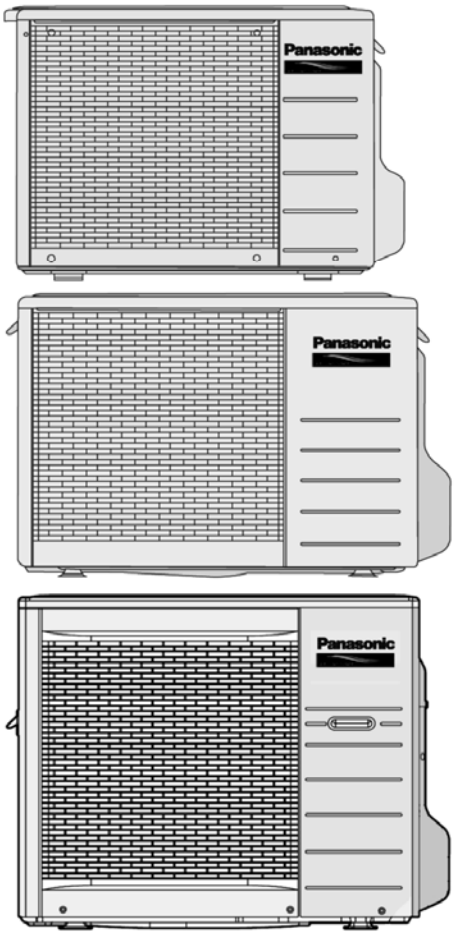
Order No: PHAAM0912015C3

Service Manual

Air Conditioner



Indoor Unit	Outdoor Unit
CS-PC9KKQ	CU-PC9KKQ
CS-PC12KKQ	CU-PC12KKQ
CS-PC18KKQ	CU-PC18KKQ
CS-PC24KKQ	CU-PC24KKQ
CS-PC18KKQ-6	CU-PC18KKQ-6
CS-PC24KKQ-6	CU-PC24KKQ-6

⚠ 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 products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

TABLE OF CONTENTS

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 run 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 of 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 the specified indoor/outdoor connection cable, refer to installation instruction 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 connecting 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 refrigeration 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 refrigeration piping while compressor is operating and valves are opened condition will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.).
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 describe in catalog and manual.

⚠ CAUTION

1. Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
2. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
3. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.
4. Do not touch outdoor unit air inlet and aluminium fin. It may cause injury.
5. Select an installation location which is easy for maintenance.
6. Pb free solder has a higher melting point than standard solder; typically the melting point is 50°F – 70°F (30°C – 40°C) higher. Please use a high temperature solder iron. In case of the soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C).
   Pb free solder will tend to splash when heated too high (about 1100°F / 600°C).
7. Power supply connection to the air conditioner. Connect the power supply cord of the air conditioner to the mains using one of the following methods.
   Power supply point shall be the place where there is ease for access for the power disconnection in case of emergency. In some countries, permanent connection of this room air conditioner to the power supply is prohibited.
   i. Power supply connection to the receptacle using a power plug.
      Use an approved 15/16A (1.0 ~ 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 (1.0 ~ 1.5HP) 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 aluminium fin, sharp parts may cause injury.

2. Specification

Model			Indoor	CS-PC9KKQ (PHILIPPINES)	CS-PC12KKQ (PHILIPPINES)
			Outdoor	CU-PC9KKQ (PHILIPPINES)	CU-PC12KKQ (PHILIPPINES)
Performance Test Condition				JIS	JIS
Power Supply			Phase, Hz	Single, 60	Single, 60
			V	230	230
Cooling	Capacity		kW	2.65	3.54
			BTU/h	9040	12070
			kJ/h	9540	12740
	Running Current		A	4.0	5.5
	Input Power		W	860	1240
	EER		W/W	3.08	2.85
			kJ/hW	11.10	10.30
	Power Factor		%	93	98
	Indoor Noise (H / L)		dB-A	36 / 26	40 / 29
			Power Level dB	49 / -	53 / -
	Outdoor Noise (H / L)		dB-A	49 / -	50 / -
			Power Level dB	64 / -	65 / -
Max Current (A) / Max Input Power (W)				4.6 / 990	6.5 / 1450
Starting Current (A)				23.0	33.0
Compressor		Type		Rotary (1 cylinder) rolling piston type	Rotary (1 cylinder) rolling piston type
		Motor Type		Induction (2 poles)	Induction (2 poles)
		Output Power	W	600	850
Indoor Fan	Type			Cross-Flow Fan	Cross-Flow Fan
	Material			ASG20K1	ASG20K1
	Motor Type			Induction (4 poles)	Induction (4 poles)
	Input Power		W	52.3	52.3
	Output Power		W	22	22
	Speed	Lo	rpm	650	750
		Me	rpm	850	930
		Hi	rpm	1030	1100
		SHi	rpm	-	-
Outdoor Fan	Type			Propeller Fan	Propeller Fan
	Material			PP Resin	PP Resin
	Motor Type			Induction (6 poles)	Induction (6 poles)
	Input Power		W	68	79.9
	Output Power		W	30	30
	Speed	Hi	rpm	815	835
Moisture Removal			L/h (Pt/h)	1.6 (3.4)	2.0 (4.2)
Indoor Airflow		Lo	m^3/min (ft^3/min)	6.3 (223)	7.6 (267)
		Me	m^3/min (ft^3/min)	8.3 (291)	9.4 (332)
		Hi	m^3/min (ft^3/min)	10.0 (353)	10.4 (367)
		SHi	m^3/min (ft^3/min)	-	-
Outdoor Airflow		Hi	m^3/min (ft^3/min)	29.2 (1030)	32.6 (1150)
Refrigeration Cycle		Control Device		Capillary Tube	Capillary Tube
		Refrigerant Oil	cm^3	ATMOS M60 or Suniso 4GDID (290)	ATMOS M60 or Suniso 4GDID (350)
		Refrigerant Type	g (oz)	R22, 590 (20.8)	R22, 610 (21.5)

Dimension	Height(I/D / O/D)	mm (inch)	290 (11-7/16) / 510 (20-3/32)		290 (11-7/16) / 540 (20-3/32)	
	Width (I/D / O/D)	mm (inch)	870 (34-9/32) / 650 (25-19/32)		870 (34-9/32) / 780 (30-23/32)	
	Depth (I/D / O/D)	mm (inch)	204 (8-1/16) / 230 (9-1/16)		204 (8-1/16) / 289 (11-13/32)	
Weight	Net (I/D / O/D)	kg (lb)	9 (20) / 23 (50)		9 (20) / 29 (64)	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)		6.35 (1/4) / 12.70 (1/2)	
	Standard length	m (ft)	7.5 (24.6)		7.5 (24.6)	
	Length range (min – max)	m (ft)	3 (9.8) ~ 10 (32.8)		3 (9.8) ~ 15 (49.2)	
	I/D & O/D Height different	m (ft)	5 (16.4)		5 (16.4)	
	Additional Gas Amount	g/m (oz/ft)	10 (0.1)		10 (0.1)	
	Length for Additional Gas	m (ft)	7.5 (24.6)		7.5 (24.6)	
Drain Hose	Inner Diameter	mm	16		16	
	Length	mm	550		550	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre coated)		Aluminium (Pre coated)	
	Fin Type		Slit Fin		Slit Fin	
	Row x Stage x FPI		2 x 15 x 21		2 x 15 x 21	
	Size (W x H x L)	mm	610 x 315 x 25.4		610 x 315 x 25.4	
Outdoor Heat Exchanger	Fin Material		Aluminium (Blue coated)		Aluminium (Blue coated)	
	Fin Type		Corrugated Fin		Slit Fin	
	Row x Stage x FPI		1 x 19 x 17		1 x 24 x 17	
	Size (W x H x L)	mm	22 x 482.6 x 567.4		12.7 x 504 x 718.4	
Air Filter	Material		Polypropelene		Polypropelene	
	Type		One-touch		One-touch	
Power Supply			Indoor		Indoor	
Power Supply Cord		A	10		10	
Thermostat			-		-	
Protection Device			-		-	
			DRY BULB	WET BULB	DRY BULB	WET BULB
Indoor Operation Range		Maximum	32	23	32	23
		Minimum	16	11	16	11
Outdoor Operation Range		Maximum	43	26	43	26
		Minimum	16	11	16	11

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

Model			Indoor	CS-PC18KKQ (PHILIPPINES)		CS-PC24KKQ (PHILIPPINES)	
			Outdoor	CU-PC18KKQ (PHILIPPINES)		CU-PC24KKQ (PHILIPPINES)	
Performance Test Condition				NEW JIS		NEW JIS	
Power Supply			Phase, Hz	Single, 60		Single, 60	
			V	220	230	220	230
Cooling	Capacity		kW	5.22	5.22	7.03	7.03
			BTU/h	17800	17800	24000	24000
			kJ/h	18800	18800	25310	25310
	Running Current		A	8.7	8.3	13.1	12.8
	Input Power		W	1870	1880	2790	2820
	EER		W/W	2.79	2.78	2.52	2.49
			kJ/hW	10.1	10.0	9100	9000
	Power Factor		%	98	98	97	96
	Indoor Noise (H / L)		dB-A	43 / 39	43 / 39	47 / 42	47 / 42
			Power Level dB	-		-	
	Outdoor Noise (H / L)		dB-A	54 / -	55 / -	60 / -	61 / -
			Power Level dB	-		-	
Max Current (A) / Max Input Power (W)				9.6 / 2160		14.3 / 2870	
Starting Current (A)				38.0		63.0	
Compressor		Type		Rotary (1 cylinder) rolling piston type		Rotary (1 cylinder) rolling piston type	
		Motor Type		Induction (2 poles)		Induction (2 poles)	
		Output Power	W	1200		1800	
Indoor Fan	Type			Cross-Flow Fan		Cross-Flow Fan	
	Material			ASG20K1		ASG20K1	
	Motor Type			DC Motor (4 poles)		DC Motor (8 poles)	
	Input Power		W	94.8	94.8	94.8	94.8
	Output Power		W	40		40	
	Speed	Lo	rpm	1060		1150	
		Me	rpm	1150		1240	
		Hi	rpm	1240		1390	
		SHi	rpm	-		-	
Outdoor Fan	Type			Propeller Fan		Propeller Fan	
	Material			PP Resin		PP Resin	
	Motor Type			Induction (6 poles)		Induction (6 poles)	
	Input Power		W	76.2	86.5	148.4	158.6
	Output Power		W	35		72	
	Speed	Lo	rpm	-		490	510
		Hi	rpm	820	835	850	870
Moisture Removal			L/h (Pt/h)	2.9 (6.1)		4.0 (8.5)	
Indoor Airflow		Lo	m^3/min (ft^3/min)	13.8 (489)		15.5 (546)	
		Me	m^3/min (ft^3/min)	15.0 (531)		16.7 (589)	
		Hi	m^3/min (ft^3/min)	16.2 (572)		18.7 (660)	
Outdoor Airflow		Hi	m^3/min (ft^3/min)	30.4 (1073)	30.8 (1090)	51.0 (1800)	52.5 (1850)
Refrigeration Cycle		Control Device		Capillary Tube		Capillary Tube	
		Refrigerant Oil	cm^3	ATMOS M60 or Suniso 4GDID (650)		ATMOS M60 or Suniso 4GDID (1130)	
		Refrigerant Type	g (oz)	R22, 1000 (35.3)		R22, 1410 (49.8)	
Dimension		Height(I/D / O/D)	mm (inch)	290 (11-7/16) / 540 (21-1/4)		290 (11-7/16) / 750 (29-17/32)	
		Width (I/D / O/D)	mm (inch)	1070 (42-5/32) / 780 (30-23/32)		1070 (42-5/32) / 875 (34-15/32)	
		Depth (I/D / O/D)	mm (inch)	235 (9-9/32) / 289 (11-3/8)		235 (9-9/32) / 345 (13-19/32)	

Weight	Net (I/D / O/D)	kg (lb)	12.0 (26) / 35 (77)		12 (26) / 56 (123)	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 12.70 (1/2)		6.35 (1/4) / 15.88 (5/8)	
	Standard length	m (ft)	5.0 (16.4)		5.0 (16.4)	
	Length range (min – max)	m (ft)	3 (9.8) ~ 25 (82.0)		3 (9.8) ~ 25 (82.0)	
	I/D & O/D Height different	m (ft)	20 (65.6)		20 (65.6)	
	Additional Gas Amount	g/m (oz/ft)	20 (0.2)		30 (0.3)	
	Length for Additional Gas	m (ft)	7.5 (24.6)		7.5 (24.6)	
Drain Hose	Inner Diameter	mm	14		14	
	Length	mm	550		550	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre coated)		Aluminium (Pre coated)	
	Fin Type		Slit Fin		Slit Fin	
	Row x Stage x FPI		2 x 15 x 21		2 x 15 x 21	
	Size (W x H x L)	mm	810 x 315 x 25.4		810 x 315 x 25.4	
Outdoor Heat Exchanger	Fin Material		Aluminium (Blue coated)		Aluminium (Blue coated)	
	Fin Type		Slit Fin		Slit Fin	
	Row x Stage x FPI		2 x 24 x 17		1 x 34 x 17	
	Size (W x H x L)	mm	25.4 x 504 x 693.4:713.4		25.4 x 714.0 x 806.2:826.2	
Air Filter	Material		Polypropelene		Polypropelene	
	Type		One-touch		One-touch	
Power Supply			Indoor		Indoor	
Power Supply Cord		A	16		20	
Thermostat			-		-	
Protection Device			-		-	
			DRY BULB	WET BULB	DRY BULB	WET BULB
Indoor Operation Range		Maximum	32	23	32	23
		Minimum	16	11	16	11
Outdoor Operation Range		Maximum	43	26	43	26
		Minimum	16	11	16	11

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

Model			Indoor	CS-PC18KKQ-6 (MEXICO)	CS-PC24KKQ-6 (MEXICO)
			Outdoor	CU-PC18KKQ-6 (MEXICO)	CU-PC24KKQ-6 (MEXICO)
Performance Test Condition				NEW JIS	NEW JIS
Power Supply			Phase, Hz	Single, 60	Single, 60
			V	220	220
Cooling	Capacity		kW	5.22	7.03
			BTU/h	17800	24000
			kJ/h	18800	25310
	Running Current		A	8.7	13.1
	Input Power		W	1870	2790
	EER		W/W	2.79	2.52
			kJ/hW	10.1	9.1
	Power Factor		%	98	97
	Indoor Noise (H / L)		dB-A	43 / 39	47 / 42
			Power Level dB	-	-
	Outdoor Noise (H / L)		dB-A	54 / -	60 / -
			Power Level dB	-	-
Max Current (A) / Max Input Power (W)				9.6 / 2160	14.3 / 2870
Starting Current (A)				38.0	63.0
Compressor		Type		Rotary (1 cylinder) rolling piston type	Rotary (1 cylinder) rolling piston type
		Motor Type		Induction (2 poles)	Induction (2 poles)
		Output Power	W	1200	1800
Indoor Fan	Type			Cross-Flow Fan	Cross-Flow Fan
	Material			ASG20K1	ASG20K1
	Motor Type			DC Motor (4 poles)	DC Motor (8 poles)
	Input Power		W	94.8	94.8
	Output Power		W	40	40
	Speed	Lo	rpm	1060	1150
		Me	rpm	1150	1240
		Hi	rpm	1240	1390
		SHi	rpm	-	-
Outdoor Fan	Type			Propeller Fan	Propeller Fan
	Material			PP Resin	PP Resin
	Motor Type			Induction (6 poles)	Induction (6 poles)
	Input Power		W	76.2	134.1
	Output Power		W	35	72
	Speed	Lo	rpm	-	-
		Hi	rpm	820	800
Moisture Removal			L/h (Pt/h)	2.9 (6.1)	4.0 (8.5)
Indoor Airflow		Lo	m^3/min (ft^3/min)	13.8 (489)	15.5 (546)
		Me	m^3/min (ft^3/min)	15.0 (531)	16.7 (589)
		Hi	m^3/min (ft^3/min)	16.2 (572)	18.7 (660)
		SHi	m^3/min (ft^3/min)	-	-
Outdoor Airflow		Hi	m^3/min (ft^3/min)	30.8 (1090)	52.5 (1850)
Refrigeration Cycle		Control Device		Capillary Tube	Capillary Tube
		Refrigerant Oil	cm^3	ATMOS M60 or Suniso 4GDID (650)	ATMOS M60 or Suniso 4GDID (1130)
		Refrigerant Type	g (oz)	R22, 1000 (35.3)	R22, 1410 (49.8)

Dimension	Height(I/D / O/D)	mm (inch)	290 (11-7/16) / 540 (21-1/4)		290 (11-7/16) / 750 (29-17/32)	
	Width (I/D / O/D)	mm (inch)	1070 (42-5/32) / 780 (30-23/32)		1070 (42-5/32) / 875 (34-15/32)	
	Depth (I/D / O/D)	mm (inch)	235 (9-9/32) / 289 (11-3/8)		235 (9-9/32) / 345 (13-19/32)	
Weight	Net (I/D / O/D)	kg (lb)	12.0 (26) / 35.0 (77)		12.0 (26) / 56.0 (123)	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 12.70 (1/2)		6.35 (1/4) / 15.88 (5/8)	
	Standard length	m (ft)	5.0 (16.4)		5.0 (16.4)	
	Length range (min – max)	m (ft)	3 (9.8) ~ 25 (82.0)		3 (9.8) ~ 25 (82.0)	
	I/D & O/D Height different	m (ft)	20 (65.6)		20 (65.6)	
	Additional Gas Amount	g/m (oz/ft)	20 (0.2)		30 (0.3)	
	Length for Additional Gas	m (ft)	7.5 (24.6)		7.5 (24.6)	
Drain Hose	Inner Diameter	mm	14		14	
	Length	mm	550		550	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre coated)		Aluminium (Pre coated)	
	Fin Type		Slit Fin		Slit Fin	
	Row x Stage x FPI		2 x 15 x 21		2 x 15 x 21	
	Size (W x H x L)	mm	810 x 315 x 25.4		810 x 315 x 25.4	
Outdoor Heat Exchanger	Fin Material		Aluminium (Blue coated)		Aluminium (Blue coated)	
	Fin Type		Slit Fin		Slit Fin	
	Row x Stage x FPI		2 x 24 x 17		2 x 34 x 17	
	Size (W x H x L)	mm	25.4 x 504 x 693.4:713.4		25.4 x 714.0 x 806.2:826.2	
Air Filter	Material		Polypropelene		Polypropelene	
	Type		One-touch		One-touch	
Power Supply			Indoor		Indoor	
Power Supply Cord		A	16		20	
Thermostat			-		-	
Protection Device			-		-	
			DRY BULB	WET BULB	DRY BULB	WET BULB
Indoor Operation Range		Maximum	32	23	32	23
		Minimum	16	11	16	11
Outdoor Operation Range		Maximum	43	26	43	26
		Minimum	16	11	16	11

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

3. Features

- Long Installation Piping
  - o CS/CU-PC9KK long piping up to 10 meters.
  - o CS/CU-PC12KK long piping up to 15 meters.
  - o CS/CU-PC18KK, PC24KK long piping up to 25 meters.

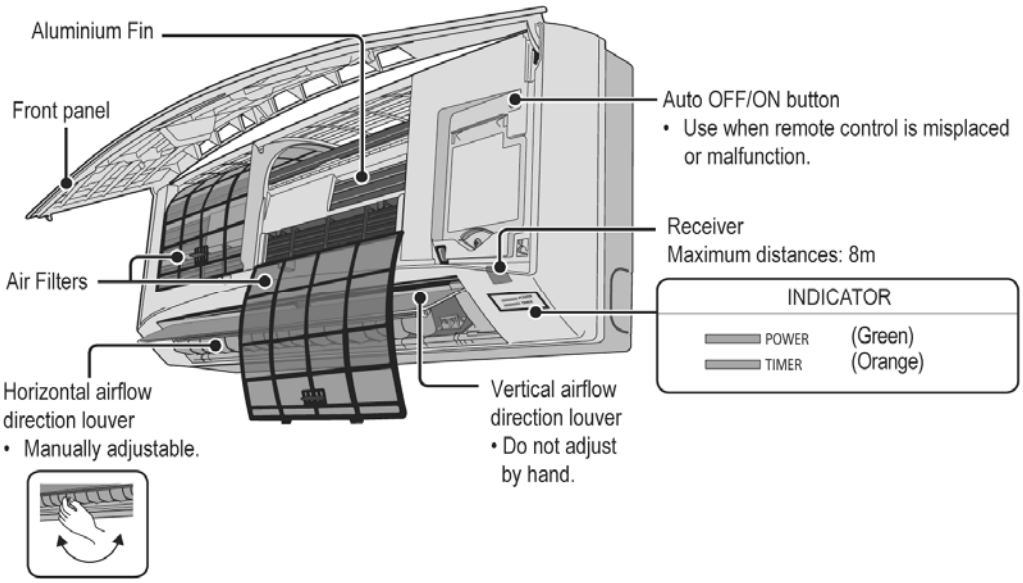
- Easy to use remote control

- Quality Improvement
  - o Random auto restart after power failure for safety restart operation
  - o Gas leakage protection
  - o Prevent compressor reverse cycle
  - o Overload protector to protect compressor
  - o Noise prevention during soft dry operation
  - o Blue coated condenser for high resistance to corrosion

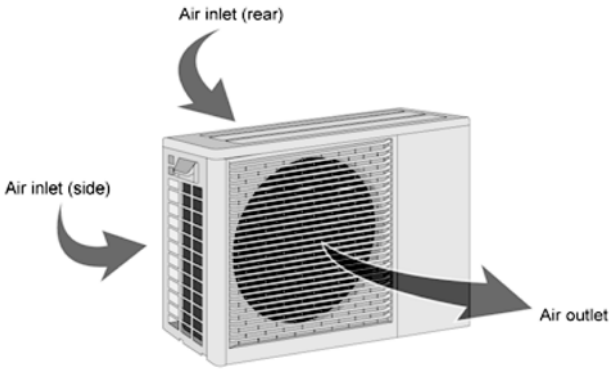
- Operation Improvement
  - o 24-hour timer setting

4. Location of Controls and Components

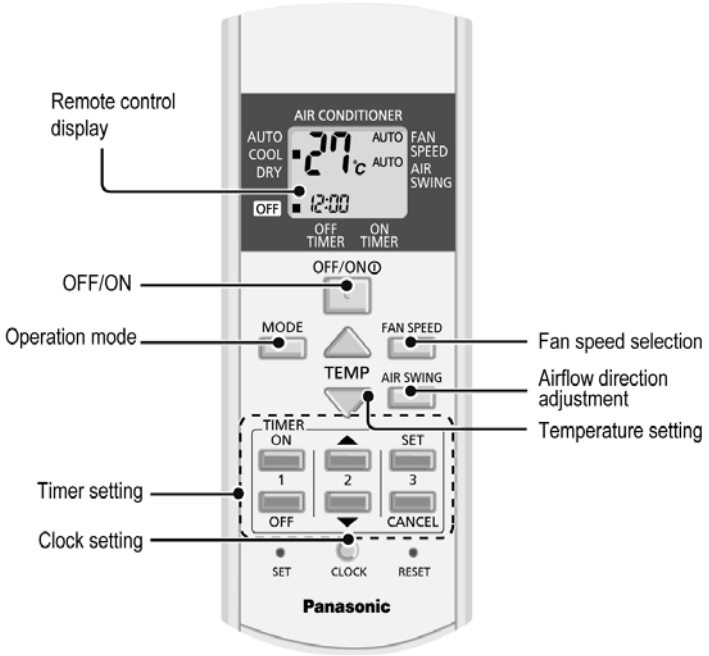
4.1 Indoor Unit



4.2 Outdoor Unit



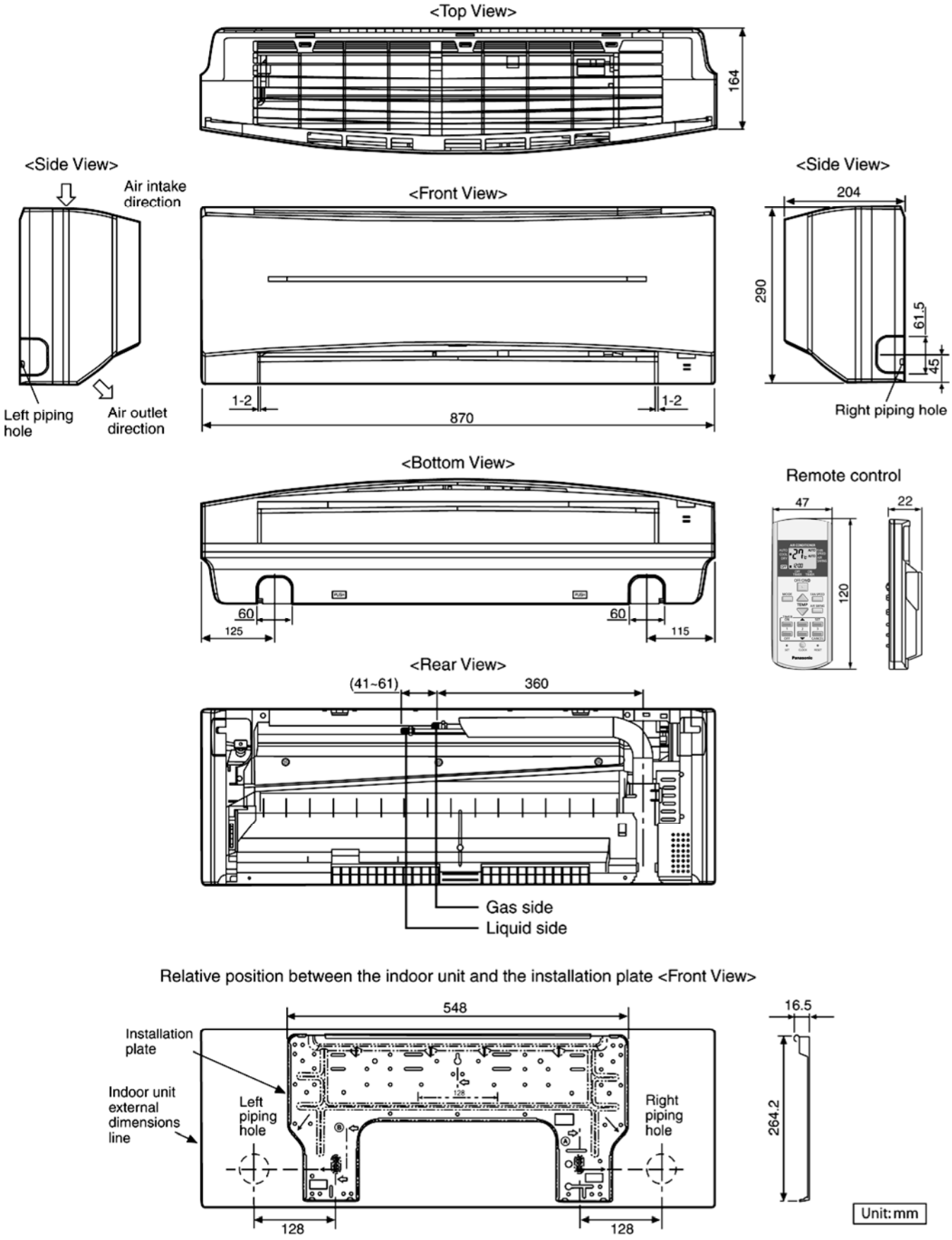
4.3 Remote Control



5. Dimensions

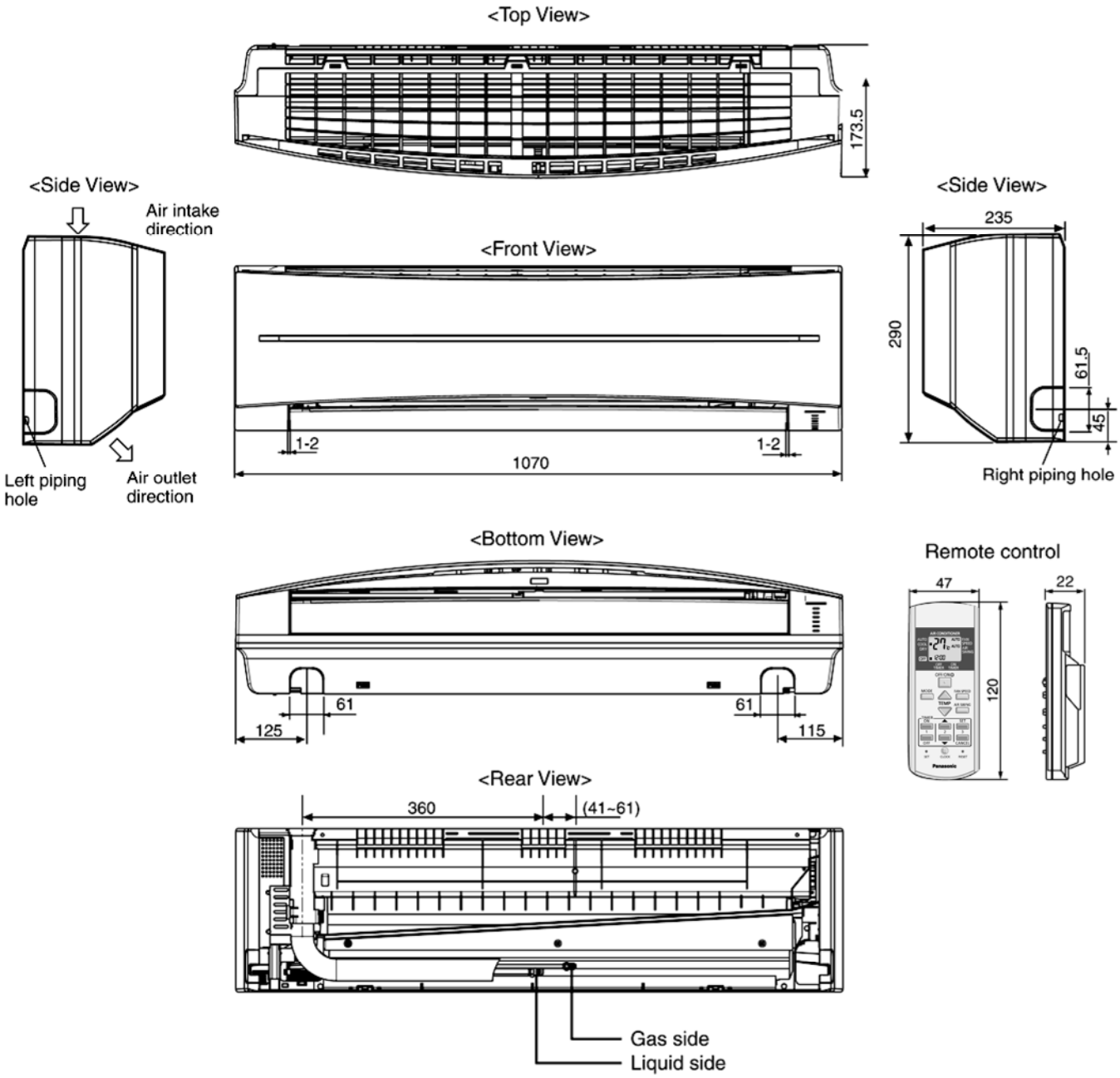
5.1 Indoor Unit

5.1.1 CS-PC9KKQ CS-PC12KKQ

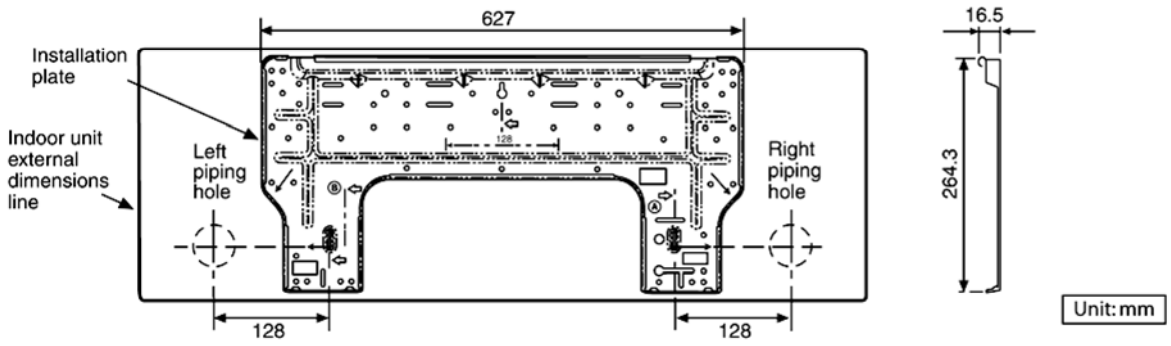


Relative position between the indoor unit and the installation plate <Front View>

5.1.2 CS-PC18KKQ CS-PC24KKQ CS-PC18KKQ-6 CS-PC24KKQ-6

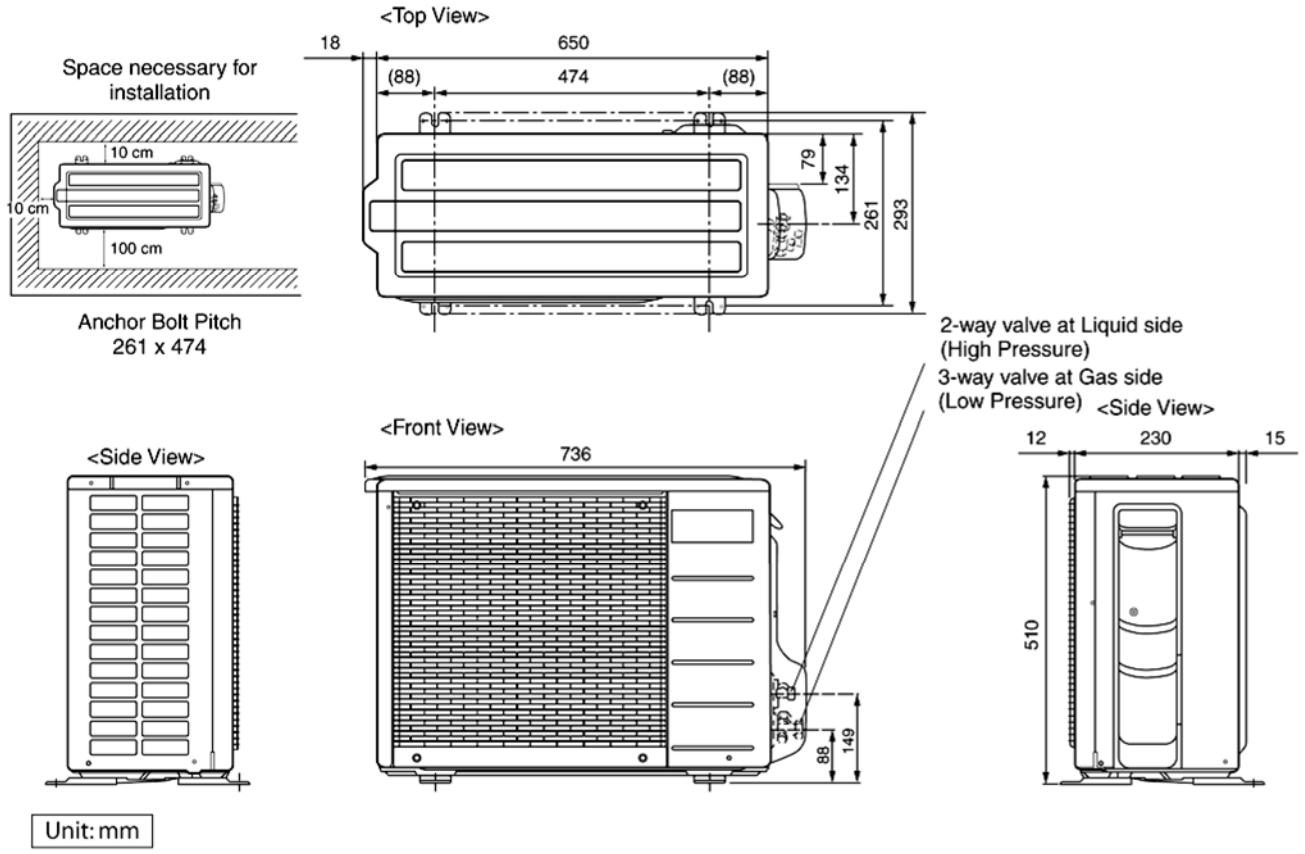


Relative position between the indoor unit and the installation plate <Front View>

