AKIRA

makes life better

Air Conditioner

Service Manual

MODEL:
AC-S24CLG1

CONTENTS

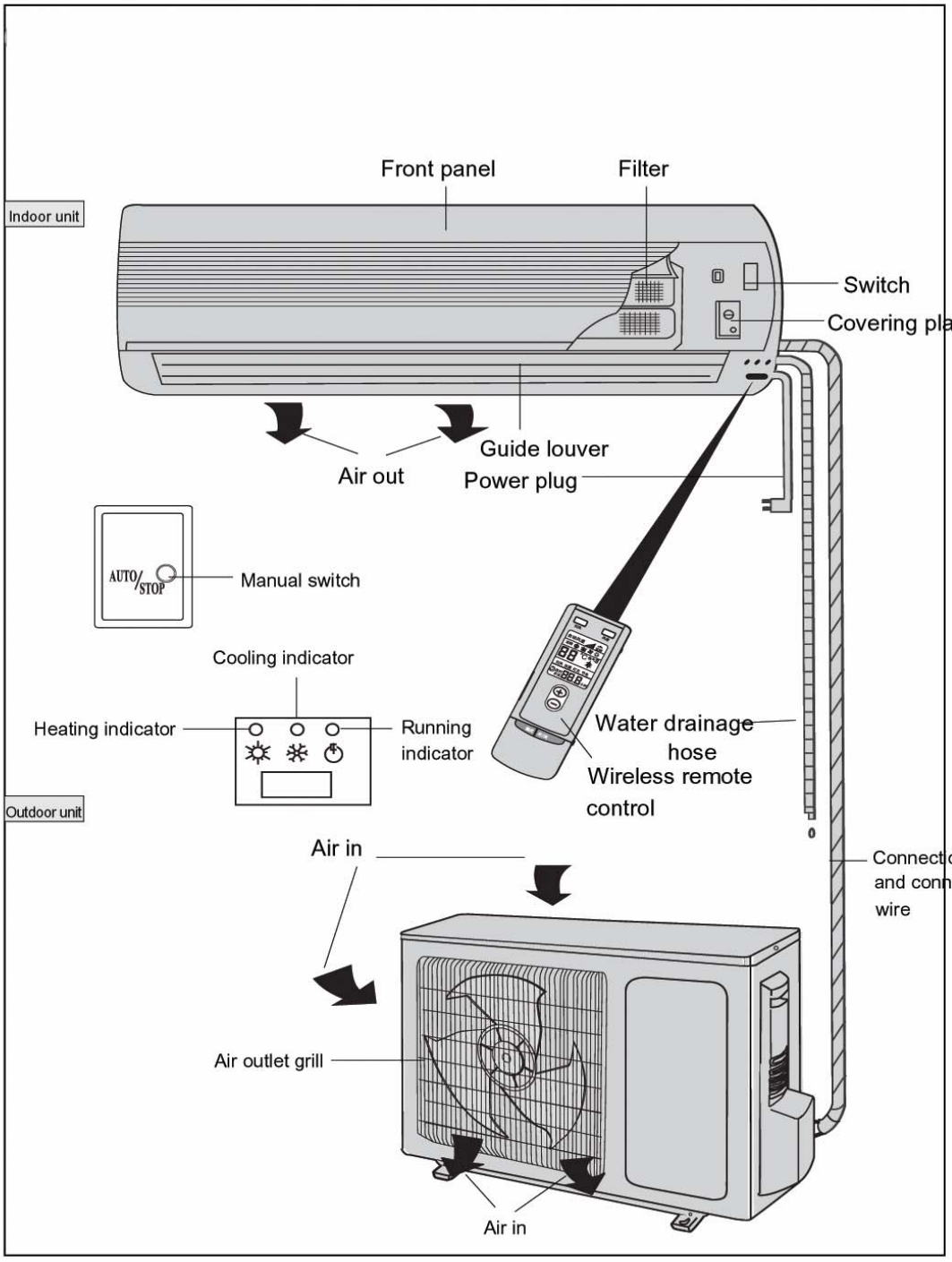
TECHNICAL SPECIFICATION

Model		**AC-S24CLG1**	
Function		Cooling	/
Power Supply		1Ph 230V / 50Hz	
Capacity (Btu/h)		24000	/
Rated Input (W)		3420	/
Rated Current (A)		14.9	/
Air Flow (m³/h)		900	
Dehumidifying Volume (L/h)		33	/
EER (W / W)		2.8	/
Indoor Unit	Model	**AC-S24CLG1**	
	Motor Fan Speed (rpm)	1350	
	Output Fan Power (W)	20	
	Fan Type / Piece	Cross Flow Fan – 1	
	Diameter – Length	Φ 98mm – 797mm	
	Evaporator	Aluminum Fin – Copper Tube	
	Row-Fin Distance (mm)	2 – 19.05	
	Swing Motor	MP 28 VA	
	Fuse (A)	PCB 3.15A Transformer 0.2A	
	Noise (db / (A))	< 48	
	Dimension (w x h x d)(mm)	1020 x 310 x 228	
	Net Weight (kg)	13	
Outdoor Unit	Model	**AC-S24CLG1**	
	Input Power (W)	2340	/
	LRA (A)	42.4	
	Throtting Method	Capillary	
	Compressor	ROTARY	
	Working Temp.	< 55º C	
	Condenser	Aluminum Fin-Copper Tube	
	Pipe-Diameter (mm)	9.52	
	Row-Fin Distance (mm)	2 ~ 25.4	
	Working Area	/	
	Fan Motor Power (W) Speed (rpm)	68/ 885	
	Fan Type-Piece	Axial Flow Fan – 1	
	Diameter (mm)	460	
	Defrosting Method	Auto Defrosting	
	Noise (db/ (A))	< 58	
	Dimension (w x h x d) (mm)	950 x 700 x 412	
	Net Weight (kg)	59	
	Refrigerant Charge	R22 / 1.8	

Connecting Pipe	Outer Diameter	Liquid (mm)	Φ 6
		Gas pipe (mm)	Φ 12
	Max. Distance	Height (m)	5
		Length (m)	10

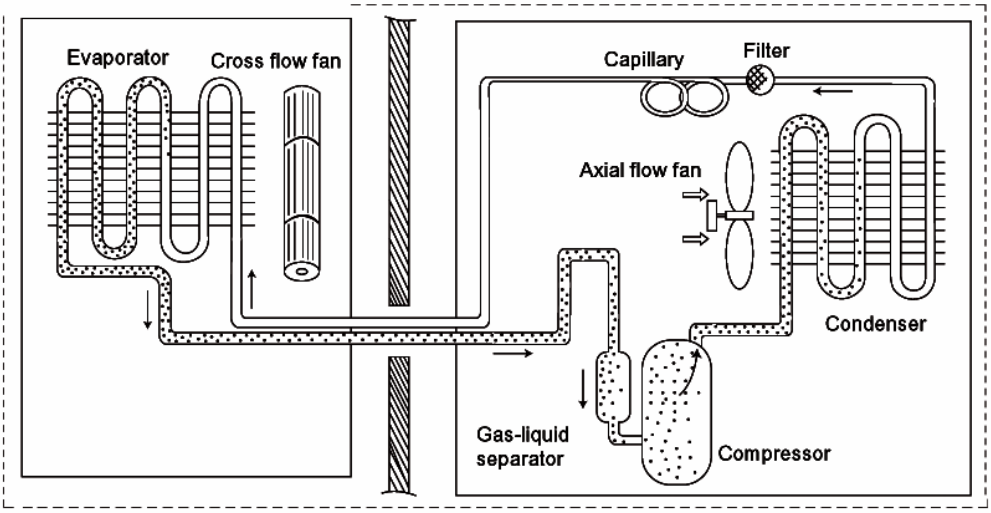
The technical data are subject to change without notice. Please refer to the nameplate of the unit.

