Order No. MAC0211078C2

Service Manual

Room Air Conditioner

CW-A90VE
CW-A120VE

⚠ 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 Product Specifications

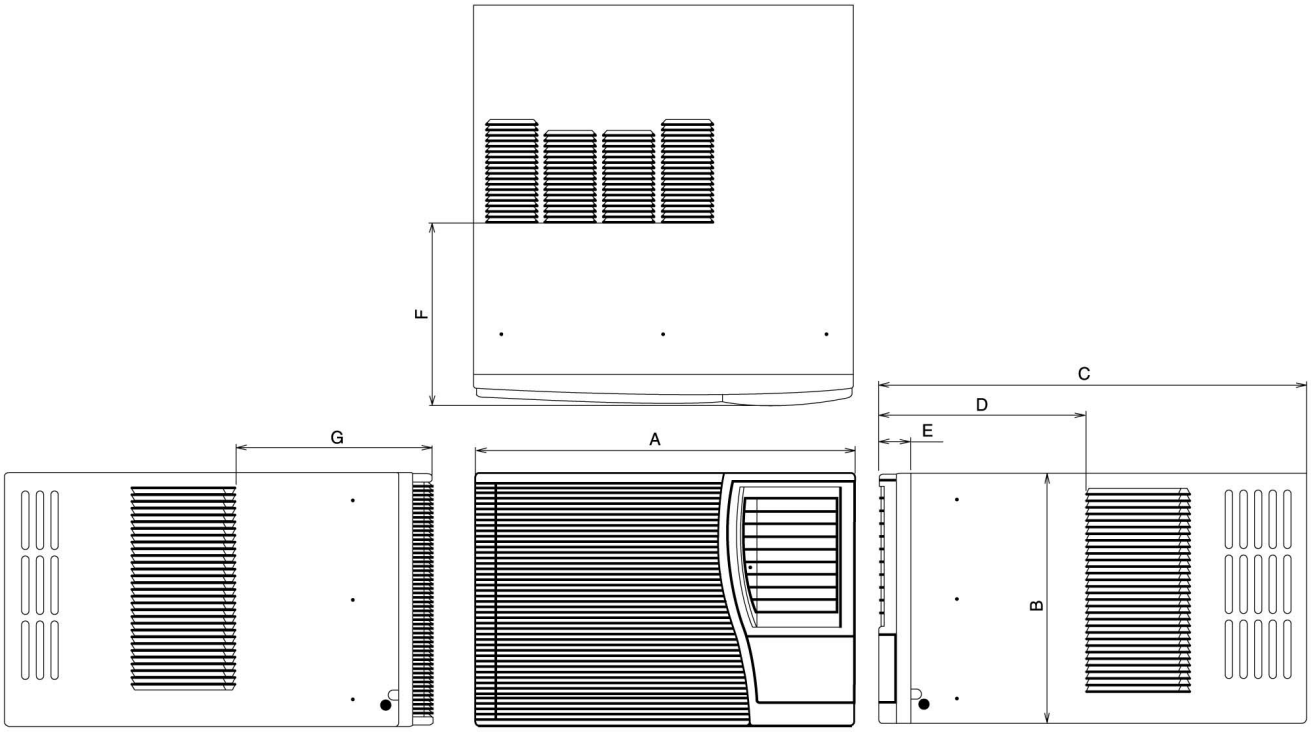
Model		CW-A90VE		CW-A120VE	
		Cooling	Heating	Cooling	Heating
Phase		Single		Single	
Voltage		220 - 230 V		220 - 230 V	
Frequency		50 Hz		50 Hz	
Capacity		2.67 - 2.68 kW 9,100 - 9,140 Btu/h	2.55 - 2.57 kW 8,700 - 8,760 Btu/h	3.40 - 3.42 kW 11,600 - 11,700 Btu/h	3.14 - 3.17 kW 10,700 - 10,800 Btu/h
Running Current		4.5 - 4.5 A	3.8 - 3.9 A	6.5 - 6.9 A	5.3 - 5.7 A
Input Power		980 - 1,03K W	820 - 880 W	1.36 - 1.48 kW	1.10 - 1.21 kW
EER	W/W	2.72 - 2.60 W/W	------	2.50 - 2.31 W/W	------
	BTU/hW	9.3 - 8.9	------	8.5 - 7.9	------
COP	W/W	------	3.11 - 2.92 W/W	------	2.85 - 2.62 W/W
	BTU/hW	------	10.6 - 10.0	------	9.7 - 8.9
Starting Current		20 A		27 A	
Noise Level		Indoor (High / Low): 45 / 42 - 46 / 43 dB(A) Outdoor (High / Low): 52 / 50 - 53 / 51 dB(A)	Indoor (High / Low): 44 / 41 - 45 / 42 dB(A) Outdoor (High / Low): 54 / 52 - 55 / 53 dB(A)	Indoor (High / Low): 48 / 45 - 49 / 46 dB(A) Outdoor (High / Low): 56 / 53 - 57 / 54 dB(A)	Indoor (High / Low): 48 / 45 - 49 / 46 dB(A) Outdoor (High / Low): 58 / 55 - 59 / 56 dB(A)
Power Noise Level		Indoor: 58 dB(A) Outdoor: 64 dB(A)	Indoor: 56 dB(A) Outdoor: 66 dB(A)	Indoor: 62 dB(A) Outdoor: 68 dB(A)	Indoor: 61 dB(A) Outdoor: 70 dB(A)
Fan Motor Output		32/36 W		46/51 W	
Compressor Output		800 W		950 W	
Moisture Removal		1.6 Ltr/h 3.4 Pint/h		2.0 Ltr/h 4.2 Pint/h	
Air Circulation		8.5 m^3/min. 300 Ft^3/min.		9.5 m^3/min. 340 Ft^3/min.	
Dimensions		Height: 14-25/32 inches (375 mm) Width: 22-1/16 inches (560 mm) Depth: 23-7/8 inches (606 mm)		Height: 14-25/32 inches (375 mm) Width: 22-1/16 inches (560 mm) Depth: 23-7/8 inches (606 mm)	
Net Weight		35 kg 77 lb		39 kg 86 lb	
Refrigerant (R-22)		550 g 19.4 oz		650 g 22.9 oz	

Note: Specifications are subject to change without notice for further improvement.

2 Dimensions

2.1. CW-A90VE, CW-A120VE

2.1.1. Top View, Front View & Side View

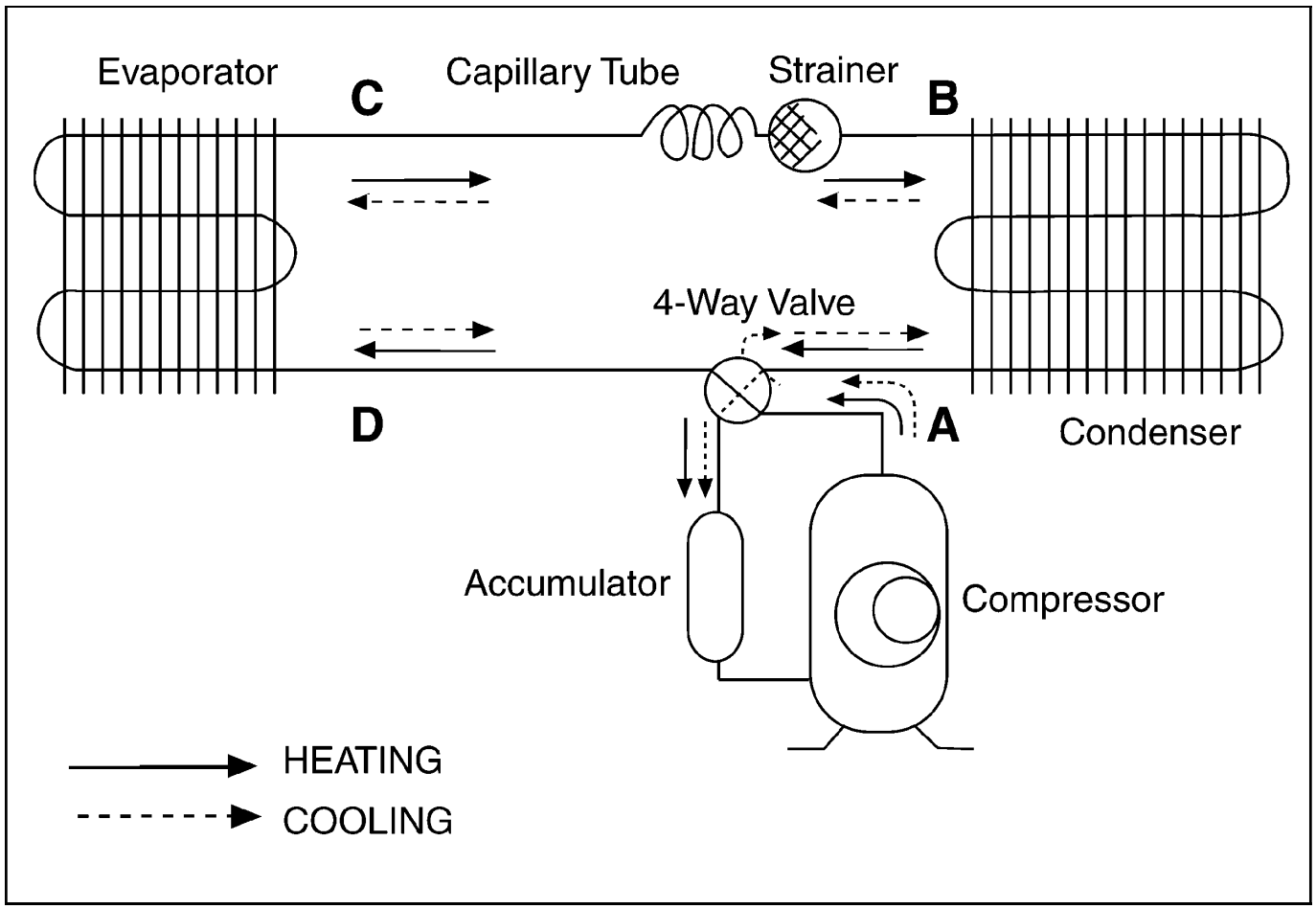


2.2. Unit

Item	Unit: Inch (mm)
A - Width	22-1/16” (560)
B - Height	14-25/32” (375)
C - Depth	23-7/8” (606)
D	11-9/16” (294)
E	1-13/16” (46)
F	11-3/32” (281.6)
G	1-13/32” (281.6)

3 Refrigeration Cycle Diagram

3.1. CW-A90VE & CW-A120VE



Note: Indoor temperature at 27°C (DB), 19°C (WB) and Outdoor at 35°C (DB), 24°C (WB) for Cooling & indoor temperature at 20°C (DB), 15.5°C (WB) and Outdoor at 7°C (DB), 6°C (WB) for Heating.

