SERVICE MANUAL

WALL SINGLE SERIES

AW-12A

sinclair
AIR CONDITIONING

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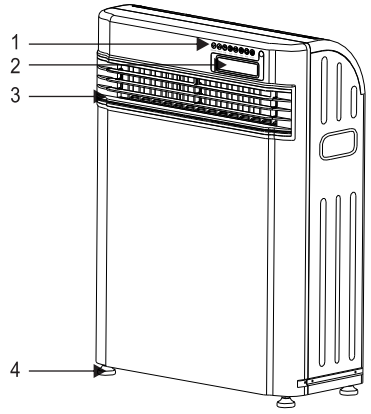
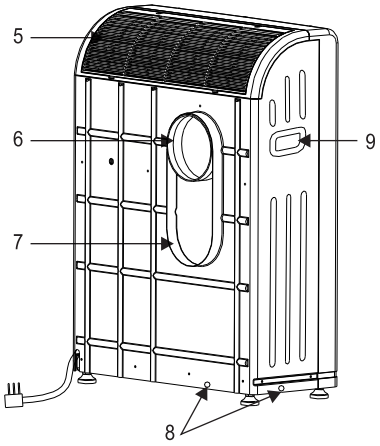
Description of structure

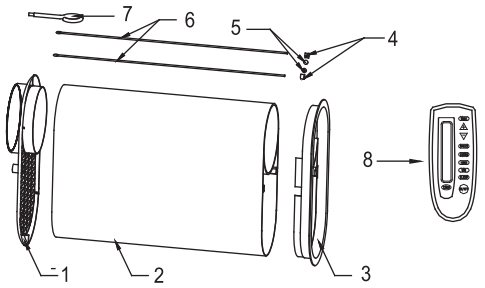
■ BODY CONFIGURATION





1.Control Panel
2.Display Window
3. Indoor Outlet
4. Adjustable Foot pad
5. Indoor Inlet
6. Outdoor Outlet
7. Outdor Inlet
8. Drain
9. Handle

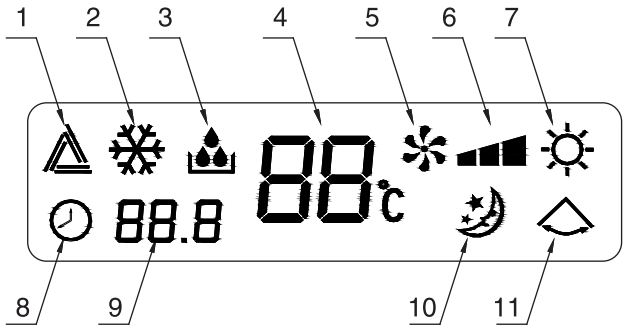
■ Component configuration



1.Drainpipe external joint
2.Drainpipe
3.Drainpipe internal joint
4.Screw
5.Cushion
6.Drainpipe Connecting rod
7.Drainpipe external joint hook
8. RemotE controller

Description of structure

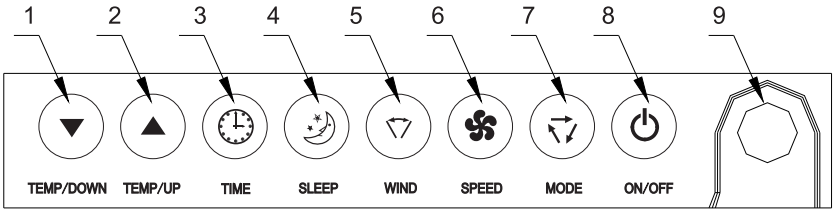
■ DISPLAY SCREEN SYMBOL SPECIFICATION



1.AUTO
2.COOLING
3.DEHUMIDIFICATION
4.TEMPERATURE
5.FAN SPEED
6.FAN SPEED
7.HEAT
8.SETTLE THE HOUR
9.TIMER
10.SLEEP
11.WIND DIRECTION