PARTS NAME



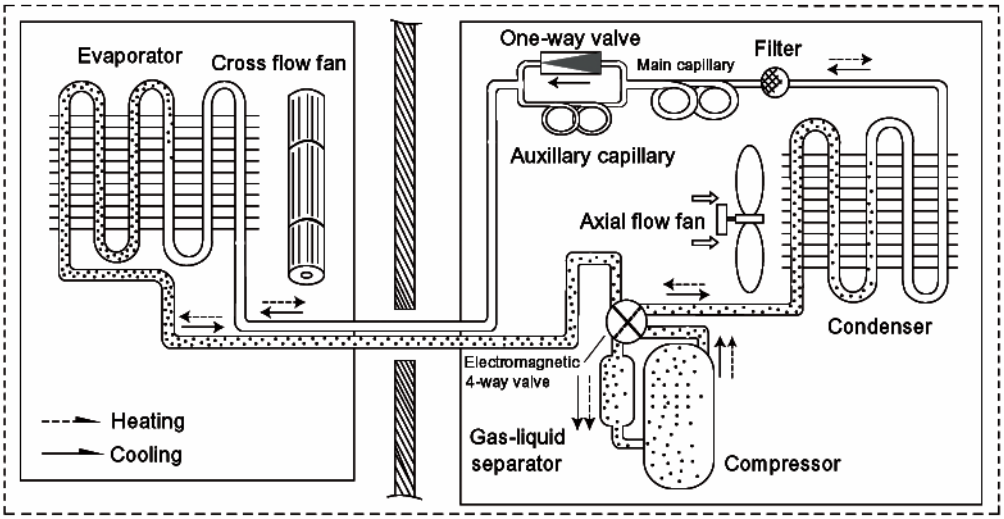
SYSTEM DIAGRAM

System diagram for cooling only type



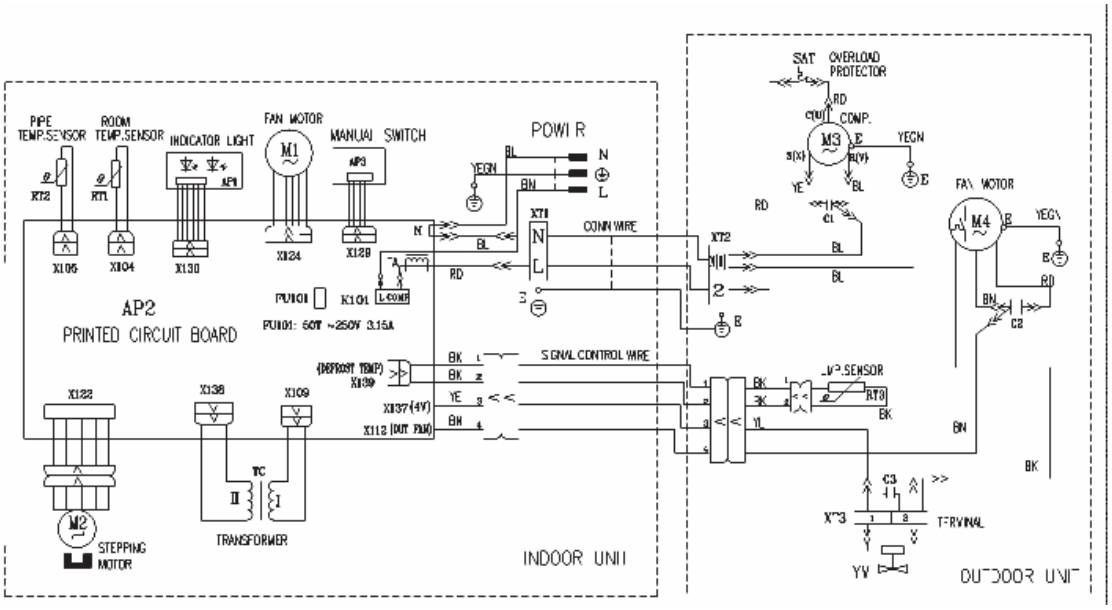
When the power is on, the unit start to work. The compressor sucks low-pressure refrigerant gas from the evaporator and discharges high-temperature and high-pressure gas into condenser. Then air exchanges the heat with outdoor air and becomes refrigerant liquid. The liquid is throttled by the capillary and changes into low-pressure liquid and low-pressure liquid and then flows into indoor evaporator. The liquid exchanges the heat and changes into low-temperature and low-pressure refrigerant gas, the cycle introduced above goes on and on, and the demanded low temperature environment is maintained.

System diagram for cooling and heating type



When the power is on, indoor and outdoor units will start to run. When the system operates in cool mode, the compressor sucks low-temperature refrigerant gas from the evaporator an sucked by compressor, compressor into high-temperature, high-pressure Gas, and then discharges into condenser, heat exchanges with the outdoor air becomes into refrigerant liquid, the liquid is throttled by the capillary and the temperature and pressure lower down, enter into the evaporator, heat exchanges with the indoor air which need to be adjusted, then changes into low-temperature, low-pressure refrigerant gas, the cycle introduced above goes on and on, the demanded low temperature environment is maintained. (when in heat mode, the 4way valve changes its way and the refrigerant flows in the reversible cycle, to make the condenser sucks heat, evaporator discharges heat, and the demanded high temperature environment is maintained.

CIRCUIT DIAGRAM

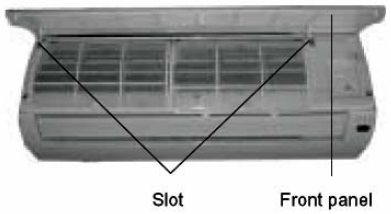


DISASSEMBLY PROCEDURES

Operation procedures/pictures

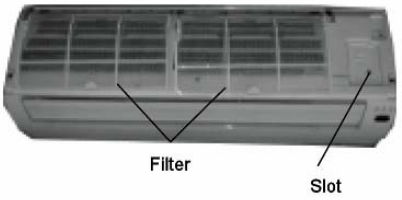
[redacted] Disassemble the front panel

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



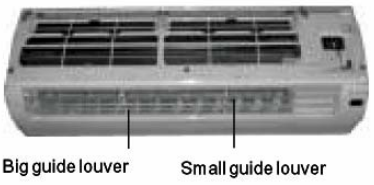
[redacted] Remove filter and wire-pressed clamp

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



[redacted] Disassemble the guide louver

Disassemble the big guide louver and small guide louver.

