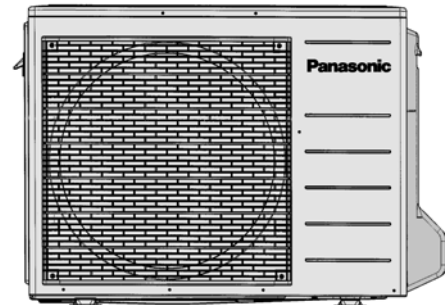
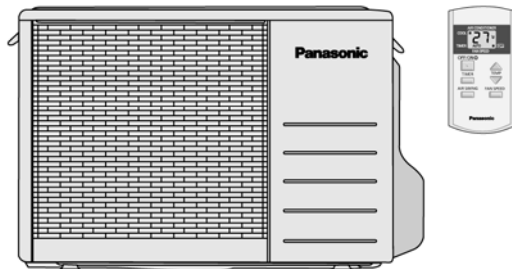


# Service Manual

## Air Conditioner



**Indoor Unit**  
**CS-YC12MKF**  
**CS-YC18MKF**  
**CS-YC24MKF**

**Outdoor Unit**  
**CU-YC12MKF**  
**CU-YC18MKF**  
**CU-YC24MKF**

### **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.
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- 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 be installed 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. Do not use joint cable for indoor / outdoor connection cable. Use specified indoor / outdoor connection cable, refer to Installation Instructions CONNECT THE CABLE TO THE INDOOR UNIT and connect tightly for indoor / outdoor connection. 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 install or relocate air conditioner, do not let any substance other than the specified refrigerant, eg. air etc. mix into refrigerant cycle (piping). (Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.).	
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 electrical 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 use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.	
17. 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.	
18. During pump down operation, stop the compressor before remove the refrigeration piping. (Removal of compressor while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.).	

**WARNING**

- |   |  |
|---|--|
| 19. During installation, install the refrigerant piping properly before run the compressor. (Operation of compressor without fixing refrigeration piping and valves at opened condition will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.). |  |
| 20. After completion of installation or service, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.   |  |
| 21. Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the 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.<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.<br>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.<br>ii. Power supply connection to a circuit breaker for the permanent connection.<br>Use an approved 16A (1.5~2.0 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.<br>If you are required to handle sharp parts during installation or servicing, please wear hand glove.<br>Sharp parts may cause injury.  |  |



## 2. Specification

Model			Indoor	CS-YC12MKF	
			Outdoor	CU-YC12MKF	
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	5.9	5.7
	Input Power		W	1.25k	1.29k
	EER		W/W	2.82	2.74
			Btu/hW	9.60	9.38
	Power Factor		%	96	94
	Indoor Noise (H / L)		dB-A	41 / 30	41 / 30
			Power Level dB	-	-
	Outdoor Noise (H / L)		dB-A	51 / -	52 / -
			Power Level dB	-	-
Max Current (A) / Max Input Power (W)			8.1 / 1.75k		
Starting Current (A)			30.0		
Compressor		Type	Hermetic Motor		
		Motor Type	Induction (2 poles)		
		Output Power	W	1.0k	
Indoor Fan	Type		Cross-Flow Fan		
	Material		ASG30K1		
	Motor Type		Transistor (8 poles)		
	Input Power		W	46.6 - 49.5	
	Output Power		W	24	
	Speed	Lo	rpm	810	
		Me	rpm	940	
Hi		rpm	1120		
Outdoor Fan	Type		Propeller Fan		
	Material		PP		
	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	m³/min (ft³/min)	6.90 (244)	
		Me	m³/min (ft³/min)	8.40 (297)	
		Hi	m³/min (ft³/min)	10.60 (374)	
Outdoor Airflow		Hi	m³/min (ft³/min)	33.2 (1172) - 34.2 (1207)	
Refrigeration Cycle		Control Device	Capillary tube		
		Refrigerant Oil	cm³	ATMOS M60 or SUNISO 4GDID (430)	
		Refrigerant Type	g (oz)	R22, 870 (30.7)	
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)	200 (7-7/8)	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		Pre Coat
		Fin Type		Slit Fin
		Row x Stage x FPI		2 x 15 x 21
		Size (W x H x L)	mm	610 x 315 x 25.4
Outdoor Heat Exchanger		Fin Material		Blue Coated
		Fin Type		Corrugated Fin
		Row x Stage x FPI		1 x 20 x 17
		Size (W x H x L)	mm	22 x 508 x 708.4
Air Filter		Material		Polypropylene
		Type		One-touch
Power Supply			Indoor	
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	52	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. Specifications are subjected to change without prior notice for further improvement.

Model			Indoor	CS-YC18MKF	
			Outdoor	CU-YC18MKF	
Performance Test Condition				AHAM	
Power Supply			Phase, Hz	Single, 50	
			V	220	240
Cooling	Capacity		kW	5.28	5.28
			BTU/h	18000	18000
			kJ/h	19010	19010
	Running Current		A	9.9	10.1
	Input Power		W	2.03k	2.09k
	EER		W/W	2.60	2.53
			Btu/hW	8.87	8.61
	Power Factor		%	93	86
	Indoor Noise (H / L)		dB-A	46 / 41	46 / 41
			Power Level dB	-	-
	Outdoor Noise (H / L)		dB-A	56 / -	58 / -
			Power Level dB	-	-
Max Current (A) / Max Input Power (W)			12.6 / 2.80k		
Starting Current (A)			44.0		
Compressor		Type	Hermetic Motor		
		Motor Type	Induction (2 poles)		
		Output Power	1.5k		
Indoor Fan	Type		Cross-Flow Fan		
	Material		ASG30K1		
	Motor Type		Transistor (8 poles)		
	Input Power		W		
	Output Power		W		
	Speed	Lo	rpm	1120	
		Me	rpm	1200	
		Hi	rpm	1280	
Outdoor Fan	Type		Propeller Fan		
	Material		PP		
	Motor Type		Induction (6 poles)		
	Input Power		W		
	Output Power		W		
	Speed	Hi	rpm	875 - 905	
Moisture Removal			L/h (Pt/h)		
Indoor Airflow		Lo	m³/min (ft³/min)		
		Me	m³/min (ft³/min)		
		Hi	m³/min (ft³/min)		
Outdoor Airflow		Hi	m³/min (ft³/min)		
Refrigeration Cycle		Control Device	Capillary tube		
		Refrigerant Oil	cm³		
		Refrigerant Type	g (oz)		
Dimension		Height(I/D / O/D)	mm (inch)		
		Width (I/D / O/D)	mm (inch)		
		Depth (I/D / O/D)	mm (inch)		
Weight		Net (I/D / O/D)	kg (lb)		

Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 12.70 (1/2)	
	Standard length	m (ft)	5.0 (16.4)	
	Length range (min – max)	m (ft)	3 ~ 15 (9.8 ~ 49.2)	
	I/D & O/D Height different	m (ft)	10 (32.8)	
	Additional Gas Amount	g/m (oz/ft)	20 (0.2)	
	Length for Additional Gas	m (ft)	7.5 (24.6)	
Drain Hose		Inner Diameter	mm	16
		Length	mm	550
Indoor Heat Exchanger		Fin Material		Pre Coat
		Fin Type		Slit Fin
		Row x Stage x FPI		2 x 15 x 21
		Size (W x H x L)	mm	810 x 315 x 25.4
Outdoor Heat Exchanger		Fin Material		Blue Coated
		Fin Type		Slit Fin
		Row x Stage x FPI		2 x 24 x 17
		Size (W x H x L)	mm	25.4 x 504 x 713.4:693.4
Air Filter		Material		Polypropylene
		Type		One-touch
Power Supply			Indoor	
Power Supply Cord		A	16	
Thermostat			-	
Protection Device			-	
			Dry Bulb	Wet Bulb
Indoor Operation Range		Maximum	32	23
		Minimum	16	11
Outdoor Operation Range		Maximum	52	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. Specifications are subjected to change without prior notice for further improvement.

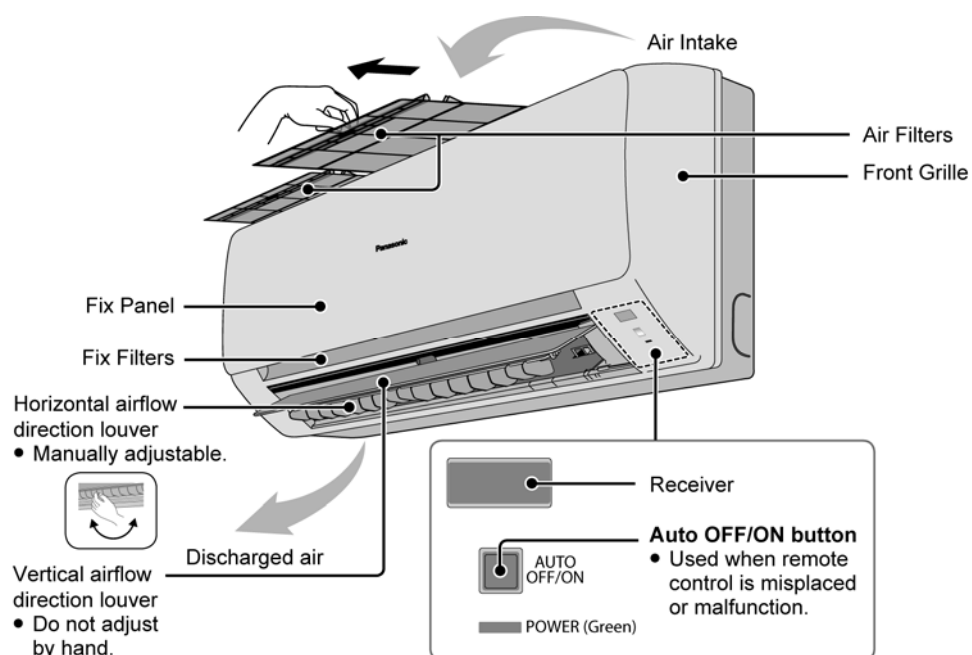
Model			Indoor	CS-YC24MKF	
			Outdoor	CU-YC24MKF	
Performance Test Condition				AHAM	
Power Supply			Phase, Hz	Single, 50	
			V	220	240
Cooling	Capacity		kW	7.03	7.03
			BTU/h	24000	24000
			kJ/h	25310	25310
	Running Current		A	12.5	12.4
	Input Power		W	2.61k	2.74k
	EER		W/W	2.69	2.57
			Btu/hW	9.20	8.76
	Power Factor		%	95	92
	Indoor Noise (H / L)		dB-A	50 / 42	50 / 42
			Power Level dB		
	Outdoor Noise (H / L)		dB-A	61 /	63 /
			Power Level dB		
Max Current (A) / Max Input Power (W)				17.1 / 3.67k	
Starting Current (A)				60.0	
Compressor		Type		Hermetic Motor	
		Motor Type		Induction (2 poles)	
		Output Power	W	2.0k	
Indoor Fan	Type			Cross-Flow Fan	
	Material			ASG30K1	
	Motor Type			Transistor (8 poles)	
	Input Power		W	94.8 - 94.8	
	Output Power		W	40	
	Speed	Lo	rpm	1150	
		Me	rpm	1240	
		Hi	rpm	1390	
Outdoor Fan	Type			Propeller Fan	
	Material			PP	
	Motor Type			Induction (6 poles)	
	Input Power		W	157.3 - 173.8	
	Output Power		W	88	
	Speed	Lo	rpm	440 - 500	
		Hi	rpm	860 - 890	
Moisture Removal			L/h (Pt/h)	4.0 (8.5)	
Indoor Airflow		Lo	m³/min (ft³/min)	14.50 (512)	
		Me	m³/min (ft³/min)	15.80 (558)	
		Hi	m³/min (ft³/min)	18.00 (635)	
Outdoor Airflow		Hi	m³/min (ft³/min)	55.0 (1940) - 57.0 (2010)	
Refrigeration Cycle		Control Device		Capillary tube	
		Refrigerant Oil	cm³	ATMOS M60 or SUNISO 4GDID (700)	
		Refrigerant Type	g (oz)	R22, 1.40k (49.4)	
Dimension		Height(I/D / O/D)	mm (inch)	290 (11-7/16)	695 (27-3/8)
		Width (I/D / O/D)	mm (inch)	1070 (42-5/32)	875 (34-15/32)
		Depth (I/D / O/D)	mm (inch)	220 (8-11/16)	320 (12-5/8)
Weight		Net (I/D / O/D)	kg (lb)	12 (26)	56 (123)

Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 15.88 (5/8)	
	Standard length	m (ft)	5.0 (16.4)	
	Length range (min – max)	m (ft)	3 ~ 15 (9.8 ~ 49.2)	
	I/D & O/D Height different	m (ft)	10 (32.8)	
	Additional Gas Amount	g/m (oz/ft)	30 (0.3)	
	Length for Additional Gas	m (ft)	7.5 (24.6)	
Drain Hose		Inner Diameter	mm	16
		Length	mm	550
Indoor Heat Exchanger		Fin Material		Pre Coat
		Fin Type		Slit Fin
		Row x Stage x FPI		2 x 15 x 21
		Size (W x H x L)	mm	810 x 315 x 25.4
Outdoor Heat Exchanger		Fin Material		Blue Coated
		Fin Type		Slit Fin
		Row x Stage x FPI		2 x 22 x 17
		Size (W x H x L)	mm	25.4 x 651 x 866.6:846.6
Air Filter		Material		Polypropylene
		Type		One-touch
Power Supply			Indoor	
Power Supply Cord		A	20	
Thermostat			Mechanical	
Protection Device			-	
			Dry Bulb	Wet Bulb
Indoor Operation Range		Maximum	32	23
		Minimum	16	11
Outdoor Operation Range		Maximum	52	31
		Minimum	16	11

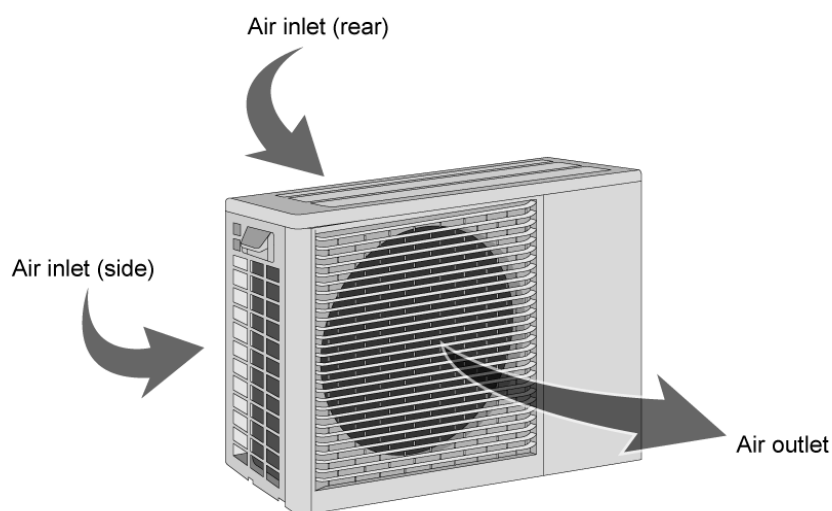
1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Specifications are subjected to change without prior notice for further improvement.

## 3. Location of Controls and Components

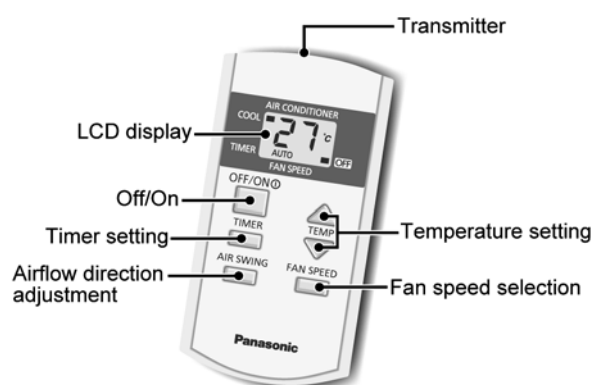
### 3.1 Indoor Unit



### 3.2 Outdoor Unit



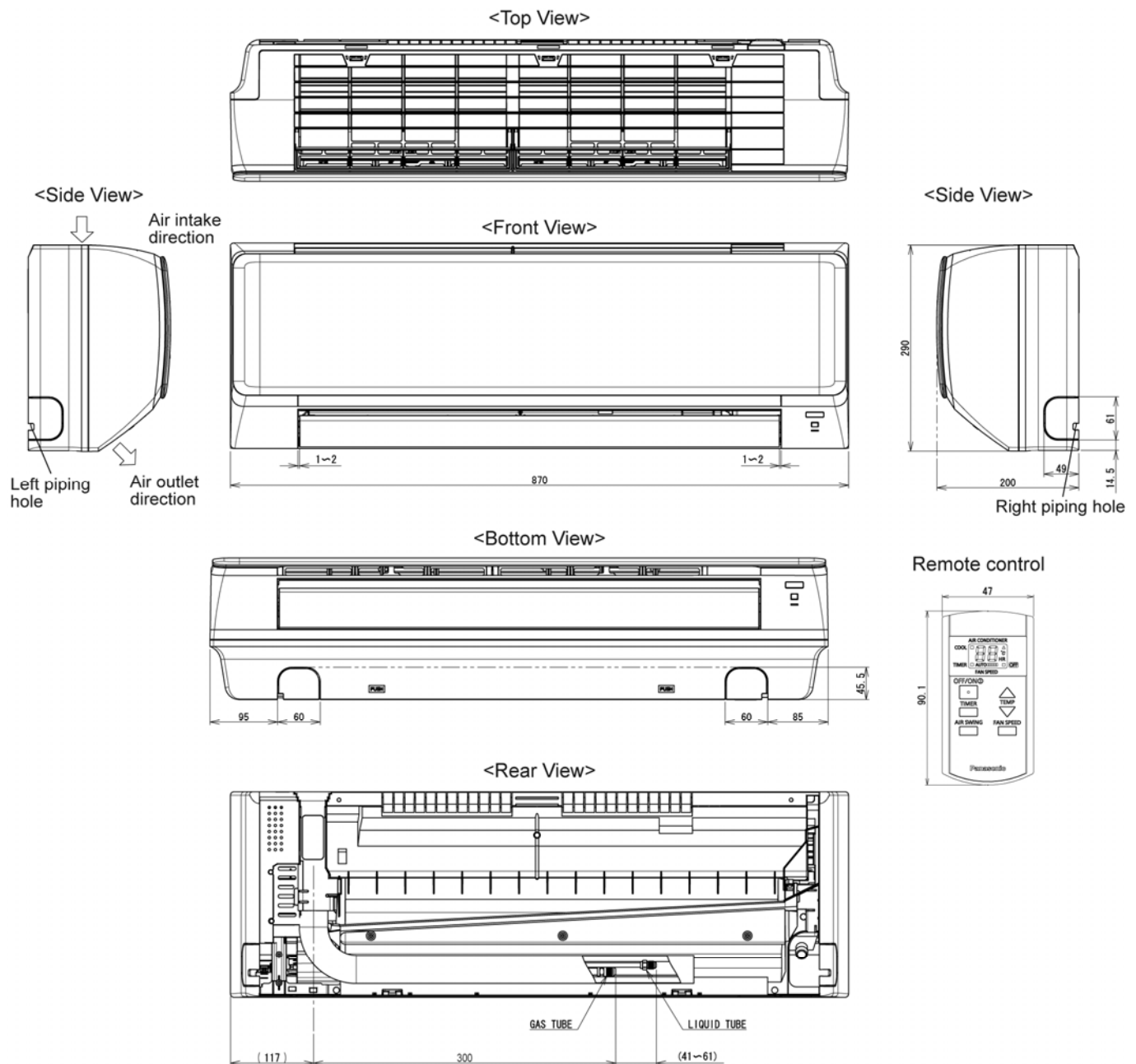
### 3.3 Remote Control



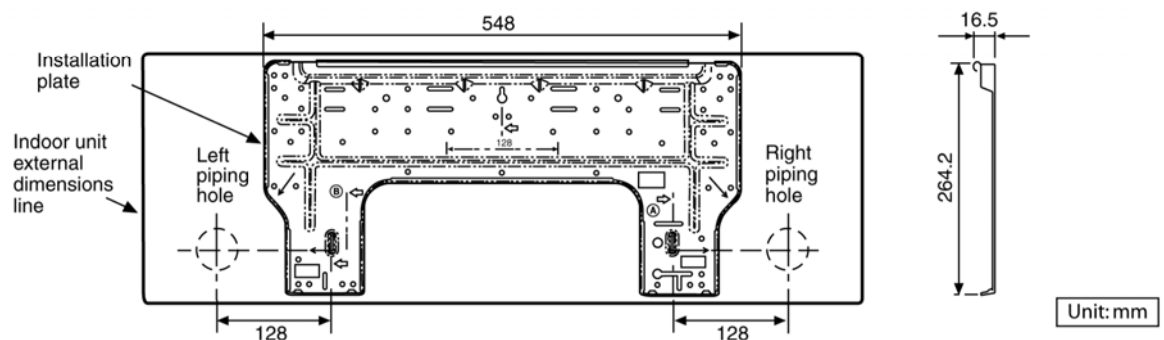
## 4. Dimensions

### 4.1 Indoor Unit & Remote Control

#### 4.1.1 CS-YC12MK

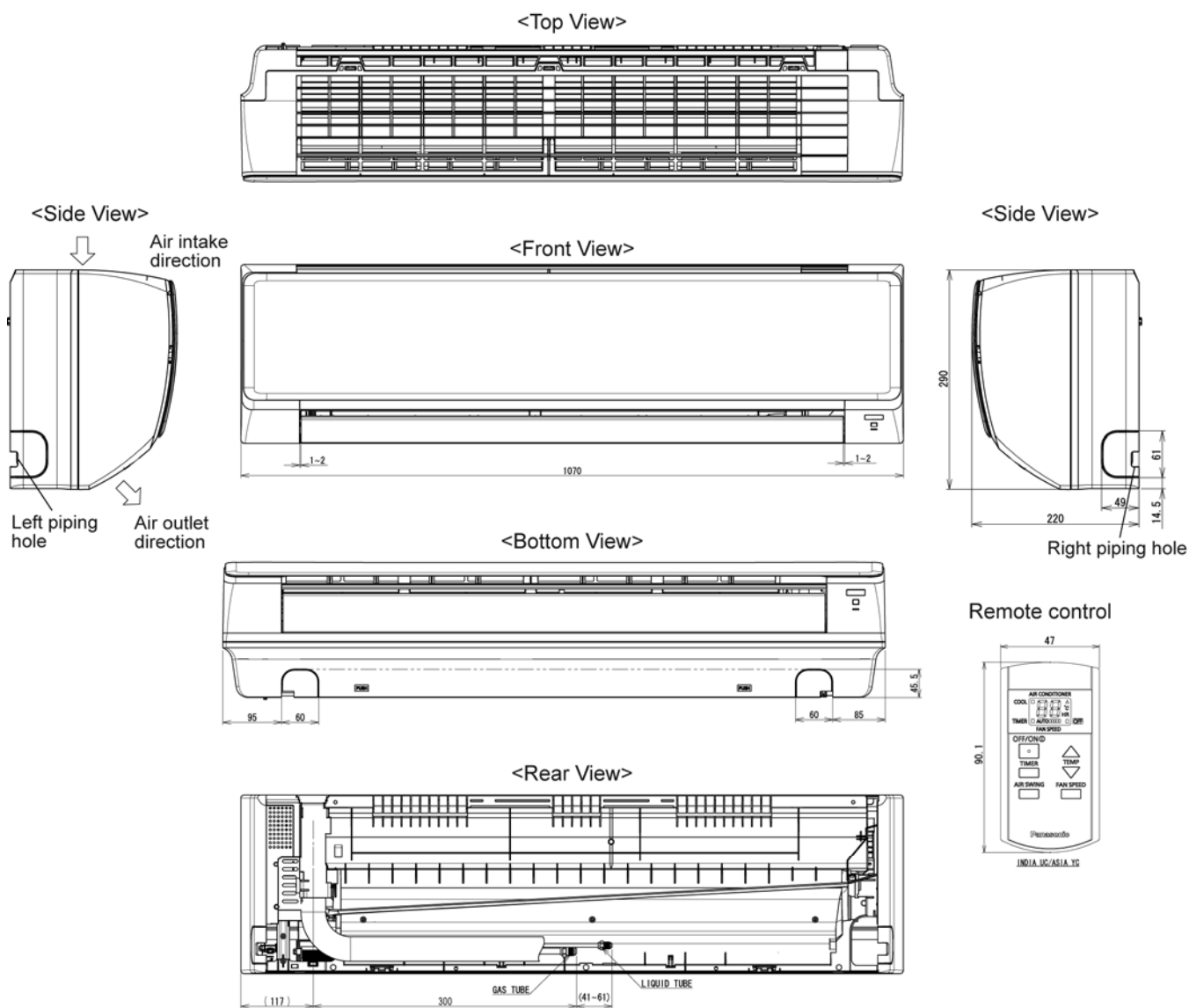


Relative position between the indoor unit and the installation plate <Front View>

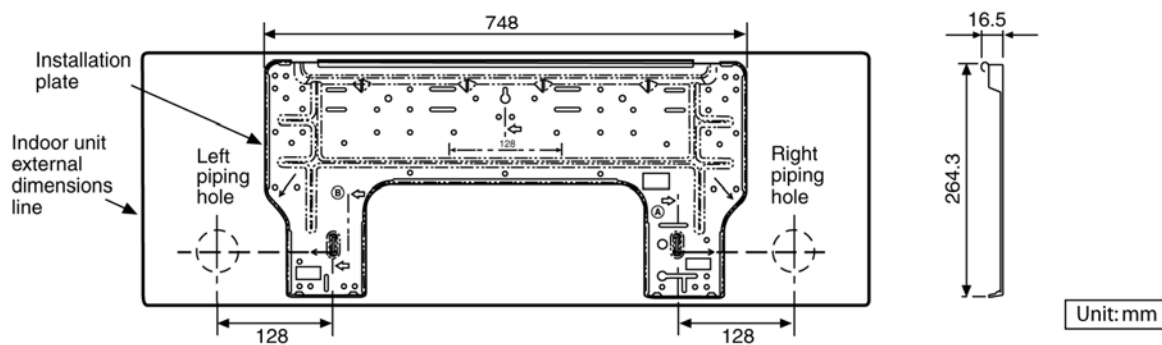




## 4.1.2 CS-YC18MK CS-YC24MK

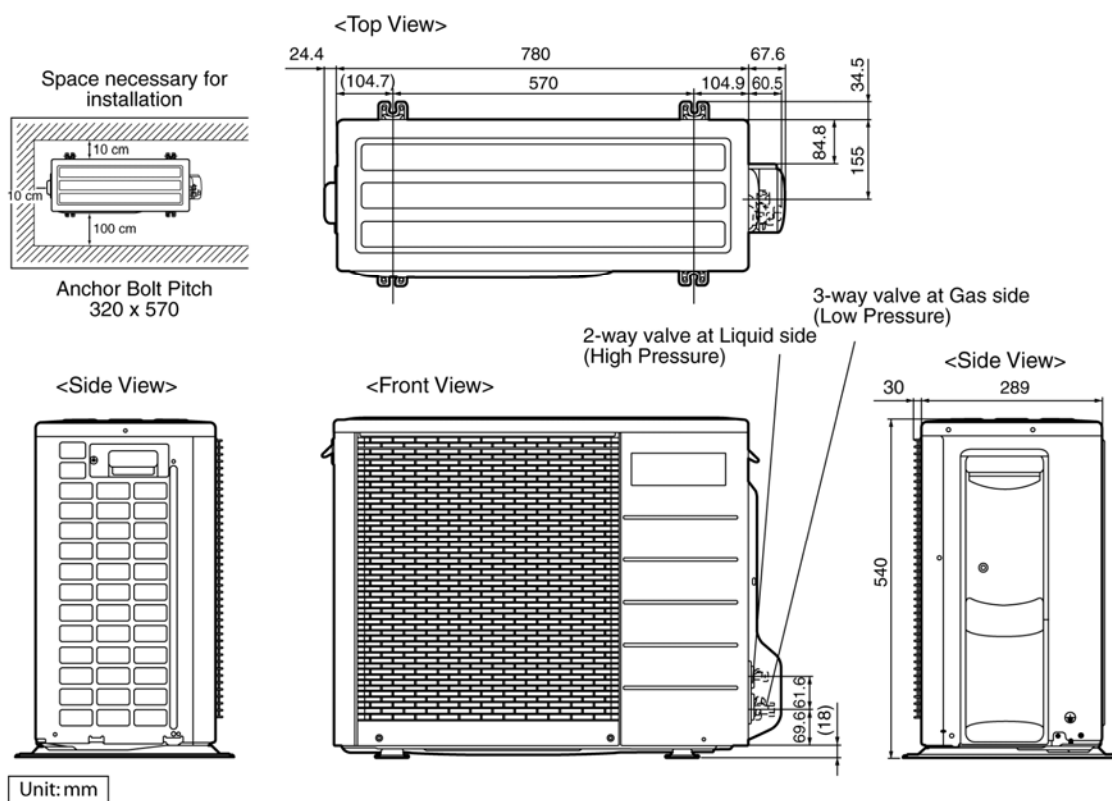


Relative position between the indoor unit and the installation plate <Front View>

