

SERVICE MANUAL

MOBILE SERIES

AMC-14Aa



2

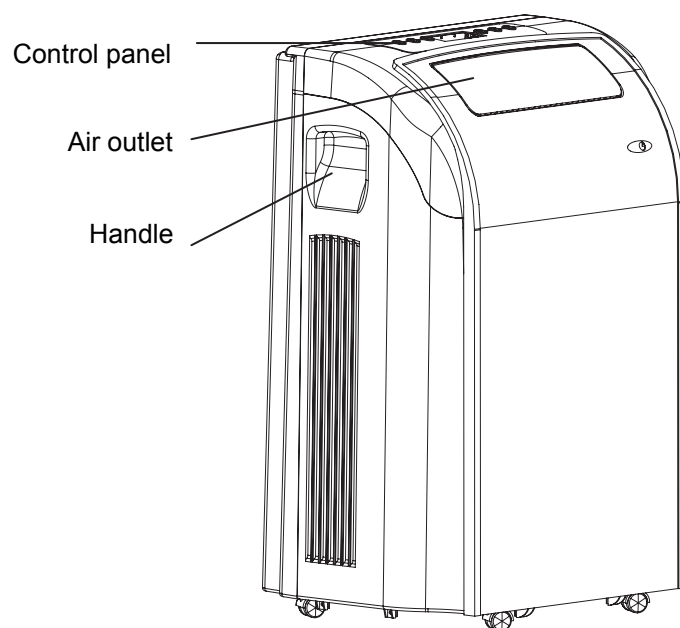
Specifications and Technical Parameters

Model		AMC-14Aa
Function		COOLING
Rated Voltage		220-240V~
Rated Frequency		50Hz
Total Capacity (W/Btu/h)		14000
Power Input (W)		1700
Rated Input (W)		2450
Rated Current (A)		10.6
Air Flow Volume (m ³ /h) (H/ML)**		570/510 / 430
Dehumidifying Volume (l/h)		1.55
EER / C.O.P (W/W)		2.03
Energy Class		C
Indoor Side	Fan Type-Piece	Centrifugal fan / 1an - 1
	Diameter-Length (mm)	φ224X 109.5
	Evaporator	Aluminum fin-copper tube
	Pipe Diameter (mm)	Φ7
	Row-Fin Gap	3-1.4
	Coil length (l) x height (H) x coil width (L)	325X304X38.1
	Swing Motor Model	MP35KA
	Output of Swing Motor (W)	3.5W
	Fuse (A)	PCB 3.15A Transformer 1A
	Sound Pressure Level dB (A) (H/ML)	59/57/55

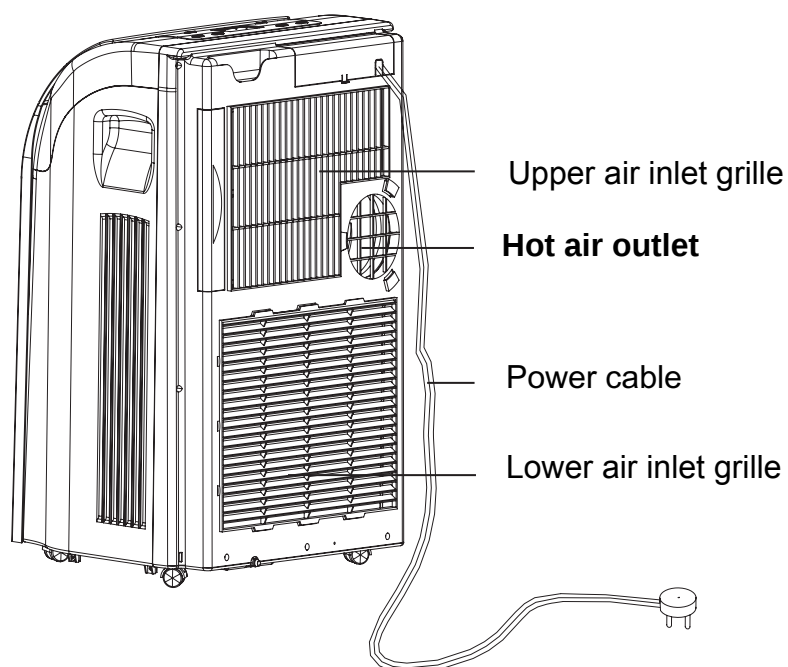
Outdoor Side	Compressor Manufacturer/trademark	HIGHLY / HITACHI ELECTRICAL APPLIANCES CO. LTD
	Compressor Model	ASL180SV-C7LU
	Compressor Type	rotary compressor
	L.R.A. (A)	32
	Compressor RLA(A)	6.8
	Compressor Power Input(W)	1500
	Overload Protector	built-in component
	Throttling Method	Capillary
	Starting Method	Capacitor
	Working Temp Range (°C)	16°C - 35°C
	Condenser	Aluminum-copper
	Pipe Diameter (mm)	Φ7
	Rows-Fin Gap(mm)	4-1.4
	Coil length (l) x height (H) x coil width (L)	411x350x50.8
	Fan Type-Piece	Centrifugal fan / 1an - 1
	Fan Diameter (mm)	Φ 224X109.5
	Sound Pressure Level dB (A) (H/M/L)	62.5/61.5/61
	Sound Power Level dB (A) (H/M/L)	/
	Defrosting Method	/
Fan Motor Speed (rpm) (H/M/L)		960/860/760
Output of Fan Motor (W)		50
Fan Motor RLA(A)		0.18
Fan Motor Capacitor (uF)		3
Climate Type		T1
Isolation		B
Moisture Protection		IP44
Permissible Excessive Operating Pressure for the Discharge Side(MPa)		3.8
Permissible Excessive Operating Pressure for the Suction Side(MPa)		1.2
Dimension (L/W/H)(mm)		546 x 405 x 840
Dimension of Package (L/W/H)(mm)		761/460/885
Net Weight /Gross Weight (kg)		47/57
Refrigerant Charge (kg)		R410A/1.1

