

Order No: APIN1504003CE

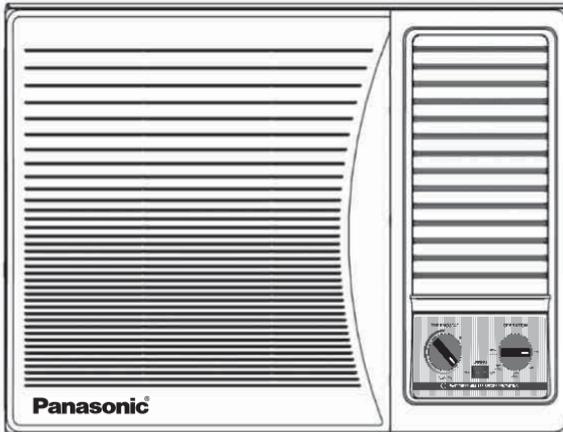
Service Manual

Air Conditioner

MODELS: CW-UC1815AF
CW-UC2415AF

(Manufactured in India)

Destination
OMAN



WARNING

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

IMPORTANT SAFETY NOTICE

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

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Please observe these following safety precautions when using your air conditioner.

- Failure or negligence in observing these safety precautions could cause fire, electrical shock or personal injury.



WARNING This sign warns of risk of death or serious injury.



CAUTION This sign warns of risk of injury or damage to property.

INSTALLATION PRECAUTIONS



WARNING

Do not install, remove and reinstall the unit yourself.

Improper installation may cause leakage, electronic shock or fire.

Please engage an authorized dealer or specialist for the installation work.

Do not add or replace refrigerant other than the specified type.

It may cause product damage, burst and injury. If the supply cord is damage, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.



CAUTION

The room air conditioner must be earthed.

⚠ Improper grounding could cause electric shock.

Do not install the unit in place where there are explosive gas leaks.

⚠ Gas leaks near unit could cause fire.

Ensure that the drainage piping is connected properly.

Otherwise, water will leak out.

OPERATION PRECAUTIONS



WARNING

This sign warns of risk of death or serious injury.



- Do not modify the length of the power cord or use an extension cord.
- Do not touch or operate with wet hands.
- Do not modify or damage the cord.
- Do not turn on the unit by inserting the power plug. Do not switch off the unit by pulling out the power plug.
- Avoid an extended period of direct airflow.
- Do not insert your fingers or other objects into the unit, rotating parts may cause injury.
- Do not try to repair unit yourself.



- Plug in properly before operating and use a specified power cord.
- If abnormal conditions (burnt smell, etc) occur switch off and remove the power plug.
- Confirm to authorized dealer or specialist on usage of specified refrigerant type. Using of refrigerant other than the specified may cause product damage, burst and injury etc.
- This appliance is not intended for use by persons (including, children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible their safety. Children should be supervised to ensure that they do not play with the appliance.



CAUTION

This sign warns of risk of injury or damage to property.



- Do not use the unit for other purposes, than its intended use.
- Do not remove the power plug by pulling the cord.
- Do not block the air intake and outlet vanes.
- Do not splash or direct water at the unit.
- Do not expose the unit to direct sunlight during operation.
- Do not operate the unit without the air filter installed or when the front intake grille has been removed.
- Do not place any object on the unit.
- Do not operate any combustion equipment near the unit's airflow area.
- Do not sit or step on the unit. You may fall down accidentally.
- Do not touch the sharp aluminium fin, sharp parts may cause injury.

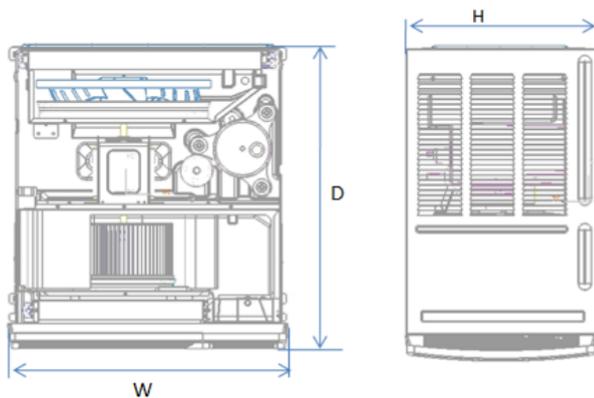


- Switch off the breaker and unplug the unit from the sockets if the unit will not be operated for a long period.
- Pay attention to any damage on the unit caused by extensive usage.
- Ventilate the room occasionally where the unit is installed.
- Unplug the power cord when cleaning the unit.

