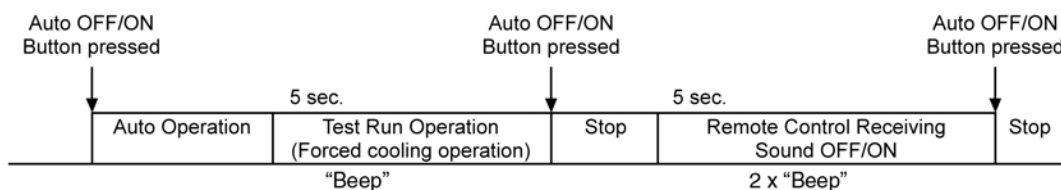
- To prevent dew formation at indoor unit discharge area.
- This control starts if:
  - Cooling mode is activated.
  - Remote Control setting temperature is less than 25°C.
  - Fan speed is at CLo or QLo.
  - Room temperature is constant (±1°C) for 30 minutes.
  - Compressor is continuously running.
- Fan speed and angle of horizontal louver (vertical airflow angle) will be adjusted accordingly in this control.
  - The angle of horizontal louver will be changed as below figure.

Operation mode	Airflow direction auto-control	Airflow direction manual control
Cooling, Soft Dry		

- Dew prevention stop condition
  - Remote control setting temperature is more than 25°C.
  - Fan speed is not set to CLo or QLo.

# 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 malfunction.

### 2. TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)

The Test Run operation will be activated if the Auto OFF/ON button is pressed continuously for more than 5 seconds. A “beep” sound will occur at the fifth seconds, in order to identify the starting of this operation.

### 3. REMOTE CONTROL RECEIVING SOUND OFF/ON MODE

The Remote Control Receiving Sound OFF/ON operation will be activated if (within 20 seconds of Test Run Operation) the Auto OFF/ON button is pressed for more than 5 seconds. 2 “beep” sounds will be heard to identify the starting of this operation.

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.

### 14.1.1. Toggle Remote Control Signal Receiving Sound

- Under various setting mode, press the “Auto OFF/ON Button” to toggle the remote control sound.
  - Short “beep”: Turn ON remote control signal receiving sound.
  - Long “beep”: Turn OFF remote control signal receiving sound.
- After “Auto OFF/ON Button” is pressed, the 20s counter for various setting mode is restarted.

### 14.1.2. Select Remote Control Transmission Code

- There are 4 type 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 unit 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	Transmission Code Combination		
	J-A	J-B	Remote Control No.
	* Short	Open	A (default)
	Open	Open	B
	Short	Short	C
	Open	Short	D

## **14.2. Remote Control Button**

### **14.2.1. SET BUTTON**

- To check current remote control transmission code.
  - Press for more than 10 seconds.
  - LCD returns to original display if remote control does not operate for 30 seconds.

### **14.2.2. CLOCK BUTTON**

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

### **14.2.3. RESET**

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

### **14.2.4. TIMER ▲**

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

### **14.2.5. TIMER ▼**

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

# 15 Troubleshooting Guide

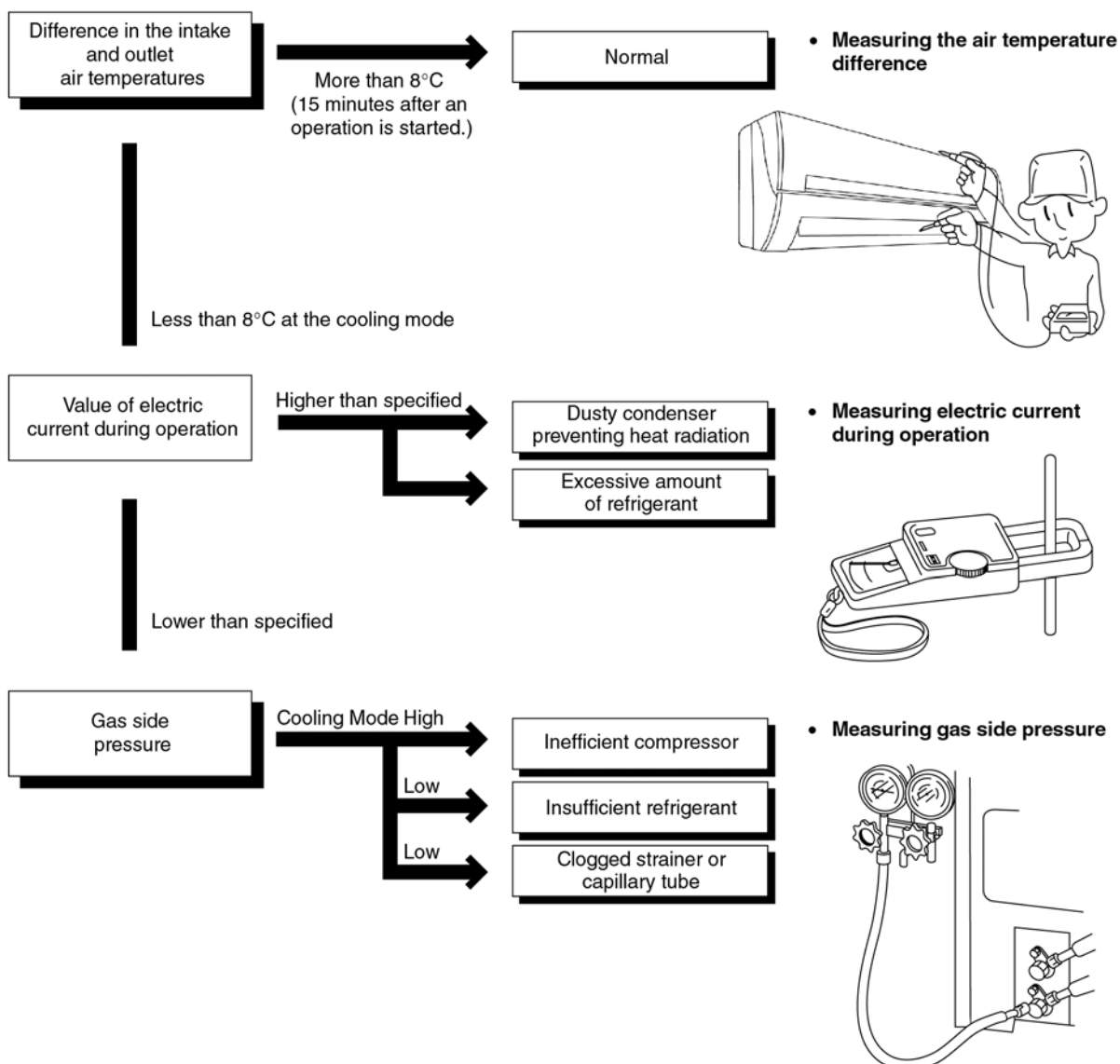
## 15.1. Refrigeration Cycle System

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

Normal Pressure and Outlet Air Temperature (Standard)

	Gas pressure Mpa (kg/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 operating
Insufficient refrigerant (gas leakage)	↘	↘	↘
Clogged capillary tube or Strainer	↘	↘	↘
Short circuit in the indoor unit	↘	↘	↘
Heat radiation deficiency of the outdoor unit	↗	↗	↗
Inefficient compression	↗	↘	↘

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

### 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>
Locker 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>

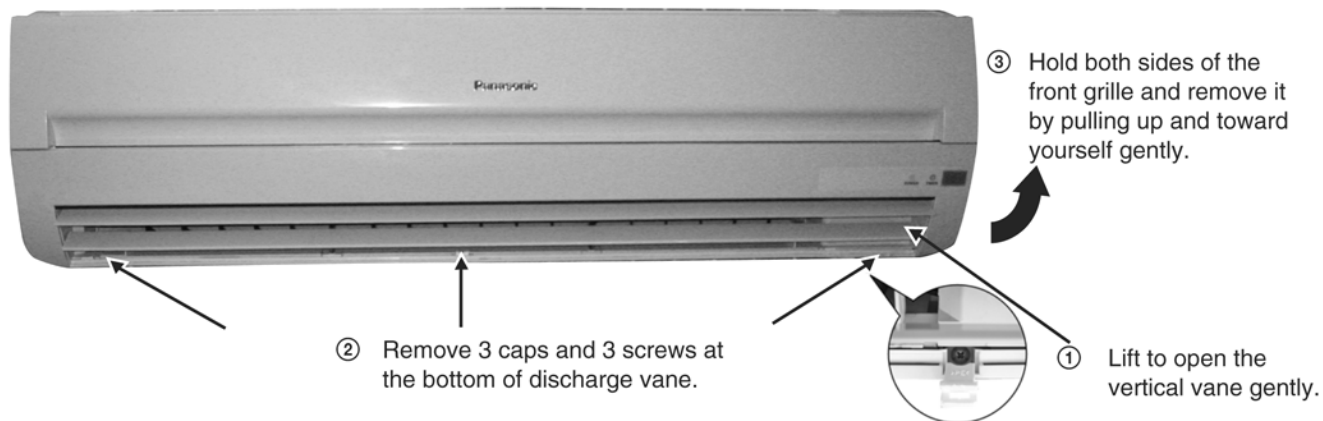


## 16 Disassembly and Assembly Instructions

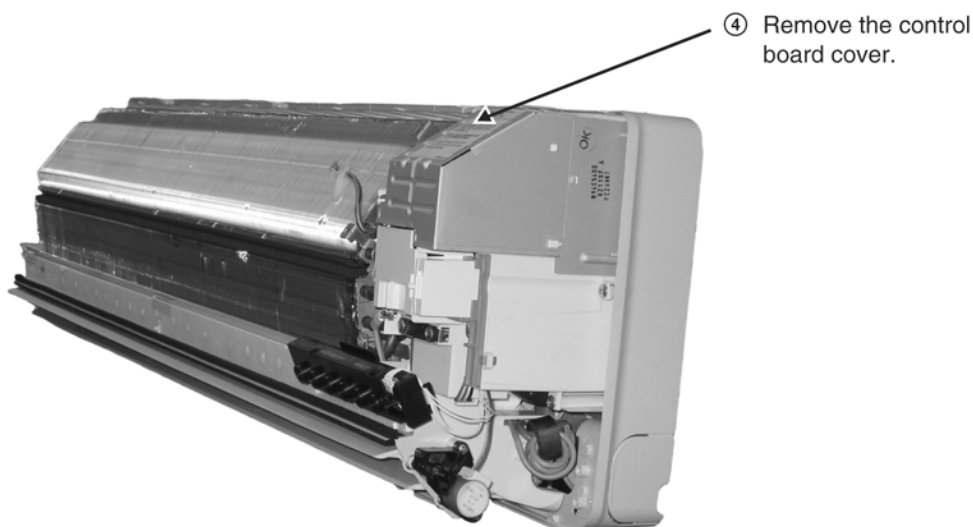
### WARNING

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.