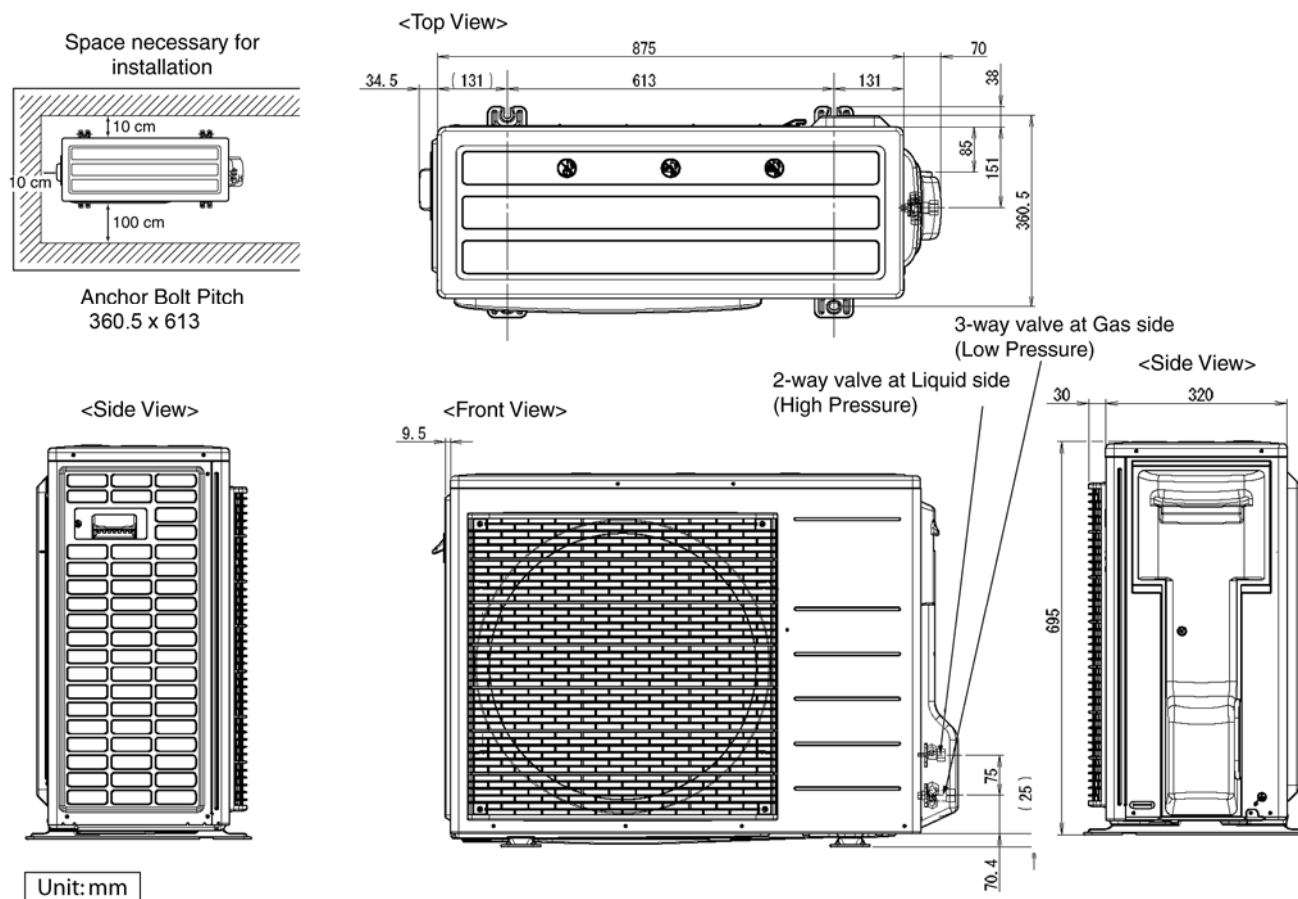


## 4.2 Outdoor Unit

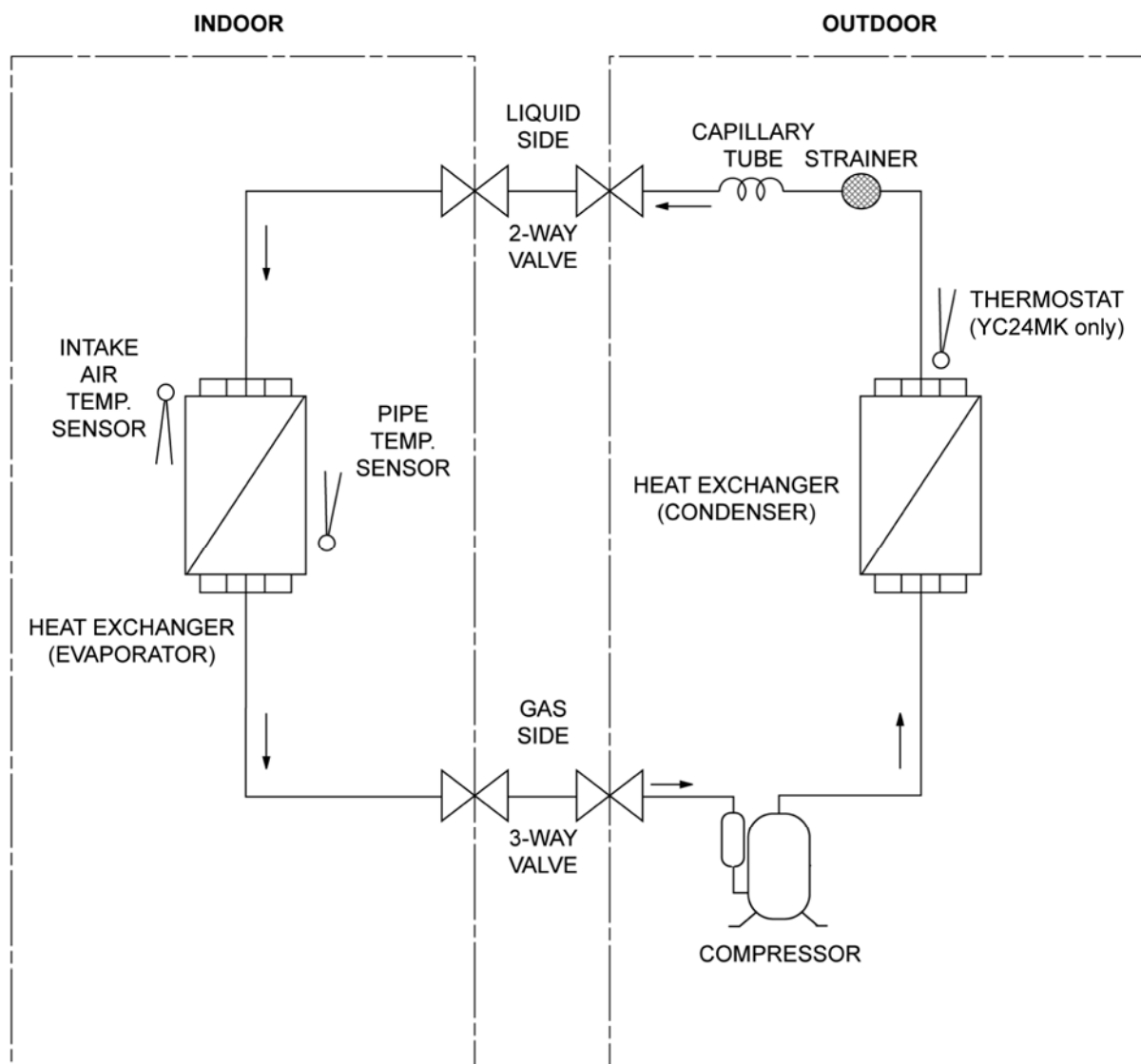
### 4.2.1 CU-YC12MK CU-YC18MK



### 4.2.2 CU-YC24MK

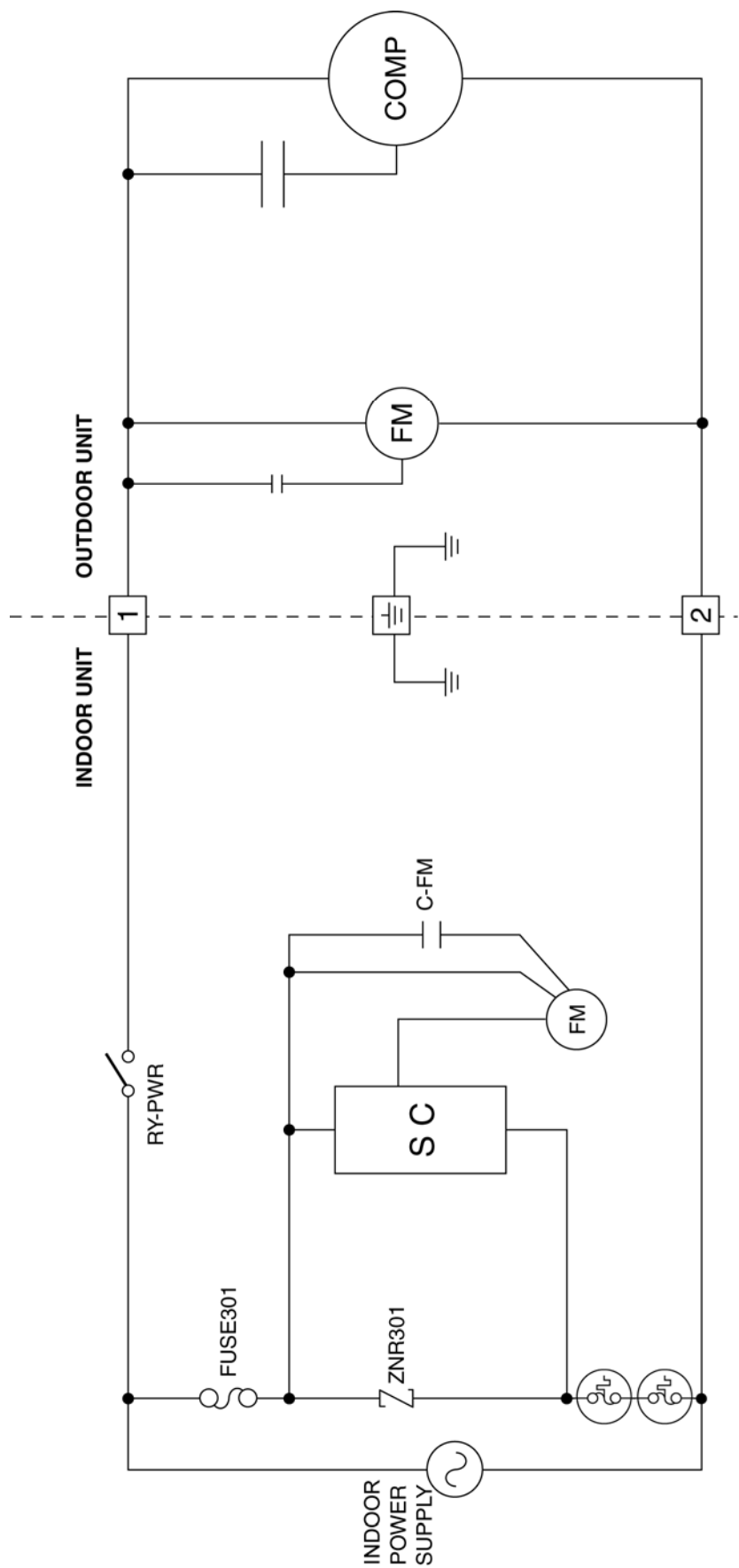


## 5. Refrigeration Cycle Diagram

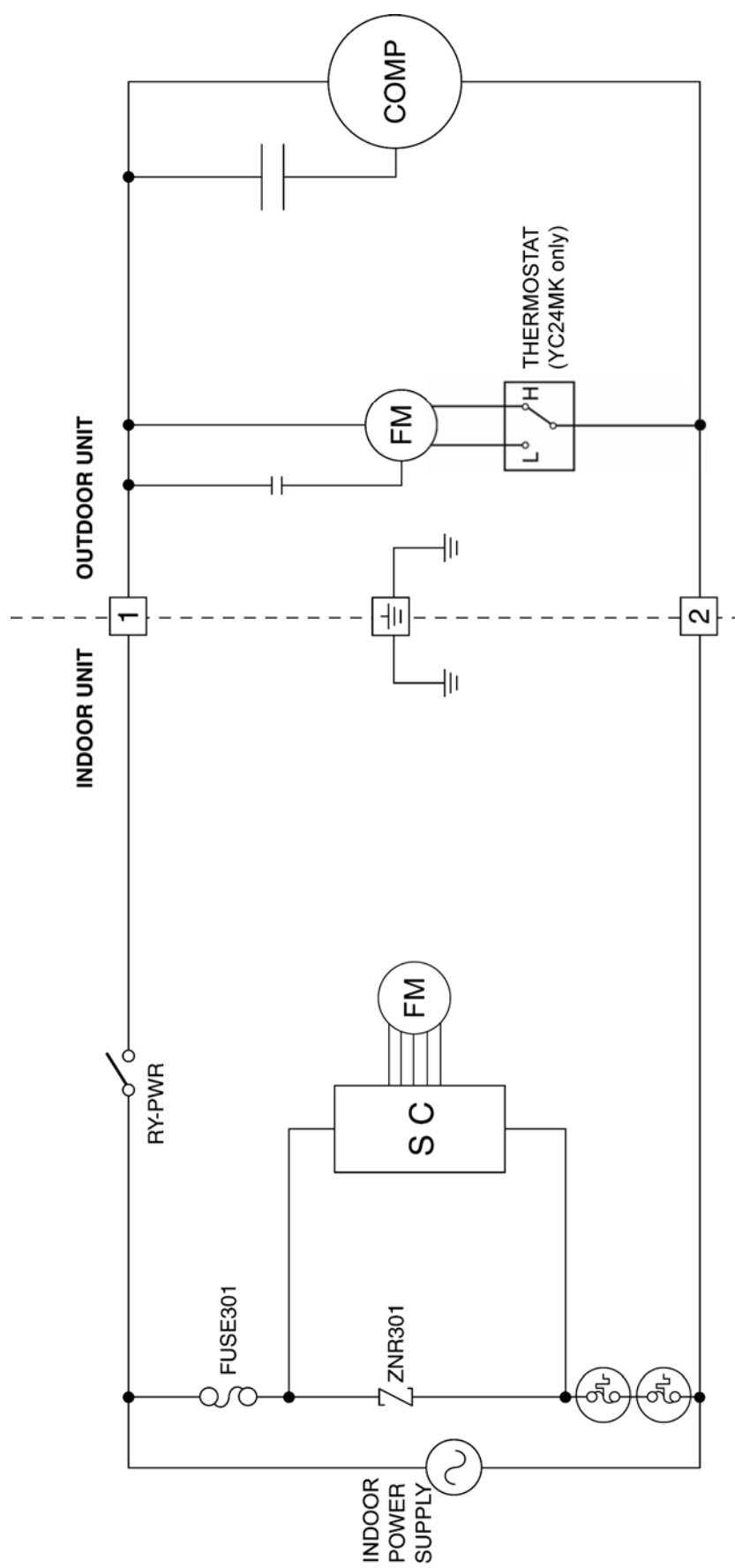


6. Block Diagram

6.1 CS-YC12MK

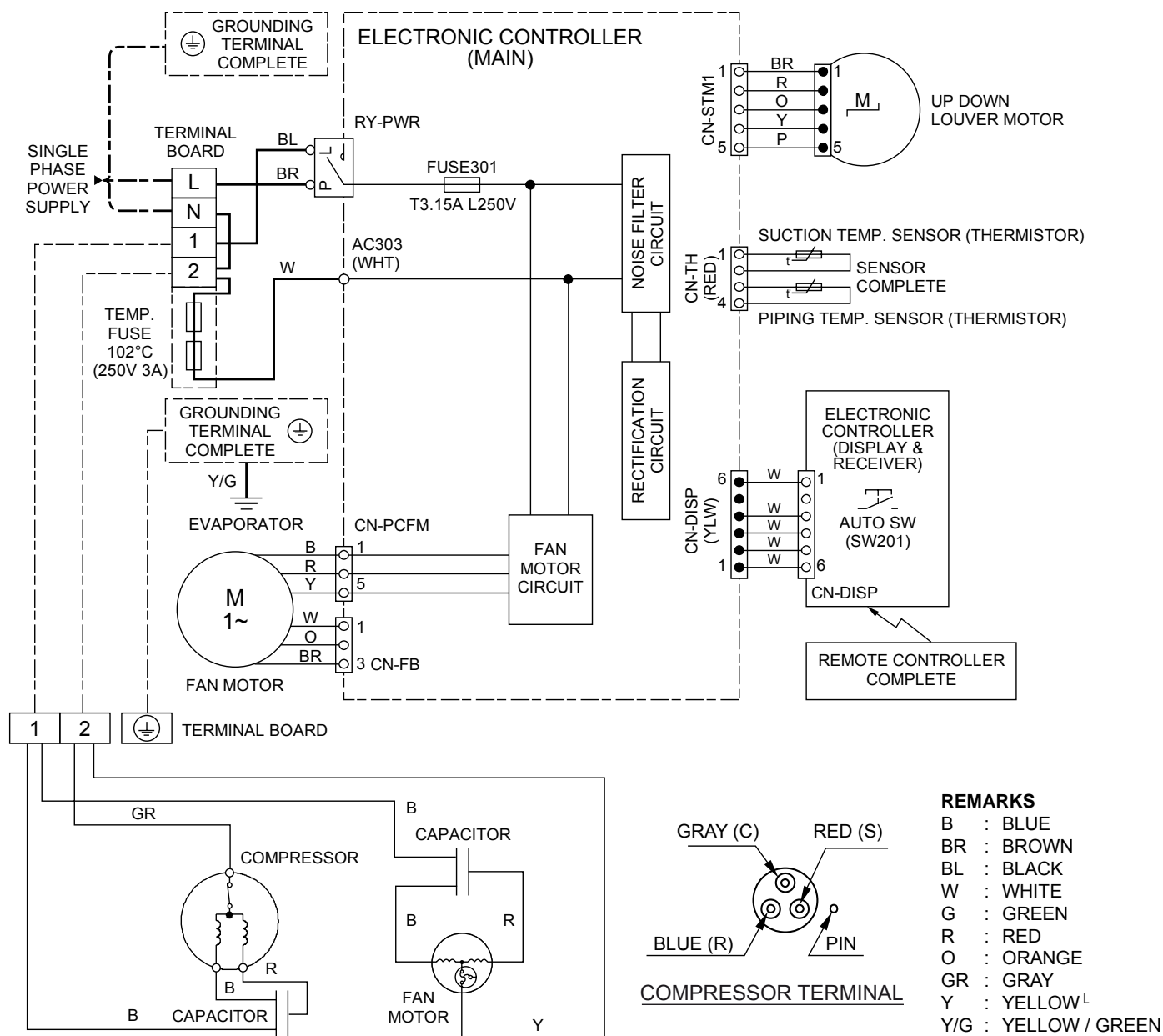


6.2 CS-YC18MK CS-YC24MK



## 7. Wiring Connection Diagram

### 7.1 CS-YC12MK CU-YC12MK



#### Resistance of Indoor Fan Motor Windings

MODEL	CS-YC12MK
CONNECTION	CWA921447
BLUE-YELLOW	336 Ω
YELLOW-RED	306 Ω

Note: Resistance at 25°C of ambient temperature.

#### Resistance of Compressor Windings

MODEL	CU-YC12MK
CONNECTION	2KS210D5AA06
C - R	2.279 Ω
C - S	3.526 Ω

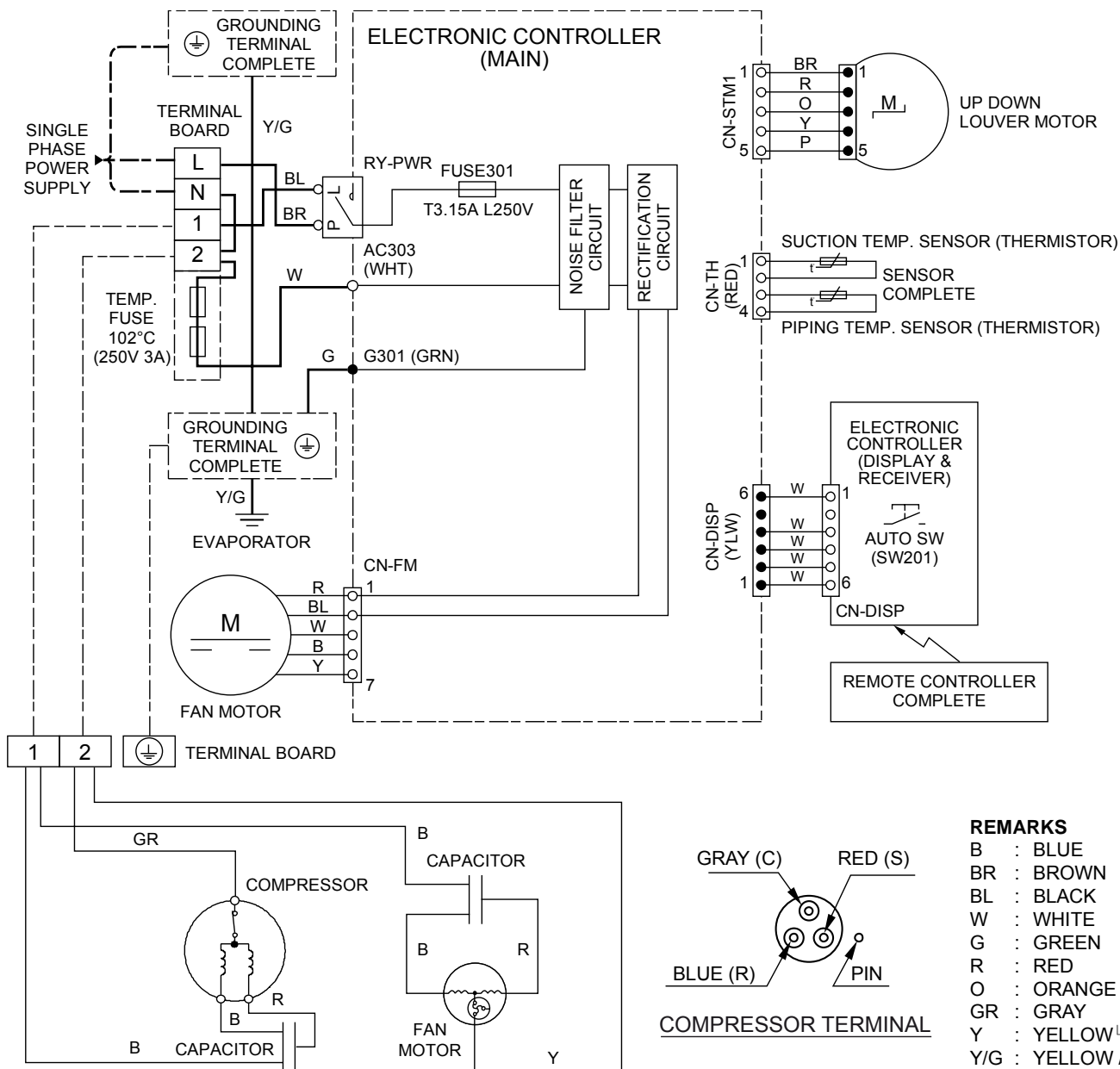
Note: Resistance at 20°C of ambient temperature.

#### Resistance of Outdoor Fan Motor Windings

MODEL	CU-YC12MK
CONNECTION	CWA951676
BLUE-YELLOW	198 Ω
YELLOW-RED	293 Ω

Note: Resistance at 20°C of ambient temperature.

## 7.2 CS-YC18MK CU-YC18MK



## Resistance of Outdoor Fan Motor Windings

MODEL	CU-YC18MK
CONNECTION	CWA951676
BLUE-YELLOW	198 Ω
YELLOW-RED	293 Ω

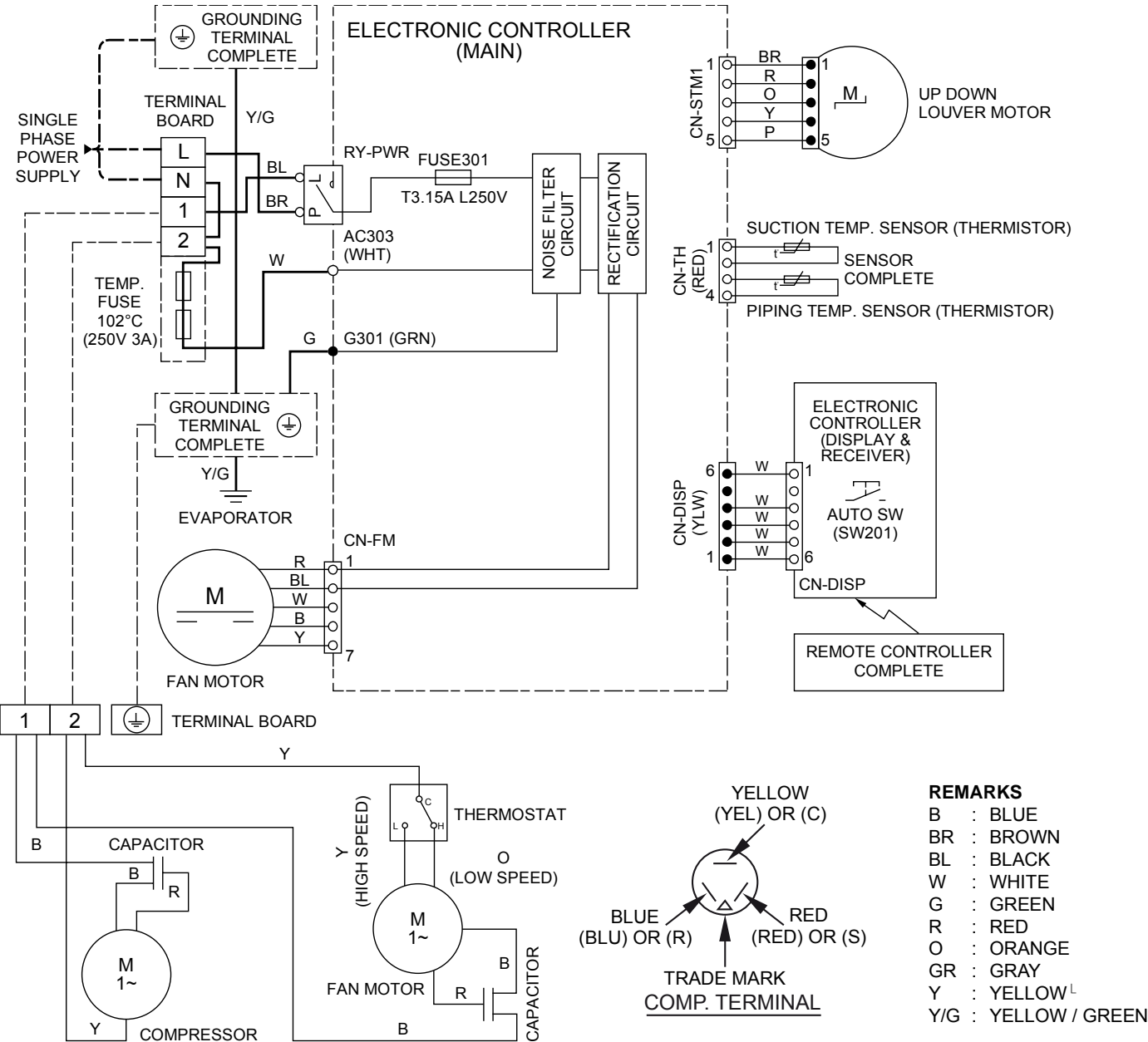
Note: Resistance at 20°C of ambient temperature.

