Service Manual

DED 076/095

Indoor Units	Outdoor Units
AWSI-DED076-N11	AWAU-YED076-H13
AWSI-DED095-N11	AWAU-YED095-H13

REFRIGERANT

R410A

HEAT PUMP

SM DED 2-A.1 GB

JUL-2017

Version:2

LIST OF EFFECTIVE PAGES

Note: Changes in the pages are indicated by a “Revision#” in the footer of each effected page (when none indicates no changes in the relevant page). All pages in the following list represent effected/ non effected pages divided by chapters.

Dates of issue for original and changed pages are:

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1. INTRODUCTION

1.1 General

DED series is a monosplit DCI inverter air conditioner. The indoor is high static pressure ducted type which is very suitable for larger space air conditioning.

The outdoor is front discharge ourdoor designed for easy installation and saving installation space. The outdoor has two DC inverter compressors and the operation is for better efficiency of partial load and reliability.

The whole series includes two models DED076 (8HP) and DED095(10HP)

1.2 Main Features

The unit benefits from the most advanced technological innovations, namely:

- DC inverter technology
- R410A models
- EEV for refrigerant control
- High static up to 200Pa
- Max allowing tubing distance of 120m.
- Heating operation at outdoor temperature down to -20ºC.
- Easy installation and service.
- Integrated condensate water pump
- Compatible for BMS

1.3 Indoor Unit

The indoor unit is high static ducted type indoor, and can be easily fitted to many types of commercial buildings. It includes:

- Variable speeds DC fan
- Integrated condesate water pump
- High efficiency filtration to ensure a best Air Quality

1.4 Control

Wired control RCW17 as standard control including functions (ON/OFF, mode, temperature, fan, swing, sleep mode,fresh air settings, turbo mode, error display)

RCW18 is optional wired control suitable for the case of dry contact on-off needed.

For detail of functions, please refer to wired control manual.

1.5 Outdoor Unit

The outdoor units are front discharge outdoor. The metal sheets are protected by anti-corrosion paint work allowing long life resistance. All outdoor units are pre-charged. For further information please refer to the Product Data Sheet, Chapter 2.
It includes :

- Two DC Compressors mounted in a soundproofed compartment :
- Two Axial fan operated by DC motor
- Outdoor coil with hydrophilic louver fins for RC units.
- Outlet air fan grill.
- Interconnecting wiring terminal block.

1.6 Tubing Connections

Soldering type interconnecting tubing to be produced on site.
For further details please refer to the Installation Manual.

1.7 Inbox Documentation

Each unit is supplied with its own installation, operation and remote control manuals.

1.8 Matching Table

OUTDOOR UNITS	INDOOR UNITS	
	AWSI-DED076-N11	AWSI-DED095-N11
AWAU-YED076-H13	V	
AWAU-YED095-H13		V

2. PRODUCT DATA SHEET

2.1 AWSI-DED076-N11 / AWAU-YED076-H13

Model Indoor Unit				AWSI-DED076-N11	
Model Outdoor Unit				AWAU-YED076-H13	
Installation Method of Pipe				Flare(liquid) / Soldering(Gas)	
Characteristics			**Units**	**Cooling**	**Heating**
Capacity (1)			kW	22.4	25.0
Power input			kW	6.7	6.54
SEER /SCOP (2)			W/W	3.34	3.82
Energy efficiency class				A	A
Power supply			V/Ph/Hz	380-415V/3N~/50Hz	
Circuit breaker rating			A	20	
INDOOR	Fan type & quantity			Centrifugal x 2	
	Fan speeds	H/M/L/VL	RPM	-	
	Air flow (3)	H/M/L/VL	m3/hr	4000	
	External static pressure	Min-Max	Pa	150(0-200)	
	Sound power level (4)	H/M/L	dB(A)	64	
	Sound pressure level(5)	H/M/L/VL	dB(A)	54	
	Moisture removal		l/hr	7.5	
	Condensate drain tube O.D / I.D		mm	OD30 (ID 28.5)	
	Dimensions	WxHxD	mm	1483x385x791	
	Weight		kg	82	
	Package dimensions	WxHxD	mm	1578x472x883	
	Packaged weight		kg	104	
	Stacking height		units		
OUTDOOR	Refrigerant control			EEV	
	Compressor type, model			Rotary DC Inverter QXAS-D32zX050 x 2	
	Fan type & quantity			Axial x 2	
	Fan speeds	H/L	RPM	820	
	Air flow	H/L	m3/hr	9000	
	Sound power level(4)	H/L	dB(A)	70	
	Sound pressure level(5)	H/L	dB(A)	60	
	Dimensions	WxHxD	mm	1098x1584x399	
	Weight		kg	175	
	Package dimensions	WxHxD	mm	1183x1785x505	
	Packaged weight		kg	180	
	Stacking height		Units	1	
	Refrigerant type			R410A	
	Refrigerant charge (standard connecting tubing length)		kg	7.2(50m)	
	Additional charge per 1 meter		gr / 1m	54	
	Connections between units	Liquid line	In.(mm)	3/8”	
		Suction line	In.(mm)	7/8”	
		Max.tubing length	m.	120	
		Max.height difference	m.	50 (When outdoor is higher) 40(when outdoor is lower)	
Operation control type				Wired Remote control	

2.2 AWSI-DED095-N11 / AWAU-YED095-H13

Model Indoor Unit				AWSI-DED095-N11	
Model Outdoor Unit				AWAU-YED095-H13	
Installation Method of Pipe				Flare(liquid) / Soldering(Gas)	
Characteristics			**Units**	**Cooling**	**Heating**
Capacity (1)			kW	28.0	30.0
Power input			kW	8.3	8.15
SEER /SCOP (2)			W/W	3.37	3.68
Energy efficiency class				A	A
Power supply			V/Ph/Hz	380-415V/3N~/50Hz	
Circuit breaker rating			A	20	
INDOOR	Fan type & quantity			Centrifugal x 2	
	Fan speeds	H/M/L/VL	RPM	-	
	Air flow (3)	H/M/L/VL	m3/hr	4400	
	External static pressure	Min-Max	Pa	150(0-200)	
	Sound power level (4)	H/M/L	dB(A)	65	
	Sound pressure level(5)	H/M/L/VL	dB(A)	55	
	Moisture removal		l/hr	8.5	
	Condensate drain tube O.D / I.D		mm	OD30 (ID 28.5)	
	Dimensions	WxHxD	mm	1686x450x870	
	Weight		kg	105	
	Package dimensions	WxHxD	mm	1788x580x988	
	Packaged weight		kg	140	
	Stacking height		units		
OUTDOOR	Refrigerant control			EEV	
	Compressor type, model			Rotary DC Inverter QXAS-F428zX050B x 2	
	Fan type & quantity			Axial x 2	
	Fan speeds	H/L	RPM	820	
	Air flow	H/L	m3/hr	9000	
	Sound power level(4)	H/L	dB(A)	71	
	Sound pressure level(5)	H/L	dB(A)	61	
	Dimensions	WxHxD	mm	1098x1584x399	
	Weight		kg	185	
	Package dimensions	WxHxD	mm	1183x1785x505	
	Packaged weight		kg	190	
	Stacking height		Units	1	
	Refrigerant type			R410A	
	Refrigerant charge (standard connecting tubing length)		kg	7.6 (50m)	
	Additional charge per 1 meter		gr / 1m	54	
	Connections between units	Liquid line	In.(mm)	3/8”	
		Suction line	In.(mm)	7/8”	
		Max.tubing length	m.	120	
		Max.height difference	m.	50 (When outdoor is higher) 40(when outdoor is lower)	
Operation control type				Wired Remote control	

3. RATING CONDITIONS

Rating conditions in accordance with ISO 5151 and ISO 13253 (for ducted units).

Cooling:
Indoor: 27ºC DB 19ºC WB
Outdoor: 35 ºC DB

Heating:
Indoor: 20ºC DB
Outdoor: 7ºC DB 6ºC WB

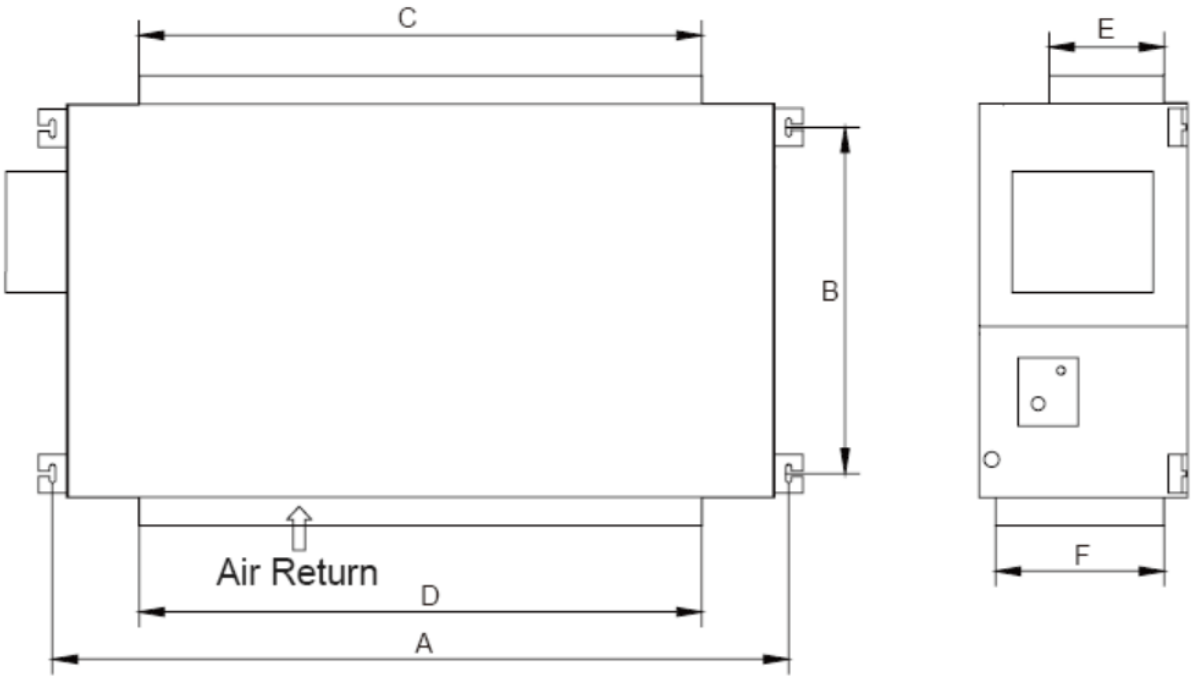
3.1 Operating Limits

R410A

		Indoor	Outdoor
Cooling	Upper limit	32ºC DB 23ºC WB	48ºC DB
	Lower limit	17ºC DB 12ºC WB	10ºC DB
Heating	Upper limit	30ºC DB	27ºC DB 24ºC WB
	Lower limit	0ºC DB	-20ºC DB -21ºC WB
Voltage		3-PH 50Hz 380 – 415 V	

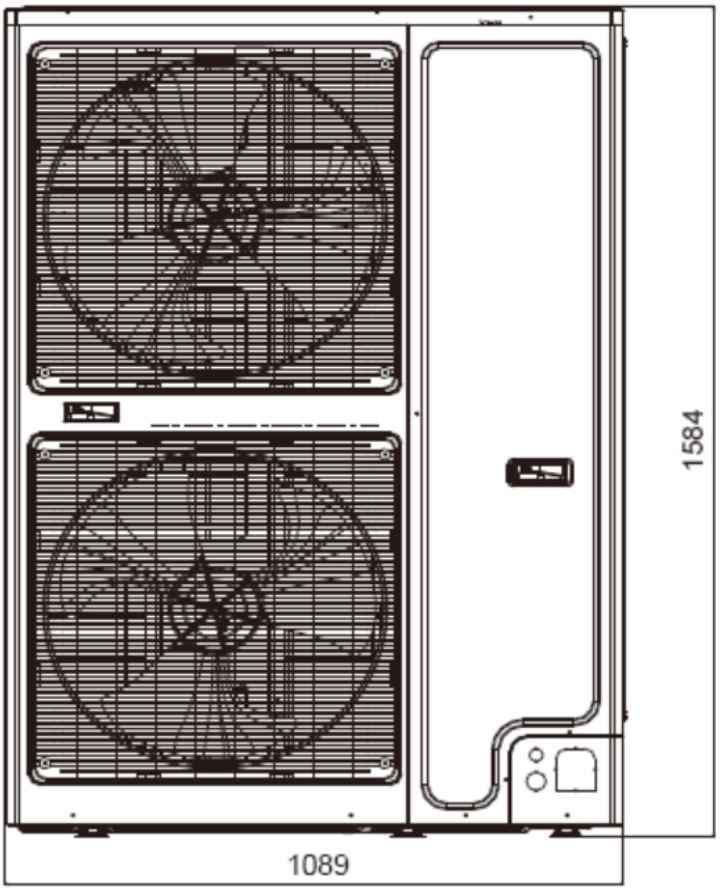
4. OUTLINE DIMENSION

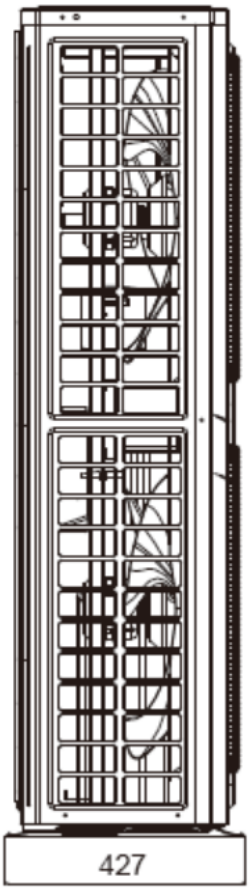
4.1 Indoor: DED076 / 095

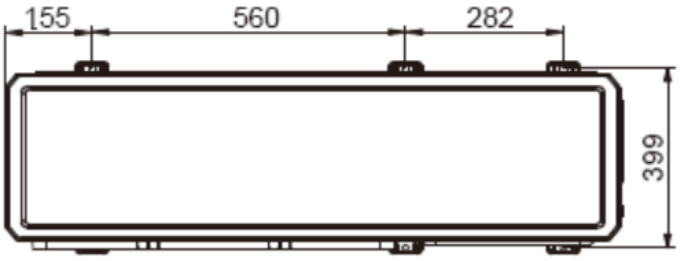


Model	A	B	C	D	E	F
DED076	1353	632	992	1150	192	327
DED095	1563	706	992	1350	192	402

4.2 Outdoor: YED076/YED095







5. PERFORMANCE DATA

5.1 Model: AWSI-DED076-N11 / AWAU-YED076-H11

1) Cooling running Capacity

Outdoor temperature (℃DB)	Indoor temperature (℃ WB/℃ DB)									
	14℃WB		16℃WB		19℃WB		22℃WB		24℃WB	
	20℃DB		23℃DB		27℃DB		30℃DB		32℃DB	
	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
10	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	30.0	19.5
12	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	30.0	19.5
14	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	30.0	19.5
16	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	30.0	19.5
18	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	30.0	19.5
20	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	29.8	19.7
21	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	29.1	19.2
23	15.2	11.6	16.4	12.8	22.4	16.8	27.6	17.9	28.7	18.9
25	15.2	11.6	16.4	12.8	22.4	16.8	27.1	18.2	28.2	18.9
27	15.2	11.6	16.4	12.8	22.4	16.8	26.6	18.1	28.0	18.8
29	15.2	11.6	16.4	12.8	22.4	16.8	26.2	18.1	27.6	18.7
31	15.2	11.6	16.4	12.8	22.4	16.8	26.0	18.2	27.1	18.4
33	15.2	11.6	16.4	12.8	22.4	16.8	25.8	18.0	26.7	18.1
35	15.2	11.6	16.4	12.8	22.4	16.8	25.5	18.1	26.4	18.2
37	15.2	11.6	16.4	12.8	22.4	16.8	25.1	18.1	26	17.9
39	15.2	11.6	16.4	12.8	22.4	16.8	24.6	18	25.5	16.9
40	15.2	11.6	16.4	12.8	22.4	16.8	24.4	17.8	25.1	17.6
43	15.2	11.6	16.4	12.8	22.4	16.8	24.2	17.7	24.6	17.2

2) Heating running Capacity

Outdoor temperature		Indoor temperature℃DB						
		16.0	18.0	20.0	21.0	22.0	24.0	26.0
		TC	TC	TC	TC	TC	TC	TC
℃DB	℃WB	kW	kW	kW	kW	kW	kW	kW
-19.7	-20	14.0	14.0	14.0	14.0	14.0	14.0	13.8
-14.7	-15.0	16.0	16.0	16.0	16.0	16.0	16.0	15.6
-12.6	-13.0	17.0	17.0	17.0	17.0	17.0	17.0	16.4
-10.5	-11.0	18.0	18.0	18.0	18.0	18.0	18.0	17.6
-9.5	-10.0	18.0	18.0	18.0	18.0	18.0	18.0	17.6
-8.5	-9.1	19.0	19.0	19.0	19.0	19.0	19.0	18.4
-7.0	-7.6	19.0	19.0	19.0	19.0	19.0	19.0	18.4
-5.0	-5.6	20.0	20.0	20.0	20.0	20.0	20.0	20.0
-3.0	-3.7	21.0	21.0	21.0	21.0	21.0	21.0	20.0
0.0	-0.7	22.0	22.0	22.0	22.0	22.0	21.0	20.0
3.0	2.2	24.0	24.0	24.0	24.0	23.1	21.0	20.0
5.0	4.1	24.0	24.0	24.0	24.0	23.1	21.0	20.0
7.0	6.0	25.0	25.0	25.0	24.0	23.1	21.0	20.0
9.0	7.9	26.0	26.0	25.0	24.0	23.1	21.0	20.0
11.0	9.8	27.0	27.0	25.0	24.0	23.1	21.0	20.0
13.0	11.8	28.1	27.0	25.0	24.0	23.1	21.0	20.0
15.0	13.7	28.9	27.0	25.0	24.0	23.1	21.0	20.0