3 **Parts name**

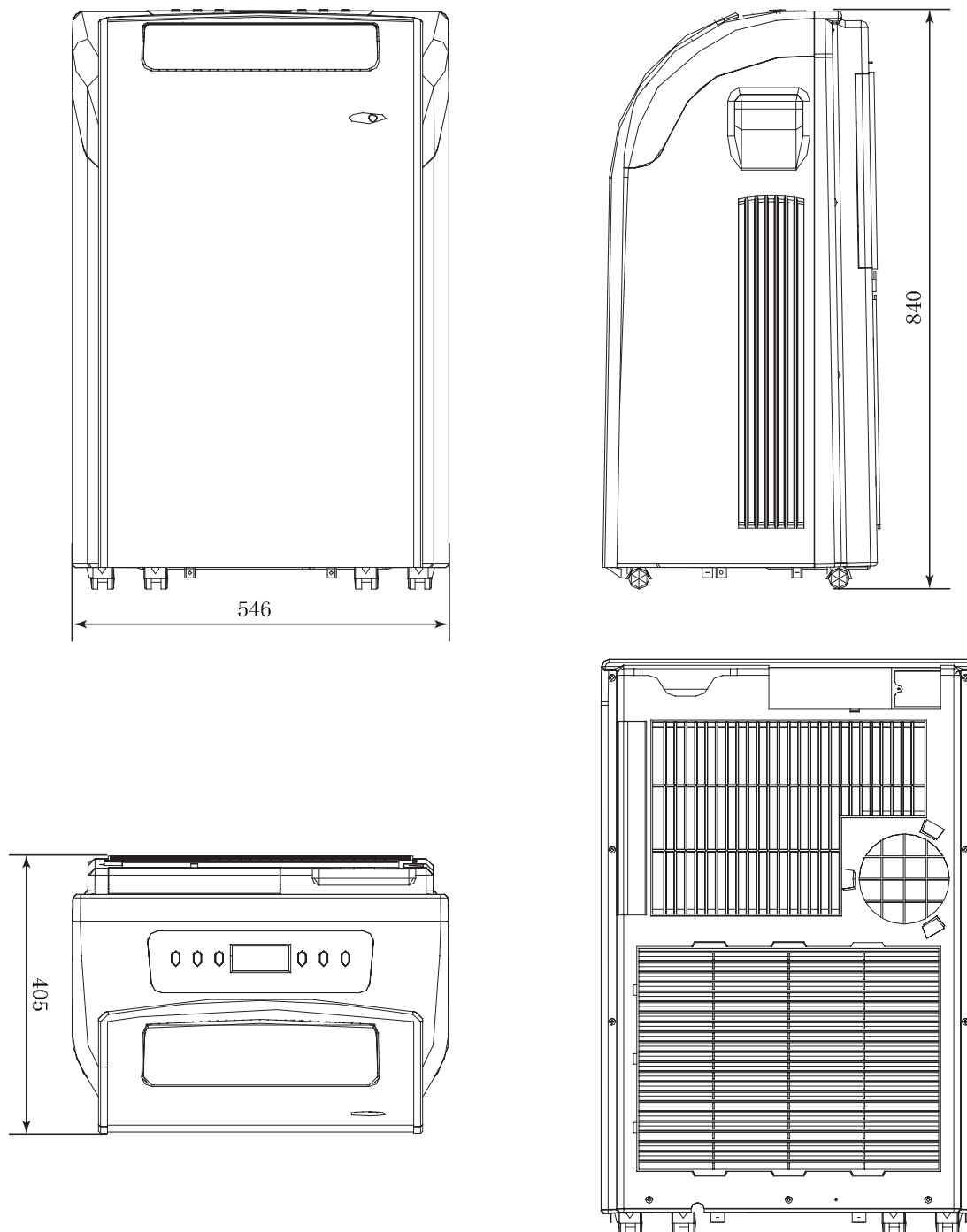
Front



Rear



4 Outline and installation dimensions

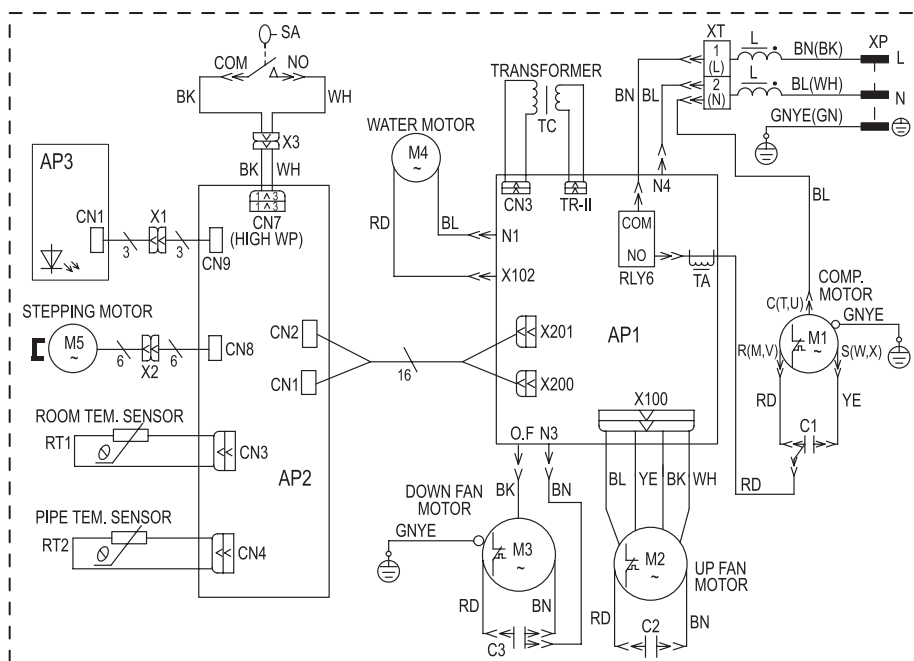


Unit: mm

5

Circuit diagram

AMC-14Aa



6.1 Controller Function Manual

This function manual is applicable to various mobile air conditioners. The temp. displays in two ways ,that is Centigrade and Fahrenheit, in this manual, the temp. is in Centigrade.($T_c = T_F \cdot 1.8 + 32$)

6.1.1 Temperature Parameters

- ◆ Indoor preset temperature (T_{preset})
- ◆ Indoor ambient temperature ($T_{\text{amb.}}$)

6.1.2 Basic Functions

After the power is turned on, the separation time of two consecutive starting time of the compressor should not be less than 3min. under any condition. For the first time powering on, there is not 3min. delay for the compressor. Once the compressor is started, it will not stop in 6min as the variation of the indoor temperature.

