Order No: PAPAMY1611008CE

Service Manual

Air Conditioner

Indoor Unit
CS-MPS9SKH
CS-MPS12SKH
CS-MPS15SKH
CS-MPS18SKH
CS-MPS24SKH
CS-MPS28SKH

Destination
Brunei
Cambodia
Indonesia
Myanmar
Thailand
Vietnam

Please file and use this manual together with the service manual for Model No. CU-2S18SKH CU-3S27SBH CU-3S28SBH CU-4S27SBH CU-4S34SBH, Order No. PAPAMY1611007CE.

⚠ 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.

IMPORTANT SAFETY NOTICE

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

⚠ PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigerant circuit.

Panasonic®

TABLE OF CONTENTS

PAGE

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 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 install with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case equipment breakdown or insulation breakdown.
10. 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 electric shock in case equipment breakdown or insulation breakdown. ⃠
15. Keep away from small children, the thin film may cling to nose and mouth and prevent breathing. ⃠
16. Do not 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. For R410A model, use piping, flare nut and tools which is specified for R410A refrigerant. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury. Thickness or copper pipes used with R410A must be more than 0.6 mm. Never use copper pipes thinner than 0.6 mm. It is desirable that the amount of residual oil less than 40 mg/10 m. ⃠
19. During installation, before run the compressor, confirm the refrigerant pipes are fixed. Operation of compressor without fixing the piping, setting the valves at open condition, a burst may occur and cause injury.

⚠ WARNING
20. During pump down operation, stop the compressor before remove the refrigerant 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.)
21. After completion of installation or service, confirm there is no leakage or refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.
22. Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when refrigerant contacts with fire.
23. Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
24. Must not use other parts except original parts describe in catalog and manual.
25. Using of refrigerant other than the specified type may cause product damage, burst and injury etc.

⚠ CAUTION
1. Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
2. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
3. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.
4. Do not touch outdoor unit air inlet and aluminium fin. It may cause injury.
5. Select an installation location which is easy for maintenance.
6. Pb free solder has a higher melting point than standard solder; typically the melting point is 50°F – 70°F (30°C – 40°C) higher. Please use a high temperature solder iron. In case of the soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C). Pb free solder will tend to splash when heated too high (about 1100°F / 600°C).
7. 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.
8. Installation or servicing work: It may need two people to carry out the installation or servicing work.
9. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
10. Do not sit or step on the unit, you may fall down accidentally.
11. Do not touch the sharp aluminum fins or edges of metal parts. If you are required to handle sharp parts during installation or servicing, please wear hand glove. Sharp parts may cause injury

2. Specification

Model		Indoor/Outdoor	CS-MPS9SKH / CU-2S18SKH			CS-MPS12SKH / CU-2S18SKH		
Performance Test Condition			JIS			JIS		
Power Supply		Phase, Hz	Single, 50			Single, 50		
		V	220		240	220		240
			Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity	kW	1.10	2.80	3.50	1.10	3.20	4.00
		BTU/h	3750	9550	11900	3750	10900	13600
		kJ/h	3960	10080	12600	3960	11520	14400
	Running Current	A	3.65		3.40	4.50		4.20
	Input Power	W	220	750	1.00k	220	920	1.22k
	EER	W/W	5.00	3.73	3.50	5.00	3.48	3.28
		kJ/hW	18.00	13.44	12.60	18.00	12.52	11.80
	Indoor Noise (H / L / QLo)	dB-A	40 / 29 / -			44 / 32 / -		
Indoor Fan	Type		Cross-flow fan			Cross-flow fan		
	Material		ASG20K1			ASG20K1		
	Motor Type		AC / Induction (4 poles)			AC / Induction (4 poles)		
	Input Power	W	51 - 58			51 - 58		
	Output Power	W	24			24		
	Speed Lo	rpm	680			720		
	Speed Me	rpm	840			890		
	Speed Hi	rpm	1000			1060		
Moisture Removal		L/h	1.6			1.8		
Indoor Airflow	Lo	m^3/min (ft^3/m)	6.90 (244)			6.95 (245)		
	Me	m^3/min (ft^3/m)	8.26 (292)			8.92 (315)		
	Hi	m^3/min (ft^3/m)	10.10 (355)			10.90 (385)		
Dimension	Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
	Width (I/D)	mm (inch)	870 (34-9/32)			870 (34-9/32)		
	Depth (I/D)	mm (inch)	214 (8-7/16)			214 (8-7/16)		
Weight	Net (I/D)	kg (lb)	9 (20)			9 (20)		
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose	Inner Diameter	mm	16.2			16.2		
	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 17			2 x 15 x 17		
	Size (W x H x L)	mm	610 x 315 x 25.4			610 x 315 x 25.4		
Air Filter	Material		Polypropelene			Polypropelene		
	Type		One-touch			One-touch		
Power Supply			Outdoor			Outdoor		
Power Supply Cord		A	-			-		
Thermostat			-			-		
Protection Device			-			-		
			DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range		Maximum °C	32		23	32		23
		Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS9SKH / CU-3S27SBH			CS-MPS12SKH / CU-3S27SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	2.80	3.40	1.70	3.20	4.00
			BTU/h	5800	9550	11600	5800	10900	13600
			kJ/h	6120	10080	12240	6120	11520	14400
	Running Current		A	3.80		3.50	4.30		3.90
	Input Power		W	380	700	890	380	800	1.20k
	EER		W/W	4.47	4.00	3.82	4.47	4.00	3.33
			kJ/hW	16.11	14.40	13.75	16.11	14.40	12.00
	Indoor Noise (H / L / QLo)		dB-A	40 / 29 / -			44 / 32 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG20K1		
	Motor Type			AC / Induction (4 poles)			AC / Induction (4 poles)		
	Input Power		W	51 - 58			51 - 58		
	Output Power		W	24			24		
	Speed	Lo	rpm	680			720		
		Me	rpm	840			890		
		Hi	rpm	1000			1060		
Moisture Removal			L/h	1.6			1.8		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.90 (244)			6.95 (245)		
		Me	m^3/min (ft^3/m)	8.26 (292)			8.92 (315)		
		Hi	m^3/min (ft^3/m)	10.10 (355)			10.90 (385)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			870 (34-9/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			214 (8-7/16)		
Weight		Net (I/D)	kg (lb)	9 (20)			9 (20)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			610 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS15SKH / CU-3S27SBH			CS-MPS18SKH / CU-3S27SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	4.00	4.80	1.90	5.00	5.80
			BTU/h	5800	13600	16400	6480	17100	19800
			kJ/h	6120	14400	17280	6840	18000	20880
	Running Current		A	6.10		5.60	7.40		6.80
	Input Power		W	380	1.18k	1.48k	400	1.46k	1.89k
	EER		W/W	4.47	3.39	3.24	4.75	3.42	3.07
			kJ/hW	16.11	12.20	11.68	17.10	12.33	11.05
	Indoor Noise (H / L / QLo)		dB-A	45 / 32 / -			47 / 38 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG30K1		
	Motor Type			AC / Induction (4 poles)			DC / Transistor (8 poles)		
	Input Power		W	51 - 58			94.8		
	Output Power		W	24			40		
	Speed	Lo	rpm	720			930		
		Me	rpm	900			1120		
		Hi	rpm	1090			1300		
Moisture Removal			L/h	2.3			2.7		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.92 (244)			11.23 (397)		
		Me	m^3/min (ft^3/m)	9.00 (318)			14.23 (503)		
		Hi	m^3/min (ft^3/m)	11.20 (395)			17.08 (603)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			1070 (42-5/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			240 (9-15/32)		
Weight		Net (I/D)	kg (lb)	9 (20)			12 (26)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			810 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS9SKH / CU-3S28SBH			CS-MPS12SKH / CU-3S28SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	2.80	3.40	1.70	3.20	4.00
			BTU/h	5800	9550	11600	5800	10900	13600
			kJ/h	6120	10080	12240	6120	11520	14400
	Running Current		A	3.70		3.40	4.20		3.90
	Input Power		W	380	700	890	380	800	1.20k
	EER		W/W	4.47	4.00	3.82	4.47	4.00	3.33
			kJ/hW	16.11	14.40	13.75	16.11	14.40	12.00
	Indoor Noise (H / L / QLo)		dB-A	40 / 29 / -			44 / 32 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG20K1		
	Motor Type			AC / Induction (4 poles)			AC / Induction (4 poles)		
	Input Power		W	51 - 58			51 - 58		
	Output Power		W	24			24		
	Speed	Lo	rpm	680			720		
		Me	rpm	840			890		
		Hi	rpm	1000			1060		
Moisture Removal			L/h	1.6			1.8		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.90 (244)			6.95 (245)		
		Me	m^3/min (ft^3/m)	8.26 (292)			8.92 (315)		
		Hi	m^3/min (ft^3/m)	10.10 (355)			10.90 (385)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			870 (34-9/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			214 (8-7/16)		
Weight		Net (I/D)	kg (lb)	9 (20)			9 (20)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			610 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS15SKH / CU-3S28SBH			CS-MPS18SKH / CU-3S28SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	4.00	4.80	1.90	5.00	5.80
			BTU/h	5800	13600	16400	6480	17100	19800
			kJ/h	6120	14400	17280	6840	18000	20880
	Running Current		A	6.00		5.50	7.30		6.70
	Input Power		W	380	1.18k	1.48k	400	1.46k	1.89k
	EER		W/W	4.47	3.39	3.24	4.75	3.42	3.07
			kJ/hW	16.11	12.20	11.68	17.10	12.33	11.05
	Indoor Noise (H / L / QLo)		dB-A	45 / 32 / -			47 / 38 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG30K1		
	Motor Type			AC / Induction (4 poles)			DC / Transistor (8 poles)		
	Input Power		W	51 – 58			94.8		
	Output Power		W	24			40		
	Speed	Lo	rpm	720			930		
		Me	rpm	900			1120		
		Hi	rpm	1090			1300		
Moisture Removal			L/h	2.3			2.7		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.92 (244)			11.23 (397)		
		Me	m^3/min (ft^3/m)	9.00 (318)			14.23 (503)		
		Hi	m^3/min (ft^3/m)	11.20 (395)			17.08 (603)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			1070 (42-5/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			240 (9-15/32)		
Weight		Net (I/D)	kg (lb)	9 (20)			12 (26)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			810 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS24SKH / CU-3S28SBH		
Performance Test Condition				JIS		
Power Supply			Phase, Hz	Single, 50		
			V	220		240
				Min.	Mid.	Max.
Cooling	Capacity		kW	1.90	6.00	6.20
			BTU/h	6480	20500	21100
			kJ/h	6840	21600	22320
	Running Current		A	9.30		8.60
	Input Power		W	400	1.92k	2.07k
	EER		W/W	4.75	3.13	3.00
			kJ/hW	17.10	11.25	10.78
	Indoor Noise (H / L / QLo)		dB-A	48 / 39 / -		
Indoor Fan	Type			Cross-flow fan		
	Material			ASG30K1		
	Motor Type			DC / Transistor (8 poles)		
	Input Power		W	94.8		
	Output Power		W	40		
	Speed	Lo	rpm	1000		
		Me	rpm	1200		
		Hi	rpm	1400		
Moisture Removal			L/h	3.3		
Indoor Airflow		Lo	m^3/min (ft^3/m)	12.23 (432)		
		Me	m^3/min (ft^3/m)	15.37 (543)		
		Hi	m^3/min (ft^3/m)	18.50 (655)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)		
		Width (I/D)	mm (inch)	1070 (42-5/32)		
		Depth (I/D)	mm (inch)	240 (9-15/32)		
Weight		Net (I/D)	kg (lb)	12 (26)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 12.70 (1/2)		
Drain Hose		Inner Diameter	mm	16.2		
		Length	mm	550		
Indoor Heat Exchanger		Fin Material		Aluminium (Pre coated)		
		Fin Type		Slit Fin		
		Row x Stage x FPI		2 x 15 x 21		
		Size (W x H x L)	mm	810 x 315 x 25.4		
Air Filter		Material		Polypropelene		
		Type		One-touch		
Power Supply				Outdoor		
Power Supply Cord			A	-		
Thermostat				-		
Protection Device				-		
				DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS9SKH / CU-4S27SBH			CS-MPS12SKH / CU-4S27SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	2.80	3.40	1.70	3.20	4.00
			BTU/h	5800	9550	11600	5800	10900	13600
			kJ/h	6120	10080	12240	6120	11520	14400
	Running Current		A	3.80		3.50	4.30		3.90
	Input Power		W	380	700	890	380	800	1.20k
	EER		W/W	4.47	4.00	3.82	4.47	4.00	3.33
			kJ/hW	16.11	14.40	13.75	16.11	14.40	12.00
	Indoor Noise (H / L / QLo)		dB-A	40 / 29 / -			44 / 32 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG20K1		
	Motor Type			AC / Induction (4 poles)			AC / Induction (4 poles)		
	Input Power		W	51 - 58			51 - 58		
	Output Power		W	24			24		
	Speed	Lo	rpm	680			720		
		Me	rpm	840			890		
		Hi	rpm	1000			1060		
Moisture Removal			L/h	1.6			1.8		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.90 (244)			6.95 (245)		
		Me	m^3/min (ft^3/m)	8.26 (292)			8.92 (315)		
		Hi	m^3/min (ft^3/m)	10.10 (355)			10.90 (385)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			870 (34-9/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			214 (8-7/16)		
Weight		Net (I/D)	kg (lb)	9 (20)			9 (20)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			610 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS15SKH / CU-4S27SBH			CS-MPS18SKH / CU-4S27SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	4.00	4.80	1.90	5.00	5.80
			BTU/h	5800	13600	16400	6480	17100	19800
			kJ/h	6120	14400	17280	6840	18000	20880
	Running Current		A	6.10		5.60	7.40		6.80
	Input Power		W	380	1.18k	1.48k	400	1.46k	1.89k
	EER		W/W	4.47	3.39	3.24	4.75	3.42	3.07
			kJ/hW	16.11	12.20	11.68	17.10	12.33	11.05
	Indoor Noise (H / L / QLo)		dB-A	45 / 32 / -			47 / 38 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG30K1		
	Motor Type			AC / Induction (4 poles)			DC / Transistor (8 poles)		
	Input Power		W	51 – 58			94.8		
	Output Power		W	24			40		
	Speed	Lo	rpm	720			930		
		Me	rpm	900			1120		
		Hi	rpm	1090			1300		
Moisture Removal			L/h	2.3			2.7		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.92 (244)			11.23 (397)		
		Me	m^3/min (ft^3/m)	9.00 (318)			14.23 (503)		
		Hi	m^3/min (ft^3/m)	11.20 (395)			17.08 (603)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			1070 (42-5/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			240 (9-15/32)		
Weight		Net (I/D)	kg (lb)	9 (20)			12 (26)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			810 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS9SKH / CU-34S34SBH			CS-MPS12SKH / CU-4S34SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	2.80	3.40	1.70	3.20	4.00
			BTU/h	5800	9550	11600	5800	10900	13600
			kJ/h	6120	10080	12240	6120	11520	14400
	Running Current		A	3.60		3.30	4.10		3.80
	Input Power		W	380	700	890	380	800	1.20k
	EER		W/W	4.47	4.00	3.82	4.47	4.00	3.33
			kJ/hW	16.11	14.40	13.75	16.11	14.40	12.00
	Indoor Noise (H / L / QLo)		dB-A	40 / 29 / -			44 / 32 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG20K1		
	Motor Type			AC / Induction (4 poles)			AC / Induction (4 poles)		
	Input Power		W	51 - 58			51 - 58		
	Output Power		W	24			24		
	Speed	Lo	rpm	680			720		
		Me	rpm	840			890		
		Hi	rpm	1000			1060		
Moisture Removal			L/h	1.6			1.8		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.90 (244)			6.95 (245)		
		Me	m^3/min (ft^3/m)	8.26 (292)			8.92 (315)		
		Hi	m^3/min (ft^3/m)	10.10 (355)			10.90 (385)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			870 (34-9/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			214 (8-7/16)		
Weight		Net (I/D)	kg (lb)	9 (20)			9 (20)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			610 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS15SKH / CU-4S34SBH			CS-MPS18SKH / CU-4S34SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.70	4.00	4.80	1.90	5.00	5.80
			BTU/h	5800	13600	16400	6480	17100	19800
			kJ/h	6120	14400	17280	6840	18000	20880
	Running Current		A	6.00		5.50	7.50		6.90
	Input Power		W	380	1.24k	1.48k	400	1.55k	1.89k
	EER		W/W	4.47	3.23	3.24	4.75	3.23	3.07
			kJ/hW	16.11	11.61	11.68	17.10	11.61	11.05
	Indoor Noise (H / L / QLo)		dB-A	45 / 32 / -			47 / 38 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG20K1			ASG30K1		
	Motor Type			AC / Induction (4 poles)			DC / Transistor (8 poles)		
	Input Power		W	51 - 58			94.8		
	Output Power		W	24			40		
	Speed	Lo	rpm	720			930		
		Me	rpm	900			1120		
		Hi	rpm	1090			1300		
Moisture Removal			L/h	2.3			2.7		
Indoor Airflow		Lo	m^3/min (ft^3/m)	6.92 (244)			11.23 (397)		
		Me	m^3/min (ft^3/m)	9.00 (318)			14.23 (503)		
		Hi	m^3/min (ft^3/m)	11.20 (395)			17.08 (603)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	870 (34-9/32)			1070 (42-5/32)		
		Depth (I/D)	mm (inch)	214 (8-7/16)			240 (9-15/32)		
Weight		Net (I/D)	kg (lb)	9 (20)			12 (26)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)			6.35 (1/4) / 9.52 (3/8)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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 17			2 x 15 x 17		
		Size (W x H x L)	mm	610 x 315 x 25.4			810 x 315 x 25.4		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

Model			Indoor/Outdoor	CS-MPS24SKH / CU-4S34SBH			CS-MPS28SKH / CU-4S34SBH		
Performance Test Condition				JIS			JIS		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	220		240	220		240
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	1.90	6.00	6.20	2.00	7.00	7.20
			BTU/h	6480	20500	21100	6820	23900	24600
			kJ/h	6840	21600	22320	7200	25200	25920
	Running Current		A	9.60		8.80	11.80		10.80
	Input Power		W	400	2.03k	2.07k	400	2.49k	2.77k
	EER		W/W	4.75	2.96	3.00	5.00	2.81	2.60
			kJ/hW	17.10	10.64	10.78	18.00	10.12	9.36
	Indoor Noise (H / L / QLo)		dB-A	48 / 39 / -			48 / 39 / -		
Indoor Fan	Type			Cross-flow fan			Cross-flow fan		
	Material			ASG30K1			ASG30K1		
	Motor Type			DC / Transistor (8 poles)			DC / Transistor (8 poles)		
	Input Power		W	94.8			94.8		
	Output Power		W	40			40		
	Speed	Lo	rpm	1000			1000		
		Me	rpm	1200			1250		
		Hi	rpm	1400			1500		
Moisture Removal			L/h	3.3			3.9		
Indoor Airflow		Lo	m^3/min (ft^3/m)	12.23 (432)			12.23 (432)		
		Me	m^3/min (ft^3/m)	15.37 (543)			16.15 (570)		
		Hi	m^3/min (ft^3/m)	18.50 (655)			20.07 (709)		
Dimension		Height (I/D)	mm (inch)	290 (11-7/16)			290 (11-7/16)		
		Width (I/D)	mm (inch)	1070 (42-5/32)			1070 (42-5/32)		
		Depth (I/D)	mm (inch)	240 (9-15/32)			240 (9-15/32)		
Weight		Net (I/D)	kg (lb)	12 (26)			12 (26)		
Piping		Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 12.70 (1/2)			6.35 (1/4) / 12.70 (1/2)		
Drain Hose		Inner Diameter	mm	16.2			16.2		
		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		
Air Filter		Material		Polypropelene			Polypropelene		
		Type		One-touch			One-touch		
Power Supply				Outdoor			Outdoor		
Power Supply Cord			A	-			-		
Thermostat				-			-		
Protection Device				-			-		
				DRY BULB		WET BULB	DRY BULB		WET BULB
Indoor Operation Range			Maximum °C	32		23	32		23
			Minimum °C	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°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 subject to change without notice for further improvement.

- **Multi split combination possibility:**
  - A single outdoor unit enables air conditioning of up to two separate rooms for CU-2S18SKH.
  - A single outdoor unit enables air conditioning of up to three separate rooms for CU-3S27SBH, CU-3S28SBH.
  - A single outdoor unit enables air conditioning of up to four separate rooms for CU-4S27SBH, CU-4S34SBH.

			Outdoor Unit															
			CU-2S18SKH		CU-3S27SBH			CU-3S28SBH			CU-4S27SBH				CU-4S34SBH			
			A	B	A	B	C	A	B	C	A	B	C	D	A	B	C	D
Wall	2.8 kW	MPS9SKH	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	3.2 kW	MPS12SKH	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	4.0 kW	MPS15SKH	-	-	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	5.0 kW	MPS18SKH	-	-	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	6.0 kW	MPS24SKH	-	-	-	-	-	●	●	●	-	-	-	-	●	●	●	●
	7.0 kW	MPS28SKH	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●	●
Capacity range of connectable indoor units			From 5.6 kW to 6.4 kW		From 5.6 kW to 13.2 kW			From 5.6 kW to 13.2 kW			From 5.6 kW to 13.4 kW				From 5.6 kW to 17.4 kW			
Piping Length	1 room maximum pipe length (m)		20		25			25			25				25			
	Allowable elevation (m)		10		15			15			15				15			
	Total allowable pipe length (m)		30		60			60			60				70			
	Total pipe length for maximum chargeless length (m)		20		30			30			35				45			
	Additional gas amount over chargeless length (g/m)		15		20			20			20				20			
			Note: "●" : Available															

- **Indoor Unit: CS-MPS9/12SKH**
- **Outdoor Unit: CU-2S18SKH**

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (kW)		Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max		
2 Room	2.8 + 2.8	4.80	1.50 ~ 5.80	1.34	0.25 ~ 1.72	6.50 / 6.05	1.5 + 1.5
	2.8 + 3.2	5.00	1.50 ~ 5.90	1.52	0.25 ~ 1.74	7.40 / 6.90	1.5 + 1.6
	3.2 + 3.2	5.00	1.50 ~ 6.00	1.43	0.25 ~ 1.78	6.75 / 6.25	1.5 + 1.5

- **Indoor Unit: CS-MPS9/12/15/18SKH**
- **Outdoor Unit: CU-3S27SBH**

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max		
2 Room	2.8 + 2.8	5.60	1.7 ~ 6.4	1750	420~ 2600	8.7 / 8.0	1.6 + 1.6
	2.8 + 3.2	6.00	1.7 ~ 6.5	2010	420 ~ 2600	10.0 / 9.2	1.6 + 1.8
	2.8 + 4.0	6.80	2.5 ~ 7.3	2420	550 ~ 3330	12.0 / 11.0	1.6 + 2.3
	2.8 + 5.0	7.50	2.7 ~ 7.7	2810	530 ~ 3310	13.9 / 12.7	1.6 + 2.6
	3.2 + 3.2	6.40	2.3 ~ 7.1	2290	570 ~ 3350	11.3 / 10.4	1.8 + 1.8
	3.2 + 4.0	7.20	2.5 ~ 7.4	2770	550 ~ 3330	13.7 / 12.5	1.8 + 2.3
	3.2 + 5.0	7.50	2.8 ~ 7.7	2760	530 ~ 3310	13.6 / 12.5	1.7 + 2.5
	4.0 + 4.0	7.50	2.7 ~ 7.6	2870	540 ~ 3310	14.2 / 13.0	2.2 + 2.2
	4.0 + 5.0	7.50	2.8 ~ 7.8	2600	530 ~ 3300	12.8 / 11.8	1.9 + 2.4
	5.0 + 5.0	7.50	2.9 ~ 8.0	2440	520 ~ 3300	12.1 / 11.1	2.2 + 2.2

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max		
3 Room	2.8 + 2.8 + 2.8	7.50	2.4 ~ 7.6	2740	580 ~ 3170	13.5 / 12.4	1.5 + 1.5 + 1.5
	2.8 + 2.8 + 3.2	7.50	2.4 ~ 7.7	2690	580 ~ 3170	13.3 / 12.2	1.5 + 1.5 + 1.6
	2.8 + 2.8 + 4.0	7.50	2.6 ~ 8.0	2490	600 ~ 3260	12.3 / 11.3	1.4 + 1.4 + 1.8
	2.8 + 2.8 + 5.0	7.50	2.8 ~ 8.0	2250	600 ~ 2910	11.1 / 10.2	1.3 + 1.3 + 2.0
	2.8 + 3.2 + 3.2	7.50	2.4 ~ 7.7	2690	580 ~ 3180	13.3 / 12.2	1.5 + 1.6 + 1.6
	2.8 + 3.2 + 4.0	7.50	2.6 ~ 8.0	2450	600 ~ 3200	12.1 / 11.1	1.4 + 1.5 + 1.7
	2.8 + 3.2 + 5.0	7.50	2.8 ~ 8.0	2250	600 ~ 2910	11.1 / 10.2	1.2 + 1.4 + 2.0
	2.8 + 4.0 + 4.0	7.50	2.7 ~ 8.0	2290	600 ~ 3020	11.3 / 10.4	1.3 + 1.6 + 1.6
	2.8 + 4.0 + 5.0	7.50	2.8 ~ 8.0	2170	580 ~ 2760	10.7 / 9.8	1.1 + 1.6 + 1.8
	2.8 + 5.0 + 5.0	7.50	2.8 ~ 8.0	2070	520 ~ 2650	10.2 / 9.4	1.0 + 1.7 + 1.7
	3.2 + 3.2 + 3.2	7.50	2.4 ~ 7.7	2650	590 ~ 3190	13.1 / 12.0	1.5 + 1.5 + 1.5
	3.2 + 3.2 + 4.0	7.50	2.6 ~ 8.0	2450	600 ~ 3210	12.1 / 11.1	1.5 + 1.5 + 1.7
	3.2 + 3.2 + 5.0	7.50	2.8 ~ 8.0	2250	600 ~ 2920	11.1 / 10.2	1.4 + 1.4 + 1.9
	3.2 + 4.0 + 4.0	7.50	2.8 ~ 8.0	2290	600 ~ 2960	11.3 / 10.4	1.4 + 1.6 + 1.6
	3.2 + 4.0 + 5.0	7.50	2.8 ~ 8.0	2170	580 ~ 2760	10.7 / 9.8	1.3 + 1.5 + 1.7
	3.2 + 5.0 + 5.0	7.50	2.8 ~ 8.0	2060	520 ~ 2650	10.2 / 9.4	1.2 + 1.7 + 1.7
	4.0 + 4.0 + 4.0	7.50	2.8 ~ 8.0	2170	590 ~ 2820	10.7 / 9.8	1.5 + 1.5 + 1.5
	4.0 + 4.0 + 5.0	7.50	2.8 ~ 8.0	2070	540 ~ 2650	10.2 / 9.4	1.5 + 1.5 + 1.7

- **Indoor Unit: CS-MPS9/12/15/18/24SKH**
- **Outdoor Unit: CU-3S28SBH**

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max		
1 Room	2.8	2.80	1.7 ~ 3.4	700	380 ~ 890	3.7 / 3.4	1.6
	3.2	3.20	1.7 ~ 4.0	800	380 ~ 1200	4.2 / 3.9	1.8
	4.0	4.00	1.7 ~ 4.8	1180	380 ~ 1480	6.0 / 5.5	2.3
	5.0	5.00	1.9 ~ 5.8	1460	400 ~ 1890	7.3 / 6.7	2.7
	6.0	6.00	1.9 ~ 6.2	1920	400 ~ 2070	9.3 / 8.6	3.3
2 Room	2.8 + 2.8	5.60	1.7 ~ 6.7	1750	420~ 2340	8.6 / 7.9	1.6 + 1.6
	2.8 + 3.2	6.00	1.7 ~ 6.7	2010	420~ 2340	9.8 / 9.0	1.6 + 1.8
	2.8 + 4.0	6.80	2.5 ~ 7.6	2420	550 ~ 2990	11.8 / 10.8	1.6 + 2.3
	2.8 + 5.0	7.50	2.7 ~ 8.0	2810	530 ~ 2980	13.7 / 12.6	1.6 + 2.6
	2.8 + 6.0	7.50	2.7 ~ 8.0	2810	530 ~ 2980	13.7 / 12.6	1.5 + 2.8
	3.2 + 3.2	6.40	2.3 ~ 7.4	2290	570 ~ 3010	11.2 / 10.3	1.8 + 1.8
	3.2 + 4.0	7.20	2.5 ~ 7.7	2770	550 ~ 2990	13.5 / 12.4	1.8 + 2.3
	3.2 + 5.0	7.50	2.8 ~ 8.0	2760	530 ~ 2970	13.5 / 12.4	1.7 + 2.5
	3.2 + 6.0	7.50	2.8 ~ 8.0	2760	530 ~ 2970	13.5 / 12.4	1.6 + 2.7
	4.0 + 4.0	7.50	2.7 ~ 7.9	2870	540 ~ 2980	14.0 / 12.9	2.2 + 2.2
	4.0 + 5.0	7.50	2.8 ~ 8.1	2600	530 ~ 2970	12.7 / 11.6	1.9 + 2.4
	4.0 + 6.0	7.50	2.8 ~ 8.1	2600	530 ~ 2970	12.7 / 11.6	1.7 + 2.5
	5.0 + 5.0	7.50	2.9 ~ 8.3	2440	520 ~ 2970	11.9 / 10.9	2.2 + 2.2
	5.0 + 6.0	7.50	2.9 ~ 8.3	2440	520 ~ 2970	11.9 / 10.9	2.0 + 2.3
	6.0 + 6.0	7.50	2.9 ~ 8.3	2440	520 ~ 2970	11.9 / 10.9	2.2 + 2.2

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max		
3 Room	2.8 + 2.8 + 2.8	7.50	2.4 ~ 7.9	2740	580 ~ 2840	13.4 / 12.3	1.5 + 1.5 + 1.5
	2.8 + 2.8 + 3.2	7.50	2.4 ~ 8.0	2690	580 ~ 2850	13.1 / 12.1	1.5 + 1.5 + 1.6
	2.8 + 2.8 + 4.0	7.50	2.6 ~ 8.4	2490	600 ~ 2930	12.2 / 11.2	1.4 + 1.4 + 1.8
	2.8 + 2.8 + 5.0	7.50	2.8 ~ 8.8	2250	600 ~ 3010	11.0 / 10.1	1.3 + 1.3 + 2.0
	2.8 + 2.8 + 6.0	7.50	2.8 ~ 8.8	2250	600 ~ 3010	11.0 / 10.1	1.2 + 1.2 + 2.3
	2.8 + 3.2 + 3.2	7.50	2.4 ~ 8.0	2690	580 ~ 2860	13.1 / 12.1	1.5 + 1.6 + 1.6
	2.8 + 3.2 + 4.0	7.50	2.6 ~ 8.4	2450	600 ~ 2930	12.0 / 11.0	1.4 + 1.5 + 1.7
	2.8 + 3.2 + 5.0	7.50	2.8 ~ 8.8	2250	600 ~ 3020	11.0 / 10.1	1.2 + 1.4 + 2.0
	2.8 + 3.2 + 6.0	7.50	2.8 ~ 8.8	2250	600 ~ 3020	11.0 / 10.1	1.1 + 1.3 + 2.2
	2.8 + 4.0 + 4.0	7.50	2.7 ~ 8.7	2290	600 ~ 3000	11.2 / 10.3	1.3 + 1.6 + 1.6
	2.8 + 4.0 + 5.0	7.50	2.8 ~ 9.0	2170	580 ~ 3050	10.6 / 9.7	1.1 + 1.6 + 1.8
	2.8 + 4.0 + 6.0	7.50	2.8 ~ 9.0	2170	580 ~ 3050	10.6 / 9.7	1.0 + 1.5 + 2.0
	2.8 + 5.0 + 5.0	7.50	2.8 ~ 9.0	2070	520 ~ 2830	10.1 / 9.3	1.0 + 1.7 + 1.7
	3.2 + 3.2 + 3.2	7.50	2.4 ~ 8.0	2650	590 ~ 2860	13.0 / 11.9	1.5 + 1.5 + 1.5
	3.2 + 3.2 + 4.0	7.50	2.6 ~ 8.4	2450	600 ~ 2940	12.0 / 11.0	1.5 + 1.5 + 1.7
	3.2 + 3.2 + 5.0	7.50	2.8 ~ 8.8	2250	600 ~ 3020	11.0 / 10.1	1.4 + 1.4 + 1.9
	3.2 + 3.2 + 6.0	7.50	2.8 ~ 8.8	2250	600 ~ 3020	11.0 / 10.1	1.3 + 1.3 + 2.1
	3.2 + 4.0 + 4.0	7.50	2.8 ~ 8.7	2290	600 ~ 3000	11.2 / 10.3	1.4 + 1.6 + 1.6
	3.2 + 4.0 + 5.0	7.50	2.8 ~ 9.0	2170	580 ~ 3060	10.6 / 9.7	1.3 + 1.5 + 1.7
	3.2 + 4.0 + 6.0	7.50	2.8 ~ 9.0	2170	580 ~ 3060	10.6 / 9.7	1.2 + 1.5 + 2.0
	3.2 + 5.0 + 5.0	7.50	2.8 ~ 9.0	2060	520 ~ 2830	10.1 / 9.2	1.2 + 1.7 + 1.7
	4.0 + 4.0 + 4.0	7.50	2.8 ~ 9.0	2170	590 ~ 3040	10.6 / 9.7	1.5 + 1.5 + 1.5
	4.0 + 4.0 + 5.0	7.50	2.8 ~ 9.0	2070	540 ~ 2830	10.1 / 9.3	1.5 + 1.5 + 1.7

