

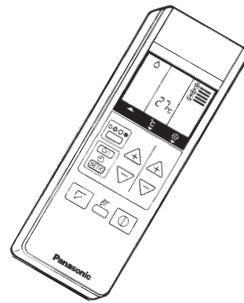
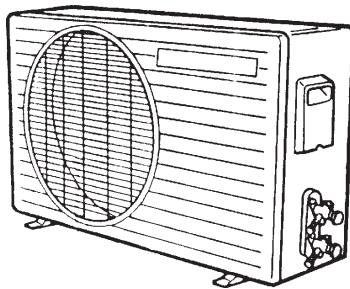
Service Manual

Room Air Conditioners

CS-A120TE / CU-A120TE

CS-A180TE / CU-A180TE

CS-A240TE / CU-A240TE



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Panasonic

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 **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.



Functions

Remote-control Transmitter



Remote Control

Operation START/STOP



Operation Mode Selection

- Automatic Operation Mode
- Cooling Operation Mode
- Soft Dry Operation Mode
- Heating Operation Mode

Indoor Fan Speed Selection / Time Setting

- High Speed / up to 12
- Medium Speed / up to 1
- Low Speed

Room Temperature Setting / Time Setting

- Temperature Setting (20°C to 30°C)
- (higher), (standard), (lower) ...Automatic Operation
- / up to 12
- up to 1

○/I Timer Operation Selection

- ON/OFF Dual Timer Setting

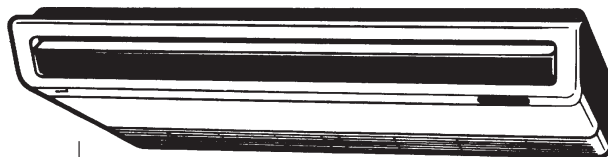
SET/C Timer Operation Set/Cancel

- Set/Cancel the selected Timer Operation

Airflow Direction Control

- Airflow Direction Manual Control
- Automatic Airflow Direction Control

Indoor Unit



Power Switch OFF/ON

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 approx. 3 minutes

Circuit Protection Control

- 30 seconds forced operation of the compressor

Indoor Fan Speed Control

- High, Med, Low

Operation Indication Lamps (LED)

- ① (green) Lights up in operation
- ▽ (red) Automatic Airflow Direction in operation
- ⊖ (orange) Timer in operation

Soft Dry Operation Mode

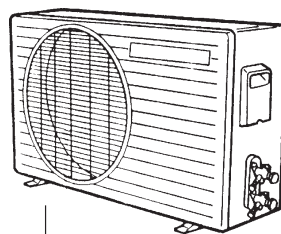
- Intermittent operation of Fan at low speed

Room Temperature Control

- Maintains the room temperature accordance with the Setting Temp.

Functions

Outdoor Unit



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

- Selects 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

Overload Protection

30sec. Forced Operation Control

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



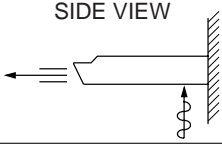
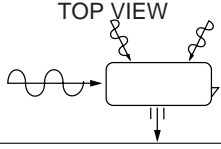
Anti-freezing Control For The Evaporator

- 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

Product Specifications



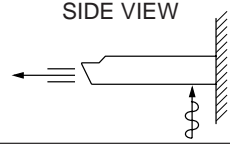
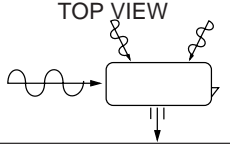
		Unit	CS-A120TE	CU-A120TE	
Cooling Capacity		kW Btu/h	3.40 - 3.35 11,600 - 11,400		
Heating Capacity		kW Btu/h	4.10 - 4.00 13,900 - 13,600		
Moisture Removal		ℓ/h Pint/h	2.0 4.2		
Power Source		Phase V Cycle	Single 240 - 220 50		
Airflow Method		OUTLET  INTAKE 	SIDE VIEW 	TOP VIEW 	
Air Volume	Indoor Air (Lo)	m³/min (cfm)	8.9 (314)	-	
	Indoor Air (Me)	m³/min (cfm)	9.6 (339)	-	
	Indoor Air (Hi)	m³/min (cfm)	10.0 (350)	-	
Noise Level		dB (A)	Cooling ; High 46/45, Low 42/41 Heating ; High 46/45, Low 42/41	Cooling ; High 47/46 Heating ; High 47/46	
Electrical Data	Input	kW	Cooling ; 1.30 - 1.27 Heating ; 1.35 - 1.27		
	Running Current	A	Cooling ; 5.8 - 6.0 Heating ; 6.1 - 6.0		
	COP	W/W	Cooling ; 2.6 - 2.6 Heating ; 3.0 - 3.1		
	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	Inner diameter	mm	20	-	
Hose	Length	m	2	-	
Power Cord Length		m	2.3	-	
Number of core-wire		m	3 (1.0mm²)	-	
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)	89 (40)	
Compressor	Type		-	Rotary (1 cylinder) rolling piston type	
	Motor Type		-	Induction (2-pole)	
	Rated Output	W	-	1,100	
Air Circulation	Type		SIROCCO	Propeller Fan	
	Material		STYLAC 181	AES + Glass Fiber 12%	
	Motor Type		Induction (4-pole)	Induction (6-pole)	
	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	

Product Specifications

		Unit	CS-A120TE	CU-A120TE
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)	
	FPI		1 × 10	2 × 19
	Size (W × H × L)	mm	21	16
			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			–	Overloaded 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		P.P.	–
	Style		Honeycomb	
Capacity Control			Capillary Tube	
Compressor Capacitor		μF, VAC	–	30 μF, 370VAC
Fan Motor Capacitor		μF, VAC	1.2 μF, 400VAC	1.2 μF, 400VAC

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

Product Specifications



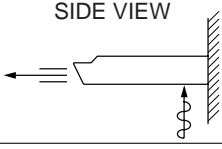
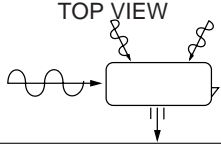
		Unit	CS-A180TE	CU-A180TE	
Cooling Capacity		kW Btu/h	5.10 - 5.05 17,400 - 17,200		
Heating Capacity		kW Btu/h	5.45 - 5.35 18,600 - 18,200		
Moisture Removal		ℓ/h Pint/h	2.8 5.9		
Power Source		Phase V Cycle	Single 240 - 220 50		
Airflow Method		OUTLET  INTAKE 			
Air Volume	Indoor Air (Lo)	m ³ /min (cfm)	10.0 (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 51/50, Low 46/44 Heating ; High 52/51, Low 46/45	Cooling ; High 56/53 Heating ; High 57/55	
Electrical Data	Input	kW	Cooling ; 2.19 - 2.08 Heating ; 2.04 - 1.90		
	Running Current	A	Cooling ; 10.7 - 10.3 Heating ; 9.9 - 9.4		
	COP	W/W	Cooling ; 2.3 - 2.4 Heating ; 2.7 - 2.8		
	Starting Current	A	52		
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	2	-	
Power Cord Length		m	2.3	-	
	Number of core-wire	m	3 (1.5mm ²)	-	
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)	133 (60)	
Compressor	Type		-	Rotary (1 cylinder) rolling piston type	
	Motor Type		-	Induction (2-pole)	
	Rated Output	W	-	1,700	
Air Circulation	Type		SIROCCO	Propeller Fan	
	Material		STYLAC 181	CE10G15 JSR	
	Motor Type		Induction (4-pole)	Induction (4-pole)	
	Input	W	67.7	120.5 (High)	
	Rated Output	W	40	65	
	Fan Speed	Low	rpm	1,170	545
		Medium	rpm	1,250	-
High		rpm	1,340	880	

Product Specifications

		Unit	CS-A180TE	CU-A180TE
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)	
	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 (400)
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		P.P.	–
	Style		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

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

Product Specifications

		Unit	CS-A240TE	CU-A240TE	
Cooling Capacity		kW Btu/h	6.10 - 6.00 20,800 - 20,400		
Heating Capacity		kW Btu/h	6.20 - 6.00 21,100 - 20,400		
Moisture Removal		ℓ/h Pint/h	3.4 7.2		
Power Source		Phase V Cycle	Single 240 - 220 50		
Airflow Method		OUTLET  INTAKE 	SIDE VIEW 	TOP VIEW 	
Air Volume	Indoor Air (Lo)	m ³ /min (cfm)	10.5 (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 52/51, Low 47/45 Heating ; High 52/51, Low 47/45	Cooling ; High 59/57 Heating ; High 60/58	
Electrical Data	Input	kW	Cooling ; 2.89 - 2.75 Heating ; 2.62 - 2.40		
	Running Current	A	Cooling ; 13.6 - 13.3 Heating ; 12.5 - 11.7		
	COP	W/W	Cooling ; 2.1 - 2.2 Heating ; 2.4 - 2.5		
	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	Inner diameter	mm	20	-	
Hose	Length	m	2	-	
Power Cord Length			2.3	-	
Number of core-wire		m	3 (2.5mm ²)	-	
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)	140 (62)	
Compressor	Type		-	Rotary (1 cylinder) rolling piston type	
	Motor Type		-	Induction (2-pole)	
	Rated Output	W	-	2,200	
Air Circulation	Type		SIROCCO	Propeller Fan	
	Material		STYLAC 181	CE10G15 JSR	
	Motor Type		Induction (4-pole)	Induction (4-pole)	
	Input	W	67.7	141.7 (High)	
	Rated Output	W	40	80	
	Fan Speed	Low	rpm	1,170	620
		Medium	rpm	1,250	-
High		rpm	1,340	985	