3.1.1. Cooling

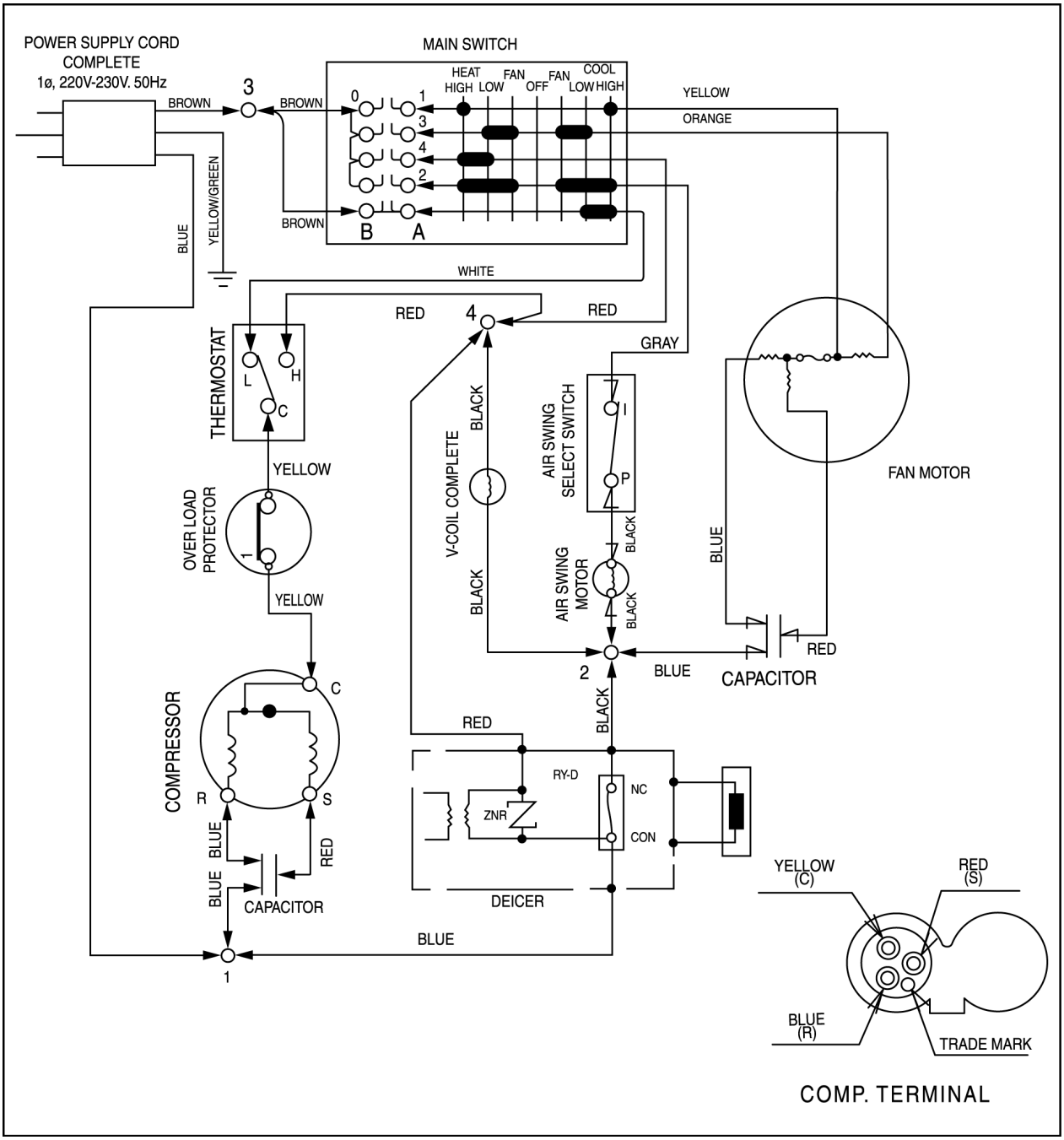
	CW-A90VE		CW-A120VE	
Item	Pressure (MPa)	Temperature (°C)	Pressure (MPa)	Temperature (°C)
A	1.81 ~ 2.01	67 ~ 82	2.09 ~ 2.28	67 ~ 82
B	1.76 ~ 1.96	38 ~ 48	2.04 ~ 2.23	37 ~ 47
C	0.51 ~ 0.57	7 ~ 12	0.53 ~ 0.59	8 ~ 13
D	0.48 ~ 0.54	10 ~ 17	0.50 ~ 0.56	8 ~ 15

3.1.2. Heating

	CW-A90VE		CW-A120VE	
Item	Pressure (MPa)	Temperature (°C)	Pressure (MPa)	Temperature (°C)
A	0.40 ~0.46	0 ~ 5	0.37 ~ 0.43	-1 ~ 4
B	0.43 ~ 0.49	-1 ~ 4	0.40 ~ 0.46	0 ~ 5
C	1.52 ~ 1.72	31 ~ 41	1.51 ~ 1.71	31 ~ 41
D	1.57 ~ 1.76	42 ~ 52	1.56 ~ 1.75	41 ~ 51

4 Wiring Diagram

4.1. CW-A90VE & CW-A120VE



4.2. Resistance of Compressor windings and the rated Capacitor.

	CW-A90VE	CW-A120VE
Connection	CWB092184	2KS206D5DA04
C-R	3.466Ω	2.293Ω
C-S	3.843Ω	3.245Ω
Capacitor	DS371306CPNA (30μF, 370VAC)	DS371356CPNA (35μF, 370VAC)

Note: Resistance at 20°C of Ambient Temperature.

4.3. Resistance of Fan Motor windings and the rated Capacitor.

	CW-A90VE	CW-A120VE
Connection	CWA951228	CWA921145
Blue - Yellow	205.8 Ω	84.1 Ω
Yellow - Orange	75.2 Ω	55.6 Ω
Red - Orange	170.0 Ω	118.3 Ω
Capacitor	CWA31618 (2.0μF, 440VAC)	DS441305BPQH (3μF, 440VAC)

5 Air Conditioner Performance Evaluation

5.1. Cooling

Intake & Discharge Air Temperature Difference	Current Drain	Determination	Remedy
• 8°C and over (14.4°F)	• As specified.	• Nothing wrong.	• None.
• 8°C and over (14.4°F)	• Higher than specified.	• Nothing wrong, outdoor temperature is too high, heat radiation is not efficient.	• Improve heat radiation.
• Under 8°C (14.4°F)	• Higher than specified.	• Something is preventing heat radiation.	• Excessive amount of refrigerant. • Improve heat radiation.
• Under 8°C (14.4°F)	• Lower than specified.	• Leakage of refrigerant or refrigerant system is blocked.	• Locate and repair leak. • Flush refrigeration cycle.
• Under 8°C (14.4°F)	• Higher than specified by 50%.	• Compressor defect or compressor capacitor defect.	• Replace the compressor or compressor capacitor.

Note: Room air humidity is relatively higher, the temperature difference will be smaller.

5.2. Heating

Intake & Discharge Air Temperature Difference	Current Drain	Determination	Remedy
• 14°C and over (25.2°F)	• As specified.	• Nothing wrong.	• None.
• 14°C and over (25.2°F)	• Higher than specified.	• Nothing wrong, outdoor temperature is high. • Something is preventing heat radiation at indoor heat exchanger.	• None. • Clean air filter.
• Under 14°C (25.2°F)	• Lower than specified.	• Nothing wrong, outdoor temperature is low. • Something is preventing heat radiation at outdoor heat exchanger. • Leakage of refrigerant. • Refrigerant system is blocked.	• None. • Improve heat radiation at outdoor heat exchanger. • Locate and repair leak. • Flush refrigeration cycle.
• Under 14°C (25.2°F)	• Higher than specified by 50%.	• Compressor defect. • Compressor capacitor defect	• Replace the compressor. • Replace the compressor capacitor.

Note: Room air humidity is relatively higher, the temperature difference will be smaller.

