

SAMSUNG

SYSTEM AIR CONDITIONER

SINGLE for North America(R-410A, Heat Pump)

Unitary Outdoor Unit

AC024BXUPCH
AC036BXUDCH
AC036BXUPCH
AC048BXUPCH
AC060BXUPCH

AHU Control Unit

MXD-U000XN

SERVICE *Manual*

AIR CONDITIONER



CONTENTS

1. Precautions
2. Product Specifications
3. Disassembly and Reassembly
4. Troubleshooting
5. PCB Diagram and Parts List
6. Wiring Diagram
7. Reference Sheet

Contents

1. Precautions.....	1-1
1-1. Precautions for the Service.....	1-1
1-2. Precautions for the Static Electricity and PL.....	1-1
1-3. Precautions for the Safety.....	1-1
1-4. Precautions for Handling Refrigerant for Air Conditioner.....	1-2
1-5. Precautions for Welding the Air Conditioner Pipe.....	1-2
1-6. Precautions for Additional Supplement of Air Conditioner Refrigerant.....	1-2
1-7. Other Precautions.....	1-2
2. Product Specifications.....	2-1
2-1. Outdoor Unit with AHU Control Unit.....	2-1
2-2. Product Specifications.....	2-3
2-3. Specifications of optional items.....	2-5
2-3-1. Accessories.....	2-5
3. Disassembly and Reassembly.....	3-1
3-1. Outdoor unit.....	3-2
3-1. AHU Control Unit.....	3-25
4. Troubleshooting.....	4-1
4-1. Diagnostic Checkliet.....	4-1
4-1-1. Test operation mode and check mode.....	4-1
4-2. Troubleshooting by symptoms.....	4-7
4-2-1. When the outdoor unit power is not ON - Initial Diagnosis : Single phase products.....	4-7
4-2-2. Communication error between outdoor unit INV ↔ MAIN MICOM (1 min.) - (E203).....	4-9
4-2-3. Outdoor sensor error - (E221, E231, E251, E320).....	4-10
4-2-4. High Pressure sensor error (Open/Short) - (E291).....	4-11
4-2-5. Suction Temperature sensor error (Open/Short) - (E308).....	4-12
4-2-6. Compressor down due to freezing control - (E403).....	4-13
4-2-7. System stop due to overload protection control - (E404).....	4-13
4-2-8. Comp. Down due to High Pressure Protection Control - (E407).....	4-14
4-2-9. Comp. down due to low pressure sensor protection (E410).....	4-15
4-2-10. Comp. down due to discharge temperature protection control - (E416).....	4-16
4-2-11. Heating operation restricted at outdoor temperature over Theat_high value (default : 86°F(30°C)) - (E440).....	4-17
4-2-12. Cooling operation restricted at outdoor temperature over Tcool_low value (default : 32°F(0°C)) - (E441).....	4-17
4-2-13. Outdoor unit FAN error - (E458, E475).....	4-18
4-2-14. Compressor error - (E461, 467).....	4-19
4-2-15. Current error - (E462, 484).....	4-21
4-2-16. Over Load Protection Error (E463).....	4-22
4-2-17. IPM (Over Current) error - (E464).....	4-23
4-2-18. Compressor over load error- (E465).....	4-26
4-2-19. DC Link voltage under/over error - (E466), Overvoltage of H/W detect DC Link error - (E483) AC Input voltage sensor error - (E488).....	4-27
4-2-20. Current sensor error - (E468).....	4-28
4-2-21. DC Link voltage sensor error (Short/Open) - (E469).....	4-28
4-2-22. Outdoor unit EEPROM Read/Write error (Option) - (E470) Outdoor unit EEPROM Read/Write error (H/W) - (E471).....	4-28

Contents

4-2-23. IPM(IGBT Module) heat sink error - (E474), IPM overheat error - (E500)	4-29
4-2-24. Input current sensor error (Short/Open) - (E485)	4-29
4-2-25. Error due to high pressure switch open or compressor down by high pressure - (E507)....	4-30
4-4-26. Gas leakage error - (E554)	4-31
4-2-27. Blockage detected on high pressure pipe during heating operation - (E534)	4-33
5. PCB Diagram and Parts List.....	5-1
5-1. Outdoor Unit Main PBA	5-1
5-2. Outdoor Unit Inverter PBA	5-3
5-3. Outdoor Unit EMI PBA.....	5-5
5-4. AHU Control Unit PBA.....	5-6
6. Wiring Diagram.....	6-1
6-1. Outdoor Unit.....	6-1
6-2. AHU Control Unit	6-2
7. Reference Sheet	7-1
7-1. Index for Model Name	7-1
7-1-1. Outdoor Unit	7-1
7-1-2. Outdoor Unit	7-2
7-2. Refrigerating Cycle Diagram	7-3

1. Precautions

1-1. Precautions for the Service

- **Use the correct parts when changing the electric parts.**
 - Please check the labels and notices for the model name, proper voltage, and proper current for the electric parts.
- **Fully repair the connection for the types of harness when repairing the product after breakdown.**
 - A faulty connection can cause irregular noise and problems.
- **When disassembling or assembling, make sure that the product is laid down on a work cloth.**
 - Doing so will prevent scratching to the exterior of the rear side of the product.
- **Completely remove dust or foreign substances on the housing, connection, and inspection parts when performing repairs.**
 - This can prevent fire hazards for tracking, short, etc.
- **Please tighten the service valve of the outdoor unit and the valve cap of the charging valve as securely as possible by using a monkey spanner.**
- **Check whether the parts are properly and securely assembled after performing repairs.**
 - These parts should be in the same condition as before the repair.

1-2. Precautions for the Static Electricity and PL

- **Please carefully handle the PCB power terminal during repair and measurement when it is turned on since it is vulnerable to static electricity.**
 - Please wear insulation gloves before performing PCB repair and measurement.
- **Check if the place of installation is at least 2m away from electronic appliances such as TV, video players, and stereos.**
 - This can cause irregular noise or degrade the picture quality.
- **Please make sure the customer does not directly repair the product.**
 - Arbitrary dismantling may result in electric shock or fire.

1-3. Precautions for the Safety

- **Do not pull or touch the power plug or the subsidiary power switch with wet hands.**
 - This may result in electric shock or fire.
- **If the power line or the power plug is damaged, then it must be changed since this is a hazard.**
- **Do not bend the wire too much or position it so that it can be damaged by a heavy object on top.**
 - This may result in electric shock or fire.
- **The use of multiple electric outlets should be prohibited.**
 - This may result in electric shock or fire.
- **Ground the connection if it is necessary.**
 - The connection must be grounded if there is any risk of electrical short due to water or moisture.
- **Unplug the power or turn off the subsidiary power switch when changing or repairing electrical parts.**
 - Doing so will prevent electric shock.
- **Explain to workers that the battery for the remote control needs to be separated for storage purposes when the product will not be used for a long time.**
 - This can cause a problem for the remote control since battery fluid may trickle out.

1-4. Precautions for Handling Refrigerant for Air Conditioner

Environmental Cautions: Air pollution due to gas release

- **Safety Cautions**

If liquid gas is released, then body parts that come into contact with it may experience frostbite/blister/numbness.

If a large amount of gas is released, then suffocation may occur due to lack of oxygen. If the released gas is heated, then noxious gas may be produced by combustion.

- **Container Handling Cautions**

Do not subject container to physical shock or overheating. (Flowage is possible while moving within the regulated pressure.)

1-5. Precautions for Welding the Air Conditioner Pipe

- **Dangerous or flammable objects around the pipe must be removed before the welding.**

- **If the refrigerant is kept inside the product or the pipe, then remove the refrigerant prior to welding.**

If the welding is carried out while the refrigerant is kept inside, the welding cannot be properly performed. This will also produce noxious gas that is a health hazard. This leakage will also explode with the refrigerant and oil due to an increase in the refrigerant pressure, posing a danger to workers.

- **Please remove the oxide produced inside the pipe during the welding with nitrogen gas.**

Using another gas may cause harm to the product or others.

1-6. Precautions for Additional Supplement of Air Conditioner Refrigerant

- **Precisely calculate the refrigerant by using a scale and S-net, and proceed with the test operation.**

Excessive supplement can cause harm to the product since it can cause an inflow of the liquid refrigerant into the compressor.

- **Do not heat the refrigerant container for a forced injection.**

This may cause harm to the product or others since the refrigerant container may burst.

- **Do not operate the product after removing the product safety pressure switch and sensor.**

If the product is blocked inside, then this may cause harm to the product or others due to the excess pressure increase of the refrigerant gas.

1-7. Other Precautions

- **There should be no leakage of the pipes after installation. When withdrawing the refrigerant, the compressor should be stopped before removing the connecting pipe.**

If the compressor is operating while the refrigerant pipe is not correctly connected and the service valve is opened, then air and other substances can enter the pipe. The interior of the refrigerant cycle may then build up excessive high pressure resulting in explosion and damage.

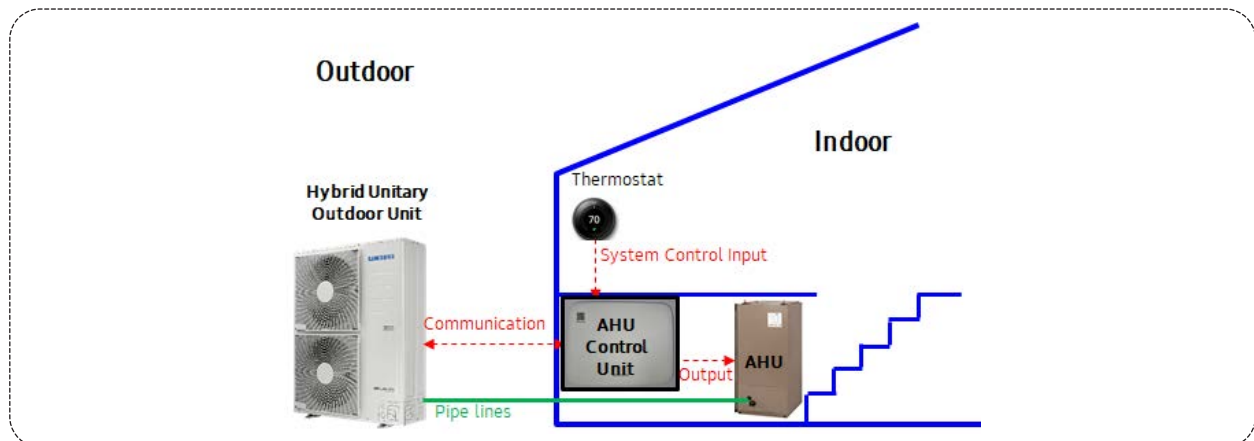
2. Product Specifications

2-1. Outdoor Unit with AHU Control Unit

■ How the system works?

Any types of 3rd party indoor unit via SAMSUNG AHU Control Unit can be connected to SAMSUNG New CAC Hybrid Inverter Unitary outdoor unit.

AHU Control Unit installed either inside or nearby the indoor unit in the utility room receives the input signal from Thermostat installed in a living space and transmits the signals to both indoor unit and Hybrid Unitary outdoor unit respectively.



■ Stabilize the atmosphere with broad temperature allowance and control

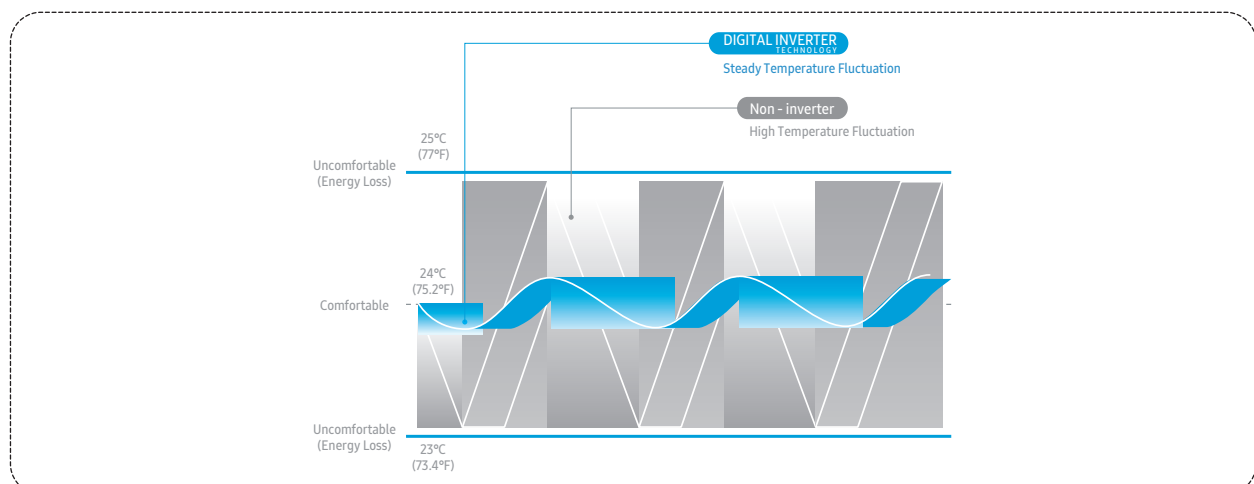
Samsung is dedicated to supporting comfortable living and working environments based on the strength of its technologies. With a single unit, CAC Single delivers reliable comfort and control over multiple areas to ensure a pleasant atmosphere in any climate.

■ Wide temperature performance

No matter how extreme the temperature, the highperforming CAC Single can handle the condition without the need for an additional unit. Featuring a wide temperature allowance, it can cool in heat of up to 52°C(125.6°F) and provide warmth in the freezing cold of -25°C(-13°F) to ensure a constant and comfortable home environment.

■ Ideal comfort in minutes

The CAC Single digital inverter air conditioner works at maximum capacity at startup. As soon as the temperature reaches the desired or set temperature, CAC Single performs fine adjustments to cope with any changes. This means less temperature fluctuation and ideal comfort in a matter of minutes.


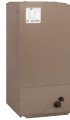
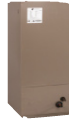






■ **Versatile piping installation**


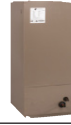



CAC Single outdoor units offer a selection of pipe directions. The internal pipe connection ports allow four different pipe directions, supporting a neater, more organized-looking unit upon installation.



2-2. Product Specifications

Item	ADP® MPAHU + Unitary Outdoor Unit + AHU Control Unit				
	ADP® Indoor Unit		AVT240BT	AV360CT	AV360CT
	Outdoor Unit	Simple US code	CXH024UPB	CXH036UDB	CXH036UPB
		Model Code	AC024BXUPCH	AC036BXUDCH	AC036BXUPCH
AHU Control Unit		MXD-U000XN			
Design	Indoor Unit				
	Outdoor Unit				
	AHU Control Unit				
Performance	Cooling [Btu/h]		24,000	36,000	36,000
	Heating [Btu/h]		26,000	34,600	34,600
Power Consumption	Cooling [kW]		0.91/2.38/3.15	1.05/4.00/4.50	0.98/3.43/4.10
	Heating [kW]		0.72/2.44/5.40	0.83/3.19/5.40	0.85/3.36/5.40
Efficiency	SEER2		16.5	17.0	18.5
	HSPF2		8.1	8.1	8.4
Voltage / Frequency (Φ, V, Hz)			1,208-230,60	1,208-230,60	1,208-230,60
Operating Current	Cooling [A]		5.7/11.3/16.2	5.8/18.0/20.0	5.4/15.6/18.2
	Heating [A]		4.5/11.5/24.0	4.6/14.5/24.0	4.7/15.1/24
Sound Pressure	Outdoor Unit [dBA] (C/H)		50/52	53/55	52/54
External Dimension	Net Dimension (WxHxD)	Outdoor Unit [mm(inch)]	940 x 998 x 330 (37.01 x 39.29 x 12.99)	940 x 998 x 330 (37.01 x 39.29 x 12.99)	940 x 1,210 x 330 (37.01 x 47.64 x 12.99)
	Shipping Dimension (WxHxD)	Outdoor Unit [mm(inch)]	995 x 1,096 x 426 (39.17 x 43.15 x 16.77)	995 x 1,096 x 426 (39.17 x 43.15 x 16.77)	995 x 1,388 x 426 (39.17 x 54.65 x 16.77)
	Net Weight	Outdoor Unit [kg(lbs)]	74.0(163.14)	78.0(178.96)	89.0(196.21)
	Gross Weight	Outdoor Unit [kg(lbs)]	79.0(174.17)	83.0(182.98)	99.0(218.26)
Harness Specifications	Compressor		UG8T300FUBJUSG	UG5TK1450FJXSG	UG5TK1450FJXSG
	Outdoor Fan Motor		DB31-00579A	DB31-00579A	DB31-00579A
Piping Connections	Liquid pipe [mm(inch)]		9.52(3/8")	9.52(3/8")	9.52(3/8")
	Gas pipe [mm(inch)]		19.05(3/4")	19.05(3/4")	22.23(7/8")
	Allowable Gas pipe [mm(inch)]		15.88(5/8") ~ 22.23(7/8")	15.88(5/8") ~ 22.23(7/8")	19.05(3/4") ~ 22.58(1-1/8")
Refrigerant Type			R-410A	R-410A	R-410A
Factory Charging [kg(lbs)]			3.2(7.06)	3.6(7.94)	4.2(9.26)
Additional Refrigerant (over 24.6ft(7.5m)) [oz/ft]			0.5	0.5	0.5
Basic Piping Length [ft(m)]			24.6(7.5)	24.6(7.5)	24.6(7.5)
Max. Piping Length [ft(m)]			98(30)	164(50)	164(50)
Max. Level Difference [ft(m)]			49(15)	98(30)	98(30)

2-2. Product Specifications (cont.)

Item	ADP® MPAHU + Unitary Outdoor Unit + AHU Control Unit			
	ADP® Indoor Unit		AV480CT	AV600CT
	Outdoor Unit	Simple US code	CXH048UPB	CXH060UPB
		Model Code	AC048BXUPCH	AC060BXUPCH
AHU Control Unit		MXD-U000XN		
Design	Indoor Unit			
	Outdoor Unit			
	AHU Control Unit			
Performance	Cooling [Btu/h]		48,000	57,000
	Heating [Btu/h]		44,000	53,000
Power Consumption	Cooling [kW]		1.30/5.58/6.10	1.30/6.71/7.00
	Heating [kW]		1.12/4.99/7.20	1.13/5.91/7.20
Efficiency	SEER2		17.0	17.5
	HSPF2		8.5	9.0
Voltage / Frequency (Φ, V, Hz)			1,208-230,60	1,208-230,60
Operating Current	Cooling [A]		7.1/24.8/27.1	7.1/29.8/31.1
	Heating [A]		6.1/22.2/32.0	6.2/26.3/32.0
Sound Pressure	Outdoor Unit [dBA] (C/H)		55/57	56/58
External Dimension	Net Dimension (WxHxD)	Outdoor Unit [mm(inch)]	940 x 1,210 x 330 (37.01 x 47.64 x 12.99)	940 x 1,420 x 330 (37.01 x 55.91 x 12.99)
	Shipping Dimension (WxHxD)	Outdoor Unit [mm(inch)]	995 x 1,388 x 426 (39.17 x 54.65 x 16.77)	995 x 1,598 x 426 (37.17 x 62.91 x 16.77)
	Net Weight	Outdoor Unit [kg(lbs)]	89.0(196.21)	101.0(222.67)
	Gross Weight	Outdoor Unit [kg(lbs)]	99.0(218.26)	111.0(244.71)
Harness Specifications	Compressor		UG5TK1450FJXSG	ATQ420D1UNT1 (DB95-05859A)
	Outdoor Fan Motor		DB31-00579A	DB31-00579A
Piping Connections	Liquid pipe [mm(inch)]		9.52(3/8")	9.52(3/8")
	Gas pipe [mm(inch)]		22.23(7/8")	22.23(7/8")
	Allowable Gas pipe [mm(inch)]		19.05(3/4") ~ 22.58(1-1/8")	19.05(3/4") ~ 22.58(1-1/8")
Refrigerant Type			R-410A	R-410A
Factory Charging [kg(lbs)]			4.2(9.26)	4.8(10.58)
Additional Refrigerant (over 24.6ft(7.5m)) [oz/ft]			0.5	0.5
Basic Piping Length [ft(m)]			24.6(7.5)	24.6(7.5)
Max. Piping Length [ft(m)]			164(50)	98(30)
Max. Level Difference [ft(m)]			98(30)	49(15)







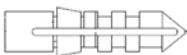
2-3. Specifications of optional items

2-3-1. Accessories

■ AC***BXU*CH


Item	Description	Code No.	Q'ty	Remark
	Manual Install	DB68-12064A	1	Outdoor Unit
	Label Energy	DB68-12063ABCDE	1	
	Rubber-Leg	DB73-20134A	4	

■ MXD-U000XN

Item	Description	Code No.	Q'ty	Remark
	Manual Install	DB68-12061A	1	AHU Control Unit
	Label Instruction (Wiring label)	DB68-12062A	1	
	U-ring	DB60-00444A	20	
	Fan speed control wire	DB93-17752A	1	
	Cable tie	DB65-10088B	2	
	M4x16 screws	6002-000215	4	
	Holder lock	DB61-00945A	4	


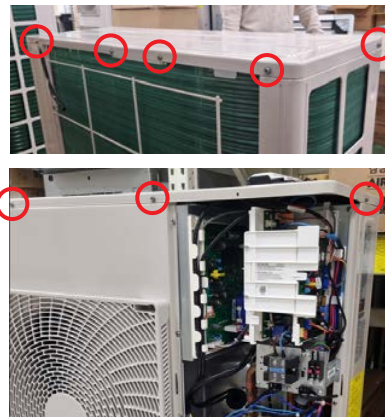

3. Disassembly and Reassembly


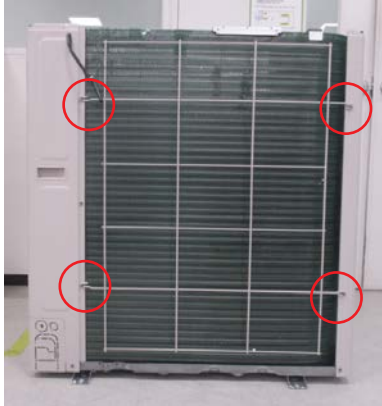
■ Necessary Tools


Item	Remarks
+SCREW DRIVER	
Adjustable Wrench (8mm, 10mm, 13mm)	
M6, M8 Hex Wrench	


