SAMSUNG

SPLIT-TYPE AIR CONDITIONER

	INDOOR UNIT	OUTDOOR UNIT
Basic Model	AQV18PMBN	AQV18EWAX
	AQV24PMBN	AQV24PMBX
Model	AR18FSFPDGM/EU	AR24FSFPDGM/EU
	AR18FSFPESN/EU	AR24FSFPESN/EU
	AR18FSFTJWQ/EU	AR24FSFTJWQ/EU
Model Code	AR18FSFPDGMNEU	AR18FSFPDGMXEU
	AR18FSFPESNNEU	AR18FSFPESNXEU
	AR18FSFTJWQNEU	AR18FSFTJWQXEU
	AR24FSFPDGMNEU	AR24FSFPDGMXEU
	AR24FSFPESNNEU	AR24FSFPESNXEU
	AR24FSFTJWQNEU	AR24FSFTJWQXEU

SERVICE Manual

AIR CONDITIONER

CONTENTS

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

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1. Precautions

1-1 Installing the air conditioner

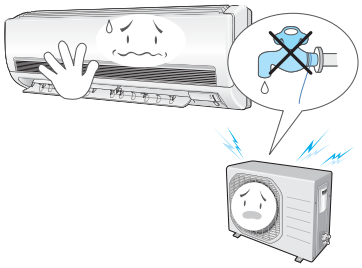
- Users should not install the air conditioner by themselves.
  Ask the dealer or authorized company to install the air conditioner except the window-type air conditioner in U.S.A and Canada.
- If you don't install the air conditioner properly, it may cause a fire, a water leakage or an electric shock.
- 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)

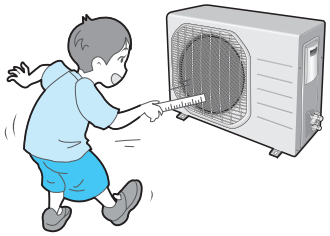


1-4 Disposing of the unit

- 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.



2. Product Specifications

2-1 The Feature of Product

■ **good' sleep Mode**

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

■ **Catechin Filter**

■ **Silver Nano Evaporator**

■ **Deodorizing Filter**

them with clean,refreshing air .

■ **MPI**

2-2 Product Specifications

Item / Model					AR18FSSEDWUEU	
					Indoor Unit	Outdoor Unit
Type					Wall-mounted	
Performance	Capacity	Cooling		kW (Low / Std / Max)	1.6/5.0/6.0	
		Heating			1.2/6.0/8.2	
	Running Frequency	Cooling		Hz (Low / Std / Max)	15/64/76	
		Heating			15/74/90	
	Dehumidifying			ℓ/h	1.54	
	Air Volume	Cooling		㎥/min (H/M/L)	13.74/11.97/10.15 (reference)	–
		Heating			14.31/12.49/10.55 (reference)	–
	Noise	Cooling		dB (H/L)	46/33	57/33
		Heating				
	Energy Efficiency Ratio	Cooling		W/W (Std)	3.4	
		Heating			3.45	
	Power			ph-V-Hz	1-220/240-50	
Power	Power Consumtion	Cooling		W (Low / Std / Max)	290/1470/1830	
		Heating			260/1740/2300	
	Operating Current	Cooling		A (Low / Std / Max)	1.8/6.8/8.4	
		Heating			1.6/8.1/10.5	
	Power Factor	Cooling		% (Low / Std / Max)	75/90/95	
		Heating			75/90/95	
Size	Outer Dimension (gross)	W x H x D		mm	1125*375*290	1023*413*730
	Weight (Net)			kg	11.5	45
	Refrigerant Pipe	Liquid		mm x L(m)	Φ6.35 x 5	
		Gas		mm x L(m)	Φ12.7x5	
	Drain Hose			D x L(mm)	Φ20 x 550	
	Compressor	Type			Rotary, UG4T150FUDEQ	
		Motor	Type		Hermetic	
			Rated Output		4454 W	
	Oil Type				POE	
	Blower	Type			Cross-flow	Propeller
		Motor	Type		Resin / Steel	Resin / Steel
			Rated Output	W	40	93
Heat Exchanger					2 Row 16 Step	2 Row 28 Step
Refrigerant Control Unit					EEV	
Freezer Oil Capacity				cc	650	
Refrigerant to Change (R410A)				g	1300	
Protection Device (OLP)					None	
Cooling Test Condition					DB27°C WB 19°C	DB35°C WB 24°C
Heating Test Condition					DB20°C WB 15°C	DB7°C WB 6°C
Operation conditon range		cooling		indoor	16°C ~ 32°C	
				Outdoor	-10°C ~ 46°C	
		heating		indoor	27°C or less	
				Outdoor	-15°C ~ 24°C	

2-2 Product Specifications

Item				Model	AR24FSSEDWUEU	
					Indoor Unit	Outdoor Unit
Type					Wall-mounted	
Performance	Capacity	Cooling		kW (Low / Std / Max)	2.2/6.8/8.0	
		Heating			1.9/7.8/11.3	
	Running Frequency	Cooling		Hz (Low / Std / Max)	15/70/88	
		Heating			15/70/100	
	Dehumidifying			ℓ/h	2.69	
	Air Volume	Cooling		㎥/min (H/M/L)	16/14/12 (reference)	-
		Heating			16/14/12 (reference)	-
	Noise	Cooling		dB (H/L)	50/33	60/33
		Heating				
	Energy Efficiency Ratio	Cooling		W/W (Std)	3.16	
		Heating			3.32	
	Power			ph-V-Hz	1-220/240-50	
Power	Power Consumtion	Cooling		W (Low / Std / Max)	420/2150/2800	
		Heating			370/2350/3750	
	Operating Current	Cooling		A (Low / Std / Max)	2.6/9.5/12.5	
		Heating			2.3/10.5/16.5	
	Power Factor	Cooling		% (Low / Std / Max)	75/90/95	
		Heating			75/90/95	
Size	Outer Dimension	W x H x D		mm	1125*375*290	1023*413*925
	Weight (Net)			kg	11.5	55
	Refrigerant Pipe	Liquid		mm x L(m)	Φ6.35 x 5	
		Gas		mm x L(m)	Φ15.88x 5	
	Drain Hose			D x L(mm)	Φ20x550	
	Compressor	Type			Rotary,UG4T200FUAE4	
		Motor	Type		Hermetic	
			Rated Output		5919W	
	Oil Type				POE	
	Blower	Type			Cross-flow	Propeller
		Motor	Type		Resin / Steel	Resin / Steel
			Rated Output	W	40	93
Heat Exchanger					2 Row 16 Step	2 Row 36 Step
Refrigerant Control Unit					EEV	
Freezer Oil Capacity				cc	650	
Refrigerant to Change (R410A)				g	1650	
Protection Device (OLP)					None	
Cooling Test Condition					DB27°C WB 19°C	DB35°C WB 24°C
Heating Test Condition					DB20°C WB 15°C	DB7°C WB 6°C
Operation conditon range		cooling		indoor	16°C ~ 32°C	
				Outdoor	-10°C ~46°C	
		heating		indoor	27°C or less	
				Outdoor	-15°C ~ 24°C	

2-2 Product Specifications

Model				AR18FSFTJWQ/EU	
				Indoor Unit	Outdoor Unit
Type				Wall-mounted	
Performance	Capacity	Cooling	KW (Low / Std / Max)	1.6 / 5.0 / 6.0	
		Heating		1.2 / 6.0 / 8.2	
	Running Frequency	Cooling	Hz (Low / Std / Max)	15 / 64 / 76	
		Heating		15 / 73 / 93	
	Dehumidifying		l/h	1.54	
	Air Volume	Cooling	m^3/min (H/M/L)	13.74/11.97/10.15 (Reference)	-
		Heating		14.31/12.49/10.55 (Reference)	-
	Noise	Cooling	dB (H/L)	46 / 33	57 / 33
		Heating			
	Energy Efficiency Ratio	Cooling	KW/KW (Std)	3.4	
		Heating		3.45	
	Power		ph-V-Hz	1phase, 220-240V, 50Hz	
Power	Power Consumption	Cooling	KW (Low / Std / Max)	0.3 / 1.47 / 1.90	
		Heeting		0.26 / 1.74 / 2.40	
	Operating Current	Cooling	A (Low / Std / Max)	1.7 / 6.8 / 8.5	
		Heeting		1.6 / 7.9 / 10.8	
	Power Factor	Cooling	% (Low / Std / Max)	75 / 90 / 95	
		Heeting		75 / 90 / 95	
Size	Outer Dimension (gross	W×H×D	(mm)	1125×375×290	1023×413×730
	Weight(net)		Kg	11.5	45
	Refrigerant Pipe	Liquid	D×L(mm)	Φ6.35×5	
		Gas		Φ12.7×5	
	Drain Hose		D×L(mm)	Φ20×550	
	Compressor	Type		Rotary,UG4T150FUDEQ	
		Motor	Type	Hermetic	
			Rated Output (W)	4454W	
	Oil Type			POE	
	Blower	Type		Cross Flow	Propeller
		Motor	Type	Resin / Steel	Resin / Steel
			Rated Output (W)	40	93
Heat Exchanger				2 Row 16 Step	2 Row 28 Step
Refrigerant Control Unit				EEV	
Freezer Oil Capacity			cc	350	
Refrigerant to Change (R410A)			g	1300	
Cooling Test Condition				DB 27℃/WB 19℃	DB 35℃/WB 24℃
Heating Test Condition				DB 20℃/WB 15℃	DB 7℃/WB 6℃
Operation Condition Range		Cooling	Indoor Unit	16℃~32℃	
			Outdoor Unit	-10℃~46℃	
		Heeting	Indoor Unit	27℃ or less	
			Outdoor Unit	-15℃~24℃	

2-2 Product Specifications

Model				AR24FSFTJWQ/EU	
				Indoor Unit	Outdoor Unit
Type				Wall-mounted	
Performance	Capacity	Cooling	KW (Low / Std / Max)	2.2 / 6.8 / 8.0	
		Heating		1.9 / 7.8 / 11.3	
	Running Frequency	Cooling	Hz (Low / Std / Max)	15 / 70 / 88	
		Heating		15 / 71 / 100	
	Dehumidifying		l/h	2.69	
	Air Volume	Cooling	m³/min (H/M/L)	16/14/12(Reference)	-
		Heating		16/14/12(Reference)	-
	Noise	Cooling	dB (H/L)	50 / 33	60 / 33
		Heating			
	Energy Efficiency Ratio	Cooling	KW/KW (Std)	3.16	
		Heating		3.32	
	Power		ph-V-Hz	1phase, 220-240V, 50Hz	
Power	Power Consumption	Cooling	KW (Low / Std / Max)	0.42 / 2.15 / 2.80	
		Heeting		0.37 / 2.35 / 3.75	
	Operating Current	Cooling	A (Low / Std / Max)	2.6 / 9.5 / 12.5	
		Heeting		2.3 / 10.5 / 16.5	
	Power Factor	Cooling	% (Low / Std / Max)	75 / 90 / 95	
		Heeting		75 / 90 / 95	
Size	Outer Dimension (gross	W×H×D	(mm)	1125×375×290	1023×413×925
	Weight(net)		Kg	11.5	55
	Refrigerant Pipe	Liquid	D×L(mm)	Φ6.35×5	
		Gas		Φ15.88×5	
	Drain Hose		D×L(mm)	Φ20×550	
	Compressor	Type		Rotary,UG4T200FUAE4	
		Motor	Type	Hermetic	
			Rated Output (W)	5919W	
	Oil Type			POE	
	Blower	Type		Cross Flow	Propeller
		Motor	Type	Resin / Steel	Resin / Steel
			Rated Output (W)	40	93
Heat Exchanger				2 Row 16 Step	2 Row 36 Step
Refrigerant Control Unit				EEV	
Freezer Oil Capacity			cc	650	
Refrigerant to Change (R410A)			g	1650	
Cooling Test Condition				DB 27℃/WB 19℃	DB 35℃/WB 24℃
Heating Test Condition				DB 20℃/WB 15℃	DB 7℃/WB 6℃
Operation Condition Range		Cooling	Indoor Unit	16℃~32℃	
			Outdoor Unit	-10℃~46℃	
		Heeting	Indoor Unit	27℃ or less	
			Outdoor Unit	-15℃~24℃	

2-2 Product Specifications

Model				AR24FSFPESN/EU	
				Indoor Unit	Outdoor Unit
Type				Wall-mounted	
Performance	Capacity	Cooling	KW (Low / Std / Max)	2.2 / 6.8 / 8.0	
		Heating		1.9 / 7.8 / 11.3	
	Running Frequency	Cooling	Hz (Low / Std / Max)	15 / 70 / 88	
		Heating		15 / 71 / 100	
	Dehumidifying		l/h	2.69	
	Air Volume	Cooling	m³/min (H/M/L)	16/14/12(Reference)	-
		Heating		16/14/12(Reference)	-
	Noise	Cooling	dB (H/L)	50 / 33	60 / 33
		Heating			
	Energy Efficiency Ratio	Cooling	KW/KW (Std)	3.16	
		Heating		3.32	
	Power		ph-V-Hz	1phase, 220-240V, 50Hz	
Power	Power Consumption	Cooling	KW (Low / Std / Max)	0.42 / 2.15 / 2.80	
		Heeting		0.37 / 2.35 / 3.75	
	Operating Current	Cooling	A (Low / Std / Max)	2.6 / 9.5 / 12.5	
		Heeting		2.3 / 10.5 / 16.5	
	Power Factor	Cooling	% (Low / Std / Max)	75 / 90 / 95	
		Heeting		75 / 90 / 95	
Size	Outer Dimension (gross	W×H×D	(mm)	1125×375×290	1023×413×925
	Weight(net)		Kg	11.5	55
	Refrigerant Pipe	Liquid	D×L(mm)	Φ6.35×5	
		Gas		Φ15.88×5	
	Drain Hose		D×L(mm)	Φ20×550	
	Compressor	Type		Rotary,UG4T200FUAE4	
		Motor	Type	Hermetic	
			Rated Output (W)	5919W	
	Oil Type			POE	
	Blower	Type		Cross Flow	Propeller
		Motor	Type	Resin / Steel	Resin / Steel
			Rated Output (W)	40	93
Heat Exchanger				2 Row 16 Step	2 Row 36 Step
Refrigerant Control Unit				EEV	
Freezer Oil Capacity			cc	650	
Refrigerant to Change (R410A)			g	1650	
Cooling Test Condition				DB 27℃/WB 19℃	DB 35℃/WB 24℃
Heating Test Condition				DB 20℃/WB 15℃	DB 7℃/WB 6℃
Operation Condition Range		Cooling	Indoor Unit	16℃~32℃	
			Outdoor Unit	-10℃~46℃	
		Heeting	Indoor Unit	27℃ or less	
			Outdoor Unit	-15℃~24℃	

2-2 Product Specifications

Model				AR18FSFPESN/EU	
				Indoor Unit	Outdoor Unit
Type				Wall-mounted	
Performance	Capacity	Cooling	KW (Low / Std / Max)	1.6 / 5.0 / 6.0	
		Heating		1.2 / 6.0 / 8.2	
	Running Frequency	Cooling	Hz (Low / Std / Max)	15 / 64 / 76	
		Heating		15 / 73 / 93	
	Dehumidifying		l/h	1.54	
	Air Volume	Cooling	m^3/min (H/M/L)	13.74/11.97/10.15 (Reference)	-
		Heating		14.31/12.49/10.55 (Reference)	-
	Noise	Cooling	dB (H/L)	46 / 33	57 / 33
		Heating			
	Energy Efficiency Ratio	Cooling	KW/KW (Std)	3.4	
		Heating		3.45	
	Power		ph-V-Hz	1phase, 220-240V, 50Hz	
Power	Power Consumption	Cooling	KW (Low / Std / Max)	0.3 / 1.47 / 1.90	
		Heeting		0.26 / 1.74 / 2.40	
	Operating Current	Cooling	A (Low / Std / Max)	1.7 / 6.8 / 8.5	
		Heeting		1.6 / 7.9 / 10.8	
	Power Factor	Cooling	% (Low / Std / Max)	75 / 90 / 95	
		Heeting		75 / 90 / 95	
Size	Outer Dimension (gross	W×H×D	(mm)	1125×375×290	1023×413×730
	Weight(net)		Kg	11.5	45
	Refrigerant Pipe	Liquid	D×L(mm)	Φ6.35×5	
		Gas		Φ12.7×5	
	Drain Hose		D×L(mm)	Φ20×550	
	Compressor	Type		Rotary,UG4T150FUDEQ	
		Motor	Type	Hermetic	
			Rated Output (W)	4454W	
	Oil Type			POE	
	Blower	Type		Cross Flow	Propeller
		Motor	Type	Resin / Steel	Resin / Steel
			Rated Output (W)	40	93
Heat Exchanger				2 Row 16 Step	2 Row 28 Step
Refrigerant Control Unit				EEV	
Freezer Oil Capacity			cc	350	
Refrigerant to Change (R410A)			g	1300	
Cooling Test Condition				DB 27℃/WB 19℃	DB 35℃/WB 24℃
Heating Test Condition				DB 20℃/WB 15℃	DB 7℃/WB 6℃
Operation Condition Range		Cooling	Indoor Unit	16℃~32℃	
			Outdoor Unit	-10℃~46℃	
		Heeting	Indoor Unit	27℃ or less	
			Outdoor Unit	-15℃~24℃	

2-3 The Comparative Specifications of Product

Item		Development Model
		AR18FSSEDWUEU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	IndoorUnit	11.5kg
	OutdoorUnit	45kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1065*298*230 mm ^{3}
	Outdoor Unit	880*638*310 mm ^{3}
Noise	IndoorUnit	46/58 dB↓
	OutdoorUnit	57/65 dB↓
Air Purifying System	Filter	Silver Nano Evaporator Catechin Filter Deodorizing Fiter
Indoor Display		Three Color LED Display

2-3 The Comparative Specifications of Product

Item		Development Model
		AR24FSSEDWUNEU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	Indoor Unit	11.5kg
	Outdoor Unit	55.0kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1065*298*230(mm^3)
	Outdoor Unit	880*798*310 (mm^3)
Noise	Indoor Unit	50/63 dB↓
	Outdoor Unit	60/70dB↓
Air Purifying System	Filter	Evaporator Catechin Filter Deodorizing Filter
Indoor Display		Three Color LED Display

2-3 The Comparative Specifications of Product

Item		Development Model
		AR18FSFTJWQ/EU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	IndoorUnit	11.5kg
	OutdoorUnit	45kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1125*375*290 mm ^{3}
	Outdoor Unit	1023*413*730 mm ^{3}
Noise	IndoorUnit	46/58 dB↓
	OutdoorUnit	57/65 dB↓
Air Purifying System	Filter	Silver Nano Evaporator Catechin Filter Deodorizing Fiter
Indoor Display		Three Color LED Display

2-3 The Comparative Specifications of Product

Item		Development Model
		AR24FSFTJWQ/EU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	Indoor Unit	11.5kg
	Outdoor Unit	55.0kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1125*375*290(mm^3)
	Outdoor Unit	1023*413*925 (mm^3)
Noise	Indoor Unit	50/63 dB↓
	Outdoor Unit	60/70dB↓
Air Purifying System	Filter	Evaporator Catechin Filter Deodorizing Filter
Indoor Display		Three Color LED Display

2-3 The Comparative Specifications of Product

Item		Development Model
		AR18FSFPESN/EU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	IndoorUnit	11.5kg
	OutdoorUnit	45kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1125*375*290 mm ^{3}
	Outdoor Unit	1023*413*730 mm ^{3}
Noise	IndoorUnit	46/58 dB↓
	OutdoorUnit	57/65 dB↓
Air Purifying System	Filter	Silver Nano Evaporator Catechin Filter Deodorizing Fiter
Indoor Display		Three Color LED Display

2-3 The Comparative Specifications of Product

Item		Development Model
		AR24FSFPESN/EU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	Indoor Unit	11.5kg
	Outdoor Unit	55.0kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1125*375*290(mm^3)
	Out door Unit	1023*413*925 (mm^3)
Noise	Indoor Unit	50/63 dB↓
	Outdoor Unit	60/70dB↓
Air Purifying System	Filter	Evaporator Catechin Filter Deodorizing Filter
Indoor Display		Three Color LED Display

2-3 The Comparative Specifications of Product

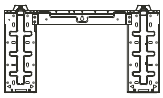
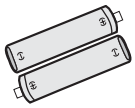
Item		Development Model
		AR18FSFPDGM/EU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	IndoorUnit	11.5kg
	OutdoorUnit	45kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1125*375*290 mm³
	Outdoor Unit	1023*413*730 mm³
Noise	IndoorUnit	46/58 dB↓
	OutdoorUnit	57/65 dB↓
Air Purifying System	Filter	Silver Nano Evaporator Catechin Filter Deodorizing Fiter
Indoor Display		Three Color LED Display

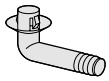
2-3 The Comparative Specifications of Product

Item		Development Model
		AR24FSFPDGM/EU
Design	Indoor Unit	
	Outdoor Unit	
Net Weight	Indoor Unit	11.5kg
	Outdoor Unit	55.0kg
Outer Dimension (WidthxHeightxDepth)	Indoor Unit	1125*375*290(mm^3)
	Out door Unit	1023*413*925 (mm^3)
Noise	Indoor Unit	50/63 dB↓
	Outdoor Unit	60/70dB↓
Air Purifying System	Filter	Evaporator Catechin Filter Deodorizing Filter
Indoor Display		Three Color LED Display

2-4 Accessory and Option Specifications

2-4-1 Accessories

Item	Descriptions	Code-No.	Q'TY	Remark
	Assy Plate Hanger	DB90-02738A	1	Indoor Unit
	Remote Control	DB93-11115K	1	
	Batteries for Remote Control	4301-000121	2	
	Manual	DB68-03365A/DB68-03369A [AR18] DB68-03366A/DB68-03370A [AR24]	1	

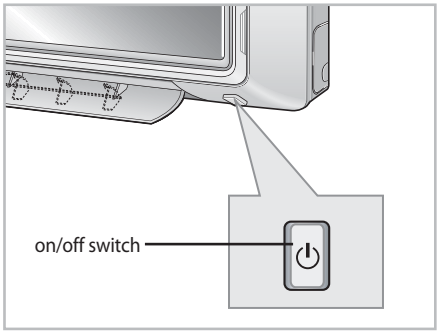
Item	Descriptions	Code-No.	Q'TY	Remark
	Drain Plug	DB67-20011A	1	Outdoor Unit
	Rubber Leg	DB73-20134A	4	

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. (☒o 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 Display Error and Check Method

3-2-1 Indoor Display Error and Check Method

ERROR MODE	DESCRIPTION
E101 E102	Communication error (indoor<->outdoor)
E121	Indoor room temp sensor error
E122	Evap in temp sensor error
E154	Fan error(indoor)
FROM E200	Outdoor error display
E162	EEPROM error
E163	Option error

3-2-2 Outdoor LED Display Error and Check Method

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

● LED ON ○ LED OFF ◎ LED BLINKING

3-3 Setting Option Setup Method

ex) Option No. :

SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12	SEG13	SEG14	SEG15	SEG16	SEG17	SEG18
0	1	2	3	0	5	1	7	4	2	7	B	2	7	4	4	4	E
SEG19	SEG20	SEG21	SEG22	SEG23	SEG24	SEG25	SEG26	SEG27	SEG28	SEG29	SEG30	SEG31	SEG32	SEG33	SEG34	SEG35	SEG36
3	7	8	2	0	0	0	3	4	C	4	B	1	0	4	4	4	2

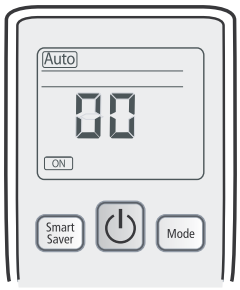
NOTE :
SEG1, SEG7, SEG13, SEG19 need not to be pressed in, so in fact the Option No. we should press in is as below.
12305 74278 7444E 78200 34C46 04442

Step 1 : Enter the Option Setup mode.

1st Take out the batteries of remote control.

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

3rd Make sure the remote contr display shown as  .



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

	Feature	Display
1	The default value is  . Every time you push the Mode button, the display panel reads ON Auto ➡ Cool ➡ Dry ➡ Fan ➡ Heat , OFF Auto ➡ Cool ➡ Dry ➡ Fan ➡ Heat repeatedly.	
2	Push the Fan button to set the display panel to 3. Every time you push the Fan button, the display panel reads 0➡1➡2➡3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	
3	Push the Mode button to  Every time you push the Fan button, the display panel reads 0➡1➡2➡3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	
4	Push the Mode button to  . Push the Fan button to set the display panel to 7. Every time you push the Fan button, the display panel reads 0➡1➡2➡3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	
5	Push the Mode button to  . Push the Fan button to set the display panel to C . Every time you push the Fan button, the display panel reads 0➡1➡2➡3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	
6	Push the Fan button to set the display panel to 2 . Every time you push the Fan button, the display panel reads 0➡1➡2➡3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	

4-1 Setting Option Setup Method(continue)

	Feature	Display
7	Push the Mode button to . Push the Fan button to set the display panel to 6. Every time you push the Fan button, the display panel reads 0➡1➡2➡ 3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	Heat 60 ON
8	Push the Fan button to set the display panel to 8. Every time you push the Fan button, the display panel reads 0➡1➡2➡ 3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	Heat 6C ON
9	Push the Mode button to . Push the Fan button to set the display panel to 8. Every time you push the Fan button, the display panel reads 0➡1➡2➡ 3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	Auto 80 OFF
10	Push the Fan button to set the display panel to 3. Every time you push the Fan button, the display panel reads 0➡1➡2➡ 3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	Auto 83 OFF
11	Push the Mode button to . Push the Fan button to set the display panel to 1. Every time you push the Fan button, the display panel reads 0➡1➡2➡ 3➡ ..... ➡9➡A➡b➡c➡d➡E➡F repeatedly.	Cool 10 OFF
12	Push the Mode button to .	Dry 00 OFF
13	Push the Mode button to .	Fan 00 OFF
14	Push the Mode button to .	Heat 00 OFF

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

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

➡ The display part shows like below when each time you press Mode button .

Step 4 : Pressing the ON/OFF button ( )

When pressing the operation ON/OFF key with the direction of remote control for unit, the sound "Ding" 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.

