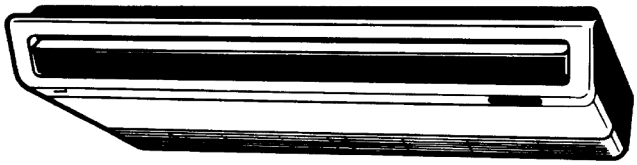
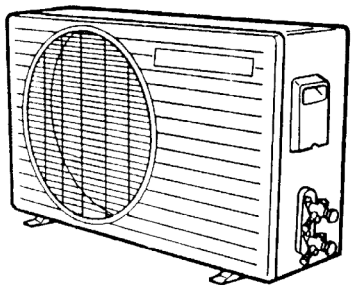
Order No. MAC0112088C0

Service Manual

Room Air Conditioner



CS-A12ATP5 CU-A12ATP5
CS-A18ATP5 CU-A18ATPT5
CS-A24ATP5 CU-A24ATPT5



⚠ 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

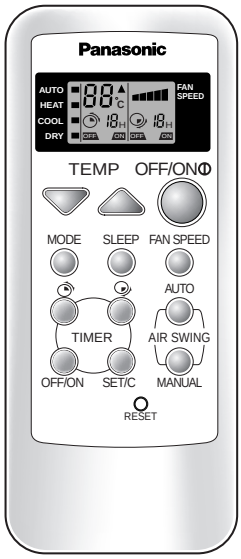
In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigeration circuit.

CONTENTS

Panasonic

1 Functions

Remote Control Transmitter



Remote Control

Operation START/STOP

Operation Mode Selection

- AUTO Automatic Operation Mode
- HEAT Heating Operation Mode
- COOL Cooling Operation Mode
- DRY Soft Dry Operation Mode

Indoor Fan Speed Selection

- ▪ Low Fan Speed
- ▪▪▪ Medium Fan Speed
- ▪▪▪▪▪ High Fan Speed

TEMP

Room Temperature Setting / Time Setting

- Temperature Setting (20°C to 30°C)
- Hi (higher), (standard), Lo (lower) ... Automatic Operation

SLEEP

Sleep Mode Auto-Control

- Starts/Stops when the button is pressed

Timer Operation Selection

- 12 hours ON/OFF Dual Timer Setting

SET/C

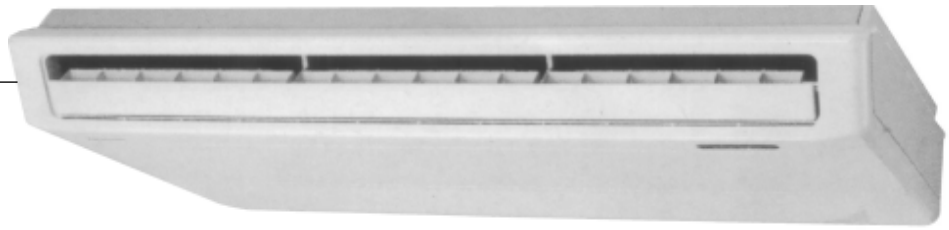
Timer Operation Set/Cancel

- Set/Cancel the selected Timer Operation

Airflow Direction Control

- Airflow Direction Manual Control
- Automatic Airflow Direction Control

Indoor Unit



Sensing The Room Temperature

- Room Temperature Sensor (thermistor)

Starting Current Control

- Indoor Fan is delayed for 1.6 seconds at the starting

Time Delay Safety Control

- Restarting is inhibited for apporox. 3 minutes

Circuit Protection Control

- 30 seconds forced operation of the compressor

Indoor Fan Speed Control

- High, Med, Low

Operation Indication Lamps (LED)

- POWER (green) ..... Lights up in operation
- AIR SWING (red)..... Automatic Airflow Direction in operation
- TIMER (orange) ..... Timer in operation
- SLEEP (orange) ..... Sleep Mode Auto in operation

Soft Dry Operation Mode

- Intermittent operation of Fan at low speed

Room Temperature Control

- Maintains the room temperature accordance with the Setting Temp.

Hot-start Control (Heating)

- The indoor fan stops until the Evaporator piping temperature will be reached.

Automatic Restarting Control

- 7 minutes automatic restarting at Cooling, Soft Dry operation.

Sleep Mode Auto Control

- The Fan is switched to Low fan speed and the unit will be stopped after 5 hours
- The setting temperature will be raised by 1°C at the starting and by 1°C one hour later (Soft Dry of Cooling Operation)
- The setting temperature will be dropped by 2°C at the starting and by 3°C one hour later (Heating Operation)

Deice (defrost) Control

- Both the indoor and outdoor fan stops during deicing
- Hot start after deice ends.
- Starts operation when indoor piping temperature drops below temperature setting 60 ± 10 minutes after heating start or deice ends
- Operations LED flashes

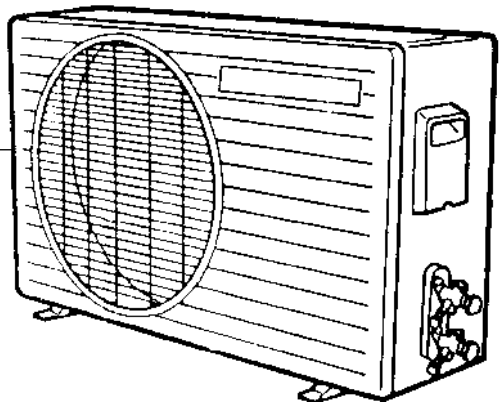
Overload Protection

- Thermostat OFF if the Piping temperature exceeds 100°C

Automatic Operation Determination

- Select cooling, dry or heating with the indoor intake sensor
  25°C or higher ..... cooling
  21 to 24°C ..... dry
  20°C or lower ..... heating
- 5-minutes automatic restarting is activated instead of 7-minutes.

Outdoor Unit



Anti-freezing Control For The Evaporator

- Compressor will be stopped when the Evaporator's piping temperature is 0°C or less for three minutes
- Restarting at 12°C or higher (Time Delay Safety Control has a priority)

Airflow Direction Control

Automatic Airflow Direction Control

- The louver automatically swings up and down (Cooling, Soft Dry) ..... horizontal and 30° downward
- The louver is set at 60° downward during Heating Operation
- The louver is set at horizontal when the fan is stopped

Airflow Direction Manual Control

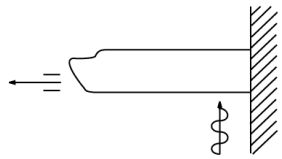
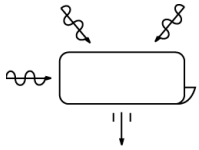
- Can be set within a range at horizontal to 60° downward

Overload Protector

30 sec. Forced Operation Control

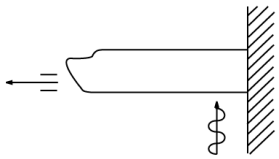
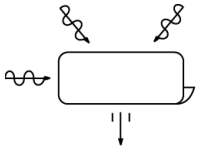
- Once the compressor is activated it does not stop for 30 secs
- Stops immediately with remote control stop

2 Product Specifications

		Unit	CS-A12ATP5	CU-A12ATP5
Cooling Capacity		kW BTU/h kcal/h	3.35; 3.35; 3.40 11,400; 11,400; 11,600 2,870; 2,870; 2,920	
Heating Capacity		kW BTU/h kcal/h	4.00; 4.00; 4.10 13,600; 13,600; 13,900 3,430; 3,430; 3,500	
Moisture Removal		l/h Pint/h	2.0 4.2	
Power Source		Phase V Cycle	Single 220; 230; 240 50	
Airflow Method		OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)	m^3/min (cfm)	8.9 (314)	—
	Indoor Air (Me)	m^3/min (cfm)	9.6 (339)	—
	Indoor Air (Hi)	m^3/min (cfm)	10.0 (350)	—
Noise Level		dB (A)	Cooling: High 45; 46; 46 Low 41; 42; 42 Heating: High 45; 46; 46 Low 41; 42; 42	Cooling: High 46; 47; 47 Heating: High 46; 47; 47
Power Noise Level		dB (A)	Cooling: High 59 Heating: High 59	Cooling: High 62 Heating: High 62
Electrical Data	Input	kW	Cooling: 1.27; 1.28; 1.30 Heating: 1.27; 1.32; 1.35	
	Running Current	A	Cooling: 6.0; 5.9; 5.8 Heating: 6.0; 6.1; 6.1	
	EER	W/W (BTU/hW)	Cooling: 2.64 (9.0); 2.62 (8.9); 2.62 (8.9)	
	COP	W/W (BTU/hW)	Heating: 3.15 (10.7); 3.03 (10.3); 3.04 (10.3)	
	Starting Current	A	25	
Piping Connection Port (Flare piping)		inch inch	G ; Half Union 1/2” L ; Half Union 1/4”	G ; 3-way valve 1/2” L ; 2-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	20	—
	Length	m	0.6	—

			Unit	CS-A12ATP5	CU-A12ATP5
Power Cord Length Number of core-wire			m	2.3 3 (1.0 mm^2)	— —
Dimensions		Height	inch (mm)	6 - 1/2 (165)	19 - 29/32 (505)
		Width	inch (mm)	43 - 5/16 (1,100)	30 - 23/32 (780)
		Depth	inch (mm)	25 - 19/32 (650)	9 - 21/32 (245)
Net Weight			lb (kg)	62 (28)	88 (40)
Compressor		Type		—	Rotary (1 cylinder) rolling piston type
	Motor	Type		—	Induction (2-poles)
	Rated	Output	W	—	1,100
Air Circulation		Type		SIROCCO	Propeller Fan
		Material		STYLAC 181	AES + Glass Fiber 12%
	Motor	Type		Induction (4-poles)	Induction (6-poles)
		Input	W	45.6	58.6
		Rated Output	W	20	20
	Fan Speed	Low	rpm	980	—
		Medium	rpm	1,055	—
		High	rpm	1,100	730
Heat Exchanger	Description			Evaporator	Condenser
	Tube material			Copper	Copper
	Fin material			Aluminium	Aluminium
	Fin Type			Louver Fin	Corrugated Fin
	Row / Stage			(Plate fin configuration, forced draft)	
				1 × 10	2 × 19
	FPI			21	16
	Size (W × H × L)		mm	900 × 254 × 22	706 × 482 × 44
Refrigerant Control Device				—	Capillary Tube
Refrigeration Oil			(c.c)	—	SUNISO 4GDID or ATMOS M60 (410)
Refrigerant (R-22)			g (oz.)	—	1,090 (38.5)
Thermostat				Electronic Control	—
Protection Device				—	Overload Protector
Capillary Tube	Length		mm	—	Cooling; 625, Heating; 720
	Flow Rate		l/min	—	Cooling; 13.5, Heating; 11.0
	Inner Diameter		mm	—	Cooling; 1.6, Heating; 1.5
Air Filter	Material Style			P.P. Honeycomb	—
Capacity Control				Capillary Tube	
Compressor Capacitor			µF, VAC	—	30 µF, 370VAC
Fan Motor Capacitor			µF, VAC	1.2 µF, 450VAC	1.2 µF, 400VAC

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

		Unit	CS-A18ATP5	CU-A18ATPT5
Cooling Capacity		kW BTU/h kcal/h	5.05; 5.05; 5.10 17,200; 17,200; 17,400 4,340; 4,340; 4,390	
Heating Capacity		kW BTU/h kcal/h	5.35; 5.35; 5.45 18,200; 18,200; 18,600 4,600; 4,600; 4,690	
Moisture Removal		l/h Pint/h	2.8 5.9	
Power Source		Phase V Cycle	Single 220; 230; 240 50	
Airflow Method		OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)	m^3/min (cfm)	10.4 (354)	—
	Indoor Air (Me)	m^3/min (cfm)	10.7 (379)	—
	Indoor Air (Hi)	m^3/min (cfm)	11.5 (400)	—
Noise Level		dB (A)	Cooling: High 50; 51; 51 Low 44; 46; 46 Heating: High 51; 52; 52 Low 45; 46; 46	Cooling: High 53; 56; 56 Heating: High 56; 57; 57
Power Noise Level		dB (A)	Cooling: High 64 Heating: High 65	Cooling: High 71 Heating: High 72
Electrical Data	Input	kW	Cooling: 2.08; 2.13; 2.19 Heating: 1.90; 1.98; 2.04	
	Running Current	A	Cooling: 10.3; 10.5; 10.7 Heating: 9.4; 9.7; 9.9	
	EER	W/W (BTU/hW)	Cooling: 2.43 (8.3); 2.37 (8.1); 2.33 (7.9)	
	COP	W/W (BTU/hW)	Heating: 2.82 (9.6); 2.70 (9.2); 2.67 (9.1)	
	Starting Current	A	47	
Piping Connection Port (Flare piping)		inch inch	G ; Half Union 1/2” L ; Half Union 1/4”	G ; 3-way valve 1/2” L ; 2-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	20	—
	Length	m	0.6	—
Power Cord Length Number of core-wire		m	2.3 3 (1.5 mm^2)	— —

			Unit	CS-A18ATP5	CU-A18ATPT5
Dimensions		Height	inch (mm)	6 - 1/2 (165)	26 - 31/32 (685)
		Width	inch (mm)	43 - 5/16 (1,100)	31 - 1/2 (800)
		Depth	inch (mm)	25 - 19/32 (650)	11 - 13/16 (300)
Net Weight			lb (kg)	66 (30)	132 (60)
Compressor		Type		—	Rotary (1 cylinder) rolling piston type
	Motor	Type		—	Induction (2-poles)
	Rated	Output	W	—	1,700
Air Circulation		Type		SIROCCO	Propeller Fan
		Material		STYLAC 181	CE10G15 JSR
	Motor	Type		Induction (4-poles)	Induction (4-poles)
		Input	W	66.0	136.8 (High)
		Rated Output	W	40	65
	Fan Speed	Low	rpm	1,160	610
		Medium	rpm	1,250	—
		High	rpm	1,340	960
Heat Exchanger	Description			Evaporator	Condenser
	Tube material			Copper	Copper
	Fin material			Aluminium	Aluminium
	Fin Type			Louver Fin	Corrugated Fin
	Row / Stage			(Plate fin configuration, forced draft)	
				2 × 10	2 × 26
	FPI			20	14
	Size (W × H × L)		mm	900 × 254 × 44	769 × 660 × 44
Refrigerant Control Device				—	Capillary Tube
Refrigeration Oil			(c.c)	—	SUNISO 4GDID or ATMOS M60 (700)
Refrigerant (R-22)			g (oz.)	—	1,550 (54.7)
Thermostat				Electronic Control	—
Protection Device				—	Inner Protector
Capillary Tube	Length		mm	—	1,170
	Flow Rate		l/min	—	21.1
	Inner Diameter		mm	—	2.4
Air Filter	Material Style			P.P. Honeycomb	—
Capacity Control				Capillary Tube	
Compressor Capacitor			µF, VAC	—	35 µF, 370VAC
Fan Motor Capacitor			µF, VAC	1.2 µF, 450VAC	3.5 µF, 400VAC

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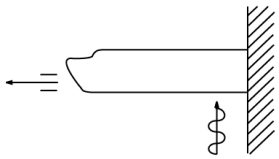
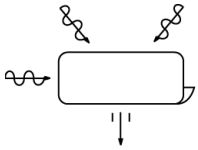
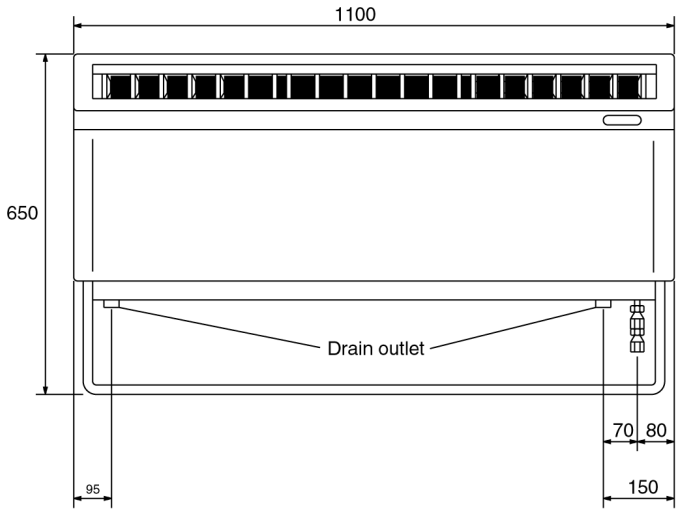
		Unit	CS-A24ATP5	CU-A24ATPT5
Cooling Capacity		kW BTU/h kcal/h	6.00; 6.05; 6.10 20,400; 20,600; 20,800 5,140; 5,190; 5,240	
Heating Capacity		kW BTU/h kcal/h	6.00; 6.05; 6.20 20,400; 20,600; 21,100 5,140; 5,190; 5,310	
Moisture Removal		l/h Pint/h	3.4 7.2	
Power Source		Phase V Cycle	Single 220; 230; 240 50	
Airflow Method		OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)	m^3/min (cfm)	10.4 (370)	—
	Indoor Air (Me)	m^3/min (cfm)	11.2 (395)	—
	Indoor Air (Hi)	m^3/min (cfm)	12.0 (420)	—
Noise Level		dB (A)	Cooling: High 51; 52; 52 Low 45; 47; 47 Heating: High 51; 52; 52 Low 45; 47; 47	Cooling: High 57; 59; 59 Heating: High 58; 60; 60
Power Noise Level		dB (A)	Cooling: High 65 Heating: High 65	Cooling: High 74 Heating: High 75
Electrical Data	Input	kW	Cooling: 2.75; 2.80; 2.89 Heating: 2.40; 2.59; 2.62	
	Running Current	A	Cooling: 13.3; 13.4; 13.6 Heating: 11.7; 12.3; 12.5	
	EER	W/W (BTU/hW)	Cooling: 2.18 (7.4); 2.16 (7.4); 2.11 (7.2)	
	COP	W/W (BTU/hW)	Heating: 2.50 (8.5); 2.33 (8.0); 2.37 (8.1)	
	Starting Current	A	59	
Piping Connection Port (Flare piping)		inch inch	G ; Half Union 5/8” L ; Half Union 1/4”	G ; 3-way valve 5/8” L ; 2-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	20	—
	Length	m	0.6	—
Power Cord Length Number of core-wire		m	2.3 3 (2.5 mm^2)	— —

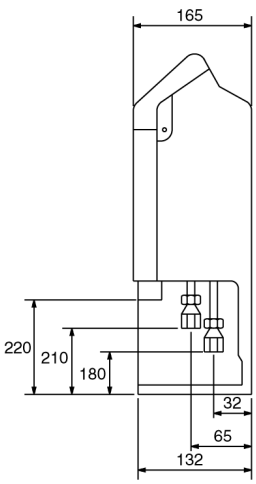
			Unit	CS-A24ATP5	CU-A24ATPT5
Dimensions		Height	inch (mm)	6 - 1/2 (165)	26 - 31/32 (685)
		Width	inch (mm)	43 - 5/16 (1,100)	31 - 1/2 (800)
		Depth	inch (mm)	25 - 19/32 (650)	11 - 13/16 (300)
Net Weight			lb (kg)	66 (30)	137 (62)
Compressor		Type		—	Rotary (1 cylinder) rolling piston type
	Motor	Type		—	Induction (2-poles)
	Rated	Output	W	—	2,200
Air Circulation		Type		SIROCCO	Propeller Fan
		Material		STYLAC 181	CE10G15 JSR
	Motor	Type		Induction (4-poles)	Induction (4-poles)
		Input	W	66.0	141.7 (High)
		Rated Output	W	40	80
	Fan Speed	Low	rpm	1,160	685
		Medium	rpm	1,250	—
		High	rpm	1,340	1,053
Heat Exchanger	Description			Evaporator	Condenser
	Tube material			Copper	Copper
	Fin material			Aluminium	Aluminium
	Fin Type			Louver Fin	Corrugated Fin
	Row / Stage			(Plate fin configuration, forced draft)	
				2 × 10	2 × 26
	FPI			20	14
	Size (W × H × L)		mm	900 × 254 × 44	769 × 660 × 44
Refrigerant Control Device				—	Capillary Tube
Refrigeration Oil			(c.c)	—	SUNISO 4GDID or ATMOS M60 (700)
Refrigerant (R-22)			g (oz.)	—	1,900 (67.1)
Thermostat				Electronic Control	—
Protection Device				—	Inner Protector
Capillary Tube	Length		mm	—	1,170
	Flow Rate		l/min	—	21.1
	Inner Diameter		mm	—	2.4
Air Filter	Material Style			P.P. Honeycomb	—
Capacity Control				Capillary Tube	
Compressor Capacitor			µF, VAC	—	45 µF, 370VAC
Fan Motor Capacitor			µF, VAC	1.2 µF, 450VAC	3.5 µF, 400VAC

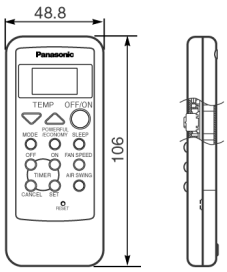
- Specifications are subject to change without notice for further improvement.