- **Indoor Unit: CS-MPS9/12/15/18SKH**
- **Outdoor Unit: CU-4S27SBH**

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max		
2 Room	2.8 + 2.8	5.60	1.7 ~ 6.4	1750	420 ~ 2600	8.7 / 8.0	1.6 + 1.6
	2.8 + 3.2	6.00	1.7 ~ 6.5	2010	420 ~ 2600	10.0 / 9.2	1.6 + 1.8
	2.8 + 4.0	6.80	2.5 ~ 7.3	2420	550 ~ 3330	12.0 / 11.0	1.6 + 2.3
	2.8 + 5.0	7.50	2.7 ~ 7.7	2810	530 ~ 3310	13.9 / 12.7	1.6 + 2.6
	3.2 + 3.2	6.40	2.3 ~ 7.1	2290	570 ~ 3350	11.3 / 10.4	1.8 + 1.8
	3.2 + 4.0	7.20	2.5 ~ 7.4	2770	550 ~ 3330	13.7 / 12.5	1.8 + 2.3
	3.2 + 5.0	7.50	2.8 ~ 7.7	2760	530 ~ 3310	13.6 / 12.5	1.7 + 2.5
	4.0 + 4.0	7.50	2.7 ~ 7.6	2870	540 ~ 3310	14.2 / 13.0	2.2 + 2.2
	4.0 + 5.0	7.50	2.8 ~ 7.8	2600	530 ~ 3300	12.8 / 11.8	1.9 + 2.4
	5.0 + 5.0	7.50	2.9 ~ 8.0	2440	520 ~ 3300	12.1 / 11.1	2.2 + 2.2
3 Room	2.8 + 2.8 + 2.8	7.50	2.4 ~ 7.6	2740	580 ~ 3170	13.5 / 12.4	1.5 + 1.5 + 1.5
	2.8 + 2.8 + 3.2	7.50	2.4 ~ 7.7	2690	580 ~ 3170	13.3 / 12.2	1.5 + 1.5 + 1.6
	2.8 + 2.8 + 4.0	7.50	2.6 ~ 8.0	2490	600 ~ 3260	12.3 / 11.3	1.4 + 1.4 + 1.8
	2.8 + 2.8 + 5.0	7.50	2.8 ~ 8.0	2250	600 ~ 2910	11.1 / 10.2	1.3 + 1.3 + 2.0
	2.8 + 3.2 + 3.2	7.50	2.4 ~ 7.7	2690	580 ~ 3180	13.2 / 12.2	1.5 + 1.6 + 1.6
	2.8 + 3.2 + 4.0	7.50	2.6 ~ 8.0	2450	600 ~ 3200	12.1 / 11.1	1.4 + 1.5 + 1.7
	2.8 + 3.2 + 5.0	7.50	2.8 ~ 8.0	2250	600 ~ 2910	11.1 / 10.2	1.2 + 1.4 + 2.0
	2.8 + 4.0 + 4.0	7.50	2.7 ~ 8.0	2290	600 ~ 3020	11.3 / 10.4	1.3 + 1.6 + 1.6
	2.8 + 4.0 + 5.0	7.50	2.8 ~ 8.0	2170	580 ~ 2760	10.7 / 9.8	1.1 + 1.6 + 1.8
	2.8 + 5.0 + 5.0	7.50	2.8 ~ 8.0	2070	520 ~ 2650	10.2 / 9.4	1.0 + 1.7 + 1.7
	3.2 + 3.2 + 3.2	7.50	2.4 ~ 7.7	2650	590 ~ 3190	13.1 / 12.0	1.5 + 1.5 + 1.5
	3.2 + 3.2 + 4.0	7.50	2.6 ~ 8.0	2450	600 ~ 3210	12.1 / 11.1	1.5 + 1.5 + 1.7
	3.2 + 3.2 + 5.0	7.50	2.8 ~ 8.0	2250	600 ~ 2920	11.1 / 10.2	1.4 + 1.4 + 1.9
	3.2 + 4.0 + 4.0	7.50	2.8 ~ 8.0	2290	600 ~ 2960	11.3 / 10.4	1.4 + 1.6 + 1.6
	3.2 + 4.0 + 5.0	7.50	2.8 ~ 8.0	2170	580 ~ 2760	10.7 / 9.8	1.3 + 1.5 + 1.7
	3.2 + 5.0 + 5.0	7.50	2.8 ~ 8.0	2060	520 ~ 2650	10.2 / 9.4	1.2 + 1.7 + 1.7
	4.0 + 4.0 + 4.0	7.50	2.8 ~ 8.0	2170	590 ~ 2820	10.7 / 9.8	1.5 + 1.5 + 1.5
	4.0 + 4.0 + 5.0	7.50	2.8 ~ 8.0	2070	540 ~ 2650	10.2 / 9.4	1.5 + 1.5 + 1.7

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max		
4 Room	2.8 + 2.8 + 2.8 + 2.8	7.50	2.8 ~ 8.0	2060	520 ~ 2650	10.2 / 9.4	1.2 + 1.2 + 1.2 + 1.2
	2.8 + 2.8 + 2.8 + 3.2	7.50	2.8 ~ 8.0	2060	520 ~ 2650	10.2 / 9.4	1.2 + 1.2 + 1.2 + 1.3
	2.8 + 2.8 + 2.8 + 4.0	7.50	2.8 ~ 8.0	2060	520 ~ 2590	10.2 / 9.4	1.1 + 1.1 + 1.1 + 1.5
	2.8 + 2.8 + 2.8 + 5.0	7.50	2.8 ~ 8.0	2060	520 ~ 2530	10.2 / 9.4	1.0 + 1.0 + 1.0 + 1.6
	2.8 + 2.8 + 3.2 + 3.2	7.50	2.8 ~ 8.0	2060	520 ~ 2650	10.2 / 9.4	1.1 + 1.1 + 1.3 + 1.3
	2.8 + 2.8 + 3.2 + 4.0	7.50	2.8 ~ 8.0	2060	520 ~ 2590	10.2 / 9.4	1.0 + 1.0 + 1.2 + 1.5
	2.8 + 3.2 + 3.2 + 3.2	7.50	2.8 ~ 8.0	2060	520 ~ 2650	10.2 / 9.4	1.0 + 1.3 + 1.3 + 1.3
	2.8 + 3.2 + 3.2 + 4.0	7.50	2.8 ~ 8.0	2060	520 ~ 2590	10.2 / 9.4	1.0 + 1.2 + 1.2 + 1.5
	3.2 + 3.2 + 3.2 + 3.2	7.50	2.8 ~ 8.0	2060	520 ~ 2590	10.2 / 9.4	1.2 + 1.2 + 1.2 + 1.2

- **Indoor Unit: CS-MPS9/12/15/18/24/28SKH**
- **Outdoor Unit: CU-4S34SBH**

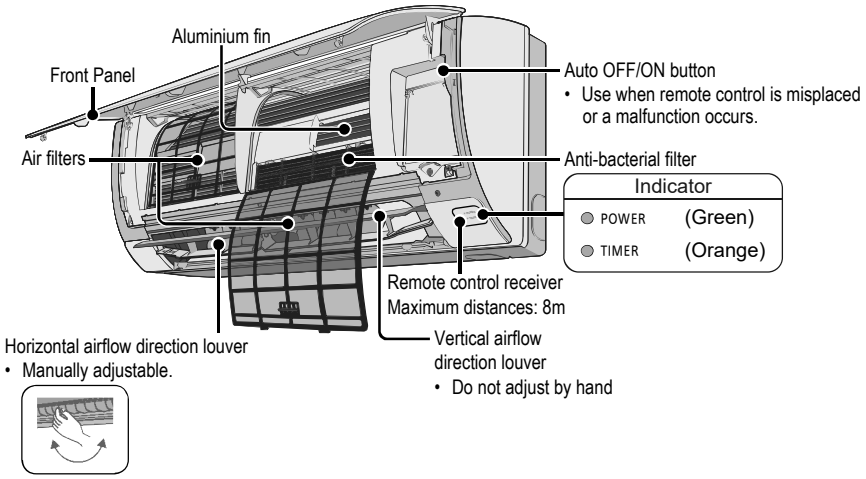
Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		EER		ANNUAL ENERGY CONSUMPTION (kWh)	Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max	W/W	CLASS			
2 Room	2.8 + 2.8	5.60	2.4 ~ 5.8	1740	300 ~ 1860	3.22	A	870	8.5 / 7.8	1.6 + 1.6
	2.8 + 3.2	6.00	2.4 ~ 6.7	1920	300 ~ 2360	3.13	B	960	9.3 / 8.5	1.6 + 1.8
	2.8 + 4.0	6.80	2.4 ~ 7.2	2420	300 ~ 2760	2.81	C	1210	11.7 / 10.7	1.6 + 2.3
	2.8 + 5.0	7.80	2.4 ~ 8.6	2680	280 ~ 3330	2.91	C	1340	12.9 / 11.8	1.6 + 2.7
	2.8 + 6.0	8.80	2.5 ~ 9.1	3450	310 ~ 3640	2.55	E	1725	16.6 / 15.2	1.6 + 3.3
	2.8 + 7.0	9.80	2.5 ~ 10.1	4140	310 ~ 4620	2.37	F	2070	20.0 / 18.3	1.6 + 4.0
	3.2 + 3.2	6.40	2.4 ~ 7.2	2100	290 ~ 2620	3.05	B	1050	10.1 / 9.3	1.8 + 1.8
	3.2 + 4.0	7.20	2.4 ~ 8.1	2620	290 ~ 3390	2.75	D	1310	12.6 / 11.6	1.8 + 2.3
	3.2 + 5.0	8.20	2.5 ~ 9.1	2890	310 ~ 3490	2.84	C	1445	13.9 / 12.8	1.8 + 2.7
	3.2 + 6.0	9.20	2.5 ~ 10.0	3570	310 ~ 4460	2.58	E	1785	17.2 / 15.8	1.8 + 3.3
	3.2 + 7.0	10.00	2.5 ~ 10.4	4220	310 ~ 4800	2.37	F	2110	20.3 / 18.6	1.8 + 3.9
	4.0 + 4.0	8.00	2.5 ~ 8.6	3240	320 ~ 3930	2.47	E	1620	15.6 / 14.3	2.3 + 2.3
	4.0 + 5.0	9.00	2.5 ~ 10.0	3460	310 ~ 4460	2.60	D	1730	16.7 / 15.3	2.3 + 2.7
	4.0 + 6.0	10.00	2.5 ~ 10.4	4460	310 ~ 4790	2.24	F	2230	21.5 / 19.7	2.3 + 3.3
	4.0 + 7.0	10.00	2.5 ~ 10.4	4150	310 ~ 4800	2.41	E	2075	20.0 / 18.3	2.1 + 3.6
	5.0 + 5.0	10.00	2.5 ~ 10.4	3610	300 ~ 4000	2.77	D	1805	17.4 / 16.0	2.7 + 2.7
	5.0 + 6.0	10.00	2.5 ~ 10.4	3610	300 ~ 4000	2.77	D	1805	17.4 / 16.0	2.5 + 2.9
	5.0 + 7.0	10.00	2.5 ~ 10.4	3470	300 ~ 3850	2.88	C	1735	16.7 / 15.3	2.4 + 3.2
	6.0 + 6.0	10.00	2.5 ~ 10.4	3610	300 ~ 4000	2.77	D	1805	17.4 / 16.0	2.7 + 2.7
	6.0 + 7.0	10.00	2.5 ~ 10.4	3470	300 ~ 3850	2.88	C	1735	16.7 / 15.3	2.5 + 2.9
	7.0 + 7.0	10.00	2.5 ~ 10.4	3320	330 ~ 3690	3.01	B	1660	16.0 / 14.7	2.7 + 2.7
3 Room	2.8 + 2.8 + 2.8	8.40	2.9 ~ 8.7	2750	360 ~ 2880	3.05	B	1375	13.3 / 12.2	1.6 + 1.6 + 1.6
	2.8 + 2.8 + 3.2	8.80	2.9 ~ 9.6	2880	390 ~ 3320	3.06	B	1440	13.9 / 12.7	1.6 + 1.6 + 1.8
	2.8 + 2.8 + 4.0	9.60	2.9 ~ 10.1	3320	390 ~ 3770	2.89	C	1660	16.0 / 14.7	1.6 + 1.6 + 2.3
	2.8 + 2.8 + 5.0	10.00	2.9 ~ 10.7	3180	390 ~ 3770	3.14	B	1590	15.3 / 14.1	1.6 + 1.6 + 2.5
	2.8 + 2.8 + 6.0	10.00	2.9 ~ 10.7	3180	390 ~ 3770	3.14	B	1590	15.3 / 14.1	1.5 + 1.5 + 2.9
	2.8 + 2.8 + 7.0	10.00	2.9 ~ 10.7	3110	390 ~ 3620	3.22	A	1555	15.0 / 13.7	1.4 + 1.4 + 3.0
	2.8 + 3.2 + 3.2	9.20	2.9 ~ 10.1	2990	390 ~ 3690	3.08	B	1495	14.4 / 13.2	1.6 + 1.8 + 1.8
	2.8 + 3.2 + 4.0	10.00	2.9 ~ 10.7	3540	390 ~ 4320	2.82	C	1770	17.1 / 15.6	1.6 + 1.8 + 2.3
	2.8 + 3.2 + 5.0	10.00	2.9 ~ 10.7	3110	390 ~ 3700	3.22	A	1555	15.0 / 13.7	1.6 + 1.7 + 2.5
	2.8 + 3.2 + 6.0	10.00	2.9 ~ 10.7	3110	390 ~ 3700	3.22	A	1555	15.0 / 13.7	1.5 + 1.6 + 2.7
	2.8 + 3.2 + 7.0	10.00	2.9 ~ 10.7	3040	420 ~ 3540	3.29	A	1520	14.7 / 13.4	1.4 + 1.5 + 2.9
	2.8 + 4.0 + 4.0	10.00	2.9 ~ 10.7	3540	390 ~ 4320	2.82	C	1770	17.1 / 15.6	1.6 + 2.2 + 2.2
	2.8 + 4.0 + 5.0	10.00	2.9 ~ 10.7	3110	390 ~ 3620	3.22	A	1555	15.0 / 13.7	1.5 + 1.9 + 2.4
	2.8 + 4.0 + 6.0	10.00	2.9 ~ 10.7	3110	390 ~ 3620	3.22	A	1555	15.0 / 13.7	1.4 + 1.8 + 2.5
	2.8 + 4.0 + 7.0	10.00	2.9 ~ 10.7	2970	420 ~ 3540	3.37	A	1485	14.3 / 13.1	1.3 + 1.7 + 2.8
	2.8 + 5.0 + 5.0	10.00	2.9 ~ 10.7	2830	430 ~ 3250	3.53	A	1415	13.6 / 12.5	1.4 + 2.3 + 2.3
	2.8 + 5.0 + 6.0	10.00	2.9 ~ 10.7	2830	430 ~ 3250	3.53	A	1415	13.6 / 12.5	1.3 + 2.1 + 2.4
	2.8 + 5.0 + 7.0	10.00	2.9 ~ 10.7	2760	460 ~ 3180	3.62	A	1380	13.3 / 12.2	1.2 + 1.9 + 2.6
	2.8 + 6.0 + 6.0	10.00	2.9 ~ 10.7	2830	430 ~ 3250	3.53	A	1415	13.6 / 12.5	1.2 + 2.3 + 2.3
	2.8 + 6.0 + 7.0	10.00	2.9 ~ 10.7	2760	460 ~ 3180	3.62	A	1380	13.3 / 12.2	1.1 + 2.2 + 2.5
	2.8 + 7.0 + 7.0	10.00	2.9 ~ 10.7	2690	460 ~ 3110	3.72	A	1345	13.0 / 11.9	1.1 + 2.4 + 2.4
	3.2 + 3.2 + 3.2	9.60	2.9 ~ 10.1	3110	390 ~ 3540	3.09	B	1555	15.0 / 13.7	1.8 + 1.8 + 1.8
	3.2 + 3.2 + 4.0	10.00	2.9 ~ 10.7	3470	390 ~ 4160	2.88	C	1735	16.7 / 15.3	1.7 + 1.7 + 2.2
	3.2 + 3.2 + 5.0	10.00	2.9 ~ 10.7	3040	390 ~ 3540	3.29	A	1520	14.7 / 13.4	1.6 + 1.6 + 2.4

Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		EER		ANNUAL ENERGY CONSUMPTION (kWh)	Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max	W/W	CLASS			
	3.2 + 3.2 + 6.0	10.00	2.9 ~ 10.7	3040	390 ~ 3540	3.29	A	1520	14.7 / 13.4	1.6 + 1.6 + 2.6
	3.2 + 3.2 + 7.0	10.00	2.9 ~ 10.7	2970	420 ~ 3470	3.37	A	1485	14.3 / 13.1	1.5 + 1.5 + 2.9
	3.2 + 4.0 + 4.0	10.00	2.9 ~ 10.7	3390	390 ~ 4160	2.95	C	1695	16.3 / 15.0	1.7 + 2.1 + 2.1
	3.2 + 4.0 + 5.0	10.00	2.9 ~ 10.7	3040	420 ~ 3540	3.29	A	1520	14.7 / 13.4	1.6 + 1.9 + 2.3
	3.2 + 4.0 + 6.0	10.00	2.9 ~ 10.7	3040	420 ~ 3540	3.29	A	1520	14.7 / 13.4	1.5 + 1.7 + 2.5
	3.2 + 4.0 + 7.0	10.00	2.9 ~ 10.7	2970	420 ~ 3470	3.37	A	1485	14.3 / 13.1	1.5 + 1.7 + 2.7
	3.2 + 5.0 + 5.0	10.00	2.9 ~ 10.7	2760	460 ~3180	3.62	A	1380	13.3 / 12.2	1.5 + 2.2 + 2.2
	3.2 + 5.0 + 6.0	10.00	2.9 ~ 10.7	2760	460 ~ 3180	3.62	A	1380	13.3 / 12.2	1.5 + 2.0 + 2.4
	3.2 + 5.0 + 7.0	10.00	2.9 ~ 10.7	2690	460 ~ 3110	3.72	A	1345	13.0 / 11.9	1.4 + 1.9 + 2.5
	3.2 + 6.0 + 6.0	10.00	2.9 ~ 10.7	2760	460 ~ 3180	3.62	A	1380	13.3 / 12.2	1.4 + 2.3 + 2.3
	3.2 + 6.0 + 7.0	10.00	2.9 ~ 10.7	2690	460 ~ 3110	3.72	A	1345	13.0 / 11.9	1.3 + 2.2 + 2.4
	3.2 + 7.0 + 7.0	10.00	2.9 ~ 10.7	2700	470 ~ 3110	3.70	A	1350	13.0 / 11.9	1.2 + 2.3 + 2.3
3 Room	4.0 + 4.0 + 4.0	9.99	2.9 ~ 10.7	3390	390 ~ 4080	2.95	C	1695	16.3 / 15.0	1.9 + 1.9 + 1.9
	4.0 + 4.0 + 5.0	10.00	2.9 ~ 10.7	2970	420 ~ 3540	3.37	A	1485	14.3 / 13.1	1.7 + 1.7 + 2.2
	4.0 + 4.0 + 6.0	10.00	2.9 ~ 10.7	2970	420 ~ 3540	3.37	A	1485	14.3 / 13.1	1.7 + 1.7 + 2.4
	4.0 + 4.0 + 7.0	10.00	2.9 ~ 10.7	2900	420 ~ 3400	3.45	A	1450	14.0 / 12.8	1.6 + 1.6 + 2.5
	4.0 + 5.0 + 5.0	10.00	2.9 ~ 10.7	2760	460 ~ 3180	3.62	A	1380	13.3 / 12.2	1.7 + 2.1 + 2.1
	4.0 + 5.0 + 6.0	10.00	2.9 ~ 10.7	2760	460 ~ 3180	3.62	A	1380	13.3 / 12.2	1.6 + 1.9 + 2.3
	4.0 + 5.0 + 7.0	10.00	2.9 ~ 10.7	2690	460 ~ 3110	3.72	A	1345	13.0 / 11.9	1.5 + 1.8 + 2.4
	4.0 + 6.0 + 6.0	10.00	2.9 ~ 10.7	2760	460 ~ 3180	3.62	A	1380	13.3 / 12.2	1.5 + 2.2 + 2.2
	4.0 + 6.0 + 7.0	10.00	2.9 ~ 10.7	2690	460 ~ 3110	3.72	A	1345	13.0 / 11.9	1.5 + 2.0 + 2.3
	5.0 + 5.0 + 5.0	9.99	2.9 ~ 10.7	2570	510 ~ 2970	3.89	A	1285	12.4 / 11.4	1.9 + 1.9 + 1.9
	5.0 + 5.0 + 6.0	10.00	2.9 ~ 10.7	2630	510 ~ 2970	3.80	A	1315	12.7 / 11.6	1.8 + 1.8 + 2.2
	5.0 + 5.0 + 7.0	10.00	2.9 ~ 10.7	2570	510 ~ 2970	3.89	A	1285	12.4 / 11.4	1.7 + 1.7 + 2.3
	5.0 + 6.0 + 6.0	10.00	2.9 ~ 10.7	2630	510 ~ 2970	3.80	A	1315	12.7 / 11.6	1.7 + 2.0 + 2.0
	2.8 + 2.8 + 2.8 + 2.8	10.00	2.9 ~ 10.6	3220	420 ~ 3770	3.11	B	1610	15.5 / 14.2	1.5 + 1.5 + 1.5 + 1.5
	2.8 + 2.8 + 2.8 + 3.2	10.00	2.9 ~ 10.6	3150	420 ~ 3680	3.17	B	1575	15.2 / 13.9	1.5 + 1.5 + 1.5 + 1.6
	2.8 + 2.8 + 2.8 + 4.0	10.00	2.9 ~ 10.8	3150	430 ~ 3850	3.17	B	1575	15.2 / 13.9	1.5 + 1.5 + 1.5 + 1.8
	2.8 + 2.8 + 2.8 + 5.0	10.00	2.9 ~ 10.8	2930	470 ~ 3520	3.41	A	1465	14.1 / 12.9	1.4 + 1.4 + 1.4 + 2.2
	2.8 + 2.8 + 2.8 + 6.0	10.00	2.9 ~ 11.0	2930	470 ~ 3690	3.41	A	1465	14.1 / 12.9	1.3 + 1.3 + 1.3 + 2.4
	2.8 + 2.8 + 2.8 + 7.0	10.00	2.9 ~ 11.0	2930	500 ~ 3610	3.41	A	1465	14.1 / 12.9	1.2 + 1.2 + 1.2 + 2.5
	2.8 + 2.8 + 3.2 + 3.2	10.00	2.9 ~ 10.6	3070	430 ~ 3600	3.26	A	1535	14.8 / 13.6	1.5 + 1.5 + 1.6 + 1.6
	2.8 + 2.8 + 3.2 + 4.0	10.00	2.9 ~ 10.8	3070	430 ~ 3770	3.26	A	1535	14.8 / 13.6	1.4 + 1.4 + 1.5 + 1.8
	2.8 + 2.8 + 3.2 + 5.0	10.00	2.9 ~ 10.8	2930	500 ~ 3440	3.41	A	1465	14.1 / 12.9	1.3 + 1.3 + 1.5 + 2.1
	2.8 + 2.8 + 3.2 + 6.0	10.00	2.9 ~ 11.0	2930	500 ~ 3610	3.41	A	1465	14.1 / 12.9	1.2 + 1.2 + 1.4 + 2.3
	2.8 + 2.8 + 3.2 + 7.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.1 + 1.1 + 1.3 + 2.5
	2.8 + 2.8 + 4.0 + 4.0	10.00	2.9 ~ 10.8	3070	430 ~ 3770	3.26	A	1535	14.8 / 13.6	1.3 + 1.3 + 1.7 + 1.7
	2.8 + 2.8 + 4.0 + 5.0	10.00	2.9 ~ 11.0	2930	500 ~ 3610	3.41	A	1465	14.1 / 12.9	1.2 + 1.2 + 1.6 + 2.0
	2.8 + 2.8 + 4.0 + 6.0	10.00	2.9 ~ 11.0	2930	500 ~ 3610	3.41	A	1465	14.1 / 12.9	1.2 + 1.2 + 1.6 + 2.3
	2.8 + 2.8 + 4.0 + 7.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.1 + 1.1 + 1.5 + 2.4
	2.8 + 2.8 + 5.0 + 5.0	10.00	2.9 ~ 11.0	2800	560 ~ 3460	3.57	A	1400	13.5 / 12.4	1.2 + 1.2 + 1.8 + 1.8
	2.8 + 2.8 + 5.0 + 6.0	10.00	2.9 ~ 11.2	2800	560 ~ 3540	3.57	A	1400	13.5 / 12.4	1.1 + 1.1 + 1.7 + 2.1
4 Room	2.8 + 3.2 + 3.2 + 3.2	10.00	2.9 ~ 10.8	3070	460 ~ 3680	3.26	A	1535	14.8 / 13.6	1.5 + 1.6 + 1.6 + 1.6
	2.8 + 3.2 + 3.2 + 4.0	10.00	2.9 ~ 10.8	3070	460 ~ 3680	3.26	A	1535	14.8 / 13.6	1.4 + 1.5 + 1.5 + 1.7
	2.8 + 3.2 + 3.2 + 5.0	10.00	2.9 ~ 11.0	2860	510 ~ 3610	3..50	A	1430	13.8 / 12.6	1.3 + 1.5 + 1.5 + 2.0
	2.8 + 3.2 + 3.2 + 6.0	10.00	2.9 ~ 11.0	2860	510 ~ 3610	3.50	A	1430	13.8 / 12.6	1.2 + 1.4 + 1.4 + 2.3
	2.8 + 3.2 + 3.2 + 7.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.1 + 1.3 + 1.3 + 2.4
	2.8 + 3.2 + 4.0 + 4.0	10.00	2.9 ~ 10.8	3070	460 ~ 3680	3.26	A	1535	14..8 / 13.6	1.3 + 1.5 + 1.7 + 1.7
	2.8 + 3.2 + 4.0 + 5.0	10.00	2.9 ~ 11.0	2860	510 ~ 2530	3.50	A	1430	13.8 / 12.6	1.2 + 1.4 + 1.6 + 1.9
	2.8 + 3.2 + 4.0 + 6.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.1 + 1.3 + 1.5 + 2.2
	2.8 + 3.2 + 4.0 + 7.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13..8 / 12.6	1.1 + 1.2 + 1.5 + 2.3
	2.8 + 3.2 + 5.0 + 5.0	10.00	2.9 ~ 11.2	2800	560 ~ 3540	3.57	A	1400	13.5 / 12.4	1.1 + 1.3 + 1.8 + 1.8
	2.8 + 3.2 + 5.0 + 6.0	10.00	2.9 ~ 11.2	2800	560 ~ 3540	3.57	A	1400	13.5 / 12.4	1.1 + 1.2 + 1.7 + 2.0
	2.8 + 4.0 + 4.0 + 4.0	10.00	2.9 ~ 11.0	3000	460 ~ 3770	3.33	A	1500	14.5 / 13.3	1.2 + 1.6 + 1.6 + 1.6
	2.8 + 4.0 + 4.0 + 5.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.1 + 1.6 + 1.6 + 1.8
	2.8 + 4.0 + 4.0 + 6.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.1 + 1.5 + 1.5 + 2.1
	2.8 + 4.0 + 5.0 + 5.0	10.00	2.9 ~ 11.2	2800	560 ~ 3540	3.57	A	1400	13.5 / 12.4	1.1 + 1.5 + 1.7 + 1.7
	3.2 + 3.2 + 3.2 + 3.2	10.00	2.9 ~ 10.8	3000	460 ~ 3600	3.33	A	1500	14.5 / 13.3	1.5 + 1.5 + 1.5 + 1.5
	3.2 + 3.2 + 3.2 + 4.0	10.00	2.9 ~ 10.8	3000	460 ~ 3600	3.33	A	1500	14.5 / 13.3	1.5 + 1.5 + 1.5 + 1.7
	3.2 + 3.2 + 3.2 + 5.0	10.00	2.9 ~ 11.0	2860	510 ~ 3530	3.50	A	1430	13.8 / 12.6	1.4 + 1.4 + 1.4 + 2.0

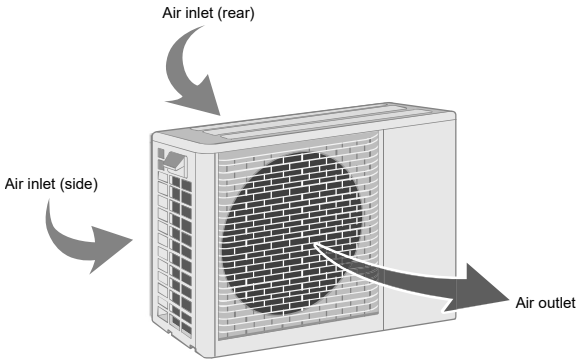
Indoor unit capacity Cooling		Cooling Capacity (kW)		Input Power (W)		EER		ANNUAL ENERGY CONSUMPTION (kWh)	Current, 50Hz, 220V / 240V (A)	MOISTURE REMOVAL VOLUME l/h
		Total	min ~ max	Rating	min ~ max	W/W	CLASS			
4 Room	3.2 + 3.2 + 3.2 + 6.0	10.00	2.9 ~ 11.0	2860	510 ~ 3530	3.50	A	1430	13.8 / 12.6	1.3 + 1.3 + 1.3 + 2.3
	3.2 + 3.2 + 3.2 + 7.0	10.00	2.9 ~ 11.2	2860	520 ~ 3610	3.50	A	1430	13.8 / 12.6	1.2 + 1.2 + 1.2 + 2.4
	3.2 + 3.2 + 4.0 + 4.0	10.00	2.9 ~ 11.0	3000	460 ~ 3770	3.33	A	1500	14.5 / 13.3	1.4 + 1.4 + 1.6 + 1.6
	3.2 + 3.2 + 4.0 + 5.0	10.00	2.9 ~ 11.0	2860	510 ~ 3530	3.50	A	1430	13.8 / 12.6	1.3 + 1.3 + 1.6 + 1.8
	3.2 + 3.2 + 4.0 + 6.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.3 + 1.3 + 1.5 + 2.1
	3.2 + 3.2 + 4.0 + 7.0	10.00	2.9 ~ 11.2	2860	550 ~ 3610	3.50	A	1430	13.8 / 12.6	1.2 + 1.2 + 1.5 + 2.3
	3.2 + 3.2 + 5.0 + 5.0	10.00	2.9 ~ 11.2	2800	600 ~ 3540	3.57	A	1400	13.5 / 12.4	1.3 + 1.3 + 1.7 + 1.7
	3.2 + 3.2 + 5.0 + 6.0	10.00	2.9 ~ 11.2	2800	600 ~ 3540	3.57	A	1400	13.5 / 12.4	1.2 + 1.2 + 1.7 + 2.0
	3.2 + 4.0 + 4.0 + 4.0	10.00	2.9 ~ 11.0	3000	460 ~ 3770	3.33	A	1500	14.5 / 13.3	1.4 + 1.6 + 1.6 + 1.6
	3.2 + 4.0 + 4.0 + 5.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.3 + 1.5 + 1.5 + 1.7
	3.2 + 4.0 + 4.0 + 6.0	10.00	2.9 ~ 11.2	2860	510 ~ 3690	3.50	A	1430	13.8 / 12.6	1.2 + 1.5 + 1.5 + 2.0
	3.2 + 4.0 + 5.0 + 5.0	10.00	2.9 ~ 11.2	2810	600 ~ 3540	3.56	A	1405	13.5 / 12.4	1.2 + 1.5 + 1.7 + 1.7
	4.0 + 4.0 + 4.0 + 4.0	10.00	2.9 ~ 11.2	3000	470 ~ 3850	3.33	A	1500	14.5 / 13.3	1.5 + 1.5 + 1.5 + 1.5
	4.0 + 4.0 + 4.0 + 5.0	10.00	2.9 ~ 11.2	2860	520 ~ 3610	3.50	A	1430	13.8 / 12.6	1.5 + 1.5 + 1.5 + 1.7