5.2 Model: AWSI-DED096-N11 / AWAU-YED096-H11

1) Cooling running Capacity

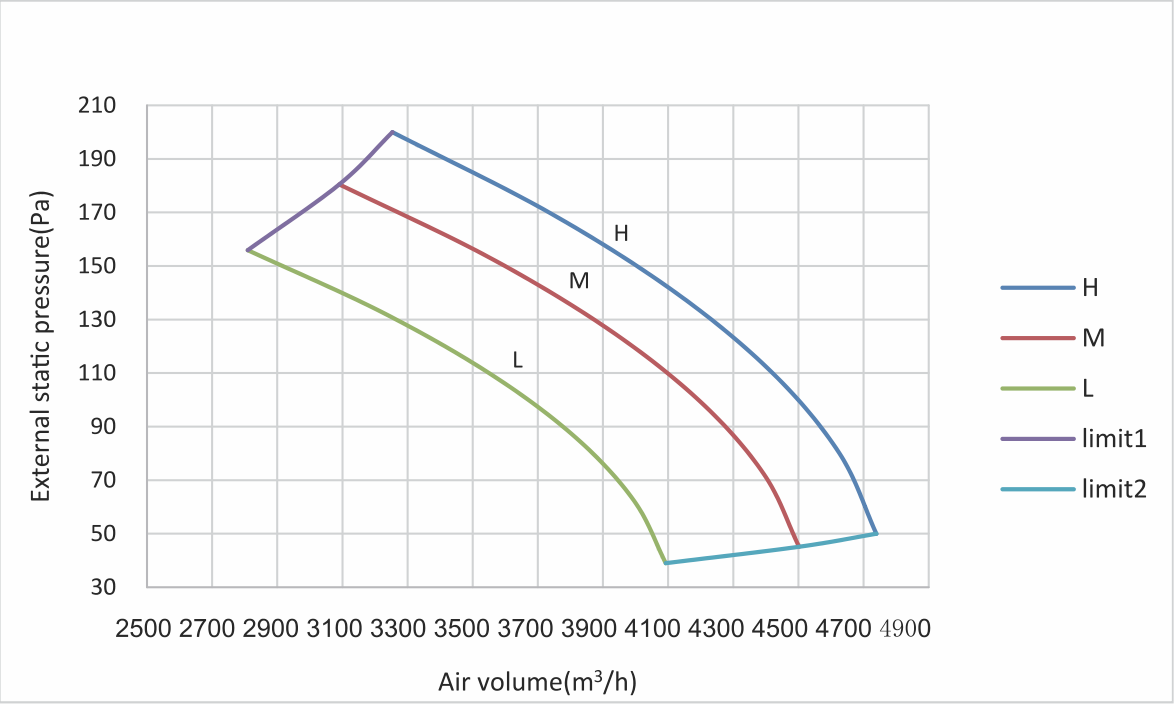
Outdoor temperature (℃DB)	Indoor temperature (℃ WB/℃ DB)									
	14℃WB		16℃WB		19℃WB		22℃WB		24℃WB	
	20℃DB		23℃DB		27℃DB		30℃DB		32℃DB	
	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
10	19	14.5	20.4	15.9	28	21	34.4	22.4	37.5	24.4
12	19	14.5	20.4	15.9	28	21	34.4	22.4	37.5	24.4
14	19	14.5	20.4	15.9	28	21	34.4	22.4	37.5	24.4
16	19	14.5	20.4	15.9	28	21	34.4	22.4	37.5	24.4
18	19	14.5	20.4	15.9	28	21	34.4	22.4	37.5	24.4
20	19	14.5	20.4	15.9	28	21	34.4	22.4	37.2	24.6
21	19	14.5	20.4	15.9	28	21	34.4	22.4	36.4	24
23	19	14.5	20.4	15.9	28	21	34.4	22.4	35.8	23.7
25	19	14.5	20.4	15.9	28	21	33.9	22.7	35.3	23.6
27	19	14.5	20.4	15.9	28	21	33.3	22.6	35	23.5
29	19	14.5	20.4	15.9	28	21	32.8	22.6	34.4	23.4
31	19	14.5	20.4	15.9	28	21	32.5	22.7	33.9	23
33	19	14.5	20.4	15.9	28	21	32.2	22.5	33.3	22.7
35	19	14.5	20.4	15.9	28	21	31.9	22.7	33	22.8
37	19	14.5	20.4	15.9	28	21	31.4	22.6	32.5	22.4
39	19	14.5	20.4	15.9	28	21	30.8	22.5	31.9	21.1
40	19	14.5	20.4	15.9	28	21	30.5	22.3	31.4	22
43	19	14.5	20.4	15.9	28	21	30.2	22.1	30.8	21.6

2) Heating running Capacity

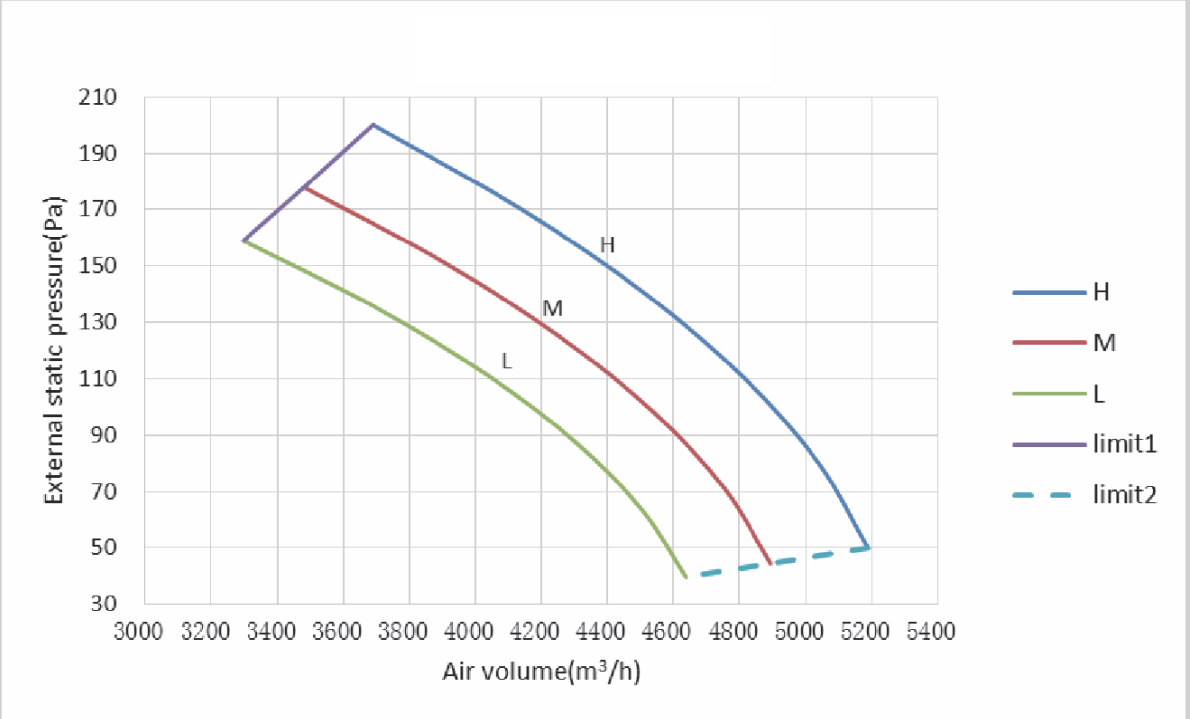
Outdoor temperature		Indoor temperature℃DB						
		16.0	18.0	20.0	21.0	22.0	24.0	26.0
		TC	TC	TC	TC	TC	TC	TC
℃DB	℃WB	kW	kW	kW	kW	kW	kW	kW
-19.7	-20	17.4	17.4	17.4	17.4	17.4	17.4	17.1
-14.7	-15	19.8	19.8	19.8	19.8	19.8	19.8	19.3
-12.6	-13	21.1	21.1	21.1	21.1	21.1	21.1	20.3
-10.5	-11	22.3	22.3	22.3	22.3	22.3	22.3	21.8
-9.5	-10	22.3	22.3	22.3	22.3	22.3	22.3	21.8
-8.5	-9.1	23.6	23.6	23.6	23.6	23.6	23.6	22.8
-7	-7.6	23.6	23.6	23.6	23.6	23.6	23.6	22.8
-5	-5.6	24.8	24.8	24.8	24.8	24.8	24.8	24.8
-3.0	-3.7	26	26	26	26	26	26.1	24.8
0	-0.7	27.3	27.3	27.3	27.3	27.3	26.1	24.8
3	2.2	29.8	29.8	29.8	29.8	28.6	26.1	24.8
5	4.1	29.8	29.8	29.8	29.8	28.6	26.1	24.8
7	6	31	31	31	29.8	28.6	26.1	24.8
9	7.9	32.2	32.2	31	29.8	28.6	26.1	24.8
11	9.8	33.5	33.5	31	29.8	28.6	26.1	24.8
13	11.8	34.8	33.5	31	29.8	28.6	26.1	24.8
15	13.7	35.8	33.5	31	29.8	28.6	26.1	24.8

6. AIRFLOW CURVES

6.1 Model: AWSI-DED076-N11

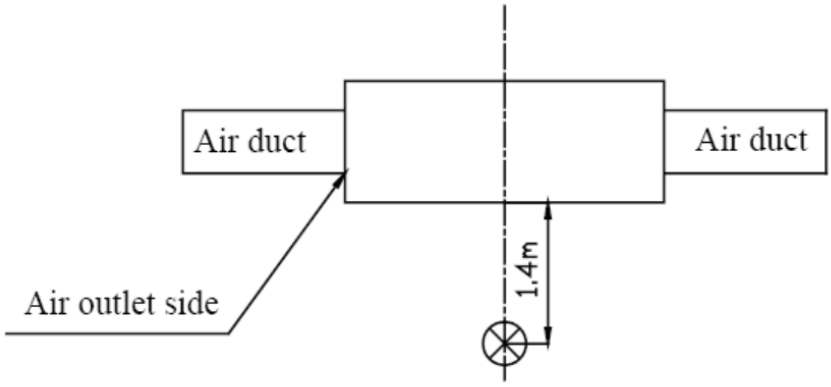


6.2 Model: AWSI-DED095-N11



7. SOUND LEVEL CHARACTERISTICS

7.1 Sound Pressure Level

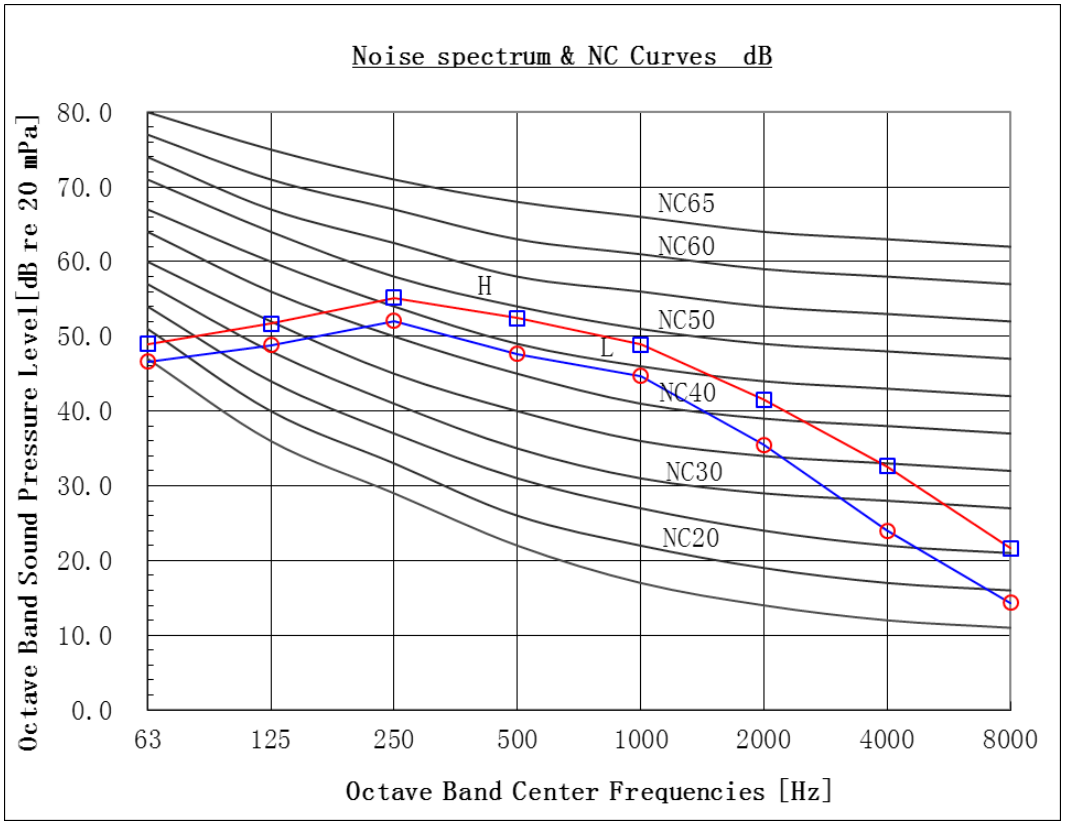


Transandient meter of sound level meter

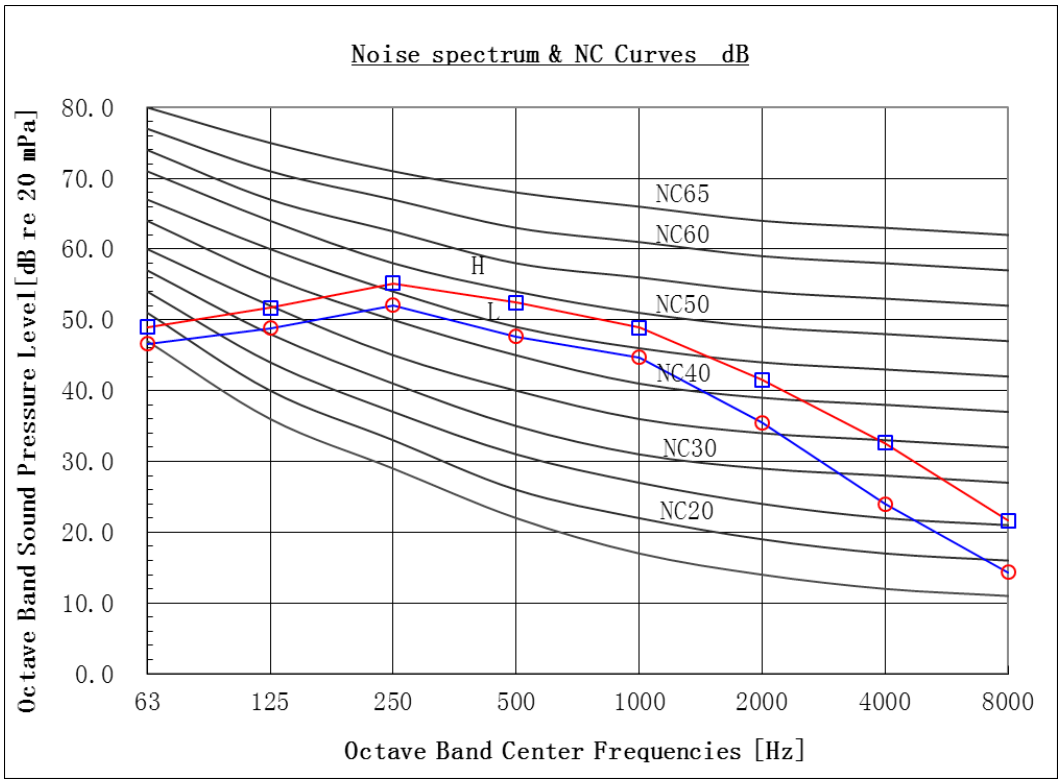
Notes:

1. The noise level is measured in the semi-anechoic room. It will be slightly higher due to change of the environment during actual operation.
2. The noise level is measured under the standard test condition.
3. The noise level is measured under the condition of rear air return.

7.2 **Soud Pressure Level Spectrum** (Measured as Figure 1)



Model: AWSI-DED076-N11



Model: AWSI-DED095-N11

8. ELECTRICAL DATA

MODEL	AWSI-DED076-N11 AWAU-YED076-H13	AWSI-DED095-N11 AWAU-YED095-H13
Power Supply	Indoor & Outdoor	
	Indoor: 1PH-220-240V-50Hz Outdoor: 3PH-380-415V-50Hz	
Max Power (Indoor)	900W	900W
Max power (Outdoor)	8400W	12100W
Circuit Breaker,A (indoor / Outdoor)	6A 20A	6A 20A
Power Supply (Indoor) Wiring No. X Cross Section mm^2	3x1.5 mm^2	3x1.5 mm^2
Power Supply (Outdoor) Wiring No. X Cross Section mm^2	5x2.5 mm^2	5x2.5 mm^2
Interconnecting Cable Model No. X Cross Section mm^2	2x0.75 mm^2	2x0.75 mm^2

NOTE

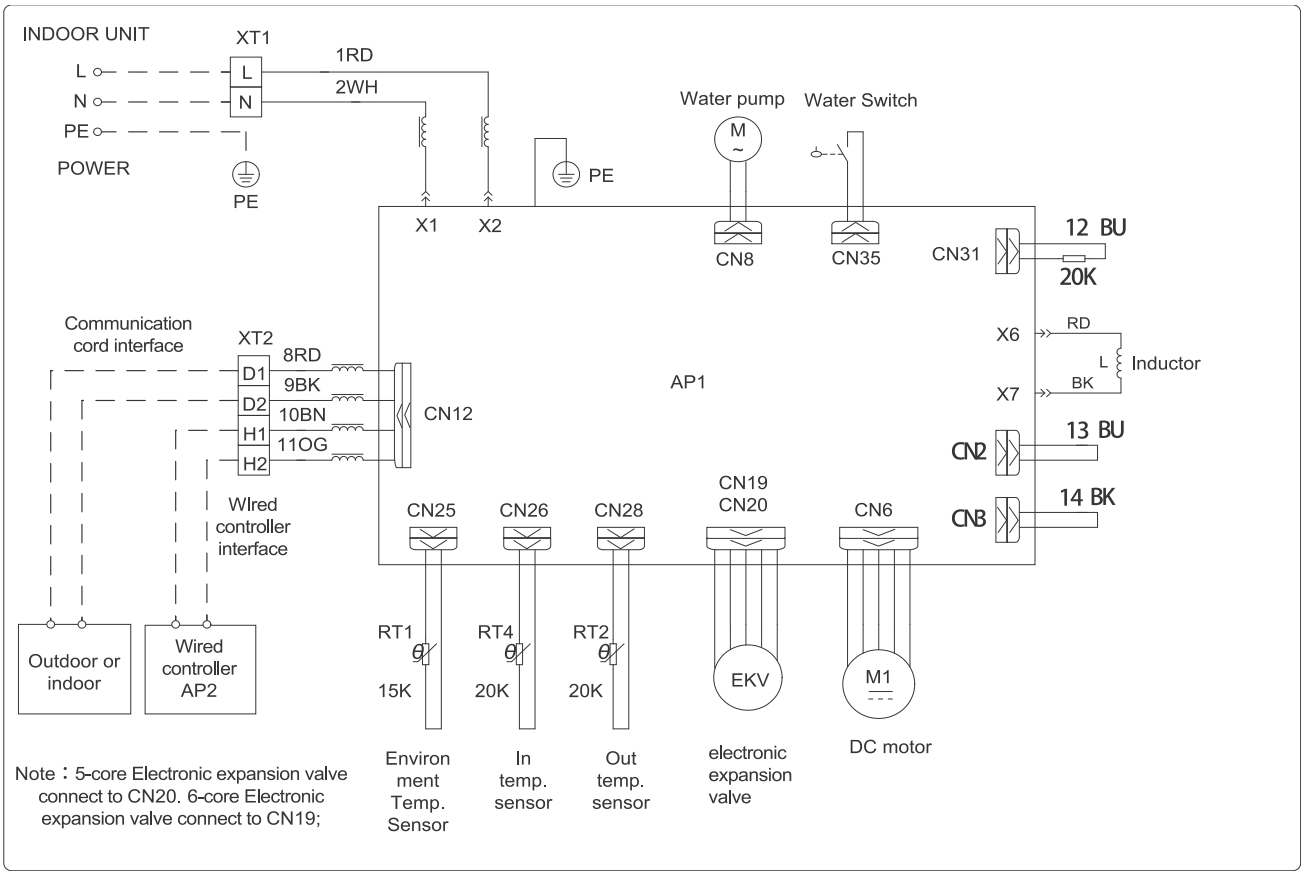
Power wiring cord should comply with local laws and electrical regulations requirements.

