

SERVICE MANUAL

Koldfront Cool Only Window Air Conditioner

MODELS COVERED:

WAC8002WCO

WAC10002WCO

WAC12002WCO

CAUTION: READ ALL SAFETY PRECAUTIONS IN THIS
MANUAL BEFORE SERVICING THE UNIT

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SAFETY PRECAUTIONS

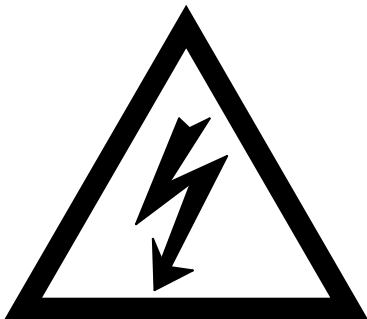
WARNING: This manual and the information contained herein is intended for use by certified technicians. The manufacturer or seller is not responsible for the interpretation or misuse of the information provided, nor does it assume any liability in connection with its use.

The safeguards and warnings indicated in this manual do not cover all possible conditions which may occur. Common sense, caution, and care must be exercised.

- To prevent electric shock, always unplug an appliance from the power supply before attempting any service.
- Disconnect the power cord by grasping the plug, not the cord.
- Do not bypass, cut, or remove the grounding plug.
- Prevent water from spilling onto electric elements or the machine parts.
- Always refer to the rating label on the appliance for rated current and voltage.
- Always check line voltage and amperage.
- Always use exact replacement parts.
- Any attempt to repair a major appliance may result in personal injury and property damage.

Electrical Safety

- Do not exceed the power outlet ratings.
- It is recommended that the unit be connected to its own circuit.
- A standard electrical supply that is properly grounded in accordance with the National Electrical Code and all state and local codes and ordinances is required.
- Do not use outlets that can be turned off by a switch or pull chain.
- Always turn the unit off and unplug it from the outlet when cleaning.
- Unplug the unit if it is not going to be used for an extended period of time.
- Do not operate the unit with a power plug missing the ground plug, a damaged cord, or a loose socket.
- Be sure the appliance is properly grounded.
- Do not bypass, cut, or remove the grounding plug.
- If the power cord is damaged, it must be replaced by the manufacturer or a qualified technician.
- Do not use extension cords or power strips with this unit. You may need to contact an electrician if it is necessary to use a longer cord or if you do not have a properly grounded outlet. Do not modify the power cord's length or share the outlet with other appliances.
- Do not start or stop the unit by switching the electrical circuit's power on and off.
- Immediately unplug the unit if it makes strange sounds, emits an odor or smoke and contact customer service.
- Do not remove any part of the casing unless instructed by an authorized technician.
- Before the appliance is removed from service or discarded, remove any doors and cut off the power cord.

