

Dehumidifier



MODEL: GDN10AH-K4MAB1A
GDN12AH-K4MAB1A
GDN16AH-K4EAB1A
GDN20AH-K4EAB1A
GDN24AH-K4EAB1A

SERVICE MANUAL

1 Technical specifications

Model	GDN10AH-K4MAB1A	GDN12AH-K4MAB1A	
Rated Voltage	220~240V~	220~240V~	
Rated Frequency	50Hz	50Hz	
Dehumidifying Capacity (L/D) / (PIGS/D)	10	12	
Rated input (W)	330	350	
Rated current (A)	1.4	1.5	
Air Flow Volume (m ³ /h) (H/ML)**	170	170	
Fan Motor Speed (rpm) (H/ML)	1150	1150	
Output of Fan Motor (W)	8	8	
Fan type - piece	Centrifugal fan - 1	Centrifugal fan - 1	
Diameter - length (mm - mm)	φ180 X76.5	φ180 X76.5	
Evaporator	Type	Aluminum fin-copper tube	
	Row-fin distance (mm)	1/1.3	1/1.3
Condenser	Type	Aluminum fin-copper tube	
	Row-fin distance (mm)	1/1.4	1/1.4
Compressor	Type	Rotary	Rotary
	Model	BSA418CV-R1AU	BSA418CV-R1AU
	Power Input(W)	210/235	210/235
	Overload Protector	BF156-JC/B47-150-241J	BF156-JC/B47-150-241J
	Starting method	Permanent split capacitor	
	L.R.A. (A)	3.4	3.4
	Working current (A)	1	1
Working Temp Range (°C)	≤115°C	≤115°C	
Throttling method	Capillary	Capillary	
Fuse (A)	/	/	
Sound Pressure Level dB (A) (H/ML)	50	50	
Sound Power Level dB (A) (H/ML)	/	/	
Climate Type	T1	T1	
Isolation	I	I	
Moisture Protection	IP24	IP24	
Permissible Excessive Operating Pressure for the Discharge Side(MPa)	1.7	1.7	
Permissible Excessive Operating Pressure for the Suction Side(MPa)	0.6	0.6	
Dimension (W/H/D) (mm)	343/528/260	343/528/260	
Dimension of Package(W/H/D) (mm)	393/540/312	393/540/312	
Net Weight /Gross Weight (kg)	10.5/12	11/12.5	
Refrigerant Charge (kg)	R134a/0.08	R134a/0.09	

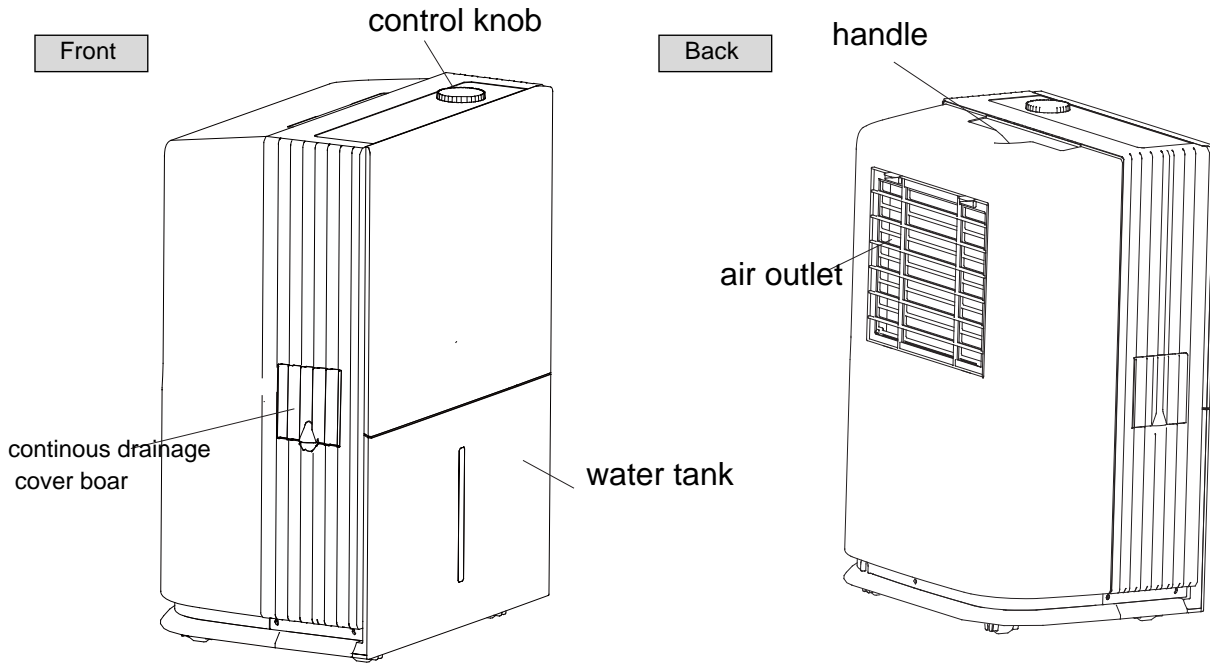
The above data is subject to change without notice. Please refer to the nameplate of the unit.