3. Location of Controls and Components

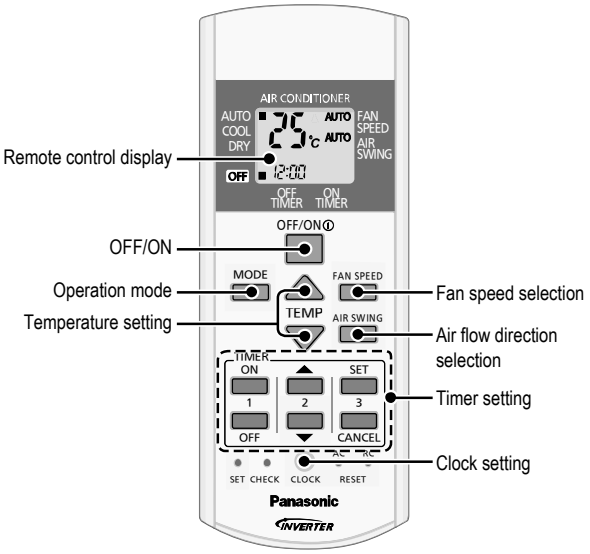
3.1 Indoor Unit



3.2 Outdoor Unit



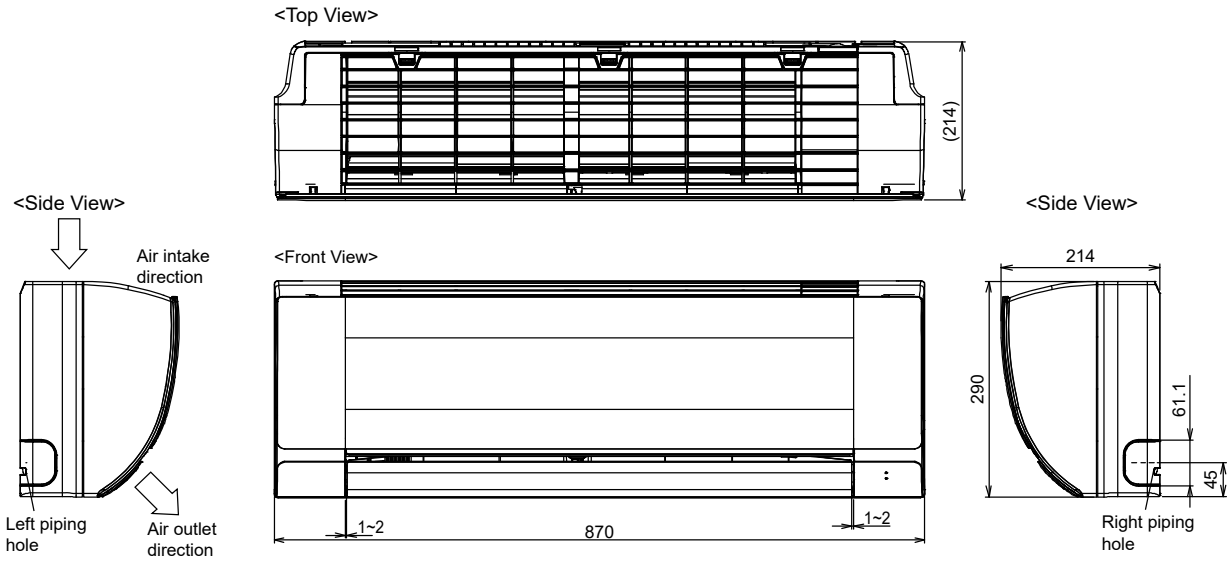
3.3 Remote Control



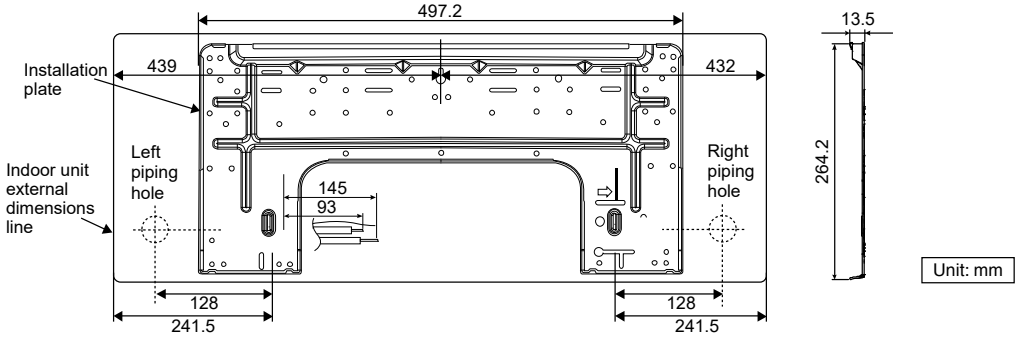
4. Dimensions

4.1 Indoor Unit

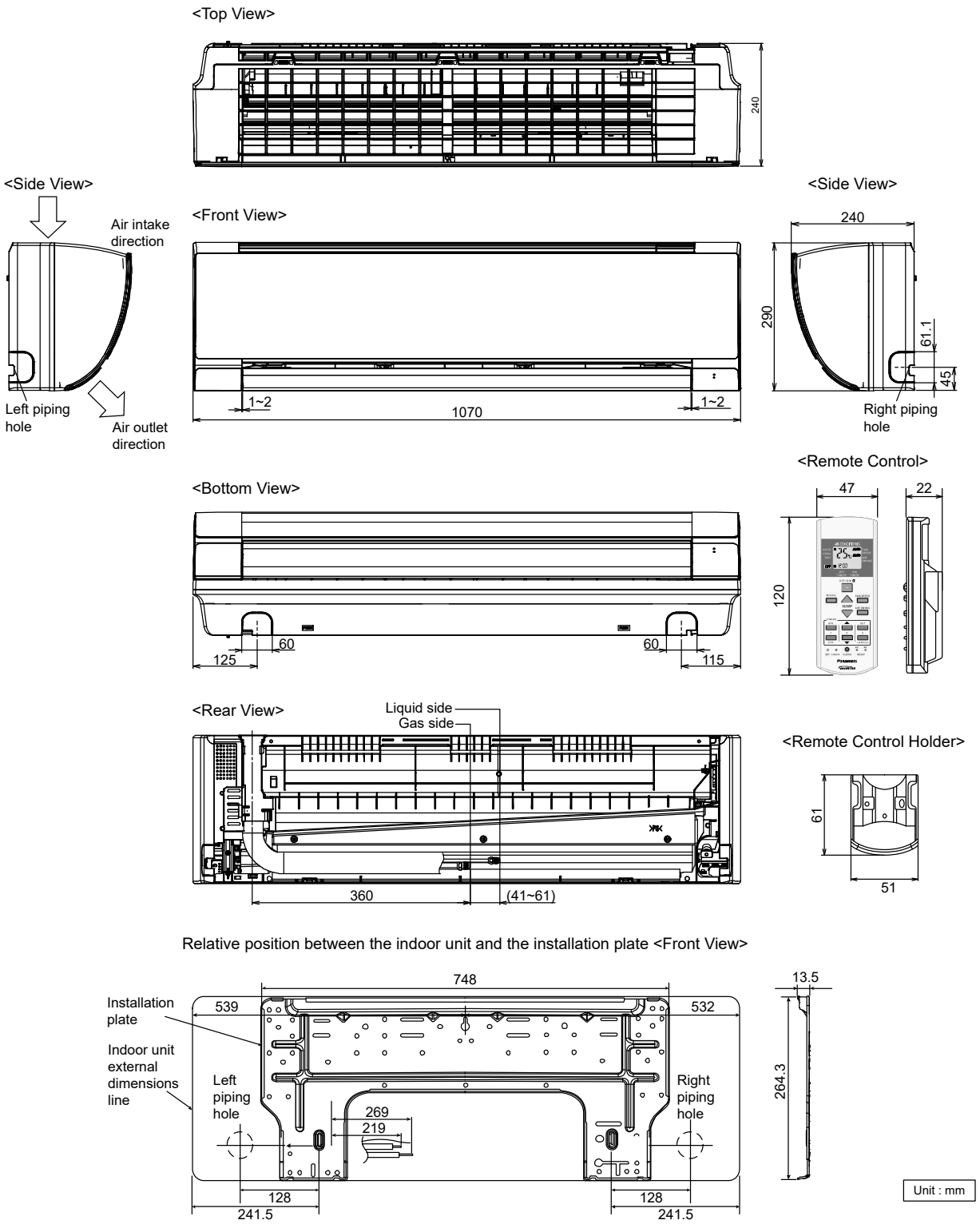
4.1.1 CS-MPS9SKH CS-MPS12SKH CS-MPS15SKH



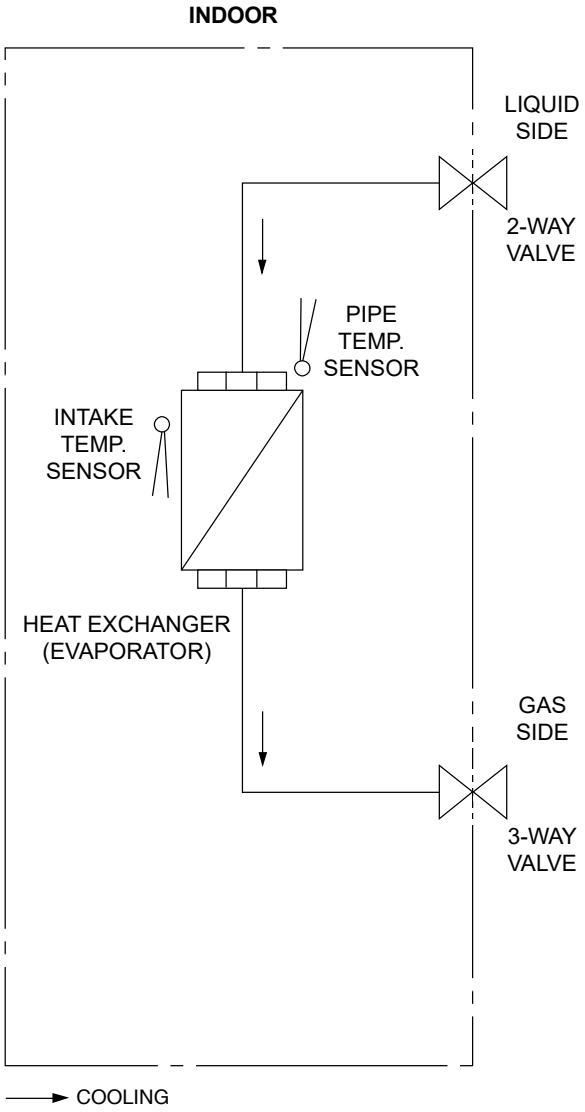
Relative position between the indoor unit and the installation plate <Front View>



4.1.2 CS-MPS18SKH CS-MPS24SKH CS-MPS28SKH

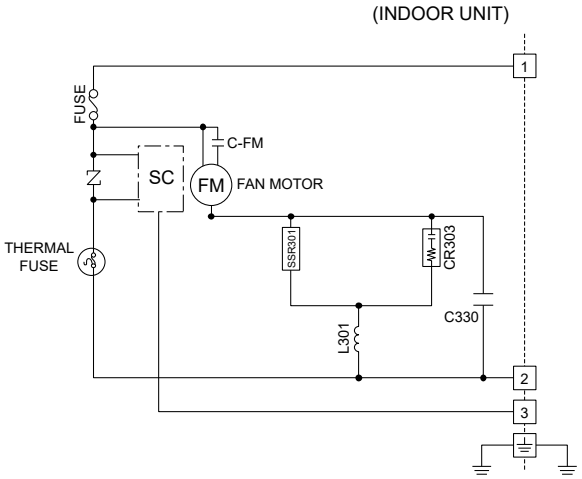


5. Refrigeration Cycle Diagram

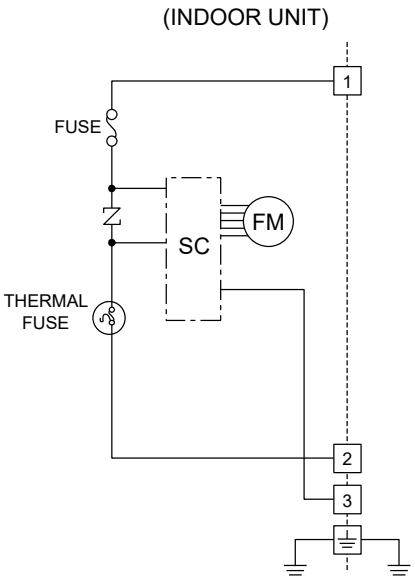


6. Block Diagram

6.1 CS-MPS9SKH CS-MPS12SKH CS-MPS15SKH



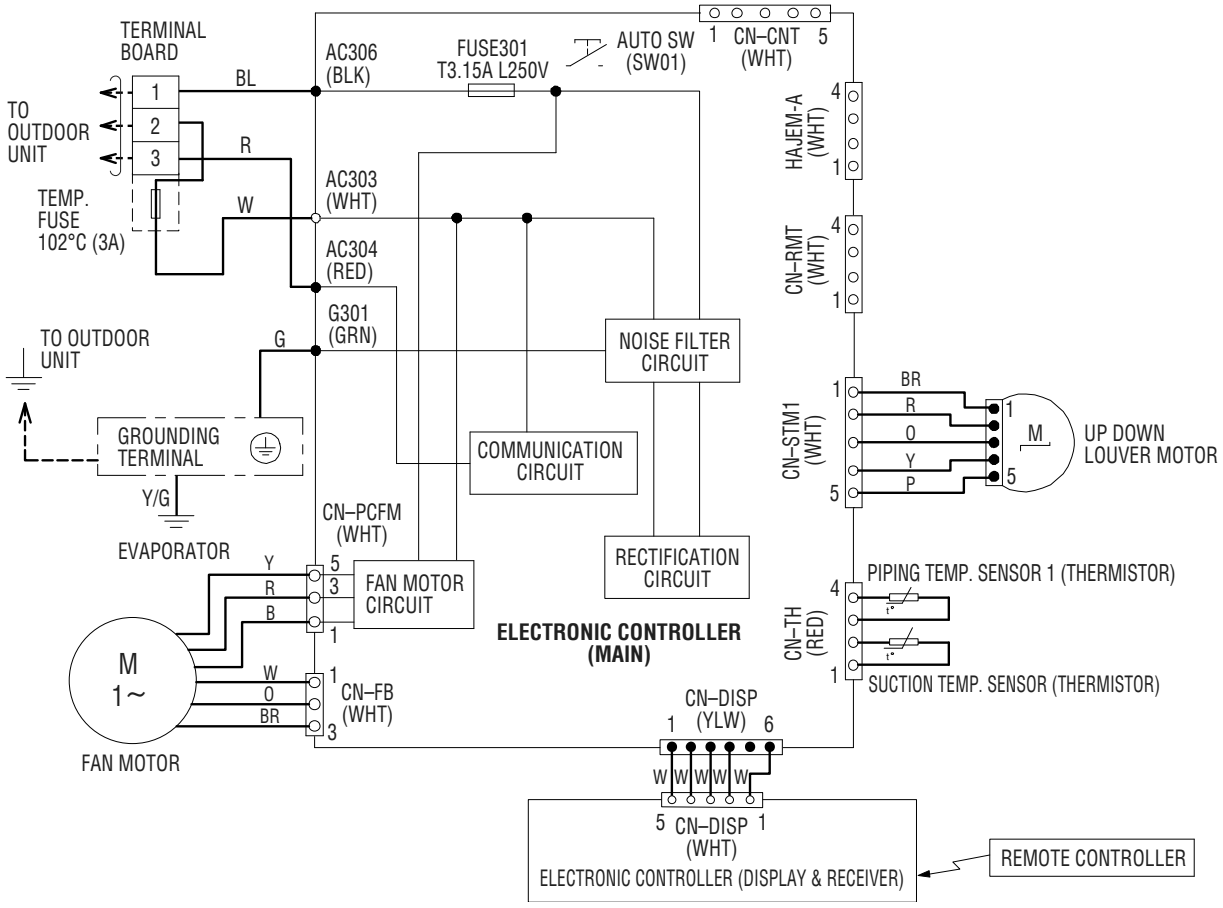
6.2 CS-MPS18SKH CS-MPS24SKH CS-MPS28SKH



7. Wiring Connection Diagram

7.1 Indoor Unit

7.1.1 CS-MPS9SKH CS-MPS12SKH CS-MPS15SKH

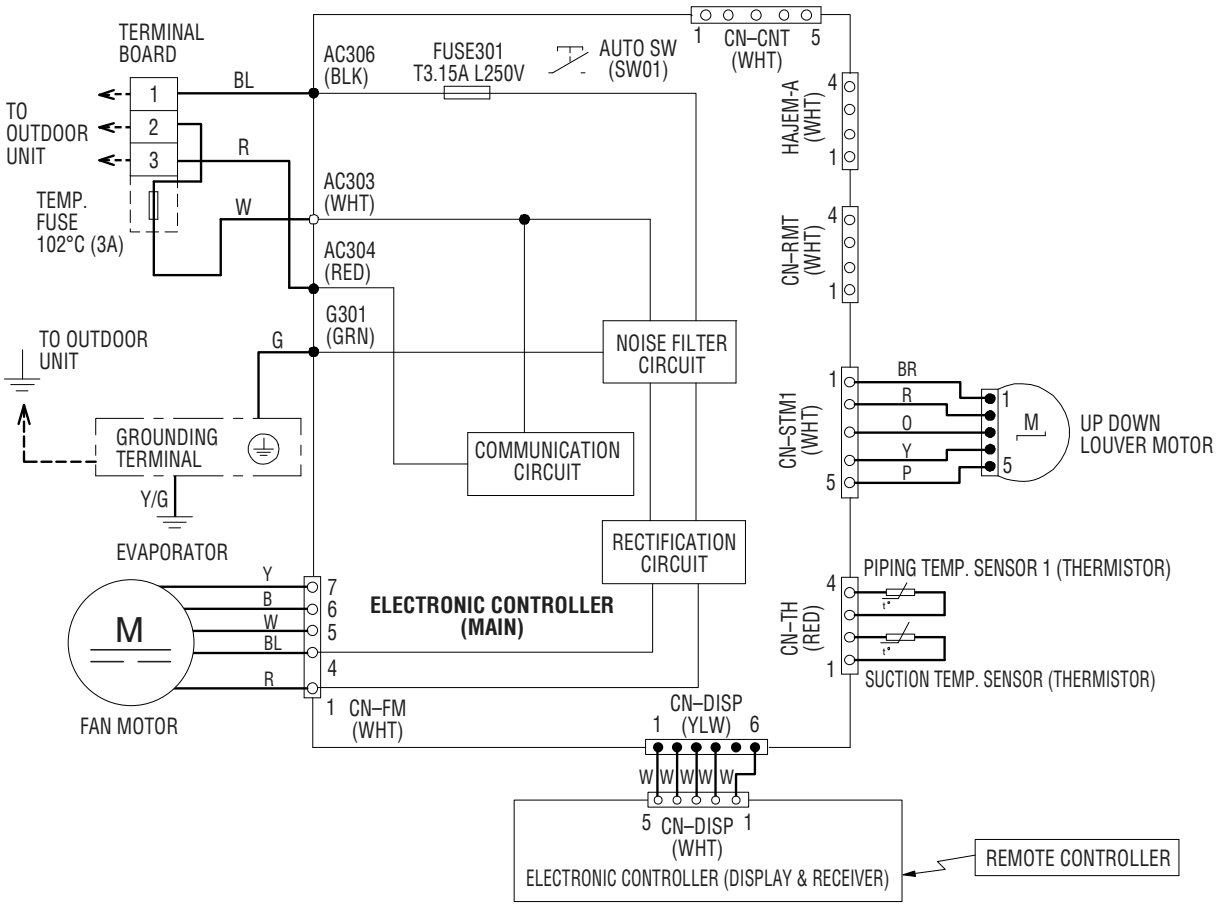


Resistance of Indoor Fan Motor Windings

MODEL	CS-MPS9SKH / CS-MPS12SKH / CS-MPS15SKH
CONNECTION	CWA921447
BLUE-YELLOW	336 Ω
YELLOW-RED	306 Ω

Note: Resistance at 25°C of ambient temperature.

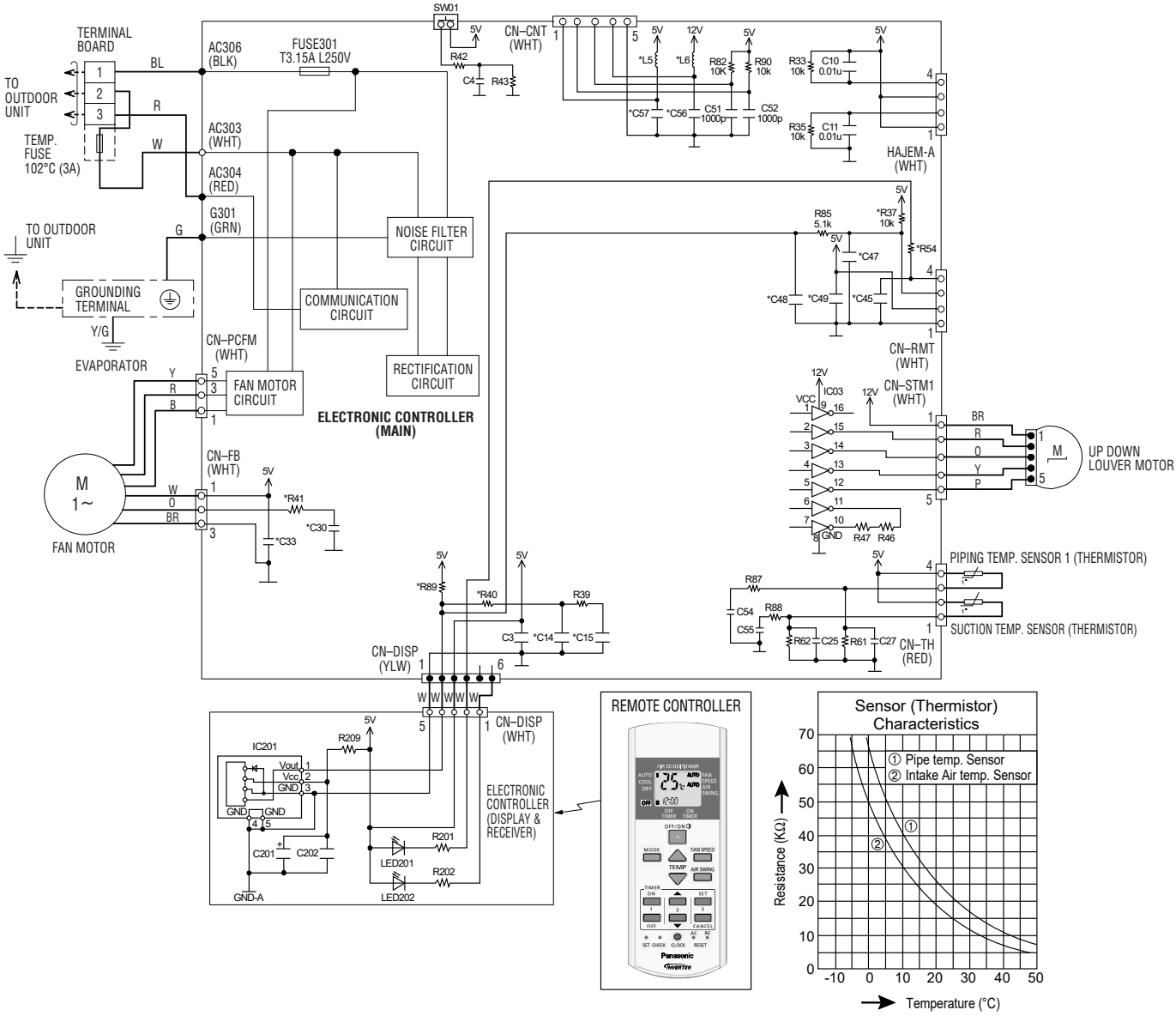
7.1.2 CS-MPS18SKH CS-MPS24SKH CS-MPS28SKH



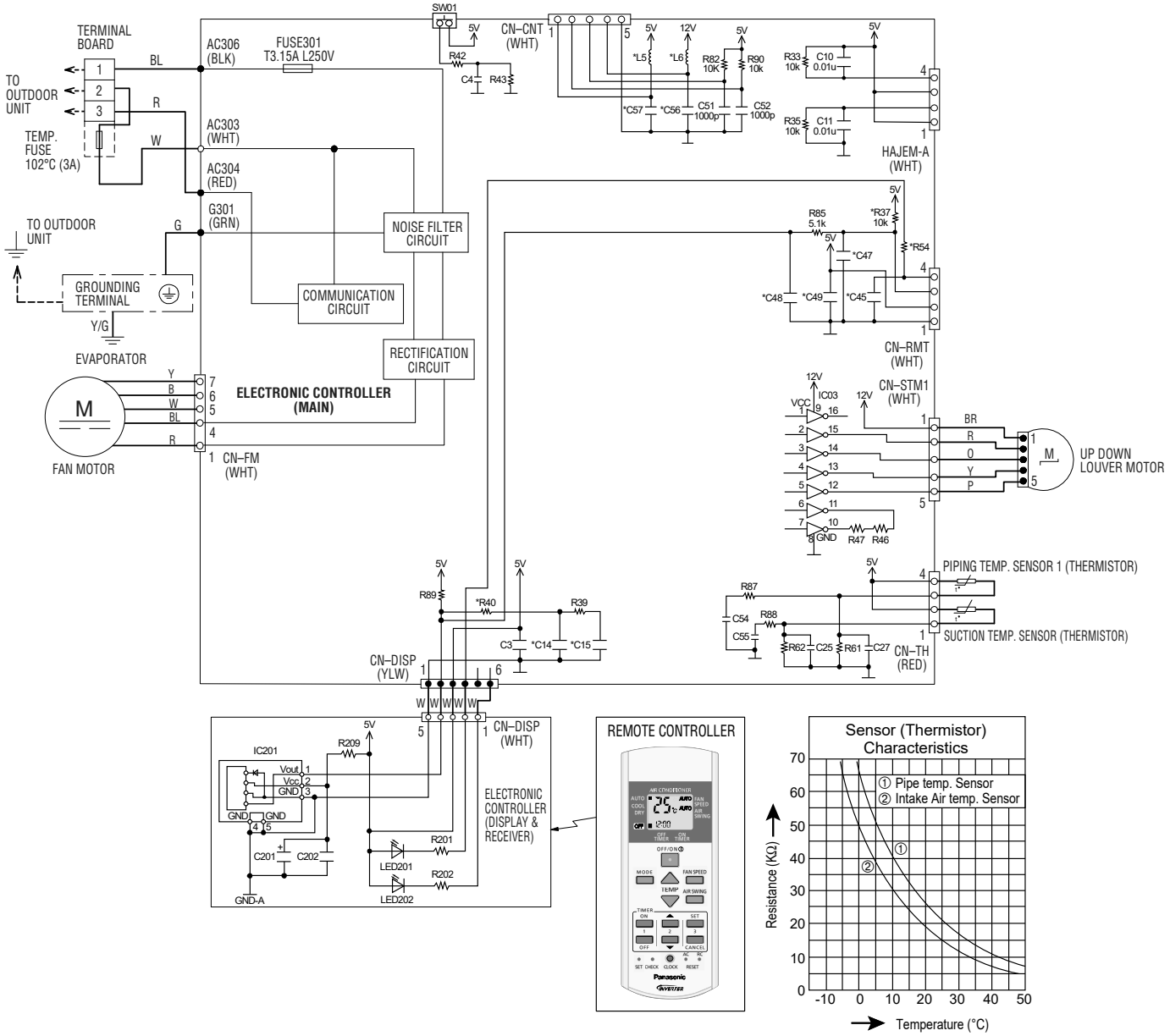
8. Electronic Circuit Diagram

8.1 Indoor Unit

8.1.1 CS-MPS9SKH CS-MPS12SKH CS-MPS15SKH



8.1.2 CS-MPS18SKH CS-MPS24SKH CS-MPS28SKH

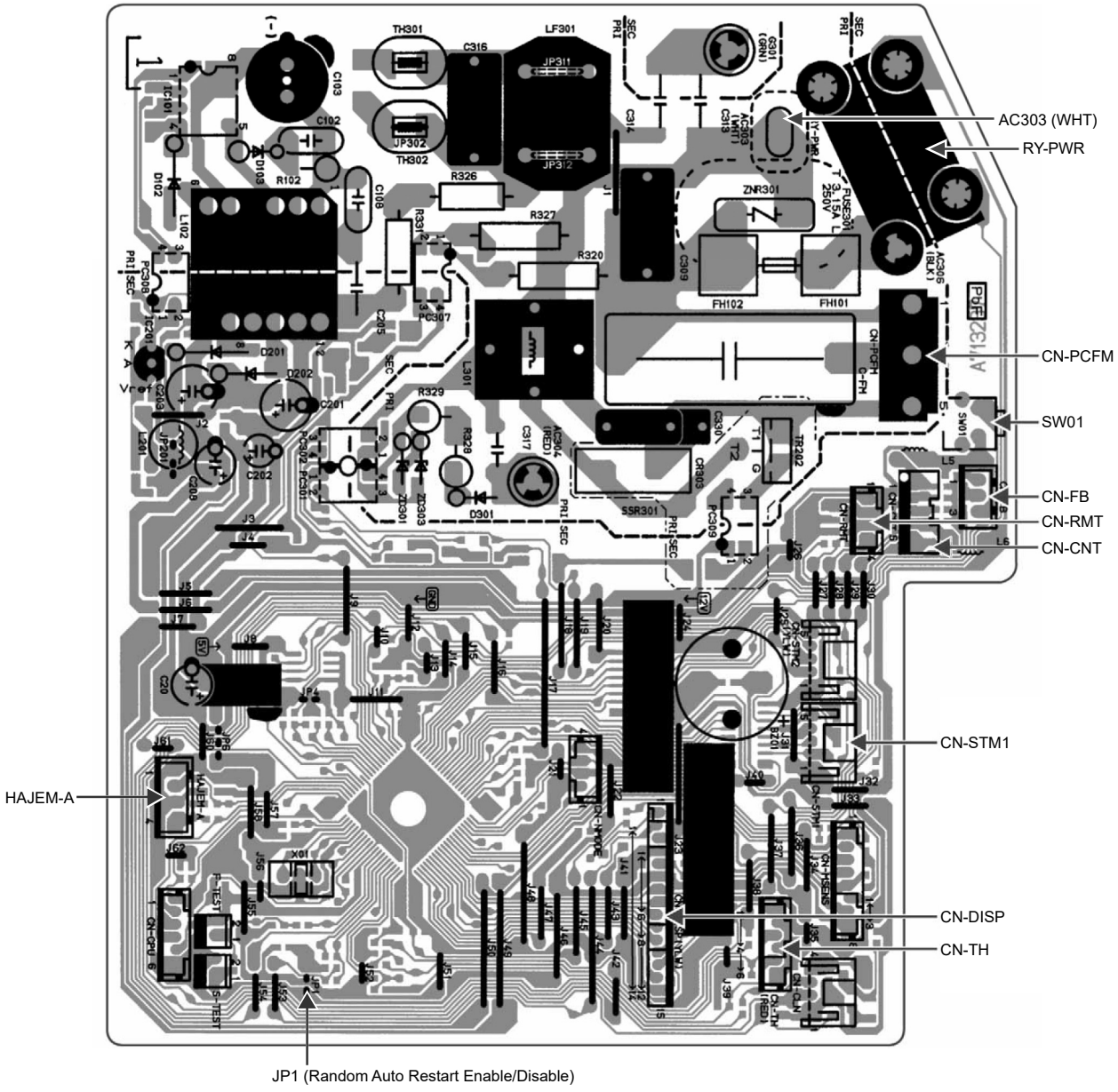


9. Printed Circuit Board

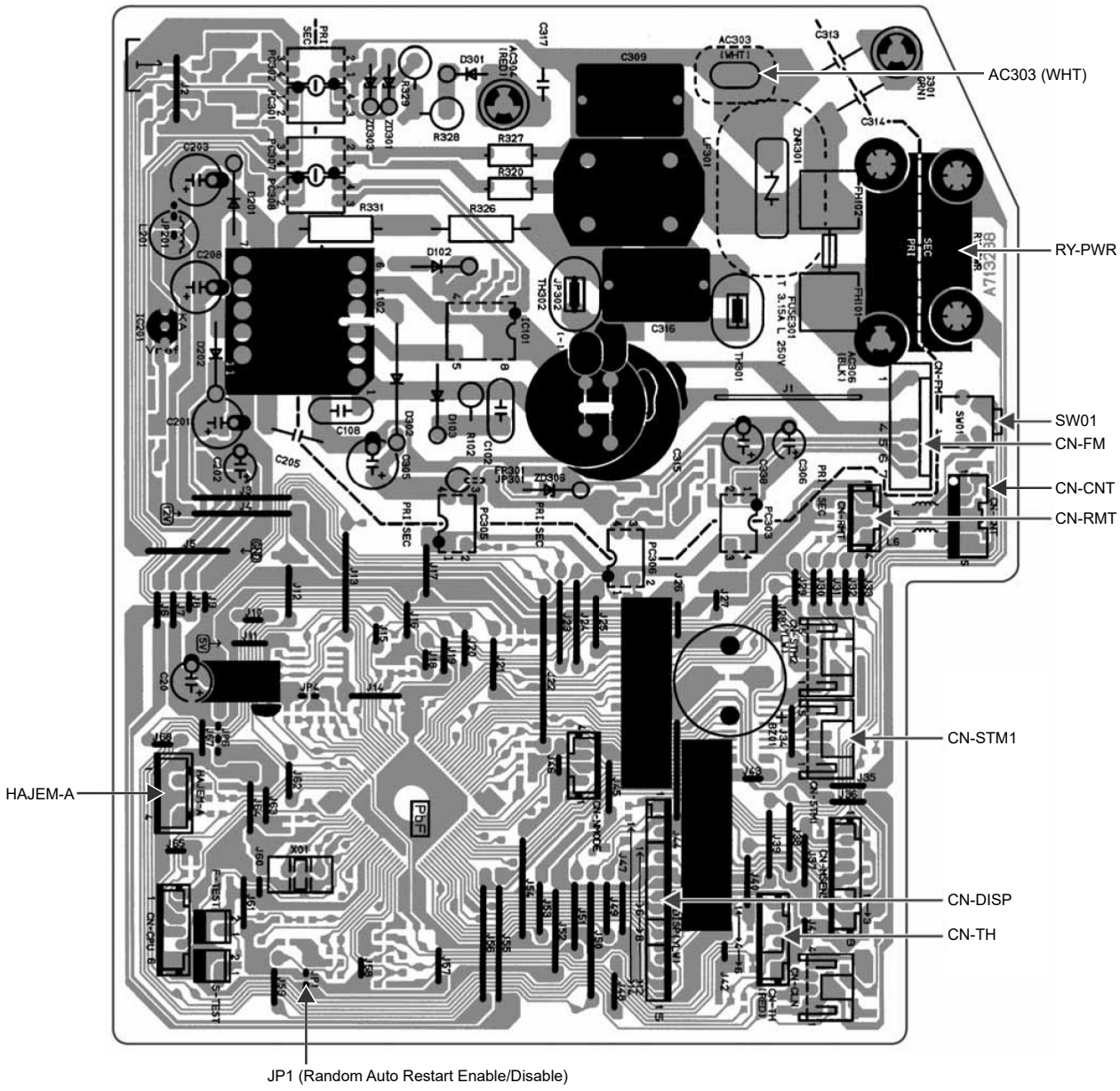
9.1 Indoor Unit

9.1.1 Main Printed Circuit Board

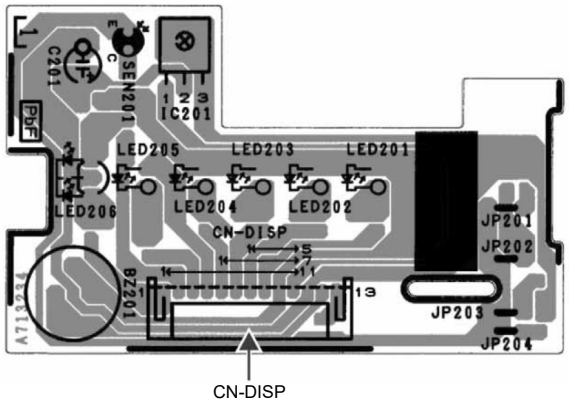
9.1.1.1 CS-MPS9SKH CS-MPS12SKH CS-MPS15SKH