PRODUCT SPECIFICATIONS

MODEL		[50Hz]	CW-UC1815AF		CW-UC2415AF	
Specifications		Unit	220V	240V	220V	240V
Cooling Capacity		Btu/h	17000	17200	20500	20700
		Ton	1.42	1.43	1.71	1.73
		kW	4.98	5.04	6.01	6.07
Annual Energy Consumption		kWh	1618.75	1662.5	1933.75	2030
Maximum Power Input		kW/A	1.62	1.66	1.93	2.03
EER		Btu/hW	9.19	9.05	9.28	8.92
SEER		Btu/hW	10.50	10.35	10.60	10.20
COP		WW	2.69	2.65	2.72	2.62
Star Rating			N/A		N/A	
Electrical Data	Voltage	V	220	240	220	240
	Running Current	A	8.10	8.43	9.90	10.29
	Power Input	KW	1850.00	1900.00	2210.00	2320.00
Air Circulation [Hi]		m ³ /min.	12		15	
		ft ³ /min.	425		520	
Dimensions (Gross/ Net)	Height	mm	570/ 430		570/ 430	
	Width	mm	760/ 660		760/ 660	
	Depth	mm	760/ 660		830/ 735	
Noise Level	[Hi/Lo]	[dB-A]	52/49		56/52	
Net Weight	Gross Weight	Kg	63		67	
	Net Weight	Kg	58		60	

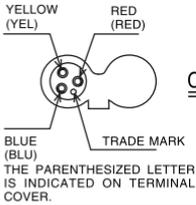
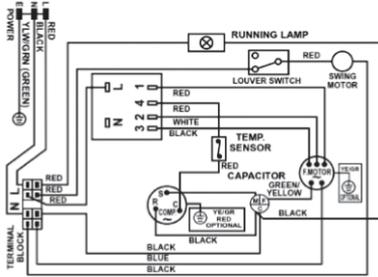
DIMENSIONS



MODEL	D	W	H
CW-UC1815AF	660	660	430
CW-UC2415AF	735	660	430

CW-UC1815AF

POWER SUPPLY CORD
1Ø, 220-200V, 60Hz



Resistance of Fan Motor windings and rated Capacitor

CONNECTION	W2MOT0101726
BLUE-Black	30.7
BLUE-White	34.7
BLUE-Red	38.9
BLUE-YELLOW	69.3
CAPACITOR	W2CELE00170215 6µF, 440/450 VAC

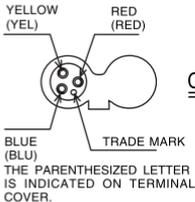
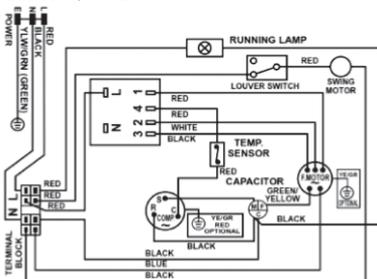
Resistance of Compressor windings and rated Capacitor

Connection	PH310G2C-7KTS
C-R	2.3
C-S	2.8
CAPACITOR	W2CELE00170215 50µF, 440/450 VAC

* Resistance at 20°C of Ambient Temp.

CW-UC2415AF

POWER SUPPLY CORD
1Ø, 220-200V, 60Hz



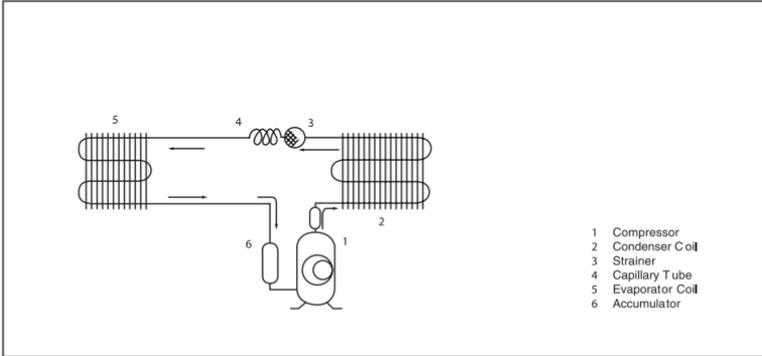
Resistance of Fan Motor windings and rated Capacitor