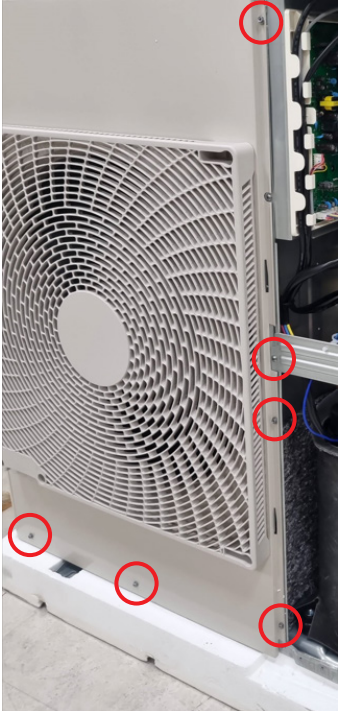
3-1. Outdoor unit

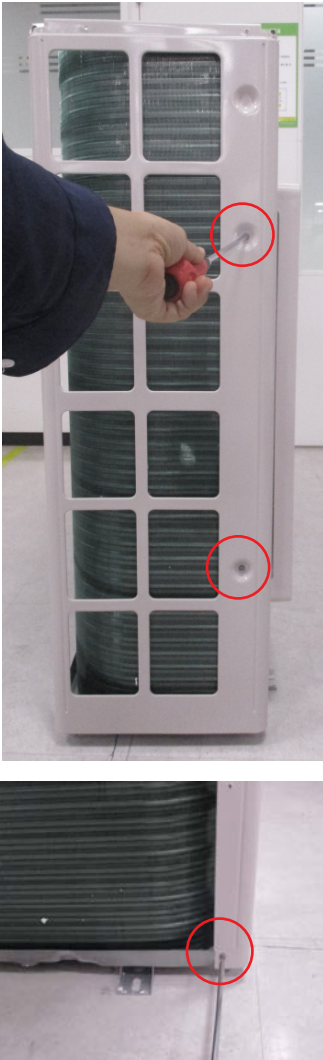

■ AC024BXUPCH, AC036BXUDCH



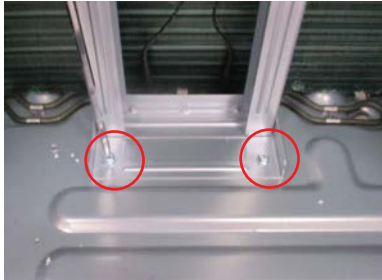
No.	Parts	Procedure	Remark
1	Cabinet Front RH	<p>⚠ Turn off the power before disassembly necessarily.</p> <p>1) Remove 3ea of screws from the Cabinet Front RH and separate it. (Use + Screw Driver)</p>	
2	Cabinet Upper	<p>1) Remove 8ea of screws which are fixed to each side of Cabinet Upper and separate it. (Use + Screw Driver)</p>	
3	Cabinet-Installation Front Part	<p>1) Remove a screw which is fixed to Cabinet-Installation Front Part and separate it. (Use + Screw Driver)</p>	

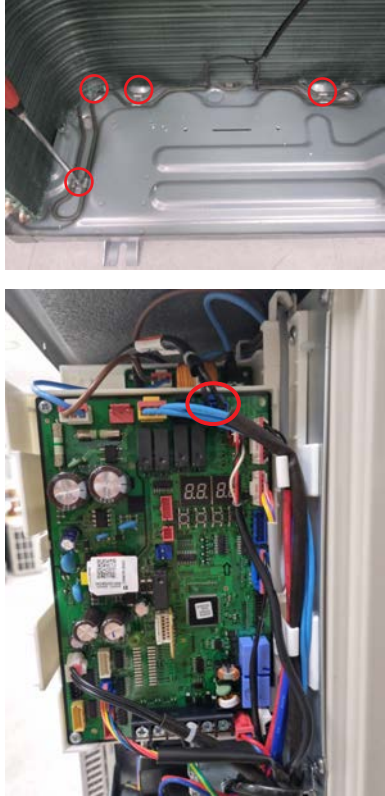
No.	Parts	Procedure	Remark
4	Outdoor Unit Guard	<p>1) Pull out the sensor from the Outdoor Unit Guard and separate it.</p> <p>2) Remove the 4ea of screws which are fixed to Outdoor Unit Guard and separate it. (Use + Screw Driver)</p>	 

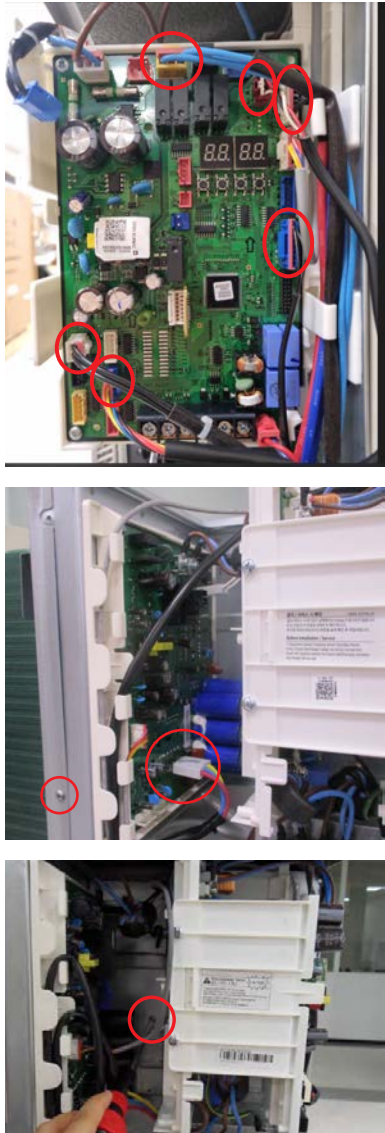
No.	Parts	Procedure	Remark
5	Cabinet Rear RH	<p>1) Pull out the sensor from the Cabinet Rear RH and separate it.</p> <p>2) Remove 9ea of screws which are fixed to each side of Cabinet Rear RH and separate it. (Use + Screw Driver)</p>	


No.	Parts	Procedure	Remark
6	Cabinet-Installation Rear Part	1) Remove a screw from the Cabinet-Installation Rear Part and separate it. (Use +Screw Driver)	
7	Cabinet Front LF	1) Remove 9ea of screws from the Cabinet Front LF and separate it. (Use +Screw Driver)	



No.	Parts	Procedure	Remark
7	Cabinet Front LF		
8	Fan	<p>1) Remove the 2 hex nuts like the picture on the right side. (Use Hexagon Wrench, Monkey Spanner, Hexagon Socket)</p>	

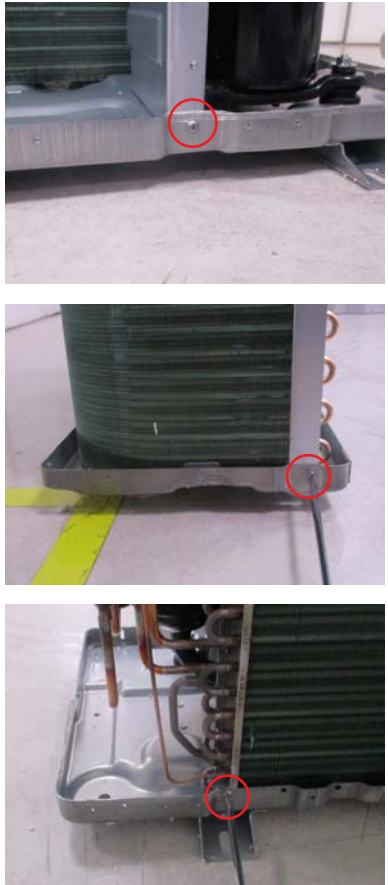
No.	Parts	Procedure	Remark
9	Motor	1) Separate the Fan Propeller. 2) Remove 8ea of screws which are fixed to Motor. (Use +Screw Driver) 3) Separate the Motor Wire connector from the Outdoor Unit Control Part.	 
10	Bracket Motor	1) Remove 2ea of screws from the Bracket Motor and separate it. (Use +Screw Driver)	

No.	Parts	Procedure	Remark
11	Base Heater (※ AC024BXADCH Only)	1) Remove 4ea of screws from the Base heater and separate it. (Use +Screw Driver) 2) Separate the Base heater Wire connector from the Outdoor Unit Control Part.	

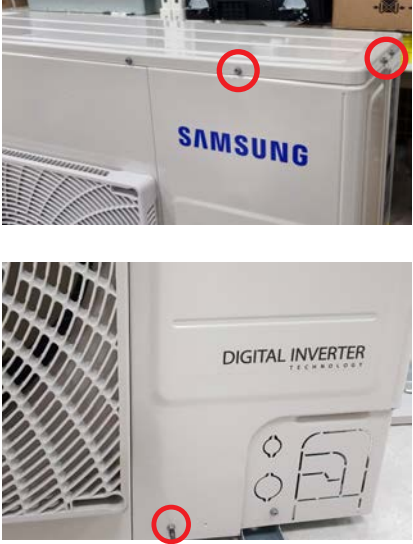
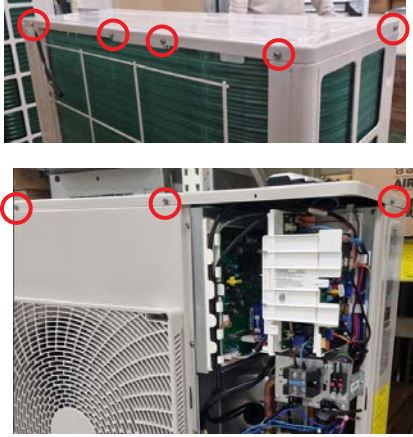
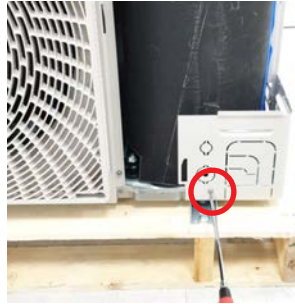
No.	Parts	Procedure	Remark
12	Control Part	<p>1) Separate the 7 connectors from the Outdoor Unit Control part.</p> <p>2) Remove the 2ea screw which is fixed to Control Part. (Use +Screw Driver)</p> <p>3) Separate the Control Part.</p>	



No.	Parts	Procedure	Remark
13	4 Way Valve	<p>1) First, discharge the refrigerant Remove 2ea of screws which are fixed to Service Valve. (Use +Screw Driver)</p> <p>2) Separate the inlet and outlet pipes by welding torch.</p> <p>⚠ If you separate the Compressor, Heat Exchanger or Pipe, please fully discharge refrigerant in the Compressor and then separate the Pipe by welding torch.</p>	




No.	Parts	Procedure	Remark
14	EEV Valve	<p>1) Remove 2ea of screws which are fixed to Service Valve and separate it. (Use +Screw Driver)</p> <p>2) Separate the inlet and outlet pipes by welding torch</p>	 <p>The top photograph shows two screws on a service valve being circled in red. The bottom photograph shows a pipe being cut with a welding torch, also circled in red.</p>
15	Compressor	<p>1) Remove a hex nut from the end of Cover and separate it (Use Hexagon Wrench, Monkey Spanner, Hexagon Socket)</p> <p>2) Separate the Felt Compressor.</p> <p>3) Remove the 3 hex nuts from the bottom of Compressor like the picture on the right side. (Use Hexagon Wrench, Monkey Spanner, Hexagon Socket)</p>	 <p>The top photograph shows a hex nut being removed from the cover with a wrench. The middle photograph shows the compressor being separated from the cover, with red arrows pointing to the connection points. The bottom photograph shows three hex nuts being removed from the bottom of the compressor.</p>

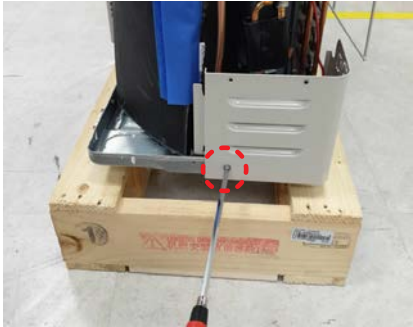
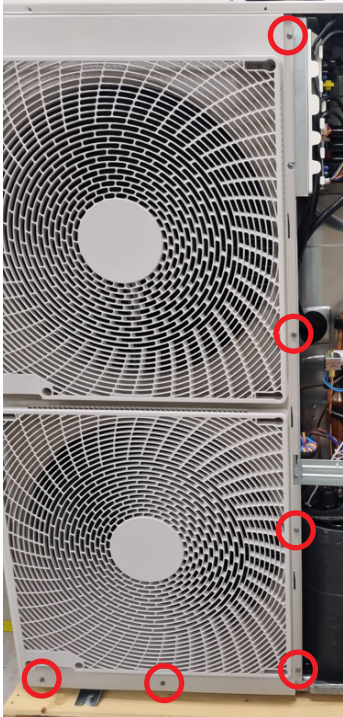
No.	Parts	Procedure	Remark
16	Condenser Connection Part	1) Remove 3ea of screws which are fixed to each side of Condenser Connection Part and separate it. (Use + Screw Driver)	


■ AC036/048/060BXUPCH


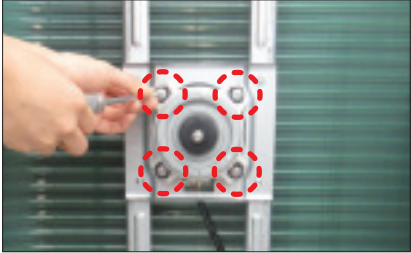


No.	Parts	Procedure	Remark
1	Cabinet Front RH	<p>⚠ Turn off the power before disassembly necessarily.</p> <p>1) Remove the 3 screws from the Cabinet Front RH and separate it. (Use + Screw Driver)</p>	
2	Cabinet Upper	<p>1) Remove the 8 screws which is fixed to each side of Cabinet Upper and separate it. (Use + Screw Driver)</p>	
3	Cabinet-Installation Front Part	<p>1) Remove the 1 screw which is fixed to Cabinet-Installation Front Part and separate it. (Use + Screw Driver)</p>	



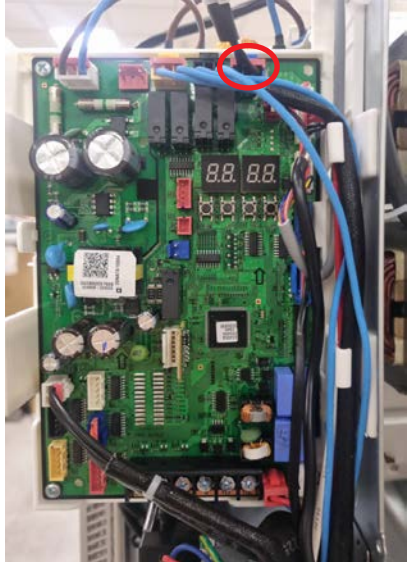
No.	Parts	Procedure	Remark
4	Outdoor Unit Guard	<p>1) Pull out the sensor from the Outdoor Unit Guard and separate it.</p> <p>2) Remove the 4 screws which is fixed to Outdoor Unit Guard and separate it. (Use + Screw Driver)</p>	 

No.	Parts	Procedure	Remark
5	Cabinet Rear RH	<p>1) Pull out the sensor from the Cabinet Rear RH and separate it.</p> <p>2) Remove the 9 screws which is fixed to each side of Cabinet Rear RH and separate it. (Use + Screw Driver)</p>	  


No.	Parts	Procedure	Remark
6	Cabinet-Installation Rear Part	1) Remove the 1 screw from the Cabinet-Installation Rear Part and separate it. (Use +Screw Driver)	
7	Cabinet Front LF	1) Remove the screws from the Cabinet Front LF and separate it. (Use +Screw Driver) * AC036/048BXUPCH : 9 screws AC060BXUPCH : 10 screws	

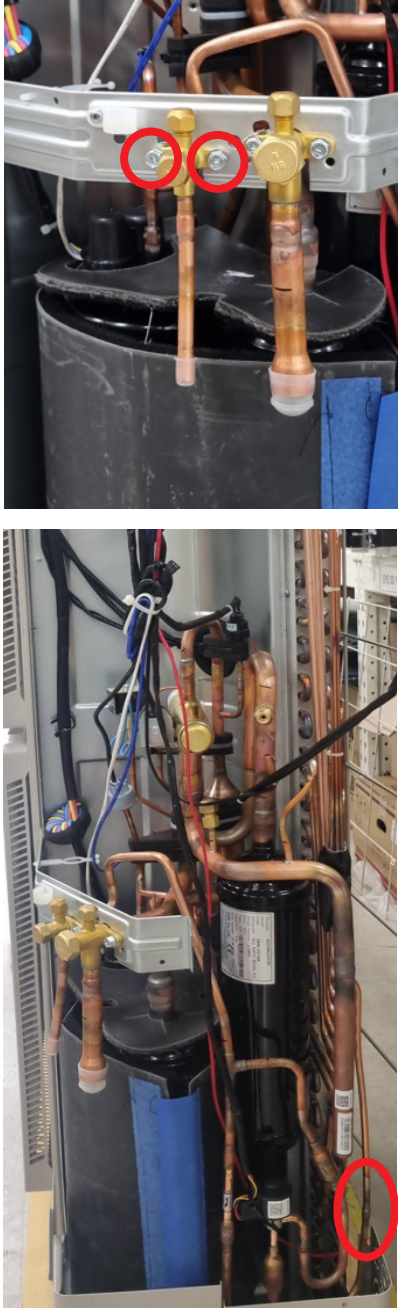
No.	Parts	Procedure	Remark
7	Cabinet Front LF		


No.	Parts	Procedure	Remark
8	Fan	1) Remove the 2 fixing nuts like the picture on the right side. (Use Hexagon Wrench, Monkey Spanner, Hexagon Socket)	
9	Motor	1) Separate the Fan Propeller. 2) Remove the 8 screws which is fixed to Motor. (Use +Screw Driver) 3) Separate the Motor Wire connector from the Outdoor Unit Control Part.	 <p data-bbox="1046 1128 1350 1155">〈AC024/036BXUPCH, AC036BXUDCH〉</p>  <p data-bbox="1110 1568 1286 1594">〈AC048/060BXUPCH〉</p> 

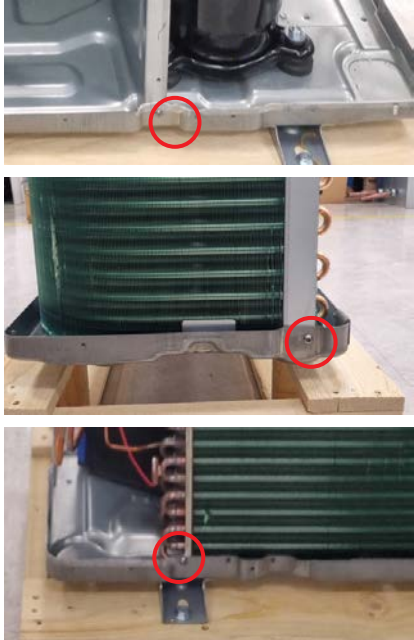
No.	Parts	Procedure	Remark
10	Bracket Motor	1) Remove the 2 screws from the Bracket Motor and separate it. (Use +Screw Driver)	
11	Base Heater	1) Remove 4ea pf screws from the Base heater and separate it. (Use + Screw Driver) 2) Seperate the Base heater Wire connector from the Outdoor Unit Control Part.	 

No.	Parts	Procedure	Remark
12	Control Part	<p>1) Separate the 7 connectors from the Outdoor Unit Control part.</p> <p>2) Remove the 2 screws which is fixed to Control Part. (Use +Screw Driver)</p> <p>3) Separate the Control Part.</p>	 <p><AC024/036BXUPCH, AC036BXUDCH></p>  <p><AC048/060BXUPCH></p>  

No.	Parts	Procedure	Remark
13	4 Way Valve	<p>1) First, discharge the refrigerant.</p> <p>2) Remove the 2 screw which is fixed to Service Valve. (Use +Screw Driver)</p> <p>3) Separate the inlet and outlet pipes by welding torch.</p> <p>⚠ If you separate the Compressor, Heat Exchanger or Pipe, please fully discharge refrigerant in the Compressor and then separate the Pipe by welding torch.</p>	


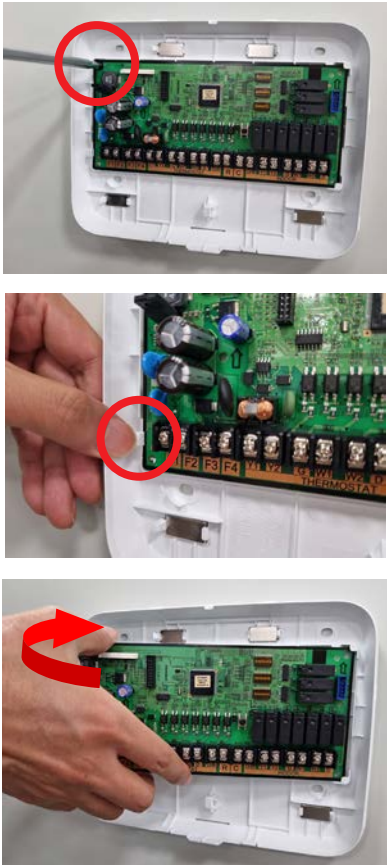
No.	Parts	Procedure	Remark
14	EEV Valve	<p>1) Remove the 2 screws which is fixed to Service Valve and separate it. (Use +Screw Driver)</p> <p>2) Separate the inlet and outlet pipes by welding torch</p>	

No.	Parts	Procedure	Remark
15	Compressor	<p>1) Remove the 1 fixing nut from the end of Cover and separate it. (Use Hexagon Wrench, Monkey Spanner, Hexagon Socket)</p> <p>2) Separate the Felt Compressor.</p> <p>3) Remove the 3 bolts from the bottom of Compressor like the picture on the right side. (Use Hexagon Wrench, Monkey Spanner, Hexagon Socket)</p>	

No.	Parts	Procedure	Remark
16	Condenser Connection Part	1) Remove 3ea of screws which are fixed to each side of Condenser Connection Part and separate it. (Use + Screw Driver.)	