9.1.1.2 CS-MPS18SKH CS-MPS24SKH CS-MPS28SKH



9.1.2 Indicator & Receiver Printed Circuit Board



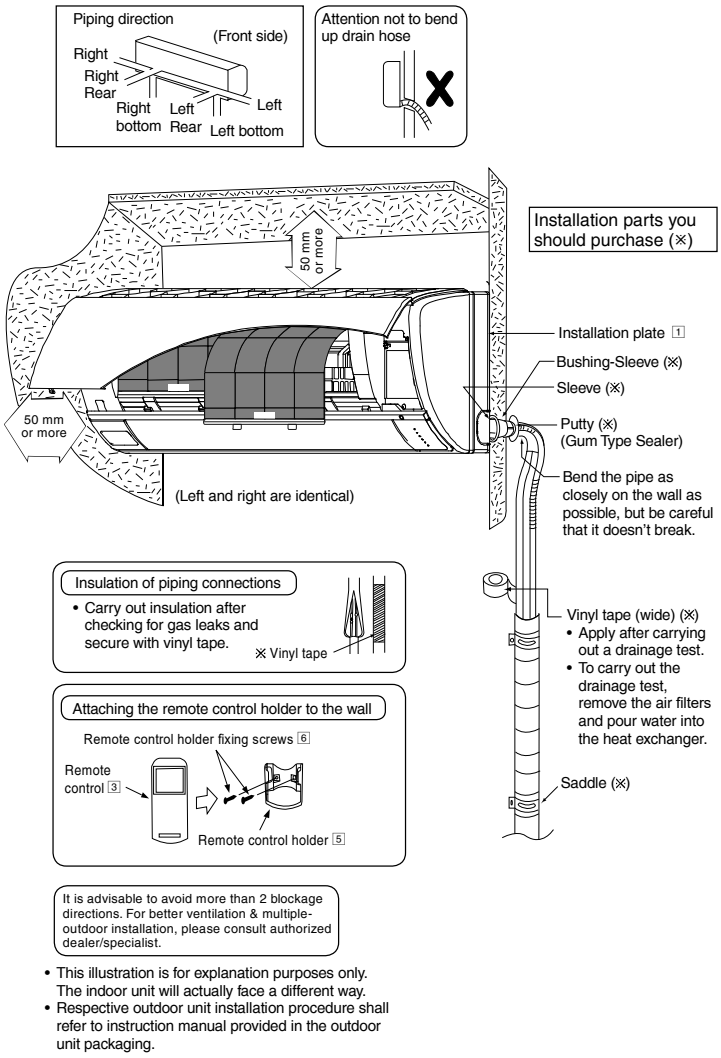
10. Installation Instruction

10.1 Select the Best Location

10.1.1 Indoor Unit

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

10.1.2 Indoor Unit Installation Diagram

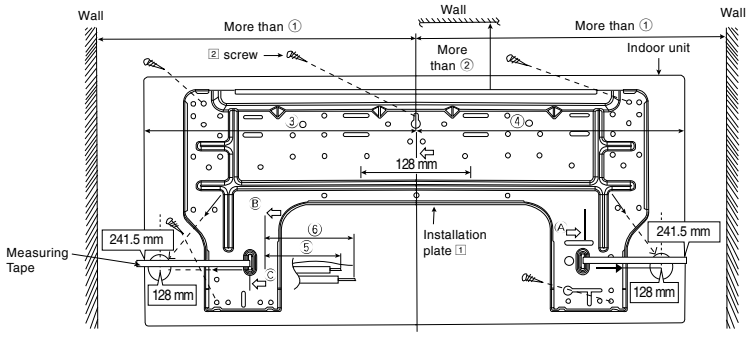


- This illustration is for explanation purposes only. The indoor unit will actually face a different way.
- Respective outdoor unit installation procedure shall refer to instruction manual provided in the outdoor unit packaging.

10.2 Indoor Unit

10.2.1 How to Fix Installation Plate

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



Model	Dimension					
	①	②	③	④	⑤	⑥
MPS9***, MPS12***, MPS15***	490 mm	82 mm	439 mm	432 mm	93 mm	145 mm
MPS18***, MPS24***, MPS28***	590 mm	82 mm	539 mm	532 mm	219 mm	269 mm

The center of installation plate should be at more than ① at right and left of the wall.
The distance from installation plate edge to ceiling should more than ②.
From installation plate center to unit's left side is ③.
From installation plate center to unit's right is ④.

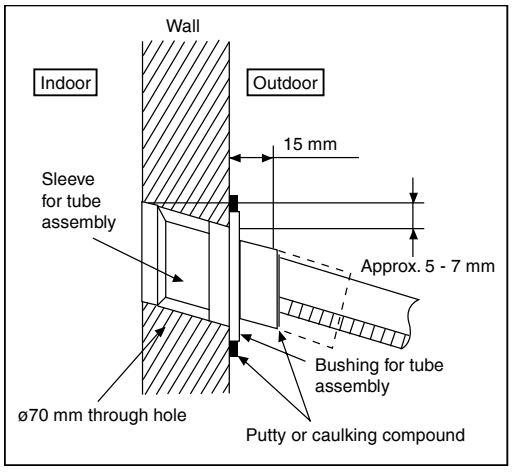
B : For left side piping, piping connection for liquid should be about ⑤ from this line.
: For left side piping, piping connection for gas should be about ⑥ from this line.

1 Mount the installation plate on the wall with 5 screws or more (at least 5 screws).
(If mounting the unit on the concrete wall, consider using anchor bolts.)
   - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.

2 Drill the piping plate hole with ø70 mm hole-core drill.
   - Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively.
   - Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side.

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

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



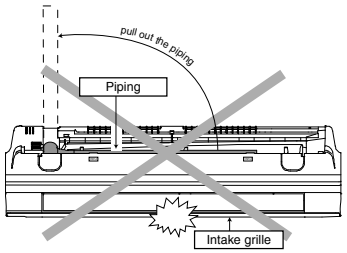
⚠ CAUTION

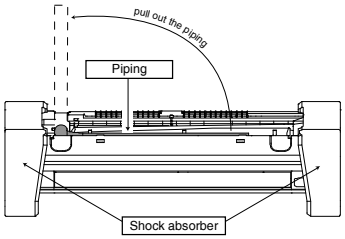
When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

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

10.2.3 Indoor Unit Installation

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





10.2.3.1 For the Right Rear Piping

Step-1 Pull out the Indoor piping

Step-2 Install the Indoor Unit

Step-3 Secure the Indoor Unit

Step-4 Insert the connection cable

10.2.3.2 For the Right and Right Bottom Piping

Step-1 Pull out the Indoor piping

Step-2 Install the Indoor Unit

Step-3 Insert the connection cable

Step-4 Secure the Indoor Unit

10.2.3.3 For the Embedded Piping

Step-1 Replace the drain hose

Step-2 Bend the embedded piping

- Use a spring bender or equivalent to bend the piping so that the piping is not crushed.

Step-3 Pull the connection cable into Indoor Unit

- The inside and outside connection 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

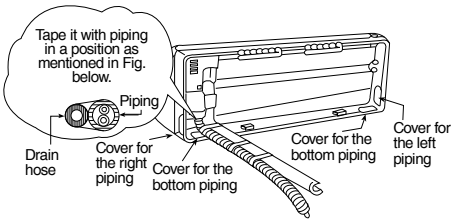
- Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)

Step-7 Insulate and finish the piping

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

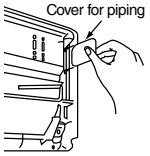
Step-8 Secure the Indoor Unit

Right Rear piping

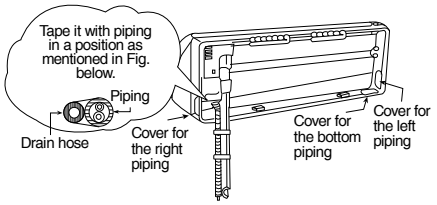


How to keep the cover

In case of the cover is cut, keep the cover at the rear of chassis as shown in the illustration for future reinstallation.
(Left, right and 2 bottom covers for piping.)

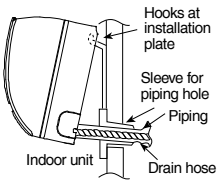


Right and Right Bottom piping



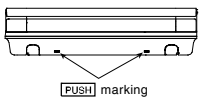
Install the indoor unit

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

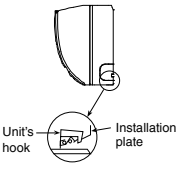


Secure the Indoor Unit

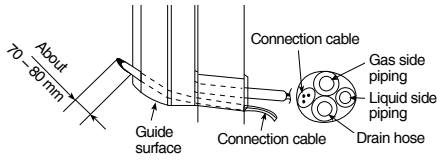
1. Press the lower left and right side of the unit against the installation plate until hooks engages with their slot (sound click).



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



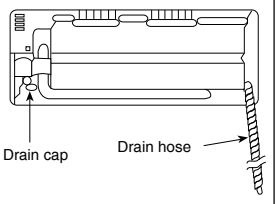
Insert the connection cable

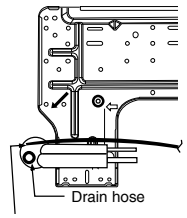


(This can be used for left rear piping and bottom piping also.)

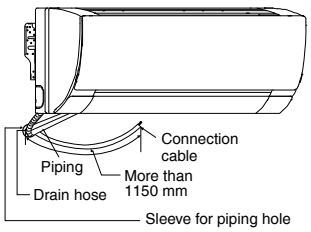
Replace the drain hose

Rear view for left piping installation

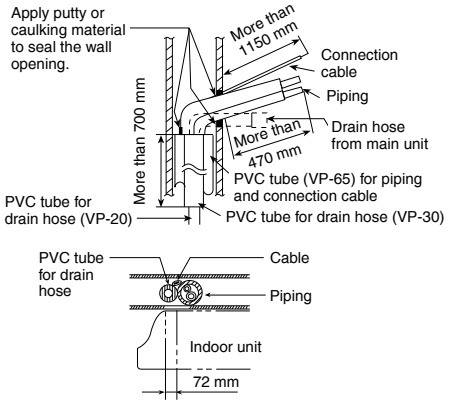




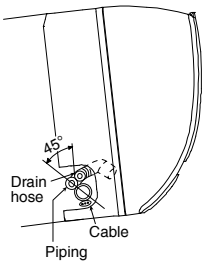
Adjust the piping slightly downwards.



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



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

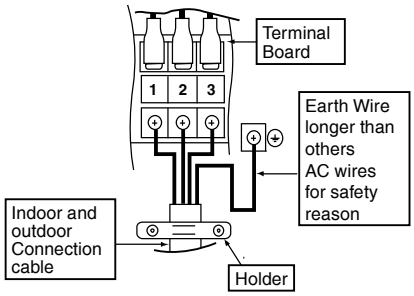


(For the right piping, follow the same procedure)

10.2.4 Connect the Cable to the Indoor Unit

1 The inside and outside connection cable can be connected without removing the front grille.

2 **Connection cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm^2 flexible cord, type designation 60245 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 connection cable onto the control board with the holder.

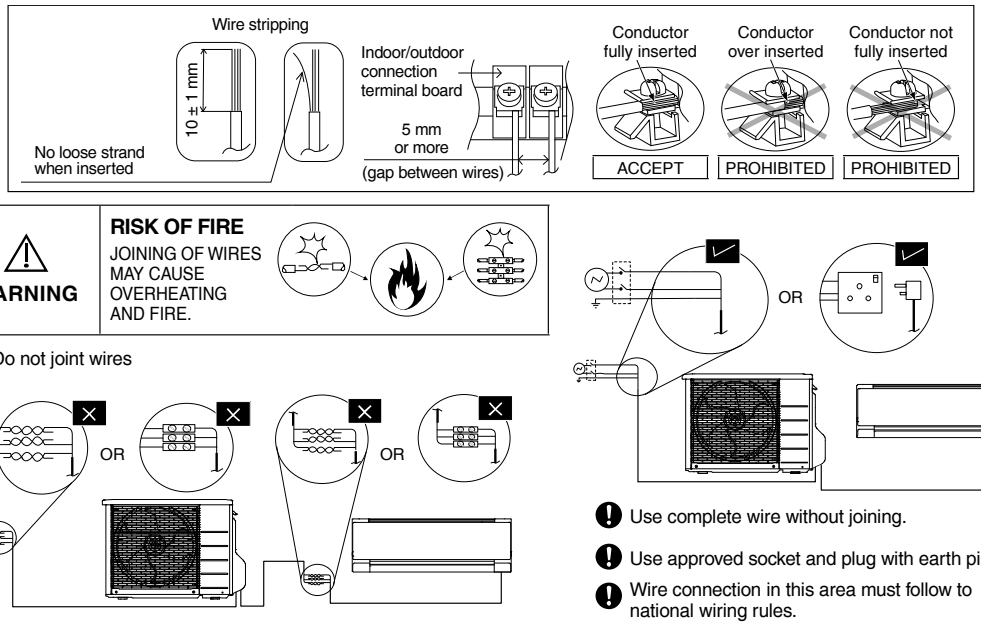
⚠ WARNING

⏚ This equipment must be properly earthed.

Note:

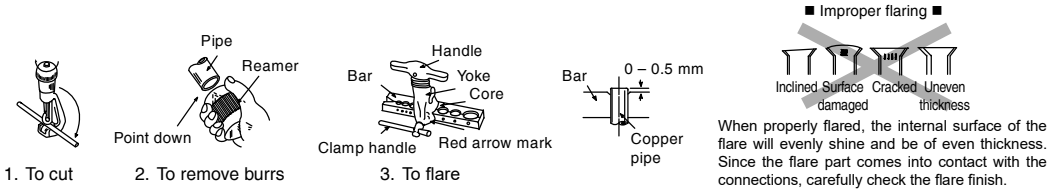
- Secure the connection cable onto the control board with the holder.
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

10.2.5 Wire Stripping and Connecting Requirement



10.2.6 Cutting and Flaring the Piping

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



10.2.7 Pump down method when reuse existing piping (R22 model) for R410A model

Compressor oil of R22 model is insoluble in compressor oil of R410A model.
The mixing of compressor oil may cause damage of compressor.

Possibility of Mixing	To Reuse Old Piping
▪ Reuse of piping of R22 model is dangerous because of its compressor oil. ▪ Reuse the piping of R22 model only when it is unavoidable, eg. concealed piping. ▪ When reuse piping of R22 model, pump down must be carried out properly to ensure compressor oil which is remained inside piping is collected away.	▪ Piping of R22 model can be reused only when air conditioner is properly pumped down. ▪ The purpose of pump down is to collect back the compressor oil (which is mixed with refrigerant and circulating inside refrigeration cycle) properly into the outdoor unit of air conditioner.

10.2.8 Proper pump down method

① Operate air conditioner at cooling mode for 10~15 minutes.	② After 10~15 minutes of pre operation, close 2 way valve. After 3 minutes, close 3 way valve.	③ Take out air conditioner unit.	④ Install New Refrigerant air conditioner.
Most Important Process Purpose: To make the oil & refrigerant mix together. They are in separated condition when air conditioner is stopped.	Mixed refrigerant & oil will be collected into outdoor unit.	Only very small amount of oil remain inside piping, which is acceptable.	

In case pump down cannot be done, please flush the piping using R410A refrigerant.

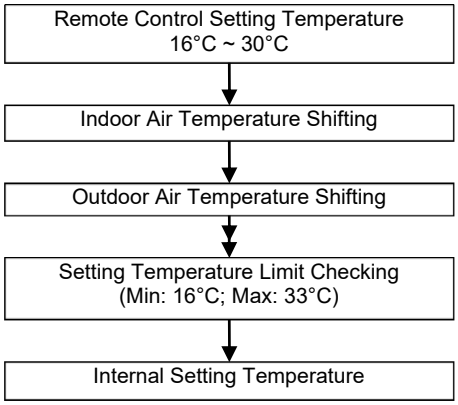
11. Operation Control

11.1 Basic Function

Inverter control, which equipped with a microcomputer in determining the most suitable operation mode as time passes, automatically adjusts output power for maximum comfort always. In order to achieve the suitable operation mode, the microcomputer maintains the set temperature by measuring the temperature of the environment and performing temperature shifting. The compressor at outdoor unit is operating following the frequency instructed by the microcomputer at indoor unit that judging the condition according to internal setting temperature and intake air temperature.

11.1.1 Internal Setting Temperature

Once the operation starts, remote control setting temperature will be taken as base value for temperature shifting processes. These shifting processes are depending on the air conditioner settings and the operation environment. The final shifted value will be used as internal setting temperature and it is updated continuously whenever the electrical power is supplied to the unit.



11.1.2 Cooling Operation

11.1.2.1 Thermostat control

- Compressor is OFF when intake Air Temperature - Internal Setting Temperature < -0.5°C.
- Compressor is ON after waiting for 3 minutes, if the Intake Temperature - Internal Setting Temperature > Compressor OFF point.

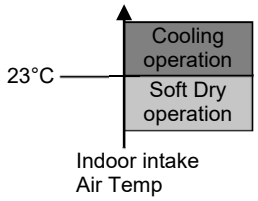
11.1.3 Soft Dry Operation

11.1.3.1 Thermostat control

- Compressor is OFF when Intake Temperature - Internal Setting Temperature < -1.0°C.
- Compressor is ON after waiting for 3 minutes, if the Intake Air Temperature - Internal Setting Temperature > Compressor OFF point.

11.1.3.2 Automatic Operation

- This mode can be set using remote control and the operation is decided by indoor intake air temperature.
- During operation mode judgment at the beginning of the Auto Mode operation, indoor fan motor (with speed of Lo-) is running for 30 seconds to detect the indoor intake air temperature.
- The operation mode is decided based on below chart.



- After the operation mode is decided, the unit operation will follow the respective operation mode control.

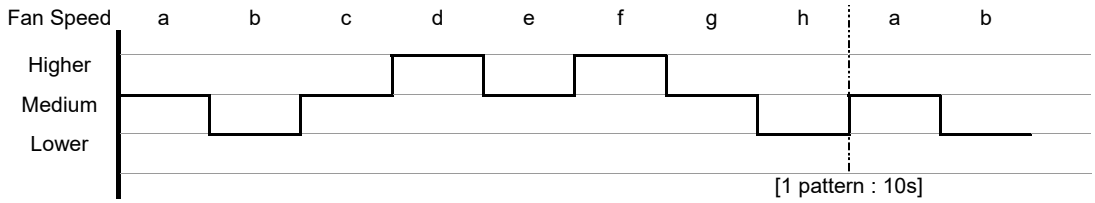
11.2 Indoor Fan Motor Operation

11.2.1 Basic Rotation Speed

- Manual Fan Speed
  - Fan motor's number of rotation is determined according to remote control setting.

Remote control	○	○	○	○	○
Tab	Hi	Me+	Me	Me-	Lo

- Auto Fan Speed
  - According to room temperature and setting temperature, indoor fan speed is determined automatically.
  - The indoor fan will operate according to pattern below.



- Feedback control
  - Immediately after the fan motor is started, feedback control is performed once 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 H19 – fan motor error is detected. Operation stopped and could not be restarted.

11.3 Airflow Direction

- There are two types of airflow, vertical airflow (directed by horizontal vane) and horizontal airflow (directed by vertical vanes).
- Control of airflow direction can be automatic (angles of direction is determined by operation mode, heat exchanger temperature and intake air temperature) and manual (angles of direction can be adjusted using remote control).

11.3.1 Vertical Airflow

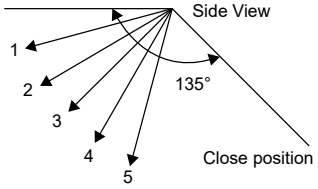
Operation Mode	Airflow Direction	Vane Angle (°)				
		1	2	3	4	5
Cooling	Auto	10 ~ 40				
	Manual	10	17.5	25	32.5	40
Soft Dry	Auto	10 ~ 40				
	Manual	10	17.5	25	32.5	40

MPS9/12/15SK

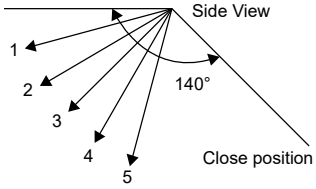
Operation Mode	Airflow Direction	Vane Angle (°)				
		1	2	3	4	5
Cooling	Auto	5 ~ 35				
	Manual	5	12.5	20	27.5	35
Soft Dry	Auto	5 ~ 35				
	Manual	5	12.5	20	27.5	35

MPS18/24SK/28SK

- Automatic vertical airflow direction can be set using remote control; the vane swings up and down within the angles as stated above. When the air conditioner is stopped using remote control, the vane will shift to close position.
- Manual vertical airflow direction can be set using remote control; the angles of the vane are as stated above and the positions of the vane are as figure below. When the air conditioner is stopped using remote control, the vane will shift to close position.



MPS9/12/15SK



MPS18/24/28SK

11.3.2 Horizontal Airflow

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

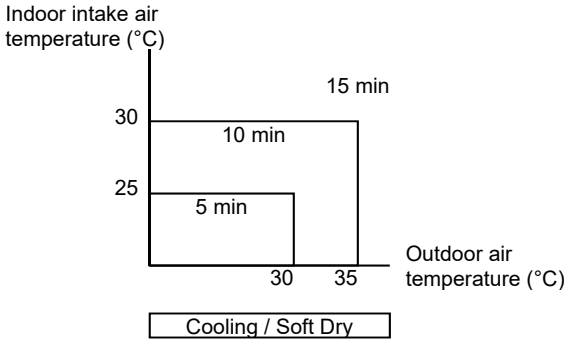
11.4 Timer Control

11.4.1 ON Timer Control

ON timer can be set using remote control, where the unit with timer set will start operation earlier than the setting time. This is to provide a comfortable environment when reaching the set ON time.

60 minutes before the set ON time, indoor (at fan speed of Lo-) and outdoor fan motor start operation for 30 seconds to determine the indoor intake air temperature and outdoor air temperature in order to judge the operation starting time.

From the above judgment, the decided operation will start operation earlier than the set time as shown below.



11.4.2 OFF Timer Control

OFF timer can be set using remote control, where the unit with timer set will stop at set OFF time.
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.

11.5 Random Auto Restart Control

- When the power supply is cut off during the operation of air conditioner, the compressor will re-operate within three to four minutes. There are 10 patterns to be selected randomly after power supply resumes.
- This control is not applicable during OFF/ON Timer setting.
- This control can be omitted by open the circuit of JP1 at indoor unit printed circuit board.

11.6 Indication Panel

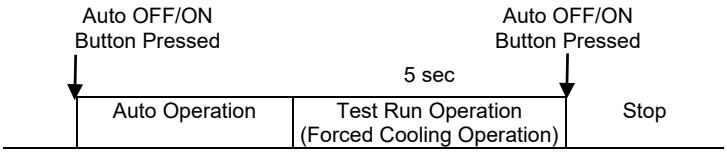
LED	POWER	TIMER
Color	Green	Orange
Light ON	Operation ON	Timer Setting ON
Light OFF	Operation OFF	Timer Setting OFF

Note:

- If POWER LED blinks, the possible operation of the unit is operation mode judgment, or ON timer sampling.
- If TIMER LED blinks, there is an abnormal operation occurs.

12. Servicing Mode

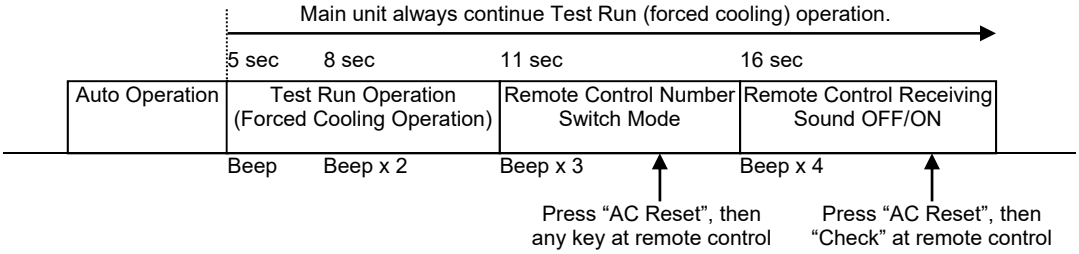
12.1 Auto Off/On Button



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 seconds, in order to identify the starting of this operation.

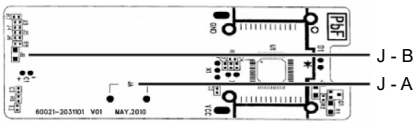
The Auto OFF/ON button may be used together with remote control to set / change the advance setting of air conditioner operation.



3 REMOTE CONTROL NUMBER SWITCH MODE
The Remote Control Number Switch Mode will be activated if the Auto OFF/ON button is pressed continuously for more than 11 seconds (3 “beep” sounds will occur at 11th seconds to identify the Remote Control Number Switch Mode is in standby condition), press “AC Reset” button and then press any button at remote control to transmit and store the desired transmission code to the EEPROM.

There are 4 types of remote control transmission code could be selected. 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 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

4 REMOTE CONTROL RECEIVING SOUND OFF/ON MODE
The Remote Control Receiving Sound OFF/ON Mode will be activated if the Auto OFF/ON button is pressed continuously for more than 16 seconds (4 “beep” sounds will occur at 16th seconds to identify the Remote Control Receiving Sound OFF/ON Mode is in standby condition) and press “AC Reset” button and then press “Check” button at remote control.

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.

12.2 Remote Control Button

12.2.1 SET Button

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

12.2.2 RESET (RC) Button

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

12.2.3 TIMER ▲

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

12.2.4 TIMER ▼

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

13. Troubleshooting Guide

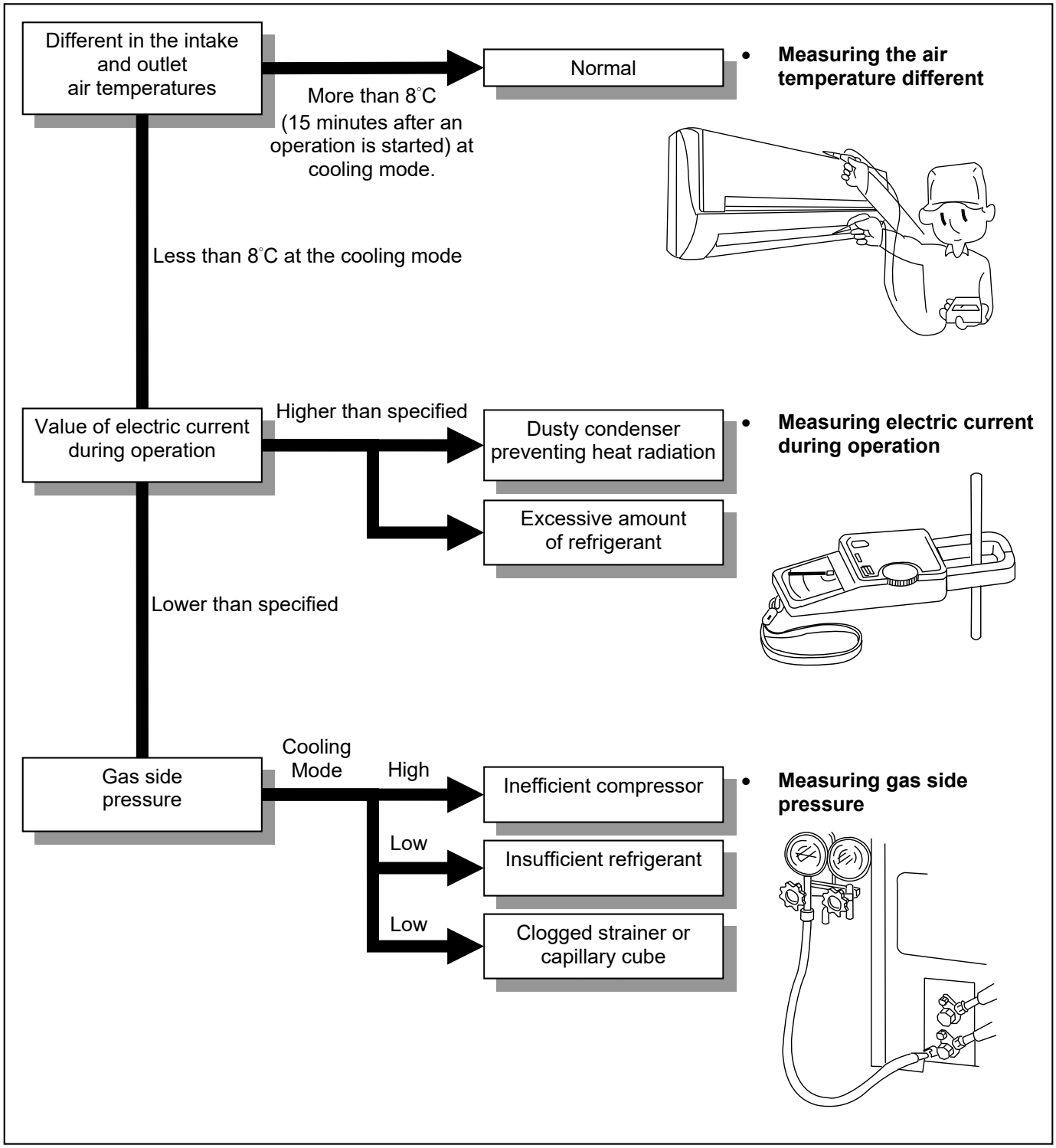
13.1 Refrigeration Cycle System

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	0.9 ~ 1.2 (9 ~ 12)	12 ~ 16

Condition: Indoor fan speed = High
Outdoor temperature = 35°C at cooling mode.
Compressor operate at rated frequency



13.1.1 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.

13.2 Breakdown Self Diagnosis Function

13.2.1 Self Diagnosis Function (Three Digits Alphanumeric Code)

- Once error occurred during operation, the unit will stop its operation, and Timer LED blinks.
- Although Timer LED goes off when power supply is turned off, if the unit is operated under a breakdown condition, the LED will ON again.
- In operation after breakdown repair, the Timer LED will not blink. The last error code (abnormality) will be stored in IC memory.

13.2.2 To Make a Diagnosis

1 Timer LED starts to blink and the unit automatically stops the operation.
2 Press the CHECK button on the remote control continuously for 5 seconds.
3 "- -" will be displayed on the remote control display.
Note: Display only for "- -" (No signal transmission, no receiving sound and no Power LED blinking)
4 Press the TIMER ▲ or ▼ button on the remote control. The code "H00" (no abnormality) will be displayed and signal will be transmit to the main unit.
5 Each press of the button (▲ or ▼) will increase error code number and transmit error code signal to the main unit.
6 When the latest abnormality code on the main unit and code transmitted from the remote control are matched, Power LED will light up for 30 seconds and a "beep" sound (continuously for 4 seconds) will be heard. If no codes are matched, Power LED will light up for 0.5 seconds and no sound will be heard.
7 The breakdown diagnosis mode will be canceled unless pressing the CHECK button continuously for 5 seconds or operating the unit for 30 seconds.
8 The LED will be off if the unit is turned off or the RESET button on the main unit is pressed.

13.2.3 To Display Memorized Error Code (Protective Operation)

1 Turn power on.
2 Press the CHECK button on the remote control.
3 "- -" will be displayed on the remote control display.
Note: Display only for "- -" (No signal transmission, no receiving sound and no Power LED blinking)
4 Press the TIMER ▲ or ▼ button on the remote control. The code "H00" (no abnormality) will be displayed and signal will be transmit to the main unit.
5 Each press of the button (▲ or ▼) will increase error code number and transmit error code signal to the main unit.
6 When the latest abnormality code on the main unit and code transmitted from the remote control are matched, Power LED will light up for 30 seconds and a "beep" sound (continuously for 4 seconds) will be heard. If no codes are matched, Power LED will light up for 0.5 seconds and no sound will be heard.
7 The breakdown diagnosis mode will be canceled unless pressing the CHECK button continuously for 5 seconds or operating the unit for 30 seconds.
8 The same diagnosis can be repeated by turning power on again.