DISPLAY SCREEN

■ **OPERATION BUTTON SPECIFICATION**

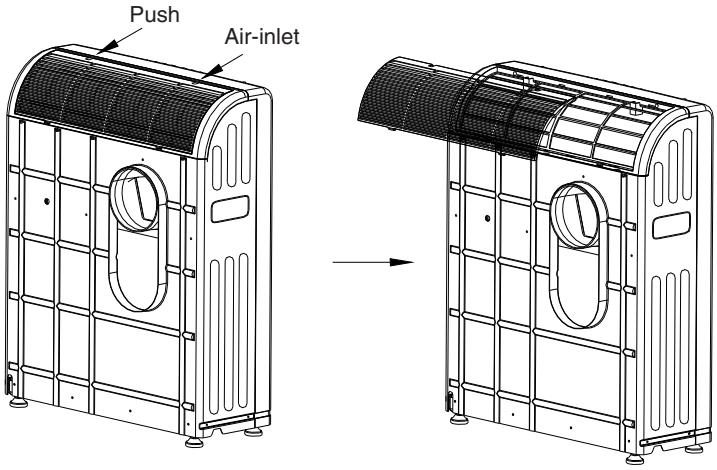


1.TEMPERATURE/WIND SPEED DOWN
2.TEMPERATURE/WIND SPEED UP
3.TIMING
4.SLEEP
5. AUTOMATIC SWING
6. WINDSPEED
7. MODE
8. ON/OFF
9. CONTROLLER ACCEPTANCE WINDOW

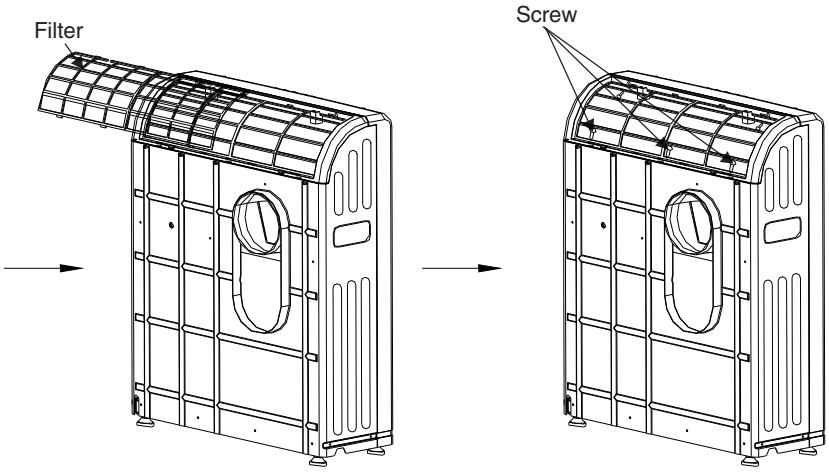
Disassembly method

The following procedure can be applied when the machine is to be fixed on the wall (at the request of the customers)

1.Push hard the tab to the back of the machine, rotate the air-inlet grille and remove it;

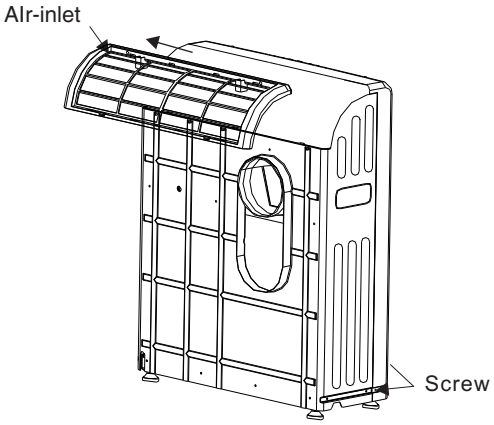


2.Remove the filter, release the screw, and remove the air-inlet frame;

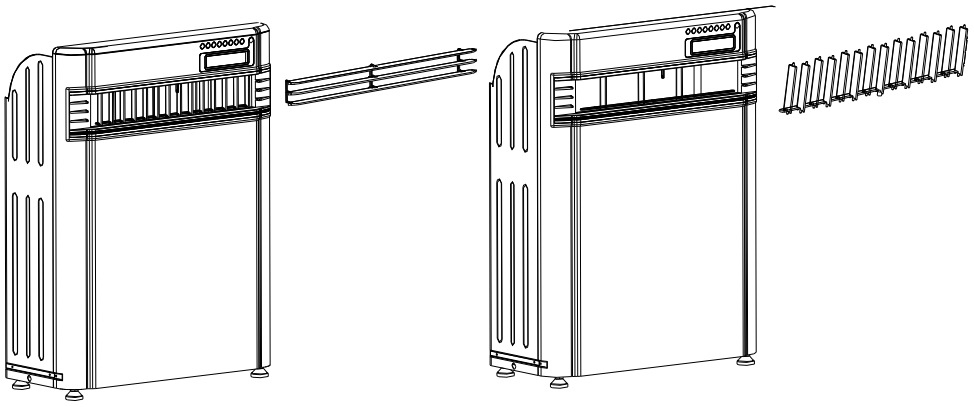


Disassembly method

3.Move the air inlet as the label direction and demount it. Release the right and left screws.