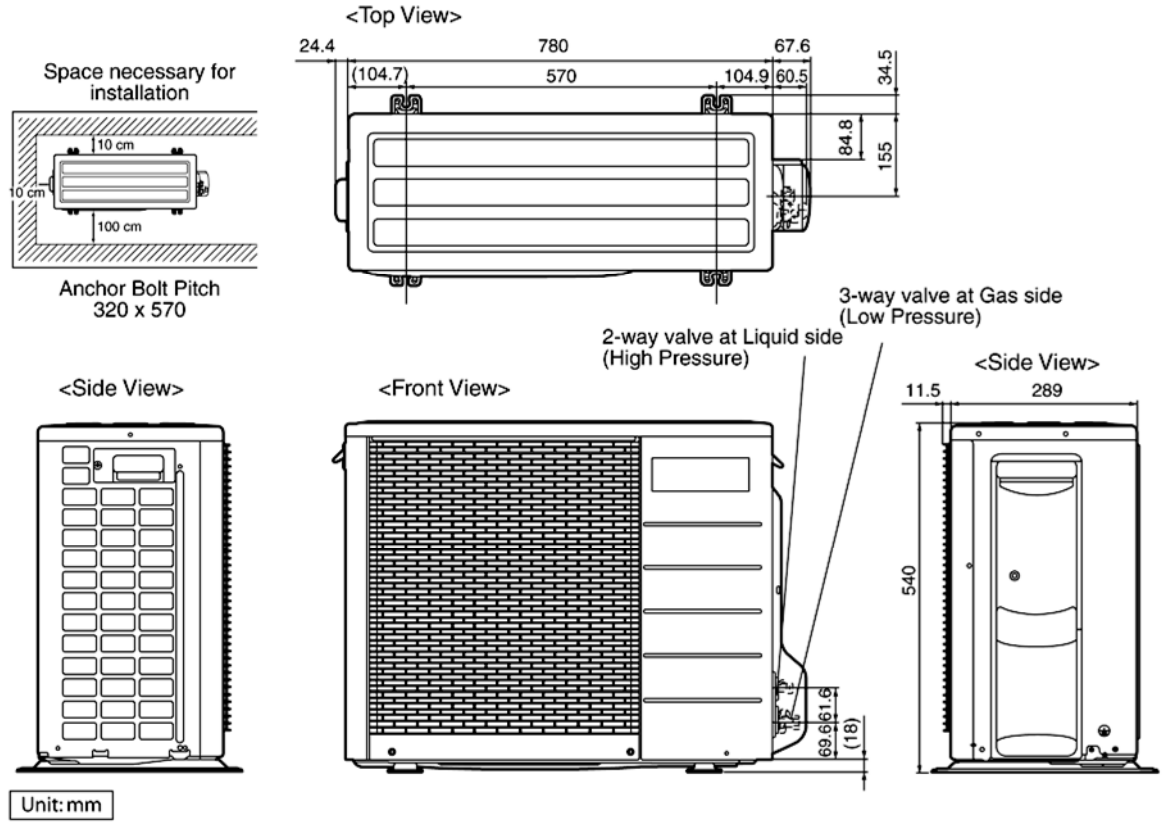


5.2 Outdoor Unit

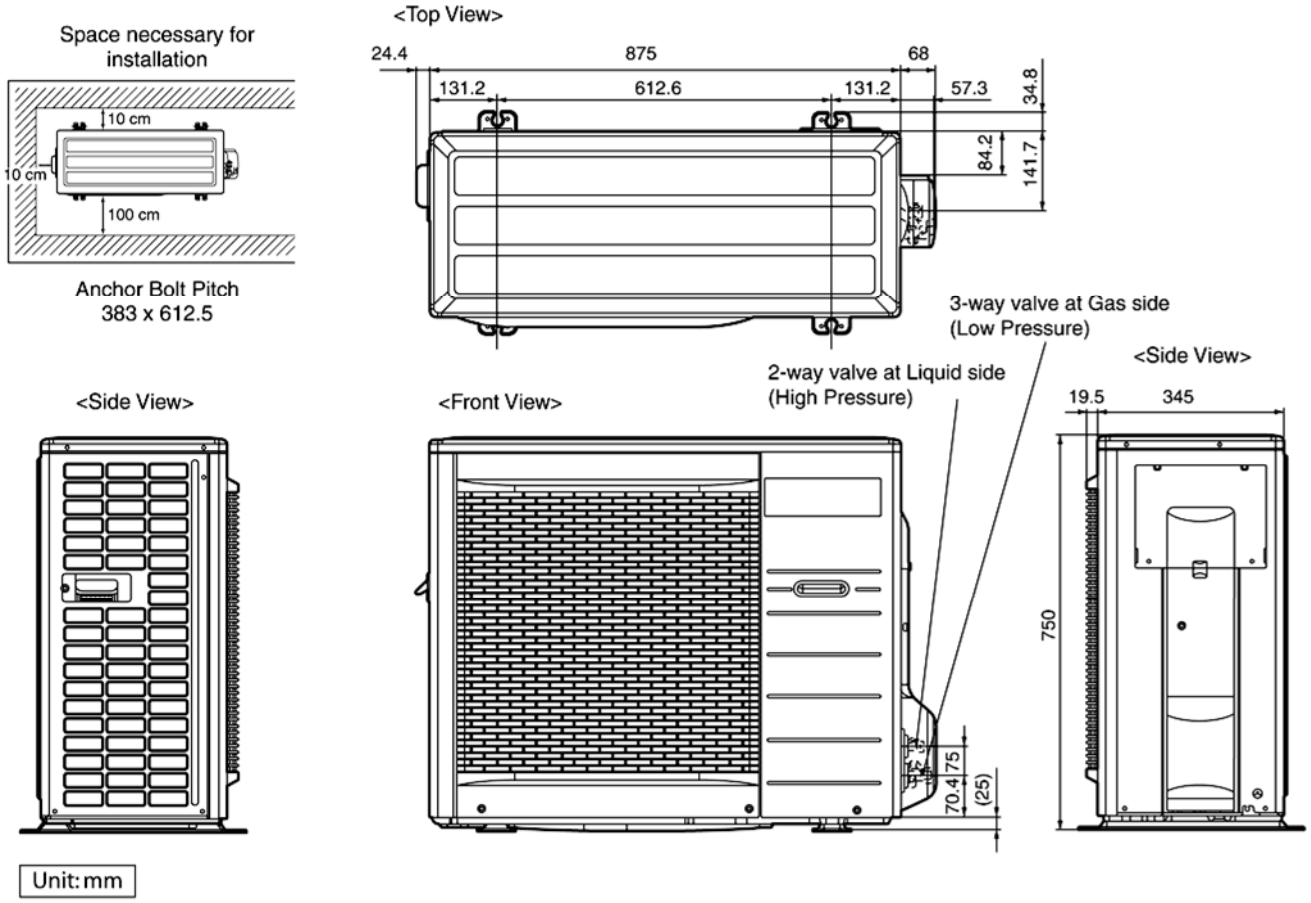
5.2.1 CU-PC9KKQ



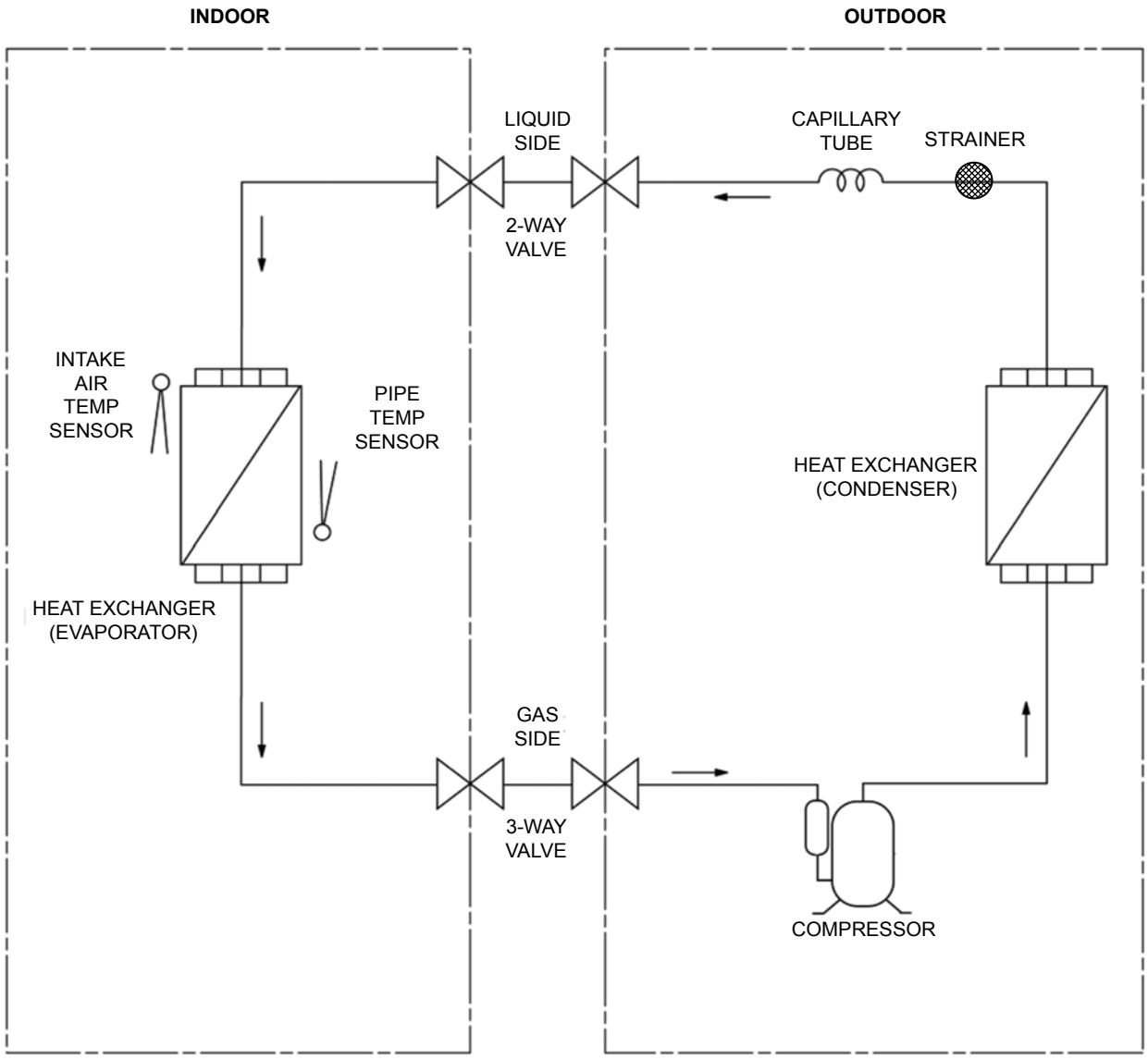
5.2.2 CU-PC12KKQ CU-PC18KKQ CU-PC18KKQ-6



5.2.3 CU-PC24KKQ CU-PC24KKQ-6

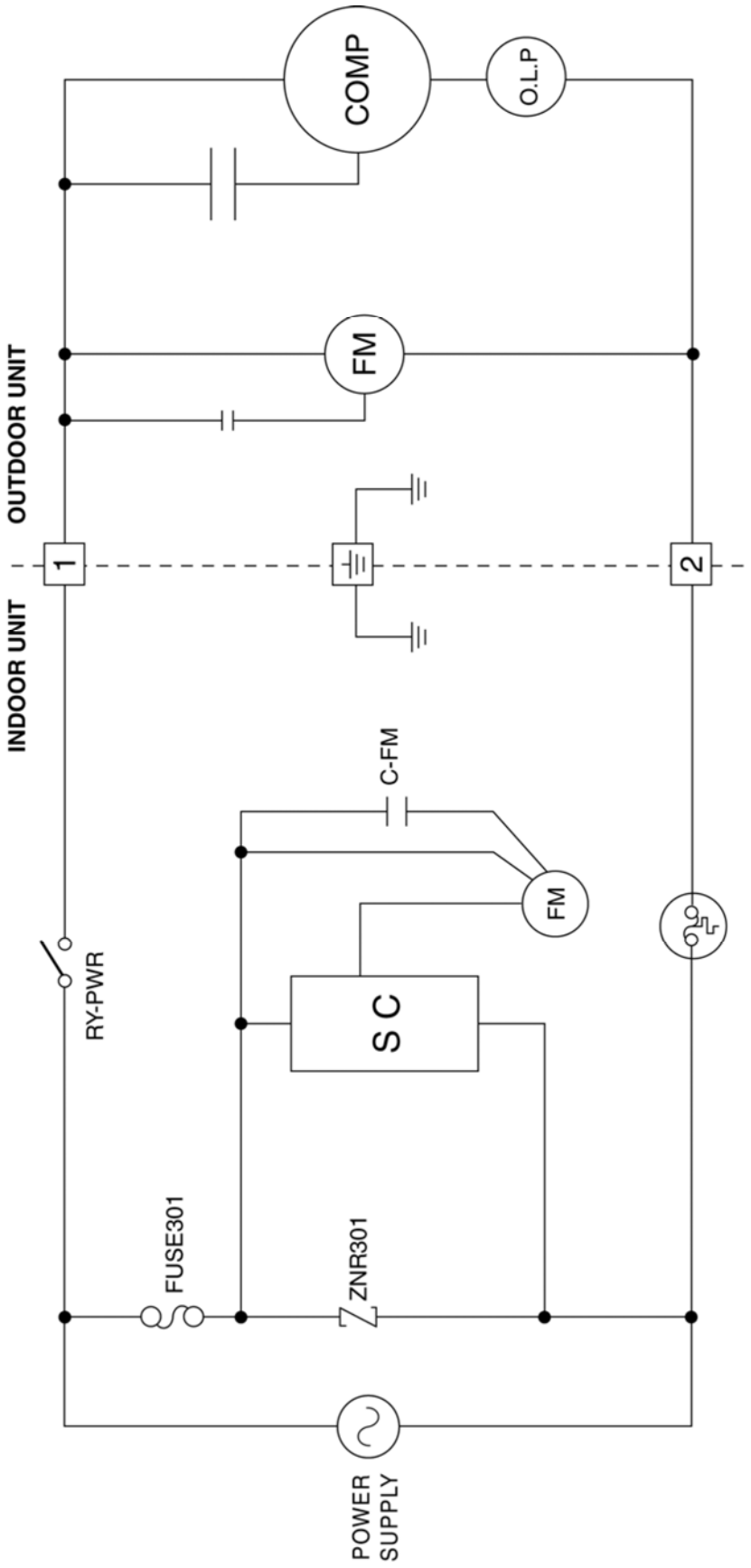


6. Refrigeration Cycle Diagram



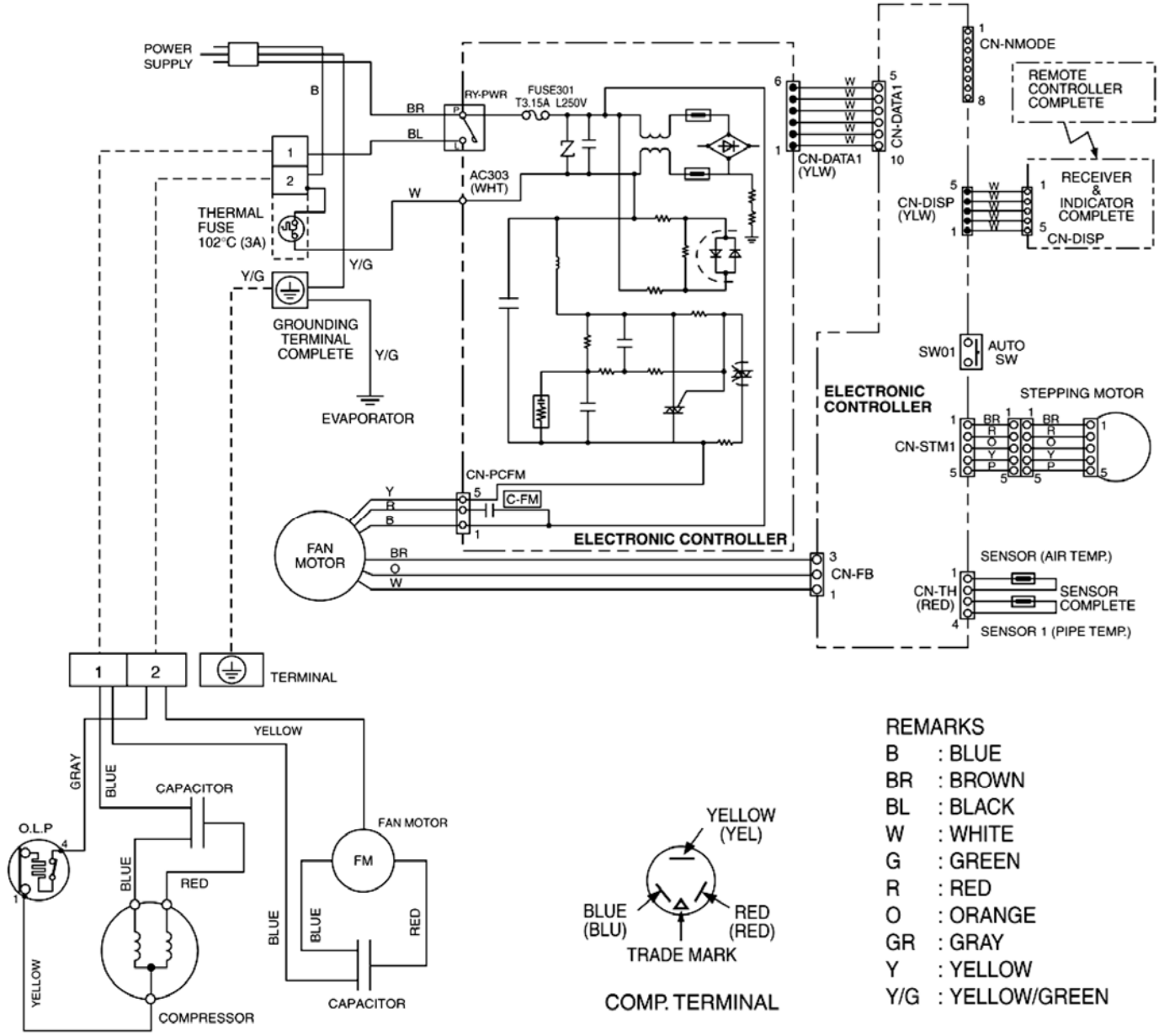
7. Block Diagram

7.1 CS-PC9KKQ CU-PC9KKQ CS-PC12KKQ CU-PC12KKQ CS-PC18KKQ CU-PC18KKQ CS-PC24KKQ CU-PC24KKQ CS-PC18KKQ-6 CU-PC18KKQ-6 CS-PC24KKQ-6 CU-PC24KKQ-6



8. Wiring Connection Diagram

8.1 CS-PC9KKQ CU-PC9KKQ



Resistance of Indoor Fan Motor Windings

MODEL	CS-PC9KKQ
CONNECTION	CWA921420
BLUE-YELLOW	192Ω
YELLOW-RED	226Ω

Note: Resistance at 20°C of ambient temperature.

Resistance of Compressor Windings

MODEL	CU-PC9KKQ
CONNECTION	2RS13C236BSC
C-R	3.298Ω
C-S	5.500Ω

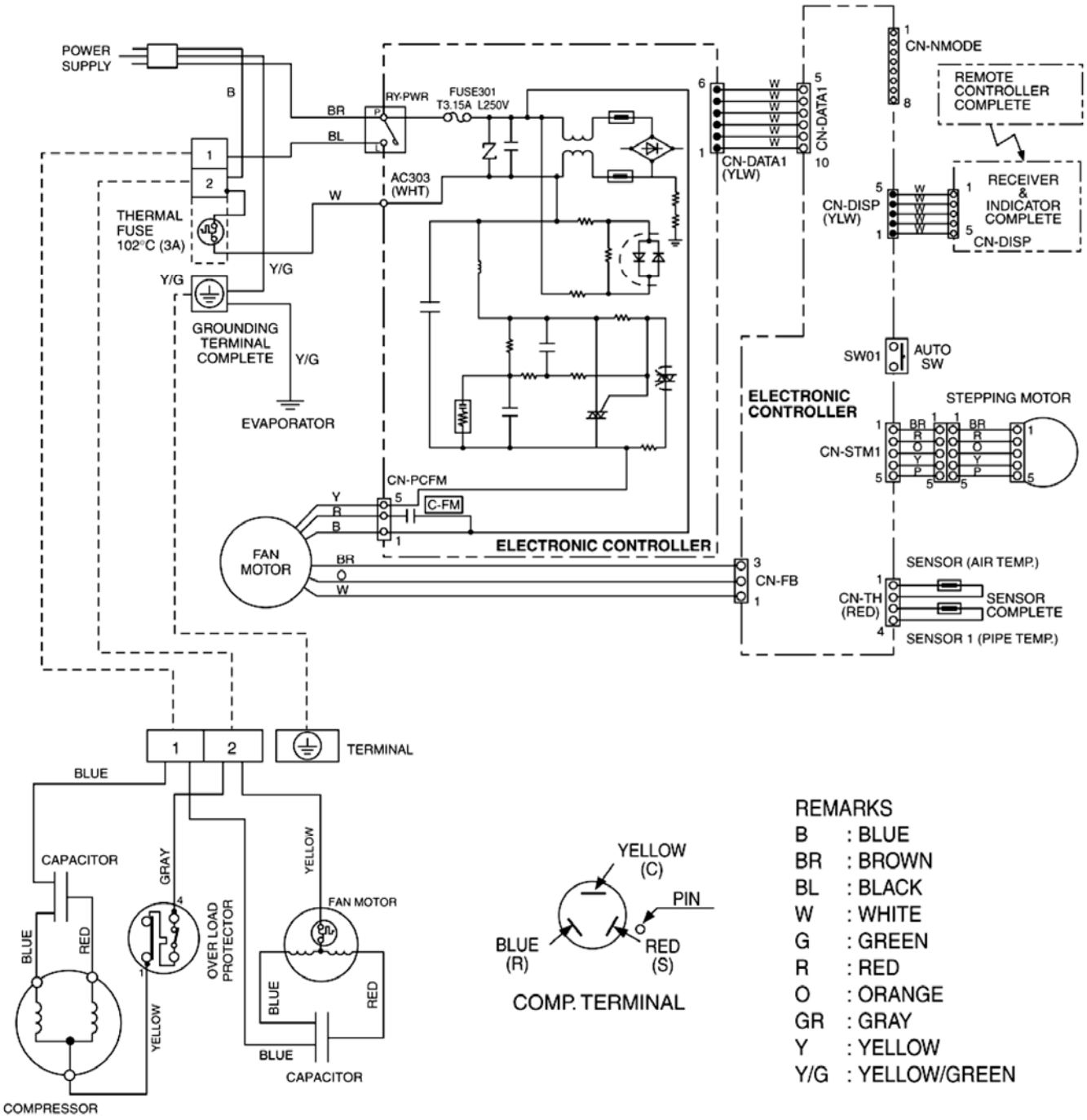
Note: Resistance at 20°C of ambient temperature.

Resistance of Outdoor Fan Motor Windings

MODEL	CU-PC9KKQ
CONNECTION	CWA951562
BLUE-YELLOW	307.4Ω
YELLOW-RED	202.4Ω

Note: Resistance at 20°C of ambient temperature.

8.2 CS-PC12KKQ CU-PC12KKQ



Resistance of Indoor Fan Motor Windings

MODEL	CS-PC12KKQ
CONNECTION	CWA921420
BLUE-YELLOW	192Ω
YELLOW-RED	226Ω

Note: Resistance at 20°C of ambient temperature.

Resistance of Compressor Windings

MODEL	CU-PC12KKQ
CONNECTION	2PS19S236A1L
C-R	2.237Ω
C-S	2.710Ω

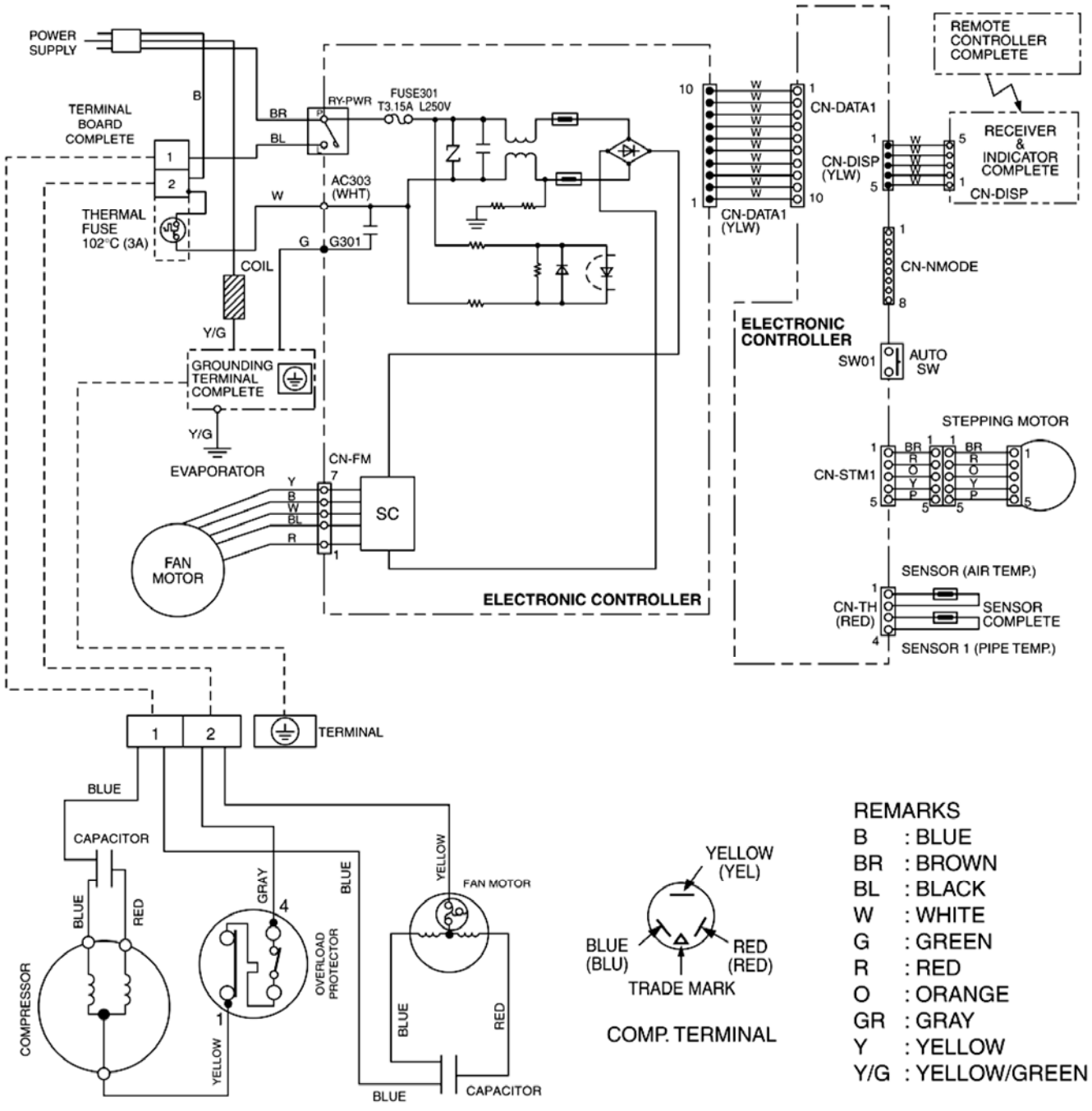
Note: Resistance at 20°C of ambient temperature.

Resistance of Outdoor Fan Motor Windings

MODEL	CU-PC12KKQ
CONNECTION	CWA951329J
BLUE-YELLOW	258Ω
YELLOW-RED	245Ω

Note: Resistance at 20°C of ambient temperature.

8.3 CS-PC18KKQ CU-PC18KKQ CS-PC18KKQ-6 CU-PC18KKQ-6



Resistance of Outdoor Fan Motor Windings

MODEL	CU-PC18KKQ / CU-PC18KKQ-6
CONNECTION	CWA951329J
BLUE-YELLOW	258.3Ω
YELLOW-RED	249.9Ω

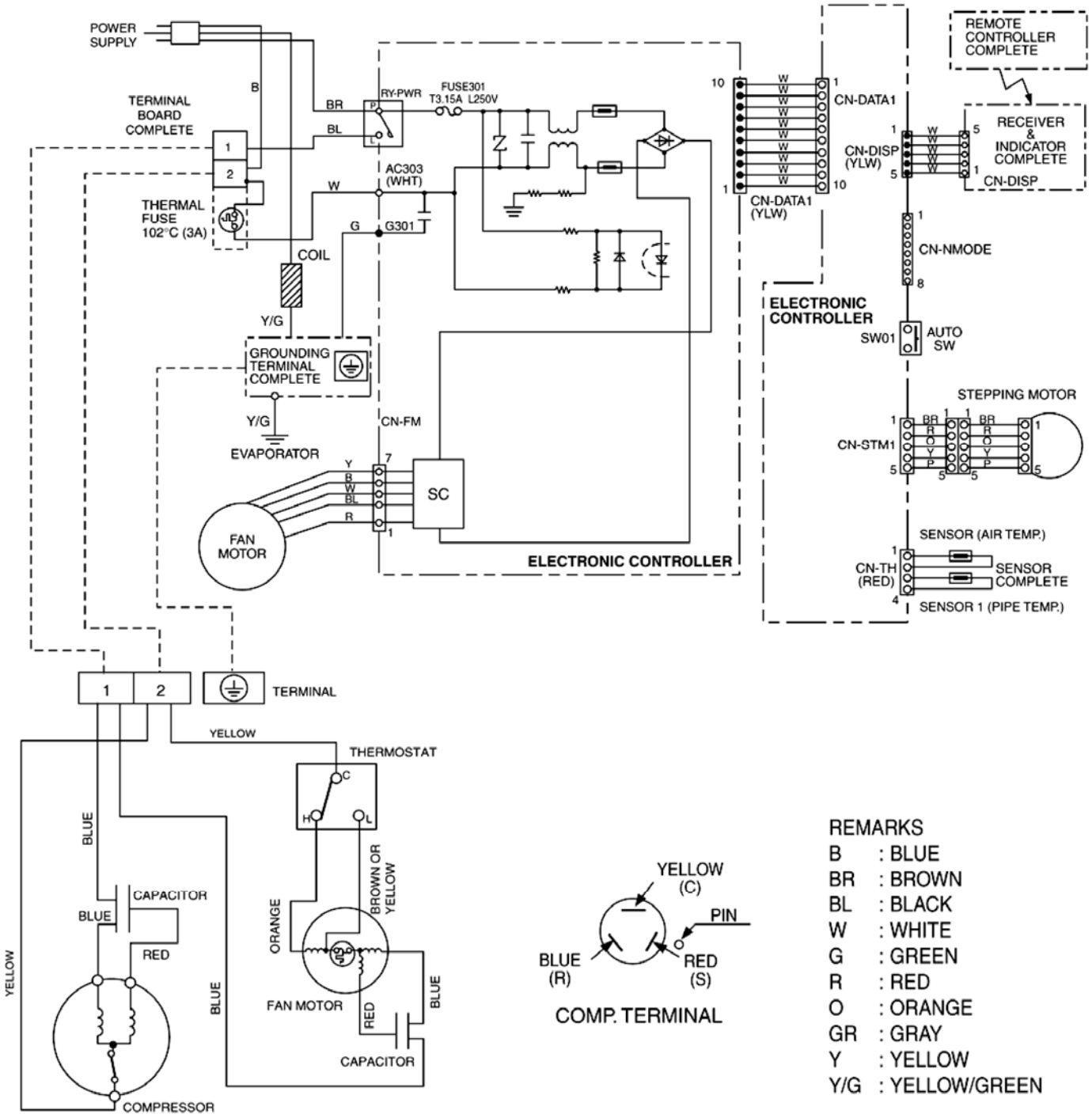
Note: Resistance at 20°C of ambient temperature.

Resistance of Compressor Windings

MODEL	CU-PC18KKQ / CU-PC18KKQ-6
CONNECTION	2K25S236F6B
C-R	1.505Ω
C-S	1.809Ω

Note: Resistance at 20°C of ambient temperature.

8.4 CS-PC24KKQ CU-PC24KKQ CS-PC24KKQ-6 CU-PC24KKQ-6



COMP. TERMINAL

REMARKS

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

Resistance of Outdoor Fan Motor Windings

MODEL	CU-PC24KKQ / CU-PC24KKQ-6
CONNECTION	CWA951399J
BLUE-YELLOW	59.47Ω
YELLOW-RED	60.95Ω
YELLOW-ORANGE	80.58Ω

Note: Resistance at 20°C of ambient temperature.

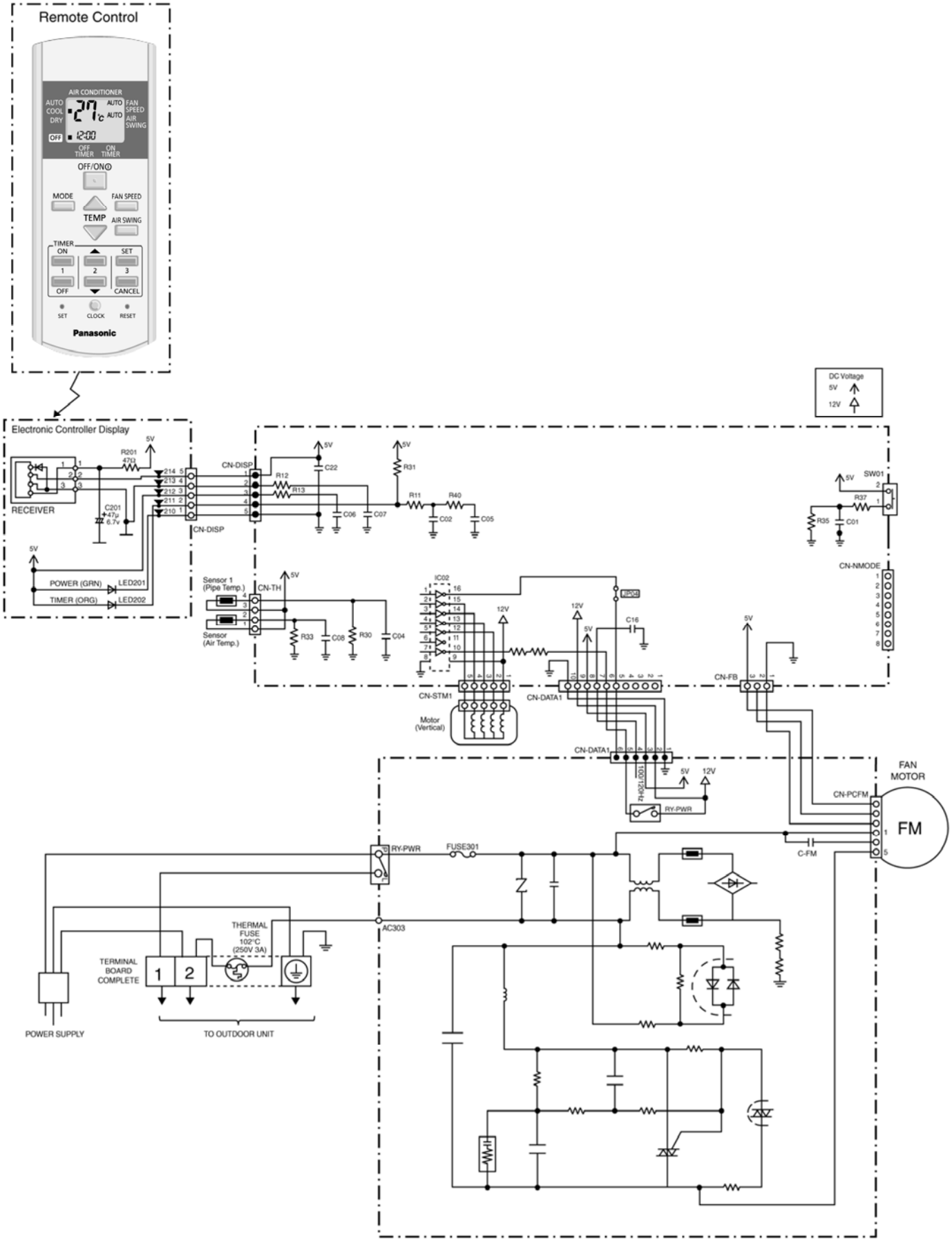
Resistance of Compressor Windings

MODEL	CU-PC24KKQ / CU-PC24KKQ-6
CONNECTION	2J39S236A1A
C-R	0.933Ω
C-S	1.584Ω

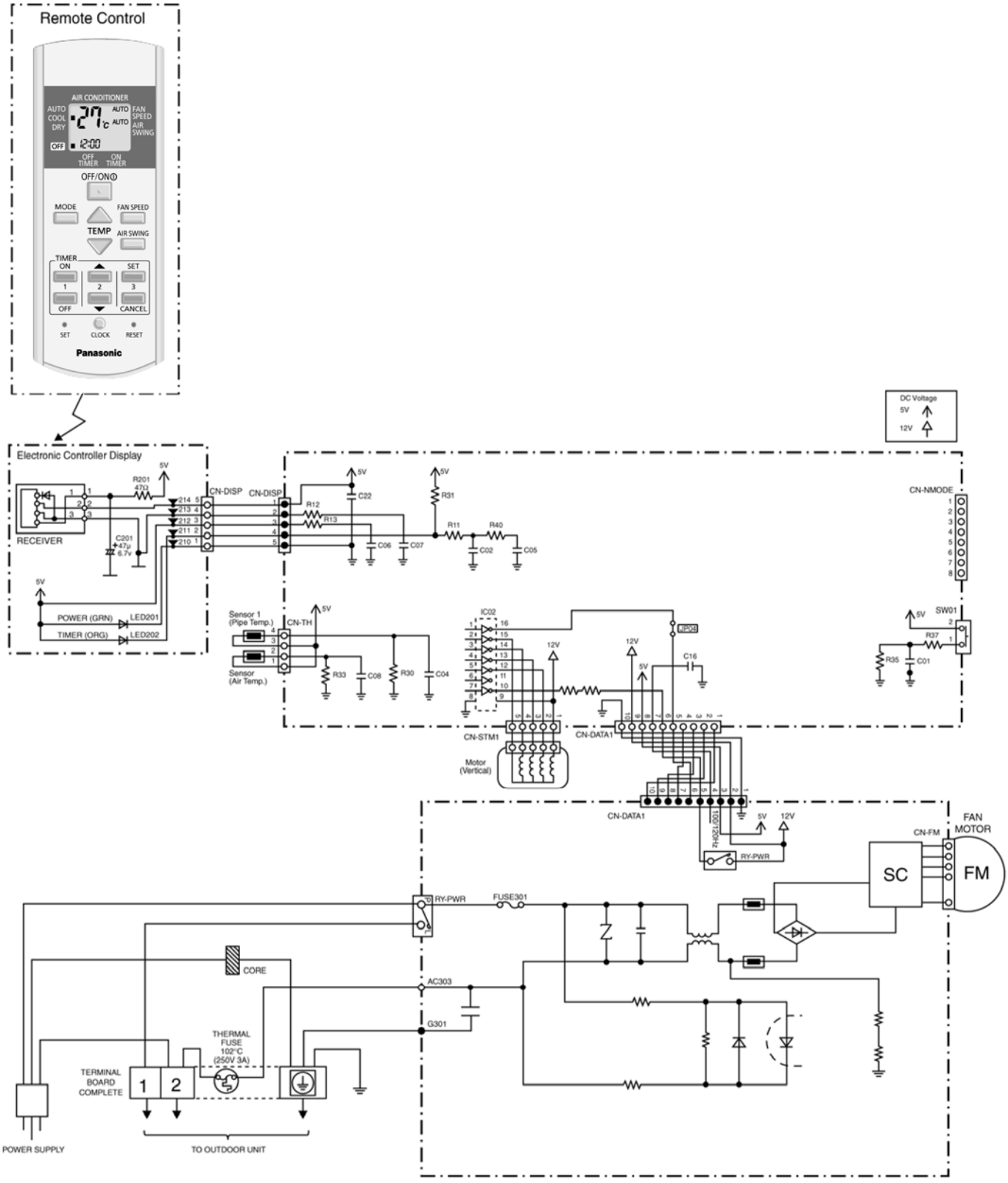
Note: Resistance at 20°C of ambient temperature.

