ORDER NO. MAC9806008C2

Service Manual

Room Air Conditioners

CS-C181KE / CU-C181KE
CS-C241KE / CU-C241KE

Contents

Panasonic

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

⚠ PRECAUTION OF LOW TEMPERATURE

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

Features

- **High Efficiency**
- **High Efficiency Airflow Circuit**
- **Compact Design**
- **Removable and Washable Front Panel**
- **Auto Restart after Power Failure**
- **Long Piping up to 25m**
- **Deodorizing Air Filter**
- **Deodorizing Control during operation**

Functions

Remote Control

OFF / ON

Operation OFF / ON

MODE

Operation Mode Selection

- AUTO Automatic Operation Mode
- COOL Cooling Operation Mode
- DRY Soft Dry Operation Mode
- FAN Air Circulation Mode

FAN SPEED

Indoor Fan Speed Selection

- Low Speed
- Medium Speed
- High Speed
- AUTOFAN Automatic Fan Speed

AIR SWING

Airflow Direction Control

- SWING Automatic Airflow Direction Control
- MANUAL Airflow Direction Manual Control

TEMP.

Room Temperature Setting

- Temperature Setting (16˚C to 30˚C)
- Automatic Operation
  - ◄ 2˚C lower than standard
  - Standard
  - ► 2˚C higher than standard

ON-TIMER
OFF-TIMER

Timer Operation Selection

- 24-hour, OFF / ON Real Timer Setting.

TIME

Time / Timer Setting

- Hours and minutes setting.

SET
CANCEL

Timer Operation Set / Cancel

- ON Timer and OFF Timer setting and cancellation.

CLOCK
(時計)

Clock Setting

- Current time setting.

SLEEP

Sleep Mode Operation OFF / ON

Functions

Indoor Unit

POWER ⏻

Power Switch OFF / ON

AUTO OFF / ON

Temporary Operation Switch

- Used when the remote control cannot be used.

Remote Control Signal Receiving Sound Control

- It can be controlled by pressing Temporary Operation Switch for 10 seconds.

TEST RUN OFF / ON

Operation Test Running / Pump Down Switch

- Used when test running or servicing.

Operation Indication Lamps (LED)

- POWER (Red)..... Lights up in operation, blinks in Automatic Operation Mode judging
- SLEEP (Orange)..... Lights up in Sleep Mode Operation
- TIMER (Orange)..... Lights up in Timer Setting

Operation Mode

- Cooling, Soft Dry, Air Circulation and Automatic Mode.

Time Delay Safety Control

- Restarting is inhibited for appro. 3 minutes.

7 Minutes Time Save Control

- Cooling Operation only.

Auto Restart Control

- Operation is restarted after power failure at previous setting mode.

Anti-Freezing Control

- Anti-Freezing control for indoor heat exchanger. (Cooling and Soft Dry)

Sleep Mode Auto Control

- Indoor Fan operates at Low fan speed.
- Operation stops after 8 hours.

Indoor Fan Speed Control

- High, Medium and Low.
- Automatic Fan Speed Mode
  - Cooling : Fan rotates at Hi and Me speed. Deodorizing control is available.
  - Soft Dry : Fan rotates at SLo and Lo speed. Deodorizing control is available.

Airflow Direction Control

- Automatic air swing and manual adjusted by remote control for vertical airflow.
- Manually adjusted by hand for horizontal airflow.

Starting Current Control

- Indoor Fan is delayed for 1.6 seconds when compressors, Outdoor Fan and Indoor Fan start simultaneously.

Functions

Outdoor Unit

Overload Protector

- Inner protector

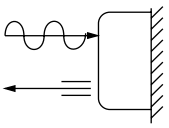
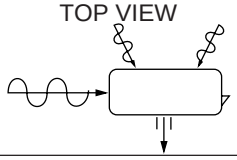
60 Secs. Forced Operation Control

- Once the compressor is activated, it does not stop for 60 secs. (Stops immediately with remote control stop signal.)

Outdoor Fan Operation Control

- 4-pole induction motor (2-speed)
- For Cooling or Soft Dry Operation
  Hi-speed … when outdoor temperature reaches to 31°C
  Lo-speed … when outdoor temperature reaches to 29°C

Product Specifications

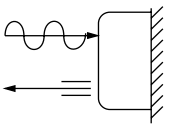
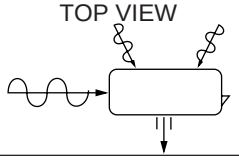
			Unit	CS-C181KE	CU-C181KE
Cooling Capacity			kW Btu/h	5.40 - 5.30 18,400 - 18,100	
Moisture Removal			ℓ/h Pint/h	2.9 6.1	
Power Source			Phase V Cycle	Single 240 - 220 50	
Airflow Method			OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)		m^3/min (cfm)	11.2 (400)	–
	Indoor Air (Me)		m^3/min (cfm)	13.0 (460)	–
	Indoor Air (Hi)		m^3/min (cfm)	13.7 (480)	–
	Outdoor Air		m^3/min (cfm)	–	11.7 (410)
Noise Level			dB (A)	High 43 - 42, Low 38 - 37	High 56 - 54
Electrical Data	Input		W	2,080 - 1,930	
	Running Current		A	10.7 - 10.0	
	COP		W/W	2.60 - 2.75	
	Starting Current		A	51	
Piping Connection Port (Flare piping)			inch inch	G ; Half Union 1/2" L ; Half Union 1/4"	G ; 3-way valve 1/2" L ; 3-way valve 1/4"
Pipe Size (Flare piping)			inch inch	G (gas side) ; 1/2" L (liquid side) ; 1/4"	G (gas side) ; 1/2" L (liquid side) ; 1/4"
Drain Hose	Inner diameter		mm	16	–
	Length		m	0.75	–
Power Cord Length Number of core-wire			m	2.1 3 (1.5 mm^2)	– –
Dimensions		Height	inch (mm)	11-7/16 (290)	26-31/32 (685)
		Width	inch (mm)	38-19/32 (980)	31-1/2 (800)
		Depth	inch (mm)	7-11/16 (195)	11-13/16 (300)
Net Weight			lb (kg)	29 (13)	130 (59)
Compressor		Type		–	Rotary (1 cylinder) rolling piston type
	Motor	Type		–	Induction (2-poles)
	Rated	Output	kW	–	1.7
Air Circulation		Type		Cross-flow Fan	Propeller Fan
		Material		AS + Glass Fiber 30%	AES + Glass Fiber 16%
	Motor	Type		Induction (4-poles)	Induction (4-poles)
		Input	W	51	155.4
		Rated Output	W	20	72
	Fan Speed	Low	rpm	1,005	670
		Medium	rpm	1,085	–
		High	rpm	1,155	1,025

Product Specifications

		Unit	CS-C181KE	CU-C181KE
Heat Exchanger	Description		Evaporator	Condenser
	Tube material		Copper	Copper
	Fin material		Aluminium	Aluminium
	Fin Type		Slot Fin	Corrugated Fin
	Row / Stage		(Plate fin configuration, forced draft) 2 × 14	2 × 31
	FPI		21	18
	Size (W × H × L)	mm	732 × 294 × 25.4	775.2 754.5 × 651.0 × 25.4
Refrigerant Control Device			–	Capillary Tube
Refrigeration Oil		(cm^3)	–	SUNISO 4GDID or ATMOS M60 (700)
Refrigerant (R-22)		g (oz)	–	1,140 (40.2)
Thermostat			Electronic Control	Mechanical Control
Protection Device			–	Inner Protector
Capillary Tube	Length Flow Rate Inner Diameter	mm ℓ/min mm	– – –	611 27.0 2.1
Air Filter	Material Style		P.P. Honeycomb	–
Capacity Control			Capillary Tube	
Compressor Capacitor		µF, VAC	–	35 µF, 370VAC
Fan Motor Capacitor		µF, VAC	1.5 µF, 400VAC	3.5 µF, 400VAC

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

Product Specifications

			Unit	CS-C241KE	CU-C241KE
Cooling Capacity			kW Btu/h	6.65 - 6.60 22,700 - 22,500	
Moisture Removal			ℓ/h Pint/h	3.8 8.0	
Power Source			Phase V Cycle	Single 240 - 220 50	
Airflow Method			OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)		m^3/min (cfm)	13.5 (480)	–
	Indoor Air (Me)		m^3/min (cfm)	14.6 (520)	–
	Indoor Air (Hi)		m^3/min (cfm)	15.7 (550)	–
	Outdoor Air		m^3/min (cfm)	–	14.4 (510)
Noise Level			dB (A)	High 47 - 46, Low 41 - 40	High 61 - 59
Electrical Data	Input		W	2,890 - 2,750	
	Running Current		A	14.4 - 13.4	
	COP		W/W	2.30 - 2.40	
	Starting Current		A	66	
Piping Connection Port (Flare piping)			inch inch	G ; Half Union 5/8" L ; Half Union 1/4"	G ; 3-way valve 5/8" L ; 3-way valve 1/4"
Pipe Size (Flare piping)			inch inch	G (gas side) ; 5/8" L (liquid side) ; 1/4"	G (gas side) ; 5/8" L (liquid side) ; 1/4"
Drain Hose	Inner diameter		mm	16	–
	Length		m	0.75	–
Power Cord Length Number of core-wire			m	2.1 3 (2.5 mm^2)	– –
Dimensions		Height	inch (mm)	11-7/16 (290)	26-31/32 (685)
		Width	inch (mm)	38-19/32 (980)	31-1/2 (800)
		Depth	inch (mm)	7-11/16 (195)	11-13/16 (300)
Net Weight			lb (kg)	31 (14)	137 (62)
Compressor		Type		–	Rotary (1 cylinder) rolling piston type
	Motor	Type		–	Induction (2-poles)
	Rated	Output	kW	–	2.2
Air Circulation		Type		Cross-flow Fan	Propeller Fan
		Material		AS + Glass Fiber 30%	AES + Glass Fiber 16%
	Motor	Type		Induction (4-poles)	Induction (4-poles)
		Input	W	62.4	189.8
		Rated Output	W	30	108
	Fan Speed	Low	rpm	1,135	755
		Medium	rpm	1,230	–
		High	rpm	1,310	1,210

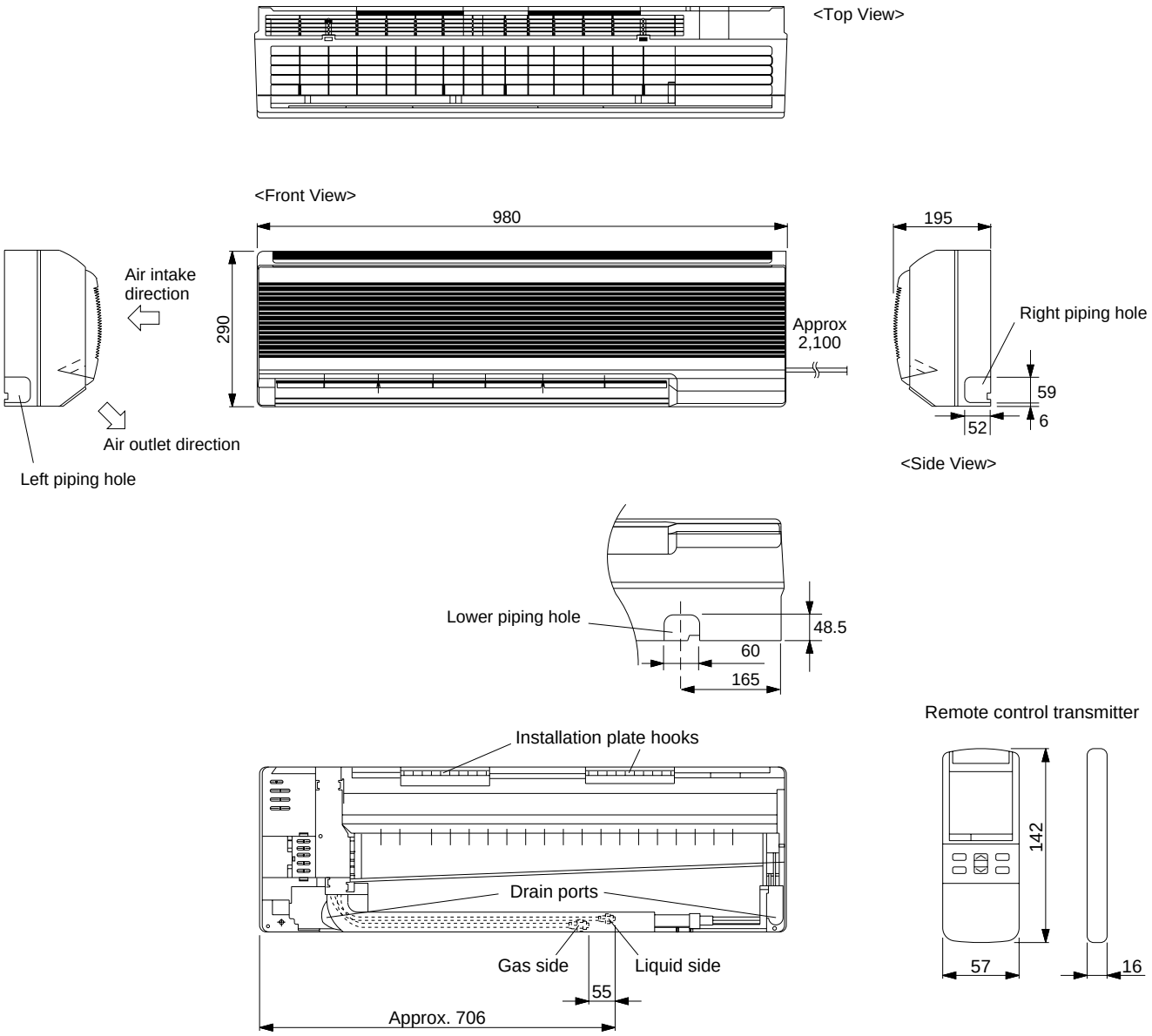
Product Specifications

		Unit	CS-C241KE	CU-C241KE
Heat Exchanger	Description		Evaporator	Condenser
	Tube material		Copper	Copper
	Fin material		Aluminium	Aluminium
	Fin Type		Slot Fin	Corrugated Fin
	Row / Stage		(Plate fin configuration, forced draft) 2 × 14	2 × 26
	FPI		21	18
	Size (W × H × L)	mm	732 × 294 × 25.4	769.2 732.9 × 660.4 × 44
Refrigerant Control Device			–	Capillary Tube
Refrigeration Oil		(cm^3)	–	SUNISO 4GDID or ATMOS M60 (1,130)
Refrigerant (R-22)		g (oz)	–	1,960 (69.2)
Thermostat			Electronic Control	Mechanical Control
Protection Device			–	Inner Protector
Capillary Tube	Length Flow Rate Inner Diameter	mm ℓ/min mm	– – –	960 23.0 2.4
Air Filter	Material Style		P.P. Honeycomb	–
Capacity Control			Capillary Tube	
Compressor Capacitor		µF, VAC	–	50 µF, 370VAC
Fan Motor Capacitor		µF, VAC	1.5 µF, 400VAC	3.5 µF, 450VAC

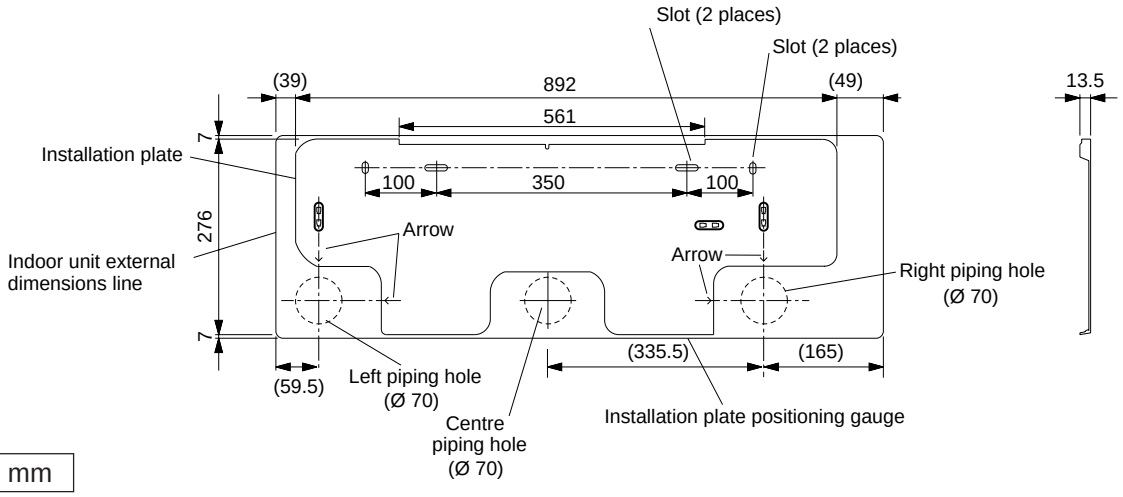
• Specifications are subject to change without notice for further improvement.

