Haier

Window air conditioner

Technical manual

NO: 0010544617

MODEL: HW-18CK03

IMPORTANT!
Please Read Before Starting

This air conditioner meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read the INSTRUCTION MANUAL and INSTALLATION INSTRUCTIONS attached to each air conditioner before beginning.
- Follow each installation or repair step exactly as shown. Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.

WARNING This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

CAUTION This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

SPECIAL PRECAUTIONS

WARNING **When Wiring**

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- All wiring must conform to local electrical codes.
- Each unit must be properly grounded with a ground (or earth) wire or through the supply wiring.
- DO NOT, under any circumstances, cut or remove the third (ground) prong from the power cord plug.
- DO NOT use an adapter Plug or extension cord.
- DO NOT use a damaged power cord, plug, or wall outlet. Replace them immediately.
- DO NOT change the internal wiring or any part of the system.
- DO NOT turn the air conditioner on and off by plugging and unplugging. Use the Operation switch.

When Transporting

Be careful when picking up and moving the air conditioner. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing

Place of Installation

- If possible, install the unit in a shady location. If the site is exposed to the sun, you should provide a sun screen as shown in Fig. a.
- Install it at a spot where optimum cooling circulation can be obtained. No chairs or other obstructions are allowed in front of the air conditioner.
- The back of the air conditioner must extend outside. (Be sure the right and left intake vents are not obstructed by walls or windows.)
- Keep more than 70 cm from any outside obstruction (wall, bush, etc.).
- To provide water drainage, the unit must be tilted at a downward angle 0.5 to 1 cm to the outside.

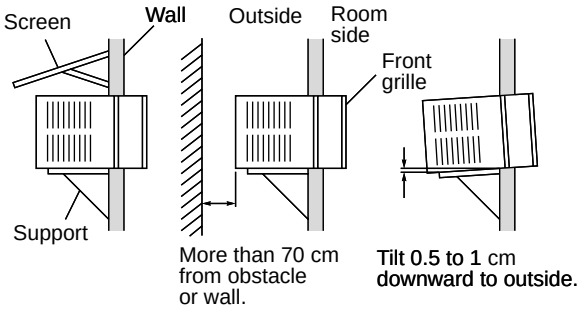


Fig.a

- While installing the air conditioner, be sure to loosen the compressor locking nuts to avoid abnormal noise and vibration. (NOTE: Locking nuts are not provided on some models.)
- As a safety measure, it is recommended that two people install the unit: one to hold and balance the unit — the other to lower the window frame to secure the unit.
- Hold the unit securely, and be careful to not drop the cabinet or any parts if the air conditioner is being installed on an upper floor of a multistory building.

When Servicing

- Turn the power OFF at the main power box (mains) before op ening the unit to check or repair electrical parts and wiring.
- Keep fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of tools have been left inside the unit being serviced.

Others

CAUTION

- Ventilate any enclosed areas when installing or testing the refrigeration system. Escaped refrigerant gas, on contact with fire or heat, can produce dangerously toxic gas.
- Confirm upon completing installation that no refrigerant gas is leaking. If escaped gas comes in contact with a stove, gas water heater, electric room heater or other heat source, it can produce dangerously toxic gas.

Table of Contents

1. PRODUCT CODE ILLUMINATION AND SERIES INTRODUCTION

a、model code rule description

Model identification:

H W— □□ □ □ □□
A B C D E F

A: Abbreviation of Haier
B: Abbreviation of Window
C: Nominal cooling capacity(BTU/h) with the first two numbers based on one thousand unit
:
D: Function code
C-Cooling only
H-Heating pump
E-Electric aided heating
E: Developing sequence
F: The type of power supply

Examples:

HW-18CK03

-It represents window air conditioner. Cooling capacity is 18000 BTU/h and the power supply is 220-230V~/50Hz.

b、 Standard situation/conditions

No.	Operating condition	Indoor air state		outdoor air state	
		D.B.℃	W.B.℃	D.B.℃	W.B.℃
1	Most cooling	32	23	43	26
2	Nominal heating	/	/	/	/
3	Nominal electrical heating	/	/	/	/

C、Brief introduction of window air conditioner series

1. Temperature set knob can adjust the temperature of the air in room.
2. Function set knob can control the fan speed as well as the cooling speed.
3. Vent helps you to exhaust any stale unwanted air in the room and draw fresh outside air in the room.
4. Air directionsl louvers can control airflow up-down-right side-left side.

2.PRODUCT TECHNICAL PARAMTER

The manufacture reserves the right to change any product specifications without notice.

