SERVICE MANUAL

MIDEA AIRCONDITIONER

North America MARKET

DC INVERTER MULTI TYPE

M2OC-18HRDN1-M
M3OC-27HRDN1-M
M4OC-36HRDN1-M

DC MULTI OUTDOOR UNITS

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1. General information of Outdoor Units

Model name	Dimension (mm(in))	Compressor
M2OC-18HRDN1-M	845x320x700(33.3x12.6x27.6)	DA130S1C-20FZ
M3OC-27HRDN1-M	845x320x700(33.3x12.6x27.6)	DA150S1C-20FZ
M4OC-36HRDN1-M	990x345x965(39x13.6x38)	TNB306FPGMC-L

2. Features

Outdoor unit

Power relay control

Low noise air flow system

Hydrophilic aluminum fin

The hydrophilic fin can improve the heating efficiency at operation mode.

4 way valve control

It is only operated in the heating operation mode except defrosting operation.

Anti-rust cabinet

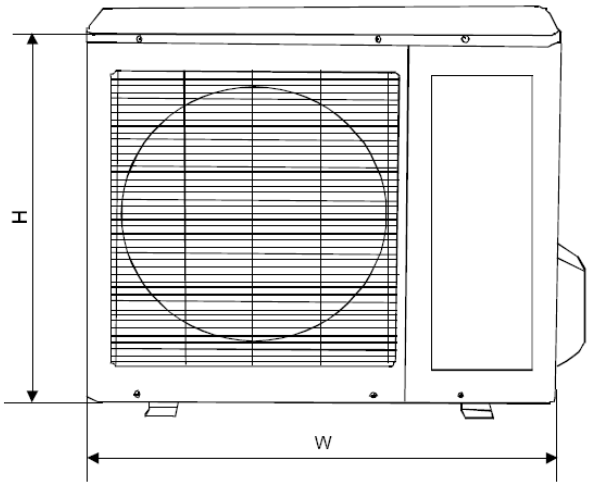
Valve protection cover

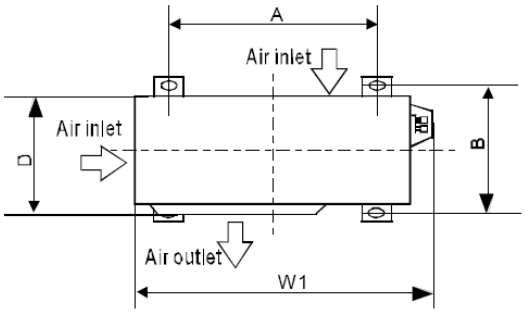
It protects the valves and prevents water from dripping.

Discharge pipe temperature protection

Compressor crankcase heater

3. Dimensions



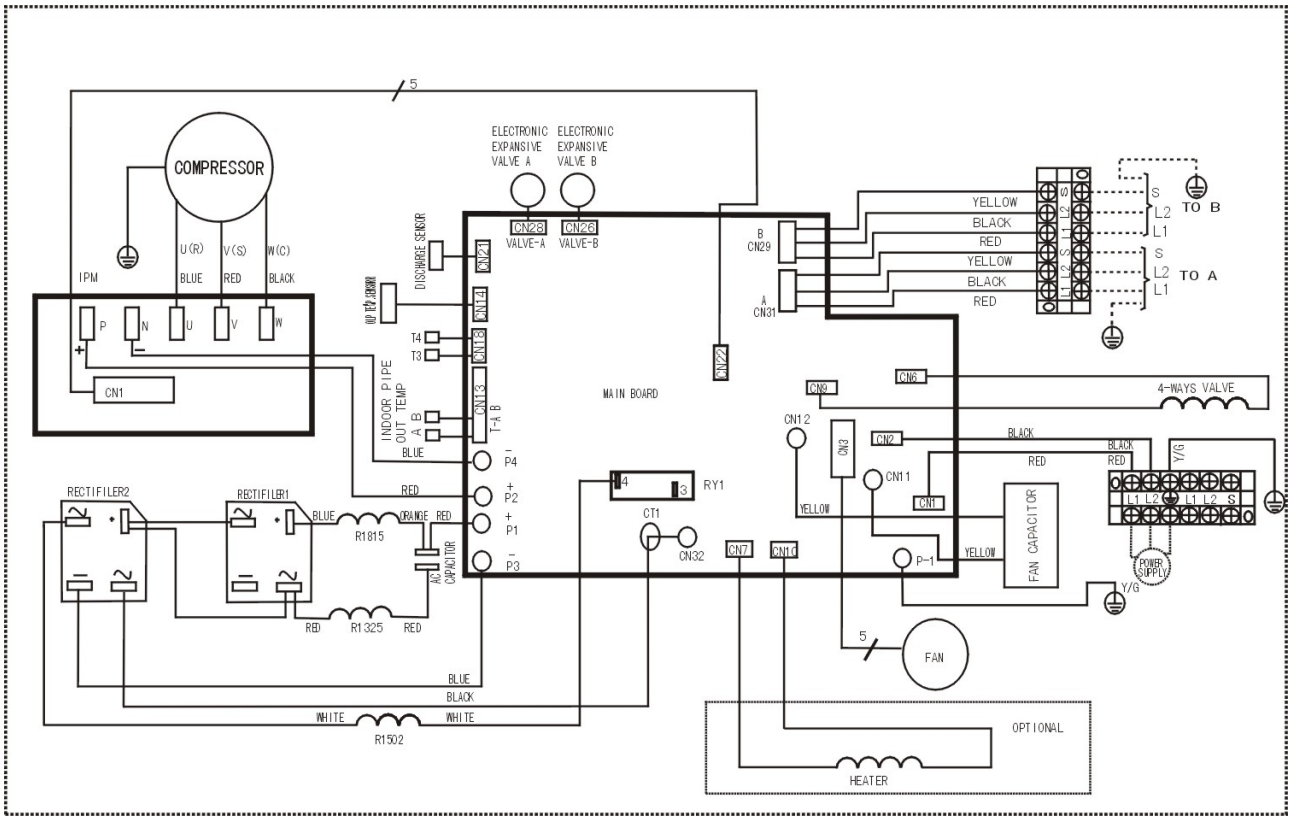


mm(in)

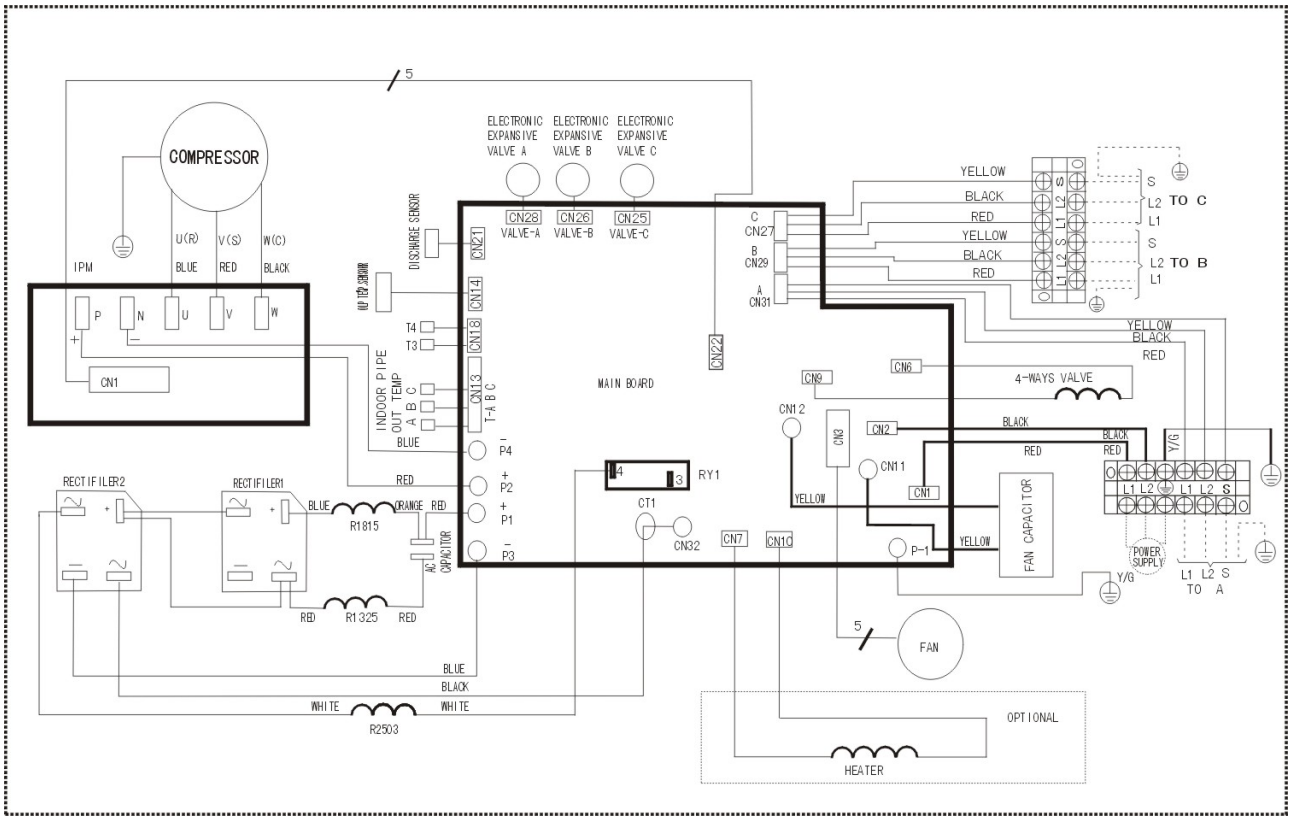
Model	W	D	H	W1	A	B
M2OC-18HRDN1-M	845((33.3)	320(12.6)	700(27.6)	908(35.7)	560(22)	335(13.2)
M3OC-27HRDN1-M						
M4OC-36HRDN1-M	990(39)	345(13.6)	965(38)	1075(42.3)	624(24.6)	366(14.4)