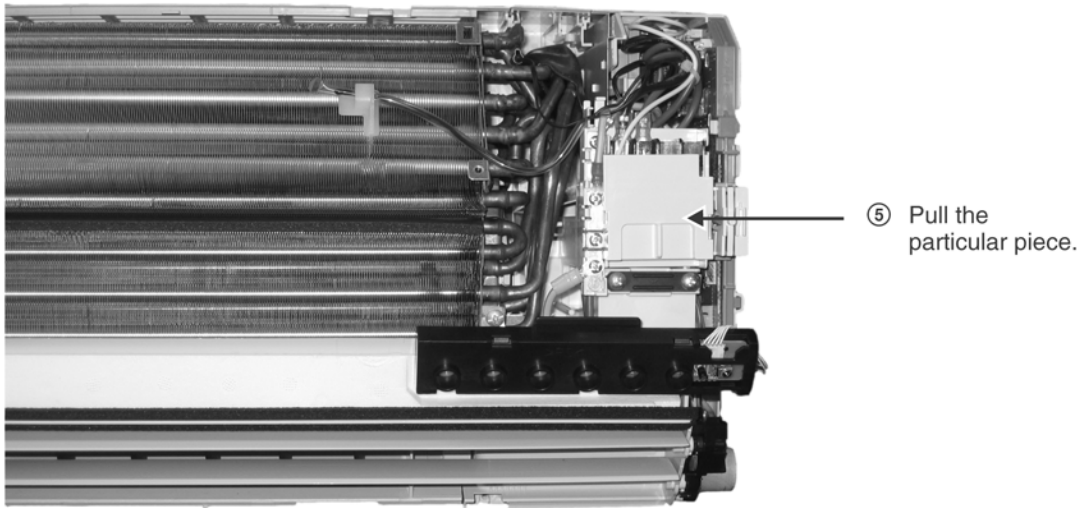
### 16.1. Indoor Electronic Controllers and Control Board Removal Procedures



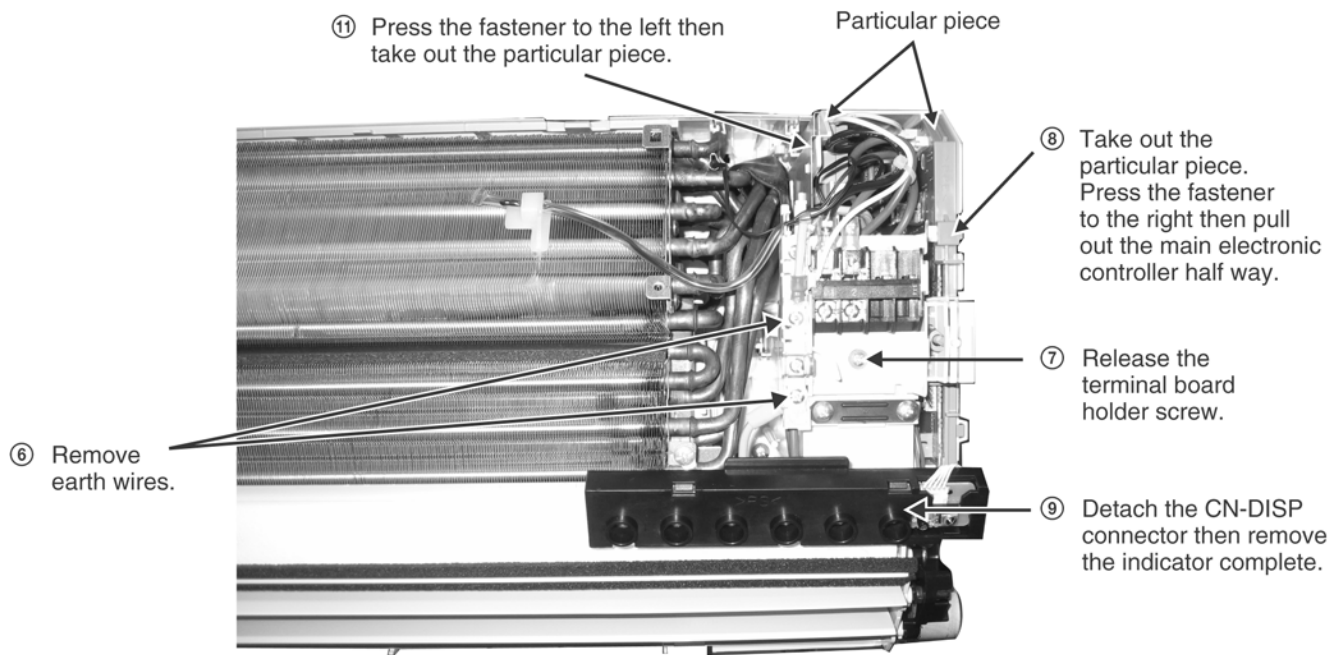
(Fig. 1)



(Fig. 2)

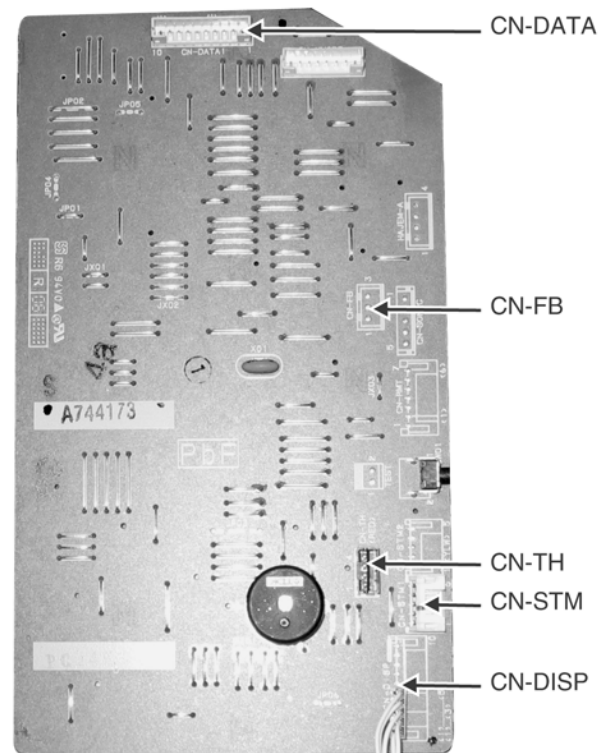


(Fig. 3)



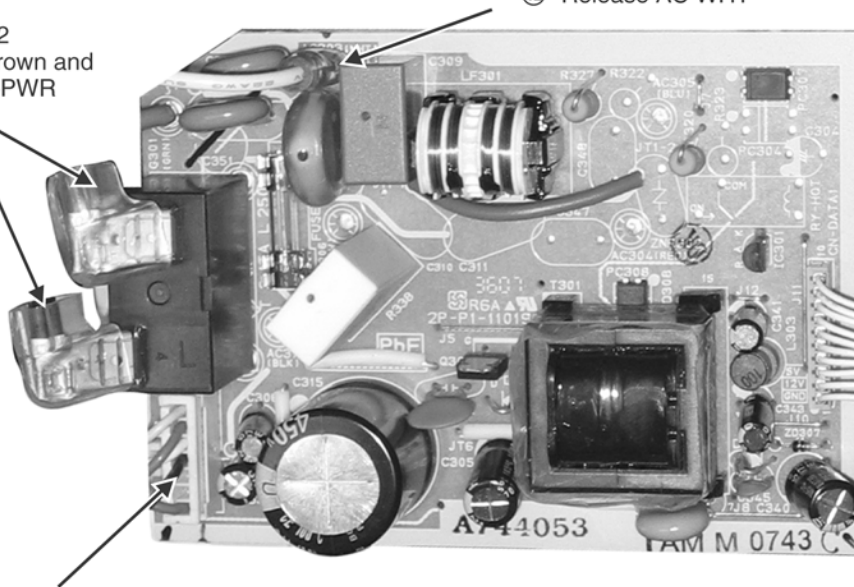
(Fig. 4)

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

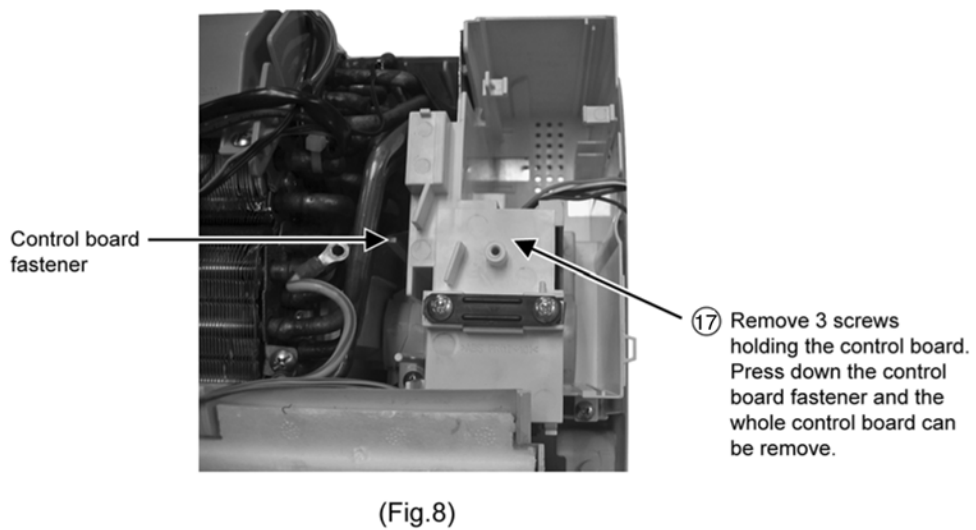
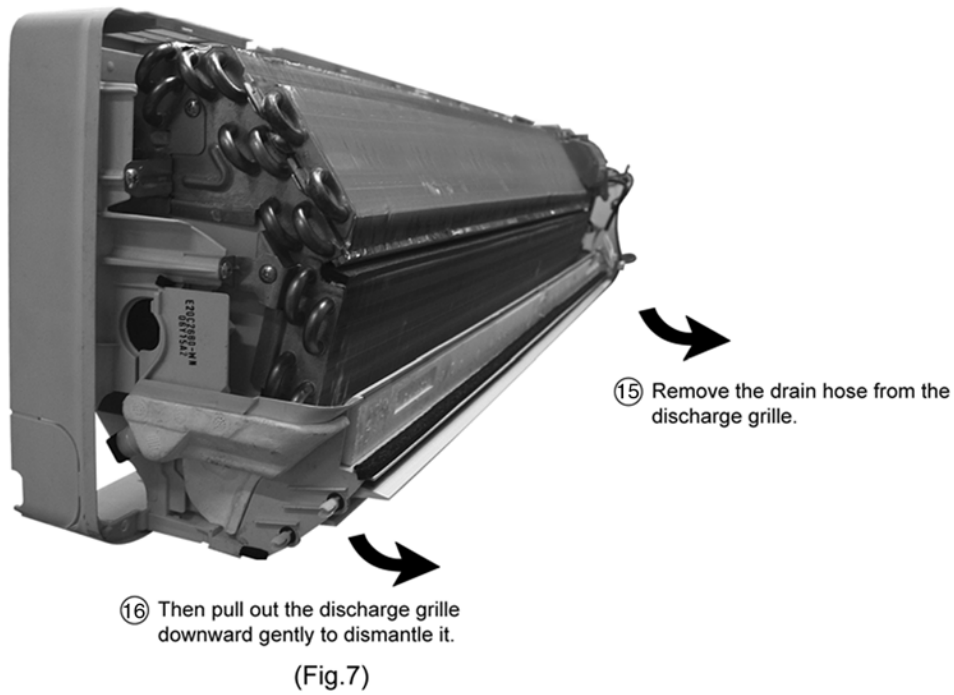


(Fig. 5)

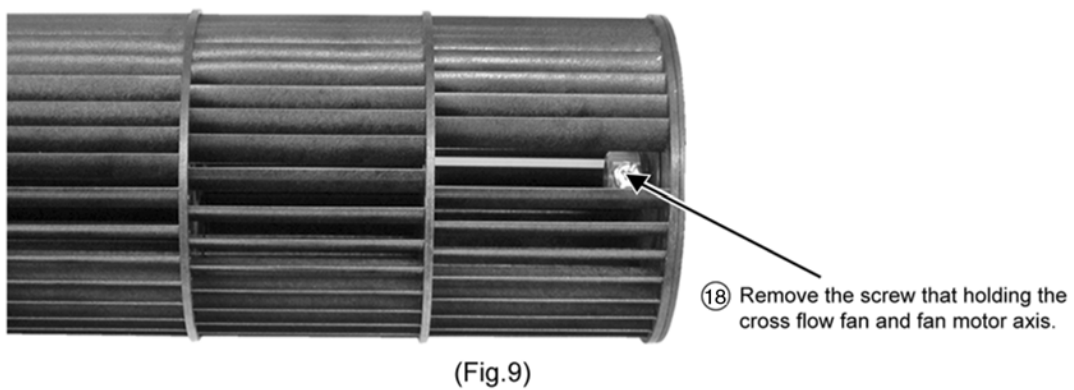
- ⑪ Release AC WHT
- ⑬ Release the 2 connector (brown and black) at PR-PWR
- ⑭ Detach the CN-FM connector from the electronic controller. Then, pull it slowly while pressing the fastener to the left.