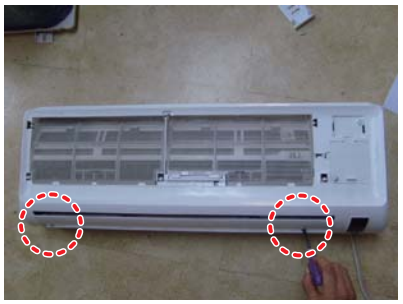
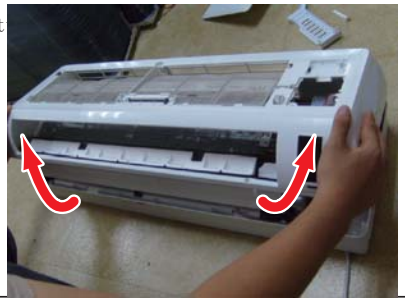
■ OPTION ITEMS AR18F AR24

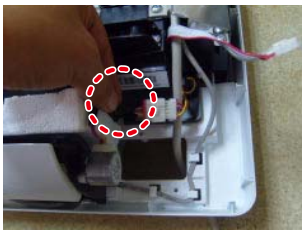
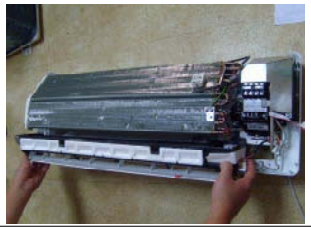
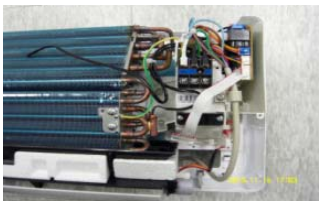
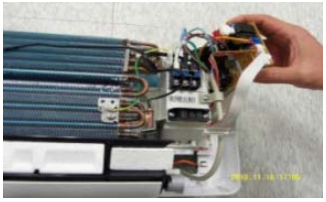
MODEL	SEG1-24	SEG25-48	SEG25-48
AR18FSFPES**	012405-15423E-27323C-37F601	02000-10000-20000-30000	034B49-114049-200000-300000
AR24FSFPES**	012405-18428C-27444E-37F301	02000-10000-20000-30000	03464D-114647-200000-300000
AR18FSFPDG**	012405-15423E-27323C-37F601	02000-10000-20000-30000	034B49-114049-200000-300000
AR24FSFPDG**	012405-18428C-27444E-37F301	02000-10000-20000-30000	03464D-114647-200000-300000
AR18FSFTJW**	012405-15423E-27323C-372601	02000-10000-20000-30000	034B49-114049-200000-300000
AR24FSFTJW**	012405-18428C-27444E-37F301	02000-10000-20000-30000	03464D-114647-200000-300000

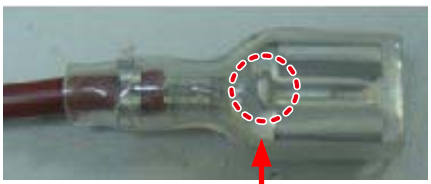
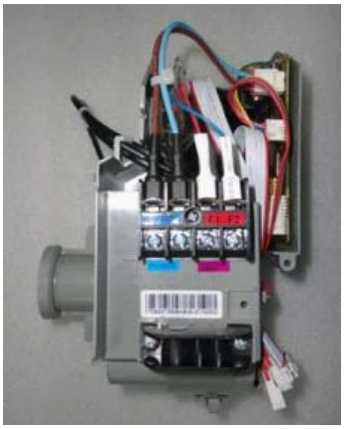
4. Disassembly and Reassembly

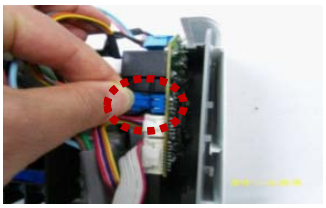
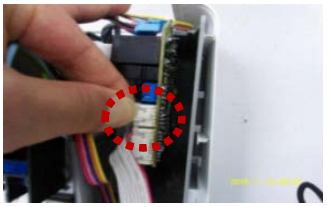
■ Necessary Tools

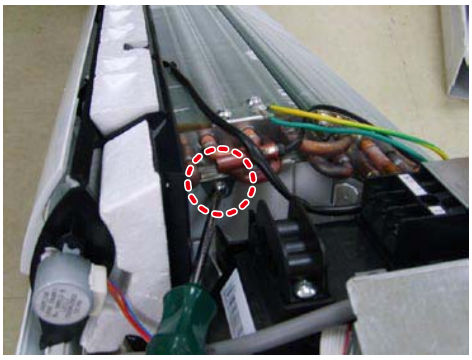
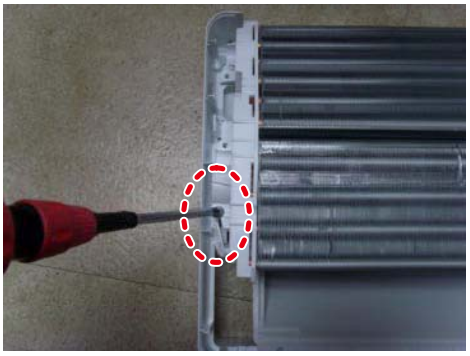
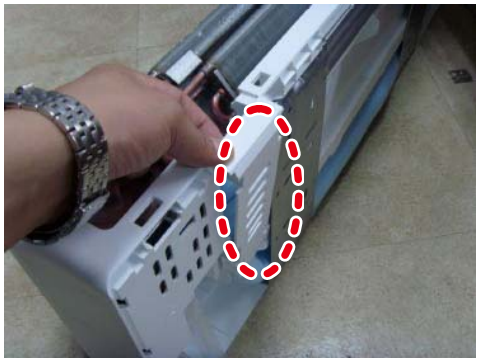
Item	Remark
SCREW DRIVER	
MONKEY SPANNER	

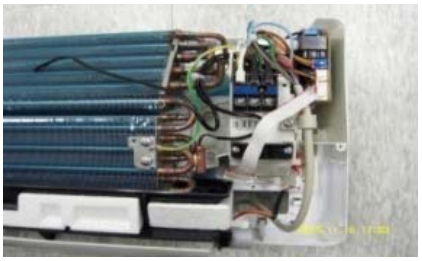
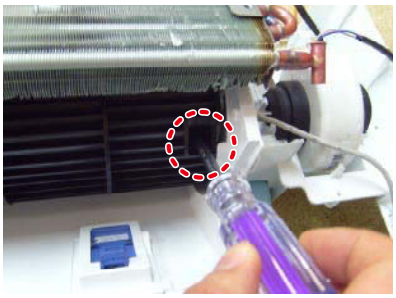
No	Parts	Procedure	Remark
1	PANEL-FRONT	1) Stop the driving of air conditioner and shu main power supply. 2) Open the FRONT-GRILLE and pull out from the PANEL-FRONT.	
		3) Detach COVER-TERMINAL from the PANEL-FRONT.(use + Screw Driver)	
		4) Loosen connector wire(white) and detach the temperature sensor wire.	
		5) To detach the FRONT-PANEL the main frame, unfasten 2 screw at the bottom.(use + Screw Driver)	
		6) Take off the FRONT-PANEL,lifting up the bot	

No	Parts	Procedure	Remark
2	TRAY DRAIN	1) Loosen stepping motor wire and detach the hook of main frame.	
		2) To detach TRAY-DRAIN from the main frame, pull the bottom of the TRAY-DRAIN towards you.	
3	CONTROL IN	1) Unfasten the earth screw.(use + Screw Driver)	
		2) Detach COVER-CONTROL from the CASECONTROL.	
		3) Detach the temperature sensor.	
		4) Loosen MOTOR Wire.	
		5) Take off the CASE-CONTROL from the main frame.	

No	Parts	Procedure	Remark
4	PBA	1) Unfasten the screw.	
		2) Cut the cable tie.	
		3) Loosen the terminal block wires. ❊ Caution: The terminal is locking type. So, when you separate terminals, pull pressing the button.  Button	

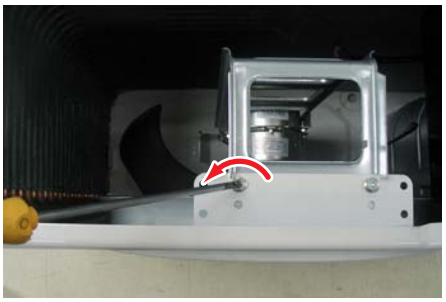
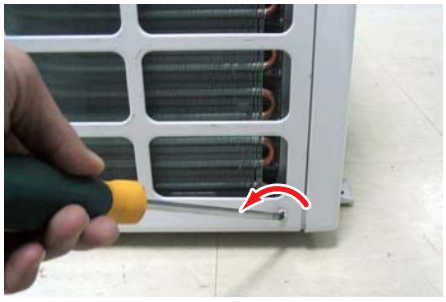
No	Parts	Procedure	Remark
4	PBA	4) Loosen the Motor Feedback connector. ❉ Caution: When you separate the connector, pull pressing the locking button.	
		5) Loosen Stepping MOTOR connector. ❉ Caution: When you separate the connector, pull pressing the locking button.	
		6) Loosen Main Power connector. ❉ Caution: When you separate the connector, pull pressing the locking button.	
		7) Loosen the Thermistor wire connector. ❉ Caution: When you separate the connector, pull pressing the locking button.	
		8) Loosen the Relay connector(Red,White).	

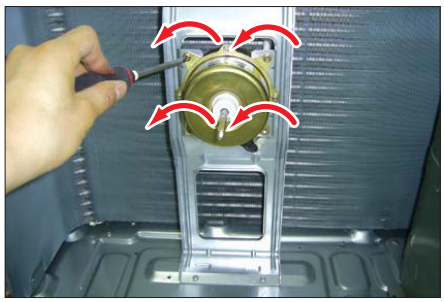
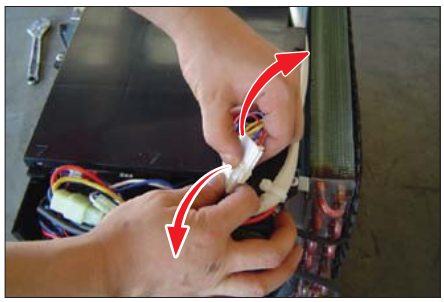
No	Parts	Procedure	Remark
5	EVAPORATOR	1) Unfasten the screw at the right side. (use + Screw Driver)	
		2) Unfasten the screw at the left side. (use + Screw Driver)	
		3) Detach the HOLDER PIPE.	
		4) Take off the EVAPORATOR from the main frame.	

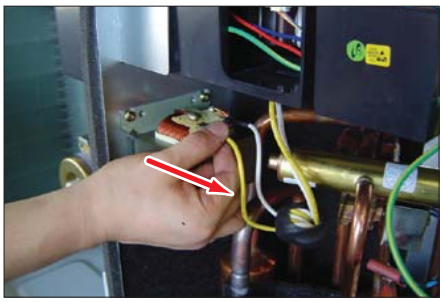
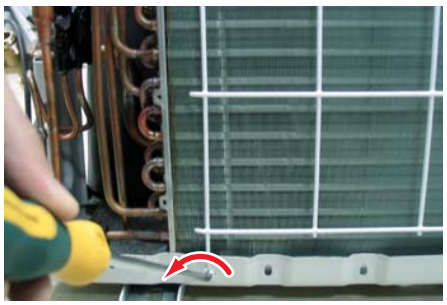
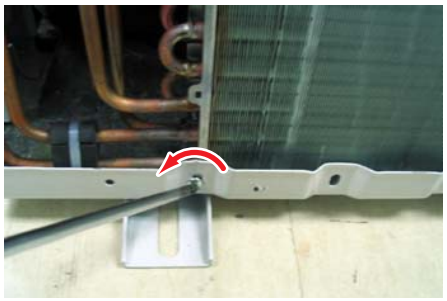
No	Parts	Procedure	Remark
6	FAN MOTOR & CROSS FAN	1) Unfasten the screw in the HOLDER-EVAP on the left side of evaporator.(use + Screw Driver)	
		2) unfasten the 3 points screws in the CASE-CONTROL, and then detach the CASE. (use + Screw Driver)	
		3) unfasten the screw a little.(use + Screw Driver)	
		4) Lift up the evaporator slightly and pull the CROSS-FAN to the left side.	

4-2 Outdoor Unit

No	Parts	Procedure	Remark
1	Common Work	1) Loosen 1 fixing screw(CCW) of the Cover-Control and detach the Cover Control.	
		2) Loosen fixing screws(CCW) and detach the Cabinet-Upper.	
		3) Loosen 1 screw(CCW) fixed to assemble Control Box with Cabinet-Side RH.	
		4) Loosen 6 fixing screws(CCW) and detach the Cabinet-Side RH.	

No	Parts	Procedure	Remark
		6) Loosen fixing screws(CCW) of the Cabinet Front.	
			
			
			
		5) Loosen 2 screws(CCW) fixed on the Guide Condenser.	

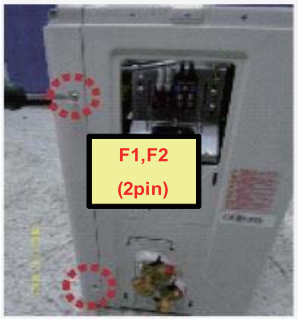
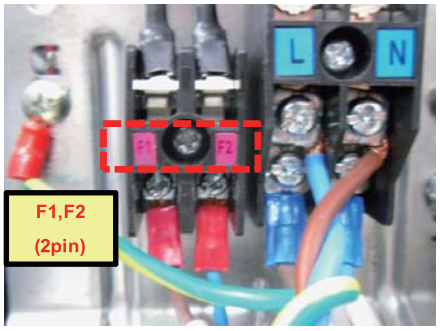
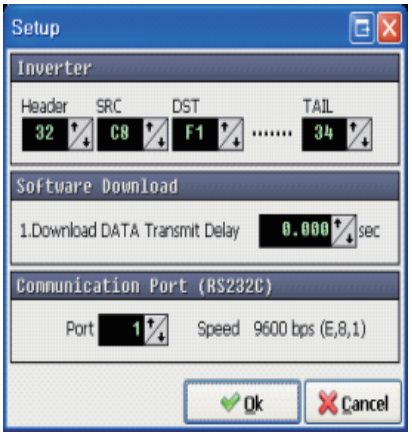
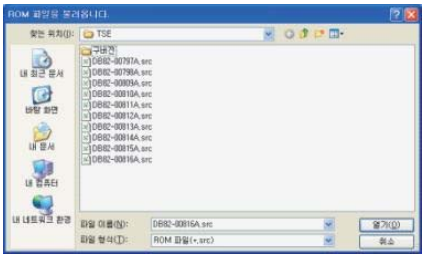
No	Parts	Procedure	Remark
2	Fan ⊠ Motor	1) Detach the Nut Flange like the picture on the right side. (Turn clockwise because the screw is left-handed.)	
		2) Detach the Fan Propeller. 3) Loosen 4 fixing screws(CCW) to detach the Motor.	
		4) Disconnect the wire between Ass'y Control Out and Motor.	
		5) Loosen 2 fixing screws(CCW) and detach the Bracket Motor.	

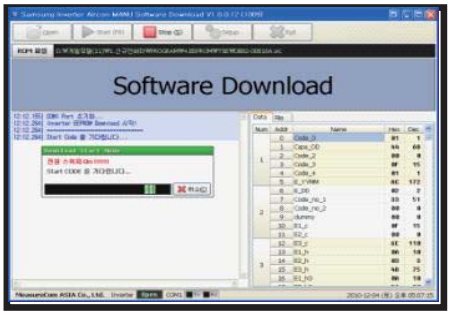
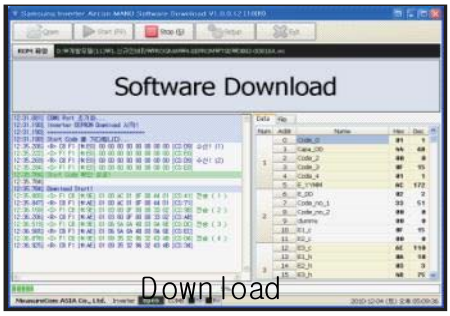
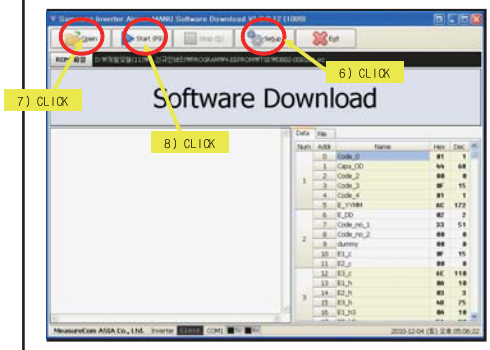
No	Parts	Procedure	Remark
3	Ass'y Control Out	1) Detach several connectors from the Ass'y Control Out. 2) Detach several connectors from the PCB of Ass'y Control Out. 3) Pull up the Ass'y Control Out.	
4	Heat Exchanger	1) Release the refrigerant at first 2) Loosen fixing screw(CCW) and detach the steel bar. 3) Disassemble the pipes in both inlet and outlet with welding torck. ⚠ Before you disassemble the pipes and Condenser, be sure that there should be no refrigerant remained in the unit.	
		1) Loosen fixing screw(CCW) and detach the Heat Exchanger	

No	Parts	Procedure	Remark
5	Compressor	1) Disassemble the Felt Comp Sound. 2) Loosen the fixing nut(CCW) and detach the Compressor Lead Wire.	 
		3) Loosen the 3 bolts(CCW) at the bottom of Compressor like the picture on the right side.	

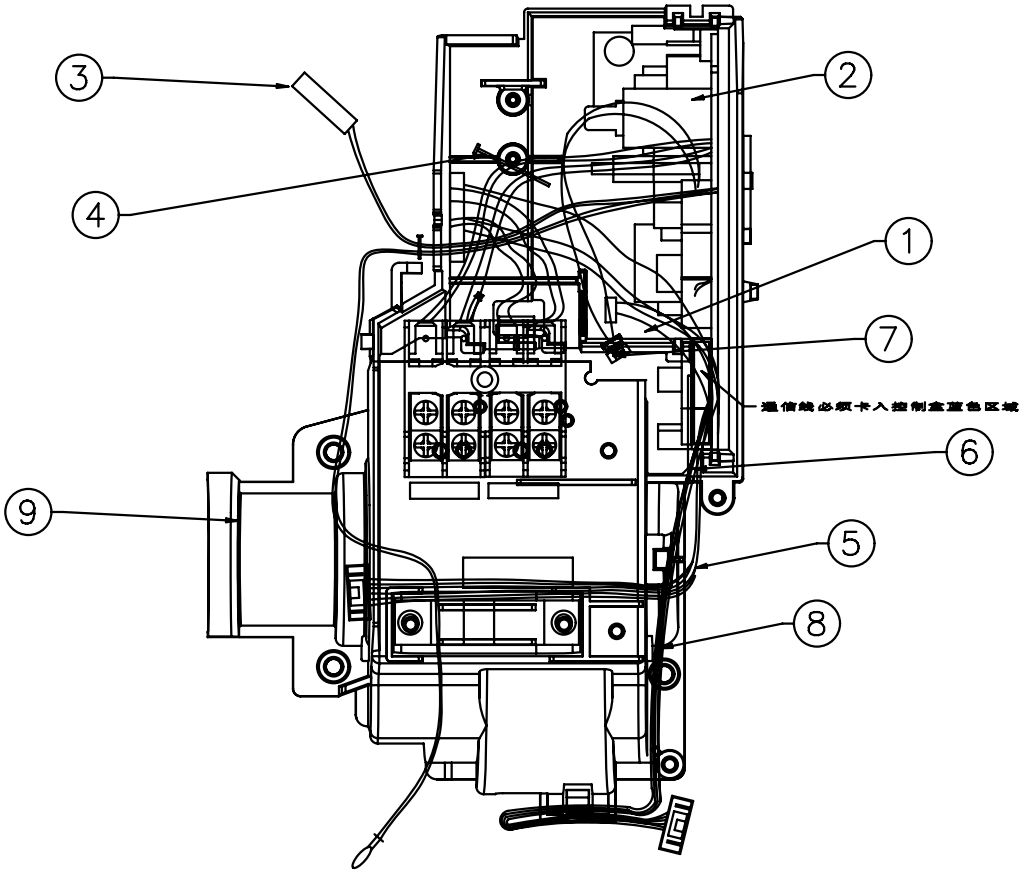
3.EEPROM DOWNLOAD

No	Parts	Procedure	Remark
1	Maldives High EER (only)	1) Power off	 
		2) Take off the Cabinet : Check the LED off	
		3) Connect PC-Download Jig-PBA	 

No	Parts	Procedure	Remark
1			
			
		5) Execute the Universal EEPwriter program	
		6) Select COM Port and connect	
		7) Open the file	

No	Parts	Procedure	Remark
1		8) Click the Start button and reset the power	  

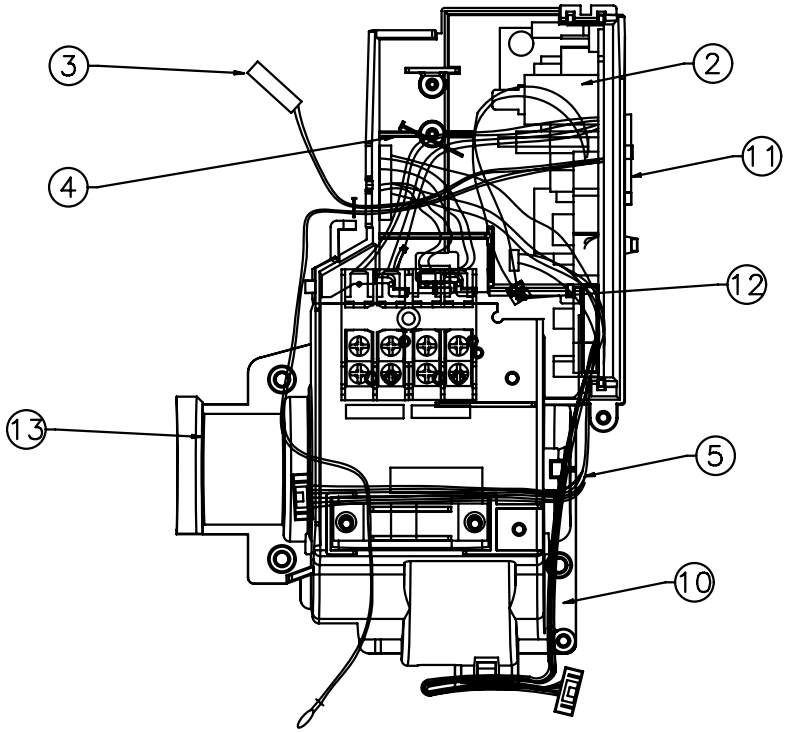
5-1 ASSY-CONTROL IN



■ **PartList**

	ASSY CONTROL IN CODE		DB93-13801B	
	适用型号		Crystal 18K 24K AR18/24FSSE DWUNEU	
NO	NAME	SPEC	CODE-NO	QTY
1	ASSY HUMIDITY SENSOR	3PIN	DB95-01703A	1
2	ASSY PCB MAIN-IN	New Crystal	DB93-12887C	1
3	ASSY THERMISTOR IN	3%,BLK,SMH200,WHT	DB95-04570B	1
4	CABLE TIE	NYLON66	DB65-10088D	1
5	ASSY CONNECTOR WIRE	10 PIN TO 9 PIN	DB93-10918H	1
6	ASSY CONNECTOR WIRE	WIFI WIRE	DB93-13079A	1
7	ASSY CONNECTOR WIRE	4 PIN,100mm	DB93-04695C	1
8	ASSY CONNECTOR WIRE	10PIN	DB93-10943H	1
9	ASSY CASE CONTROL IN	CRYSTAL	DB61-07358A	1

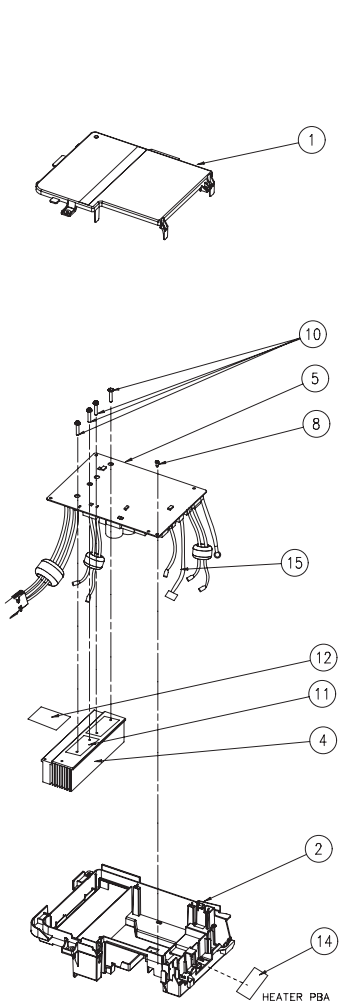
5-1 ASSY-CONTROL IN

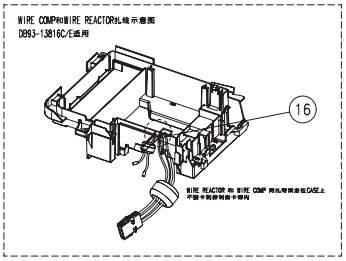


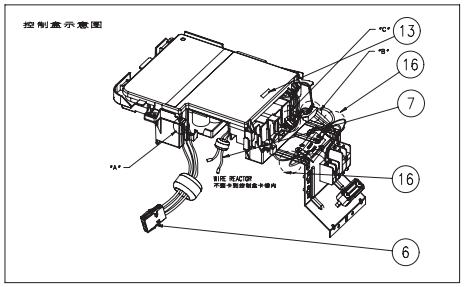
■ PartList

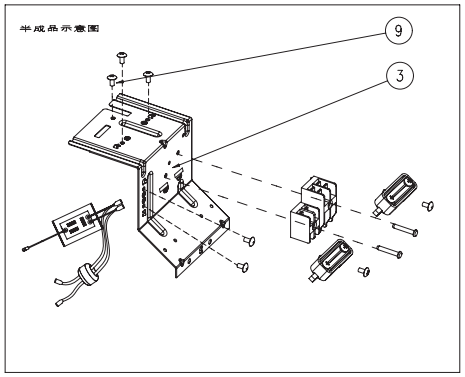
	ASSY CONTROL IN CODE		DB93-13802A		DB93-13802B		DB93-13802C		DB93-13802D	
	适用型号		MALDIVE++/+ 18K AR18FSFPES AR18FSFPDG		MALDIVE++/+ 24K AR24FSFPES AR24FSFPDG		Borocay 18K AR18FSFTJ WQ/EU		Borocay 24K AR24FSFTJ WQ/EU	
NO	NAME	SPEC	CODE-NO	QTY	CODE-NO	QTY	CODE-NO	QTY	CODE-NO	QTY
1	ASSY HUMIDITY SENSOR	3PIN	DB95-01703A	0	DB95-01703A	0	DB95-01703A	0	DB95-01703A	0
2	ASSY PCB MAIN-IN	MALDIVE++	DB93-12828D	1	DB93-12828D	1	DB93-12828D	1	DB93-12828D	1
3	ASSY THERMISTOR IN	3x,BLK,SMH200,WHT	DB95-04570B	1	DB95-04570B	1	DB95-04570B	1	DB95-04570B	1
4	CABLE TIE	NYLON66	DB65-10088D	1	DB65-10088D	1	DB65-10088D	1	DB65-10088D	1
5	ASSY CONNECTOR WIRE	10 PIN TO 9 PIN	DB93-10918H	1	DB93-10918H	1	DB93-10918H	1	DB93-10918H	1
6	ASSY CONNECTOR WIRE	2 PIN	DB93-10917A	0	DB93-10917A	0	DB93-10917A	0	DB93-10917A	0
7	ASSY CONNECTOR WIRE	5 PIN,250mm,WHITE	DB93-04688B	0	DB93-10918D	0	DB93-10918D	0	DB93-10918D	0
8	ASSY CONNECTOR WIRE	5 PIN,BLK	DB93-10918E	0	DB93-10918E	0	DB93-10918E	0	DB93-10918E	0
9	ASSY CONNECTOR WIRE	5 PIN,RED	DB93-10918F	0	DB93-10918K	0	DB93-10918K	0	DB93-10918K	0
10	ASSY CONNECTOR WIRE	10PIN	DB93-10943H	1	DB93-10943H	1	DB93-10943H	0	DB93-10943H	0
11	LABEL BAR CODE	LABEL	DB68-02809A	1	DB68-02809A	1	DB68-02809A	1	DB68-02809A	1
12	ASSY CONNECTOR WIRE	4 PIN,100mm	DB93-04695B	0	DB93-04695B	1	DB93-04695B	1	DB93-04695B	1
13	ASSY CASE CONTROL IN	MALDIVE	DB90-06933A	1	DB90-06933C	1	DB90-06933A	1	DB90-06933C	1
14	485 COMM WIRE CHANGE	2 PIN	DB93-10943P	1	DB93-10943P	1	DB93-10943P	1	DB93-10943P	1