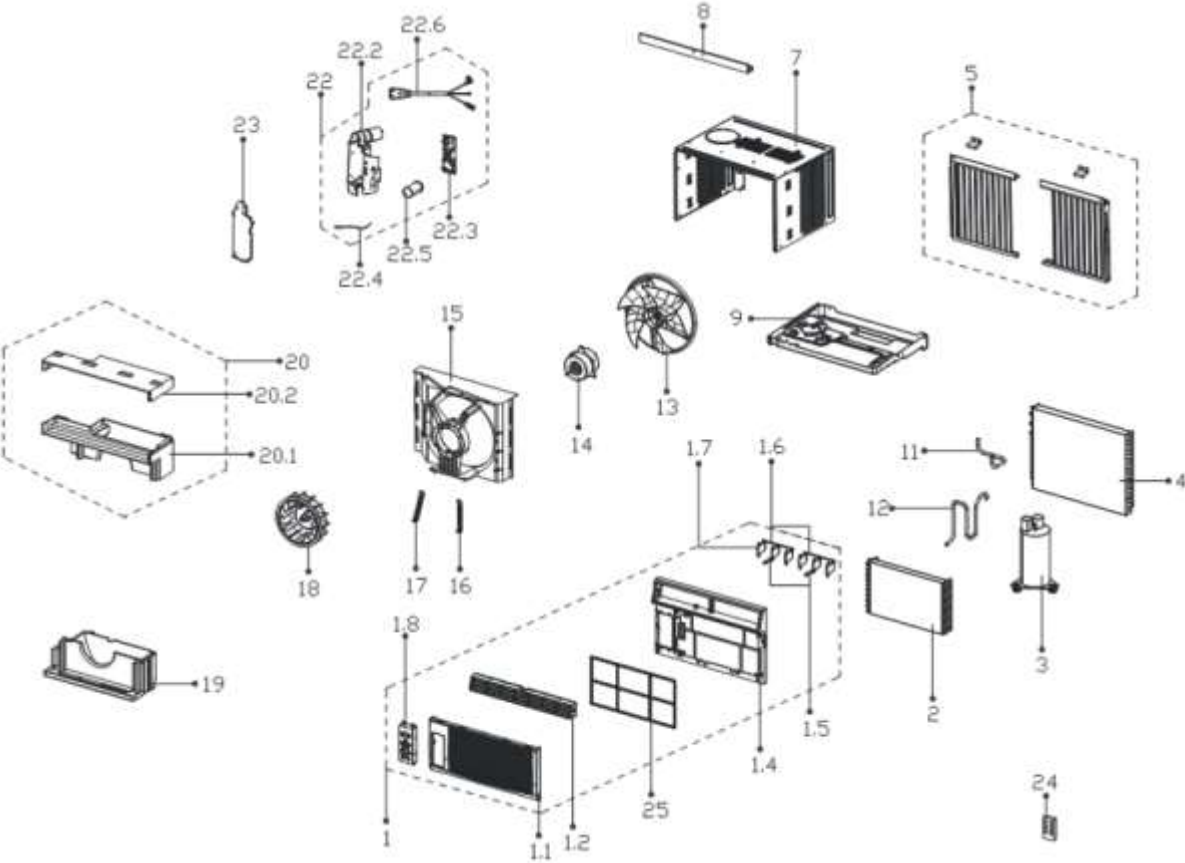


General Safety

- Always unplug an appliance from the power supply before attempting any service. Disconnect the power cord by grasping the plug, not the cord.
- Do not allow children or pets to play on or in the appliance.
- This machine 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 machine by a person responsible for their safety.
- Do not install or store this appliance where it will be exposed to the weather.
- Disconnect from the power socket before cleaning or maintenance.
- If the plug (power cord) is damaged, it must be replaced by the manufacturer or an authorized service representative.
- This machine shall be repaired only by an authorized service representative. Only genuine replacement parts should be used.
- If connected to a circuit protected by fuses, use time-delay fuses with this appliance.
- Do not lean items against the glass door.
- Please do not close the door with excessive force. If it is found difficult to close the door, please check for obstruction.
- When you plan to dispose of this unit in the future, please comply with the local waste disposal regulations. Remove any doors so that children and pets will not be trapped in the unit.

