

# AKIRA

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## Air Conditioner Service Manual



Большая библиотека технической документации

<https://splitsystema48.ru/instrukcii-po-ekspluatacii-kondicionerov.html>

каталоги, инструкции, сервисные мануалы, схемы.

## **MODEL:AC-S10CMA x 3**

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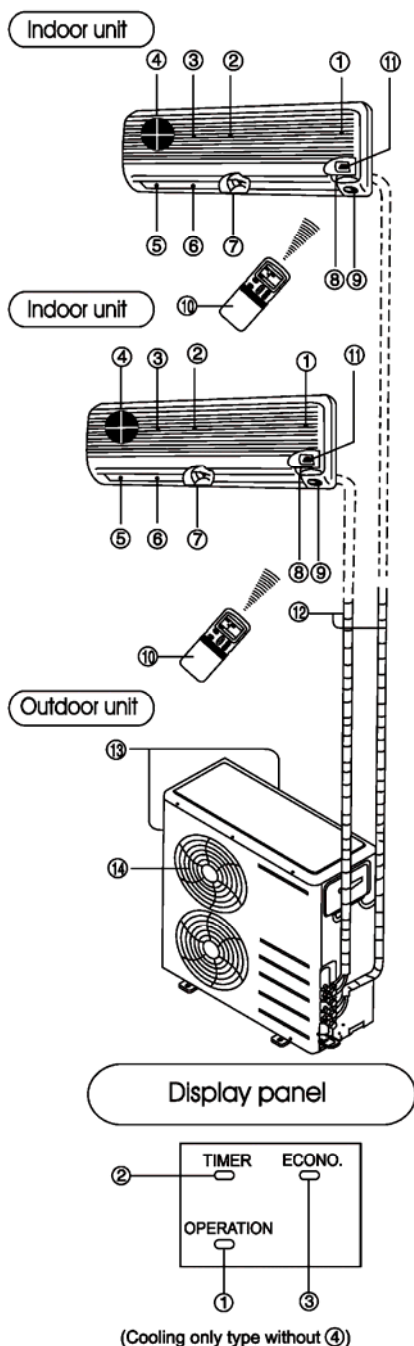
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**TECHNICAL SPECIFICATION**

Model		<b>AC-S10CMA x 3</b>	
Function		Cooling	
Power Supply		1Ph 220-230V / 50Hz	
Capacity (W)		9000 x 2	
Rated Input (W)		890 x 2	
Rated Current (A)		3.9 x 2	
Air Flow (m <sup>3</sup> /h)		550 x 2	
Dehumidifying Volume (L/h)		1.0 x 2	
EER ( W / W)		2.54	
<b>Indoor Unit</b>	Model		<b>AC-S10CMA x 3</b>
	Motor Fan Speed (rpm)		1330
	Fan Type / Piece		Cross Flow Fan – 1
	Diameter – Length		Φ7, Inner Groove Tube
	Evaporator		Hydrophilic Aluminum
	Row-Fin Distance (mm)		1.5
	Swing Motor		RPG13H
	Input (W)		36
	Working Capacitor (μ F)		1.2
	Noise (db / (A))		< 41
	Dimension (w x h x d)(mm)		750 x 250 x 188
	Net Weight (kg)		8.5
	<b>Outdoor Unit</b>	Model	
Input Power / Compressor (W)		880	
Current (A)		4.1	
LRA (A)		18	
Compressor		Matsushita	
Working Temp.		17 - 30	
Condenser		Hydrophilic Aluminum	
Pipe-Diameter		9.52 Inner Groove Tube	
Row-Fin Distance (mm)		1 – 1.6	
Working Area (m <sup>2</sup> )		(14-21) x 2	
Fan Motor Power (W) Speed (rpm)		750	
Fan Type-Piece		Axial Flow Fan – 1	
Dimension (w x h x d) (mm)		895 x 655 x 345	
Net Weight (kg)		63	
Refrigerant Charge		R22 / 680+1000g = 1680g	
<b>Connecting Pipe</b>	Outer Diameter	Liquid (mm)	Φ 6.35
		Gas pipe (mm)	Φ 9.53
	Max. Distance	Height (m)	5
		Length (m)	10

The technical data are subject to change without notice. Please refer to the nameplate of the unit.

**PARTS NAME**



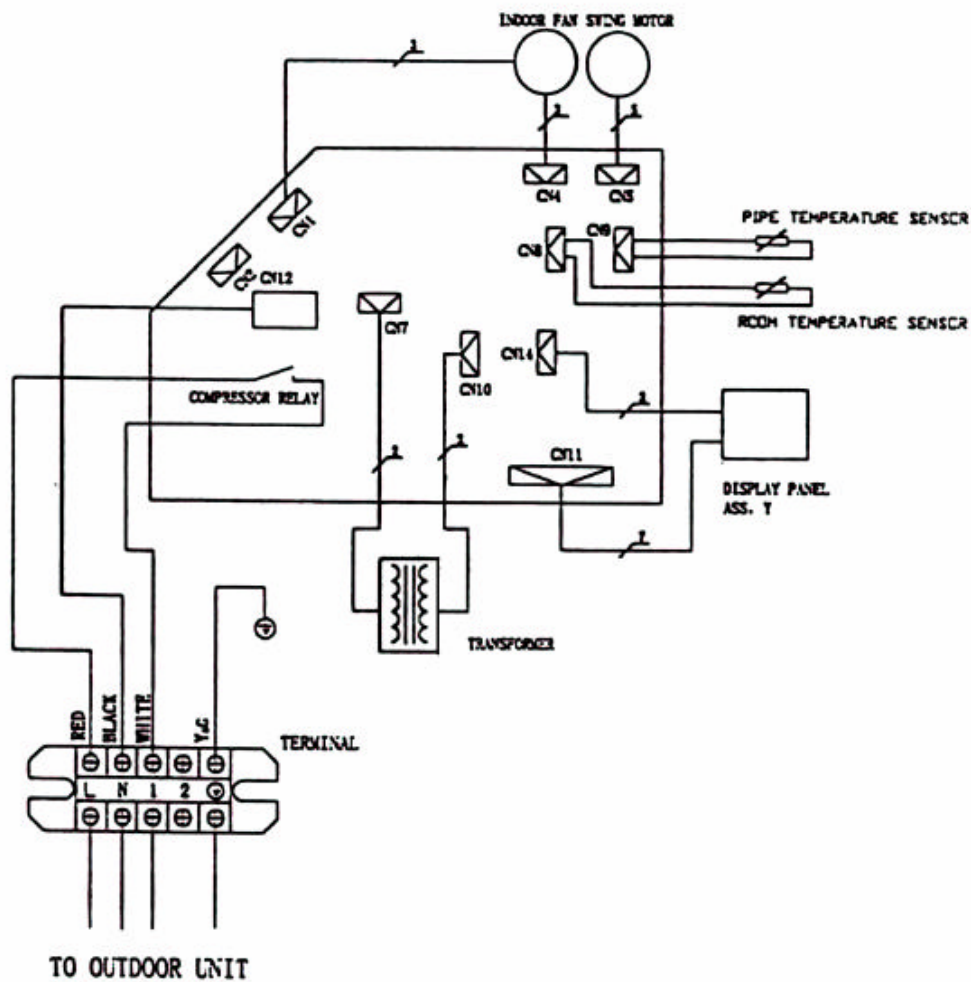
- Indoor unit**
- 1 Room temperature sensor
  - 2 Front panel
  - 3 Air inlet
  - 4 Air filter
  - 5 Air outlet
  - 6 Vertical air flow louver
  - 7 Horizontal air flow grille
  - 8 Display panel
  - 9 Infrared signal receiver
  - 10 Remote Controller
  - 11 Control panel

- Outdoor unit**
- 12 Drain hose, refrigerant connecting pipe and electric wiring.
  - 13 Air inlet (side and rear)
  - 14 Air outlet