AR18FSSEDWUXEU

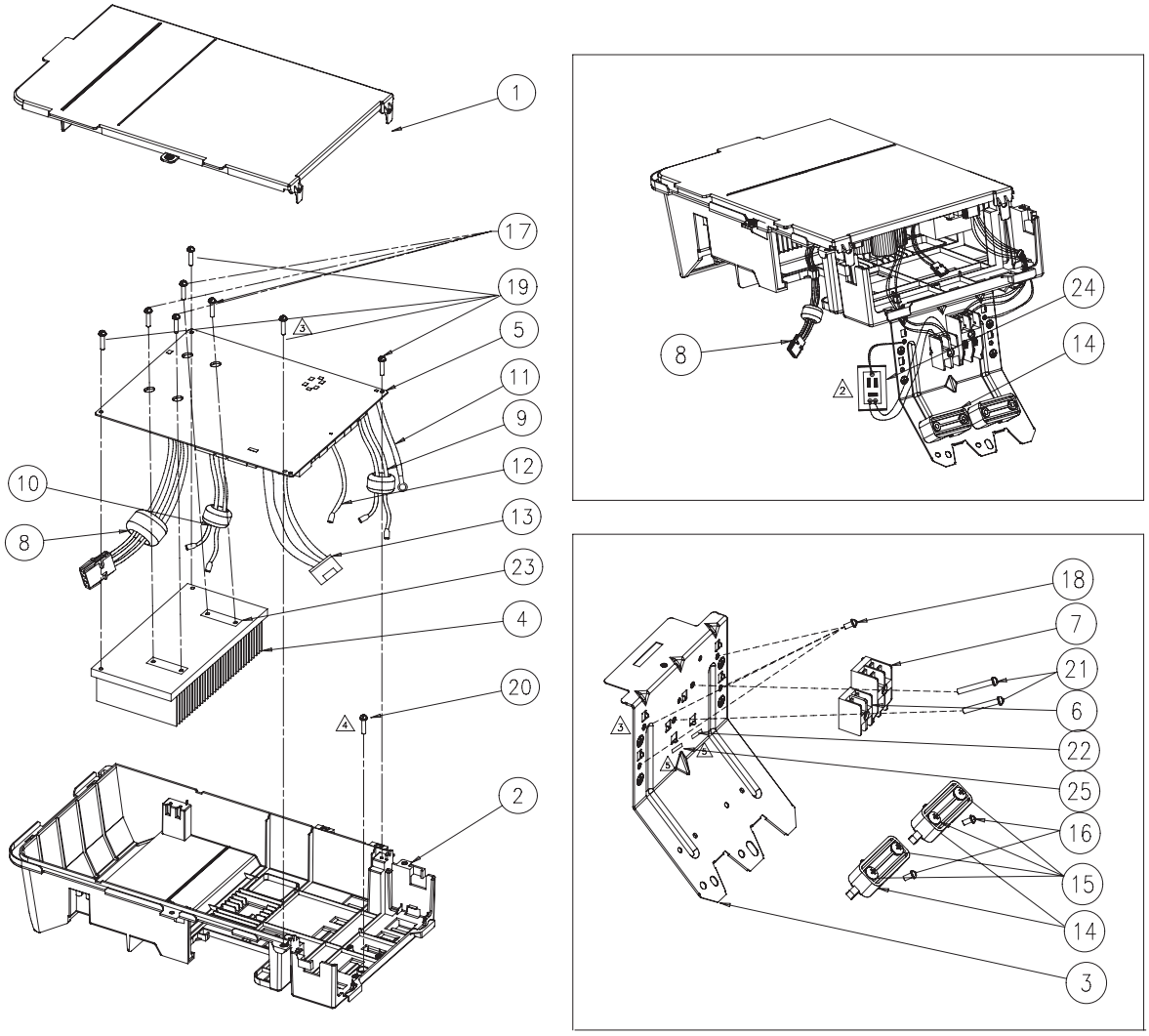








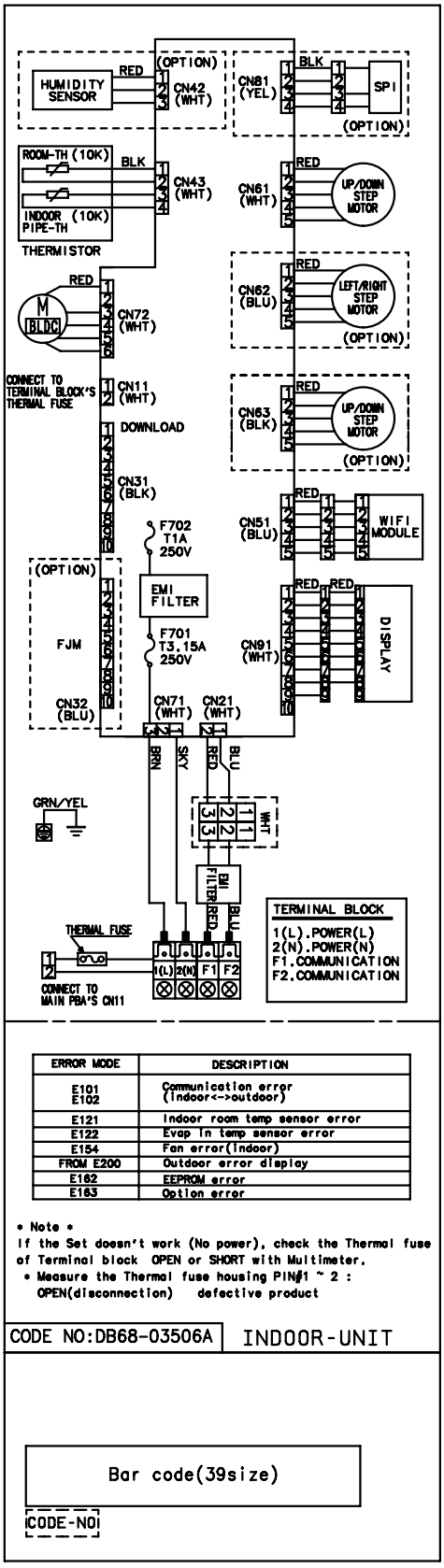
ASSY CONTROL OUT CODE				DB93-13816A	DB93-13816B	DB93-13816C
适用型号				13R RAC AR09FSFKBWTNEE 寒冷地区	13R RAC AR09FSSKABEXEU AR09FSSYAWTXEU Jungfrau K/Y 9K EMI改善	13R RAC AR18FSSEDWUXEU AR18FSSYAWTNEU Jungfrau K/Y 18K EMI改善
NO	CODE-NO	NAME	SPEC	QTY	QTY	QTY
1	DB61-04659A	CASE CONTROL-COVER	SI(RAC)	1	1	—
	DB61-04885A	CASE CONTROL-COVER	SI(FAC)	—	—	1
2	DB61-04658A	CASE CONTROL-BASE	SI/OI(RAC)	1	1	—
	DB61-04877A	CASE CONTROL-BASE	SI(FAC)	—	—	1
3	DB90-06308A	ASSY CASE CONTROL OUT	SI	—	—	—
	DB90-06308B	ASSY CASE CONTROL OUT	SI	—	—	—
	DB90-06308C	ASSY CASE CONTROL OUT	SI	—	—	—
	DB90-06308D	ASSY CASE CONTROL OUT	SI,FAC	—	—	—
	DB90-06308E	ASSY CASE CONTROL OUT	SI,KFR-50W/BPPE	—	—	—
	DB90-06308F	ASSY CASE CONTROL OUT	SI,KFR-50W/BPPE	—	1	—
	DB90-06308G	ASSY CASE CONTROL OUT	SI	—	—	—
	DB90-06308H	ASSY CASE CONTROL OUT	SI	—	—	—
	DB90-06308J	ASSY CASE CONTROL OUT	SI	1	—	—
	DB90-06308K	ASSY CASE CONTROL OUT	SI	—	—	1
4	DB62-09724A	HEAT SINK	12K	1	1	—
	DB62-09725A	HEAT SINK	18K	—	—	—
	DB62-10652A	HEAT SINK	18K	—	—	1
5	DB93-10952A	ASSY PCB MAIN	SI(11R RAC)	—	—	—
	DB93-10952C	ASSY PCB MAIN	SI(11R FAC)	—	—	—
	DB93-10952E	ASSY PCB MAIN	SI(13R RAC,S/W变更)	—	—	—
	DB93-13183A	ASSY PCB MAIN	SI(12R RAC)	—	—	—
	DB93-13183C	ASSY PCB MAIN	SI(12R FAC)	—	—	—
	DB93-13183E	ASSY PCB MAIN	SI(13R RAC)	1	1	1
6	DB93-09497C	WIRE-COMP	AWG16,RED,BLU,YEL	1	1	—
	DB93-09497D	WIRE-COMP	AWG16,RED,BLU,YEL	—	—	1
7	DB93-09493C	WIRE-REACTOR	AWG16,WHT	1	1	—
	DB93-09493E	WIRE-REACTOR	AWG16,WHT,FAC	—	—	—
	DB93-09493F	WIRE-REACTOR	AWG16,WHT	—	—	1
8	6002-000630	SCREW	PH +	1	1	2
9	6002-000527	SCREW	M4,L10	1	1	1
10	DB91-00933A	ASSY-SCREW MACHINE	M3,L12	4	4	4
11	0205-001303	THERAL GREASE	NYLON66	3g	3g	3g
12	DB62-04956E	INSULATION-COND IN		1	1	1
13	DB68-02809A	BAR CODE LABEL		1	1	1
14	DB93-13220A	ASSY PCB SUB-HEATER	JUNGFRAU-PJT,HEATER, SI	1	—	—
15	DB93-13182A	ASSY CONNECTOR WIRE-HEATER	JUNGFRAU,YHL500-	1	—	—
16	DB65-10088D	CABLE-TIE	NYLON,L100,WHITE	2	2	3



ASSY CONTROL OUT CODE				DB93-10961M
Model				BLDC FAN AR24FSSED WUXEU
NO	CODE-NO	NAME	SPEC	QTY
1	DB61-04908A	CASE CONTROL-COVER	PF3	1
2	DB61-04910A	CASE CONTROL-BASE	PF3	1
3	DB61-05018A	PLATE-CONTROL OUT	PF3	1
4	DB62-09721A	HEAT SINK	PF3	0
	DB62-10653A	HEAT SINK	PF3	1
5	DB93-10939H	ASSY PCB MAIN	PF3	1
6	DB65-00297A	TERMINAL BLOCK	TERMINAL BLOCK-ASSY	1
7	DB65-00298B	TERMINAL BLOCK	TERMINAL BLOCK-ASSY	1
8	DB93-10988A	WIRE-COMP	AWG16,RED,BLU,YEL	1
9	DB93-09495B	WIRE-POWER	AWG16,BRN,SKYBLU	0
	DB93-09495H	WIRE-POWER	AWG16,BRN,SKYBLU	1
10	DB93-10987A	WIRE-REACTOR	AWG16,WHT	1
11	DB93-09494B	WIRE-EARTH	AWG20,GRNYEL	1
12	DB93-11218A	WIRE-COMMUNICATION	AWG22,RED,BLU	1
13	DB93-10821A	WIRE-4 WAY	AWG18,BLU	1
14	DB61-00250A	HOLDER-WIRE CLAMP	HOLDER-WIRE CLAMP	2
15	6002-000214	SCREW	TH,+,-,1,M4.0,L16,ZPC(BLK)	4
16	6001-001054	SCREW	M4,L25	2
17	DB91-00306A	ASSY-SCREW MACHINE	M3,L16	4
18	6009-001001	SCREW	M4,L8	4
19	6002-000630	SCREW	M3,L8	4
20	6002-000527	SCREW	M4,L10	0
21	6002-000555	SCREW	M4,L25	2
22	DB98-33293A	LABEL	POWER	1
23	DB98-24813A	THERMAL GREASE		2g
24	DB95-01712M	ASSY NOISE ABSORBER		1
25	DB98-33292A	LABEL	COMM	1

7. Wiring Diagram

7-1 Indoor Unit



ERROR MODE	DESCRIPTION
E101 E102	Communication error (Indoor<->outdoor)
E121	Indoor room temp sensor error
E122	Evap In temp sensor error
E154	Fan error(Indoor)
FROM E200	Outdoor error display
E162	EEPROM error
E163	Option error

* Note *
If the Set doesn't work (No power), check the Thermal fuse of Terminal block OPEN or SHORT with Multimeter.
* Measure the Thermal fuse housing PIN#1 ~ 2 :
OPEN(disconnection) defective product

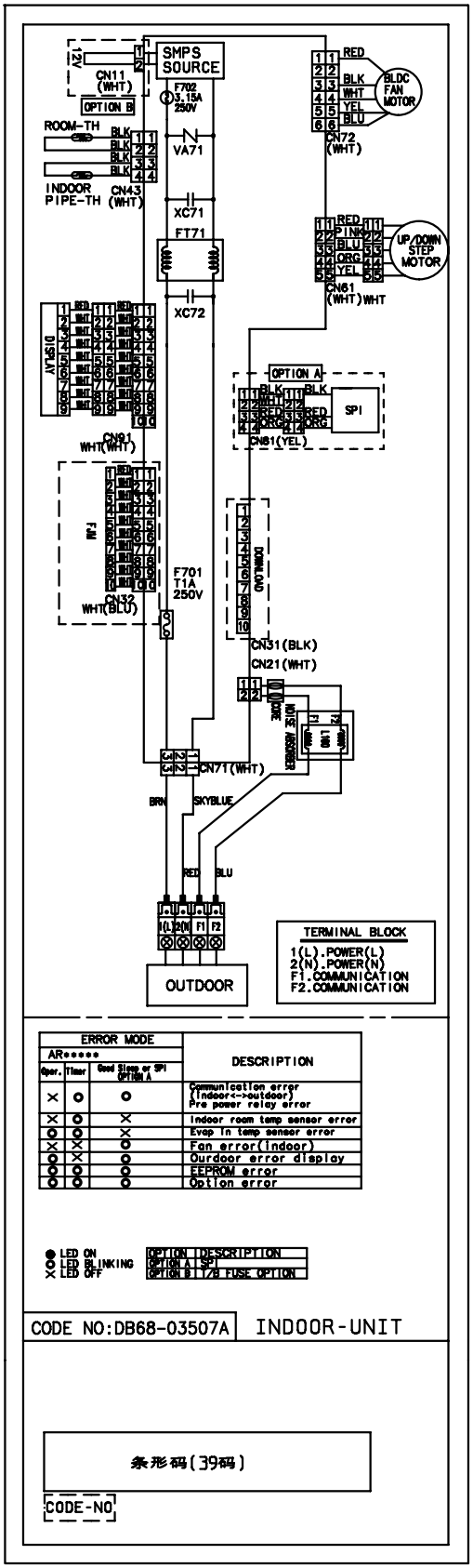
CODE NO:DB68-03506A INDOOR-UNIT

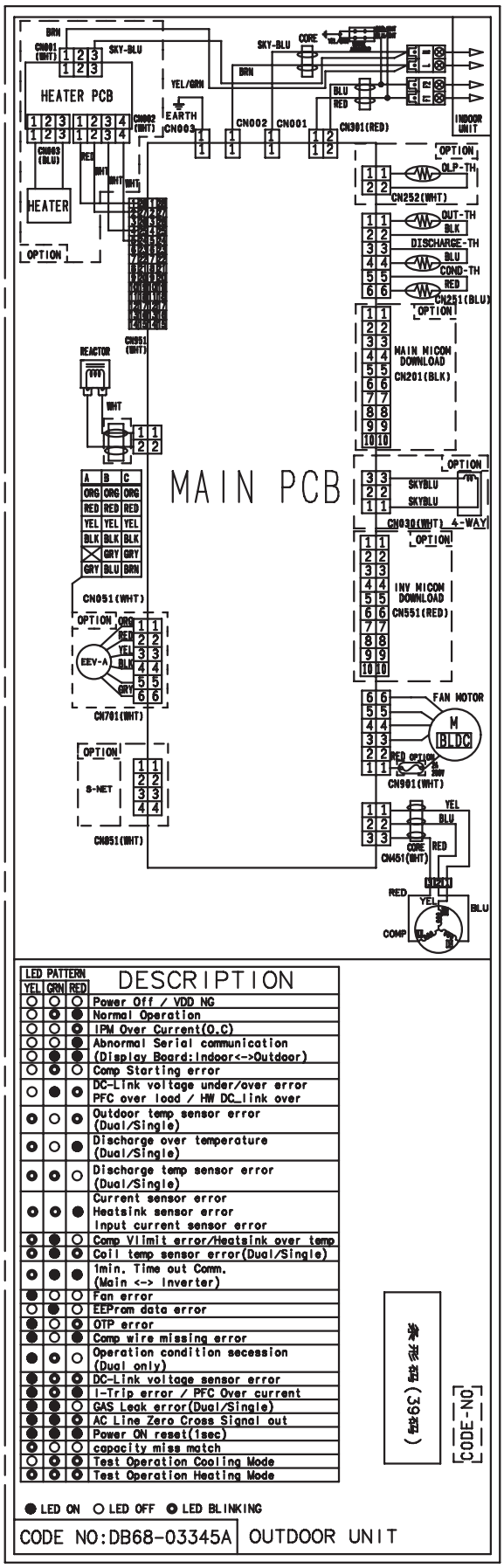
Bar code(39size)

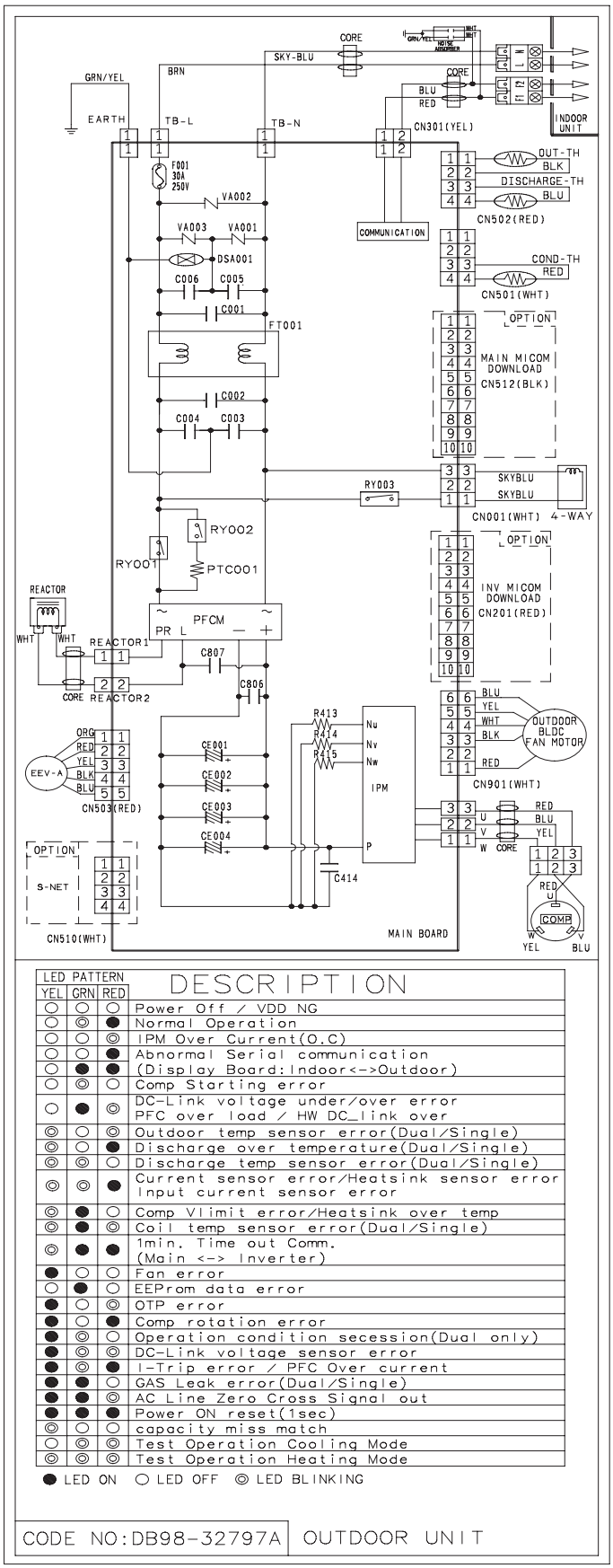
CODE-NO

7. Wiring Diagram

7-1 Indoor Unit



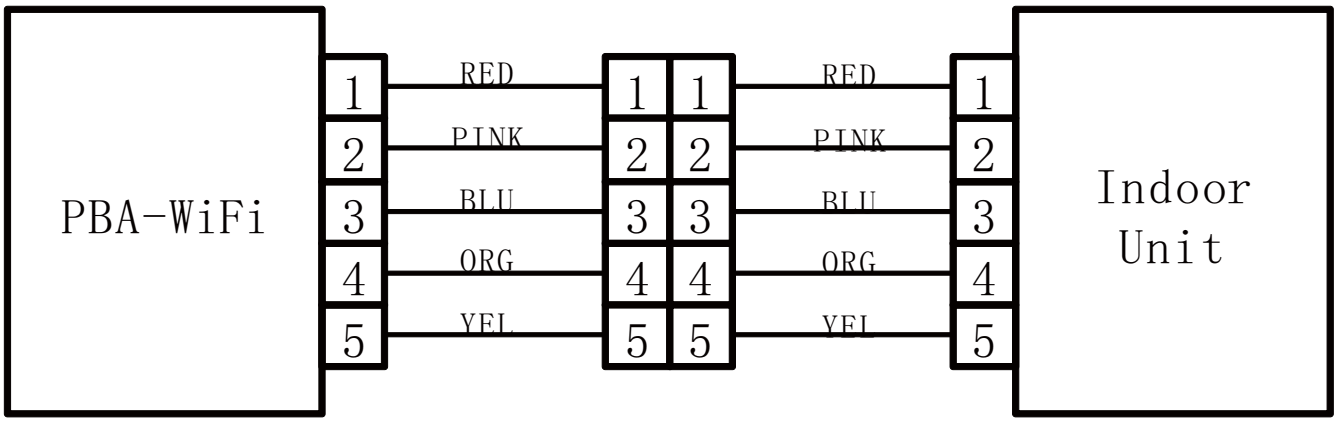




LED PATTERN			DESCRIPTION
YEL	GRN	RED	
○	○	○	Power Off / VDD NG
○	◎	●	Normal Operation
○	○	◎	IPM Over Current(O.C)
○	○	●	Abnormal Serial communication
○	●	●	(Display Board:Indoor<->Outdoor)
○	◎	○	Comp Starting error
○	●	◎	DC-Link voltage under/over error PFC over load / HW DC_link over
◎	○	◎	Outdoor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

● LED ON ○ LED OFF ◎ LED BLINKING

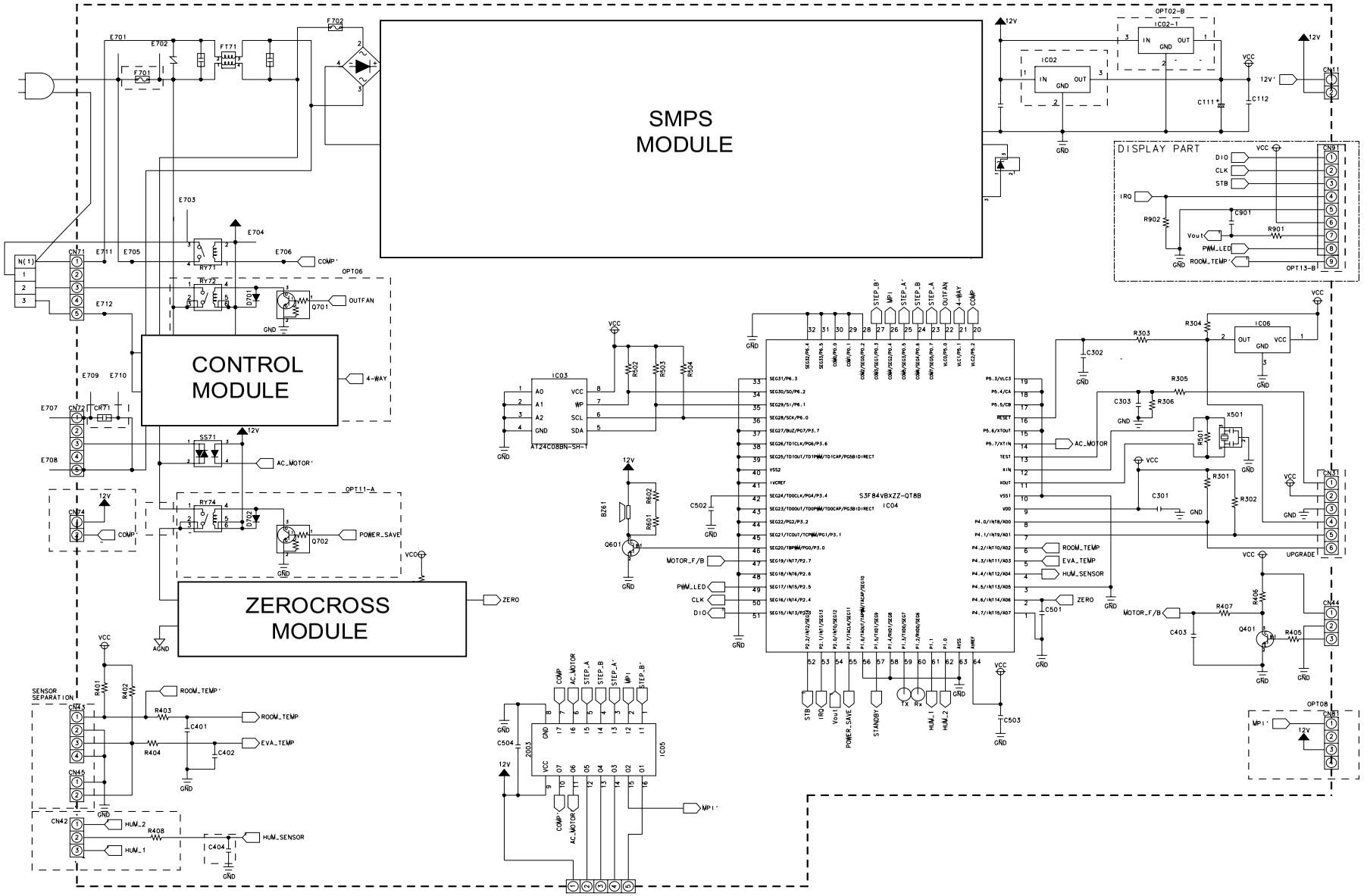
CODE NO:DB98-32797A OUTDOOR UNIT



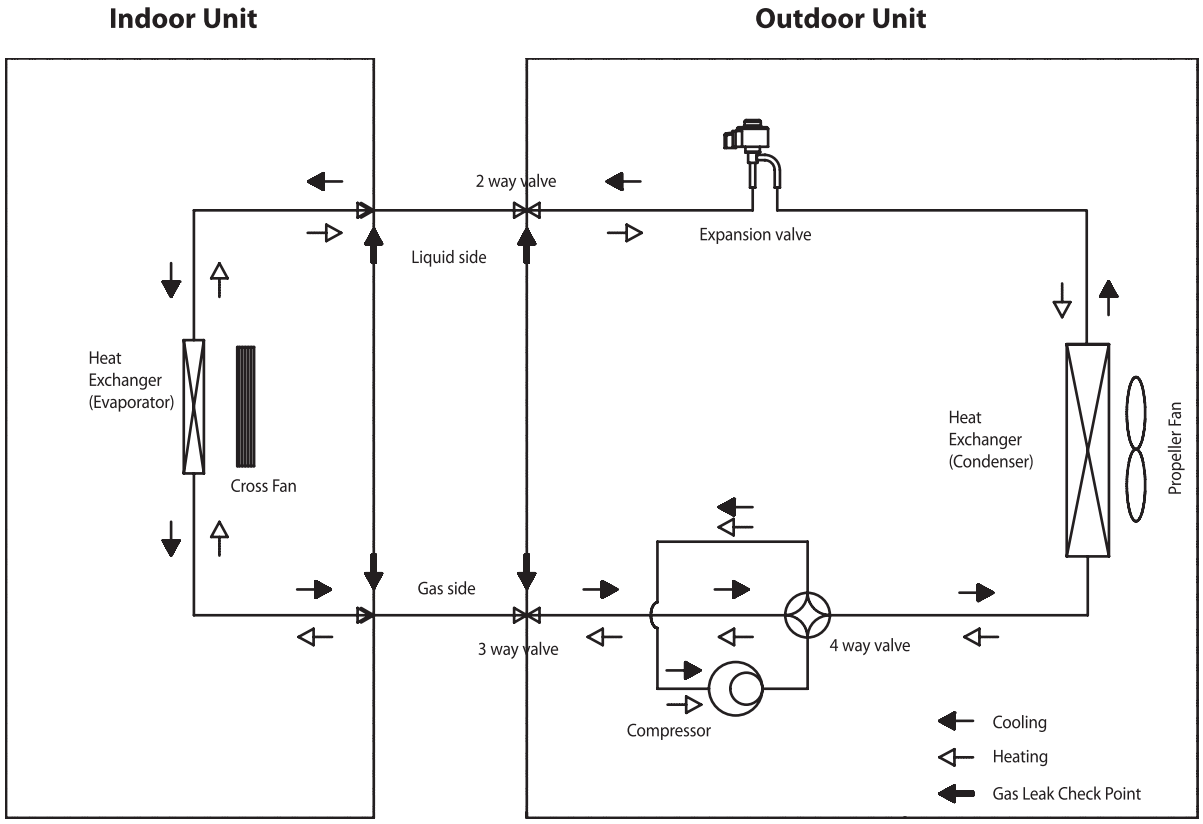
<< Status LED Indication >>
- LED ON : Connected with AP & INTERNET
- LED Blinking (Interval of 0.5s) : Connected with AP but not connected with INTERNET
- LED Blinking (Interval of 3s) : Not connected with AP
- LED OFF : Not connected with Air Conditioner

