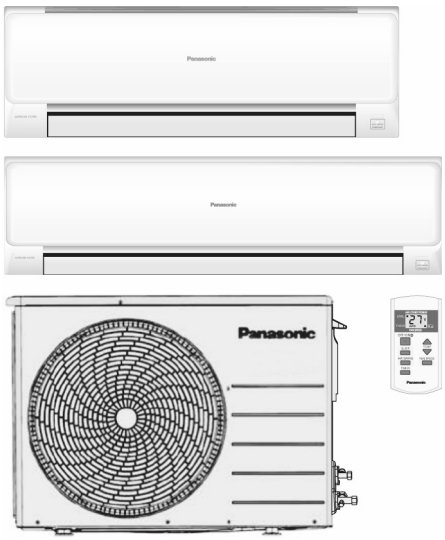
Order No. APIN1404001CE

Service Manual

Air Conditioner



Indoor Unit	Outdoor Unit
CS-UC12QKD	CU-UC12QKD
CS-UC18QKD	CU-UC18QKD
CS-UC24QKD	CU-UC24QKD

(Manufactured in India)

Destination
Ivory Coast
Senegal

⚠ 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.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

Panasonic®

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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.

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

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

⃠	This symbol denotes item that is 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.

⚠ **WARNING**	
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.
24. Using of refrigerant other than the specified type may cause product damage, burst and injury etc.

⚠ 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 room air conditioner. Use approved power supply cord 3 x 1.5 mm^2 (1.5HP) or 3 x 2.5 mm^2 (2.0~2.5HP) type designation IS 694 or 60245 IEC 57 or heavier cord. Power supply point should be in easily accessible place for power disconnection in case of emergency. In some countries, permanent connection of this air conditioner to the power supply is prohibited. i. Power supply connection to the receptacle using power plug. Use an approved 15/16A (1.5HP) or 16A (2.0HP) or 20A (2.5HP) power plug with earth pin for the connection to the socket. ii. Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A (1.5~2.0HP) or 20A (2.5HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap.
8. Do not release refrigerant during piping work for installation, servicing, reinstallation and during repairing a refrigerant parts. Take care of the liquid refrigerant, it may cause frostbite.
9. Installation or servicing work: It may need two people to carry out the installation or servicing work.
10. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
11. Do not sit or step on the unit, you may fall down accidentally.
12. Do not touch the sharp aluminum fins or edges of metal parts. If you are required to handle sharp parts during installation or servicing, please wear hand glove. Sharp parts may cause injury.

2. Specifications

Model			Indoor	CS-UC12QKD		CS-UC18QKD		CS-UC24QKD	
			Outdoor	CU-UC12QKD		CU-UC18QKD		CU-UC24QKD	
Performance Test Condition				India Standard					
Power Supply			Phase, Hz	Single, 50					
			V	220	230	220	230	220	230
Cooling	Capacity		kW	3.34	3.36	5.42	5.45	6.48	6.50
			BTU/h	11400	11500	18500	18600	22100	22200
			kcal/h	2870	2890	4660	4690	5570	5590
	Running Current		A	4.9	4.9	8.2	8.1	9.8	9.7
	Input Power		W	1.05k	1.10k	1.79k	1.82k	2.13k	2.17k
	EER		W/W	3.18	3.05	3.03	2.99	3.04	3.00
			BTU/hW	10.86	10.45	10.34	10.22	10.38	10.23
	Power Factor		%	97	98	99	98	99	97
	Indoor Noise		dB-A	43 / 33	43 / 33	48 / 41	48 / 41	50 / 42	50 / 42
			Power Level dB	56 / -	58 / -	61 / -	61 / -	63 / -	63 / -
	Outdoor Noise		dB-A	54 / -	54 / -	57 / -	58 / -	61 / -	62 / -
			Power Level dB	69 / -	69 / -	72 / -	73 / -	76 / -	77 / -
Max Current (A) / Max Input Power (W)				6.1 / 1.39k		10.4 / 2.34k		12.0 / 2.71k	
Starting Current (A)				20.3		38.0		52.0	
Compressor		Type		Rotary (1 cylinder) rolling piston type		Rotary (1 cylinder) rolling piston type		Rotary (1 cylinder) rolling piston type	
		Motor Type		Induction (2-poles)		Induction (2-poles)		Induction (2-poles)	
		Output Power	W	900		1.5k		1.9k	
Indoor Fan	Type			Cross-flow Fan		Cross-flow Fan		Cross-flow Fan	
	Material			ASG20K1		ASG30K1		ASG30K1	
	Motor Type			DC / Transistor (8-poles)		DC / Transistor (8-poles)		DC / Transistor (8-poles)	
	Input Power		W	46.2		94.8		94.8	
	Output Power		W	40		40		40	
	Speed	Lo	rpm	830		1060		1150	
		Me	rpm	1000		1190		1310	
		Hi	rpm	1180		1320		1470	
		SHi	rpm	—		—		—	
Outdoor Fan	Type			Propeller Fan		Propeller Fan		Propeller Fan	
	Material			PP		PP		PP	
	Motor Type			AC / Induction (6-poles)		AC / Induction (6-poles)		AC / Induction (4-poles)	
	Input Power		W	69.5		69.5		118.0	
	Output Power		W	36		36		60	
	Speed	Lo	rpm	—		—		—	
		Hi	rpm	900	910	900	910	1150	1190
Moisture Removal			L/h (Pt/h)	1.9 (4.0)		2.9 (6.1)		3.7 (7.8)	
Indoor Airflow		Lo	m^3/min. (ft^3/min.)	8.4 (298)		13.6 (479)		14.6 (517)	
		Me	m^3/min. (ft^3/min.)	10.2 (359)		15.2 (538)		16.7 (589)	
		Hi	m^3/min. (ft^3/min.)	12.0 (424)		16.9 (597)		18.7 (660)	
		SHi	m^3/min. (ft^3/min.)	—		—		—	
Outdoor Airflow		Lo	m^3/min. (ft^3/min.)	—		—		—	
		Hi	m^3/min. (ft^3/min.)	35.6 (1260)	36.0 (1270)	35.6 (1260)	36.0 (1270)	45.3 (1600)	46.9 (1660)
Refrigeration Cycle		Control Device		Capillary Tube		Capillary Tube		Capillary Tube	
		Refrigerant Oil	cm^3	ATMOS M60 or SUNISO 4GDID (350 cm^3)		ATMOS M60 or SUNISO 4GDID (450 cm^3)		ATMOS M60 or SUNISO 4GDID (750 cm^3)	
		Refrigerant Type	g (oz)	R22, 590 (20.8)		R22, 760 (26.8)		R22, 810 (28.6)	

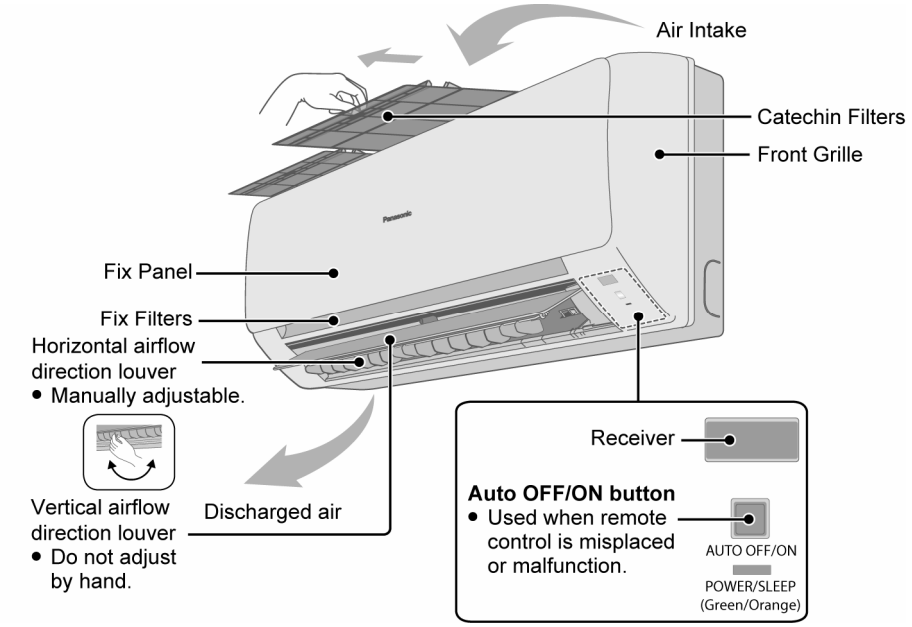
Model			Indoor	CS-UC12QKD		CS-UC18QKD		CS-UC24QKD	
			Outdoor	CU-UC12QKD		CU-UC18QKD		CU-UC24QKD	
Dimension		Height (I/D / O/D)	mm (inch)	290 (11-7/16) / 619 (24-3/8)		290 (11-7/16) / 619 (24-3/8)		290 (11-7/16) / 619 (24-3/8)	
		Width (I/D / O/D)	mm (inch)	870 (34-9/32) / 824 (32-15/32)		1070 (42-5/32) / 824 (32-15/32)		1070 (42-5/32) / 824 (32-15/32)	
		Depth (I/D / O/D)	mm (inch)	200 (7-7/8) / 299 (11-25/32)		220 (8-11/16) / 299 (11-25/32)		220 (8-11/16) / 299 (11-25/32)	
Weight		Net (I/D / O/D)	kg (lb)	9 (20) / 27 (60)		12 (26) / 36 (79)		12 (26) / 39 (86)	
Piping	Pipe Diameter (Liquid / Gas)		mm (inch)	6.35 (1/4) / 12.70 (1/2)		6.35 (1/4) / 12.70 (1/2)		6.35 (1/4) / 15.88 (5/8)	
	Standard length		m (ft)	5.0 (16.4)		5.0 (16.4)		5.0 (16.4)	
	Length range (min~max)		m (ft)	3 (9.8) ~ 15 (49.2)		3 (9.8) ~ 15 (49.2)		3 (9.8) ~ 15 (49.2)	
	I/D & O/D Height different		m (ft)	5 (16.4)		5 (16.4)		5 (16.4)	
	Additional Gas Amount		g/m (oz/ft)	10 (0.1)		20 (0.2)		30 (0.3)	
	Length for Additional Gas		m (ft)	7.5 (24.6)		7.5 (24.6)		7.5 (24.6)	
Drain Hose		Inner Diameter	mm	15		15		15	
		Length	mm	650		650		650	
Indoor Heat Exchanger		Fin Material		Aluminium (Pre Coat)		Aluminium (Pre Coat)		Aluminium (Pre Coat)	
		Fin Type		Slit Fin		Slit Fin		Slit Fin	
		Row × Stage × FPI		2 × 15 × 17		2 × 15 × 17		2 × 15 × 21	
		Size (W × H × L)	mm	610 × 315 × 25.4		810 × 315 × 25.4		810 × 315 × 25.4	
Outdoor Heat Exchanger		Fin material		Aluminium		Aluminium		Aluminium	
		Fin Type		—		—		—	
		Row × Stage × FPI		1 × 57 × 1.3		1 × 57 × 1.3		1 × 57 × 1.2	
		Size (W × H × L)	mm	13.85 × 590.5 × 607.5		13.85 × 590.5 × 607.5		13.85 × 568.2 × 766.5	
Air Filter		Material		Polypropelene		Polypropelene		Polypropelene	
		Type		One-touch		One-touch		One-touch	
Power Supply				Indoor Power Supply		Indoor Power Supply		Indoor Power Supply	
Power Supply Cord			A	15		16		20	
Thermostat				—		—		—	
Protection Device				Overload Protector		—		—	
				Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb
Indoor Operation Range			Maximum °C	35	24	35	24	35	24
			Minimum °C	16	11	16	11	16	11
Outdoor Operation Range			Maximum °C	46	27	46	27	46	27
			Minimum °C	16	11	16	11	16	11

Note:

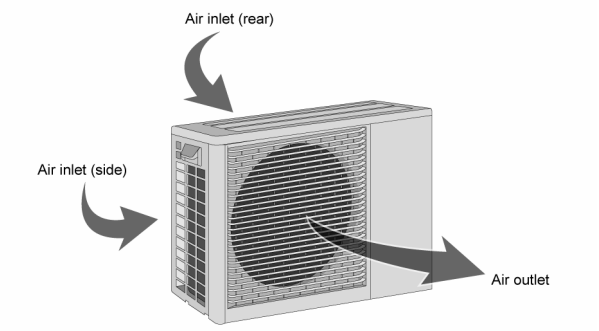
- Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
- Specification are subjected to change without prior notice for further improvement.

3. Location of Controls and Components

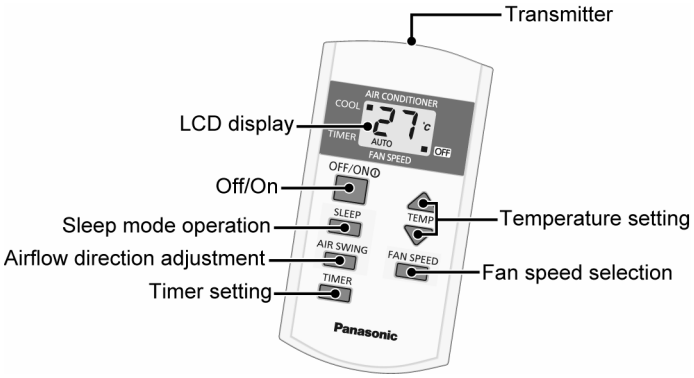
3.1 Indoor Unit



3.2 Outdoor Unit



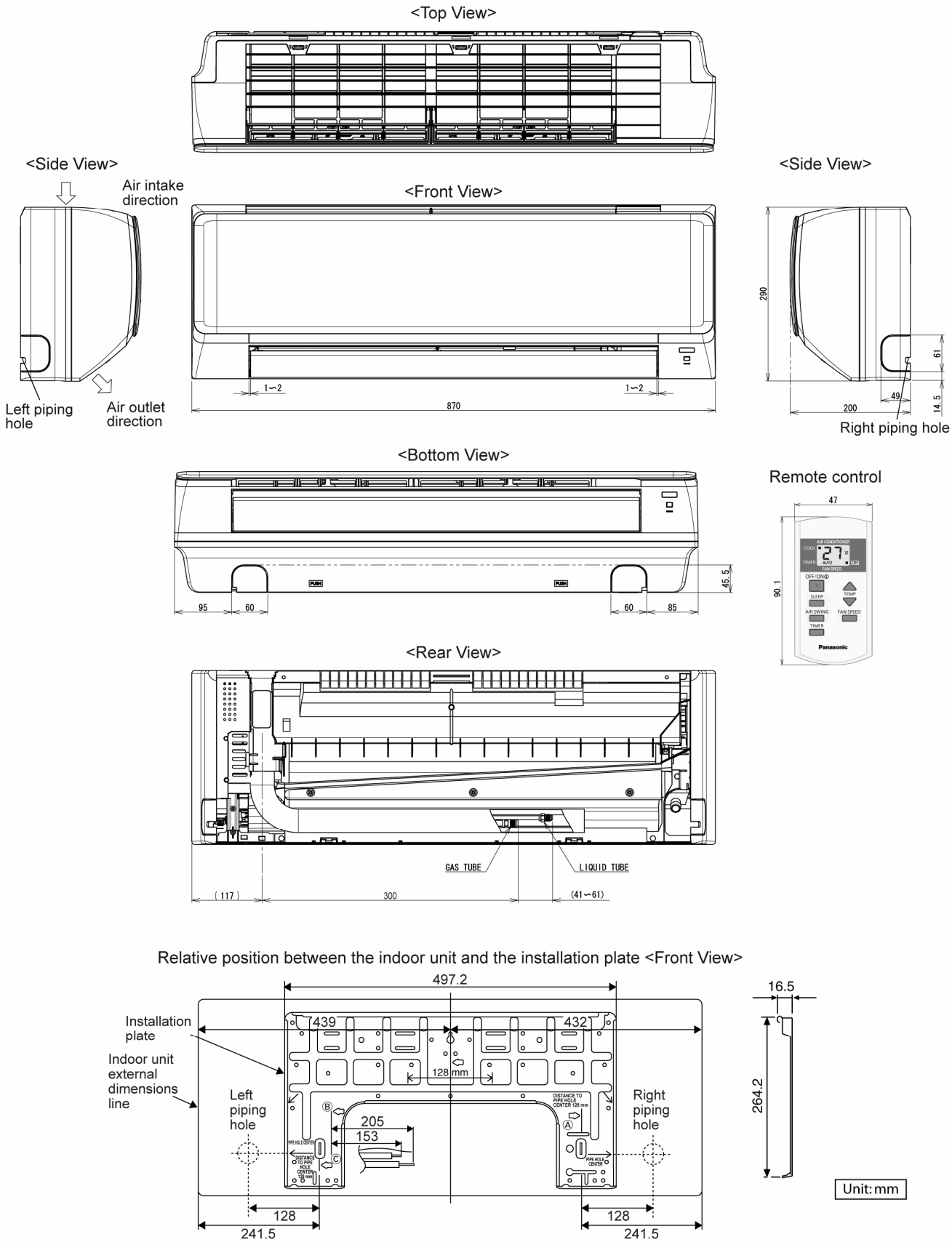
3.3 Remote Control



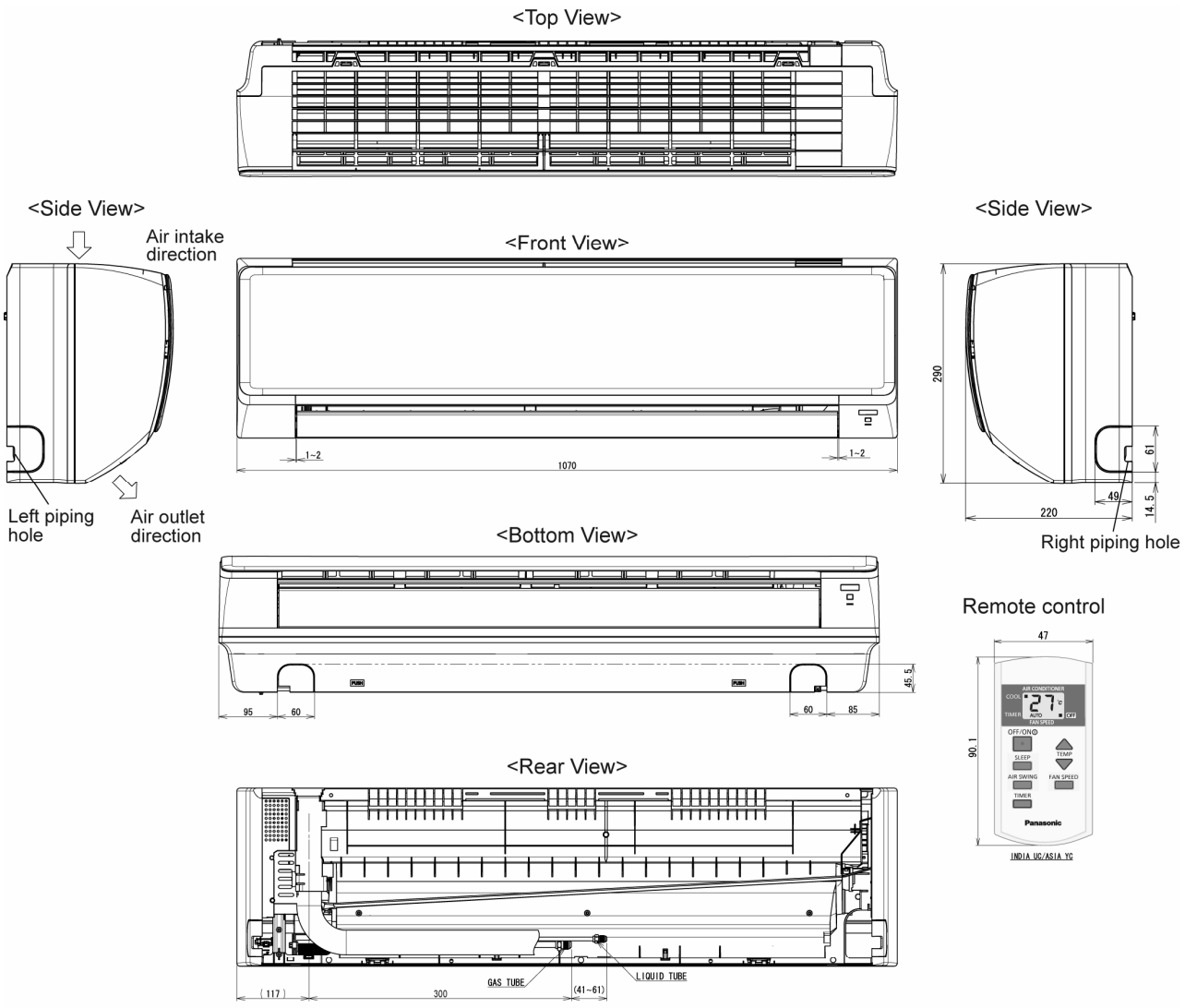
4. Dimensions

4.1 Indoor Unit & Remote Control

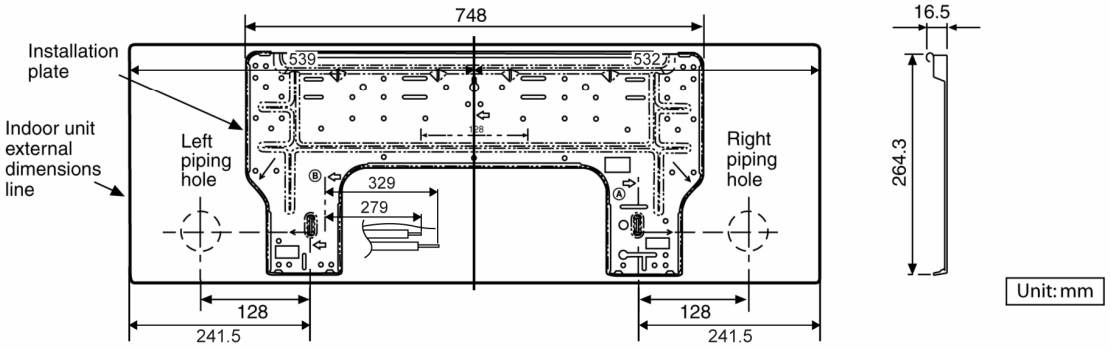
4.1.1 CS-UC12QKD



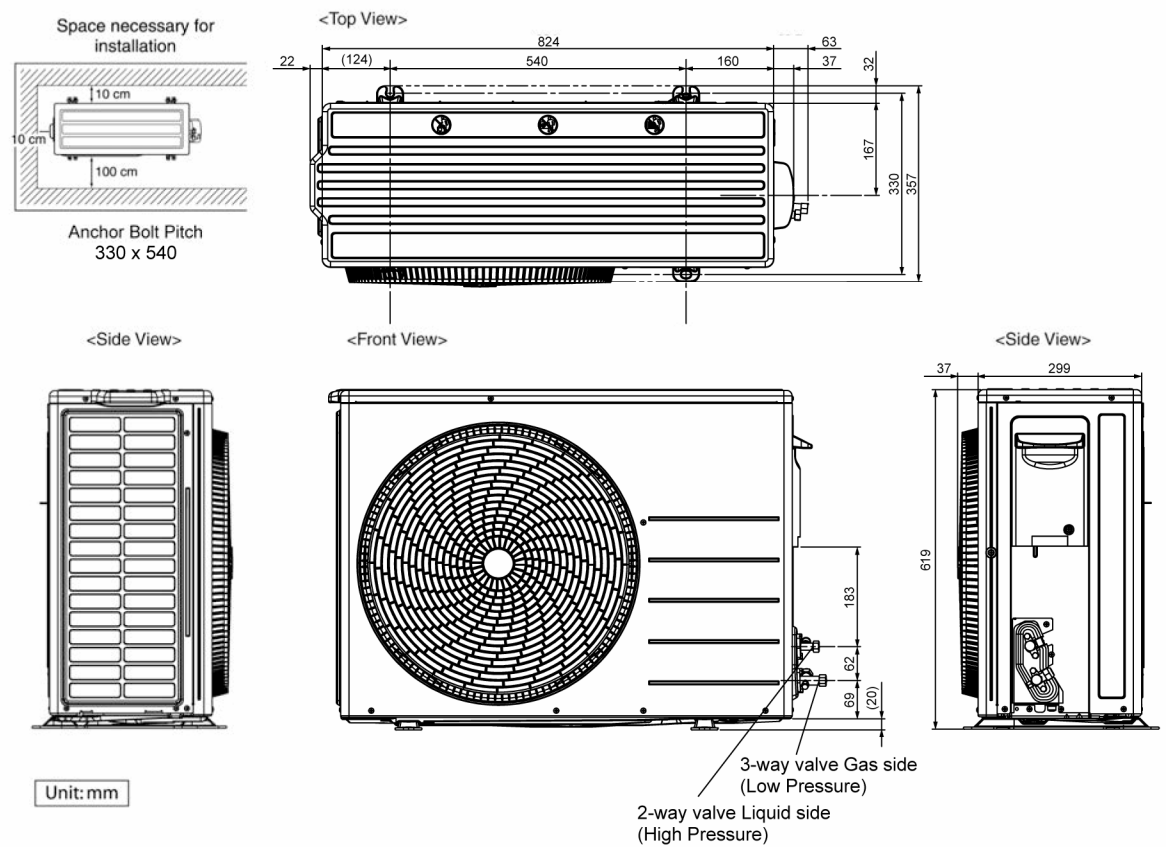
4.1.2 CS-UC18QKD CS-UC24QKD



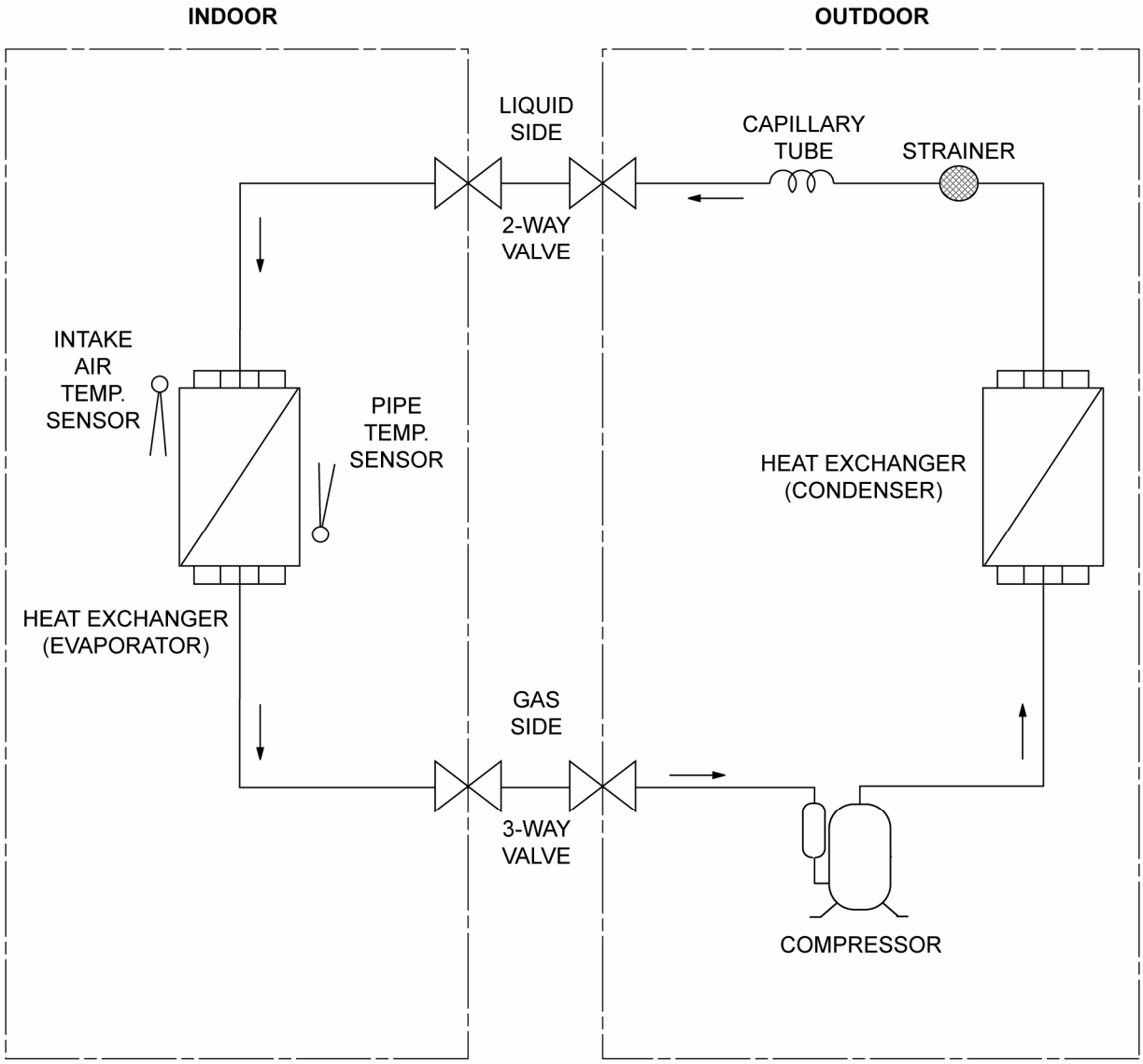
Relative position between the indoor unit and the installation plate <Front View>