Model	GDN16AH-K4EAB1A	GDN20AH-K4EAB1A	GDN24AH-K4EAB1A
Rated Voltage	220~240V~	220~240V~	220~240V~
Rated Frequency	50Hz	50Hz	50Hz
Dehumidifying Capacity (L/D) /(PINGS/D)	16	20	24
Rated input (W)	400	480	600
Rated current (A)	1.7	2.1	2.6
Air Flow Volume (m ³ /h) (H/M/L)**	180/150	170/140	170/140
Fan Motor Speed (rpm) (H/M/L)	1250/1150	1250/1150	1250/1150
Output of Fan Motor (W)	13	13	13
Fan type - piece	Centrifugal fan - 1	Centrifugal fan - 1	Centrifugal fan - 1
Diameter - length (mm - mm)	φ180 X76.5	φ180 X76.5	φ180 X76.5
Evaporator	Type	Aluminum fin-copper tube	
	Row-fin distance (mm)	1/1.3	2/1.3
Condenser	Type	Aluminum fin-copper tube	
	Row-fin distance (mm)	1/1.4	2/1.4
Compressor	Type	Rotary	Rotary
	Model	BSA586CV-R1EU	BSA645CV-R1EU
	Power Input(W)	210/235	295/315
	Overload Protector	BF220-JB/ B48-150-241E	BF225-KB/ B70-160-241E
	Starting method	Permanent split capacitor	
	L.R.A. (A)	4	5.2
	Working current (A)	1.2	1.4
Working Temp Range (°C)	≤115°C	≤115°C	≤115°C
Throttling method	Capillary	Capillary	Capillary
Fuse (A)	PCB 3.15A Transformer 0.2A	PCB 3.15A Transformer 0.2A	PCB 3.15A Transformer 0.2A
Sound Pressure Level dB (A) (H/M/L)	54	49	54
Sound Power Level dB (A) (H/M/L)	/	/	/
Climate Type	T1	T1	T1
Isolation	I	I	I
Moisture Protection	IP24	IP24	IP24
Permissible Excessive Operating Pressure for the Discharge Side(MPa)	1.7	1.7	1.7
Permissible Excessive Operating Pressure for the Suction Side(MPa)	0.6	0.6	0.6
Dimension (W/H/D) (mm)	343/523/260	343/523/260	343/523/260
Dimension of Package(W/H/D) (mm)	393/540/312	393/540/312	393/540/312
Net Weight /Gross Weight (kg)	12/13.5	13/14.5	14/15.5
Refrigerant Charge (kg)	R134a/0.9	R134a/0.12	R134a/0.24

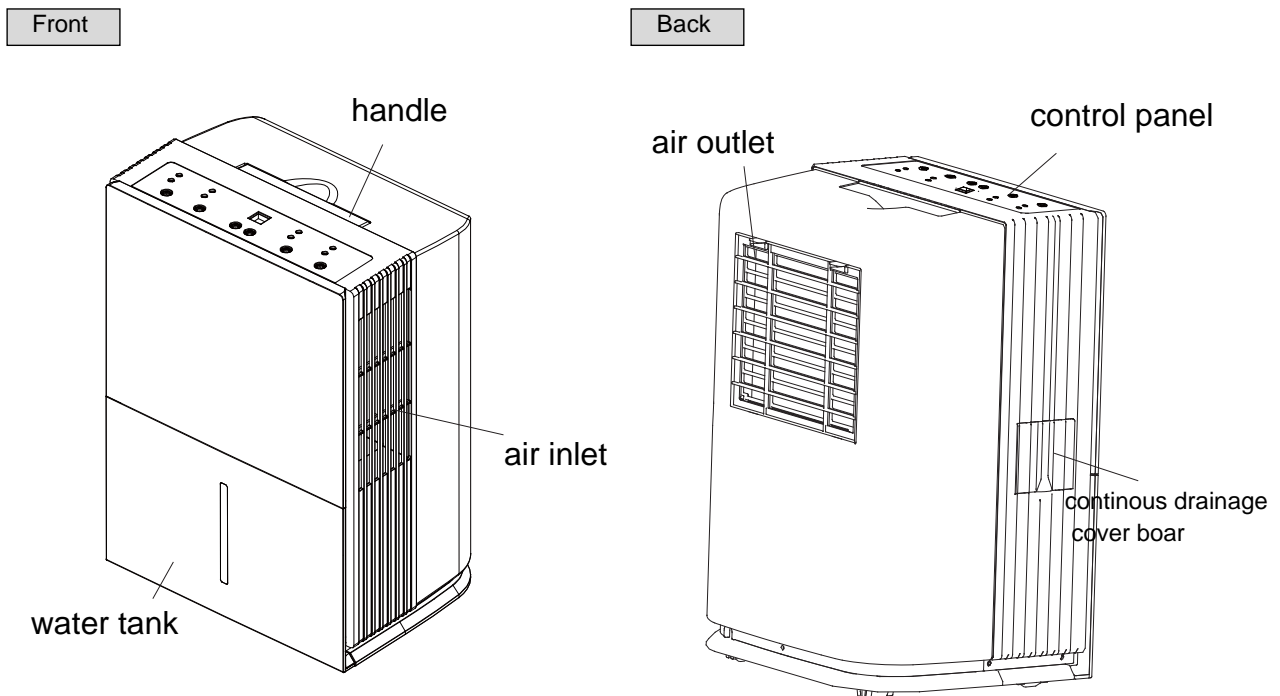
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2 Part name

Model: GDN10AH-K4MAB1A GDN12AH-K4MAB1A

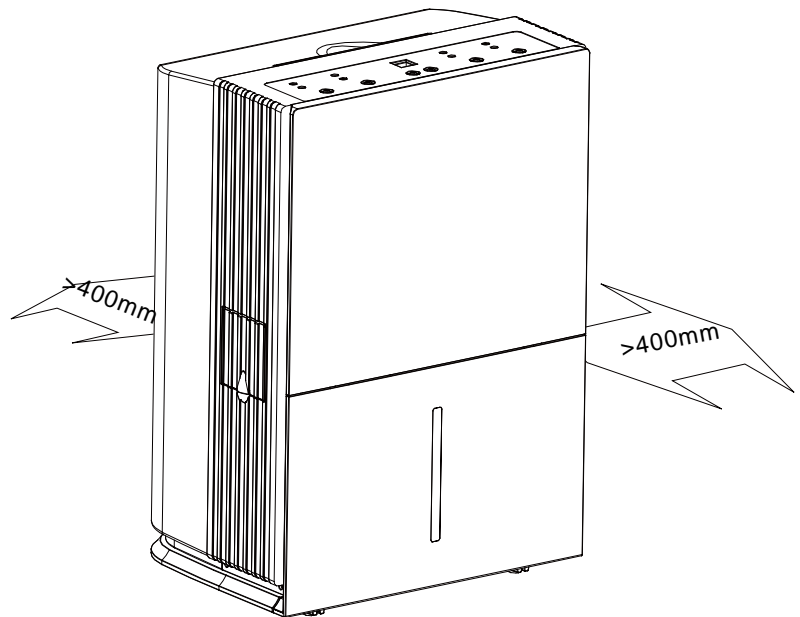
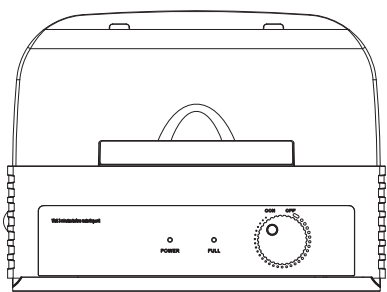
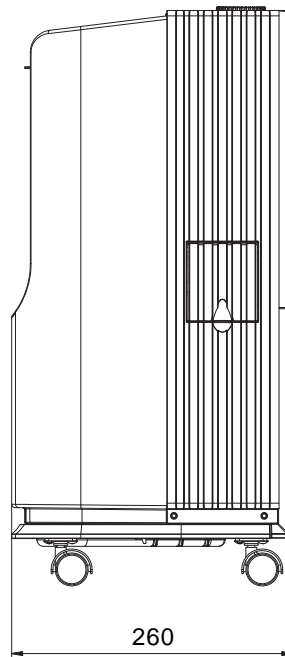
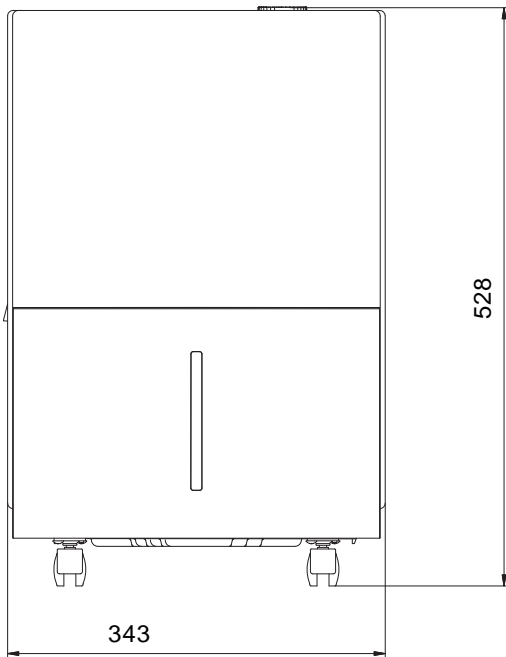


