SAMSUNG

SPLIT-TYPE AIR CONDITIONER

	INDOOR UNIT	OUTDOOR UNIT
Basic :	AQV09FAN	
Model :	AQV09FAN	AQV09FAX
	AQV12FAN	AQV12FAX
Model Code :	AQV09FAN	AQV09FAX
	AQV12FAN	AQV12FAX
	AQV09FAN/XSA	AQV09FAX/XSA
	AQV12FAN/XSA	AQV12FAX/XSA

SERVICE Manual

AIR CONDITIONER

AQV09FAN, AQV12FAN
AQV09FAN/XSA, AQV12FAN/XSA

AQV09FAX, AQV12FAX
AQV09FAX/XSA, AQV12FAX/XSA

THE FEATURE OF PRODUCT

- **High Energy Efficiency BLDC Air Conditioner**
- **Simple Flat Grille Design**
- **Good Morning Mode**
  : Good Morning Mode can help you sleep quickly and soundly and wake up refreshed.
- **Multi Functional Cleaning System**
  : Silver Nano Health System and Deodorizing/ Catechin Filter are adopted.
- **Silence Mode**
  : When you use the "Silence Mode", you can experience extremely quiet operation of your air conditioner.

For more information, Please access to our service web site(http://itself.sec.samsung.co.kr)

Contents

Contents

2. Product Specifications

2-1 The Feature of Product

■ **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.

■ **Simple Flat Grille Design**
With a Smart and fashionable style, the high impressive interior design allow this product to set place in anywhere.

■ **Good Morning Mode**
Good Morning Mode can help you sleep quickly and soundly and wake up refreshed.

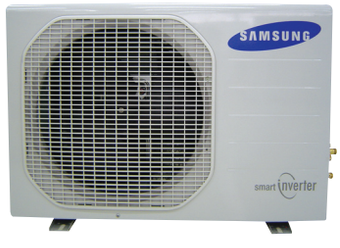
■ **Multi functional cleaning system**
With Silver Nano Health System and Deodorizing/Catechin Filters makes your room more refreshed.

■ **Silence Mode**
When you use the “Silence Mode”, you can experience extremely quiet operation of your air conditioner.

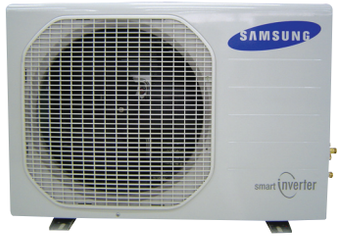
2-2 Product Specifications

Item				Model	AQV09FAN	AQV09FAX	AQV12FAN	AQV12FAX
					Indoor Unit	Outdoor Unit	Indoor Unit	Outdoor Unit
Type					Wall-mounted		Wall-mounted	
Performance	Capacity	Cooling		kW (Low / Std / Max)	0.99 / 2.50 / 3.30		0.99 / 3.30 / 4.00	
		Heating			1.20 / 3.30 / 4.50		1.40 / 4.00 / 5.00	
	Running Frequency	Cooling		Hz (Low / Std / Max)	20 / 51 / 73		25 / 67 / 89	
		Heating			25 / 64 / 90		30 / 76 / 102	
	Dehumidifying			ℓ/h	1.3		1.6	
	Air Volume	Cooling		m^3/min (H/M/L)	7.2/5.8/4.0	30	8.5/6.9/5.2	30
		Heating			7.8/6.6/4.6	29	9.2/7.5/6.0	29
	Noise	Cooling		dB (H/L)	43/25	53	43/25	53
		Heating			43/25	53	43/25	53
	Energy Efficiency Ratio	Cooling		W/W (Std)	3.40		3.21	
		Heating			3.63		3.61	
	Power			ph-V-Hz	1-220/240-50		1-220/240-50	
Power	Power Consumtion	Cooling		W (Low / Std / Max)	270 / 735 / 1,100		330 / 1,028 / 1,500	
		Heating			300 / 910 / 1,400		330 / 1,108 / 1,550	
	Operating Current	Cooling		A (Low / Std / Max)	1.6 / 3.5 / 5.1		1.9 / 4.9 / 6.8	
		Heating			1.7 / 4.4 /6.6		1.9 / 5.2 / 7.1	
	Power Factor	Cooling		% (Low / Std / Max)	75 / 90 / 95		75 / 90 / 95	
		Heating			75 / 90 / 95		75 / 90 / 95	
	Power Cord	Length		m	2		2	
		Number of Core Wire			3		3	
		Capacity		A	10		10	
Size	Outer Dimension	W x H x D		mm	825 x 285 x 189	720 x 548 x 265	825 x 285 x 189	720 x 548 x 265
	Weight (Net)			kg	7.8	31.5	8.4	31.5
	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, G4C090LUBER		Rotary, G4C090LUBER	
		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	Resin / Steel	Resin / Steel	Resin / Steel
			Rated Output	W	27	50	27	50
Heat Exchanger					2 Row 10 Step	1 Row 20 Step	2 Row 14 Step	1 Row 20 Step
Refrigerant Control Unit					Check Valve, Capillary		Check Valve, Capillary	
Freezer Oil Capacity				cc	320		320	
Refrigerant to Change (R410A)				g	750		850	
Protection Device (OLP)					None		None	
Cooling Test Condition					Indoor Unit : DB27℃ WB 19℃		Outdoor Unit : DB35℃ WB 24℃	
Heating Test Condition					Indoor Unit : DB20℃ WB 15℃		Outdoor Unit : DB7℃ WB 6℃	
Operation Conditon Range		Cooling		Indoor	16℃ ~ 32℃		16℃ ~ 32℃	
				Outdoor	10℃ ~ 43℃		10℃ ~ 43℃	
		Heating		Indoor	-10℃ ~ 30℃		-10℃ ~ 30℃	
				Outdoor	-10℃ ~ 24℃		-10℃ ~ 24℃	

2-3 The Comparative Specifications of Product

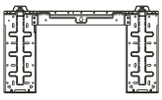
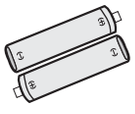
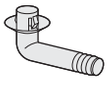
Item		Development Model	Comparative Model
		AQV09FAN	SH09BWHA
Design	Indoor Unit		
	Outdoor Unit		
Net Weight	Indoor Unit	7.8kg	8.4kg
	Outdoor Unit	31.5kg	33.2kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	825 x 285 x 189mm	825 x 285 x 189mm
	Outdoor Unit	720 x 548 x 265mm	720 x 548 x 265mm
Noise	Indoor Unit	43dB↓	40dB↓
	Outdoor Unit	53dB↓	52dB↓
Air Purifying System	Filter	Silver Nano Evaporator Catechin Filter Deodorizing Filter	Silver Nano Evaporator Catechin Filter Deodorizing Filter
Indoor Display		Three Color LED Display	Three Color LED Display

The Comparative Specifications of Product(cont.)

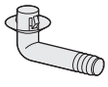
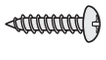
Item		Development Model	Comparative Model
		AQV12FAN	SH12BWHA
Design	Indoor Unit		
	Outdoor Unit		
Net Weight	Indoor Unit	8.4kg	8.4kg
	Outdoor Unit	31.5kg	33.2kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	825 x 285 x 189mm	825 x 285 x 189mm
	Outdoor Unit	720 x 548 x 265mm	720 x 548 x 265mm
Noise	Indoor Unit	43dB↓	41dB↓
	Outdoor Unit	53dB↓	52dB↓
Air Purifying System	Filter	Silver Nano Evaporator Catechin Filter Deodorizing Filter	Silver Nano Evaporator Catechin Filter Deodorizing Filter
Indoor Display		Three Color LED Display	Three Color LED Display

2-4 Accessory and Option Specifications

2-4-1 Accessories

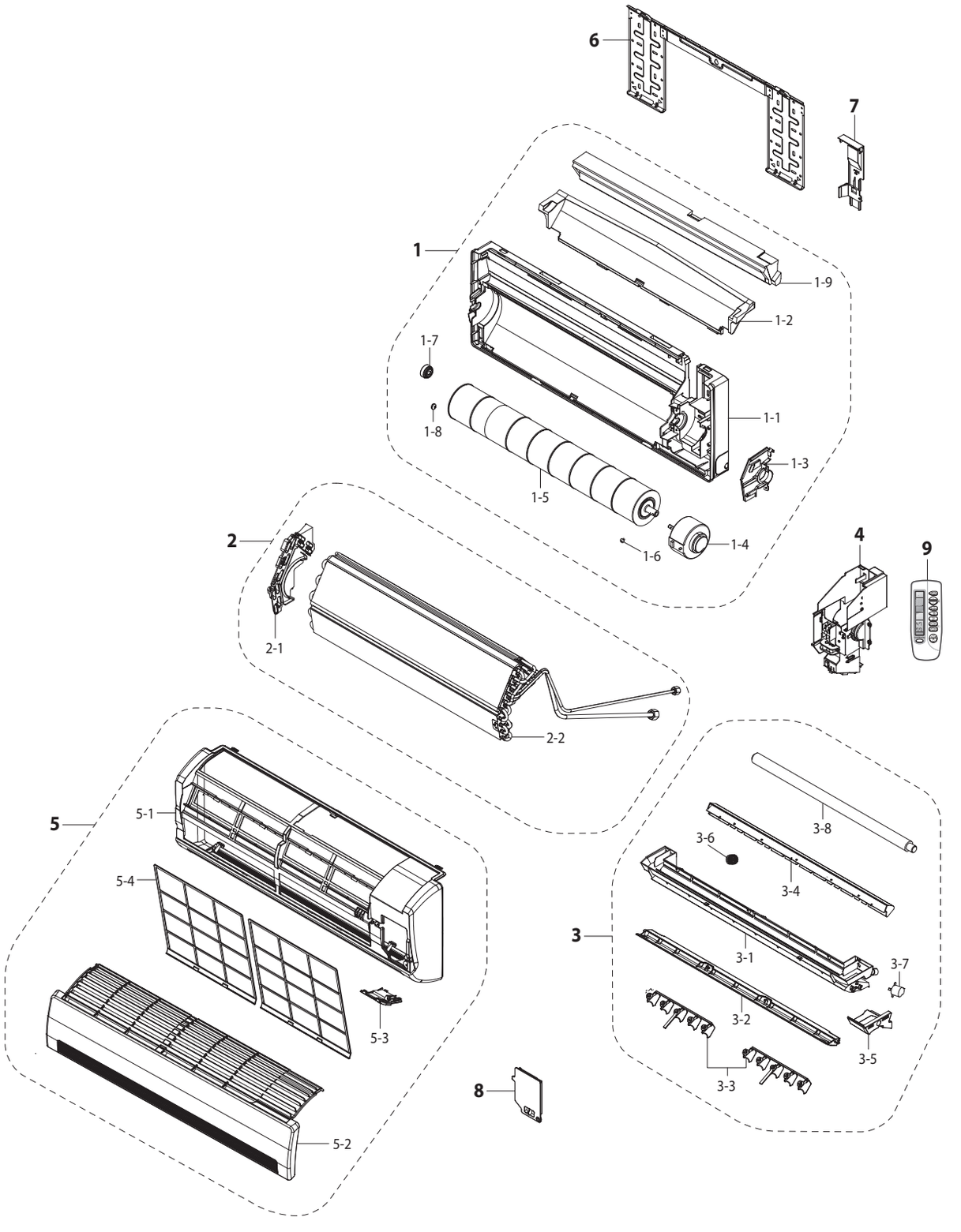
Item	Descriptions	Code-No.	Q'TY	Remark
	Ass'y Plate Hanger	DB97-02851B	1	Indoor Unit
	Remote Control	DB93-03170S	1	
	Batteries for Remote Control	DB47-90024A	2	
	User's Manual	DB98-26678A	1	
	Installation Manual	DB98-26679A	1	
	3-wire Power Cable	DB93-01549F (Europe) DB93-02431A (Australia)	1	
	4-wire Assembly Cable	DB39-01092B (Only Australia)	1	Outdoor Unit
	Drain Plug	DB67-20011A	1	
	Rubber Leg	DB73-00182A	4	
	Assembly Pipe, ø6.35mm	DB96-10453B	1	Accessory Box
	Assembly Pipe, ø9.52mm	DB96-10453F	1	

Accessories(cont.)

Item	Descriptions	Code-No.	Q'TY	Remark
	PE T3 Foam Tube Insulation	DB72-50165A	1	Accessory Box
	Vinyl Tape, Width 50mm	DB72-00459A	1	
	Drain Plug	DB67-20011A	1	
	Rubber Leg	DB73-00182A	4	
	Pipe Clamps A	DB39-20224A	3	
	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	

5. Exploded Views and Parts List

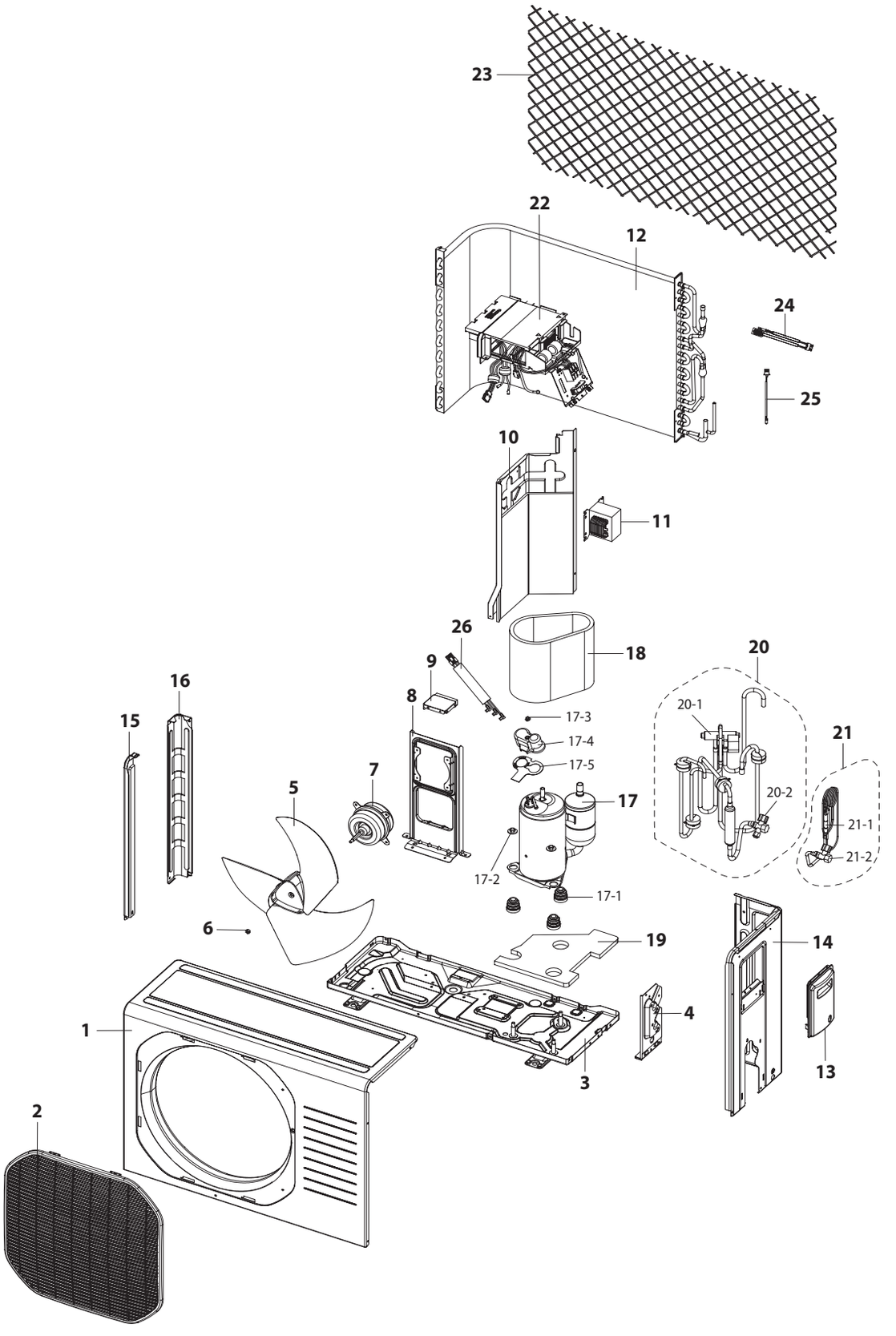
5-1 Indoor Unit



■ Parts List

No.	Code No.	Description	Specification	Q'TY		SA/SNA
				AQV09FAN	AQV12FAN	
1	DB94-00454B	ASS'Y BACK BODY	ASS'Y	-	1	**SA**
	DB94-00454D	ASS'Y BACK BODY	ASS'Y	1	-	**SA**
1-1	DB61-01632A	BACK BODY	HIPS	1	1	SNA
1-2	DB69-00834A	CUSHION BACK BODY	EPS	1	1	SNA
1-3	DB96-03149A	ASS'Y SUPPORT EVAP RH	HIPS	-	1	**SA**
	DB96-03149B	ASS'Y SUPPORT EVAP RH	HIPS	1	-	**SA**
1-4	DB31-00219A	MOTOR IN	220-240V~,50/60Hz,Class E	1	1	**SA**
1-5	DB94-00456A	ASS'Y CROSS FAN	OD92xL635	1	1	**SA**
1-6	DB97-02075A	ASS'Y BOLT SPECIAL	ASS'Y	1	1	SNA
1-7	DB94-00455A	ASS'Y RUBBER BEARING	ASS'Y	1	1	SNA
1-8	DB94-40007A	ASS'Y BEARING MOTOR	BEARING	1	1	**SA**
1-9	DB69-00833A	CUSHION EVAP UP	EPS	1	-	**SA**
2	DB96-06862A	ASS'Y EVAP TOTAL	ASS'Y	1	-	**SA**
	DB96-06716A	ASS'Y EVAP TOTAL	ASS'Y	-	1	**SA**
2-1	DB63-00850A	COVER BEARING	ABS	1	-	SNA
2-2	DB96-03171F	ASS'Y EVAP	ASS'Y	1	-	SNA
	DB96-06563A	ASS'Y EVAP	ASS'Y	-	1	SNA
3	DB94-00457H	ASS'Y TRAY DRAIN	ASS'Y	1	1	**SA**
3-1	DB63-00848A	TRAY DRAIN	ABS	1	1	SNA
3-2	DB61-01635A	BLADE-H	HIPS	1	1	**SA**
3-3	DB61-01636A	BLADE-V	PP	1	1	**SA**
3-4	DB63-00849A	TRAY STABILIZER	ABS	1	1	SNA
3-5	DB69-00839A	CUSHION EPS TRAY RH	EPS	3	3	**SA**
3-6	DB73-00180A	RUBBER CAP DRAIN	GUM-EPM	3	3	SNA
3-7	DB95-20138A	ASS'Y MOTOR STEPPING	220-240V~,50/60Hz,Class E	1	1	**SA**
3-8	DB94-00458B	ASS'Y DRAIN HOSE	ASS'Y	1	1	**SA**
4	DB93-04259A	ASS'Y CONTROL IN	ASS'Y	1	1	**SA**
5	DB92-00853D	ASS'Y PANEL FRONT	ASS'Y	1	1	**SA**
5-1	DB64-00989A	PANEL FRONT	HIPS	1	1	**SA**
5-2	DB92-00848D	ASS'Y GRILLE AIR INLET	ASS'Y	1	1	**SA**
5-3	DB97-02064A	ASS'Y COVER DISPLAY	ASS'Y	1	1	**SA**
5-4	DB63-01951A	GUARD AIR FILTER	PP	1	1	SNA
6	DB97-02851B	ASS'Y PLATE HANGER	ASS'Y	1	-	SNA
7	DB61-01638A	HOLDER PIPE	PS	1	1	SNA
8	DB63-00844A	COVER TERMINAL	ABS	1	1	**SA**
9	DB93-03170S	ASS'Y REMOCON	ARH-463	1	1	**SA**

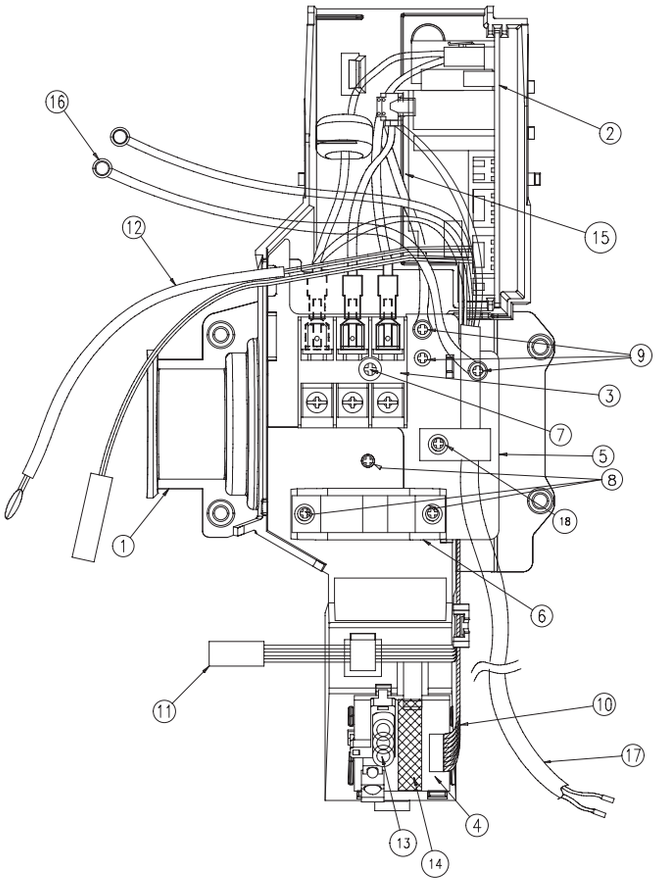
5-2 Outdoor Unit



■ Parts List

No.	Code No.	Description	Specification	Q'TY		SA/SNA
				AQV09FAX	AQV12FAX	
1	DB90-01581F	ASS'Y CABI FRONT	ASS'Y,SC-94445T	1	1	**SA**
2	DB63-00847A	GUARD FAN	HIPS,SC-90073R	1	1	**SA**
3	DB90-01330L	ASS'Y BASE OUT	ASS'Y,SC-94445T	1	1	**SA**
4	DB99-00401A	ASS'Y BRACKET VALVE	ASS'Y,SC-94445T	1	1	**SA**
5	DB67-00397A	FAN-PROPELLER	AS+G/F20%,ø400	1	1	**SA**
6	DB60-30020A	NUT-HEXAGON	M6	1	1	**SA**
7	DB31-00220B	MOTOR FAN OUT	AC Motor	1	1	**SA**
8	DB61-01644A	BRACKET MOTOR	SGCC-M	1	1	**SA**
9	DB97-02225A	ASS'Y SUPPORT PLATE B/M	SGCC-M	1	1	**SA**
10	DB94-01180A	ASS'Y PARTITION	ASS'Y,SGCC-M	1	1	**SA**
11	DB27-00041A	REACTOR	PPS,5mH,10A	1	1	**SA**
12	DB96-06562A	ASS'Y COND UNIT	ASS'Y	1	-	**SA**
	DB96-06562B	ASS'Y COND UNIT	ASS'Y	-	1	**SA**
13	DB63-00853A	COVER CONTROL	PP,SC-90073R	1	1	**SA**
14	DB90-01546G	ASS'Y CABINET SIDE RH	ASS'Y,SC-94445T	1	1	**SA**
15	DB64-01687A	CABINET SIDE LF A	SECC-P,SC-94445T	1	1	**SA**
16	DB64-01688A	CABINET SIDE LF B	SECC-P,SC-94445T	1	1	**SA**
17	G4C090LUBER	COMPRESSOR	ROTARY,BLDC	1	1	SNA
17-1	DB63-00763A	GROMMET ISOLATOR	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	DB63-01044A	FELT COMP BASE	FELT+PVC Sheet	1	1	**SA**
20	DB99-00848A	ASS'Y VALVE 4WAY	ASS'Y	1	1	**SA**
20-1	DB62-02286A	4WAY VALVE	R410A,SANHUA	1	1	SNA
20-2	DB62-02284A	VALVE SERVICE	R410A,SANHUA,3/8"	1	1	SNA
21	DB99-00849A	ASS'Y VALVE CHECK	ASS'Y	1	-	**SA**
	DB99-00850A	ASS'Y VALVE CHECK	ASS'Y	-	1	**SA**
21-1	DB62-02324B	CHECK VALVE	R410A,SANHUA	1	1	SNA
21-2	DB62-02283A	VALVE SERVICE	R410A,SANHUA,1/4"	1	1	SNA
22	DB93-04265A	ASS'Y CONTROL OUT	ASS'Y	-	1	**SA**
	DB93-04265B	ASS'Y CONTROL OUT	ASS'Y	1	-	**SA**
23	DB61-02891C	GUIDE SCREEN	P.E.H 100%	1	1	**SA**
24	DB32-00176E	THERMISTOR OUT/DIS	ASS'Y	1	1	**SA**
25	DB32-00121B	THERMISTOR COND	ASS'Y	1	1	**SA**
26	DB93-04489A	CONNECT WIRE COMP	ASS'Y	1	1	**SA**