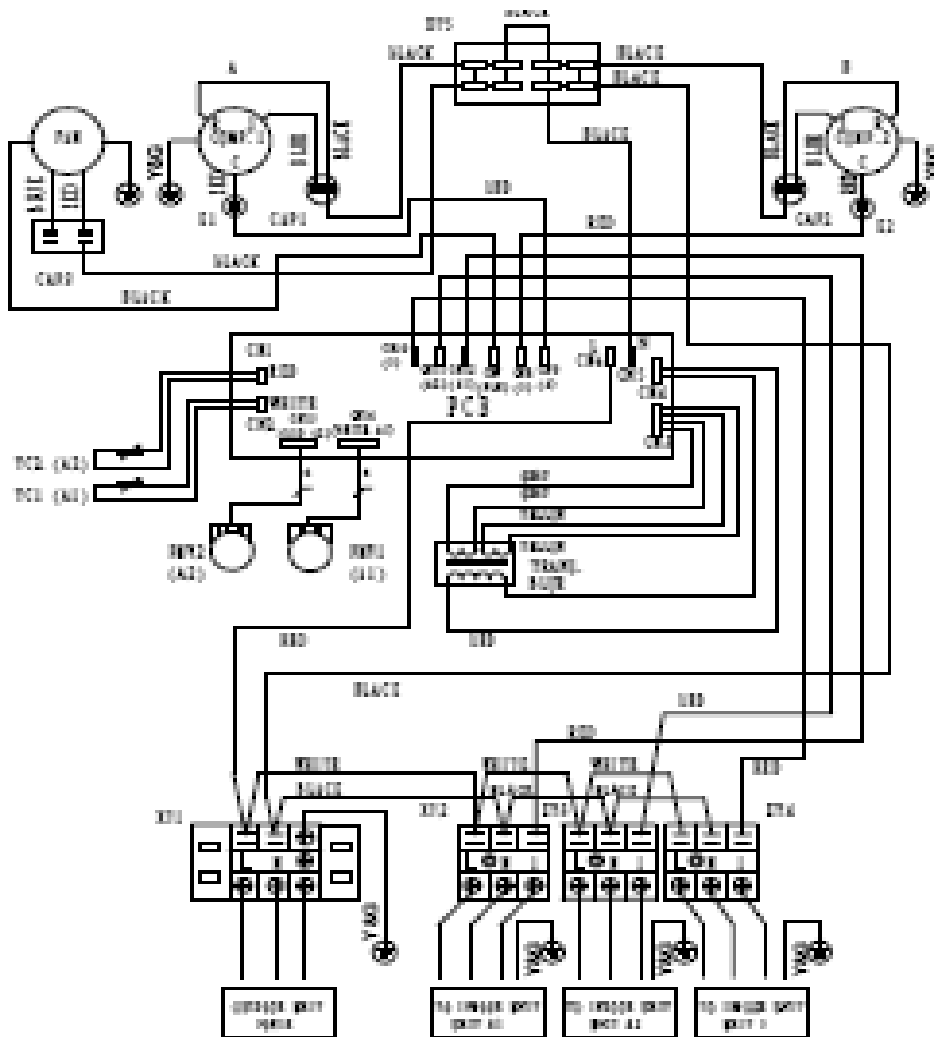
- Display panel**  
The operating conditions are indicated below.
- 1 OPERATION lamp
  - 2 TIMER lamp
  - 3 ECONO. lamp(some models have no this function)

## WIRING DIAGRAM

### INDOOR UNIT



**OUTDOOR UNIT**



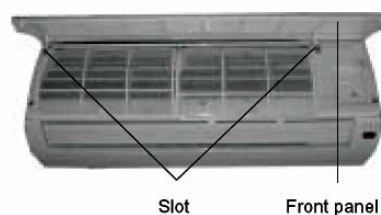
CODE	PART NAME
COMP. 1/COMP. 2	COMPRESSOR
FAN	OUTDOOR FAN
CAP1/CAP2	NON-CAPACITOR
CAP1	FAN CAPACITOR
PCB	PCB
ST1	WEDGE TERMINAL
ST1/ST2	TERMINAL
ST1/ST2	G.U.P.
TRANS.	TRANSFORMER
ST1/PCB	WEDGE TERMINAL
ST1/TRANS.	WED

## DISASSEMBLY PROCEDURES

### Operation procedures/pictures

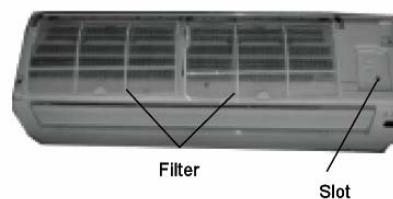
#### Disassemble the front panel

Raise up the front panel, take out the front panel.



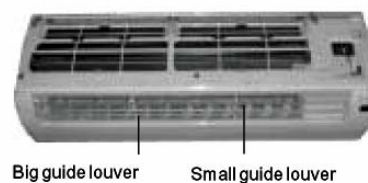
#### Remove filter and wire-pressed clamp

To remove the filter, and screw off 1 pc bolt which fixed the wire-pressed clamp to disassemble the wire-pressed clamp.



#### Disassemble the guide louver

Disassemble the big guide louver and small guide louver.



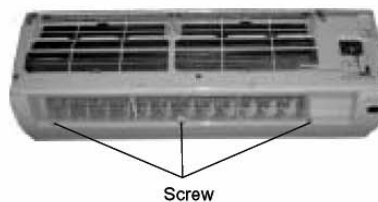
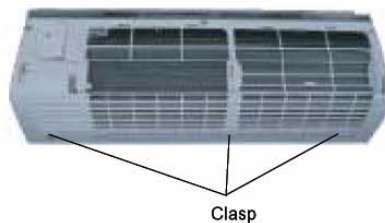


## Operation procedures/pictures

### **3.1.4** ||||| Disassemble the front case

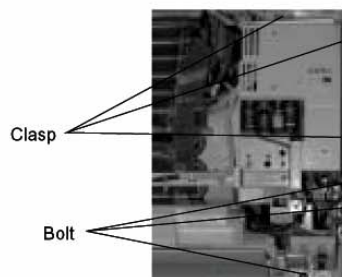
To loose the clasp

To remove the screw cap, to loose 3pcs screw, raise it up, disassemble the front case.



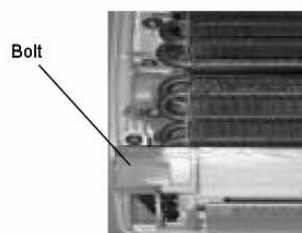
### **3.1.5** ||||| Remove the electric box cover

To loose the clasp which fix the electric box, to remove the electric box cover.



### **3.1.6** ||||| Remove the water tray sub-assy

To pull out the terminal of the stepping motor, screw off the bolt to remove the water tray sub-assy. Because of the water drainage pipe, please be careful.

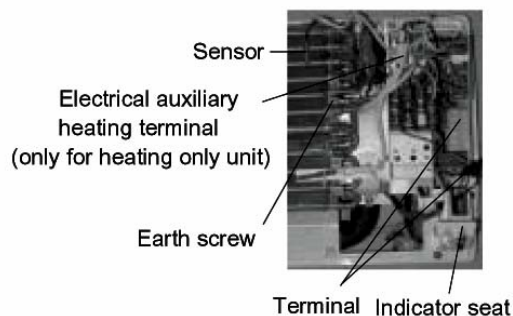


## Operation procedures/pictures

### Disassemble the electric box

Untie the bunch of wire, to loosen the screws on electric box indicator seat, to loosen the earth screw, take out the sensor.

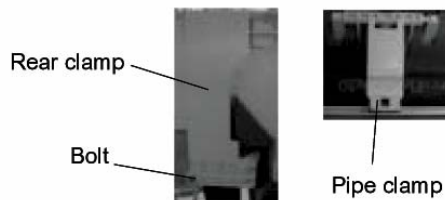
Pull out each terminal, take out the control board.



### Disassemble the evaporator

Remove the pipe clamp behind of the rear case. To screw off the bolt of the rear clamp. Then press the clasp forcibly, to pull out the rear clamp.

to screw off two pcs on the left and right side of the evaporator. To press the left nether end of the evaporator, then press it backward, to remove the evaporator side plate clasp from the slot.



Bolt



Be carefully to take out the evaporator, please take care of the connection pipe.

## Operation procedures/pictures

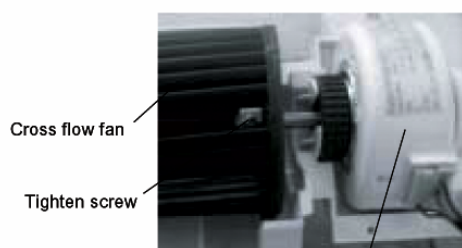
### Remove the motor

Loosen the bolt which fixed the motor clamp, take out the motor clamp.

To loose a fixed bolt which is on the right bearing of cross flow fan, lift up the motor appreciably, then take out the motor.



Bolt



Cross flow fan

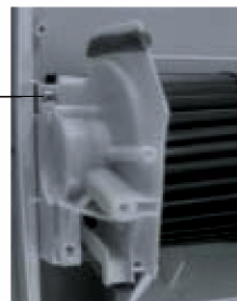
Tighten screw

Motor

### Remove the cross flow fan

Loosen one piece of bolt which fixed the cross flow fan, then can take out the cross flow fan.