(Fig. 6)

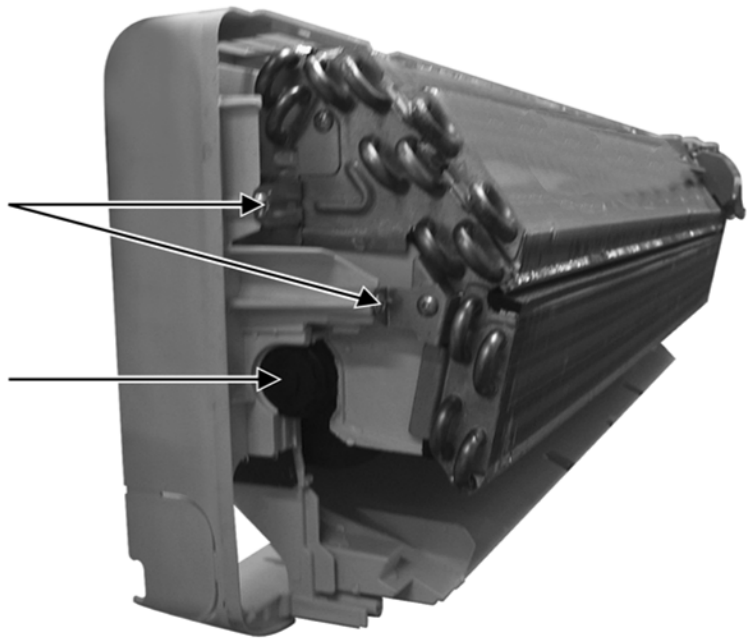


## 16.2. Indoor Fan Motor and Cross Flow Fan Removal Procedures



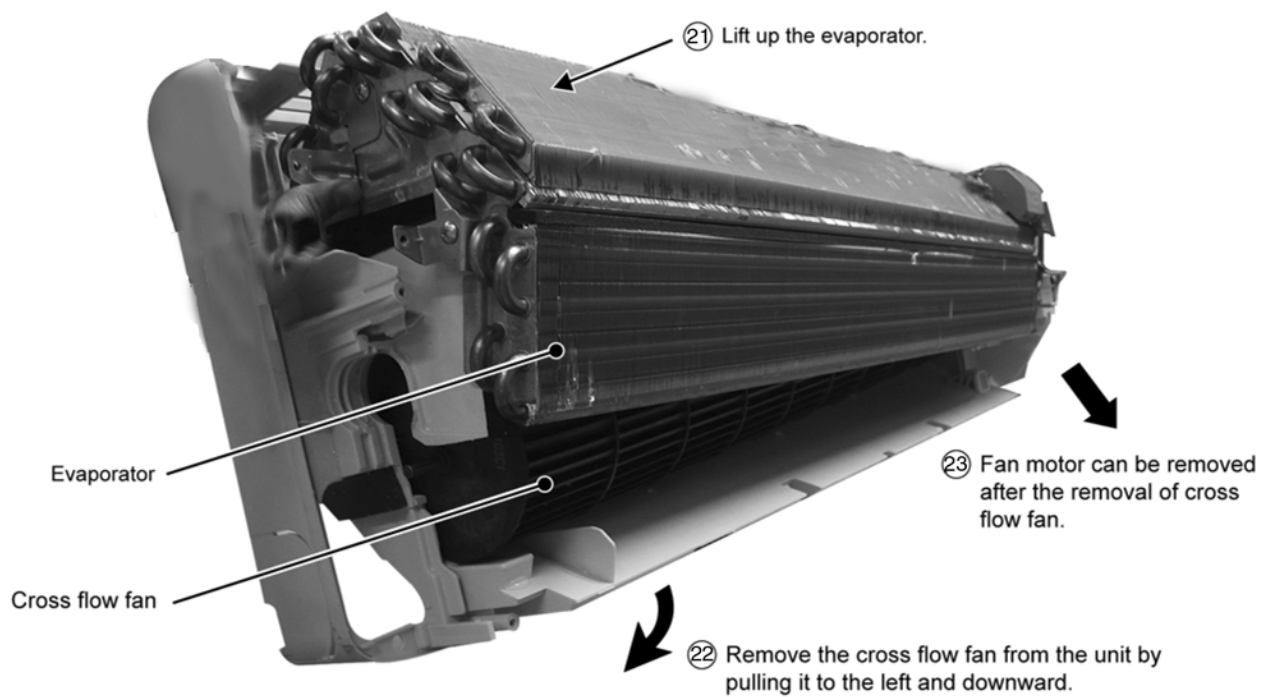
②① Remove the screw from the evaporator.

②② Remove the bearing by pulling it out gently.



(Fig.10)

②③ Lift up the evaporator.



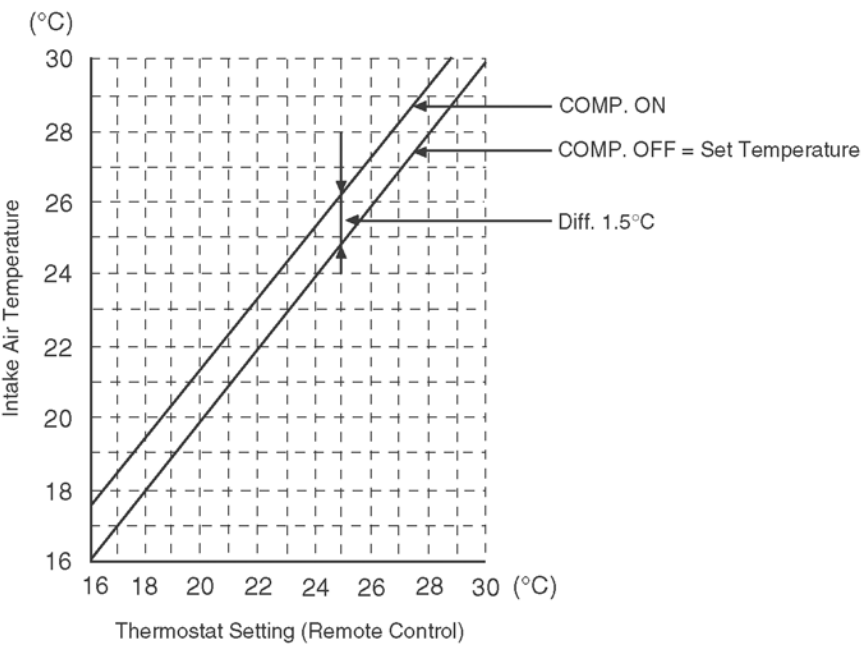
(Fig.11)