5-3 Ass'y Control In : DB93-04259A



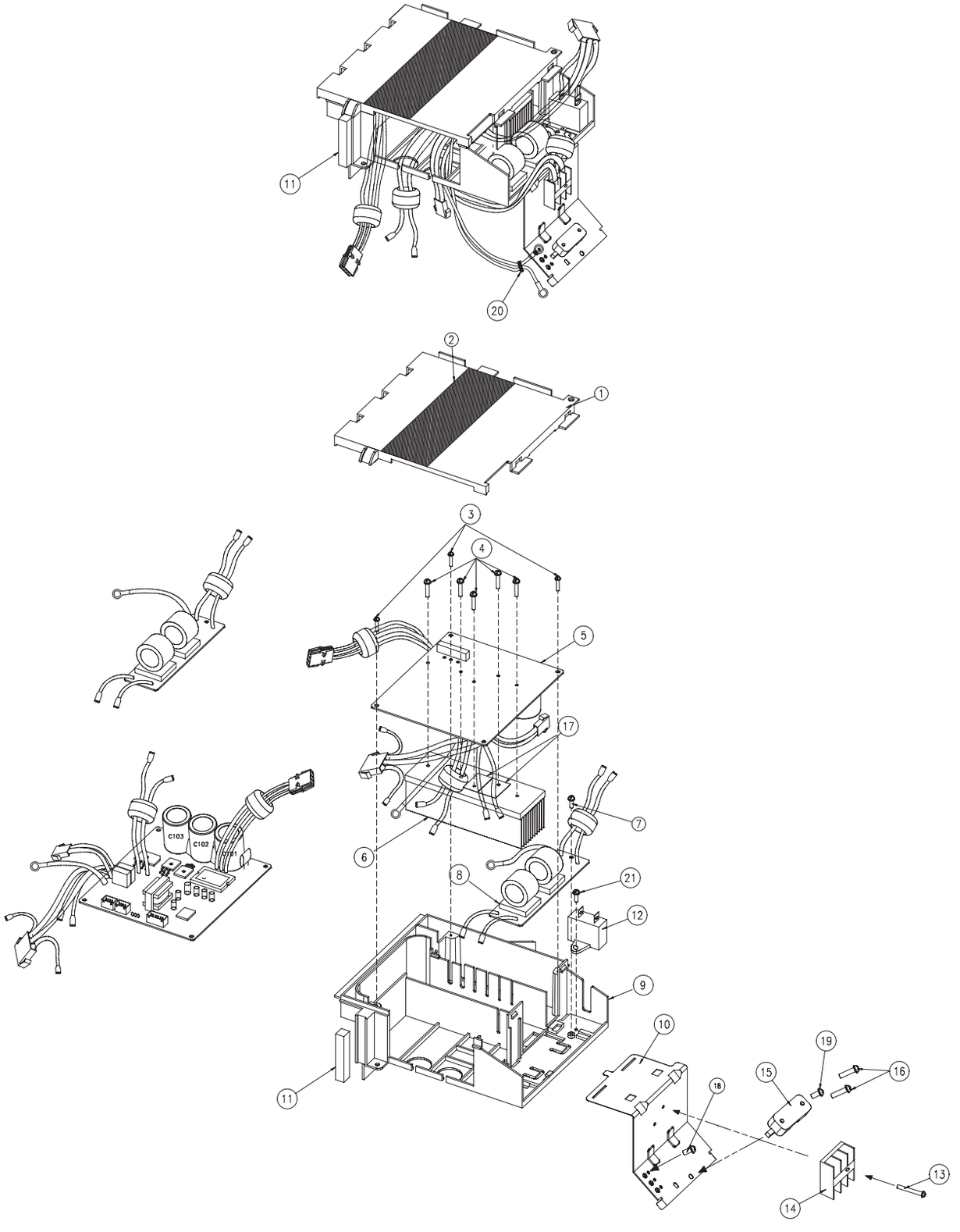
■ **Parts List**

No.	Code No.	Description	Specification	Q'TY	SA/SNA
1	DB61-01637A	CASE CONTROL-IN	SS-P/J,ABS,-,-,-,BLK,SSEC	1	**SA**
2	DB93-04258A	ASS'Y PCB MAIN-IN	FORCE,ASS'Y PCB MAIN	1	**SA**
3	DB65-00181B	TERMINAL BLOCK-ASS'Y	AQV12FA,12K_In	1	SNA
4	DB93-03117A	ASS'Y PCB SUB	ASK(P)13WHWE,WW1,TSE,GRN/GRN/RED	1	**SA**
5	DB61-01639A	PLATE-CONTROL IN	-,SGCC-M,T1.0,-,160,-,SSEC,SS-PJT	1	SNA
6	DB61-01097A	HOLDER-WIRE CLAMP	-,ABS,-,-,-,BLK,V21-PJ	1	**SA**
7	6001-000929	SCREW-MACHINE	PH,+,-,M3,L22,ZPC(WHT),SWRCH18A,UP,-	1	SNA
8	6001-001054	SCREW-MACHINE	TH,+,-,M4,L10,ZPC(WHT),SM20C,-,-	3	SNA
9	DB93-04685A	SCREW-SPECIAL	TH, M4xL8	-	SNA
10	DB93-04685A	ASS'Y CONNECTOR WIRE	FORTE1-PJT,UL1007 26AWG	1	SNA
11	DB93-04487A	ASS'Y CONNECTOR WIRE	FORTE-PJT,UL1007 28AWG	1	SNA
12	DB32-00020A	THERMISTOR-WIRE ASS'Y	103AT,-,-,-20~+100,-,-,-,-,-	1	SNA
13	DB63-00851A	COVER-DRAIN	SS-PJT,ABS,-,-,-,-,-,NO,SSEC	1	SNA
14	DB73-00242B	RUBBER-BAND	WW2-P/J,SILICON RUBBER,-,-,-,BLACK,-,-,SSEC,L120xW15xT0.3	1	SNA
15	DB39-00514B	CONNECTOR WIRE EARTH	YEL/GRN	-	SNA
16	DB39-00148A	PLATE EARTH WIRE	YEL/GRN	-	SNA
17	DB93-01549F	ASS'Y-POWER CORD	MID,E,CB	1	**SA**
18	6001-000725	SCREW-MACHINE	TH,+,-,M4,L16,ZPC(WHT),SWRCH18A,UP,-	3	SNA

MEMO

5-4 Ass'y Control Out

■ **AQV09FAX : DB93-04265B**
AQV12FAX : DB93-04265A

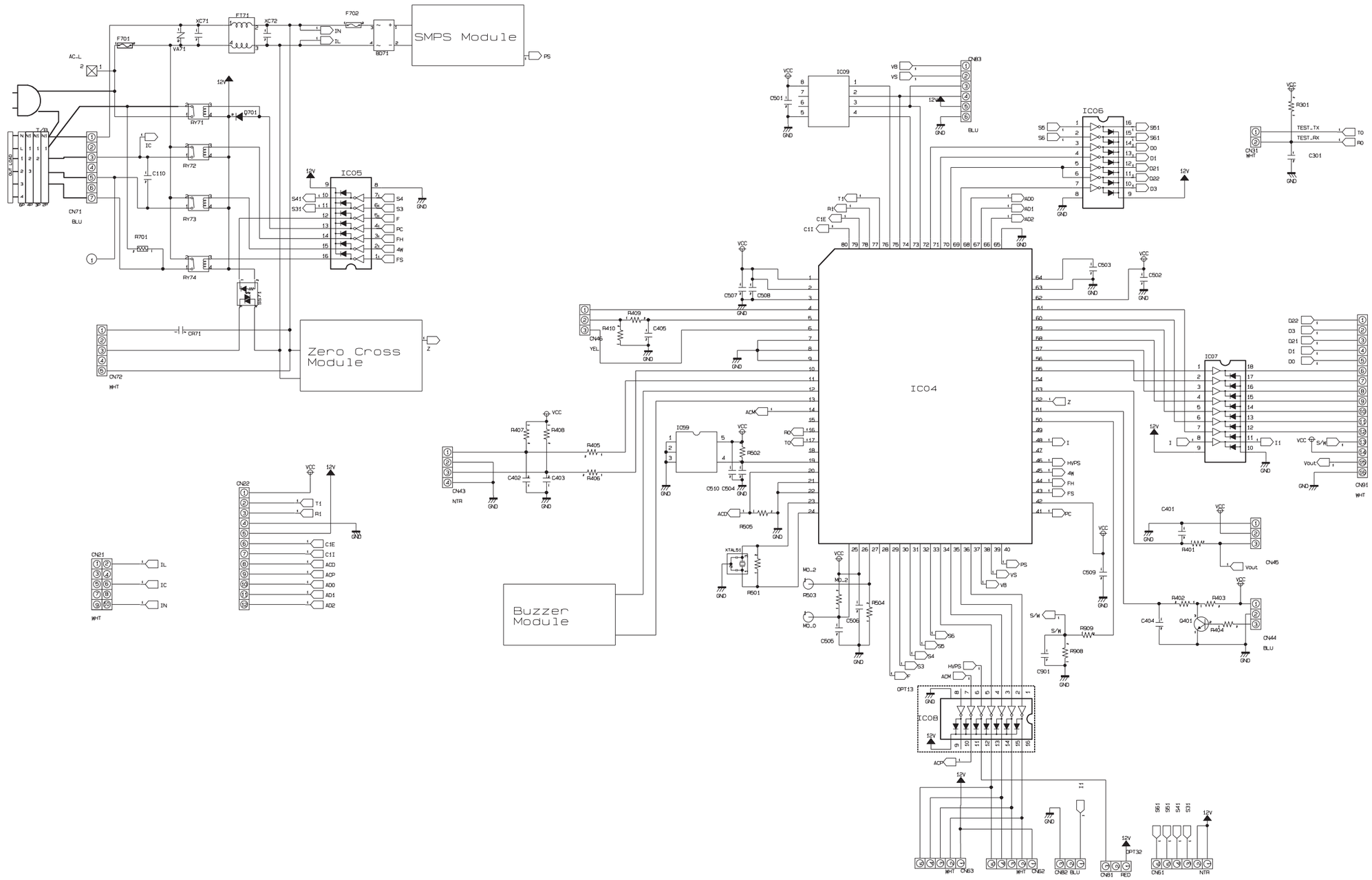


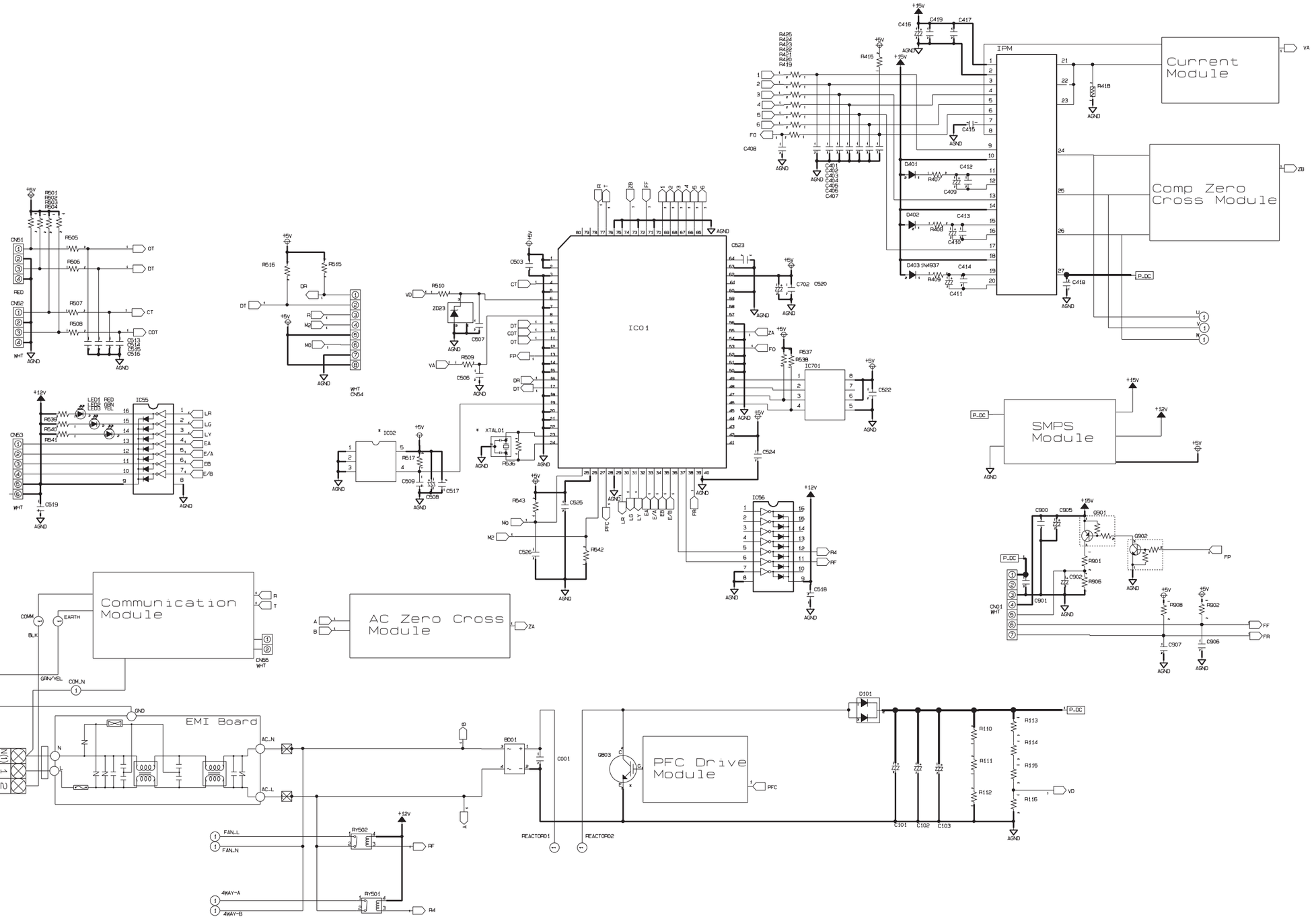
■ Parts List

No.	Code No.	Description	Specification	Q'TY		SA/SNA
				AQV09FAX	AQV12FAX	
1	DB61-02249A	CASE CONTROL-COVER	ABS V0,BLK	1	1	**SA**
2	DB62-04566A	SEAL-COVER CONTROL	FOAM-LEX,WHT	1	1	SNA
3	6002-000536	SCREW-TAPPING	M4xL8	3	3	SNA
4	DB91-00306A	ASS'Y-SCREW MACHINE	M3x16	5	5	SNA
5	DB93-04263A	ASS'Y PCB MAIN-OUT	FORTE,12K	-	1	**SA**
	DB93-04263B	ASS'Y PCB MAIN-OUT	FORTE,9K	1	-	**SA**
6	DB62-03155A	HEAT SINK	AL	1	1	**SA**
7	6002-000560	SCREW-TAPPING	M4,L10	1	1	SNA
8	DB93-04264A	ASS'Y PCB SUB	FORTE,EMI	1	1	**SA**
9	DB61-02250A	CASE CONTROL-BASE	ABS V0,BLK	1	1	**SA**
10	DB70-00547A	PLATE-CASE CONTROL	SGCC-M,-,T0.6	1	1	SNA
11	DB62-02332P	SEAL-CASE CONTROL	FOAM-PU(30),BLACK	1	1	SNA
12	2301-001377	C-FILM,LEAD-OTHER	1200nF,450V	1	1	**SA**
13	DB91-00309A	ASS'Y-SCREW TAPPING	M3xL20	1	1	SNA
14	DB65-00181B	TERMINAL BLOCK-ASS'Y	DAF-3P	1	1	SNA
15	DB61-00250A	HOLDER-WIRE CLAMP	ABS,BLK	1	1	SNA
16	6002-000527	SCREW-TAPPING	M4xL10	2	2	SNA
17	DB81-00547B	INSULATOR-KFR	MICA	1	1	SNA
18	6009-001001	SCREW-SPECIAL	M4xL8	1	1	SNA
19	6001-001054	SCREW-MACHINE	M4xL10	1	1	SNA
20	DB65-10088D	CABLE-TIE	NY-66	1	1	SNA
21	6002-000560	SCREW TAPPING	M4xL10	1	1	SNA

8. Schematic Diagram

8-1 Indoor Unit



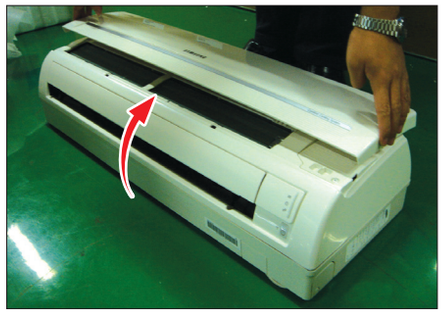
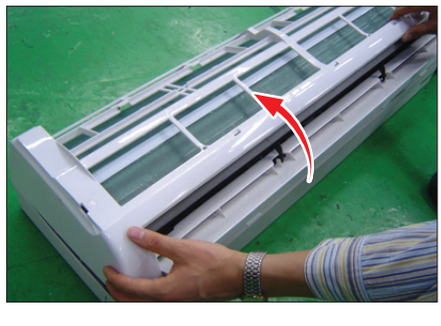


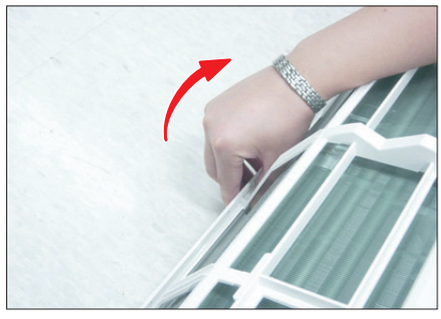
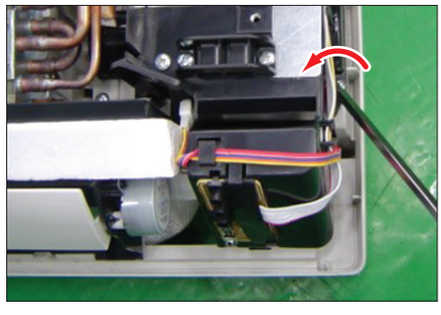
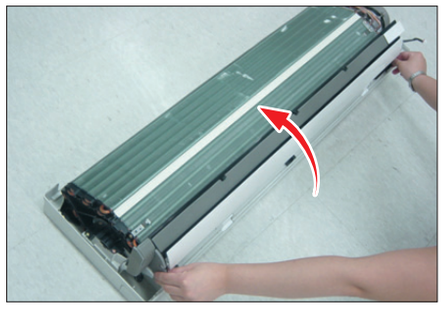
4. Disassembly and Reassembly

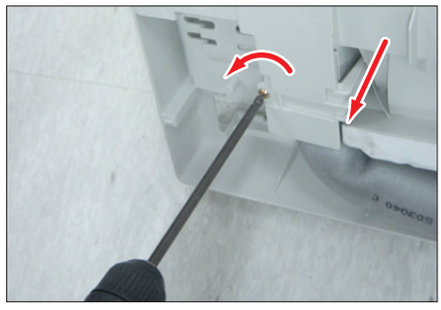
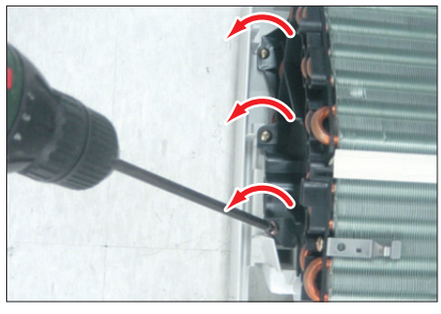
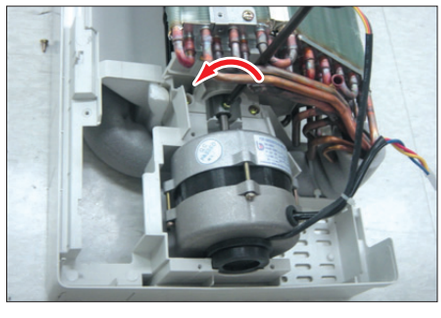
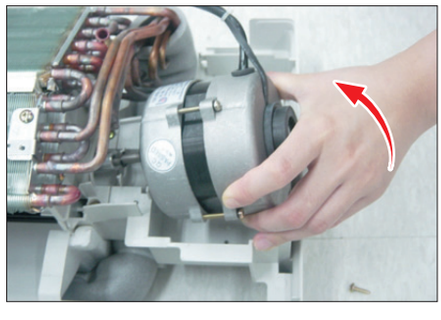
■ Necessary Tools

Item	Remark
+SCREW DRIVER	
MONKEY SPANNER	

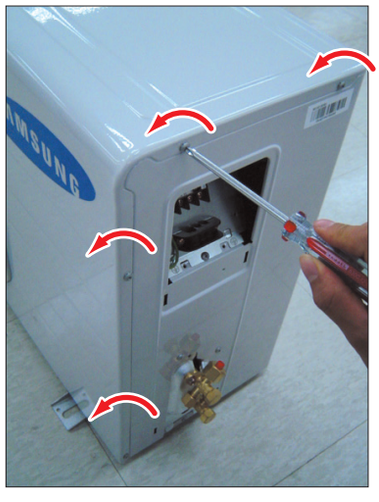
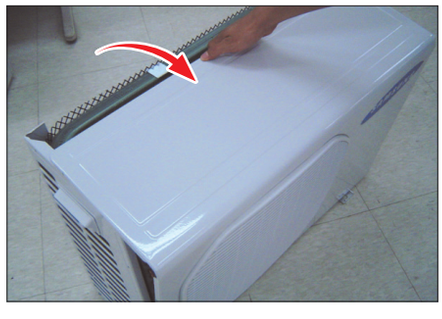
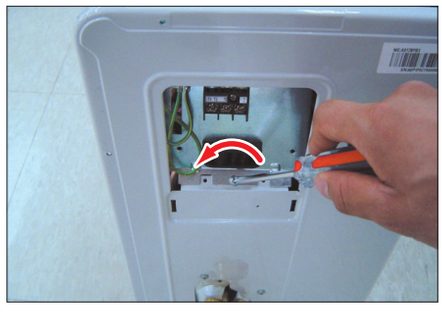
4-1 Indoor Unit

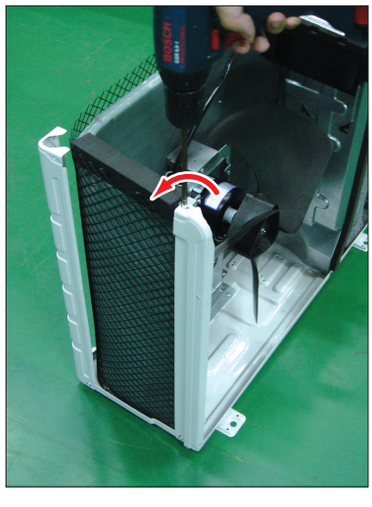
No	Parts	Procedure	Remark
1	Front Grille	1) Stop the air conditioner operation and shut off the main power.	
		2) Open the Front Grille by pulling right and left sides of the hook.	
		3) Loosen 1 of the right screw(CCW) and detach the Terminal Cover. (Use +Screw Driver.) 4) Detach the thermistor from the Front Grille.	
		5) Loosen 2 fixing screws(CCW) of Front Grille.	
		6) Unlock 3 hooks to fix Panel Front and Tray Drain. (Use +Screw Driver.)	

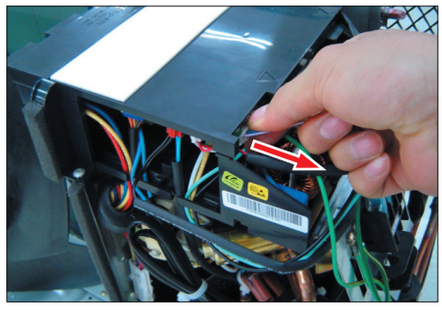
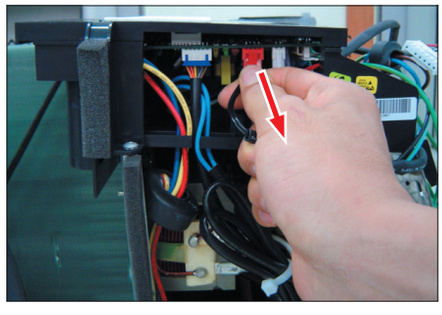
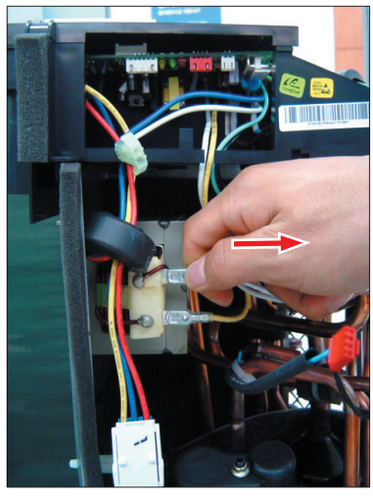
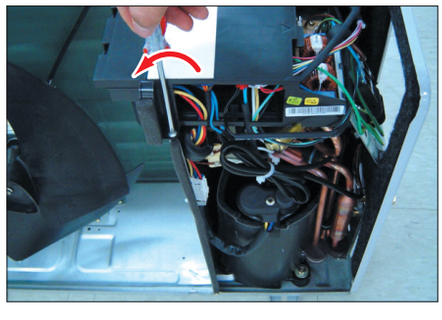
No	Parts	Procedure	Remark
		7) Unlock 3 hooks to fix Panel Front and Back-Body.	
2	Control-In (Main PCB)	1) Take all the connector of PCB upper side out. (Inclusion Power Cord) 2) Detach the outdoor unit connection wire from the Terminal Block. 3) Loosen 4 fixing screws(CCW) of Ass'y Control-In. (Use +Screw Driver.) ⚠ You can disassembly Ass'y Control In without evaporator disassembled.	
3	Tray Drain	1) Pull Tray Drain out from the Back Body.	

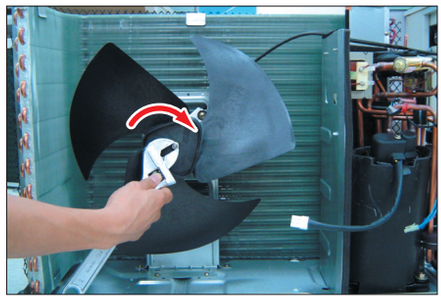
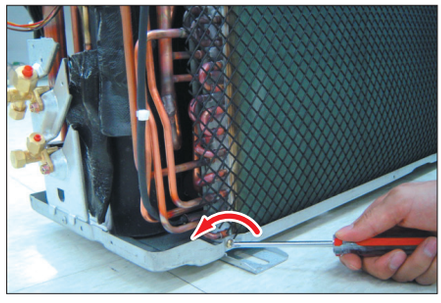
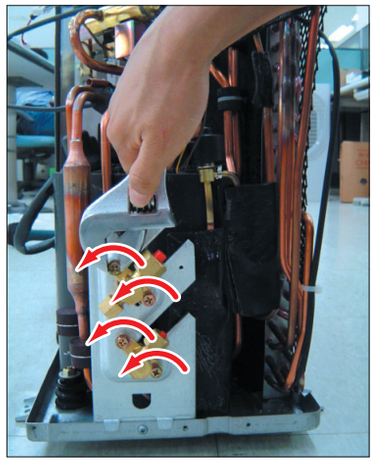
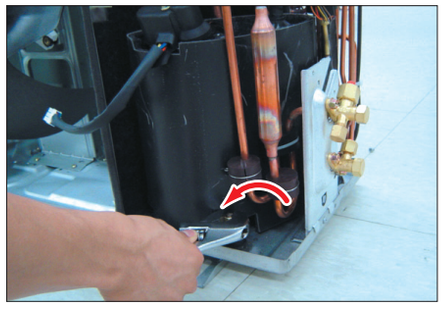
No	Parts	Procedure	Remark
4	Heat Exchanger	1) Loosen 2 fixing earth screws(CCW) of right side. (Use +Screw Driver.) 2) Detach the Connection Pipe. 3) Detach the Holder Pipe at the rear side.	
		4) Loosen the 4 fixing screws(CCW) of right and left side. (Use +Screw Driver.) 5) Lifting the Heat Exchanger up a little to push the up side for separation from the indoor unit. ⚠ First, check Comp. Down and then disconnect the connection pipes before you disassemble the Evaporator from indoor unit.	
5	Fan Motor & Cross Fan	1) Loosen the fixing screw(CCW). (Use +Screw Driver.) 2) Detach the Fan Motor from the Fan. 3) Detach the Fan From the left Holder Bearing.	 

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.)	

MEMO

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.