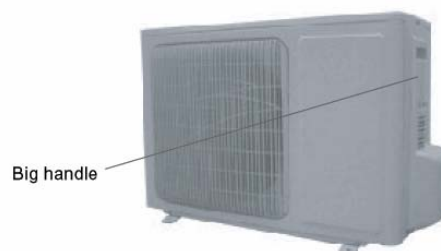
Bolt



## Operation procedures/pictures

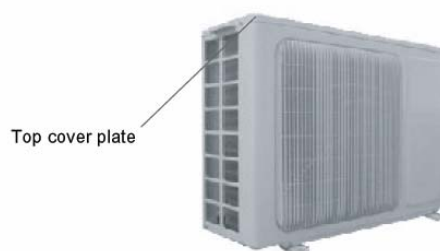
### Disassemble the big handle

To screw off the tapping screw which fixed the big handle, could take out the big handle.



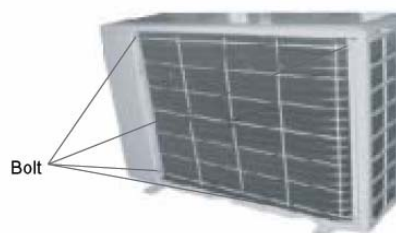
### Disassemble the top cover plate

To screw off 3pcs tapping screw which around the top cover, then lift it up, can take down the top cover.



### Disassemble the rear grill

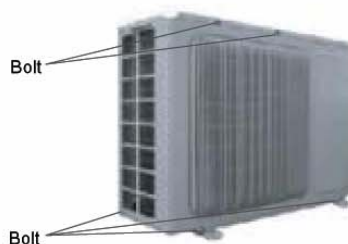
To screw off 4pcs tapping screw of the rear grill, can take off the rear grill.



## Operation procedures/pictures

### Disassemble the front panel sub-assy

To screw off 5pcs tapping screws which come from the front panel, valve support, chassis and side plate of the condenser, then can take out the front panel sub-assy.



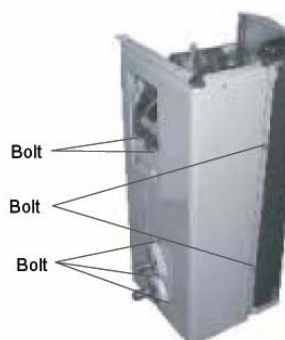
### Remove the electric appliance mounting board

To screw off 1pc bolt which fixed the electric appliance mounting board, take out the leading wire insert from the compressor and fan motor, take out the electric appliance mounting board.



### Disassemble the right side plate

To screw off 7pcs bolt of the rear side plate, then can disassemble the right side plate.



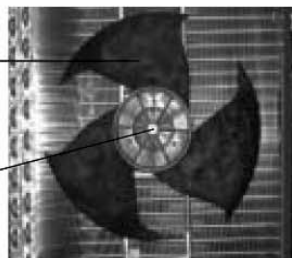
## Operation procedures/pictures

### Remove the axial flow fan

To loosen tighten nut with spanner (levorotation), take off the nut, spring washer, flat washer, and take out the axial flow fan forcibly.

Tighten nut

Axial flow fan



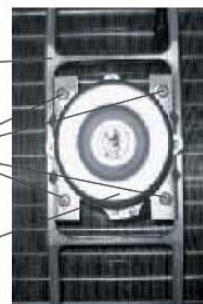
### Remove the motor, motor support

To screw off 4pcs tapping screw which fixed the motor, take out the motor. And screw off 2pcs tapping screw which fixed the motor support, lift it up, take out the motor support.

Motor support

Tapping screw

Motor



### Remove the 4-way valve (Only for heating only unit)

To screw off the tighten nut from the 4-way valve loops, then take out the loop, enwrap the 4-way vavle with wet cloth, unsolder 4pcs soldered point which connected with the 4-way valve, take out the 4-way valve.

The solder procedure should be as quick as possible, make sure that the guaze should keep wet, do not let the flame to damage the compressor lead wire.



Tighten screw

Solenoid coil

### Disassemble capillary

Unsolder the soldered point between capillary, valve and outlet pipe of condenser, can disassemble the capillary, when changing the capillary, do not let dregs block the capillary.

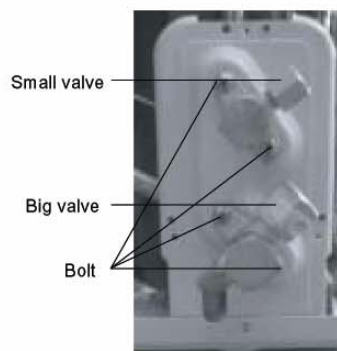


### Disassemble the gas valve and liquid valve

To screw off 2pcs bolt which fixed the gas valve, then unsolder the soldered point between the gas valve and air return connection pipe, take off the gas valve.

(NOTE: When unsolder the soldered point, it is need to enwrap the gas valve with wet cloth, avoiding valve be damaged by high temp.)

To screw off 2pcs bolt which fixed the liquid valve, then unsolder the soldered point between the liquid valve and forked pipe, take off the liquid valve.



**Disassemble the compressor**

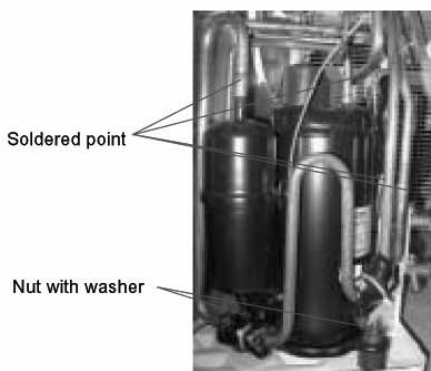
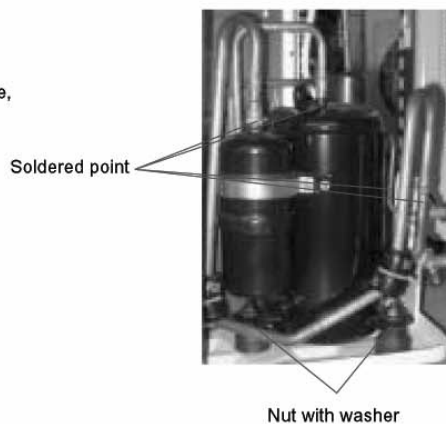
Loosen 3pcs nut with washer at the compressor button;

(NOTE: It's need to discharge the refrigerant first.)

Unsolder the soldered points of air in pipe and air out pipe,  
remove the pipeline carefully, take out the compressor.