3 Dimensions

CS-A12ATP / CS-A18ATP / CS-A24ATP



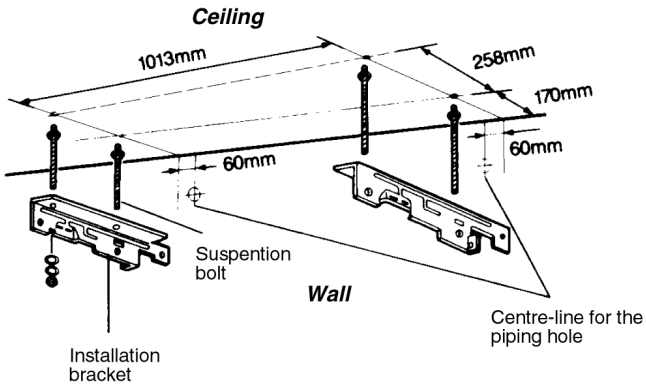




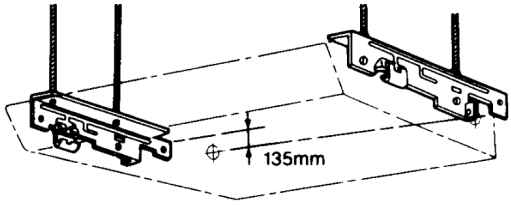
Wireless remote-control transmitter

Relative Position Between The Indoor Unit The Installation Parts

<Installation on the Ceiling>



Relative position between the hole and the bracket



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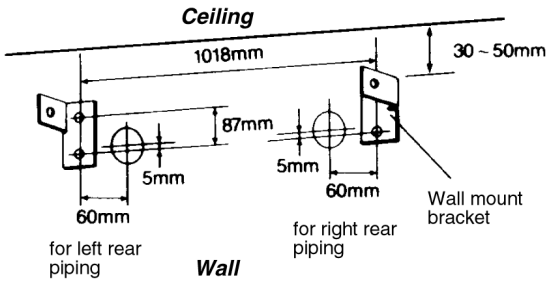

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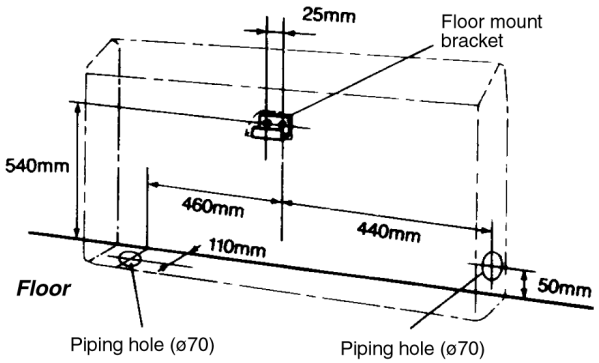
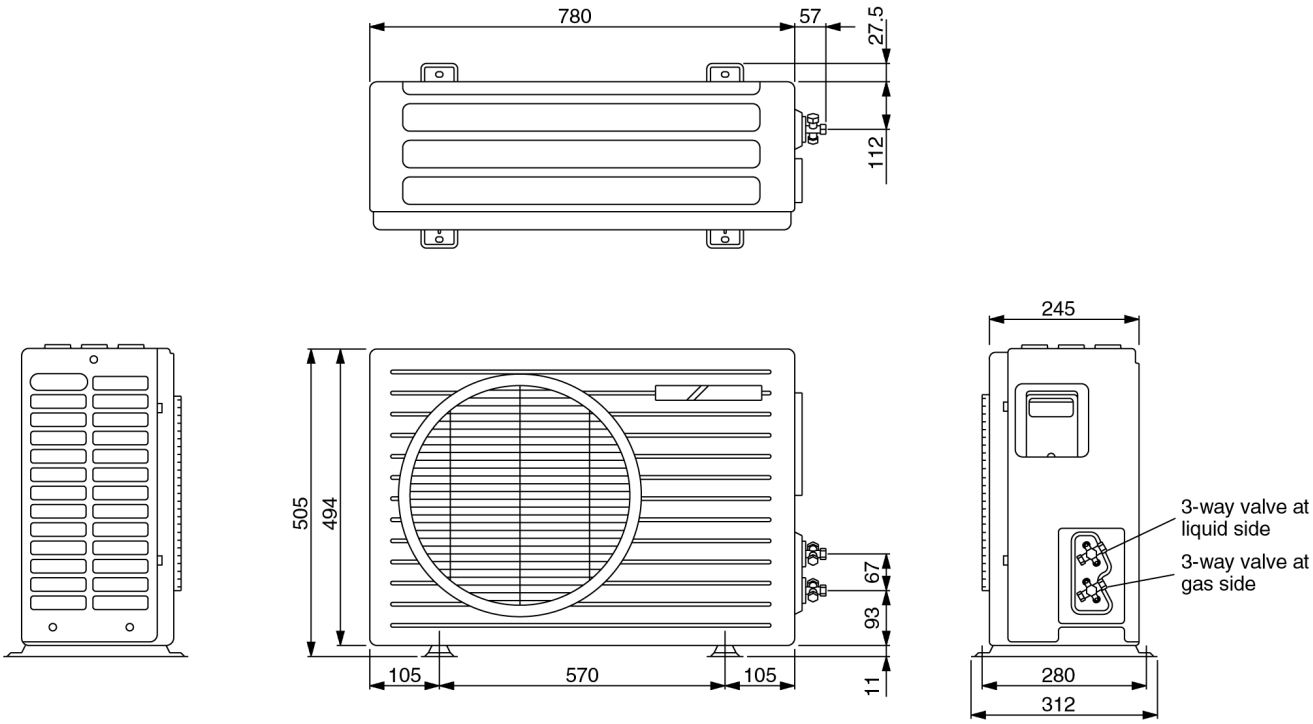
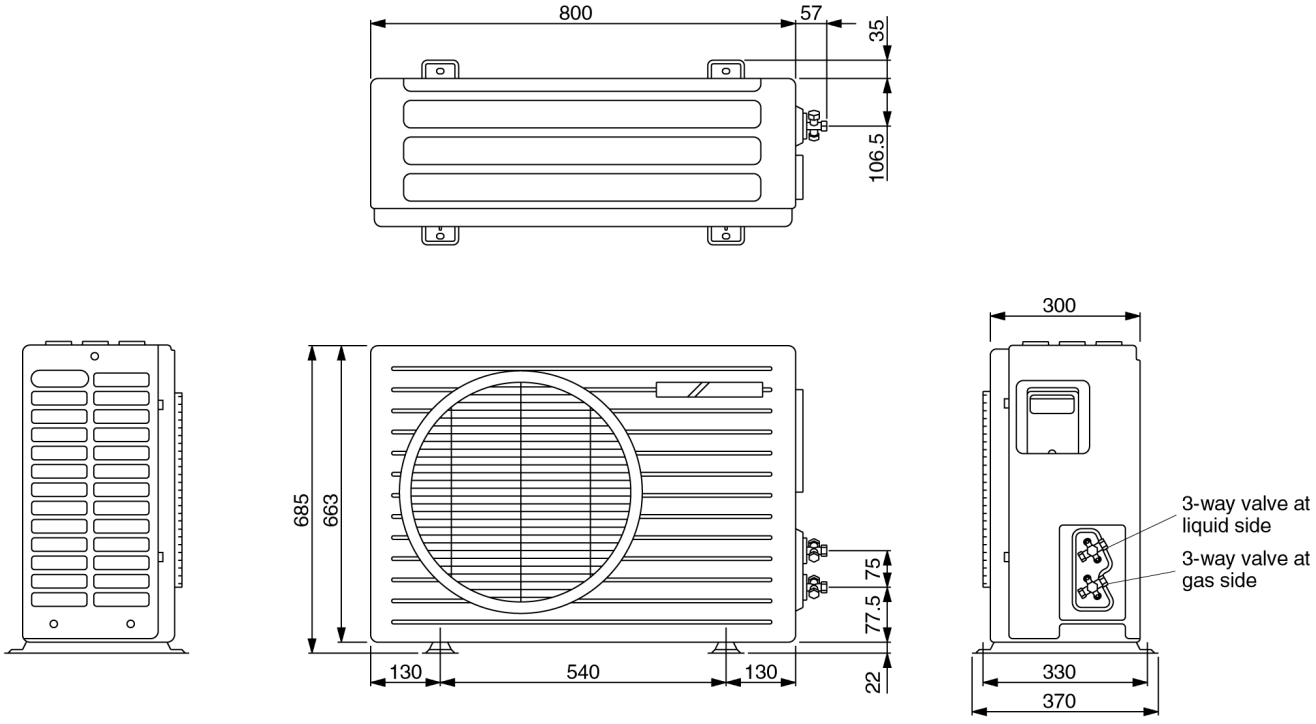


CU-A12ATP

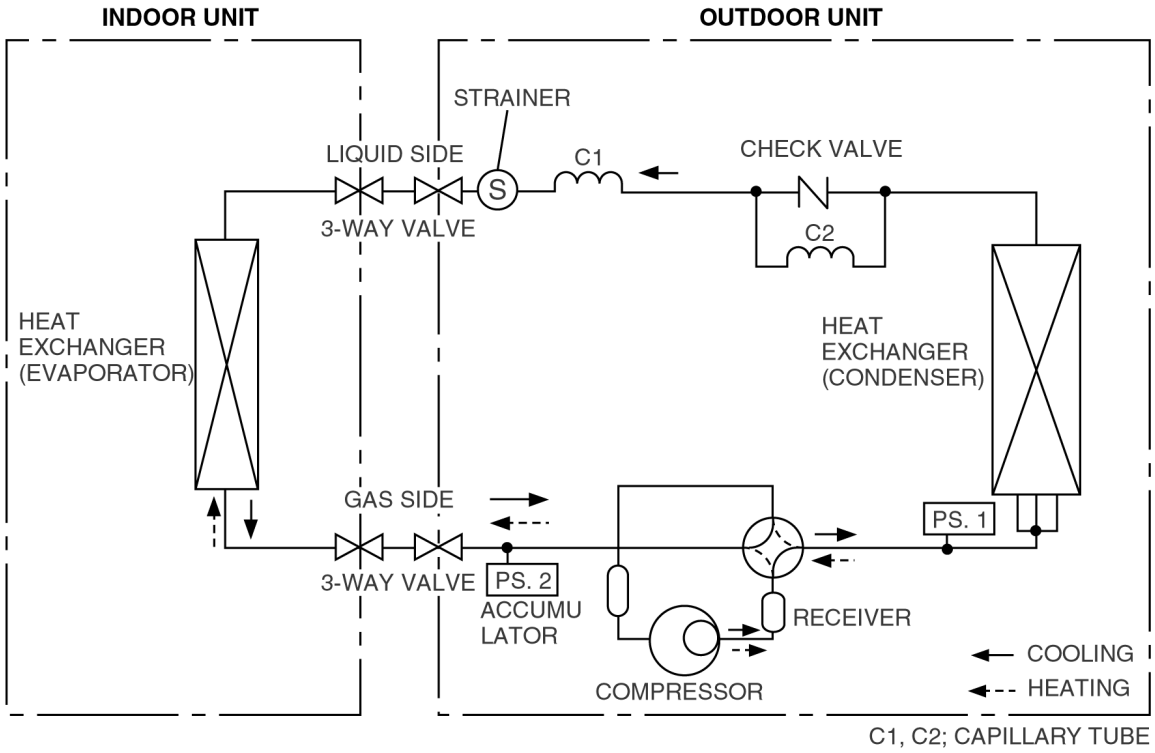


CU-A18ATPT
CU-A24ATPT

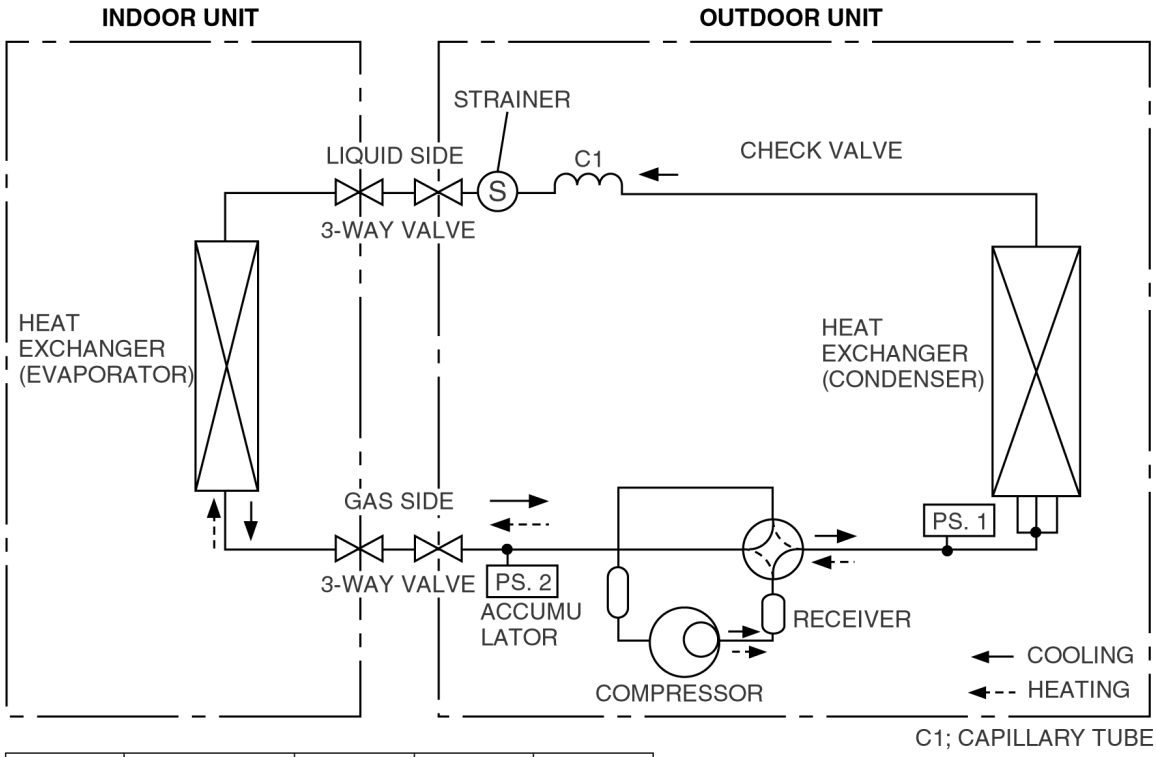


4 Refrigeration Cycle Diagram

CS-A12ATP



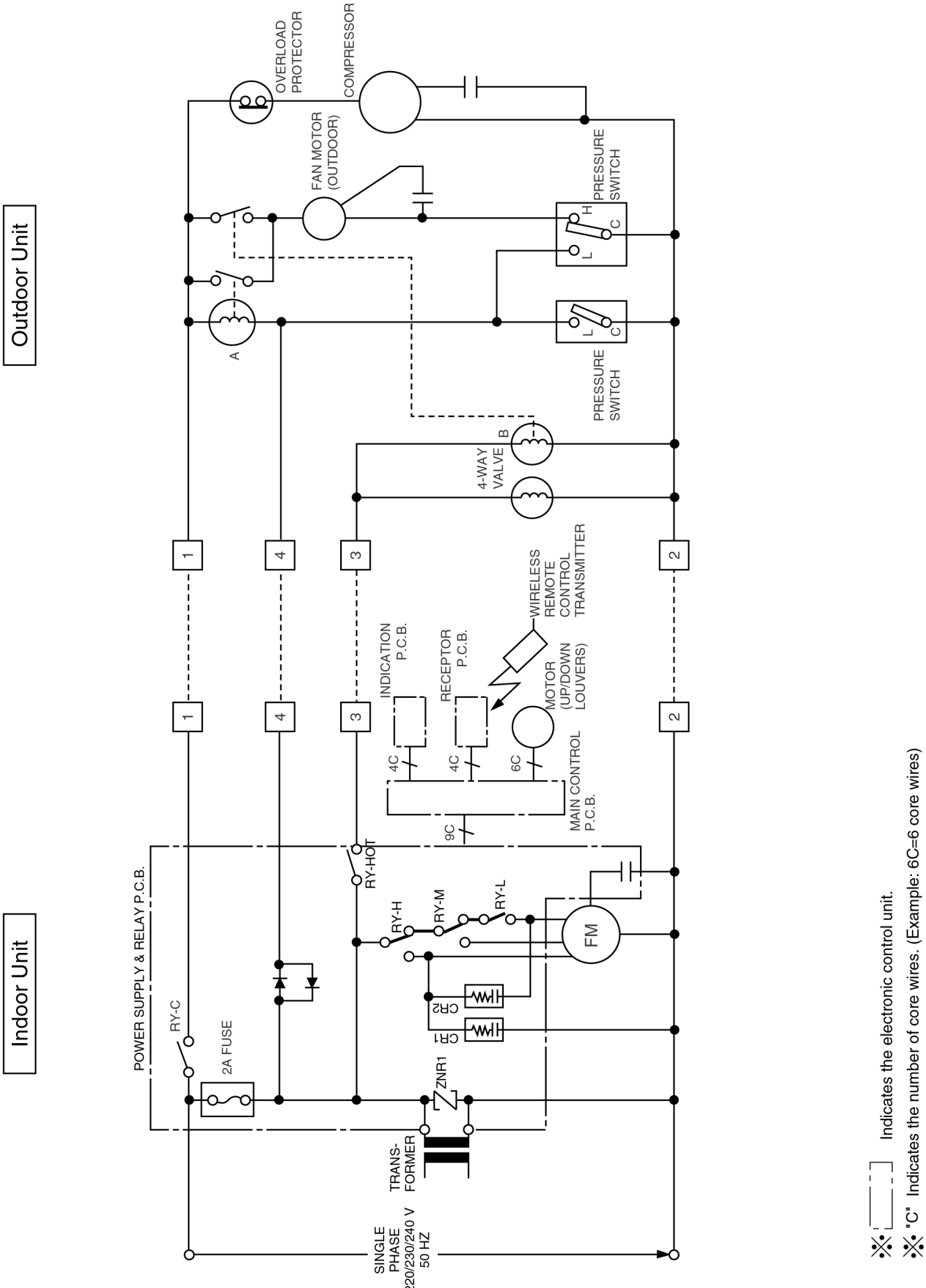
CS-A18ATPT / CS-A24ATPT



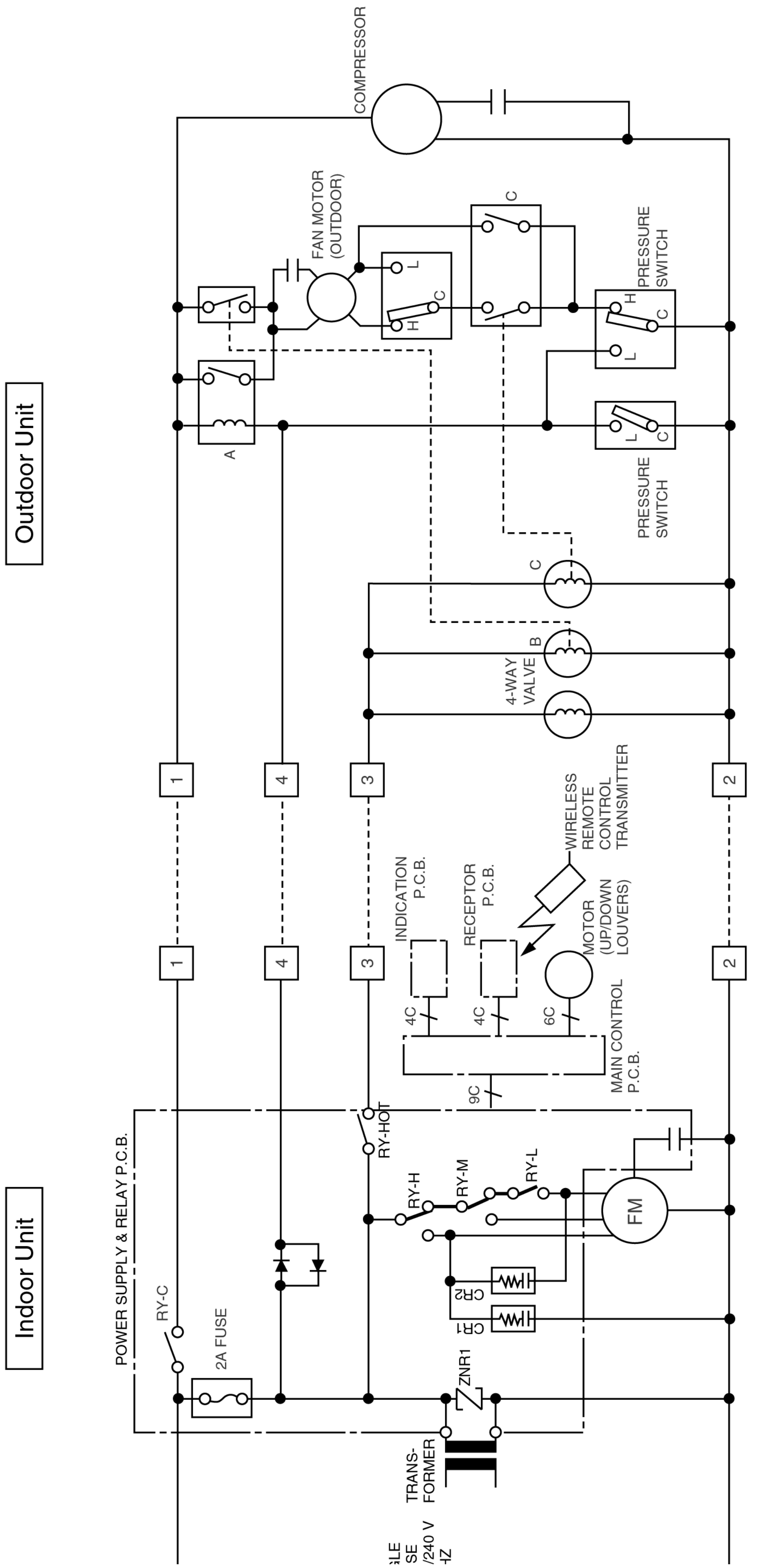
Model	Pipe size		Max. Piping Length (m)	Max. Elevation (m)	Rated Length (m)
	GAS	LIQUID			
A12ATP	1/2”	1/4”	10	5	7.5
A18ATP	1/2”	1/4”	10	8	7.5
A24ATP	5/8”	1/4”	10	8	7.5

5 Block Diagram

CS-A12ATP / CU-A12ATP



CS-A18ATP / CU-A18ATPT
CS-A24ATP / CU-A24ATPT

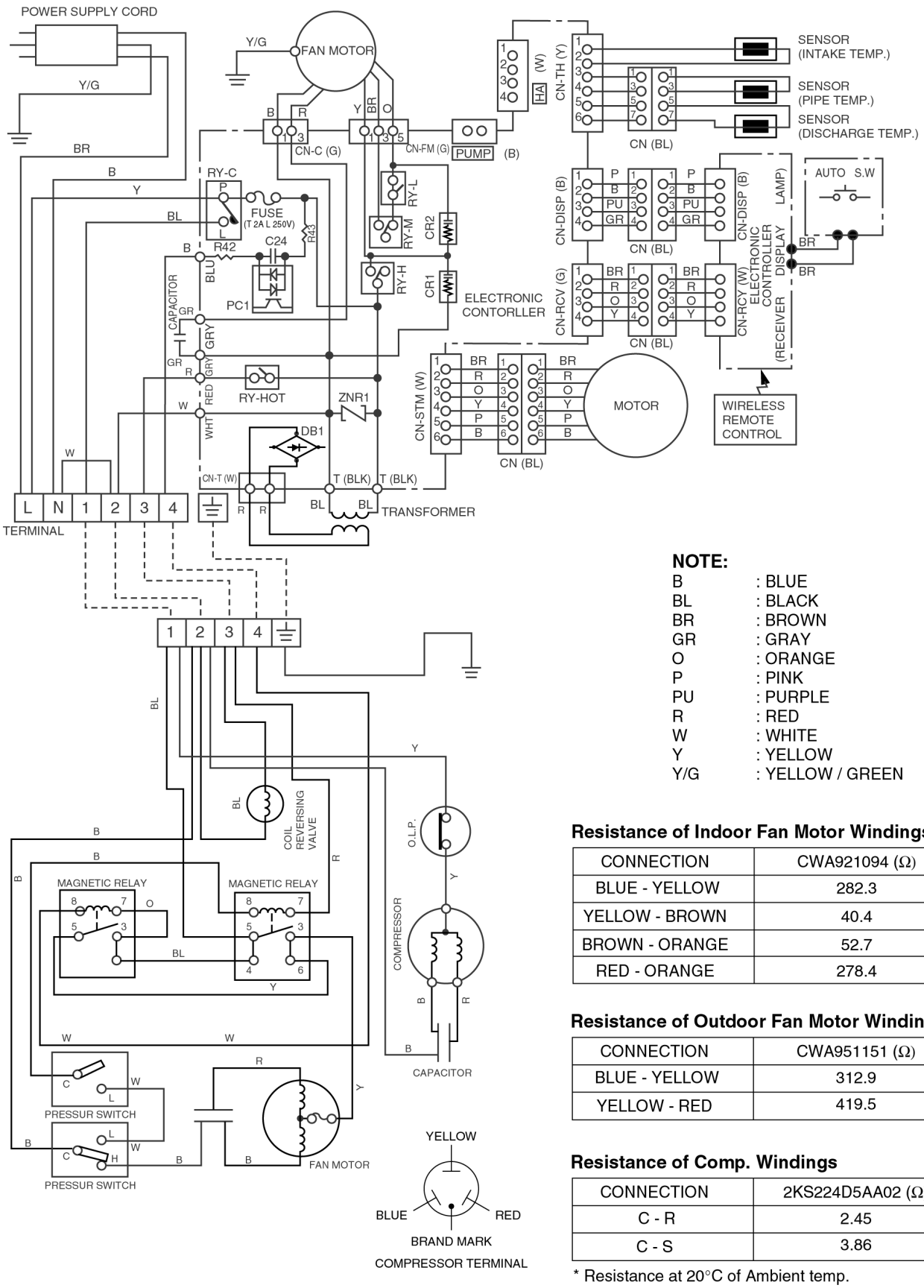


※ [dashed box] Indicates the electronic control unit.