9. WIRING DIAGRAM

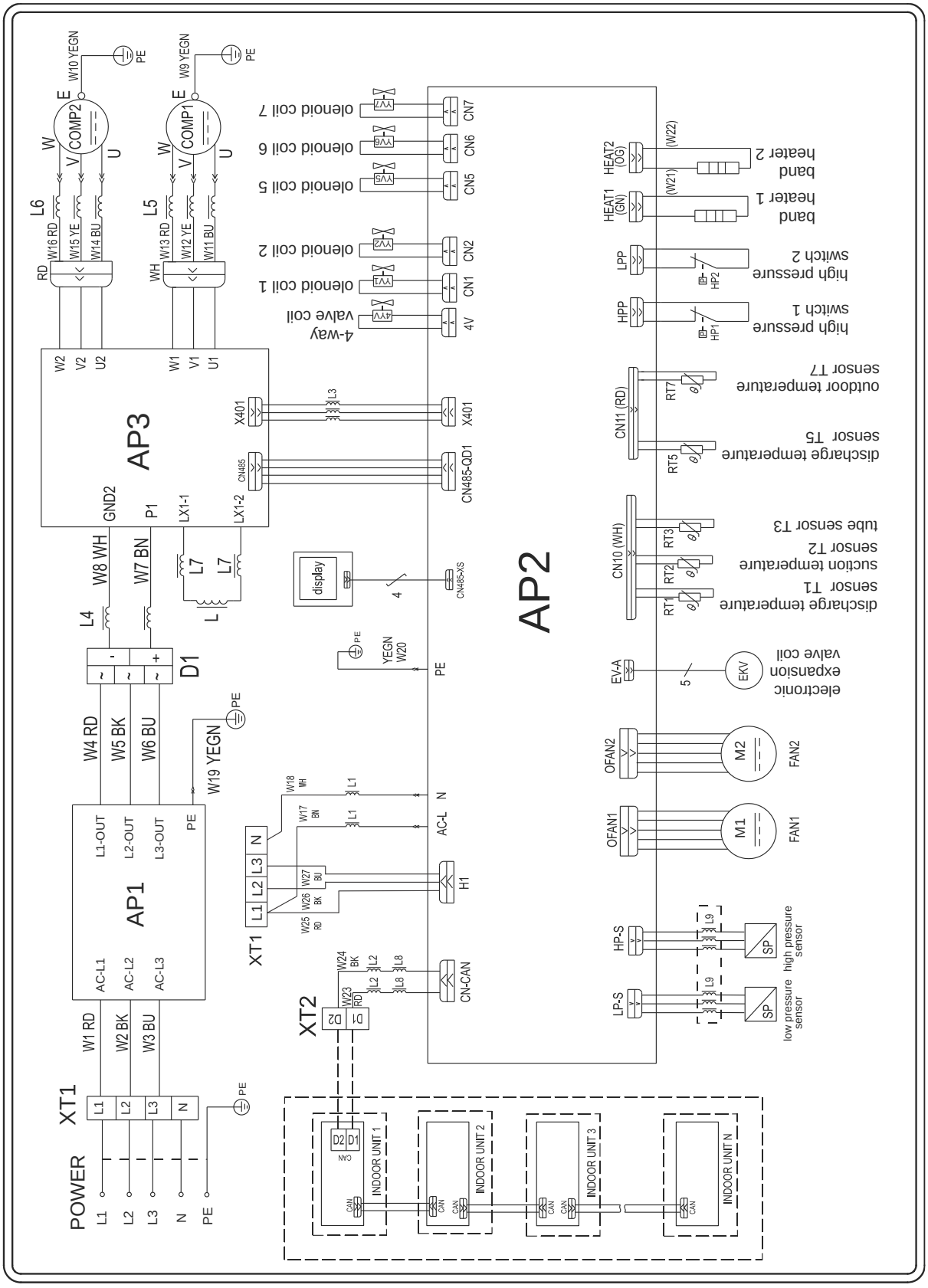
Abbrivation

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	CAP	Jumper cap
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue	⏚	Grounding wire
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

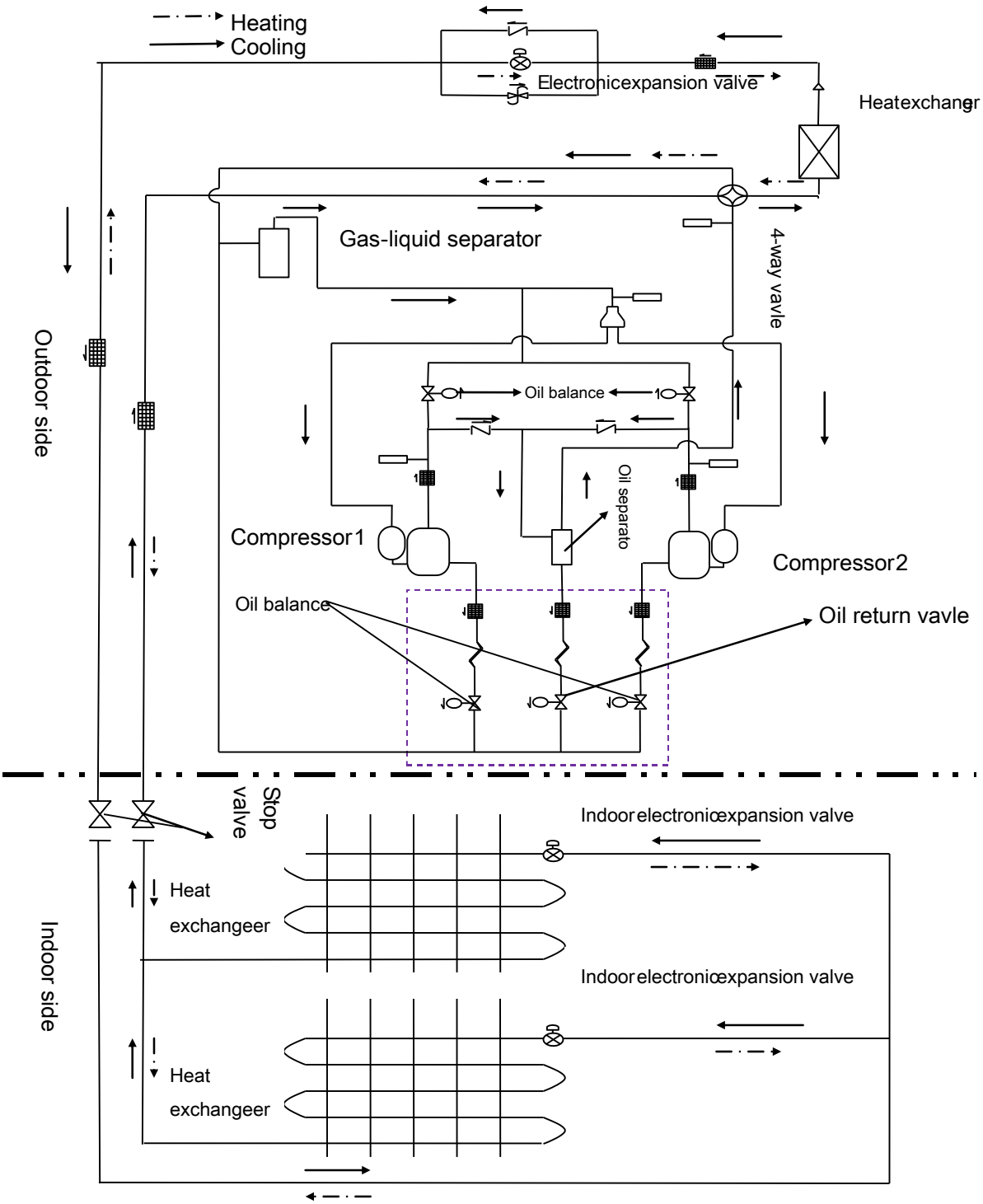
9.1 Indoor AWSI-DED076-N11, AWSI-DED095-N11



9.2 Outdoor AWAU-YED076-H13, AWAU-YED095-H13



10. REFRIGERATION DIAGRAM



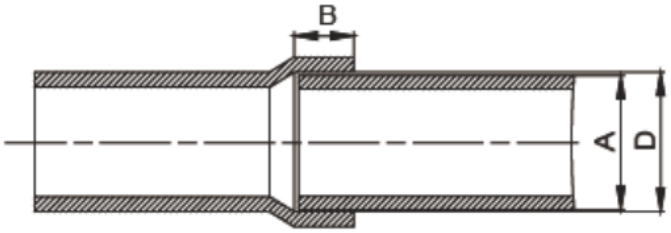
11. TUBING CONNECTIONS

11.1 Flaring Connection

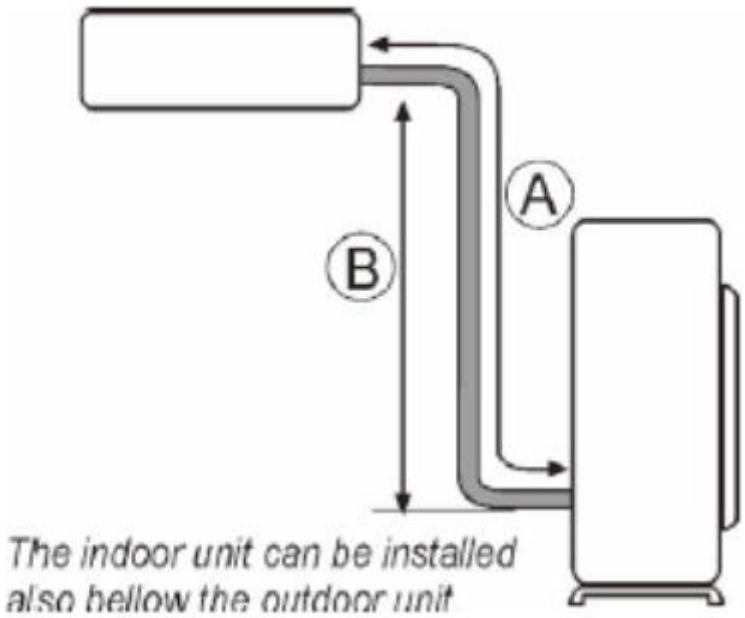
The refrigerant pipes and IDUs are connected by using the flare opening. Therefore, the quality of flaring connection must be ensured. The flaring depth of the bell mouth cannot be smaller than the caliber. The flaring direction must face towards the direction of medium flow. Use two torque wrenches to fasten the connection.

11.2 Socket Welding

The gap between socket components should be proper to ensure that the connection will not loose from the friction surface. The flaring direction of the socket component must face towards the direction of medium flow .During pipe connect, protect the braze welding part according the length specified below:



11.3 Installation length / height



MAXIMUM PIPE LENGTH & HEIGHT (TYPE INVERTER)					
CAPACITY (kW)	TUBE OD: LIQUID - GAS (Inch)	A- L.MAX (m)	B - H.MAX (m)	LENGTH OF PRECHARGE (m)	ADDITIONAL CHARGE (g/m)
22.4 28.0	3/8"-7/8"	120	50 (when outdoor is higher) 40 (When outdoor is lower)	50	54

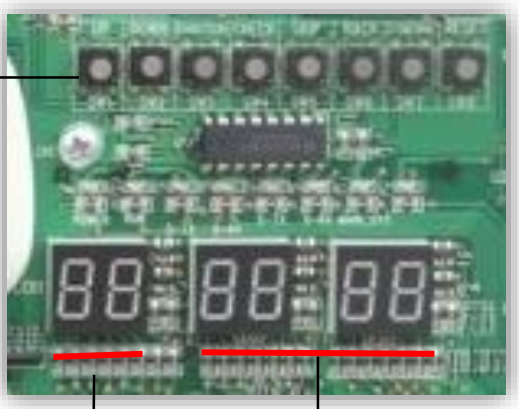
When the outdoor unit is installed above the indoor unit an oil trap is required every 5m along the suction line at the lowest point of the riser. In case the indoor unit is installed above the outdoor, no trap is required.

12. CONTROL SYSTEM

12.1 Electrical Control (To be finished)

12.2 Outdoor interface and display

Buttons
SW-1: Function Button
SW-2: UP Button
SW-3: Down Button
SW-4: Confirm Button
SW-5: Quit Button



Function or Error Section

Function or Error Section

Running Mode	Display in Function Section	Display in Data Section
OFF	Quantity of IDU	Outdoor temperature.
	IDU address by turns.	Capacity of corresponding IDU.
Normal operating	**Running Codes:** UE:Pressure equalization UP:Pump down UC:Cooling UH:Heating A3:Defrosting A4:Oil return	Target frequency steps (Range is 1-60)
Malfunction	Error code will be displayed when malfunction occurs. When several errors happen simultaneously, codes will be showed by turns every 2s.	If the malfunction occurs in the outdoor unit, the section displays nothing;
		If the malfunction occurs in the indoor units, the section displays the address of the indoor unit.

13. TROUBLESHOOTING

13.1 ELECTRICAL & CONTROL TROUBLESHOOTING

13.1.1 Precautions before Performing Inspection or Repair

Be cautious during installation and maintenance. Do operation following the regulations to avoid electric shock and casualty or even death due to drop from high attitude.

* **Static maintenance** is the maintenance during de-energization of the air conditioner. For static maintenance, make sure that the unit is de-energized and the plug is disconnected.

***Dynamic maintenance** is the maintenance during energization of the unit. Before dynamic maintenance, check the electricity and ensure that there is ground wire on the site. Check if there is electricity on the housing and connection copper pipe of the air conditioner with voltage tester. After ensure insulation place and the safety, the maintenance can be performed.

Take sufficient care to avoid directly touching any of the circuit parts without first turning off the power. At time such as when the circuit board is to be replaced, place the circuit board assembly in a vertical position. Normally,diagnose troubles according to the trouble diagnosis procedure as described below.(Refer to the check points in servicing written on the wiring diagrams attached to the indoor/outdoor units.)

Precautions when inspecting the control section of the outdoor unit:
A large-capacity electrolytic capacitor is used in the outdoor unit controller (inverter).Therefore,if the power supply is turned off, charge(charging voltage DC280V to 380V)remains and discharging takes a lot of time. After turning off the power source,if touching the charging section before discharging, an electrical shock may be caused.
The outdoor unit can not be started up until the unit is de-energized for 20min

13.1.2 Confirmation

13.1.2.1 Confirmation of Power Supply Confirm that the power breaker operates(ON) normally;

13.1.2.2 Confirmation of Power Voltage Confirm that power voltage is rated voltage +/- 10%. If power voltage is not in this range, the unit may not operate normally.

13.2 Code of error or protection shown from IDU or ODU

When there occurs any error during operation, the temperature display zone on the wired controller will show error codes. If several errors happen at the same time, errorcodes will show on the display repeatedly. (see Appendix-1 Operation manual of RCW17)
Error code can be shown also from IDU display (if there is) or outdoor 7 segments.

Code on wired control	Code from IDU Display	Code from ODU 7-segments	Description of error or protection
L1	L1	L1	Indoor fan protection
L3	L3	L3	Water overflow protection
L5	L5	L5	Anti-freeze protection
L6	L6	L6	Mode conflict
L7	L7	-	No master IDU
d3	d3	d3	Malfunction of indoor ambient temperature sensor
d4	d4	d4	Malfunction of indoor coil inlet temperature sensor
d5	d5	d5	Malfunction of indoor mid-coil temperature sensor
d6	d6	d6	Malfunction of indoor coil outlet temperature sensor
d7	d7	d7	Malfunction of indoor humidity sensor
d9	d9	d9	Malfunction of jumper
b1	b1	b1	Malfunction of outdoor ambient temperature sensor
b3	b3	b3	Malfunction of defrosting temperature sensor
b5	b5	b5	Malfunction of outdoor condenser temperature sensor
b6	b6	b6	Malfunction of suction temperature sensor
E1	E1	E1	High pressure protection
E3	E3	E3	Low pressure protection
E4	E4	E4	Discharge protection
Ed	E0	Ed	Refrigerant-lacking protection
EN	E0	EN	Power protection of compressor
F0	F0	F0	Malfunction of outdoor EEPROM chip
F1	F1	F1	Malfunction of high pressure sensor
F3	F3	F3	Malfunction of low pressure sensor
F5	F5	F5	Malfunction of discharge temperature sensor of compressor 1
F6	F6	F6	Malfunction of discharge temperature sensor of compressor 2
F8	-	F8	Limited frequency reduction for AC current protection
F9	-	F9	Limited frequency reduction for discharge temperature protection
FA	-	FA	Limited frequency reduction for high pressure protection
FC	-	FC	Limited frequency reduction for power protection
FH	-	FH	Limited frequency reduction for low pressure protection
FL	-	FL	Limited frequency reduction for IPM temperature protection
Fd	E0	Fd	Malfunction of high-pressure switch
P5	P0	P5	AC current protection
P6	P0	P6	IPM protection
P7	P0	P7	Drive IPM module protection of compressor
P8	P0	P8	Drive IPM module overheating protection of compressor
P9	P0	P9	Desynchronizing protection of inverter compressor
PH	P0	PH	High voltage protection of compressor ’s drive DC busbar
PC	P0	PC	Drive current detection circuit malfunction of compressor
PL	P0	PL	Low voltage protection of compressor ’s drive DC busbar
PE	P0	PE	Phase-lacking of inverter compressor

Code on wired control	Code from IDU Display	Code from ODU 7-segments	Description of error or protection
PF	P0	PF	Drive charging circuit malfunction of compressor
PU	P0	PU	Demagnetization protection
C0	C0	C0	Communication malfunction between indoor and outdoor units, indoor unit's wired controller
C2	C2	C2	Communication malfunction between main controller and inverter compressor driver
U3	E0	U3	Phase-lacking protection of power
H0	H0	H0	Malfunction of fan

13.3 Code of special operation mode

Code	Code from IDU Display	Code from ODU 7-segments	Description of function
A0	A0	A0	Trial run
A2	A2	A2	Refrigerant recycle
A3	A3	A3	Defrosting
A4	A4	A4	Oil return
A5	A5	A5	Testing online
A8	A8	A8	Vacuuming
SS		SS	Test module

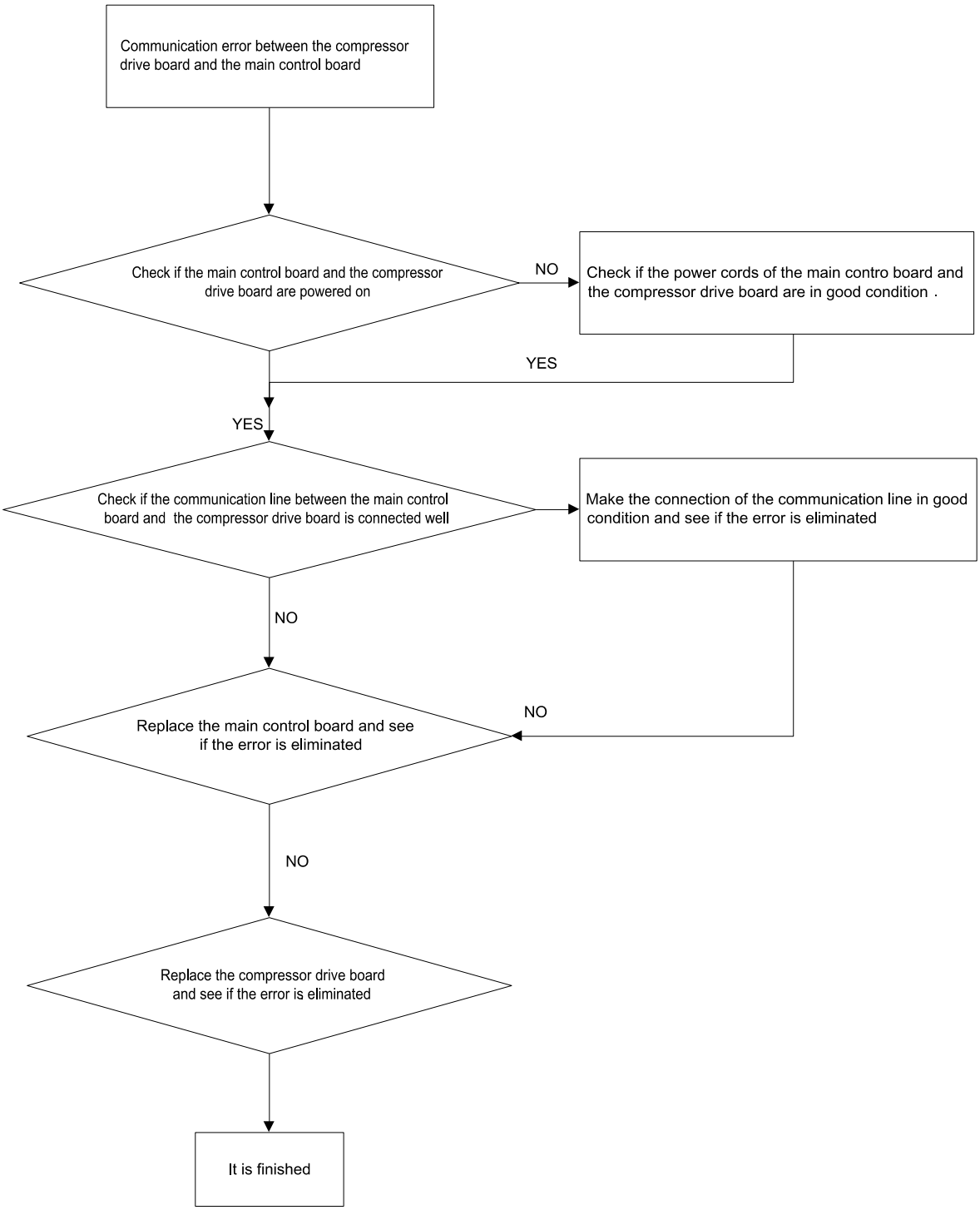
13.4 Indication of LED from ODU main board and driver board