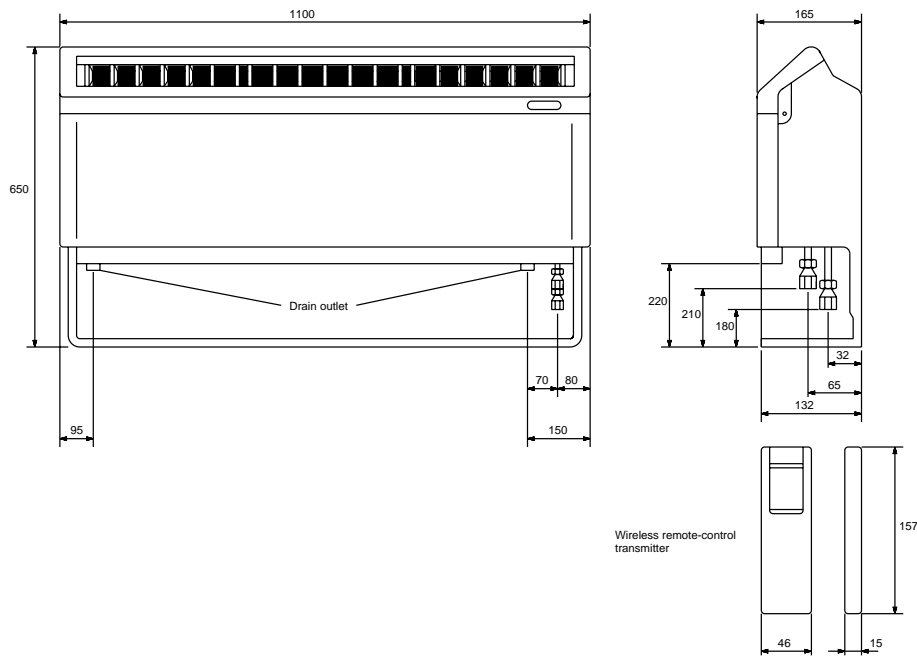
Product Specifications

		Unit	CS-A240TE	CU-A240TE
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)	
	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		P.P.	–
	Style		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

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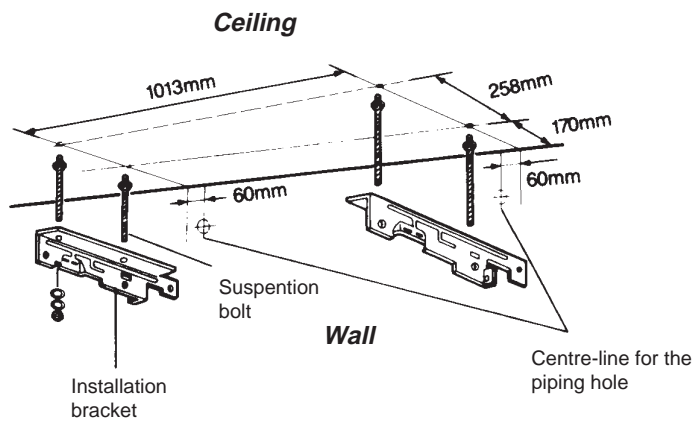
Dimensions

CS-A120T
CS-A180T
CS-A240T

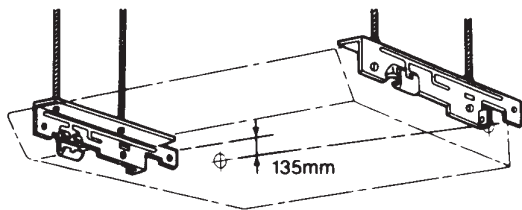


Relative Position Between The Indoor Unit And The Installation Parts

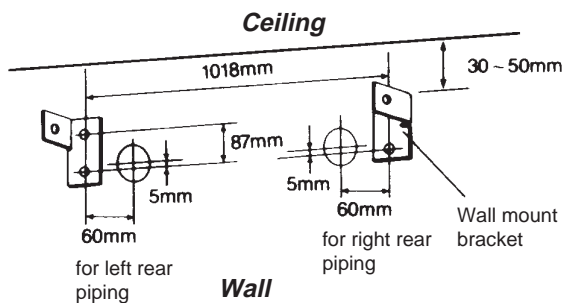
<Installation on the Ceiling>



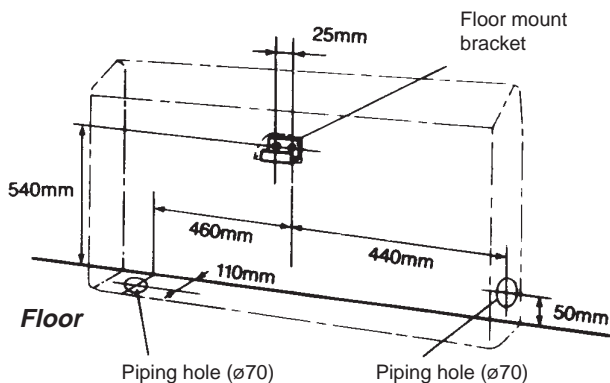
Relative position between the hole and the bracket



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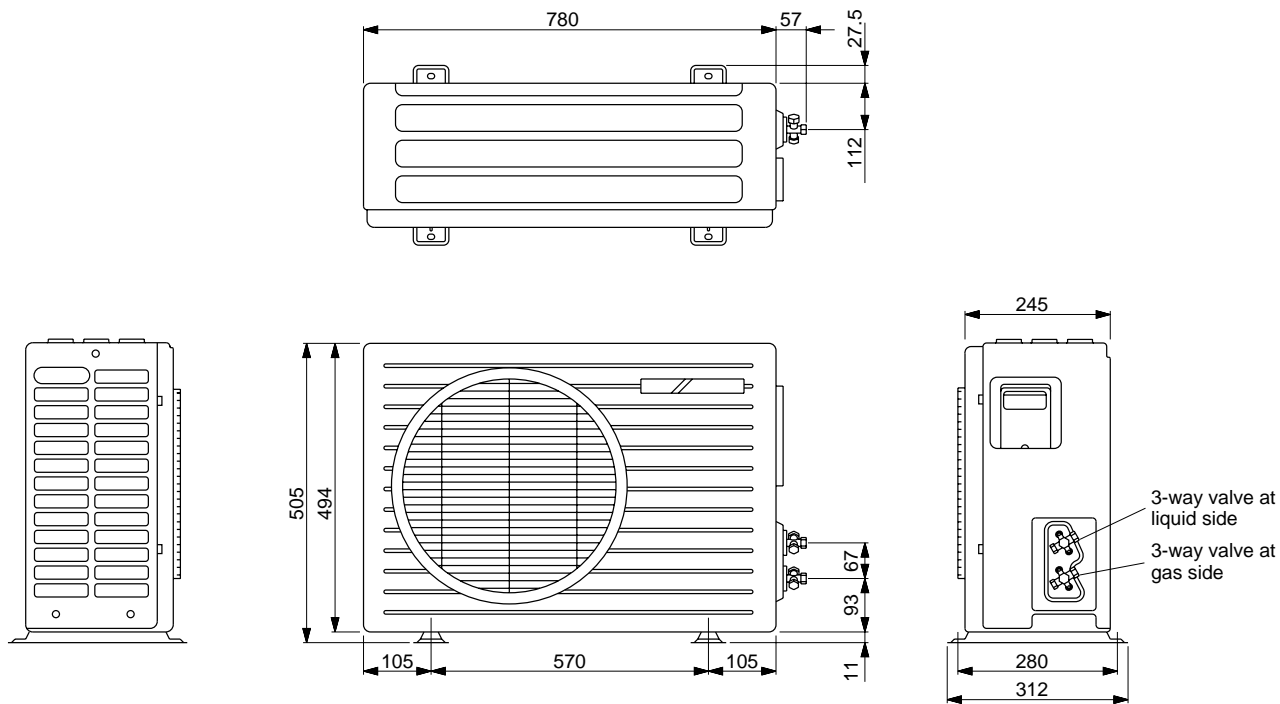