※ "C" Indicates the number of core wires. (Example: 6C=6 core wires)

6 Wiring Diagram

CS-A12ATP / CU-A12ATP



NOTE:

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

Resistance of Indoor Fan Motor Windings

CONNECTION	CWA921094 (Ω)
BLUE - YELLOW	282.3
YELLOW - BROWN	40.4
BROWN - ORANGE	52.7
RED - ORANGE	278.4

Resistance of Outdoor Fan Motor Windings

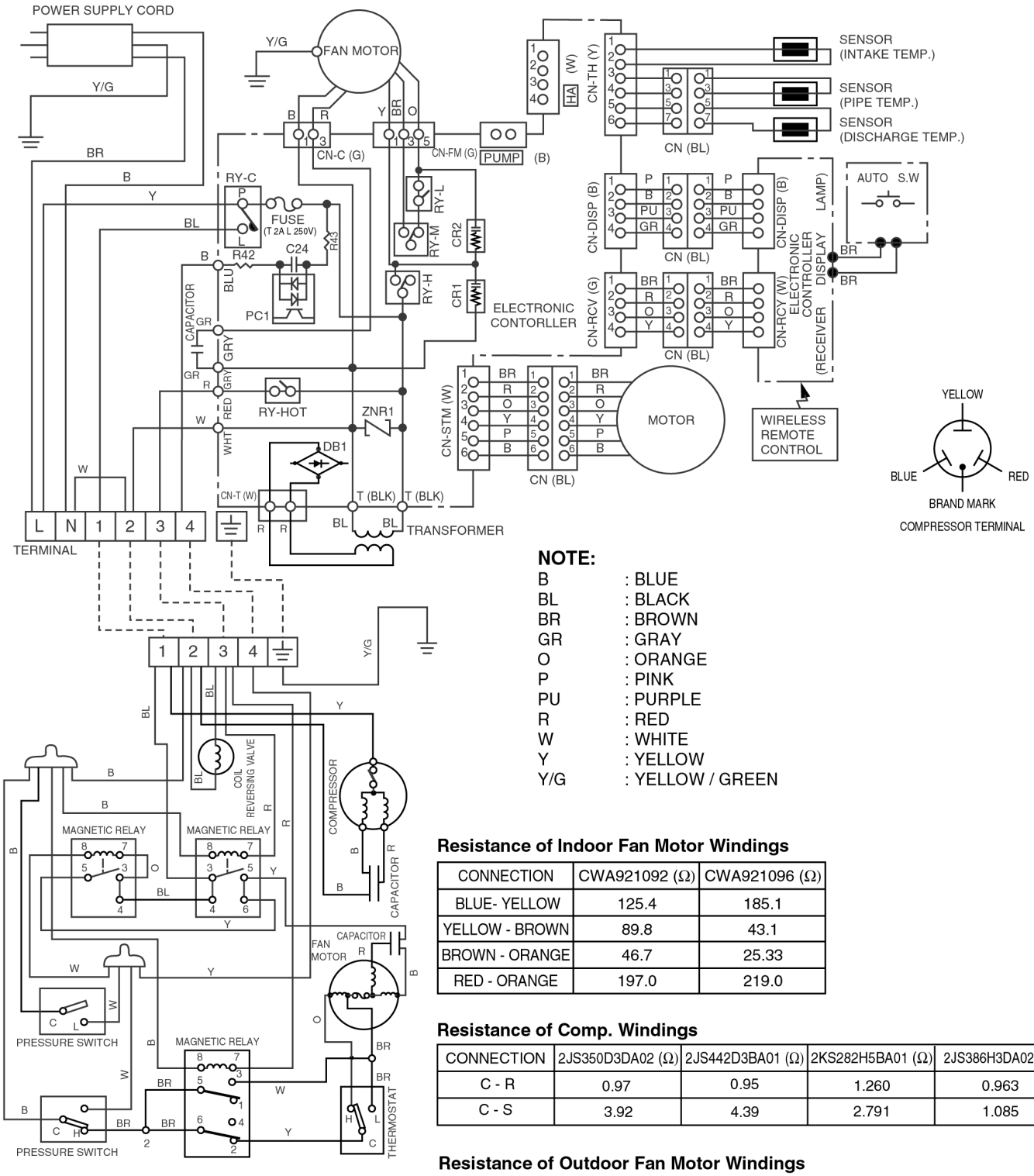
CONNECTION	CWA951151 (Ω)
BLUE - YELLOW	312.9
YELLOW - RED	419.5

Resistance of Comp. Windings

CONNECTION	2KS224D5AA02 (Ω)
C - R	2.45
C - S	3.86

* Resistance at 20°C of Ambient temp.

CS-A18ATP / CU-A18ATPT
CS-A24ATP / CU-A24ATPT



NOTE:

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

Resistance of Indoor Fan Motor Windings

CONNECTION	CWA921092 (Ω)	CWA921096 (Ω)
BLUE- YELLOW	125.4	185.1
YELLOW - BROWN	89.8	43.1
BROWN - ORANGE	46.7	25.33
RED - ORANGE	197.0	219.0

Resistance of Comp. Windings

CONNECTION	2JS350D3DA02 (Ω)	2JS442D3BA01 (Ω)	2KS282H5BA01 (Ω)	2JS386H3DA02 (Ω)
C - R	0.97	0.95	1.260	0.963
C - S	3.92	4.39	2.791	1.085

Resistance of Outdoor Fan Motor Windings

CONNECTION	CWA921095 (Ω)	CWA951153 (Ω)	CWA921093 (Ω)	CWA951154 (Ω)
BLUE- BROWN	83.4	165.6	62.5	128.7
BROWN - ORANGE	67.3	64.6	60.2	55.6
RED - BROWN	66.5	145.1	69.0	119.6

* Resistance at 20°C of Ambient temp.

7 Operation Details

7.1. Cooling Mode Operation

When selecting the Cooling (COOL) Mode Operation, the unit will operate according to the setting by the Remote Control and the operation is as the following.

Time Delay Safety Control

3 min. --- The Compressor is ceased for 3 minutes to balance the pressure in the refrigeration cycle.

(Protection of compressor)

Automatic Restarting Control

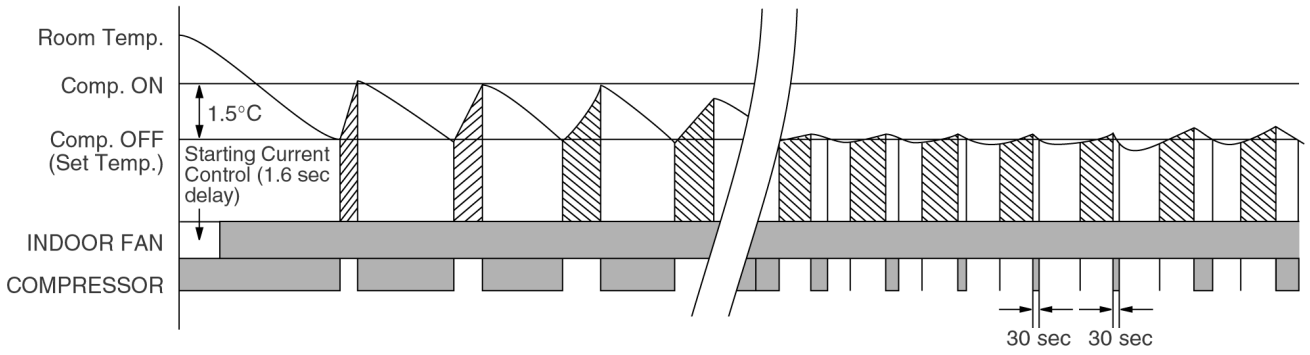
7 min. --- The unit will automatically operate in 7 minutes even if the room temperature is not reached.

(Protection of raising the humidity)

Compressor Forced Operation Control

30 sec. --- The compressor is switched ON at once, it is to be operated for 30 seconds.

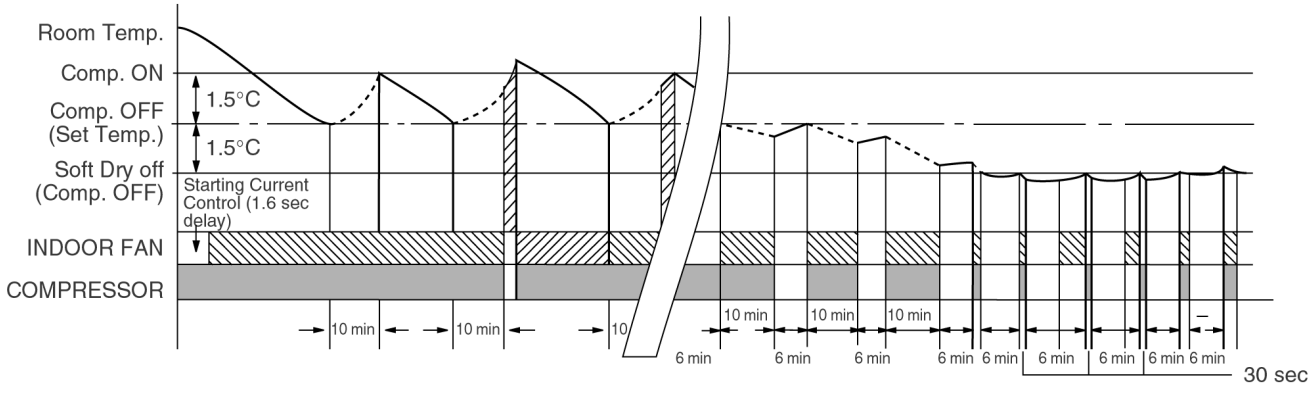
(Protection of compressor)



7.2. Soft Dry Mode Operation

When selecting the Soft Dry (DRY) Mode Operation, the operation will be cooling until the Room Temperature reaches the Set Temp. on the remote control, and then Soft Dry will activate.

(During Soft Dry operation, the fan of the indoor unit will operate at Low fan speed and stop at 4-second intervals, and operation will be switched on and off for up to 10 minutes on and 6 minutes off.)



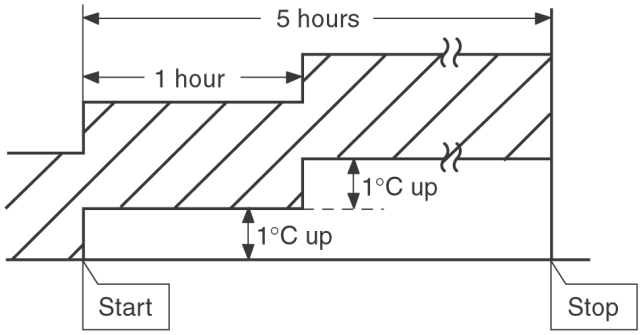
7.3. Detail of Sleep Mode

Sleep Mode operates to match your sleeping condition.

1. **At Cooling or Soft Dry operation**

   When you set the Sleep Mode (SLEEP), the following movement will start to avoid overcooling.

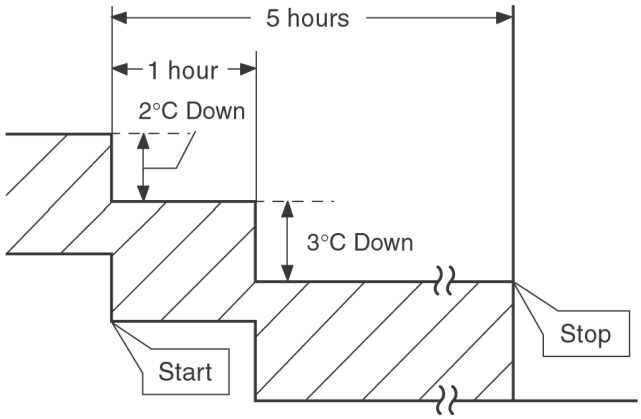
   - The fan speed is automatically set to low.
   - The setting temperature will be rise by 1°C at the start of operation and by 1°C one hour later.
   - The Automatic Restarting Control is changed from 7 minutes to 5 minutes.
   - The operation will stop after 5 hours.



2. **At Heating operation**

   When you set the Sleep Mode (SLEEP), the following movement will start to avoid overheating.

   - The fan speed is automatically set to low.
   - The setting temperature will dropped by 2°C at the start of operation and by 3°C one hour later.
   - The operation will stop after 5 hours.

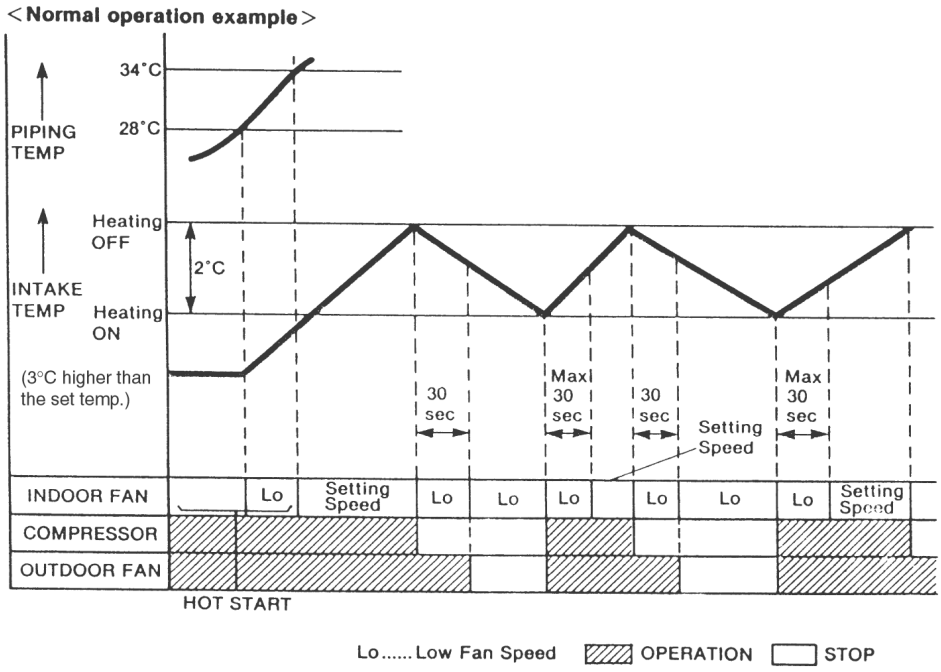


7.4. Heating Mode Operation

When selecting the Heating (HEAT) Mode Operation, the unit will operate according to the setting by the Remote Control and the operation is as the following.

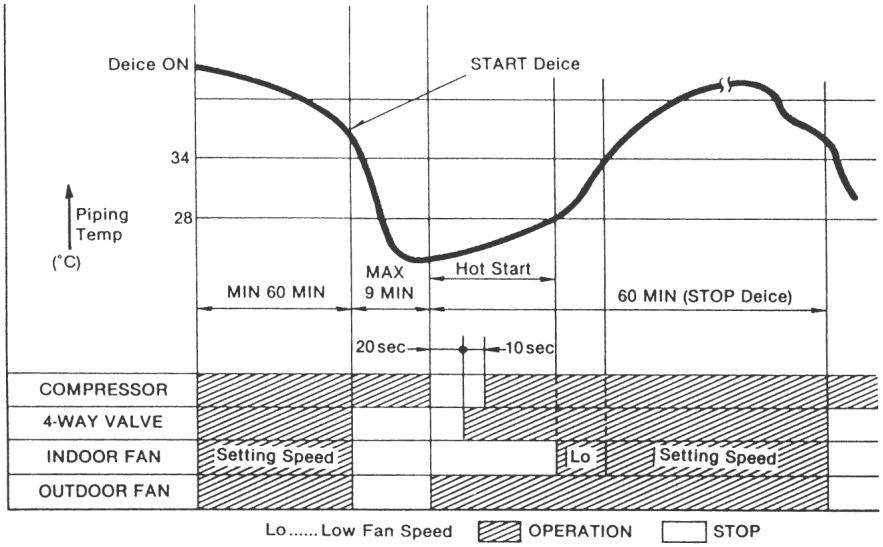
(1) Room temperature can be set in 1°C steps in the range of 16 to 30°C. Relationship between the remote control temperature adjustment knob and operation is shown in the diagram below.

(2) Taking the difference between the room temperature distribution and intake air temperature, heating ON temperature is set to 3°C higher than the remote control setting.



7.5. Deice control

- Deicing operation is controlled by sensing the indoor piping temperature and timer.
- Deicing starts when 60 minutes after start of heating or deice ends and if the indoor piping temperature is 46° (°C) or lower.
- Deicing ends by function of the pressure switch or after 9 minutes of deice operation.



7.6. Airflow direction control

1. **Manual operation**

   When the airflow direction adjustment button of the remote control is pressed, the louver moves up/down in the movable range shown in the diagram at right, and can be stopped at the required position.

   Only the up/down louvers are adjustable from the remote control.

2. **Automatic airflow direction**

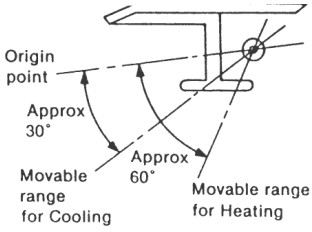
   a. For cooling and soft dry

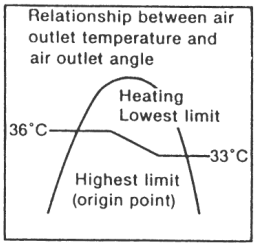
   The up/down louver swings within the movable range.

   b. For heating

   As shown in the diagram at left, the blow out angle changes according to the blow out temperature.

   * Angle of the left/right louver is manually adjusted.





7.7. Automatic operation

When AUTO (automatic operation) is set with the “operation mode selector” on the remote control, the indoor fan runs at Low speed for 20sec., the air conditioner unit senses the room temperature then automatically selects the operation mode and temperature setting.

	Operation mode	Setting Temp (standard)
Intake Temp. (°C) ↑ 25	Cooling	27
21	Soft Dry	24
	Heating	22

1. Relationship between room temperature at start and operation mode:

   * Operation lamp flashes while fan is running for the first 20sec., then lights.
   * At start of operation, if the room temperature is 16°C or lower, heating operation (hot start) starts immediately.
   * Once the operation mode is determined by automatic operation, that operation mode does not change unless the air conditioner is stopped once and restarted or by changing to a different mode using the operation mode select button.

2. The 3 temperature settings listed below can be selected for

   * High : +2 degrees up
   * Standard : +0
   * Low : -2 degrees down

8 Operating Instructions

SAFETY PRECAUTIONS

Before operating, please read the following "Safety Precautions" carefully.

- To prevent personal injury, injury to others and property damage, the following instructions must be followed.
- Incorrect operation due to failure to follow instructions will cause harm or damage, the seriousness of which is classified as follow:

⚠ Warning
This sign warns of death or serious injury.

⚠ Caution
This sign warns of damage to property.

- The instructions to be followed are classified by the following symbols:

This symbol (with a white background) denotes an action that is PROHIBITED.

These symbols (with a black background) denote actions that are COMPULSORY.

■ Installation Precautions

⚠ Warning

- **Do not install, remove and reinstall the unit by yourself.**
  Improper installation will cause leakage, electric shock or fire. Please engage an authorized dealer or specialist for the installation work.

⚠ Caution

- **This room air conditioner must be earthed.**
  Improper grounding could cause electric shock.
- **Ensure that the drainage piping is connected properly.**
  Otherwise, water will leak out.
- **Do not install the unit in a potentially explosive atmosphere.**
  Gas leak near the unit could cause fire.

■ Operation Precautions

⚠ Warning
This sign warns of death or serious injury.

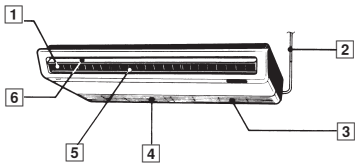
- Do not share outlet.
- Do not insert plug to operate the unit. Do not pull out plug to stop the unit.
- Do not operate with wet hands.
- Do not damage or modify the power cord.
- Do not insert finger or other objects into the indoor or outdoor units.
- Do not expose directly to cold air for a long period.
- Plug in properly.
- Use specified power cord.
- If abnormal condition (burnt smell, etc.) occurs, switch off and unplug the power supply.

⚠ Caution
This sign warns of injury.

- Do not pull the cord to disconnect the plug.
- Do not wash the unit with water.
- Do not use for other purposes such as preservation.
- Do not use any combustible equipment at airflow direction.
- Do not sit or place anything on the outdoor unit.
- Switch off the power supply before cleaning.
- Ventilate the room regularly.
- Pay attention as to whether the installation rack is damaged after long period of usage.
- Switch off the power supply if the unit is not used for a long period.

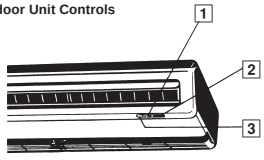
NAME OF EACH PART

■ Indoor Unit

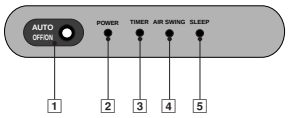


1 Air Outlet Vent
2 Power Supply Cord
3 Air Intake Vent
4 Air Filters (behind the panel)
5 Horizontal Airflow Direction Louver (manually adjusted)
6 Vertical Airflow Direction Louver

● **Indoor Unit Controls**

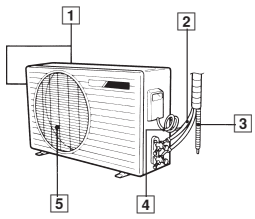


1 Operation Indication Lamps
2 Signal Receptor
3 Auto Operation Button



1 Auto Operation Button
2 Power Mode Indicator – GREEN
3 Timer Mode Indicator – ORANGE
4 Air Swing Mode Indicator – RED
5 Sleep Mode Indicator – ORANGE

■ Outdoor Unit

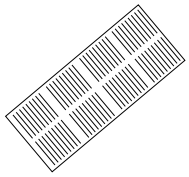


1 Air Intake Vents
2 Piping
3 Drain Hose
4 Connecting Cable
5 Air Outlet Vents

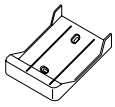
■ Accessories

● **Remote Control**

● **Remote Control Indication Sticker**



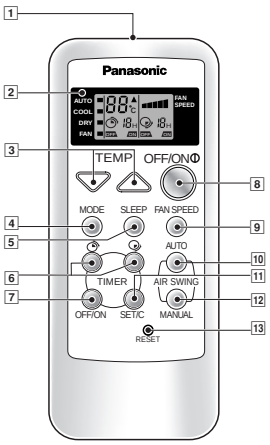
● **Remote Control Holder**



● **Two RO3 (AAA) dry-cell batteries or equivalent**

NAME OF EACH PART

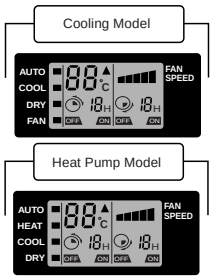
■ Remote Control



- **Remote Control Signal.**
  - Make sure it is not obstructed.
  - Maximum distance : 10 m.
  - Signal received sound.
    One short beep or one long beep.
- **Notes for Remote Control.**
  - Do not throw or drop.
  - Do not get it wet.
  - Certain type of fluorescent lamps may affect signal reception. Consult your dealer.
- Do not place the remote control in a location exposed to direct sunlight, or next to a heating unit, or other heat source.

1 Signal Transmitter

2 Operation Display



3 Room Temperature Setting Button (self-illuminating button)

4 Operation Mode Selection Button

5 Sleep Mode Operation Button (self-illuminating button)

6 Timer Setting Button

7 Timer Selection Button

8 OFF/ON Button (self-illuminating button)

9 Fan Speed Selection Button

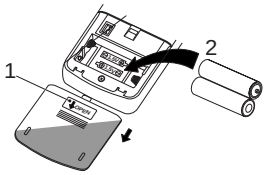
10 Auto Airflow Direction Button

11 Timer Set/Cancel Button

12 Manual Airflow Direction Selection Button

13 Reset Point
(Press with fine-tipped object to clear the memory)

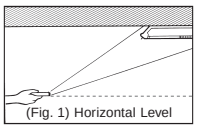
- **How to Insert the Batteries**



1 **Gently press the place marked OPEN and slide the cover towards you.**

2 **Insert the batteries**
– Be sure the direction is correct.

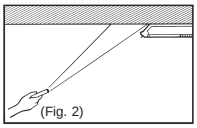
- **About the batteries**
  - Can be used for approximately one year.
- **Observe the following when replacing the batteries**
  - Replace with new batteries of the same type.
  - Do not use rechargeable batteries (Ni-Cd).
  - Remove the batteries if the unit is not going to be used for a long period.
- **Proper way to operate the remote control in the case of ceiling/wall mounting.**
  - Operate the remote control in parallel with the floor. (See the figure below)



(Fig. 1) Horizontal Level

O.K.

- The signal changes as shown in the figure below. It means that the receiving conditions are bad and the signal can not be controlled properly.

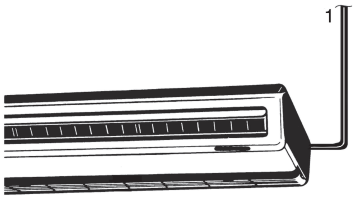


(Fig. 2)

OUT

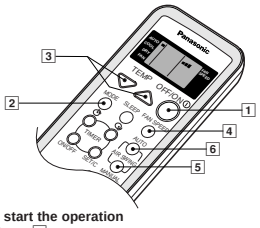
PREPARATION BEFORE OPERATION

■ Indoor Unit



1 Connect the power supply cord to an independent power supply.

HOW TO OPERATE



■ To start the operation

- Press 1.
- POWER indicator (green) on the indoor unit will light up.
- To stop, press once more.