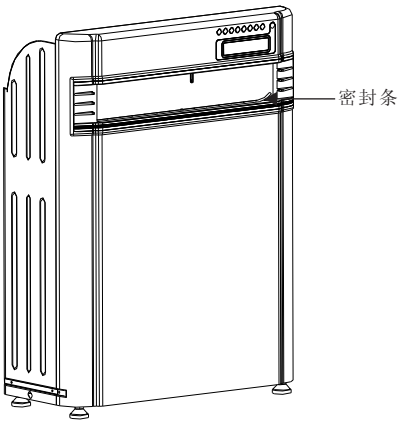


4.Remove the vanes for horizontal direction wind and remove the vanes for straight direction wind.

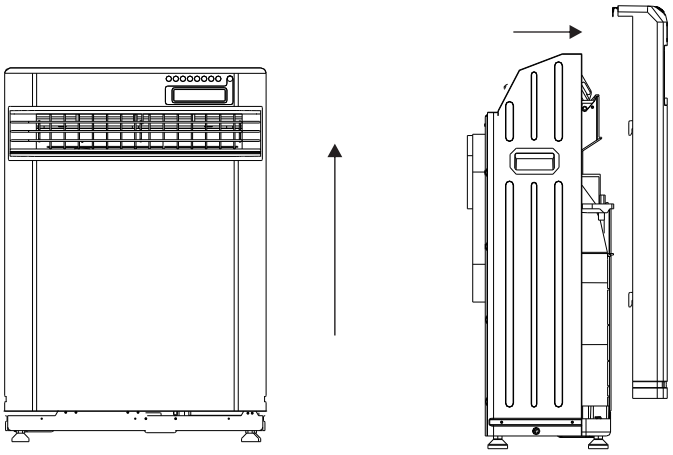


Disassembly method

5.Take away the sealing strip of the air outlet frame.

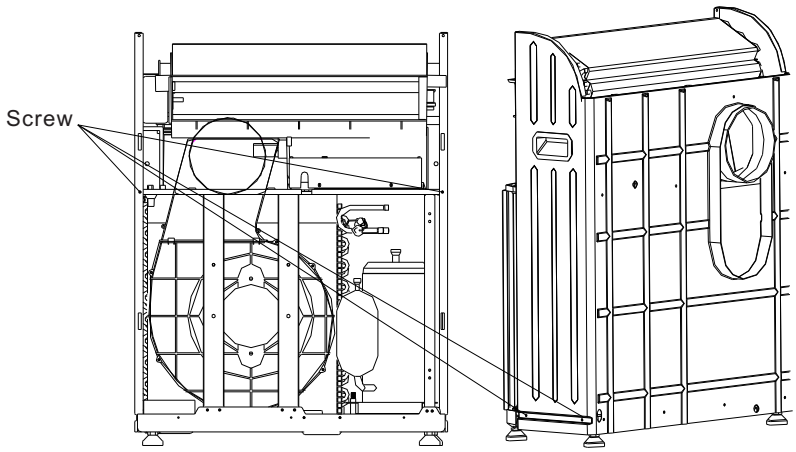


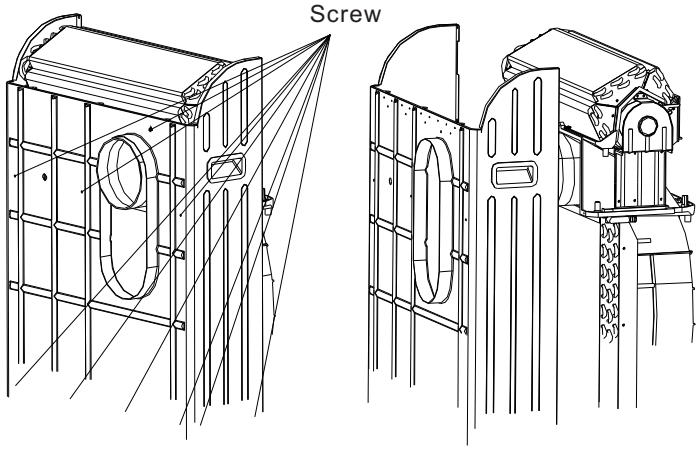
6. move the front cover as the label direction and demount it.