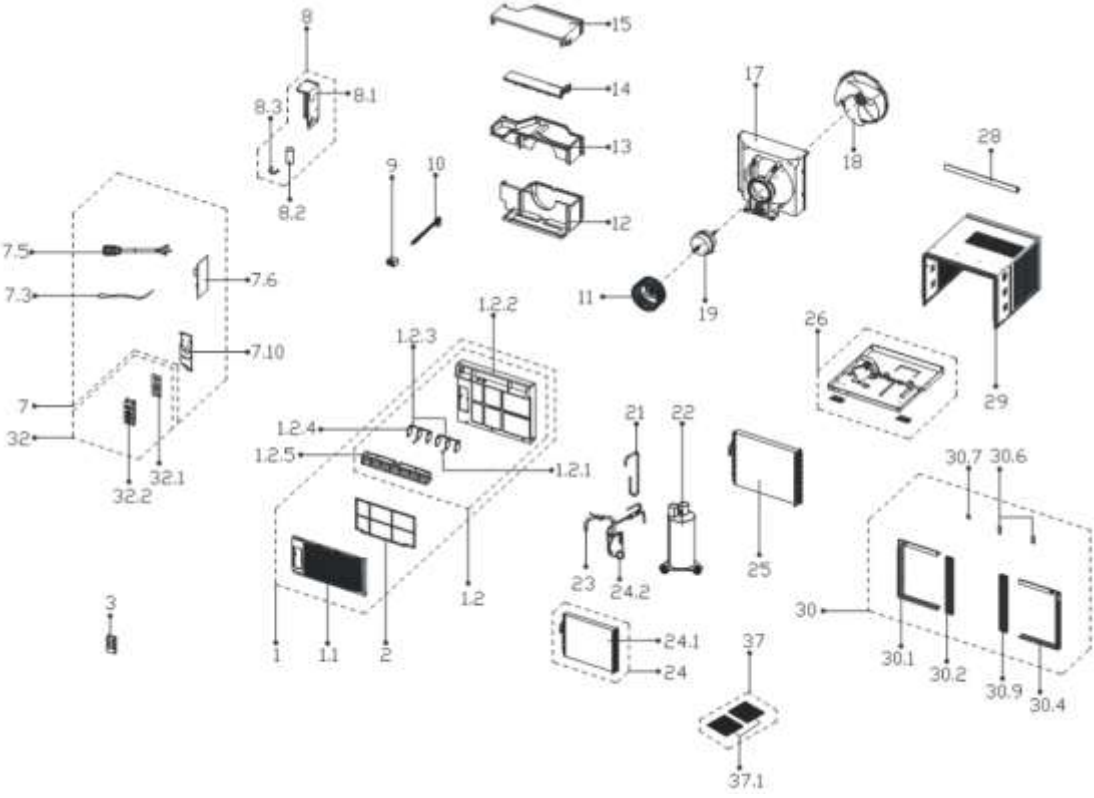
1 Exploded Diagrams and Part Lists

1.1 WAC8002WCO



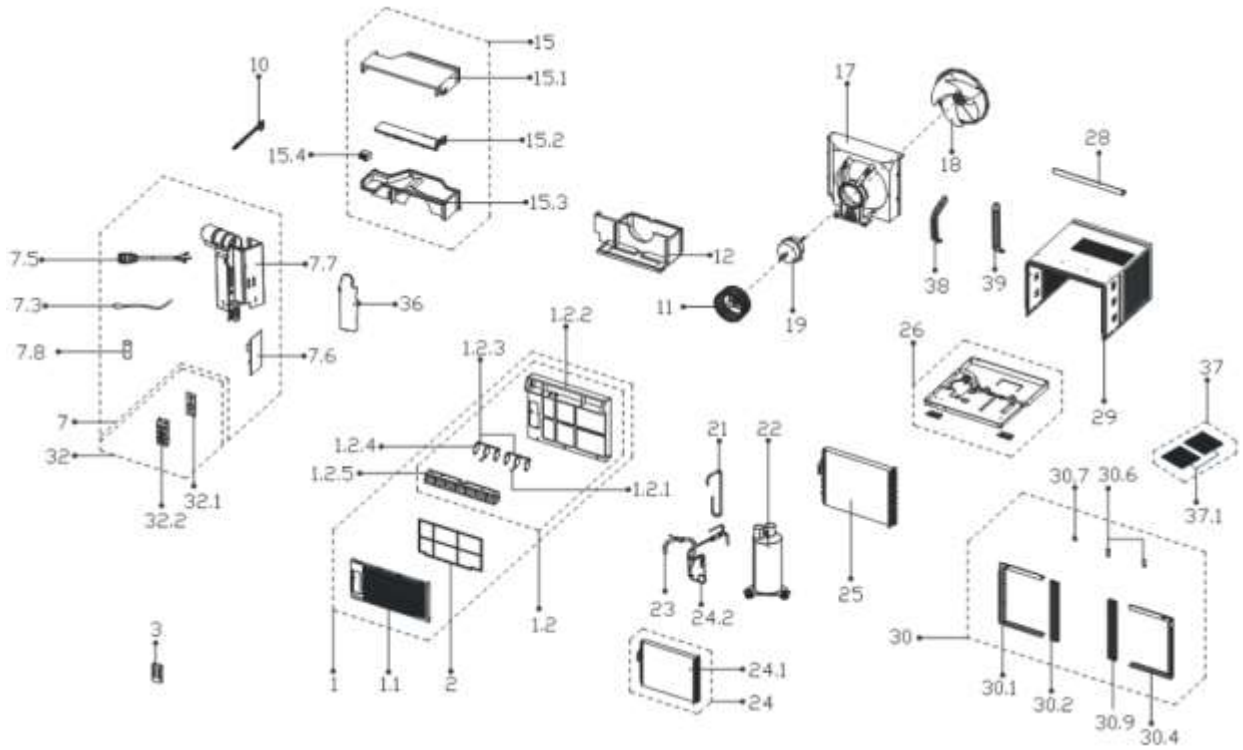
No.	Part Name	No.	Part Name
1	Front panel assembly	14	Fan motor
1.1	Front panel	15	Fan housing
1.2	Air outlet frame	16	Left pulling rod of fan motor
1.4	Panel frame	17	Right pulling rod of fan motor
1.5	Vertical vane I	18	Centrifugal fan
1.6	Louver holder	20	Volute shell assembly
1.7	Vertical vane II	20.1	Mid volute shell
1.8	Display box assembly	20.2	Top volute shell
2	Evaporator assembly	22	Electronic control box assembly
3	Compressor	22.2	Electronic control box
4	Condenser assembly	22.3	Main control board subassembly
5	Installation accessories	22.4	Room temperature sensor
7	Cabinet assembly	22.5	Capacitor
8	Upper shutter frame Assembly	22.6	Power supply cord
9	Chassis assembly	23	Cover of electronic control box
11	Parts of compressor return pipe	24	Remote control
12	Compressor exhaust pipe	25	Filter
13	Axial fan		

1.2 WAC10002WCO



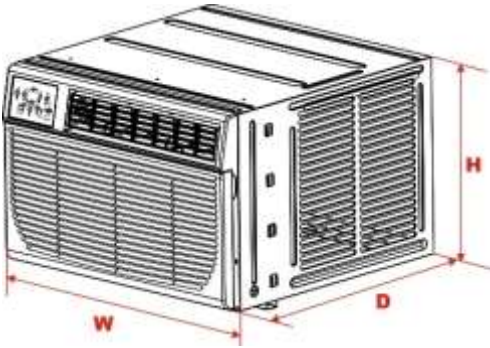
No.	Part Name	No.	Part Name
1	Panel assembly	17	Fan housing
1.1	Front panel	18	Axial fan
1.2	Panel frame	19	Fan motor
1.2.1	Horizontal louver	21	Parts of compressor return pipe
1.2.2	Panel frame	22	Compressor
1.2.3	Connecting rod of louver	23	Parts of compressor exhaust pipe
1.2.4	Horizontal louver	24	Evaporator assembly
1.2.5	Horizontal louver	24.1	Evaporator
2	Filter	24.2	Capillary tube assembly
3	Remote control	25	Condenser assembly
7	Subassembly of upper air-out	26	Chassis assembly
7.3	Room temperature sensor	28	Upper shutter frame
7.5	Power supply cord	29	Shell
7.6	Main control board subassembly	30	Installation accessories
7.10	Electrical control box cover	30.1	Left shutter frame
8	Electrical box subassembly	30.2	Shutter
8.1	Electrical control box	30.4	Right shutter frame
8.2	Capacitor	30.6	Shutter clamp
8.3	Capacitor clamp	30.7	Installing L plate
9	Guide bracket	30.9	Shutter
10	Fresh air door	32	Display box assembly
11	Centrifugal fan	32.1	VLED display module
12	Lower air duct foam	32.2	Control panel
13	Foam of middle air channel	37	Installation accessory
14	Wind baffle board	37.1	Sponge
15	Upper air duct foam		