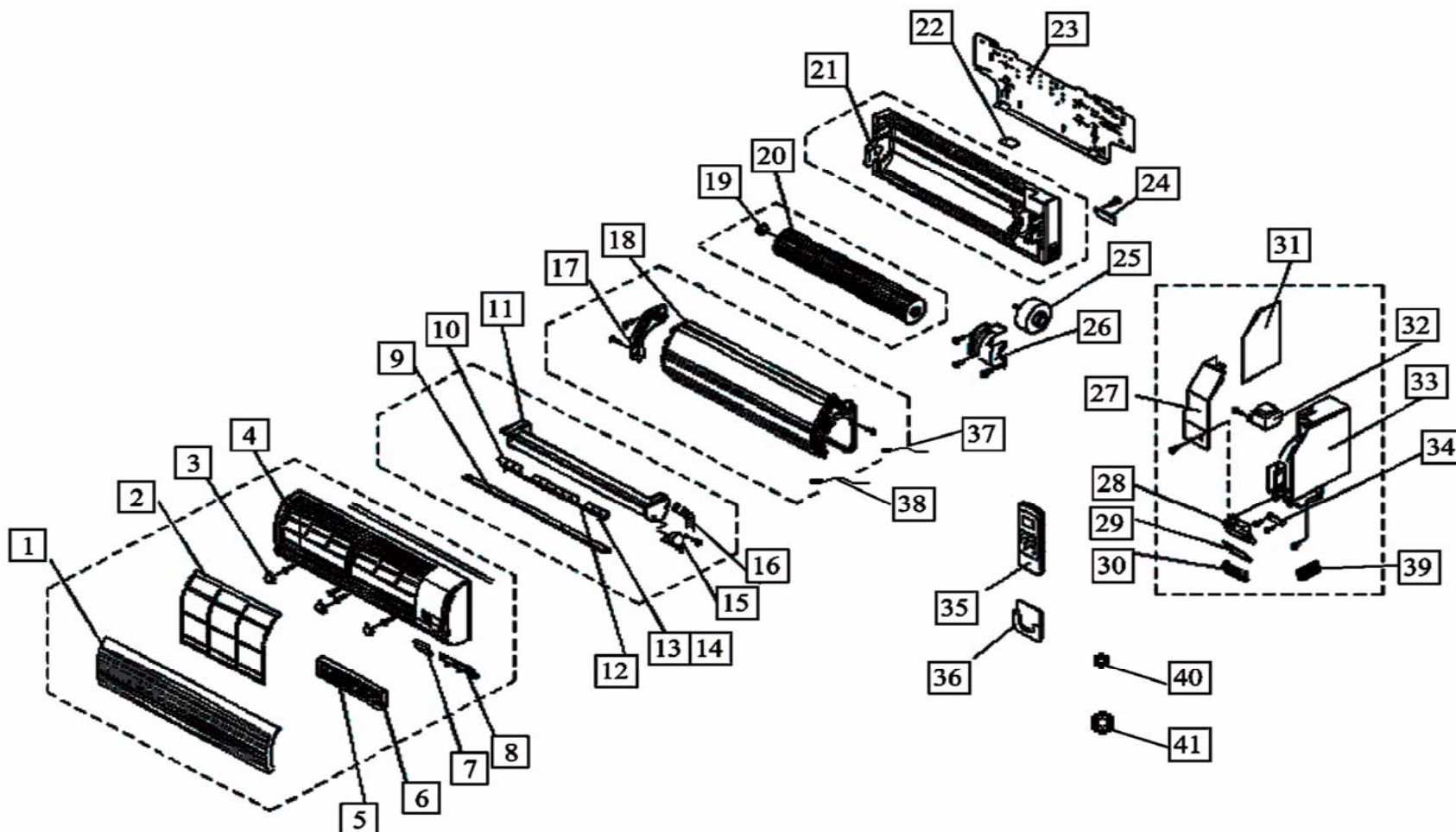
Cooling only unit

Cooling and heating unit





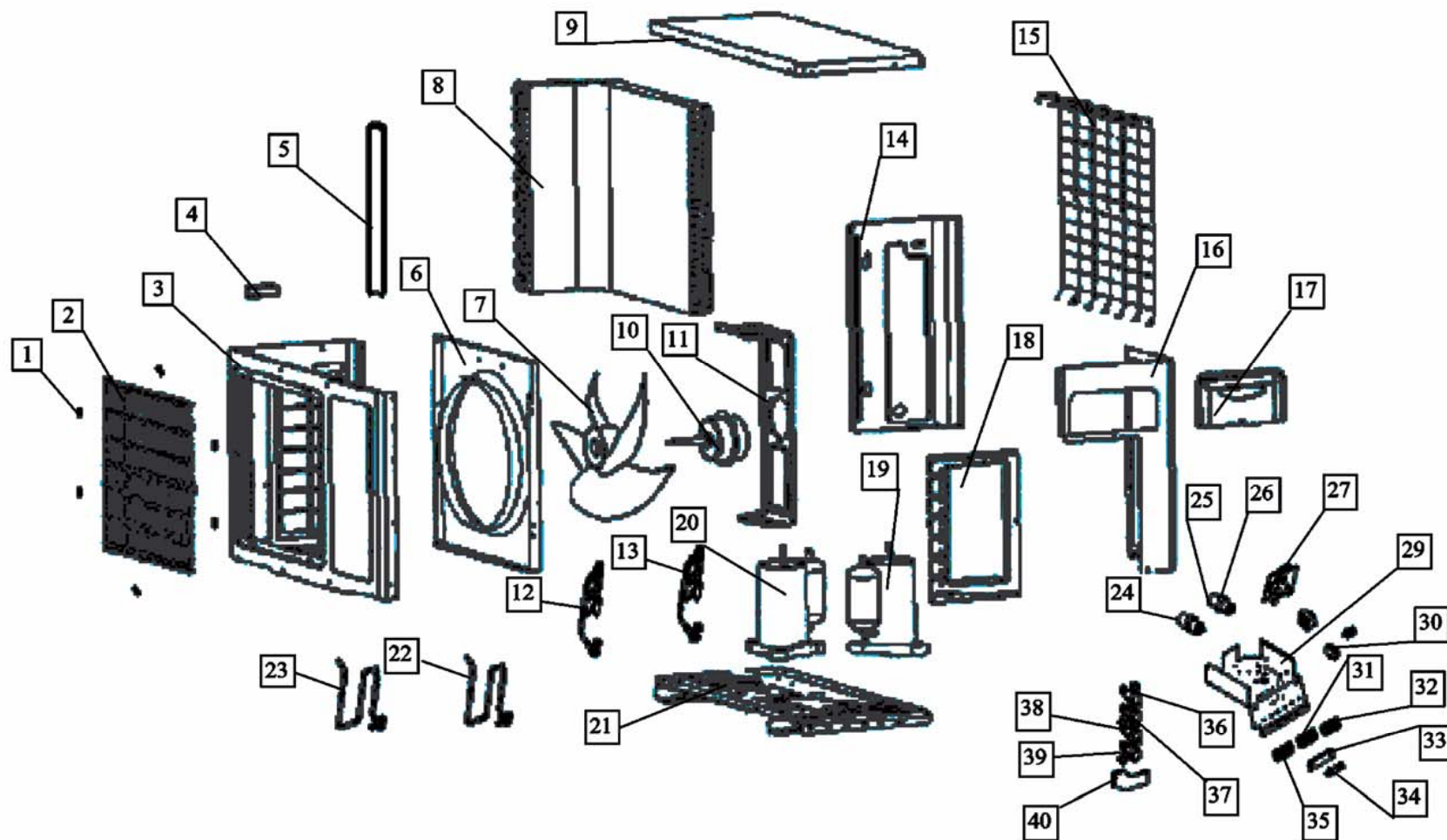
## EXPLODED VIEW – Indoor Unit



## PART LIST – Indoor Unit

No.	Part Name	Quantity	Part Code
1	Front Panel	1	10718121010
2	Air Filter	2	10309121202
3	Screw cap	3	10309121203
4	Panel frame	1	10721121001
5	Air cleaner	1	10109121226
6	Air cleaner holder	1	10109121225
7	Window for receiver	1	10309121207
8	Indicator for LED	1	10309121208
9	Horizontal louver	1	10309121209
10	Vertical louver	6	10309121210
11	Air out frame	1	10309121211
12	Louver holder	1	10309121212
13	Louver rocker	1	10309121213
14	Rocker gasket	1	10309121214
15	Louver motor	1	10121121218
16	Drain hose	1	10109121215
17	Left holder for evaporator	1	13008111007
18	Evaporator	1	13009111002
19	Bearing holder	1	10309121220
20	Cross flow fan, assy	1	10309121221
21	Chassis	1	10309121222
22	Back cover for chassis	1	10309121223
23	Installation Plate	1	10909121009
24	Connecting pipe clamp	1	10309121225
25	Fan motor	1	10309121226
26	Motor cover	1	10309121227
27	E-part box cover	1	10309121228
28	Indicator holder	1	10309121229
29	Display board, Ass'y	1	10307111205
30	Display board enclosure	1	10309121231
31	Main control board	1	10718111201
32	Transformer	1	10718121006
33	E-Parts Box	1	10718121007
34	Wire clamp	1	10827111002
35	Remote Controller	1	10718111202
36	Holder, Remote Controller	1	10109121208
37	Evaporator temp sensor	1	10109121242
38	Indoor temp sensor	1	10109121243
39	Wire joint, 5p	1	10109121244
40	Copper nut, TLM-A01	1	10909121012
41	Copper nut, TLM-B02	1	10909121013