3-1. AHU Control Unit

■ MXD-U000XN

No.	Parts	Procedure	Remark
1	Case top (Front cover)	<p>⚠ Turn off the power before disassembly necessarily.</p> <p>1) Push the middle area of the Case top(front cover) and open it upward to separate from the Case bottom(Rear cover).</p>	
2	PCB	<p>1) Remove 1ea screw from the PCB(Use +Screw Driver) and push the rib down to separate the PCB from the case.</p>	

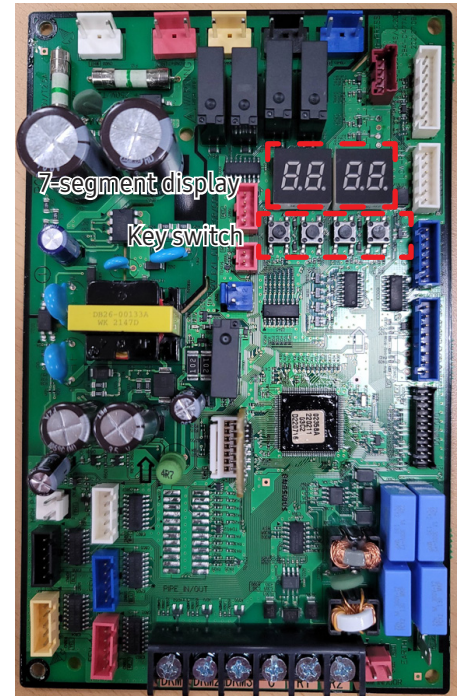
4. Troubleshooting

4-1. Diagnostic Checkliest

4-1-1. Test operation mode and check mode

■ Display Option key

Key	Push type	Mode	Display				
			SEG1	SEG2	SEG3	SEG4	
K1	Short	1st	Heating test mode ¹⁾	H	1	8	8
		2nd	Defrost test mode ²⁾	H	3	8	8
		3rd	End Key operation	8	8	8	8
K2	Short	1st	Cooling test mode ³⁾	H	2	8	8
		2nd	Inverter check	H	4	8	8
		3rd	Pump down	H	6	8	8
		4th	Reserved	H	8	8	8
		5th	On Device Inverter Checker (Comp#1) ⁴⁾	H	A	8	8
		6th	Auto test mode ⁵⁾	H	C	8	8
		7th	Auto check ⁶⁾ (Install commissioning mode)	H	E	8	8
8th	End Key operation	8	8	8	8		
K3	Short	1st	Reset	8	8	8	8



1) Heating test mode : system operates in heating mode (set 104°F (40°C)) and checks for any error.

2) Defrost test mode operates when outdoor temperature is under 50°F(10°C) for 1 minute after pressing K1 for defrost test mode.

3) Cooling test mode : system operates in cooling mode (set 37.4°F (3°C)) and checks for any error.

4) Indication on the display and action to take when an inverter fault is detected.

5) Auto Test Mode: System will determine test mode (cool or heat) based on ambient temperature

* Test mode will continue to operate for 10 hours; any K button press pressing any K button will terminate the test mode

* If an error occurs during the test operation, the test mode will terminate and display the associated error codes

6) Auto Check Mode: System will determine test mode (cool or heat) based on ambient temperature

* Test mode will continue to operate for 10~20mins and self-terminate test mode if no errors are found; pressing any K button press will terminate the test mode

* If an error occurs during the test operation, the test mode will terminate and display the associated error codes

	SEG1	SEG2	SEG3	SEG4	Action to take
Fault detection is in progress	8	8	8	8	-
OK	8	8	0	H	-
NG	8	8	A	C	PBA defect: Replace the PBA
Check	8	8	C	A	Manual inspection is required
Going into fault detection mode failed	8	8	F	C	Try fault detection again

Test operation mode and check mode (Cont.)

K4 short push	Display contents	SEG1	SEG2	SEG3	SEG4	Unit
1	Order frequency	1	Hundreds digit	Tens digit	Units digit	Hz
2	Current frequency	2	Hundreds digit	Tens digit	Units digit	Hz
3	The number of preset indoor units	3	Hundreds digit	Tens digit	Units digit	EA
4	Ambient temperature sensor	4	Hundreds digit or - ¹⁾	Tens digit	Units digit	°F or °C ²⁾
5	Compressor discharge sensor	5	Hundreds digit	Tens digit	Units digit	°F or °C ²⁾
6	Eva-Mid sensor	6	Hundreds digit or - ¹⁾	Tens digit	Units digit	°F or °C ²⁾
7	Condenser sensor	7	Hundreds digit or - ¹⁾	Tens digit	Units digit	°F or °C ²⁾
8	Current	8	Tens digit	Units digit	The first place of decimals	A
9	Outdoor fan RPM	9	Thousands digit	Hundreds digit	Tens digit	rpm
10	Target discharge temperature	A	Hundreds digit or - ¹⁾	Tens digit	Units digit	°F or °C ²⁾
11	EEV	B	Hundreds digit	Tens digit	Units digit	step
12	The capacity sum of indoor units	C	Tens digit	Unit digit	The first place of decimals	kBtu/h or kW ³⁾
13	Protective control	D	0: Cooling 1: Heating	<Protective control> 0: No Protective control 1: Freezing 2: Non-stop defrosting 3: Over-load 4: Discharge 5: Total electric current	<Frequency status> 0: Normal 1: Hold 2: Down 3: Up_limit 4: Down_limit	-
14	IPM temperature	E	Hundreds digit or - ¹⁾	Tens digit	Units digit	°F or °C ²⁾
15	The number of connected indoor units	F	0	Tens digit	Units digit	EA
16	ESC EEV(CAM)	G	Hundreds digit	Tens digit	Units digit	step
17	ESC IN sensor	H	Hundreds digit or - ¹⁾	Tens digit	Units digit	°F or °C ²⁾
18	ESC OUT sensor	I	Hundreds digit or - ¹⁾	Tens digit	Units digit	°F or °C ²⁾
19	Suction sensor	J	+ / - Hundreds for Fahrenheit	Tens digit	Units digit	°F or °C ²⁾
20	Pressure sensor	K	+ / - Hundreds for Fahrenheit	Tens digit	Units digit	psi or kg/cm ² ⁴⁾

¹⁾ Sub-zero temperatures are expressed as a minus, instead of hundreds digit.

²⁾ The temperature unit can be switched between Fahrenheit and Celsius through Setting outdoor unit option switches.

³⁾ When the temperature unit is set to Celsius by using the option switch on the outdoor unit, the value is shown in kW.

⁴⁾ When the temperature unit is set to Celsius by using the option switch on the outdoor unit, the value is shown in kg/cm².

Test operation mode and check mode (Cont.)

■ Version Check & Address Check

		Display contents	SEG1	SEG2	SEG3	SEG4
K4 long push	-	Main micom version	Year (Dec)	Month (Hex)	Date (Tens digit)	Date (Units digit)
	After short push 1	Inverter micom version	Year(Dec)	Month (Hex)	Date (Tens digit)	Date (Units digit)
	After short push 2	E2P version	Year(Dec)	Month (Hex)	Date (Tens digit)	Date (Units digit)
	After short push 3	Page 1 - AUTO Page 2 - (SEG1,2 - Indoor : "A", "0") (SEG3,4 - Address : ex)00)				
	After short push 4	Page 1 - MANU Page 2 - (SEG1,2 - Indoor : "A", "0") (SEG3,4 - Address : ex)00)				

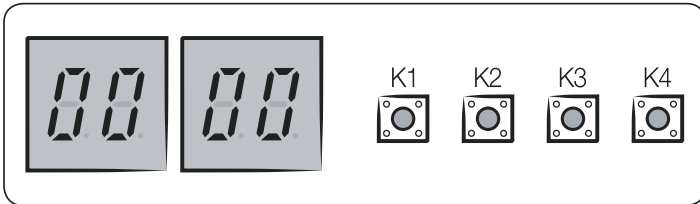
- Long push K4(Main micom ver.) → short push 1 more (Inv. micom ver.) → short push 1 more (E2P. ver.) → short push 1 more (Automatic address) → short push 1 more (Manual address) → short push 1 more (Main micom ver.) → → Long push K4(veiw mode end)

Test operation mode and check mode (Cont.)

■ Setting outdoor unit option switch and address manually

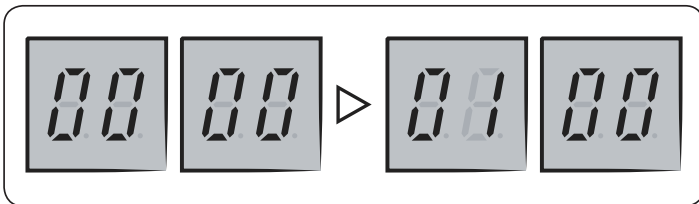
▶ Setting the option

- Press and hold K2 to enter the option setting. (Only available when the operation is stopped)
 - If you enter the option setting, display will show the following.



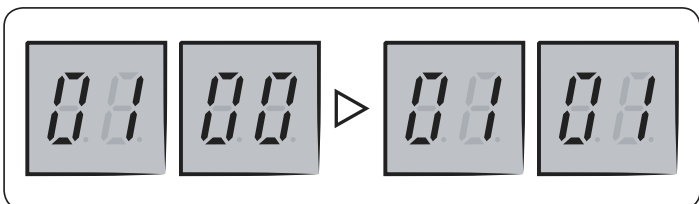
- Seg 1 and Seg 2 will display the number for selected option.
- Seg 3 and Seg 4 will display the number for set value of the selected option.
- If you have selected desired option, you can shortly press the K2 switch to adjust the value of the Seg 3, Seg 4 and change the function for the selected option

Example)



- If you have selected desired option, you can shortly press the K2 switch to adjust the value of the Seg 3, Seg 4 and change the function for the selected option.

Example)



- After selecting the function for options, press and hold the K2 switch for 2 seconds. Edited value of the option will be saved when entire segments blinks and tracking mode begins.

Test operation mode and check mode (Cont.)

Option item	SEG1	SEG2	SEG3	SEG4	Function
Channel address	0	0	A	U	Automatic setting (Factory default)
			00~15		Manual setting
Snow accumulation prevention control	0	1	0	0	Disabled (Factory default)
			0	1	Enabled
Step for Silence mode	0	2	0	0	Disabled (Factory default)
			0	1	Step1
			0	2	Step2
			0	3	Step3
Type of Silence mode	0	3	0	0	Automatic Silence mode (Factory default)
			0	1	Manual Silence mode
Temperature unit	0	4	0	0	Celsius
			0	1	Fahrenheit(default)
Current restriction rate ¹⁾	0	6	0	0	100% (Factory default)
			0	1	95%
			0	2	90%
			0	3	85%
			0	4	80%
			0	5	75%
			0	6	70%
			0	7	65%
			0	8	60%
			0	9	55%
			1	0	50%
Dedicated mode for cooling/ heating	0	7	0	0	Cooling / Heating operation (default)
			0	1	Cooling operation only
			0	2	Heating operation only
Long-piping pressure calibration ²⁾	0	8	0	0	Within 98.4 ft (30 m) (Factory default)
			0	1	98.4 ~ 164.0 ft (30 ~ 50 m) (Cooling:-9.96psi, Heating:+4.27psi)

Test operation mode and check mode (Cont.)

Option item	SEG1	SEG2	SEG3	SEG4	Function
Target low pressure calibration for cooling ³⁾	0	9	0	0	Initial set pressure for cooling (Factory default)
			0	1	-2.84 psi
			0	2	-5.69 psi
			0	3	-8.53 psi
			0	4	-11.38 psi
			0	5	-14.22 psi
			0	6	+2.84 psi
			0	7	+5.69 psi
			0	8	+8.53 psi
			0	9	+11.38 psi
Target high pressure calibration for heating ⁴⁾	1	0	1	0	+14.22 psi
			0	0	Initial set pressure for heating (Factory default)
			0	1	+2.84 psi
			0	2	+5.69 psi
			0	3	+8.53 psi
			0	4	+11.38 psi
			0	5	+14.22 psi
			0	6	-2.84 psi
			0	7	-5.69 psi
			0	8	-8.53 psi
0	9	-11.38 psi			
1	0	-14.22 psi			

¹⁾ Current restriction rate : When restriction option is set, cooling and heating performance may decrease.

²⁾ Set this value only when the diameter of the installed gas piping is smaller than the standard piping diameter.

Do NOT use it for performance enhancement purposes.

³⁾ Target low pressure for cooling can be set in a range of 113.79–170.68 psi.

⁴⁾ Target high pressure for heating can be set in a range of 284.47–526.26 psi.

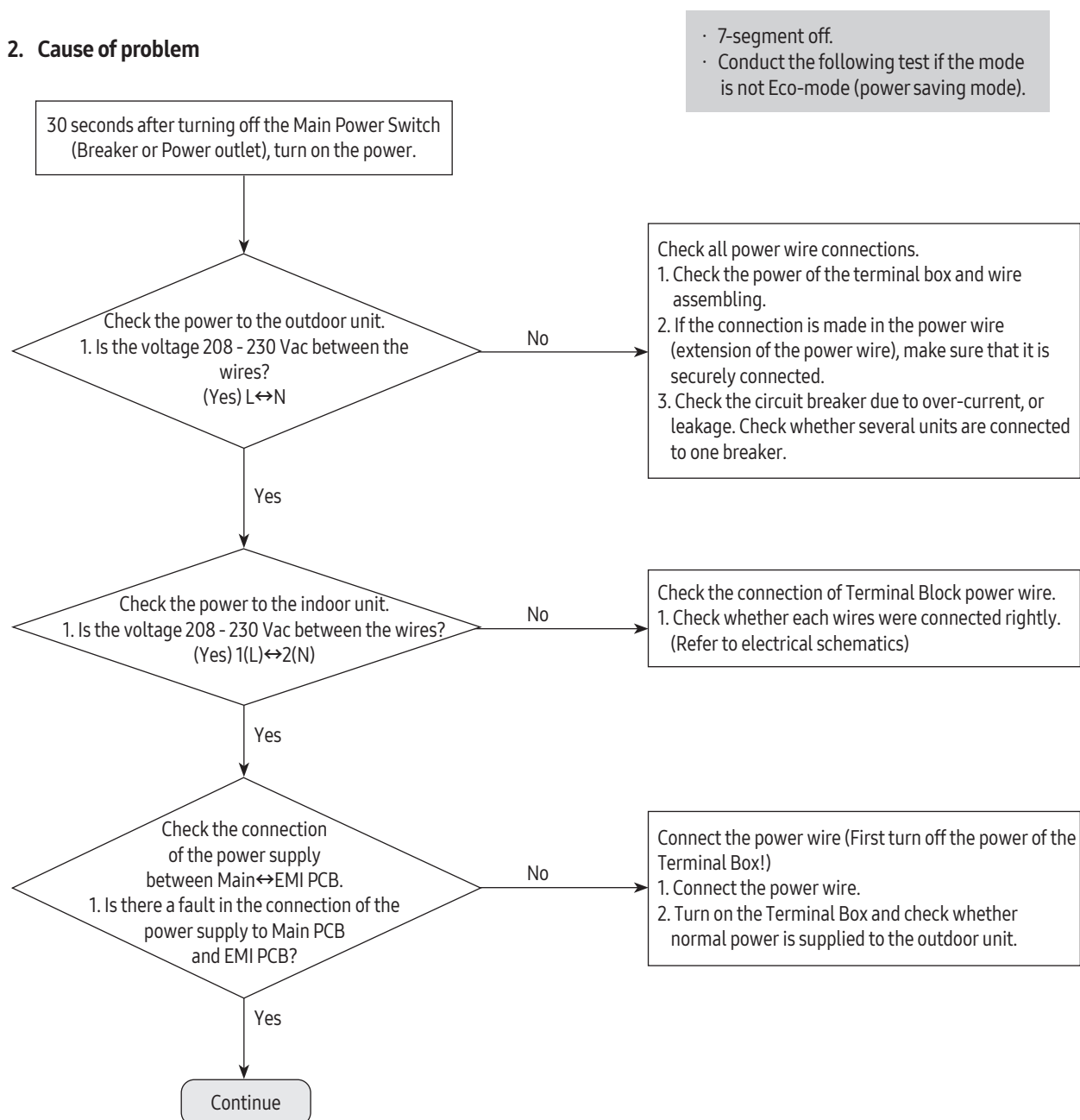
4-2. Troubleshooting by symptoms

4-2-1. When the outdoor unit power is not ON - Initial Diagnosis : Single phase products

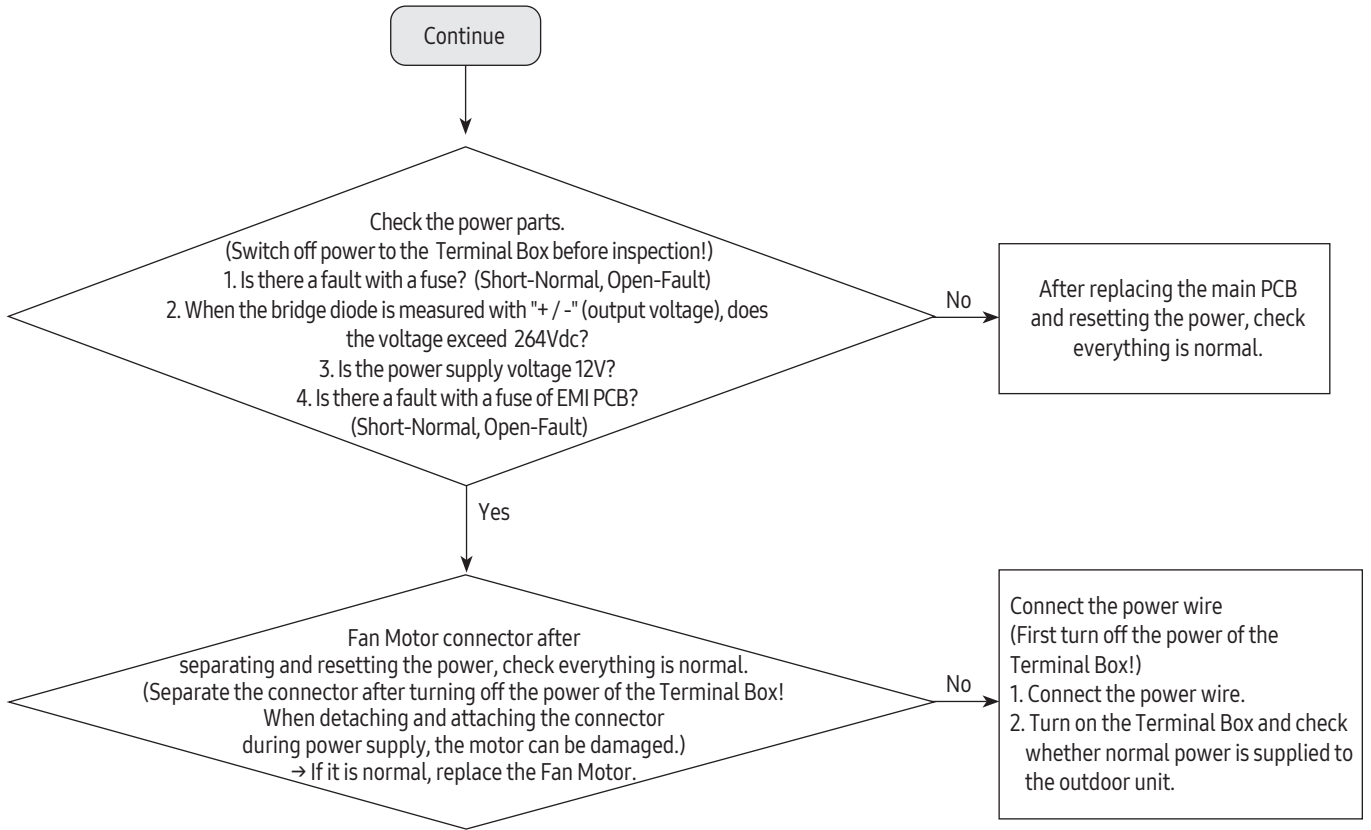
1. Test items

- 1) Check the power connection of outdoor unit.
- 2) Check the whole connection part of the power wire.
- 3) Check the power on the indoor unit.
- 4) Check the connection of the power wire of the Terminal Block.
- 5) Check the connection of the power wire between the Main ↔ EMI PBA of the outdoor unit.
- 6) Connect the power wire. (Never forget to turn off the power of the Terminal Box).
- 7) Check the power supply parts. (Check after turning off the power of the Terminal Box!)
- 8) Check everything is normal after separating the fan motor connector and resetting the power.
(Separate the connector after turning off the power of the Terminal Box! When detaching and attaching the connector during power supply, the motor can be damaged.)

2. Cause of problem



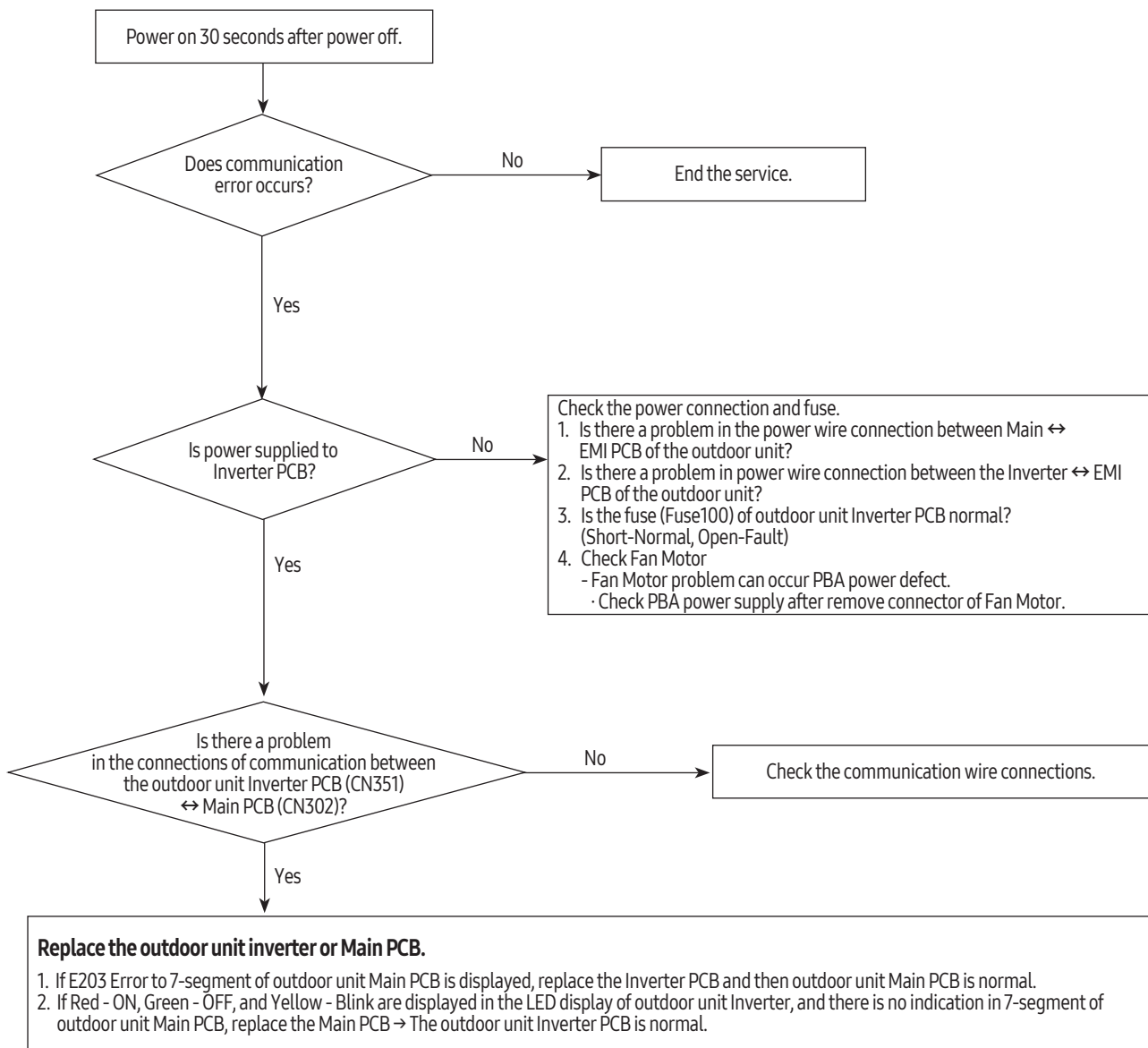
When the outdoor unit power is not ON - Initial Diagnosis : Single phase products (Cont.)



