

S/M No. :

Service Manual

AIR CONTIONER

Model: DSB-F1216LH-DV

✓ Caution

: In this Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List) in Service Information Center (<http://svc.dwe.co.kr>).

DAEWOO 
ELECTRONICS

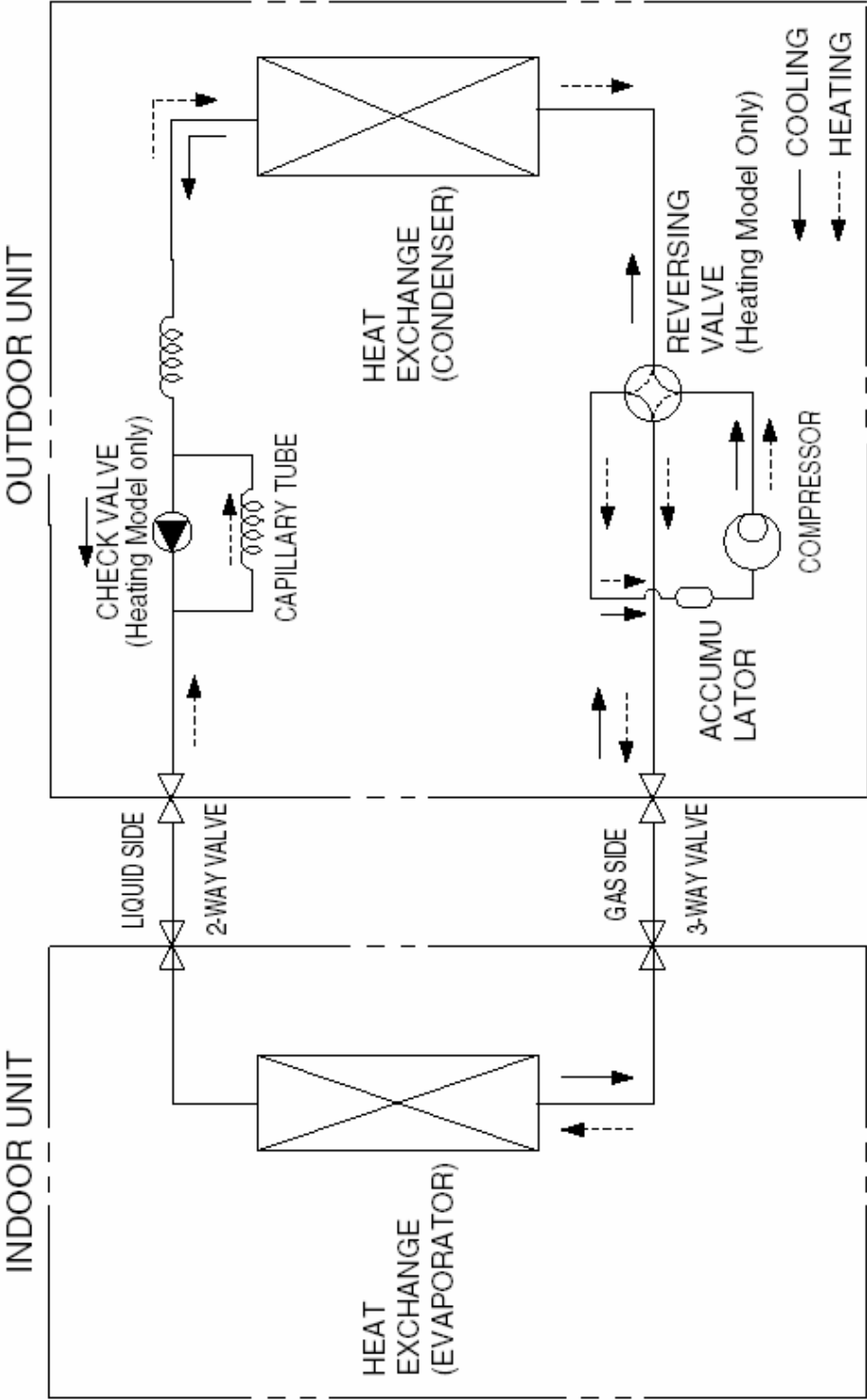
Oct. 2009

4. Specification

Indoor			DSB-F1216LH-DV	
Outdoor			MOB-12HDN1-QC2	
Power supply		Ph-V-Hz	1, 220-240V~, 50Hz	
Cooling	Capacity	Btu/h	11000(2450~13500)	
	Input	W	1000(210~1380)	
	Rated current	A	4.4(1.0~6.2)	
	EER	W/W	3.22	
Heating	Capacity	Btu/h	12500(2800~16000)	
	Input	W	1010(210~1480)	
	Rated current	A	4.5(1.0~6.6)	
	COP	W/W	3.63	
Moisture Removal		L/h	1.1	
Max. input consumption		W	1750	
Max. current		A	8.0	
Starting current		A	6.7	
Compressor	Model		DA89X1C-23FZ	
	Type		Rotary	
	Brand		Toshiba	
	Capacity	Btu/h	9040	
	Input	W	680	
	Rated current(RLA)	A	4.7	
	Locked rotor Amp(LRA)	A	10	
	Thermal protector		CS-74	
	Capacitor	uF	No	
	Refrigerant oil	ml	370	
Indoor fan motor	Model		RPG20E	
	Brand		Welling	
	Input	W	45	
	Capacitor	uF	1.5	
	Speed(hi/mi/lo)	r/min	1250/1100/900	
Indoor air flow (Hi/Mi/Lo)		m3/h	550/450/350	
Indoor noise level (Hi/Mi/Lo)		dB(A)	41/37/31	
Indoor unit	Dimension (W*H*D)	mm	790×275×190	
	Packing (W*H*D)	mm	865×350×265	
	Net/Gross weight	Kg	8.5/10.5	
Outdoor fan motor	Model		YDK24-6G	
	Brand		Welling	
	Input	W	59/47	
	Capacitor	uF	2.5	
	Speed	r/min	800/550	
Outdoor air flow		m3/h	2000	
Outdoor noise level		dB(A)	54	
Outdoor unit	Dimension(W*H*D)	mm	780×540×250	
	Packing (W*H*D)	mm	910×575×335	
	Net/Gross weight	Kg	35/37	
Refrigerant type R410A		g	980	
Refrigerant piping	Liquid side/ Gas side	mm(inch)	Φ6.35/Φ12.7	
	Max. refrigerant pipe length	m	20	
	Max. difference in level	m	8	
Operation temp		℃	17 ~ 30	
Ambient temp		℃	-15 ~ 50	

The above design and specifications are subject to change without prior notice for product improvement.