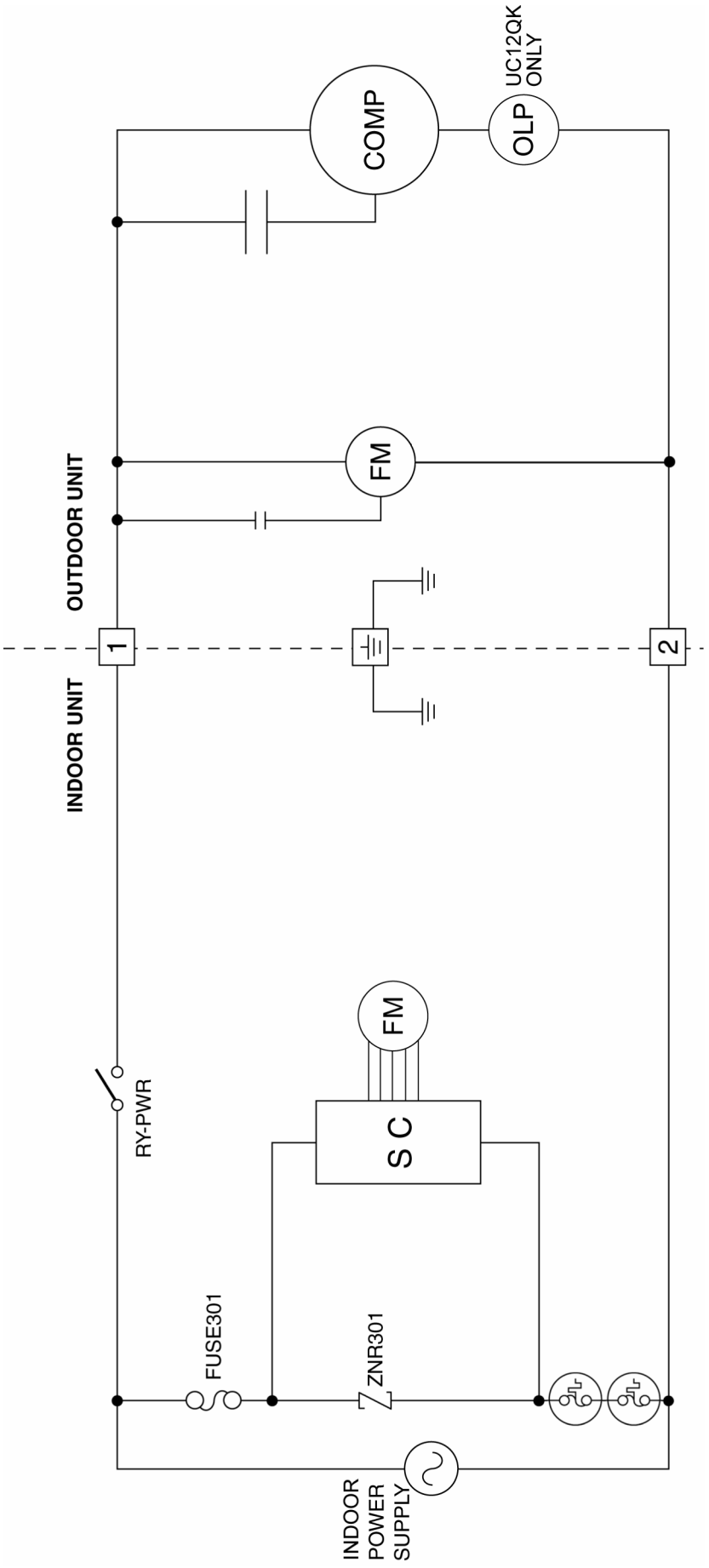
4.2 Outdoor Unit



5. Refrigeration Cycle Diagram

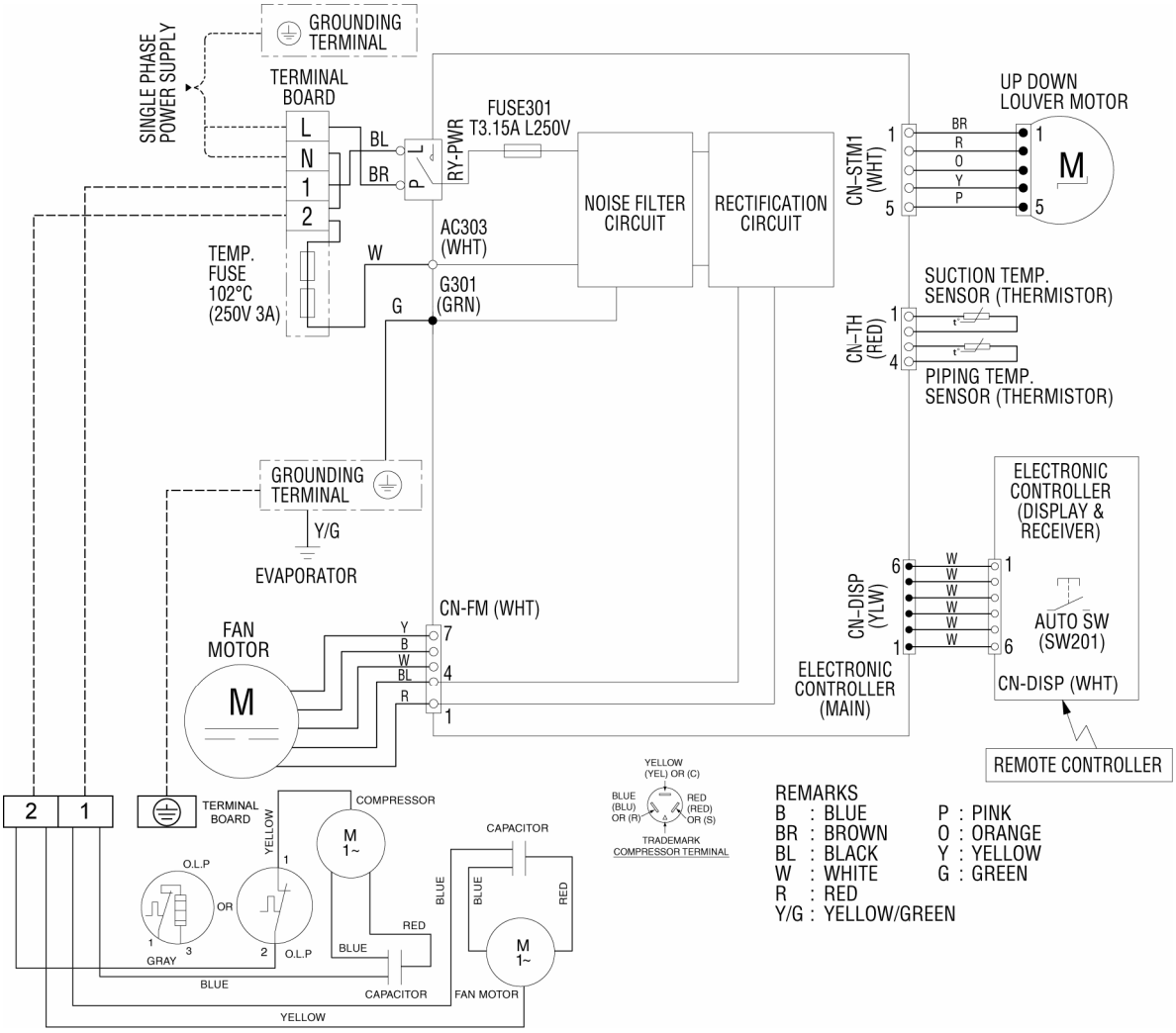


6. Block Diagram



7. Wiring Connection Diagram

7.1 CS-UC12QKD CU-UC12QKD



Resistance of Outdoor Fan Motor Windings

MODEL	CU-UC12QKD
CONNECTION	CWA951802
BLUE-YELLOW	357.6 Ω
YELLOW-RED	252.3 Ω

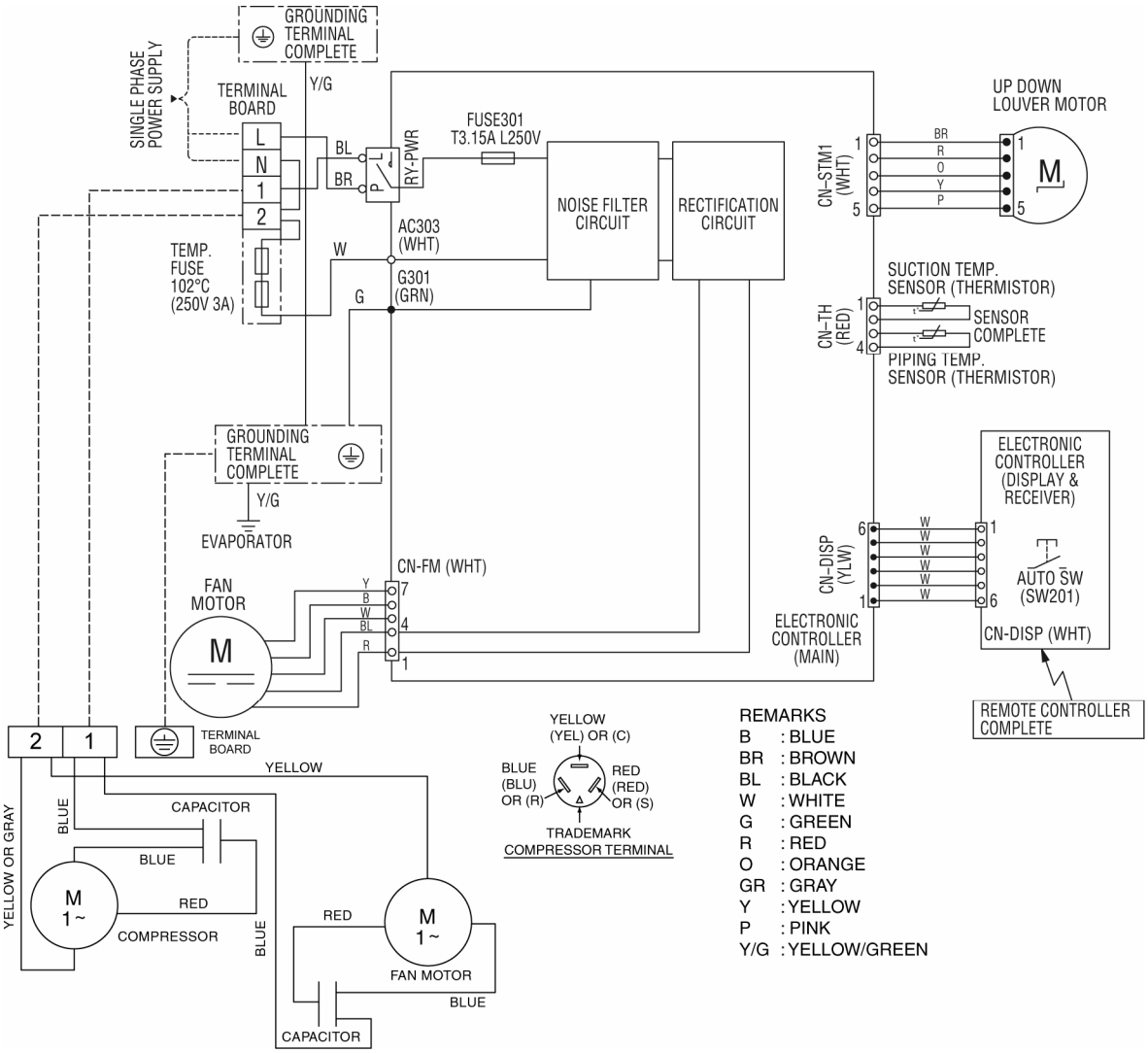
Note: Resistance at 20˚C of ambient temperature.

Resistance of Compressor Windings

MODEL	CU-UC12QKD
CONNECTION	2PS192D3BA06
C - R	4.673 Ω
C - S	4.895 Ω

Note: Resistance at 20˚C of ambient temperature.

7.2 CS-UC18QKD CU-UC18QKD



Resistance of Outdoor Fan Motor Windings

MODEL	CU-UC18QKD
CONNECTION	CWA951802
BLUE-YELLOW	357.6 Ω
YELLOW-RED	252.3 Ω

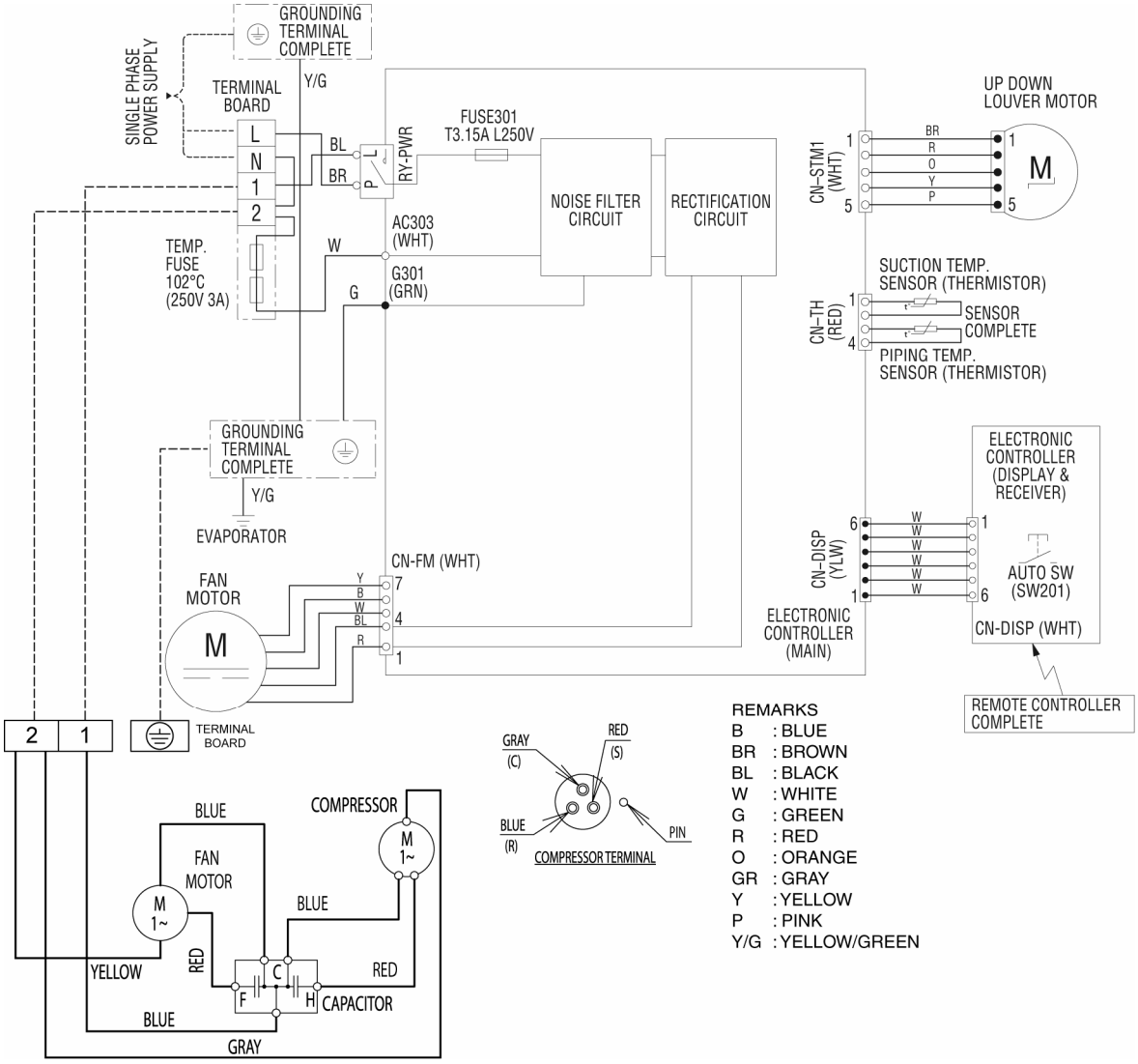
Note: Resistance at 20˚C of ambient temperature.

Resistance of Compressor Windings

MODEL	CU-UC18QKD
CONNECTION	2KS324D5CB06
C – R	1.716 Ω
C - S	2.704 Ω

Note: Resistance at 20˚C of ambient temperature.

7.3 CS-UC24QKD CU-UC24QKD



Resistance of Outdoor Fan Motor Windings

MODEL	CU-UC24QKD
CONNECTION	CWA921512
BLUE-YELLOW	129.3 Ω
YELLOW-RED	78.3 Ω

Note: Resistance at 20˚C of ambient temperature.

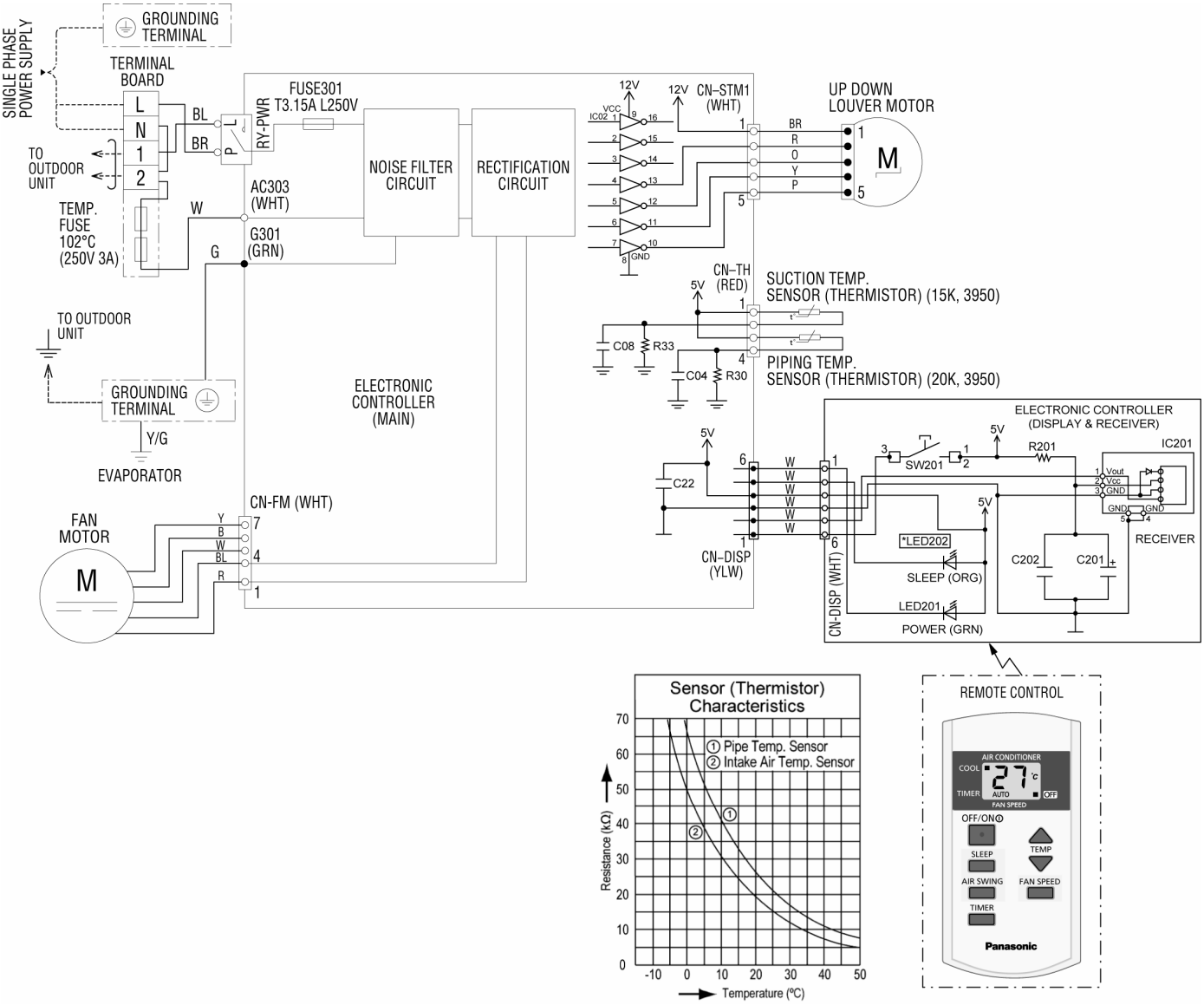
Resistance of Compressor Windings

MODEL	CU-UC24QKD
CONNECTION	2V40S225AUC
C - R	1.367 Ω
C - S	1.981 Ω

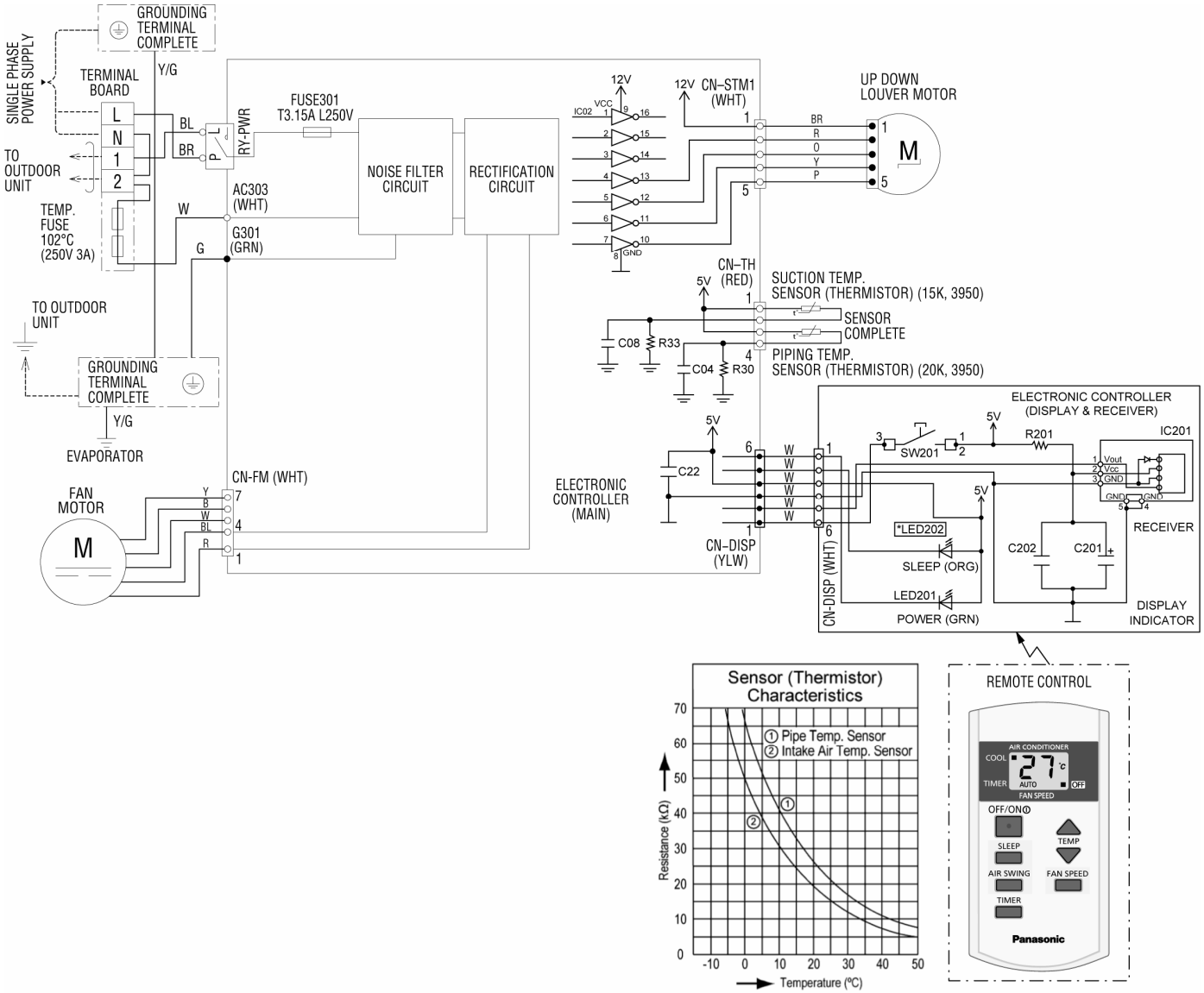
Note: Resistance at 20˚C of ambient temperature.