4-2-2. Communication error between outdoor unit INV ↔ MAIN MICOM (1 min.) - (E203)

Outdoor unit display	E203
Judgment Method	<ul style="list-style-type: none"> Refer to checking method, as shown below
Cause of problem	<ul style="list-style-type: none"> Communication error between the outdoor unit INV and Main Micom for one minutes

1. Cause of problem

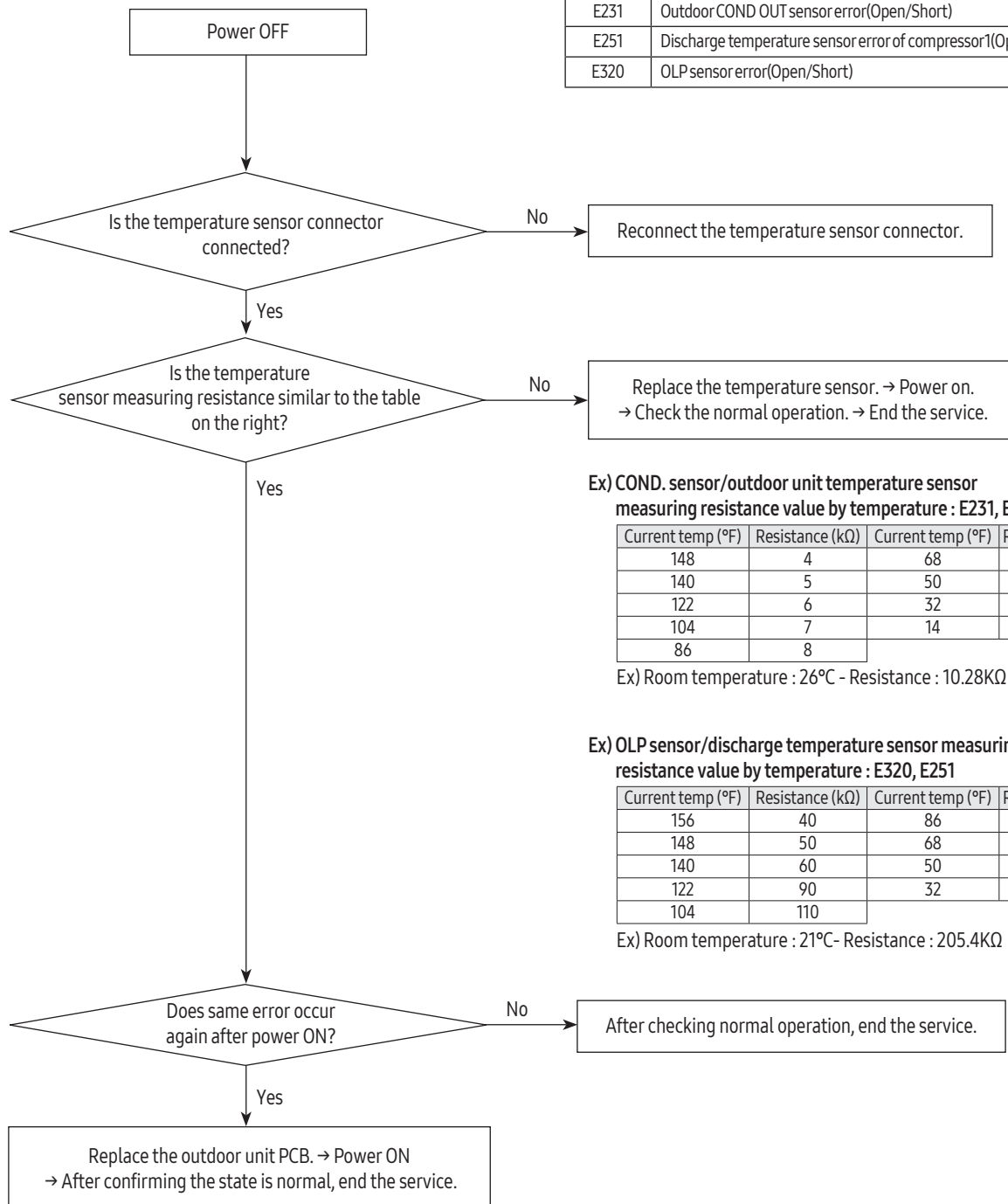


4-2-3. Outdoor sensor error - (E221, E231, E251, E320)

Outdoor unit display	<i>E22 1, E23 1, E25 1, E320</i>
Judgment Method	• Refer to checking method, as shown below.
Cause of problem	• Communication error between the outdoor unit INV and Main Micom for one minutes

1. Cause of problem

Error CODE	Description
E221	Outdoor temperature sensor error(Open/Short)
E231	Outdoor COND OUT sensor error(Open/Short)
E251	Discharge temperature sensor error of compressor1(Open/Short)
E320	OLP sensor error(Open/Short)



Ex) COND. sensor/outdoor unit temperature sensor measuring resistance value by temperature : E231, E221

Current temp (°F)	Resistance (kΩ)	Current temp (°F)	Resistance (kΩ)
148	4	68	10
140	5	50	20
122	6	32	30
104	7	14	40
86	8		

Ex) Room temperature : 26°C - Resistance : 10.28KΩ

Ex) OLP sensor/discharge temperature sensor measuring resistance value by temperature : E320, E251

Current temp (°F)	Resistance (kΩ)	Current temp (°F)	Resistance (kΩ)
156	40	86	180
148	50	68	220
140	60	50	320
122	90	32	550
104	110		

Ex) Room temperature : 21°C - Resistance : 205.4KΩ

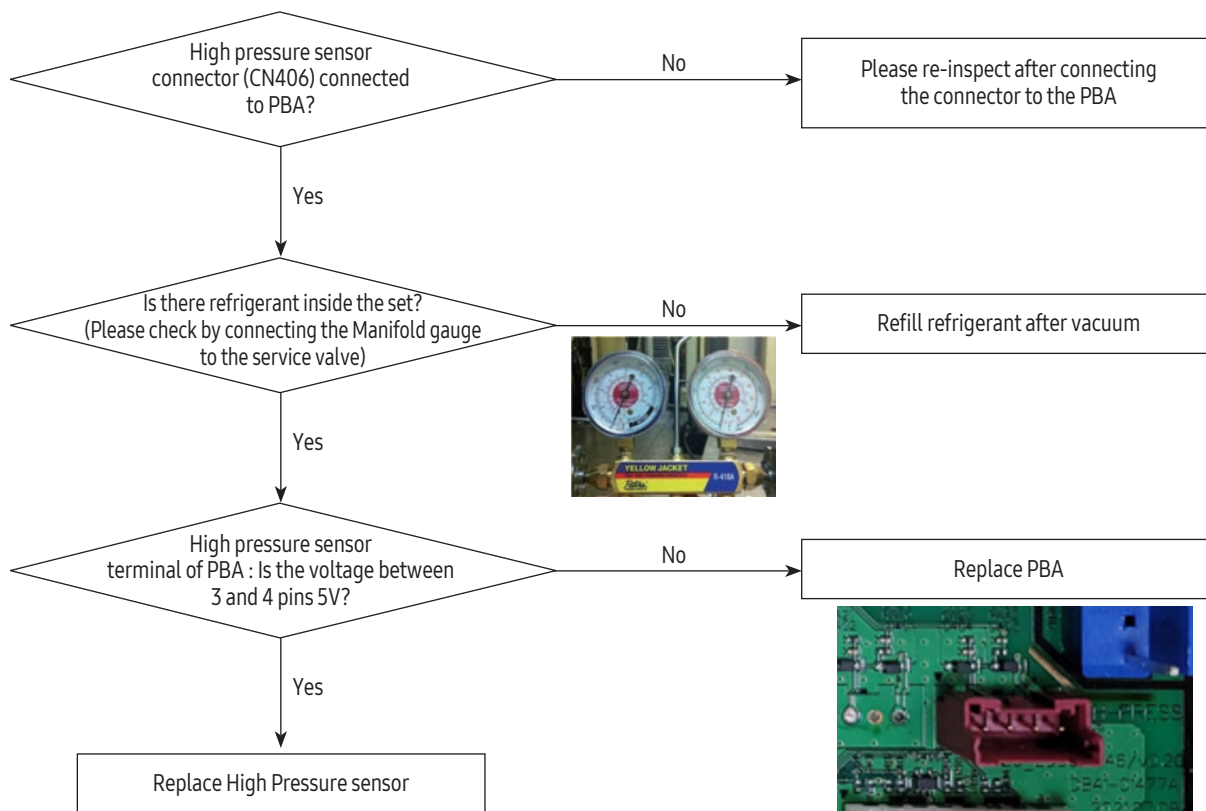
4-2-4. High Pressure sensor error (Open/Short) - (E291)

Outdoor unit display	E291
Judgment Method	<ul style="list-style-type: none"> • Detect according to temperature detected with the high pressure sensor.
Cause of problem	<ul style="list-style-type: none"> • Disconnection or breakdown of relevant sensor.

1. High Pressure sensor Open/Short error determination method

- 1) Identifies from when power is supplied or 2 minutes after RESET, and only when set is stopped.
- 2) An Open/Short error will occur if the input voltage standard range of 0.5V ~ 4.95V is exceeded.

2. Cause of problem

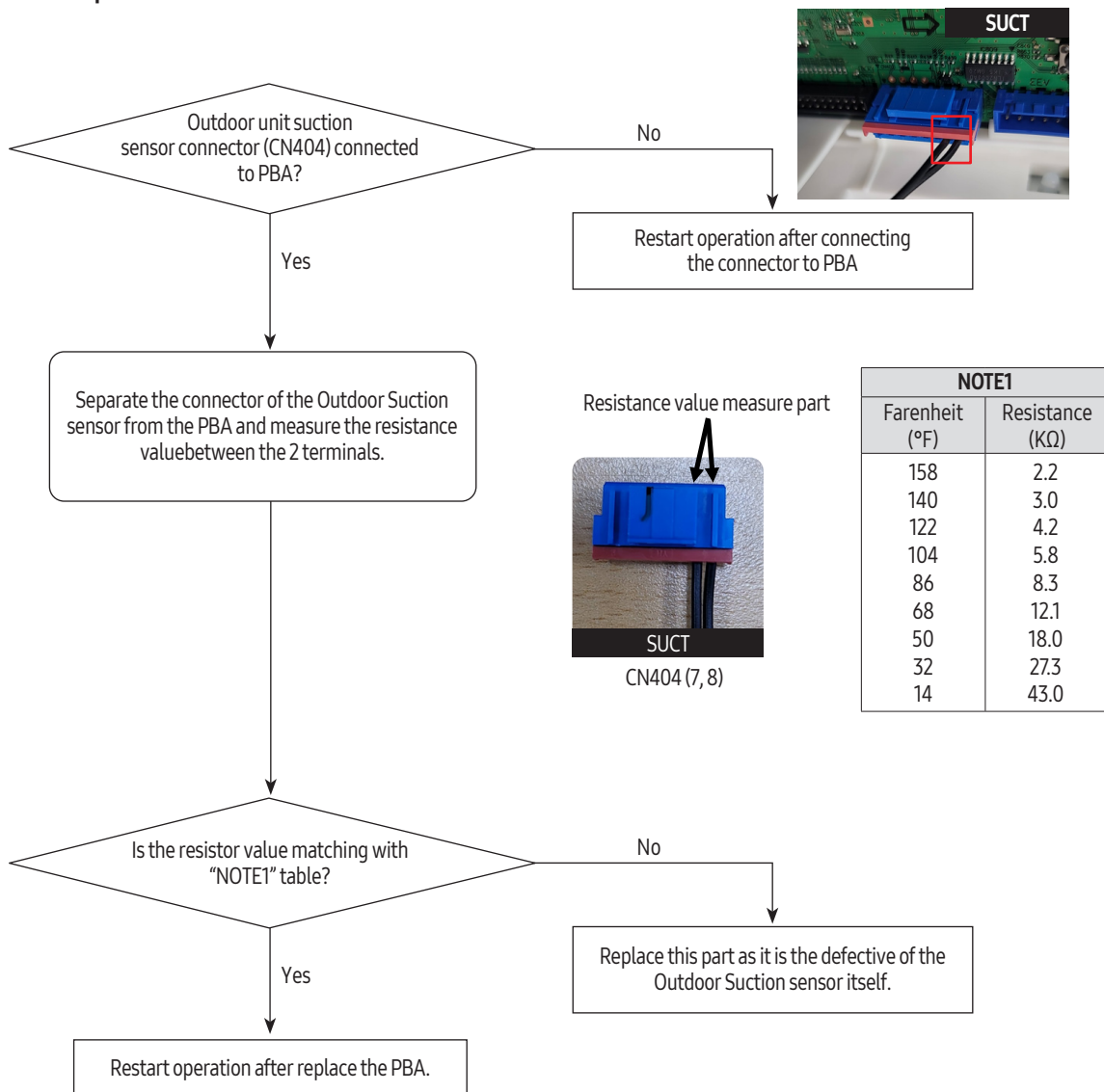


The ▼ mark is the 1st pin on the PBA.

4-2-5. Suction Temperature sensor error (Open/Short) - (E308)

Outdoor unit display	E308
Judgment Method	<ul style="list-style-type: none"> • Detect according to temperature detected with the suction #1 pipe temperature thermistor.
Cause of problem	<ul style="list-style-type: none"> • Disconnection or breakdown of relevant sensor. (More than 4.5V or 0.5V less than)

1. Cause of problem



4-2-6. Compressor down due to freezing control - (E403)

Outdoor unit display	<i>E403</i>
Judgment Method	<ul style="list-style-type: none"> • Check outdoor unit condenser.
Cause of problem	-

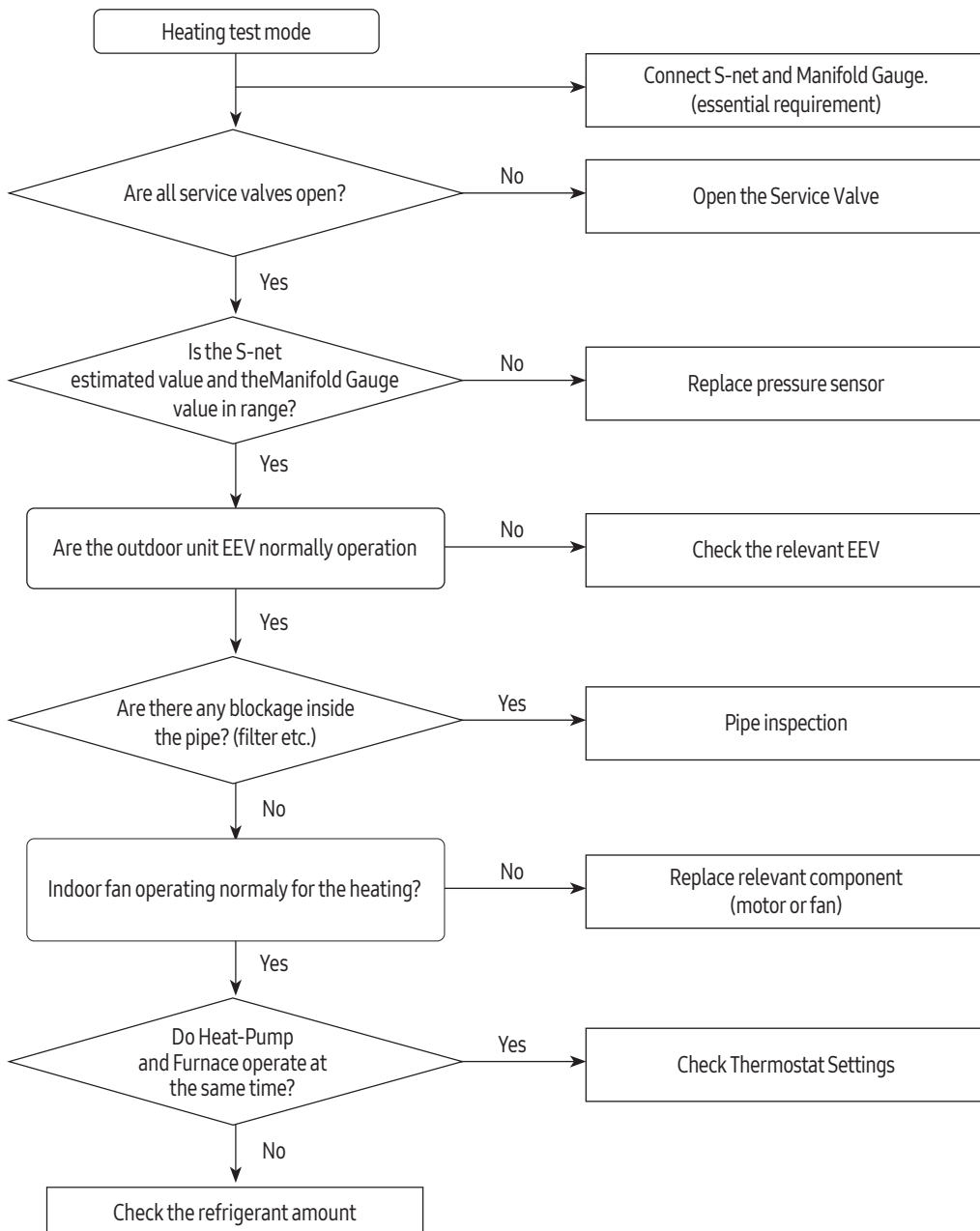
4-2-7. System stop due to overload protection control - (E404)

Outdoor unit display	<i>E404</i>
Judgment Method	<ul style="list-style-type: none"> • Check whether fan or motor operate normally. • Check the operation of EEV. • Check comp. when it starts.
Cause of problem	-

4-2-8. Comp. Down due to High Pressure Protection Control - (E407)

Outdoor unit display	E407 (Air Cooled)
Judgment Method	<ul style="list-style-type: none"> Value of the high pressure sensor is detected at 568.9 psi (40kg/ cm²) or more
Cause of problem	<p>◀Heating Operation▶</p> <ul style="list-style-type: none"> Service valve locked/Excessive refrigerant Indoor Unit fan motor problem (constrained, defective) Indoor heat exchanger is contaminated Simultaneous operation of Heat-Pump and Furnace

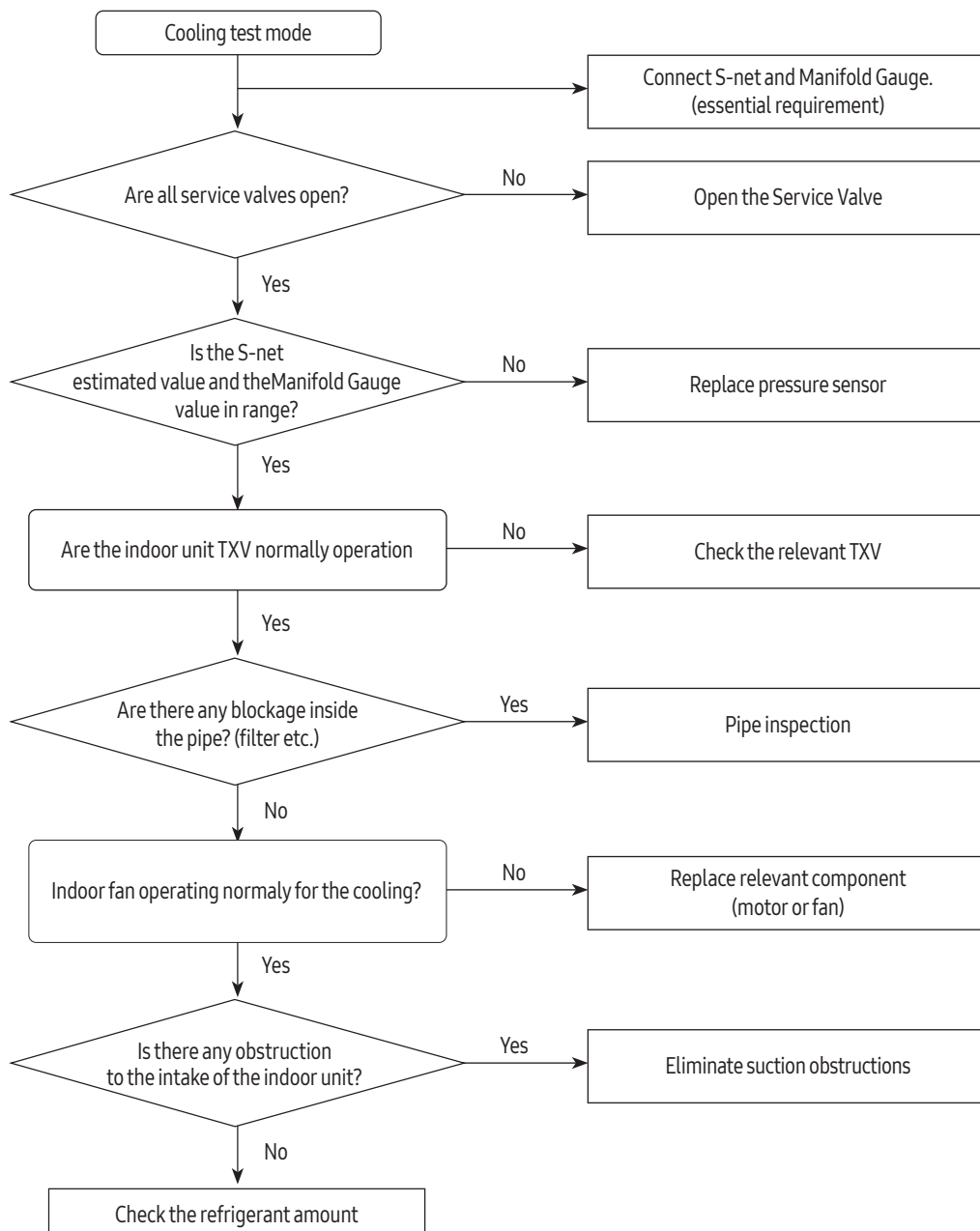
1. Cause of problem



4-2-9. Comp. down due to low pressure sensor protection (E410)