6.1.2.1 Cooling Mode

6.1.2.1.1 Cooling Conditions and Process

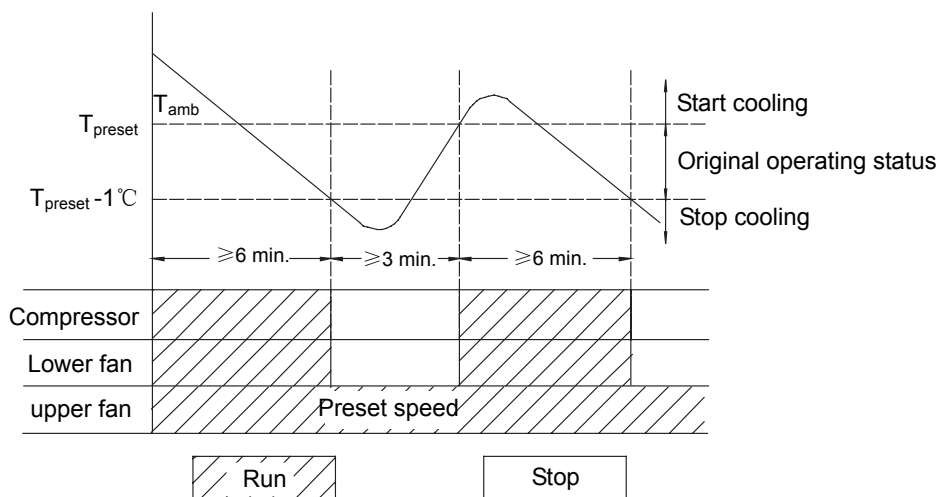
When $T_{\text{amb.}} \geq T_{\text{preset}}$, the unit will run under cooling mode, in which case the compressor and lower fan will start and the upper fan will run at preset speed.

When $T_{\text{amb.}} \leq T_{\text{preset}} - 1^\circ\text{C}$, Stopping cooling, the compressor and the lower fan will be stopped, the upper fan will run at preset speed.

When $T_{\text{preset}} - 1^\circ\text{C} < T_{\text{amb.}} < T_{\text{preset}} + 1^\circ\text{C}$, the unit will maintain its original operating status.

Under this mode, the range of temperature setting is $16 \sim 30^\circ\text{C}$. ($61 \sim 86^\circ\text{F}$)

LCD display dynamic snow falling and fan turning, in the meantime display the setting fan speed and temp..



6.1.2.1.2 Protection

◆ Antifreeze Protection

If it is detected that the system is under antifreeze protection, the compressor and lower fan will be stopped, and the upper fan will run at preset speed. When antifreeze protection is released and the compressor has stopped for 3 minutes, the unit will resume its original operating status.

◆ Overcurrent Protection (Low Voltage Protection E5)

When it has detected the system current exceeds the specified value by 1.3A approximately, only the fan motor in the main unit runs, 3mins later, if the overcurrent has been released, that the main unit will keep the original running state. If it is 6 times continuously detected overcurrent protection (Compress has continuously work more than 5mins, that the protection time will clear), that the whole unit will stop, the unit is standby, the digital tube displays error code "E5", It is need to turn on the unit by the wireless remote control or to cut off the power first, then re-power on to turn on the unit.

◆ Water Full Protection (H8)

When water full, the water switch will close, the buzzer will beep 8 times, the position shows temp. on LCD will display error code "H8", the unit will stop till the water full be released.

6.1.2.2 Dehumidifying Mode

6.1.2.2.1 Dehumidifying Conditions and Process

The upper fan runs at low fan speed, the compressor and the lower fan run continuously, display and can not adjust.

One Horse Power Series display dehumidifying sign, low fan speed and dynamic water dropping and fan turning.

6.1.2.2.2 Protection

The same as in cooling mode, LCD will display dynamic water full when at water full protection.

6.1.2.3 Fan Mode

The upper fan runs at high, med and low fan speed, the setting temp. does not display and can not adjust. LCD displays the high, med and low sign according to the upper fan's speed.

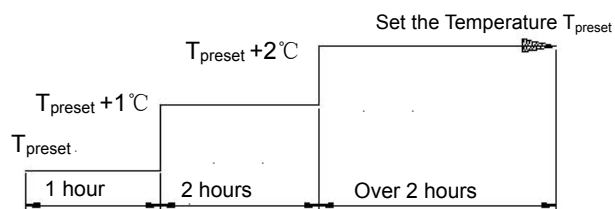
6.1.2.4 Auto Mode

Under this mode, the system will automatically select its run mode (cool, dehumidify or fan) with the change of ambient temperature. For protection function, same as under cool and dehumidify mode.

6.1.3 Other Control

6.1.3.1 Sleep Function

Setting SLEEP function under COOL or DEHUMIDIFY mode, the preset temperature will automatically rise by 1°C after 1 hour and rise by another 1°C after 2 hours. Preset temperature will rise by 2°C in total within 2 hours. After that, the unit will run at this preset temperature.



6.1.3.2 Timer Function

6.1.3.2.1 Timer functionl on the control panel

Timer On

TIMER ON function can be set when the unit is at off mode. Upon the time as set , the controller will run under preset mode. The interval of time setting is 0.5h and can be set within 0.5-24h in cycle.

Timer Off

TIMER OFF function can be set when the unit is at on mode. Upon the time as set , the system will be stopped. The interval of time setting is 0.5h and can be set within 0.5-24h in cycle.

* Press the TIMER key" ▲" and "▼" at the same time can cancel the timer function.

6.1.3.2 Timer function on the wireless remote control

TIMER ON function can be set when the unit is at off mode. Upon the time as set , the controller will run under preset mode. The interval of time setting is 0.5h and can be set within 0.5-8h .When the setting time is above 8h,the interval of time setting is 1h and can be set within 0.5-18h .

TIMER OFF function can be set when the unit is at on mode. Upon the time as set , the system will be stopped. The interval of time setting is 1h and can be set within 1~7h .

Cooling only controller can receive the remote signal of heating switch off.

Press ON/OFF key or press TIMER again to cancel timer function.

6.1.3.3 Swing Motor Control

When the system starts to run, the swing motor turn counter-clockwise to open the air outlet.

When the system stopped, the swing motor turn clockwise to close the air outlet.