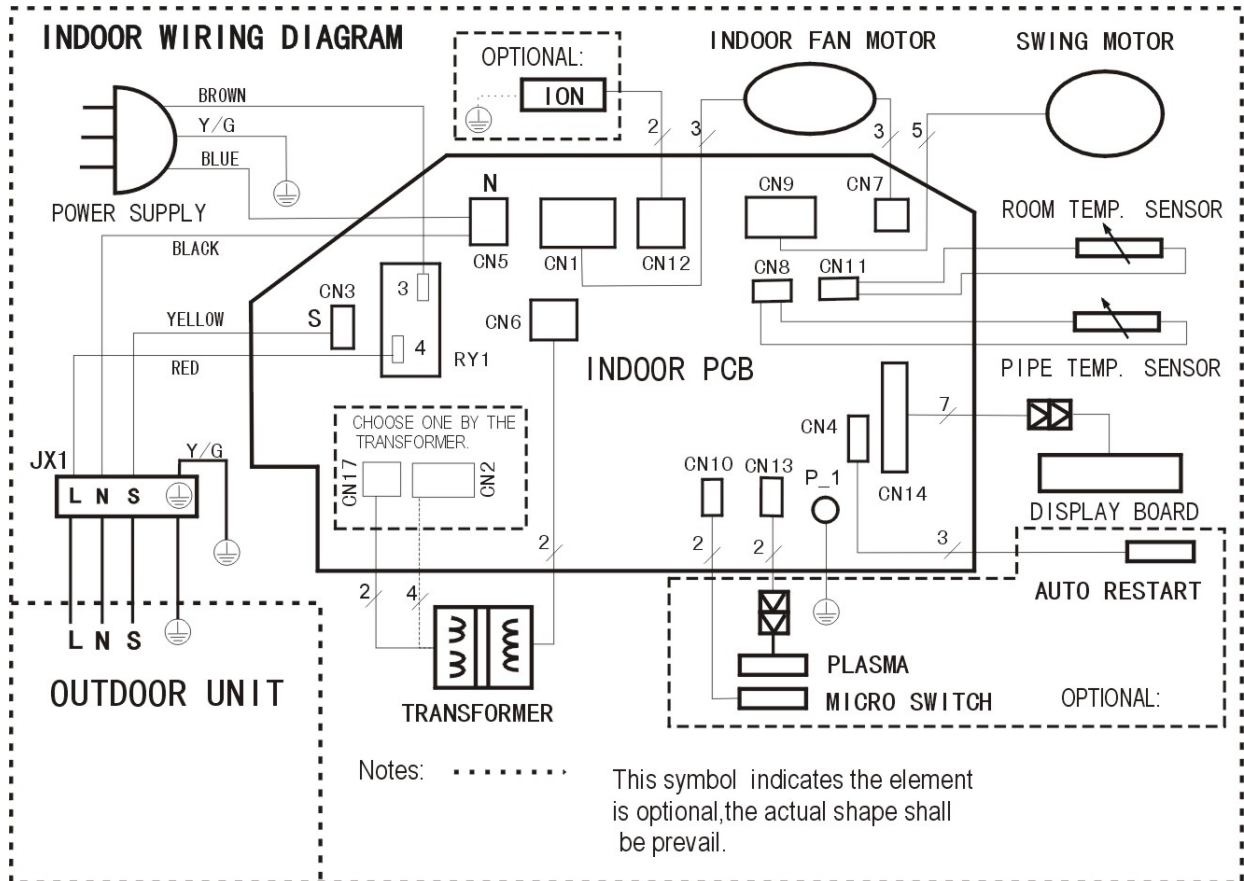
5. Refrigerant cycle diagram



6. Wiring diagram

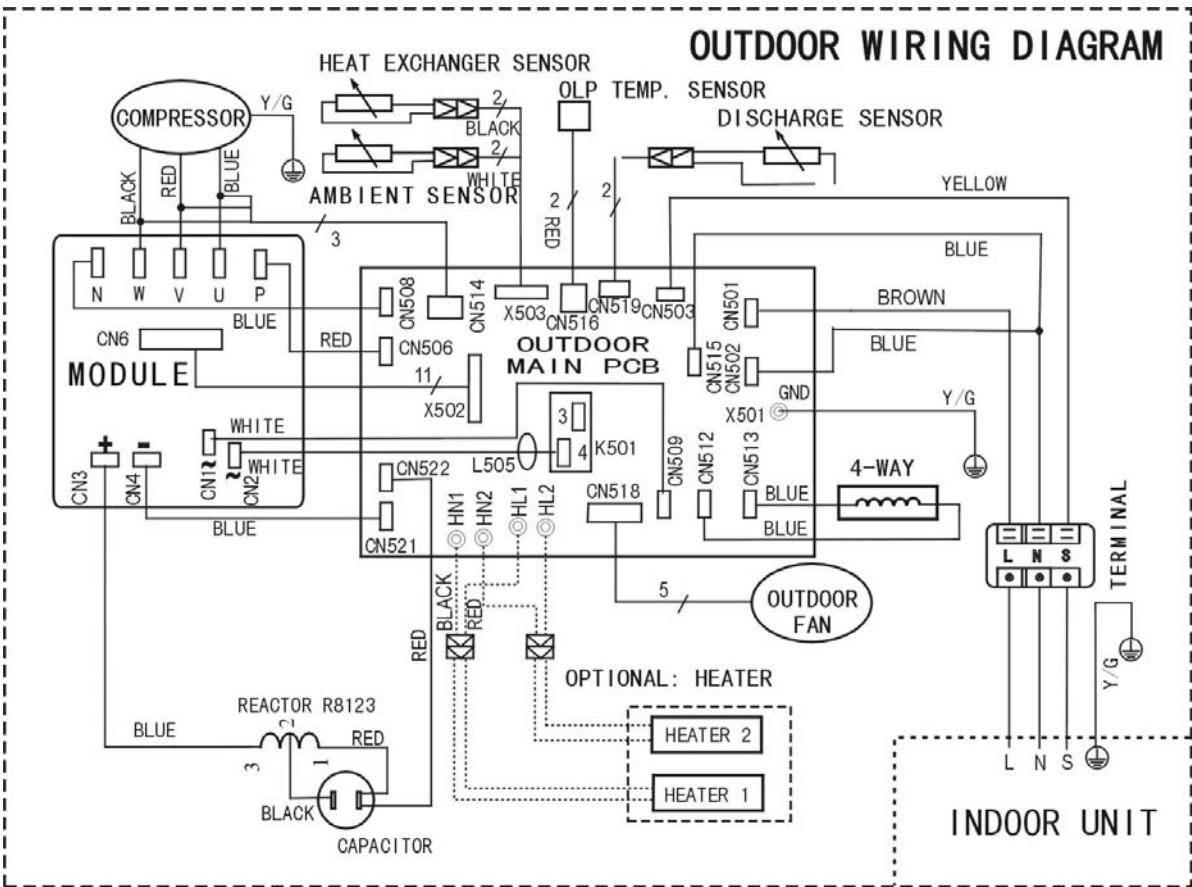
6.1 Indoor Unit

DSB-F1216LH-DV



6.2 Outdoor Unit

DSB-F1216LH-DV



7. Installation details

7.1 Wrench torque sheet for installation

Outside diameter		Torque
mm	inch	Kgf·m
Φ6.35	1/4	1.8
Φ9.52	3/8	4.2
Φ12.7	1/2	5.5

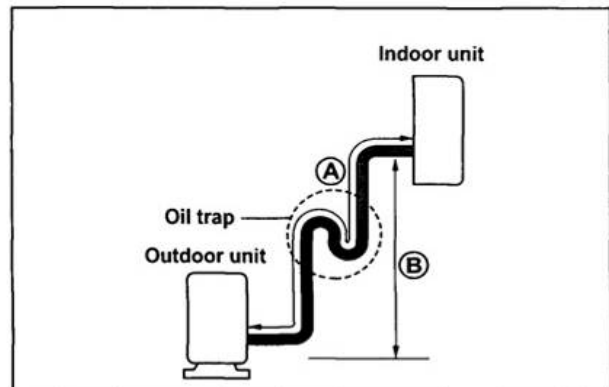
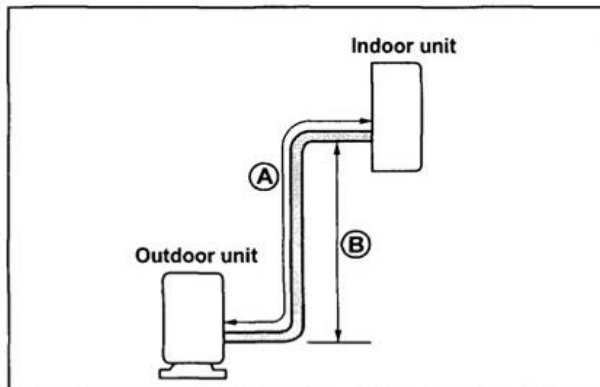
7.2 Connecting the cables

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

	Grade	
Unit	9K	12K
mm ²	1.0	1.5

7.3 Pipe length and the elevation

Capacity Btu/h	Pipe size		Standard length (m)	Max. Elevation B (m)	Max. Elevation A (m)	Additional refrigerant (g/m)
	Gas	Liquid				
9k~12K	3/8" (Φ9.52)	1/4" (Φ6.35)	5	8	20	30
	1/2" (Φ12.7)	1/4" (Φ6.35)	5	8	20	30



Caution:

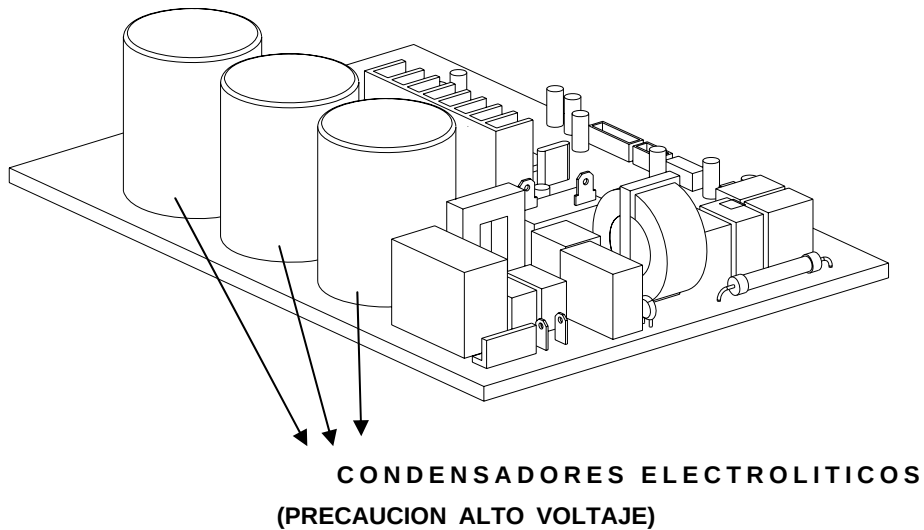
Capacity is base on standard length and maximum allowance length is base of reliability.