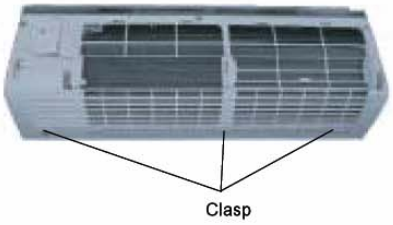


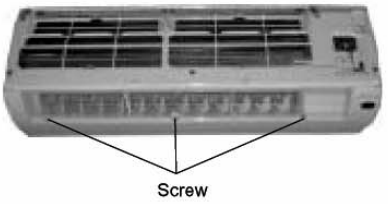
Operation procedures/pictures

[redacted] Disassemble the front case

To loose the clasp

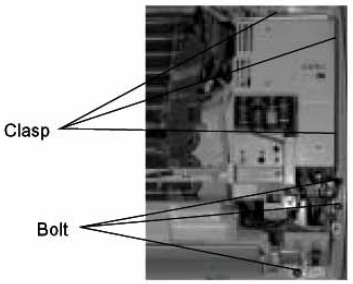
To remove the screw cap, to loose 3pcs screw, raise it up, disassemble the front case.





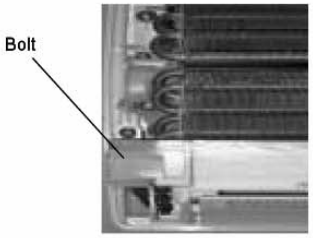
[redacted] Remove the elelctric box cover

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



[redacted] 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.

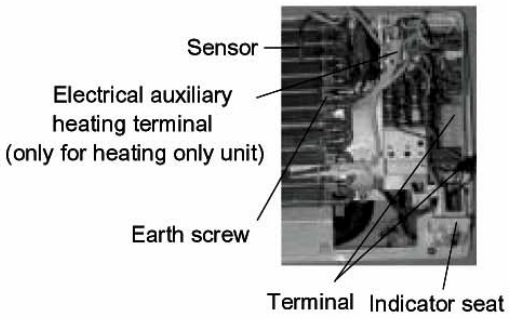


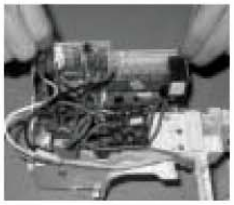
Operation procedures/pictures

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.

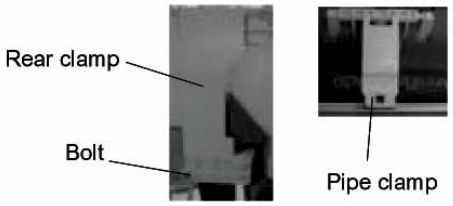


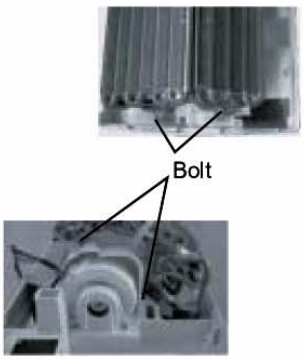


Disassemble the evaporator

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.



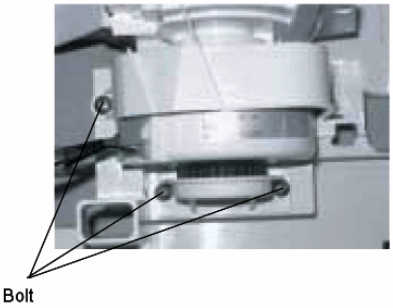


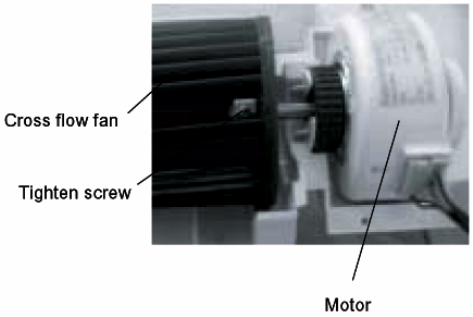
Be carefully to take out the evaporator, please take care of the connection pipe.

Operation procedures/pictures

Remove the motor

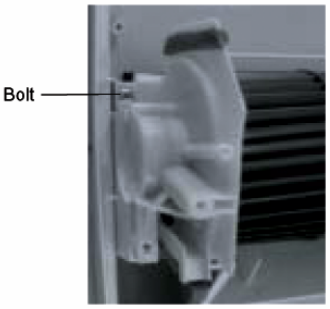
Loosen the bolt which fixed the motor clamp, take out the motor clamp.
To loose a fixed bolt which is on the right bearing of cross flow fan, lift up the motor appreciably, then take out the motor.





Remove the cross flow fan

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



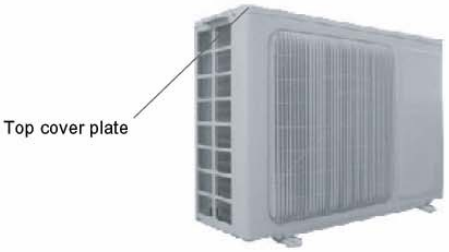
Operation procedures/pictures

[redacted] Disassemble the big handle

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

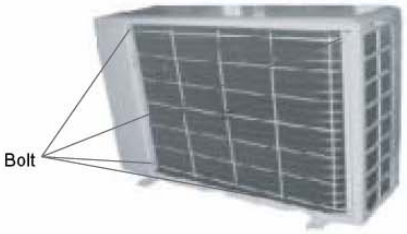
[redacted] Disassemble the top cover plate

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



[redacted] Disassemble the rear grill

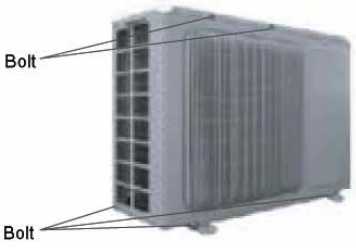
To screw off 4pcs tapping screw of the rear grill, can take off the rear grill.



Operation procedures/pictures

[redacted] 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.

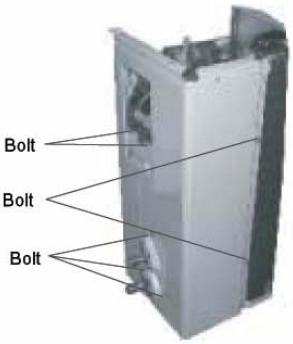


[redacted] Remove the electric appliance mounting board

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.

[redacted] Disassemble the right side plate

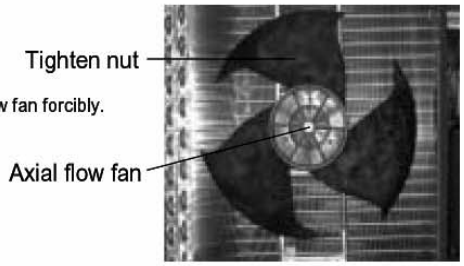
To screw off 7pcs bolt of the rear side plate, then can disassemble the right side plate.