4. Wiring Diagram

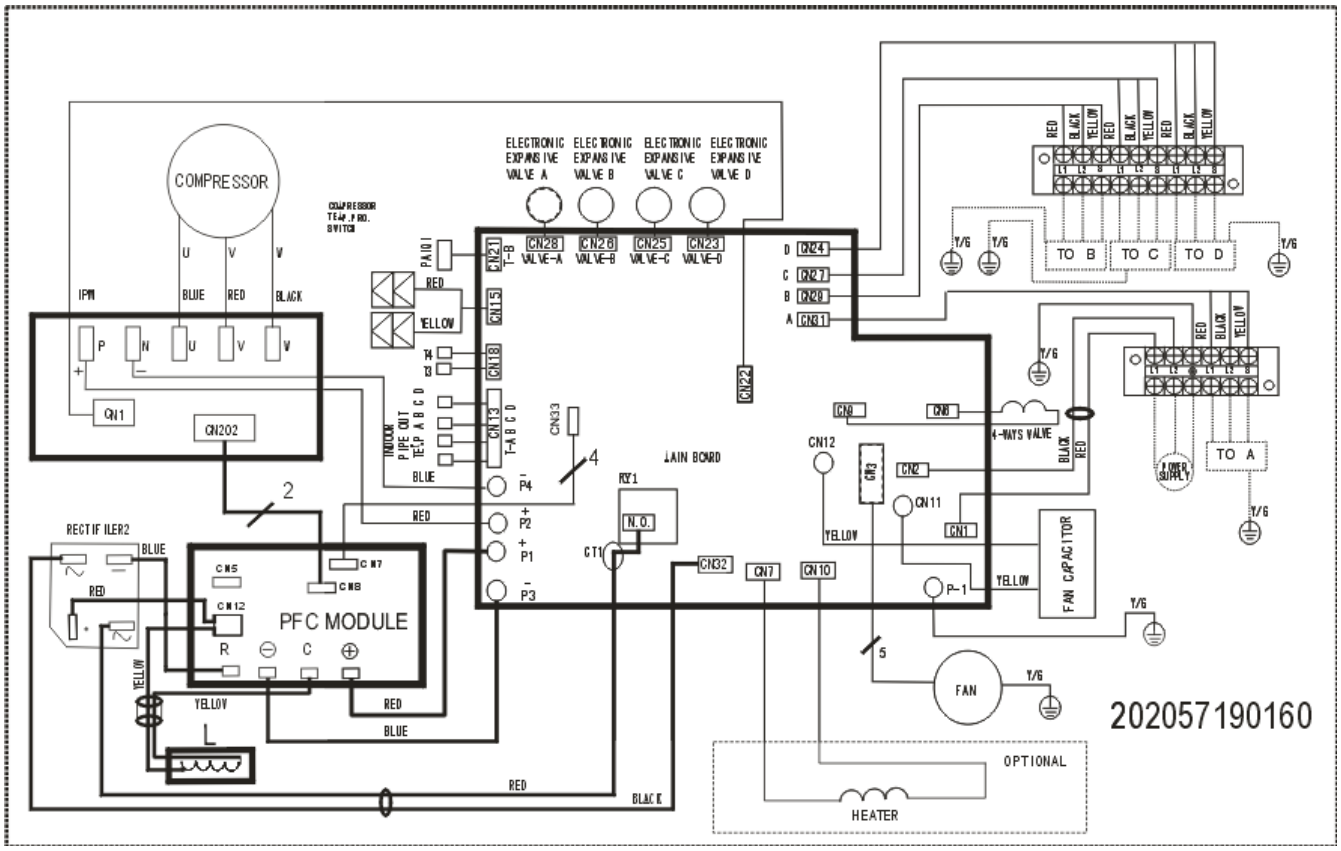
4.1 M2OC-18HRDN1-M



4.2 M3OC-27HRDN1-M

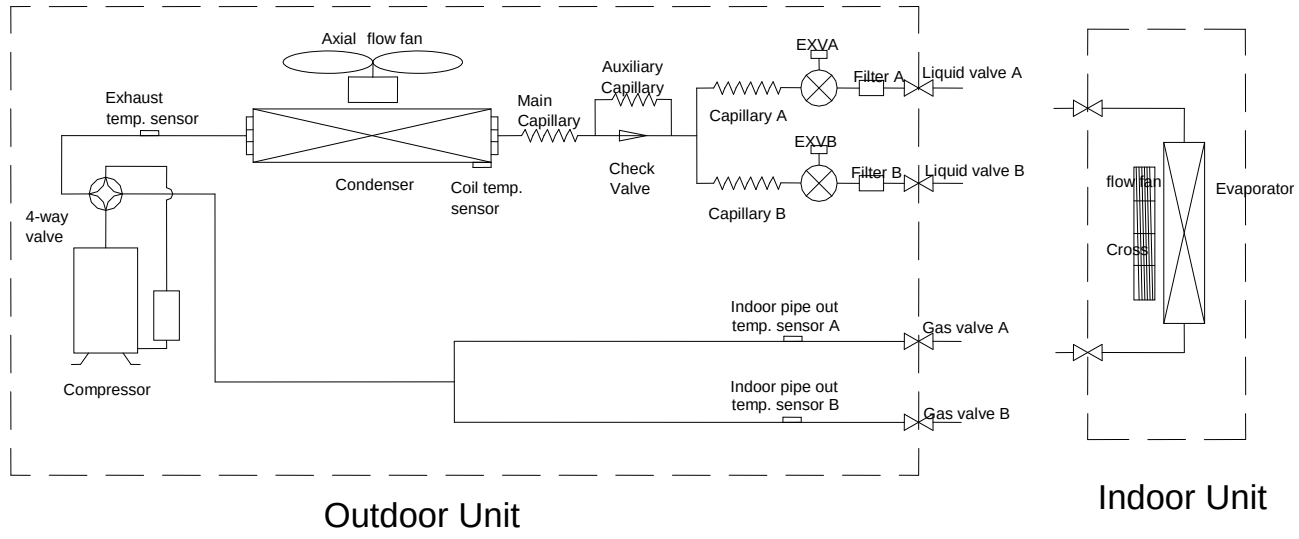


4.3 M4OC-36HRDN1-M

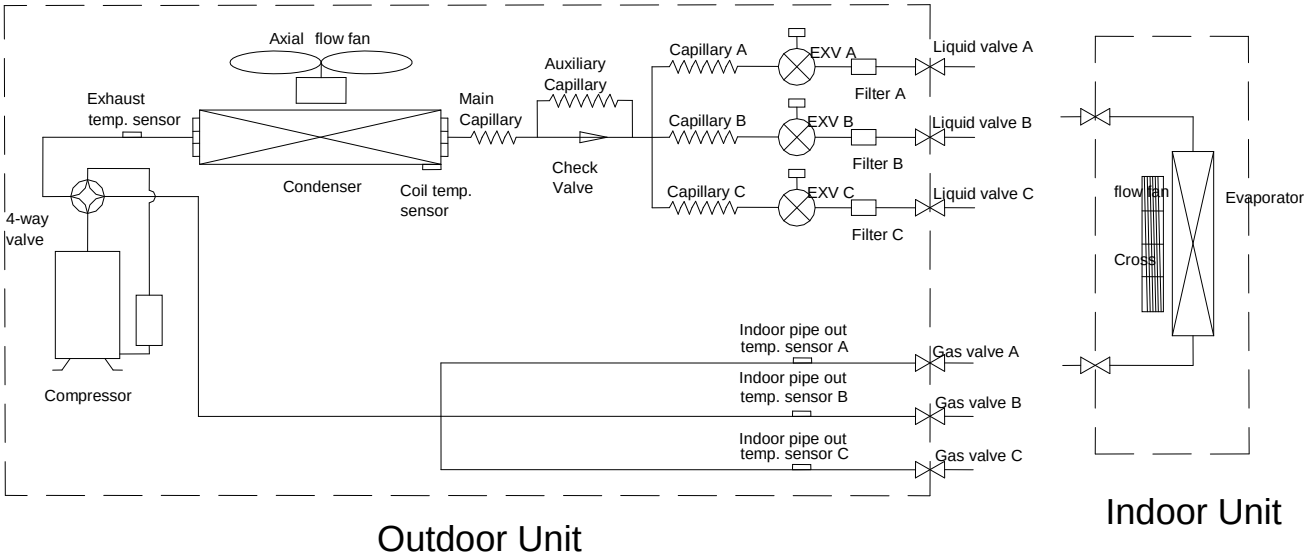


5. Refrigeration Cycle Diagram

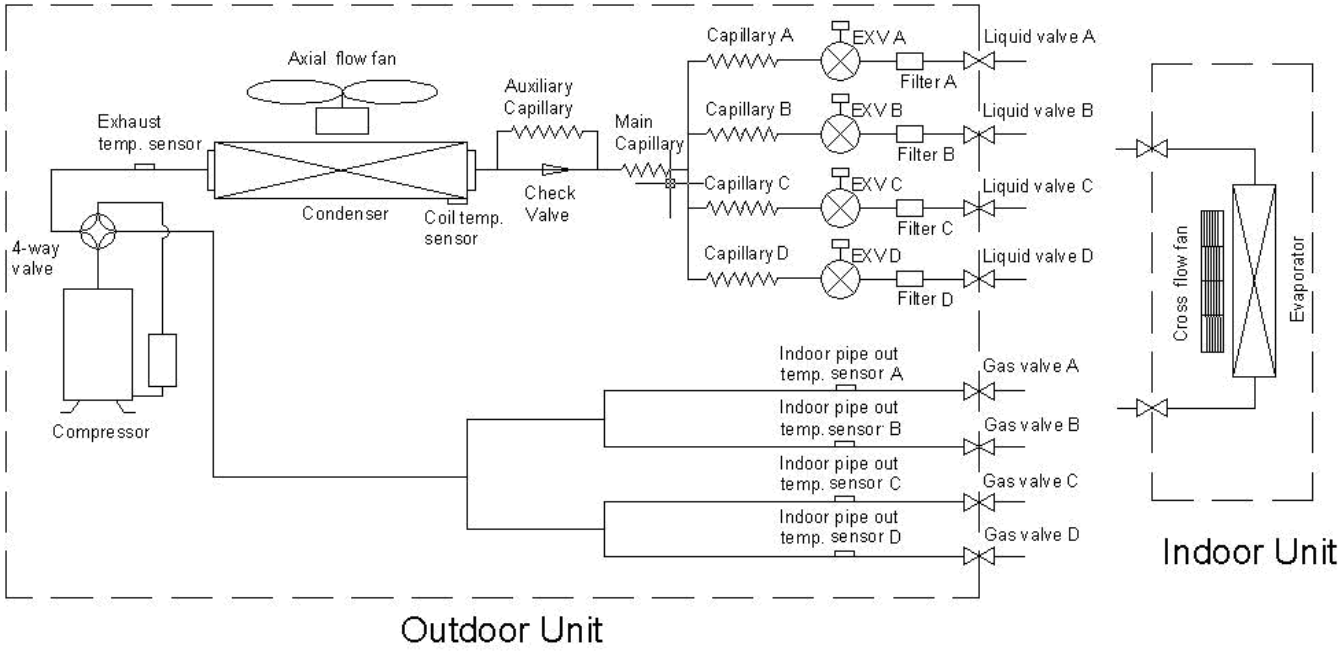
8.1 Refrigeration circuit drawing of inverter dual zone



5.2 Refrigeration circuit drawing of inverter tri-zone



8.3 Refrigeration circuit drawing of inverter qua-zone


Axial flow fan
Exhaust temp. sensor
Condenser
Coil temp. sensor
Auxiliary Capillary
Check Valve
Main Capillary
4-way valve
Compressor
Capillary A
EXV A
Filter A
Liquid valve A
Capillary B
EXV B
Filter B
Liquid valve B
Capillary C
EXV C
Filter C
Liquid valve C
Capillary D
EXV D
Filter D
Liquid valve D
Indoor pipe out temp. sensor A
Indoor pipe out temp. sensor B
Indoor pipe out temp. sensor C
Indoor pipe out temp. sensor D
Gas valve A
Gas valve B
Gas valve C
Gas valve D
Outdoor Unit
Cross flow fan
Evaporator
Indoor Unit

6. Indoor units combination

6.1 Indoor unit combination for M2OC-18HRDN1-M

Comb.	Combinations	
	Unit A	Unit B
Dual(1x1)	9k	—
	12k	—
	18k	—
Dual (1x2)	9k	9k
	9k	12k
	12k	12k

6.2 Indoor unit combination for M3OC-27HRDN1-M

Comb.	Combinations		
	Unit A	Unit B	Unit C
TRI (1x1)	9k	—	—
	12k	—	—
	18k	—	—
TRI (1x2)	9k	9k	—
	9k	12k	—
	9k	18k	—
	12k	12k	—
	12k	18k	—
TRI (1x3)	9k	9k	9k
	9k	9k	12k
	9k	12k	12k

6.3 Indoor unit combination for M4OC-36HRDN1-M

Comb.	Combinations			
	Unit A	Unit B	Unit C	Unit D
QUA (1x1)	9k	—	—	—
	12k	—	—	—
	18k	—	—	—
QUA (1x2)	9k	9k	—	—
	9k	12k	—	—
	9k	18k	—	—
	12k	12k	—	—
	12k	18k	—	—
	18k	18k	—	—
QUA (1x3)	9k	9k	9k	—
	9k	9k	12k	—
	9k	9k	18k	—
	9k	12k	12k	—
	9k	12k	18k	—
	9k	18k	18k	—
	12k	12k	12k	—
	12k	12k	18k	—
	12k	18k	18k	—
QUA(1x4)	9k	9k	9k	9k
	9k	9k	9k	12k
	9k	9k	9k	18k
	9k	9k	12k	12k
	9k	9k	12k	18k
	9k	12k	12k	12k
	9k	12k	12k	18k
	12k	12k	12k	12k
	12k	12k	12k	18k

7. Installation Details

7.1 Wrench torque sheet for installation

Outside diameter		Torque	Additional tightening torque
mm	inch	N.cm	N.cm
$ 6.35	1/4	1500(153kgf.cm)	1600(163kgf.cm)
$ 9.52	3/8	2500(255kgf.cm)	2600(265kgf.cm)
$ 12.7	1/2	3500(357kgf.cm)	3600(367kgf.cm)

7.2 Connecting the cables

The power cord of connect should be selected according to the following specifications sheet.

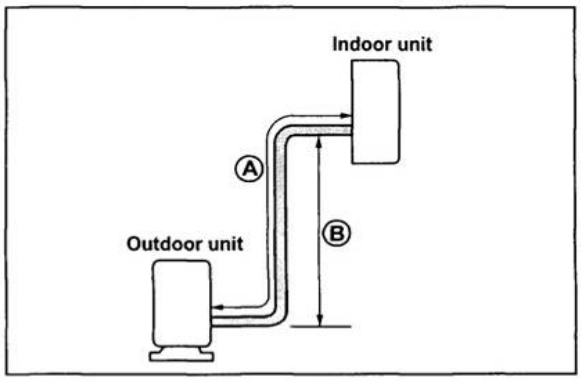
For power line:

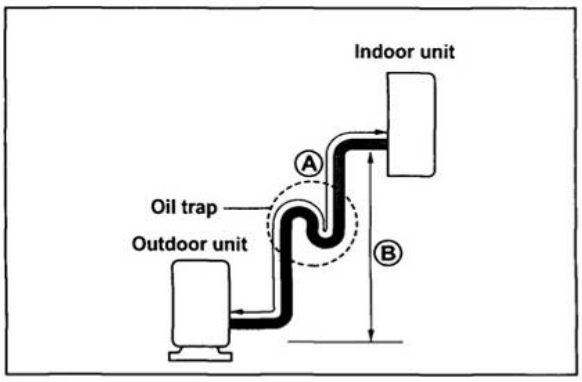
Unit	AWG
dual-zone(18K outdoor unit)	14
tri-zone (27K outdoor unit).	14
qua-zone(36K outdoor unit)	12

For indoor unit and outdoor unit connection line, 16AWG is ok for all.

7.3 Pipe length and the elevation

Unit	Pipe size		Standard length (m)	Max. Elevation B (m)	Max. Length A (m)	Additional refrigerant (g/m)
	Gas	Liquid				
9K	3/8"(Φ9.53)	1/4"(Φ6.35)	5 (16.4ft)	8 (26.2ft)	20 (65.6ft)	20 (0.212 ozs/ft)
12K/18K	1/2"(Φ12.7)	1/4"(Φ6.35)				





Caution:

Capacity test is based on standard length and maximum allowance length is based on reliability.

Oil trap should be installed per 3-5 meters.

7.4 Installation for the first time

Air and moisture in the refrigerant system have undesirable effects as below:

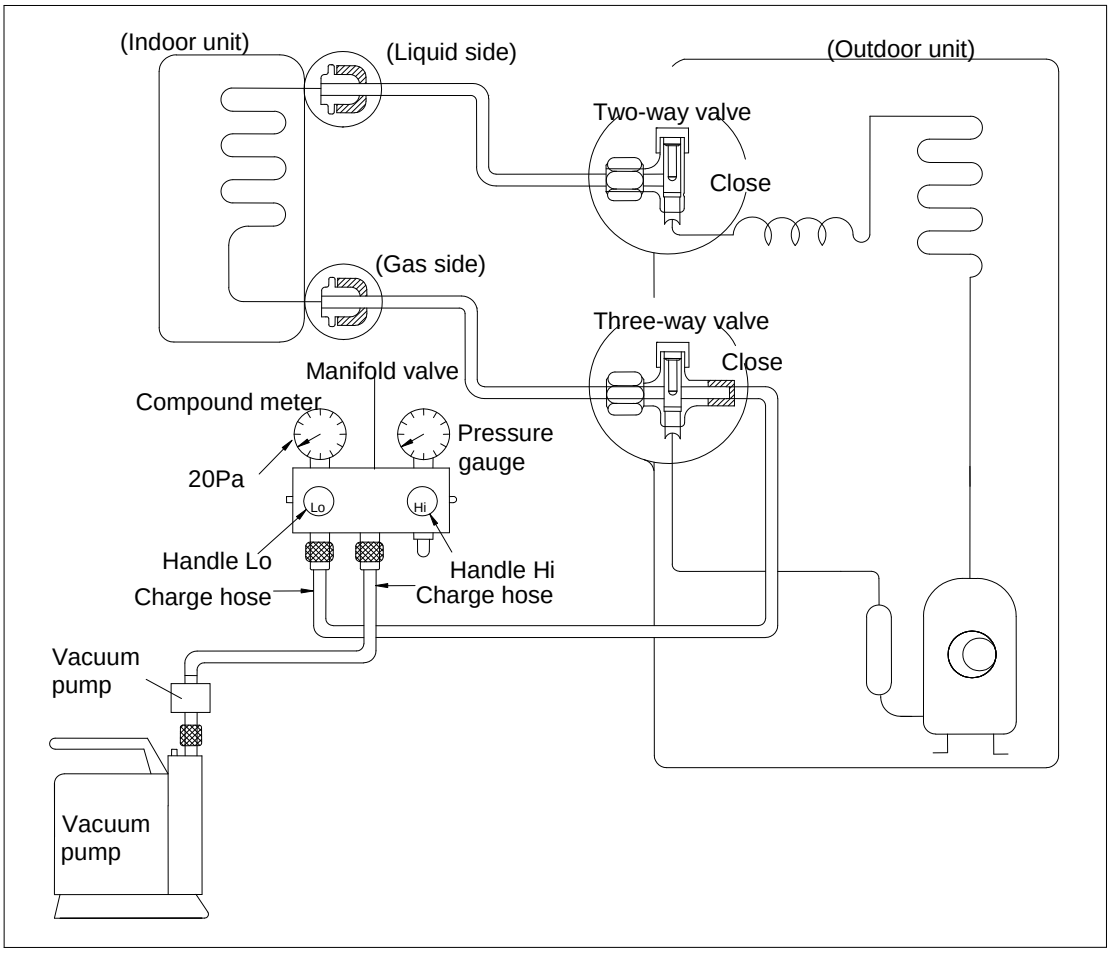
- Pressure in the system rises.
- Operating current rises.
- Cooling or heating efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- Water may lead to corrosion of parts in the refrigerant system.

