NORTEK GLOBAL HVAC, LLC

Multi Variable Heat Pump Wall Mounted Type Indoor Unit

Owner's Manual

Heat Pump

Models: B-HW-2.2(07)-A3AK B-HW-2.8(09)-A3AK B-HW-3.6(12)-A3AK B-HW-5.0(18)-A3AK B-HW-7.1(24)-A3AK

• Please read this owner's manual carefully before operation and retain it for future reference

• Specifications & illustrations subject to change without notice or incurring obligations

Preface

For correct installation and operation, please read all instructions carefully. Before reading the instructions, please be aware of the following items:

		This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible personal injury or death.		
	WARNING DANGER: Failure to comply may result in severe personal injury, property damage and/or death			
	CAUTION: Failure to comply may result in personal injury and/or property dama			
	NOTICE	NOTICE is used to address practices not related to personal injury.		
		WARNING		
(1)	Instructions for installa	tion and use of this product are provided by the manufacturer.		
(2)	Installation must be pe only.	rformed in accordance with the requirements of NEC and CEC by authorized personnel		
(3)	For the safe operation	of this unit, please read and follow the instructions carefully.		
(4)	During operation, total capacity of indoor units should not exceed the total capacity of outdoor units, otherwise, poor cooling or heating performance may result.			
(5)	Direct operators or maintainers should keep this manual for future reference.			
(6)	If this unit fails to operate normally, please contact a qualified contractor as soon as possible and provide the following information:			
	 Content on the name plate (model number, cooling capacity, serial number, and manufacture date. Malfunction details (before and after the malfunction occurred). 			
(7)	Each unit has been strictly tested and proved before shipping. In order to prevent units from being damaged or malfunctioning because of improper service, please do not disassemble the unit by yourself. If you need maintenance or service, please contact a qualified contractor.			
(8)	All graphics in this manual are for reference only. Manuals are subject to change by manufacturer without prior notice.			
(9)	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.Children are not allowed to play on or near this appliance.			
		Llear Notica		

User Notice

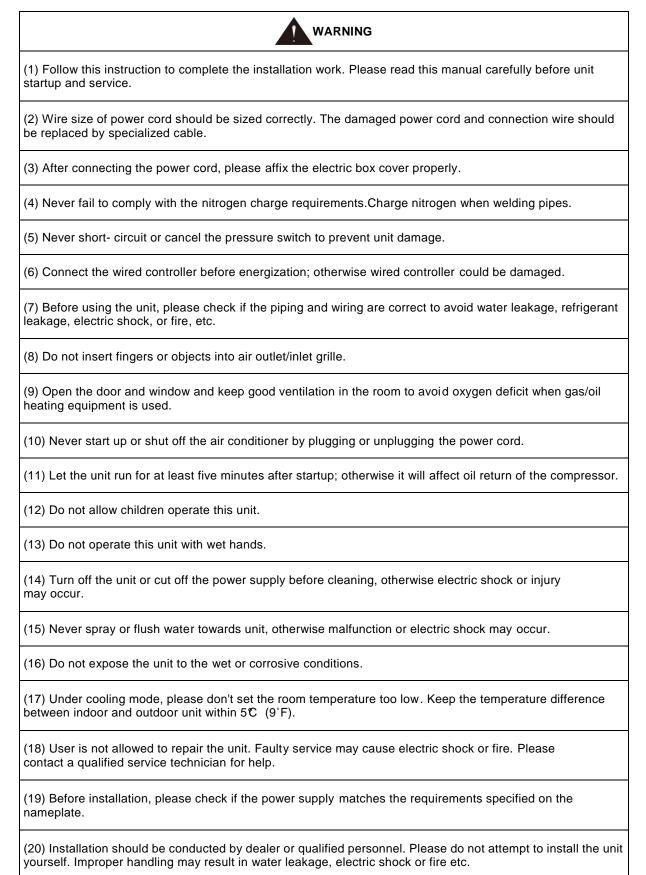
•DISPOSAL: Do not dispose this product as household waste. Special treatment is required.