<Installation on the Floor>

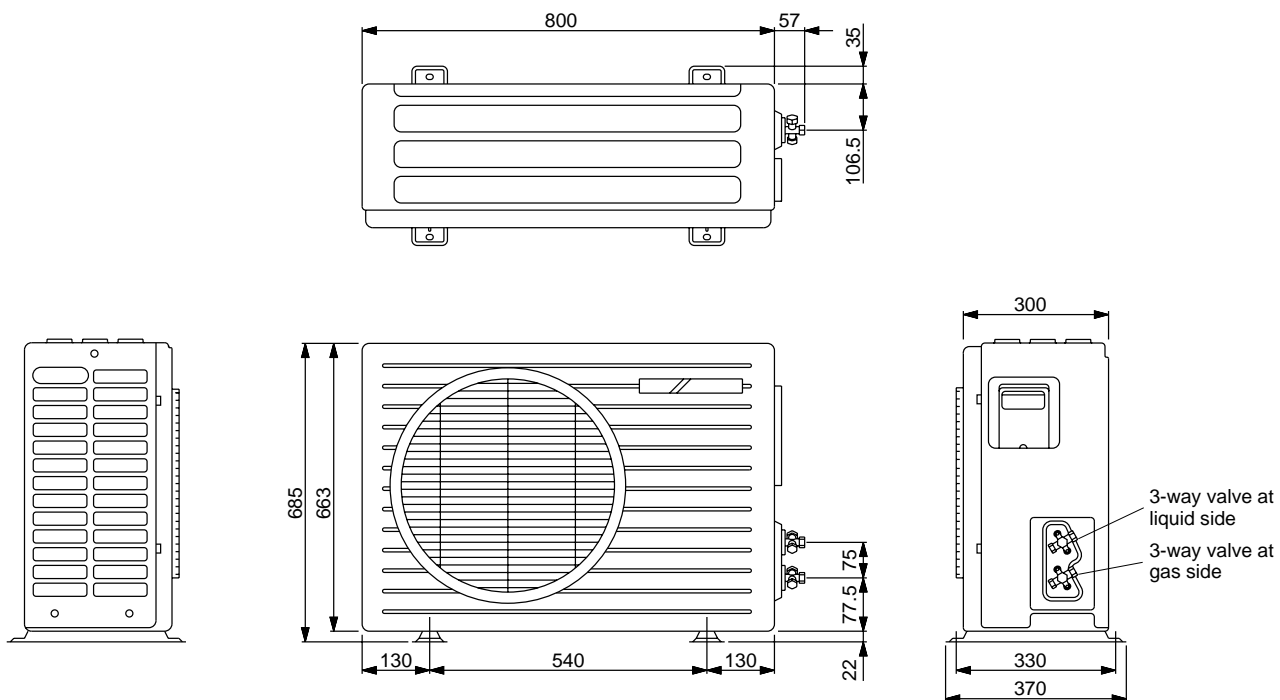


Dimensions

CU-A120T

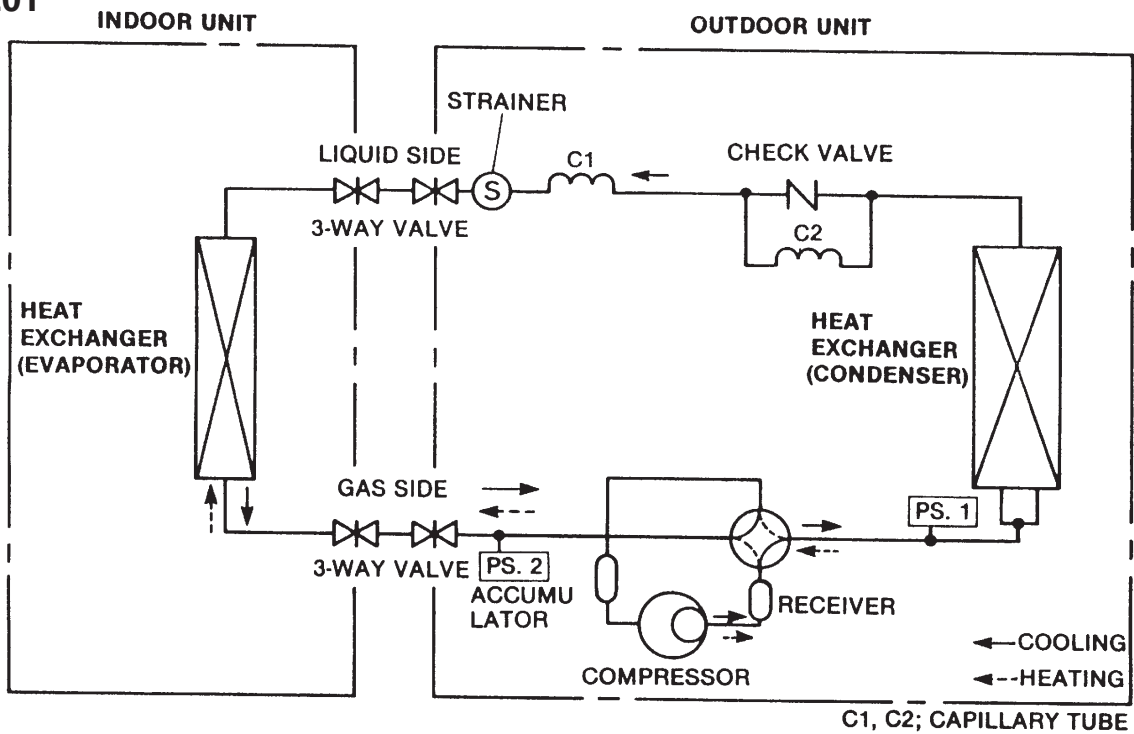


CU-A180T CU-A240T

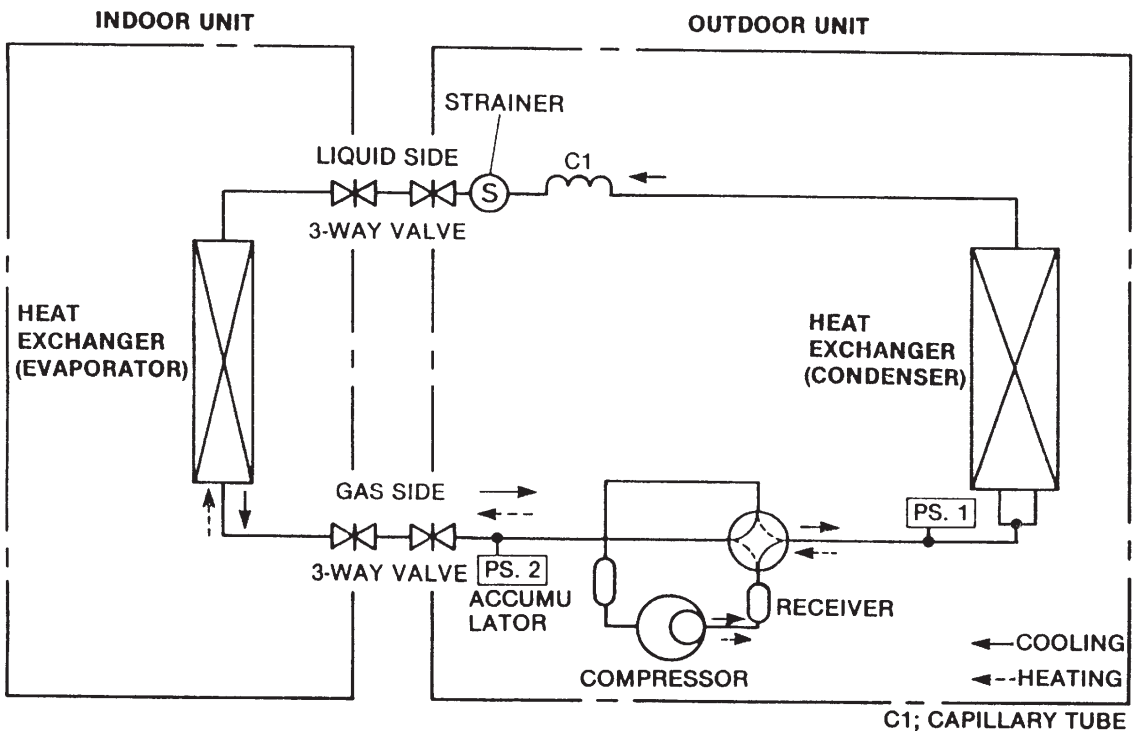


Refrigeration Cycle Diagram

CS-A120T



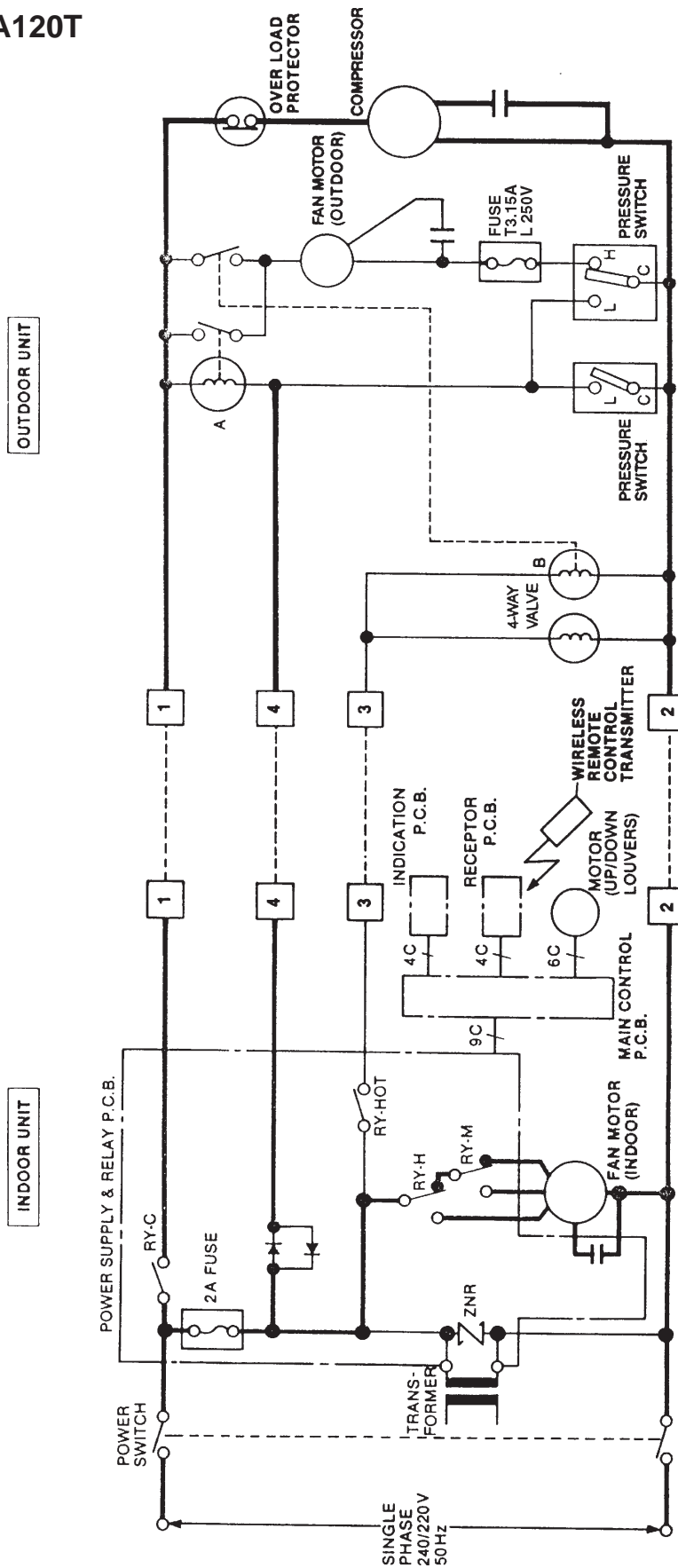
CS-A180T/CS-240T



Model	Pipe Size		Max. Piping Length (m)	Max. Elevation (m)
	GAS	LIQUID		