Oil trap should be installed per 5-7 meters.

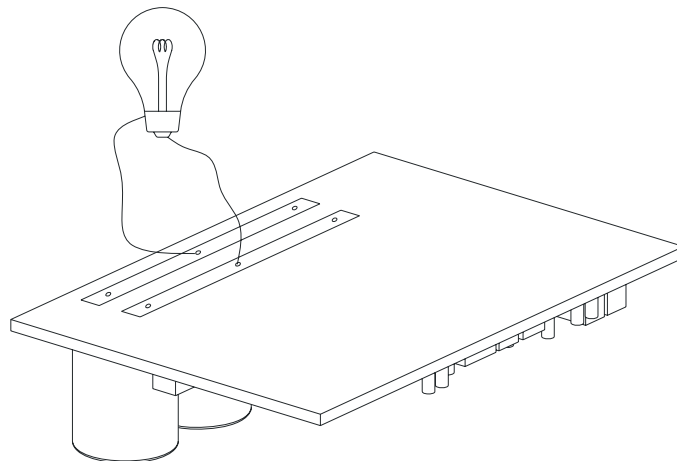
10. Troubleshooting

Safety

Because of there are capacitors in PCB and relative circuit in outdoor unit, even shut down the power supply, electricity power still are kept in capacitors, do not forget to discharge the electricity power in capacitor.



Bulb (25-40W) PARA DESCARGAR LOS CONDENSADORES



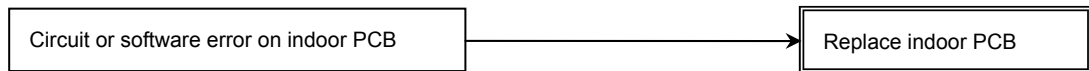
10.1 Indoor Unit Error Display

Display	LED STATUS
E0	EEPROM parameter error
E1	Indoor / outdoor units communication protection
E2	Zero-crossing signal error
E3	Fan speed out of control
E5	Open or short circuit of outdoor ambient or condenser temperature sensor
E6	Open or short circuit of indoor room or evaporator temperature sensor
P0	Inverter module (IGBT) over-strong current protection
P1	Over voltage or too low voltage protection
P2	Temperature protection of compressor top.
P4	Inverter compressor drive error