1 \$	Safety Precautions	1
2 F	Product Introduction	2
	2.1 Outline of the Unit and Main Parts	3
	2.2 Rated Operating Condition	3
3	Installation Instruction	4
	3.1 Schematic diagram of installation spaces	4
	3.2 Requirements for Communication Line	4
	3.3 Electric Installation	5
4 I	nstallation Instructions	6
	4.1 Installation of Indoor Unit	6
	4.2 The installation of the rear panel	6
	4.3 Debugging	6
	4.4 Preparation of the piping hole	7
	4.5 Installation of the drainage pipe	7
	4.6 Installation the connection pipes	8
5 \	Wiring Work	9
	5.1 Connect Cables and Terminals of Wiring Board	9
	5.2 Power Cord Connection	9
	5.3 Connection of Communication Line of IDU and ODU	10
	5.4 Connection of Communication Line of Wired Controller	10
	5.5 Illuminate for Connection of Wired Controller and Indoor Units Network	10
	5.6 Installation of the indoor unit	
6	The Best Usage Method	12
7	Maintenance Method	12
	7.1 Cleaning panel	13
	7.2 Cleaning the air filters	13
	7.3 Check before the usage season	14
	7.4 Check after the usage season	
8 -	Table of Error Codes for Indoor Unit	15
91	Valfunction Analyzing	16
	9.1 Service center	
	9.2 After-sales service	
10	Adjusting Method Of The Air Direction	17
	10.1 Adjusting air direction up and down	17
	10.2 Adjusting air direction left and right	17

Contents

1 Safety Precautions



(21) Be sure to use the appropriate accessories and parts to prevent the water leakage, electric shock and fire .

(22) Make sure the unit can be grounded properly and securely to avoid electric shock. Please do not connect the ground wire to gas pipe, water pipe, lightning rod or telephone line.

(23) Connect power to the unit 8 hours before operation. Do not cut off the power when it will not be used for a short period of time, i.e. overnight (to protect the compressor).

(24) If refrigerant leakage occurs during installation, please ventilate immediately. Toxic gas will resust if the refrigerant gas meets spark or open flame.

(25) Volatile liquid, such as paint thinner or gasoline will damage the unit appearance. Only use soft cloth with a little mild detergent to clean the outer casing of unit.

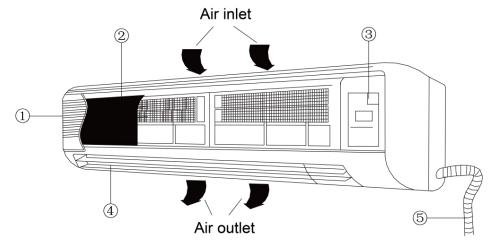
(26) If anything abnormal occurs (such as burning smell), please power off the unit and cut off the main power supply, and then immediately contact a licensed contractor. If the problem persists, the unit might be damaged and lead to electric shock or fire.

(27) In standby status, the unit will use a little power for maintaining normal communication and preheating refrigerant. if the unit won't be used for an extended period of time, cut off the power of the complete unit. The system will require power to be connected 8 hours before operation the next time it is used.

Manufacturer will not assume responsibility for any personal injury or property loss caused by improper installation, improper debugging, unnecessary repair, or not following the instructions of this manual.

2 Product Introduction

2.1 Outline of the Unit and Main Parts



NOTICE! The appearances will be different for different models of air conditioners.

No.	Part Name	No.	Part Name
1)	Surface panel	4	Guide louver
2	Filter	5	Drain pipe
3	Wiring cover		

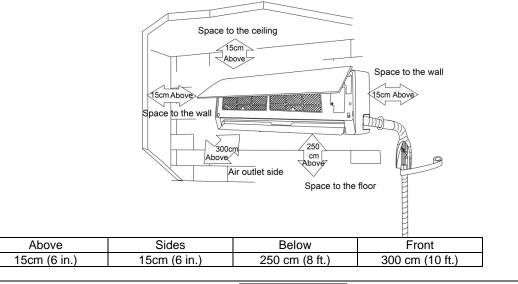
2.2 Rated Operating Condition

	Indoor Sid	e Condition	Outdoor Side Condition		
Item	Dry Bulb Temp℃ (뚜)	Wet Bulb Temp ℃ (۴)	Dry Bulb Temp ℃ (۴)	Wet Bulb Temp ሮ (뚜)	
Rated Cooling	27(80.6)	19(66.2)	35(95)	24(75.2)	
Rated Heating	20(68.0)	15(59.0)	7(44.6)	6(42.8)	

Indoor Unit Working Temperature Range:16 \mathbb{C} ~32 $\mathbb{C}(60.8 \text{ F} \sim 89.6 \text{ F})$.