## EXPLODED VIEW – Outdoor Unit

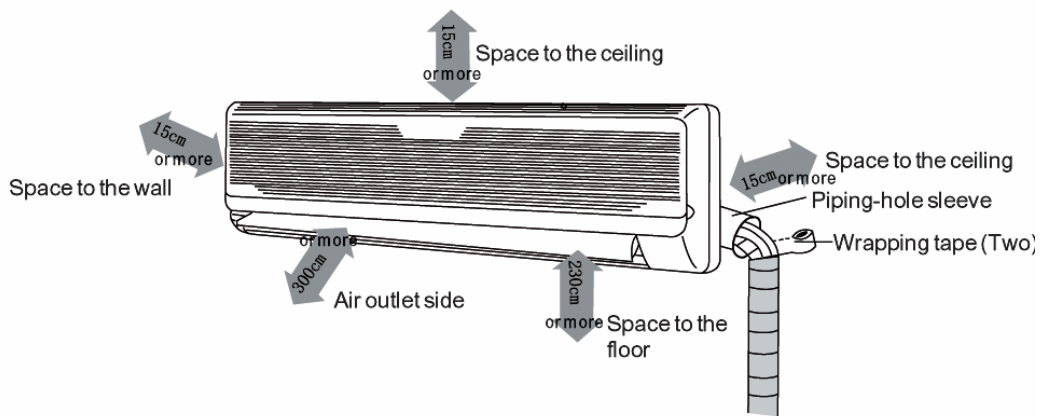


## PART LIST – Outdoor Unit

No.	Part Name	Quantity	Part Code	Remark
1	Clamp for front net	6	10112121801	
2	Front net	1	10718111822	
3	Front clapboard		10718111823	
4	Small Handle	1	10109121802	
5	Strengthen board for front clapboard	1	10718111801	
6	Wind guide	1	10718111824	
7	Propeller fan	1	10718111825	
8	Condenser	1	10718111802	
9	Cover	1	10718111803	
10	Fan motor	1	10718111821	
11	Holder for fan motor	1	10718111828	
12	Liquid valve assy, unit A	1	10718111841	
13	Liquid valve assy, unit B	1	10718111842	
14	Separating board	1	10718111807	
15	Rear net	1	10718111806	
16	Rear right clapboard	1	10718111808	
17	Big handle	1	10718121821	
18	Installation plate for valves	1	10718111817	
19	Compressor A	1	10718111819	2P17S225ANA
20	Compressor B	1	10718111819	2P17S225ANA
21	Chassis	1	10718111818	
22	Low Pressure Valve Ass'y,A unit	1	10718111840	
23	Low Pressure Valve Ass'y,B unit	1	10721111807	
24	Compressor capacitor for unit A	1	11812113811	
25	Compressor capacitor for unit B	1	11812113811	
26	Capacitor clamp	2	10109121822	
27	Relay control board	1	10718111805	
28			#N/A	
29	Installation board for E-parts	1	10718111804	
30	Fan motor capacitor	1	10109121819	
31	Wire joint, 3p	1	10109121819	
32	Wire joint for multiplexer	1	10718121806	
33	Washer for wire joint	1	10112121817	
34	Clamp for wiring	1	10112121816	
35	Wire joint, 6p	1	10718121805	
36	Liquid pipe valve for unit A	1	10827111805	
37	Gas pipe valve for unit A	1	10827111806	
38	Liquid pipe valve for unit B	1	10827111805	
39	Gas pipe valve for unit B	1	10827111806	
40	Water collector	1	10718111816	

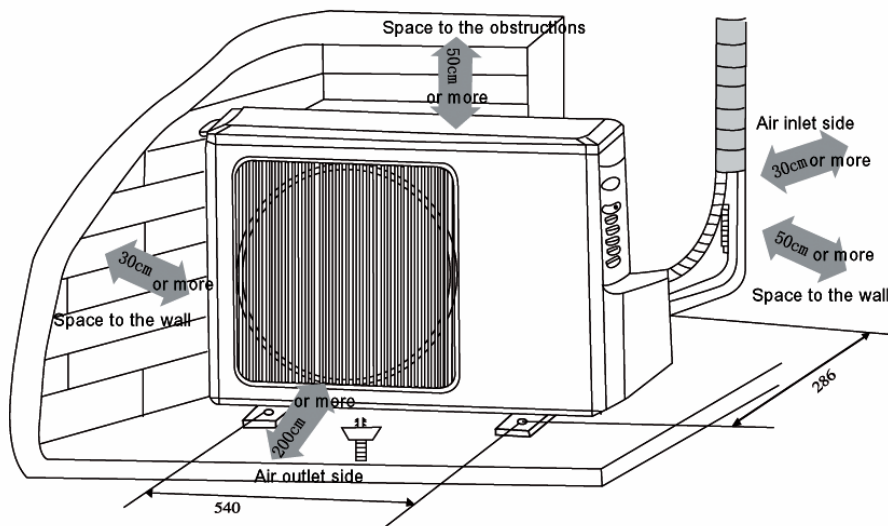
## GUIDE FOR INSTALLATION

### Guide for installation



### Important Notes

- ★ The installation must be done by trained and qualified service personnel with reliability according to this manual.
- ★ Contact service center of GREE before installation to avoid the malfunction due to unprofessional installation.
- ★ When picking up and moving the units, you must be guided by trained and qualified personnel.
- ★ The distance between the air outlet vent and heat source, or inflammables should be more than 50cm.



## Selection of installation location

### 1 Indoor unit

- The inlet and outlet should be far away from the obstructions so that the outflow air can reach all parts of the room;
- Install in a location connect with the outdoor unit easily;
- Install in a location from which the condensation water can be drained out conveniently;
- Avoid a location where there is heat source, steam or inflammable gas;
- Install in a location where is strong enough to withstand the full weight and vibration of the unit;
- Be sure that the installation conforms to the installation dimension diagram;
- Be sure to leave enough space to allow access for routine maintenance, the height between the indoor unit and outdoor unit should be more than 200cm;
- Select a place about 1 meter away from the TV set or any other electric appliances;
- The place where the air filter can be easily taken out.
- Avoid to use the unit in the places near the laundry, bathroom, or swimming pool.

### 2 Outdoor unit

- Select a place from which noise and outflow air emitted by unit will not inconvenience neighbors.
- Select a location where there should be sufficient ventilation.
- There are should be no obstructions block the air inlet and air outlet vents near the outdoor unit.
- The location should be able to withstand the full weight and vibration of the outdoor unit and permit safe installation.
- There should be no danger of flammable gas or corrosive gas leaks.
- Be sure that the installation conforms to the installation dimension diagram.

### NOTE:

Install in the following place may cause malfunction. If it is unavoidable, contact the dealer please.

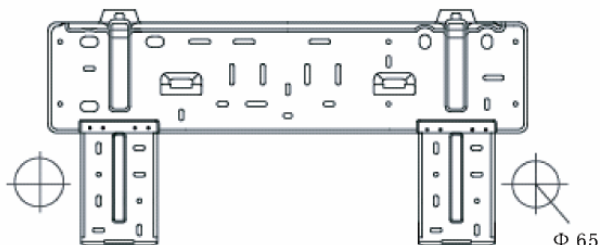
- The place where oil (machine oil) is used.
- The place where a lot of salinities such as coast exists.
- The place where a sulfured gas such as the hot spring zones is generated.
- The palce where high-frequency waves are generated by radio equipment, welders and medical equipment.
- Other place with special circumstance.



## Install the indoor unit

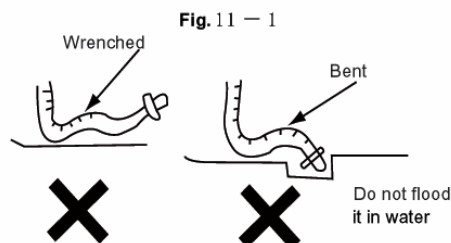
### 1 Install the wall mounting plate

- Measure horizon by handling line or horizontal measurement. Since drainage pipe hole is on left side, when adjusting panel, the left should never be higher; it is better to make it lower.
- Fix the wall mounting plate on the selected location with screws.
- Pull the rear panel by hands after installation to see if it is firm enough. The rear panel should be able to stand the weight of an adult (60kg) and the weight should be evenly shared by each screw.



### 2 Install drainage hose

- Drainage hose must be placed at a downward slant for smooth drainage.
- Do not wrench, bend or heave the hose or flood its end by water.



### 3 Open piping hole

- Drill a hole outward at a slant after accertaining location piping hole as in fig.11-1. Φ 65
- In order to prevent pipe and cable from damaging when going through the hole, install wall sleeve.

### 4 Install connection pipe

- Connect the connection pipe with two leading pipes from indoor unit, and then tighten the joint nuts on connection pipe.

NOTE:

- Connect connection pipes with indoor unit first and then outdoor unit.
- Bend the connection pipe carefully or it would be damaged.
- Don't tighten the joint nut too much or leakage would occur.

### 5 Electric wiring

- Open front panel upwardly.
- Take off covering plate.
- To pull out the power conneting cable from the back of the indoor unit, and put it through the wire hole, then connect with the power cable.
- As shown in Fig.11-2, connect the blue wire of power connect wire onto terminal "N", red wire onto terminal "2", brown onto terminal "3" and yellow-green one (earth wire) to terminal "⊕"
- Recover the wire covering plate.
- Cover the front panel.
- For heat pump type unit, to fix the signal control cable on the chassis by using wire clamp.