8. Schematic Diagram

8-1 Indoor Unit

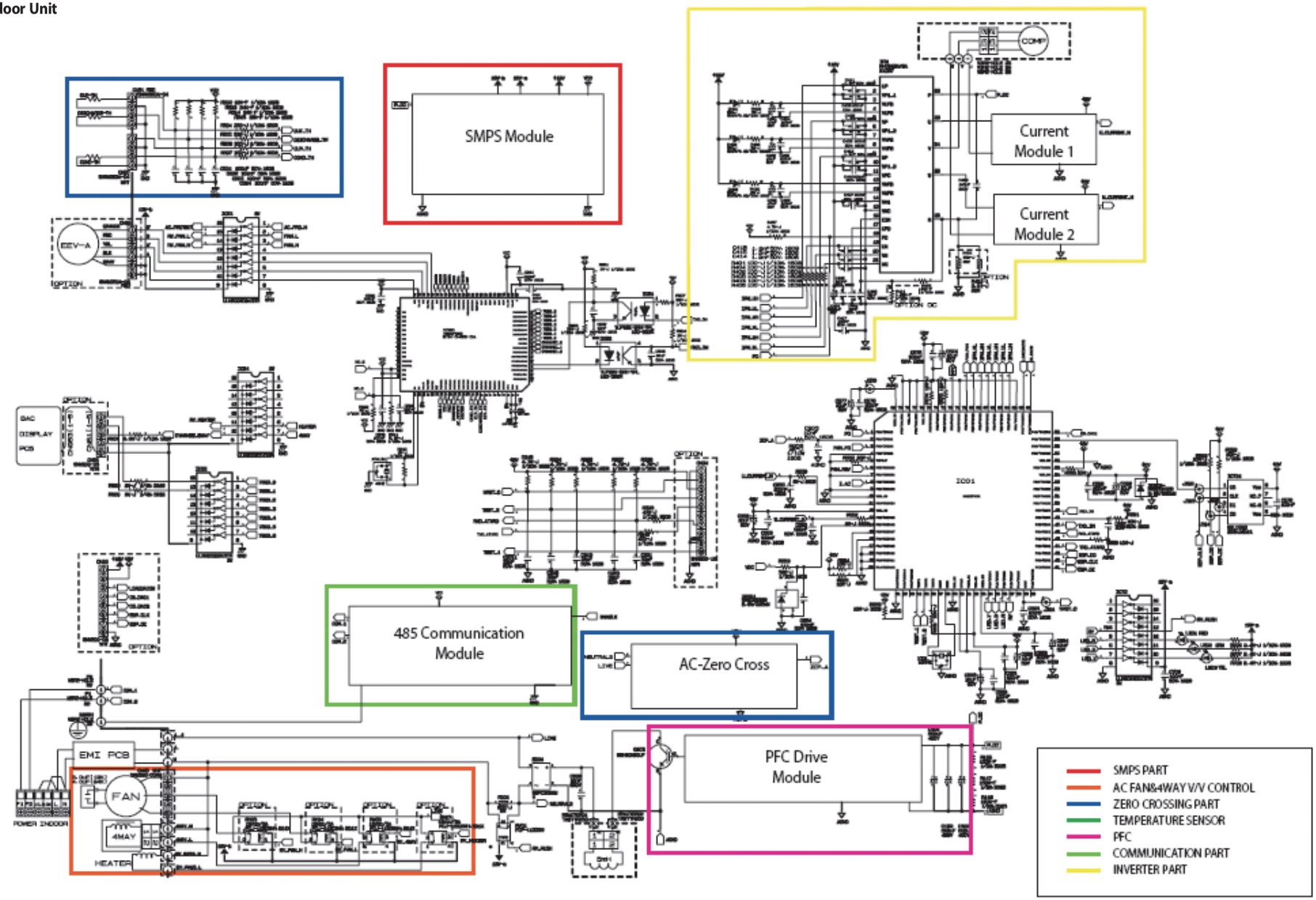


9 Refrigerating Cycle Diagram



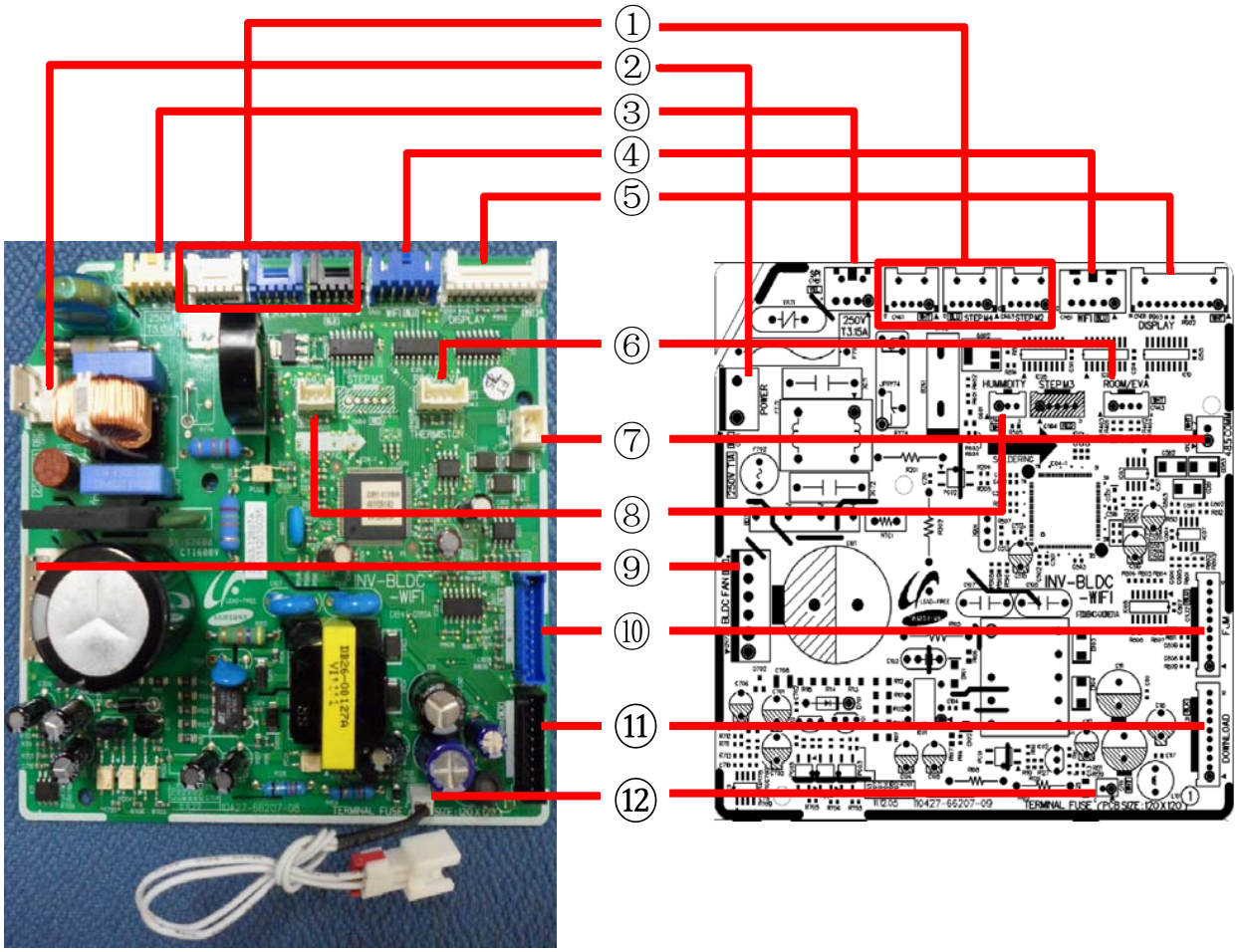
Circuit Descriptions

9-1-2 Outdoor Unit



10. PCB Diagram

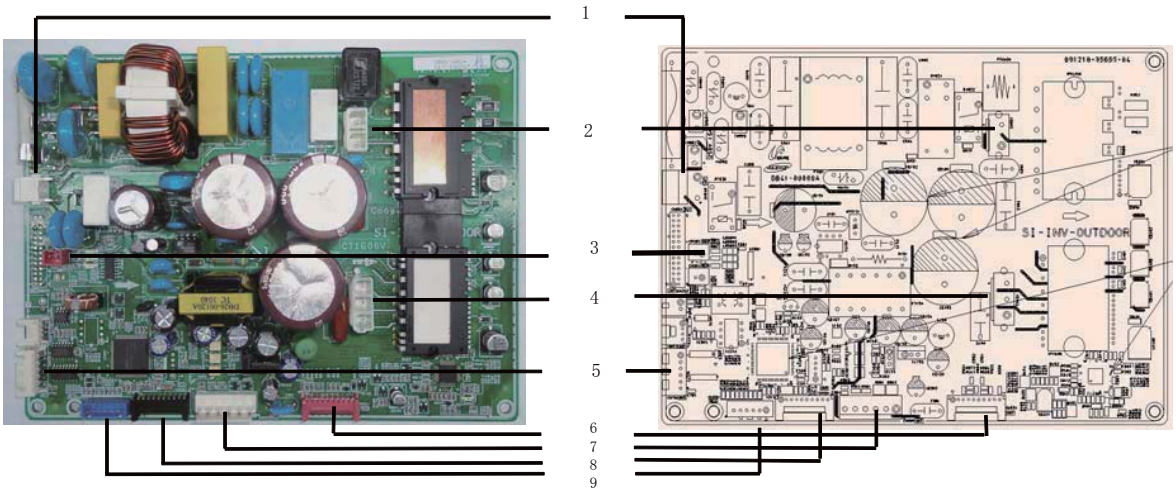
10-1 Indoor PCB



1. CN61/CN62/CN64	STEP MOTOR	2. CN71	POWER IN
3. CN81	SPI	4. CN51	WI-FI MODEM
5. CN91	DISPLAY	6. CN43	TEMPERATURE SENSOR
7. CN21	COMMUNICATION	8. CN42	HUMMIDITY SENSOR
9. CN91	FAN MOTOR	10. CN32	FJM

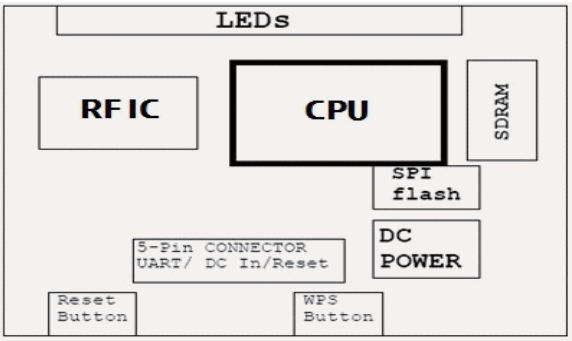
10-2 Outdoor PCB

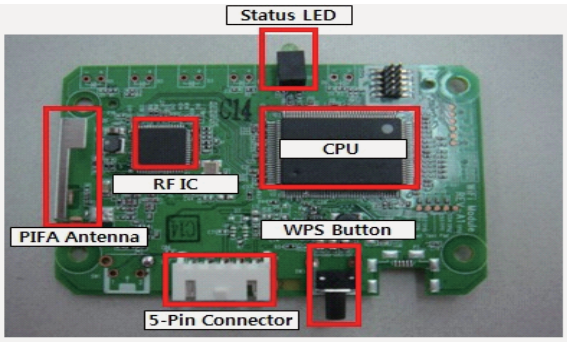
⚠ The red number connecter is not used.



1. 4WAY	2. CN051-REACTOR	3. CN301-485 communication	4. CN451-COMP	5. CN701-EEV
		#1 F1	#1 W phase	#1 EEV signal
		#2 F2	#2 V phase	#2 EEV signal
			#3 U phase	#3 EEV signal
				#4 EEV signal
				#5, 6 12V
6. CN551-INV MICOM DOWNLOAD	7. CN901-BLDC FAN	8. CN201-MAIN MICOM DOWNLOAD	9. CN251-SENSOR	
			#1 OUTDOOR TEMPERATURE	
			#2 GND	
			#3 DISCHARGE TEMPERATURE	
			#4 GND	
			#5 COND TEMPERATURE	
			#6 GND	

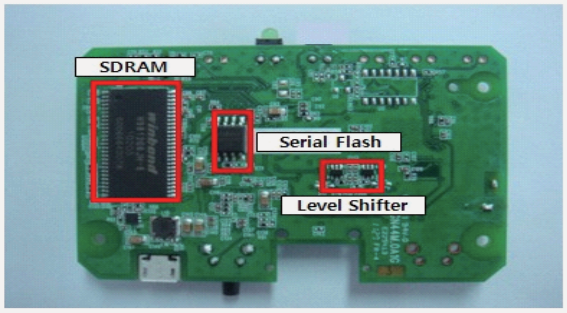
10-3 WIFI PCB





■ 5-Pin Connector Pin-Map

1	UART TX
2	UART RX
3	DC 5V
4	GND
5	nRESET



■ Status LED

- WiFi Connection Indicator : ON/OFF/Blinking

New Function [Indoor Terminal Block Safety Device]

1.Thermal Fuse is installed in Terminal Block as below.

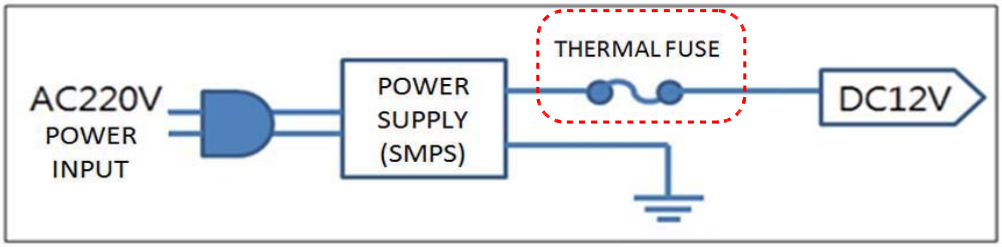
(Thermal Fuse is used to prevent PL caused by a defective connection of indoor and outdoor units)

Terminal Block Internals

Connnection of terminal block and Main PBA

2. Thermal Fuse is opened when internal temperature of Terminal Block goes to a certain point due to Tracking caused by a defective connection of indoor and outdoor units.

- When Thermal Fuse is opened, Main PBA (DC12V) is turned off and the indoor unit does not operate. (There is no problem with Main PBA in this case)
- In the above case, the change of all-in-one Terminal Block will make Main PBA operate again.



Circuit Block

3. Measurement method of fair/defective thermal fuse

Fair

Defective

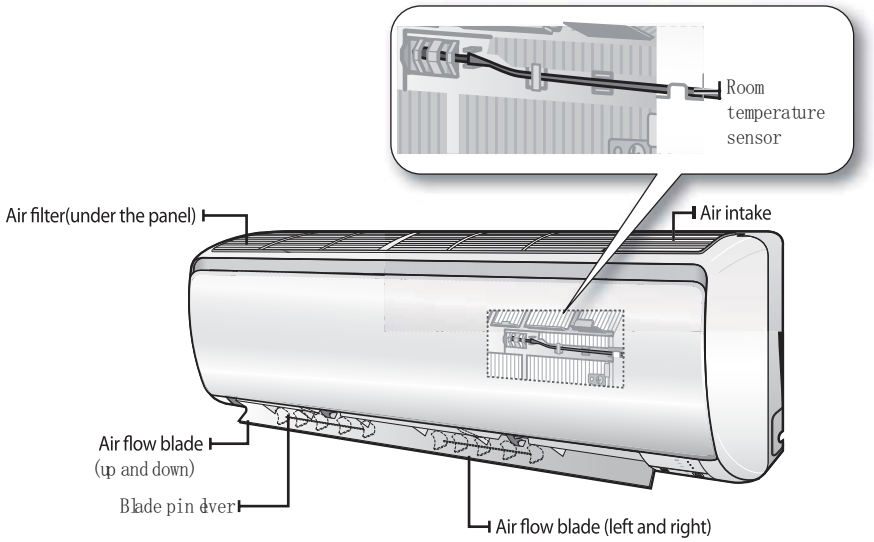
11. Operating Instructions

11-1 Name of Each Part

11-1-1 Indoor Unit

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

Main parts

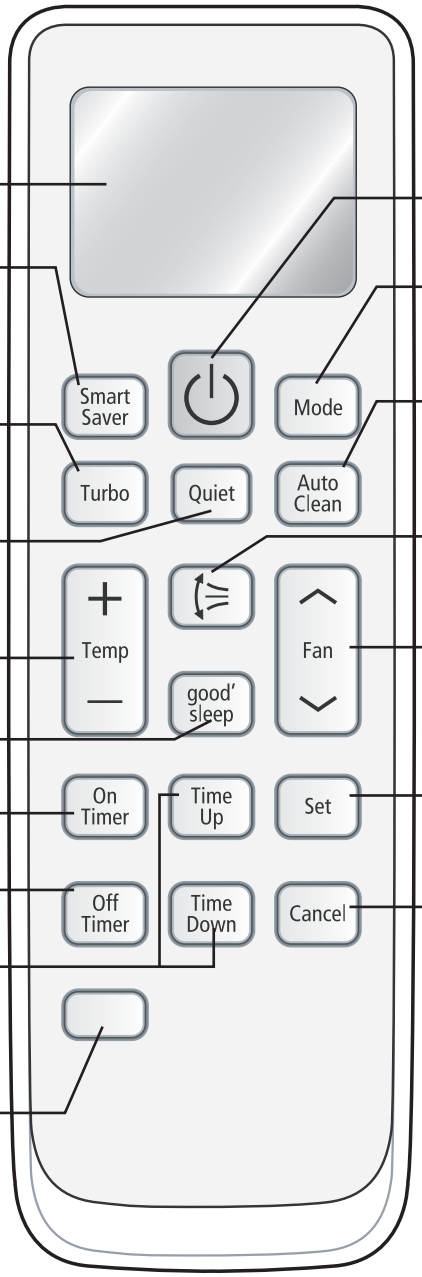


11-1-2 Outdoor Unit

[AR18] Q

[AR24] P

11-2 Wireless Remote Control-Buttons and Display



Дисплей на дистанционното управление

Smart Saver (Умно спестяване)
С по-малко електроенергия вашето помещение остава хладно в температурния диапазон от 24 °C до 30 °C.

Turbo
Работа при автоматична скорост на вентилиране за бързо охлаждане.

Quiet (Тих)
Намалява шума на вътрешното тяло по време на работа.

Temp + -
Увеличава/Намалява температурата с по 1 °C.

good' sleep
Включва режим **good' sleep.**

On Timer(Включващ таймер)
Задействане на включващия таймер.

Off Timer(Изключващ таймер)
Задействане на изключващия таймер.

Time Up/Time Down
(Увеличаване/Намаляване на времето)
Регулиране на времето за таймера/режима **good' sleep**.

Този бутон липсва.

Power(Захранване)
Включва/Изключва климатика.

Mode (Режим)
Избира един от 5-те работни режима (за инструкции вижте страници 14-15).

Auto Clean (Автом. почистване)
Функция автоматично почистване - изсушаване на вътрешността на вътрешното тяло за отстраняване на миризми.

Air swing(Люлеене на жалузите)
Задейства/Прекратява автоматичното движение на крилото на въздушния поток нагоре и надолу.

Fan(Вентилиране)
Регулира въздушния поток през климатика с 4-те различни скорости на вентилиране - Автом./Ниска/Средна/Висока.

Set(Задействане)
Задействане на таймера/режима **good' sleep.**

Cancel(Отмяна)
Отмяна на таймера/режима **good' sleep.**

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.

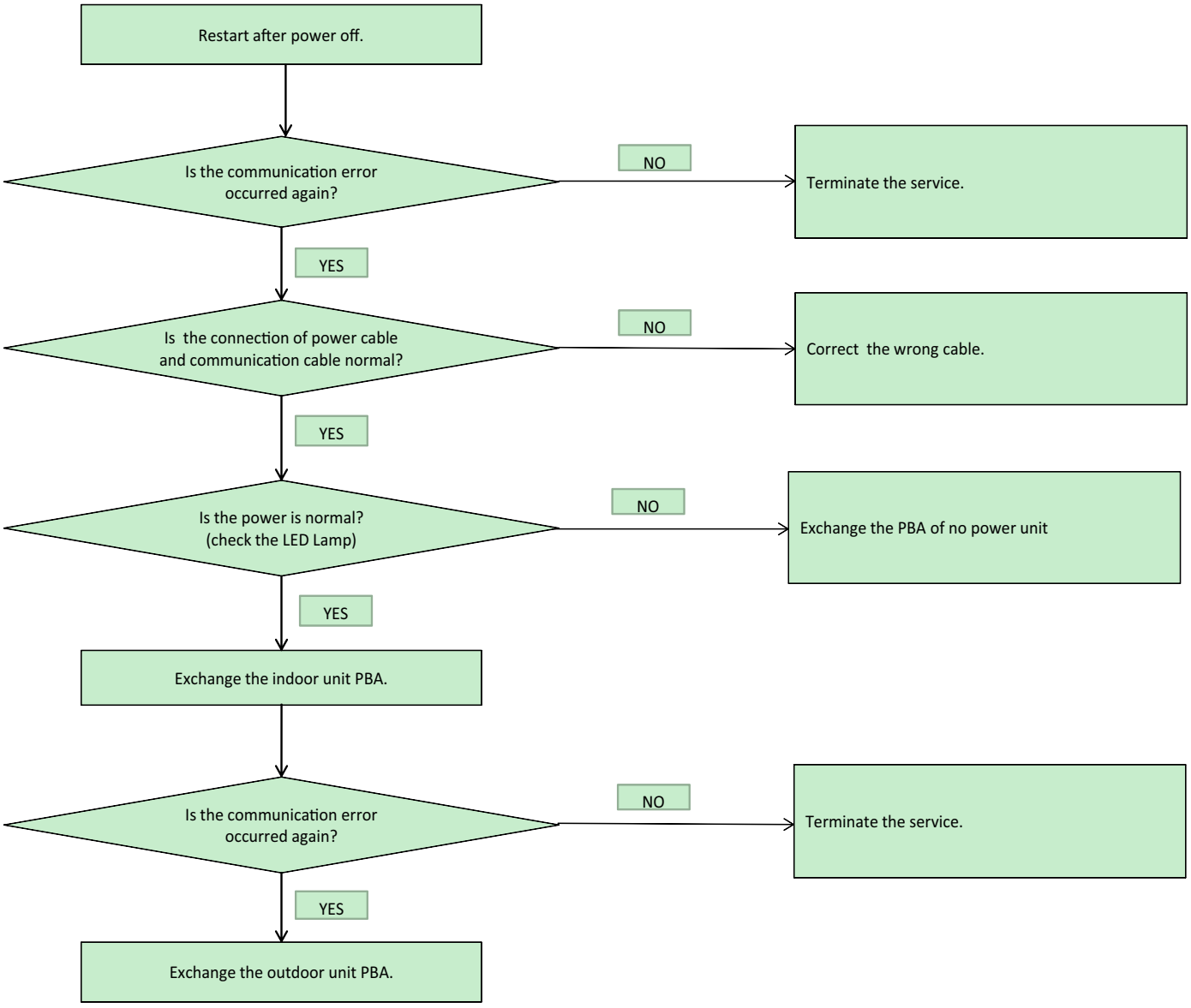
3. When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the air conditioner.