CONNECTION	W2CMOT0101713
BLUE-Black	24.8
BLUE-White	29.4
BLUE-Red	35.5
BLUE-YELLOW	63.5
CAPACITOR	W2CELE00170215 6µF, 440/450 VAC

Resistance of Compressor windings and rated Capacitor

Connection	PH360G2C-7KUS
C-R	2.9
C-S	3.2
CAPACITOR	W2CELE00170215 50µF, 440/450 VAC

* Resistance at 20°C of Ambient Temp.



- 1 Compressor
- 2 Condenser Coil
- 3 Strainer
- 4 Capillary Tube
- 5 Evaporator Coil
- 6 Accumulator

AIR CONDITIONER PERFORMANCE EVALUATION

SUCTION & DISCHARGE AIR TEMPERATURE DIFFERENCE	CURRENT DRAIN	DETERMINATION	REMEDY
8°C and over (14.4F)	as specified	nothing wrong	• none
8°C and over (14.4F)	higher than specified	nothing wrong, outdoor temperature is too high, heat radiation is not efficient.	• improve heat radiation
under 8°C (14.4F)	higher than specified	something is preventing heat radiation	• excessive amount of refrigerant • improve heat radiation
under 8°C (14.4F)	lower than specified	leakage of refrigerant or refrigerant system is blocked	• locate repair leak • flush refrigeration cycle
under 8°C (14.4F)	higher than specified by 50%	compressor defect	• replace the compressor

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

**WARNING: DISCONNECT UNIT FROM ELECTRICAL POWER SUPPLY BEFORE MAKING ANY ELECTRICAL CHECKS.
DISCHARGE THE CAPACITOR BEFORE CHECKING IT.**