# 17 Technical Data

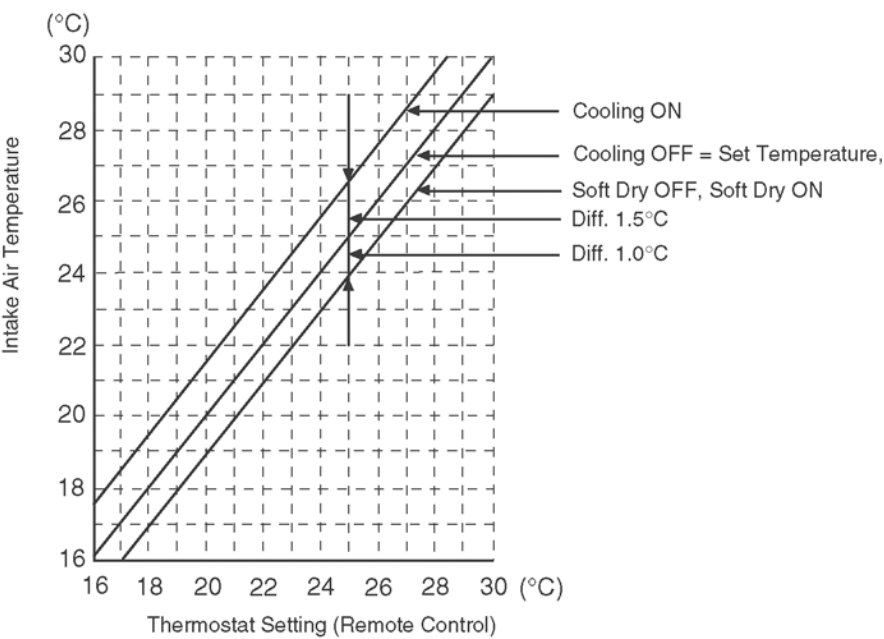
## 17.1. Thermostat Characteristics

CS-PC18HKF CS-PC24HKF

- Cooling



- Soft Dry

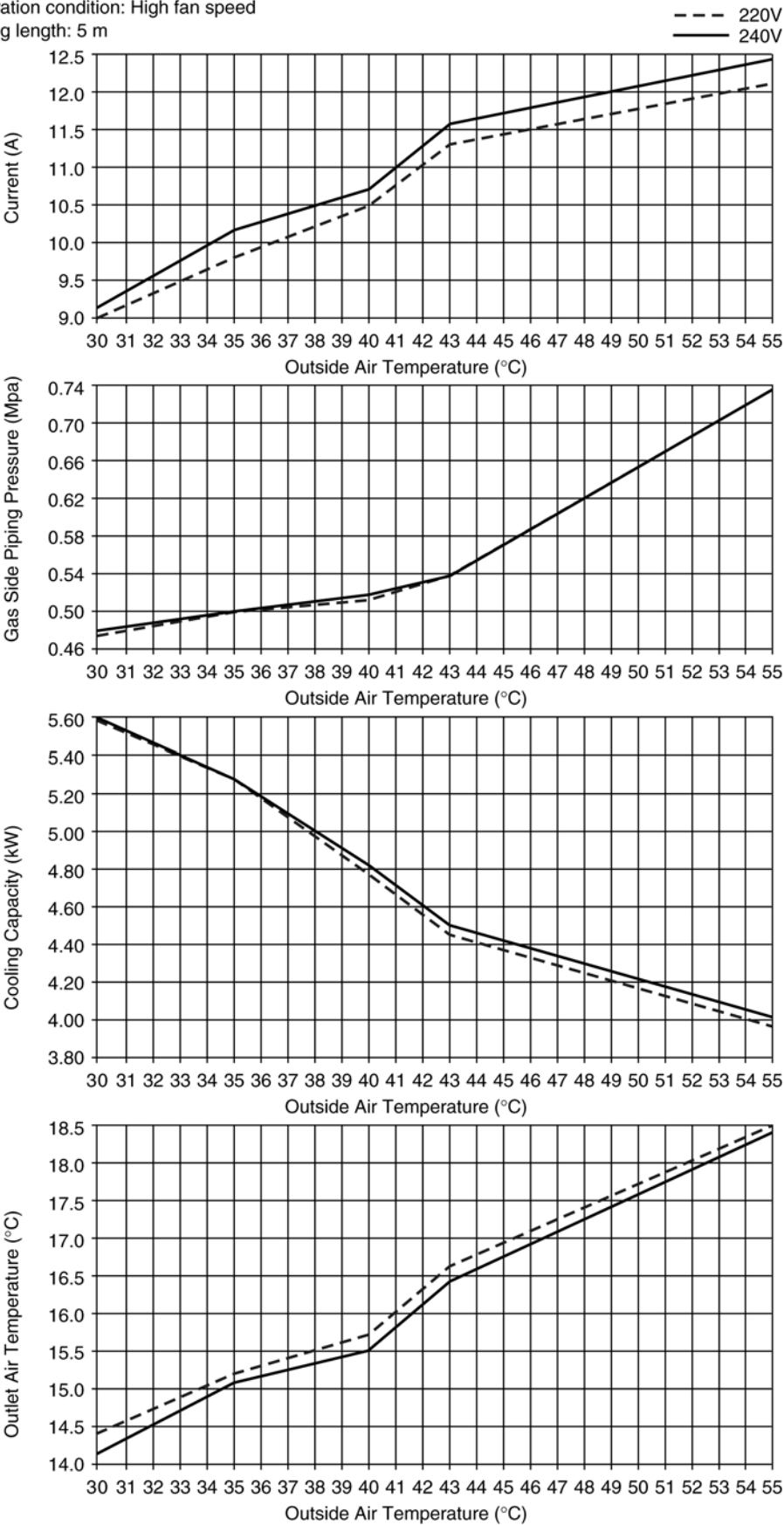


17.2. Operation Characteristics

17.2.1. CS-PC18HKF CU-PC18HKF

• Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)  
Operation condition: High fan speed  
Piping length: 5 m

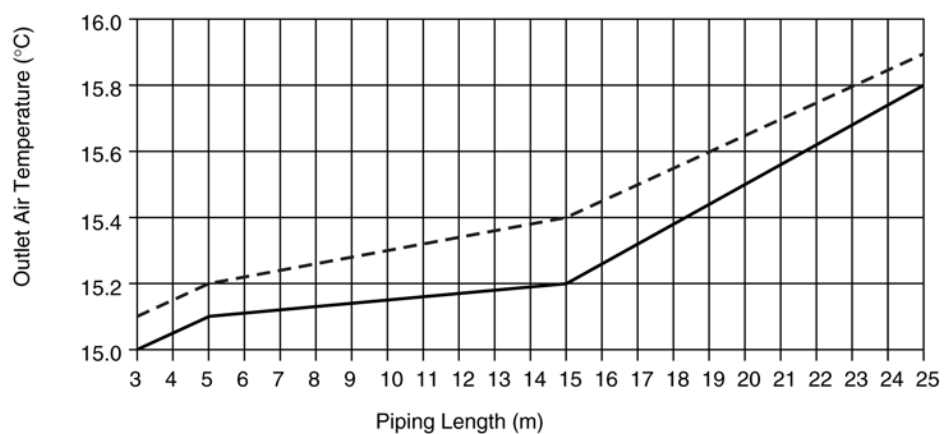
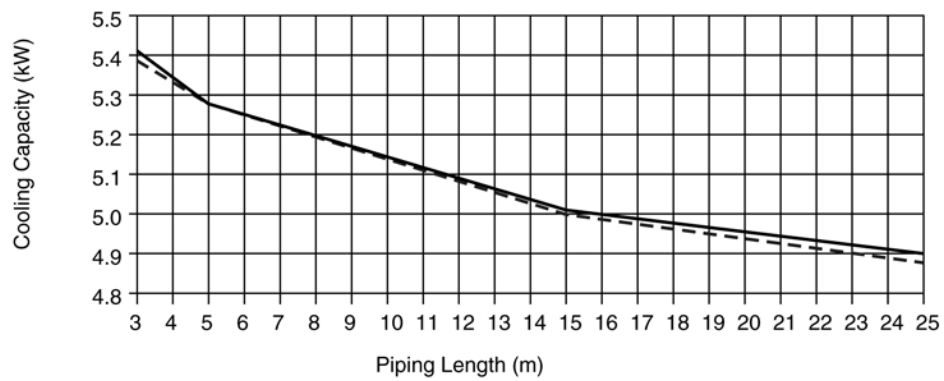
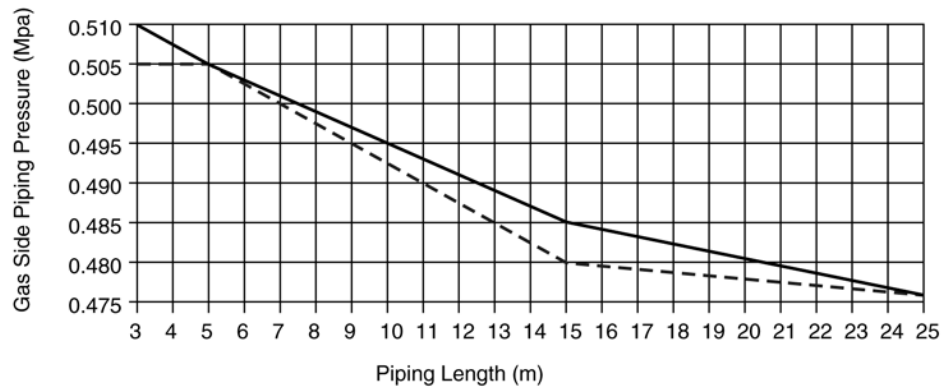
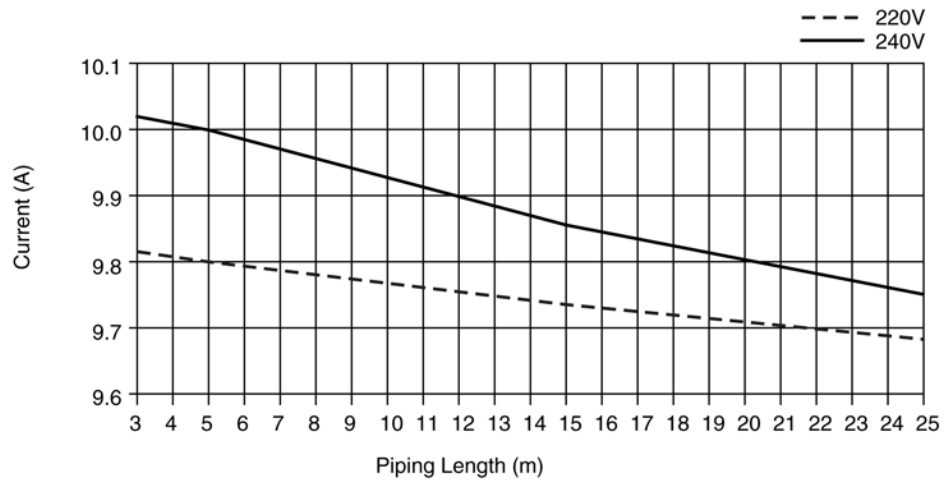