No	Operation of air conditioner	Explanation
1	The OPERATION indication LE (BLUE) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LE 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 IN OOR 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 RY( ) mode.	The speed of the indoor fan is set to LL in RY mode. Fan speed is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in RY( ) mode.	Compressor operation is controlled automatically in RY mode depending on the room temperature and humidity.
5	Timer LE (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 RY 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

Communication error

Indoor display	○	⊙	⊙	Communication error
Outdoor display	⊙	●	●	1min. Time out Comm.
	○	○	●	Abnormal Communication
	○	●	●	

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

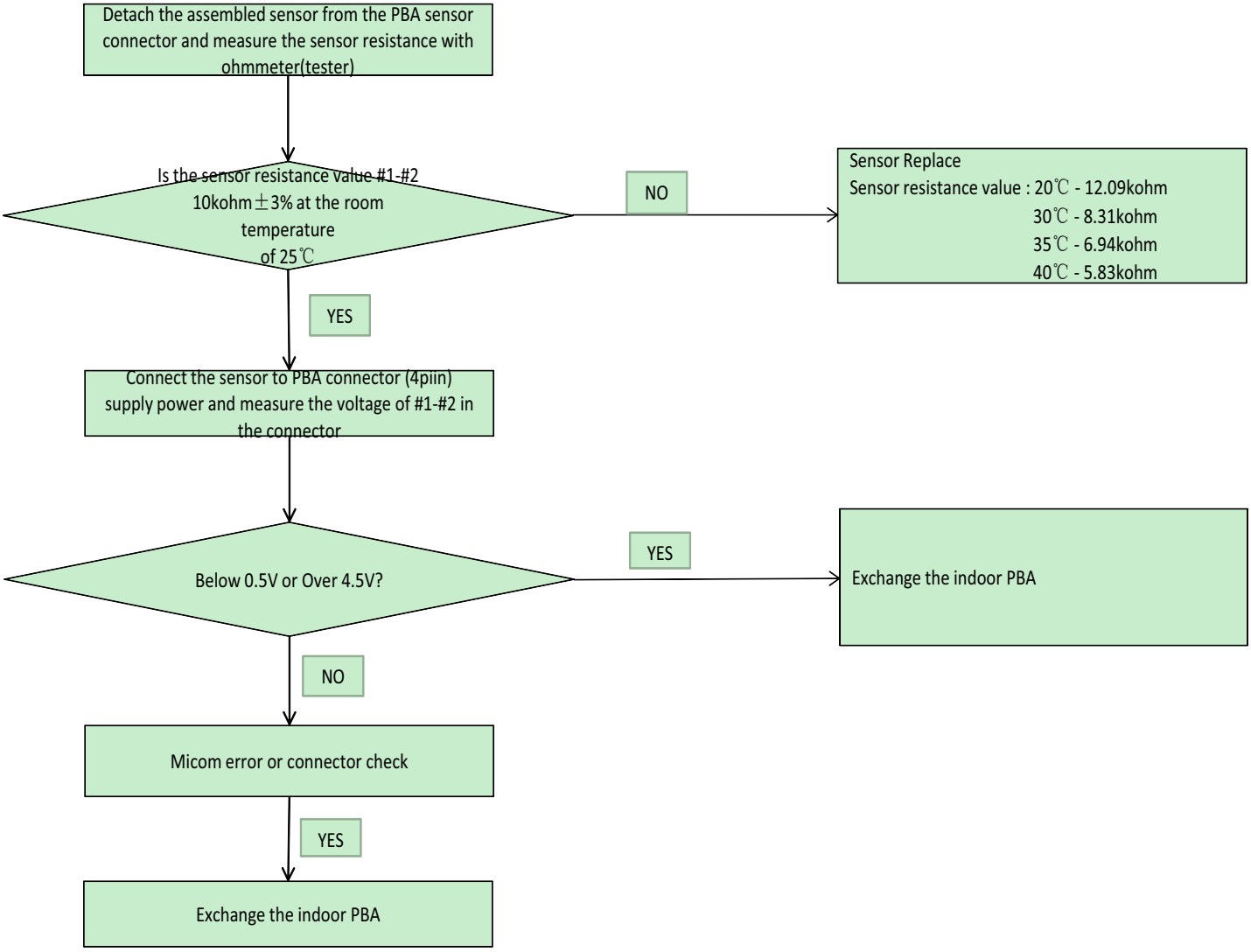


Indoor temperature sensor error

Indoor display	○	⊙	○	Indoor room temp sensor error

1.Checklist :

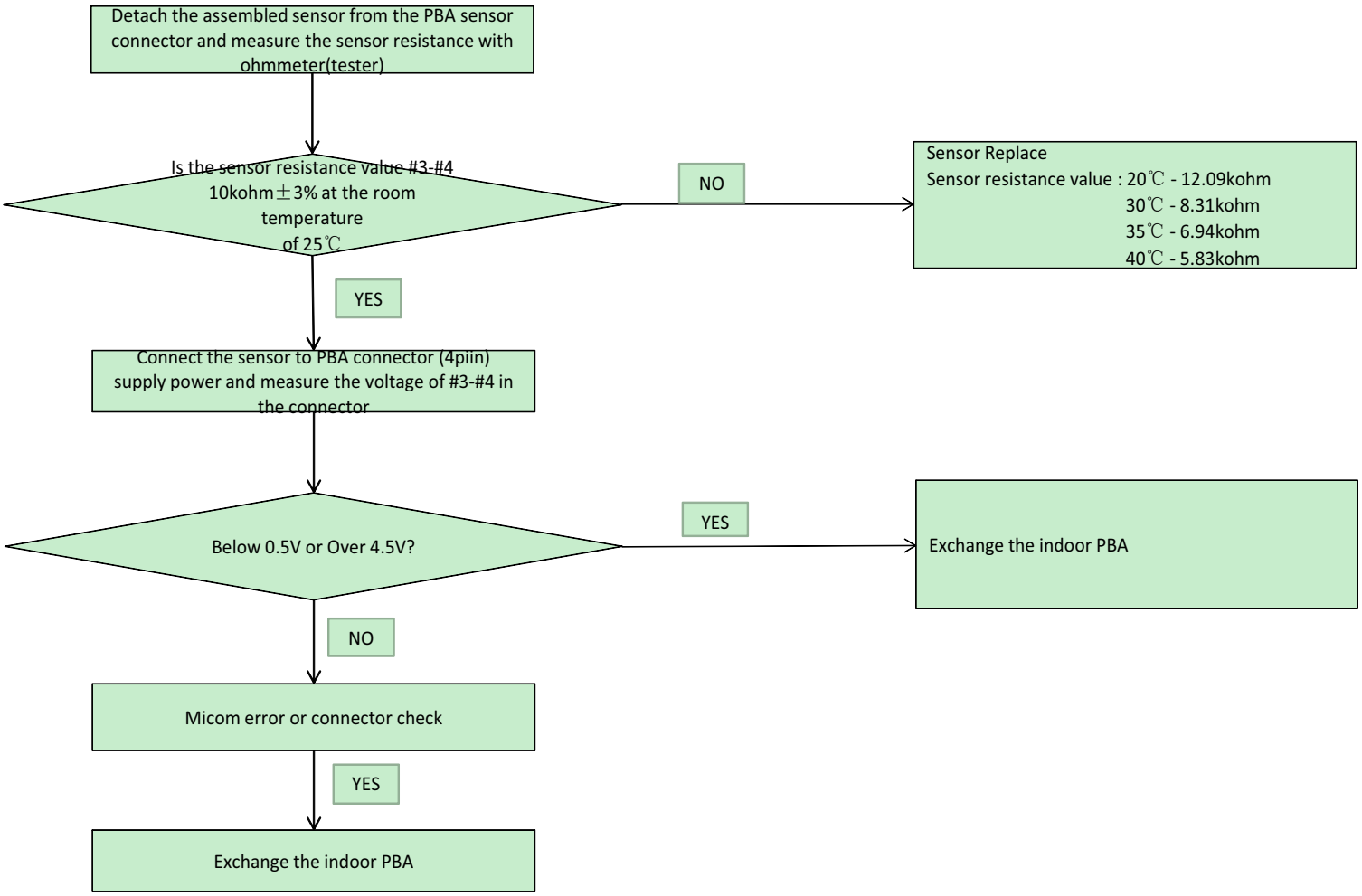
1) Is the indoor units temperature sensor connected correctly?
2) Is the sensor placed correctly?
3) Does the both terminal of sensor satisfy the resistance value in accordance with temperature?



Indoor Eva-in temperature sensor error

Indoor display	⊙	⊙	○	Indoor Eva-in temp sensor error

1. Checklist :
 1) Is the indoor units temperature sensor connected correctly?
 2) Is the sensor placed correctly?
 3) Does the both terminal of sensor satisfy the resistance value in accordance with temperature?



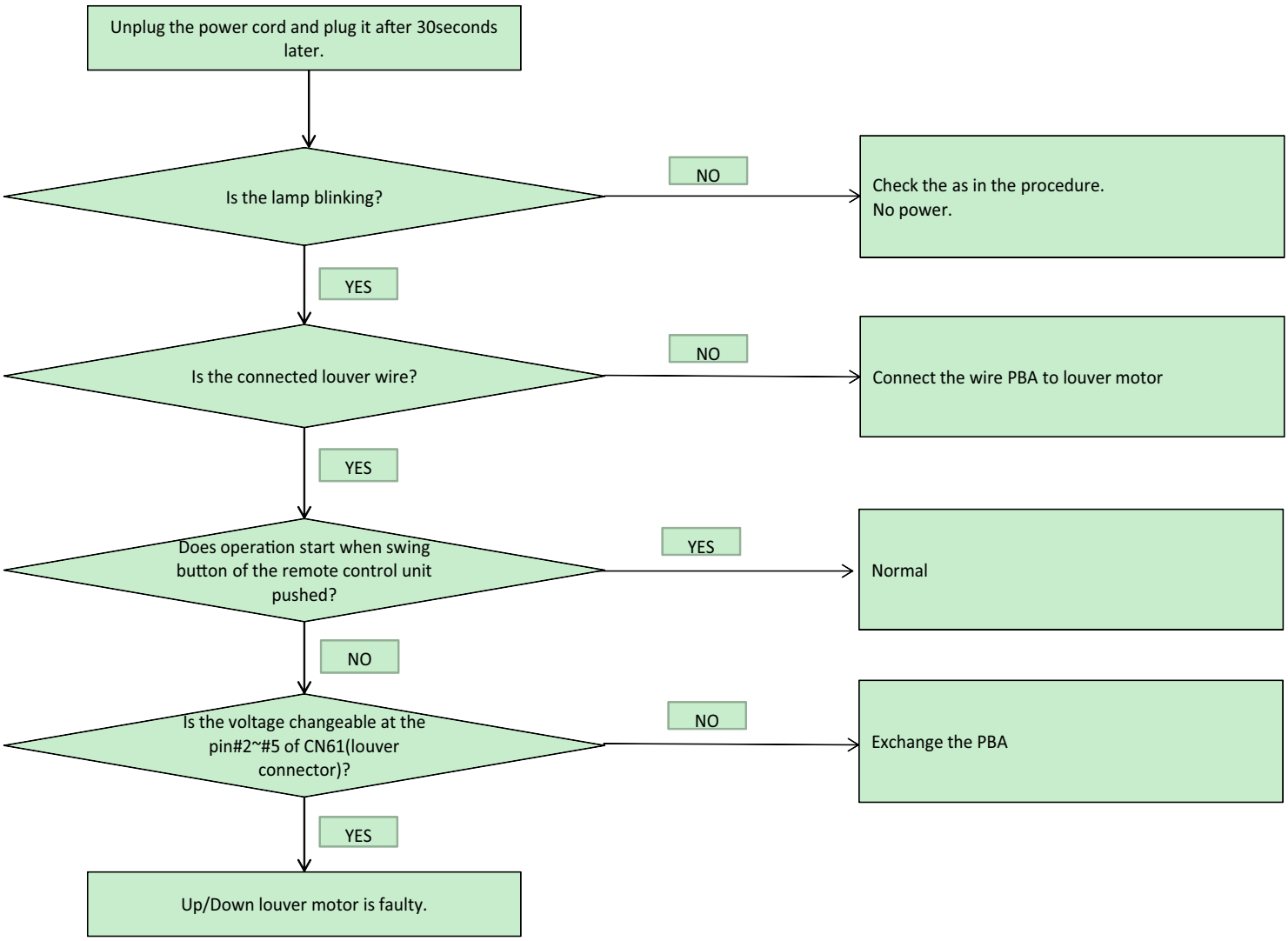
When the Up/Down louver motor does not operate (Initial Diagnosis) (Not displayed)

1.Checklist :

1) Is the input power voltage normal?

2) Is the Up/Down louver motor properly connected with the connector? (CN61)

2. Troubleshooting procedure



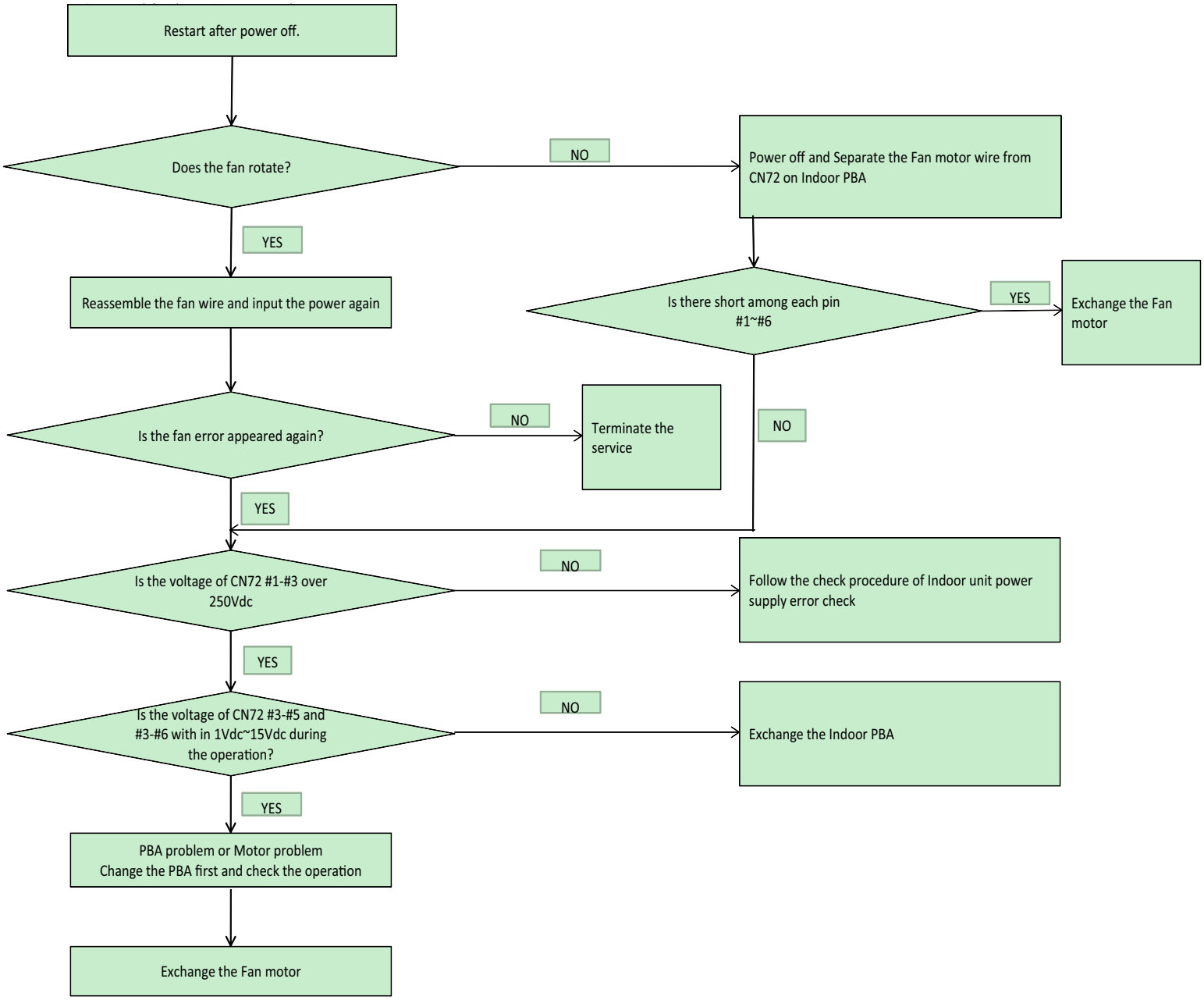
When the remote control is not receiving

1.Checklist :
 1) Check if the connector was normally assembled.
 2) Check the battery in remote control
 3) All the lights out and check again : Change electronic typed to a fluorescent
 4) Put the set in operation and check the voltage of display PBA
 5) Replace the display PBA

Indoor fan motor speed detecting error (BLDC fan)

Indoor display	○	○	⊙	Indoor fan error

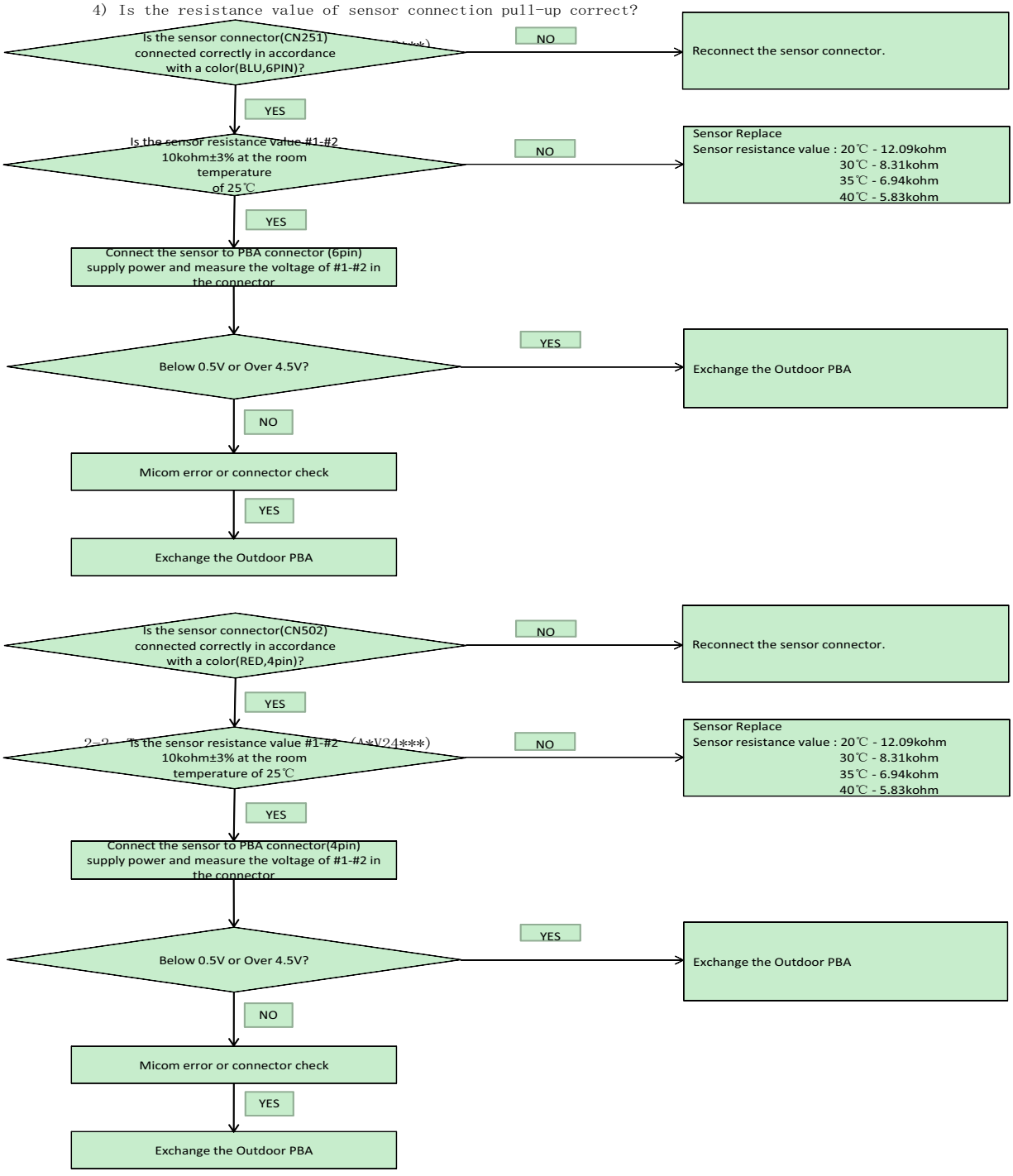
1. Checklist :
 1) Is the indoor units fan motor properly connected with the connector(CN72)?
 2) Is the AC voltage correct?

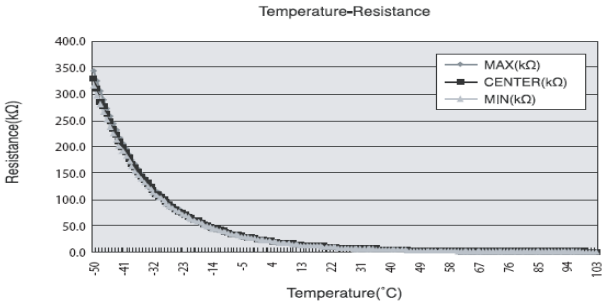


Outdoor temperature sensor error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	⊙	○	⊙	Outdoor temperature sensor error

1. Checklist :
   1) Is the sensor 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?



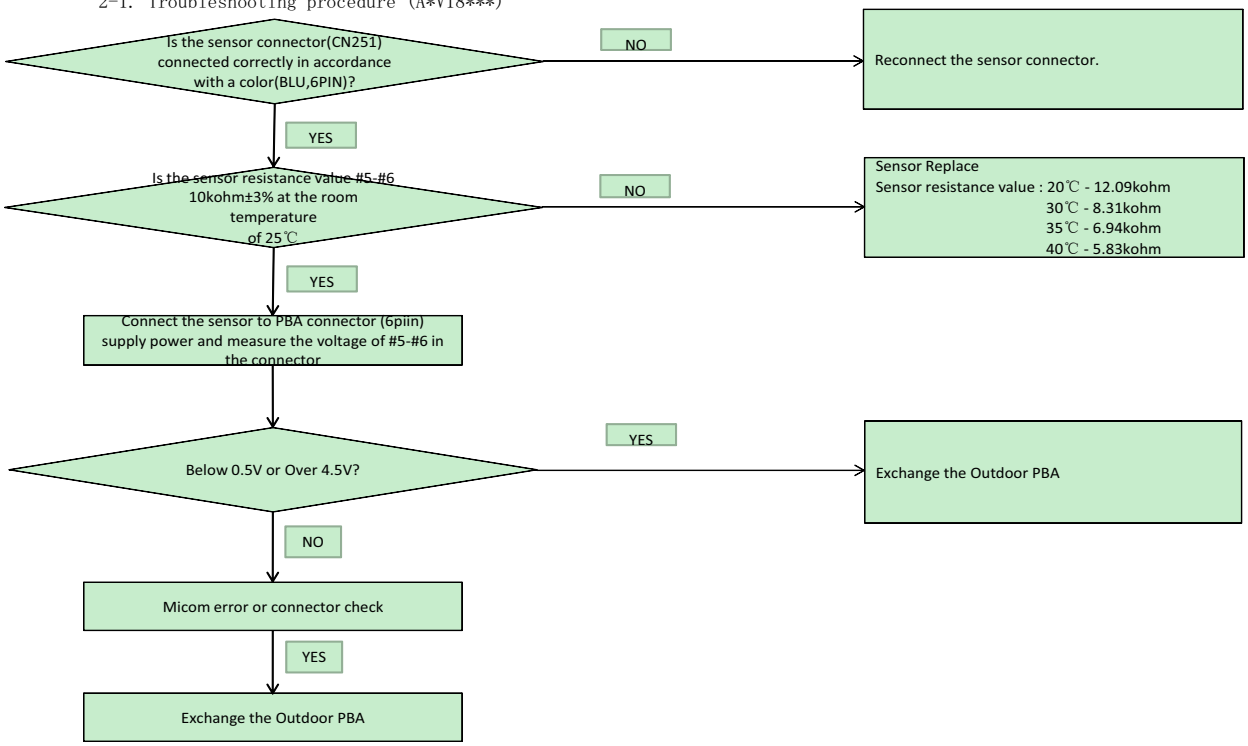


Outdoor Coil temperature sensor error

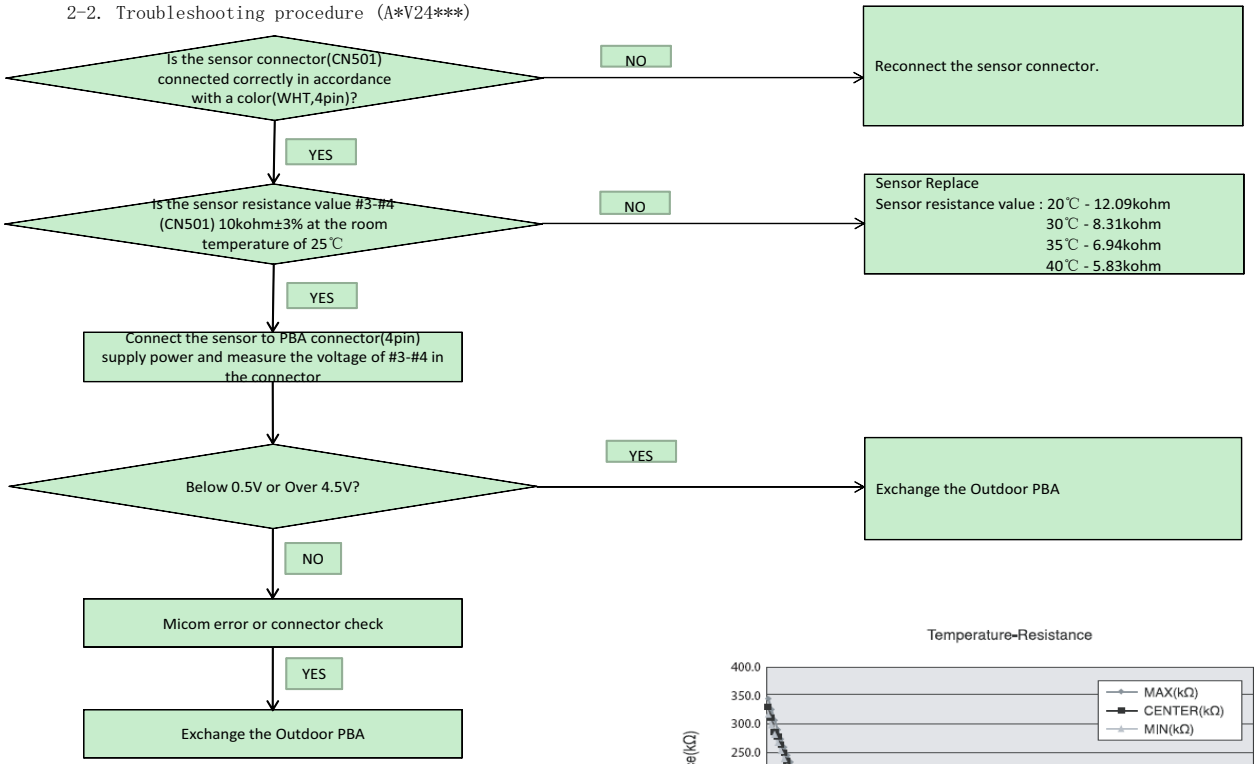
Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	⊙	●	⊙	Outdoor Coil temperature sensor error

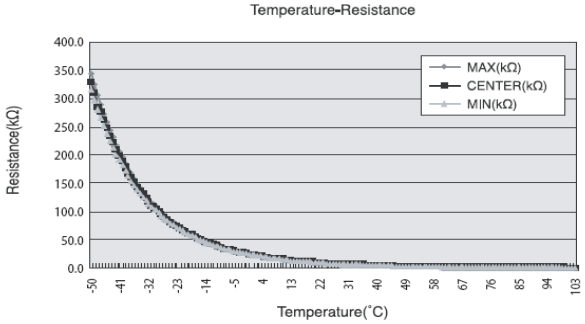
1. Checklist :
   1) Is the sensor connected correctly?
   2) Is the sensor placed correctly?
   3) Does the both terminal of sensor satisfy the resistance value in accordance with temperature?
   4) Is the resistance value of sensor connection pull-up correct?