■ Setting Mode

- Press 2 to select:-

Cooling Model

AUTO – Automatic Operation
COOL – Cooling Operation
DRY – Soft Dry Operation
FAN – Air Circulation Operation

Heat Pump Model

AUTO – Automatic Operation
HEAT – Heating Operation
COOL – Cooling Operation
DRY – Soft Dry Operation

■ Setting Temperature

- Press 3 to increase or decrease the temperature.
- The temperature can be set between:

  Cooling Model : 20°C ~ 30°C
  Heat Pump Model : 16°C ~ 30°C
- Recommended temperature:

Cooling Model		Heat Pump Model	
COOL	26°C ~ 28°C	COOL	26°C ~ 28°C
DRY	1°C ~ 2°C lower than the room temperature	DRY	1°C ~ 2°C lower than the room temperature
		HEAT	20°C ~ 24°C

- During **AUTO** Operation, press 3 to select:-
  - Hi • Operation with 2°C higher than the standard temperature.
  - • Operation with the standard temperature.
  - Lo • Operation with 2°C lower than the standard temperature.

- **Standard Temperature**

Cooling Model

Indoor temperature	Operation	Standard temperature
24°C	Cooling	27°C
	Soft Dry	24°C

- Once the Automatic Operation is selected, the indoor temperature sensor operates automatically to select the desired operation mode with Cooling or Soft Dry.
- After the operation mode has been selected, the mode does not change.

Heat Pump Model

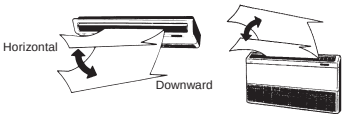
Indoor temperature	Operation	Standard temperature
25°C	Cooling	27°C
	Soft Dry	24°C
21°C	Heating	22°C

- At the beginning of the automatic operation, Heating, Cooling or Soft Dry is automatically selected according to the indoor temperature.
- After the operation mode has been selected, the mode does not change.

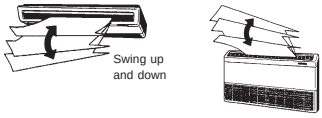
■ **Setting the Fan Speed**
- Press 4 to select:-
  – Low Fan Speed
  – Medium Fan Speed
  – High Fan Speed

■ **Vertical Airflow Direction**

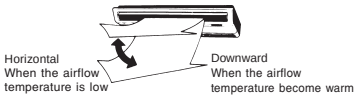
● **Manual Operation**
- Press and hold the Manual Airflow Direction Selection Button 5 , then release at the desired airflow direction.
- **Cooling / Soft Dry / Heating**
  The airflow direction can be adjusted as desired by using the remote control. This is effective when you want to cool yourself directly, such as when coming out of the bath. The louver can be adjusted within a range between the horizontal and 30 degrees downward at Cooling and Soft Dry Operation, and between the horizontal and 60 degrees downward at Heating Operation.



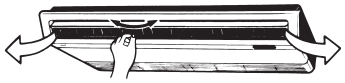
● **Automatic Operation**
- Press the Auto Airflow Direction Button 6.
- **Cooling / Soft Dry**
  The louver will automatically swing up and down to create the feeling of a refreshing breeze.



- **Heating**



■ **Setting the Horizontal Airflow Direction**



- Adjust it manually

● **Use this air conditioner under the following conditions:**

Cooling Model

(Unit in °C)

DBT: Dry Bulb Temp WBT: Wet Bulb Temp	Indoor		Outdoor	
	DBT	WBT	DBT	WBT
Maximum Temperature	32	23	43	26
Minimum Temperature	20	14	20	14

Heat Pump Model

(Unit in °C)

DBT: Dry Bulb Temp WBT: Wet Bulb Temp	Indoor		Outdoor	
	DBT	WBT	DBT	WBT
Maximum Temperature-Cooling (Maximum Temperature-Heating)	32 (30)	23 (-)	43 (24)	26 (18)
Minimum Temperature-Cooling (Minimum Temperature-Heating)	16 (16)	11 (-)	16 (-5)	11 (-6)

● **Notes**
- If the unit is not going to be used for an extended period of time, turn off the main power supply. If it is left at the ON position, approximately 2.0 W of electricity will be used even if the indoor unit has been turned off with the remote control.
- If operation is stopped, then restart immediately, the unit will resume operation only after 3 minutes.

● **Operation Details**

COOL – Cooling Operation
- To set the room temperature at your preference cooling comfort.

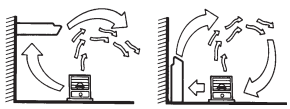
AUTO – Automatic Operation
- Sense indoor temperature to select the optimum mode.
- Temperature is not displayed on the remote control during AUTO operation.

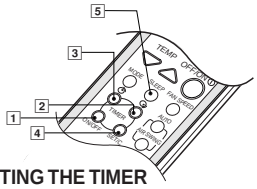
DRY – Soft Dry Operation
- A very gentle Cooling Operation, prior to dehumidification. It does not lower the room temperature.
- During Soft Dry operation, the indoor fan operates at Low Fan Speed for 10 minutes (ON and OFF for 4 seconds intervals) then OFF for 6 minutes. This operation will be repeated.

HEAT – Heating Operation
(for Heat Pump Model only)
- Heat is obtained from outdoor air to warm up the room. When the outdoor ambient air temperature falls, the heating capacity of the unit might be reduced.
- Defrosting Operation
  Depend on the outdoor temperature, the operation occasionally stops to melt the frost on the outdoor unit.

FAN – Air Circulation Operation
(for Cooling Model only)
- Heated air rises and collects at the top of the room. The air circulation circulates the heated air downward, thus increasing heating effectiveness. When the unit is installed floor mounted, you should set the temperature higher than that of ceiling mounted.

At ceiling mounted　　At floor mounted

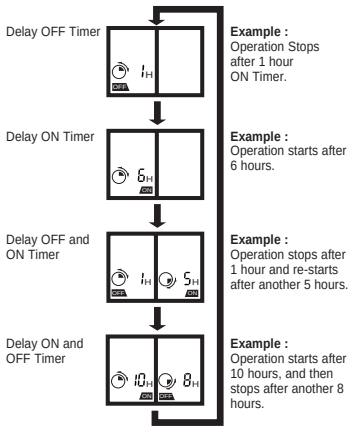




SETTING THE TIMER

The Delay ON-Timer and Delay OFF-Timer cannot be selected simultaneously.

- Press the Timer Selection Button 1.
- Select one of the following five types of operation. Each time the button is pressed, the operation mode is shifted in the arrow direction.



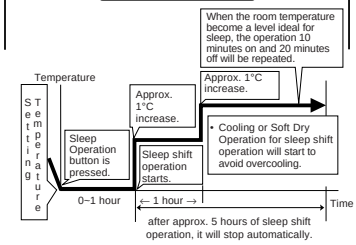
- Then press the Timer Setting Button 2 or 3 to the desired number of hours.
  (Number of hours which can be set : 1 ~ 12)
- Press the Timer Set/Cancel Button 4

CONVENIENCE OPERATION

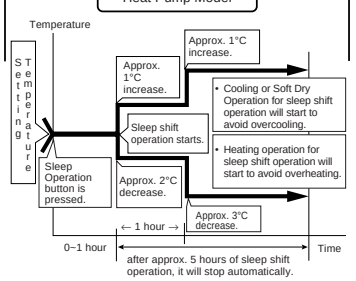
■ **Sleep Mode Operation**
To obtain a comfortable room temperature while sleeping:-
- Press 5.
- Sleep mode indicator on the indoor unit will light up.
- To cancel this operation, press once more.

● **Sleep Mode Operation Details**
- When the room temperature reaches the set temperature, the airflow volume will change to low automatically.
- Sleep Mode Operation time is 5 hours.
- When used together with the timer, the timer has a priority.

Cooling Model



Heat Pump Model



CARE AND MAINTENANCE

■ **Cleaning the Indoor Unit and Remote Control**
- Wipe gently with a soft, dry cloth.
- Do not use water hotter than 40˚C or polishing fluid to clean the unit.

■ **Cleaning the Air Filter**
(Recommendation:- If the unit is operated in a dusty environment, clean the filters every two weeks, continuous use of this dirty filters will reduce cooling or heating efficiency)

1 Remove dirt using a vacuum cleaner.
2 Wash back of the air filter with water.
3 If badly soiled, wash it with soap or a mild household detergent.
4 Let it dry and reinstall it.
Be sure the "FRONT" mark is facing you.
※ Damaged air filter.
Consult the nearest authorized dealer.
Part No.: CWD00112.
- Do not use benzene, thinner, scouring powder or clothes soaked in caustic chemical to clean the unit.

■ Pre-season Inspection

- **Clean the air filters, re-insert and operate the air conditioners.**
- **Is the discharged air cold / warm?**
  Operation is normal if 15 minutes after the start of operation, the difference between the air intake and outlet vents temperature is:-

Cooling Model
COOL – 8°C or above

Heat Pump Model
COOL – 8°C or above
HEAT – 14°C or above

- **Are the air intake or outlet vents of the indoor or outdoor units obstructed?**
- **Are the remote control batteries weak?**
  If the remote control display appears weak, replace the batteries.

■ When the Air Conditioner is Not Used for an Extended Period of Time

1 To dry the internal parts of the indoor unit, operate the unit for 2 - 3 hours using:-

Cooling Model
FAN operation

Heat Pump Model
COOL operation with 30°C set temperature

2 Turn off the power supply and unplug.
Note: If the unit is not switched off by the remote control, it will start operating when you plug in (because the unit is equipped with Auto Restart Control).

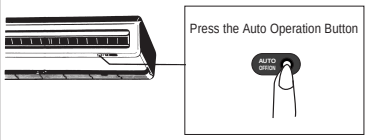
3 Remove the remote control batteries.

■ Recommended Inspection

- After used over several seasons, the unit will become dirty and thus decreases the unit's performance. Depending on the operation conditions, a dirty unit may produce odour and dust may pollute dehumidification system. Therefore, a seasonal inspection is recommended in addition to regular cleaning. (Consult an authorized dealer).

HELPFUL INFORMATION

■ Auto Operation



- **Automatic Operation**
  - If the remote control fails to function or has been misplaced, press the Auto Operation button to start the Automatic operation.
  - The Automatic operation will be activated immediately once the Auto operation button is pressed. However, temperature cannot be adjusted in this operation.
  - The power indicator on the indoor unit will blink until the operation mode is selected automatically.
  - To cancel this operation, press once more.

■ Timer Setting

- When power failure occurs, the timer setting will be cancelled. Once power is resumed, reset the timer.

■ Thunder and Lightning

- This air conditioner is equipped with a built-in surge protective device. However, in order to further protect your air conditioner from being damaged by abnormally strong lightning activity, you may switch off the main power supply and unplug from power socket.

ENERGY SAVING AND OPERATION HINTS

■ Setting the Temperature

- Approximately 10% of electricity can be saved.
- Set the temperature higher or lower than the desired temperature.

Cooling Model
Cooling Operation : 1°C higher

Heat Pump Model
Cooling Operation : 1°C higher
Heating Operation : 2°C lower

■ Air Filters

- Clean the air filters every 2 weeks.
- Dirty filters may reduces cooling or heating efficiency.

■ Keep All Doors and Windows Closed

- Otherwise, cooling or heating performance will be reduced and electricity cost is wasted.

■ Outdoor Unit

- Do not block the air outlet vents. Otherwise, it will lower the cooling or heating performance.

■ Timer and Sleep Mode

- To prevent wastage of electricity, use sleep mode when sleeping or Timer when going out.

■ Avoid Direct Sunlight

- Keep curtains or drapes closed to avoid direct sunlight during cooling operation.

TROUBLESHOOTING

■ Normal Operation

Is it okay?	This is the answer
• Air conditioner has been restarted, but does not operate for 3 minutes.	• This is to protect the air conditioner. Wait until the air conditioner begins to operate.
• A sound like water flowing can be heard.	• This is the sound of refrigerant flowing inside the air conditioner.
• It seems that fog is coming out from the air conditioner.	• Condensation occurs when the airflow from the air conditioner cools the room.
• The room has a peculiar odour.	• This may be a damp smell emitted by the wall, carpet, furniture or clothing in the room.
• The outdoor unit emits water or steam.	• In COOL/DRY operation, moisture in the air condenses into water on the cool surface of outdoor unit piping that causes dripping.
• (For Heat Pump Model only) Operation stops for about 9 minutes during heating (The power indicator blinks).	• This is to melt the frost which has accumulated on the outdoor unit (defrosting operating). This will take no longer than about 9 minutes. Water drips from the outdoor unit. Wait until this operation ends. (the power indicator will light up). (Frost will accumulates on the outdoor unit when the outdoor temperature is low and humidity is high.)
• (For Heat Pump Model only) During heating operation, indoor fan may run at on and off conditions.	• This is to prevent undesired cooling effect during heating operation.

■ Abnormal Operation

Is it okay?	Please check
• **The air conditioner does not operate.**	• Has the circuit breaker been tripped? • Has the power plug been removed from the wall outlet? • Is the timer being used correctly?
• **Air conditioner produces loud noise during operation.**	• Is the installation work slanted? • Is the front grille closed properly?
• **The air conditioner does not cool or warm effectively.**	• Has the temperature been set incorrectly? • Are the filters dirty? • Are the intake or outlet vents of the outdoor unit obstructed? • Are all windows and doors closed?

■ Call the Dealer Immediately

If the following conditions occur, turn off and unplug the main power supply, and then call the dealer immediately.

- **Abnormal noise is heard during operation.**
- **Water or foreign material gets into the remote control by mistake.**
- **Water leak from the indoor unit.**
- **Switches or buttons do not operate properly.**
- **The circuit breaker switches off frequently.**
- **Power supply cord and plug become unusually warm.**

9 Installation Instructions

Required tools for Installation Works			
1. Philips screw driver	5. Spanner	9. Gas leak detector	13. Multimeter
2. Level gauge	6. Pipe cutter	10. Measuring tape	14. Torque wrench 18 N.m (1.8 kgf.m) 55 N.m (5.5 kgf.m) 65 N.m (6.5 kgf.m)
3. Electric drill, hole core drill (ø70 mm)	7. Reamer	11. Thermometer	15. Vacuum pump
4. Hexagonal wrench (4 mm)	8. Knife	12. Megameter	16. Gauge manifold set

9.1. Safety Precautions

- Read the following “SAFETY PRECAUTIONS” carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be 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 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 only.

The items to be followed are classified by the symbols:

⃠	Symbol with background white denotes item that is PROHIBITED from doing.

- Carry out test running to confirm that no abnormality occurs after the installation. 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. Engage dealer or specialist for installation. If installation done by the user is defective, it will cause water leakage, electrical shock or fire.	
2. Install according to this installation instruction strictly. If installation is defective, it will cause water leakage, electrical shock or fire.	
3. Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.	
4. 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.	
5. For electrical work, follow the local national wiring standard, regulation and this 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.	
6. Use the specified cable and connect tightly for indoor/outdoor connection. Connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection. The outlet cable shall be fastened by the two clamps of the indoor unit.	
7. 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 at connection point of terminal, fire or electrical shock.	
8. When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.	
9. Do not damage or use unspecified power supply cord. Otherwise, it will cause fire or electrical shock.	⃠
10. Do not modify the length of the power supply cord or use of the extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.	⃠

⚠ CAUTION

1. The equipment must be earthed. It may cause electrical shock if grounding is not perfect.
2. 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.

3. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.

ATTENTION

1. Selection of the installation location.
   Select a installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance.
2. Power supply connection to the room air conditioner.
   Connect the power supply cord of the room air conditioner to the mains using one of the following method.
   Power supply point shall be the place where there is ease for access for the power disconnection in case of emergency.
   In some countries, permanent connection of this room air conditioner to the power supply is prohibited.
   1. Power supply connection to the receptacle using a power plug.
      Use an approved 15A/16A power plug with earth pin for (C12AT, A12AT, C18AT, A18AT) and 20A for (C24AT, A24AT) for the connection to the socket.
   2. Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A circuit breaker for C12AT, A12AT, C18AT, A18AT and 20A for C24AT, A24AT the permanent connection. It must be a double pole switch with a minimum 3 mm contact gap.
3. Do not release refrigerant.
   Do not release refrigerant during piping work for installation, reinstallation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
4. Installation work.
   It may need two people to carry out the installation work.
5. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.

Installation Parts Provided

1. Suspension bolts (M10 × 600...4 pcs.)
2. Nut, washer (M10...16 pcs.)
3. Spring washer (M10...8 pcs)
4. Bolt with washer (M8...4 pcs)
5. Remote control holder fixing screw (M3 × 12...2 pcs.)
6. Adjusting bolts (...2 pcs.)
7. Bolt/Nut-Wall Installation (M12 × 25...each 2 pcs.)
8. Spring washer, washer (M12...each 4 pcs.)
9. Installation bracket (R, L)
10. Wall mount bracket (R, L)
11. Hook (...2 pcs.)
12. Floor mount bracket
13. Drain hose insulated (Outlet Dia. 20 mm × 1.3 m)
14. Screw -Floor M. Bracket (M4 × 25...2 pcs.)
15. Bolt-wall mount bracket (M10 × 50...4 pcs.)
16. Remote control holder
17. Drain elbow

Applicable piping kit

CZ-4F5, 10AN: C12AT/A12AT, C18AT, A18AT

CZ-52F5, 7, 10AN: C24AT/A24AT

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.

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 common length, additional refrigerant should be added as shown in the table.

Model	Piping size		Max. Piping Length Ⓐ (m)	Max. Elevation Ⓑ (m)	Rated	
	Gas	Liquid			Length (m)	Elevation
C12AT/A12AT	1/2”	1/4”	10	5	7.5	5
C18AT/A18AT	1/2”	1/4”	10	8	7.5	5
C24AT/A24AT	5/8”	1/4”	10	8	7.5	5

Installation parts you should purchase*

1. *Bushing-sleeve
2. *Sleeve
3. *Putty (Gum type sealer)
4. *1/4” copper pipe (Liquid side)
5. *1/2” or 5/8” copper pipe (Gas side)
6. *Additional drain hose
7. *Vinyl tape (Wide)
8. *Saddle
9. *Connecting cable

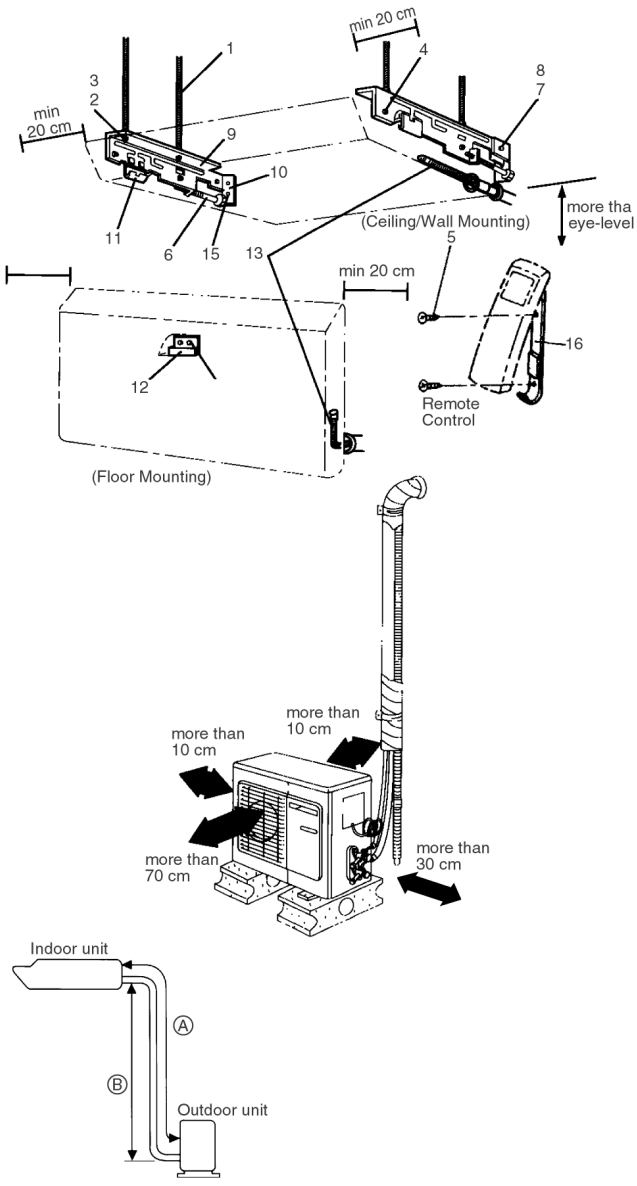
   (3-core wire/1.5 mm^2) - C12AT

   (3-core wire/2.5 mm^2) - C18AT/C24AT

   (5-core wire/1.5 mm^2) - A12AT

   (5-core wire/2.5 mm^2) - A18AT/A24AT

   Type designation 245 IEC 57 or heavier cord.
10. *Insulation material (for Gas side piping)
11. *Insulation material (for Liquid side piping)
12. *Vinyl tape (narrow)
13. *Anchor nut



IMPORTANT

Begin the installation job from the “Indoor Unit” installation.

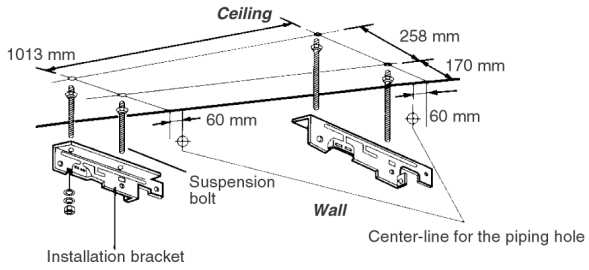
9.2. INDOOR UNIT

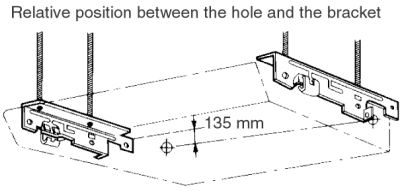
9.2.1. SELECT THE BEST LOCATION (Refer to “Select the best location” section)

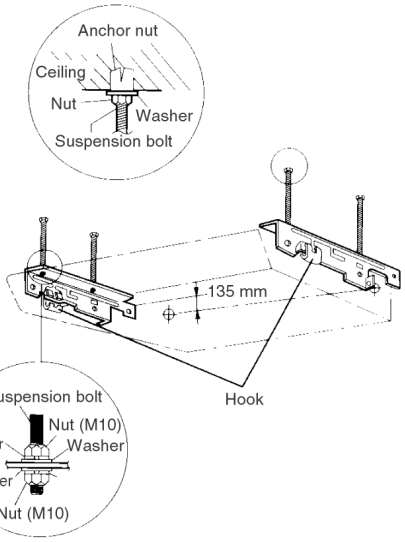
9.2.2. HOW TO FIX INSTALLATION PLATE

Installation on the ceiling

- Measure and mark the position for the Suspension bolts and the piping hole.
- Drill the hole for anchor nut on the ceiling.
- Drill the Piping hole slightly tilted to the outdoor side with a Ø 70 hole-core drill.
- Insert the nuts and washers onto the suspension bolts for locking the Suspension bolts on the ceiling.
- Mount the suspension bolts to the anchor-nuts firmly.
- Secure the Installation brackets onto the Suspension bolts with Nuts, washers and spring washers. (Adjust a level roughly.)
- Place two Hooks to the Installation brackets properly.

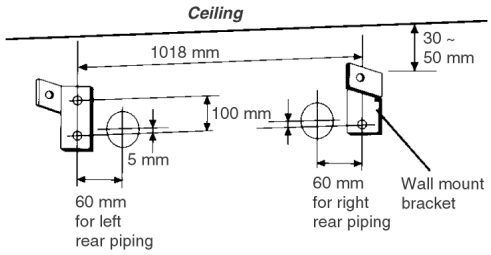


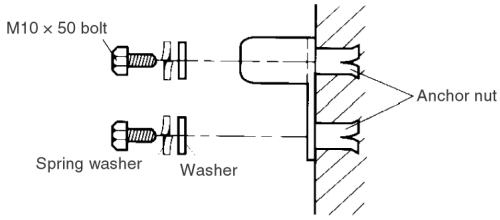


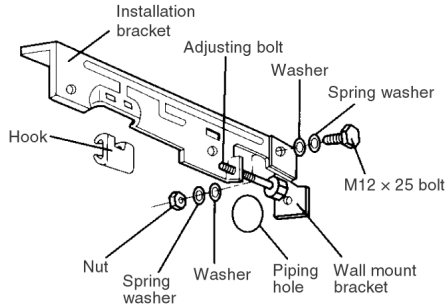


Installation on the wall

- Measure and mark the position for the Wall mount brackets and the Piping hole.
- Drill the hole for anchor nut on the wall.
- Drill the Piping hole on the wall with a Ø 70 hole-core drill.
- Secure the Wall mount brackets onto the wall with four M10 × 50 bolts, washers and spring washers.
- Mount the suspension bolts to the anchor-nuts firmly.
- Secure the Installation brackets onto the Suspension bolts with Nuts, washers and spring washers. (Adjust a level roughly.)
- Place two Hooks to the Installation brackets properly.