Dimensions

CS-C181K / CS-C241K



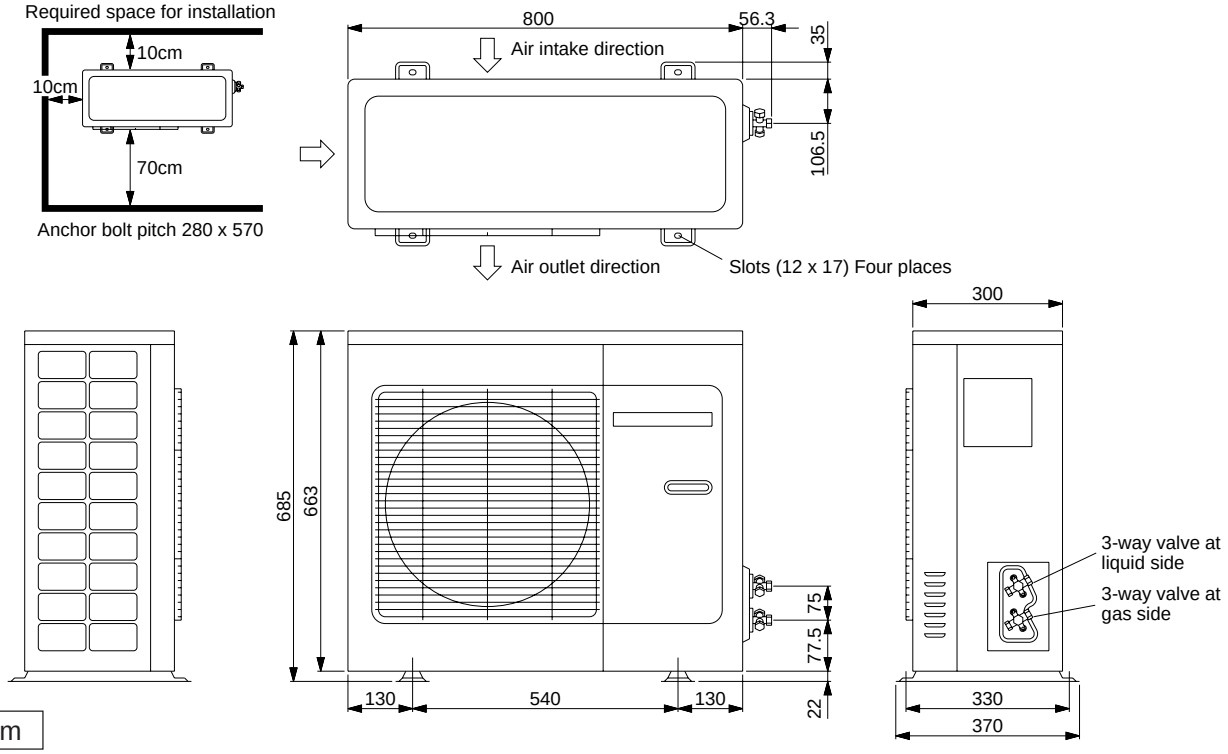
Relative position between the indoor unit and the installation plate <Front View>



Unit : mm

Dimensions

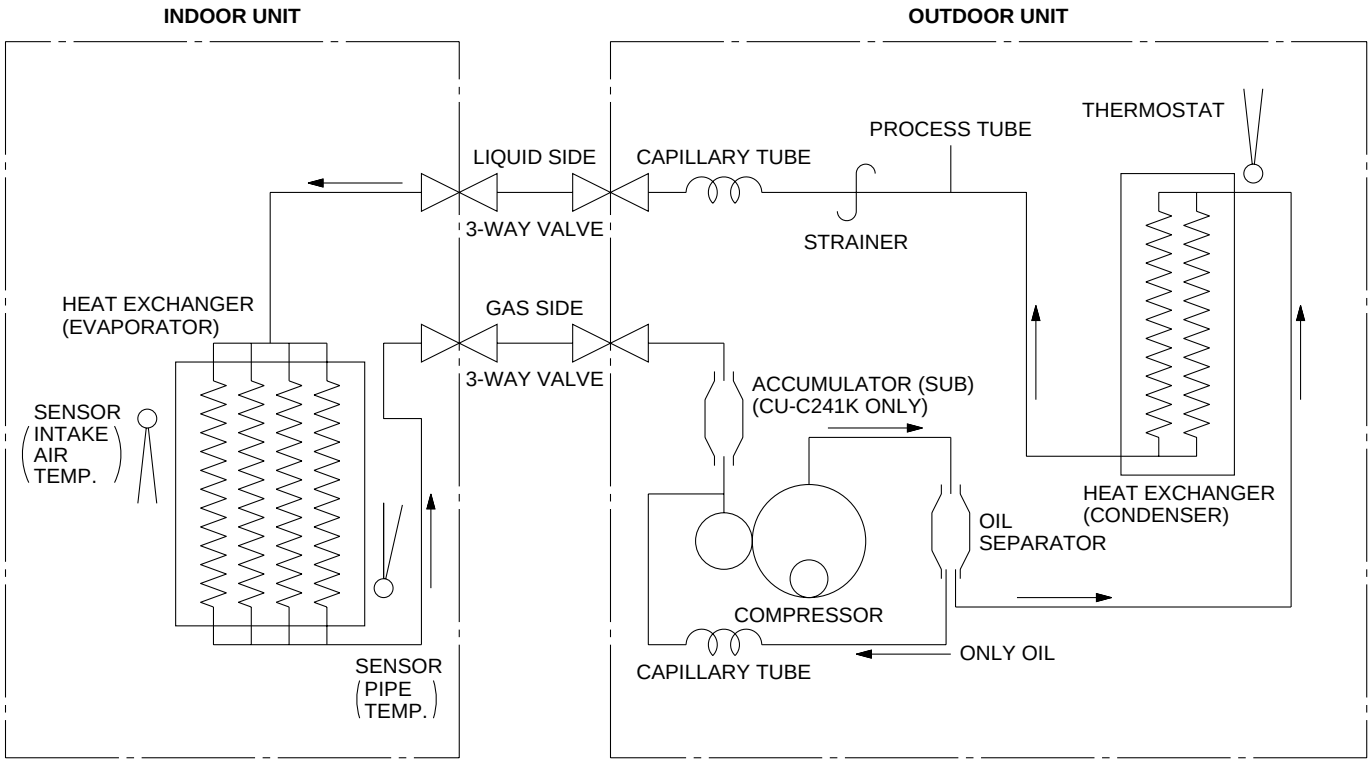
CU-C181K / CU-C241K



Unit : mm

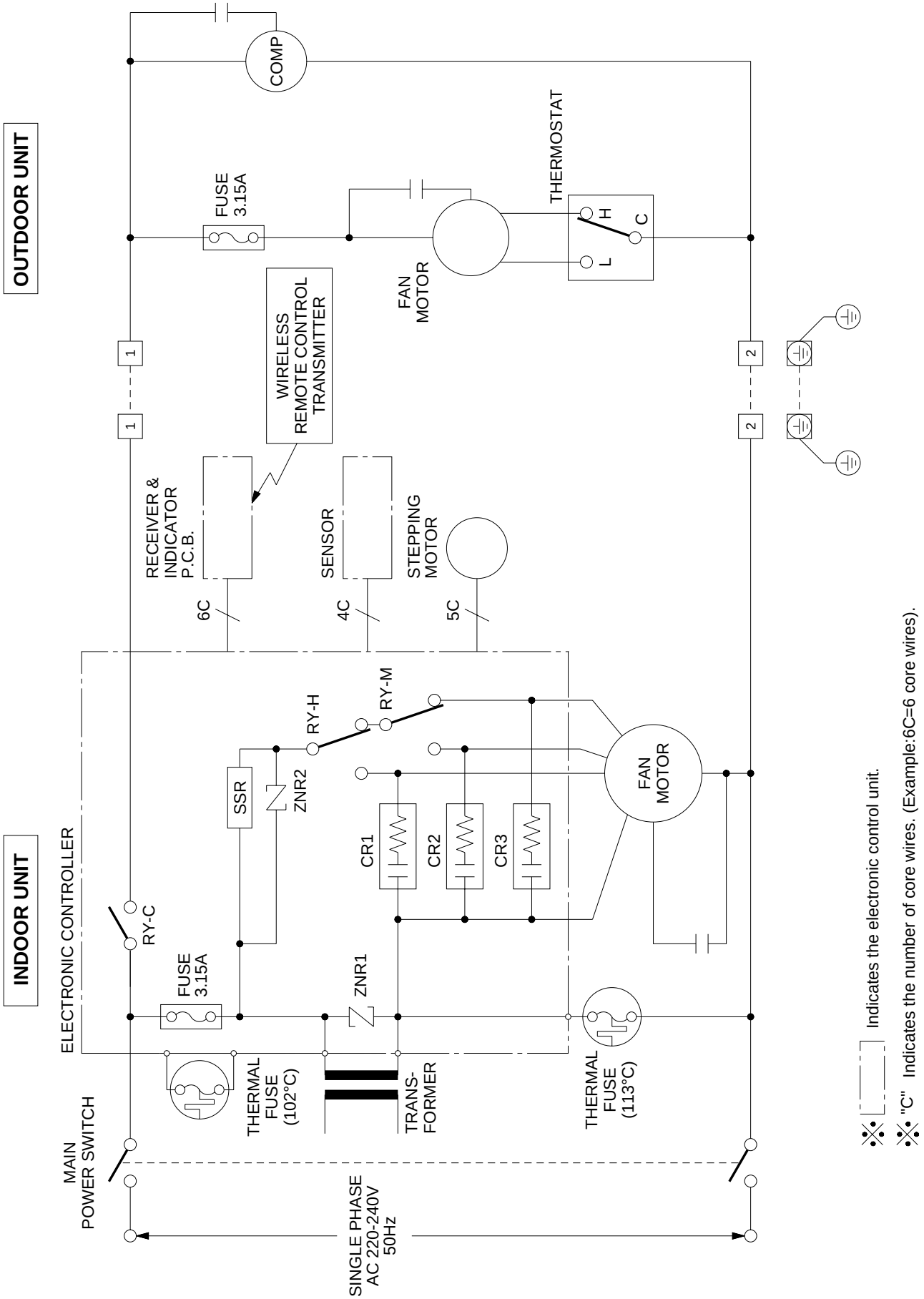
Refrigeration Cycle Diagram

CS/CU-C181K
CS/CU-C241K



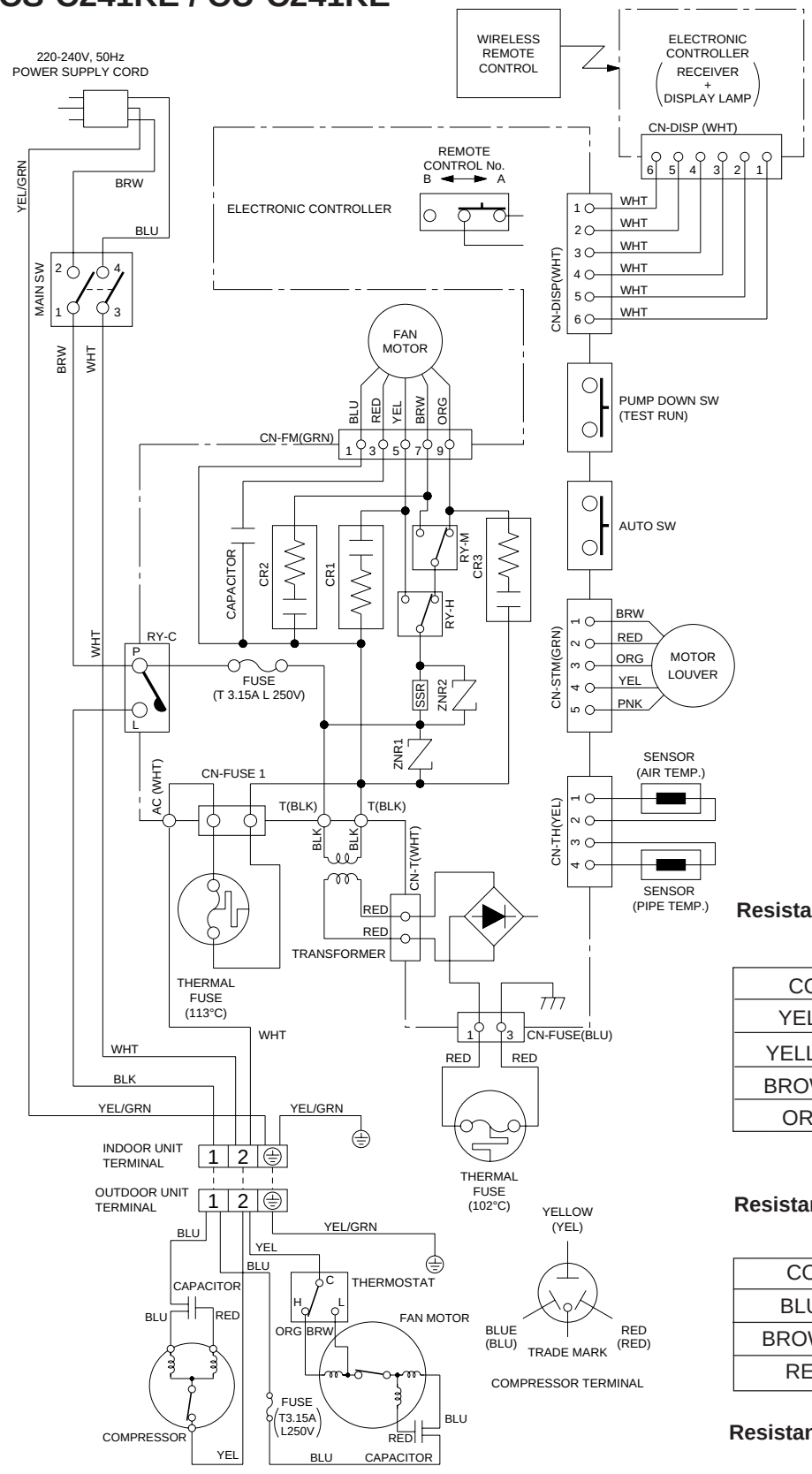
Block Diagram

CS-C181KE / CU-C181KE
CS-C241KE / CU-C241KE



Wiring Diagram

CS-C181KE / CU-C181KE
CS-C241KE / CU-C241KE



REMARKS:

BLU	:	BLUE
BRW	:	BROWN
BLK	:	BLACK
WHT	:	WHITE
RED	:	RED
ORG	:	ORANGE
PNK	:	PINK
YEL/GRN	:	YELLOW/ GREEN
GRY	:	GRAY

Resistance of Indoor Fan Motor Windings

	CS-C181KE	CS-C241KE
CONNECTION	CWA92270 (Ω)	CWA92287 (Ω)
YELLOW - BLUE	357.0	176.0
YELLOW - BROWN	41.7	70.4
BROWN - ORANGE	63.1	71.7
ORANGE - RED	249.6	148.7

Resistance of Outdoor Fan Motor Windings

	CU-C181KE	CU-C241KE
CONNECTION	CWA92272 (Ω)	CWA92271 (Ω)
BLUE - BROWN	79.5	46.8
BROWN - ORANGE	65.1	64.6
RED - BROWN	70.8	73.7

Resistance of Compressor Windings

	CU-C181KE	CU-C241KE
CONNECTION	2JS350D3AA02 (Ω)	2JS464D3AA02 (Ω)
C-R	0.980	0.888
C-S	3.929	2.328

Operation Details

1) Cooling Mode Operation

Cooling in operation according to Remote Control setting.

Time Delay Safety Control (3 minutes)

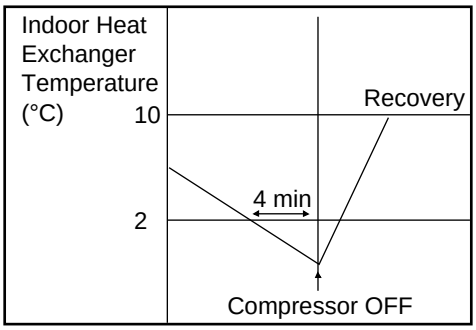
- When the compressor is stopped by Power Switch, Remote Control or there is a power failure, it restarts after 3 minutes when the Power Switch, Remote Control is turned ON or the power supply is resumed.
- When the setting temperature is reached during cooling operation, the compressor stops and it will not start for 3 minutes.

7 minutes Time Saved Control

- The compressor will start automatically if it has stopped for 7 minutes even if the room temperature is below the compressor ON temperature.

Anti-Freezing Control

- If the temperature of the indoor heat exchanger falls continously below 2°C for 4 minutes, the compressor turns off to protect the indoor heat exchanger from freezing. The fan speed setting remains the same.
- Compressor recommences when the indoor heat exchanger temperature rises to 10°C (Recovery).
  ※ 3 minutes waiting of Time Delay Safety Control is valid for Cooling Operation.