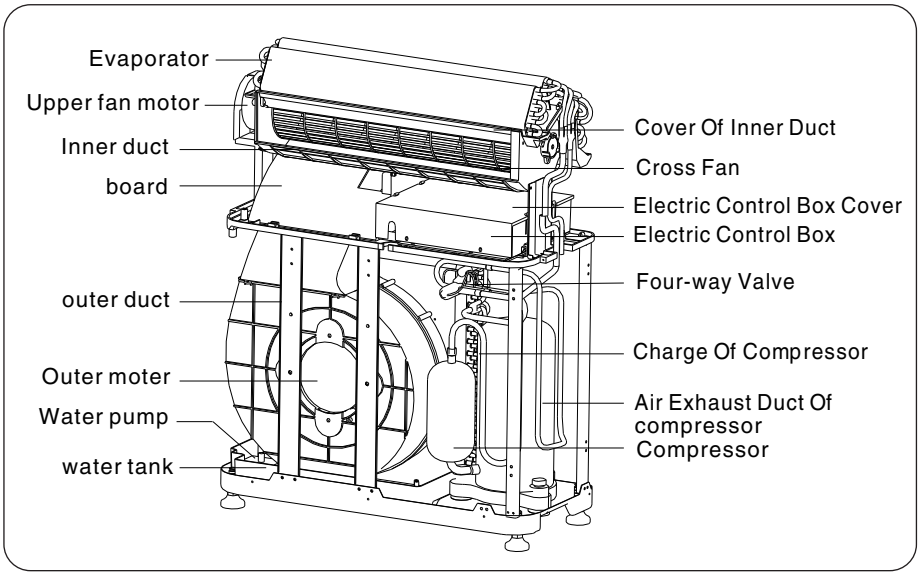
Disassembly method

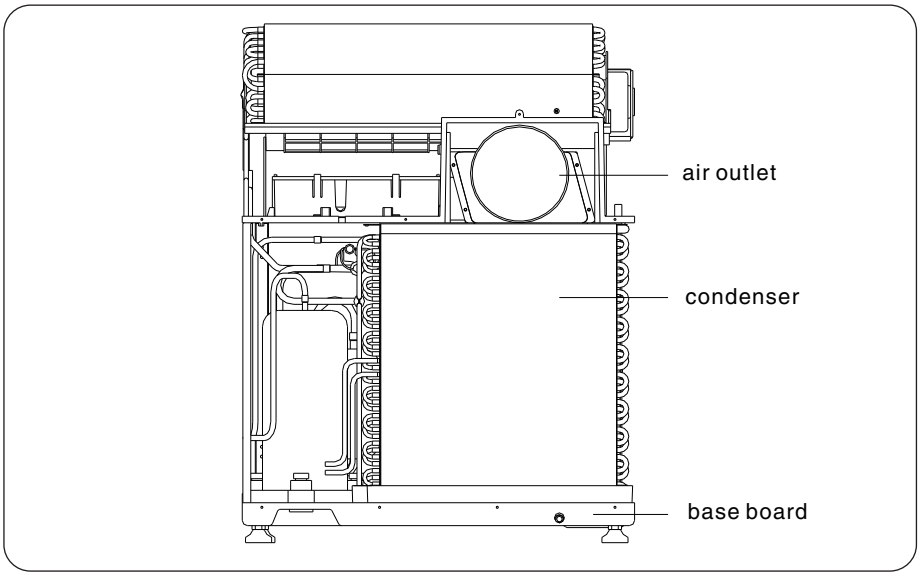
7. release the screws of the back cover.





Interior layout





Principle of electrical control and running characteristics

● Each mode working principle

＊Automatic mode

1.Once the Automatic Operation is selected,the indoor temperature sensor operates automatically to select the desired operation mode with Cooling or Fan or heat.

2.When the room temperature≥24℃,the unit automatically to select cooling mode and the upper fan turned to low speed automatically.

3.When the room tempperature=23 C°,the unit automatically to select fan mode and the upper fan turned to low speed automatically.

4.When the room tempperature ≤22 C°,the unit automatically to select heat mode and the upper fan turned to low speed automatically.