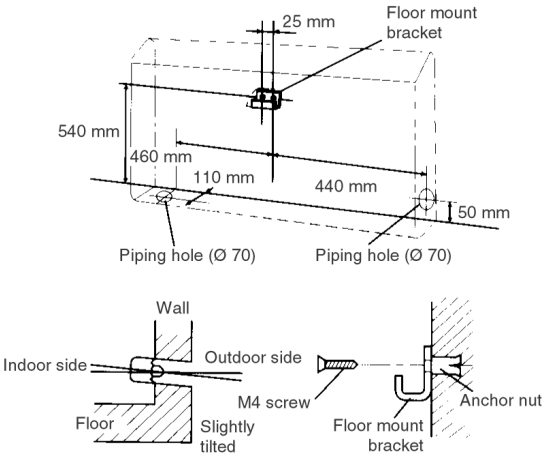






Installation on the floor

- Measure and mark the position for the floor brackets and the Piping hole.
- Drill the hole for the anchor nut.
- Drill the Piping hole with a Ø 70 hole-core drill (Either the left or the right).
- Secure the Floor mount brackets on the wall with two M4 screw.

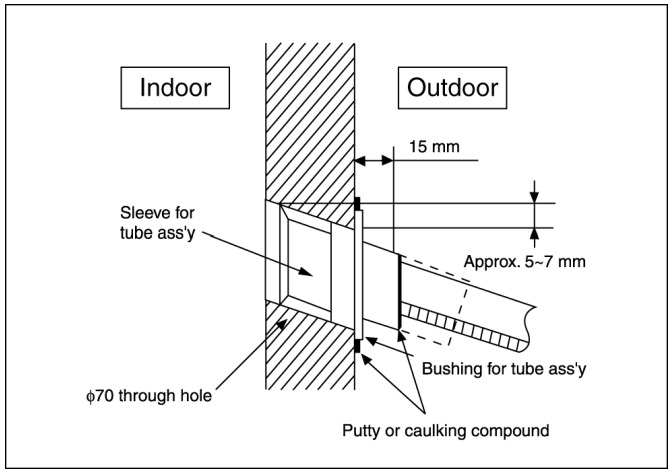


9.2.3. TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

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 ass'y to prevent dangers caused by mice biting the connecting cable.

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

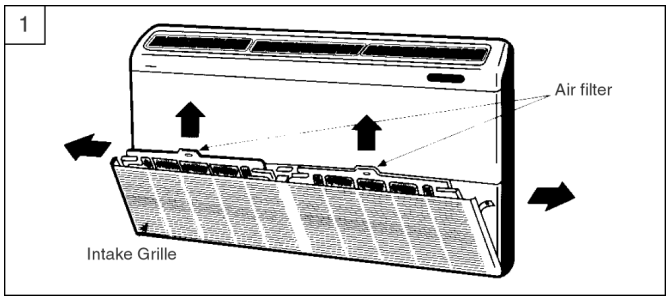


9.2.4. INDOOR UNIT INSTALLATION

Indoor unit installation

1. Remove the Intake Grille.

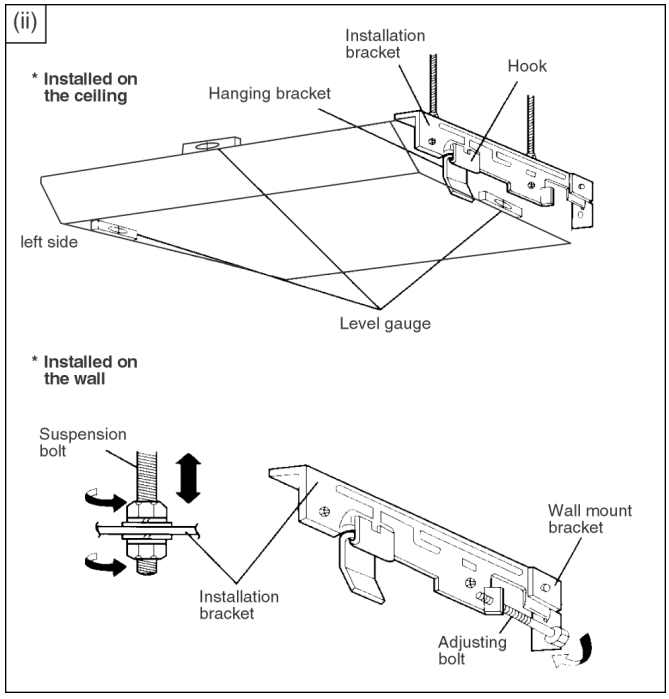
- Pull the upper left and right side of the Intake Grille toward you, and it will stop at slightly tilted position.
- Slide the air filters out of the Intake Grille.
- Remove the screw at the top center of the Intake Grille and unhook the holder on the both left and right side on it.
- Pull the Intake Grille upward to cleat two bottom tabs from their slots on the chassis.



2a. For installation on the wall/ceiling.

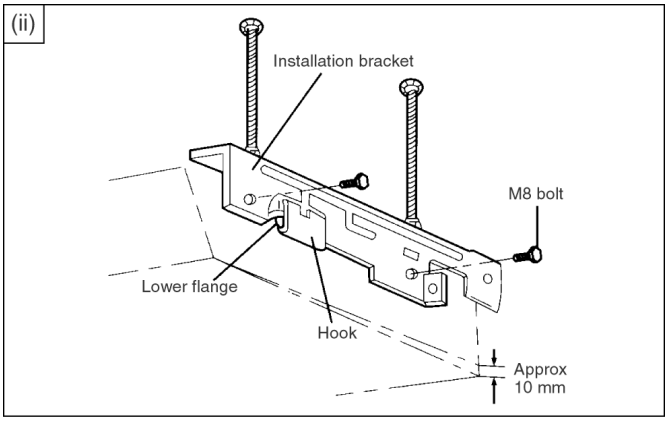
(i) Install the Indoor unit onto the Installation brackets.

- Engage the upper flange of the hanging bracket on the unit with the Hooks and adjust a level by using a level gauge.
- Installed on the ceiling; adjust it by the Suspension bolt.
- Installed on the wall; adjust it by the Adjusting bolts.
- (Refer to the diagram below)



(ii) Secure the Indoor unit onto the Installation bracket with four M8 bolts with washer.

- Engage the lower flange of the hanging bracket on the unit with the Hooks.
- Secure the unit to the Installation bracket with four M8 bolts.
- (Refer to the diagram below)

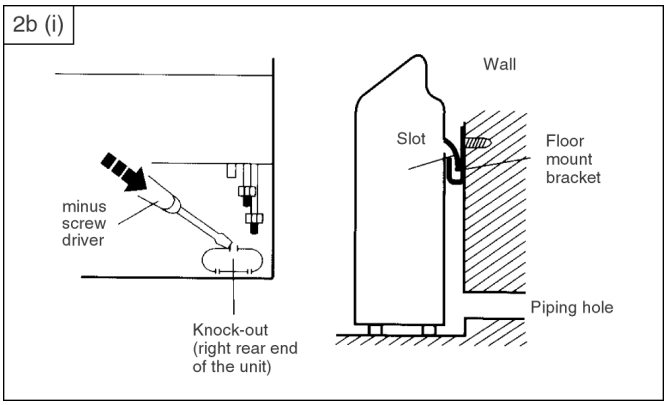


2b. For installation on the floor.

(i) Install the Indoor unit on the floor.

- Remove the Knock-out portion with a minus screw driver.
- Engage the slot at the back center of the unit with the Floor mount bracket.

  (Refer to diagram below)



9.2.5. CONNECT THE CABLE TO THE INDOOR UNIT

1. Open the control box at the bottom end of the chassis and connect the cable through the hole.
   - Ensure the color of wires of outdoor unit and the terminal Nos are the same to the indoor' unit respectively.

CS/CU-C12AT/C18AT/C24AT

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

CS/CU-A12AT/A18AT/A24AT

Terminals on the indoor unit	1	2	3	4	⏚
Color of wires					
Terminals on the outdoor unit	1	2	3	4	⏚

   - Secure the cable onto the control board with the holder (clamper).
2. Attach the Side panels to the both left and right side of the chassis.
   - Insert two tabs on the Side panel into two slots on the chassis, and secure it to the chassis with the screw.
3. Fix back the Intake Grille and the Filters.

9.2.6. PIPING AND DRAINAGE

Piping and Drainage

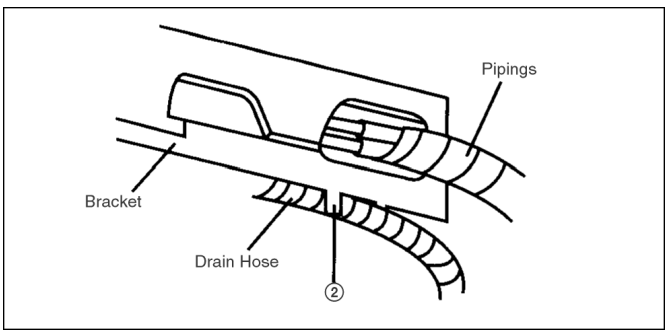
Connecting the pipings to the indoor unit.

(Refer to "CONNECTING THE PIPING" section)

1. **For the Right Side Piping.**
   - Align the center of the pipings and sufficiently tighten the flare nut with fingers.
   - Finally, tighten the flare nut with torque wrench until the wrench clicks.

     When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.
   - Connect the Drain Hose insulated to the drain outlet.

   ② Fix the Drain Hose at the holding portion of the Bracket.



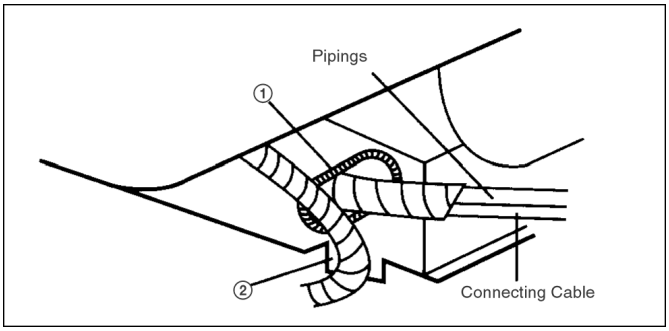
2. **For the Left Side Piping.**

① Attach the Edge Protector onto the edge of the Knock-out hole.

- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally tighten the flare nut with torque wrench until the wrench clicks.

  When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.
- Connect the Drain Hose insulated to the drain outlet.

② Fix the Drain Hose at the holding portion of the Chassis.



3. **Cut off the Intake Grille and the Side Panel with a hacksaw according to the Mark-off Line on the inner surface of them for the Pipings and the Drain Hose.**

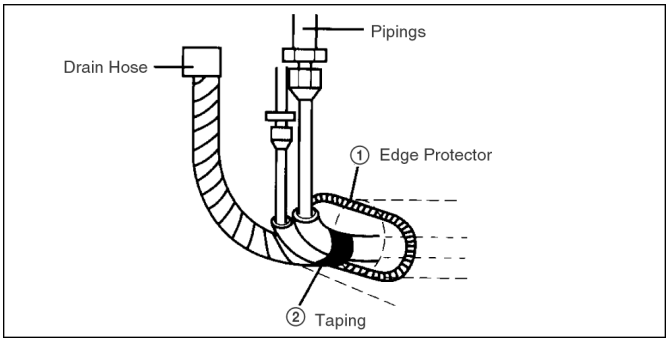
4. **For the Right Piping.**

① Attach the Edge Protector onto the edge of the Knock-out hole.

- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally tighten the flare nut with torque wrench until the wrench clicks.

  When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.
- Connect the Drain Hose insulated to the drain outlet.

② Tape the Drain Hose to the pipings to avoid coming off the drain-outlet.



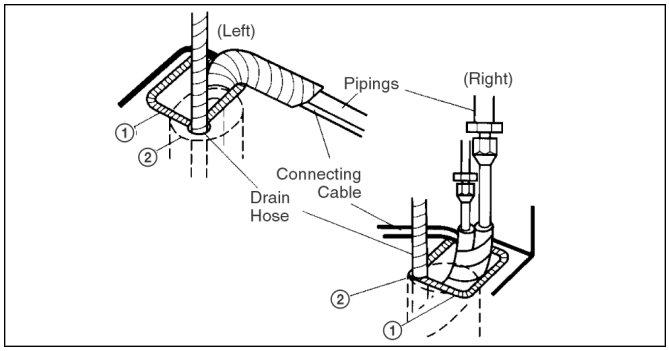
5. **For the Left Bottom or Right Bottom Piping.**
<For the Left Rear or Right Rear Piping of Ceiling or Wall Mounting>

① Attach the Edge Protector onto the edge of the Knock-out hole.

- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally tighten the flare nut with torque wrench until the wrench clicks.

  When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.
- Connect the Drain Hose insulated to the drain outlet.

② Fix the Drain Hose at the holding portion of the Knock-out hole.



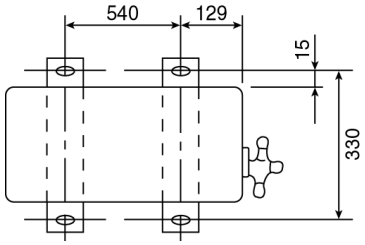
9.3. OUTDOOR UNIT

9.3.1. SELECT THE BEST LOCATION (Refer to “Select the best location” section)

9.3.2. INSTALL THE OUTDOOR UNIT

At the best location, start installation according to Indoor/Outdoor Unit Installation Diagram.

1. Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut. (ø10 mm).
2. When installing at roof, please consider strong wind. Please fasten the installation stand firmly with bolt or nails.



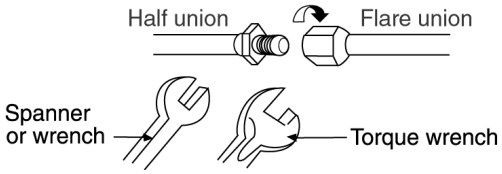
9.3.3. CONNECTING THE PIPING

Connecting The Piping To Indoor Unit

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

Connect the piping

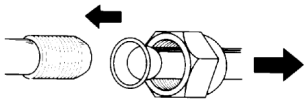
- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

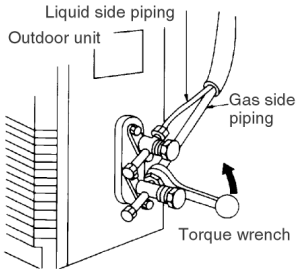


Pipe size	Torque
Liquid Side 1/4”	18 N.m
Gas Side 1/2”	55 N.m
Gas Side 5/8”	65 N.m

Connecting The Piping To Outdoor Unit

1. Align the center of the pipings and sufficiently tighten the flare nut with fingers.
2. Finally, tighten the flare nut with torque wrench until the wrench clicks.
   - When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.

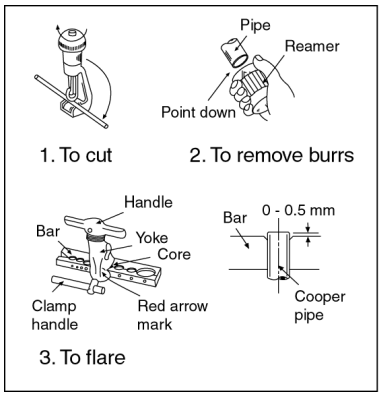




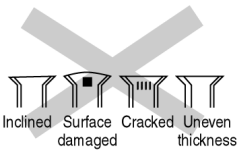
CUTTING AND FLARING THE PIPING

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.



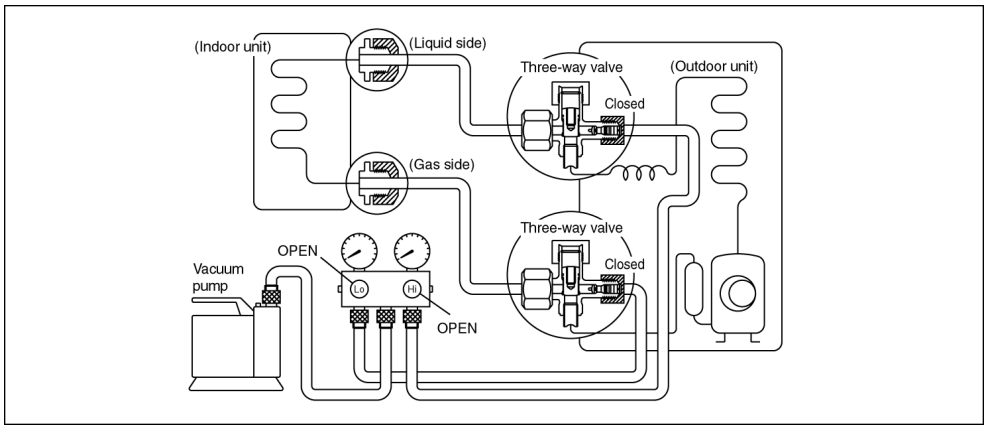
■ Improper flaring ■



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

9.3.4. (a) EVACUATION OF THE EQUIPMENT (FOR EUROPE & OCEANIA DESTINATION)

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



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

   Note: BE SURE TO FOLLOW THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
5. Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
6. Tighten the service port caps of the 3-way valve at torque of 18 N.m with a torque wrench.
7. Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to “OPEN” using a hexagonal wrench (4 mm).
8. Mount valve caps onto the 2-way valve and the 3-way valve.
   - Be sure to check for gas leakage.

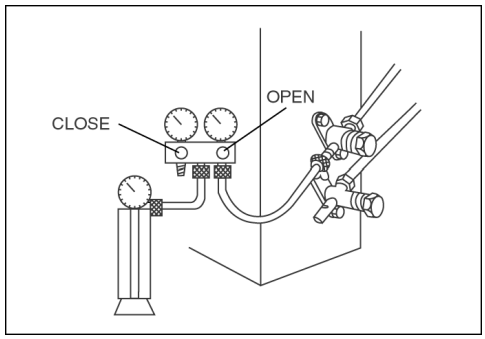
CAUTION

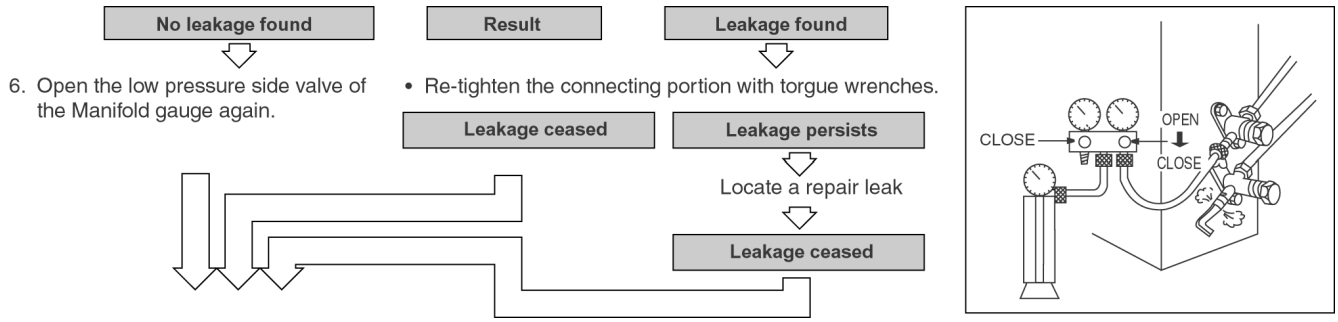
- If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step 3 above take the following measure:
- If the leak stops when the piping connections are tightened further, continue working from step 3.
- If the leak does not stop when the connections are retightened, repair the location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

9.3.5. (b) AIR PURGING OF THE PIPING AND INDOOR UNIT

1) Checking a gas-leakage

1. Remove the Service port caps from both 3-way valves.
2. Connect the Manifold gauge set to the service port of Liquid side 3-way valve.
3. Connect the Charging Cylinder to the Manifold gauge set and open the valve of the Cylinder.
4. Open the low pressure side valve of the Manifold gauge for approx. 10 seconds and then close.
5. Check a gas-leakage of the connecting portion of pipings.





2) Air Purging

The air which contains a moisture is remaining in the Refrigeration cycle may cause a malfunction on the Compressor.

1. To purge the air, push the pin on the Gas side 3-way valve for three seconds using with a Hexagonal wrench and set it free for one minute.
   - Repeat this three times.
2. To balance the refrigerant, close the low pressure side valve on Manifold gauge and release a refrigerant from the piping through service port until the gauge indicates 0.49 ~ 0.294 MPa.
3. Set the both 3-way valves to open position with the hexagonal wrench for the unit operation.

9.3.6. CONNECT THE CABLE TO THE OUTDOOR UNIT

1. Remove the control board cover from the unit by loosening the screw.
2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 (C12AT) × 1.5 mm^2 or 5 (A12AT) × 1.5 mm^2 or 3 (C18AT/C24AT) × 2.5 mm^2 or 5 (A18AT/A24AT) × 2.5 mm^2 flexible cord, type designation 245 IEC 57 or heavier cord.

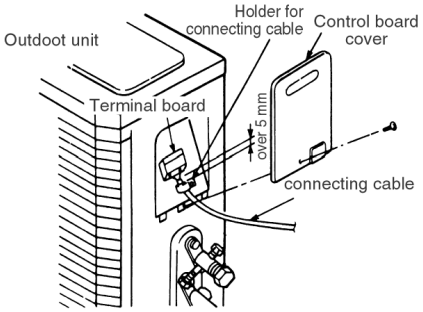
CS/CU-C12AT, C18AT, C24AT

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

CS/CU-A12AT, A18AT, A24AT

Terminals on the indoor unit	1	2	3	4	⏚
Color of wires					
Terminals on the outdoor unit	1	2	3	4	⏚

3. Secure the cable onto the control board with the holder (clamper).
4. Attach the control board cover back to the original position with the screw.



9.3.7. PIPE FORMINGS, INSULATION AND FINISHING

1. If you may connect and additional drain hose, the end of the drain-outlet should keep distance from the ground.

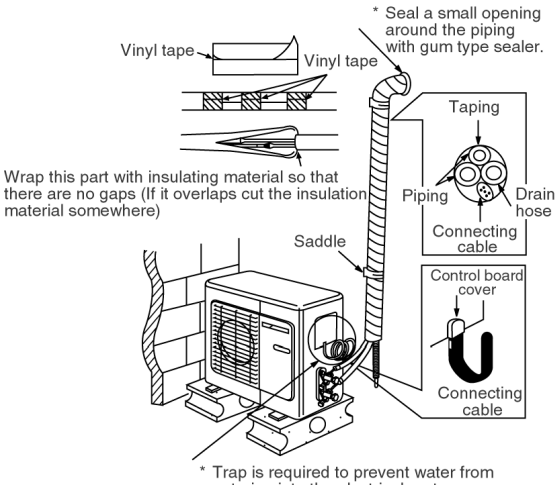
   CAUTION

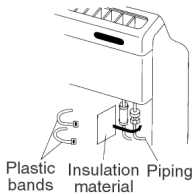
   (Do not dip it into water, and fix it on the wall to avoid swinging in the wind.)

In case of the Outdoor unit is installed below position of the indoor unit.

2. Tap the Pipings, drain hose and Connecting Cable from down to up.
3. From the pipings gathered by taping along the exterior wall and fix it onto the wall by saddle or equivalent.

   (Refer to the diagram below)



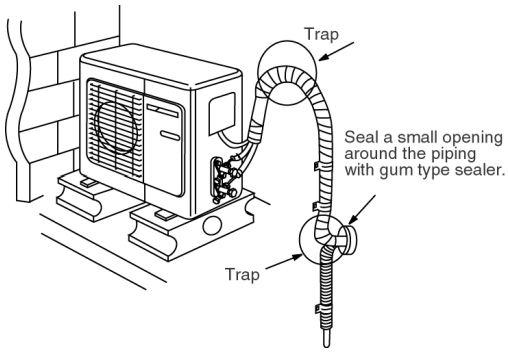


Wrap the insulation materials provided around the connecting portion of indoor unit pipings with Four Plastic Bands.