A120T	1/2"	1/4"	12	5
A180T	1/2"	1/4"	15	8
A240T	5/8"	1/4"	15	8

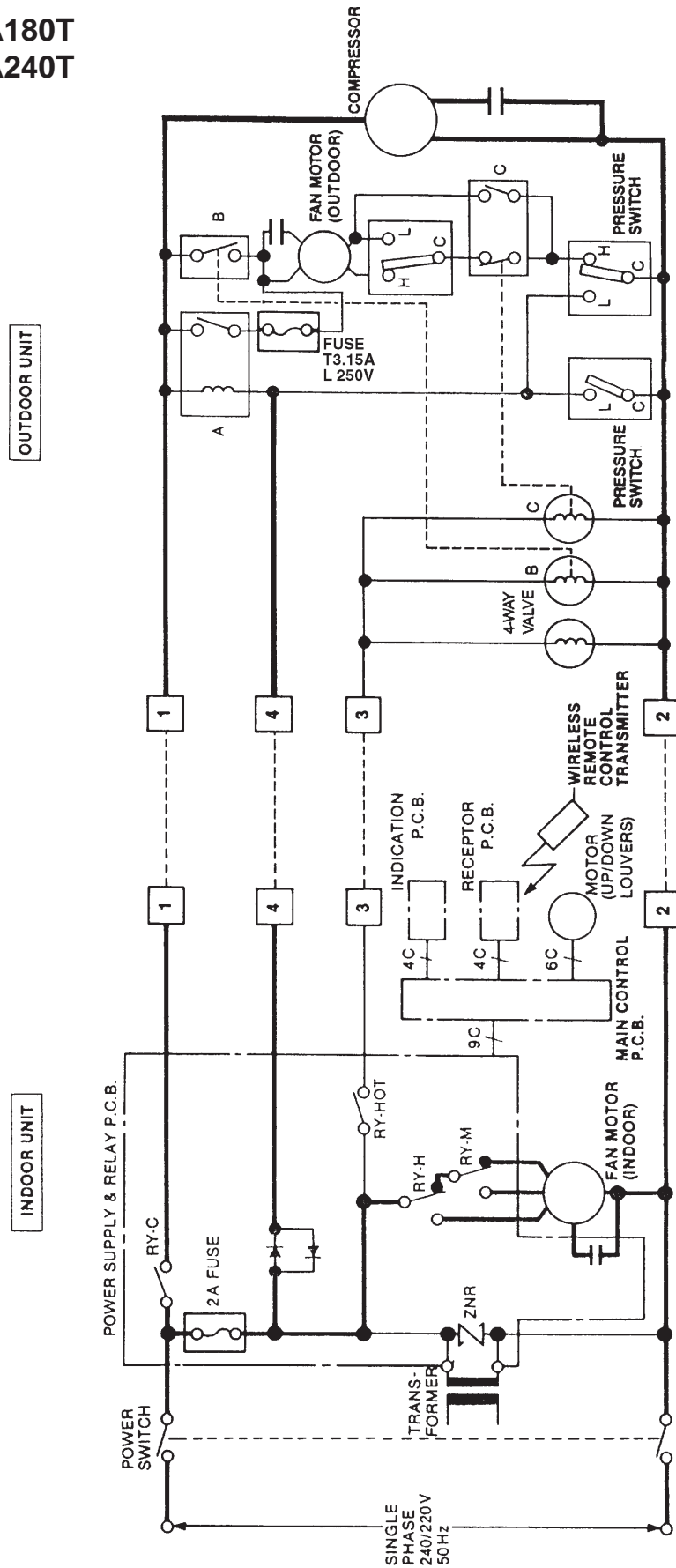
Block Diagram

CS-A120T/CU-A120T



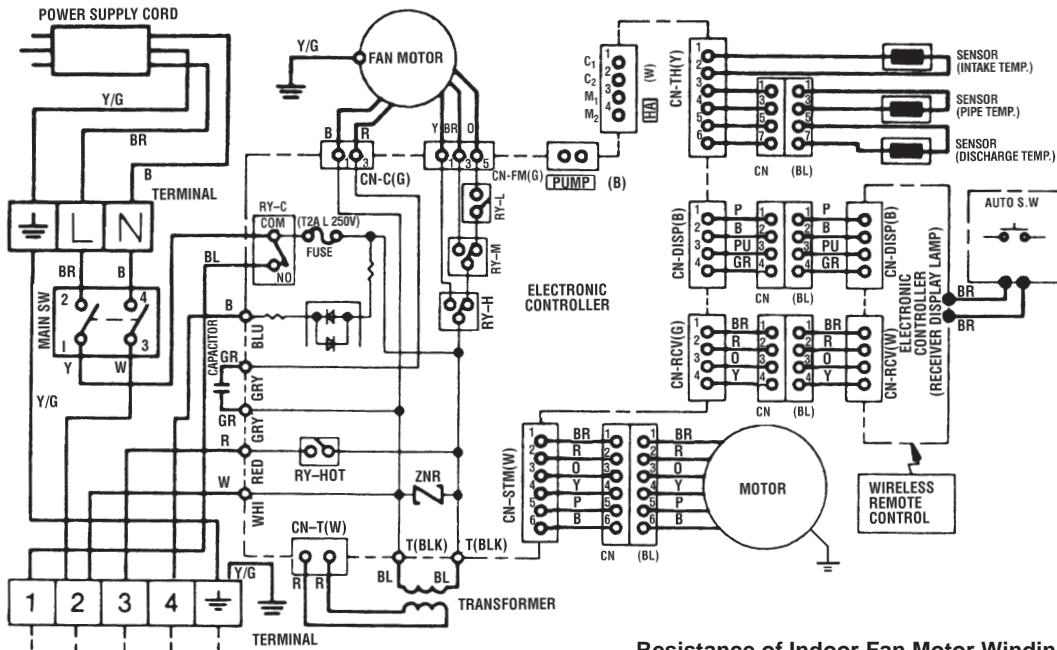
Block Diagram

CS-A180T/CU-A180T
 CS-A240T/CU-A240T



Wiring Diagram

CS-A180T/CU-A180T
CS-A240T/CU-A240T

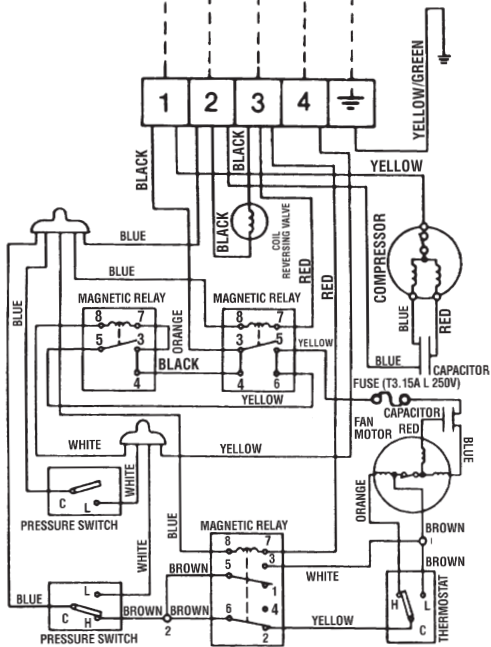


Resistance of Indoor Fan Motor Windings.