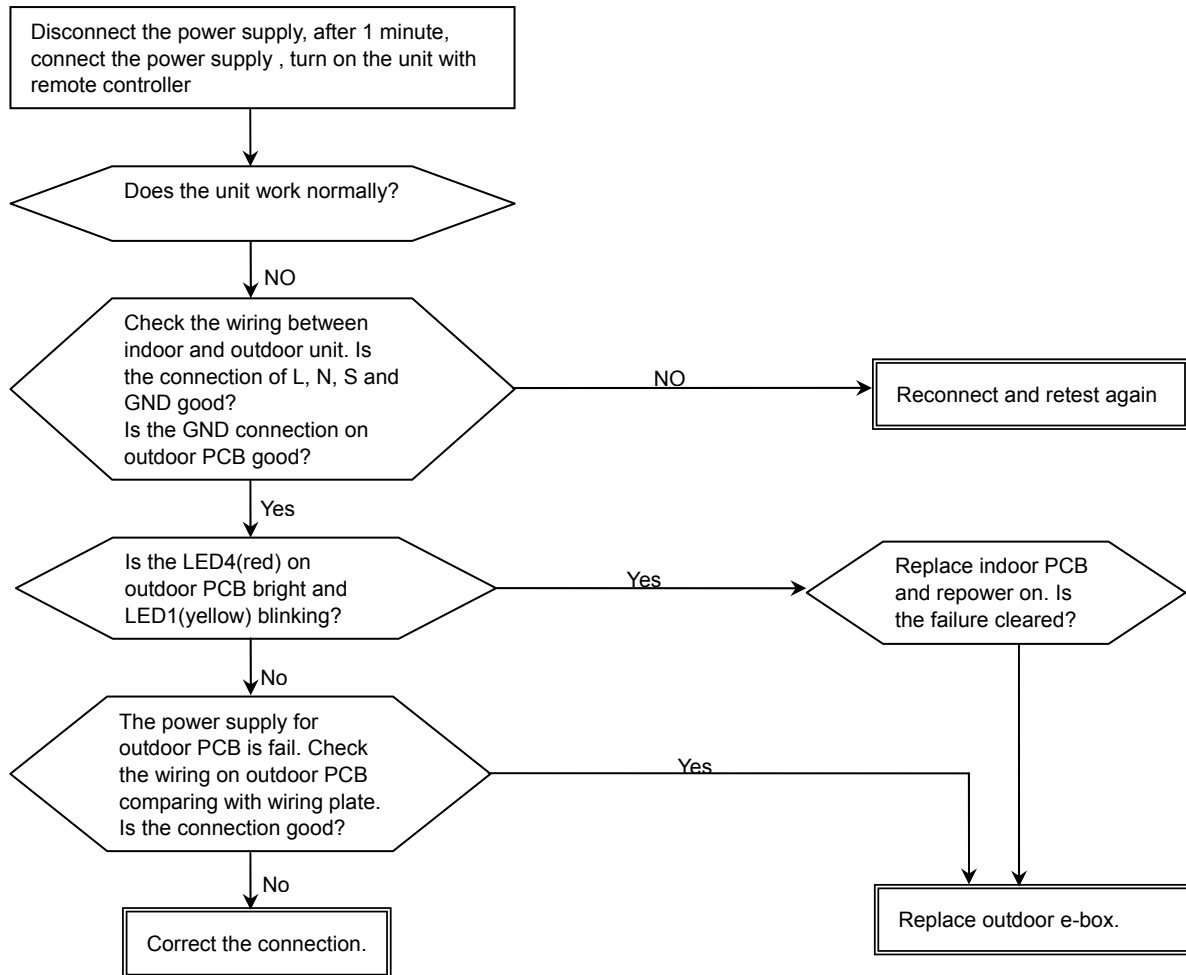
Note: E4 & P3: Reserved function

10.2 Diagnosis and Solution

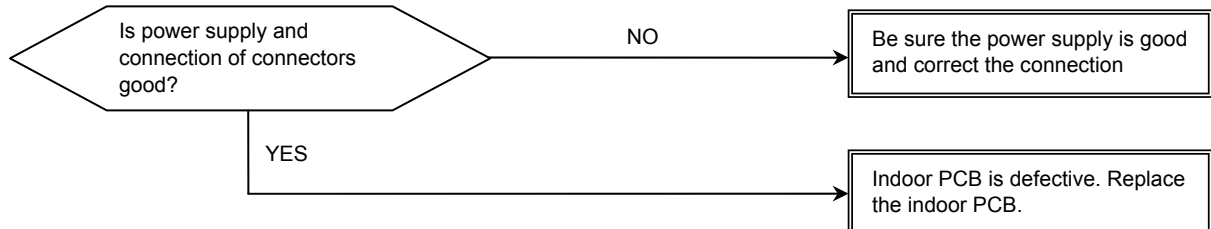
10.2.1 E0(EEPROM parameter error) error diagnosis and solution



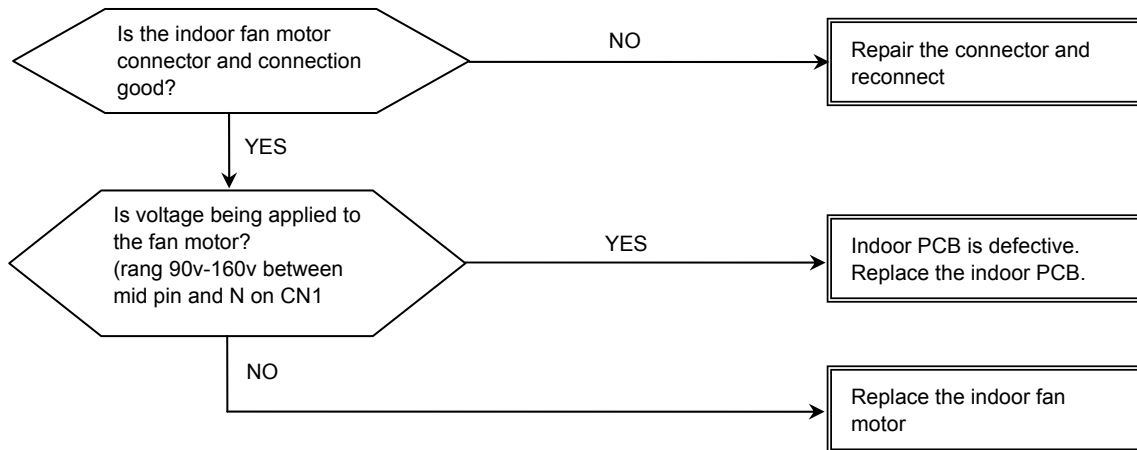
10.2.2 E1(indoor / outdoor units communication protection) error diagnosis and solution



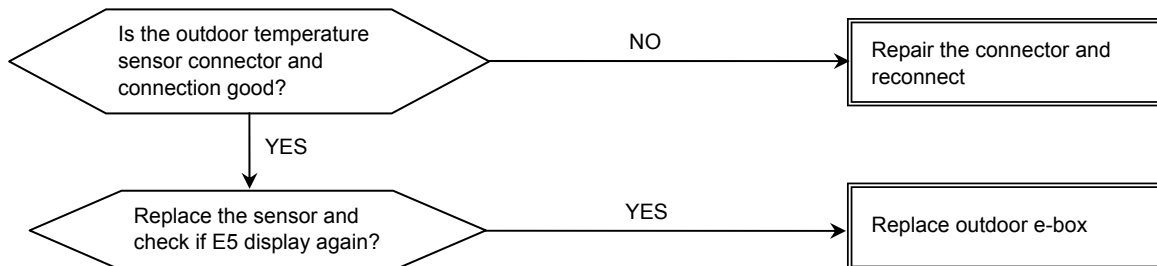
10.2.3 E2(zero-crossing signal error) diagnosis and solution