＊Dehumidifying mode

1. The upper fan will run at low speed ,the speed is not adjustable.
2. The compressor and lower fan with 8 mins. ON and 6 mins.OFF automatically.
3. The unit adopts constant temperature dehumidifying mode,adjustment of temperature is no effective.

＊Cooling mode:

1. When the room temperature is higher than set temperature ,The compressor starts to run.
2. When the room temperature is lower than set temperature ,the compressor stop and upper fan operates at original set speed.

＊Fan mode:

1.The upper fan run at set speed ,the compressor and lower fan motor do not run .
2.The temperature is not adjustable.

＊Heat mode:

1. When the room temperature is higher than set temperature ,the unit stop heating function.
2. When the room temperature is lower than set temperature ,the unit starts heating function.
3. To avoid cold wind blows out, the unit is equipped with automatic cold wind defend function.

● Timer operation

1.Press “Timer” button to set Automatic Off time while the unit is running.

2.Press “Timer”button to set Automatic On time while the unit is ready.

3.The adjustable time range is 1~12 hour,The interval of each press of▲and▼is 1 hour.The timer will display in LCD window correspondingly.

● Swing operation

1.Press Swing button to change airflow direction. The unit default setting is straight airflow.
2.Press “Swing ”button once,the airflow direction will change to swing at 120° right-left.

● Sleep operation

1.Sleep operation is useful when the unit under cooling and heat mode.

2. In cooling mode press Sleep Button, it will work under sleep mode and the upper fan turned to low speed automatically.the set temperature will increases 1℃ after one hour, and increases 2 ℃ after two hours. After six hours, the unit stops running.

3. In heating mode press Sleep Button, it will work under sleep mode and the upper fan turned to low speed Automatically. the set temperature will decrease 1℃ after one hour, and decrease 2℃ after two hours. After six hours, the unit stops running.

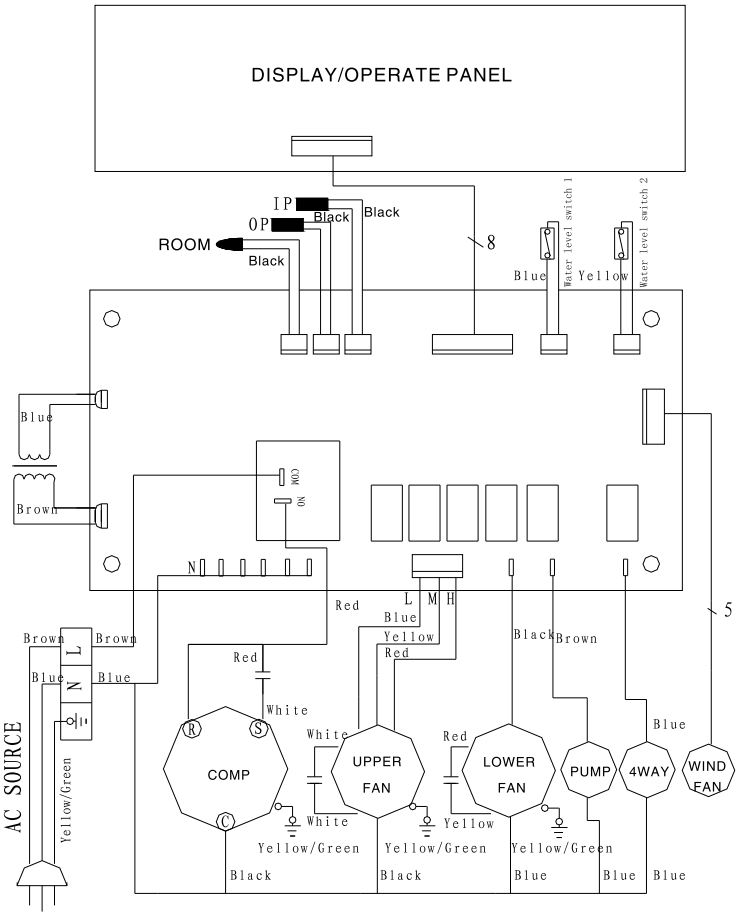
Principle of electrical control and running characteristics

● Notes on operation

1.If the water plate is full, the unit will stop automatically, and the water full indicator will be on to indicate user to take water out. Before taking water out, please turn the unit off.

