



CONDENSING UNIT SERVICE MANUAL

**ARI/R410A/50Hz
(GC201408-I)**

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PRODUCT

PRODUCT 1 MODELS LIST

1.1 Outdoor Unit

Refrigerant	Model		Nominal Capacity		Power Supply	Appearance
	Model Name	Product Code	Cooling(Ton)	Heating(Ton)	V, Ph, Hz	
R410A	HWR36Na/B-K	EM115W1300	3.0	3.0	220V 1PH 50HZ	
	HWR36Na/B-M	EM115W1310	3.0	3.0	380V 3PH 50HZ	
	HWR48Na/B-M	EM115W1290	4.0	4.0		
	HWR60Na/B-M	EM115W1280	5.0	5.0		

Note: 1Ton = 12000Btu/h = 3.517kW

2 NOMENCLATURE

According to the nomenclature, take the model which includes relatively the most complete description for example.

HW	(R)	36	Na/	B	K
1	2	3	4	5	6

NO	Description	Options
1	Unit Series Type	HW: Split Series
2	Unit Type	None: Cooling Only Condensing Unit R: Heat Pump Condensing Unit
3	Nominal Cooling Capacity	018=18000Btu/h 024=24000 Btu/h 030=30000 Btu/h 036=36000 Btu/h 042=42000 Btu/h 048=48000 Btu/h 060=60000 Btu/h
4	The Type of refrigerant	None:R22 Na:R410A
5	Product Serial Number	A, B, C...
6	Power Supply	D:1Ph,208/230V,60Hz K:1Ph,220/240V,60Hz M:3Ph,380/415V,50Hz F:3Ph,208/230V,60Hz

3 FUNCTION

Function	Description
High pressure protection	The compressor and the outdoor fan will stop when the system examines the high pressure protect for 3 seconds.
Low pressure protection	Whatever the system keeps running or waiting. The compressor and the outdoor-fan stop running if the system examines the low pressure switch breaking.
Discharge temperature protection	When thermistor detects that the discharge temperature is higher than the setting value, the fan from compressor will automatically stop so as to protect the unit. When thermistor detects that the discharge temperature is lower than the setting value, the fan compressor will automatically go back to normal operation. If thermistor detects that the discharge temperature is higher than the setting value before compressor startup, system will prevent the unit from operating.
The failure sensor	The system will stop all overloads when the sensor failure.

4 PRODUCT DATA

4.1 Product Data at Rated Condition

Model	HWR36Na/B-K	HWR36Na/B-M	HWR48Na/B-M	HWR60Na/B-M
Product Code	EM115W1300	EM115W1310	EM115W1290	EM115W1280
Cooling/ Heating Capacity				
Cooling/Heating (Btu/h)	34800/36100	34800/36100	46000/49400	54600/61400
Sound Pressure Level dB(A)	60	60	61	63
Compressor				
RLA	16.9	6.5	8.68	9.77
LRA	112	66	73	67
Condenser Fan Motor				
Speed (RPM)	890	890	890	1030
FLA	1.7	1.7	1.7	2.3
Refrigeration System				
Refrigerant Line Size				
Liquid Line Size (Inch)	3/8"	3/8"	3/8"	3/8"
Suction Line Size (Inch)	3/4"	3/4"	7/8"	7/8"
Valve Connection Type	Brazing	Brazing	Brazing	Brazing
Refrigerant Charge (oz)	109.4	109.4	137.6	176.4
Shipped with Orifice Size (inch)	0.065/0.055	0.065/0.055	0.080/0.070	0.081/0.078
Electrical Data				
Power Supply (V-Hz-Ph)	220-50-1	380-50-3	380-50-3	380-50-3
Min. Circuit Ampacity (A)	32	13	16	16
Max. Overcurrent Protection (A)	25	10	16	16
Min/Max Voltage (V)	185/242	342/418	342/418	342/418
Dimension				
Outline Dimension (W×D×H)(inch)	28×28×29	28×28×29	28×28×29	29 1/2×29 1/2×33 1/2
Package Dimension (W×D×H)(inch)	30 3/7×30 3/7×29 5/7	30 3/7×30 3/7×29 5/7	30 3/7×30 3/7×29 5/7	30 3/7×30 3/7×39 4/7
Weight				
Net Weight (lb)	207.2	202.9	216.1	247
Gross Weight (lb)	217	212.8	224.9	277

NOTE: Tested and rated in accordance with ARI210/240-2008.

4.2 Operation Range

Mode	Range of Outdoor Temperature(°F)
Cooling	67-115
Heating	17-75

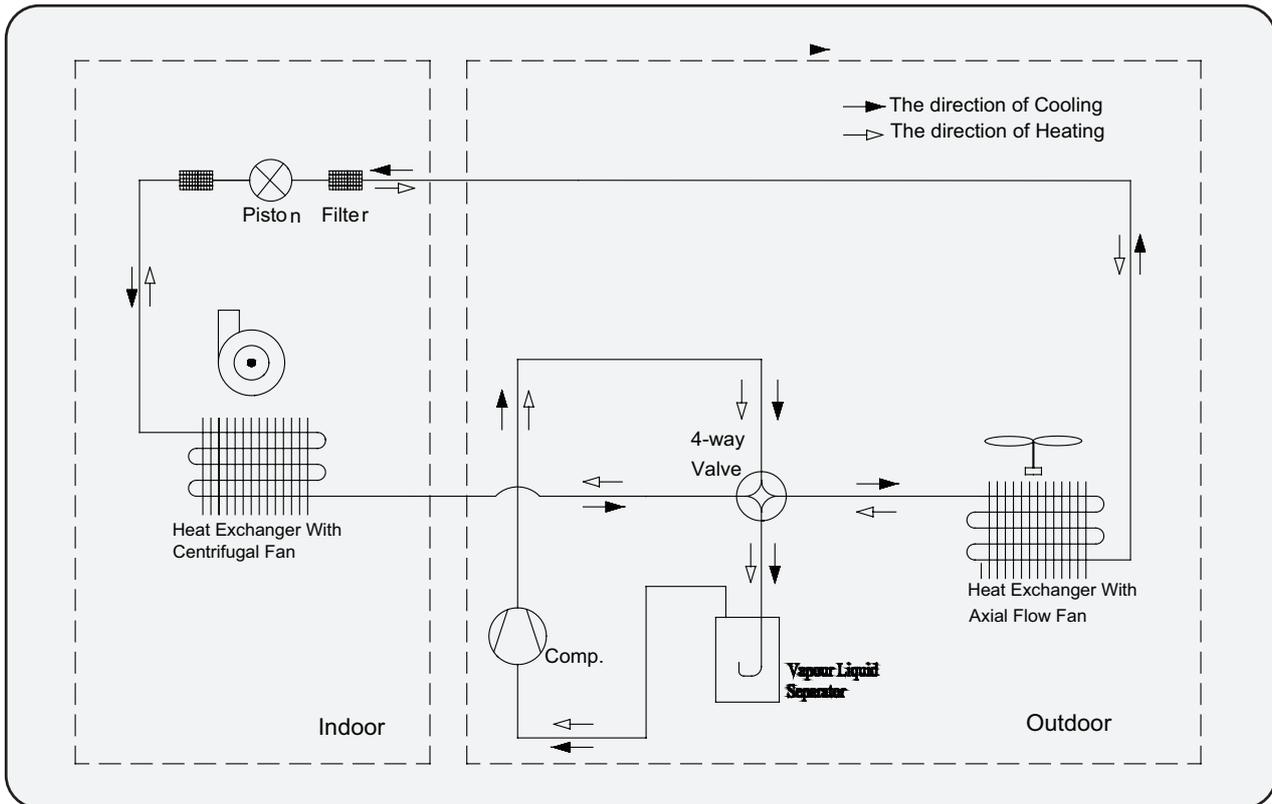
4.3 Electrical Data

Model	Compressor				Fan Motor	Max. Overcurrent Protection	Min. Circuit Ampacity
	Power Supply	Qty.	RLA	LRA	FLA	Amperes	Amperes
	V, Ph, Hz	—	A	A	A		
HWR36Na/B-K	220V,1PH,50Hz	1	16.9	112	1.7	32	25
HWR36Na/B-M	380V,1PH,50Hz	1	6.5	66	1.7	16	13
HWR48Na/B-M	380V,1PH,50Hz	1	7.68	73	1.7	16	13
HWR60Na/B-M	380V,1PH,50Hz	1	9.77	67	2.3	20	16

Notes: RLA: Rated load ampere; LRA: Locked rotor ampere; FLA: Full load ampere.

5 PIPING DIAGRAM

Heating pump

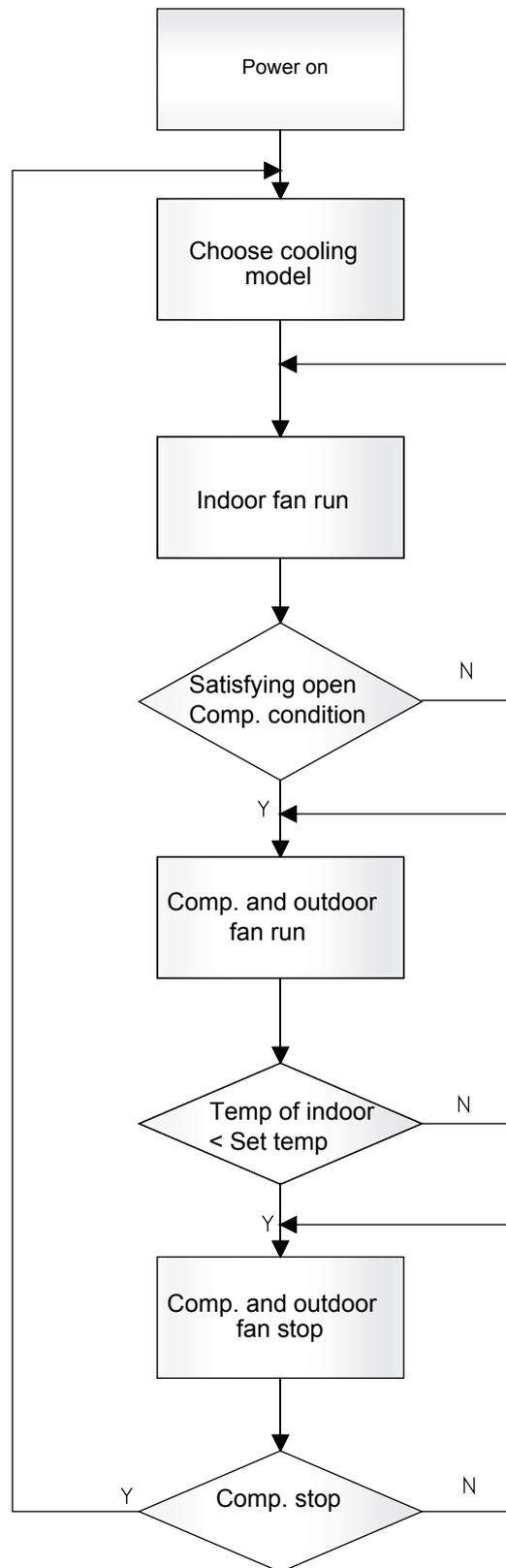


CONTROL

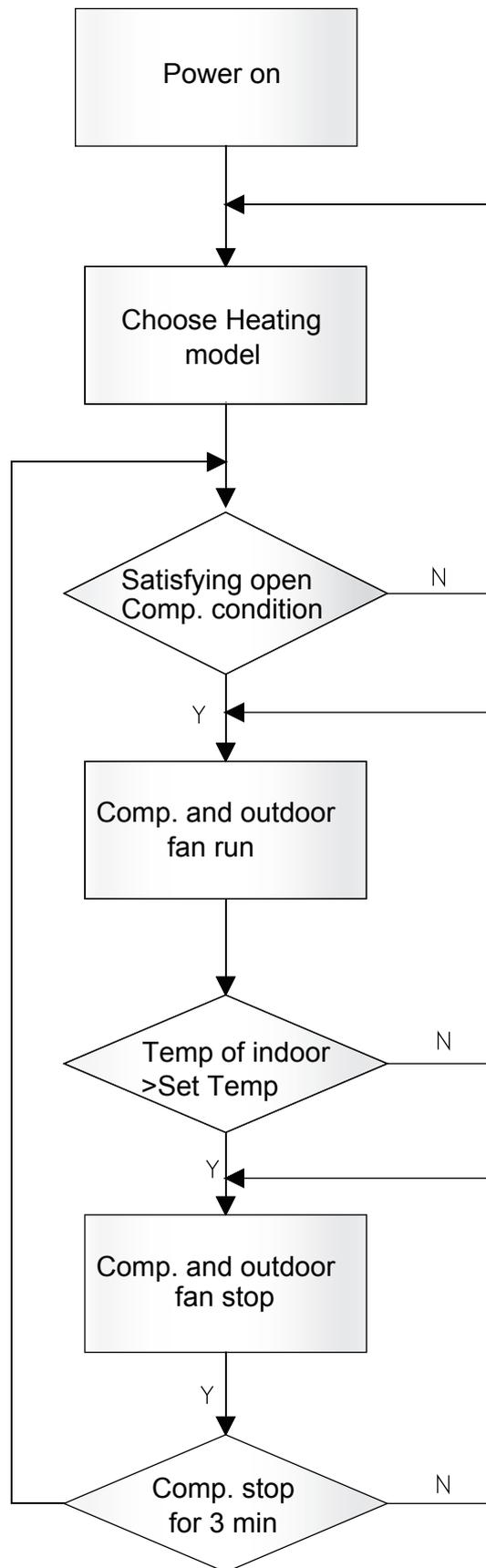
UNITS CONTROL

1 OPERATION FLOWCHART

1.1 Cooling Operation



1.2 Heating Operation



2 MAIN LOGIC

2.1 Cooling Mode (for Cooling Only and Heat Pump)

The temperature of condensing unit is set at the wired controller equipped by users