13.2.4 To Clear Memorized Error Code after Repair (Protective Operation)

1 Turn power on (in standby condition).
2 Press the AUTO button for 5 seconds (a "beep" sound is heard) on the main unit to operate the unit at Forced Cooling Operation Mode.
3 Press the CHECK button on the remote control for about 1 second with a pointed object to transmit signal to main unit. A "beep" sound is heard, and the Error Code is cleared.

13.2.5 Temporary Operation (Depending On Breakdown Status)

1 Press the Auto OFF/ON button on the main unit (a "beep" sound is heard) to operate the unit. (Remote control is enable again).
2 The unit can be temporarily be used until repaired.

Error Code	Operation	Temporary items
H23	Cooling	Emergency Operation with limited power
H27, H28	Cooling	

13.3 Error Code Table

Diagnosis display	Abnormality / Protection control	Abnormality Judgment	Protection Operation	Problem	Check location
H00	No memory of failure	—	Normal operation	—	—
H11	Indoor/outdoor abnormal communication	After operation for 1 minute	Indoor fan only operation can start by entering into force cooling operation	Indoor/outdoor communication not establish	• Indoor/outdoor wire terminal • Indoor/outdoor PCB • Indoor/outdoor connection wire
H12	Indoor unit capacity unmatched	90s after power supply	—	Total indoor capability more than maximum limit or less than minimum limit, or number of indoor unit less than two	• Indoor/outdoor connection wire • Indoor/outdoor PCB • Specification and combination table in catalogue
H14	Indoor intake air temperature sensor abnormality	Continuous for 5s	—	Indoor intake air temperature sensor open or short circuit	• Indoor intake air temperature sensor lead wire and connector
H15	Compressor temperature sensor abnormality	Continuous for 5s	—	Compressor temperature sensor open or short circuit	• Compressor temperature sensor lead wire and connector
H16	Outdoor current transformer (CT) abnormality	—	—	Current transformer faulty or compressor faulty	• Outdoor PCB faulty or compressor faulty
H19	Indoor fan motor mechanism lock	Continuous happen for 7 times	—	Indoor fan motor lock or feedback abnormal	• Fan motor lead wire and connector • Fan motor lock or block
H23	Indoor heat exchanger temperature sensor abnormality	Continuous for 5s	—	Indoor heat exchanger temperature sensor open or short circuit	• Indoor heat exchanger temperature sensor lead wire and connector
H25	Indoor ion device abnormality	Port is ON for 10s during ion device off	—	—	• ion device PCB
H27	Outdoor air temperature sensor abnormality	Continuous for 5s	—	Outdoor air temperature sensor open or short circuit	• Outdoor air temperature sensor lead wire and connector
H28	Outdoor heat exchanger temperature sensor abnormality	Continuous for 5s	—	Outdoor heat exchanger temperature sensor open or short circuit	• Outdoor heat exchanger temperature sensor lead wire and connector
H30	Outdoor discharge pipe temperature sensor abnormality	Continuous for 5s	—	Outdoor discharge pipe temperature sensor open or short circuit	• Outdoor discharge pipe temperature sensor lead wire and connector
H33	Indoor / outdoor misconnection abnormality	—	—	Indoor and outdoor rated voltage different	• Indoor and outdoor units check
H34	Outdoor heat sink temperature sensor abnormality	Continuous for 2s	—	Outdoor heat sink temperature sensor open or short circuit	• Outdoor heat sink sensor
H36	Outdoor gas pipe temperature sensor abnormality	Continuous for 5s	Heating protection operation only	Outdoor gas pipe temperature sensor open or short circuit	• Outdoor gas pipe temperature sensor lead wire and connector
H38	Indoor/Outdoor mismatch (brand code)	—	—	Brand code not match	• Check indoor unit and outdoor unit
H39	Abnormal indoor operating unit or standby units	3 times happen within 40 minutes	—	Wrong wiring and connecting pipe, expansion valve abnormality, indoor heat exchanger sensor open circuit	• Check indoor/outdoor connection wire and connection pipe • Indoor heat exchanger sensor lead wire and connector • Expansion valve and lead wire and connector
H41	Abnormal wiring or piping connection	—	—	Wrong wiring and connecting pipe, expansion valve abnormality	• Check indoor/outdoor connection wire and connection pipe • Expansion valve and lead wire and connector
H59	ECONAVI sensor abnormality	Continuous for 25s	—	ECONAVI sensor open or short circuit	• ECONAVI sensor (defective or disconnected) • ECONAVI PCB
H64	Outdoor high pressure sensor abnormality	Continuous for 1 minute	—	High pressure sensor open circuit during compressor stop	• High pressure sensor • Lead wire and connector

Diagnosis display	Abnormality / Protection control	Abnormality Judgment	Protection Operation	Problem	Check location
H70	Light sensor abnormality	Continuous for 24 hours, 15 days	—	Light sensor open or short circuit	• Light sensor (defective or disconnect)
H97	Outdoor fan motor mechanism lock	2 times happen within 30 minutes	—	Outdoor fan motor lock or feedback abnormal	• Outdoor fan motor lead wire and connector • Fan motor lock or block
H98	Indoor high pressure protection	—	—	Indoor high pressure protection (Heating)	• Check indoor heat exchanger • Air filter dirty • Air circulation short circuit
H99	Indoor operating unit freeze protection	—	—	Indoor freeze protection (Cooling)	• Check indoor heat exchanger • Air filter dirty • Air circulation short circuit
F11	4-way valve switching abnormality “*”	4 times happen within 30 minutes	—	4-way valve switching abnormal	• 4-way valve • Lead wire and connector
F17	Indoor standby units freezing abnormality	3 times happen within 40 minutes	—	Wrong wiring and connecting pipe, expansion valve leakage, indoor heat exchanger sensor open circuit	• Check indoor/outdoor connection wire and pipe • Indoor heat exchanger sensor lead wire and connector • Expansion valve lead wire and connector
F90	System and compressor microcomputer communication error (for S10*** only)	2 times happen within 5 seconds	—	—	• Compressor • Outdoor PCB
F90	Power factor correction (PFC) circuit protection	4 times happen within 10 minutes	—	Power factor correction circuit abnormal	• Outdoor PCB faulty
F91	Refrigeration cycle abnormality	2 times happen within 20 minutes	—	Refrigeration cycle abnormal	• Insufficient refrigerant or valve close
F93	Compressor abnormal revolution	4 times happen within 20 minutes	—	Compressor abnormal revolution	• Power transistor module faulty or compressor lock
F94	Compressor discharge overshoot protection	4 times happen within 30 minutes	—	Compressor discharge pressure overshoot	• Check refrigeration system
F95	Outdoor cooling high pressure protection	4 times happen within 20 minutes	—	Cooling high pressure protection	• Check refrigeration system • Outdoor air circuit
F96	Power transistor module overheating protection	4 times happen within 30 minutes	—	Power transistor module overheat	• PCB faulty • Outdoor air circuit (fan motor)
F97	Compressor overheating protection	3 times happen within 30 minutes	—	Compressor overheat	• Insufficient refrigerant
F98	Total running current protection	3 times happen within 20 minutes	—	Total current protection	• Check refrigeration system • Power source or compressor lock
F99	Outdoor direct current (DC) peak detection	Continuous happen for 7 times	—	Power transistor module current protection	• Power transistor module faulty or compressor lock

Note:
“ * ” – For cooling only model, it is the indication when indoor heat exchanger sensor or indoor air intake sensor has abnormality.

The memory data of error code is erased when the power supply is cut off, or press the Auto Switch until “beep” sound heard following by pressing the CHECK button at remote control.
Although operation forced to stop when abnormality detected, emergency operation is possible for certain errors (refer to Error Code Table) by using remote control or Auto OFF/ON button at indoor unit. However, the remote control signal receiving sound is changed from one “beep” to four “beep” sounds.

13.4 Troubleshooting Flowchart

13.4.1 H11 (Indoor/Outdoor Abnormal Communication)

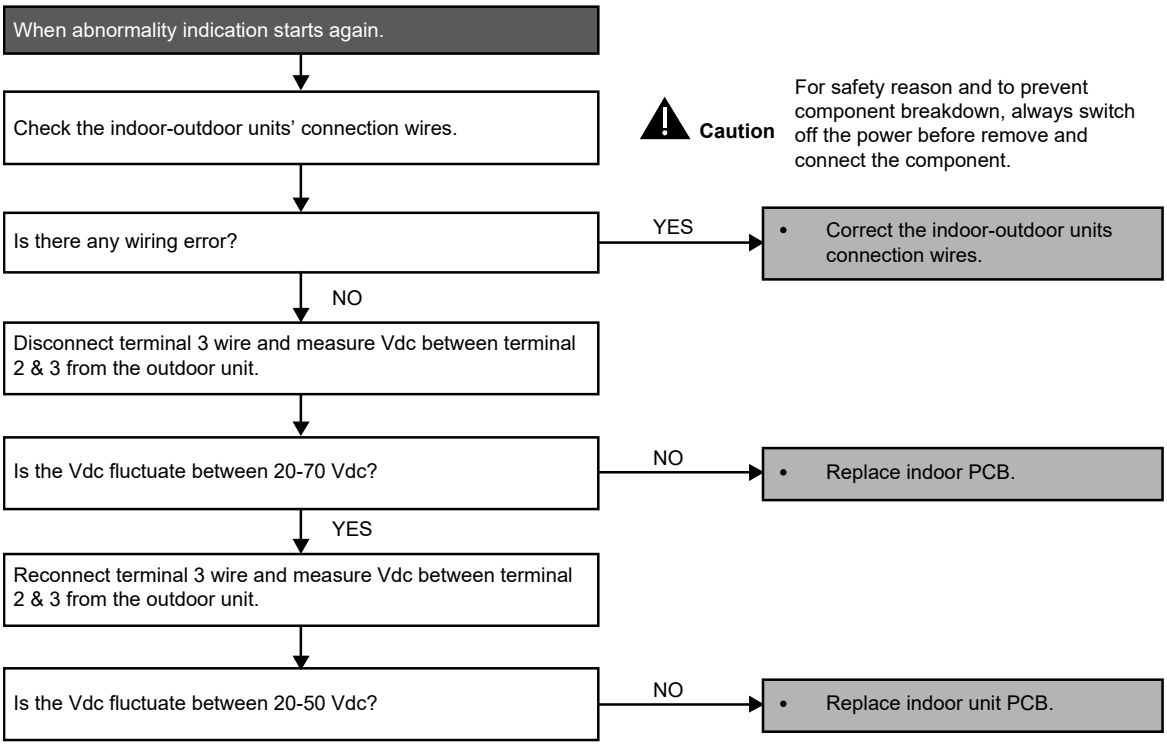
Malfunction Decision Conditions

- During startup and operation of cooling, the data received from outdoor unit in indoor unit signal transmission is checked whether it is normal.

Malfunction Caused

- Faulty indoor unit PCB.
- Faulty outdoor unit PCB.
- Indoor unit-outdoor unit signal transmission error due to wrong wiring.
- Indoor unit-outdoor unit signal transmission error due to breaking of wire in the connection wires between the indoor and outdoor units.
- Indoor unit-outdoor unit signal transmission error due to disturbed power supply waveform.

Troubleshooting



13.4.2 H12 (Indoor/Outdoor Capacity Rank Mismatched)

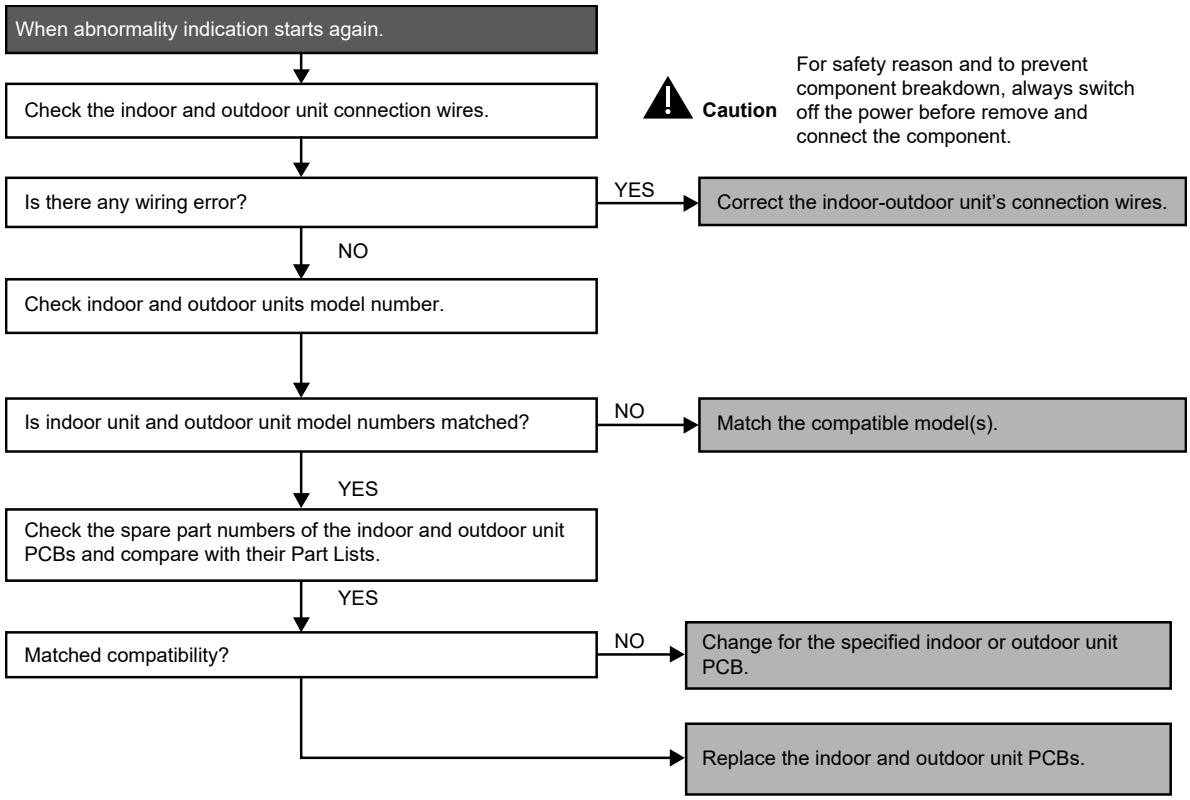
Malfunction Decision Conditions

- During startup, error code appears when different types of indoor and outdoor units are interconnected.

Malfunction Caused

- Wrong models interconnected.
- Wrong indoor unit or outdoor unit PCBs mounted.
- Indoor unit or outdoor unit PCBs defective.
- Indoor-outdoor unit signal transmission error due to wrong wiring.
- Indoor-outdoor unit signal transmission error due to breaking of wire 3 in the connection wires between the indoor and outdoor units.

Troubleshooting



13.4.3 H14 (Indoor Intake Air Temperature Sensor Abnormality)

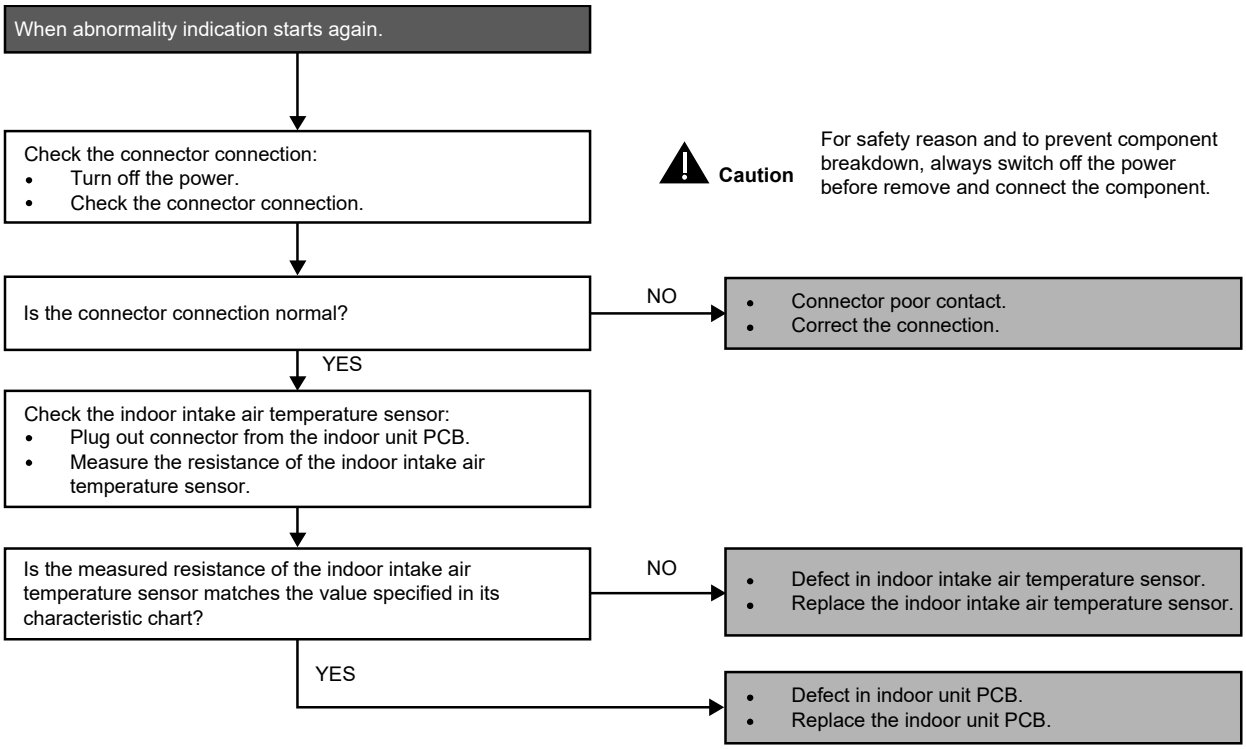
Malfunction Decision Conditions

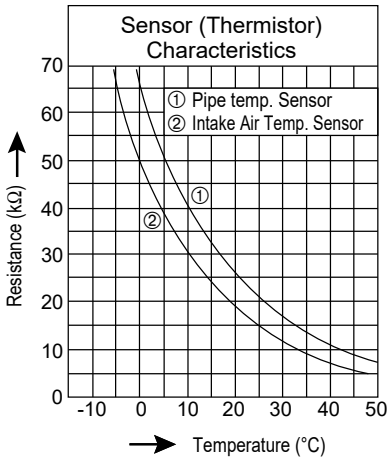
- During startup and operation of cooling, the temperatures detected by the indoor intake air temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting





13.4.4 H15 (Compressor Temperature Sensor Abnormality)

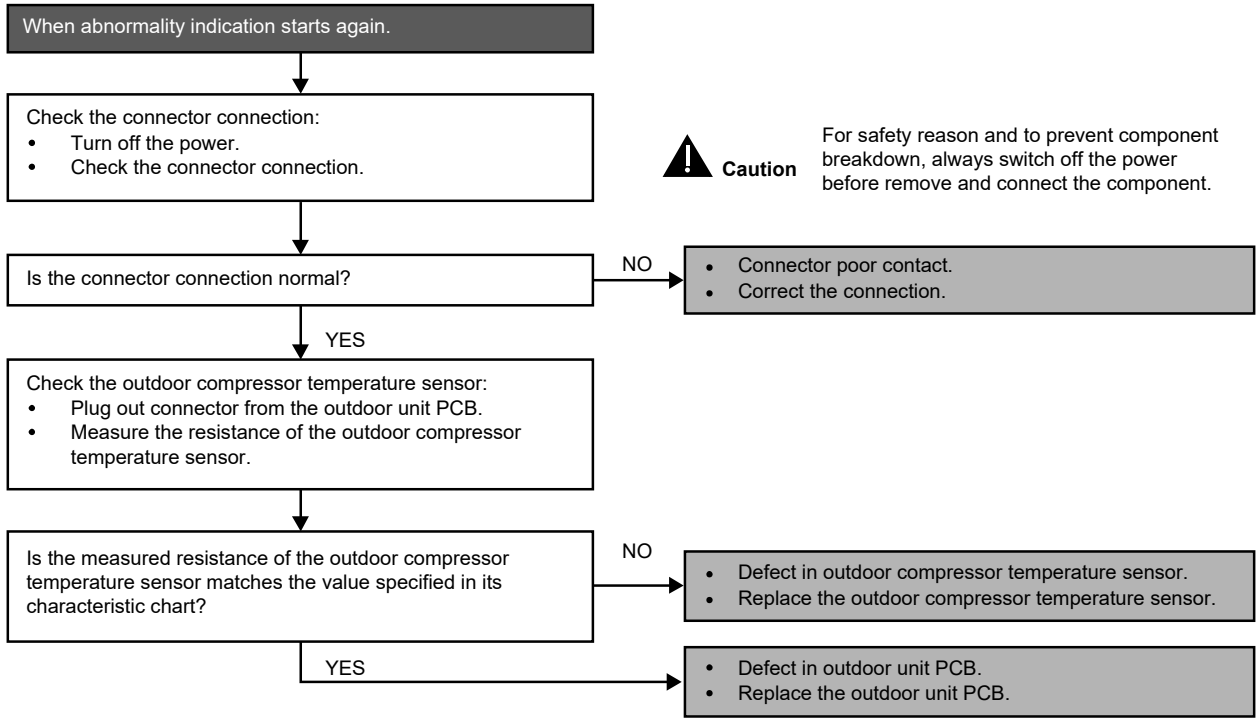
Malfunction Decision Conditions

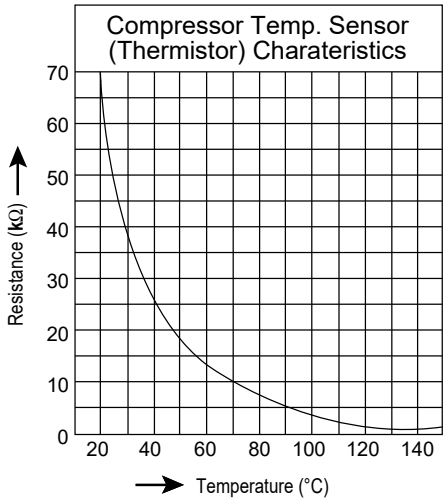
- During startup and operation of cooling, the temperatures detected by the outdoor compressor temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting





13.4.5 H16 (Outdoor Current Transformer Open Circuit)

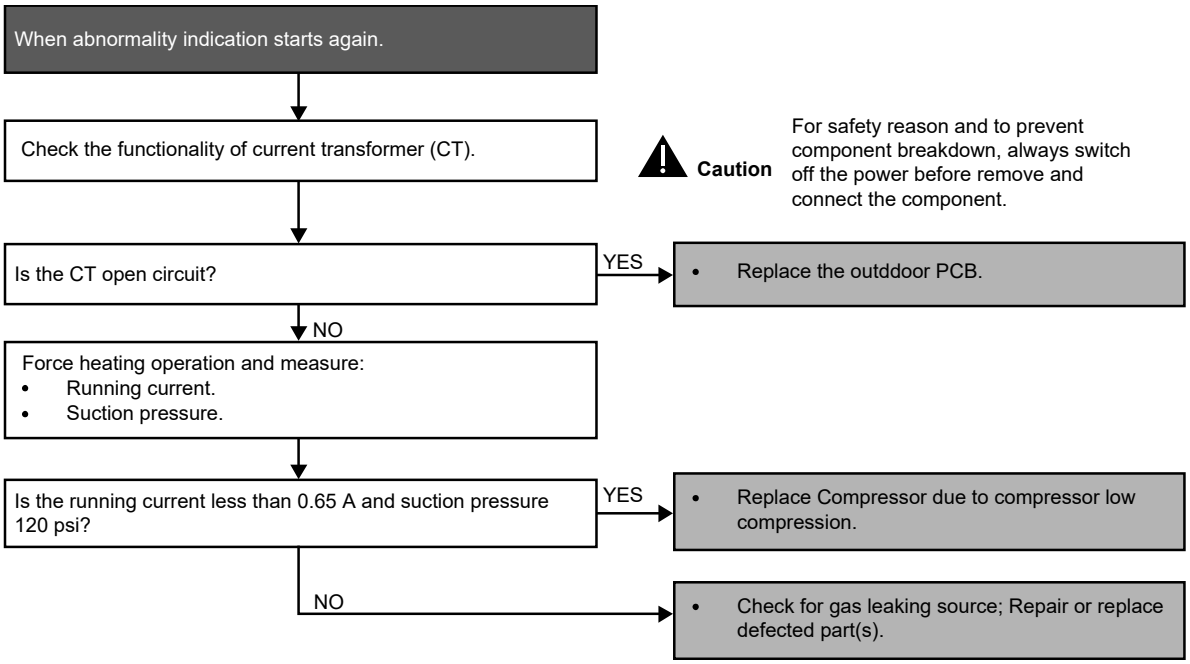
Malfunction Decision Conditions

- A current transformer (CT) is detected by checking the compressor running frequency (≥ rated frequency) and CT detected input current (less than 1.14A) for continuously 20 seconds.

Malfunction Caused

- CT defective.
- Outdoor PCB defective.
- Compressor defective (low compression).

Troubleshooting



13.4.6 H19 (Indoor Fan Motor – DC Motor Mechanism Locked)

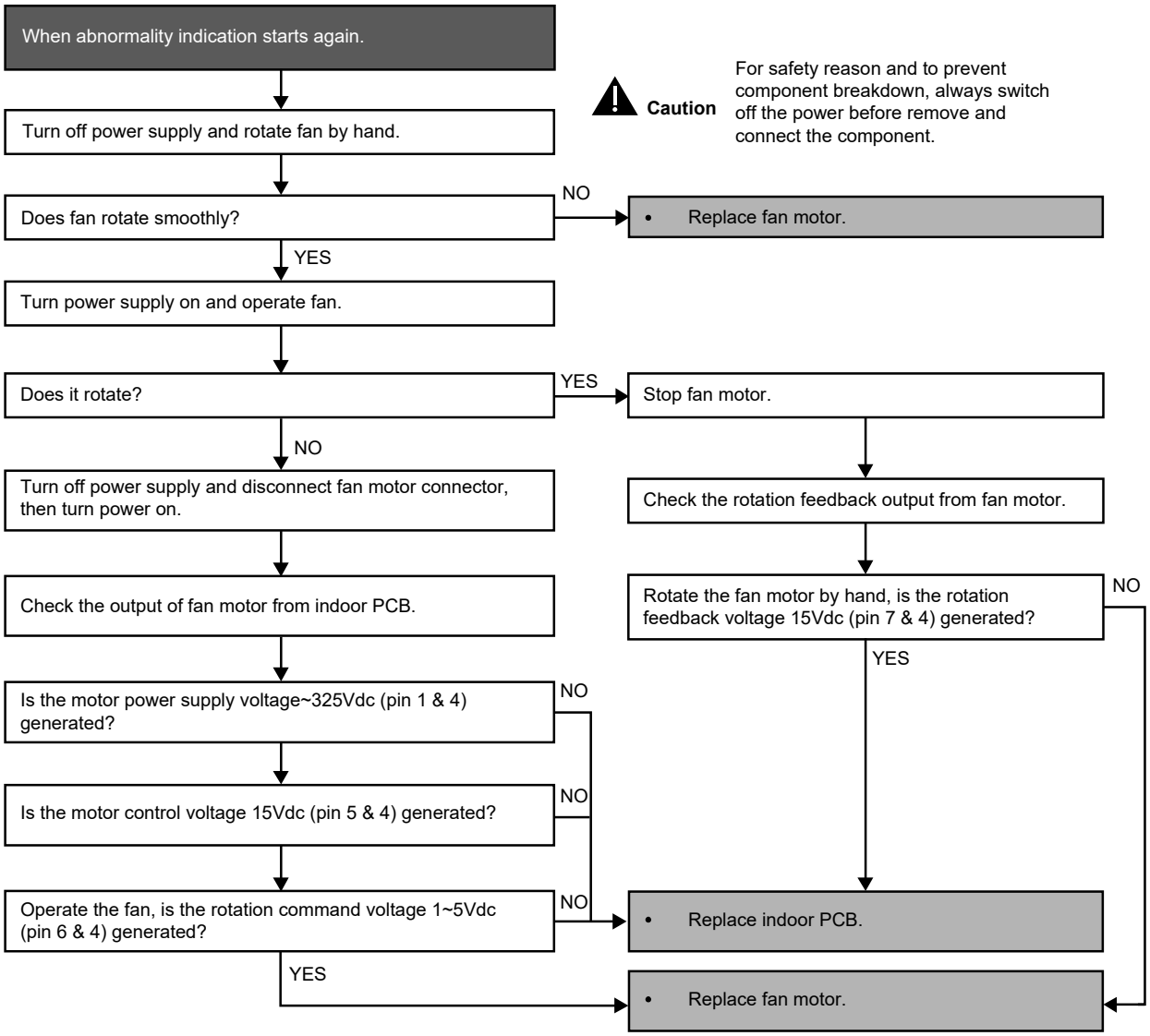
Malfunction Decision Conditions

- The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor (feedback of rotation > 2550rpm or < 50rpm).

Malfunction Caused

- Operation stops due to short circuit inside the fan motor winding.
- Operation stops due to breaking of wire inside the fan motor.
- Operation stops due to breaking of fan motor lead wires.
- Operation stops due to Hall IC malfunction.
- Operation error due to faulty indoor unit PCB.