CONNECTION	CWA92139(Ω)
BLUE - YELLOW	122.7
YELLOW - BROWN	87.0
BROWN - ORANGE	45.3
RED - ORANGE	193.0

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

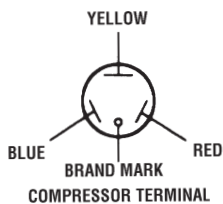


Resistance of Outdoor Fan Motor Windings.

CONNECTION	CWA92176(Ω)	CWA92177(Ω)
BLUE - BROWN	83.4	62.5
BROWN - ORANGE	67.3	60.2
RED - BROWN	66.5	69.0

Resistance of Comp Windings.

CONNECTION	2JS356D3BA01(Ω)	2JS442D3BA01(Ω)
C-R	0.97	0.95
C-S	3.92	4.39



* Resistance at 20°C of Ambient temp.

Operation Details

1) Cooling Mode Operation

When selecting the Cooling (✱) 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

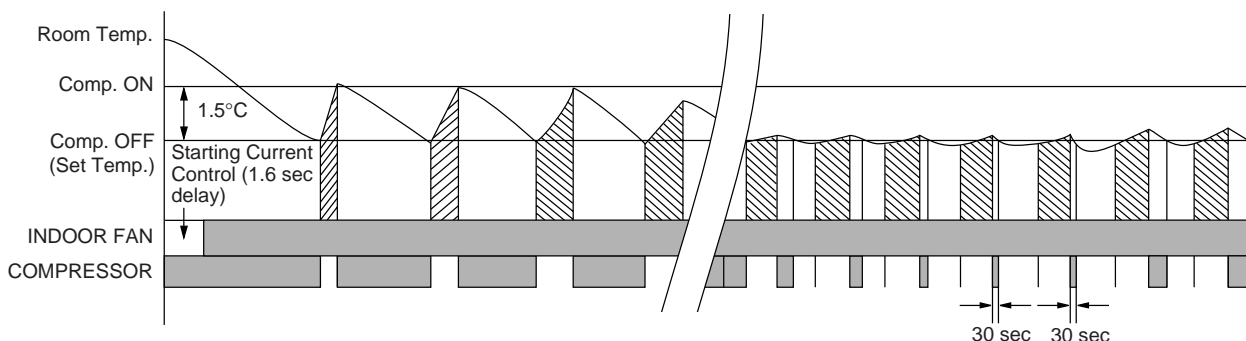
3 min. ---The Compressor is ceased for 3 minutes to balance the pressure in the refrigeration cycle.
(Protection of compressor)

Automatic Restarting Control

7 min. ---The unit will automatically operate in 7 minutes even if the room temperature is not reached.
(Prevention of raising the humidity)

Compressor Forced Operation Control

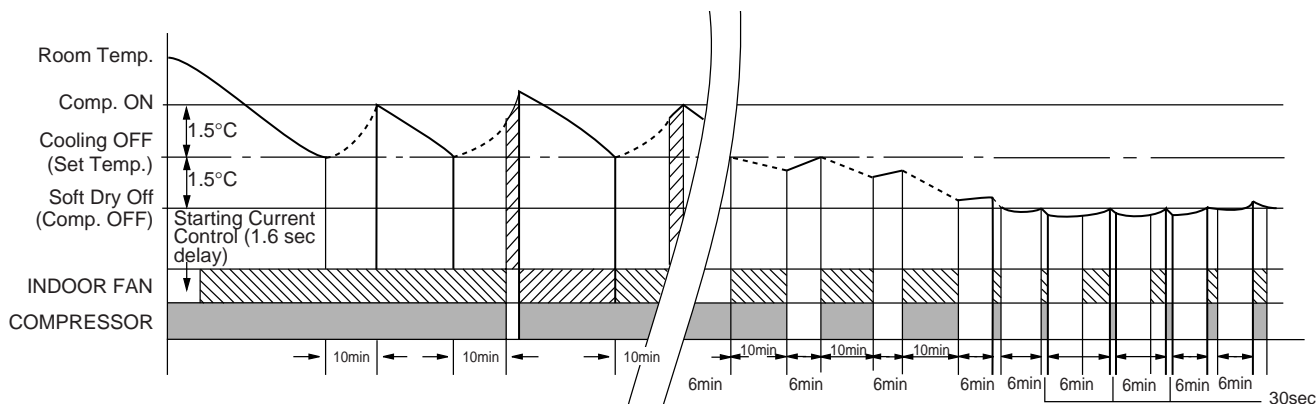
30 sec. ---The compressor is switched ON at once, it is to be operated for 30 seconds.
(Protection of compressor)



2) Soft Dry Mode Operation

When selecting the Soft 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 operation will be switched on and off for up to 10 minutes on and 6 minutes off.)



Operation Details

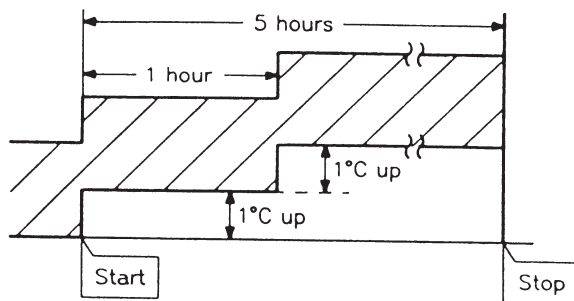
3) Detail of Sleep Mode

Sleep Mode operates to match your sleeping condition.

① At Cooling or Soft Dry operation

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

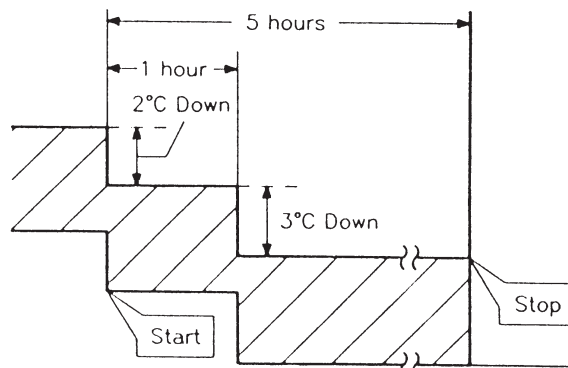
- The fan speed is automatically set to low.
- The setting temperature will be rise by 1°C at the start of operation and by 1°C one hour later.
- The Automatic Restarting Control is changed from 7 minutes to 5 minutes.
- The operation will stop after 5 hours.



② At Heating operation

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

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



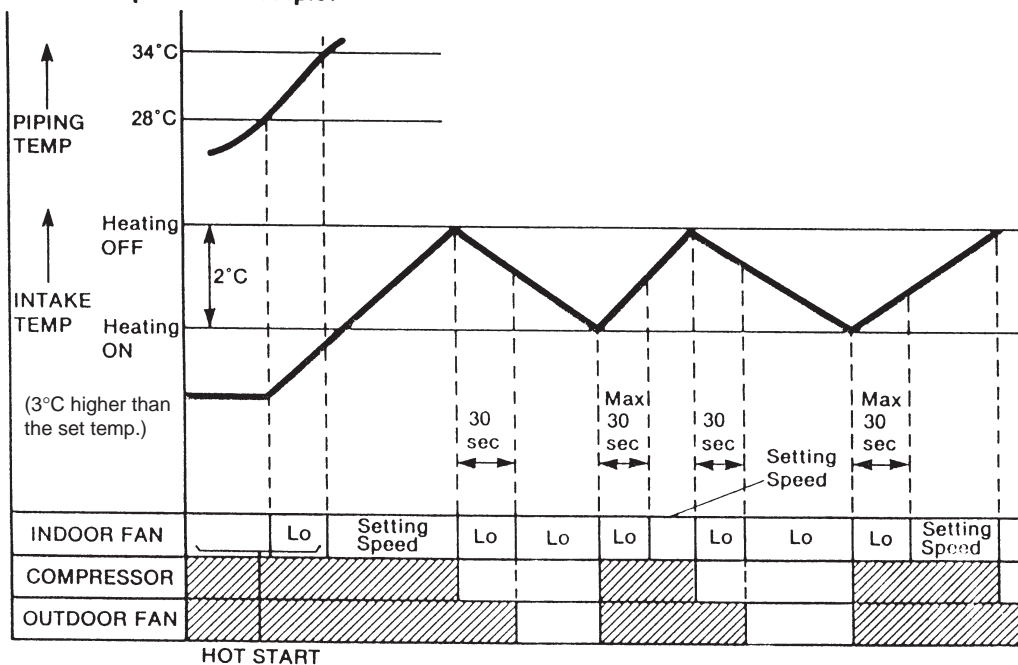
4) Heating Mode Operation

When selecting the Heating (☉) 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 3°C higher than the remote control setting.