* Gas and Liquid side pipings are required

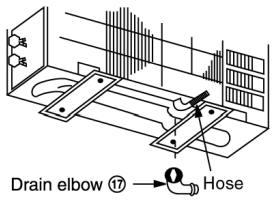
In case of the Outdoor unit is installed upper position of the indoor unit.

1. Tape the Pipings, and Connecting cable from down to up.
2. From the pipings gathered by taping along the exterior wall and the trap is required to prevent water from entering the room.
3. Fix the pipings onto the wall by saddle or equivalent.
   (Refer to the diagram below)



DISPOSAL OF OUTDOOR UNIT DRAIN WATER

- If a drain elbow is used, the unit should be placed on a stand which is taller than 3 cm.
- If the unit is used in an area where temperature falls below 0°C for 2 or 3 days in succession, it is recommended not to use a drain elbow, for the drain water freezes and the fan will not rotate.



Install the hose at an angle so that the water smoothly flows out.

TEST RUNNING

Connect the power supply

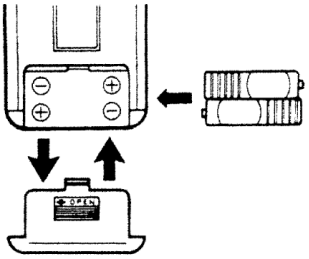
1. **Connect the power supply cord to independent power supply.**
2. **Prepare the remote control.**
   - Insert two batteries provided.

     Remove the cover from the back of the remote control.
   - Slide the cover according to the arrow direction.

     Insert the two batteries.

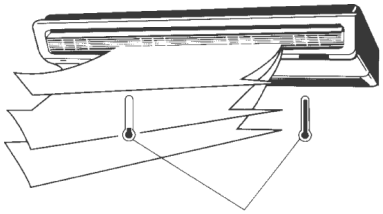
     (Two R03 Panasonic dry-cell batteries or equivalent.)
   - Be sure that the (+) and (—) directions are correct.
   - Be sure that both batteries are new.

     Re-attach the cover.
   - Slide it back into position.
3. **Operate the unit at cooling operation mode for fifteen minutes or more.**



EVALUATION OF THE PERFORMANCE

- Operate the unit at cooling operation mode for fifteen minutes or more.
- Measure the temperature of the intake and discharge air.
- Ensure the difference between the intake temperature and the discharge is more than 8°C.



Thermometer

NOTE:
These equipment shall be connected to a suitable mains network with a main impedance less than the following:
CS-A12ATP5/CU-A12ATP5: 0.4 Ω
CS-C12ATP5/CU-C12ATP5: 0.4 Ω
CS-A18ATP5/CU-A18ATP5: 0.17 Ω
CS-C18ATP5/CU-C18ATP5: 0.17 Ω
CS-A24ATP5/CU-A24ATP5: 0.16 Ω
CS-C24ATP5/CU-C24ATP5: 0.16 Ω

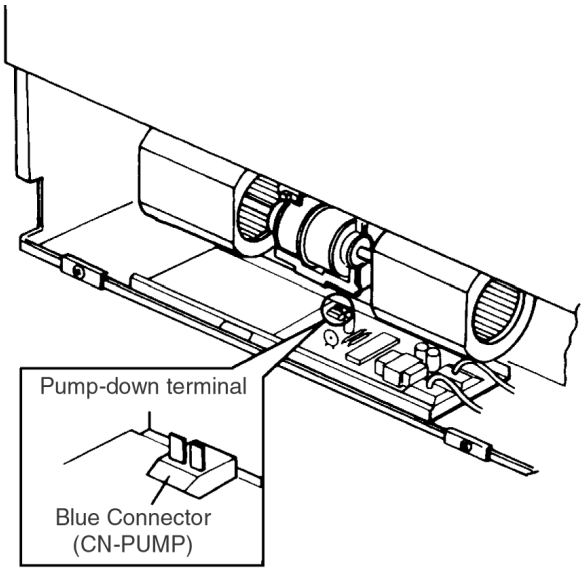
CHECK ITEMS

- ☐ Is there any gas leakage at flare nut connections?
- ☐ Has the heat insulation been carried out at flare nut connection?
- ☐ Is the connecting cable being fixed to terminal board firmly?
- ☐ Is the connecting cable being clamped firmly?
- ☐ Is the drainage OK?
  (Refer to “Check the drainage” section)
- ☐ Is the earth wire connection properly done?
- ☐ Is the indoor unit properly hooked to the installation plate?
- ☐ Is the power supply voltage complied with rated value?
- ☐ Is there any abnormal sound?
- ☐ Is the cooling operation normal?
- ☐ Is the thermostat operation normal?
- ☐ Is the remote control’s LCD operation normal?
- ☐ Is the air purifying filter installed?

10 Servicing Information

Pump-Down Terminal

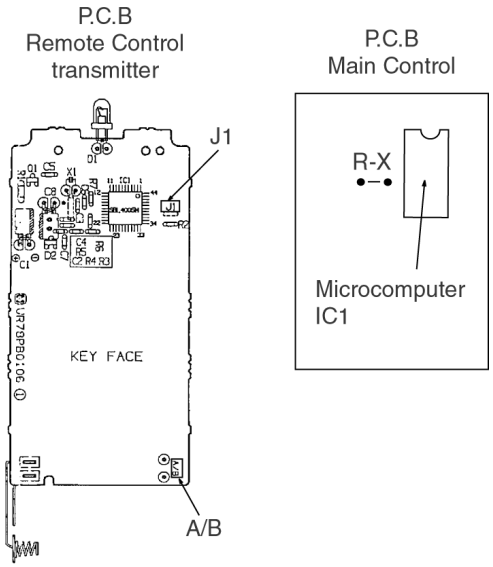
- The thermostat will be switched ON (even if the room temperature is low) when the pump-down terminal is short-circuited (by using) alligator-type clips or a similar method), thus permitting easy pump-down when the unit is to be moved to another place.



For charging the Wireless Remote Control Transmitter's Oscillation Code

- If two or more air conditioners are located in the same room, any one of four oscillation codes can be selected by simply adding parts to the Remote Control Printed Circuit Board and the indoor unit Main Control P.C.B.

  (If the two or more air conditioners in one room have the same oscillation code, all of them will be activated by operation of one Remote Control transmitter.)



- By adding a jumper wire at the Remote Control P.C.B. and main P.C.B. as shown in the table at the right, any one of four oscillation codes, including the one at the time of shipment from the plant (No. 0), can be selected.

	P.C.B. Remote Control		P.C.B. Main Control	Remarks
	A/B	J1	RX	
No. 0	ON	OFF	—	As shipped from factory
No. 1	OFF	OFF	16kΩ	
No. 2	ON	ON	6.2kΩ	
No. 3	OFF	ON	Jumper	

11 Troubleshooting Guide

11.1. Refrigeration cycle system

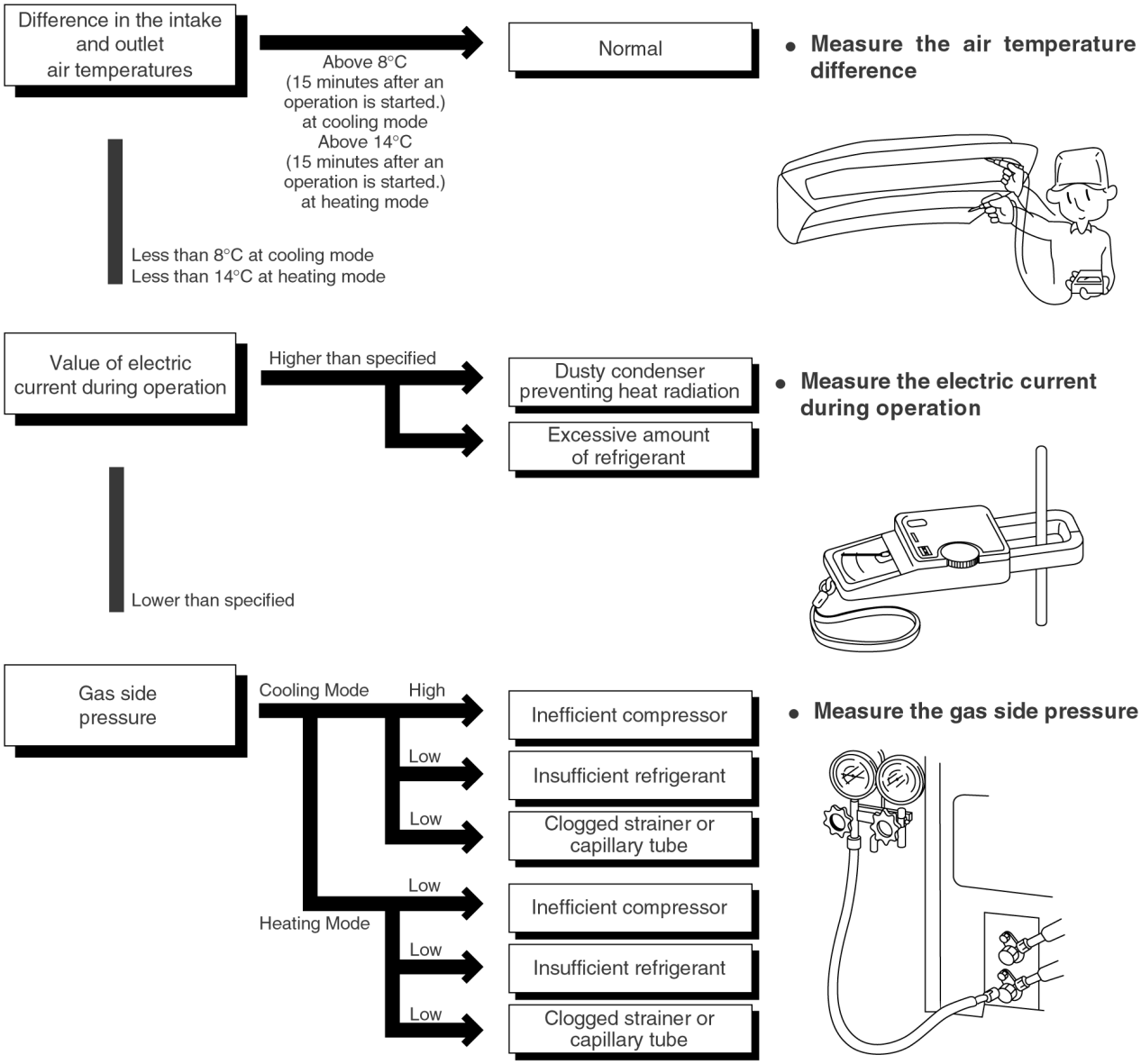
In order to diagnose malfunctions, make sure that there are no electrical problems before inspecting the refrigeration cycle. Such problems include insufficient insulation, problem with the power source, malfunction of a compressor and a fan.

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 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
Heating Mode	1.5 ~ 2.1 (15 ~ 21)	36 ~ 45

★ Condition: Indoor fan speed; High
Outdoor temperature is 35°C at cooling mode and 7°C at heating mode



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

Condition of the air conditoner	Cooling Mode			Heating Mode		
	Low Pressure	High Pressure	Electric current during operation	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.

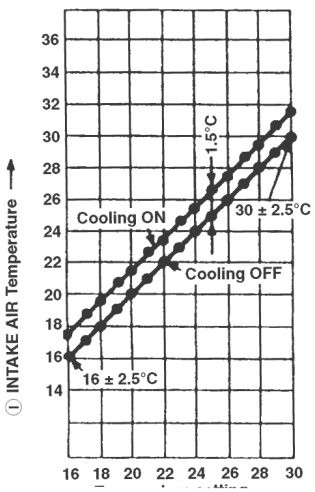
11.1.2. Diagnosis methods of a malfunction of a compressor and 4-way valve

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.
Insufficient switches of the 4-way valve	• Electric current during operation becomes approximately 80% lower than the normal value. • The temperature different between from the discharge tube to the 4-way valve and from suction tube to the 4-way valve becomes almost zero.

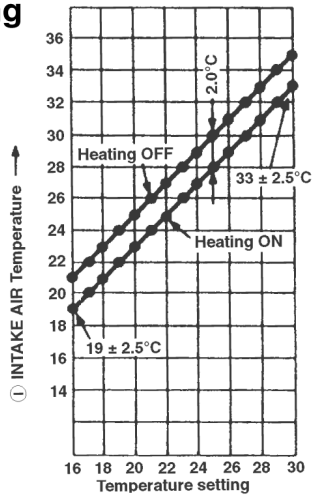
12 Technical Data

■ Thermostat characteristics

• **Cooling**



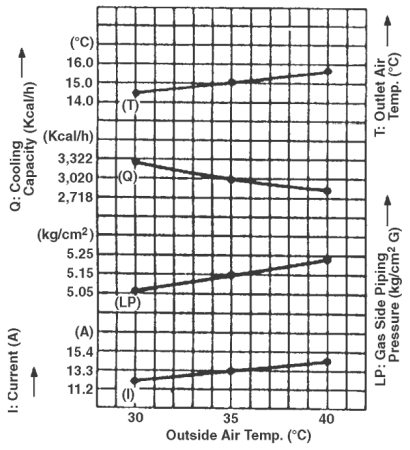
• **Heating**



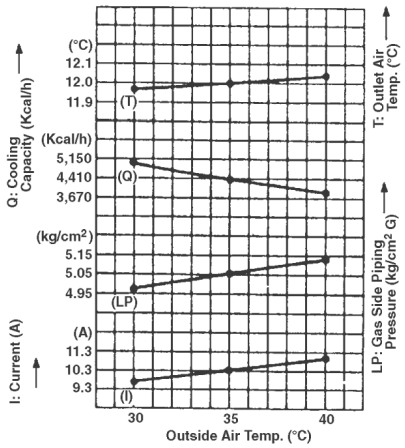
■ Operation characteristics

Cooling characteristics – Outdoor temperature
(Conditions: Room Temperature; 27°C (D.B.T)
Cooling operation; at High Fan)

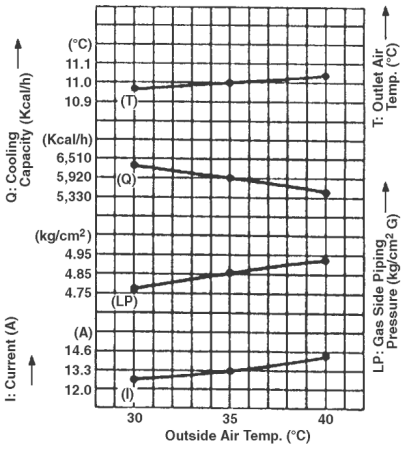
• **CS-A12ATP**



• **CS-A18ATP**

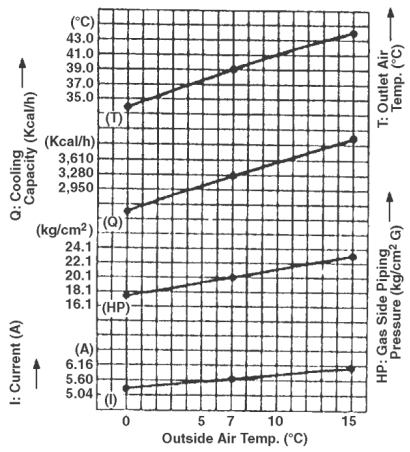


• **CS-A24ATP**

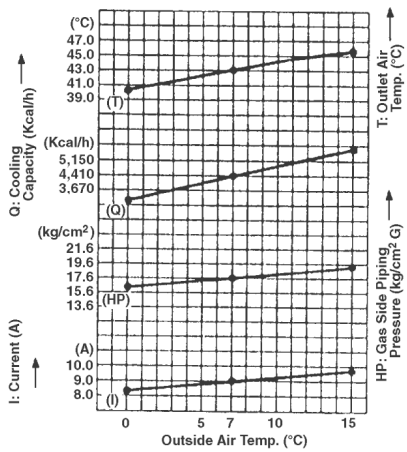


Heating characteristics – Outdoor temperature
(Conditions: Room Temperature; 27°C (D.B.T)
Heating operation; at High Fan)

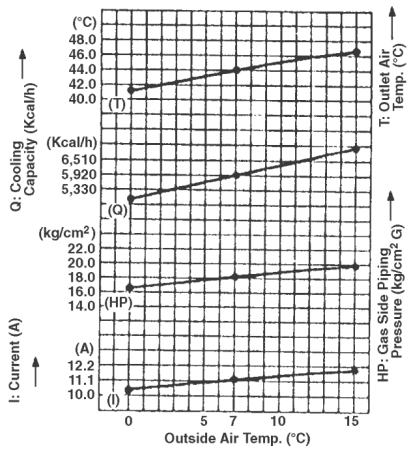
• **CS-A12ATP**



• **CS-A18ATP**



• **CS-A24ATP**



■ Sensible Capacity Chart

• CS-A12ATP5

240V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	3.37	2.56	1.19	3.15	2.45	1.28	2.93	2.36	1.37	2.67	2.24	1.48
19.0°C				3.40		1.30						
19.5°C	3.70	2.68	1.21	3.46	2.57	1.31	3.22	2.48	1.40	2.93	2.36	1.51
22.0°C	4.04	2.78	1.24	3.77	2.67	1.33	3.51	2.58	1.42	3.19	2.46	1.53

230V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	3.32	2.52	1.17	3.11	2.42	1.26	2.89	2.32	1.35	2.63	2.21	1.46
19.0°C				3.35		1.28						
19.5°C	3.65	2.64	1.19	3.41	2.53	1.29	3.17	2.44	1.37	2.88	2.32	1.48
22.0°C	3.98	2.74	1.22	3.72	2.63	1.31	3.46	2.54	1.40	3.14	2.42	1.51

220V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	3.32	2.52	1.16	3.11	2.42	1.25	2.89	2.32	1.34	2.63	2.21	1.44
19.0°C				3.35		1.27						
19.5°C	3.65	2.64	1.18	3.41	2.53	1.28	3.17	2.44	1.36	2.88	2.32	1.47
22.0°C	3.98	2.74	1.21	3.72	2.63	1.30	3.46	2.54	1.39	3.14	2.42	1.50

• CS-A18ATP5

240V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	3.37	2.56	1.19	3.15	2.45	1.28	2.93	2.36	1.37	2.67	2.24	1.48
19.0°C				3.40		1.30						
19.5°C	3.70	2.68	1.21	3.46	2.57	1.31	3.22	2.48	1.40	2.93	2.36	1.51
22.0°C	4.04	2.78	1.24	3.77	2.67	1.33	3.51	2.58	1.42	3.19	2.46	1.53

230V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	5.01	3.80	1.95	4.68	3.64	2.10	4.35	3.50	2.25	3.96	3.33	2.42
19.0°C				5.05		2.13						
19.5°C	5.50	3.98	1.99	5.14	3.82	2.14	4.78	3.68	2.29	4.35	3.50	2.47
22.0°C	5.99	4.12	2.02	5.60	3.97	2.18	5.21	3.83	2.33	4.74	3.65	2.51

220V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	5.01	3.80	1.91	4.68	3.64	2.05	4.35	3.50	2.19	3.96	3.33	2.36
19.0°C				5.05		2.08						
19.5°C	5.50	3.98	1.94	5.14	3.82	2.09	4.78	3.68	2.23	4.35	3.50	2.41
22.0°C	5.99	4.12	1.98	5.60	3.97	2.13	5.21	3.83	2.27	4.74	3.65	2.45

- **CS-A24ATP5**

240V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	3.37	2.56	1.19	3.15	2.45	1.28	2.93	2.36	1.37	2.67	2.24	1.48
19.0°C				3.40		1.30						
19.5°C	3.70	2.68	1.21	3.46	2.57	1.31	3.22	2.48	1.40	2.93	2.36	1.51
22.0°C	4.04	2.78	1.24	3.77	2.67	1.33	3.51	2.58	1.42	3.19	2.46	1.53

230V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	6.00	4.55	2.56	5.61	4.36	2.76	5.22	4.19	2.95	4.74	3.98	3.18
19.0°C				6.05		2.80						
19.5°C	6.59	4.76	2.61	6.16	4.58	2.81	5.73	4.41	3.01	5.21	4.19	3.24
22.0°C	7.18	4.94	2.66	6.71	4.75	2.86	6.24	4.58	3.06	5.67	4.37	3.30

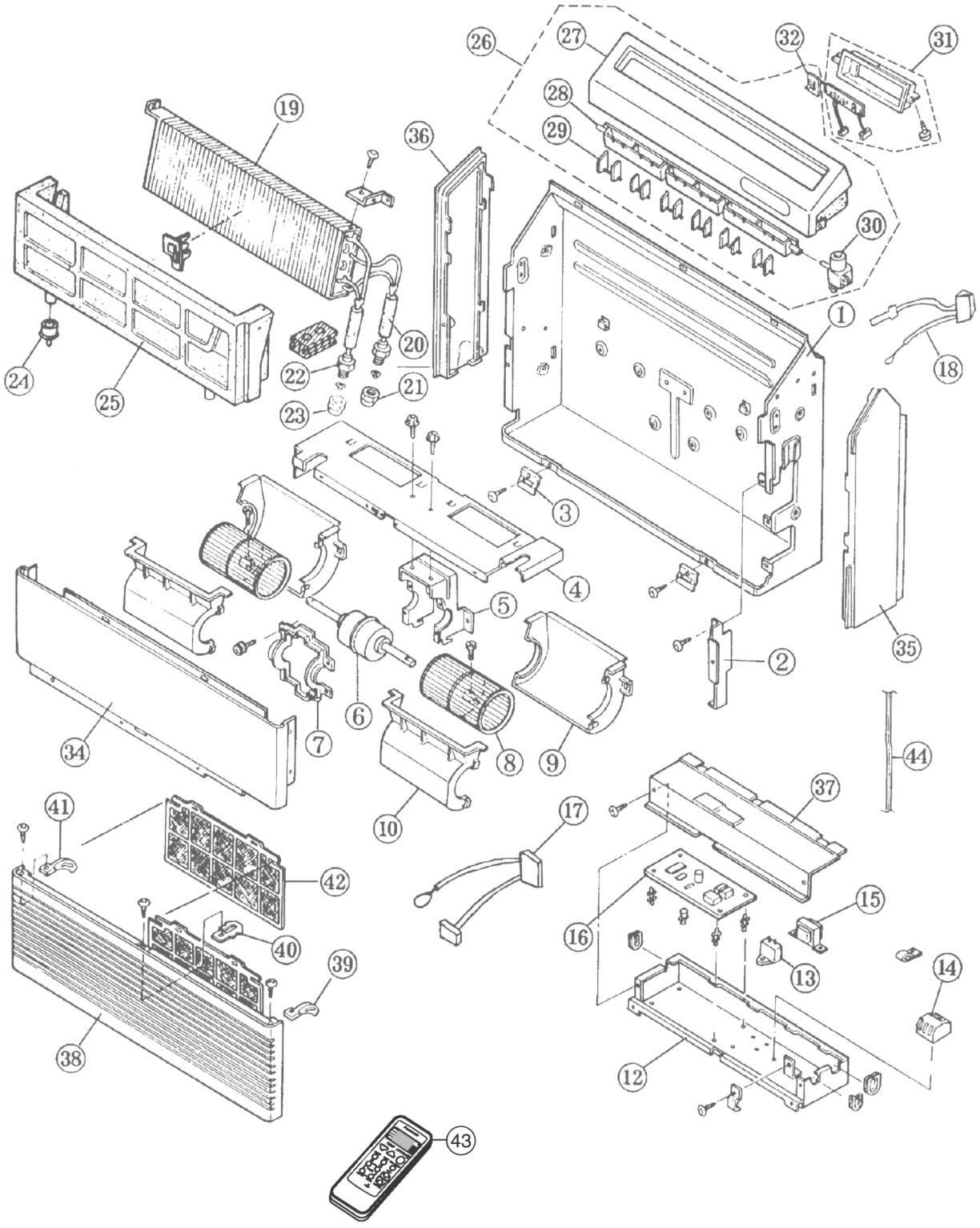
220V	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**	**TC**	**SHC**	**IP**
17.0°C	5.95	4.51	2.52	5.56	4.33	2.71	5.17	4.16	2.90	4.70	3.95	3.13
19.0°C				6.00		2.75						
19.5°C	6.53	4.72	2.57	6.11	4.54	2.76	5.68	4.37	2.95	5.17	4.16	3.18
22.0°C	7.12	4.90	2.61	6.65	4.71	2.81	6.19	4.54	3.01	5.63	4.33	3.24