Therefore, the indoor units and the pipes between indoor and outdoor units must be leak tested and evacuated to remove gas and moisture from the system.

Gas leak check (Soap water method):

Apply soap water or a liquid neutral detergent on the indoor unit connections or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping. If bubbles come out, the pipes have leakage.

1. Air purging with vacuum pump



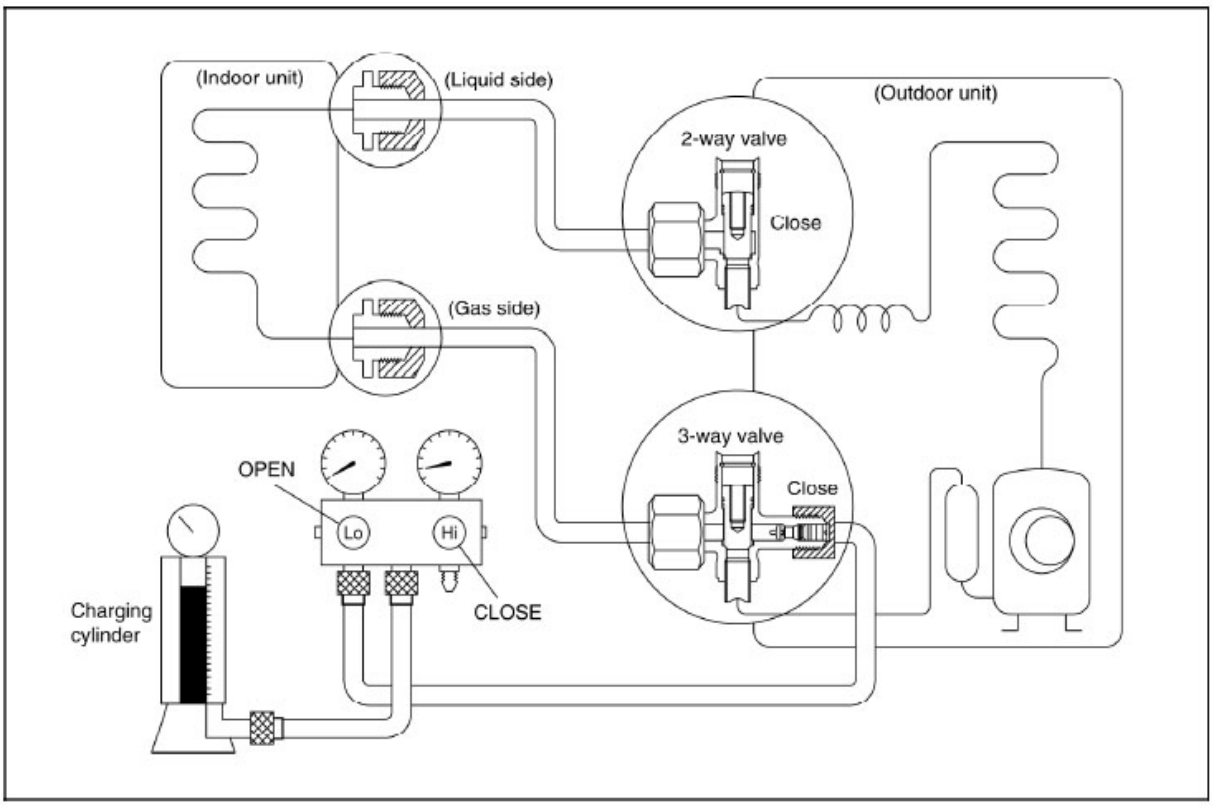
1) Completely tighten the flare nuts of the indoor and outdoor units, confirm that both the 2-way and 3-way valves are set to the closed position.
2) Connect the charge hose with the push pin of handle lo to the 3-way valves gas service port..
3) Connect the charge hose of handle hi connection to the vacuum pump.
4) Fully open the handle Lo of the manifold valve.
5) Operate the vacuum pump to evacuate.
6) Make evacuation for 30 minutes and check whether the compound meter indicates -0.1Mpa. If the meter does not indicate -0.1Mpa after pumping 30 minutes, it should be pumped 20 minutes more. If the pressure can’t achieve -0.1Mpa after pumping 50 minutes, please check if there are some leakage

points.

Fully close the handle Lo valve of the manifold valve and stop the operation of the vacuum pump. Confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).

7) Turn the flare nut of the 3-way valves about 45° counterclockwise for 6 or 7seconds after the gas coming out, and then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure. Then remove the charge hose from the 3 way valve.
8) Fully open the 2 way valve and 3 way valve and securely tighten the cap of the 3 way valve.

2. Air purging by refrigerant



Procedure:

1). Confirm that both the 2-way and 3-way valves are set to the closed position.

2). Connect the charge set and a charging cylinder to the service port of the 3-way valve.

3). Air purging.

Open the valves on the charging cylinder and the charge set. Purge the air by loosening the flare nut on the 2-way valve approximately 45’ for 3 seconds then closing it for 1 minute; repeat 3 times.

After purging the air, use a torque wrench to tighten the flare nut on the 2-way valve.

4). Check the gas leakage.

Check the flare connections for gas leakage.

5). Discharge the refrigerant.

Close the valve on the charging cylinder and discharge the refrigerant by loosening the flare nut on the

2-way valve approximately 45’ until the gauge indicates 0.3 to 0.5 Mpa.

6). Disconnect the charge set and the charging cylinder, and set the 2-way and 3-way valves to the open position.

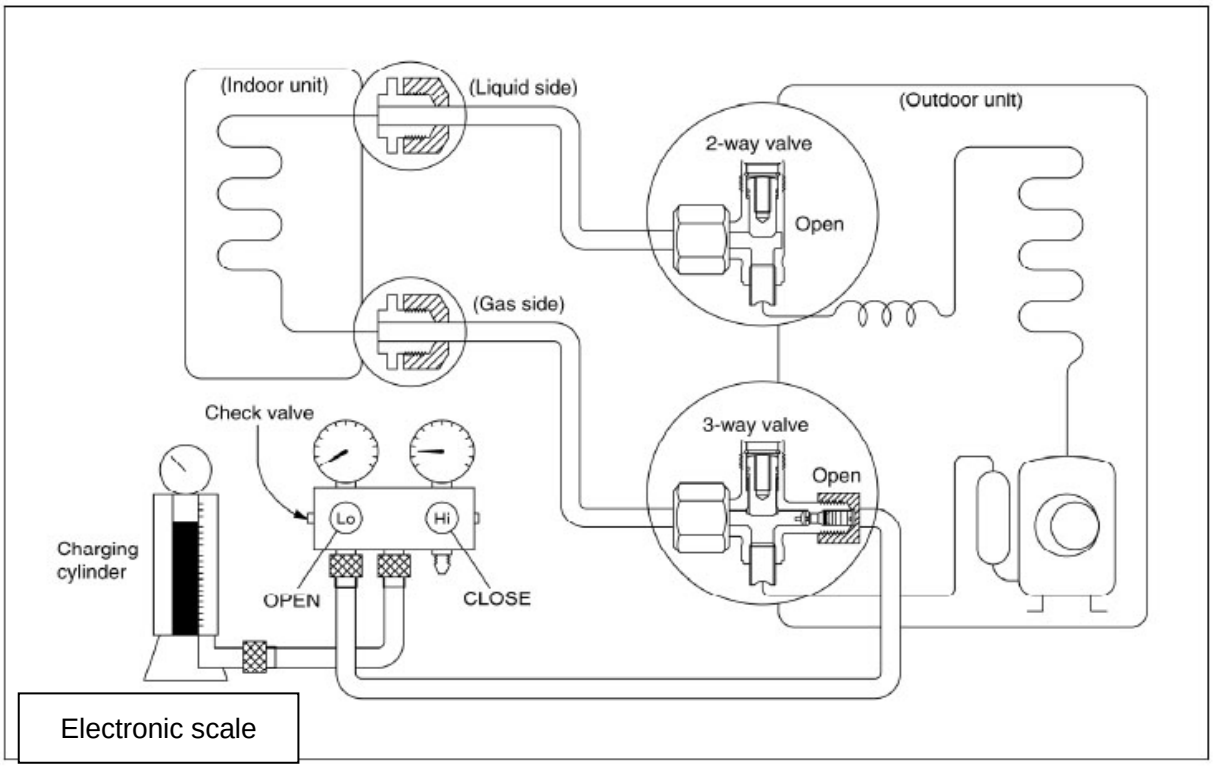
Be sure to use a hexagonal wrench to operate the valve stems.

7). Mount the valve stems nuts and the service port cap.

Be sure to use a torque wrench to tighten the service port cap to a torque 18N·m.

Be sure to check the gas leakage.

3. Adding the refrigerant if the pipe length >5m



Procedure:

1). Connect the charge hose to the charging cylinder, open the 2-way valve and the 3-way valve.

Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom up to ensure the liquid charge.

2). Purge the air from the charge hose.

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

3) Put the charging cylinder onto the electronic scale and record the weight.

4) Operate the air conditioner at the cooling mode.

5) Open the valves (Low side) on the charge set and charge the system with liquid refrigerant.

6).When the electronic scale displays the proper weight (refer to the table), disconnect the charge hose

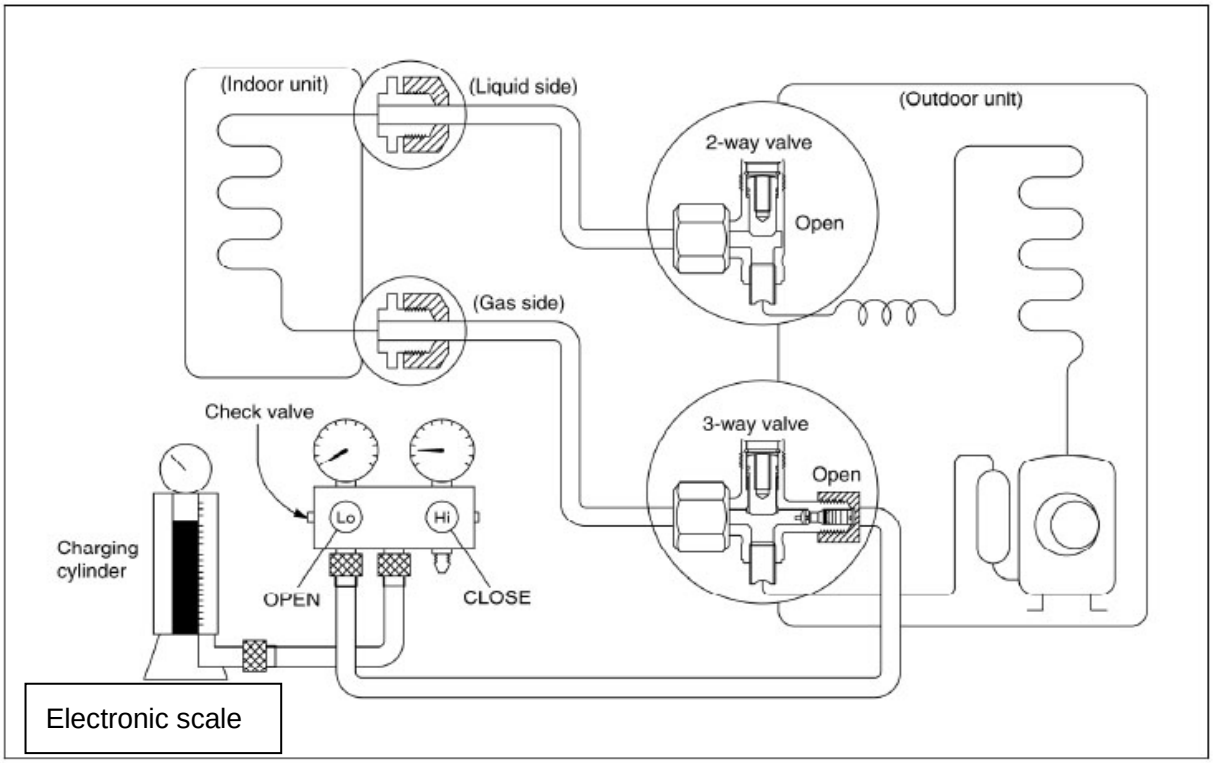
from the 3-way valve's service port immediately and turn off the air conditioner before disconnecting the hose.

7). Mount the valve stem caps and the service port

Use torque wrench to tighten the service port cap to a torque of 18N.m.

Be sure to check for gas leakage.

7.5 Adding the refrigerant after running the system for many years



Procedure:

1). Connect the charge hose to the 3-way service port, open the 2-way valve and the 3-way valve.

Connect the charge hose to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom up to ensure liquid charge.

2). Purge the air from the charge hose.

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

3) Put the charging cylinder onto the electronic scale and record the weight.

4) Operate the air conditioner at the cooling mode.

5) Open the valves (Low side) on the charge set and charge the system with liquid refrigerant.

6).When the electronic scale displays the proper weight (refer to the gauge and the pressure of the low side), disconnect the charge hose from the 3-way valve's service port immediately and turn off the air conditioner before disconnecting the hose.

