SAMSUNG

SPLIT-TYPE AIR CONDITIONER

Basic : AQV09VBC
AQV12VBC
Model : AQV09VBE
AQV12VBE
Model Code : AQV09VBEN AQV09VBEX
AQV12VBEN AQV12VBEX

SERVICE *Manual*

AIR CONDITIONER

AQV09VBEN/AQV12VBEN

AQV09VBEX AQV12VBEX

THE FEATURE OF PRODUCT

- **High Energy Efficiency BLDC Air Conditioner**
- **Luxury Half Mirror Design**
- **good'sleep Mode**
  : **good'sleep** Mode can help you sleep quickly and soundly and wake up refreshed.
- **mpi zone Mode**
  : The Micro Plasma Ion mode creates strong purified zone in your room.
- **Silence Mode**
  : When you use the "Silence Mode", you can experience extremely quiet operation of your air conditioner.

Refer to the service manual in the GSPN(see the rear cover) for the more information.

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2. Product Specifications

■ **High Energy Efficiency BLDC Air Conditioner**

BLDC Technique arises the efficiency of air conditioner and makes a room cool and warm with high energy saving.

■ **Luxury Half Mirror Design**

With a Luxurious and Fashionable style, the high impressive interior design allow this product to set place in anywhere.

■ good'sleep **Mode**

good'sleep Mode can help you sleep quickly and soundly and wake up refreshed.

■ mpi zone **Mode**

The Micro Plasma Ion mode creates strong purified zone in your room.

■ **Silence Mode**

When you use the "Silence Mode", you can experience extremely quiet operation of your air conditioner.

2-2 Product Specifications

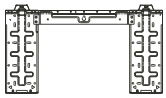
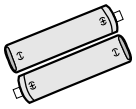
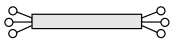
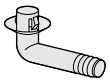
Item \ Model					AQV09VBE		AQV12VBE	
					Indoor Unit	Outdoor Unit	Indoor Unit	Outdoor Unit
Type					Wall-mounted		Wall-mounted	
Performance	Capacity	Cooling		kW (Low / Std / Max)	0.99 / 2.50 / 3.20		0.99 / 3.50 / 4.00	
		Heating			0.99 / 3.50 / 4.50		0.99 /4.00 / 5.20	
	Running Frequency	Cooling		Hz (Low / Std / Max)	20 / 46 / 61		20 / 71 / 81	
		Heating			20 / 66 / 85		20 / **78** / 95	
	Dehumidifying			ℓ/h	1.4		1.6	
	Air Volume	Cooling		m^3/min (H/M/L)	8.6/8.1/7.6	28	8.9/8.3/7.6	28
		Heating			9.5/8.9/8.3	27	10/9.4/8.8	27
	Noise	Cooling		dB (H/L)	41/25	51	43/25	53
		Heating			41/25	51	43/25	53
	Energy Efficiency Ratio	Cooling		W/W (Std)	4.10		3.40	
		Heating			4.10		3.64	
	Power			ph-V-Hz	1-220/240-50		1-220/240-50	
Power	Power Consumtion	Cooling		W (Low / Std / Max)	240 / 610 / 840		240 / 1030 / 1200	
		Heating			200 / 853 / **1300**		200 / 1100 / **1500**	
	Operating Current	Cooling		A (Low / Std / Max)	1.5 / 3.0 / 4.0		1.5 / 4.8 / 5.8	
		Heating			1.4 / 4.5 / 6.0		1.4 / 5.2 / 7.0	
	Power Factor	Cooling		% (Low / Std / Max)	70 / 85 / 90		70 / 90 / 90	
		Heating			70 / 85 / 90		70 / 90 / 90	
	Power Cord	Length		m	2		2	
		Number of Core Wire			3		3	
		Capacity		A	10		10	
Size	Outer Dimension	Width x Height x Depth		mm	825 X 285 X 189	790 X 548 X 285	825 X 285 X 189	790 X 548 X 285
	Weight (Net)			kg	9.0	32.6	9.0	32.6
	Refrigerant Pipe	Liquid		mm x L(m)	Φ6.35 x 5		Φ6.35 x 5	
		Gas		mm x L(m)	Φ9.52 x 5		Φ9.52 x 5	
	Drain Hose			D x L(mm)	Φ18 x 550		Φ18 x 550	
	Compressor	Type			Rotary, G4C090LUDER		Rotary, G4C090LUDER	
		Motor	Type		Hermetic		Hermetic	
			Rated Output		853W		853W	
	Oil Type				FREOLα68ES-T		FREOLα68ES-T	
	Blower	Type			Cross-flow	Propeller	Cross-flow	Propeller
		Motor	Type		Resin / Steel, AC	Resin / Steel, DC	Resin / Steel, AC	Resin / Steel, DC
			Rated Output	W	27	25	27	25
Heat Exchanger					2 Row 14 Step	1 Row 24 Step	2 Row 14 Step	1 Row 24 Step
Refrigerant Control Unit					EEV		EEV	
Freezer Oil Capacity				cc	320		320	
Refrigerant to Change (R410A)				g	900		900	
Protection Device (OLP)					None		None	
Cooling Test Condition					Indoor Unit : DB27°C WB 19°C		Outdoor Unit : DB35°C WB 24°C	
Heating Test Condition					Indoor Unit : DB20°C WB 15°C		Outdoor Unit : DB7°C WB 6°C	
Operation conditon range		cooling		indoor	16°C ~ 32°C		16°C ~ 32°C	
				Outdoor	-10°C ~ 43°C		-10°C ~ 43°C	
		heating		indoor	-15°C ~ 30°C		-15°C ~ 30°C	
				Outdoor	-15°C ~ 24°C		-15°C ~ 24°C	

2-3 The Comparative Specifications of Product

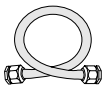
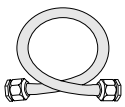
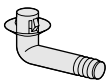
Item		Development Model	Development Model
		AQV09VBE	AQV12VBE
Design	Indoor Unit		
	Outdoor Unit		
Net Weight	Indoor Unit	9.0kg	9.0kg
	Outdoor Unit	32.6kg	32.6kg
Outer Dimension	Indoor Unit	825 x 285 x 189 (mm)	825 x 285 x 189 (mm)
	Outdoor Unit	790 x 548 x 285 (mm)	790 x 548 x 285 (mm)
Noise	Indoor Unit	41dB↓	43dB↓
	Outdoor Unit	51dB↓	53dB↓
Air Purifying System	Filter	Silver Nano Evaporator Anti-Allergy Filter Deodorizing Fiter	Silver Nano Evaporator Anti-Allergy Filter Deodorizing Fiter
	Micro Plasma Ion	MPI Mode	MPI Mode
Indoor Display		Digital I Display	Digital I Display

2-4 Accessory and Option Specifications

2-4-1 Accessories

Item	Descriptions	Code-No.	Q'TY	Remark
	Ass'y Plate Hanger	DB97-02851B	1	Indoor Unit
	Remote Control	DB93-04700P	1	
	Batteries for Remote Control	DB47-90024A	2	
	User's Manual	DB98-28491A	1	
	Installation Manual	DB98-28492A	1	
	3-wire Power Cable	DB93-01549F (Europe)	1	
	Drain Plug	DB67-20011A	1	Outdoor Unit
	Rubber Leg	DB73-00182A	4	

Accessories(cont.)

Item	Descriptions	Code-No.	Q'TY	Remark
	4-wire Assembly Cable	DB39-01092B	1	Accessory Box
	Assembly Pipe, ø6.35mm	DB96-10453B	1	
	Assembly Pipe, ø9.52mm	DB96-10453F	1	
	PE T3 Foam Tube Insulation	DB72-50165A	1	
	Vinyl Tape, Width 50mm	DB72-00459A	1	
	Drain Plug	DB67-20011A	1	
	Rubber Leg	DB73-00182A	4	

Accessories(cont.)

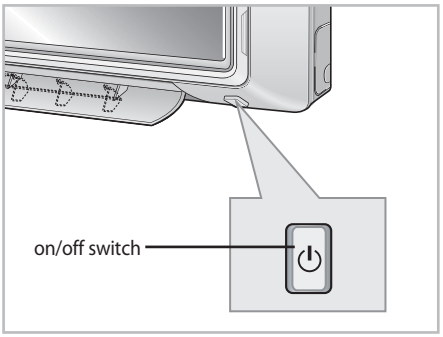
Item	Descriptions	Code-No.	Q'TY	Remark
	Pipe Clamps A	DB39-20224A	3	Accessory Box
	Pipe Clamps B	DB39-20224B	3	
	Cement Nail	-	6	
	M4x16 Tapping Screws	6002-000215	10	
	Drain Hose, length 2m	DB62-00487A	1	
	Putty 100g	DB98-10568A	1	

3. Alignment and Adjustments

3-1 Test Mode

■ How to Approach Test Mode

You can approach the Test Mode by pressing the on/off switch of indoor unit for 5 seconds.



■◗ Test Mode Operation Option

After installing the air conditioner, check whether each subordinate is normally operated or not by operating the Test Mode.

- **When an error occurs, display the Error Mode.**
- **Operation Mode :** Cool mode. Operate the cool mode by operating the compressor by force without the compressor ON/OFF according to the set temperature/indoor temperature. (Do not follow the antifreeze control)
- **Up-down louver :** Up-down swing mode
- **Indoor Fan :** High

- Because the Test Mode operate the cool mode by force not related to the set temperature / indoor temperature, check whether each subordinate is operated normally or not after completing installation and must turn off the power of the air conditioner.

3-2 Indoor Display Error and Check Method

No	LED Display	Explanation	Explanation
1	E464	IPM Over Current(O.C)	
2	E461	Compressor Starting Error	
3	E473	Compressor Lock Error	
4	E466	DC-Link voltage under/over Error	
5	E221	Outdoor temperature sensor Error	
6	E416	Discharge over temperature	
7	E251	Discharge temperature sensor Error	
8	E468	Current sensor Error	
9	E465	Compressor Vlimit Error	
10	E237	Coil temperature sensor Error	
11	E202	1min. Time out Communication	
12	E458	Fan Error	
13	E471	OTP Error	
14	E467	Compressor Rotation Error	
15	E440/E441 (Low/High)	Operation condition secession	
16	E469	DC-Link valtage sensor Error	
17	E462	I_Trip error / PFC Over current	
18	E554	Gas Leak Error	
19	E472	AC Line Zero Cross Signal out	
20	E556	Capacity Miss-match	
21	E121	Room sensor Error	Open/Short
22	E122	In-coil sensor Error	Open/Short
23	E154	FAN Error	Indoor Fan Motor Abnormal Operation Holding for 15 sec. at less than 450rpm
24	E101	1min. Time out Communication	
25	E186	MPI Error	
26	All Lamps Blink	EEPROM Error	
27	All Lamps Blink	Option Error	Option Not Set up, Option Data Error

3-3 Outdoor LED Error Display and Check Method

No.	LED Display			Explanation
	Yellow	Green	Red	
1	○	○	○	Power off/ VDD NG
2	○	○	◎	IPM Over Current(O.C)
3	○	○	●	Abnormal Serial communication
	○	●	●	
4	○	◎	○	Compressor Starting error
5	○	◎	●	Normal Operation
6	○	●	○	Compressor Lock error
7	○	●	◎	DC-Link voltage under/over error
8	◎	○	◎	Outdoor temperature sensor error
9	◎	○	●	Discharge over temperature
10	◎	◎	○	Discharge temperature sensor error
11	◎	◎	●	Current sensor error
12	◎	●	○	Compressor limit error
13	◎	●	◎	Coil temperature sensor error
14	◎	●	●	1min. Time out Communication
15	●	○	○	Fan error
16	●	○	◎	OTP error
17	●	○	●	Compressor rotation error
18	●	◎	◎	DC-Link voltage sensor error
19	●	◎	●	I_Trip error / PFC Over current
20	●	●	○	GAS Leak error
21	●	●	◎	AC Line Zero Cross Signal out
22	●	●	●	Power ON reset(1sec)
23	◎	○	○	Capacity miss match

● : LED ON, ○ : LED OFF, ◎ : LED BLINK

3-4 Setting Option Setup Method

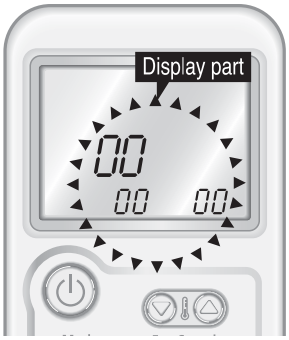
ex) Option No. : 066064- 170373

Step 1 : **Enter the Option Setup mode.**

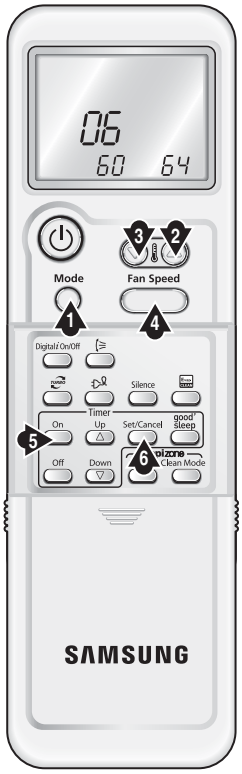
1st Take out the batteries of remote control.

2nd Press the temperature button simultaneously and insert the battery again.

3rd Make sure the remocon display shown as 00. 00 00



Step 2 : **Enter the Option Setup mode and select your option according to the following procedure.**



✳ Setting is not required if you must 0 a value which has a 0 default.

1

The default value is 00. 00 00

Otherwise, push the Mode button to 0.
Every time you push the button, the display panel reads 1 or 0 repeatedly.

2

Push the ▲ button to set the display panel to 6.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ … 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

3

Push the ▼ button to set the display panel to 6.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ … 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

4

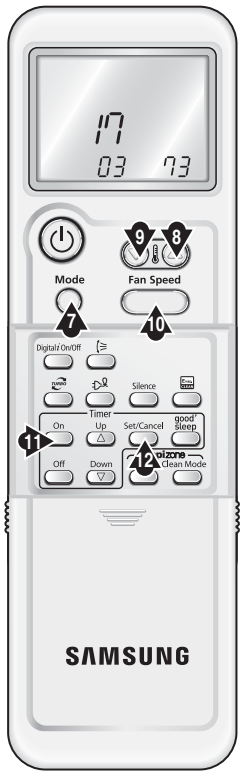
Push the Fan Speed button to set the display panel to 0.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ … 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

5

Push the On button to set the display panel to 6.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ … 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

6

Push the Set/Cancel button to set the display panel to 4.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ … 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.



✳ Setting is not required if you must 0 a value which has a 0 default.

7

Press Mode button, then the default value is 10 00 00.

8

Push the button to set the display panel to 7.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ ... 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

9

Push the button to set the display panel to 0.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ ... 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

10

Push the Fan Speed button to set the display panel to 3.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ ... 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

11

Push the On button to set the display panel to 7.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ ... 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

12

Push the Set/Cancel button to set the display panel to 3.
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ ... 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

Step 3 : Upon completion of the selection, check you made right selections.

Press the Mode Selection key, Mode to set the display part to 0 and check the display part.

➡ The display part shows 60 06 64.

Press the Mode Selection key, Mode to set the display part to 1 and check the display part.

➡ The display part shows 03 17 73.

Step 4 : Pressing the ON/OFF button ( )

When pressing the operation ON/OFF key with the direction of remote control for unit, the sound "Ding" or "Diriring" is heard and the OPERATION ICON( ) lamp of the display is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

Step 5 : Unit operation test-run

First, Remove the battery from the remote control.

Second, Re-insert the battery into the remote control.

Third, Press ON/OFF key with the direction of remote control for set.

• Error Mode

1st If all lamps of indoor unit are flickering, Plug out, plug in power plug again and press ON/OFF key to retry.

2nd If the unit is not working properly or all lamps are continuously flickering after setting the option code, see if the correct option code is set up for its model.

■ OPTION ITEMS

REMOCON / MODEL	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
AQV09VBE	0	4	4	7	7	7	1	7	5	2	0	C
AQV12VBE	0	5	4	8	7	7	1	7	5	2	2	D

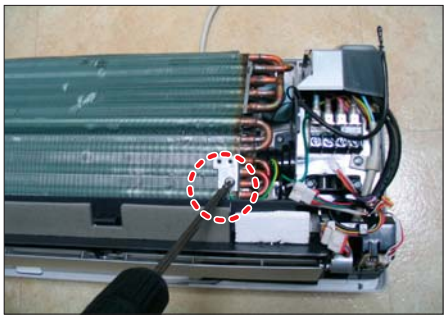
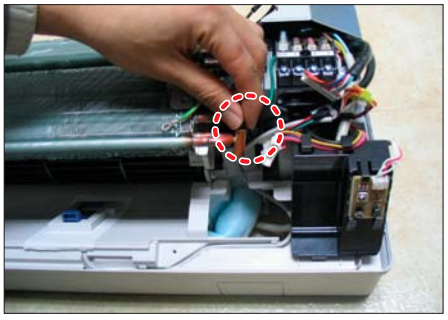
4. Disassembly and Reassembly

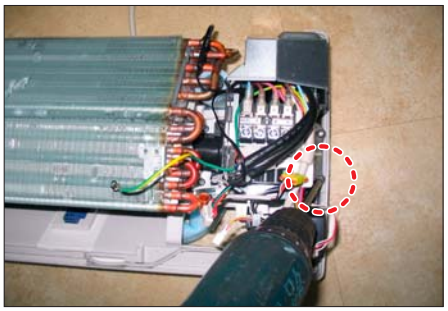
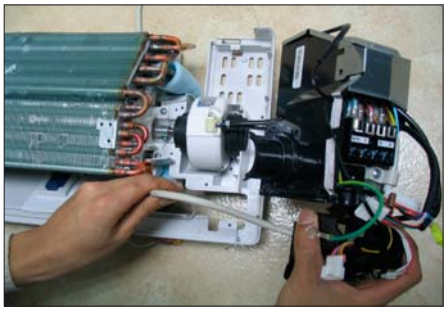
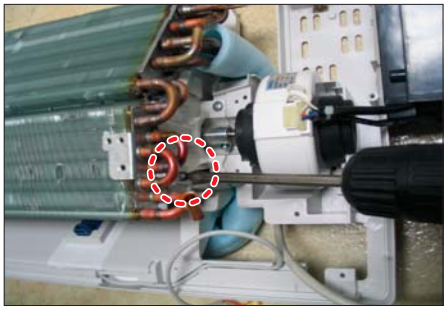
■ Necessary Tools

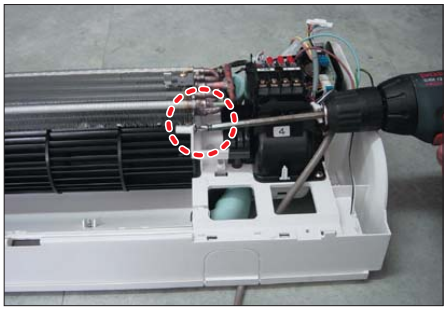
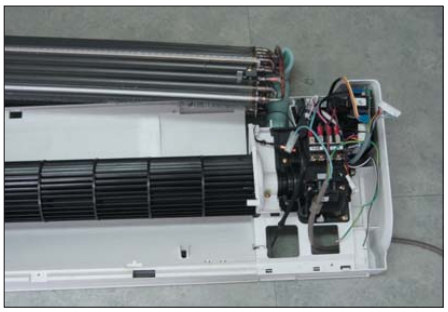
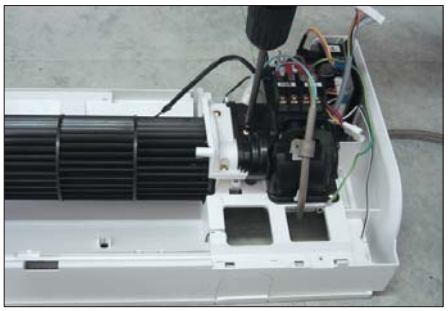
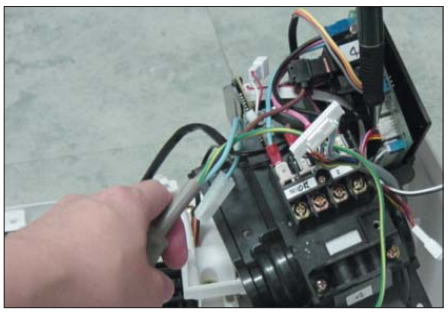
Item	Remark
+SCREW DRIVER	
MONKEY SPANNER	

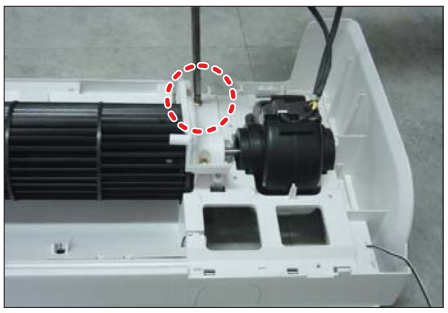
4-1 Indoor Unit

No	Parts	Procedure	Remark
1	PANEL-FRONT	1) Stop the driving of air conditioner and shut off main power supply. 2) Please open the front grille.	
		3) Please detach link grilles from main frame.	
		4) To detach front grille from main frame, please catches finger stop	
		5) Please loosen clamping screw and detach the terminal cover.	
		6) Please take out filter to downward.	