## Resistance of Compressor Windings

MODEL	CU-YC18MK
CONNECTION	2KS324D5AB06
C - R	1.642 Ω
C - S	4.316 Ω

Note: Resistance at 20°C of ambient temperature.

7.3
CS-YC24MK
CU-YC24MK



Resistance of Outdoor Fan Motor Windings

MODEL	CU-YC24MK
CONNECTION	CWA951689
BLUE-YELLOW	64 Ω
YELLOW-RED	55 Ω
YELLOW-ORANGE	90 Ω

Note: Resistance at 20°C of ambient temperature.

Resistance of Compressor Windings

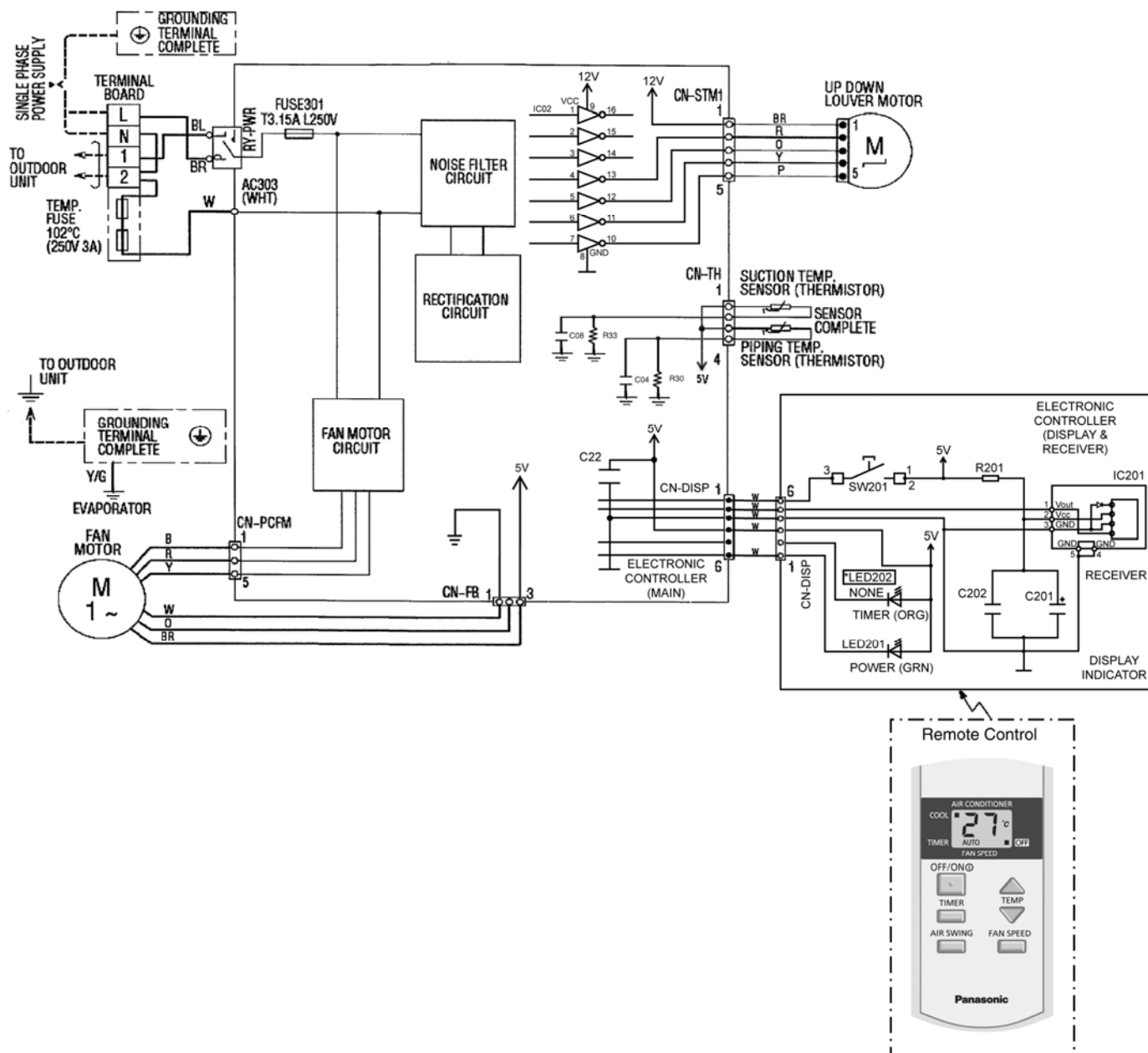
MODEL	CU-YC24MK
CONNECTION	2JS438D3CB04
C – R	1.121 Ω
C - S	2.535 Ω

Note: Resistance at 20°C of ambient temperature.

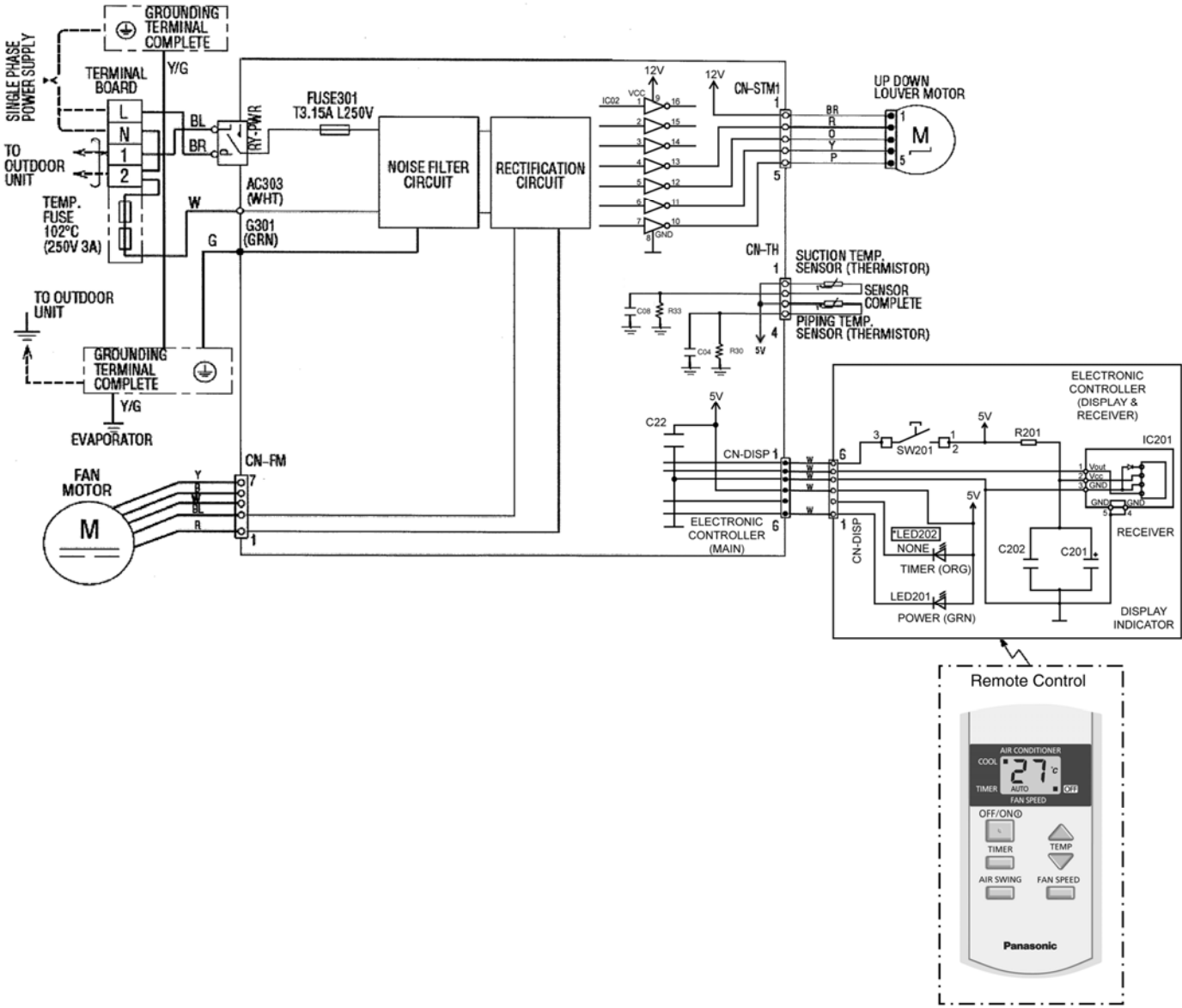


## 8. Electronic Circuit Diagram

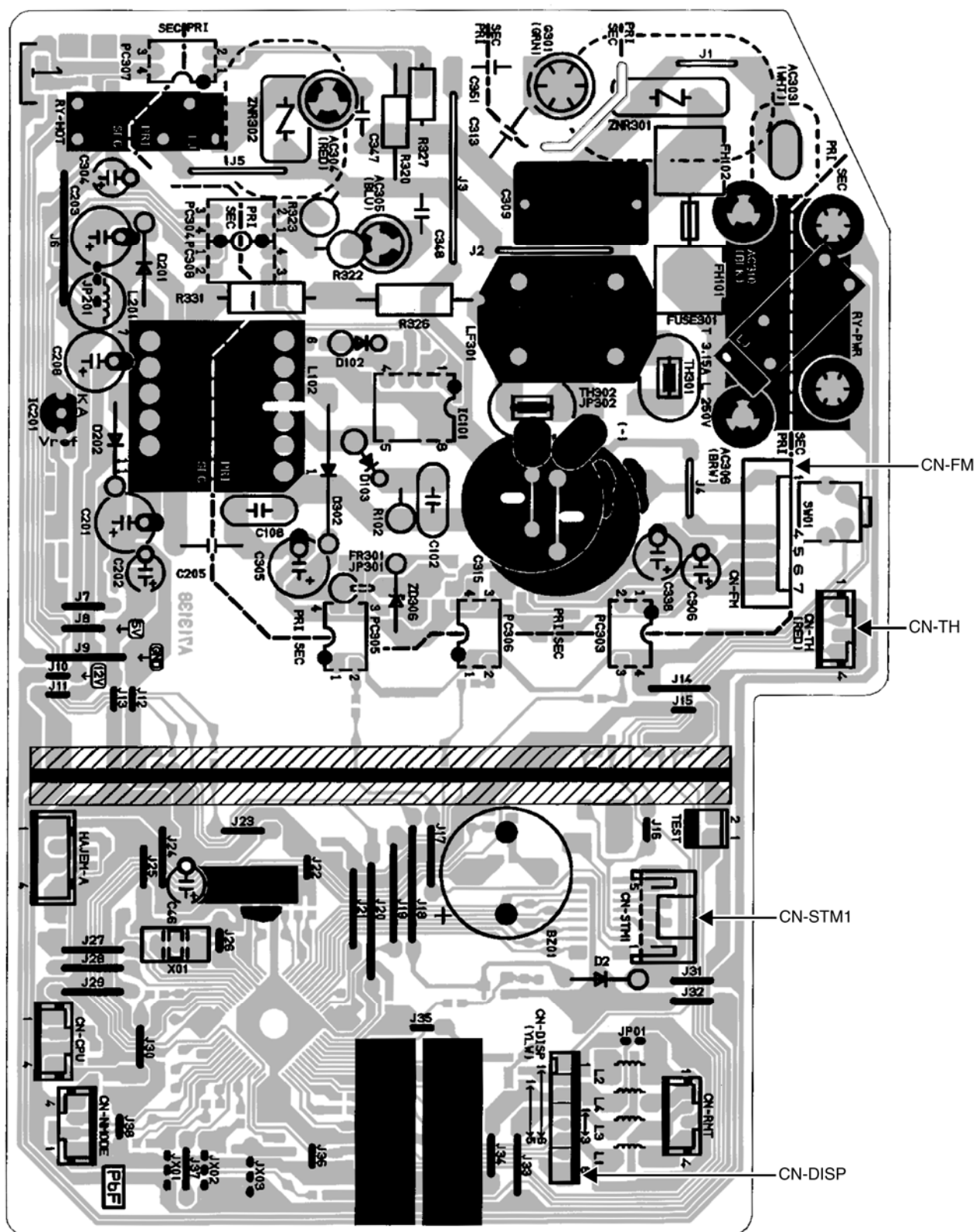
### 8.1 CS-YC12MK



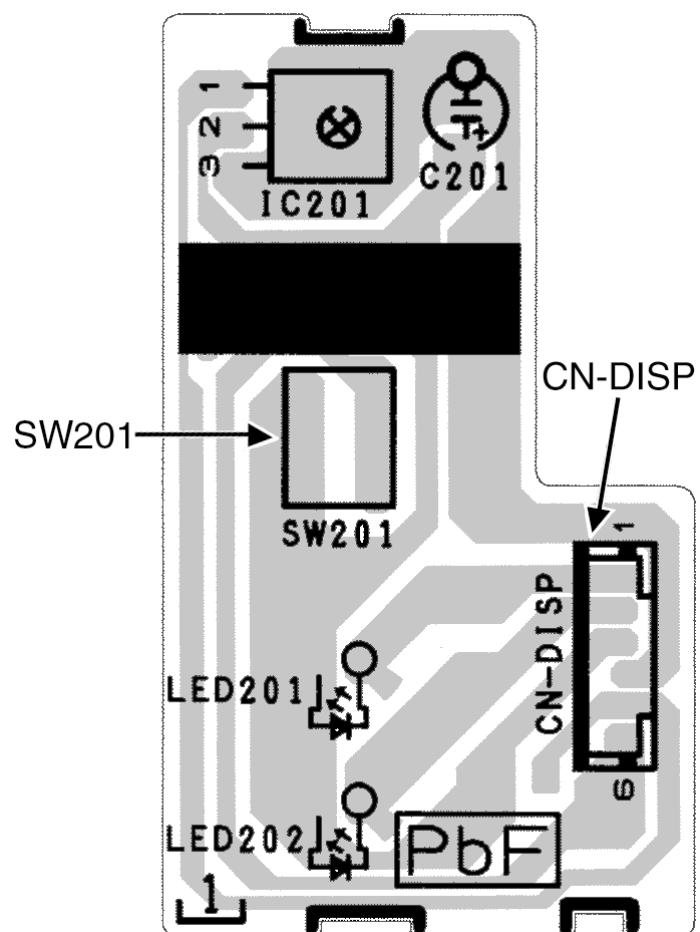
8.2 CS-YC18MK CS-YC24MK







### 9.1.2 Indicator Printed Circuit Board



# 10. Installation Instruction

## 10.1 Select the Best Location

### 10.1.1 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.

### 10.1.2 Outdoor Unit

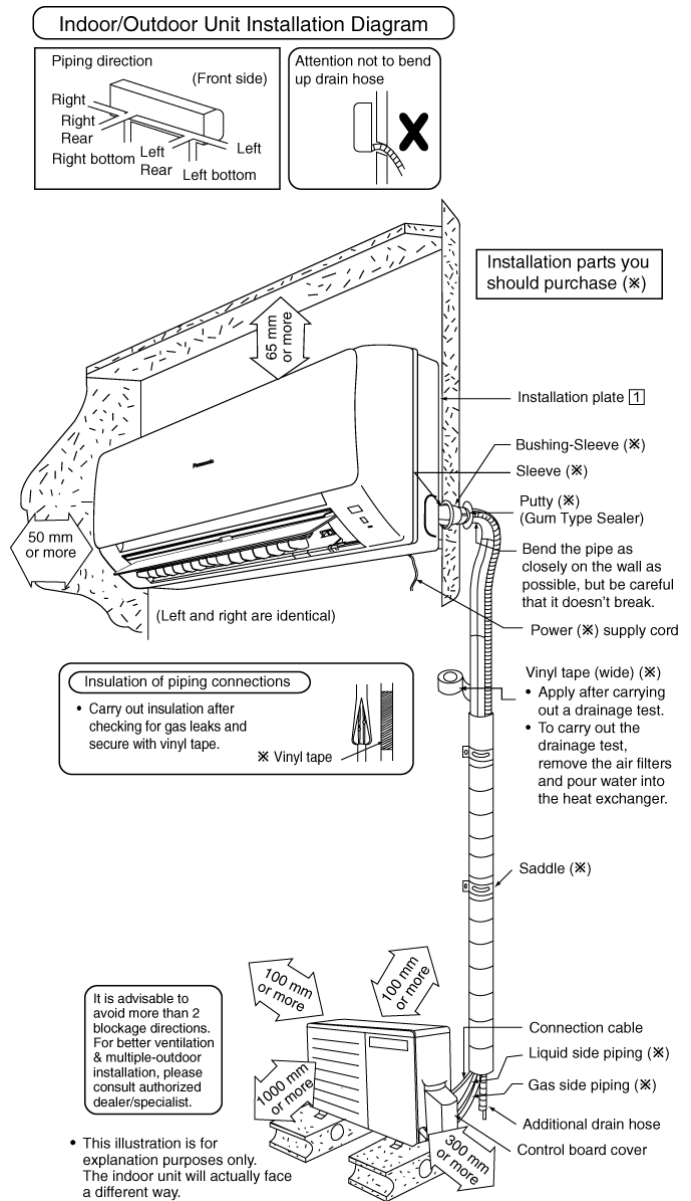
- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other 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						
YC12***	1.5HP	12.7 mm (1/2")	6.35 mm (1/4")	7.5	5	3	15	10	7.5
YC18***	2.0HP	15.88 mm (5/8")		10	3	15	20	7.5	
YC24***	2.5HP			10	3	15	30	7.5	

Example: For YC18\*\*\*

If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 50 g .... (10-7.5) m x 20 g/m = 50 g.

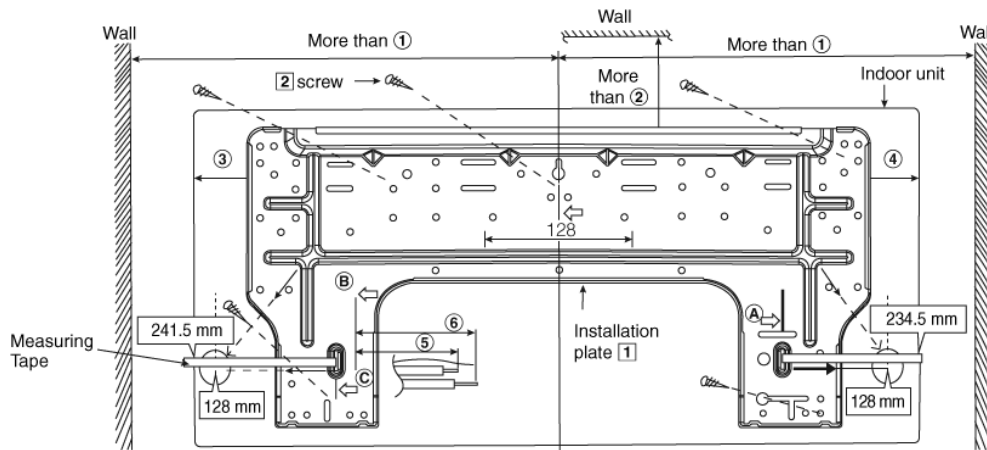
### 10.1.3 Indoor/Outdoor Unit Installation Diagram



## 10.2 Indoor Unit

### 10.2.1 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
YC12***	485 mm	82 mm	165 mm	158 mm	43 mm	95 mm
YC18*** YC24***	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 side is ④.

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

⑥ : 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 centre 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 10.2.2)

### 10.2.2 To Drill a Hole in the Wall and Install a Sleeve of Piping

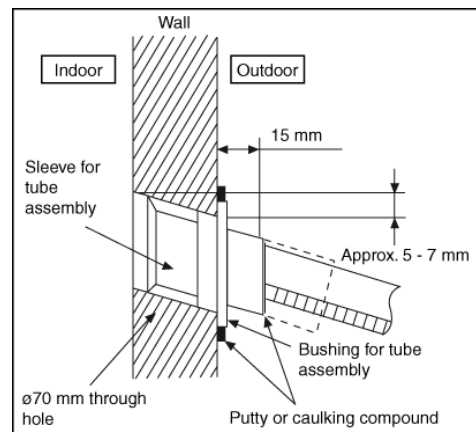
- Insert the piping sleeve to the hole.
- Fix the bushing to the sleeve.
- Cut the sleeve until it extrudes about 15 mm from the wall.



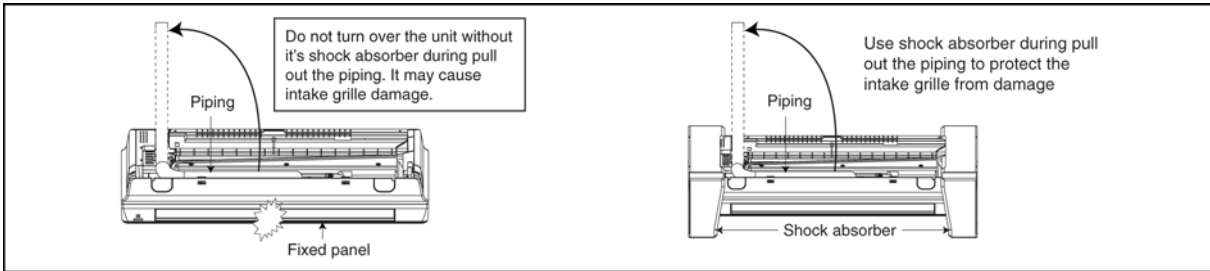
#### CAUTION

- ❗ 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.



## 10.2.3 Indoor Unit Installation



### 10.2.3.1 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
- Remove front grille and metal cover.
  - Insert the cables from bottom of the unit through the control board hole until terminal board area.

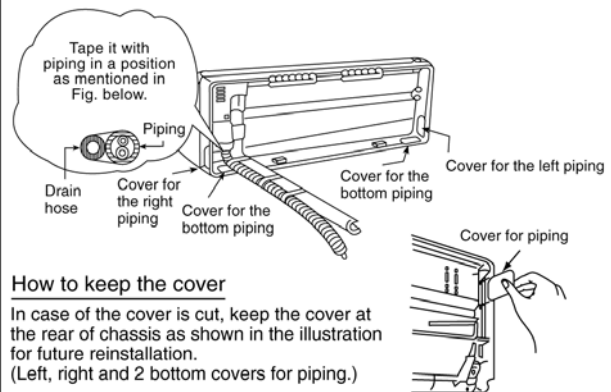
### 10.2.3.2 For the right and right bottom piping

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

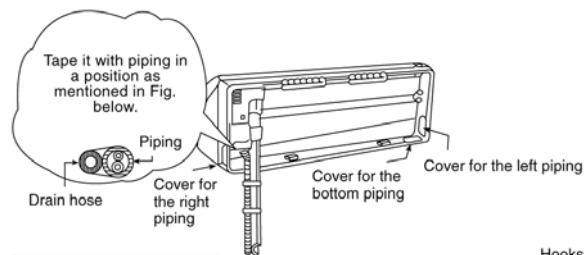
### 10.2.3.3 For the embedded piping

- 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
- Remove front grille and metal cover.
  - Insert the cables from bottom of the unit through the control board hole until terminal board area.
- Step-4** Cut and flare the embedded piping
- When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.
  - Refer to the section "Cutting and flaring the piping".
- Step-5** Install the Indoor Unit
- Step-6** Connect the piping
- Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)
- 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

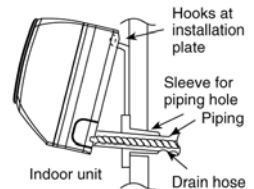


#### Right and Right Bottom piping



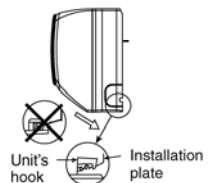
#### Install the indoor unit

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.

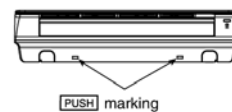
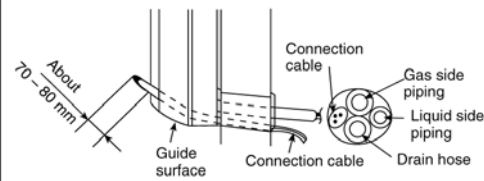


#### Secure the Indoor Unit

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



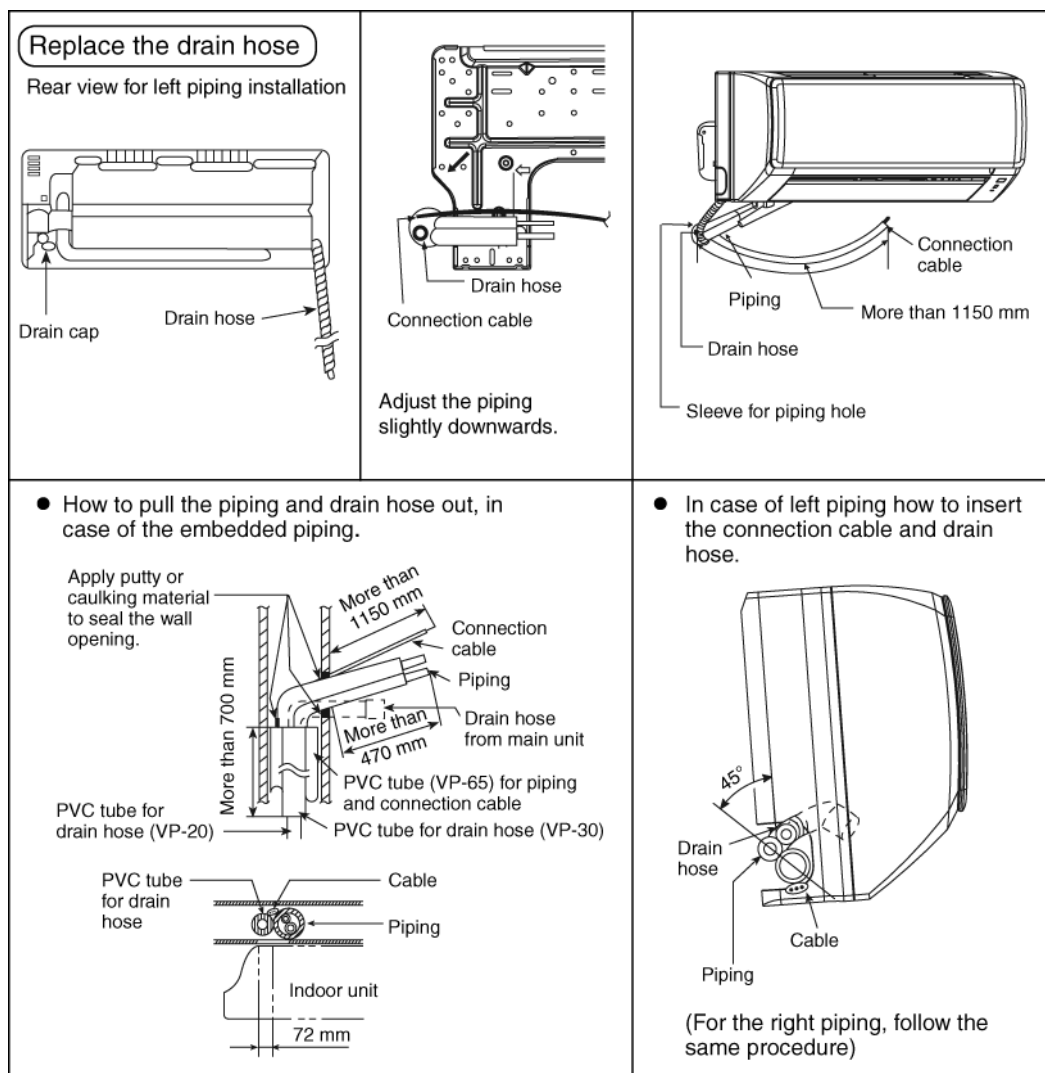
#### Insert the connection cable



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.