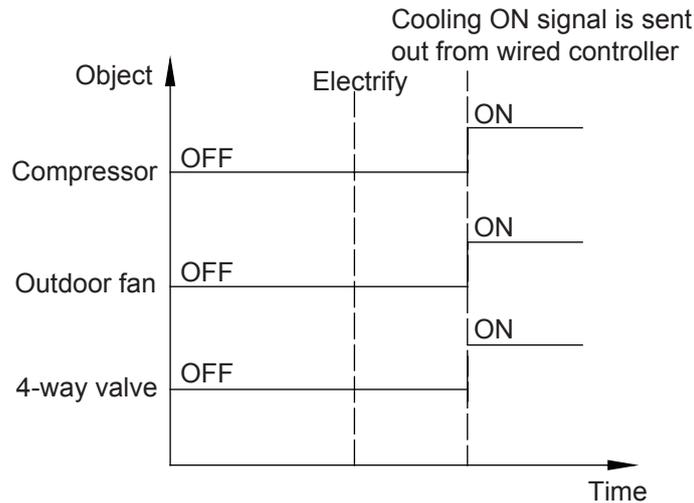
When the control-board of the outdoor unit detects the ON signal from wired controller, it will enter cooling ON sub mode, and compressor, outdoor fan will start running synchronously.

When control-board detects the Stop signal from wired controller, it enters cooling Stop sub mode and the compressor and outdoor fan stop synchronously.

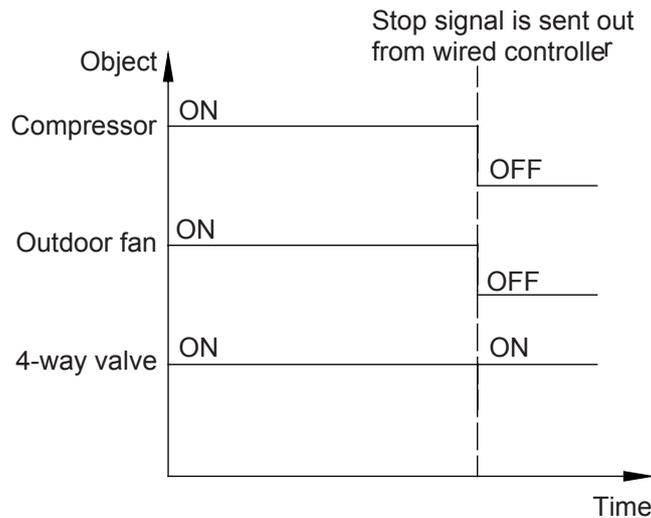
When control-board detects the OFF signal from wired controller, it enters the cooling OFF sub mode and compressor and outdoor fan stop synchronously.

Heat pump

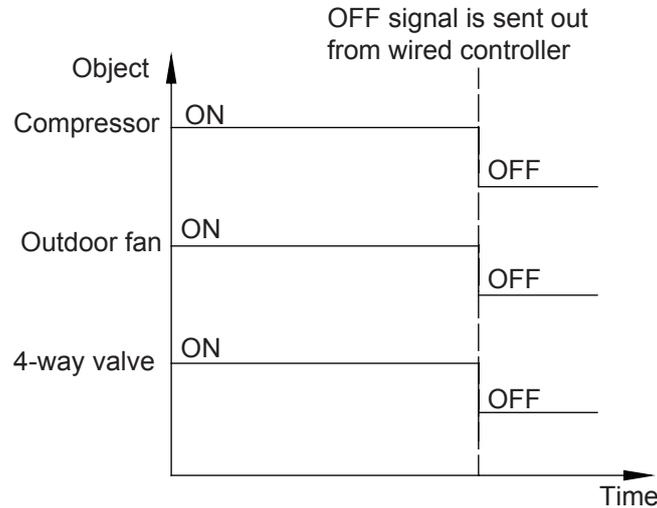
Cooling ON Sub Mode Flowchart:



Cooling Stop Sub Mode Flowchart:



Cooling OFF Sub Mode Flowchart:



2.2 Heating Mode (Only for Heat Pump)

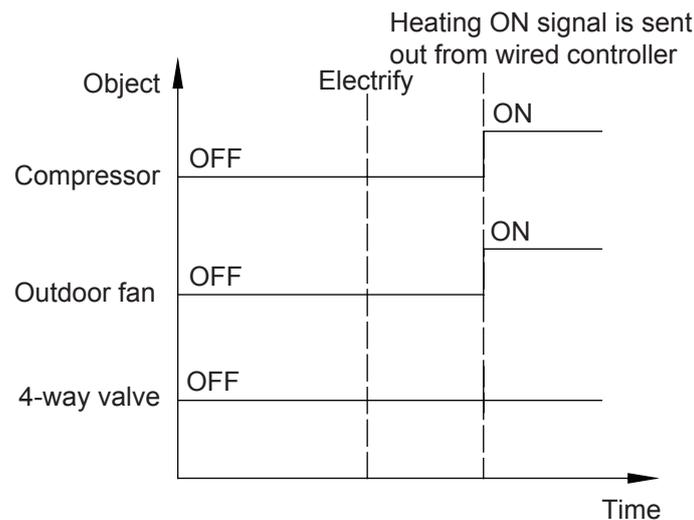
The temperature of condensing unit is set at the wired controller equipped by users

When the defrosting board detects the heating ON signal from wired controller, it will enter heating ON sub mode. Compressor start, outdoor fan start and 4-way valve stops synchronously.

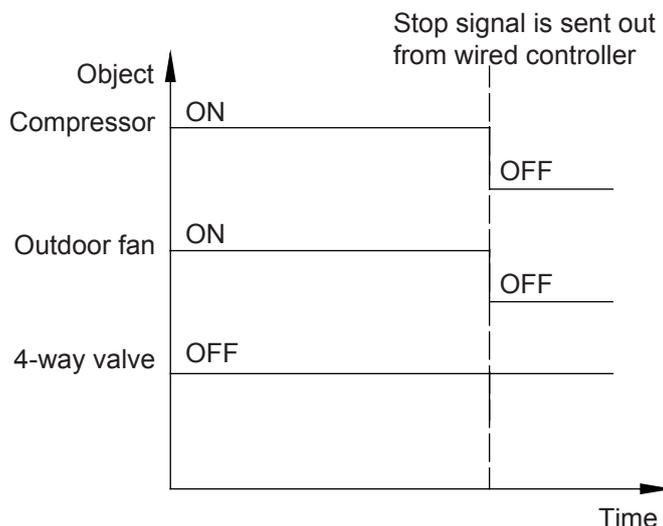
When defrosting board detects the heating Stop signal from wired controller, it enters heating Stop sub mode and the compressor and outdoor fan stop synchronously.

When defrosting board detects the heating OFF signal from wired controller, it enters the heating OFF sub mode and compressor, outdoor fan stop synchronously.

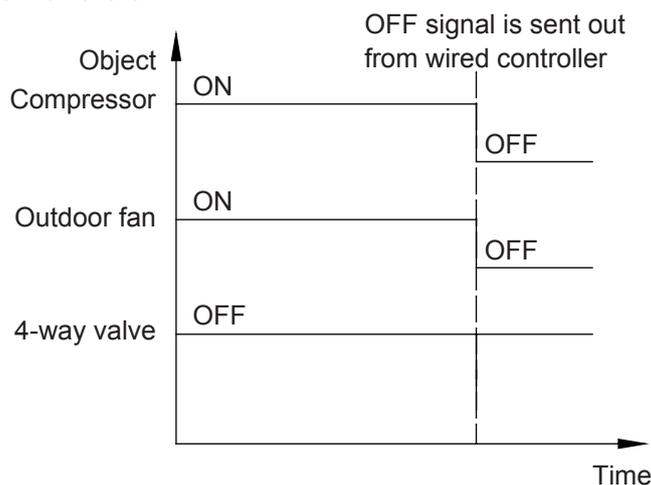
Heating ON Sub Mode Flowchart:



Heating Stop Sub Mode Flowchart:

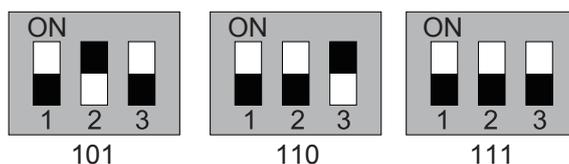


Heating OFF Sub Mode Flowchart:



2.3 Defrosting (Only for Heat Pump)

There are 3 different defrost control setting you can choose by change the dip switch located on Defrost Control PCB.



Note: The black part presents the switch rod.

Dip switch	101		110		111	
T	≥-3	<-3	≥-3	<-3	≥-3	<-3
T(min)	44	60	44	90	44	120
T1	28°F	14°F	28°F	14°F	28°F	5°F
T2	68°F	59°F	68°F	59°F	59°F	59°F

Note:

- T-----The temperature of outside
- t-----Accumulation of compressor running time
- T1-----Initiation Coil Temperature
- T2-----Termination Coil Temperature

The factory default setting is “101”. After the compressor consecutively runs for 44 minutes, the defrost cycle will be initiated if the sensor detects the coil temperature ≤ 28F for consecutive 1 minute.

The defrost cycle will be terminated either the coil temperature reach 68F or the defrost cycle reach 10 minutes.

Defrost Cycle: when the system running in heat pump mode, after the compressor has been running for “t” minutes continuously, the defrost cycle start if the defrosting temp sensor has been in T1 degree or under.

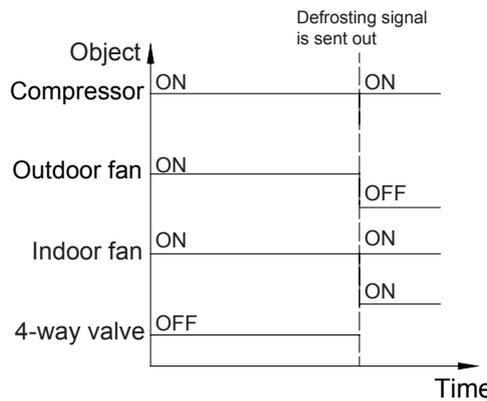
T1 degree for 1 minute continuously. During the defrost cycle, the reversing valve is energized, the outdoor fan stops running and the auxiliary electric heating is energized. The defrost cycle will be terminated if defrost cycle reach 10 minutes or the coil sensor detects the coil temperature over T2 degree.

Manually Defrost Cycle

There is a Manually Defrost Button located on the Defrost Control PCB, by press this button , the system will go to defrost cycle right away to melt the ice on the coil.

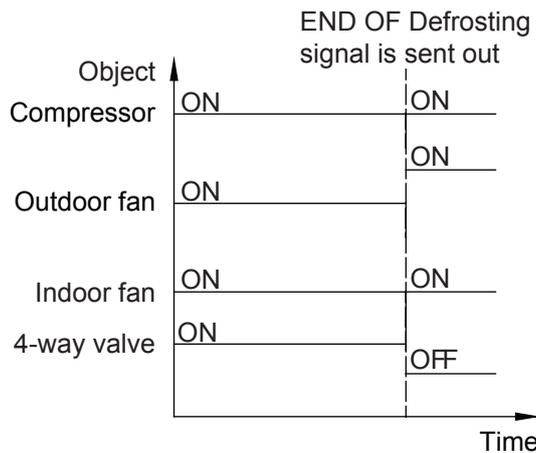
In heating mode, when compressor has been accumulatively running for t minutes, once defrosting board detects that the temp of temp. sensor for outdoor defrosting is less than or equal to T1, or press the forced defrosting button, the system will enter defrosting. At that time, energizations of 4-way valve as well as the stop of outdoor fan will be performed synchronously.