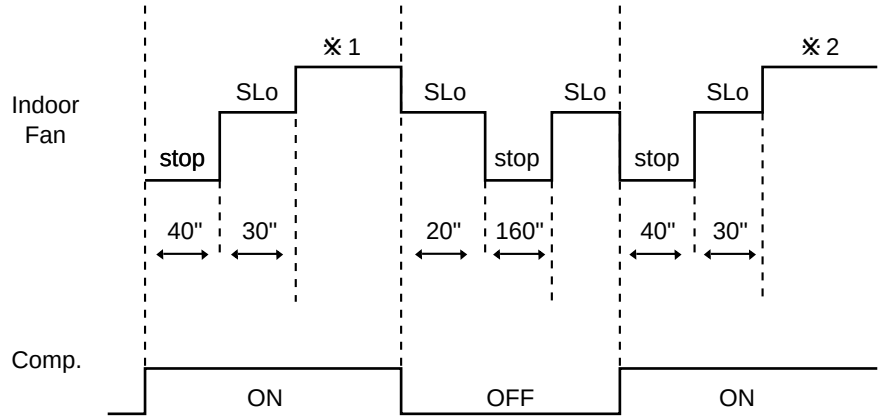


Operation Details

Automatic Fan Speed Mode

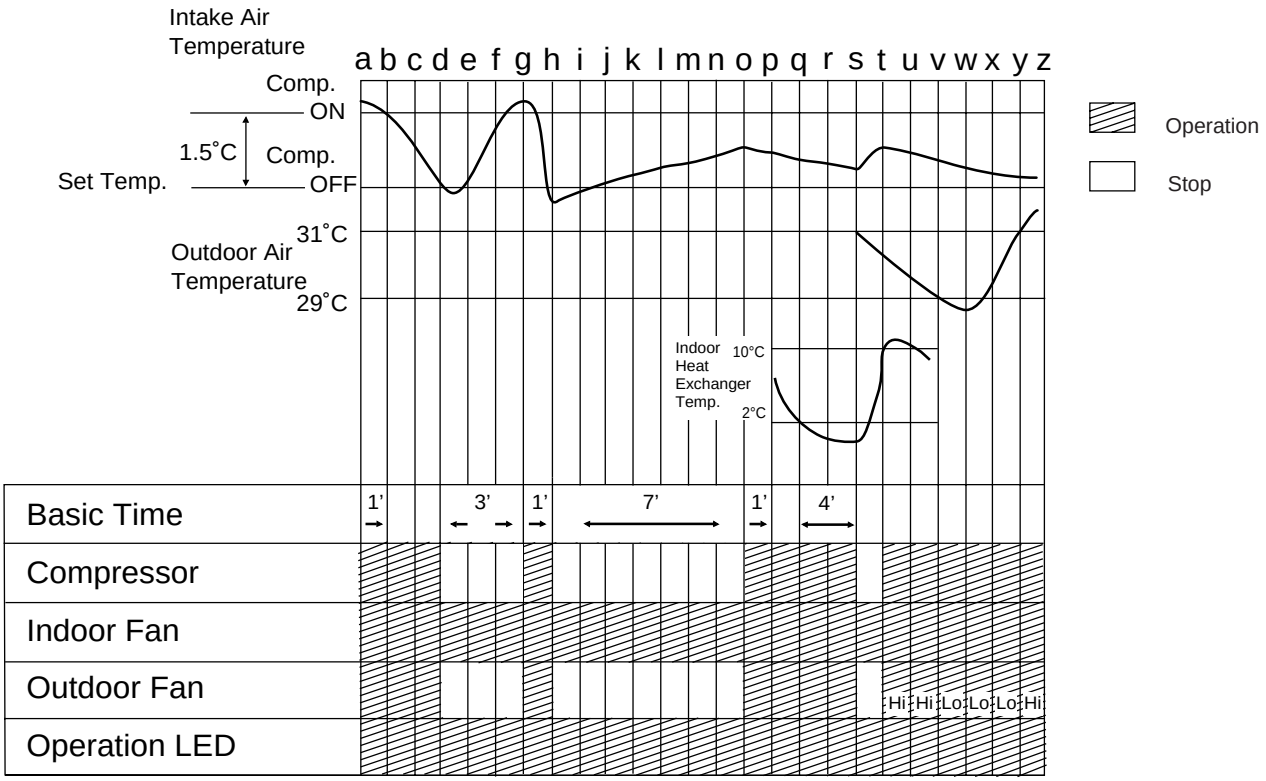
When Automatic Fan Speed is selected at Remote Control during cooling operation.

- Fan speed rotates in the range of Hi to Me.
- Deodorizing Control.



※ 1 Fan Speed is Hi until the compressor stops (when the room temperature reaches setting temperature).
※ 2 Fan Speed is Me after the compressor restarts.
※ SLo: Indoor Fan rotates at 4-second intervals at low speed.

Cooling Operation Time Diagram



<Description of operation>

d – g	:	Time Delay Safety Control (waiting for 3 minutes)
g – h	:	60 sec. Forced Operation
h – o	:	7 min. Time Saved Control
q – t	:	Anti Freezing Control
v – y	:	Outdoor Fan Control

Operation Details

2) Soft Dry Mode Operation

- The unit starts cooling operation until the room temperature reaches the setting temperature set on the Remote Control, and then Soft Dry operation will start.
- During Soft Dry operation, the Indoor Fan will operate and stop at 4-second intervals at low speed.
- The operation will be switched on and off for up to 10 minutes “ON” and 6 minutes “OFF”. Once Soft Dry operation is turned off, it stops for 6 minutes.

Time Delay Safety Control

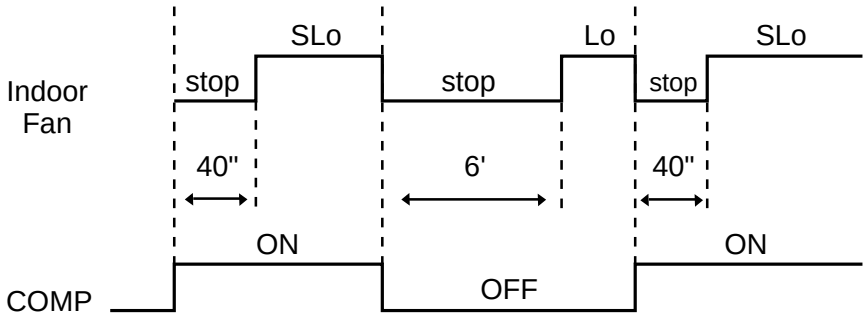
- Once the compressor stops, it will not start for 3 minutes during Cooling operation.

Anti-Freezing Control

- Same as Anti-Freezing Control for Cooling Mode operation. (For Soft Dry region, 6 minutes waiting is valid during compressor stops.)

Automatic Fan Speed Mode

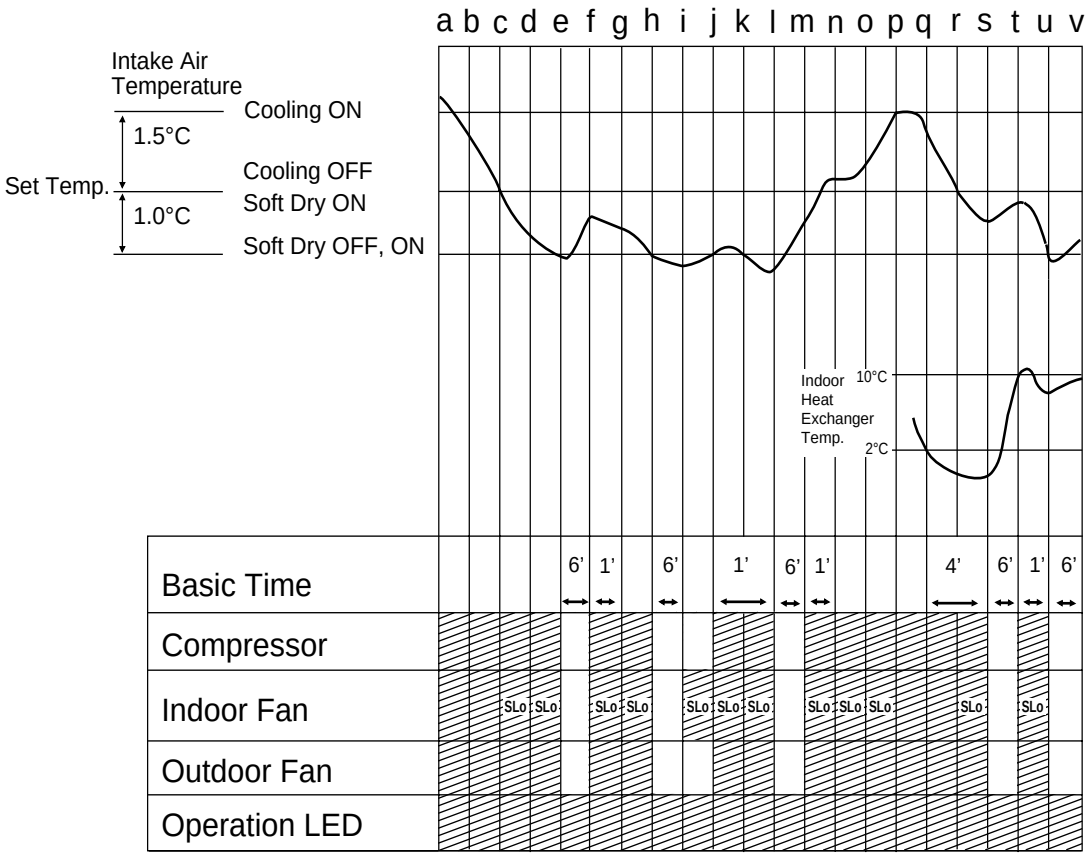
When Automatic Fan Speed is selected at Remote Control during Soft Dry Operation.
- Fan speed rotates at SLo and Lo speed.
- Deodorizing Control.



※ SLo: Indoor Fan rotates at 4-second intervals at low speed.

Operation Details

Soft Dry Operation Time Diagram



<Description of operation>

a – c, p~r	:	Cooling Operation
c – p, r~v	:	Soft Dry Operation
e – f	:	Soft Dry OFF
j – l	:	60 sec. Forced Operation
q – t	:	Anti Freezing Control

Operation

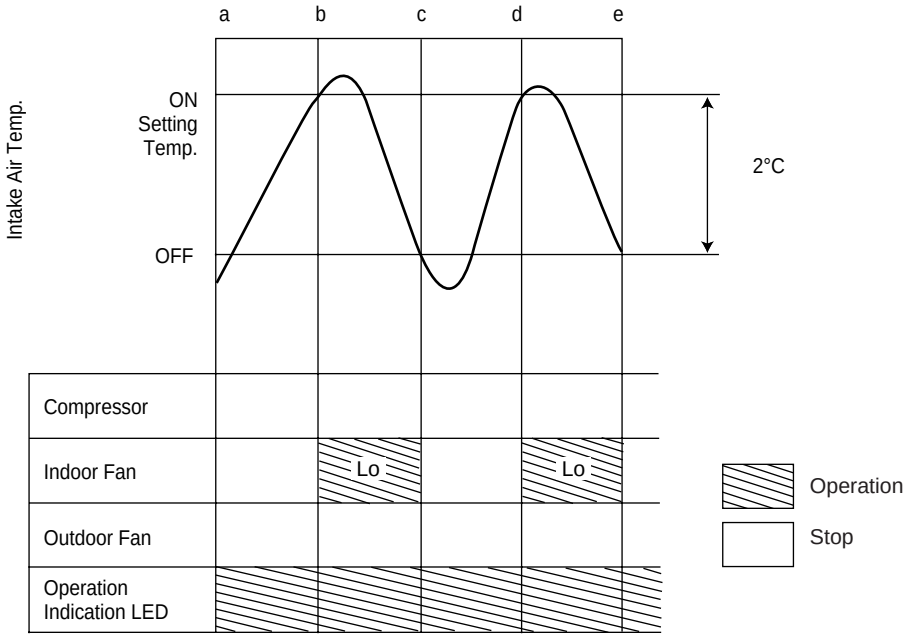
Stop

Operation Details

3) Air Circulation Mode Operation

- When the temperature near the ceiling reaches the setting temperature, Air Circulation Mode operation commences at low airflow volume. It stops when the temperature drops to 2°C below the setting temperature.

Air Circulation Mode Operation Time Diagram



4) Automatic Mode Operation

Standard for Determining Operation Mode

↑
Intake Air Temperature
23°C
Cooling Mode
Soft Dry Mode

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

(a) Indoor fan operates at Lo fan speed for 20 seconds.
(b) After judging indoor air temperature, the operation mode is determined and operation continued at the mode determined.
(c) After the operation mode has been determined, the mode does not change. However, Soft Dry mode operation includes Cooling mode operation.
(d) Room temperature adjustment.
The following are added to the setting temperature specified as above.

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

(e) If the value for R32 is changed to 47K (Normal 10K), the mode judging temperature and standard setting temperature is increased by 2°C.

↑
Intake Air Temperature
25°C
Cooling
Soft Dry

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

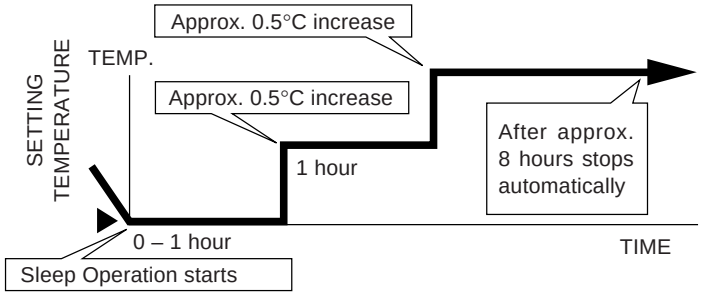
Operation Details

5) Sleep Mode Auto Operation

Cooling or Soft Dry Operation

When you press the SLEEP Mode, the following movement will start to avoid overcooling.

- When the room temperature reaches the setting temperature or after 1 hour of operation, sleep shift operation starts and the airflow volume will automatically change to low.
- The setting temperature will be risen by **0.5**°C at the start of operation and by **0.5**°C one hour later.
- The operation will stop after **8** hours.



6) Auto Restart Control

- If there is a power failure, operation will be automatically restarted when the power is resumed. It will start with previous operation mode and airflow direction. (Time Delay Safety Control is valid)
- Auto Restart Control is not available when Timer or Sleep Mode is set.
- This control can be omitted by cutting the jumper wire J2. (Refer Circuit Diagram)

7) Indoor Fan Speed Control

- Auto Fan Speed Control
  When set to Auto Fan Speed, the fan speed is adjusted between maximum and minimum setting as shown in the table.
- Manual Fan Speed Control
  Basic fan speed adjustment (3 settings, from Lo to Hi) can be carried out by using the Fan Speed selection button.

Fan Speed		Hi	Me	Lo	SLo	Stop
Cooling	Manual	○	○	○		
	Automatic	○	○			
Soft Dry				○	○	○
Air Circulation				○		○

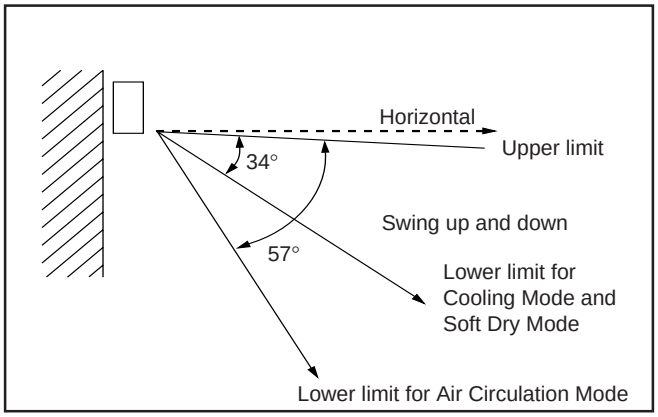
※ SLo: Indoor Fan rotates at 4-second intervals at Low speed.

Operation Details

8) Airflow Direction Control

Airflow Direction Auto-Control

- When set a Airflow Direction Auto-Control with remote control, the louver swings up and down as shown in the diagram.
- The louver does not swing when the Indoor Fan stops during operation.
- When stopped with remote control, the discharge vent is closed with the louver.

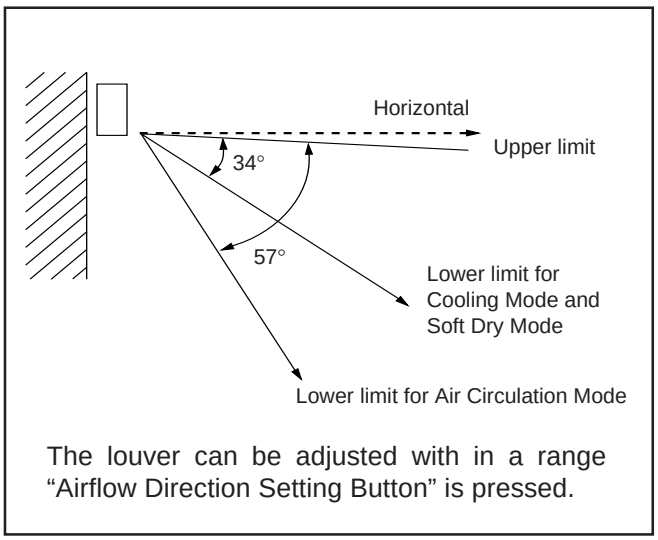


※ The left and right airflow direction louvers can be adjusted manually.

※ 1 There is no swinging while indoor fan is stopped during Cooling and Soft Dry operation.
※ 2 In Air Circulation operation, when the intake air temperature reaches set temperature, the airflow direction is changed from upper limit to lower limit. When the intake air temperature falls to 2°C lower than set temperature, the airflow direction is changed from lower limit to upper limit.

Airflow Direction Manual Control

- When the airflow direction set button is pressed, the automatic airflow is released and the airflow direction louver move up and down in the range shown in the diagram.
  The louver can be stopped by releasing the button at the desired louver position.
- When the remote control is used to stop the operation, the discharge vent is closed with airflow direction louver.



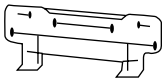
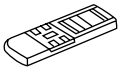
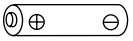
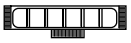
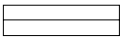
※ The left and right airflow direction louvers can be adjusted manually.

9) Delay ON Timer Control

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

Installation Information

Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.
1	Installation plate 	1	6	Remote control 	1
2	Installation plate fixing screw 	6	7	Battery 	2
3	Vinyl tape 	3	8	Air purifiying filter 	2
4	Vinyl tape 	1			
5	Band 	2			

Accessories: Flaring piping kit
CZ-4F5, 7, 10AN (C181K)
CZ-52F5, 7, 10AN (C241K)

SELECT THE BEST LOCATION

INDOOR UNIT

- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Indoor unit of this room air conditioner shall be installed on the wall in a height of at least 2.3 m.

