TADIRAN

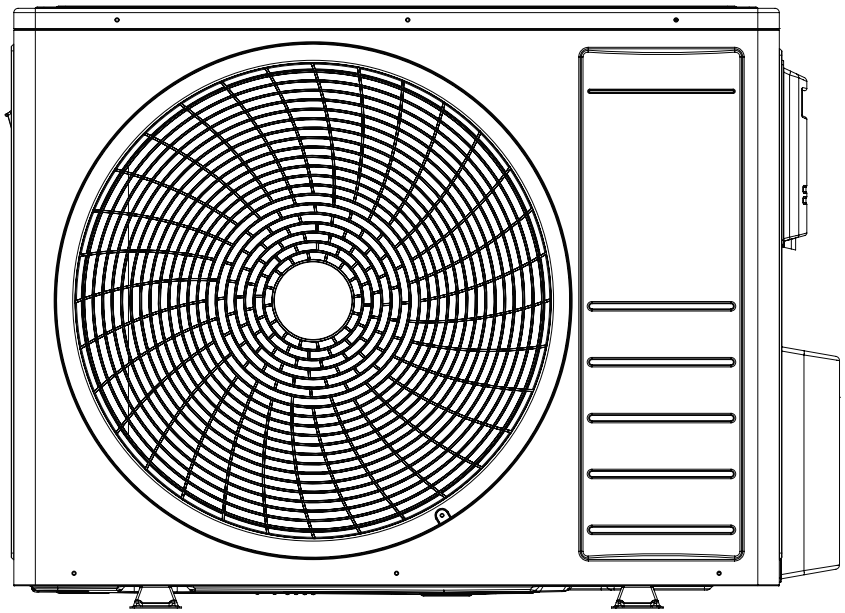
SERVICE MANUAL

MODELS:
SUV2-H18/1CFA-N
SUV3-H24/1CGA-N
SUV4-H28/1CGA-N
SUV4-H36/1CKA-N
SUV5-H42/1CKA-N
(Refrigerant R410A)

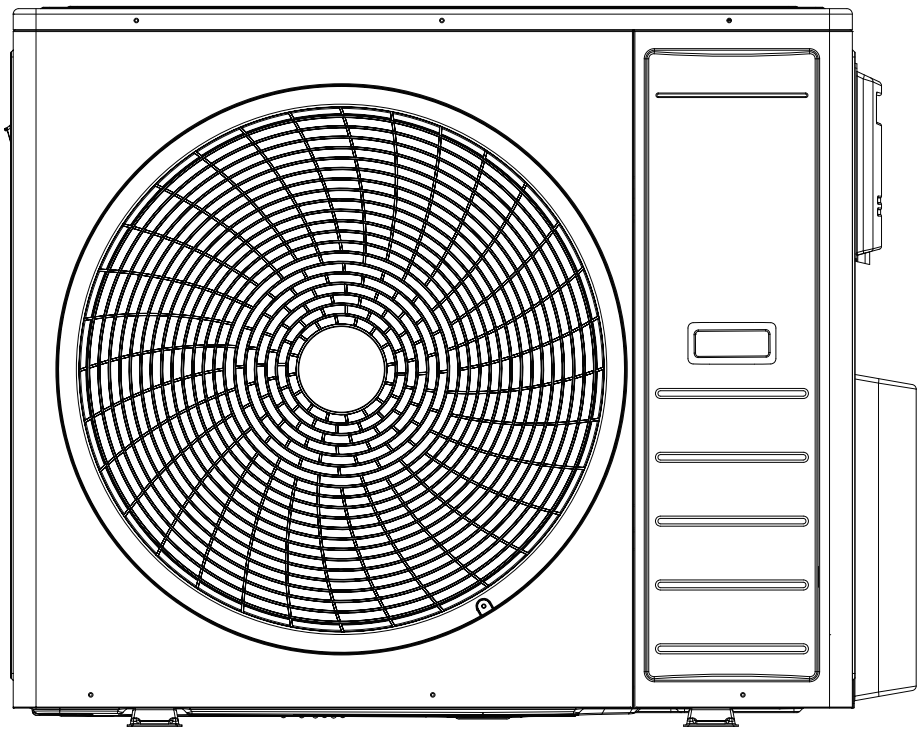
CONTENT

Summary and Features

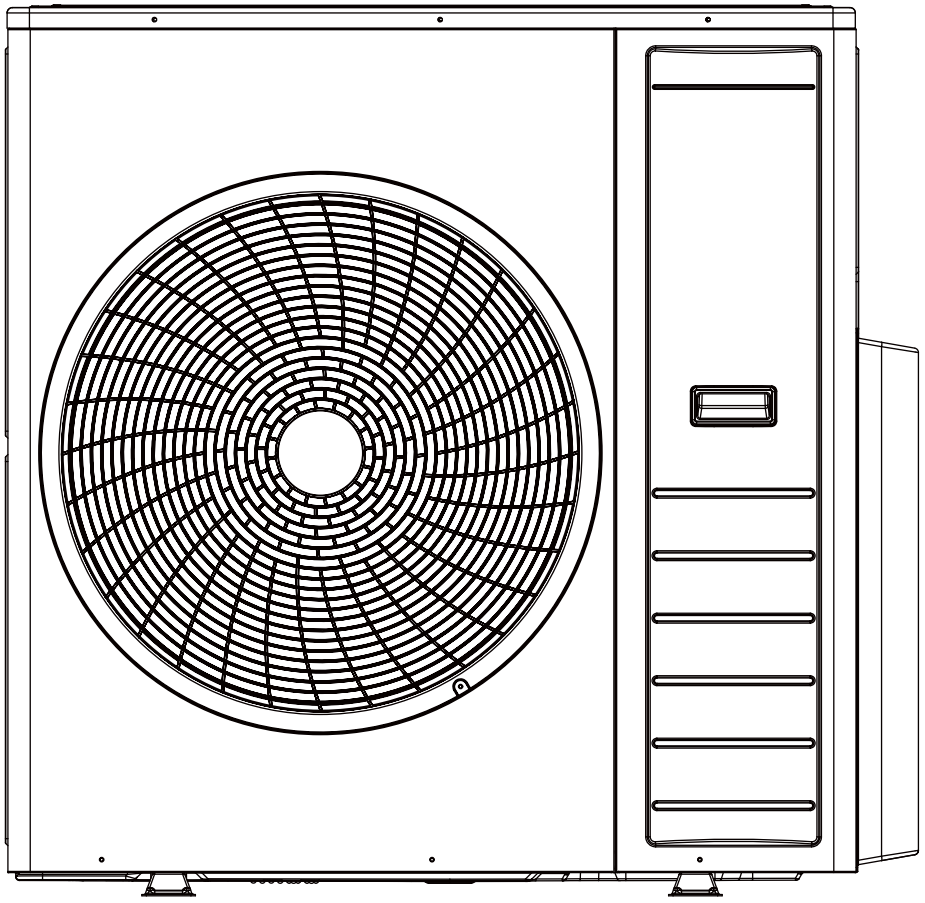
Outdoor Unit



SUV2-H18/1CFA-N



SUV3-H24/1CGA-N、SUV4-H28/1CGA-N



SUV4-H36/1CKA-N、SUV5-H42/1CKA-N

1. Safety Precautions

Installing, starting up, and servicing air conditioner can behazardous due to system pressure, electrical components, and equipment location, etc.Only trained, qualified installers and service personnel areallowed to install, start-up, and service this equipment.Untrained personnel can perform basic maintenance fun-ctions such as cleaning coils. All other operations should be performed by trained service personnel.When handling the equipment, observe precautions in themanual and on tags, stickers, and labels attached to theequipment. Follow all safety codes. Wear safety glasses andwork gloves. Keep quenching cloth and fire extinguisher nearby when brazing.Read the instructions thoroughly and follow all warnings orcautions in literature and attached to the unit. Consult localbuilding codes and current editions of national as well as local electrical codes.

Recognize the following safety information:

⚠ Warning

Incorrect handling could result inpersonal injury or death.

⚠ Caution

Incorrect handling may result inminor injury,or damage to product or property.

- ◆ Make sure the outdoor unit is installed on a stable, level surface with no accumulation of snow, leaves, or trash beside.
- ◆ Make sure the ceiling/wall is strong enough to bear the weight of the unit.
- ◆ Make sure the noise of the outdoor unit does not disturb neighbors.
- ◆ Follow all the installation instructions to minimize the risk of damage from earth quakes, typhoons or strong winds.
- ◆ Avoid contact between refrigerant and fire as it generate spoisonous gas.
- ◆ Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture and other hazards.
- ◆ Make sure no refrigerant gas is leaking out when installation is completed.
- ◆ Should there be refrigerant leakage, the density of refrigerant in the air shall in no way exceed its limited value, or it may lead to explosion.
- ◆ Keep your fingers and clothing away from any moving parts.
- ◆ Clear the site after installation. Make sure no foreign objects are left in the unit.
- ◆ Always ensure effective grounding for the unit.

⚠ Warning

All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

□efore installing, modifying, or servicing system, mainelectrical disconnect switch must be in the OFF position. □here may be more than □ disconnect switch. □ock out and tag switch with a suitable warning label.

Never supply power to the unit unless all wiring and tubing are completed, reconnected and checked.

□his system adopts highly dangerous electrical voltage. Incorrect connection or inadequate grounding can cause personal injury or death. Stick to the wiring diagram and all the instructions when wiring.

□ave the unit adequately grounded in accordance with local electrical codes.

□ave all wiring connected tightly. □oose connection may lead to overheating and a possible fire hazard.

All installation or repair work shall be performed by your dealer or a specialized subcontractor as there is the risk of fire, electric shock, explosion or injury.

⚠ Caution

Never install the unit in a place where a combustible gas might leak, or it may lead to fire or explosion.

Make a proper provision against noise when the unit is installed at a telecommunication center or hospital.

□rovide an electric leak breaker when it is installed in a watery place.

Never wash the unit with water.

□andle unit transportation with care. □he unit should not be carried by only one person if it is more than □□kg.

Never touch the heat exchanger fins with bare hands.

Never touch the compressor or refrigerant piping without wearing glove.

□o not have the unit operate without air filter.

Should any emergency occur, stop the unit and disconnect the power immediately.

□roperly insulate any tubing running inside the room to prevent the water from damaging the wall.

2. Specifications

2.1 Unit Specifications

Model	—	**SUV2-H18/1CFA-N**	**SUV3-H24/1CGA-N**
Product Code	—	KEJ001W0011	KEJ001W0021
Cooling Capacity	KW	5.2(2.1 ～ 5.9)	7(2.3 ～ 8.45)
Heating Capacity	KW	5.2(2.55 ～ 5.95)	7(3.5 ～ 8.6)
EER	W/W	3.47	3.41
COP	W/W	3.71	3.63
SEER		6.10	6.10
SCOP(Average)		4.00	4.00
Energy Class		A++/A+	A++/A+
Sound Pressure Level	dB(A)	54	55
Sound Power Level	dB(A)	63	68
Rated Voltage	V	220-240	220-240
Rated Frequency	Hz	50	50
Phases		1	1
Min/Max. Voltage	V~	184/264	184/264
Cross-sectional Area of Power Cable Conductor	mm2	1.50	2.50
Recommended Power Cable(Core)		3	3
Fuse Current	A	16	25
Cooling Power Input	KW	1.5(0.56 ～ 1.59)	2.05(1.05 ～ 2.85)
Heating Power Input	KW	1.4(0.8 ～ 1.8)	1.93(0.95 ～ 2.8)
Cooling Rated Power Input	KW	2.45	3.40
Heating Rated Power Input	KW	2.30	3.30
Cooling Current Input	A	6.59(2.46 ～ 6.98)	9.22(4.6 ～ 2.5)
Heating Current Input	A	6.13(3.49 ～ 7.88)	9.22(4.18 ～ 12.32)
Cooling Rated Current Input	A	10.87	15.08
Heating Rated Current Input	A	10.20	14.64
Compressor Trademark		MITSUBISHI	MITSUBISHI
Compressor Manufacturer		MITSUBISHI ELECTRIC(GUANGZHOU) COMPRESSOR CO.,LTD	MITSUBISHI ELECTRIC(GUANGZHOU) COMPRESSOR CO.,LTD
Compressor Model		SNB140FCAMC	TNB220FFEMC
Compressor Type1		Inverter Rotary	Inverter Rotary
Compressor Capacity	W	4380	6940
Compressor Power Input	W	1300	2150
Compressor Rated Load Amp (RLA)	A	4.4	8.7
Compressor Locked Rotor Amp (L.R.A)	A	15.5	49
Compressor Thermal Protector		/	"1NT11L-6578 KSD115℃ HPC115/95U1"
Compressor Crankcase	W	20	23
Chassis Electrical Heater Power Input	W	72	96
Chassis Electrical Heater Current	A	0.32	0.4

Model	-	**SUV2-H18/1CFA-N**	**SUV3-H24/1CGA-N**
Fan Type		**Axial-flow**	**Axial-flow**
Fan Diameter-height	mm	522-140	550-124
Fan Diameter-height	inch	20.6-5.5	21.6-4.9
Motor Model		SGW60M-ZL	SGW120M-ZL
Motor Type		DC motor	DC motor
Motor Insulation Class		E	E
Motor Safe Class		IP44	IP44
Motor Full Load Amp(FLA)	A	1.03	0.96
Fan Motor Type		DC motor	DC motor
Fan Motor Speed	rpm	750	750
Fan Motor Power Output	W	60	120
Fan Motor Power Input	W	85	145
Condenser Material		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
Condenser Face Area	m2	0.55	0.73
Condenser Pipe Diameter	mm	φ7	φ7
Condenser Number of Rows		2	2
Condenser Tube Pitch(a)×Row Pitch(b)	mm	22×19.05	22×19.05
Condenser Fin Pitch	mm	1.4	1.4
Condenser Length(L) × Height(H) × Width(W)	mm	840×660×38.1	970×748×38.1
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
Cooling Operation Ambient Temperature Range	℃	-15~55	-15~55
Heating Operation Ambient Temperature Range	℃	-20 ～ 30	-20~30
Maximum drive IDU NO.	unit	2	3
Defrosting Method		Automatic Defrosting	Automatic Defrosting
Isolation		I	I
Moisture Protection		IP24	IP24
Overload Protector		/	/
Climate Type		T1	T1
Refrigerant		R410A	R410A
Refrigerant Charge	kg	1.40	1.90
Throttling Method		Electron expansion valve	Electron expansion valve
Dimension of Outline(W)	mm	960	990
Dimension of Outline(D)	mm	396	426
Dimension of Outline(H)	▪	700	790
Connection Pipe Max. Height Distance(indoor and indoor)	m	5	5
Max. equivalent connection pipe length(outdoor to last indoor)	m	10	20
Connection Pipe Max. Length Distance(total lenght)	m	20	60

Model	—	**SUV4-H28/1CGA-N**	**SUV4-H36/1CKA-N**
Product Code	—	KEJ001W0060	KEJ001W0140
Cooling Capacity	KW	8.2（2.3～10.55）	10.50
Heating Capacity	KW	8.2（4.1～10.7）	10.50
EER	W/W	3.57	2.92
COP	W/W	3.90	3.28
SEER		6.10	6.10
SCOP(Average)		4.00	4.00
Energy Class		A++/A+	A++/A+
Sound Pressure Level	dB(A)	55	58
Sound Power Level	dB(A)	68	68
Rated Voltage	V	220-240	220-240
Rated Frequency	Hz	50	50
Phases		1	1
Min/Max. Voltage	V~	184/264	184/264
Cross-sectional Area of Power Cable Conductor	mm2	2.50	4.00
Recommended Power Cable(Core)		3	3
Fuse Current	A	25	32
Cooling Power Input	KW	2.30	3.60
Heating Power Input	KW	2.10	3.20
Cooling Rated Power Input	KW	3.60	4.80
Heating Rated Power Input	KW	3.40	4.60
Cooling Current Input	A	10.20	15.81
Heating Current Input	A	9.32	14.05
Cooling Rated Current Input	A	15.97	21.08
Heating Rated Current Input	A	15.08	20.41
Compressor Trademark		MITSUBISHI	MITSUBISHI
Compressor Manufacturer		MITSUBISHI ELECTRIC(GUANGZHOU) COMPRESSOR CO.,LTD	MITSUBISHI ELECTRIC(GUANGZHOU) COMPRESSOR CO.,LTD
Compressor Model		TNB220FFEMC	TNB306FPGMC
Compressor Type1		Inverter Rotary	Inverter Rotary
Compressor Capacity	W	6940	9880
Compressor Power Input	W	2150	3010
Compressor Rated Load Amp (RLA)	A	8.7	13.5
Compressor Locked Rotor Amp (L.R.A)	A	49	67
Compressor Thermal Protector		"1NT11L-6578 KSD115℃ HPC115/95U1"	Outlay CS-7C-1595
Compressor Crankcase	W	23	27
Chassis Electrical Heater Power Input	W	96	96
Chassis Electrical Heater Current	A	0.4	0.4

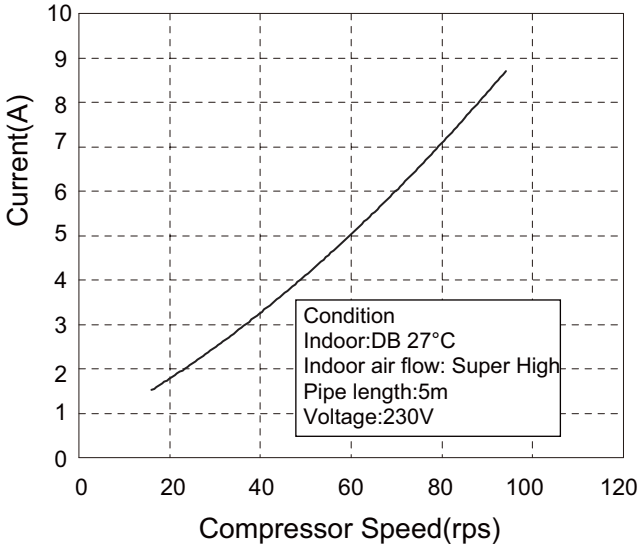
Model	-	**SUV4-H28/1CGA-N**	**SUV4-H36/1CKA-N**
Fan Type		**Axial-flow**	**Axial-flow**
Fan Diameter-height	mm	550-124	570-137
Fan Diameter-height	inch	21.6-4.9	21.6-4.9
Motor Model		SGW120M-ZL	SGW120M-ZL
Motor Type		DC motor	DC motor
Motor Insulation Class		E	E
Motor Safe Class		IP44	IP44
Motor Full Load Amp(FLA)	A	0.96	0.96
Fan Motor Type		DC motor	DC motor
Fan Motor Speed	rpm	750	840
Fan Motor Power Output	W	120	120
Fan Motor Power Input	W	145	165
Condenser Material		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
Condenser Face Area	m2	0.73	0.915
Condenser Pipe Diameter	mm	φ7	φ8
Condenser Number of Rows		2.5	2.5
Condenser Tube Pitch(a)×Row Pitch(b)	mm	22×19.05	22×19.05
Condenser Fin Pitch	mm	1.4	1.40
Condenser Length(L) × Height(H) × Width(W)	mm	990×790×38.1	945×968×38.1
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
Cooling Operation Ambient Temperature Range	℃	-15~55	-15~55
Heating Operation Ambient Temperature Range	℃	-20~30	-20~30
Maximum drive IDU NO.	unit	4	4
Defrosting Method		Automatic Defrosting	Automatic Defrosting
Isolation		I	I
Moisture Protection		IP24	IP24
Overload Protector		/	/
Climate Type		T1	T1
Refrigerant		R410A	R410A
Refrigerant Charge	kg	2.40	3.90
Throttling Method		Electron expansion valve	Electron expansion valve
Dimension of Outline(W)	mm	990	1020
Dimension of Outline(D)	mm	426	396
Dimension of Outline(H)	▪	790	998
Connection Pipe Max. Height Distance(indoor and indoor)	m	5	7.5
Max. equivalent connection pipe length(outdoor to last indoor)	m	20	25
Connection Pipe Max. Length Distance(total lenght)	m	70	70

Model	—	**SUV5-H42/1CKA-N**
Product Code	—	KEJ001W0150
Cooling Capacity	KW	12.10
Heating Capacity	KW	12.10
EER	W/W	2.69
COP	W/W	2.88
SEER		5.60
SCOP(Average)		4.00
Energy Class		A+/A+
Sound Pressure Level	dB(A)	58
Sound Power Level	dB(A)	68
Rated Voltage	V	220-240
Rated Frequency	Hz	50
Phases		1
Min/Max. Voltage	V~	184/264
Cross-sectional Area of Power Cable Conductor	mm2	4.00
Recommended Power Cable(Core)		3
Fuse Current	A	32
Cooling Power Input	KW	4.50
Heating Power Input	KW	4.20
Cooling Rated Power Input	KW	5.20
Heating Rated Power Input	KW	5.00
Cooling Current Input	A	19.76
Heating Current Input	A	18.45
Cooling Rated Current Input	A	22.84
Heating Rated Current Input	A	22.18
Compressor Trademark		MITSUBISHI
Compressor Manufacturer		MITSUBISHI ELECTRIC(GUANGZHOU) COMPRESSOR CO.,LTD
Compressor Model		TNB306FPGMC
Compressor Type1		Inverter Rotary
Compressor Capacity	W	9880
Compressor Power Input	W	3010
Compressor Rated Load Amp (RLA)	A	13.5
Compressor Locked Rotor Amp (L.R.A)	A	67
Compressor Thermal Protector		Outlay CS-7C-1595
Compressor Crankcase	W	27
Chassis Electrical Heater Power Input	W	96
Chassis Electrical Heater Current	A	0.4