Defrosting Sub Mode Flowchart:



When defrosting has been performed for 15min or T condensing $\geq T2$, is detected for continuous 1 second, the defrosting end sub mode will be entered. In the mode, deenergization of 4-way valve, operation of outdoor fan .

Defrosting End Sub Mode Flowchart:



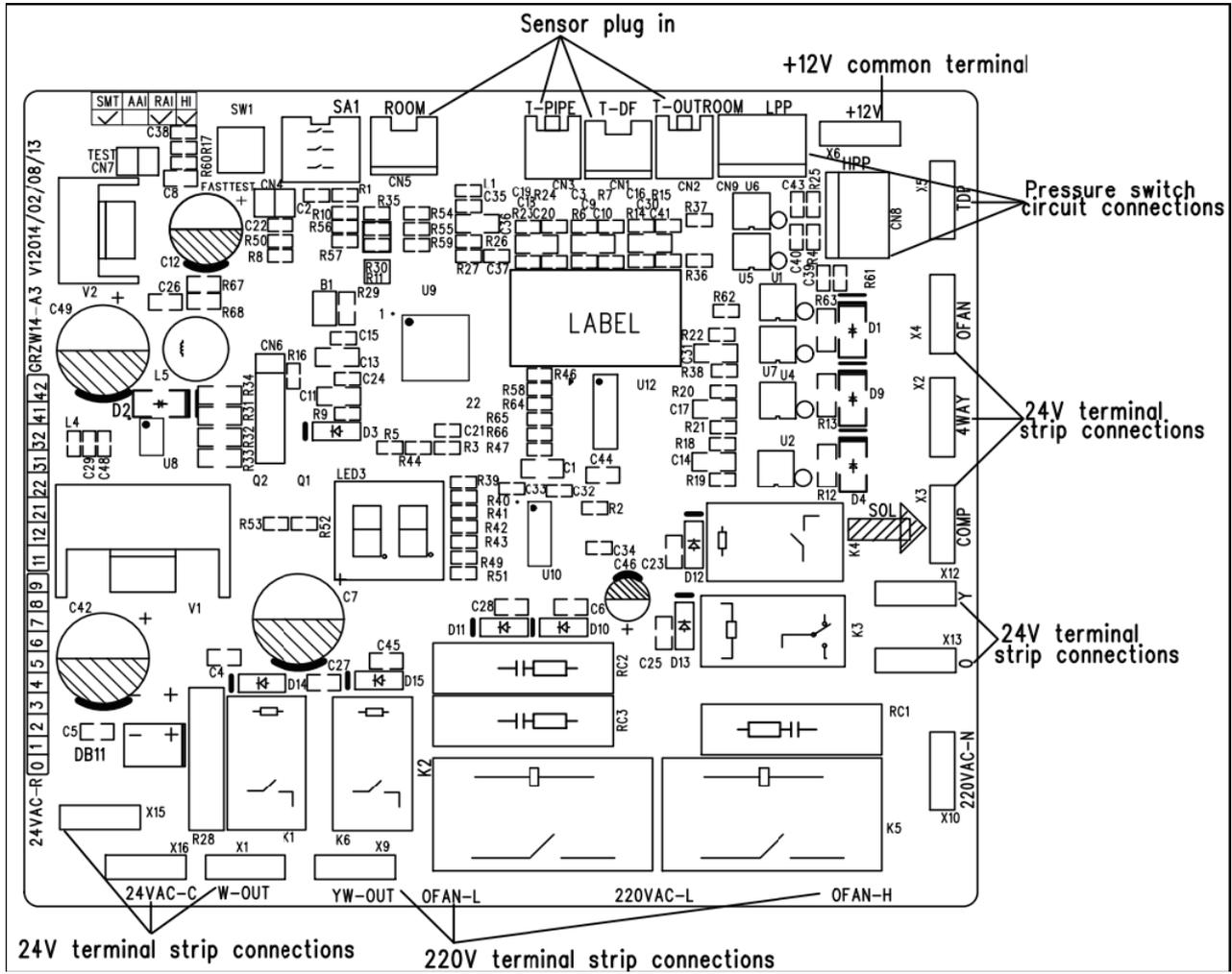
2.4 Error Analysis

HEAT PUMP

Fault Display on the Dual 8 Numeral Tube of Outdoor Mainboard.

Malfunction Code	Trouble Case	Origin of Trouble Signal	Measure
E1	Actuation of High pressure switch	High pressure switch	Abnormality is detected when the contact of the high pressure switch opens for 3 sec. The system will be shut down. The unit will report this fault. For the first two faults within 30 minutes, the unit can be recovered automatically. If over three times, the unit cannot be recovered automatically.
E3	Actuation of low pressure switch	Low pressure switch	When the unit runs more than 4 minutes or does not run, the low pressure switch opens for more than 3sec and the system will be shut down. The unit will report this fault. For the first two faults within 30 minutes, the unit can be recovered automatically. If over three times, the unit cannot be recovered automatically.
E4	Air Discharge High-temperature Protection of Compresso	Exhaust over-temperature Protection	the Exhaust temperature is higher than 125°C for more than 5sec, the system will be shut down. After stopping the compressor for 3 minutes, if the exhaust temperature is lower than 90°C for more than 5 sec, the compressor will re-start. For the first two faults within 30 minutes, the unit can be recovered automatically. If over three times, the unit cannot be recovered automatically.
F2	Malfunction of condenser temperature thermistor	Condenser temperature thermistor	Malfunction of condenser temperature thermistor is detected when there is a short circuit or an open circuit in the condenser temperature thermistor for more than 5 sec. The system will be shut down. The reset for the malfunction of condenser temperature thermistor is automatic.
F3	Malfunction of outdoor ambient temperature thermistor	Outdoor ambient temperature thermistor	Malfunction outdoor ambient temperature thermistor is detected when there is a short circuit or an open circuit in the outdoor ambient temperature thermistor for more than 5 sec. The system will be shut down. The reset for the malfunction of condenser temperature thermistor is automatic..
F4	Malfunction of Exhaust Temp. Sensor	Exhaust temperature sensor	If the exhaust temperature sensor is detected of open circuit 5 seconds successively after the compressor is started for 2 minutes or short circuit 5 seconds successively at any time .The system will be shut down. After the fault is eliminated, the system can automatically resume to operation
oN	Normal operation	Unit operating normally or in standby mode.	None required.
H1	Defrost operation	Unit operating in defrost	None required.

2.5 Mainboard Description

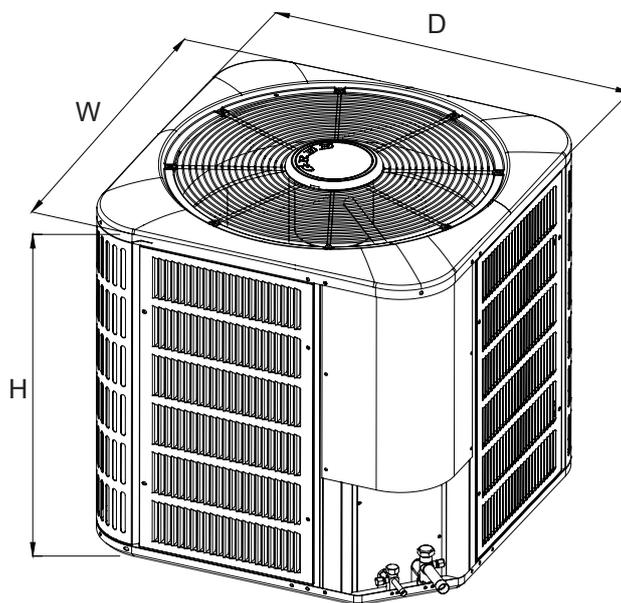


Mainboard Description for Heat pump unit

INSTALLATION

UNITS INSTALLATION

1 DIMENSION DATA



Unit:inch(mm)

Model	H	D	W
HWR36Na/B-K	29 (735)	28 (710)	28(710)
HWR36Na/B-M	29(735)	28(710)	28(710)
HWR48Na/B-M	29(735)	28(710)	28(710)
HWR60Na/B-M	33 1/2(850)	29 1/2(750)	29 1/2(750)

2 INSTALLATION CLEARANCE DATA

Ensure the installation site is well ventilated and there is sufficient space for maintenance. It is shown as follow

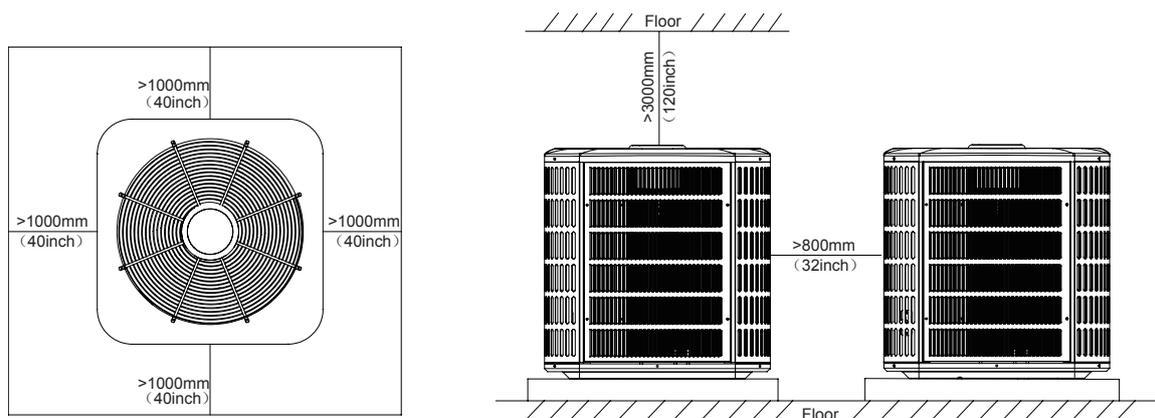


Fig. Installation Position of Outdoor Unit

3 UNITS INSTALL

3.1 Installation Positions of Condensing Units

- Outdoor Unit must be fixed on stable and solid surface of floor.
- Don't install Outdoor Unit under window or between buildings, and prevent the operation noise from room.
- There should be no obstructions at both air inlet and outlet of indoor and outdoor units for maintaining well air ventilation.
- When installing indoor unit, make sure that the hanging parts at top are strong enough to stand the

weight of unit.

3.2 Matters need Attention

- Before installation, make sure that the power supply comply with in nameplate and check the security of the power supply.
- Do not use or place combustible and explosive gas or liquid near the air conditioner.
- Do not attempt to install Air Conditioner by yourself to guarantee the Air Conditioner can be permanent use.
- In the event of malfunction (burning smell, etc.), stop operation immediately and turn off the power switch.
- Do not insert fingers or objects into the outlet port or inlet grillers.
- Do not check or repair the air conditioner when it is running.
- Do not sprinkle water on the air conditioner or operate it with wet hands.
- Do not climb or place objects on the air conditioner.

4 REFRIGERATION PIPING WORK

4.1 Specification of Connection Pipe

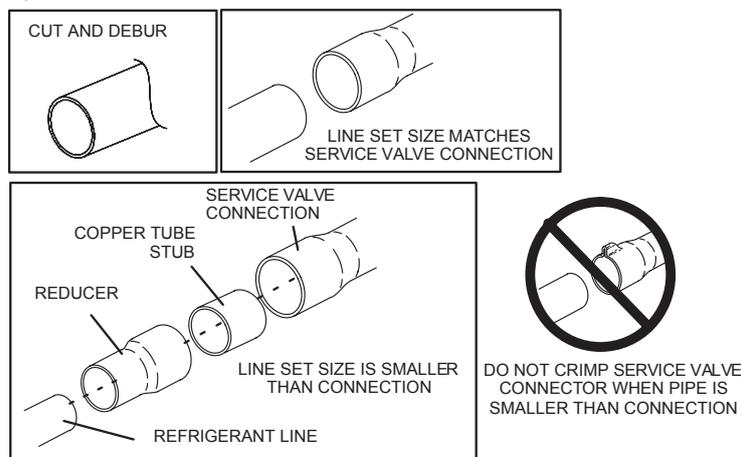
Model	External Diameter		Maximum Length of Connection Pipe	Maximum Difference in Height between Outdoor and Indoor Unit	Maximum Charge Length of Connection Pipe	Additional Charge of Refrigerant
	Gas Pipe	Liquid Pipe				
	(Inch)	(Inch)				
HWR36Na/B-K	3/4"	3/8"	98.4	49.2	25	0.6
HWR36Na/B-M	3/4"	3/8"	98.4	49.2	25	0.6
HWR48Na/B-M	7/8"	3/8"	98.4	49.2	25	0.6
HWR60Na/B-M	7/8"	3/8"	98.4	49.2	25	0.6

4.2 Installation Procedure

Connection of Pipeline

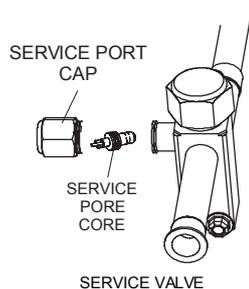
- (1). The pipeline should be selected based on the model of the unit. (see 4.1)
- (2). Cutting and Deburring

Cut ends of the refrigerant lines square (free from nicks or dents) and debur the ends. The pipe must remain round. Do not crimp the end of the line.