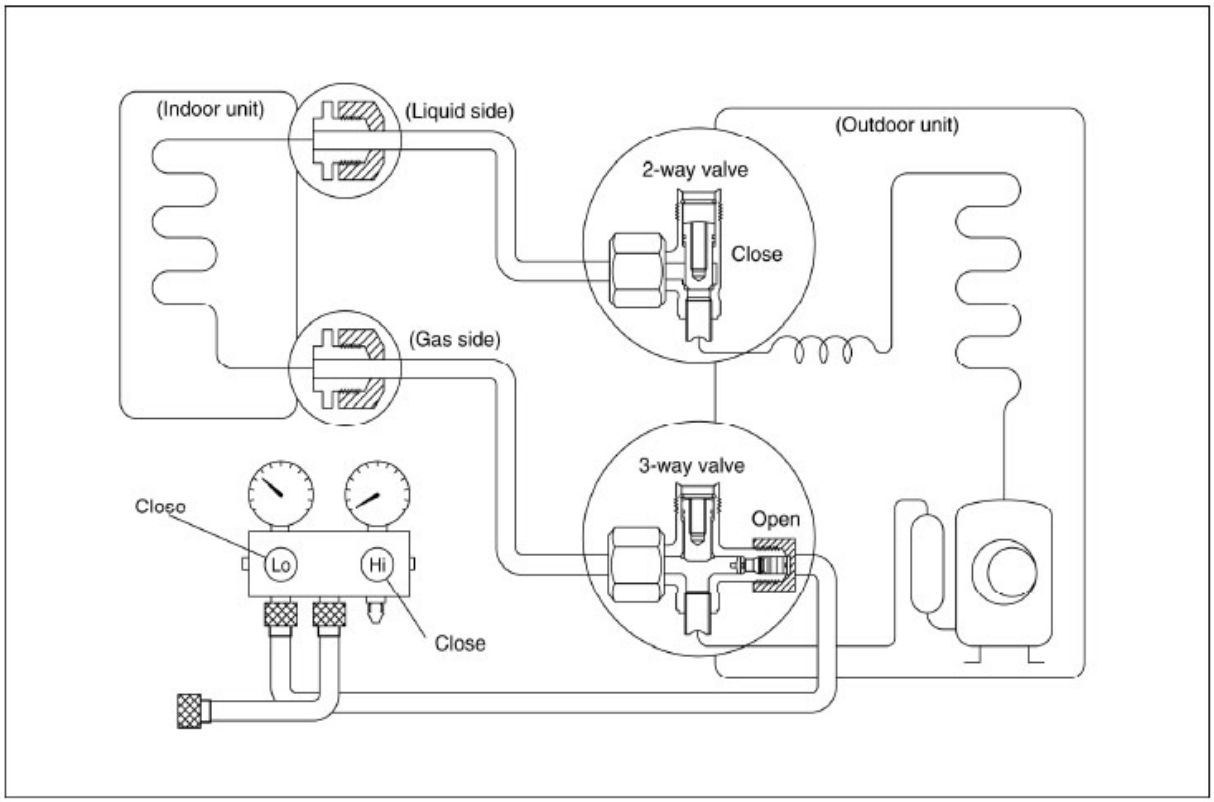
7). Mount the valve stem caps and the service port

Use torque wrench to tighten the service port cap to a torque of 18N.m.

Be sure to check for gas leakage.

7.6 Re-installation while the indoor unit need to be repaired

1. Collecting the refrigerant into the outdoor unit



Procedure

1). Confirm that both the 2-way and 3-way valves are set to the opened position

Remove the valve stem caps and confirm that the valve stems are in the opened position.

Be sure to use a hexagonal wrench to operate the valve stems.

2). Connect the charge hose with the push pin of handle lo to the 3-way valves gas service port.

3). Air purging of the charge hose.

Open the handle Lo valve of the manifold valve slightly to purge air from the charge hose for 5 seconds and then close it quickly.

4). Set the 2-way valve to the close position.

5). Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0.1MPa.

6). Set the 3-way valve to the closed position immediately

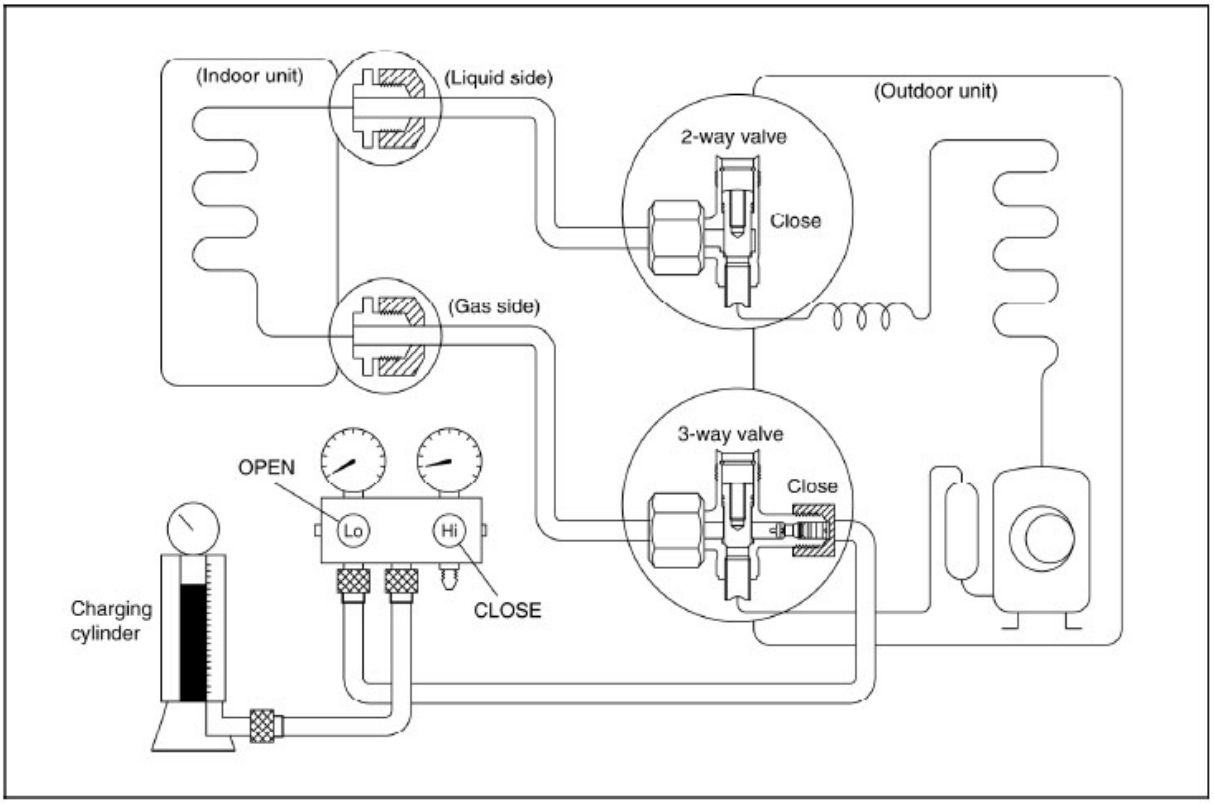
Do this quickly so that the gauge ends up indicating 0.3 to 0.5Mpa.

Disconnect the charge set, and tighten the 2-way and 3-way valve’s stem nuts.

Use a torque wrench to tighten the 3-way valves service port cap to a torque of 1.8 kgf.m.

Be sure to check for gas leakage.

2. Air purging by the refrigerant



Procedure:

1). Confirm that both the 2-way and 3-way valves are set to the closed position.

2). Connect the charge set and a charging cylinder to the service port of the 3-way valve

Leave the valve on the charging cylinder closed.

3). Air purging.

Open the valves on the charging cylinder and the charge set. Purge the air by loosening the flare nut on the 2-way valve approximately 45’ for 3 seconds then closing it for 1 minute; repeat 3 times.

After purging the air, use a torque wrench to tighten the flare nut on the 2-way valve.

4). Check the gas leakage

Check the flare connections for gas leakage.

5). Discharge the refrigerant.

Close the valve on the charging cylinder and discharge the refrigerant by loosening the flare nut on the 2-way valve approximately 45’ until the gauge indicates 0.3 to 0.5 Mpa.

6). Disconnect the charge set and the charging cylinder, and set the 2-way and 3-way valves to the open position

Be sure to use a hexagonal wrench to operate the valve stems.

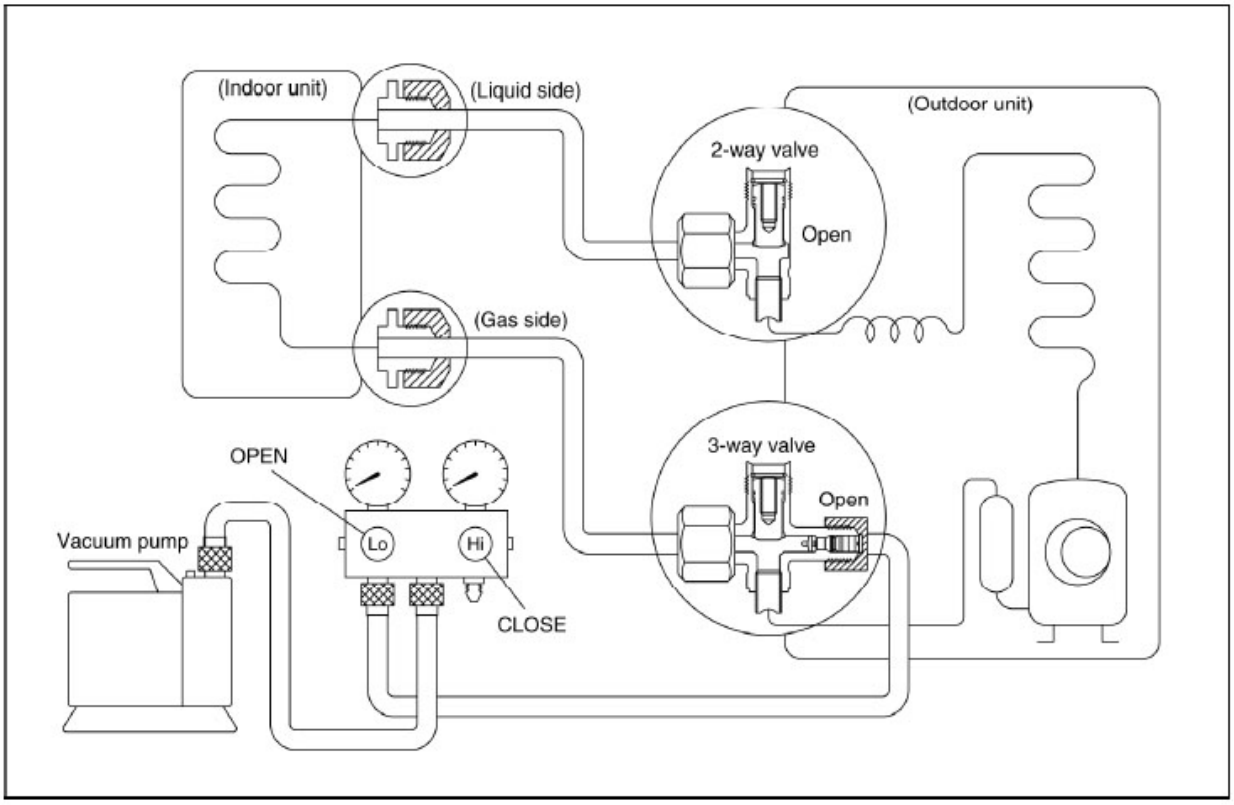
7). Mount the valve stems nuts and the service port cap

Be sure to use a torque wrench to tighten the service port cap to a torque 18N.m.

Be sure to check the gas leakage.

7.7 Re-installation while the outdoor unit need to be repaired

1. Evacuation for the whole system



Procedure:

1). Confirm that both the 2-way and 3-way valves are set to the opened position.

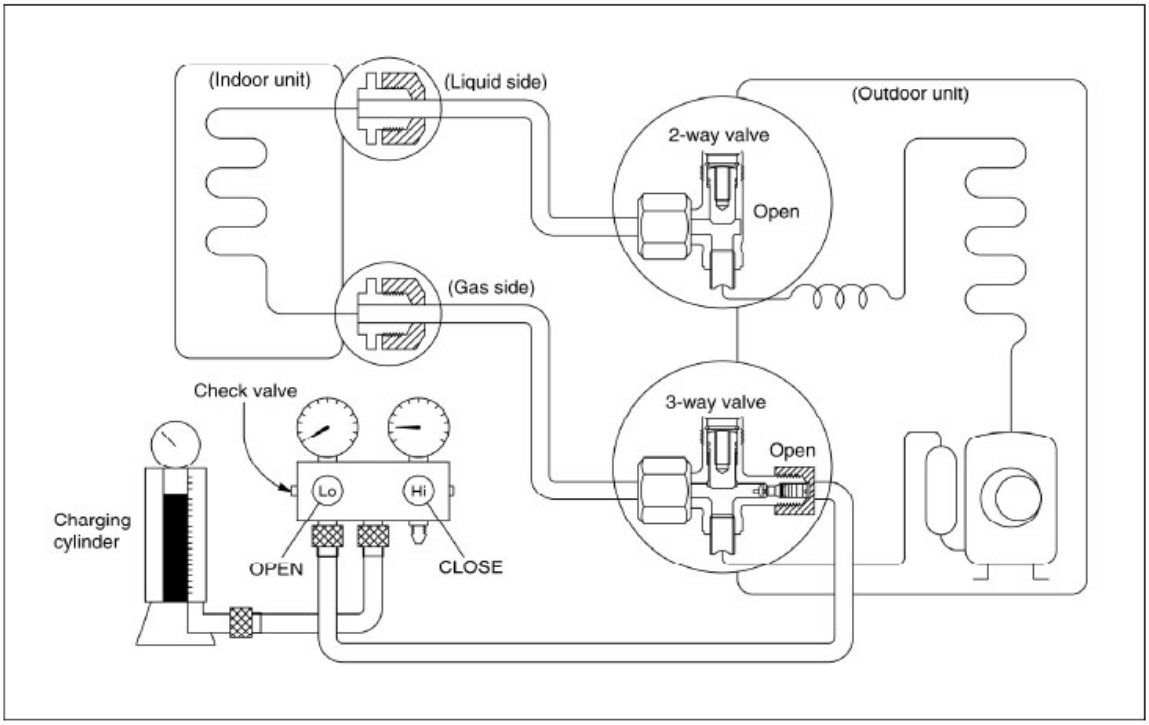
2). Connect the vacuum pump to 3-way valve's service port.

3). Evacuation for approximately one hour. Confirm that the compound meter indicates -0.1Mpa.

4). Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).

5). Disconnect the charge hose from the vacuum pump.

2. Refrigerant charging



Procedure:

1). Connect the charge hose to the charging cylinder; open the 2-way valve and the 3-way valve

Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom up to ensure liquid charge.

2). Purge the air from the charge hose

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

3) Put the charging cylinder onto the electronic scale and record the weight.

4). Open the valves (Low side) on the charge set and charge the system with liquid refrigerant

If the system cannot be charge with the specified amount of refrigerant, or can be charged with a little at a time (approximately 150g each time) , operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure.

5).When the electronic scale displays the proper weight, disconnect the charge hose from the 3-way valve's service port immediately

If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.

6). Mounted the valve stem caps and the service port

Use torque wrench to tighten the service port cap to a torque of 18N.m.

Be sure to check for gas leakage

8. Electronic control function

8.1 Abbreviation

T1: Indoor ambient temperature

T2: Coil temperature of indoor heat exchanger middle.

T2B: Coil temperature of indoor heat exchanger outlet.

T3: Coil temperature of outdoor heat exchanger

T4: Outdoor ambient temperature

T5: Compressor discharge temperature

Ts: Setting temp.

8.2 Electric control working environment.

8.2.1 Input voltage: 230V.

8.2.2 Input power frequency:60Hz.

8.2.3 Indoor fan normal working amp. is less than 1A.

8.2.4 Outdoor fan. Normal working amp. is less than 1.5A.

8.2.5 Four-way valve normal working amp. is less than 1A.

8.2.6 Swing motor: DC12V.

8.3 Outdoor unit's digital display tube

There is a digital display tube in outdoor PCB.

Digital display tube display function

- In standby , the LED displays "- -"
- In compressor operation, the LED display the running frequency,
- In defrosting mode, The LED displays "dF" or alternative displays between running frequency and "dF"(each displays 2s)
- In compressor pre-heating, The LED displays "- -"
- In protection or malfunction, the LED displays error code or protection code.