Operation procedures/pictures

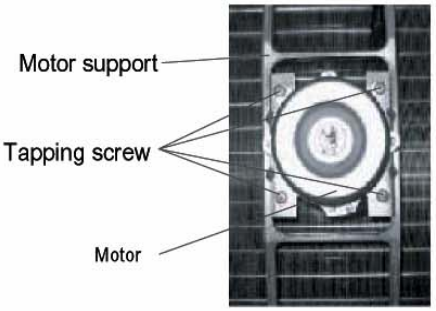
Remove the axial flow fan

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



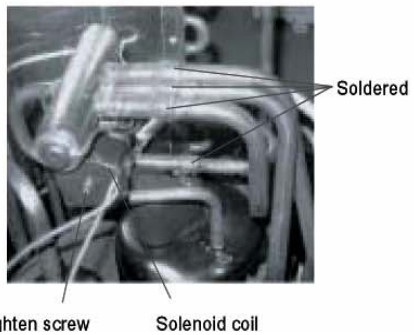
Remove the motor, motor support

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.



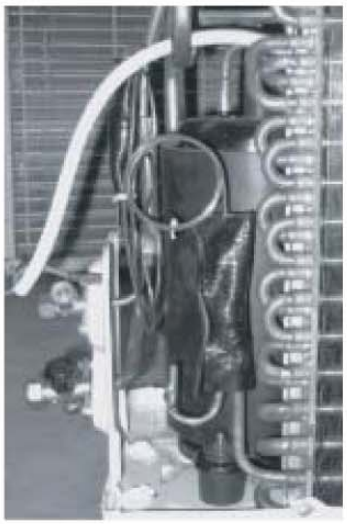
Remove the 4-way valve (Only for heating only unit)

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.



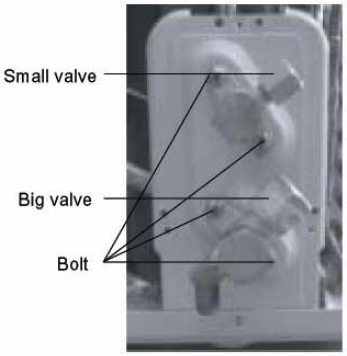
Disassemble capillary

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 connetion 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

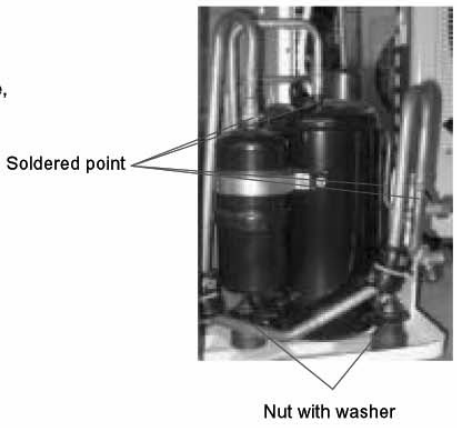
Loosen 3pcs nut with washer at the compressor button;

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

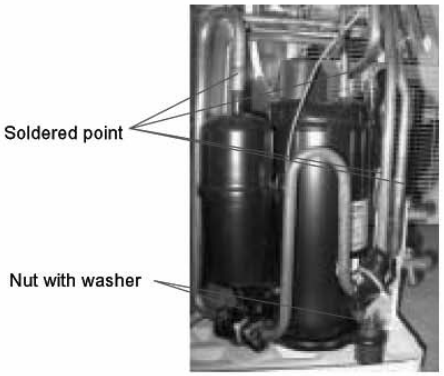
Unsolder the soldered points of air in pipe and air out pipe,

remove the pipeline carefully, take out the compressor.