6 Troubleshooting Guide

⚠ **Warning: Disconnect unit from electrical power supply before making any electrical checks.**

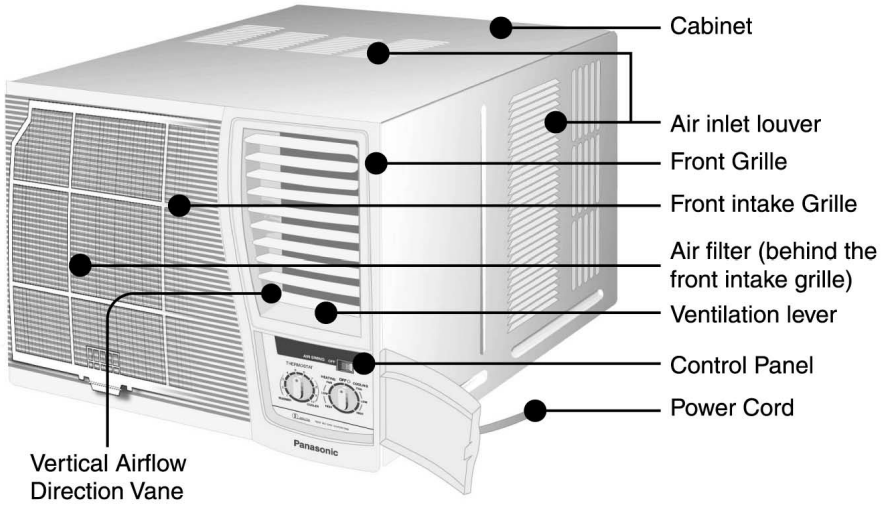
Trouble	Check	Result	Cause	Remedy
Fan Motor and Compressor won't run.	• Supply Voltage • Fuse Box or Circuit Breaker. • Power cord or Wiring Harness. • Temperature Setting.	• Less than 10% by Rated. • Open Contacts. • Pulled loose or Shorted. • Higher than room temperature	• Temporary or Permanent? • Customer Restarted unit immediately without waiting 3 minutes.	• Consult ELECTRICIAN, if permanent. • WAIT FOR 3 MINUTES. • Repair Open Circuit. • Repair or Replace it. • Set it LOWER.
Fan Motor won't run (Compressor run).	• Objects around Fan. • RESISTANCE between Wires. • Capacitor Fan Motor. • Main Control Switch.	• Locked Fan. • Shorted / Open circuit. • OHM Meter doesn't Deflect. • No contacts at Position Shown.	• Fan Hitting Cowling • Foreign Materials. • Frozen Bearings. • Shorted or Burned out. • Capacitor Defect. • Main Control Switch defect.	• Adjust Fan position setting screw. • Remove Foreign Materials. • Replace Fan Motor. • Replace Fan Motor. • Replace Capacitor Fan. • Replace Main Control Switch.

Trouble	Check	Result	Cause	Remedy
Compressor won't run (Fan run).	• Temperature setting. • RESISTANCE between Terminal and the Compressor Body. • RESISTANCE between Terminals. • Overload Protector. • Capacitor Compressor. • Thermostat. • Main Control Switch.	• Higher than room temp. • Shorted. • Shorted. • Infinity between Terminals. • OHM Meter doesn't deflect. • No click heard. • No contacts at Position Shown.	• Winding Coil touched to the compressor shell. • Rear Shorted or Burnt out. • Rear Shorted or Burnt out. • Overload Protector defect. • Capacitor defect. • Thermostat defect. • Main Control Switch defect.	• Set it lower. • Replace Compressor. • Replace Compressor. • Replace Overload Protector. • Replace Capacitor Compressor. • Replace Thermostat. • Replace Main Control Switch.
Air Swing won't run.	• Air Swing Switch. • Resistance between wires.	• OFF position. • No contact at position. • OHM Meter doesn't deflect.	• Open circuit. • Shorted or open circuit.	• Set it ON. • Replace Air Swing Switch. • Replace Air Swing Motor.
Insufficient cooling or heating.	• Temperarute Setting. • Ventilation door open. • Air filter dirty. • Location of installation. • Evaporator / Condenser Coil obstructed. • Unit capacity for the room too small. • Temperature difference and running current.	• Higher than room temperature • Open. • Clogged or dirty. • Sunlight hitting outdoor side. • Obstacles. • Clogged or dirty. • Not satisfied. • REFER TO PERFORMANCE EVALUATION.	• Reduces capacity. • Restricted air circulation. • Restricted Heat Exchanger. • Restricted Heat Exchanger. • Restricted air circulation. • Leakage of refrigerant or refrigeration system is blocked.	• Set it lower. • Close Ventilation door. • Clean or replace Air Filter. • Consider building an AWNING. • Remove obstacles or reinstall unit. • Clean the coils. • Replace the unit with bigger one. • Locate repair leak. • Flush refrigeration cycle.
Noise.	• Source of Noise	• Vibration. • Intermittent Noise.	• Faulty installation. • Fan hitting objects. • Refrigerant tubing touching each other. • Fan splashing Drain Water	• Reinstall unit or Reinforce the installation. • Adjust Fan position or remove foreign materials. • About 1/2" Clearance needed. • Remove drain plug and mount a drain pan to remove the water. • Set the Drain outlet downward, so that the Drain water can run off
Water dripping inside room.	• Unit installation. • Drain Tray-Styrofoam pieces blocking drain channel.	• Tilted to inside room. • Clogged.	• Restricted run off. • Clogged or blocked.	• Tilt unit to outside slightly. • Remove the foreign materials.
Frozen Evaporator	• Temperature setting. • Air filter / Evaporator. • Temperature difference and running current.	• Set too low for ambient conditions. • Clogged or Dirty. • REFER TO PERFORMANCE EVALUATION.	• Outdoor temperature low (Night time). • Restricted air circulation. • Leakage of refrigerant or refrigeration system is blocked.	• Set the Main Control Knob to Fan to melt ice and set the Temperature control to higher temperature. • Clean Air filter / Evaporator. • Locate and repair leak. • Flush refrigeration cycle.
No heating (Fan and Compressor run).	• Reversing valve coil. • Reversing valve.	• Infinity between coil. • Resistance between reversing valve coil.		• Replace reversing valve coil. • Replace reversing valve.
Frozen Condenser	• Outdoor ambient temperature	• Heating operation at low outdoor ambient temperature	• Outdoor ambient temperature is low.	• Set Main Control Switch to Fan to melt ice.

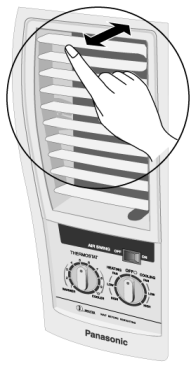
7 Operating Instructions

7.1. Parts Identification

7.1.1. Main Unit



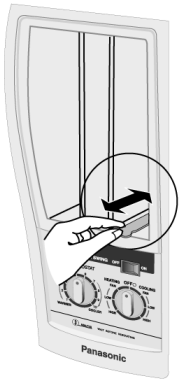
7.1.1.1. Vertical Airflow Direction Vane



Airflow direction adjustment up-down.

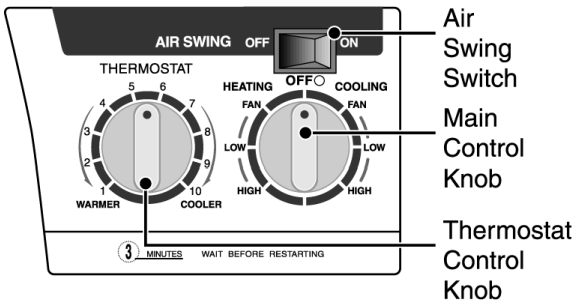
- The vertical airflow direction vane is controlled by rotating the horizontal vane forward or backward.

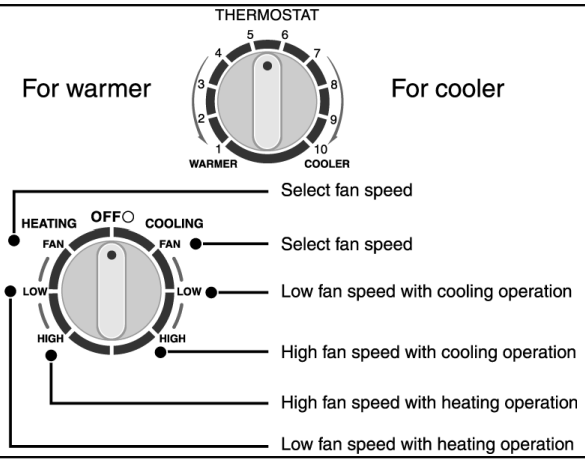
7.1.1.2. Ventilation Lever



The ventilation lever must be in the **CLOSE** position in order to maintain the best cooling conditions.
When fresh air is necessary in the room, set the ventilation lever to the **OPEN** position. The damper is opened and room air is drawn out.

7.1.1.3. Main Control Panel





7.1.2. Operating Conditions.

Use the air conditioner under the following conditions:

- Operating temperature range.

		Indoor side		Outdoor side	
		D.B.T.	W.B.T.	D.B.T.	W.B.T.
Cooling	Maximum Temperature	32°C	23°C	43°C	26°C
	Minimum Temperature	21°C	15°C	21°C	15°C
Heating	Maximum Temperature	27°C	----	21°C	15°C
	Minimum Temperature	20°C	----	-5°C	-6°C

D.B.T.: Dry Bulb Temperature

W.B.T.: Wet Bulb Temperature

Note: Humidity may exceed 90%.

– Continuous operation at humidities of over 90% high humidity may create condensation to form on the intake and outlet vanes.

7.2. How to Operate.

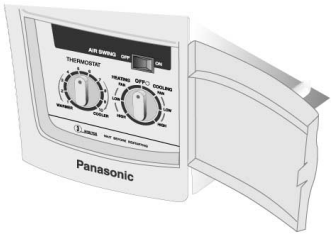


Fig. 1

(1) Open the Control Panel Cover.

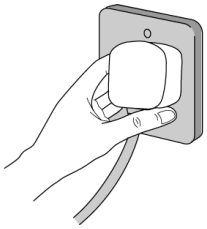


Fig. 2

(2) Power Supply

Switch off the breaker and set the main control knob to the OFF position before plugging the power plug into an electrical outlet.