Outdoor unit display	E4 10 (Air Cooled)
Judgment Method	<ul style="list-style-type: none"> • Less than 14.2psi(1kg/cm²) for 3 minutes after 5 minutes after cooling mode compressor on • Less than 42.7psi(3kg/cm²) for 3 minutes after 10 minutes after cooling mode compressor on
Cause of problem	<p>◀Cooling Operation▶</p> <ul style="list-style-type: none"> • Indoor unit fan motor problem (constrained, defective) • Indoor unit heat exchanger is contaminated • Service valve locked • Obstruction of indoor unit air intake

1. Cause of problem



4-2-10. Comp. down due to discharge temperature protection control - (E416)

Outdoor unit display	<i>E416</i>
Judgment Method	<ul style="list-style-type: none"> • Check for lack of refrigerant. • Check the blockage of the solenoid valve. • Check the malfunction of the exhaust temperature sensor. • Check the EEV.
Cause of problem	-

4-2-11. Heating operation restricted at outdoor temperature over Theat_high value (default : 86°F(30°C)) - (E440)

Outdoor unit display	<i>E440</i>
Judgment Method	Check the range of temperature limited for heating operation. Check the outdoor temperature sensor.
Cause of problem	-

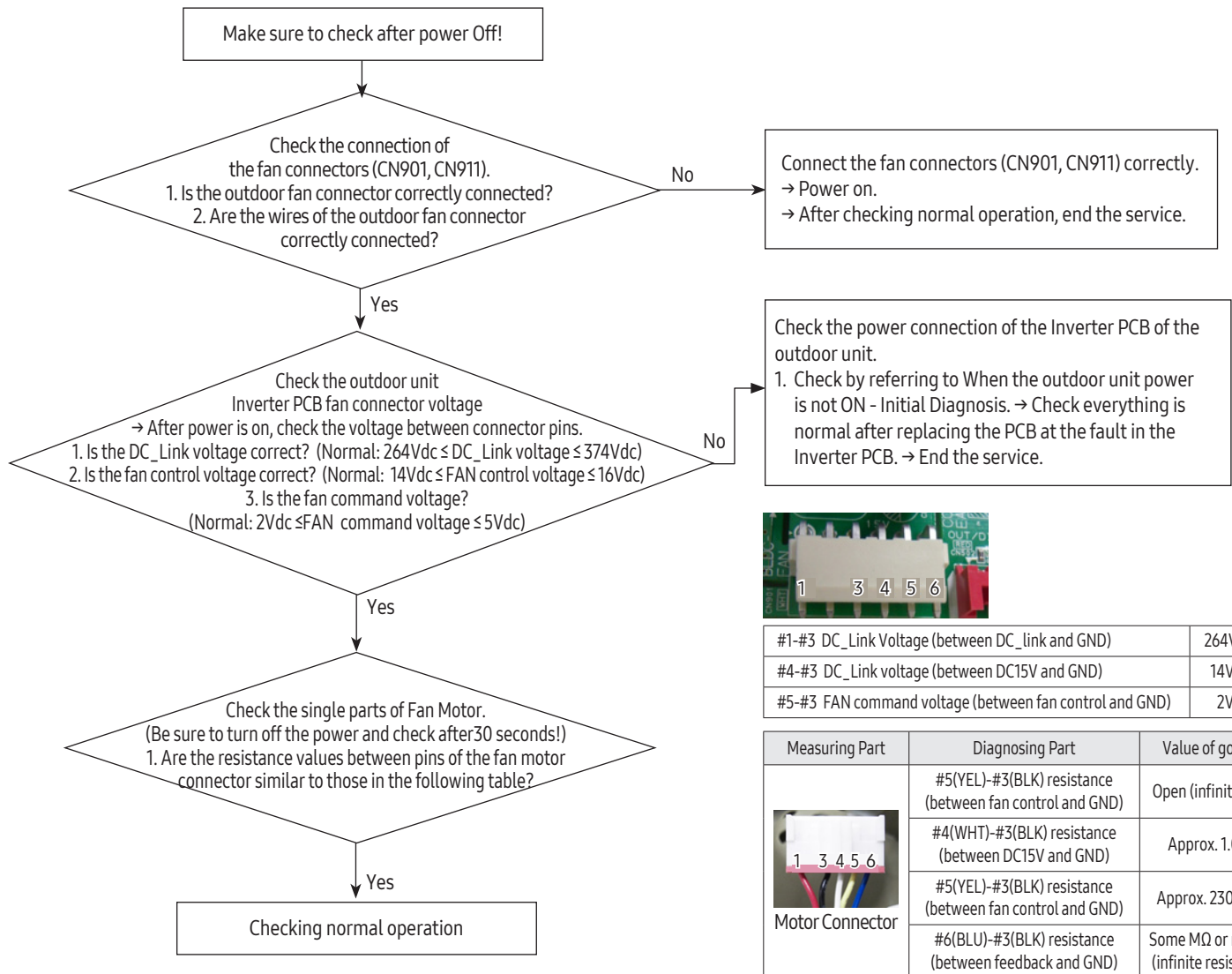
4-2-12. Cooling operation restricted at outdoor temperature over Tcool_low value (default : 32°F(0°C)) - (E441)

Outdoor unit display	<i>E441</i>
Judgment Method	Check the range of temperature limited for cooling operation. Check the outdoor temperature sensor.
Cause of problem	

4-2-13. Outdoor unit FAN error - (E458, E475)

Outdoor unit display	E458, E475
Judgment Method	Refer to checking method, as shown below.
Cause of problem	-

1. Cause of problem



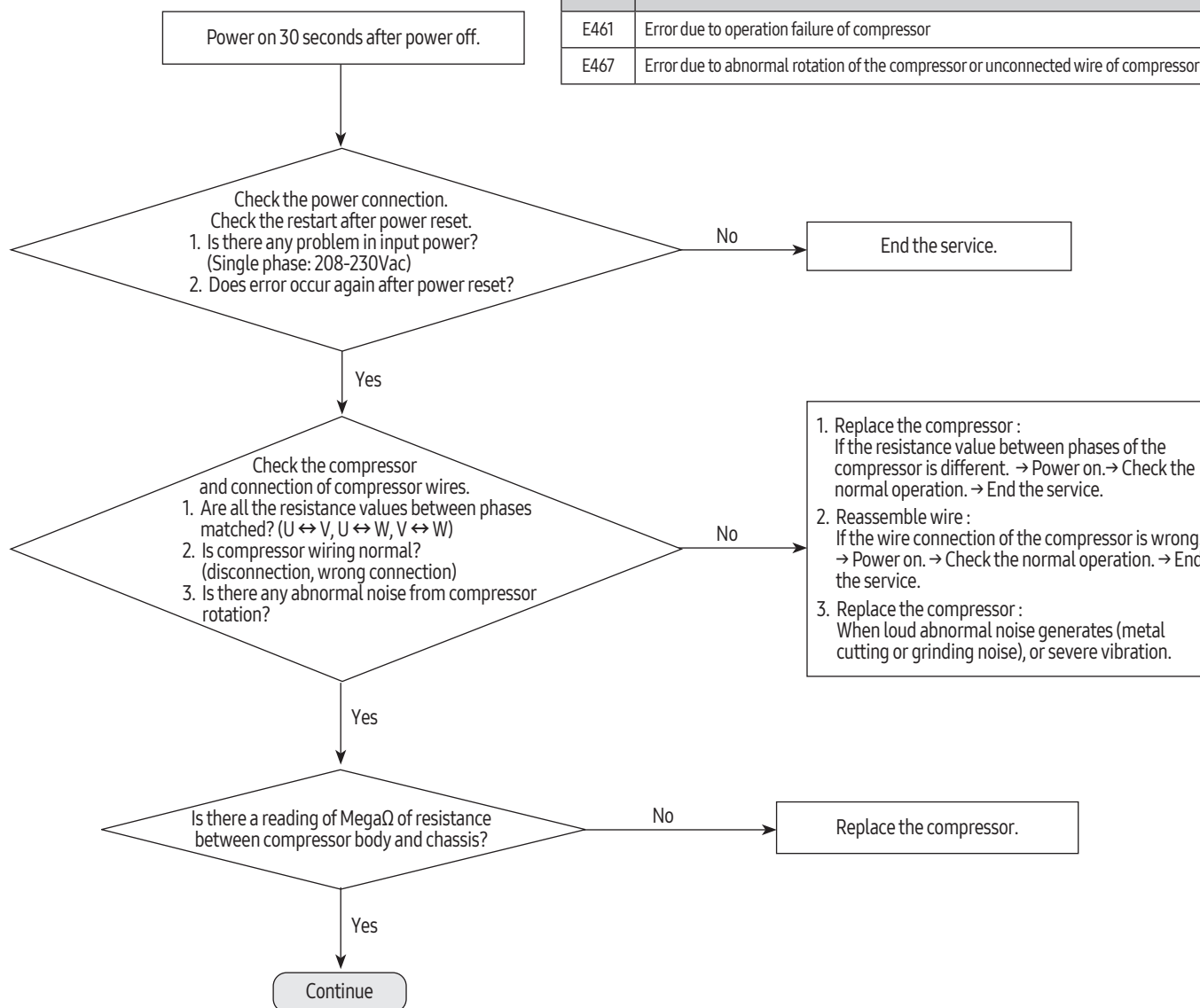
- ※ At least 30 seconds after power is OFF, attach/detach the fan motor connector!
→ Threatened to cause secondary damage to the motor and the PCB.
- ※ Check the Inverter PCB or Fan Motor single parts and only if there is a fault, replace!
- ※ Do not replace the Main PCB of the outdoor unit relating to the fault in the Fan Motor!
→ If the error is indicated on 7-segment of the Main PCB of the outdoor unit, the Main PCB of the outdoor unit has no fault.
→ In case of a control problem, it is possible to solve with S/W update.

4-2-14. Compressor error - (E461, 467)

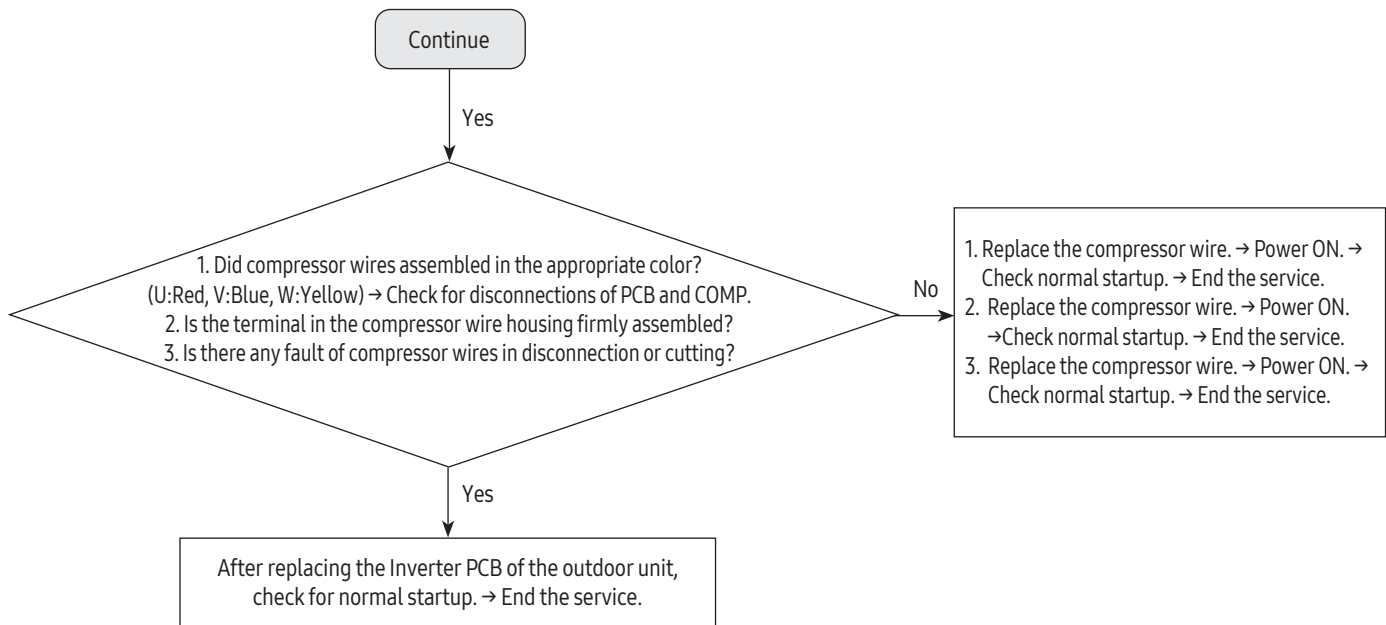
Outdoor unit display	E461, E467
Judgment Method	Refer to checking method, as shown below.
Cause of problem	-

1. Cause of problem

Error code	Description
E461	Error due to operation failure of compressor
E467	Error due to abnormal rotation of the compressor or unconnected wire of compressor



Compressor error - (E461, 467) (cont.)



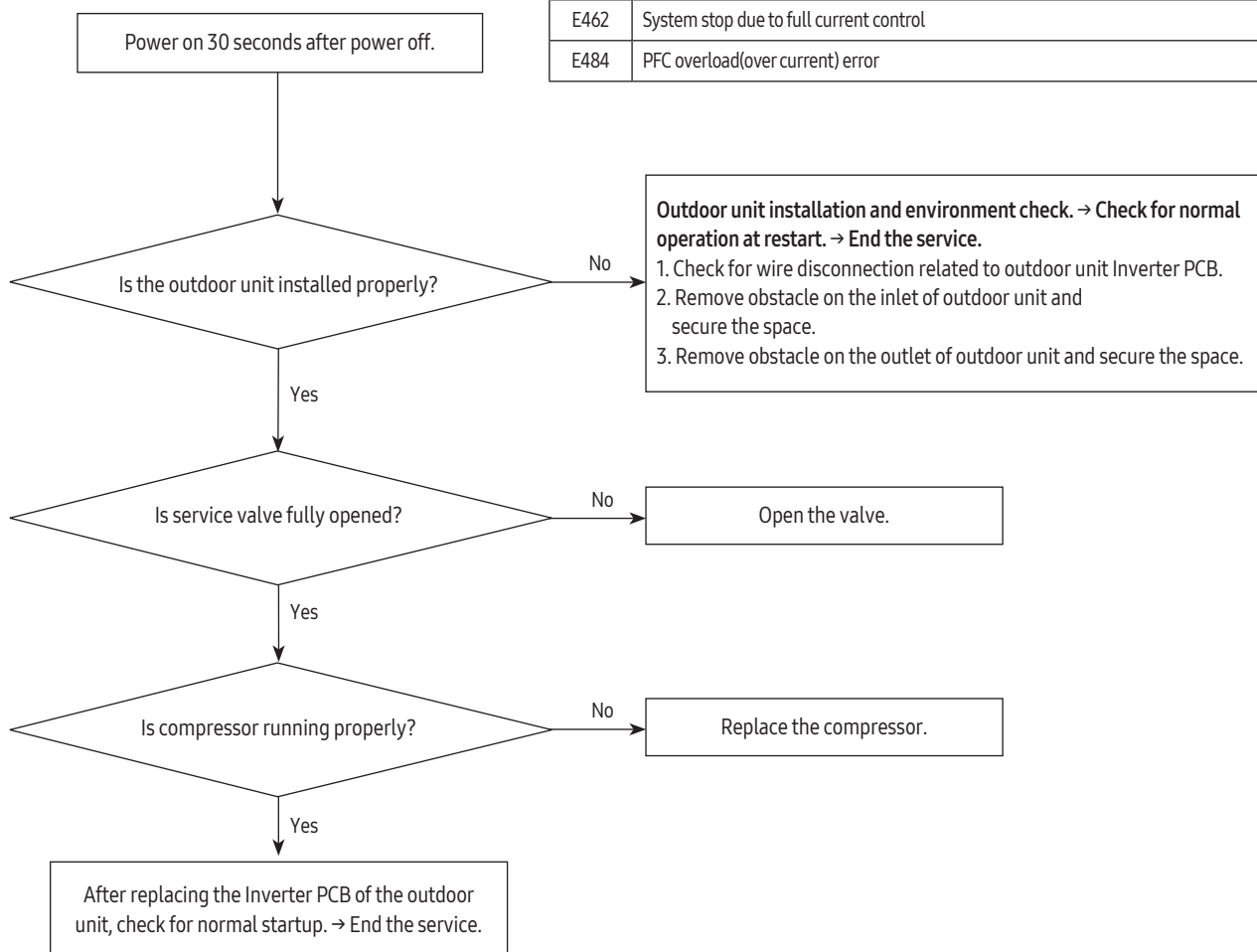
- ※ E461, E467 Error-related, EMI / outdoor unit Main / Indoor unit Main PCB do not replace!
→ This error is related to the compressor and Inverter PCB. (Not related to the above PCB)
- ※ Ensure that the service valve is open!
→ When the service valve is closed, the defects may be caused by differential pressure when starting the compressor.

4-2-15. Current error - (E462, 484)

Outdoor unit display	E462, E484
Judgment Method	Refer to checking method, as shown below.
Cause of problem	-

1. Cause of problem

Error code	Description
E462	System stop due to full current control
E484	PFC overload(over current) error



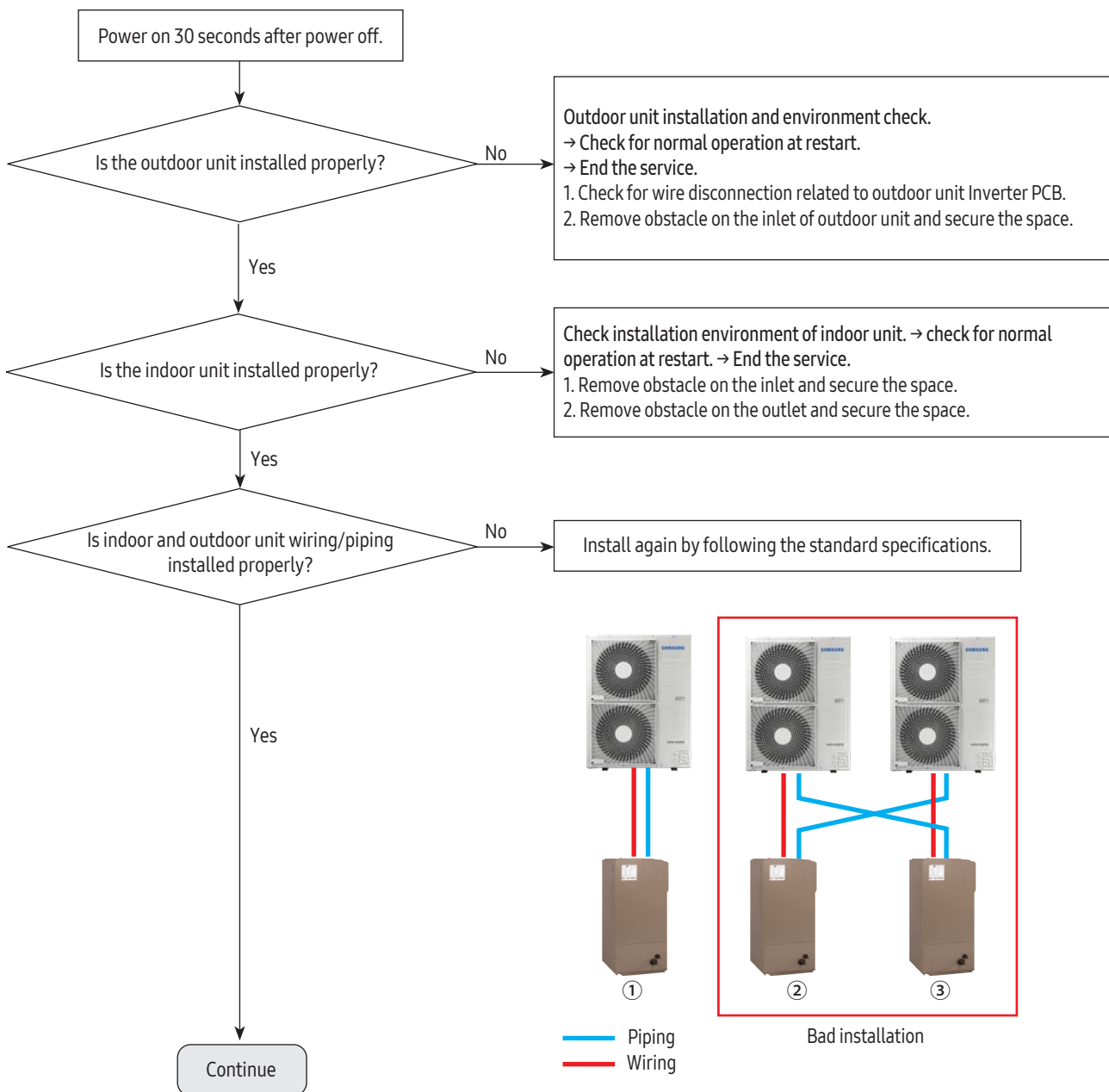
4-2-16. Over Load Protection Error (E463)

Outdoor unit display	<i>E463</i>
Judgment Method	Check the OLP sensor.
Cause of problem	-