Model: GDN16AH-K4EAB1A GDN20AH-K4EAB1A GDN24AH-K4EAB1A



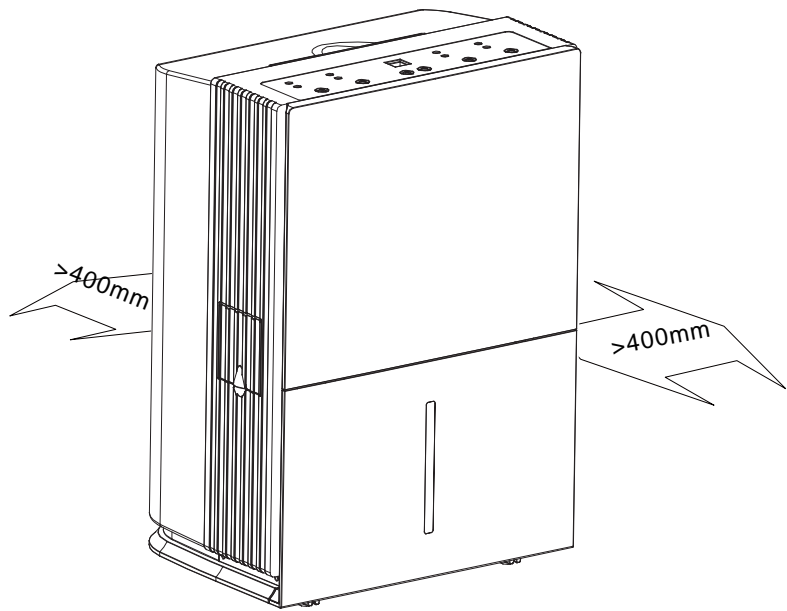
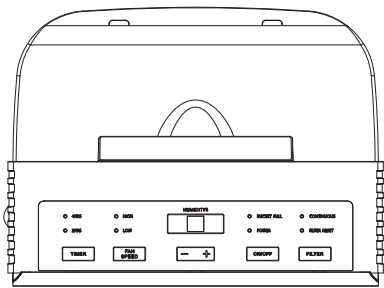
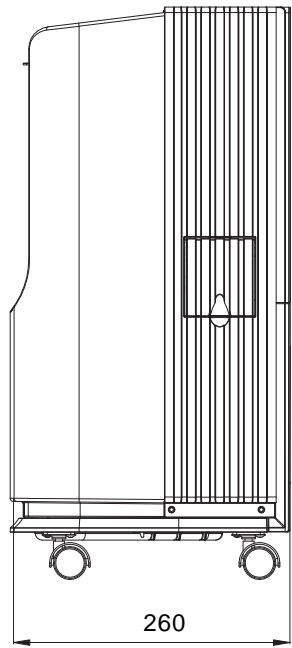
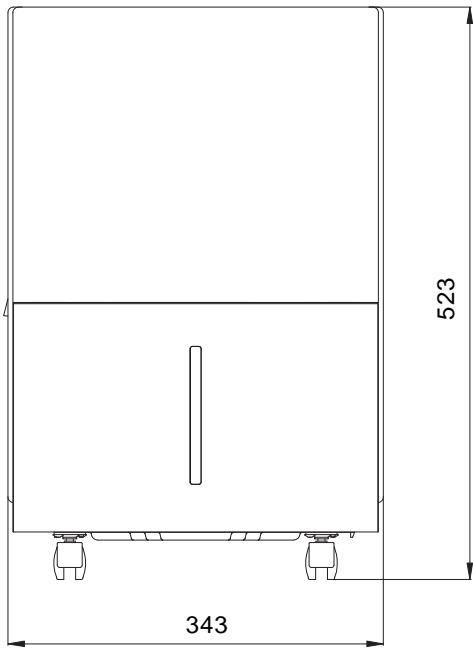
3 Outline and Dimension