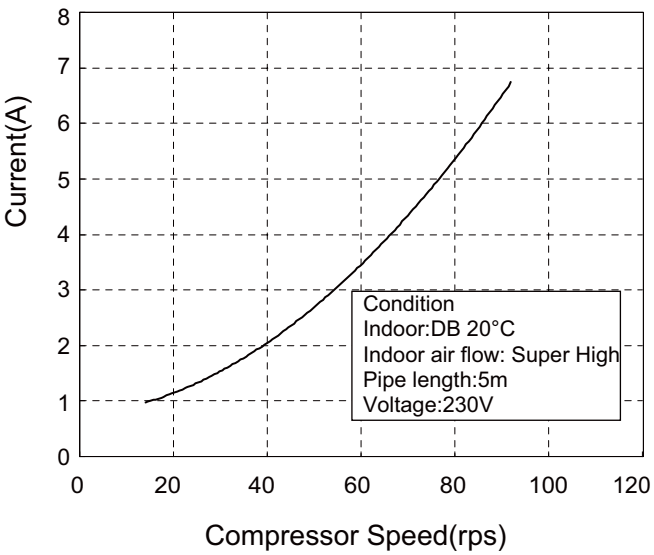
Model	-	**SUV5-H42/1CKA-N**
Fan Type		**Axial-flow**
Fan Diameter-height	mm	570 ─ 137
Fan Diameter-height	inch	21.6-4.9
Motor Model		SGW120M-ZL
Motor Type		DC motor
Motor Insulation Class		E
Motor Safe Class		IP44
Motor Full Load Amp(FLA)	A	0.96
Fan Motor Type		DC motor
Fan Motor Speed	rpm	840
Fan Motor Power Output	W	120
Fan Motor Power Input	W	165
Condenser Material		Aluminum Fin-copper Tube
Condenser Face Area	m2	0.915
Condenser Pipe Diameter	mm	φ8
Condenser Number of Rows		2.5
Condenser Tube Pitch(a)×Row Pitch(b)	mm	22×19.05
Condenser Fin Pitch	mm	1.40
Condenser Length(L) × Height(H) × Width(W)	mm	945×968×38.1
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
Cooling Operation Ambient Temperature Range	℃	-15~55
Heating Operation Ambient Temperature Range	℃	-20 ～ 30
Maximum drive IDU NO.	unit	5
Defrosting Method		Automatic Defrosting
Isolation		I
Moisture Protection		IP24
Overload Protector		/
Climate Type		T1
Refrigerant		R410A
Refrigerant Charge	kg	4.00
Throttling Method		Electron expansion valve
Dimension of Outline(W)	mm	1020
Dimension of Outline(D)	mm	396
Dimension of Outline(H)	▪	998
Connection Pipe Max. Height Distance(indoor and indoor)	m	7.5
Max. equivalent connection pipe length(outdoor to last indoor)	m	25
Connection Pipe Max. Length Distance(total lenght)	m	75

2.2 Operation Characteristic Curve

Cooling



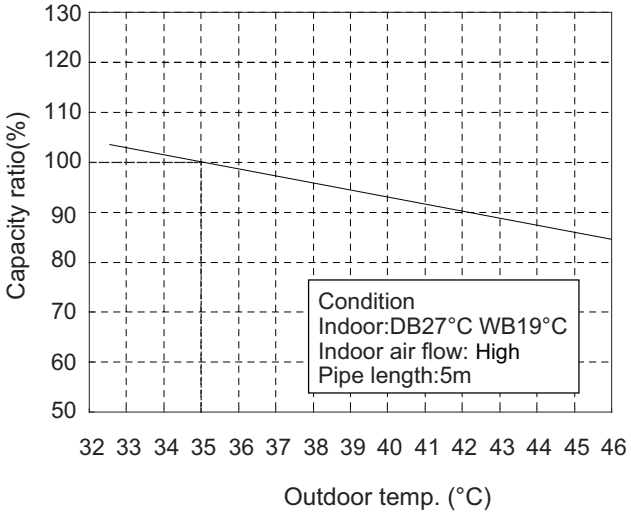
Heating



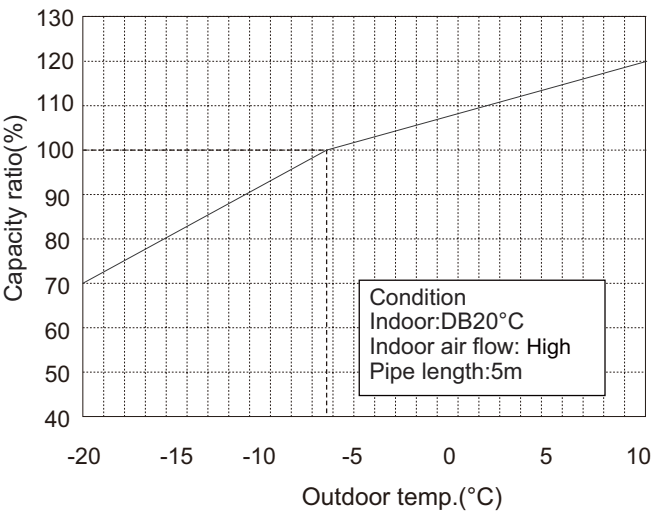
2.3 Capacity Variation Ratio According to Temperature

Heating operation ambient temperature range is -20ºC~24ºC

Cooling

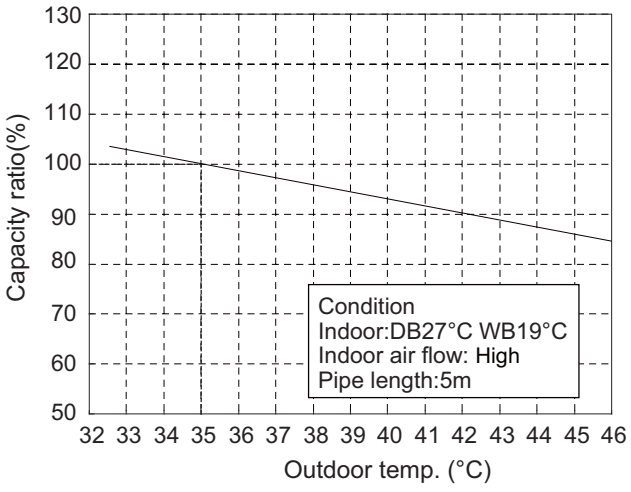


Heating

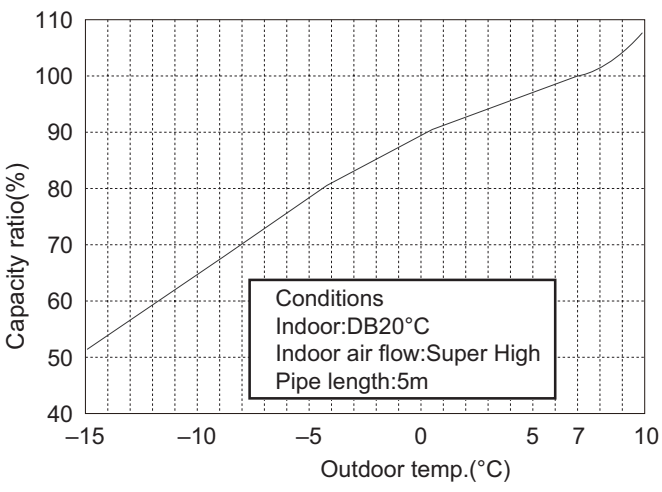


Heating operation ambient temperature range is -15ºC~24ºC

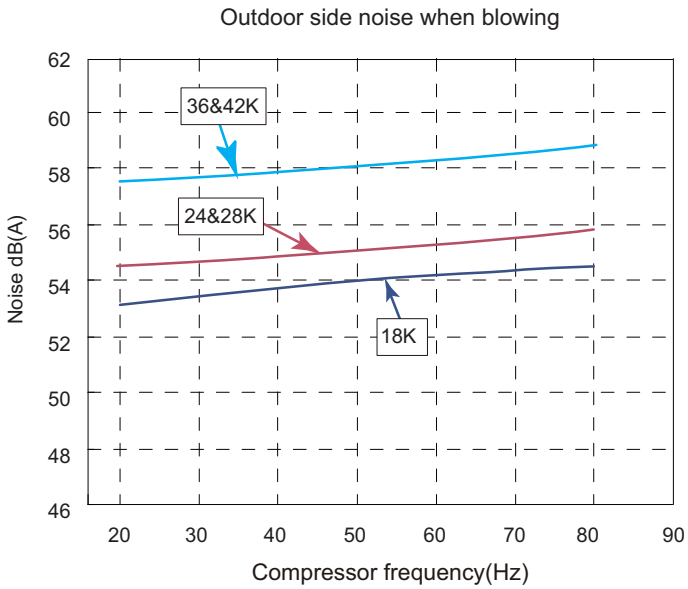
Cooling



Heating



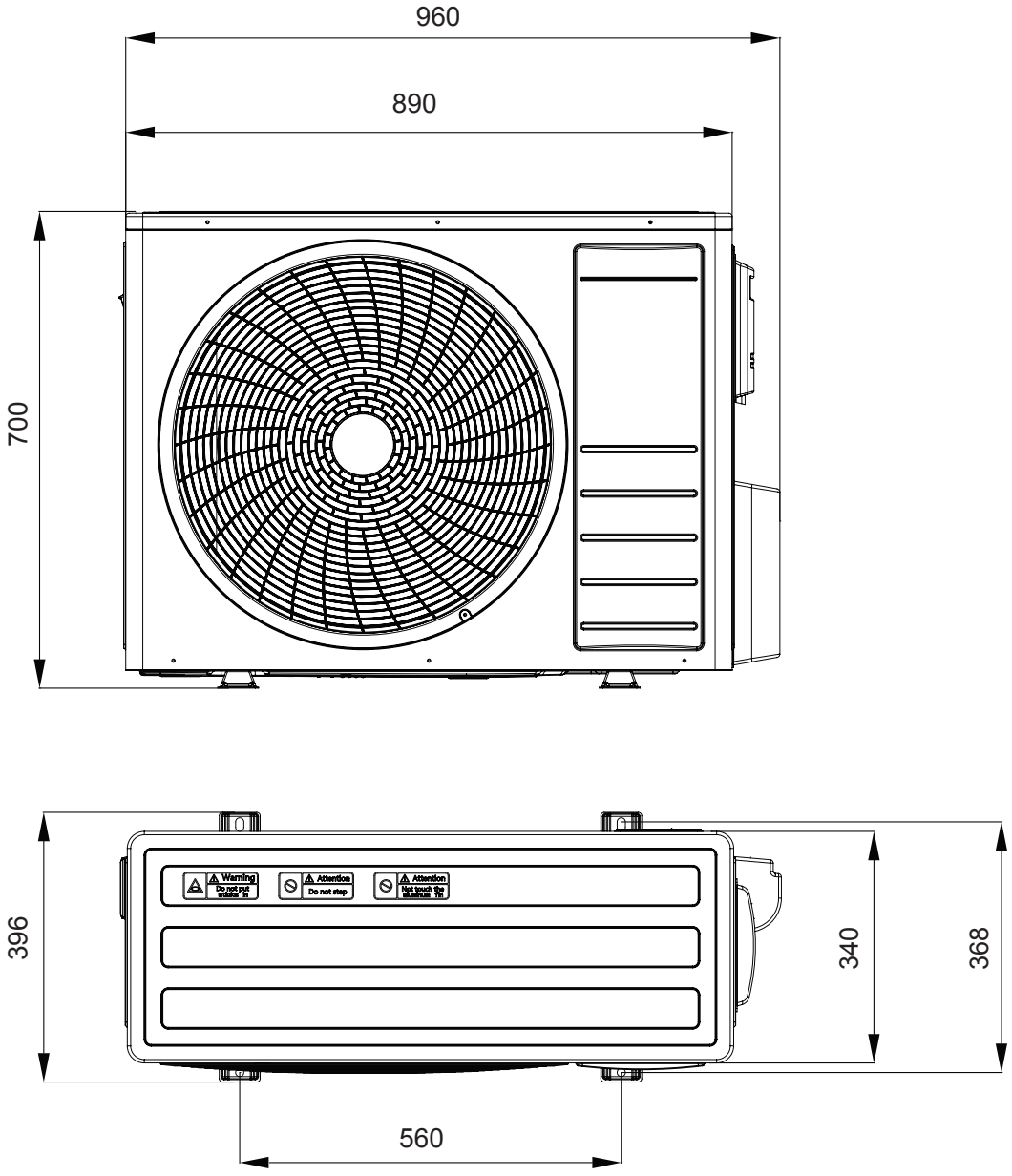
2.4 Noise Curve



3. Construction Views

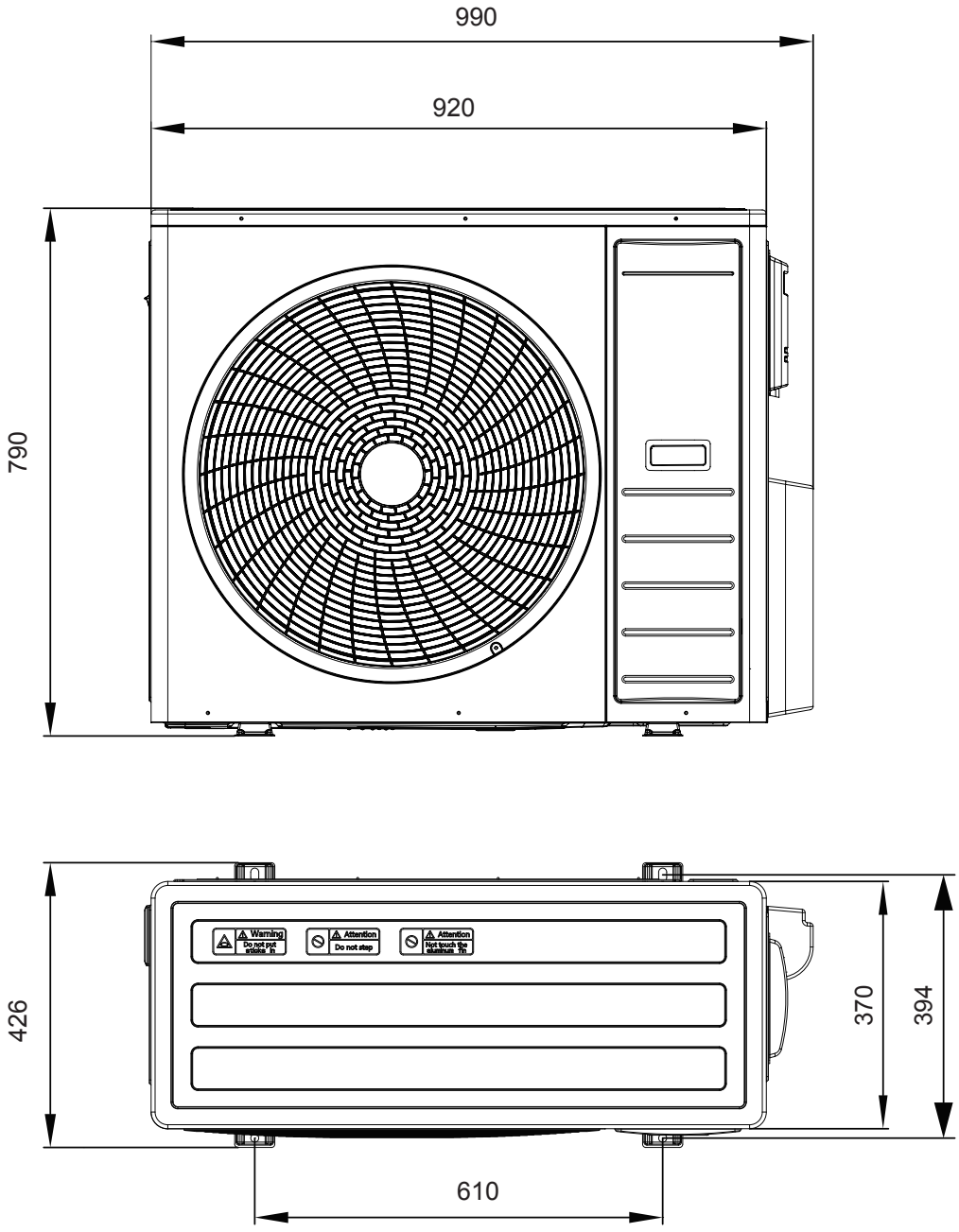
3.1 Outdoor Unit

SUV2-H18/1CFA-N



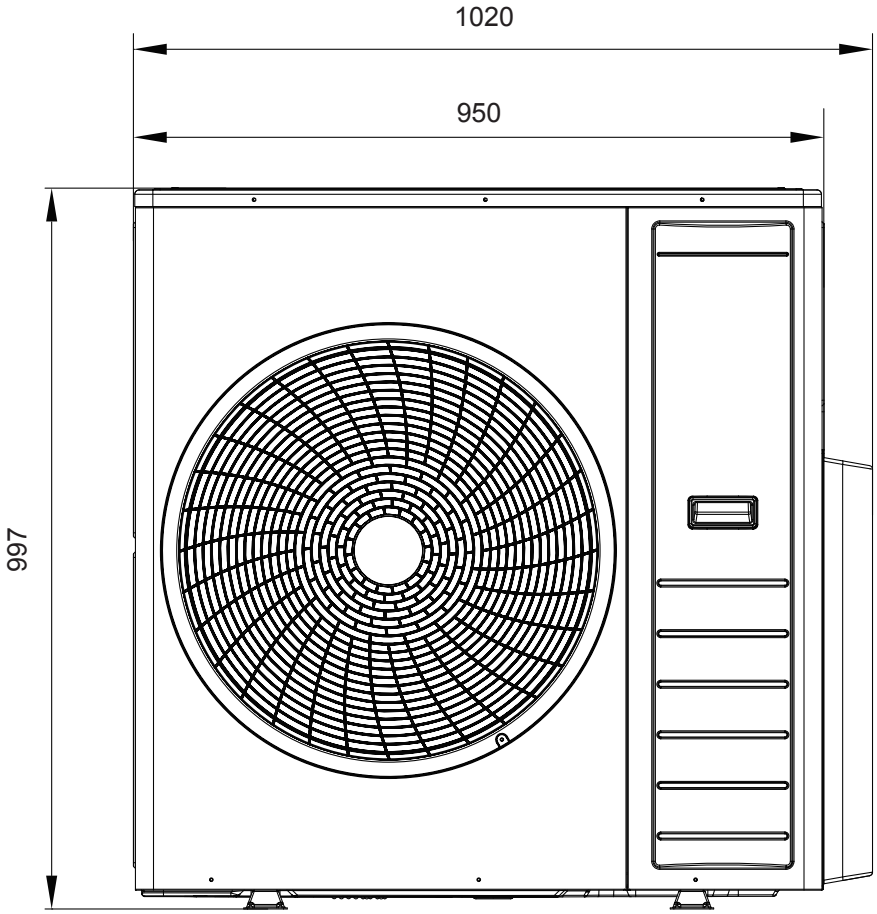
Unit:mm

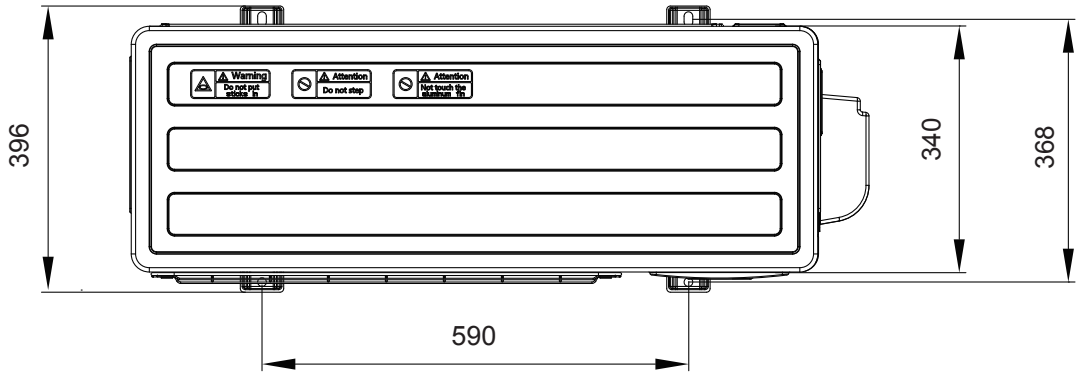
SUV3-H24/1CGA-N、SUV4-H28/1CGA-N



Unit:mm

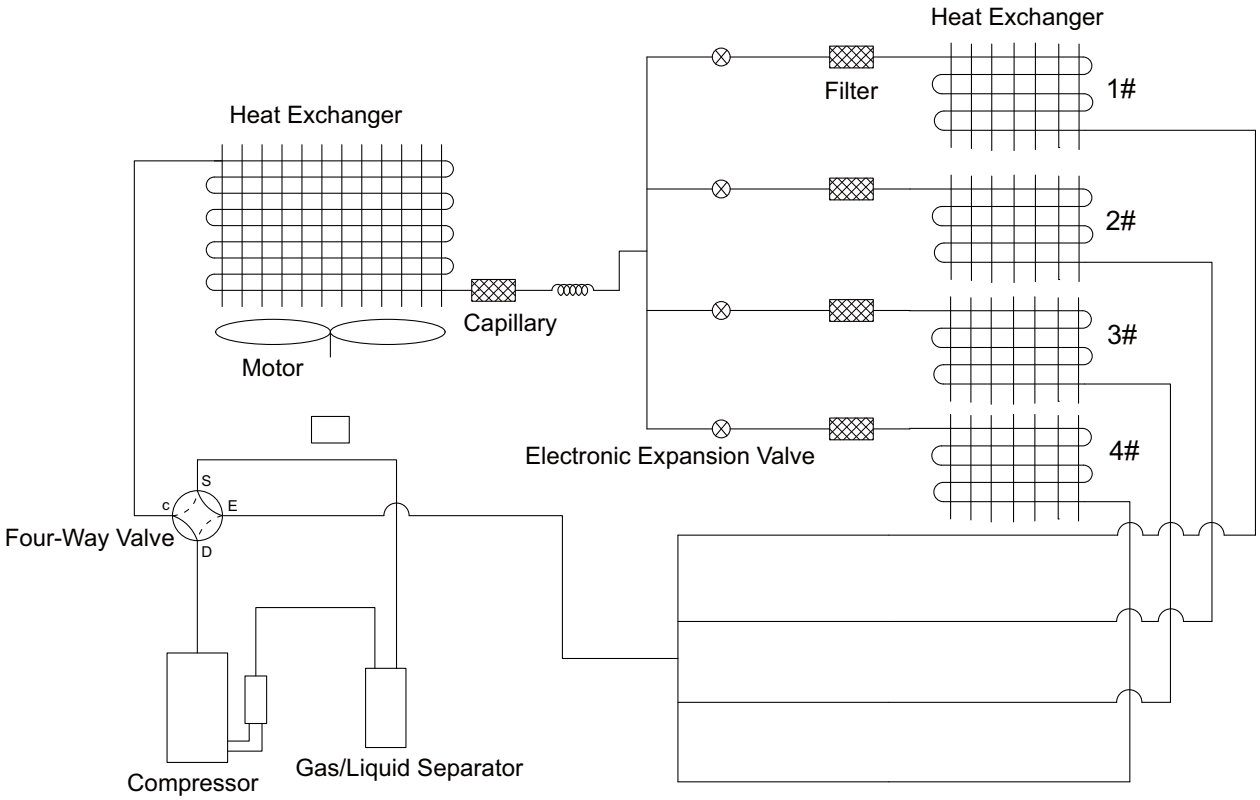
SUV4-H36/1CKA-N、SUV5-H42/1CKA-N





Unit:mm

4. Refrigerant System Diagram



The outdoor and indoor units start to work once the power is switched on. During the cooling operation, the low temperature, low pressure refrigerant gas from the heat exchanger of each indoor unit gets together and then is taken into the compressor to be compressed into high temperature, high pressure gas, which will soon go to the heat exchanger of the outdoor unit to exchange heat with the outdoor air and then is turned into refrigerant liquid. After passing through the throttling device, the temperature and pressure of the refrigerant liquid will further decrease and then go the main valve. After that, it will be divided and go to the heat exchanger of each indoor unit to exchange heat with the air which needs to be conditioned. Consequently, the refrigerant liquid become low temperature, low pressure refrigerant gas again. Such a refrigerant cycle goes round and round to achieve the desired cooling purpose. During the heating operation, the four-way valve is involved to make the refrigerant cycle reversely. The refrigerant radiates heat in the heat exchanger of the indoor unit(so do the electric heating devices)and absorb heat in the heat exchanger of the outdoor unit for a heat pump heating cycle so as to achieve the desired heating purpose.