2-1. Troubleshooting procedure (A*V18***)



2-2. Troubleshooting procedure (A*V24***)





Outdoor Discharge temperature sensor error

Indoor display	⊙	◯	⊙	Outdoor error
Outdoor display	⊙	⊙	◯	Outdoor Discharge temperature sensor error

1. Checklist :
 1) Is the sensor 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?

Is the sensor connector(CN251) connected correctly in accordance with a color(BLU,6PIN)?
NO → Reconnect the sensor connector.
YES

Is the sensor resistance value #3-#4 200kohm±3% at the room temperature of 25℃
NO → Sensor Replace
Sensor resistance value : 20℃ - 242kohm
30℃ - 166ohm
35℃ - 138ohm
40℃ - 115kohm
YES

Connect the sensor to PBA connector (6piin) supply power and measure the voltage of #3-#4 in the connector

Below 0.5V or Over 4.5V?
YES → Exchange the Outdoor PBA
NO

Micom error or connector check

YES

Exchange the Outdoor PBA

Is the sensor connector(CN502) connected correctly in accordance with a color(red,4pin)?
NO → Reconnect the sensor connector.
YES

2-2 Is the sensor resistance value #3-#4 200kohm±3% at the room temperature of 25℃ (A*V24***)
NO → Sensor Replace
Sensor resistance value : 20℃ - 242kohm
30℃ - 166ohm
35℃ - 138ohm
40℃ - 115kohm
YES

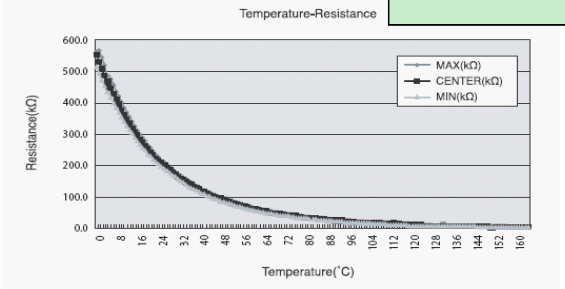
Connect the sensor to PBA connector(4pin) supply power and measure the voltage of #3-#4 in the connector

Below 0.5V or Over 4.5V?
YES → Exchange the Outdoor PBA
NO

Micom error or connector check

YES

Exchange the Outdoor PBA



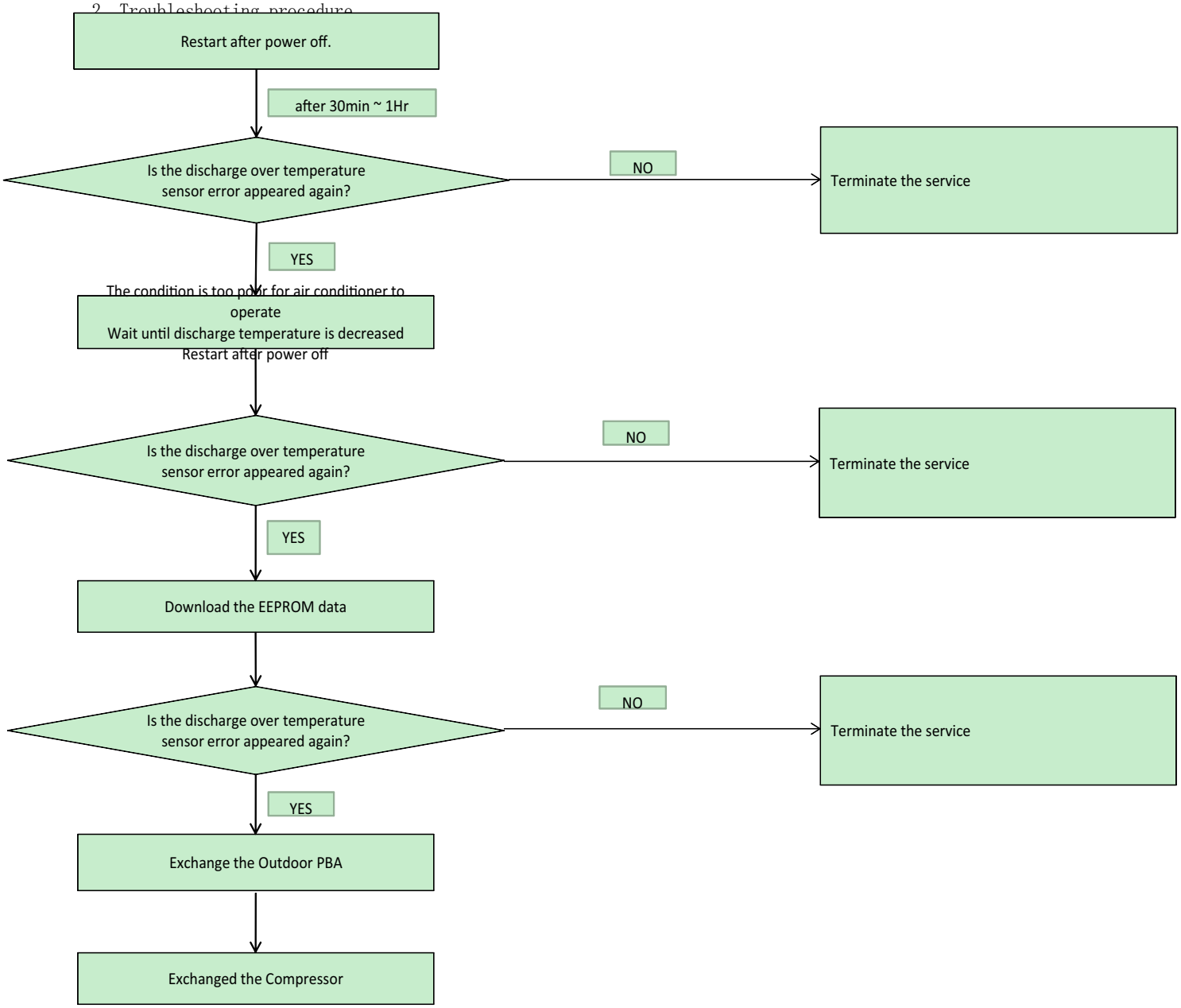
Outdoor Discharge over temperature error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	⊙	○	●	Outdoor Discharge over temperature error

1.Checklist :

1) Check the discharge temperature in the outdoor unit
2) Check the compressor locking or gas leak
3) Download the EEPROM data

2. Troubleshooting procedure

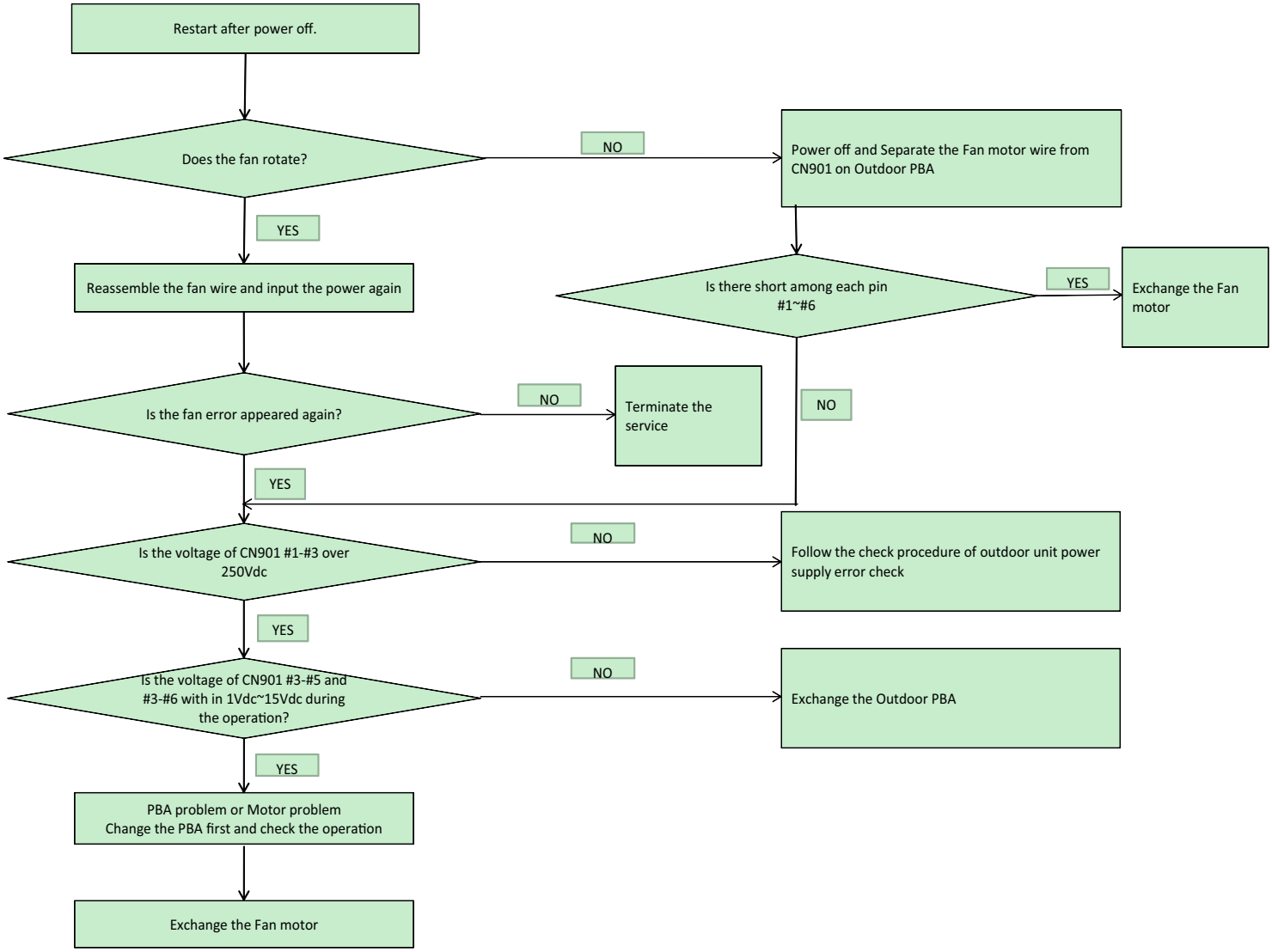


Outdoor Fan motor error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	●	○	○	Outdoor fan error

1.Checklist :

1) Are the input power voltage and the power connection correct?
2) Is the motor wire connected to the outdoor PBA 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?

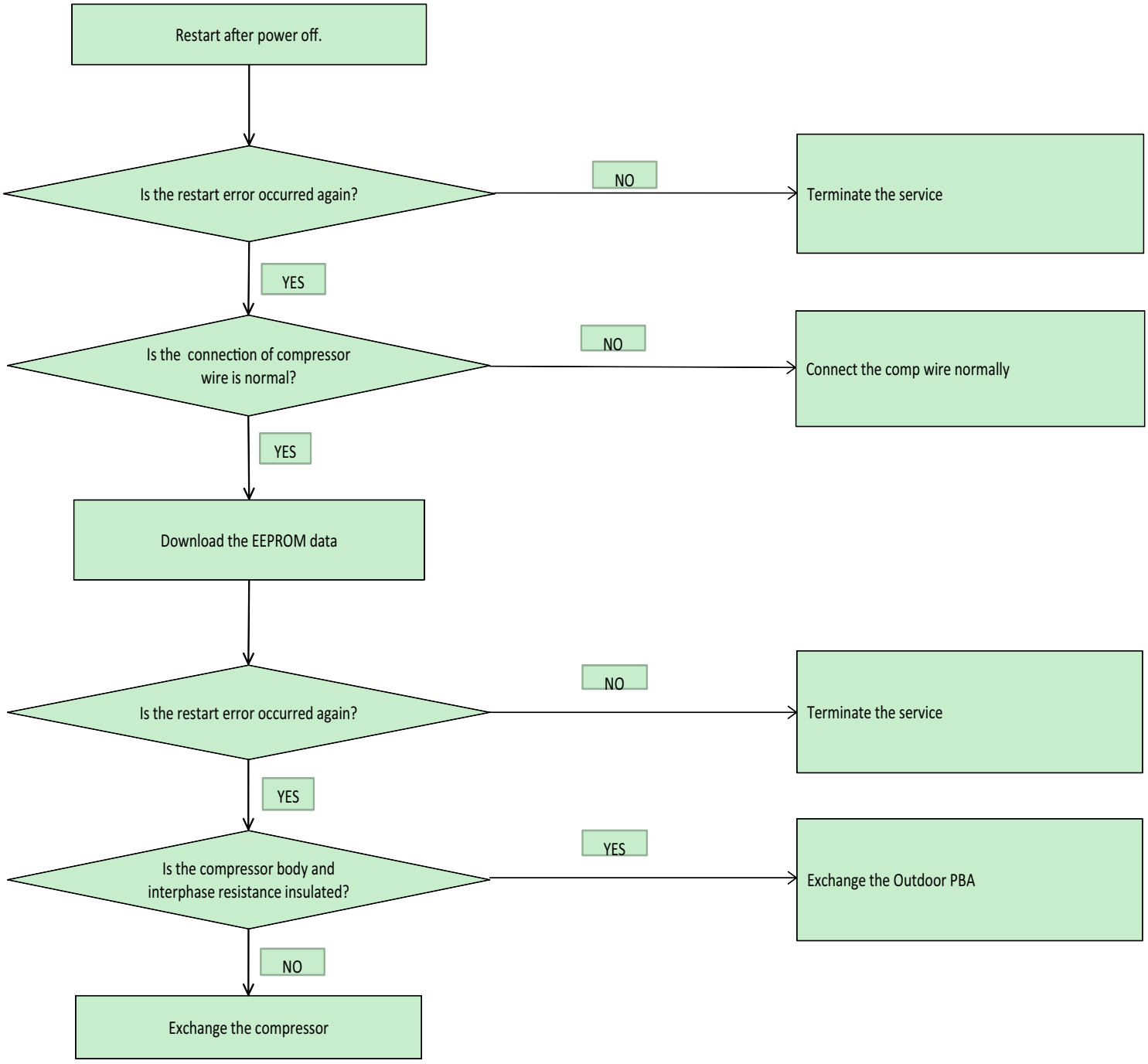


Compressor starting error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	○	⊙	○	Comp starting error

1.Checklist :

1) Is the connection of cable for the compressor?
2) Is the compressor wire is connected clockwise? U(RED)-V(BLU)-W(YEL)
3) Is the interphase resistance of compressor normal?

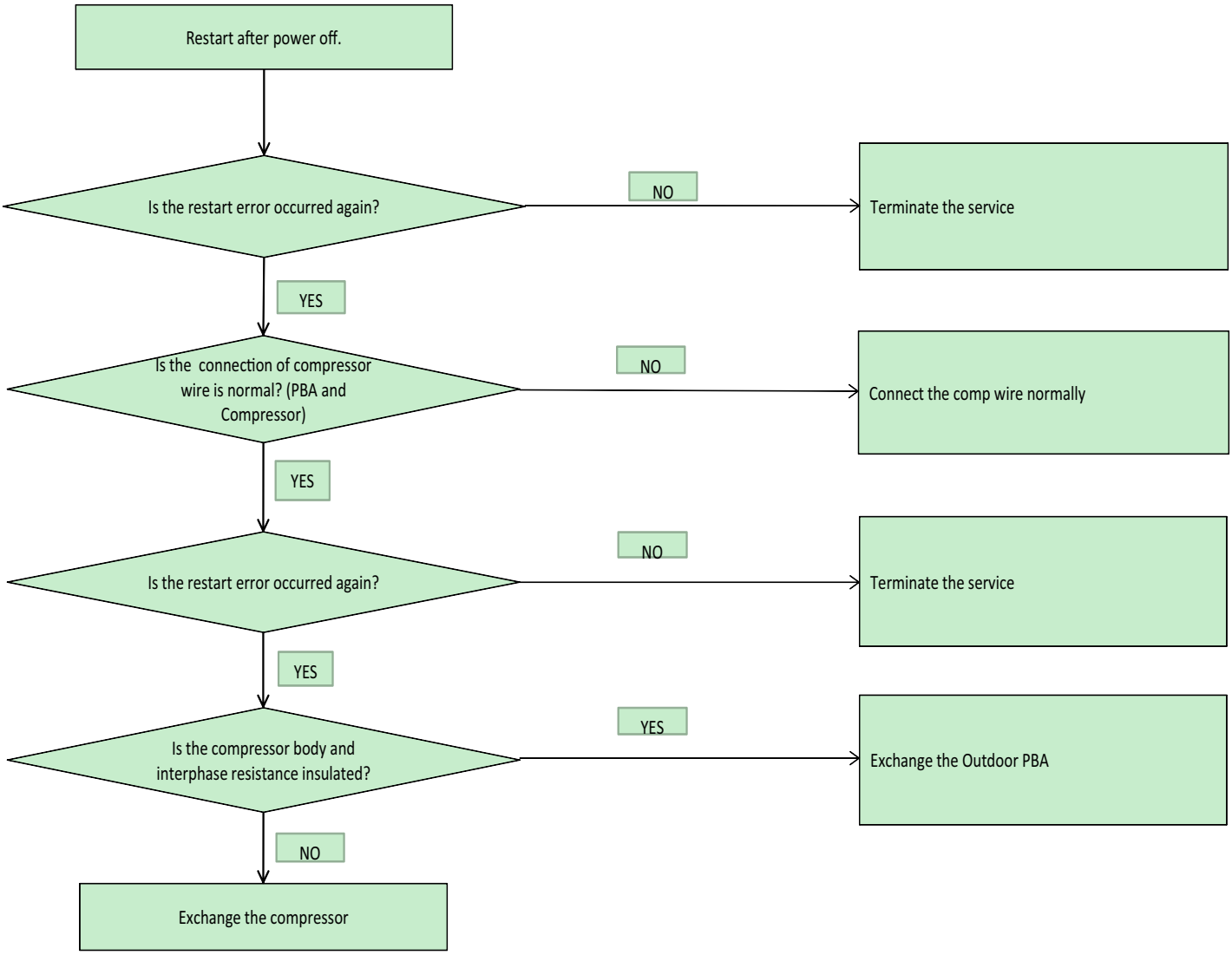


Compressor wire missing error/rotation error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	●	○	●	Compressor wire missing error/rotation error

1.Checklist :

1) Is the connection of cable for the compressor?
2) Is the compressor wire is connected clockwise? U(RED)-V(BLU)-W(YEL)
3) Is the interphase resistance of compressor normal?

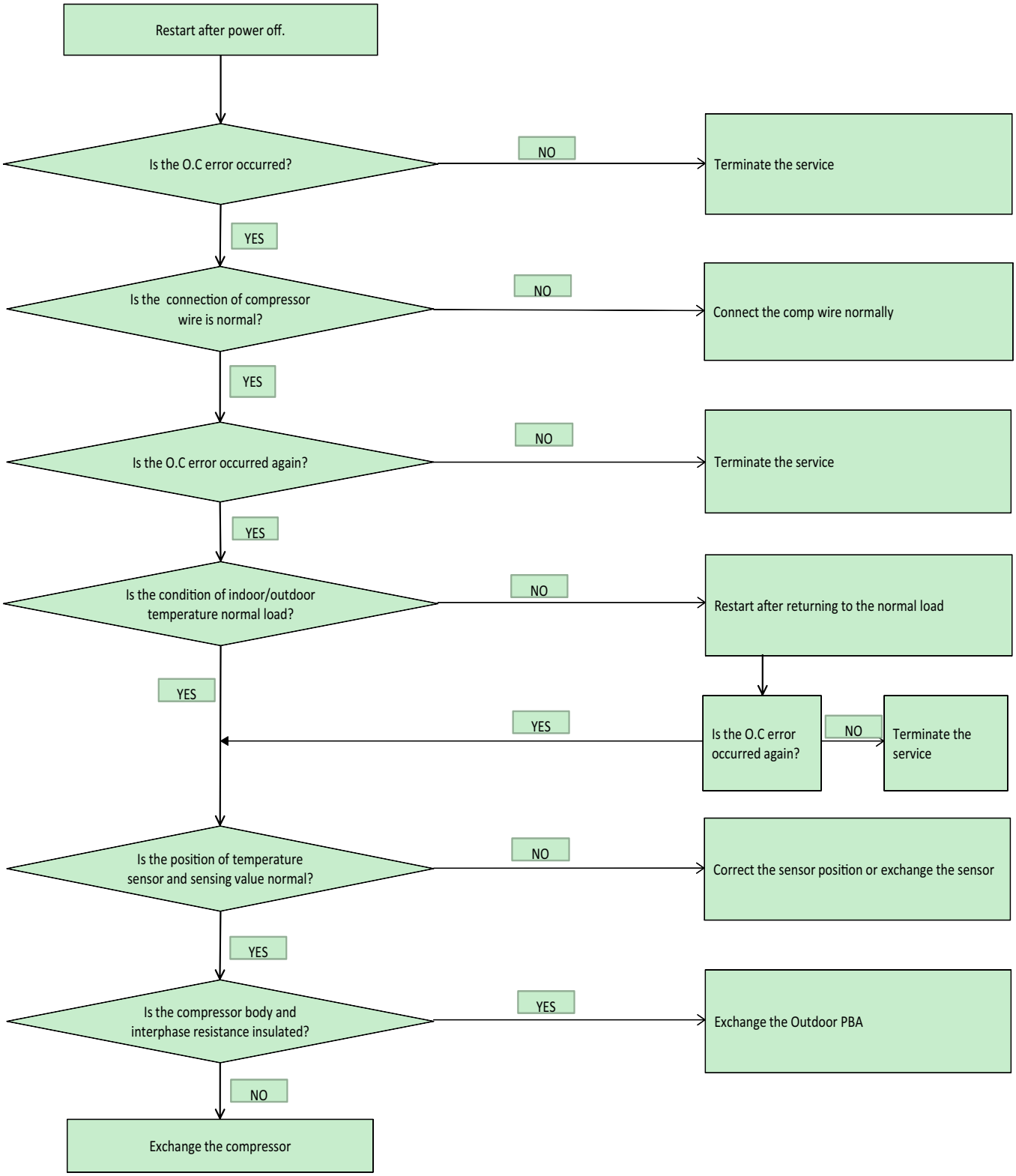


O.C(Over Current) error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	○	○	⊙	Comp starting error

1.Checklist :

1) Is the IPM Shunt(A*V18***:R451,R452,R453,A*V24***:R413,R414,R415) resistance value correct? Check the resistor is opened
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?

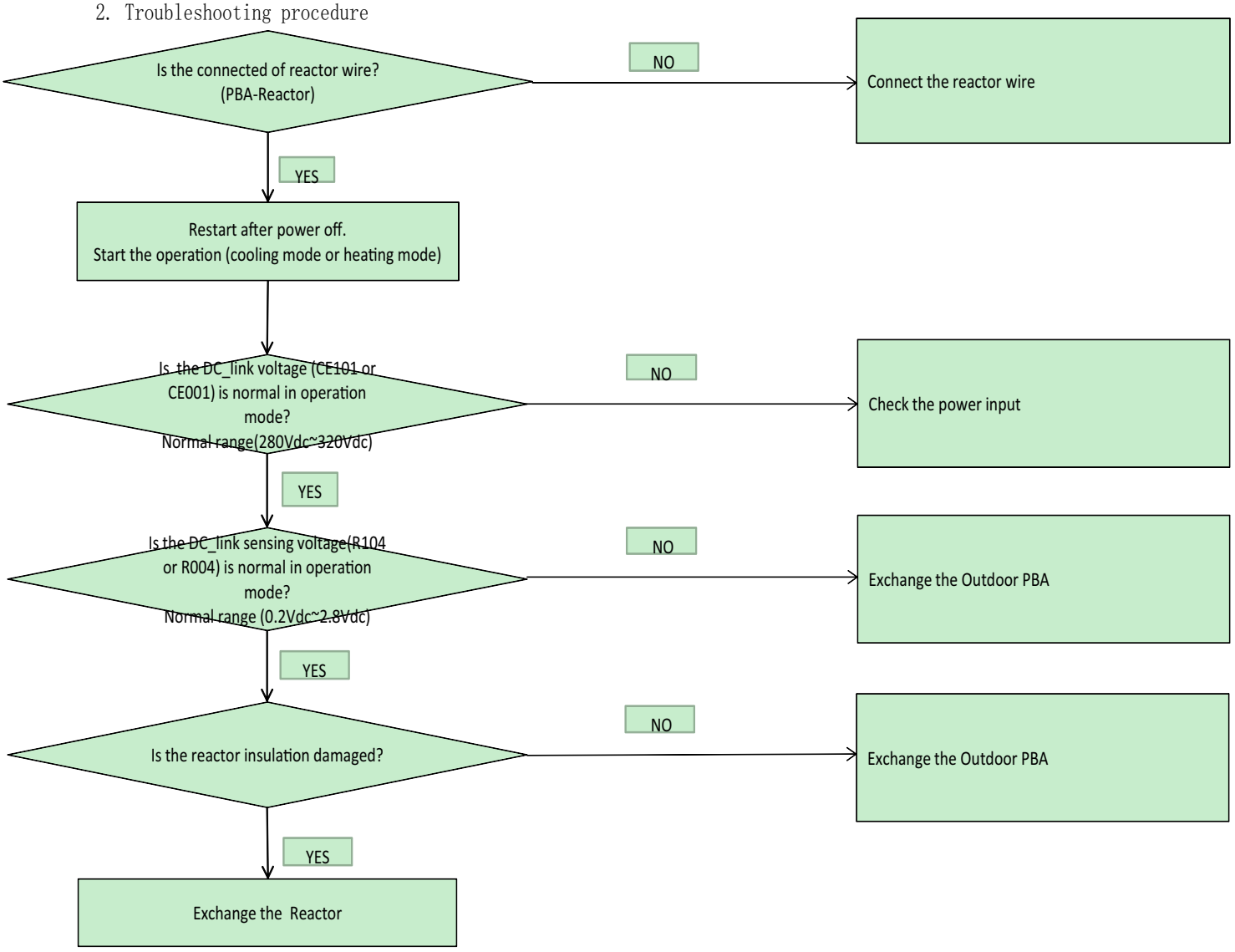


DC_link voltage sensor error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	●	⊙	⊙	DC_link voltage sensor error

1. Checklist :
   1) Is the input voltage of outdoor terminal block is normal?
   2) Is the reactor wire connected?
   3) Is the DC_link capacitor(A*V18***:CE101, CE102, CE103, A*V24***:CE001, CE002, CE003, CE004)) assembled in accordance the specification? (Outdoor PBA)
   4) Is the DC_link resistor(A*V18***:R104, R106, R107, R108, A*V24***:R004, R005, R006, R007) value is normal? (Outdoor PBA)

2. Troubleshooting procedure



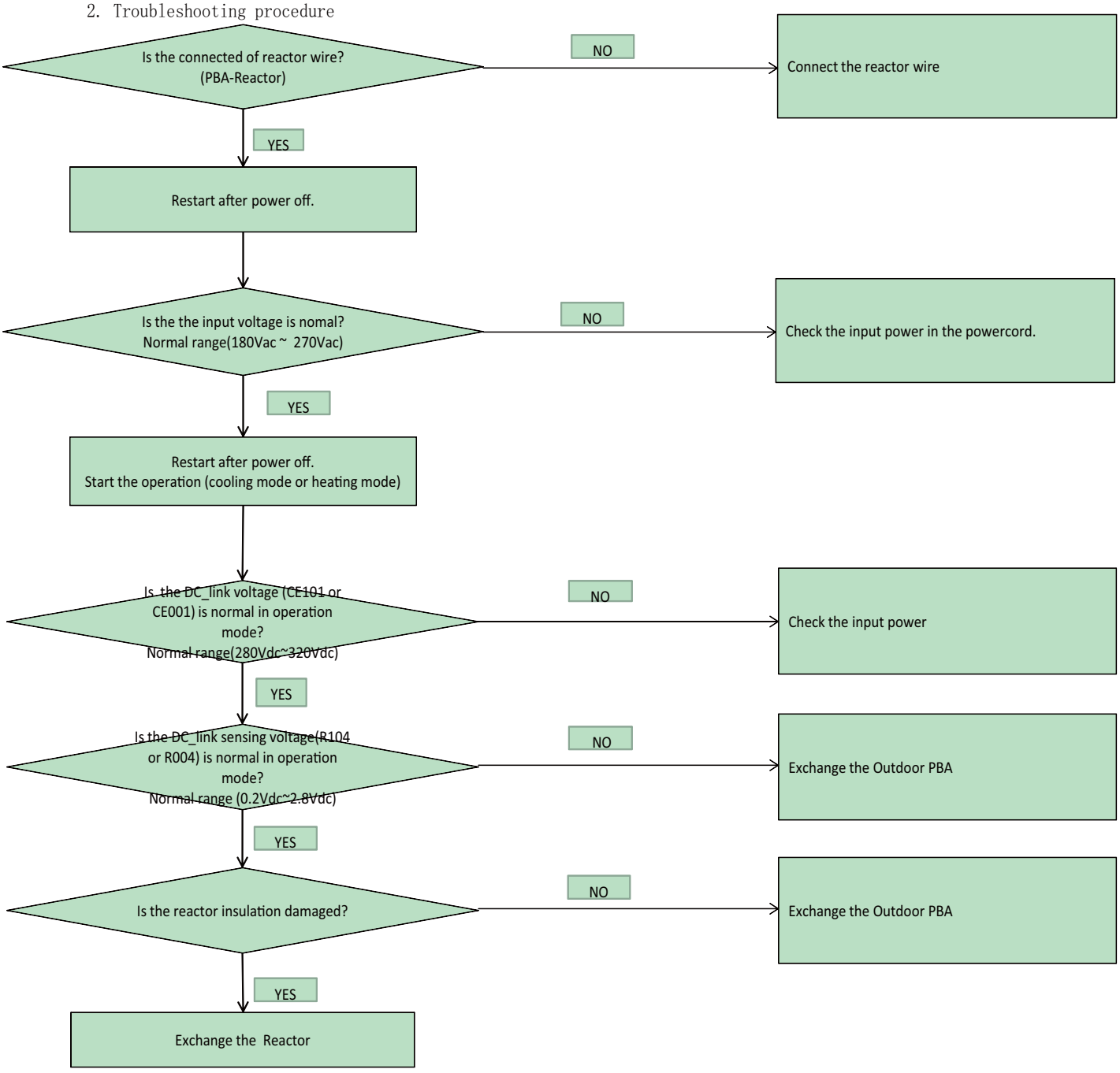
DC_link voltage under/over error, Over voltage protection error/PFC over load