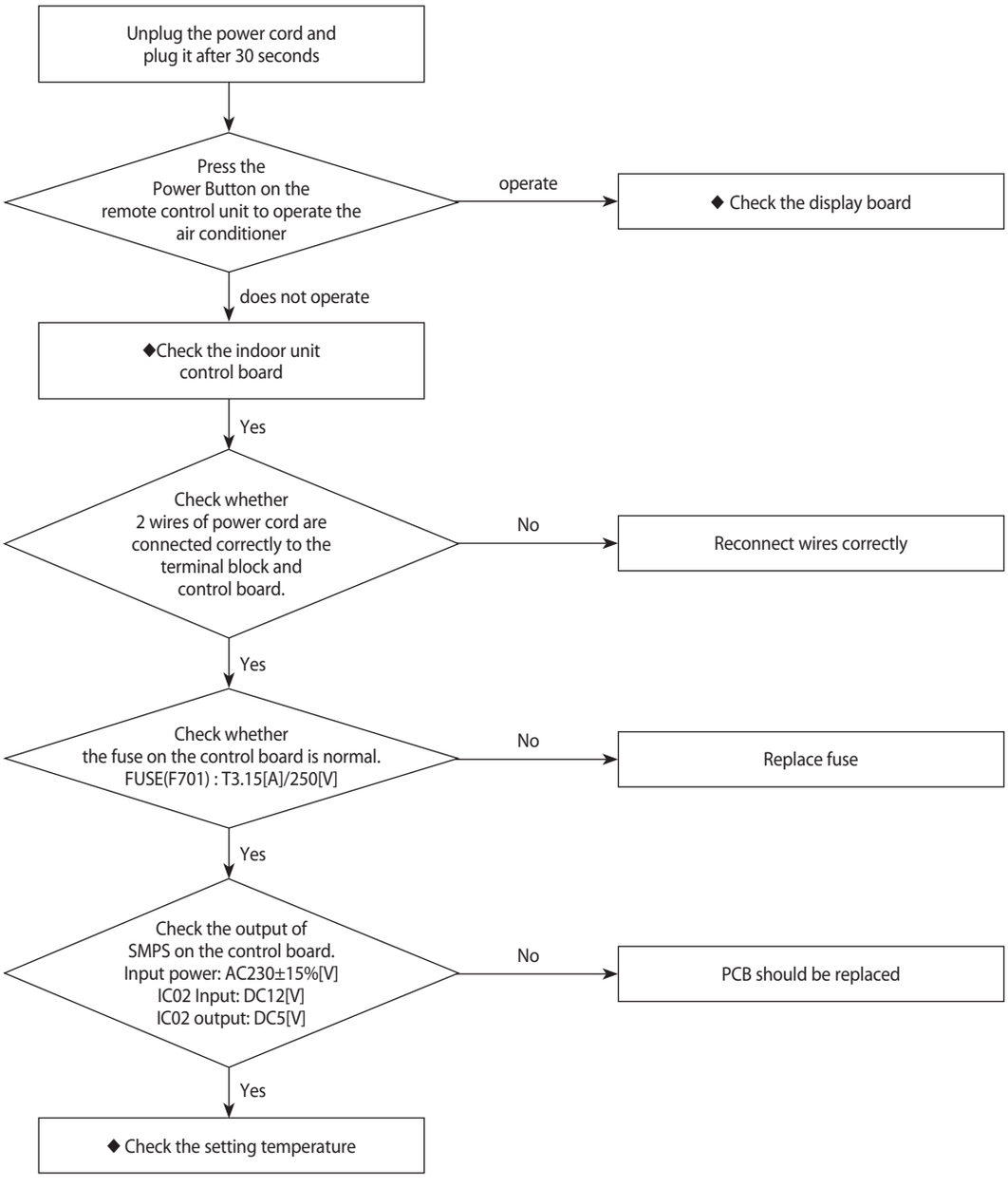
No	Operation of air conditioner	Explanation
1	The OPERATION indication LED(BLUE) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, 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)

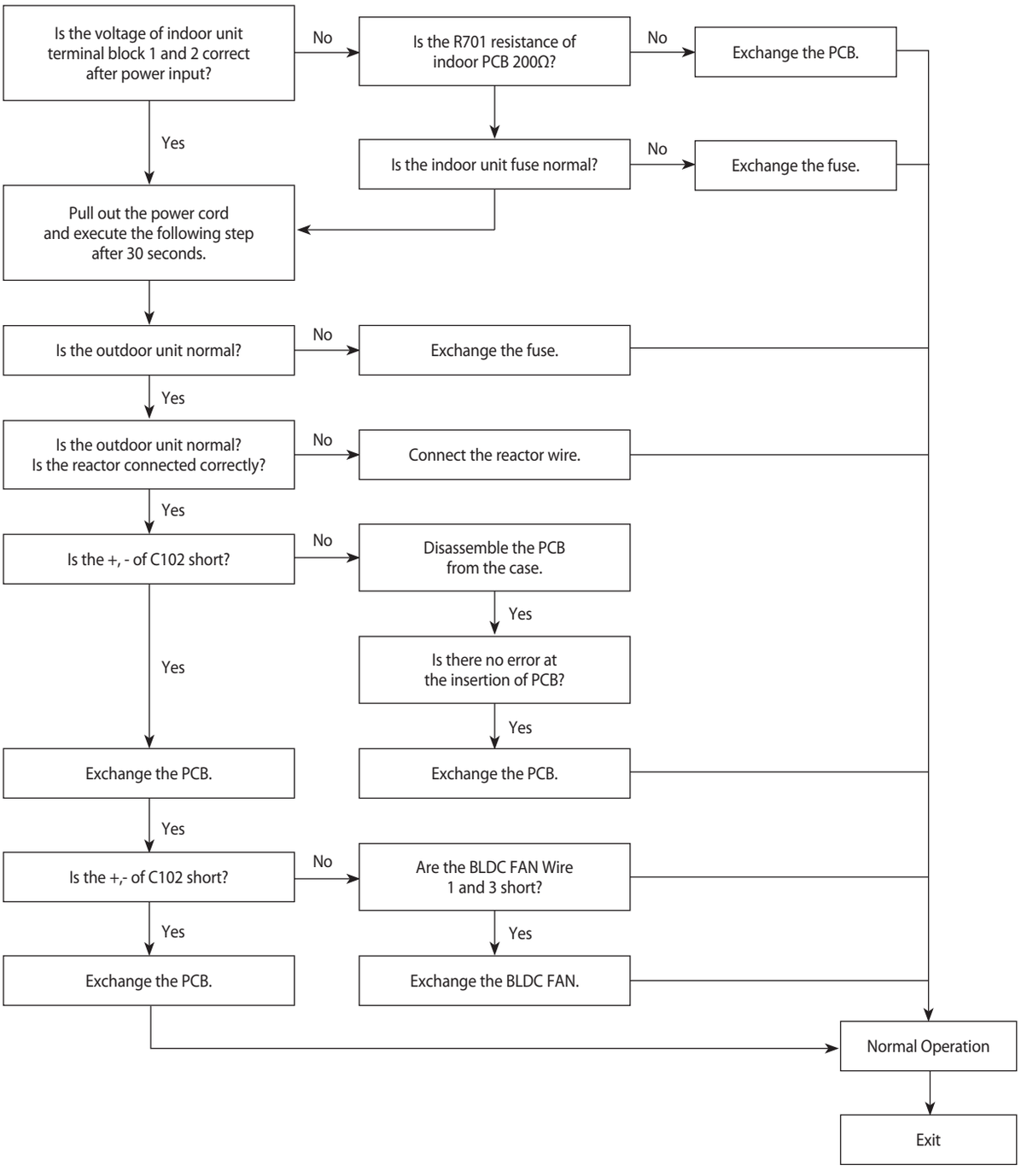
2. Troubleshooting procedure



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?

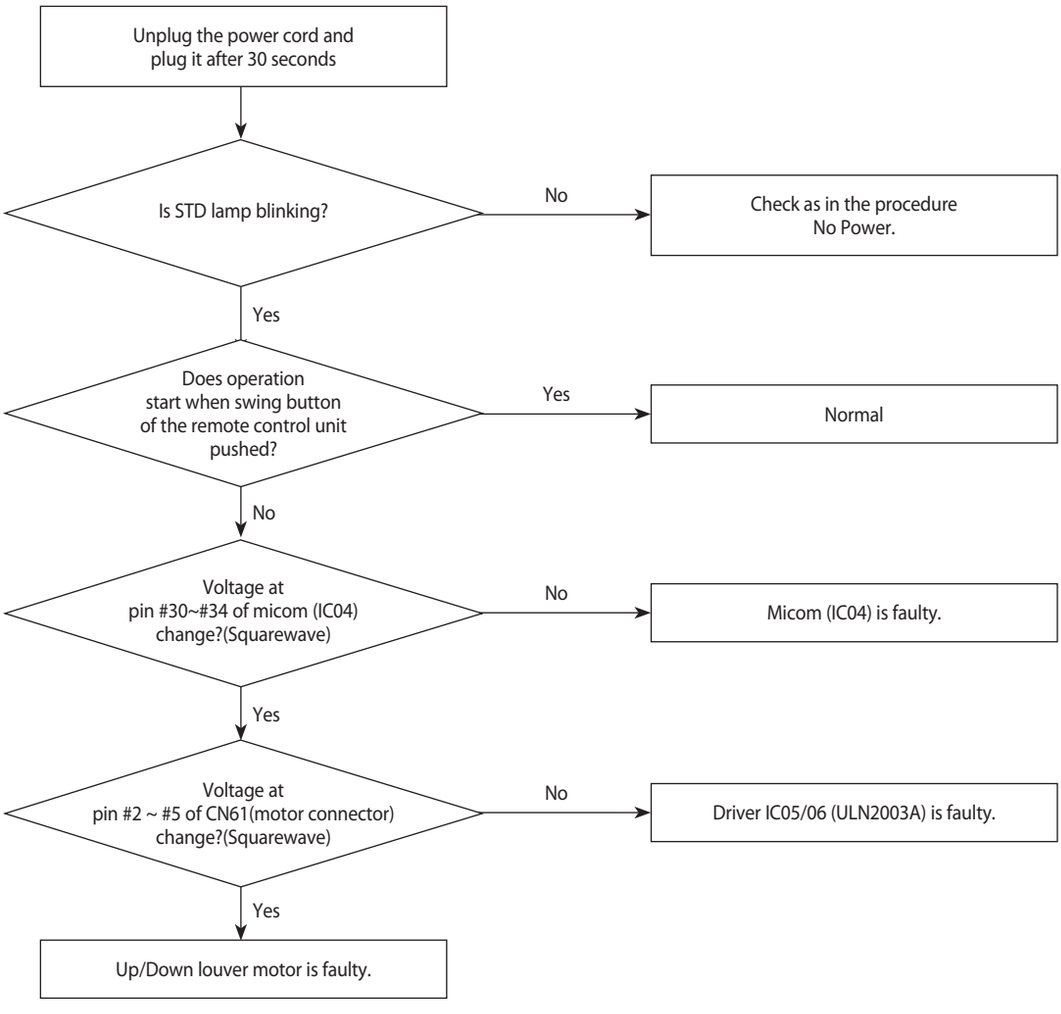
2. Troubleshooting procedure



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)?

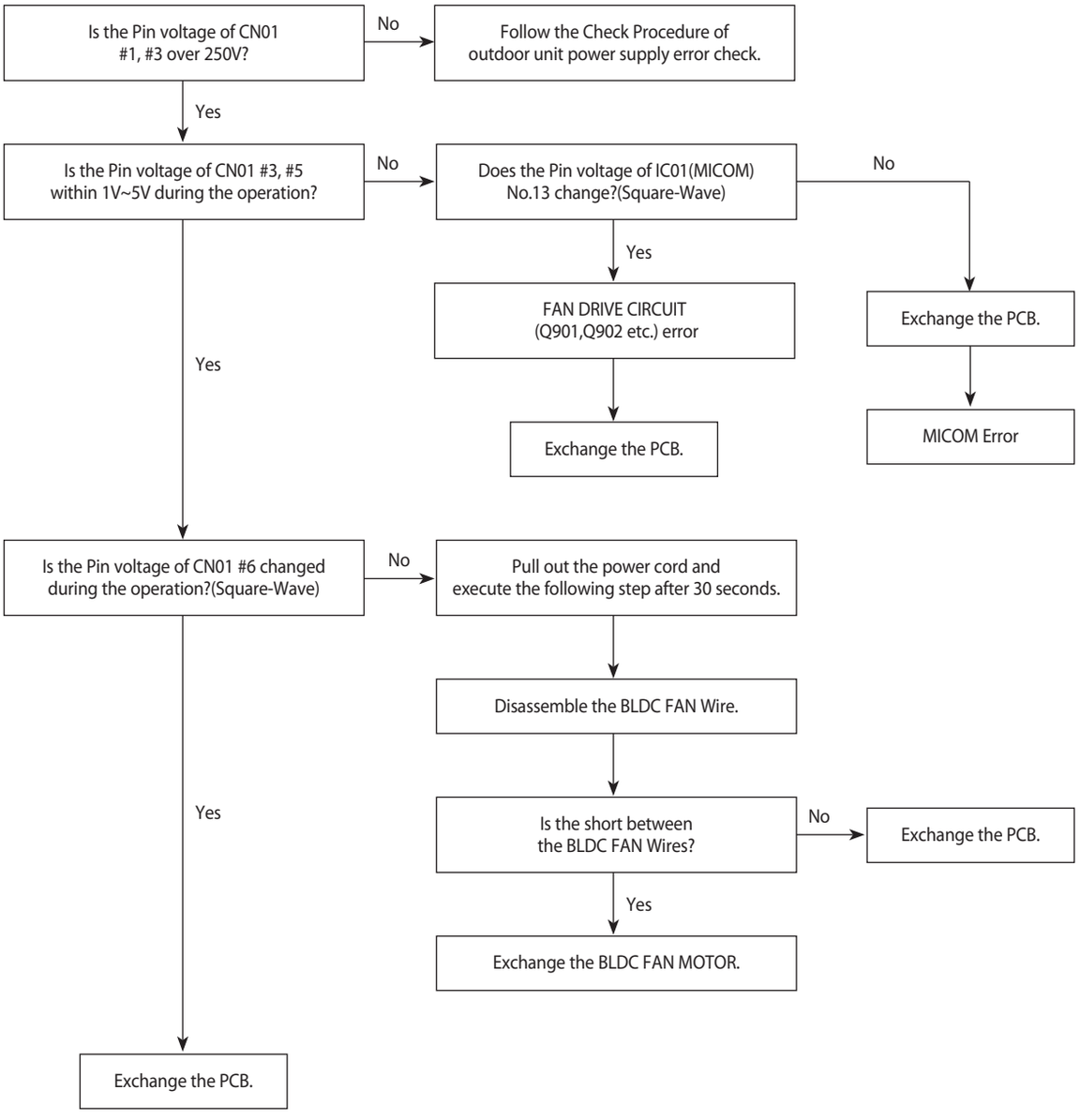
2. Troubleshooting procedure



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?

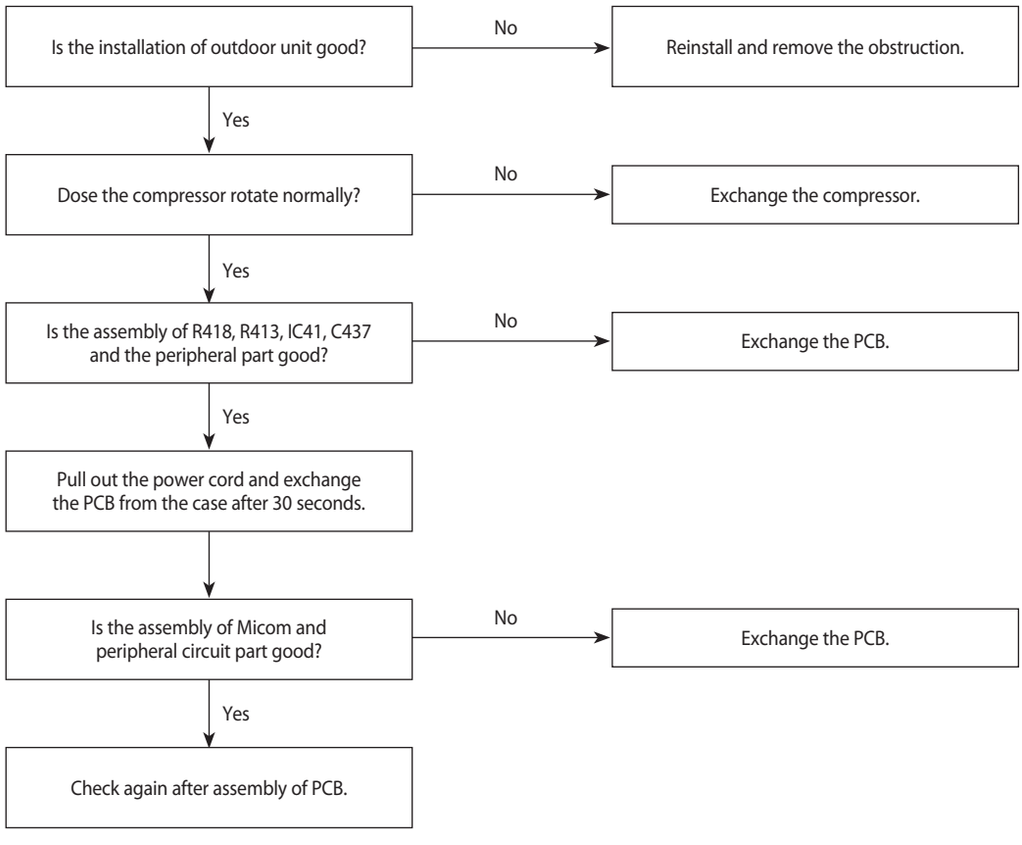
2. Troubleshooting procedure



12-2-5 Total current Trip error

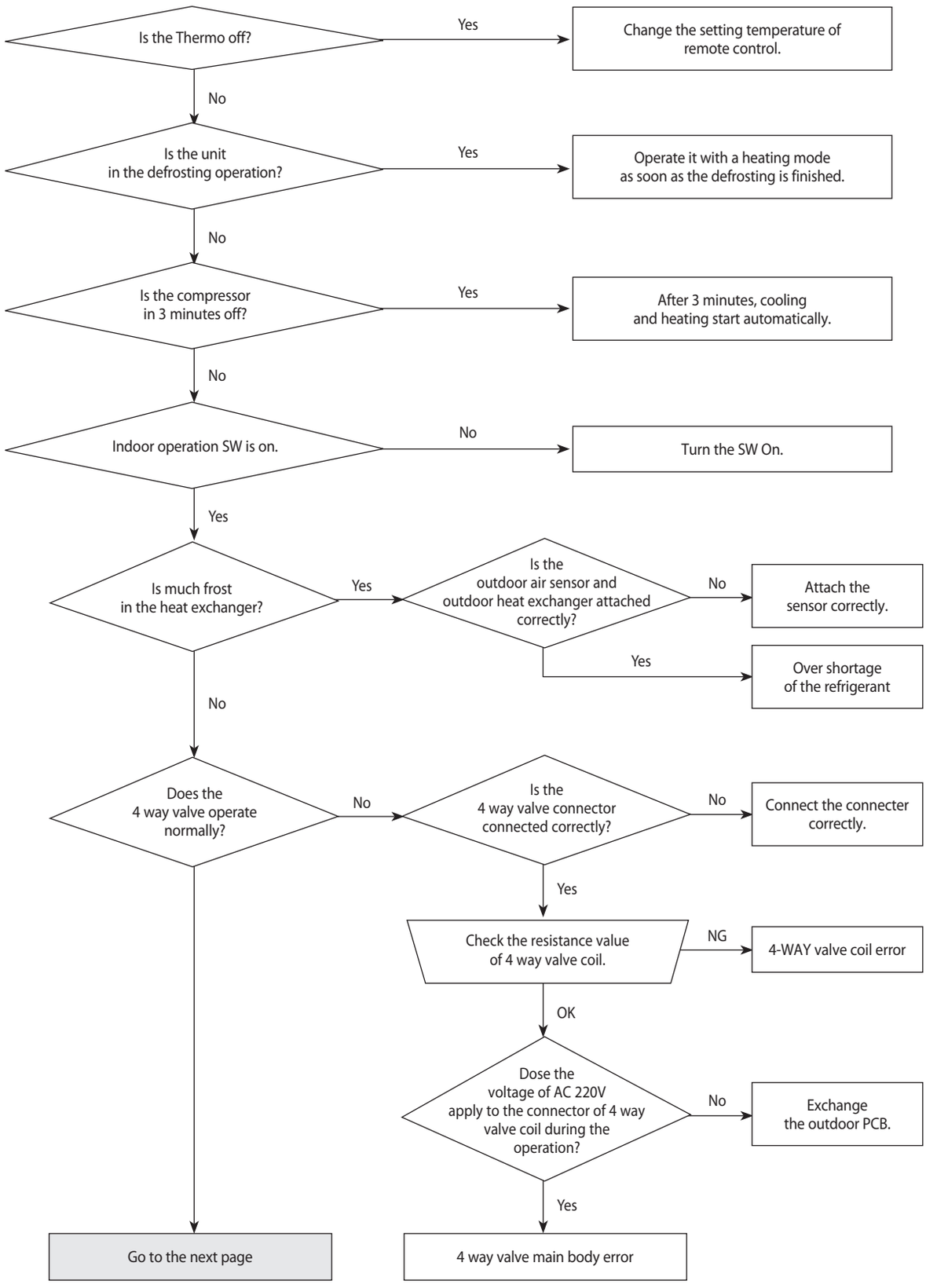
1. Checklist :
   1) Is the input power voltage proper?
   2) Is the refrigerant charged properly?
   3) Does the compressor rotate normally? (Reverse rotation, Locking etc.)
   4) Dose the outdoor fan operate normally? (Fan propeller loss, Motor error etc.)
   5) Is the installation condition of outdoor 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

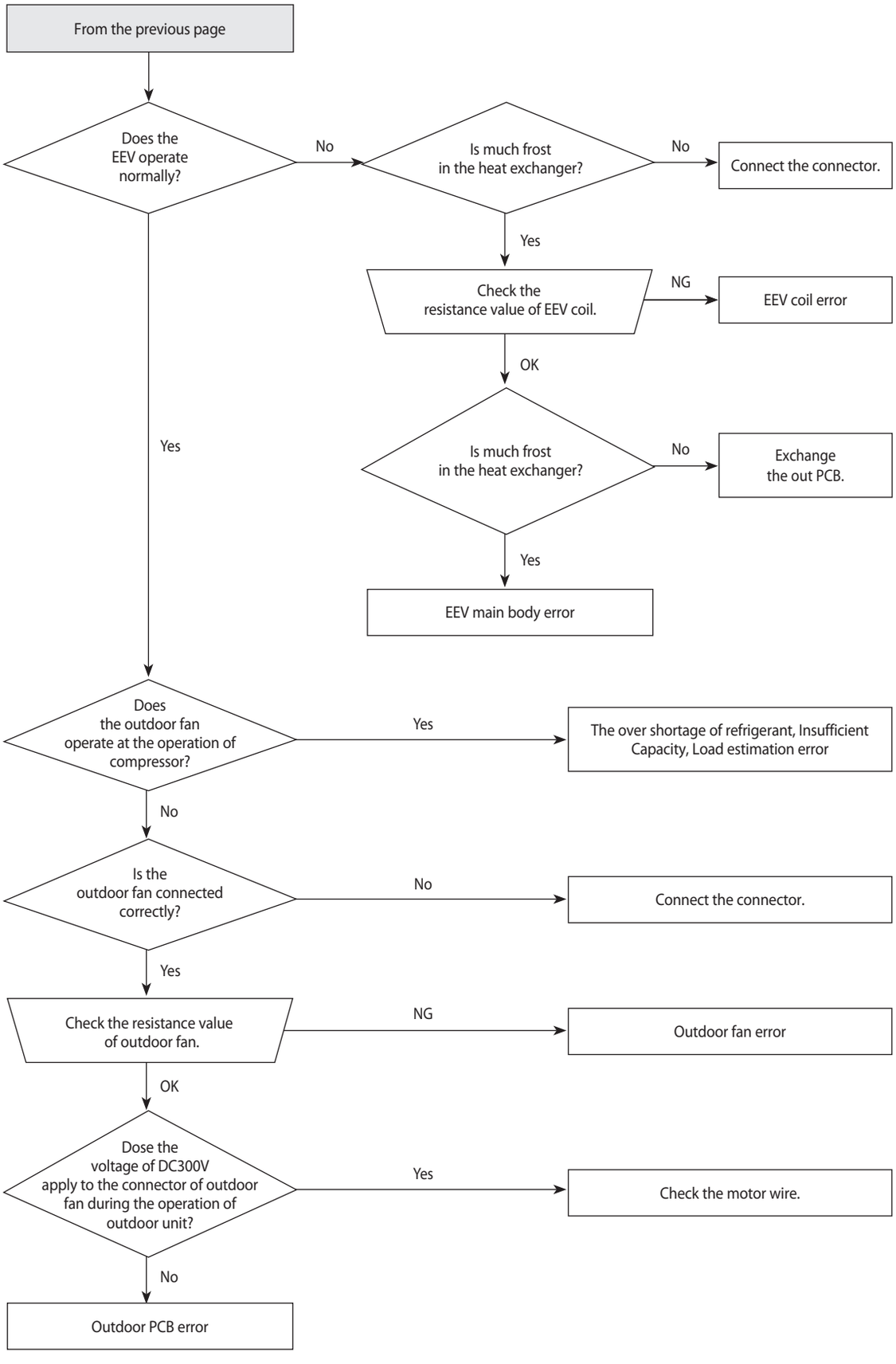


12-2-6 In case of heating at the cooling mode or cooling at the heating mode

1. Troubleshooting procedure



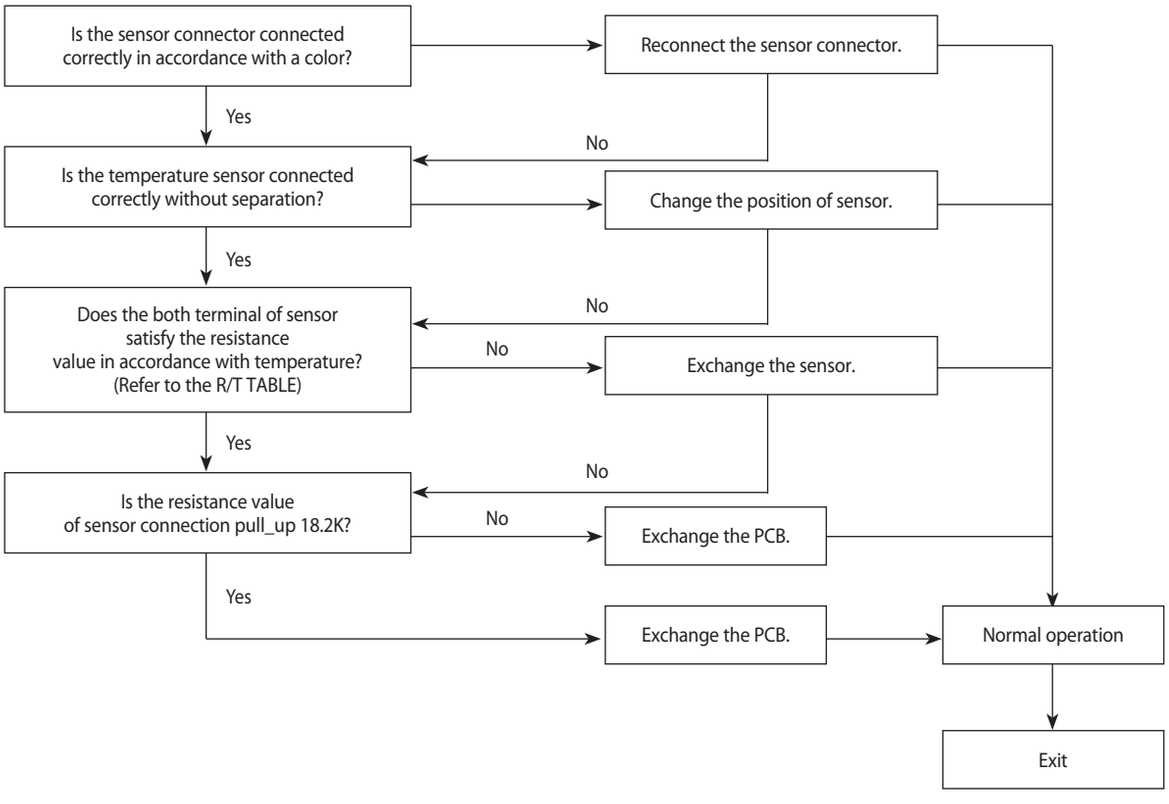
In case of heating at the cooling mode or cooling at the heating mode(cont.)