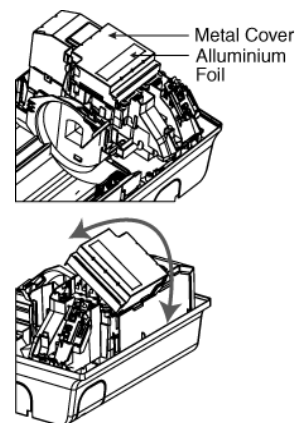
(This can be used for left rear piping and bottom piping also.)



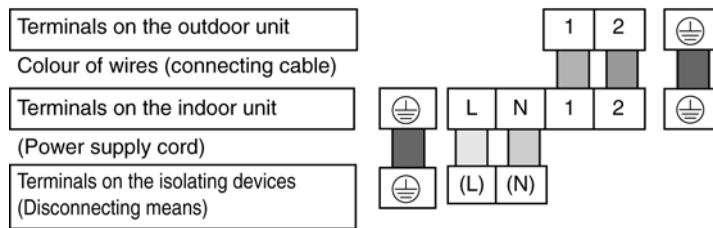


## 10.2.4 Connect the Cable to the Indoor Unit

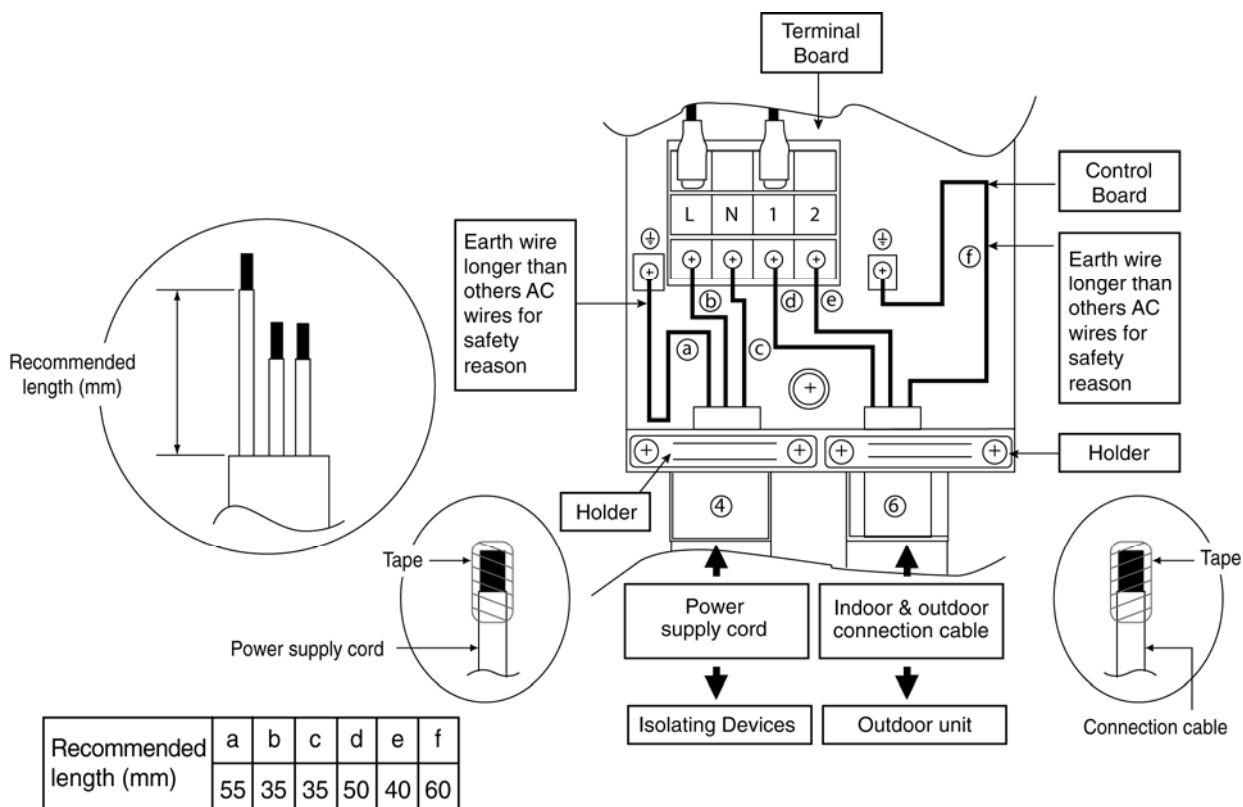
- 1 Install the indoor unit on the installing holder that mounted on the wall.
- 2 Remove front grille by loosening the screw.
- 3 Remove metal cover without damaging aluminium foil.
- 4 Cable connection to the power supply through Isolating Devices (Disconnecting means).
  - Connect the approved polychloroprene sheathed **power supply cord** 3 x 1.5 mm<sup>2</sup> (1.5HP) or 3 x 2.5 mm<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.
- 5 Bind all the power supply cord lead wire with tape and route the power supply cord via the left escapement.
- 6 **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.
- 7 Bind all the indoor and outdoor connection cable with tape and route the connection cable via the right escapement.



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



- 9 Secure the power supply cord and connection cable onto the control board with the holder.
- 10 Fix back metal cover to original position without damaging alluminium foil. Ensure metal cover is fitted at both end.



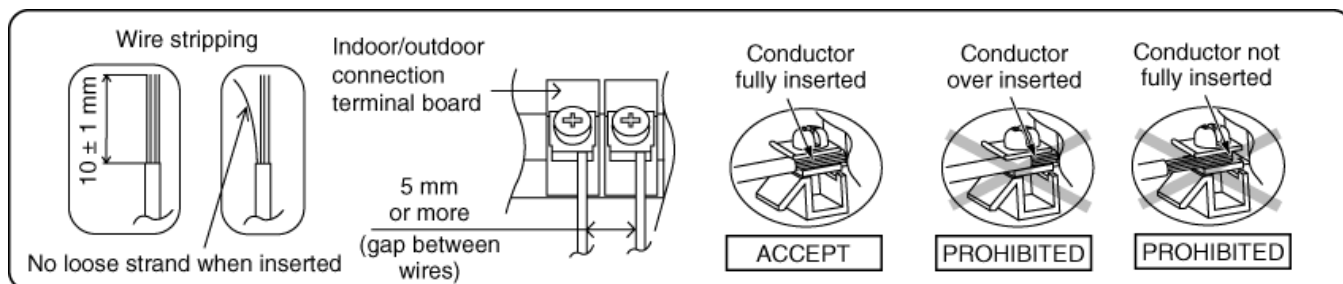
#### ⚠ WARNING

⚡ This equipment must be properly earthed.

Note:

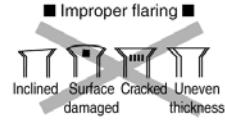
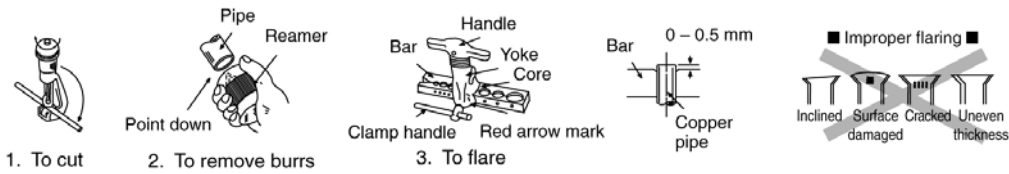
- Isolating Devices (Disconnecting means) should have minimum 3.0mm contact gap.
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than the other AC wires as shown in the figure for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

### 10.2.5 Wire Stripping and Connecting Requirement



### 10.2.5.1 **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 are 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.

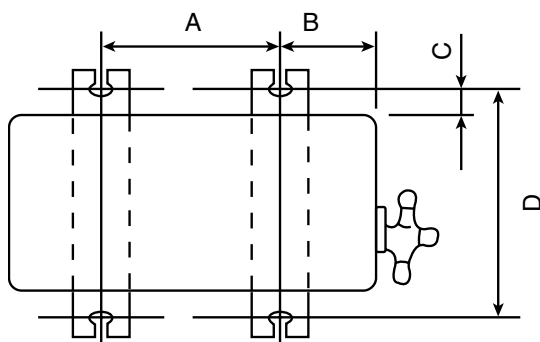


■ Improper flaring ■  
When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connections, carefully check the flare finish.

## 10.3 Outdoor Unit

### 10.3.1 Install the Outdoor Unit

- After selecting the best location, start installation according to Indoor/Outdoor Unit Installation Diagram.
  - Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut ( $\varnothing 10\text{mm}$ ).
  - 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
YC12***, YC18***	570 mm	105 mm	18.5 mm	320 mm
YC24***	613 mm	131 mm	16 mm	360.5 mm

### 10.3.2 Connect the Piping

#### 10.3.2.1 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

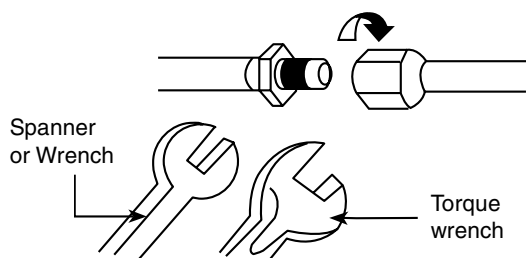
- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

#### 10.3.2.2 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.

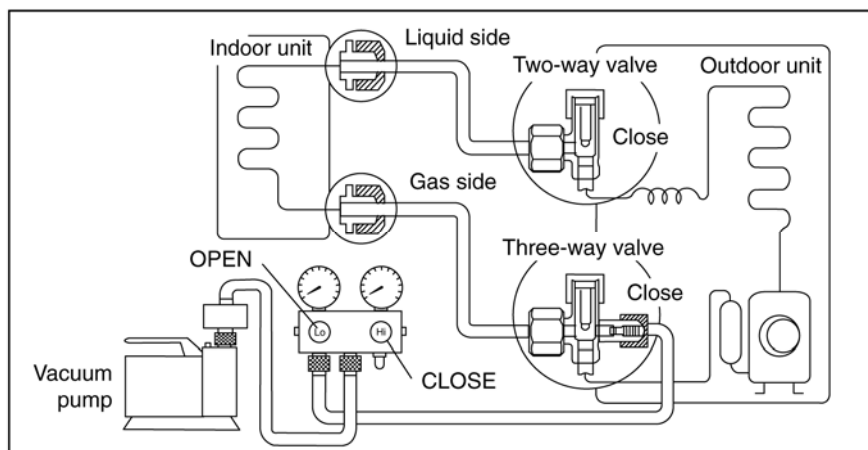


Do not overtighten, overtightening may cause gas leakage

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)]

### 10.3.3 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.



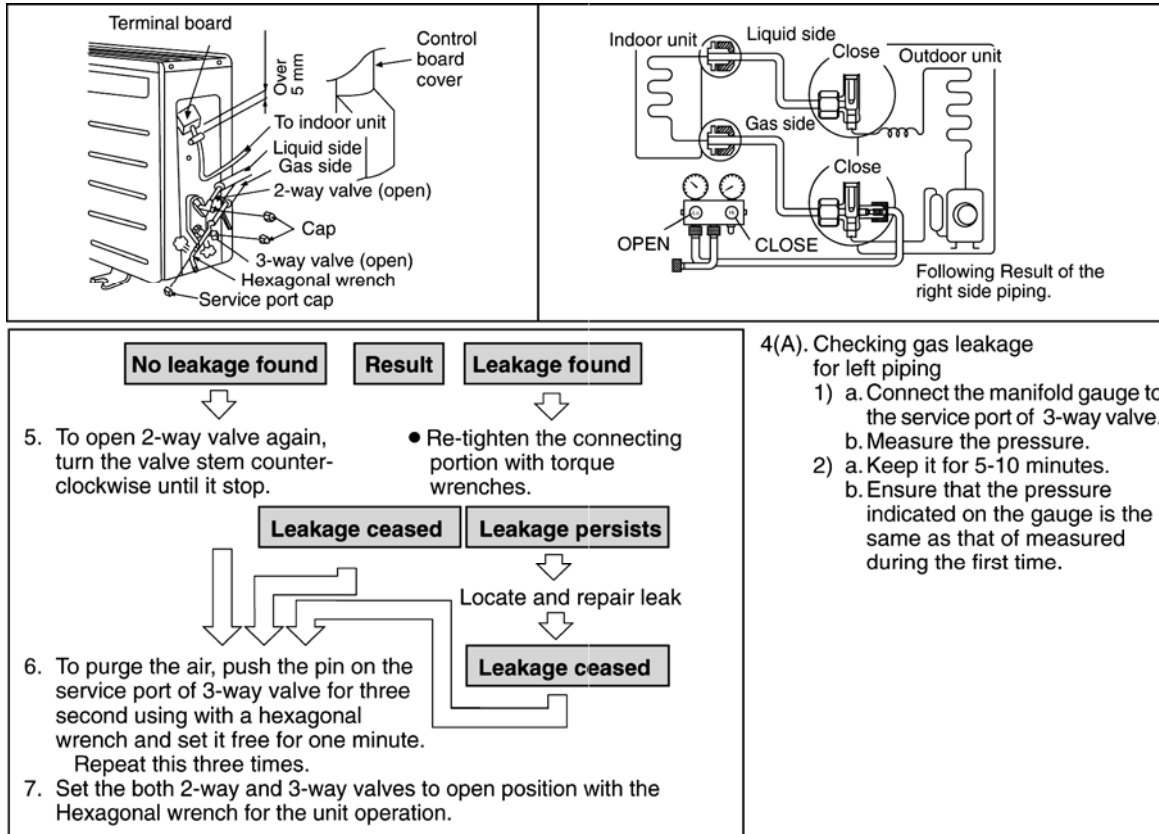
- 1 Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
    - Be sure to connect the end of the charging hose with the push pin to the service port.
  - 2 Connect the center hose of the charging set to a vacuum pump.
  - 3 Turn on the power 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 REFRIGERENT 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.

### 10.3.4 Air Purging of the Piping and Indoor

The remaining air in the Refrigerant 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 piping, refer to 4 (A).

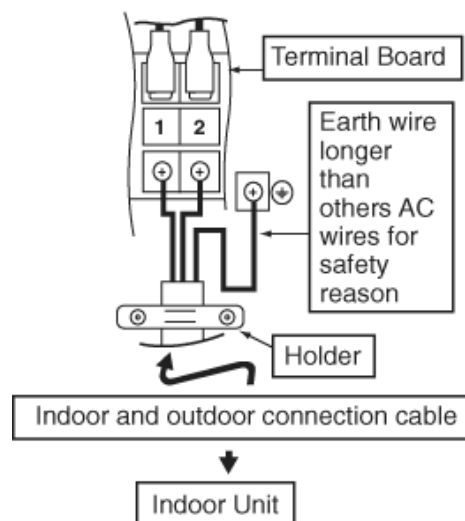


### 10.3.5 Connect the cable to the Outdoor Unit

- 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 x 1.5mm<sup>2</sup> (1.5HP) or 3 x 2.5mm<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.
- 5 For wire stripping and connection requirement, refer to instruction ⑤ of the indoor unit.

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 .
- 4 Attach the control board cover back to the original position with the screw.



#### ⚠ WARNING

⚠ This equipment must be properly earthed.

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

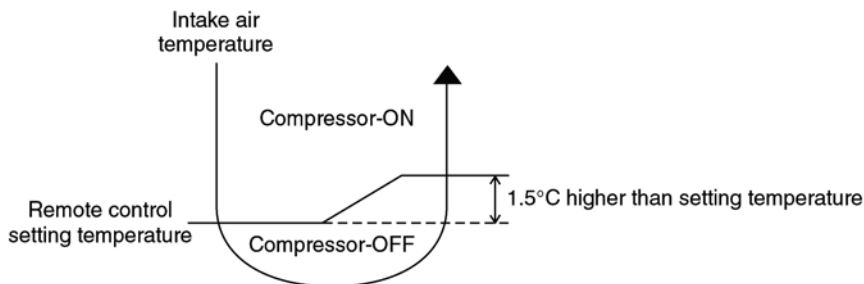
### **10.3.6 Piping Insulation**

- 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.

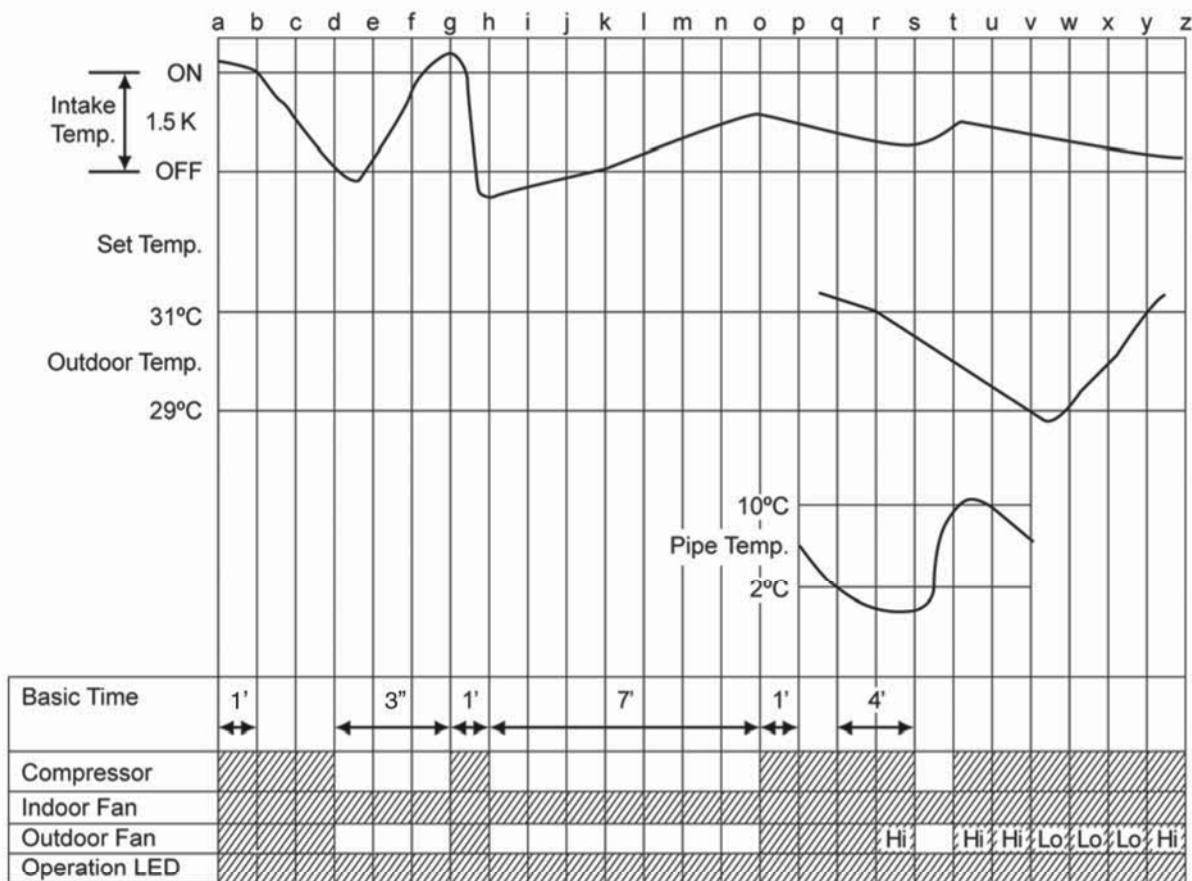
# 11. Operation and Control

## 11.1 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.



### 11.1.1 Cooling Operation Time Diagram



#### <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.





## 11.2 Indoor Fan Speed Control

- Indoor Fan Speed can be set using remote control.

### 11.2.1 Fan Speed Rotation Chart

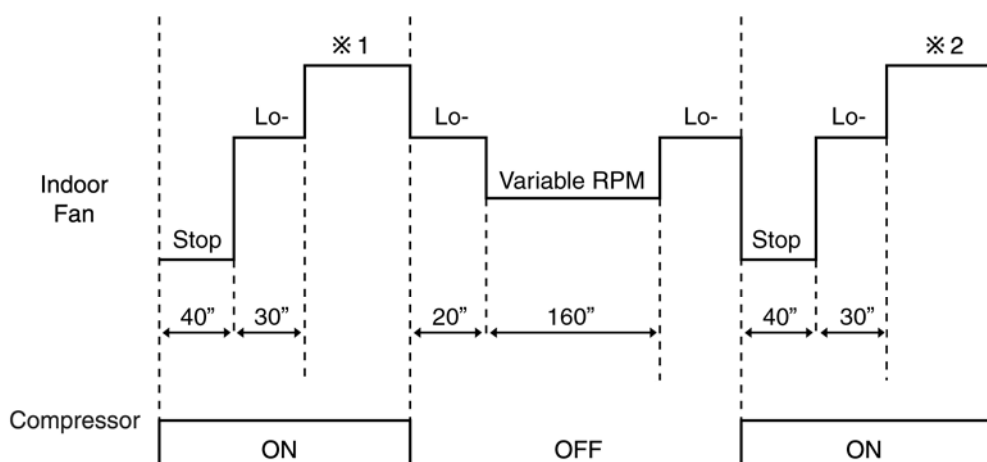
Speed	Fan Speed (rpm)		
	YC12MK	YC18MK	YC24MK
Hi	1120	1280	1390
Me	940	1200	1240
H Lo	850	1180	1210
C Lo	810	1120	1150
Lo-	770	850	970
S Lo	750	670	750

### 11.2.2 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.

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

- 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.

### 11.2.3 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.

### 11.2.4 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 increased to 7, the air conditioner will stop.

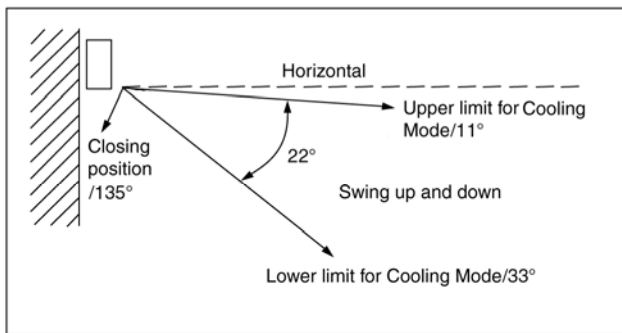
### 11.3 Outdoor Fan Speed Control

- Outdoor fan speed can be changes to Hi or Lo according to outdoor temperature. (YC24MK)
- There is only one speed for outdoor fan motor. (YC12MK & YC18MK)
- 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.

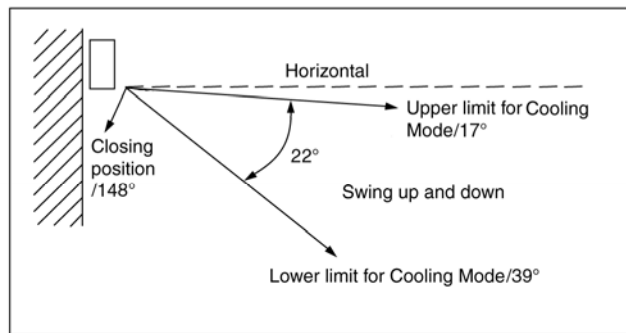
### 11.4 Vertical Airflow Direction Control

#### 11.4.1 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, indoor fan motor may stop to rotate at certain periods. At that condition, the louver will stop swinging.



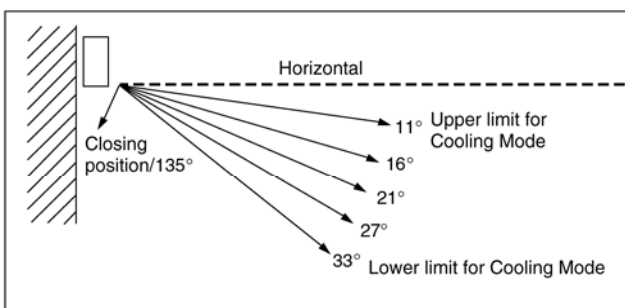
YC12MK



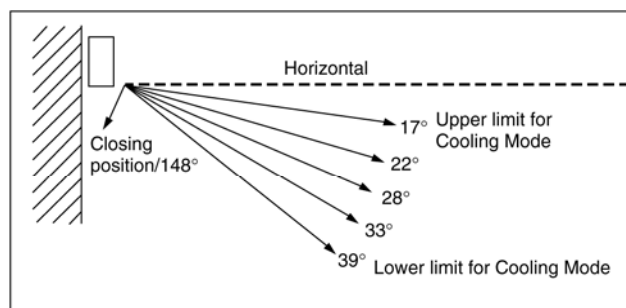
YC18MK YC24MK

#### 11.4.2 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.



YC12MK



YC18MK YC24MK

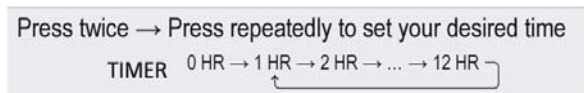
## 11.5 Horizontal Airflow Direction Control




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

## 11.6 Timer Control

### 11.6.1 To Set the Timer

- To turn ON the unit at a preset time, set the timer while the unit is OFF (the operation will start 15 minutes early before the preset time).
- To turn OFF the unit at a delayed time, set the timer while the unit is ON.



- Once the timer is set, the TIMER indication on the remote control display will be shown.
- To check the remaining time before the timer takes effect, press .
- To cancel the timer, press  once, then press again and hold for approximately 3 seconds.
- The timer will also be canceled when you press  or when power failure occurs.
- This setting is for one time operation, you will need to set again each time you want to use the timer.