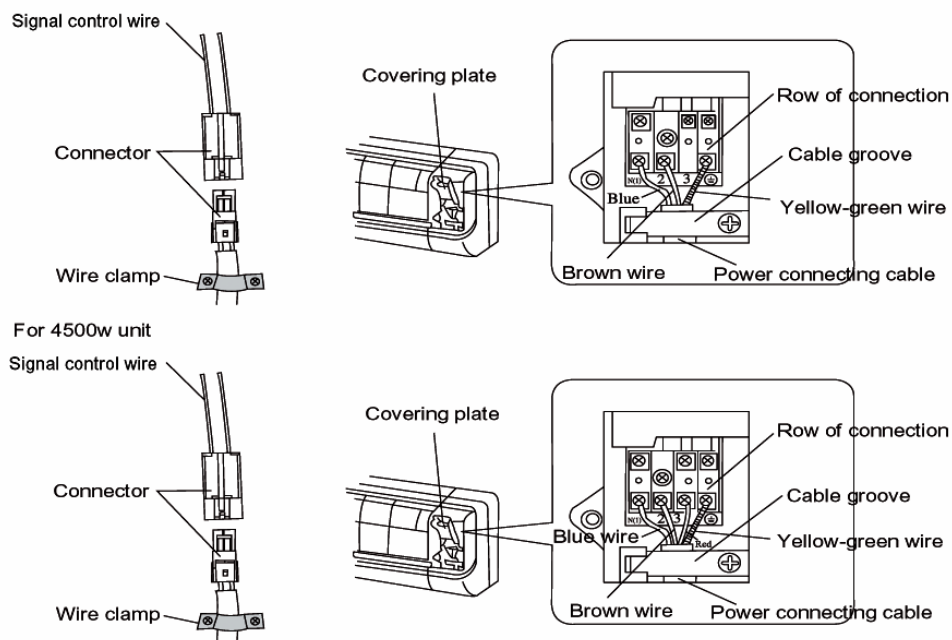


Fig.11-2

**NOTE:**

- All electric installation must be done by professional personnel according to local law, regulation and this manual.
- Power cable adopts Y type, if the power cable damaged, in order to avoid the danger, make sure to ask the manufacturer, after sales dealer or professional to replace.
- The power supply must adopt rated voltage and exclusive circuit for air conditioner.
- The creepage switch and air switch with suitable capacity must be installed, the 10A air switch is fit for the cooling capacity lower than 2500W unit (including 2500W), if the unit with cooling capacity higher than 2500W, the 16A air switch should be used.

**● Install indoor unit**

- When routing the pipe (wiring) from the left or right side, cut off the tailings of the left pipe on base of main unit. (as shown in Fig.11-3)

- ① Cut off tailing 1, tailing 2 only power cable is routed;
  - ② Cut off tailing 1, tailing 2 when connection pipe and power cord are routed;
- After wrapped piping and wiring, pull them through the piping hole; As shown in Fig.11-4
  - Put two claws which behind the indoor unit, to hang on the clamp of the wall mounting plate, and to move the unit left and right, to see it is firm or not.
  - Ensure that the install height of indoor unit is 2.3m or more.

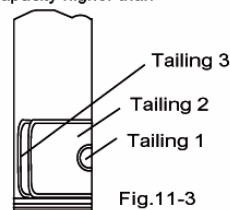


Fig.11-3

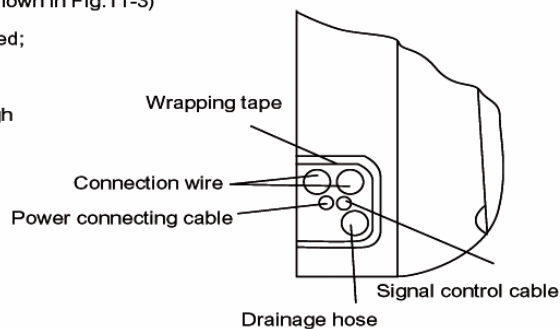


Fig.11-4



## Install outdoor unit

### 1 Install connection pipe

- Align the flare of connection pipe to the joint flare of corresponding valve.
- Tighten nuts on connection pipe forcibly then tighten it by spanner as shown in right figure.

NOTE: Too great of torque would damage nuts.

Refer the following list for tighten torque

Diameter of nut (mm)	Torque wrench (N·m)
Φ6	15~20
Φ9.5	31~35
Φ12	50~55

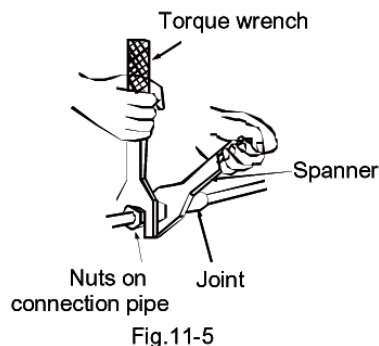


Fig.11-5

### 2 Wiring connection

- Disassemble the handle on the right side plate of the outdoor unit. (one screw)
- Disassemble the wire clamp, connect the power connecting cable onto the terminal and fix well. The wiring layout should be accord with indoor unit, to cut off the tailing of wire hole on the right side plate, then to put on the loop.
- To fix the power connecting cable with wire clamp, for cooling and heating unit, need to fix the signal control cable with wire clamp, then connect the corresponding connector.
- Make sure that the wiring are fixed well or not.
- Install the handle. ( fixed by one screw)

The synop for terminal connection

Terminal	Wire
N(1)	Blue
2	Brown
3	Red
⊕	Yellow-green

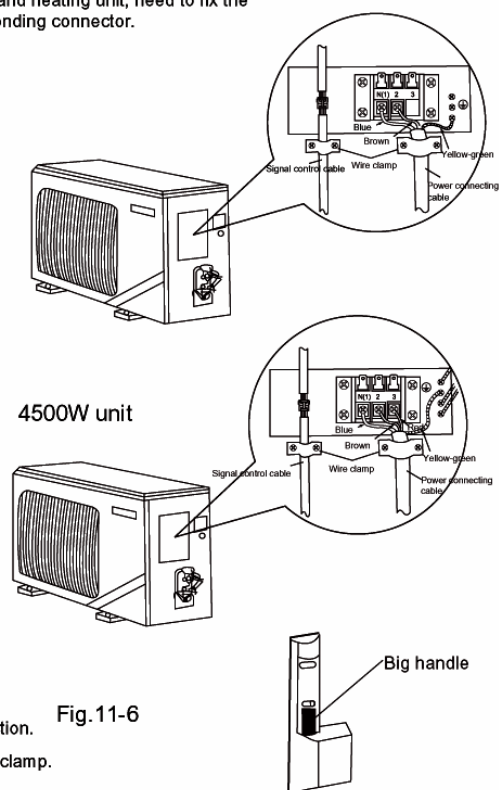


Fig.11-6

#### NOTE:

- Wrong wiring connection may cause electric appliance malfunction.
- Don't pull the electrical wire which had been fixed well by wire clamp.

### 3) Air purging and leakage test

- Remove the fluorine charging nozzle nuts cap on the gas valve.
- Align the center charging flexible tube which is on the vacuum gauge with the low(Lo)pressure port, then connect to the fluorine charging nozzle. (As shown in Fig.11-8)
- Start up the vacuum pump, when the hand pointed 1 bar, to close the low pressure (Lo) handle tightly, and stop the vacuumizing. And keep more than 15 minutes, make sure that the pressure of vacuum gauge is unchanged.
- Remove the valve caps of the gas valve and liquid valve.
- Slightly to loose the liquid valve stem with hex wrench, until the pressure of vacuum pump rise up to 0 bar above.
- Unhitch the charging pipe away from the fluorine charging nozzle, and tighten the nut cap of the charging nozzle.
- Open the valve stem of liquid valve and gas valve, with hex wrench.
- Tighten the valve caps of gas valve and liquid valve, and check the air leakage.

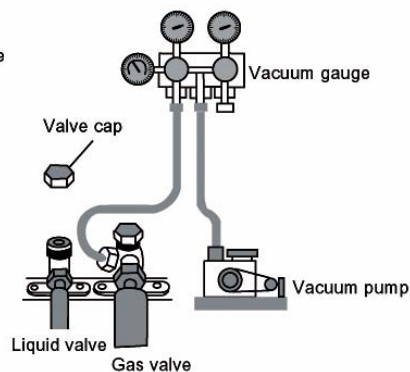


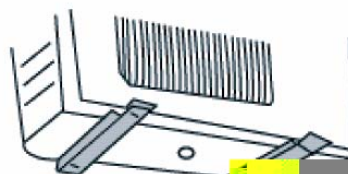
Fig.11 - 7

### 4) Outdoor condensation drainage (Heat pump type only)

- When the unit is heating, the condensing water and defrosting water formed in the outdoor unit can be drained out reliably through the drain hose.