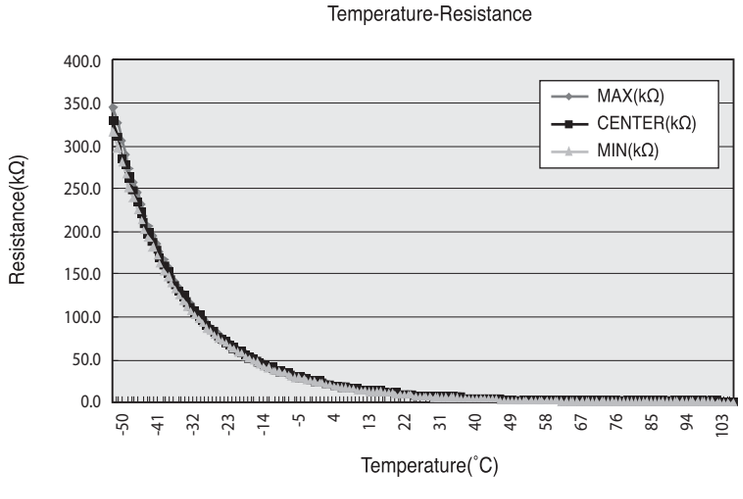


12-2-7 Outdoor temperature sensor error

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

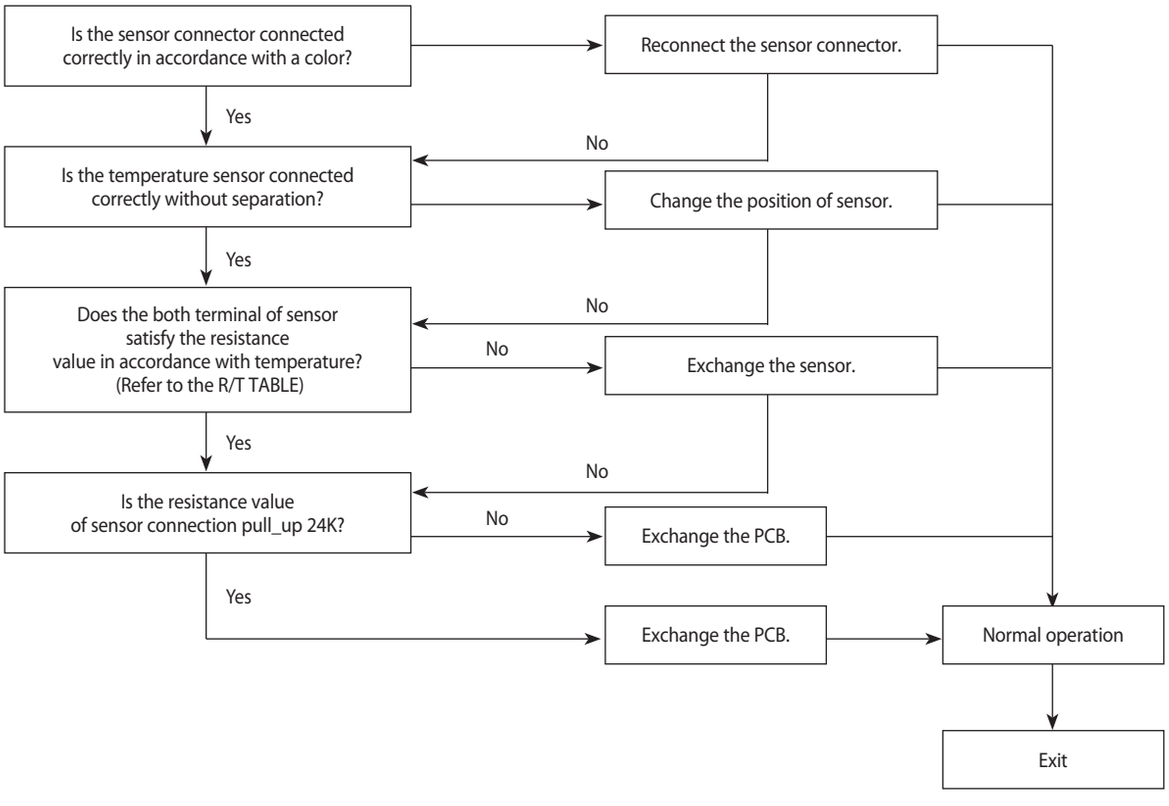


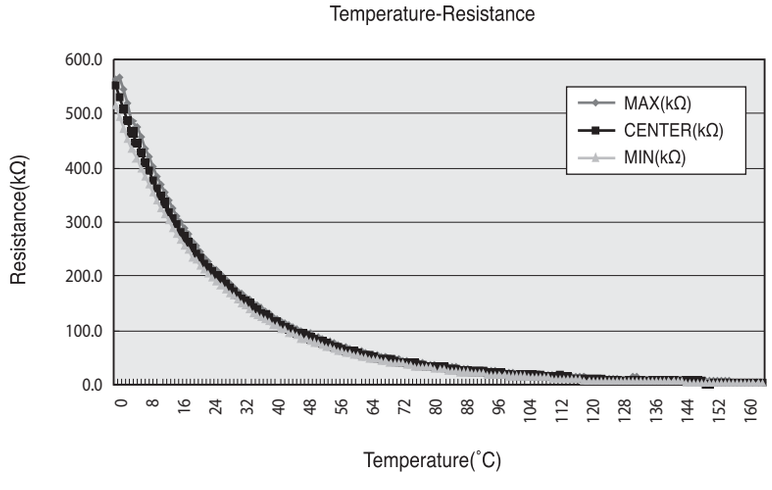


12-2-8 Discharge temperature sensor error

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

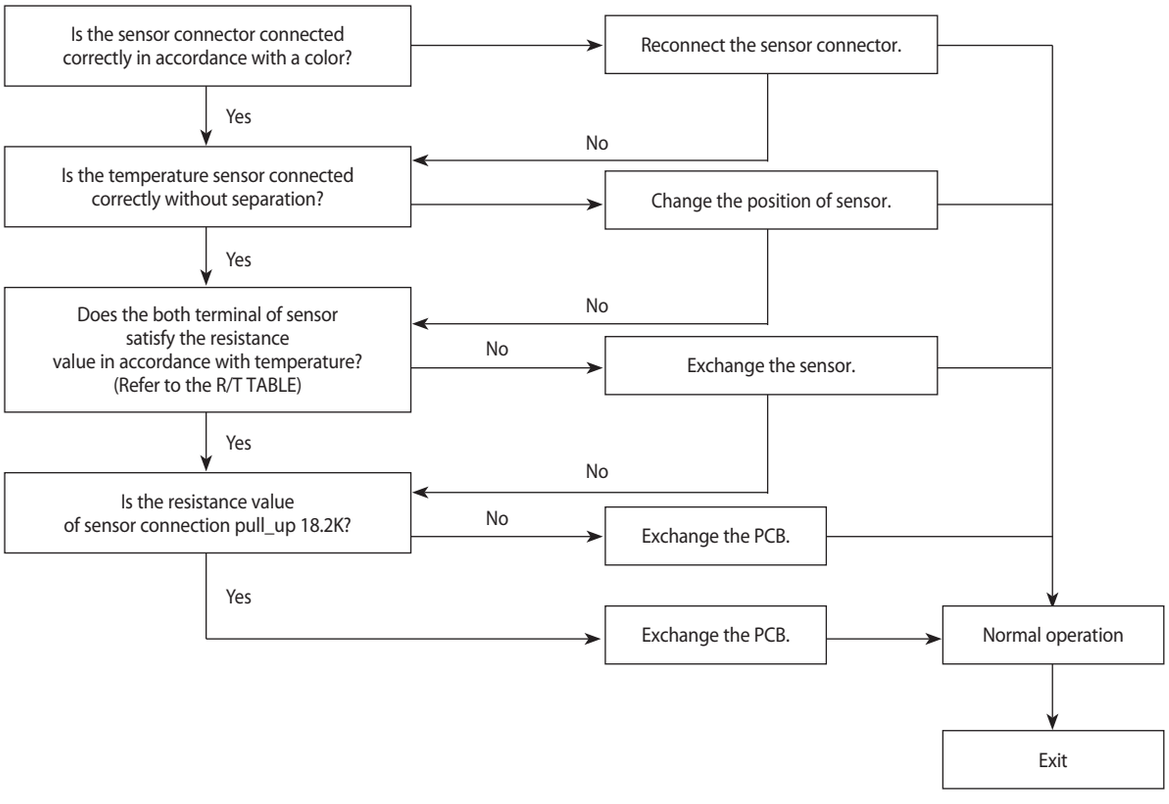


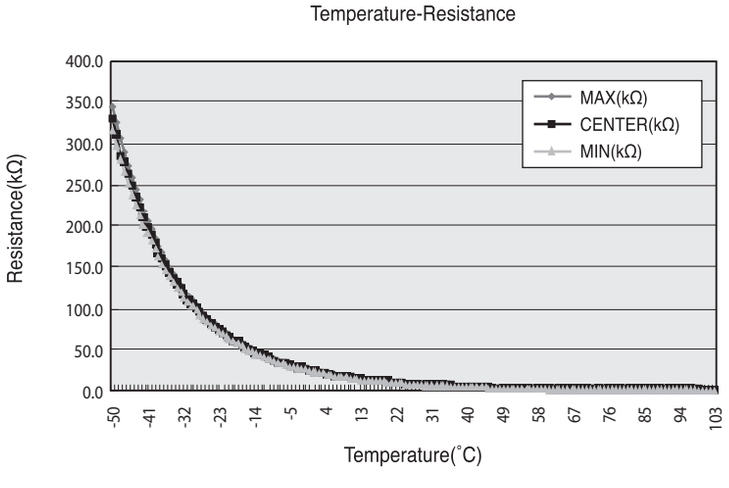


12-2-9 Coil temperature sensor error

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

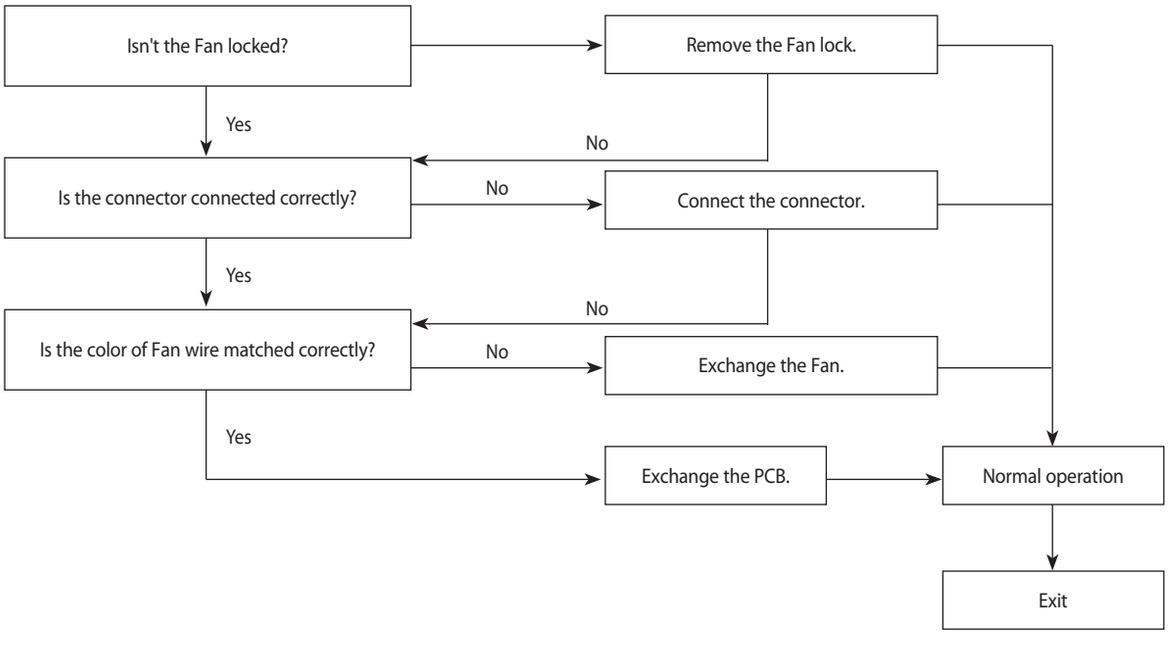




12-2-10 Fan error

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?

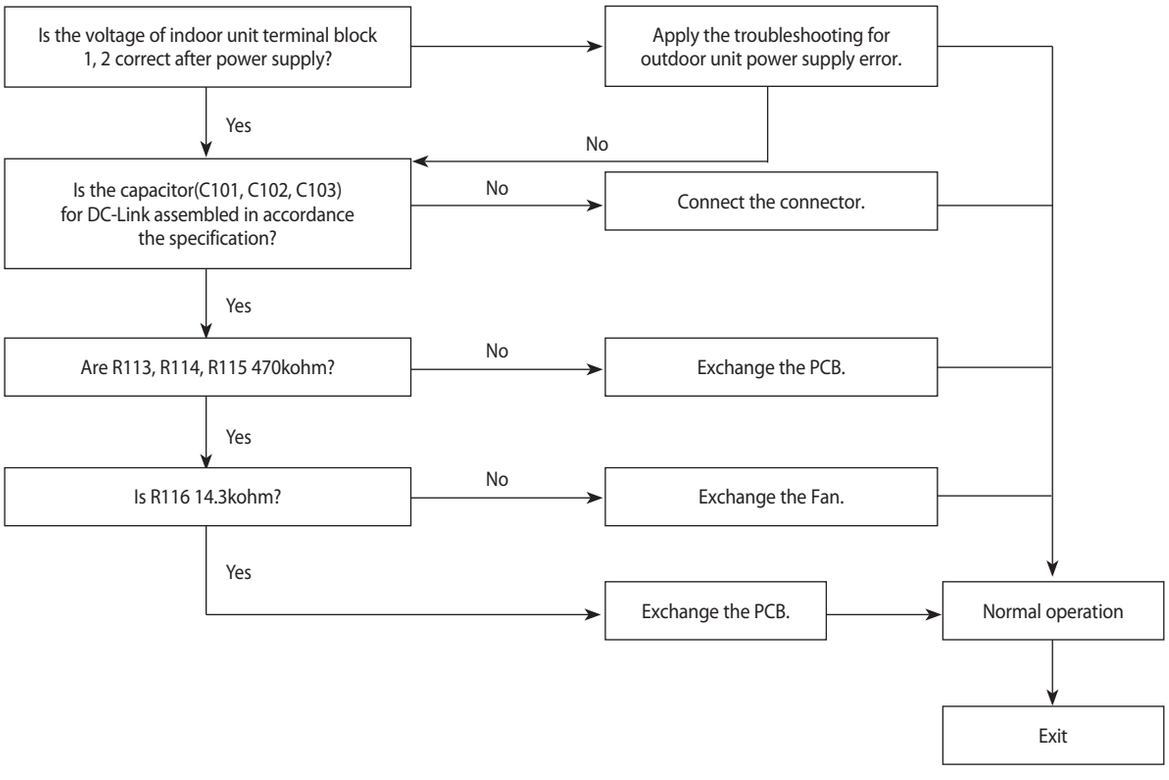
2. Troubleshooting procedure



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?

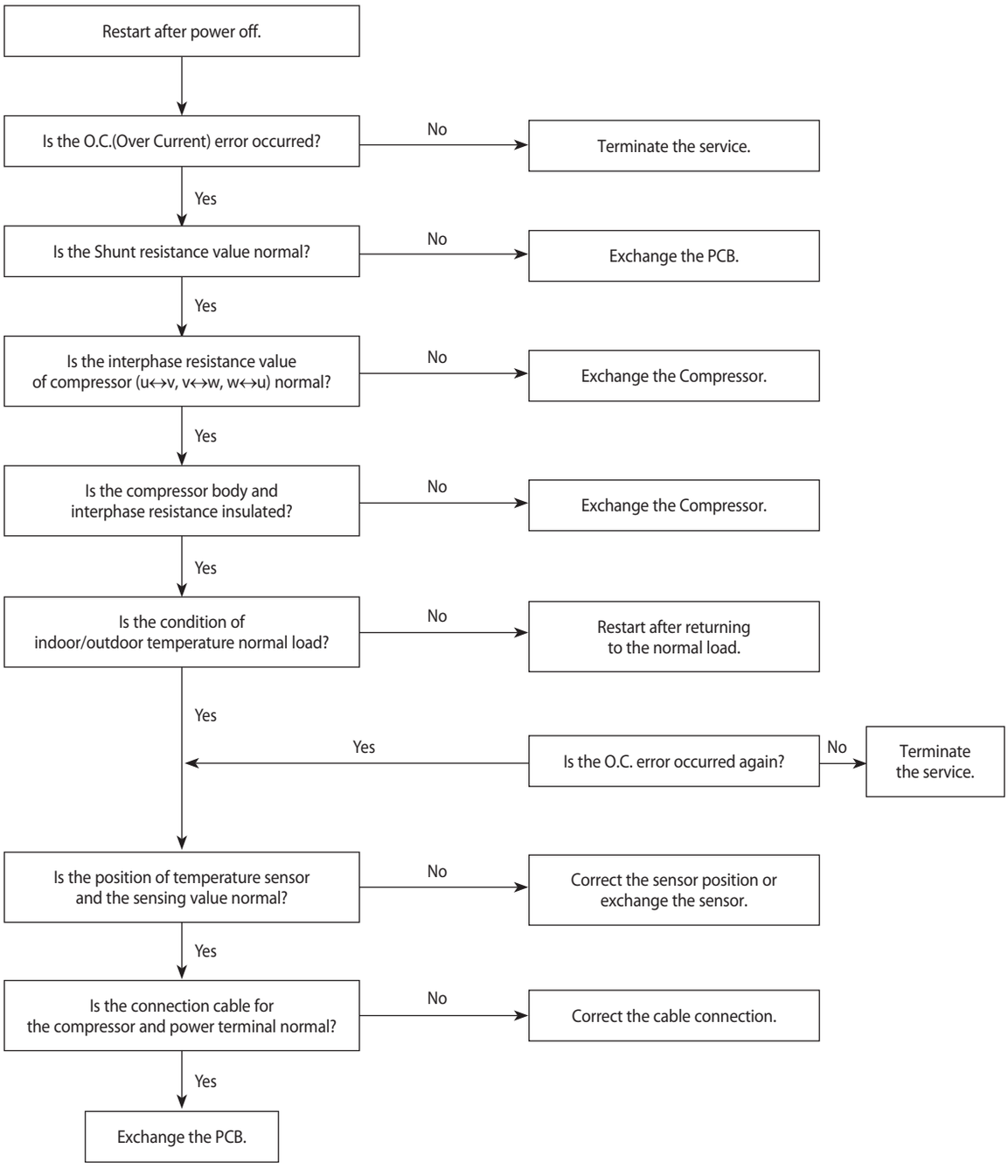
2. Troubleshooting procedure



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?

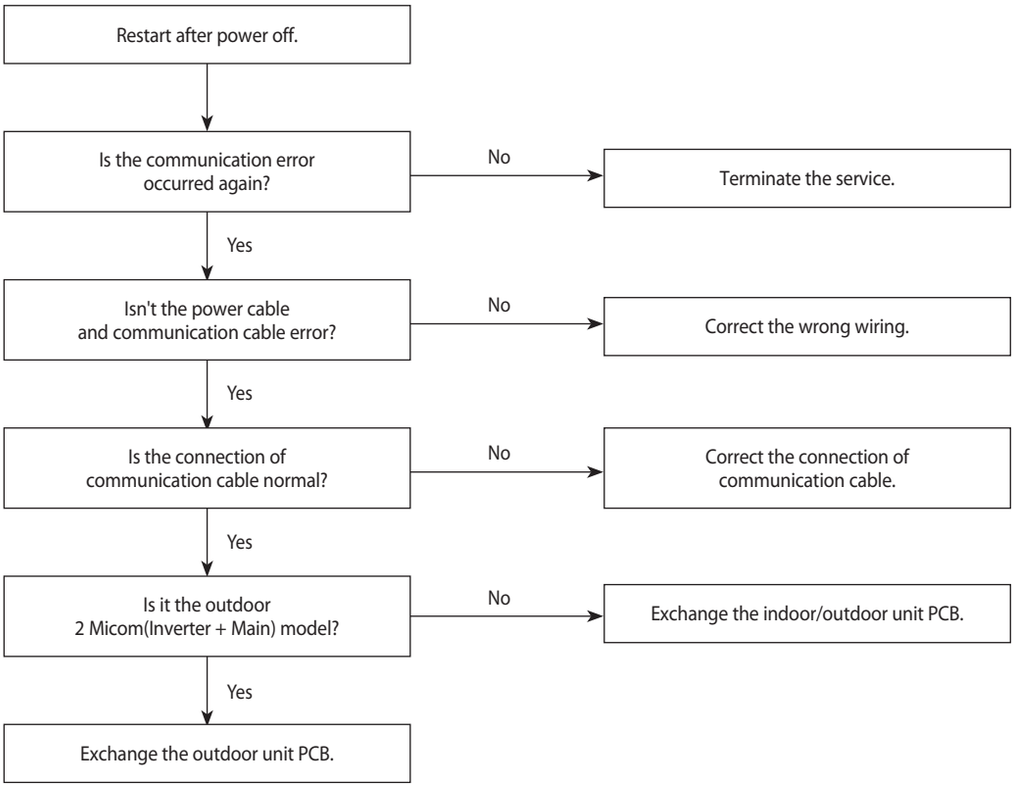
2. Troubleshooting procedure



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?

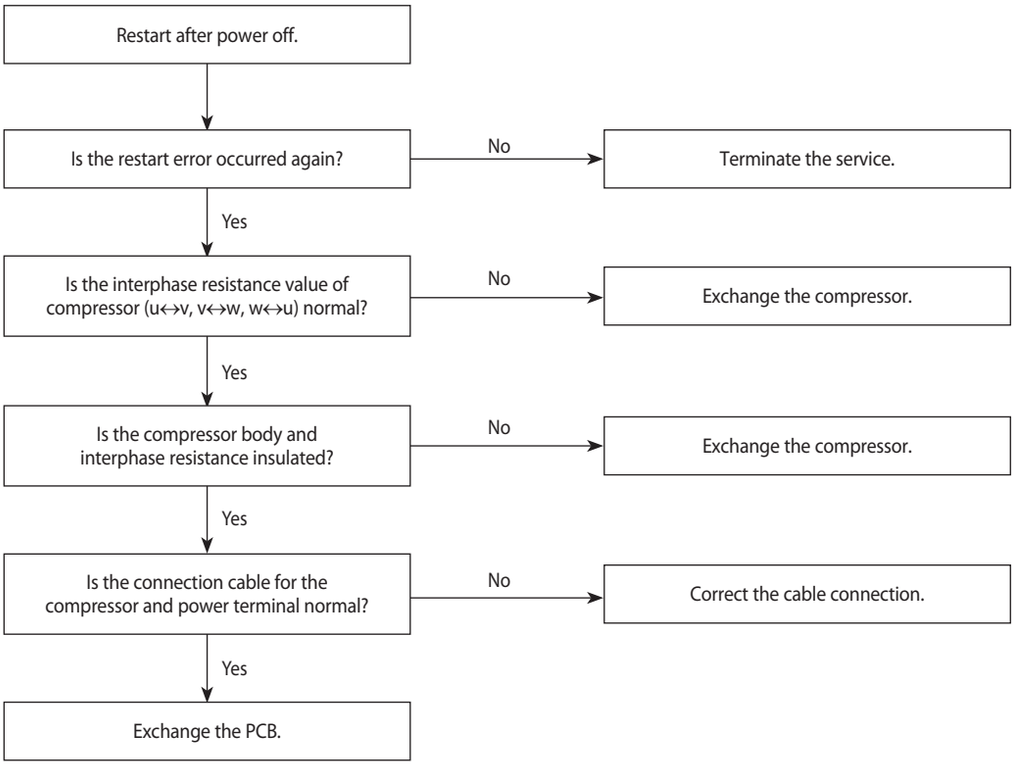
2. Troubleshooting procedure



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?

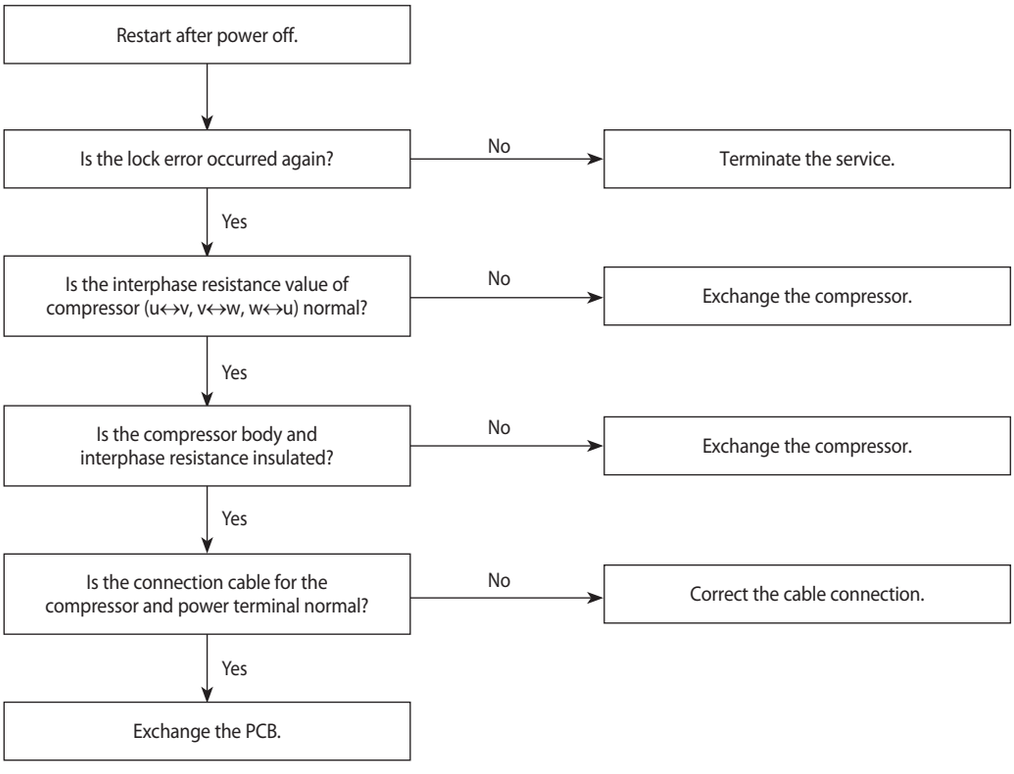
2. Troubleshooting procedure



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?