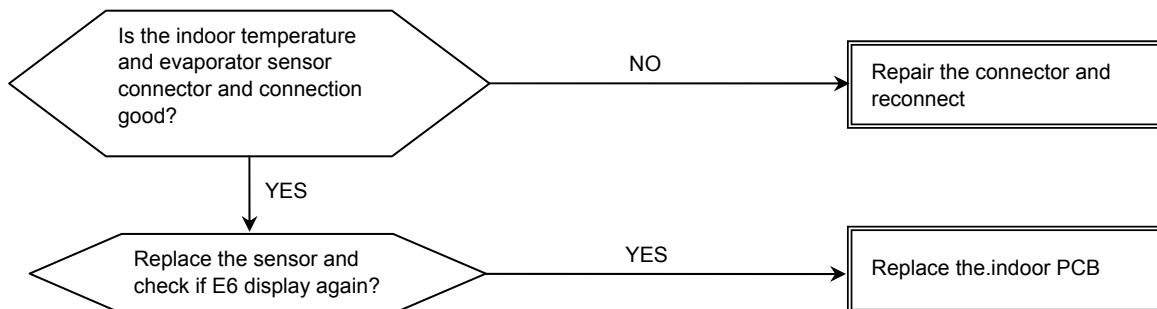
10.2.4 E3(indoor fan speed out of control) diagnosis and solution



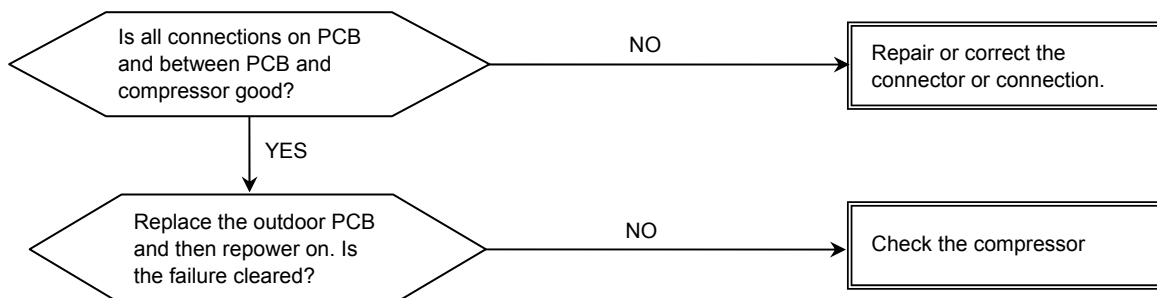
10.2.5 E5(Open or short circuit of outdoor ambient or condenser temperature sensor) diagnosis and solution.



10.2.6 E6(open or short circuit of indoor room or evaporator temperature sensor) diagnosis and solution.



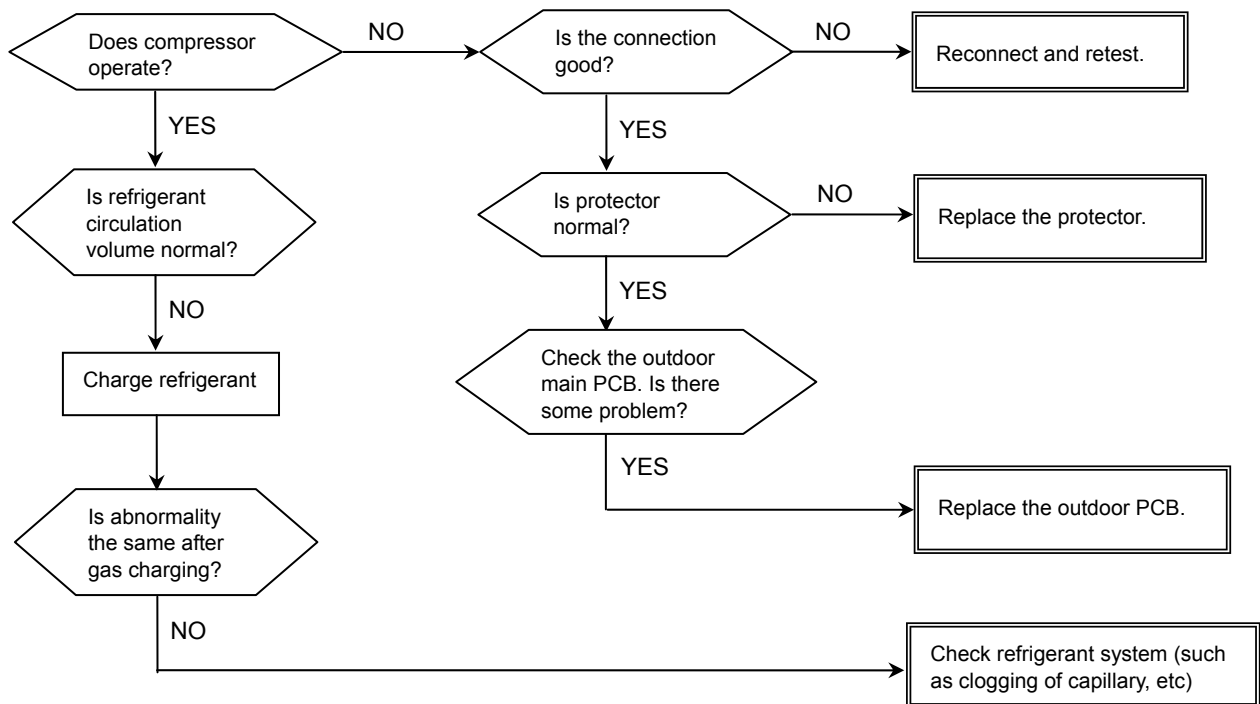
10.2.7 P0(IGBT over-strong current protection) diagnosis and solution.



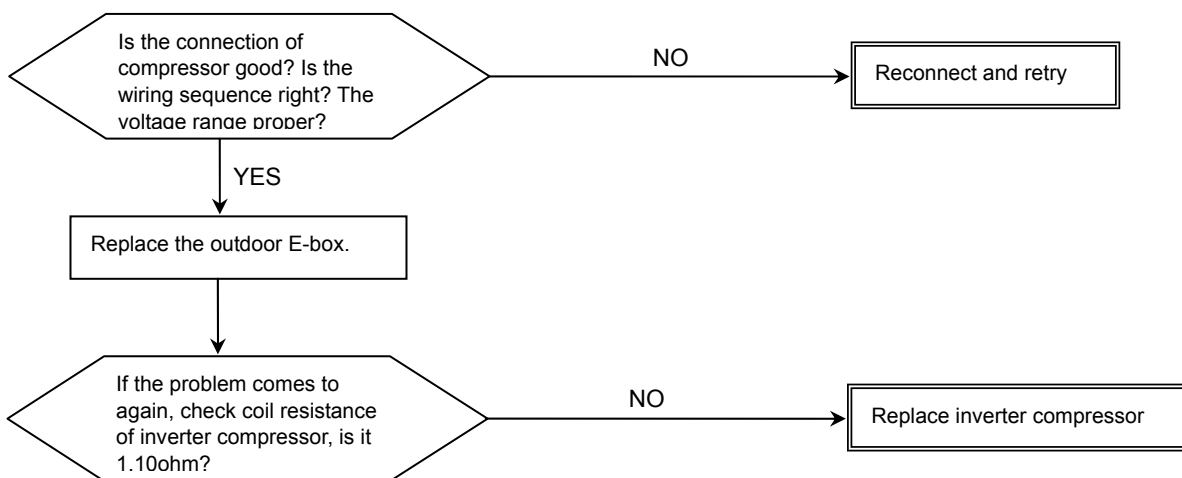
10.2.8 P1(over voltage or too low voltage protection) diagnosis and solution.