6.1.3.4 Memory

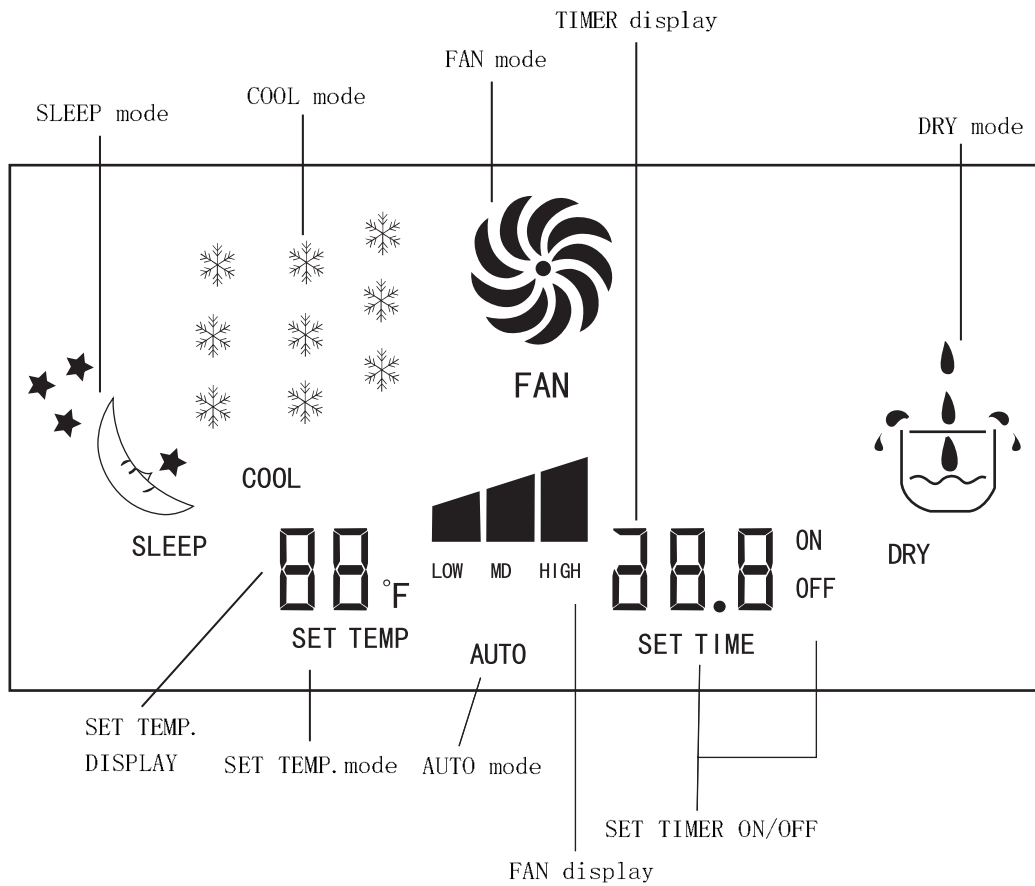
In the final remote control order(or key order), there isn't timer setting function,that the system will memorize the last order, and will run at the setting method; If there is timer setting function in the last remote control order(or key order), and if the time haven't arrived and the system powered off,after powered on, the system will memorize and run at the timer setting of last order, the time will be recalculated after powered on;If there is timer setting function at the last remote control order (or key order), but the time has arrived, the system will run at the setting timer on and timer off, if powered off, after timer on and timer off, when powered on,the system will memorize the running state of before system power off,and the timer is not valid.If there is sleep function setting at the last remote control order(or key order) and the system powered off,after powered on, the system will memorize the sleep function .

6.1.3.5 Water Motor Control

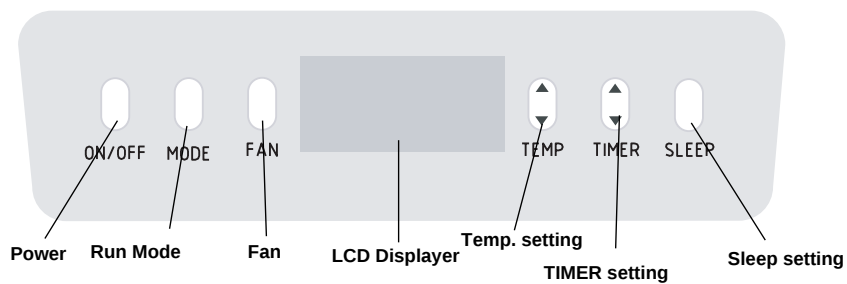
The water motor starts or stops together with the compressor.

6. 2 Function instruction for displayer and front panel

6. 2. 1 Instruction for LCD displayer (Dynamic)



6. 2. 2 Function instruction for Keys on Control Panel



● Keys on Control Panel

1. ON/OFF

Turn ON or Turn OFF the unit (press "ON/OFF" to turn on the unit, another press to turn off the unit.)

2.MODE

Press this key in turn (AUTO,COOL, DRY and FAN to choose the RUN mode in need.

3. FAN

In FAN or COOL mode,there are three fan speeds. Press the "FAN" in turn(LOW, MED and HIGT)to change the fan speed.

4. TEMP.

In COOL mode, control panel will display the setting temp.. Press TEMP."▲"/"▼"to increase /decrease the setting temp. .

5. TIMER

Press TIMER "▲"/"▼"to set the time of TIMER. When unit runs, press TIMER to set the time turn off the unit, when unit doesn't run(but power on), press TIMER to set the time turn on the unit. the time setting interval is 0.5hr, the range is 0.5-24hrs.

6. SLEEP

When unit runs ,press this key to set sleep mode,another press to quit sleep mode .Under AUTO mode this key doesn't work.

● Operating instruction (the 3,4 below is for choice)

1. After power on, press "ON/OFF" to turn on the unit.

2. Press "MODE" to choose the run mode.

In "AUTO" mode,according to the room temp., the microcomputer will select COOL, DRY or FAN automatically.

In order to obtain comfortable effect.

In "COOL" mode, press "TEMP." to set the temp., then press "FAN" to adjust the fan speed.

(Caution: In "COOL" mode, in order to obtain good cooling effect,please pay more attention to:

1). If there is the direct sunlight near the window, please use the curtain to shield.

2). Do not use other heat sources in the air conditioner room.)

In "DRY" mode, the upper fan motor is running at the low speed, it is not adjustable.

(Caution: In "DRY" mode, don't install the exhaust duct.)

In "FAN" mode, press "FAN" to select the fan speed.

3. Press "SLEEP" to set the sleep mode.

4. Press "TIMER" to set the time to turn on or turn off the unit.

Caution: Cut off power supply, move the appliance to a suitable place to pull out the plug and pour out the water in tank. When water is drained out completely, re-insert the plug back into the drainage pipe to avoid dew water leakage. When restarting the appliance,it must be set again.

If the appliance is placed in a position admitting to drain water, you also can connect the drain hose to the drain port to drain water.