< Normal operation example >

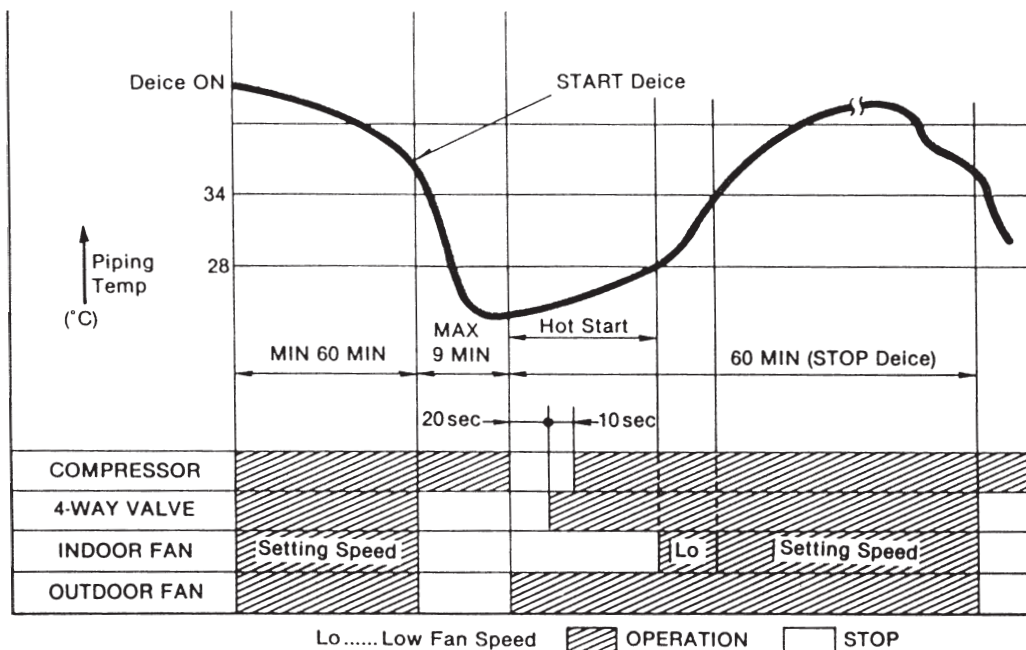


Lo..... Low Fan Speed OPERATION STOP

Operation Details

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.



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.

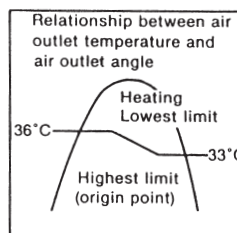
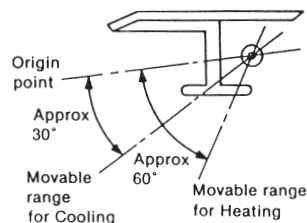
Only the up/down louvers are adjustable from the remote control.

② Automatic airflow direction

1) For cooling and soft dry
The up/down louver swings within the movable range.

2) 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) Automatic Operation

When Δ (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.

Intake Temp. (°C)	Operation mode	Setting Temp (standard)
↑ 25 21	Cooling	27
	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.

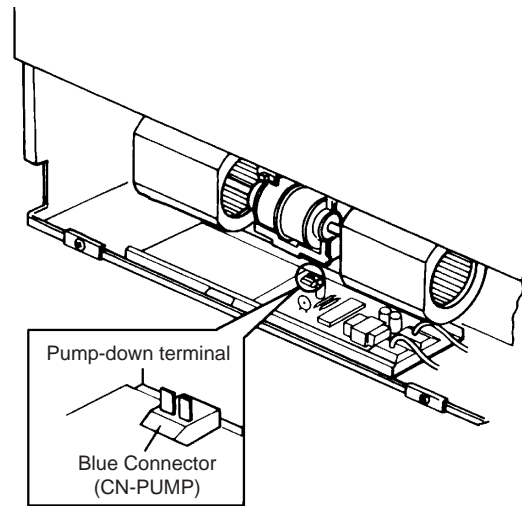
② The 3 temperature settings listed below can be selected for automatic operation:

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

Servicing Information

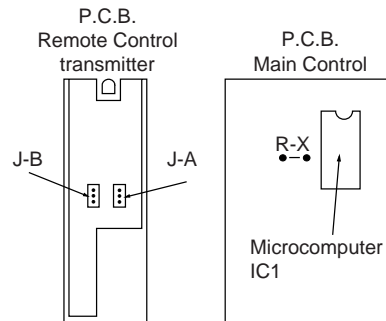
Pump-Down Terminal

- 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 changing 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 to 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. side and a carbon resistor (1/4W) to the Main Control 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
	J-A	J-B	RX	
No. 0	—	—	—	As shipped from factory
No. 1	○	—	16k	
No. 2	—	○	6.2k	
No. 3	○	○	0	

Troubleshooting Guide

Refrigeration cycle system

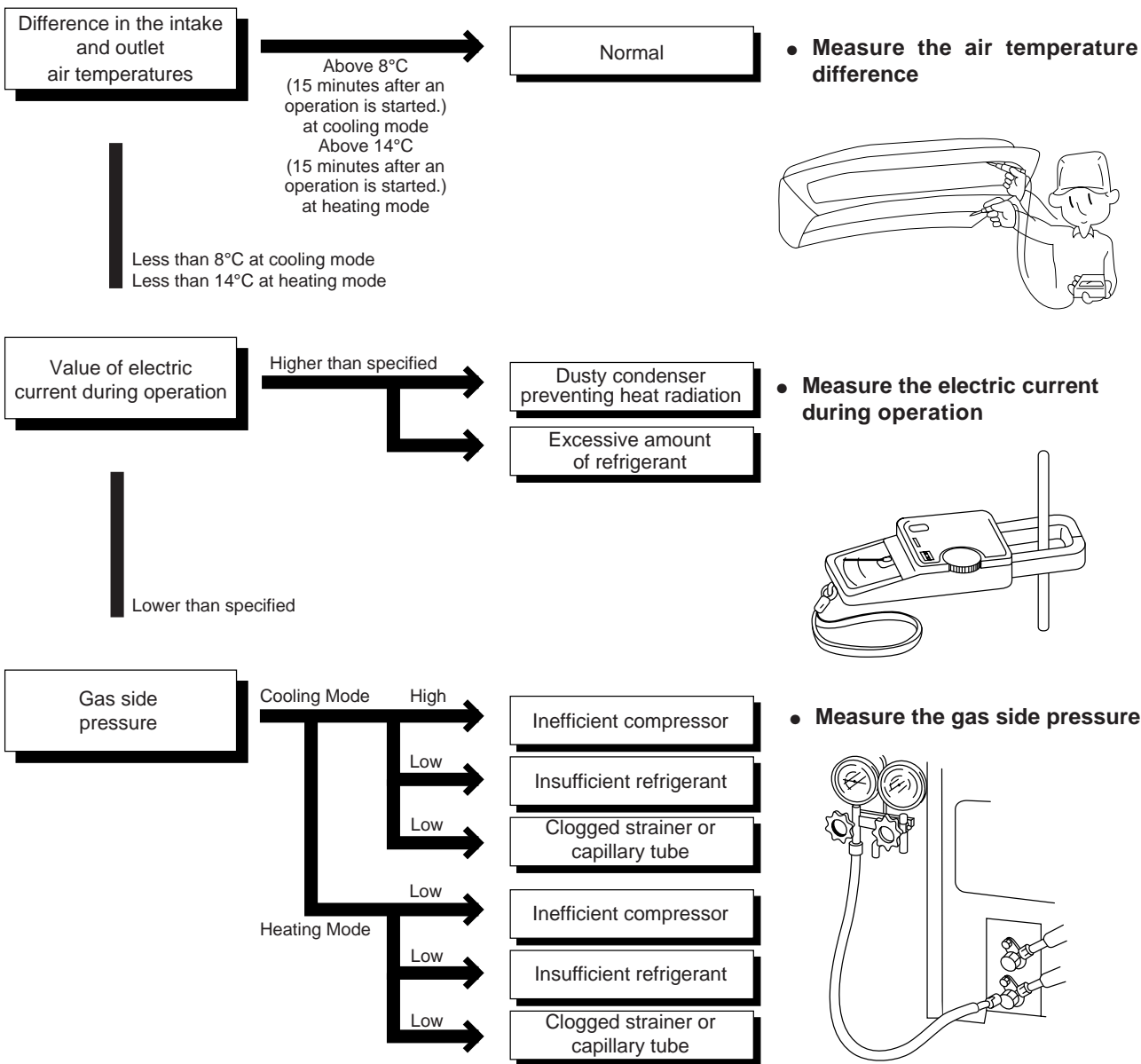
In order to diagnose malfunctions, make sure that there are no electrical problems before inspecting the refrigeration cycle. Such problems include insufficient insulation, problem with the power source, malfunction of a compressor or a fan.

The normal outlet air temperature and pressure of the refrigeration cycle depends on various conditions; the standard values for them are shown in the table on the right.

Normal Pressure and Outlet Air Temperature (Standard)

	Gas pressure MPa (kg/cm ² G)	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



Troubleshooting Guide

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

Condition of the air conditioner	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.