1.3 WAC12002WCO



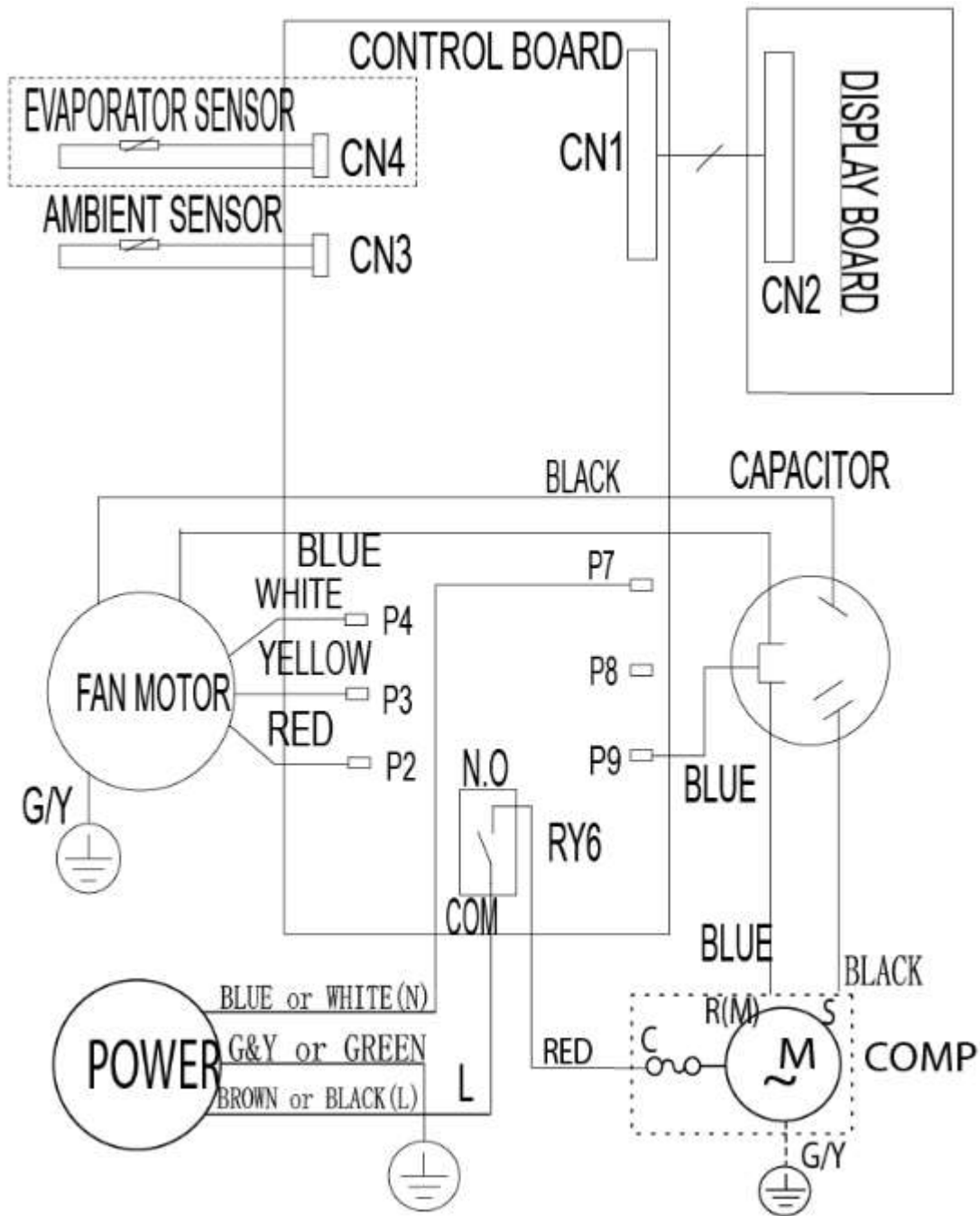
No.	Part Name	No.	Part Name
1	Panel assembly	19	Fan motor
1.1	Front panel	21	Suction pipe
1.2	Panel frame	22	Compressor
1.2.1	Horizontal louver	23	Parts of compressor exhaust pipe
1.2.2	Panel frame	24	Evaporator assembly
1.2.3	Connecting rod of louver	24.1	Evaporator
1.2.4	Horizontal louver	24.2	Capillary tube assembly
1.2.5	Horizontal louver	25	Condenser assembly
2	Filter	26	Chassis assembly
3	Remote control	28	Upper shutter frame
7	Electronic control box assembly	29	Shell
7.3	Room temperature sensor	30	Installation accessories
7.5	Power supply cord	30.1	Left shutter frame
7.6	Main control board subassembly	30.2	Shutter
7.7	Electronic control box	30.4	Right shutter frame
7.8	Capacitor	30.6	Shutter clamp
10	Fresh air door	30.7	Installing L plate
11	Centrifugal fan	30.9	Shutter
12	Volute shell (below)	32	Display box assembly
15	Volute shell assembly	32.1	Display board assembly
15.1	Upper volute shell	32.2	Control panel
15.2	Wind baffle board	36	Cover of electronic control box
15.3	Mid volute shell	37	Installation accessories
15.4	Bracket of fresh air door	37.1	Sponge
17	Fan housing	38	Fixing board
18	Axial fan	39	Fixing board

1.4 Dimensions



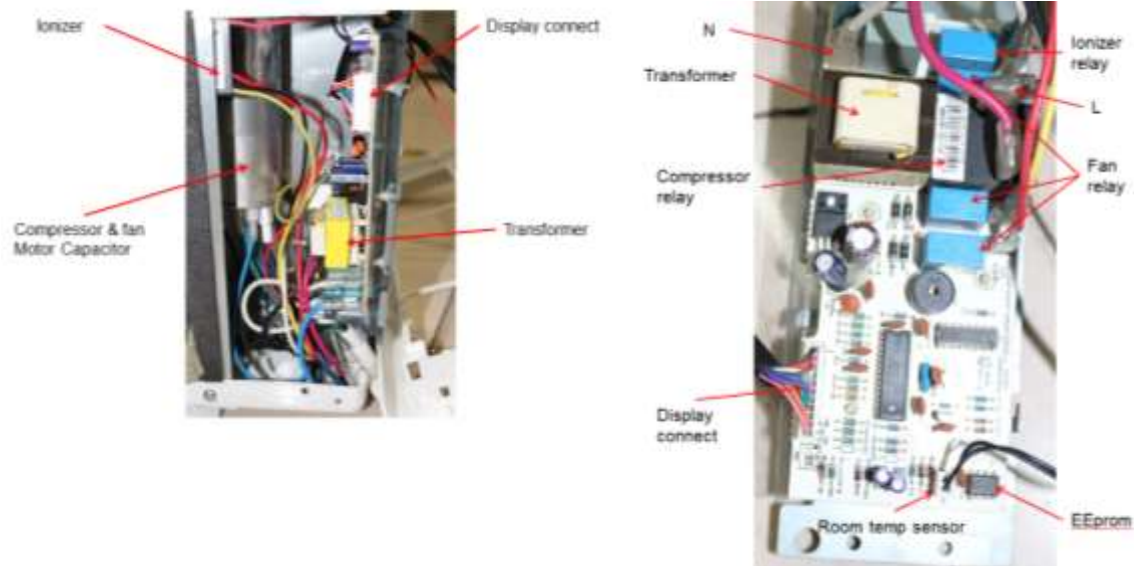
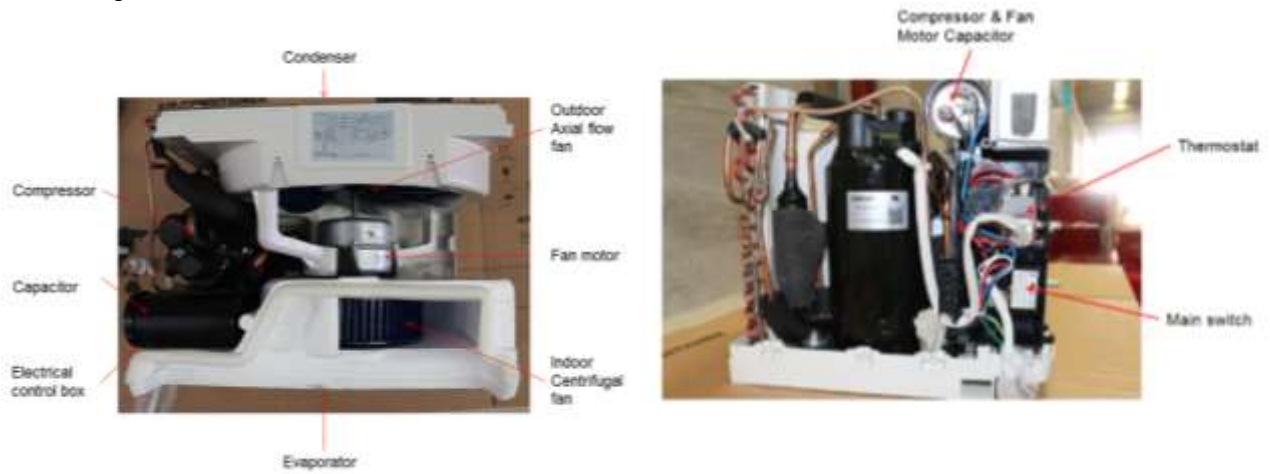
	Width	Height	Depth
WAC8002WCO	18-1/2" (471 mm)	13-3/8" (340 mm)	17-1/2" (444 mm)
WAC10002WCO WAC12002WCO	19" (482 mm)	14-5/8" (372 mm)	21-1/2" (545 mm)