(3). Cap and core removal

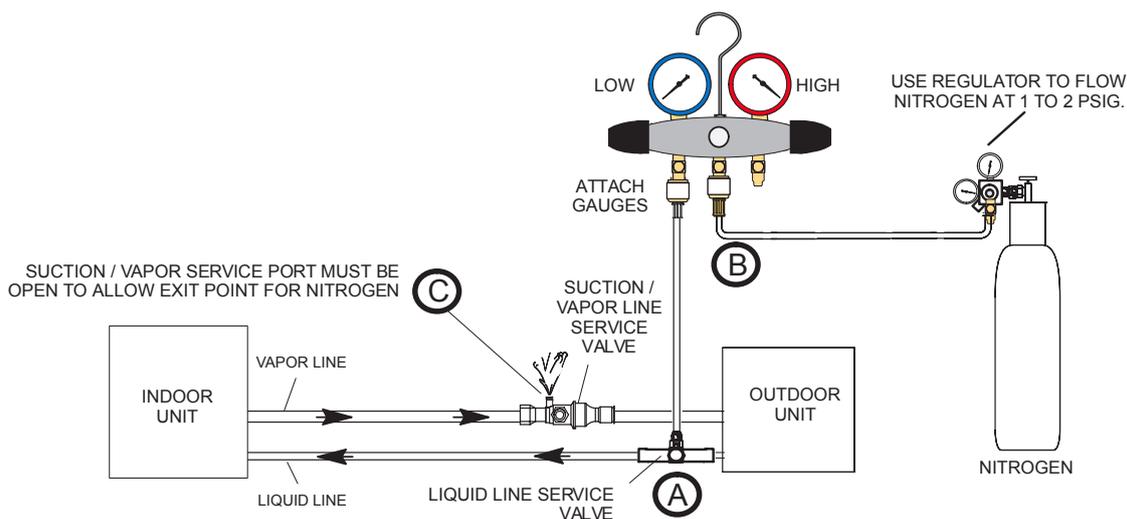
Remove service cap and core from both the suction / vapor and liquid line service ports.



(4). Attach the manifold gauge set for brazing liquid and suction / vapor line service

Flow regulated nitrogen (at 1 to 2 psig) through the low-side refrigeration gauge set into the liquid line service port valve, and out of the suction / vapor line service port valve.

- A. Connect gauge set low pressure side to liquid line service valve (service port).
- B. Connect gauge set center port to bottle of nitrogen with regulator.
- C. Remove core from valve in suction / vapor line service port to allow nitrogen to escape.



(5). Wrap service valve

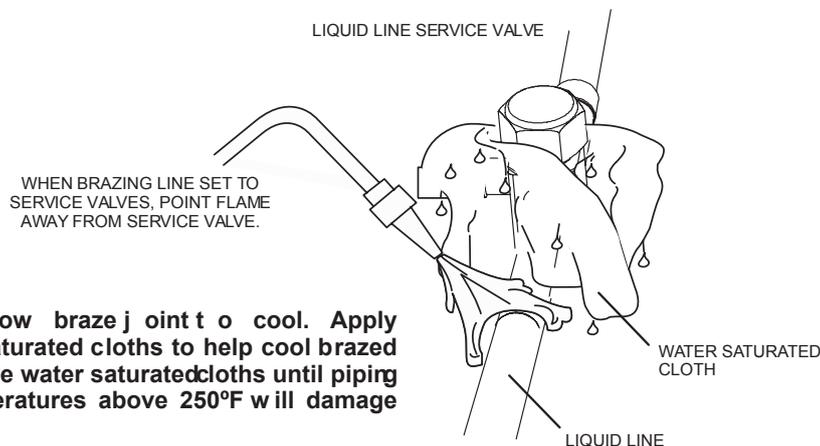
To help protect service valve seals during brazing, wrap water saturated cloths around service valve bodies and copper tube stubs. Use additional water saturated cloths underneath the valve body to protect the base paint.

(6). Flow nitrogen

Flow regulated nitrogen (at 1 to 2 psig) through the refrigeration gauge set into the valve stem port connection on the liquid service valve and out of the suction / vapor valve stem port. See steps 3A, 3B and 3C on manifold gauge set connections.

(7). Braze line set

Wrap both service valves with water saturated cloths as illustrated here and as mentioned in step 4, before brazing to line set. Water saturated cloths must remain water saturated throughout the brazing and cool-down process.



IMPORTANT — Allow braze joint to cool. Apply additional water saturated cloths to help cool brazed joint. Do not remove water saturated cloths until piping has cooled. Temperatures above 250°F will damage valve seals.

(8). Preparation for next step

After all connections have been brazed, disconnect manifold gauge set from service ports. Apply additional water saturated cloths to both services valves to cool piping. Once piping is cool, remove all water saturated cloths. Refer to the unit installation instructions for the next step in preparing the unit.

⚠ Caution:

- ① . When connecting the indoor unit with the connecting pipe, do not pull big and small joints of the indoor unit forcefully, so as to prevent the capillary of the indoor unit and other pipes from breaking and leaking.
- ② . The connecting pipe shall be supported by proper bracket. The weight of the pipe shall not be withstood by the unit.

⚠ Caution:

When brazing the outdoor unit with the connecting pipe, please make sure that the valve are wrapped with wet cloth for cooling.

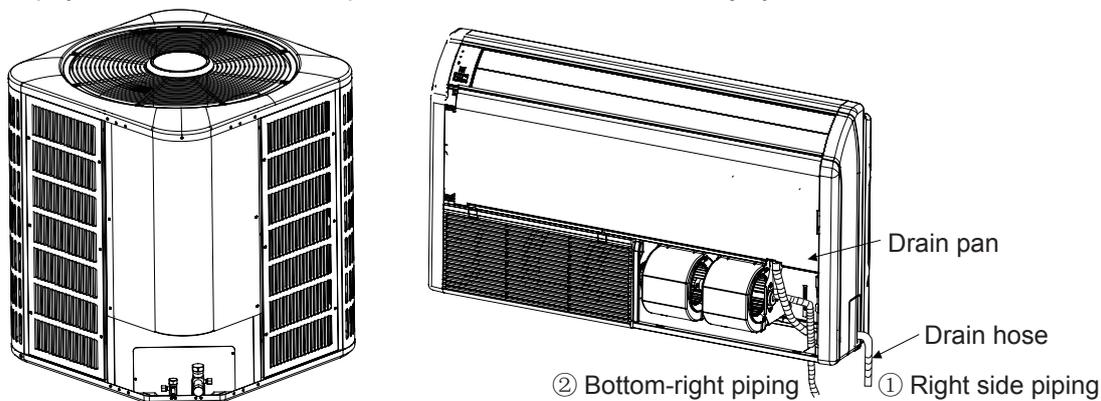
⚠ Caution:

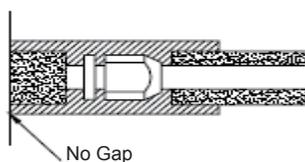
Please note that heat exchanger inside is pressurized for leak test.

Installation of protective layer of connecting pipe

- (1). During the installation, we should carry out the heat preservation for two pieces of water drainage pipe.
- (2). To avoid generation of condensate on the connecting pipe and avoid leakage, the big pipe and the small pipe of the connecting pipe must be covered by thermal insulation materials, be bundled by adhesive tape, and be isolated from air.
- (3). The joint connecting to the indoor unit must be wrapped by thermal insulation material. There shall be no gap between the connecting pipe joint and the wall of the indoor unit.

Due to there is protective pressure refrigerant in the indoor unit, when loosening the nuts on the installing site, please pay more attention on the pressure, in order to avoid the injury.





⚠ Caution:

After the pipes are wrapped by protective materials, never bend the pipes to very small angle, and otherwise the pipes may crack or break.

Use adhesive tape to wrap the pipes:

(1). Use adhesive tape to bundle the connecting pipe and the cables together. To prevent condensate from overflowing out from the drainage pipe, separate the drainage pipe from the connecting pipe and the cables.

(2). Use thermal insulation tape to wrap the pipes from the bottom of the outdoor unit to the upper end of the pipe where the pipe enters the wall. When wrapping thermal insulation tape, the later circle of tape must cover half of the front circle of tape.

(3). Wrapped pipe must be fixed to wall with pipe clamps.

⚠ Caution:

- ① . Do not wrap the protective tape too tight, and otherwise the efficiency of thermal insulation may be decreased. Ensure that the condensate drainage flexible tube is separate from the bundled pipes.
- ② . After the protective work is completed and the pipes are wrapped, use seal material to block the hole in the wall, so as to prevent rain and wind from the room.

4.3 Matters of Attention

Refrigerant charging is for 25ft-long pipe. If the pipe is longer than 25ft, please refer to the following table and to supplement refrigerant additionally:

Outdoor Unit	Liquid Line Set Diameter	Ounces per 5 feet (g per 1.5 m) adjust from 25 feet (7.6 m) line set
COOLING ONLY	3/8 inch (9.5 mm)	1.6 ounce per 5 feet (45g per 1.5 m)
	1/2 inch(12.7 mm)	3.2 ounce per 5 feet (90g per 1.5 m)
HEAT PUMP	3/8 inch (9.5 mm)	2.9 ounce per 5 feet (81g per 1.5 m)
	1/2 inch (12.7 mm)	5.9 ounce per 5 feet (165g per 1.5 m)