Model: GDN10AH-K4MAB1A GDN12AH-K4MAB1A



Unit: mm

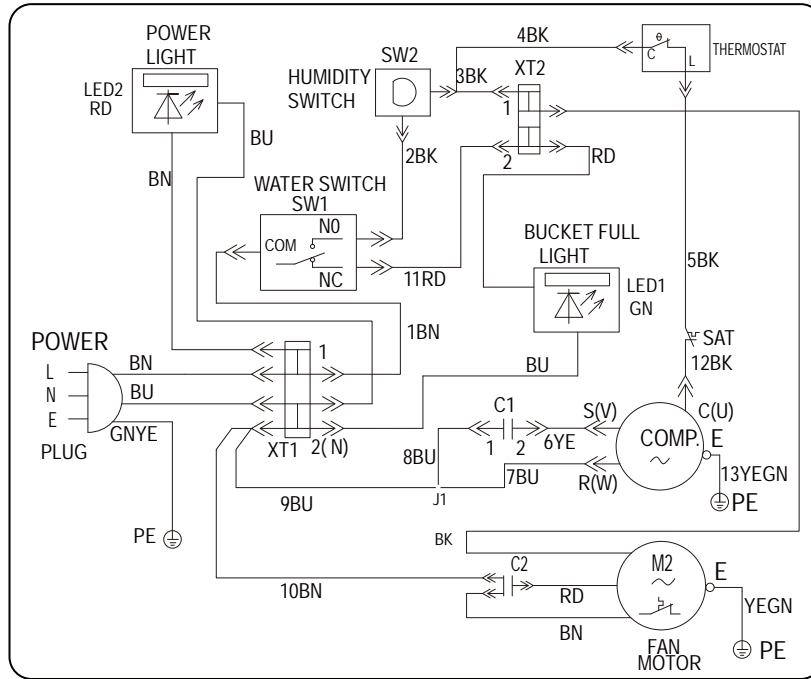
Model: GDN16AH-K4EAB1A GDN20AH-K4EAB1A GDN24AH-K4EAB1A



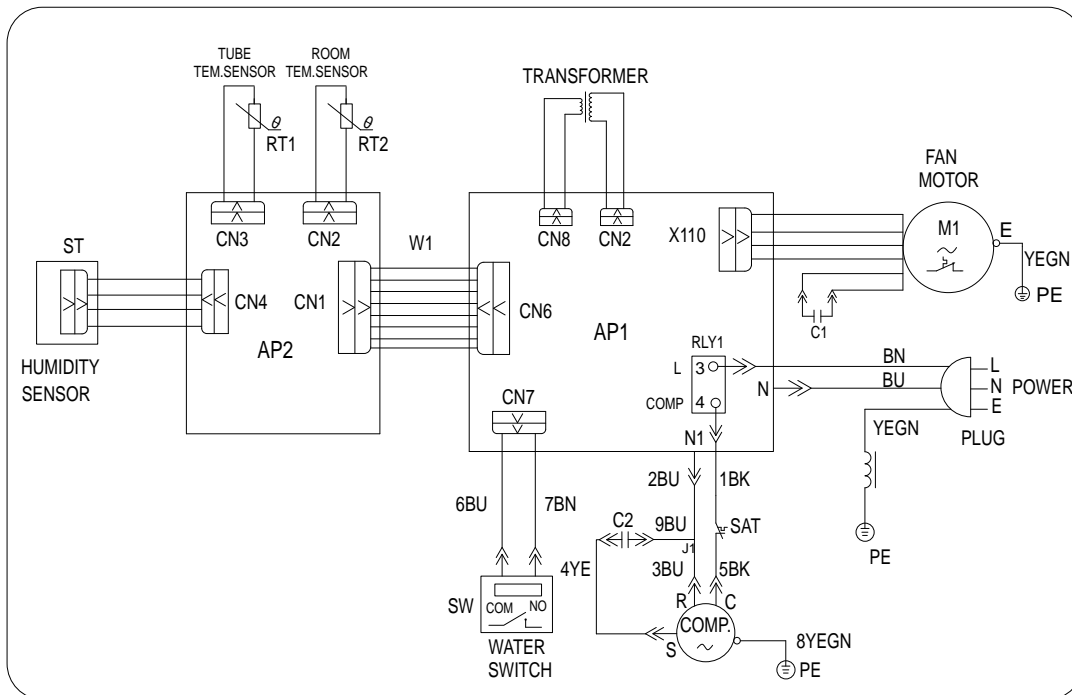
Unit: mm

4 Electrical circuit diagram

GDN10AH-K4MAB1A GDN12AH-K4MAB1A



GDN16AH-K4EAB1A GDN20AH-K4EAB1A GDN24AH-K4EAB1A



These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

5 PCB function manual and operation method

1. System Basic Functions

Dry mode

1. Working conditions and process of dry: in the running status,
 - a. When setting humidity \leq ambient humidity-5%, the compressor and the fan is running,
 - b. When setting humidity \geq ambient humidity+5%, the compressor is stopped, and the fan will also be stopped after running for 3min;
 - c. When ambient humidity-5% < setting humidity < ambient humidity+5%, if the compressor is in the running status, it will run according to a; if the compressor is in the power off status, it will run according to b.
2. Humidity Range
 - a. 5% is treated as one notch, CO, 35%--80% can be adjusted continuously.(CO indicates the continuously dehumidifying)
 - b. Pressing +/- button to adjust the setting humidity.

2. Protection Function

(1) the Temp range for Running

- a. Detection when energized; when $4^{\circ}\text{C} \leq T_{\text{amb}} \leq 35^{\circ}\text{C}$, the unit is running normally; when $T_{\text{amb}} < 4^{\circ}\text{C}$ or $T_{\text{amb}} > 35^{\circ}\text{C}$, the compressor doesn't run while the fan is running at the detected temp and humidity conditions.
- b. In the running process: when $T_{\text{amb}} < 4^{\circ}\text{C}$ or $T_{\text{amb}} > 35^{\circ}\text{C}$, the compressor is stopped while the fan is running at the detected temp and humidity conditions; Only when $4^{\circ}\text{C} \leq T_{\text{amb}} \leq 35^{\circ}\text{C}$, the compressor can be started up.

(2) Compressor Protection

- a. After energized, when the compressor stopped at any circumstances, it needs min 3min interval to restart.
- b. In the running status, the compressor can be stopped only after running for min 3min, except occurred the malfunction of the temp sensor, turn off the unit by ON/OFF switch and bucket full protection.

(3) Temp Sensor Malfunction Detection

- a. the nixietube displays F1 when the ambient temp sensor malfunction is detected.
- b. the nixietube displays F2 when the tube temp sensor malfunction is detected.
- c. If both of the temp sensor have malfunction, the nixietube will F1 and F2 alternately to warn user to maintain it.