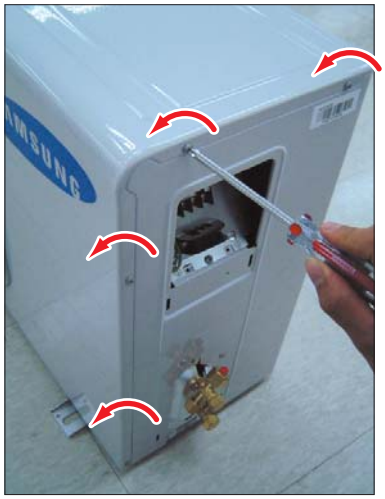
No	Parts	Procedure	Remark
		7) Please detach the cover screw 3EA from the bottom of the panel front.	
		8) Loosen screws 3EA at the bottom of panel front and 2EA at the front of the panel front.	
		9) Loosen the screw of the ASSY DISPLAY.	
		10) Please separate Linked connector from the assy display.	
		11) Unlock 2 hooks between panel front and try drain to seperate panel front.	

No	Parts	Procedure	Remark
		12) Unlock 2 hooks between panel front and back body.	
2	TRAY DRAIN	1) Please detach stepping motor wire. 2) Please pull tray drain and separate from back body.	
3	evap	1) Loosen the ground wire screw.	
		2) Detach the temperature sensor.	
		3) Detach the holder pipe.	

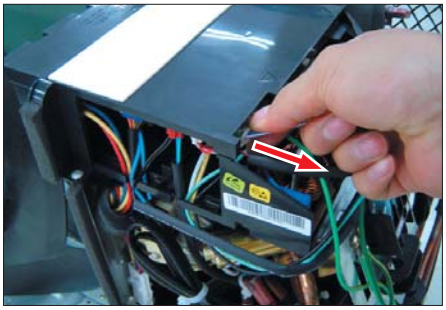
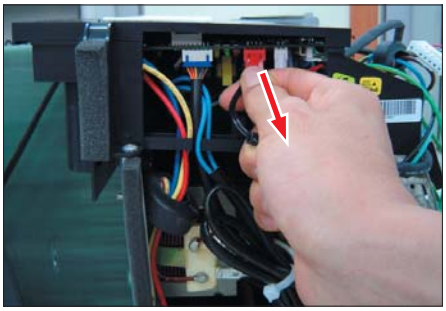
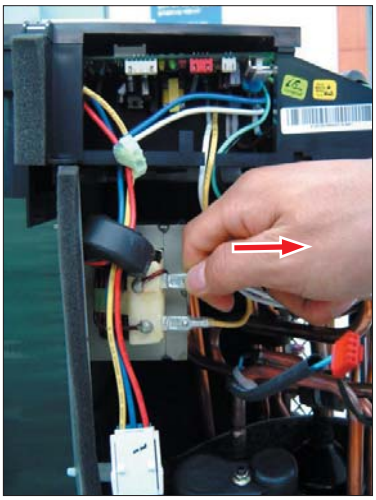
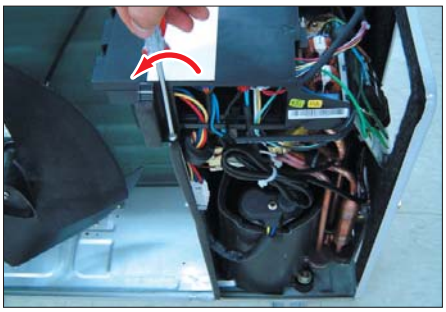
No	Parts	Procedure	Remark
		4) Loosen 3 EA screws, left of holder evap.	
		5) Loosen 1EA screw, right of holder motor.	
		6) Detach the heat exchanger from indoor unit.	
4	MAIN PCB	1) Loosen 4EA screws of holder. 2) Detach Link wires of indoor, outdoor unit and fan motor. 3) Detach assy control from indoor unit.	 

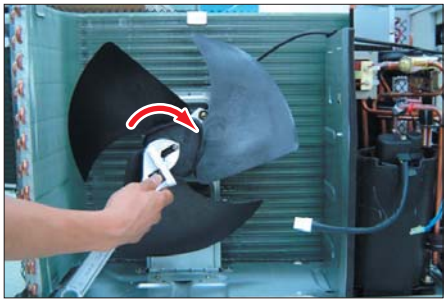
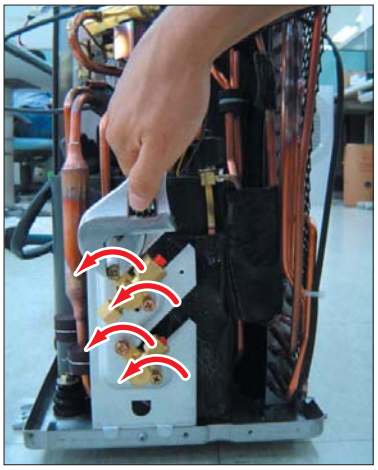
No	Parts	Procedure	Remark
5	Fan Motor & Cross Fan	1) Loosen 2EA screws of holder motor and Detach the holder. 2) Loosen a screw and detach the cross fan. 3) Detach the holder bearing and motor.	

4-2 Outdoor Unit

No	Parts	Procedure	Remark
1	Common Work	1) Loosen 1 fixing screw(CCW) of the Cover-Side. (Use +Screw Driver.)	
		2) Loosen each 4 screws(CCW) on both right and left Cabinet Side edges and a fixing screw on the Cabinet Front lower to detach the Cabinet Front. (Use +Screw Driver.)	
		3) Detach the Cabinet Front like the picture on the right side.	
		4) Loosen 1 screw(CCW) fixed to assemble Plate Control Out with Cabinet-Side RH. (Use +Screw Driver.)	

No	Parts	Procedure	Remark
		5) Loosen 2 fixing screws(CCW) on the rear side of Cabinet-Side RH. (Use +Screw Driver.)	
		6) Loosen 3 screws(CCW) fixed to assemble Bracket Valve with Cabinet-Side RH. (Use +Screw Driver.)	
		7) Loosen 2 fixing screws(CCW) of Cabinet Side LF. (Use +Screw Driver.)	

No	Parts	Procedure	Remark
2	Ass'y Control Out	1) Detach the Motor Wire from the PCB of Ass'y Control Out.	
		2) Detach several connectors from the PCB of Ass'y Control Out.	
		3) Detach 2 Connect Wires from Reactor.	
		4) Loosen 1 screw(CCW) fixed to assemble Ass'y Control Out with Partition. (Use +Screw Driver.)	

No	Parts	Procedure	Remark
3	Fan & Motor	1) Release the refrigerant at first. 2) Loosen fixing screw(CW). (Use Monkey Spanner.) 3) Disassemble the pipes in both inlet and outlet with welding torch. 4) Detach the Heat Exchanger.	
4	Heat Exchanger	1) Loosen 2 fixing screws(CCW) on both sides. (Use +Screw Driver.) 2) Disassemble the pipes in both inlet and outlet with welding torch. 3) Detach the Heat Exchanger. ⚠ Before you disassemble the pipes and Condenser, be sure that there should be no refrigerant remained in the unit.	
5	Ass'y Valve 4-Way & Ass'y Valve EEV	1) Loosen 4 bolts(CCW) fixed to assemble Valve Service with Bracket Valve like the picture on the right side. (Use Monkey Spanner.) 2) Disassemble the pipes assembled the suction and discharge sides of the Compressor with welding torch.	
6	Compressor	1) Loosen the Nut(CCW) of Terminal Cover. (Use Monkey Spanner.) 2) Detach the Terminal Cover and detach the Connect Comp Wire from Compressor. 3) Disassemble the Felt Comp Sound. 4) Loosen the 3 bolts(CCW) at the bottom of Compressor like the picture on the right side. (Use Monkey Spanner.)	

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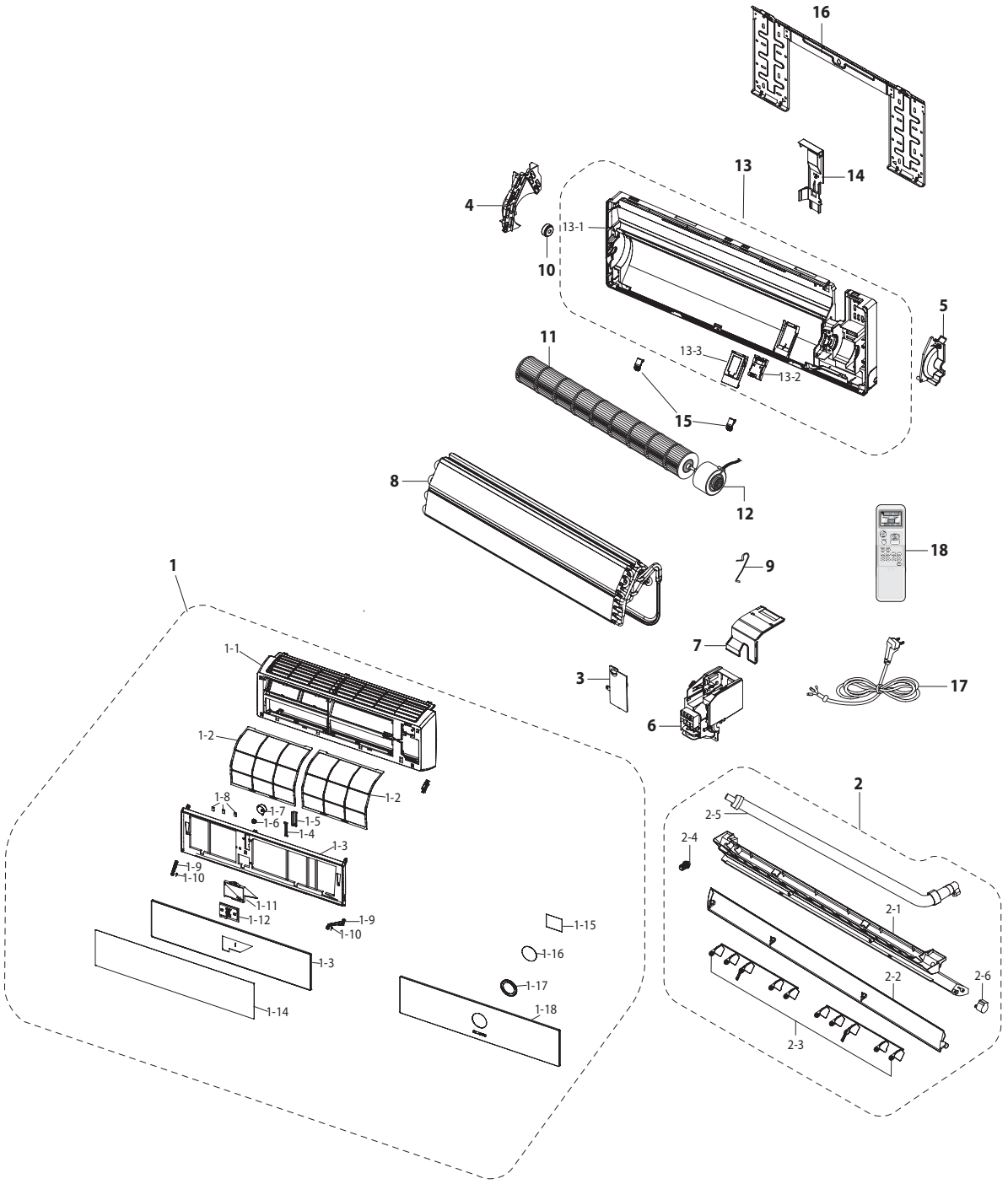
5. Exploded Views and Parts List

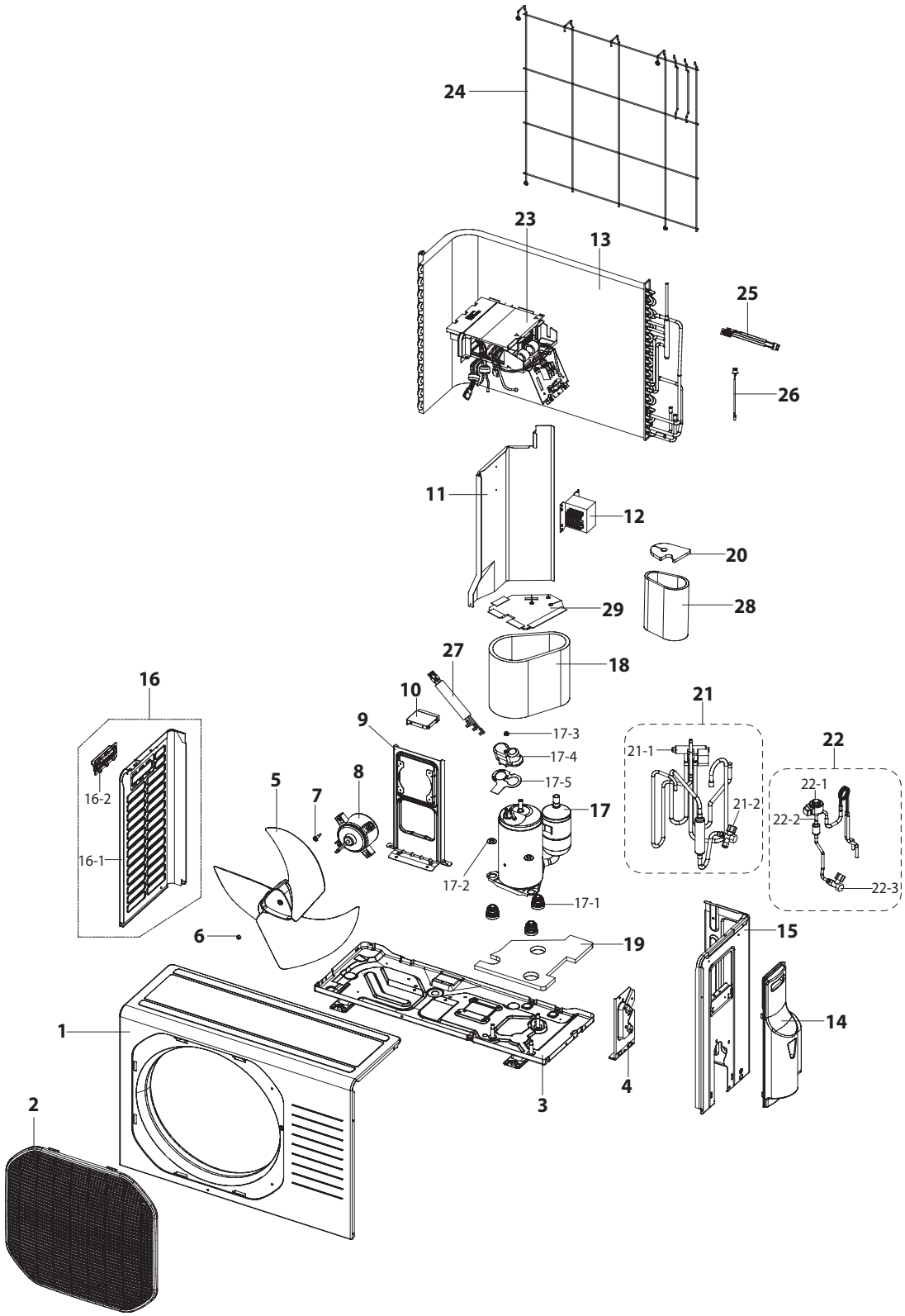
5-1 Indoor Unit



■ Parts List

No.	Code No.	Description	Specification	Q'TY		SA/SNA
				AQV09VBE	AQV12VBE	
1	DB92-01087J	ASSY PANEL FRONT	ASS'Y	1	1	SA
1-1	DB64-01633A	PANEL FRONT	HIPS	1	1	SA
1-2	DB63-01593B	FILTER PRE	PP	1	1	SA
1-3	DB64-01634A	PANEL MID	HIPS	1	1	SNA
1-4	DB66-01152A	LINK GRILLE	POM	1	1	SNA
1-5	DB66-01156A	GEAR RACK	POM	1	1	SNA
1-6	DB66-01155A	GEAR PINION	POM	1	1	SNA
1-7	DB31-00369B	ASSY MOTOR STEPPING	220-240V~, 50/60Hz, Class E	1	1	SA
1-8	DB61-03156A	HOLDER WIRE	PC	3	3	SNA
1-9	DB66-01176A	LINK SUPPORT	POM	4	4	SNA
1-10	DB61-03139A	SPRING GRILLE	STS304	2	2	SNA
1-11	DB63-01630A	COVER DISPLAY	ABS	1	1	SNA
1-12	DB93-04452F	ASSY DISPLAY	ASS'Y	1	1	SA
1-13	DB61-02910A	FRAME GRILLE	HIPS	1	1	SA
1-14	DB64-01724C	WINDOW MIRROR	ACRYL	1	1	SA
2	DB94-01237A	ASSY TRAY DRAIN	ASS'Y	1	1	SA
2-1	DB63-01578A	TRAY DRAIN	ABS	1	1	SNA
2-2	DB61-02908A	BLADE H	HIPS	1	1	SA
2-3	DB61-01636A	BLADE V	PP	2	2	SA
2-4	DB73-00180A	RUBBER CAP DRAIN	GUM-EPM	1	1	SNA
2-5	DB94-00458B	ASSY DRAIN HOSE	ASS'Y	1	1	SA
2-6	DB31-00371A	MOTOR STEP	220-240V~, 50/60Hz, Class E	1	1	SA
3	DB63-00844D	COVER TERMINAL	ABS V0	1	1	SA
4	DB63-00850A	COVER BEARING	ABS	1	1	SNA
5	DB96-03149A	ASSY EVAP SUPPORT	ASS'Y	1	1	SA
6	DB93-08380D	ASSY CONTROL IN	ASS'Y	1	1	SA
7	DB90-02082A	ASSY COVER PCB	ASS'Y	1	1	SNA
8	DB96-09549A	ASSY EVAP TOTAL	ASS'Y	1	1	SNA
9	DB67-60030A	SPRING SENSOR	STS304	1	1	SNA
10	DB94-00455A	ASSY BEARING RUBBER	ASS'Y	1	1	SNA
11	DB94-00456A	ASSY CROSS FAN	ASS'Y	1	1	SA
12	DB31-00219A	MOTOR FAN IN	220-240V~, 50/60Hz, Class E	1	1	SA
13	DB94-01152B	ASSY BODY BACK	ASS'Y	1	1	SA
13-1	DB61-03028A	BODY BACK	HIPS	1	1	SNA
13-2	DB93-04230A	ASSY COMPACT MPI	ASS'Y	1	1	SA
13-3	DB63-01583A	COVER MPI	HIPS	1	1	SNA
14	DB61-01638B	HOLDER PIPE	HIPS	1	1	SNA
15	DB67-00499C	CAP SCREW	HIPS	2	2	SNA
16	DB70-00534A	PLATE HANGER	SGCC-M	1	1	SNA
18	DB93-04700P	ASSY REMOCON	ARH-1346	1	1	SNA