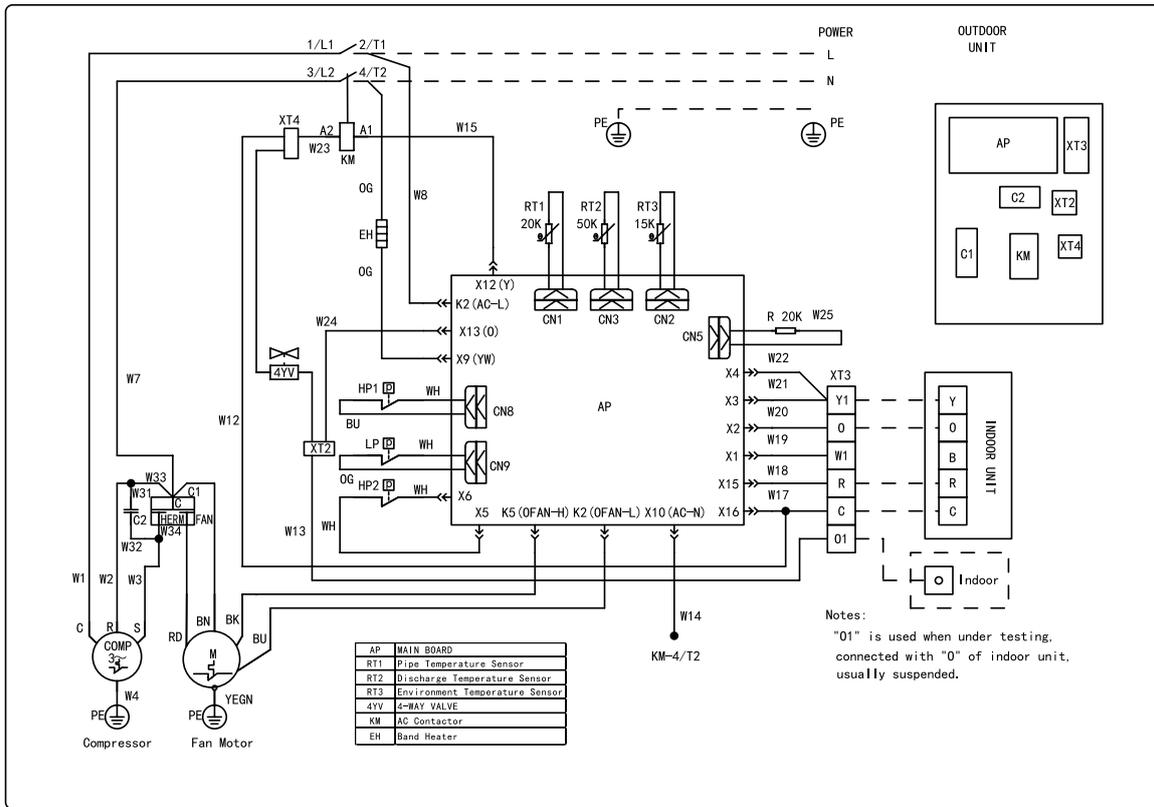
5 ELECTRIC WIRING WORK

5.1 SPECIFICATION OF POWER CORD & AIR SWITCH

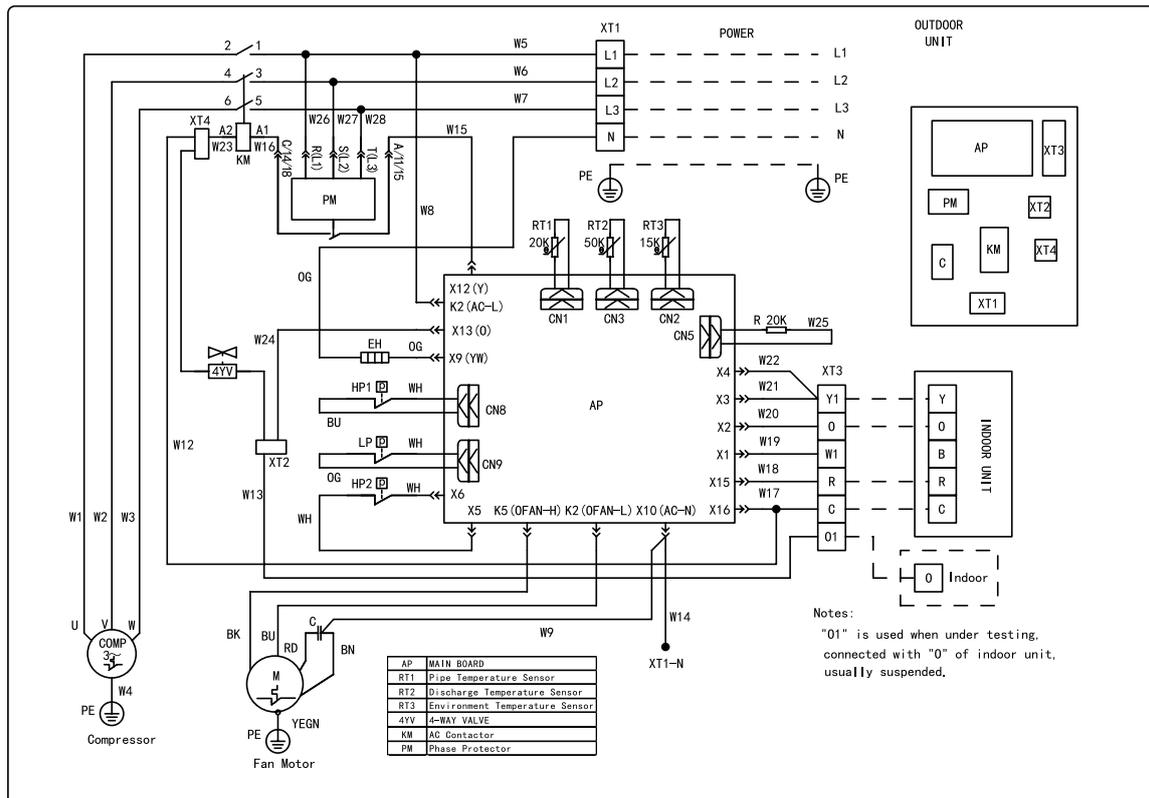
Model	Power Supply	Capability of Air Switch(A)	Minimum Sectional Area of Earth Wire(mm ²)	Minimum Sectional Area of Power Cord(mm ²)
HWR36Na/B-K	220V-1Ph-50Hz	32	6.0	6.0
HWR36Na/B-M	380V-3Ph-50Hz	16	2.5	2.5
HWR48Na/B-M	380V-3Ph-50Hz	16	2.5	2.5
HWR60Na/B-M	380V-3Ph-50Hz	20	2.5	2.5

5.2 WIRING DIAGRAM

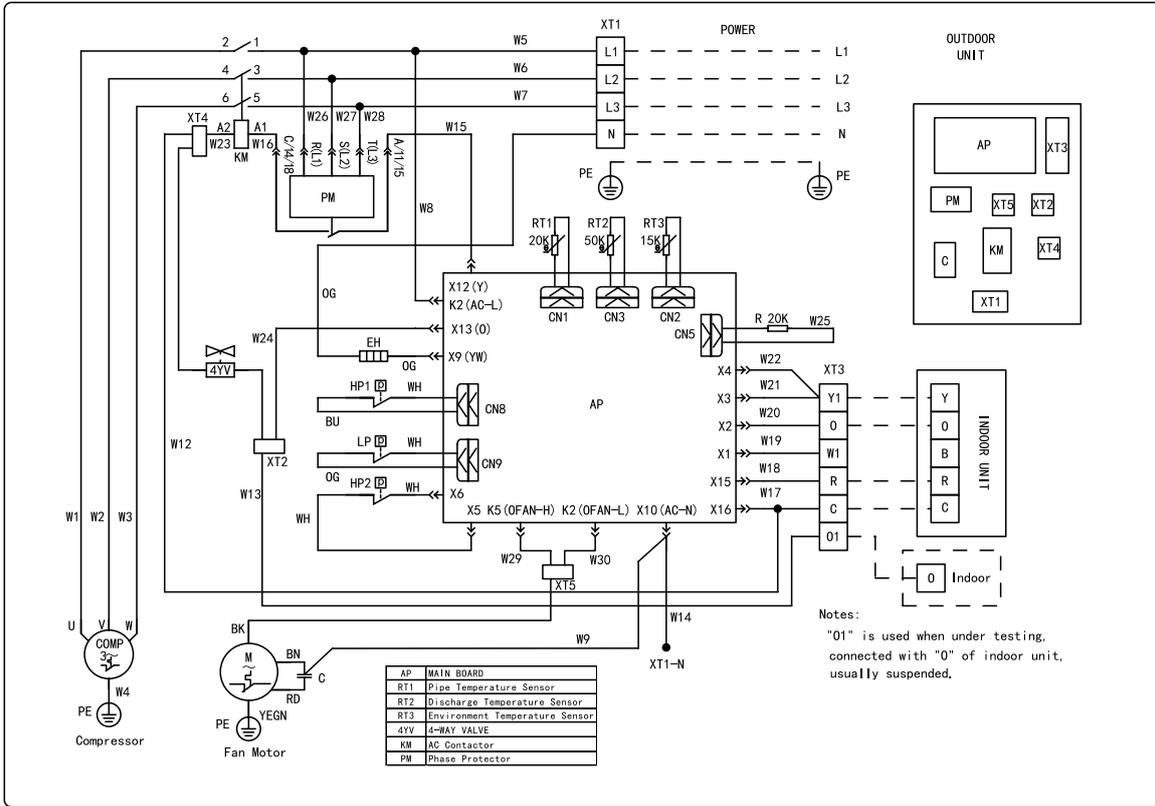
Model: HWR36Na/B-K:



Model: HWR36Na/B-M; HWR48Na/B-M



Model:HWR60Na/B-M

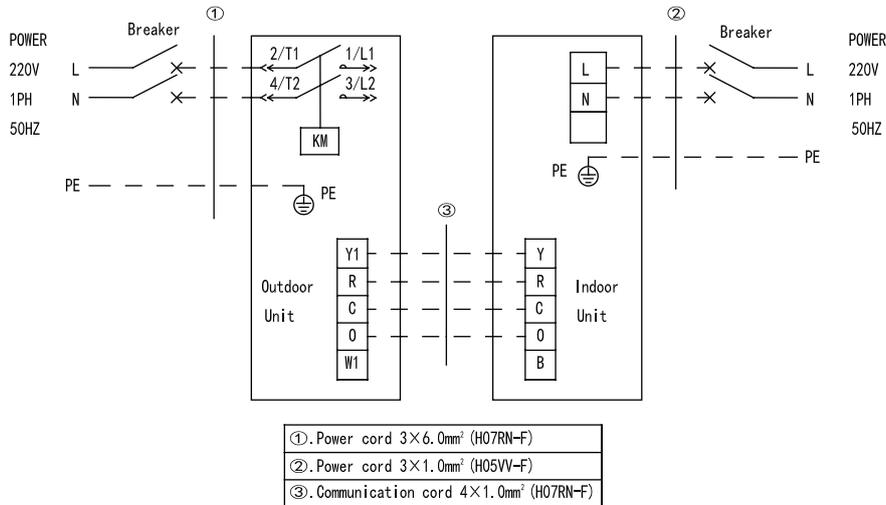


5.3 Wiring Principle

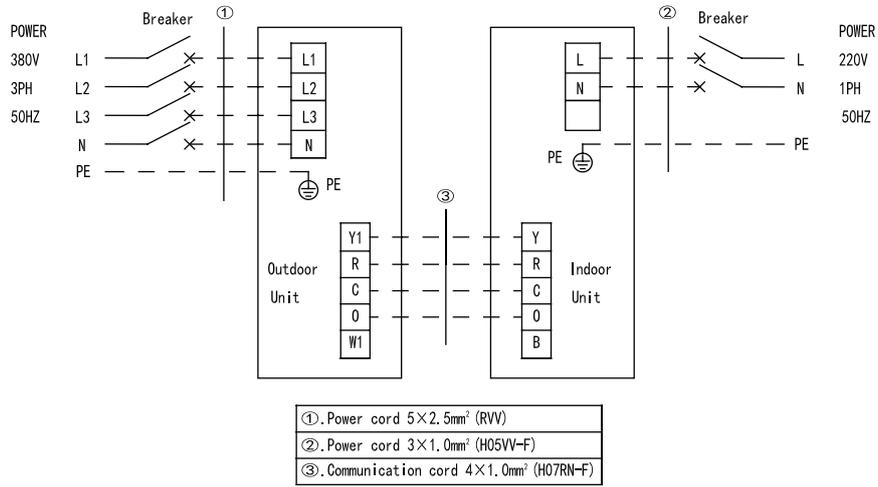
- (1). The signal line of the wire controller must be separated from the power line and the connecting line between the indoor unit and the outdoor unit.
- (2). In case the unit is installed in a place which is vulnerable for electromagnetic interference, it is better to use shielded cable or double-twisted cable as the signal line of the wire controller.
- (3). A separate air switch must be furnished for the external power supply of the unit, otherwise it would cause damage to the unit or bodily injury or even death.