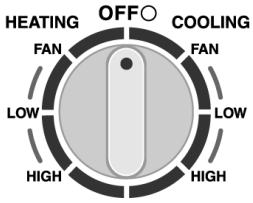


Fig. 3

(3) Main Control Knob

Set to LOW COOL or HIGH COOL as desired. (FAN setting operates the fan only.)

Caution: If the main control knob is turned off or changed to a fan setting from a cooling operation setting, WAIT at lease 3 minutes before resetting to cooling operation

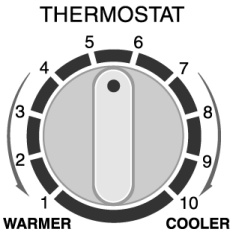


Fig.4

(4) Thermostat Control Knob

- For a room that is too warm, set the control knob to a clock wise direction.
- If the room is tooo coo, set the contol knob to a counter closkwise direction.

Note: Usually 6~7 is the recommended setting position.

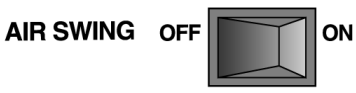


Fig. 5

(5) Air Swing Switch

(Airflow direction adjustment side-to-side)

To obtain a fixed airflow direction, set the air swing switch to “ON” for the vanes to swing from side to side until the desired flow direction is reached, then switch it to “OFF”.

For continuous side-to-side air circulation, set the air swing switch to “ON”.

8 Installation Instructions

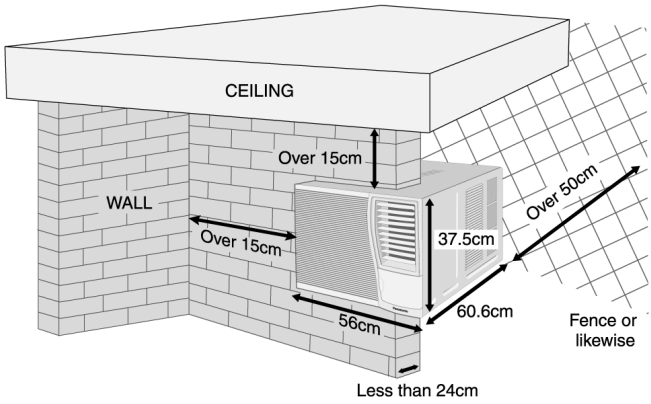
8.1. Selecting The Best Location

- Install the unit to the nearest power outlet.
- Power supply point shall be the place where there is ease for access for power disconnection in case of emergency.
- The air conditioner should be installed in a dry place where there are no draughts.
- Condensation fron the air conditioner must be drained off at an appropriate location. (If remove condensed water.)
- Do not install in a location where flammable gas leaks is a possibility.
- Usage in locations where the air issalty such as coastal areas or near hot spas, or where sulphurous gas is generated, may lead to a malfunction. Please consult your dealer.
- Select an installation location which is rigid and strong enough to support or hold the unit and select a location for easy maintanance.
- It may need two people to carry out the installation work.
- Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.

8.2. Preparation Before Installation

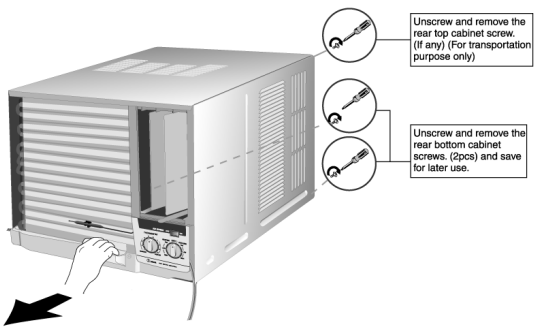
8.2.1. Dimension

- There should not be any obstacles surrounding the unit.
- Prepare an installation hole slightly bigger than the cabinet size.
- Left and right sides of the unit should be at least 15 cm away from the wall.

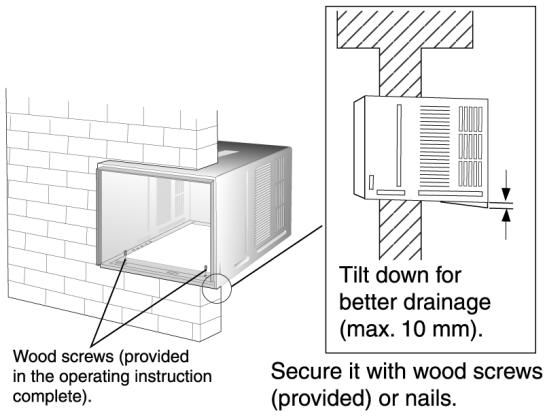


8.3. Installation Procedures

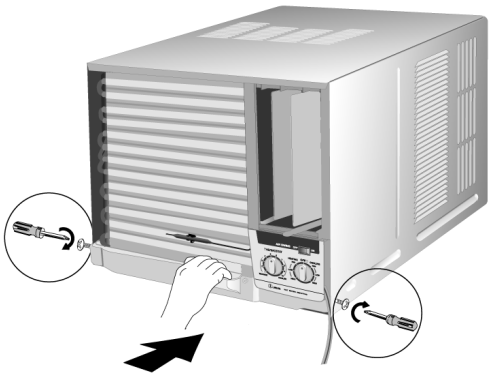
1. Remove the screws from the rear cabinet. Slide the chassis out from the cabinet.



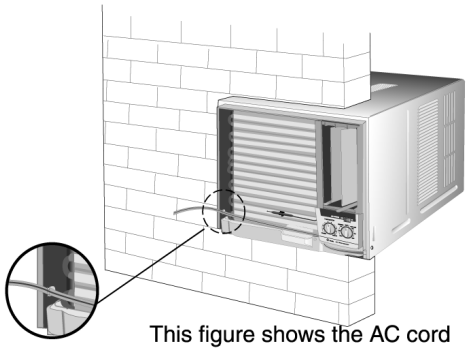
2. Place cabinet into the installation hole.



3. Slide the chassis back into the cabinet. Reinstall the cabinet screws. Secure the cabinet to chassis by using screws (from rear cabinet).

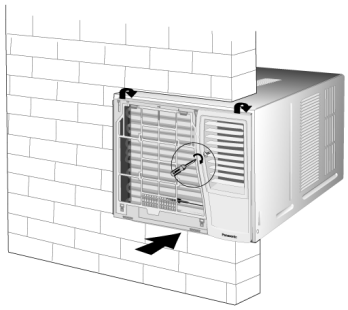


Depending upon the location of the AC outlet, route the AC cord to either the left or right side while installing the front grille.

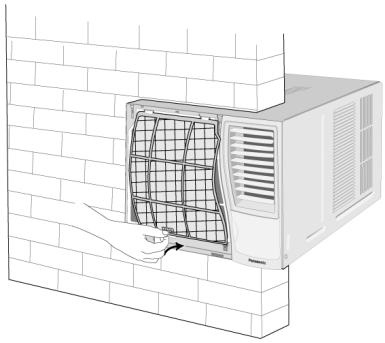


This figure shows the AC cord routed to the left side.

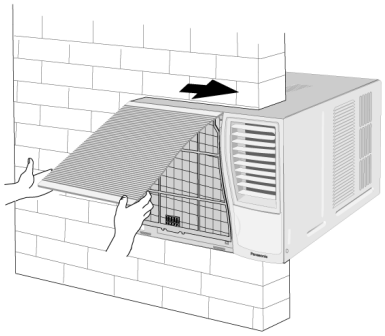
4. Attach the front grille to the cabinet and fasten it with screw s.



5. Insert the air filter.



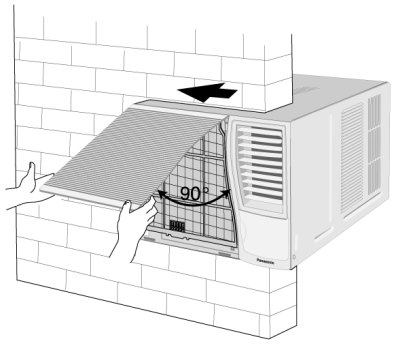
6. Slide the front intake grille slightly to the right to reattach the tabs and then push it down to close tight.



8.4. Removal of Front Grille

1. Remove the front intake grille.

   Pull up the front intake grille about 90° and slide it slightly to the left to unhook the tabs.

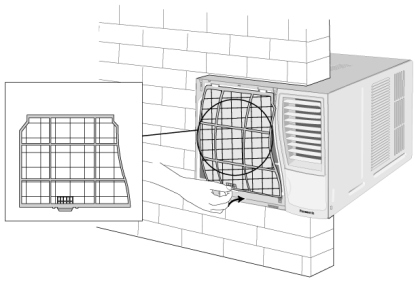


CAUTION

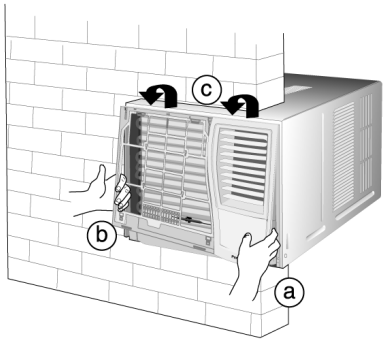
Do not raise the front intake grille any higher than 90° to the unit or damage to the tabs may occur.

2. Remove the air filter.

   Tilt up and pull out the air filter by the holder.