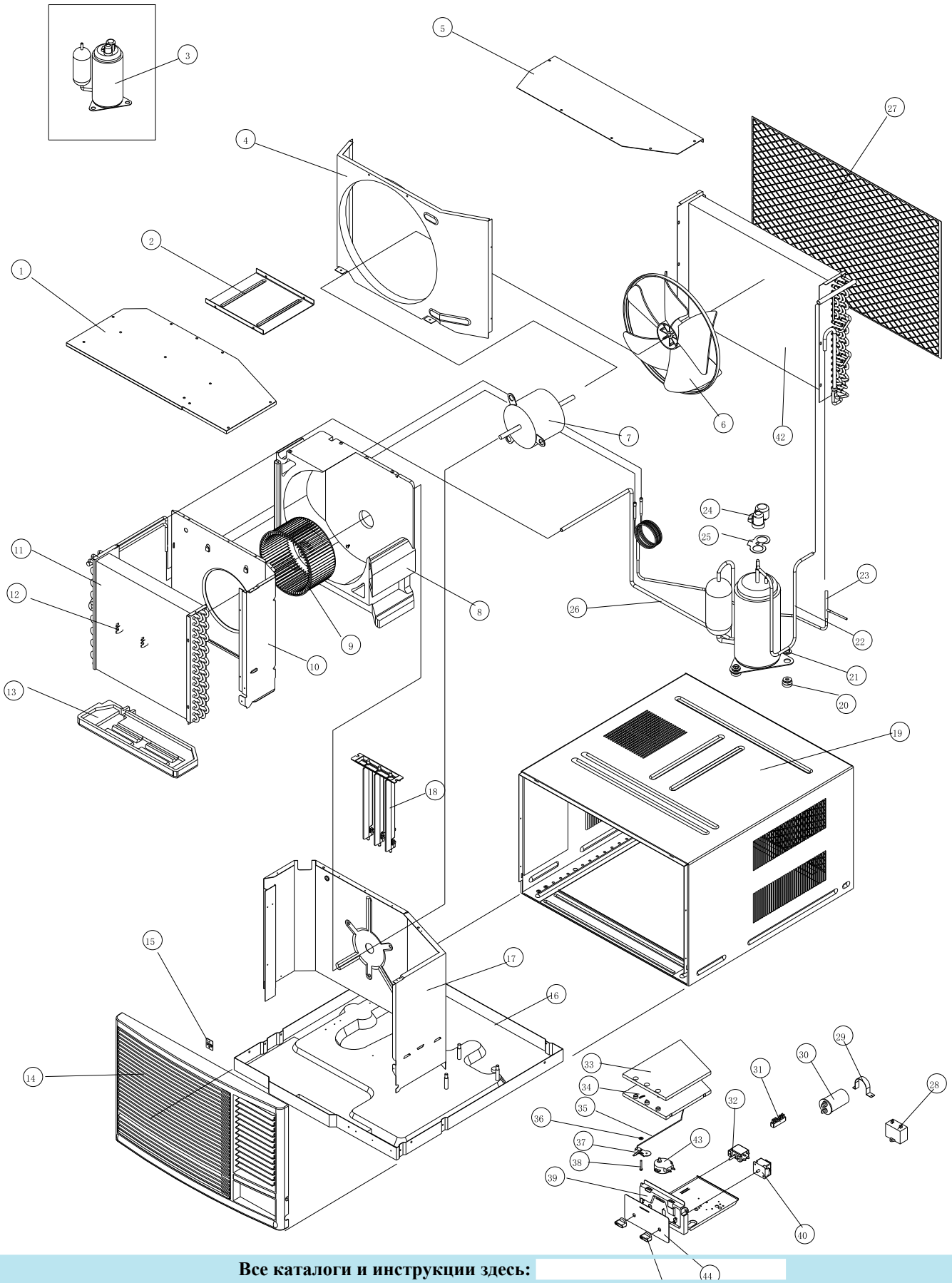
Item			UNIT	HW-18CK03
Cooling capacity			W	5000W
Heating capacity			W	/
Power supply				1PH,220-230V~,50Hz
Cooling		Power input	W	2000
		Running current	A	11
		EER	W/W	2.5
Heating		Power input	W	/
		Running current	A	/
		COP	W/W	/
Sound Level		Indoor side	dB(A)	54
		Outdoor side	dB(A)	60
Case		Height	**mm**	430
		Width	**mm**	665
		Depth	**mm**	736
Packaging dimensions		Height	**mm**	535
		Width	**mm**	745
		Depth	**mm**	810
Weight		Net	kg	67
		Gross	kg	73
Compressor		Type		ROTARY
		Model		PH330X2CS-4KU1
		Running cap. for comp.	F	40uf/450VAC
		Starting method		PSC
Pressure		Heating side	MPa	2.65
		Cooling side	MPa	0.65
Refrigerant		Model		R22
		Charge	kg	1.04
Fan	Type	indoor unit		Acentric fan
		outdoorunit		Axial fan
	Fan speed	Hi	r/min	920¡À 30
		Lo	r/min	860¡À 50
	Running capacitor		u F	5uf/450VAC
Air direction control				4-way*and auto swing
Air volume			m^3/hr	650
Moisture removal			m^3/hr	$2.1x10^{-3}$
Exchanging pipe type/ diameter			mm	Evaporator:7mm condenser: 7 mm
Fin material				Hydrophile aluminum foil