2. Allow 3 minutes for the compressor to restart cooling
If you turn the air conditioner off and immediately restart it,allow three minutes for the compressor to restart.there is an electronic device in the unit that keeps the compressor off three minutes for protection.

● Circuit diagram



Principle of refrigeration system

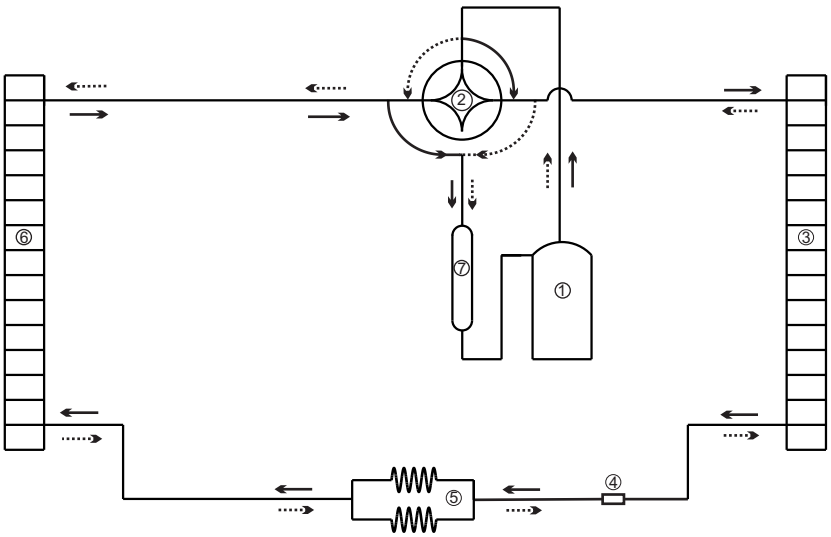
Working procedure of refrigeration system

The refrigeration system in the air conditioner consists of compressor, condenser, capillary tube, evaporator, and etc. Those components are connected by copper tube to form a sealed system. By charging the refrigerant into the system, the refrigerant will circulate by the following process :

1. Vaporizing process:
   The low temperature and low pressure refrigerant liquid enters into the evaporator to absorb the heat from the ari which flows over the evaporator, then the liquid boils off and transfers to the low pressure vapor.
2. Compressing process:
   The low pressure refrigerant vapour in the evaporator is absorbed into accumulator by compressor and is compressed in cylinder, then it will be vent to condenser with high pressure and temperature.
3. Condensing process:
   The high pressure and temperature vpor enters into the condenser and discharge heat, then condenses to the super-cooling and high pressure liquid.
4. Throttling process:
   The super-cooling and high pressure liquid flows through the capillary tube and transfers to low temperature and low pressure liquid refrigerant.

With incessant operating of compressor, the above four processes circulating continuously to complete the refrigerating process of the air conditioning.

Principle of refrigeration system



Note: ● ——→
The flow direction of refrigerant(R410A) in the cooling model

● ·····→
The flow direction of refrigerant(R410A) in the heating model

① Compressor
② four-way valve
③ Outdoor air exchanger
④ Filter
⑤ Capillary
⑥ Indoor air exchanger
⑦ Accumulator

Troubleshooting guide

1The unit does not startl. Refer to the following causes and solutions

1).Power is off: push the power button.
2).Wall plug disconnected: push plug firmly into wall outlet.
3).House fuse blown or circuit breaker tripped:replace fuse with time delay type or reset circuit breaker.
4).Unit was turned off and then on too quickly: set unit off and wait 3 minutes before restarting.
5).The current interrupter device is triped:press the RESET button located on the power cord plug;If the RESET button will not stay engaged,discontinue use of the air conditioner and contact a qualified service technician.

2.Outer fan and inner fan work while compressor does not work . Refer to the following causes and solutions:

1).The voltage of the power is too low or too higher: make sure that the voltage is not lower than 198V or highter than 264V
2).Electrocircuit of the compressor is not well connected or loosen: check with the Electrocircuit of the compressor.
3).Capacitor of the compressor is burnt: replace the capacitor for the compressor.
4).Compressor motor is burnt: repair or replace the compressor

3.Inner fan work whill outer fan and compressor don't work . Refer to the following causes and solutions.

1).In cooling mode,the setting temperature is higher than environmental temperature: set the setting temperature lower than the environmental temperature.
2).Compressor capacity and outer fan motor capacitor are burnt: replace the capacitor.
3).Electronic controller lost control, compressor relay is short connected or broken: repair Or replace the compressor relay.