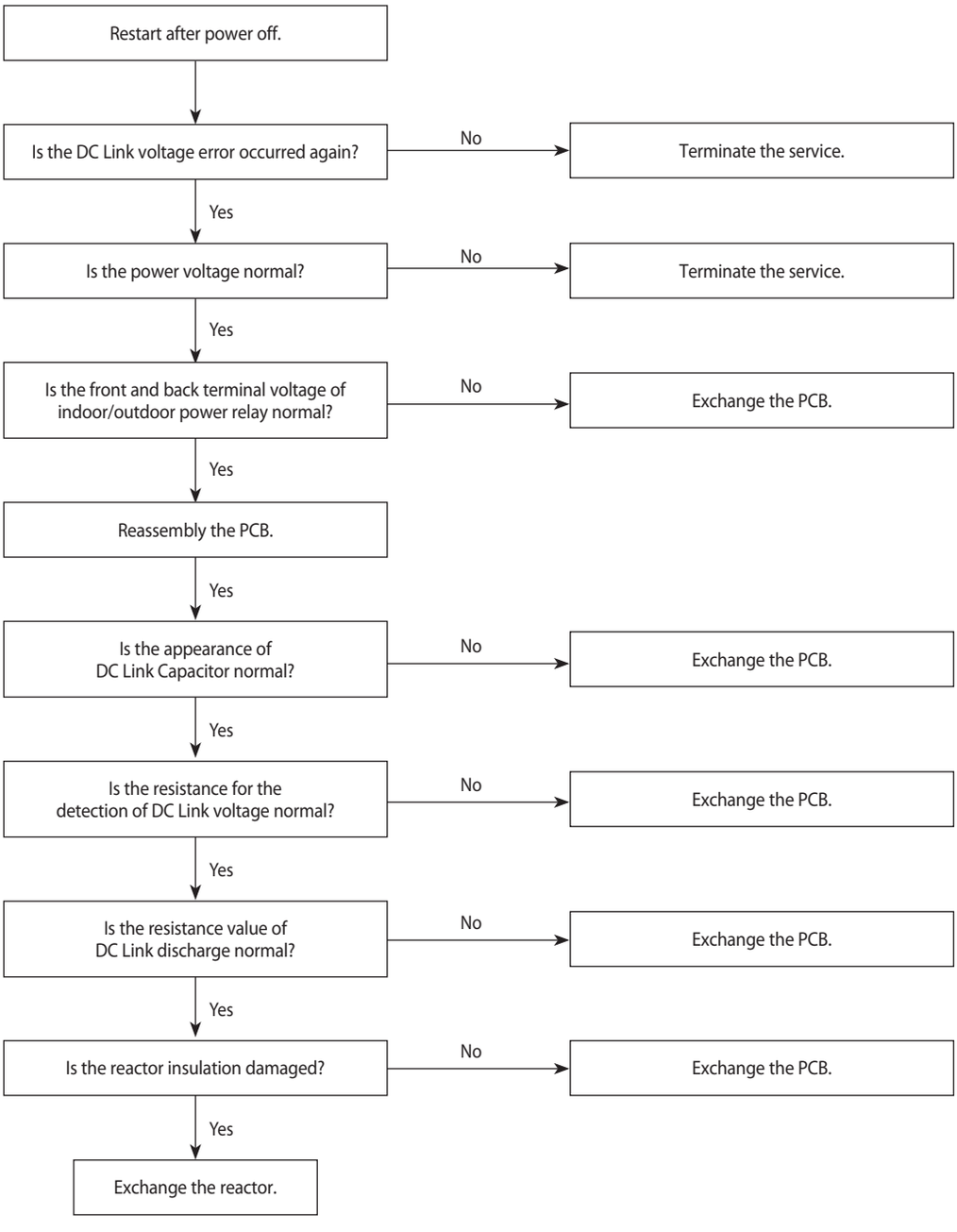
2. Troubleshooting procedure



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

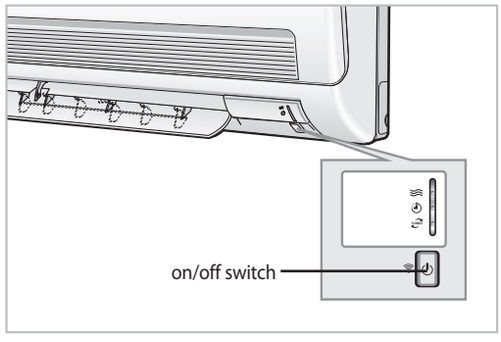
<table>
<tr><th>Part</th><th colspan="2">Breakdown Inspection Method</th></tr>
<tr><td rowspan="3">Room Temperature Sensor</td><td colspan="2">Measure resistance with a tester</td></tr>
<tr><td>Normal</td><td>At the normal temperature 37kΩ~ 8.3kΩ(-7˚C~+30˚C) *Refer to Table 12-3-4.</td></tr>
<tr><td>Abnormal</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>

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

Description	LAMP		
	OPERATION	TIMER	TURBO
	≋	⏲	TURBO
Indoor unit room temperature sensor error (open or short)	○	◑	○
Indoor unit heat exchanger temperature sensor error (open or short)	◑	◑	○
Indoor fan motor malfunction	○	○	◑
EEPROM error	◑	◑	◑
Option error (option wasn't set up or option data error)	◑	◑	◑
Outdoor unit error	◑	○	◑
Communication error	○	◑	◑

● : Lamp on, ○ : Lamp off, ◑ : Lamp blink

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

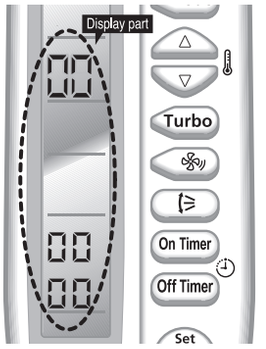
ex) Option No. : 084777- 17524E

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 8.

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 4.

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 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.

5

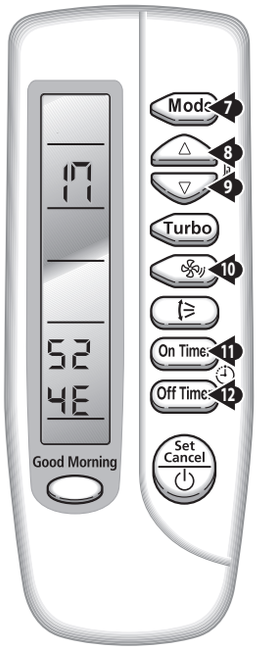
Push the On Timer button to set the display panel to 7.

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

6

Push the Off Timer 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.



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

7 Press Mode button, then the default value is 0 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 5.
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 Turbo button to set the display panel to 2.
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 Timer 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.

12 Push the Off Timer button to set the display panel to E.
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 08 43 33 .

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

➡ The display part shows 17 52 4E .

Step 4 : Pressing the ON/OFF button (Set Cancel)

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.

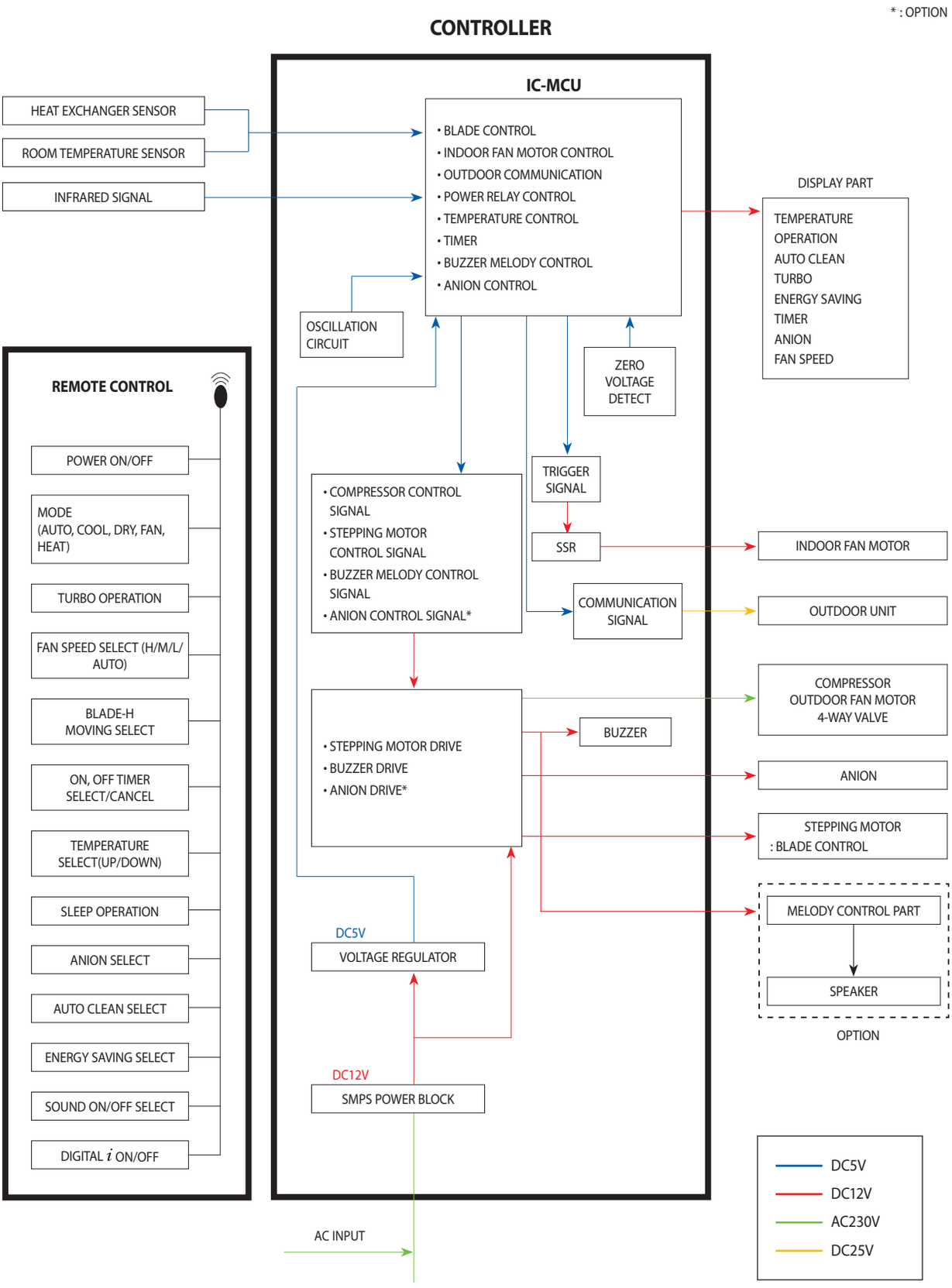
2nd If the unit is not working properly or all lamps are continuously flickering after setting the option code, see if the correct option code is set up for its model.

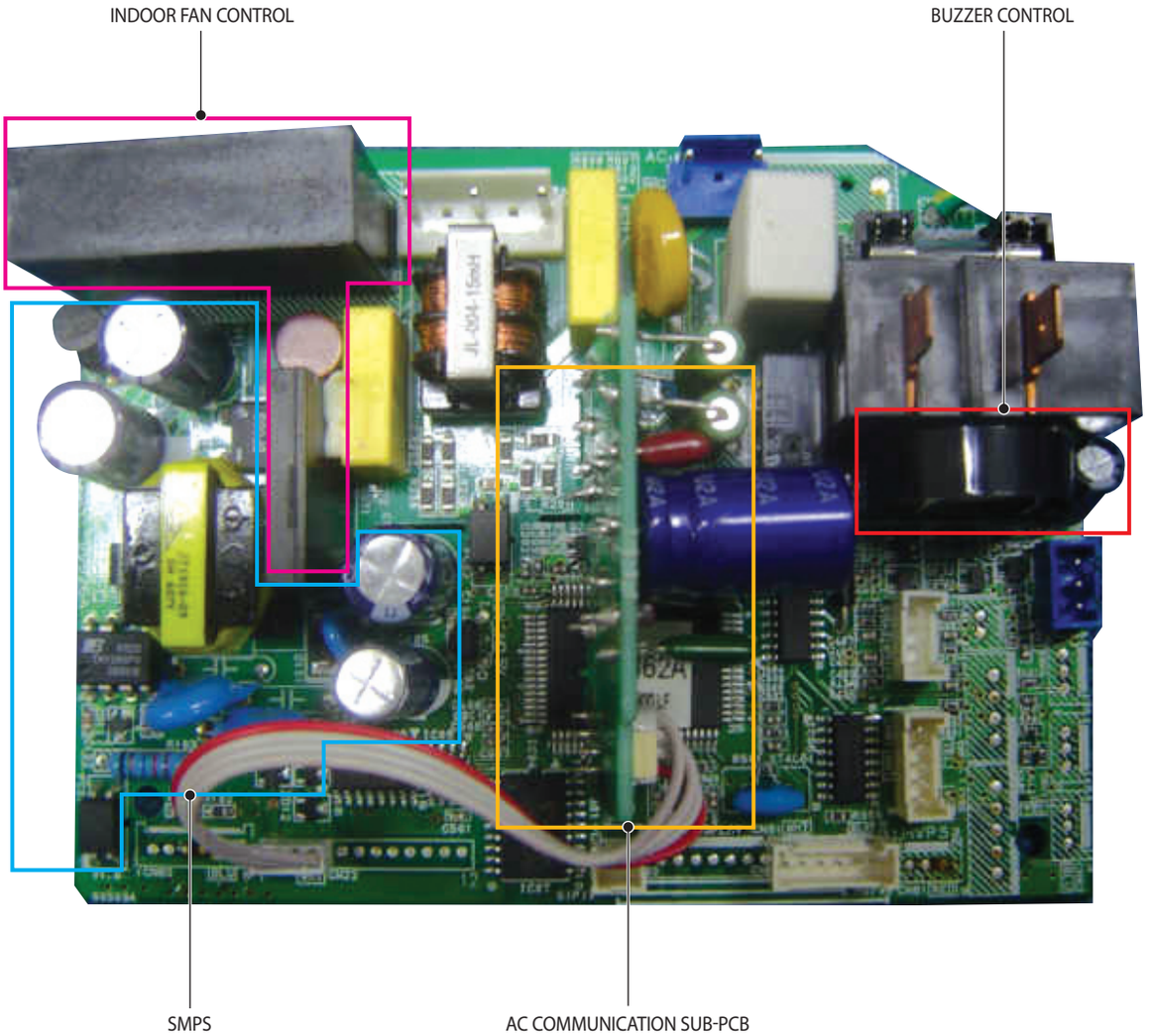
■ OPTION ITEMS

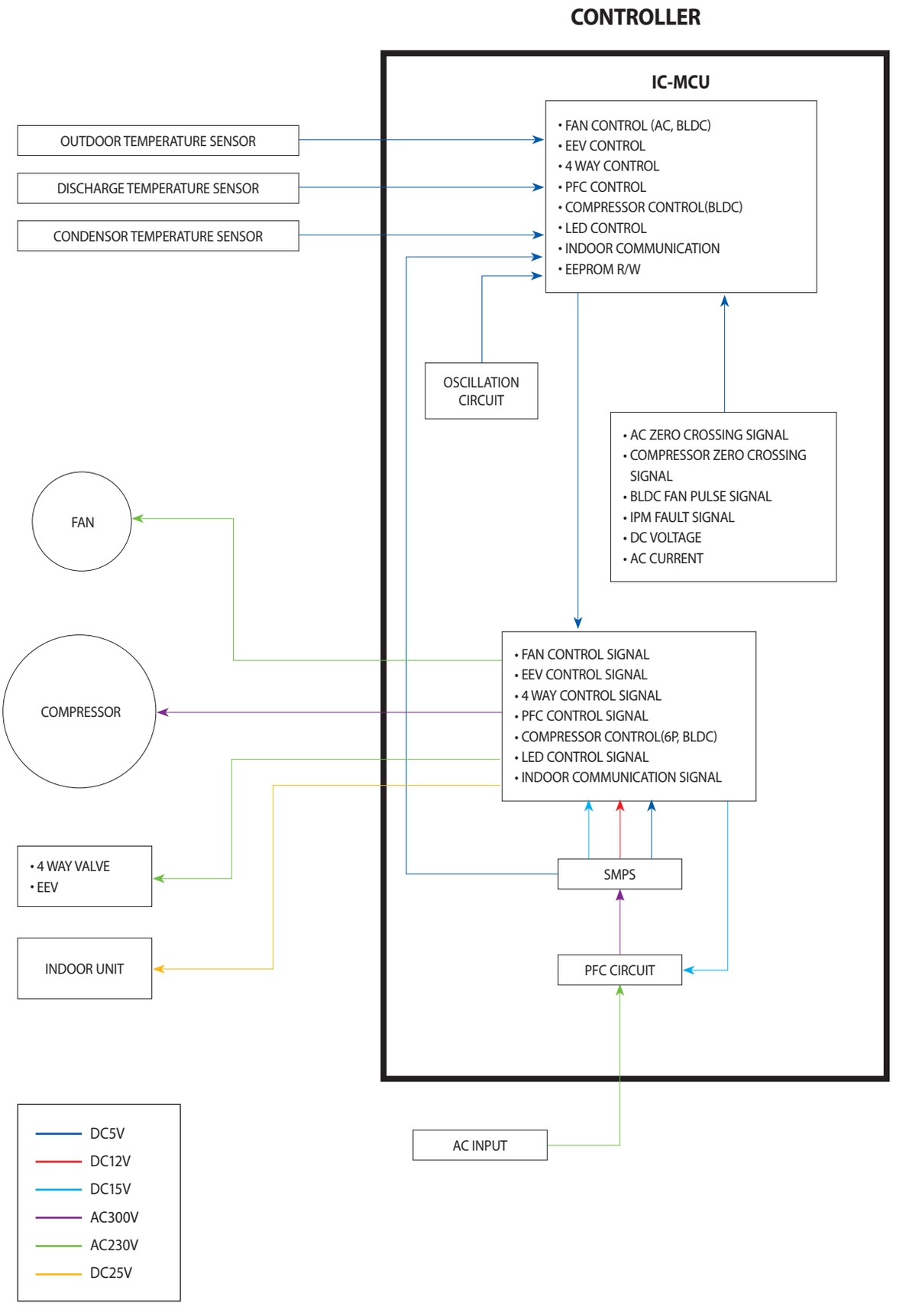
REMOCON / MODEL	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
AQV09FAN	0	8	4	7	7	7	1	7	5	2	4	E
AQV12FAN	0	9	4	8	7	7	1	7	5	2	4	E

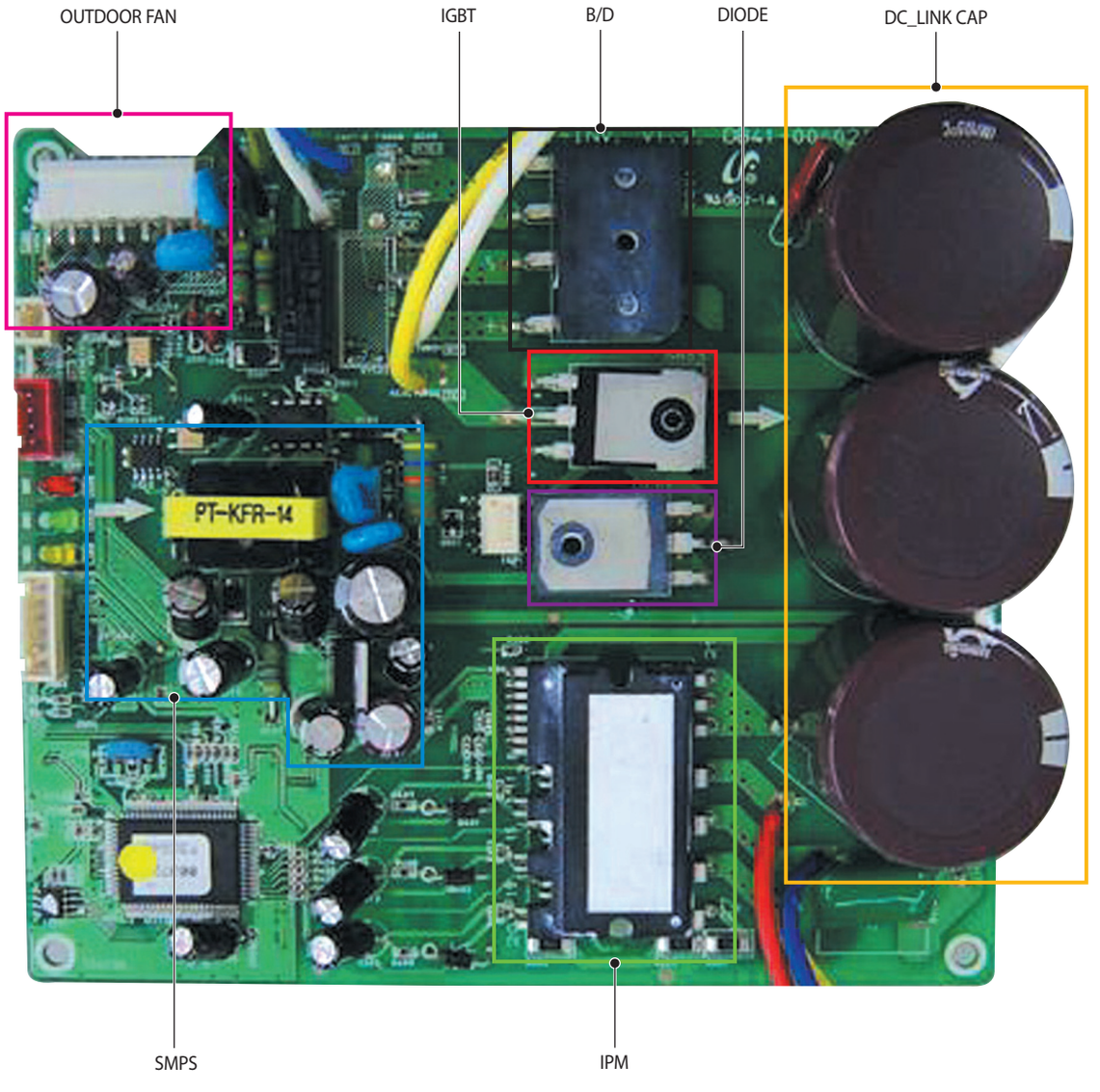
13. Block Diagram

13-1 Indoor Unit




INDOOR FAN CONTROL
BUZZER CONTROL
SMPS
AC COMMUNICATION SUB-PCB

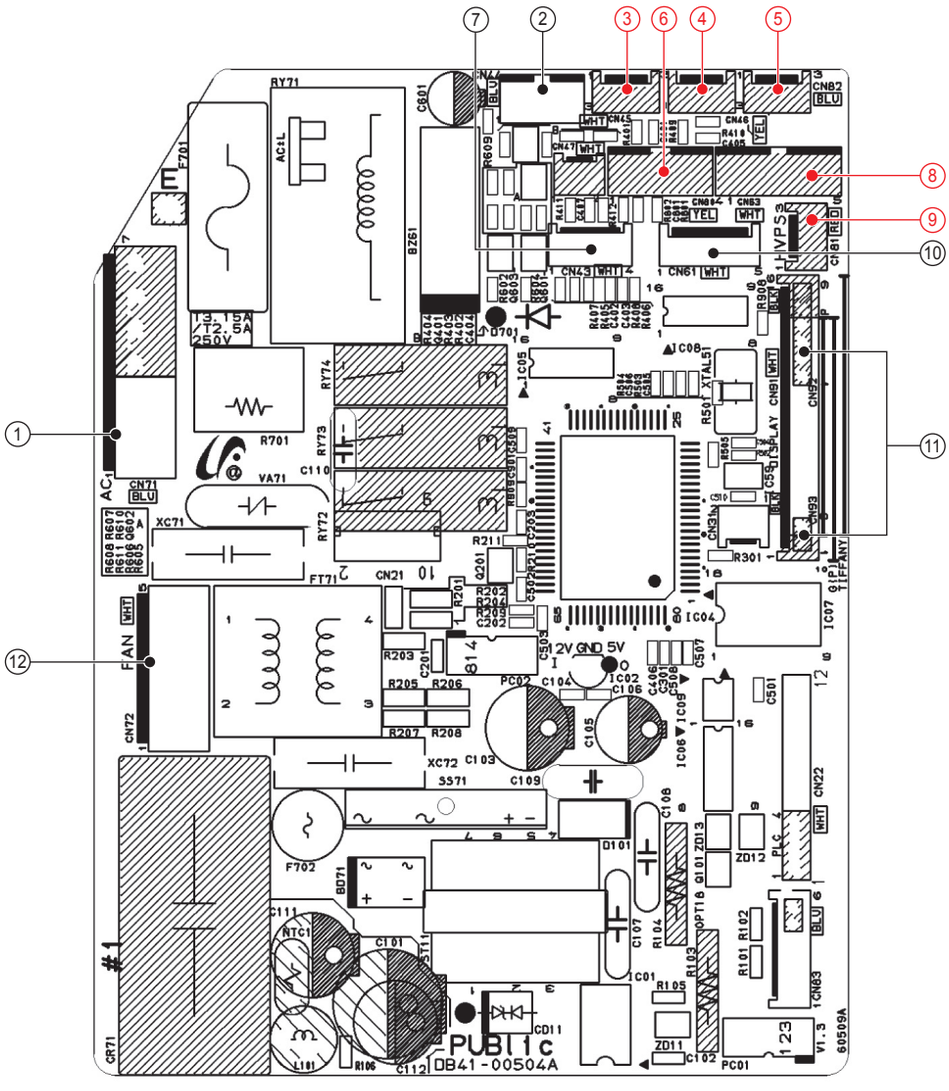

CONTROLLER
IC-MCU
OUTDOOR TEMPERATURE SENSOR
DISCHARGE TEMPERATURE SENSOR
CONDENSOR TEMPERATURE SENSOR
• FAN CONTROL (AC, BLDC)
• EEV CONTROL
• 4 WAY CONTROL
• PFC CONTROL
• COMPRESSOR CONTROL(BLDC)
• LED CONTROL
• INDOOR COMMUNICATION
• EEPROM R/W
OSCILLATION CIRCUIT
• AC ZERO CROSSING SIGNAL
• COMPRESSOR 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

10. PCB Diagram

10-1 Indoor PCB

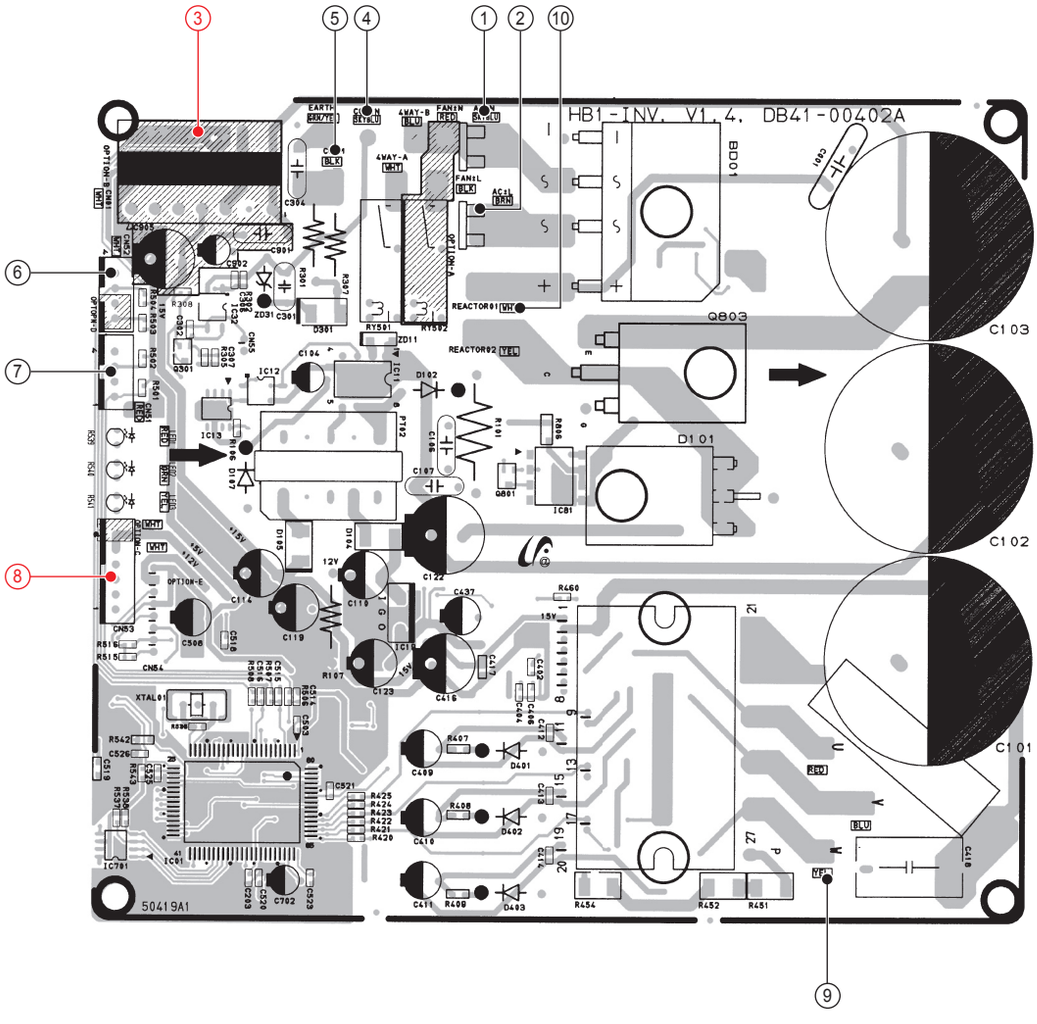
⚠ The red number connecter is not used.