9. Electronic Circuit Diagram

9.1 CS-PC9KKQ CU-PC9KKQ CS-PC12KKQ CU-PC12KKQ



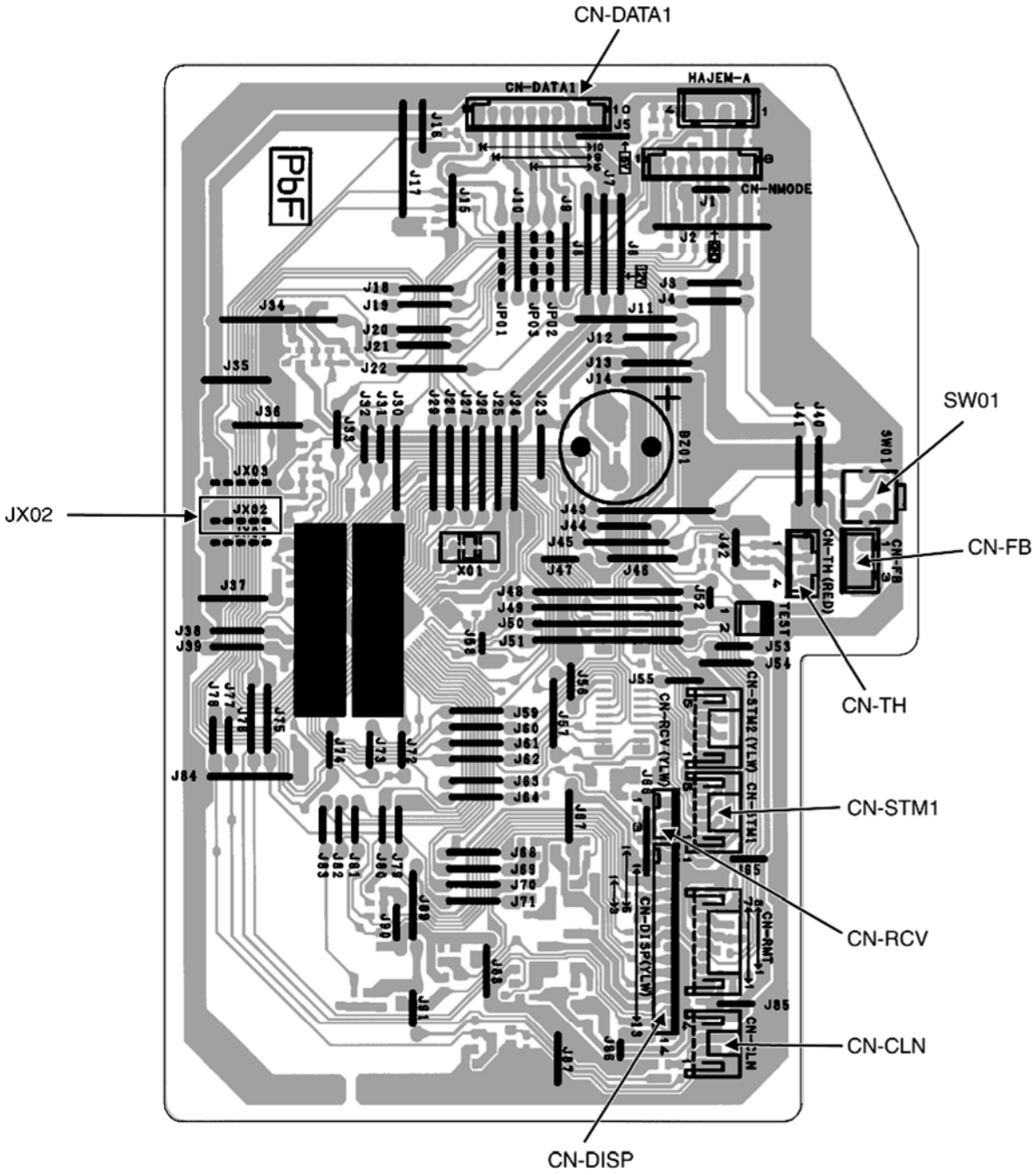
9.2 CS-PC18KKQ CU-PC18KKQ CS-PC24KKQ CU-PC24KKQ CS-PC18KKQ-6 CU-PC18KKQ-6 CS-PC24KKQ-6 CU-PC24KKQ-6



10. Printed Circuit Board

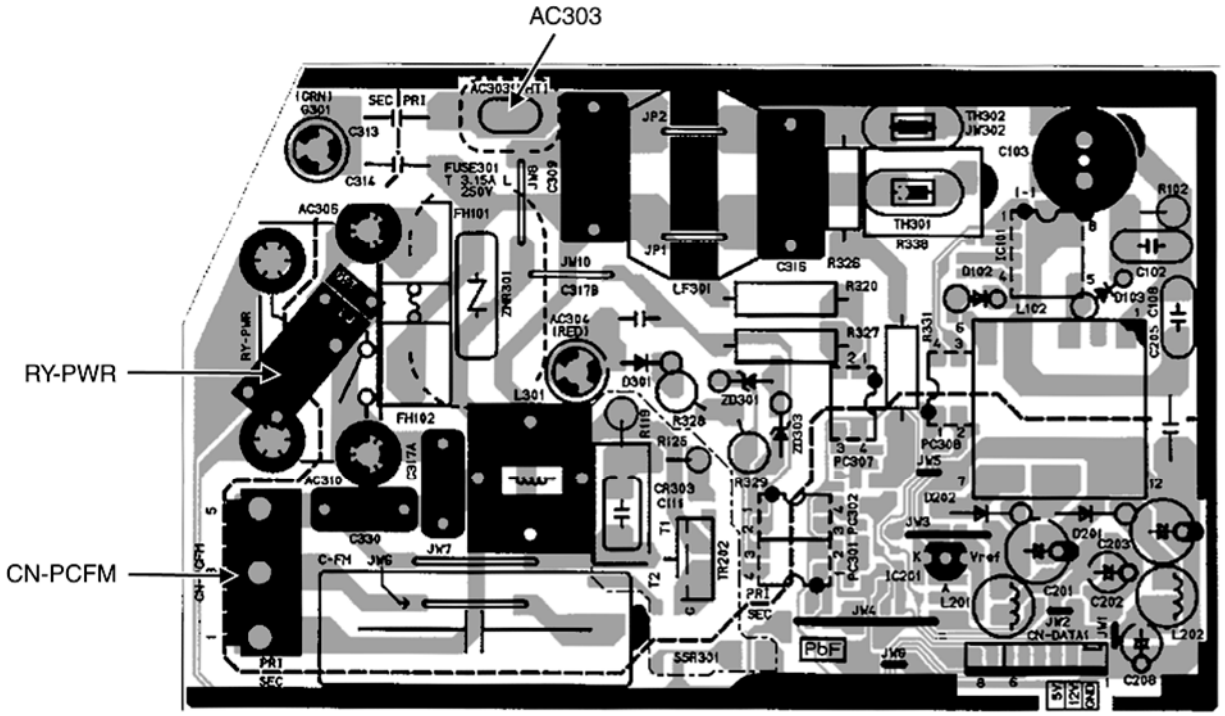
10.1 Indoor Unit

10.1.1 Main Printed Circuit Board

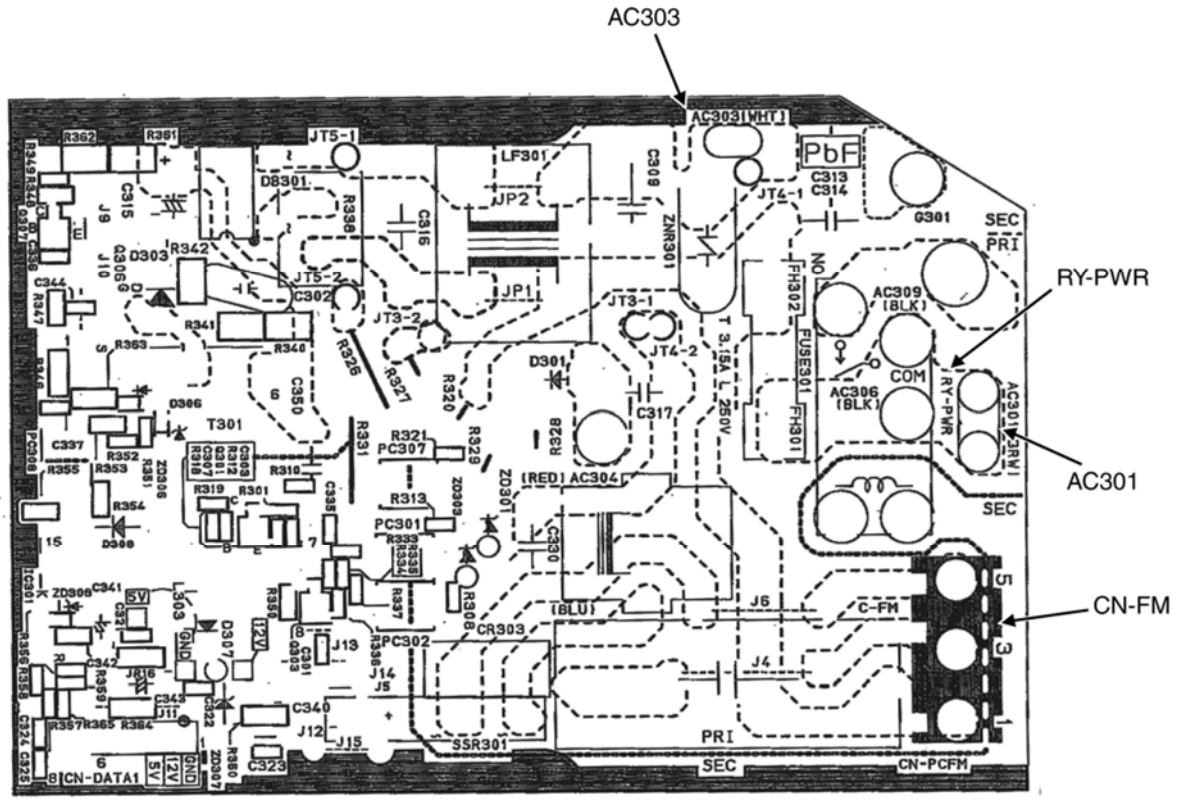


10.1.2 Power Printed Circuit Board

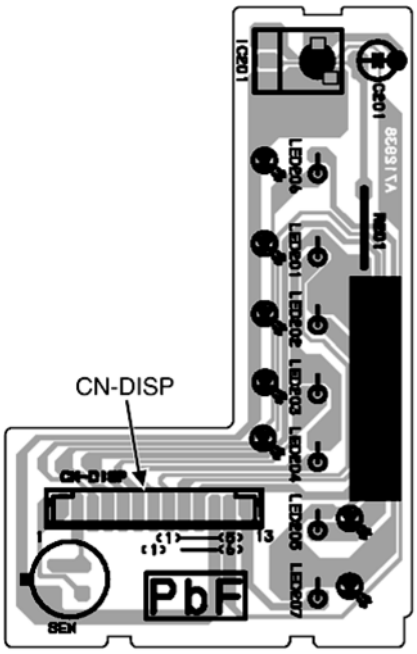
10.1.2.1 CS-PC9KKQ CS-PC12KKQ



10.1.2.2 CS-PC18KKQ CS-PC24KKQ CS-PC18KKQ-6 CS-PC24KKQ-6



10.1.3 Indicator Printed Circuit Board



11. Installation Instruction

11.1 Select the Best Location

11.1.1 Indoor Unit

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

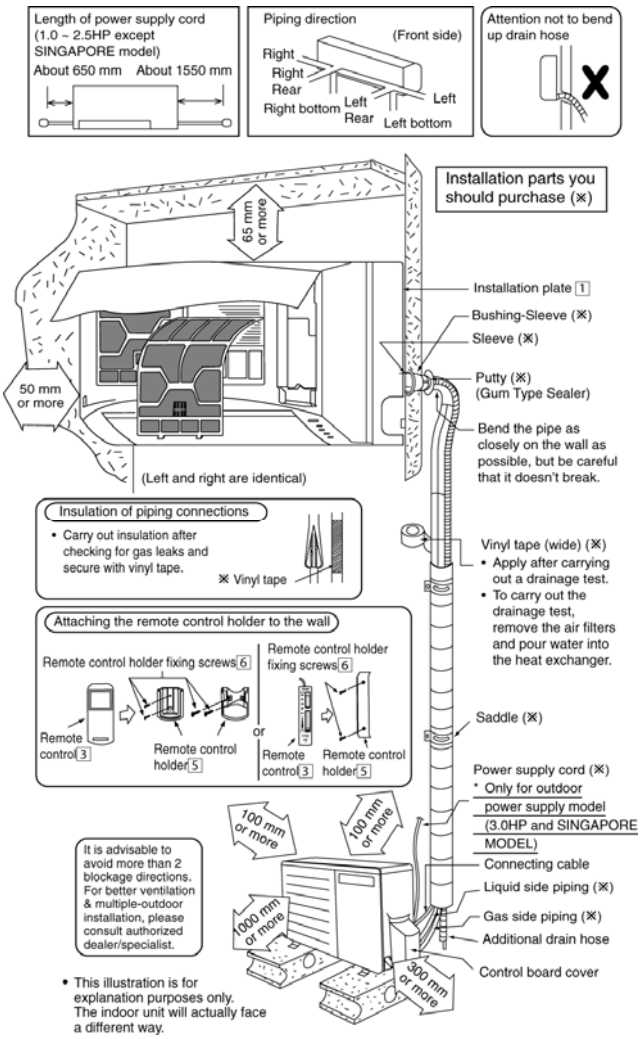
11.1.2 Outdoor Unit

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- 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		Rated. 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						
PC9***	1.0~1.5HP	3/8"	1/4"	7.5	5	3	10	10	7.5
PC12***		1/2"			5	3	15	10	7.5
PC18***	2.0~2.5HP			5	20	3	25	20	7.5
PC24***		5/8"			20	3	25	30	7.5
SC/PC28***, KC28***	3.0HP				20	3	30	30	7.5

Example: For PC18***
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.

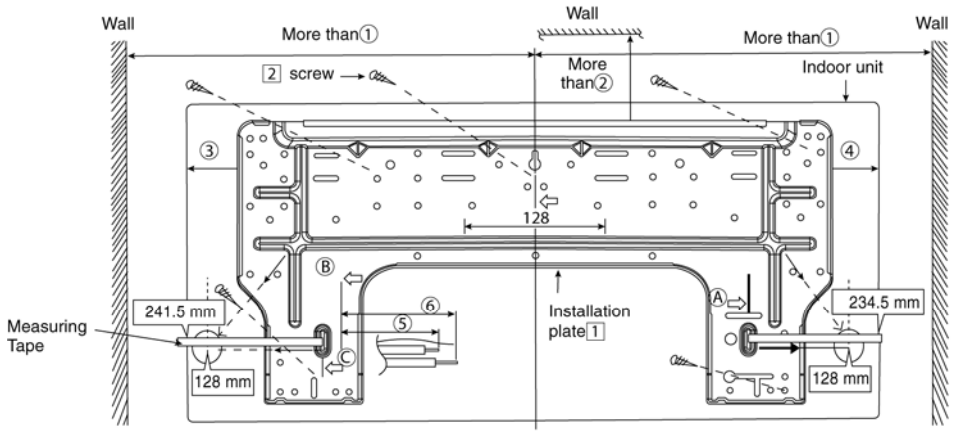
11.1.3 Indoor/Outdoor Unit Installation Diagram



11.2 Indoor Unit

11.2.1 How to Fix Installation Plate

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



Model	Dimension					
	①	②	③	④	⑤	⑥
PC9***, PC12***	485 mm	82 mm	165 mm	158 mm	93 mm	145 mm
PC18***, PC24*** SC/PC28***, KC28***	585 mm	82 mm	165 mm	158 mm	219 mm	269 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.

Ⓑ : 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.)
   - o Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.

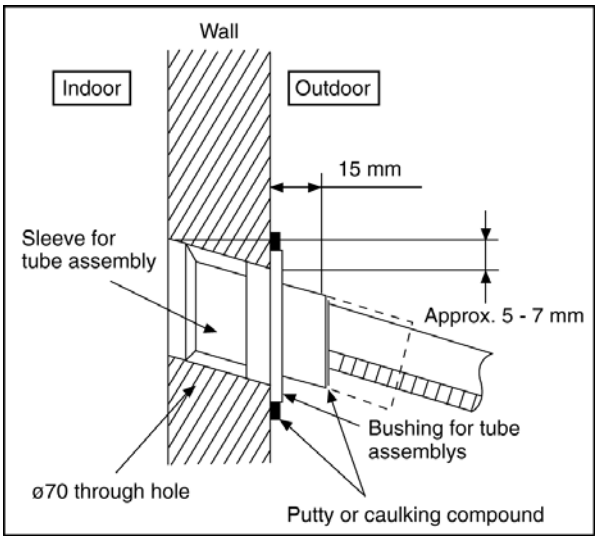
2 Drill the piping plate hole with ø70mm hole-core drill.
   - o Putting measuring tape at position as shown in the diagram above.
     The hole centre is obtained by measuring the distance namely 128 mm for left and right hole respectively. Another method is intersection point of arrow mark extension.
     The meeting point of the extension arrow mark is the hole center position.
   - o 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 3)

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

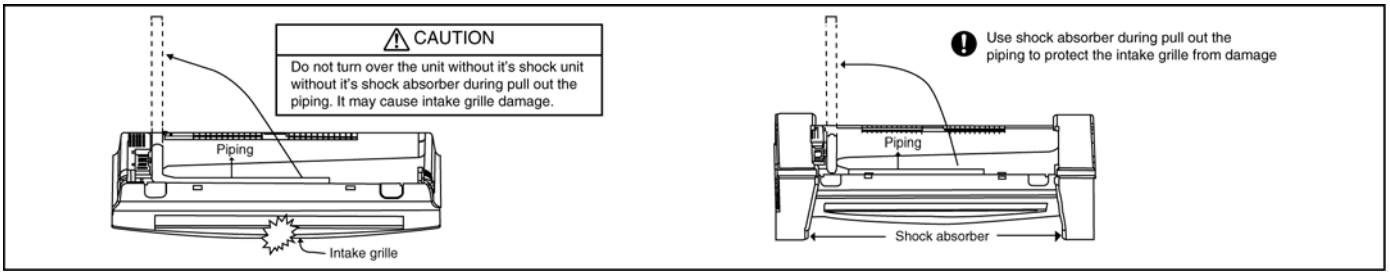
1 Insert the piping sleeve to the hole.
2 Fix the busing to the sleeve.
3 Cut the sleeve until it extrudes about 15mm from the wall.

⚠ 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.



11.2.3 Indoor Unit Installation



11.2.3.1 For the right rear piping

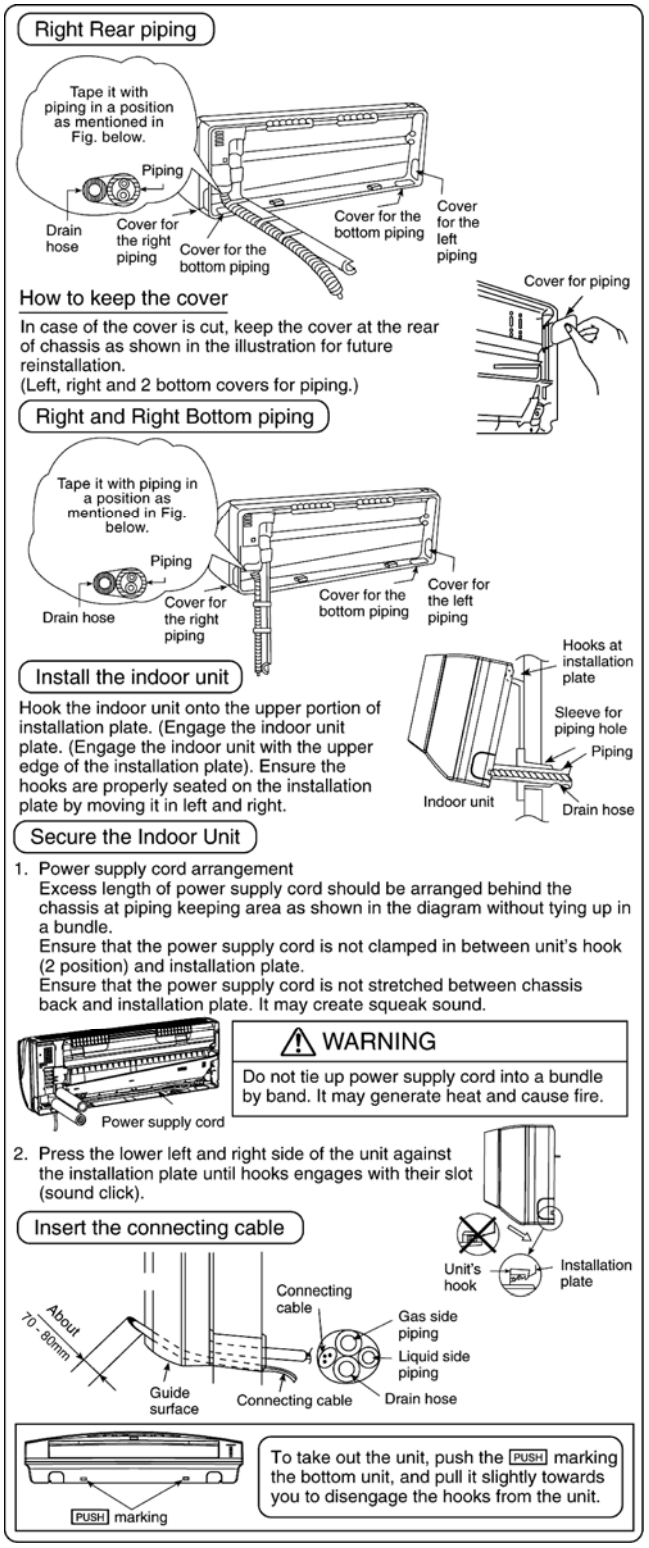
Step-1	Pull out the Indoor piping
Step-2	Install the Indoor Unit
Step-3	Secure the Indoor Unit
	• If indoor power supply, excess length of power supply must arrange accordingly, please refer "Power supply cord arrangement" before secure the indoor unit.
Step-4	Insert the connecting cable

11.2.3.2 For the right and right bottom piping

Step-1	Pull out the Indoor piping
Step-2	Install the Indoor Unit
Step-3	Insert the connecting cable
Step-4	Secure the Indoor Unit
	• If indoor power supply, excess length of power supply must arrange accordingly, please refer "Power supply cord arrangement" before secure the indoor unit.

11.2.3.3 For the embedded piping

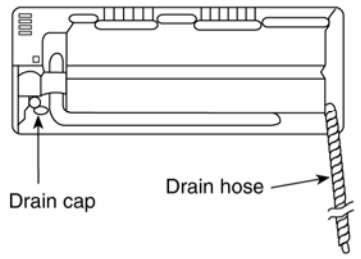
Step-1	Replace the drain hose
Step-2	Bend the embedded piping
	• Use a spring bender or equivalent to bend the piping so that the piping is not crushed.
Step-3	Pull the connecting cable into Indoor Unit
	• The inside and outside connecting cable can be connected without removing the front grille.
Step-4	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 "Piping and finishing" column of outdoor section and "Insulation of piping connection" column as mentioned in indoor/outdoor unit installation.
Step-8	Secure the Indoor Unit

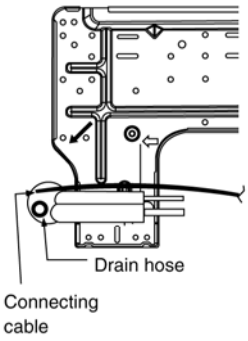


(This can be used for left rear piping and bottom piping also.)

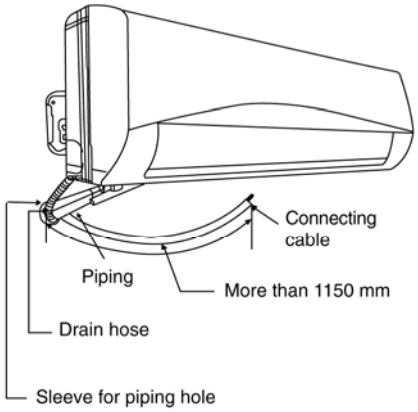
Replace the drain hose

Rear view for left piping installation

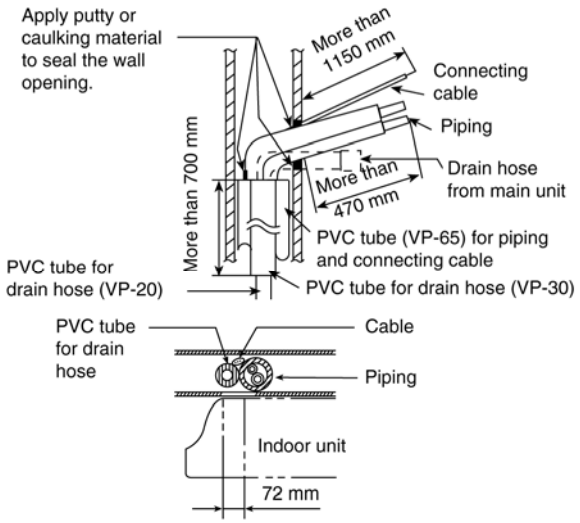




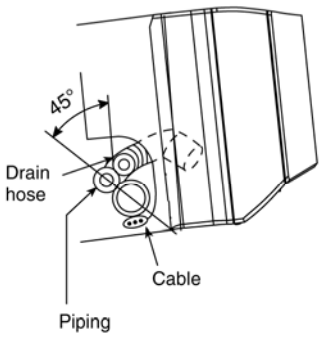
Adjust the piping slightly downwards.



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



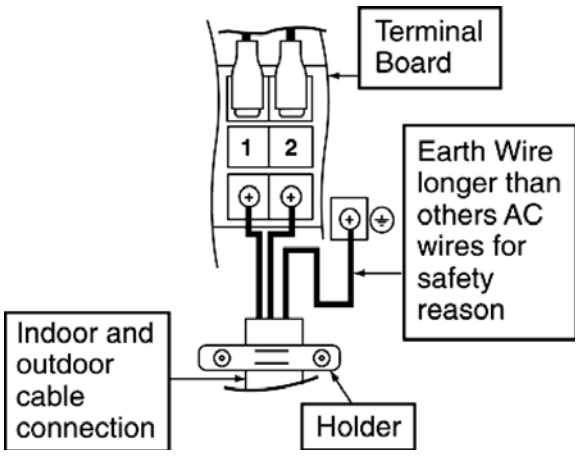
- In case of left piping how to insert the connecting cable and drain hose.



(For the right piping, follow the same procedure)

11.2.4 Connect the Cable to the Indoor Unit

1. The inside and outside connecting cable can be connected without removing the front grille.
2. a) INDOOR POWER SUPPLY MODEL
   (1.0 ~ 2.5HP except SINGAPORE model)
   Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 x 1.5 mm^2 (1.0 ~ 1.5HP), 3 x 2.5 mm^2 (2.0 ~ 2.5HP) flexible cord, type designation 245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.



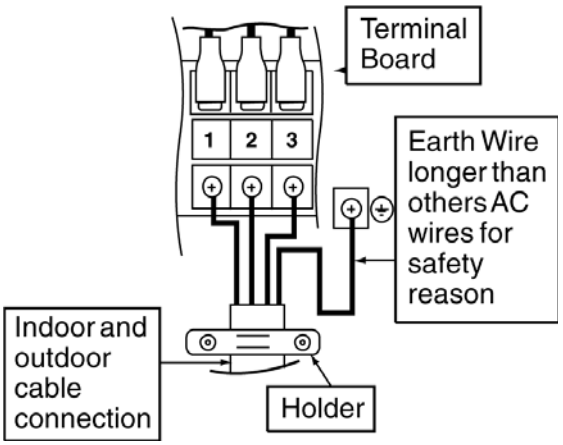
Terminals on the indoor unit	1	2	⏚
Colour of wires			
Terminals on the outdoor unit	1	2	⏚

- Secure the connecting cable onto the control board with the holder.

⏚ This equipment must be properly earthed.

b) OUTDOOR POWER SUPPLY MODEL
(3.0HP and SINGAPORE MODEL)

Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm^2 [(1.0 ~ 2.5HP) for Singapore models and (3.0HP)] flexible cord, type designation 245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.

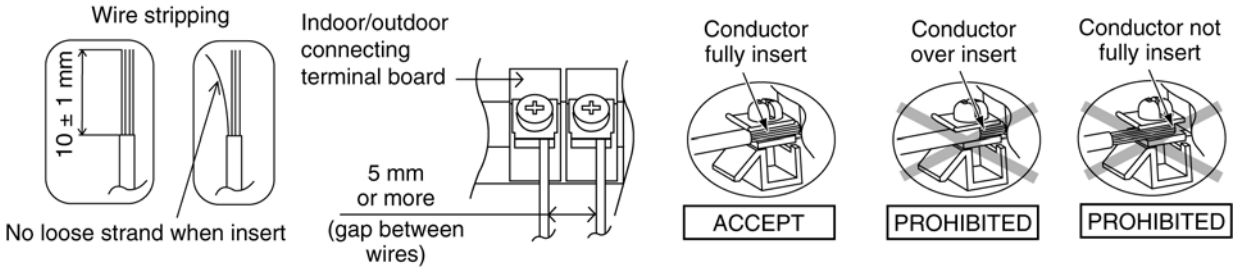


Terminals on the indoor unit	1	2	3	⏚
Colour of wires				
Terminals on the outdoor unit	1	2	3	⏚

- Secure the connecting cable onto the control board with the holder.
- ⏚ This equipment must be properly earthed.

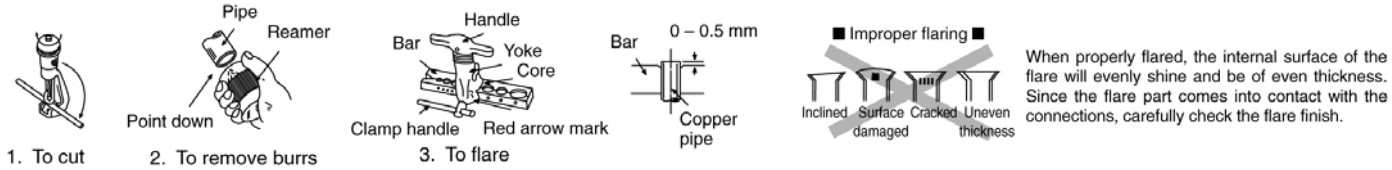
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than the other AC wires for safety reason.

11.2.5 Wire Stripping And Connecting Requirement



11.2.5.1 Cutting and flaring the piping

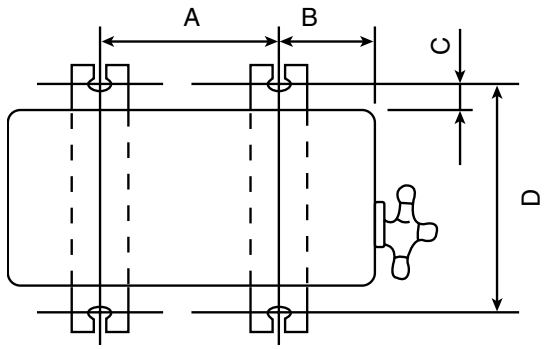
1 Please cut using pipe cutter and then remove the burrs.
2 Remove the burrs by using reamer. If burrs are not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
3 Please make flare after inserting the flare nut onto the copper pipes.



11.3 Outdoor Unit

11.3.1 Install the Outdoor Unit

- After selecting the best location, start installation according to indoor/outdoor unit installation diagram.
  1 Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (ø10mm).
  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
PC9 ***	474 mm	87 mm	18.5 mm	261 mm
PC12***, PC18***	570 mm	105 mm	18.5 mm	320 mm
PC24***, PC28***, KC28***	612.5 mm	131 mm	19 mm	383 mm

11.3.2 Connecting the Piping

11.3.2.1 Connecting the piping to indoor unit

Please make flare after inserting flare nut (locate at joint portion, of tube assembly) onto the copper pipe. (In case of using long piping)

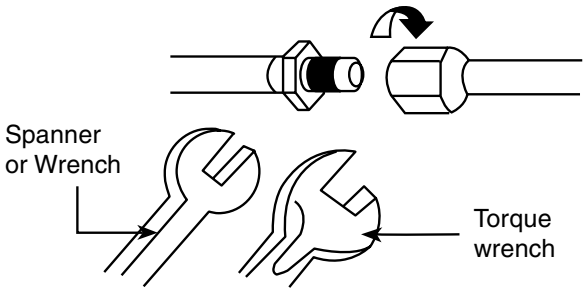
Connect the piping

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

CAUTION

Do not over tighten, over tightening may cause gas leakage.

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

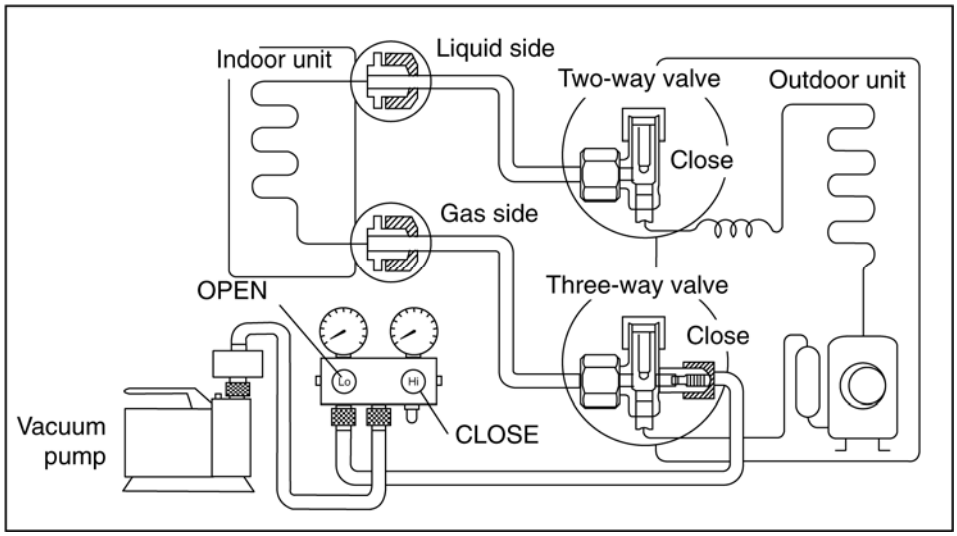


11.3.2.2 Connecting the piping to outdoor unit

Decide piping length and then cut by using pipe cutter.
Remove burrs from cut edge.
Make flare after inserting the flare nut (locate at valve) onto the copper pipe.
Align center of piping to valves and then tighten with torque wrench to the specified torque as stated in the table.