5.4 Electric Wiring Design

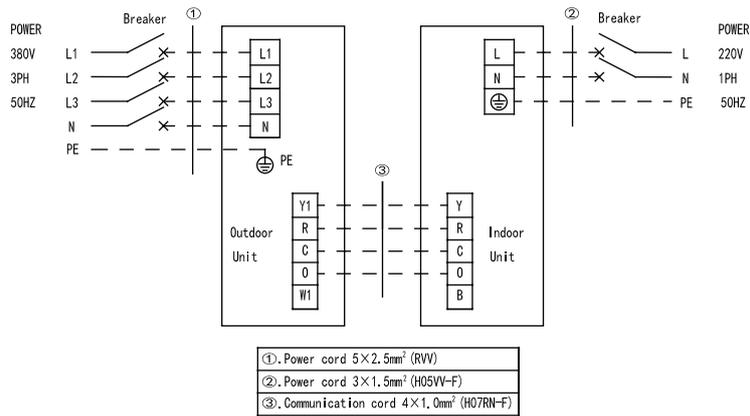
Model: HWR36Na/B-K & HNTF36/B-K



Model:HWR36Na/B-M & HNTF36/B,



Model:HWR48Na/B-M & HNTF48/B-K, HWR60Na/B-M & HNTF60/B-K,

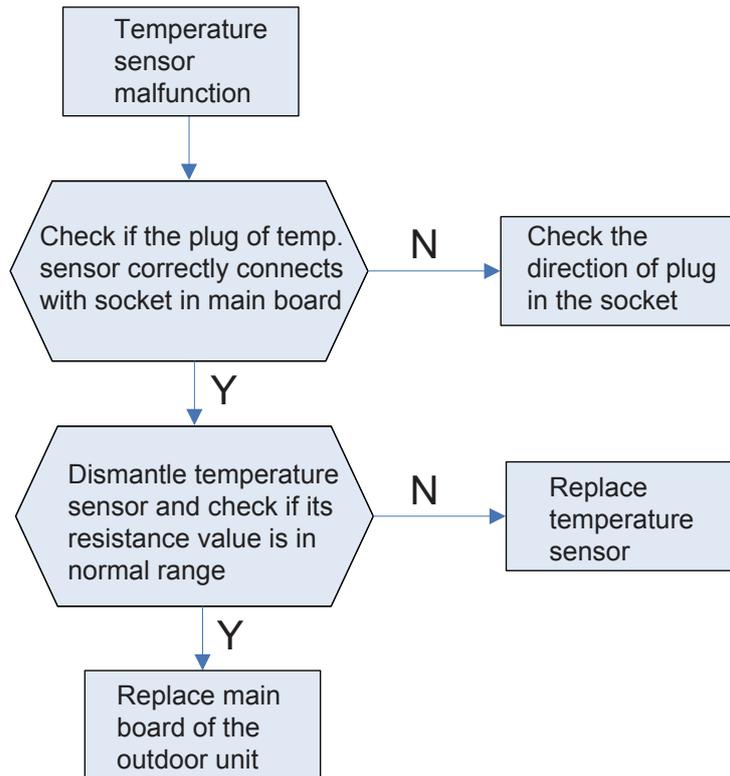


MAINTENANCE

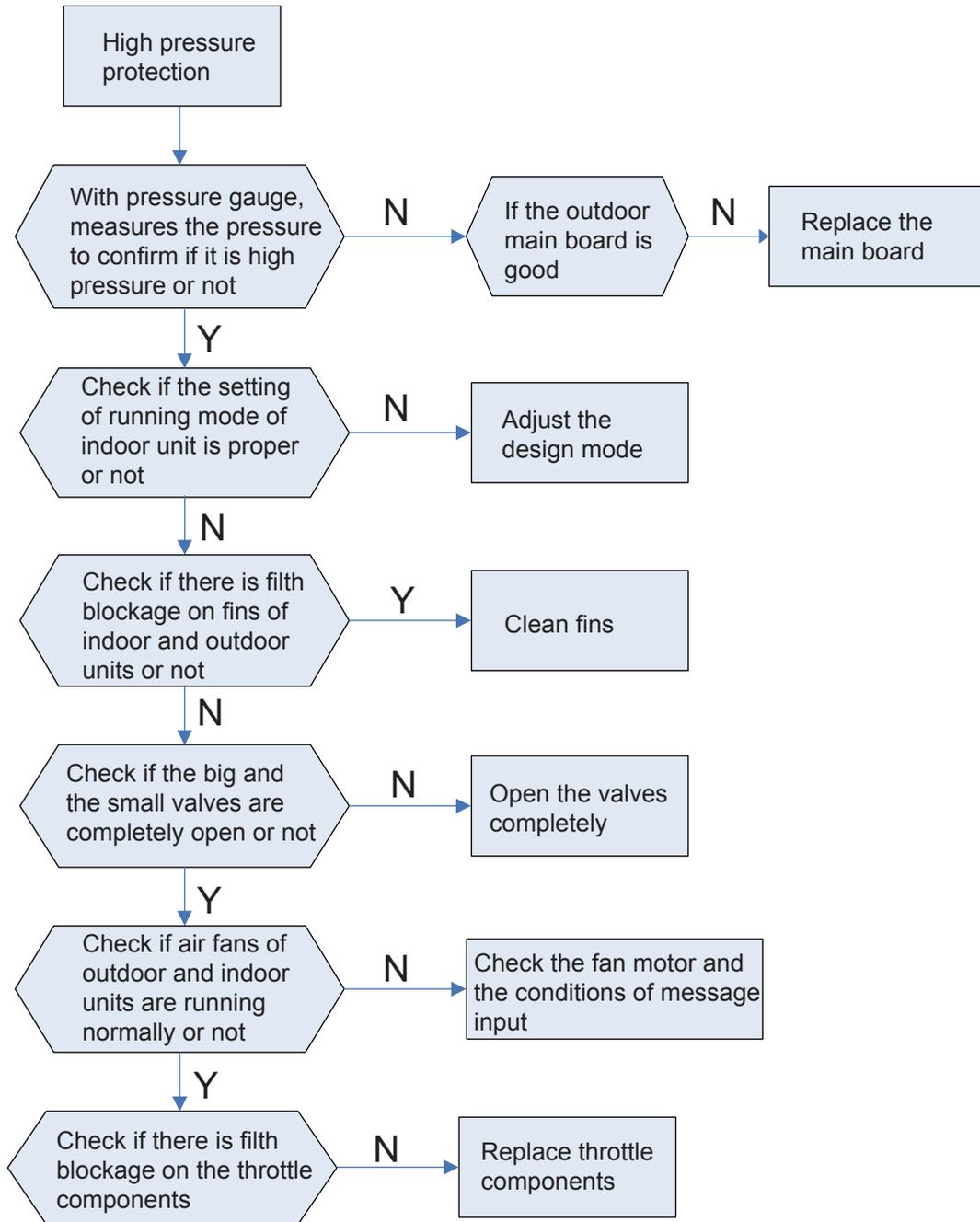
UNITS MAINTENANCE

1 FLOW CHART OF TROUBLESHOOTING

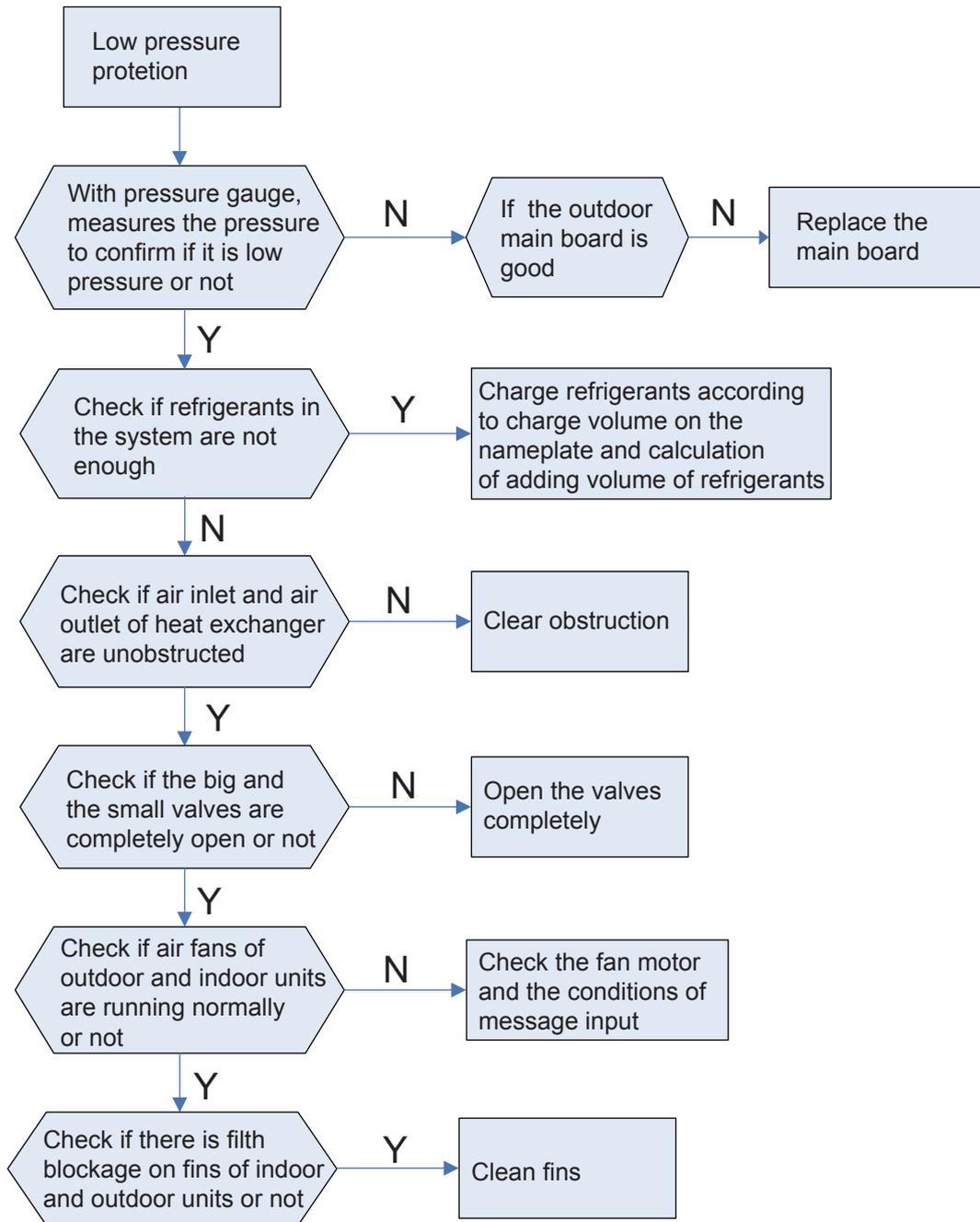
Temperature Sensor Protection



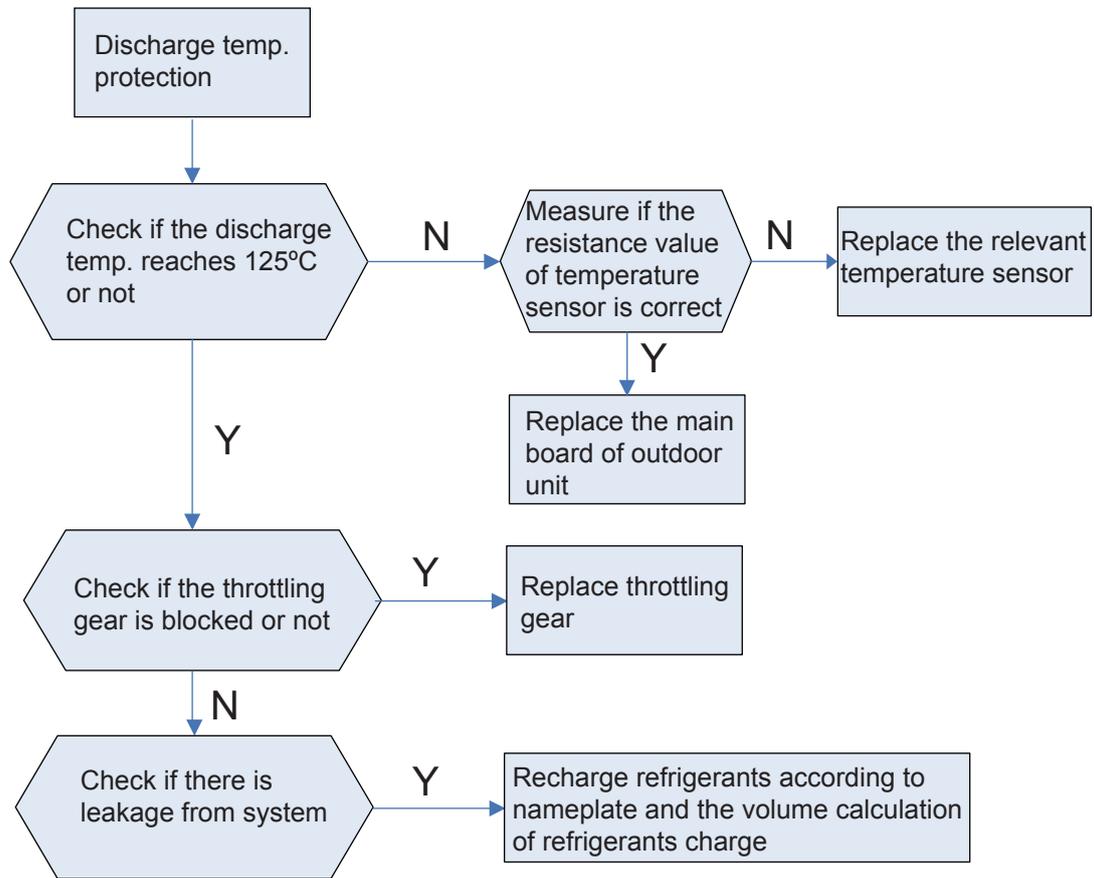
High Pressure Protection



Low Pressure Protection

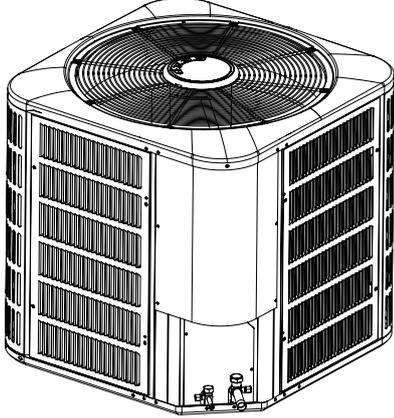
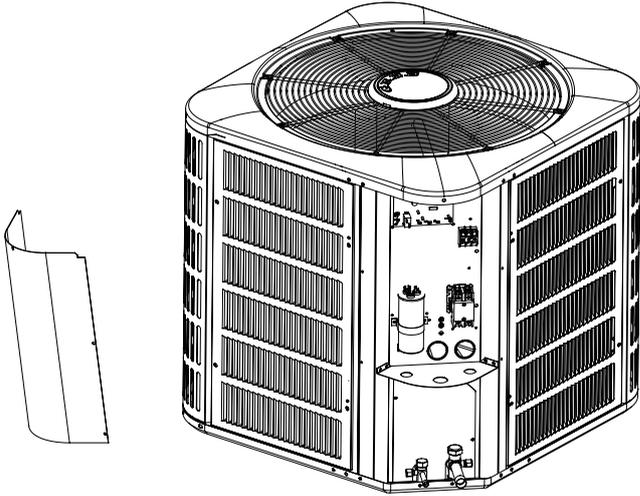