8.4 Outdoor unit point check function

There is a check switch in outdoor PCB.

Push the switch SW1 to check the states of unit when the unit is running. The digital display tube will display the follow procedure when push SW1 each time.

	Display	Remark
1	Indoor unit capacity demand code	
2	Outdoor unit running mode code	Off:0, Cooling:1, Heating:2
3	Amendatory capacity demand code	
4	Outdoor unit fan motor state	Off:0, Low speed:1, High speed:2
5	Evaporator outlet temp. for 1# indoor unit	Actual data
6	Evaporator outlet temp. for 2# indoor unit	Actual data
7	Evaporator outlet temp. for 3# indoor unit	Actual data
8	Evaporator outlet temp. for 4# indoor unit	Actual data
9	Condenser pipe temp.	Actual data
10	Ambient temp.	Actual data
11	Compressor discharge temp.	Actual data
12	Inverter current	Actual data
13	EXV open angle for 1# indoor unit	Actual data divide 8

14	EXV open angle for 2# indoor unit	Actual data divide 8
15	EXV open angle for 3# indoor unit	Actual data divide 8
16	EXV open angle for 4# indoor unit	Actual data divide 8
17	Power supply of outdoor unit	AD data
18	Indoor unit number	The indoor unit can communicate with outdoor unit well.
19	The last error or protection code	00 means no malfunction
20	frequency value	Actual data
21	Ambient temp. of 1# indoor unit	Actual data
22	Condenser pipe temp. of 1# indoor unit	Actual data
23	Ambient temp. of 2# indoor unit	Actual data
24	Condenser pipe temp. of 2# indoor unit	Actual data
25	Ambient temp. of 3# indoor unit	Actual data
26	Condenser pipe temp. of 3# indoor unit	Actual data
27	Ambient temp. of 4# indoor unit	Actual data
28	Condenser pipe temp. of 4# indoor unit	Actual data
29	• •	Check point over

The following items from 6.4.1 to 6.4.6 are for the explanation of the point check functions.

8.4.1 Frequency of compressor:

Display	Frequency of compressor (Hz)
30	30
--	Stand by
60	60

8.4.2 Running mode:

Display	Corresponding mode
0	Off
1	Cooling mode
2	Heating mode

8.4.3 Capacity demand:

Cooling mode

Capacity	2000-2500	2000-2500	3000-3800	4500-5000	5000-5500	5500-6100	6100-7000	7000-7500	7500-8000	>7500
Corresponding Code	1	2	3	4	5	6	7	8	9	>=10

Heating mode

Capacity	2000-2500	2000-2500	3000-3800	4500-5000	5500-6100	6100-7000	6100-7000	7000-7500	7500-8000	>8000
Corresponding Code	1	2	3	4	5	6	7	8	9-10	>=11

Note:

The capacity is just for reference.

8.4.4Number of indoor unit

Display	Number of indoor unit
1	1
2	2
3	3

8.4.5 Outdoor ambient temp:

Display	Corresponding temp.	Display	Corresponding temp.	Display	Corresponding temp.
15	-7.5	50	10	80	25
16	-7	51	10.5	81	25.5
17	-6.5	52	11	82	26
18	-6	53	11.5	83	26.5
19	-5.5	53	11.5	84	27
20	-5	54	12	85	27.5
21	-4.5	55	12.5	86	28
22	-4	56	13	87	28.5
23	-3.5	57	13.5	88	29
24	-3	58	14	89	29.5
26	-2	59	14.5	90	30
27	-1.5	60	15	91	30.5
28	-1	61	15.5	92	31
29	-0.5	62	16	93	31.5
30	0	63	16.5	93	31.5
31	0.5	63	16.5	94	32
32	1	64	17	95	32.5
33	1.5	65	17.5	96	33
34	2	65	17.5	97	33.5
35	2.5	66	18	98	34
36	3	67	18.5	99	34.5
37	3.5	68	19	10.	35~40
38	4	69	19.5	11.	40~45
39	4.5	70	20	12.	45~50
40	5	71	20.5	13.	50~55
41	5.5	72	21	14.	55~60
42	6	73	21.5	15.	60~65
43	6.5	74	22	16.	65~70
44	7	75	22.5		
45	7.5	75	22.5		
46	8	76	23		
47	8.5	77	23.5		
48	9	78	24		
49	9.5	79	24.5		

8.4.6 Opening degree of electronic expansion valve:

Actual opening degree equals the display data divided 8

8.5 Protection

8.5.1 Three minutes delay at restart for compressor.

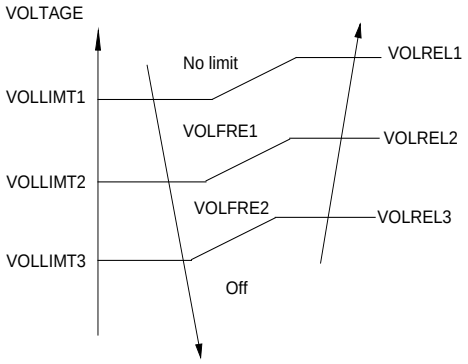
8.5.2 Temperature protection of compressor discharge.

When the compressor discharge temp. is getting higher, the running frequency will be limited as below rules:

----If 102℃<T5<115℃, decrease the frequency to the lower level every 2 minutes till to F1.

---If T5>115 ℃ for 10 seconds, the compressor will stop and restart till T5<90℃.

8.5.3 Low voltage protection



Model	VOLLIMT1	VOLLIMT2	VOLLIMT3	VOLREL1	VOLREL2	VOLREL3	VOLFRE1	VOLFRE2
M2OC-18HRDN1-M	230	200	120	260	210	135	62	54
M3OC-27HRDN1-M	245	220	120	265	240	135	78	45
M4OC-36HRDN1-M	200	185	120	210	195	135	54	42

Note: if the low voltage protection occurs and not resumes within 3min, it will keep the protection always after restart the machine.

8.5.4 Compressor current limit protection

If the compressor current exceeds the current limit value for 10 seconds, the compressor frequency will be limited as below table.

Cooling mode:

Current frequency(Hz)	Current limit value(A)	Frequency limit
COOL_F10	ICOOLLMT6	Decrease the frequency to COOL_F4 and run at COOL_F4 for 3 minutes. After that, the frequency will be adjusted according to the capacity demand and rise to the upper level every 3 minutes (When the frequency>COOL_F4 via capacity demand).
COOL_F9	ICOOLLMT5	
COOL_F8	ICOOLLMT4	
COOL_F7	ICOOLLMT3	
COOL_F6	ICOOLLMT2	
COOL_F5	ICOOLLMT1	
If the current frequency is lower than COOL_F4, the frequency will not be limited. After 10s of the compressor start, if the current>ICOOL,the AC will display the failure for 30 seconds and stop. The AC will restart 3 minutes later.		

Heating mode:

Current frequency(Hz)	Current limit value(A)	Frequency limit
HEAT_F12	IHEATLMT8	Decrease the frequency to HEAT_F4 and run at HEAT_F4 for 3 minutes. After that, the frequency will be adjusted according to the capacity demand and rise to the upper level every 3 minutes
HEAT_F11	IHEATLMT7	
HEAT_F10	IHEATLMT6	
HEAT_F9	IHEATLMT5	
HEAT_F8	IHEATLMT4	

HEAT_F7	IHEATLMT3	(When the frequency>Heat_F4 via capacity demand).
HEAT_F6	IHEATLMT2	
HEAT_F5	IHEATLMT1	
If the current frequency is lower than HEAT_F4, the frequency will not be limited. After 10s of the compressor start, if the current>IHEAT,the AC will display the failure for 30 seconds and stop. The AC will restart 3 minutes later.		

8.5.5 Indoor / outdoor units communication protection

If the indoor units can not receive the feedback signal from the outdoor units for 2 minutes, the AC will stop and display the failure.

8.5.6 High condenser coil temp. protection.

When T3>65℃ for3 seconds, the compressor will stop while the indoor fan and outdoor fan will continue.

When T3<52 ℃, the compressor will restart after 3 minutes.

8.5.7 Outdoor unit anti-freezing protection

When T2B<0 ℃ for 250 seconds, the indoor unit capacity demand will be zero and resume to normal when T2B>10 ℃.

8.5.8 Oil return

Running rules:

1. If the compressor frequency keeps lower than RECOILINFRE for 2hours,the AC will rise the frequency to RECOILFRE for 3mins and then resume to former frequency.

Model	RECOILINFRE
M2OC-18HRDN1-M	45
M3OC-27HRDN1-M	45
M4OC-36HRDN1-M	40

2. During the oil return process, the EXV and indoor units keep the current running mode, the frequency will not be limited by the compressor discharge temp. and the current.

8.5.9 Compressor preheating functions

----Preheating permitting condition:

If T4(outdoor ambient temperature)＜3 ℃ when powered on or if T4＜3 ℃ and co

for over 3 hours, the compressor heating cable will work.

----Preheating mode:

A weak current flow through the coil of compressor from the wiring terminal of compressor, then the compressor is heated without operation.

----Preheating release condition:

If T4＞5 ℃ or compressor starts running, preheating function will stop.

8.5.10 Compressor crankcase heater

When T4<3℃and the compressor is not running, the crankcase heater will be active.

When T4≧5℃or the compressor starts up, the crankcase heater will stop work.

9. Troubleshooting

9.1 Indoor unit error code explanation:

Vertu series & 9A series:

Display	LED STATUS
E0	EEPROM parameter error
E1	Communication malfunction between indoor and outdoor units
E2	Zero-crossing signal error
E3	Indoor fan speed out of control
E5	Open or short circuit of outdoor temperature sensor
E6	Open or short circuit of room or evaporator coil temperature sensor
P0	Inverter module protection
P1	Over voltage or too low voltage protection
P2	Temperature protection of compressor top.
P3	Outdoor temp. too low protection
P4	Inverter compressor drive error

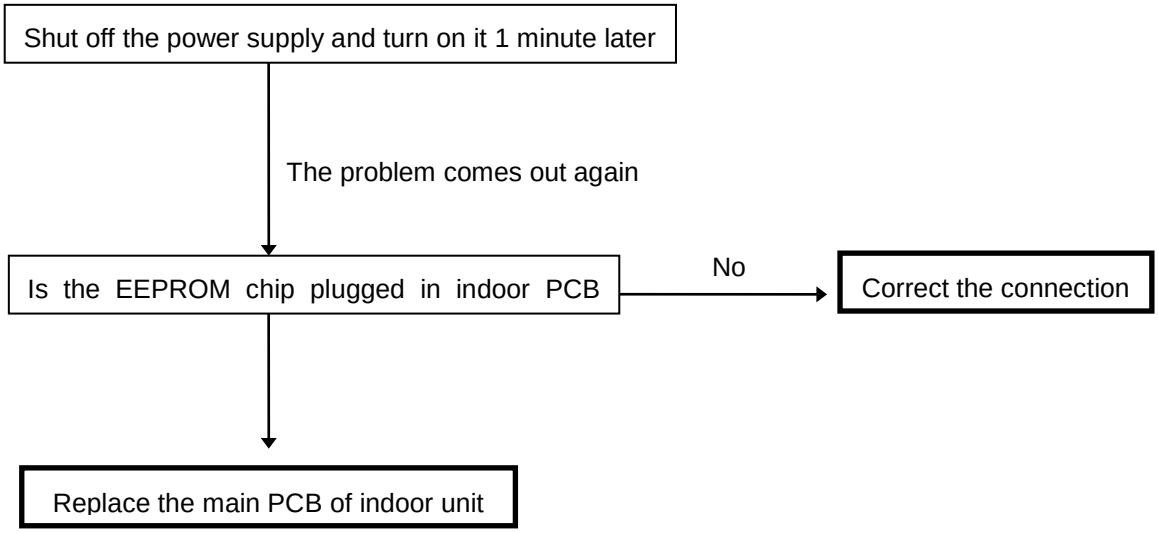
9.2 Outdoor unit error code explanation:

Display	LED STATUS
E0	EEPROM parameter error
E1	No 1 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective
E2	No 2 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective
E3	No 3 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective
E6	No 4 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective
E4	Open or short circuit of outdoor temperature sensor
E5	Compressor volt protection
E7	Communication error between outdoor IC and DSP
P0	Temperature protection of compressor top.
P1	High pressure protection (just for 36K 1x4 units.)
P2	Low pressure protection (just for 36K 1x4 units.)
P3	Compressor current protection
P4	Inverter module protection
P5	Outdoor temp. too low protection
P6	Condenser high-temperature protection
P7	Compressor driving protection
PF	PFC protection (just for 36K 1x4 units.)