11.3.3 Evacuation of the Equipment

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



1 Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
   - Be sure to connect the end of the charging hose with the push pin to the service port.
2 Connect the center hose of the charging set to a vacuum pump.
3 Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.
4 Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
   Note: BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID 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.

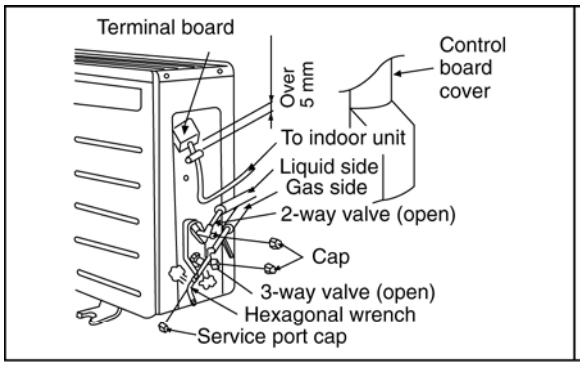
⚠ CAUTION

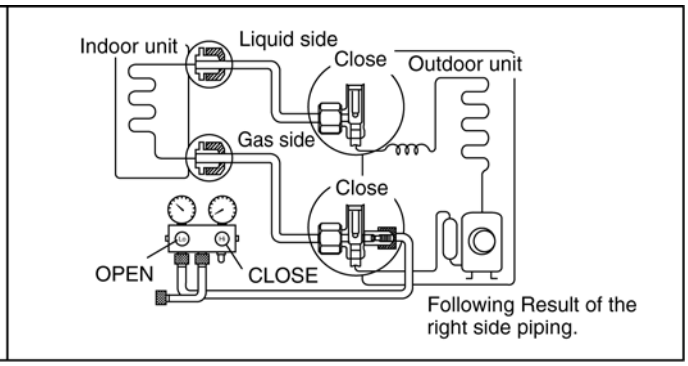
- If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step ③ above take the following measure:
- If the leak stops when the piping connections are tightened further, continue working from step ③.
- If the leak does not stop when the connections are retightened, repair location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

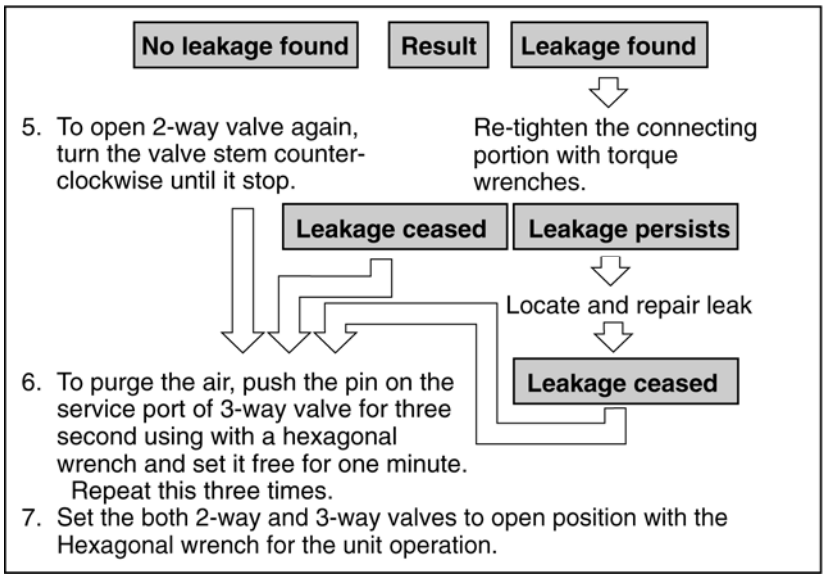
11.3.4 Air Purging of the Piping and Indoor

The remaining air in the 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.
o For the left piping, refer to 4 (A).





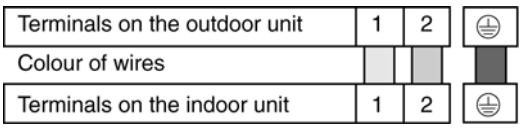


4(A). Checking gas leakage for left piping
1) a Connect the manifold gauge to the service port of 3-way valve.
b. Measure the pressure.
2) a. Keep it for 5-10 minutes.
b. Ensure that the pressure indicated on the gauge is the same as that of measured during the first time.

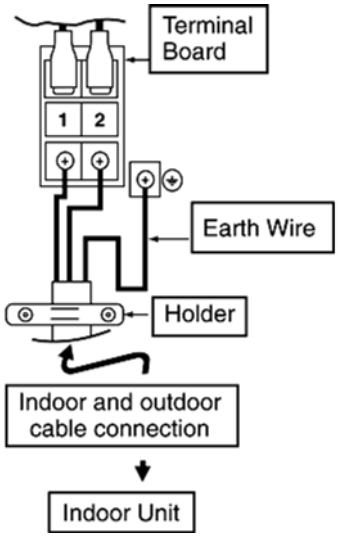
11.3.5 Connect the cable to the Outdoor Unit

a) INDOOR POWER SUPPLY MODEL (1.0 ~ 2.5HP)

1. Remove the control board cover from the unit by loosening the screw.
2. **Connecting cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 x 1.5mm^2 (1.0 ~ 1.5HP) or 3 x 2.5mm^2 (2.0 ~ 2.5HP) flexible cord, type designation 245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.



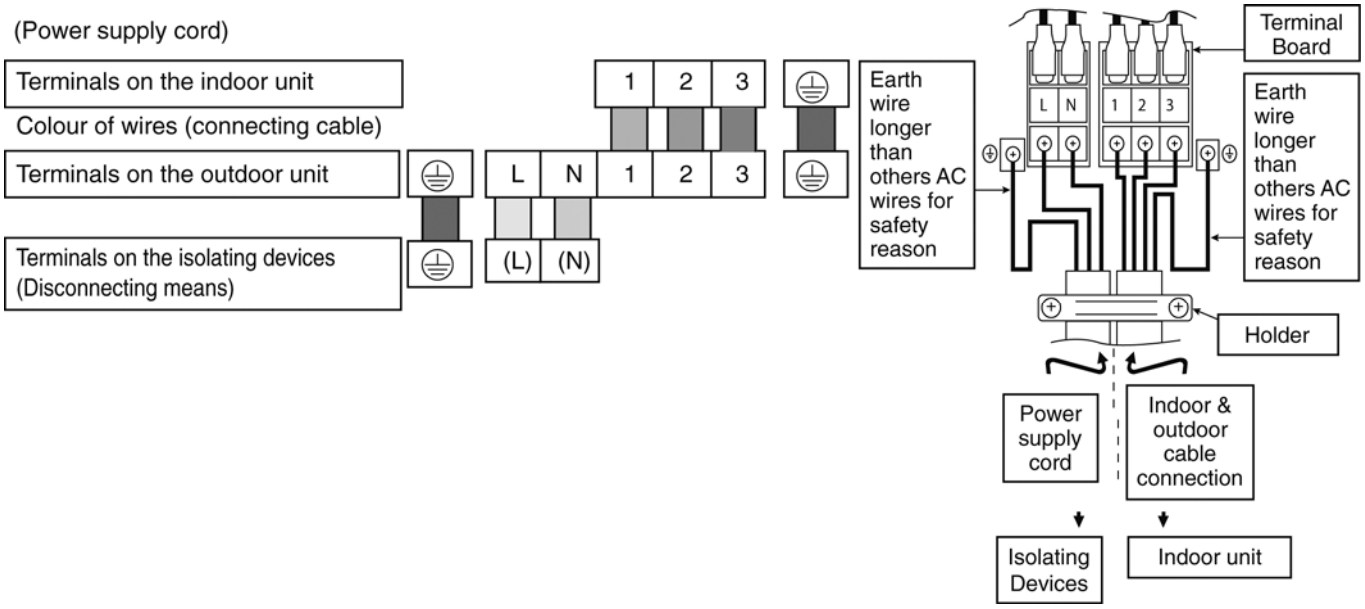
3. Secure the cable onto the control board with the holder.
4. Attach the control board cover back to the original position with the screw.
5. For wire stripping and connection requirement, refer to instruction ⑤ of the indoor unit.



⏚ This equipment must be properly earthed.

b) OUTDOOR POWER SUPPLY MODEL (3.0HP)

1 Remove the control board cover from the unit by loosening the screw.
2 Cable connection to the power supply through Isolating Devices (Disconnecting means).
   - o Connect the approved polychloroprene sheathed **power supply cord** 3 x 4.0 mm^2 (3.0HP), type designation 245 IEC 57 or heavier cord to the terminal board, and connect the others end of the cable to Isolating Devices (Disconnecting means).
   - o Do not use joint power supply cord. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.
   - o 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 25A (3.0HP). Wiring work to both socket and plug must follow to national wiring standard.
3 **Connecting cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm^2 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.
4 Connect the power supply cord and connecting cable between indoor unit and outdoor unit according to the diagram below.



5 Secure the power supply cord and connecting cable onto the control board with the holder.
6 Attach the control board cover back to the original position with screw.
7 For wire stripping and connection requirement, refer to instruction ⑤ of the indoor unit.

⏚ This equipment must be properly earthed.

- Note: Isolating Devices (Disconnecting means) should have minimum 3.0mm contact gap.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

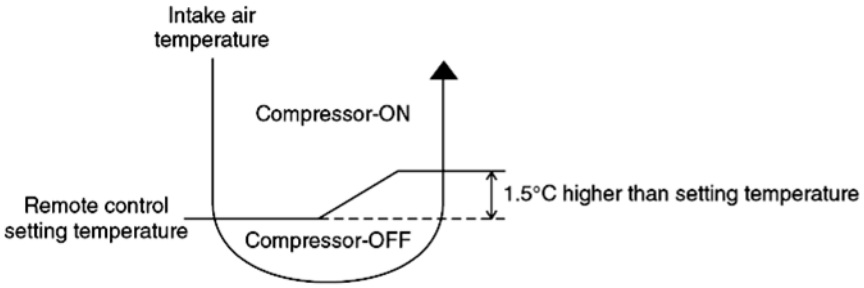
11.3.6 Pipe Insulation

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

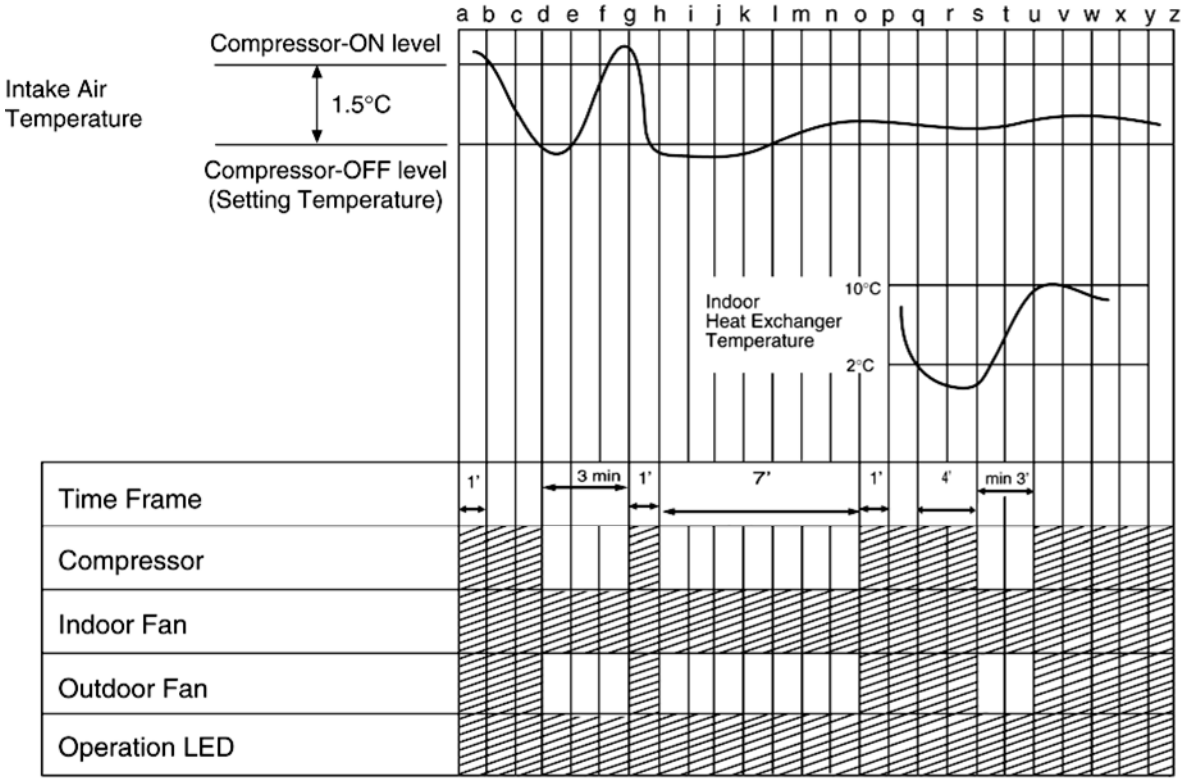
12. Operation Control

12.1 Cooling Operation

- Cooling operation can be set using remote control.
- This operation is applied to cool down the room temperature to 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 and restart as shown in figure below:



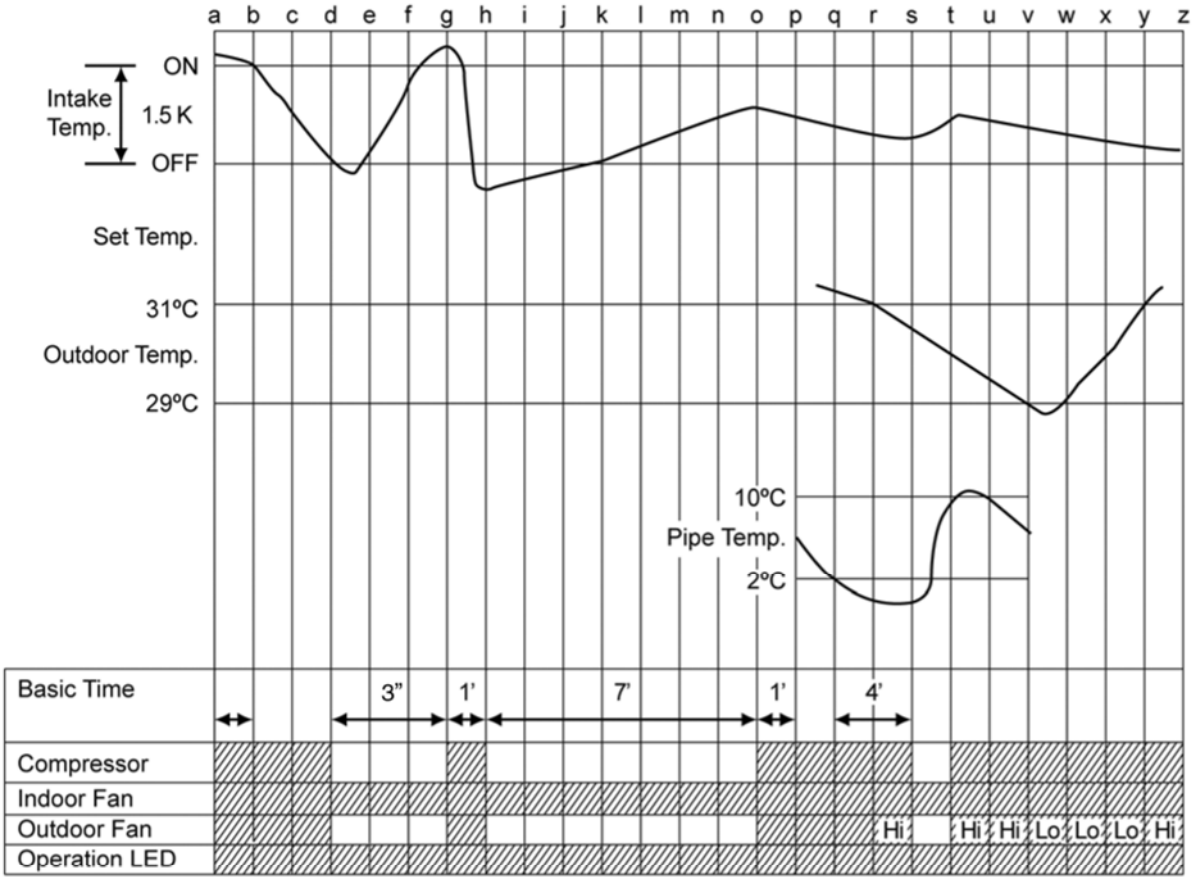
12.1.1 Cooling Operation Time Diagram (For PC9/12KKQ)



<Description of operation>

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

12.1.2 Cooling Operation Time Diagram (For PC18/24KKQ, PC18/24KKQ-6)



<Description of operation>

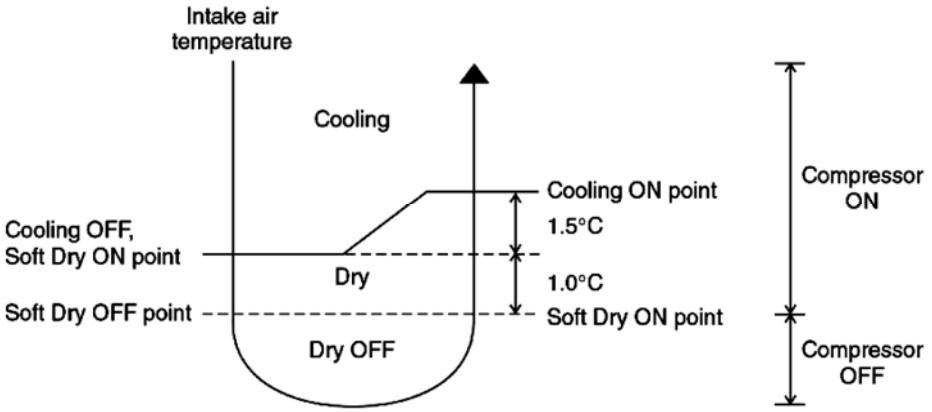
d – g	: restart control (waiting for 3 min.)
a – b, g – h, o – p	: 60 sec. Forcible operation.
h – o	: 7 min. time save control.
q – t	: freeze prevention control.
v – y	: outdoor fan control.

Operation

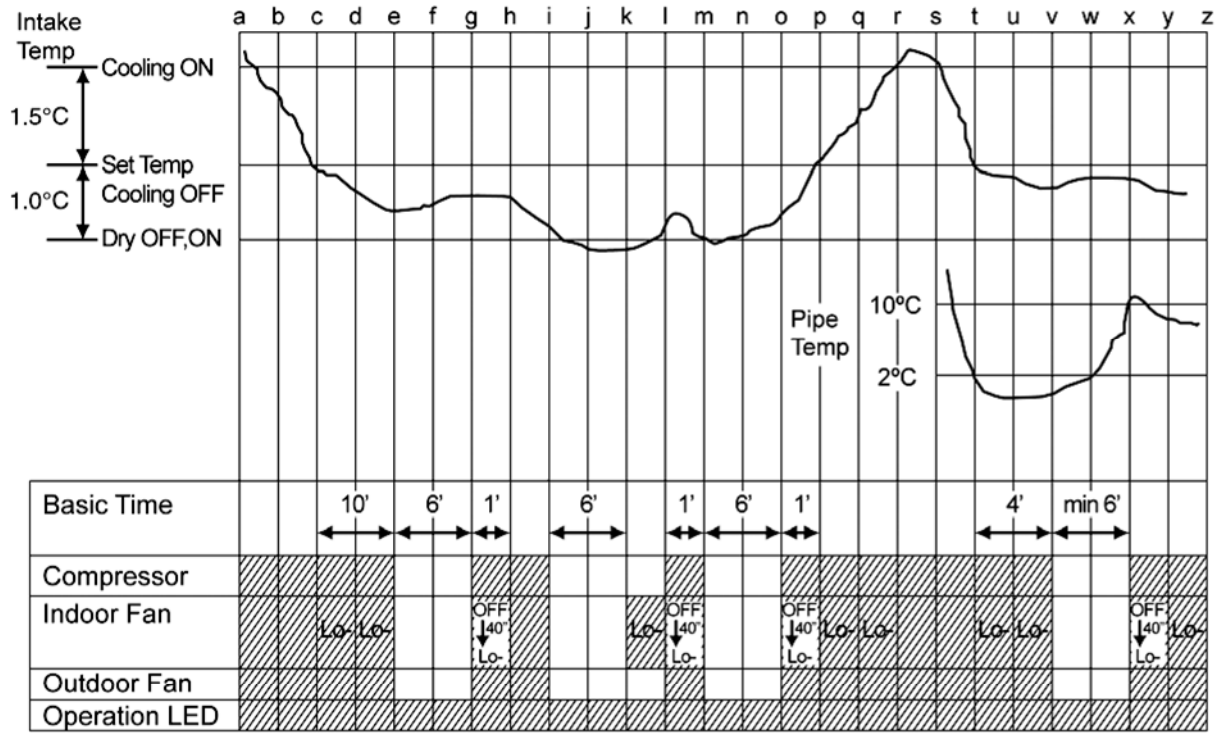
Stop

12.2 Soft Dry Operation

- Soft Dry operation can be set using remote control.
- Soft Dry operation is applied to dehumidify and to perform a gentle cooling to the room.
- This operation starts when the intake air temperature sensor reaches -1.5°C from the setting temperature on the remote control.
- When operation begins, Soft Dry will be switched “ON” for a maximum 10 minutes, then Soft Dry operation will be turned “OFF” for a minimum 6 minutes. After that, the Soft Dry operation will be “ON” and “OFF” based on the setting temperature as shown in figure below.
- However after 3 minutes of compressor off, during Soft Dry “OFF” (within 6 minutes Soft Dry restart control), the indoor unit will start to operate at normal Cooling mode if the intake temperature is higher than Cooling “ON” point.



12.2.1 Soft Dry Operation Time Diagram (For PC9/12KKQ)



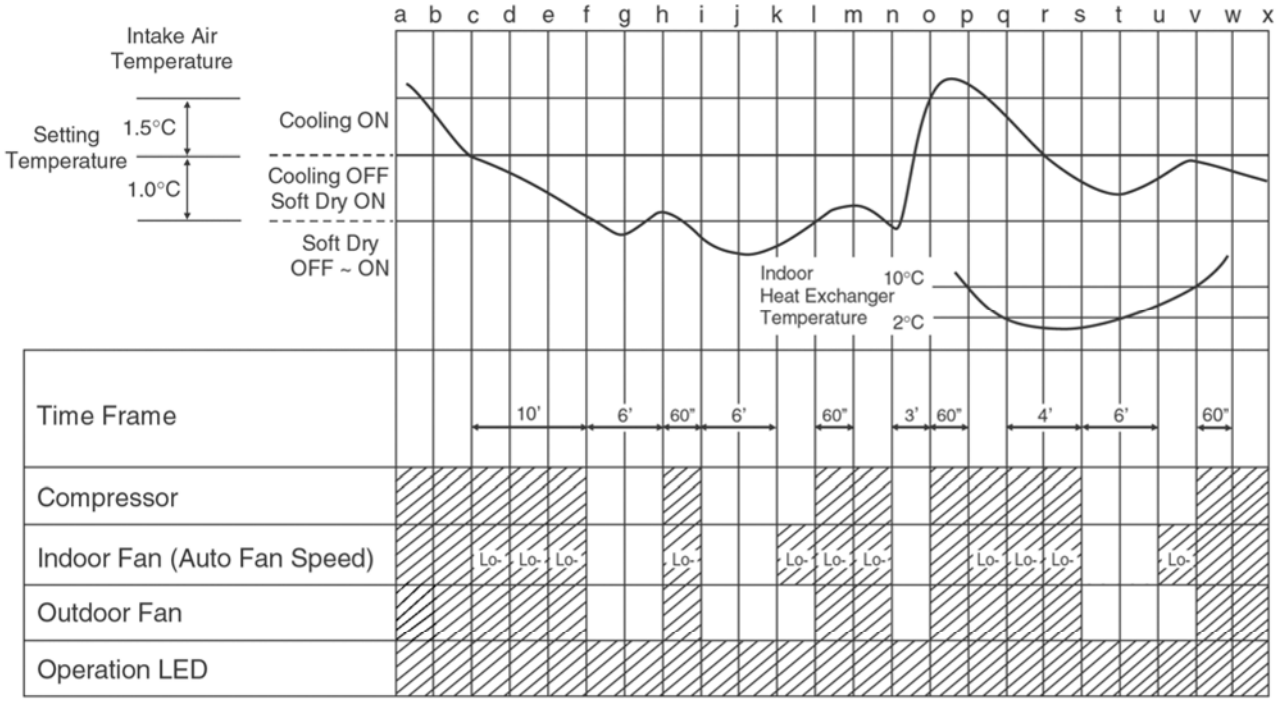
<Description of operation>

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

Operation

Stop

12.2.2 Soft Dry Operation Time Diagram (For PC18/24KKQ, PC18/24KKQ-6)



<Description of operation>

h – i, l – m, o – p, v – w : Minimum 60 seconds foreced operation

n – o : Minimum 3 minutes restart control (Time Delay Safety Control) - Cooling operation

f – h, i – k, s – u : Minimum 6 minutes restart control (Time Delay Safety Control) - Soft dry operation

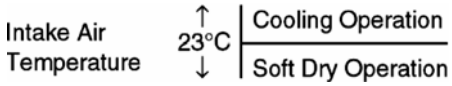
q – v : Freeze Prevention Control

Operation

Stop

12.3 Automatic Operation

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



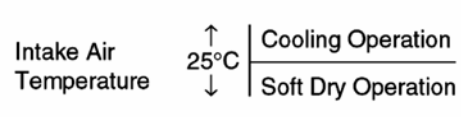
- Then, the unit starts to operate at determined operation mode, until it is switched off using remote control, with the setting temperature as shown in table below.

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

- The setting temperature for all the operations can be changed one level up or one level down from the standard temperature as shown in table below by pressing the temperature up or temperature down button at remote control.

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

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



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

12.4 Indoor Fan Speed Control

- Indoor fan speed can be set using remote control

12.4.1 Fan Speed Rotation Chart

Speed	Fan Speed (rpm)			
	CS-PC9KKQ	CS-PC12KKQ	CS-PC18KKQ / CS-PC18KKQ-6	CS-PC24KKQ / CS-PC24KKQ-6
Hi	1030	1100	1240	1390
Me	850	930	1150	1240
HLo	690	790	1120	1210
CLo	650	750	1060	1150
Lo-	610	710	850	970
SLo	590	690	670	750

12.4.2 Automatic Fan Speed Control

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

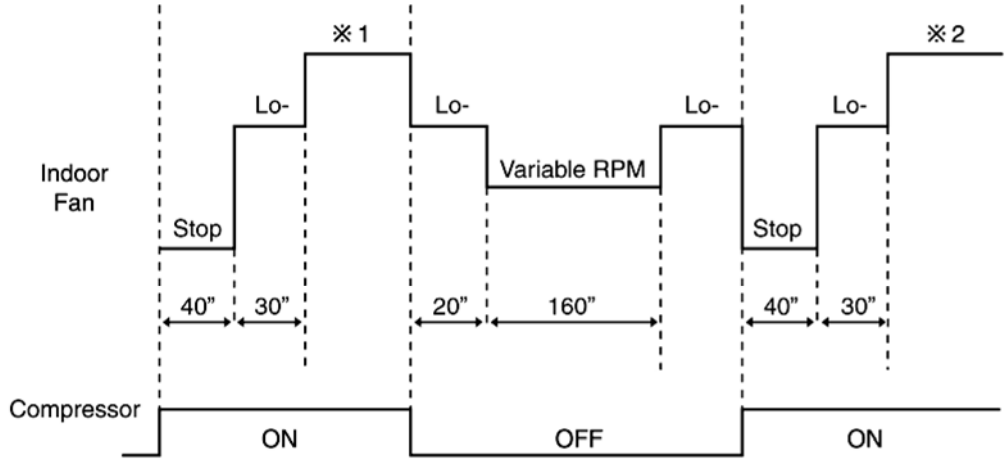
(For PC9/12KKQ)

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

(For PC18/24KKQ. PC18/24KKQ-6)

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

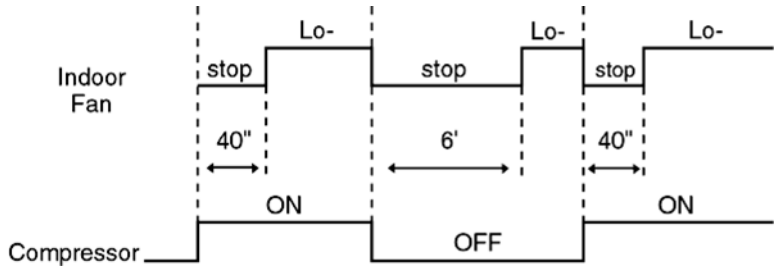
- Auto Fan Speed during cooling operation:
  1 Indoor fan will rotate alternately between off and on as shown in below diagram.
  2 At the beginning of each compressor starts operation, indoor fan speed increases gradually for deodorizing purpose.
  3 For the first time the compressor operates, indoor 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 stops, 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 turned off 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.

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



12.4.3 Manual Fan Speed Control

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

12.4.4 Indoor Fan Motor rpm Abnormal Control

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

12.5 Outdoor Fan Speed Control

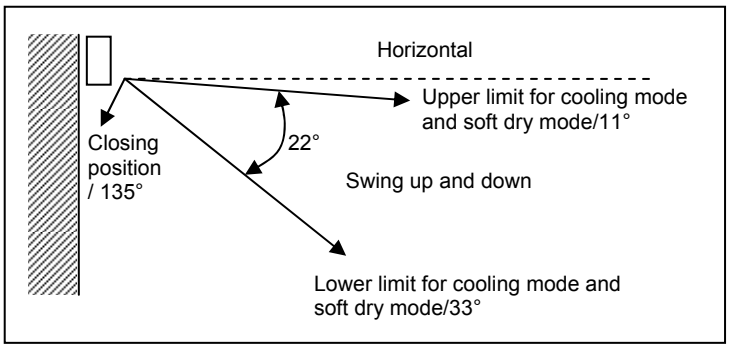
- There is only one speed for outdoor fan motor.
- When the air conditioner is turned on, the compressor and the outdoor fan will operate simultaneously.
- Likewise, both compressor and outdoor fan will stop at the same time if the unit is turned off.

12.6 Vertical Airflow Direction Control

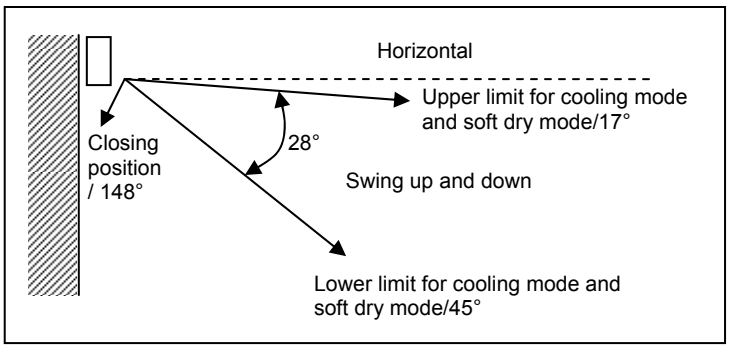
12.6.1 Auto Control

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

(For PC9/12KKQ)



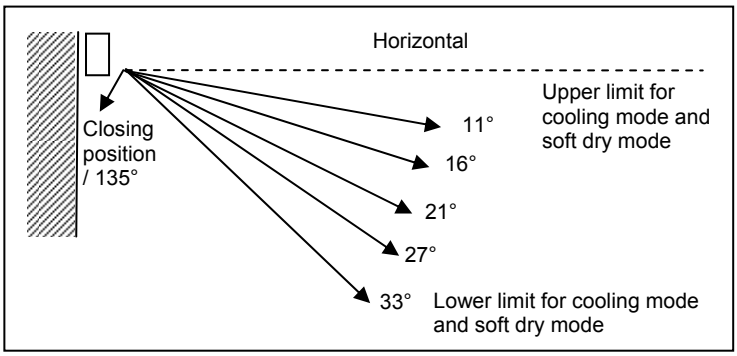
(For PC18/24KKQ, PC18/24KKQ-6)



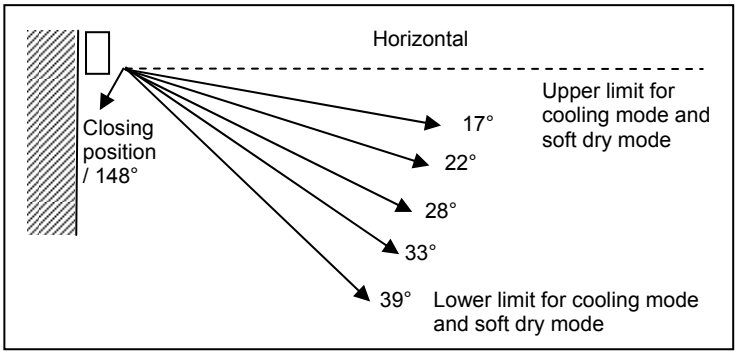
12.6.2 Manual Control

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

(For PC9/12KKQ)



(For PC18/24KKQ, PC18/24KKQ-6)



12.7 Horizontal Airflow Direction Control

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

12.8 Timer Control

12.8.1 ON Timer

- When the ON Timer is set using the remote control, the unit will start to operate slightly before the set time, so that the room will reach nearly to the set temperature by the set time.
- For Cooling and Soft Dry operation, the operation will start 15 minutes before the set time.
- For Automatic operation, the indoor fan will operate at SLo speed for 20 seconds, 15 minutes before the set time to detect the intake air temperature to determine the operation mode. The Power indicator will blink at this time.

12.8.2 OFF Timer

- When the OFF Timer is set by using the remote control, the unit will stop operate according to the desired setting.
  Notes:
  1 By pressing ON/OFF operation button, the ON Timer or OFF Timer setting will not be cancelled.
  2 To cancel the previous timer setting, press CANCEL button.
  3 To activate the previous timer setting, press SET button.
  4 If main power supply is switched off, the Timer setting will be cancelled.