(4) Bucket Full Protection

- a. It will result in the bucket full protection if the water tank is full of water. In the bucket full protection, the compressor will be stopped and the fan will also stop running after 3min delayed. After the bucket full protected for 3min, the buzzer will give out a beep for 10s and then it will be stopped. The bucket full LED blinks continuously and all buttons are unavailable. When the water level and the water tank assemble resume to the normal condition, the bucket full protection signal will be disappeared and its LED goes out. The buzzer stops to give out a beep and it resumes to the normal running status.
- b. In the power off state, if there's bucket full protection, the buzzer will give out for a beep for 10s and then it will be stopped. The bucket full LED blinks, the compressor and the fan stop and all buttons are unavailable.

3. Other Functions

(1) Power Failure Memory

The system will memorize the setting running status before power failure and it will run at that status when the power is recovered.

(2) Nixietube Display (green)

- a. In the running status, the nixietube displays the current humidity. Pressing "+" or "-" is to adjust the setting temp, and then it will resume displaying the current temp humidity after setting the temperature for 5s. (The nixietube will display CO when setting the continuously humidifying)
- b. When temp sensor has malfunctions, the nixietube displays F2 or F2, and timer LED, CO LED, fan LED and filter LED won't display.

(3) Panel Button

- ON/OFF button: it used to turn on or turn off the unit
- Timer button: it's used to timer setting
- + button: it used to adjust the humidity
- button: it used to adjust the humidity

Fan button: it's used to adjust the fan speed

Filter button: is used to adjust the filter function

(4) LED

Continuous dehumidifying LED: when setting the continuously dehumidifying, CON LED is bright and the nixietube displays CO.

Power LED: it's bright after the unit is powered on

2hr.on/off: this LED is bright after setting the 2hr timer;

4hr.on/off: this LED is bright after setting the 4hr timer;

High fan LED: this LED is bright after setting the high fan;

Low fan LED: this LED is bright after setting the low fan;

Filter clean LED: this LED is bright after the fan has run for 250hr accumulatively;

Bucket full protection LED: this LED is bright in the bucket full protection

(5) Timer Control

It can set 2hr or 4hr timer on/off. It's the timer OFF in power on state and the timer ON in power off state.

(6) Buzzer's beeping Requirement

When energization or operation, the buzzer will give out a beep.

(7) Filter Alarming Function

a. When the fan has ran for 250hr accumulatively, the filter light will bright to remind the user to clean the filter: user presses the filter button to eliminate the time calculating value, and then the filter light will go out.

b. The filter LED will go out in the power off state of the unit.

6 Dissassembly Procedures

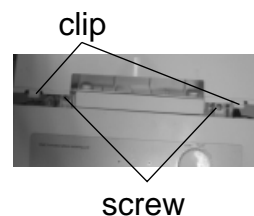
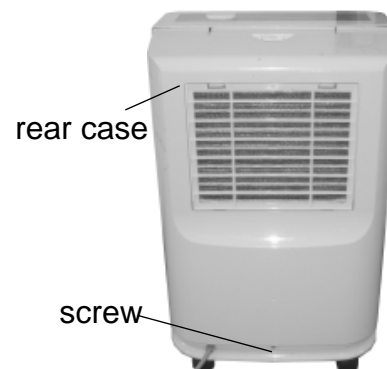
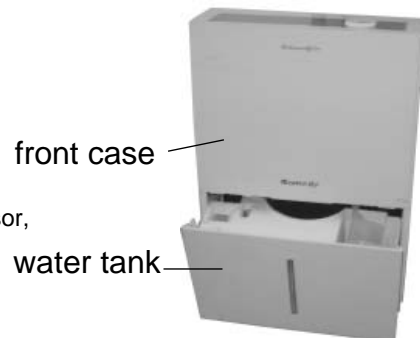
6.1 GDN10AH-K4MAB1A

Operation Procedures/Photoes

1. Disassemble the front and rear case

Twist off the screws on the left and right sides and at the back, push the front case upwards slightly, loosen the clip between the back case and the front, and then remove the back case.

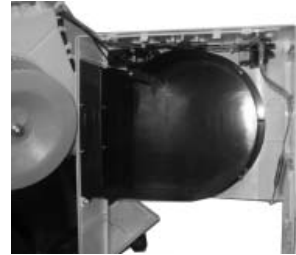
Twist off the screws for fixing the front case, unplug all the tem sensor, and then remove the front case.



Operation Procedures/Photoes

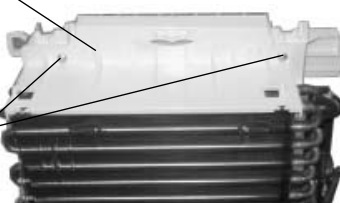
2. Disassemble the cover board

Twist off teh 2screws for fixing the cover board and then remove the cover board



cover board

screw

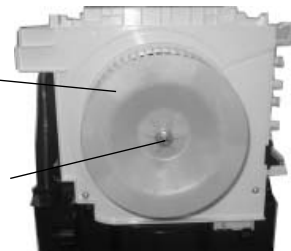


3. Disaamble the centrifugal fan blade

Twist off the screws of centrifugal fan blade and then take the fan blade by pulling it out outwards.

centrifugal fan blade

screw



motor support

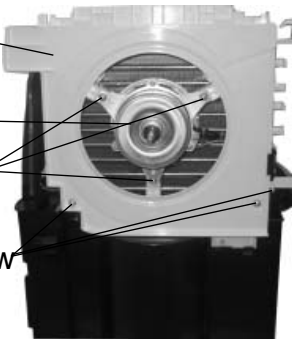
motor

screw

screw

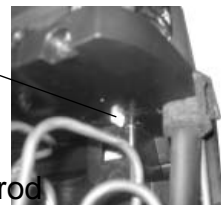
4. Disassemble the motor and motor support

Twist off the screws for fixing the motor support, disassemble the support rod, loosen the clips under the drainage tray, then the motor and motor support can be removed at the same time. Twist off the 3screws for fixing the motor, and then remove the motor.



clip

support rod



Operation Procedures/Photoes

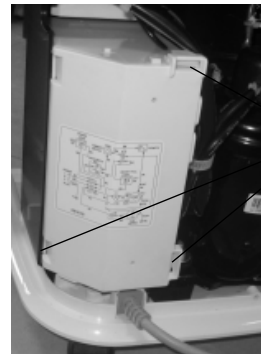
5. Disassemble the evaporator and condensor
Twist off the grounding screws and unsoldering inlet and outlet tubes to the compressor, then remove them.
(note: before unsoldering any tubes, make sure all the refrigerant has been released.)

soldering point

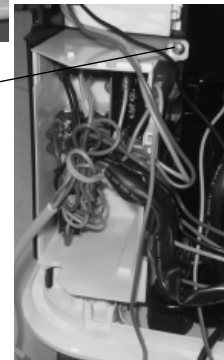


6. Disassemble the electric box
Loosen the clips of electric box and then remove the electric box cover.
Twist off the screws for fixing the electric box and unplug all the terminals, then the electric box can be disassembled completely.

clip



screw



7. Disassemble the compressor
Twist off the screws for fixing the compressor at the bottom, then disassemble the compressor

nut



Operation Procedures/Photoes

1. Disassemble the front and rear case

Draw out the water tank.