Discharge Protection

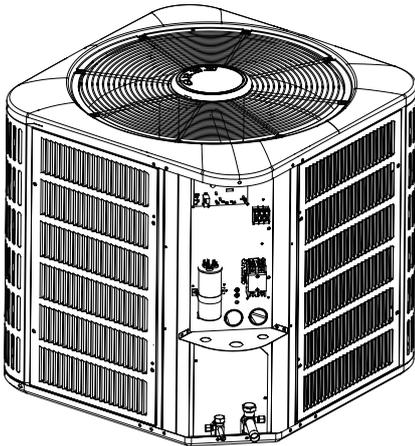
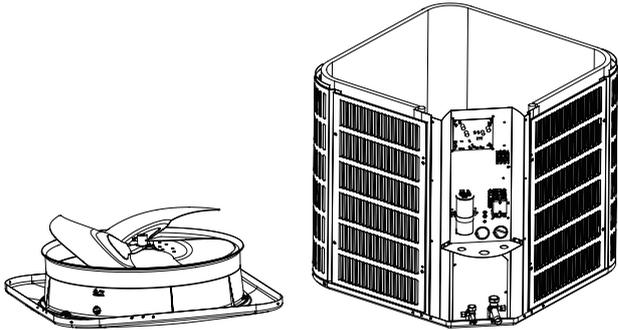
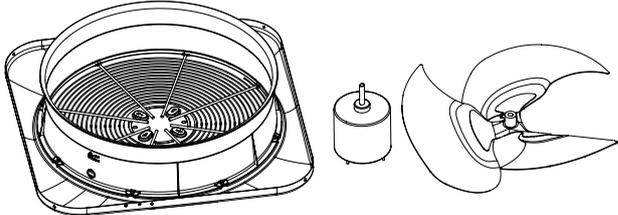


2 DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS

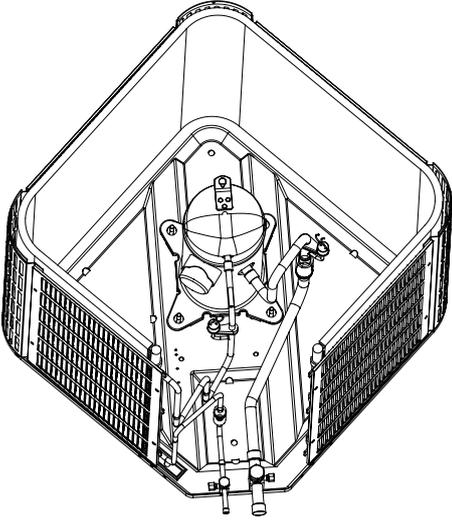
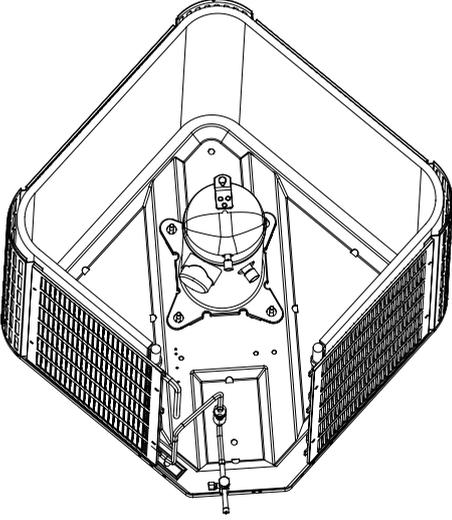
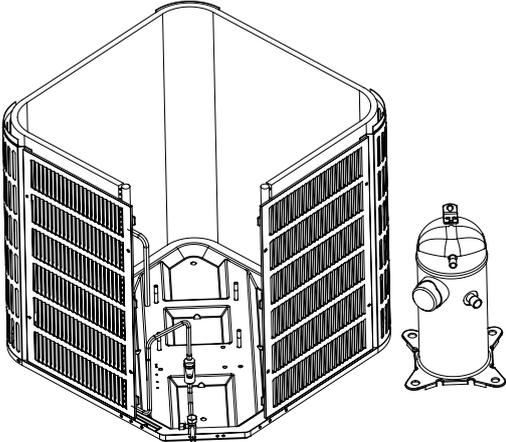
2.1 Electrical Parts Box

Disassembly and Assembly of Electrical Parts Box		
Notice: Cut off the power supply before disassembling the electric box.		
Process	Pictorial View	Handling Description
1. Dismantle retaining screw of electric box cover		Unscrew the retaining screw of electric box with screwdriver.
2. Remove the cover plate of electric box		Remove the cover plate of electric box

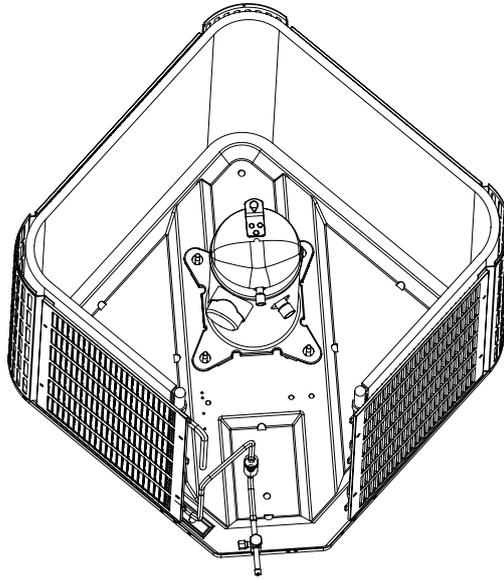
2.2 Fan and Fan Motor

Disassembly and Assembly of Fan and Fan Motor		
Notice: Before removing the fan blades and motor, please confirm the power supply has been cut off		
Process	Pictorial Vie	Handling Description
1. Dismantle power cord of fan.		Dismantle power cord of fan Note: Mark the power cord with the code of relevant terminal to avoid mixture when recovering wiring.
2. Dismantle the top cover.		<ol style="list-style-type: none"> 1. Unscrew each screw in the top cover. 2. Unplug terminals of connected electric components 3. Remove the whole top cover sub-assy and place top cover downwards
3. Dismantle fan blade and motor		<ol style="list-style-type: none"> 1. Dismantle fixed bolts of fan blade to remove it. 2. Unscrew the bolts which connect the motor and top cover to remove the motor.

2.3 Compressor

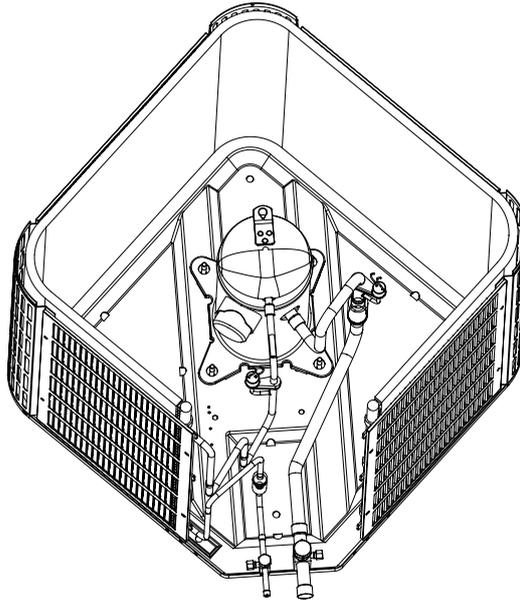
Disassembly and Assembly of Compressor		
Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of the compressor.		
Process	Pictorial View	Handling Description
1. Dismantle connecting wire of power supply for compressor		<ol style="list-style-type: none"> 1. Unscrew the retaining screw of power cord with screwdriver. 2. Unplug the power cord.
2. Dismantle the discharge pipe and the suction pipe of compressor.		<ol style="list-style-type: none"> 1. Charge nitrogen with $0.5 \pm 0.1 \text{ kgf/cm}^2$ pressure via gas valve for protection. (Relative pressure) 2. Unsolder the suction inlet and the discharge outlet with blowtorch. 3. Heating with caution in case the surroundings get burning due to high temperature.
3. Remove compressor		<ol style="list-style-type: none"> 1. Unscrew retaining screws of the compressor with box spanner. 2. Lift compressor out of the unit.

4. Fix the new compressor on base plate



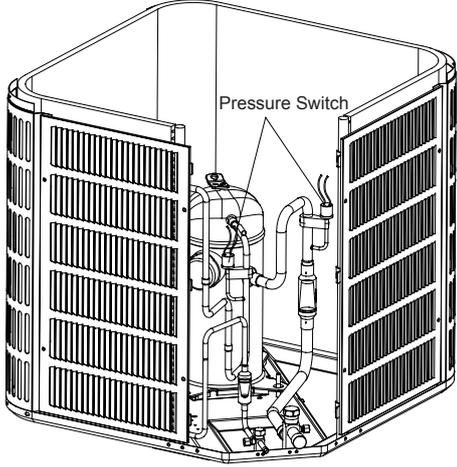
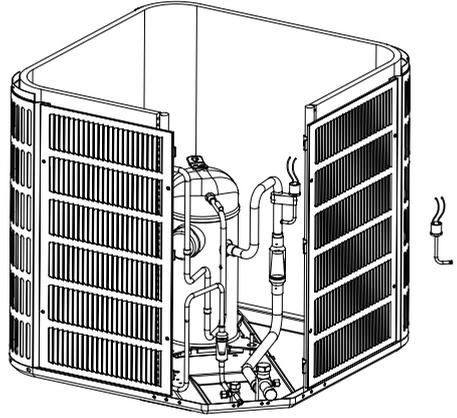
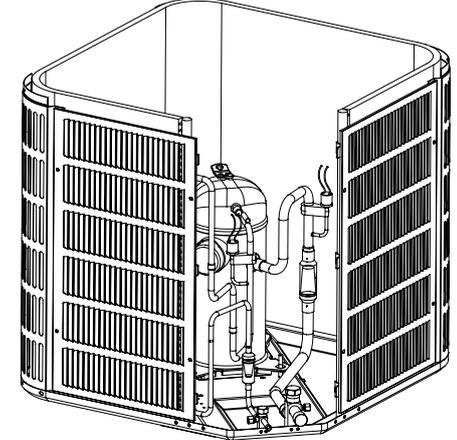
1. Lift new compressor into the unit and fix it on base plate with box spanner
2. Charge nitrogen with $0.5 \pm 0.1 \text{ kgf/cm}^2$ pressure via gas valve for protection. (Relative pressure) Connect suction pipe and discharge pipe with compressor by welding.
3. Heating with caution in case the surroundings get burning due to high temperature.

5. Creation of vacuum and charge refrigerants.



1. Vacuum from gas valve and liquid valve.
2. Charge refrigerant via liquid valve. Charging amount should accord with nameplate.