OUTDOOR UNIT

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If piping length is over the rated length, additional refrigerant should be added as shown in the table.

MODEL	Piping size		Max. Piping Length A (m)	Max. Elevation B (m)	Rated		Additional Refrigerant (g/m)	Common Length (m)
	Gas	Liquid			Length (m)	Elevation (m)		
C181K	1/2"	1/4"	25	20	7.5	5	20	10
C241K	5/8"	1/4"	25	20	7.5	5	30	10

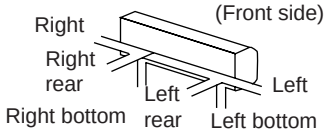
If the unit will be installed at a 12m distance, the quantity of additional refrigerant should be 60g…(12–10)m × 30g/m = 60g (Example : C241K)

Installation Information

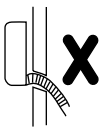
Indoor / Outdoor unit installation diagram

Length of power supply cord

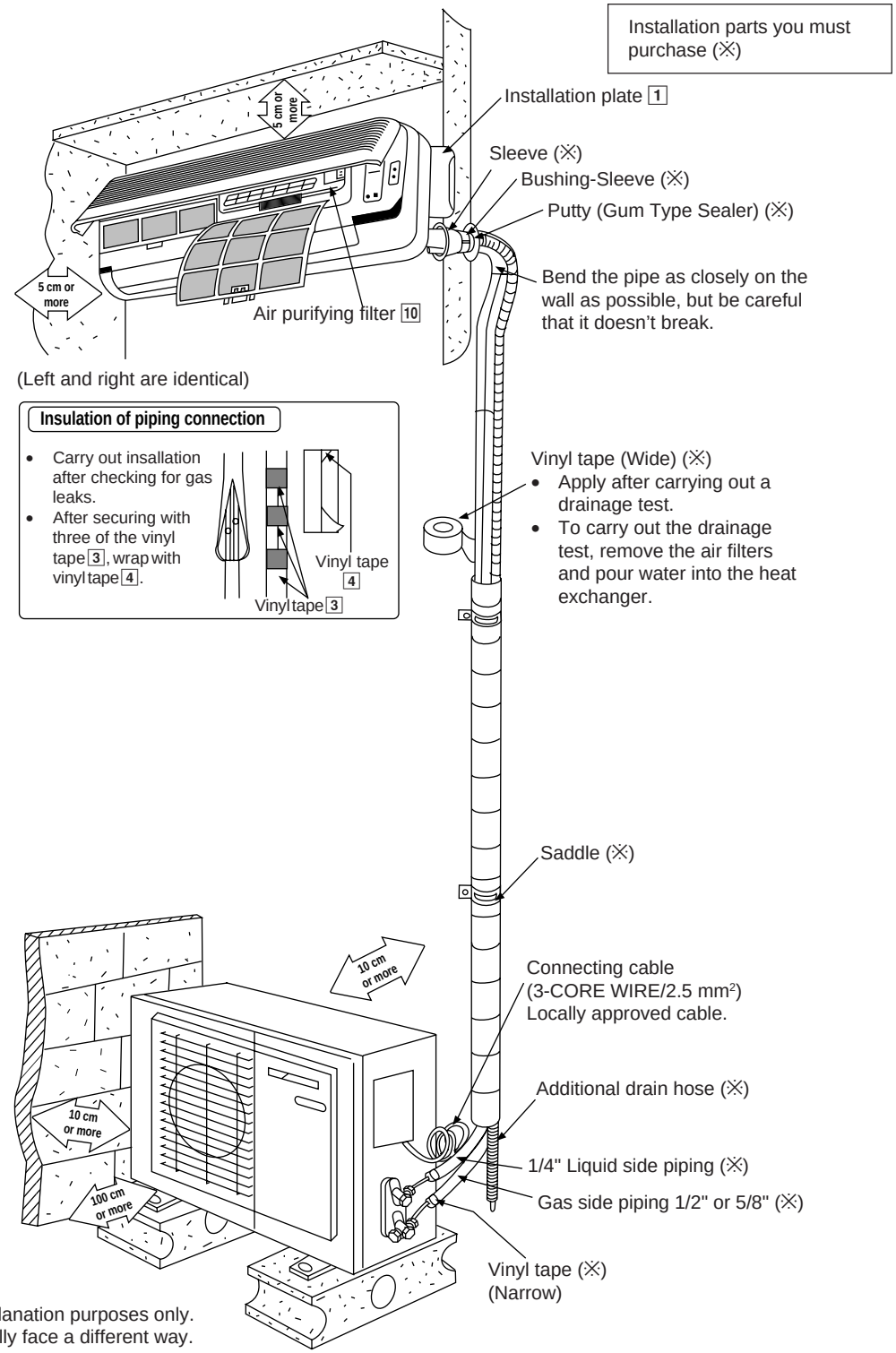
Piping direction



Attention not to bend up drain hose



Installation parts you must purchase (※)



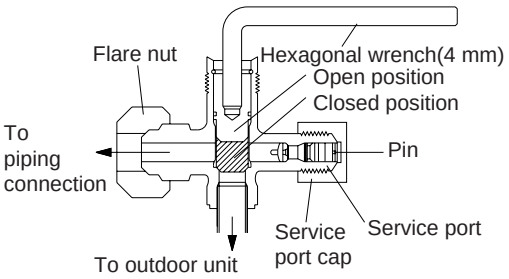
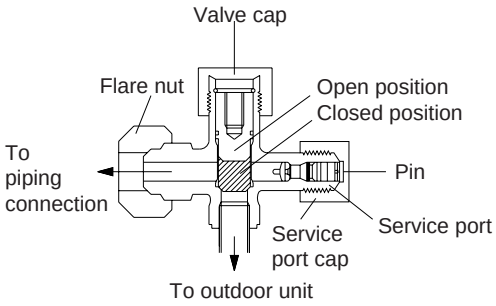
(Left and right are identical)

Insulation of piping connection

- Carry out insallation after checking for gas leaks.
- After securing with three of the vinyl tape 3, wrap with vinyl tape 4.

- This illustration is for explanation purposes only. The indoor unit will actually face a different way.

3-way Valve

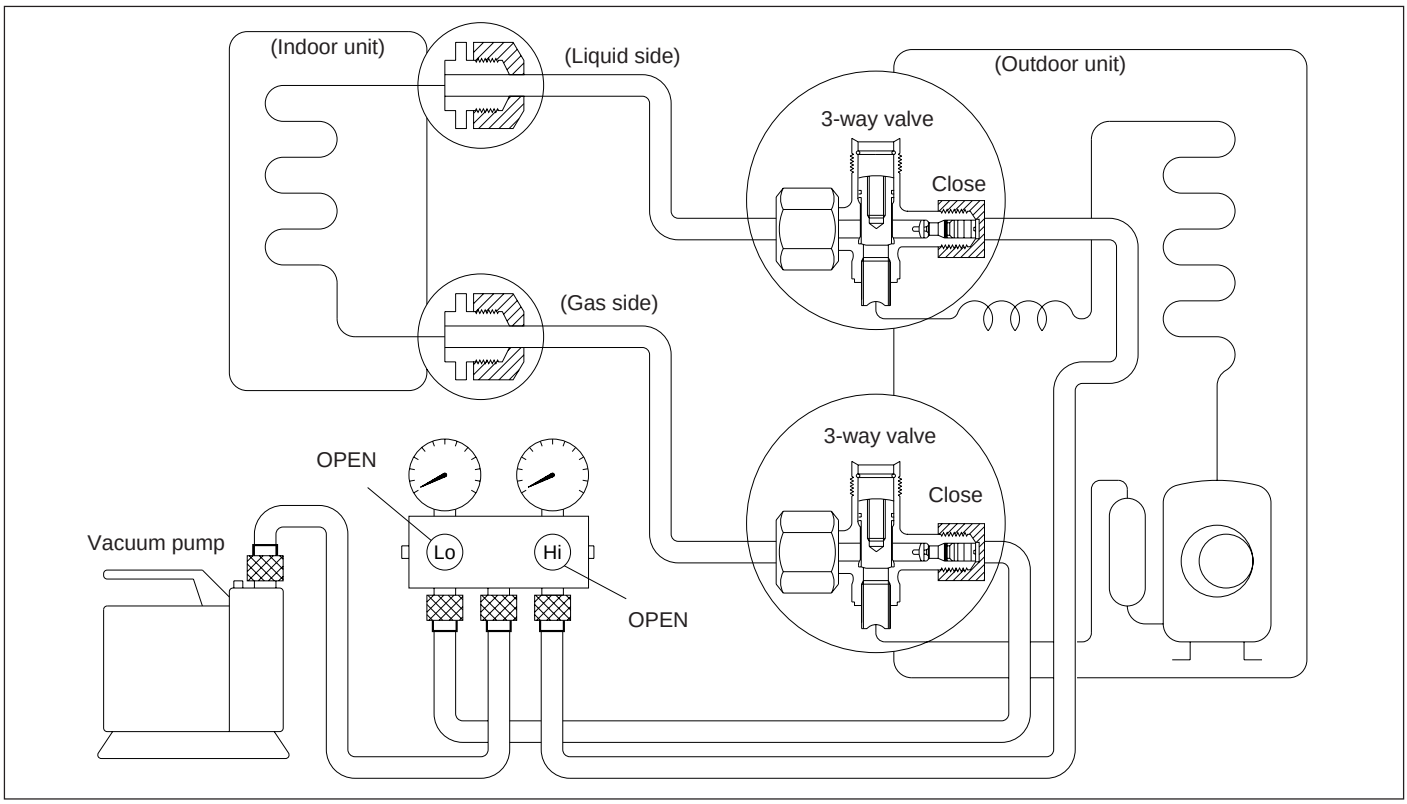
	3-way Valve (Liquid Side)		3-way Valve (Gas Side)	
				
Works	Shaft Position	Service Port	Shaft Position	Service Port
Shipping	Closed (With valve cap)	Closed (With cap)	Closed (With valve cap)	Closed (With cap)
Evacuation (Installation and Re-installation)	Closed (Clockwise)	Open (Connected manifold gauge w/charging cylinder)	Closed (Clockwise)	Open (Push-pin)
Operation	Open (With valve cap)	Closed (With cap)	Open (With valve cap)	Closed (With cap)
Pumping down (Transferring)	Closed (Clockwise)	Closed (With cap)	Open (Counter-clockwise)	Open (Connected manifold gauge)
Evacuation (Servicing)	Open (Counter-clockwise)	Open (Connected manifold gauge)	Open (Counter-clockwise)	Open (Connected manifold gauge)
Gas charging (Servicing)	Open (Counter-clockwise)	Open (Connected manifold gauge)	Open (Counter-clockwise)	Open (Connected manifold gauge)
Pressure check (Servicing)	Open (Counter-clockwise)	Open (Connected manifold gauge)	Open (Counter-clockwise)	Open (Connected manifold gauge)
Gas releasing (Servicing)	Open (Counter-clockwise)	Open (Connected manifold gauge)	Open (Counter-clockwise)	Open (Connected manifold gauge)

1 Evacuation of Installation

When installing an air conditioner, be sure to evacuate the air inside the indoor unit and pipes in the following procedure.

Required tools: hexagonal wrench, adjustable wrench, torque wrenches, wrench to hold the joints, gas leak detector, and charging set.

The air in the indoor unit and in the piping must be purged. If air remains in the refrigeration pipings, it will affect the compressor, reduce the cooling capacity, and could lead to a malfunction.



Service port cap
Be sure, using a torque wrench to tighten the service port cap (after using the service port), so that it prevents the gas leakage from the refrigeration cycle.

Procedure:

(1) Connect a charging hose with a push pin to the Low and High sides of a charging set and the service ports of a 3-way valves.
- Be sure to connect the end of the charging hose with the push pin to the service port.

(2) Connect the centre hose of the charging set to a vacuum pump.

(3) Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to –76 cmHg (–0.1 MPa). Then evacuate the air for approximately 10 minutes.

(4) Close the valve of both the Low and High sides of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately 5 minutes.
BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.

(5) Disconnect the charging hose from the vacuum pump and from the service ports of the 3-way valves.

(6) Tighten the service port caps of both the 3-way valves at a torque of 18 N•m with a torque wrench.

(7) Remove the valve caps of both the 3-way valves. Position both of the valves to "open" using a hexagonal wrench (4 mm).

(8) Mount valve caps onto both of the 3-way valves.
- Be sure to check for gas leakage.

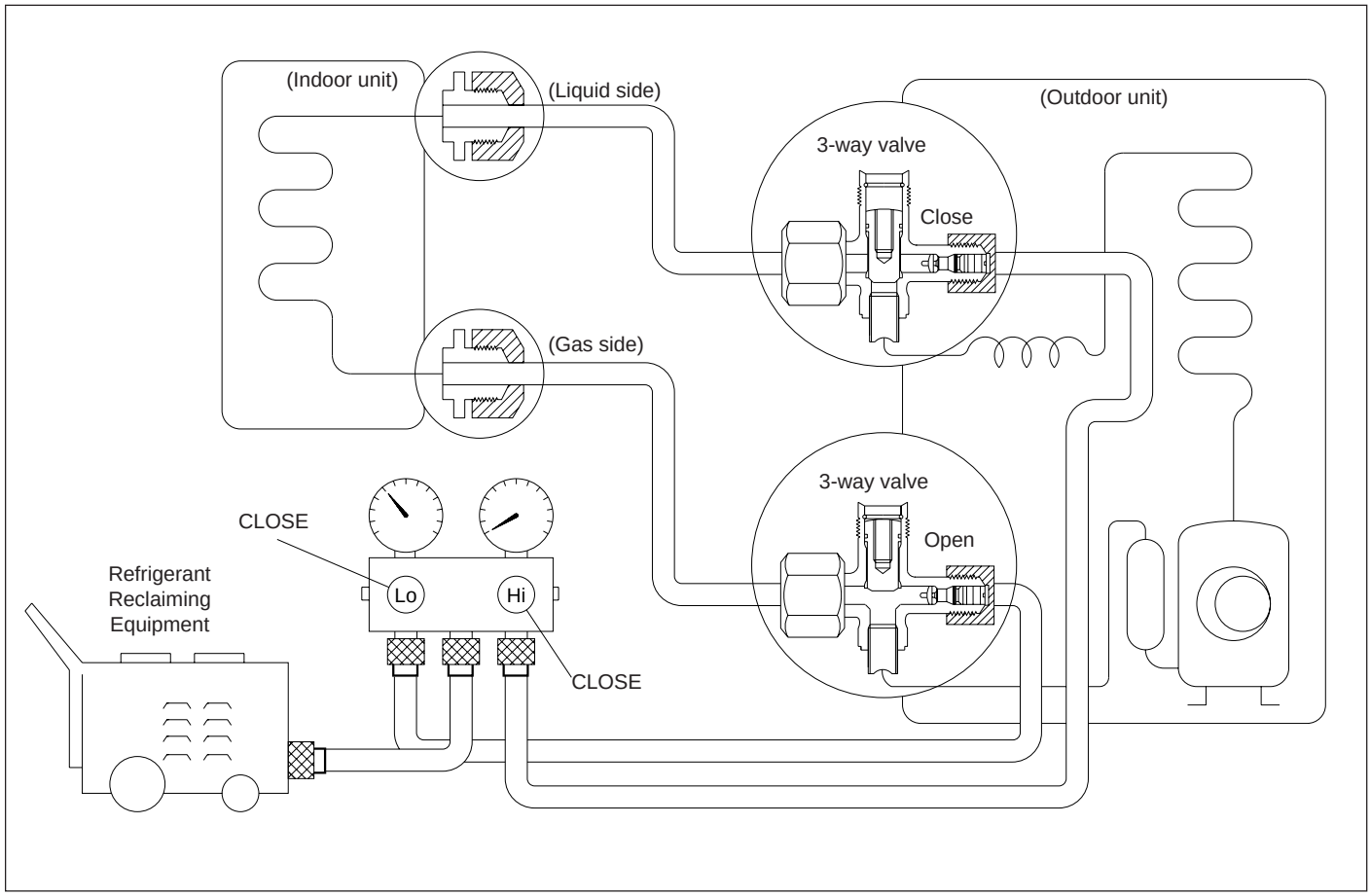
Caution

If gauge needle does not move from 0 cmHg (0 MPa) to –76 cmHg (–0.1 MPa) in step (3) above, take the following measures:

If the leaks stop when the piping connections are tightened further, continue working from step (3).

If the leaks do not stop when the connections are retightened, repair the location of the leak.

2 Pumping down



Procedure:

(1) Confirm that both the 3-way valves are set to the open position.
- Remove the valve stem caps and confirm that the valve stems are in the open position.
- Be sure to use a hexagonal wrench to operate the valve stems.

(2) Operate the unit for 10 to 15 minutes.

(3) Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.
- Connect the charge hose with the push pin to the Gas side service port.

(4) Air purging of the charge hose.
- Open the low-pressure valve on the charge set slightly to purge air from the charge hose.

(5) Set the Liquid side 3-way valve to the close position.

(6) Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0 kg/cm²G (0 MPa).
- If the unit cannot be operated at the cool condition (weather is rather cool), press the Pump Down Switch on the Indoor unit.
- So that the unit can be operated.

(7) Immediately set the gas side 3-way valve to the close position.
- Do this quickly so that the gauge ends up indicating 1 to 3 kg/cm²G (0.1 MPa to 0.3 MPa).