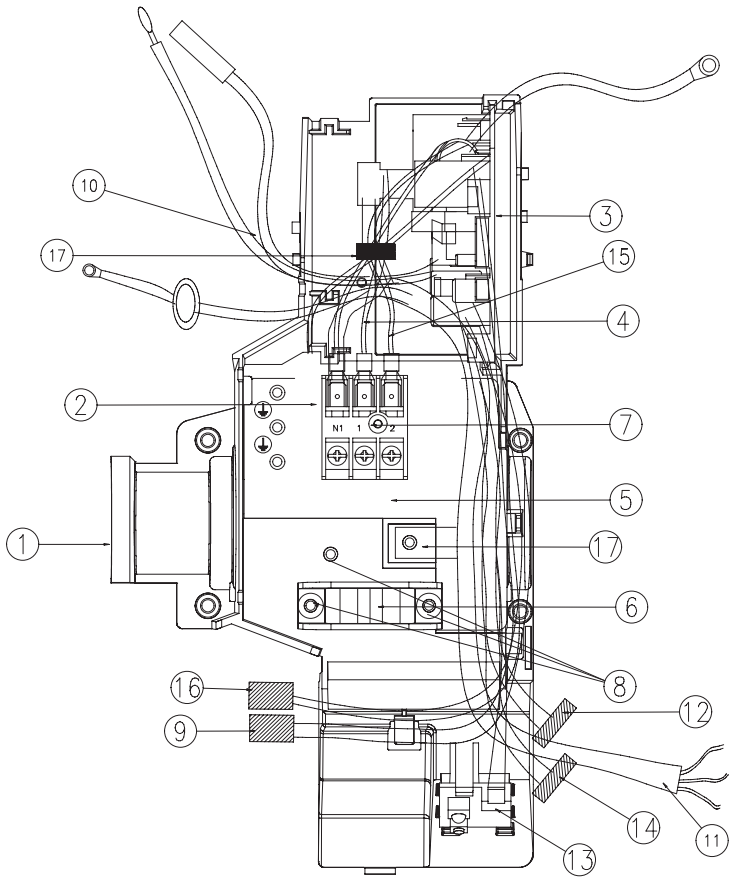
5-2 Outdoor Unit



■ Parts List

No.	Code No.	Description	Specification	Q'TY		SA/SNA
				AQV09VBE	AQV12VBE	
1	DB90-01711F	ASS'Y CABI FRONT	ASS'Y, SC-94445T	1	1	SA
2	DB63-00847A	GUARD FAN	HIPS, SC-90073R	1	1	SA
3	DB90-01681E	ASS'Y BASE OUT	ASS'Y, SC-94445T	1	1	SA
4	DB61-02068B	ASS'Y BRACKET VALVE	ASS'Y, SC-94445T	1	1	SA
5	DB67-00397A	FAN-PROPELLER	AS+G/F20%, Φ400	1	1	SA
6	DB60-30004A	SCREW MACHINE	M6	1	1	SA
7	DB60-00150A	SCREW SPECIAL	M4	4	4	SNA
8	DB31-00431A	MOTOR FAN OUT	BLDC Motor, SIC-52FV-F726-2	1	1	SA
9	DB61-01644A	BRACKET MOTOR	SGCC-M	1	1	SA
10	DB97-02225D	ASS'Y SUPPORT PLATE B/M	SGCC-M	1	1	SA
11	DB94-01655A	ASS'Y PARTITION	ASS'Y, SGCC-M	1	1	SA
12	DB27-00041A	REACTOR	PPS,5mH, 10A	1	1	SA
13	DB96-08373A	ASS'Y COND UNIT	ASS'Y	1	1	SA
14	DB63-01996A	COVER VALVE	PP, SC-90073R	1	1	SA
15	DB90-02876C	ASS'Y CABINET SIDE RH	ASS'Y, SC-94445T	1	1	SA
16	DB90-01713A	ASS'Y CABINET SIDE LF	ASS'Y, SC-94445T	1	1	SA
16-1	DB64-00982A	CABINET SIDE LF	SECC-P, SC-94445T	1	1	SA
16-2	DB64-00992A	HANDLE LF	PP	1	1	SA
17	G4C090LUDER	COMPRESSOR	ROTARY, BLDC	1	1	SNA
17-1	DB99-00987A	ASST GROMMET	NR	3	3	SNA
17-2	DB60-30028A	SCREW HEX	M8	3	3	SNA
17-3	DB60-30018A	SCREW MACHINE	M5	1	1	SNA
17-4	DB63-00489A	COVER TERMINAL	PBT (G/F 15%)	1	1	SNA
17-5	DB63-00817A	GASKET	EPDM	1	1	SNA
18	DB63-01647A	FELT COMP SIDE	FELT+PVC Sheet	1	1	SA
19	DB63-01958A	FELT COMP BASE	FELT+PVC Sheet	1	1	SA
20	DB63-01710B	FELT COMP UPPER	FELT+PVC Sheet	1	1	SA
21	DB96-08389A	ASS'Y VALVE 4WAY	ASS'Y	1	1	SA
21-1	DB62-02286A	4WAY VALVE	R410A, SANHUA	1	1	SNA
21-2	DB62-02284A	VALVE SERVICE	R410A, SANHUA, 3/8"	1	1	SNA
22	DB96-08390A	ASS'Y VALVE EEV	ASS'Y	1	1	SA
22-1	DB62-03964A	VALVE EXPANSION COIL	FUJIKOKI, Φ1.4	1	1	SNA
22-2	DB62-03916A	VALVE EXPANSION BODY	FUJIKOKI, Φ1.4	1	1	SNA
22-3	DB62-02283A	VALVE SERVICE	R410A, SANHUA, 1/4"	1	1	SNA
23	DB93-08395M	ASS'Y CONTROL OUT	ASS'Y	-	1	SA
	DB93-08395W	ASS'Y CONTROL OUT	ASS'Y	1	-	SA
24	DB64-02028A	SCREEN COND BAR	P.E.H 100%	1	1	SA
25	DB32-00176D	THERMISTOR OUT/DIS	ASS'Y	1	1	SA
26	DB32-00121B	THERMISTOR COND	ASS'Y	1	1	SA
27	DB93-04489A	CONNECT WIRE COMP	ASS'Y	1	1	SA
28	DB63-01934A	FELT COMP SIDE OUT	ASS'Y	1	1	SA
29	DB63-02034A	FELT COMP UPPER OUT	ASS'Y	1	1	SA

5-3 Ass'y Control In : DB93-08380D



■ **Parts List**

No.	Code No.	Description	Specification	Q'ty	SN/SNA
1	DB61-02907A	CASE-CONTROL IN	ABS	1	SA
2	DB95-01140B	TERMINAL BLOCK	DAF-3P	1	SNA
3	DB93-08694D	ASSY-PCB IN MAIN	VIVACE,9K/12K	1	SA
4	DB93-06153A	CONNECT WIRE-T/B(1)	LEAD WIRE	1	SNA
5	DB61-01639A	PLATE-CONTROL IN	SGCC-M 1.2	1	SNA
6	DB61-01097A	HOLDER-WIRE CLAMP	ABS	1	SA
7	6001-000929	SCREW	PH+,M3,L22	1	SNA
8	6001-001054	SCREW	TH,+M4,L10	3	SNA
9	DB93-04487A	CONNECT WIRE	STEP MOTOR	1	SNA
10	DB95-01113A	SENSOR	4P(103AT)	1	SA
11	DB91-00434A	ASSY POWER CORE	H05VV-F 3*1.0, Core	1	SNA
12	DB93-04622A	CONNECT WIRE	DISPLAY	1	SNA
13	DB93-04430A	ASSY MODULE PCB	MODULE	1	SNA
14	DB93-04484A	CONNECT WIRE	STEP MOTOR, GRILL	1	SNA
15	DB93-04367A	CONNECT WIRE	POWER	1	SNA
16	DB93-04695A	CONNECT WIRE MPI	ASSY	1	SNA
17	6001-000725	SCREW-MACHINE	TH M4*L16	1	SNA

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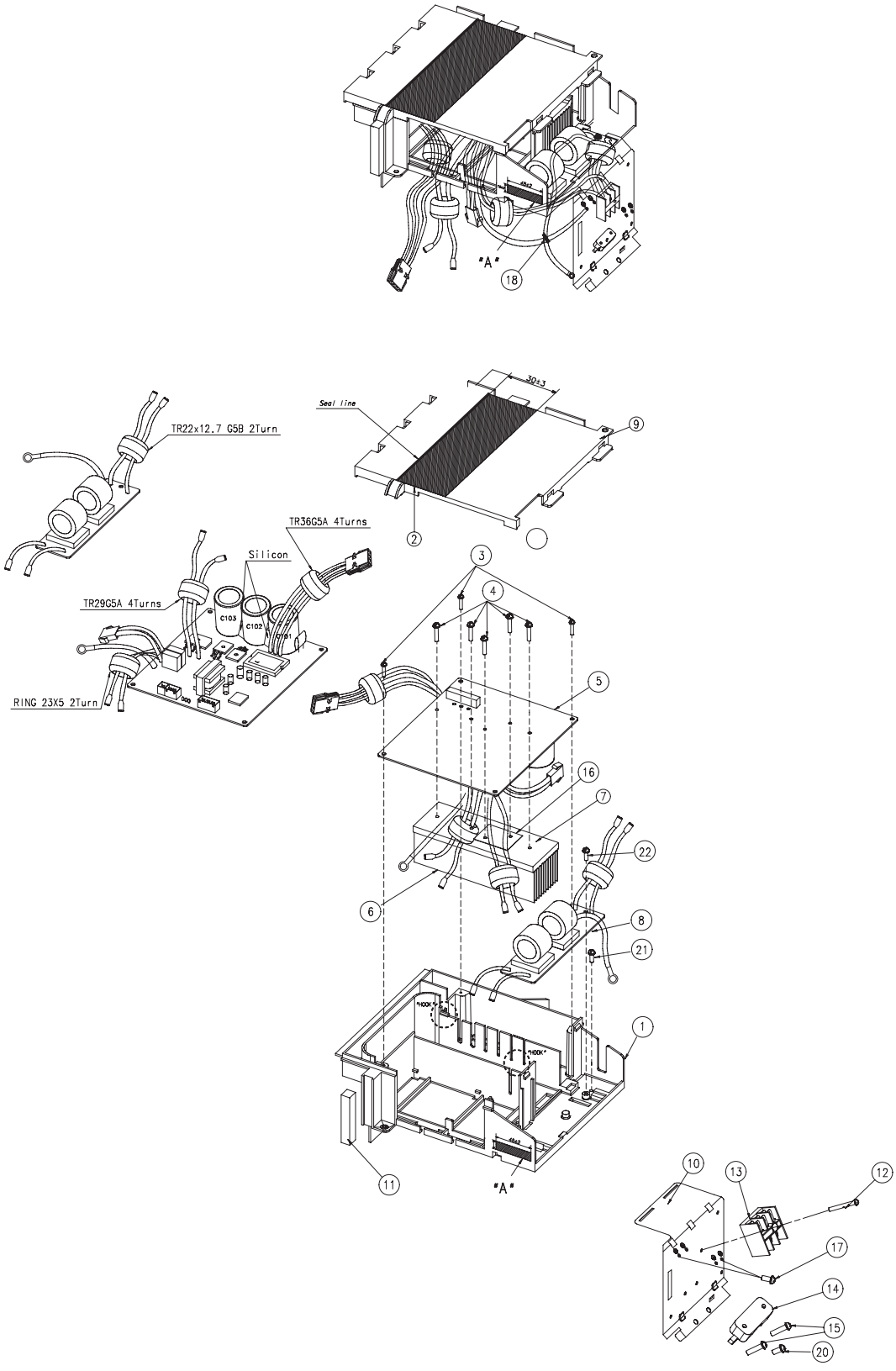
■ AQV09VBEX : DB93-08395W
AQV12VBEX : DB93-08395M

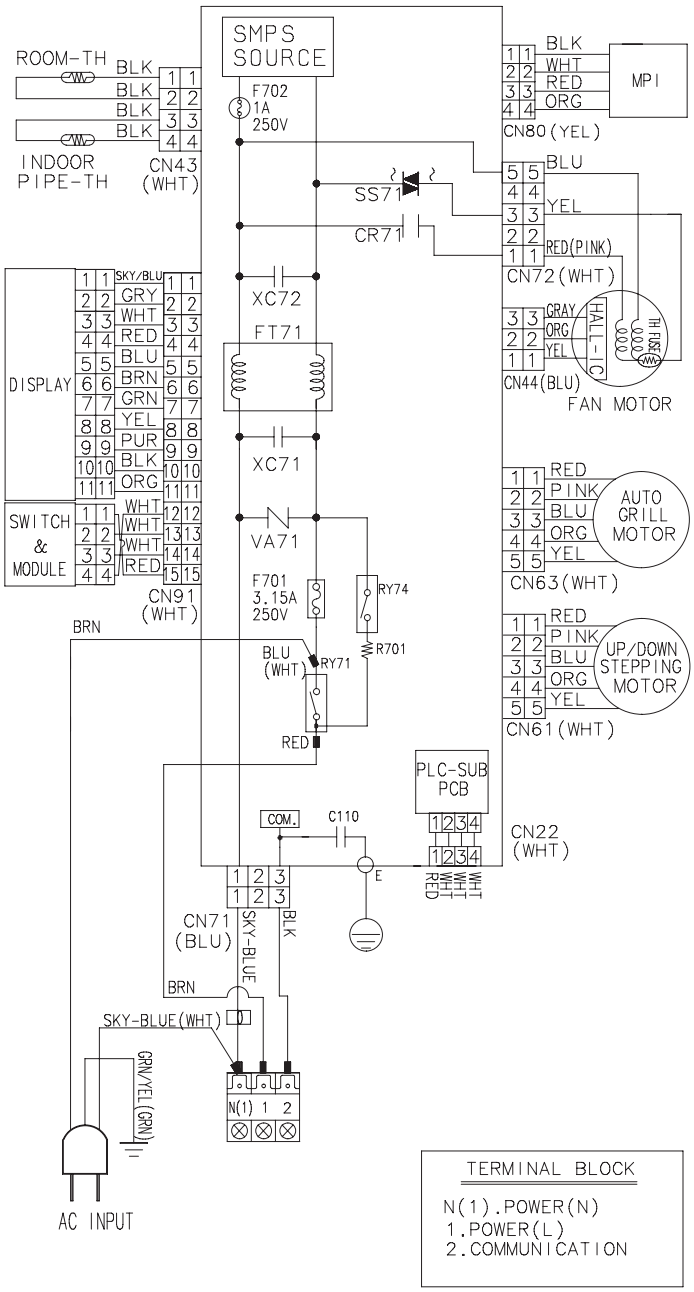


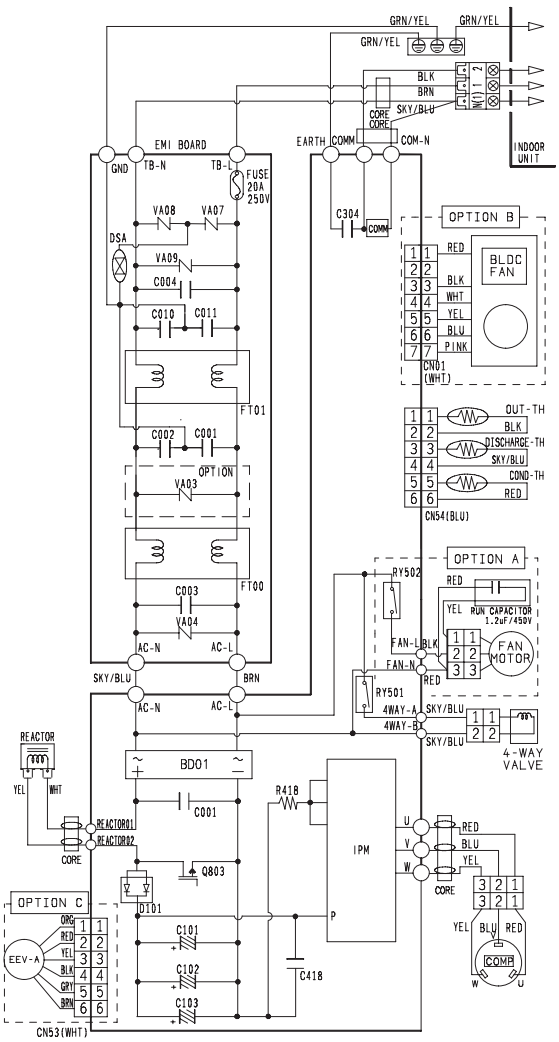
■ **Parts List**

No	CODE NO.	DESCRIPTION	SPECIFICATION	AQV09VBE	AQV12VBE	SA/SNA
				DB93-08395W	DB93-08395M	
1	DB61-02250A	CASE CONTROL-BASE	CASE CONTROL COVER	1	1	SA
2	DB62-04566A	SEAL-CASE CONTROL COVER	SEAL-CASE CONTROL COVER	1	1	SNA
3	6002-000630	SCREW	PH +,2S,M3,L8	3	3	SNA
4	DB91-00306A	ASSY-SCREW MACHINE	SCREW,M3,L16	5	5	SNA
5	DB93-08883T	ASSY-PCB OUT	ASSY-PCB OUT,VIVACE 12K	-	1	SA
1	Db93-08389G	ASSY-PCB OUT	ASSY-PCB OUT,VIVACE 9K	1	-	SA
6	DB62-03155A	HEAT SINK	HEAT SINK	1	1	SA
7	DB98-24813A	ASSY	THERMAL GREASE	0.002	0.002	SNA
8	DB93-08391H	ASSY-PCB EMI	ASSY PCB-OUTDOOR	1	1	SA
9	DB61-02249A	CASE CONTROL-COVER	CASE CONTROL BASE	1	1	SA
10	DB70-00858A	PLATE-CONTROL OUT	PLATE-CONTROL OUT	1	1	SNA
11	DB62-02332P	SEAL-CASE CONTROL	FOAM-PU(30)	1	1	SNA
12	DB91-00309A	SCREW-TAPPING	PH+,M3,20	1	1	SNA
13	DB95-01140B	TERMINAL BLOCK	TERMINAL BLOCK-ASSY	1	1	SNA
14	DB61-00250A	HOLDER-WIRE CLAMP	HOLDER-WIRE CLAMP	1	1	SNA
15	6002-000234	SCREW	TH +,M4,L10	2	2	SNA
16	DB81-00547B	INSULATOR-KFR	MICA	1	1	SNA
17	6009-001001	SCREW	TH+,M4,L8	2	2	SNA
18	DB65-10088D	CABLE-TIE	NYLON66	1	1	SNA
19	2301-001377	C-FILM,LEAD-OTHER	1.2uF,450V	0	0	SNA
20	6003-000336	SCREW	TH,+,-,M4,L10,ZPC,SM20C,-,-	1	1	SNA
21	6002-000560	SCREW-TAPPING	PH+,M4,2S,L10	0	0	SNA
22	6002-000630	SCREW	PH +,2S,M3,L8	1	1	SNA

7. Wiring Diagram

7-1 Indoor Unit





LED PATTERN			DESCRIPTION
YEL	GRN	RED	
○	○	○	Power Off / VDD NG
○	○	◎	IPM Over Current(O.C)
○	○	●	Abnormal Serial communication (Display Board:Indoor<->Outdoor)
○	●	●	Normal Operation
○	◎	●	Comp Starting error
○	◎	○	DC-Link voltage under/over error
○	●	◎	Outdoor temp sensor error
◎	○	◎	Discharge over temperature
◎	○	●	Discharge temp sensor error
◎	◎	○	Current sensor error
◎	◎	●	Comp Vlimit error
◎	●	○	Coil temp sensor error
◎	●	◎	1min. Time out Comm. (Display Board:Onboard:Indoor<->Outdoor)
◎	●	●	Fan error
●	○	○	OTP error
●	○	◎	Comp rotation error
●	○	●	Operation condition secession
●	◎	○	DC-Link voltage sensor error
●	◎	◎	I-Trip error / PFC Over current
●	◎	●	GAS Leak error
●	●	○	AC Line Zero Cross Signal out
●	●	◎	Power ON reset(1sec)
●	●	●	capacity miss match
◎	○	○	