3Installation Instruction

3.1 Installation clearances

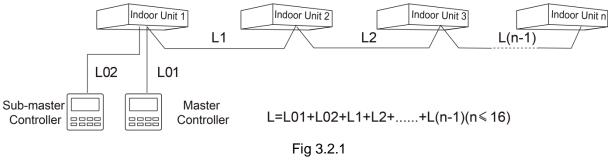


	NOTICE
(1)	The unit shall be installed by the professional personnel according to this installation manual.
(2)	Please contact a qualified contractor for installation. Manufacturer will not be responsible for any malfunction caused by a unit that is not installed by a qualified contractor.
(3)	After installation, air conditioner should not be moved and reinstalled at another location.
(4)	The appliance shall not be installed in a laundry room.
(5)	The indoor unit should be installed at least 2.3m (7.5 ft) above the floor.

3.2 Requirements for Communication Line

NOTICE! If the unit is installed in or near a strong electromagnetic field, shielded wire must be used for the communication wire between indoor unit and controller. Twisted pair line with shielding function must be unsed on the communication wire between indoor units and indoor unit(s) to outdoor unit.

3.2.1 Select communication line for indoor unit and wired controller



Material type	Total length of communication line between indoor unit and wired controller L (m/feet)	Wire size (mm ² /AWG)	Material Standard	Remarks

Light/Ordinary polyvinyl chloride sheathed cord. (60227 IEC 52 /60227 IEC 53)	L≪250m (L≪820-1/5feet)	2x0.75~2x1.25 (2xAWG18~2xAWG16)	IEC 60227-5:2007	 Total length of communication line can't exceed 250m (820feet). The cord shall be Circular cord (the cords shall be twisted together). If unit is installed in or near strong electromagnetic field, use shielded wire.
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3.2.2 Select communication line for indoor unit and indoor unit (outdoor unit)

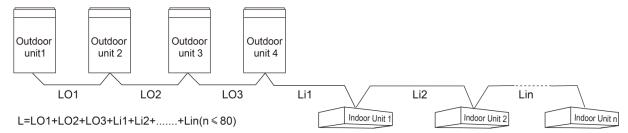


Fig 3.2.2

Material Type	Total Length L (m/feet) of Communication Cable between Indoor Unit and Indoor (Outdoor) Unit	Wire size (mm ² /AWG)	Materi al Standa rd	Remarks
Light/Ordinary polyvinyl chloride sheathed cord. (60227 IEC 52 /60227 IEC 53)	L≤1000m (L≤3280-5/6feet)	≥2x0.75 (≥2xAWG18)	IEC 60227-5: 2007	 If the wire diameter is enlarged to 2×1 mm² (2×AWG16), the total communication line length can reach 1500 m (4900 feet). The cord shall be Circular cord (the cords shall be twisted together). If unit is installed in or near strong electromagnetic field, use shielded wire.

3.3 Electric Installation

Model	Power Supply	MCA(A)	MOP(A)
B-HW-2.2(07)-A3AK		1	15
B-HW-2.8(09)-A3AK	208/230V-1ph-60Hz	1	15
B-HW-3.6(12)-A3AK		1	15
B-HW-5.0(18)-A3AK		1	15
B-HW-7.1(24)-A3AK		1	15

NOTICE

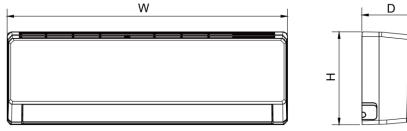
- (1) Use copper wire only as unit's power cord. Operating temperature should be within its rated value.
- (2) If the power cord is more than 15m (49 feet) long, proportionally increase the sectional area of power cord to avoid overload.
- (3) Above selection requirements: Power cord size is based on BV single-core wire (2~4pc) at 40°C (104F) ambient temperature when laying across plastic pipe. Air switch is D type and used at 40°C (104F). If actual installation condition varies, please lower the capacity according to the specifications of power cord and air switch provided by manufacturer.

(4) Install cut-off device near the unit. The minimum distance between each stage of cut-off device should be 3mm(1/8 inch)(The same for both indoor unit and outdoor unit).

(5) If the supply cord is damaged, it must be replaced by a qualified technician in order to avoid a hazard.