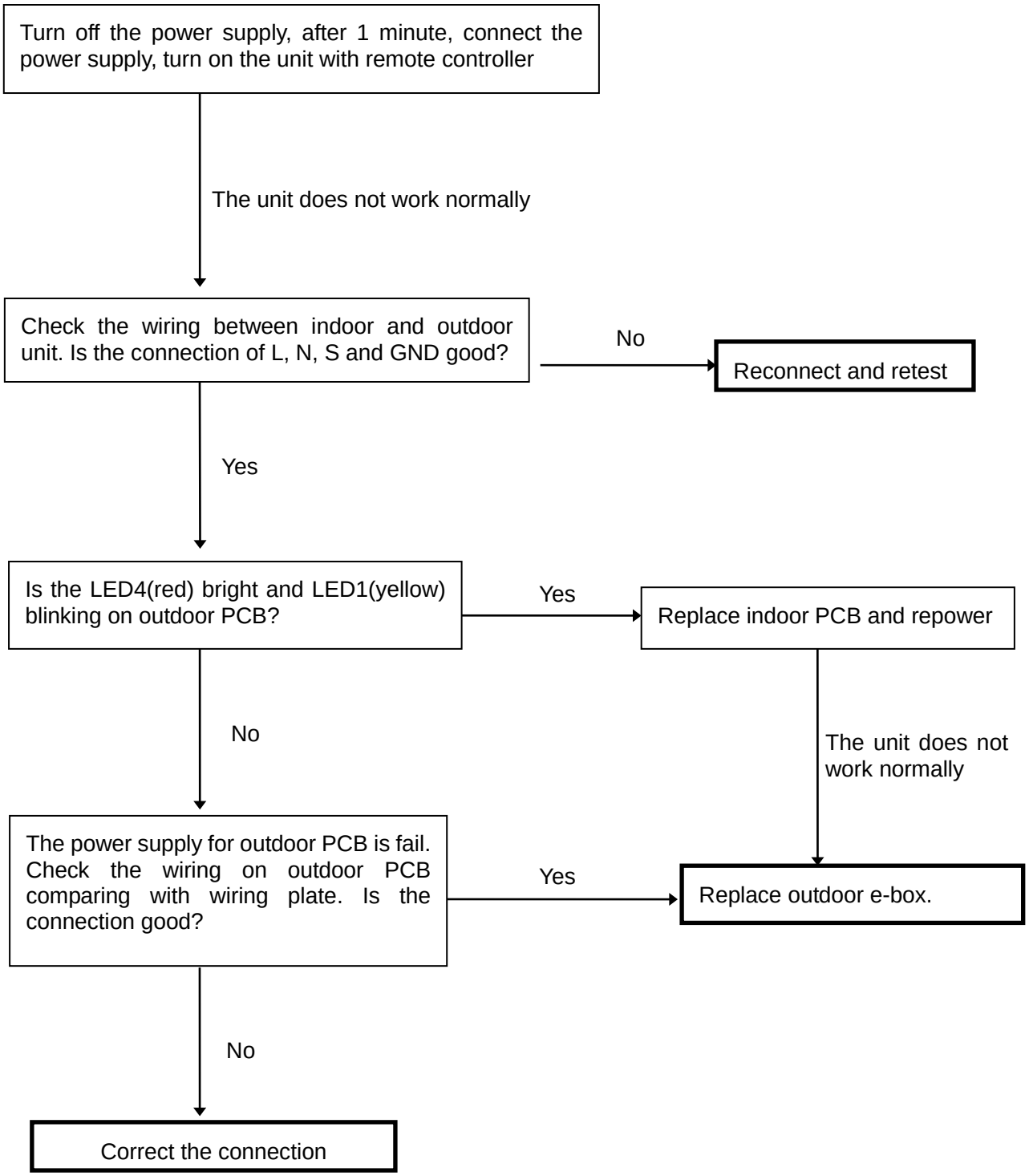
9.3 Trouble shooting

9.3.1 Indoor unit trouble shooting

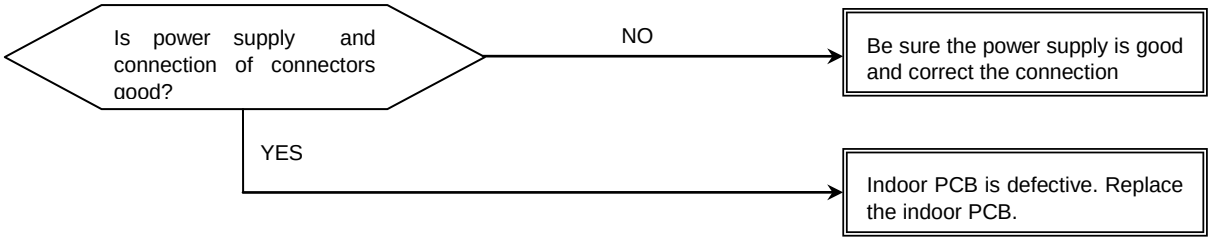
Indoor unit display	LED STATUS
E0	EEPROM parameter error



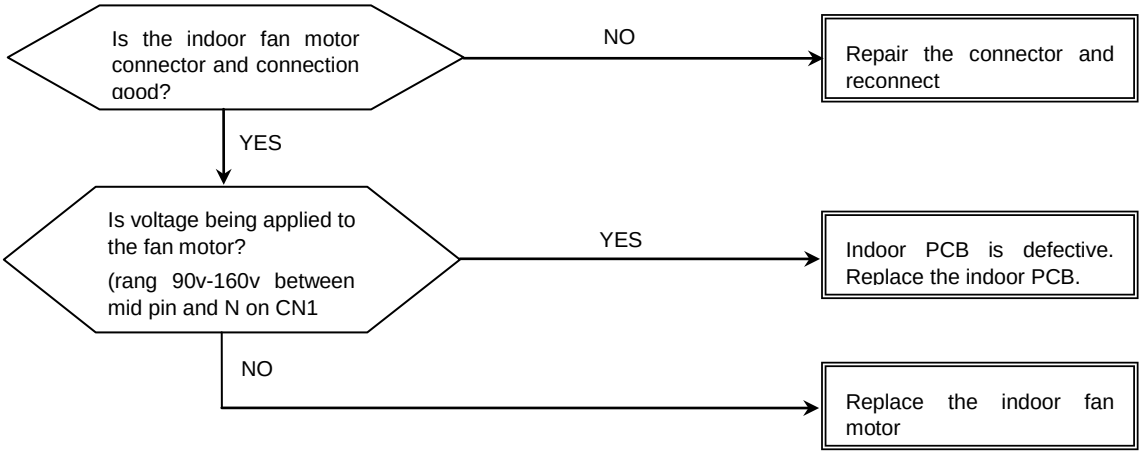
Indoor unit display	LED STATUS
E1	Communication malfunction between indoor and outdoor units



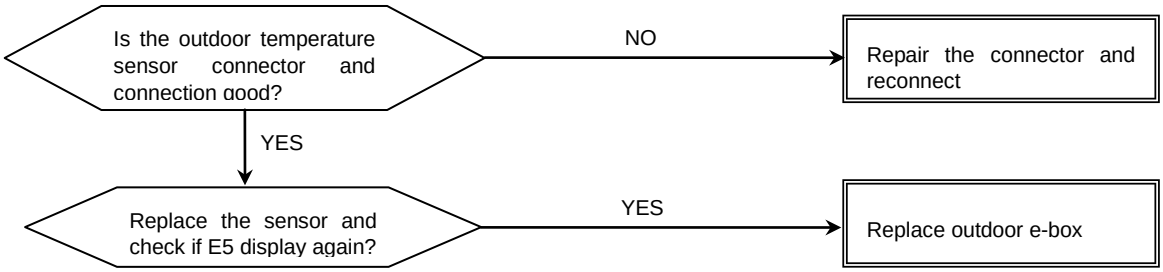
Indoor unit display	LED STATUS
E2	Zero-crossing signal error



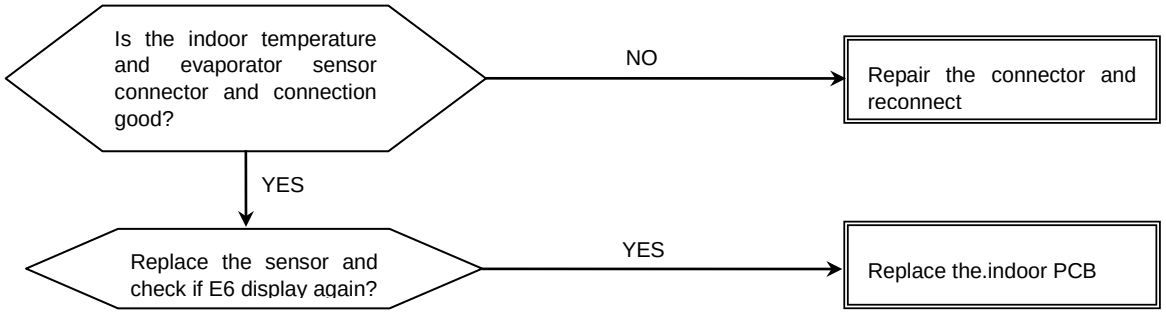
Indoor unit display	LED STATUS
E3	Indoor fan speed out of control



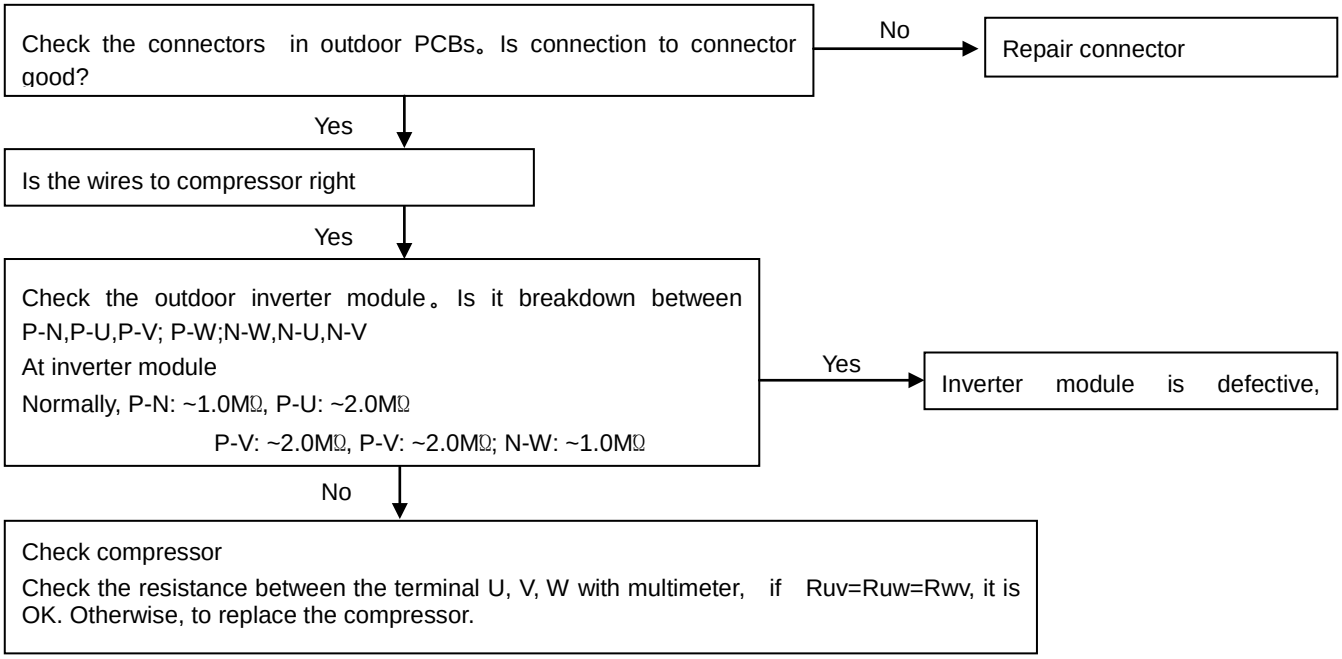
Indoor unit display	LED STATUS
E5	Open or short circuit of outdoor temperature sensor



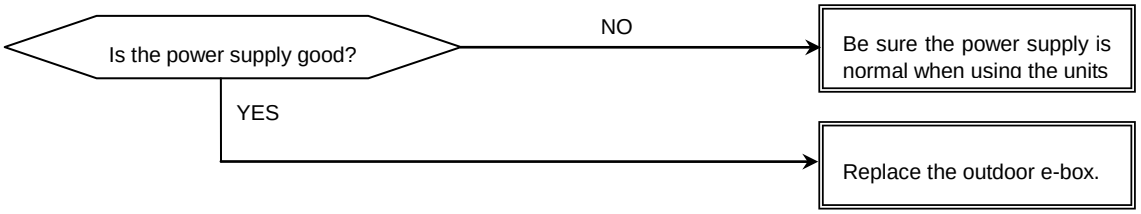
Indoor unit display	LED STATUS
E6	Open or short circuit of room or evaporator coil temperature sensor



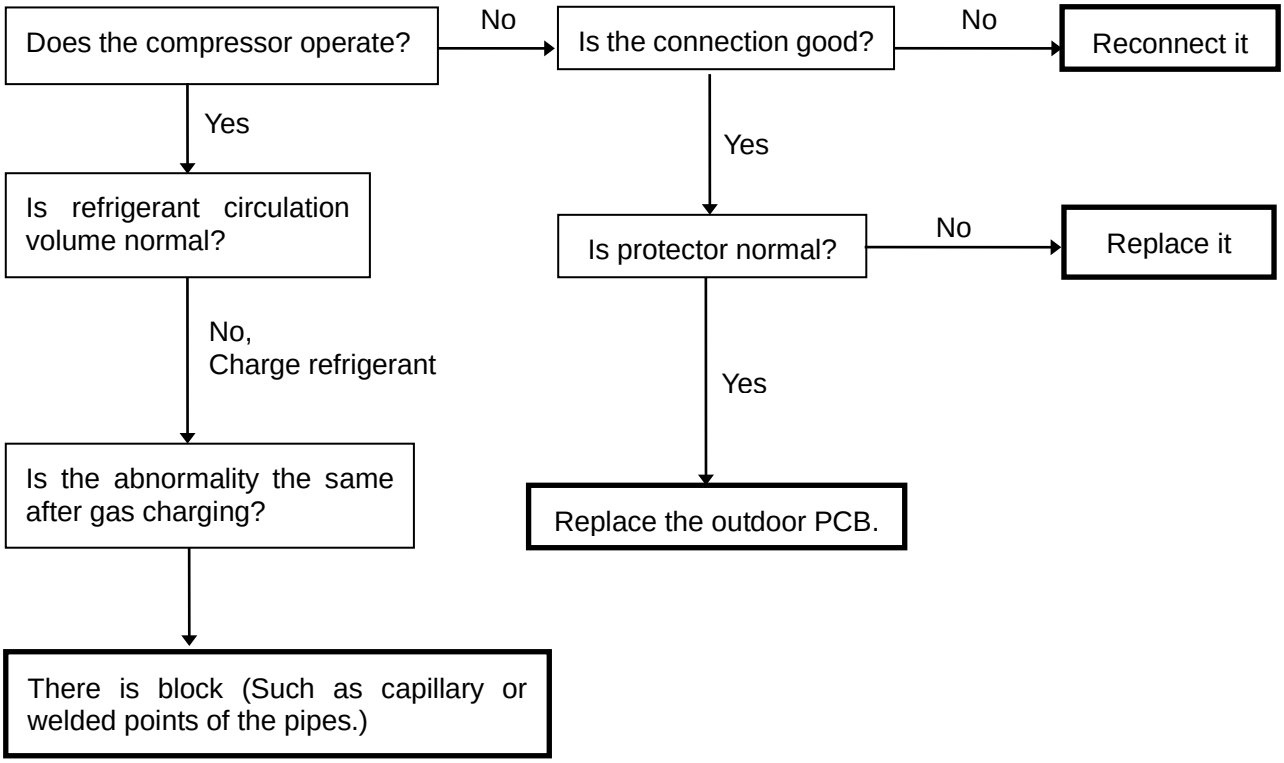
Indoor unit display	LED STATUS
P0	Inverter module protection



Indoor unit display	LED STATUS
P1	Over voltage or too low voltage protection



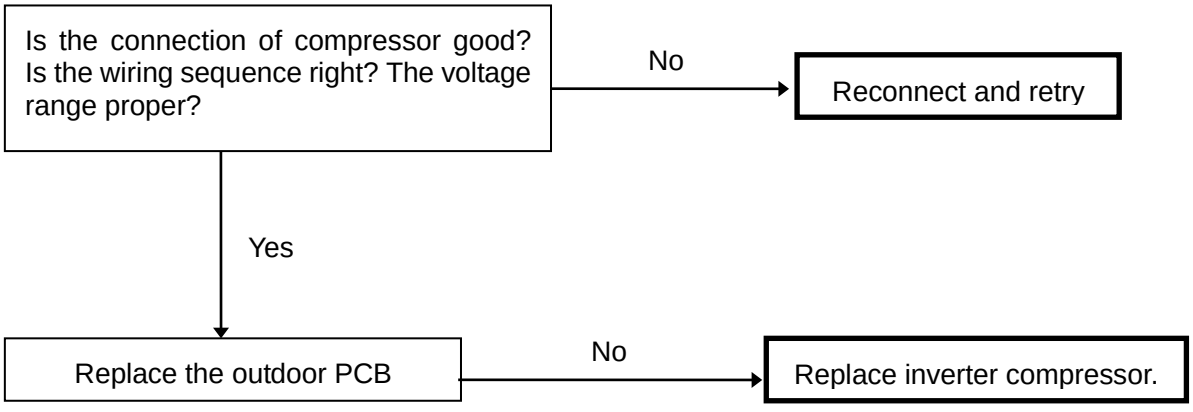
Indoor unit display	LED STATUS
P2	Temperature protection of compressor top.