TROUBLE	CHECK	RESULT	CAUSE	REMEDY
Fan Motor and Compressor won't run.	<ol style="list-style-type: none"> 1. Supply Voltage. 2. Fuse Box or Circuit Breaker. 3. Power cord or Wiring Harness. 4. Thermostat Setting. 	<p>Less than - 10% by Rated. Open Contacts.</p> <p>Pulled loose or Shorted.</p> <p>Higher than ROOM TEMP.</p>	Customer Restarted unit immediately without waiting 3 minutes	<p>Consult ELECTRICIAN. Repair Open Circuit. WAIT FOR 3 MINUTES. Repair or Replace it.</p> <p>Set it LOWER.</p>
Fan Motor won't run	<ol style="list-style-type: none"> 1. Objects around Fan. 2. RESISTANCE between Wires. 3. Capacitor Fan Motor. 4. Main Control Switch. 	<p>Locked Fan.</p> <p>Shorted/Open circuit.</p> <p>OHM Meter doesn't Deflect.</p> <p>No contacts at Position Shown.</p>	<p>Fan Hitting Cowling or Foreign Materials. Frozen Bearings.</p> <p>Shorted or Burned out. Capacitor Defect. Main Control Switch defect.</p>	<p>Adjust Fan Position set screw. Remove Foreign Materials. Replace Fan Motor.</p> <p>Replace Fan Motor. Replace Capacitor Fan. Replace Main Control Switch.</p>
Compressor won't run (Fan runs)	<ol style="list-style-type: none"> 1. Thermostat Setting. 2. RESISTANCE between Terminal and the Compressor Body. 3. RESISTANCE between Terminals. 4. Overload Protector. 5. Capacitor Compressor. 6. Thermostat. 7. Main Control Switch. 	<p>Higher than ROOM TEMP. Shorted.</p> <p>Shorted.</p> <p>Infinity between Terminals. OHM Meter doesn't deflect. No CLICK around position. No contacts at Position Shown</p>	<p>Winding Coil touched to the Body.</p> <p>Rear Shorted or Burnt out.</p> <p>O.L. protector defect. Capacitor defect. Thermostat defect. Main Control Switch defect.</p>	<p>Set it lower. Replace Compressor.</p> <p>Replace Compressor.</p> <p>Replace Overload Protector. Replace Capacitor Comp. Replace Thermostat. Replace Main Control Switch.</p>
Insufficient cooling	<ol style="list-style-type: none"> 1. Thermostat setting. 2. Ventilation Door open. 3. Air Filter dirty. 4. Location of installation. 5. Evaporator/Condenser Coil obstructed. 6. Unit capacity for the room too small. 7. Temp difference and Running Current. 	<p>Higher than ROOM TEMP. Open. Clogged or Dirty. Sunlight hitting outdoor side. Obstacles.</p> <p>Clogged or Dirty.</p> <p>Not Satisfied.</p> <p>REFER PERFORMANCE EVALUATION.</p>	<p>Reduces capacity. Restricted air circulation. Restricted Heat Exchanger. Restricted Heat Exchanger.</p> <p>Restricted air circulation.</p> <p>Leakage of refrigerant or refrigeration system is blocked.</p>	<p>Set it lower. Close Vent door. Clean or Replace Air Filter. Consider building an AWNING. Remove obstacles or reinstall unit. Clean by steam cleaner.</p> <p>Replace the Unit with Bigger one.</p> <p>Locate repair leak. Flush refrigeration cycle.</p>
Noise	<ol style="list-style-type: none"> 1. Source of Noise. 	<p>Vibration.</p> <p>Intermittent Noise.</p>	<p>Faulty installation.</p> <p>Fan hitting objects.</p> <p>Refrigerant tubing touching each other.</p> <p>Fan splashing Drain Water.</p>	<p>Reinstall unit or Reinforce the installation. Adjust Fan position or remove Foreign Materials. About 1/2" Clearance.</p> <p>Set the Drain outlet downward, so that the Drain water can run off.</p>
Water dripping inside room	<ol style="list-style-type: none"> 1. Unit Installation. 2. Drain Tray-STYROFOAM Pieces blocking Drain Channel. 	<p>Tilted to inside room. Clogged.</p>	<p>Restricted run off. Clogged or blocked.</p>	<p>Tilt unit to outside slightly. Remove the foreign materials.</p>
Frozen Evaporator	<ol style="list-style-type: none"> 1. Thermostat Setting 2. Air Filter/Evaporator. 3. Temp. difference and Running Current. 	<p>Set too low for ambient conditions.</p> <p>Clogged or Dirty. REFER PERFORMANCE EVALUATION.</p>	<p>Outdoor TEMP. Low (Night time)</p> <p>Restricted air circulation. Leakage of refrigerant or refrigeration system is blocked.</p>	<p>Set Main Control Knob to Fan to melt ICE and Set temp. Control to higher temperature. Clean AirFilter/Evaporator. Locate repair leak. Flush refrigeration cycle.</p>

Please read the following before installing the Air Conditioner.

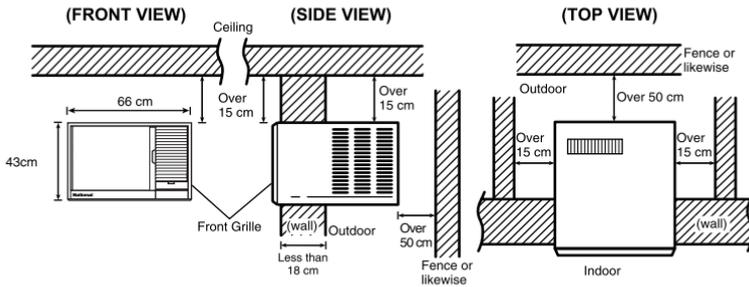
Select the Best Location for the most efficient cooling.

1. Location.

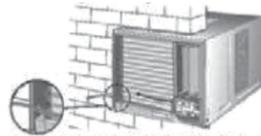
- The air conditioner should be installed in a dry place where there are no draughts.
- Condensation from the air conditioner must be drained to an appropriate location.
- Do not install in a location where flammable gas leaks are a possibility.
- Using in locations where the air is salty such as beside the sea 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 maintenance.

2. How to Install.

- There should not be any obstacles surrounding the unit.
- Prepare the installation hole slightly bigger than cabinet size.