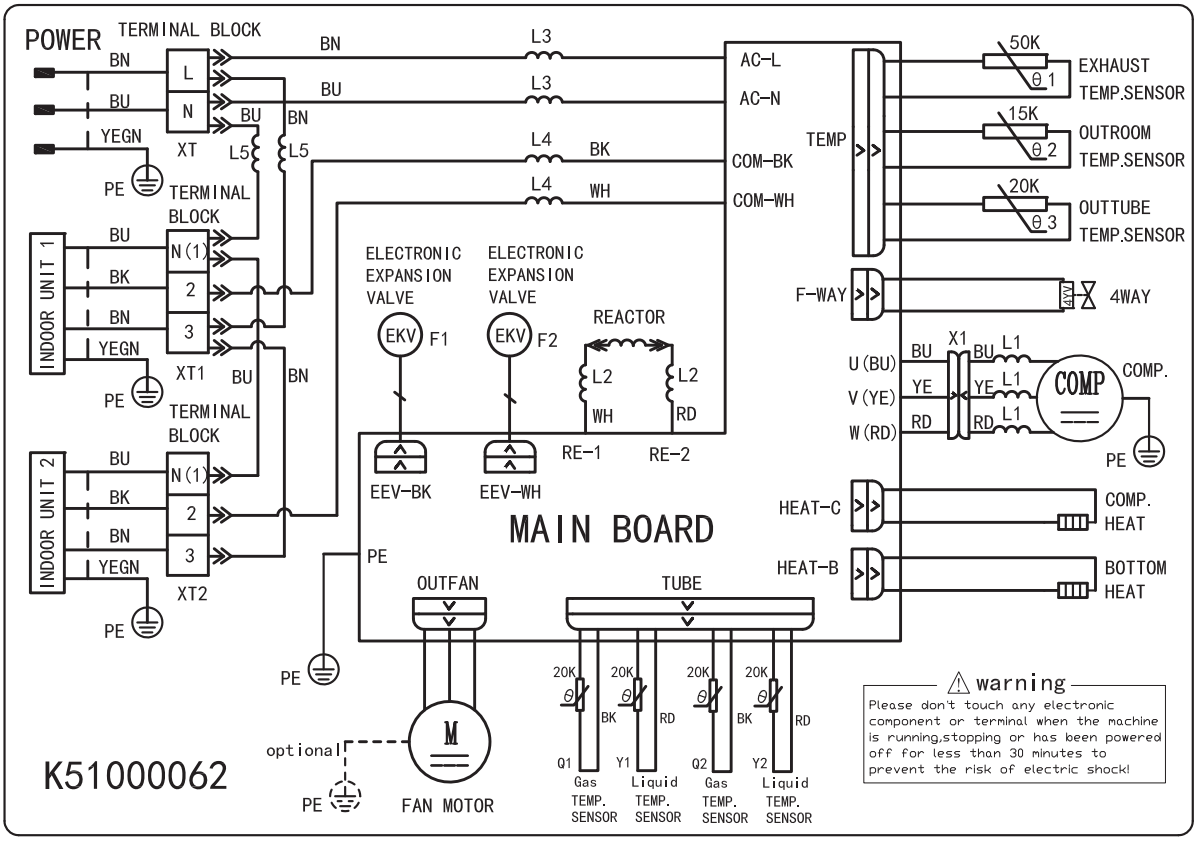
5. Schematic Diagram

5.1 Electrical Wiring

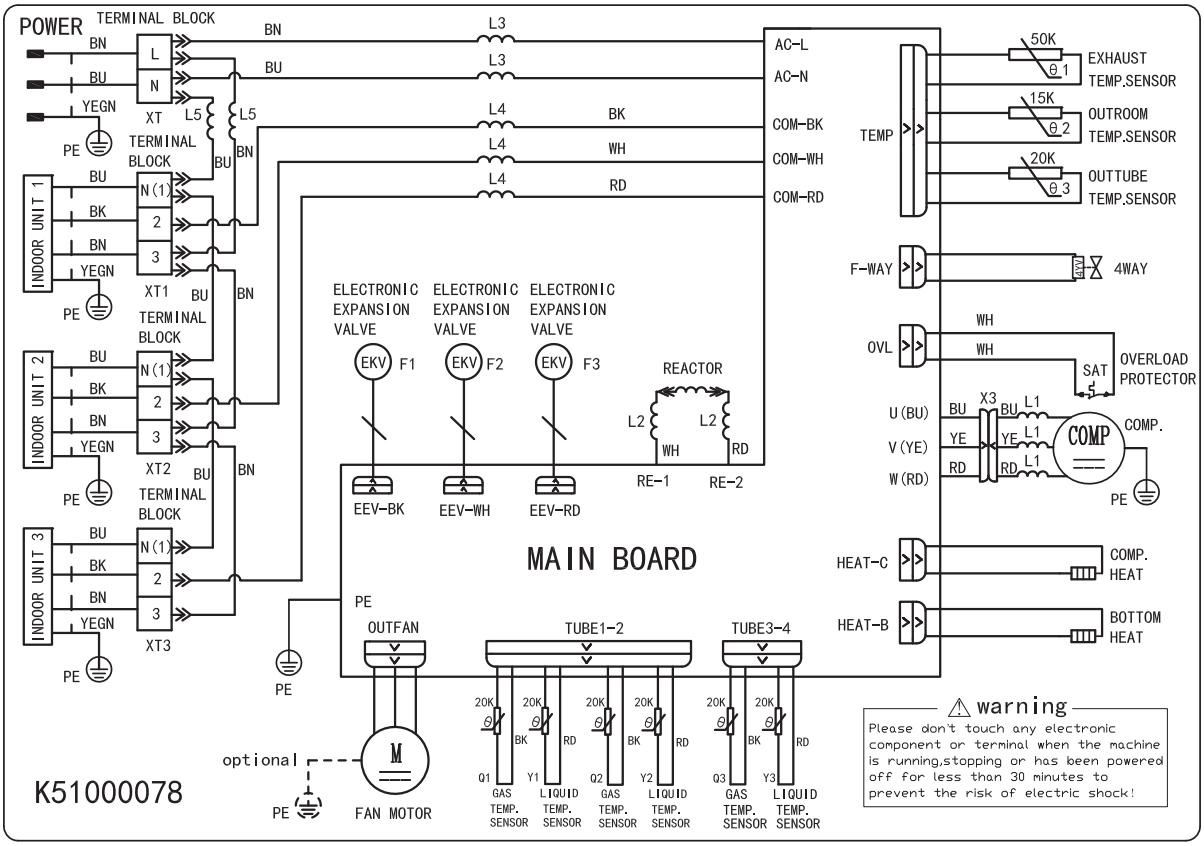
Meaning of marks

Symbol	OG	WH	YE	RD	YEGN	BN	BU	BK	VT
Color symbol	ORANGE	WHITE	YELLOW	RED	YELLOW GREEN	BROWN	BLUE	BLACK	VIOLET
Symbol	COMP		CT1,2		4V	XT		⏚	
Parts name	COMPRESSOR		OVERLOAD		4-WAY VALVE	TERMINAL BLOCK		PROTECTIVE EARTH	

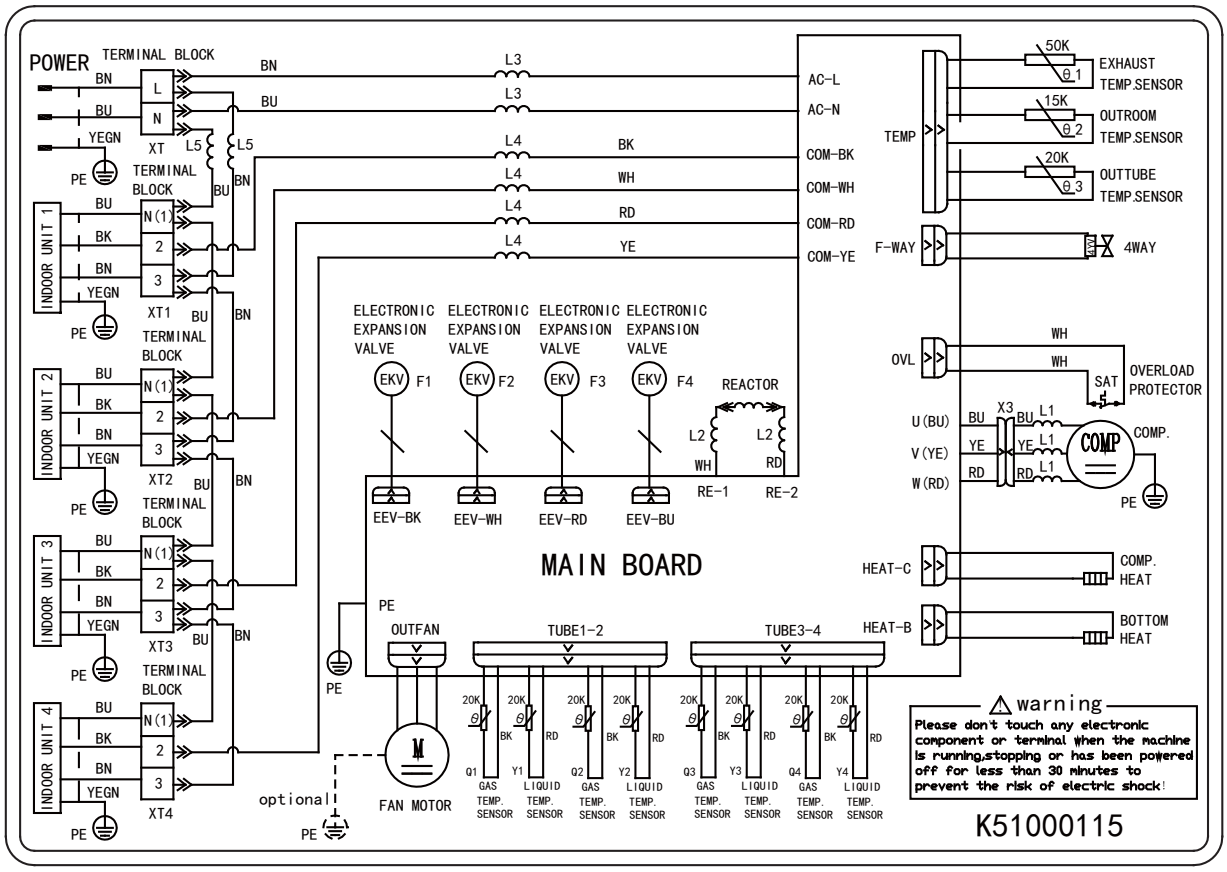
SUV2-H18/1CFA-N



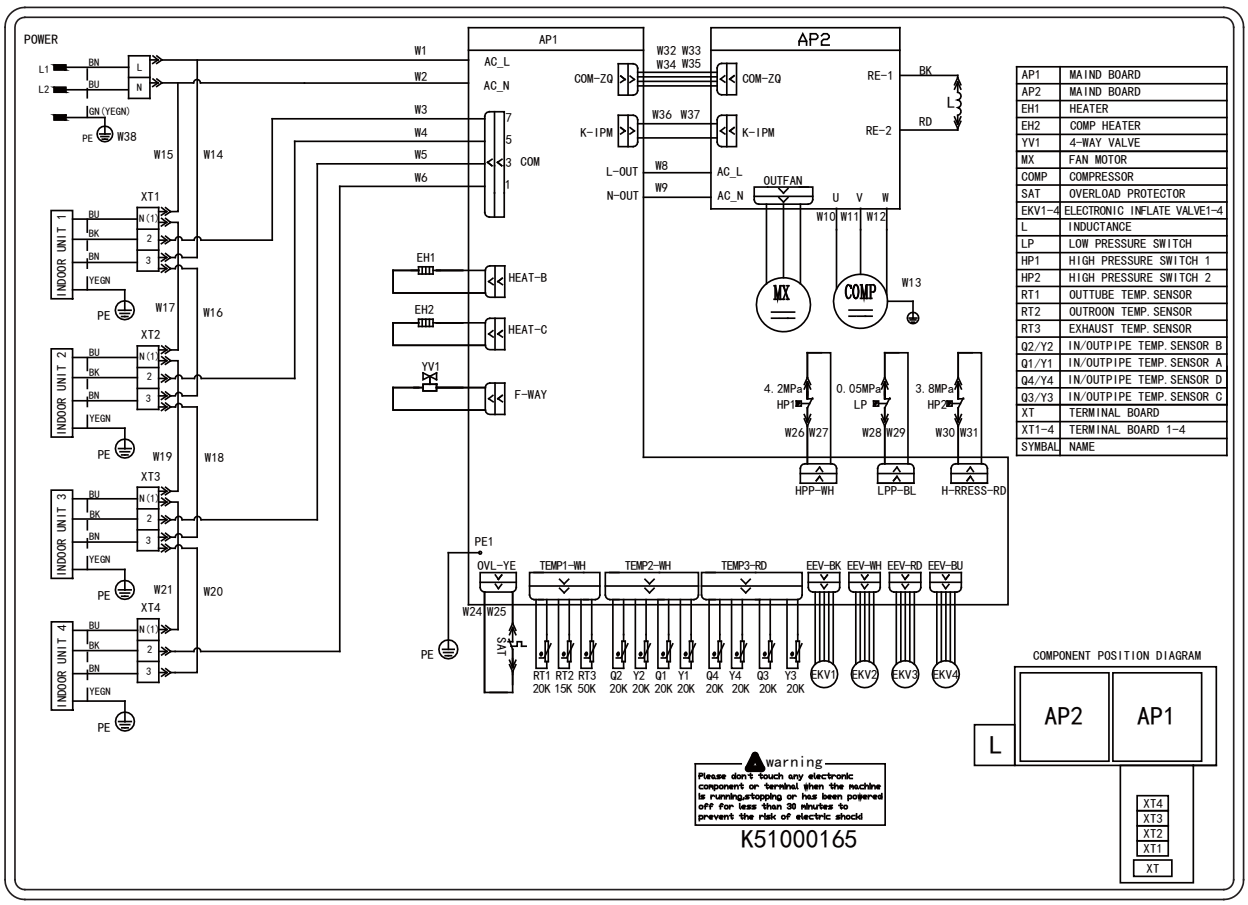
SUV3-H24/1CGA-N



SUV4-H28/1CGA-N

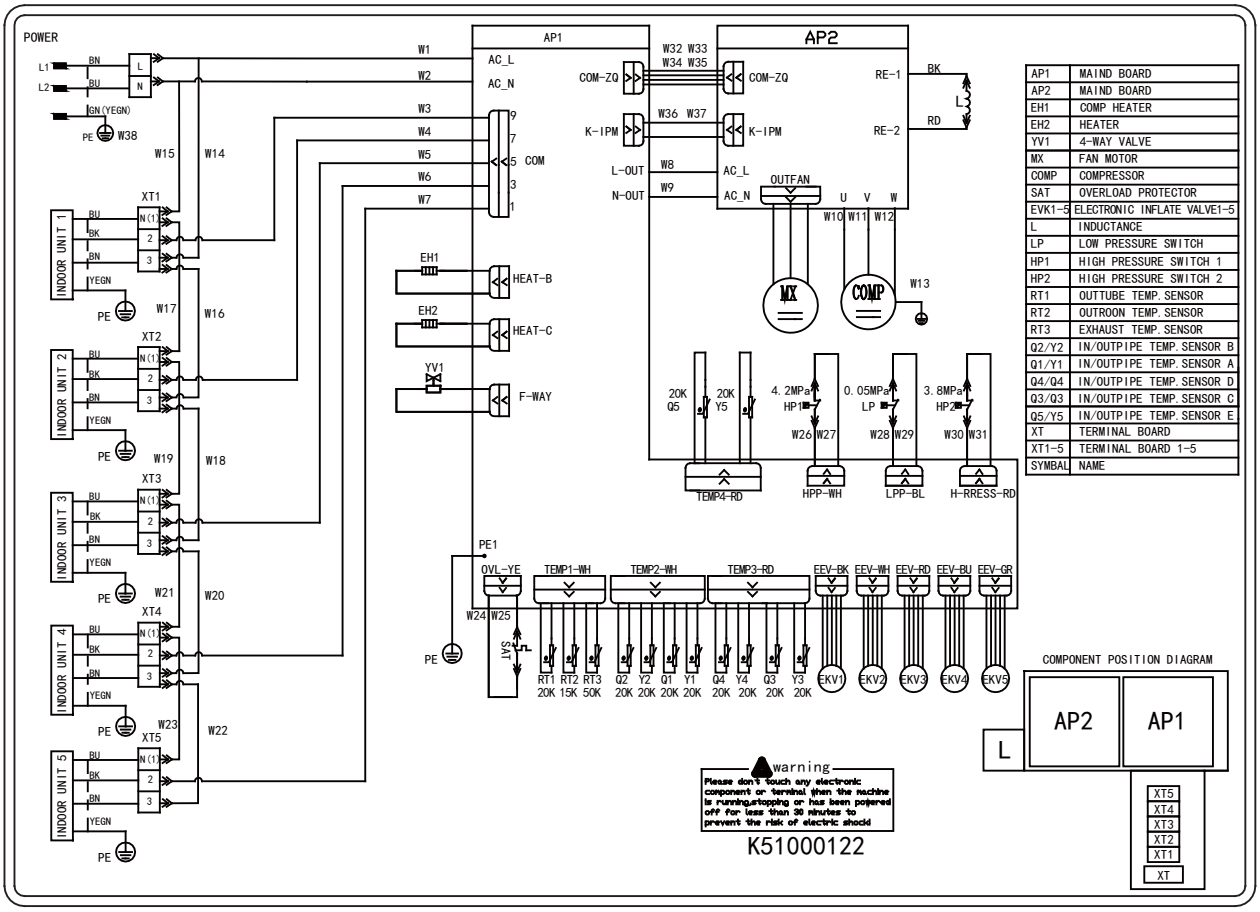


SUV4-H36/1CKA-N



AP1	MAIND BOARD
AP2	MAIND BOARD
EH1	HEATER
EH2	COMP HEATER
YV1	4-WAY VALVE
MX	FAN MOTOR
COMP	COMPRESSOR
SAT	OVERLOAD PROTECTOR
EKV1-4	ELECTRONIC INFLATE VALVE1-4
L	INDUCTANCE
LP	LOW PRESSURE SWITCH
HP1	HIGH PRESSURE SWITCH 1
HP2	HIGH PRESSURE SWITCH 2
RT1	OUTTUBE TEMP.SENSOR
RT2	OUTROON TEMP.SENSOR
RT3	EXHAUST TEMP.SENSOR
Q2/Y2	IN/OUTPIPE TEMP.SENSOR B
Q1/Y1	IN/OUTPIPE TEMP.SENSOR A
Q4/Y4	IN/OUTPIPE TEMP.SENSOR D
Q3/Y3	IN/OUTPIPE TEMP.SENSOR C
XT	TERMINAL BOARD
XT1-4	TERMINAL BOARD 1-4
SYMBAL	NAME

SUV5-H42/1CKA-N



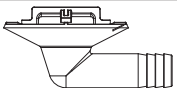
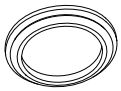
These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

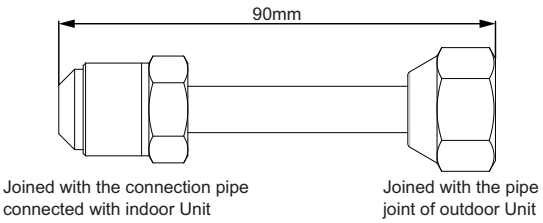
6. Installation Instructions

6.1 Standard Accessory Parts

The standard accessory parts listed below are furnished and should be used as required.

Table 1

Name	Appearance	Q'ty	Usage
Drainage Connecter		1	To connect with the hard PVC drain pipe
Drain Plug		3	To plug the unused drain hole
Pipe Joint Subassembly		1 or 2 or 3 or 5	One for 18K unit, Two for 24K unit, Three for 28K unit, Five for 36K/42K unit
Others	Instructions , bar code		



Pipe Joint Subassembly

Table 2

NO.	Joined with the connection pipe connected with indoor Unit	Joined with the pipe joint of outdoor Unit	Usage
1	Φ12.7	Φ9.52	one for 18K unit, two for 24K/28K unit, one for 36K unit
2	Φ15.9	Φ9.52	one for 28K unit
3	Φ9.52	Φ12.7	one for 36K unit, two for 42K unit
4	Φ15.9	Φ12.7	one for 36K/42K unit
5	Φ9.52	Φ15.9	one for 36K/42K unit
6	Φ12.7	Φ15.9	one for 36K/42K unit

6.2 Installation Location and Matters Needing Attention

The installation of the unit must comply with the national and local safety regulations. The installation quality directly affects the normal use, so the user should not carry out the installation personally, instead, the installation and debugging should be done by technician according to this manual. Only after that, can the unit be energized.

● How to select the installation location for the indoor unit

1. Where there is no direct sunlight.
2. Where the top hanger, ceiling and the building structure are strong enough to withstand the weight of the unit.
3. Where the drain pipe can be easily connected to outside.
4. Where the flow of the air inlet/outlet is not blocked.
5. Where the refrigerant pipe of the indoor unit can be easily led to outside.
6. Where there is no inflammable、explosive substances or their leakage.
7. Where there is no corrosive gas、heavy dust、salt mist、smog or moisture.