Troubleshooting



13.4.7 H23 (Indoor Pipe Temperature Sensor Abnormality)

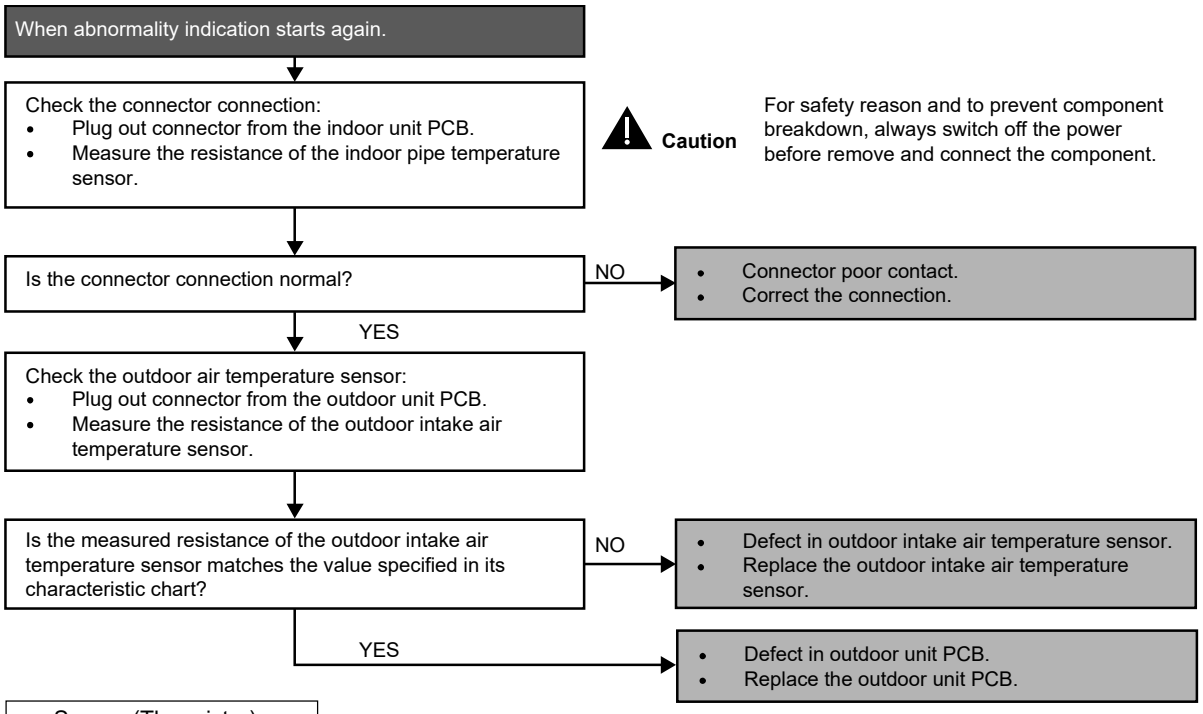
Malfunction Decision Conditions

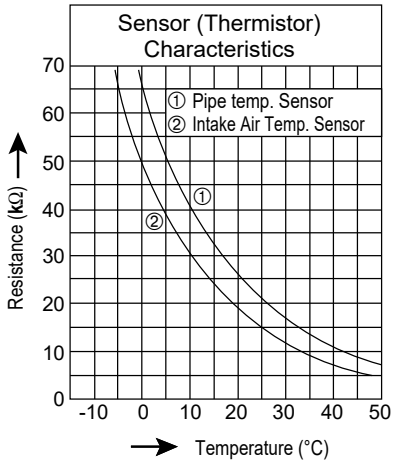
- During startup and operation of cooling, the temperatures detected by the indoor heat exchanger temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting





13.4.8 H27 (Outdoor Air Temperature Sensor Abnormality)

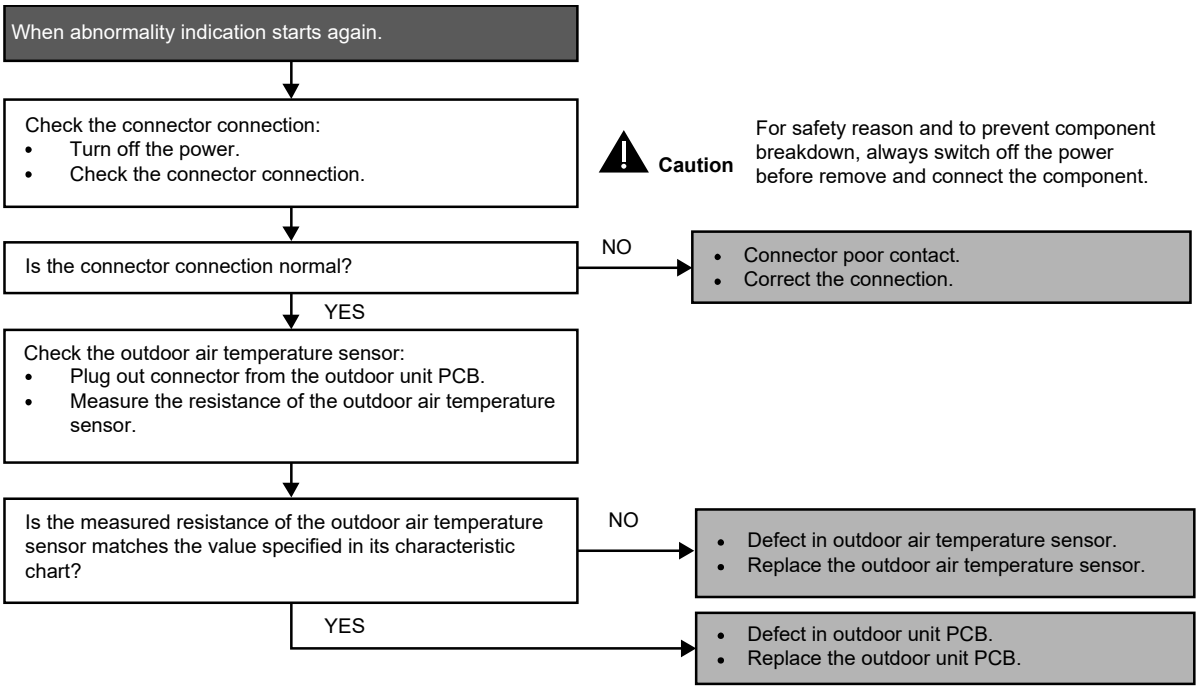
Malfunction Decision Conditions

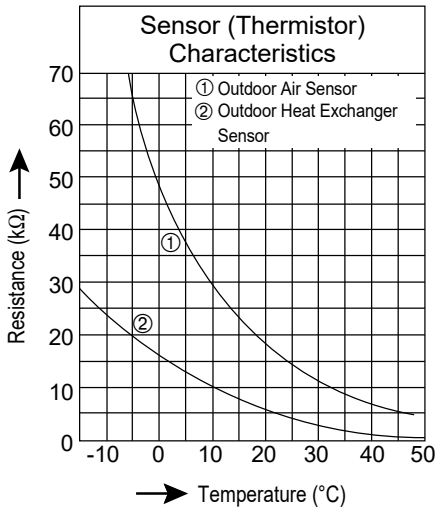
- During startup and operation of cooling, the temperatures detected by the outdoor air temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting





13.4.9 H28 (Outdoor Pipe Temperature Sensor Abnormality)

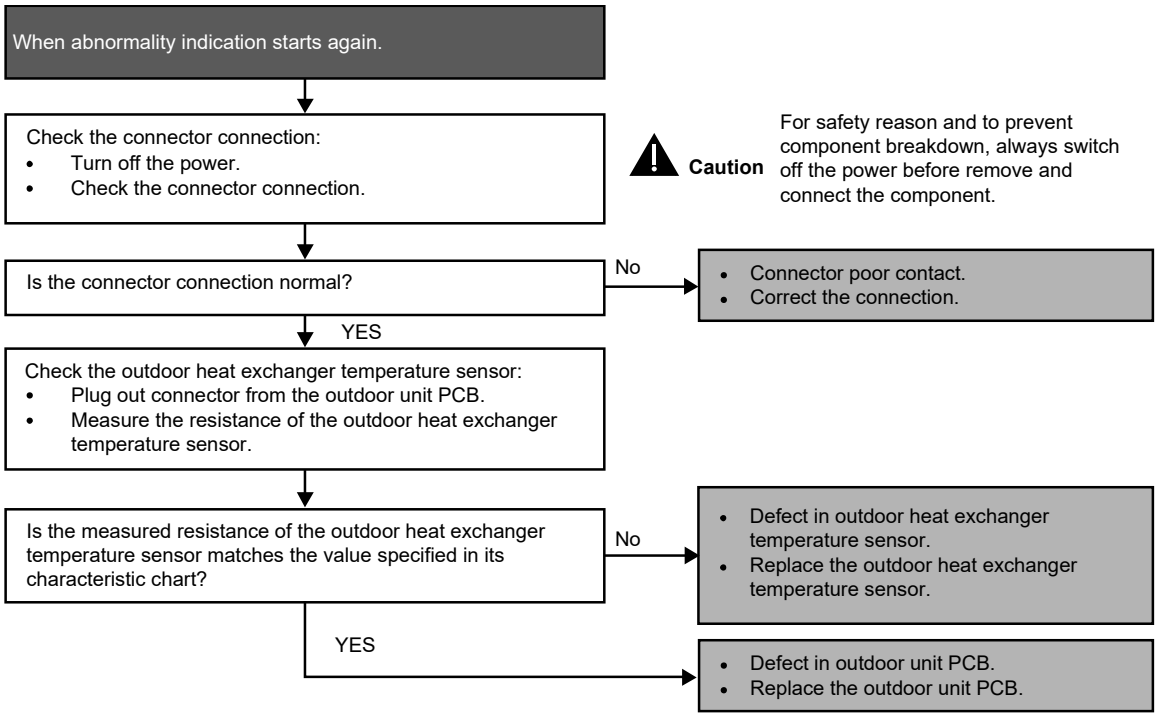
Malfunction Decision Conditions

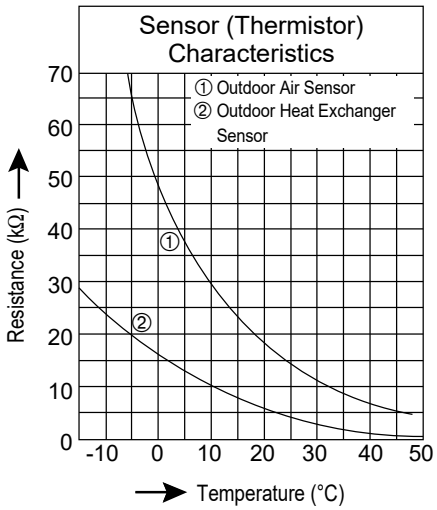
- During startup and operation of cooling, the temperatures detected by the outdoor pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting





13.4.10 H30 (Compressor Discharge Temperature Sensor Abnormality)

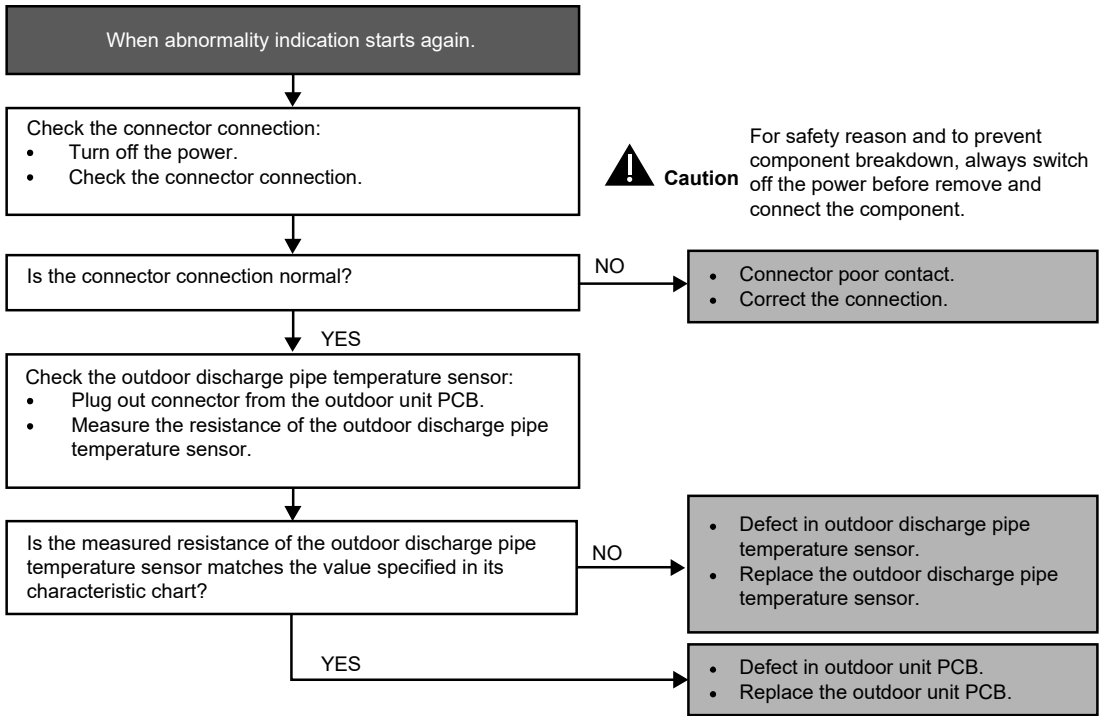
Malfunction Decision Conditions

- During startup and operation of cooling, the temperatures detected by the outdoor discharge pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting



13.4.11 H33 (Unspecified Voltage between Indoor and Outdoor)

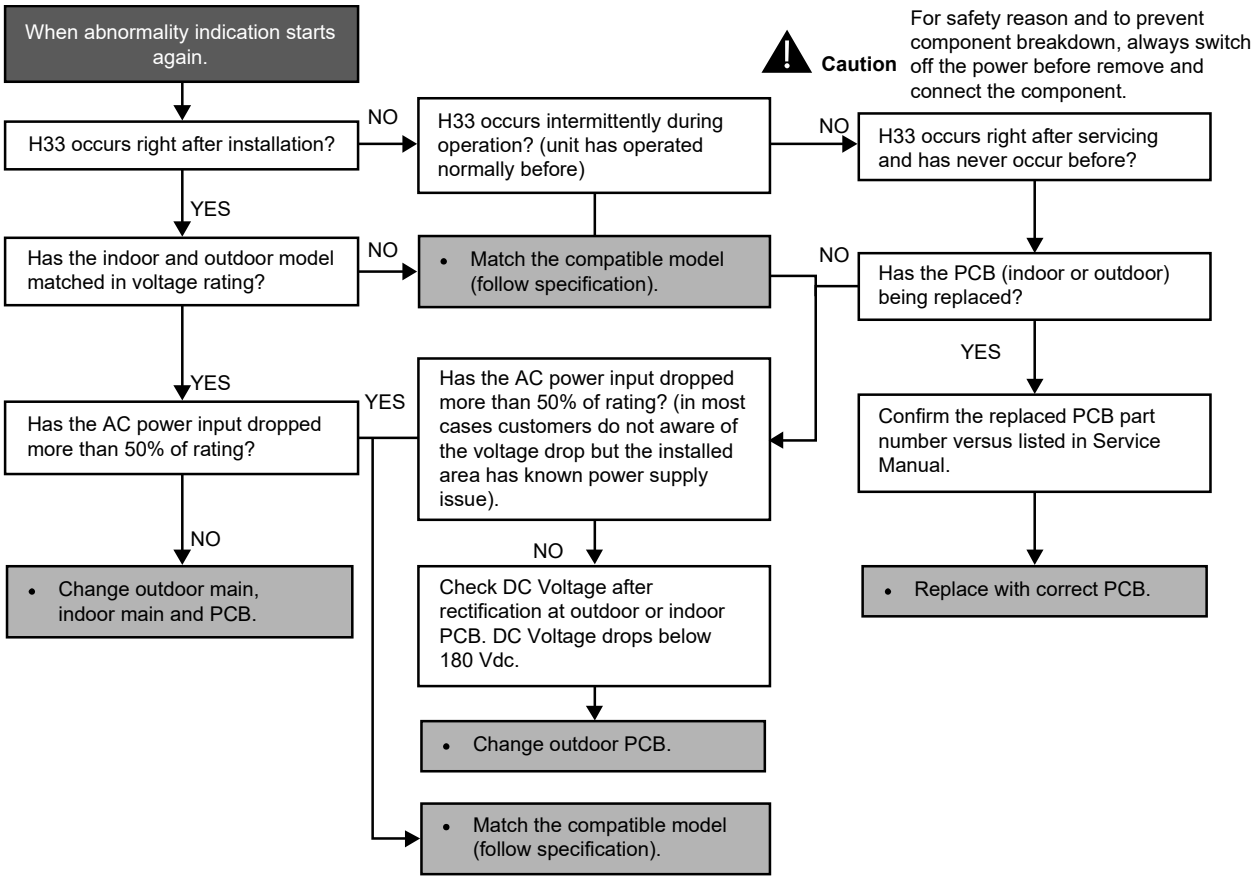
Malfunction Decision Conditions

- The supply power is detected for its requirement by the indoor/outdoor transmission.

Malfunction Caused

- Wrong models interconnected.
- Wrong indoor unit and outdoor unit PCBs used.
- Indoor unit or outdoor unit PCB defective.

Troubleshooting



13.4.12 H34 (Outdoor Heat Sink Temperature Sensor Abnormality)

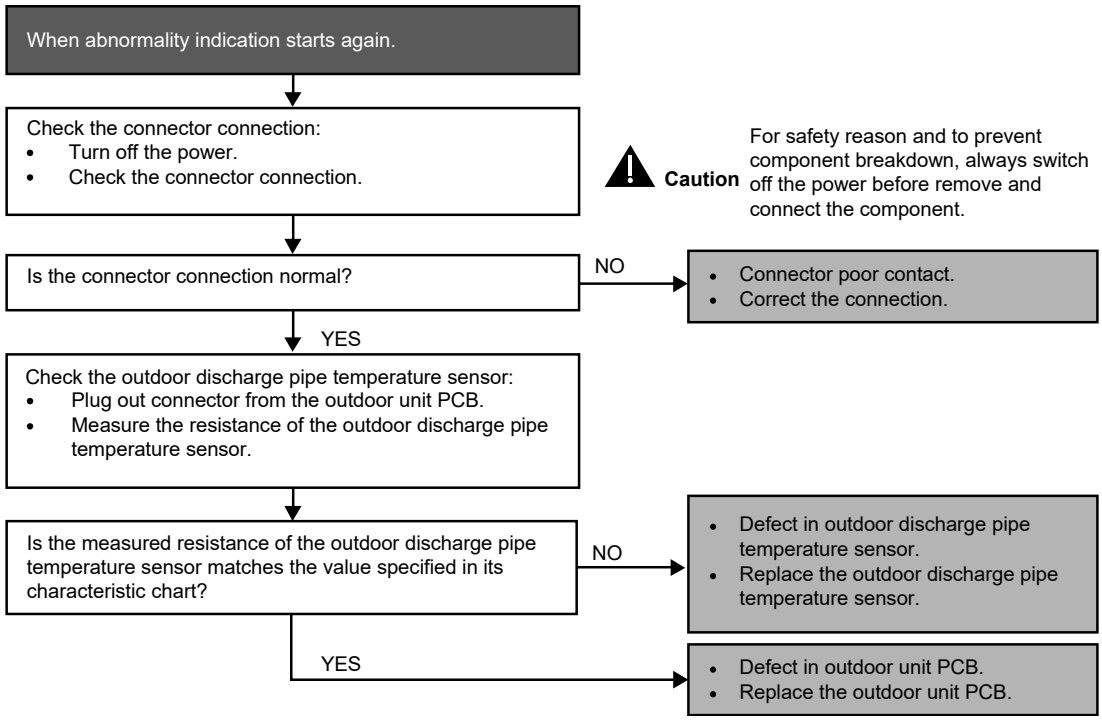
Malfunction Decision Conditions

- During startup and operation of cooling, the temperatures detected by the outdoor heat sink temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting



13.4.13 H36 (Outdoor Gas Pipe Sensor Abnormality)

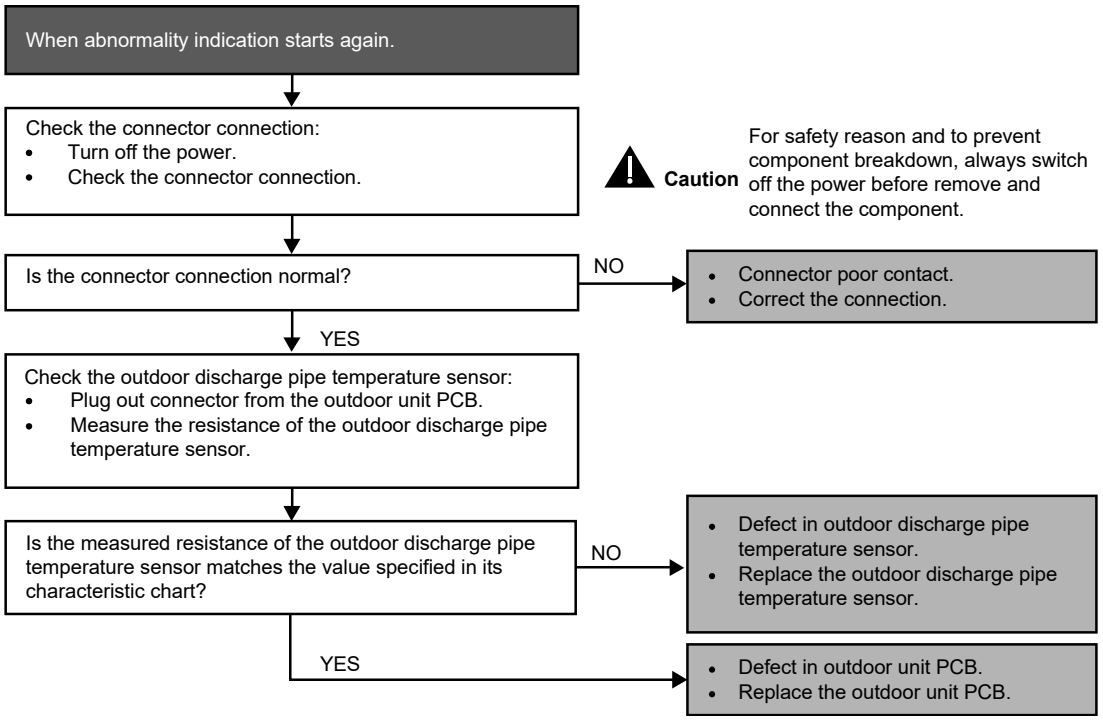
Malfunction Decision Conditions

- During startup and operation of cooling, the temperatures detected by the outdoor gas pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting



13.4.14 H97 (Outdoor Fan Motor – DC Motor Mechanism Locked)

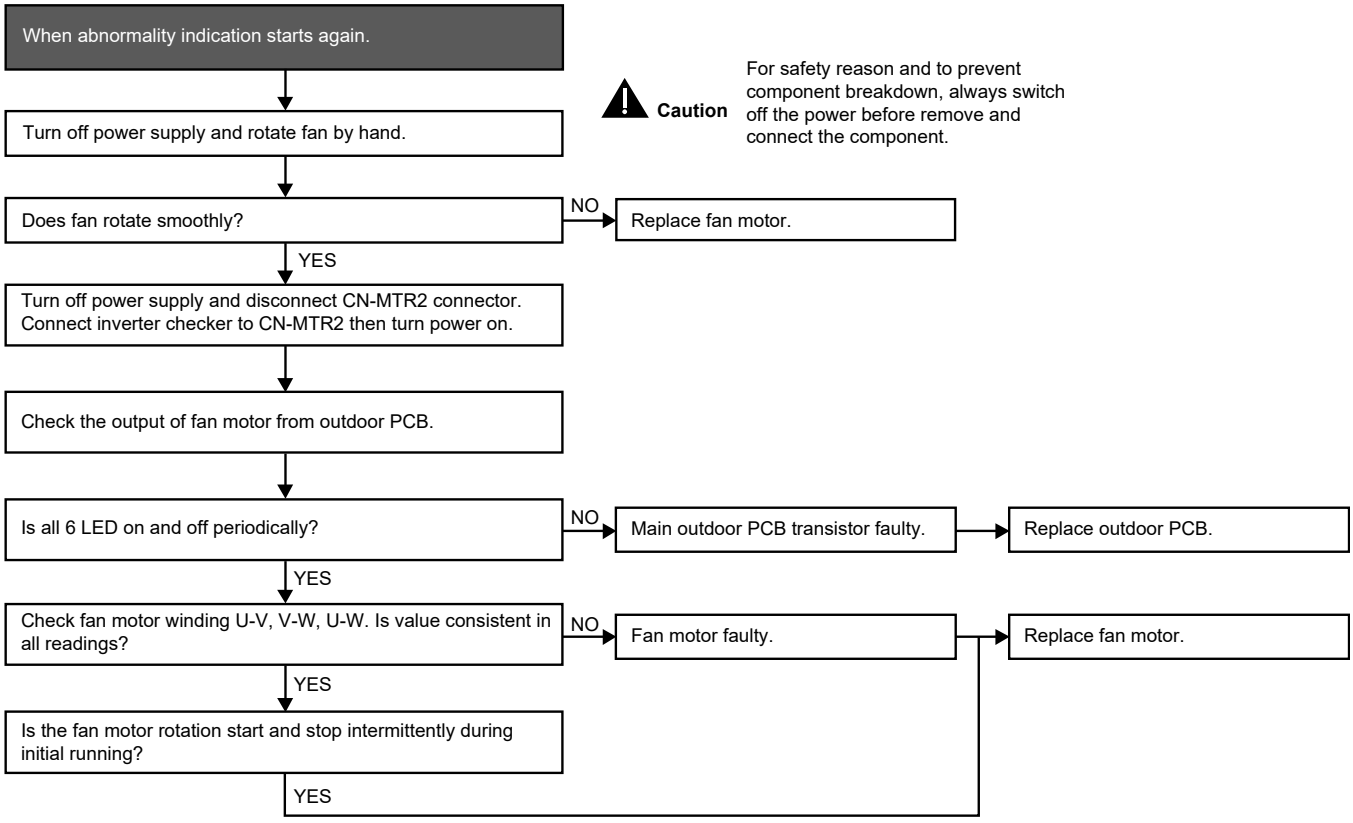
Malfunction Decision Conditions

- The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor.

Malfunction Caused

- Operation stops due to short circuit inside the fan motor winding.
- Operation stops due to breaking of wire inside the fan motor.
- Operation stops due to breaking of fan motor lead wires.
- Operation stops due to Hall IC malfunction.
- Operation error due to faulty outdoor unit PCB.

Troubleshooting



13.4.15 H98 (Indoor High Pressure Protection)

Error Code will not display (no Timer LED blinking) but store in EEPROM

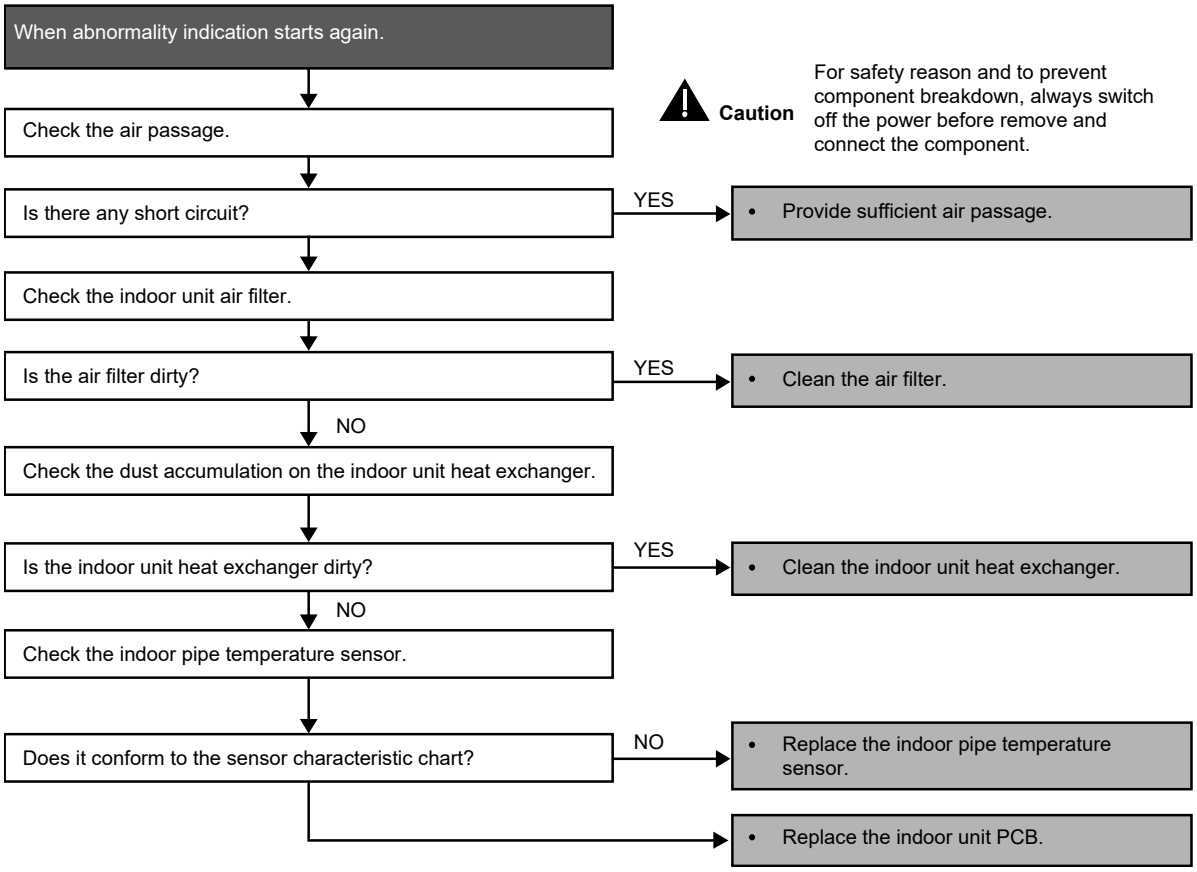
Malfunction Decision Conditions

- During operation, the temperature detected by the indoor pipe temperature sensor is above 60°C.

Malfunction Caused

- Clogged air filter of the indoor unit.
- Dust accumulation on the indoor unit heat exchanger.
- Air short circuit.
- Detection error due to faulty indoor pipe temperature sensor.
- Detection error due to faulty indoor unit PCB.

Troubleshooting



13.4.16 H99 (Indoor Freeze Prevention Protection: Cooling or Soft Dry)

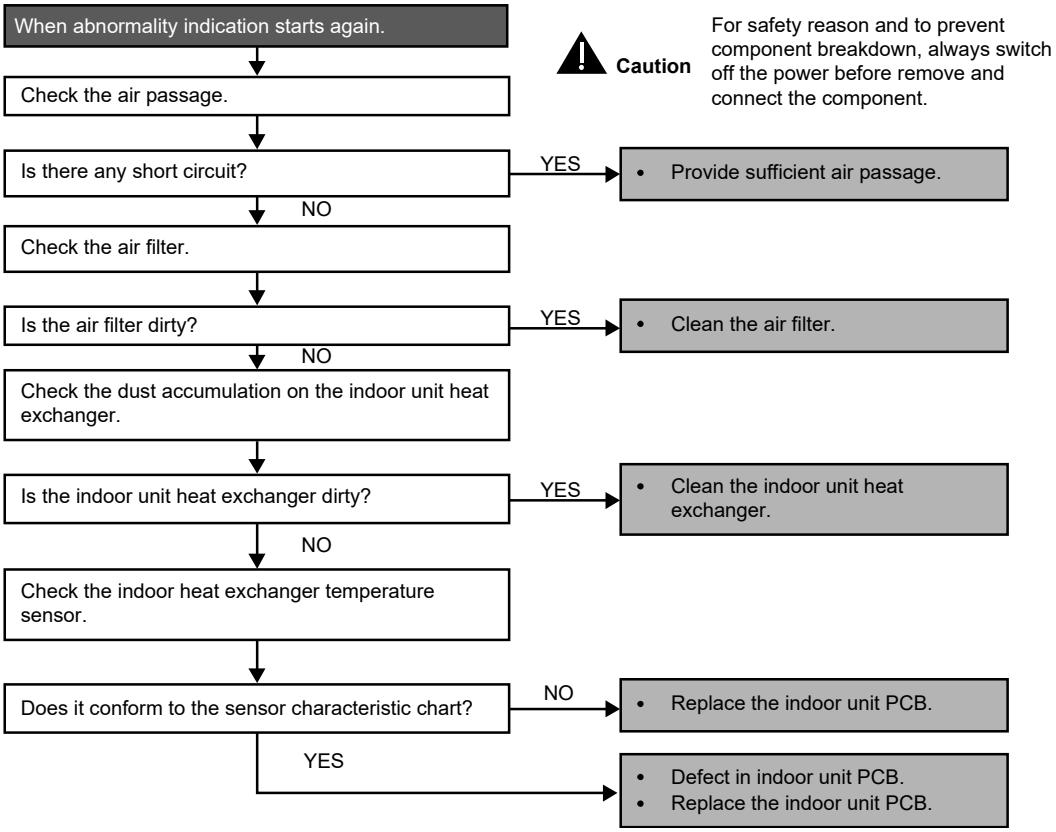
Malfunction Decision Conditions

- Freeze prevention control takes place (when indoor pipe temperature is lower than 2°C).

Malfunction Caused

- Clogged air filter of the indoor unit.
- Dust accumulation on the indoor unit heat exchanger.
- Air short circuit.
- Detection error due to faulty indoor pipe temperature sensor.
- Detection error due to faulty indoor unit PCB.

Troubleshooting



13.4.17 F11 (Indoor Pipe Temperature Sensor Abnormality)

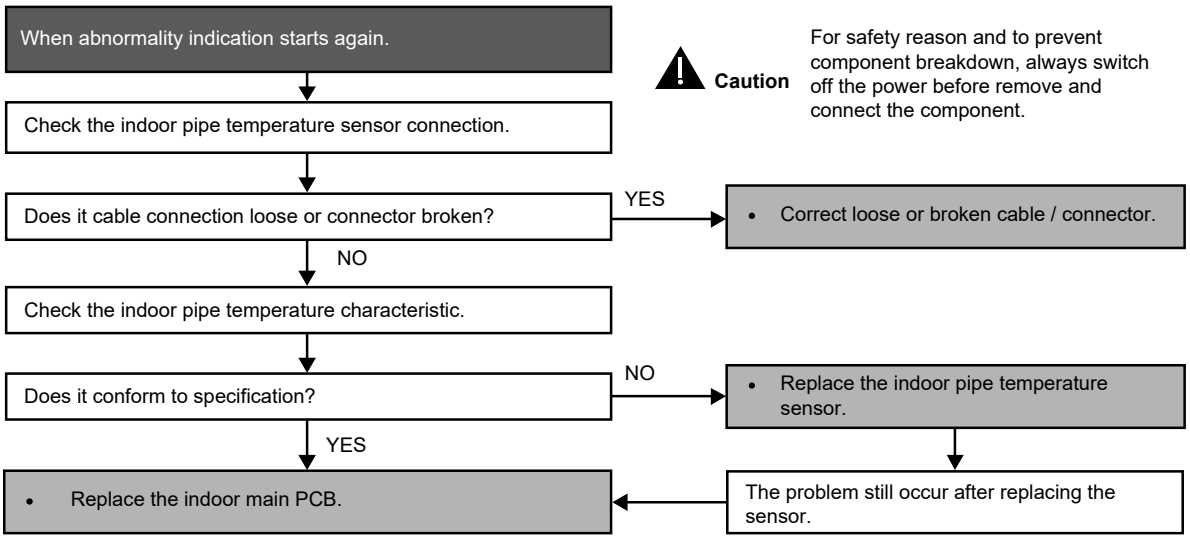
Malfunction Decision Conditions

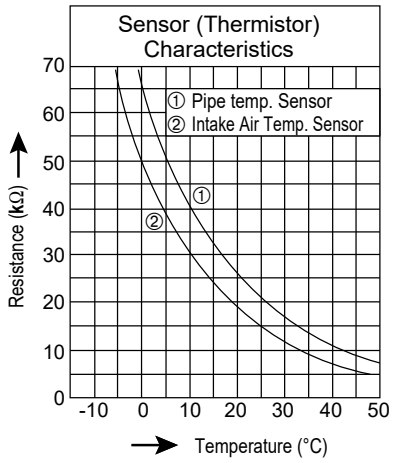
- When cooling operation, when indoor pipe temperature or indoor heat exchanger temperature sensor is above 45°C.

Malfunction Caused

- Faulty connector connection.
- Faulty indoor pipe temperature sensor.
- Faulty indoor main PCB.