2 Wiring Diagram (All Models)



3 Main Components

3.1 Major Parts



3.3 Sensor and Display Connections on Main PCB

All sensor connections are clearly marked on the PCB (Room, Def) and are located near the display ribbon cable connection. Refer to this diagram when troubleshooting unit display issues or sensor error codes.


4 Operating Instructions

4.1 Display Panel Controls

	On / Off
	Energy Saver
	Timer
	Mode
	Check Filter
	Fan Speed
	Sleep
	Temp / Timer Up
	Temp / Timer Down





On-Off Button


Press  to turn on or off the unit.

NOTE: The Energy Saver feature will automatically turn on in Cool, Dry, and Auto modes.

Temp Button


Press or hold either Up  or Down  button until desired temperature is seen on the digital display. This temperature will be automatically maintained anywhere between 62 °F (17° C) and 86° F (30° C). Pressing and holding both Up and Down buttons for 3 seconds, will change the display from °F to °C.

Mode select Button

To choose the operating mode press Mode . Each time you press the button a mode is selected in a sequence that goes from Auto, Cool, Dry, to Fan. The indicator light beside the mode button will be illuminated and remain on once the mode is selected.





NOTE: The unit will automatically turn on the Energy Saver function under Cool, Dry, Auto.

Fan speed Button


To select the speed of the fan press Fan Speed  which cycles through four steps- Auto, Low, Medium, or High. Each time the button is pressed the fan speed mode is shifted.

NOTE: The fan speed cannot be adjusted during “Dry” mode.


Timer Button

- When the unit is on or off, press the Timer  button and the “Timer On” indicator light illuminates. It indicates that the Auto Start/Stop program is initiated.
- To switch to off press the Timer  button again and the “Timer Off” indicator light illuminates. It indicates that the Auto Stop program is initiated.
- Press or hold the Up  or Down  button to change the Auto Time by ½ hour increments up to 10 hours or 1 hour increments up to 24 hours. The control will count down the time remaining until start.
- The selected time will display for five (5) seconds and then will automatically revert back to display the previous temperature setting or room temperature when the unit is on.
- Turning the unit ON or OFF at any time or adjusting the timer setting to 0.0 will cancel the Auto Start/Stop program.
- The timer is not a permanent setting. The user must set the timer each they wish to use it.


Sleep Button

To initiate, press the Sleep  button. In this mode the selected temperature will increase by 2°F (1°C) 30 minutes after the mode is selected. The temperature will then increase by another 2°F (1°C) after an additional 30 minutes. This new temperature will be maintained for 6 hours before it returns to the originally selected temperature. This ends the Sleep mode and the unit will continue to operate as originally programmed. The Sleep Mode program can be cancelled at any time during operation by again pressing the Sleep button.