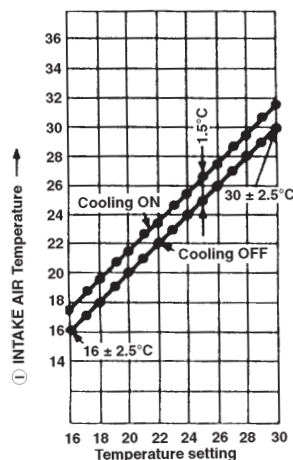
2. Diagnosis methods of a malfunction of a compressor and a 4-way valve

Nature of fault	Symptom
Insufficient compressing of a compressor	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.
Inefficient switches of the 4-way valve	<ul style="list-style-type: none"> • Electric current during operation becomes approximately 80% lower than the normal value. • The temperature difference between from the discharge tube to the 4-way valve and from suction tube to the 4-way valve becomes almost zero.

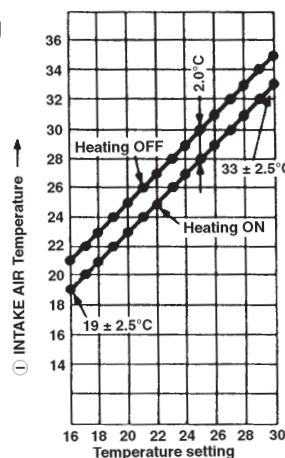
Technical Data

Thermostat characteristics

Cooling



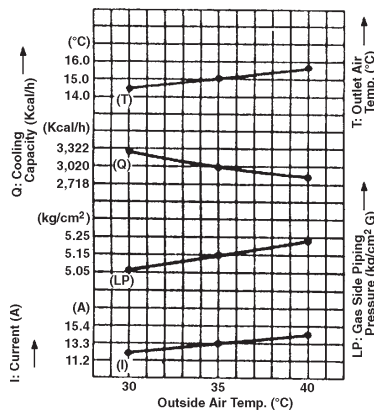
Heating



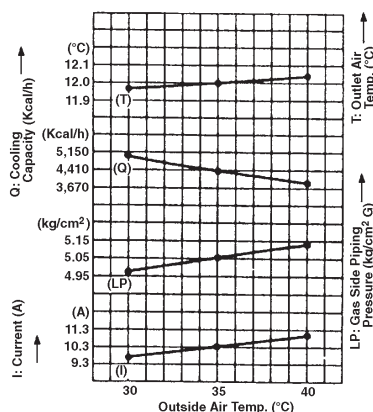
Operation characteristics

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

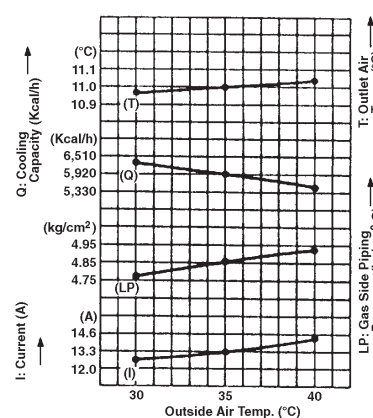
CS-A120T



CS-A180T

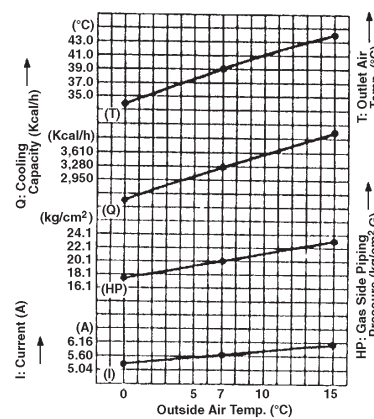


CS-A240T

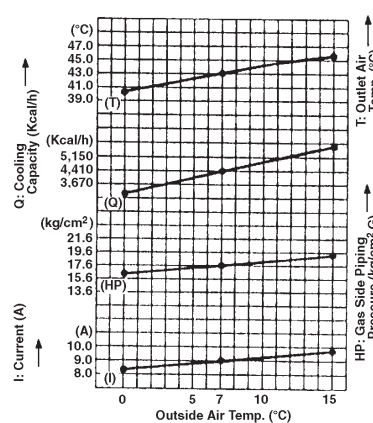


Heating characteristics – Outdoor temperature
(Conditions: Room Temperature; 21°C (D.B.T.)
Heating operation; at High Fan)