8. Electronic Circuit Diagram

8.1 CS-UC12QKD



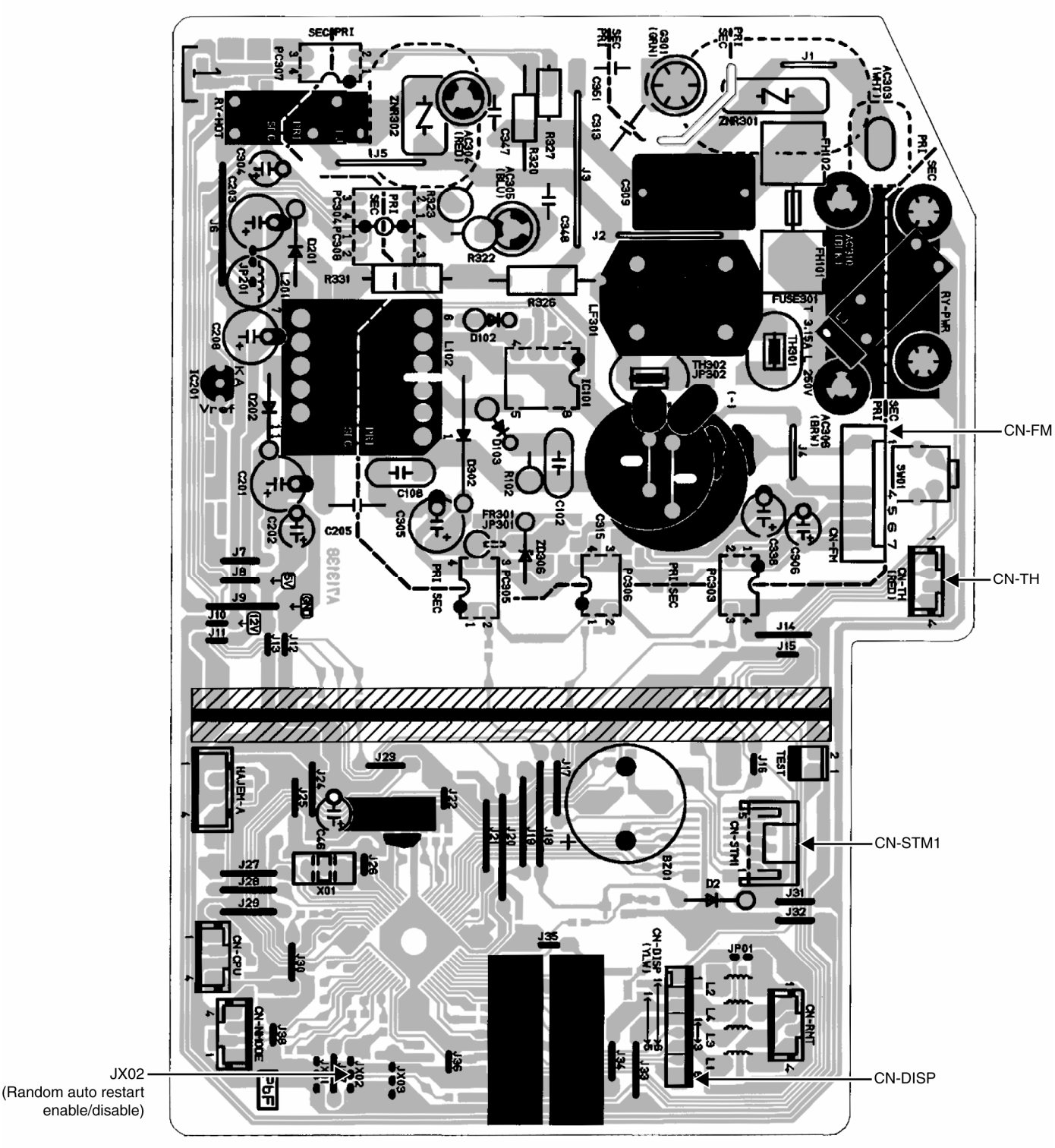
8.2 CS-UC18QKD CS-UC24QKD



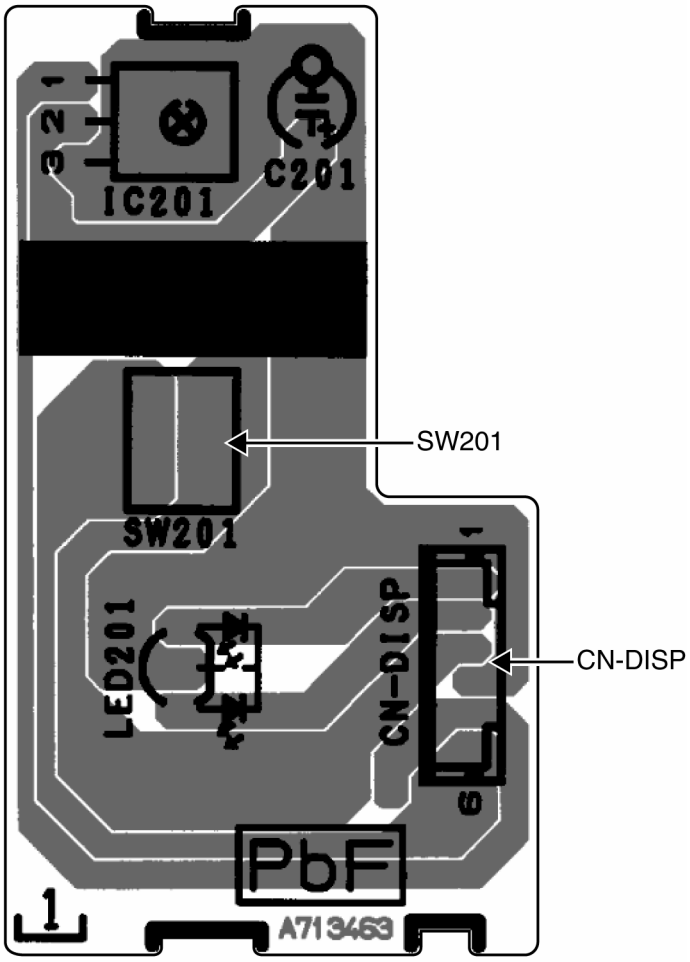
9. Printed Circuit Board

9.1 Indoor Unit

9.1.1 Main Printed Circuit Board



9.1.2 Indicator and Receiver 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.

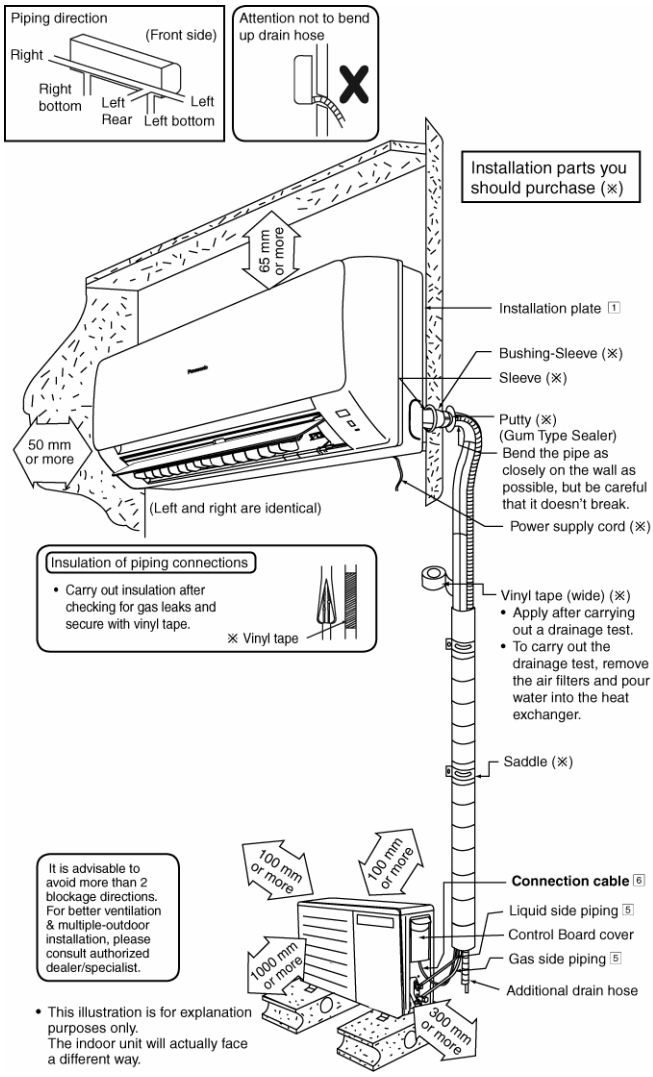
10.1.2 Outdoor Unit

- 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						
UC12***	1.5HP	12.7 mm (1/2")	6.35 mm (1/4")	5	5	3	15	10	7.5
UC18***	2.0HP				5	3	15	20	7.5
UC24***	2.5HP	15.88 mm (5/8")			5	3	15	30	7.5

Example: For UC12***
If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 25 g .... (10-7.5) m x 10 g/m = 25 g.

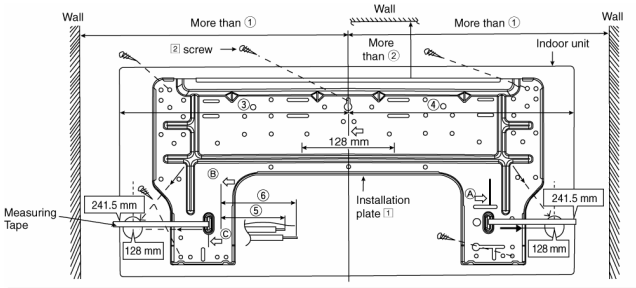
10.1.3 Indoor/Outdoor Unit Installation Diagram



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
UC12***	490 mm	82 mm	439 mm	432 mm	153 mm	205 mm
UC18***, UC24***	590 mm	82 mm	539 mm	532 mm	279 mm	329 mm

The center 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 center to unit's left side is ③.
From installation plate center to unit's right side is ④.

Ⓑ : For left side piping, piping connection for liquid should be about ⑤ from this line.
: For left side piping, piping connection for gas should be about ⑥ from this line.

1. 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.

2. Drill the piping plate hole with ø70 mm hole-core drill.

- Putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively. Another method is intersection point of arrow mark extension. The meeting point of the extension arrow mark is the hole center position.
- Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side. (refer to step 10.2.2)

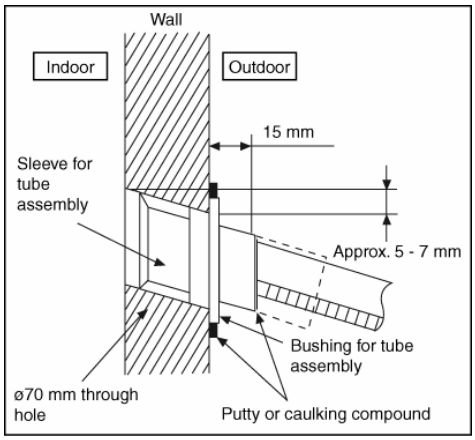
10.2.2 To Drill a Hole in the Wall and Install a Sleeve of Piping

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

CAUTION

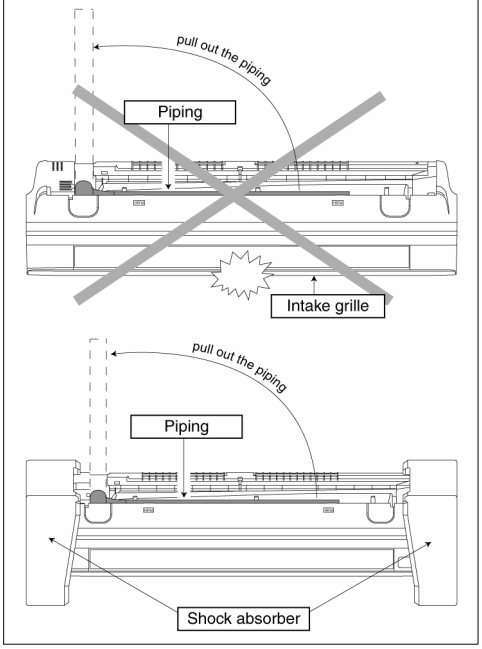
When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connecting cable.

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



10.2.3 Indoor Unit Installation

- Do not turn over the unit without it's shock absorber during pull out the piping.
It may cause intake grille damage.
- Use shock absorber during pull out the piping to protect the intake grille from damage.



1. 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

2. 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 connecting 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.)

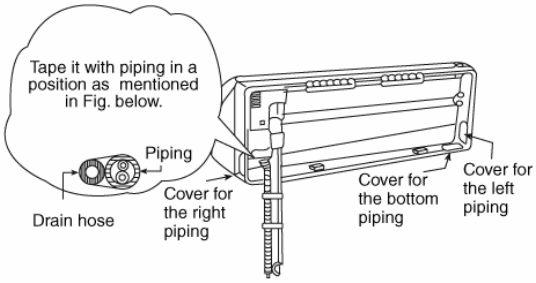
Step-7 Insulate and finish the piping

↓

- Please refer to "Insulation of piping connection" column as mentioned in indoor/outdoor unit installation.

Step-8 Secure the Indoor Unit

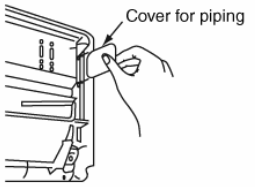
Right and Right Bottom piping



How to keep the cover

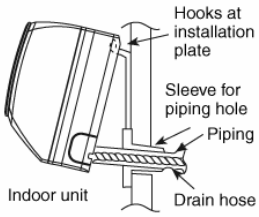
In case of the cover is cut, keep the cover at the rear of chassis as shown in the illustration for future reinstallation.

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



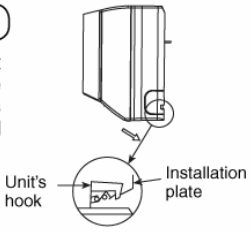
Install the indoor unit

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.

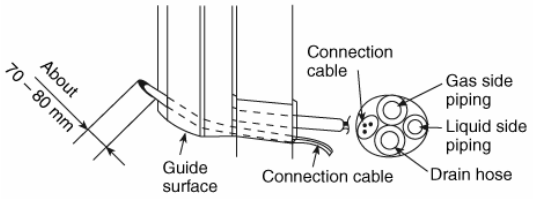


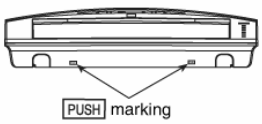
Secure the Indoor Unit

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



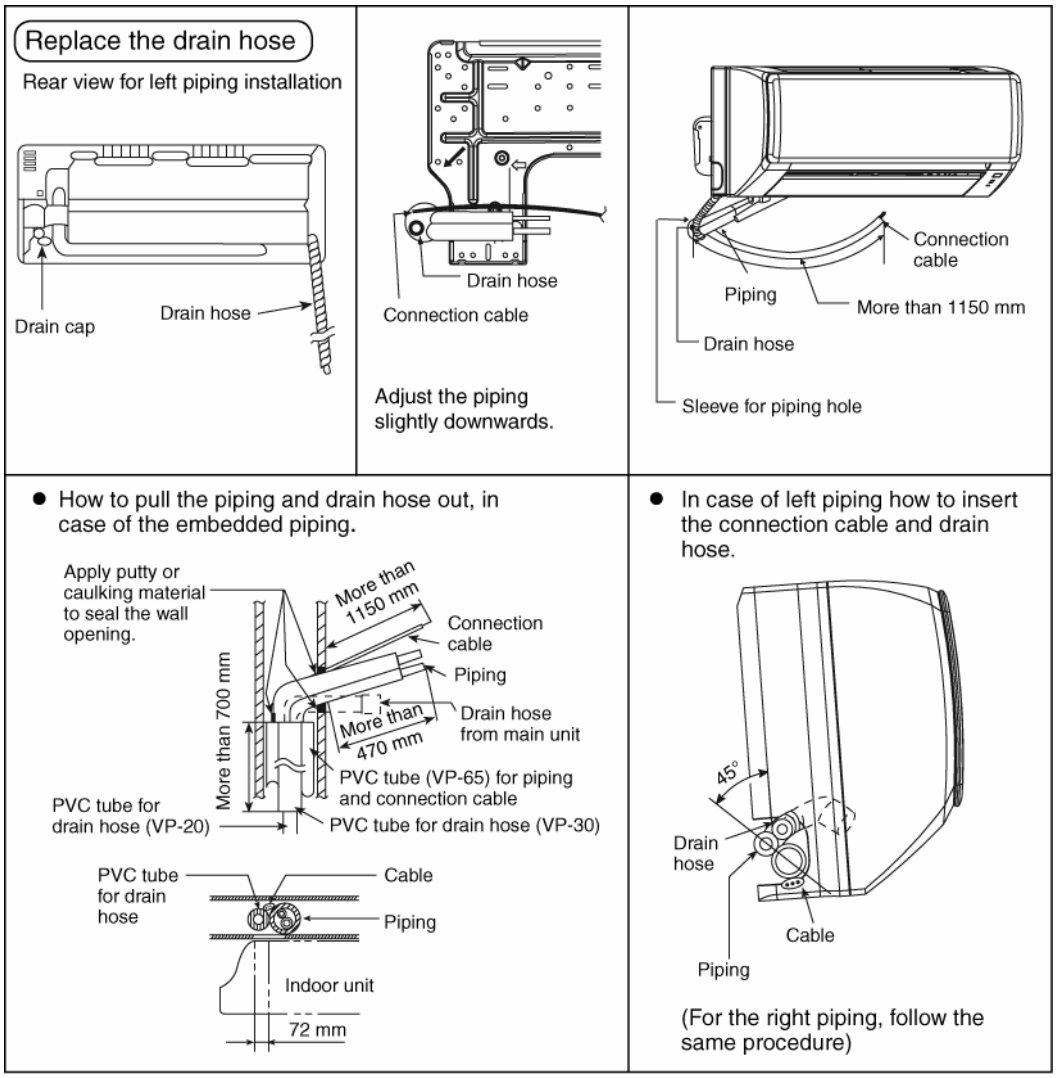
Insert the connection cable





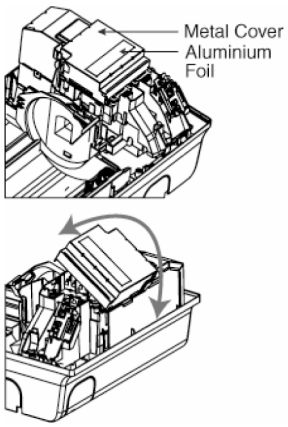
To take out the unit, push the PUSH marking at the bottom unit, and pull it slightly towards you to disengage the hooks from the unit.

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



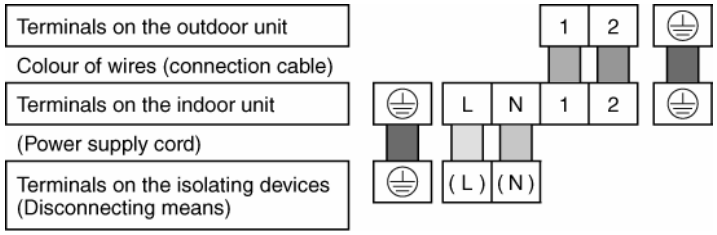
10.2.4 Connect the Cable to the Indoor Unit

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 PVC sheathed or polychloroprene sheathed **power supply cord** 3 x 1.5 mm^2 (1.5HP) or 3 x 2.5 mm^2 (2.0~2.5HP), type designation IS 694 or 60245 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.

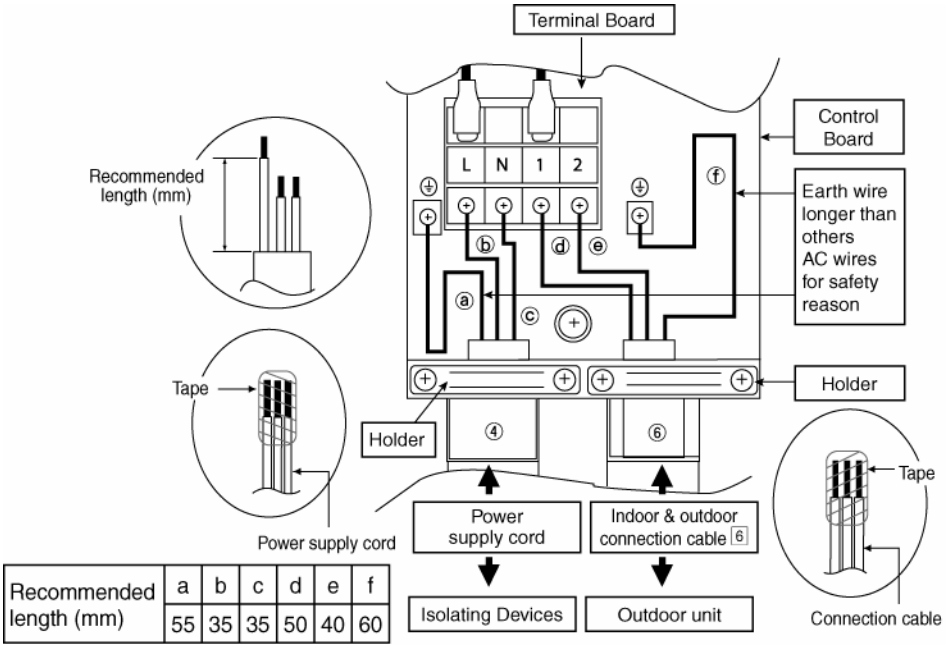


5 Bind all the power supply cord lead wire with tape and route the power supply cord via the left escapement.
6 **Connection cable** between indoor unit and outdoor unit shall be approved type PVC sheathed or polychloroprene sheathed 3 x 1.0 mm^2 (1.5HP) or 3 x 1.5 mm^2 (2.0~2.5HP) or 3 x 2.5 mm^2 (2.5HP) flexible 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 connection 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 aluminium foil. Ensure metal cover is fitted at both end.
11 Install front grille and tighten front grille to chassis with screw.



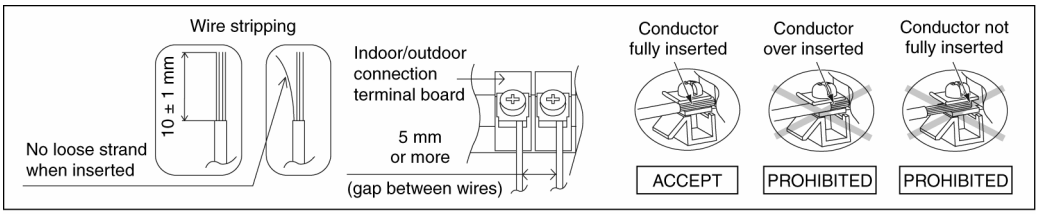
WARNING

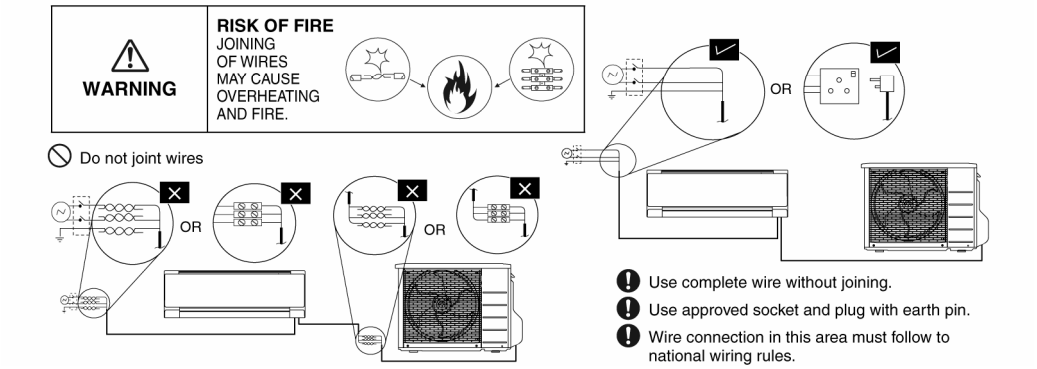
This equipment must be properly earthed.

Note:

- Isolating Devices (Disconnecting means) should have minimum 3.0 mm 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 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

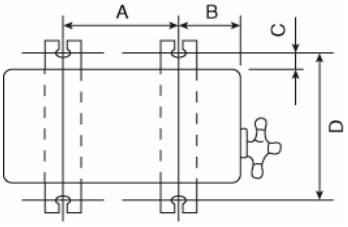




10.3 Outdoor Unit

10.3.1 Install the Outdoor Unit

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



Model	A	B	C	D
UC12***, UC18***, UC24***	540 mm	160 mm	18.5 mm	330 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)

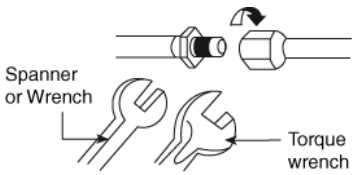
Connect the piping

- 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.