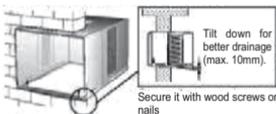


- 1 Remove the cabinet screws.
- 2 Slide the chassis out from the cabinet.
- 6 Depending upon the location of the AC outlet, route the AC cord to either the left or right side while installing the front grille.



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

- 3 Place cabinet into the installation hole.



- 7 Attach the front grille to the cabinet and fasten it with a screw.

- 4 Slide the chassis into the cabinet.
- 5 Lock the chassis to the cabinet with screws.

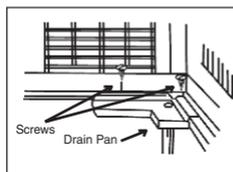


DRAIN WATER

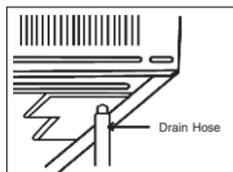
To achieve maximum cooling efficiency, the airconditioner is designed to splash the condensation water on the condenser coil.

In order to avoid the splashing sound, an external drain can be provided by using the following procedure. This may however cause a small loss of performance.

1. Slide out the chassis from the cabinet.
2. Remove the rubber plug from the body base plate.
3. Install the drain pan at the corner of the cabinet with two screws.
4. Connect the drain hose to the outlet on the bottom of the drain pan.
5. Slide the chassis into its original place in the cabinet.



Internal View



External View

- ❶ Remove the rubber plug from the cabinet. Then slide the chassis out from the cabinet.



Remove the rubber plug ↓

- ❷ Install the drain pan.



Install the drain pan at the right corner of the cabinet using 2 screws.

- ❸ Connect a drain hose. Fit the drain hose to the drain pan.

EXTERNAL VIEW

Underside view with drain pan and hose in place.



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

- ❹ Slide the chassis back into the cabinet. Lock the chassis to the cabinet. Then reinstall the cabinet to the chassis.



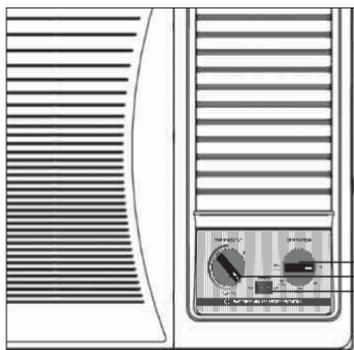
NOISE CONSIDERATION

- 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.



TRANSFERRING

- Repositioning or transfer of the air conditioner due to renovation or moving requires an additional service charge. Please consult your dealer before moving.



1. Power Supply

Set the Main Control Knob to the OFF position; confirm that the power supply cord is connected to a proper AC outlet.

Recommended

Use the air conditioner under the following conditions:

- Operating temperature range.

(unit in °C)

	Indoor unit		Outdoor unit	
	D.B.T.	W.B.T.	D.B.T.	W.B.T.
Maximum Temperature	32	23	43	26
Minimum Temperature	21	15	21	15

D.B.T.:Dry BulbTemperature
W.B.T.:WetBulbTemperature

- Continuous operation at over 90% humidity may create condensation and waterdrops on the intake and outlet vents.

2. Main Control Knob

Set either LOW COOL or HIGH COOL as required. (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 least 3 minutes before resetting to a cooling operation.

3. Thermostat Control Knob

Set the Thermostat Control Knob at the desired setting. (Usually 6 ~ 7 is a recommended setting position.) If the room temperature is unsatisfactory after a reasonable amount of time, turn the control knob clockwise to cool the room more. Or anticlockwise to cool the room less.

- When the Thermostat Control Knob is set to 10, moisture may freeze onto the coils and prevent effective cooling. If this happens, turn the knob to HIGH FAN, and the thermostat control anticlockwise. This will quickly defrost the cooling coil so that normal cooling can be resumed.

4. Air Swing Switch (Airflow direction adjustment Side-to-Side)

For fixed side-to-side air direction, set the Air Swing Switch to ON until the desired air direction is obtained, then move it to OFF.

For continuous side-to-side air circulation, set the Air Swing Switch to ON and leave it there.

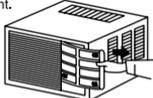
Always turn off the air conditioner and main power supply before cleaning to ensure safety.