7 Disassembly Procedures

Operating Procedures / Photos

7.1 ||||| Disassemble Front Panel

Screw off the screws fixing the panel, push down to release the clasp, pull upward to remove the upper panel. (refer to Figure 7-1)



Figure 7-1

7.2 ||||| Disassemble Rear Plate

Screw off the screws which fixed the rear plate, (each 4 pieces for left and right ,3 pieces for bottom) then take off the rear plate. (refer to Figure 7-2)

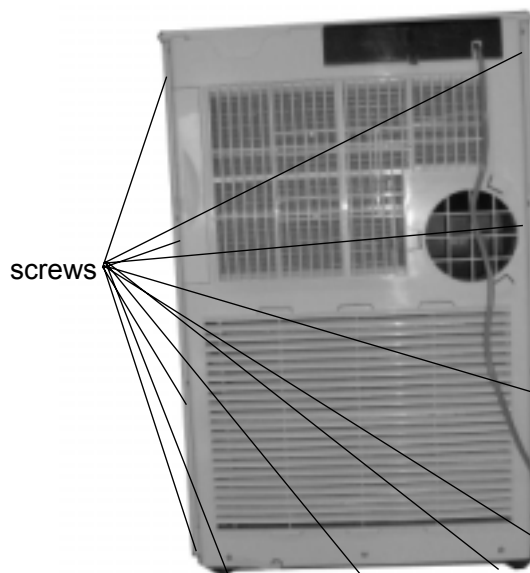


Figure 7-2

7.3 ||||| Disassemble the controller cover plate

Screw off the 4 screws which fixed the controller cover plate, (each 1pieces for left and right side,2pieces for front) then lift the controller cover plate upward and take it out. (Note: because the control board was fixing on the cover plate so that the cover plate can not take off.)

(refer to Figure 7-3,7-4)

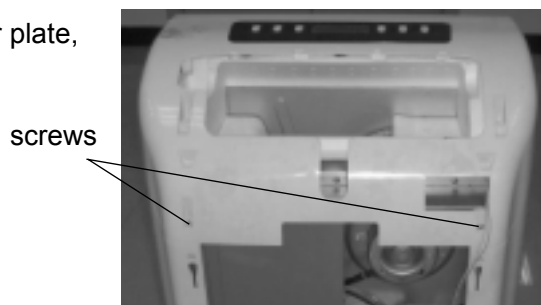


Figure 7-3

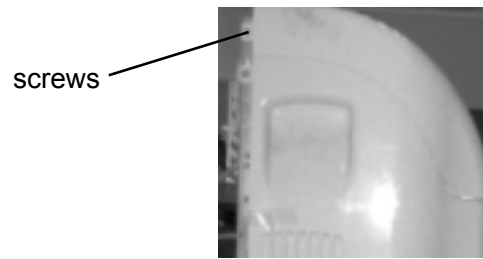


Figure 7-4

7.4 ||||| Disassemble the left, right side plate

Screw off the screws which fixed the side plates (each 9pieces for left and right side plate) then take off the side plates.
(refer to Figure 7-5)

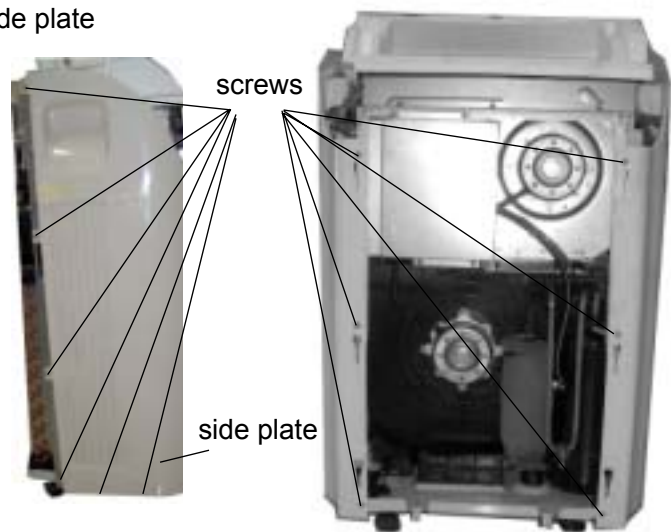


Figure 7-5

7.5 ||||| Disassemble the Air Outlet Frame

Screw off the screws which fixed the air outlet frame to take off the air outlet frame .
(refer to Figure 7-6)

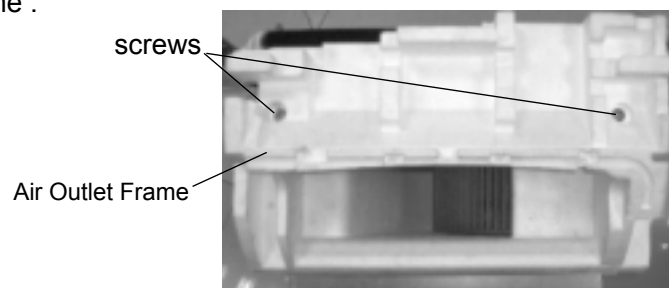


Figure 7-6

7.6 ||||| Disassemble the electric box cover

Screw off the 4pcs screws which are used to fix the electric box cover, then take off the electric box cover.

(refer to Figure 7-7)

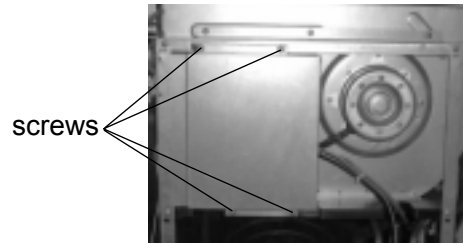


Figure 7-7

7.7 ||||| Disassemble the upper clapboard

Remove the plate on the wire, then Screw off the screws which are used to fix the upper clapboard to take off the upper clapboard.

(refer to Figure 7-8,7-9)

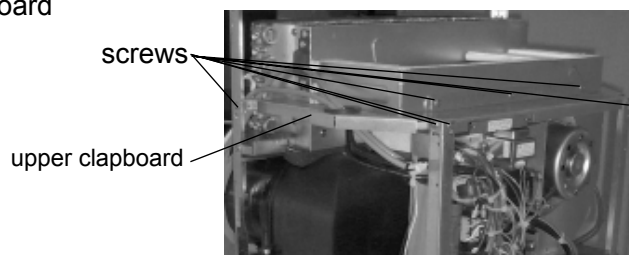


Figure 7-8

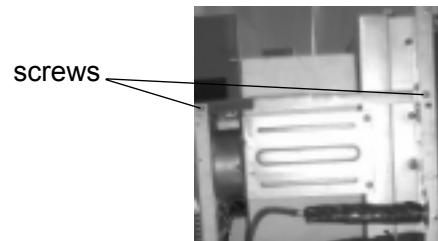


Figure 7-9

7.8 ||||| Disassemble the electric box

Take out every wire terminals, and screw off the 3pcs screws which are used to fix the electric box, then take off the electric box.