Troubleshooting





13.4.18 F17 (Indoor Standby Units Freezing Abnormality)

Malfunction Decision Conditions

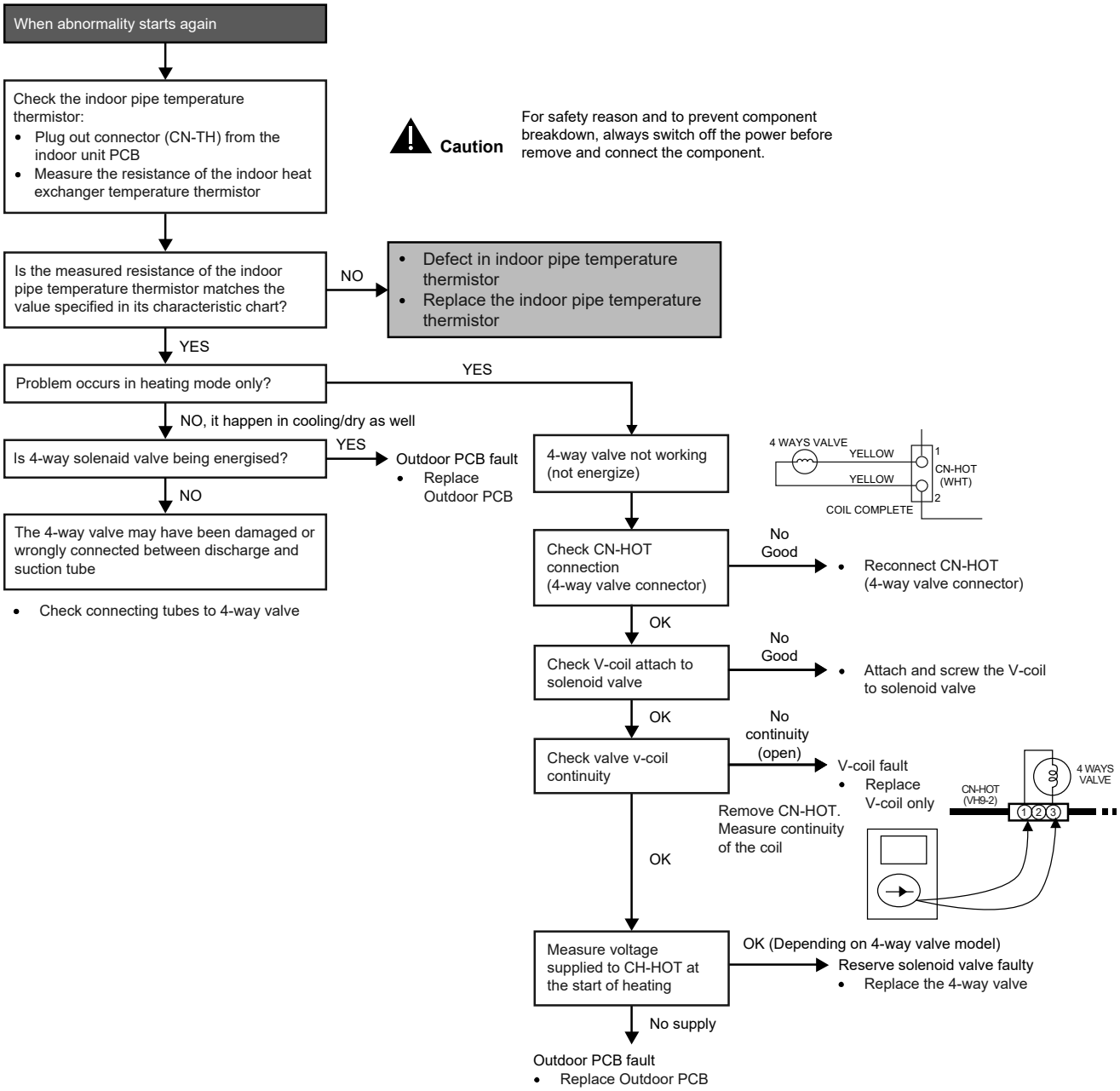
- When the different between indoor intake air temperature and indoor pipe temperature is above 10°C or indoor pipe temperature is below -1.0°C.

  Remark:
  When the indoor standby unit is freezing, the outdoor unit transfers F17 error code to the corresponding indoor unit and H39 to other indoor unit(s).

Malfunction Caused

- Wrong wiring connection.
- Faulty sensor.
- Faulty expansion valve.

Troubleshooting



13.4.19 F90 (Power Factor Correction Protection)

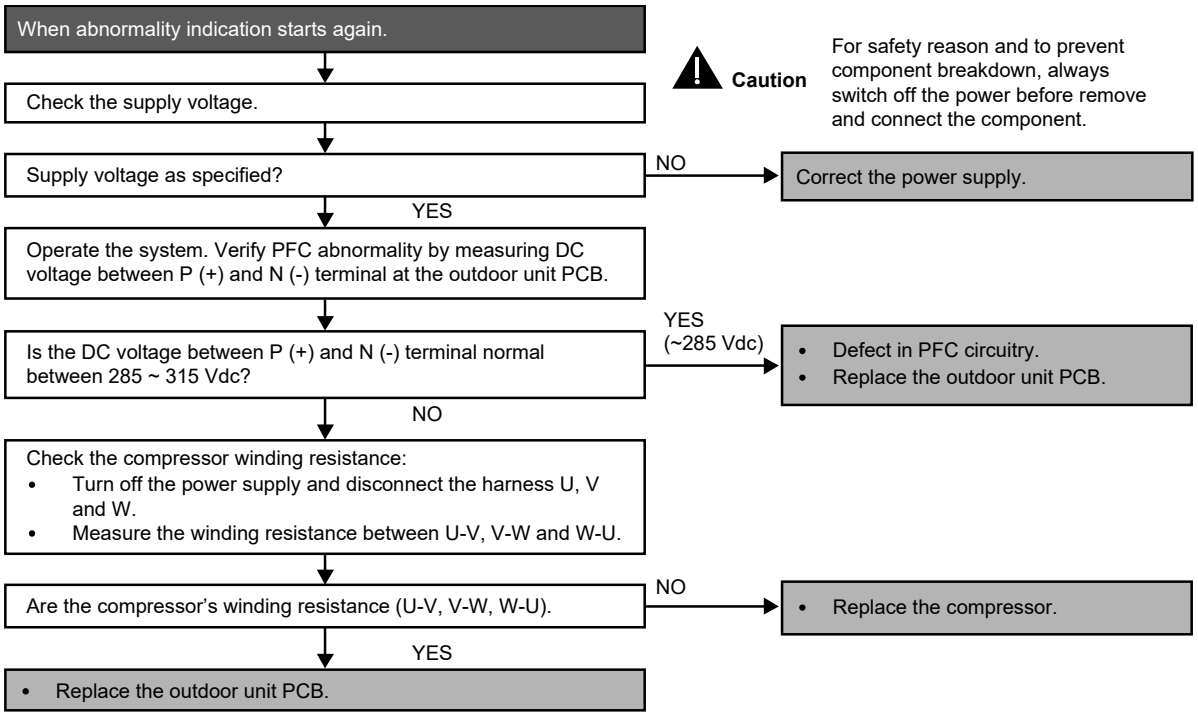
Malfunction Decision Conditions

- During startup and operation of cooling, when Power Factor Correction (PFC) protection circuitry at the outdoor unit main PCB senses abnormal high DC voltage level.

Malfunction Caused

- DC voltage peak due to power supply surge.
- DC voltage peak due to compressor windings not uniform.
- Faulty outdoor PCB.

Troubleshooting



13.4.20 F91 (Refrigeration Cycle Abnormality)

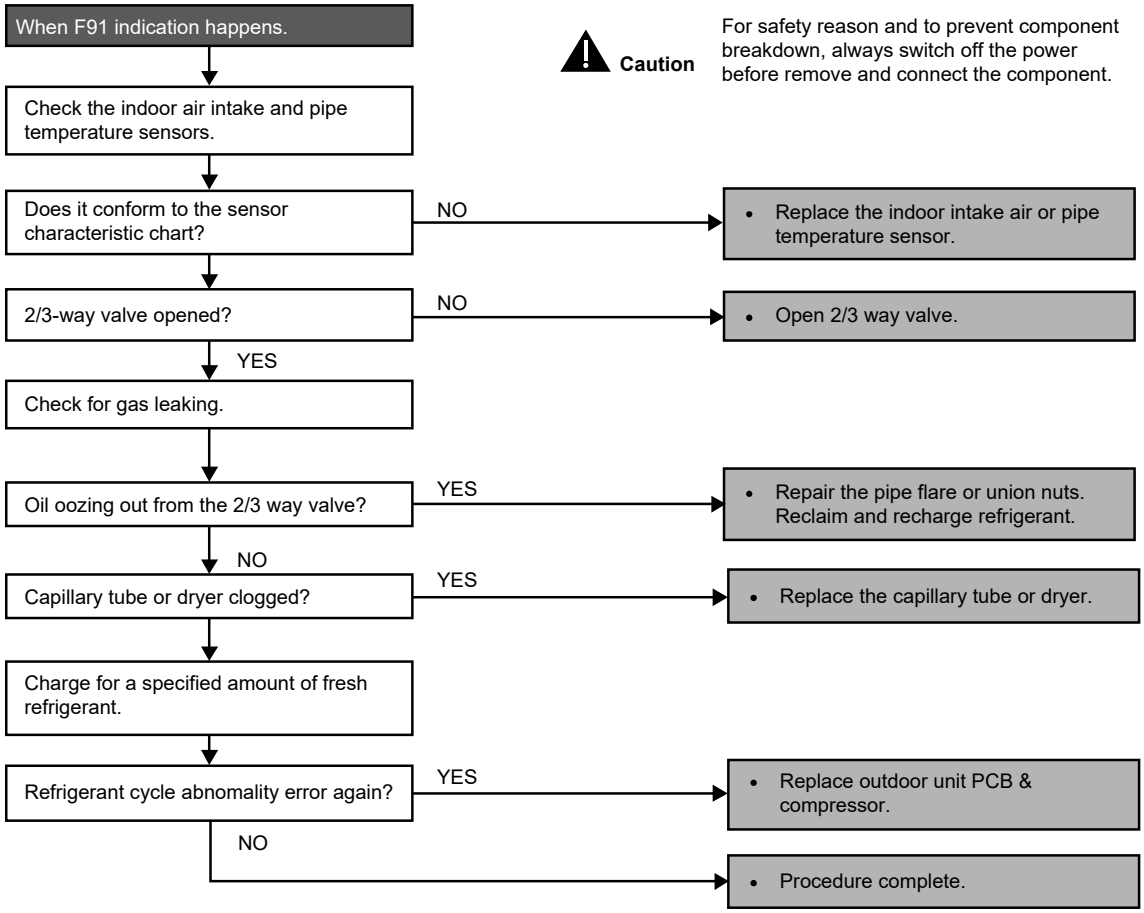
Malfunction Decision Conditions

- During cooling, compressor frequency = Fcmax.
- During cooling operation, running current: 0.65A < I < 1.65A.
- During cooling, indoor intake - indoor pipe < 4°C.

Malfunction Caused

- Refrigerant shortage (refrigerant leakage)
- Poor compression performance of compressor.
- 2/3 way valve closed.
- Detection error due to faulty indoor intake air or indoor pipe temperature sensors.

Troubleshooting



13.4.21 F93 (Compressor Rotation Failure)

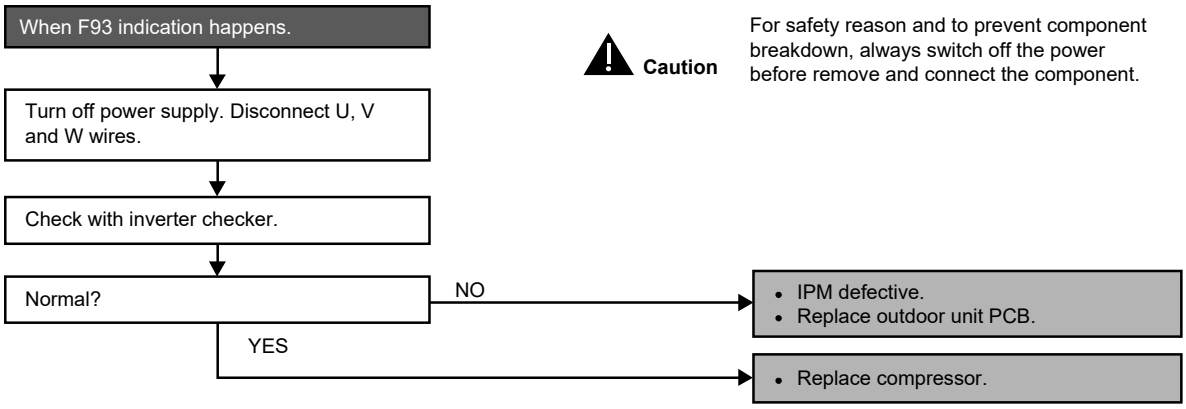
Malfunction Decision Conditions

A compressor rotation failure is detected by checking the compressor running condition through the position detection circuit.

Malfunction Caused

- Compressor terminal disconnect.
- Outdoor PCB malfunction.

Troubleshooting



13.4.22 F95 (Cooling High Pressure Abnormality)

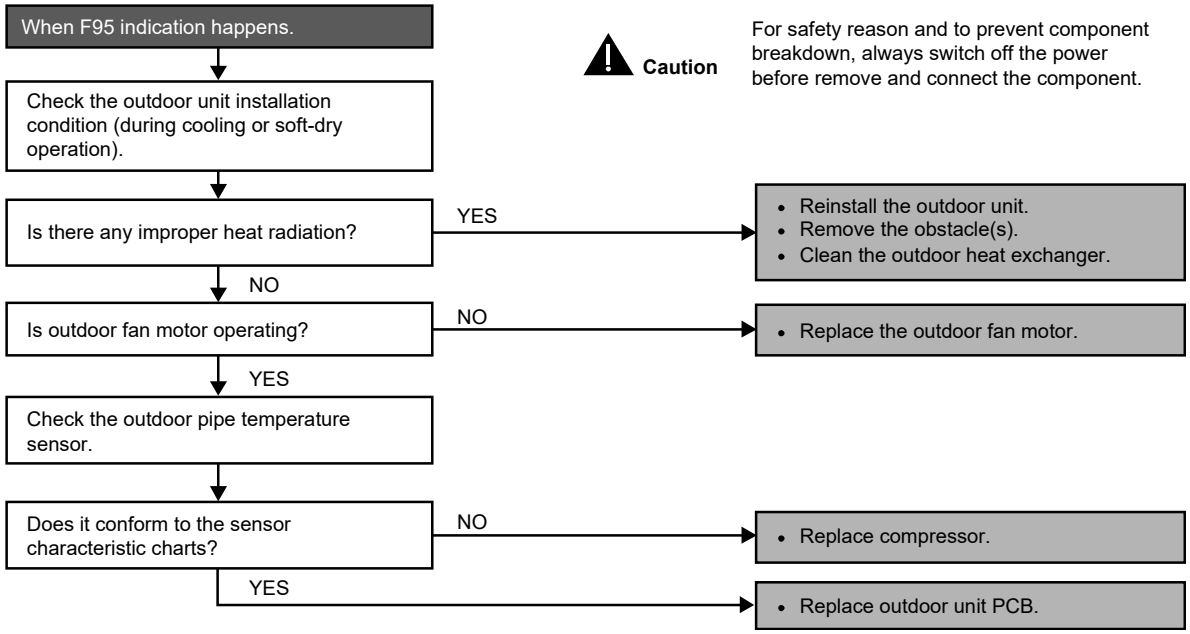
Malfunction Decision Conditions

During operation of cooling, when outdoor unit heat exchanger high temperature data (61°C) is detected by the outdoor pipe temperature sensor.

Malfunction Caused

- Outdoor pipe temperature rise due to short circuit of hot discharge air flow.
- Outdoor pipe temperature rise due to defective of outdoor fan motor.
- Outdoor pipe temperature rise due to defective outdoor pipe temperature sensor.
- Outdoor pipe temperature rise due to defective outdoor unit PCB.

Troubleshooting



13.4.23 F96 (IPM Overheating)

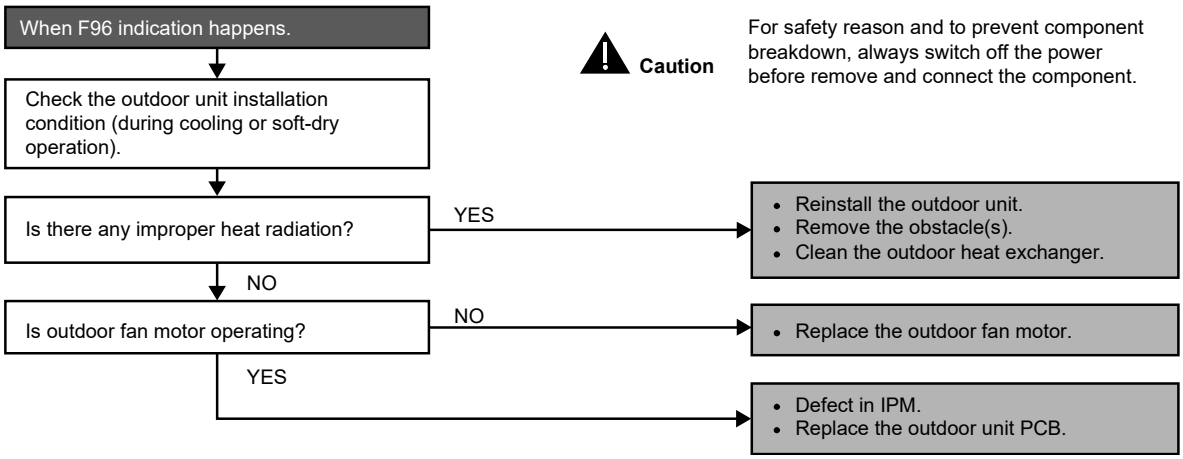
Malfunction Decision Conditions

During operating of cooling, when IPM temperature data (100°C) is detected by the IPM temperature sensor.

Malfunction Caused

- IPM overheats due to short circuit of hot discharge air flow.
- IPM overheats due to defective of outdoor fan motor.
- IPM overheats due to defective of internal circuitry of IPM.
- IPM overheats due to defective IPM temperature sensor.

Troubleshooting



13.4.24 F97 (Compressor Overheating)

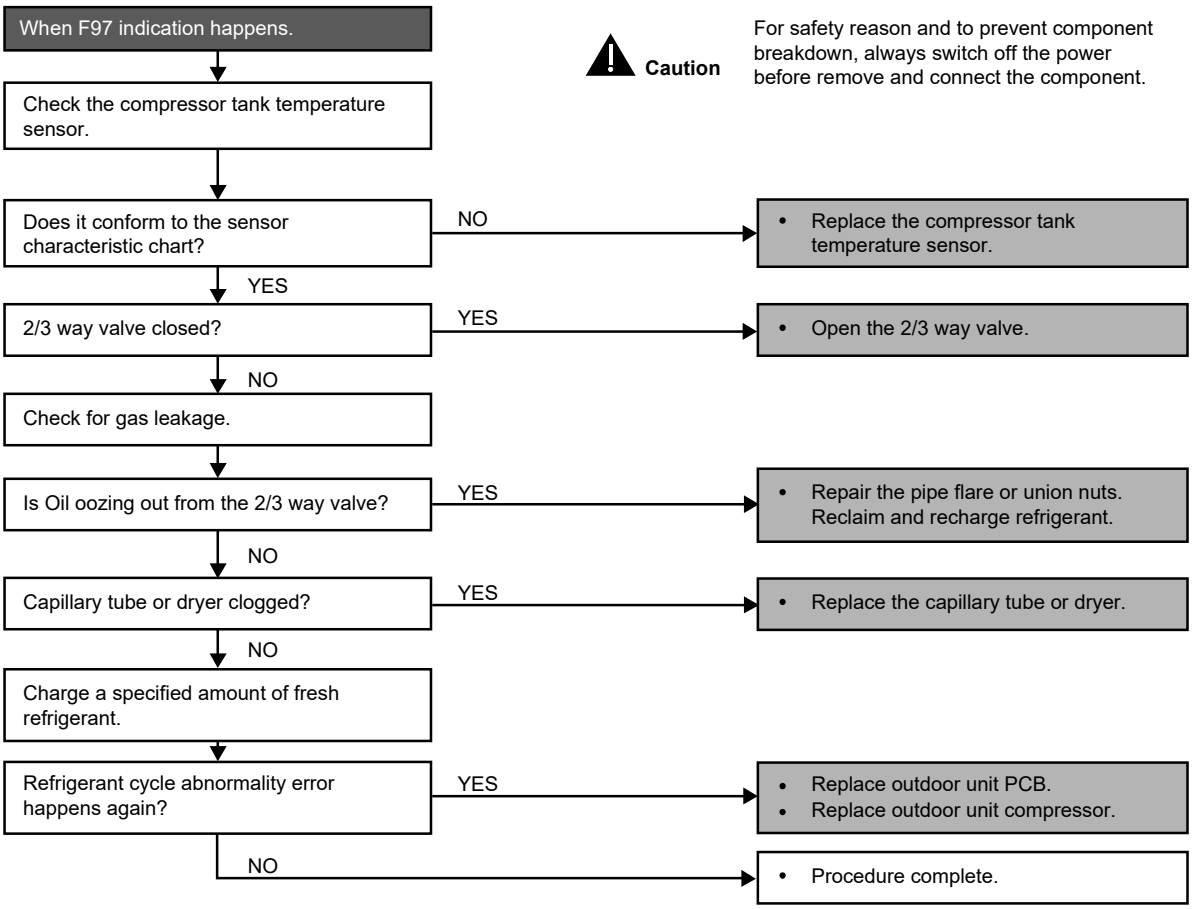
Malfunction Decision Conditions

During operation of cooling, when compressor tank temperature data (112°C) is detected by the compressor tank temperature sensor.

Malfunction Caused

- Refrigerant shortage (refrigerant leakage).
- 2/3 way valve closed.
- Detection error due to faulty compressor tank temperature sensor.

Troubleshooting



13.4.25 F98 (Input Over Current Detection)

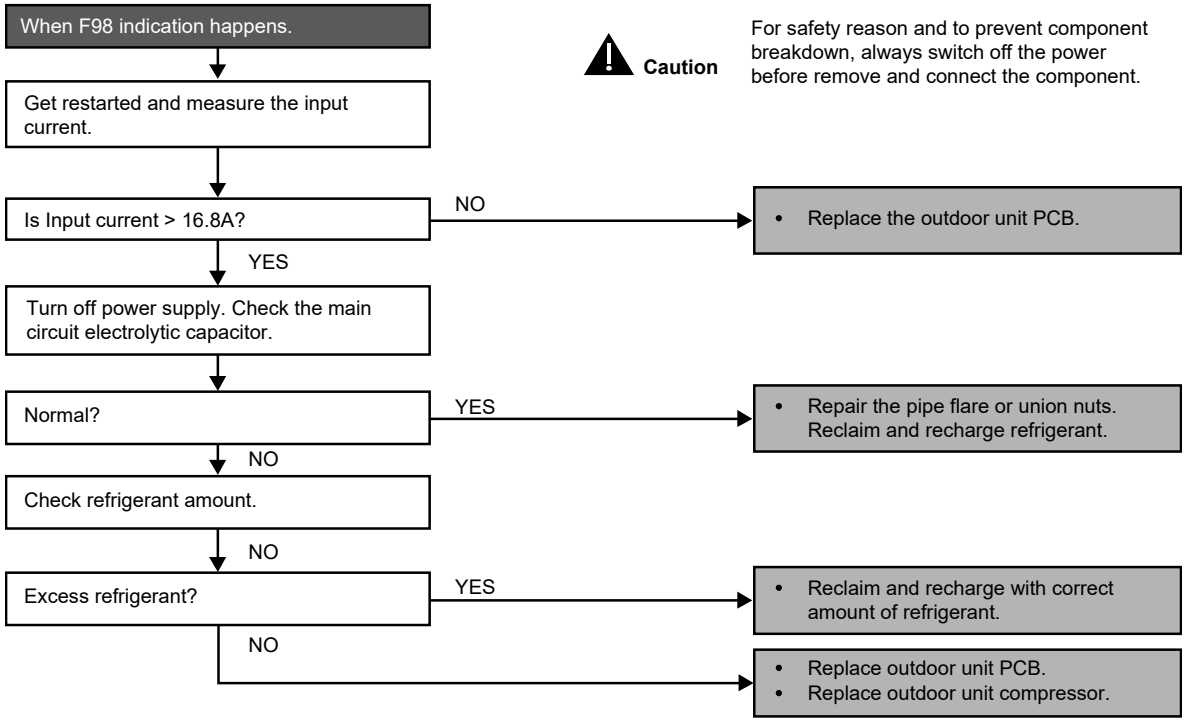
Malfunction Decision Conditions

During cooling operation, when an input over-current (X value in Total Running Current Control) is detected by checking the input current value being detected by current transformer (CT) with the compressor running.

Malfunction Caused

- Over-current due to compressor failure.
- Over-current due to defective outdoor unit PCB.
- Over-current due to defective inverter main circuit electrolytic capacitor.
- Over-current due to excessive refrigerant.

Troubleshooting



13.4.26 F99 (Output Over Current Detection)

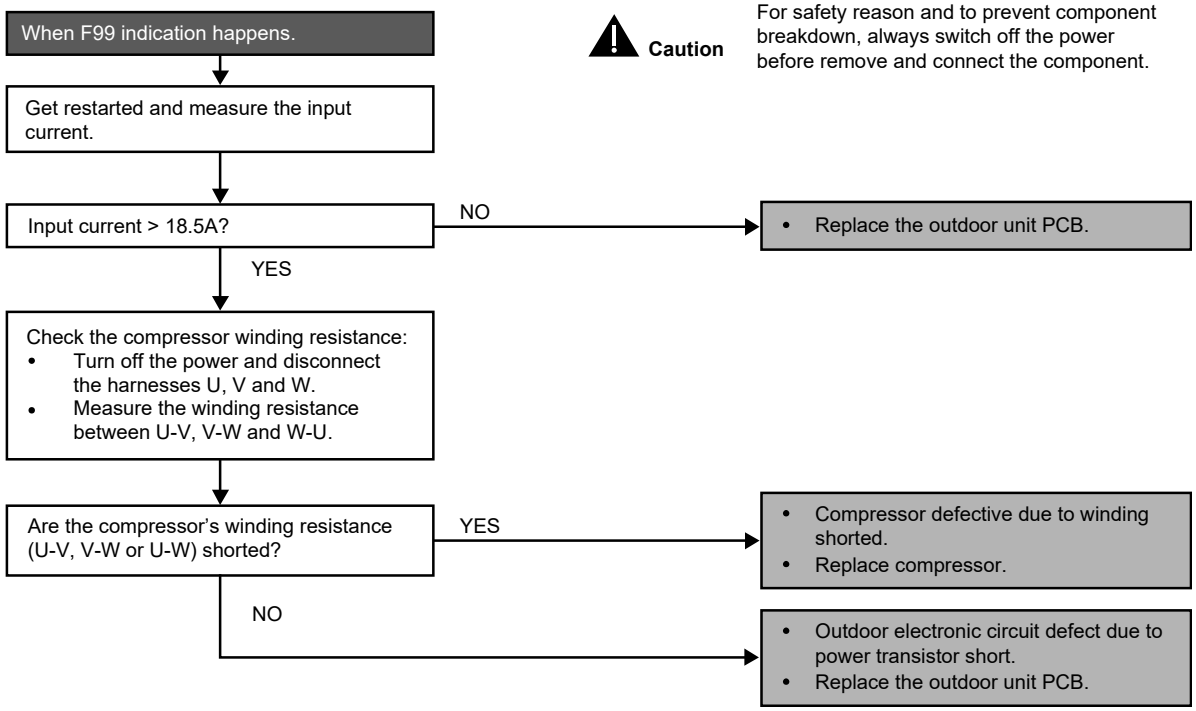
Malfunction Decision Conditions

During operation of cooling, when an output over-current (18.5A) is detected by checking the current that flows in the inverter DC peak sensing circuitry.

Malfunction Caused

- DC peak due to compressor failure.
- DC peak due to defective power transistor(s).
- DC peak due to defective outdoor unit PCB.

Troubleshooting



- Checking the power transistor.
- Never touch any live parts for at least 10 minutes after turning off the circuit breaker.
- If unavoidable necessary to touch a live part, make sure the power transistor's supply voltage is below 50V using the tester.
- For the UVW, make measurement at the Faston terminal on the board of the relay connector.

Tester's negative terminal	Power transistor (+)	UVW	Power transistor (-)	UVW
Tester's positive terminal	UVW	Power transistor (+)	UVW	Power transistor (-)
Normal resistance	Several kΩ to several MΩ			
Abnormal resistance	0 or ∞			

14. 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.

14.1 CS-MPS9SKH CS-MPS12SKH CS-MPS15SKH

14.1.1 Indoor Electronic Controllers, Cross Flow Fan and Indoor Fan Motor Removal Procedures

14.1.1.1 To Remove Front Grille

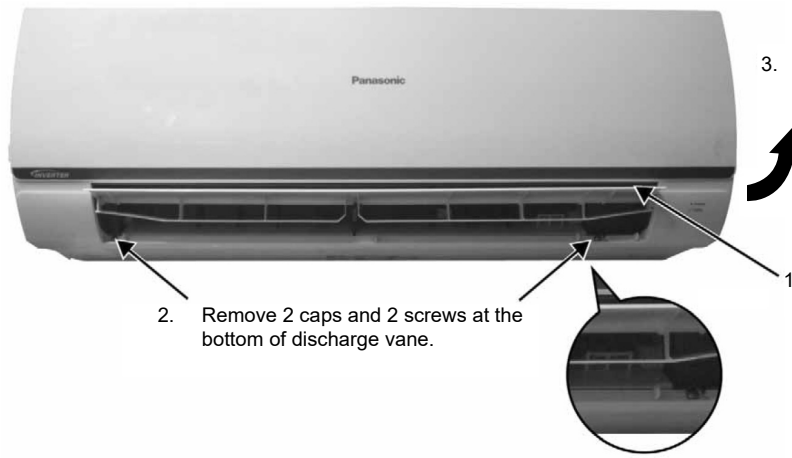


Figure 1

14.1.1.2 To Remove Electronic Controller

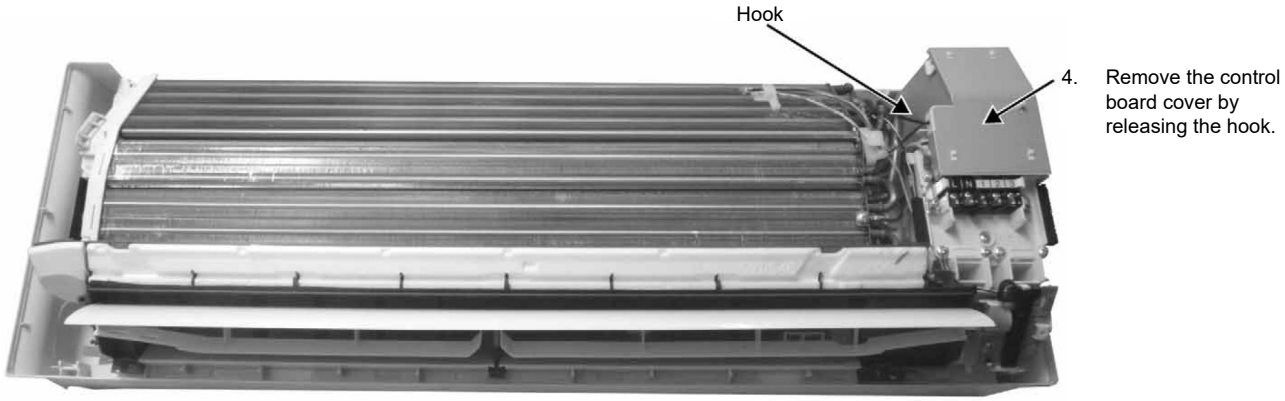
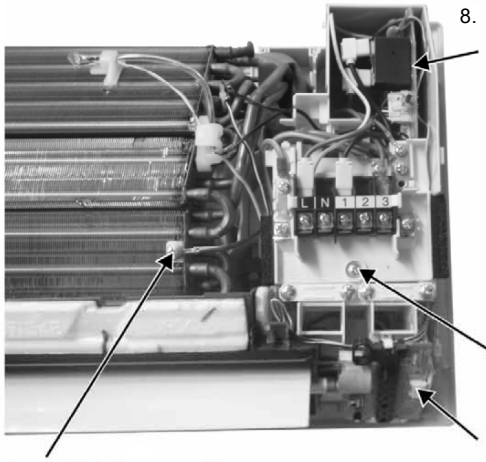


Figure 2



8. Pull out the main electronic controller halfway.

7. Remove screw to remove terminal board complete and earth wire.

6. Detach the CN-DISP connector then remove the indicator complete.

5. Detach the Earth wire.

Figure 3

9. Detach connectors as labeled from the electronic controller. Then pull out main controller gently.

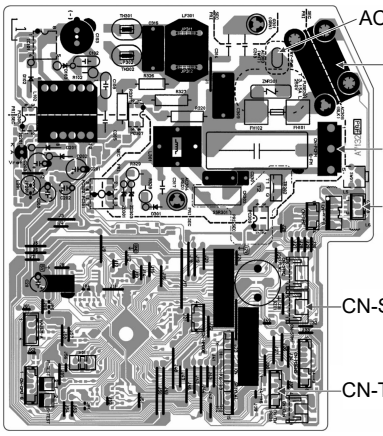


Figure 4

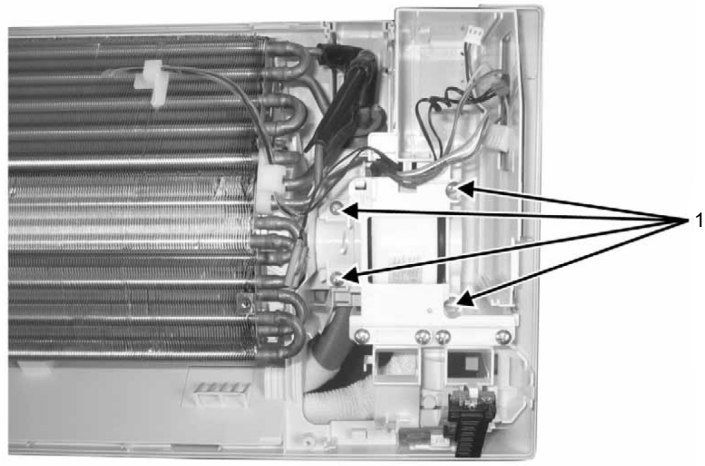
14.1.1.3 To Remove Discharge Grille

10. Pull out to remove the drain hose from the discharge grille.

11. Then pull the discharge grille downward gently to dismantle it.

Figure 5

14.1.1.4 To Remove Control Board



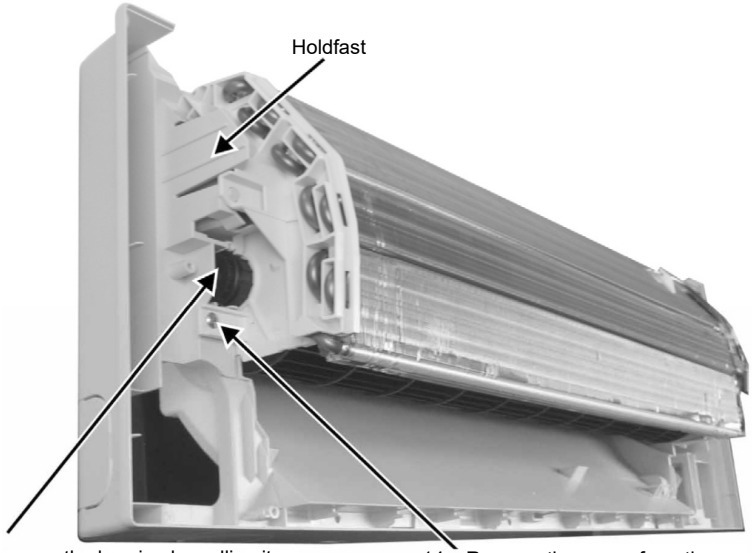
12. Remove 4 screws holding the control board then pull out the control board.