4-way*: up -down-right side –left side

3.PRODUNT SREC IFICAT IO N

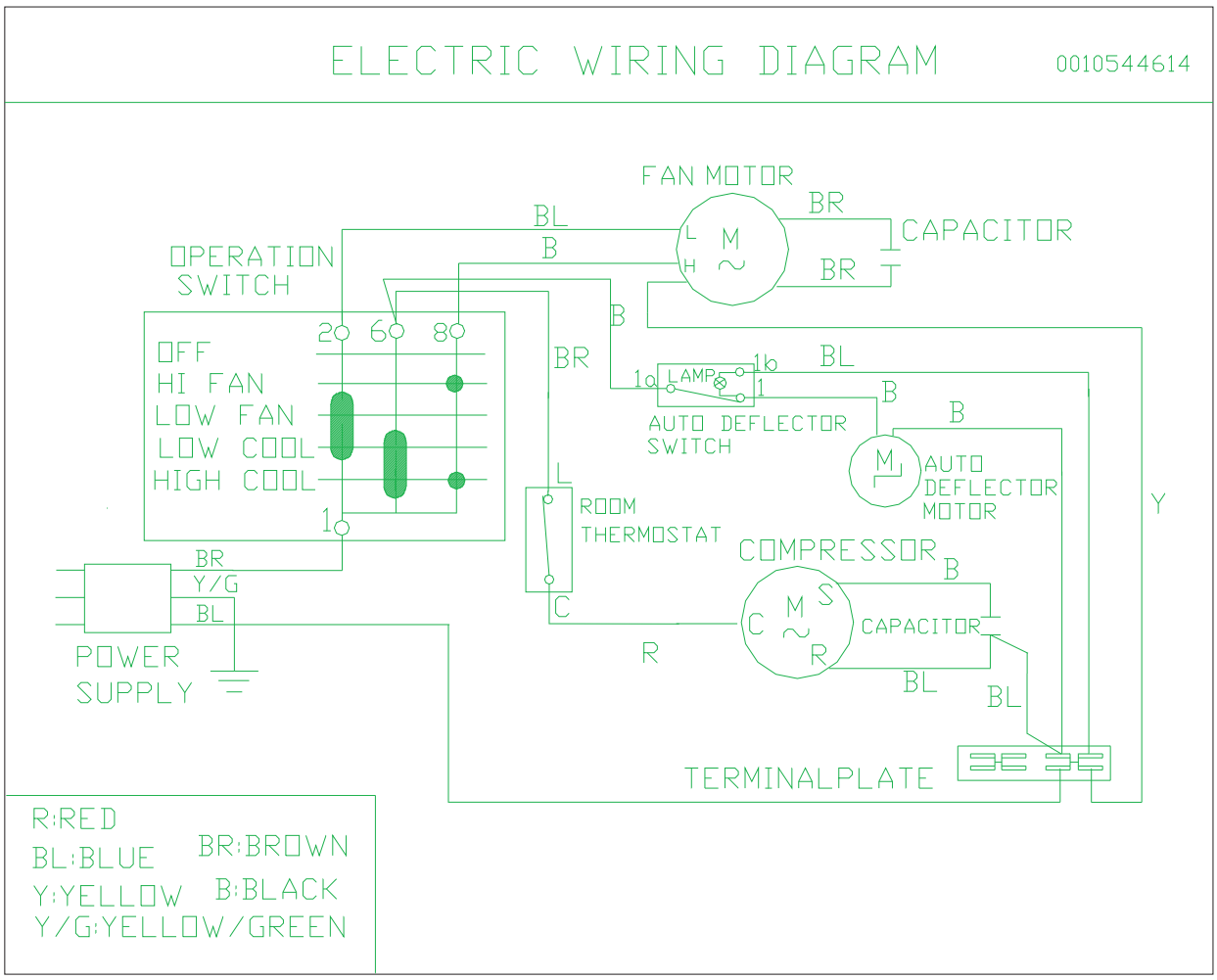
	IW-18CK03
Structural feature	Whole style air conditioner
Cooling capacity	5000W
voltage	1PH, 220-230V ~, 50Hz
Type of product	Window air conditioner series
Appearance feature	Flat panel
Attestation	
remote	NO
refrigerant	R22
Climate type	T1
dimensions	430×665×736 mm
package dimensions	535×730×810 mm
Box up document	