3. Remove the front grille.
   a. At bottom right side of the front grille, press inward on cabinet near the power cord, and pull the grille outward to the right until right tab releases.
   b. At the bottom left side, push inward on cabinet and pull the grille outward to the left to release the left tab. Do not pull the bottom edge toward you more than 3 inches to prevent the two top tabs from damage.
   c. Slide the front grille upwards to free the two top tabs from slots at the top of the cabinet.



8.5. Electrical Work

- Always use at the rated voltage and with a specific air conditioning circuit.
- Some installation locations may require the installation of a short circuit breaker.
- A 16 Ampere time delay fuse or circuit breaker is required.
- Nominal cross sectional area of power supply wire must be 3 core x 1.0 mm^2 or above.
- The power supply must be from an independent circuit.
- All electrical installation must be made in accordance with local wiring and safety regulations wherever applicable.
- There must be a double pole switch with a minimum of 3 mm contact gap in the fixed installation circuit.
- Please consult your dealer concerning installation requirements.

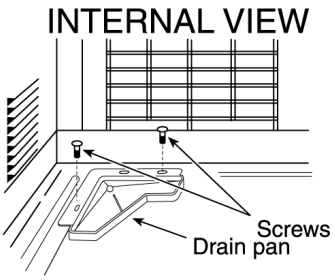
Note: These equipment shall be connected to a suitable mains network with a main impedance less then the following:-
CW-A90VE: 0.40Ω CW-A120VE: 0.30Ω

8.6. Condensed Water Drainage

In order to drain off the condensed water, it is recommended that you install a drain pan using the folowing procedure.

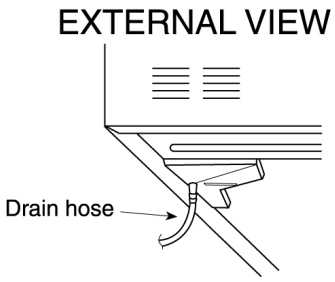
1. Slide the chassis out from the cabinet.

2. Install the drain pan.



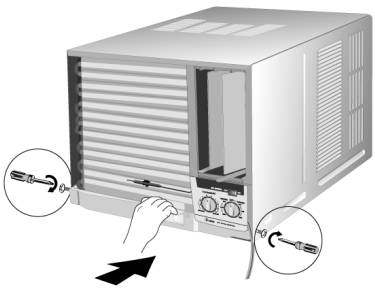
Install the drain pan at the left corner of the cabinet.

3. Connect the drain hose.
Bottom side view with drain pan.



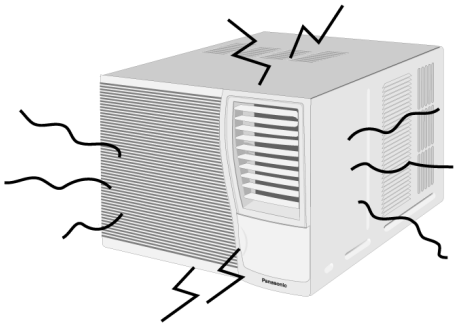
NOTE
Drain hose or tubing can be purchased locally to satisfy your particular needs.

4. Slide the chassis back into the cabinet.



8.7. Noise Considerations

- Select an installation location that can support the weight of the air conditioner and one that will not cause increased operating noise and vibration.
- Ensure that airflow and noise from the rear side of the unit (outdoor) when installed, do not disturb neighbouring residents.
- Obstacles placed in front of the air outlet on the rear side of the unit (outdoor), or covers placed over it will cause excessive noise and deterioration in performance.



8.8. Transferring

- When the air conditioner is to be repositioned or transferred due to renovations, or moving, the removal and reinstallation of the unit requires an additional service charge. Please consult your dealer before moving.

9 Care and Maintenance

⚠ **Caution:**
Always turn off the air conditioner and the main power supply before unplugging the power cord to clean the unit.
Switch off the power supply if the unit is not going to be used for a long period of time.

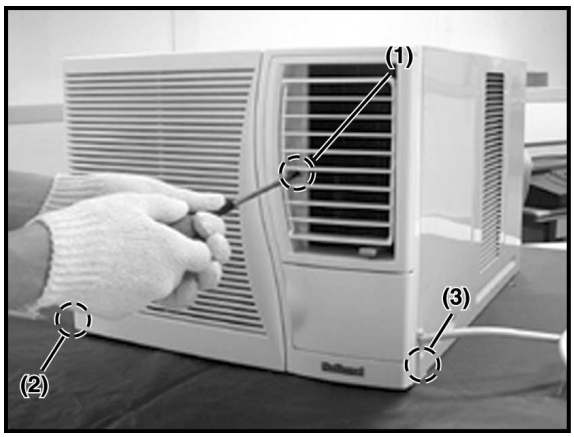
- Clean the cabinet, front grille with a mild soap or detergent and lukewarm water.
- The front intake grille can be easily removed for cleaning purposes (refer **Removal of Front Grille** procedures). Gently wash it with water and a sponge.
- The filter can be easily cleaned using a vacuum cleaner. Vacuum the front of the filter and then wash the rear with water. If it is badly soiled, wash with a mild household detergent.
- Do not clean with benzene, thinner, scouring powder or cloth soaked in caustic chemicals.
- If the unit is extremely dirty, heat transfer is less efficient and the unit may not cool effectively. Contact Shun Hing Electric Service Centre Ltd. for an annual check. (Annual check is not covered under warranty)
- If the air filter becomes clogged with dust, the cooling capacity will drop, and 6% of the electricity used to operate the air conditioner will be wasted.

NOTE
Do not dry the front panel or the air filter in direct sunlight. (Exposure to direct sunlight may discolour or deform the panel.)

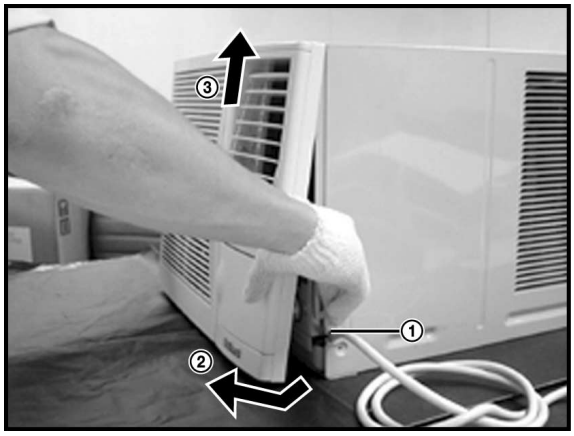
10 Servicing Information

10.1. Control Board Removal Procedure

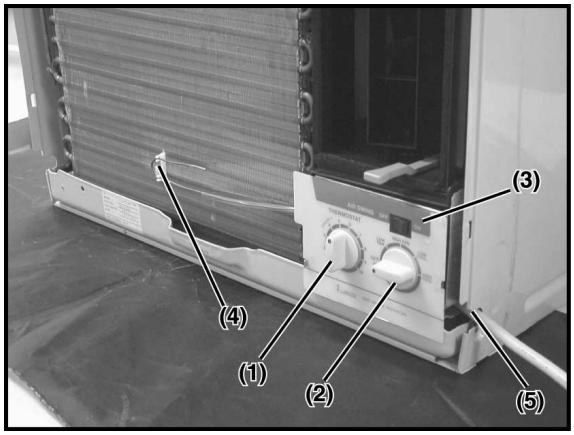
1. Remove the screws in front and both sides of the chassis as indicated (1), (2) and (3).



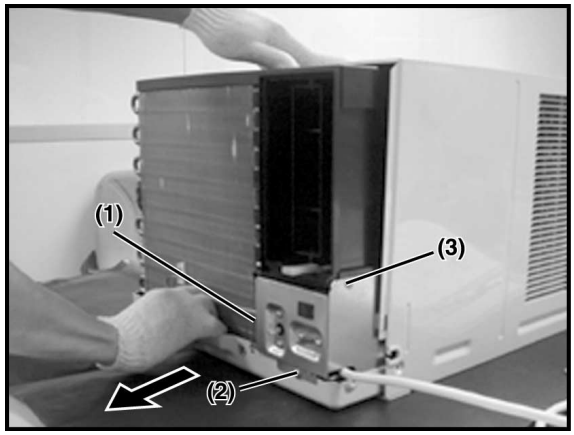
2. Release the tabs at both sides of the front grille (push in the cabinet and pull out the grille).Then, pull up the grille as to release another two tabs at the top side of the grille.



3. Pull out the knobs from its position (1) & (2) and then take out the control panel (3). Then, release the temperature sensor from its holder (4) and pull out the wire from the bushing at the cabinet (5).

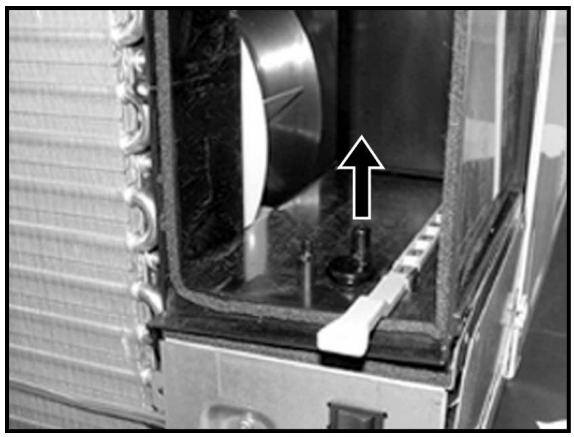


4. Pull out the unit from cabinet by holding the hand grip at the base pan. Remove two screws in front of the control board (1) & (2). Then, remove screw at the side of control board (3) and take out the control board side plate.