12.9 Random Auto Restart Control

- If there is a power failure during operation, the air conditioner will automatically restart after 3 to 4 minutes when the power is resumed.
- It will start with previous operation mode and airflow direction.
- If there are more than one air conditioner unit in operation and power failure occur, restart time for each unit to operate will be decided randomly using 4 parameters: intake air temperature, setting temperature, fan speed and air swing louver position.
- This random Auto Restart Control is not available when Timer is set.
- This control can be omitted by open the circuit of JX02 (refer printed circuit board indoor unit). (For PC18/24KKQ, PC18/24KKQ-6 only)

12.10 Remote Control Signal Receiving Sound

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

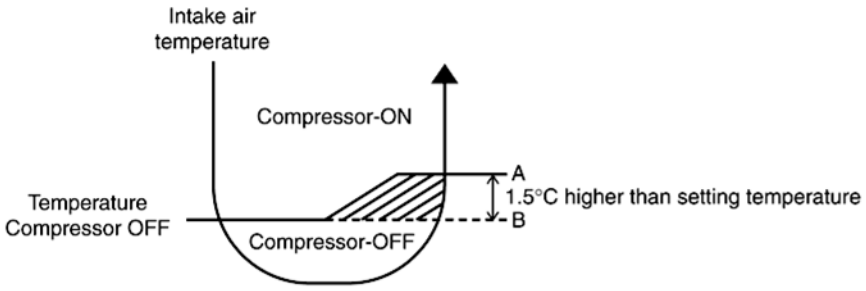
13. Protection Control

13.1 Restart Control (Time Delay Safety Control)

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

13.2 7 Minutes Time Save Control

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



13.3 60 Seconds Forced Operation

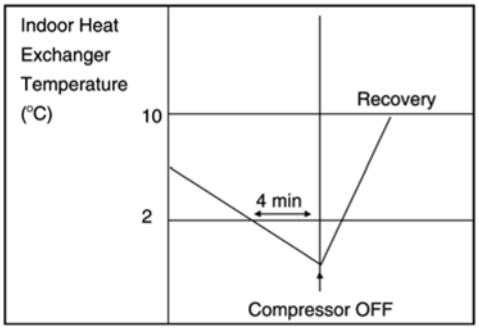
- Once the air conditioner is turned on, the compressor will not stop within 60 seconds in a normal operation although the intake air temperature has reached the thermo-off temperature. However, force stop by pressing the OFF/ON button at the remote control is permitted.
- The reason for the compressor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

13.4 Starting Current Control

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

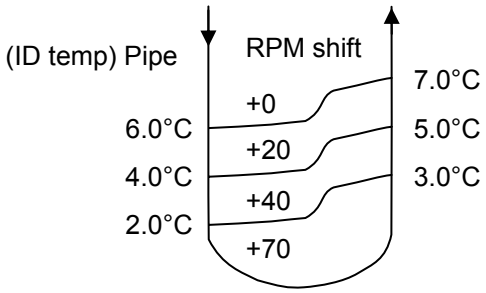
13.5 Freeze Prevention Control

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



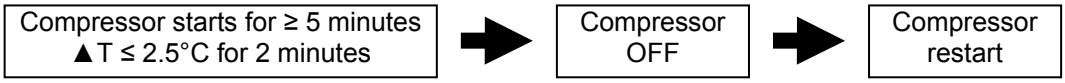
(For PC9/12KKQ)

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



13.6 Compressor Reverse Rotation Protection Control

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



▲ T = Intake air temperature – Indoor heat exchanger temperature

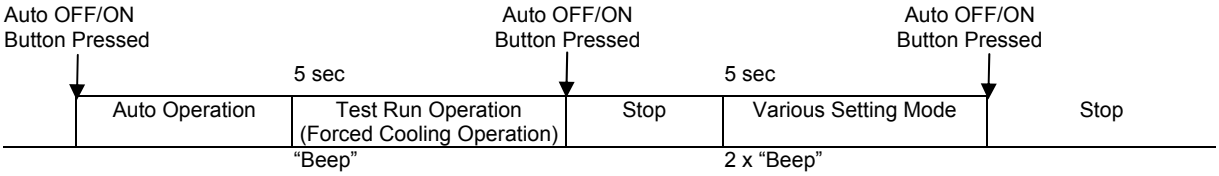
- This is to prevent compressor from rotate reversely when there is an instantaneous power failure.
- If this condition happens continuously for 5 times within 50 minutes, unit will turns OFF with TIMER indicator blinks.
- The 5 Times counter can be reset when either one of the following condition happen: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

13.7 Dew Prevention Control

- To prevent dew formation at indoor unit discharge area.
- This control will be activated if:
  - Cooling mode.
  - Remote Control setting temperature is less than 25°C.
  - Fan speed is at CLo.
  - Room temperature is constant (±1°C) for 60 minutes (For 9/12KKQ series) and 30 minutes (For 18/24KKQ, 18/24KKQ-6 series).
  - Compressor is continuously running.
- Fan speed will be adjusted accordingly in this control.
  - Fan speed will be increased slowly if the unit is in guiet mode but no change in normal cooling mode.
- Dew prevention stop condition
  - Remote control setting temperature is more than 25°C.
  - Fan speed is not set to CLo.

14. Servicing Mode

14.1 Auto OFF/ON Button

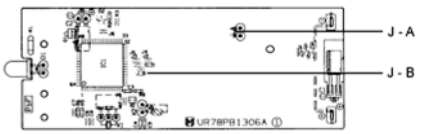


1 AUTO OPERATION MODE
The Auto Operation will be activated immediately once the Auto OFF/ON button is pressed. This operation can be used to operate air conditioner with limited function if remote control is misplaced or malfunction.

2 TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)
The Test Run Operation will be activated if the Auto OFF/ON button is pressed continuously for more than 5 seconds. A "beep" sound will be heard 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. Press Auto OFF/ON button to toggle remote control receiving sound.
- Short "beep": Turn ON remote control receiving sound.
- Long "beep": Turn OFF remote control receiving sound.

After Auto OFF/ON button is pressed, the 20 seconds counter for Remote Control Receiving Sound OFF/ON Mode is restarted.
ii. Remote Control Number Switch.
- There are 4 types of remote control transmission code could be selected and stored in EEPROM of indoor unit. The indoor unit will only operate when received signal with same transmission code from remote control. This could prevent signal interference when there are 2 or more indoor units installed nearby together.
- To change remote control transmission code, short or open jumpers at the remote control printed circuit board.



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

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

14.2 Remote Control Button

14.2.1 SET Button

- To check current remote control transmission code and store the transmission code to EEPROM:
  - Press “Set” button for more than 10 seconds
  - Press “Timer Set” button until a “beep” sound is heard as confirmation of transmission code change

14.2.2 CLOCK Button

- To change the remote control time format:
  - Press for more than 5 seconds

14.2.3 RESET

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

14.2.4 TIMER ▲

- To change indoor unit indicators’ intensity:
  - Press continuously for 5 seconds

14.2.5 TIMER ▼

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

15. Troubleshooting Guide

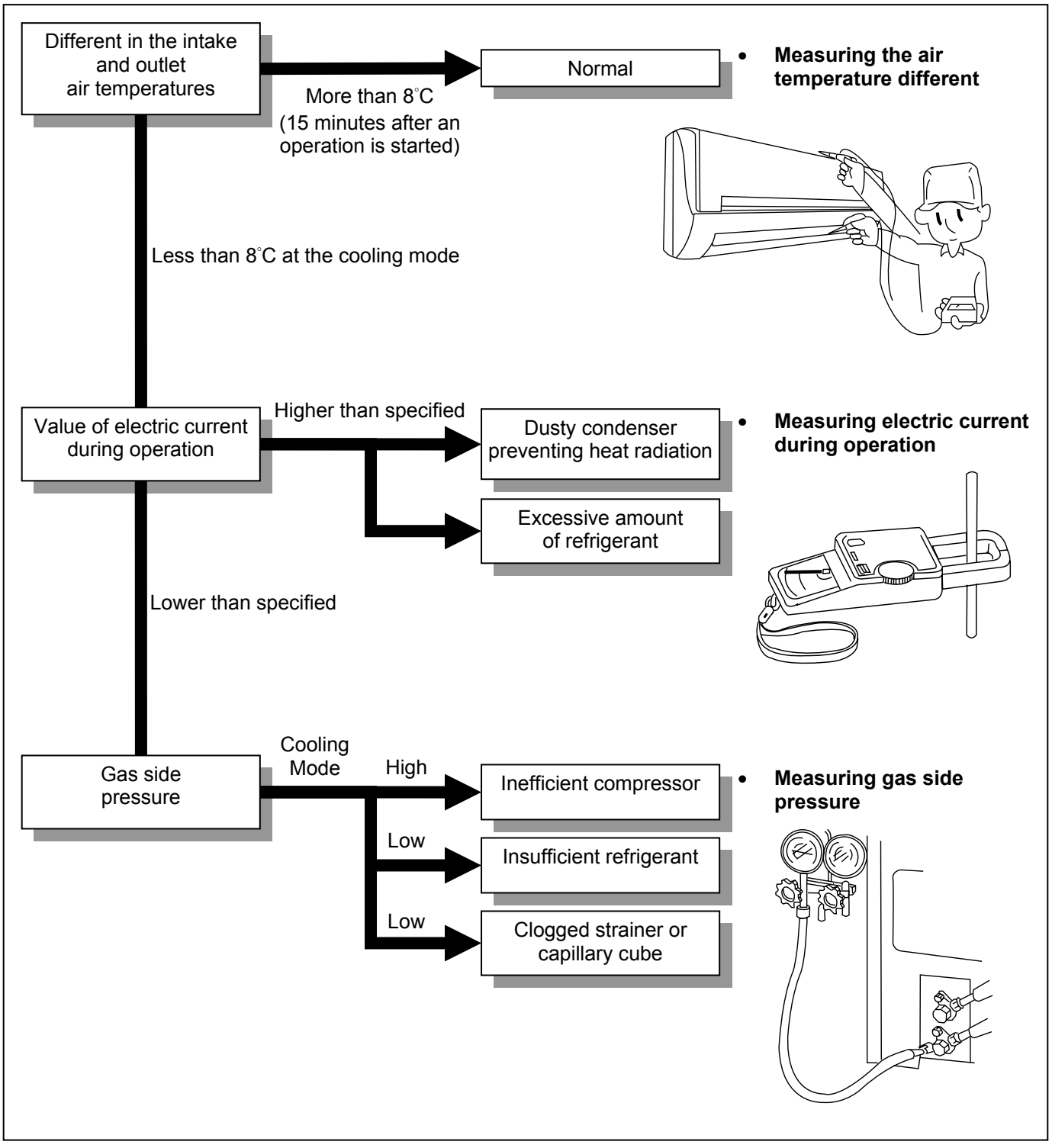
15.1 Refrigeration cycle system

In order to diagnose malfunctions, 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



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

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

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

15.1.2 Diagnosis methods of a malfunction of a compressor

Nature of fault	Symptom
Insufficient compressing of a compressor	• Electric current during operation becomes approximately 20% lower than the normal value. • The discharge tube of the compressor becomes abnormally hot (normally 70°C to 90°C). • The different 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.

16. Disassembly and Assembly Instructions

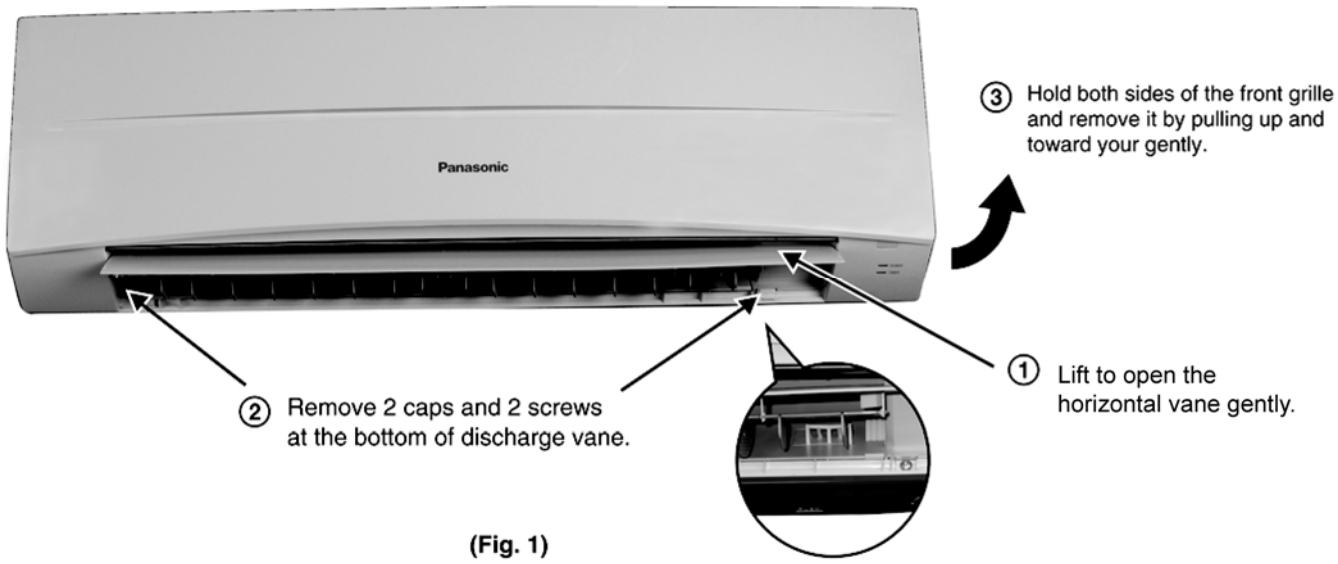
WARNING

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

16.1 CS-PC9/12KKQ

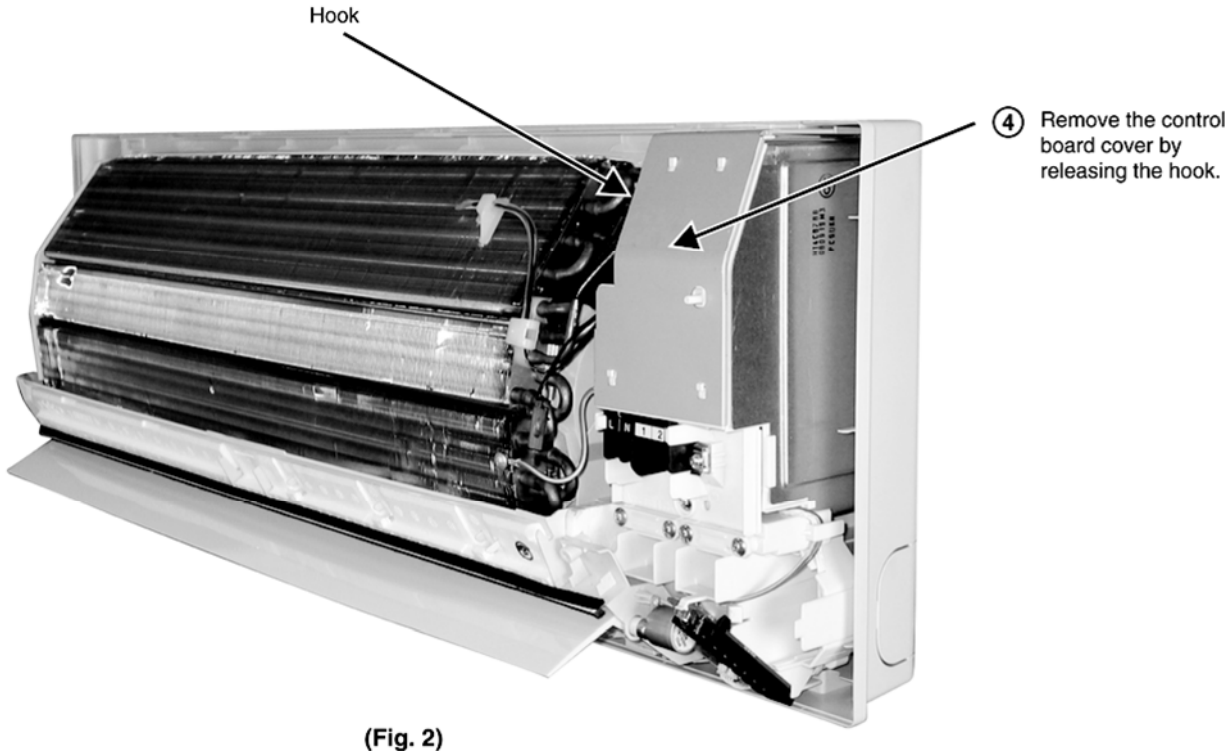
16.1.1 Indoor Electronic Controllers and Control Board Removal Procedures

16.1.1.1 To remove Front Grille

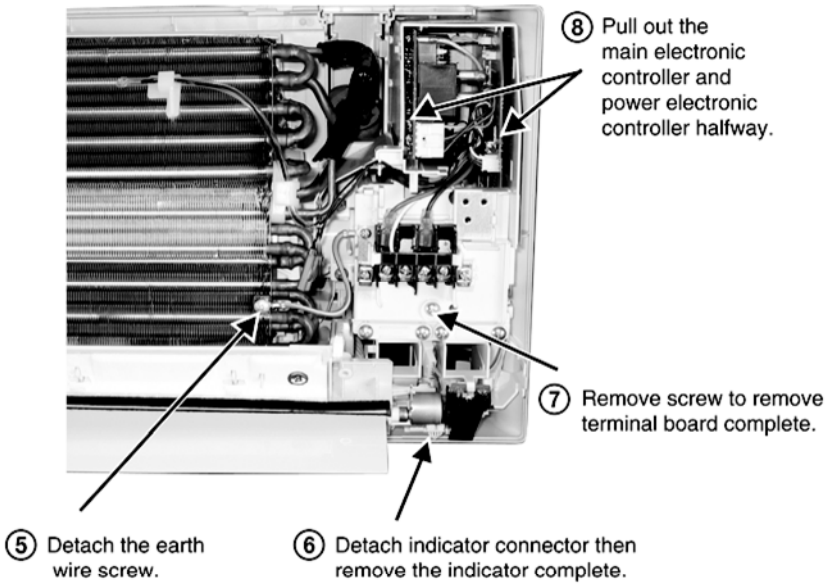


(Fig. 1)

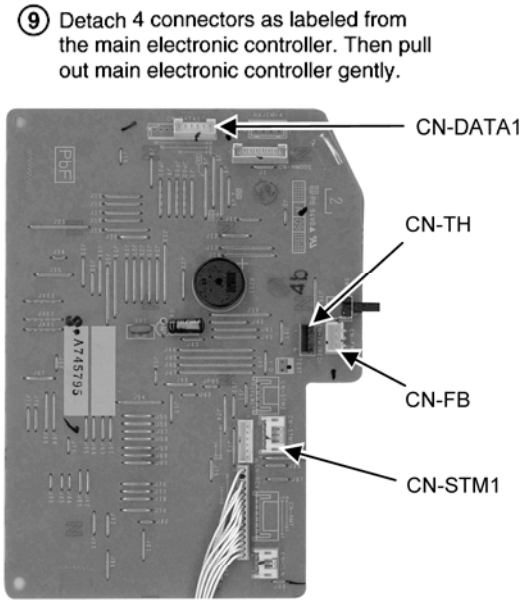
16.1.1.2 To remove Power Electronic Controller



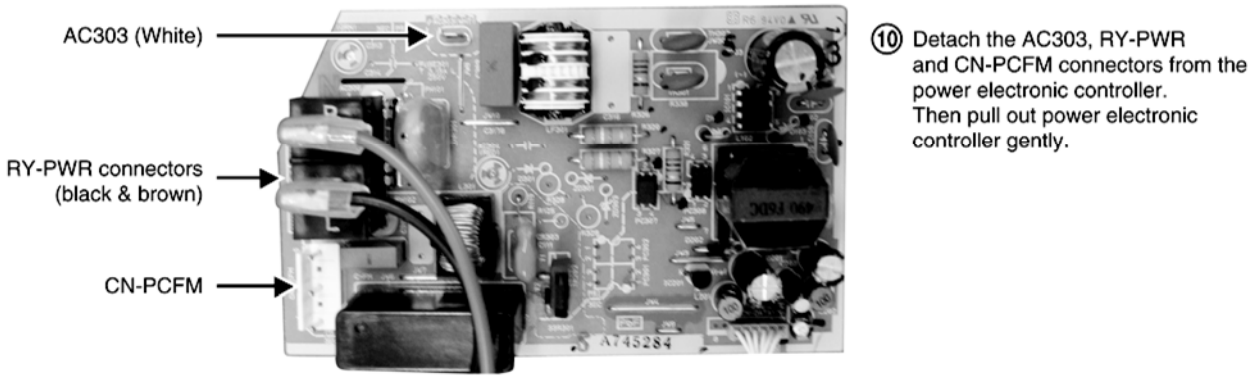
(Fig. 2)



(Fig. 3)

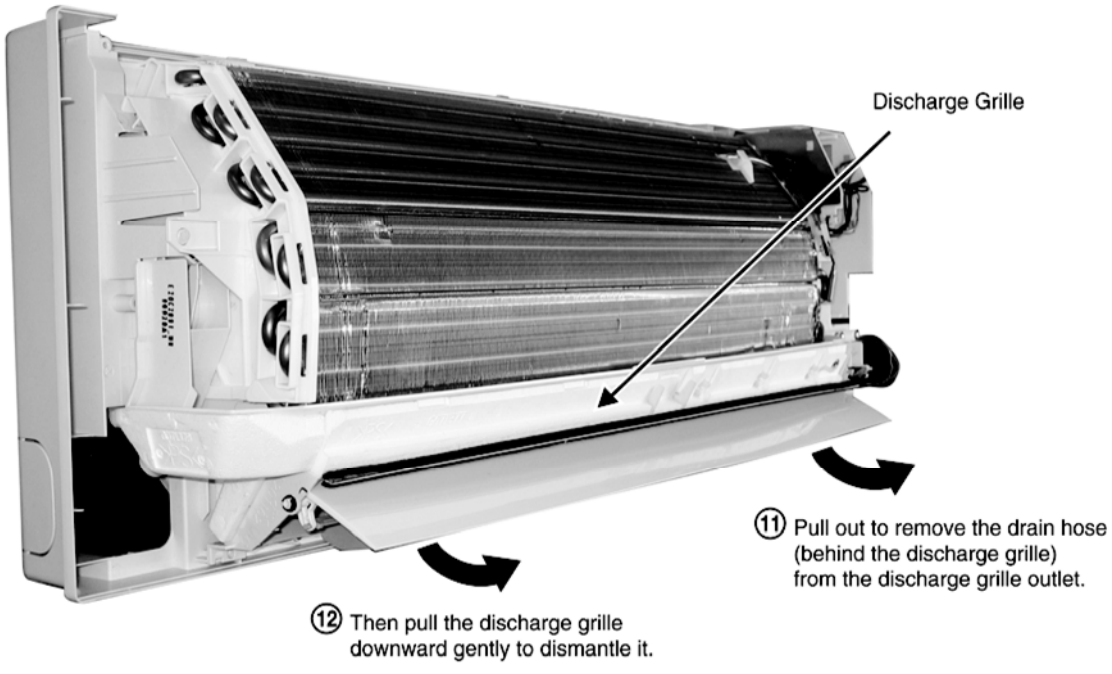


(Fig. 4)



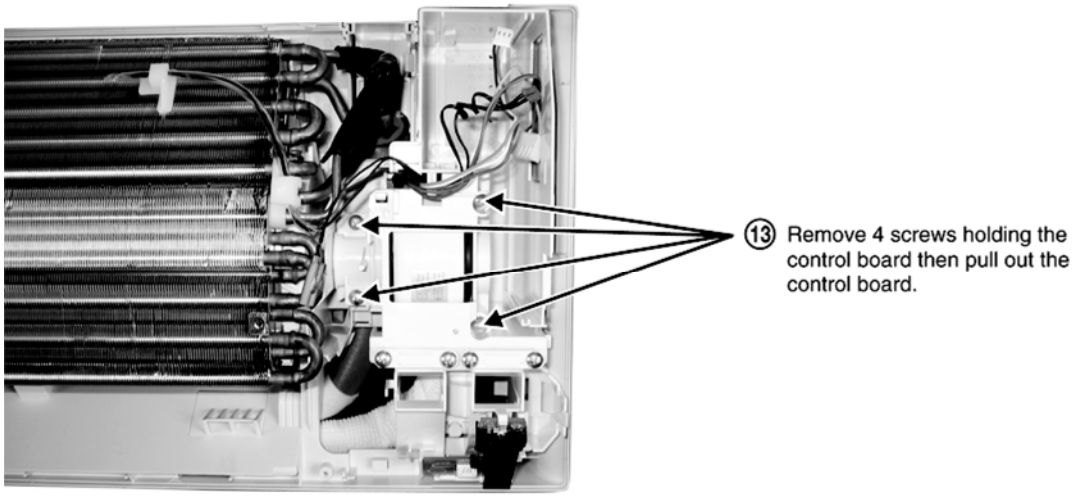
(Fig. 5)

16.1.1.3 To remove Discharge Grille



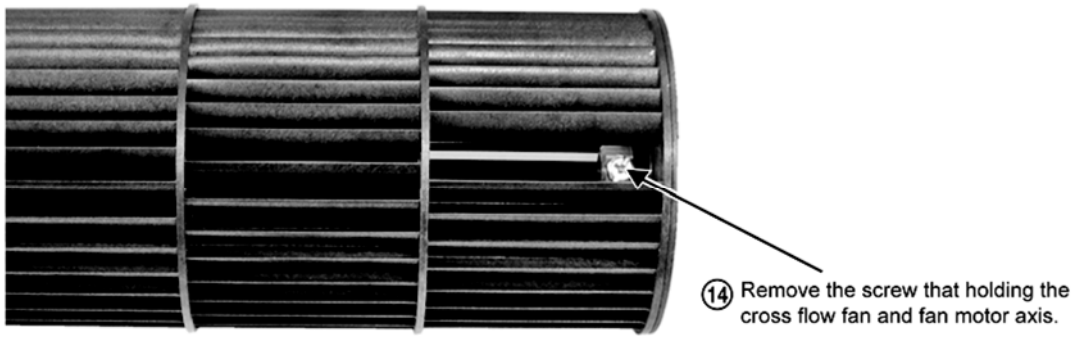
(Fig. 6)

16.1.1.4 To remove Control Board

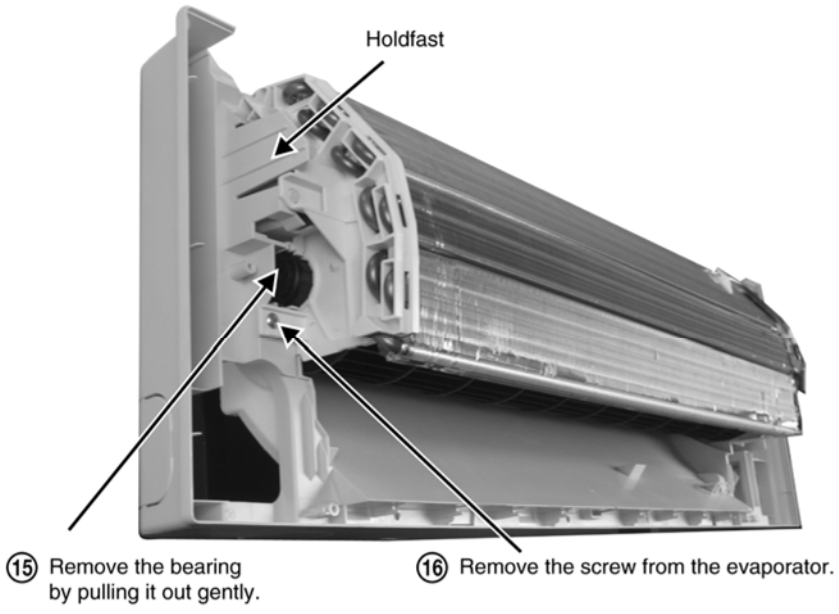


(Fig. 7)

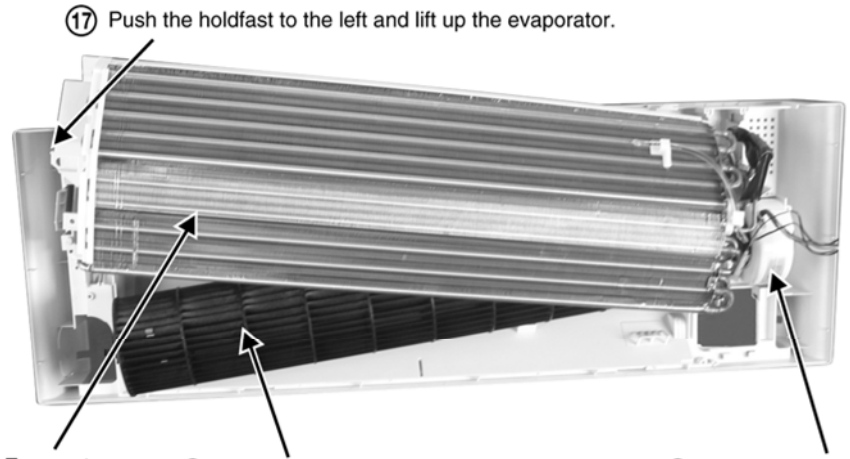
16.1.1.5 To remove Cross Flow Fan and Indoor Fan Motor



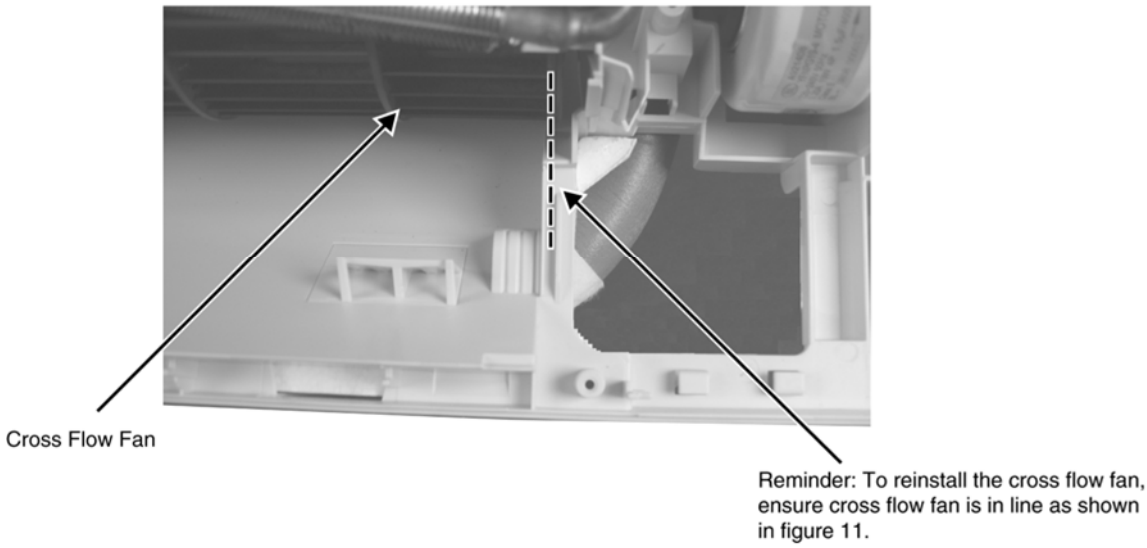
(Fig. 8)



(Fig. 9)


⑰ Push the holdfast to the left and lift up the evaporator.
Evaporator
⑱ Remove the cross flow fan from the unit by pulling it to the left and downward.
⑲ Fan motor can be removed after the removal of cross flow fan.
Reminder: To reinstall the fan motor, please adjust the connector to 45° with fan motor before fixing control board.

(Fig. 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)

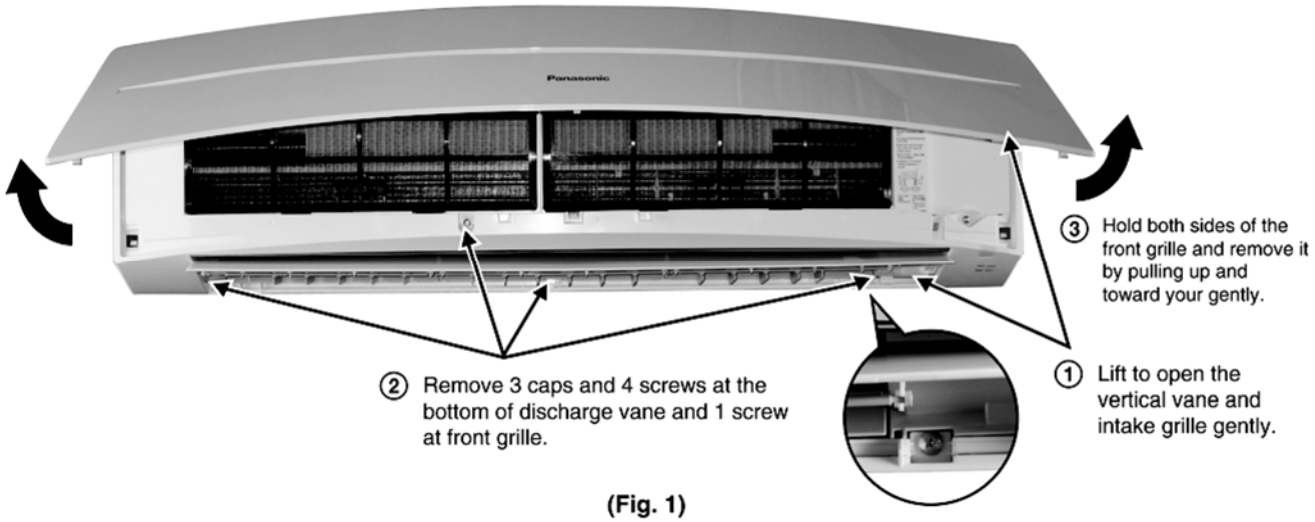
WARNING

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

16.2 CS-PC18/24KKQ CS-PC18/24KKQ-6

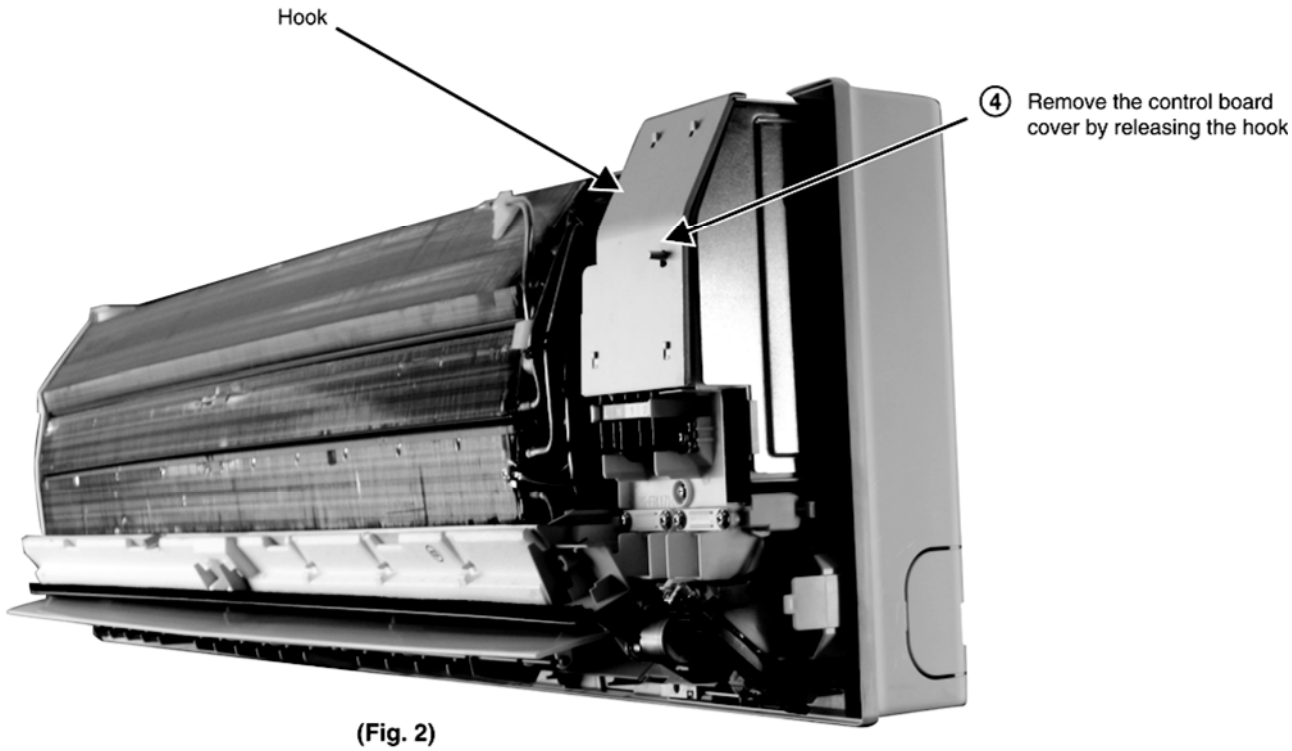
16.2.1 Indoor Electronic Controllers and Control Board Removal Procedures

16.2.1.1 To remove Front Grille

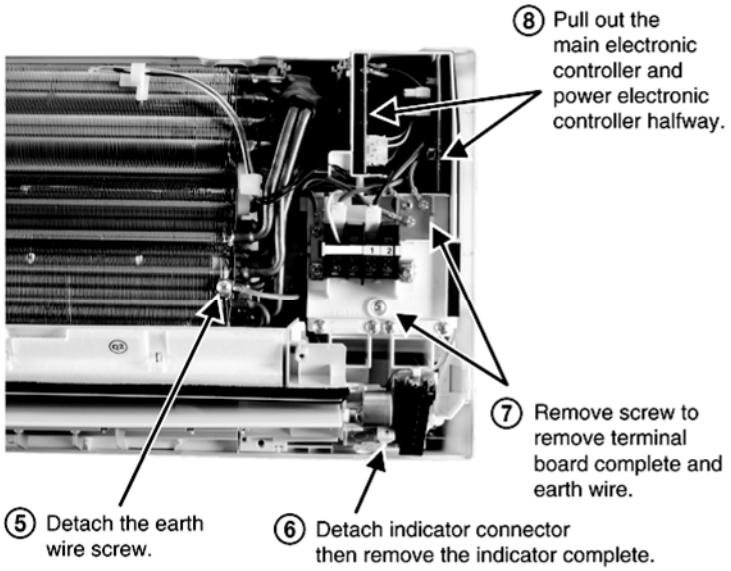


(Fig. 1)