1. KNOCK-DOWN DRAWINGS AND LIST OF COMPONENTS



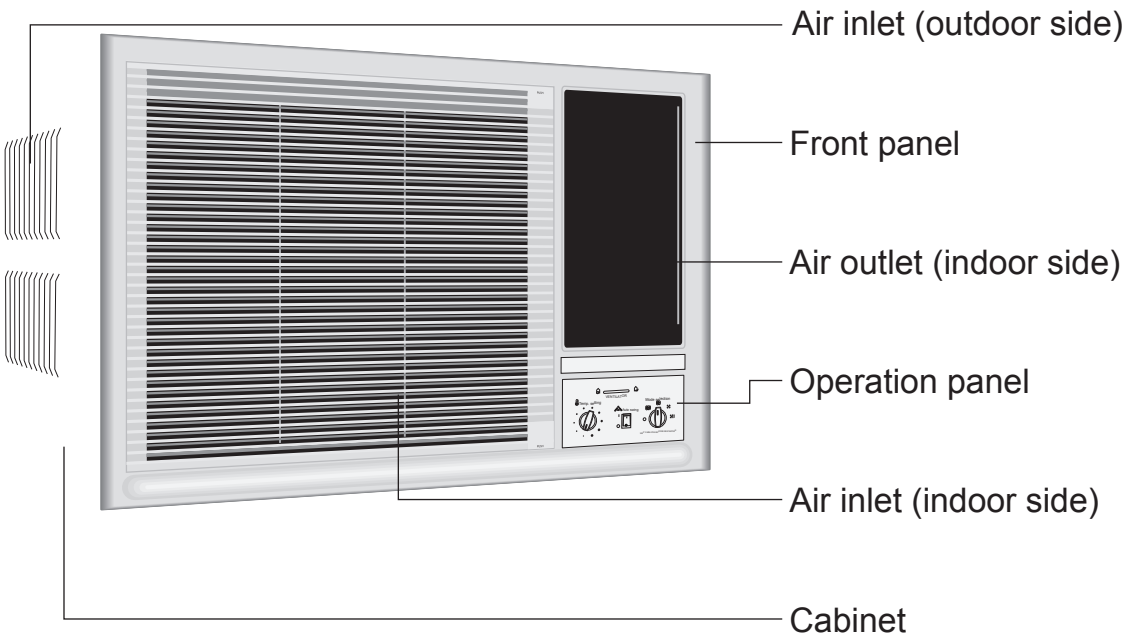
Key NO.	Part No.	Description	Q'ty	Damageable
1	0010801840	front cover board ass'y	1	
2	0010100184	top board	1	
3	001A2000176	compressor	1	yes
4	0010800250	rear partition board ass'y	1	
5	0010801616	rear cover ass'y	1	
6	0010201794	rear garding net	1	
7	0010702341	condensor assembly	1	
8	001A2331064	propeller fan	1	yes
9	0010401730	fan motor	1	yes
10	0010200908	scroll case	1	yes
11	0010201247	centrifugal fan	1	yes
12	0010801842	evaporator partition pane ass'y	1	
13	0010701509	evaporator assembly	1	
14	001A5701100	thermo induction pipe clip	2	
15	0010200907	water meeting tray	1	
16	0010800238	front panel ass'y	1	
17	001A13011266	stop piece	1	
18	0010801513	chassis ass'y	1	
19	0010801497	front partition plate ass'y	1	
20	001A1231250	vertical blade	3	
21	0010801497	casing ass'y	1	
22	0010201152	rubber cushion	3	
23	001A5002050	flange nut	3	
24	001B0701312	discharging pipe	1	
25	0010702961	capillary pipe ass'y	1	yes
26	0010201150	terminal cover	1	
27	0010201151	gasket	1	
28	001B0701313	suction pipe	1	
29	001A3600218	fan motor capacitor	1	yes
30	0010100001	capacitor clip	1	
31	001A3600131	compressor capacitor	1	yes
32	001A4000011	terminalblock	1	
33	001A3400144	thermostat	1	yes
34	001A3000168	synchro motor	1	yes
35	001A1734960	cushion	1	
36	001A1236255	top board of electric box	1	
37	001A1303522	draught pole	1	
38	001A1301673	locking ring	1	
39	001A1301527	draught patch	1	
40	001A5002286	screw	1	
41	001A3400146	louver switch	1	yes
42	0010200626	knob	2	
43	0010202185	scale	1	
44	0010100353	electric box	1	
45	0010401732	mode selection switch	1	yes