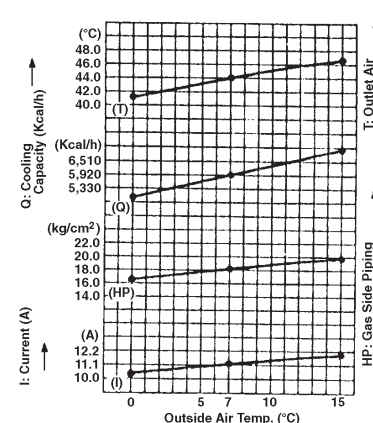
CS-A120T



CS-A180T

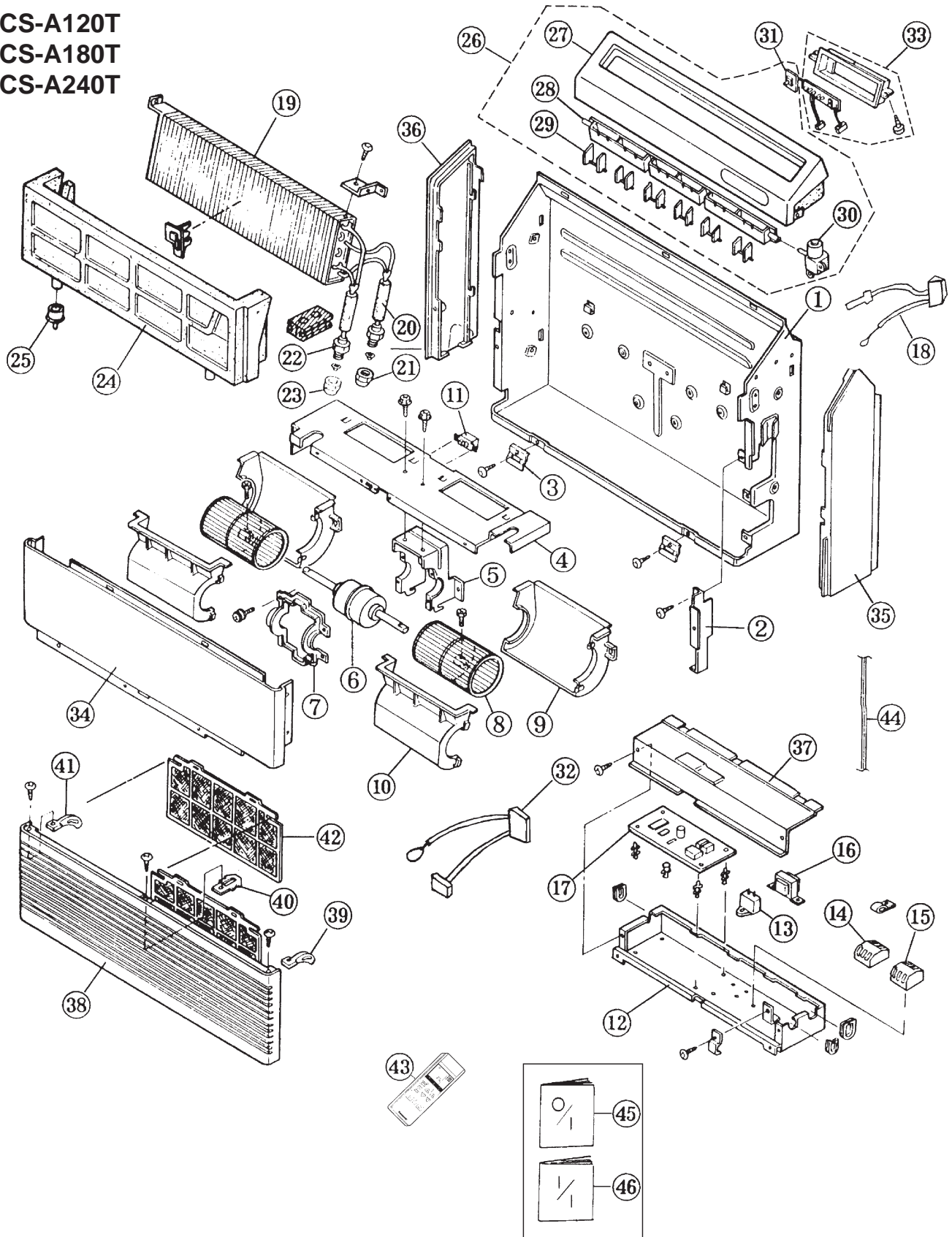


CS-A240T



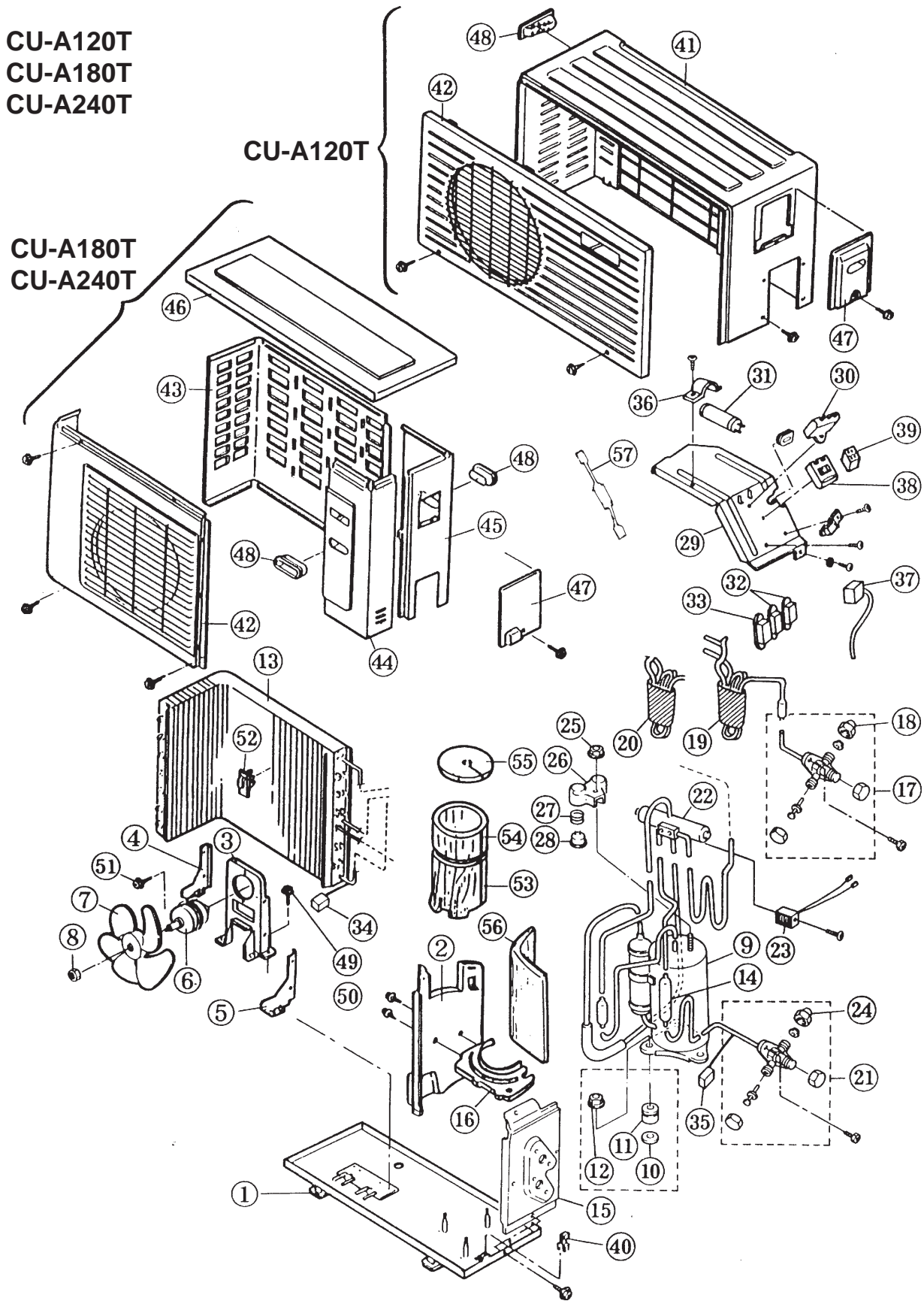
Exploded View

CS-A120T
 CS-A180T
 CS-A240T



Exploded View

CU-A120T
 CU-A180T
 CU-A240T



Replacement Parts List

NO.	DESCRIPTION & NAME	Q'TY	CS-A120TE	CS-A180TE	CS-A240TE
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	CWA92138	CWA92139	←
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	←	←
11	POWER SWITCH	1	CWA04014	CWA04033	←
12	CONTROL BOARD ASS'Y	1	CWH10K330	←	←
13	CAPACITOR FOR FAN MOTOR	1	CWA31342 (1.2MF/400VAC)	CWA31232 (1.2MF/450VAC)	←
14	TERMINAL BOARD (BIG)	1	CWA28K091	←	←
15	TERMINAL BOARD (SMALLER)	1	CWA28K108	←	←
16	TRANSFORMER	1	CWA40C192	←	←
17	P.C. BOARD - MAIN	1	CWA74314	←	←
18	SENSOR ASS'Y (EVAPORATOR PIPE & DISCHARGE AIR)	1	CWA50C534	CWA50C533	←
19	EVAPORATOR	1	CWB30428	CWB30429	CWB30430
20	TUBE ASS'Y (HIGH)	1	CWT01494	CWT01479	←
21	FLARE NUT	1	CWH6002140 (1/4")	←	←
22	TUBE ASS'Y (LOW)	1	CWT01495	CWT01480	CWT01481
23	FLARE NUT	1	CWT25007 (1/2")	←	CWT25004 (5/8")
24	DRAIN PAN ASS'Y	1	CWH40K025	←	←
25	TAP DRAIN TRAY	1	CWH4612103	←	←
26	DISCHARGE GRILLE COMPLETE	1	CWE20C261	←	←
27	DISCHARGE GRILLE	1	CWE20135	←	←
28	VANE - AIR SWING	1	CWE24233	←	←
29	VANE	12	CWE24234	←	←
30	AIR SWING MOTOR	1	CWA98K059	←	←
31	INDICATOR	1	CWE39152	←	←
32	SENSOR ASS'Y (INTAKE AIR)	1	CWA50C447	←	←
33	RECEIVER COMPLETE	1	CWD76C005	←	←
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	CWA75C236	←	←
44	POWER SUPPLY CORD	1	CWA20C541	CWA20C542	CWA20C543
45	OPERATING INSTRUCTIONS	1	CWF561486	←	←
46	INSTALLATION INSTRUCTIONS	1	CWF61575	←	←

(Note) ● All parts are supplied from MAICO, Malaysia (Vendor Code: 061).

Replacement Parts List

NO.	DESCRIPTION & NAME	Q'TY	CU-A120TE	CU-A180TE	CU-A240TE
1	CHASSIS 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	CWA95244	CWA92176	CWA92177
7	PROPELLER FAN	1	CWH03K002	CWH00K049	←
8	NUT - P. FAN	1	CWH56053	CWH56060	←
9	COMPRESSOR	1	2KS224D5AA02	2JS356D3BA01	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	CWBDC004	CWB32C177	←
14	RECEIVER	1	CWB14010	CWB14011	←
15	HOLDER - COUPLING	1	CWH39K019A	CWH35113B	CWH35114B
16	GUIDER - COMP.	1	—	CWD90830	←
17	3 - WAY VALVE (LIQUID SIDE)	1	CWB01380	CWB01363	←
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	CWA43C439	CWA43C444	←
24	FLARE NUT	1	CWT25007 (1/2")	←	CWT25004 (5/8")
25	NUT - TERMINAL COVER	1	CWH7080300	←	←
26	TERMINAL COVER - COMP.	1	CWH17006	←	←
27	HOLDER - OVERLOAD PROTECTOR	1	CWH7041200	—	—
28	OVERLOAD PROTECTOR	1	CWA12049	—	—
29	CONTROL BOARD	1	CWH10661	CWH10K331	←
30	CAPACITOR - F. MOTOR	1	CWA31602 (1.2MF, 400V)	CWA31609 (3.5MF, 400V)	←
31	CAPACITOR - COMP.	1	CWA31647 (30MF, 370V)	CWA31625 (35MF, 370V)	CWA31626 (45MF, 370V)
32	ELECTRO MAGNETIC SWITCH	2	CWA00059	←	←
33	ELECTRO MAGNETIC SWITCH	1	—	CWA00111	←
34	PRESSURE SWITCH	1	CWA10046	←	←
35	PRESSURE SWITCH	1	CWA10047	←	←
36	HOLDER - CAPACITOR	1	CWA30057	←	CWH30060
37	THERMOSTAT	1	—	CWA15129	←
38	TERMINAL BOARD (BIG)	1	CWA4711100	←	←
39	TERMINAL BOARD (SMALL)	1	—	CWH4711013	←
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	—	CWE03049B	←
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	←
53	SOUND PROOF MATERIAL (COMP.)	1	—	CWG30563	←
54	SOUND PROOF MATERIAL (COMP.)	1	—	CWG30562	←
55	SOUND PROOF MATERIAL (COMP.)	1	—	CWG30561	←
56	SOUND PROOF MATERIAL	1	CWG30596	—	—
57	FUSE COMPLETE	1	CWA16C200	CWA16C201	←

(Note) ● All parts are supplied from MAICO, Malaysia (Vendor Code: 061).

Electronic Controller 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	A52MN1551ABA
IC3	INTEGRATED CIRCUIT	A52MPC393C
IC4	INTEGRATED CIRCUIT	A52MPA2003C
IC5	INTEGRATED CIRCUIT	A52M54566P
IC6	INTEGRATED CIRCUIT	A52C050
IC7	INTEGRATED CIRCUIT	A52LQT50.5X1
IC8	INTEGRATED CIRCUIT	A52C057
PC1	PHOTO COUPLER	A52LP620-GB
Q1	TRANSISTOR	A55DTC124EST
Q2, Q3	TRANSISTOR	A55C1740STPQ
Q4	TRANSISTOR	A55DTD123YST
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).