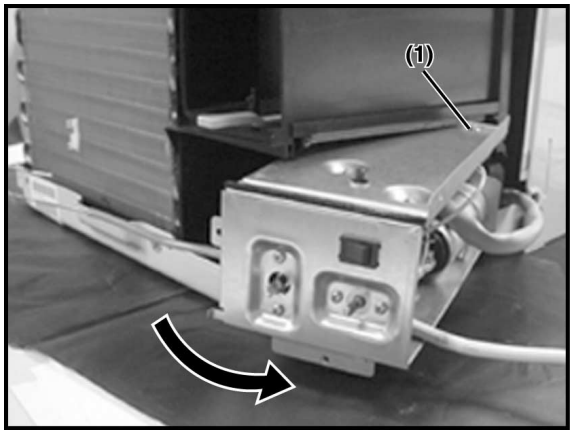


5. Hold the horizontal vane and pull it out from the top side and get it out from its position.

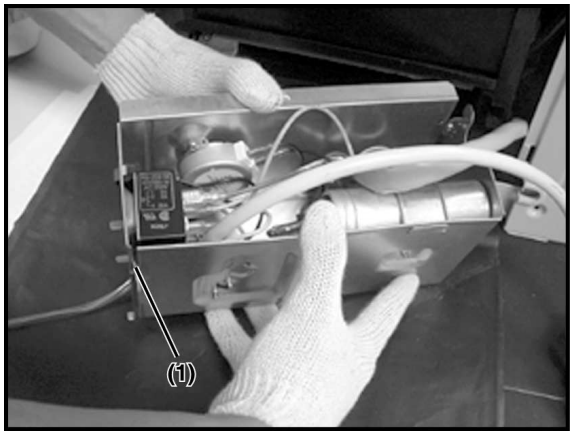
6. Then, remove the shaft at the bottom of the compartment.



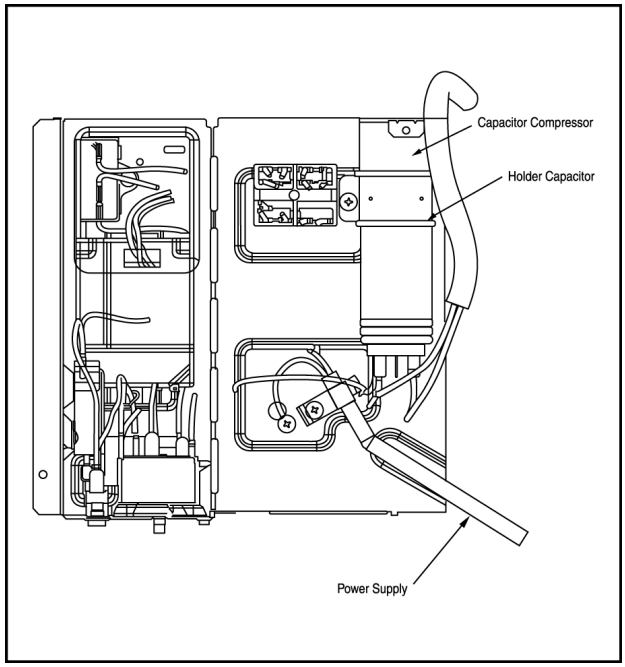
7. Pull out the control board as shown in figure. Then remove the screw as indicated (1).



8. Release a hook as shown in figure (1) to open up the control board.



● Control Board part location.

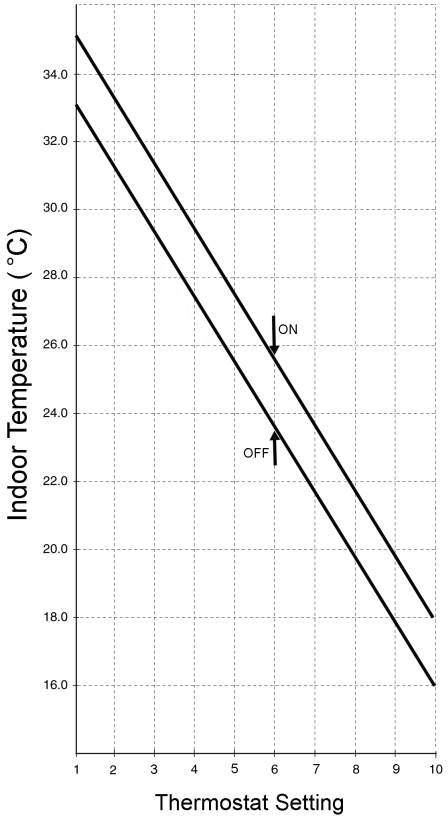


11 Technical Data

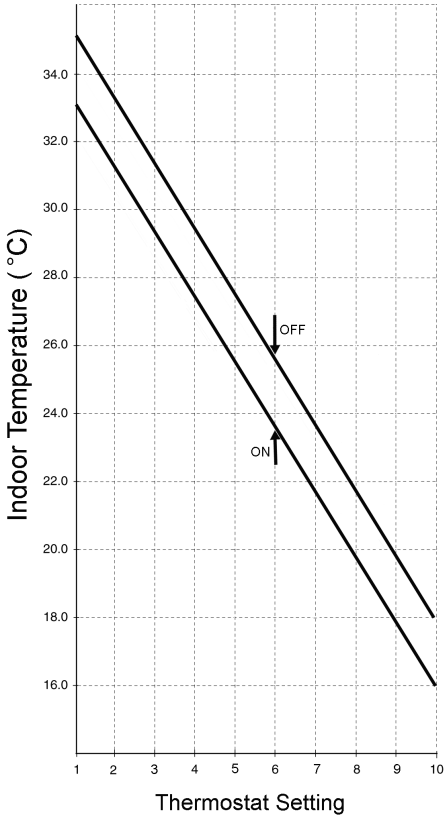
11.1. CW-A90VE & CW-A120VE

11.1.1. Thermostat Characteristics.

● Mechanical Thermostat (Cooling).

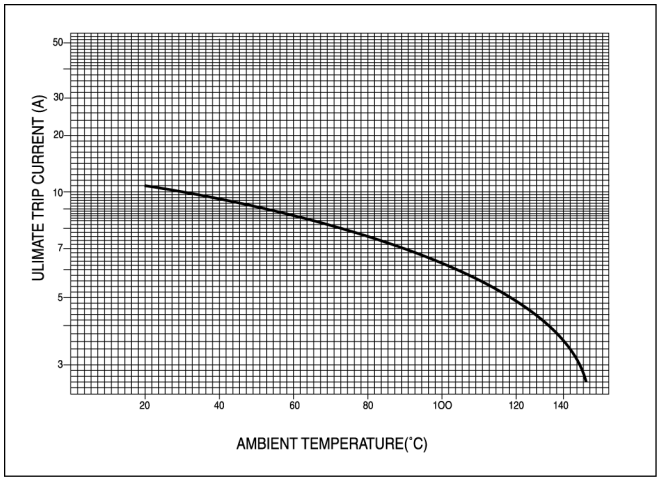


● Mechanical Thermostat (Heating).

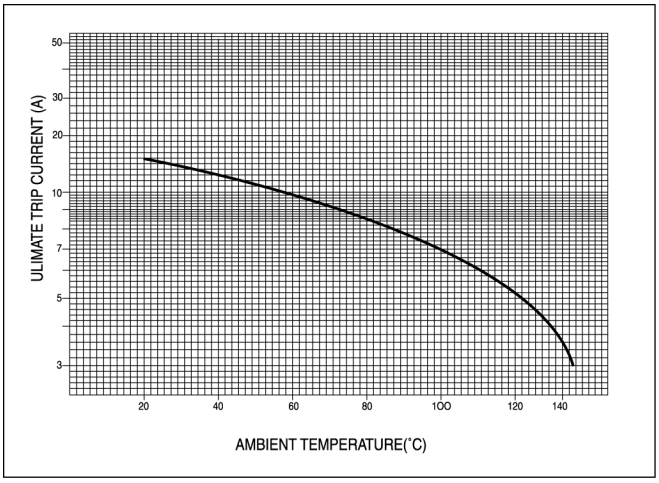


11.2. Overload Protector Characteristics.

11.2.1. CW-A90VE (CWA121091).



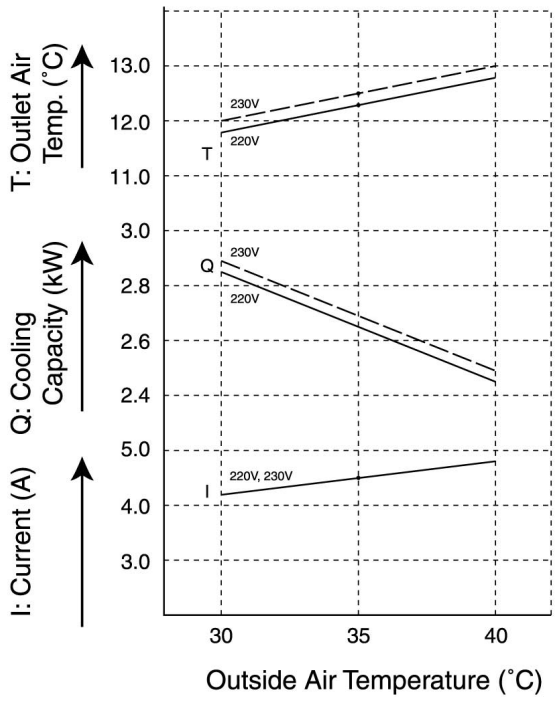
11.2.2. CW-A120VE (CWA121077).