10.2.9 P2(temperature protection of compressor top) diagnosis and solution.



10.2.10 P4(inverter compressor drive error) diagnosis and solution.

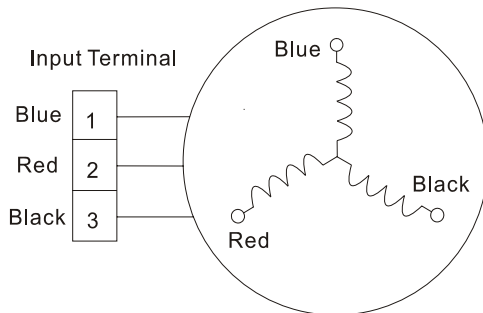


10.3 Key parts checking.

10.3.1. Compressor checking

(Model: DA89X1C-23EZD1 for MSR1-09HRDN1-QC2(C), DA89X1C-23FZ for MSR1-09HRDN1-QC2(C)).

Measure the resistance value of each winding by using the multi-meter.

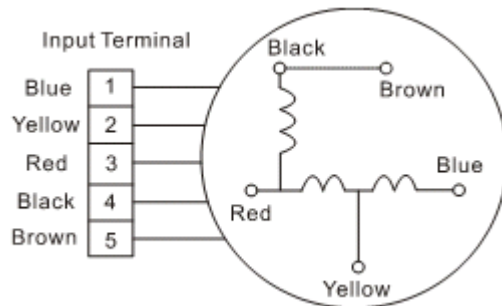


Position	Resistance Value
Blue - Red	1.10Ω (20°C)
Blue - Black	
Red - Blue	

10.3.2 Outdoor Fan Motor

(Model: YDK24-6K for MSR1-09HRDN1-QC2(C), YDK24-6G for MSR1-12HRDN1-QC2(C)).

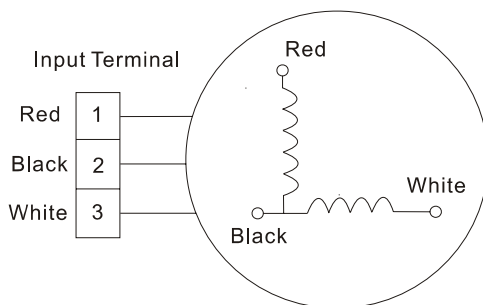
Measure the resistance value of each winding by using the multi-meter.



Position	Resistance Value
Black - Red	350Ω ±8% (20°C) for YDK24-6K 435Ω±8% (20°C) for YDK24-6G
Blue - Red	222Ω ±8% (20°C) for YDK24-6K 213Ω±8% (20°C) for YDK24-6G
Yellow - Blue	222Ω ±8% (20°C) for YDK24-6K 213Ω±8% (20°C) for YDK24-6G

10.3.3 Indoor Fan Motor (Model:RPG20E).

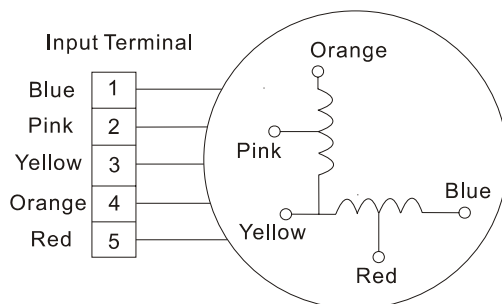
Measure the resistance value of each winding by using the multi-meter.



Position	Resistance Value
Black - Red	387Ω±8% (20°C)
White - Black	378Ω±8% (20°C)

10.3.4 Step Motor (Model: MP24GA).

Measure the resistance value of each winding by using the multi-meter.



Position	Resistance Value
Blue - Red	200Ω±7% (25°C)
Pink - Orange	
Pink - Yellow	
Yellow - Red	

10.3.5 Temperature Sensors.

Room temp.(T1) sensor,

Indoor coil temp.(T2) sensor,

Outdoor coil temp.(T3) sensor,

Outdoor ambient temp.(T4) sensor,

Compressor exhaust temp.(Te) sensor.

Measure the resistance value of each winding by using the multi-meter.

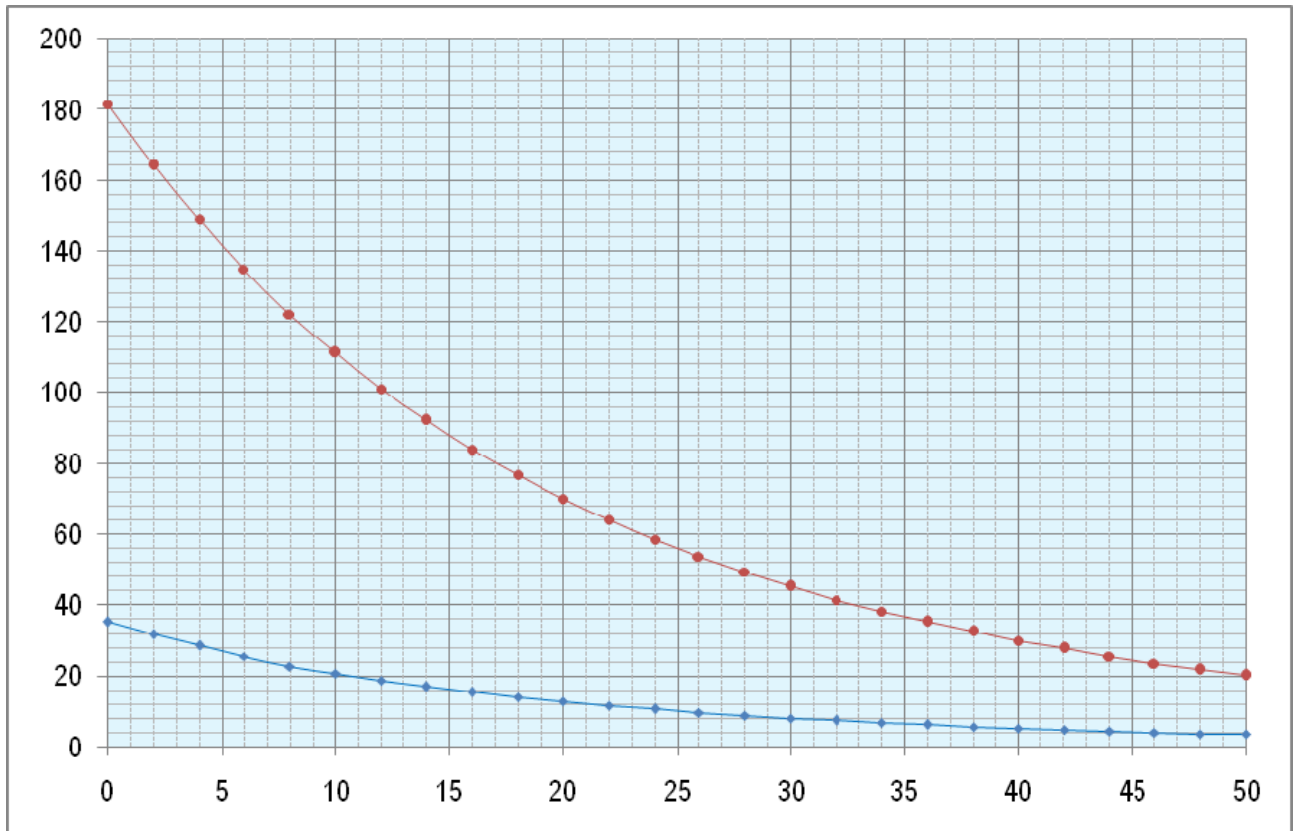
Some frequently-used R-T data for T1,T2,T3 and T4 sensor:

Temperature (°C)	5	10	15	20	25	30	40	50	60
Resistance Value (KΩ)	26.9	20.7	16.1	12.6	10	8	5.2	3.5	2.4

Some frequently-used R-T data for Te sensor:

Temperature (°C)	5	15	25	35	60	70	80	90	100
Resistance Value (KΩ)	141.6	88	56.1	36.6	13.8	9.7	6.9	5	3.7

KΩ

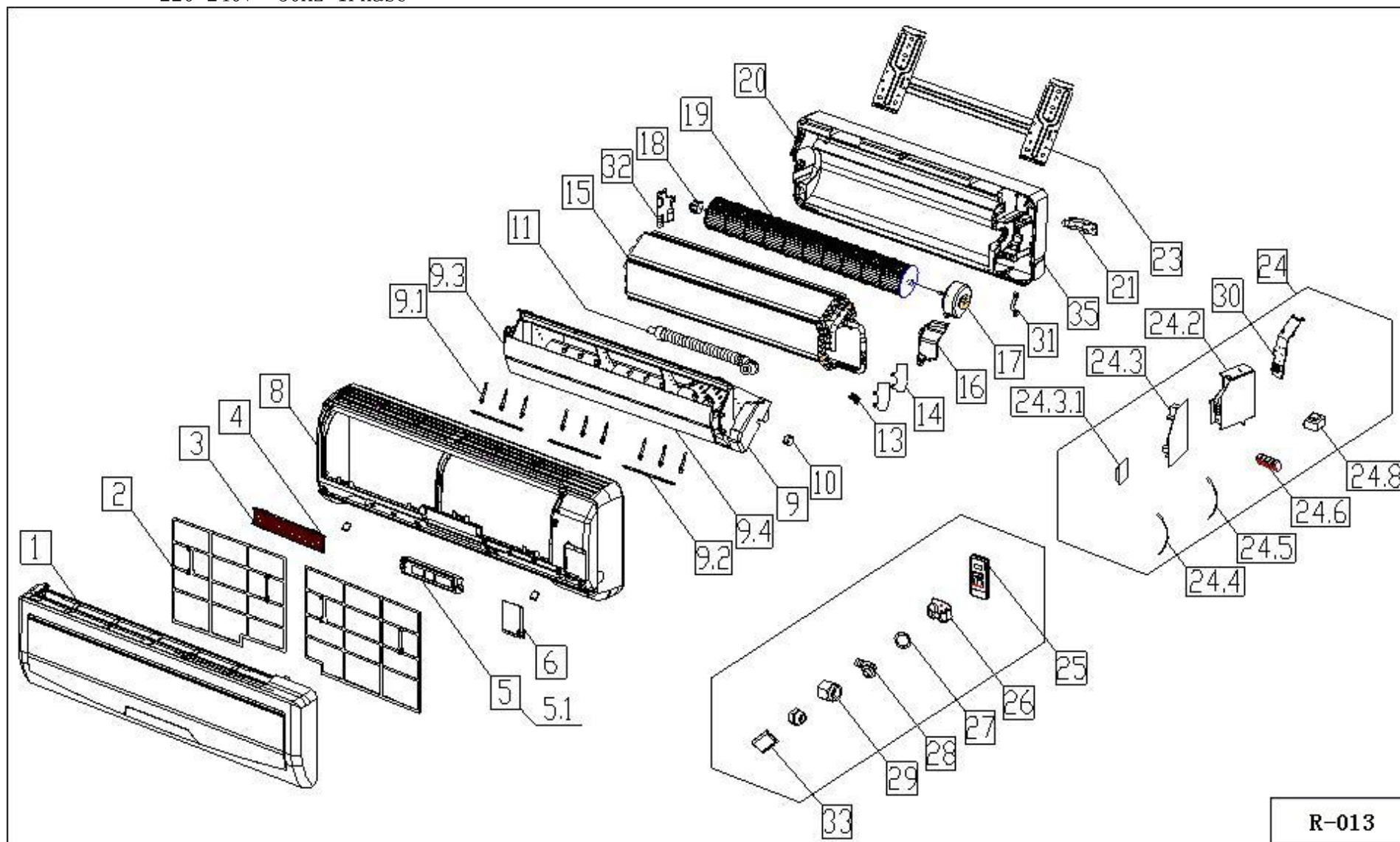


°C

Exploded View Parts for Model

DSB-F1216LH-DV

220-240V~ 50Hz 1Phase



R-013

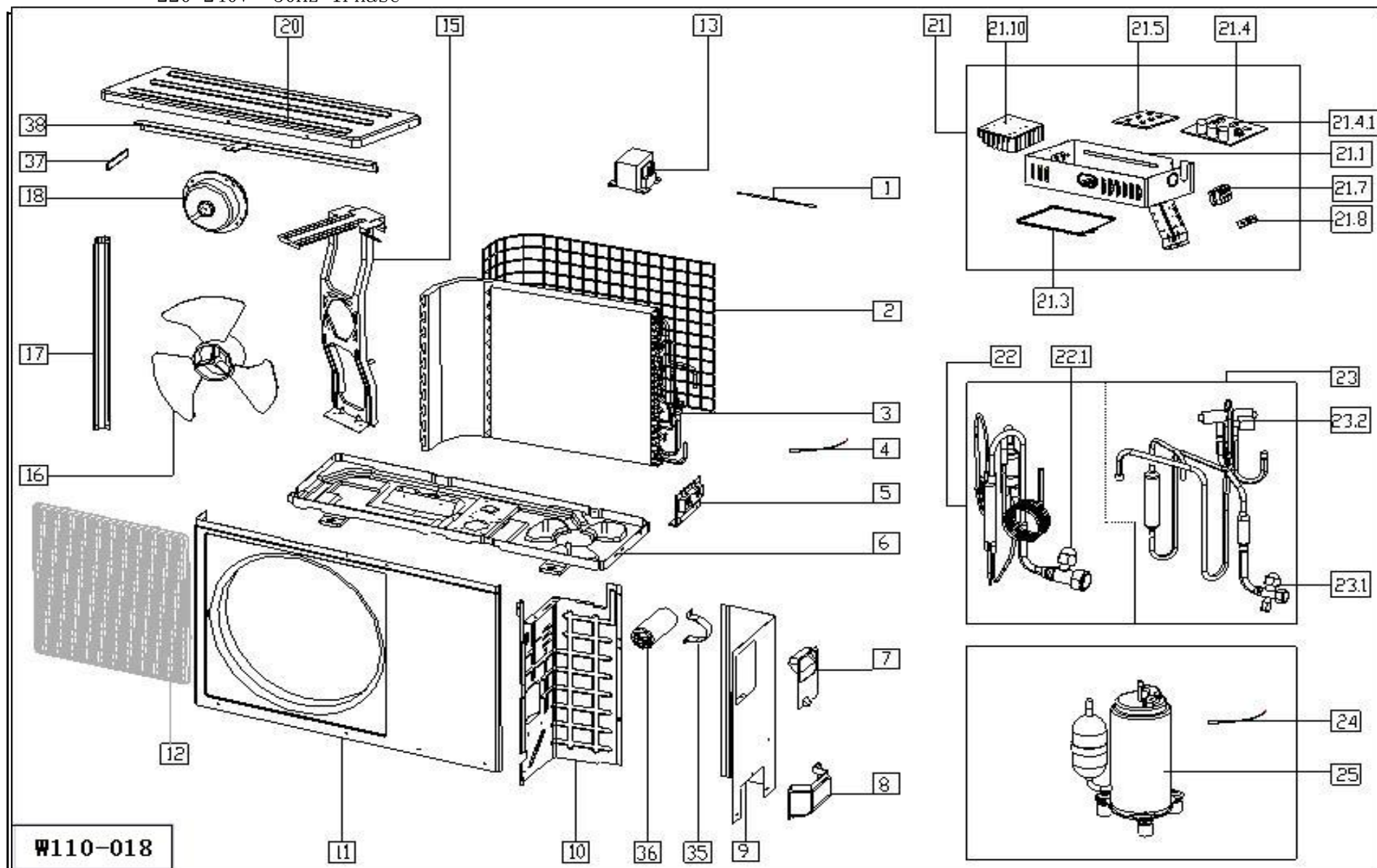
No.	Part Name	Quantity	BOM code
1	Front panel assy	1	NO DISPONIBLE
2	Air filter	1	201132590113
2	Air filter	1	201132590112
3	Air cleaner	1	201130100212
4	Air cleaner holder	1	NO DISPONIBLE
5	Display box assy	1	NO DISPONIBLE
5.1	Display board assy	1	201332790095
6	Window cover for repairing	1	NO DISPONIBLE
8	Panel frame assy	1	NO DISPONIBLE
9	Air out frame assy	1	201132590671
9.1	Vertical grille	9	NO DISPONIBLE
9.2	Louver holder	3	NO DISPONIBLE
9.3	Horizontal louver, up	1	201132590758
9.4	Horizontal louver, down	1	201132590759
10	Louver motor	1	202400200027
11	Drain hose	1	NO DISPONIBLE
13	Sensor clamp	1	NO DISPONIBLE
14	Breakwater	1	NO DISPONIBLE
14	Breakwater	1	NO DISPONIBLE
15	Evaporator, assy	1	NO DISPONIBLE
16	Motor cover	1	NO DISPONIBLE
17	Motor	1	202400400213
18	Bearing holder	1	202730190001

No.	Part Name	Quantity	BOM code
19	Cross flow fan	1	201100200020
20	Chassis	1	NO DISPONIBLE
21	Connecting pipe clamp	1	NO DISPONIBLE
23	Installation plate	1	NO DISPONIBLE
24	Electronic control box, indoor unit	1	NO DISPONIBLE
24.2	E-Parts box	1	NO DISPONIBLE
24.3	Main control board	1	201332490098
24.3.1	Wires capacitor	1	NO DISPONIBLE
24.4	Indoor temp sensor	1	202433190000
24.5	Evaporator temp sensor	1	202301300080
24.6	Wire join	1	NO DISPONIBLE
24.8	Transformer	1	202300900095
25	Remote Controller	1	2033550A3367
26	Holder, Remote Controller	1	NO DISPONIBLE