5. WIRING DIAGRAM

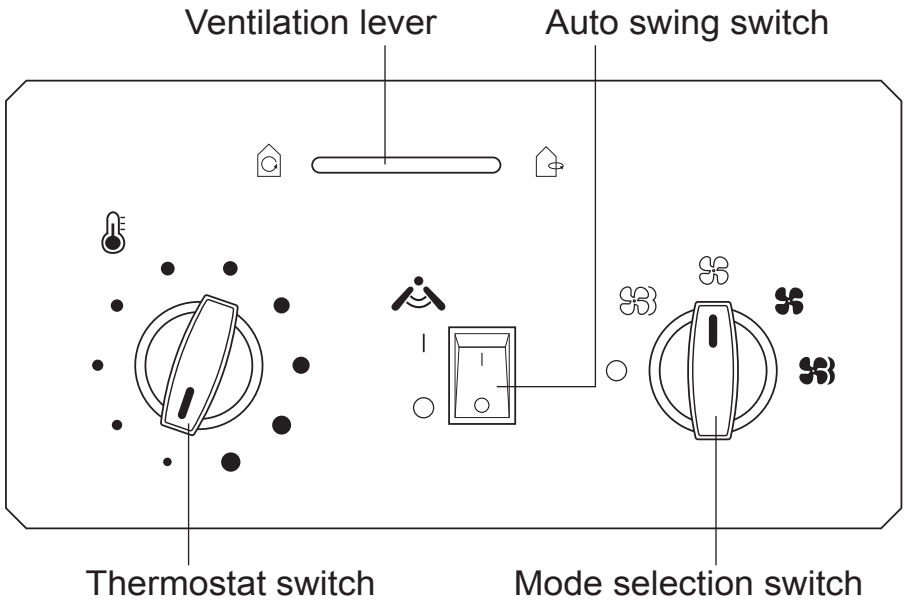


6. MAIN COMPONENTS AND ACCESSORIES' NAME

Machine body



Operation panel



7.MAINTENANCE AND TROUBLE SHOOTING

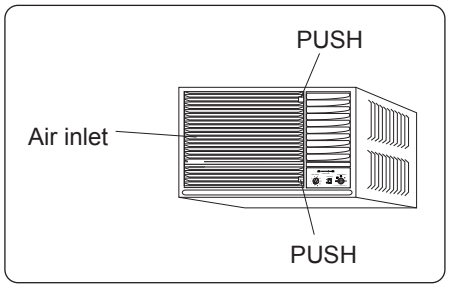
1.Maintenance

Air filter cleaning: Please clean the air filter every two weeks

When dirt accumulates in the air filter, air circulation will be blocked, and causes poor cooling. It is advisable to clean the air filter every two weeks for efficient operation.

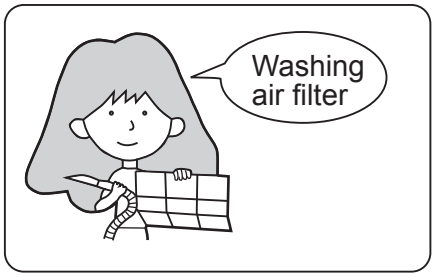
Removal of air filter

(1) Loosen the air inlet by pushing " PUSH " at both edges as shown.
(2) Open the air inlet.
(3) Hold the handle at lower part of the air filter and draw outward to remove the air filter.



Air filter cleaning

1. Gently tap the dirt off the air filter.
2. Carefully wash the air filter in warm water (below 40 oC). To obtain better cleaning effect, soapy water or neutral detergent may be used.
3. Flush the air filter carefully with clean water after removing the dirt. Let it dry completely.

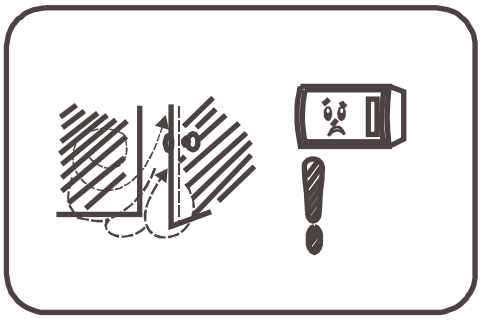


Installation of filter

(1) Put the air filter on.
(2) Push the parts marked " PUSH " until you hear a click.

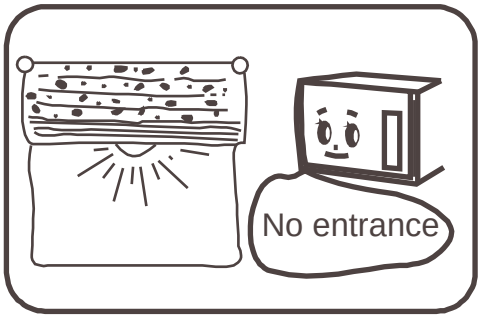
Tips For Energy Saving

- Avoid opening door and window as much as possible

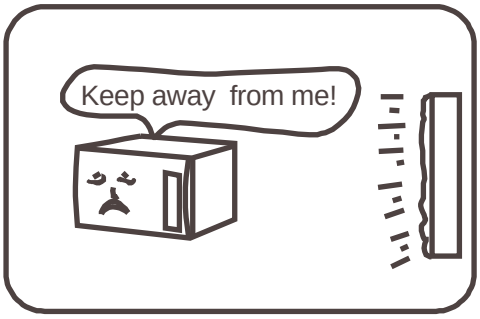


- Don't be exposed to cold air for a long time.

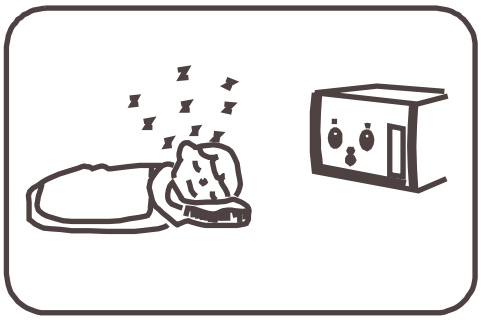
- Use curtain or blind so Direct sunlight may reduce cooling effect, always use window curtain.