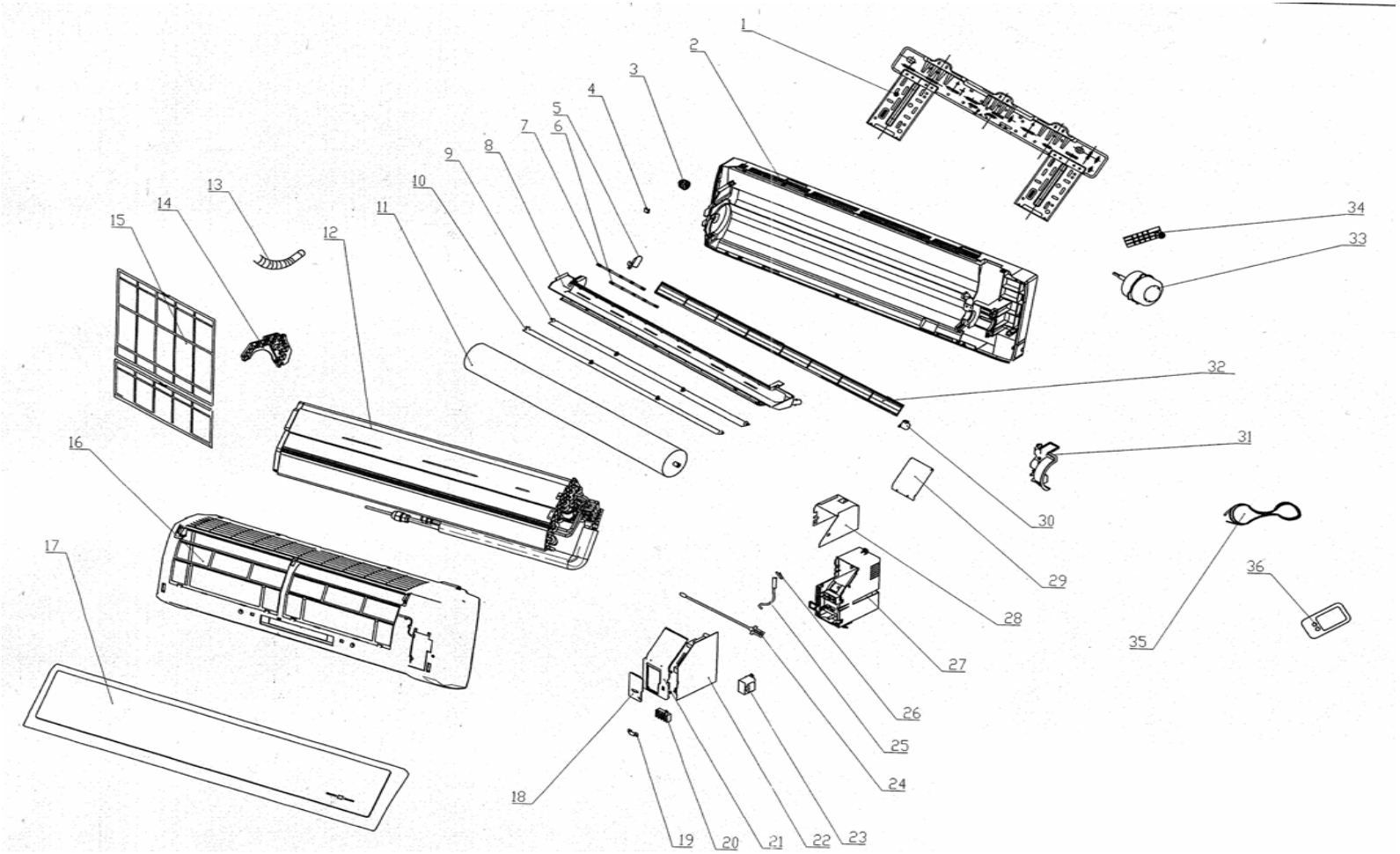
Cooling only unit



Cooling and heating unit



EXPLODED VIEW – Indoor Unit

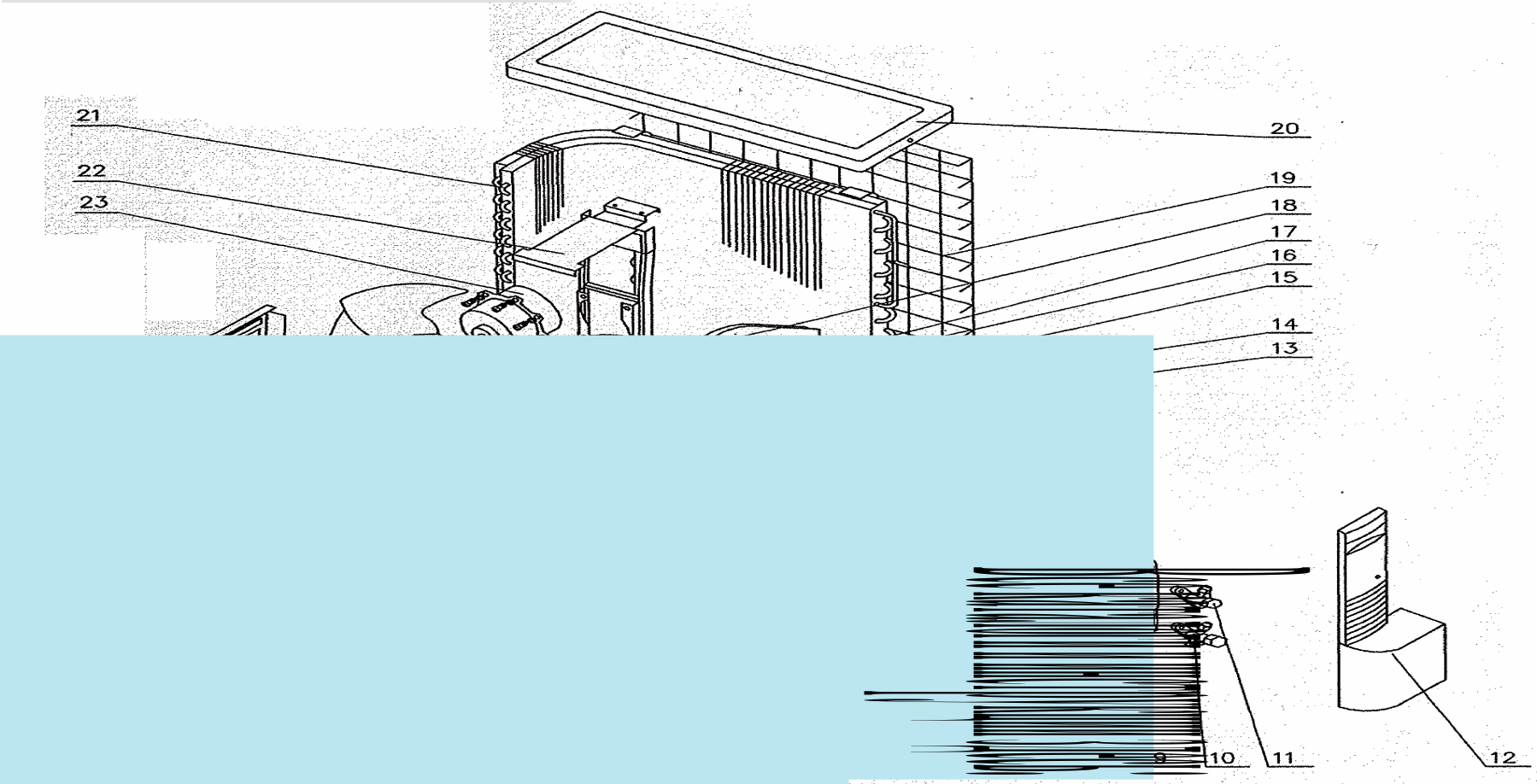


PART LIST – Indoor Unit

NO.	Part Code	Part Description	Qty
1	01252004	Wall Mounting Frame	1
2	22202329	Rear Case	1
3	76512203	O-Gasket of Cross Fan Bearing	1
4	24252015	Screw Cap	3
5	10512429	Round Louver	12
6	10582057	Swing Lever	1
7	10582058	Swing Lever	1
8	20182057	Water Tray	1
9	10512085	Upper Air Deflector	1
10	10512086	Lower Guide Louver	1
11	10352022	Cross Flow Fan	1
12	010022281	Evaporator Assy	1
13	052324111	Drain Pipe	1
14	24212067	Evaporator Support	1
15	11122048	Filter Sub-Assy	2
16	200026524	Front Case Assy	1
17	20002882	Front Panel Case	1
18	20112019	Electric Box Cover	1
19	71010103	Fixed Clamp	1
20	42011233	4-bit Terminal Board	1
21	20112020	Electric Box Cover	1
22	30037502	Main Board	1
23	43110237	Transformer 57X25C	1
24	390000451	Ambient Temperature Sensor	1
25	390000595	Tube Sensor	1
26	42020063	Sensor Insert	1
27	20112018	Electric Box	1
28	01592037	Lower Shieldof Electric Box	1
29	01592038	Upper Shieldof Electric Box	1
30	15212102	Stepping Motor	1
31	26112095	Motor Press Plate	1
32	26252009	Helicoid tongue	1
33	15012077	Fan Motor	1
34	24242001	Pipe Clamp	1
35	400205382	Connecting Cable	1
36	305125063	Remote Control Y512	1