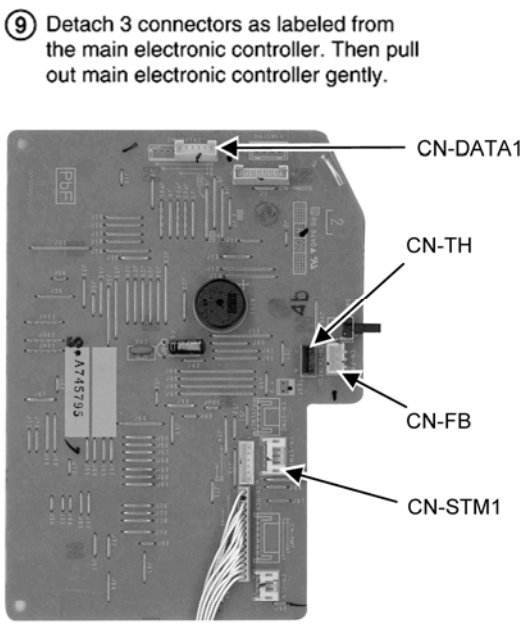
16.2.1.2 To remove Power Electronic Controller



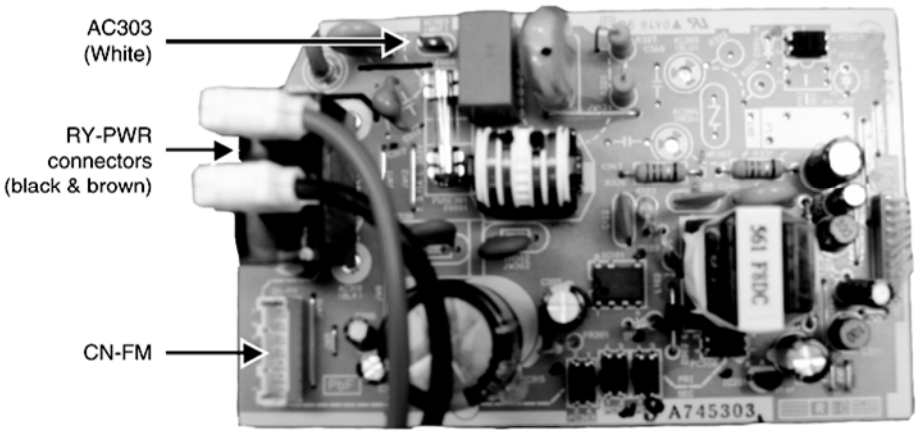
(Fig. 2)



(Fig. 3)

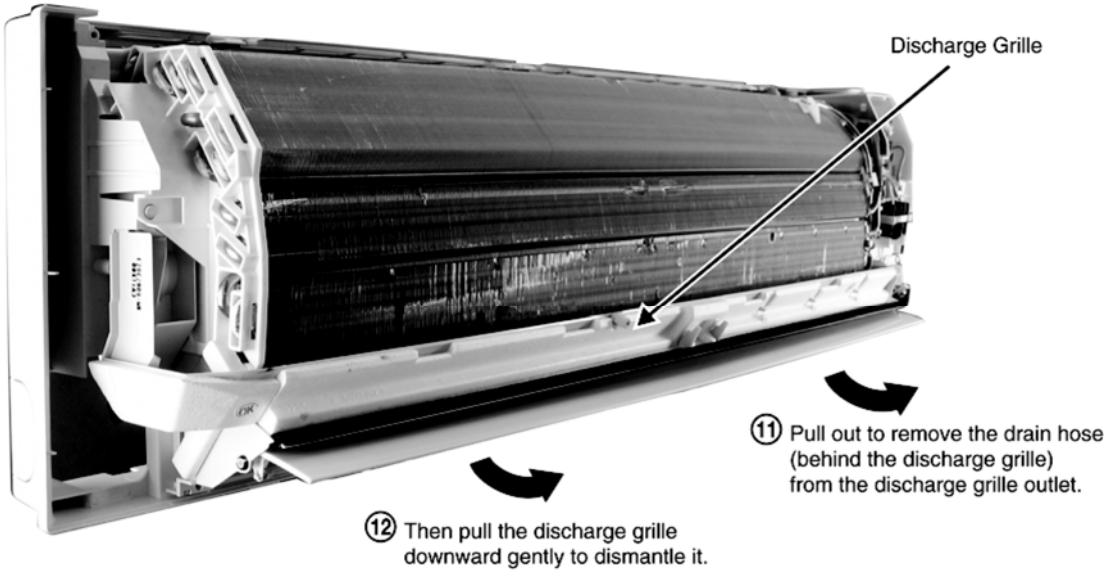


(Fig. 4)



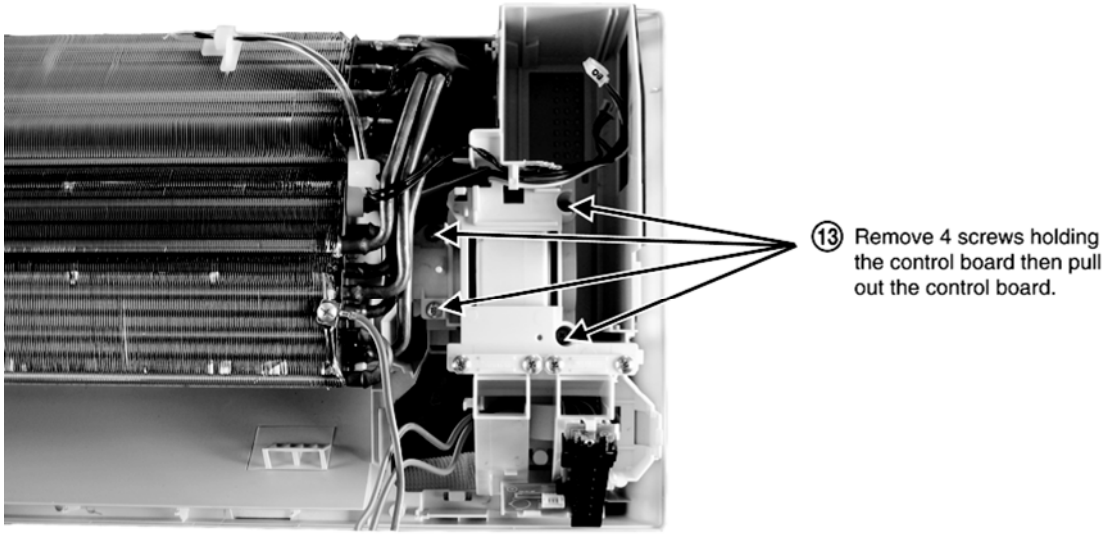
(Fig. 5)

16.2.1.3 To remove Discharge Grille



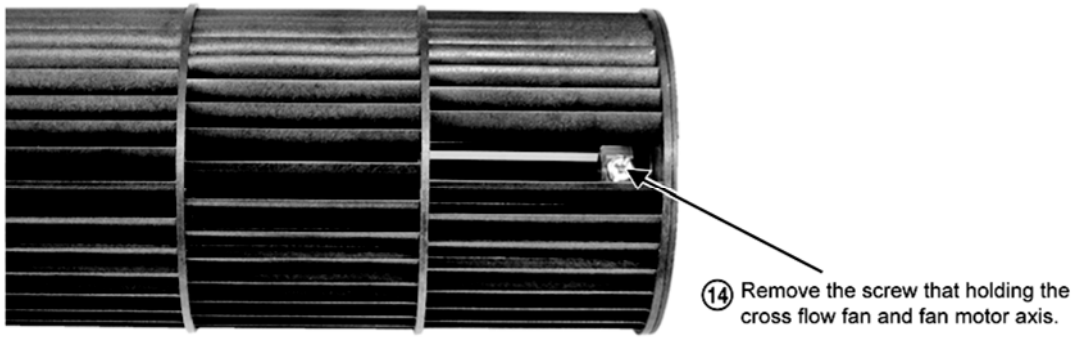
(Fig. 6)

16.2.1.4 To remove Control Board

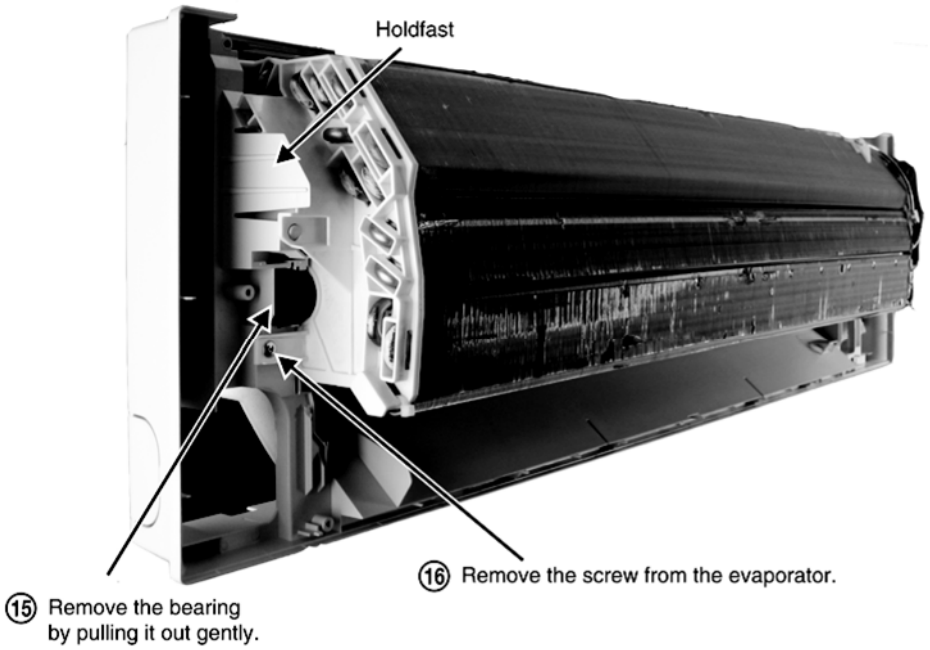


(Fig. 7)

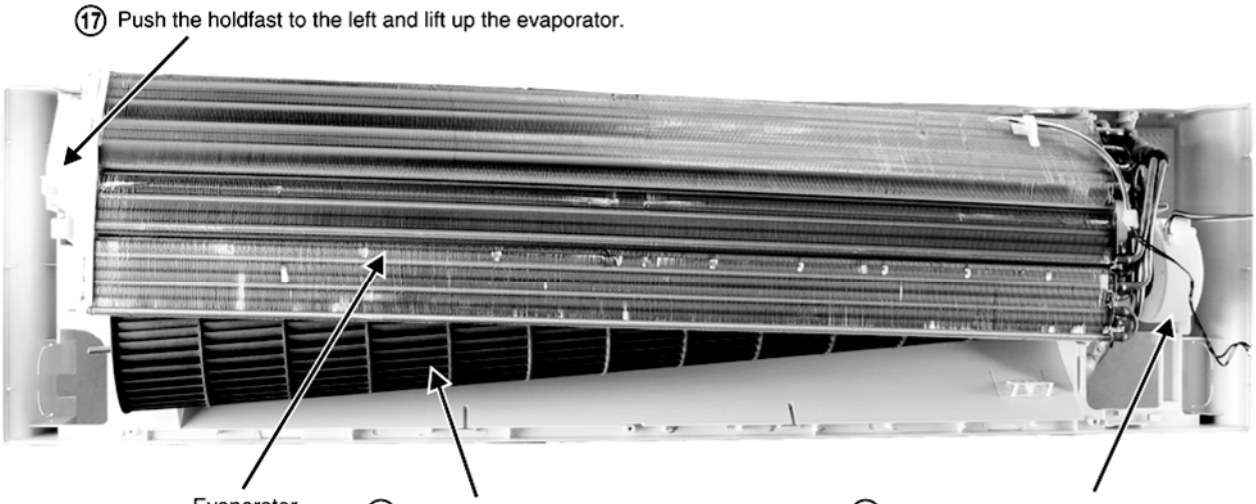
16.2.1.5 To remove Cross Flow Fan and Indoor Fan Motor



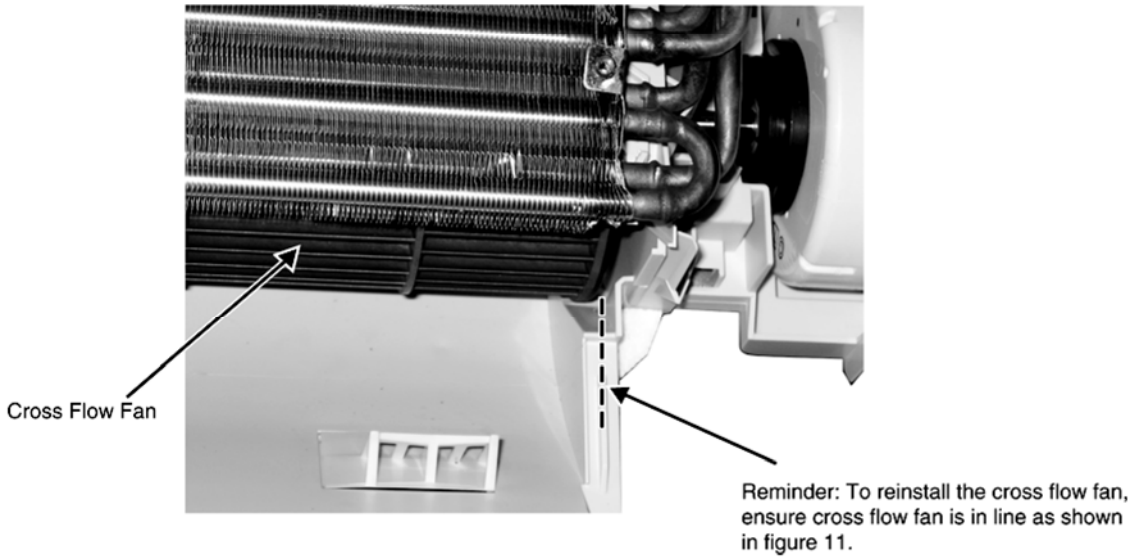
(Fig. 8)



(Fig. 9)


⑰ Push the holdfast to the left and lift up the evaporator.
Evaporator
⑱ Remove the cross flow fan from the unit by pulling it to the left and downward.
⑲ Fan motor can be removed after the removal of cross flow fan.
Reminder: To reinstall the fan motor, please adjust the connector to 45° with fan motor before fixing control board.

(Fig. 10)

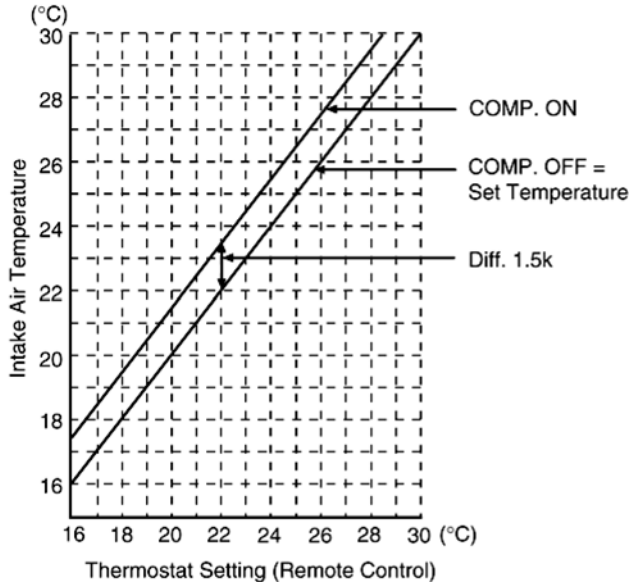

Cross Flow Fan
Reminder: To reinstall the cross flow fan, ensure cross flow fan is in line as shown in figure 11.

(Fig. 11)

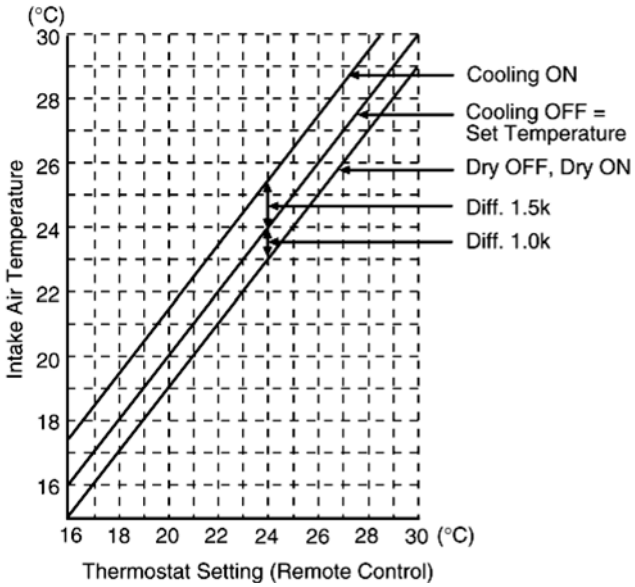
17. Technical Data

17.1 Thermostat Characteristics

Cooling



Soft Dry

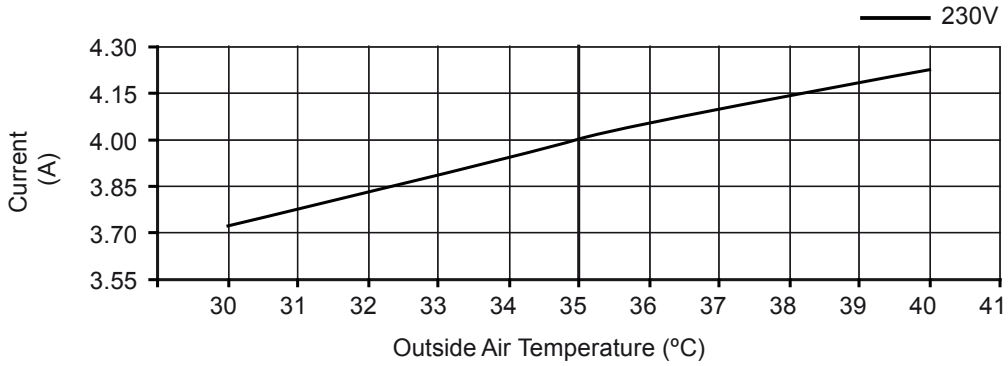


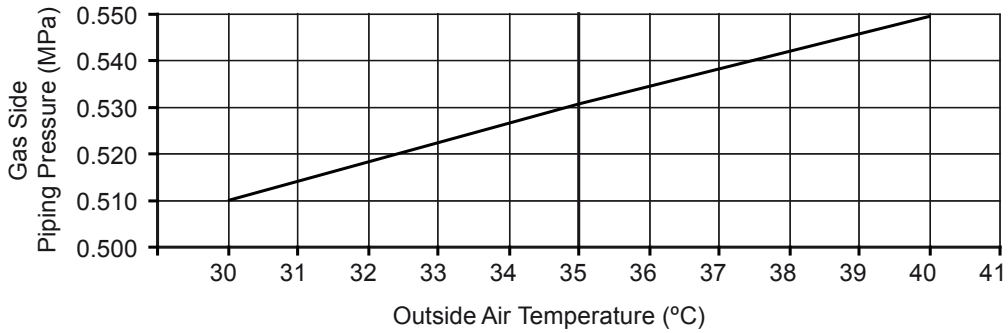
17.2 Operation Characteristics

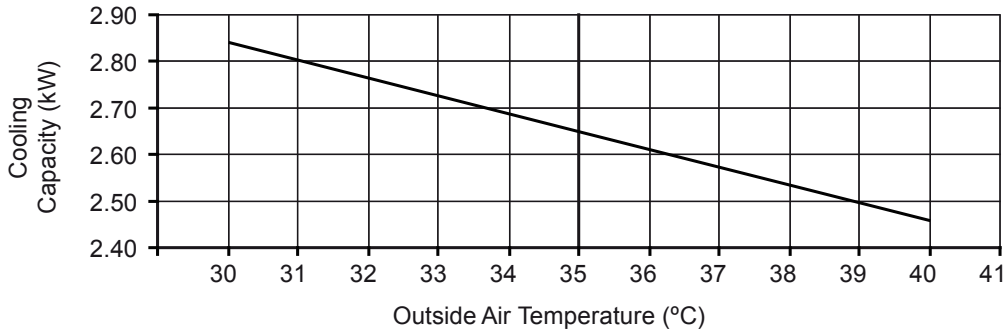
17.2.1 CS-PC9KKQ CU-PC9KKQ

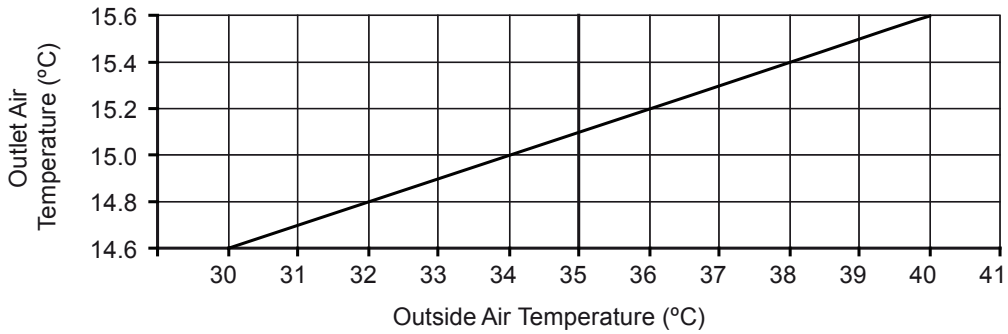
- Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Piping length: 7.5 m

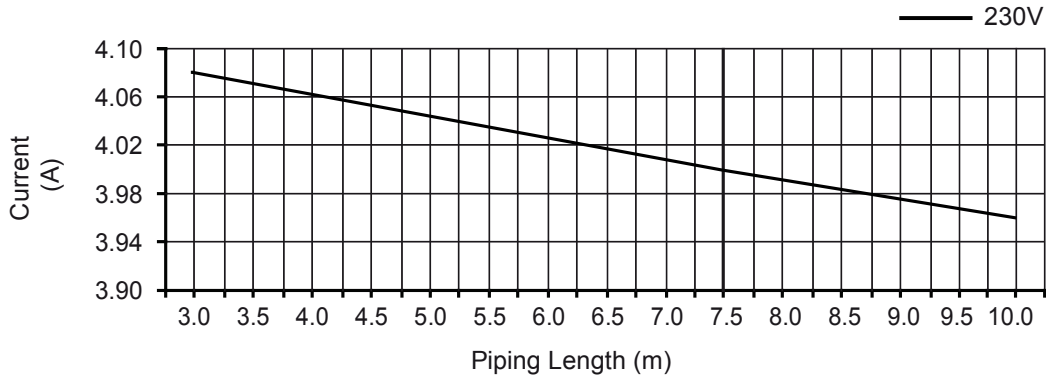


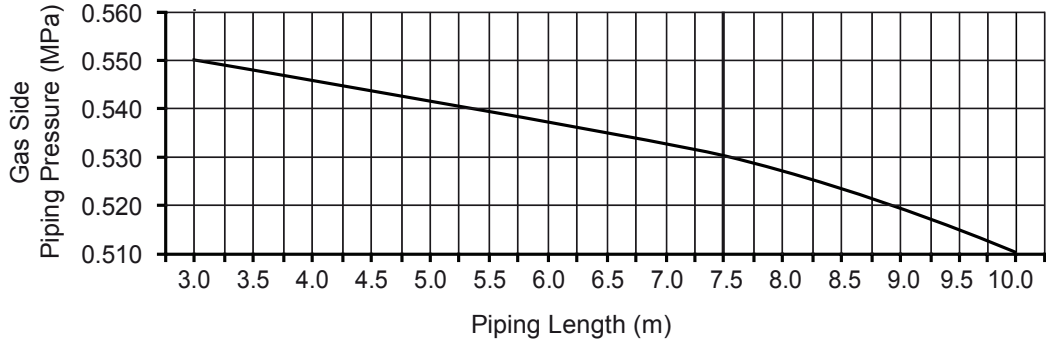


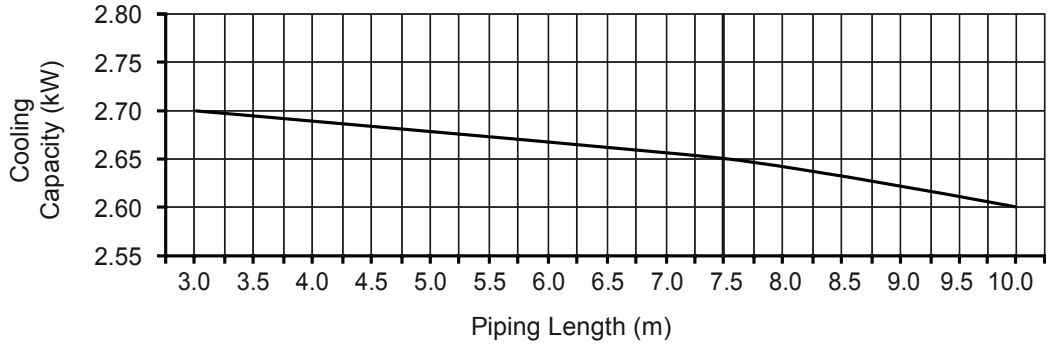


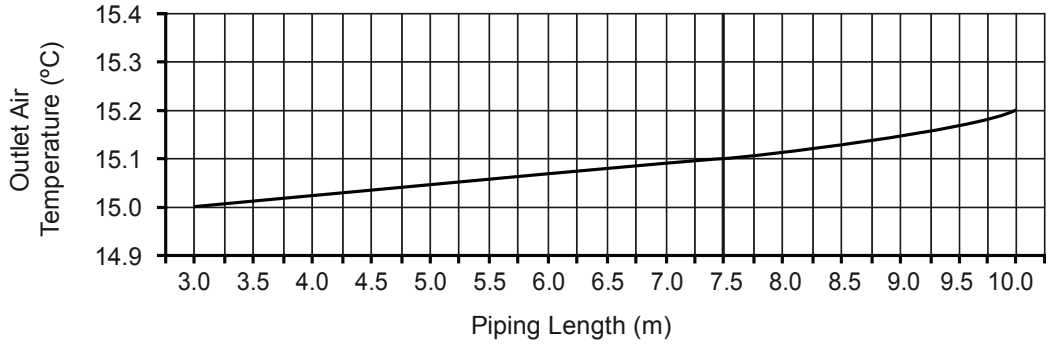


[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Outdoor temperature: 35/24°C





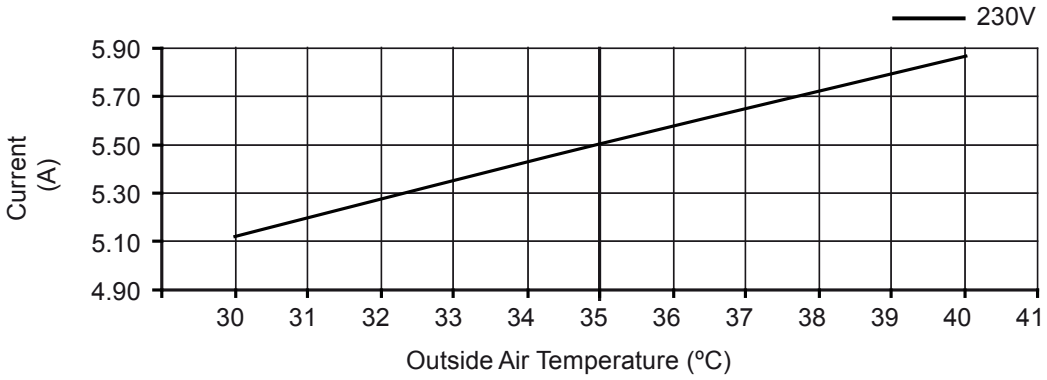


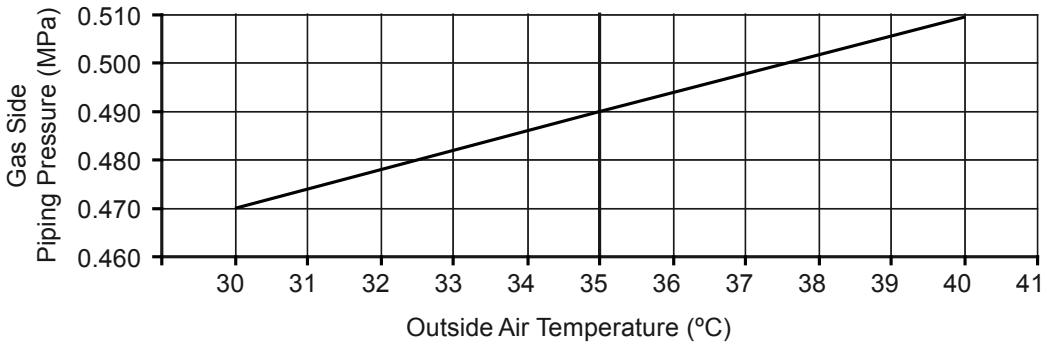


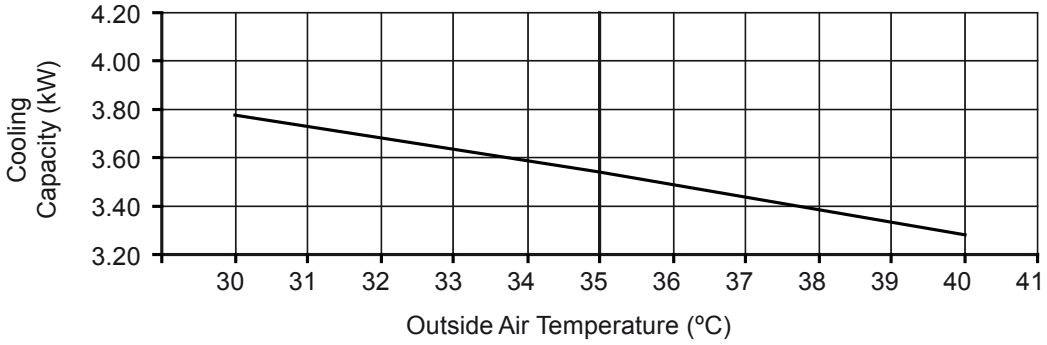
17.2.2 CS-PC12KKQ CU-PC12KKQ

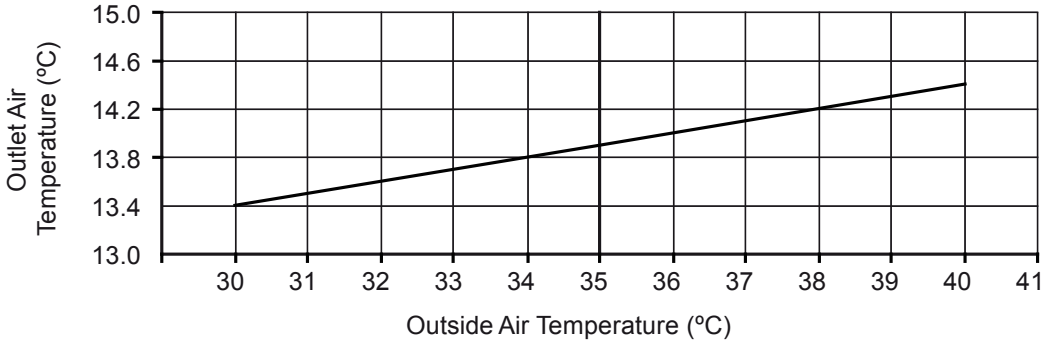
- Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Piping length: 7.5 m

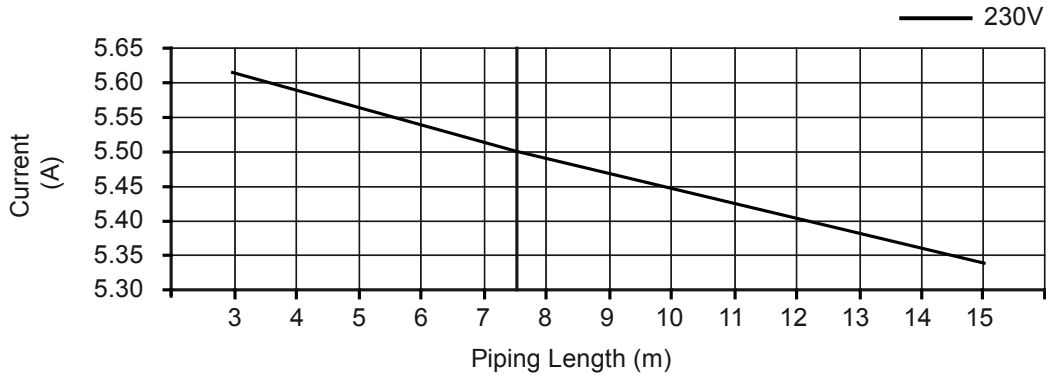


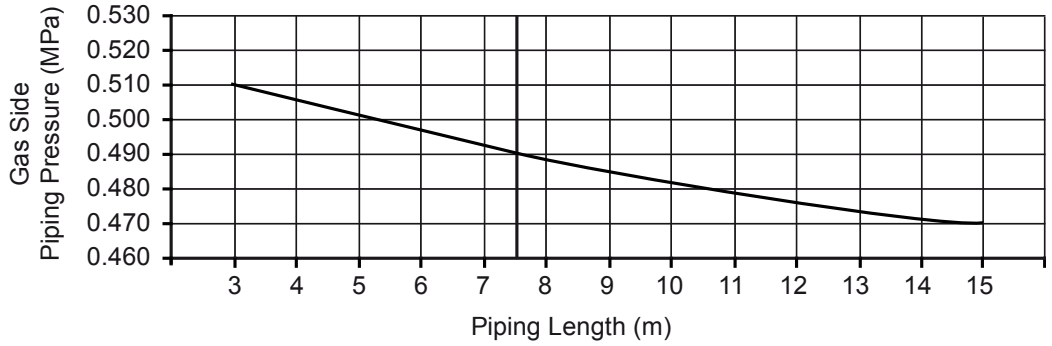


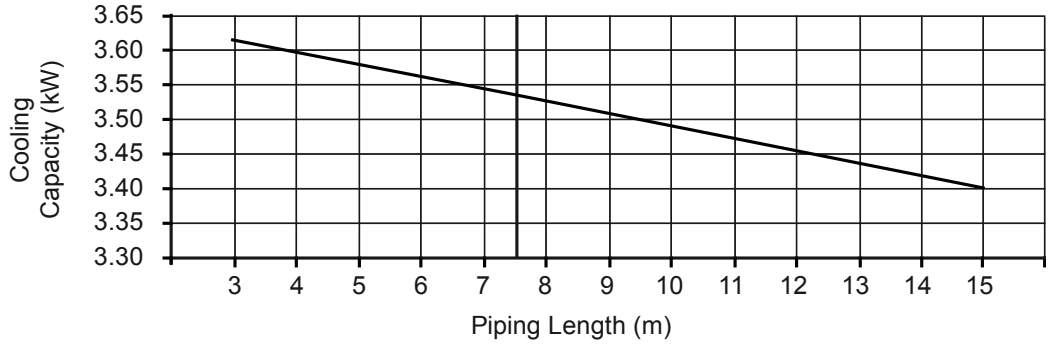


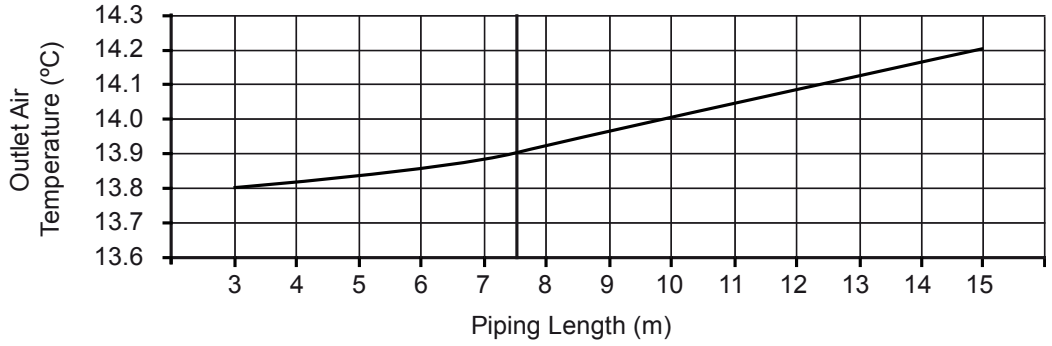


[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Outdoor temperature: 35/24°C