Blink Times	LED YELLOW	LED RED	LED GREEN
1	Compressor1 ON	Outdoor unit is always at ON status	Drive board
2	Compressor2 ON	Reservation	Debug board
3	Overcurrent for IPM1	Oil return	Testing online
4	Overcurrent for IPM1	Defrosting	PC monitor
5	IPM1 protection	Limited frequency reduction for IPM temperature protection	Indoor unit 1
6	IPM2 protection	Limited frequency reduction for PFC temperature protection	Indoor unit 2
7	PFC overcurrent	Limited frequency reduction for AC current protection	Indoor unit 3
8	PFC protection	Limited frequency reduction for power protection	Indoor unit 4
9	Low voltage protection	Limited frequency reduction for discharge temperature protection	Indoor unit 5
10	High voltage protection	Limited frequency reduction for low pressure protection	Indoor unit 6
11	System low pressure protection	Limited frequency reduction for high pressure protection	Indoor unit 7
12	System high pressure protection	Malfunction of discharge temperature sensor of compressor 1	Indoor unit 8
13	High-pressure switch protection	Malfunction of outdoor ambient temperature sensor	Indoor unit 9
14	Drive charging circuit malfunction of compressor	Malfunction of outdoor tube temperature sensor	Indoor unit 10
15	AC current protection	Malfunction of suction temperature sensor	Indoor unit 11
16	Malfunction of EEPROM chip	Malfunction of indoor coil inlet temperature sensor	Indoor unit 12

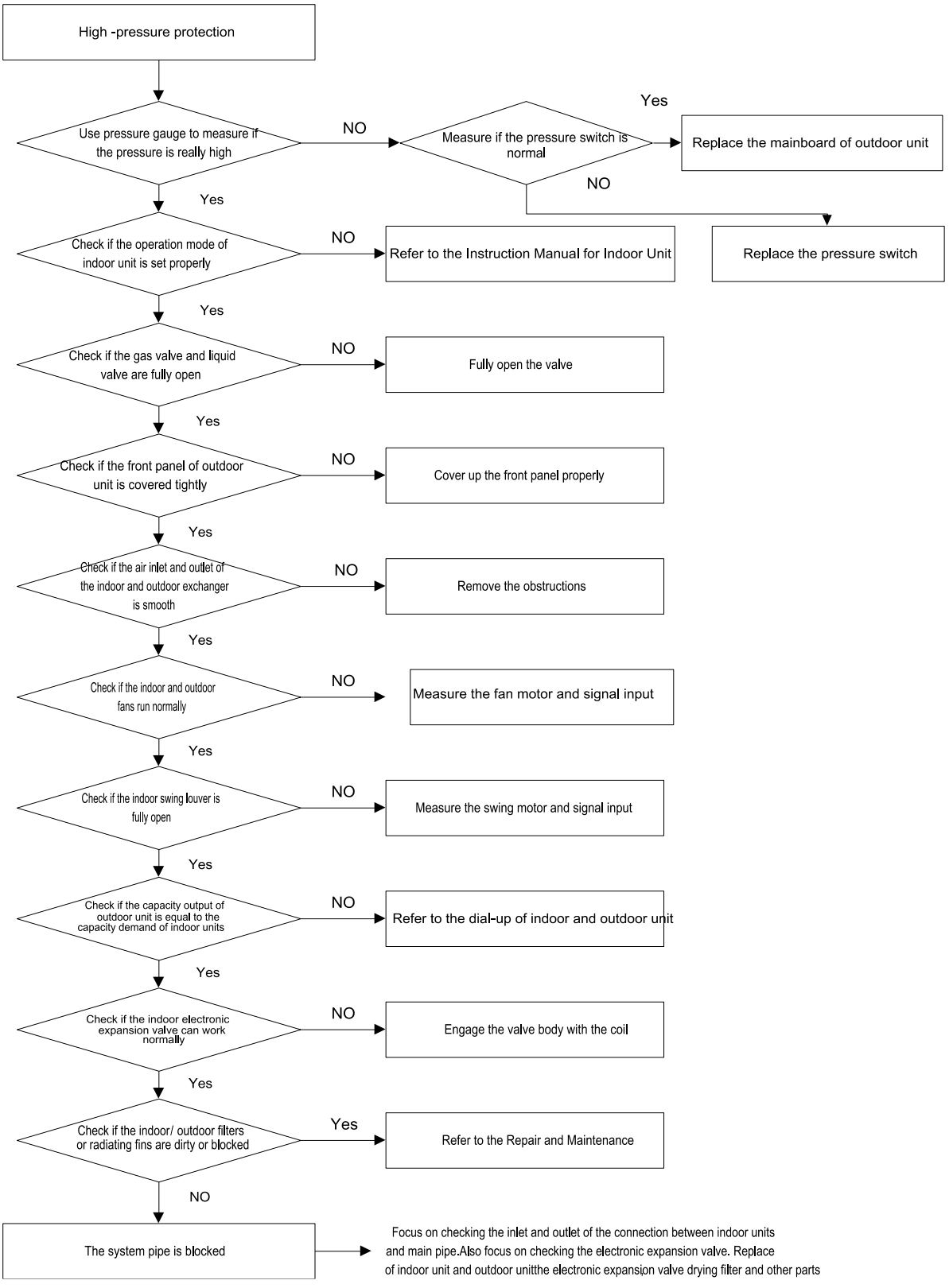
Blink Times	LED YELLOW	LED RED	LED GREEN
17	Demagnetization protection for compressor1	Malfunction of temperature sensor for sub-cooler	Indoor unit 13
18	Desynchronizing protection of inverter compressor1	Malfunction of low-pressure sensor	Indoor unit 14
19	Phase-lacking of inverter compressor1	Malfunction of high-pressure sensor	Indoor unit 15
20	Malfunction of phase current testing for compressor1	Fan protection	Indoor unit 16
21	Power protection of compressor1	Malfunction of discharge temperature sensor of compressor 2	Indoor unit 17
22	Over loading for compressor2		Indoor unit 18
23	Discharge protection for compressor1		Indoor unit 19
24	Demagnetization protection for compressor2		Indoor unit 20
25	Desynchronizing protection of inverter compressor2		
26	Phase-lacking of inverter compressor2		
27	Malfunction of phase current testing for compressor1		
28	Power protection of compressor1		
29	Over loading for compressor2		
30	Discharge protection for compressor2		
31	Refrigerant-lacking protection		

13.5 13.4 FLOW CHART OF TROUBLE SHOOTING

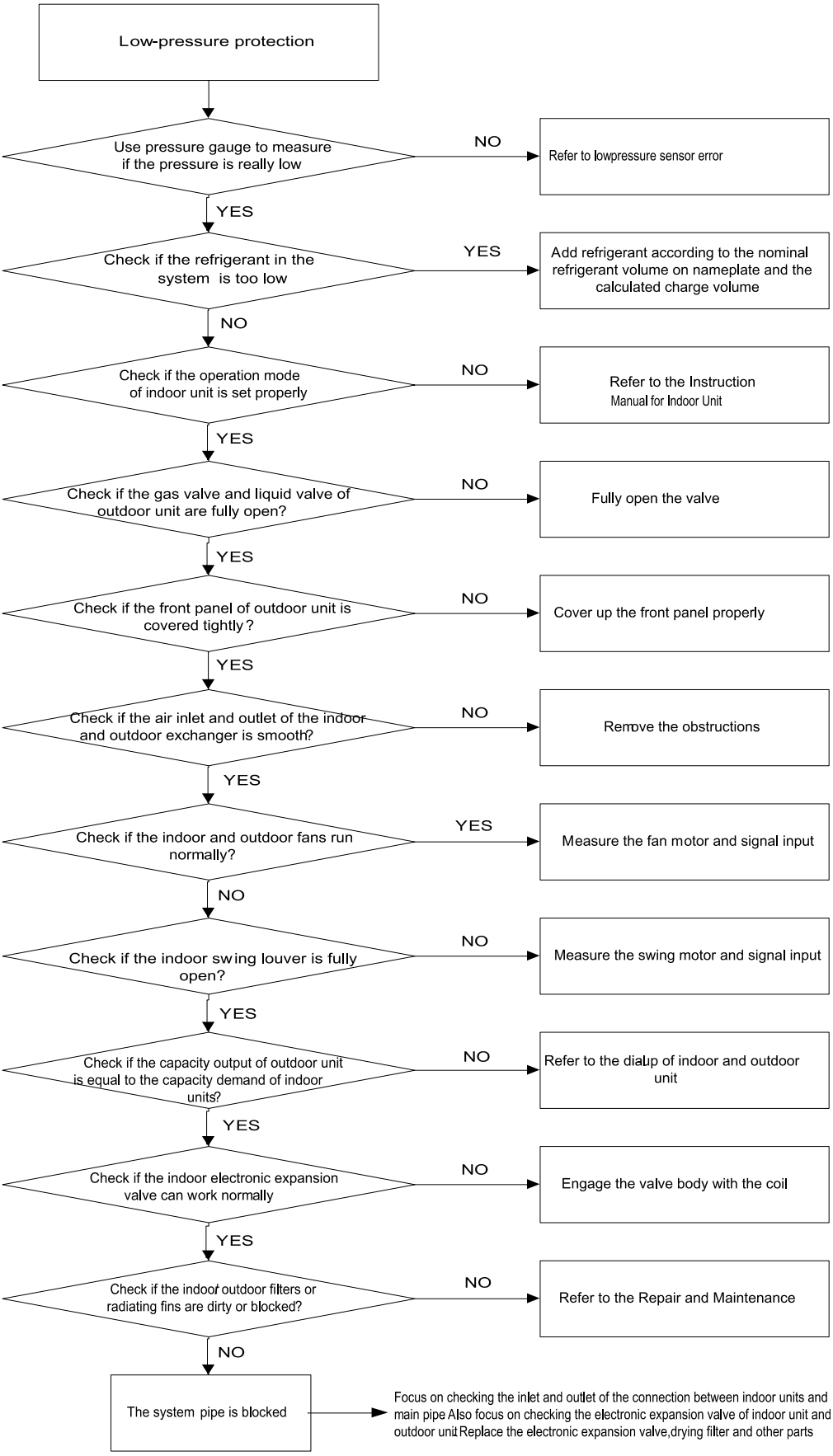
13.5.1 Communication Error between the Compressor Drive Board and the Main Control Board