#### Installation method:

Install the outdoor drain elbow in the hole on φ 25



## Test operation and check after installation

### 1 Test operation

#### 1. Before test operation

- Do not switch on power before installation is finished completely.
- Electric wiring must be connected correctly and securely.
- Cut-off valves should be opened.
- All the impurities such as scraps and thums must be cleared from the unit.
- Open the front panel, set "Run" mode by the manual switch.

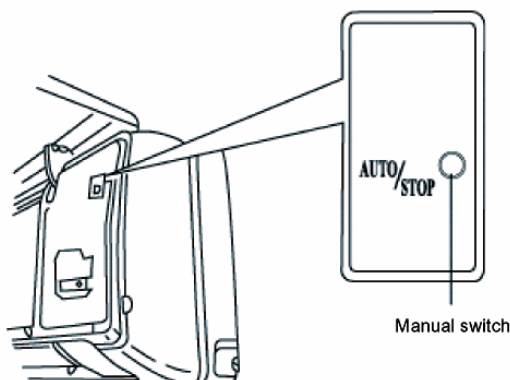





Fig. 11 – 9

#### 2. Test operation method

- Switch on power and press "1/0" button on the wireless remoter control.
- Press "MODE" button, select  ,  ,  , to observe whether the running is normal or not.
- Emergency operation

If the wireless remote control is lost, emergency running can be operated as follow:

- ( 1 ) To set "AUTO" mode by manual switch, unit will automatically to select mode according to the room temp.by microcomputer.
- ( 2 ) In the running mode, to set the manual switch to "STOP", unit will stop running.

### 2 Check after installation

Items to be checked	Possible malfunction	Remarks
Has it been fixed firmly?	The unit may drop, shake or emit noise.	
Have you done the refrigerant leakage test?	It may cause insufficient refrigeration capacity.	
Is heat insulation sufficient?	It may cause condensation and dripping.	
Does the unit drain well?	It may cause condensation and dripping.	
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the part.	
Is the electrical wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.	
Has the unit been connected to a secure earth connection?	It may cause electrical leakage	
Is the power cord specified?	It may cause electric malfunction or damage the part.	
Has the inlet and outlet been covered?	It may cause insufficient refrigerating capacity.	
Has the length of connection pipes and the refrigerant charge been recorded?	The refrigerant capacity is not accurate.	

## CARE & MAINTENANCE

### Warning

- Turn power off and pull out the power plug before cleaning air conditioner. Or it may cause the electric shock.
- Never dampen the air conditioner, it can cause the electric shock. And never sprinkle water on the unit.
- Volatile liquid (e.g. thinner or gasoline) will damage the air conditioner. (So wipe the units with a dry soft cloth, or a cloth slightly moistened with water or cleanser.)



### Clean the surface panel

#### 1 Take down the front panel

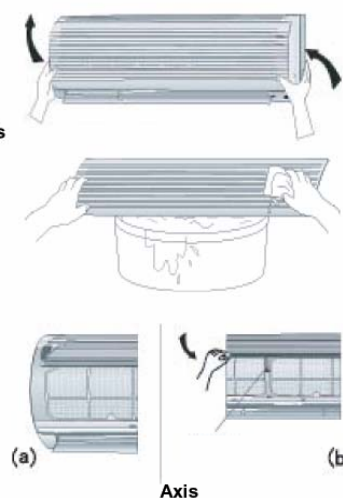
Along the direction of arrows to pull of the front pannel an angle from the slots of the front pannel,then pull down the air filter and take it out.

#### 2 Clean the front panel

Use a soft brush with little water and detergent to clean, then to dry it in the shade.

#### 3 To install the front panel

To insert the supports of both sides into the supports' slot, and put the middle axis into the groove, then along the arrow direction to recover the front panel cover and clasp it.



### Clean the filter

#### 1 Take down the filter

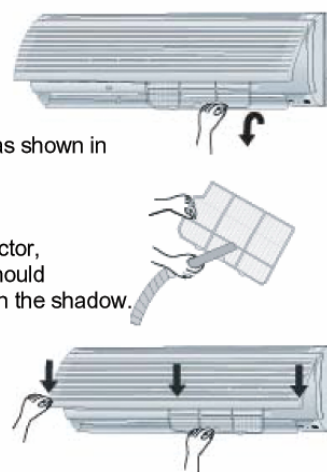
Along the direction of arrows to pull of the front pannel an angle from the slots of the front pannel,then pull down the air filter and take it out, as shown in the right Fig.

#### 2 Cleaning

To clear the dust adhering to the filters, you can either use a dust collector, or wash them with warm water(the water with the neutral deter-gent should below 45• •) when the filters are very dirty(such as oil stain),and dry it in the shadow.As shown in the right Fig.

#### 3 Reinsert the filter

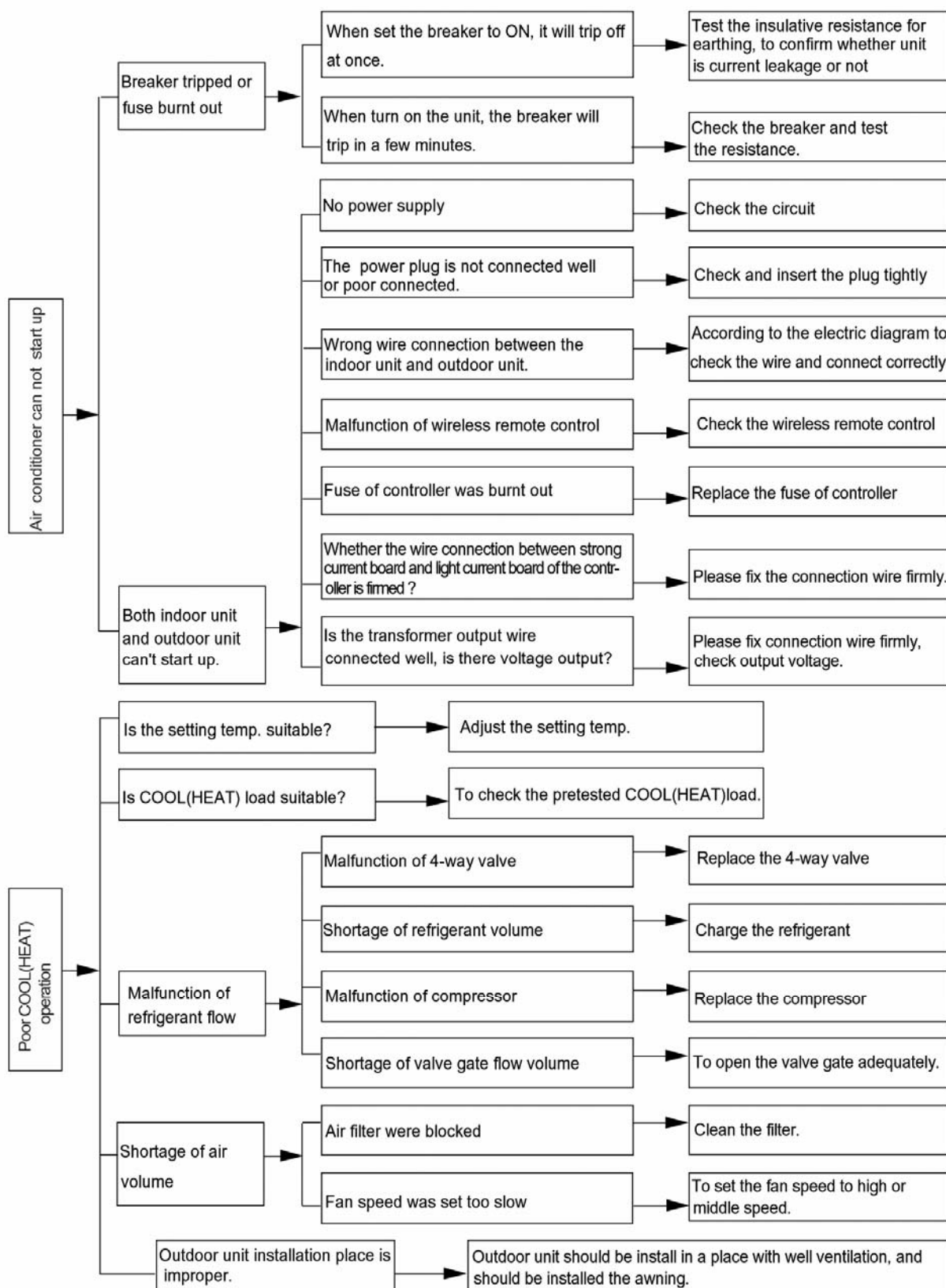
Reinsert the filters with side marked , pay attention to the front side, then to clasp the front panel cover.