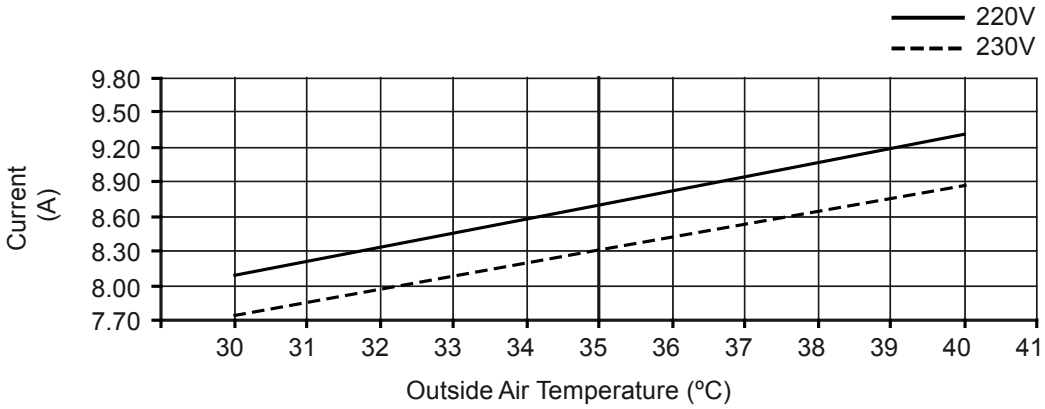


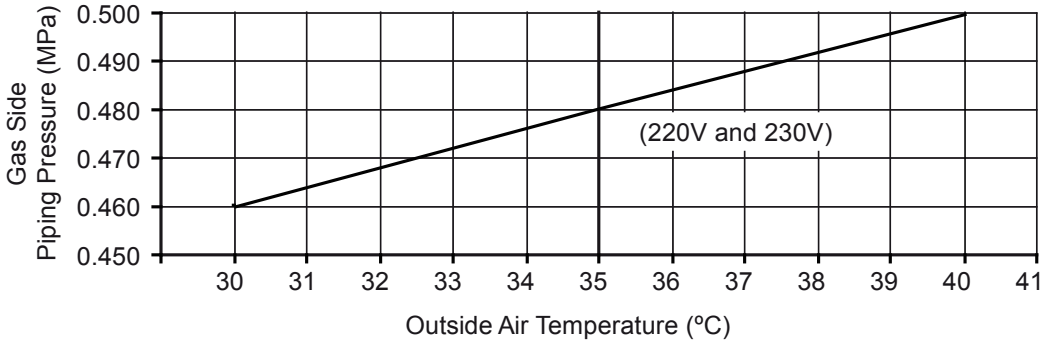


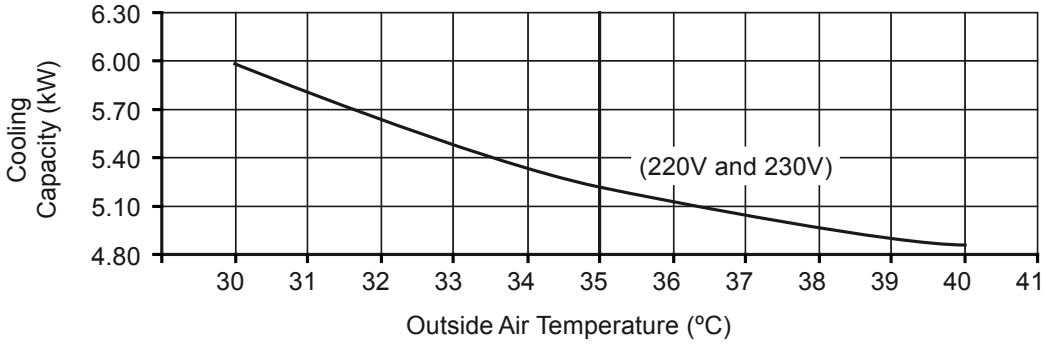
17.2.3 CS-PC18KKQ CU-PC18KKQ

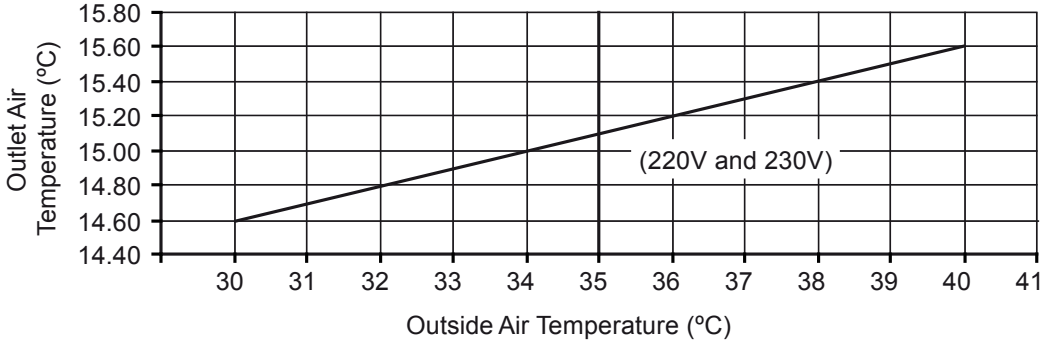
- Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Piping length: 5 m

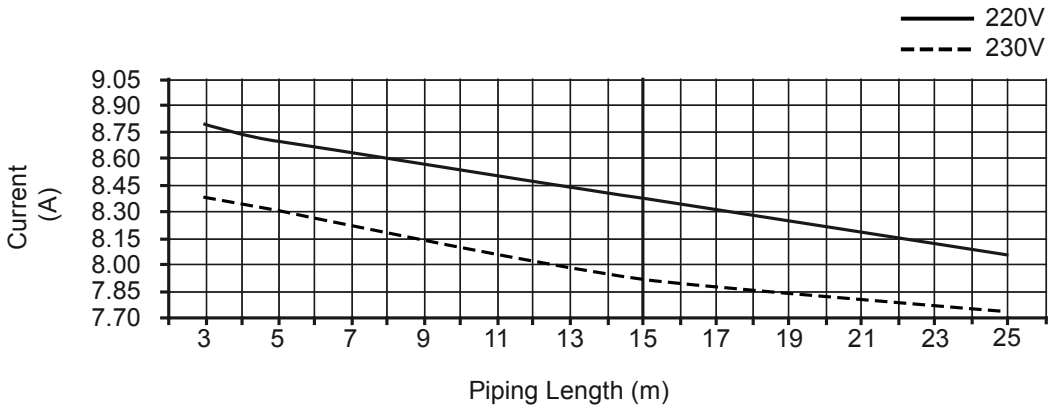


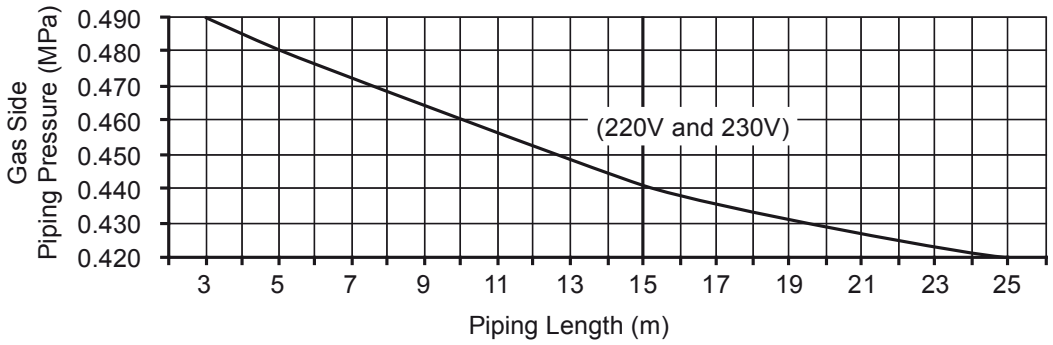


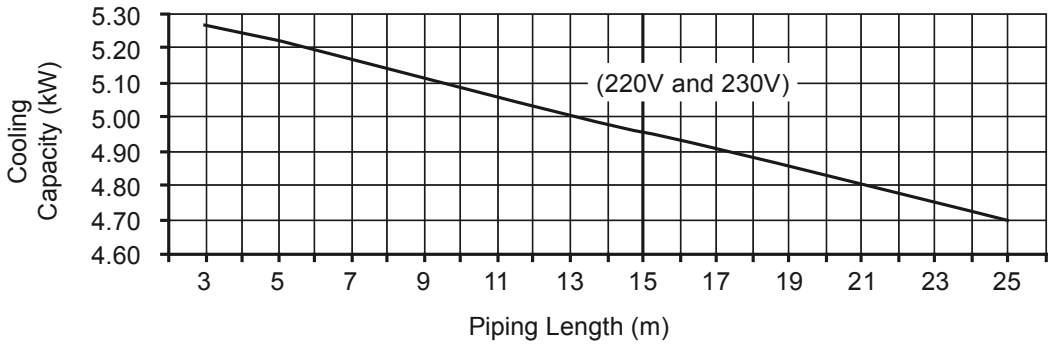


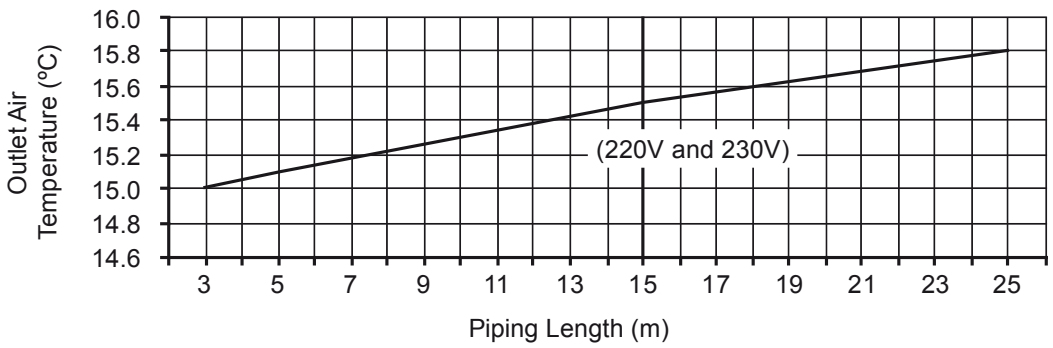


[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Outdoor temperature: 35/24°C





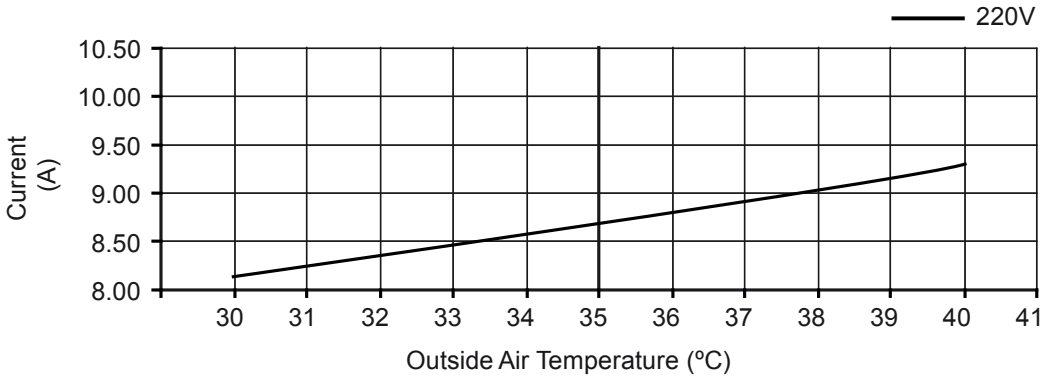


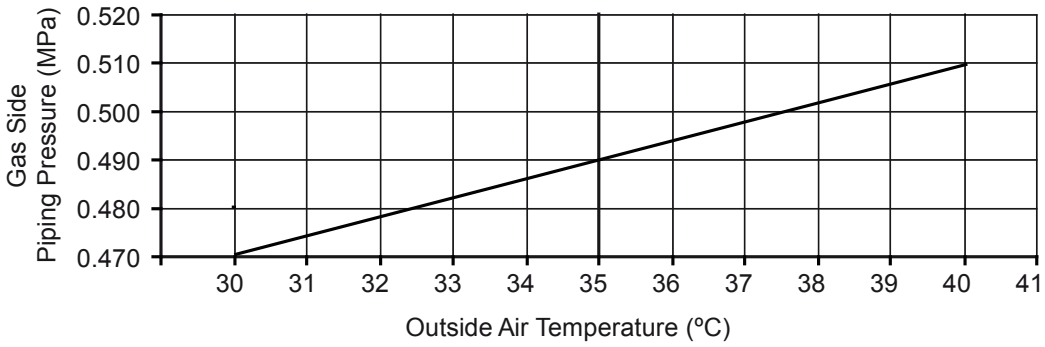


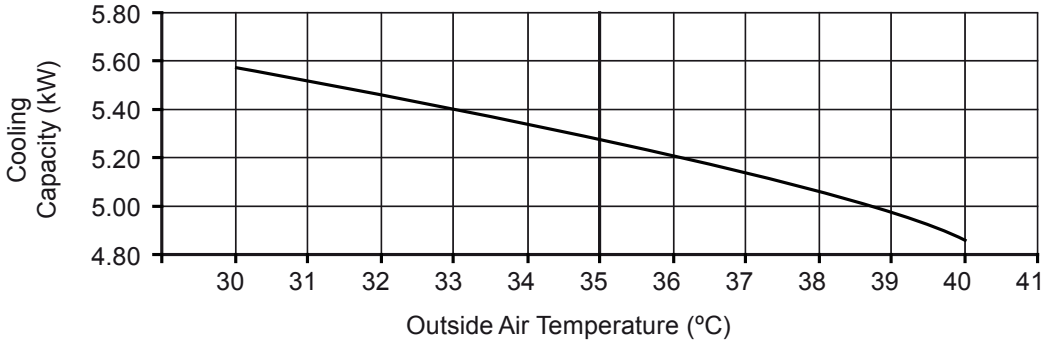
17.2.4 CS-PC18KKQ-6 CU-PC18KKQ-6

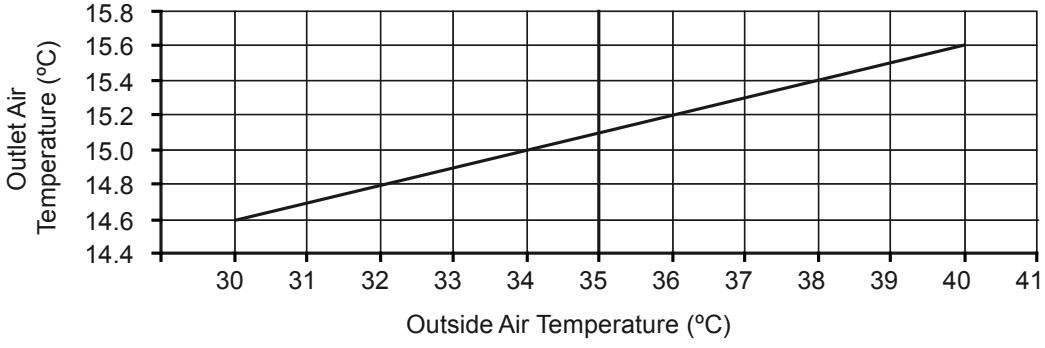
- Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Piping length: 5 m

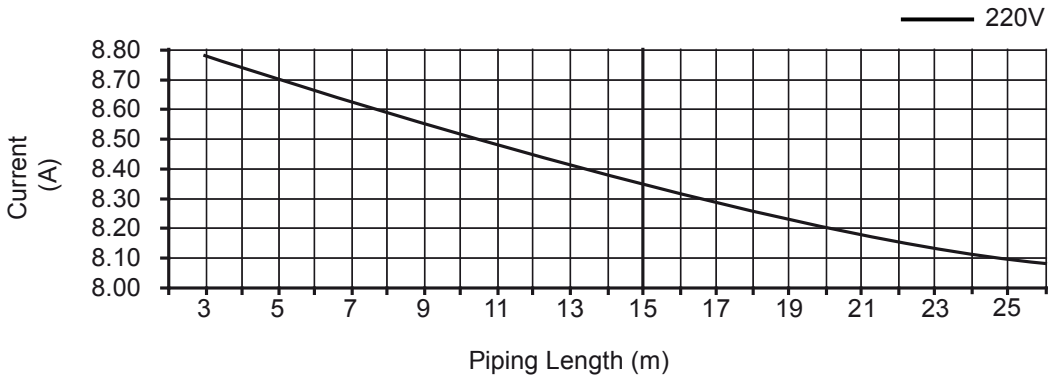


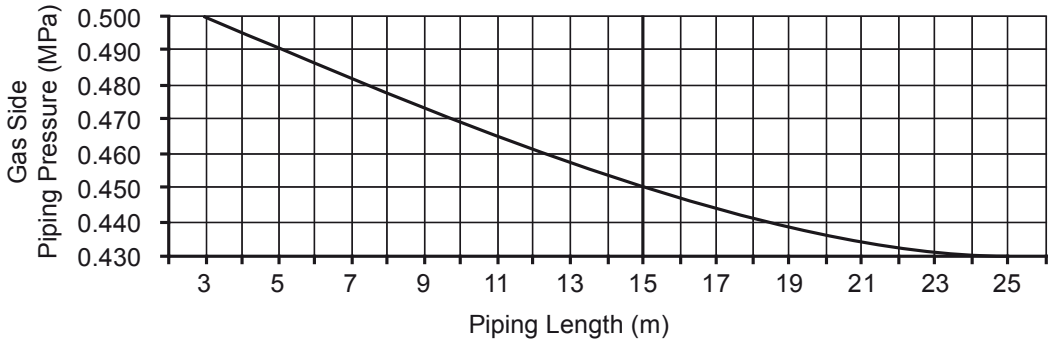


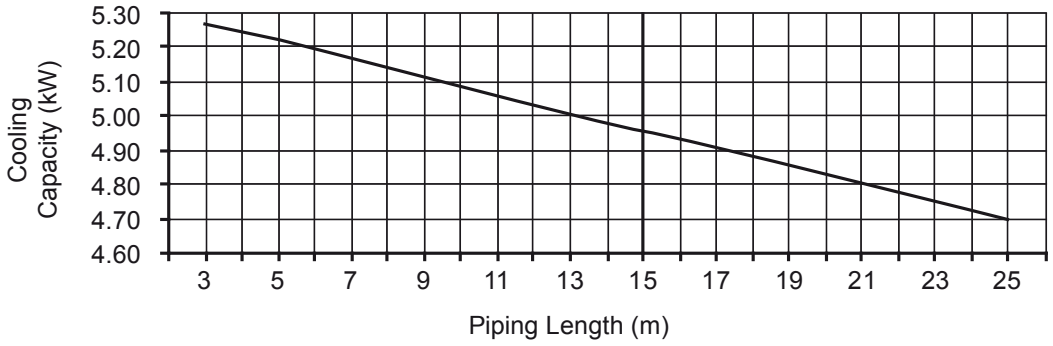


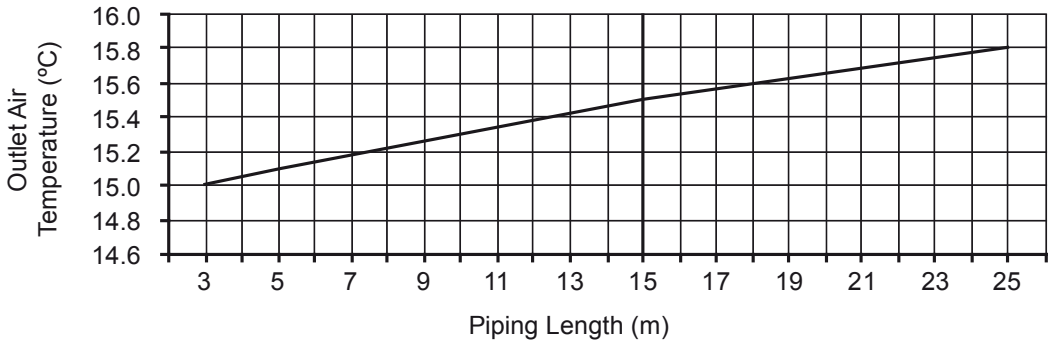


[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Outdoor temperature: 35/24°C





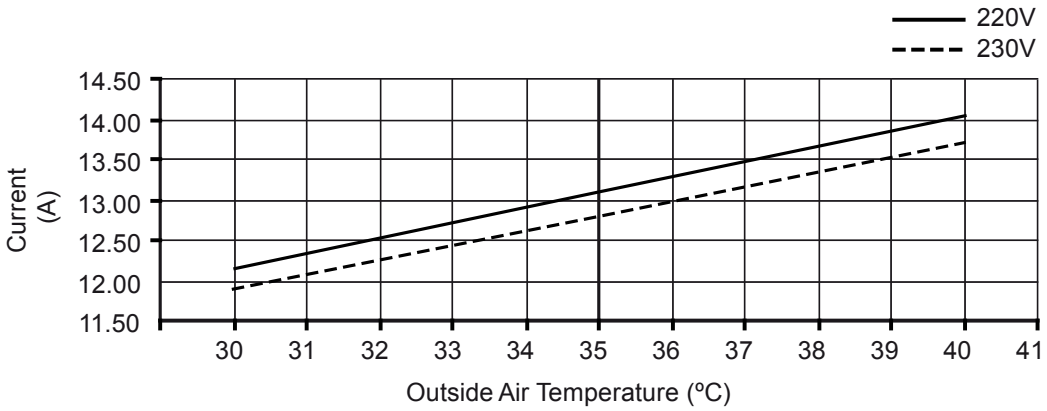


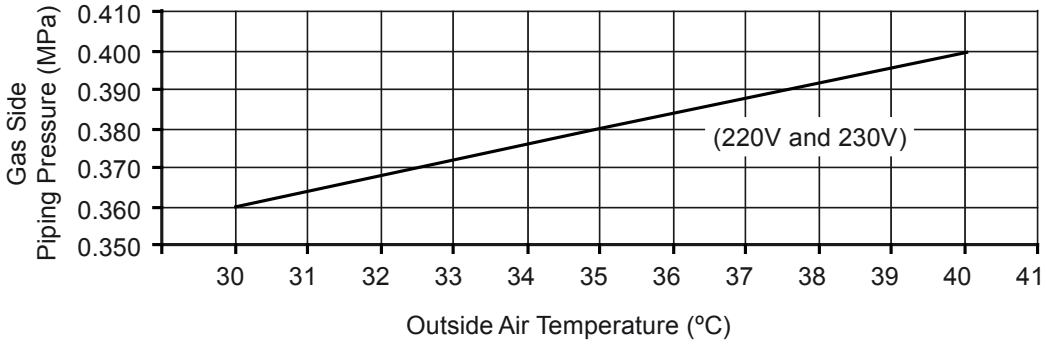


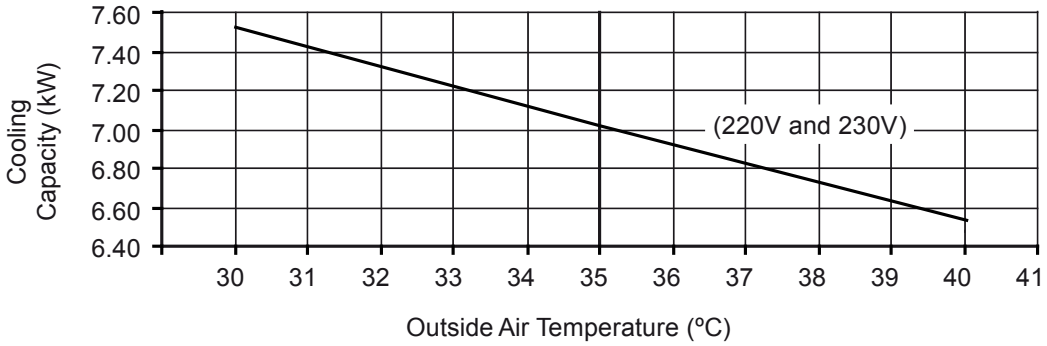
17.2.5 CS-PC24KKQ CU-PC24KKQ

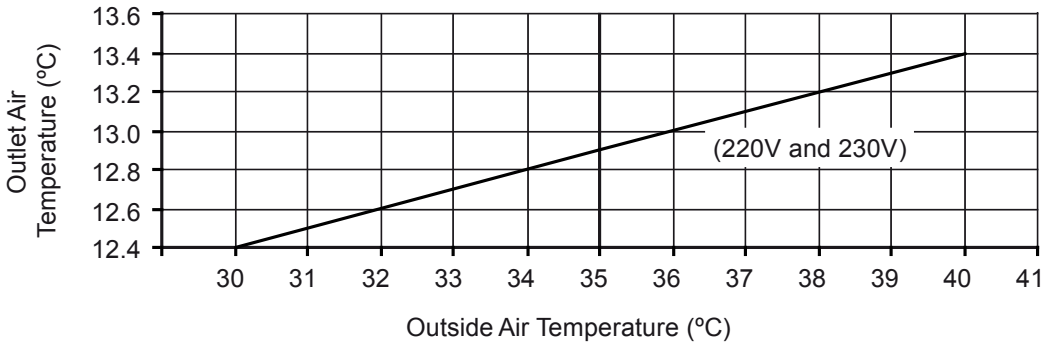
- Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Piping length: 5 m

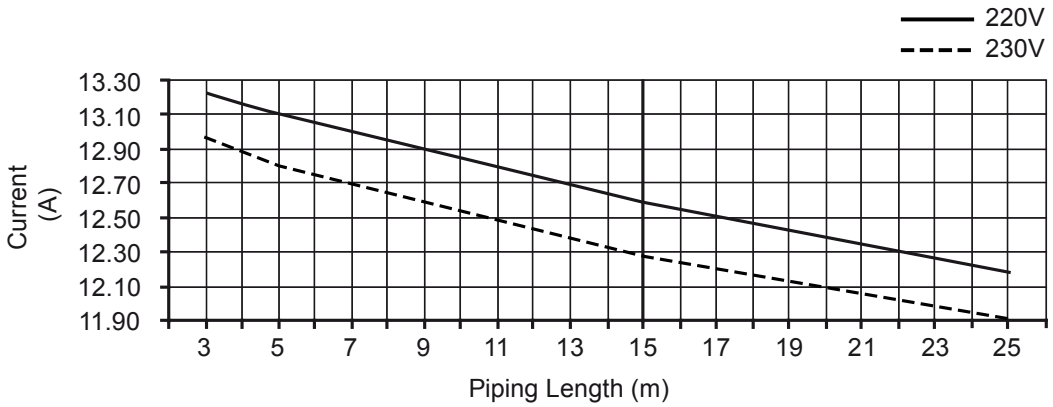


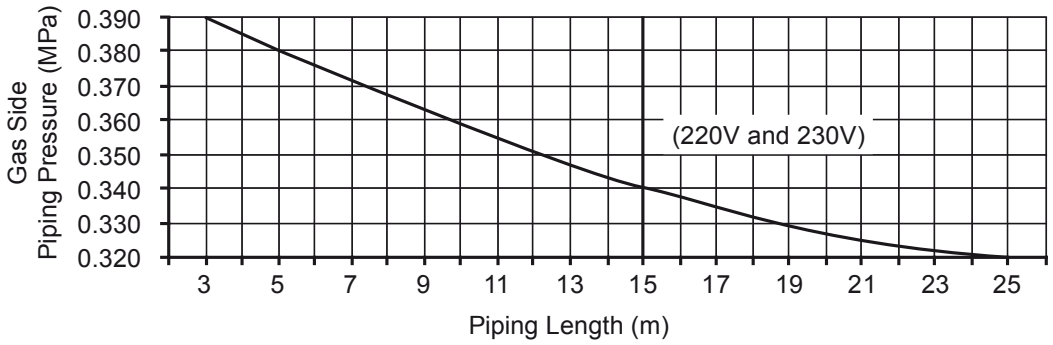


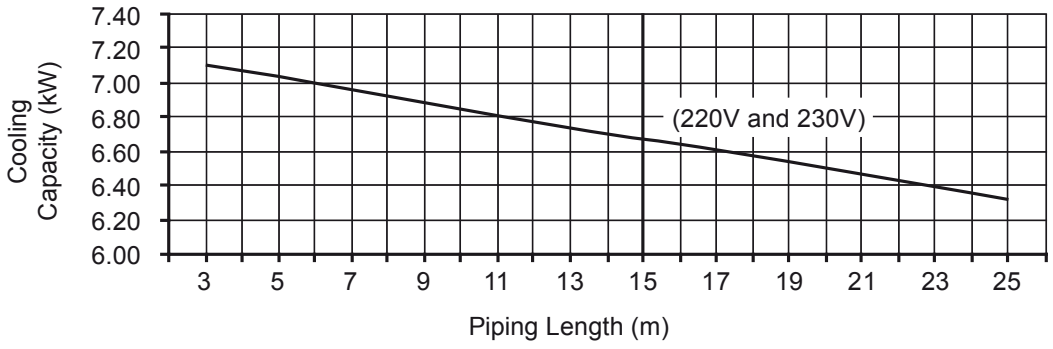


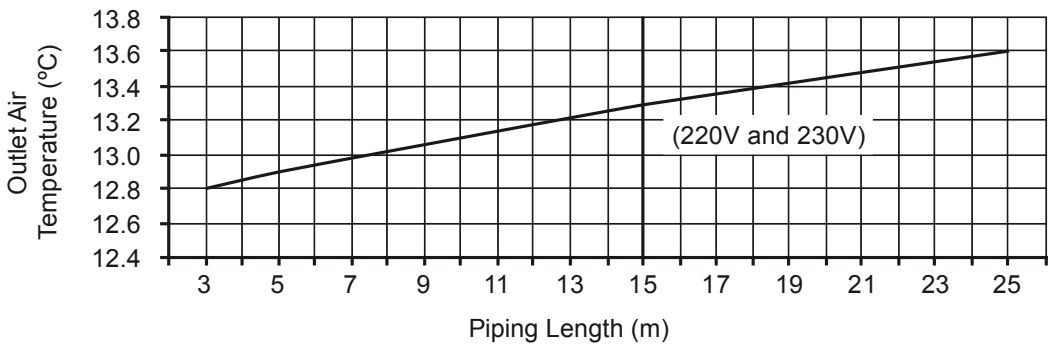


[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Outdoor temperature: 35/24°C





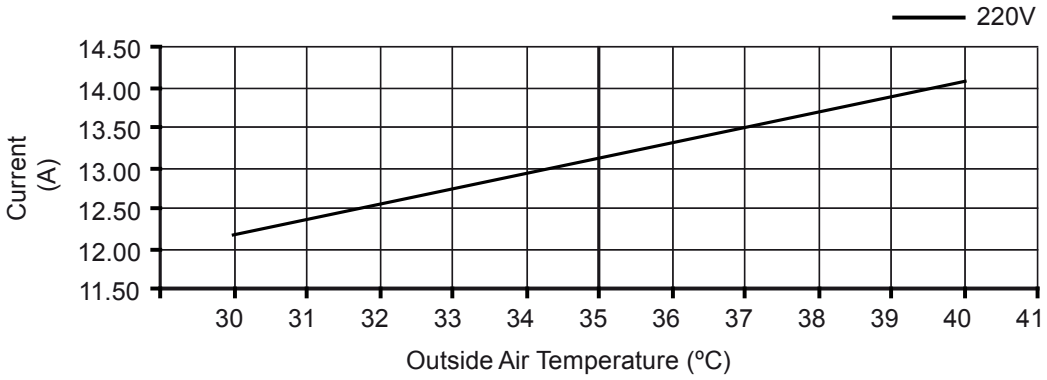


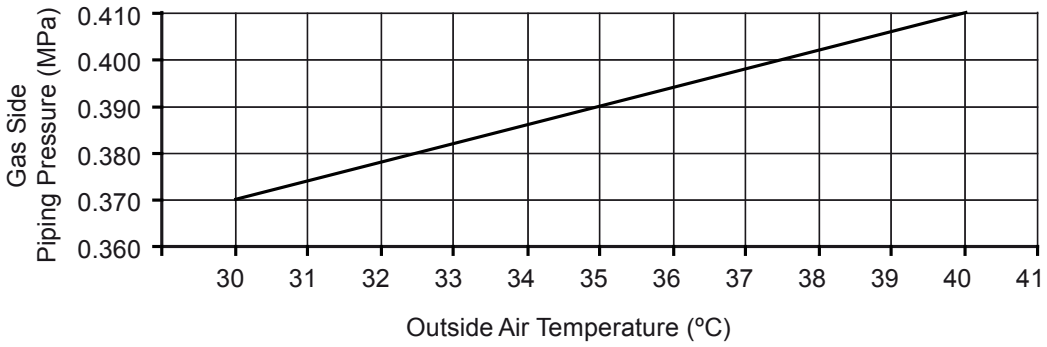


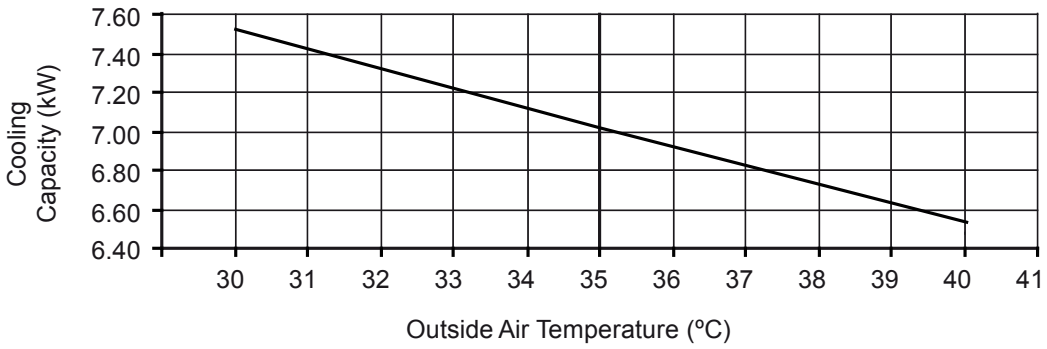
17.2.6 CS-PC24KKQ-6 CU-PC24KKQ-6

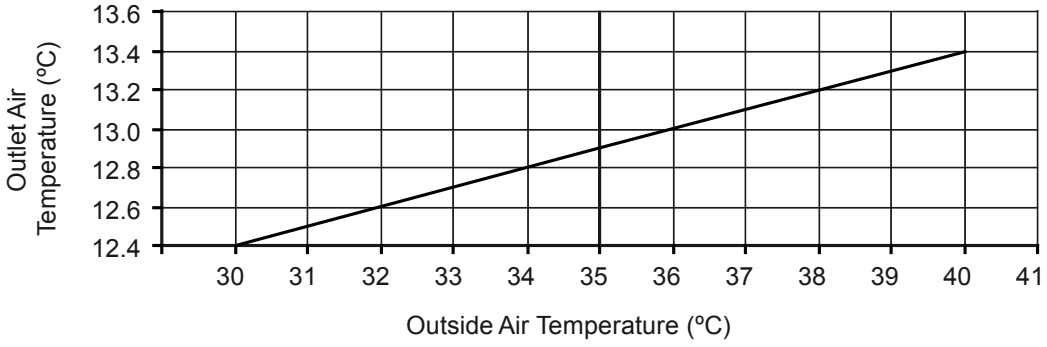
- Cooling Characteristic

[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Piping length: 5 m

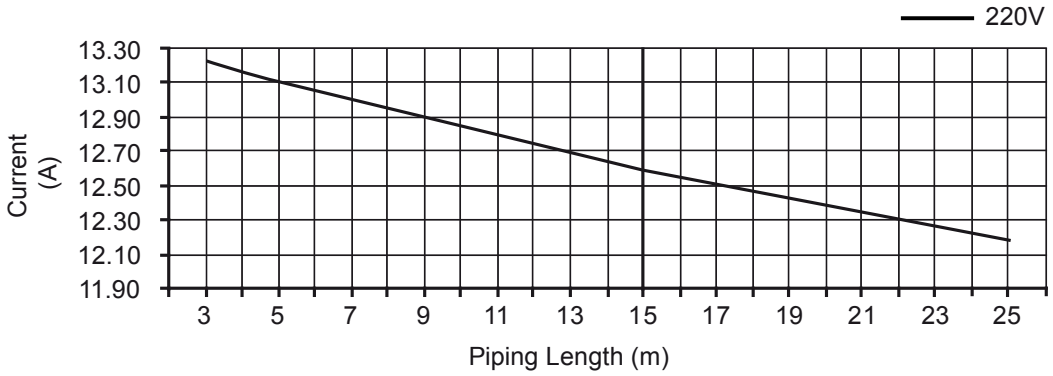


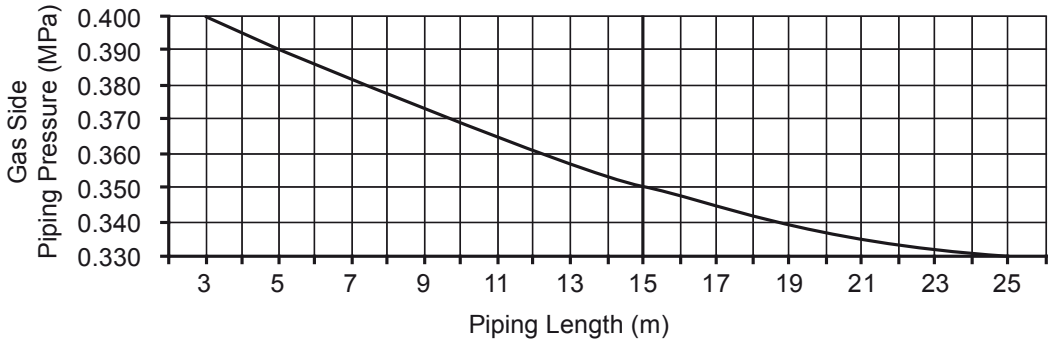


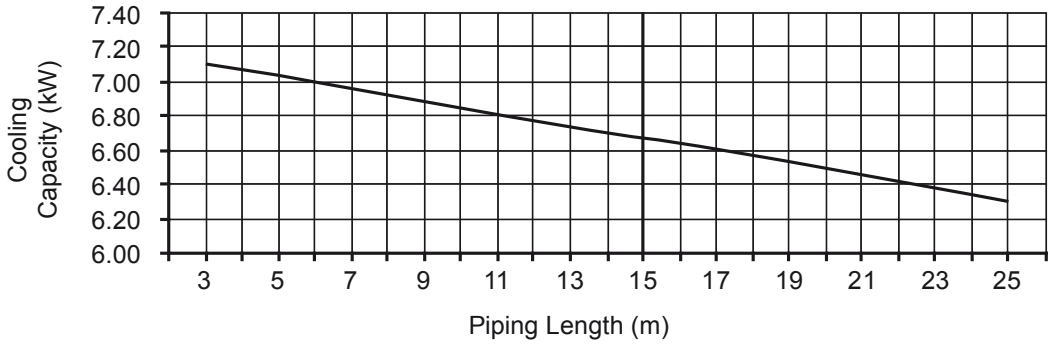


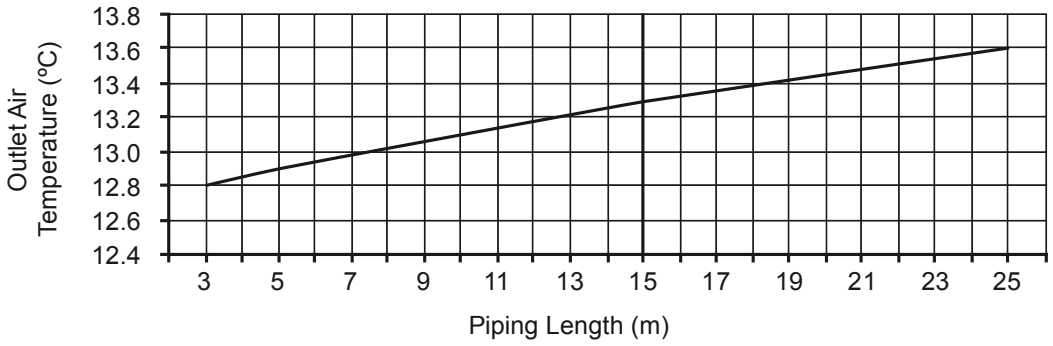


[Condition] Room temperature: 27°C (DBT), 19°C (WBT)
Cooling operation: At High fan
Outdoor temperature: 35/24°C