## 11.7 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 on the indoor unit printed circuit board.

## 11.8 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.

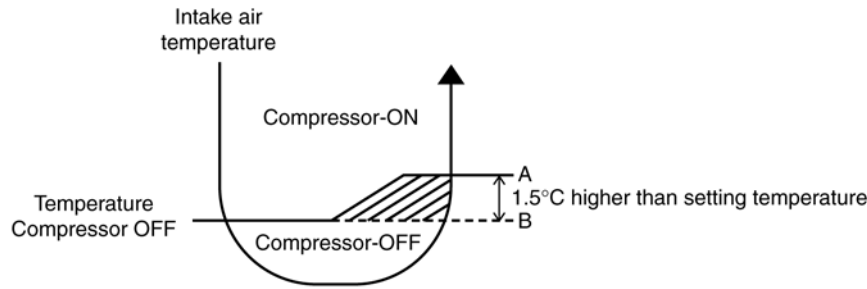
## 12. Protection Control

### 12.1 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.
- If the operation is stopped by the remote control, the compressor will not turn on within 3 minutes from the moment operation stop, although the unit is turn on again within the period.
- This phenomenon is to balance the pressure inside the refrigerant cycle.

### 12.2 7 Minutes Time Save Control

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



### 12.3 60 Seconds Forced Operation

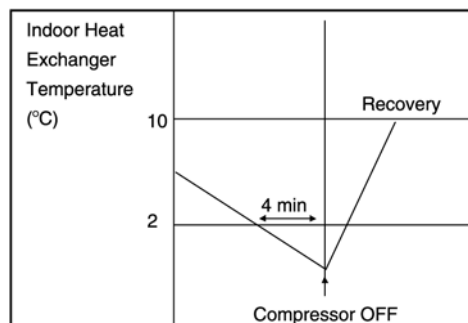
- Once the air conditioner is turned on, the compressor will not stop within 60 seconds in a normal operation although the intake air temperature has reached the thermo-off temperature. However, force stop by pressing the OFF/ON operation button at the remote control is permitted.
- The reason for the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

### 12.4 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.

### 12.5 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 form returning to the compressor.
- Compressor will restart again when the indoor heat exchanger temperature rises to 10°C (Recovery).
- Restart control (Time Delay Safety Control) will be applied in this Control if the recovery time is too short.



## 12.6 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  $2.5^{\circ}\text{C}$  or less for continuous 2 minutes, compressor will stop and restart automatically.
- Time Delay Safety Control is activated before the compressor restart.



ΔT = 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.
- 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  $>5^{\circ}\text{C}$  for 1 minute or more.
- The unit could be ON by pressing OFF/ON button at remote control.

## 12.7 Dew Prevention control

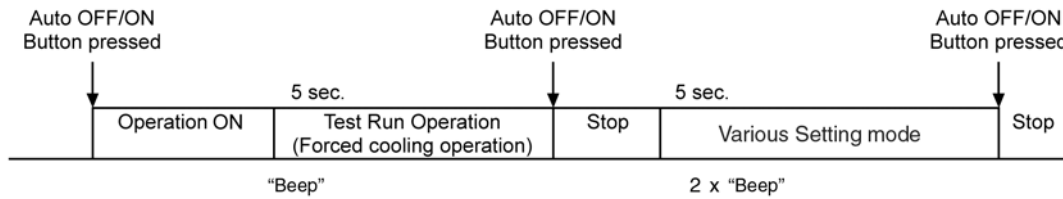
- To prevent dew formation at indoor unit discharge area.
- This control will be activated if:
  - Cooling mode.
  - Remote Control setting temperature is less than  $25^{\circ}\text{C}$ .
  - Fan speed is at CLo.
  - Room temperature is constant ( $\pm 1^{\circ}\text{C}$ ) for 30 minutes.
  - Compressor is continuously running.
- Fan speed will be adjusted accordingly in this control.
  - Fan speed will be increased slowly.
- Dew prevention stop condition
  - Remote control setting temperature is more than  $25^{\circ}\text{C}$ .
  - Fan speed is not set to CLo.

## 12.8 Odor Cut Control

- To reduce the odor released from the unit.
  - Start Condition
    - AUTO FAN Speed is selected during COOL operation.
    - During freeze prevention control and timer preliminary operation, this control is not applicable.
  - Control content
    - Depends on compressor conditions:
      1. Compressor OFF → Compressor ON.  
The indoor unit fan stops temporarily and then starts to blow at minimum airflow for 30 seconds.
      2. Compressor ON → Compressor OFF.  
The indoor unit fan stops for 90 seconds and then blows at minimum airflow for 20 seconds.

## 13. Servicing Mode

### 13.1 Auto OFF/ON Button



#### 1 OPERATION MODE

The 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

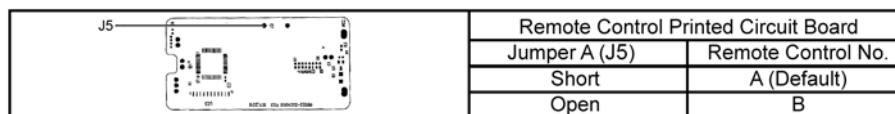
Press "Auto OFF/ON button" to toggle remote control receiving sound.

- 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.

### 13.2 Remote Control Number switch

- There are 2 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 indoor units installed nearby together.
- To change remote control transmission code, short or open jumpers at the remote control printed circuit board.



- During unit is OFF (remote control OFF indicator is shown), after select the transmission code combination of remote control, press OFF/ON button for 20 seconds at remote control to transmit and store the desired transmission code to the EEPROM.

## 14. Troubleshooting Guide

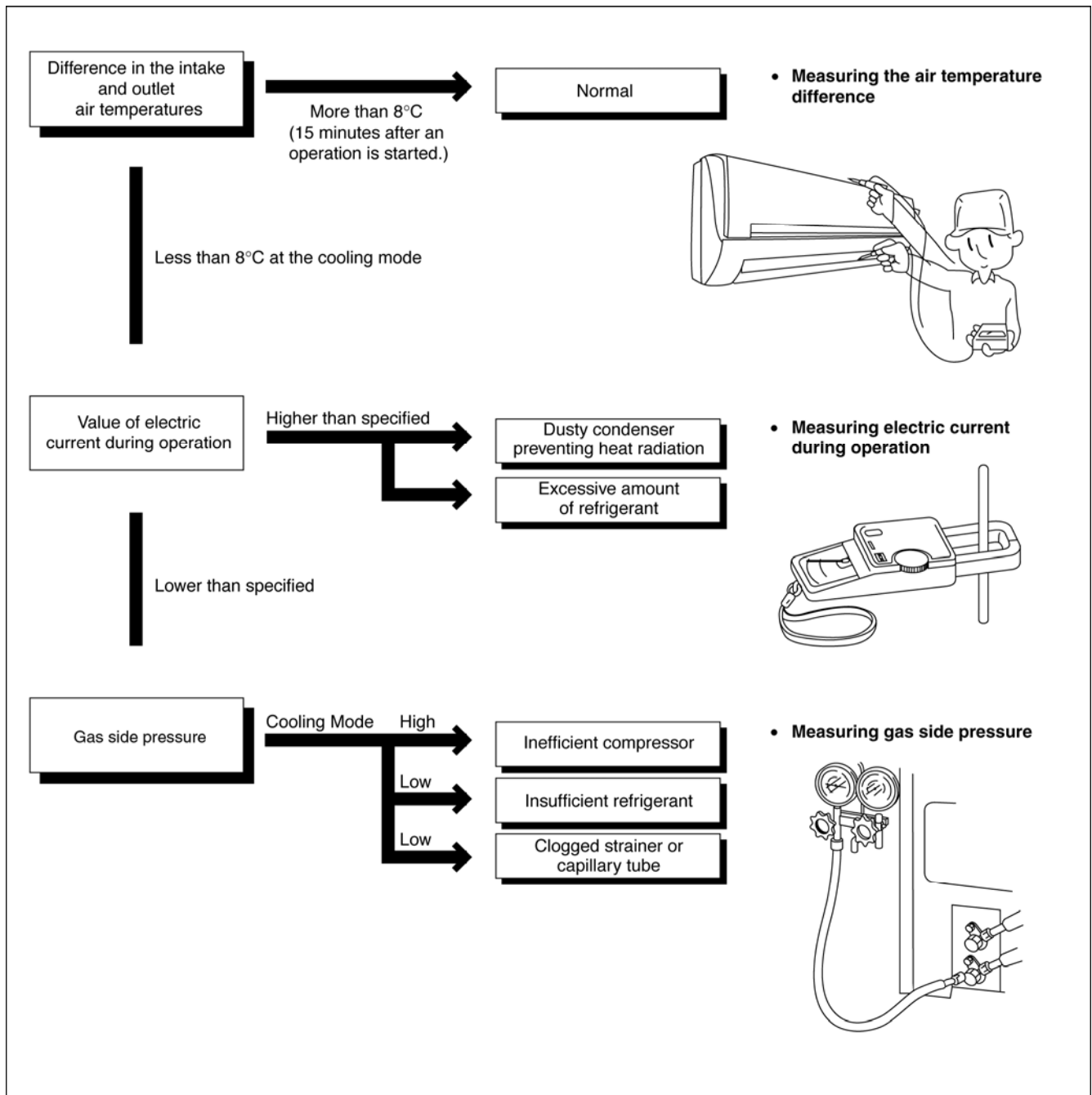
### 14.1 Refrigeration Cycle System

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



### 14.1.1 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.

### 14.1.2 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>



## 15. Disassembly and Assembly Instructions

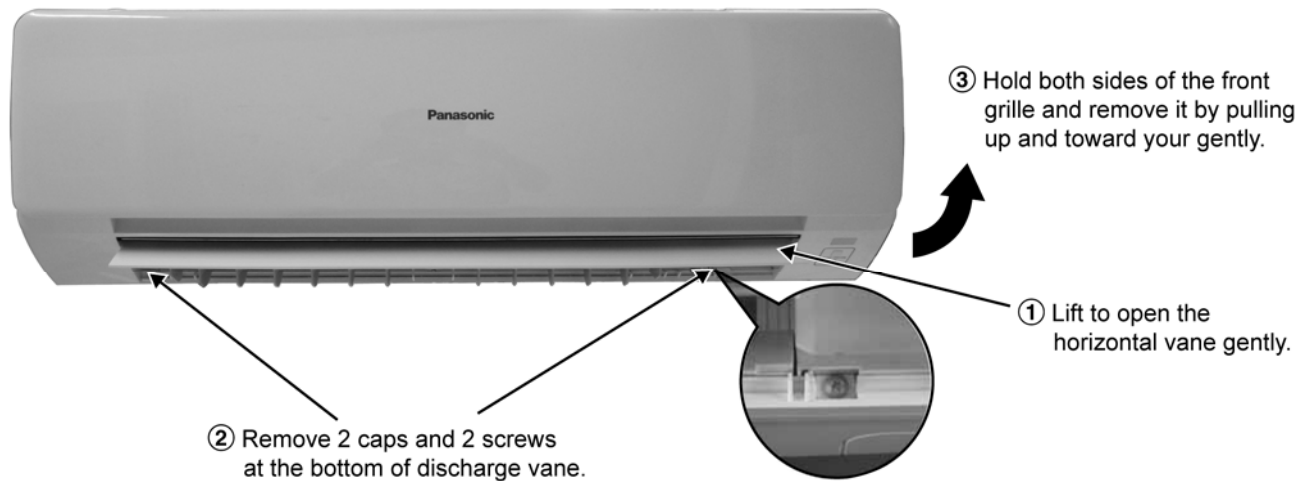


### WARNING

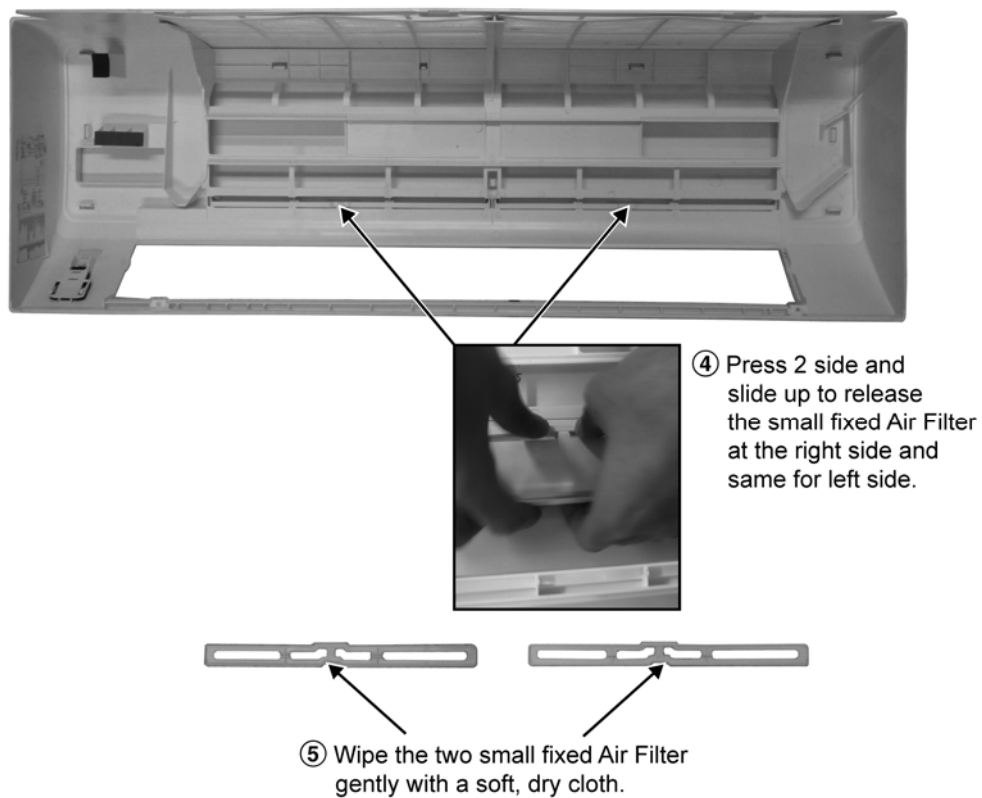
High Voltage is generated in the electrical parts area by the capacitor. Ensure that the capacitor has discharged sufficiently before proceeding with repair work. Failure to heed this caution may result in electric shocks.

### 15.1 CS-YC12MK

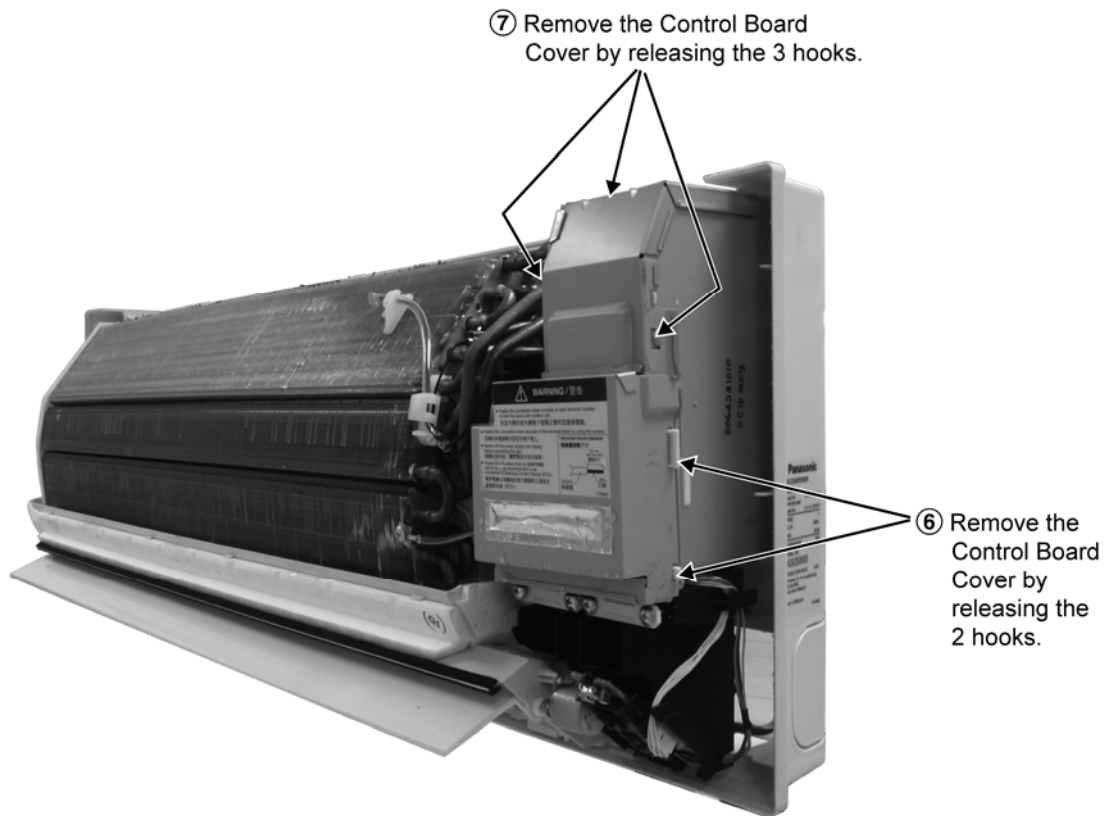
#### 15.1.1 Small Air Filter, Indoor Electronic Controllers and Control Board Removal Procedures



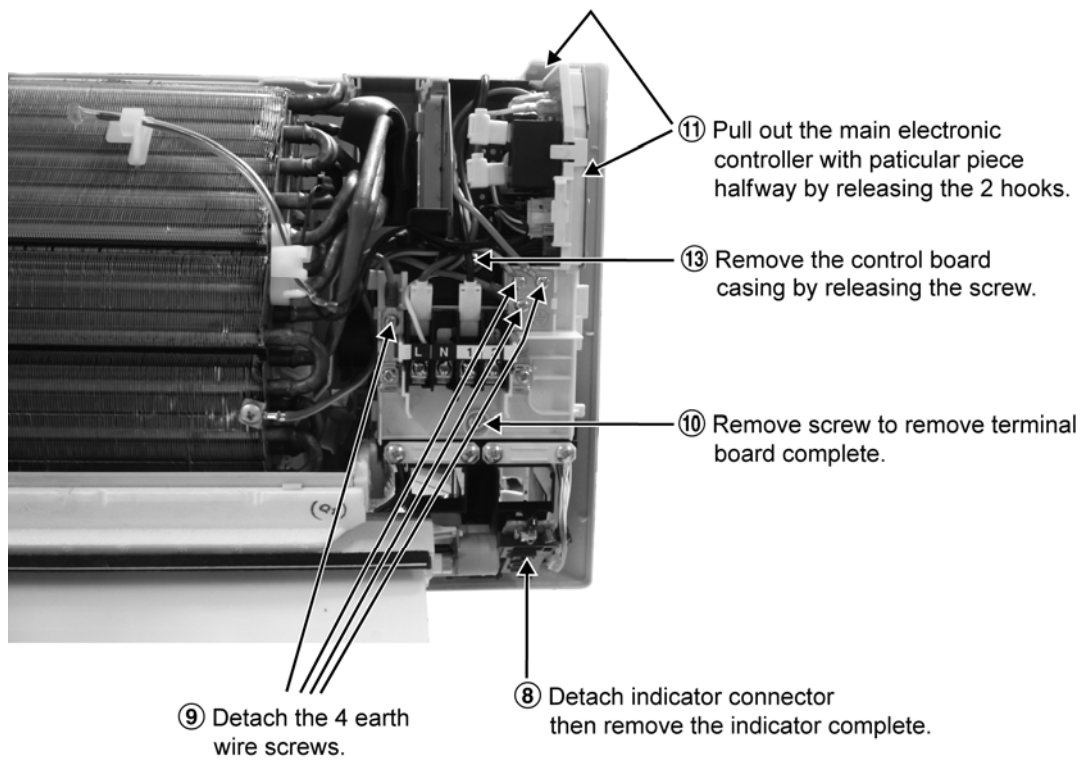
(Fig. 1)



(Fig. 2)

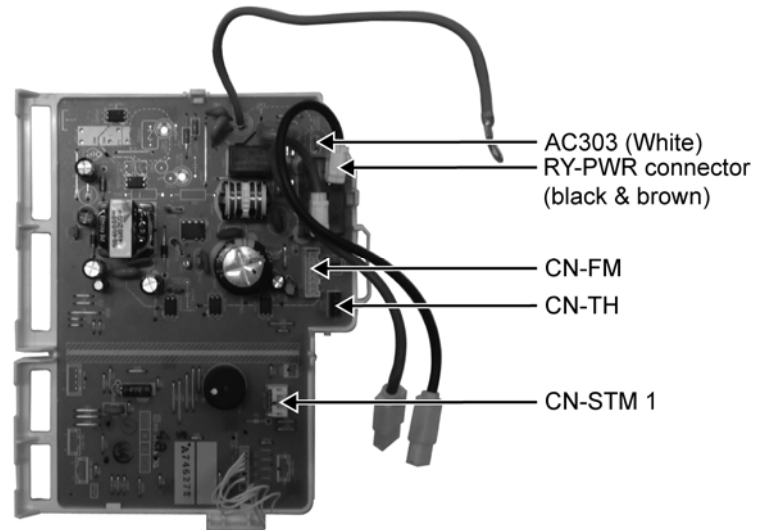


(Fig. 3)

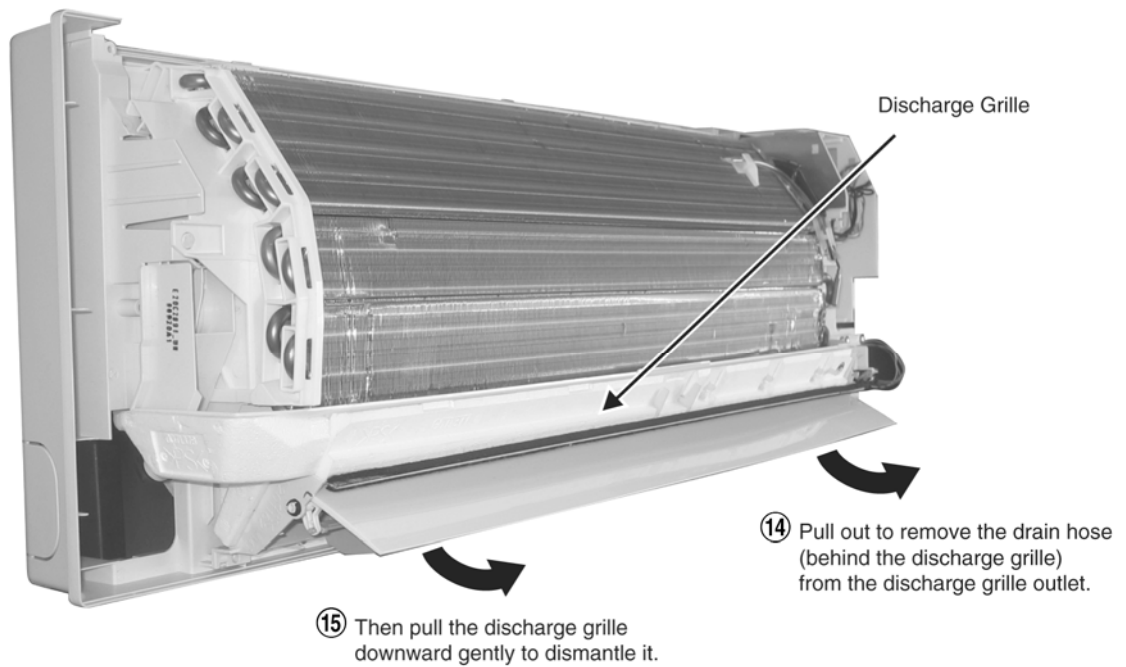


(Fig. 4)

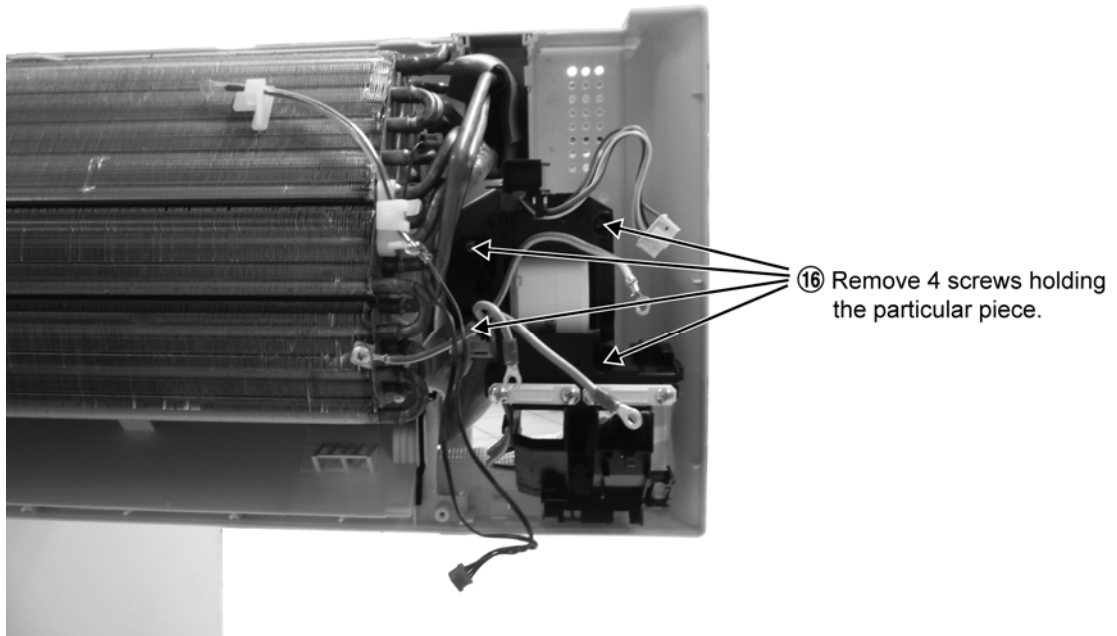
- ⑫ Detach the connectors as labeled from the main electronic controller.