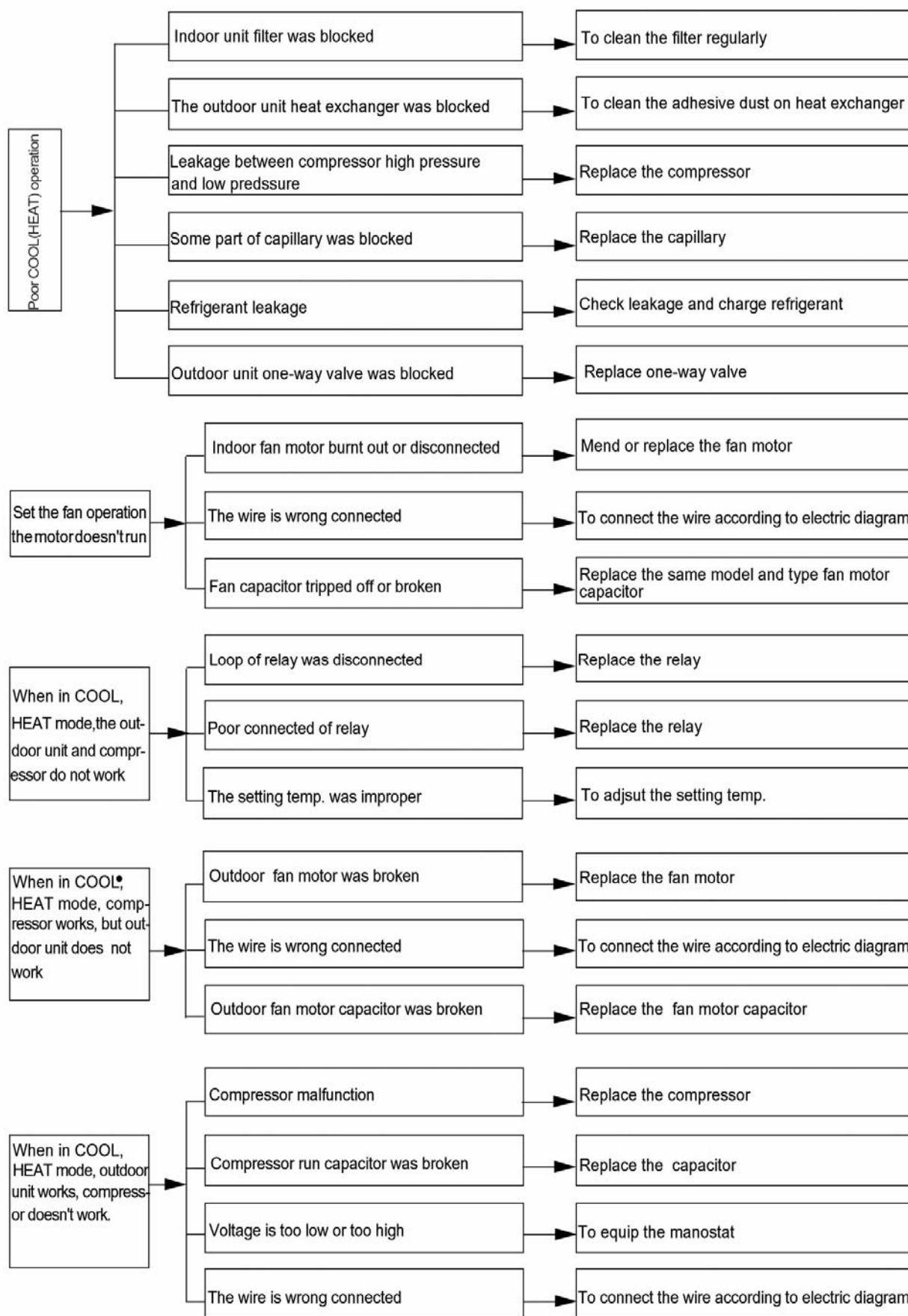


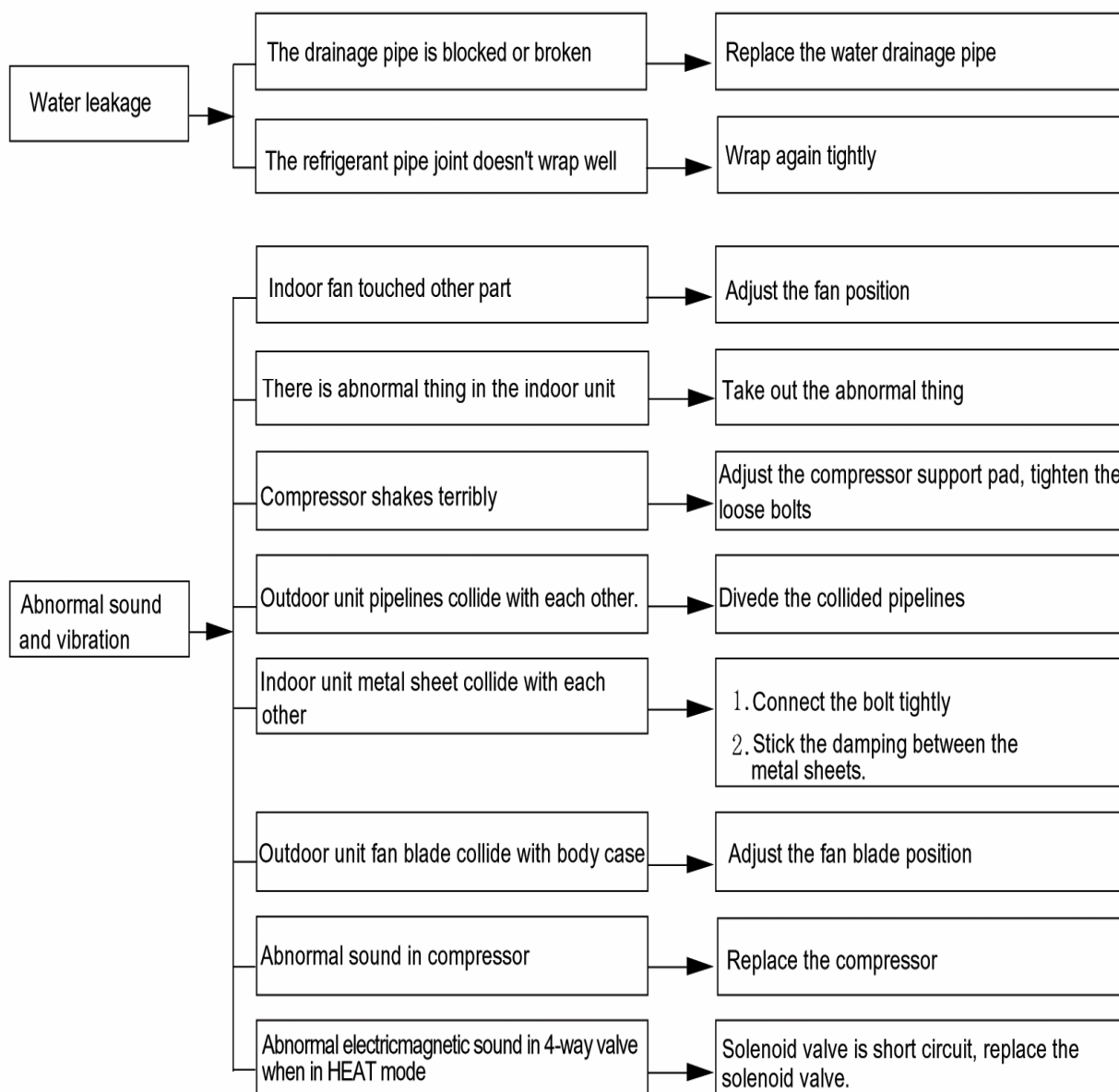
#### NOTE:

- Never to put the front panel or filter directly under the sun.
- Never use water above 45• •to wash the filters, or it could cause deformation or discoloration.
- Never parch it by fire, or it could cause a fire or deformation.

## MULFUNCTION ANALYSIS









**Большая библиотека технической документации**  
<https://splitsystema48.ru/instrukcii-po-ekspluatacii-kondicionerov.html>  
**каталоги, инструкции, сервисные мануалы, схемы.**