Do not over tighten, over tightening 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)]

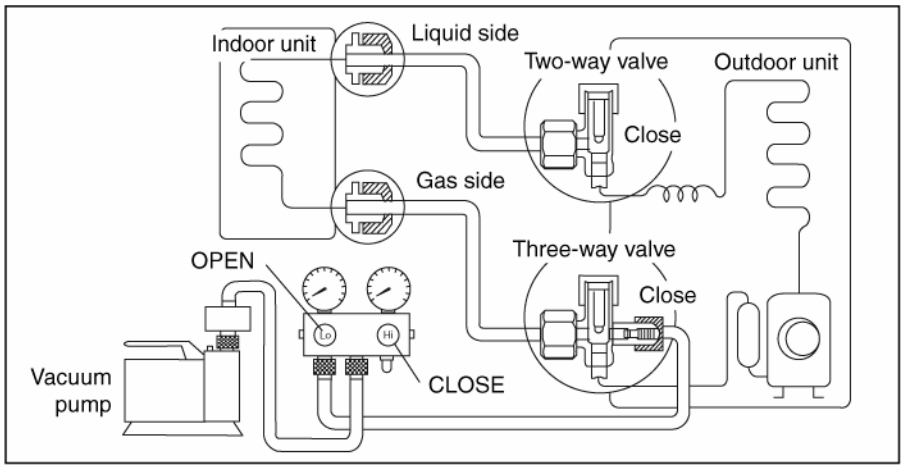
10.3.2.2 Connecting the Piping to Outdoor

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 valve and then tighten with torque wrench to the specified torque as stated in the table.



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.



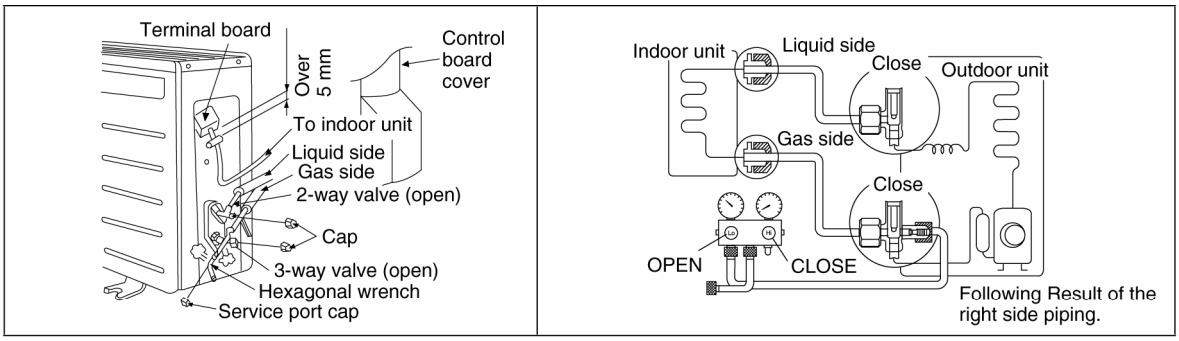
1 Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
   - Be sure to connect the end of the charging hose with the push pin to the service port.
2 Connect the center hose of the charging set to a vacuum pump.
3 Turn on the power switch of 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 REFRIGERANT GAS LEAKAGE.
5 Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
6 Tighten the service port caps of the 3-way valve at a torque of 18N•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.

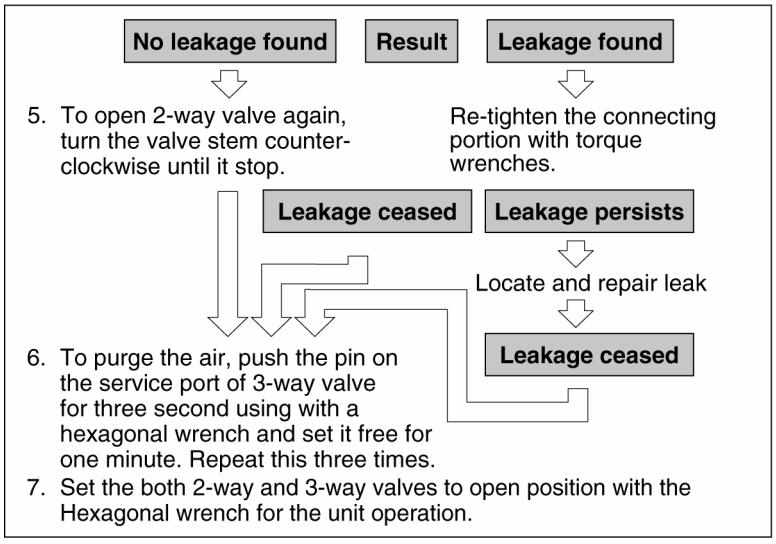
- If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step ③ above take the following measure:
- If the leak stops when the piping connections are tightened further, continue working from step ③.
- If the leak does not stop when the connections are retightened, repair the location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

10.3.4 Air Purging of the Piping and Indoor

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

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





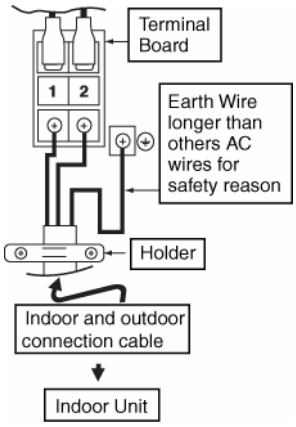
4(A). Checking gas leakage for left piping
1) a. Connect the manifold gauge to the service port of 3-way valve.
   b. Measure the pressure.
2) a. Keep it for 5-10 minutes.
   b. Ensure that the pressure indicated on the gauge is the same as that of measured during the first time.

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 type PVC sheathed or polychloroprene sheathed 3 x 1.0 mm^2 (1.5HP) or 3 x 1.5 mm^2 (2.0HP) or 3 x 2.5 mm^2 (2.5HP) flexible cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.

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

3 Secure the cable onto the control board with the holder (clamper).
4 Attach the control board cover back to the original position with screw.
5 For wire stripping and connection requirement, refer to instruction 10.2.5 of indoor unit.



WARNING

This equipment must be properly earthed.

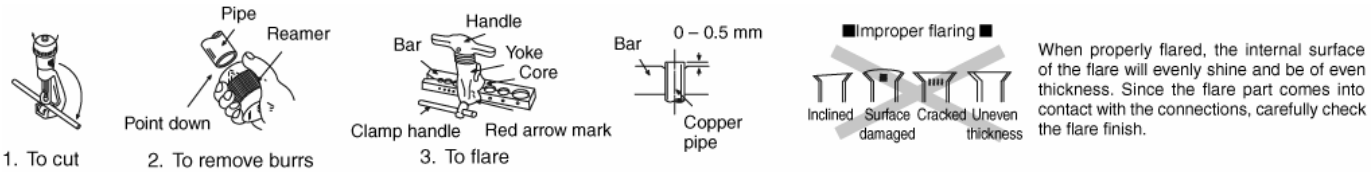
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

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 6 mm or above.

Cutting and Flaring the Piping

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

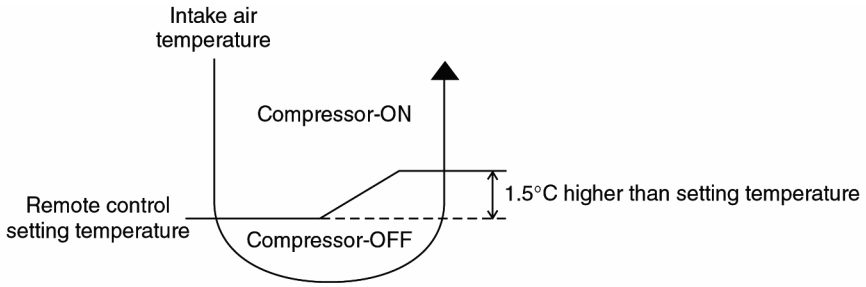


1. To cut
2. To remove burrs
3. To flare

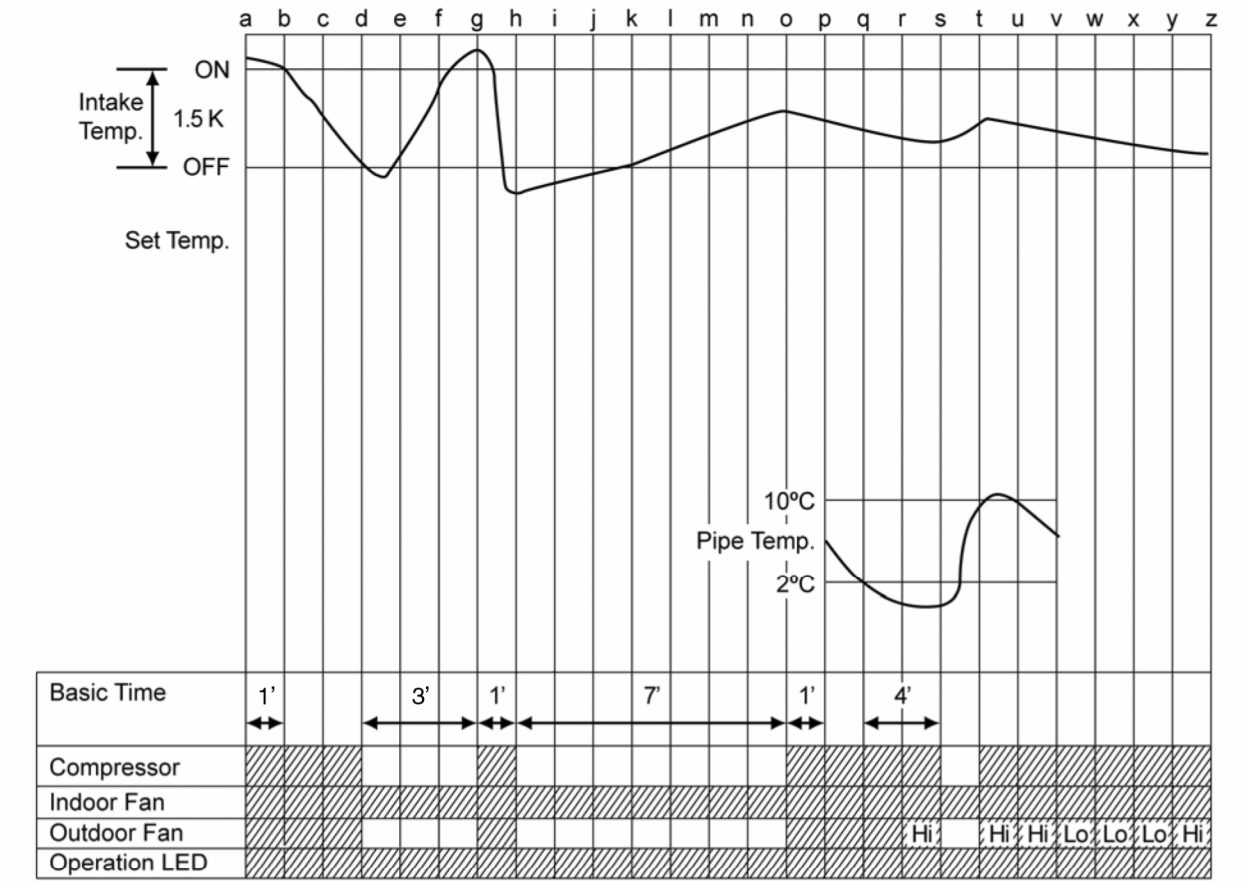
11. Operation and Control

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.

Operation

Stop

11.2 Indoor Fan Speed Control

- Indoor Fan Speed can be set using remote control.

11.2.1 Fan Speed Rotation Chart

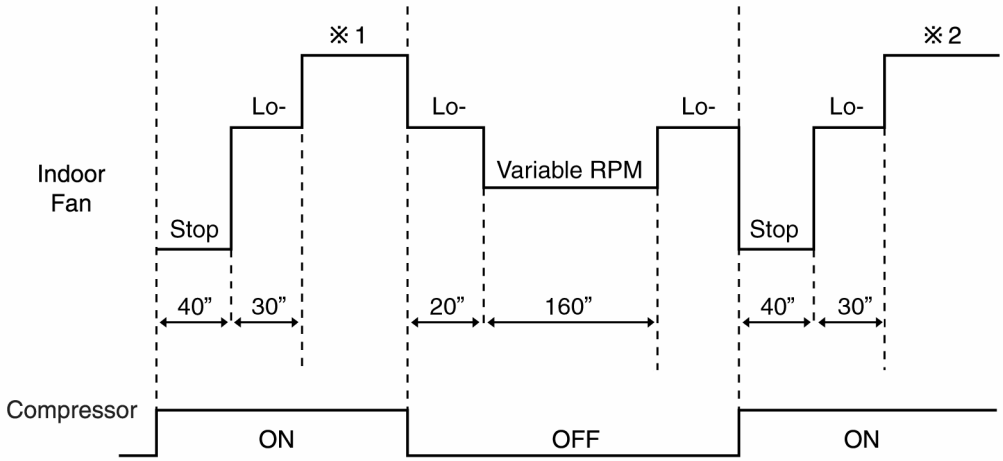
Speed	Fan Speed (rpm)		
	UC12QKD	UC18QKD	UC24QKD
Hi	1180	1320	1470
Me	1000	1190	1310
H Lo	870	1130	1210
C Lo	830	1060	1150
Lo-	790	850	970
S Lo	770	670	750

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



※ 1 Fan Speed is Hi until the compressor stops (when the room temperature reaches setting temperature).

※ 2 Fan Speed is Me after the compressor restarts.

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 ≥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.

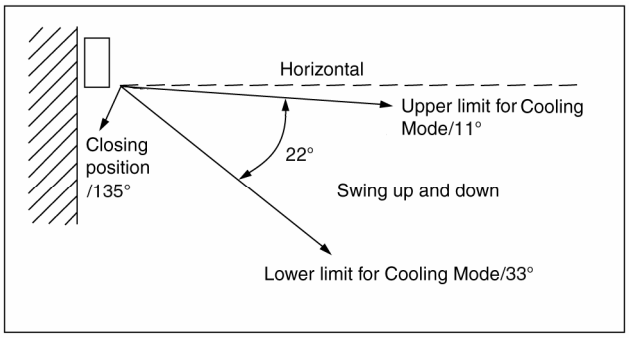
11.3 Outdoor Fan Speed Control

- There is only one speed for outdoor fan motor.
- 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.

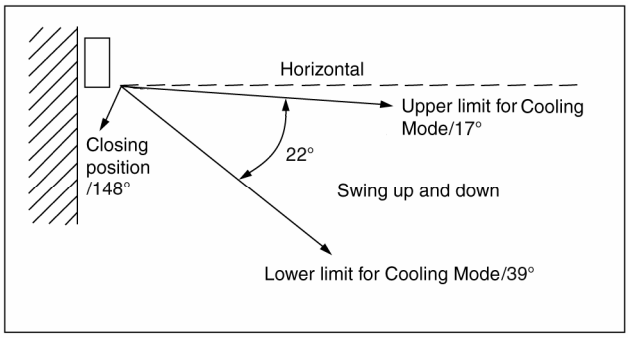
11.4 Vertical Airflow Direction Control

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.



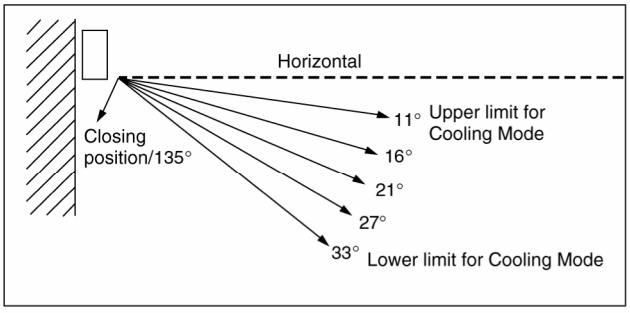
UC12QKD



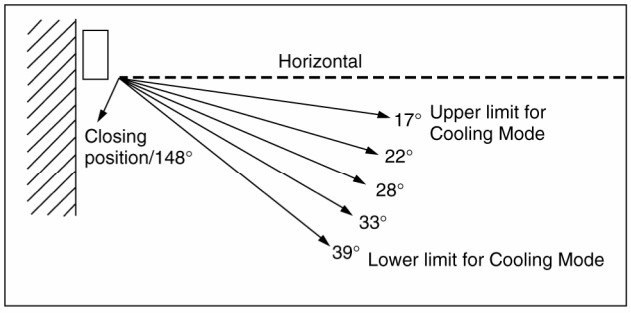
UC18QKD, UC24QKD

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.



UC12QKD



UC18QKD, UC24QKD

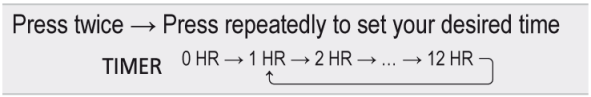
11.5 Horizontal Airflow Direction Control

- 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 TIMER.
- To cancel the timer, press TIMER once, then press again and hold for approximately 3 seconds.
- The timer will also be canceled when you press OFF/ON 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.

11.9 Sleep Mode Operation

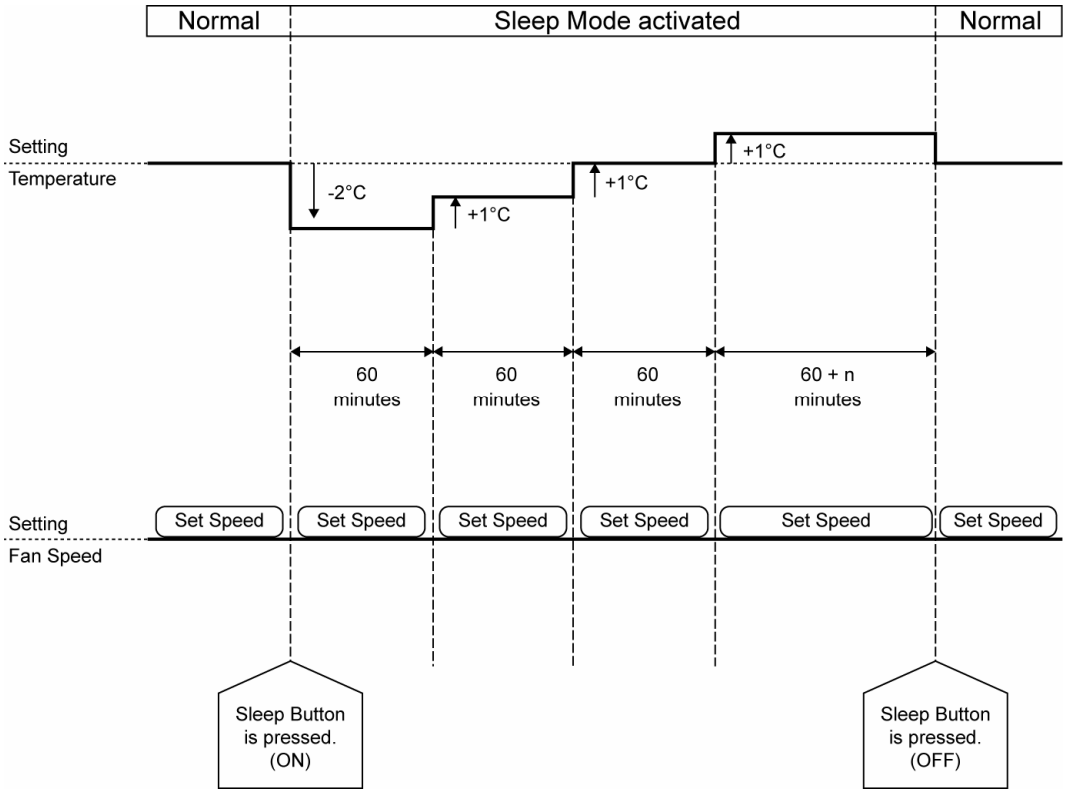
1 Start Condition
   - When **Sleep Button** on Remote Controller is pressed.

2 Stop Condition
   - When **Sleep Button** on Remote Controller is pressed again.

3 Control Details
   - Thermol-Shift

Status	Continuous Time	Temperature Shift
1	0 ≤ t < [60] min.	-2°C
2	[60] ≤ t < [120] min.	+1°C
3	[120] min. ≤ t < [180] min.	+1°C
4	[180] ≤ t	+1°C

- Fan Speed Control
  - Follow setting fan speed



Note: (1) Sleep mode maximum running hour is 8. After 8 hours, unit off automatically.
(2) When unit resume from power failure, it will resume operation at previous setting, except sleep mode.

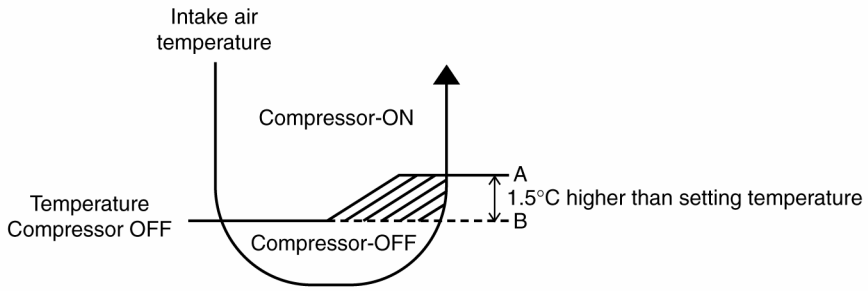
12. Protection Control

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

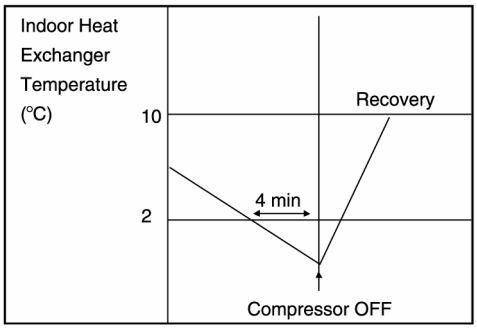
- Once the air conditioner is turned on, the compressor will not stop within 60 seconds in a normal operation although the intake air temperature has reached the thermo-off temperature. However, force stop by pressing the OFF/ON operation button at the remote control is permitted.
- The reason for the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

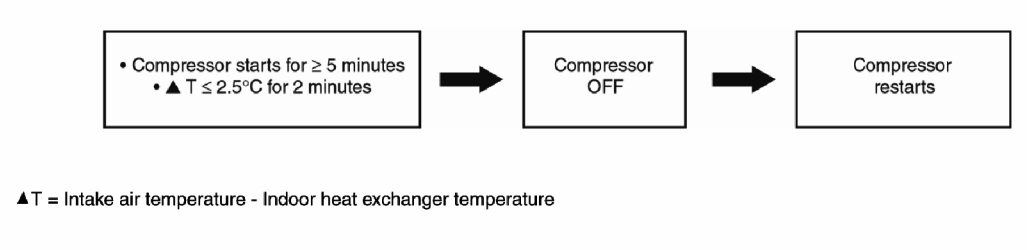
12.5 Freeze Preventive Control

- 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°C or less for continuous 2 minutes, compressor will stop and restart automatically.
- Time Delay Safety Control is activated before the compressor restart.



▲T = Intake air temperature - Indoor heat exchanger temperature

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

12.7 Dew Prevention control

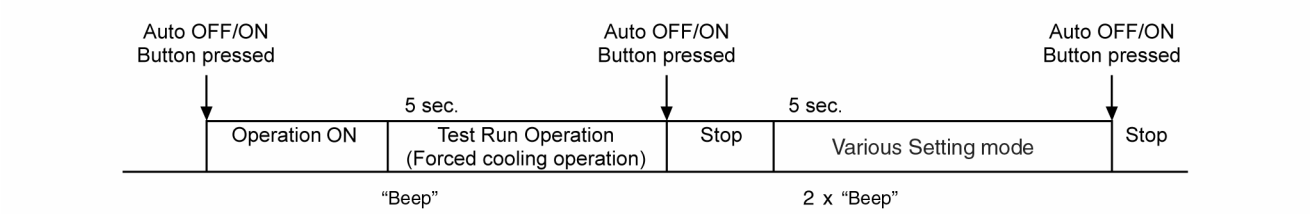
- To prevent dew formation at indoor unit discharge area.
- This control will be activated if:
  - Cooling mode.
  - Remote Control setting temperature is less than 25°C.
  - Fan speed is at CLo.
  - Room temperature is constant (±1°C) for 30 minutes.
  - Compressor is continuously running.
- Fan speed 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°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.

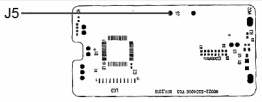
3 VARIOUS SETTING MODE
The Various Setting Mode will be activated if (within 20 seconds of Test Run Operation) the Auto OFF/ON button is pressed for more than 5 seconds. 2 "beep" sounds will be heard to identify the starting of this operation.

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.



Remote Control Printed Circuit Board	
Jumper A (J5)	Remote Control No.
Short	A (Default)
Open	B

- 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

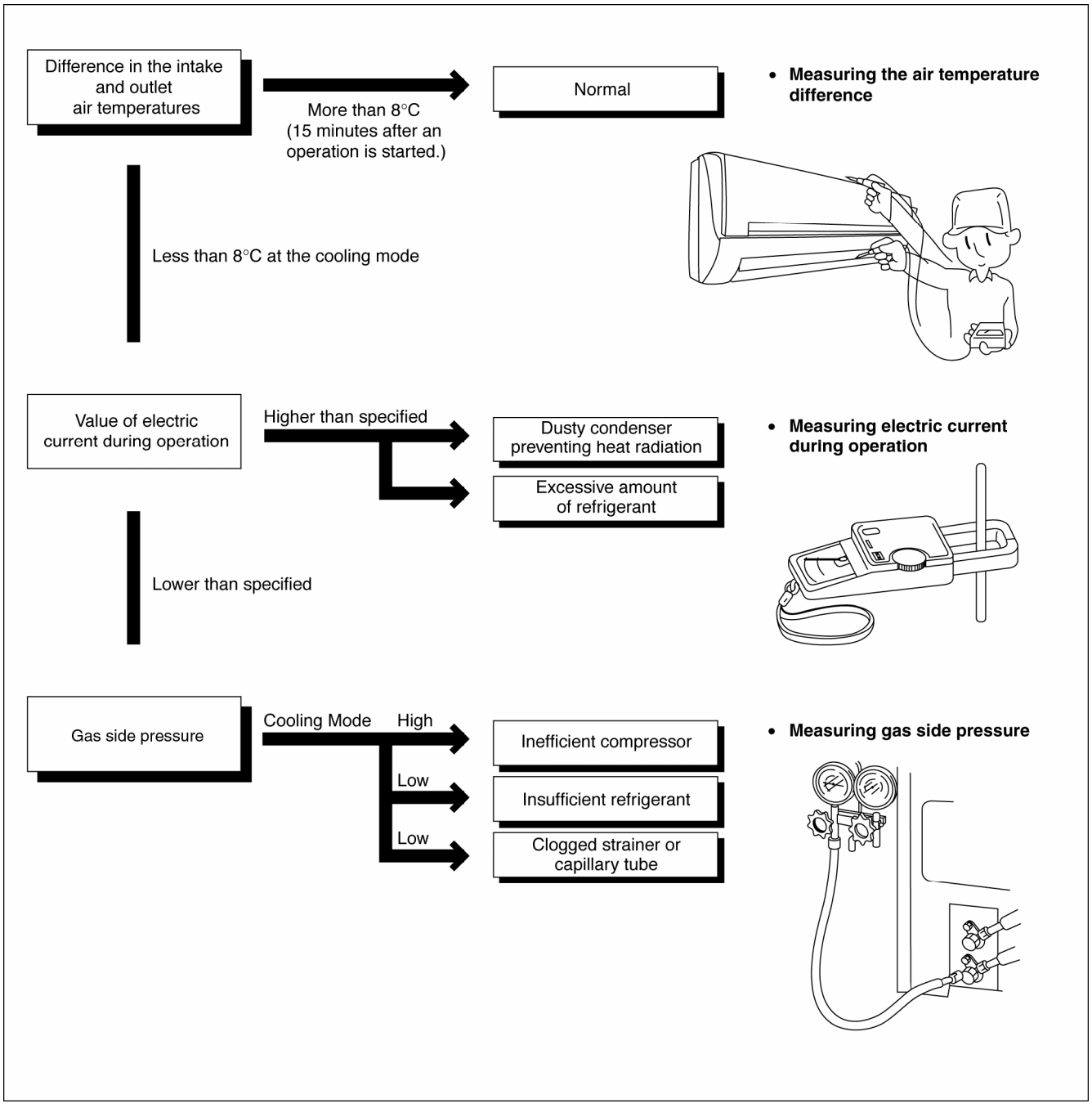
14.1 Refrigeration Cycle System

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^2G)	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	• Electric current during operation becomes approximately 20% lower than the normal value. • The discharge tube of the compressor becomes abnormally hot (normally 70 to 90°C). • The difference between high pressure and low pressure becomes almost zero.
Locked compressor	• Electric current reaches a high level abnormally, and the value exceeds the limit of an ammeter. In some cases, a breaker turns off. • The compressor has a humming sound.