Twist off the screw on the right and left sided and at the back, pull the front case upwards slightly, loosen the clips between the rear case and front case, and then remove the rear case.

Twist off the screws for fixing the front case and unplug all the temp sensor, and then remove the front case.

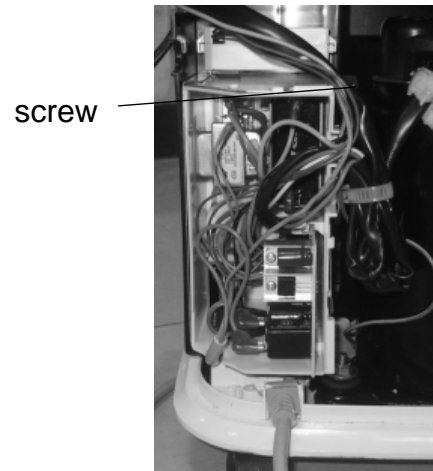
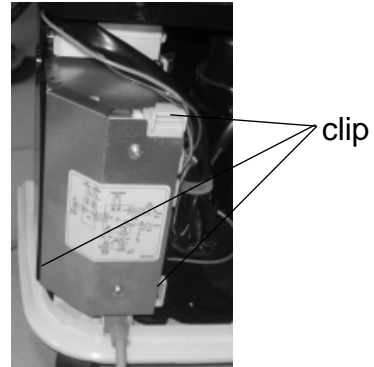


Operation Procedures/Photoes

2. Disassemble the electric box

Loosen the clips of the electric box cover and remove the electric box cover.

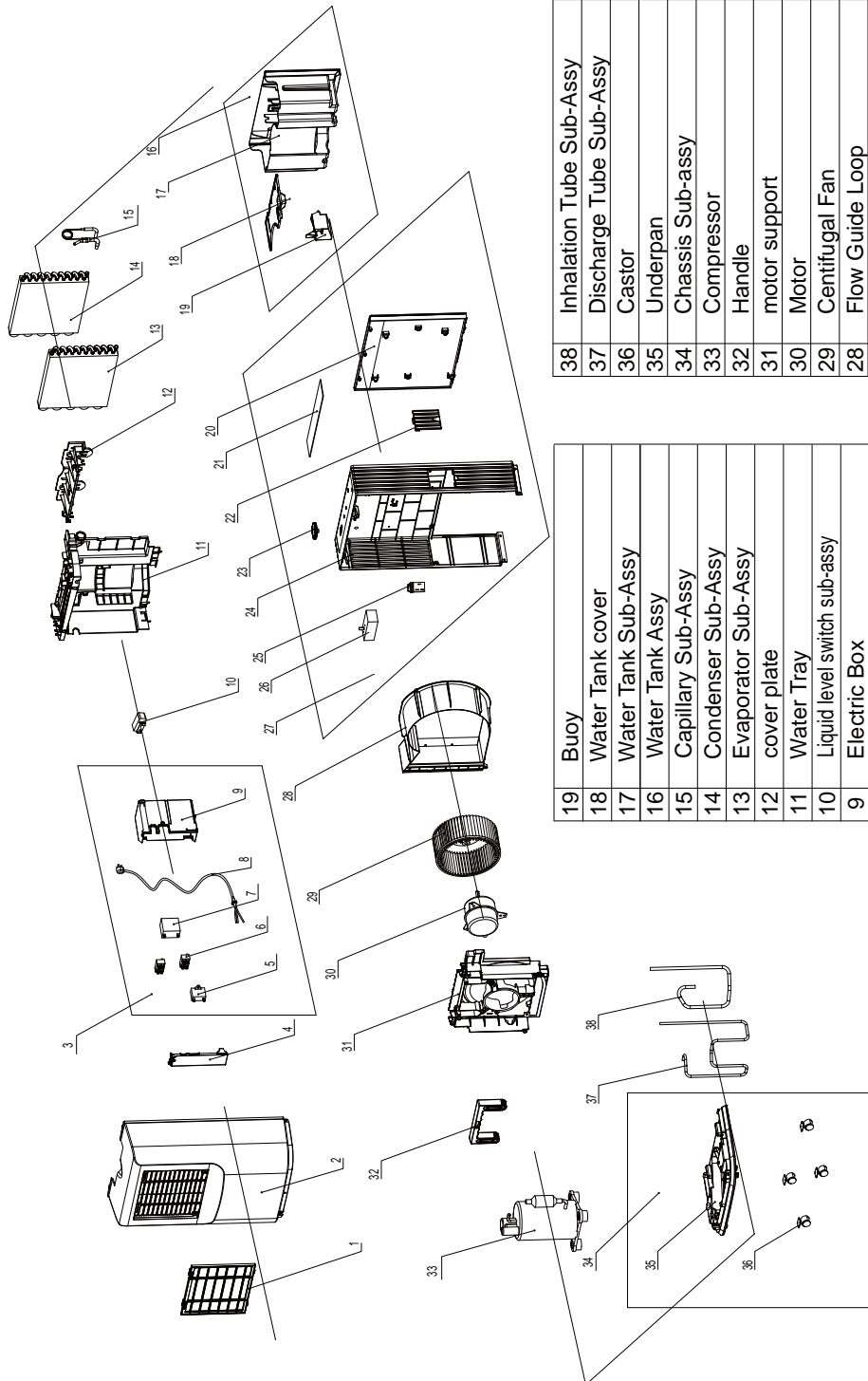
Twist off the screws for fixing the electric box, draw out the PCB board, unplug all the terminals and then the electric box can be disassembled completely.