(Fig. 5)

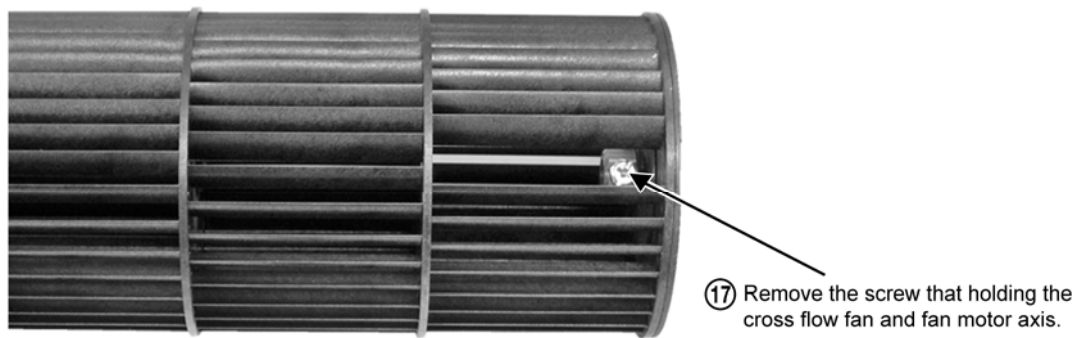


(Fig. 6)

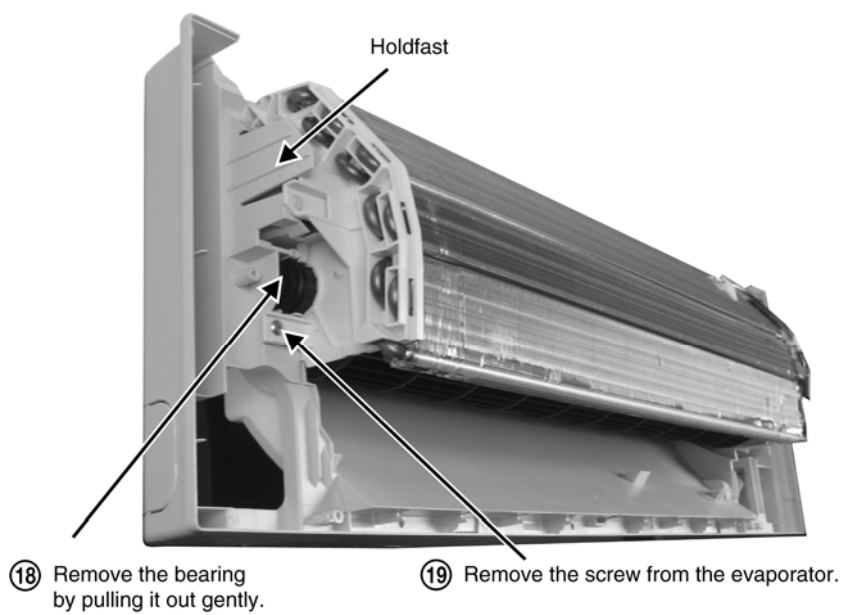


(Fig. 7)

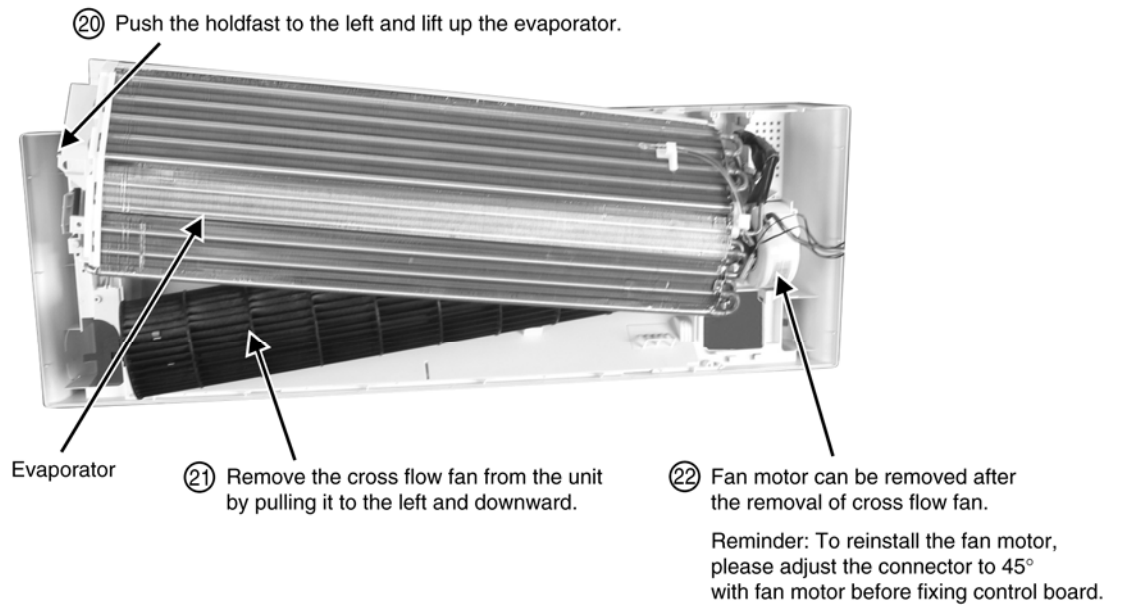
### 15.1.2 Indoor Fan Motor and Cross Flow Fan Removal Procedures



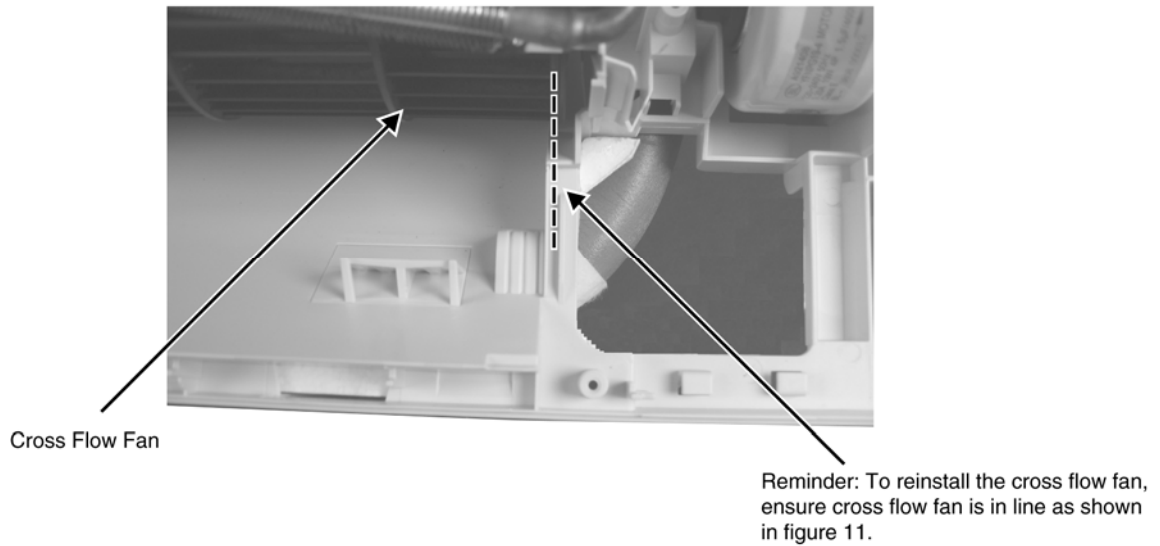
(Fig. 8)



(Fig. 9)



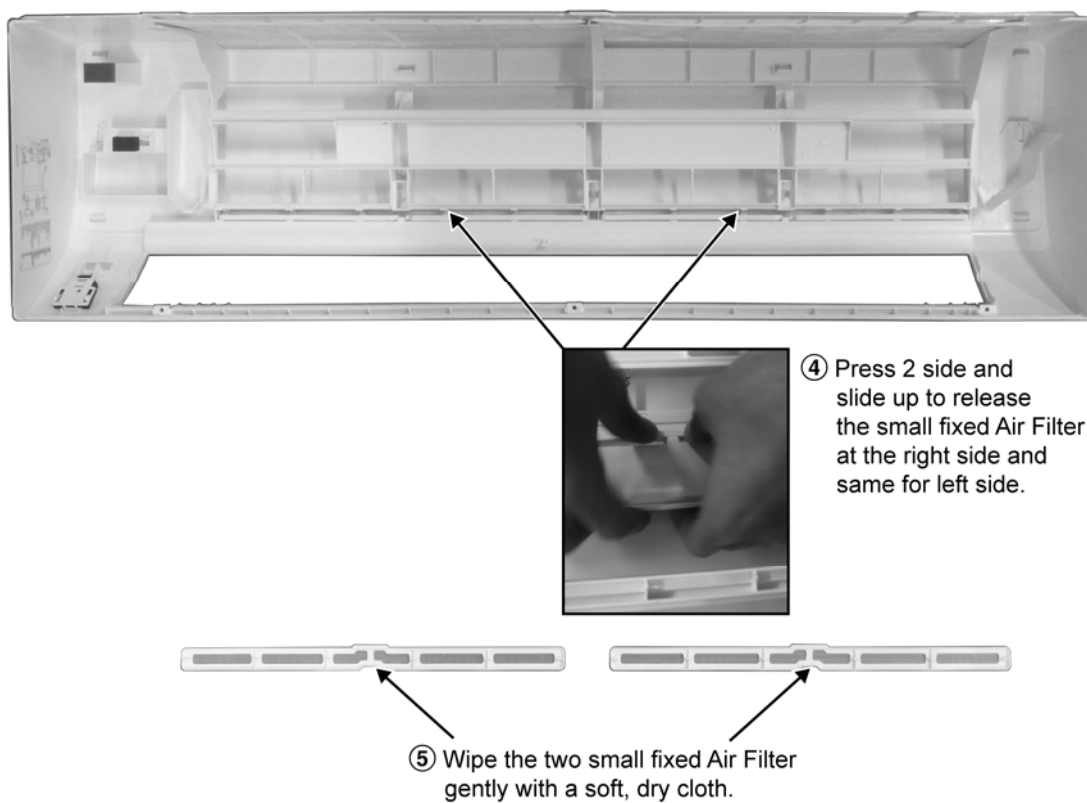
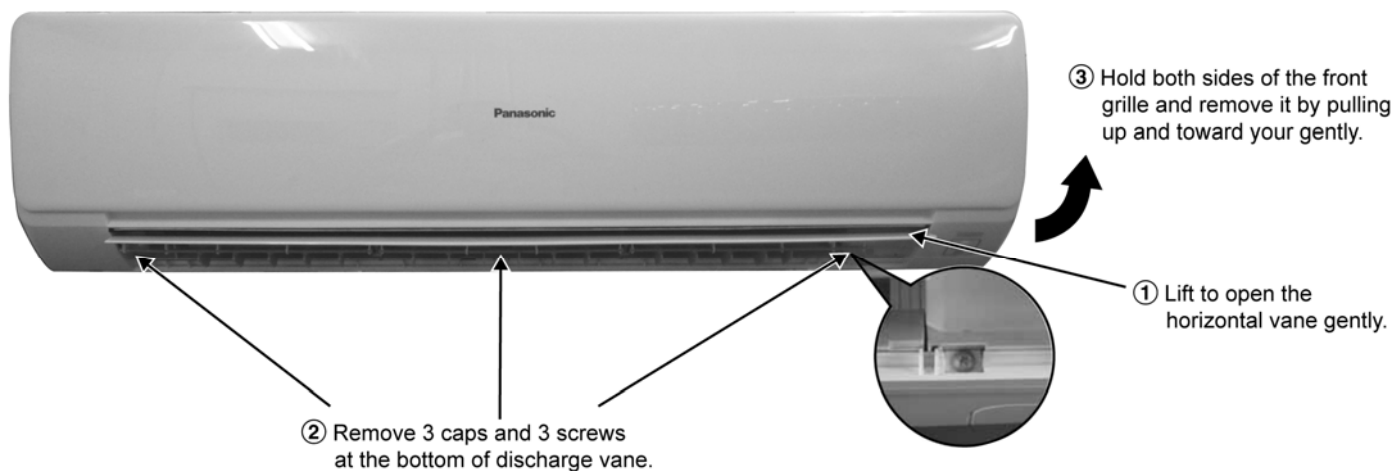
(Fig. 10)

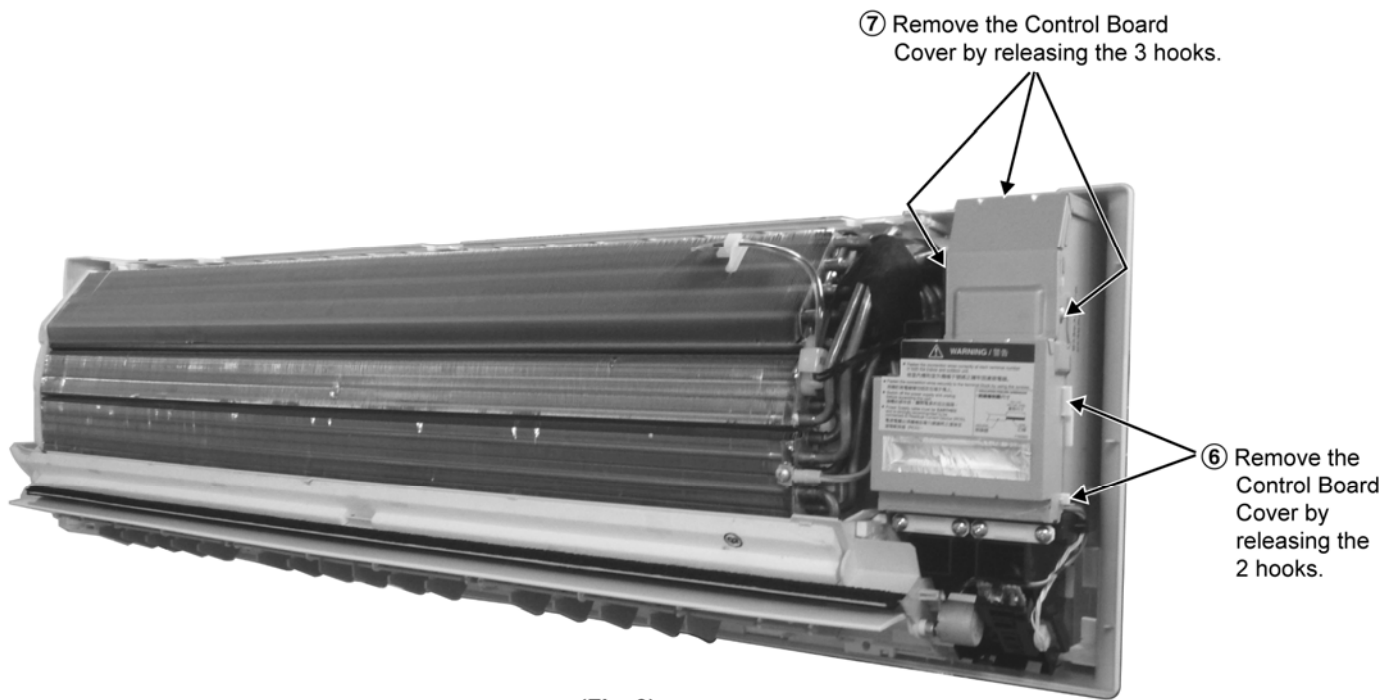


(Fig. 11)

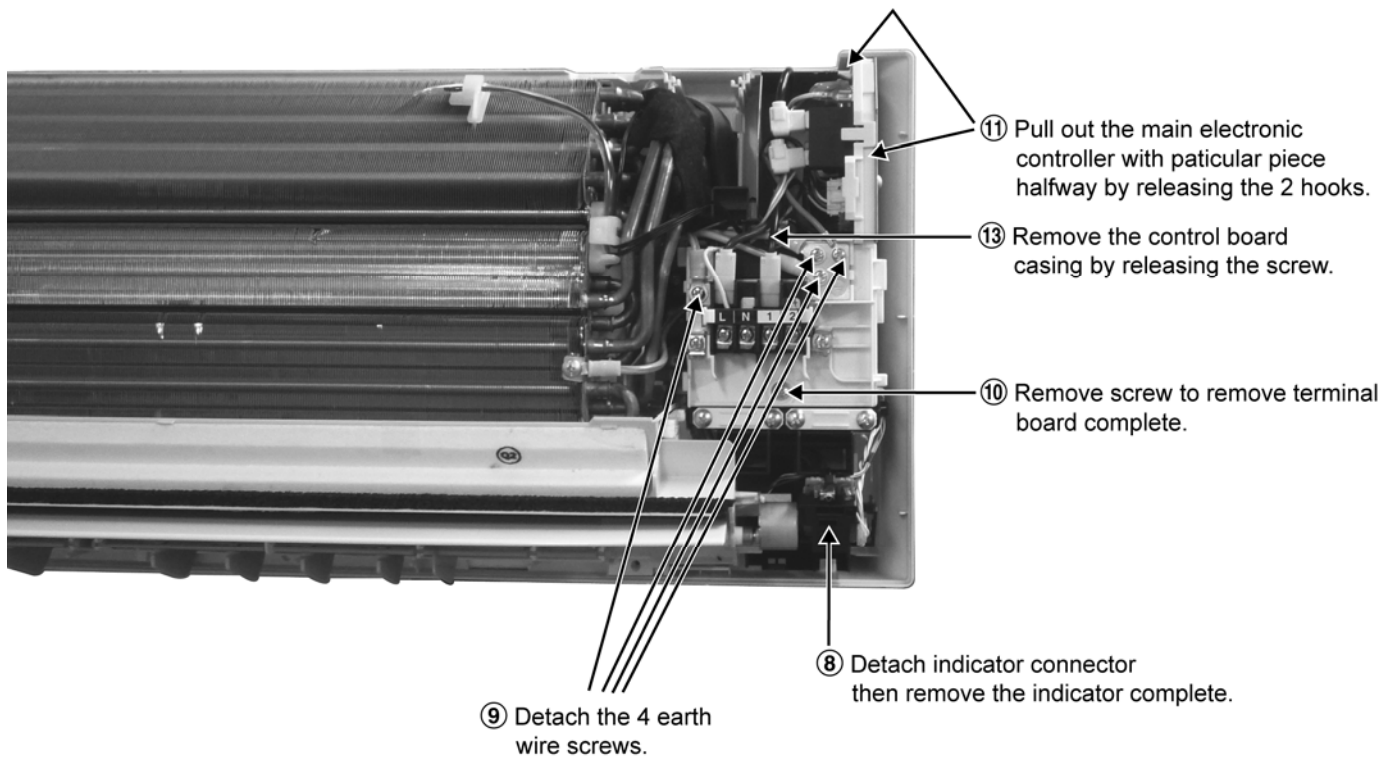
## 15.2 CS-YC18MK CS-YC24MK

### 15.2.1 Small Air Filter, Indoor Electronic Controllers and Control Board Removal Procedures



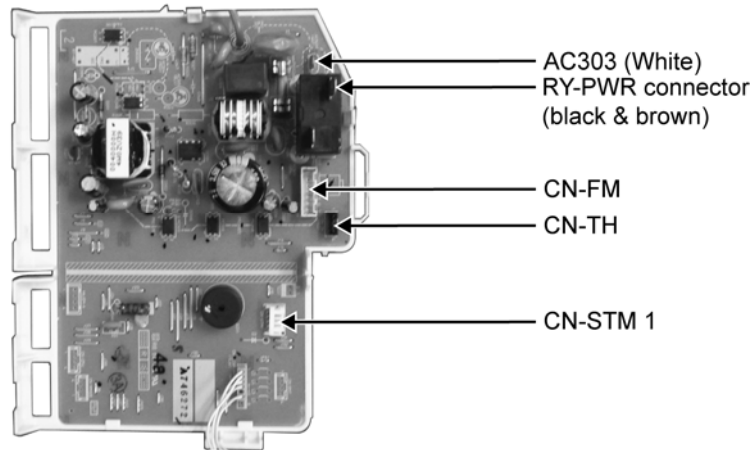


(Fig. 3)

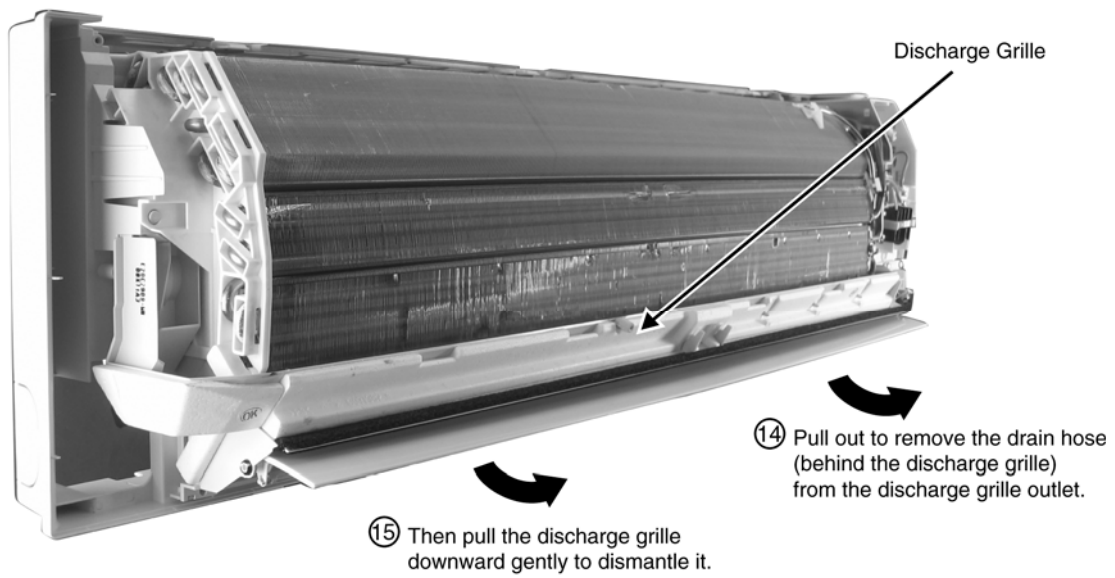


(Fig. 4)

- ⑫ Detach the connectors as labeled from the main electronic controller.

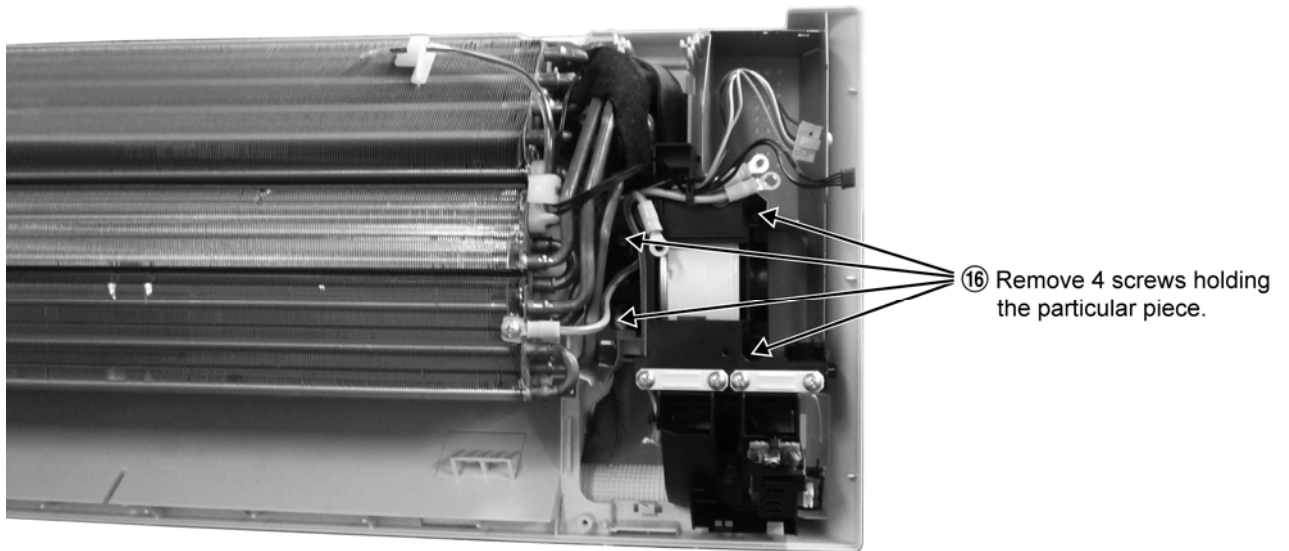


(Fig. 5)



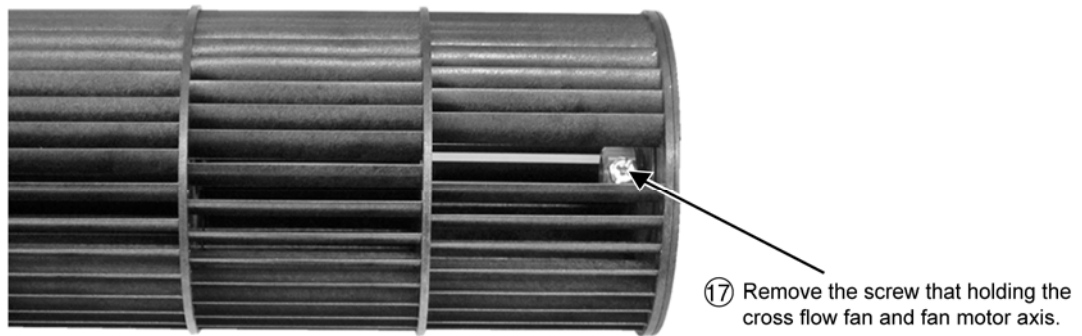
(Fig. 6)



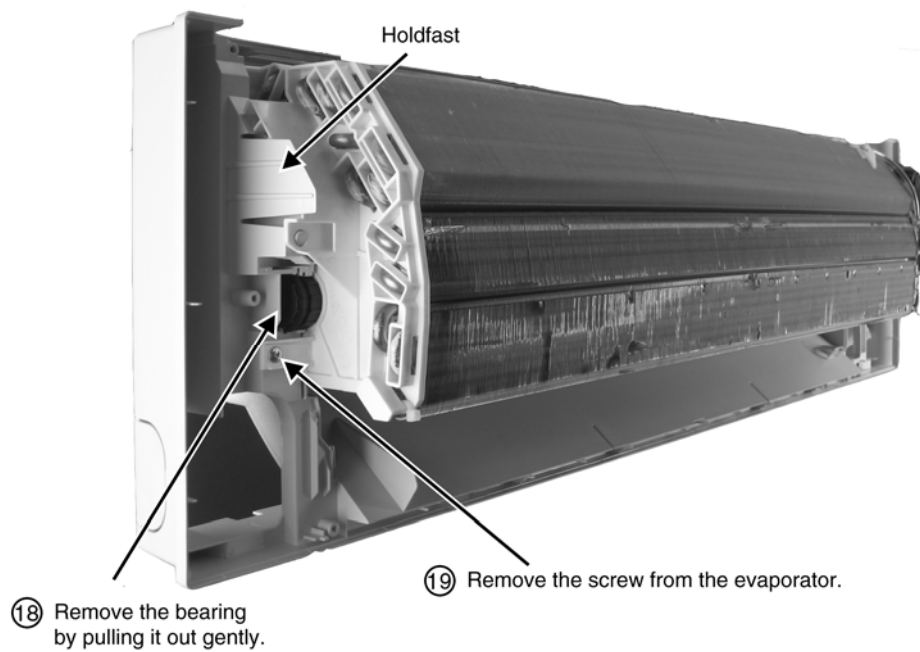


(Fig. 7)

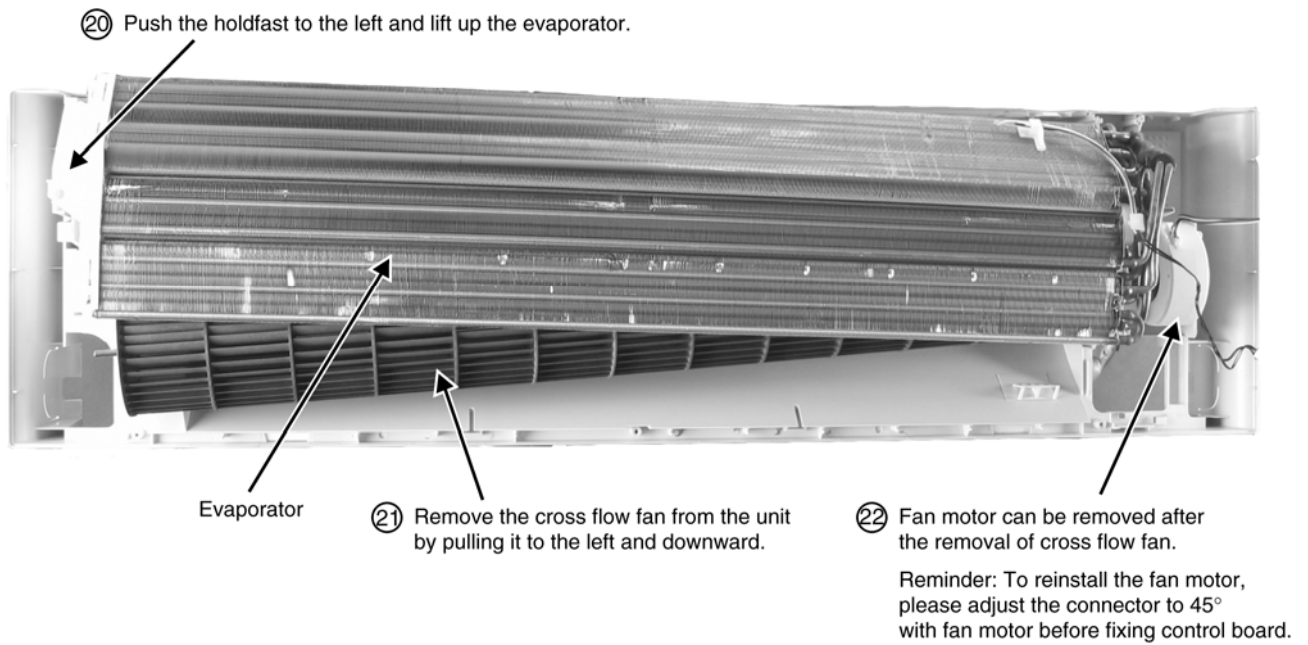
### 15.2.2 To Remove Cross Flow Fan and Indoor Fan Motor