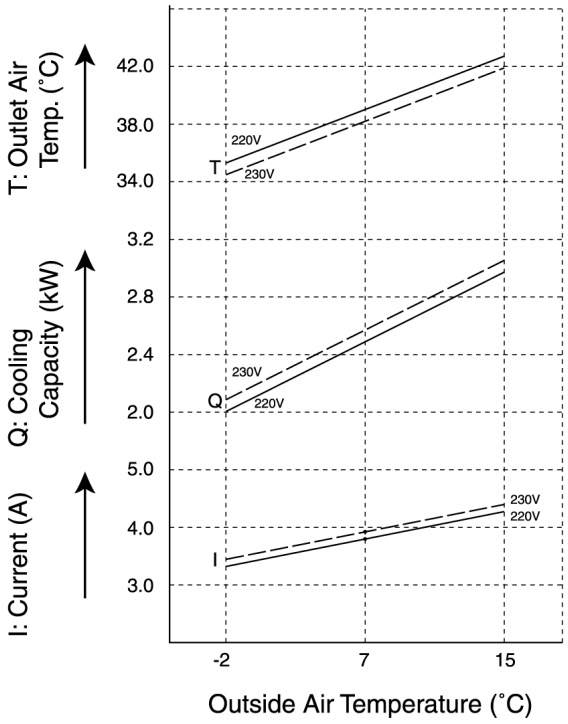
11.3. Operation Characteristics.

11.3.1. CW-A90VE

● Cooling Characteristics Vs. Outdoor Temperature.

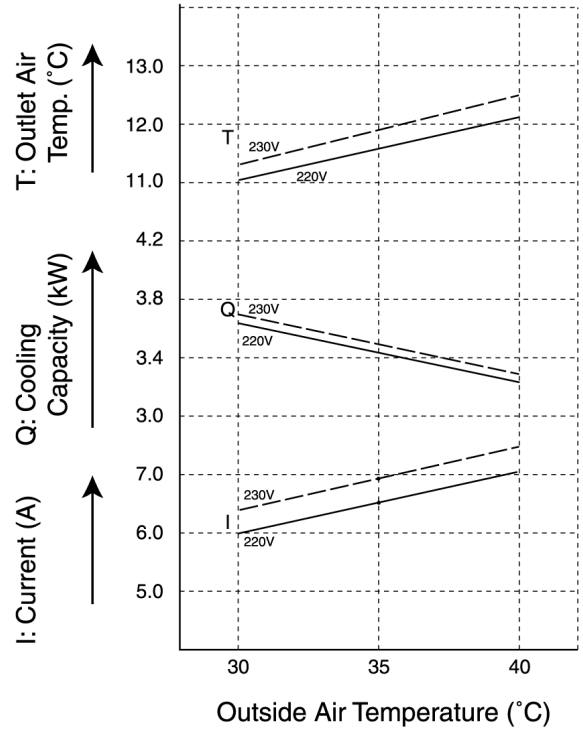


● Heating Characteristics Vs. Outdoor Temperature.

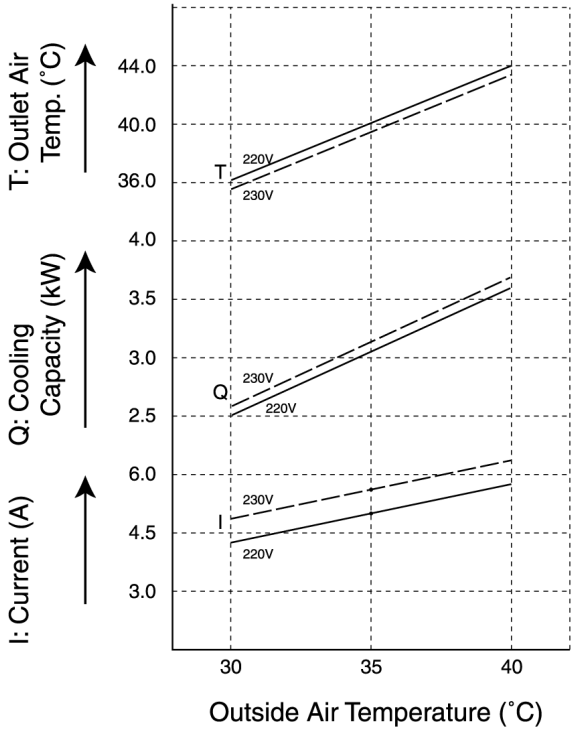


11.3.2. CW-A120VE

● Cooling Characteristics Vs. Outdoor Temperature.



● Heating Characteristics Vs. Outdoor Temperature.



11.3.3. Heat Sensible Capacity Chart

11.3.3.1. CW-A90VE

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°C	2.63	2.39	948	2.47	2.30	1020	2.30	2.14	1092	2.09	1.85	1174
19°C				2.68		1030						
19.5°C	2.92	2.09	958	2.73	1.96	1030	2.55	1.93	1102	2.33	1.85	1185
22.0°C	3.24	1.96	968	3.03	1.72	1040	2.81	1.53	1123	2.57	1.34	1205

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	2.62	2.38	902	2.46	2.30	970	2.30	2.14	1039	2.08	1.84	1117
19.0°C				2.67		980						
19.5°C	2.91	2.08	911	2.72	1.95	980	2.54	1.92	1049	2.32	1.84	1127
22.0°C	3.23	1.95	921	3.02	1.71	990	2.80	1.52	1068	2.56	1.34	1147

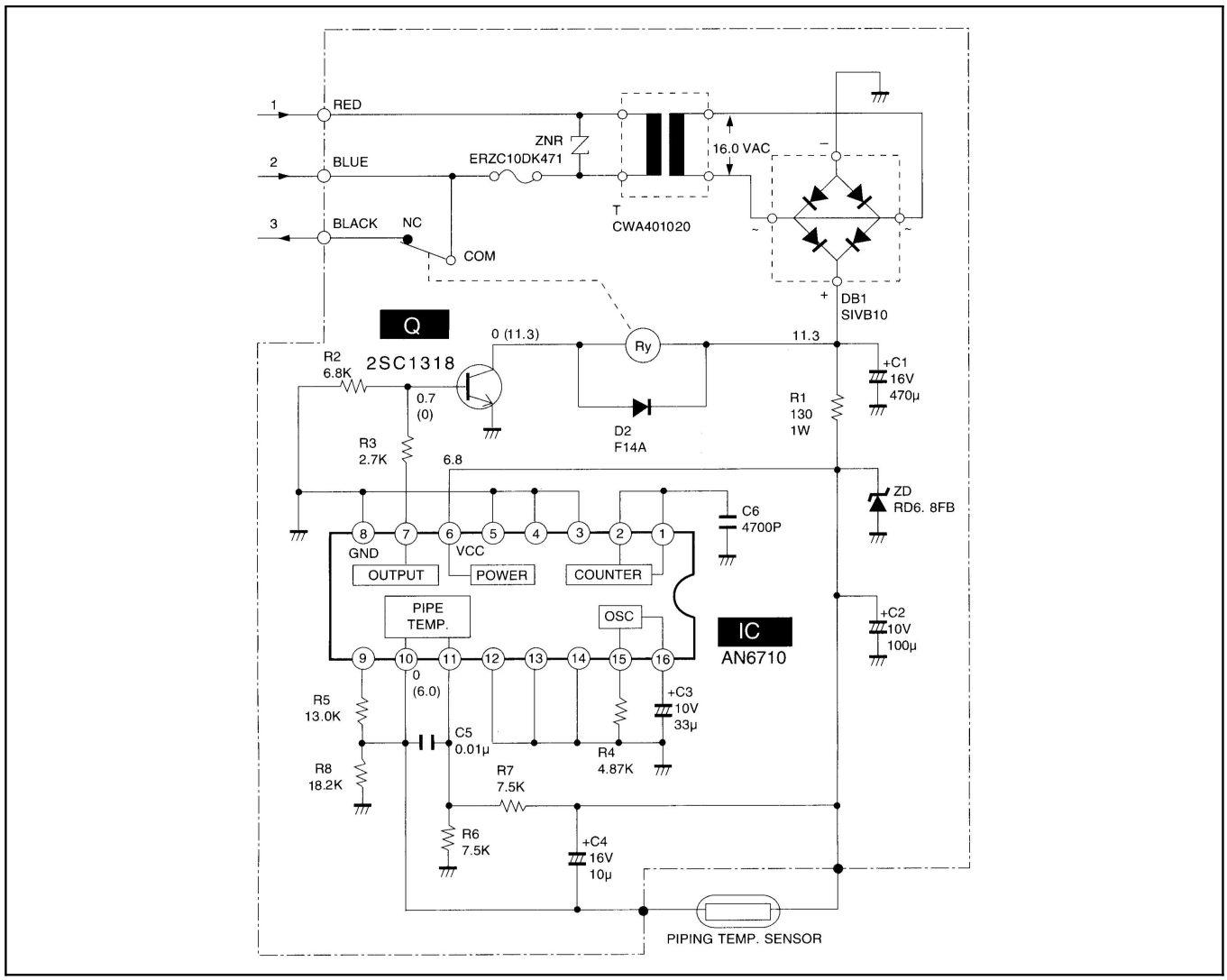
11.3.3.2. CW-A120VE

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	3.35	3.04	1.36	3.15	2.94	1.47	2.94	2.74	1.57	2.67	2.36	1.69
19.0°C				3.42		1.48						
19.5°C	3.73	2.67	1.38	3.49	2.50	1.48	3.25	2.46	1.58	2.98	2.36	1.70
22.0°C	4.14	2.50	1.39	3.86	2.19	1.49	3.59	1.95	1.61	3.28	1.71	1.73

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	3.33	3.03	1.25	3.13	2.92	1.35	2.92	2.72	1.44	2.65	2.35	1.55
19.0°C				3.40		1.36						
19.5°C	3.71	2.65	1.26	3.47	2.48	1.36	3.23	2.45	1.46	2.96	2.35	1.56
22.0°C	4.11	2.48	1.28	3.84	2.18	1.37	3.57	1.94	1.48	3.26	1.70	1.59