● How to select the installation location for the outdoor unit

1. The outdoor unit must be installed where the bearing surface is stable and secure enough.
2. The outdoor unit and indoor unit should be placed as close as possible to minimize the length and bends of the refrigerant pipe.
3. Do not install the outdoor unit under the window or between the buildings to prevent the normal running noise entering the room.
4. Where the flow of the air inlet/outlet is not blocked.
5. The outside unit should be installed where ventilation is in good condition so that the unit can take in and discharge enough air.
6. Do not install the unit where there are inflammable and explosive substances and where there is heavy dust、salt fog and other severely polluted air.

No air guiding pipe is allowed to be installed at the air inlet/outlet of the outdoor unit.
Under the heating mode, the condensate water would drip down from the base frame and would be frozen when the outdoor ambient temperature is lower than 0°C (32°F). Besides, the installation of the outdoor unit should not affect the heat radiation of the unit.

CAUTION!

The unit installed in the following places is likely to run abnormally. If unavoidable, please contact the professional personnel at the appointed service center.

- Where is full of oil.
- Alkaline soil off the sea.
- Where there is sulfur gas (like sulfur hot spring).
- Where there are devices with high frequency (like wireless devices, electric welding devices, or medical equipment).
- Special circumstances.

● Electric wiring

1. The installation must be done in accordance with the national wiring regulations.
2. Only the power cord with the rated voltage and exclusive circuit for the air conditioning can be used.
3. Do not pull power cord by force.
4. The electric installation should be carried out by the professional personnel as instructed by the local laws, regulations and also this manual.
5. The diameter of the power cord should be large enough and once it is damaged it must be replaced by dedicated one.
6. The earthing should be reliable and the earth wire should be connected to the dedicated device of the building by the professional personnel. Besides, the air switch coupled with the leakage current protection switch must be equipped, which is of enough capacity and of both magnetic and thermal tripping functions in case of the short circuit and overload.

Table 3

Models	Power Supply	Capacity of the Air Switch	Recommended Cord (pieces×sectional area)
SUV2-H18/1CFA-N	220-240V~,50Hz	16A	3×1.5mm^2
SUV3-H24/1CGA-N SUV4-H28/1CGA-N	220-240V~,50Hz	25A	3×2.5mm^2
SUV4-H36/1CKA-N SUV5-H42/1CKA-N	220-240V~,50Hz	32A	3×4.0mm^2

Notes:

1. The specifications of the breaker and power cable listed in the table above are determined based on the maximum power (maximum amps) of the unit.
2. The specifications of the power cable listed in the table above are applied to the conduit-guarded multi-wire copper cable (like, YJV copper cable, consisting of PE insulated wires and a PVC cable jacket) used at 40°C and resistible to 90°C (see IEC 60364-5-562). If the working condition changes, they should be modified according to the related national standard.
3. The specifications of the breaker listed in the table above are applied to the breaker with the working temperature at 40°C. If the working condition changes, they should be modified according to the related national standard.

● Earthing Requirements

1. The air conditioner is classified into the class I appliances, so its earthing must be reliable.
2. The yellow-green line of the air conditioner is the earth line and cannot be used for other purpose, cut off or fixed by the tapping screw, otherwise it would cause the hazard of the electric shock.
3. The reliable earth terminal should be provided and the earth wire cannot be connected to any of the following places.
   (1) Running water pipe
   (2) Coal gas pipe
   (3) Sewage pipe
   (4) Other places where the professional personnel think unreliable.

● Noise precautions

1. The air conditioning unit should be installed where ventilation is in good condition,otherwise the working capability of the unit would be reduced or working noise would be increased.
2. The air conditioning unit should be installed on the base frame which is stable and secure uncouth to withstand the weight of the unit, otherwise it would incur vibration and noise.
3. During the installation, a consideration should be taken that the produced hot air or noise should not affect neighbors or surroundings.
4. Do not stack obstacles near the air outlet of the outdoor unit, otherwise it would reduce the working capability of the unit or increase the working noise.
5. In the event of the occurrence of abnormal noise, please contact the sales agent as soon as possible.
6. Accessories for installation

Refer to the packing list for the accessories of the indoor and outdoor units respectively.

Installation of the Outdoor Unit

● Precautions for the installation of the outdoor unit

The following rules should be followed when the installation location is being considered so as to let the unit run well enough.

1. The discharged air from the outdoor unit won't return back and enough space should be left for maintenance around the unit.
2. The installation location should be in good condition so that the unit is able to take in and discharge enough air. Besides, make sure there is no obstacle at the air inlet/outlet of the unit. If there is, remove it.
3. The unit must be installed where it is secure enough to support the weight of the unit and capable of reducing to some extent noise and vibration to make sure they do not bother your neighbors.
4. The designated lifting hole must be used for lifting the unit and protect the unit carefully during lifting to prevent damaging the mental sheet which would result in rusting in future.
5. The unit should be installed where there is as little as direct sunlight.
6. The unit must be installed where the rain water and defrosting water can be drained.
7. The unit must be installed where the unit won't be covered by the snow and won't be affected by rubbish and oil fog.
8. Rubber or spring shock absorbers should be used during the installation of the outdoor unit to meet the noise and vibration requirements.
9. The installation dimensions should meet the requirement covered in this manual and the outdoor unit must be fixed securely.
10. The installation should be carried out by the professionally skilled personnel.

● Installation of the Outdoor Unit

1. During the transportation of the outdoor unit, two lifting ropes long enough must be used in four directions and the separation included angle must be less than 40° prevent the center of unit deviating.
2. During the installation, M10 screws should be used to fix the support leg and base frame of the unit.
3. The unit should be installed on a concrete base frame with a height of 10cm.
4. The installation space of the unit should be as required in Fig.1.

Installation Space Requirements of the Outdoor Unit:

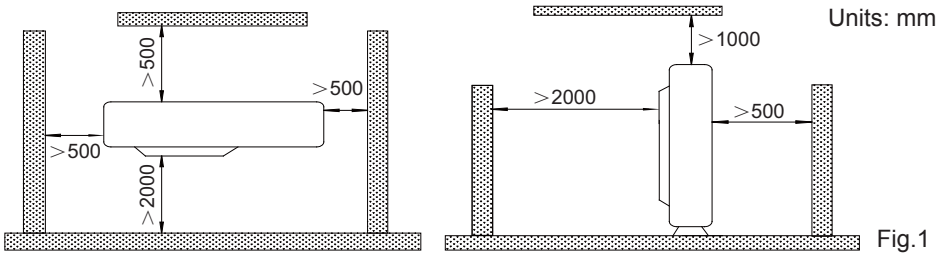


Fig.1

Connection between Indoor and Outdoor Units

● Energy level and Capacity Code of the Indoor and Outdoor Units

Table 4

	Energy Level	Capacity Code
Indoor Unit	07	23
	09	26
	12	35
	18	52
	24	71
Outdoor Unit	18	52
	24	71
	28	82
	36	100
	42	120

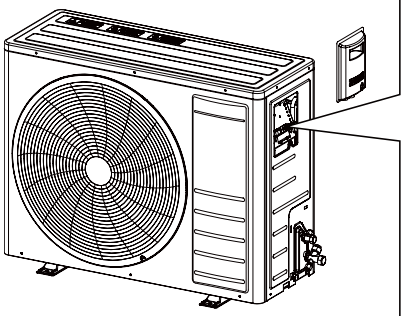
1. The outdoor unit with energy level 18 can drive up to two sets of indoor units, the outdoor unit 24 can drive up to three, the outdoor unit 28/36 can drive up to four, while the outdoor unit 42 can drive up to five.
2. The sum of the capacity codes of the indoor units should be among 50%-150% of that of the outdoor unit.

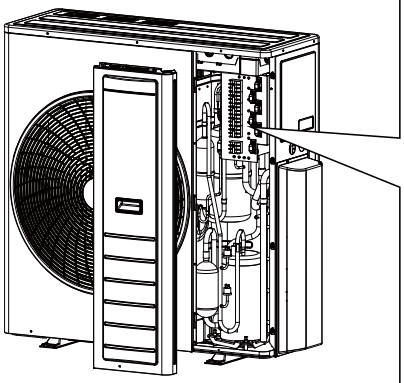
● Wiring of the Power Cord

CAUTION!

A breaker must be installed, capable of cutting off the power supply for the whole system.

1. Remove the handle(front board) of the outdoor.
2. Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color,fix them with screws.
3. Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).
4. Reinstall the handle(front board).





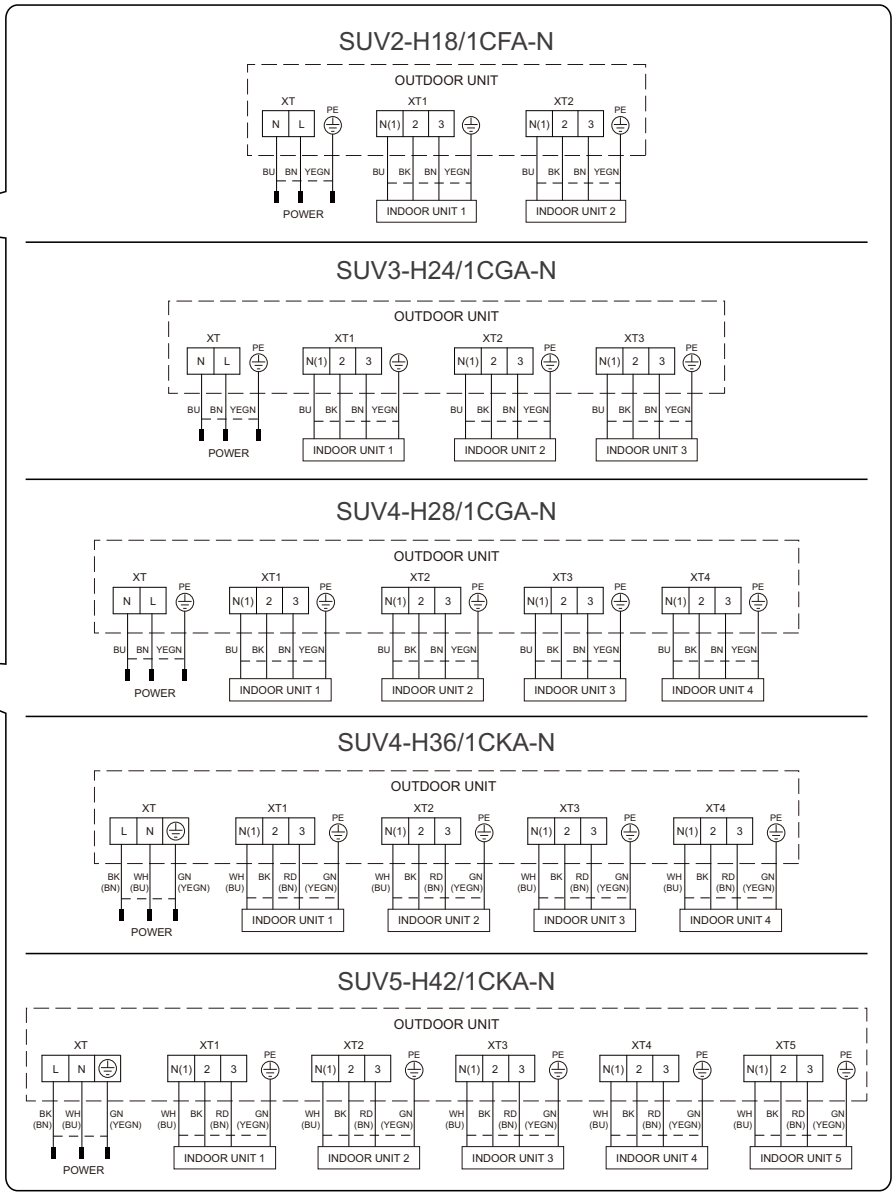


Fig.2

● Allowable Length and Height Fall of the Refrigerant Pipe

Table 5

		Allowable Length					Refrigerant Pipe				
		18K	24K	28K	36K	42K	18K	24K	28K	36K	42K
Totlal Length(m)		30	60	70	70	80	L1+L2	L1+L2+ L3	L1+L2+ L3+L4	L1+L2+ L3+L4	L1+L2+ L3+L4+ L5
Max. Length for Single Unit(m)		15	20	20	20	25	LX				
Max. installation altitude	Outdoor unit and indoor unit	5	10	10	15	15	H1				
	Indoor unit and indoor unit	5	5	5	7.5	7.5	H2				

Table 6 Dimension of the Refrigerant Pipe of the Indoor Unit

Capacity Level of the Indoor Unit	Gas Pipe (mm)	Liquid pipe (mm)
07、09、12	Φ9.52	Φ6.35
18	Φ12.7	Φ6.35
24	Φ15.9	Φ6.35

● Piping between the Indoor and Outdoor units

1. Refer to Table 7 for the moments of torque for tightening screws.
2. Let the flare end of the copper pipe point at the screw and then tighten the screw by hand.
3. After that, tighten the screw by the torque wrench unit it clatters (as shown in Fig.3).
4. The bending degree of the pipe cannot be too small, otherwise it will crack. And please use a pipe tube bender to bend the pipe.
5. Wrap the exposed refrigerant pipe and the joints by sponge and then tighten them with the plastic tape.

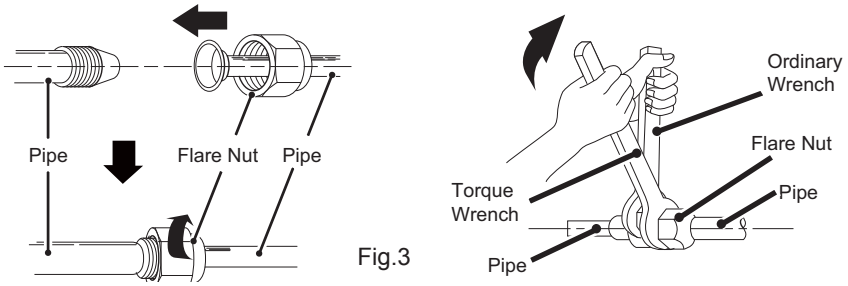


Fig.3

Table 7 Moments of Torque for Tightening Screws

Diameter (mm)	Wall Thickness (mm)	Moment of Torque (N·m)
Φ6.35	≥0.5	15-30
Φ9.52	≥0.71	30-40
Φ12.7	≥1	45-50
Φ15.9	≥1	60-65

CAUTION!

1. During the connection of the indoor unit and the refrigerant pipe, never pull any joints of the indoor unit by force, otherwise the capillary pipe or other pipe may crack, which then would result in leakage.
2. The refrigerant pipe should be supported by brackets, that is, don't let the unit withstand the weight of it.

CAUTION!

For the MULTI-S inverter air conditioner unit, each pipe should be labeled to tell which system it belongs to avoid mistaken inaccurate piping.

● Installation of the Protection Layer of the Refrigerant Pipe

1. The refrigerant pipe should be insulated by the insulating material and plastic tape in order to prevent condensation and water leakage.
2. The joints of the indoor unit should be wrapped with the insulating material and no gap is allowed on the joint of the indoor unit, as shown in Fig.4.

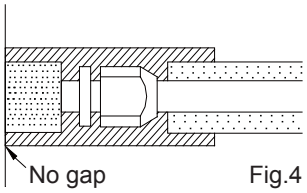


Fig.4

CAUTION!

After the pipe is protected well enough, never bend it to form a small angle, otherwise it would crack or break.

● Wrap the Pipe with Tape

1. Bundle the refrigerant pipe and electric wire together with tape, and separate them from the drain pipe to prevent the condensate water overflowing.
2. Wrap the pipe from the bottom of the outdoor unit to the top of the pipe where it enters the wall. During the wrapping, the later circle should cover half the former one.
3. Fix the wrapped pipe on the wall with clamps.

CAUTION!

1. Do not wrap the pipe too tightly, otherwise the insulation effect would be weakened. Additionally, make sure the drain hose is separated from the pipe.
2. After that, fill the hole on the wall with sealing material to prevent wind and rain coming into the room.

Refrigerant Charging and Trial Running

● Refrigerant Charging

1. The refrigerant has been charged into the outdoor unit before shipment, while additional refrigerant still need be charged into the refrigerant pipe during the field installation.
2. Check if the liquid valve and the gas valve of the outdoor unit are closed fully.
3. As shown in the following figure (Fig.5), expel the gas inside the indoor unit and refrigerant pipe out by the vacuum pump.
4. When the compressor is not running, charge the R410a refrigerant into the refrigerant pipe from the liquid valve of the outdoor unit (do not do it from the gas valve).

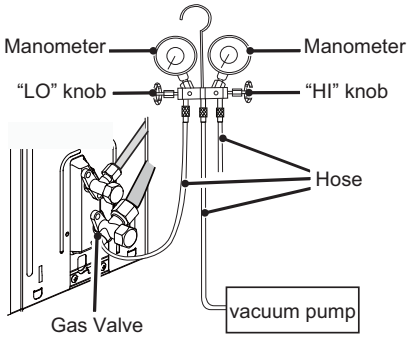


Fig.5

● Calculation of the Additional Refrigerant Charging

1. Refrigerant Charge in the Outdoor Unit before Shipment

Table 8

Model	Refrigerant Charge (kg)
SUV2-H18/1CFA-N	1.4
SUV3-H24/1CGA-N	1.9
SUV4-H28/1CGA-N	2.4
SUV4-H36/1CKA-N	3.9
SUV5-H42/1CKA-N	4.0

Notes:

(1). The refrigerant charge mentioned in the table above is not include those charged additionally in the indoor unit and the refrigerant pipe.

(2). The amount of the additional refrigerant charge is dependent on the diameter and length of the liquid refrigerant pipe which is decided by the actual yield installation requirement.

(3). Record the additional refrigerant charge for future maintenance.

2. Calculation of the Additional Refrigerant Charge

If the total refrigerant pipe length (liquid pipe) is smaller than listed in the table below, no additional refrigerant will be charged.

Table 9

Model	Total Liquid Pipe Length (a+b+c+d+e)
SUV2-H18/1CFA-N	≤10m
SUV3-H24/1CGA-N	≤30m
SUV4-H28/1CGA-N SUV4-H36/1CKA-N	≤40m
SUV5-H42/1CKA-N	≤50m

Additional refrigerant charge= ∑ Extra Liquid Pipe Length×22g/m (liquid pipe Φ6.35mm)

Notes:

If the total refrigerant pipe length is larger than that listed in the table above, the additional refrigerant for the extra length of the pipe needs to be charged as per 22g/m.

3. Example: SUV4-H28/1CGA-N

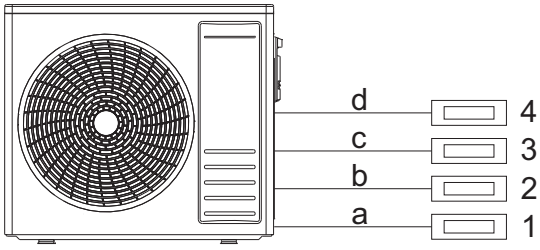


Fig.6

Table 10 Indoor Unit

Serial No.	Model
Indoor Unit 1	SMVH07A-2AA1NC(I)
Indoor Unit 2	SMVH07A-2AA1NC(I)
Indoor Unit 3	SMVH07A-2AA1NC(I)
Indoor Unit 4	SMVH07A-2AA1NC(I)

Table 11 Liquid Refrigerant Pipe

Serial No.	a	b	c	d
Diameter	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Length	20	15	15	15

The total length of each liquid refrigerant pipe is: a+b+c+d=20+15+15+15=65m
Thus, the minimum additional refrigerant charge=(65-40)×0.022=0.55kg
(Note: no additional refrigerant is needed for the liquid pipe within 40m)

4. Additional Refrigerant Charge Record

Table 12 Indoor Unit

No.	Indoor Unit Model	Additional Refrigerant Refrigerant (kg)
1		
2		
3		
.....		
N		
Total		

Table 13 Refrigerant Pipe

Diameter	Total Length (m)	Additional Refrigerant Refrigerant (kg)
Φ15.9		
Φ12.7		
Φ9.52		
Φ6.35		
Total		

● Items to be checked after the installation

Table 14

Items to be Checked	Possible Errors	Check Results
Has each part and component of the unit been installed securely?	The unit may fall off ,vibrate or generate noise.	
Has the gas leakage test been taken?	The cooling (heating) capacity may be poor.	
Is the thermal insulation sufficient?	Dews and water drops may be generated.	
Does the drainage go well?	Dews and water drops may be generated.	
Is the actual power voltage in line with the value marked on the nameplate?	The unit may break down or some components may be burnt out.	
Are the wiring and piping correct?	The unit may break down or some components may be burnt out.	
Has the unit been earthed reliably?	There may be a danger of electric shock.	
Does the wire meet the regulated requirement?	The unit may break down or the components may be burnt out.	
Is there any obstacle at the air inlet/ outlet of the indoor/outdoor unit?	The cooling (heating) capacity may be poor.	
Have the length of the refrigerant pipe and the refrigerant charge been recorded?	It may be hard to know the exact refrigerant charge.	

● Trial Running

1. Check before the Trial Running
   (1) Check if the appearance of the unit and the piping system are damaged during the transportation.
   (2) Check if the wiring terminals of the electronic component are secure.
   (3) Check if the rotation direction of the fan motor is right.
   (4) Check if all valves in the system are fully opened.

2. Trial Running
   (1) The trial running should be carried out by the professionally skilled personnel on the premise that all items above are in normal conditions.
   (2) Let the unit energized and switch the wired controller or the remoter controller to “ON”.
   (3) The fan motor and compressor of the outdoor unit will run automatically in one minute.
   (4) If there is some unusual sound after the compressor is started, turn off the unit for an immediate check.

6.3 Check after installation

Check according to the following requirement after finishing installation.

Items to be checked	Possible malfunction
Has the unit been installed firmly?	The unit may drop, shake or emit noise
Have you done the refrigerant leakage test?	It may cause in sufficient cooling(heating) capacity.
Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
Is water drained well?	It may cause condensation and water dripping.
Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damaging the parts.
Is electric wiring and pipeline installed correctly?	It may cause malfunction or damaging the parts.
Is the unit grounded securely?	It may cause electric leakage
Does the power cord follow the specification?	It may cause malfunction or damaging the parts.
Is there any obstruction in the air inlet and outlet?	It may cause in sufficient cooling(heating) capacity.
The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
The gas valve and liquid valve of connection pipe are open completely?	It may cause in sufficient cooling(heating) capacity.

6.4 Test operation

1. Preparation of test operation

- The client approves the air conditioner.
- Specify the important notes for air conditioner to the client.

2. Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEATto check whether the operation is normal or not.
- If the ambient temperature is lower than 16℃ , the air conditioner can’t start cooling.