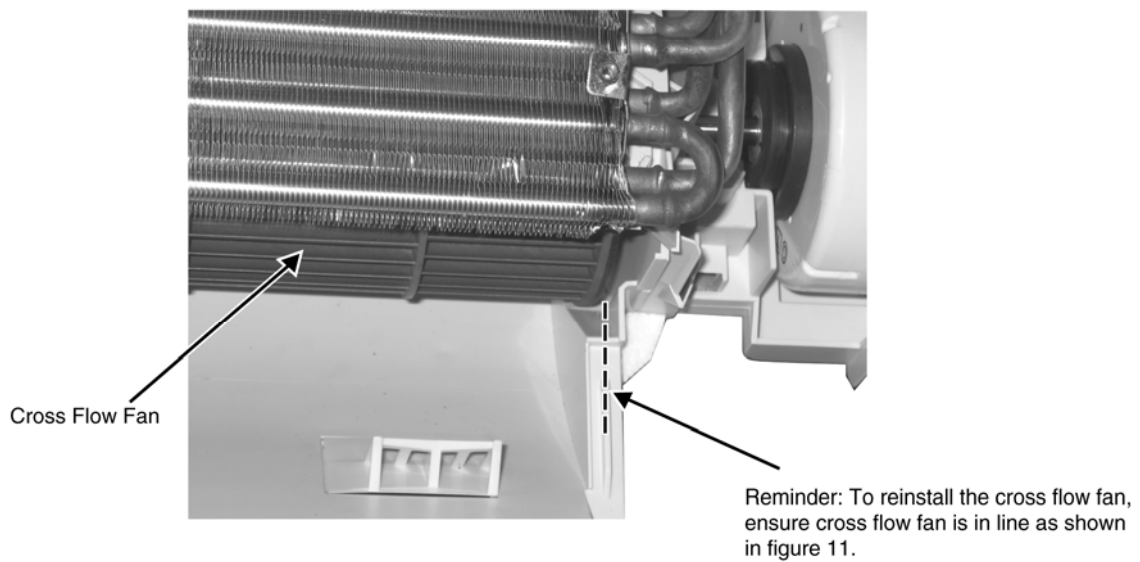
(Fig. 8)



(Fig. 9)



(Fig. 10)

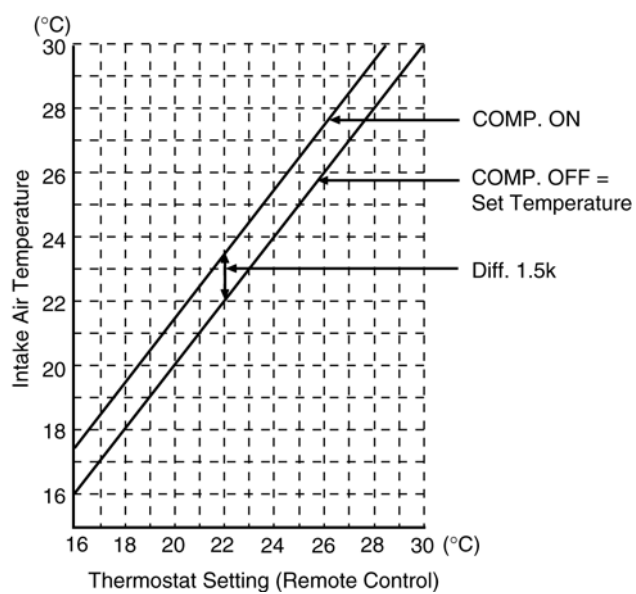


(Fig. 11)

## 16. Technical Data

### 16.1 Thermostat Characteristics

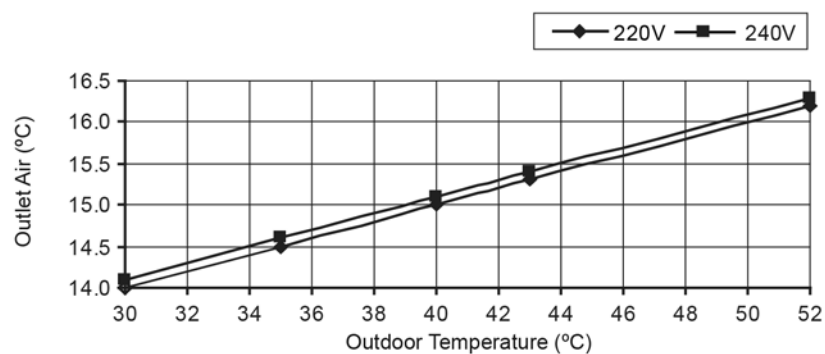
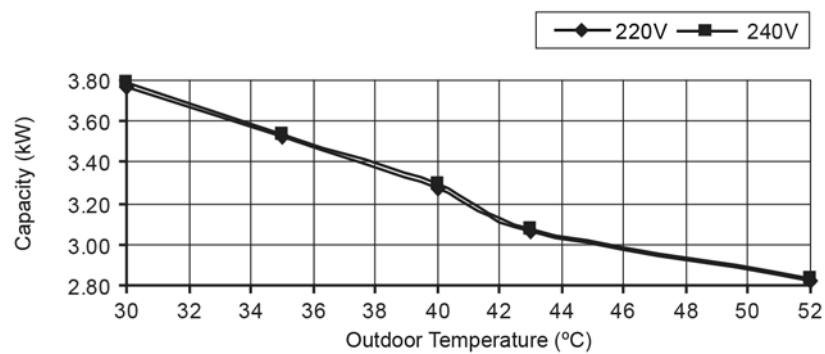
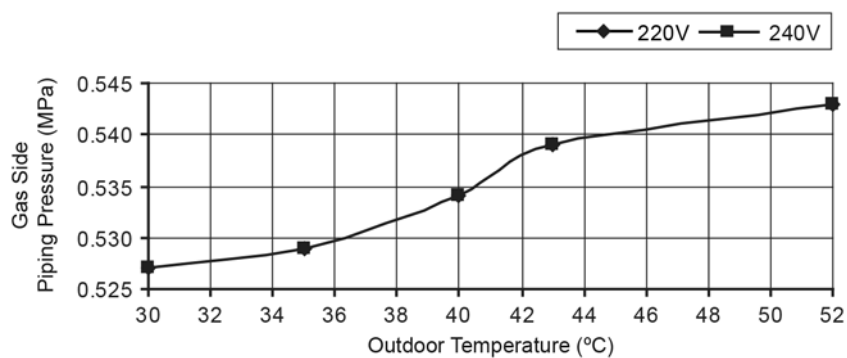
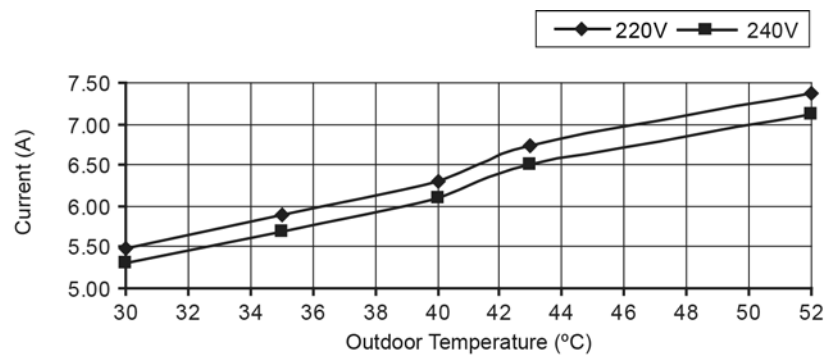
#### Cooling



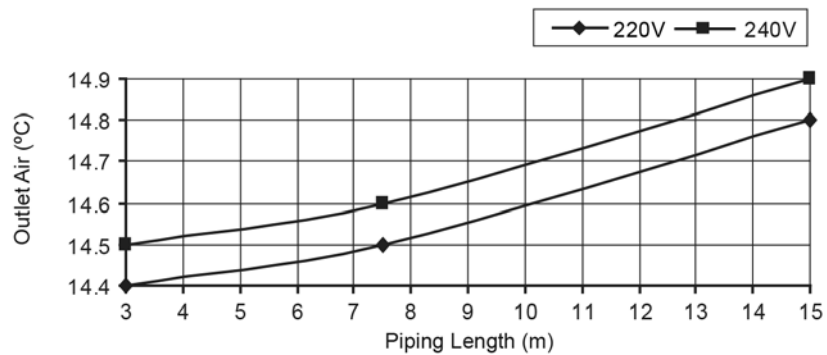
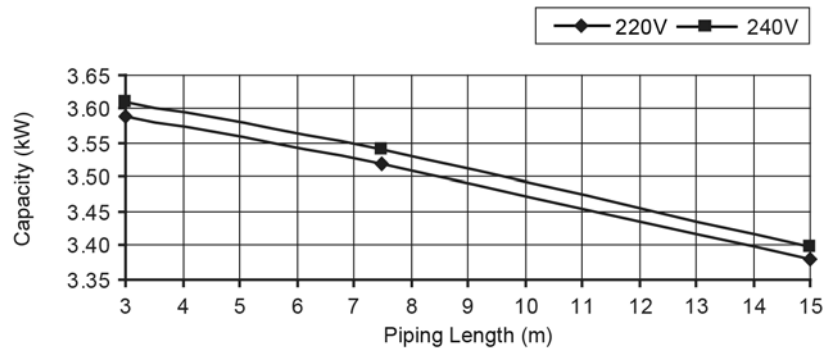
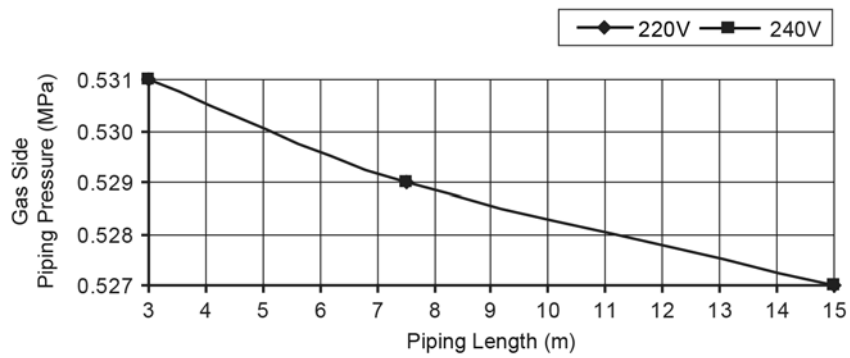
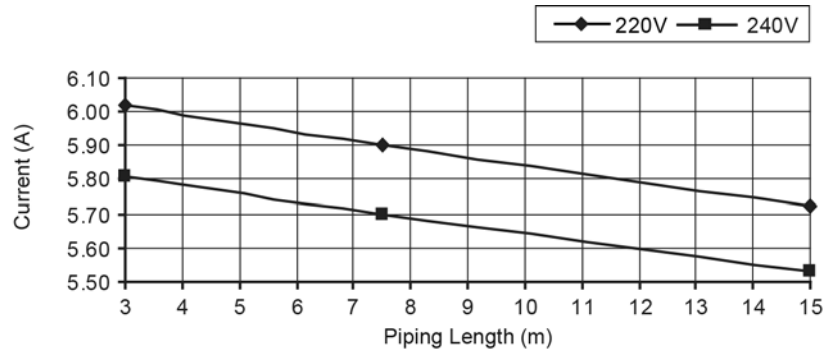
## 16.2 Operation Characteristics

### 16.2.1 CS-YC12MKF CU-YC12MKF

- Cooling Characteristic
  - Room temperature: 27°C (DBT), 19°C (WBT)
  - Operation condition: High fan speed
  - Piping length: 7.5m

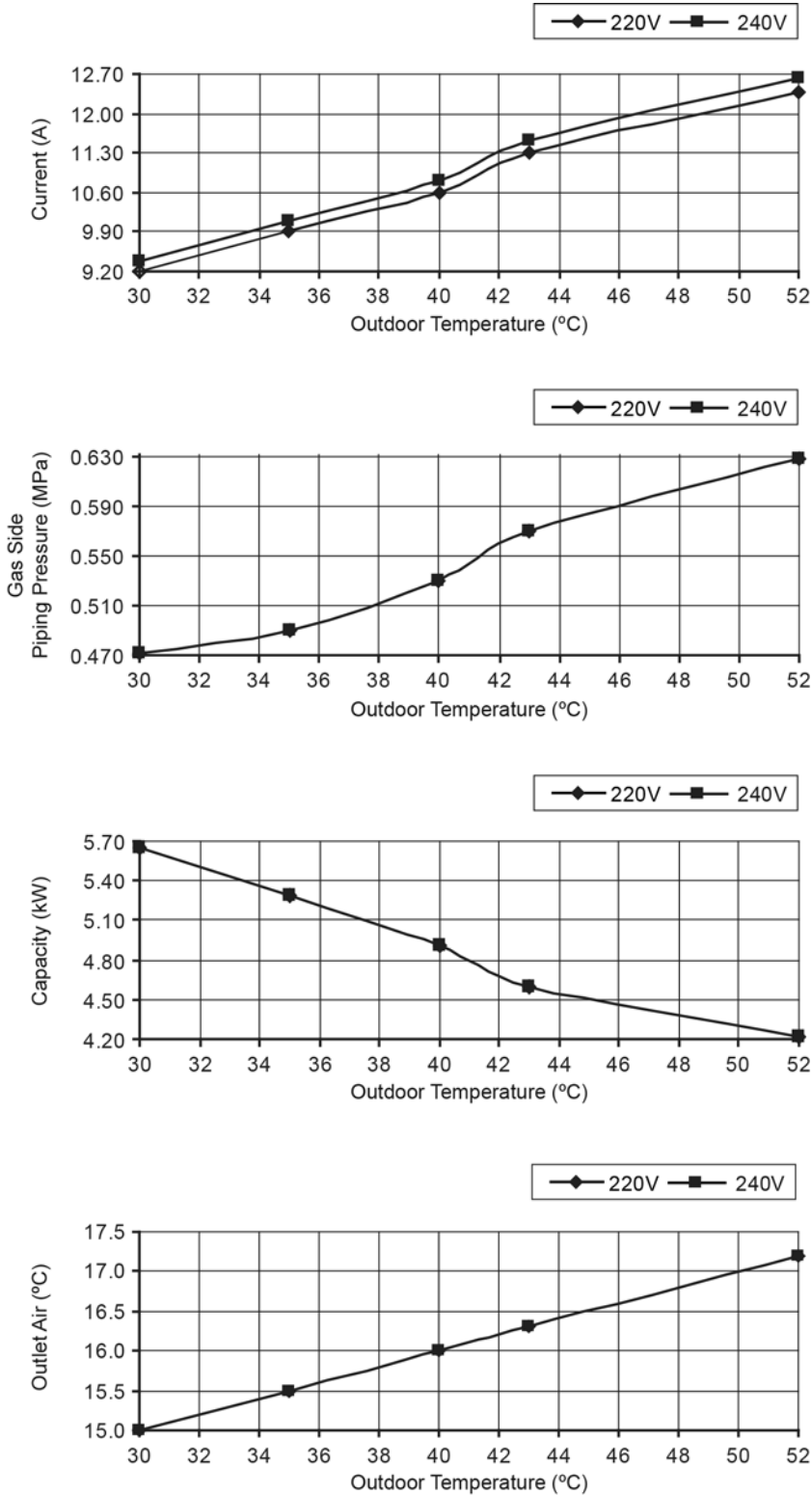


- Piping Length Characteristic
  - Room temperature: 27°C (DBT), 19°C (WBT)
  - Operation condition: High fan speed
  - Outdoor temperature: 35°C (DBT), 24°C (WBT)
  - Piping length: 7.5m

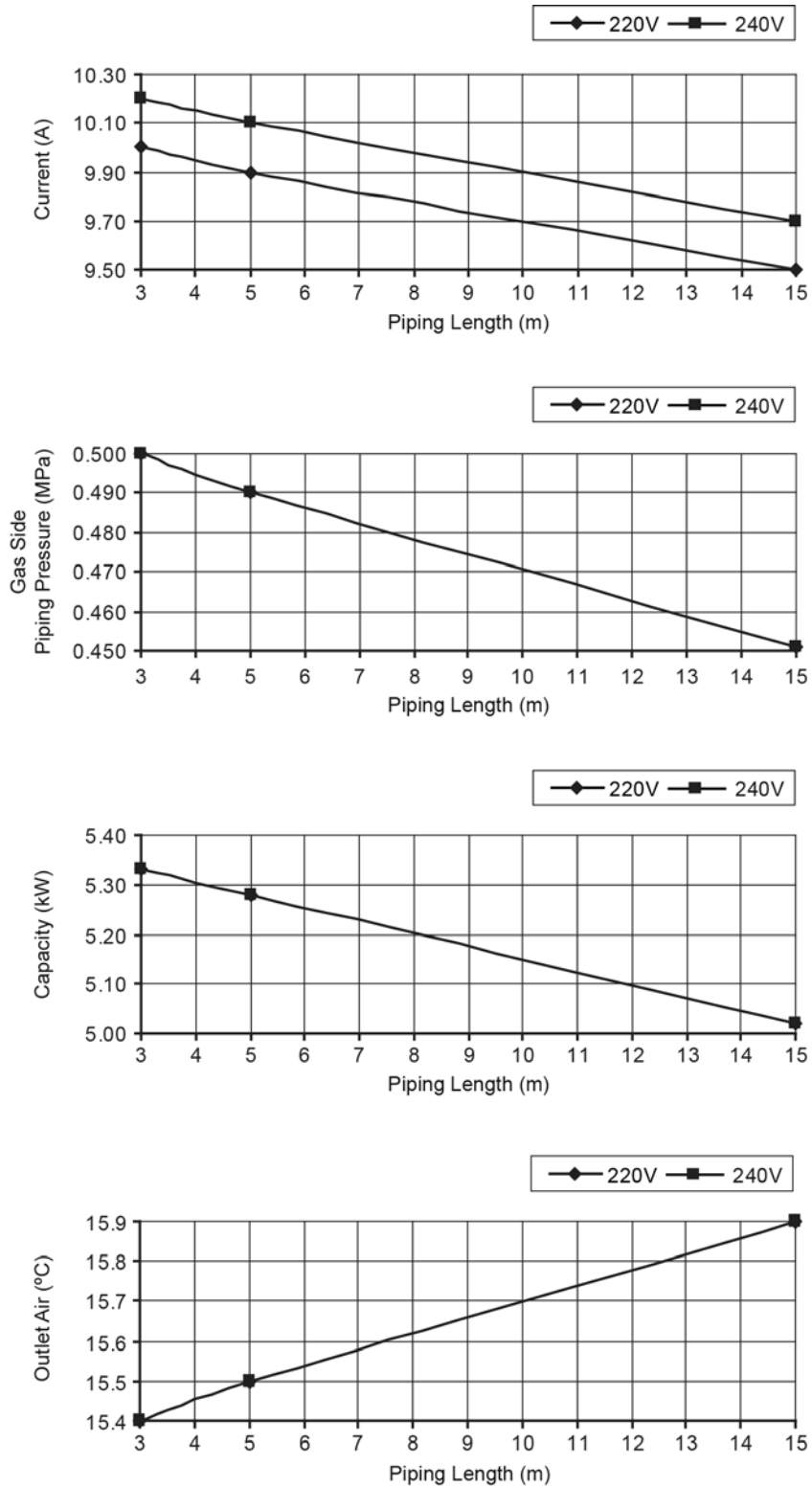


16.2.2 CS-YC18MKF CU-YC18MKF

- Cooling Characteristic
  - Room temperature: 27°C (DBT), 19°C (WBT)
  - Operation condition: High fan speed
  - Piping length: 5.0m

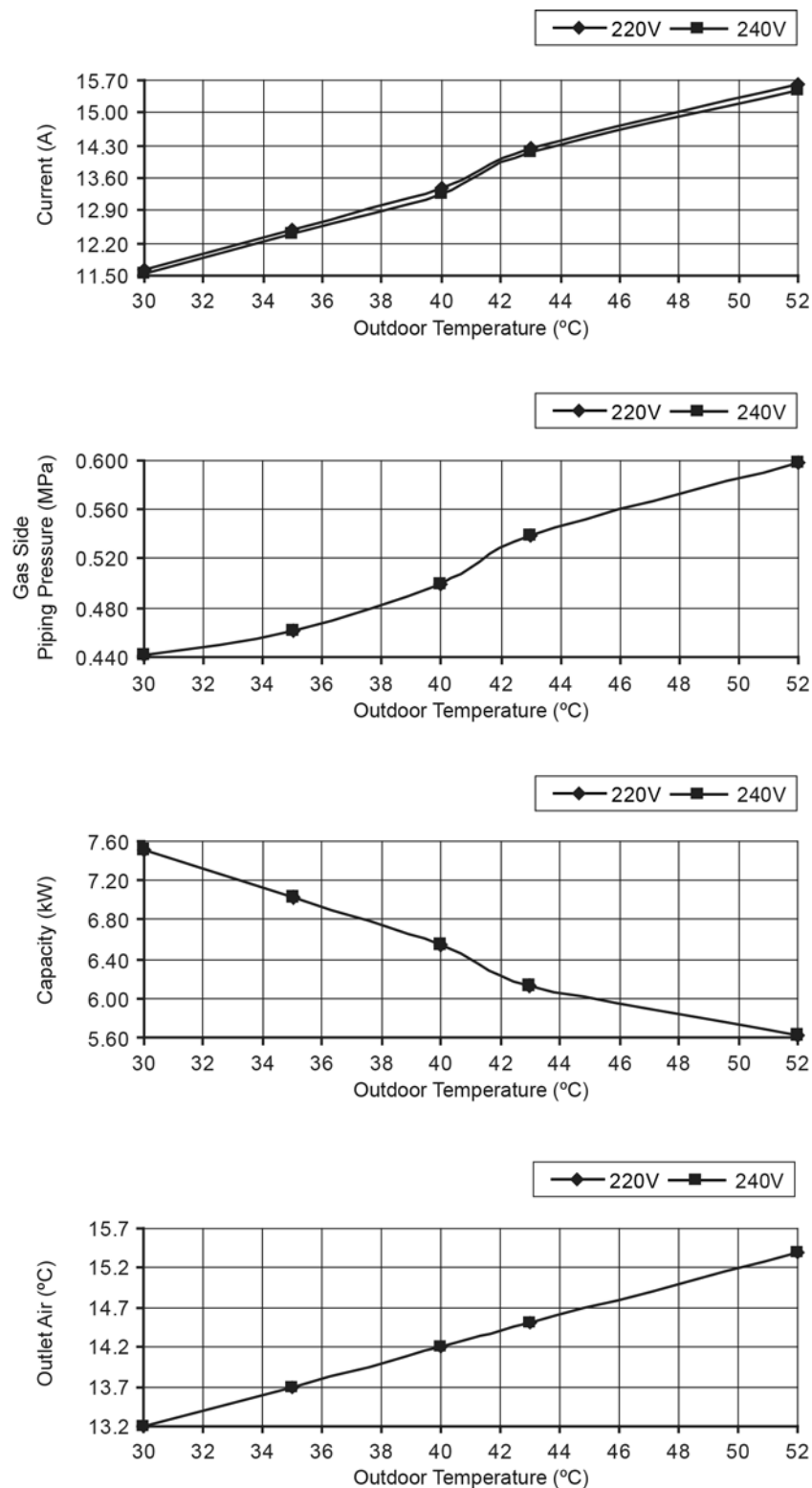


- Piping Length Characteristic
  - Room temperature: 27°C (DBT), 19°C (WBT)
  - Operation condition: High fan speed
  - Outdoor temperature: 35°C (DBT), 24°C (WBT)
  - Piping length: 5.0m



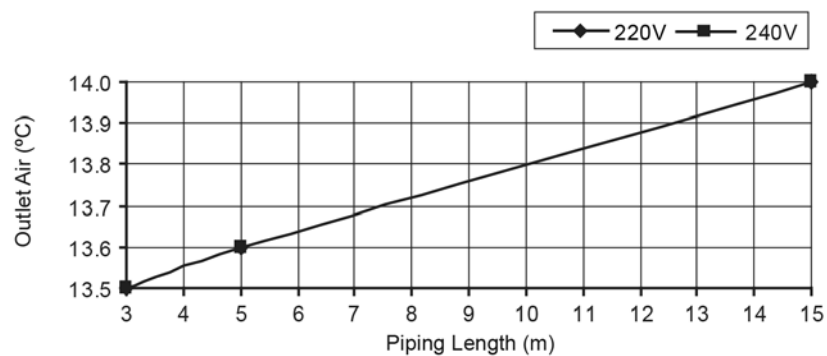
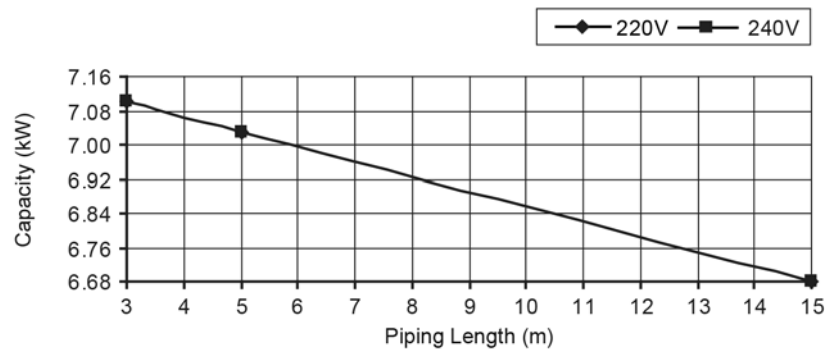
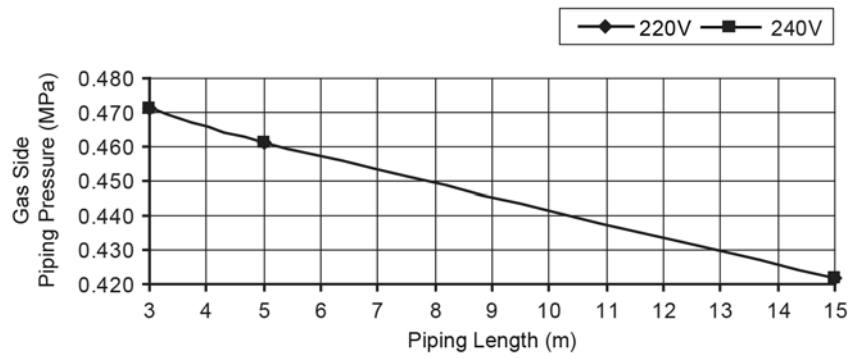
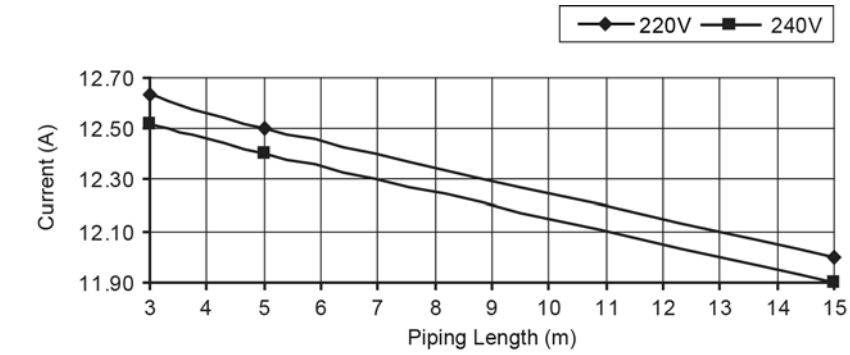
### 16.2.3 CS-YC24MKF CU-YC24MKF