TC - Total Cooling Capacity (kW)
SHC - Sensible Heat Capacity (kW)
IP - Input Power (kW)

Indoor 27°C/19°C
Outdoor 35°C/24°C

13 Exploded View

CS-A12ATP / CS-A18ATP / CS-A24ATP



14 Replacement Parts List

<Model: CS-A12ATP / CS-A18ATP / CS-A24ATP>

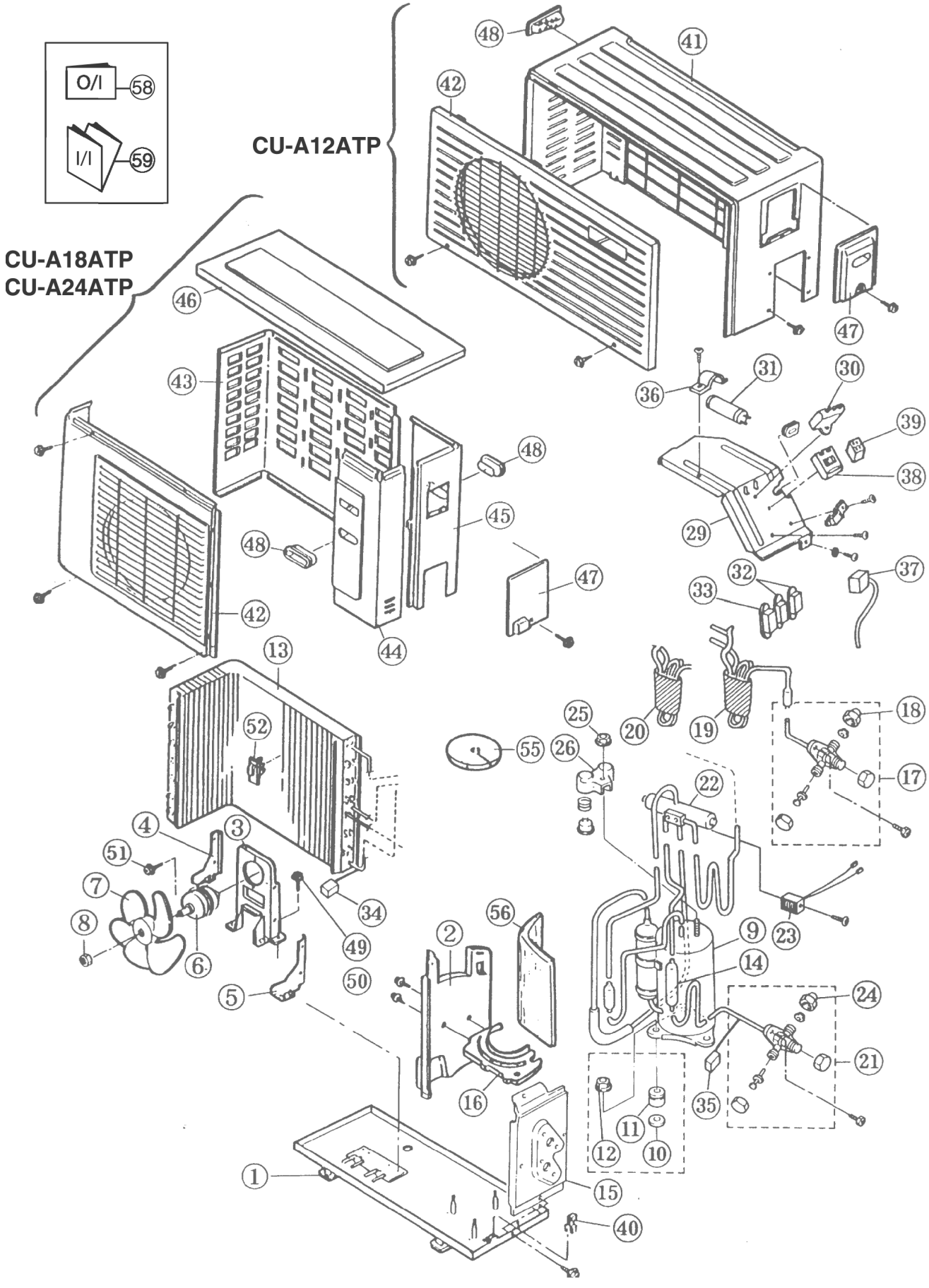
REF. NO.	PART NAME & DESCRIPTION	QTY.	CS-A12ATP5	CS-A18ATP5	CS-C24ATP5
1	BASE ASS'Y	1	CWD52K195B	←	←
2	PARTICULAR PLATE FOR BASE	1	CWD90811	←	←
3	PARTICULAR PIECE	2	CWD93592	←	←
4	PARTICULAR PLATE	1	CWD90821	←	←
5	FAN MOTOR BRACKET (BOTTOM)	1	CWD54152	←	←
6	FAN MOTOR	1	CWA921094	CWA921092	←
7	FAN MOTOR BRACKET (UPPER)	1	CWD54153	←	←
8	BLOWER WHEEL ASS'Y	2	CWH01K094	←	←
9	AIR GUIDER B.W. (BOTTOM)	2	CWD32104	←	←
10	AIR GUIDER B.W. (UPPER)	2	CWD32103	←	←
12	CONTROL BOARD ASS'Y	1	CWH10K330	←	←
13	CAPACITOR FOR FAN MOTOR	1	CWA31342 (1.2MF/400VAC)	CWA31615 (1.2MF/450VAC)	←
14	TERMINAL BOARD (BIG)	1	CWA28K1030	←	←
15	TRANSFORMER	1	CWA40C192	←	←
16	P.C. BOARD-MAIN	1	CWA742727	←	←
17	SENSOR ASS'Y (INTAKE AIR)	1	CWA50C447	←	←
18	SENSOR - EVAPORATOR PIPE	1	CWA50C534	CWA50C533	←
19	EVAPORATOR	1	CWB30428	CWB30429	CWB30430
20	TUBE ASS'Y (LIQUID SIDE)	1	CWT01494	CWT01479	←
21	FLARE NUT	1	CWH6002140 (1/4")	←	←
22	TUBE ASS'Y (GAS SIDE)	1	CWT01495	CWT01480	CWT01481
23	FLARE NUT	1	CWT25007 (1/2")	←	CWT25004 (5/8")
24	TAP DRAIN TRAY	1	CWH4612103	←	←
25	DRAIN PAN ASS'Y	1	CWH40K025	←	←
26	DISCHARGE GRILLE COMPLETE	1	CWE20C2127	←	←
27	DISCHARGE GRILLE	1	CWE20C135	←	←
28	VANE - AIR SWING	1	CWE24233A	←	←
29	VANE	12	CWE24234A	←	←
30	AIR SWING MOTOR	1	CWA98K059	←	←
31	INDICATOR	1	CWE391051	←	←
32	RECEIVER COMPLETE	1	CWD76C003	←	←
34	CABINET FRONT PLATE	1	CWE06074A	←	←
35	CABINET RIGHT SIDE PLATE	1	CWE04109	←	←
36	CABINET LEFT SIDE PLATE	1	CWE04110	←	←
37	CONTROL BOARD COVER	1	CWH13292	-	-
38	INTAKE GRILLE	1	CWE22C052	←	←
39	HOLDER - INTAKE GRILLE (RIGHT)	1	CWD93594	←	←
40	HOLDER - INTAKE GRILLE (UPPER)	1	CWD93593	←	←
41	HOLDER - INTAKE GRILLE (LEFT)	1	CWD93607	←	←
42	AIR FILTER	2	CWD00112	←	←
43	REMOTE CONTROL COMPLETE	1	CWA75C2208	←	←
44	POWER SUPPLY CORD	1	CWA20C2223	CWA20C2221	CWA20C2222

(Note)

- All parts are supplied from MACC, Malaysia (Vendor Code: 061).

15 Exploded View

CU-A12ATP / CU-A18ATP / CU-A24ATP



16 Replacement Parts List

<Model: CU-A12ATP / CU-A18ATPT / CU-A24ATPT>

REF. NO.	PART NAME & DESCRIPTION	QTY.	CU-A12ATP5	CU-A28ATPT5	CU-A24ATPT5
1	CHASSY ASS'Y	1	CWD50K550A	CWD50K514B	←
2	SOUND PROOF BOARD	1	CWH15214	CWH15223	←
3	FAN MOTOR BRACKET	1	CWD54155	CWD54145	←
4	SUPPORTOR - F.M. BRACKET (LEFT)	1	-	CWD90835	←
5	SUPPORTOR - F.M. BRACKET (RIGHT)	1	-	CWD90836	←
6	FAN MOTOR	1	CWA951151	CWA921095	CWA921093
7	PROPELLER FAN	1	CWH03K002	CWH00K049	←
8	NUT - P. FAN	1	CWH56053	CWH56060	←
9	COMPRESSOR	1	2KS224D5AA02	2JS350D3DA02	2JS442D3BA01
10	PACKING - COMP. MOUNT.	1/2	CWB81047	CWB81043 (2)	←
11	BUSHING - COMP. MOUNT.	3	CWH50055	←	←
12	NUT - COMP. MOUNT.	3	CWH4582065	←	←
13	CONDENSER	1	CWBDCC004	CWB32C177	←
14	RECEIVER	1	CWB14010	CWB14011	←
15	HOLDER - COUPLING	1	CWH35123A	CWH35113B	CWH35114B
16	GUIDER - COMP.	1	-	CWD90830	←
17	3-WAY VALVE (LIQUID SIDE)	1	CWB01380	CWB01463	←
18	FLARE NUT	1	CWH6002140 (1/4")	←	←
19	TUBE ASS'Y (STRAINER, CAPILLARY)	1	CWB11025	CWT01531	←
20	TUBE ASS'Y (CHECK VALVE, CAPILLARY)	1	CWT00C721	-	-
21	3-WAY VALVE (GAS SIDE)	1	CWB01379	CWB01364	CWB01377
22	4-WAY VALVE	1	CWB00003	←	←
23	4-WAY COIL COMPLETE	1	CWA43C2085	CWA43C2084	←
24	FLARE NUT	1	CWT25007 (1/2")	←	CWT25004 (5/8")
25	NUT - TERMINAL COVER	1	CWH7080300	←	←
26	TERMINAL COVER - COMP.	1	CWH171011	CWH171012	←
29	CONTROL BOARD	1	CWH102127	CWH10K331	←
30	CAPACITOR - F. MOTOR	1	CWA31602 (1.2MF, 400V)	DS371356CPNA (3.5MF, 400VAC)	←
31	CAPACITOR - COMP.	1	CWA312076 (30MF, 370V)	CWA312077 (35MF, 370VAC)	CWA312079 (45MF, 370VAC)
32	ELECTRO MAGNETIC SWITCH	2	CWA00059	←	←
33	ELECTRO MAGNETIC SWITCH	1	-	CWA00111	←
34	PRESSURE SWITCH	2	CWA10046	←	←
35	PRESSURE SWITCH	2	CWA10047	←	←
36	HOLDER - CAPACITOR	1	CWA30057	←	CWH30060
37	THERMOSTAT	1	-	CWA15129	←
38	TERMINAL BOARD	1	CWA28K1021	←	←
39	TERMINAL BOARD (SMALL)	1	-	CWH4711012	←
40	HOLDER - SENSOR	1	-	CWH32002	←
41	CABINET ASS'Y	1	CWE00K240B	-	-
42	CABINET FRONT PLATE	1	CWE06C050B	CWE06K024B	←
43	CABINET REAR PLATE	1	-	CWE02096B	←
44	CABINET FRONT PLATE	1	-	CWE06075B	←
45	CABINET SIDE PLATE	1	-	CWE04111B	←
46	CABINET TOP PLATE	1	-	CWE03101B	←
47	CONTROL BOARD COVER	1	CWH13C286	CWH13021D	←
48	HANDLE	1/2	CWE16037C (1)	CWE16000E (2)	←
49	SCREW - FAN MOTOR BRACKET	4/6	CWH4580399 (4)	CWH55101 (6)	←
50	SCREW - SUPPORTOR	10	-	CWH4580345	←
51	SCREW - FAN MOTOR MOUNT	2/4	CWH55027 (2)	CWH55252 (4)	←
52	HOLDER - F.M. LEAD WIRES	1	CWH31043	CWH31043	←
55	SOUND PROOF MATERIAL (COMP.)	1	-	CWG30561	←
56	SOUND PROOF MATERIAL	1	CWG30596	-	-
58	OPERATING INSTRUCTIONS	1	CWF563417	←	←
59	INSTALLATION INSTRUCTIONS	1	CWF612226 CWF612227 CWF612228	←	←

(Note)

- All parts are supplied from MACC, Malaysia (Vendor Code: 061).

17 Electronic Parts List

CWA74314

SYMBOL	DESCRIPTION & NAME	PART NO.
BZ	BUZZER	A48039
D1, D2, D3, D4, D5	DIODE	A54MA165TA5
D6	DIODE	A54RA15-01KB
DB1	DIODE BRIDGE	A54CS1VB20E
FUSE	FUSE	XBA2C20TR0
IC1	INTEGRATED CIRCUIT	A52D7533U313
IC2	INTEGRATED CIRCUIT	A54MN1551ABA
IC3	INTEGRATED CIRCUIT	A52MPC393C
IC4	INTEGRATED CIRCUIT	A52MPA2003C
IC5	INTEGRATED CIRCUIT	A52M54566P
IC6	INTEGRATED CIRCUIT	A52C057
IC7	INTEGRATED CIRCUIT	A52LQT50.5X1
IC8	INTEGRATED CIRCUIT	A52C057
PC1	PHOTO COUPLER	A52LP620-GB
Q1	TRANSISTOR	A55DTD1234EST
Q2, Q3	TRANSISTOR	A55C1740STPQ
Q4	TRANSISTOR	A55DTC123YST
RY-C	RELAY	A00042
RY-H, RY-M, RY-L, RY-HOT	RELAY	A00084
X1	RESONATOR	A45CSB400P19
X2	RESONATOR	A45ST4.0MGWT
ZD1	ZENAR DIODE	A54D6.2EL2TB
ZNR1	ZNR	A54C057

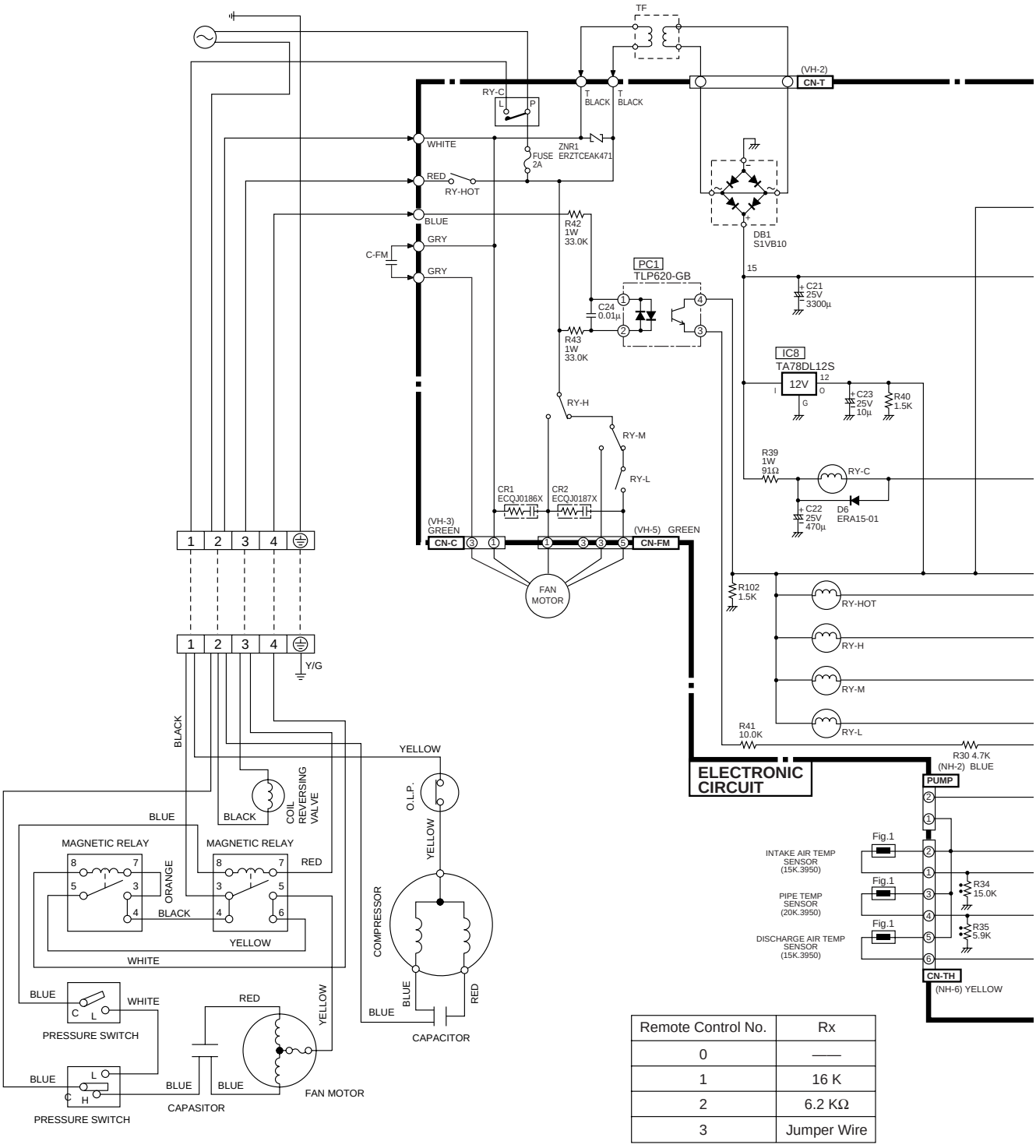
(Note)

- All parts are supplied from MACC, Malaysia (Vendor Code: 086)