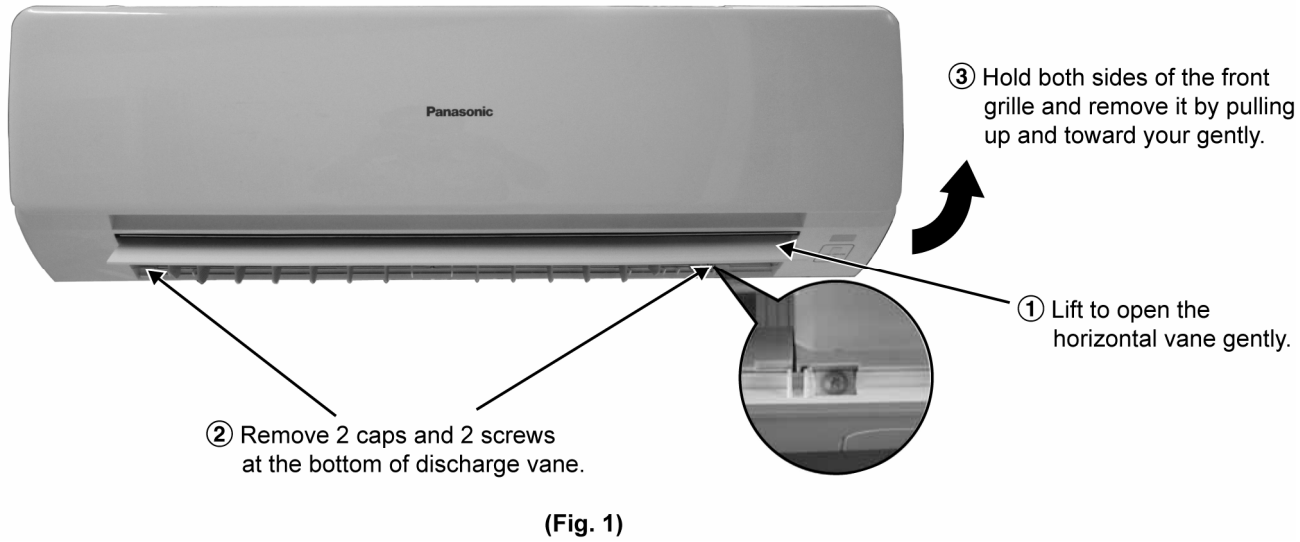
15. Disassembly and Assembly Instructions

WARNING

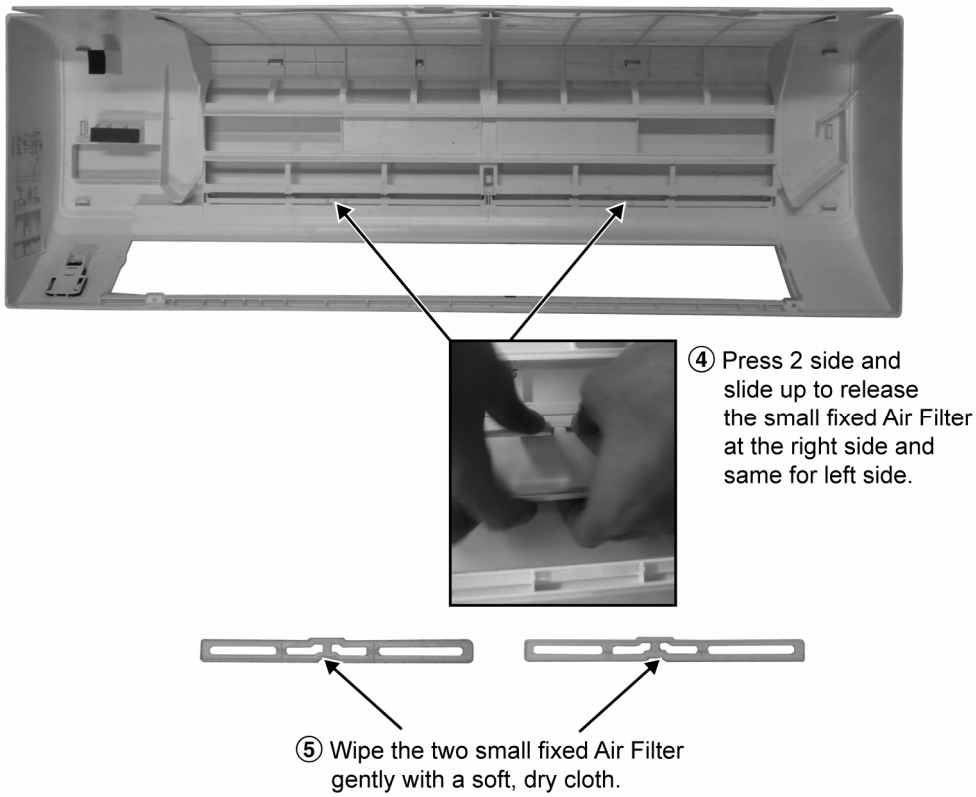
High Voltage is generated in the electrical parts area by the capacitor. Ensure that the capacitor has discharged sufficiently before proceeding with repair work. Failure to heed this caution may result in electric shocks.

15.1 CS-UC12QKD

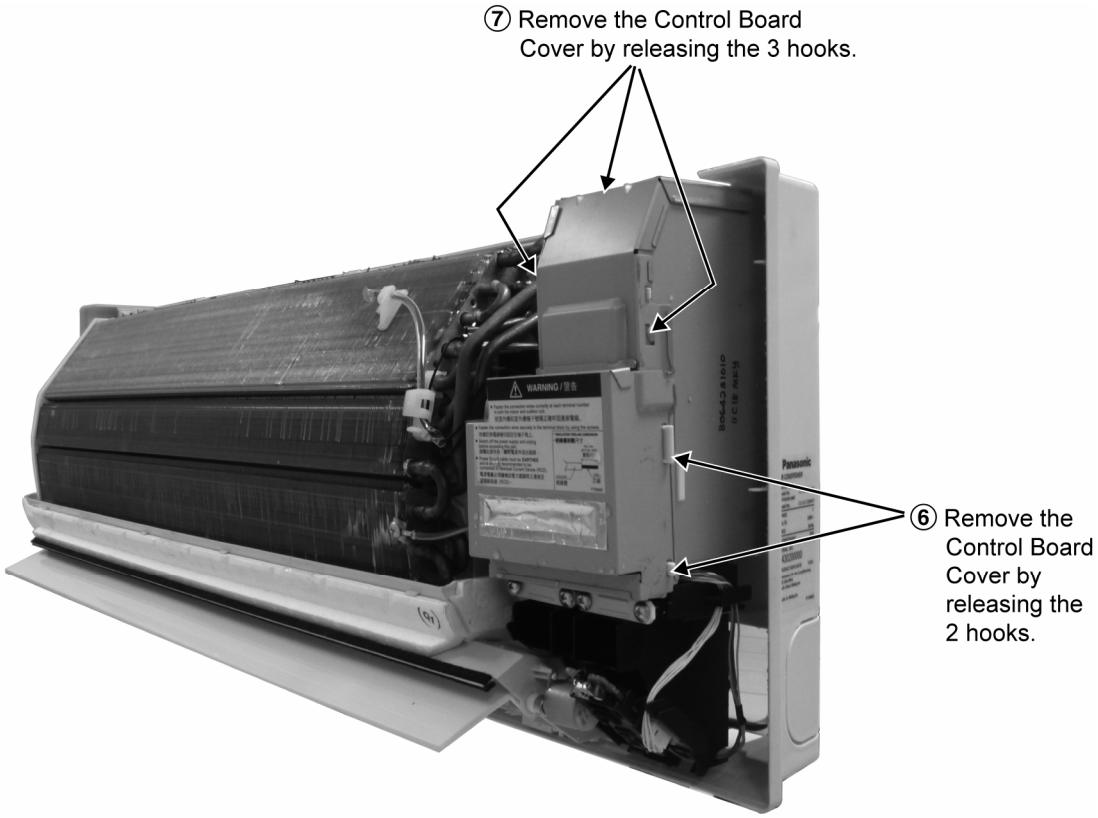
15.1.1 Small Air Filter, Indoor Electronic Controllers and Control Board Removal Procedures



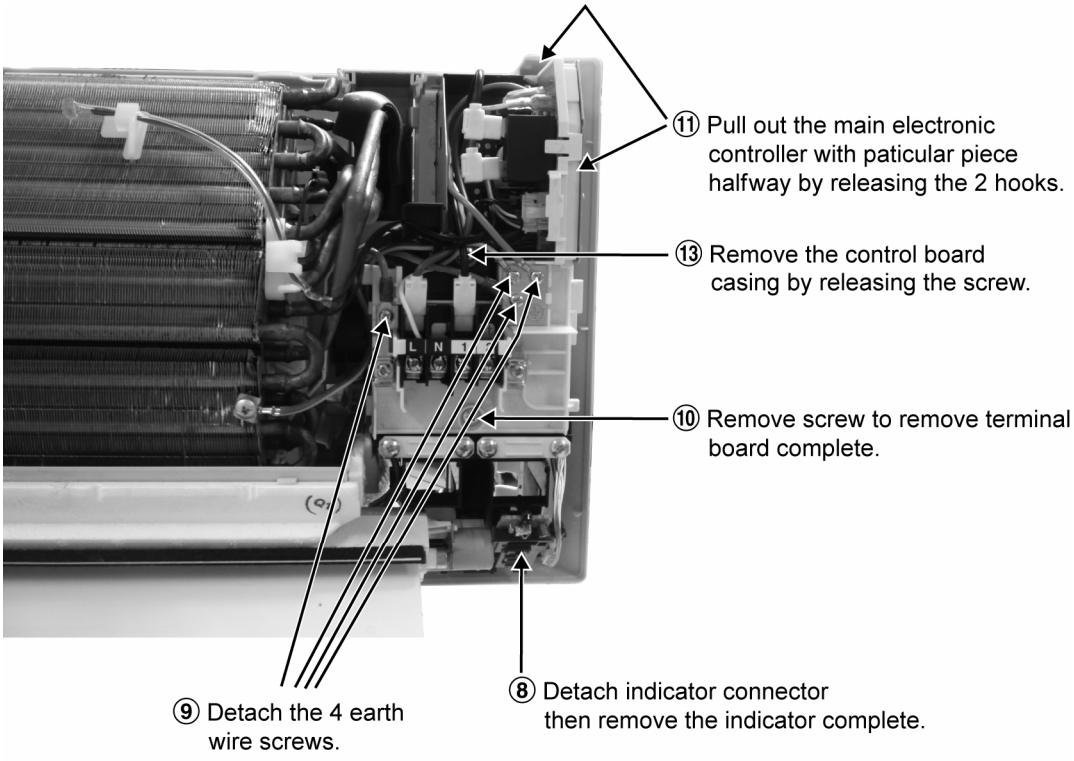
(Fig. 1)



(Fig. 2)

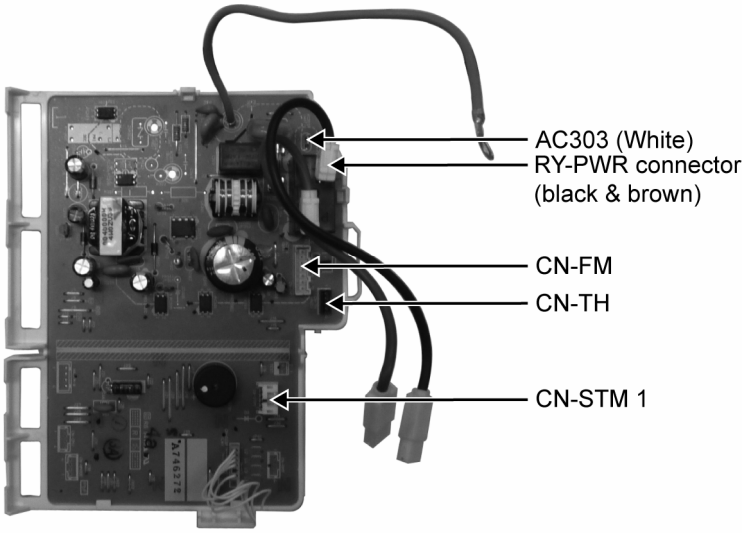

⑦ Remove the Control Board Cover by releasing the 3 hooks.
⑥ Remove the Control Board Cover by releasing the 2 hooks.

(Fig. 3)

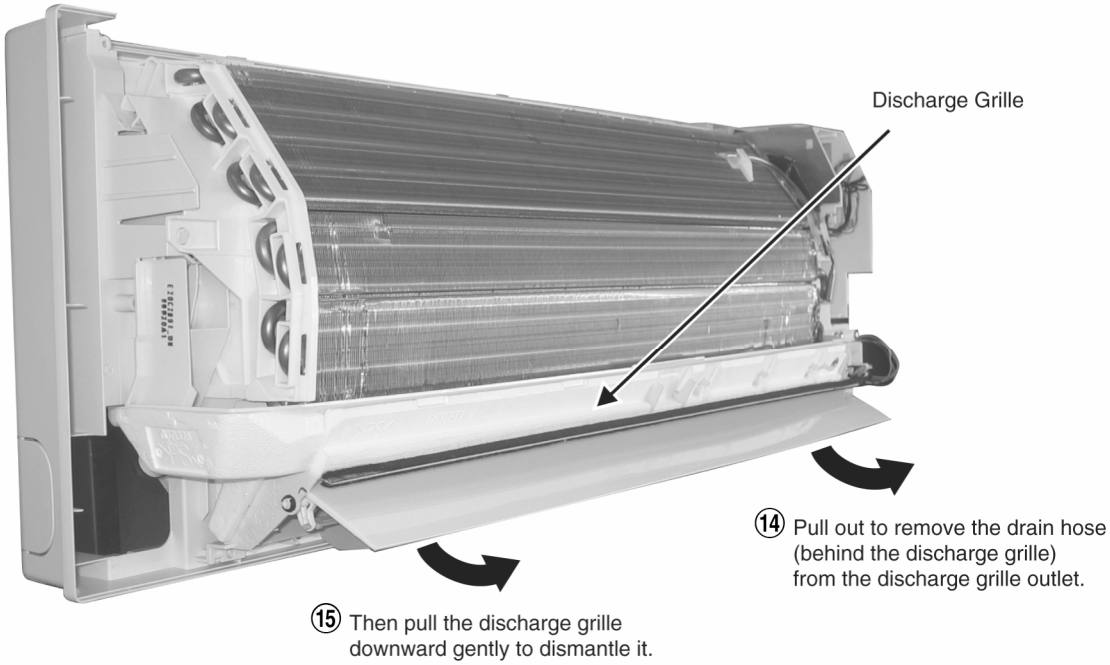

⑪ Pull out the main electronic controller with paticular piece halfway by releasing the 2 hooks.
⑬ Remove the control board casing by releasing the screw.
⑩ Remove screw to remove terminal board complete.
⑨ Detach the 4 earth wire screws.
⑧ Detach indicator connector then remove the indicator complete.

(Fig. 4)

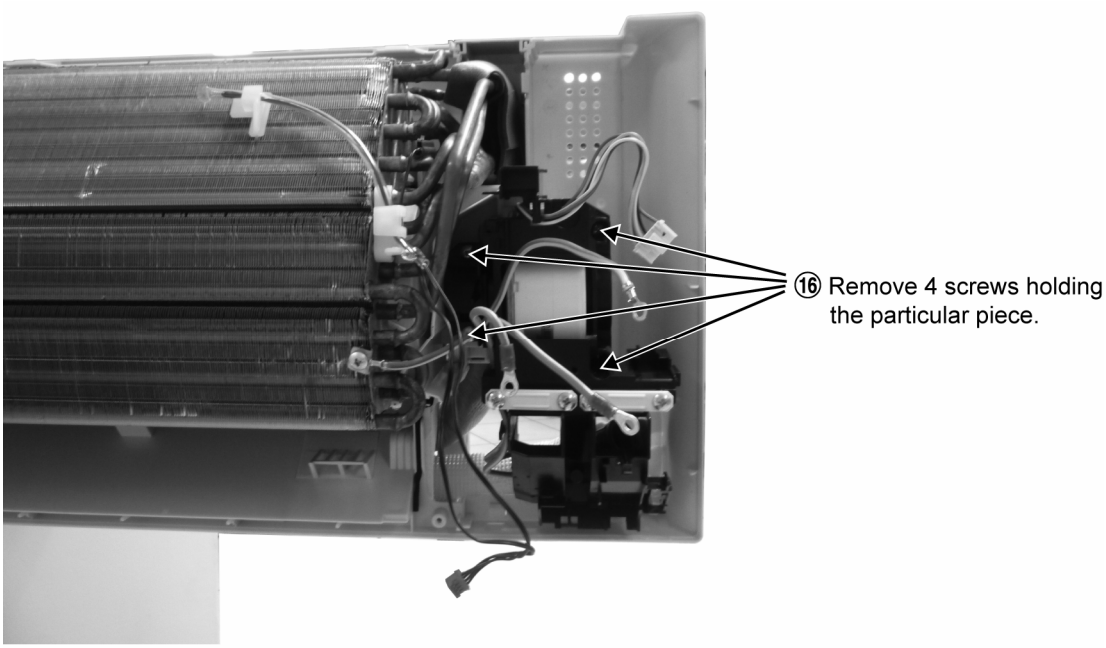
⑫ Detach the connectors as labeled from the main electronic controller.



(Fig. 5)

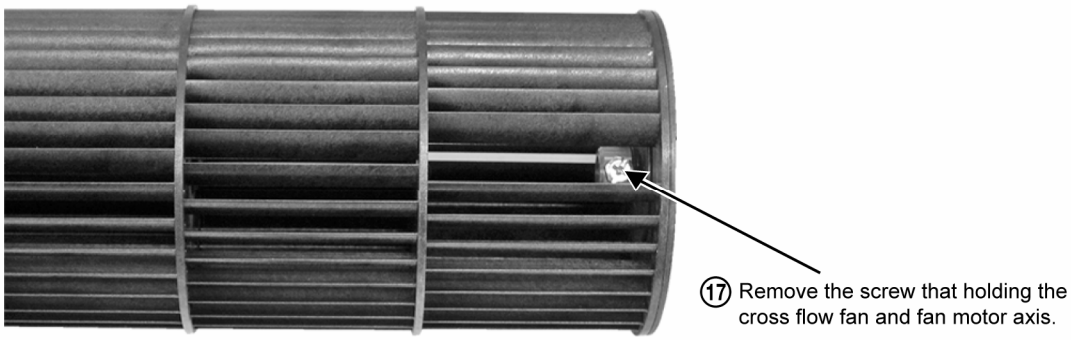


(Fig. 6)

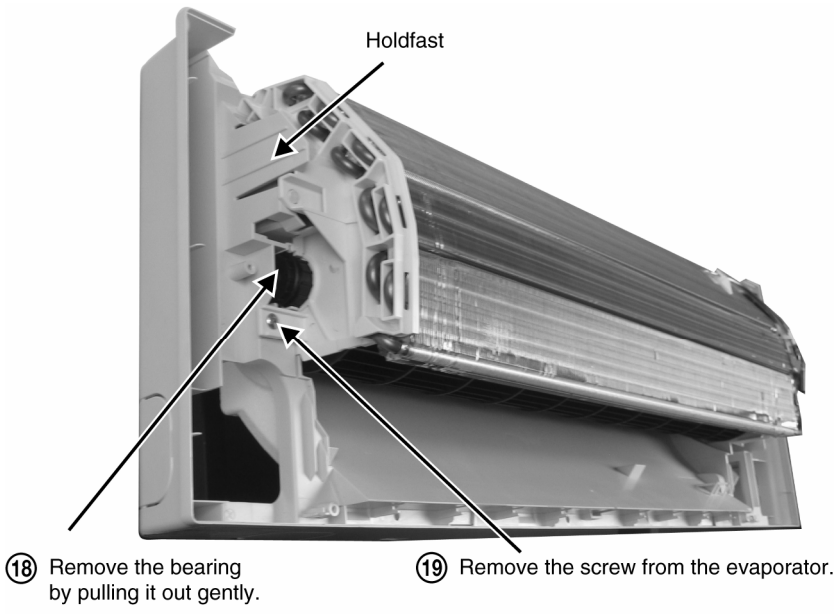


(Fig. 7)

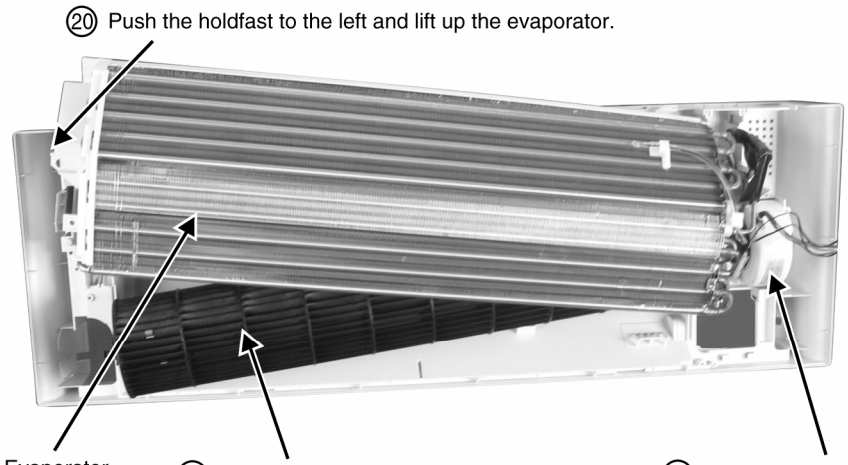
15.1.2 Indoor Fan Motor and Cross Flow Fan Removal Procedures



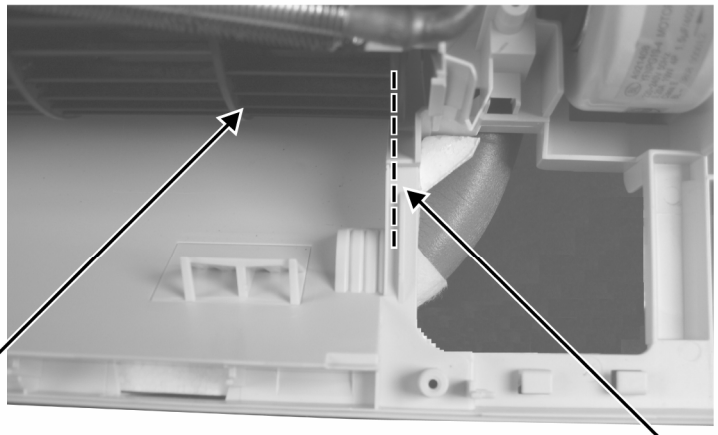
(Fig. 8)



(Fig. 9)


20 Push the holdfast to the left and lift up the evaporator.
Evaporator
21 Remove the cross flow fan from the unit by pulling it to the left and downward.
22 Fan motor can be removed after the removal of cross flow fan.
Reminder: To reinstall the fan motor, please adjust the connector to 45° with fan motor before fixing control board.

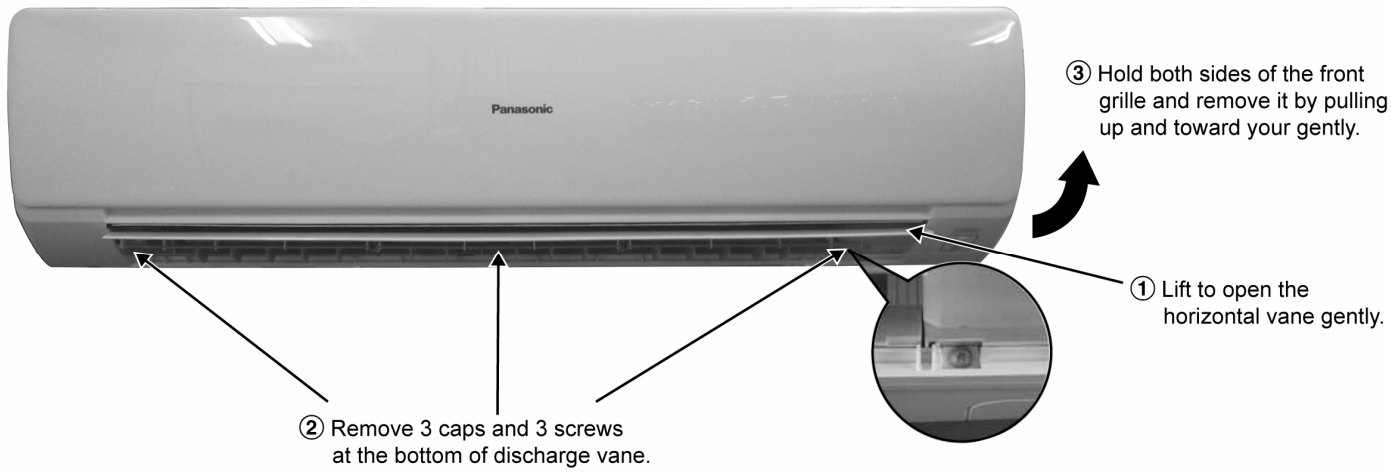
(Fig. 10)


Cross Flow Fan
Reminder: To reinstall the cross flow fan, ensure cross flow fan is in line as shown in figure 11.