(refer to Figure 7-10)

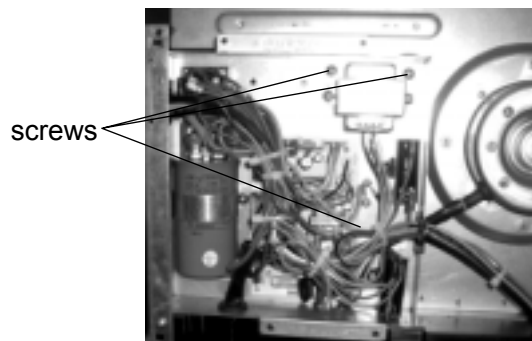


Figure 7-10

7. 9 ||||| Disassemble the upper centrifugal fan sub-assy

Screw off the fixing screw, then lift upward to take it off.

(refer to Figure 7-11,7-12)

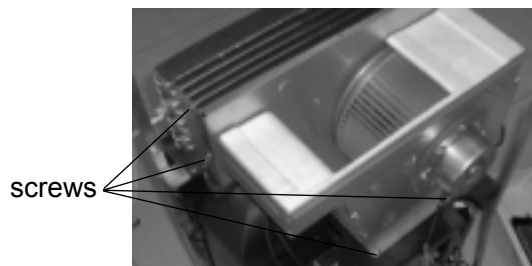


Figure 7-11

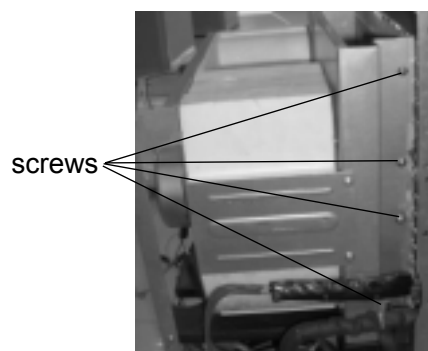


Figure 7-12

7. 10 ||||| Disassemble Evaporator and Water Tray

Unsolder the in and out pipes(Note: only after discharging all refrigerant),Screw off the screws which are used to fix the water tray ,then take off the evaporator and water tray.

(refer to Figure 7-13,7-14)

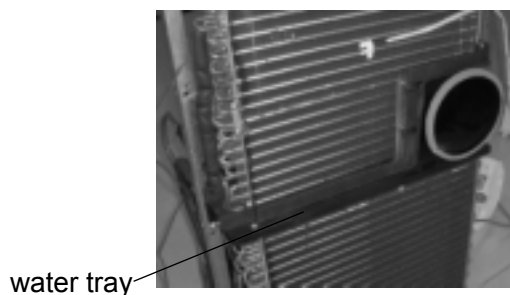


Figure 7-13

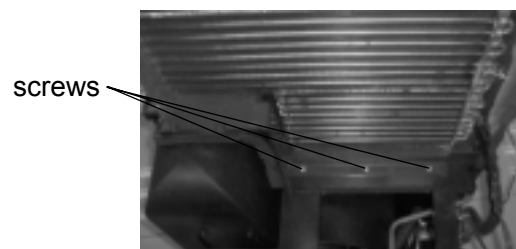


Figure 7-14

7.11 ||||| Disassemble the middle baffle plate

Screw off the screws on the 4 support bars which are fixed on the middle baffle plate, then pull out the middle baffle plate (pay attention to the capillary) to take off the middle baffle plate.

(refer to Figure 7-15)

screw
support bars

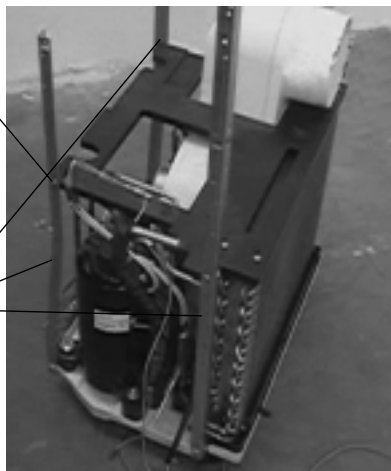


Figure 7-15

7.12 ||||| Disassemble the compressor

Loosen 3 nuts with washer on the compressor bottom sheet, unsolder the soldered point of compressor air in and air out pipes (Note: only after discharging all refrigerant) and carefully remove the pipeline, take out the compressor.

(refer to Figure 7-16)

nuts with washer

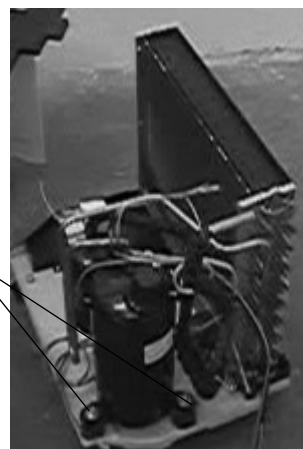
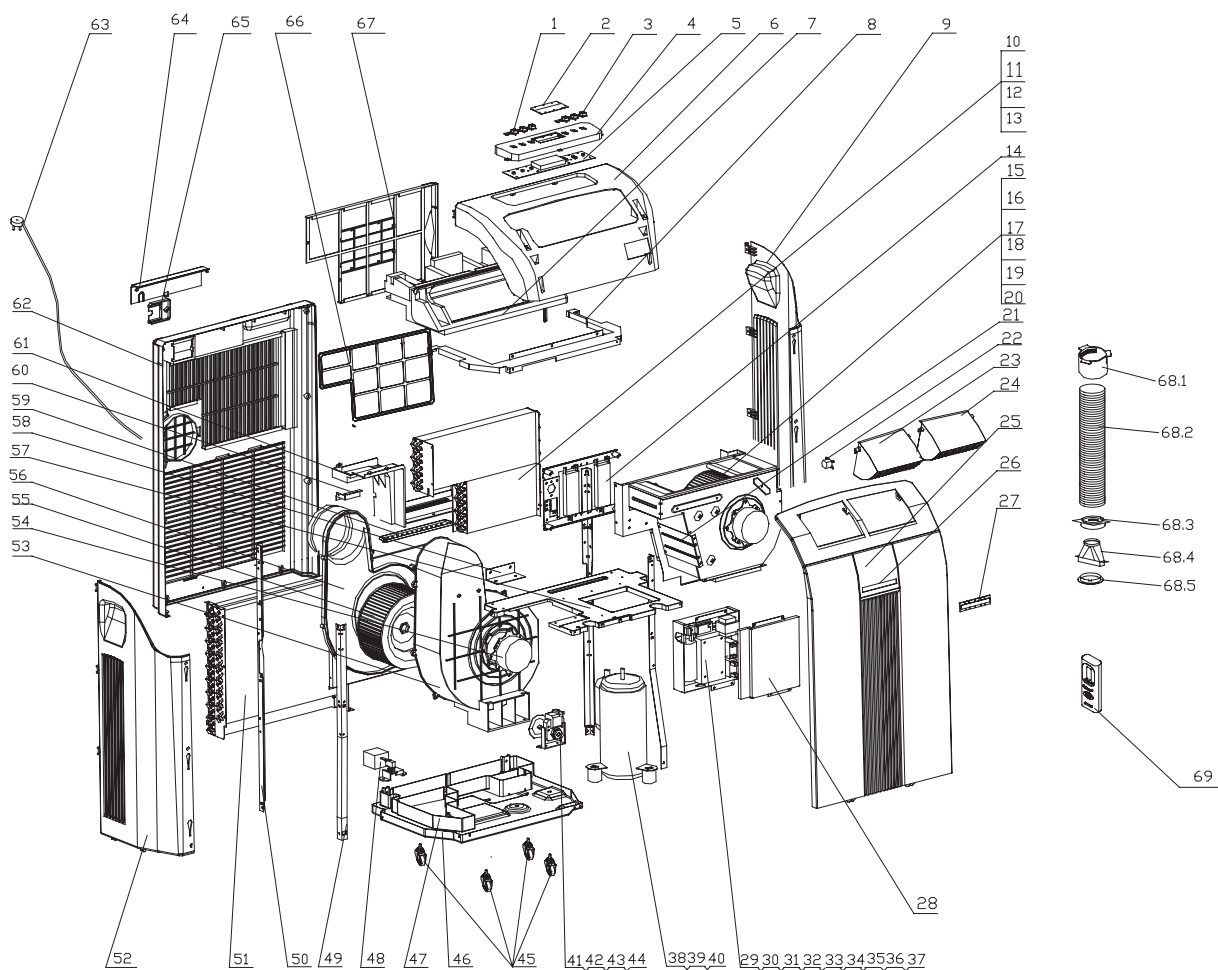