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

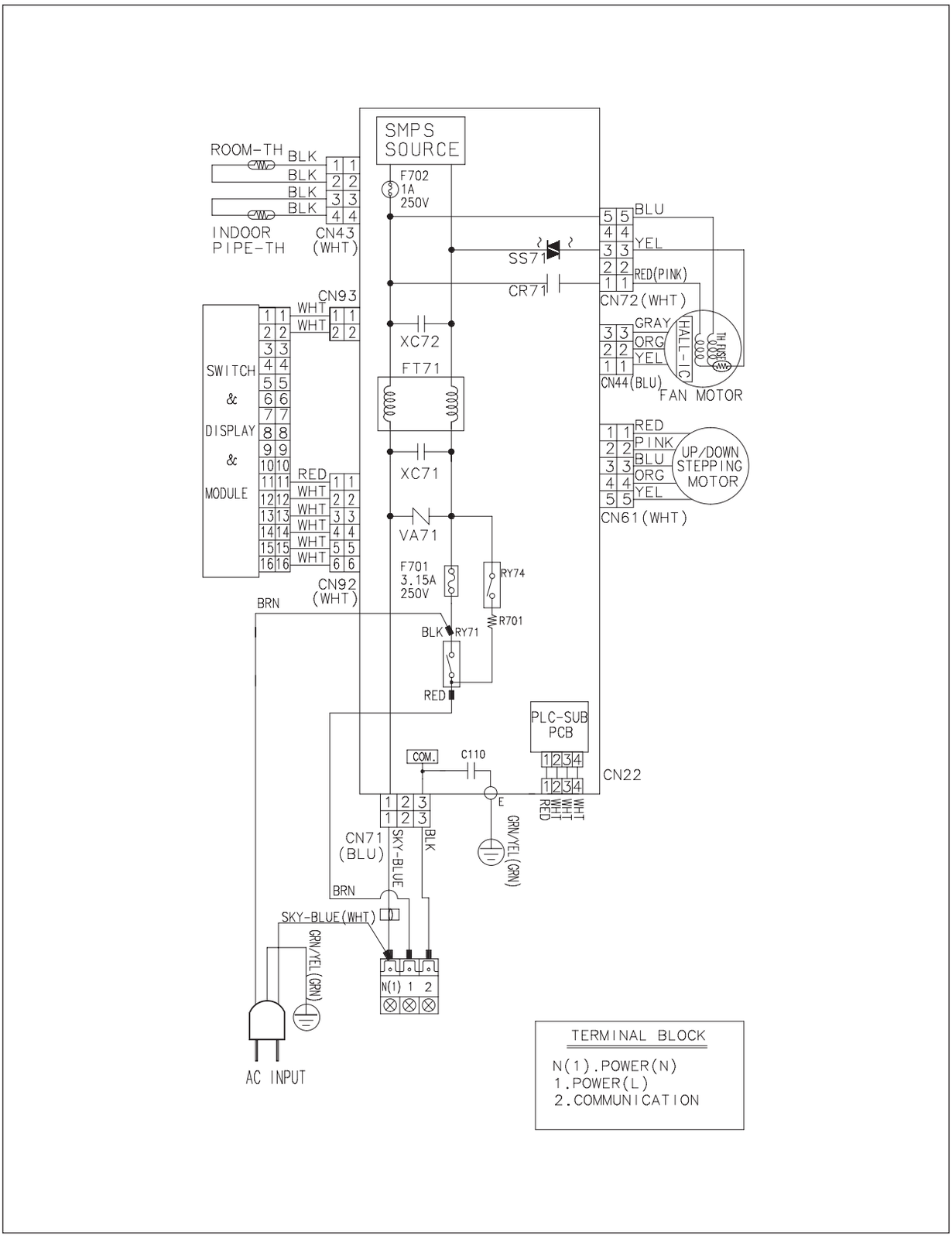
⚠ The red number connecter is not used.

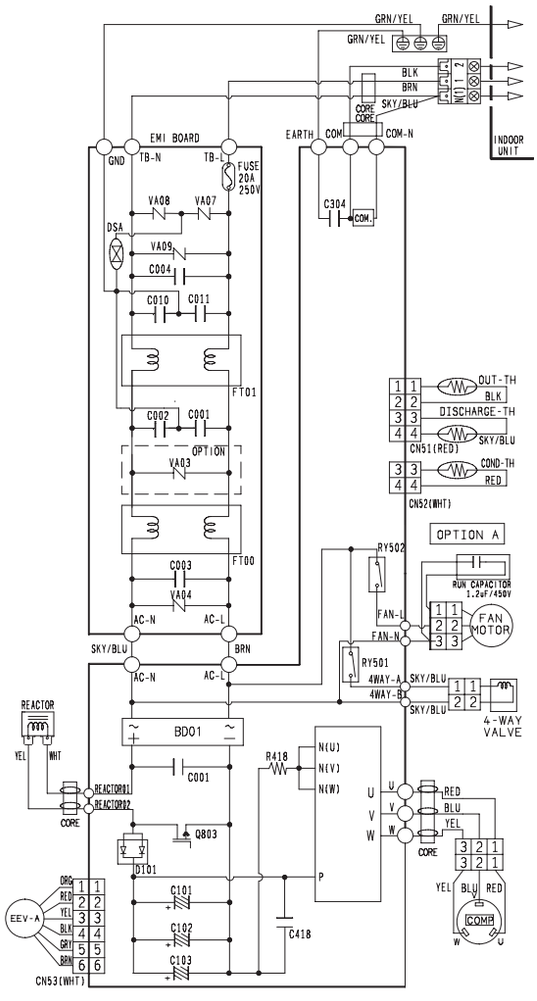


①	Power N	⑥	COND/OLP Temperature Sensor
②	Power L	⑦	DIS/OUT Temperature Sensor
③	BLDC FAN	⑧	EEV Connector
④	AC FAN	⑨	Comp. Connector Wire
⑤	Communication 485	⑩	Reactor Connector Wire

7. Wiring Diagram

7-1 Indoor Unit





LED PATTERN			DESCRIPTION
YEL	GRN	RED	
×	×	×	Power Off / Vdd Error
×	×	○	Comp Peak Current (O.C.)
×	×	●	Abnormal Communication
×	●	●	
×	○	×	Comp Starting Error
×	○	●	Normal Operation
×	●	○	DC-link voltage Over/Under Error
×	●	×	Comp Lock Error
○	×	×	Capacity Miss Match
○	×	○	Outdoor Sensor Error
○	×	●	Discharge Over Temp
○	○	×	Discharge Sensor Error
●	×	×	FAN Error
○	○	●	Current Sensor Error
○	●	×	Comp Vm Limit Error
○	●	○	Cond Sensor Error
○	●	●	1min. Time out Comm
●	×	○	Option Error(EEPROM)
●	×	●	Comp Rotation Error
●	○	○	DC-LINK Voltage Sensor Error
●	●	×	GAS Leak Error
●	●	○	AC Zero-Crossing Error
●	○	●	Unit/PFC Over Current Trip
●	○	×	Operation condition secession
●	●	●	Power ON Reset(1sec)
×	○	○	Test Operation at Cooling Mode
○	○	○	Test Operation at Heating Mode

● LED ON
◎ LED BLINKING
× LED OFF

MEMO

6. Electrical Parts List

■ MAIN PCB : DB93-04258A

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
BD71	0402-001298	DIODE-BRIDGE	DF06S,600V,1A,SMD-4,TP	1	SNA	
BZ61	3002-001129	BUZZER-PIEZO	85DB,-,-,2KHz,-	1	SNA	
C102	2203-000192	C-CER,CHIP	100nF,+80-20%,50V,Y5V,2012	1	SNA	
C103	2401-000151	C-AL	1000uF,20%,25V,GP,TP,10x20,5	1	SNA	
C104	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
C105	2401-000037	C-AL	470uF,20%,16V,GP,TP,8x11.5,5	1	SNA	
C106	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
C107	2201-000987	C-CERAMIC,DISC	2.2nF,20%,400V,Y5U,BK,12.5x6mm,10	1	SNA	
C108	2201-000987	C-CERAMIC,DISC	2.2nF,20%,400V,Y5U,BK,12.5x6mm,10	1	SNA	
C109	2201-002193	C-CERAMIC,DISC	0.082nF,±10%,3000V,SL,-,8.5x3,5	1	SNA	
C110	2201-000983	C-CERAMIC,DISC	1nF,10%,2kV,Y5P,TP,9x5mm,7.5	1	SNA	
C111	2401-003518	C-AL	6.8uF,20%,450V,GP,TP,10x16mm,5	1	SNA	
C112	2401-003518	C-AL	6.8uF,20%,450V,GP,TP,10x16mm,5	1	SNA	
C201	2203-000192	C-CER,CHIP	100nF,+80-20%,50V,Y5V,2012	1	SNA	
C202	2203-000257	C-CER,CHIP	10nF,10%,50V,X7R,1608	1	SNA	
C203	2203-000257	C-CER,CHIP	10nF,10%,50V,X7R,1608	1	SNA	
C401	2203-000440	C-CER,CHIP	1nF,10%,50V,X7R,1608	1	SNA	
C402	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
C403	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
C404	2203-000257	C-CER,CHIP	10nF,10%,50V,X7R,1608	1	SNA	
C405	2203-000440	C-CER,CHIP	1nF,10%,50V,X7R,1608	1	SNA	
C406	2203-000440	C-CER,CHIP	1nF,10%,50V,X7R,1608	1	SNA	
C407	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
C501	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
C502	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C503	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C504	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C505	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C506	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C507	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C508	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C509	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C510	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,1608	1	SNA	
C601	2401-002300	C-AL	47uF,20%,50V,GP,TP,6.3x11,5mm	1	SNA	
C801	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
C901	2203-005249	C-CER,CHIP	100nF,10%,50V,X7R,1608	1	SNA	
CD11	0406-001257	DIODE-TVS	ST02D-82,74/82/90V,200W,AXIAL	1	SNA	
CN43	3711-004379	HEADER-BOARD TO CABLE	BOX,4P,1R,2mm,STRAIGHT,SN,NTR	1	SNA	
CN44	3711-000879	HEADER-BOARD TO CABLE	BOX,3P,1R,2.5mm,STRAIGHT,SN,BLU	1	SNA	
CN61	3711-004484	HEADER-BOARD TO CABLE	BOX,5P,1R,2mm,STRAIGHT,SN,NTR	1	SNA	

■ MAIN PCB : DB93-04258A(cont.)

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
CN71	3711-003404	HEADER-BOARD TO CABLE	1WALL,2P,1R,7.92mm,STRAIGHT,SN,BLU	1	SNA	
CN72	3711-000262	HEADER-BOARD TO CABLE	1WALL,3P,1R,7.92mm,STRAIGHT,SN,WHT	1	SNA	
CN92	3711-004236	HEADER-BOARD TO CABLE	BOX,6P,1R,2mm,STRAIGHT,SN	1	SNA	
CN93	3711-003942	HEADER-BOARD TO CABLE	BOX,2P,1R,2mm,STRAIGHT,SN,WHT	1	SNA	
CR71	2301-001251	C-FILM,LEAD-PPF	1.2uF,10%,450Vac,BK,38x18x30,3	1	SNA	
D101	0402-001427	DIODE-RECTIFIER	ES1D,200V,1A,DO-214AC,TP	1	SNA	
D701	0402-000012	DIODE-RECTIFIER	UF4007,1kV,1A,DO-41,TP	1	SNA	
F701	DB61-00924A	HOLDER-FUSE	-,FH-51B,-,-,-,-,SSEC	1	SNA	
F701-1	3601-000263	FUSE-CARTRIDGE	250V,3.15A,TIME-LAG,GLASS,5x20mm	1	SNA	
F702	3601-001209	FUSE-RADIAL LEAD	250V,1A,TIME-LAG,-,8.5x8mm	1	SNA	
FT71	DB27-00017A	COIL CHOKE	USAV-07153,UU1116,15.0mH,-25~+85,-,1.3ohm, -,15mH,105,20x18mm,13,0.6,BK,-25	1	SNA	
IC01	1203-002545	IC-PWM CONTROLLER	266,DIP,8P,300MIL,PLASTIC,-0.3/700V,-, -40TO+150C,560mA,-,ST	1	SNA	
IC02	1203-000429	IC-POSI.FIXED REG.	78L05A,TO-92,3P,-,PLASTIC,4.6	1	SNA	
IC04	DB91-00377A	ASSY-MICOM	INV-Forte1,MB90F823, 80P, ROM 128K bytes	1	SNA	
IC05	0506-000175	TR-ARRAY	2003,NPN,7,1W,SOP-16,ST,1000	1	SNA	
IC06	0506-000175	TR-ARRAY	2003,NPN,7,1W,SOP-16,ST,1000	1	SNA	
IC07	1003-001462	IC-SOURCE DRIVER	TD62783AFW,SOL,18P,-,8,-500mA,TP,PLASTIC,50V, -40TO85C,1.47,50V,-	1	SNA	
IC08	0506-000175	TR-ARRAY	2003,NPN,7,1W,SOP-16,ST,1000	1	SNA	
IC09	1103-001175	IC-EEPROM	93LC56,128x16,SOP,8P,5x4mm,2.5/6.0V,-40to+85C	1	SNA	
IC59	1203-003334	IC-RESET	S-801,SOT-23,5P,2.9x1.6mm,PLASTIC,3.716/4.284V, 256mW,-,2.5mA,-,TP	1	SNA	
L101	2702-001118	INDUCTOR-RADIAL	5000uH,10%,8.0x11.0mm	1	SNA	
PC01	0604-001038	PHOTO-COUPLER	TR,130-260%,200mW,DIP-4,ST	1	SNA	
PC02	0604-001003	PHOTO-COUPLER	TR,50-150%,200mW,DIP-4,ST	1	SNA	
Q101	0504-001064	TR-DIGITAL	DTC114EKA,NPN,200mW,10K/10K,SOT-23,TP	1	SNA	
Q201	0501-000534	TR-SMALL SIGNAL	2SC2412K,NPN,200mW,SOT-23,TP,180-390	1	SNA	
Q401	0501-000534	TR-SMALL SIGNAL	2SC2412K,NPN,200mW,SOT-23,TP,180-390	1	SNA	
Q601	0501-000534	TR-SMALL SIGNAL	2SC2412K,NPN,200mW,SOT-23,TP,180-390	1	SNA	
Q602	0501-002296	TR-SMALL SIGNAL	MMST2907A,PNP,200mW,SMT3,TP,100-300	1	SNA	
Q603	0501-000534	TR-SMALL SIGNAL	2SC2412K,NPN,200mW,SOT-23,TP,180-390	1	SNA	
R101	2007-000290	R-CHIP	100ohm,5%,1/8W,TP,2012	1	SNA	
R102	2007-000493	R-CHIP	2.2Kohm,5%,1/8W,TP,2012	1	SNA	
R103	2002-001104	R-COMPOSITION	12Mohm,5%,1/2W,AA,TP,3.4x9mm	1	SNA	
R104	2002-001104	R-COMPOSITION	12Mohm,5%,1/2W,AA,TP,3.4x9mm	1	SNA	
R105	2007-000931	R-CHIP	470ohm,5%,1/8W,TP,2012	1	SNA	
R106	2007-000872	R-CHIP	4.7Kohm,5%,1/8W,TP,2012	1	SNA	
R201	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	

■ MAIN PCB : DB93-04258A(cont.)

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
R202	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	
R203	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	
R204	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	
R205	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	
R206	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	
R207	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	
R208	2007-000944	R-CHIP	47Kohm,5%,1/4W,TP,3216	1	SNA	
R209	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R210	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R211	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R301	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R401	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R402	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R403	2007-000087	R-CHIP	6.8Kohm,5%,1/10W,TP,1608	1	SNA	
R404	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R405	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R406	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R407	2007-001068	R-CHIP	6.8Kohm,1%,1/10W,TP,1608	1	SNA	
R408	2007-001068	R-CHIP	6.8Kohm,1%,1/10W,TP,1608	1	SNA	
R409	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R410	2007-000109	R-CHIP	1Mohm,5%,1/10W,TP,1608	1	SNA	
R411	2007-001068	R-CHIP	6.8Kohm,1%,1/10W,TP,1608	1	SNA	
R412	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R501	2007-000109	R-CHIP	1Mohm,5%,1/10W,TP,1608	1	SNA	
R502	2007-000093	R-CHIP	20Kohm,5%,1/10W,TP,1608	1	SNA	
R503	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R504	2007-000962	R-CHIP	5.1Kohm,1%,1/10W,TP,1608	1	SNA	
R505	2007-000070	R-CHIP	0ohm,5%,1/10W,TP,1608	1	SNA	
R602	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R604	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R605	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R606	2007-000084	R-CHIP	4.7Kohm,5%,1/10W,TP,1608	1	SNA	
R607	2007-000077	R-CHIP	470ohm,5%,1/10W,TP,1608	1	SNA	
R608	2007-000077	R-CHIP	470ohm,5%,1/10W,TP,1608	1	SNA	
R609	2007-000119	R-CHIP	560ohm,5%,1/10W,TP,1608	1	SNA	
R610	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R611	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R701	2006-001080	R-CEMENT(S)	200ohm,5%,5W,CB,BK,13x9x25.5mm	1	SNA	
R801	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R802	2007-000087	R-CHIP	6.8Kohm,5%,1/10W,TP,1608	1	SNA	

■ MAIN PCB : DB93-04258A(cont.)

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
R908	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R909	2007-000084	R-CHIP	4.7Kohm,5%,1/10W,TP,1608	1	SNA	
RY71	3501-001169	RELAY-POWER	12Vdc,0.9W,20000mA,SPST,20mS,10mS	1	SNA	
RY74	3501-001154	RELAY-MINIATURE	12Vdc,200mW,3000mA,1FormA,10mS,10mS	1	SNA	
SS71	3502-000115	SSR	12Vdc,-,2A,1mS,1mS	1	SNA	
ST11	DB26-00015A	TRANS SWITCHING	-,JT1916-09,-,310V,FERRITE,-,EI1916,130KHz,-, 1.65mH,-,-,-,-,SHIELD	1	SNA	
VA71	1405-000154	VARISTOR	460Vdc,2500A,17.5x7.5mm,TP	1	SNA	
XC71	2301-001220	C-FILM,LEAD-PPF	100nF,10%,275V,BK,18x6x12,15	1	SNA	
XC72	2301-001220	C-FILM,LEAD-PPF	100nF,10%,275V,BK,18x6x12,15	1	SNA	
XTAL51	2802-001179	RESONATOR-CERAMIC	4MHz,0.5%,BK,8x3x5.5mm	1	SNA	
ZD11	0403-000252	DIODE-ZENER	BZX84C3V6,3.4-3.8V,350mW,SOT-23,TP	1	SNA	
ZD12	0403-001285	DIODE-ZENER	BZX84-C11,10.4-11.6V,350mW,SOT-23,TP	1	SNA	
ZD13	0403-000466	DIODE-ZENER	BZX84C4V3,4.3,225mW,SOT-23,TP	1	SNA	
-	DB39-00514C	WIRE HARNESS-EARTH	SH12BWH,#1015 20 AWG,-,-,140,YEL/GRN,AWG #20, -,-,-,220V,-,160,UL1015 AWG#20,-,IN	1	SNA	
-	DB41-00526A	PCB MAIN	VIVACE-PJT 9K/12K,CEM-3,2,1.0,T 1.6mm, 160x140mm,-,2,-,-	1	SNA	

■ DISPLAY PCB : DB93-03117A

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
C91	2202-000780	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,-,3.5x19mm,-	1	SNA	
C92	2202-000173	C-CERAMIC,MLC-AXIAL	1nF,10%,50V,Y5P,-,1.9x3.5mm,-	1	SNA	
CN92	3711-003846	HEADER-BOARD TO CABLE	BOX,8P,1R,2mm,ANGLE,SN	1	SNA	
COOL	0601-000552	LED	ROUND,GRN,3mm,570nm	1	SNA	
D91	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,TP	1	SNA	
R91	2001-000109	R-CARBON(S)	470ohm,5%,1/2W,AA,TP,2.4x6.4mm	1	SNA	
R92	2001-000109	R-CARBON(S)	470ohm,5%,1/2W,AA,TP,2.4x6.4mm	1	SNA	
RM91	0609-001204	MODULE REMOCON	HORIZONTAL,6.5mm,TR	1	SNA	
SW91	3404-001220	SWITCH-TACT	12V,50mA,160gf,6.1x6.1x5.0mm,SPST	1	SNA	
TIMER	0601-000552	LED	ROUND,GRN,3mm,570nm	1	SNA	
TURBO	0601-001373	LED	ROUND,RED,3mm,630nm	1	SNA	
-	DB41-00352A	PCB SUB	WW1-P/J,TSE,FR-1,1,00,T1.6,-,-,-,-,DISP/MODULE/SWITCH	1	SNA	

■ SUB PCB : DB93-04256A

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
C301	2203-000440	C-CER,CHIP	1nF,10%,50V,X7R,1608	1	SNA	
C302	2203-000257	C-CER,CHIP	10nF,10%,50V,X7R,1608	1	SNA	
C303	2203-000257	C-CER,CHIP	10nF,10%,50V,X7R,1608	1	SNA	
C701	2401-001428	C-AL	470uF,20%,50V,GP,TP,10x20,5	1	SNA	
C702	2301-000141	C-FILM,LEAD-PEF	10nF,10%,630V,TP,16x11x7.5mm,5	1	SNA	
C703	2301-000256	C-FILM,LEAD-PEF	4.7nF,10%,100V,TP,10x8.5x5.0mm	1	SNA	
C704	2301-000256	C-FILM,LEAD-PEF	4.7nF,10%,100V,TP,10x8.5x5.0mm	1	SNA	
C705	2203-001562	C-CER,CHIP	10nF,+80-20%,50V,Y5V,2012	1	SNA	
C706	2203-000444	C-CER,CHIP	1nF,10%,50V,X7R,2012	1	SNA	
CN11	3711-006040	HEADER-BOARD TO BOARD	NOWALL,10P,2R,2.54mm,ANGLE,AU,BLK	1	SNA	
D701	0402-001213	DIODE-RECTIFIER	MRA4005,600V,1A,SMC,TP	1	SNA	
D702	0402-001213	DIODE-RECTIFIER	MRA4005,600V,1A,SMC,TP	1	SNA	
D703	0402-001213	DIODE-RECTIFIER	MRA4005,600V,1A,SMC,TP	1	SNA	
PC31	0604-001172	PHOTO-COUPLER	TR,100-300,200mW,SOP,TP	1	SNA	
PC32	0604-001172	PHOTO-COUPLER	TR,100-300,200mW,SOP,TP	1	SNA	
Q301	0504-001064	TR-DIGITAL	DTC114EKA,NPN,200mW,10K/10K,SOT-23,TP	1	SNA	
Q302	0504-001064	TR-DIGITAL	DTC114EKA,NPN,200mW,10K/10K,SOT-23,TP	1	SNA	
R301	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R302	2007-000077	R-CHIP	470ohm,5%,1/10W,TP,1608	1	SNA	
R303	2007-000084	R-CHIP	4.7Kohm,5%,1/10W,TP,1608	1	SNA	
R701	2003-000855	R-METAL OXIDE(S)	47Kohm,5%,3W,AA,TP,6x16mm	1	SNA	
R702	2003-000855	R-METAL OXIDE(S)	47Kohm,5%,3W,AA,TP,6x16mm	1	SNA	
R703	2003-002007	R-METAL OXIDE(S)	4.7Kohm,5%,2W,AF,TP,3.9x10mm	1	SNA	
R704	2003-002007	R-METAL OXIDE(S)	4.7Kohm,5%,2W,AF,TP,3.9x10mm	1	SNA	
R706	2007-000282	R-CHIP	100Kohm,5%,1/8W,TP,2012	1	SNA	
R707	2007-000468	R-CHIP	1Kohm,5%,1/8W,TP,2012	1	SNA	
ZD71	0403-000537	DIODE-ZENER	1N4749A,5%,1000mW,DO-41,TP	1	SNA	
-	DB41-00527A	PCB SUB	FORTE,CEM-3,2,1.0,T1.6,50x33mm,-,9,-,COMM AC	1	SNA	
-	DB93-04350B	ASS'Y CONNECTOR WIRE-PCB	AQV12FA,12K_In	1	SNA	

■ OUTDOOR PCB : DB93-04263B(AQV09FAX), DB93-04263A(AQV12FAX)

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
BD01	DB98-16586A	ASSY-DIODE	GS1B2560	1	SNA	
C001	2301-000141	C-FILM,LEAD-PEF	10nF,10%,630V,TP,16x11x7.5mm,5	1	SNA	
C101	DB98-21655A	ASSY-CAP	KFR-35(25)GW,KMH400VS470	1	SNA	
C102	DB98-21655A	ASSY-CAP	KFR-35(25)GW,KMH400VS470	1	SNA	
C103	DB98-21655A	ASSY-CAP	KFR-35(25)GW,KMH400VS470	1	SNA	
C401	2203-006325	C-CER,CHIP	1.2nF,5%,25V,SL,TP,1608	1	SNA	
C402	2203-002041	C-CER,CHIP	0.47nF,10%,50V,X7R,TP,1608	1	SNA	
C403	2203-006325	C-CER,CHIP	1.2nF,5%,25V,SL,TP,1608	1	SNA	
C404	2203-002041	C-CER,CHIP	0.47nF,10%,50V,X7R,TP,1608	1	SNA	
C405	2203-006325	C-CER,CHIP	1.2nF,5%,25V,SL,TP,1608	1	SNA	
C406	2203-002041	C-CER,CHIP	0.47nF,10%,50V,X7R,TP,1608	1	SNA	
C407	2203-002041	C-CER,CHIP	0.47nF,10%,50V,X7R,TP,1608	1	SNA	
C408	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C409	2401-002300	C-AL	47uF,20%,50V,GP,TP,6.3x11,5	1	SNA	
C410	2401-002300	C-AL	47uF,20%,50V,GP,TP,6.3x11,5	1	SNA	
C411	2401-002300	C-AL	47uF,20%,50V,GP,TP,6.3x11,5	1	SNA	
C412	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C413	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C414	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C415	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C416	2401-002598	C-AL	220uF,20%,50V,GP,TP,10x16,5	1	SNA	
C417	2203-000192	C-CER,CHIP	100nF,+80-20%,50V,Y5V,TP,2012	1	SNA	
C418	2306-000123	C-FILM,LEAD-PPF	100nF,5%,630V,BK,26x16.5x8.5,2	1	SNA	
C419	2203-000192	C-CER,CHIP	100nF,+80-20%,50V,Y5V,TP,2012	1	SNA	
C503	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C506	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C507	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C508	2401-001552	C-AL	47uF,20%,35V,GP,TP,6.3x11,2.5	1	SNA	
C509	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C513	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C514	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C515	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C516	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C517	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C518	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C519	2203-000192	C-CER,CHIP	100nF,+80-20%,50V,Y5V,TP,2012	1	SNA	
C520	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C522	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C523	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C524	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	

■ OUTDOOR PCB : DB93-04263B(AQV09FAX), DB93-04263A(AQV12FAX)(cont.)