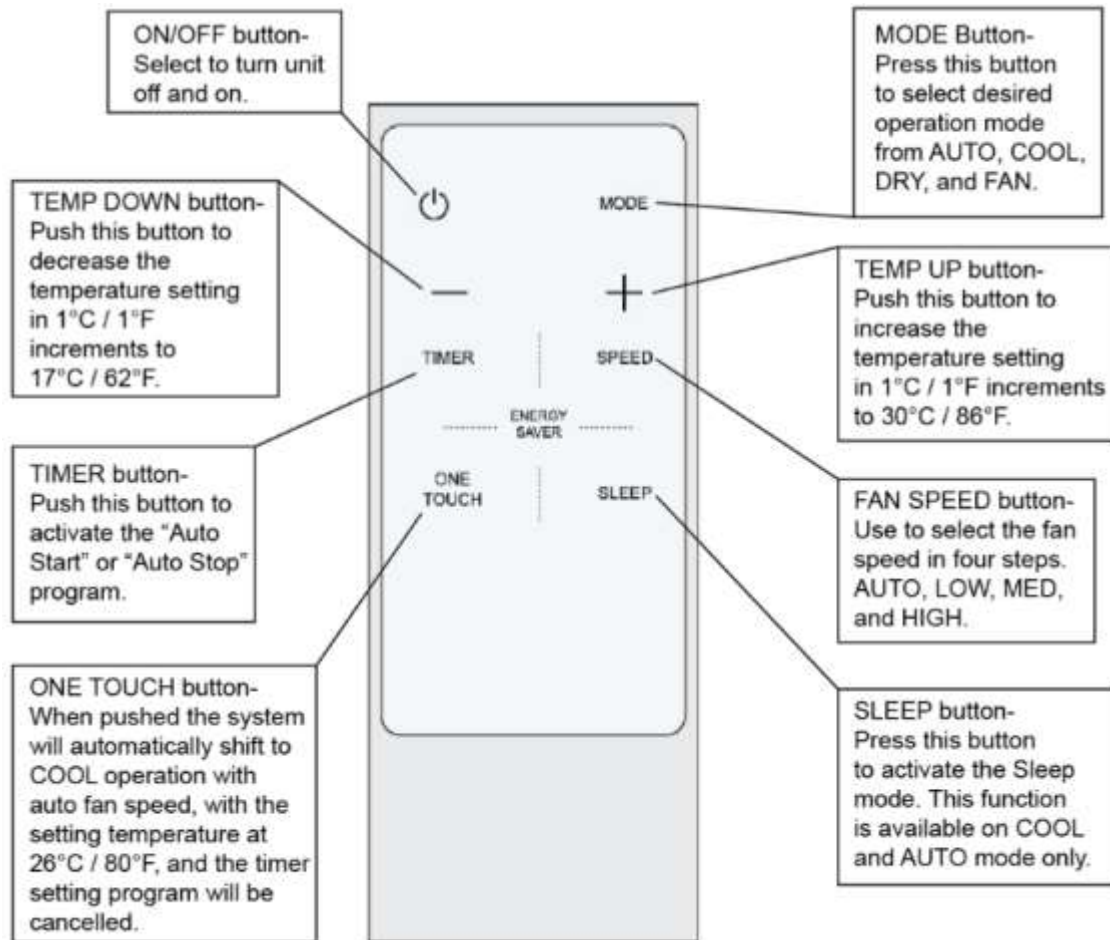
Energy Saver Button

To start the Energy Saver feature, press the Energy Saver  button. This feature is available on Cool, Dry, and Auto. The fan continues to run for 3 minutes after the compressor shuts off. The fan then cycles on for 2 minutes at 10 minute intervals until the room temperature is above the set temperature, at which point the compressor turns back on and cooling starts.

Check Filter Button

This feature is a reminder to clean the Air Filter for more efficient operation. The LED light will illuminate after 250 hours of operation. To reset after cleaning the filter, simply press the Check Filter  button and the light will go off.

4.2 Remote Controls



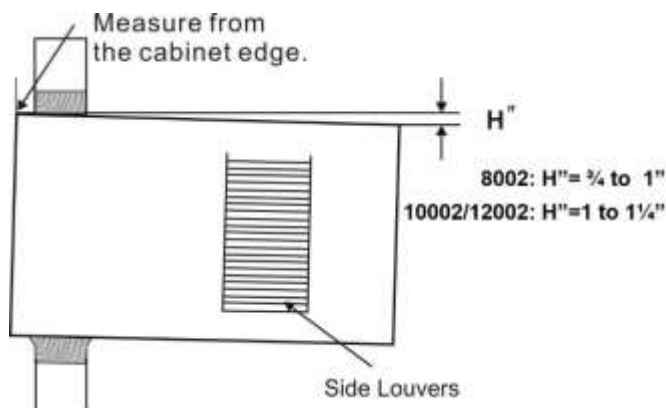
- The remote signal receiver/sensor is located on the control panel of the air conditioner.
- Reception of signal commands is confirmed by an audible beep.
- Direct sunlight can interfere with the infrared signal.
- To replace batteries, remove the back cover by pressing where indicated and sliding off the battery cover.

5 Installation and Cleaning

5.1 Proper Installation and Drainage

Older Koldfront window air conditioners included a drain plug that could be removed to assist with water drainage in excessively humid operating environments. Current models DO NOT use drain plugs. WAC series air conditioners were modified to increase unit operating efficiency and as a result the drain hole and plug have been removed.

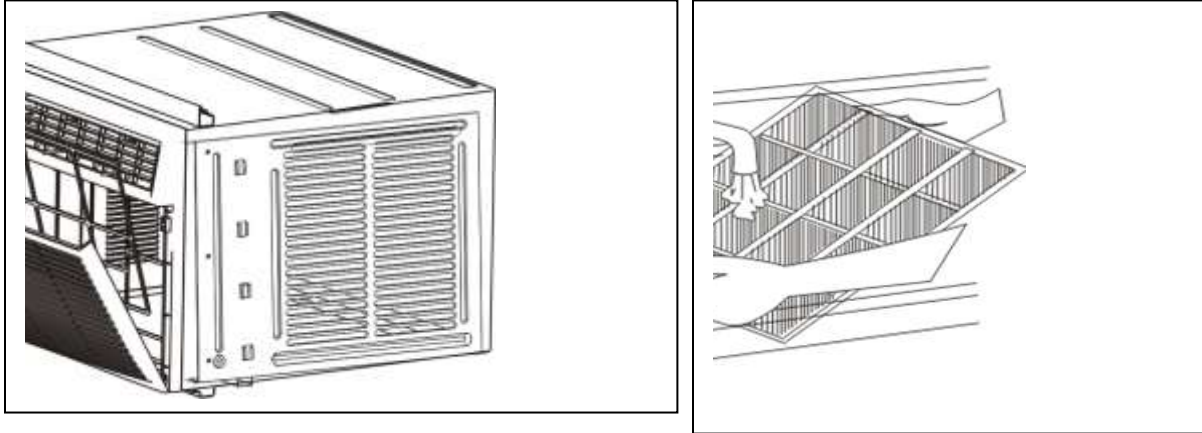
As water builds up towards the rear / back of the unit the fan blade will begin to splash and disperse that water over the condenser coils which significantly aids in cooling the internal components and increases the overall efficiency of the unit. If there is an over-accumulation of water, it will simply drain out of the lower back edge of the unit onto the exterior ground. Provided that the unit has been installed properly with a slight rearward slope as indicated below, there will not be drainage issues with the unit.