## • Piping Length Characteristic

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

Operation condition: High fan speed

Piping Length: 5.0 m

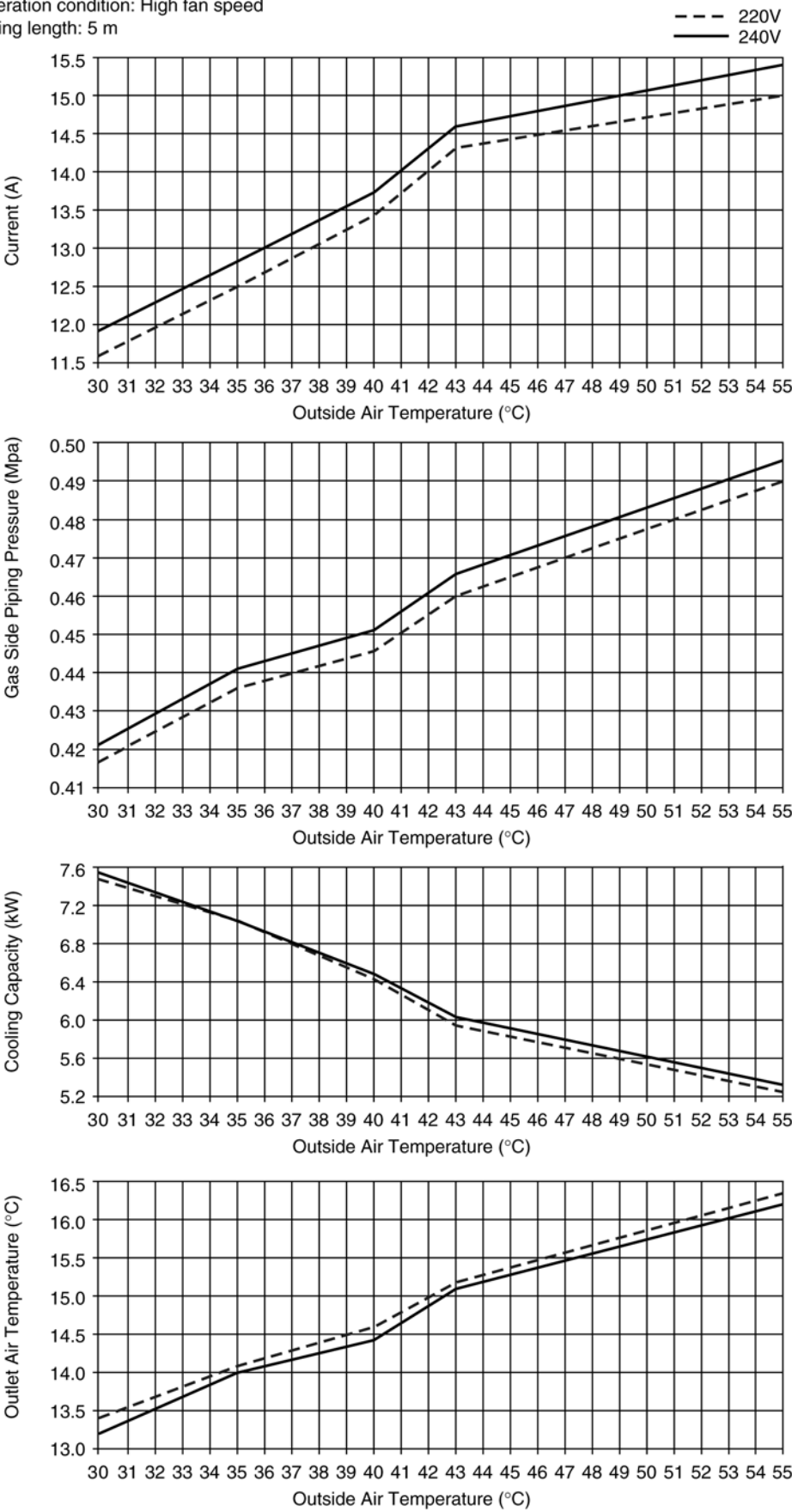




17.2.2. CS-PC24HKF CU-PC24HKF

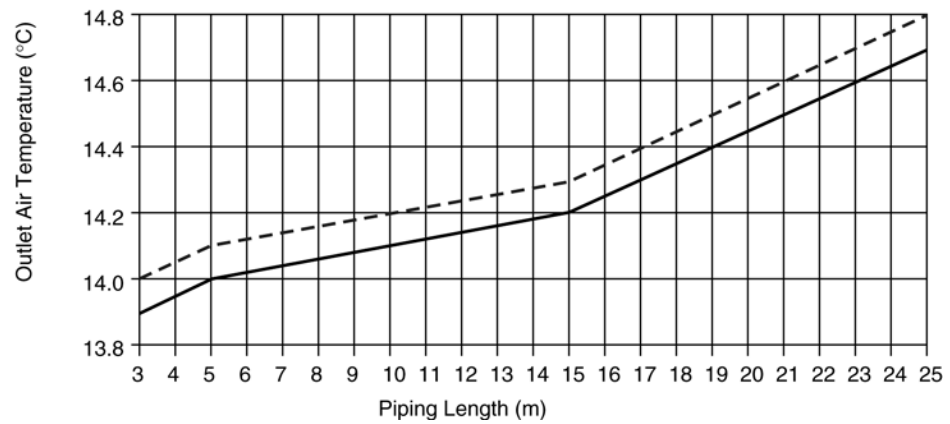
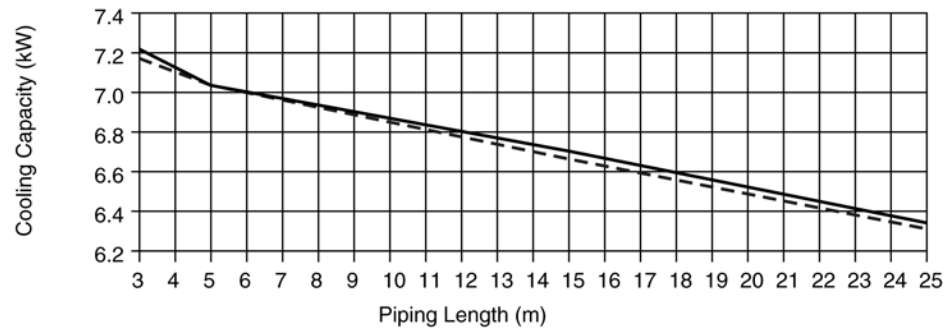
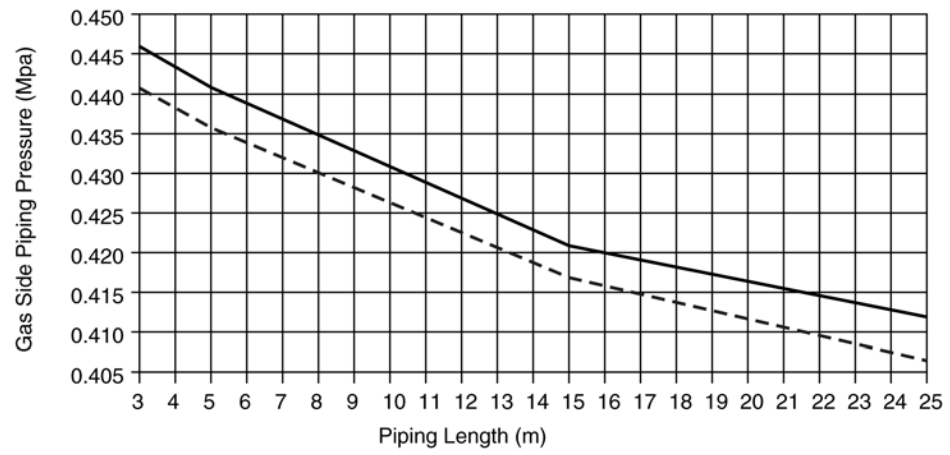
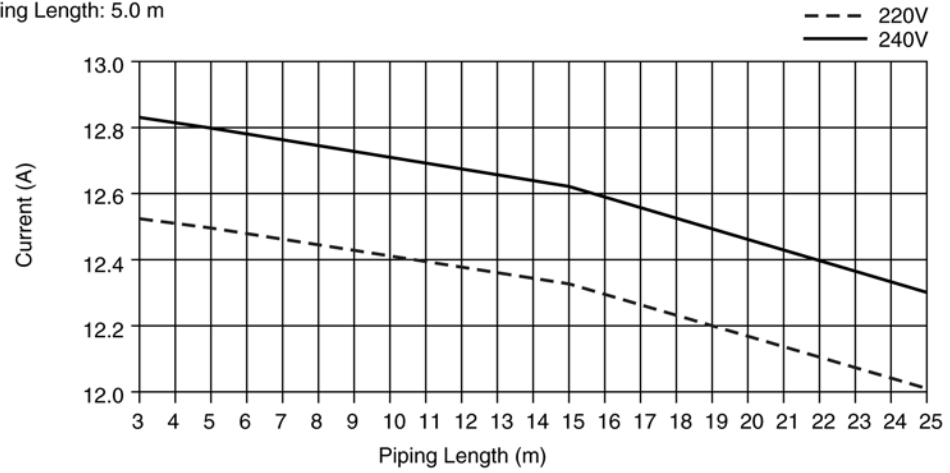
• Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)  
Operation condition: High fan speed  
Piping length: 5 m



## • Piping Length Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)  
 Operation condition: High fan speed  
 Piping Length: 5.0 m



## 17.3. Fan Performance

CS-PC18HKF CU-PC18HKF			Hi	Me	Lo
Indoor	Fan Speed	rpm	1450	1330	1150
	Air Flow	m <sup>3</sup> /min	15.8	14.5	12.5
		ft <sup>3</sup> /min	558	512	442
Outdoor	Fan Speed	rpm	830 - 855		
	Air Flow	m <sup>3</sup> /min	30.3 - 31.3		
		ft <sup>3</sup> /min	1070 - 1100		

CS-PC24HKF CU-PC24HKF			Hi	Me	Lo
Indoor	Fan Speed	rpm	1640	1460	1310
	Air Flow	m <sup>3</sup> /min	17.4	15.5	13.9
		ft <sup>3</sup> /min	610	550	490
Outdoor	Fan Speed	rpm	860 - 890	—	440 - 500
	Air Flow	m <sup>3</sup> /min	52.0 - 54.0	—	26.6 - 30.2
		ft <sup>3</sup> /min	1840 - 1910	—	940 - 1070

## 17.4. Cooling Capacity Performance Data

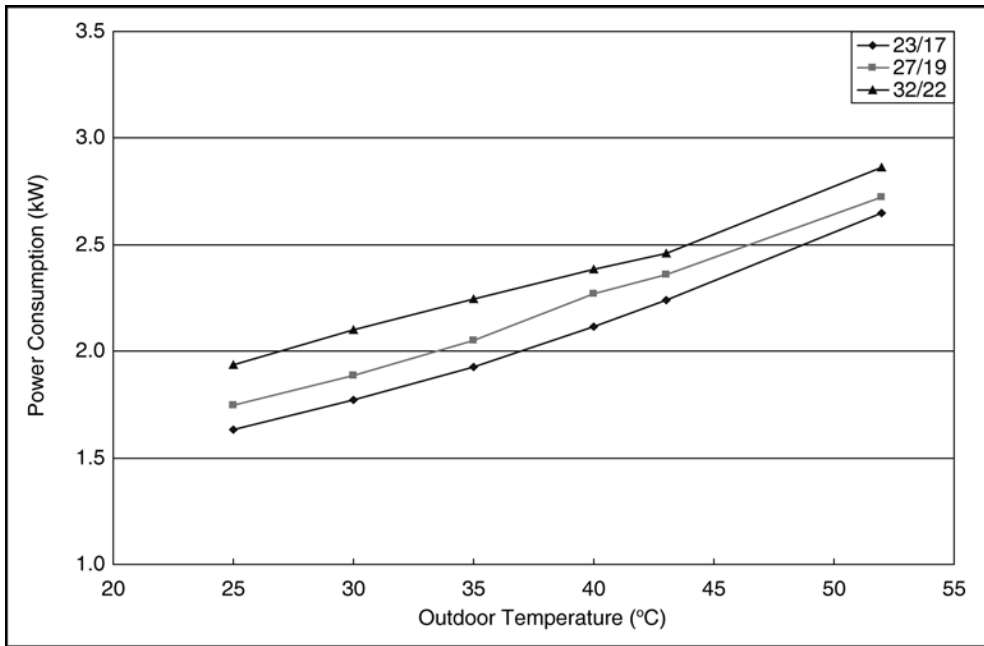
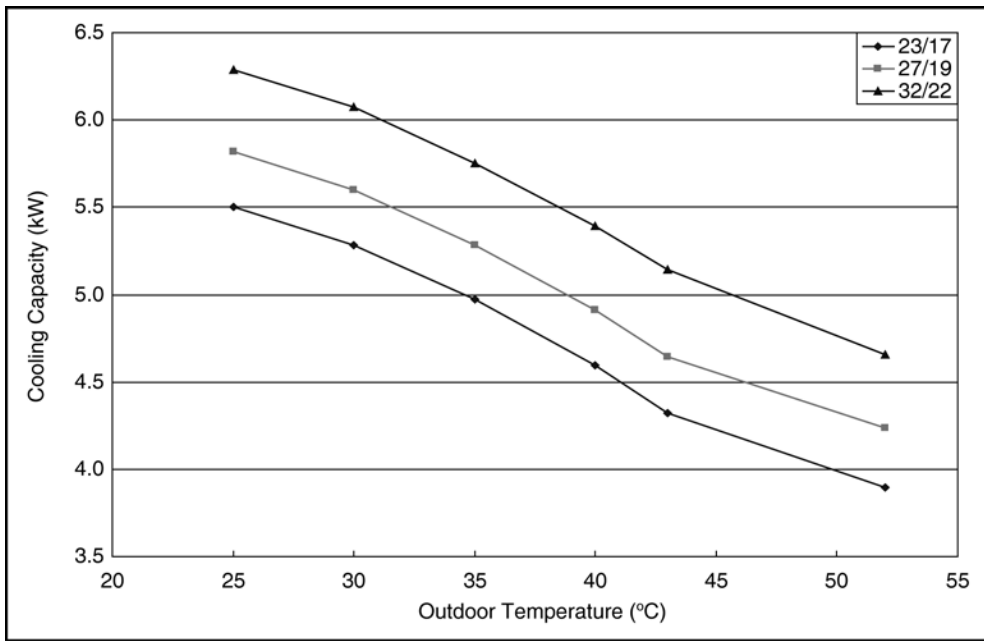
### CS/CU-PC18HKF