18 Electronic Circuit Diagram

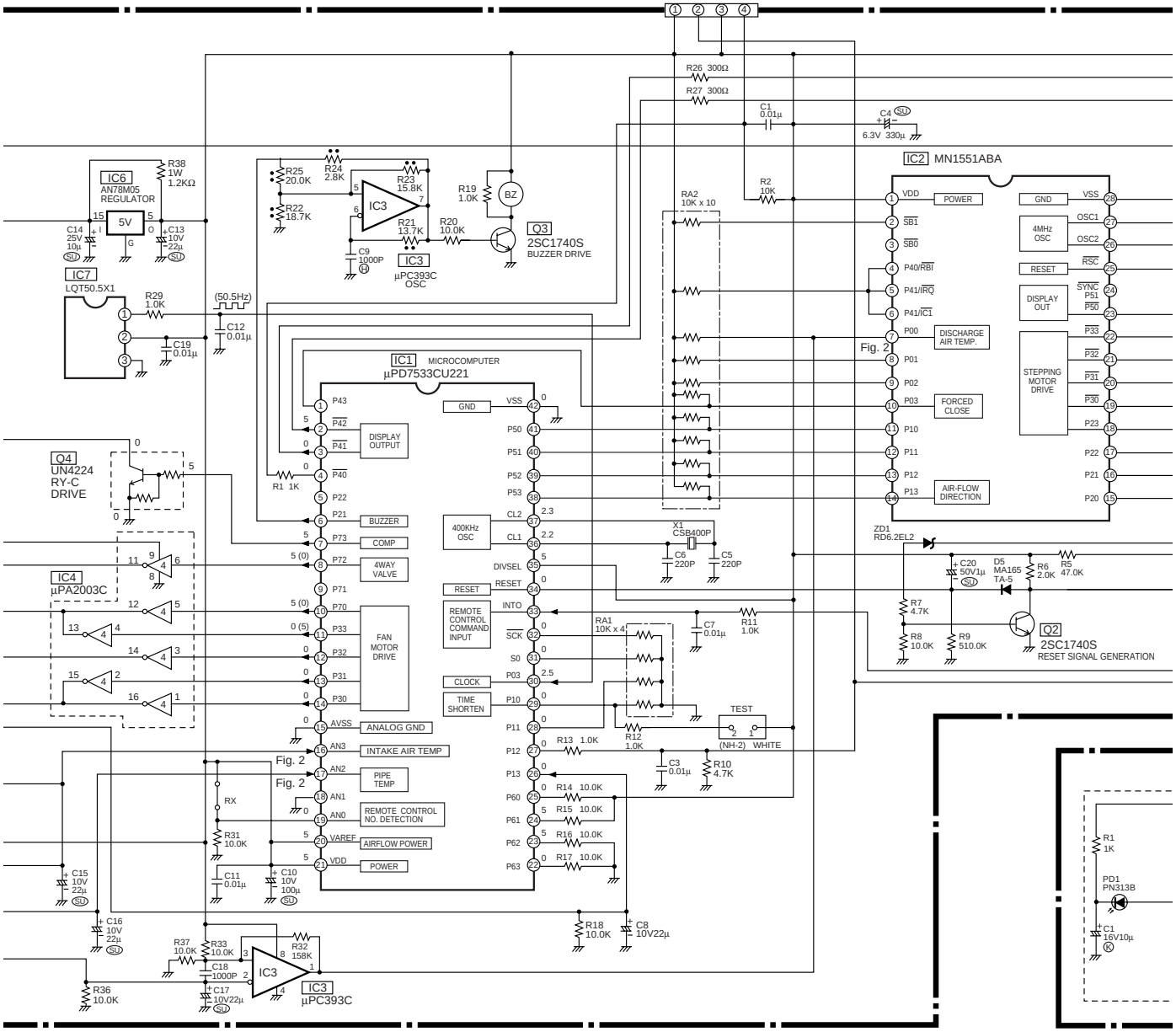
• CS-C12ATP / CU-C12ATP

SCHEMATIC DIAGRAM 1/3



Remote Control No.	Rx
0	——
1	16 K
2	6.2 KΩ
3	Jumper Wire

SCHEMATIC DIAGRAM 2/3



SCHEMATIC DIAGRAM 3/3

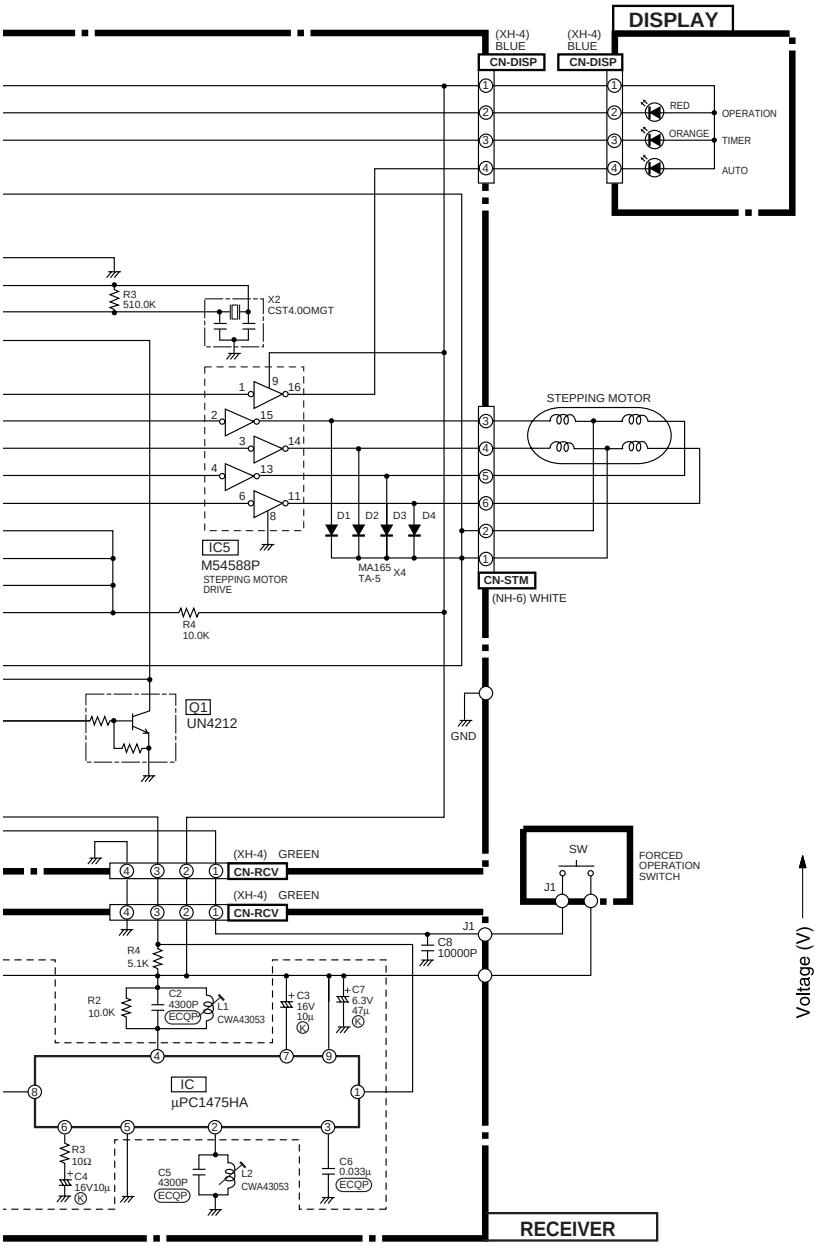


Fig. 1

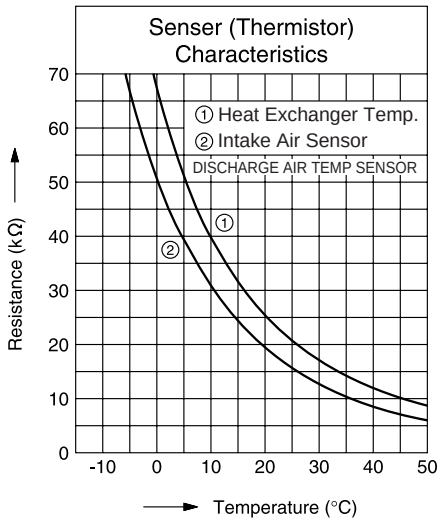
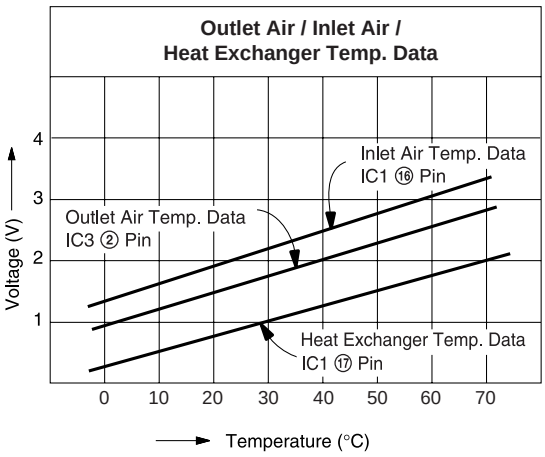
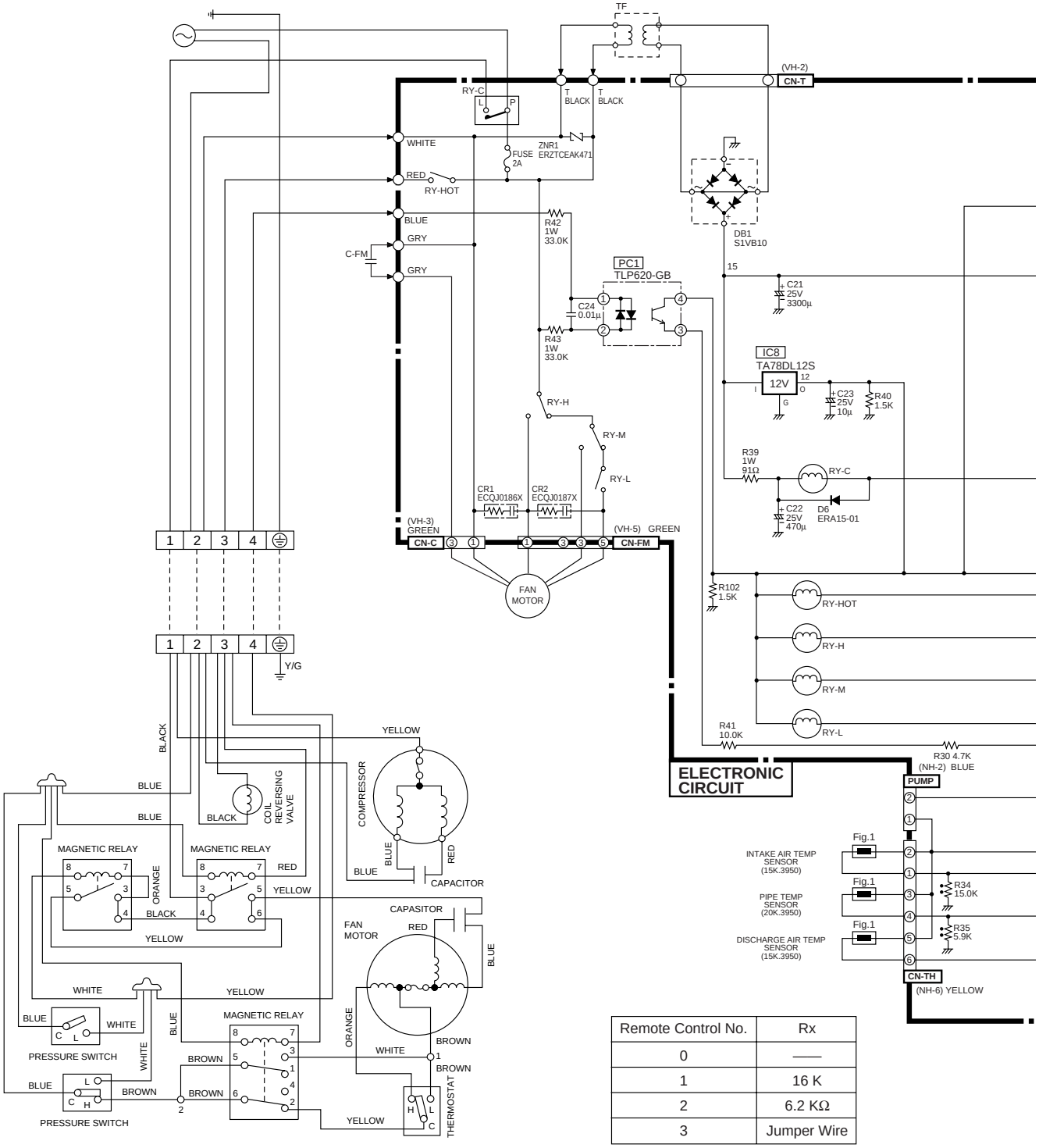


Fig. 2



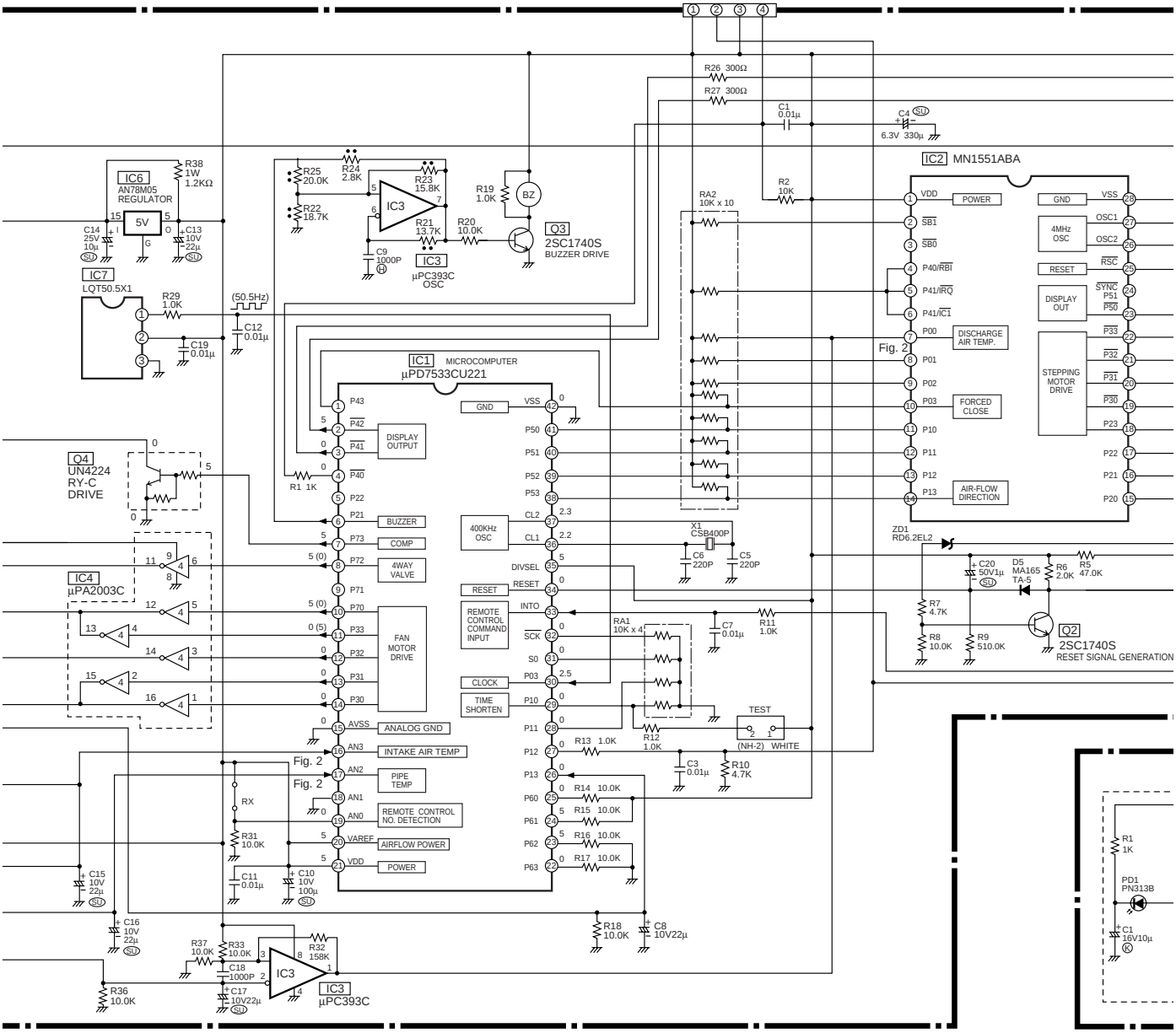
- **CS-A18ATP / CU-A18ATPT**
- **CS-A24ATP / CU-A24ATPT**

SCHEMATIC DIAGRAM 1/3



Remote Control No.	Rx
0	——
1	16 K
2	6.2 KΩ
3	Jumper Wire

SCHEMATIC DIAGRAM 2/3



SCHEMATIC DIAGRAM 3/3

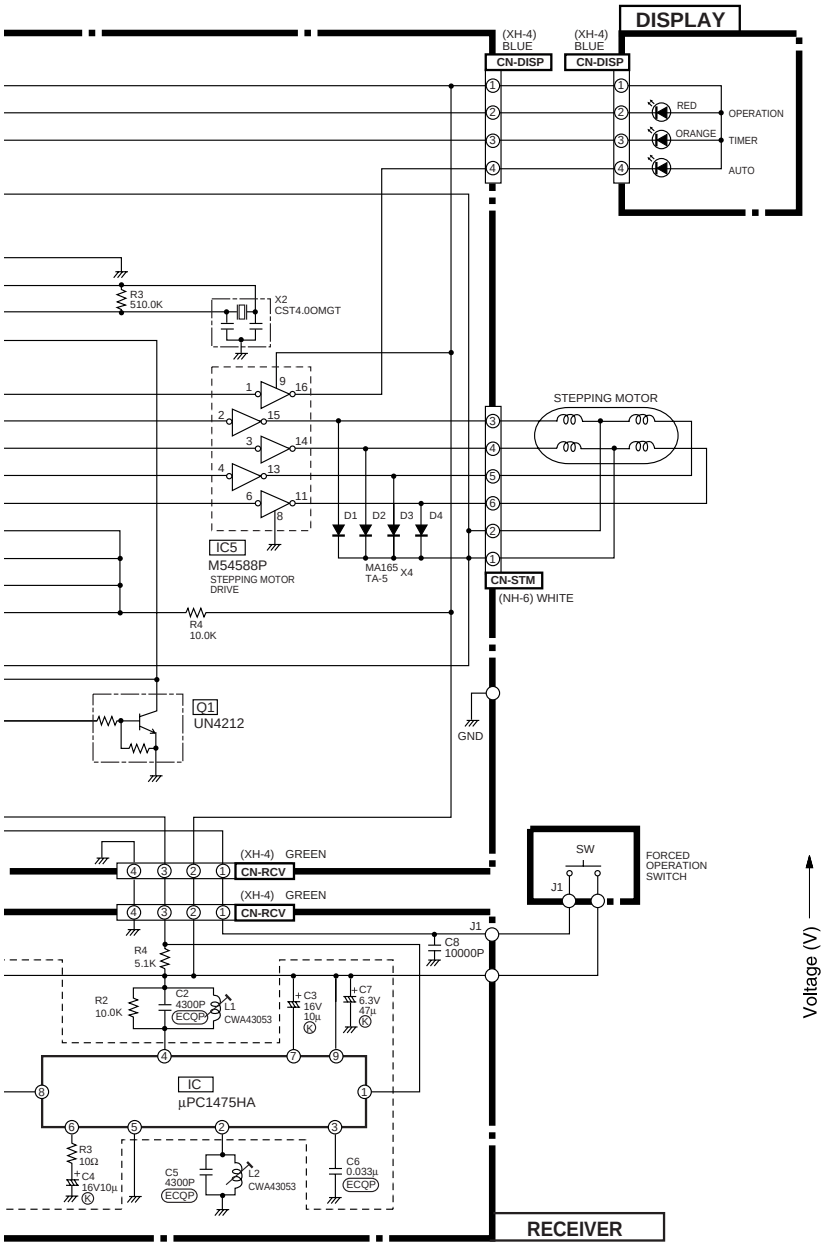


Fig. 1

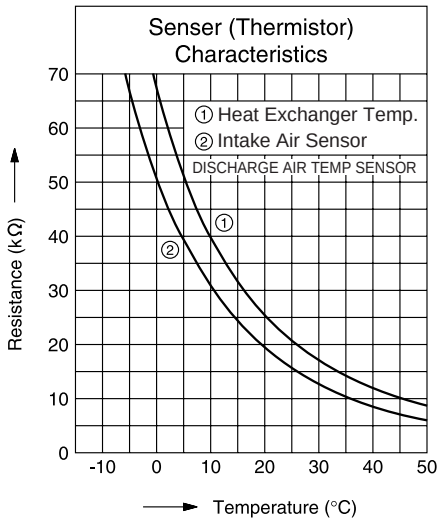
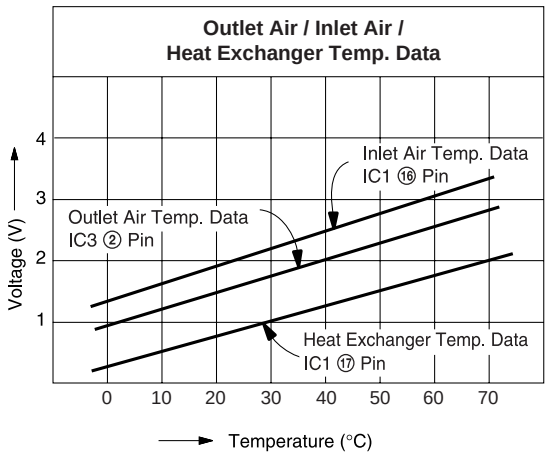


Fig. 2



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	20°C	17°C	15°C

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

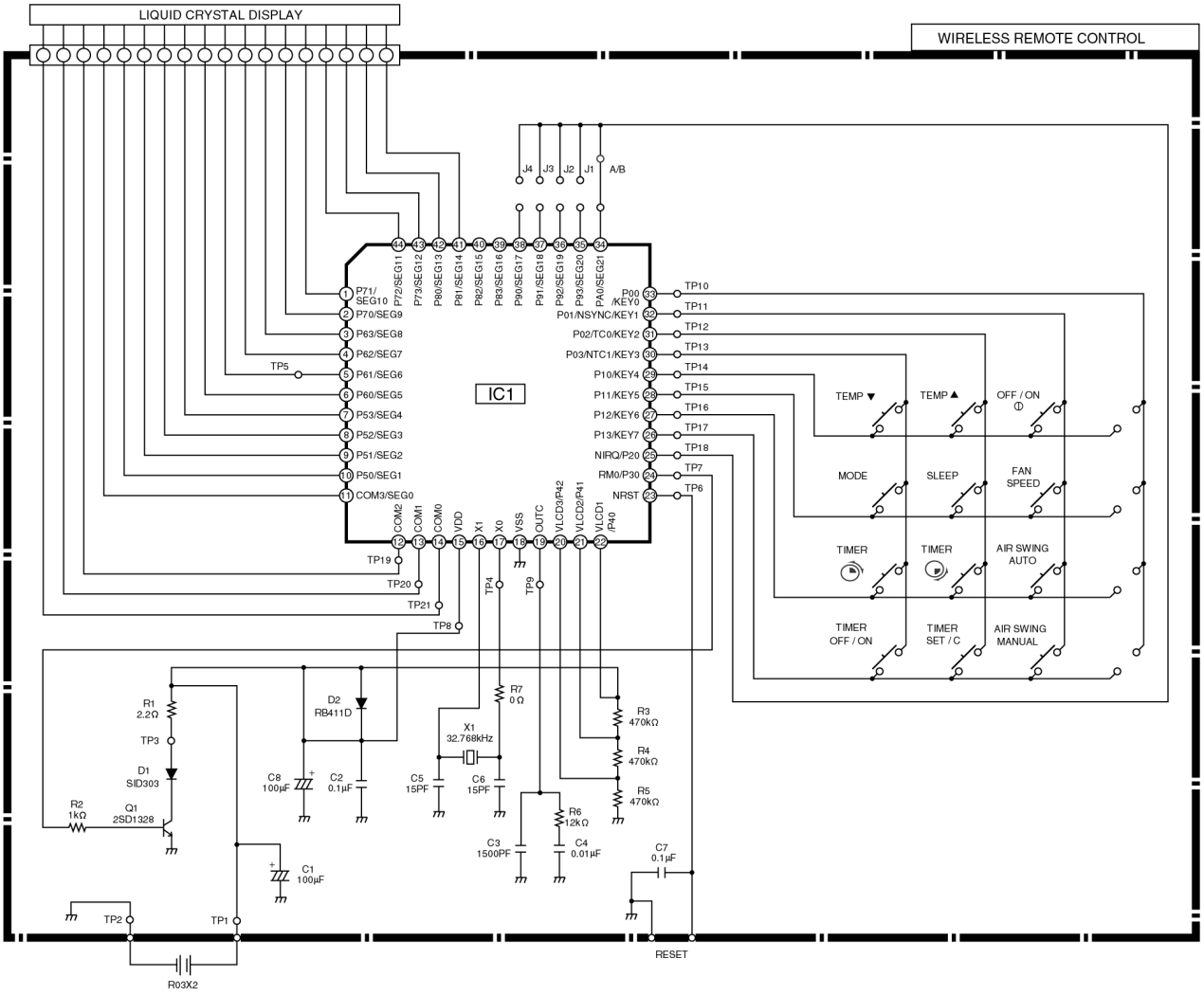
* Indications for capacitor
  a. Unit μ....μF P....pF
  b. Type Not indicated....ceramic capacitor
  (S).....S series aluminium electrolytic capacitor
  (Z).....Z series aluminium electrolytic capacitor
  (SU).....SU series aluminium electrolytic capacitor
  (P).....P series polyester system
  (SXE).....SXE 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
Time Delay Safety Control	2 min. 58 sec.	0 sec.	
Circuit Protection Control	30 sec.	0 sec.	
Starting Current Control	1.6 sec.	0 sec.	
Automatic Restarting Control	7 min.	7 min.	Sleep Mode
	5 min.	5 min.	
Timer	12 hrs.	12 min.	
	11 hrs.	11 min.	
	10 hrs.	10 min.	
	9 hrs.	9 min.	
	8 hrs.	8 min.	
	7 hrs.	7 min.	
	6 hrs.	6 min.	
	5 hrs.	5 min.	
	4 hrs.	4 min.	
	3 hrs.	4 min.	
	2 hrs.	2 min.	
	1 hr.	1 min.	
Sleep Mode Auto Control	10 min.	10 sec.	ON Time
	20 min.	20 sec.	OFF Time
	5 hrs.	5 min.	
Soft Dry	4 sec.	4 sec.	ON/OFF
	10 min.	1 min.	ON
	6 min.	6 min.	OFF
Anti Freezing Control	3 min.	18 sec.	

18.1. REMOTE CONTROL

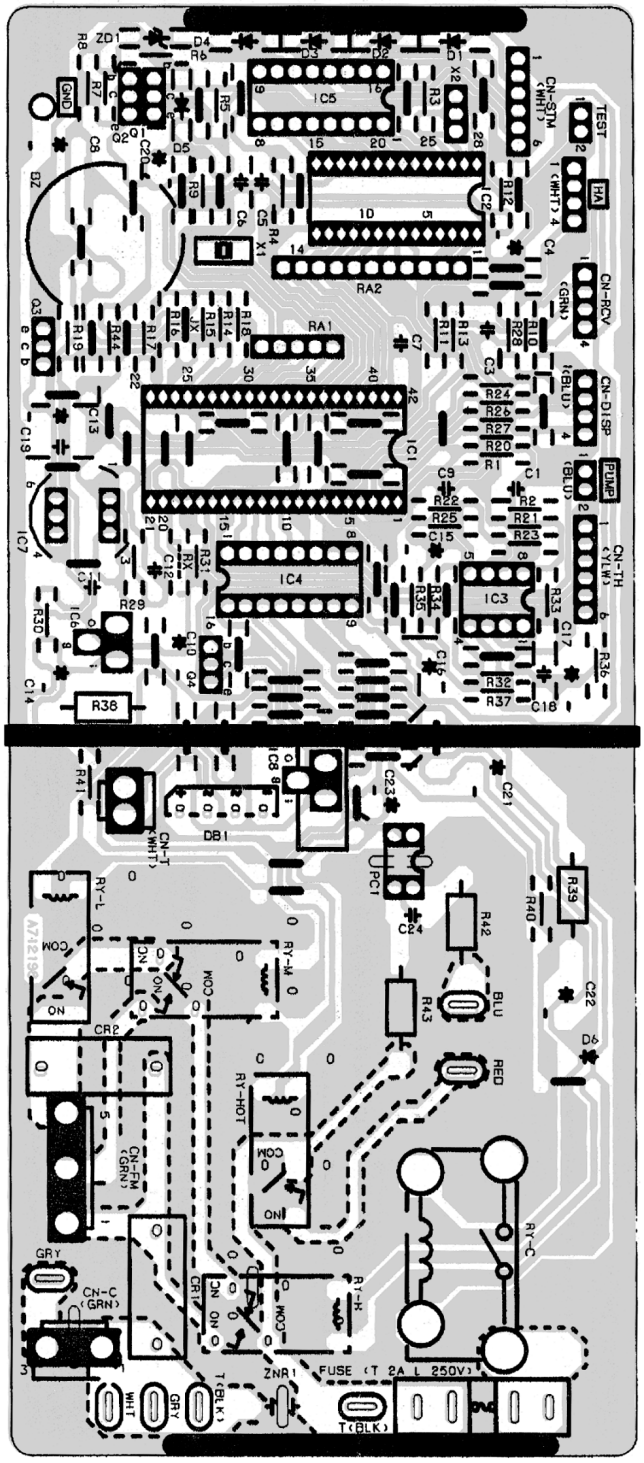


Remote Control No.	Main P.C.B.
	RX
0	——
1	16kΩ
2	6.2kΩ
3	Jumper

Remote Control No.	A/B	J1	Remarks
0	ON	OFF	at Delivery
1	OFF	OFF	
2	ON	ON	
3	OFF	ON	

18.2. PRINT PATTERN
INDOOR UNIT PRINTED CIRCUIT BOARD

TOP VIEW



BOTTOM VIEW