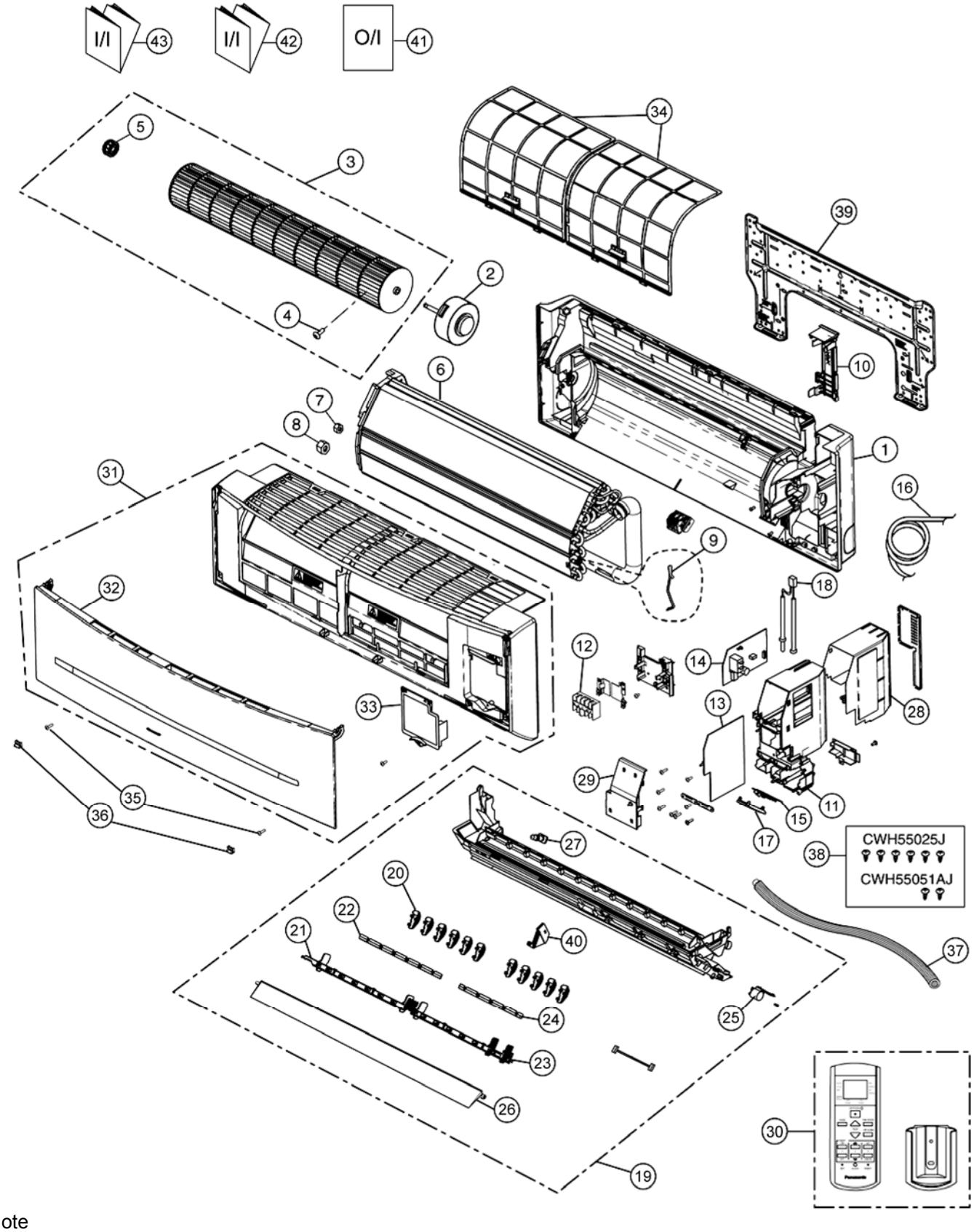




18. Exploded View and Replacement Parts List

18.1 Indoor Unit

18.1.1 CS-PC9KKQ CS-PC12KKQ



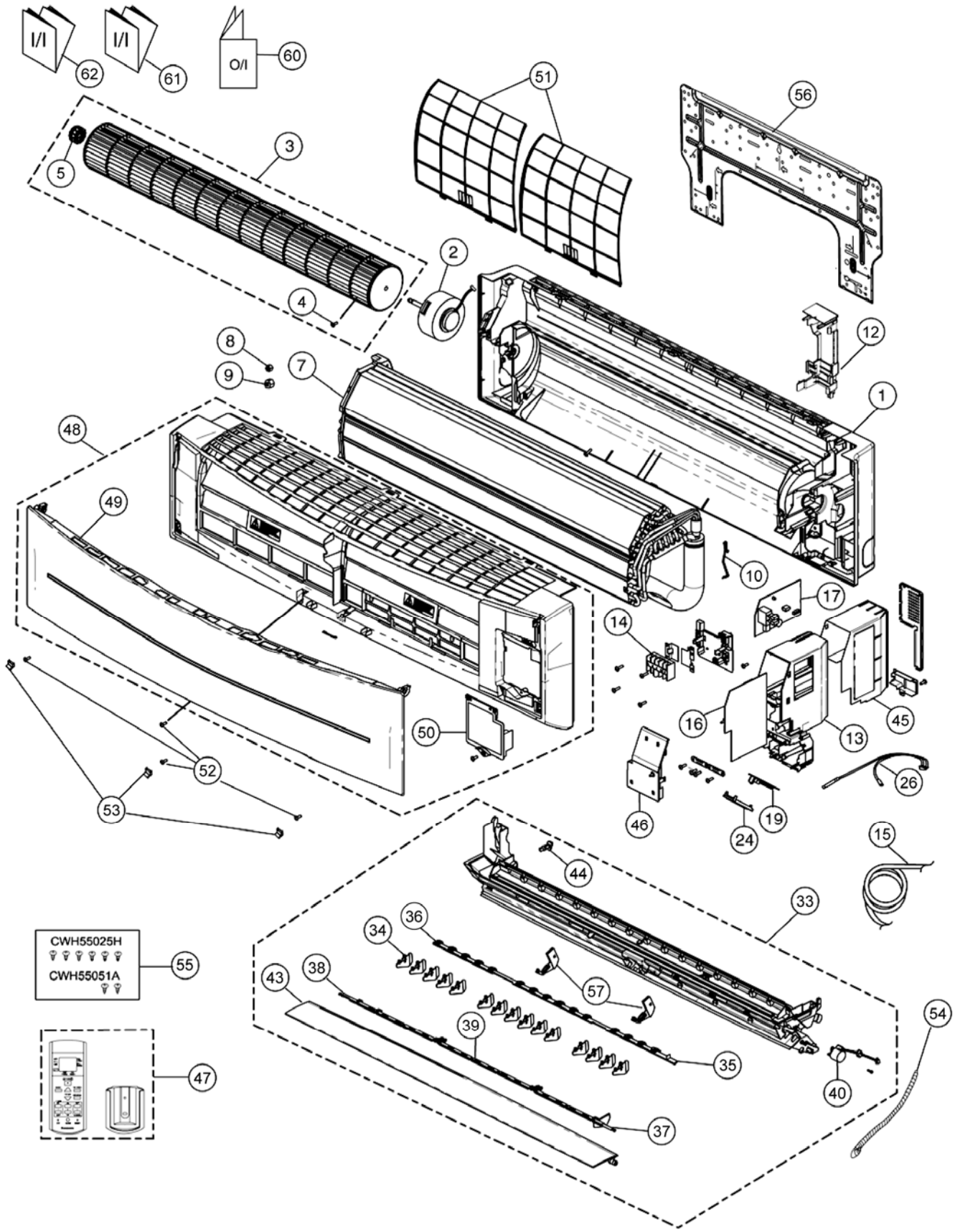
Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	CS-PC9KKQ	CS-PC12KKQ	REMARK
			Philippines		
1	CHASSY COMPLETE	1	CWD50C1653	←	
2	FAN MOTOR	1	CWA921420	←	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	←	
4	SCREW - CROSS FLOW FAN	1	CWH551146	←	
5	BEARING ASS'Y	1	CWH64K007	←	
6	EVAPORATOR	1	CWB30C2968	CWB30C2970	
7	FLARE NUT (LIQUID)	1	CWT251026	←	
8	FLARE NUT (GAS)	1	CWT251061	CWT251062	
9	HOLDER SENSOR	1	CWH32143	←	
10	BACK COVER CHASSIS	1	CWD933019	←	
11	CONTROL BOARD CASING	1	CWH102370	←	
12	TERMINAL BOARD COMPLETE	1	CWA28C2356	←	
13	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4175	CWA73C4176	O
14	ELECTRONIC CONTROLLER - POWER	1	CWA745849	←	O
15	ELECTRONIC CONTROLLER-RECEIVER	1	CWA745300	←	O
16	P.S. CORD CO.	1	CWA20C2875	←	
17	INDICATOR HOLDER	1	CWD933021	←	
18	SENSOR COMPLETE	1	CWA50C2401	←	
19	DISCHARGE GRILLE COMPLETE	1	CWE20C3084	←	
20	VERTICAL VANE	11	CWE241287	←	
21	CONNECTING BAR	1	CWE261152	←	
22	CONNECTING BAR	1	CWE261153	←	
23	CONNECTING BAR	1	CWE261154	←	
24	CONNECTING BAR	1	CWE261155	←	
25	AIR SWING MOTOR	1	CWA981240	←	O
26	HORIZONTAL VANE	1	CWE24C1268	←	
27	CAP - DRAIN TRAY	1	CWH521096	←	
28	CONTROL BOARD TOP COVER	1	CWH131350	←	
29	CONTROL BOARD FRONT COVER	1	CWH13C1183	←	
30	REMOTE CONTROL COMPLETE	1	CWA75C3623	←	O
31	FRONT GRILLE COMPLETE	1	CWE11C4250	←	O
32	INTAKE GRILLE COMPLETE	1	CWE22C1508	←	O
33	GRILLE DOOR	1	CWE14C1029	←	
34	E-ION FILTER	2	CWD001279	←	
35	SCREW - FRONT GRILLE	2	XTT4+16CFJ	←	
36	CAP - FRONT GRILLE	2	CWH521194	←	
37	DRAIN HOSE	1	CWH851174	←	
38	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	
39	INSTALLATION PLATE	1	CWH361097	←	
40	FULCRUM	1	CWH621102	←	
41	OPERATING INSTRUCTION	1	CWF567134	←	
42	INSTALLATION INSTRUCTION	1	CWF613792	←	
43	INSTALLATION INSTRUCTION	1	CWF613686	←	

(Note)

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

18.1.2 CS-PC18KKQ CS-PC24KKQ CS-PC18KKH-6 CS-PC24KKQ-6



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-PC18KKQ	CS-PC24KKQ	REMARK
			Philippines		
1	CHASSY COMPLETE	1	CWD50C1654	←	
2	FAN MOTOR	1	L6CBYYYL0037	L6CBYYYL0038	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1077	←	
4	SCREW - CROSS FLOW FAN	1	CWH551146	←	
5	BEARING ASS'Y	1	CWH64K007	←	
7	EVAPORATOR	1	CWB30C2550	CWB30C2773	
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	CWH102370	←	
14	TERMINAL BOARD COMPLETE	1	CWA28C2393	CWA28C2394	
15	POWER SUPPLY CORD-COMPLETE	1	CWA20C2851	CWA20C2853	
16	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4212	CWA73C4208	O
17	ELECTRONIC CONTROLLER - POWER	1	CWA745303	←	O
19	ELECTRONIC CONTROLLER-INDICATOR	1	CWA745300	←	O
24	INDICATOR HOLDER	1	CWD933021	←	
26	SENSOR COMPLETE	1	CWA50C2401	←	
33	DISCHARGE GRILLE COMPLETE	1	CWE20C3008	←	
34	VERTICAL VANE	15	CWE241289	←	
35	CONNECTING BAR	1	CWE261156	←	
36	CONNECTING BAR	1	CWE261158	←	
37	CONNECTING BAR	1	CWE261167	←	
38	CONNECTING BAR	1	CWE261159	←	
39	CONNECTING BAR	1	CWE261160	←	
40	A.S.MOTOR,DC SINGLE 12V 300OHM	1	CWA981241	←	O
43	HORIZONTAL VANE	1	CWE24C1295	←	
44	CAP - DRAIN TRAY	1	CWH521096	←	
45	CONTROL BOARD TOP COVER	1	CWH131350	←	
46	CONTROL BOARD FRONT COVER	1	CWH13C1183	←	
47	REMOTE CONTROL COMPLETE	1	CWA75C3623	←	O
48	FRONT GRILLE COMPLETE	1	CWE11C4261	←	O
49	INTAKE GRILLE COMPLETE	1	CWE22C1512	←	O
50	GRILLE DOOR	1	CWE14C1029	←	
51	E-ION FILTER	2	CWD001283	←	
52	SCREW - FRONT GRILLE	4	XTT4+16CFJ	←	
53	CAP - FRONT GRILLE	3	CWH521194	←	
54	DRAIN HOSE	1	CWH851174	←	
55	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	
56	INSTALLATION PLATE	1	CWH361098	←	
57	FULCRUM	2	CWH621103	←	
60	OPERATING INSTRUCTION	1	CWF567134	←	
61	INSTALLATION INSTRUCTION	1	CWF613792	←	
62	INSTALLATION INSTRUCTION	1	CWF613686	←	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488).

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

REF. NO.	PART NAME & DESCRIPTION	QTY	CS-PC18KKQ-6	CS-PC24KKQ-6	REMARK
			Mexico		
1	CHASSY COMPLETE	1	CWD50C1654	←	
2	FAN MOTOR	1	L6CBYYYL0037	L6CBYYYL0039	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1077	←	
4	SCREW - CROSS FLOW FAN	1	CWH551146	←	
5	BEARING ASS'Y	1	CWH64K007	←	
7	EVAPORATOR	1	CWB30C2550	CWB30C2773	
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	CWH102370	←	
14	TERMINAL BOARD COMPLETE	1	CWA28C2356	←	
15	POWER SUPPLY CORD-COMPLETE	1	CWA20C2851	CWA20C2853	
16	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4212	CWA73C4208	O
17	ELECTRONIC CONTROLLER - POWER	1	CWA745303	←	O
19	ELECTRONIC CONTROLLER-INDICATOR	1	CWA745300	←	O
24	INDICATOR HOLDER	1	CWD933021	←	
26	SENSOR COMPLETE	1	CWA50C2401	←	
33	DISCHARGE GRILLE COMPLETE	1	CWE20C3008	←	
34	VERTICAL VANE	15	CWE241289	←	
35	CONNECTING BAR	1	CWE261156	←	
36	CONNECTING BAR	1	CWE261158	←	
37	CONNECTING BAR	1	CWE261167	←	
38	CONNECTING BAR	1	CWE261159	←	
39	CONNECTING BAR	1	CWE261160	←	
40	A.S.MOTOR,DC SINGLE 12V 300OHM	1	CWA981241	←	O
43	HORIZONTAL VANE	1	CWE24C1295	←	
44	CAP - DRAIN TRAY	1	CWH521096	←	
45	CONTROL BOARD TOP COVER	1	CWH131350	←	
46	CONTROL BOARD FRONT COVER	1	CWH13C1183	←	
47	REMOTE CONTROL COMPLETE	1	CWA75C3623	←	O
48	FRONT GRILLE COMPLETE	1	CWE11C4720	←	O
49	INTAKE GRILLE COMPLETE	1	CWE22C1512	←	O
50	GRILLE DOOR	1	CWE14C1029	←	
51	AIR FILTER	2	CWD001283	←	
52	SCREW - FRONT GRILLE	4	XTT4+16CFJ	←	
53	CAP - FRONT GRILLE	3	CWH521194	←	
54	DRAIN HOSE	1	CWH851174	←	
55	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	
56	INSTALLATION PLATE	1	CWH361098	←	
57	FULCRUM	2	CWH621103	←	
60	OPERATING INSTRUCTION	1	CWF567134	←	
61	INSTALLATION INSTRUCTION	1	CWF613792	←	
62	INSTALLATION INSTRUCTION	1	CWF613686	←	

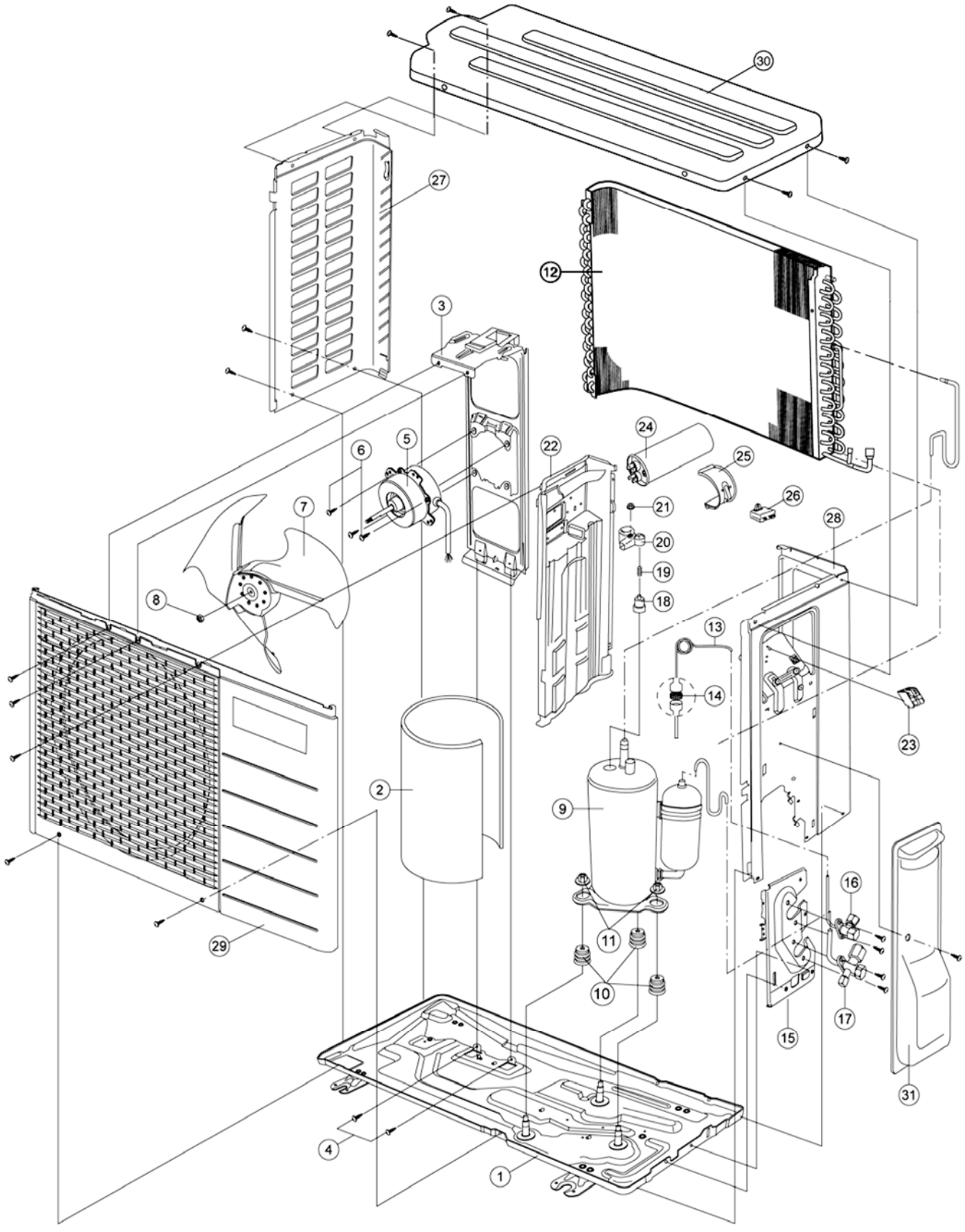
(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488).

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

18.2 Outdoor Unit

18.2.1 CU-PC9KKQ



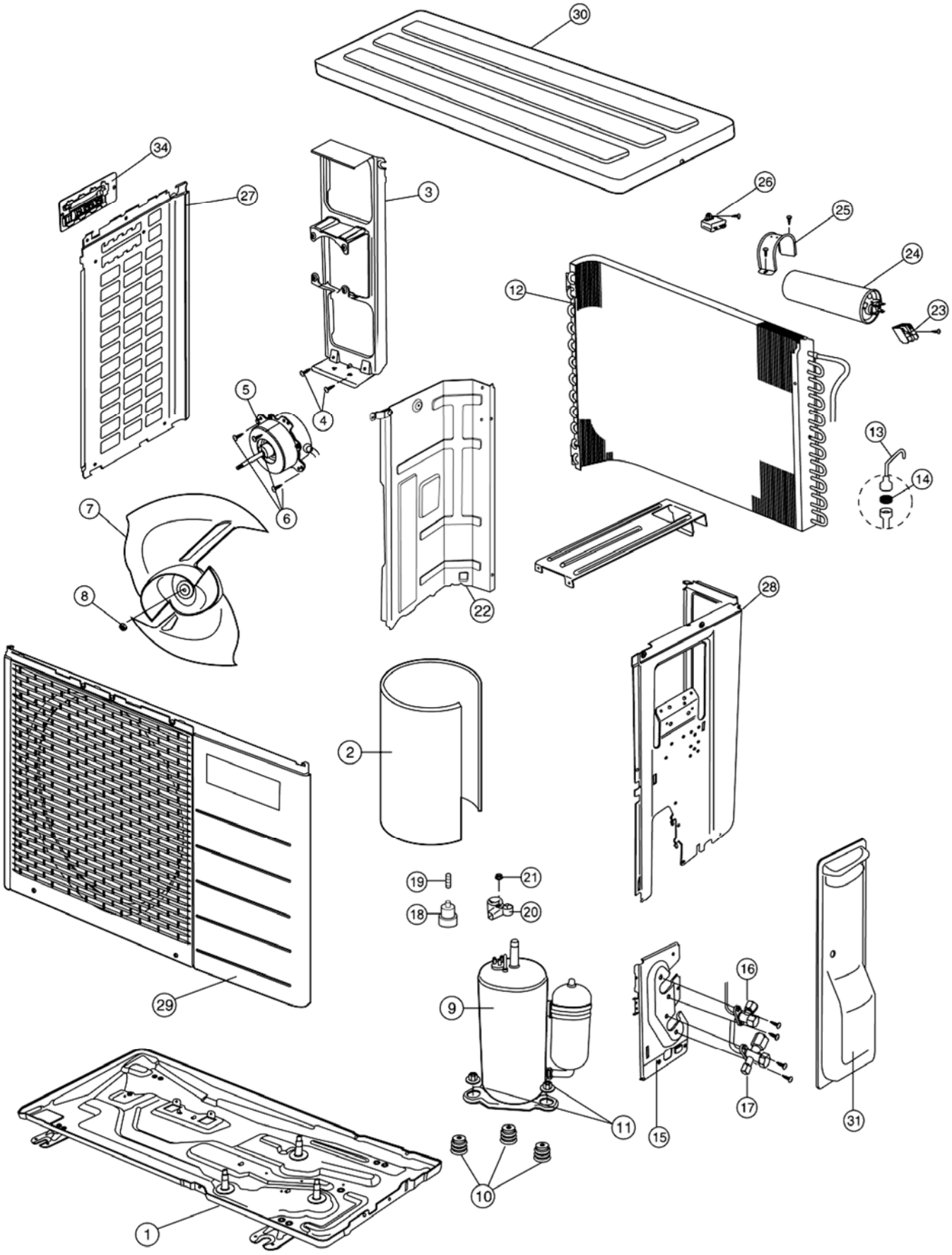
Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	CU-PC9KKQ	REMARK
			Philippines	
1	CHASSY ASS'Y	1	CWD50K2107	
2	SOUND PROOF MATERIAL	1	CWG302403	
3	FAN MOTOR BRACKET	1	CWD541075	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	
5	FAN MOTOR	1	CWA951562	O
6	SCREW - FAN MOTOR MOUNT	3	CWH55406J	
7	PROPELLER FAN ASS'Y	1	CWH03K1020	
8	NUT - PROPELLER FAN	1	CWH56053J	
9	COMPRESSOR (50HZ, 220/240V)	1	2R13C236BSC	O
10	ANTI - VIBRATION BUSHING	3	CWH50077	
11	NUT - COMPRESSOR MOUNT	3	CWH56000J	
12	CONDENSER	1	CWB32C2798	
13	CAPILLARY TUBE ASS'Y	1	CWB15K1271	
14	STRAINER	1	CWB11025	
15	HOLDER COUPLING	1	CWH351047	
16	2-WAY VALVE (LIQUID)	1	CWB021217	O
17	3-WAY VALVE (GAS)	1	CWB011257	O
18	OVERLOAD PROTECTOR WITH WIRE	1	CWA67C5701	
19	HOLDER - O.L.P.	1	CWH7041200	
20	TERMINAL COVER	1	CWH171011	
21	NUT - TERMINAL COVER	1	CWH7080300J	
22	SOUND PROOF BOARD	1	CWH151074	
23	TERMINAL BOARD ASS'Y	1	CWA28K1064J	O
24	CAPACITOR - COM.	1	DS371156CPNA	O
25	HOLDER CAPACITOR	1	CWH301038	
26	CAPACITOR - F.M	1	DS441205NPQA	O
27	CABINET SIDE PLATE	1	CWE041205A	
28	CABINET SIDE PLATE COMPLETE	1	CWE04C1079	
29	CABINET FRONT PLATE ASS'Y	1	CWE06K1048	
30	CABINET TOP PLATE	1	CWE031041A	
31	CONTROL BOARD COVER COMP	1	CWH13C1099	

(Note)

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

18.2.2 CU-PC12KKQ CU-PC18KKQ CU-PC18KKQ-6



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.

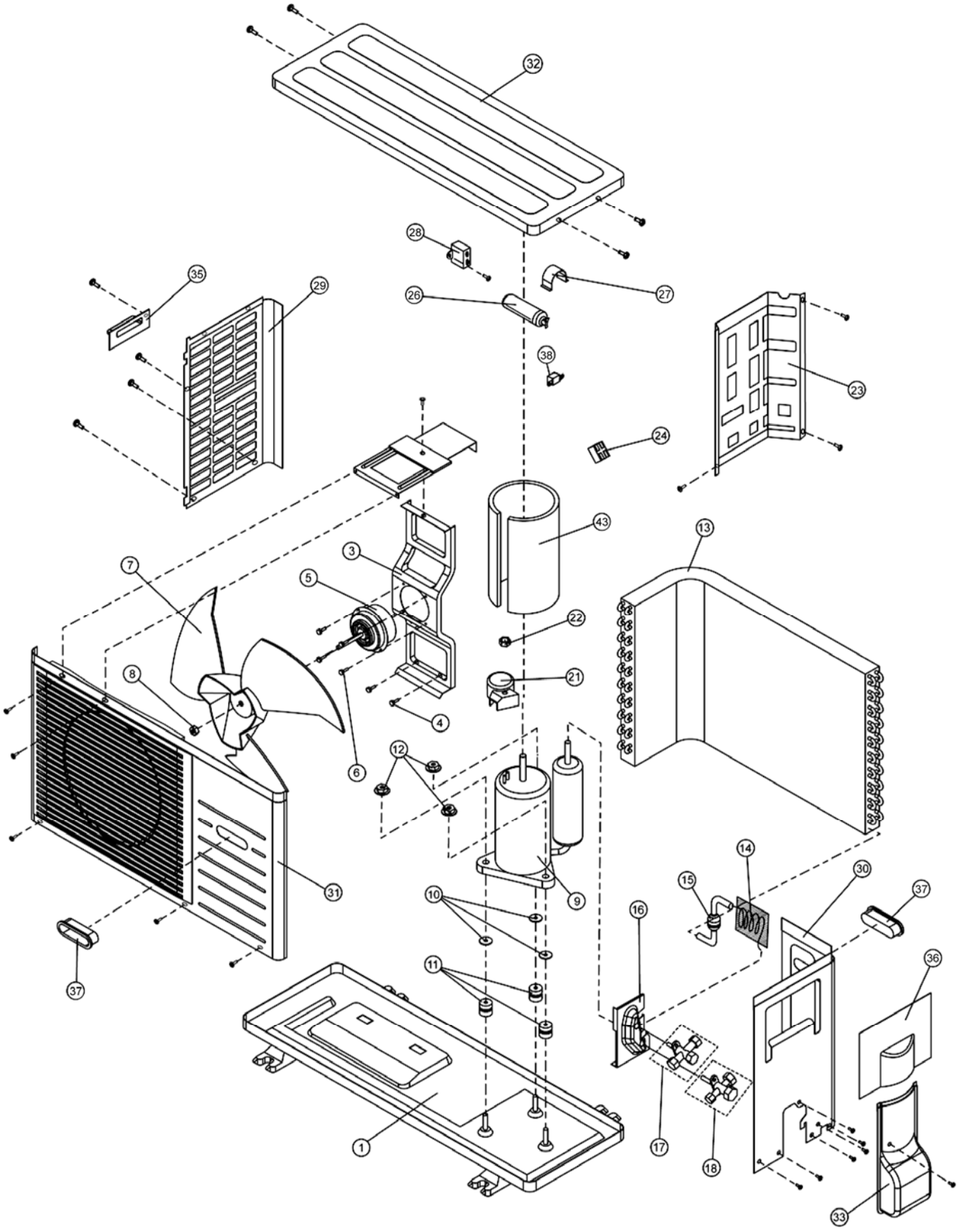
REF. NO.	PART NAME & DESCRIPTION	QTY	CU-PC12KKQ	CU-PC18KKQ	CU-PC18KKQ-6	REMARK
			Philippines		Mexico	
1	CHASSY ASS'Y	1	CWD50K2071	CWD50K2088	←	
2	SOUND PROOF MATERIAL	1	CWG302409	CWG302256	←	
3	FAN MOTOR BRACKET	1	CWD541030	←	←	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	←	←	
5	FAN MOTOR	1	CWA951329J	←	←	O
6	SCREW - FAN MOTOR MOUNT	3	CWH55406J	←	←	
7	PROPELLER FAN ASS'Y	1	CWH03K1006	←	←	
8	NUT - PROPELLER FAN	1	CWH56053J	←	←	
9	COMPRESSOR (50HZ, 220/240V)	1	2P19S236A1L	2KS252F5AB04	←	O
10	ANTI - VIBRATION BUSHING	3	CWH50077	CWH50055	←	
11	NUT - COMPRESSOR MOUNT	3	CWH56000J	CWH561049	←	
12	CONDENSER	1	CWB32C2797	CWB32C2794	←	
13	CAPILLARY TUBE ASS'Y	1	CWB15K1273	CWB15K1103	←	
14	STRAINER	1	CWB11025	CWB11004	←	
15	HOLDER COUPLING	1	CWH351023	CWH351046	←	
16	2-WAY VALVE (LIQUID)	1	CWB021362	CWB021242	←	O
17	3-WAY VALVE (GAS)	1	CWB011482	CWB011233	←	O
18	OVERLOAD PROTECTOR WITH WIRE	1	CWA67C7548	CWA67C7977	←	
19	HOLDER - O.L.P.	1	CW7041200	-	←	
20	TERMINAL COVER	1	CWH171011	←	←	
21	NUT - TERMINAL COVER	1	CWH7080300J	←	←	
22	SOUND PROOF BOARD	1	CWH151023	←	←	
23	TERMINAL BOARD ASS'Y	1	CWA28K1064J	←	←	O
24	CAPACITOR - COM.	1	CWA312076	CWA312078	←	O
25	HOLDER CAPACITOR	1	CWH30057	CWH30060	←	
26	CAPACITOR - F.M	1	DS441205NPQA	←	←	O
27	CABINET SIDE PLATE	1	CWE041031A	←	←	
28	CABINET SIDE PLATE COMPLETE	1	CWE04C1100	CWE04C1121	←	
29	CABINET FRONT PLATE ASS'Y	1	CWE06K1034	←	←	
30	CABINET TOP PLATE	1	CWE031014A	←	←	
31	CONTROL BOARD COVER COMP	1	CWH13C1064	←	←	
34	HANDLE	1	-	CWE161010	←	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488).

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

18.2.3 CU-PC24KKQ CU-PC24KKQ-6



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-PC24KKQ	CU-PC24KKQ-6	REMARK
			Philippines	Mexico	
1	CHASSY ASS'Y	1	CWD50K2100	←	
3	FAN MOTOR BRACKET	1	CWD541065	←	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	←	
5	FAN MOTOR	1	CWA951399J	←	O
6	SCREW - FAN MOTOR MOUNT	3	CWH55252J	←	
7	PROPELLER FAN ASS'Y	1	CWH03K1017	←	
8	NUT - PROPELLER FAN	1	CWH561038J	←	
9	COMPRESSOR	1	2J39S236A1A	←	O
10	PACKING	3	CWB81043	←	
11	ANTI - VIBRATION BUSHING	3	CWH50055	←	
12	NUT - COMPRESSOR MOUNT	3	CWH561049	←	
13	CONDENSER	1	CWB32C2692	←	
14	CAPILLARY TUBE ASS'Y	1	CWB15K1282	←	
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	CWH151051	←	
24	TERMINAL BOARD ASS'Y	1	CWA28K1064J	←	O
26	CAPACITOR - COM.	1	CWA312088	←	O
27	HOLDER CAPACITOR	1	CWH30071	←	
28	CAPACITOR - F.M	1	DS441355NPQA	←	O
29	CABINET SIDE PLATE	1	CWE041254A	←	
30	CABINET SIDE PLATE COMPLETE	1	CWE04C1101	←	
31	CABINET FRONT PLATE ASS'Y	1	CWE06K1043	←	
32	CABINET TOP PLATE	1	CWE03K1009A	←	
33	CONTROL BOARD COVER COMP	1	CWH131168	←	
35	HANDLE	1	CWE161010	←	
36	CONTROL BOARD COVER(RIGHT-TOP)	1	CWH131169A	←	
37	HANDLE	2	CWE16000E	←	
38	THERMOSTAT	1	CWA151061	←	
43	SOUND PROOF MATERIAL	1	CWG302407	←	

(Note)

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SSTK0912-00