Air Filter

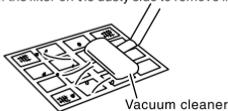
The air filter behind the intake grille should be washed at least every two weeks or as often as it needs cleaning.

HOW TO CLEAN THE AIR FILTER:

1. To remove the air filter, grasp the tab on the filter and pull to the right.



2. Vacuum the filter on the dusty side to remove light dust.



3. Wash the filter, cleaner side up, under gently flowing water to wash out accumulated dust and lint.



4. If the filter is very dirty, use a mild household detergent in the wash water.



Let the filter dry thoroughly before reinstalling it. When reinstalling the filter, be sure the word **FRONT** is facing you as you slide the filter back into place.

Front Grille

Clean the front grille with a clean cloth lightly dampened with mild liquid dish-washing detergent.



Cabinet

Clean the cabinet with mild soap or detergent and lukewarm water.



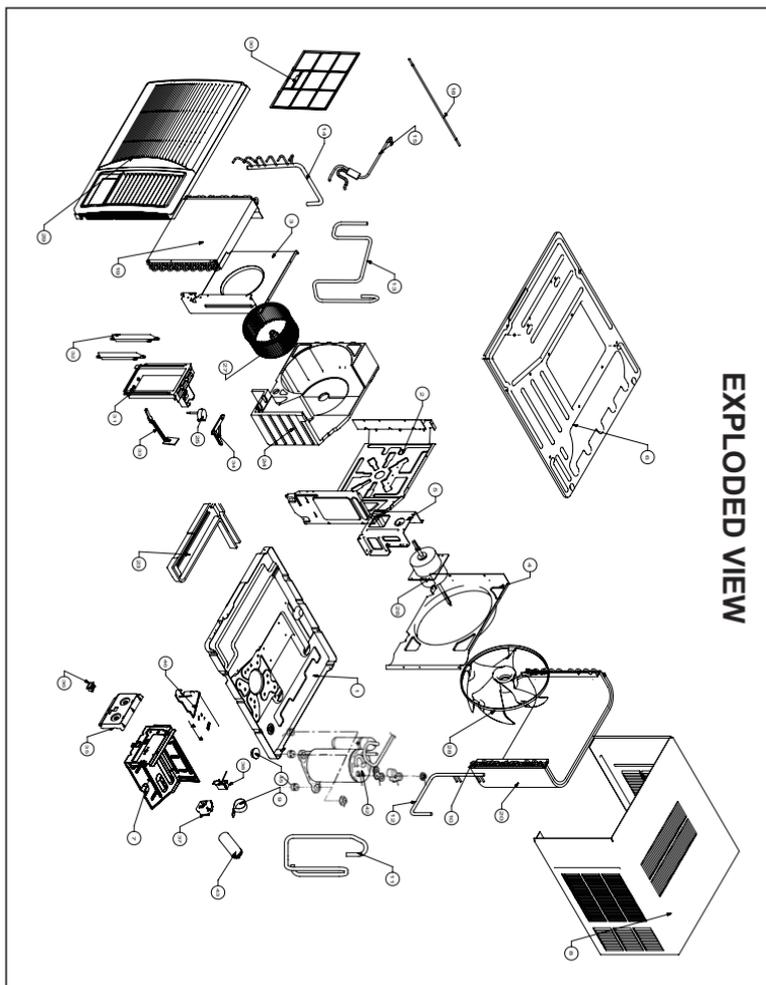
Caution

Wipe off dirt with a soft, dry cloth (use a vacuum cleaner to remove dust from the air inlet.) Use a cloth and water less than 40°C to remove stubborn dirt (the cloth should be well-wrung). Do not use the following cleansers as they cause the paint to peel and lead to malfunctions: Benzene, thinner, scouring powder, chemical-soaked cloths, etc.



Annual check

- * After long-term usage of room air conditioners, dust and dirt will accumulate inside, lowering the performance. This may cause the generation of odour or may impede the drainage of the dehumidifying water.
- * Besides regular cleaning of the air conditioner, a separate annual check is also recommended (payable). Please request your dealer to carry out these checks.