● LED ON
○ LED OFF
◎ LED BLINKING

OPTION	
OPTION A	AC FAN
OPTION B	BLDC FAN
OPTION C	EEV VALVE

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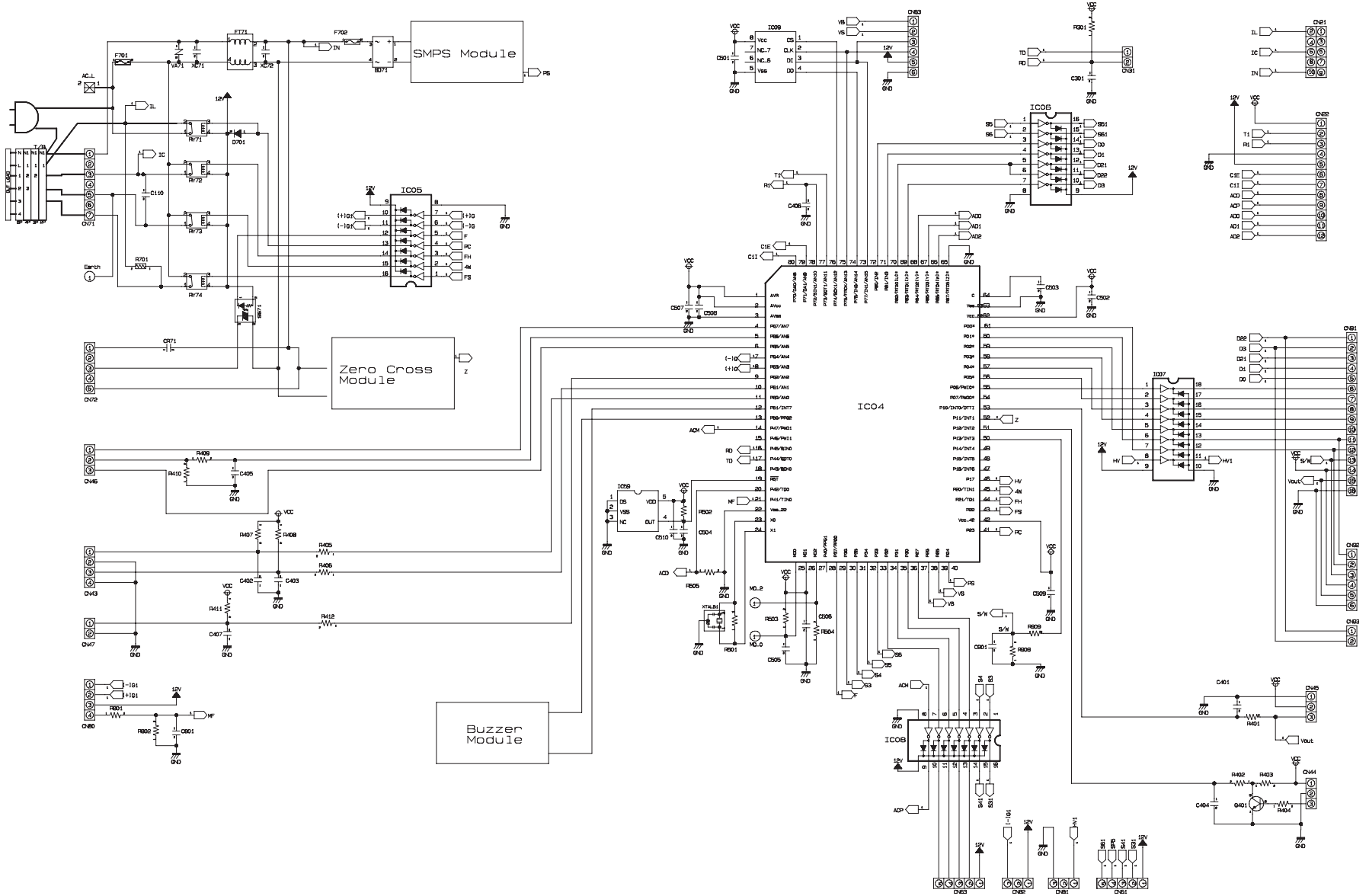
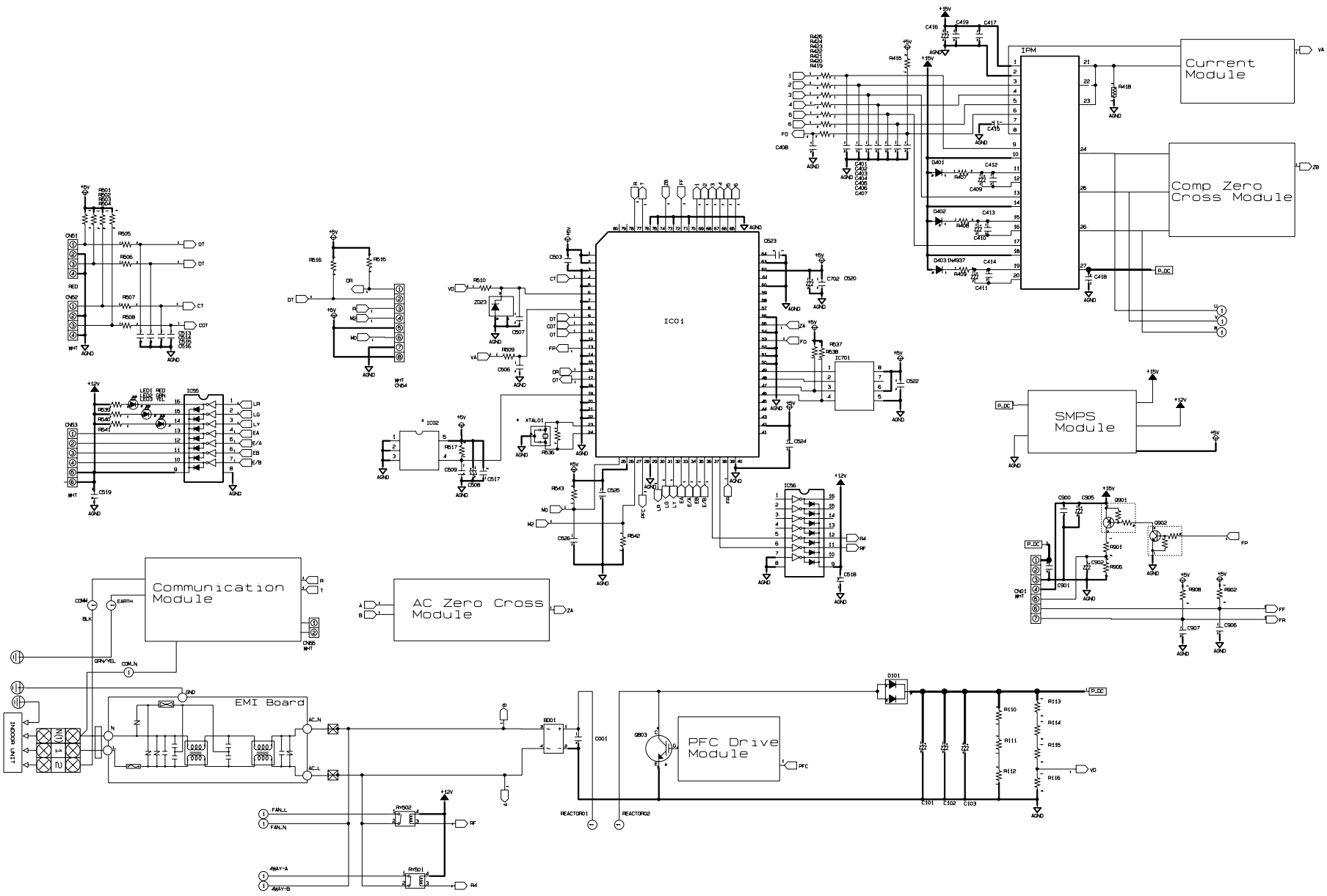
8. Schematic Diagram

8-1 Indoor Unit

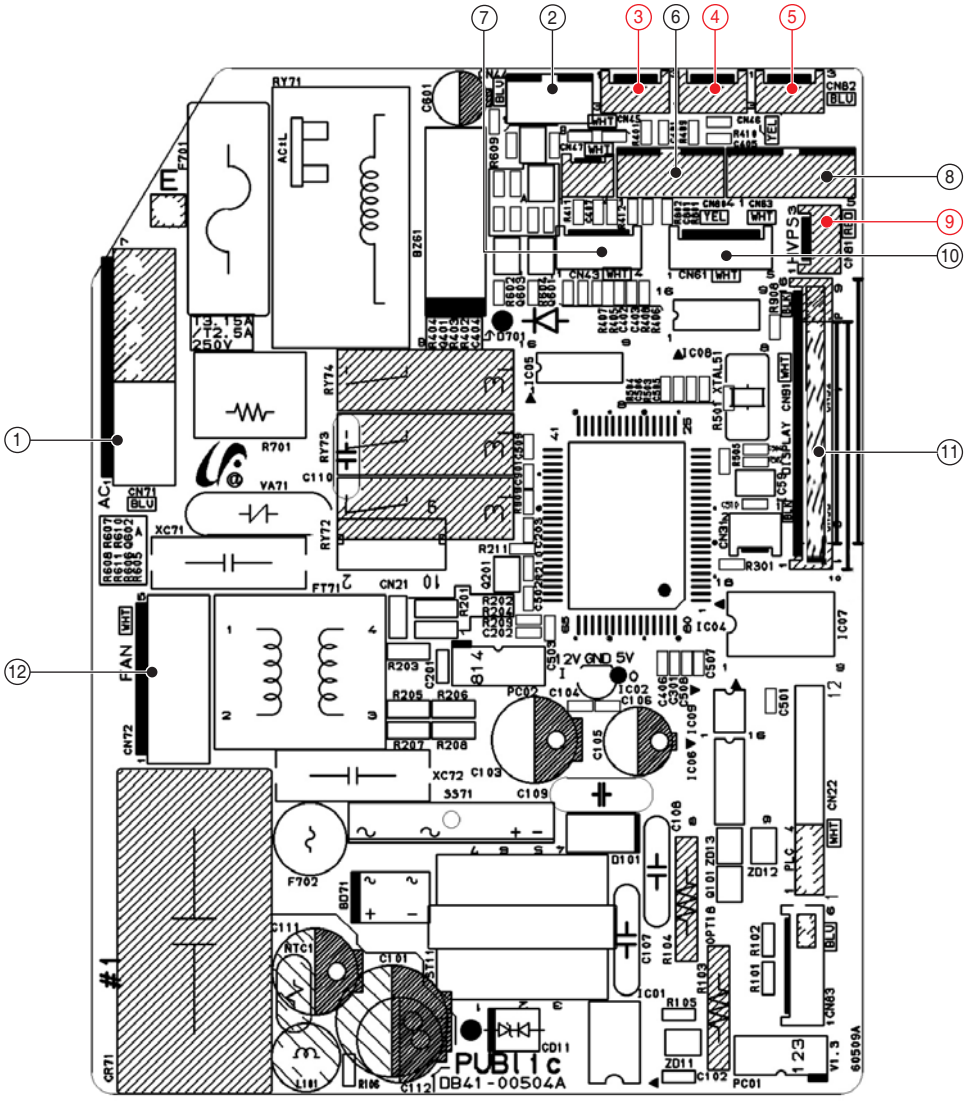




10. PCB Diagram

10-1 Indoor PCB

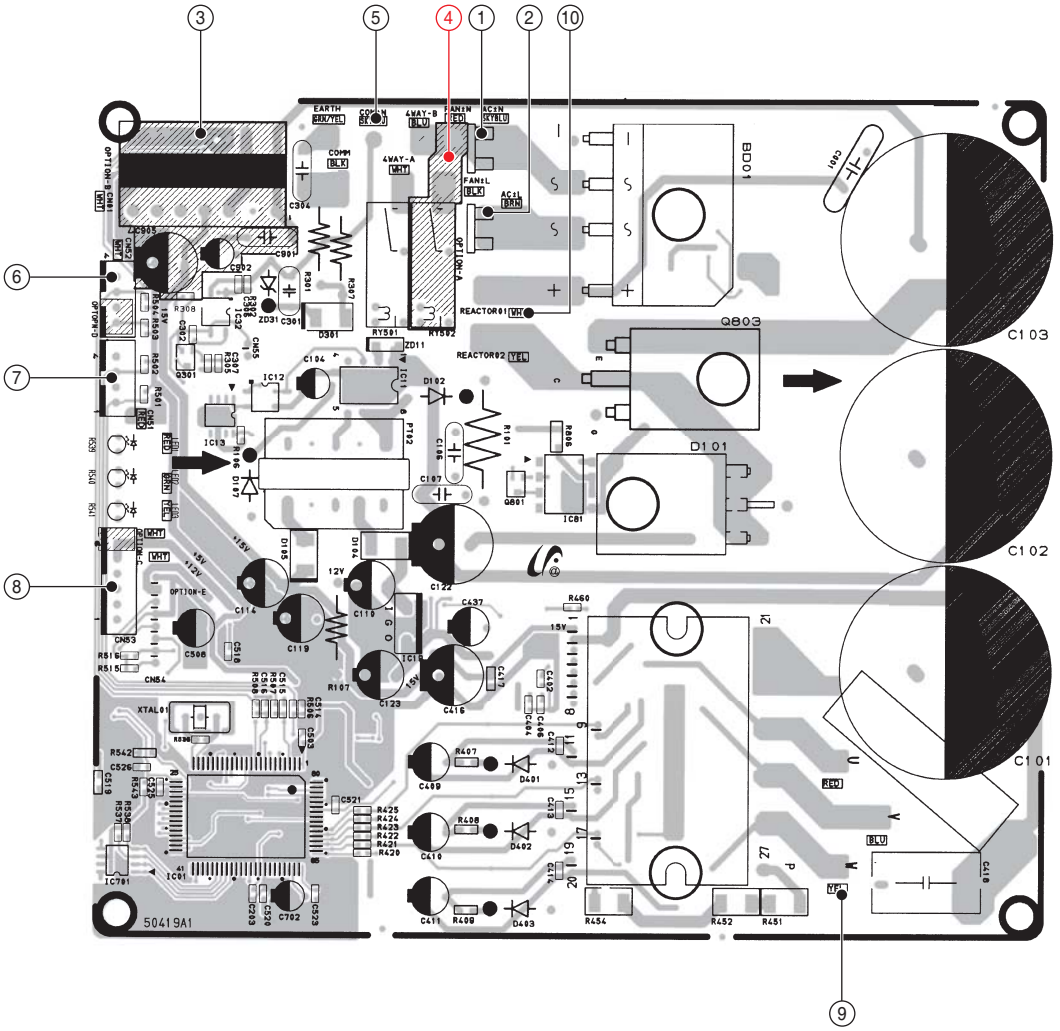
⚠ The red number connecter is not used.



①	Power	⑦	Temperature Sensor
②	Motor RPM Feedback	⑧	Auto Grill
③	Remocon Module	⑨	HVPS(High voltage Generator)
④	Humidity Sensor	⑩	BLADE-H Step Motor
⑤	Anions	⑪	Display
⑥	MPI	⑫	Indoor Fan Motor

10-2 Outdoor PCB

⚠ The red number connecter is not used.



①	Power N	⑥	COND/OLP Temperature Sensor
②	Power L	⑦	DIS/OUT Temperature Sensor
③	BLDC FAN	⑧	EEV Connector
④	AC FAN	⑨	Comp. Connector Wire
⑤	Communication AC	⑩	Reactor Connector Wire

12. Troubleshooting

12-1 Items to be checked first

1. The input voltage should be rating voltage ±10% range.
   The air conditioner may not operate properly if the voltage is out of this range.

2. Is the link cable linking the indoor unit and the outdoor unit linked properly?
   The indoor unit and the outdoor unit shall be linked by 5 cables.
   Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
   Otherwise the air conditioner may not operate properly.

3. When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the air conditioner.

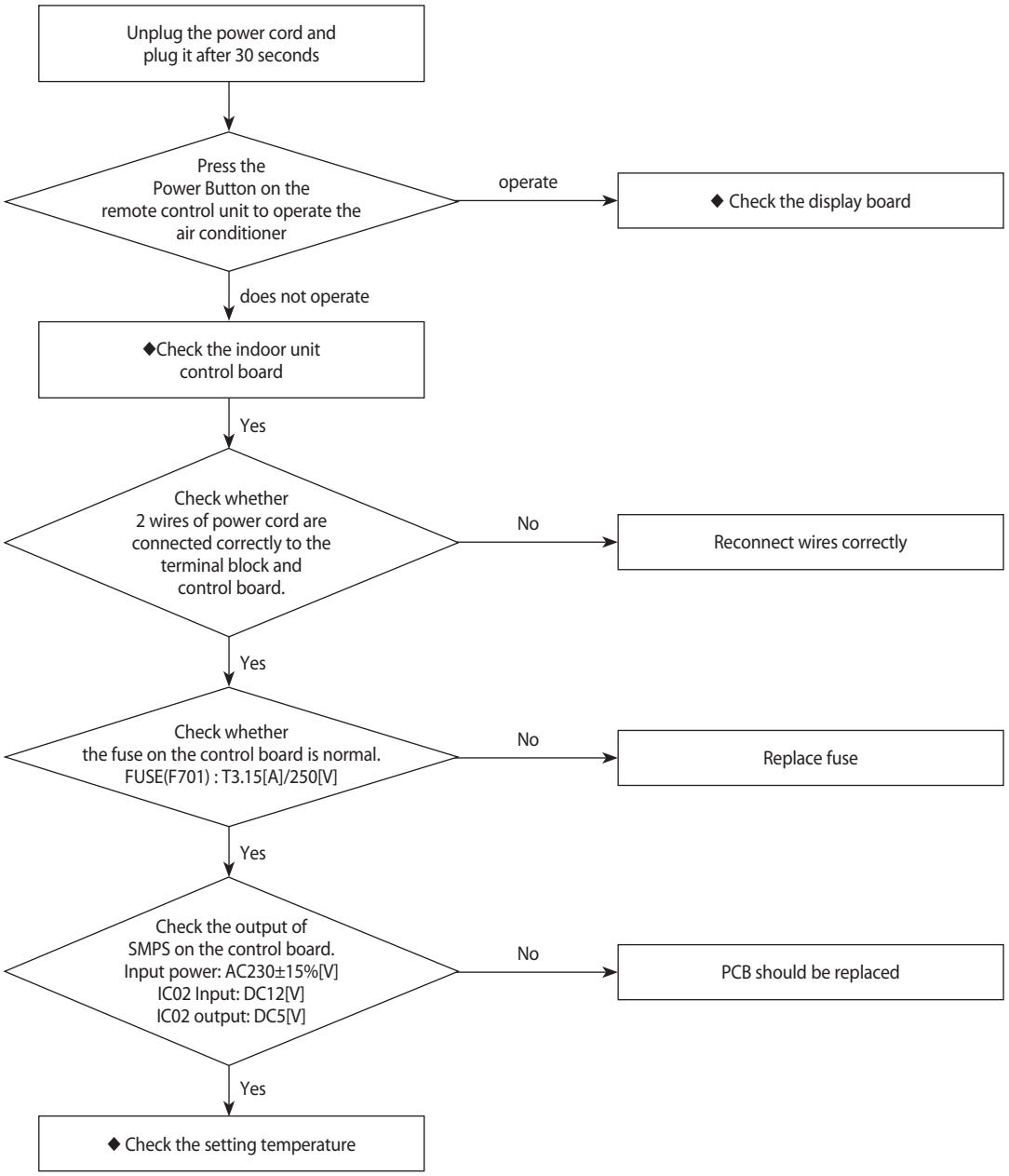
No	Operation of air conditioner	Explanation
1	The OPERATION indication LED(BLUE) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the INDOOR FAN should operate. **[In case of heat pump model]** In a HEAT operation mode, the compressor does not operate at a room temperature lower than the setting temperature that indoor fan should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew.
3	Fan speed setting is not allowed in DRY mode.	The speed of the indoor fan is set to LL in DRY mode. Fan speed is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	Timer LED(ORANGE) of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
6	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.
7	**[In case of heat pump model]** Compressor of the outdoor unit is operating although it is turned off in a HEAT mode.	When the unit is turned off while de-ice is activated, the compressor continues operation for up to 9 minutes(maximum) until the deice is completed.
8	**[In case of heat pump model]** The compressor and indoor fan stop intermittently in HEAT mode.	The compressor and indoor fan stop intermittently if room temperature exceeds a setting temperature in order to protect the compressor from overheated air in a HEAT mode.
9	**[In case of heat pump model]** Indoor fan and outdoor fan stop operation intermittently in a HEAT mode.	The compressor operates in a reverse cycle to remove exterior ice in a HEAT mode, and indoor fan and outdoor fan do not operate intermittently for within 20% of the total heater operation

12-2 Fault Diagnosis by Symptom

12-2-1 No Power (completely dead)-Initial diagnosis

1. Checklist :
   1) Is input voltage normal?
   2) Is AC power linked correctly?
   3) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11VDC-12.5VDC)
   4) Is output voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