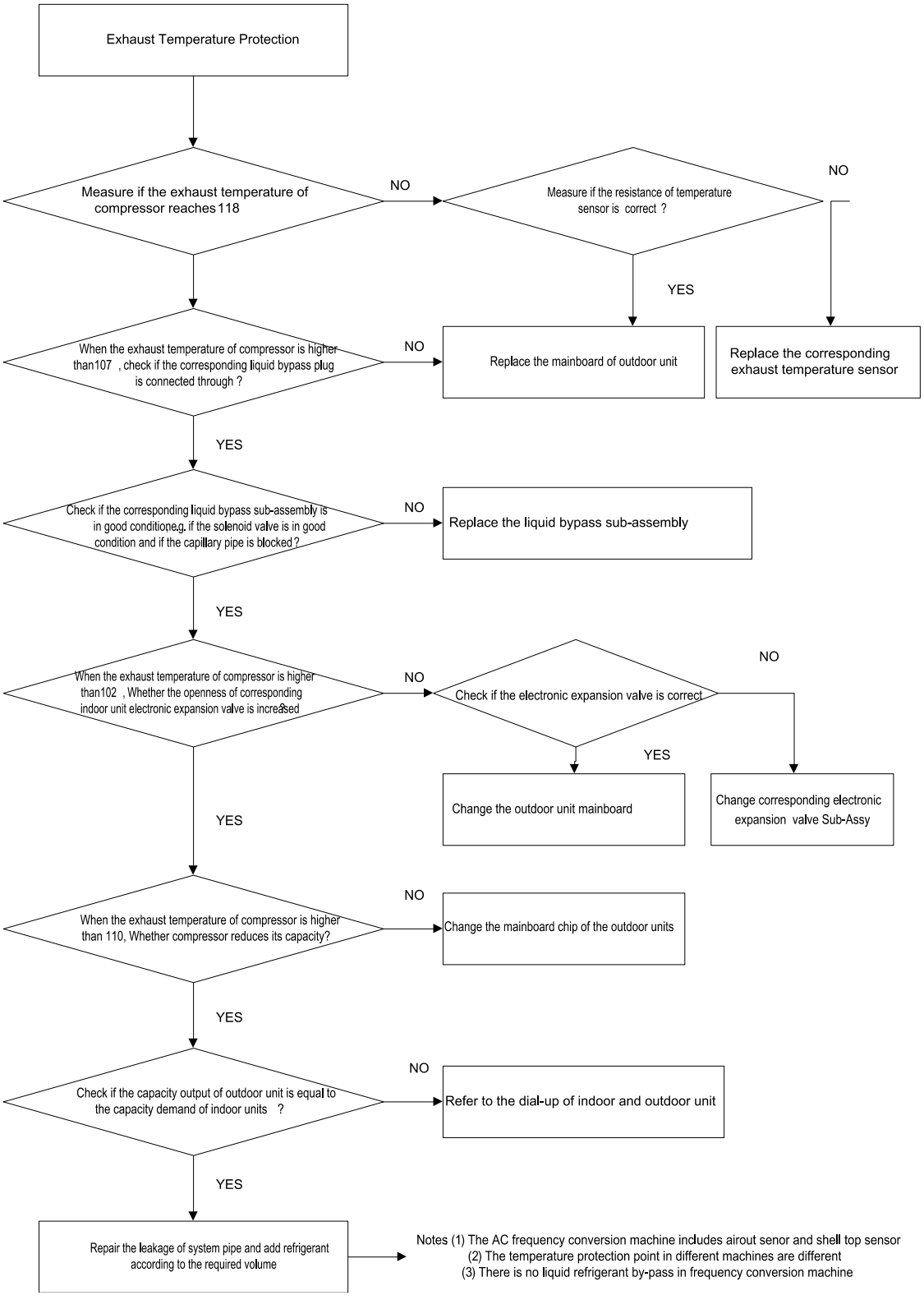
13.5.2 High-Pressure Protection



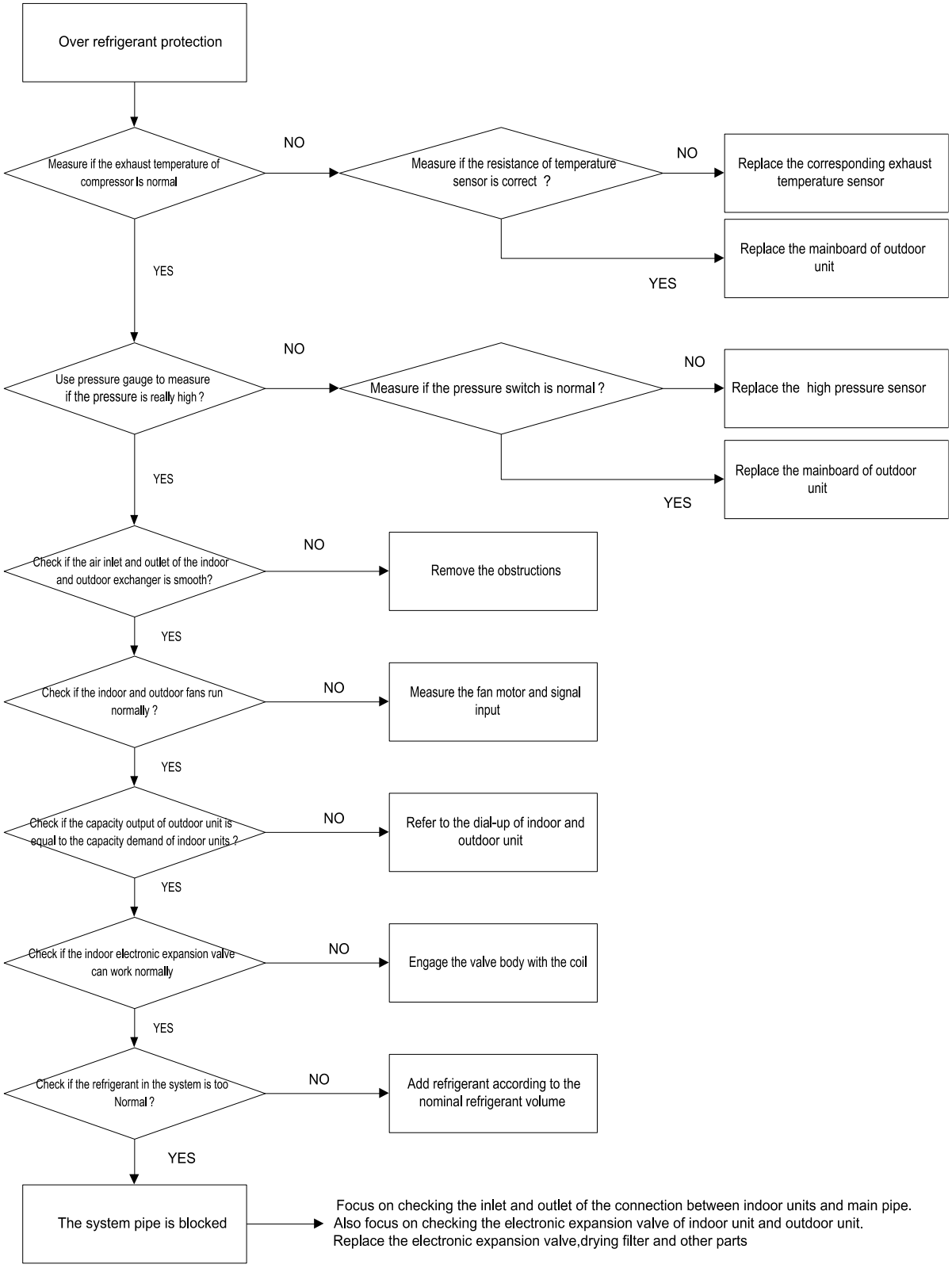
13.5.3 Low - Pressure Protection



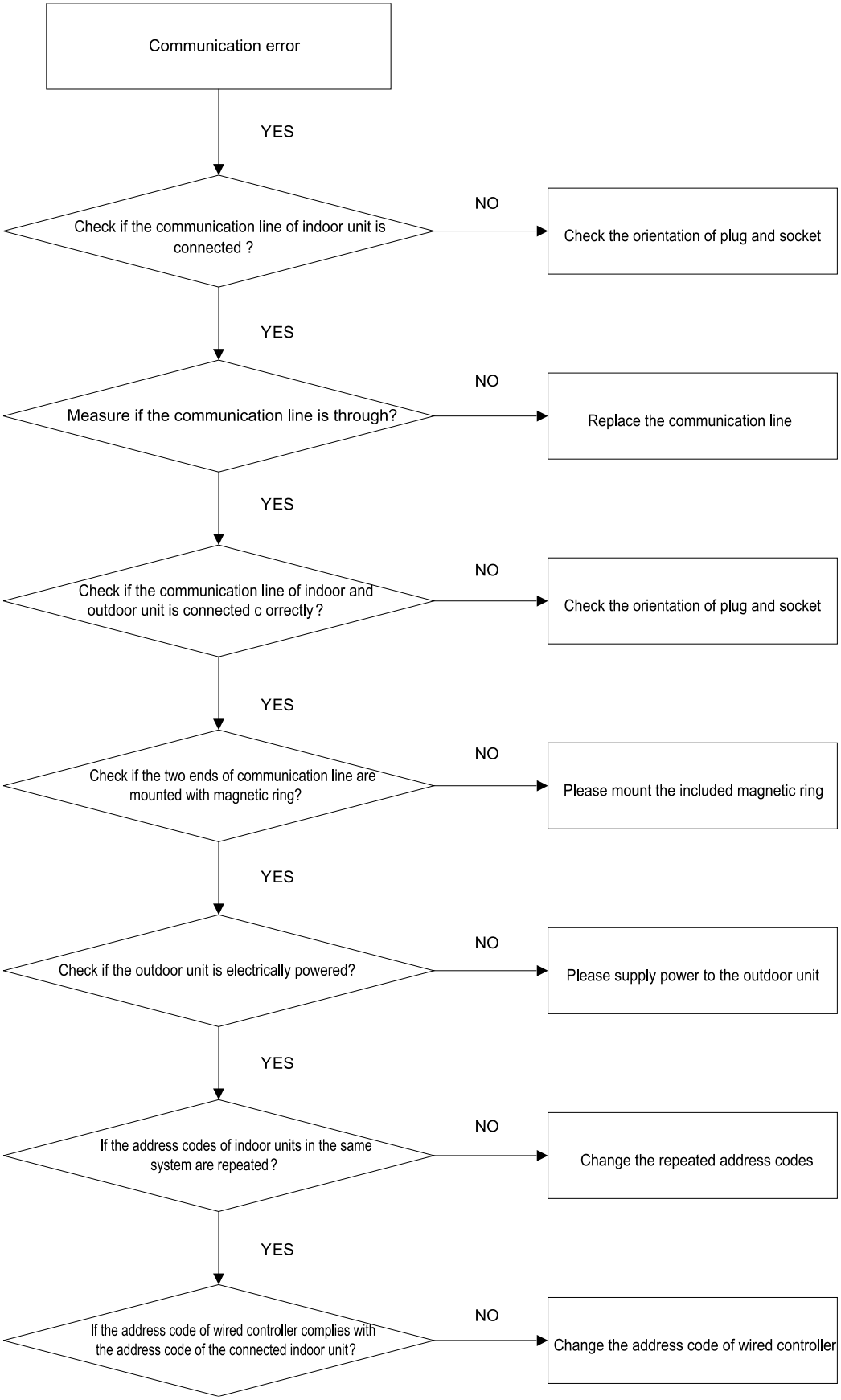
13.5.4 Exhaust temperature protection



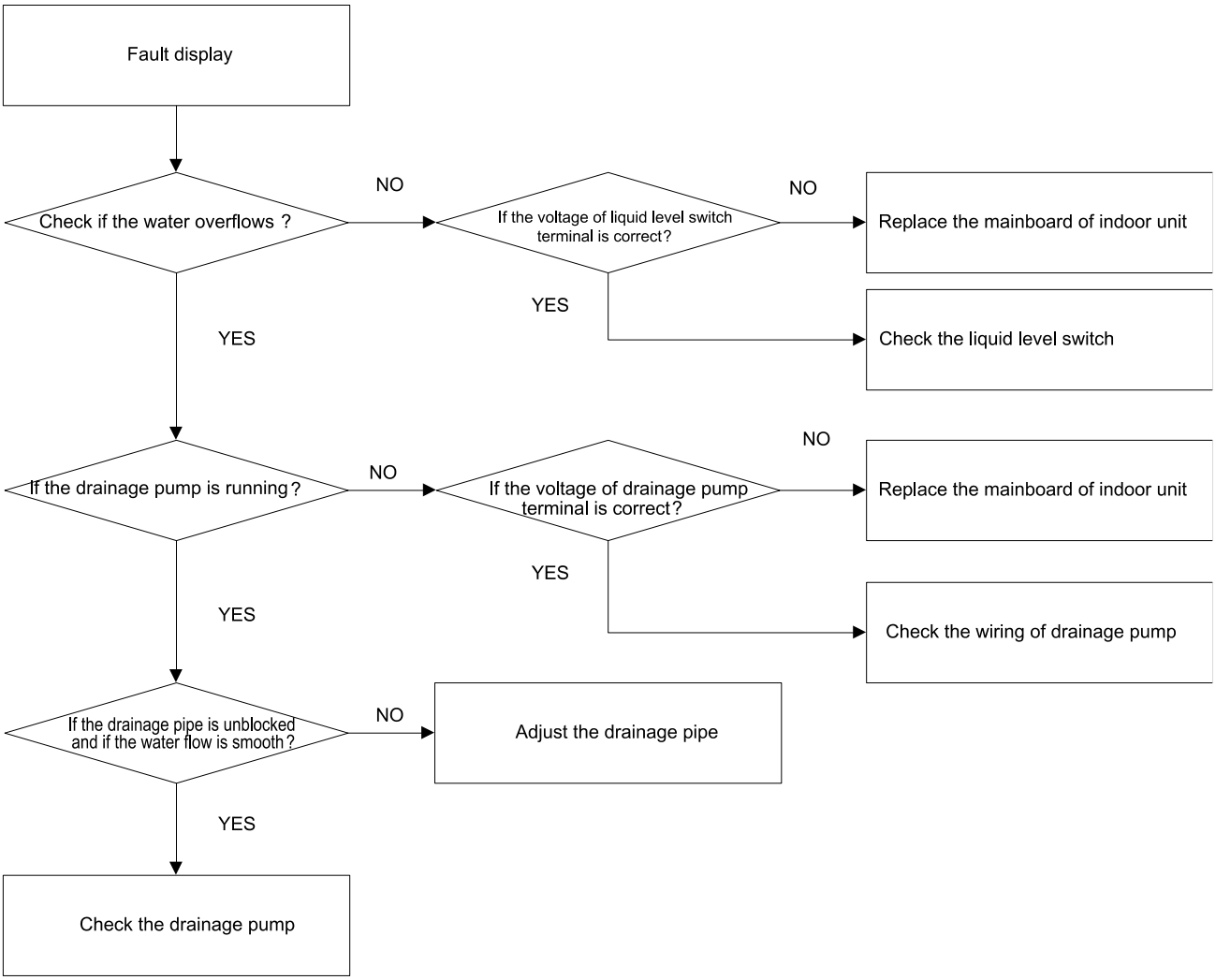
13.5.5 Refrigerant protection



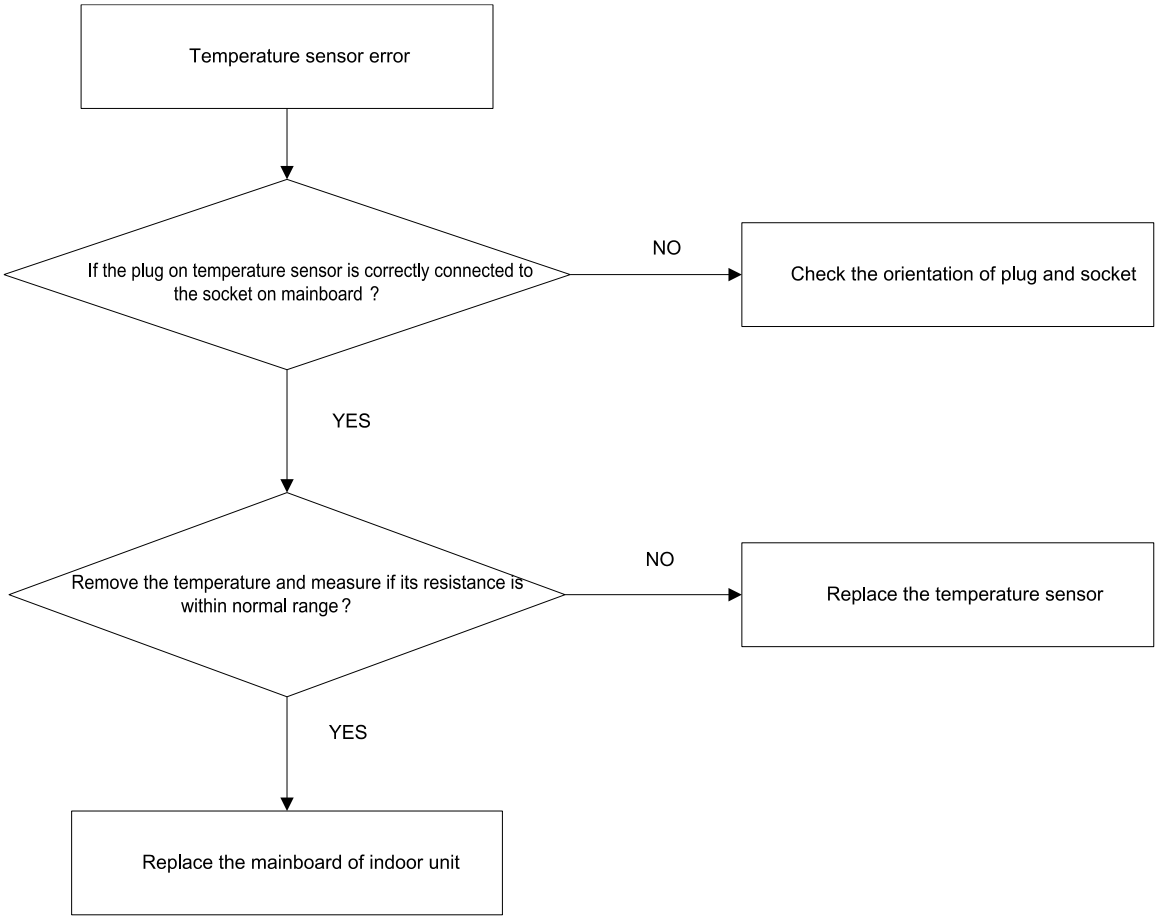
13.5.6 Communication error



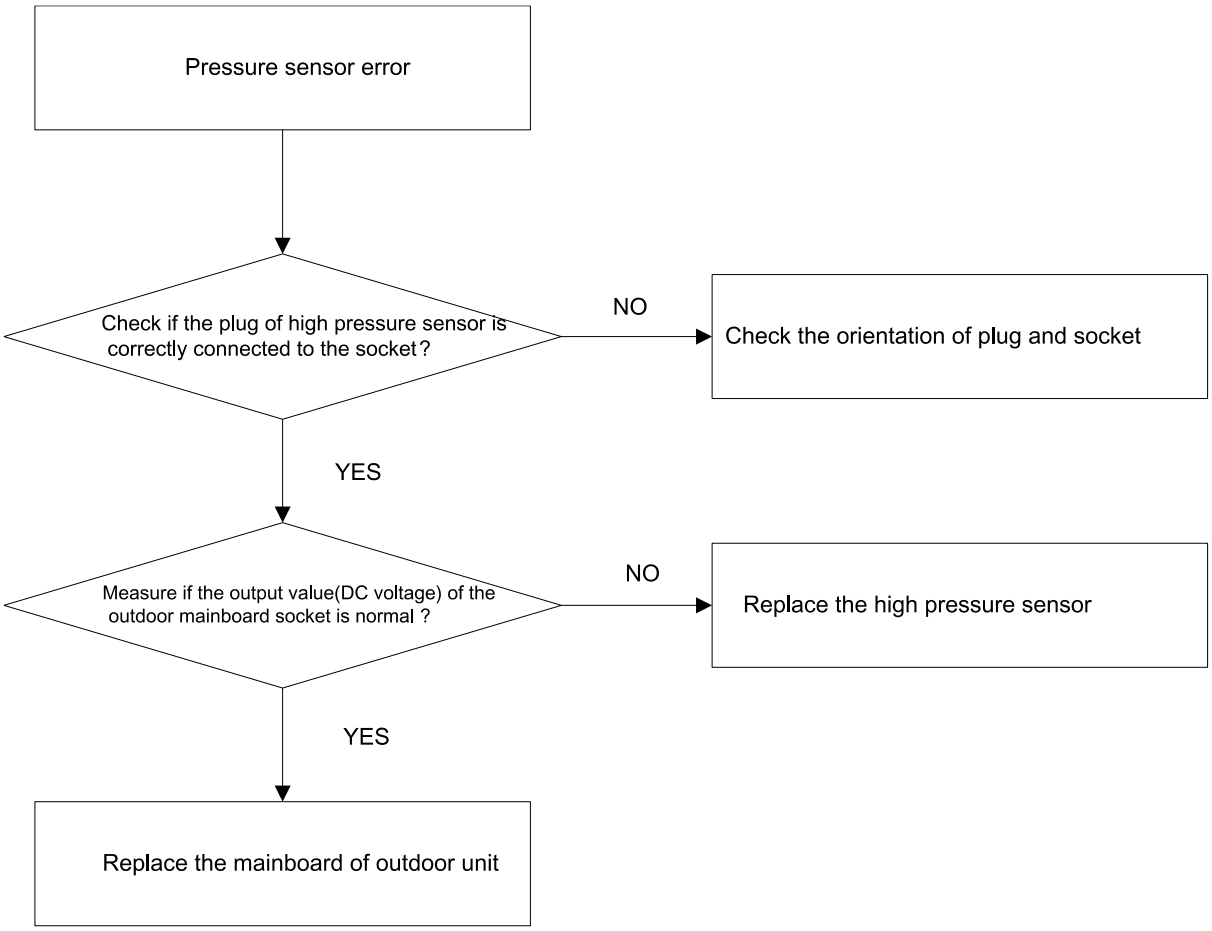
13.5.7 Water overflow



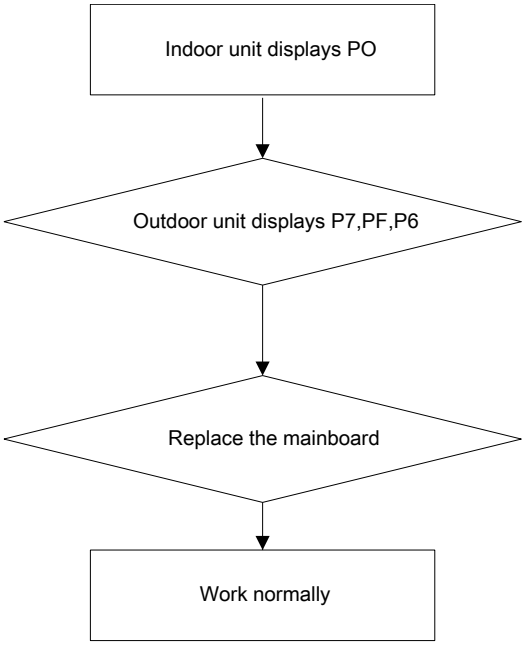
13.5.8 Temperature sensor error



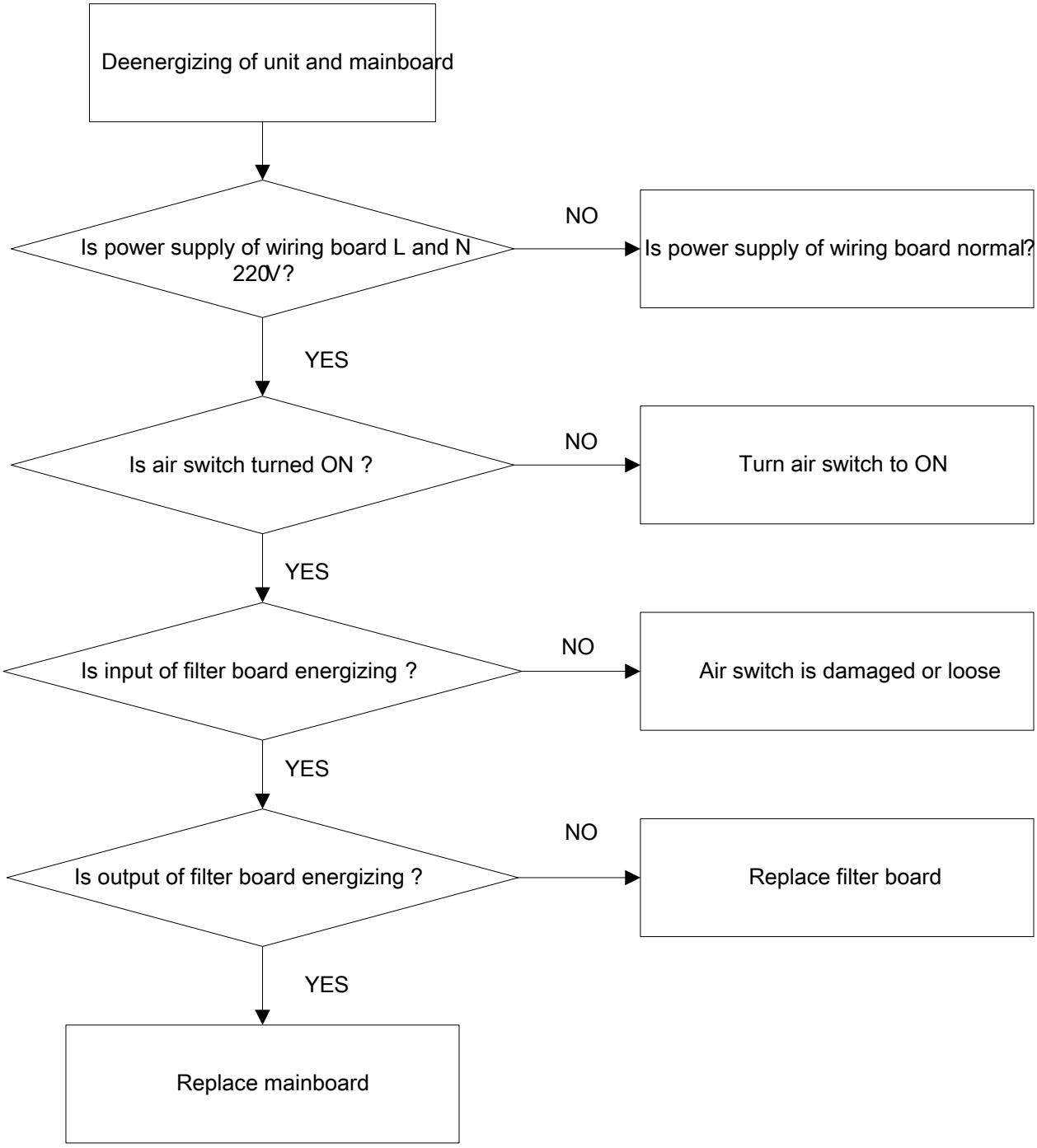
13.5.9 High/Low pressure sensor error