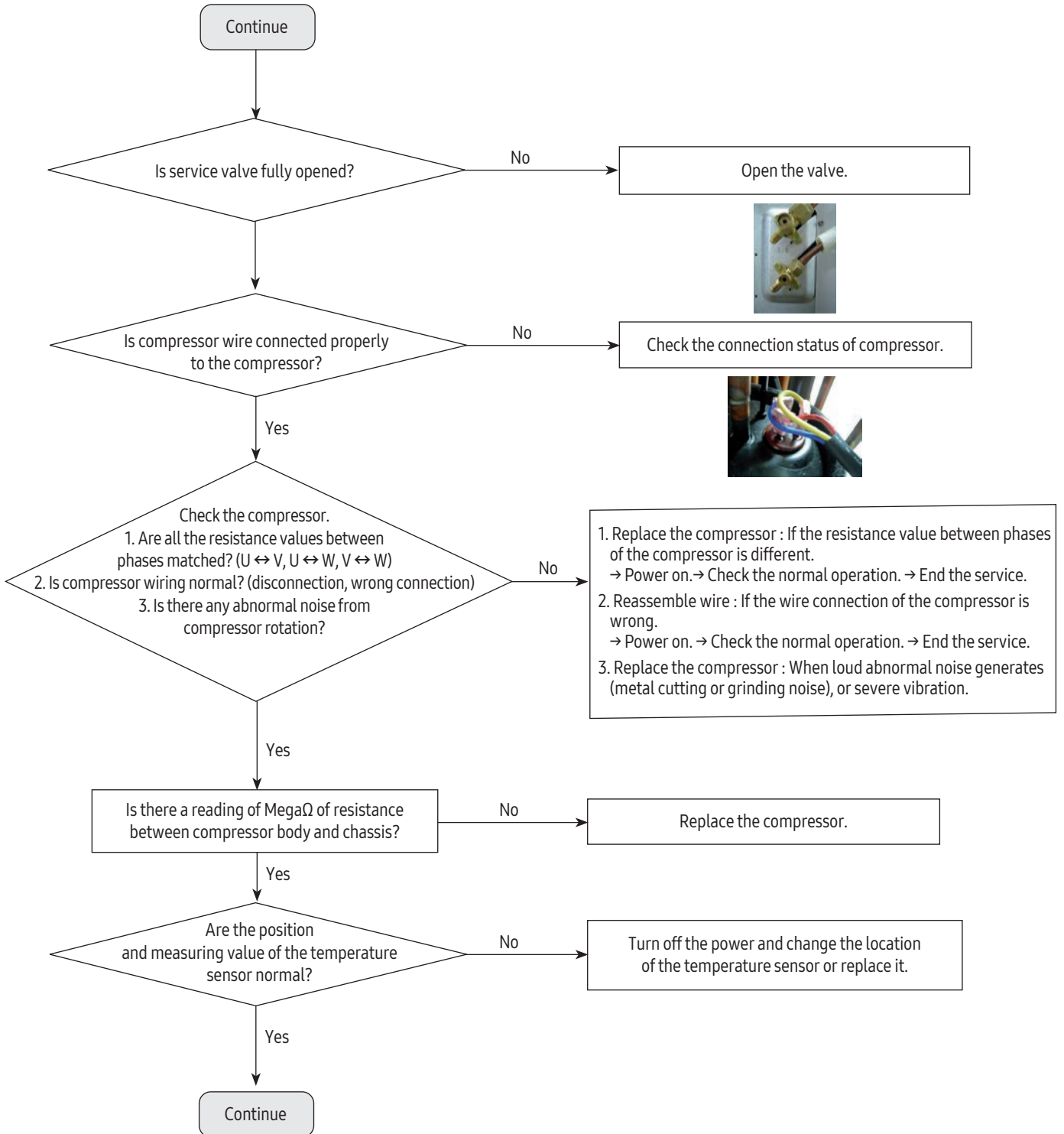
4-2-17. IPM (Over Current) error - (E464)

Outdoor unit display	E464
Judgment Method	Refer to checking method, as shown below.
Cause of problem	

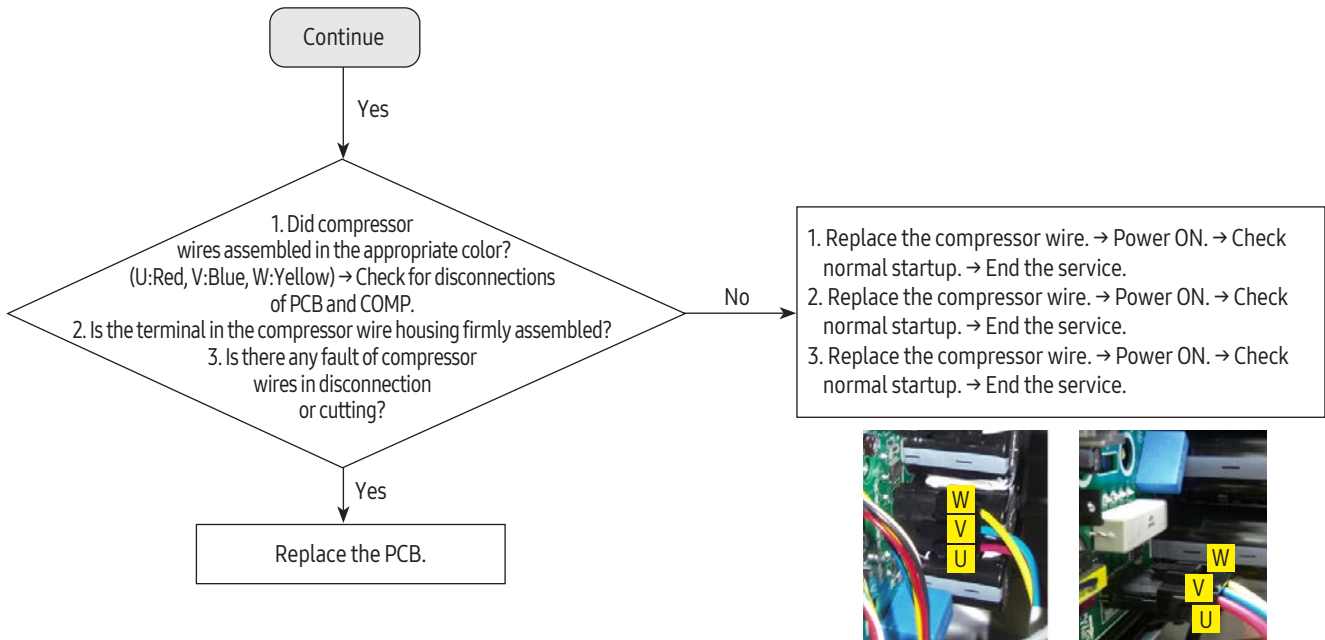
1. Cause of problem



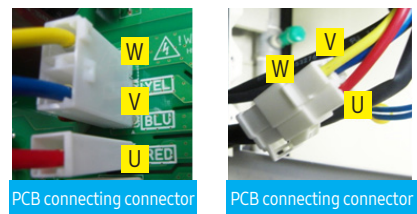
IPM (Over Current) error - (E464) (cont.)



IPM (Over Current) error - (E464) (cont.)



- ※ Do not replace EMI and Main PCB of outdoor unit.
→ E464 is related to Inverter PCB.
- ※ Ensure that the service valve is open!
→ When the service valve is closed, the defects may be caused by differential pressure when starting the compressor.



4-2-18. Compressor over load error- (E465)

Outdoor unit display	<i>E465</i>
Judgment Method	<p>If the compressor is abnormally run, replace the compressor and then ensure that it works normally.</p> <p>→ If the compressor is normally run, check the assembling between the heat sink plate and the Inverter PCB and then If there is no abnormality, replace the Inverter PCB.</p>
Cause of problem	-

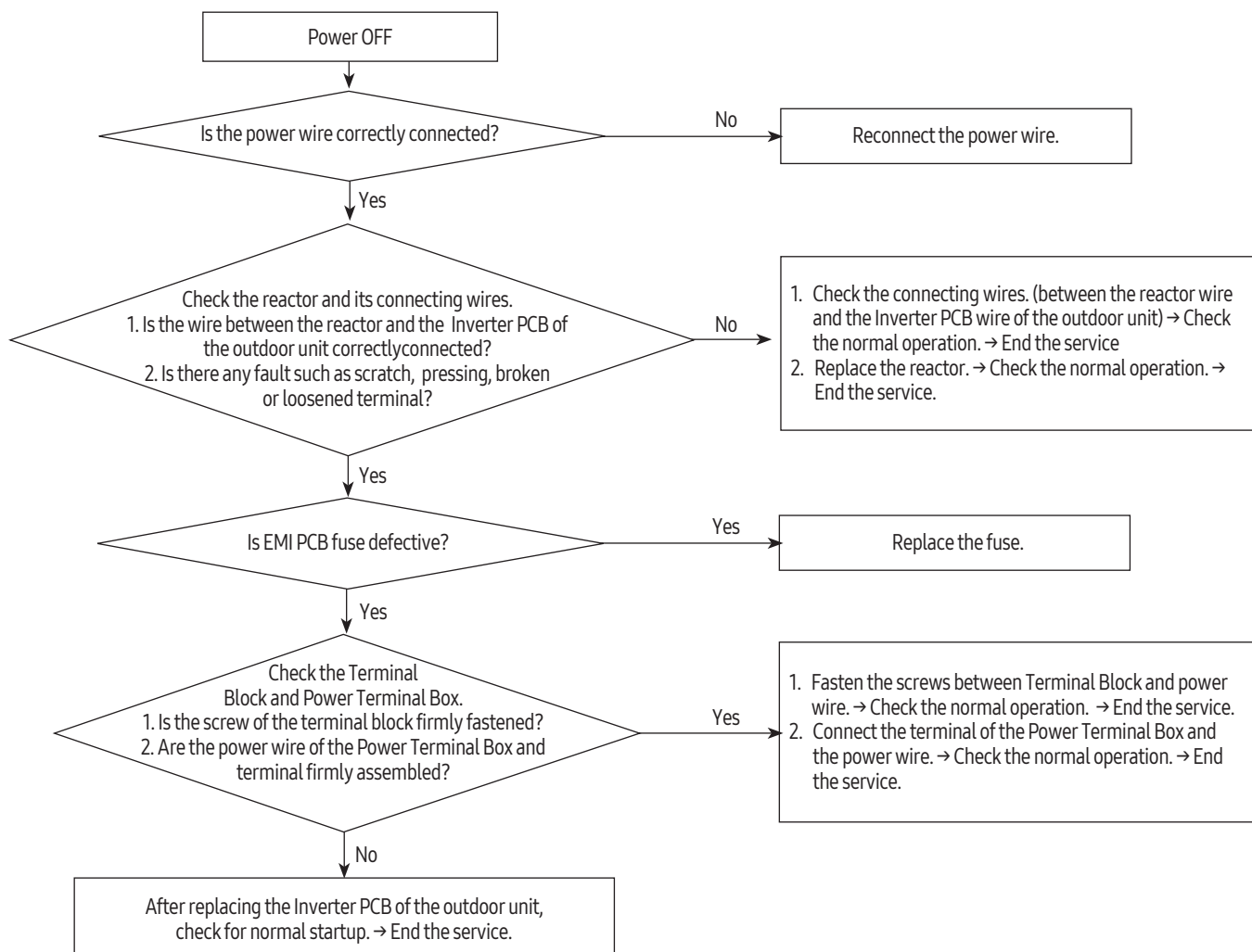
**4-2-19. DC Link voltage under/over error - (E466)
 Overvoltage of H/W detect DC Link error - (E483)
 AC Input voltage sensor error - (E488)**

Outdoor unit display	E466, E483, E488
Judgment Method	Refer to checking method, as shown below.
Cause of problem	

1. Test items

- 1) Check the power connection. / Check the restart after power reset.
 - Is there a fault in input power? (Single phase: 208-230Vac)
 - Does error occur again at operation after power is reset?
- 2) Check the connection of the power, and check whether the jointed power connection exists.
 - After having installed several units, please check that communication wires are not interchanged with piping.
- 3) Check the reactor and its connecting wires.
- 4) Check the fuses of EMI PBA.
- 5) Check the Terminal Block and Power Terminal Box and the wire assembly.

2. Check procedure



4-2-20. Current sensor error - (E468)

Outdoor unit display	<i>E468</i>
Judgment Method	Check power connection. Check Inverter PCB.
Cause of problem	-

4-2-21. DC Link voltage sensor error (Short/Open) - (E469)

Outdoor unit display	<i>E469</i>
Judgment Method	Check the value of DC Link. Check the reactor disconnection.
Cause of problem	DC Link is not normal (DC Link voltage : 264~374V)

4-2-22. Outdoor unit EEPROM Read/Write error (Option) - (E470) Outdoor unit EEPROM Read/Write error (H/W) - (E471)

Outdoor unit display	<i>E470, E471</i>
Judgment Method	<ul style="list-style-type: none"> • Check EEPROM data • Upload EEPROM data corresponding model name to Main PCB.
Cause of problem	No or incorrect EEPROM data in the set.

**4-2-23. IPM(IGBT Module) heat sink error - (E474)
IPM overheat error - (E500)**

Outdoor unit display	<i>E474,E500</i>
Judgment Method	<ul style="list-style-type: none"> • Check if IPM is correctly assembled on the heat sink • Check if the inlet is blocked. • Replace the IPM.
Cause of problem	-

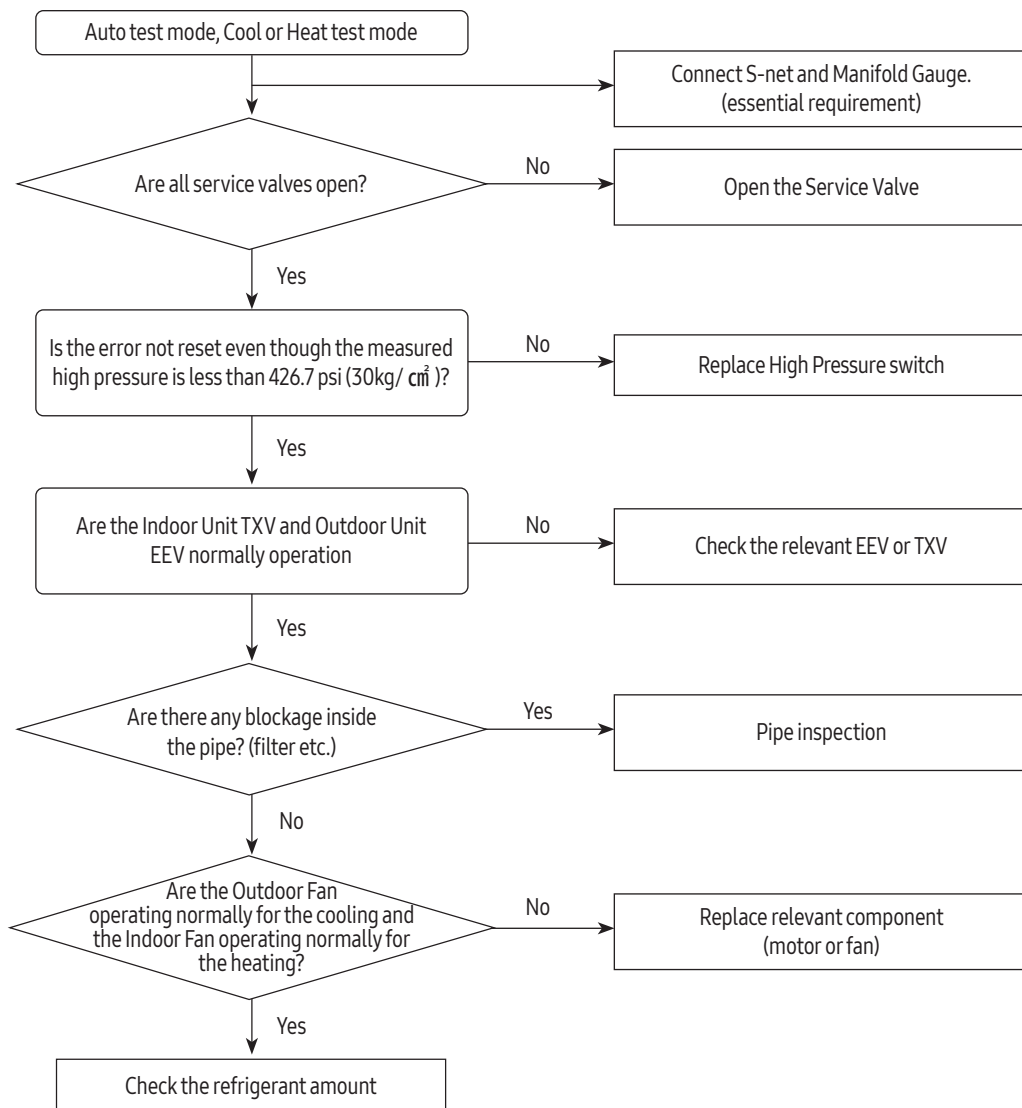
4-2-24. Input current sensor error (Short/Open) - (E485)

Outdoor unit display	<i>E485</i>
Judgment Method	<ul style="list-style-type: none"> • Check the input sensor while the set is in stop status. • If error occurs, turn on/off the power several times. The same error occurs while the power is off, replace the inverter PCB.
Cause of problem	-

4-2-25. Error due to high pressure switch open or compressor down by high pressure - (E507)

Outdoor unit display	E507 (Air Cooled)
Judgment Method	• Value of the high pressure switch is detected at 597.4 psi (42kg/ cm ²) or more
Cause of problem	<p>◀Cooling Operation▶</p> <ul style="list-style-type: none"> • Service valve locked/Excessive refrigerant • Outdoor Unit fan motor problem (constrained, defective) • Outdoor heat exchanger is contaminated <p>◀Heating Operation▶</p> <ul style="list-style-type: none"> • Service valve locked/Excessive refrigerant • Indoor Unit fan motor problem (constrained, defective) • Indoor heat exchanger is contaminated • Simultaneous operation of Heat-Pump and Furnace

1. Cause of problem



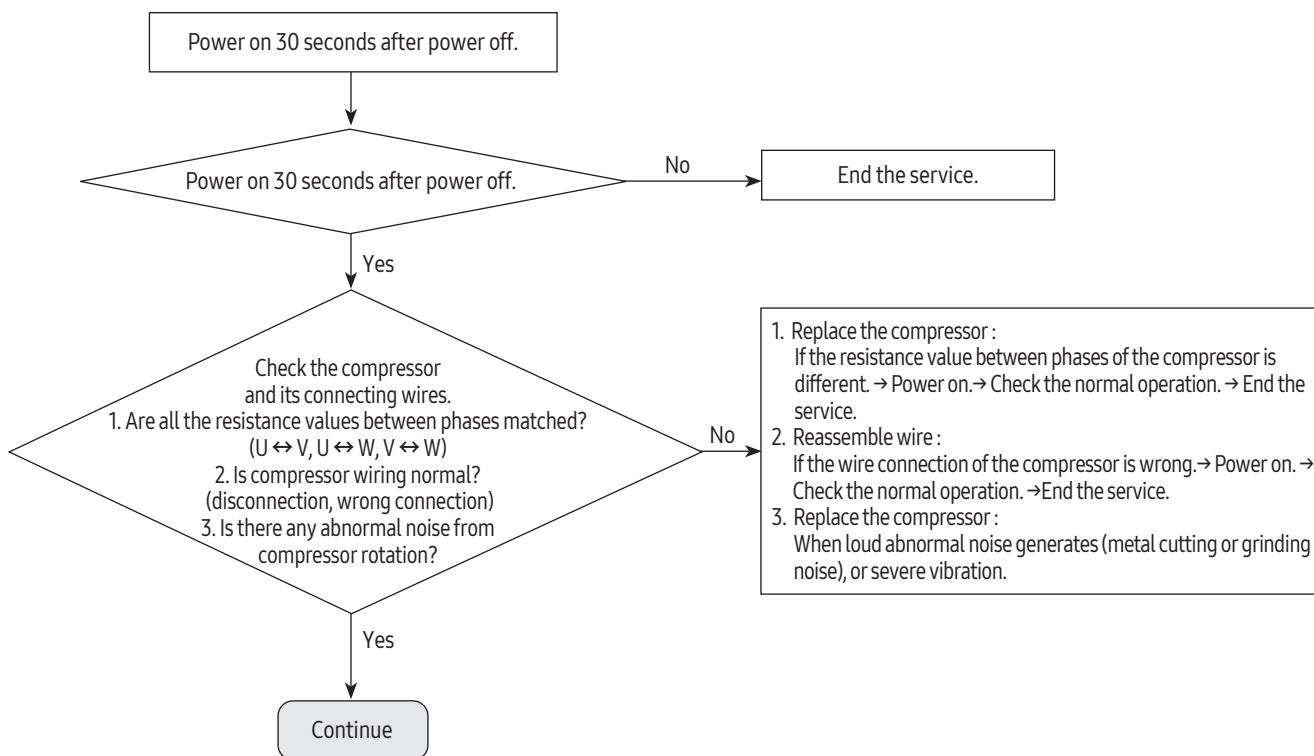
4-4-26. Gas leakage error - (E554)

Outdoor unit display	E554
Judgment Method	<ul style="list-style-type: none"> • Check if the service vavle is open • Check if there's any blockage on the refrigerant pipe. • Check the EEV connection and operation • Check if connecting wire and the pipe are okay. • Check the compressor
Cause of problem	-

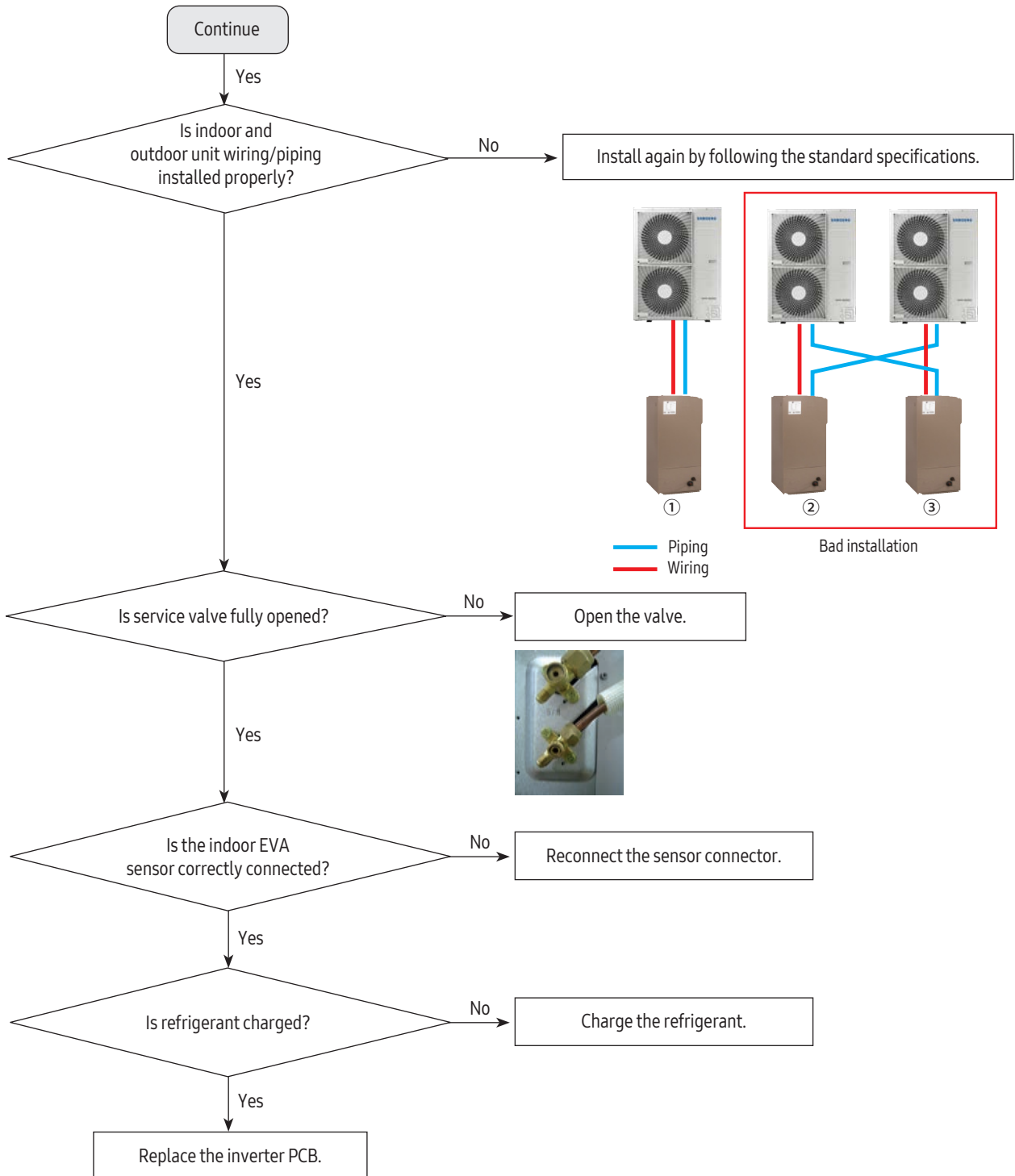
1. Test items

- 1) Check the power connection. / Check the restart after power reset.
 - Is there a fault in input power? (Single phase: 208-230Vac)
 - Does error occur again at operation after power is reset?
- 2) Check the compressor and the state of compressor wire assembling.
- 3) Check the outdoor unit installation environment.
 - Check for disconnection of the wires regarding the Inverter PCB of the outdoor unit and check the installation environment.
 - At the site where several units were installed at the same time, check whether communication wire and pipes have been wrongly connected!