Figure 7-16

8

Exploded View and Components and Parts List

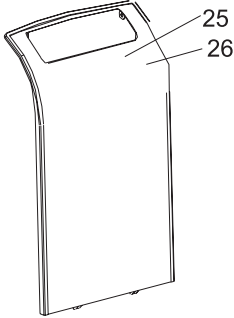
8.1 Exploded view



8.2 Parts list

No	Description	Part Code	Qty
		AMC-14Aa	
1	Button 1	45036005	1
2	Transparent Window	22436002	1
3	Button 2	45036006	1
4	Lcd Box	20126015	1
5	Displayer	30547818	1
6	Top cover	22246014	1
7	Foam of outlet grill	12316032	1
8	Upper Isolation Sheet	01236006	1
9	Right Case	20056079	1
10	evaporator assy	01001183	1
11	room sensor(15K)	39000191	1
12	tube sensor(20K)	390000591	1
13	sensor insert	42020063	1
14	PTC heater assy		1
15	Upper Centrifugal Fan	01446001	1
16	Flow-guideLoop assy	10316030	1
17	snail shell	12106005	1
18			
19	Motor Backseat Plate	01336001	1
20	Upper Motor	15016211	1
21	Strengthen Board	02126002	1
22	Swing Motor MP35KA	15114072	1
23	Air Outlet Guider 1	22416024	1
24	Air Outlet Guider 2	22416025	1
25	panel	20006015	1
26	Receiver Board J	30044010	1
27	Remote Control Window	22436004	1
28	Electric Box Cover	01416004	1
29	Electric Box	01416003	1
30	Transformer 48X23.5G	43110235	1
31	PCB	30000702	1
32	Terminal Board	42011103	1
33	Compressor Capacitor	33010743	1
34	Upper motor capacitor	33010027	1
35	Lower motor capacitor	33010027	1
	Capacitor Clamp	02141381	1
38	compressor	00120139	1
39			
40			

8. 3 Changeable Parts list

No .						
1		Button 1  45036005				
2 Transparent Window		 22436002				
3 Button 2		 45036006				
4 Lcd Box		 20126015				
5 Displayer		 30547818				
23 Air Outlet Guider		 22416026				
24 Air Outlet Guider						
27 Remote Control Window		 22436001				
						
		25 panel	20006008			
		26Receiver Board J	30044010			

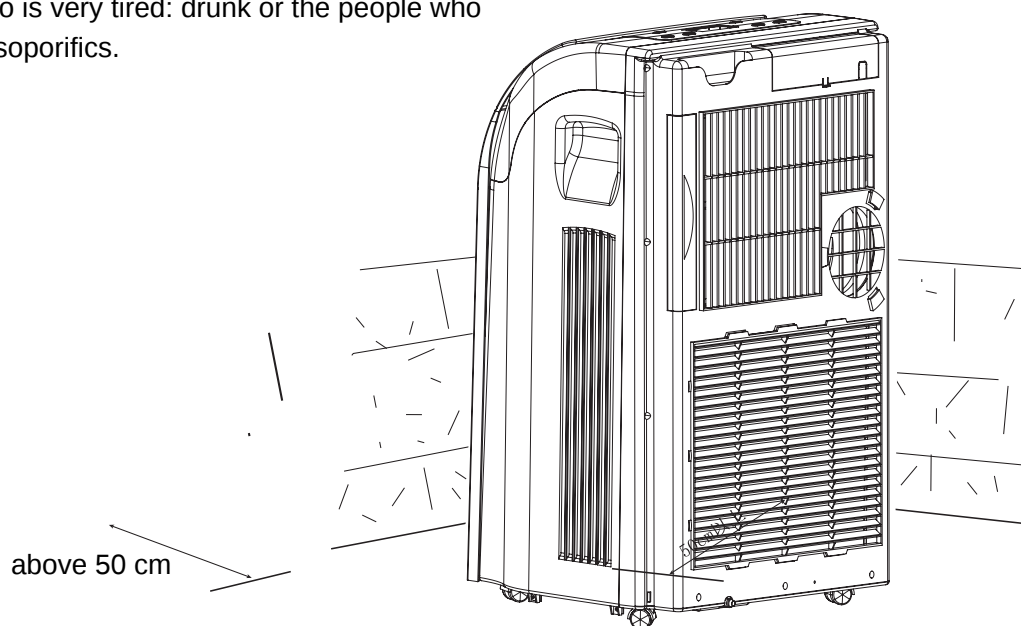
The above data are subject to change withuot notices.