4 Installation Instructions

4.1 Installation of Indoor Unit



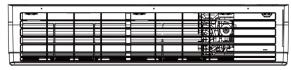
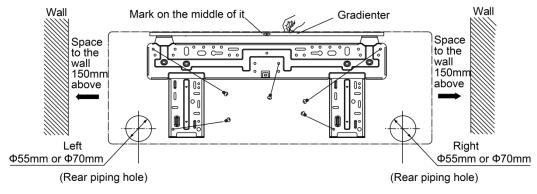


Fig 4.1

Below are dimensions of W, H, and D.:

		U	nit:mm/inch
Item	W	Н	D
B-HW-2.2(07)-A3AK	843	275	180
B-HW-2.8(09)-A3AK	(33-3/16)	(10-13/16)	(7-1/16)
B-HW-3.6(12)-A3AK	940	298	200
B-HW-5.0(18)-A3AK	(37)	(11-3/4)	(7-7/8)
B-HW-7.1(24)-A3AK	1008	319	221
	(39-11/16)	(12-9/16)	(8-11/16)

4.2 The installation of the rear panel





- (1) Use a level to hang the rear panel. Since the drainage pipe is on the left side, it is necessary to adjust the rear panel to make its left side a little bit lower.
- (2) Attach the rear panel on the wall with bolts.
- (3) After installing the rear panel, check to see that it is mounted securely. The panel should support 60kg/130 lbs., and the weight shared by every bolt should be evenly distributed.
- (4) The diameter showed in Fig. 4.2 is 65mm (2-1/2 in.).

4.3 Debugging

NOTICE! Setting main indoor unit must be done after completing installation of. Otherwise,

the whole system will report "L7" error and will not operate!

The indoor unit defaults to be slave indoor unit. During debugging, if master indoor unit hasn't been set manually, the outdoor unit will designate one indoor unit as the master indoor unit automatically. The master indoor unit can be reset by the remote controller or wired controller. 4.3.1 Setting by remote controller

Point the remote controller at the light board or wired controller

In fan mode, set master mode indoor unit through \blacktriangle and \blacktriangledown button:

- (1) Adjust set temperature to 30°C (86°F) .
- (2) Within 5 seconds, press $\mathbf{\nabla}$ button and then press $\mathbf{\Delta}$ button three times.

After finishing setting, "UC" is displayed on receiver light board for 5 seconds and "MASTER" icon is displayed on wired controller.

4.3.2 Setting by wired controller

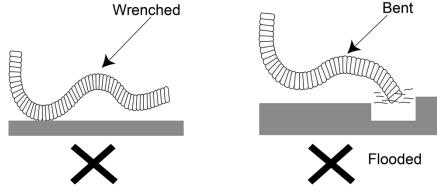


4.4 Preparation of the piping hole

- Make the piping hole (Φ 65mm/2-1/2 in.) in the wall at a slight downward slant to the outdoor side. The center of the hole should be determined referring to Fig. 4.2.
- (2) Insert the piping-hole sleeve into the hole to prevent the connected piping and wiring from being damaged when passing through the hole.

4.5 Installation of the drainage pipe

- (1) For proper draining, the drain hose should be placed at a downward slope.
- (2) Do not wrench or bend the drain hose or flood end in standing water. (Fig. 4.4)
- (3) Wrap the drain hose with heat resistant material.





4.6 Installation the connection pipes

Connect the ends of the connection pipe with two leading pipes, and then tighten the joint nuts.

Connect the connect pipe with the two relative leading pipe, tie the nut on tie –in of the connect pipe tightly.

- 1 Be careful not to damage the connection pipes by bending them.
- 2 If the flare nut is over tightened, leakage it could develop a leak.

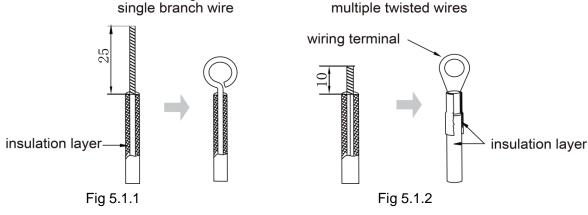
5 Wiring Work

	WARNING				
Befo	Before accessing terminals, all supply circuits must be disconnected.				
	NOTICE				
(1)	Units must be grounded securely, or it may cause electric shock.				
(2)	Please carefully read the wiring diagram. Faulty wiring could cause malfunction or even damage the unit.				
(3)	The unit should be powered by dedicated circuit and socket.				
(4)	The wiring should be in accordance with related regulations in order to ensure reliable operation of the unit.				
(5)	Install circuit breaker for branch circuit according to related regulations and electrical standards.				
(6)	Keep cable away from refrigerant pipings, compressor and fan motor.				
(7)	The communication wires should be separated from power cord and connection wire between indoor unit and outdoor unit.				
(8)	Adjust the static pressure via wired controller as needed.				