Indoor intake air ambient temperature		Outdoor intake air ambient temperature (D.B./°C)																	
		25°C			30°C			35°C			40°C			43°C			55°C		
		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
23	17	5.50	3.74	1.63	5.28	3.79	1.77	4.97	3.67	1.93	4.60	3.52	2.12	4.32	3.41	2.24	3.69	2.73	2.74
	19	5.81	3.15	1.73	5.62	3.17	1.87	5.34	3.12	2.04	4.97	3.02	2.24	4.72	2.96	2.37	4.13	2.74	2.98
	22	6.34	2.43	1.87	6.17	2.50	2.03	5.89	2.51	2.21	5.51	2.46	2.42	5.25	2.45	2.57	4.49	2.41	3.37
25	17	5.43	4.42	1.63	5.22	4.36	1.76	4.91	4.21	1.92	4.56	4.05	2.10	4.31	3.92	2.22	3.73	3.11	2.73
	19	5.81	3.90	1.74	5.61	3.88	1.88	5.30	3.79	2.04	4.94	3.66	2.23	4.69	3.56	2.37	4.10	3.18	3.02
	22	6.34	3.07	1.88	6.14	3.10	2.03	5.84	3.08	2.21	5.79	2.98	2.41	5.20	2.96	2.56	4.48	2.85	3.36
27	17	5.36	5.08	1.64	5.16	5.00	1.76	4.87	4.81	1.92	4.52	4.62	2.08	4.28	4.51	2.21	3.73	3.73	2.71
	19	5.82	4.58	1.75	5.60	4.53	1.89	5.28	4.38	2.05	4.91	4.24	2.27	4.65	4.11	2.36	4.02	3.59	2.82
	22	6.33	3.71	1.89	6.12	3.71	2.03	5.80	3.64	2.21	5.39	3.50	2.40	5.15	3.45	2.55	4.46	3.24	3.35
29	17	5.35	5.58	1.62	5.16	5.44	1.76	4.86	5.17	1.89	4.57	4.86	2.03	4.34	4.62	2.12	3.82	3.43	2.50
	19	5.81	5.26	1.74	5.60	5.19	1.88	5.28	5.00	2.03	4.95	4.82	2.17	4.70	4.70	2.26	4.13	4.21	2.71
	22	6.30	4.39	1.91	6.09	4.37	2.07	5.76	4.26	2.23	5.39	4.13	2.39	5.14	4.05	2.49	4.41	3.74	3.09
32	17	5.35	5.58	1.62	5.16	5.49	1.75	4.52	4.81	1.88	4.59	4.88	2.00	4.37	4.65	2.07	3.88	3.49	2.35
	19	5.80	6.11	1.73	5.60	5.96	1.88	5.28	5.62	2.01	4.97	5.29	2.14	4.74	5.05	2.21	4.22	4.15	2.56
	22	6.29	5.49	1.94	6.08	5.43	2.10	5.75	5.26	2.25	5.39	5.11	2.39	5.14	4.98	2.46	4.41	4.48	2.96

TC : Cooling Capacity (kW)

SHC : Sensible Heat Capacity (kW)

IPT : Cooling Power Consumption (kW)



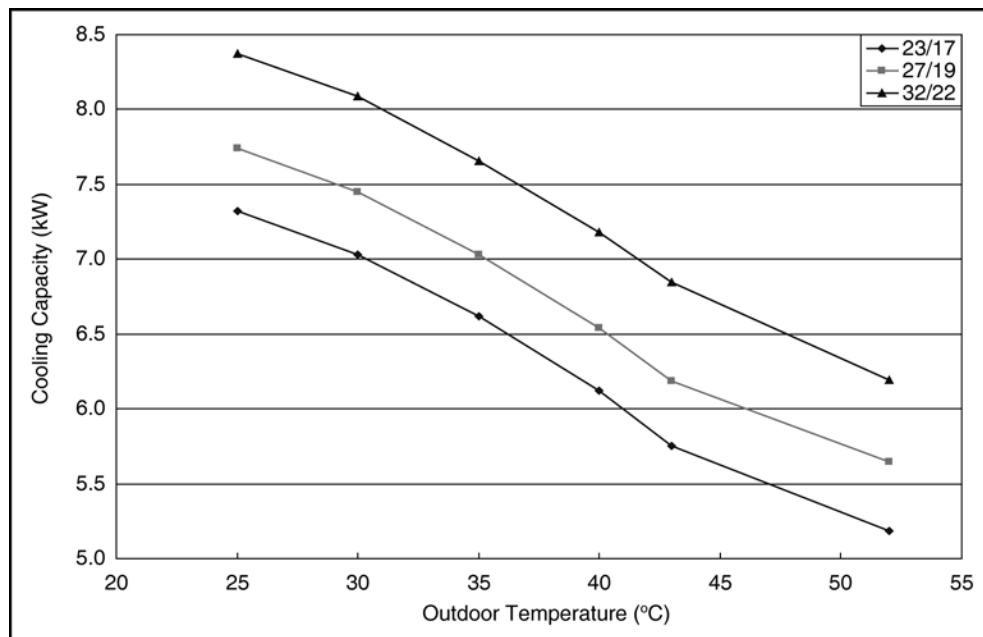
CS/CU-PC24HKF

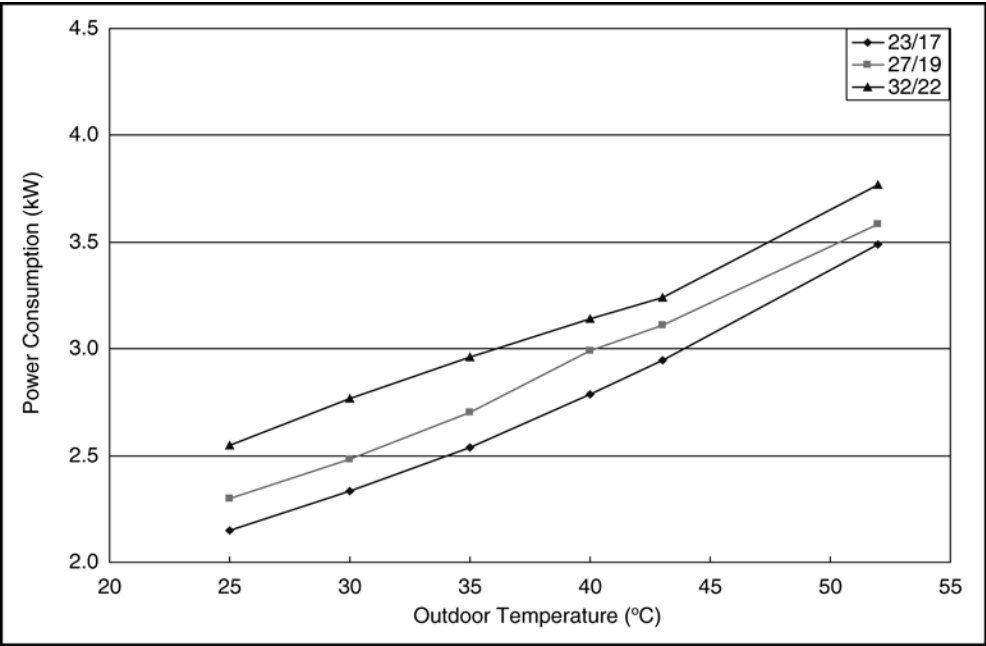
Indoor intake air ambient temperature		Outdoor intake air ambient temperature (D.B./°C)																	
		25°C			30°C			35°C			40°C			43°C			55°C		
		TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT
DB	WB	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW
23	17	7.32	4.38	2.15	7.03	4.44	2.33	6.62	4.30	2.54	6.12	4.12	2.79	5.75	3.99	2.95	4.91	3.20	3.61
	19	7.73	3.68	2.28	7.48	3.71	2.46	7.11	3.65	2.69	6.62	3.53	2.95	6.28	3.47	3.12	5.50	3.21	3.93
	22	8.44	2.84	2.46	8.21	2.93	2.67	7.84	2.94	2.91	7.33	2.88	3.19	6.99	2.87	3.38	5.98	2.83	4.44
25	17	7.24	5.17	2.15	6.95	5.10	2.32	6.54	4.93	2.53	6.07	4.75	2.76	5.73	4.59	2.93	4.97	3.64	3.59
	19	7.73	4.57	2.29	7.47	4.54	2.47	7.06	4.43	2.69	6.58	4.28	2.94	6.24	4.17	3.12	5.46	3.72	3.97
	22	8.44	3.59	2.47	8.18	3.63	2.67	7.78	3.60	2.91	7.71	3.49	3.18	6.92	3.46	3.37	5.97	3.33	4.43
27	17	7.14	5.95	2.16	6.87	5.85	2.32	6.48	5.64	2.53	6.02	5.42	2.74	5.70	5.28	2.91	4.96	4.37	3.57
	19	7.74	5.36	2.30	7.45	5.30	2.48	7.03	5.13	2.70	6.54	4.96	2.99	6.19	4.81	3.11	5.35	4.21	3.71
	22	8.43	4.34	2.48	8.14	4.34	2.68	7.72	4.26	2.92	7.17	4.10	3.16	6.86	4.04	3.36	5.93	3.79	4.41
29	17	7.13	6.54	2.14	6.87	6.37	2.32	6.47	6.05	2.49	6.08	5.69	2.68	5.78	5.41	2.80	5.09	4.02	3.30
	19	7.73	6.15	2.29	7.45	6.07	2.47	7.03	5.86	2.67	6.59	5.65	2.86	6.26	5.51	2.98	5.50	4.93	3.57
	22	8.39	5.14	2.52	8.11	5.12	2.73	7.67	4.99	2.94	7.18	4.84	3.15	6.85	4.75	3.28	5.87	4.39	4.07
32	17	7.12	6.53	2.13	6.87	6.43	2.31	6.01	5.63	2.47	6.11	5.72	2.64	5.82	5.45	2.72	5.16	4.09	3.10
	19	7.72	7.16	2.28	7.45	6.97	2.47	7.03	6.58	2.65	6.62	6.19	2.82	6.32	5.91	2.91	5.61	4.86	3.38
	22	8.37	6.43	2.55	8.09	6.36	2.76	7.66	6.16	2.96	7.18	5.98	3.14	6.85	5.83	3.24	5.87	5.24	3.90

TC : Cooling Capacity (kW)

SHC : Sensible Heat Capacity (kW)

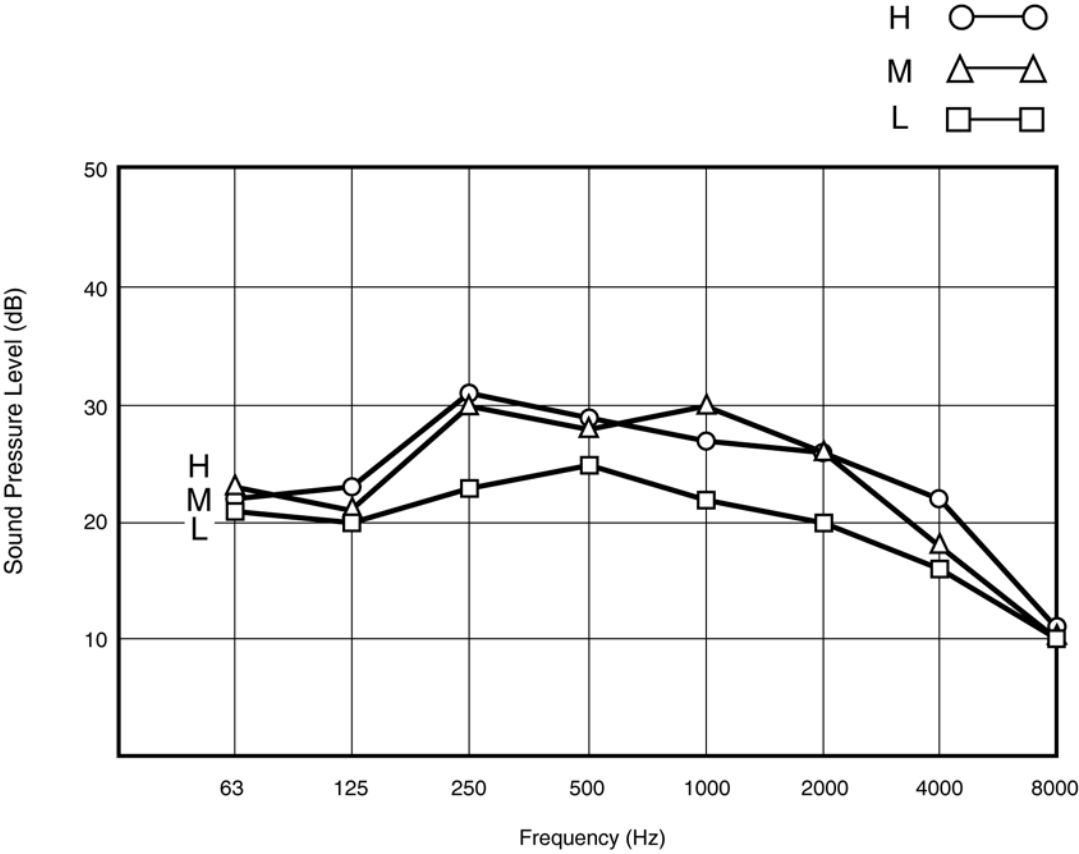
IPT : Cooling Power Consumption (kW)