9

Installation Guide

9.1 Notices for installation

- Do not use the unit in the confined place and keep the well ventilation.
- Keep the unit 1meter away from TV and radio , or it will be effected by the electromagnetic wave.
- Do not use the unit in water or near water, avoiding leakage of electricity.
- Do not use the unit where the sunlight is shining directly onto it so as to avoid surface colour from fading and lower efficiency.
- Do not step on or put things on the top of unit ,it will slop and can cause malfuntion.
- Keep the air inlet and outlet far away from obstacles,or it will cause malfuntion.
- Don't apply the cold wind to the body for a long time. It will cause the health problems.
- Don't insert your hands or stick into the air inlet or outlet , especially pay more attention to young children, or it can cause the accident easily.
- Put the unit in a level ground and place the unit no less than 50cm away from a wall or other obstacle.
- Do not use the unit in below locations: 1).Coal gas 2)Fire 3). Oil so as to avoid malfuntion.
- Should take the consideration for the people of following:
 - 1). Young children,patient.
 - 2). The ailing people,the peolpe who is hard to express.
 - 3). The people who is very tired: drunk or the people who had taken the soporifics.



9.2 Cable Layout

- The standard working range of the voltage is $220V \pm 6\%$, 50Hz, if the voltage is higher ou lower, the unit will be affected.
- The power supply must be of rated voltage and special line for air-conditioning. The thread section of the lead wires should be large enough .
- The power plugs and the sockets can be supported by the current that is more than 16 A.
- If the power supply cord is damaged, should adopt the special power supply cord to replace.
- The unit must be safety earthed. Earth wire must be connected to the special device of the building in order to provide the good earthing for the air conditioner.

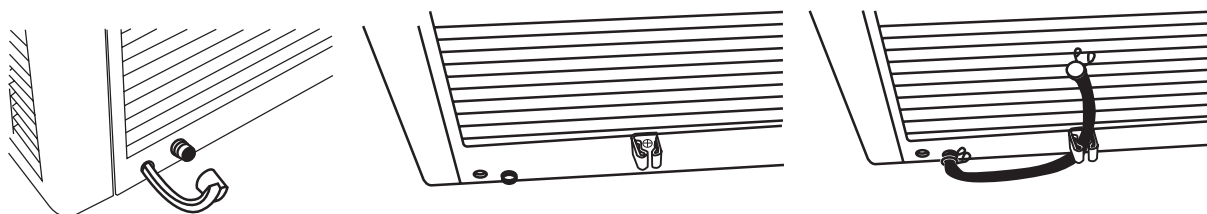
9.3 Accessory Installation

① Drainage

Note: It must be installed the drainage pipe(including the drainage hole cap and clamp) before operating the unit or it can cause the drainage block and will influence the unit running.

On the rear of the unit, locate the continuous drainage outlet (see diagrams).For continuous drainage operation push down on the outlet and remove plug. Connect drainage pipe supplied to continuous drainage outlet.

When continuous drainage operation is not required ensure that the outlet is pushed up fully to prevent further drainage.



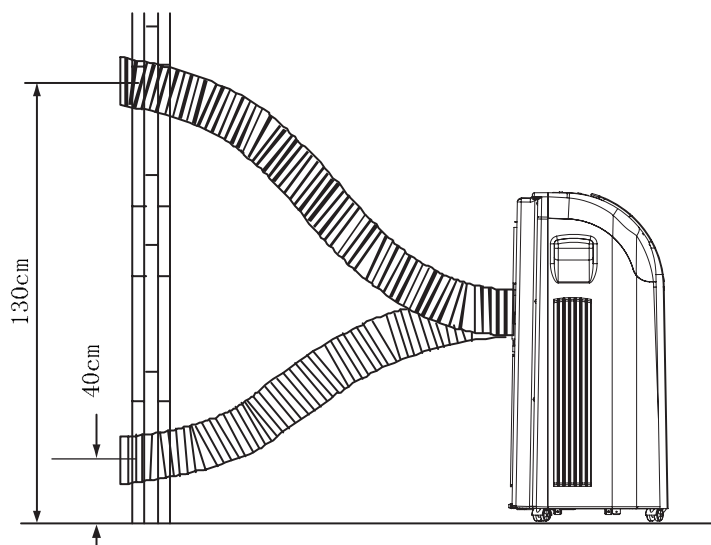
② Exhaust Duct

Attention: The length of the air exhaust must be between 500mm-2000mm,the 500mm is suggested.

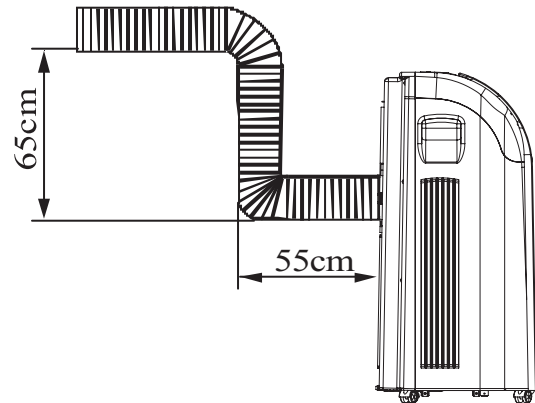
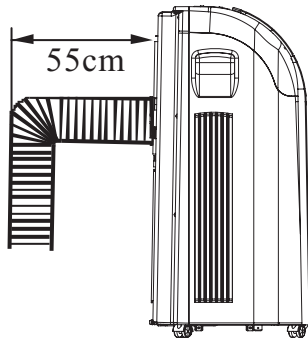
1. In order to correctly installing the air exhaust duct please contact your local dealer for the service.
2. When mounting, try to keep the square end of the exhaust duct horizontal.
3. Don't add or connect other pipes to it, otherwise it will cause mechanical malfunction.

Below are several methodes of the air exhaust duct installation for reference:

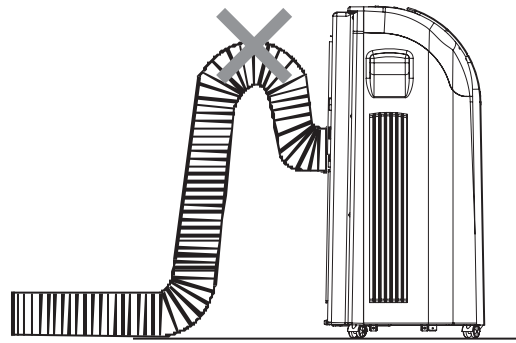
Correct installation is as shown in figure (when installing it on wall, height of hall should be about 40cm-130cm from floor).



If the pipe are to be bent, please install it by considering following dimension.



Wrong installation is shown in following figure (If the pipe is bent too much, it would easily cause malfunction.)



10 TROUBLE-SHOOTING