5.1 Connect Cables and Terminals of Wiring Board

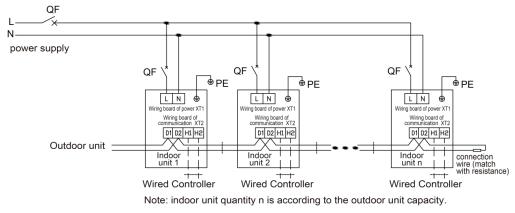
Connection of Wire and Patch Board Terminal

- (1) The connection of wire (as shown in Fig. 5.1.1)
- ① Strip about 25mm (1 in.) insulation off the wire end with stripping tool.
- ② Remove the wiring screws from the terminal board.
- ③ Shape the tail of wire into ring with needle nose pliers with the loop matching the screw.
- ④ Use the screwdriver to tighten the terminal.
- (2) The connection of stranded wire (as shown in Fig. 5.1.2)
- ① Strip about 10mm (3/8 in.) insulation off the end of stranded wire with stripping tool.
- 2 Loosen the wiring screws on terminal board.
- ③ Insert the wire into the ring tongue terminal and tighten with crimping tool.
- ④ Use the screwdriver to tighten the terminal. single branch wire



5.2 Power Cord Connection

NOTICE! All indoor units must be on a single power supply so that they can be powered



ON/OFF at the same time.

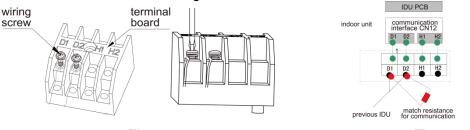


For units with single-phase power supply.

- (1) Detach the electric box lid.
- (2) Lead the power cord through the wiring holes.
- (3) Connect the power cord to terminal "L, N, **(<u></u><u></u>)** "
- (4) Fix the power cord with wiring clamp.
- (5) The wire diameter of power cord can't be less than 18AWG.

5.3 Connection of Communication Line of IDU and ODU

- (1) Open the cover of electric box on indoor unit.
- (2) Lead the communication line through the rubber ring.
- (3) Connect the communication line to terminal D1 and D2 on the 4-digit wiring board of indoor unit, as shown in Fig.5.3.1.









- (4) Secure the communication line to the electric box with the wire.
- (5) In order to ensure the reliability of communication between IDU and ODU and the communication among each IDU, add a matched resistance (supplied with system) on the wiring board of the last indoor unit in a series connection. The matched resistance should be connected in parallel between terminal screw D1 and D2, as shown in Fig. 5.3.2.

5.4 Connection of Communication Line of Wired Controller

- (1) Open the cover of electric box of indoor unit.
- (2) Lead the communication line of wired controller through the rubber ring.
- (3) Connect the communication wire to terminal H1 and H2 of indoor 4-bit wiring board.
- (4) Secure the communication wire to the electric box with wire clip.

5.5 Illuminate for Connection of Wired Controller and Indoor Units Network

- Communication wire of indoor unit and outdoor unit (or indoor unit) is connected to D1,D2.
- (2) Wired controller is connected to H1,H2.
- (3) One indoor unit can connect two wired controllers. One must be set as master; and one, slave.
- (4) One wired controller can control up to 16 indoor units in maximum at the same time.

	NOTICE
(1)	The indoor units must be the same type if they are controlled by the same wired controller.
(2)	When the indoor unit is controlled by two wired controllers, the addresses of the two wired controllers should have different address settings. Address 1 is for main controller. Address 2 is for slave controller. Detailed setting please refer to the instruction manual of wired controller.