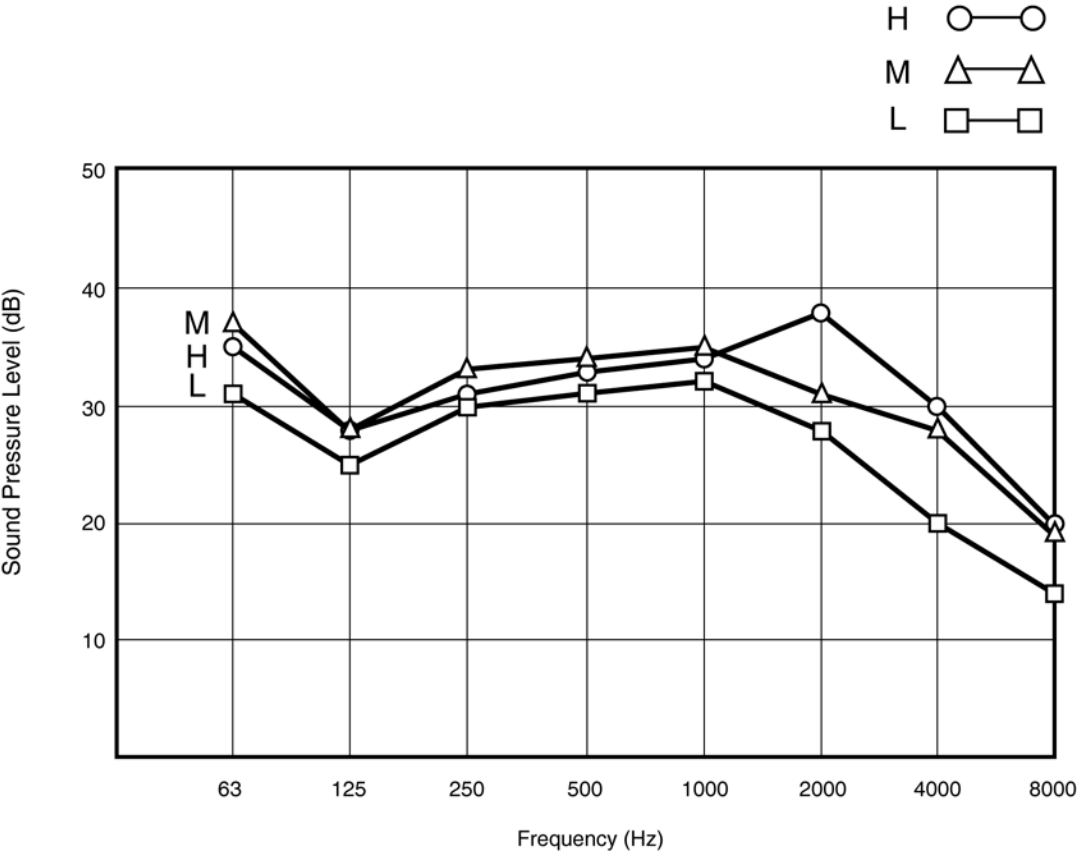




### 17.5. Sound Data

CS-PC18HKF

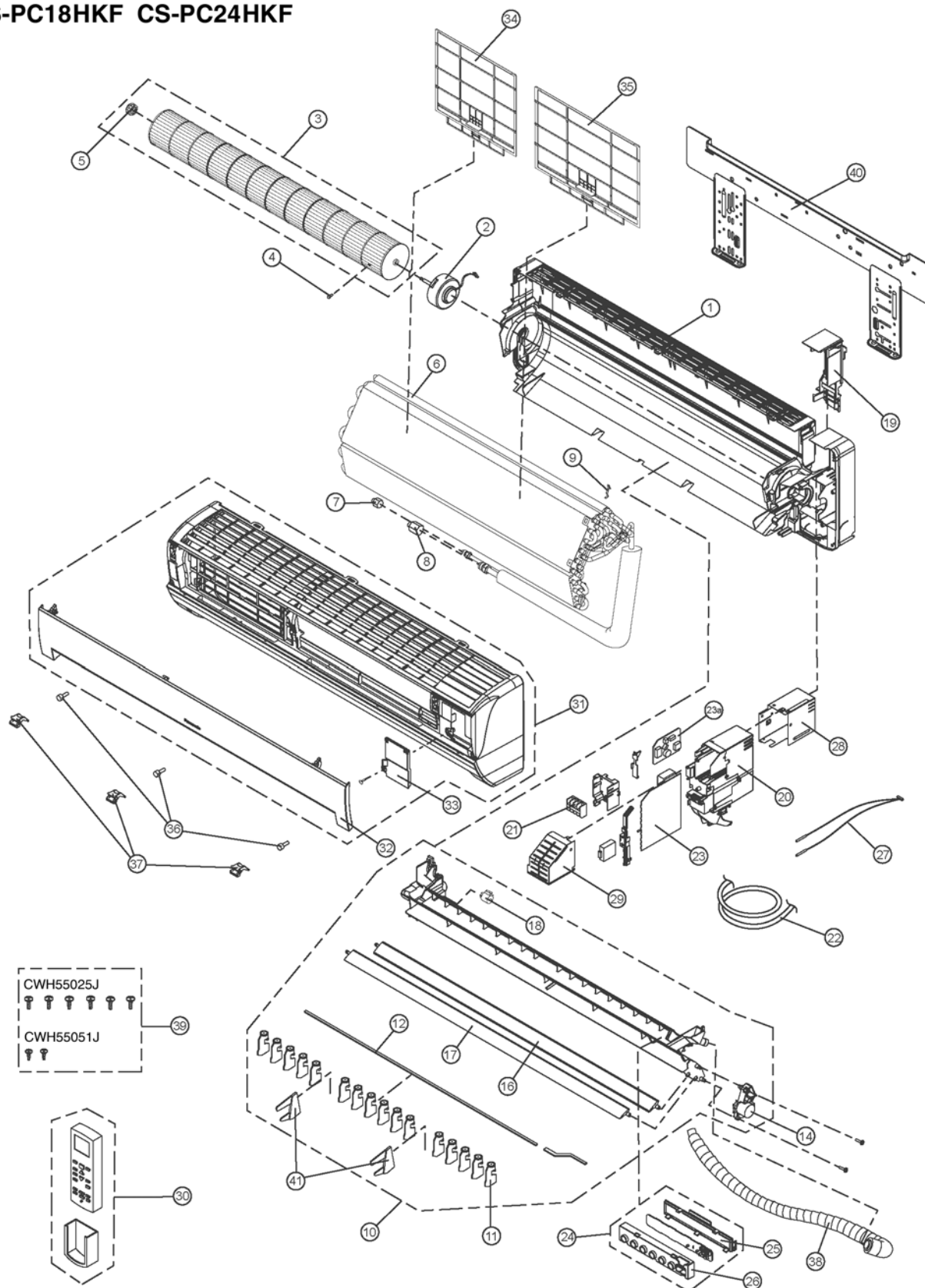




# 18 Exploded View and Replacement Parts List

## 18.1. Indoor Unit

CS-PC18HKF CS-PC24HKF



### 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.



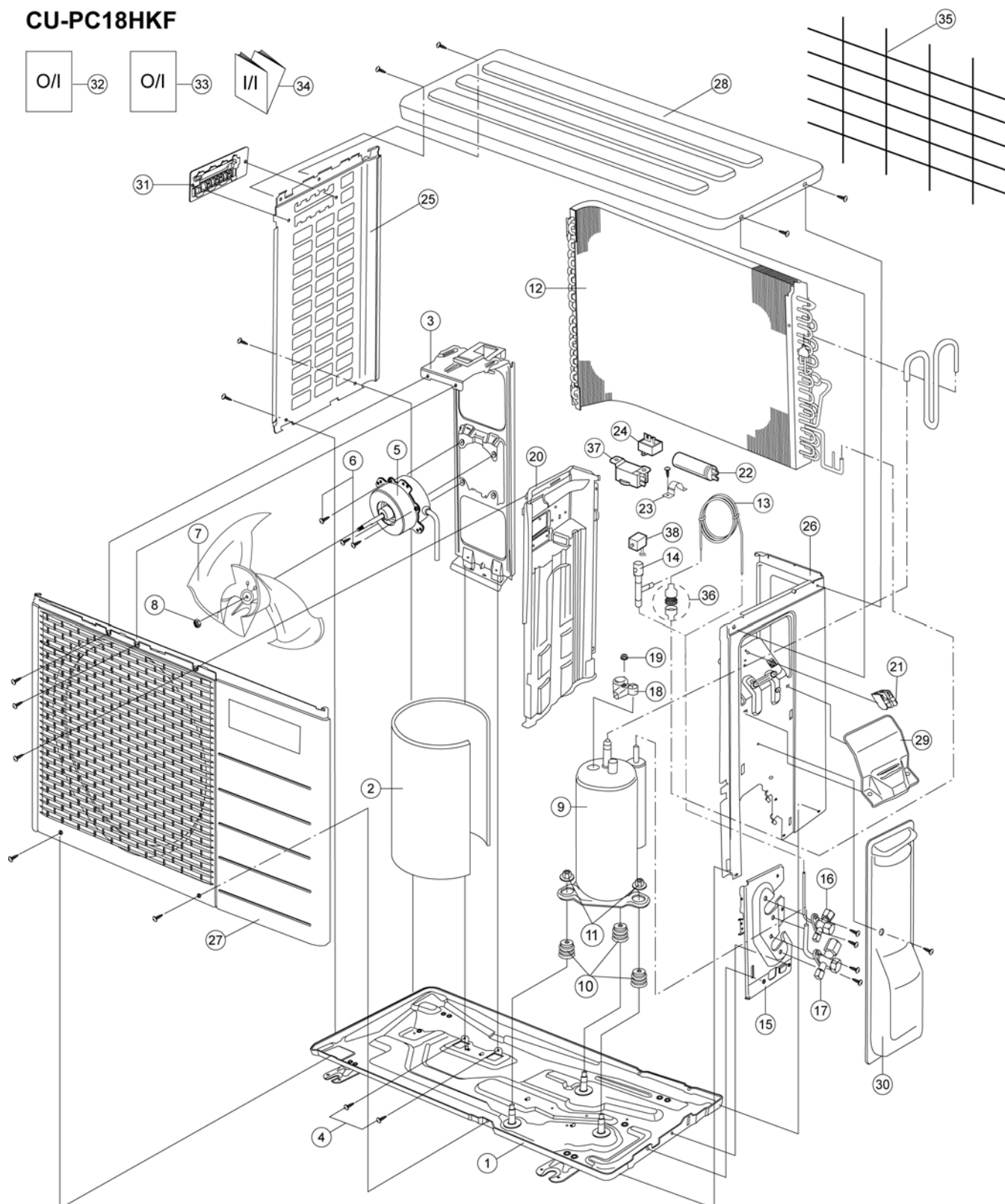
REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-PC18HKF	CS-PC24HKF	REMARKS
1	CHASSY COMPLETE	1	CWD50C1394	CWD50C1528	
2	FAN MOTOR	1	ARW61G8P30AC	←	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1010	←	
4	SCREW - CROSS FLOW FAN	1	CWH551146	←	
5	BEARING ASS'Y	1	CWH64K007	←	
6	EVAPORATOR	1	CWB30C1574	CWB30C1854	
7	FLARE NUT (1/4")	1	CWT251026	←	
8	FLARE NUT (1/2") (5/8")	1	CWT25007	CWT251036	
9	INTAKE AIR SENSOR HOLDER	1	CWH32143	←	
10	DISCHARGE GRILLE COMPLETE	1	CWE20C2340	←	
11	VERTICAL VANE	16	CWE241088	←	
12	CONNECTING BAR	1	CWE261025	←	
14	AIR SWING MOTOR	1	CWA98K1009	←	O
16	HORIZONTAL VANE	1	CWE241152A	←	
17	HORIZONTAL VANE	1	CWE241153A	←	
18	CAP - DRAIN TRAY	1	CWH521096	←	
19	BACK COVER CHASIS	1	CWD932162B	←	
20	CONTROL BOARD CASING	1	CWH102291	←	
21	TERMINAL BOARD COMPLETE	1	CWA28C2316	CWA28C2317	O
22	POWER SUPPLY CORD	1	CWA20C2506	CWA20C2529	
23	ELECTRONIC CONTROLLER - MAIN	1	CWA73C2661	CWA73C2662	O
23a	ELECTRONIC CONTROLLER - POWER	1	CWA744053	←	O
24	INDICATOR COMPLETE	1	CWE39C1120	←	O
25	INDICATOR HOLDER	1	CWD932435	←	
26	INDICATOR HOLDER	1	CWD932436	←	
27	SENSOR COMPLETE	1	CWA50C2401	CWA50C2122	O
28	CONTROL BOARD TOP COVER	1	CWH131209	←	
29	CONTROL BOARD FRONT COVER	1	CWH131210	←	
30	REMOTE CONTROL COMPLETE	1	CWA75C2841	←	O
31	FRONT GRILLE COMPLETE	1	CWE11C3117	CWE11C3140	O
32	INTAKE GRILLE COMPLETE	1	CWE22C1159	←	
33	GRILLE DOOR	1	CWE141076	←	
34	AIR FILTER (L)	1	CWD001137	←	
35	AIR FILTER (R)	1	CWD001138	←	
36	SCREW - FRONT GRILLE	3	XTT4+16CFJ	←	
37	CAP - FRONT GRILLE	3	CWH521062A	←	
38	DRAIN HOSE	1	CWH851063	←	
39	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C067	←	
40	INSTALLATION PLATE	1	CWH36K1007	←	
41	FULCRUM	2	CWH621047	←	