The data are subject to change without prior notice

EXPLODED VIEW – Outdoor Unit

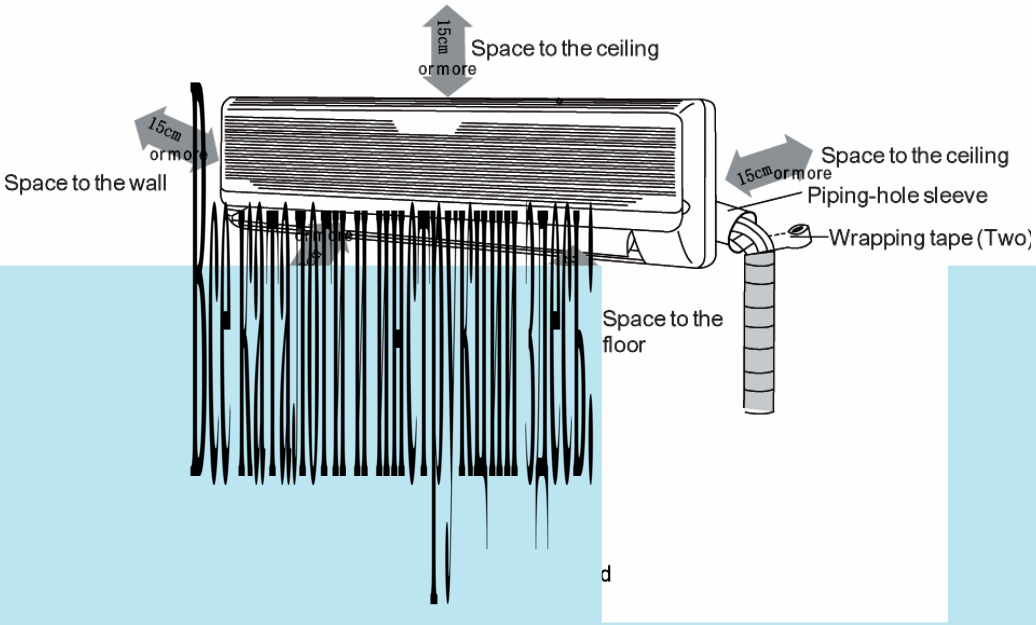


PART LIST – Outdoor Unit

NO.	Part Code	Part Description	Qty
1	22415001	Front Grill	1
2	70310128	Nut	1
3	10335257	Axial-flow Fan	1
4	01305015	Front Side Plate	1
5	01203579P	Metal Base	1
6	00103035	Compressor YZG-L66R	1
7	70310015	Nut with Washer M8	3
8	01305013	Right Side Plate	1
9	01715006	Valve Support Sub-Assy	1
10	071302331	Cut-off Valve Sub-Assy	1

GUIDE FOR INSTALLATION

[redacted] Guide for installation



[redacted] 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 conviently;
- 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 [redacted]m;
- Select a place about 1 meter away from the TV set or any other electric appliances;

[redacted]

g pool.

onvenience neighbors.

utdoor unit.

unit and permit safe installation.

[redacted] 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.

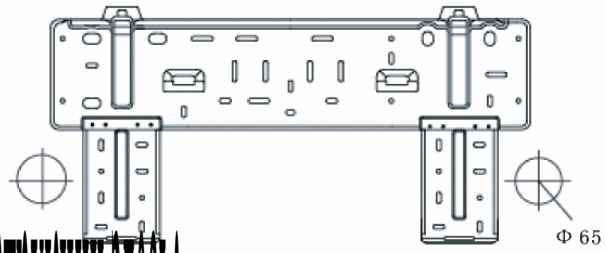
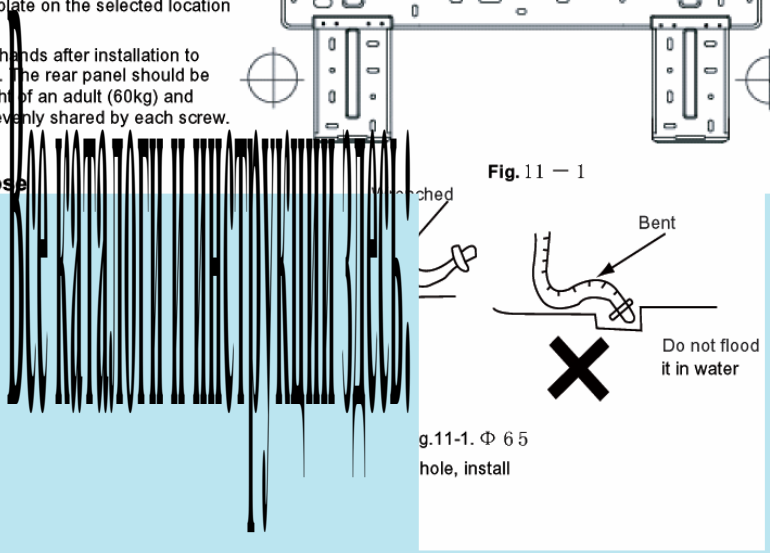
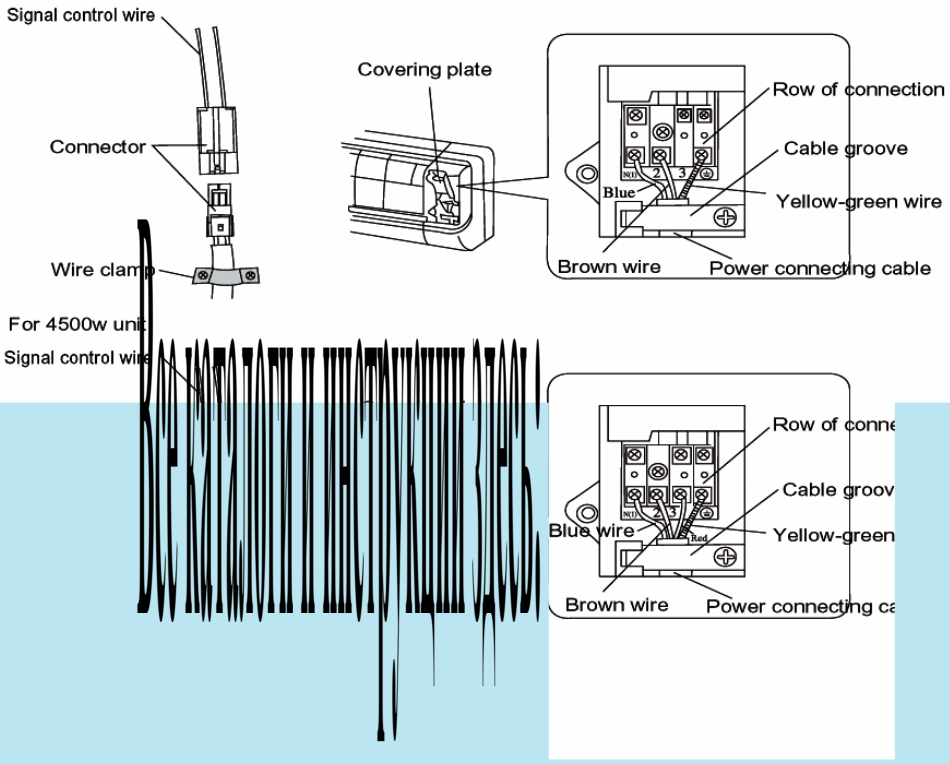


Fig. 11 — 1

② Install drainage hose



g.11-1. Φ 65
hole, install


Signal control wire
Connector
Wire clamp
For 4500w unit
Signal control wire
Covering plate
Row of connection
Cable groove
Blue
Yellow-green wire
Brown wire
Power connecting cable
Row of conne
Cable groov
Blue wire
Yellow-green
Red
Brown wire
Power connecting ca

[redacted] 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.