EXPLODED VIEW

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

REPLACEMENT PARTS LIST

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EV NO.	PART DESCRIPTION	CW-UC1815AF	CW-UC2415AF	QTY	IGP
1	BASE PAN	CW1LSHE00192	CW2CSHE0011	1	
2	EVA HOUSING	CW1LSHE00294	CW2CSHE0012	1	
3	CC HOUSING	CW1LSHE00295	CW2CSHE0013	1	
4	FAN HOUSING	CW1LSHE00296	CW2CSHE0014	1	
5	MOTOR STAND	CW1LSHE0015	CW2CSHE0015	1	
6	TOP COVER	CW1LEPS00298	CW2CSHE0016	1	
7	CONTROL BOX	CW2CCON0101777	CW2CCON0101777	1	
8	CABINET	CW1LSHE001496	CW2CSHE001182	1	
9	CAPACITOR CLAMP	CW2CSHE0019	CW2CSHE0019	1	
10	COPPER DRYER	CW1LCOP002365	CW2CCOP00112	1	o
11	DISCHARGE LINE	CW1LCOP0021231	CW2CCOP00113	1	o
12	DISTRIBUTOR DISCHARGE	CW1LCOP002166	CW2CCOP00114	1	
13	SUCTION LINE	CW1LCOP002603	CW2CCOP001587	1	
14	EVA OUTLET	CW1LCOP002167	CW2CCOP00116	1	
15	EVA LIQUID LINE 1	CW1LCOP002169	CW2CCOP00117	1	o
16	EVAP LIQUID LINE2	CW1LCOP002170	CW2CCOP00118	1	
17	EVA LIQUID LINE 3	CW1LCOP002171	CW2CCOP00119	1	
18	CAPILLARY TUBE	CW2CCOP0101585	CW2CCOP001176	2/3	
19	EVAPORATOR	CW2CCOL00122	CW2CCOI00122	1	
20	CONDENSOR	CW2CCOL001685	CW2CCOI001685	1	
23	DRIP TRAY	CW1LEPS0021445	CW2CEPS00126	1	o
24	SCROLL	CW1LEPS002115	CW2CEPS00127	1	o
25	AIR SWING MOTOR	CW2CMOT00129	CW2CMOT00129	1	o
26	FAN MOTOR	CW2CMOT0101726	CW2CMOT0101713	1	o
27	BLOWER WHEEL	CW1LBLO0021199	CW1LBLO0021199	1	o
28	FAN	CW1LFAN002672	CW2CFAN001615	1	o
29	FRONT GRILLE COMPLETE	CW2CPLA0101691	CW2CPLA0101691	1	o
30	AIR FILTER	CW2CPLA01016911	CW2CPLA01016911	1	o
31	LOUVER WINDOW	CW1LPLA002439	CW2CPLA00167	1	o
32	LOUVER VANES	CW2CPLA00170	CW2CPLA00170	1	o
33	EXHAUST LEVER	CW1LPLA002438	CW2CPLA00169	1	o
34	LOUVER GUIDE	CW1LPLA002122	CW2CPLA00168	1	o
35	CONTROL PANEL	CW2CPLA0101697	CW2CPLA0101697	1	o
36	ROCKER SWITCH	CW2CCON0101577	CW2CCON0101577	1	o
37	SELECTOR SWITCH	CW2CCON0101635	CW2CCON0101635	1	o
38	THERMOSTAT	CW2CCON0101576	CW2CCON0101576	1	o
42	COMPRESSOR ASSY	PH310G2C-7KTS	PH360G2C-7KUS	1	o
42.1	COMPRESSOR GROMAT	-	-	3	
42.2	NUTCOMP. MOUNT	-	-	3	
42.3	GASKET FOR TERMINAL	-	-	1	
42.4	TERMINAL COVER	-	-	1	
42.5	TERMINAL NUT	-	-	1	
43	DUAL CAPACITOR	CW2CELE00170215	CW2CELE00170215	1	o
45	DRAIN PLUGBASE PAN	CW2CRUB0011741	CW2CRUB0011741	1	
46	CONTROL PLATE	CW2CSHE0011294	CW2CSHE0011295	1	
	OPERATING INSTRUCTIONS	CW2CMAN0111822	CW2CMAN0111822	1	

All parts are supplied from APIN, India (Vendor Code : 00026071)
 "o" marked parts are recommended to be kept in stock