(8) Use refrigerant reclaiming equipment to collect refrigerant from indoor unit and pipes.

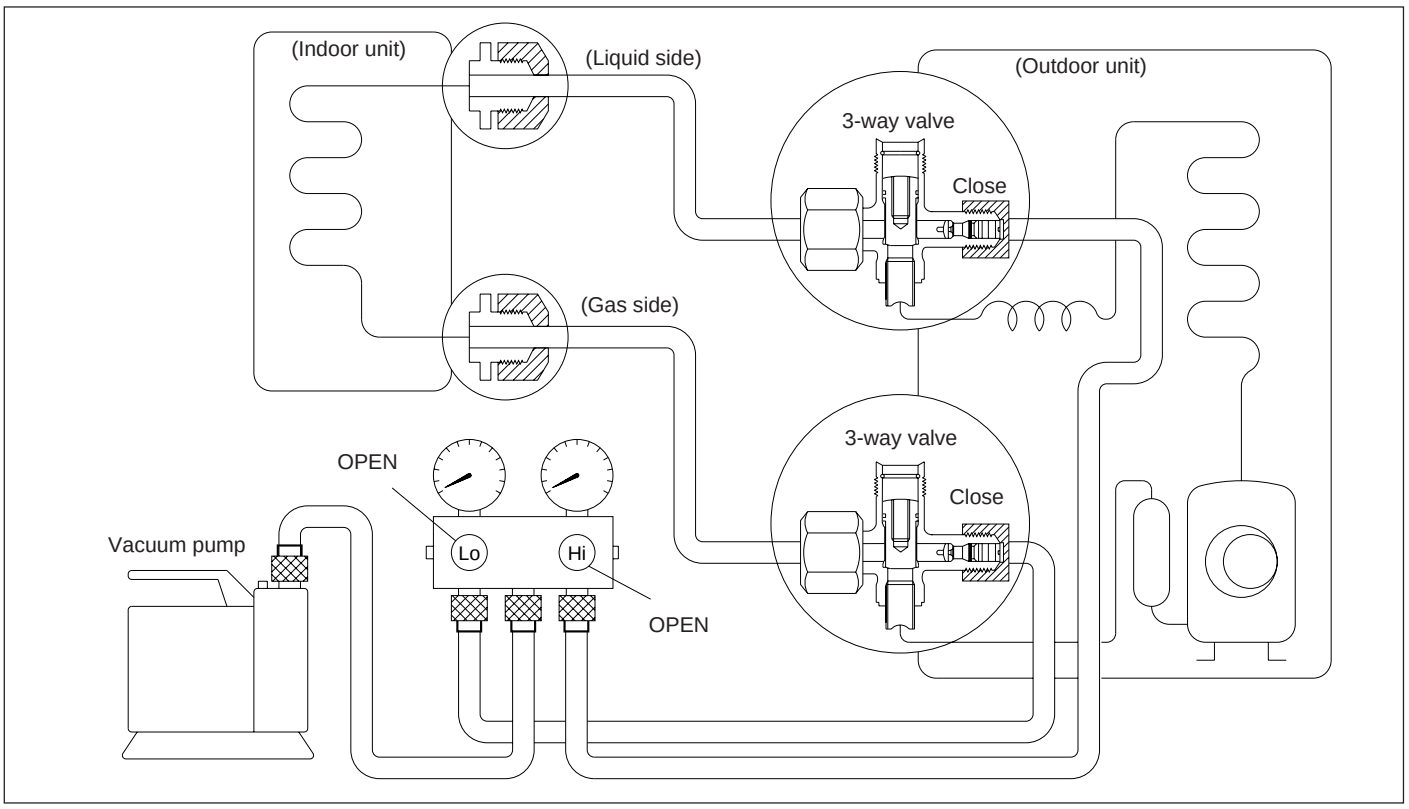
(9) Disconnect the charge set, and mount both the 3-way valve's stem nuts and the service port caps.
- Use a torque wrench to tighten the service port cap to a torque of 18 N•m.
- Be sure to check for gas leakage.

(10) Disconnect pipes from indoor unit and outdoor unit.

3 Evacuation of Re-installation

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

If air remains in the indoor unit and refrigeration pipes, it will affect the compressor, reduce to cooling capacity, and could lead to a malfunction.



Procedure:

(1) Connect a charging hose with a push pin to the Low and High sides of a charging set and the service port of the 3-way valve.
- Be sure to connect the end of the charging hose with the push pin to the service port.

(2) Connect the centre hose of the charging set to a vacuum pump.

(3) Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to –76 cmHg (–0.1 MPa). Then evacuate the air for approximately 10 minutes.

(4) Close the valve of both Low side and High side of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately 5 minutes.
BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.

(5) Disconnect the charging hose from the vacuum pump.

(6) Charge the pipes and indoor unit with gas refrigerant from liquid (High) side 3-way valve service port and then discharge the refrigerant until gas (Low) side gauge needle indicates 3 kg/cm² (0.3 MPa).
- **BE SURE TO USE REFRIGERANT RECLAIMING EQUIPMENT WHILE DISCHARGING THE REFRIGERANT.**
- Purge the air from charge set's centre hose.
- Be sure to check for gas leakage.

Caution

If gauge needle does not move from 0 cmHg (0 MPa) to –76 cmHg (–0.1 MPa) in step (3) above, take the following measures:

If the leaks stop when the piping connections are tightened further, continue working from step (3).

If the leaks do not stop when the connections are retightened, repair the location of the leak.

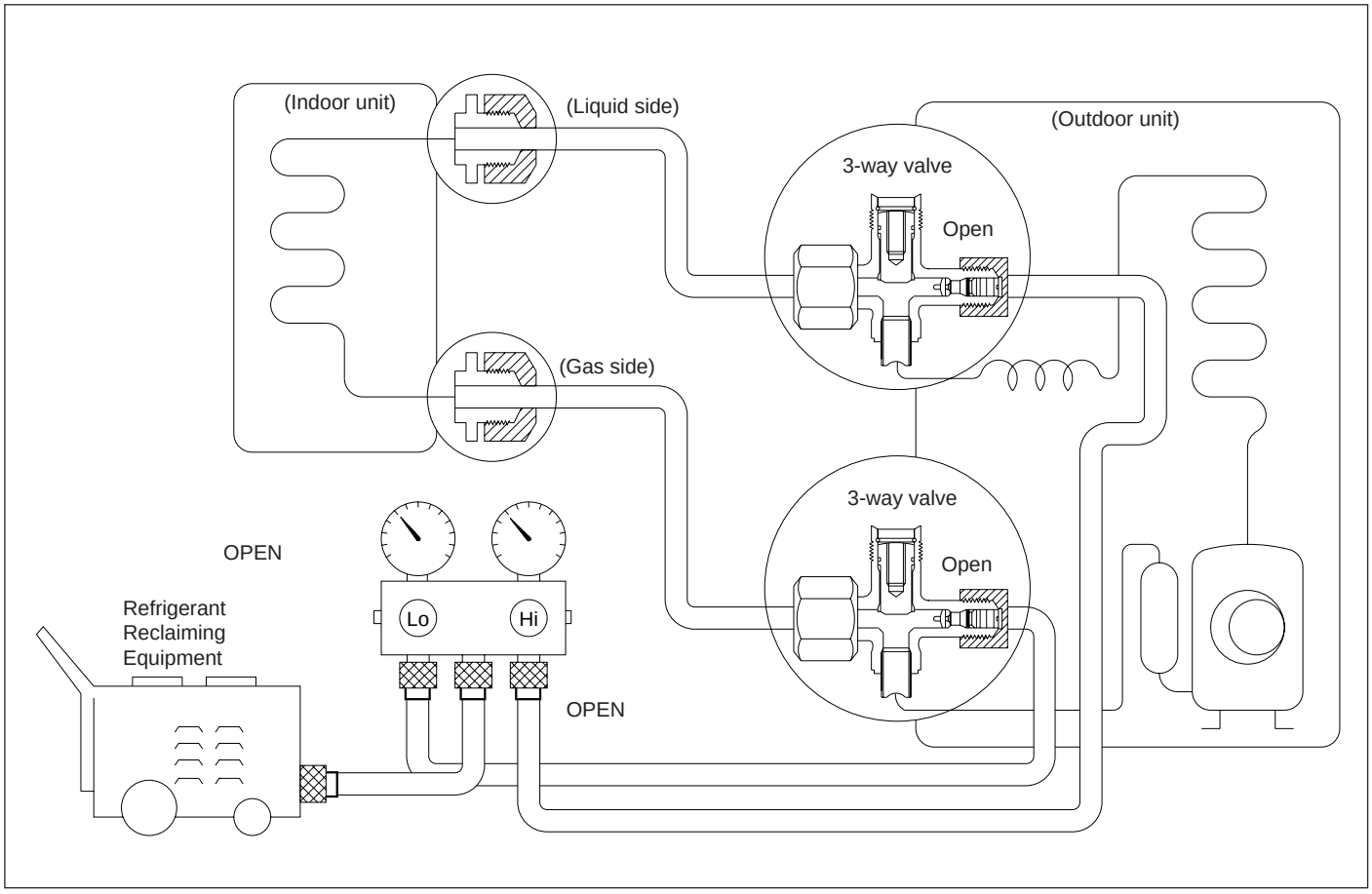
(7) Tighten the service port caps of both the 3-way valves at a torque of 18 N•m with a torque wrench.

(8) Remove the valve caps of both the 3-way valves. Position both of the valves to "open" using a hexagonal wrench (4 mm).

(9) Mount valve caps onto the 3-way valves.

4 Balance refrigerant of the 3-way valves

(Lack of refrigerant in the refrigeration cycle)



Procedure:

(1) Confirm that both the 3-way valves are set to the opened position.

(2) Connect the charge set to the 3-way valve's service port.

- Leave the valve on the charge set closed.
- Connect the charge hose with the push-pin to the service port.
- Confirm whether the pressure indicates more than 0.1 MPa (1 kg/cm^{2}G).

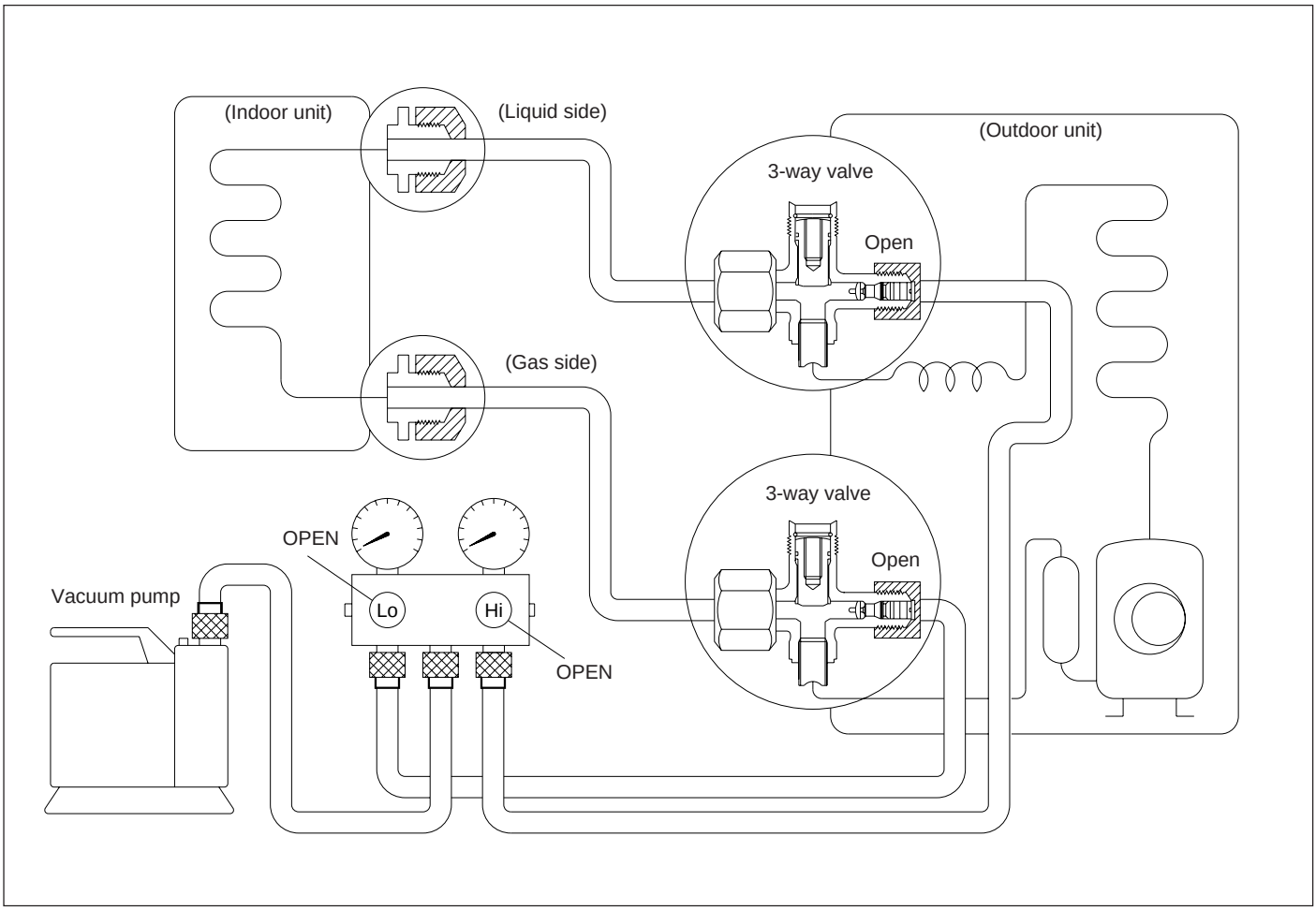
(3) Connect the charge set's centre hose to refrigerant reclaiming equipment.

(4) Open the valve (Low side) on the charge set and loosen the hose connected with the Refrigerant Reclaiming Equipment to purge the air from the hose.

(5) Turn on refrigerant reclaiming equipment to collect the refrigerant until the needle indicates 0 (no refrigerant is remaining).

5 Evacuation

(No refrigerant in the refrigeration cycle)



Procedure:

(1) Connect the vacuum pump to the charge set's centre hose.

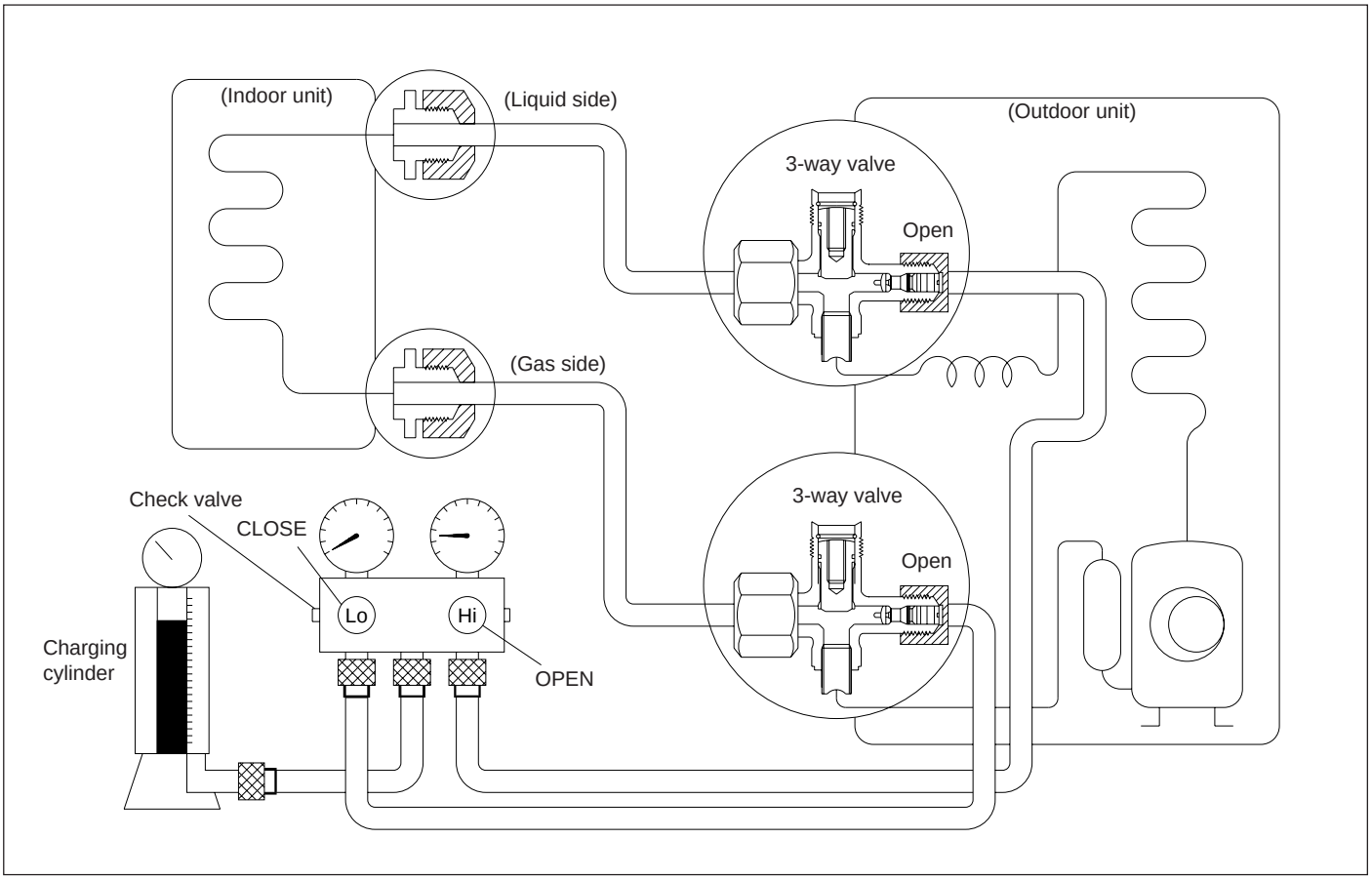
(2) Turn on the vaccuum pump to evacuate the unit.
- Confirm that the gauge needle has moved toward –76 cmHg (–0.1 MPa).
- Apply the vacuum for approximately 1 hour (vaccuum of 4 mmHg or less).