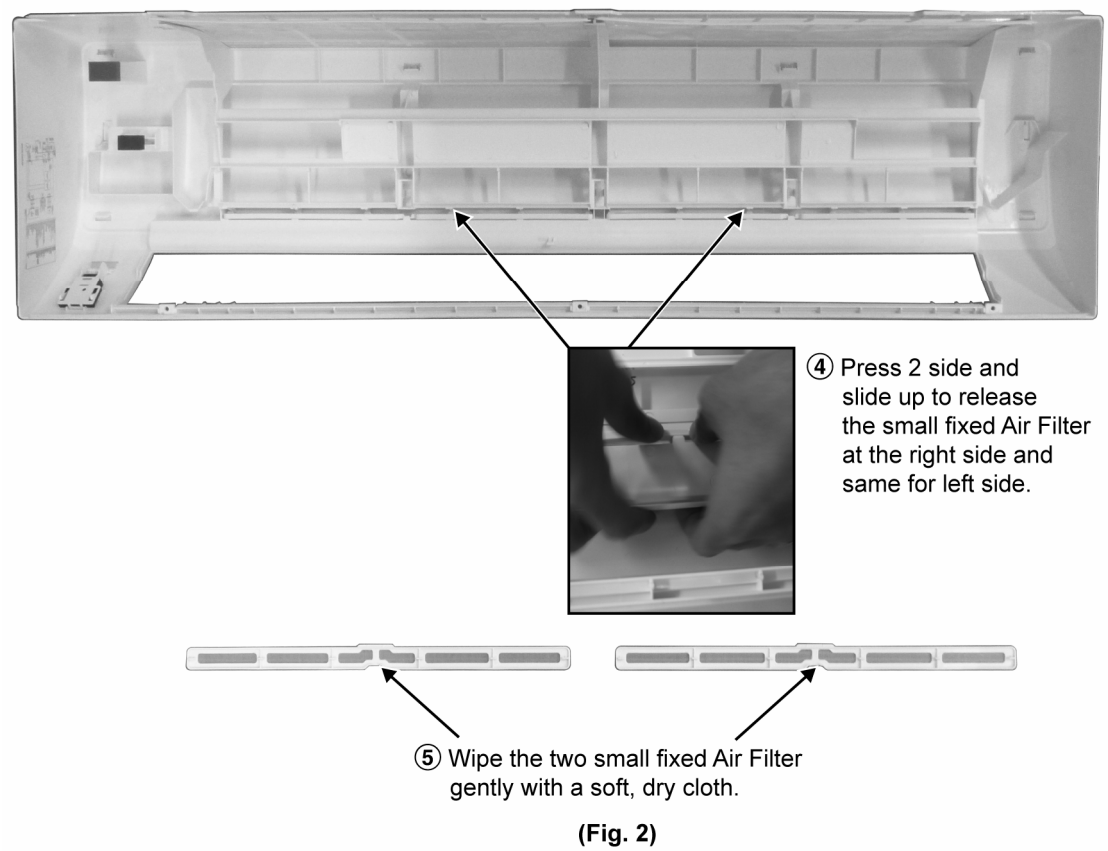
(Fig. 11)

15.2 CS-UC18QKD CS-UC24QKD

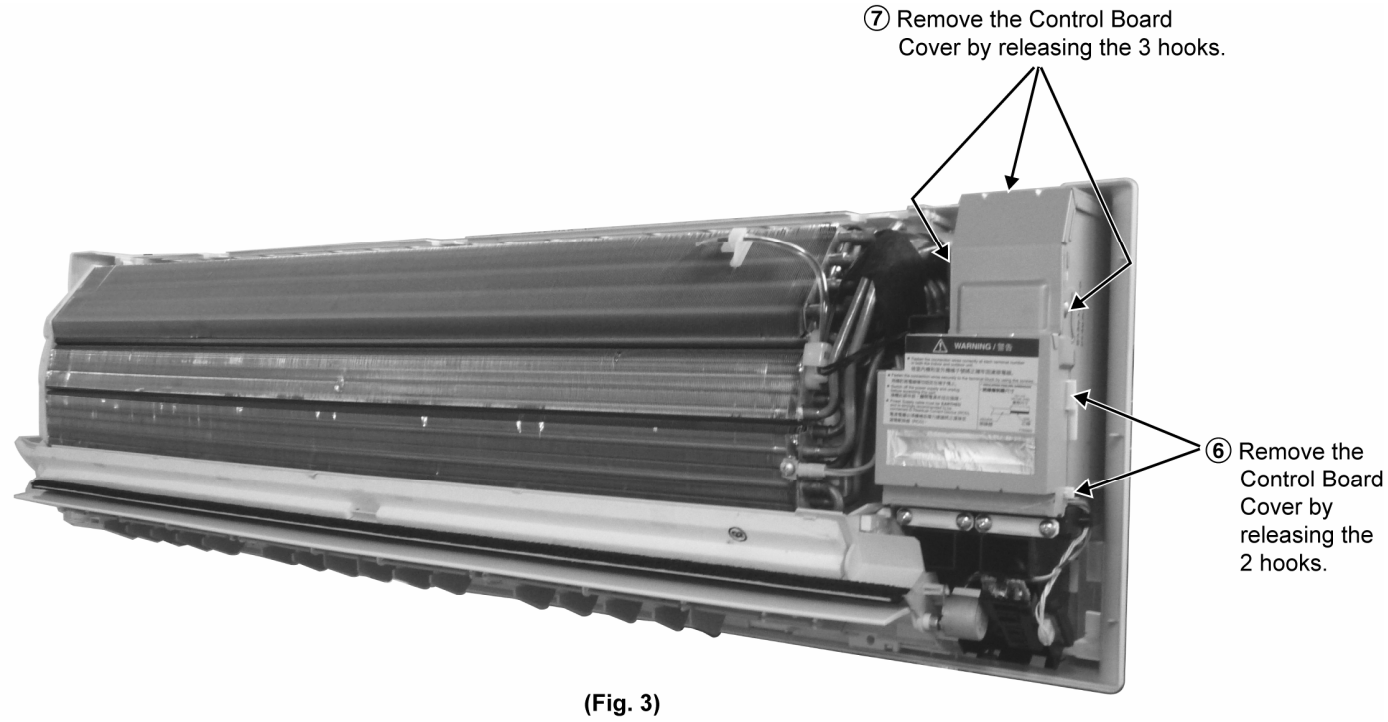
15.2.1 Small Air Filter, Indoor Electronic Controllers and Control Board Removal Procedures



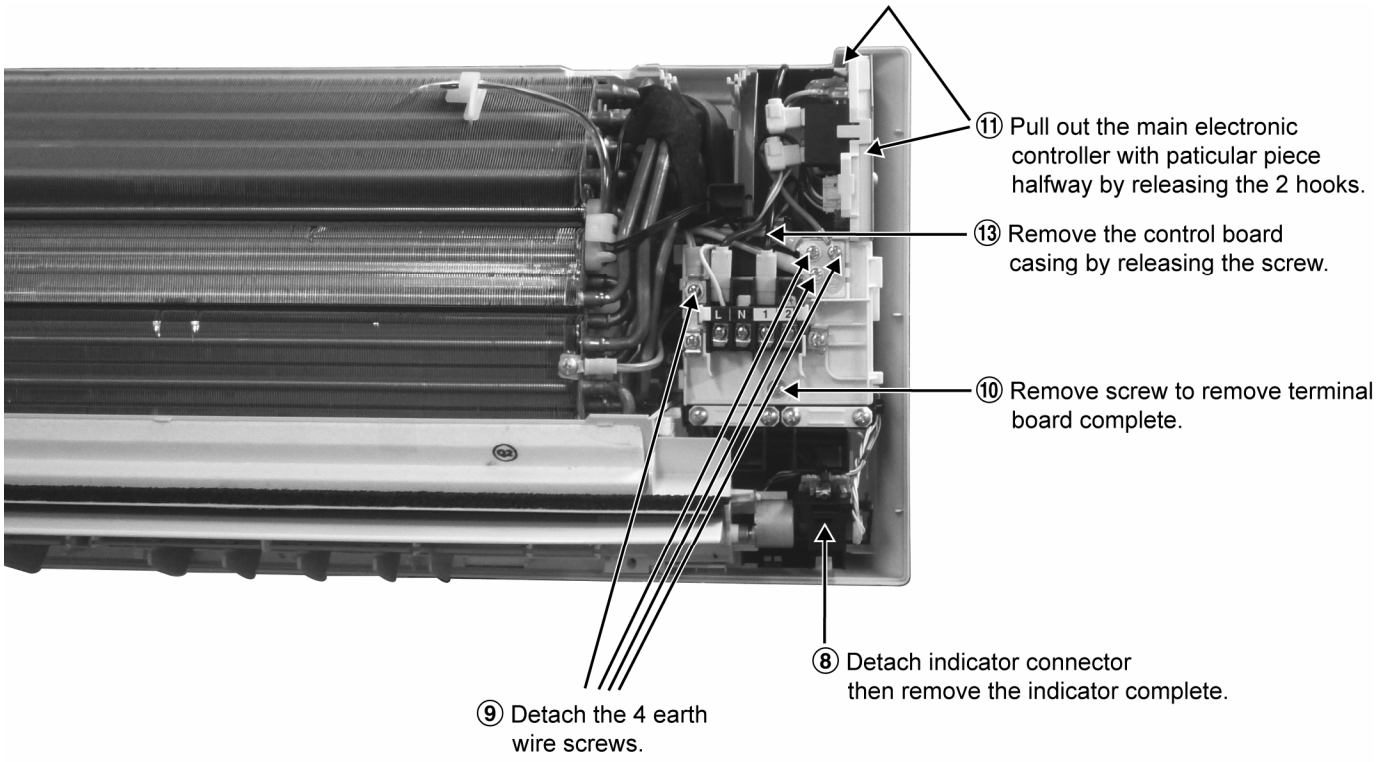
(Fig. 1)



(Fig. 2)

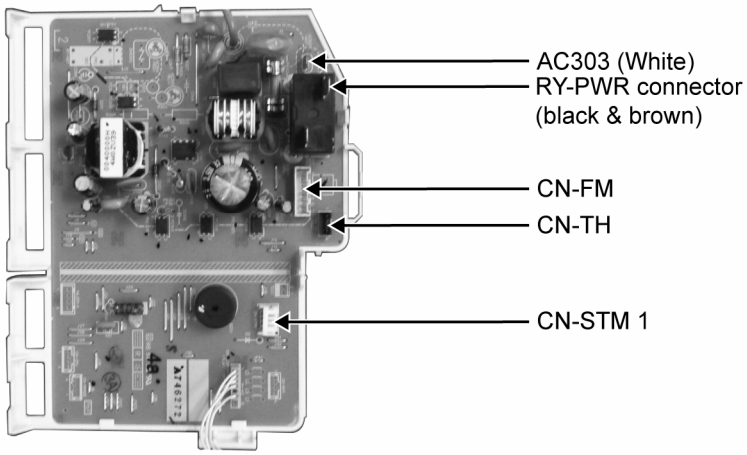

⑦ Remove the Control Board Cover by releasing the 3 hooks.
⑥ Remove the Control Board Cover by releasing the 2 hooks.

(Fig. 3)

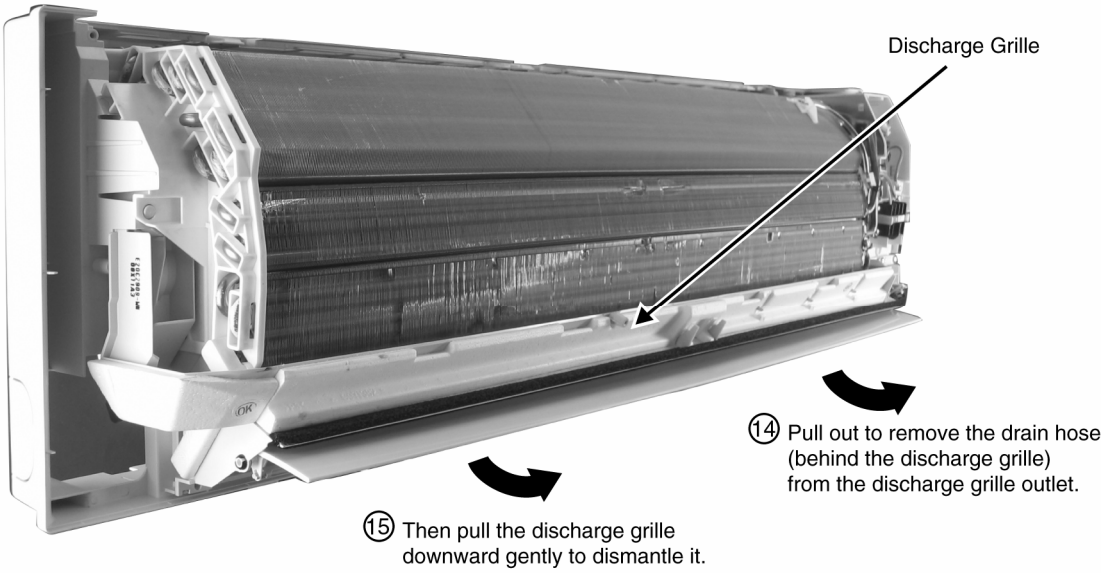

⑪ Pull out the main electronic controller with paticular piece halfway by releasing the 2 hooks.
⑬ Remove the control board casing by releasing the screw.
⑩ Remove screw to remove terminal board complete.
⑧ Detach indicator connector then remove the indicator complete.
⑨ Detach the 4 earth wire screws.

(Fig. 4)

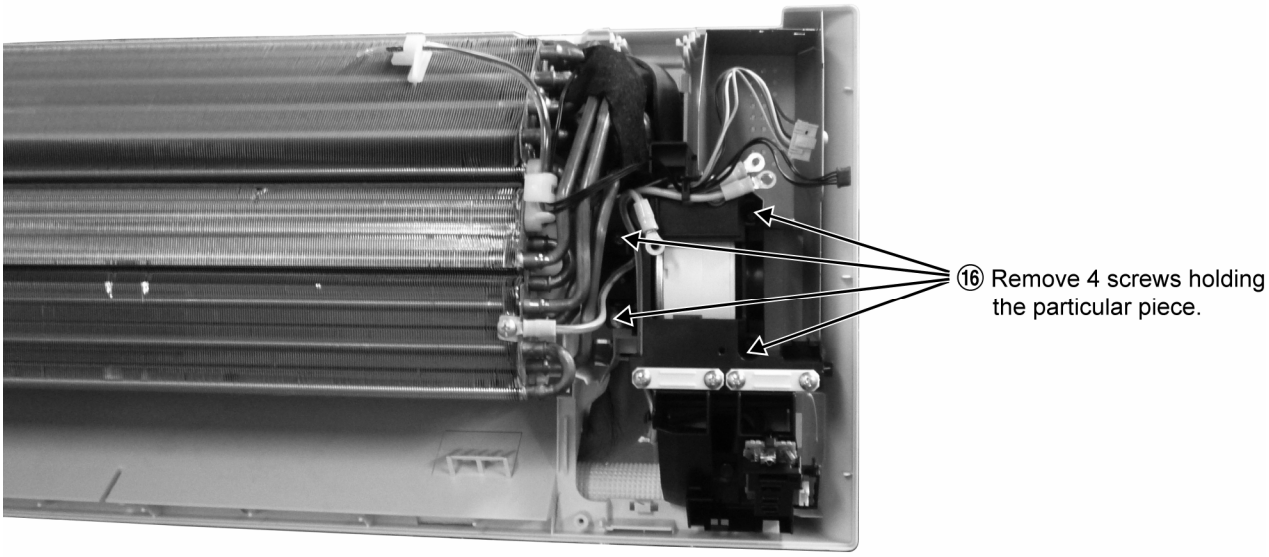
⑫ Detach the connectors as labeled
from the main electronic controller.



(Fig. 5)

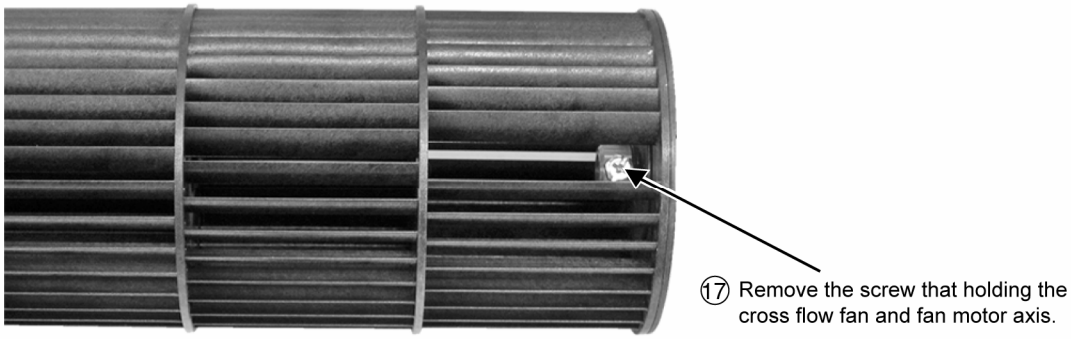


(Fig. 6)

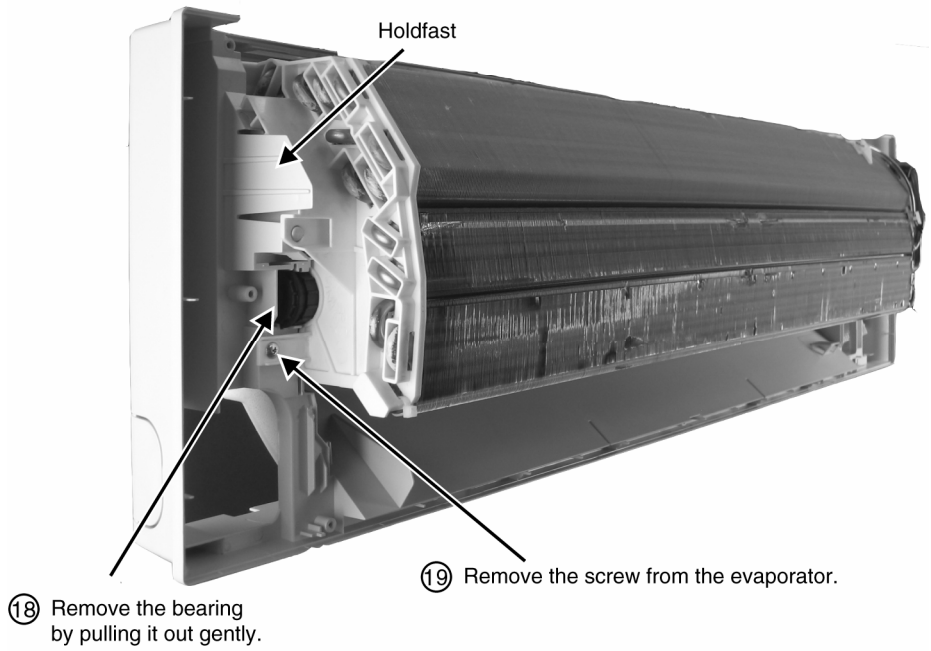


(Fig. 7)

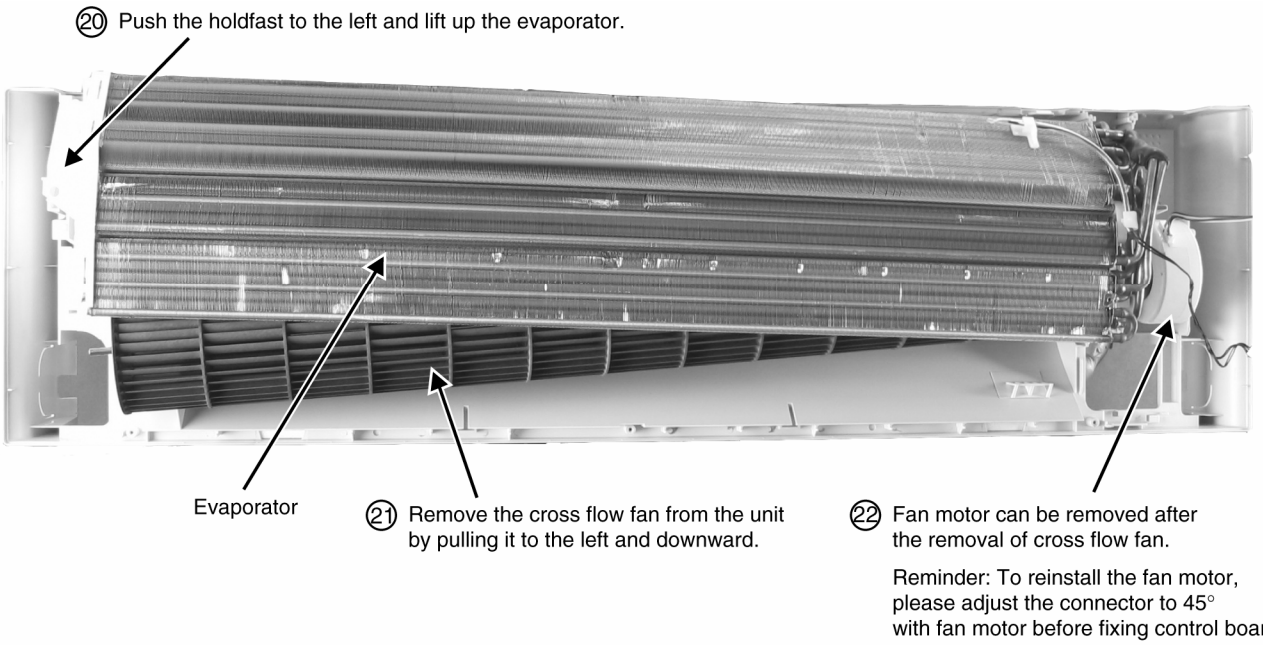
15.2.2 To Remove Cross Flow Fan and Indoor Fan Motor



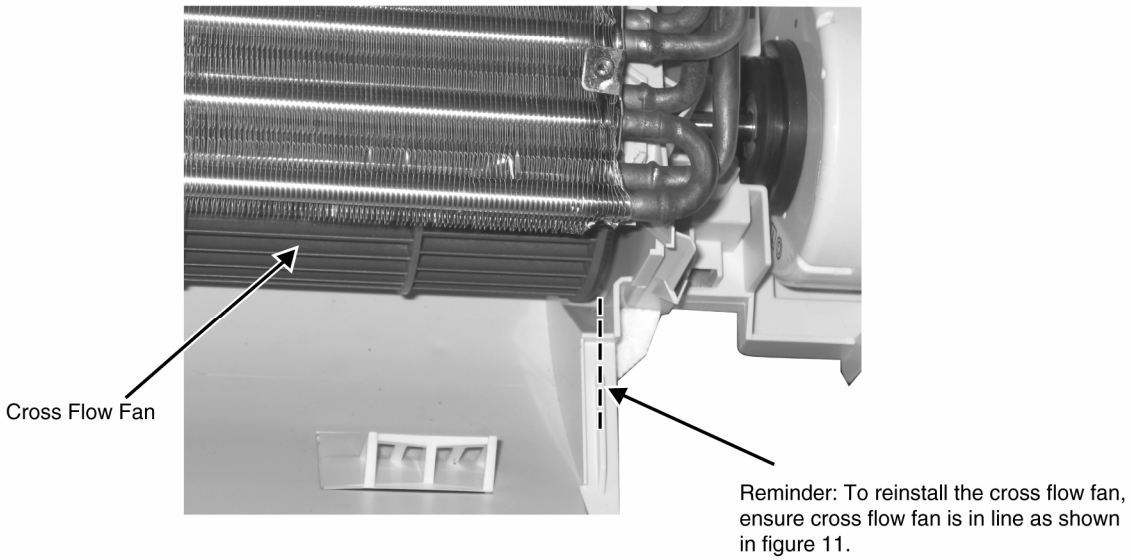
(Fig. 8)



(Fig. 9)


20 Push the holdfast to the left and lift up the evaporator.
Evaporator
21 Remove the cross flow fan from the unit by pulling it to the left and downward.
22 Fan motor can be removed after the removal of cross flow fan.
Reminder: To reinstall the fan motor, please adjust the connector to 45° with fan motor before fixing control board.

(Fig. 10)

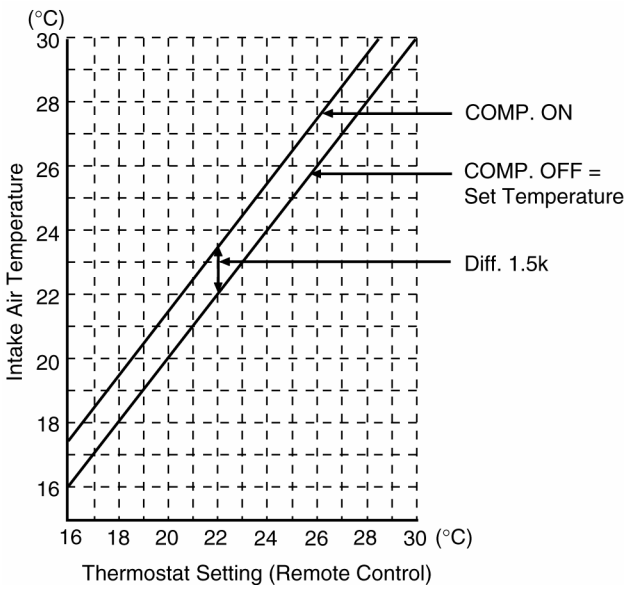

Cross Flow Fan
Reminder: To reinstall the cross flow fan, ensure cross flow fan is in line as shown in figure 11.