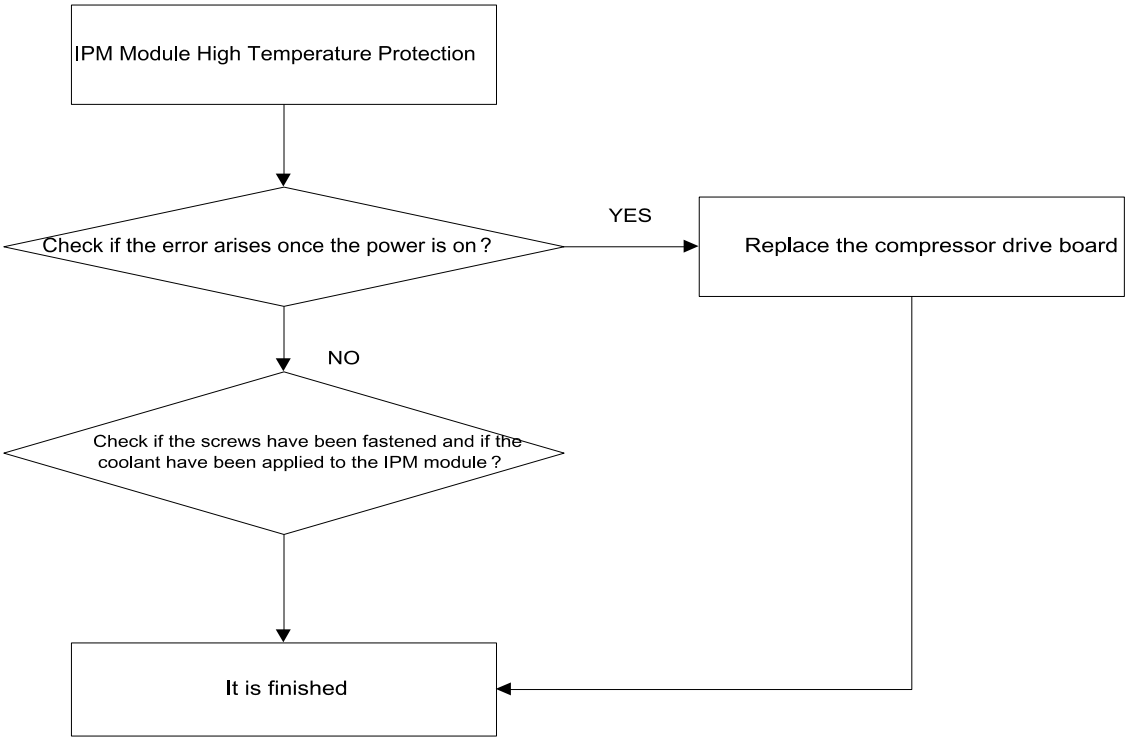
13.5.10 IPM temperature sensor error



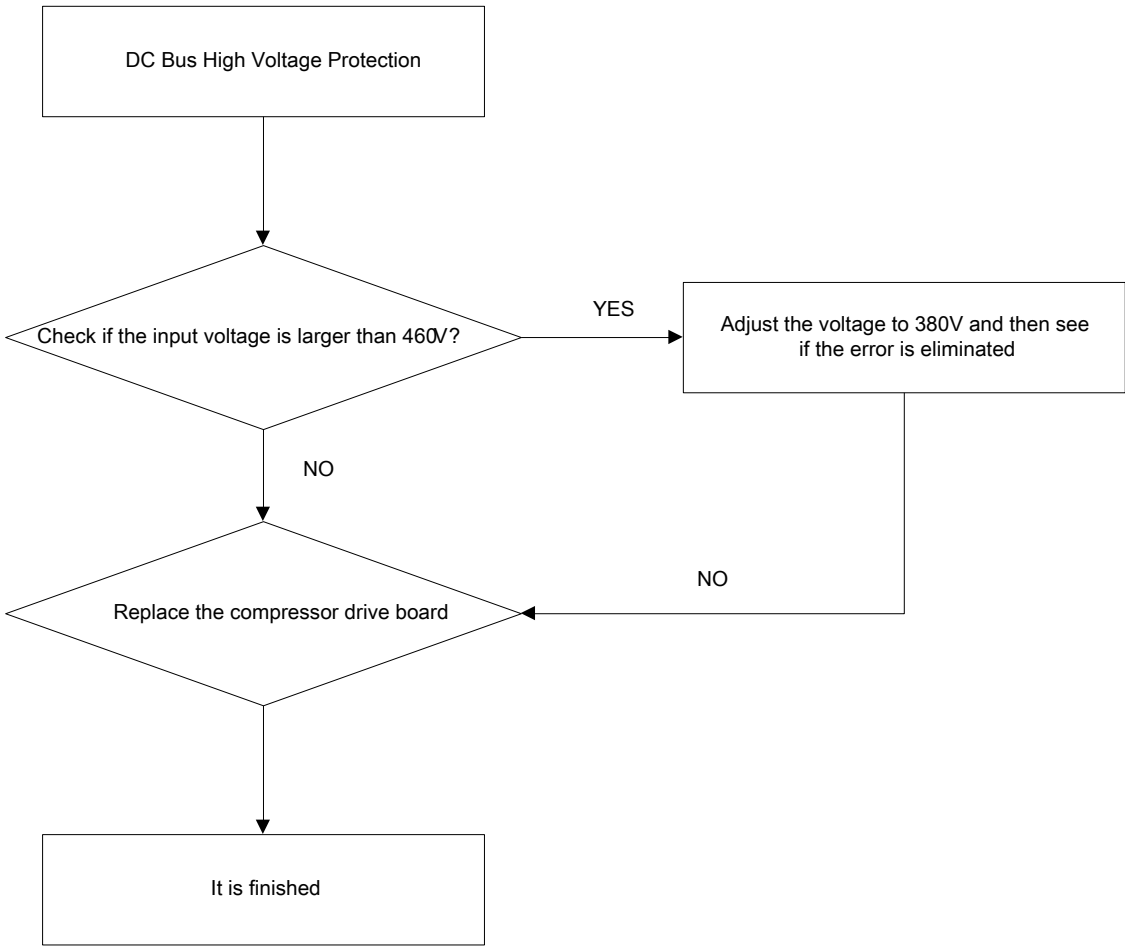
13.5.11 No energization to the unit and mainboard



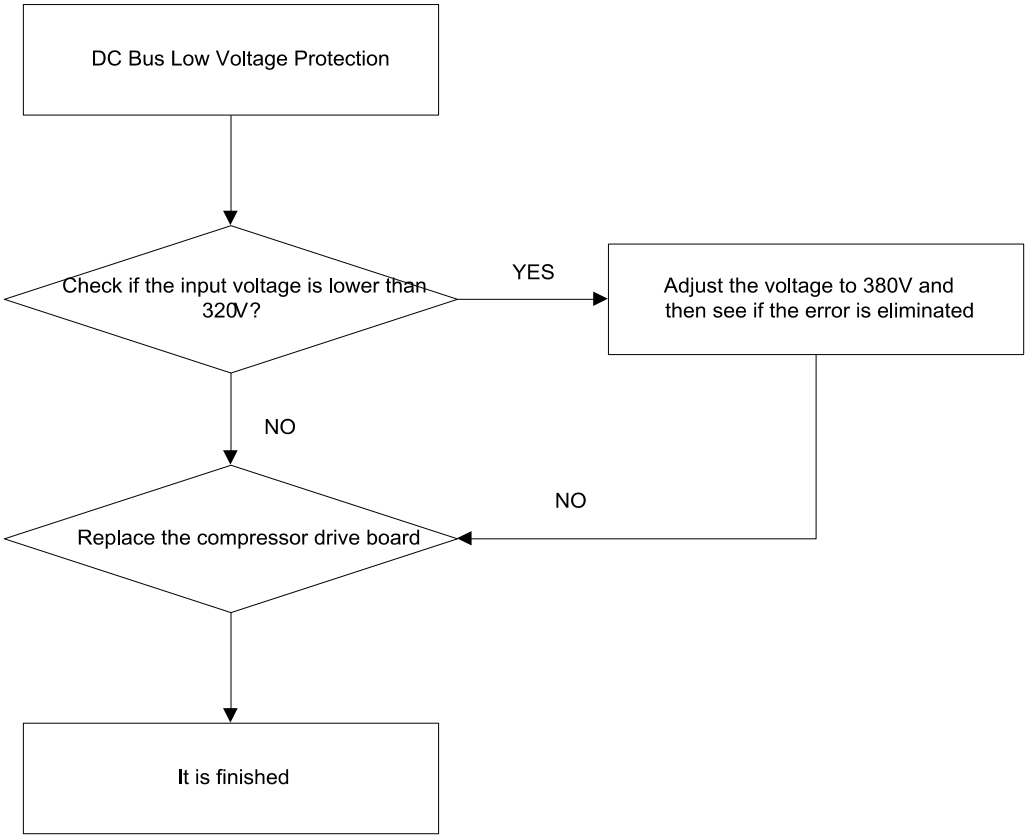
13.5.12 IPM High Temperature Protection



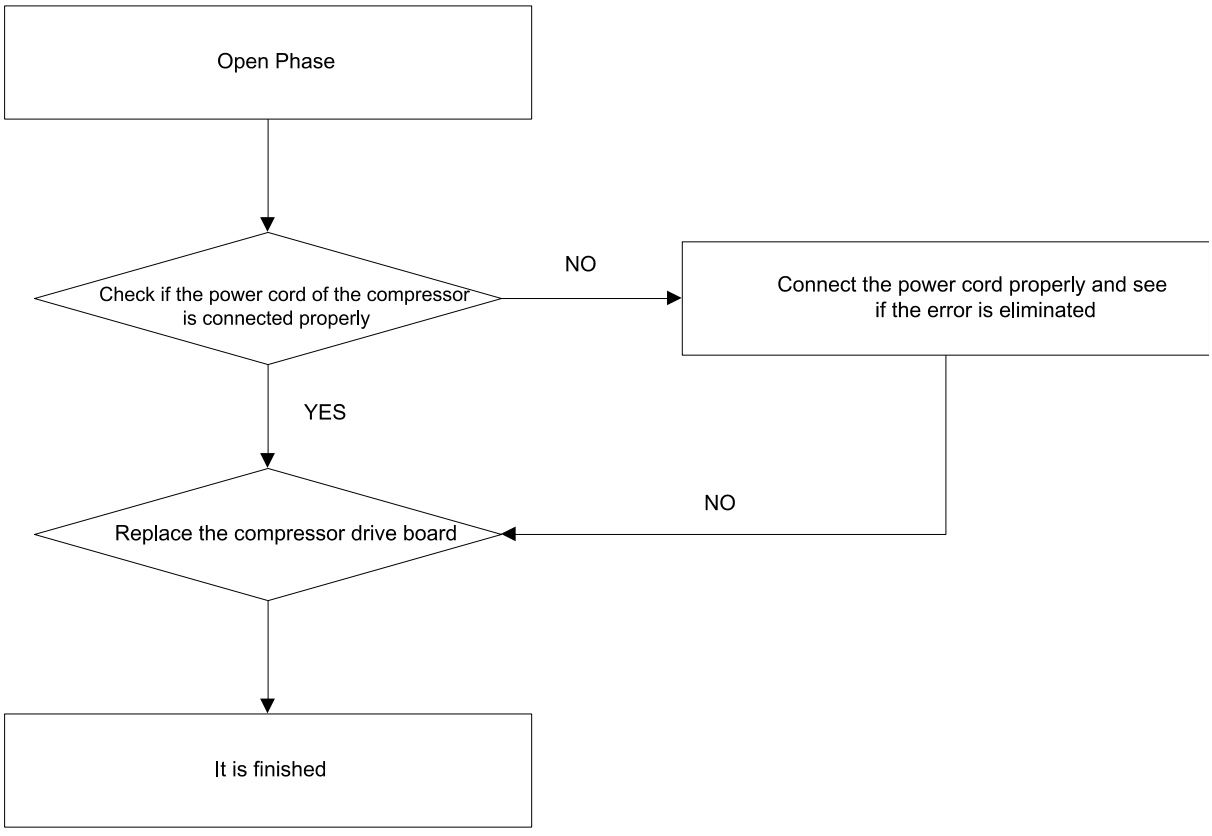
13.5.13 DC Bus High Voltage Protection



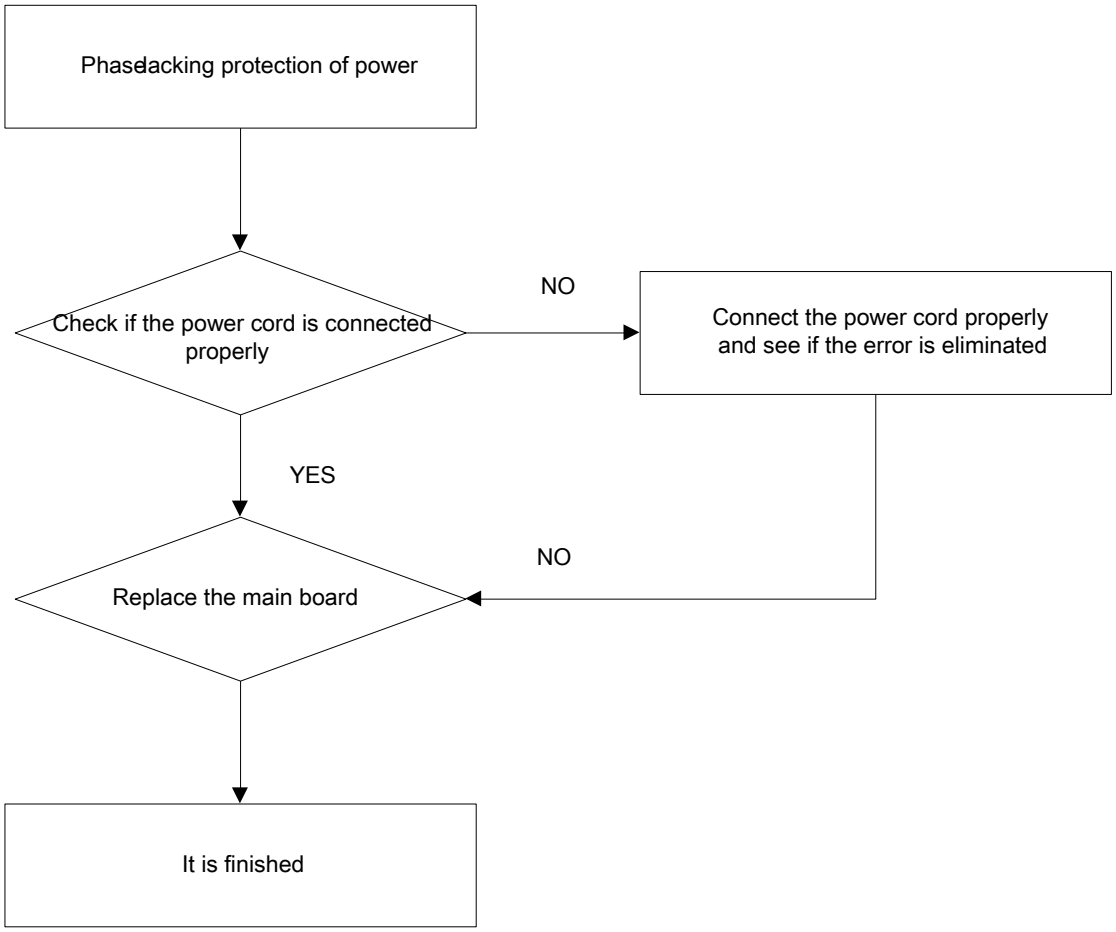
13.5.14 DC Bus Low Voltage Protection



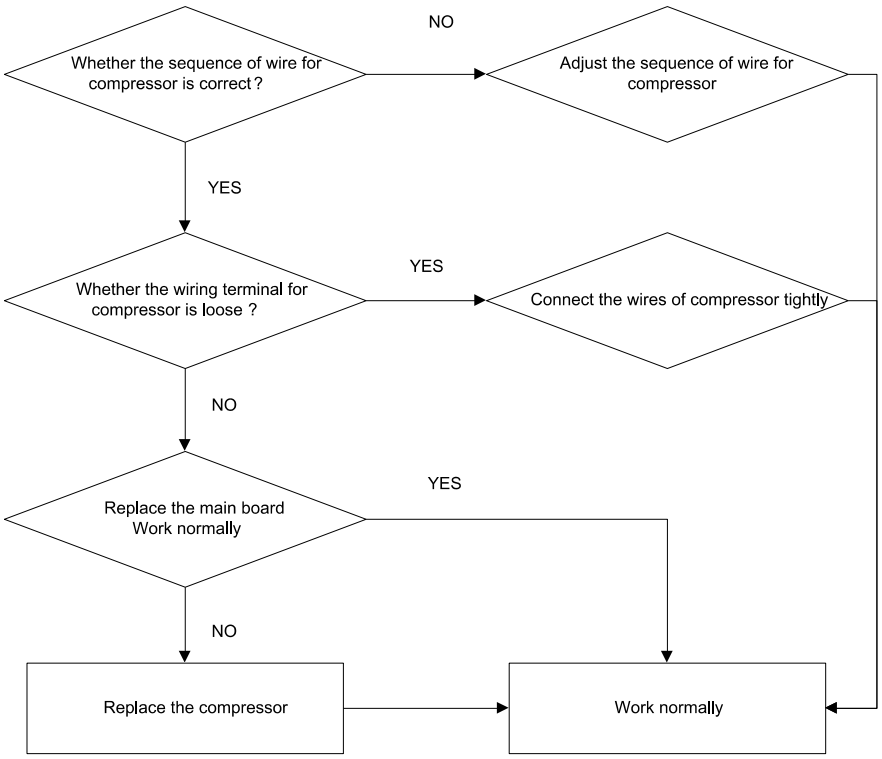
13.5.15 Open Phase Protection



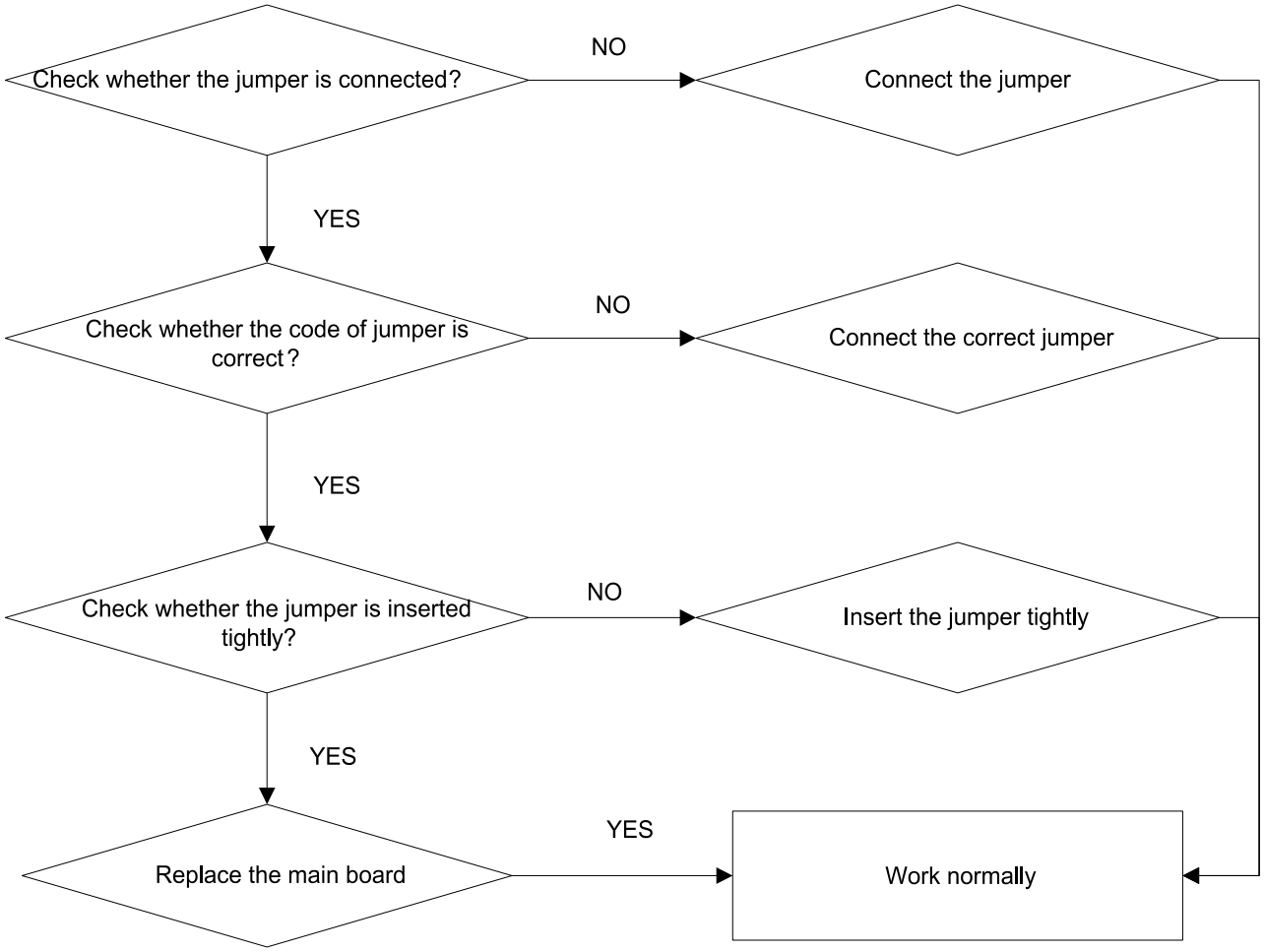
13.5.16 Phase-lacking protection of power