(3) Close the valves (Low side and High side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after the vacuum pump is turned off).

(4) Disconnect the charge hose from the vacuum pump.

6 Gas charging

(After Evacuation)



Procedure:

(1) Connect the charge hose to the charging cylinder.

- Connect the charge hose which was disconnected from the vacuum pump to the valve at the bottom of the cylinder.

(2) Purge the air from the charge hose.

- Open the valve at the bottom of the cylinder and use a screwdriver to press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

(3) Open the High side on the charge set and charge the refrigerant to the unit.

- Be sure to open only the High side valve on the charge set to charge the system from the liquid-side (high-presure) pipe. (If the system cannot be charged with the specified amount of refrigerant, operate the compressor until the specified amount can be charged, and then close the valve at the bottom of the charge cylinder.)

(4) Immediately disconnect the charge hoses from both 3-way valve service ports.

(5) Mount the valve stem nuts and the service port caps onto the 3-way valves.

- Use torque wrench to tighten the service port caps to a torque of 18 N•m.
- Be sure to check for gas leakage.

Servicing Information

(A) Disassembly of the parts

- **Inspection points for the Indoor Electronic Controller**

1. The Electronic Controller, a signal Receiver and an Indicator can be seen by removing the Front Grille and Control Board Cover, as shown in the Fig. 1.

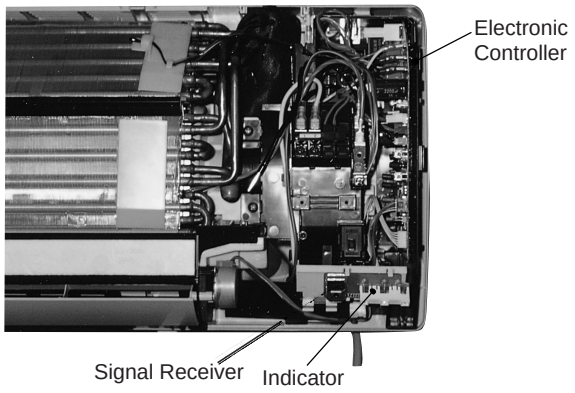


Fig. 1

- **Indoor Fan Motor removal procedure**

1. Remove the connector CN-FM (GREEN) of Fan Motor and connector CN-STM (GREEN) of stepping motor from the electronic controller. Release the earth wire (YELLOW-GREEN) from the control board terminal and sensors from its holders. (Refer Fig. 2.)

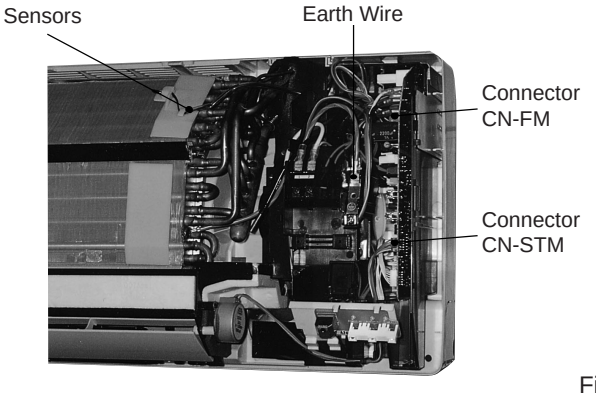


Fig. 2

2. Remove the Control Board.
   As shown in Fig. 3, remove the 3 screws and release the tab at the top of Control Board (Fig. 4). Pull the Control Board forward slightly.

Caution: Removal of Discharge Grille before removing the control board is necessary to avoid damaging other parts.

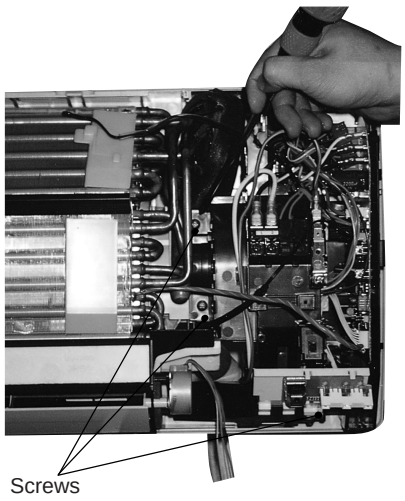


Fig. 3

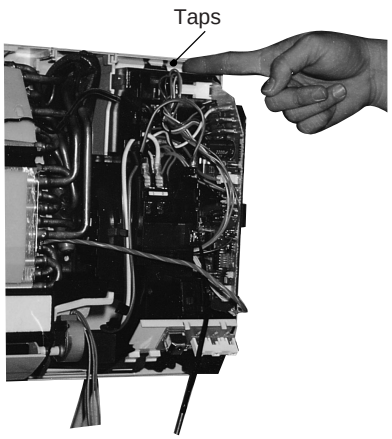


Fig. 4

Servicing Information

3. Remove the Discharge Grille.
   Remove the Discharge Grille by taking off the 3 screws that hold the Discharge Grille and then pull the Discharge Grille in a down and forward direction.

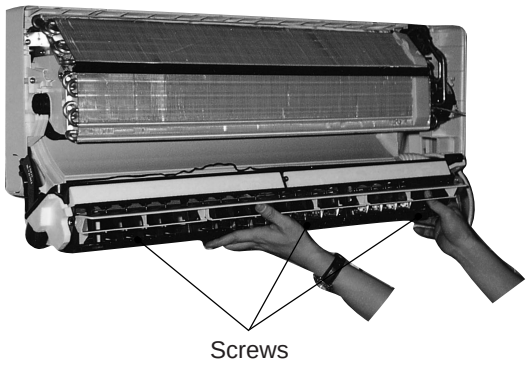


Fig. 5

4. Remove the Indoor Fan Motor
   Loosen the Fan Mounting Screw at the junction with Cross Flow Fan.

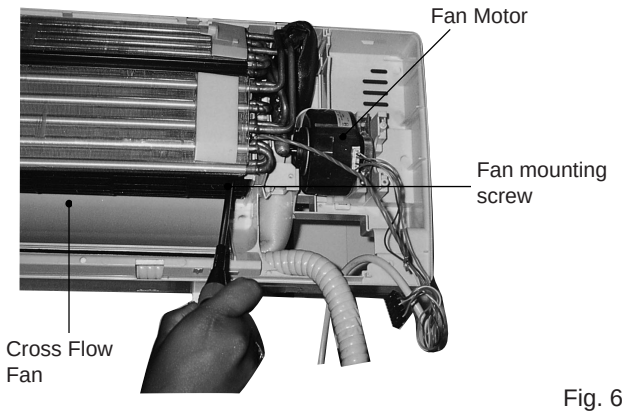


Fig. 6

Remove the screw that hold the metal plate and remove the metal plate.

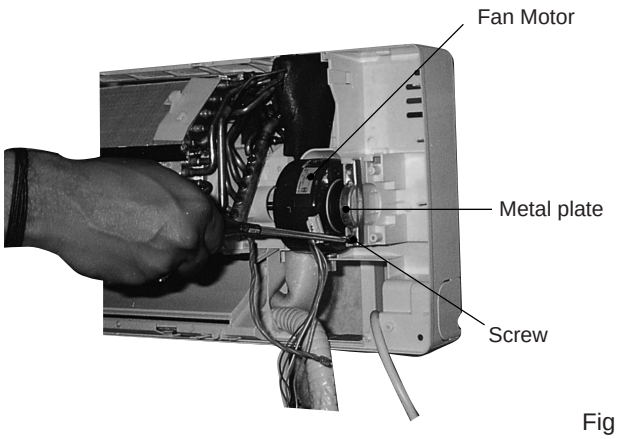


Fig. 7

Pull off the Bearing at the left of the Cross Flow Fan and remove the Indoor Fan motor.

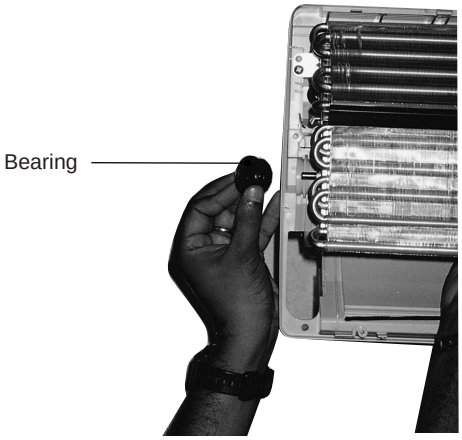


Fig. 8

Servicing Information

- **Cross Flow Fan Removal Procedure**

1. Remove the Fan Mounting Screws and Bearing. (Refer to No. 4 of Indoor Fan Motor the removal procedure)

2. Loosen the 2 screws mounted at the left side of the evaporator.

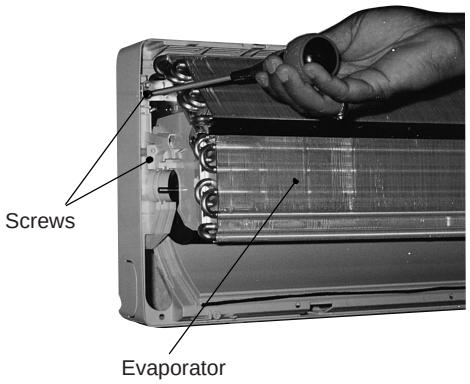


Fig. 9

3. Pull the left side of the evaporator forward slightly and remove the cross Flow Fan.

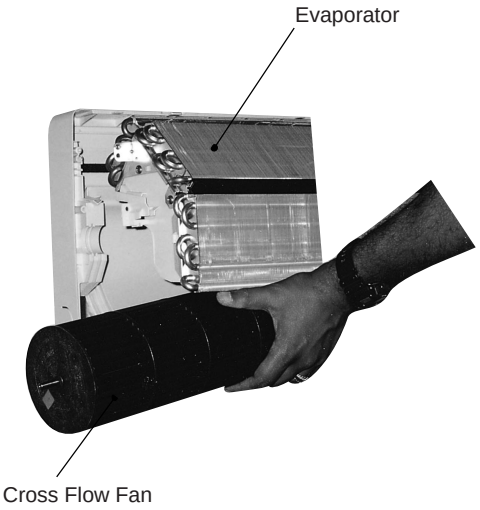


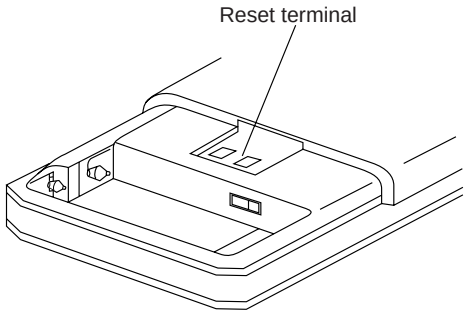
Fig. 10

Servicing Information

(B) Remote Control Transmission Setting

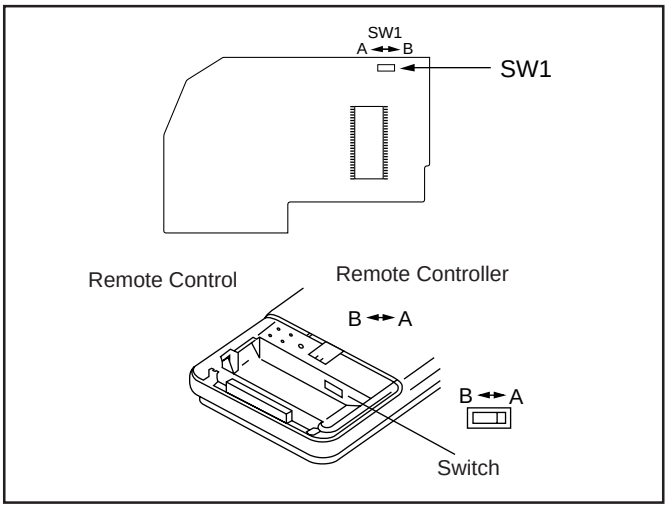
- **Remote Control Reset**

  When the batteries are inserted for the first time, or the batteries are replaced, all the indications will blink and the remote control might not work.
  If this happens, remove the back cover of the remote control and you will find a resetting terminal, and by shorting it with a minus screwdriver, it will return to normal.



- **Changing the wireless remote control transmission code**

  When two indoor units are installed in the same room, in order to prevent operating errors caused by using two remote controls, set up the remote control [B ↔ A] switch (SW1).
  The unit is set to A when it is shipped.



- **By adding a jumper wire to the remote control side and a carbon resistor (1/4 W, 10 k) to the indoor printed circuit board, it is possible to select from 4 types of transmission codes including the condition at time of delivery condition (1).**

	Remote control		Indoor printed circuit board		Note
	Switch SW B ↔ A	J – B	Switch SW1	RX	
1	A	———	A	———	At product delivery
2	B	———	B	———	
3	A	Jumper wire	A	10k	
4	B	Jumper wire	B	10k	

Troubleshooting Guide

Refrigeration cycle system

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

Normal Pressure and Outlet Air Temperature (Standard)

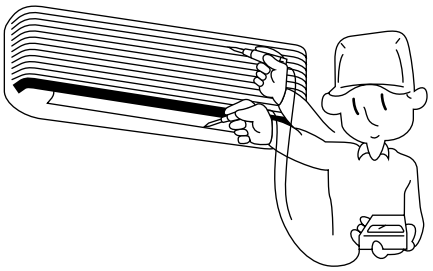
	Gas pressure MPa (kg/cm^2G)	Outlet air temperature (°C)
Cooling mode	0.4 ~ 0.6 (4 ~ 6)	12 ~ 16

★ Condition: Indoor fan speed; High
Outdoor temperature; 35°C

Difference in the intake and outlet air temperatures

→ Above 8°C (15 minutes after an operation is started.) → **Normal**

- **Measure the air temperature difference**



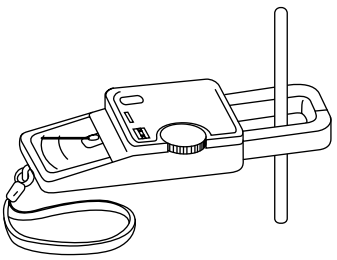
↓ Less than 8°C at cooling mode

Value of electric current during operation

→ Higher than specified → **Dusty condenser preventing heat radiation**

→ Higher than specified → **Excessive amount of refrigerant**

- **Measure the electric current during operation**



↓ Lower than specified

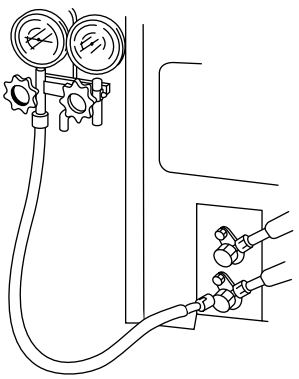
Gas side pressure

→ Cooling Mode High → **Inefficient compressor**

→ Low → **Insufficient refrigerant**

→ Low → **Clogged strainer or capillary tube**

- **Measure the gas side pressure**



Troubleshooting Guide

1. Relationship between the condition of the air conditioner and pressure and electric current

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

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

2. Diagnosis methods of a malfunction of a compressor

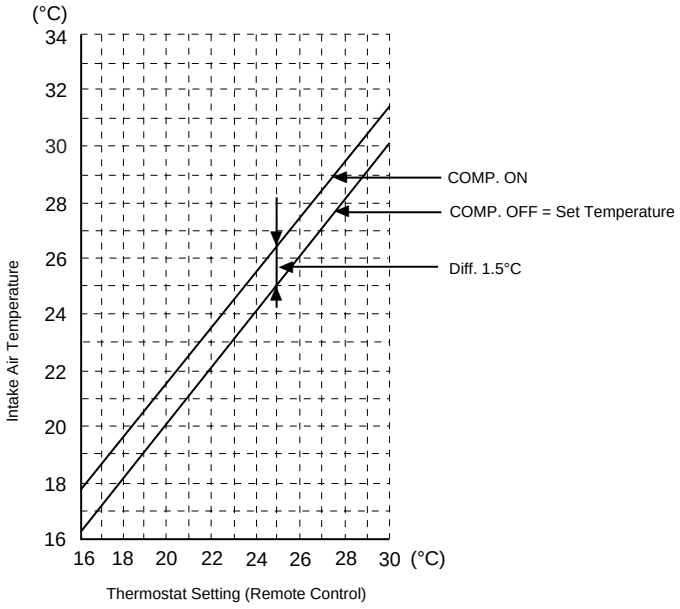
Nature of fault	Symptom
Insufficient compressing of a compressor	• Electric current during operation becomes approximately 20% lower than the normal value. • The discharge tube of the compressor becomes abnormally hot (normally 70 to 90°C). • The difference between high pressure and low pressure becomes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