Service Note: Check that the air conditioner is tilted about 3° to 4° downward toward the outside. After proper installation, water from the coils should not drain from the unit during normal use. Correct the slope if necessary.

5.2 Cleaning the Filter

In order to maintain energy efficiency and prolong the life of the unit the air filter should be checked at least once a month to see if cleaning is necessary. In addition, trapped particles in the filter can quickly build up and cause frost on the evaporator.



- Open the front panel.
- Take the filter by the center and pull up and out.
- Wash the filter using liquid dishwashing detergent and warm water. Rinse filter thoroughly. Gently shake excess water from the filter. Be sure the filter is thoroughly dry before replacing.
- You may also gently use a vacuum to clean the filter.
- Reinstall the air filter once it's clean and dry.

Service Note:

- Never use hot water over 104°F(40°C) to clean the air filter.
- Never attempt to operate the unit without the air filter.
- The air filter should be checked at least once a month to see if cleaning is necessary.
- When the check filter light comes on clean the filter. It will be prolong the life of the unit and save energy.
- When the AC has not used for a for a prolonged period of time clean the filter before re-use.

6 Modes and Operating Conditions

6.1 Terms and Definitions

- TA: Temperature of indoor ambient.
- TE: Temperature of evaporator.
- TS: The set temperature.
- DAHT: Heater sensor.

6.2 Protection Functions

- The compressor restart protection has a delay of 3 minutes.
- Sensor protection against an open or short circuit.

6.3 Auto Mode

- AUTO Mode is a setting that allows the unit to automatically switch between COOL and FAN in order to achieve and maintain the desired set temperature.
- In Auto mode the unit will choose cooling or fan-only mode based on $\Delta T (\Delta T = TA - TS)$

$\Delta T = TA - TS$	Running mode
$\Delta T > 4^{\circ}F$	Cooling
$-2^{\circ}F \leq \Delta T \leq 4^{\circ}F$	Fan-only

- The unit will default to running mode when in auto mode under the following circumstances:
 - Powering on, changing mode to auto mode or adjusting temperature in auto mode will cause the unit to default to running mode again.
 - A: In auto mode, if the compressor does not run for 15 minutes check condition B.
 - B: If $\Delta T < -8^{\circ}F$ or $\Delta T > 2^{\circ}F$, the unit will default to running mode again according to ΔT until the compressor stops.

6.4 Fan-Only Mode

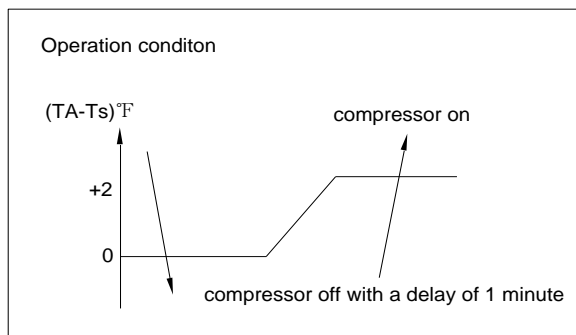
- If the temperature can't be controlled by the selected mode and the room ambient temperature is shown on the display the unit will default to fan only mode.
- The readout can only display a temperature of 32 to 99 °F (0 to 37°C.) If the temperature is out of that range the display will show LO or HI.
- The Timer function works in fan-only mode.

6.5 Dry Mode

- In this mode, the air conditioner will operate as a dehumidifier. Because the conditioned space is closed or sealed, some degree of cooling will continue to occur.
- The dry mode temperature can be set from 62 to 86°F (17 to 30°C.)
- The fan speed is automatically set to Low and can't be controlled.
- Sleep function works in dry mode.

6.6 Cooling Mode

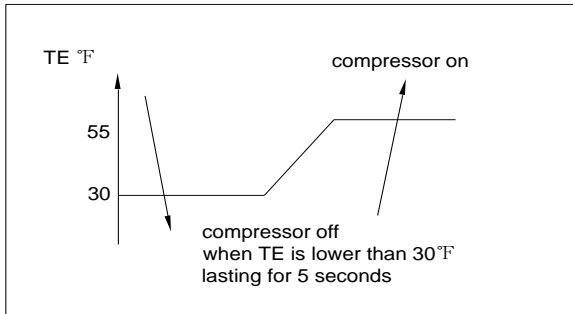
- The cooling temperature can be set from 62 to 86°F (17 to 30°C.)
- Sleep, Timer and Energy Saver functions work in cooling mode.
- The compressor will run when the difference between the set temperature and the actual ambient room temperature conforms to the chart below:



- When $T_A \leq T_S$ (for 1 minute) the compressor turns off.
- When $T_1 > T_S + 2^\circ F$ the compressor turns on.

6.7 Auto-Defrost Function

- The Auto-defrost function operates according to the chart below:



- When TE is below 30°F the evaporator will frost. As the unit defrosts the indoor fan will continue to operate.
- When the temperature is up over 55°F the unit will stop defrosting.

6.8 Sleep Mode

- This mode has a duration of 7 hours and can be used in Cool and Dry mode.
- In sleep mode the fan speed will default to Auto.
- In the first 60 minutes, the set temp will rise 2°F (1°C) each half hour. Then it will keep a steady temperature for 6 hours until the mode stops.
- If you change any settings after sleep mode starts, the function will stop.



7 Troubleshooting

Generally, problems are classified in three ways. The first is Starting Failure which is caused by an electrical defect. The second is an Air Conditioning failure caused by a defect in the refrigeration system or improper air circulation. The last is Structural Damage.