6.5 Configuration of connection pipe

1. Standard length of connection pipe
   ● 5m, 7.5m, 8m.
2. Min. length of connection pipe is 3m.
3. Max. length of connection pipe and max. high difference.

Cooling capacity	Max length of connection pipe	Max height difference	Cooling capacity	Max length of connection pipe	Max height difference
5000Btu/h(1465W)	15	5	24000Btu/h(7032W)	25	10
7000Btu/h(2051W)	15	5	28000Btu/h(8204W)	30	10
9000Btu/h(2637W)	15	5	36000Btu/h(10548W)	30	20
12000Btu/h(3516W)	20	10	42000Btu/h(12306W)	30	20
18000Btu/h(5274W)	25	10	48000Btu/h(14064W)	30	20

4. The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
● After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
● Thecalculation methodof additional refrigerant charging amount (onthe basis of liquid pipe):
Additional refrigerant charging amount = prolonged length of liquid pipe × additional refrigerant charging amount per meter

● Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

Additional refrigerant charging amount for R22, R407C, R410A and R134a

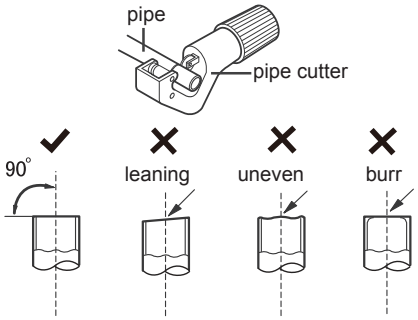
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(mm)	Gas pipe(mm)	Cooling only(g/m)	Cooling and heating(g/m)
Φ6	Φ9.52 or Φ12	15	20
Φ6 or Φ9.52	Φ16 or Φ19	15	50
Φ12	Φ19 or Φ22.2	30	120
Φ16	Φ25.4 or Φ31.8	60	120
Φ19	-	250	250
Φ22.2	-	350	350

6.6 Pipe expanding method

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

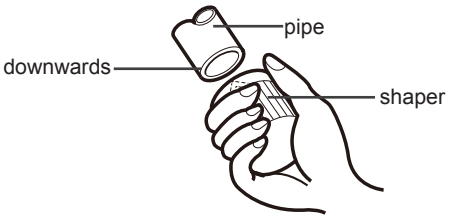
A: Cut the pipe

Confirm the pipe length according to the distance of indoor unit and outdoor unit. Cut the required pipe with pipe cutter.



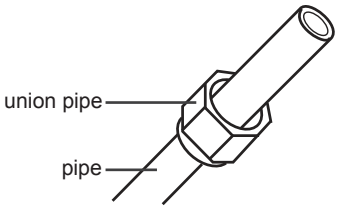
B: Remove the burrs

Remove the burrs with shaper and prevent the burrs from getting into the pipe.



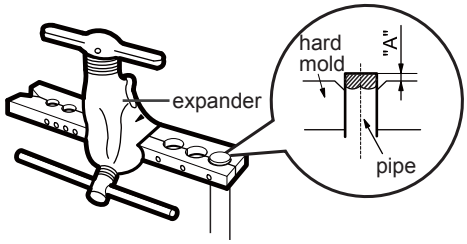
C: Put on suitable insulating pipe
D: Put on the union nut

Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



E: Expand the port

Expand the port with expander.

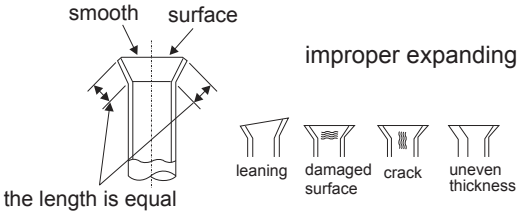


Note:
"A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35(1/4")	1.3	0.7
Φ9.52(3/8")	1.6	1.0
Φ12-12.7(1/2")	1.8	1.0
Φ15.8-16(5/8")	2.4	2.2

F: Inspection

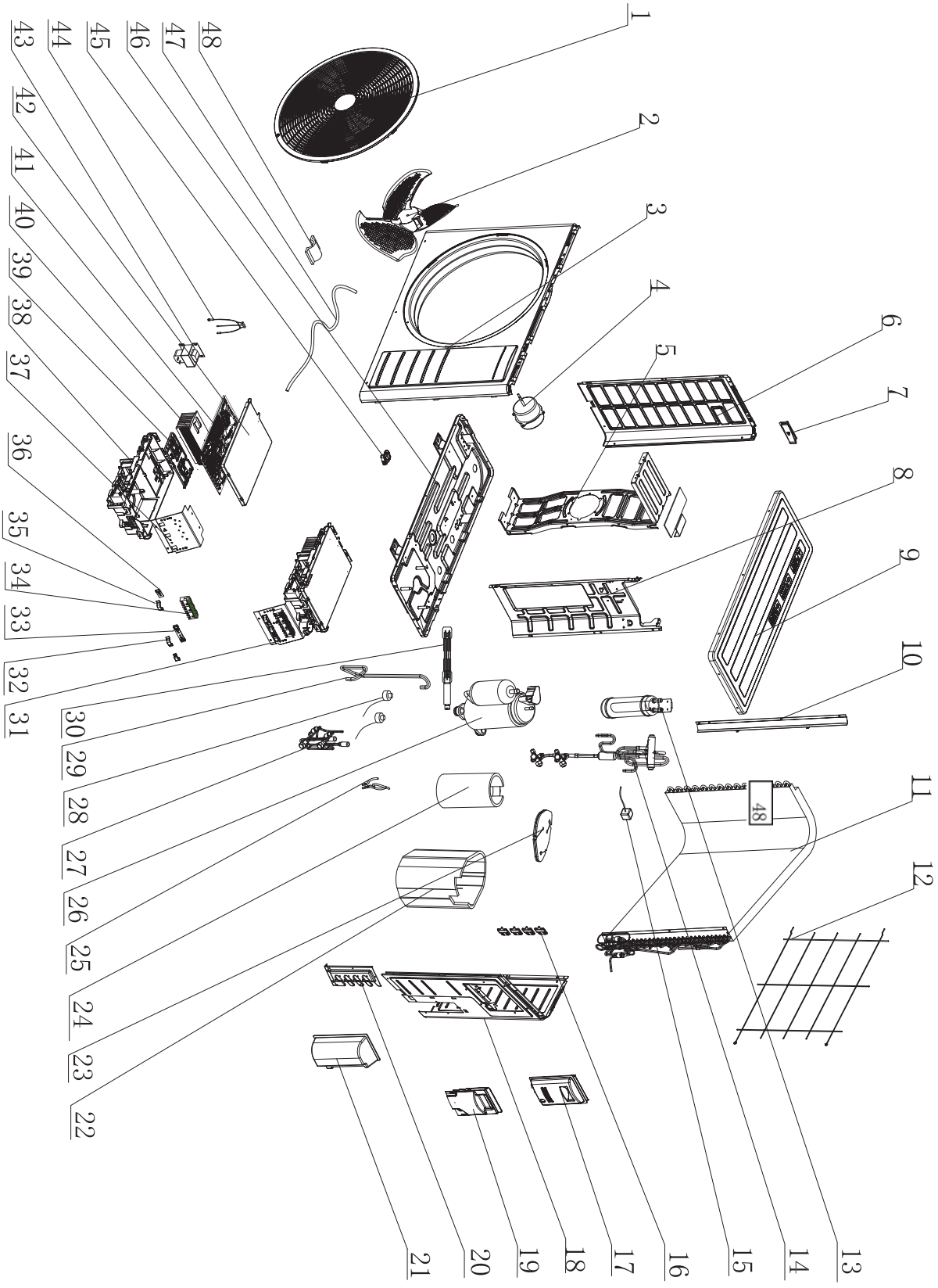
Check the quality of expanding port.
If there is any blemish, expand the port again according to the steps above.



7. Exploded Views and Parts List

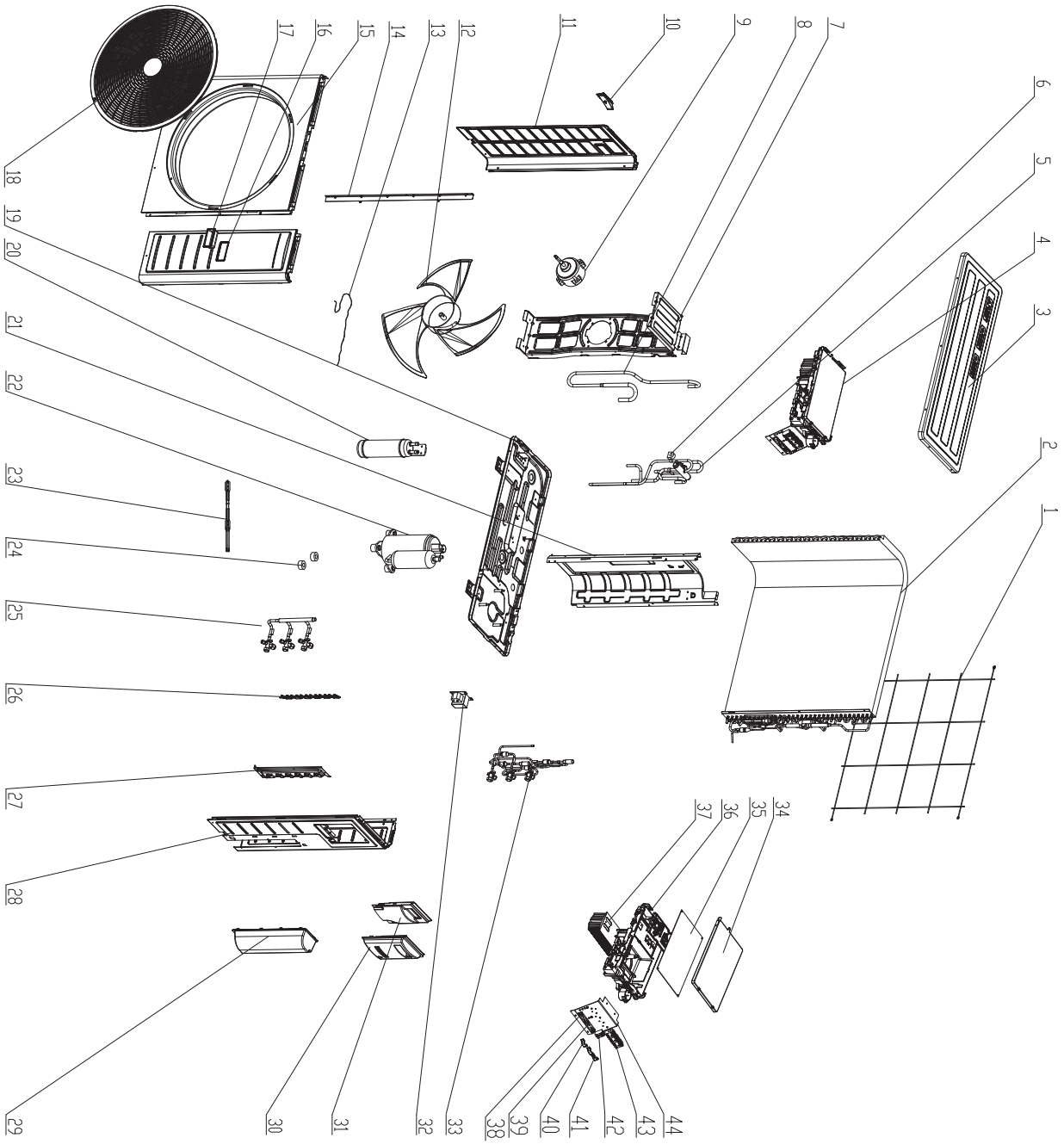
7.1 Outdoor Unit

Model: SUV2-H18/1CFA-N



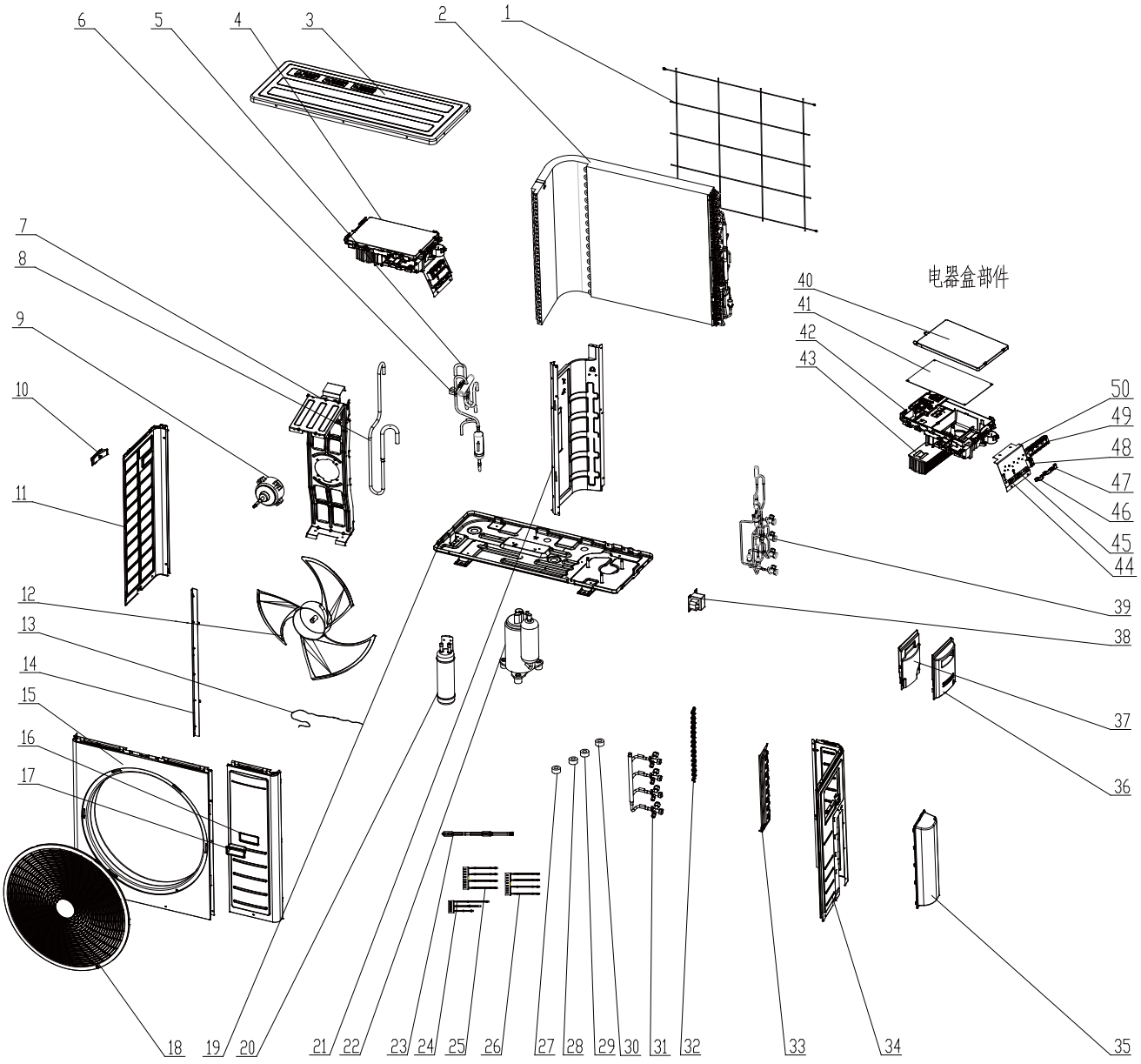
No.	Description	Part Code	Qty
		SUV2-H18/1CFA-N	
	Product Code	KEJ001W0010	
1	Rear grill	K10860012	1
2	axial flow fan(original color)	K15010002	1
3	front panel(apricot grey)	K11010002P	1
4	ODU fan motor	K16800015	1
5	motor support subassembly	K1120001201	1
6	left side panel(apricot grey)	K10600005P	1
7	small handle	K22210004	1
8	Partition board subassembly	K10440030	1
9	top cover(apricot grey)	K10450010P	1
10	support panel	K10620002	1
11	condenser assembly	K10300082	1
12	mesh enclosure(Iron mesh)	K10860002	1
13	vapour liquid separator	K14410110	1
14	4-way-valve assembly	K12050052	1
15	4-way-valve coil	K3380000501	1
16	vavle stopper	K21420020	4
17	big handle(apricot grey)	K11410015P	1
18	Right Side Plate Sub-Assy	K1060003602P	1
19	big handle guard board	K10620041P	1
20	Valve Support	K11200019P	1
21	valve cover	K21420019	1
22	noise-absorption sponge(outside)	K61410028	1
23	noise-absorption sponge(top)	K61410029	1
24	noise-absorption sponge(inside)	K61410027	1
25	wiring(compressor)	K3320000903	1
26	compressor and accessory	K10000050	1
27	electronic expansion valve assembly	K14200036	1
28	electronic expansion valve coil	K3380000401/K3380000402	2
29	suction pipe	K12620130	1
30	electric heating belt(compressor)	K30800004	1
31	electric box assembly	K11800238	1
32	wire fix clamp	K61000002	1
33	insulation gasket	K60600005	1
34	wiring board（3 unit）	K33600028/K33600027	3
35	wire fix clamp	K61000003	2
36	insulation gasket	K60600004	1
37	wiring board support	K11230020	1
38	electric box	K20400028	1
39	module support	K22240002	1
40	radiator	K34810008	1
41	main board	K30050198	1
42	electric box cover	K20400029	1
43	reactor	K34020003	1
44	temp. sensor	K3300000301	1
45	drain joint	K13210001	1
46	chassis subassembly	K10400051P	1
47	electric heating belt(chassis)	K3080000501	1
48	electric heating cable tabletting	K11410002	10

Model: SUV3-H24/1CGA-N



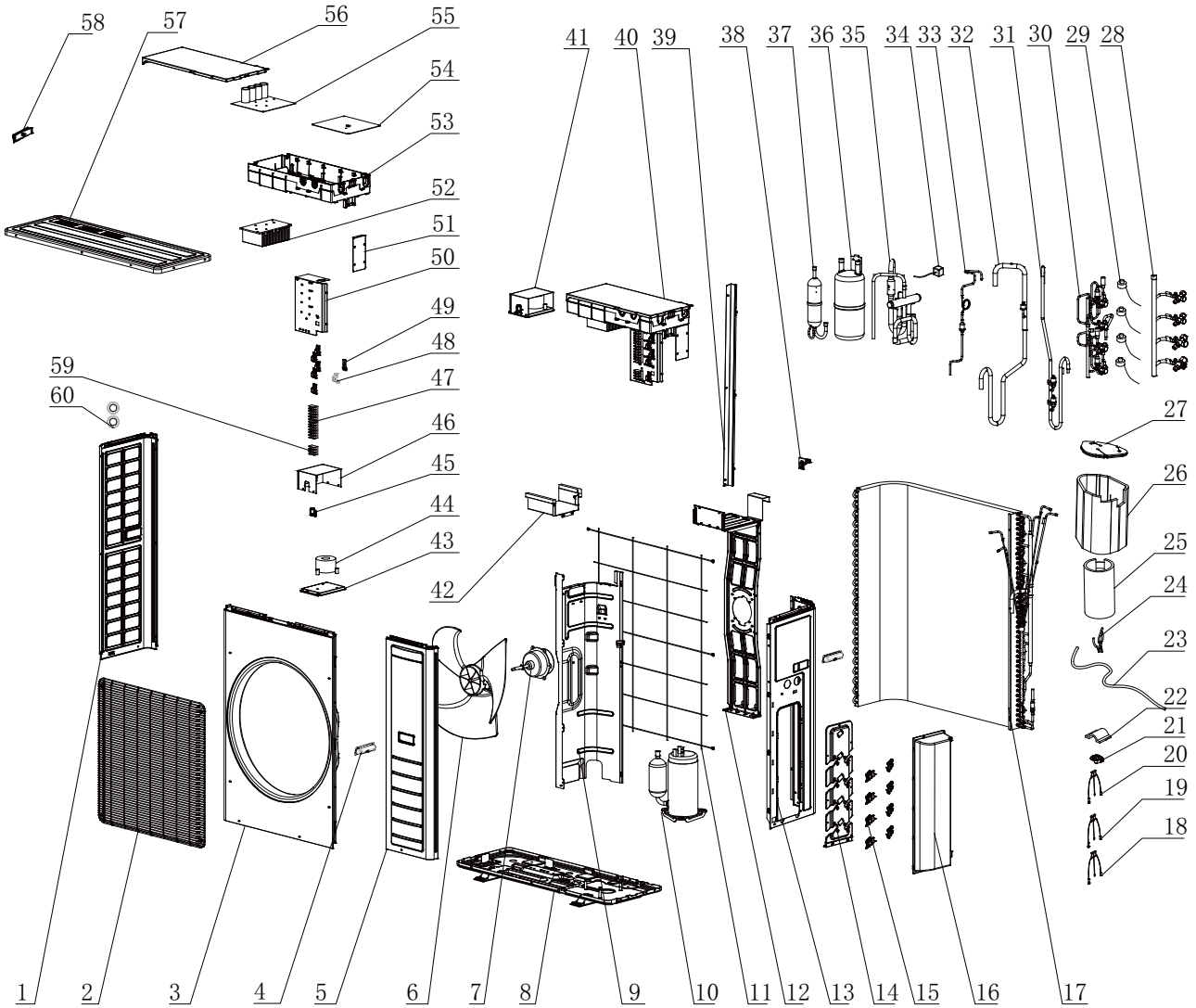
No.	Description	Part Code	Qty
		SUV3-H24/1CGA-N	
	Product Code	KEJ001W0020	
1	Rear grill	K10860013	1
2	Condenser Assy	K10300098	1
3	Top Cover Sub-Assy	K10450023P	1
4	Electric Box Assy	K11800144	1
5	4-way Valve Assy	K12050059	1
6	4-way-valve coil	K3380000501	1
7	Motor Support	K11200024	1
8	suction pipe subassembly	K12640082	1
9	Fan Motor	K16800024	4
10	Small Handle	K22210004	1
11	Left Side Plate Sub-Assy	K10600010P	1
12	aixal flow fan (original color)	K15010004	1
13	electrical heater belt(chassis)	K30800005	1
14	bracket	K10620005	1
15	panel (apriot grey)	K20000025P	1
16	front panel (apriot grey)	K10600012P	1
17	Small Handle	K22210006	2
18	Front Grill	K21600004	1
19	Chassis Sub-assy	K10400058P	1
20	vapour liquid separator	K14410110	1
21	Clapboard Sub-Assy	K10440025	1
22	Compressor and fittings	K10000052	1
23	electric heating belt(compressor)	K3080000401	1
24	electronic expansion valve coil	K3380000401	1
25	big valve subassembly	K14200041	1
26	vavle stopper	K21420020	6
27	Valve Support	K11200022P	1
28	Right Side Plate Sub-Assy	K10600037P	1
29	valve cover	K21420021	1
30	Big Handle	K22210007	1
31	Big Handle pad	K10620004	1
32	reactor	K34020004	1
33	electronic expansion valve assembly	K12050060	1
34	electrical box cover	K20400035	1
35	Main Board	K30050130	1
36	electrical box	K20400034	1
37	Radiator	K34810010	1
38	Insulation pad	K60600004	1
39	Insulation pad	K60600005	1
40	Fixing clamp	K61000004	1
41	Fixing clamp	K61000002	2
42	wiring board	K3360000701	1
43	wiring board	K33600008	3
44	wiring board support	K11230021	1