Indoor unit display	LED STATUS
P3	Outdoor temp. too low protection

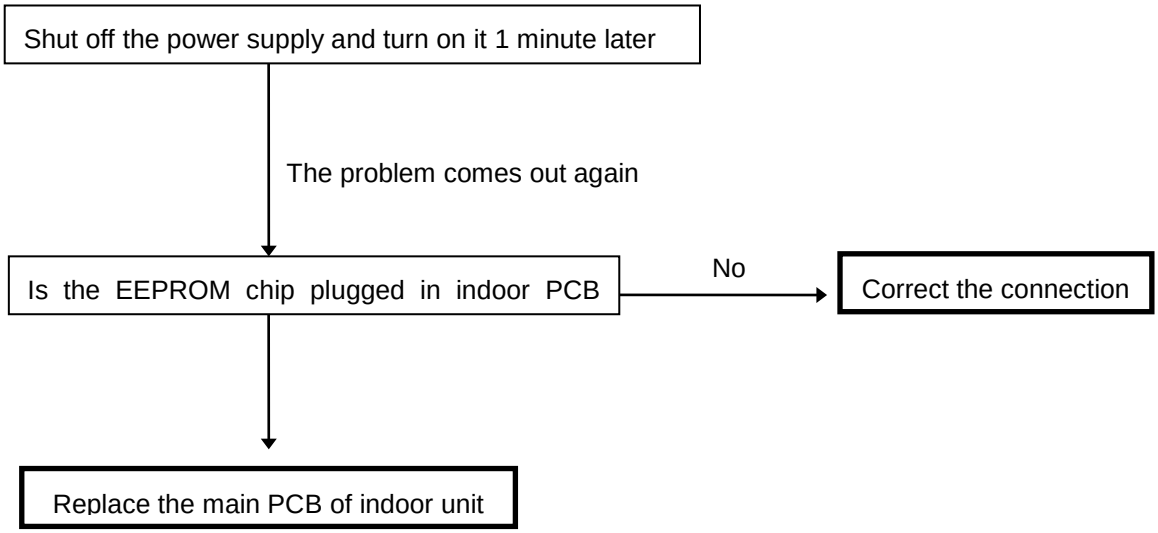
The trouble shooting is same with one of outdoor unit P3 protection.

Indoor unit display	LED STATUS
P4	Inverter compressor drive error

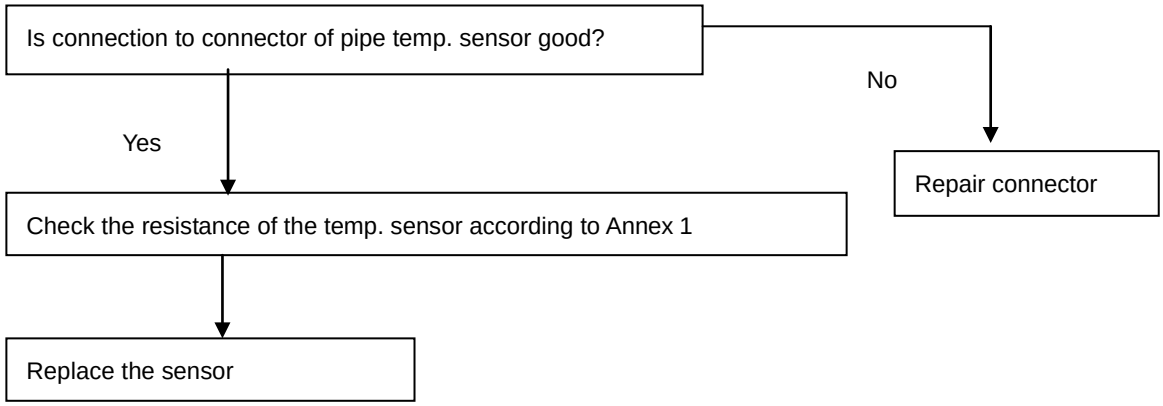


9.3.2 Outdoor unit trouble shooting

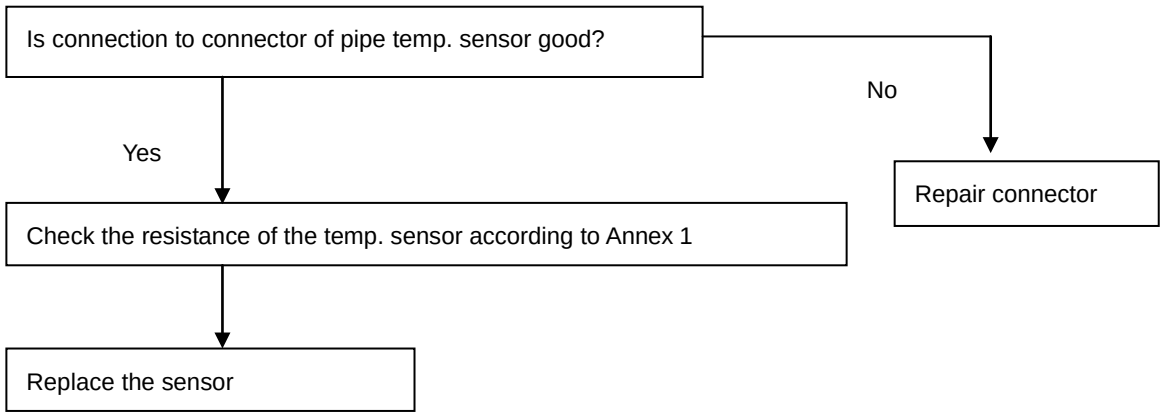
Outdoor unit display	LED STATUS
E0	EEPROM parameter error



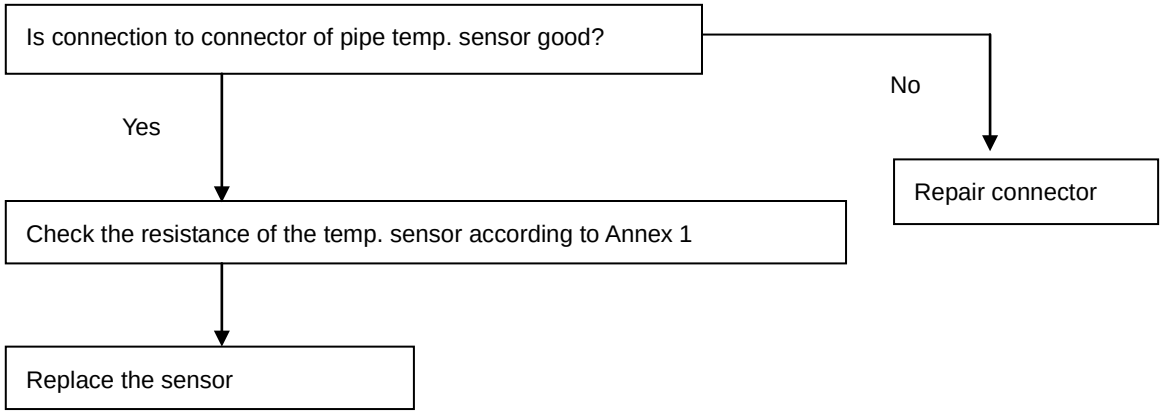
Outdoor unit display	LED STATUS
E1	No 1 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective



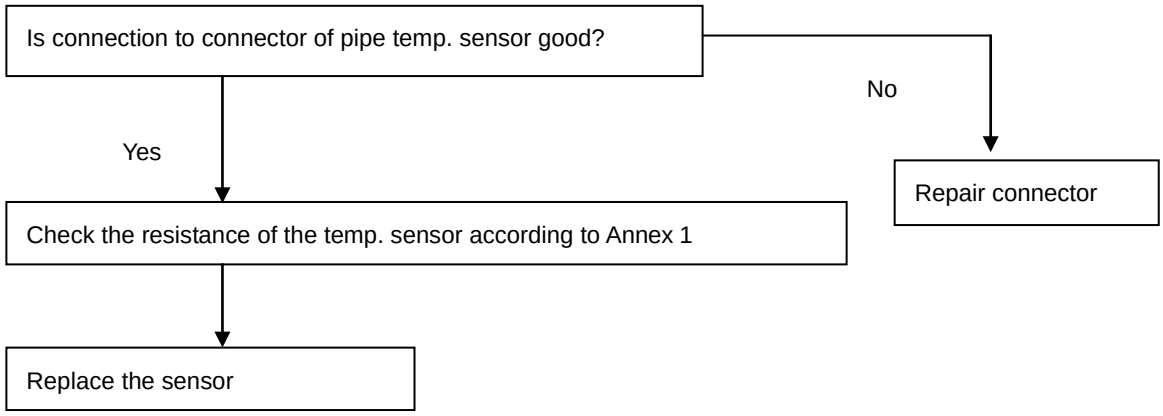
Outdoor unit display	LED STATUS
E2	No 2 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective



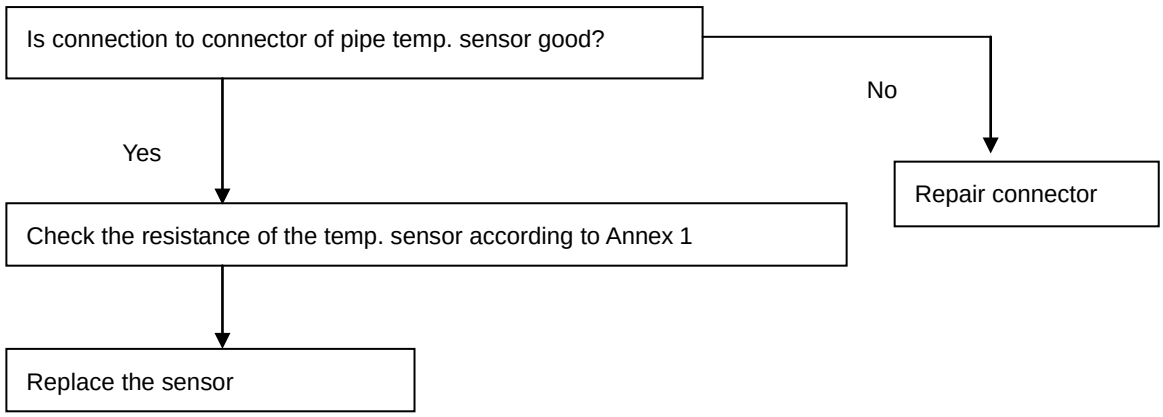
Outdoor unit display	LED STATUS
E3	No 3 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective



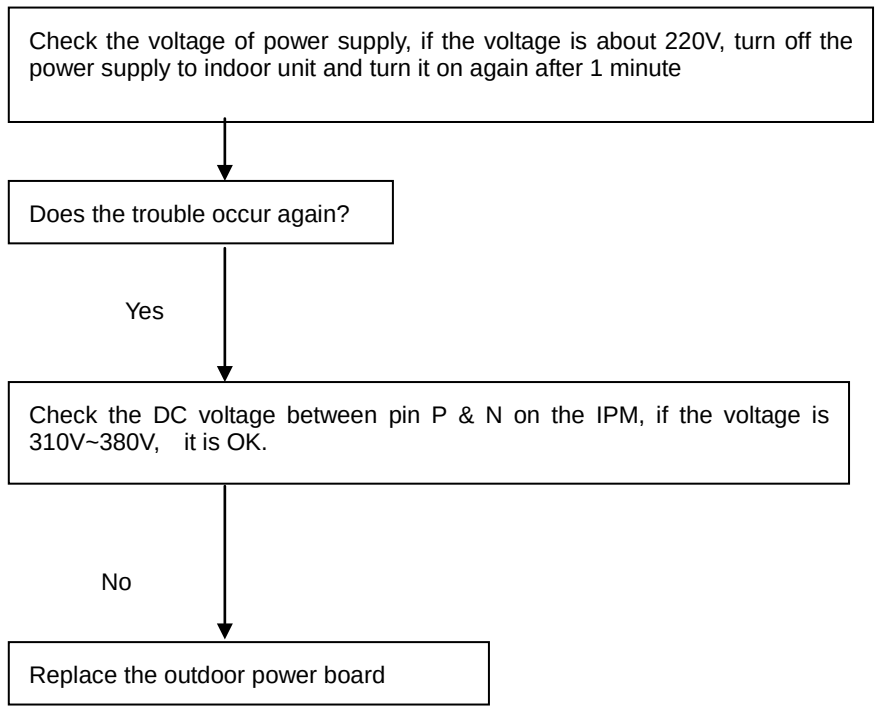
Outdoor unit display	LED STATUS
E6	No 4 Indoor units pipe temp. sensor or connector of pipe temp. sensor is defective