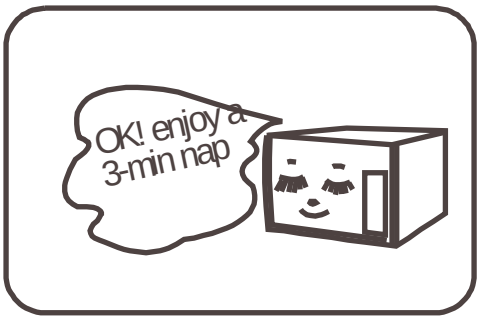
- Keep heat sources away from the air conditioner



- Set temp. a little bit higher before going to bed.



- After unit stops, don't restart it until 3 min. have elapsed. (Or, fuse may blow out or motor burnt.)



⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit and discharge capacitor through a 10,000 ohm resistor before attempting to service, unless test procedures require power to be connected. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

⚠ CAUTION

Units covered in this manual are polarized. Reversing polarity of a unit or any of its components will cause damage. To avoid reversing polarity, any wires disconnected or removed during service must be reconnected to the same location. To ensure wires are reconnected to the proper location, tag or otherwise mark the wires before disconnecting or removing.

Tools and Equipment

Accurate diagnosis and repair of malfunctioning air conditioners requires proper tools and equipment. In addition to standard hand tools (screw drivers, pliers, sockets, etc.), the following equipment is required:

- Thermocouple type temperature tester, with sufficient range to meet all testing and measuring requirements.
- Multimeter (combination voltmeter, ammeter, and ohmmeter) for reading current loads during start up and normal operation, verifying voltage levels, and testing various components for continuity.
- Accurate leak detector, to check for refrigerant leaks.
- Vacuum pump capable of removing all non-condensable material in sealed system.
- Charging manifold and related equipment to determine and replenish exact refrigerant charges.
- Recovery cylinder and related equipment to recover and store refrigerant charge in sealed system.

Additional tools and equipment may be required.

Troubleshooting Table

Troubleshooting table on following pages contains symptoms that may be seen in a malfunctioning air conditioner. Each group of symptoms is accompanied by one or more possible causes. Each possible cause is accompanied by a remedy, or a test to determine if suspect component(s) are working properly.

Troubleshooting Information

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit and discharge capacitor through a 10,000 ohm resistor before attempting to service, unless test procedures require power to be connected. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

Symptom	Possible Causes	Corrective Action
Fan motor will not operate	No power supplied to unit	Check fuse box/circuit breaker for blown fuse or tripped breaker. Replace/reset.
	Power supply cord failed	Check power cord for opens. Replace cord if failed.
	Wire(s) disconnected or loose	Ensure all connections are tight and secure.
	Fan motor capacitor failed	Check capacitor for open/short. Replace if failed. **NOTE:** Discharge capacitor before testing.
	Fan motor failed	Check fan motor windings for shorts/opens. Replace if failed.
	Rotary control failed	Ensure all control connections are tight and secure. Check control for proper operation and installation. Control must not hang between settings. Replace if failed. **NOTE:** Eliminate all other possible causes before replacing rotary control.
Fan blade will not rotate	Fan hitting shroud or blower wheel hitting scroll	Check fan blade/blower wheel for proper alignment on motor shaft. Reposition if necessary.
Fan motor operates intermittently	Wire(s) disconnected or loose	Ensure all connections are tight and secure. Correct as require
	Rotary control failed	Ensure all control connections are tight and secure. Check control for proper operation and installation. Replace if failed. **NOTE:** Eliminate all other possible causes before replacing rotary control.
	Cycling on motor protector	Replace motor.
Fan motor noisy	Outside coil fan blade or inside coil blower wheel loose or improperly aligned	Check fan blade/blower wheel for proper position. Reposition if necessary. Ensure hardware attaching fan blade/blower wheel to motor shaft is tight, Tighten if loose; replace if stripped.
	Fan motor mounting hardware/bracket loose or grommets worn (if applicable)	Check mounting bolts/bracket for tightness. Tighten if necessary. Inspect grommets for wear. Replace if necessary.
	Worn fan motor bearings	Replace motor.