Model: SUV4-H28/1CGA-N



No.	Description	Part Code	Qty
		SUV4-H28/1CGA-N	
	Product Code	KEJ001W0060	
1	Rear grill	K10860013	1
2	Condenser Assy	K10300166	1
3	Top Cover Sub-Assy	K10450023P	1
4	Electric Box Assy	K11800288	1
5	4-way Valve Assy	K12050096	1
6	4-way-valve coil	K3380000501	1
7	Motor Support	K11200031	1
8	suction pipe subassembly	K12640082	1
9	Fan Motor	K16800024	4
10	Small Handle	K22210004	1
11	Left Side Plate Sub-Assy	K10600010P	1
12	aixal flow fan（original color)	K15010004	1
13	electrical heater belt(chassis)	K30800005	1
14	bracket	K10620005	1
15	panel (apriot grey)	K20000025P	1
16	front panel (apriot grey)	K10600012P	1
17	Small Handle	K22210006	2
18	Front Grill	K21600004	1
19	Chassis Sub-assy	K10400089P	1
20	vapour liquid separator	K14410110	1
21	Clapboard Sub-Assy	K10440025	1
22	Compressor and fittings	K10000052	1
23	electric heating belt(compressor)	K3080000401	1
24	tempreature sensor	K3300000301	1
25	tempreature sensor	K3300000501	1
26	tempreature sensor	K3300000502	1
27	electronic expansion valve coil	K3380001201	1
28	electronic expansion valve coil	K3380001202	1
29	electronic expansion valve coil	K3380001203	1
30	electronic expansion valve coil	K3380001704	1
31	big valve subassembly	K14200056	1
32	vavle stopper	K21420020	8
33	Valve Support	K11200030P	1
34	Right Side Plate Sub-Assy	K1060003701P	1
35	valve cover	K21420032	1
36	Big Handle	K22210007	1
37	Big Handle pad	K10620004	1
38	reactor	K34020004	1
39	electronic expansion valve assembly	K12050093	1
40	electrical box cover	K20400035	1
41	Main Board	K30050132	1
42	electrical box	K20400034	1
43	Radiator	K34810010	1
44	Insulation pad	K60600004	1
45	Insulation pad	K60600005	1
46	Fixing clamp	K61000004	1
47	Fixing clamp	K61000002	2
48	wiring board	K3360000701	1
49	wiring board	K33600008	4
50	wiring board support	K11230021	1

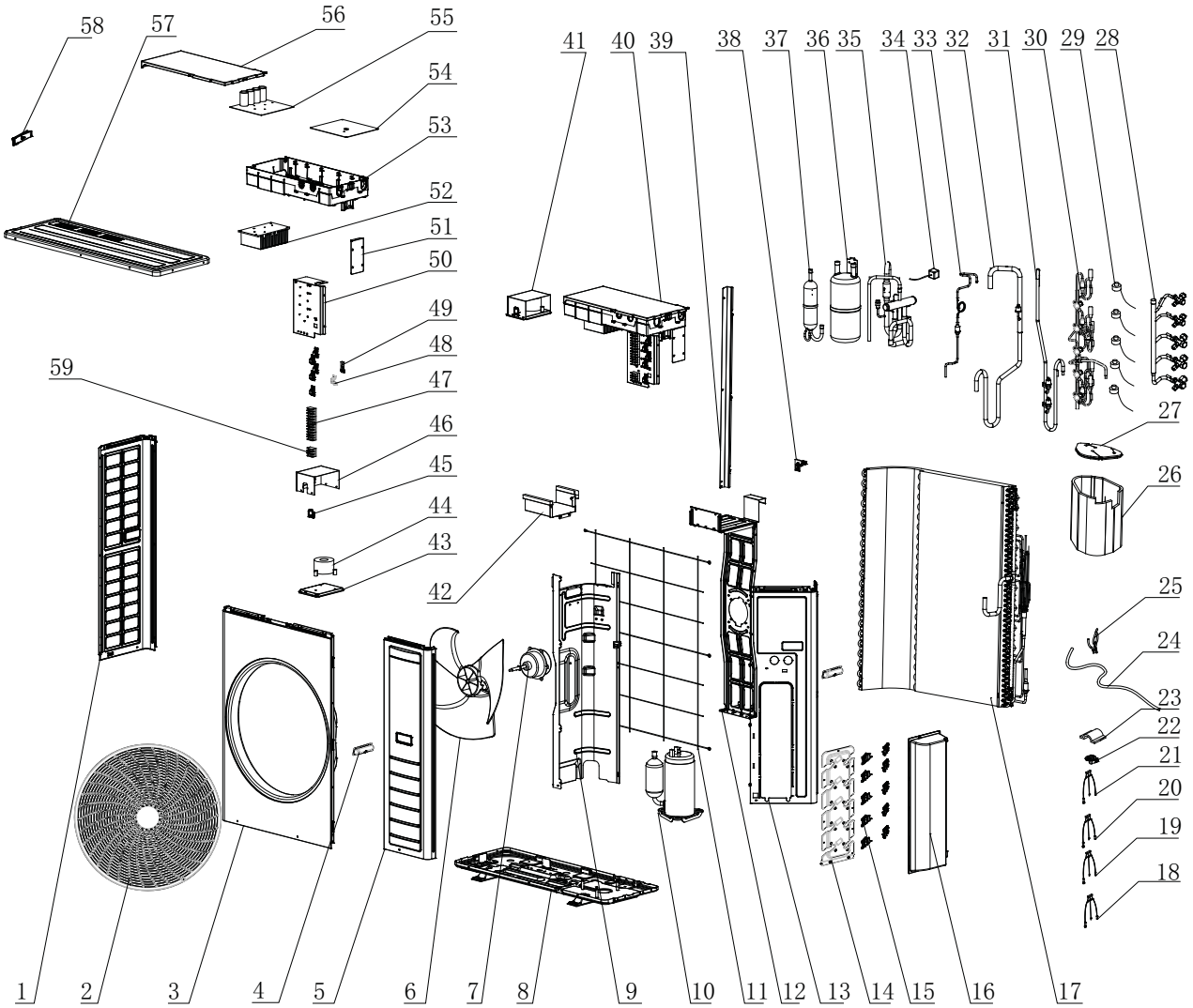
Model: SUV4-H36/1CKA-N



No.	Description	Part Code	Qty
		SUV4-H36/1CKA-N	
	Product Code	KEJ001W0140	
1	left side panel(apricot grey)	K10600050P	1
2	Rear grill	K10860022	1
3	front panel(apricot grey)	K1101001001P	1
4	small handle	K22210006	2
5	front panel	K10600051P	1
6	axial flow fan(original color)	K15010006	1
7	ODU fan motor	K16800024	1
8	chassis subassembly	K10400100P	1
9	Partition board	K10440038	1
10	compressor and accessory	K10000112	1
11	mesh enclosure(Iron mesh)	K10860021	1
12	motor support subassembly	K1120003401	1
13	Right Side Plate Sub-Assy	K1060005202P	1
14	Valve Support	K11200039P	1
15	vavle stopper	K21420020	8
16	valve cover	K21420035	1
17	condenser assembly	K10300199	1
18	temp. sensor 20KT/15KS/50KT-JST-XARP-06V	K33000009	1
19	temp. sensor 20KT/15KS/50KT-JST-XARP-06V	K33000010	1
20	temp. sensor 20KT/15KS/50KT-JST-XARP-06V	K33000011	1
21	drain joint	K13210001	1
22	electric heating cable tabletting	K11410002	10
23	electric heating belt(chassis)	K3080000502	1
24	wiring(compressor)	K33400049	1
25	noise-absorption sponge(inside)	K61410074	1
26	noise-absorption sponge(outside)	K61410075	1
27	noise-absorption sponge（top)	K61410076	1
28	big valve assembly	K14200083	1
29	electronic expansion valve coil	"K3380001701;K3380001702; K3380001703;K3380001704;"	4
30	electronic expansion valve assembly	K12050121	1
31	discharge pipe subassembly	K12630111	1
32	suction pipe subassembly	K12640109	1
33	capillary subassembly(recyle lube oil)	K12000175	1
34	4-way-valve coil	K3380000504	1
35	4-way-valve assembly	K12050138	1
36	vapour liquid separator	K14410105	1
37	oil separator	K14410243	1
38	temperature sensor support	K61000007	1

No.	Description	Part Code	Qty
		SUV4-H36/1CKA-N	
	Product Code	KEJ001W0140	
39	support panel	K10620052	1
40	electric box assembly	K11800419	1
41	electric box assembly2	K11800417	1
42	air louver	K15200051	1
43	supporting board(electric box)	K10620051	1
44	inductor	K34010014	1
45	plastic fixing coil	K22200001	1
46	electric box	K10820012	1
47	wiring board(3 unit)	K33600030	4
48	wire fix clamp	K61000004	5
49	insulation gasket	K60600004	5
50	wiring board support	K11230027	1
51	fixing board	K11240013	1
52	radiator	K34810017	1
53	electric box	K20400047	1
54	main board	K30050201	1
55	main board	K30050202	1
56	electric box cover	K20600034	1
57	top cover(apricot grey)	K10450035P	1
58	small handle	K22210004	2
59	wiring board(3 unit)	K33600030	1
60	Plastic over coil	K22200002	2

Model: SUV5-H42/1CKA-N



No.	Description	Part Code	Qty
		SUV5-H42/1CKA-N	
	Product Code	KEJ001W0150	
1	left side panel(apricot grey)	K10600050P	1
2	Rear grill	K21600007	1
3	front panel(apricot grey)	K11010010P	1
4	small handle	K22210006	1
5	front panel	K10600051P	1
6	axial flow fan(original color)	K15010006	1
7	ODU fan motor	K16800024	1
8	chassis subassembly	K10400123P	1
9	Partition board	K10440038	1
10	compressor and accessory	K10000112	1
11	mesh enclosure(Iron mesh)	K10860021	1
12	motor support subassembly	K1120003401	1
13	Right Side Plate Sub-Assy	K1060005202P	1
14	Valve Support	K11200037P	1
15	vavle stopper	K21420020	10
16	valve cover	K21420035	1
17	condenser assembly	K10300229	1
18	temp. sensor 20KT/15KS/50KT-JST-XARP-06V	K33000009	1
19	temp. sensor 20KT/15KS/50KT-JST-XARP-06V	K33000010	1
20	temp. sensor 20KT/15KS/50KT-JST-XARP-06V	K33000011	1
21	temp. sensor 20KT/20KT-XH-4P-K3	K33000012	1
22	drain joint	K13210001	1
23	electric heating cable tabletting	K11410002	13
24	electric heating belt(chassis)	K3080000502	1
25	wiring(compressor)	K33400049	1
26	noise-absorption sponge(outside)	K61410075	1
27	noise-absorption sponge(top)	K61410076	1
28	big valve assembly	K14200082	1
29	electronic expansion valve coil	"K3380001701;K3380001702 K3380001703;K3380001704;K3380001705"	5
30	electronic expansion valve assembly	K12050113	1
31	discharge pipe subassembly	K12630111	1
32	suction pipe subassembly	K12640109	1
33	capillary subassembly(recyle lube oil)	K12000175	1
34	4-way-valve coil	K3380000504	1
35	4-way-valve assembly	K12050148	1
36	vapour liquid separator	K14410105	1
37	oil separator	K14410243	1
38	temperature sensor support	K61000007	1

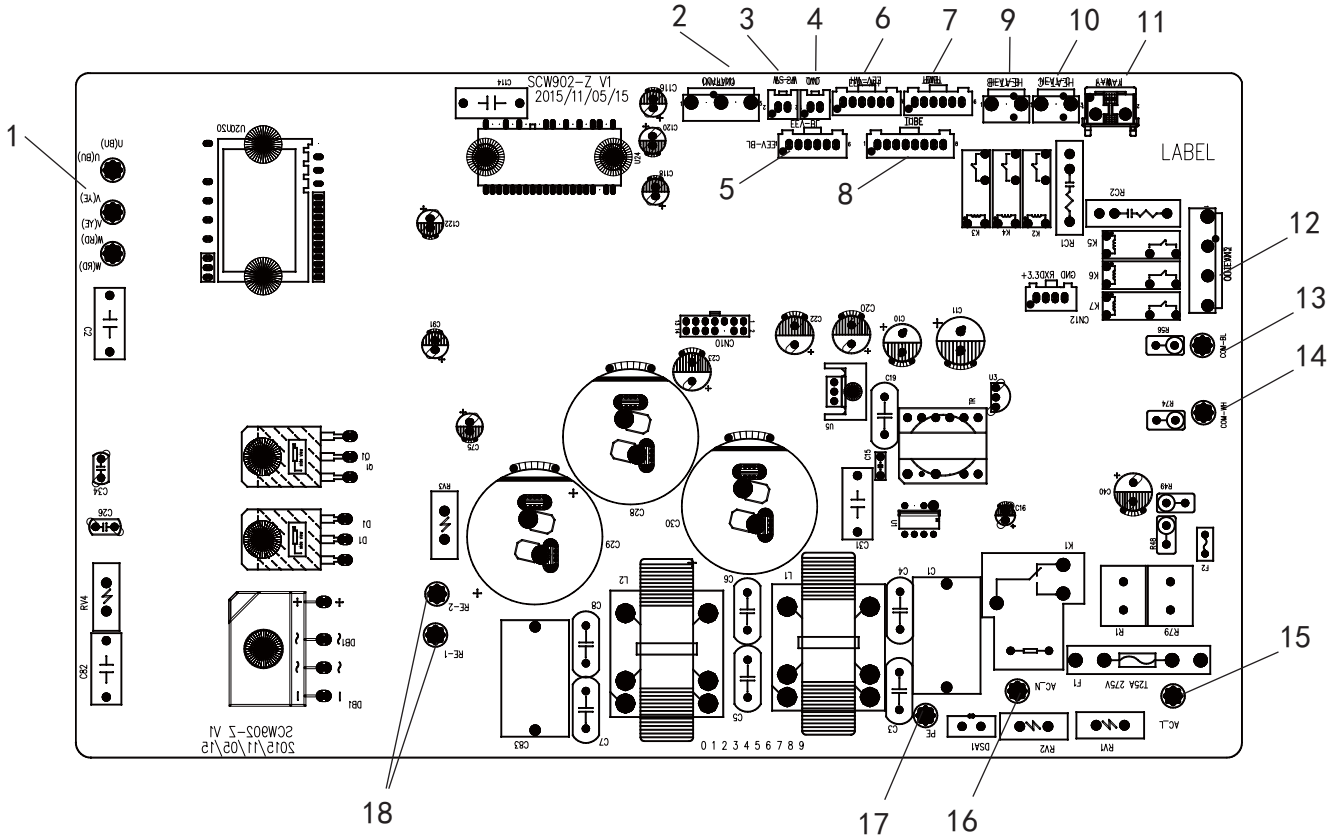
No.	Description	Part Code	Qty
		SUV5-H42/1CKA-N	
	Product Code	KEJ001W0150	
39	support panel	K10620052	1
40	electric box assembly	K11800487	1
41	electric reactor assembly	K11800417	1
42	air louver	K15200051	1
43	supporting board(electric box)	K10620051	1
44	inductor	K34010014	1
45	plastic fixing coil	K22200001	1
46	electric box	K10820012	1
47	wiring board(3 unit)	K33600008	5
48	wire fix clamp	K61000004	5
49	insulation gasket	K60600004	5
50	wiring board support	K11230027	1
51	fixing board	K11240013	1
52	radiator	K34810017	1
53	electric box	K20400047	1
54	main board	K30050157	1
55	main board	K30050202	1
56	electric box cover	K20600034	1
57	top cover(apricot grey)	K10450035P	1
58	small handle	K22210004	1
59	wiring board	K3360003001	1

8. Troubleshooting

8.1 PCB Printed Diagram

Outdoor Unit(18K)

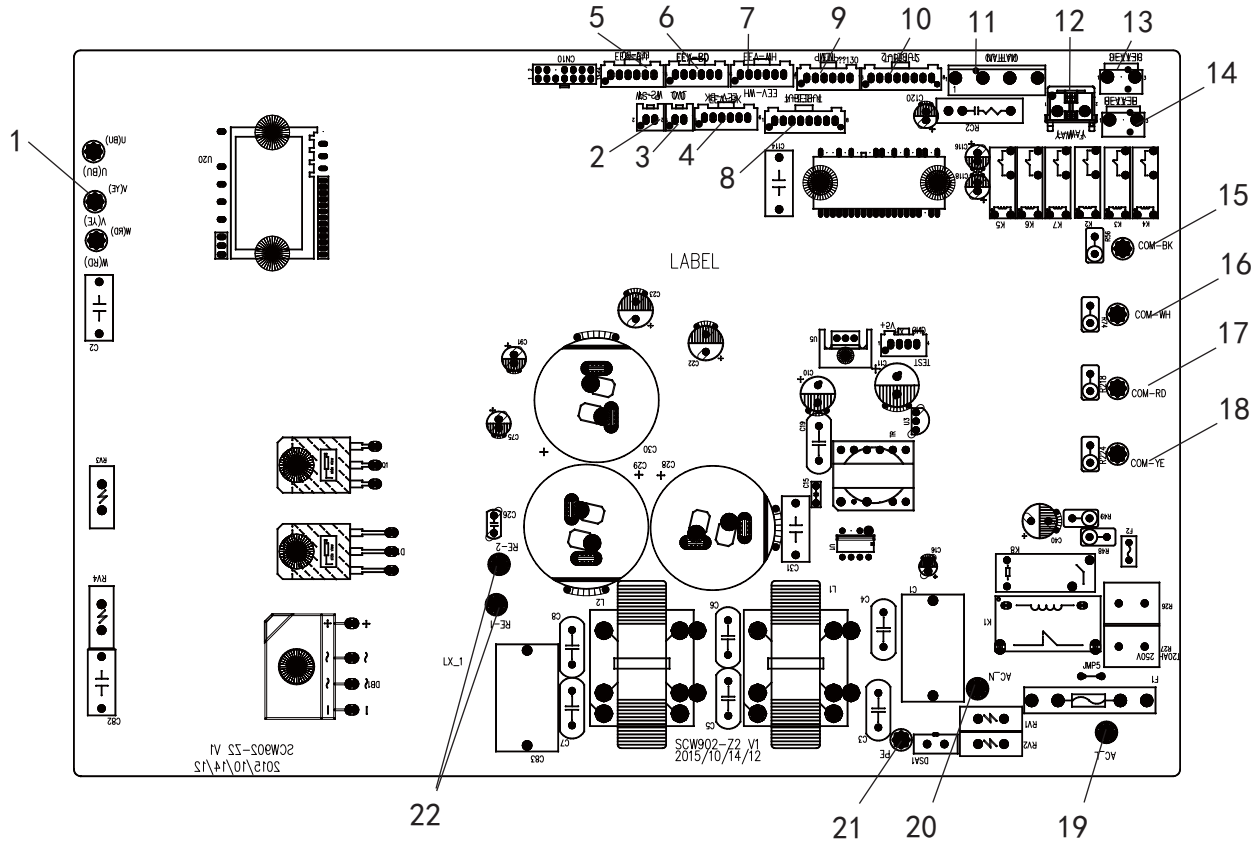
● Top View



NO.	Silk scren name	Connector	function note
1	U (BU) V (YE) W (RD)	Compressor power line interface	Connect compressorU(BU) connect blue V (YE) connect yellow W(RD) connect red
2	OUTFAN1	DC fan interface	Connect outdoor DC fan
3	P-SW	Pressure switch interface	Connect pressure switch (Reserve)
4	OVL	Overload interface	Connect compressor overload (Reserve)
5	EEV-BL	Elec!ronic expansion valve in!erface	Connect nO.1 electronic expansion valve black interface
6	EEV-WH	Elec!ronic expansion valve in!erface	Connect no.2 electronic expansion valve white interface
7	TEMP	Temp testing interface	Connect temp sensor
8	TUBE	Pipe temp testing interface	Connect 1&2 pipe temp sensor
9	HEAT-B	Chassis electrical heater inteace	Connect chassis electrical heater belt
10	HEAT-G	Compressor elec!rical hea!er in!erface	Connect compressor electrical heater belt
11	F-WAY	4- ay-valve interface	Connect 4 tay-valve
12	OUTFAN2	AC fan interface	Connect outdoor AC fan
13	GOM-BL	Communication interface	NO.1 communication interfaceblack
14	GOM-WH	Communication interface	NO.2 communication interfacewhite
15	AG L	Power live wire inteace	Connect power live wire
16	AG N	Power naught wire interface	Connect power naught wire
17	PE	Earth wire inteace	Connect earth wire
18	RE-1.RE-2	Reactor interface	Connect reactor

Outdoor Unit(24K/28K)