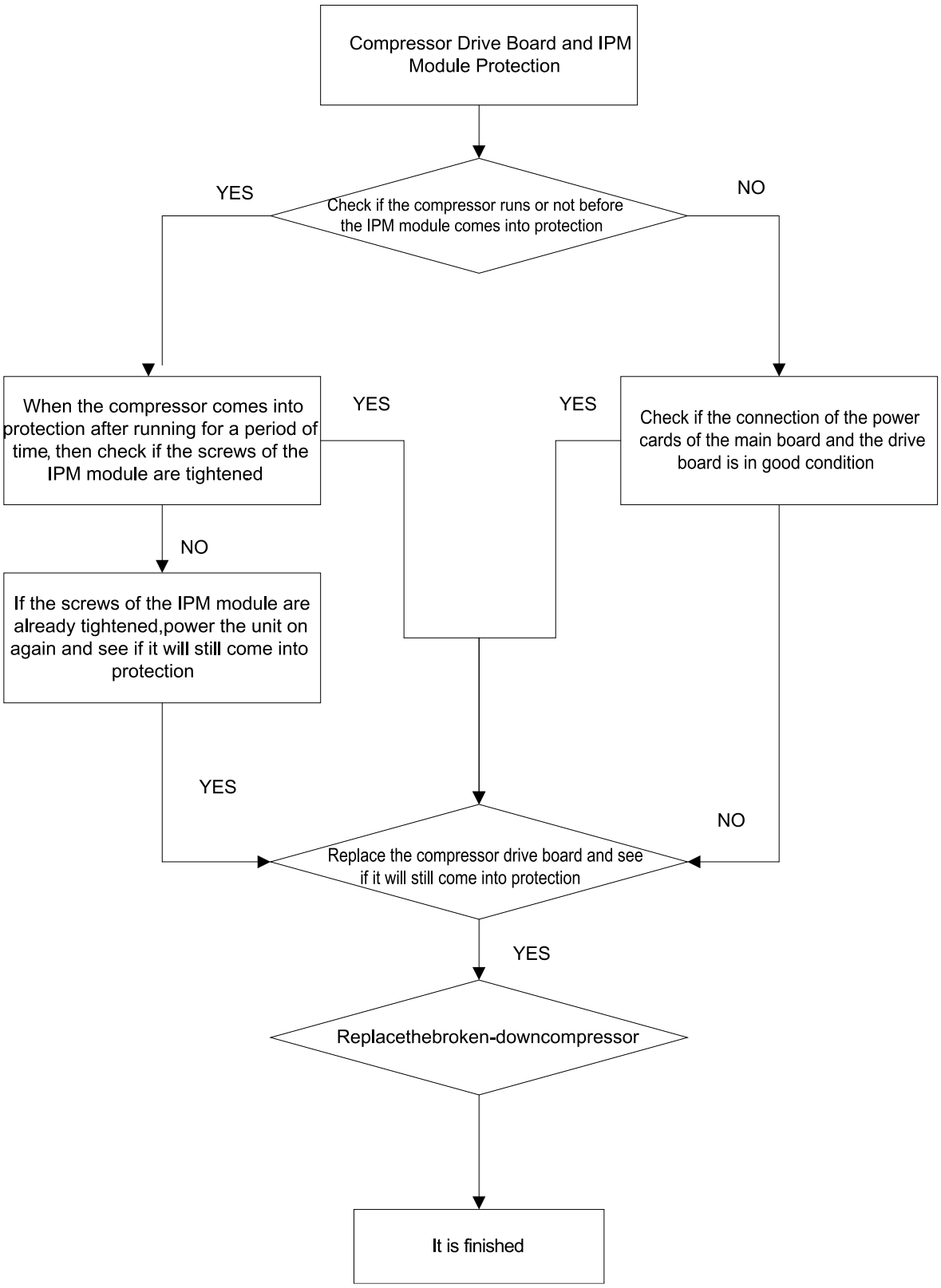
13.5.17 Open Phase Protection



13.5.18 Malfunction of jumper

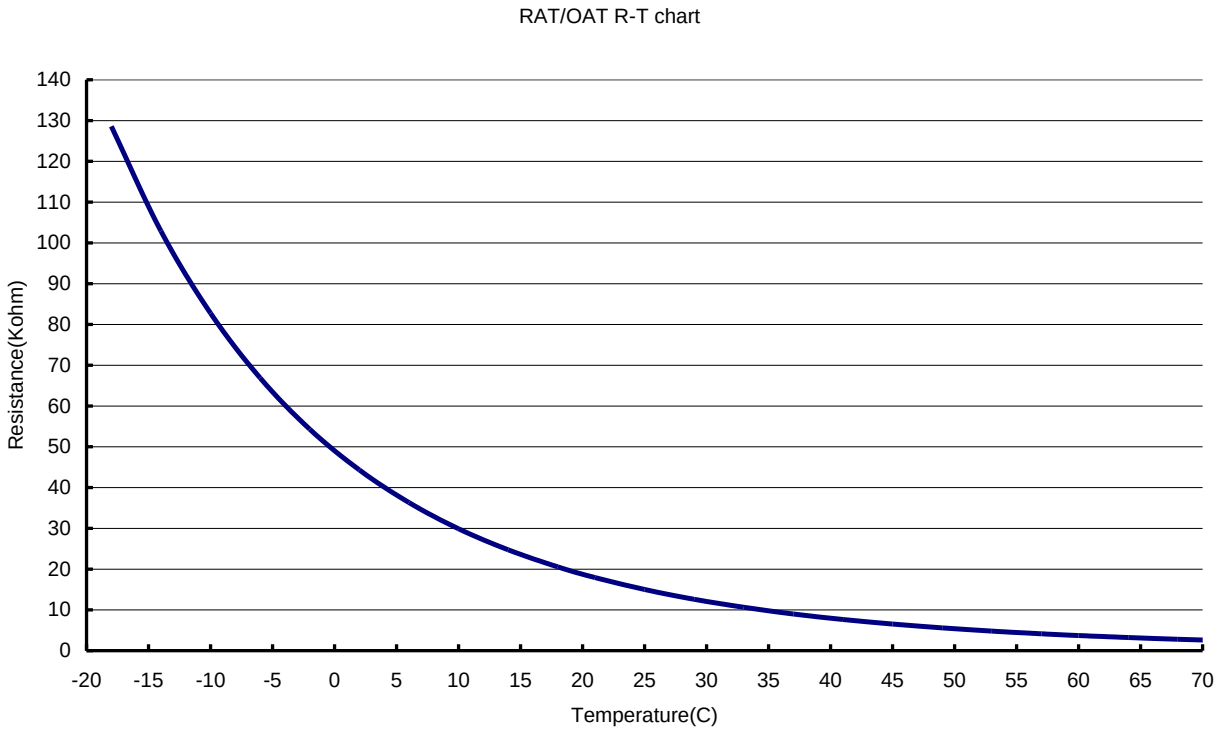


13.5.19 IPM Module Protection Error

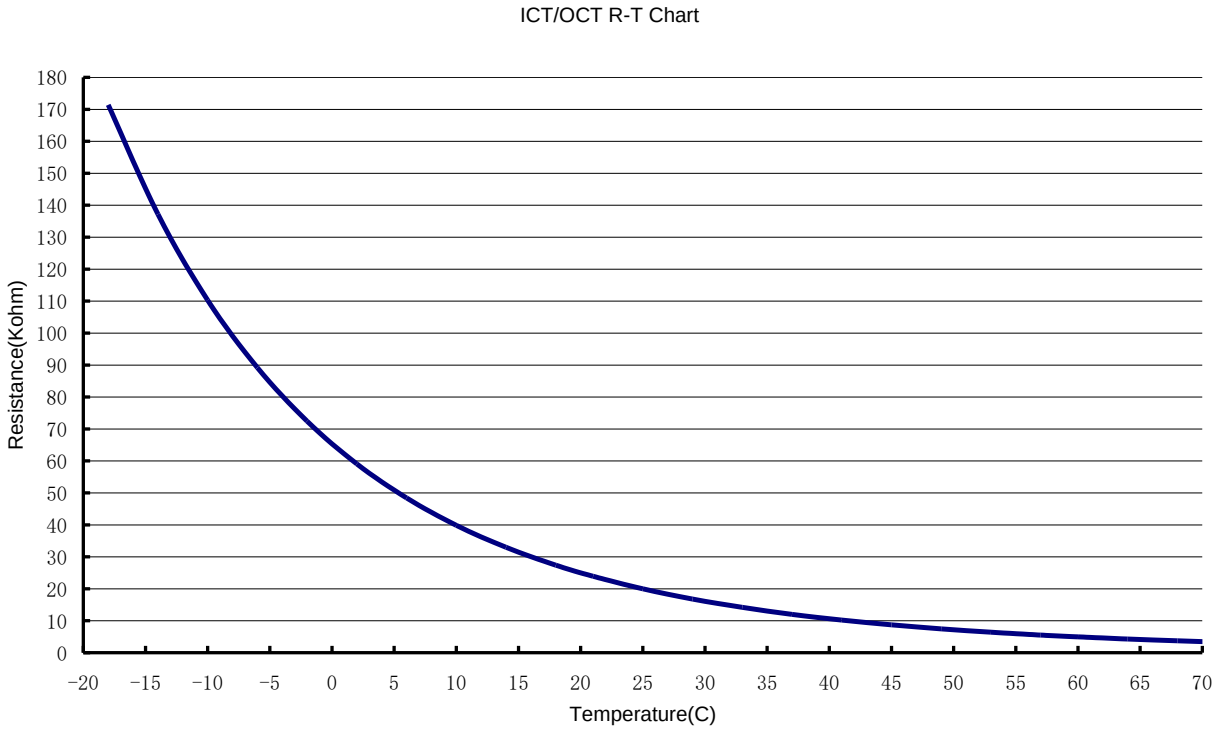


14. CHARACTERISTICS OF SENSOR

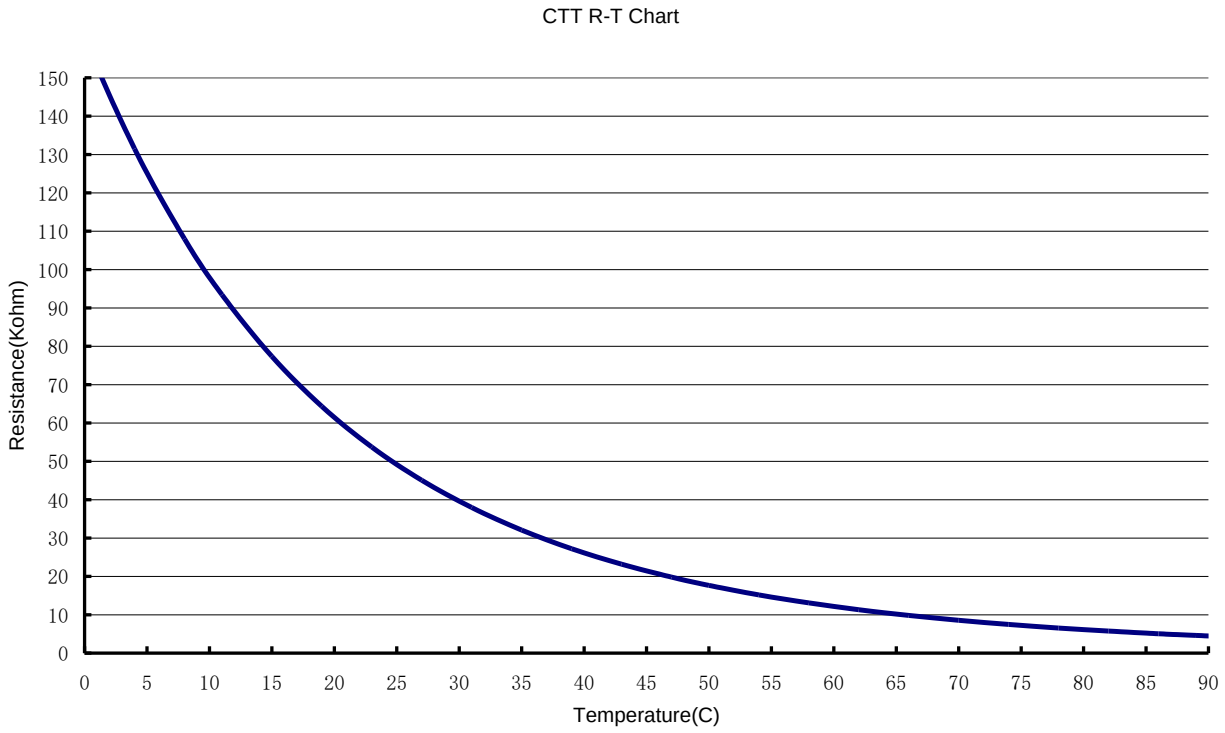
14.1.1 RAT/OAT



14.1.2 ICT/OCT

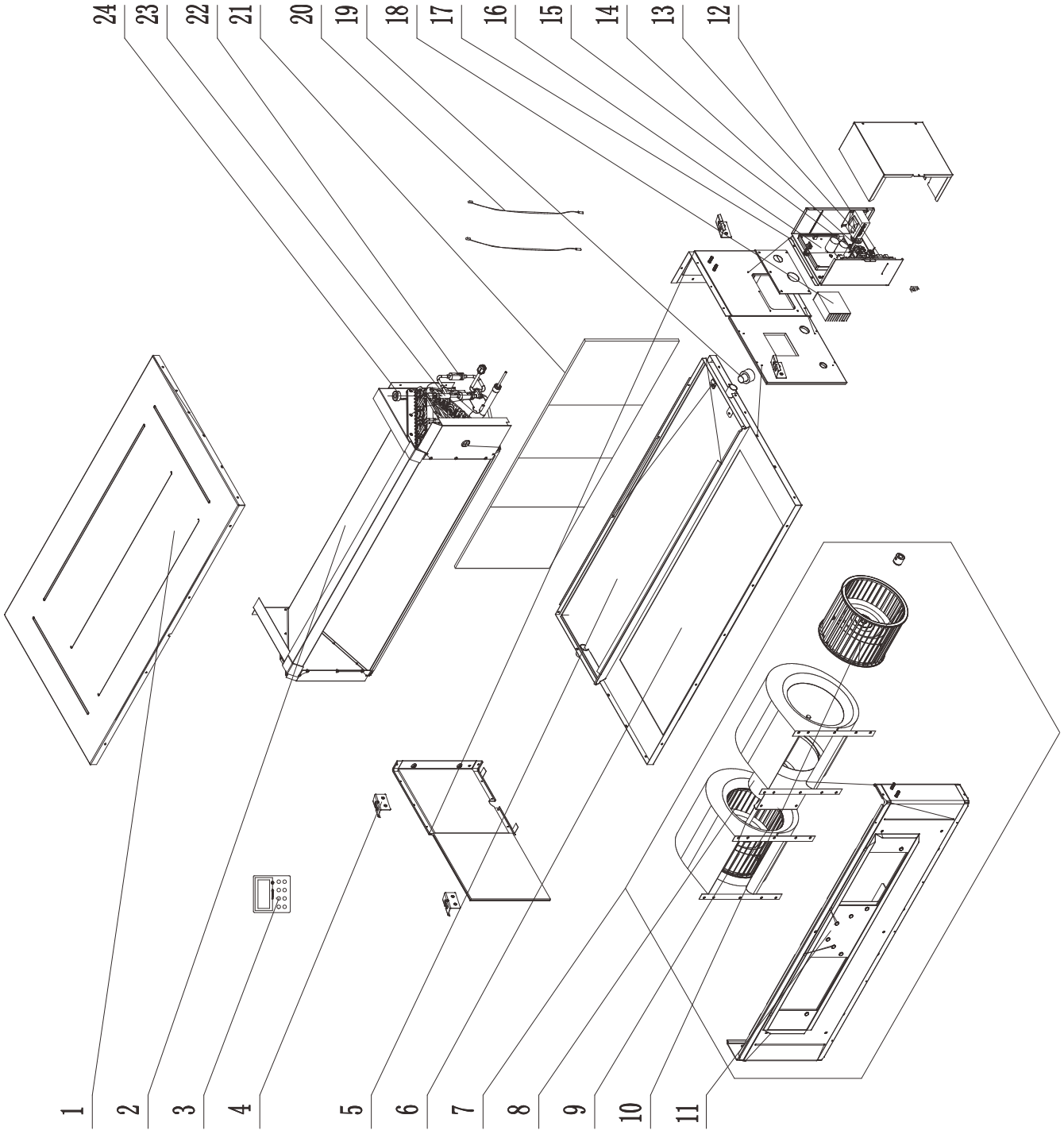


14.1.3 CTT


CTT R-T Chart
Resistance(Kohm)
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
Temperature(C)