4.The unit stops running after a brief running. Refer to the following causes and solutions.

1).Too much surrounding dust stick onto the condenser which causes too much pressure for condensing process and therefore, so the overloading protector of the compressor turns on: Clean the dust on the condenser.
2).The air exhaust duct is twisted while the environmental temperature is high (especially

Troubleshooting guide

when the environmental temperature is higher than 43ºC) which causes unsmooth flow of air from condenser, so the compressor is overloaded, and the protector of the compressor turns on: please remove the air exhaust duct under high environmental temperature, waiting for the protector to be restored.

3).The evaporator is easy to get frost when the environmental temperature is too low (especially when the temperature is loser then 20ºC), this is normal phenomenon.

5.The unit is running ,but the cool(or warm) efficiency is not good.Refer to the following causes and solutions.

1).Dry filter or capillary tube is blocked up, an you can fell no heat from the surface of the Condenser: repair or replace the blocked parts

2).All the refrigerant leak out, and no heat can be felt by hand from the surface of the condenser: Locate the leakage spot of the system by using high pressure nitrogen, and repair the leakage spot. Vacuum the compressor before adding new refrigerant(R410A).

3).The air filter is dirty:clean the filter at least every two weeks.

4）. Airflow is restricted:make sure there are no obstacle blocking the front of the air intake grill

5). The air exhaust duct is seriously twisted which leads to unsmooth flow of air from the condenser: Adjust the air exhaust duct too keep the air flow out smoothly.

7.Water leaking from the unit when unit is running. Refer to the following causes and solutions.

1).When the ground is uneven and the unit is tilt, condensed water will overflow from the water plate: move the unit to even ground

2).Heat preservation sponge on the surface of the copper tube has fallen off: stick the sponge onto the surface of the copper tube

3).The floater switch fail to indicate the water reach the highest position: replace the floater switch.

Troubleshooting guide

8.Abnormal sound or high vibration during the operation. Refer to the following causes and solutions:

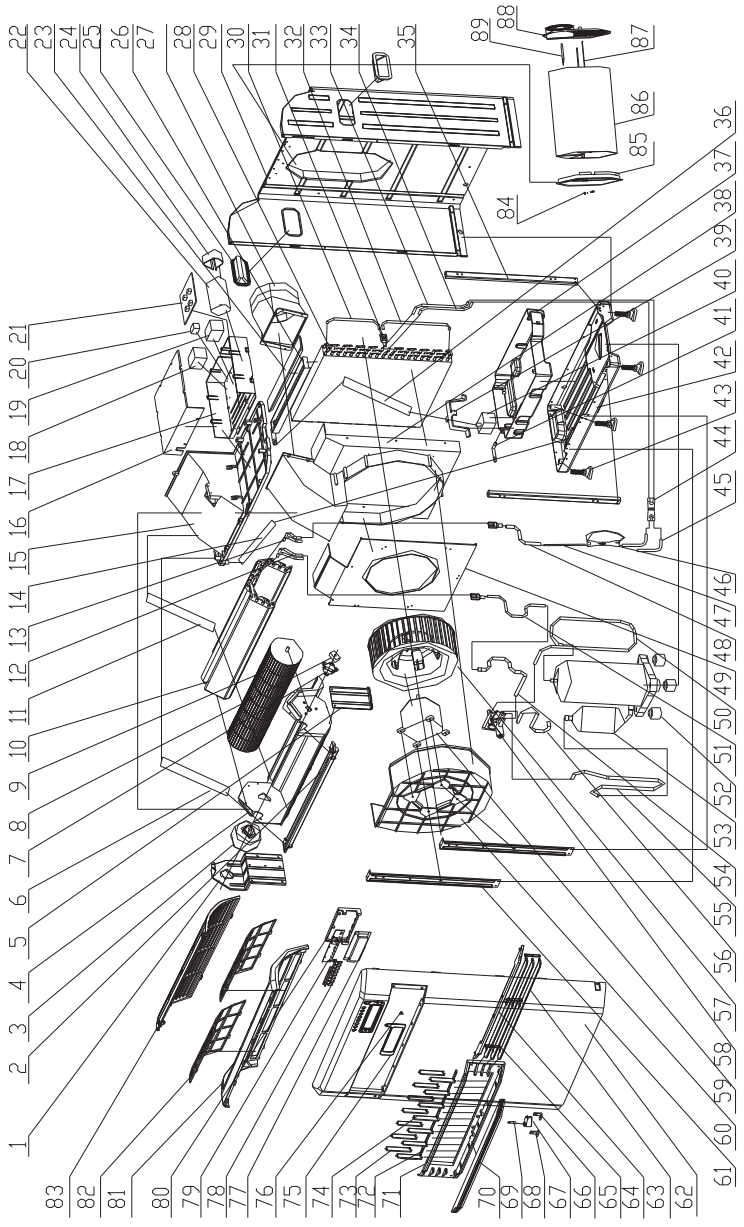
1).The unit is tilted which leads to the excursion of barycenter of the compressor and piping system: move the unit on the even ground
2).The pipes touch other parts which leads to resonance: re-arrange the pipe and separate them from other parts.
3).The inner or outer centrifugal fan is loosen from the fan motor axis:fasten the centrifugal fan to the fan motor axis.
4).The inner or outer centrifugal fan is broken : replace the centrifugal fan.
5).The rotor inside the fan motor rub against the stator: repair or replace the fan motor.
6).The parts inside the unit are loosen: fasten the inside screws.