Troubleshooting Information

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit and discharge capacitor through a 10,000 ohm resistor before attempting to service, unless test procedures require power to be connected. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

Symptom	Possible Causes	Corrective Action
Compressor does not run, fan motor operates normally.	Wire(s) disconnected or loose	Ensure all connections are tight and secure. Correct as required.
	Compressor motor capacitor failed.	Check capacitor for open/short. Replace if failed. **NOTE:** Discharge capacitor before testing.
	Compressor failed.	Check compressor motor windings for open/short. Replace compressor if failed.
	Overload protector open.	Check protector for continuity. If open, replace. **NOTE:** Ensure compressor/overload are below trip temperature before testing.
	Rotary control failed.	Ensure all control connections are tight and secure. Check control for proper operation. Replace if failed. **NOTE:** Eliminate all other possible causes before replacing rotary control.
Compressor cycles on and off.	Wire(s) disconnected or loose.	Ensure all connections are tight and secure. Correct as required.
	Supply voltage out of specification.	Check input voltage for proper levels. Take appropriate action if voltage levels out of specification.
	Overload protector open.	Check protector for continuity. If open, replace. **NOTE:** Ensure compressor/overload are below trip temperature before testing.
	Restricted air flow.	Inspect air filter, indoor/outdoor coil for dirt. Clean as required. Check fins on coils for damage. Straighten fins if bent, attempt other repairs as necessary. Replace coil if repairs cannot be made.
	Fan motor failed.	Check fan motor for proper operation. Replace if failed.
	Compressor motor capacitor failed.	Check capacitor for open/short. Replace if failed. **NOTE:** Discharge capacitor before testing.
	Sealed refrigerant system failure.	Test sealed system for proper charge, leaks, and restrictions. Repair as required.
Insufficient cooling	Low refrigerant charge.	Test sealed system for proper charge. Ensure system is free of leaks. Repair as required.
	Restricted air flow.	Inspect air filter, indoor/outdoor coil for dirt. Clean as required. Check fins on coils for damage. Straighten fins if bent, attempt other repairs as necessary. Replace coil if repairs cannot be made.

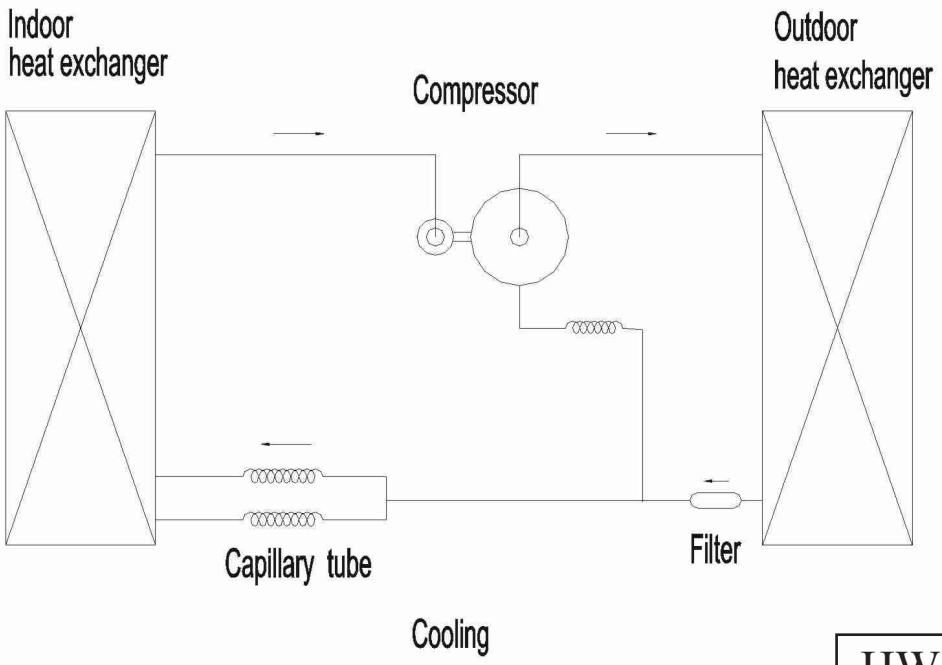
Troubleshooting Information

WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit and discharge capacitor through a 10,000 ohm resistor before attempting to service, unless test procedures require power to be connected. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

Symptom	Possible Causes	Corrective Action
Wattage slowly decreases below minimum specification.	Undercharged, restricted strainer or plugged capillary tube.	Test sealed system for proper charge. Ensure system is free of leaks/blockage. Repair as required. Evacuate/ recharge sealed system.
Wattage decreases immediately.	No refrigerant.	Test sealed system for proper charge. Ensure system is free of leaks. Repair as required.
	Compressor failed.	Check compressor motor windings for open/shorts. Replace compressor if failed.
Wattage continuously high.	Refrigerant overcharge.	Test sealed system for proper charge. Repair as required.
Evaporator coil partially frosted.	System low on refrigerant.	Test sealed system for proper charge. Ensure system is free of leaks. Repair as required.
	Restricted capillary tube.	Replace capillary tube.
	Insufficient air flow.	Inspect air filter, indoor/outdoor coil for dirt. Clean as required. Check fins on coils for damage. Straighten fins if bent, attempt other repairs as necessary. Replace coil if repairs cannot be made.
	Failed fan motor	Check fan motor for proper operation. Replace if failed.
Evaporator completely iced.	Low outside temperature.	Turn unit off.(Consumer education)
	Restricted capillary tube.	Replace capillary tube.
	Insufficient air flow.	Inspect air filter, indoor/outdoor coil for dirt. Clean as required, Check fins on coils for damage. Straighten fins if bent, attempt other repairs as necessary. Replace coil if repairs cannot be made.
	Thermostat not cycling.	Replace Thermostat.