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
C525	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C526	2203-000189	C-CER,CHIP	100nF,+80-20%,25V,Y5V,TP,1608	1	SNA	
C702	2401-003036	C-AL	100uF,20%,16V,GP,TP,5x11mm,5mm	1	SNA	
C900	2203-006104	C-CER,CHIP	1000nF,10%,50V,X7R,TP,3225	1	SNA	
C901	2201-000322	C-CERAMIC,DISC	2.2nF,10%,2KV,Y5P,TP,13x5mm,10	1	SNA	
C902	2401-000480	C-AL	10uF,20%,50V,GP,TP,5x11,5	1	SNA	
C905	2401-002598	C-AL	220uF,20%,50V,GP,TP,10x16,5	1	SNA	
C906	2203-001562	C-CER,CHIP	10nF,+80-20%,50V,Y5V,TP,2012	1	SNA	
C907	2203-001562	C-CER,CHIP	10nF,+80-20%,50V,Y5V,TP,2012	1	SNA	
CN01	3711-005654	CONNECTOR-HEADER	1WALL,7P,1R,3.96mm,ANGLE,SN,WHT	1	SNA	
CN51	3711-000939	CONNECTOR-HEADER	BOX,4P,1R,2.5mm,STRAIGHT,SN	1	SNA	
CN52	3711-000012	CONNECTOR-HEADER	BOX,4P,1R,2.5mm,STRAIGHT,SN,WHT	1	SNA	
CN53	3711-001038	CONNECTOR-HEADER	BOX,6P,1R,2.5mm,STRAIGHT,SN,WHT	1	SNA	
CN54	3711-003843	CONNECTOR-HEADER	BOX,8P,1R,2mm,STRAIGHT,SN	1	SNA	
CN55	3711-003942	CONNECTOR-HEADER	BOX,2P,1R,2mm,STRAIGHT,SN	1	SNA	
D101	DB98-16591A	ASSY-DIODE RECTIFIER	FEP30JP	1	SNA	
D401	0402-000351	DIODE-RECTIFIER	1N4937,600V,1A,DO-41,TP	1	SNA	
D402	0402-000351	DIODE-RECTIFIER	1N4937,600V,1A,DO-41,TP	1	SNA	
D403	0402-000351	DIODE-RECTIFIER	1N4937,600V,1A,DO-41,TP	1	SNA	
IC01	DB09-00338A	IC MICOM	80 P,5 V,24 MHz,FLASH MEMORY	1	SNA	
IC02	1203-003334	IC-RESET	S-801,SOT-23,5P,2.9x1.6mm,PLASTIC,3.716	1	SNA	
IC55	0506-000175	TR-ARRAY	2003,NPN,7,1W,SOP-16,ST,1000	1	SNA	
IC56	0506-000175	TR-ARRAY	2003,NPN,7,1W,SOP-16,ST,1000	1	SNA	
IC701	1103-001175	IC-EEPROM	93LC56,128x16,SOP,8P,5x4mm,2.5/6.0V,-40	1	SNA	
IPM	DB95-00599A	ASSY-IPM	KFR-35GW/GPI,INVERTER	1	SNA	
LED1	0601-001373	LED	ROUND,RED,3mm,630nm	1	SNA	
LED2	0601-001375	LED	ROUND,GRN,3mm,570nm,3.8x5.3mm	1	SNA	
LED3	0601-001377	LED	ROUND,YEL,3mm,585nm,3.8x5.3mm	1	SNA	
PCB	DB41-00402A	PCB	2LAYERS, FR4, T1.6, 1oz	1	SNA	
Q803	0508-001132	TR-IGBT	-,600V,40A,2.6V,1200UJ,160W,TP-3P	1	SNA	
Q901	DB13-00003A	IC DRIVER GATE	-,SOT-23,-,-,1P,1P,0.2mm,2.93x1.3mm	1	SNA	
Q902	0504-000127	TR-DIGITAL	KSR1102,NPN,200mW,10K/10K,SOT-23,TP	1	SNA	
R110	2007-008023	R-CHIP	100Kohm,5%,1W,TP,6432	1	SNA	
R111	2007-008023	R-CHIP	100Kohm,5%,1W,TP,6432	1	SNA	
R112	2007-008023	R-CHIP	100Kohm,5%,1W,TP,6432	1	SNA	
R113	2007-000924	R-CHIP	470Kohm,1%,1/4W,TP,3216	1	SNA	
R114	2007-000924	R-CHIP	470Kohm,1%,1/4W,TP,3216	1	SNA	
R115	2007-000924	R-CHIP	470Kohm,1%,1/4W,TP,3216	1	SNA	
R116	2007-000385	R-CHIP	14.3Kohm,1%,1/4W,TP,3216	1	SNA	
R407	2007-000781	R-CHIP	33ohm,5%,1/8W,TP,2012	1	SNA	

■ OUTDOOR PCB : DB93-04263B(AQV09FAX), DB93-04263A(AQV12FAX)(cont.)

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
R408	2007-000781	R-CHIP	33ohm,5%,1/8W,TP,2012	1	SNA	
R409	2007-000781	R-CHIP	33ohm,5%,1/8W,TP,2012	1	SNA	
R415	2007-000084	R-CHIP	4.7Kohm,5%,1/10W,TP,1608	1	SNA	
R418	2006-001013	R-CEMENT	0.02ohm,5%,7W,CA,BK,35x9.5x9.5mm	1	SNA	
R419	2007-000074	R-CHIP	100ohm,5%,1/10W,TP,1608	1	SNA	
R420	2007-000074	R-CHIP	100ohm,5%,1/10W,TP,1608	1	SNA	
R421	2007-000074	R-CHIP	100ohm,5%,1/10W,TP,1608	1	SNA	
R422	2007-000074	R-CHIP	100ohm,5%,1/10W,TP,1608	1	SNA	
R423	2007-000074	R-CHIP	100ohm,5%,1/10W,TP,1608	1	SNA	
R424	2007-000074	R-CHIP	100ohm,5%,1/10W,TP,1608	1	SNA	
R425	2007-000074	R-CHIP	100ohm,5%,1/10W,TP,1608	1	SNA	
R501	2007-000962	R-CHIP	5.1Kohm,1%,1/10W,TP,1608	1	SNA	
R502	2007-000614	R-CHIP	24Kohm,1%,1/10W,TP,1608	1	SNA	
R503	2007-000614	R-CHIP	24Kohm,1%,1/10W,TP,1608	1	SNA	
R504	2007-000962	R-CHIP	5.1Kohm,1%,1/10W,TP,1608	1	SNA	
R505	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R506	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R507	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R508	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R509	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R510	2007-000076	R-CHIP	330ohm,5%,1/10W,TP,1608	1	SNA	
R515	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R516	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R517	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R536	2007-000109	R-CHIP	1Mohm,5%,1/10W,TP,1608	1	SNA	
R537	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R538	2007-000090	R-CHIP	10Kohm,5%,1/10W,TP,1608	1	SNA	
R539	2007-000493	R-CHIP	2.2Kohm,5%,1/8W,TP,2012	1	SNA	
R540	2007-000493	R-CHIP	2.2Kohm,5%,1/8W,TP,2012	1	SNA	
R541	2007-000493	R-CHIP	2.2Kohm,5%,1/8W,TP,2012	1	SNA	
R542	2007-000964	R-CHIP	5.1Kohm,5%,1/8W,TP,2012	1	SNA	
R543	2007-000078	R-CHIP	1Kohm,5%,1/10W,TP,1608	1	SNA	
R901	2007-000300	R-CHIP	10Kohm,5%,1/8W,TP,2012	1	SNA	
R902	2007-000300	R-CHIP	10Kohm,5%,1/8W,TP,2012	1	SNA	
R906	2007-001071	R-CHIP	6.8Kohm,5%,1/8W,TP,2012	1	SNA	
R908	2007-000300	R-CHIP	10Kohm,5%,1/8W,TP,2012	1	SNA	
RY501	3501-001154	RELAY-MINIATURE	12Vdc,200mW,3000mA,1FormA,10mS,10	1	SNA	
XTAL01	2802-001179	RESONATOR-CERAMIC	4MHz,0.5%,BK,8x3x5.5mm	1	SNA	
ZD23	0403-000282	DIODE-ZENER	MMBZ5232B,5%,225mW,SOT-23,TP	1	SNA	
C/W 4WAY	DB39-00649E	WIRE-4WAY	UL1015 AWG #18	1	SNA	

■ OUTDOOR PCB : DB93-04263B(AQV09FAX), DB93-04263A(AQV12FAX)(cont.)

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
C/W COMM-N	DB39-00998E	WIRE-COMM-N	UL1015 AWG #20, RING23x5 2Turn	1	SNA	
C/W COMP	DB39-00608H	WIRE-COMP	UL1015 AWG #16, TR36G5A(RED) 4Turn	1	SNA	
L/W EARTH	DB39-00514F	WIRE-EARTH	UL1015 AWG #16, GRN/YEL 280mm	1	SNA	
C/W REACTOR	DB39-00998F	WIRE-REACTOR	UL1015 AWG 16, TR29G5A 4Turn	1	SNA	

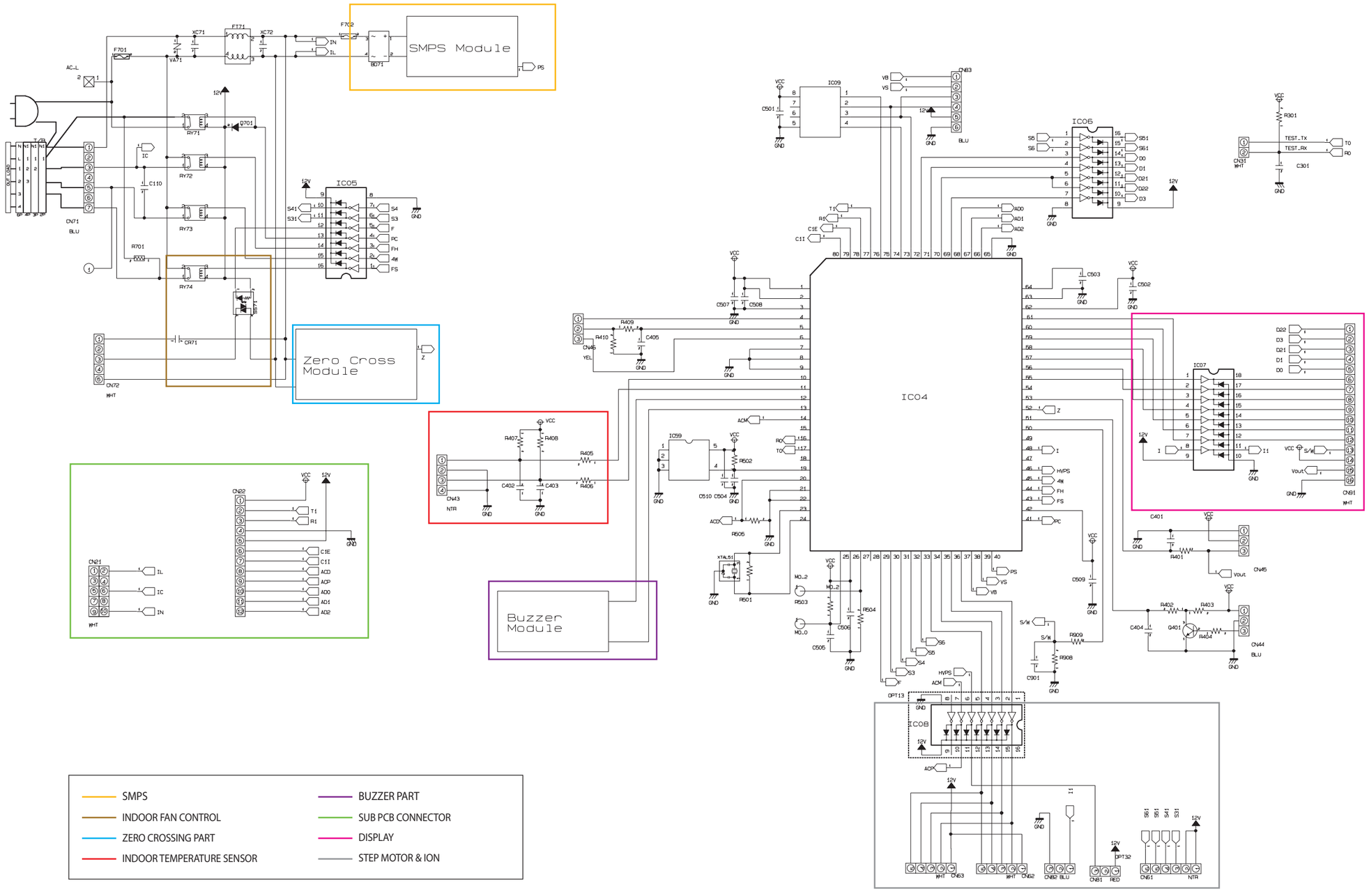
■ EMI PCB : DB93-04264A

Location No.	Code No.	Description	Specification	Q'TY	SA/SNA	Remark
C001	2201-000540	C-CERAMIC,DISC	4.7nF,20%,2kV,Y5U,BK,12x5mm,10	1	SNA	
C002	2201-000540	C-CERAMIC,DISC	4.7nF,20%,2kV,Y5U,BK,12x5mm,10	1	SNA	
C003	2301-001285	C-FILM,LEAD-PPF	680nF,10%,275V,BK,31x11x21mm,27.5	1	SNA	
C004	2301-001325	C-FILM,LEAD-PPF	330nF,10%,275V,TP,26x8.5x18mm,22.5	1	SNA	
C010	2201-000540	C-CERAMIC,DISC	4.7nF,20%,2kV,Y5U,BK,12x5mm,10	1	SNA	
C011	2201-000540	C-CERAMIC,DISC	4.7nF,20%,2kV,Y5U,BK,12x5mm,10	1	SNA	
DSA	4715-001093	SURGE ABSORBER	3600V,20%,2000A,-,AXIAL	1	SNA	
FT00	DB98-17990A	ASSY-EMI FILTER	SH12BWH,LS615044	1	SNA	
FT01	DB98-17990A	ASSY-EMI FILTER	SH12BWH,LS615044	1	SNA	
FUSE	3601-001159	FUSE-CARTRIDGE	250V,20A,SLOW-BLOW,CERAMIC,31.8x6.35mm	1	SNA	
FUSECLIP	3602-001038	FUSE-CLIP	250V,30A,10mohm	1	SNA	
VA04	1405-000154	VARISTOR	460Vdc,2500A,17.5x7.5mm,TP	1	SNA	
VA07	1405-000154	VARISTOR	460Vdc,2500A,17.5x7.5mm,TP	1	SNA	
VA08	1405-000154	VARISTOR	460Vdc,2500A,17.5x7.5mm,TP	1	SNA	
VA09	1405-000154	VARISTOR	460Vdc,2500A,17.5x7.5mm,TP	1	SNA	
-	6042-001009	EYELET	ID1.8,OD2.2,L3,-,BRASS	8	SNA	
-	DB39-00514F	CBF LEAD WIRE-EARTH	-,KFR-35(25)GW/GPI,-,200,-,-,-,GRN/YEL,-,-,-	1	SNA	
-	DB39-00961T	CBF LEAD WIRE	-,SH12BWH,-,120,10A,230V/50Hz,-,BRW,-,-,INVERTER	1	SNA	
-	DB39-00961U	CBF LEAD WIRE	-,SH12BWH,-,120,10A,230V/50Hz,-,BLU,-,-,INVERTER	1	SNA	
-	DB39-00998C	CBF LEAD WIRE-POWER	-,KFR-35(25)GW,2P,140,-,220V,-,BRN/SKYBLU,-,-, AC POWER WIRE	1	SNA	
-	DB41-00532A	PCB SUB	FORTE,FR-1,1,1.0,1.6T,160x140mm,-,3,-,-	1	SNA	

9. Circuit Descriptions

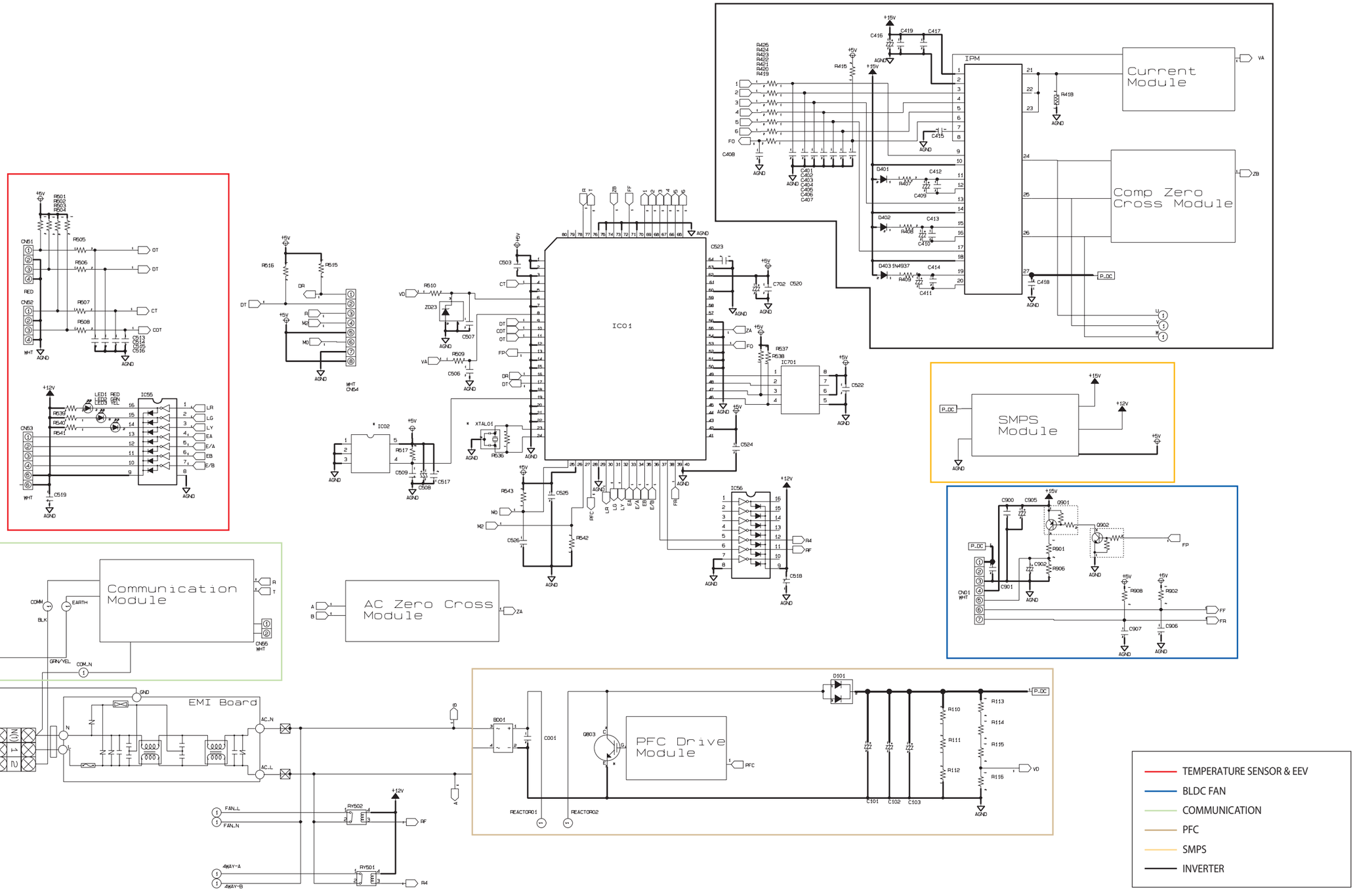
9-1 PCB Circuit Descriptions

9-1-1 Indoor Unit

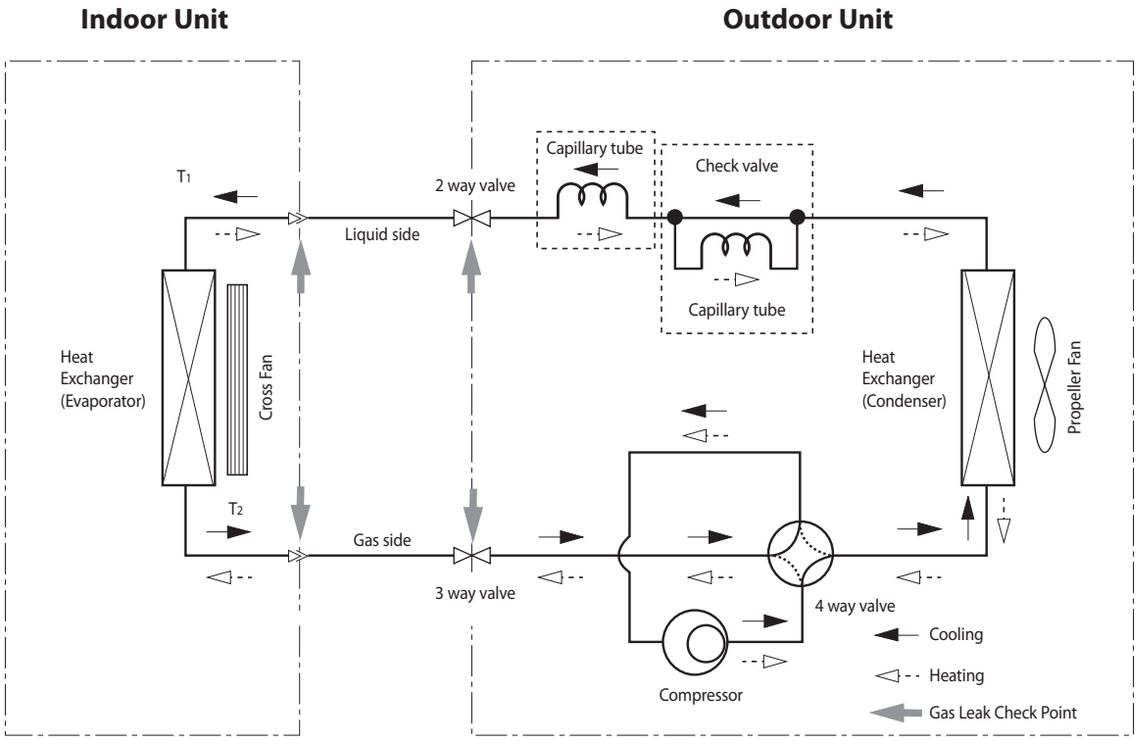


Circuit Descriptions

9-1-2 Outdoor Unit



9-2 Refrigerating Cycle Diagram

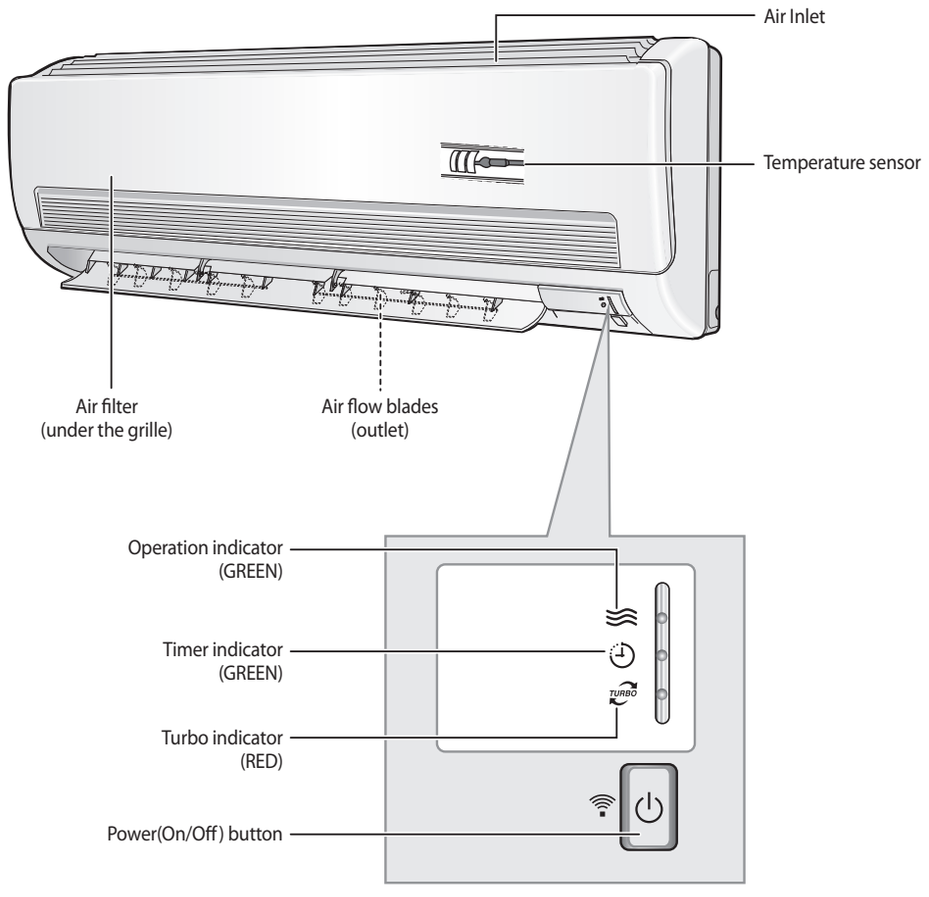


11. Operating Instructions

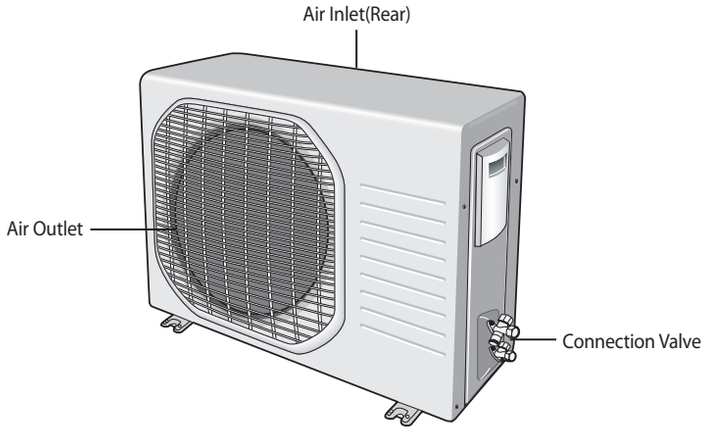
11-1 Name of Each Part

11-1-1 Indoor Unit

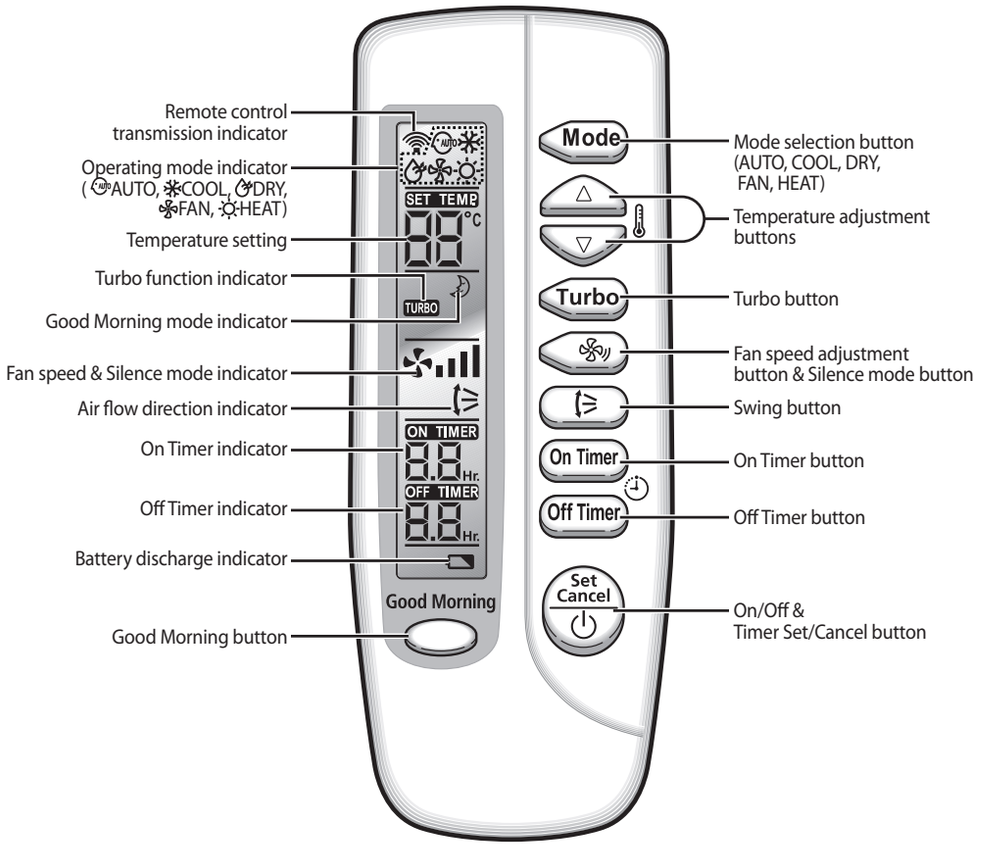
The design and shape are subject to change according to the model.