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	○	●	⊙	DC_link voltage under/over error Over voltage protection error PFC over load

1.Checklist :

1) Is the input voltage of outdoor terminal block is normal?
2) Is the input voltage is higher than 300Vac?
3) Is the reactor wire connected?
3) Is the DC_link capacitor(A*V18***:CE101,CE102,CE103,A*V24***:CE001,CE002,CE003,CE004)) assembled in accordance the specification? (Outdoor PBA)
4) Is the DC_link resistor(A*V18***:R104,R106,R107,R108,A*V24***:R004,R005,R006,R007) value is normal? (Outdoor PBA)

2. Troubleshooting procedure

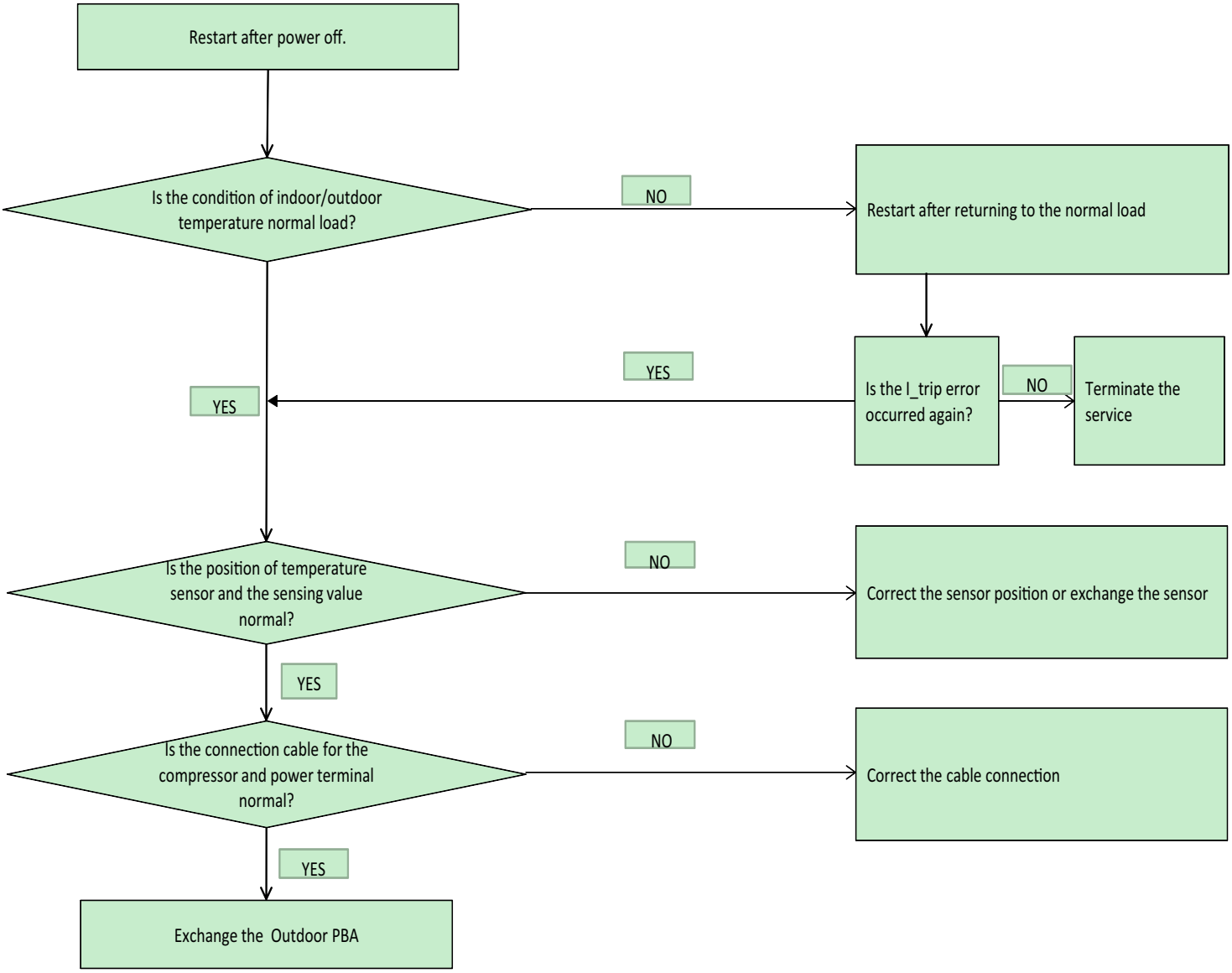


I_trip error, PFC over current

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	●	⊙	●	I_trip error, PFC over current

1.Checklist :

1) Is the PFC Shunt(A*V18***:R062,R063,A*V24***:R807,R808,R809) resistance value correct? Check the resistor is opened
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?

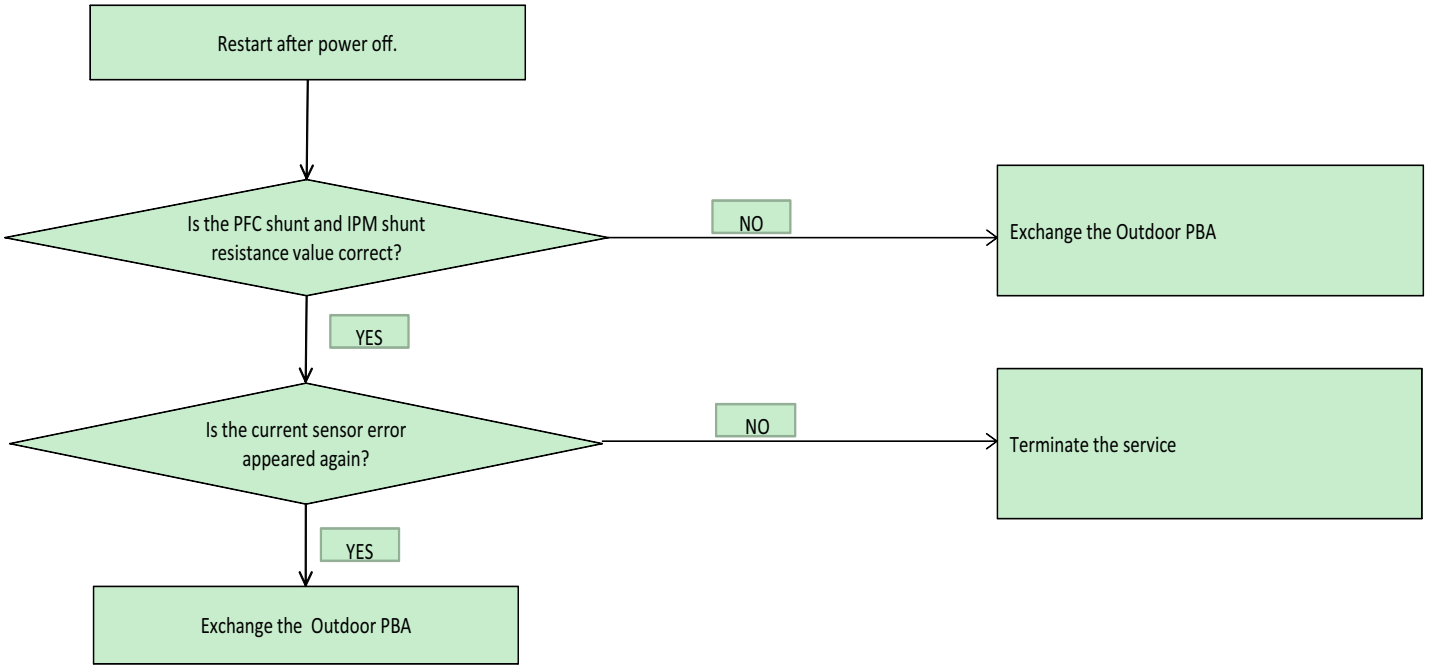


Current sensor error/Input current sensor error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	⊙	⊙	●	Current sensor error/Input current sensor error

1. Checklist :

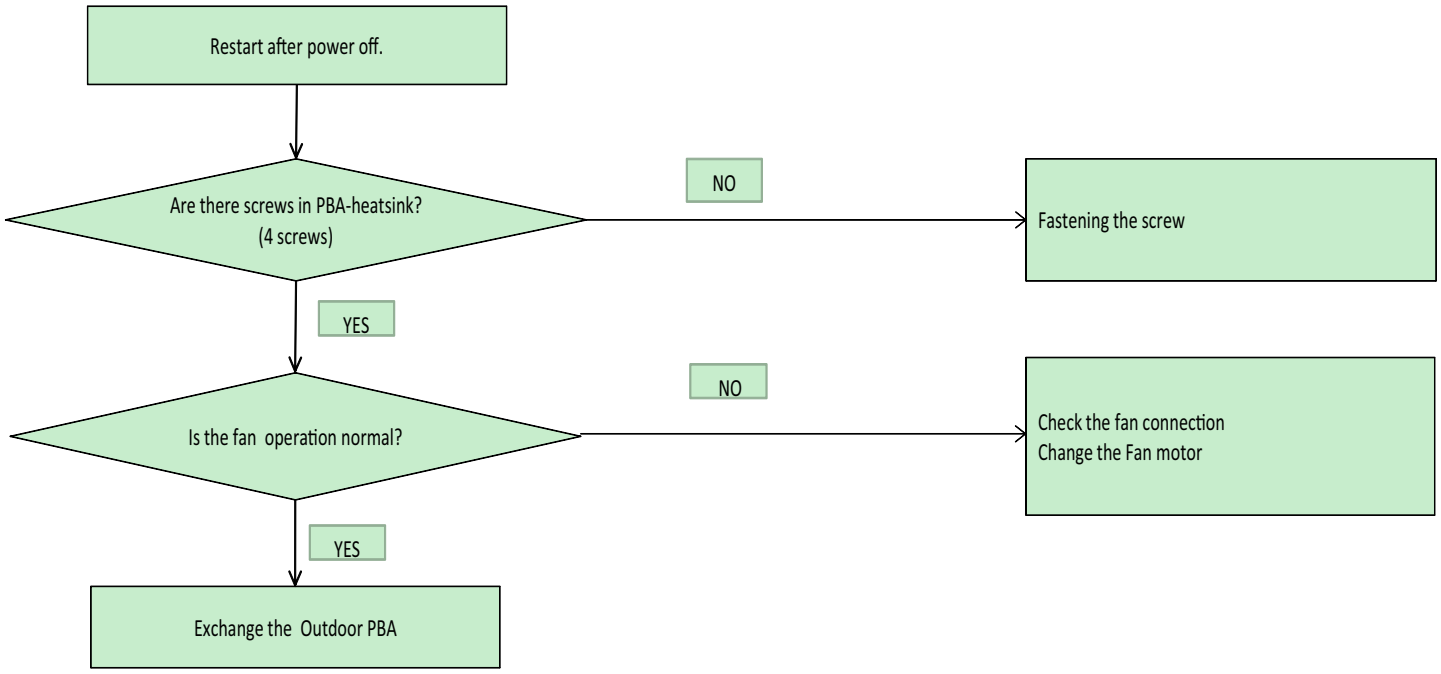
1) Is the PFC Shunt(A*V18***:R062, R063, A*V24***:R807, R808, R809) resistance value correct? Check the resistor is opened
2) Is the IPM Shunt(A*V18***:R451, R452, R453, A*V24***:R413, R414, R415) resistance value correct? Check the resistor is opened
3) Is there no short or open around IC451(A*V18***) or IC451, IC452(A*V24***)?



Heatsink sensor error/Heatsink over heat

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	⊙	⊙	●	Heatsink sensor error
	⊙	●	⊙	Heatsink over heat error

1. Checklist :
   1) Are there screws assembly in PBA-heatsink?
   2) Is the gap PBA-heatsink
   3) Is the fan operation normal?
   4) Is the cover assembly in conrol-box normal?



Comp Vlimit error/Comp current limit error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	⊙	●	○	Comp Vlimit error/Comp current limit error

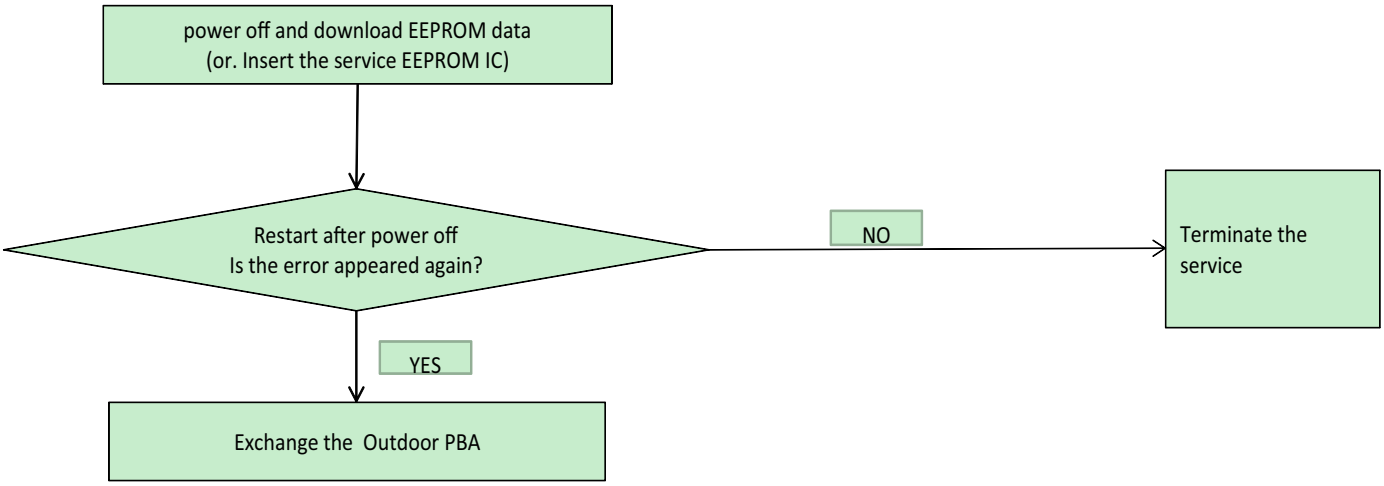
1. Checklist :
   1) Is the IPM Shunt(A*V18***:R451, R452, R453, A*V24***:R413, R414, R415) resistance value correct? Check the resistor is opened
   2) Is the condition of surrounding temperature abnormal overload?
   3) Is there any problem as like the temperature sensor separation or measurement value error?
   4) Is the interphase resistance of compressor normal?

EEPROM error/OTP error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	○	●	○	EEPROM error
	●	○	⊙	OTP error

1.Checklist :

1) Is there a short around micom?
2) Is there a short around IC202(A*V18***) or IC701(A*V24***)?
3) Did you download or insert EEPROM IC, after changing outdoor PBA?

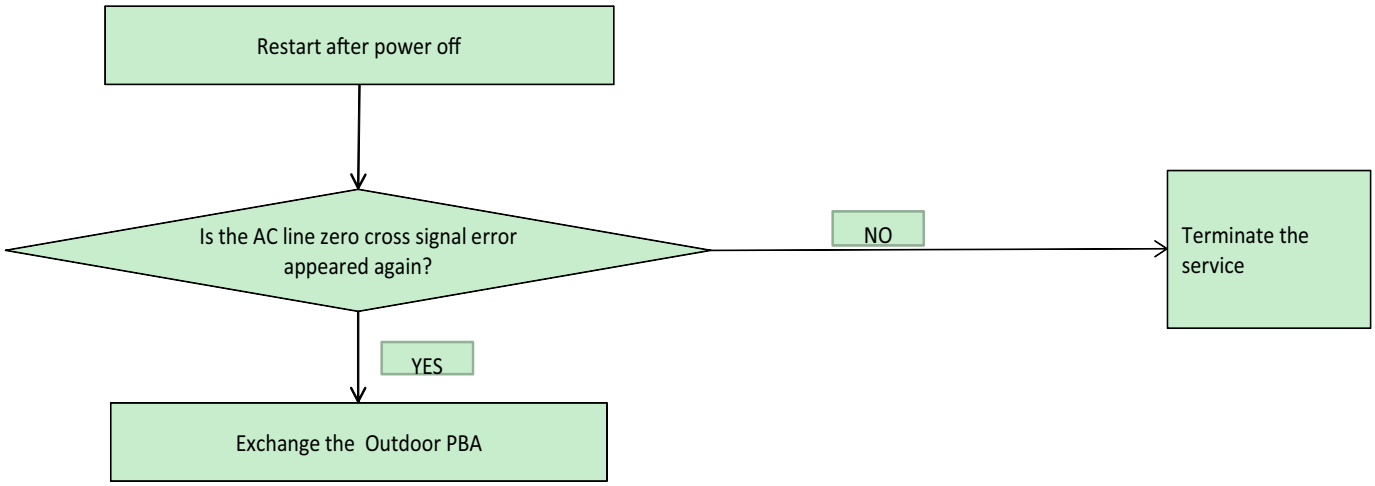


AC zero cross signal error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	●	●	⊙	AC zero cross signal error

1.Checklist :

1) Check the power condition at customer's house (Is there any power noise?)
2) Have been there power failure?



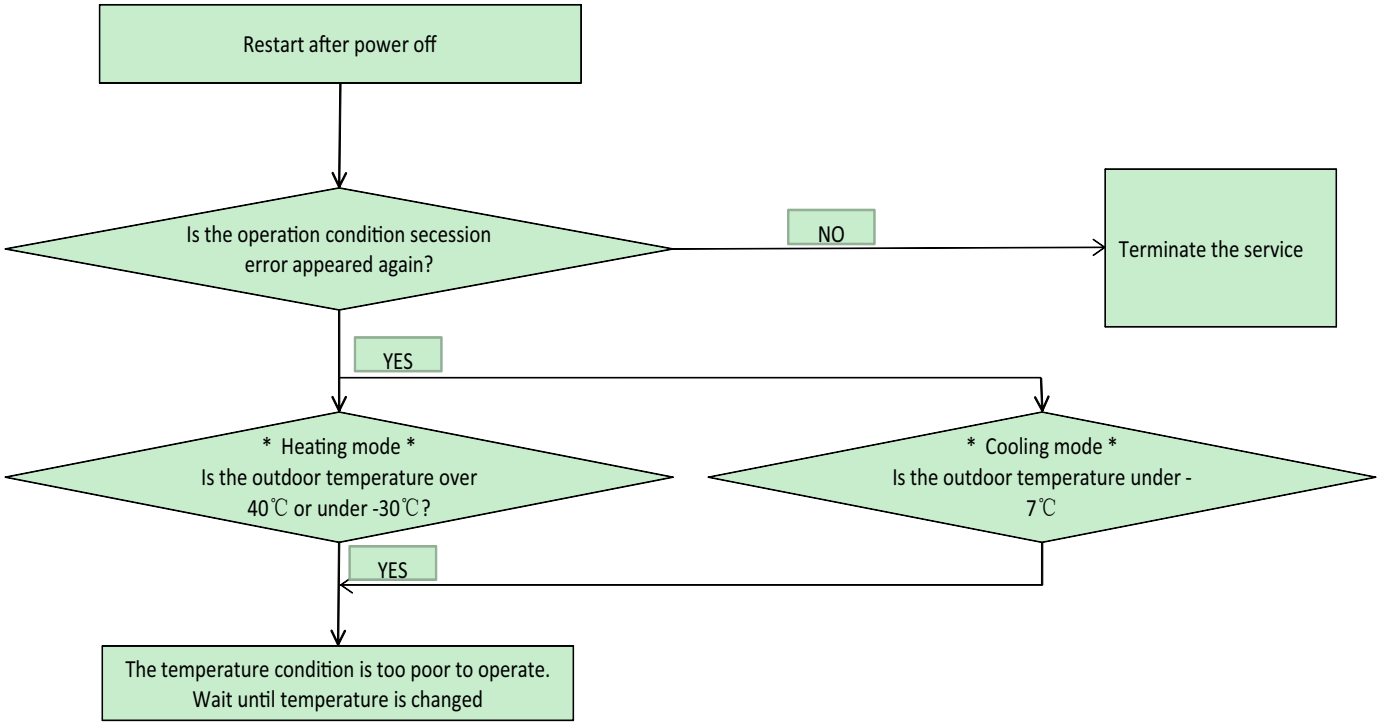
Operation condition secession error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	●	⊙	○	AC zero cross signal error

1.Checklist :

1) Check the temperature around the outdoor unit.

2. Troubleshooting procedure



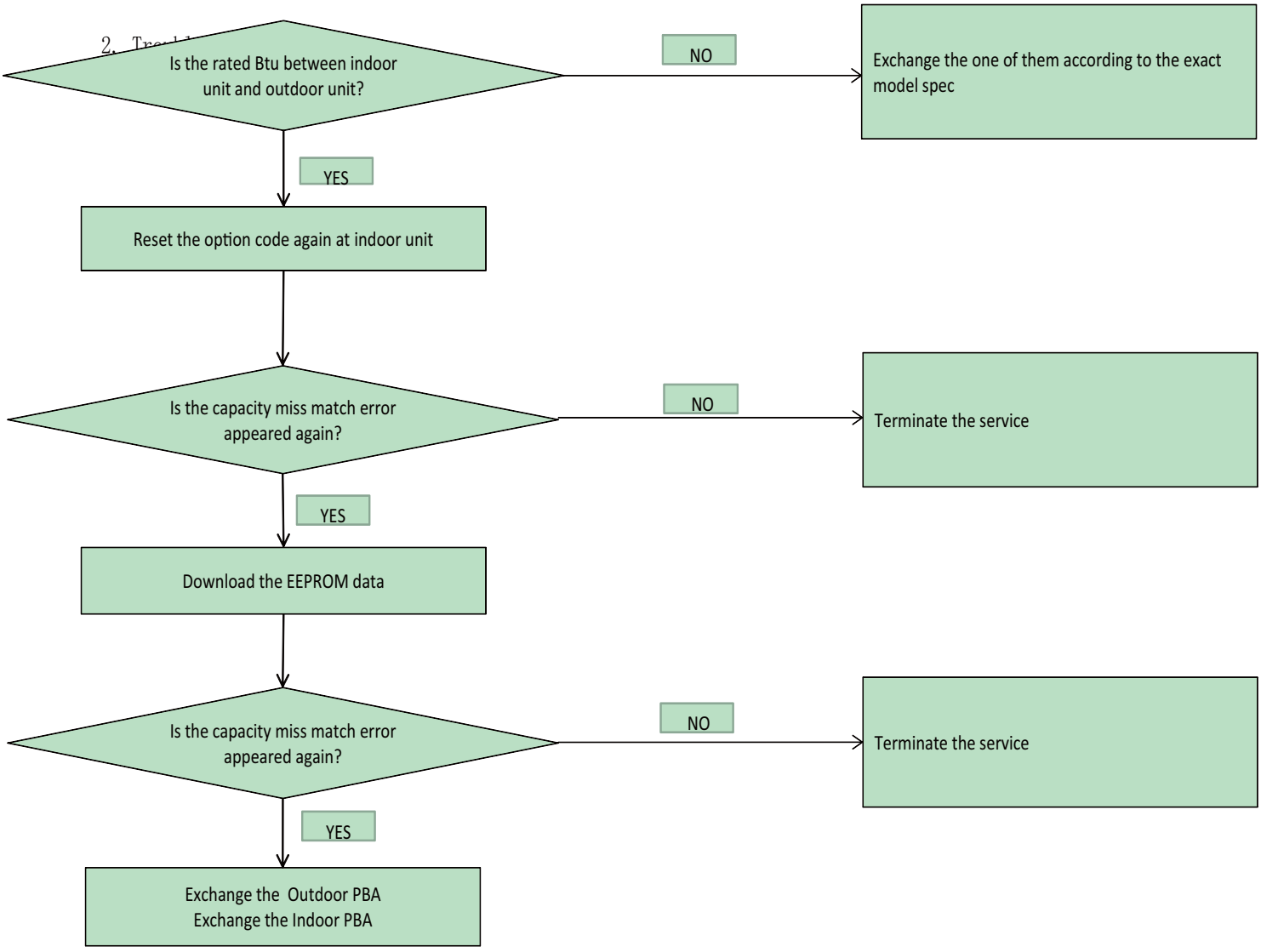
Capacity miss match error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	⊙	○	○	Capacity miss match error

1.Checklist :

1) Check the Btu between indoor and outdoor unit
2) Check the indoor unit option and outdoor unit EEPROM data

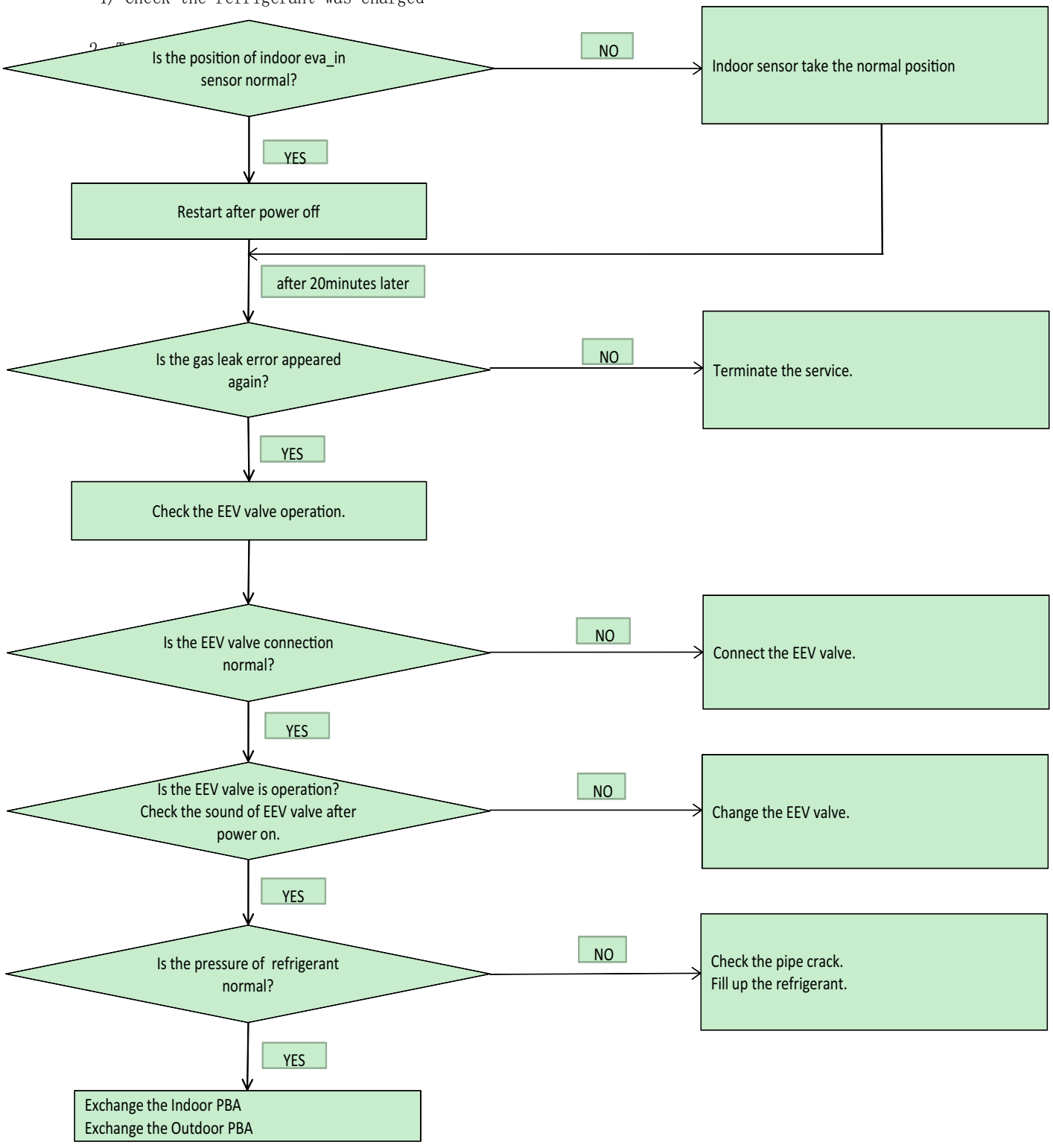
2. Trou



Gas leak error

Indoor display	⊙	○	⊙	Outdoor error
Outdoor display	●	●	○	Gas leak error

1. Checklist :
 1) Is the position of indoor Eva_in sensor normal?
 2) Check the pipe crack
 3) Check the EEV valve connection in Outdoor unit
 4) Check the refrigerant was charged



No power indoor (Initial Diagnosis) (Not displayed)

1. Checklist :

1) Is input power normal?
2) Is AC power linked correctly?
3) Is input voltage of DC_link capacitor normal?
4) Is the voltage of DC regulator normal?