15. EXPLODED VIEW & SPARE PART LIST

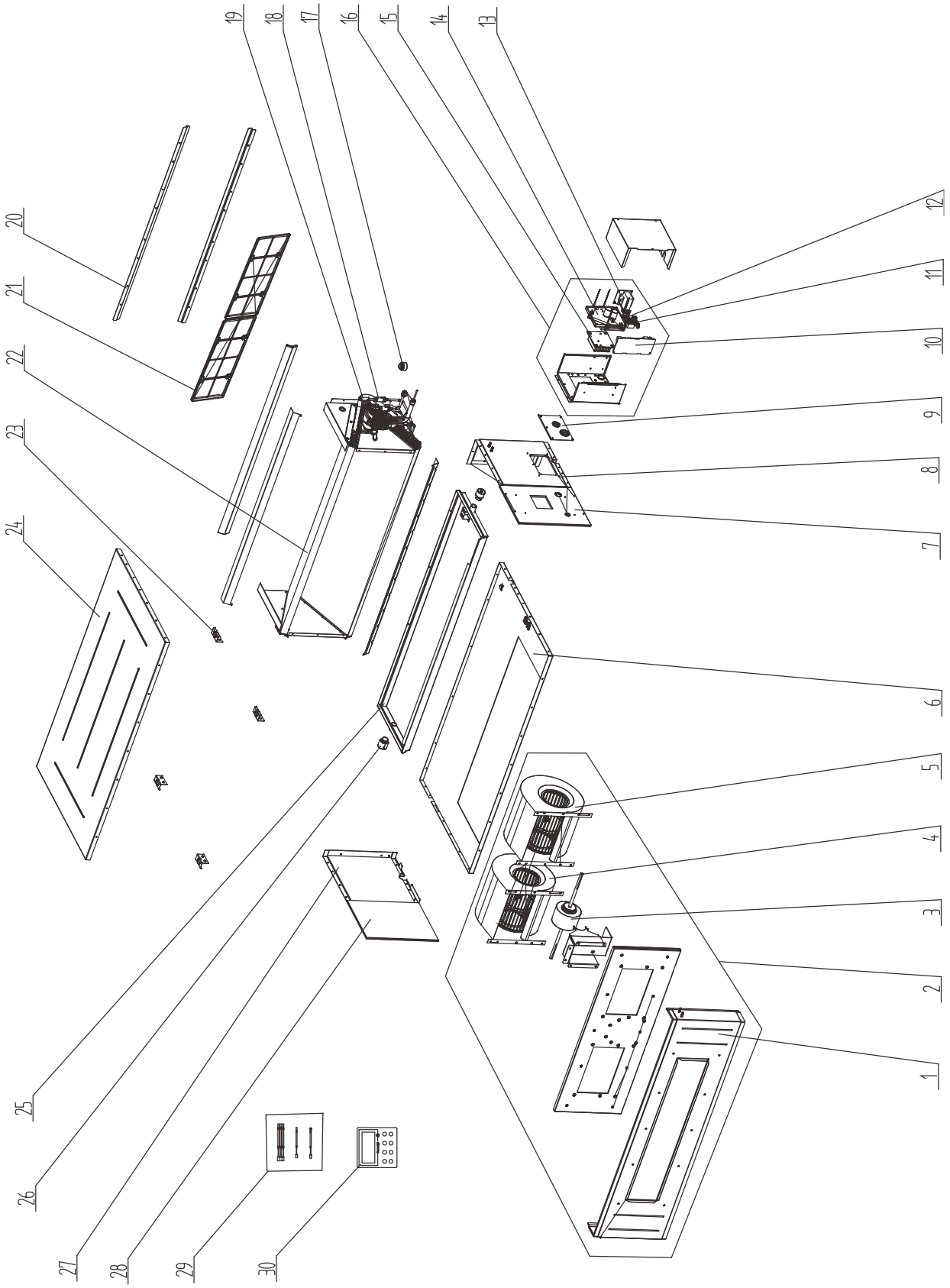
15.1 Exploded view of indoor unit: DED076



15.2 Spare part list of indoor Unit: DED076

NO.	Part Code	Part Description	qty
1	01265359	Top Cover Board Assy	1
2	01024100120	Evaporator Assy	1
3	30296000040_L51037	Display Board	1
4	02112466	Hook	4
5	01284620	Water Tray Assy	1
6	01265357	Bottom Cover Plate Assy	1
7	15404100051	Centrifugal fan assy	1
8	15704100009	Brushless DC Motor	1
9	15705306	Motor	1
10	15705307	Motor	1
11	01314627	Front Side Plate assy	1
12	30226000064	Main Board	1
13	43130189	Reactor	1
14	4201800002601	Terminal Board	1
15	42010259	Terminal Board	1
16	30221000023	Main Board	1
17	01394100450	Electric Box Assy	1
18	49018000068	Radiator	1
19	76712454	Choke Plug of Water Pipe	1
20	39008000103G	Sensor Sub-assy	1
21	11725211	Filter Sub-Assy	2
22	0741410000601	Strainer	1
23	43044100143	Electronic Expansion Valve Sub-Assy	1
24	4304413205	Electric Expand Valve Fitting	1

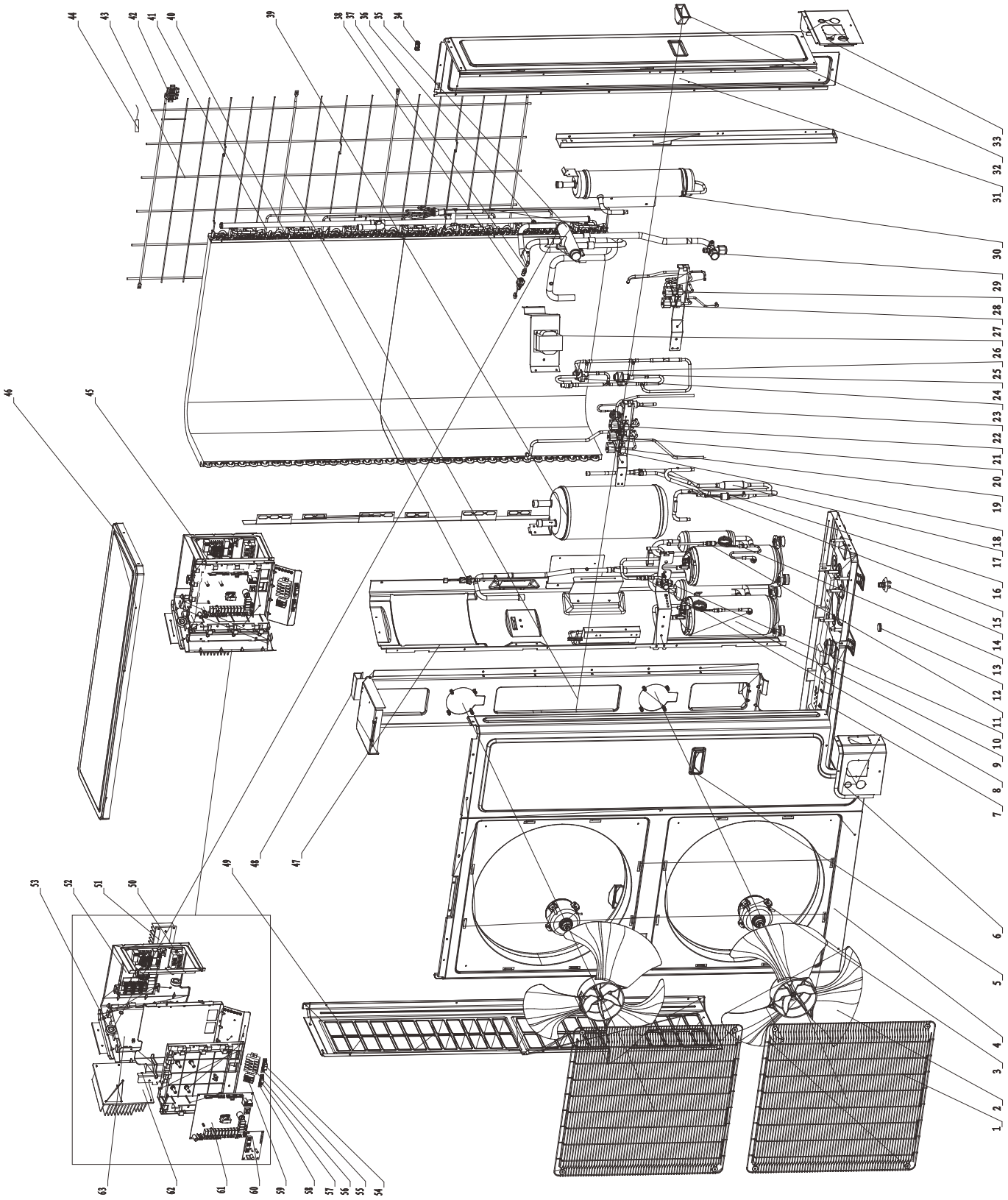
15.4 Exploded view of indoor unit: DED095



15.5 Spare part list of indoor Unit: DED095

NO.	Part Code	Part Description	qty
1	01314314	Front Side Plate Sub-Assy	1
2	15404100061	Centrifugal fan assy	1
3	15704100009	Brushless DC Motor	1
4	15704118	Motor	1
5	1570411801	Motor	1
6	01264213	Lower Cover Plate Sub-Assy	1
7	01314100088	Right Side Plate Assy	1
8	01314312	Front Side Plate assy 2	1
9	01494709	Seal Of Connection Pipe sub-assy	1
10	30226000064	Main Board	1
11	4201800002601	Terminal Board	1
12	42010259	Terminal Board	1
13	43130189	Reactor	1
14	30221000023	Main Board	1
15	49018000068	Radiator	1
16	01394100450	Electric Box Assy	1
17	4304413205	Electric Expand Valve Fitting	1
18	0741410000601	Strainer	1
19	43044100145	Electronic Expansion Valve Sub-Assy	1
20	02284105	filter guide groove	2
21	11724102	Filter Sub-Assy	2
22	01024100125	Evaporator Assy	1
23	02112466	Hook	4
24	01264215	Top Cover Board Sub-assy	1
25	01284306	Water Tray Assy	1
26	76712454	Choke Plug of Water Pipe	1
27	01314309	Left Side Plate Assy	1
28	01314319	Right Side Plate Sub-Assy	1
29	39008000103G	Sensor Sub-assy	1
30	30296000040_L51037	Display Board	1

15.6 Exploded view of outdoor unit: YED076

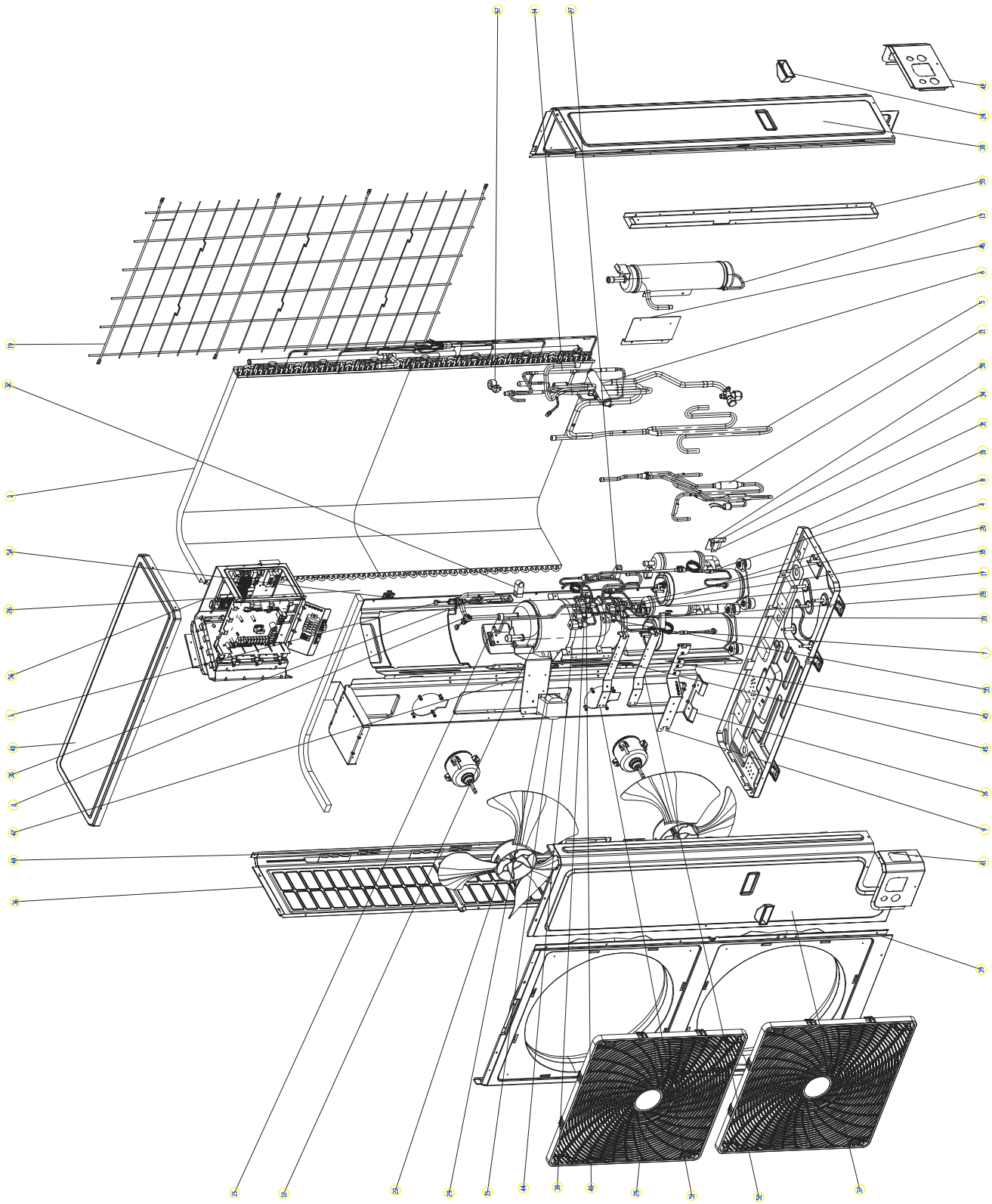


15.7 Spare part list of outdoor Unit: YED076

NO.	Part Code	Part Description	qty
1	01574106	Front Grill	2
2	10335010	Axial Flow Fan	2
3	15704100006	Brushless DC Motor	2
4	01514100003P	Cabinet	1
5	26904100016	Handle	1
6	01344100009P	Front Connection Board	1
7	01194100047P	Chassis Sub-assy	1
8	07212001	Strainer	1
9	00204100005	Compressor	2
10	07330000002	Cut off Valve	1
11	0721302601	Filter	1
12	06813401	Drainage hole Cap	2
13	0721119101	Strainer A	1
14	06813401	Drainage hole Cap	1
	06123401	Drainage Connecter	1
15	05212423	Temp Sensor Sleeving	1
	05210001	Temp Sensor Sleeving	1
16	4602001536	Pressure Protect Switch	1
	4602001587	Pressure Protect Switch	1
17	07130118	One way Valve	1
18	021400054	Tube Clip	5
	021400053	Tube Clip	5
19	4304000433	Magnet Coil	1
20	4304000423	Magnet Coil	1
21	4304000415	Magnet Coil	1
22	07220019	Strainer	1
23	4304413219	Electric Expand Valve Fitting	1
24	07334100002	Discharge Charge Valve	1
25	43044100059	Electric Expansion Valve Sub-Assy	1
26	4313017402	Reactor	1
27	43040004	Magnet Coil	1
28	4304000407	Magnet Coil	1
29	07330000001	Cut off Valve	1
30	07424100027	Oil Separator	1
31	01314100025P	Rear Side Plate	1
32	26904100016	Handle	2
	26235253	Handle	2
33	01344100008P	Right Connection Board	1
34	26115004	Wiring Clamp	1
35	04044100030	4-way Valve Assy	1
36	06120012	Nozzle for Adding Freon	1
37	061200134	Nozzle for Adding Freon	1
38	322101032	Sensor (High Pressure)	1
39	07424100030	Gas-liquid Separator	1
40	322101002	Sensing Device	1
41	01124100107	Condenser Assy	1
42	26905202	Sensor Support	1
43	01574100006	Rear Grill	1
44	39008000015G	Sensor Sub-Assy	1

NO.	Part Code	Part Description	qty
45	01394100257	Electric Box Assy	1
46	01264100014P	Coping	1
47	01244100008	Clapboard	1
48	01804100280	Motor Support Assy	1
49	01314100024P	Left Side Plate	1
50	46010608	Rectifier	1
51	49018000046	Radiator	1
52	30224100002	Filter Board	1
53	49010109	Magnetic Ring	1
54	71010005	Wire Clamp	1
55	70410006	Insulation Gasket	1
56	42011043	Terminal Board	1
57	71010003	Wire Clamp	1
58	70410503	Insulation Gasket	1
59	42011154	Terminal Board	1
60	30118000026	Testing Board	1
61	30223000019	Main Board	1
62	49018000045	Radiator	1
63	30224100003	Main Board	1

15.8 Exploded view of outdoor unit: YED095



15.9 Spare part list of outdoor Unit: YED095

NO.	Part Code	Part Description	qty
1	322101002	Sensing Device	1
2	322101032	Sensor (High Pressure)	1
3	01124100107	Condenser Assy	1
4	00204100003	Compressor	2
5	04574100051	Inhalation Tube Sub-assy	1
6	04044100020	4-Way Valve Assy	1
7	04224100203	Oil balance pipe Sub-Assy	1
8	04224100204	Oil balance pipe Sub-Assy	1
9	01324100017	Mounting Plate Sub-Assy	1
10	01194100075	Chassis Assy	1
11	04534100054	Exhaust Trunk Sub-assy	1
12	07424100030	Gas-liquid Separator	1
13	07424100027	Oil Separator	1
14	43044100059	Electric Expansion Valve Sub-Assy	1
15	4313017402	Reactor	1
16	01804100280	Motor Support Assy	1
17	43044100061	Electromagnetic Valve Sub-assy	1
18	43044100065	Electromagnetic Valve Sub-assy	1
19	01574100006	Rear Grill	1
20	05024100381	Connection Pipe Sub-assy	1
21	05024100350	Connection Pipe Sub-assy	1
22	10335010	Axial Flow Fan	2
23	12204100076	Sponge	1
24	26904100016	Handle	2
	26235253	Handle	2
25	01574106	Front Grill	2
	26904100078	Front Grill	2
26	26115004	Wiring Clamp	1
27	708400107	Fixed Block of Tube	1
28	708400111	Fixed Block of Tube	1
29	76514801	Cable-Cross Loop	1
	76515202	Cable Cross Loop	1
30	76518218	Liquid divider cushion rubber	5
31	7651821802	Liquid divider cushion rubber	1
33	021400054	Tube Clip	5
	021400053	Tube Clip	5
34	021400054	Tube Clip	1
35	01804100286	Supporter	1
36	01314100024P	Left Side Plate	1
37	01314100026P	Front Side Plate	1
38	01314100025P	Rear Side Plate	1
39	01514100003P	Cabinet	1
40	01264100014P	Coping	1
41	01344100009P	Front Connection Board	1
42	01344100008P	Right Connection Board	1
43	01244100008	Clapboard	1
44	02264100005	Wire Clamp	2
45	01844100030	Retaining Plate (Water Level Switch)	1
46	01844100028	Retaining Plate (Water Level Switch)	1

NO.	Part Code	Part Description	qty
47	01804100153	Supporter	1
49	01894100024	Supporting Board(Condenser)	1
50	01804100274	Supporter	1
51	01804100275	Supporter	1
52	01804100276	Supporter	1
53	01894100025	Supporting Board	1
54	26905202	Sensor Support	1

APPENDIX

Operation manual of RCW17