5.6 Installation of the indoor unit

- (1) When routing the piping and wiring from the left or right side of the indoor unit, it is necessary to cut off the tailings of the pipe left on the holder of the unit. (Shown in Fig.5.6)
- Cut down tailings 1 when only the power cord is led.
- Cut down tailings 1,2 (or 1,2,3) when the connection cord and wire are led.
- The piping types (1,2,3) are recommended.
- (2) Lead the tubing and cord though the piping hole after tied up (refer to Fig. 5.6 (d)).
- (3) Hang the claw behind the indoor unit on the pothook on the wall panel, and move the unit left and right to check if the body is secure.
- (4) Guarantee that the installation height of the indoor unit should be 2.5m (8 ft.) above the floor.

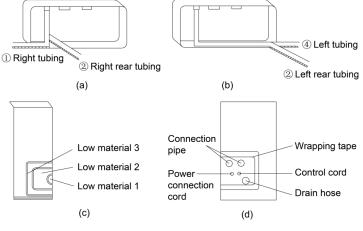
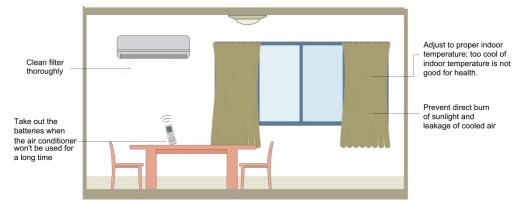


Fig 5.6

6 The Best Usage Method

NOTICE! Do not pour water to unit or clean it with water, otherwise a malfunction or electric shock may occure.



- (1) It is recommended that the thermostat be set for efficient operation. It is best to set the indoor temperature to within 5°C (9°F) of the outdoor temperature.
- (2) For more efficient heating affect adjust the louvers downward. For better cooling affect adjust the louvers more horizontal.
- (3) When the air conditioner is running, don't leave windows or doors open.
- (4) Cooled air should circulate through the room and not blow directly on individuals in the room.
- (5) Do not mistreat the power cord and the communication cord. The damaged power cord and communication cord can only be replaced approved parts.
- (6) This air conditioner cannot be used for drying clothes, refrigerating food, etc.

7 Maintenance Method

	NOTICE
(1)	Turn off the unit and cut off the main power supply when cleaning the air conditioner to avoid electric shock or injury.
(2)	Use a ladder or other stable platform when cleaning the unit.
(3)	Do not clean the unit with hot water whose temperature is higher than 45°C (113°F) to prevent fading or warping.
(4)	Do not dry the filters over open flame to avoid warping.
(5)	Volatile liquid such as paint thinner or gasoline will damage the appearance of the air conditioner. (Only soft dry cloth or damp cloth moistened with mild detergent to clean the surface panel of the air conditioner.)
(6)	Please contact a qualified service technician if there is a malfunction.

7.1 Cleaning panel

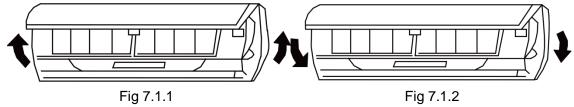
Take down panel before cleaning.

- (1) Pull along the direction of arrows to take down the panel.
- (2) Clean the panel

Clean it with a soft-hair brush, water and mild detergent, and then dry it.

(3) Reinstall the panel

As shown in Fig.II, install the stands of both ends of the panel into the slot and put the middle rotating shaft into the groove, then place the panel and clasp back along the arrow direction.



7.2 Cleaning the air filters

Clean filters once every 3 months. If environment is very dusty, it should be cleaned more frequently.

(1) Take down the air filter

As shown in Fig. 7.2.1, open the surface panel by holding the both ends of groove along the arrow direction, and then take the air filter out downward.

(2) Clean the filter

Use cleaner or water to wash the filter; if the filter is too dirty (such as an oil stain), warm water (lower than 45° (113F)) with mild detergent can be used, then dry it in the shade.

NOTICE
②Do not clean the filter by hot water higher than 45℃ (113F) to prevent fading or warping.
③Do not dry filter over open flame or it could warp or catch fire.

(3) Reinstall air filter

Install the air filter properly along the arrow direction. The side marked "Front" is indicat

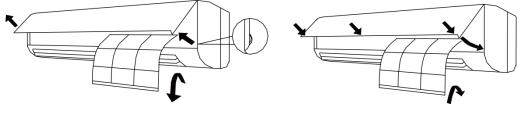


Fig 7.2.1

Fig 7.2.2

7.3 Preseason checklist

- (1) Check if the inlet or outlet vent of the air conditioner is blocked.
- (2) Check if the ground wire is securely attached.
- (3) Check if the batteries in the wireless remote controller need replacing.
- (4) Check if the air filter has been installed properly

Air conditioner must be connected to power supply for 8 hours before startup or compressor could be damaged.