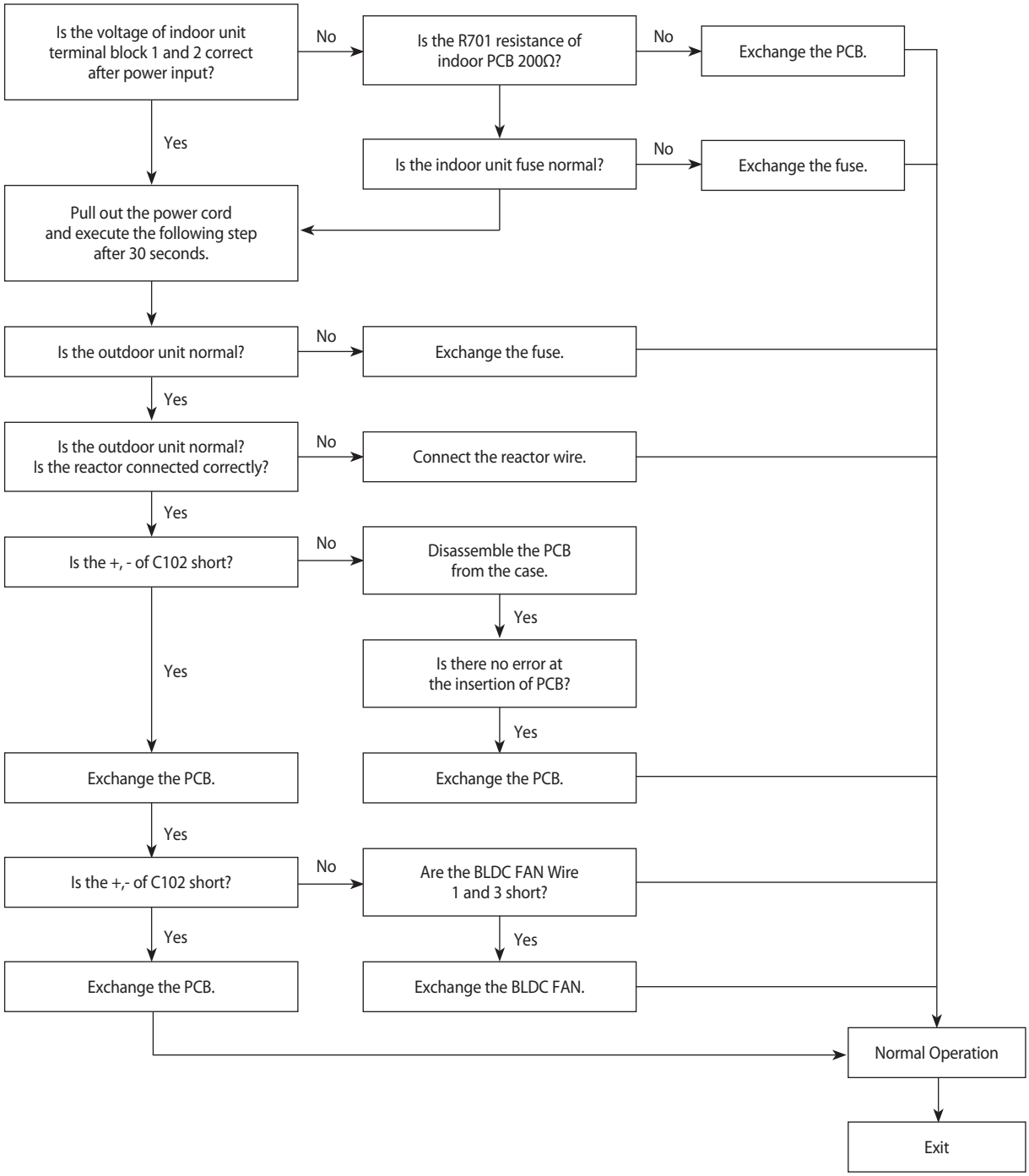
2. Troubleshooting procedure



12-2-2 The Outdoor unit power supply error

1. Checklist :
   1) Are the input power voltage and the power connection correct?
   2) Is there no Fuse short in the indoor unit and outdoor unit?
   3) Is the cable connected correctly between the indoor unit and outdoor unit in order.
   4) Is the wire connected correctly to the terminal block of the indoor unit and outdoor unit?

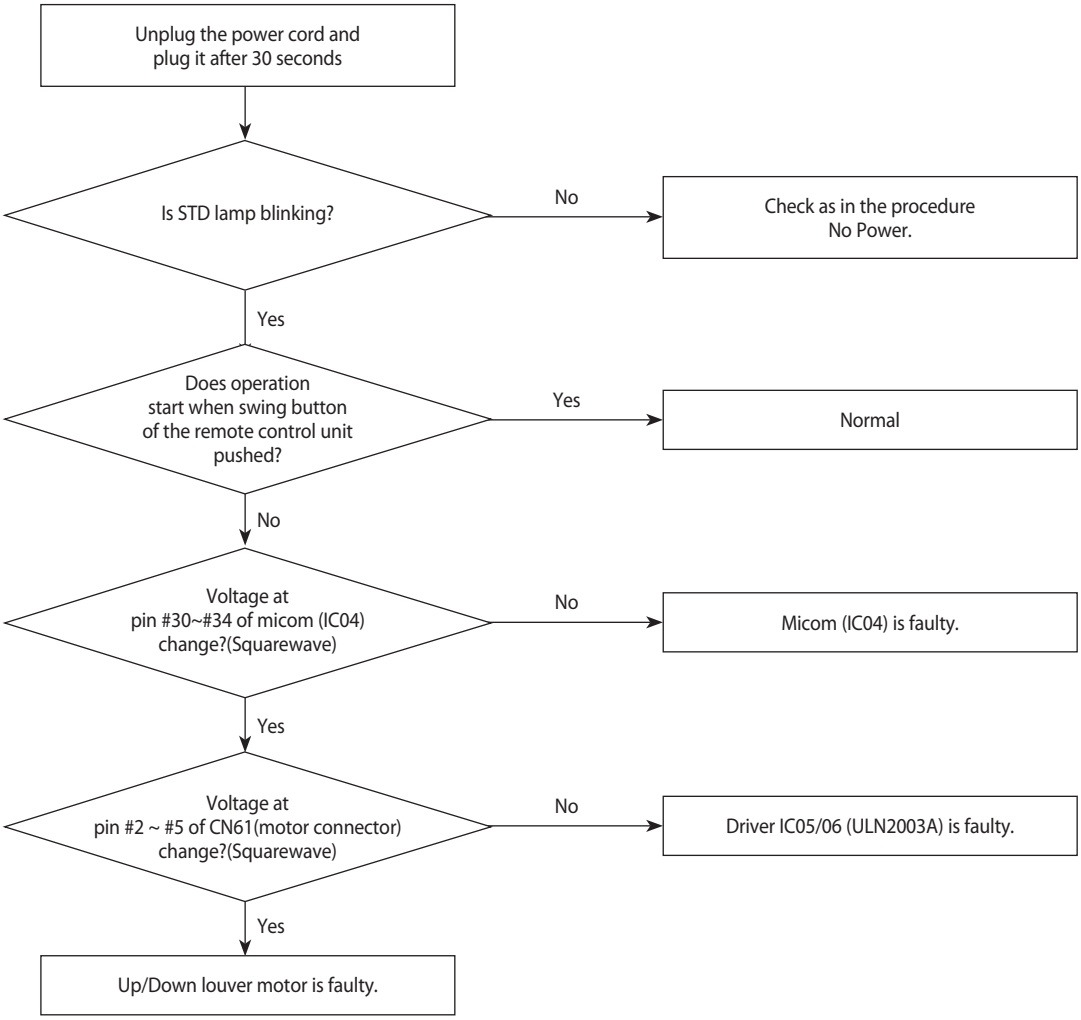
2. Troubleshooting procedure



12-2-3 When the Up/Down Louver Motor Does Not Operate. (Initial Diagnosis)

1. Checklist :
   1) Is input voltage normal?
   2) Is the Up/Down louver motor properly connected with the connector (CN61)?

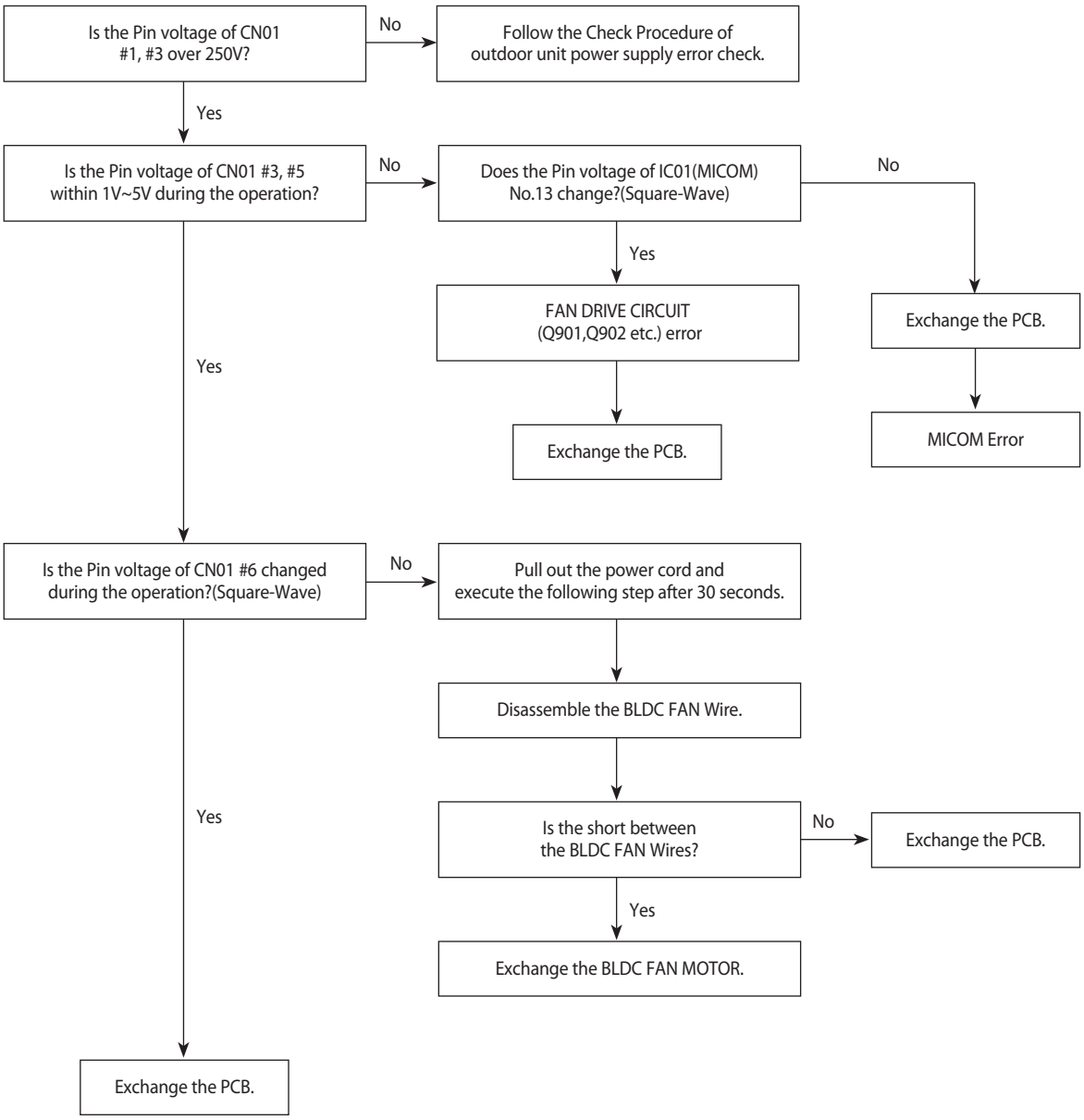
2. Troubleshooting procedure



12-2-4 The Outdoor unit Fan error

1. Checklist :
   1) Are the input power voltage and the power connection correct?
   2) Is the motor wire connected to the outdoor PCB correctly?
   3) Is there no assembly error or none-assembly in the terminal of motor wire connector?
   4) Is there no obstacle at the surrounding of motor and propeller?

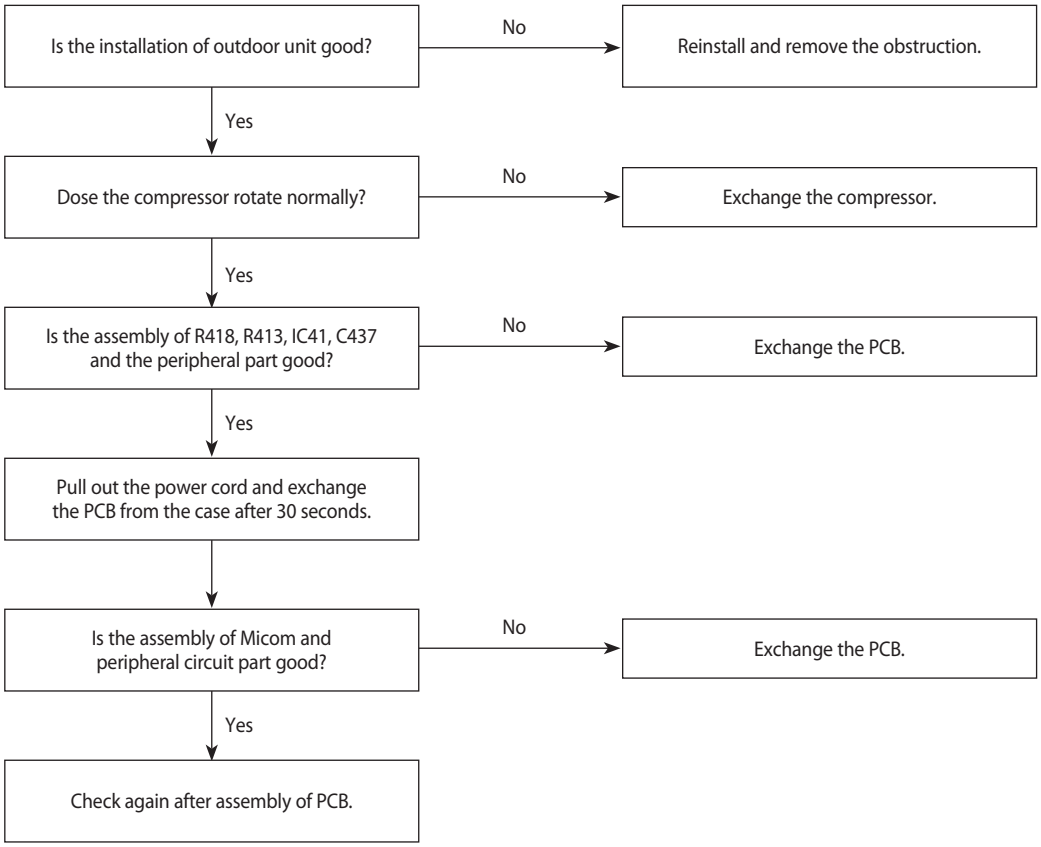
2. Troubleshooting procedure



12-2-5 Total current Trip error

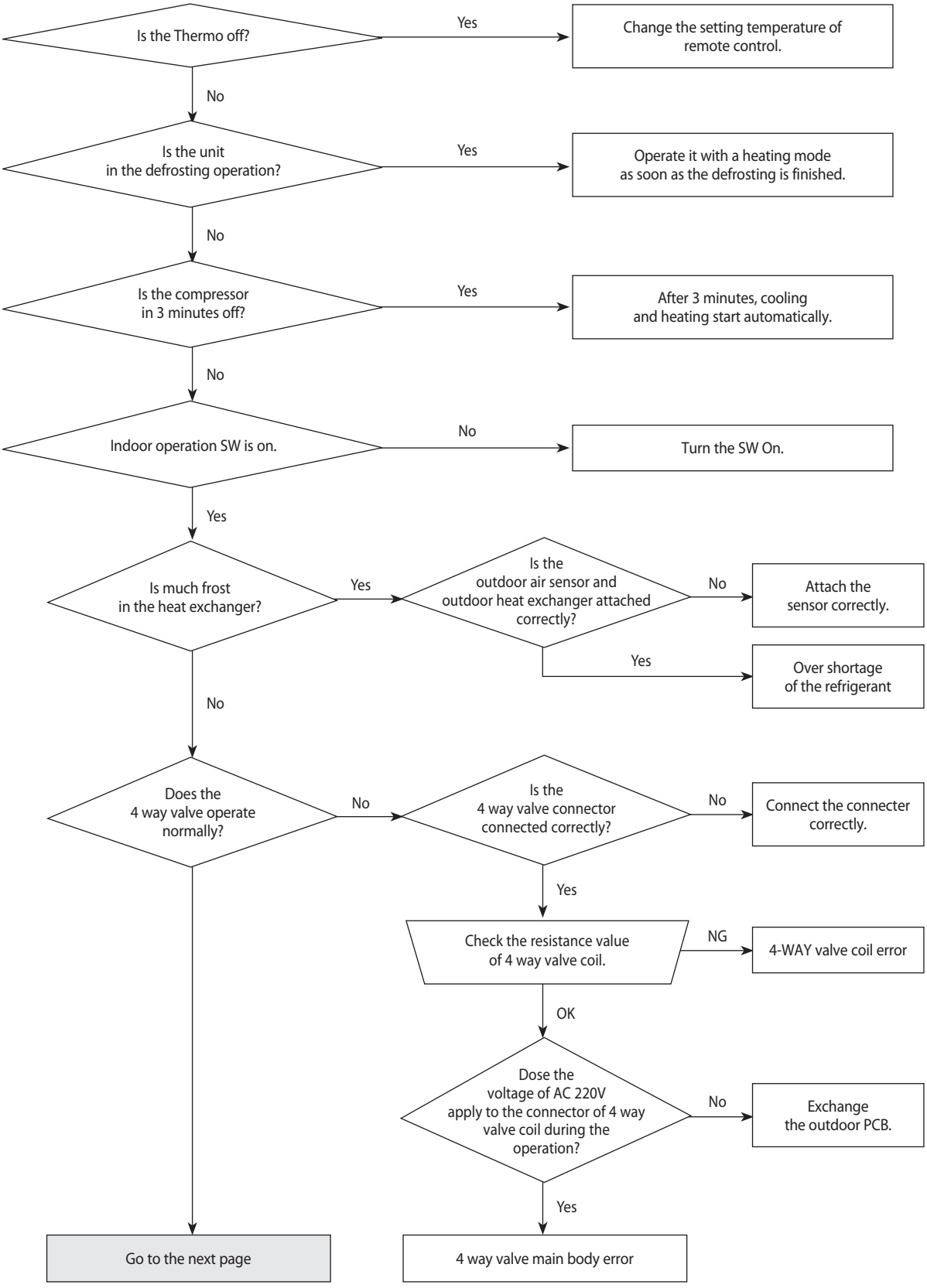
1. Checklist :
   1) Is the input power voltage proper?
   2) Is the refrigerant charged properly?
   3) Does the compressor rotate normally? (Reverse rotation, Locking etc.)
   4) Dose the outdoor fan operate normally? (Fan propeller loss, Motor error etc.)
   5) Is the installation condition of outdoor unit good? (Piping, Space etc.)
   6) Is there no ventilation obstruction at the surrounding of outdoor? (Outdoor unit cover, Fan front obstruction etc.)