7.1 Troubleshooting Guide

Problem	Possible Cause	Solution
Air conditioner does not function at all.	Wall plug is disconnected.	Insert plug firmly into proper wall outlet.
	House fuse blown or circuit breaker tripped.	Replace fuse with time delay type or reset circuit breaker.
	Power cord is tripped.	Press the RESET button on the power cord.
	Unit is turned OFF.	Turn unit ON and set to desired setting.
	Ribbon cable to control panel is disconnected.	Remove front grill and reconnect cable.
	Loose or disconnected wiring on main PCB.	Remove front grill and outer shell. Check all connections to the PCB and reconnect any loose or disconnected leads.
Air from unit does not feel cold enough.	Room temperature is below 62°F (17°C).	Cooling will not occur until room temperature rises above 62°F (17°C).
	Temperature sensor behind the front grill and air filter is touching the cold evaporator.	Realign sensor so it does not touch the evaporator coil. It should only be sensing the air temperature leaving the evaporator.
	Set temperature is too high.	Set to a Lower temperature.
	Compressor is shut-off by changing modes.	Wait approximately 3 minutes and listen for compressor to restart when set in COOL mode.
Air conditioner cooling, but room is too warm - ice forming on cooling coil behind front grill.	Outdoor temperature below 62°F (17°C).	To defrost the coil, set to FAN ONLY mode.
	Air filter may be dirty.	Clean filter. Refer to Installation and Cleaning section. To defrost, set to FAN ONLY mode.
	Thermostat set too cold for night-time cooling.	To defrost the coil, set to FAN ONLY mode. Then set temperature to a Higher setting.
Air conditioner cooling, but room is too warm - NO ice	Dirty air filter- air restricted.	Clean air filter. Refer to Installation and Cleaning section.
	Temperature is set too High.	Set to a Lower temperature.

forming on cooling coil behind front grill.	The directional louvers on the front are positioned improperly.	Position louvers for better air distribution.
	Front of unit is blocked by drapes, blinds, furniture, etc. and is restricting air distribution.	Clear blockage in front of unit.
	Doors, windows, registers, etc. are open and cold air is escaping.	Close doors, windows, registers.
	Unit recently turned on in hot room.	Allow additional time for unit to remove stored heat from walls, ceiling, floor and furniture.
Air conditioner turns on and off frequently.	Dirty air filter- air restricted.	Clean air filter.
	Outside temperature is extremely hot.	Set FAN speed to a Higher setting to push more air through the coils.
Noise when unit is cooling.	Air movement sound.	This is normal. If too loud, set to a slower FAN setting.
	Window vibration - poor installation.	Refer to installation instructions or check with installer.
Water dripping INSIDE when unit is cooling.	Improper installation.	Tilt air conditioner slightly downward toward the outside to allow water drainage. Refer to installation instructions - check with installer.
Water dripping OUTSIDE when unit is cooling.	Unit removing large quantity of moisture from humid room.	This is normal during very humid days.
Room too cold	Set temperature is too low.	Increase the set temperature.

7.2 Error Codes and Sensor Malfunctions

Display	Error	Solution
AS	Room temperature sensor error.*	1) Check sensor connection to main PCB and secure any detached or loose connections. 2) Check sensor wire for damage and repair if possible. 3) Test sensor (see table 7.3) Replace sensor if defective.
LO	Room sensor is an open circuit.*	
HI	Room sensor is a short circuit.*	
ES	Defrost sensor is open or short circuit.	

* If display indicates an AS error, use the mode button to select "Fan" and LO or HI will be displayed to indicate the underlying condition. See section 7.3 for additional information.

7.3 Temperature Sensor Resistance Test Table

Temp.°C	Temp. °F	Resistance KΩ	Temp. °C	Temp.°F	Resistance KΩ	Temp. °C	Temp. °F	Resistance KΩ
-10	14	62.2756	17	62.6	14.6181	44	111.2	4.3874
-9	15.8	58.7079	18	64.4	13.918	45	113	4.2126
-8	17.6	56.3694	19	66.2	13.2631	46	114.8	4.0459
-7	19.4	52.2438	20	68	12.6431	47	116.6	3.8867
-6	21.2	49.3161	21	69.8	12.0561	48	118.4	3.7348
-5	23	46.5725	22	71.6	11.5	49	120.2	3.5896
-4	24.8	44	23	73.4	10.9731	50	122	3.451
-3	26.6	41.5878	24	75.2	10.4736	51	123.8	3.3185
-2	28.4	39.8239	25	77	10	52	125.6	3.1918
-1	30.2	37.1988	26	78.8	9.5507	53	127.4	3.0707
0	32	35.2024	27	80.6	9.1245	54	129.2	2.959
1	33.8	33.3269	28	82.4	8.7198	55	131	2.8442
2	35.6	31.5635	29	84.2	8.3357	56	132.8	2.7382
3	37.4	29.9058	30	86	7.9708	57	134.6	2.6368
4	39.2	28.3459	31	87.8	7.6241	58	136.4	2.5397
5	41	26.8778	32	89.6	7.2946	59	138.2	2.4468
6	42.8	25.4954	33	91.4	6.9814	60	140	2.3577
7	44.6	24.1932	34	93.2	6.6835	61	141.8	2.2725
8	46.4	22.5662	35	95	6.4002	62	143.6	2.1907
9	48.2	21.8094	36	96.8	6.1306	63	145.4	2.1124
10	50	20.7184	37	98.6	5.8736	64	147.2	2.0373
11	51.8	19.6891	38	100.4	5.6296	65	149	1.9653
12	53.6	18.7177	39	102.2	5.3969	66	150.8	1.8963
13	55.4	17.8005	40	104	5.1752	67	152.6	1.83
14	57.2	16.9341	41	105.8	4.9639	68	154.4	1.7665
15	59	16.1156	42	107.6	4.7625	69	156.2	1.7055
16	60.8	15.3418	43	109.4	4.5705	70	158	1.6469

DATE	REVISION NOTES
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