Refter the following list for tighten torque

Diameter of nut (mm)	Torque wrench (N• m)
Φ6	15~20
Φ9.5	31~35

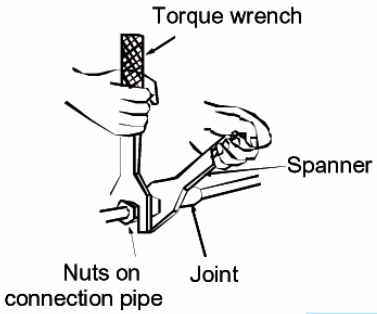


Fig.11-5

[redacted]

crew)

e terminal and fix well.

f wire hole on the right

unit, need to fix the nector.

③ Air purging and leakage test

- Remove the fluorin charging nuzzle 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 nuzzle. (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.

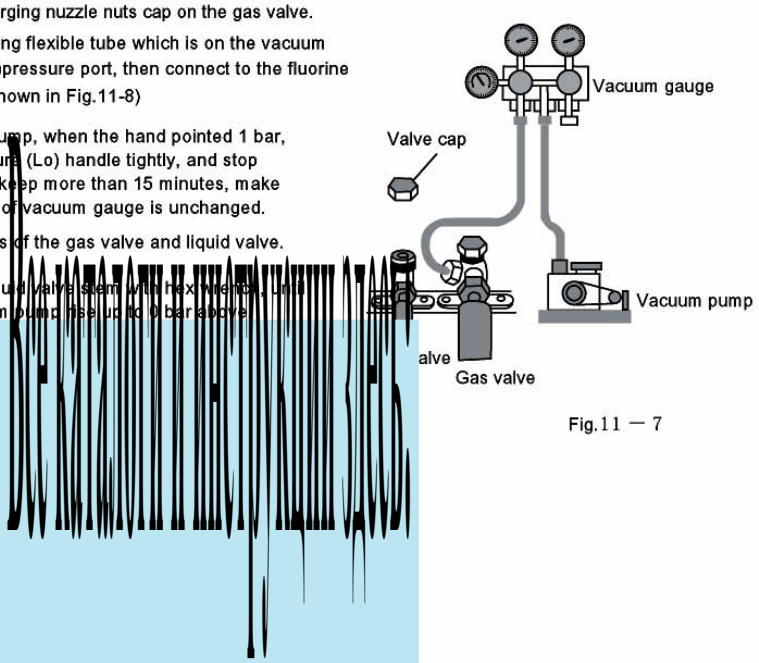


Fig.11 — 7

[redacted] 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 thrums must be cleared from the unit.
- Open the front panel, set "Run" mode by the manual switch.

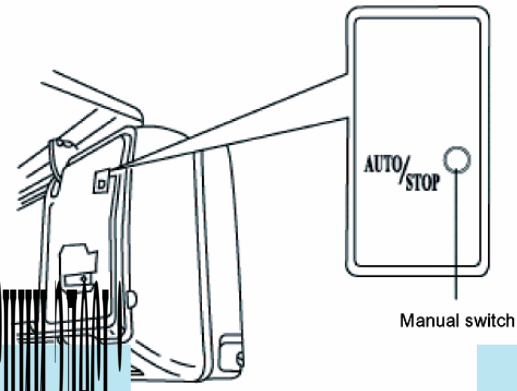


Fig. 11 – 9

[redacted]

ollow:

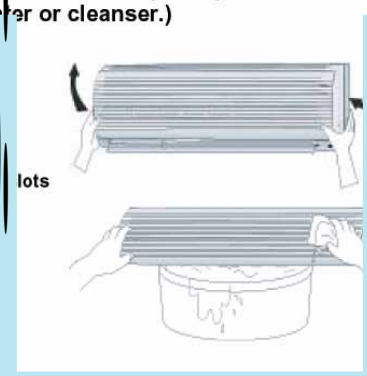
mode according to the

running.