12 Electronic Circuit Diagram

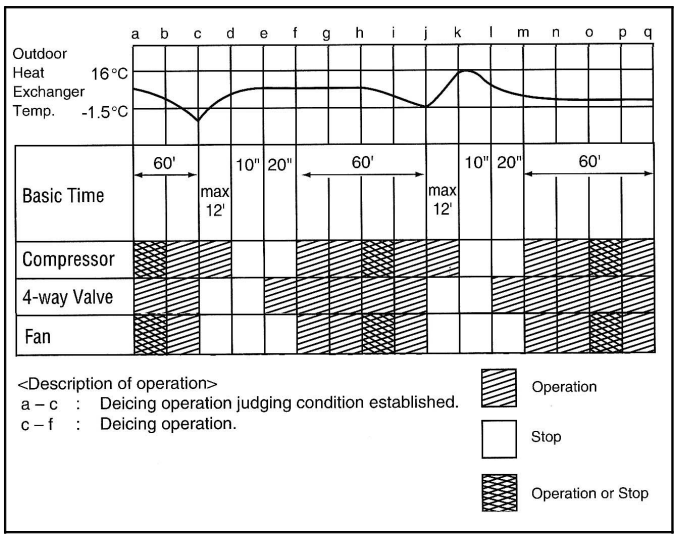
12.1. Deicer Schematic Diagram



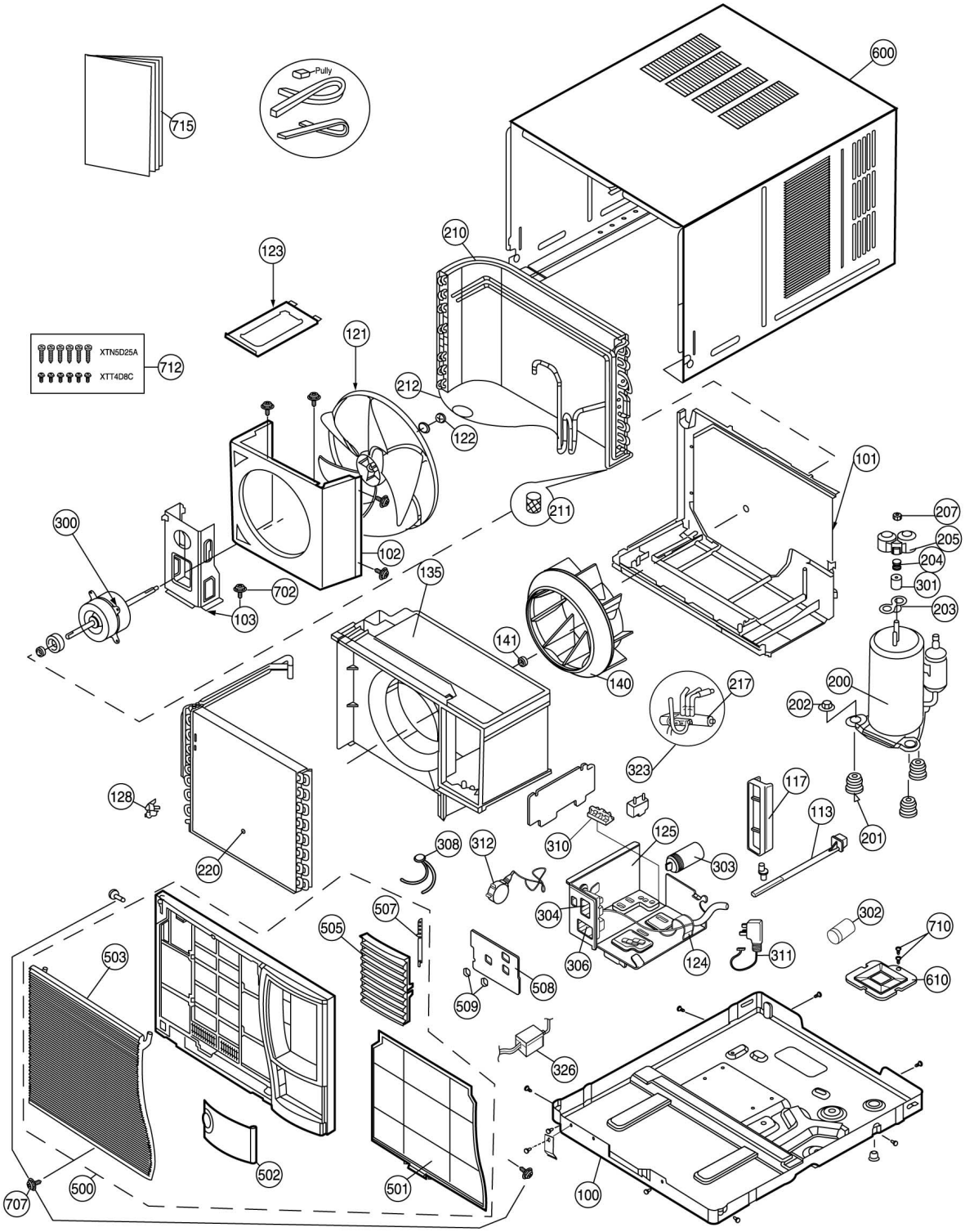
12.2. Deice Operation Details.

- To prevent frosting at outdoor heat exchanger (Condenser) during heating operation.
  - – Deice operation;
    1. Deice operation detection commences in heating operation starts or 60 minutes after previous deice operation. If the outdoor piping temperature drops to -1.5°C continuously during compressor is in operation, deice will start.
  - – Deicing ends when;
    1. 12 minutes after deicing operation starts; or
    2. The outdoor piping temperature rises to about 16°C.
  - – After deicing operation, compressor stops for 30 seconds and 4-way valve stays at cooling position for 10 seconds.

12.2.1. Deicing Time Diagram.



13 Exploded View



(Note)

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

14 Replacement Part List

Ref. No.	Part Name & Description	Qty.	CW-A90VE	CW-A120VE
100	Base Pan Complete	1	CWD52K1054A	<-----
101	Bulkhead Complete	1	CWD531010	<-----
102	Air Guide - Propeller Fan	1	CWD311020	<-----
103	Bracket - Fan Motor	1	CWD541046	<-----
113	Ventilation Lever	1	CWH221005	<-----
117	Vane - Air Swing	1	CWE241094	<-----
121	Propeller Fan	1	CWH001011	<-----
122	Nut - Propeller Fan	1	CWH56032	<-----
123	Holder Air Swing Motor	1	CWD911188	<-----
124	Holder - Capacitor (Compressor)	1	CWH30133	<-----
125	Control Board (Main)	1	CWH102162	<-----
128	Holder - Sensor	1	CWH32086	<-----
135	Air Guide - Blower Wheel	1	CWD32C1024	<-----
140	Turbo Fan	1	CWH031006	<-----
141	Nut - Turbo Fan	1	CWH56053	<-----
200	Compressor	1	CWB092184	2KS206D5DA04
201	Bushing - Compressor Mount	3	CWH50055	CWH50055
202	Nut - Compressor Mount	3	XNG8B	<-----
203	Gasket - Terminal Cover	1	CWB811008	<-----
204	Holder - Overload Protector	1	CWH7041200	<-----
205	Terminal Cover - Compressor	1	CWH7070220U	<-----
207	Nut - Terminal Cover	1	CWH7080300	<-----
210	Condenser	1	CWB32C1239	<-----
211	Strainer	1	B11101	<-----
212	Capillary Tube	1	CWB152192	CWB152191
217	4 - Way Valve	1	CWB00002	<-----
220	Evaporator	1	CWB30C1252	<-----
300	Fan Motor	1	CWA951228	CWA921145
301	Overload Protector	1	CWA121091	CWA121077
302	Capacitor - Fan Motor	1	CWA31618 (2.0μF, 440V)	DS441305BPQH (3.0μF, 440V)
303	Capacitor - Compressor	1	DS371306CPNA (30μF, 370VAC)	DS371356CPNA (35μF, 370VAC)
304	Main Control Switch	1	CWA07056	<-----
306	Switch - Air Swing	1	CWA051002	<-----
308	Thermostat	1	CWA151014	<-----
310	Terminal Board	1	CWA4711022	<-----
311	Power Supply Cord	1	CWA20C2273	<-----
312	Air Swing Motor	1	CWA981079	<-----
323	V - Coil Complete	1	CWA43C695	<-----
326	Deicer	1	CWA171002	<-----
500	Front Grille Complete	1	CWE11C2541	<-----
501	----Air Filter	1	CWD001062	<-----
502	----Grille Door	1	CWE141048	<-----
503	----Intake Grille	1	CWE221053	<-----
505	----Vane	12	CWE241093	<-----
507	----Link - Vanes	1	CWE261039	<-----
508	Control Panel	1	CWE312287	<-----
509	Knob Complete - Turning	2	CWE17C1003	<-----
600	Cabinet Complete	1	CWE00C1078	<-----
610	Drain Pan	1	CWH40077	<-----
702	Screw - Bracket Fan Motor	4	CWH55101	<-----
707	Screw - Front Grille Mount (3 Screws)	1	CWH82C1118	<-----
710	Screw - Drain Pan (2 Screws)	1	CWG86C733	<-----
712	Screw - Unit Installation (4 Screws)	1	CWG86C280	<-----
715	Operating Instructions	1	CWF563672	<-----

- The above parts are kept for seven years in accordance with MEI service policy.
- However, longer lead time will be taken in supplying the non-numbered parts.
- All parts are supplied from MAICO, Malaysia (Vendor Code: 061).