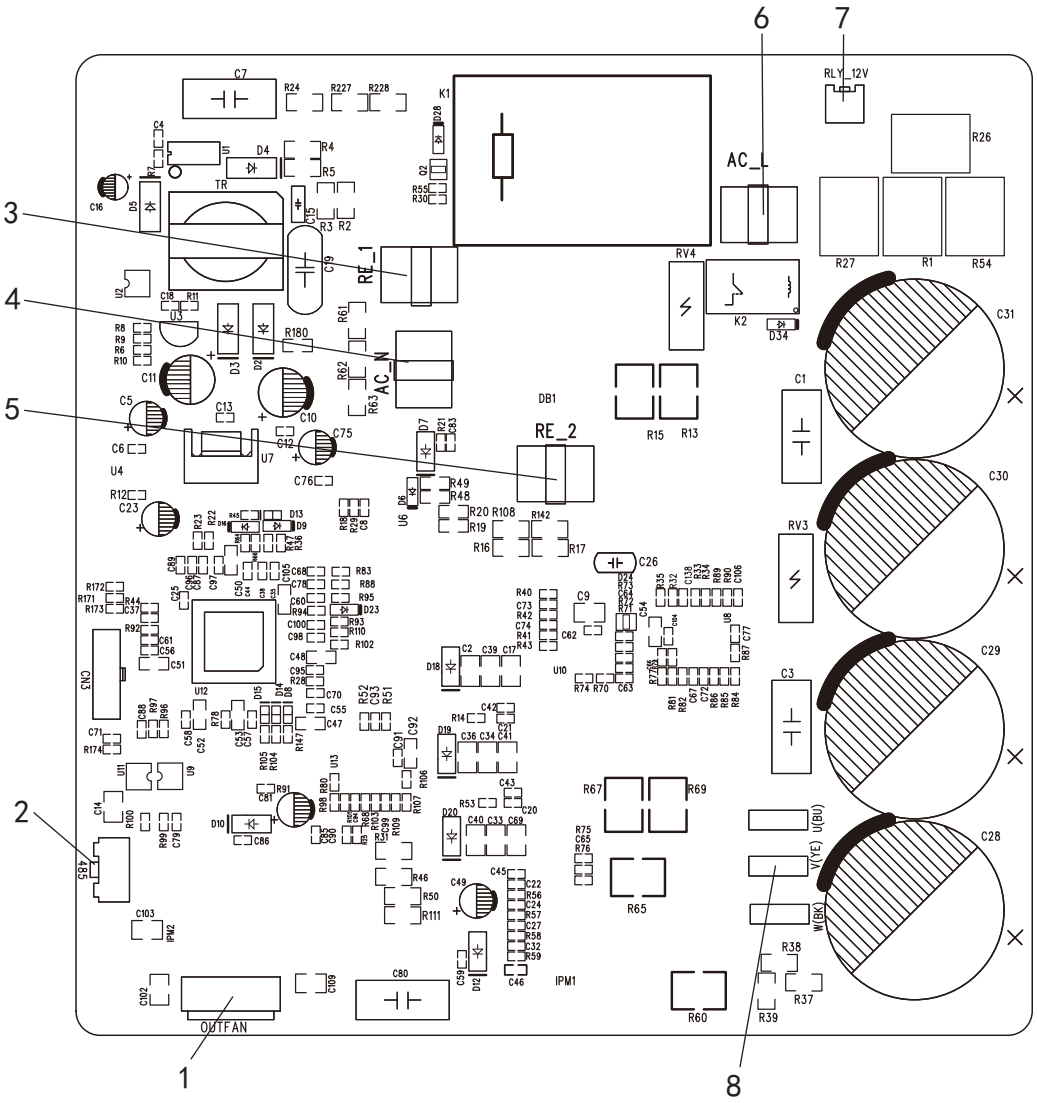
● Top View



NO.	Silk scren name	Connector	function note
1	U (BU) V (YE) W (RD)	ompressor power line interface	"Connect compressorU(BU) connect blue (YE) connect yellow W(RD) connect red"
2	P-SW	Pressure switch interface	Connect pressure switch (Reserve)
3	OVL	Overload interface	Connect compressor overload (Reserve)
4	EEV-BK	Elec!ronic expansion valve in!erface	Connect nO.1 electronic expansion valve black interface
5	EEV-WH	Elec!ronic expansion valve in!erface	Connect no.2 electronic expansion valve white interface
6	EEV-RD	Elec!ronic expansion valve in!erface	Connect nO.3 electronic expansion valve red interface
7	EEV-BU	Elec!ronic expansion valve in!erface	(CRoensneerved)n 4electmnlc expansion valve blue inter ce
8	TUBE3-4	Pipe temp testing interface	Connect nO.3 temp sensor
9	TEMP	rremp sensor interface	Connect temp sensor
10	TUBE1-2	Pipe temp testing interface	Connect no 1 2 pipe temp sensor
11	OUTFAN	Fan interface	Connect outdoor fan interface
12	F-WAY	4-way-valve interface	Connect 4-way-valve
13	HEAT-G	Compressor elec!rical hea!er in!erface	Connect compressor electrical heater belt
14	HEAT-B	Chassis electrical heater interface	Connect chassis electrical heater belt
15	GOM-BL	Communication inteace	NO.1 communication interfaceblack
16		Communication inteace	NO.2 communication interfacewhite
17	GOM-RD	Communication interface	NO.3 co 1 lunication interfacered
18	GOM-YE	Communication interface	No.4 communication interfaceyellow (Reserve
19	AC L	Power live wire	Connect power live wire
20	AC N	Power naught wire	Connect power naught wire
21	PE	Earth wire interface	Connect earth wire
22	RE-1RE-2	Reactor interface	Connect reactor

Outdoor Unit(36K)

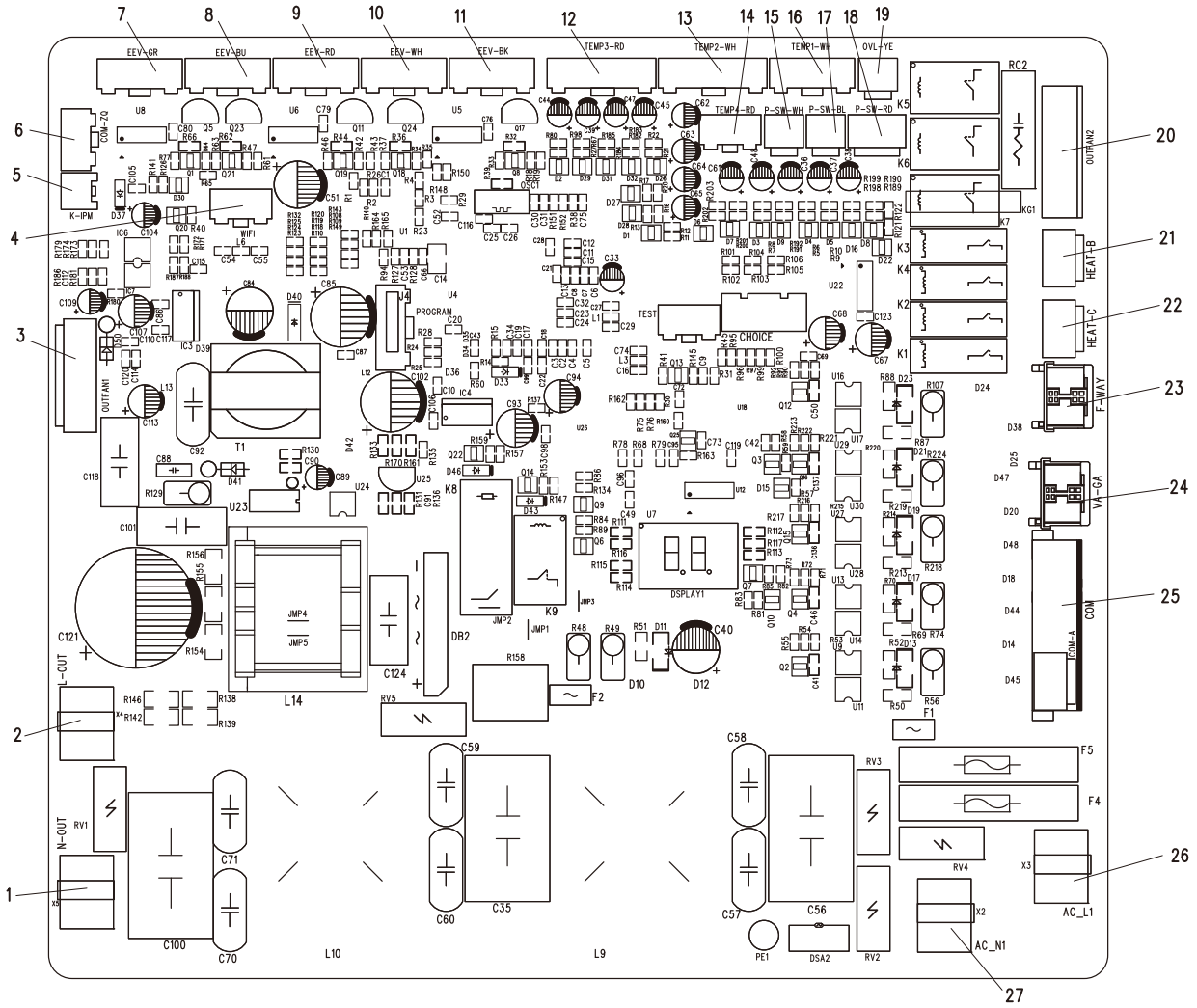
● Top View



NO.	Silkscreen name	Connector	Function note
1	OUTFAN	DC fan interface	connect to outdoor DC fan
2	485	485 communication interface	connect to 485 communication interface
3	RE_1	NO.1 reactor interface	connect NO.1 reactor
4	AC_N	power naught wire interface	connect power naught wire
5	RE_2	NO.2 reactor interface	connect NO.2 reactor
6	AC_L	power live wire	connect power live wire
7	RLY_12V	relay 12V power line interface	connect to relay
8	U(BU) V(YE) W(BK)	compressor power line interface	"connect compressorU(BU) connect blue V (YE) connect yellow W(RD) connect red"

Outdoor Unit(42K)

● Top View

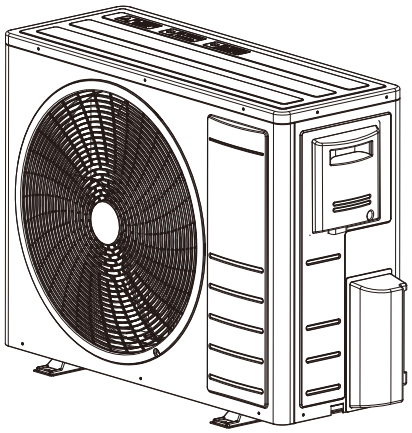
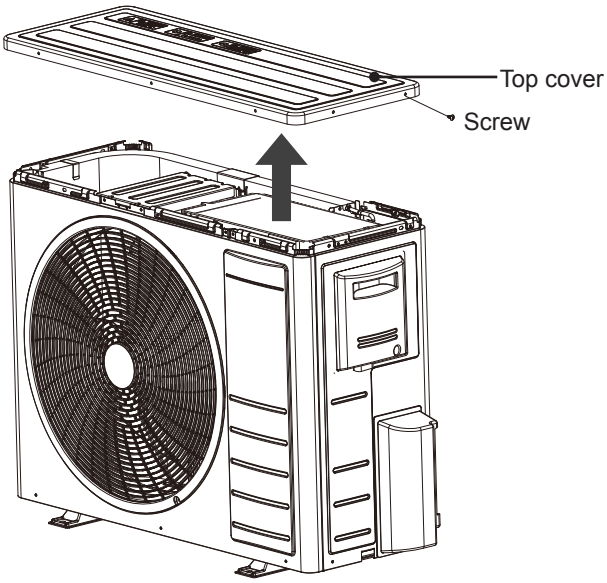
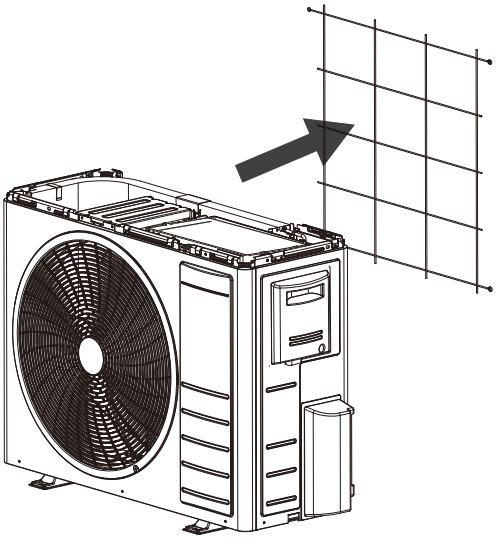


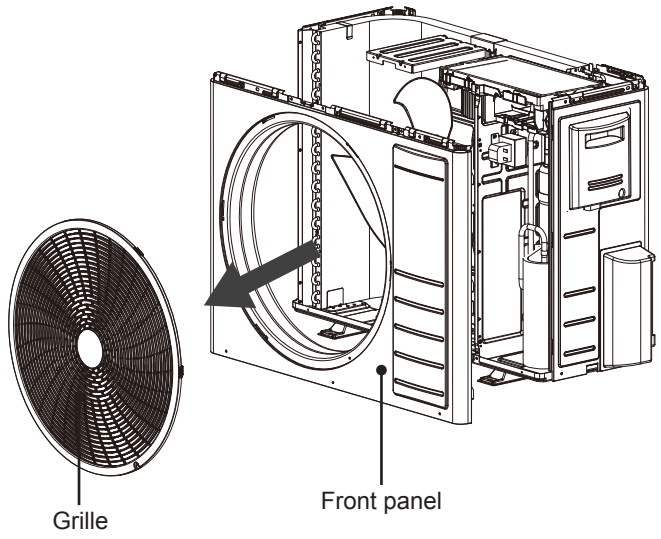
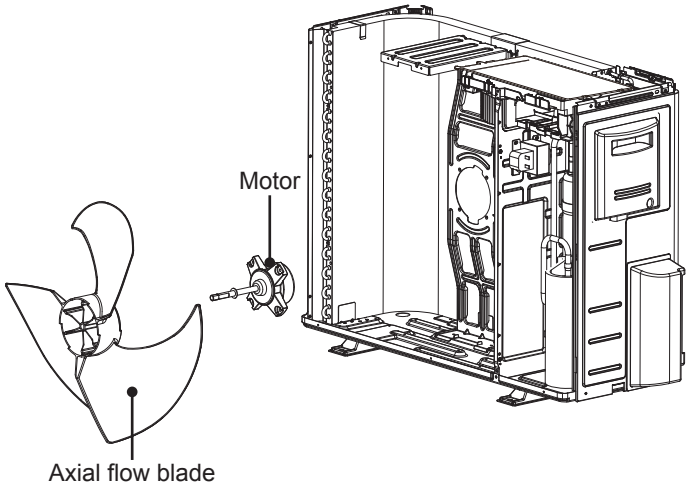
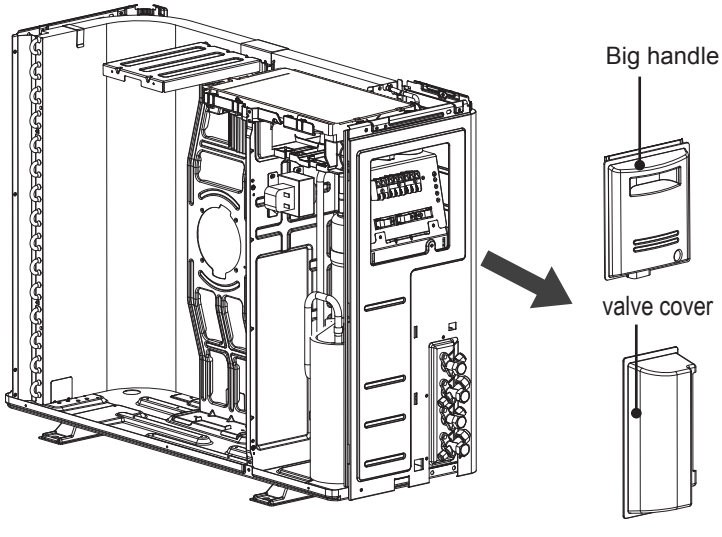
NO.	Silkscreen name	Connector	Function note
1	N_OUT	naught wire out interface	connect nautht out wire interface
2	L_OUT	live wire out interface	connect live out wire interface
3	OUTFAN1	NO.1 DC fan interface	connect to NO.1 outdoor DC fan
4	WIFI	WIFI interface	connect to WIFI module
5	K-IPM	IPM control interface	connect to IPM control interface
6	COM-ZQ	communication of mainboard and drive board	connect to communication of mainboard and drive board interface
7	EEV-GR	electronic expansion valve interface	"connect NO.5 electronic expansion valve green interface"
8	EEV-BU	electronic expansion valve interface	"connect NO.4 electronic expansion valve blue interface"
9	EEV-RD	electronic expansion valve interface	"connect NO.3 electronic expansion valve red interface"
10	EEV-WH	electronic expansion valve interface	"connect NO.2 electronic expansion valve white interface"
11	EEV-BK	electronic expansion valve interface	"connect NO.1 electronic expansion valve black interface"
12	TEMP3-RD	temp sensor interface	connect NO.3 temp sensor
13	TEMP2-WH	temp sensor interface	connect NO.2 temp sensor
14	TEMP4-RD	temp sensor interface	connect NO.4 temp sensor
15	P-SW-WH	pressure switch interface	connect pressure switch (white)
16	TEMP1-WH	temp sensor interface	connect NO.1 temp sensor
17	P-SW-BL	pressure switch interface	connect pressure switch (blue)
18	P-SW-RD	pressure switch interface	connect pressure switch (red)
19	OVL-YE	overload interface	connect compressor overload
20	OUTFAN2	NO.2 DC fan interface	connect to NO.2 outdoor DC fan
21	HEAT-B	compressor electrical heater interface	connect chassis electrical heater belt
22	HEAT-C	chassis electrical heater interface	connect compressor electrical heater belt
23	F-WAY	4-way-valve interface	connect 4-way-valve
24	VA-GA	gas bypass valve interface	connect gas bypass valve
25	COM	communication interface	connect to communication interface
26	AC_L1	live wire interface	connect live out wire
27	AC_N1	naught wire interface	connect naught out wire

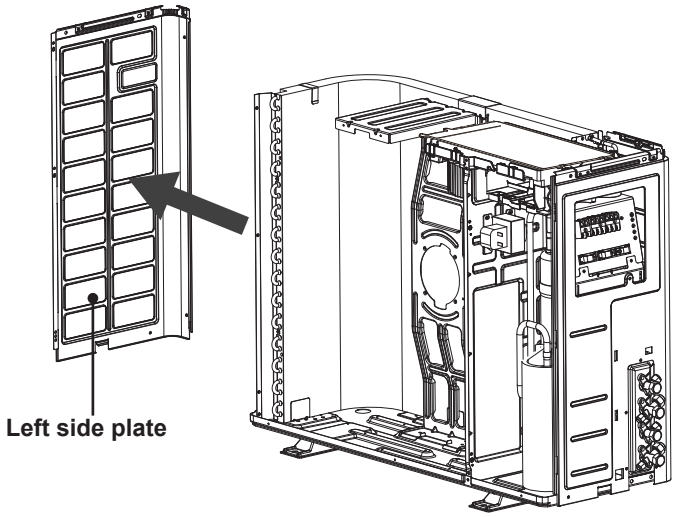
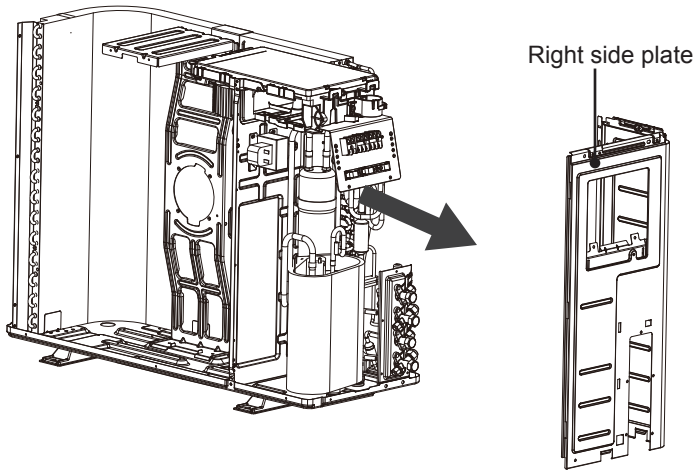
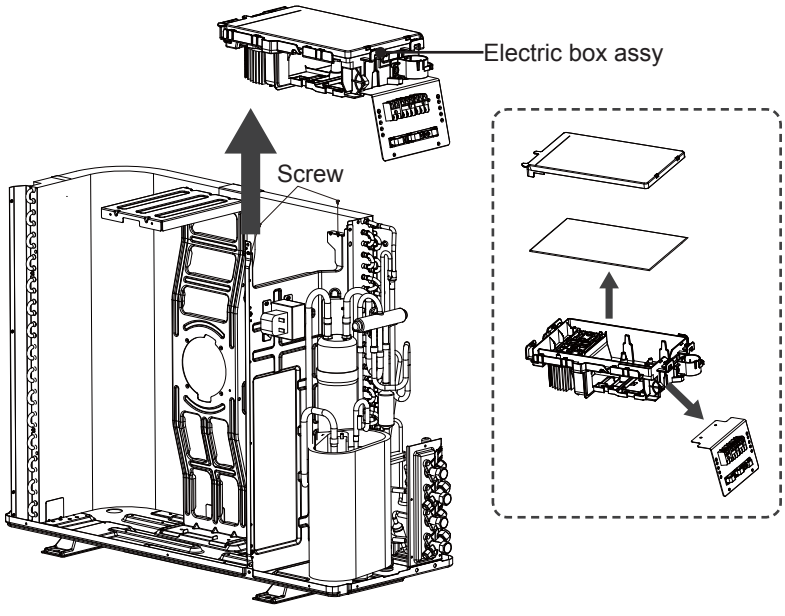
9. Removal Procedure