CARE & MAINTENANCE

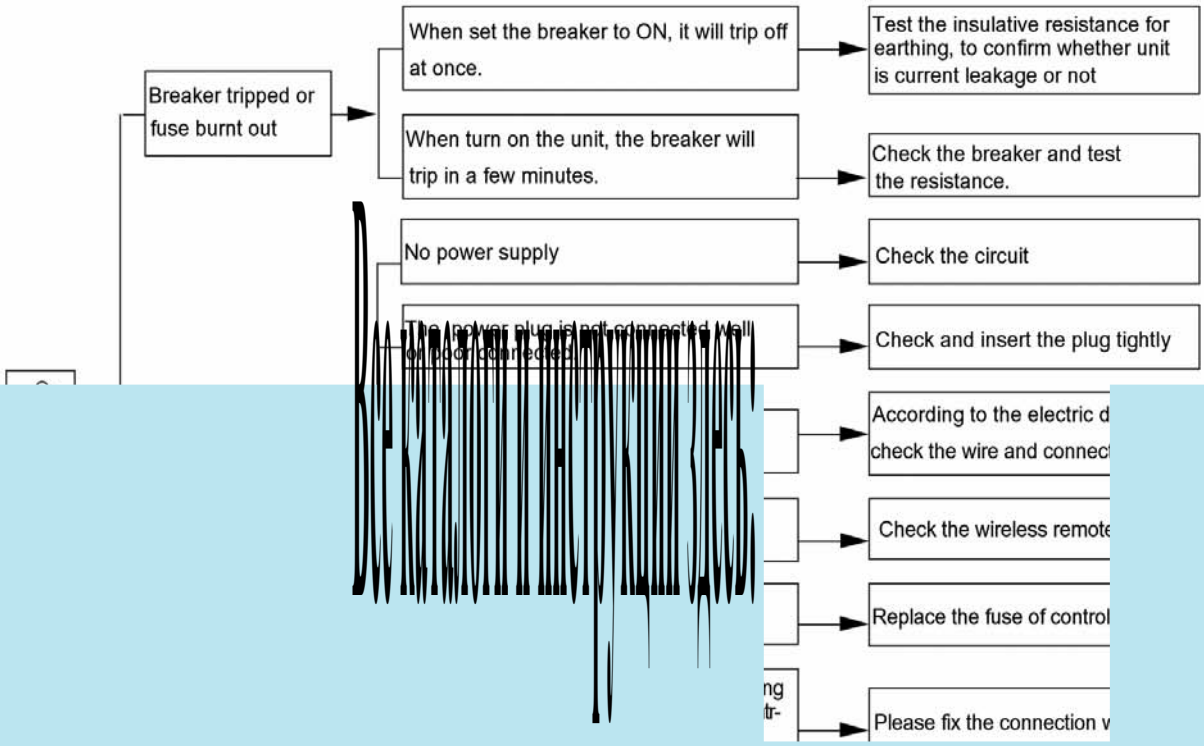
Warning

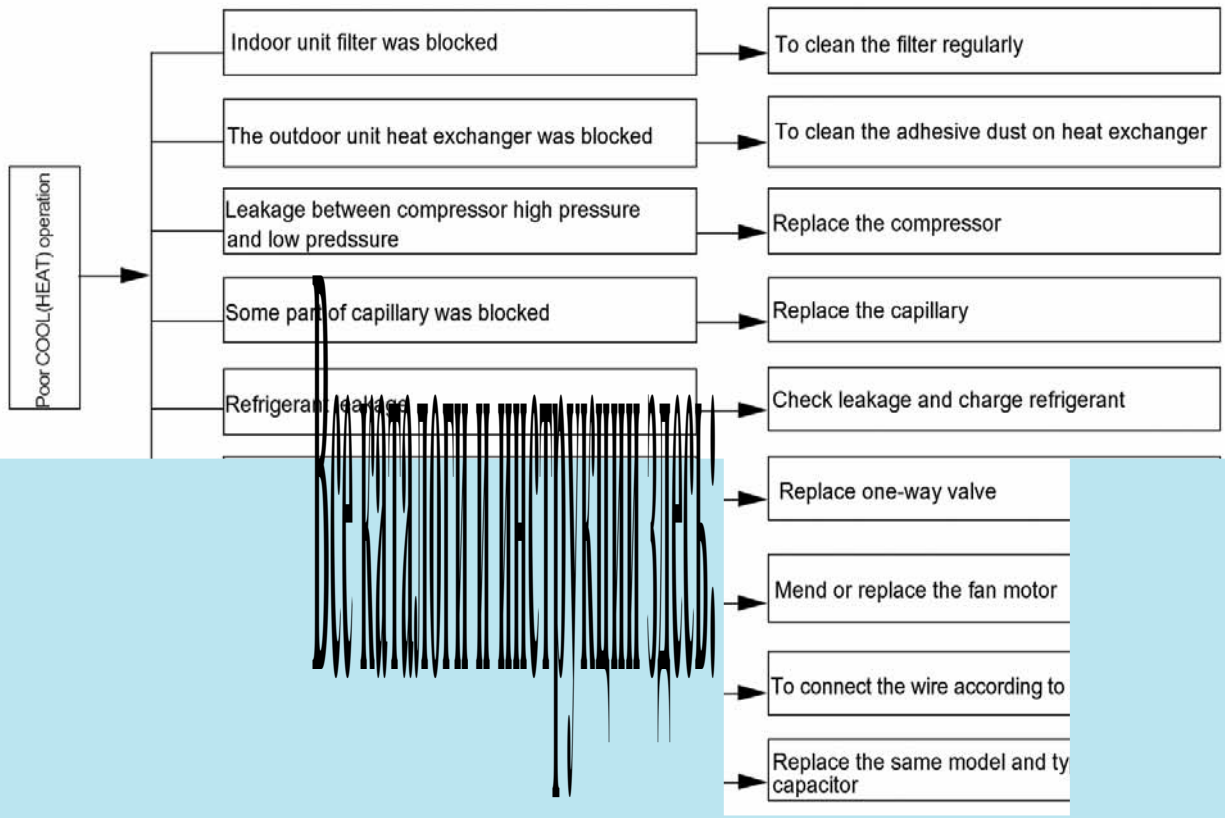
- Turn power off and pull out the power plug before cleaning air conditioner. Or it may cause the electric shock.
- Never dampen the air conditioner, it can cause the electric shock. And never sprinble water on the unit.
- Volatile liquid (e.g. thinner or gasoline) will damage the air conditioner. (So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

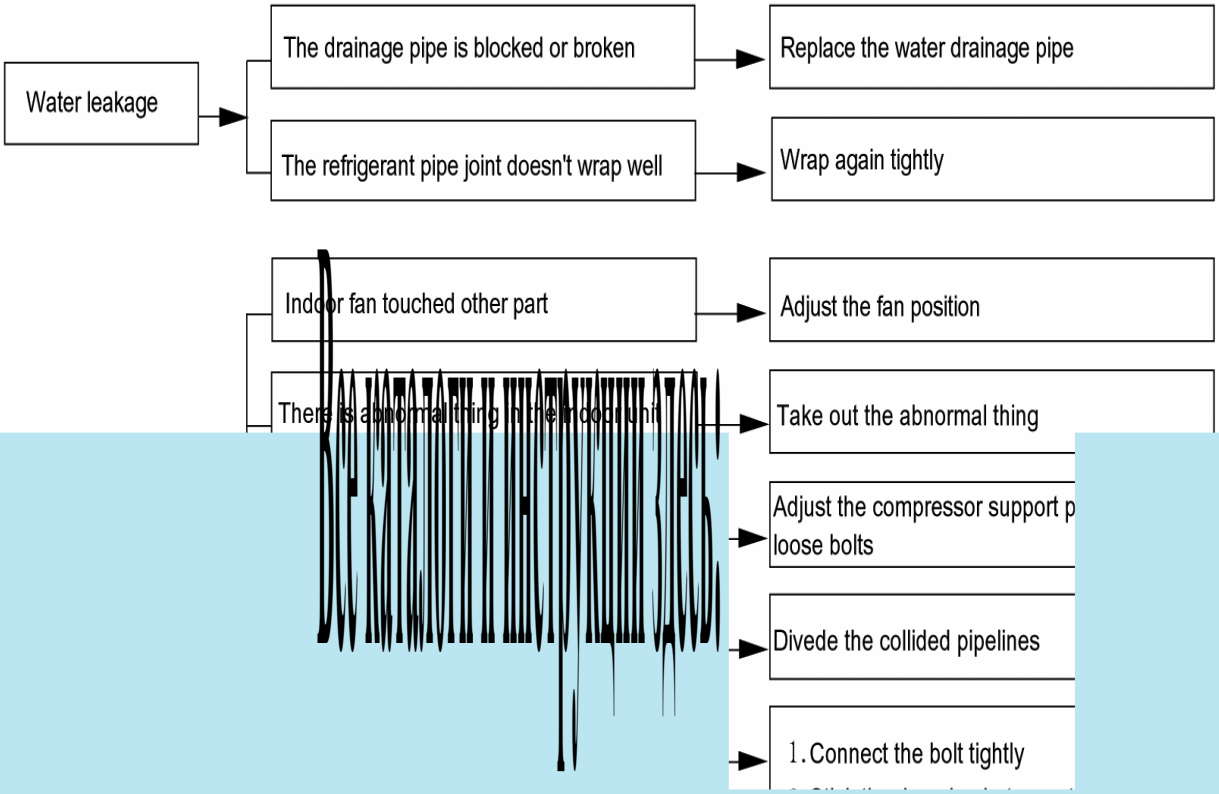


lots

MULFUNCTION ANALYSIS




Poor COOL(HEAT) operation
Indoor unit filter was blocked
To clean the filter regularly
The outdoor unit heat exchanger was blocked
To clean the adhesive dust on heat exchanger
Leakage between compressor high pressure and low predssure
Replace the compressor
Some part of capillary was blocked
Replace the capillary
Refrigerant leaked
Check leakage and charge refrigerant
Replace one-way valve
Mend or replace the fan motor
To connect the wire according to
Replace the same model and ty
capacitor


Water leakage
The drainage pipe is blocked or broken
Replace the water drainage pipe
The refrigerant pipe joint doesn't wrap well
Wrap again tightly
Indoor fan touched other part
Adjust the fan position
There is abnormal thing in the indoor unit
Take out the abnormal thing
Adjust the compressor support p
loose bolts
Divede the collided pipelines
1. Connect the bolt tightly