2. Troubleshooting procedure

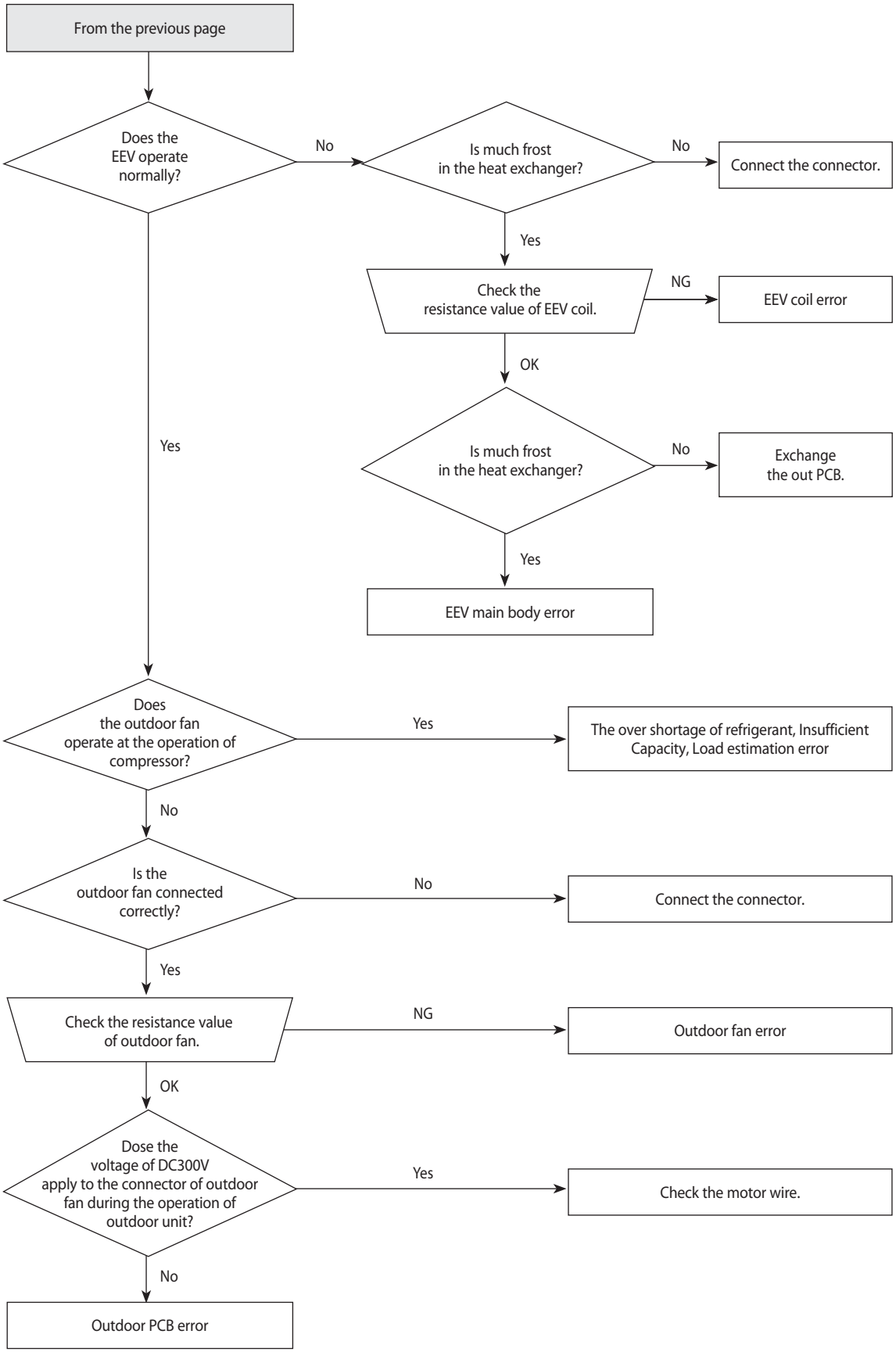


12-2-6 In case of heating at the cooling mode or cooling at the heating mode

1. Troubleshooting procedure



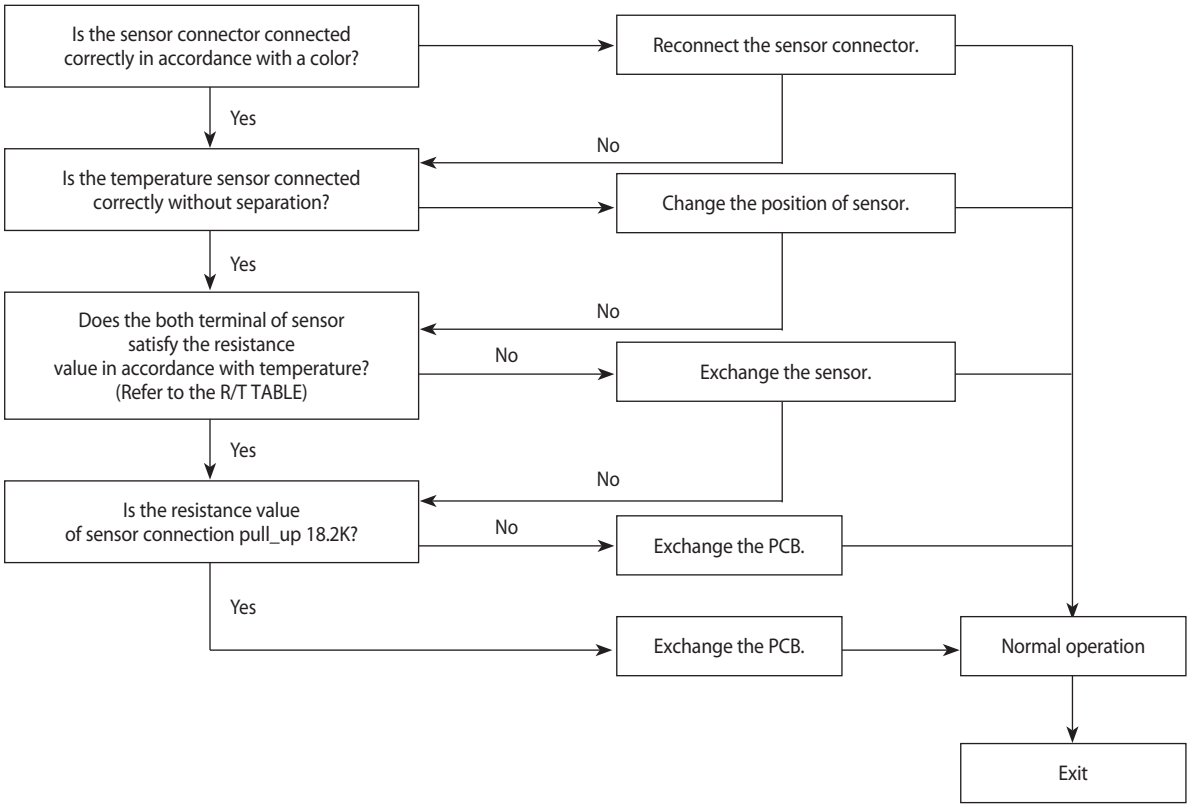
In case of heating at the cooling mode or cooling at the heating mode(cont.)

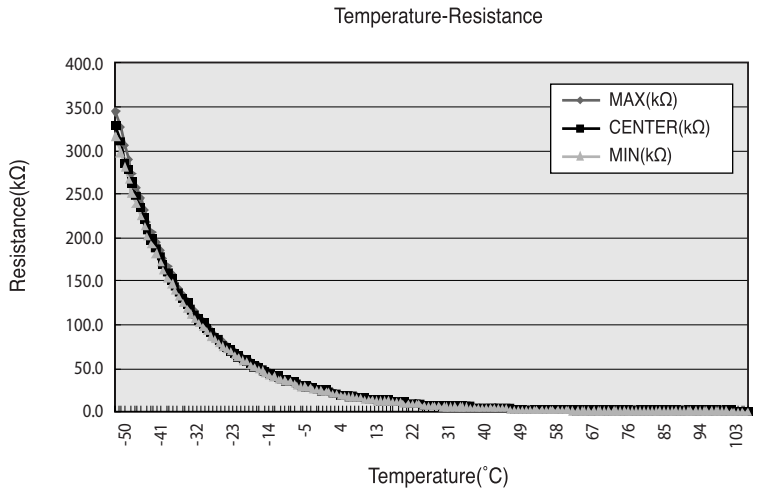


12-2-7 Outdoor temperature sensor error

1. Checklist :
   1) Is the sensor connector connected correctly?
   2) Is the sensor placed correctly?
   3) Does the both terminal of sensor satisfy the resistance value in accordance with temperature?
   4) Is the resistance value of sensor connection pull_up correct?

2. Troubleshooting procedure

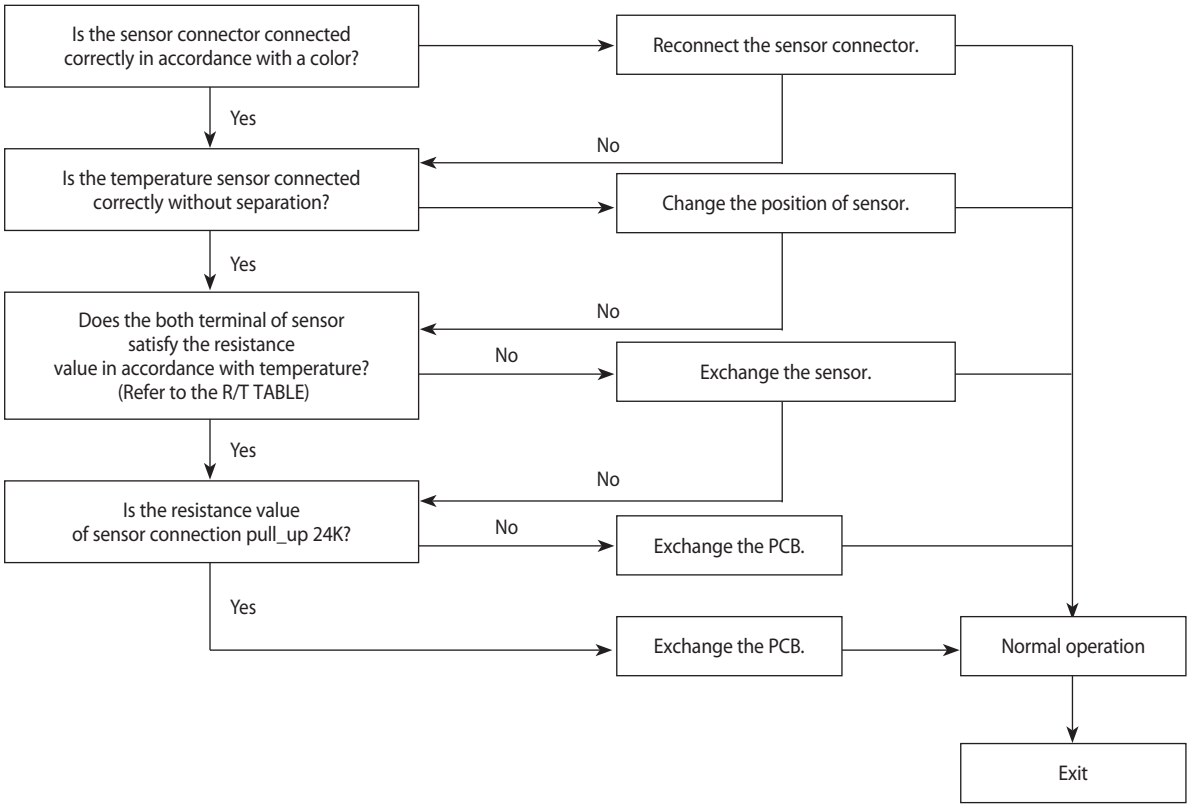


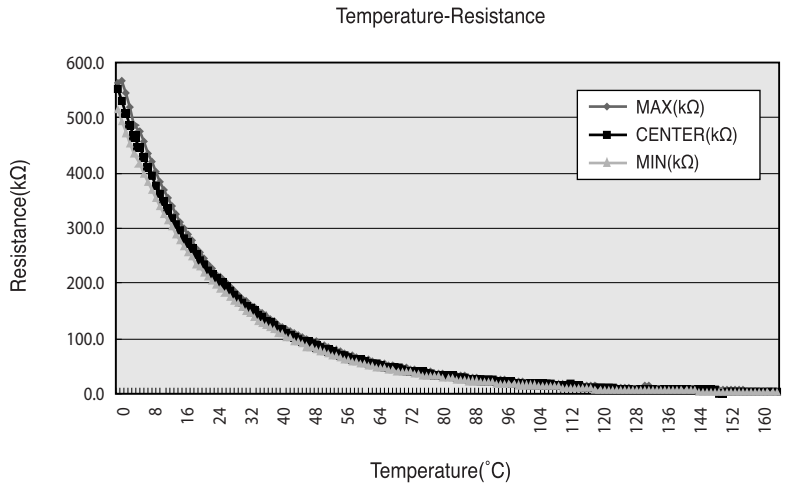


12-2-8 Discharge temperature sensor error

1. Checklist :
   1) Is the sensor connector connected correctly?
   2) Is the sensor placed correctly?
   3) Does the both terminal of sensor satisfy the resistance value in accordance with temperature?
   4) Is the resistance value of sensor connection pull_up correct?

2. Troubleshooting procedure

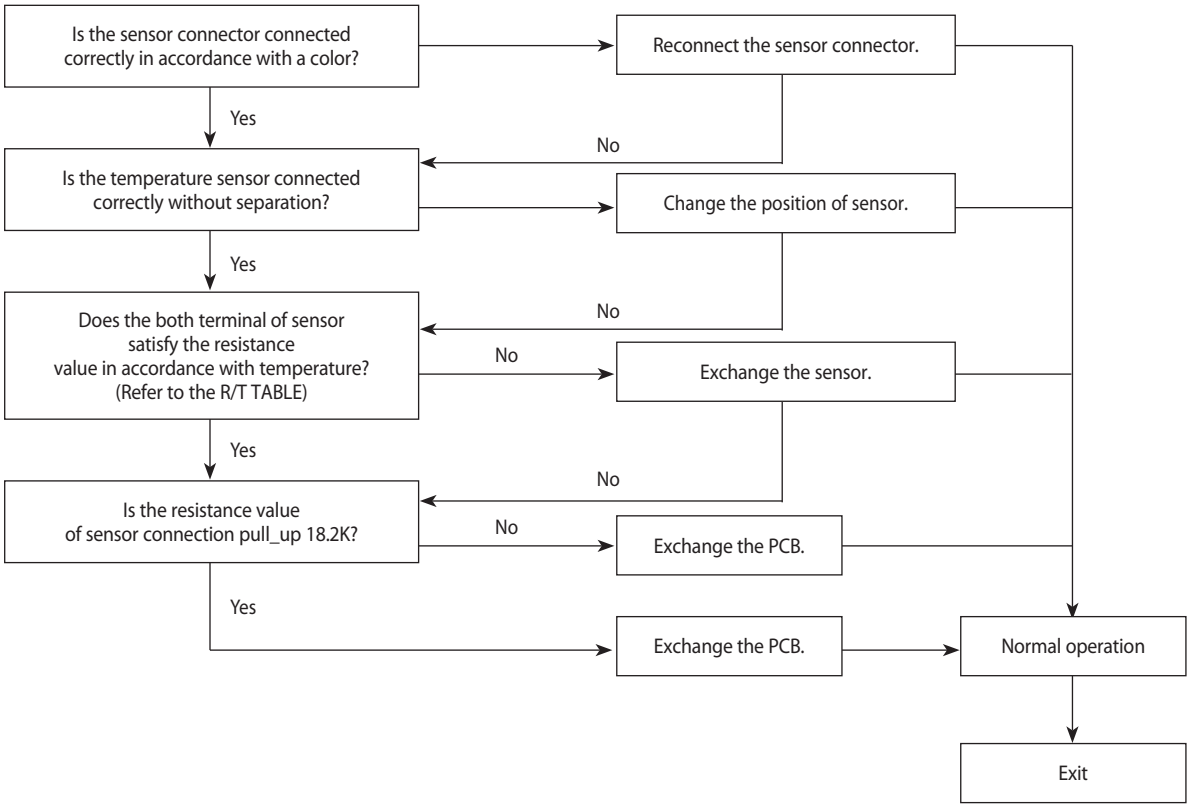


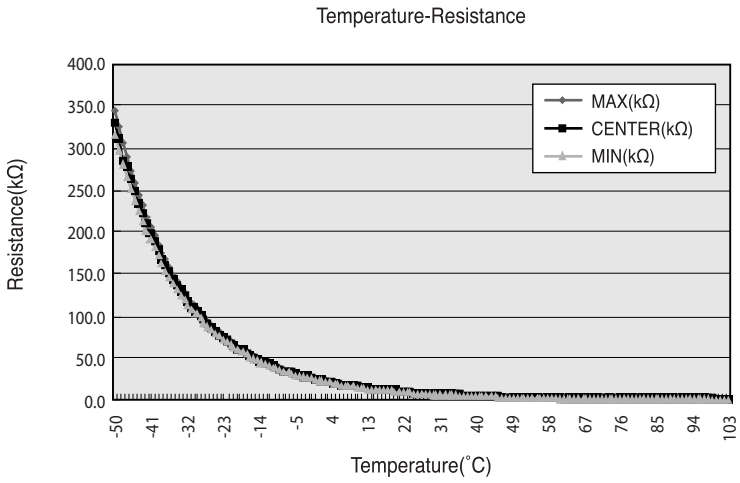


12-2-9 Coil temperature sensor error

1. Checklist :
   1) Is the sensor connector connected correctly?
   2) Is the sensor placed correctly?
   3) Does the both terminal of sensor satisfy the resistance value in accordance with temperature?
   4) Is the resistance value of sensor connection pull_up correct?

2. Troubleshooting procedure

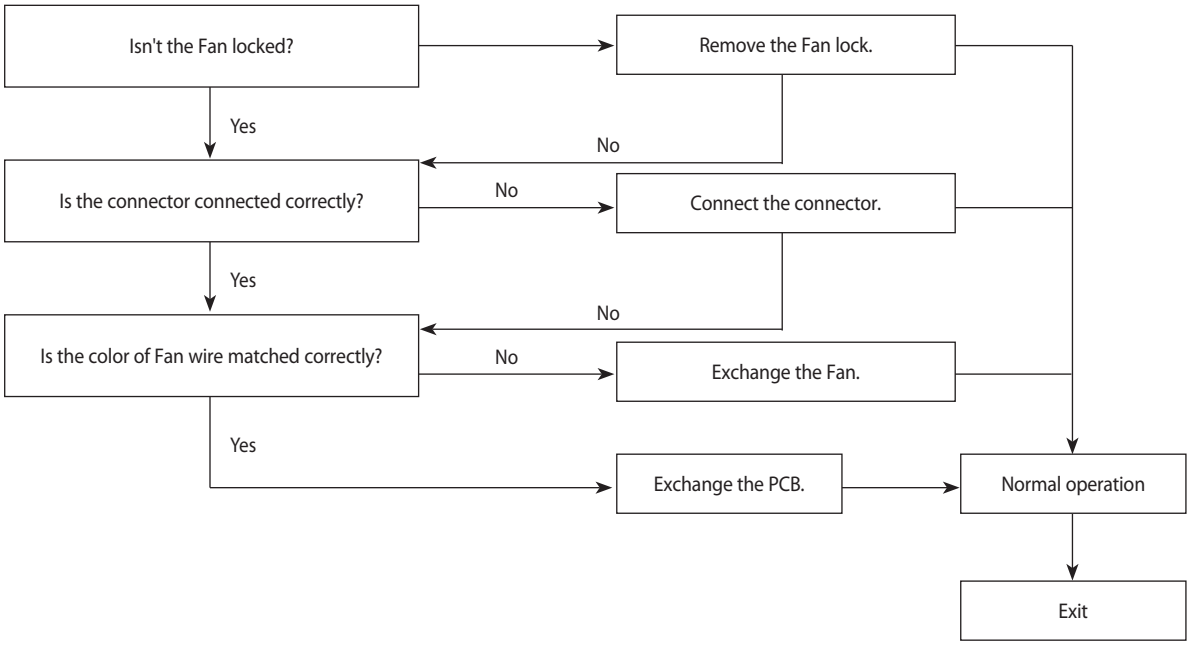




12-2-10 Fan error

1. Checklist :
   1) Isn't the fan locked?
   2) Is the sensor placed correctly?
   3) Does the both terminal of sensor satisfy the resistance value in accordance with temperature?
   4) Is the resistance value of sensor connection pull_up correct?

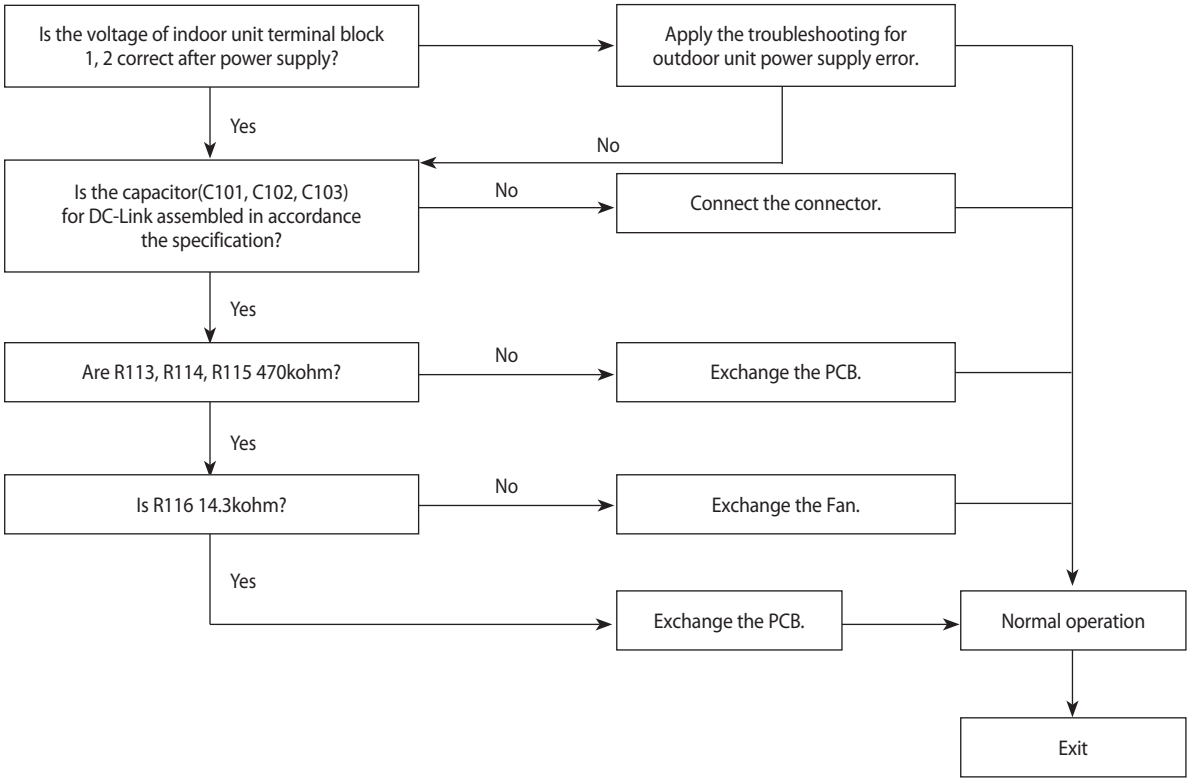
2. Troubleshooting procedure



12-2-11 DC-Link voltage sensor error

1. Checklist :
   1) Is the voltage of indoor unit terminal block 1, 2 correct after power supply?
   2) Is the capacitor(C101, C102, C103) for DC-Link assembled in accordance the specification?
   3) Are R112, R113, R114 470 Kohm?
   4) Is R115 14.3Kohm?