Other models' disassembling is same as GDN10AH-K4MAB1A.

7 Explosive view and spare parts list

7.1 Exploded View of Components and Parts 1



38	Inhalation Tube Sub-Assy
37	Discharge Tube Sub-Assy
36	Castor
35	Underpan
34	Chassis Sub-assy
33	Compressor
32	Handle
31	motor support
30	Motor
29	Centifugal Fan
28	Flow Guide Loop
27	Shield assy
26	Humidity controller
25	thermostat
24	Panel shell
23	Knob
22	panel shell cover
21	Membrane
20	Front Panel

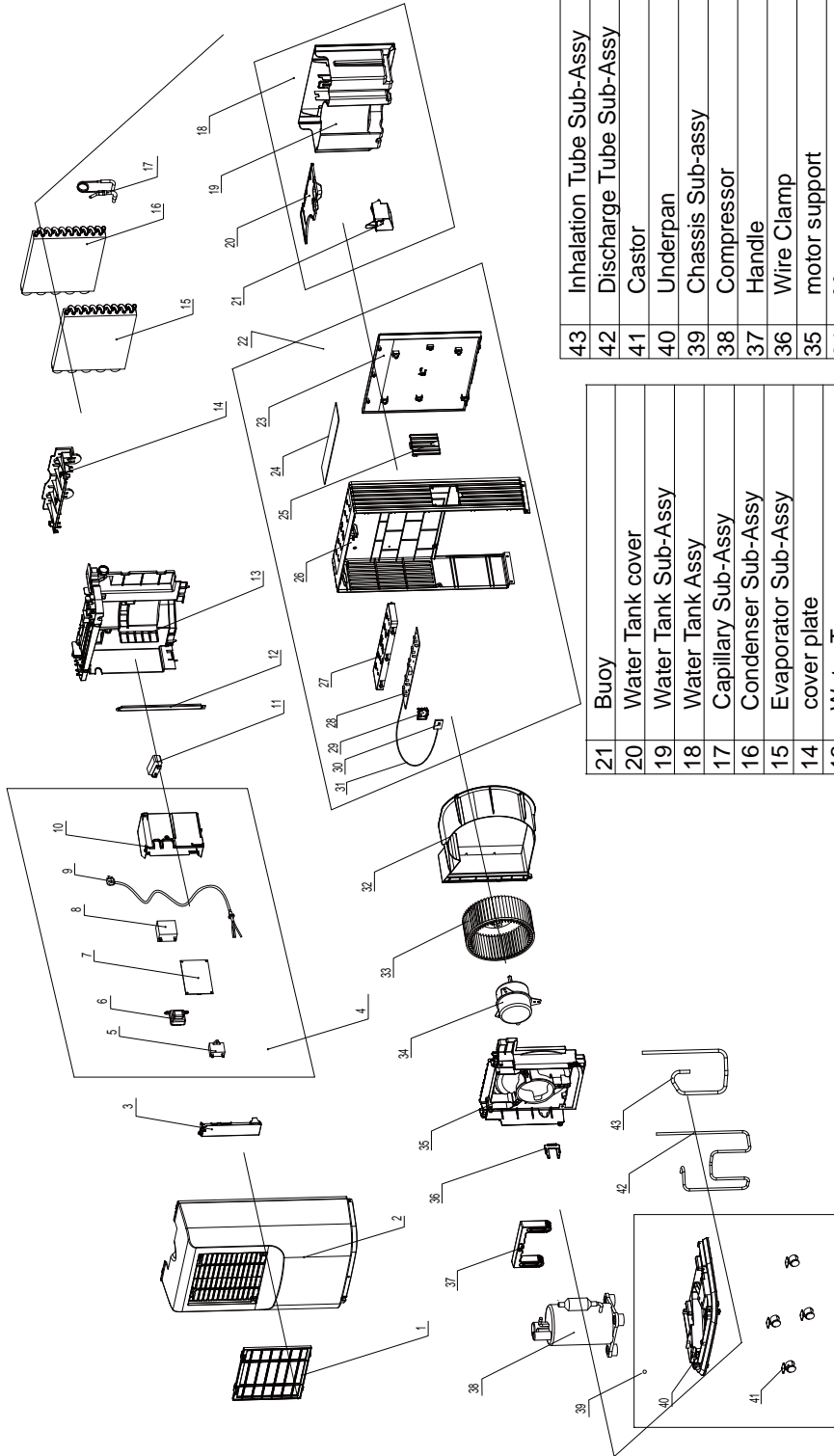
19	Buoy
18	Water Tank cover
17	Water Tank Sub-Assy
16	Water Tank Assy
15	Capillary Sub-Assy
14	Condenser Sub-Assy
13	Evaporator Sub-Assy
12	cover plate
11	Water Tray
10	Liquid level switch sub-assy
9	Electric Box
8	Power Cord
7	Compressor Capacitor
6	transformer
5	Fan Capacitor
4	electrical box cover
3	Electric Box Assy
2	Rear case
1	Filter Sub-Assy

Dehumidifier Series

Description	Part Code		Qty
	GDN10AH-K4MAB1A	GDN12AH-K4MAB1A	
Chassis Sub-assy	22226059	22226059	1
Chassis	22226058	22226058	1
Castor	24236004	24236004	4
Support sub-assy	01716004P	01716004P	1
Compressor and fittings	00206003	00206003	1
Inhalation Tube Sub-Assy	03636120	03636120	1
Discharge Tube Sub-Assy	03636121	03636121	1
Water Tray	20186075	20186075	1
Drainage joint sub-assy	26116081	26116081	1
Liquid level switch sub-assy	26156011	26156011	1
Water Level Switch	45016506	45016506	1
Condenser Sub-Assy	01136037	01136038	1
Evaporator Sub-Assy	01036036	01036037	1
Capillary Sub-Assy	03006101	03006102	1
Motor Support	24216024	24216024	1
Fan Motor	1501603803	1501603803	1
Centrifugal fan	10316055	10316055	1
Handle	26236015	26236015	1
Cover Plate	20126079	20126079	1
Front Case assy	22206041	22206041	1
Front Case (main control)	22206036	22206036	1
Switch (humidity control)	45016508	45016508	1
Thermostat	45040040	45040040	1
Diversion Circle	10376037	10376037	1
Cover of waterspout	22246079	22246079	1
Membrane	63066034	63066034	1
Front Panel	20006063S	20006063S	1
Electric Box Assy	20106066	20106066	1
Electric Box	20116017	20116017	1
Power Cord	4002028601	4002028601	1
Capacitor CBB61	33010032	33010032	1
Capacitor CBB61	33010025	33010025	1
Terminal Board	42011103	42011103	2
Electric Box Cover Sub-Assy	20126092	20126092	1
Electric Box Cover	20126081	20126081	1
Rear Case	22206038	22206038	1
Filter Sub-Assy	11126522	11126522	1
Knob	45036023	45036023	1
Water Tank Assy	20186081	20186081	1
Water Tank Sub-Assy	20186080	20186080	1
Buoy	26116070	26116070	1
Water Tank Cover	22246080	22246080	1