(NOTE)

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

## 18.2. Outdoor Unit

### CU-PC18HKF



#### Note

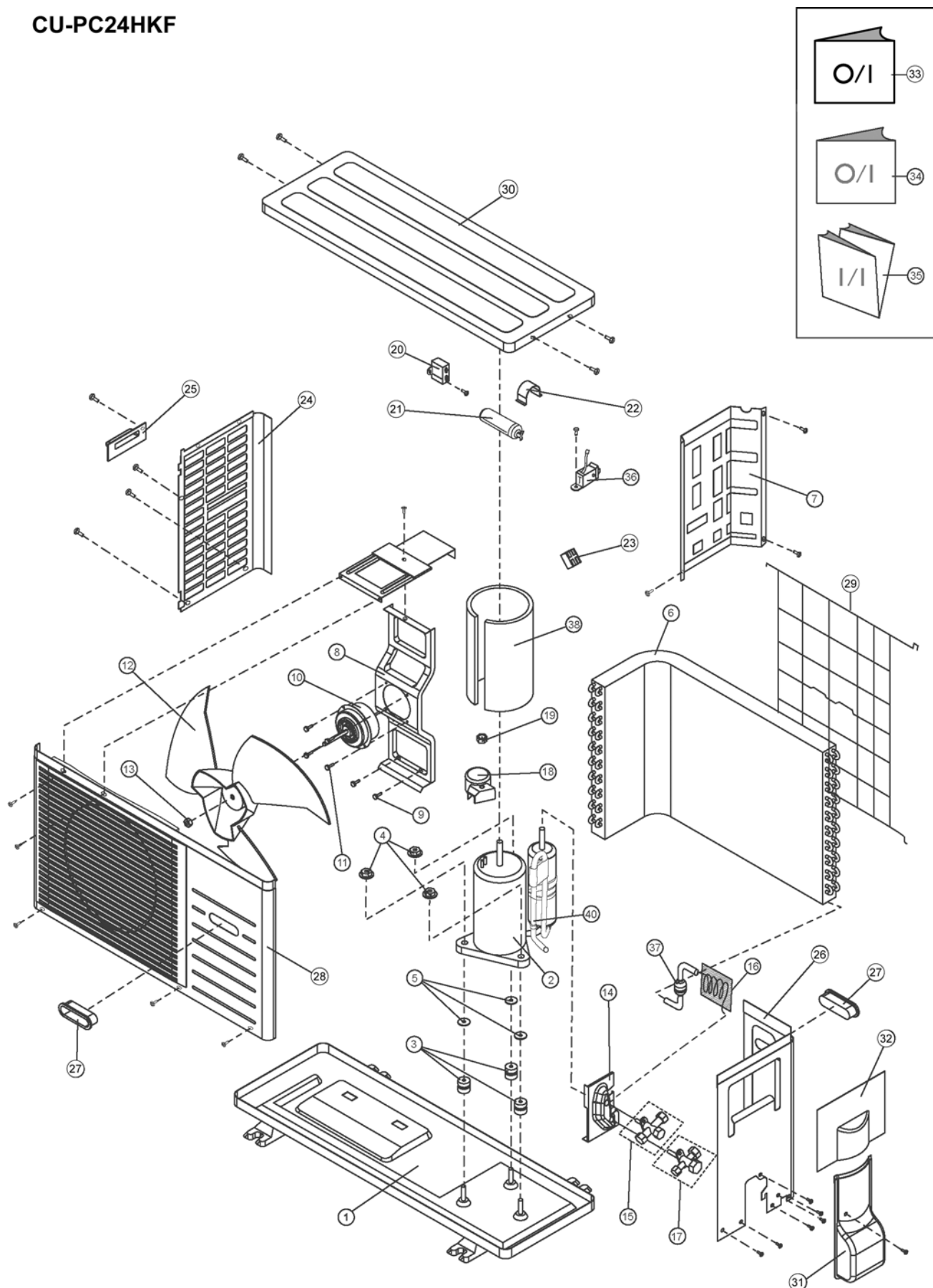
The above exploded view is for the purpose of parts disassembly and replacement.  
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY.	CU-PC18HKF	REMARKS
1	CHASSY ASS'Y	1	CWD50K2088	
2	SOUND PROOF MATERIAL	1	CWG302410	
3	FAN MOTOR BRACKET	1	CWD541030	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	
5	FAN MOTOR (AC 30W SINGLE) (AC 66W SINGLE)	1	CWA951120J	O
6	SCREW - FAN MOTOR MOUNT	4	CWH55406J	
7	PROPELLER FAN ASS'Y	1	CWH03K1006	
8	NUT - PROPELLER FAN	1	CWH56053J	
9	COMPRESSOR	1	2KS324D5EA04	O
10	ANTI - VIBRATION BUSHING	3	CWH50055	
11	NUT - COMPRESSOR MOUNT	3	CWH561049	
12	CONDENSER	1	CWB32C2424	
13	TUBE ASS'Y (CAPILLARY TUBE)	1	CWB15K1208	
14	2-WAY VALVE	1	CWB021394	
15	HOLDER COUPLING ASS'Y	1	CWH351046	
16	3-WAY VALVE (LIQUID)	1	CWB011397	O
17	3-WAY VALVE (GAS)	1	CWB011482	O
18	TERMINAL COVER	1	CWH171012	
19	NUT- TERMINAL COVER	1	CWH7080300J	
20	SOUND PROOF BOARD	1	CWH151023	
21	TERMINAL BOARD ASS'Y	1	CWA28K1033J	
22	CAPACITOR - COMPRESSOR (45µF/440V) (45µF/400V)	1	DS441456CPND	O
23	HOLDER CAPACITOR	1	CWH30071	
24	CAPACITOR - FAN MOTOR (2.0µF/440V) (5.0µF/440V)	1	DS441205NPQA	O
25	CABINET SIDE PLATE (L)	1	CWE041248A	
26	CABINET SIDE PLATE COMPLETE	1	CWE04C1120	
27	CABINET FRONT PLATE	1	CWE06K1034	
28	CABINET TOP PLATE	1	CWE031014A	
29	CONTROL BOARD COVER	1	CWH131295	
30	CONTROL BOARD COVER COMPLETE	1	CWH13C1064	
31	HANDLE	1	CWE161010	
32	OPERATION INSTRUCTIONS	1	CWF565856	
33	OPERATING INSTRUCTIONS	1	CWF565936	
34	INSTALLATION INSTRUCTIONS	1	CWF613403	
35	WIRE NET	1	CWD041111A	
36	STRAINER	1	CWB11025	
37	THERMOSTAT	1	CWA151045	
38	V-COIL COMPLETE	1	CWA43C2282	

(NOTE)

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

## CU-PC24HKF



### 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-PC24HKF	REMARKS
1	CHASSY ASS'Y	1	CWD50K2100	
2	COMPRESSOR	1	2JS438D3GA02	O
3	ANTI - VIBRATION BUSHING	3	CWH50055	
4	NUT - COMPRESSOR UNIT	3	CWH561049	
5	PACKING	3	CWB81043	
6	CONDENSER	1	CWB32C2278	
7	SOUND PROOF BOARD ASS'Y	1	CWH151056	
8	FAN MOTOR BRACKET	1	CWD541065	
9	SCREW - FAN MOTOR BRACKET	2	CWH551217	
10	FAN MOTOR	1	CWA951606	O
11	SCREW - FAN MOTOR MOUNT	3	CWH55252J	
12	PROPELLER FAN ASS'Y	1	CWH03K1017	
13	NUT - PROPELLER FAN	1	CWH561038J	
14	HOLDER COUPLING	1	CWH351036	
15	3-WAY VALVE (LIQUID)	1	CWB011161	O
16	TUBE ASS'Y (CAPILLARY TUBE)	1	CWT024668	
17	3-WAY VALVE (GAS)	1	CWB011484	O
18	TERMINAL COVER	1	CWH171012	
19	NUT- TERMINAL COVER	1	CWH7080300J	
20	CAPACITOR - F.M	1	DS441505NPQB	O
21	CAPACITOR - COMP	1	CWA312079	O
22	HOLDER CAPACITOR	1	CWH30060	
23	TERMINAL BOARD ASS'Y	1	CWA28K1064J	
24	CABINET SIDE PLATE (L)	1	CWE041082A	
25	HANDLE	1	CWE161010	
26	CABINET SIDE PLATE (R)	1	CWE04C1127	
27	HANDLE	2	CWE16000E	
28	CABINET FRONT PLATE ASS'Y	1	CWE06K1045	
29	WIRE NET COMPLETE	1	CWD041041A	
30	CABINET TOP PLATE ASS'Y	1	CWE03K1011A	
31	CONTROL BOARD COVER	1	CWH131168	
32	CONTROL BOARD COVER COMPLETE	1	CWH131169A	
33	OPERATION INSTRUCTIONS	1	CWF565856	
34	OPERATING INSTRUCTIONS	1	CWF565936	
35	INSTALLATION INSTRUCTIONS	1	CWF613403	
36	THERMOSTAT	1	CWA151040	O
37	STRAINER	1	CWB11025	
38	SOUND PROOF MATERIAL	2	CWG302230	

(NOTE)

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