(Fig. 11)

16. Technical Data

16.1 Thermostat Characteristics

Cooling

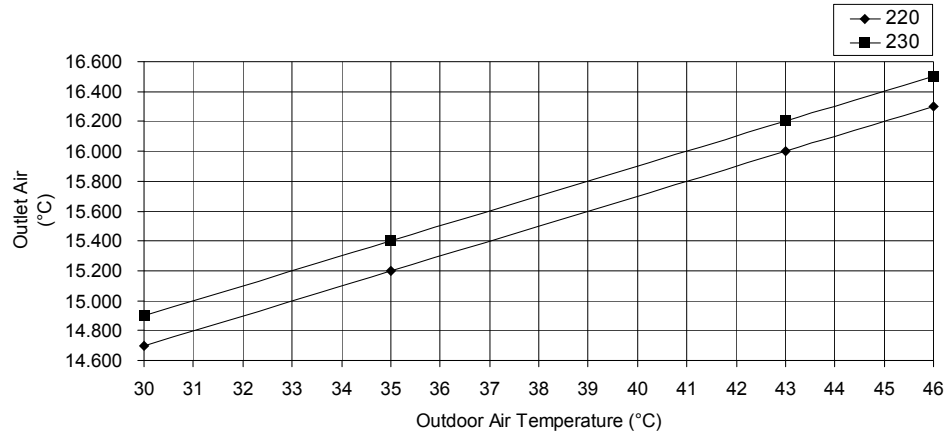


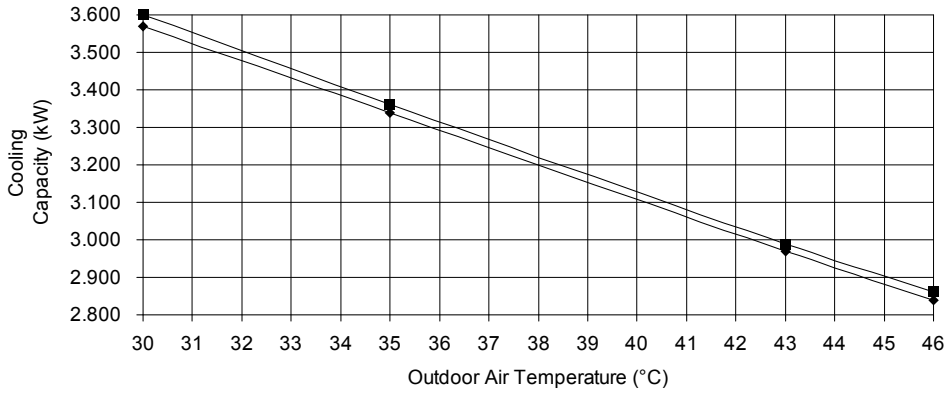
16.2 Operation Characteristics

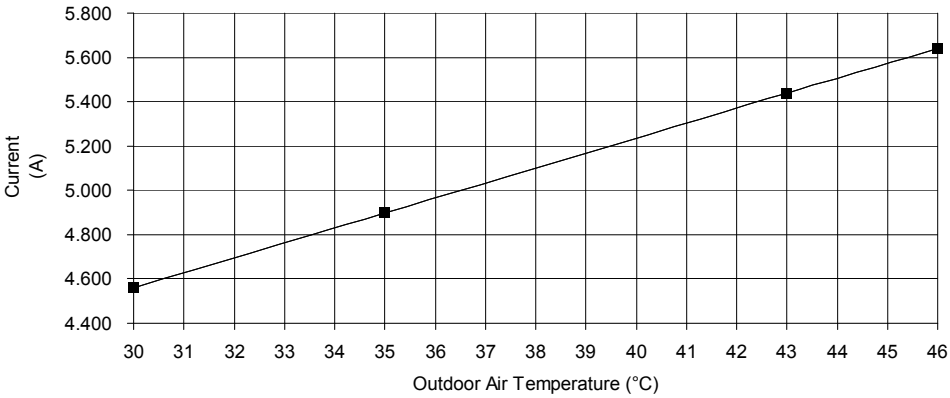
16.2.1 CS-UC12QKD CU-UC12QKD

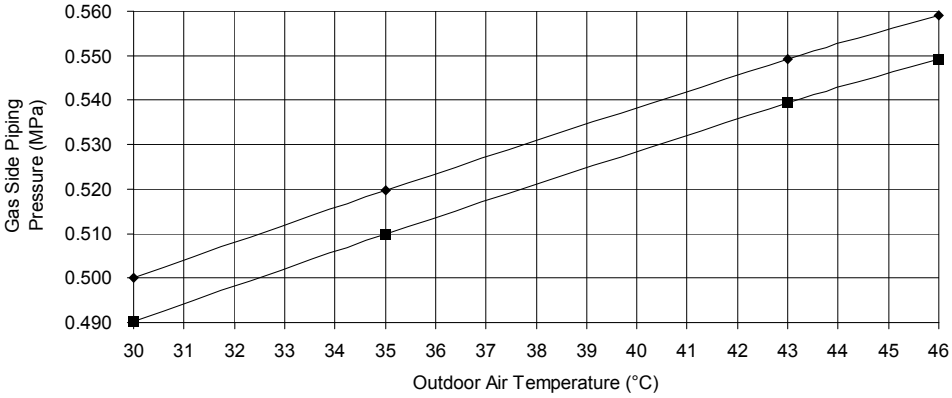
- Cooling Characteristic

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



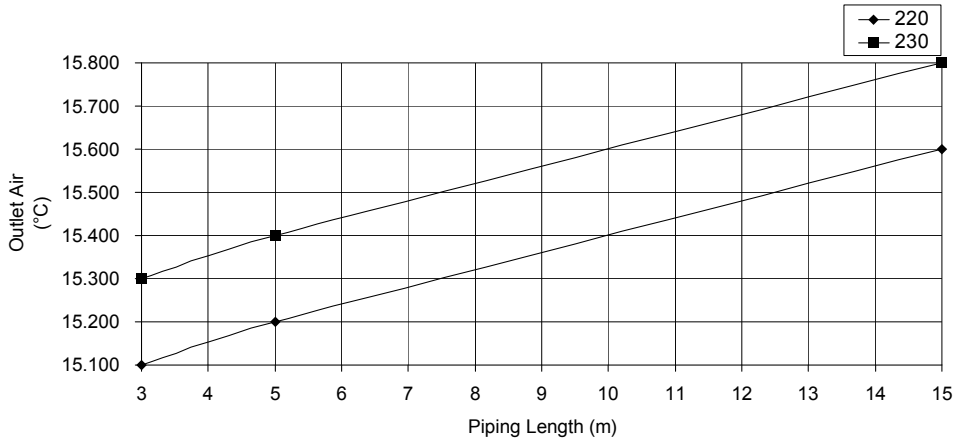


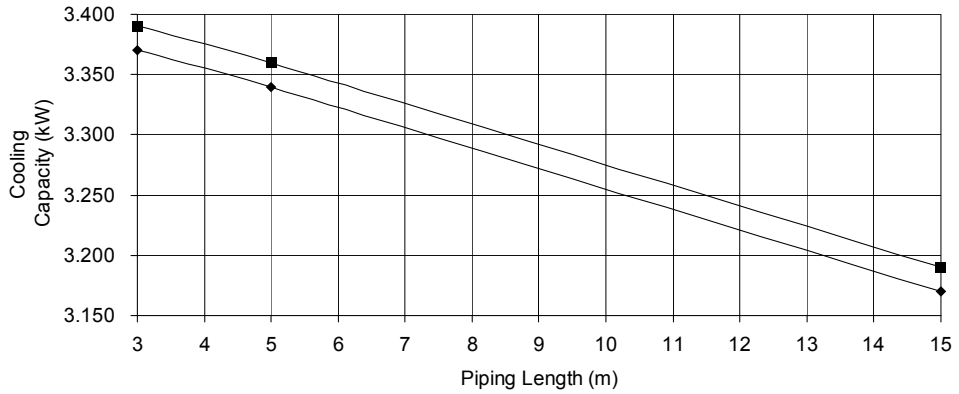


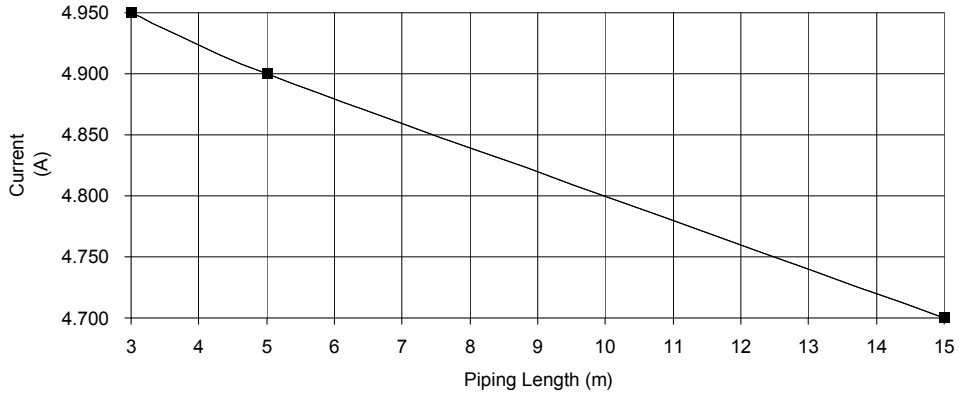


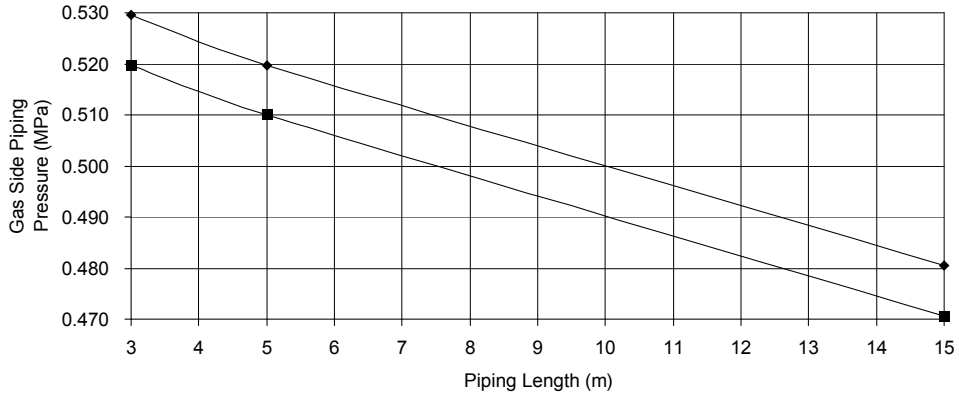
- Piping Length Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Operation condition: High fan speed
Outdoor temperature: 35/24°C
Piping length: 5.0 m





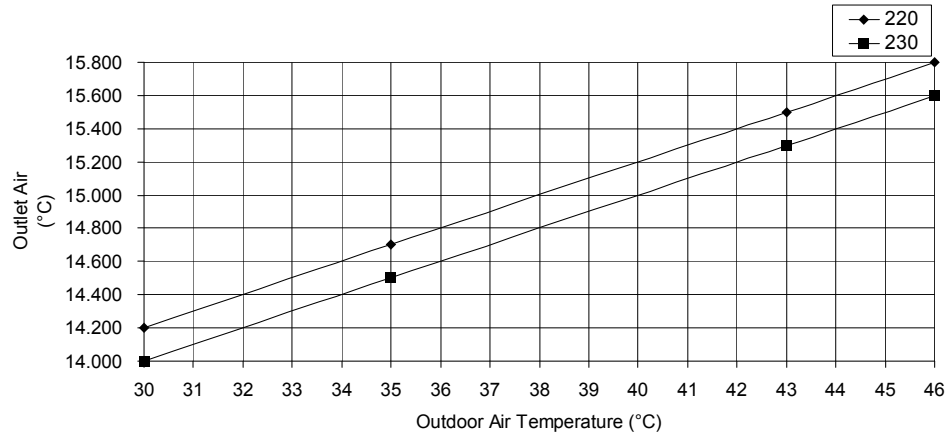


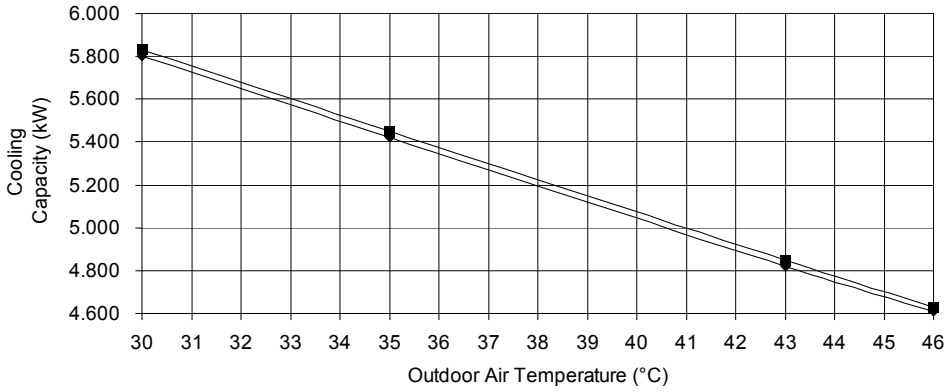


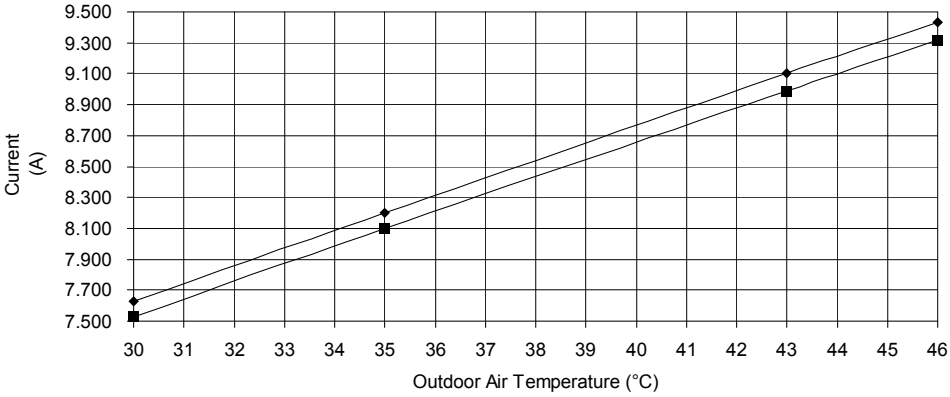
16.2.2 CS-UC18QKD CU-UC18QKD

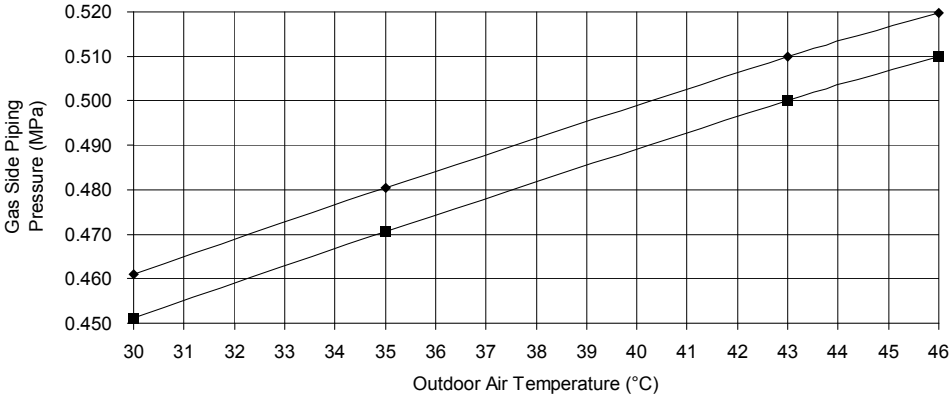
- Cooling Characteristic

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



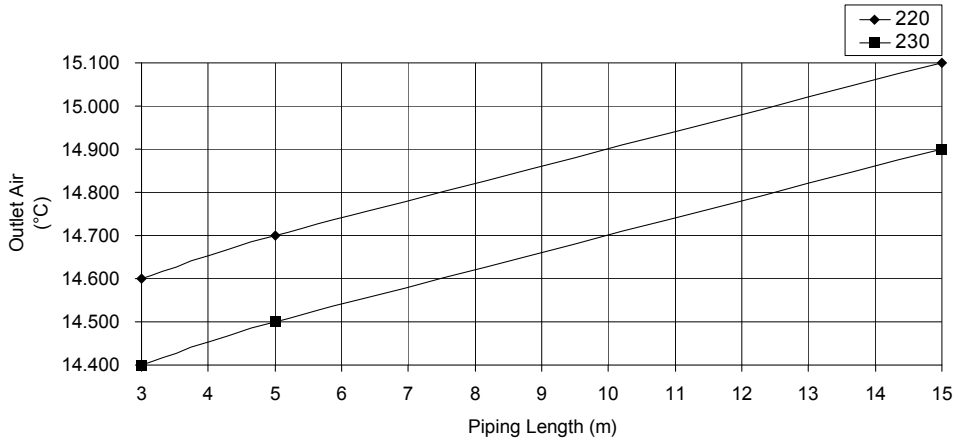


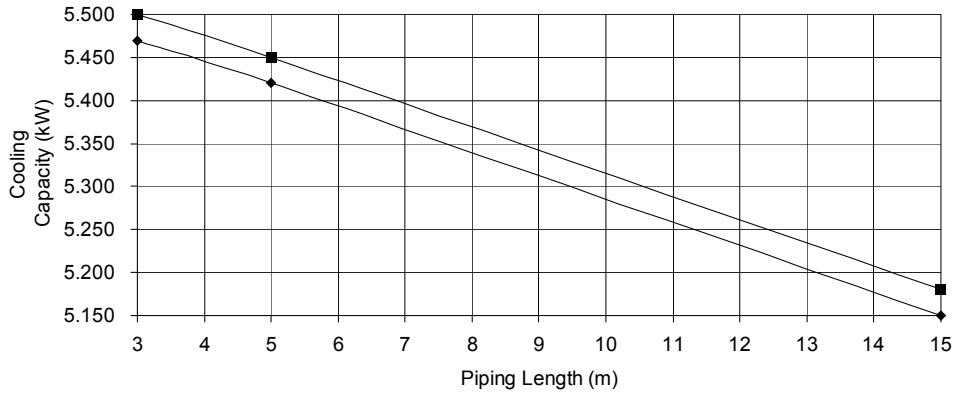


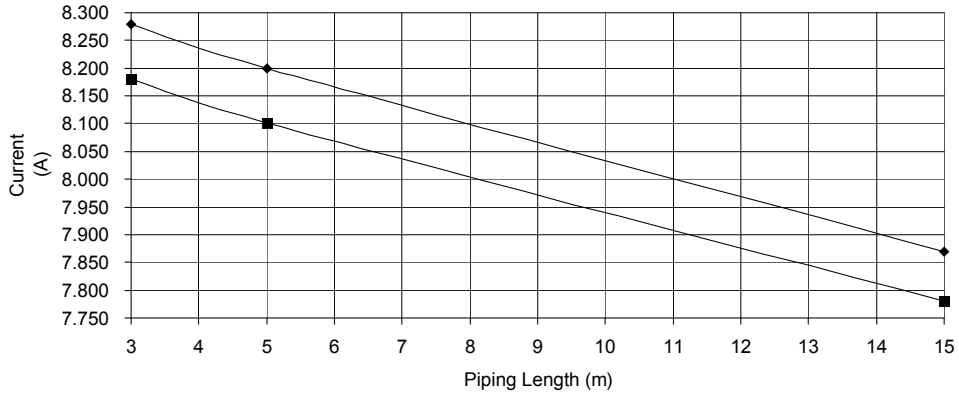


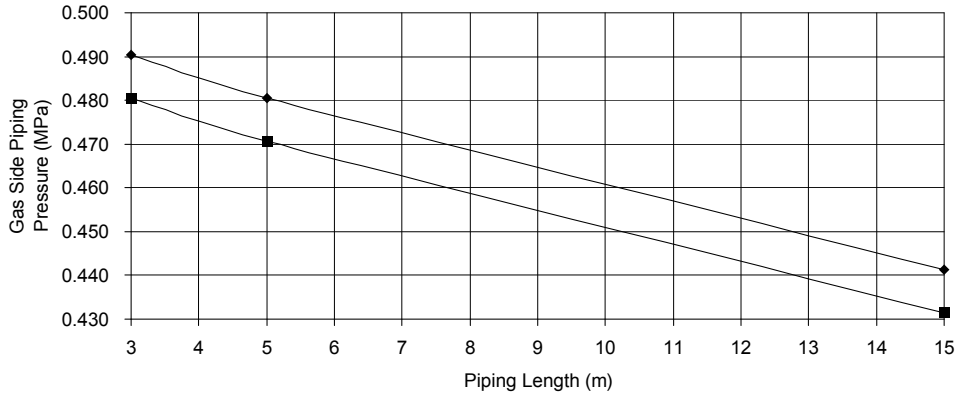
- Piping Length Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Operation condition: High fan speed
Outdoor temperature: 35/24°C
Piping length: 5.0 m