The above data are subject to be changed without notice.

7.2 Exploded View of Components and Parts 2



43	Inhalation Tube Sub-Assy
42	Discharge Tube Sub-Assy
41	Castor
40	Underpan
39	Chassis Sub-assy
38	Compressor
37	Handle
36	Wire Clamp
35	motor support
34	Motor
33	Centrifugal Fan
32	Flow Guide Loop
31	Signal Wire
30	Humidity sensor
29	Support
28	display board
27	LCD Cover
26	Panel shell
25	panel shell cover
24	Membrane
23	Front Panel
22	Shield assy

21	Buoy
20	Water Tank cover
19	Water Tank Sub-Assy
18	Water Tank Assy
17	Capillary Sub-Assy
16	Condenser Sub-Assy
15	Evaporator Sub-Assy
14	cover plate
13	Water Tray
12	support bar
11	Liquid level switch sub-assy
10	Electric Box
9	Power Cord
8	Compressor Capacitor
7	main board
6	transformer
5	Fan Capacitor
4	Electric Box Assy
3	electrical box cover Assy
2	Rear case
1	Filter Sub-Assy

Dehumidifier Series

Description	Part Code			Qty
	GDN16AH-K4EAB1A	GDN20AH-K4EAB1A	GDN24AH-K4EAB1A	
Chassis Sub-assy	22226059	22226059	22226060	1
Chassis	22226058	22226058	22226058	1
Castor	24236004	24236004	24236004	4
Support sub-assy	01716004P	01716004P	01716080P	1
Compressor and fittings	00206004	00206005	00103745	1
Inhalation Tube Sub-Assy	03636510	03636510	03636112	1
Discharge Tube Sub-Assy	03636511	03636511	03636122	1
Water Tray	20186075	20186075	20186075	1
Drainage joint sub-assy	26116081	26116081	26116081	1
Liquid level switch sub-assy	26156011	26156011	26156011	1
Water Level Switch	45016506	45016506	45016506	1
Condenser Sub-Assy	01136038	01136039	01136040	1
Evaporator Sub-Assy	01036037	01036038	01036038	1
Capillary Sub-Assy	03006102	03006103	03006103	1
Motor Support Sub-Assy	24216029	24216029	24216029	1
Motor Support	24216024	24216024	24216024	1
Fan Motor	1501621403	1501621403	1501621403	1
Centrifugal fan	10316055	10316055	10316055	1
Handle	26236015	26236015	26236015	1
Cover Plate	20126079	20126079	20126079	1
Front Case assy	22206042	22206042	22206042	1
Facepiece (Remote controller)	22206037	22206037	22206037	1
LCD Cover	20126080	20126080	20126080	1
Display Board	30561010	30561010	30561010	1
Tube Sensor	390000592	390000592	390000592	1
Room Sensor	39000191	39000191	39000191	1
Support (sensor)	24216025	24216025	24216025	1
Humidity sensor	30116072	30116072	30116072	1
Signal Wire	4003009401	4003009401	4003009401	1
Diversion Circle	10376037	10376037	10376037	1
Cover of waterspout	22246079	22246079	22246079	1
Membrane	63066035	63066035	63066035	1
Front Panel	20006063S	20006063S	20006063S	1
Electric Box Assy	20106069	20106067	20106068	1
Electric Box	20116017	20116017	20116017	1
Power Cord	4002028601	4002028601	4002028601	1
Capacitor CBB61	33010014	33010032	33010734	1
Capacitor CBB61	33010025	33010025	33010025	1
Transformer	43116001	43116001	43116001	1
Main Board	30131001	30131001	30131001	1
Relay	44020331	44020331	44020331	1
Relay	44020345	44020345	44020345	2
Fuse	46010014	46010014	46010014	1
Electric Box Cover Sub-Assy	20126092	20126092	20126092	1
Electric Box Cover	20126081	20126081	20126081	1
Rear Case	22206038	22206038	22206038	1
Filter Sub-Assy	11126522	11126522	11126522	1
Water Tank Assy	20186081	20186081	20186081	1
Water Tank Sub-Assy	20186080	20186080	20186080	1
Buoy	26116070	26116070	26116070	1
Water Tank Cover	22246080	22246080	22246080	1

The above data are subject to be changed without notice.

8

Trouble-Shooting

	Phenomenon	possible causes	Troubleshooting
the complete unit can't be started up	no effect after energization	no power supply	check the power supply electric circuit
		the plug of the power hasn't plugged well and poor connection	check and plug is well, make sure it connected well
		the fuse is broken	replace the fuse
		the controller(power electric circuit, chip, cristal oscillator etc.) is damaged	replace tge controller
	the bucket full LED blinks	the water tank is full	drain water
		the water tank is not properly placed.	place the water tank well
		malfucntion of the water level switch and its circuit	check the water level switch and its circuit
	the nixietube displays F2	malfucntion of the tube temp sensor (poor connection, lossened, explosive of the lead wire and the the temp sensor head's resistance value is abnormal)	reset the temp sensor well
			or replace the temp sensor
		malfucntion of the temp sensor circuit for the controller	replace the controller
filter LED is bright	the filter is dirty	clean the filter	
	the ait inlet and outlet are blocked	remove the barrier and the humidifier	
high noise	the parts are loosened	find out the loosened parts and fix it	
	decentration of fan blade	repalce the blade	
	malfucntion of the compressor	replace the compressor	