Technical Data

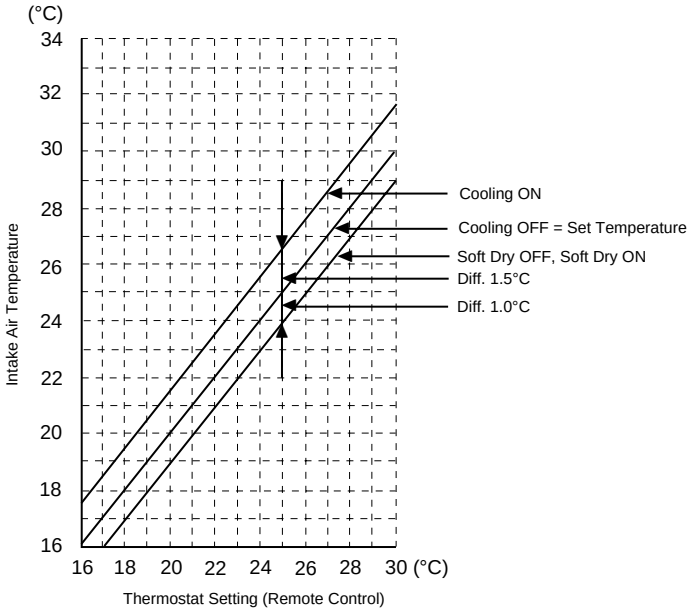
■ Thermostat characteristics

CS-C181K / CS-C241K

- **Cooling**



- **Soft Dry**

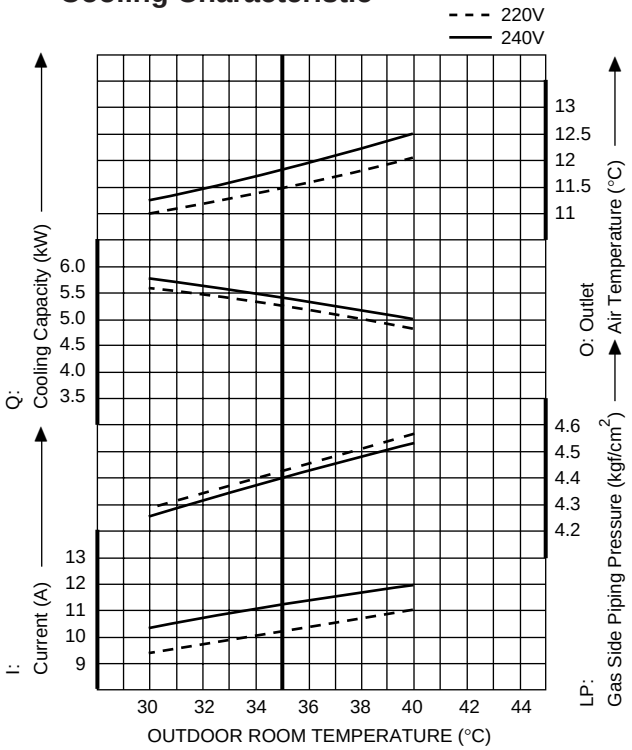


Technical Data

■ Operation characteristics

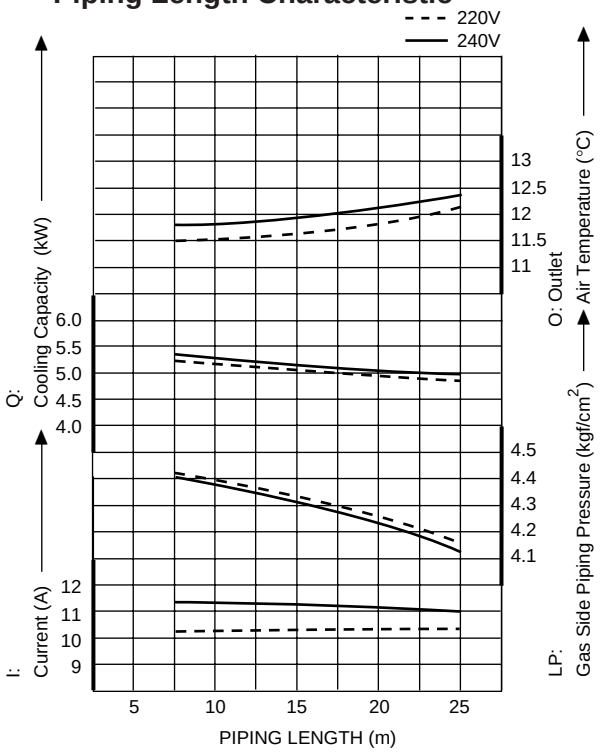
CS-C181K / CU-C181K

- **Cooling Characteristic**



[Condition] Room temperature: 27/19°C
Cooling operation: At High fan
Piping length: 7.5 m

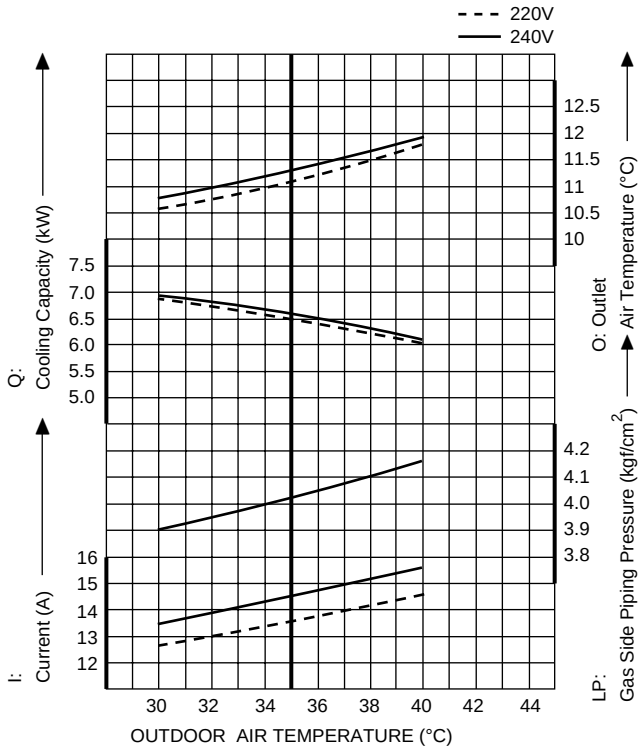
- **Piping Length Characteristic**



[Condition] Room temperature: 27/19°C
Outdoor temperature: 35/24°C
Cooling operation: At High fan

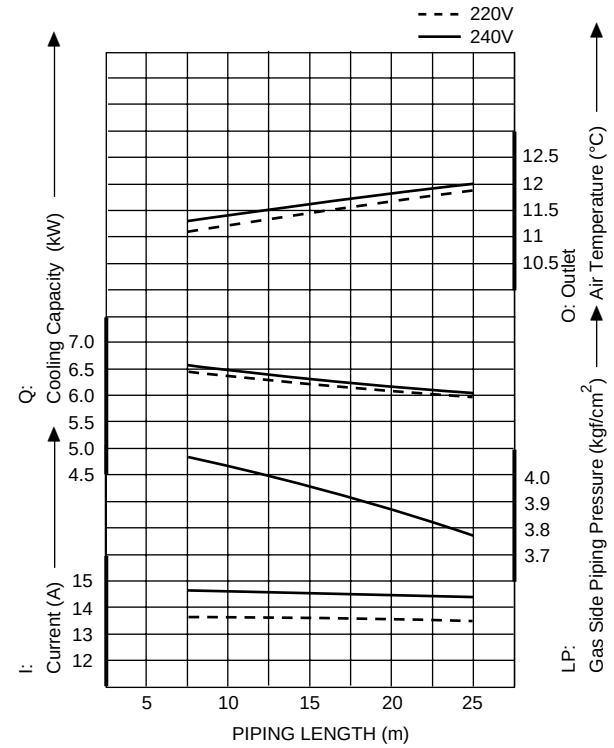
CS-C241K / CU-C241K

- **Cooling Characteristic**



[Condition] Room temperature: 27/19°C
Cooling operation: At High fan
Piping length: 7.5 m

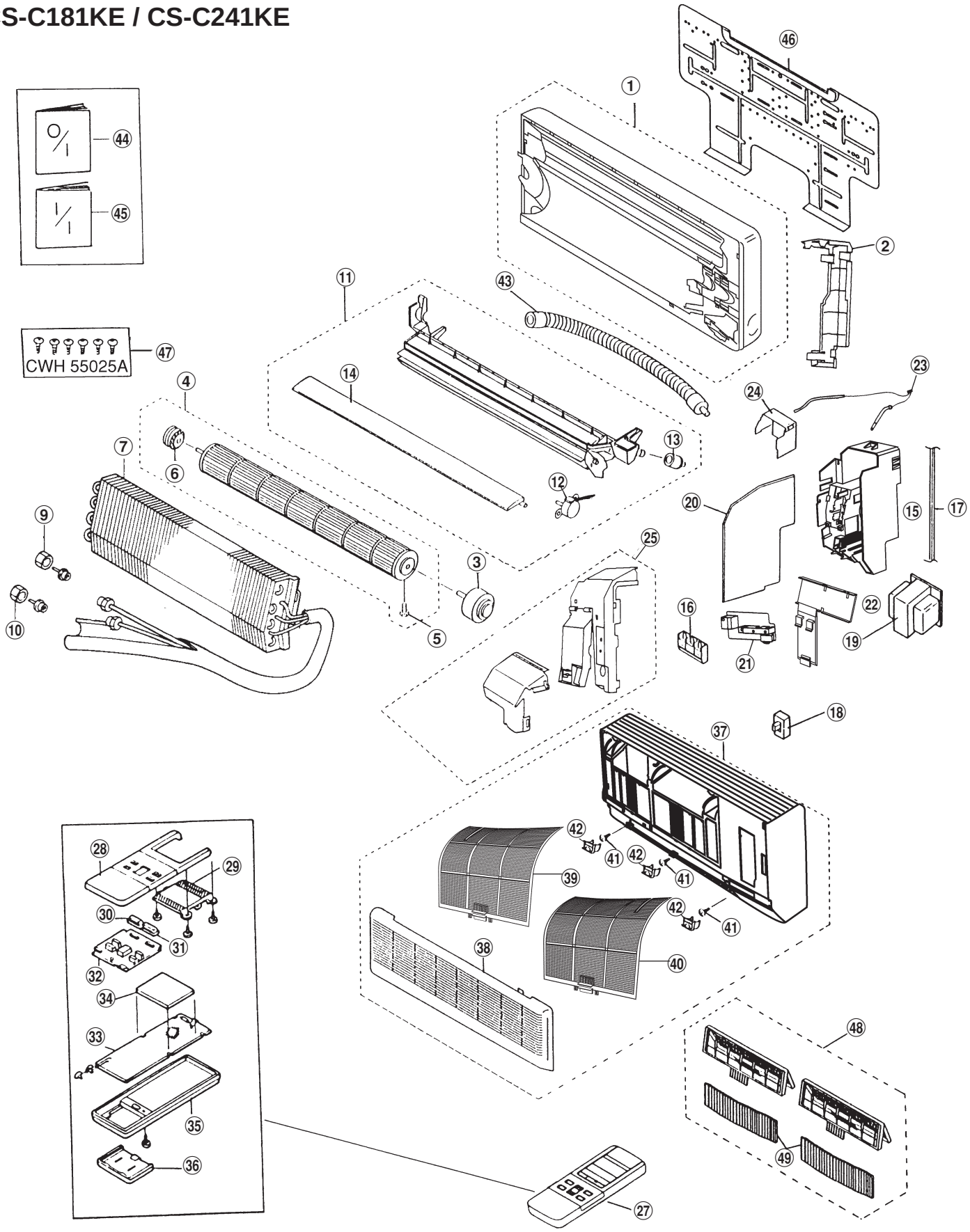
- **Piping Length Characteristic**



[Condition] Room temperature: 27/19°C
Outdoor temperature: 35/24°C
Cooling operation: At High fan

Exploded View

CS-C181KE / CS-C241KE



Replacement Parts List

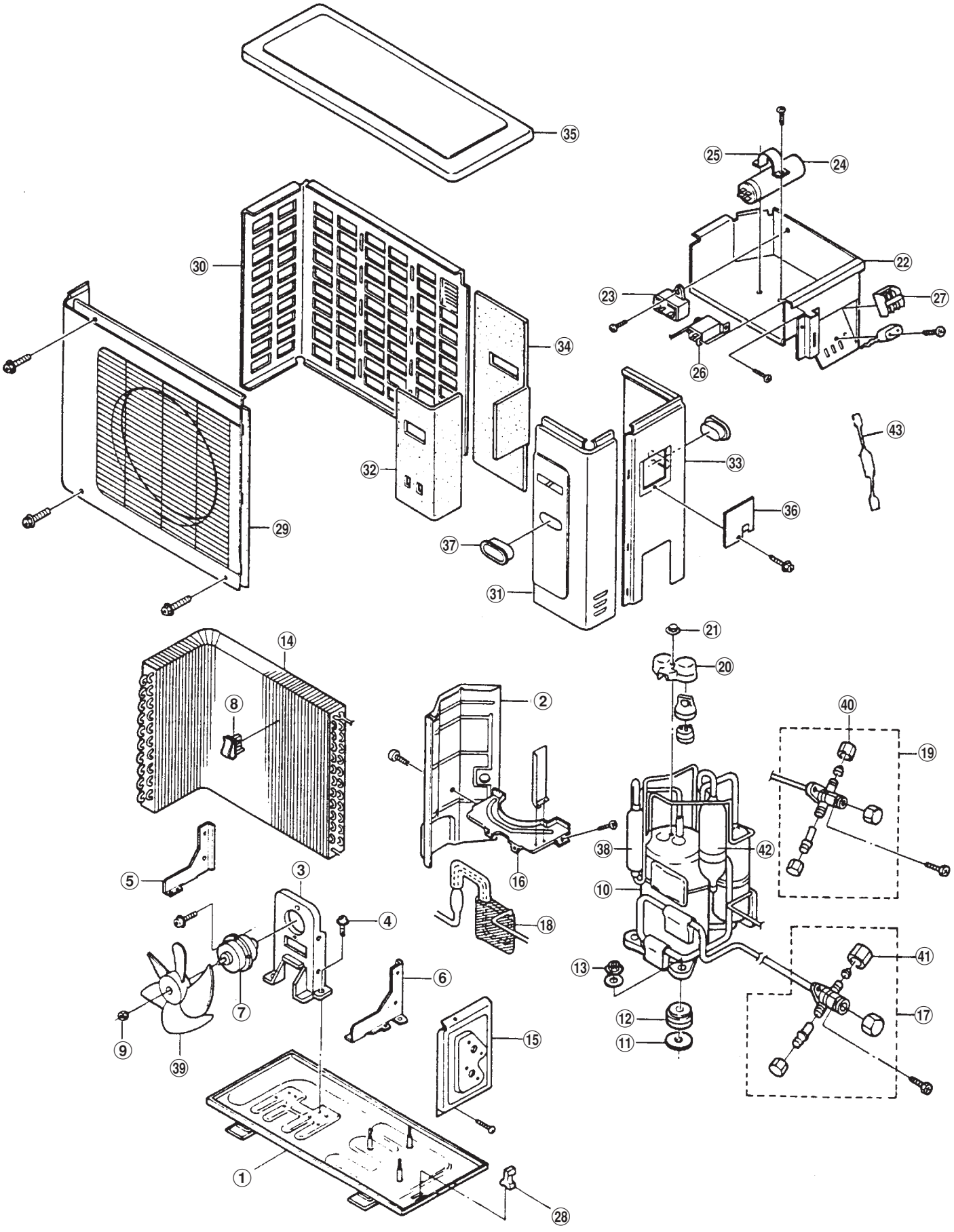
<Model: CS-C181KE / CS-C241KE>

NO.	DESCRIPTION & NAME	QTY	CS-C181KE	CS-C241KE	REMARKS
1	CHASSY COMPLETE	1	CWD50C265	←	
2	CHASSY BACK COVER	1	CWD93956	←	
3	FAN MOTOR	1	CWA92270	CWA92287	○
4	CROSS FLOW FAN COMPLETE	1	CWH02C058	←	
5	SCREW – CROSS FLOW FAN	1	CWH4580304	←	
6	BEARING ASS'Y	1	CWH64K007	←	
7	EVAPORATOR	1	CWB30C222	CWB30C210	
9	FLARE NUT (1/4")	1	CWH6002140	←	
10	FLARE NUT (1/2") OR (5/8")	1	CWT25007 (1/2")	CWT25004 (5/8")	
11	DISCHARGE GRILLE COMPLETE	1	CWE20C574	←	
12	MOTOR – AIR SWING	1	CWA98267	←	○
13	TAP – DRAIN TRAY	1	CWH4612103	←	
14	VANE	1	CWE24443	←	
15	CONTROL BOARD	1	CWH10943	←	
16	TERMINAL BOARD COMPLETE	1	CWA28C374	←	○
17	POWER SUPPLY CORD	1	CWA20C755	CWA20C756	
18	SLIDE SWITCH	1	CWA04088	←	○
19	TRANSFORMER COMPLETE	1	CWA40C246	←	○
20	ELECTRONIC CONTROLLER	1	CWA741180	←	○
21	RECEIVER COMPLETE	1	CWA741287	←	○
22	RECEIVER COMPLETE HOLDER	1	CWD93957	←	
23	SENSOR COMPLETE	1	CWA50C602	←	○
24	CONTROL BOARD TOP COVER	1	CWH13433	←	
25	CONTROL BOARD FRONT COVER	1	CWH13C314	←	
27	REMOTE CONTROL COMPLETE	1	CWA75C560	←	○
28	REMOTE CONTROL UPPER CASE	1	CWE15C241	←	
29	CONTROL PANEL	1	CWE311064	←	
30	KNOB	1	CWE17196A	←	
31	KNOB	1	CWE17286	←	
32	CONTACTOR	1	CWA65036C	←	
33	ELECTRONIC CONTROLLER	1	CWA74572	←	
34	INDICATOR	1	CWE39199	←	
35	REMOTE CONTROL LOWER CASE	1	CWE15128A	←	
36	COVER	1	CWB80040A	←	
37	FRONT GRILLE COMPLETE	1	CWE11C931	←	○
38	INTAKE GRILLE COMPLETE	1	CWE22C329	←	
39	AIR FILTER (LEFT)	1	CWD00232	←	○
40	AIR FILTER (RIGHT)	1	CWD00231	←	○
41	SCREW – FRONT GRILLE	3	XTT4+16C	←	
42	CAP – FRONT GRILLE	3	CWH52258	←	
43	DRAIN HOSE	1	CWH85178	←	
44	OPERATING INSTRUCTIONS	1	CWF561566	←	
45	INSTALLATION INSTRUCTIONS	1	CWF61649	←	
46	INSTALLATION PLATE	1	CWH36152	←	
47	BAG COMPLETE – INSTALLATION SCREW	1	CWH82C194	←	
48	AIR PURIFYING FILTER COMPLETE	1	CWD00C111	←	
49	AIR PURIFYING FILTER	2	CWD00220	←	○

(Note) ● All parts are supplied from MACC, Malaysia (Vendor Code: 086).
● ○ marked parts are recommended to be kept in stock.