2. Check procedure



Gas leakage error (Error Code : E554) (Cont.)



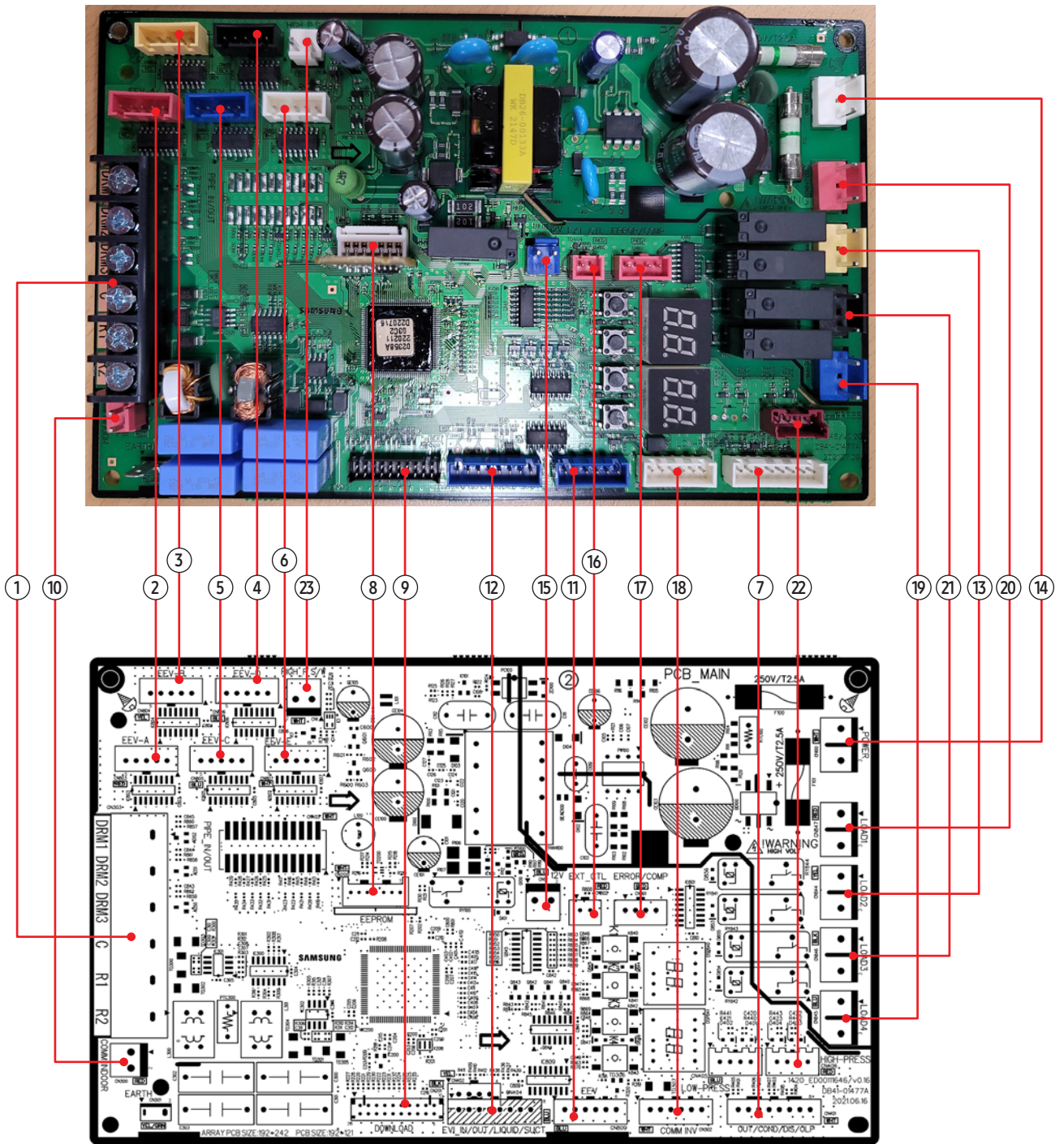
4-2-27. Blockage detected on high pressure pipe during heating operation - (E534)

Outdoor unit display	E534
Judgment Method	<ul style="list-style-type: none"> • Check if the service valve is open • Check if there's any blockage on the refrigerant pipe. • Check the EEV connection and operation • Check if connecting wire and the pipe are okay. • Check the compressor • Check the troubleshooting of E464, E465 as well.
Cause of problem	<p>- Condition : A and (B or C)</p> <p>A: Within 10 mins after operating outdoor unit compressor for heating</p> <p>B : E464 occurs</p> <p>C : E465 occurs</p>

5. PCB Diagram and Parts List

5-1. Outdoor Unit Main PBA

■ PF #4: : AC024/036/048/060BXUPCH, AC036BXUDCH

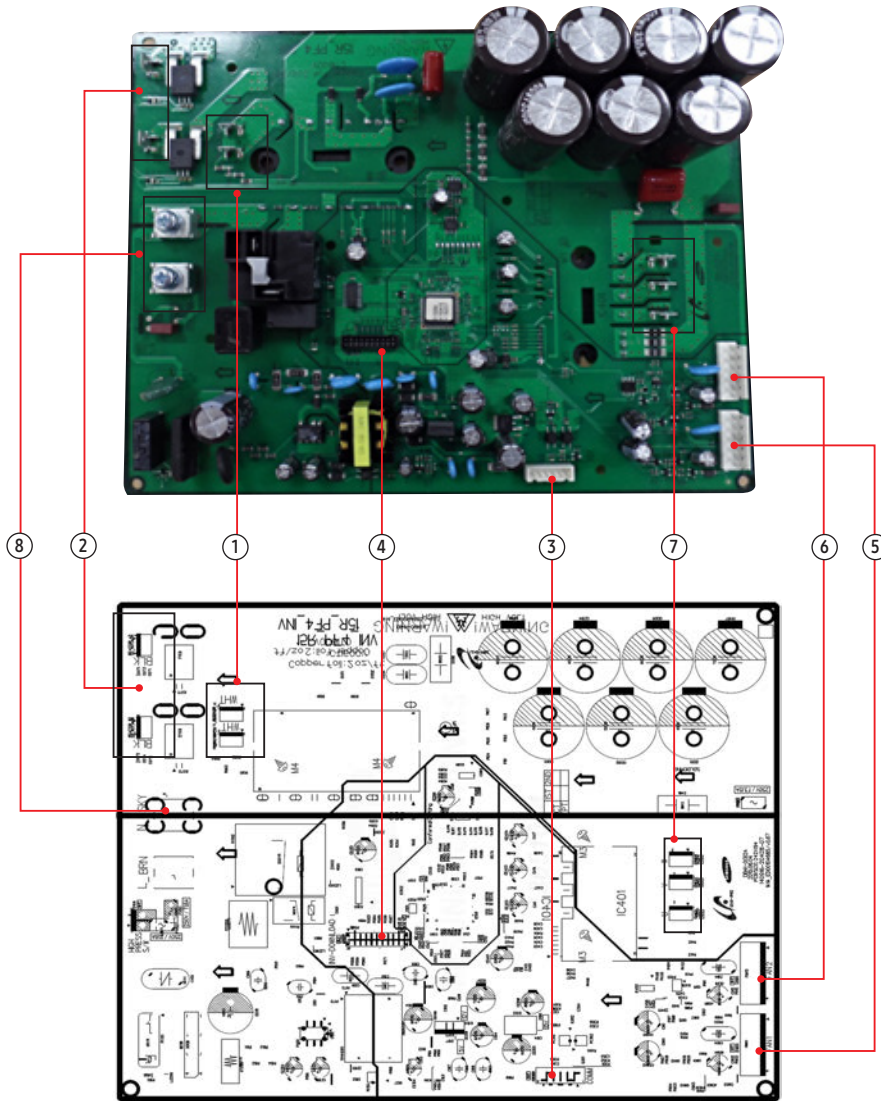


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<p>① CN303 - DRED & UPPER CTRL</p> <p>#1 : DRED SIGNAL(DRM1) #2 : DRED SIGNAL(DRM2) #3 : DRED SIGNAL(DRM3) #4 : GND #5 : R1 #6 : R2</p>	<p>② CN803 - EEV A</p> <p>#1 : EEV 1 SIGNAL #2 : EEV 1 SIGNAL #3 : EEV 1 SIGNAL #4 : EEV 1 SIGNAL #5 : GND</p>	<p>③ CN804 - EEV B</p> <p>#1 : EEV 2 SIGNAL #2 : EEV 2 SIGNAL #3 : EEV 2 SIGNAL #4 : EEV 2 SIGNAL #5 : GND</p>	<p>④ CN806 - EEV D</p> <p>#1 : EEV 4 SIGNAL #2 : EEV 4 SIGNAL #3 : EEV 4 SIGNAL #4 : EEV 4 SIGNAL #5 : GND</p>
<p>⑤ CN805 - MAIN EEV (CAM TYPE)</p> <p>#1 : EEV 3 SIGNAL #2 : EEV 3 SIGNAL #3 : EEV 3 SIGNAL #4 : EEV 3 SIGNAL #5 : GND</p>	<p>⑥ CN807 - EEV E</p> <p>#1 : EEV 5 SIGNAL #2 : EEV 5 SIGNAL #3 : EEV 5 SIGNAL #4 : EEV 5 SIGNAL #5 : GND</p>	<p>⑦ CN401 - TEMPERATURE SENSOR</p> <p>#1 : OUTDOOR TEMPERATURE SENSOR #3 : DISCHARGE TEMPERATURE SENSOR #5 : CONDENSOR TEMPERATURE SENSOR #7 : OLP TEMPERATURE SENSOR #2,4,6,8 : GND</p>	<p>⑧ CN200 - EEPROM</p> <p>#1 : GND #2 : - #3 : 5V #4 : EEPROM SIGNAL #5 : EEPROM SIGNAL #6 : EEPROM SIGNAL #7 : EEPROM SIGNAL</p>
<p>⑨ CN201 - DOWNLOAD</p> <p>#1~20 : DOWNLOAD SIGNAL</p>	<p>⑩ CN300 - ODU ↔ IDU COMMUNICAITON</p> <p>#1 : F1 #2 : F2</p>	<p>⑪ CN809 - MAIN EEV(EDM TYPE)</p> <p>#1 : EEV A SIGNAL #2 : EEV A SIGNAL #3 : EEV A SIGNAL #4 : EEV A SIGNAL #5 : GND</p>	<p>⑫ CN404-SUCTION TEMP. SENSOR</p> <p>#1~6 : - #7 : SUCTION TEMPERATURE SENSOR #8 : GND</p>
<p>⑬ CN844 - 4WAY VALVE</p> <p>#1 : L - RELAY CONTACT OUTPUT #2 : - #3 : N - NEUTRAL POWER OUTPUT</p>	<p>⑭ CN100 - AC POWER INPUT</p> <p>#1 : L - LIVE POWER INPUT #2 : - #3 : N - NEUTRAL POWER INPUT</p>	<p>⑮ CN12 - DC12V</p> <p>#1 : 12V #2 : GND</p>	<p>⑯ CN802 - EXTERNAL CONTROL</p> <p>#1 : GND #2 : EXTERNAL CONTROL INPUT SIGNAL</p>
<p>⑰ CN801 - ERROR CHECK/ COMP CHECK</p> <p>#1 : DC 12V #2 : ERROR CHECK #3 : DC 12V #4 : COMP CHECK</p>	<p>⑱ CN302 - MAIN ↔ INV COMMUNICAITON</p> <p>#1 : TXD #2 : RXD #3 : GND #4 : DC 5V #5 : DC 12V #6 : INV POWER CTRL</p>	<p>⑲ CN845 - BASE HEATER</p> <p>#1 : L - RELAY CONTACT OUTPUT #2 : - #3 : N - NEUTRAL POWER OUTPUT</p>	<p>⑳ CN847 - AC-LOAD</p> <p>#1 : L - RELAY CONTACT OUTPUT #2 : - #3 : N - NEUTRAL POWER OUTPUT</p>
<p>㉑ CN846 - AC-LOAD</p> <p>#1 : L - RELAY CONTACT OUTPUT #2 : - #3 : N - NEUTRAL POWER OUTPUT</p>	<p>㉒ CN406 - HIGH PRESSURE SENSOR</p> <p>#1 : HIGH_PRESSURE #2 : - #3 : GND #4 : 5V</p>	<p>㉓ CN1 - HIGH PRESSURE SWITCH</p> <p>#1 : 5V #2 : GND</p>	

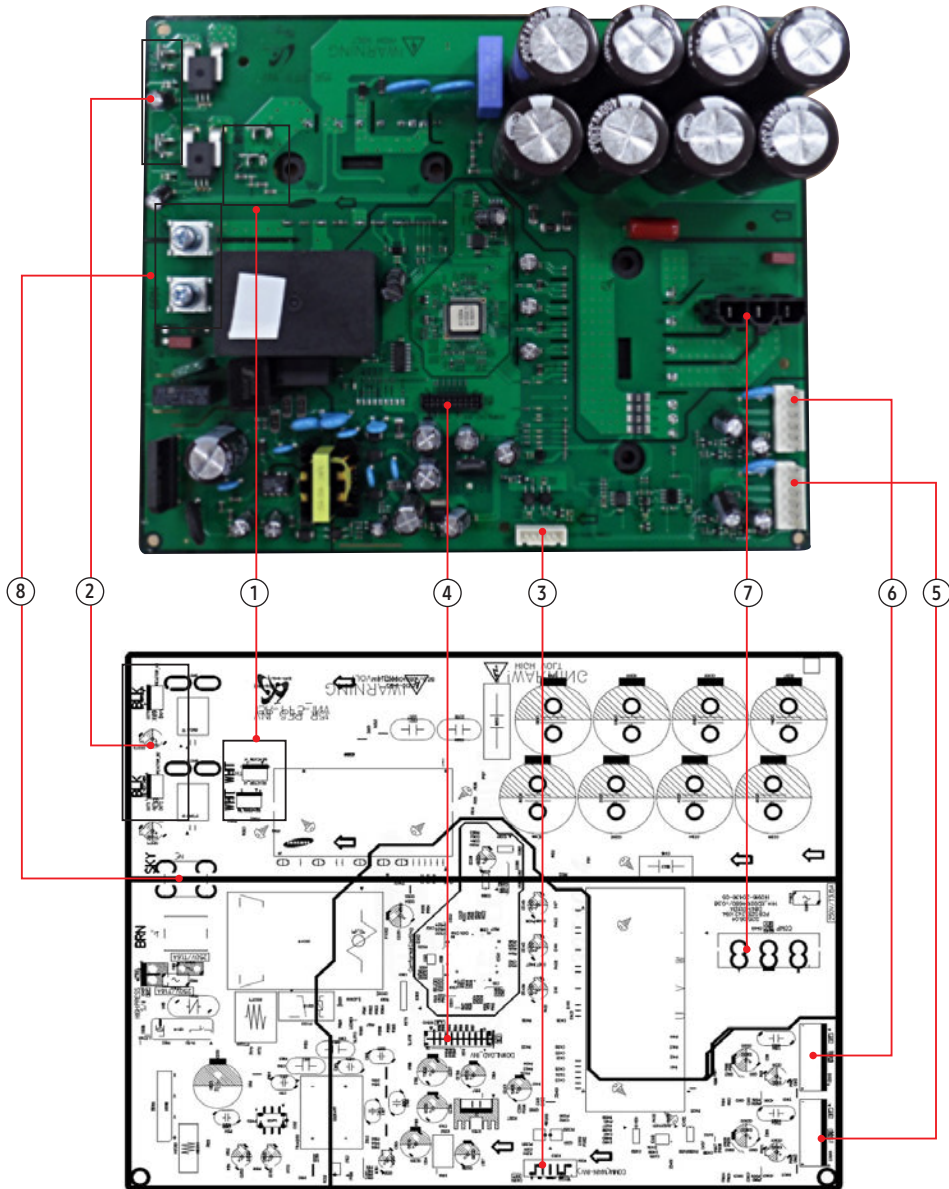
5-2. Outdoor Unit Inverter PBA

■ PF4 : AC024/036BXUPCH, AC036BXUDCH



<p>① REACTOR: A1/B1</p> <p>#REACTOR - A1: WHT #REACTOR - B1: WHT</p>	<p>② REACTOR: A2/B2</p> <p>#REACTOR - A2: BLK #REACTOR - B2: BLK</p>	<p>③ CN351: Main COMM</p> <p>#1: RXD #2: TXD #3: GND #4: DC 5V #5: DC 12V #6: INV, SMPS SIGNAL</p>	<p>④ CN551: DOWNLOAD</p>
<p>⑤ CN901: Fan 1</p> <p>#1: DC 310V #3: GND #4: DC 15V #5: FAN RPM #6: FAN RPM FEEDBACK</p>	<p>⑥ CN911: Fan 2</p> <p>#1: DC 310V #3: GND #4: DC 15V #5: FAN RPM #6: FAN RPM FEEDBACK</p>	<p>⑦ CN401: COMP</p> <p>#1: COMP-U PHASE #2: COMP-V PHASE #3: COMP-W PHASE</p>	<p>⑧ L,N: AC POWER</p> <p>#L_BRN: AC POWER(L)/BRN #N_SKY: AC POWER(N)/SKY</p>

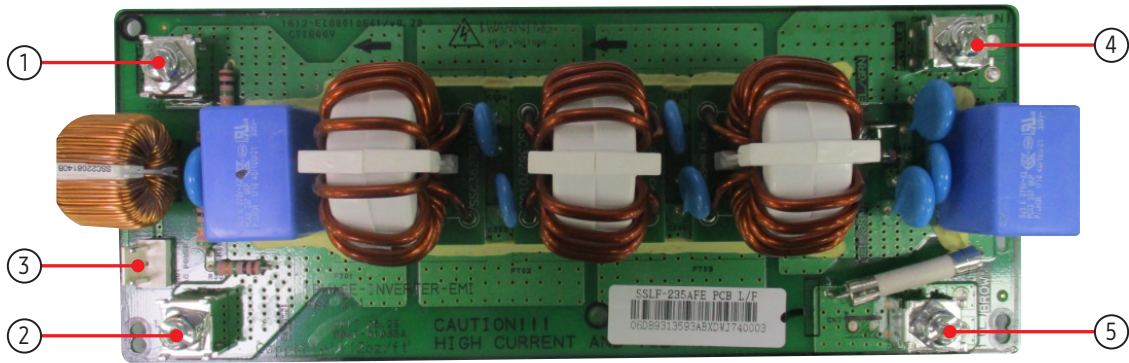
■ PF5 : AC048/060BXUPCH



<p>① REACTOR : A1/B1 #REACTOR - A1 : WHT #REACTOR - B1 : WHT</p>	<p>② REACTOR : A2/B2 #REACTOR - A2 : BLK #REACTOR - B2 : BLK</p>	<p>③ CN351 : Main COMM #1 : RXD #2 : TXD #3 : GND #4 : DC 5V #5 : DC 12V #6 : INV,SMPS SIGNAL</p>	<p>④ CN551 : DOWNLOAD</p>
<p>⑤ CN901 : Fan 1 #1 : DC 310V #3 : GND #4 : DC 15V #5 : FAN RPM #6 : FAN RPM FEEDBACK</p>	<p>⑥ CN911 : Fan 2 #1 : DC 310V #3 : GND #4 : DC 15V #5 : FAN RPM #6 : FAN RPM FEEDBACK</p>	<p>⑦ CN401 : COMP #1 : COMP-U PHASE #2 : COMP-V PHASE #3 : COMP-W PHASE</p>	<p>⑧ L,N : AC POWER #L_BRN : AC POWER(L)/BRN #N_SKY : AC POWER(N)/SKY</p>