- Cooling Characteristic
  - Room temperature: 27°C (DBT), 19°C (WBT)
  - Operation condition: High fan speed
  - Piping length: 5.0m





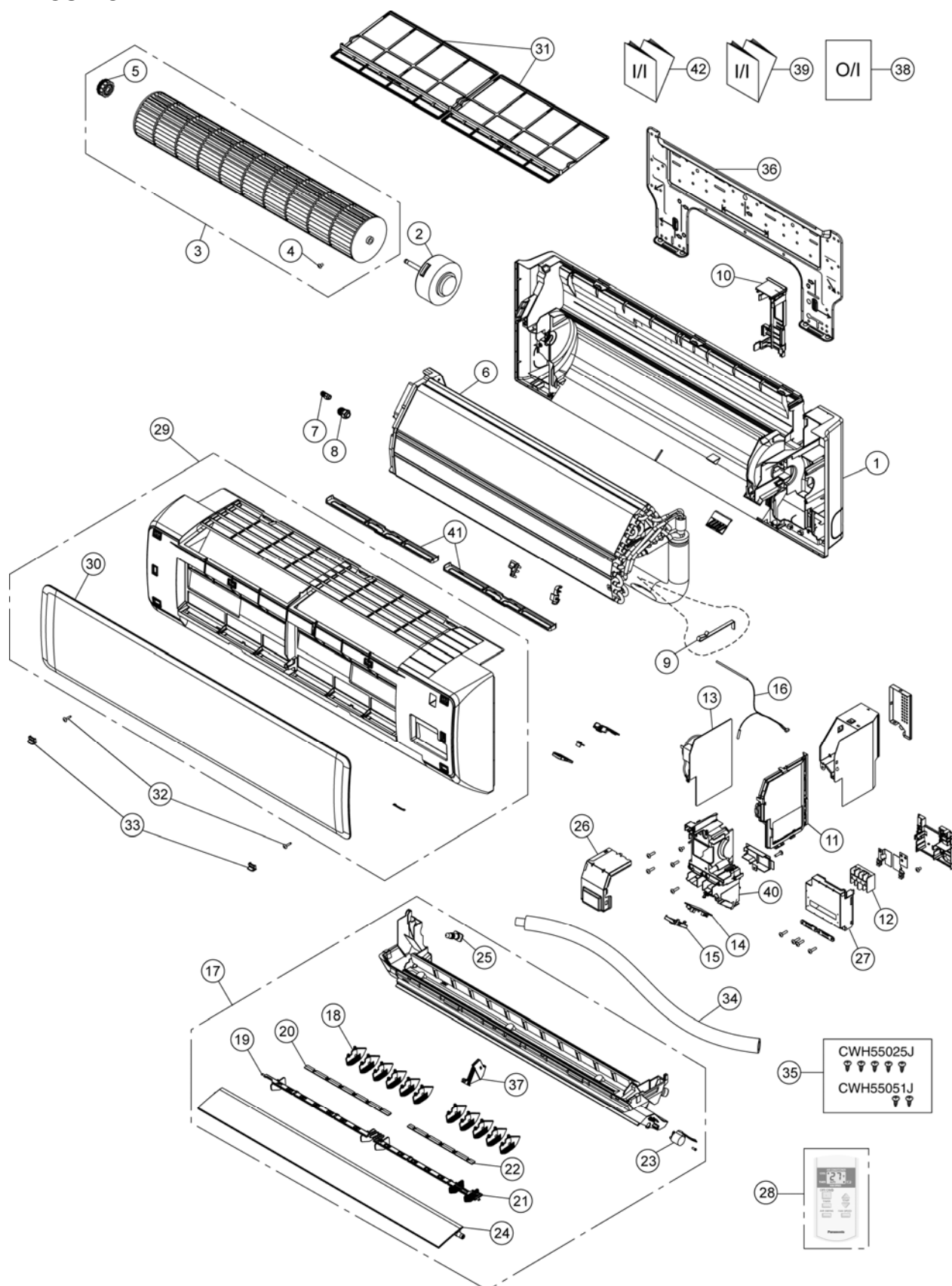
- Piping Length Characteristic
  - Room temperature: 27°C (DBT), 19°C (WBT)
  - Operation condition: High fan speed
  - Outdoor temperature: 35°C (DBT), 24°C (WBT)
  - Piping length: 5.0m



# 17. Exploded View and Replacement Parts List

## 17.1 Indoor Unit

### 17.1.1 CS-YC12MKF



#### Note:

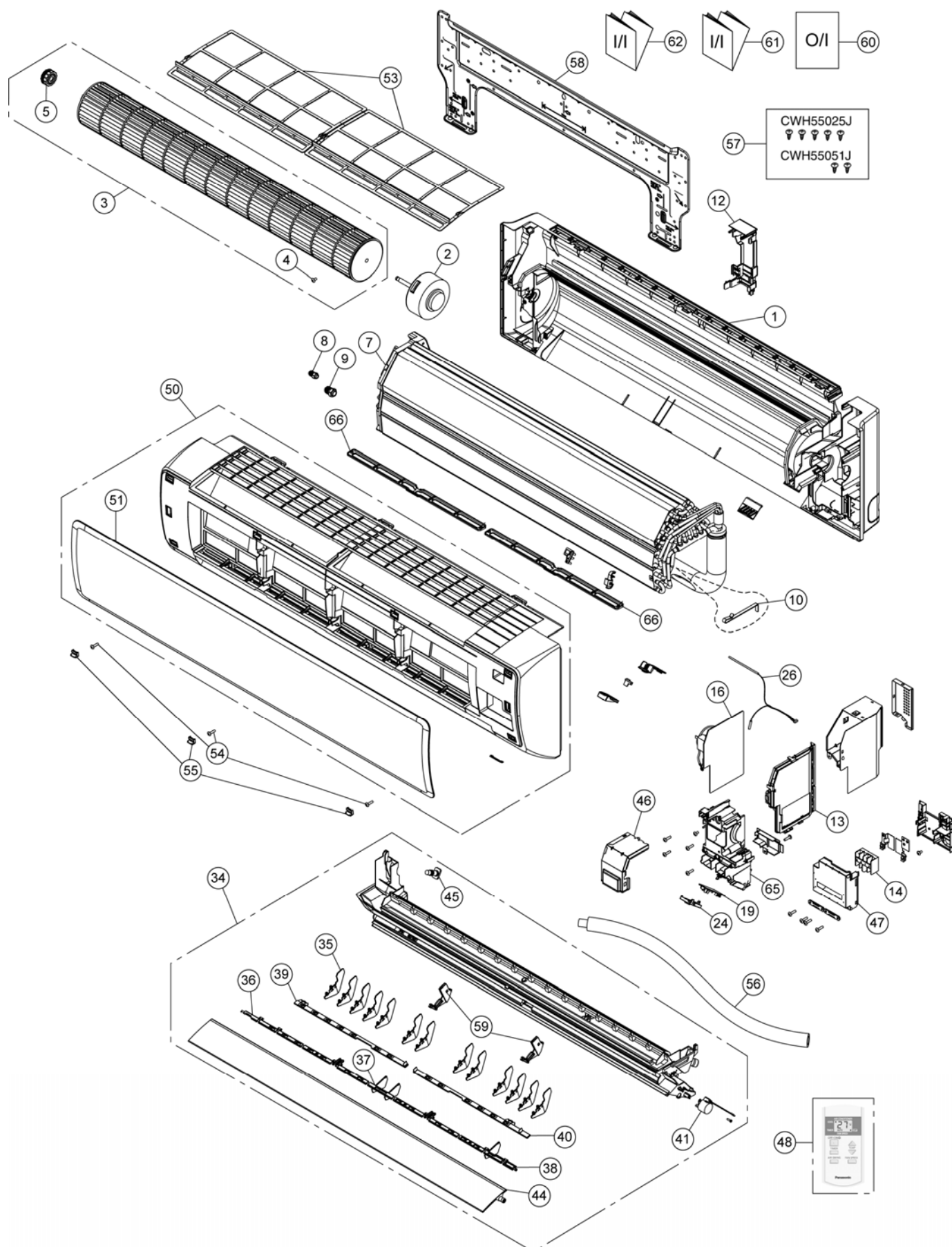
- The above exploded view is for the purpose of parts disassembly and replacement.
- The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-YC12MKF	REMARK
1	CHASSIS COMPLETE	1	CWD50C1653	
2	FAN MOTOR	1	CWA921447	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	
4	SCREW - CROSS FLOW FAN	1	CWH551146	
5	BEARING ASS'Y	1	CWH64K007	O
6	EVAPORATOR	1	CWB30C3328	
7	FLARE NUT (LIQUID)	1	CWT251026	
8	FLARE NUT (GAS)	1	CWT251062	
9	HOLDER SENSOR	1	CWH32143	
10	BACK COVER CHASSIS	1	CWD933233	
11	CONTROL BOARD CASING	1	CWH102434	
12	TERMINAL BOARD COMPLETE	1	CWA28C2397	O
13	ELECTRONIC CONTROLLER - MAIN	1	CWA73C5441	O
14	ELECTRONIC CONTROLLER - INDICATOR & RECEIVER	1	CWA746284	O
15	INDICATOR HOLDER	1	CWD933338	
16	SENSOR COMPLETE	1	CWA50C2401	O
17	DISCHARGE GRILLE COMPLETE	1	CWE20C3154	
18	VERTICAL VANE	11	CWE241350	
19	CONNECTING BAR	1	CWE261152	
20	CONNECTING BAR	1	CWE261153	
21	CONNECTING BAR	1	CWE261154	
22	CONNECTING BAR	1	CWE261155	
23	A.S.MOTOR, DC SINGLE 12V 300OHM	1	CWA981264	O
24	HORIZONTAL VANE	1	CWE24C1341	
25	CAP - DRAIN TRAY	1	CWH521096	
26	CONTROL BOARD TOP COVER	1	CWH131447	
27	CONTROL BOARD FRONT COVER	1	CWH13C1233	
28	REMOTE CONTROL CO. (WIRELESS)	1	CWA75C3733	O
29	FRONT GRILLE COMPLETE	1	CWE11C5002	O
30	INTAKE GRILLE COMPLETE	1	CWE22C1692	
31	AIR FILTER	2	CWD001316	O
32	SCREW - FRONT GRILLE	4	XTT4+16CFJ	
33	CAP - FRONT GRILLE	2	CWH521194	
34	DRAIN HOSE	1	CWH851173	
35	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1824	
36	INSTALLATION PLATE	1	CWH361097	
37	FULCRUM	1	CWH621102	
38	OPERATING INSTRUCTION	1	CWF567912	
39	INSTALLATION INSTRUCTION	1	CWF614738	
40	FAN MOTOR BRACKET	1	CWD541160	
41	AIR FILTER (SMALL)	2	CWD001317	O
42	INSTALLATION INSTRUCTION	1	CWF614739	

**Note:**

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

## 17.1.2 CS-YC18MKF CS-YC24MKF



### 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.

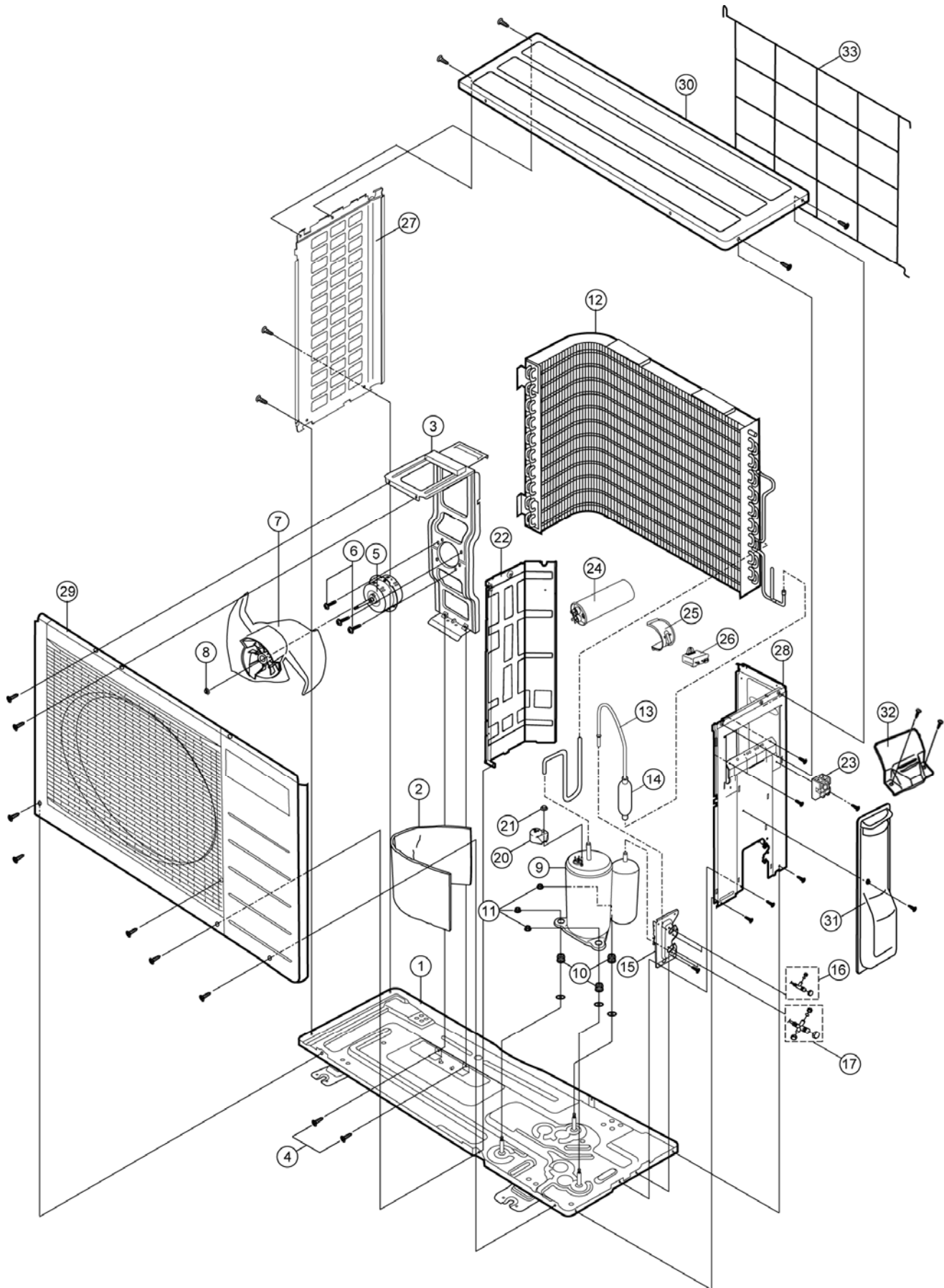
REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-YC18MKF	CS-YC24MKF	REMARK
1	CHASSIS COMPLETE	1	CWD50C1654	←	
2	FAN MOTOR	1	ARW7628AC	ARW7627AC	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1077	←	
4	SCREW - CROSS FLOW FAN	1	CWH551146	←	
5	BEARING ASS'Y	1	CWH64K007	←	O
7	EVAPORATOR	1	CWB30C3126	CWB30C3125	
8	FLARE NUT (LIQUID)	1	CWT251026	←	
9	FLARE NUT (GAS)	1	CWT251062	CWT251036	
10	HOLDER SENSOR	1	CWH32143	←	
12	BACK COVER CHASSIS	1	CWD933031	←	
13	CONTROL BOARD CASING	1	CWH102434	←	
14	TERMINAL BOARD COMPLETE	1	CWA28C2504	CWA28C2508	O
16	ELECTRONIC CONTROLLER - MAIN	1	CWA73C5468	CWA73C5461	O
19	ELECTRONIC CONTROLLER - INDICATOR & RECEIVER	1	CWA746284	←	O
24	INDICATOR HOLDER	1	CWD933338	←	
26	SENSOR COMPLETE	1	CWA50C2401	←	O
34	DISCHARGE GRILLE COMPLETE	1	CWE20C3162	←	
35	VERTICAL VANE	13	CWE241355	←	
36	CONNECTING BAR	1	CWE261230	←	
37	CONNECTING BAR	1	CWE261231	←	
38	CONNECTING BAR	1	CWE261232	←	
39	CONNECTING BAR	1	CWE261233	←	
40	CONNECTING BAR	1	CWE261234	←	
41	A.S.MOTOR, DC SINGLE 12V 300OHM	1	CWA981241	←	O
44	HORIZONTAL VANE	1	CWE24C1377	←	
45	CAP - DRAIN TRAY	1	CWH521096	←	
46	CONTROL BOARD TOP COVER	1	CWH131447	←	
47	CONTROL BOARD FRONT COVER	1	CWH13C1233	←	
48	REMOTE CONTROL CO. (WIRELESS)	1	CWA75C3733	←	O
50	FRONT GRILLE COMPLETE	1	CWE11C5056	CWE11C5003	O
51	INTAKE GRILLE COMPLETE	1	CWE22C1693	←	
53	AIR FILTER	2	CWD001318	←	O
54	SCREW - FRONT GRILLE	3	XTT4+16CFJ	←	
55	CAP - FRONT GRILLE	3	CWH521194	←	
56	DRAIN HOSE	1	CWH851173	←	
57	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1824	←	
58	INSTALLATION PLATE	1	CWH361098	←	
59	FULCRUM	2	CWH621103	←	
60	OPERATING INSTRUCTION	1	CWF567912	←	
61	INSTALLATION INSTRUCTION	1	CWF614738	←	
62	INSTALLATION INSTRUCTION	1	CWF614739	←	
65	FAN MOTOR BRACKET	1	CWD541160	←	
66	AIR FILTER (SMALL)	2	CWD001319	←	O

**Note:**

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

## 17.2 Outdoor Unit

### 17.2.1 CU-YC12MKF



#### Note

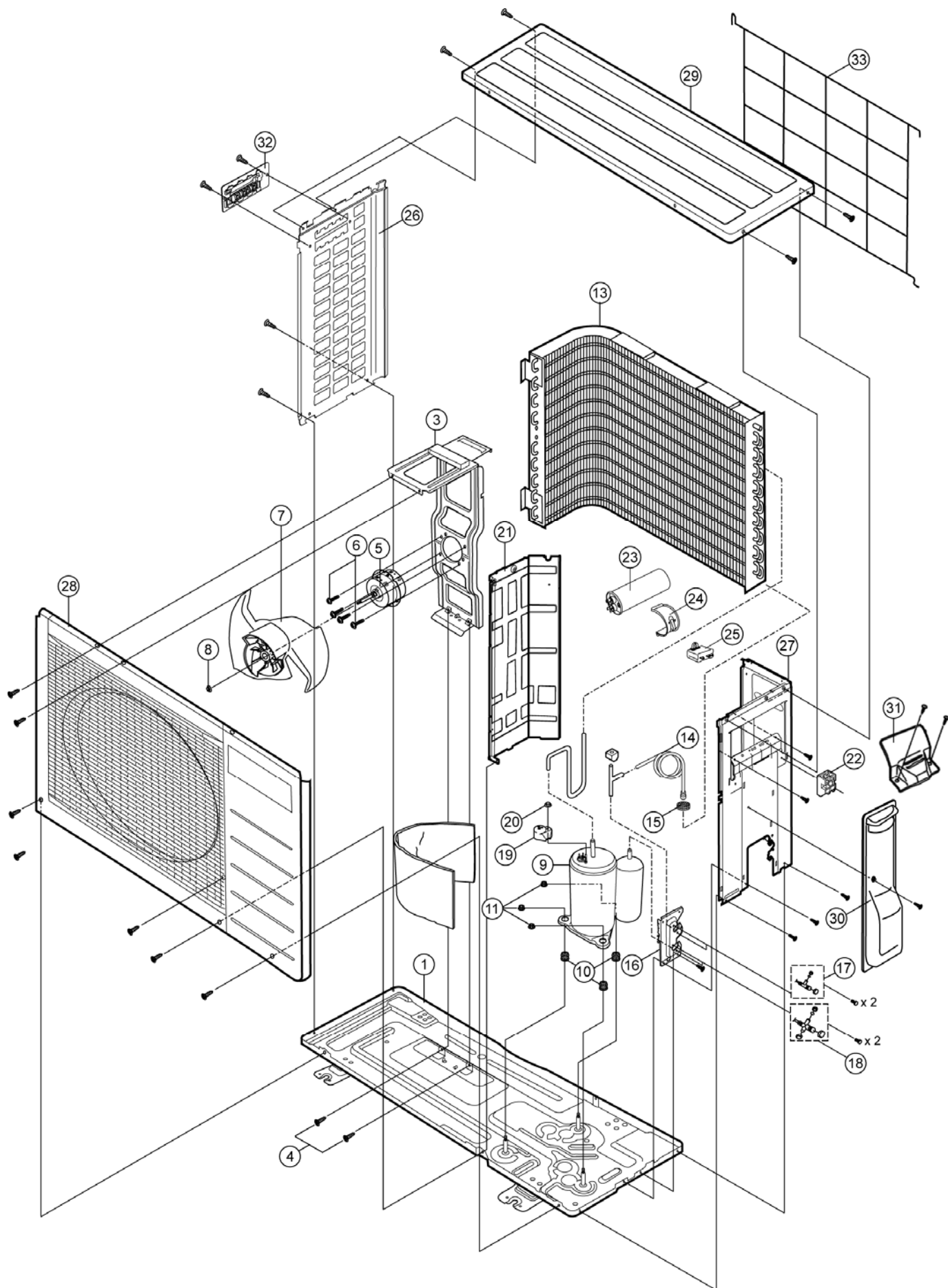
The above exploded view is for the purpose of parts disassembly and replacement.  
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	CU-YC12MKF	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.

## 17.2.2 CU-YC18MKF



### 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.



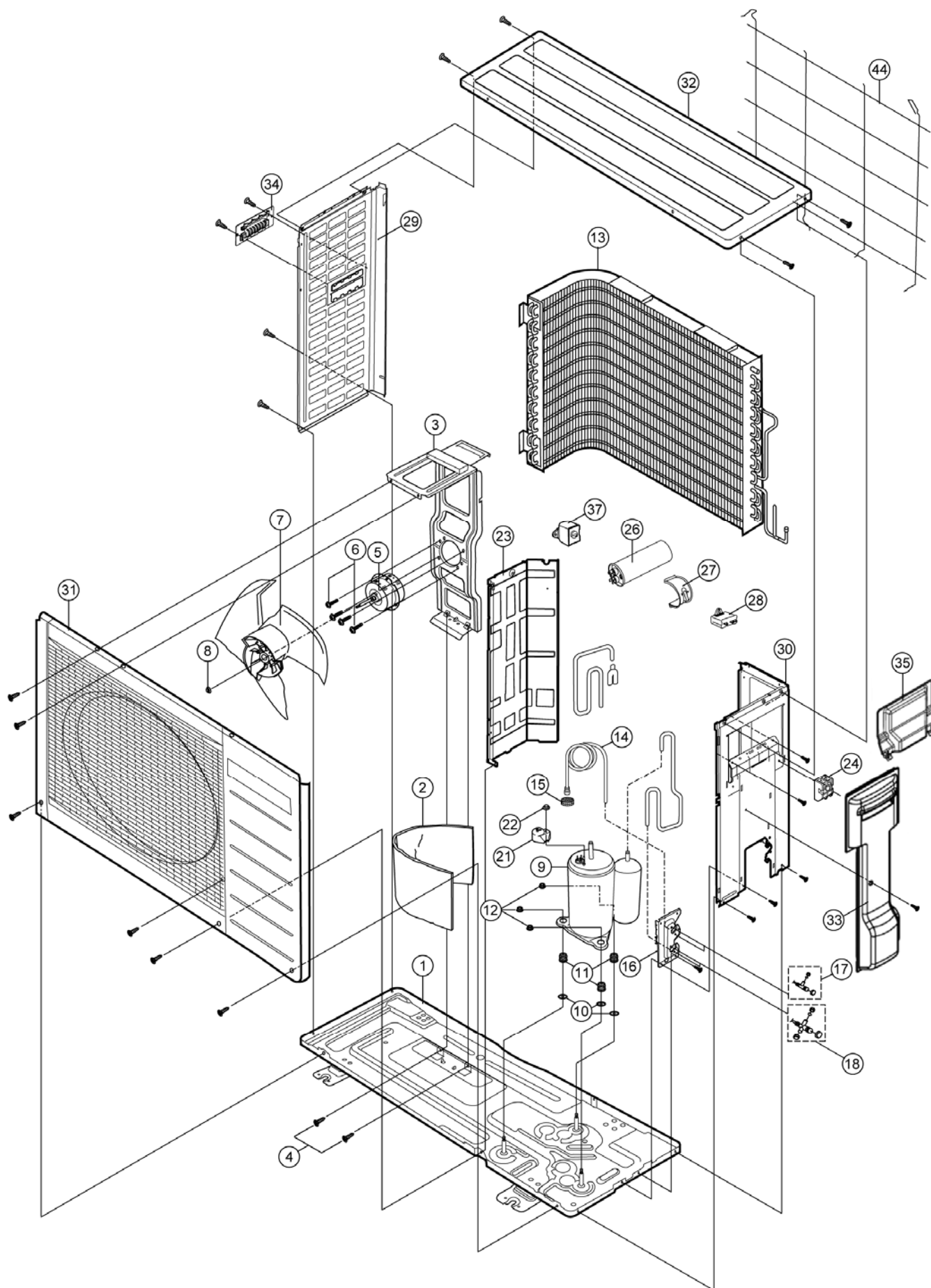
REF. NO.	PART NAME & DESCRIPTION	QTY	CU-YC18MKF	REMARK
1	CHASSIS ASS'Y	1	CWD50K2088	
3	FAN MOTOR BRACKET	1	CWD541030B	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	
5	FAN MOTOR	1	CWA951676	O
6	SCREW - FAN MOTOR MOUNT	4	CWH55406J	
7	PROPELLER FAN ASS'Y	1	CWH03K1006	
8	NUT - PROPELLER FAN	1	CWH56053J	
9	COMPRESSOR	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	
15	STRAINER	1	CWB11025	
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 (L)	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	
31	CONTROL BOARD COVER	1	CWH131295	
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.

### 17.2.3 CU-YC24MKF



#### 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-YC24MKF	REMARK
1	CHASSIS ASS'Y	1	CWD52K1248	
2	SOUND PROOF MATERIAL	1	CWG302221	
3	FAN MOTOR BRACKET	1	CWD541154	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	
5	FAN MOTOR	1	CWA951689	O
6	SCREW - FAN MOTOR MOUNT	4	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 (L)	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	1	CWH131409A	
37	THERMOSTAT	1	CWA151061	
44	WIRE NET	1	CWD041160A	

(Note)

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