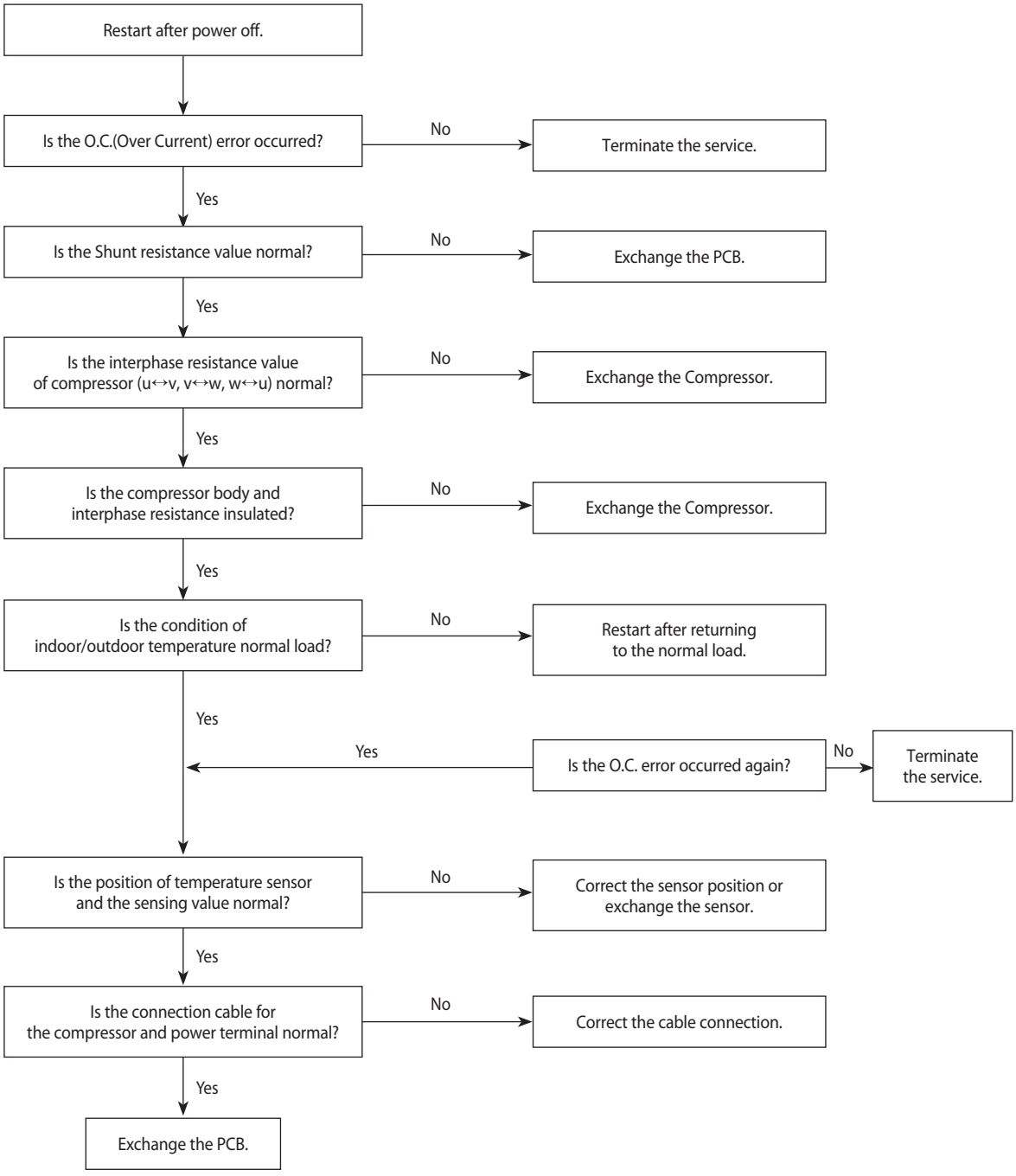
2. Troubleshooting procedure



12-2-12 O.C.(Over Current) error

1. Checklist :
   1) Is the Shunt resistance value correct?
   2) Is the condition of surrounding temperature abnormal overload?
   3) Is there any problem as like the temperature sensor separation or measurement value error?
   4) Is the interphase resistance of compressor normal?

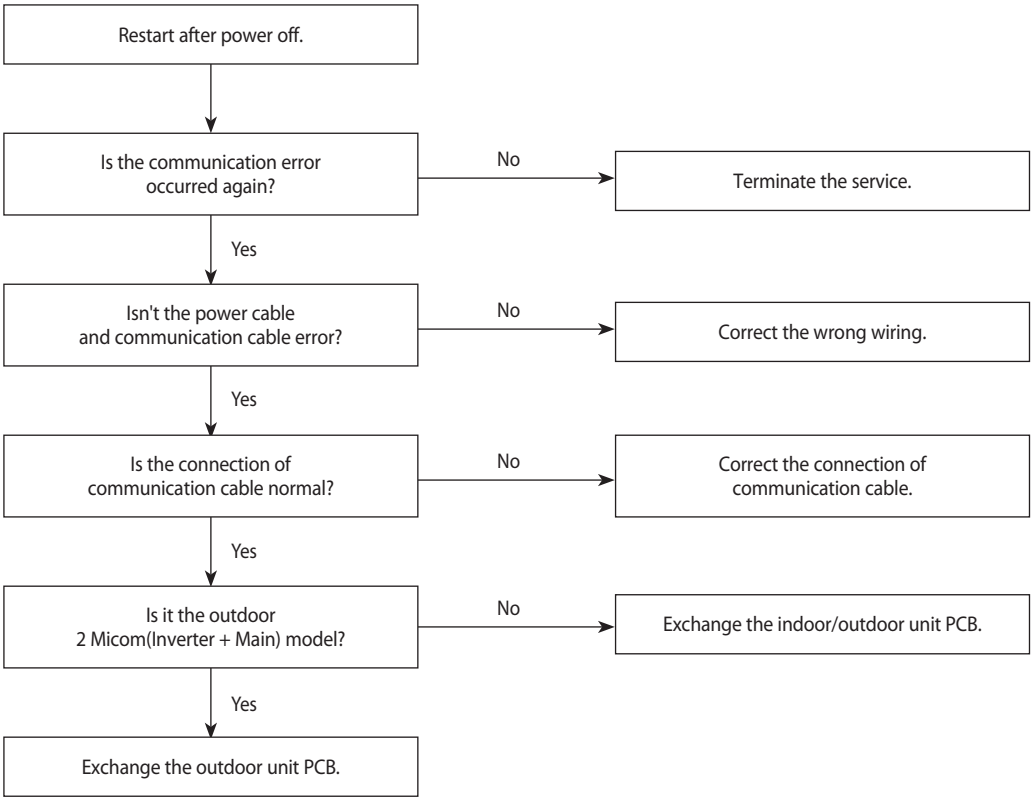
2. Troubleshooting procedure



12-2-13 Communication error

1. Checklist :
   1) Is the communication cable between the indoor unit and outdoor unit connected correctly?
   2) Isn't the power cable and communication cable error?

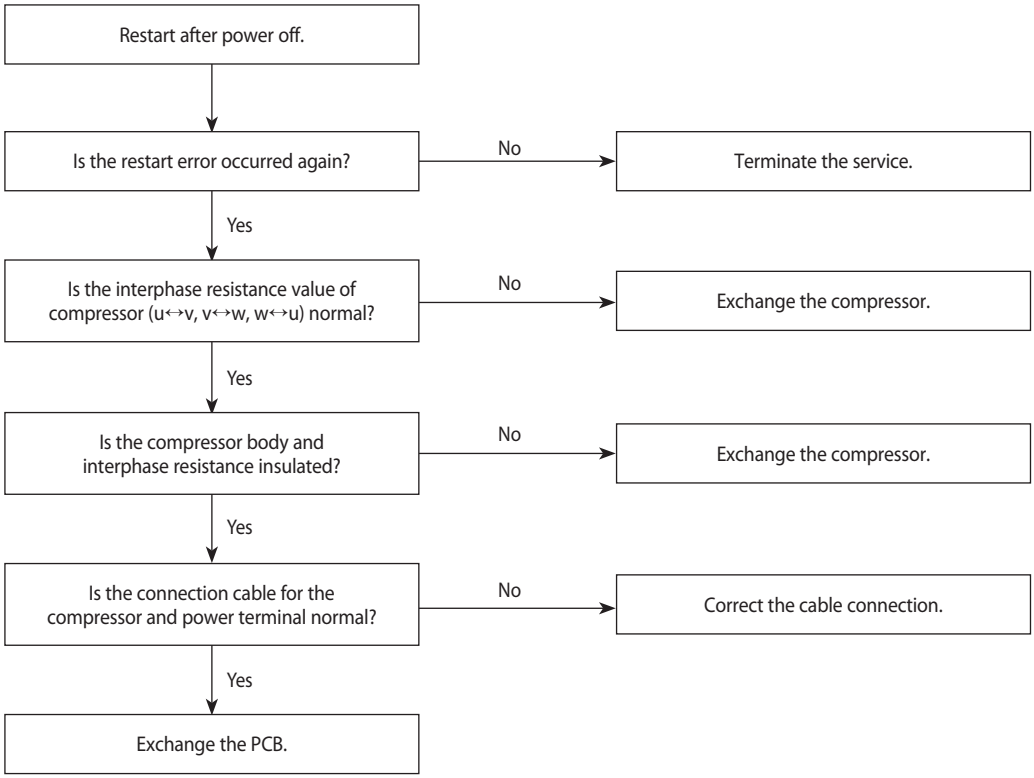
2. Troubleshooting procedure



12-2-14 Compressor start error

1. Checklist :
   1) Is the connection of cable for the compressor and power?
   2) Is the interphase resistance of compressor normal?

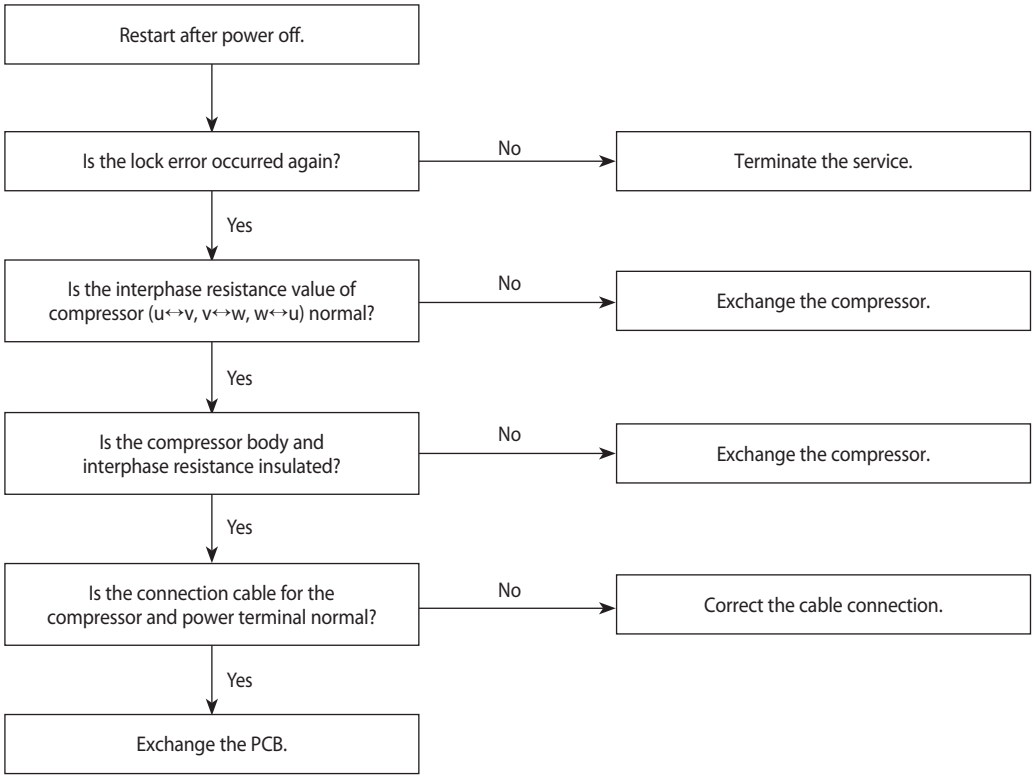
2. Troubleshooting procedure



12-2-15 Compressor lock error

1. Checklist :
   1) Is the connection of cable for the compressor and power?
   2) Is the interphase resistance of compressor normal?

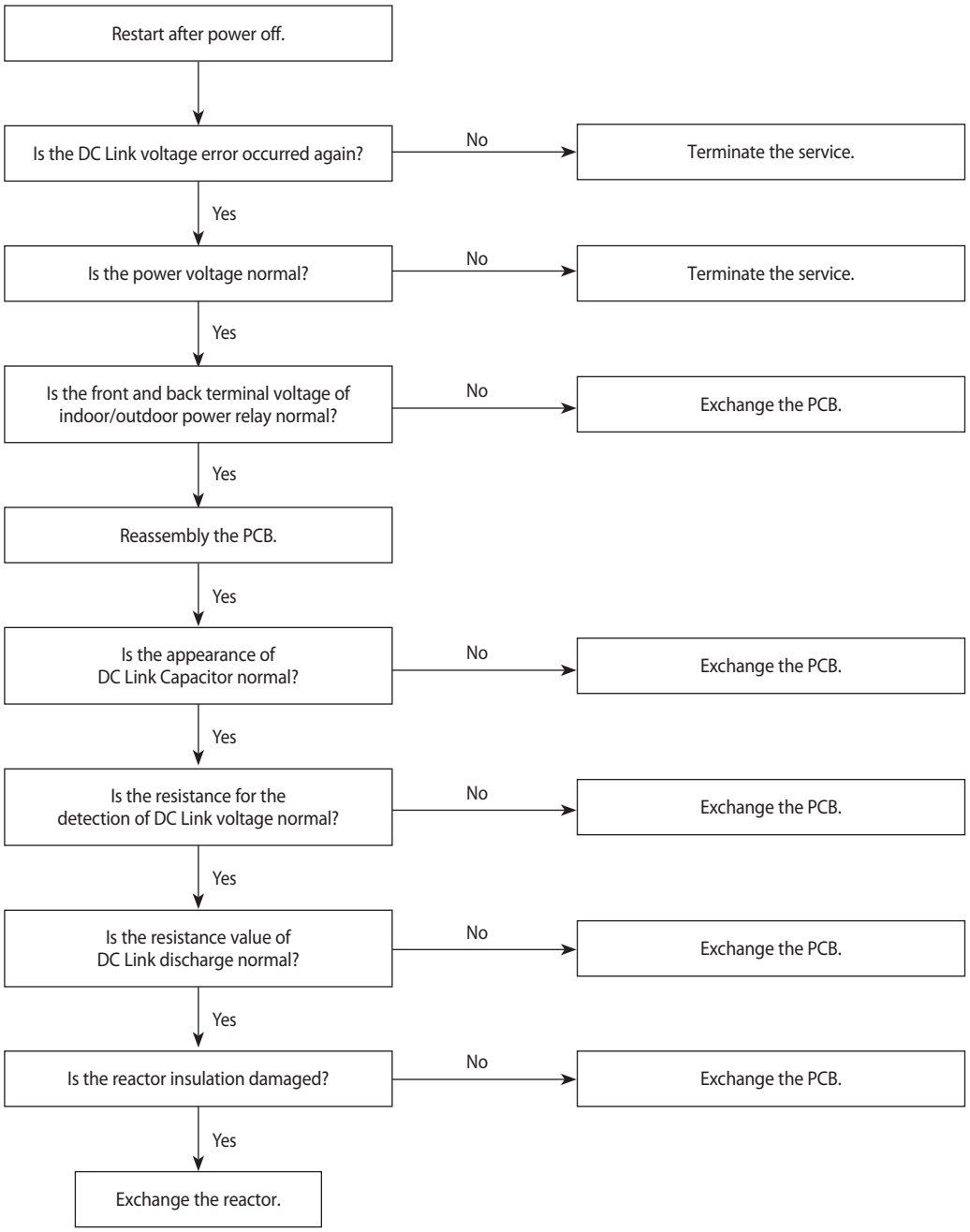
2. Troubleshooting procedure



12-2-16 DC Link Over voltage/ Low voltage error

1. Checklist :
   1) Is the power voltage normal?
   2) Is the voltage of front and back terminal of indoor(outdoor) power relay normal?
   3) Is the resistance value for DC Link voltage detection NORMAL?
   4) Is the resistance value of DC Link discharge normal?
   5) Is the appearance of DC Link Capacitor normal?

2. Troubleshooting procedure



12-2-17 When the remote control is not receiving

1. Check if the connector was normally assembled.

2. Put the set in operation and check the voltage of No. 15(+) and No. 16(-) of the main PCB CN91 while operating the remote control. When the voltage descends below 3V, the assembly module PCB is normal and the main PCB is poor. Then replace the main PCB.

3. Replace the assembly display PCB because the module PCB is poor if the voltage between No. 15~16 of CN91 maintains 5V after the remote control starts operation.

12-2-18 The others

1. AC Line Zero Cross Signal OUT
   – Check the assembly condition of peripheral part of IC21, ZD21, ZD20 and D200 on the PCB.

2. Capacity miss match
   – Check again the indoor unit option code.

12-3 PCB Inspection Method

12-3-1 Pre-inspection Notices

1. Check if you pulled out the AC power plug when you eliminate the PCB or front panel.
2. Don't hold the PCB side not impose excessive force on it to eliminate the PCB.
3. Don't pull the lead wire but hold the whole housing to connect or disconnect a connector to the PCB.
4. In case of outdoor PCB disassembly, check first the complete discharge of condenser (C103) after 30 seconds power off.