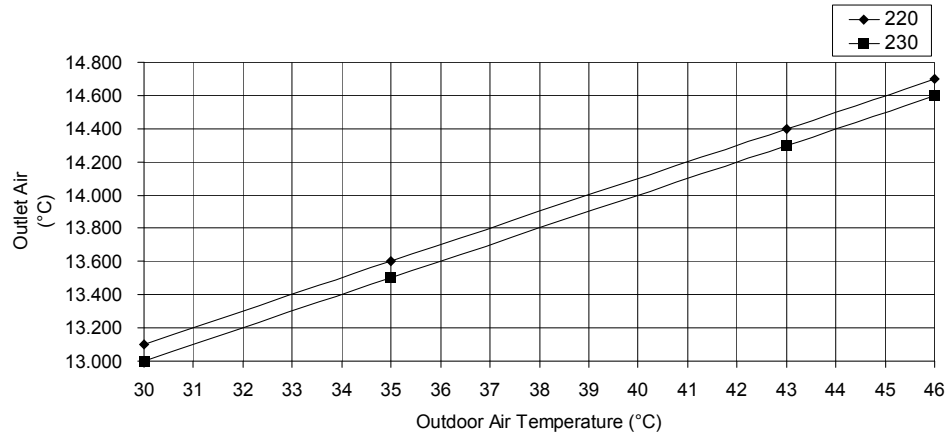


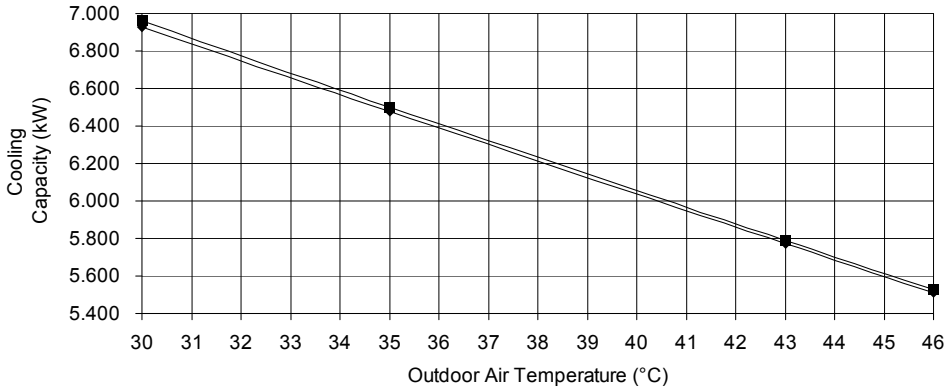


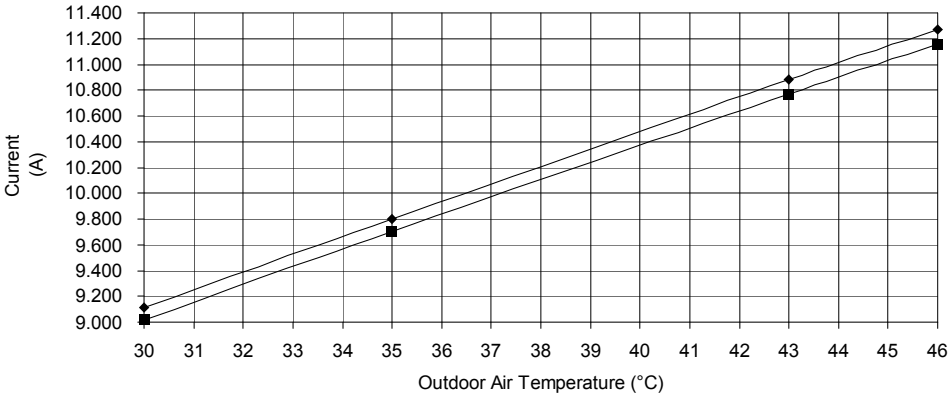
16.2.3 CS-UC24QKD CU-UC24QKD

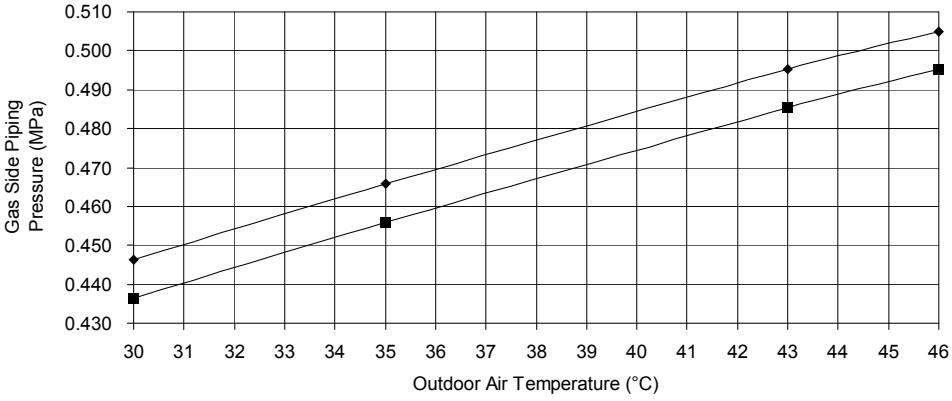
- Cooling Characteristic

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



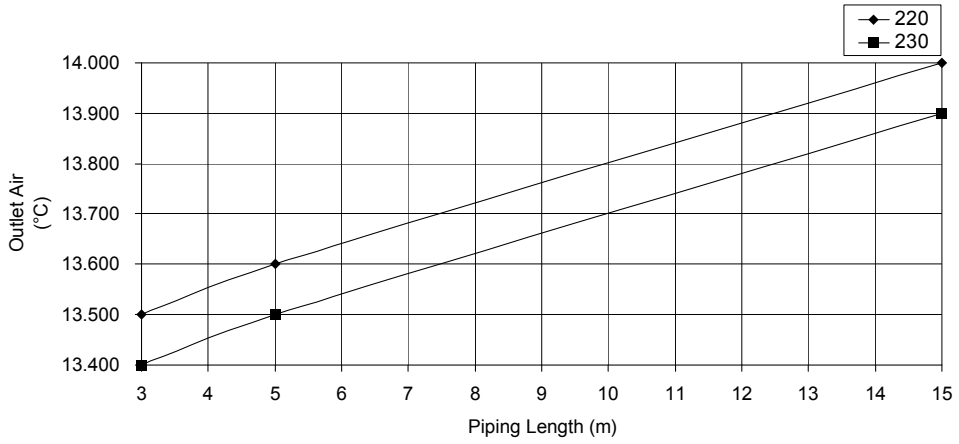


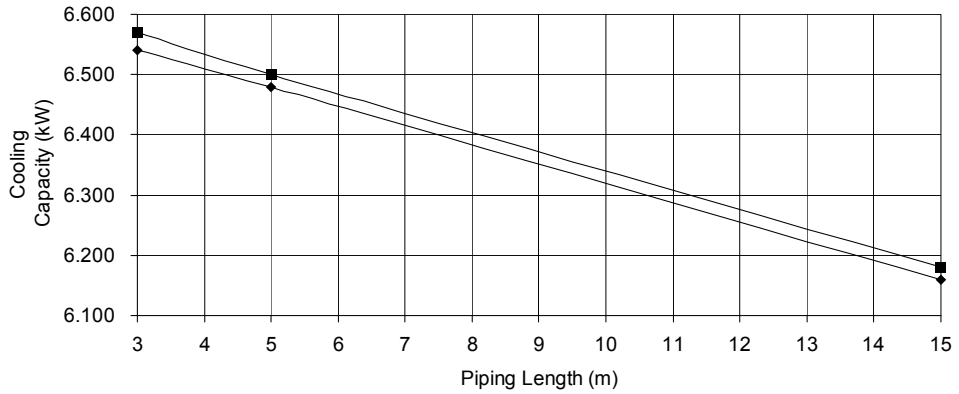


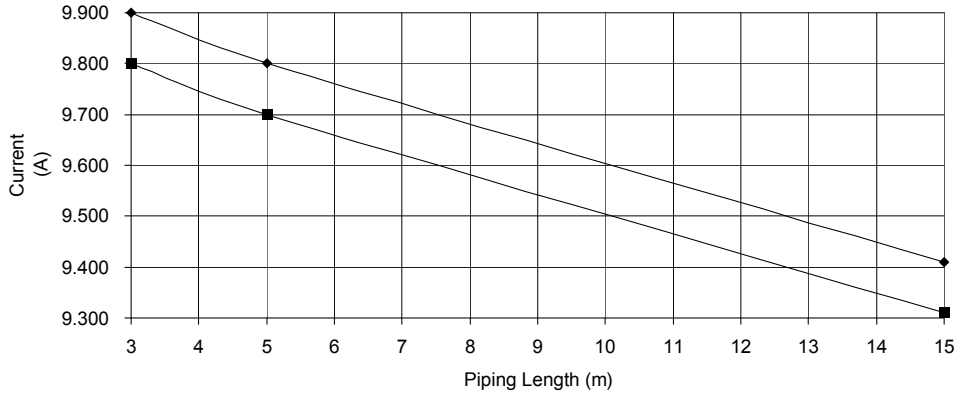


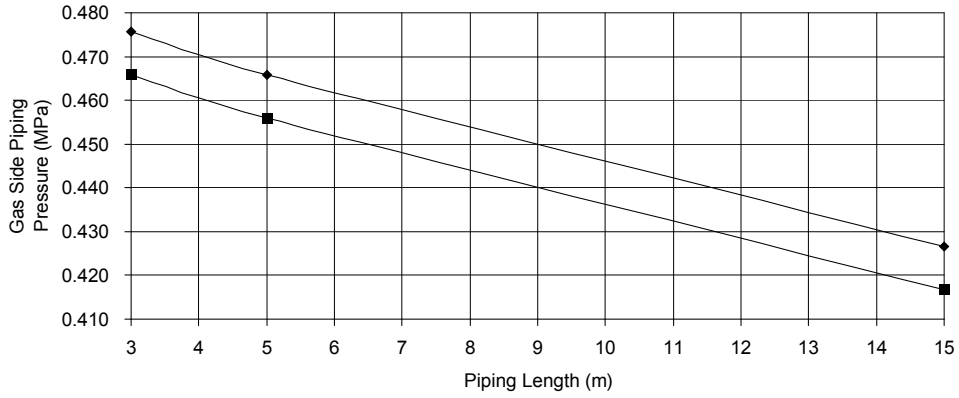
- Piping Length Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Operation condition: High fan speed
Outdoor temperature: 35/24°C
Piping length: 5.0 m





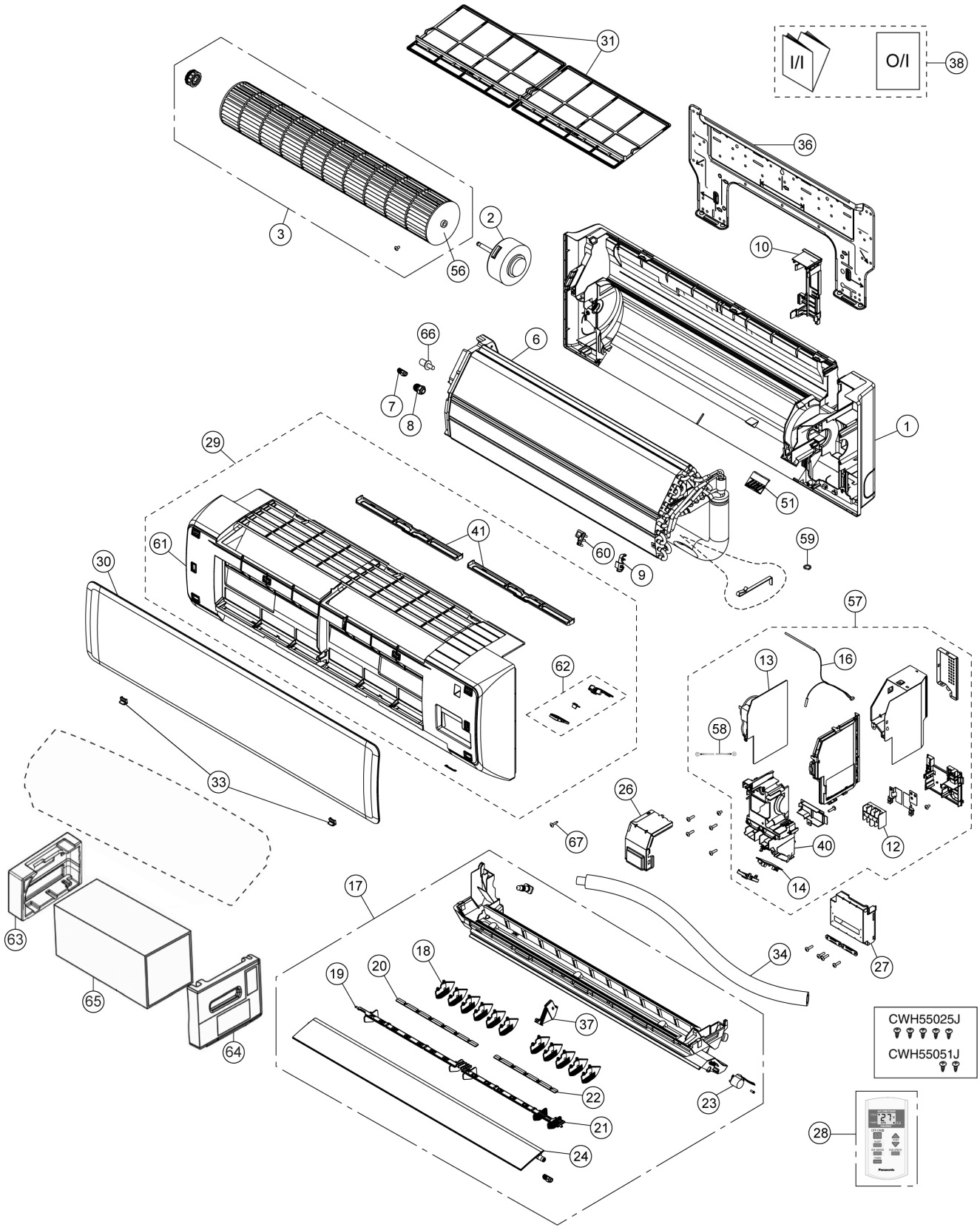




17. Exploded View and Replacement Parts List

17.1 Indoor Unit

17.1.1 CS-UC12QKD



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.

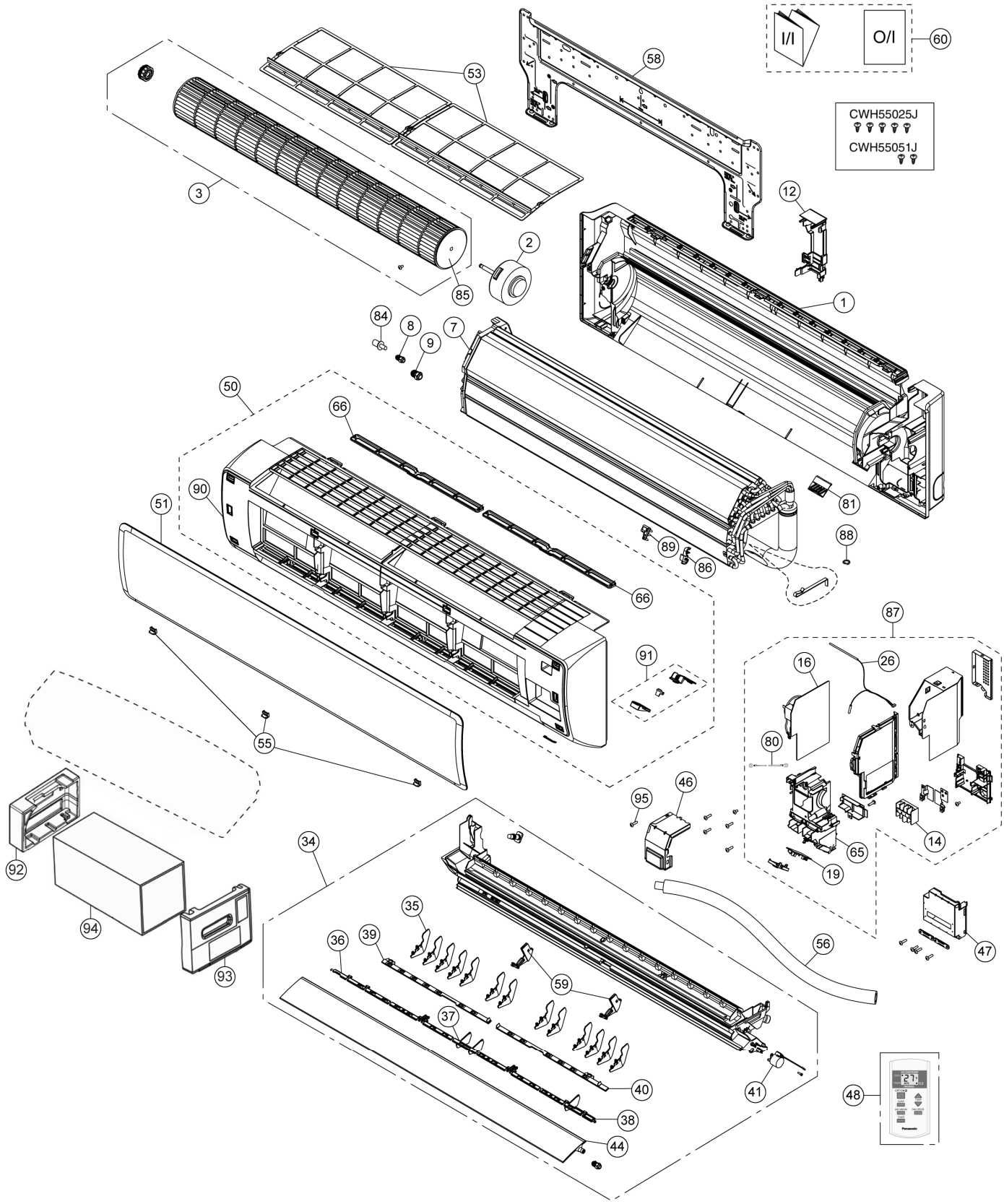
SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-UC12QKD	REMARK
	1	CHASSIS-COMPLETE	1	CWD50C1769-AN#	
⚠	2	FAN MOTOR	1	CWL6CBYYYL0037	O
	3	CROSS-FLOW FAN-COMPLETE	1	CWH02C1147	O
	6	FIN & TUBE EVAPORATOR-COMPLETE	1	CWB30C4702-AN	O
	7	UNION NUT	1	CWT251026	O
	8	UNION NUT	1	CWT251062	O
	9	HOLDER-SENSOR	1	CWH321110	O
	10	PARTICULAR PIECE	1	CWD933740	
⚠	12	TERMINAL BOARD-COMPLETE	1	CWA28C2605	O
⚠	13	ELECTRONIC CONTROLLER - MAIN	1	CWA73C8304-AN#	O
⚠	14	ELECTRONIC CONTROLLER - INDICATOR	1	CWA747151-W	O
	16	SENSOR-COMPLETE	1	CWA50C2122	O
	17	DISCHARGE GRILLE-COMPLETE	1	CWE20C3348-AN#	O
	18	VANE	11	CWE241420	
	19	CONNECTING BAR	1	CWE261288	
	20	CONNECTING BAR	1	CWE261289	
	21	CONNECTING BAR	1	CWE261290	
	22	CONNECTING BAR	1	CWE261291	
⚠	23	FAN MOTOR	1	CWA981264	O
	24	VANE-COMPLETE	1	CWE241421	
	26	CONTROL BOARD COVER	1	CWH131605	
	27	CONTROL BOARD COVER-COMPLETE	1	CWH13C1297-AN#	
	28	REMOTE CONTROL SWITCH-COMPLETE	1	CWA75C4262	O
	29	FRONT GRILLE-COMPLETE	1	CWE11C5511-AN#	
	30	INTAKE GRILLE-COMPLETE	1	CWE22C1808	
	31	AIR FILTER	2	CWD001358	
	33	CAP	2	CWH521194	
	34	FLEXIBLE PIPE	1	CWH851206	
	36	INSTALLING HOLDER	1	CWH361134-A	
	37	FULCRUM	1	CWH621102	
	38	OPERATING INSTRUCTION-COMPLETE	1	CWF56C8826-AN	
	40	FAN MOTOR BRACKET	1	CWD541224	
	41	AIR FILTER	2	CWD001357	O
	51	PARTICULAR PIECE	1	CWD933739	
	56	SIDE PLATE-FAN ASS'Y	1	CWH07K1022-1	
	57	CONTROL BOARD-COMPLETE	1	CWH16C1022-1-AN	O
	58	LEAD WIRE-COMPLETE	1	CWA67C7850	O
	59	SPRING WASHER	1	CWXWA4BVW	
	60	PARTICULAR PIECE	1	CWD933741	
	61	FRONT GRILLE FRAME	1	CWE121307-A	
	62	INDICATOR-COMPLETE	1	CWE39C1237	
	63	SHOCK ABSORBER	1	CWG713551	
	64	SHOCK ABSORBER	1	CWG713552	
	65	C.C. CASE	1	CWG569672	

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-UC12QKD	REMARK
	66	CAP	1	CWH52061	
	67	SELF TAPPING SCREW	1	CWXTT4+10CFJ	

Note:

- All parts are supplied from APIN, India (Vendor Code: 00026071).
- “O” marked parts are recommended to be kept in stock.

17.1.2 CS-UC18QKD CS-UC24QKD



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.

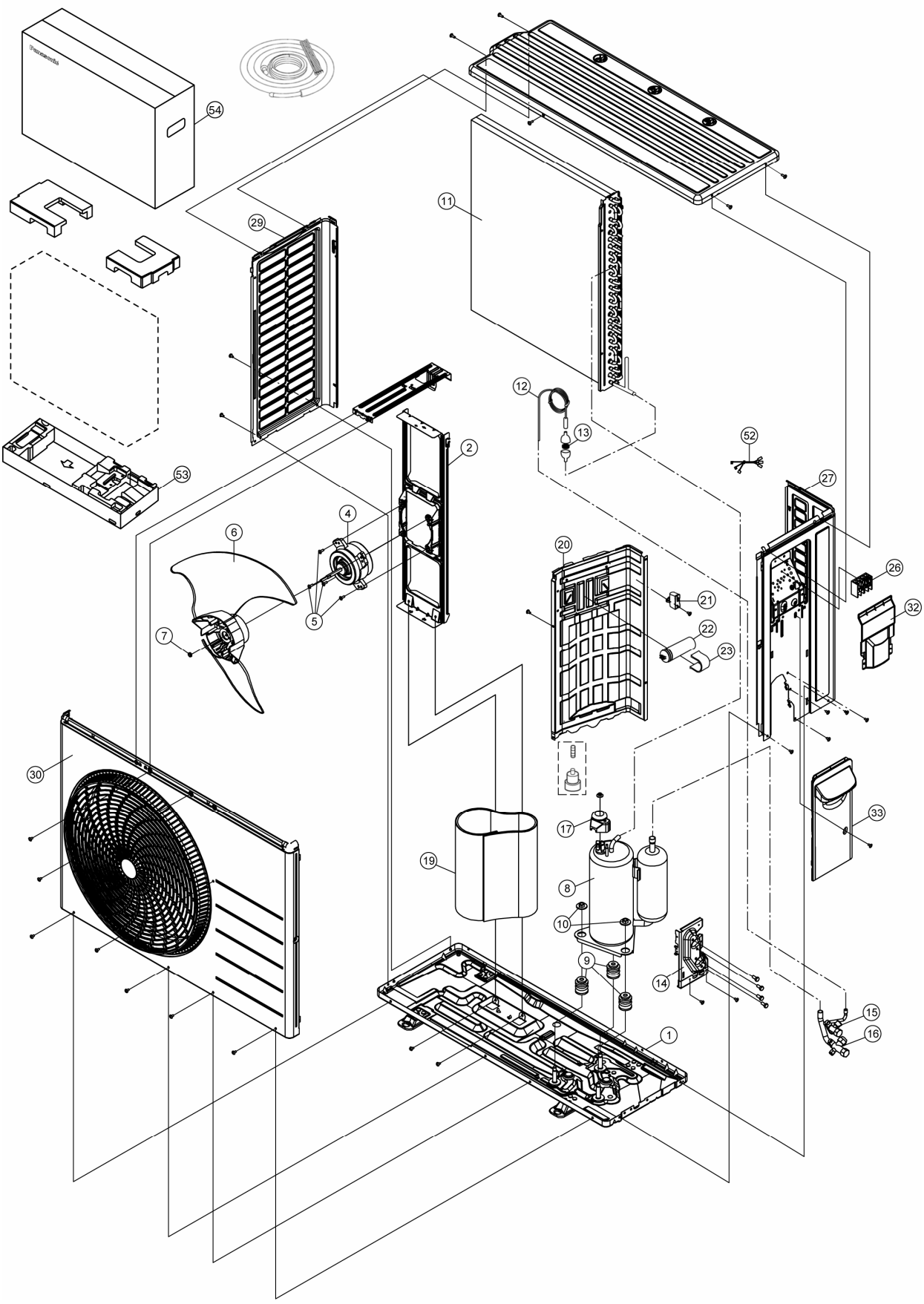
SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-UC18QKD	CS-UC24QKD	REMARK
	1	CHASSIS-COMPLETE	1	CWD50C1778-AN	←	
⚠	2	FAN MOTOR	1	CWL6CBYYYL0037	CWL6CBYYYL0039	O
	3	CROSS-FLOW FAN-COMPLETE	1	CWH02C1077	←	O
	7	FIN & TUBE EVAPORATOR-COMPLETE	1	CWB30C4704-AN	CWB30C4536-AN#	O
	8	UNION NUT	1	CWT251026	←	O
	9	UNION NUT	1	CWT251062	CWT251036	O
	12	PARTICULAR PIECE	1	CWD933753	←	
⚠	14	TERMINAL BOARD-COMPLETE	1	CWA28C2604	CWA28C2606	O
⚠	16	ELECTRONIC CONTROLLER - MAIN	1	CWA73C8305-AN#	CWA73C8306-AN#	O
⚠	19	ELECTRONIC CONTROLLER - INDICATOR	1	CWA747151-W	←	O
	26	SENSOR-COMPLETE	1	CWA50C2122	←	O
	34	DISCHARGE GRILLE-COMPLETE	1	CWE20C3351	←	O
	35	VANE	13	CWE241425	←	
	36	CONNECTING BAR	1	CWE261297	←	
	37	CONNECTING BAR	1	CWE261298	←	
	38	CONNECTING BAR	1	CWE261299	←	
	39	CONNECTING BAR	1	CWE261300	←	
	40	CONNECTING BAR	1	CWE261301	←	
⚠	41	FAN MOTOR	1	CWA981241	←	O
	44	VANE	1	CWE241424	←	
	46	CONTROL BOARD COVER	1	CWH131605	←	
	47	CONTROL BOARD COVER-COMPLETE	1	CWH13C1297	←	
	48	REMOTE CONTROL SWITCH-COMPLETE	1	CWA75C4262	←	O
	50	FRONT GRILLE-COMPLETE	1	CWE11C5513	CWE11C5521	
	51	INTAKE GRILLE-COMPLETE	1	CWE22C1813	←	
	53	AIR FILTER	2	CWD001362	←	
	55	CAP	3	CWH521194	←	
	56	FLEXIBLE PIPE	1	CWH851206	←	
	58	INSTALLING HOLDER	1	CWH361141	←	
	59	FULCRUM	2	CWH621103	←	
	60	OPERATING INSTRUCTION-COMPLETE	1	CWF56C8826-AN	←	
	65	FAN MOTOR BRACKET	1	CWD541224	←	
	66	AIR FILTER	2	CWD001361	←	O
	80	LEAD WIRE-COMPLETE	1	CWA67C7849	CWA67C7927	O
	81	PARTICULAR PIECE	1	CWD933739	←	
	84	CAP	1	CWH52061	←	
	85	SIDE PLATE-FAN ASS'Y	1	CWH07K1022	←	
	86	HOLDER-SENSOR	1	CWH321110	←	O
	87	CONTROL BOARD-COMPLETE	1	CWH16C0050-4-AN	CWH16C0061-2-AN	O
	88	SPRING WASHER	1	CWXWA4BVW	←	
	89	PARTICULAR PIECE	1	CWD933741	←	
	90	FRONT GRILLE FRAME	1	CWE121308	CWE121309	
	91	INDICATOR-COMPLETE	1	CWE39C1240	←	
	92	SHOCK ABSORBER	1	CWG713555	←	
	93	SHOCK ABSORBER	1	CWG713556	←	

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-UC18QKD	CS-UC24QKD	REMARK
	94	C.C. CASE	1	CWG569673	←	
	95	SELF TAPPING SCREW	1	CWXTT4+10CFJ	←	

Note:

- All parts are supplied from APIN, India (Vendor Code: 00026071).
- “O” marked parts are recommended to be kept in stock.

17.2 Outdoor Unit



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.

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	CU-UC12QKD	CU-UC18QKD	CU-UC24QKD	REMARK
	1	BASE PAN ASS'Y	1	CWD52K1356-AN	CWD52K1332-AN	←	
	2	FAN MOTOR BRACKET	1	CWD541219-AN	←	←	
⚠	4	FAN MOTOR	1	CWA951802	←	CWA921512	O
	5	SCREW	4	CWH55406J	←	←	
	6	FAN ASSY	1	CWH03K1087	←	←	O
	7	NUT	1	CWH56053J	←	←	
⚠	8	COMPRESSOR	1	2PS192D3BA06	2KS324D5CB06	2V40S225AUC	O
	9	ANTI-VIBRATION BUSHING	3	CWH50077	CWH50055	←	O
	10	NUT	3	CWH561096	CWH561049	←	
	11	FIN & TUBE CONDENSER COMPLETE	1	CWB32C3805-AN#	←	CWB32C3802-AN	O
	12	CAPILLARY TUBE A'SSY	1	CWB15K1523	CWB15K1485-AN	CWB15K1518-AN	O
	13	STRAINER	1	CWB11025	←	←	
	14	HOLDER-COUPLING	1	CWH351249	←	←	
	15	2-WAYS VALVE	1	CWB021362	←	CWB021363	O
	16	3-WAYS VALVE	1	CWB011482	←	CWB011484	O
	17	TERMINAL COVER	1	CWH171011	CWH171012	←	
	19	SOUND PROOF MATERIAL	1	CWG302249	←	←	
	20	SOUND-PROOF BOARD	1	CWH151362-AN	←	←	
	21	SH CAPACITOR	1	CWDS441205NPQA	←	-	O
⚠	22	FILM CAPACITORS WITH FUSE	1	CWF0GAH406A005	CWF0GAH205A009	CWF5A32606A001	O
	23	HOLDER-CAPACITOR	1	CWH301055	CWH30060	CWH301057	O
⚠	26	TERMINAL BOARD ASS'Y	1	CWA28C2288	CWA28C2568	CWA28C2510	O
	27	CABINET SIDE PLATE-COMPLETE	1	CWE04C1438-AN	←	CWE04C1435-AN	
	29	CABINET SIDE PLATE	1	CWE041694-1-AN	←	CWE041692-1-AN	
	30	CABINET FRONT PLATE-COMPLETE	1	CWE06C1455-AN	CWE06C1454-AN	CWE06C1464-AN#	
	32	CONTROL BOARD COVER	1	CWH131593	←	←	
	33	CONTROL BOARD COVER-COMPLETE	1	CWH13C1293-AN	←	←	
⚠	52	LEAD WIRE-COMPLETE	1	CWA67C6499	←	CWA68C0730	O
	53	BASE BOARD-COMPLETE	1	CWG62C1182	←	←	
	54	C.C. CASE	1	CWG580287	←	←	

Note:

- All parts are supplied from APIN, India (Vendor Code: 00026071).
- “O” marked parts are recommended to be kept in stock.

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