Exploded View

CU-C181KE / CU-C241KE



Replacement Parts List

<Model: CU-C181KE / CU-C241KE>

REF. NO.	DESCRIPTION & NAME	QTY	CU-C181KE	CU-C241KE	REMARKS
1	CHASSY ASS'Y	1	CWD50K514B	←	
2	SOUND PROOF BOARD	1	CWH15223	←	
3	FAN MOTOR BRACKET	1	CWD54145	←	
4	SCREW - FAN MOTOR BRACKET	6	CWH55101	←	
5	PARTICULAR PLATE F/M (L)	1	CWD90835	←	
6	PARTICULAR PLATE F/M (R)	1	CWD90836	←	
7	FAN MOTOR	1	CWA92272	CWA92271	○
8	HOLD FOR POWER SUPPLY CORD	1	CWH31114	CWH31043	
9	NUT - P. FAN	1	CWH56060	←	
10	COMPRESSOR	1	2JS350D3AA02	2JS464D3AA02	○
11	PACKING - COMP. MOUNT.	1	CWB81047	←	
12	ANTI - VIBRATION BUSHING - COMP.	3	CWH50055	←	
13	NUT - COMP. MOUNT	3	CWH4582065	←	
14	FIN & TUBE CONDENSER	1	CWB32C287	CWB32C286	
15	HOLDER - COUPLING ASS'Y	1	CWH35113B	CWH35114B	
16	GUIDER COMPLETE	1	CWD90830	←	
17	3 - WAY VALVE (GAS)	1	CWB01464	CWB01463	○
18	TUBE ASS'Y COMPLETE (STRAINER, CAPILLARY TUBE)	1	CWT02533	CWT02532	
19	3 - WAY VALVE (LIQUID)	1	CWB01364	CWB01430	○
20	TERMINAL COVER	1	CWH17006	←	
21	NUT FOR TERMINAL COVER	1	CWH7080300	←	
22	CONTROL BOARD ASS'Y	1	CWH10K331	←	
23	SELF HEALING CAPACITOR - FAN MOTOR	1	CWA31242	CWA31720	○
24	SELF HEALING CAPACITOR - COMPRESSOR	1	CWA31625	CWA31649	○
25	HOLDER - CAPACITOR	1	CWH30057	CWH30071	
26	THERMOSTAT	1	CWA15129	←	○
27	TERMINAL BOARD	1	CWA28C381	←	○
28	HOLDER - SENSOR	1	CWH32002	←	
29	CABINET FRONT PLATE COMPLETE	1	CWE06K034B	←	
30	CABINET REAR PLATE COMPLETE	1	CWE02096B	←	
31	CABINET FRONT PLATE COMPLETE	1	CWE06075B	←	
32	SOUND PROOF MATERIAL	1	CWG30539	←	
33	CABINET SIDE PLATE	1	CWE04111B	←	
34	SOUND PROOF MATERIAL	1	CWG30528	←	
35	CABINET TOP PLATE	1	CWE03101B	←	
36	CONTROL BOARD COVER	1	CWH13336A	←	
37	HANDLE	2	CWE16000E	←	
38	OIL SEPARATER ASS'Y	1	CWB16K028	CWB16K027	
39	PROPELLER FAN	1	CWH00K050	←	
40	FLARE NUT (1/4") (LIQUID)	1	CWH6002140	←	
41	FLARE NUT (1/2") OR (5/8") (GAS)	1	CWT25007	CWT25004	
42	ACCUMULATOR ASS'Y	1	—	CWB13K048	
43	FUSE COMPLETE	1	CWA16C200	←	○

(Note) • All parts are supplied from MACC, Malaysia (Vendor Code: 086).
• ○ marked parts are recommended to be kept in stock.

Electronic Parts List

<Model: CWA741180>

SYMBOL	DESCRIPTION & NAME	PART NO.
D2	DIODE	A54RA15–01V3
DB1	DIODE	A54CS1VB20E
ZD1	ZENAR DIODE	A54D7.5EL1TB
ZNR1, ZNR2	ZNR	A54C352
Q1	TRANSISTOR	A55C1741ASTR
Q2	TRANSISTOR	A55DTC114EST
Q3	TRANSISTOR	A55DTC143XST
Q4, Q5	TRANSISTOR	A55C1740STPQ
IC1	INTEGRATED CIRCUIT	A52D0001W015
IC2	INTEGRATED CIRCUIT	A52C040
IC3	INTEGRATED CIRCUIT	A52MPA2003C
IC4	INTEGRATED CIRCUIT	A52BR9020
IC5	INTEGRATED CIRCUIT	A52C094
L1, L2	V-COIL	A43036
SSR	RELAY	A56W2DEH1–5
CR1, CR2, CR3	SURGE ABSORBER	A59014
SW1, SW2	SWITCH	A01059
SW3	SWITCH	A04042
RY-C	RELAY	A00106
RY-H, RY-M	RELAY	A00160
FUSE	FUSE	XBA2C31TR0
T. FUSE	TEMPERATURE FUSE	A16C204
X1	RESONATOR	A45ST8.0MTWT
BZ1	BUZZER	A48039
C-FM	SH CAPACITOR	A31698

(Note) ● All parts are supplied from MACC, Malaysia (Vendor Code: 086).

ELECTRONIC CIRCUIT DIAGRAM

- CS-C181K / CU-C181K SERIES
- CS-C241K / CU-C241K SERIES

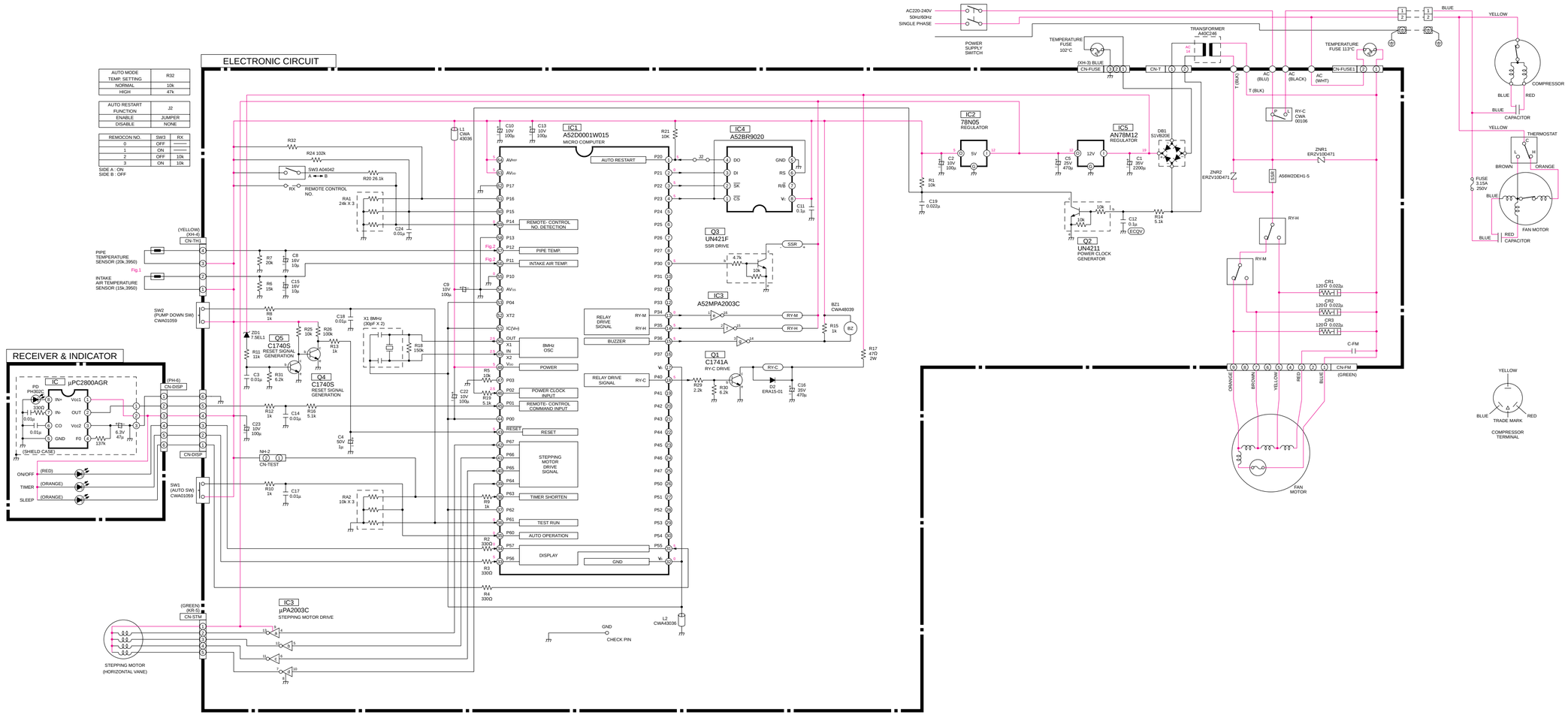


Fig. 1

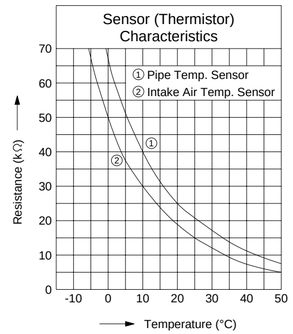
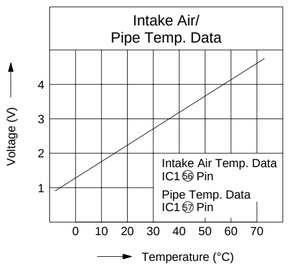


Fig. 2



CS-C181K/C241K CS-C181K/C241K

How to use electronic circuit diagram

Before using the circuit diagram, read the following carefully.

* Voltage measurement
  Voltage has been measured with a digital tester when the indoor fan is set at high fan speed under the following conditions without setting the timer.
  Use them for servicing.
  Voltage indication is in Red at all operations.

	Intake air temperature	Temperature setting	Discharge air temperature	Pipe temperature
Cooling	27°C	16°C	17°C	15°C

* Indications for resistance
  a. K .... k M ... M
  W ... watt Not indicated 1/4W
  b. Type
  Not indicated ..... carbon resister Tolerance±5%
  ..... metal oxide resister Tolerance±1%

* Indications for capacitor
  a. Unit µ .... µF P .... pF
  b. Type Not indicated ... ceramic capacitor
  (S) ..... S series aluminium electrolytic capacitor
  (Z) ..... Z series aluminium electrolytic capacitor
  (SU) ..... SU series aluminium electrolytic capacitor
  (P) ..... P series polyester system
  (SXE) ..... SXE series aluminium electrolytic capacitor
  (SRA)..... SRA series aluminium electrolytic capacitor
  (KME).....KME series aluminium electrolytic capacitor

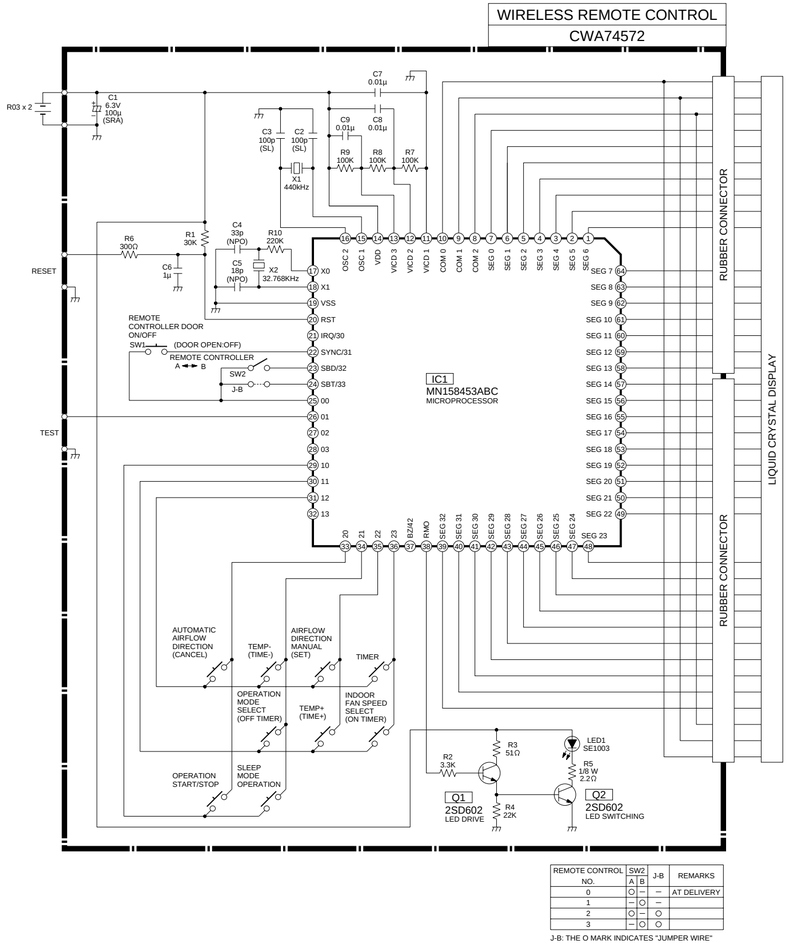
* Diode without indication MA165
※ Circuit Diagram is subject to change without notice for further development.

TIMER TABLE

Name		Time	Test mode (When test point Short-circuited)	Remarks
Sleep Mode Waiting		1 hr.	6 sec.	
Sleep Mode Operation		8 hrs.	48 sec.	
Real Timer		1 hr.	1 min.	
		10 min.	10 sec.	
		1 min.	1 sec.	
Time Delay Safety Control		2 min. 58 sec.	0 sec.	
Forced Operation		60 sec.	0 sec.	
Time Save Control		7 min.	42 sec.	
Anti-Freezing Control		4 min.	0 sec.	
Mode Jugdement		20 sec.	0 sec.	
Soft Dry	Off	6 min.	36 sec.	SOFT DRY: 10 min. operation
	On	10 min.	60 sec.	Comp. ON
Deodorizing Control	Cooling	40 sec	4 sec.	Comp. ON
		70 sec.	7 sec.	Comp. OFF
		20 sec.	2 sec.	Comp. OFF
	Soft Dry	180 sec.	18 sec.	Comp. ON
		40 sec.	4 sec.	Comp. OFF
		360 sec.	36 sec.	Comp. ON 5 min. and above
Comp./Fan motor Delay Timer		1.6 min.	0 sec.	
Intake Air Anti-Freezing Prevention		16 min.	9.6 sec.	
Outdoor Fan Delay Timer		1.6 sec.	0 sec.	

ELECTRONIC CIRCUIT DIAGRAM

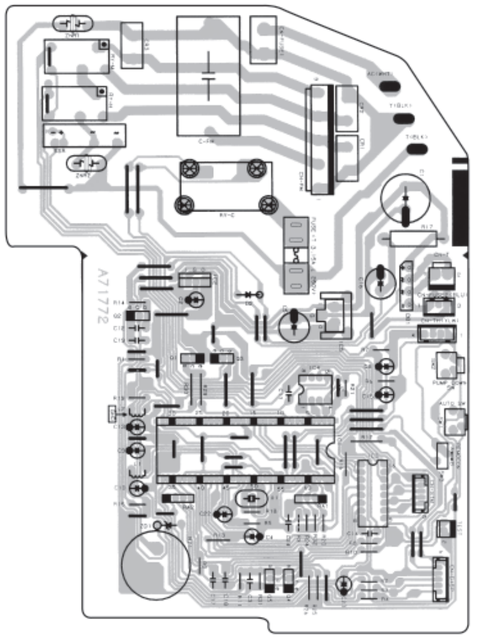
● REMOTE CONTROL



REMOTE CONTROL NO.	SW2 A	SW2 B	J-B	REMARKS
0	○	–	–	AT DELIVERY
1	–	○	–	
2	○	–	○	
3	–	○	○	

J-B: THE ○ MARK INDICATES "JUMPER WIRE"

PRINT PATTERN
INDOOR UNIT PRINTED CIRCUIT BOARD



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