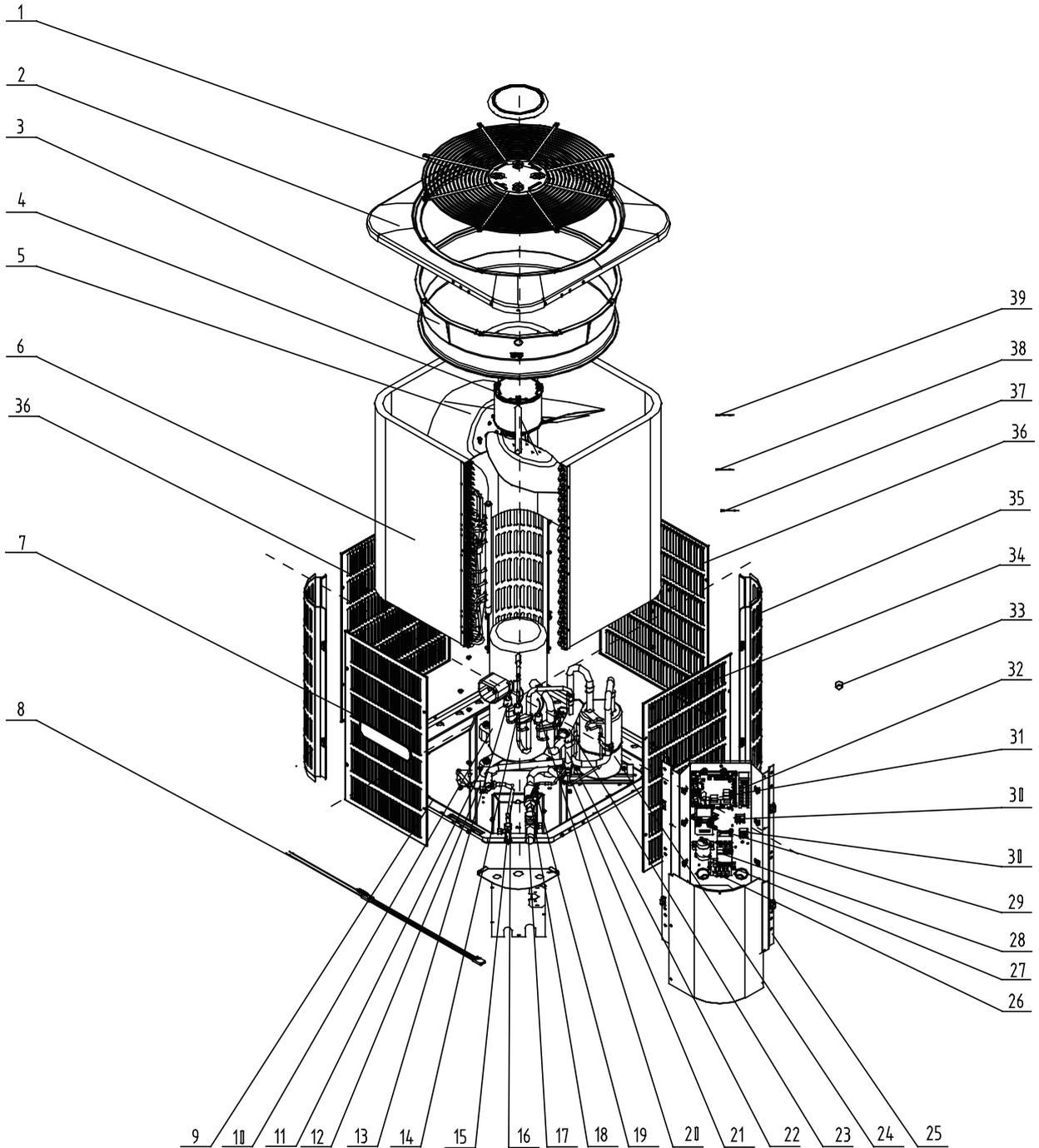
2.4 Pressure Switch

Disassembly and Assembly of Pressure Protect Switch		
Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of the pressure switch.		
Process	Pictorial View	Handling Description
1. Separate the pressure switch	 <p>A technical drawing of a condensing unit with its front panel removed. A pressure switch is located on the right side of the unit, connected to the refrigerant piping. A label 'Pressure Switch' with a pointer indicates its location.</p>	<ol style="list-style-type: none"> 1. Cut off the tie wire and remove the fixing block. 2. Unsolder the pressure switch and meanwhile wrap the terminal of pressure switch with wet cloth for protection. 3. nitrogen-fill protection shall be conducted on welding joint and the pressure of nitrogen is $0.5 \pm 0.1 \text{ kg/cm}^2$ (relative pressure)
2. Remove the bad pressure switch	 <p>A technical drawing of the condensing unit showing the old pressure switch being disconnected from the piping. A separate drawing of the removed pressure switch is shown to the right.</p>	<p>Remove the pressure switch from the pipeline.</p>
3. Install the new pressure switch	 <p>A technical drawing of the condensing unit showing the new pressure switch being soldered onto the piping. The switch is then secured with a tie wire and a fixing block.</p>	<ol style="list-style-type: none"> 1. Wrap the terminal of pressure switch with wet cloth and replace the new pressure switch by soldering. 2. Charge nitrogen to weld and the nitrogen pressure is $0.5 \pm 0.1 \text{ kg/cm}^2$ (relative pressure) 3. Fix the pressure switch on the pipeline by fixing block. Then bundle the pipeline by tie wire.

3 EXPLODED VIEWS AND PART LIST

Mode: HWR48Na/B-M

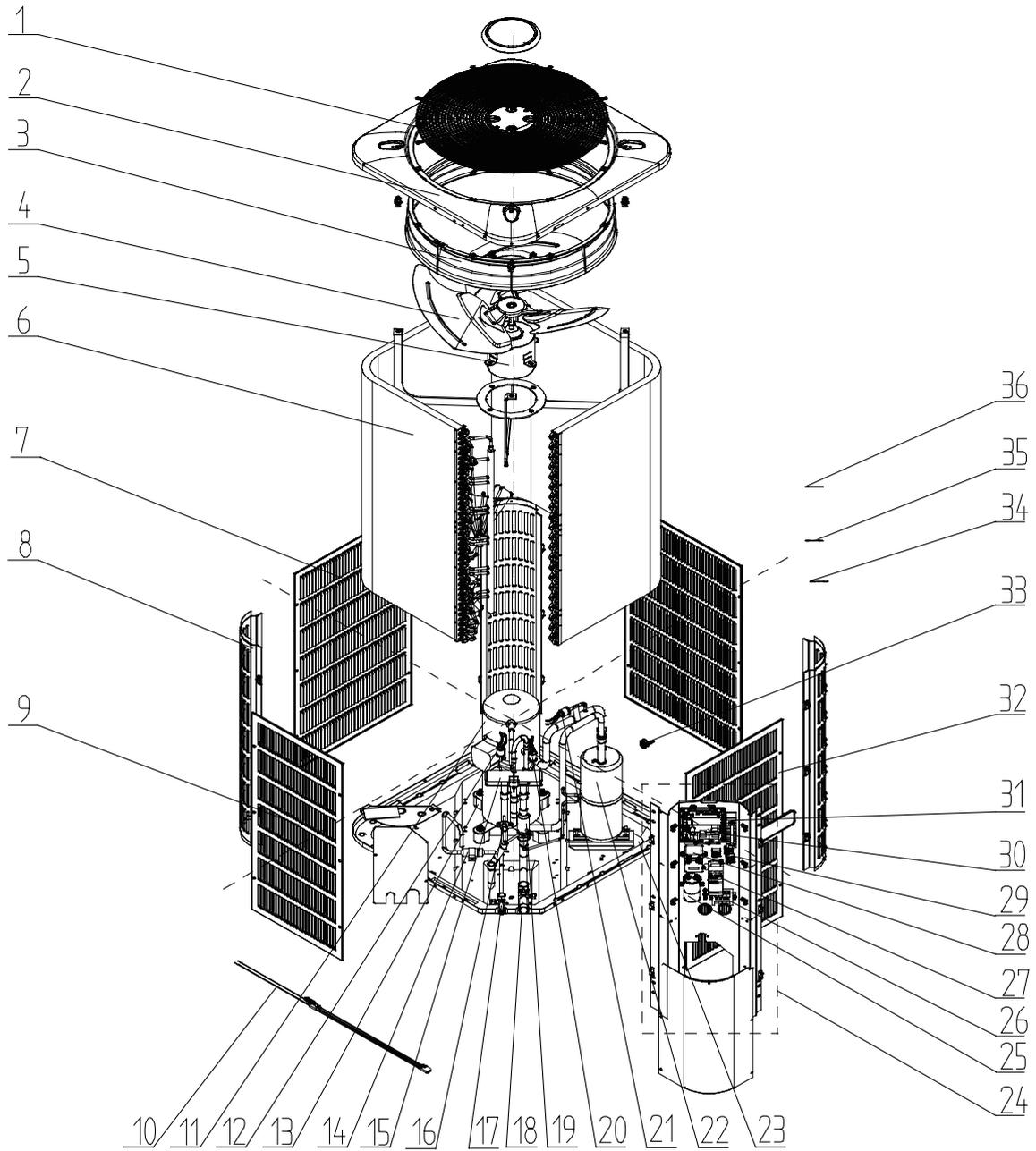
Exploded Views



HWR48Na/B-M Spare Parts List

NO	Description	Product Code	Qty
1	Rear Grill Sub-Assy	0157221202P	1
2	Cover Plate Sub-Assy	01262200095	1
3	Diversion Circle	1047220201	1
4	Fan Motor	1570210303	1
5	Axial Flow Fan	10432203	1
6	Condenser Assy	01122200014	1
7	Side Plate	0131224902P	1
8	Electrical Heater	76515407	1
9	Chassis Sub-assy	01282200021	1
10	Compressor	00205200005	1
11	Compressor Gasket	00205200005	4
12	Bidirection Strainer	07220016	1
13	Pressure Protect Switch	4602001598	1
14	Pressure Protect Switch	4602000902	1
15	Square Valve	4602001598	1
16	Cut off Valve Sub-Assy	07332200042	1
17	Square Valve 7/8(R410A)	0733116601	1
18	Strainer	07210037	1
19	Nozzle for Adding Freon	0613000201	1
20	Pressure Protect Switch	4602001555	1
21	Nozzle Sub-assy for Adding Freon	06132200003	1
22	4-Way Valve Sub-Assy	04042200016	1
23	4-way Valve	43000338	1
24	Gas-liquid Separator	07421100001	1
25	Electric Box Assy	01392200063	1
26	Terminal Board	42011043	1
27	Capacitor CBB65	33012201	1
28	AC Contactor	44010255	1
29	Anti-phase Protector	46020052	1
30	Terminal Board	42011147	2
31	Main Board	30221000016	1
32	Terminal Board	42010255	1
33	4-way Valve Fittings	43008214	1
34	Side Plate	0131224802P	1
35	Supporting Strip Assy	0189220000402	3
36	Side Plate	0131224702P	2
37	Ambient Temperature Sensor	3900012139G	1
38	Temperature Sensor	3900012139G	1
39	Temperature Sensor	3900012139G	1

Model: HWR60Na/B-M



HWR60Na/B-M Spare Parts List

NO	Description	Product Code	Qty
1	Rear Grill Sub-Assy	0157221102P	1
2	Cover Plate Sub-Assy	0126228902	1
3	Diversion Circle	1047220000201	1
4	Axial Flow Fan	10358212	1
5	Fan Motor	1570221302	1
6	Condenser Assy	01122200004	1
7	Side Plate	0131225402P	2
8	Supporting Strip Assy	0189220000302	3
9	Side Plate	0131225602P	1
10	Electrical Heater(Compressor)	7651540728	1
11	Compressor and fittings	00129052	1
12	Pressure Protect Switch	4602000902	1
13	Compressor Gasket	00129052	1
14	Bidirection Strainer	07220016	1
15	4-way Valve	43000338	1
16	Nozzle for Adding Freon	0613000201	1
17	Square Valve	0713036601	1
18	Square Valve 7/8(R410A)	0733116601	1
19	Strainer	07210037	1
20	Pressure Protect Switch	4602001598	1
21	Pressure Protect Switch	4602001555	1
22	Gas-liquid Separator	07424145	1
23	Chassis Sub-assy	01192200048P	1
24	Electric Box Assy	01392200068	1
25	Capacitor CBB65	3300008111	1
26	Terminal Board	42011043	1
27	AC Contactor	44010255	1
28	Anti-phase Protector	46020052	1
29	Terminal Board	42011147	3
30	Main Board	30221000016	1
31	Terminal Board	42010255	1
32	Side Plate	0131225502P	1
33	4-way Valve Fittings	43008214	1
34	Ambient Temperature Sensor	3900012137	1
35	Temperature Sensor	3900012137	1
36	Temperature Sensor	3900012137	1



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GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070

Tel: (+86-756) 8522218 Fax: (+86-756) 8669426

E-mail: gree@gree.com.cn www.gree.com

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