12-3-2 Inspection Procedure

1. Check connector connection and peeling of PCB or bronze coating pattern when you think the PCB is broken.
2. The PCB is composed of the 3 parts.
   - Indoor Main PCB Part : MICOM and surrounding circuit, relay, room fan motor driving circuit and control circuit, sensor driving circuit, power circuit of DC12V and DC5V, and buzzer driving circuit.
   - Display part : LED lamp, Switch, Remocon module
   - Outdoor Main PCB part : MICOM and surrounding circuit. IPM and PFC circuit and control circuit.
   - EMI PCB Part : Line filter and Noise Capacitor, Varistor

12-3-3 Indoor Detailed Inspection Procedure

No	Procedure	Inspection Method	Cause
1	Plug out and pull the PCB out of the electronic box. Check the PCB fuse.	1) Is the fuse disconnected?	• Over current • Indoor Fan Motor Short • AC Part Pattern Short of the MAIN PCB
2	Supply power. If the operating lamp twinkles at this time, the above 1)~3) have no relation.	Checking the power voltage.	
		1) Is the DB71 input voltage AC200V~AC240V?	• Power Cord is fault, Fuse open. Wrong Power Cable Wiring, AC Part is faulty.
		2) Is the voltage between both terminals of the C104 on the 2nd side of the transformer DC12V ±0.5V?	• Switching Trans or Power Circuit is faulty
		3) Is the voltage between both terminals of OUT and GND of IC19(KA78L05) DC5V ±0.5V?	• Power Circuit is faulty, Load Short
3	Press the ON/OFF button.	Checking the power voltage.	
		1) Is the voltage over AC180V being imposed on terminal #3 and #5 of the fan motor connector(CN72)?	• Relay(RY71) Coil Disconnection, IC05 is faulty
		2) Check the voltage of both terminals of terminal block 1 and N(1) after 3 minute operation.: AC220V	• Relay(RY71) Contact is faulty
4	Press the ON/OFF button. 1. FAN Speed [High] 2. Continuous Operation	1) Is the voltage over AC180V being imposed on terminal #3 and #5 of the fan motor connector(CN72)?	• Fan Motor of the indoor is faulty
		2) The fan motor of the indoor unit doesn't run.	• Fan Motor Connector(CN72) is faulty
		3) The power voltage between terminal #3 and #5 of the connector(CN72) is 0V.	• ASS'Y Main PCB is faulty • Connection is faulty

12-3-4 Outdoor Detailed Inspection Procedure

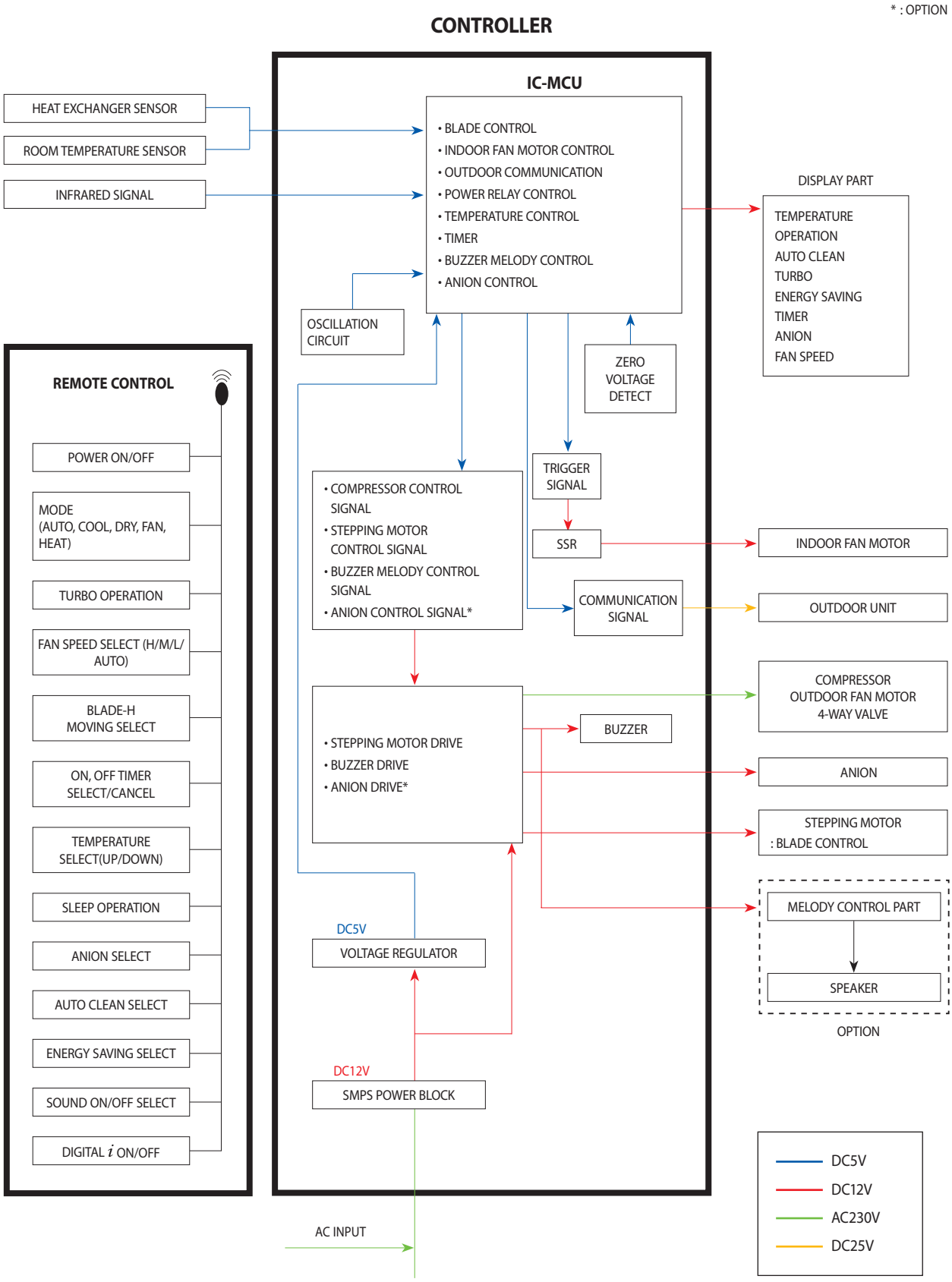
No	Procedure	Inspection Method	Cause
1	Wait 30 seconds over after disconnecting the power cable Check the outdoor PCB.	1) Is C101 discharged? 2) Is the resistance of both terminals of C101 opened? 3) Is the fuse of EMI PCB normal? 4) Is the reactor wire connected?	• Over Current • Inner short of PCB • BLDC FAN Motor Error
2	Check the Outdoor unit PCB.	1) Is R701 200ohm? 2) Does ry74 operate normally? (IC05 & 16:0V, 1:5V) 3) Is the fuse(F701) normal? 4) Is the Sub PCB assembled normally?	• Outdoor PCB Error • SUB Relay(RY74) Error • IC05 Error • Indoor PCB Error
3	Check the LED lighting after power supply.	1) Normal: Red: Light On, Green: Flickering, Yellow: Light Off? 2) Is the voltage of C101 250V over? 3) Is the input of IC19 8V, and the output 5V? 4) Recheck after disassembling BLDC FAN Wire.	• Inner short of outdoor PCB • Wrong assembly of outdoor PCB • BLDC FAN Error
4	Check the condition of indoor & outdoor connection cable.	1) Is the green LED light on once per second? 2) Is the indoor & outdoor connection able connected in order? 3) Is the grounding wire connected to the both of indoor & outdoor unit? 4) Is the voltage of terminal block N(1), 225V?	• Wrong connection of Indoor/Outdoor wiring • Wrong assembly of outdoor communication circuit
5	Check the Comp Wire.	1) Is it connected red, blue, and yellow in order in counterclockwise. 2) Are the valve and its installation condition good? 3) Is the installation condition of outdoor unit?	• Wrong assembly • Installation condition is bad.
6	Check the BLDC Fan.	1) Is CN01 1, 3 over 250V? 2) Is CN01 3, 5 within 1V~5V? 3) Is the voltage of CN01 6 changed? 4) Is the resistance of BLDC Motor 1, 3 opened after power off?	• Outdoor PCB Error • BLDC Motor Error

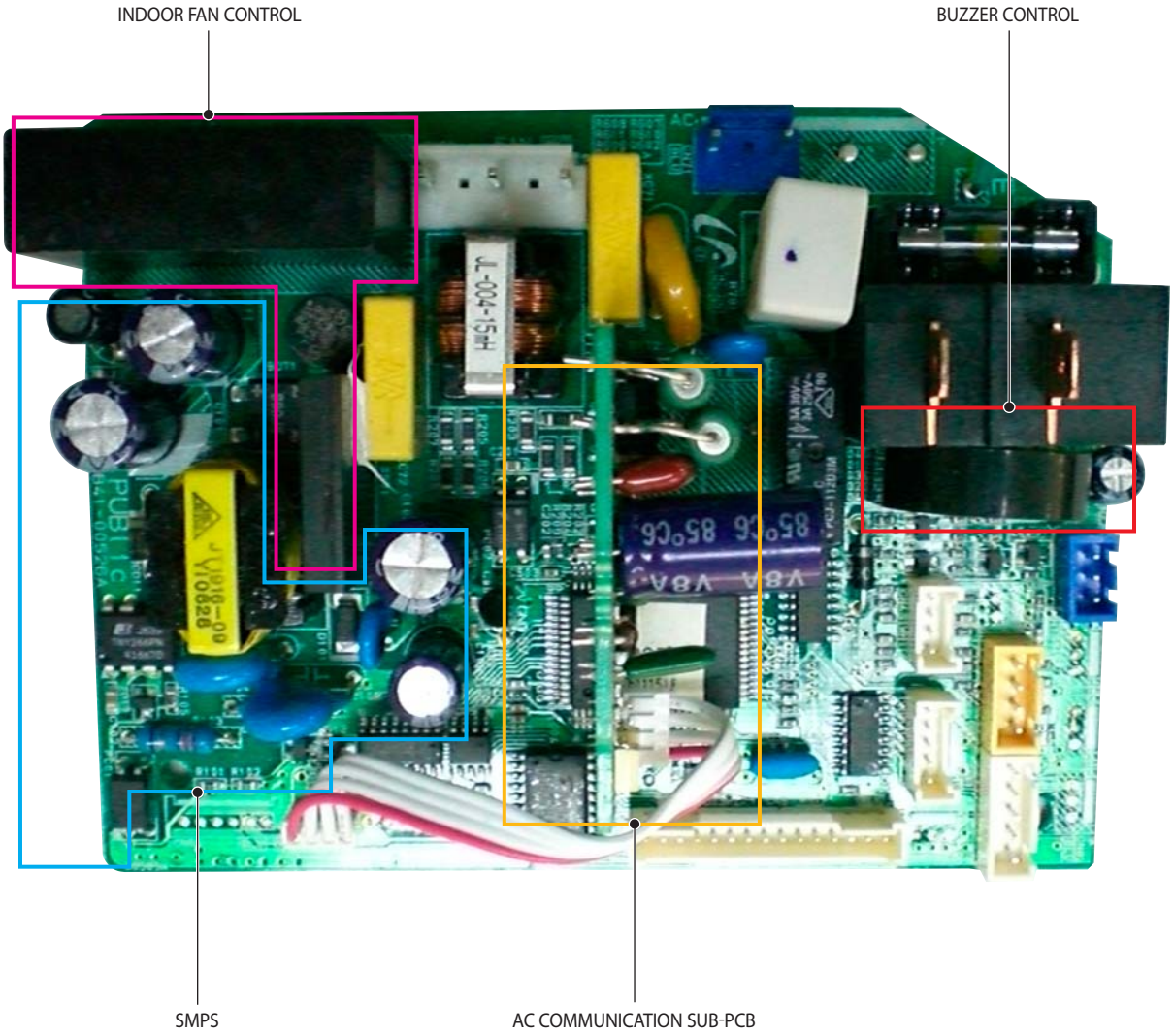
12-4 Main Part Inspection Method

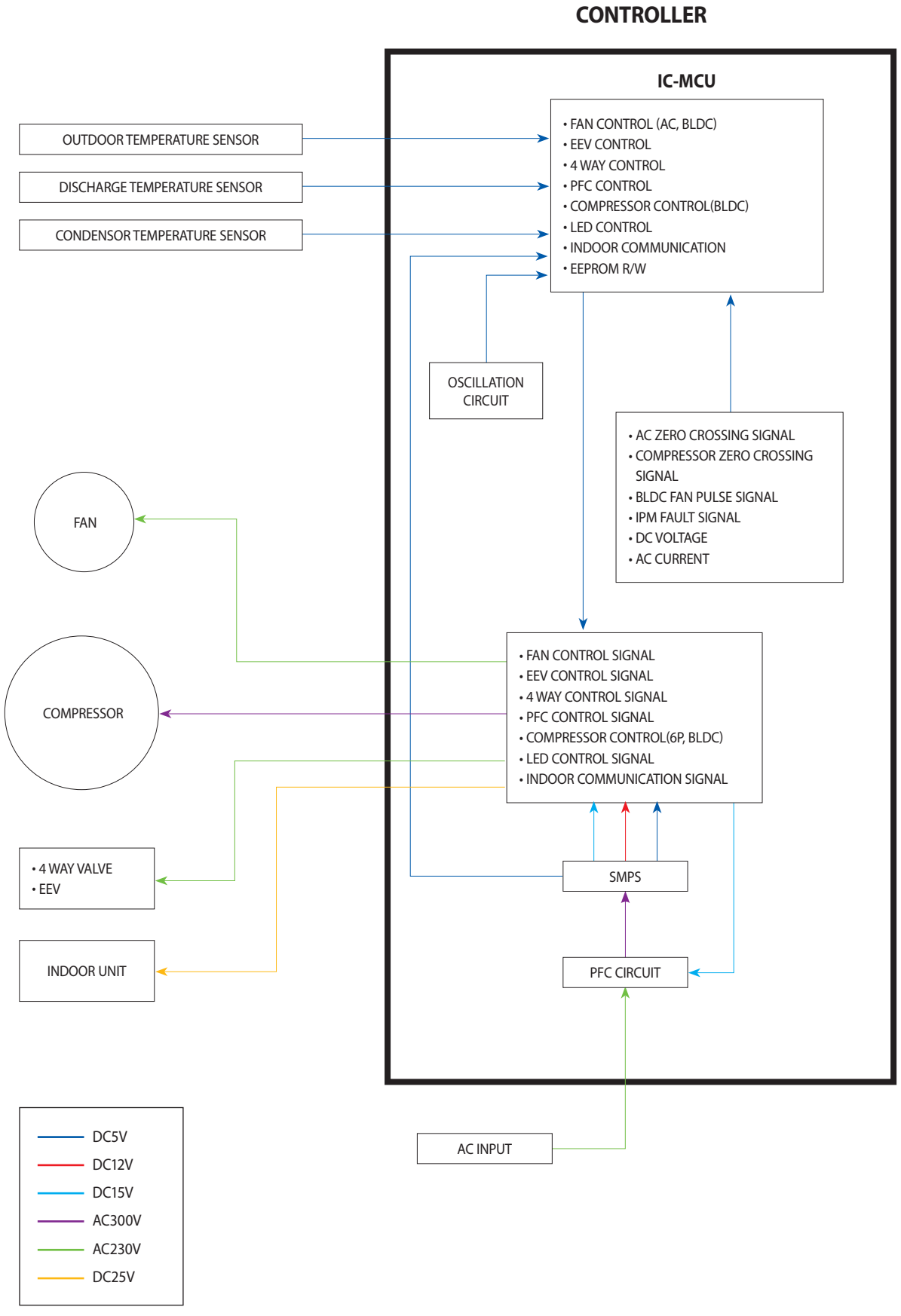
<table>
<tr><th>Part</th><th colspan="2">Breakdown Inspection Method</th></tr>
<tr><td rowspan="3">Room Temperature Sensor</td><td colspan="2">Measure resistance with a tester</td></tr>
<tr><td>Normal</td><td>At the normal temperature 37kΩ~ 8.3kΩ(-7˚C~+30˚C) *Refer to Table 12-3-4.</td></tr>
<tr><td>Abnormal</td><td>∞, 0Ω . . . Open or Short</td></tr>
<tr><td rowspan="3">Room Fan Motor</td><td colspan="2">Measure the resistance between terminals of the connector (CN72) with a tester.</td></tr>
<tr><td>Normal</td><td>At the normal temperature (10˚C ~ 30˚C)
<table>
<tr><th>Compare terminal</th><th>Resistance</th><th>Remark</th></tr>
<tr><td>Yellow, Blue</td><td>404.4Ω ± 10%</td><td>Main</td></tr>
<tr><td>Yellow, Red</td><td>340Ω ± 10%</td><td>Sub</td></tr>
</table></td></tr>
<tr><td>Abnormal</td><td>∞, 0Ω . . . Open or Short</td></tr>
<tr><td rowspan="3">Stepping Motor</td><td colspan="2">Measure the resistance between the red wire and each terminal wire with a tester.</td></tr>
<tr><td>Normal</td><td>About 300Ω at the normal temperature (20˚C ~ 30˚C)</td></tr>
<tr><td>Abnormal</td><td>∞, 0Ω . . . Open or Short</td></tr>
</table>

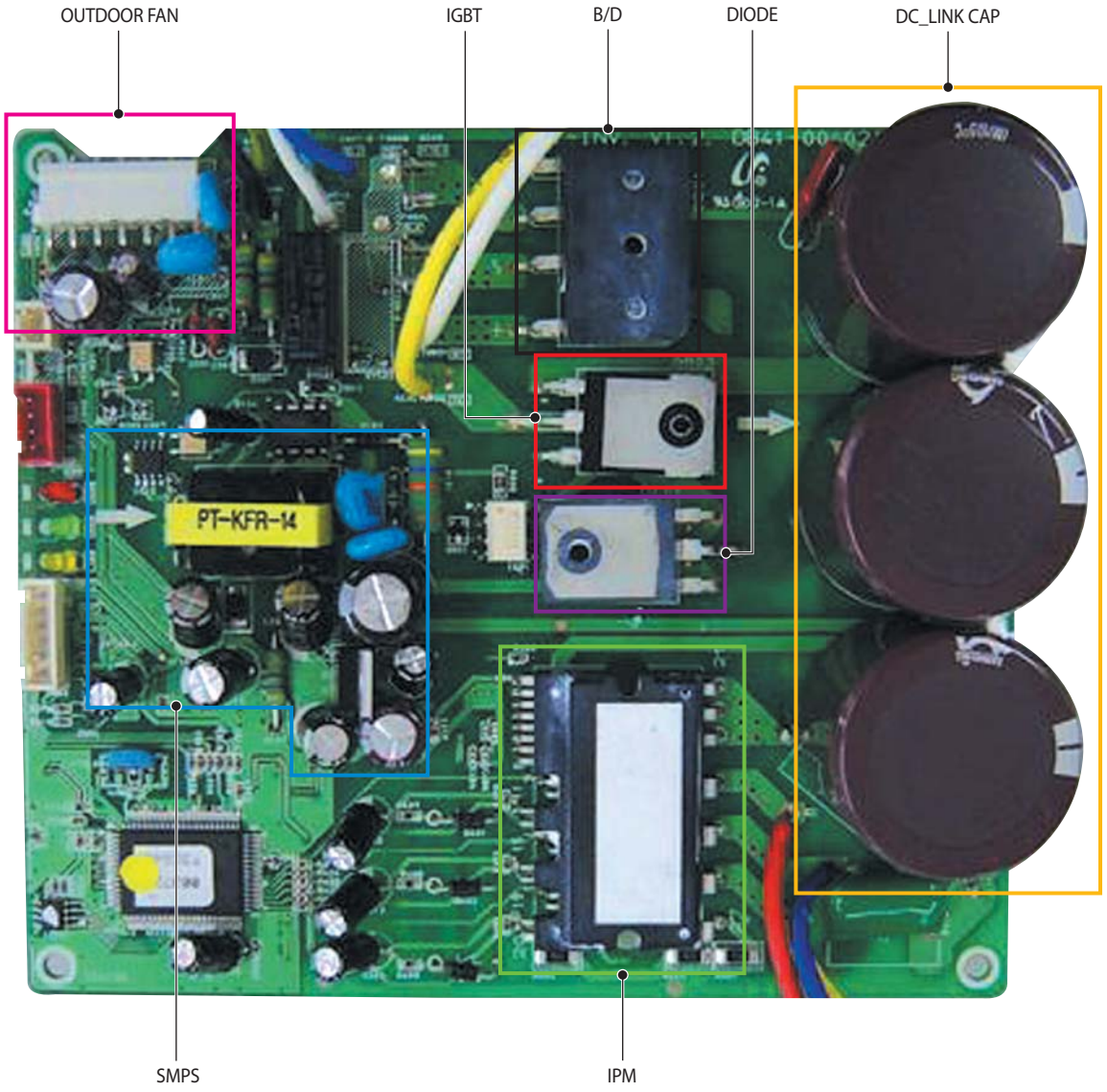
13. Block Diagram

13-1 Indoor Unit




INDOOR FAN CONTROL
BUZZER CONTROL
SMPS
AC COMMUNICATION SUB-PCB


CONTROLLER
IC-MCU
• FAN CONTROL (AC, BLDC)
• EEV CONTROL
• 4 WAY CONTROL
• PFC CONTROL
• COMPRESSOR CONTROL(BLDC)
• LED CONTROL
• INDOOR COMMUNICATION
• EEPROM R/W
OUTDOOR TEMPERATURE SENSOR
DISCHARGE TEMPERATURE SENSOR
CONDENSOR TEMPERATURE SENSOR
OSCILLATION CIRCUIT
• AC ZERO CROSSING SIGNAL
• COMPRESSOR ZERO CROSSING SIGNAL
• BLDC FAN PULSE SIGNAL
• IPM FAULT SIGNAL
• DC VOLTAGE
• AC CURRENT
FAN
COMPRESSOR
• FAN CONTROL SIGNAL
• EEV CONTROL SIGNAL
• 4 WAY CONTROL SIGNAL
• PFC CONTROL SIGNAL
• COMPRESSOR CONTROL(6P, BLDC)
• LED CONTROL SIGNAL
• INDOOR COMMUNICATION SIGNAL
• 4 WAY VALVE
• EEV
INDOOR UNIT
SMPS
PFC CIRCUIT
AC INPUT
DC5V
DC12V
DC15V
AC300V
AC230V
DC25V


OUTDOOR FAN
IGBT
B/D
DIODE
DC_LINK CAP
PT-KFR-14
SMPS
IPM