Figure 6

14.1.1.5 To Remove Cross Flow Fan and Indoor Fan Motor

13. Remove the screw that holding the cross flow fan and fan motor axis.

Figure 7

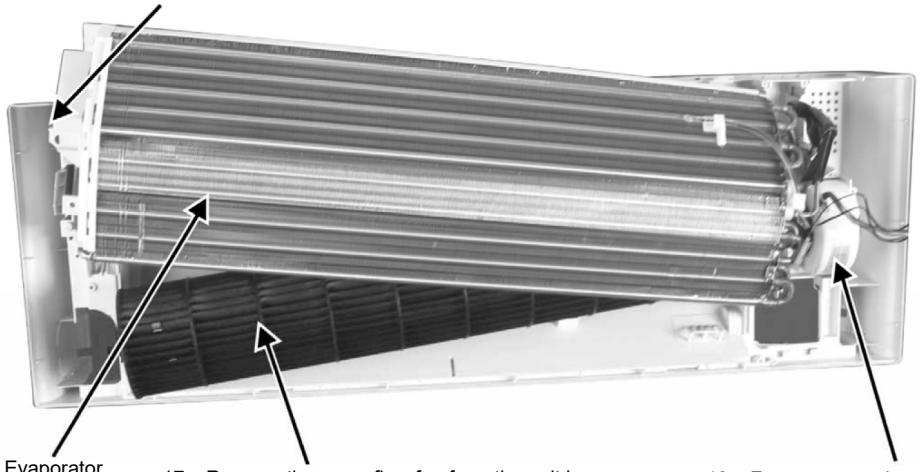


15. Remove the bearing by pulling it out gently.

14. Remove the screw from the evaporator.

Figure 8

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



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

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

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

Figure 9

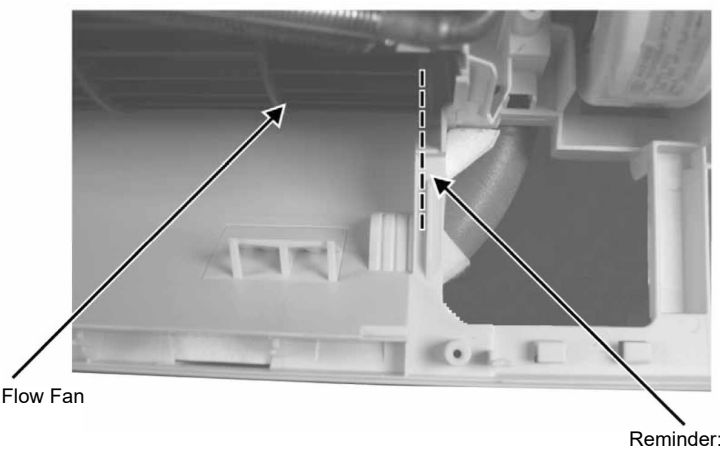

Cross Flow Fan
Reminder: To reinstall the cross flow fan, ensure cross flow fan is in line as shown in figure 10.

Figure 10

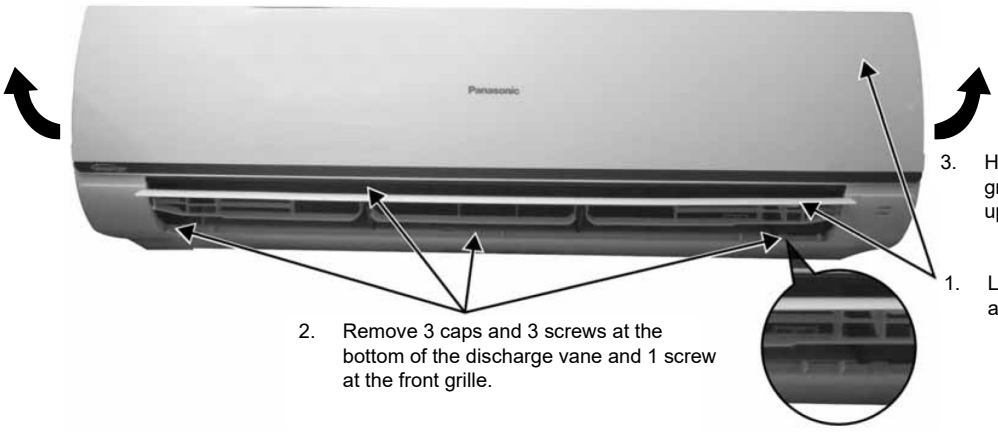
⚠ WARNING

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.

14.2 CS-MPS18SKH CS-MPS24SKH CS-MPS28SKH

14.2.1 Indoor Electronic Controllers, Cross Flow Fan and Indoor Fan Motor Removal Procedures

14.2.1.1 To Remove Front Grille



3. Hold both sides of the front grille and remove it by pulling up and toward yourself gently.

1. Lift to open the horizontal vane and intake grille gently.

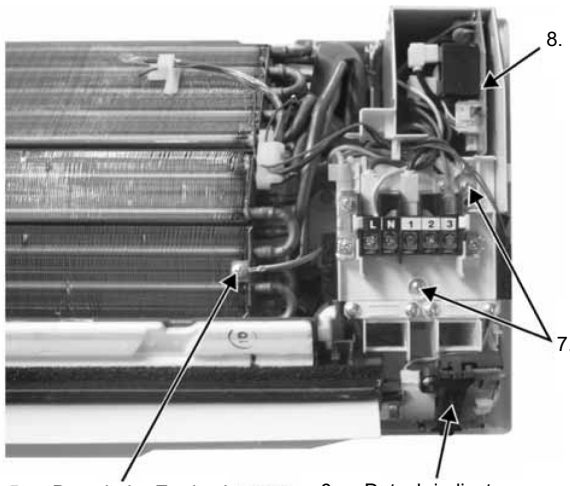
2. Remove 3 caps and 3 screws at the bottom of the discharge vane and 1 screw at the front grille.

Figure 1

14.2.1.2 To Remove Electronic Controller

4. Remove the control board cover by releasing the 2 hooks.

Figure 2



8. Pull out the main electronic controller halfway.

7. Remove screw to remove terminal board complete and earth wire.

5. Detach the Earth wire screw.

6. Detach indicator connector then remove the indicator complete.

Figure 3

9. Detach connectors as labeled from the electronic controller. The pull out main controller gently.

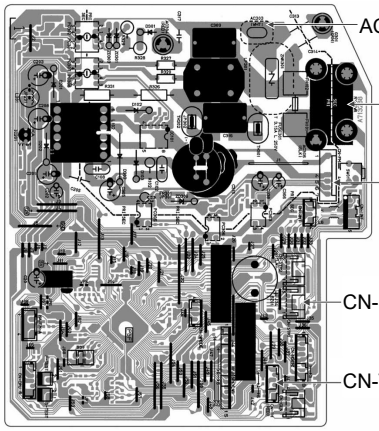


Figure 4

14.2.1.3 To Remove Discharge Grille

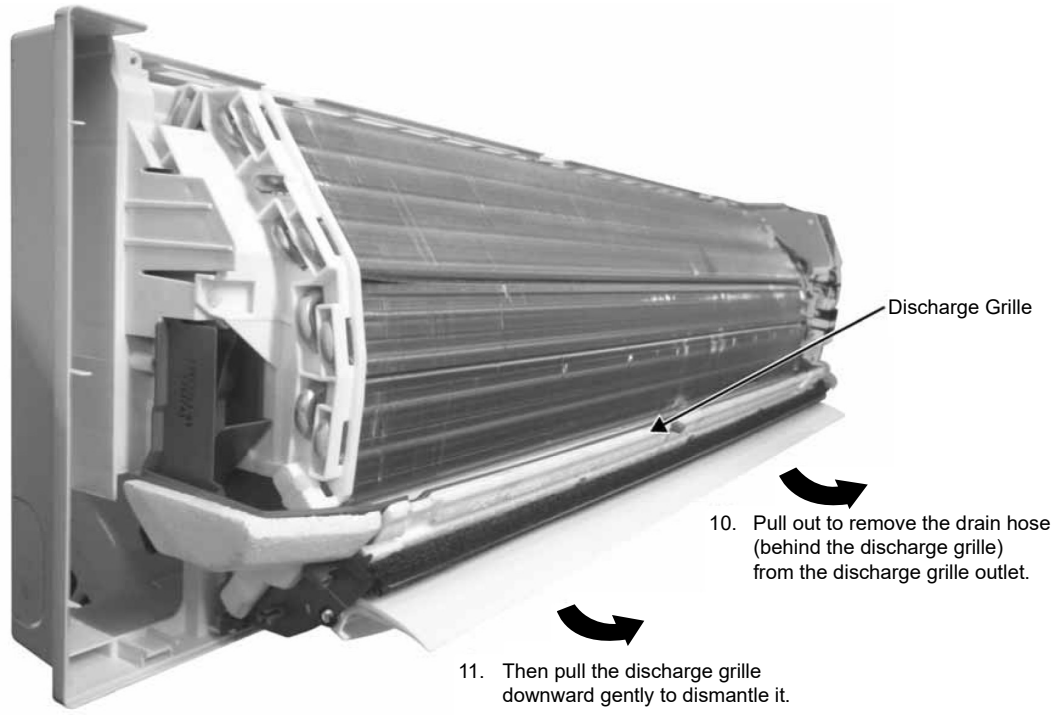


Figure 5

14.2.1.4 To Remove Control Board

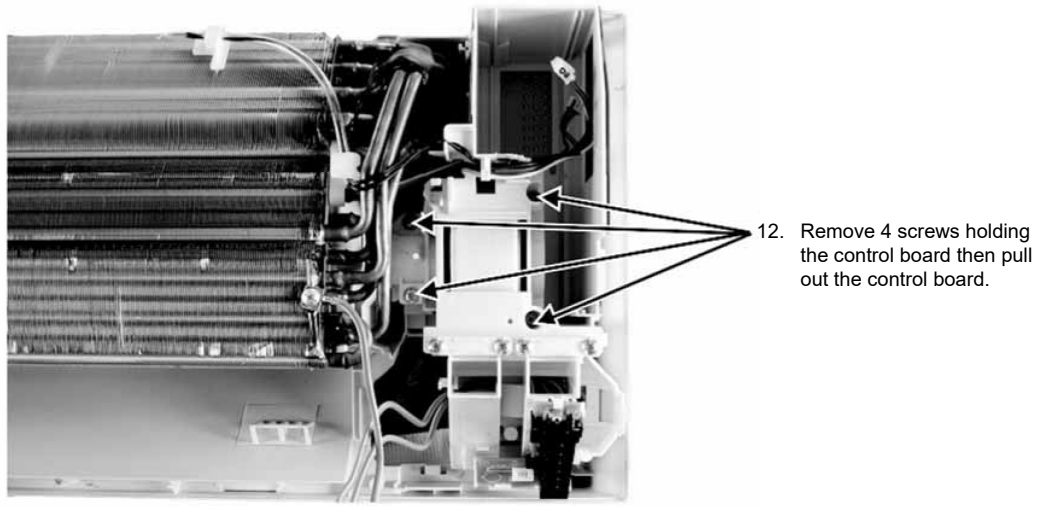


Figure 6

14.2.1.5 To Remove Cross Flow Fan and Indoor Fan Motor

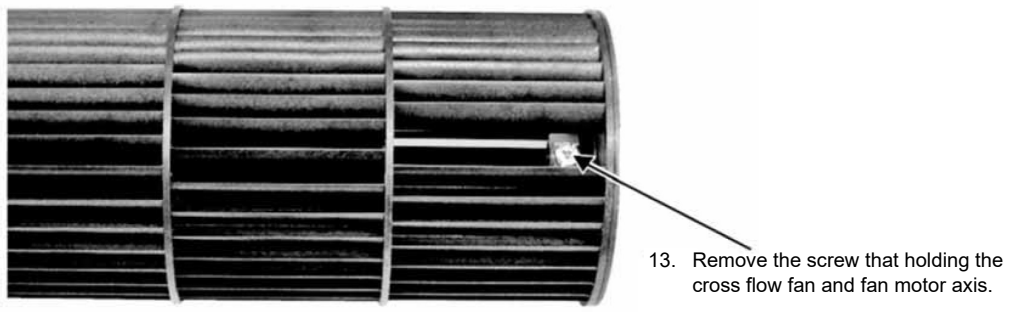
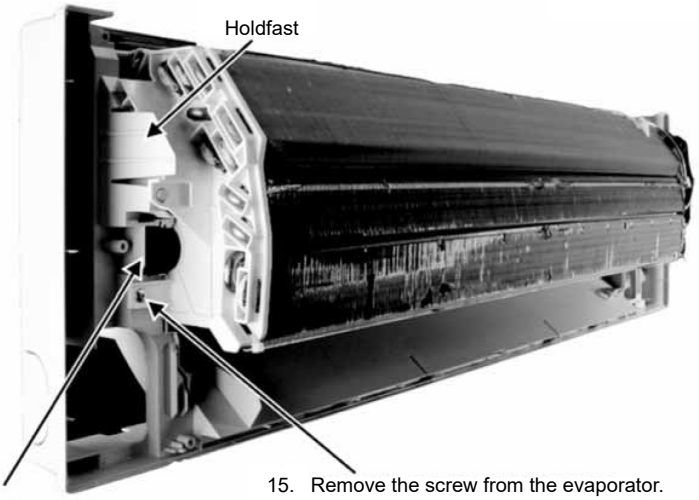


Figure 7

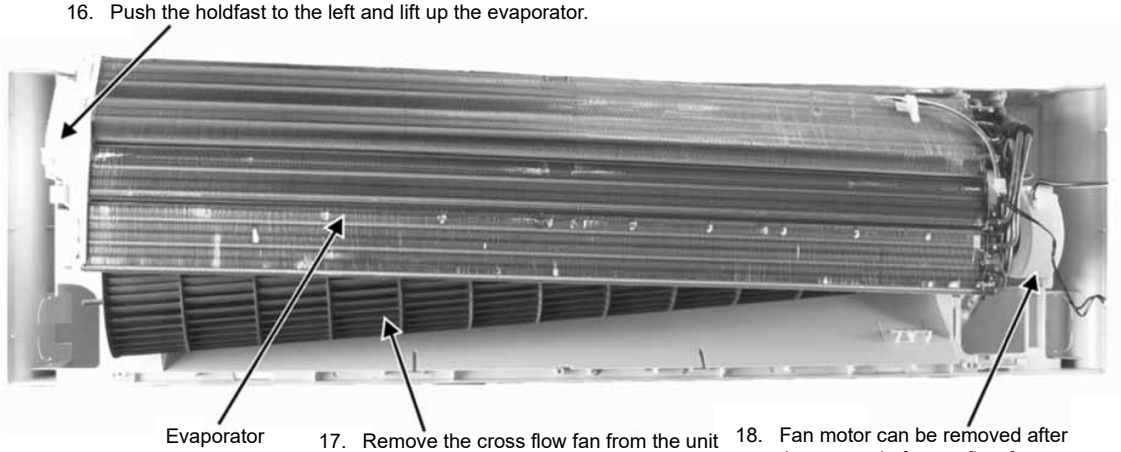


14. Remove the bearing by pulling it out gently.

15. Remove the screw from the evaporator.

Figure 8

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

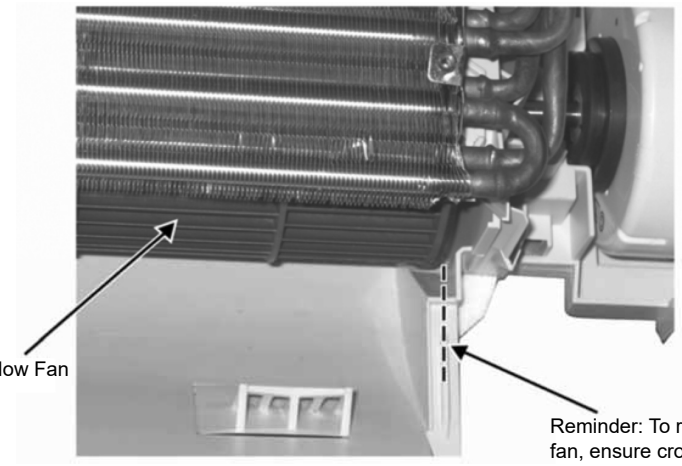


17. Remove the cross flow fan from the unit by pulling it to the left and downward.

18. 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.

Figure 9



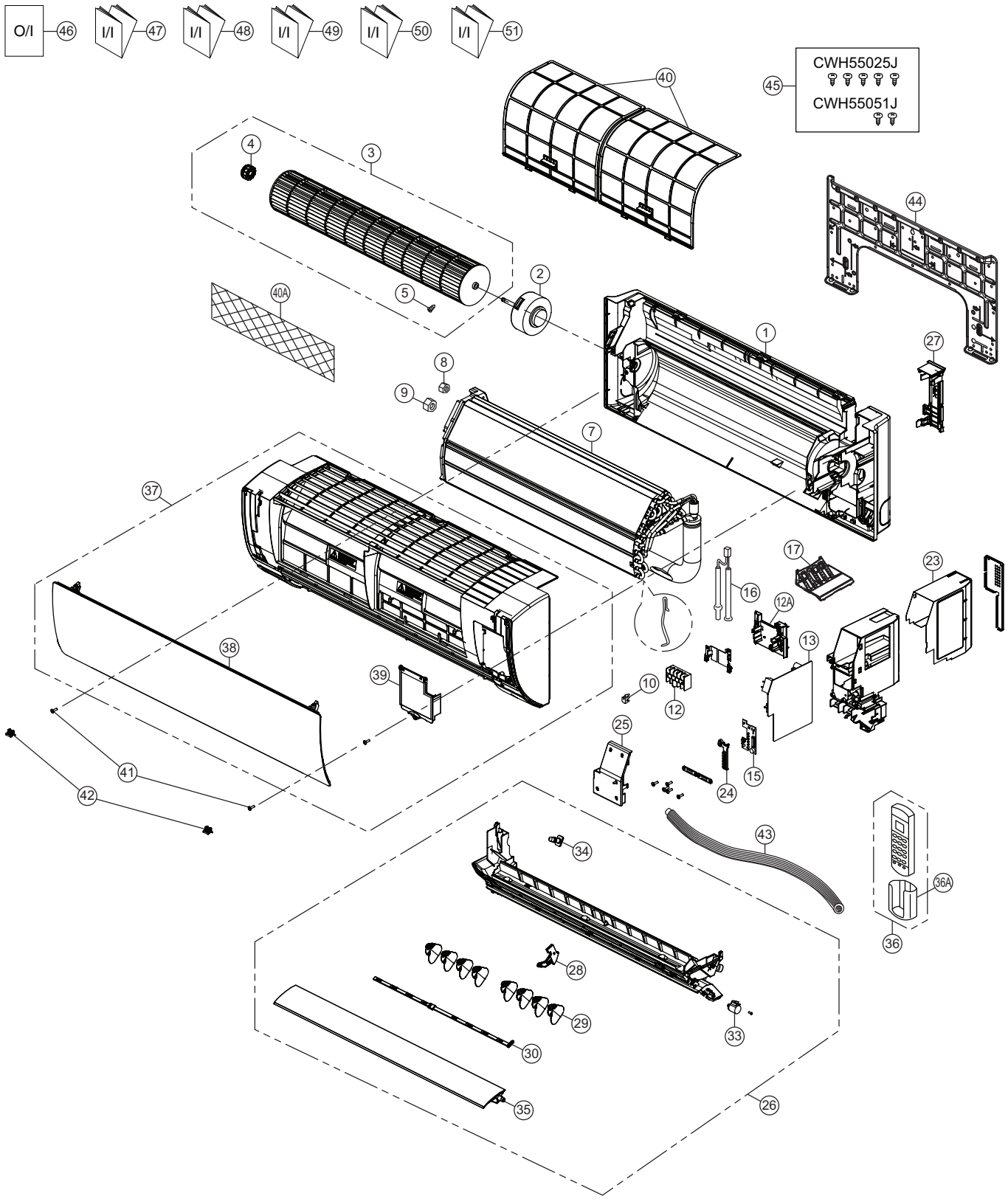
Reminder: To reinstall the cross flow fan, ensure cross flow fan is in line as shown in figure 10.

Figure 10

15. Exploded View and Replacement Parts List

15.1 Indoor Unit

15.1.1 CS-MPS9SKH CS-MPS12SKH CS-MPS15SKH



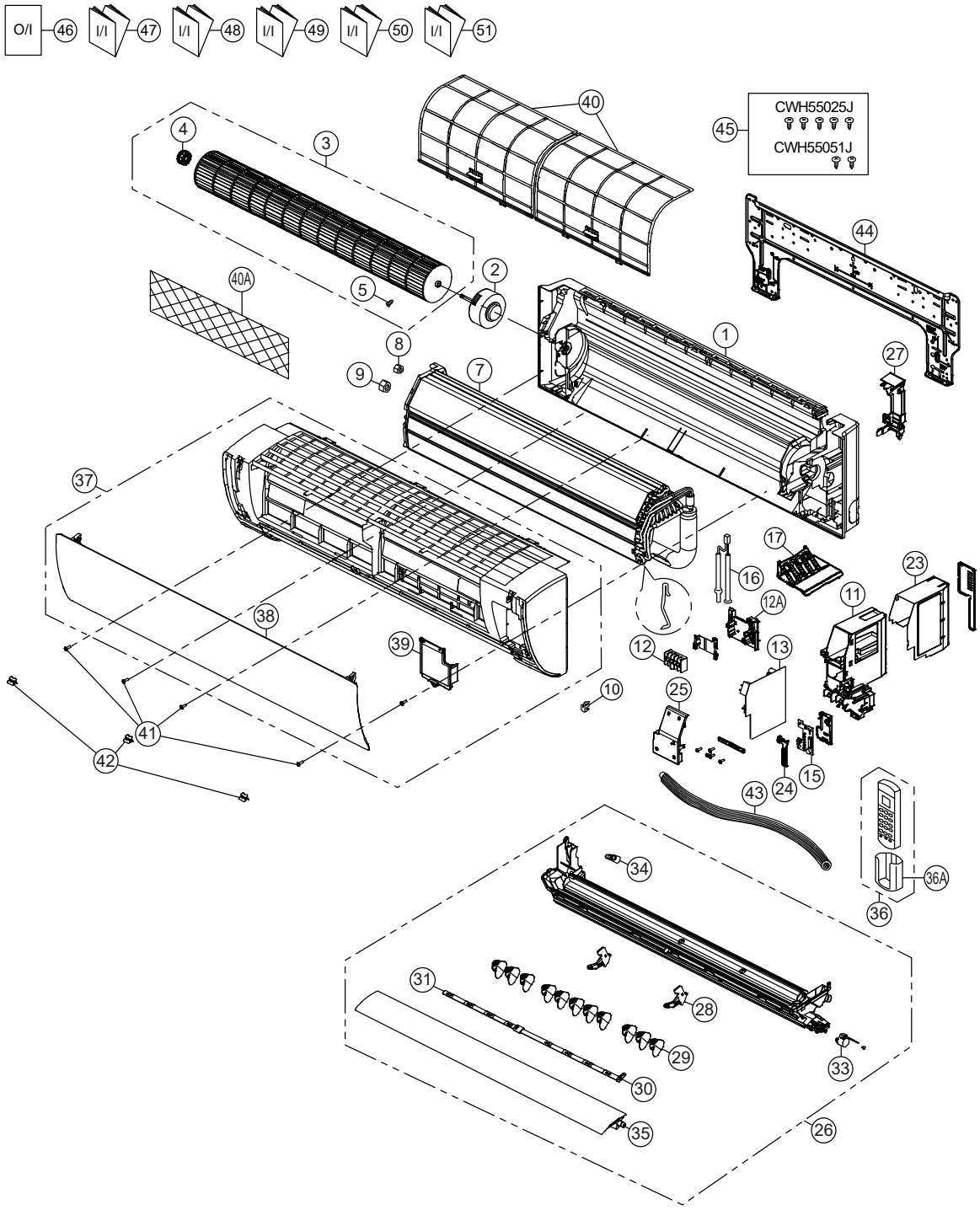
Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY	CS-MPS9SKH	CS-MPS12SKH	CS-MPS15SKH	REMARK
	1	CHASSIS COMPLETE	1	CWD50C1901	←	←	
⚠	2	FAN MOTOR	1	CWA921447	←	←	O
	3	CROSS-FLOW FAN COMPLETE	1	CWH02C1076	←	←	
	4	BEARING ASS'Y	1	CWH64K007	←	←	
	5	SCREW - CROSS-FLOW FAN	1	CWH551146	←	←	
	7	EVAPORATOR	1	ACXB30C02630	CWB30C3338	←	
	8	FLARE NUT (LIQUID)	1	CWT251048	←	←	
	9	FLARE NUT (GAS)	1	CWT251031	CWT251049	←	
	10	CLIP FOR SENSOR	1	CWH32142	←	←	
	11	CONTROL BOARD CASING	1	CWH102449	←	←	
⚠	12	TERMINAL BOARD COMPLETE	1	CWA28C2357	←	←	
	12A	PARTICULAR PIECE - TERMINAL	1	CWD933137	←	←	
⚠	13	ELECTRONIC CONTROLLER - MAIN	1	ACXA73C09300	ACXA73C09310	ACXA73C09320	O
⚠	15	ELECTRONIC CONTROLLER - INDICATOR	1	CWA746716	←	←	O
	16	SENSOR COMPLETE	1	CWA50C2122	←	←	
	17	PARTICULAR PIECE	1	CWD933067	←	←	
	23	CONTROL BOARD TOP COVER	1	CWH131467	←	←	
	24	INDICATOR HOLDER	1	CWD933406	←	←	
	25	CONTROL BOARD FRONT COVER CO.	1	CWH13C1247	←	←	
	26	DISCHARGE GRILLE COMPLETE	1	CWE20C3236	←	←	
	27	BACK COVER CHASSIS	1	CWD933233	←	←	
	28	FULCRUM	1	CWH621131	←	←	
	29	VERTICAL VANE	8	CWE241374	←	←	
	30	CONNECTING BAR	2	CWE261251	←	←	
	33	AIR SWING MOTOR	1	CWA981264	←	←	O
	34	CAP - DRAIN TRAY	1	CWH521259	←	←	
	35	HORIZONTAL VANE COMPLETE	1	CWE24C1385	←	←	
	36	REMOTE CONTROL COMPLETE	1	CWA75C3716-1	←	←	O
	36A	REMOTE CONTROL HOLDER	1	CWH361078	←	←	
	37	FRONT GRILLE COMPLETE	1	ACXE10C01220	←	←	O
	38	INTAKE GRILLE COMPLETE	1	CWE22C1958	←	←	O
	39	GRILLE DOOR COMPLETE	1	CWE14C1090	←	←	
	40	AIR FILTER	2	CWD001279	←	←	
	40A	ANTI-BACTERIAL FILTER	1	CWD00C1280	←	←	
	41	SCREW - FRONT GRILLE	2	XTT4+16CFJ	←	←	
	42	CAP - FRONT GRILLE	2	CWH521227	←	←	
	43	DRAIN HOSE	1	CWH851174	←	←	
	44	INSTALLATION PLATE	1	CWH361134	←	←	
	45	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	←	
	46	OPERATING INSTRUCTION	1	ACXF55-04690	←	←	
	47	INSTALLATION INSTRUCTION (ENGLISH)	1	ACXF60-04950	←	←	
	48	INSTALLATION INSTRUCTION (CHINESE)	1	ACXF60-04960	←	←	
	49	INSTALLATION INSTRUCTION (B. INDONESIA)	1	ACXF60-04970	←	←	
	50	INSTALLATION INSTRUCTION (THAI)	1	ACXF60-04980	←	←	
	51	INSTALLATION INSTRUCTION (VIETNAMESE)	1	ACXF60-04990	←	←	

(Note)

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

15.1.2 CS-MPS18SKH CS-MPS24SKH CS-MPS28SKH



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

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY	CS-MPS18SKH	CS-MPS24SKH	CS-MPS28SKH	REMARK
	1	CHASSIS COMPLETE	1	CWD50C1902	←	←	
⚠	2	FAN MOTOR	1	L6CBYYYL0037	←	←	O
	3	CROSS-FLOW FAN COMPLETE	1	CWH02C1077	←	←	
	4	BEARING ASS'Y	1	CWH64K007	←	←	
	5	SCREW - CROSS-FLOW FAN	1	CWH551146	←	←	
	7	EVAPORATOR	1	ACXB30C02640	CWB30C2783	←	
	8	FLARE NUT (LIQUID)	1	CWT251048	←	←	
	9	FLARE NUT (GAS)	1	CWT251049	CWT251032	←	
	10	CLIP FOR SENSOR	1	CWH32142	←	←	
	11	CONTROL BOARD CASING	1	CWH102449	←	←	
⚠	12	TERMINAL BOARD COMPLETE	1	CWA28C2357	←	←	
	12A	PARTICULAR PIECE - TERMINAL	1	CWD933137	←	←	
⚠	13	ELECTRONIC CONTROLLER - MAIN	1	ACXA73C09330	ACXA73C09340	ACXA73C09350	O
⚠	15	ELECTRONIC CONTROLLER - INDICATOR	1	CWA746716	←	←	O
	16	SENSOR COMPLETE	1	CWA50C2122	←	←	
	17	PARTICULAR PIECE	1	CWD933067	←	←	
	23	CONTROL BOARD TOP COVER	1	CWH131467	←	←	
	24	INDICATOR HOLDER	1	CWD933406	←	←	
	25	CONTROL BOARD FRONT COVER CO.	1	CWH13C1247	←	←	
	26	DISCHARGE GRILLE COMPLETE	1	CWE20C3243	←	←	
	27	BACK COVER CHASSIS	1	CWD933031	←	←	
	28	FULCRUM	2	CWH621138	←	←	
	29	VERTICAL VANE	11	CWE241374	←	←	
	30	CONNECTING BAR	1	CWE261260	←	←	
	31	CONNECTING BAR	1	CWE261263	←	←	
	33	AIR SWING MOTOR	1	CWA981241	←	←	O
	34	CAP - DRAIN TRAY	1	CWH521259	←	←	
	35	HORIZONTAL VANE COMPLETE	1	CWE24C1392	←	←	
	36	REMOTE CONTROL COMPLETE	1	CWA75C3716-1	←	←	O
	36A	REMOTE CONTROL HOLDER	1	CWH361078	←	←	
	37	FRONT GRILLE COMPLETE	1	ACXE10C01230	←	←	O
	38	INTAKE GRILLE COMPLETE	1	CWE22C1959	←	←	O
	39	GRILLE DOOR COMPLETE	1	CWE14C1090	←	←	
	40	AIR FILTER	2	CWD001283	←	←	
	40A	ANTI-BACTERIAL FILTER	1	CWD00C1280	←	←	
	41	SCREW - FRONT GRILLE	4	XTT4+16CFJ	←	←	
	42	CAP - FRONT GRILLE	3	CWH521227	←	←	
	43	DRAIN HOSE	1	CWH851174	←	←	
	44	INSTALLATION PLATE	1	CWH361098	←	←	
	45	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	←	
	46	OPERATING INSTRUCTION	1	ACXF55-04690	←	←	
	47	INSTALLATION INSTRUCTION (ENGLISH)	1	ACXF60-04950	←	←	
	48	INSTALLATION INSTRUCTION (CHINESE)	1	ACXF60-04960	←	←	
	49	INSTALLATION INSTRUCTION (B. INDONESIA)	1	ACXF60-04970	←	←	
	50	INSTALLATION INSTRUCTION (THAI)	1	ACXF60-04980	←	←	
	51	INSTALLATION INSTRUCTION (VIETNAMESE)	1	ACXF60-04990	←	←	

(Note)

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

Printed in Malaysia
FZ1116-0