8. SYSTEM FLOW CHART



HW-18CK03

9. INSTALLATION AND REPAIRING

Installation of air conditioner (only for reference)

1. Make a wooden frame. (Fig.1)

Model	A	B
HW-18CK03	440	670

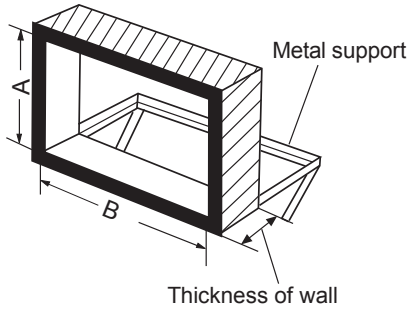


Fig.1

2. Attach a metal support (not provided by manufacturer) in a firm location with expanding screws or bolts.
3. Remove the air conditioner from its packing carton.
4. Place the air conditioner on the metal support.
5. Stuff gaps in the wall or window with soft sponge material or rubber gaskets to block outside noise and keep cool air from escaping.
6. Use flexible plastic pipe (purchased locally)for condensation water run-off to a desired spot. This pipe ,with an internal diameter of 16mm, must be firmly connected to the unit's drain pipe using an adjustable clamp. (Fig. 2)

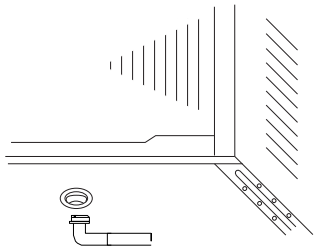


Fig.2

Supplied accessory parts.

Name	Manual	Side screw	Front screw	Drain elbow (with seal ring)	Rubber lid
Appearance					
Quantity	1	2	1	1	1

Note: After finishing the installation of the air conditioner, fix the panel board onto the casing with one front attachment screw and two side attachment screws.

Installation Guide

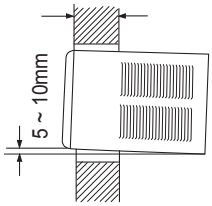
Selection of the installation position

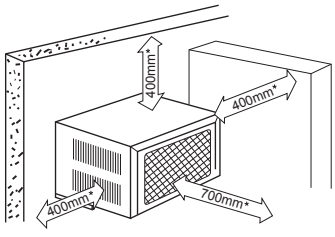
1. Select position where the structure is firm.
2. Select position where the air inlet and outlet are not blocked by obstacles.
3. Select position where the cooled air can be blown to every corner of the room.
4. Select position where there's no direct sunlight. If sunlight cannot be avoided, some means of a sun shading device is required.
5. Select position where the outdoor airflow will not influence the neighbors.
6. Select position where drainage is smooth.
7. Select position where there's no dangerous gas or oil vapor nearby.
8. An extension cord is not recommended.

Installation diagram

The unit must be installed so that the back (outdoor side) is lower to allow drained water to flow out smoothly.

Width of wall should be less than 295mm





* Minimum distance

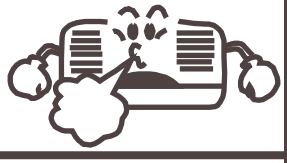
Requirements for electricity:

1. Applicable ambient temperature range:

Cooling	Indoor	Maximum: D.B/W.B Minimum: D.B/W.B	32oC / 23oC 21oC / 15oC
	Outdoor	Maximum: D.B Minimum: D.B	43oC 21oC

2. If the power supply cord is damaged, it must be replaced by the manufacturer, the service, agent or a similar qualified supplier. An extension cord is not recommended.
3. The wiring method should comply with local wiring standards.
4. After installation, the power plug should be easy to access.
5. The breaker of the air conditioner should be an all-pole switch (25A) and the distance between its two contacts should be no less than 3mm.
6. The appliance must be connected to a socket outlet with the appropriate rating.
7. The appliance is not intended for use by young children or infirm persons without supervision.
8. Young children should be supervised to ensure that they do not play with the appliance.

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	When unit is stopped,it won't restart immediately until 3 minutes have elapsed to protect the system. When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard. 	During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes when unit starts this noise is more noticeable.(This noise is generated by refrigerant flowing in the system.) During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.
	Mist or steam are blown out. 	During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
Double check	Does not work at all 	ls electric plug inserted? ls there a power failure? ls fuse blown out?
	Poor cooling 	ls the air filter dirty? Normally it should be cleaned every 15 days. Are there any obstacles in inlet and outlet? ls temperature set correctly? Are there some doors or windows left open? ls there any direct sunlight through the window during the cooling operation? (Use curtain) Are there too much heat sources or too many people in the room during cooling operation?