5-3. Outdoor Unit EMI PBA

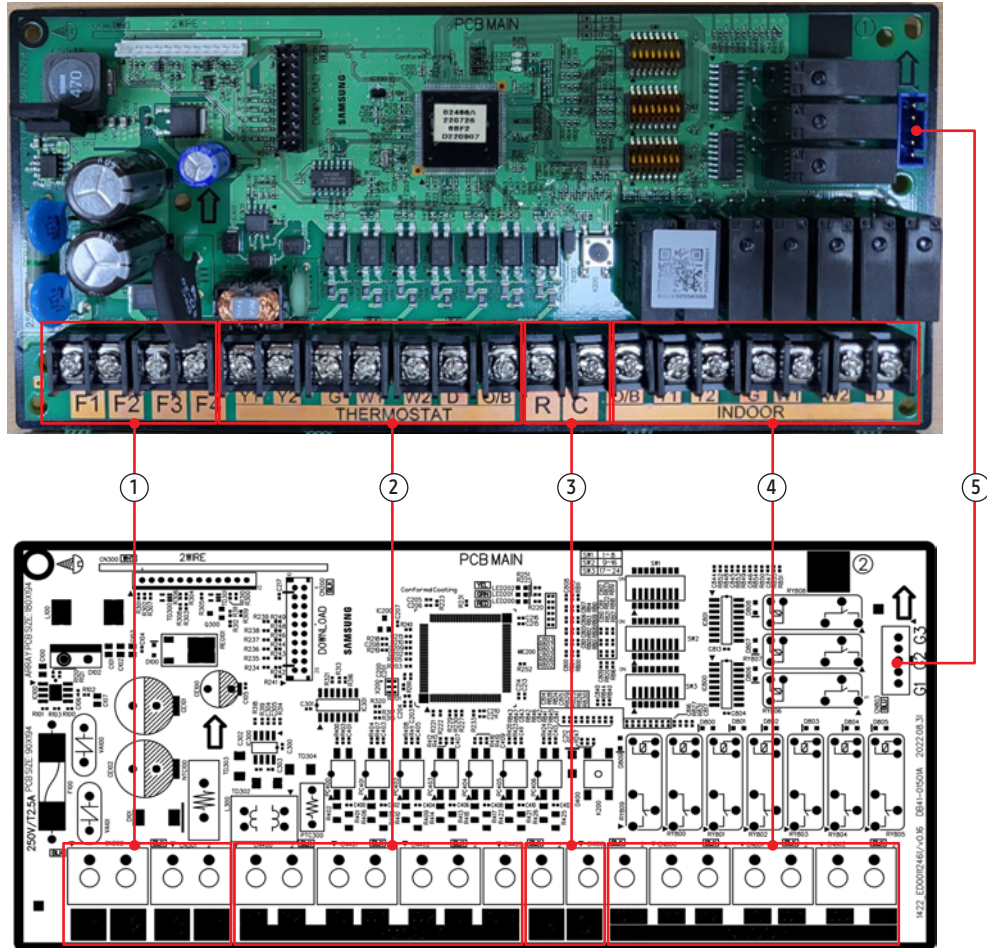
■ AC024/036/048/060BXUPCH, AC036BXUDCH



<p>① N1: AC POWER(N) #1: AC POWER(N)</p>	<p>② L1: AC POWER(L) #1: AC POWER(L)</p>	<p>③ CN01: POWER #1: AC POWER(L) #3: AC POWER(N)</p>	<p>④ CN5: AC POWER(N) #1: AC POWER(N)</p>
<p>⑤ CN4: AC POWER(L) #1: AC POWER(L)</p>			

5-4. AHU Control Unit PBA

■ MXD-U000XN

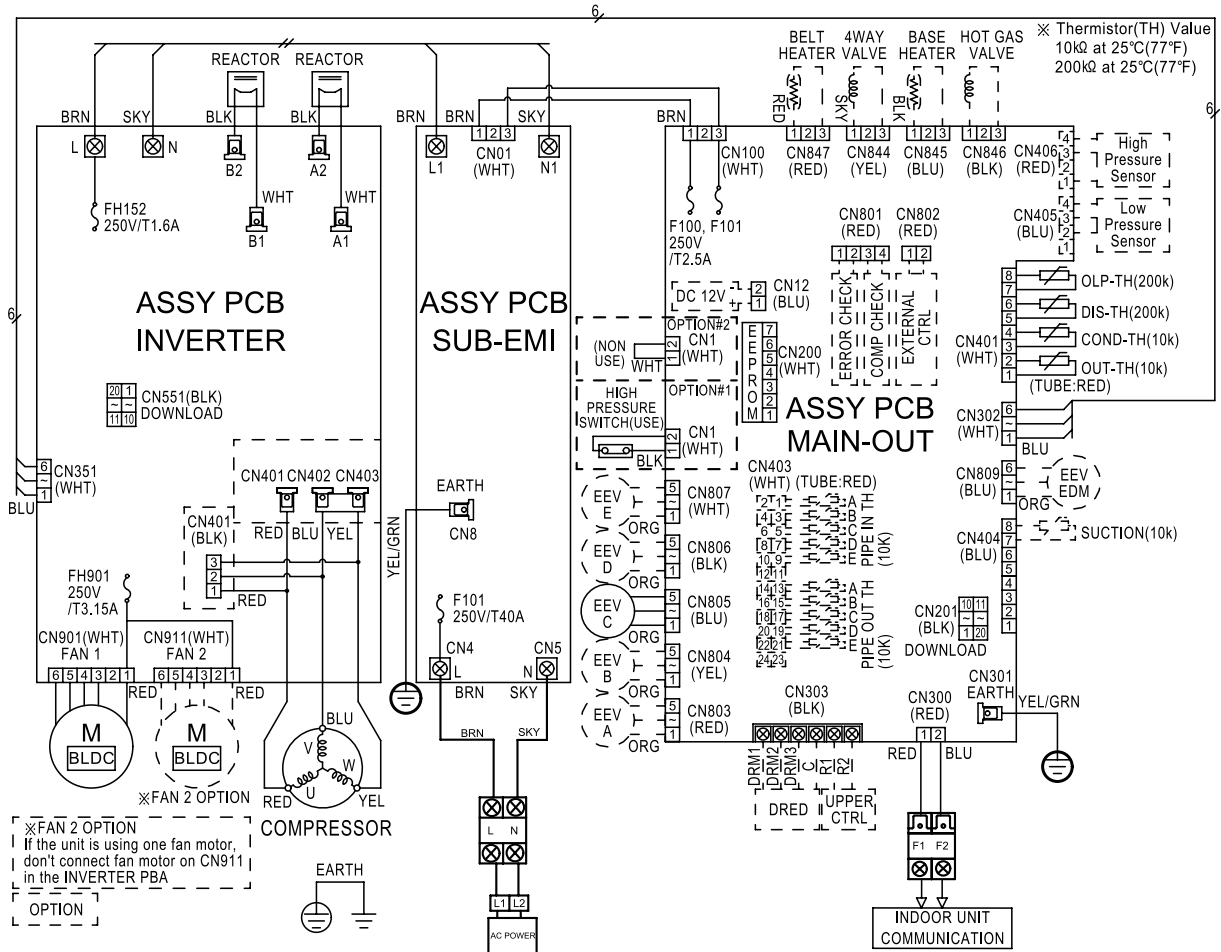


<p>① CN301-302 - COMMUNICATION</p> <p>#301_1 : F3 #301_2 : F4 #302_1 : F1 : ODU ↔ ACU COMMUNICAITON #302_2 : F2 : ODU ↔ ACU COMMUNICAITON</p>	<p>② CN400-403 - THERMOSTATE ↔ ACU</p> <p>#400_1 : Y1 : SIGNAL INPUT(AC24V) #400_2 : Y2 : SIGNAL INPUT(AC24V) #401_1 : G : SIGNAL INPUT(AC24V) #401_2 : W1 : SIGNAL INPUT(AC24V) #402_1 : W2 : SIGNAL INPUT(AC24V) #402_2 : DHUM : SIGNAL INPUT(AC24V) #403_1 : O/B : SIGNAL INPUT(AC24V)</p>	<p>③ CN100, CN403 - AC24V POWER INPUT</p> <p>#403_2 : R : AC24V #100_1 : C : AC24V</p>
<p>④ CN800-802, CN100 - INDOOR ↔ ACU</p> <p>#100_2 : O/B : SIGNAL OUTPUT(AC24V) #800_1 : Y1 : SIGNAL OUTPUT(AC24V) #800_2 : Y2 : SIGNAL OUTPUT(AC24V) #801_1 : G : SIGNAL OUTPUT(AC24V) #801_2 : W1 : SIGNAL OUTPUT(AC24V) #802_1 : W2 : SIGNAL OUTPUT(AC24V) #802_2 : DHUM : SIGNAL OUTPUT(AC24V)</p>	<p>⑤ CN803 - FAN CONTROL</p> <p>#803_1 : G3 : SIGNAL OUTPUT(AC24V) #803_2 : - #803_3 : G2 : SIGNAL OUTPUT(AC24V) #803_4 : - #803_5 : G1 : SIGNAL OUTPUT(AC24V)</p>	

6. Wiring Diagram

6-1. Outdoor Unit

■ Unitary Inverter : AC024/036/048/060BXUPCH, AC036BXUDCH

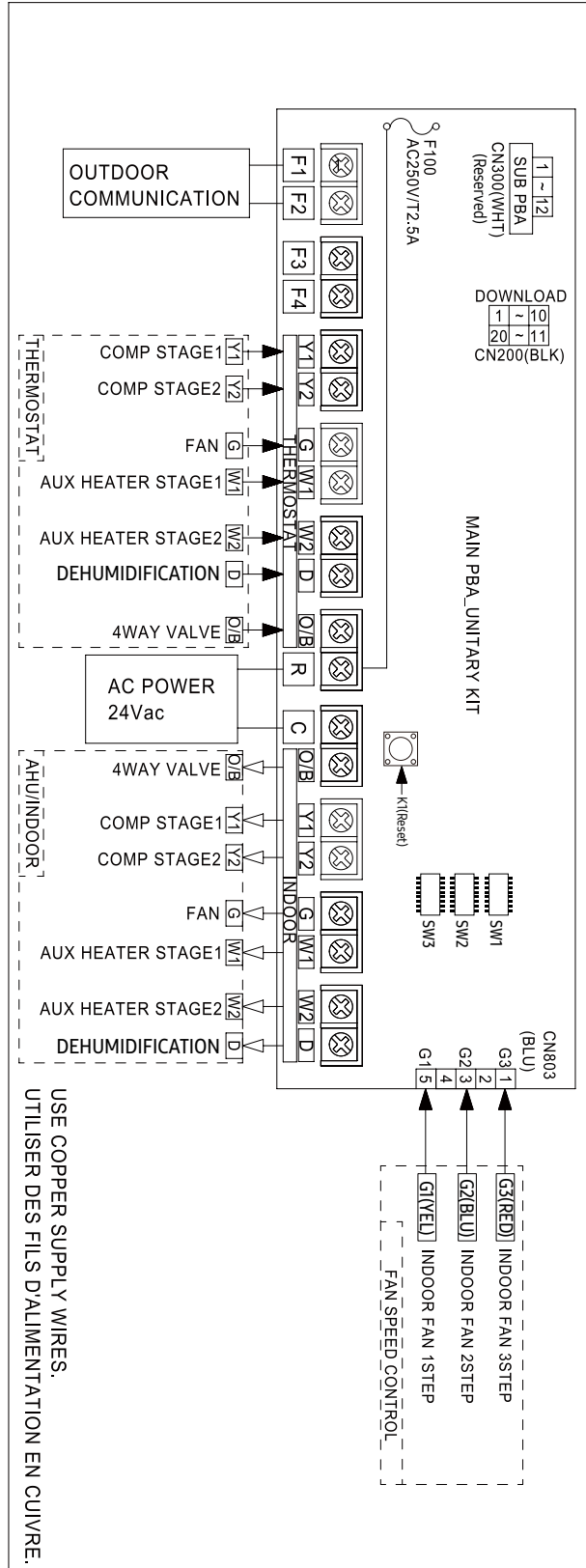


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6-2. AHU Control Unit

■ MXD-U000XN

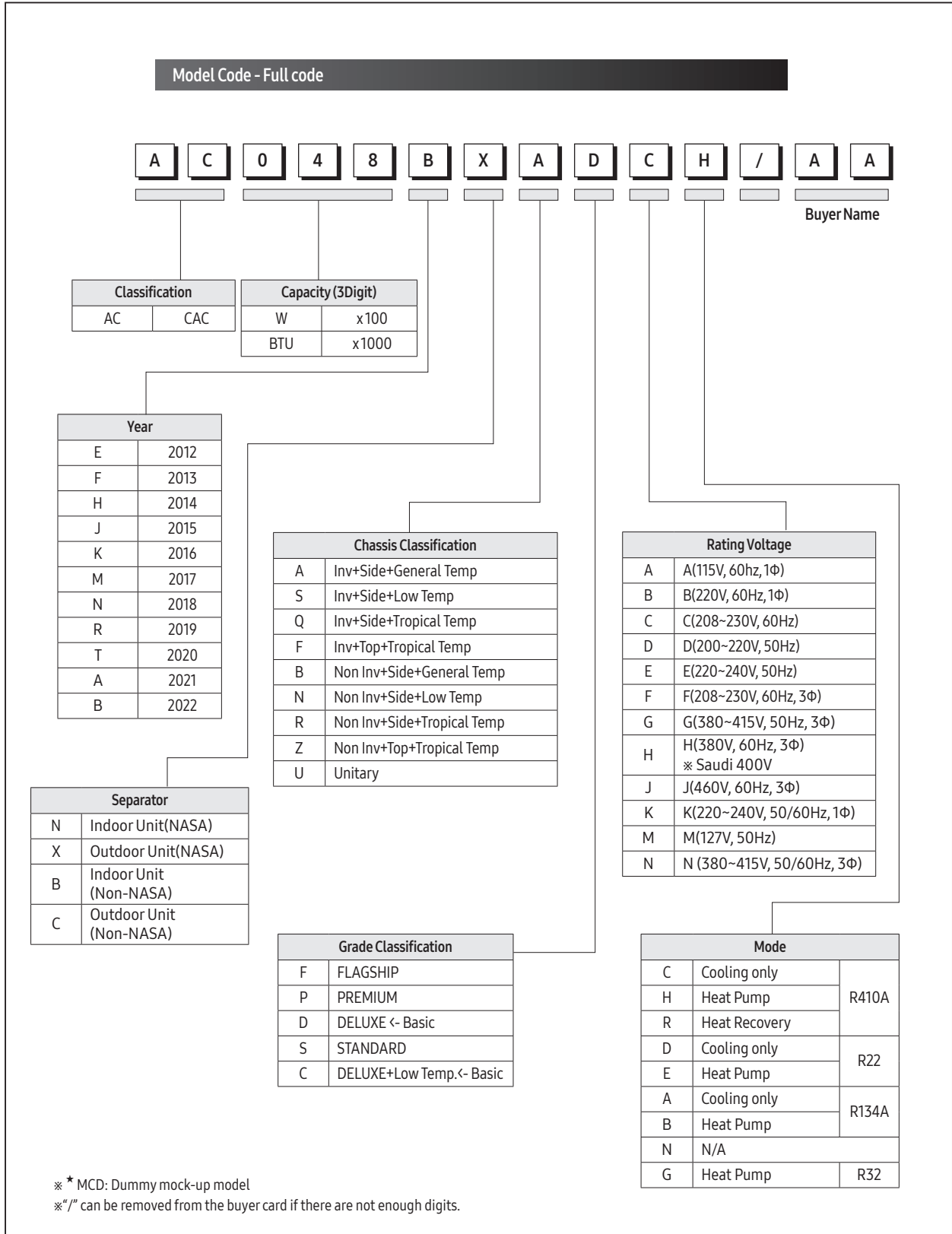


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7. Reference Sheet

7-1. Index for Model Name

7-1-1. Outdoor Unit



Index for Model Name (cont.)

7-1-2. Outdoor Unit

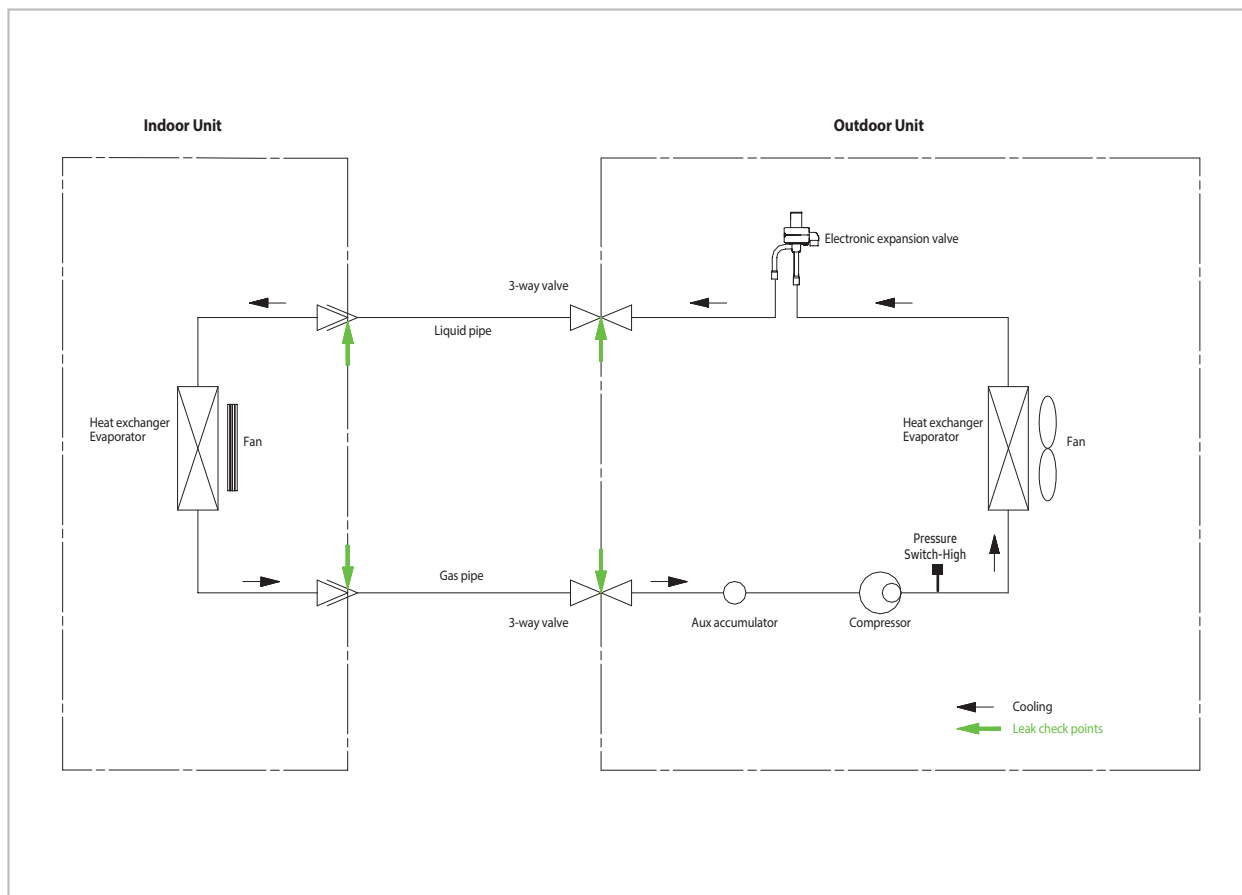
Model Code - Simple US Code

(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	X	H	24	U	P	B
▬	▬	▬	▬	▬	▬	▬

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="2">(1) classification</th></tr> </thead> <tbody> <tr><td style="width: 10%;">C</td><td>CAC</td></tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="2">(2) Product Type</th></tr> </thead> <tbody> <tr><td style="width: 10%;">X</td><td>Outdoor Unit</td></tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="2">(3) Mode</th></tr> </thead> <tbody> <tr><td style="width: 10%;">H</td><td>Heat Pump</td></tr> <tr><td>C</td><td>Cooling only</td></tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="2">(4) Capacity</th></tr> </thead> <tbody> <tr><td style="width: 10%;">x1,000 BTU/H</td></tr> </tbody> </table>	(1) classification		C	CAC	(2) Product Type		X	Outdoor Unit	(3) Mode		H	Heat Pump	C	Cooling only	(4) Capacity		x1,000 BTU/H	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="3">(5) Product notation</th></tr> </thead> <tbody> <tr> <td style="width: 10%;">A</td> <td style="width: 50%;">Inv + Side + General Temp.</td> <td rowspan="3" style="width: 40%; text-align: center; vertical-align: middle;">CAC</td> </tr> <tr> <td>S</td> <td>Inv + Side + Low Temp.</td> </tr> <tr> <td>U</td> <td>Unitary</td> </tr> </tbody> </table>	(5) Product notation			A	Inv + Side + General Temp.	CAC	S	Inv + Side + Low Temp.	U	Unitary	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="2">(6) Feature</th></tr> </thead> <tbody> <tr><td style="width: 10%;">F</td><td>Flagship</td></tr> <tr><td>S</td><td>Standard</td></tr> <tr><td>D</td><td>Deluxe</td></tr> <tr><td>P</td><td>Premium</td></tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="2">(7) Version</th></tr> </thead> <tbody> <tr><td style="width: 10%;">R</td><td>2019</td></tr> <tr><td>T</td><td>2020</td></tr> <tr><td>A</td><td>2021</td></tr> <tr><td>B</td><td>2022</td></tr> </tbody> </table>	(6) Feature		F	Flagship	S	Standard	D	Deluxe	P	Premium	(7) Version		R	2019	T	2020	A	2021	B	2022
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R	2019																																																
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A	2021																																																
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※ Model name for the column/bundle packaging is “-S”.

7-2. Refrigerating Cycle Diagram



■ CONDENSER

High temperature and high pressure gas state refrigerant discharged from the compressor is converted to a liquid state as it is cooled down by the heat emission in the outdoor condenser unit, and sent to the evaporator.

■ COMPRESSOR

Low temperature and low pressure refrigerant is compressed and sent to the cycling system.

■ EVAPORATOR

Liquid refrigerant sucked in through the capillary tubes cools down the room by absorbing the surrounding heat as it evaporates (converting from liquid to gas). (Absorbing heat required for evaporation)

■ SERVICE VALVE

You can open the valve by turning the need valve counterclockwise using hex wrench, and it is used for vacuum, gas purging, refrigerant injection, refrigerant purging, and indoor-outdoor unit connection.

■ ACCUMULATOR

Accumulator prevents the flow of liquid-state refrigerant into the compressor. (Liquid-state refrigerant flowing into the compressor will overload the compressor.)



GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, Middle East & Africa	https://gspn1.samsungcsportal.com
East Asia, West Asia	https://gspn2.samsungcsportal.com
North America	https://gspn3.samsungcsportal.com
China	https://gspn4.samsung.com.cn
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