11-1-2 Outdoor Unit

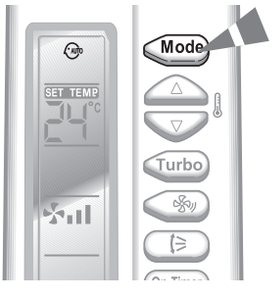
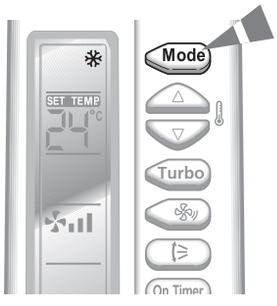
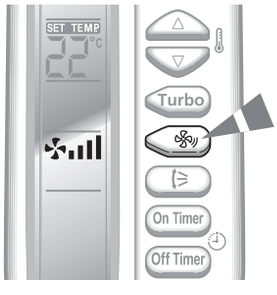
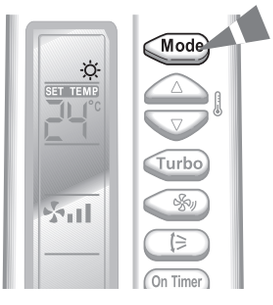
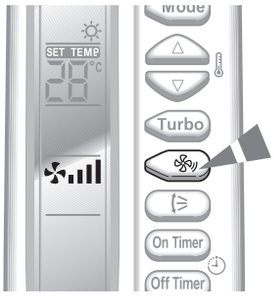


11-2 Wireless Remote Control-Buttons and Display

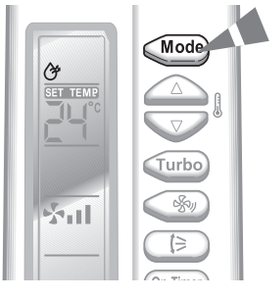
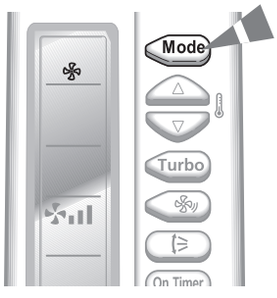


11-3 Main Function

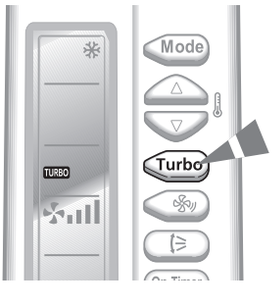
11-3-1 Basic Function

Mode	Explanation	Remark
Auto Mode	Press the Mode button on the remote control until AUTO is displayed.	
Cool Mode	Press the Mode button on the remote control until ❄ is displayed.	
	Press the Fan button to select the fan speed until the required setting is displayed. Automatic (rotated : Low → Medium → High) Low Medium High Maximum Silence mode	
Heat Mode	Press the Mode button on the remote control until ☀ is displayed.	
	Press the Fan button to select the fan speed until the required setting is displayed. Automatic (rotated : Low → Medium → High) Low Medium High Maximum Silence mode	

Basic Function(cont.)

Mode	Explanation	Remark
Dry Mode	Press the Mode button on the remote control until is displayed.	
Fan Mode	Press the Mode button on the remote control until is displayed.	

11-3-2 Applied Function

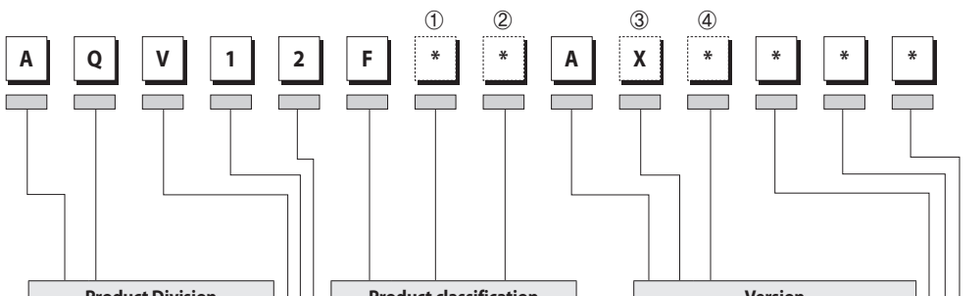
Mode	Explanation	Remark
Turbo Function	Press the Turbo button. • After 30 minutes, the air conditioner is reset automatically to the previous mode, temperature and fan settings. • You can select the Turbo function in the Auto, Cool and Heat mode. If you select this function in the Dry or Fan mode, it will return to the Auto mode.	
Good Morning Mode	Press the Good Morning button one or more times until is displayed on your remote control.	

14. Reference Sheet

14-1 Index for Model Name

✳ Project model code for overseas from 2007(For RAC Export Models)

Model Code



Product Division	
AS	Cooling Only
AQ	Heat Pump

Inverter	
V	Inverter
None	Non Inverter

Capacity	
09	9,000 Btu
12	12,000 Btu
18	18,000 Btu
24	24,000 Btu
30	30,000 Btu
36	36,000 Btu

Product classification	
B	BIG
F	Forte
G	GP
H	HB
J	WW Premium
L	Forte Deluxe
M	Moderato
P	Presto
T	Tiffany
V	Vivace
W	WW
X	Forte Extreme
Z	Tsar

Version	
A	New Developed Model
B	1st VE Model
C	2nd VE Model

Buyer Code	
MID	MIDDLE EAST
SER	RUSSIA

①: Use the " ① " digit for Grille Color deviation.
: Don't use the digit for Basic White model.
ex) Silver : S, Black : B, White : W, etc.

②: Use the " ② " digit for Electric Source deviation.
: Only for "XAP", "XAX", "GEM" Buyer.

③: Use the " ③ " digit for classification between indoor and outdoor.
Indoor ➡ "N" & Outdoor ➡ "X".

④: Use the " ④ " digit for KD models.
"CKD" ➡ "1" & "SKD" ➡ "2".

● Except the RAC Export Models for China.

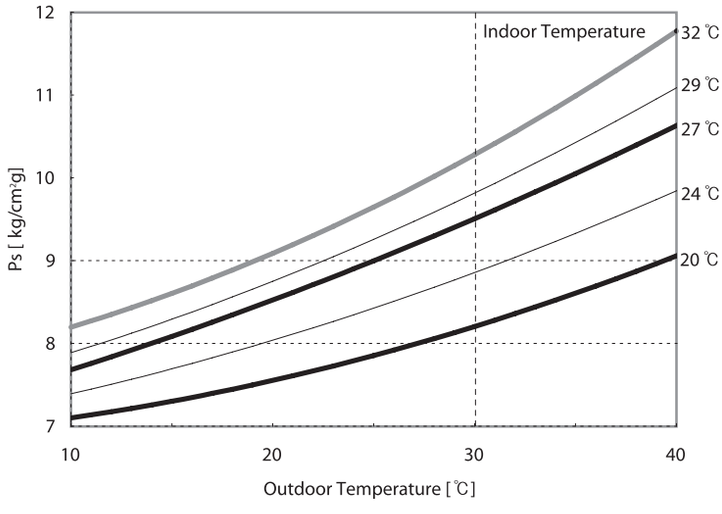
14-2 Low Refrigerant Pressure Distribution

Note : • Please measure the refrigerant pressure after the air conditioner operates on testing cooling mode during more than 10 minutes.

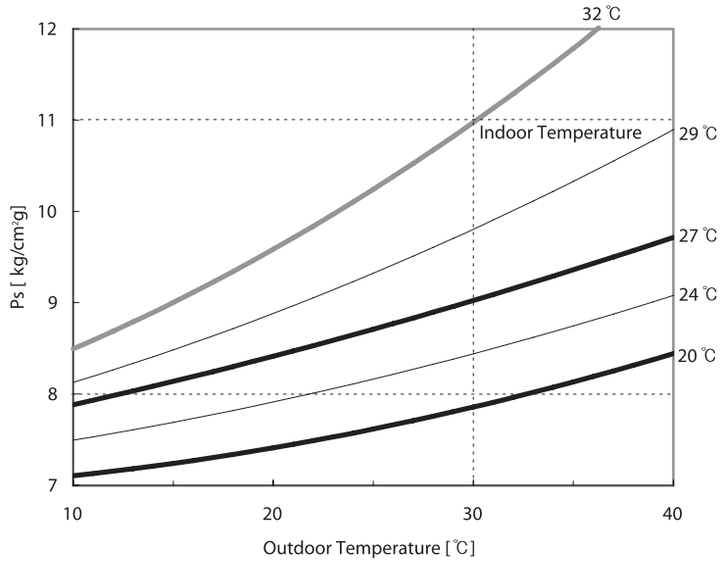
■ Indoor Temp. Variation : 20℃ ~ 32℃

■ Outdoor Temp. Variation : -5℃ ~ 45℃

• ✳✳**09**✳✳



• ✳✳**12**✳✳



14-3 Pressure & Capacity mark

■ Power/Heat

W	cal/s	kcal/h	Btu/h	HP	kg·m/s	lb·m/s
1	0.23885	0.85985	3.4121	0.001341	0.10197	0.73756
4.1868	1	3.6	14.286	0.0056146	0.42693	3.088
1.163	0.27778	1	3.9683	0.0015596	0.11859	0.85778
0.29307	0.06999	0.252	1	3.9302×10^{-4}	0.029885	0.21616
745.7	178.11	641.19	2,544.4	1	76.04	550
9.8067	2.3423	8.4322	33.462	0.013151	1	7.233
1.3558	0.32383	1.1658	4.6262	0.0018182	0.13826	1

14-4 Q & A for Non-trouble

Classification	Class	Description
Cooling	**Q**	**The cooling is weak.**
	A	When it is hot outside, its cooling capacity decreases due to the increase of the ambient temperature. When the dust filter gets blocked or warm outside air gets in, the cooling capacity will decrease. So, make sure to clean the dust filter frequently, prevent heat loss by closing the doors and insulate the cooling area by using curtains, blinds, shades or window tinting.
	Q	**The cooling is good generally. But, it gets weak when it is considerably hot.**
	A	It occurs when the outdoor unit is exposed to direct sun light and heat-up air is not ventilated well.So, set up a sunblind over the outdoor unit and keep stuff away from the unit to increase the ventilation. When the cooling capacity decreases during a heat wave, clean the heat exchanger of the outdoor unit or spray some cold water to the heat exchanger to increase the cooling capability.
	Q	**The cooling is weak. Does it need refrigerant charging?**
	A	It is not correct charging refrigerant regularly. Except that you have moved in several times or the connection pipes are broken, the refrigerant does not run low. So, when refrigerant is additionally charged, it could be costly and cause a product's failure. When the refrigerant leaks, all of it will escape in a short time resulting in cooling failure and no water coming out of the drain hose. So, if water comes out from the drain hose, it indicates the normal operation of the product and it does not need refrigerant charging.
	Q	**It fails to do cooling.**
	A	When the air conditioner is set to Ventilation or the desired temperature is set higher than the current temperature, it fails to do cooling. In this case, select Cooling or set the desired temperature lower.
Leakage	**Q**	**It floods the floor.**
	A	Place the drain hose properly. When it is not placed properly, the drain water would flow back flooding the floor. So, straighten out the drain hose for the water to be drained well.
	Q	**Water drips at the drain connection (service valve) of the outdoor unit.**
	A	When a glass bottle is taken out of the refrigerator, moisture gets condensed on its surface due to the temperature differences. The same principle applies to the air conditioner. When cold refrigerant goes through the copper tube, moisture gets condensed on the surface of the tube and the connection areas. To prevent the water condensation, the pipes are insulated. But, the connection areas of the outdoor unit are not insulated for the purpose of maintenance or repair, and water gets condensed due to the temperature differences and drips down. Generally, it evaporates right away. But, when it drips much during muggy days, put a water pan on the floor.
	Q	**It leaks even though a drain pump is used.**
	A	It occurs when the drain pump is plugged out or it is out of order. Check the power of the drain pump and the position of the drain hose, and when the pump is faulty, contact the drain pump manufacturer. Samsung Electronics do not manufacture drain pumps. So, we are not able to correct the drain pump problems.
Smells	**Q**	**Whenever the air conditioner is turned on, it irritates my eyes and gives me a headache.**
	A	There are no components in the air conditioner irritating the eyes and sending out chemical smells. But, when the air conditioner is turned on, other smell sources are sucked into the air conditioner and get out of it. So, find and root out the smell sources. Generally, it occurs at a interior renovated place, a pharmacy, a gasoline handling place, a tire shop, a second-hand book shop or an electronic component handling place; when its chemical or musty smells are sucked in and sent out, it can be misled that the air conditioner generates them. So, find and root out the problem or refresh the room frequently.

Classification	Class	Description
Smells	Q	**Whenever the air conditioner is turned on, it stinks.**
	A	There are no components in the air conditioner sending out chemical smells. But, when the air conditioner is turned on, other smell sources are sucked into the air conditioner and get out of it. So, find and root out the smell sources. Generally, when the drain hose is taken out to the washing room or there are sources of smells such as a diaper bin, a shoe shelf or a socks bin, bad smells generate. Also, it occurs where glass cleaners or air fresheners are used; when they are sucked in interacting with dusts and moistures inside, bad smells generate. These kinds of organic materials noxious to human bodies. So, we recommend against the use of them.
	Q	**Whenever the air conditioner is turned on, it smells sour.**
	A	When the room is papered recently, its paste smells would be sucked inside. Also, when the air conditioner is installed in the study room of young boys loving sweat-generating activities such as the basketball, excessive sweats evaporate and get sucked into the air conditioner resulting in bad smells. So, find and root out the problem or refresh the room frequently.
	Q	**Whenever the air conditioner is turned on, it smells musty.**
	A	It is due to the improper keeping of the product after its use. When keeping the product, dry up the inside with the operation of Ventilation to prevent must. When the product is kept without drying up the inside with Ventilation, mold would grow inside resulting in must. So, open the windows and switch on the Ventilation function to get rid of the saturated smell inside.
	Q	**Whenever the air conditioner is turned on, it sends out bad smells such as stale smells.**
	A	It occurs generally when there are pet animals in the house. Their smells stay at the same place. But, when the air conditioner is turned on, the air gets circulated resulting in the circulation of the smells. So, find and root out the problem or refresh the room frequently.
	Q	**It sends out bad smells.**
	A	When the air filter is filthy, it could send out bad smells. So, clean the filter and ventilate the room with the windows open while operating the Ventilation function.
Operation	Q	**It won't start.**
	A	There is a power failure or it is plugged out. Also, check if the power distribution panel is switched off.
	Q	**It goes off during operation.**
	A	When the hot air does not escape properly, it goes off during operation. It occurs when it does not ventilate properly because the outdoor unit is covered, the back of the outdoor unit is blocked by a cardboard or a plywood panel, and the front of the outdoor unit is blocked by the closed window or other obstacles. Clear the above obstacles from the outdoor unit.
	Q	**It generally works properly. But, when it's considerably hot, it goes off during operation.**
	A	It occurs when the outdoor unit is exposed to direct sunlight and the hot air does not escape properly. Set up a sun blind over the outdoor unit and clear the neighboring obstacles from the outdoor unit to provide good ventilation. When it goes off frequently during a heat wave, it would prevent the turn-off and increase the cooling capacity cleaning the outdoor unit or spraying some water to the heat exchanger.
	Q	**The remote controller won't operate.**
	A	When the batteries run out or the transmitter or receiver of the remote controller is blocked by obstacles, change the batteries or keep the obstacles away from the controlling area. Also, the remote controller may not work under intensive light from a 3-wave length lamp or a neon sign due to the EMI. In this case, take the remote controller closer to the receiver.

Classification	Class	Description
Installation	**Q**	**Who installs the air conditioner? (Relocation/Re-installation)**
	A	When relocating or re-installing the air conditioner, make sure to contact Samsung Electronics Service Center or Authorized Service Agent and have them to do the job. (If not, it could cause personal injury or product damage.) The cost for the relocation/re-installation of the air conditioner is subject to the customer's expense. There is a cost table. But, our service engineer needs to visit to total up the cost correctly. When you move in, make sure to contact Samsung Electronics Service Center or Authorized Service Agent in advance to streamline the process.
	Q	**Is it possible to install the outdoor unit outside?**
	A	It is possible to install it at a designated place in the apartment or on the rooftop nearby. But, it's illegal hanging an angle iron case with the outdoor unit in it outside the apartment. Also, it is illegal obstructing passers-by with the outdoor unit installed outside.
	Q	**What can be done to install the outdoor unit facing the road because it is a commercial building?**
	A	The following is an excerpt from Building Code going into effect from JUNE 1st 2005. "The exhaust pipe of a cooling or ventilation facility installed in a building adjacent to the streets of commercial or residential areas shall be installed higher than 2 m to prevent the exhaust air from blowing directly to passers-by and the current facilities shall be corrected by MAY 31st 2005." So, please install it higher than 2 m or not to blow the hot exhausting air directly to passers-by.
	Q	**What about installing a windscreen during installation not to blow hot air directly to passers-by?**
	A	When the hot air from the front of the outdoor unit is blocked, the product's performance will be affected and it will fail to operate properly. So, keep it at least 300mm away from its surrounding walls and give it good ventilation.

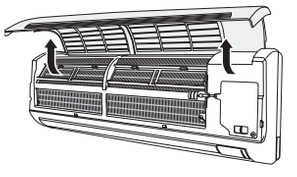
14-5 Cleaning/Filter Change

14-5-1 Cleaning your Air Conditioner

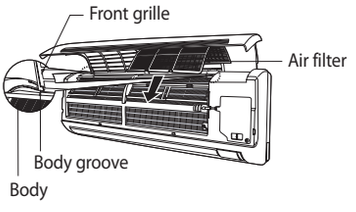
To get the best possible use out of your air conditioner, you must clean it regularly to remove the dust that accumulates on the air filter.

• Before cleaning your air conditioner, ensure that you have switched off the breaker used for the unit.

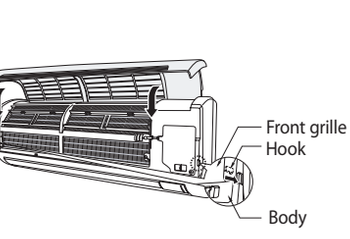
1. Open the upper front grille by pulling the lower right and left tabs of the grille.



2. Pull air filters out of each tab of the grille.
3. Remove all dust on the air filters with a vacuum cleaner or brush.
4. When you finished, insert air filters by fixing it to each tab of the grille.
5. To close the front grille, fix it to hooks and push down the lower right and left tabs of the grille.



6. Clean the front grille with a damp cloth and mild detergent (do NOT use benzene, solvents or other chemicals).

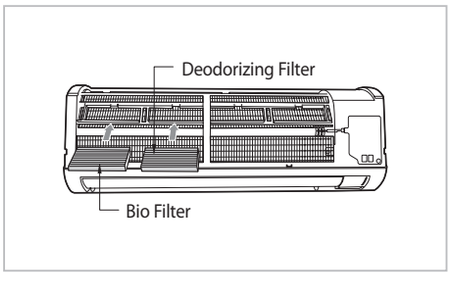


Note : • If you have not used the air conditioner for a long period of time, set the fan going for three to four hours to dry the inside of the air conditioner thoroughly.

14-5-2 Cleaning Deodorizing and Bio filter (Option)

To remove minute dust particles and odors, deodorizing and Bio filter are installed in the air conditioner.
You should clean the filters every 3 months.

1. Open the upper front grille by pulling the lower right and left tabs of the grille.
2. Pull out the deodorizing and Bio filter.
3. Wash the filters with clean water, then dry them in the shade.
4. Insert the filters into the original position.
   Note : • You can change the position of filters with each other.
5. Close the front grille.



14-6 Installation

14-6-1 Before Installation

Keep the air conditioner outlet and inlet free from its surroundings.
In case of installation, keep the symmetry and fix it to prevent vibration.
The pipe length shall meet the standard as far as possible.

14-6-2 Installation Procedure

■ Location

Install the product in an area to guarantee the best cooling effect, convenience of piping and electric work, and inexistence of vibration or wind.

■ Wall Drilling

Drill the wall downward in a diameter of 60 to 65mm.

■ Fixing Indoor Unit & Outdoor Unit

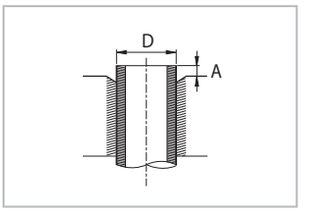
Fix the air conditioner indoor unit securely to the wall. Secure the outdoor unit in a suitable position.

■ Pipe Spooling & Connecting

You shall cut the pipe with a pipe cutter and grind all the burrs of the cut surface.
Pipe expansion may continue until the pipe surface becomes uneven or torn apart.
Be sure to use a torque wrench to tighten pipes or flare nuts.

<Torque & Depth>

Outer Diameter(D)	Torque(kgf·cm)	Depth(A)
6.35mm(1/4")	140~170	1.3mm
9.52mm(3/8")	250~280	1.8mm
12.70mm(1/2")	380~420	2.0mm
15.88mm(5/8")	440~480	2.2mm
19.05mm(3/4")	990~1,210	2.2mm



■ Leak Test

Put an inert gas like nitrogen in the outdoor unit pipe and put soap bubbles or other test liquids on the pipe surface for the leak test.

■ Drain Hose Connecting

Install the drain hose downward to drain water naturally. Be sure to pour water into the hose to check if it drains well.

■ Electric & Earth Work

Electric and earth work shall meet the "Electric Facility Technology Standard" and the "Internal Wire Regulation" of the Electric Business Laws.

■ Inspection & Trial Run

Upon completion of the tests, you shall make a trial run while you explain the main functions of the air conditioner to finish the installation.

14-7 Installation Diagram of Indoor Unit and Outdoor Unit

14-7-1 Air-Purge Procedure

1) Connect each assembly pipe to the appropriate valve on the outdoor unit and tighten the flare nut.

2) Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port as shown at the figure.

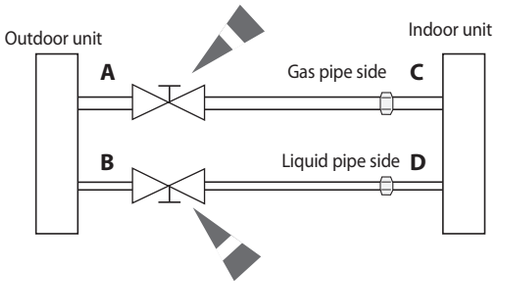
3) Open the valve of the low pressure side of manifold gauge counter-clockwise.

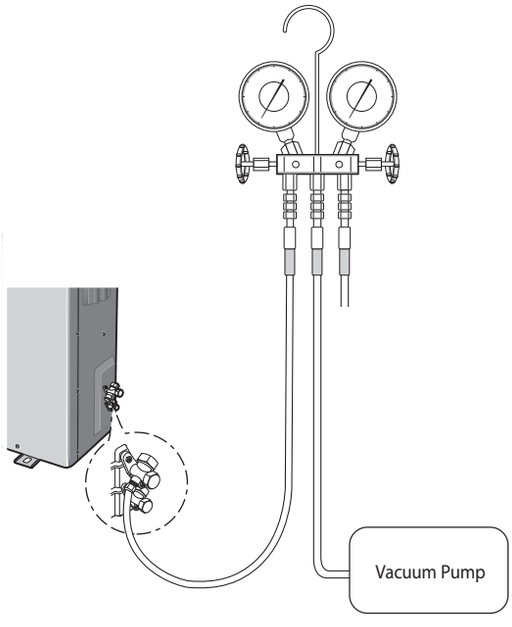
4) Purge the air from the system using vacuum pump for about 30 minutes.
   - Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 30 minutes.
   - This procedure is very important in order to avoid gas leak.
   - Turn off the vacuum pump.
   - Close the valve of the low pressure side of manifold gauge clockwise.
   - Remove the hose of the low pressure side of manifold gauge.

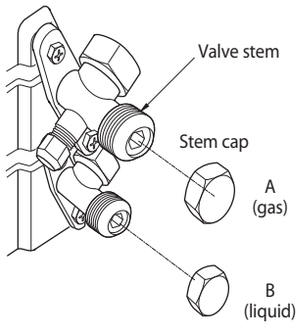
5) Set valve cork of both liquid side and gas side of packed valve to the open position.

6) Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 183kgf•cm with a torque wrench.

7) Check for gas leakage.
   - At this time, especially check for gas leakage from the 3 way valve's stem nuts, and from the service port cap.







14-7-2 “Pump down” Procedure

Pump down will be carried out when an evaporator is replaced or when the unit is relocated in another area.

1) Remove the caps from the 3 way valve and the 3-Way valve.

2) Turn the 3-Way valve clockwise to close and connect a pressure gauge (low pressure side) to the service valve, and open the 3 way valve again.

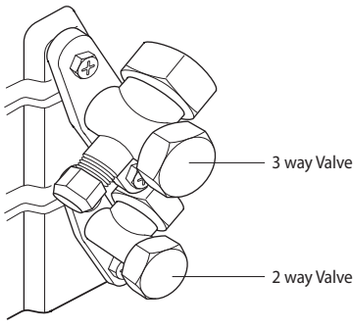
3) Set the unit to cool operation mode. (Check if the compressor is operating.)

4) Turn the 3-Way valve clockwise to close.

5) When the pressure gauge indicates "0" turn the 3-Way valve clockwise to close.

6) Stop operation of the air conditioner.

7) Close the cap of each valve.



Remarks

Relocation of the air conditioner

- Refer to this procedure when the unit is relocated.
- Carry out the pump down procedure (refer to the details of 'pump down').
- Remove the power cord.
- Disconnect the assembly cable from the indoor and outdoor units.
- Remove the flare nut connecting the indoor unit and the pipe.
- At this time, cover the pipe of the indoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
- Disconnect the pipe connected to the outdoor unit.
  At this time, cover the valve of the outdoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
- Make sure you do not bend the connection pipes in the middle and store together with the cables.
- Move the indoor and outdoor units to a new location.
- Remove the mounting plate for the indoor unit and move it to a new location.

Printed in China.
Code No. DB98-27102A(1)

1. Precautions

1-1 Installing the air conditioner

- Users should not install the air conditioner by themselves.
  Ask the dealer or authorized company to install the air conditioner except the window-type air conditioner in U.S.A and Canada.
- If you don't install the air conditioner properly, it may cause a fire, a water leakage or an electric shock.
- You must install the air conditioner according to the national wiring regulations and safety regulations.
- Install the indoor unit higher than 2.5m from the floor to avoid the injury caused by the operation of the fan.
  (except the window-type air conditioner)
- The manufacturer is not responsible for any accidents or injury caused by an incorrect installation.
- When installing the built-in type air conditioner, keep all electric cables such as the power cable and the connection cord in pipes, ducts, or cable channels to protect them from the danger of impact or any other incidents.

1-2 Power supply and circuit breaker

- If the power cord of the air conditioner is damaged, it must be replaced by the manufacturer or a qualified person in order to avoid a hazard.
- The air conditioner must be plugged into an independent circuit if applicable or connect the power cable to the auxiliary circuit breaker.
  An all pole disconnection from the power supply must be incorporated in the fixed wiring with a contact opening of >3mm.
- Do not extend an electric cord to the air conditioner.
- The air conditioner must be plugged in after you complete the installation.

1-3 During operation

- Do not repair the air conditioner at your discretion.
  It is recommended to contact a service center directly.
- Never spill any kind of liquid on the air conditioner.
  If this happens, turn off the air conditioner and contact an authorized service center.
- Do not insert anything between the airflow blades to prevent damage of the inner fan and consequent injury.
  Keep children away from the air conditioner.
- Do not place any obstacles in front of the air conditioner.
- Do not spray any kind of liquid into the indoor unit. If this happens, turn off the air conditioner and contact a service center.
- Make sure that the air conditioner is well ventilated at all times:
  Do not place a cloth or other materials over it.
- Remove the batteries if you don't use the remote control for a long time. (If applicable)
- Use the remote control within 7 meters from the indoor unit. (If applicable)

1-4 Disposing of the unit

- Before throwing out the air conditioner, remove the batteries from the remote control.
- When you dispose of the air conditioner, consult your dealer. If pipes are removed incorrectly, refrigerant may blow out and cause air pollution. When it contacts with your skin, it can cause skin injury.
- The package of the air conditioner should be recycled or disposed of properly for environmental reasons.

1-5 Others

- Never store or load the air conditioner upside down or sideways to prevent the damage to the compressor.
- Young children or infirm persons should be always supervised when they use the air conditioner.
- Max current is measured according to IEC standard for safety.
- Current is measured according to ISO standard for energy efficiency.