2. Troubleshooting procedure

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 after 1 minute 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 3 parts
   - ● Indoor Main part : MICOM and surrounding circuit, relay, fan motor sensing and driving circuit, temperature sensing circuit power circuit of SMPS, buzzer circuit. Communication circuit
   - ● Display part : LED lamp, Switch, Remote-control module
   - ● Outdoor Main part : MICOM and surround circuit, fan motor sensing and driving circuit, compressor driving circuit power circuit of SMPS, PFC control circuit, 4way circuit, communication circuit, OPTION (EEV control circuit, temperature sensing circuit)

12-3-3 Indoor detailed inspection procedure

No	procedure	Inspection Method	Cause
1	Plug out and pull the PCB out of the control box Check the PCB fuse	1) Is 1st fuse disconnected? 2) Is 2nd fuse disconnected?	. Over current . Indoor Fan motor short . AC part and pattern short of Indoor PBA
2	Supply power If the operating lamp twinkles at this time , the above 1)~3) have no relation	Check the power voltage	
		1) Is the BD71 input voltage 200Vac~240Vac?	. Power cord is fault, Fuse open, Wrong Power cable Wiring, AC part is faulty
		2) Is the voltage between both terminal of IC02 pin #1-#2 12Vdc?	. Switching Trans of Power circuit is faulty
		3) Is the voltage between both terminal of IC02 pin #2-#3 5Vdc?	. Power circuit is faulty, Load short
3	Press the ON/OFF button 1. Fan speed(high) 2. Continuous Operation	1) Is the voltage over AC 180V being imposed on terminal #3-#5 of 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-#5 of the connector(CN72) is 0V	. PBA is faulty

12-3-4 Outdoor detailed inspection procedure

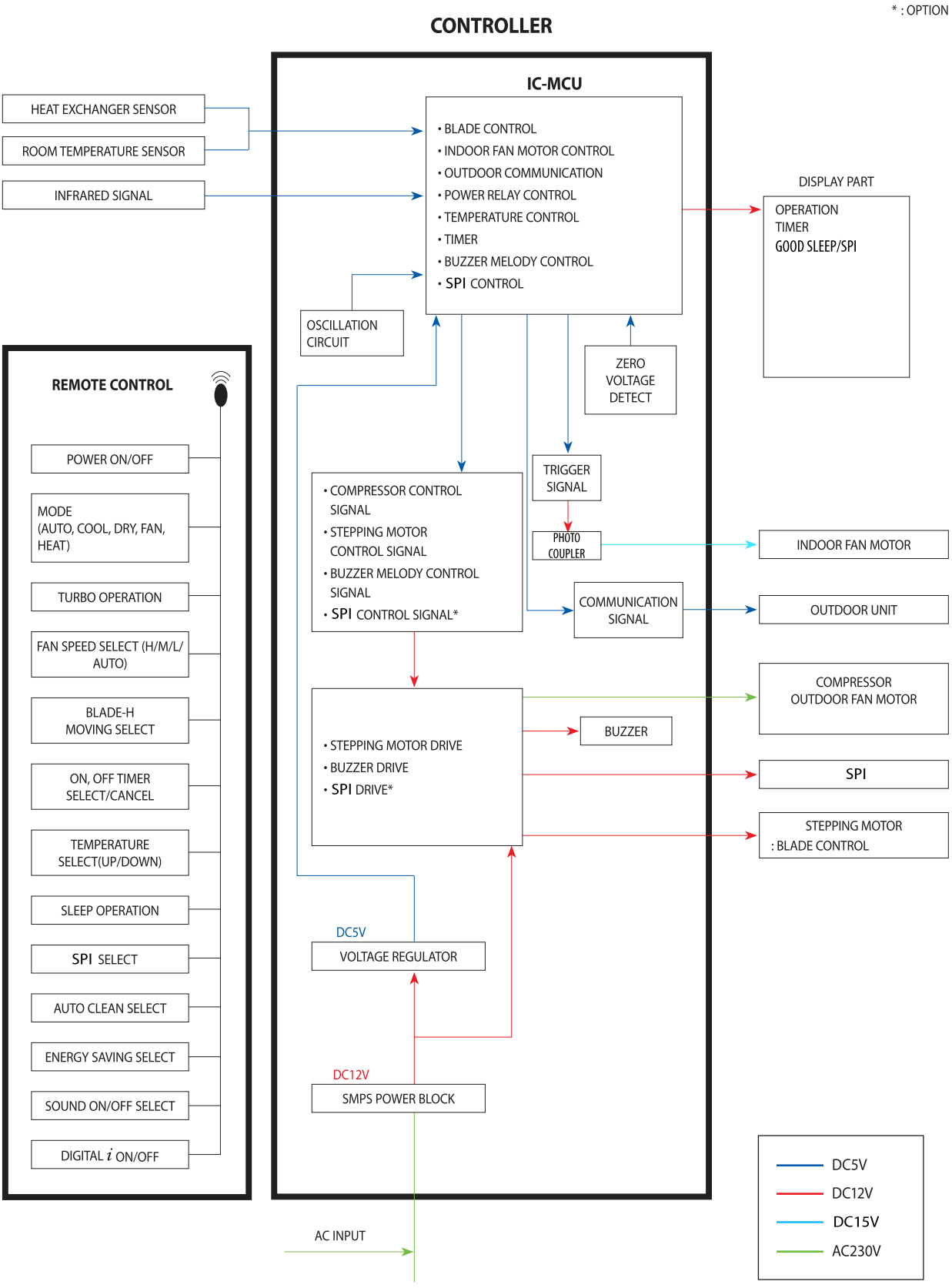
No	procedure	Inspection Method	Cause
1	Plug out and pull the PCB out of the control box Check the PCB fuse (Wait 3 minutes after power off)	1) Is 1st fuse disconnected?	. Over current . AC part and pattern short of Outdoor PBA
2	Check the Wiring	1) Is the Compressor wire connected clockwise? 2) Is the Reactor wire connected normal? 3) Is the Fan wire connected normal? 4) Is the 4way wire connected normal? 5) Is the sensor wire connected normal?	. Wrong assembly . Installation(service) condition is bad
3	Supply power and operate the set (Use Remote-control, button in indoor set) - A*V18P**	Check the power voltage	
		1) Is the voltage between Terminal block L-N 200Vac~240Vac?	. Power cord is faulty, Wrong Power cable Wiring
		2) Is the C006 voltage 200Vac~240Vac?	. Fuse open . L,N,F1,F2 wire wrong wiring (Terminal Block-PBA)
		3) Is the CE151 voltage 280Vdc~320dc?	. Power circuit is faulty . Load short
		4) Is the PFC050(#26-#27) voltage 200Vac~240Vac after 3 minutes later?	. Fuse open . L,N,F1,F2 wire wrong wiring (Terminal Block-PBA) . PTC020 open . RY021, RY022 is faulty . Outdoor Micom(IC201) error
		5) Is the CE101 voltage 280Vdc~320dc after 3 minutes later?	. PFC050 is faulty . Reactor wire is wrong connection . Power circuit is faulty, Load short . BLDC Fan motor error
		6) Is the voltage CE154 voltage 15Vdc?	. Switching Trans of Power circuit is faulty . Load short
		7) Is the voltage CE155 voltage 3.3Vdc?	. Switching Trans of Power circuit is faulty
		8) Is the voltage CE158 voltage 5Vdc?	. Switching Trans of Power circuit is faulty
		9) Is the voltage CE157 voltage 12Vdc?	. Switching Trans of Power circuit is faulty . Load short
3	Supply power and operate the set (Use Remote-control, button in indoor set) - A*V24***	Check the power voltage	
		1) Is the voltage between Terminal block L-N 200Vac~240Vac?	. Power cord is faulty, Wrong Power cable Wiring
		2) Is the C002 voltage 200Vac~240Vac?	. Fuse open . L,N,F1,F2 wire wrong wiring (Terminal Block-PBA)
		3) Is the CE101 voltage 280Vdc~320dc?	. Power circuit is faulty . Load short
		4) Is the PFCM(#26-#27) voltage 200Vac~240Vac after 3 minutes later?	. Fuse open . L,N,F1,F2 wire wrong wiring (Terminal Block-PBA) . PTC001 open . RY001, RY002 is faulty . Outdoor Micom(IC501) error
		5) Is the CE001 voltage 280Vdc~320dc after 3 minutes later?	. PFCM is faulty . Reactor wire is wrong connection . Power circuit is faulty, Load short . BLDC Fan motor error
		6) Is the voltage CE110 voltage 15Vdc?	. Switching Trans of Power circuit is faulty . Load short
		7) Is the voltage CE105 voltage 3.3Vdc?	. Switching Trans of Power circuit is faulty
		8) Is the voltage CE106 voltage 5Vdc?	. Switching Trans of Power circuit is faulty
		9) Is the voltage CE108 voltage 12Vdc?	. Switching Trans of Power circuit is faulty . Load short
4	Check the LED lamp display	1) Normal : RED on, GRN blink, YEL off 2) Abnormal - All off : check no power - abnormal display : check error mode	. F1,F2 wire wrong wiring . Outdoor PBA is faulty

12-4 Main Part Inspection Method

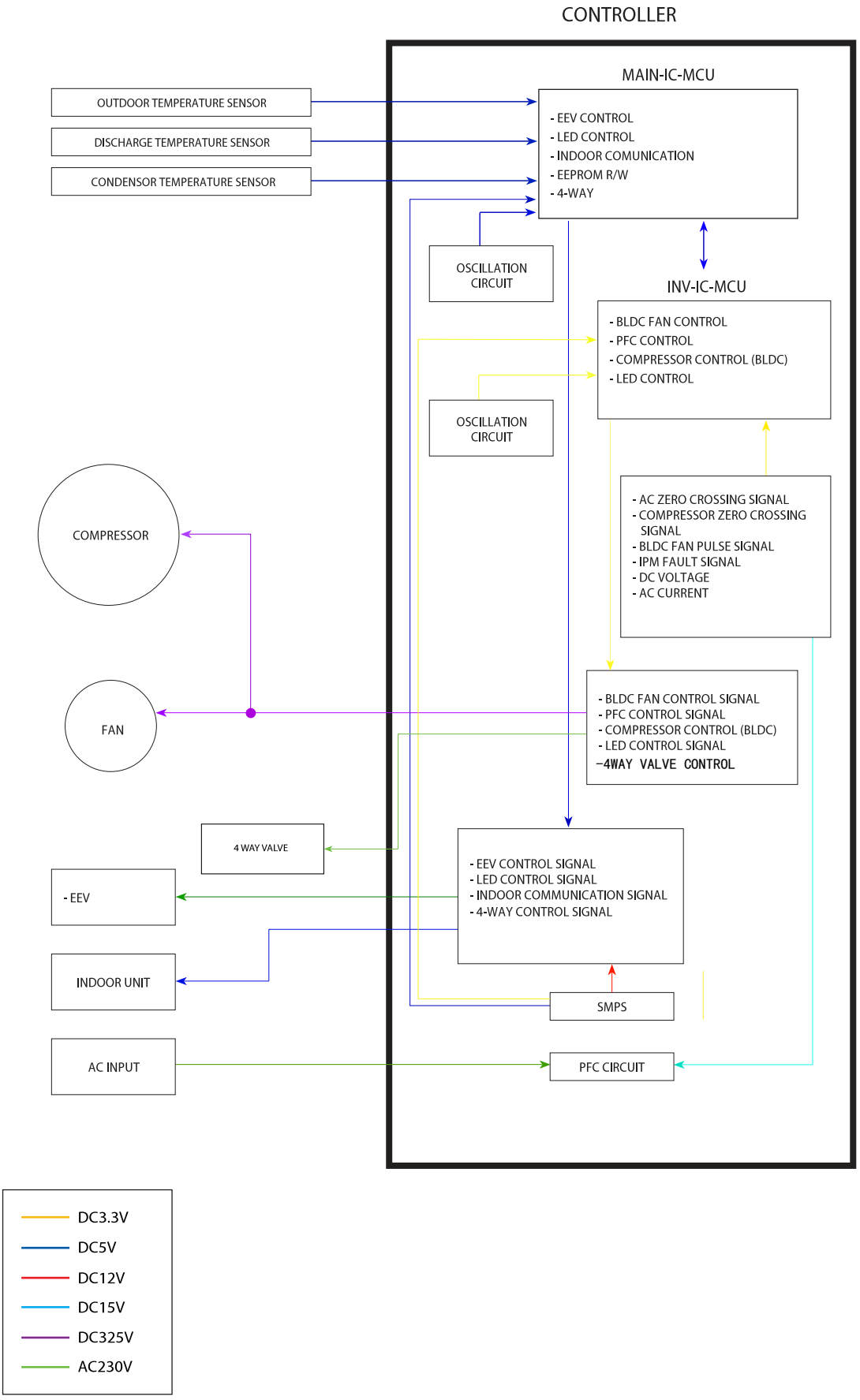
Part	Breakdown Inspection Method	
Room Temperature Sensor	Measure resistance with a tester	
	Normal	At the normal temperature 37kΩ~ 8.3kΩ(-7˚C~+30˚C)
	Abnormal	∞, 0Ω . . . Open or Short
Room Fan Motor	Measure the resistance between terminals of the connector (CN72) with a tester.	
	Abnormal	∞, 0Ω . . . Open or Short
Stepping Motor	Measure the resistance between the red wire and each terminal wire with a tester.	
	Normal	About 300Ω at the normal temperature (20˚C ~ 30˚C)
	Abnormal	∞, 0Ω . . . Open or Short

13. Block Diagram

13-1 Indoor Unit



13-2 Outdoor Unit



14. Reference Sheet

14-1 Index for Model Name

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

Model Code

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th
project		Capacity		Sell Year	Feature		Series		Color		Unit	Export	
A	R	0	9	F	H	A	D	A	W	K	N/X	E	U

Ex.) Crystal WIFI Heat Pump18K Btu/h Model Indoor Unit

A R 1 8 F S S E D W U N E U

(1), (2) Product Division	
AR	RAC

(3), (4) Capacity	
09	9,000 Btu
12	12,000 Btu
18	18,000 Btu
24	24,000 Btu

(5) Sell year	
'12Year	E
'13Year	F
'14Year	G
'15Year	H
'16Year	J

(6) Feature	
INVERTER HP	S
INVERTER CO	V
HP R410a	Q
NON INVERTER CO R410a	R
NON INVERTER HP R22	P
NON INVERTER CO R22	C
HEATER HP	W
HEATER CO	T

(7) Feature	
SPI	S
No SPI	F

(8) (9) Project		
CRYSTAL	1ST MODEL	EA
CRYSTAL	Indonesia LOW-WATT 1ST	EB
CRYSTAL	India STF SPI 1ST	EC
CRYSTAL	WIFI + POWER	ED
CRYSTAL	SPI + POWER	EE
CRYSTAL	SPI + USE TIME	EF
CRYSTAL	INDIA STF SPI + POWER	EG
CRYSTAL	UROPE FMC + A+	EH
CRYSTAL	UROPE FMC + A	EJ
CRYSTAL	VIETNAM SPI + USE TIME	EK
JUNGFRAU-FLG	1ST MODEL	KA
MALDIVES	UROPE + A	PD
MALDIVES	UROPE + A+	PE
MALDIVES	UROPE FMC + A	PG
MALDIVES	UROPE FMC + A+	PH
BORACAY	1ST MODEL	TA
BORACAY	Indonesia LOW-WATT 1ST	TB
BORACAY	SMART 1ST	TC
BORACAY	India STF 1ST	TD
BORACAY	India SPI 1ST	TE
BORACAY	CIS FMC + R410a	TG
BORACAY	CIS FMC + R22	TH
BORACAY	UROPE + A	TJ
BORACAY	UROPE FMC + A+	TL
MAX	1ST MODEL	UA
MAX	Indonesia LOW-WATT 1ST	UB
MAX	SMART 1ST	UC
MAX	CIS FMC + R22	UD
MAX	UROPE + A	UE
MAX	UROPE FMC + A	UG
FMC STD	1ST MODEL (SPI INCLUDE)	SA
FMC STD	SPI EXCEPT	SB
VIVACE	1ST MODEL	VA
JUNGFRAU-PRM	1ST MODEL	YA

(10) (11) Color				
Jungfrau FLG	JungFrau Black	Grille	B	E
Jungfrau PRM	JungFrau White Pearl	Grille	W	T
Vivace	Clean Gray Pearl	Grille	B	P
Crystal	Vivaldi White	Grille	W	U
	Vivaldi Silver	Grille	S	I
	Vivaldi-L. Blue	Grille	U	P
Maldives	DA White	Deco	W	Q
	PM Gray	Deco	G	M
	Midnight Blue	Deco	U	R
	Sand Pink	Deco	P	N
	Cipria Gold	Deco	F	A
Boracay	PM Gray	Deco	G	M
	Midnight Blue	Deco	U	R
	DA White	Full Body	W	Q
	Light Gray	Full Body	G	H
Max	DA White	Deco	W	Q
	PM Gray	Deco	G	M
	Mild Blue	Deco	U	Q

(12) Unit	
N	Indoor Unit
X	Outdoor unit

(13), (14) Area	
EU	UNITED KINGDOM
EE	SWEDEN
ET	ITALY
ZE	CZECHO

(12) Version	
A-K	SSEC
L-S	TSE

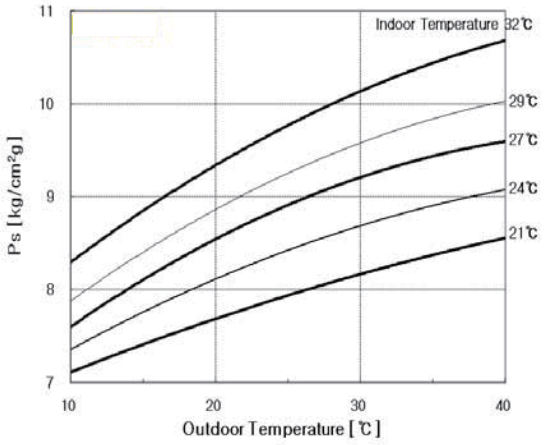
● Except the RAC Export Models for China.

14-2 Low Refrigerant Pressure Distribution

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

☐Indoor Temp. Variation : 20°C ~ 32°C
☐Outdoo r Temp. Variation : -5 ℃ ~ 45°C

Low Refrigerant Pressure Distributoin



Outdoor Temperature[℃]

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	$3.9302x10^{-4}$	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

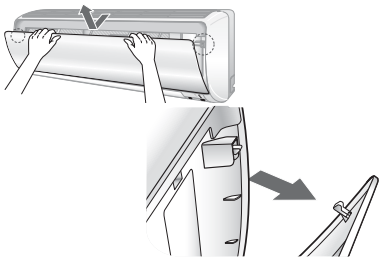
14-5-1 Cleaning your Air Conditioner

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.

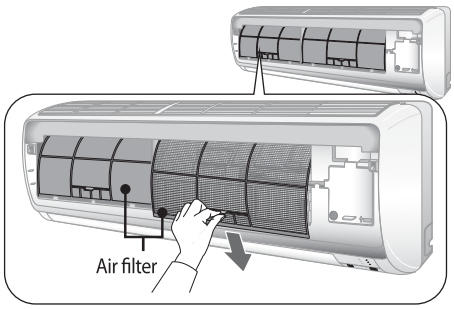
Opening the panel

Tightly grab top of the front panel and pull it down to open.
Then slightly lift the panel up.



Removing the Air filter

Grab the handle and lift it up. Then, pull the Air filter towards you and slide it down.

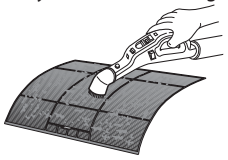


Cleaning the air filter

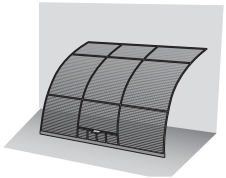
Washable foam based air filter captures large particles from the air. The filter is cleaned with a vacuum or by hand washing.

Open the panel and put the Air filter out.

Clean the Air filter with a vacuum cleaner or soft brush. If dust is too heavy, rinse it with running water.



Dry the Air filter in a ventilated area.



Insert the Air filter back in its original position and close the front panel.

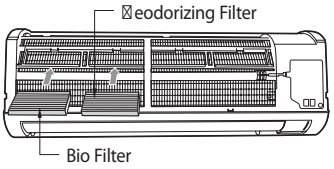
NOTE

- Clean the Air filter every 2 weeks or when the filter clean reminder lights up. Cleaning term may differ depending on the usage and environmental conditions. In dusty area, clean it once a week.
- If you turn off the air conditioner by pressing **Power** ⏻ button, the filter clean reminder will be turned off.
- If the Air filter dries in a confined (or humid) area, odors may generate. If it occurs, re-clean and dry it in a well-ventilated area.

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

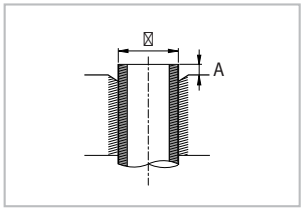
Fix the air conditioner indoor unit securely to the wall. Secure the outdoor unit in a suitable position.

■ 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.

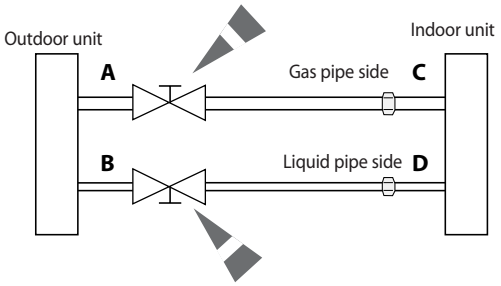
3) Open the valve of the low pressure side of manifold gauge counter-clockwise.

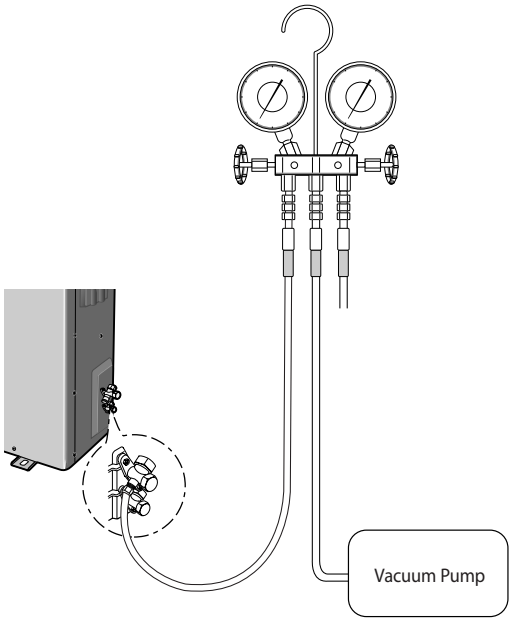
4) Purge the air from the system using vacuum pump for about 30 minutes.
   - Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 30 minutes.
   - This procedure is very important in order to avoid gas leak.
   - Turn off the vacuum pump.
   - Close the valve of the low pressure side of manifold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

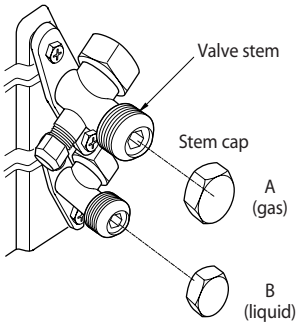
5) Set valve cork of both liquid side and gas side of packed valve to the open position.

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.

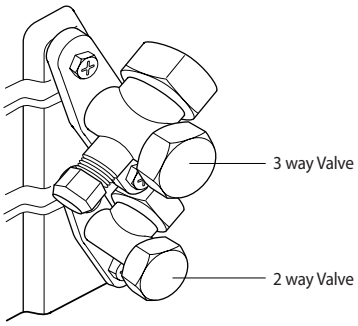
3) Set the unit to cool operation mode. (Check if the compressor is operating.)

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.

15-1. POWER SUPPLY

Working Voltage	176V ~ 264V
Voltage Imbalance	Within a 3% Deviation from Each Voltage at the Main Terminal of Outdoor Unit
Starting Voltage	Higher than 80% of the Rated Voltage

15-2. WORKING RANGE

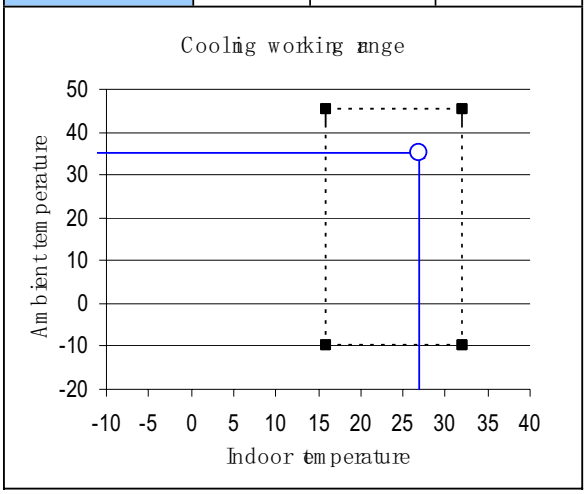
Applicable models:

AR18FSFPDGM/EU AR24FSFPDGM/EU
AR18FSFPESN/EU AR24FSFPESN/EU
AR18FSFTJWQ/EU AR24FSFTJWQ/EU

The temperature range is indicated in the following table.

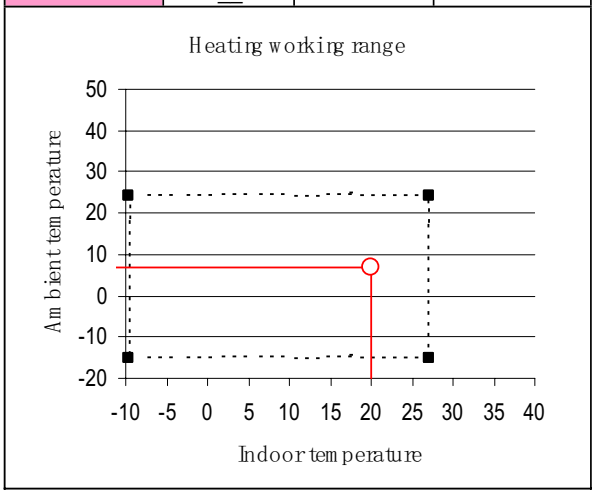
Cooling

working range	min (°C)	max (°C)	rated (°C)
outdoor	-10	46	35
indoor	16	32	27



Heating

working range	min (°C)	max (°C)	rated (°C)
outdoor	-15	24	7
indoor	—	27	20



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