Specifications

Model		AW-12A
Rfrigerating capacity (Btu/h)/（W）		12000/3500
Heating capacity(Btu/h)/（W）		12000/3500
Dehumidification capacity (L/h)		1.8
Heating input power (W)		1500
Refrigerating input power (W)		1350
Circulating input air (m^3/h)		400
power(single-phase) (V~/ Hz)		220-240/50
Noise dB (A)		≤52
Net weight (kg)		47
Dimensions	body (mm)	610×285×825
	Body package (mm)	685x370x885
	Accessories package (mm)	420X230X525
Refrigerant Charge		R410A / 750g
Applicable area(m^2)		20~25

Notes: since the high updating speed of the products, revision of Technical parameters will not be otherwise notified.

Explosive diagram



Explosive diagram

Parts name	Parts name
1.bracket for inner motor	47.capillary
2.cover of indoor duct	48.connecting pipe for evaporator
3.inner motor	49.wind circle
4.indoor duct	50.air exhaust duct
5.bracket for indoor duct	51.evaporator filter
6.soft water pipe 1	52.anti-vibrate cushion for compress
7.indoor duct accessory	53.compressor
8.axletree cover for upper fan	54.c terminal connector for four-way valve
9.upper fan	55.charge
10.evaporator	56.cterminal connector four-way valve
11.soft water pipe 2	57.centrifugal fan
12.outlet pipe for evaporator	58.four-way valve
13.inlet pipe for evaporator	59.outer motor
14.soft water pipe 3	60.centrifugal duct base
15.clapboard	61.bracket for outer motor
16.cover for electrical control box	62.front cover
17.electrical control box	63.vanes for horizontal direction wind
18.transformer	64.decoration for upper air outlet frame
19.capacitor for outer motor	65.connecting rod for vanes of horizontal direction wind
20.capacitor for inner motor	66.left connecting rod for synchro motor
21.PCB	67.synochro step motor
22.compressor capacitor	68.left connecting rod for synchro motor
23.cover for water-leading slot	69.axletree for step motor
24.capacitor clip	70.decoration for down air outlet frame
25.handle	71.air outlet frame
26.water-leading slot	72.connecting rod for vanes of horizontal direction wind
27.outer exhaust duct	73.vanes for straight direction wind 1
28.condenser	74.vanes for straight direction wind 2
29.back cover	75.display decoration
30.upper inlet pipe for condenser	76.receiving window
31.three-way joints	77.display board
32.inlet pipe for condenser	78.button
33. outer water pipe for condenser (1)	79.button board
34.outer water pipe for condenser (2)	80.display bracket box
35.bracket for clapboard	81.air inlet frame
36.soft water pipe 4	82.filter
37.water tank	83.air inlet fence
38.acentric snail shape duct	84.K3 screw
39.pump bracket	85.inner connector for air exhuast duct
40.pump	86.middle connecotr for air exhuast duct
41.drain connection pipe	87.connecting rod for air exhaust duct
42.base board	88.outer connector for air exhaust duct
43.cushion	89.connector for air exhaust duct
44.four-way filter	
45.service pipe	
46.one direction valve	