27	Seal	1	NO DISPONIBLE
28	Connector for watering	1	NO DISPONIBLE
29	Copper nut	1	NO DISPONIBLE
29	Copper nut	1	NO DISPONIBLE
30	E-Parts box's cover	1	NO DISPONIBLE
31	Fixing board for motor	1	NO DISPONIBLE
32	Fixing board for bear	1	NO DISPONIBLE
33	Cover board for wiring	1	NO DISPONIBLE
35	Chassis front cover	1	NO DISPONIBLE

Exploded View Parts for Model

DSB-1216LH-DV

220-240V~ 50Hz 1Phase



No.	Part Name	Quantity	BOM code
1	Indoor temp sensor	1	202301300160
2	Rear net	1	NO DISPONIBLE
3	Condenser coil assembly	1	NO DISPONIBLE
4	Pipe Temperature Sensor	1	202301300445
5	Valve plate	1	NO DISPONIBLE
6	Base pan assembly	1	NO DISPONIBLE
7	Big handle	1	NO DISPONIBLE
8	Water collector	1	NO DISPONIBLE
9	Right clapboard	1	NO DISPONIBLE
10	Partition plate assembly	1	NO DISPONIBLE
11	Front panel	1	NO DISPONIBLE
12	Front net	1	NO DISPONIBLE
13	Reactor	1	NO DISPONIBLE
15	Motor mounting bracket assembly	1	NO DISPONIBLE
16	Axial flow fan	1	201100300502
17	Left supporter	1	NO DISPONIBLE
18	Asynchronism motor(iron)	1	202400400477
20	Top cover assembly	1	NO DISPONIBLE
21	Electrical box assembly	1	203337590039
21.1	E-Parts box	1	PEDIR 21
21.3	E-box Installation plate	1	PEDIR 21
21.4	Main control board	1	201337590016
21.4.1	Motor capacitor	1	PEDIR 21
21.5	Inverter control board subassembly	1	PEDIR 21

No.	Part Name	Quantity	BOM code
21.7	Terminal Block	1	PEDIR 21
21.8	Wire Clip	1	PEDIR 21
21.10	Radiator	1	PEDIR 21
22	liquid valve assembly	1	NO DISPONIBLE
22.1	Liquid pipe valve	1	201600740522
23	Gas valve assembly	1	NO DISPONIBLE
23.1	Gas valve	1	201600720194
23.2	4-way valve	1	201600690010
24	Discharge temp sensor Ass'y	1	202301300470
25	Compressor	1	201400620170
35	clip, capacitor	1	NO DISPONIBLE
36	Capacitor, Compressor	1	202401090055
37	Small handle	1	NO DISPONIBLE
38	Support Board	1	NO DISPONIBLE