7.4 Post seasonal checklist

- (1) Clean filter and body of air conditioner.
- (2) Cut off the main power supply to air conditioner.

Error Code	Content	Error Code	Content	Error Code	Content
L0	Indoor Unit Error	L9	Quantity Of Group Control Indoor Units Setting Error	d8	Water Temperature Sensor Error
L1	Indoor Fan Protection	LA	Indoor Units Incompatibility Error	d9	Jumper Cap Error
L2	E-heater Protection	LH	Low Air Quality Warning	dA	Indoor Unit Network Address Error
L3	Water Full Protection	LC	Outdoor-Indoor Incompatibility Error	dH	Wired Controller Circuit Board Error
L4	Wired Controller Power Supply Error	d1	Indoor Unit Circuit Board Error	dC	Capacity DIP Switch Setting Error
L5	Anti-freezing Protection	d3	Ambient Temperature Sensor Error	dE	Indoor Unit CO ₂ Sensor Error
L7	No Master Indoor Unit Error	d4	Inlet Pipe Temperature Sensor Error	C0	Communication Error
L8	Power Insufficiency Protection	d6	Outlet Pipe Temperature Sensor Error	AJ	Filter Cleaning Reminding
db	Special Code: Project Debugging Code	dL	Outlet Air Temperature Sensor Error		

8 Table of Error Codes for Indoor Unit
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9 Malfunction Analysis



Do not repair the air conditioner by yourself. Faulty repair could lead to electric shock or fire. Please contact a qualified technician to have the unit. Check the following items before contacting the service center, as it could save you time and expense.

Malfunction Phenomena	Malfunction Analyzing		
The air conditioner could not start up just after turned off	The over load protection switch requires a 3 minute delay before unit will run again		
Unit emits an odor after just turning on.	Odors or cigarette smoke which has been absorbed is discharged.		
Slight clicking was heard when the unit was running	This is the sound of the running refrigerant		
Mist came from the air outlet vent when cooling	Indoor air is cooled rapidly		
Creaking sound was heard when the unit was running or after it was turned off	It is the normal sound of the panel and other parts expanding or contracting due to temperature change.		
The air conditioner failed to run	Is the power supply cut off? Is the power supply connected? Is the circuit breaker properly set? Is the voltage too high or too low Is the TIMER set on the wireless remote controller?		
Poor cooling (heating) effect	Is the thermostat set properly? Is the inlet, outlet vent of the outdoor unit blocked? Is the air filter too dirty to cause blockage? Are windows and doors closed? Is the air speed too low? Is there other heat source in the room?		
The wireless remote controller won't work	In the event that the battery is replaced but the wireless remote control still malfunctions, then open the back cover and press "ACL" button to reset it. When the air conditioner functions are changed too frequently, the wireless remote controller may malfunction. To resume the normal operation de-energize and then re-energize the wireless controller. Is the controller close enough to the air conditioner to receive the signal? Is there an obstacle blocking the signal? Do the batteries need replacing?		

9.1 When to contact a service technician

When the following conditions occur, please stop operating immediately, cut off the main power supply of the unit and then contact the service.

- Harsh sound heard when running;
- The fuse or circuit breaker trips frequently;
- Substance or water pulled in the unit involuntarily;

- ♦ Water leakage in room;
- Power cord overheated;
- Unusual or burning odor is given off when running.

9.2 After-sales service

If quality or other problems arise, contact a qualified technician.

10 Adjusting the Air Direction

10.1 Adjusting air direction up and down

- (1) The wireless remote controller can make the guide louver swing up and down, or makes the guide louver stop at a certain.
- (2) Press the SWING button on the wireless remote controller to make the guide louver swing up and down; Repress again to stop the operation.

10.2 Adjusting air direction left and right

Moving the vertical louver left and right can adjust direction of airflow, or adjust the air outlet to reach every corner of the room with 3 different outlet directions to make the indoor temperature more even.

Specifications & illustrations subject to change without notice or incurring obligations.



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