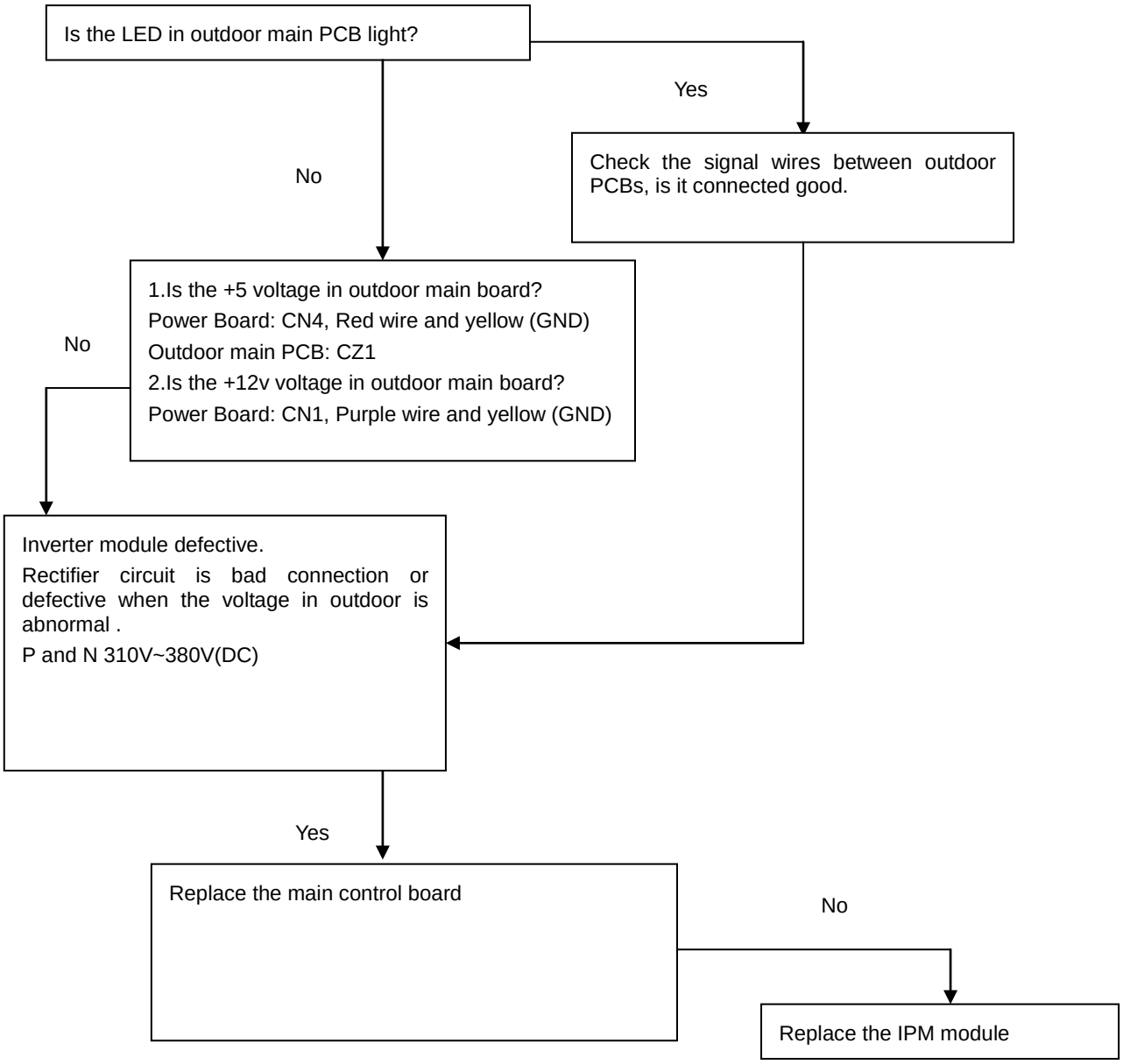
Outdoor unit display	LED STATUS
E4	Open or short circuit of outdoor temperature sensor



Outdoor unit display	LED STATUS
E5	Compressor volt protection



Outdoor unit display	LED STATUS
E7	Communication error between outdoor IC and DSP

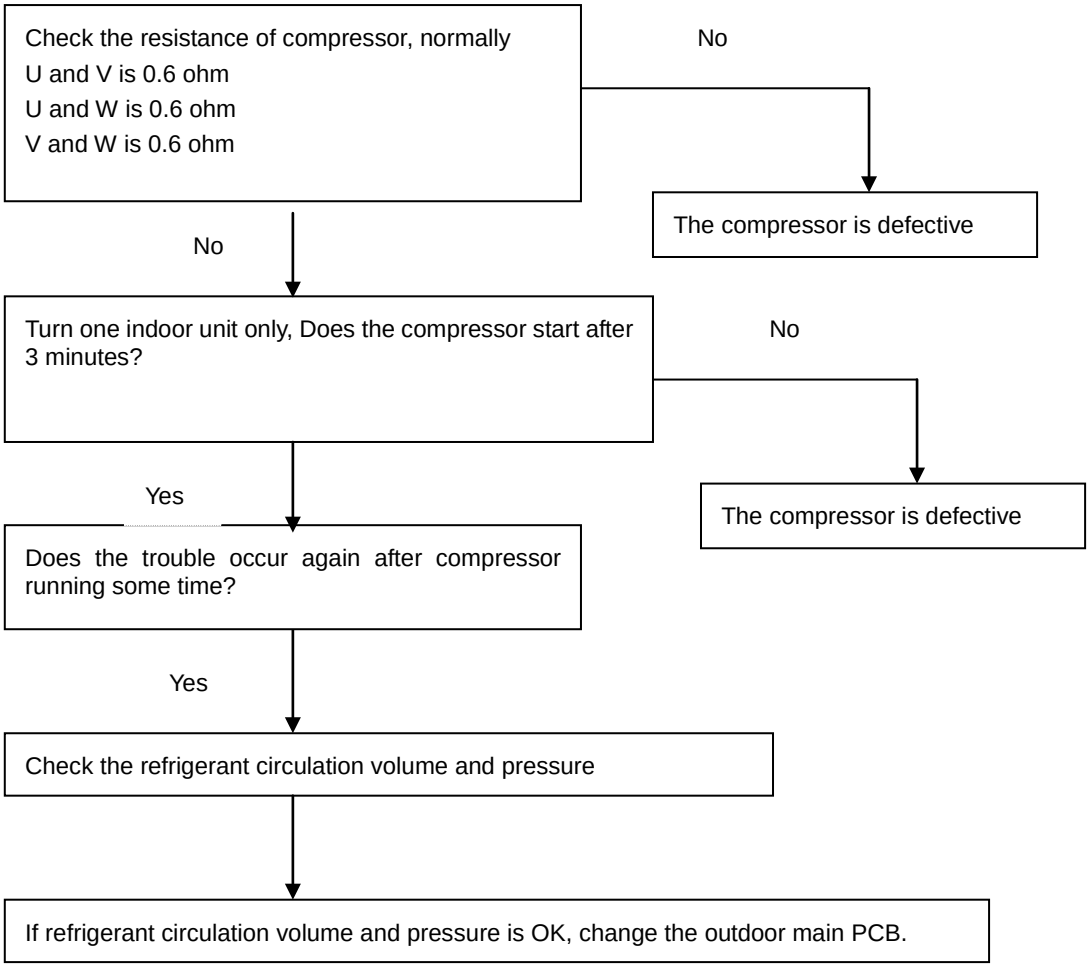


Outdoor unit display	LED STATUS
P0	Temperature protection of compressor top.

Off: 105c; On: 90c

The trouble shooting is same with the one of indoor unit P2 protection.

Outdoor unit display	LED STATUS
P3	Compressor current protection

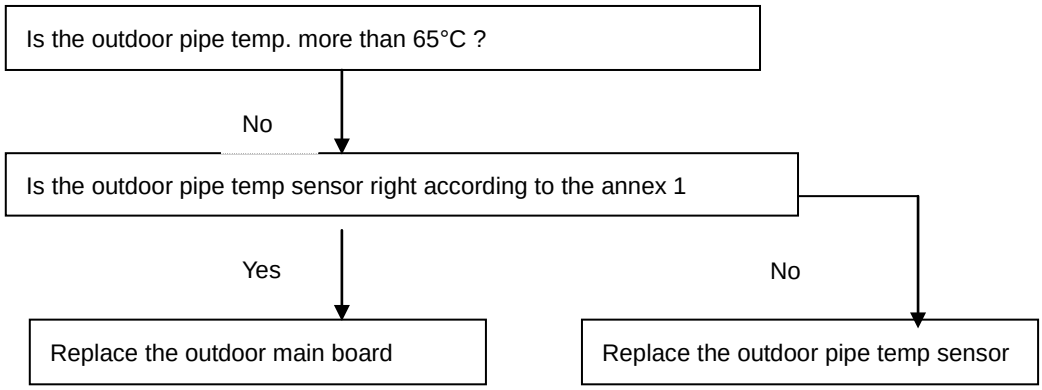


Outdoor unit display	LED STATUS
P4	Inverter module protection

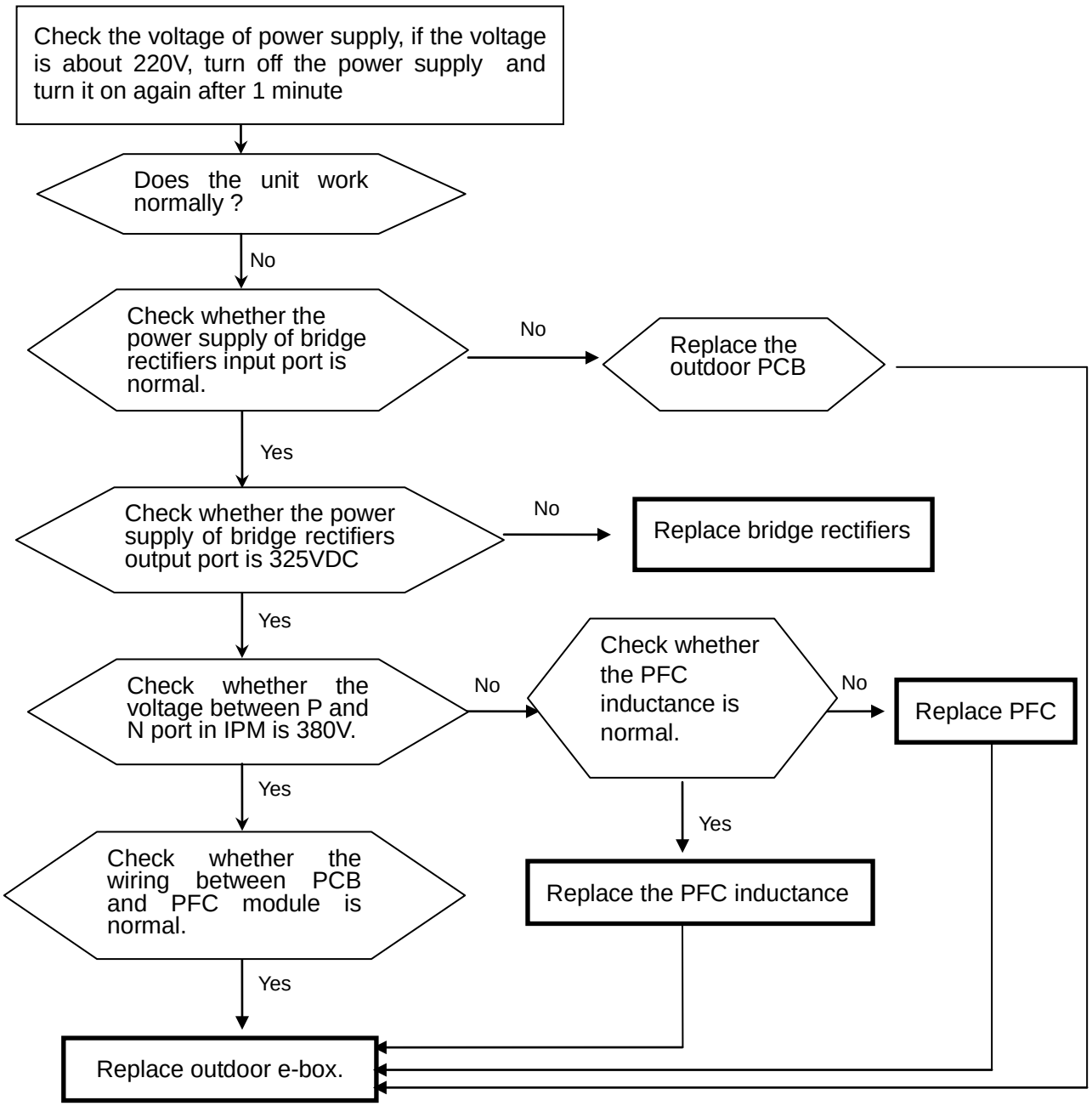
The trouble shooting is same with the one of indoor unit P0 protection

Outdoor unit display	LED STATUS
P6	Condenser high-temperature protection

When outdoor pipe temp. is more than 65°C, the unit will stop, and unit runs again when outdoor pipe temp. less than 52°C.



Outdoor unit display	LED STATUS
PF	PFC module protection



Annex 1

Characteristic of temp. sensor

Temp. ℃	Resistance K©		Temp. ℃	Resistance K©		Temp. ℃	Resistance K©
-10	62.2756		17	14.6181		44	4.3874
-9	58.7079		18	13.918		45	4.2126
-8	56.3694		19	13.2631		46	4.0459
-7	52.2438		20	12.6431		47	3.8867
-6	49.3161		21	12.0561		48	3.7348
-5	46.5725		22	11.5		49	3.5896
-4	44		23	10.9731		50	3.451
-3	41.5878		24	10.4736		51	3.3185
-2	39.8239		25	10		52	3.1918
-1	37.1988		26	9.5507		53	3.0707
0	35.2024		27	9.1245		54	2.959
1	33.3269		28	8.7198		55	2.8442
2	31.5635		29	8.3357		56	2.7382
3	29.9058		30	7.9708		57	2.6368
4	28.3459		31	7.6241		58	2.5397
5	26.8778		32	7.2946		59	2.4468
6	25.4954		33	6.9814		60	2.3577
7	24.1932		34	6.6835		61	2.2725
8	22.5662		35	6.4002		62	2.1907
9	21.8094		36	6.1306		63	2.1124
10	20.7184		37	5.8736		64	2.0373
11	19.6891		38	5.6296		65	1.9653
12	18.7177		39	5.3969		66	1.8963
13	17.8005		40	5.1752		67	1.830
14	16.9341		41	4.9639		68	1.7665
15	16.1156		42	4.7625		69	1.7055
16	15.3418		43	4.5705		70	1.6469

Annex 2

1. Reference voltage data:

a) Rectifier : Input :220-230V(AC), output :310V(DC)

b) Inverter module: U,V, W 3ph.

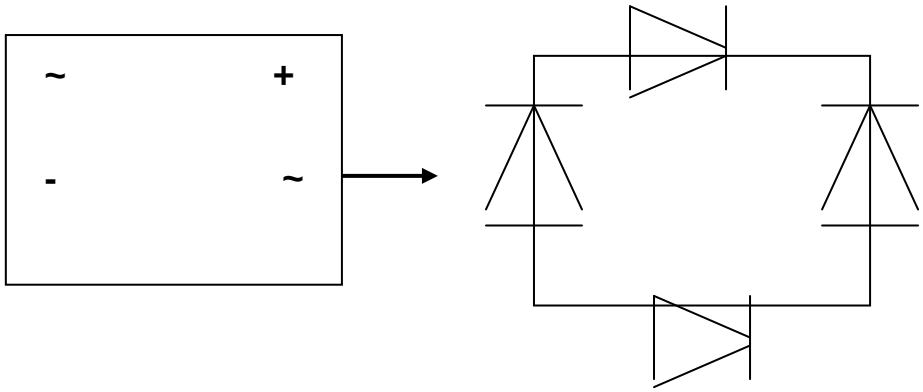
	Result
U-V	60-150V(AC)
U-W	60-150V(AC)
V-W	60-150V(AC)
P-N	DC 310V

c) Photo-couple PC817, PC851: Control side <+5V, AC side :< 24V(AC)

d) S terminal and N: changeable from 0-24V

2. Check the Diode Bridge component (In wiring diagram, rectifier)

Remark: If this part is abnormal, the LED will not light.



Multi-meter		Result	
		Forward Resistance	Backward Resistance
+	—	Infinite	Infinite
~	+	~500 ohm	Infinite
~			
-	~	~500 ohm	Infinite
	~		