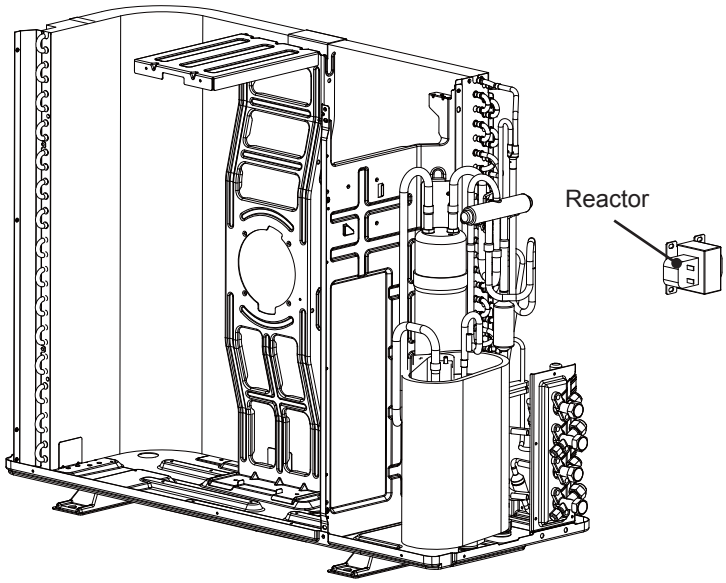
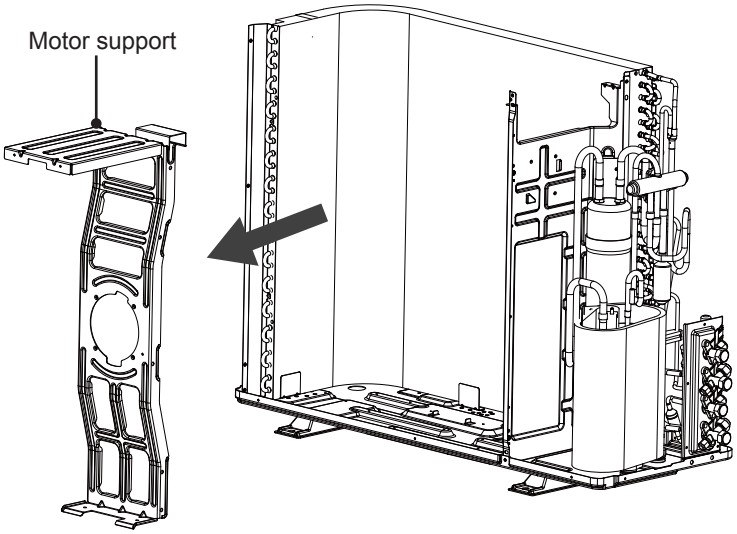
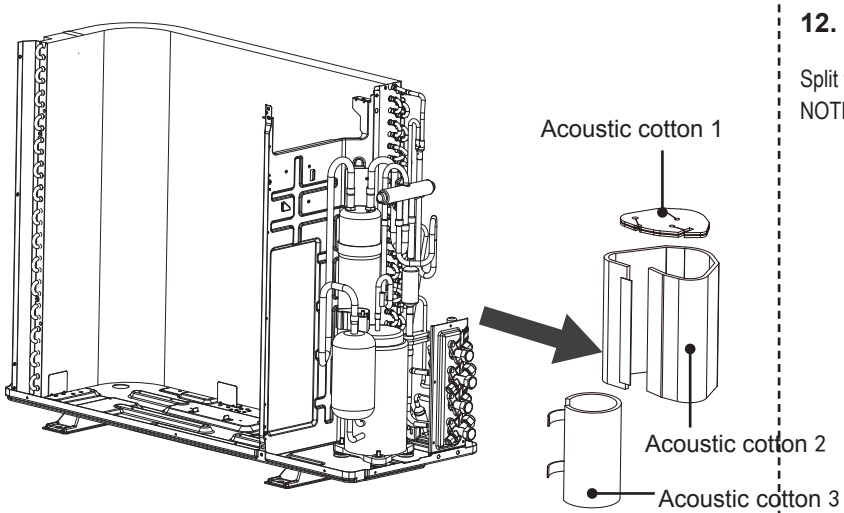
9.1 Removal Procedure of Outdoor Unit(18K)

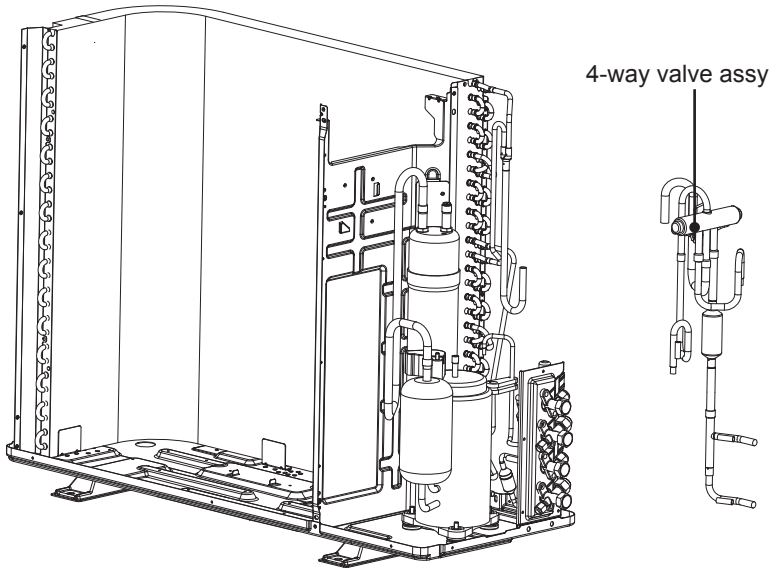
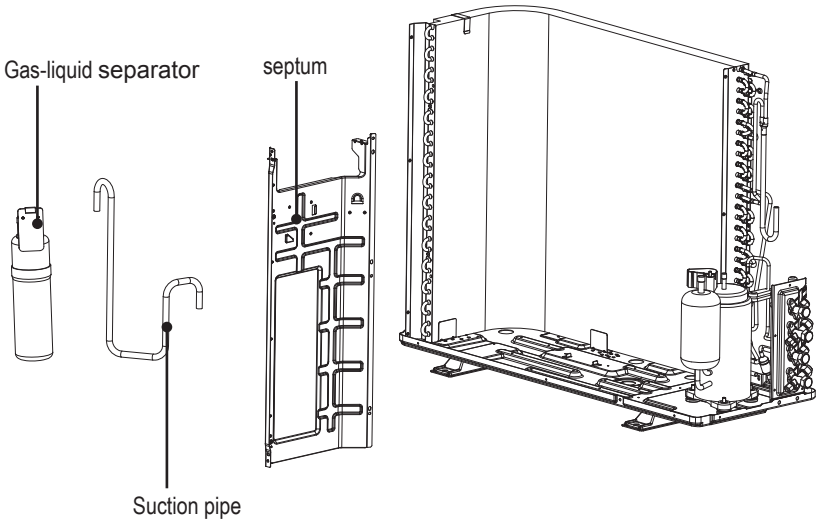
Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

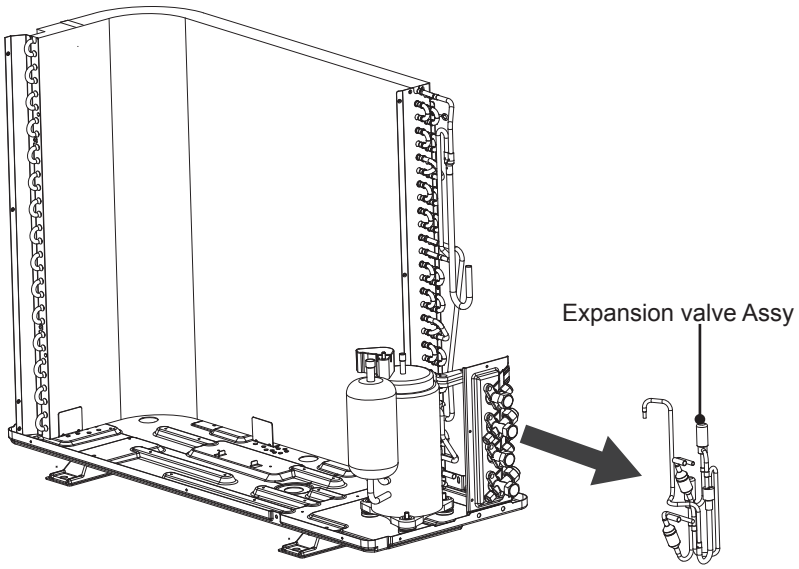
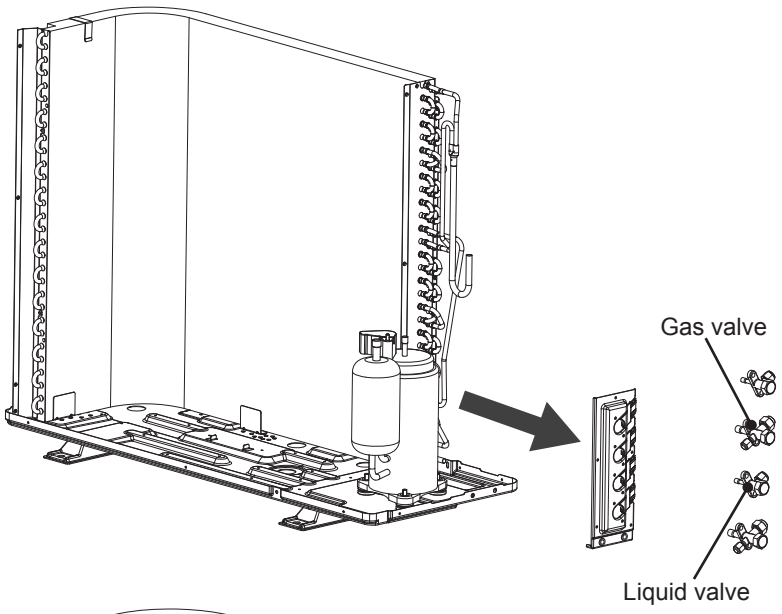
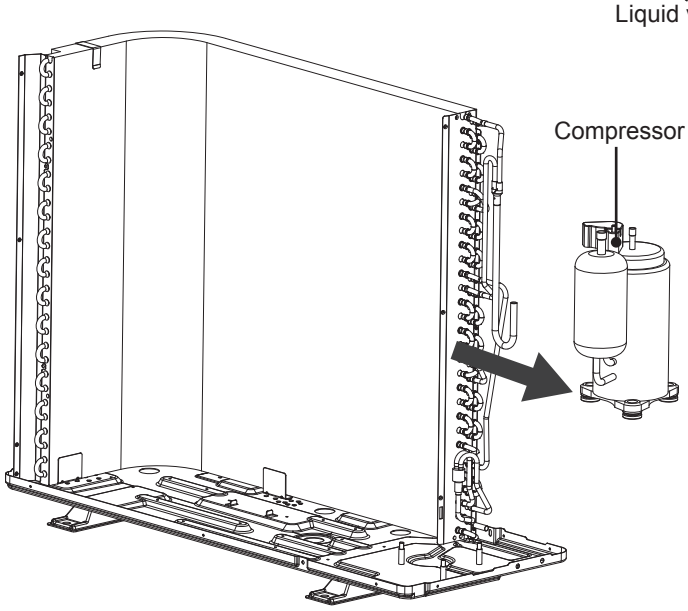
Procedure	Note
	**1.Before disassembly**
	**2. Remove top cover** Remove connection screws connecting the top cover plate with the front panel and the right side plate, and then remove the toppanel.
	**3. Remove protective grille** Remove the screws fixing protective grille and then remove the protective grille.

Procedure	Note
	**4.Remove grille and panel** A: Remove connection screws between the front grille and the front panel. Then remove the front grille. B: Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel.
	**5.**Remove axial flow blad and Motor Remove the nut fixing the blade and then remove the axial flow blade. Remove tapping screws fixing the motor anddisconnect the leading wire insert of the motor. Then remove the motor。
	**6.**Remove big handle valve cover Remove the connection screw fixing the big handle and then remove the handle. Use a screwdriver to fixed valve cover screwdrive,pull up to remove the valve cover.

Procedure	Note
	**7. Remove left side plate** Remove connection screws connecting the left side plate with the condenser assy. Then remove the left side plate.
	**8. Remove right side plate** Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.
	**9. Remove electric box assy** Remove screws fixing the electric box assy; loosen the wire bundle and unplug the wiring terminals. Then lift the electric box to remove it.

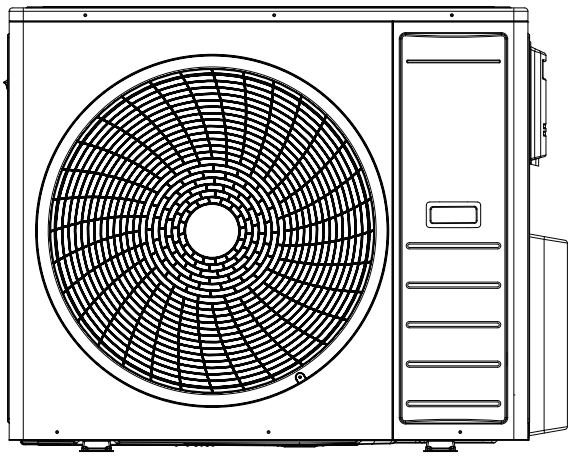
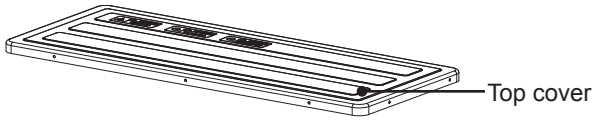
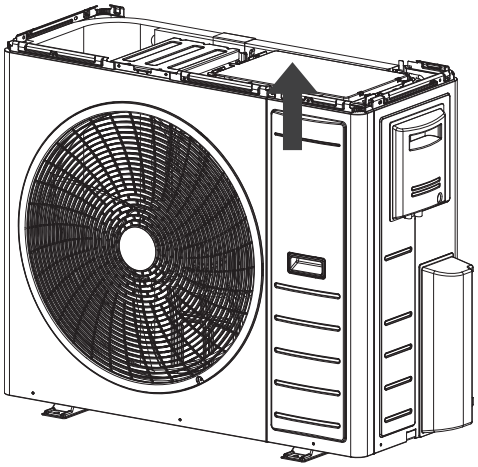
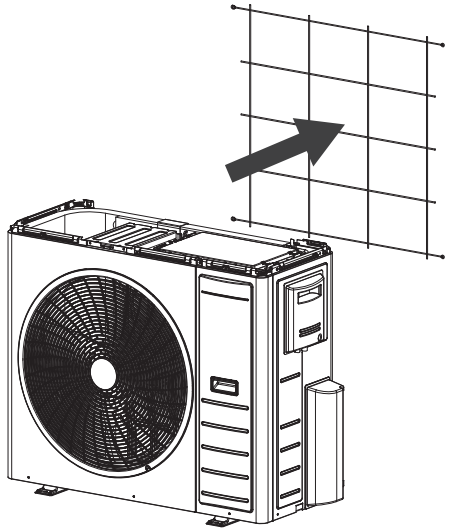
Procedure	Note
	**10.** Remove Reactor Take off the fixed scre,and you could take off the reactor.
	**11. Remove motor support** Unscrewed the chassis and the motor bracket fixed screw, motor bracket is desirable.
	**12.** Remove acoustic cotton Split the acoustic cotton lock,and take out 3 pcs slowly. NOTE: Do not damage the pipe.

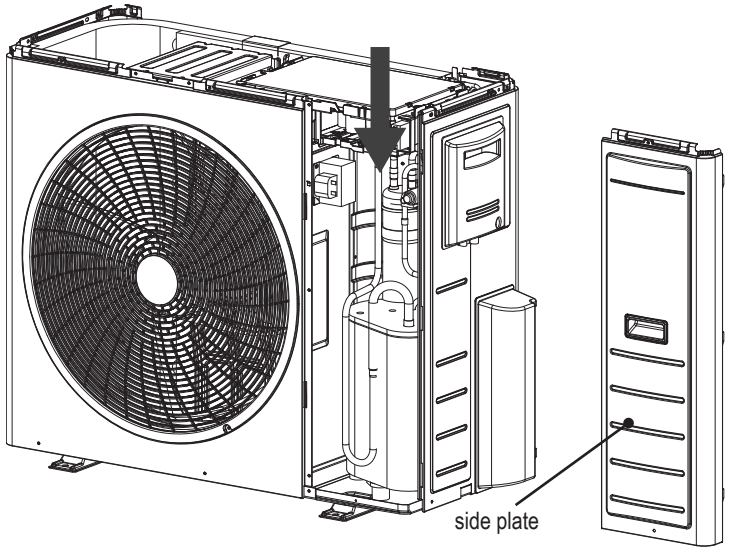
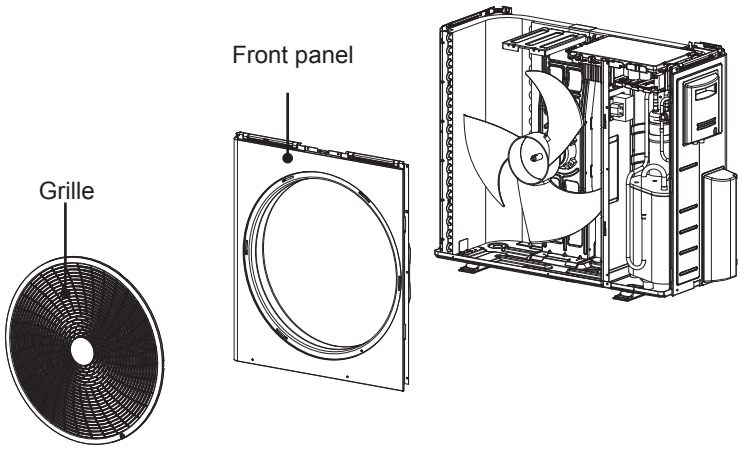
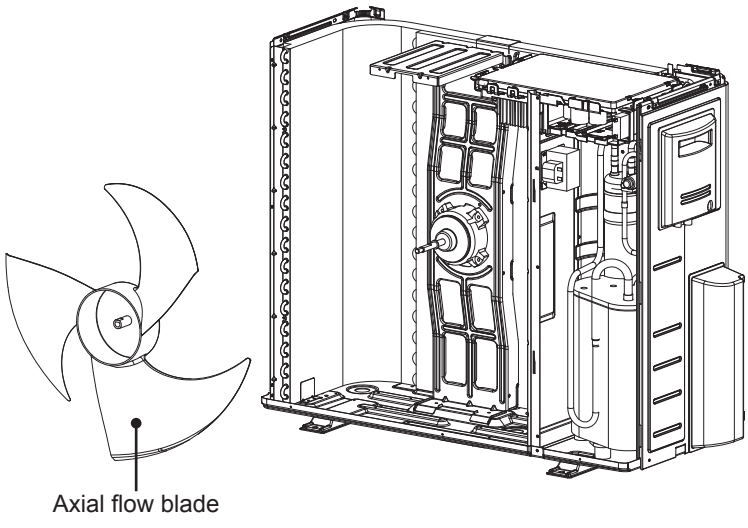
Procedure	Note
	**13. Remove 4-way valve assy** Unsolder the spot weld of 4-way valve assy, compressor and condenser, and then remove the 4-way valve assy . **Warning** Discharge the refrigerant completely before unsoldering,when unsoldering, wrap the gas valve with awet cloth completely to avoid damage to thevalve caused by high temperature. When unsoldering the spot weld, wrap the 4-way valve with wet cloth completely to avoid damaging the valve due to high temperature.
	**14.** Gas liquid separator and diaphragm Open the suction of spot welding, remove the suction pipe. Use a screwdriver unscrewed the fixed screw of gas-liquid separator, the upward gas-liquid separator, remove the gas-liquid separator . Use screw knife clapboard and chassis have fixed screw drive, remove the partition .

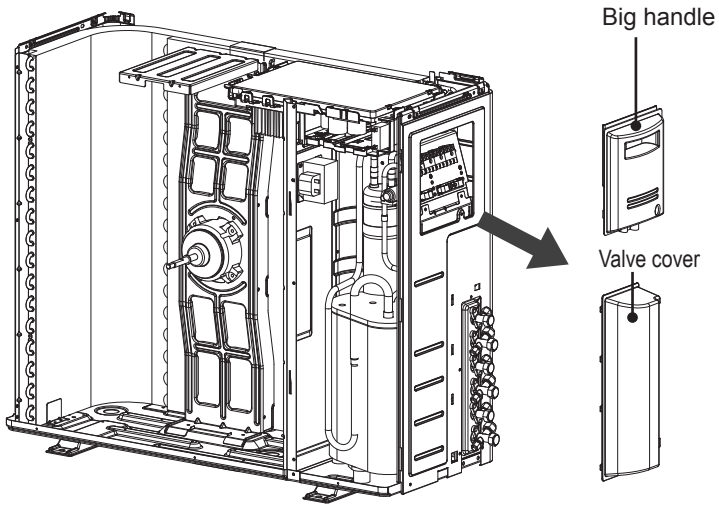
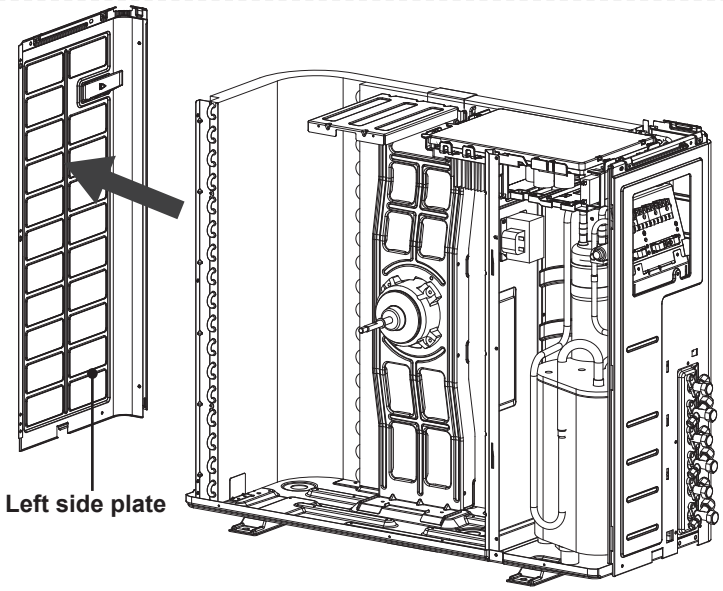
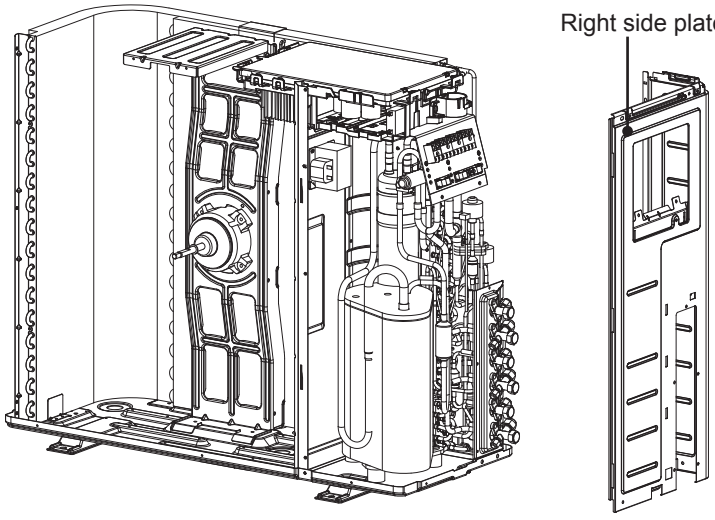
Procedure	Note
	**15. Remove Expansion valve Assy** Unsolder the spot weld of expansion valve assy, liquid valve and condenser, and then remove the expansion valve assy .
 	**16. Remove the compressor** A: Remove the 2 screws fixing the gas valve and unsolder the welding joint between the gas valve and the air-return pipe to remove the gas valve. B: Remove the foot nuts on the compressor and then remove the compressor.

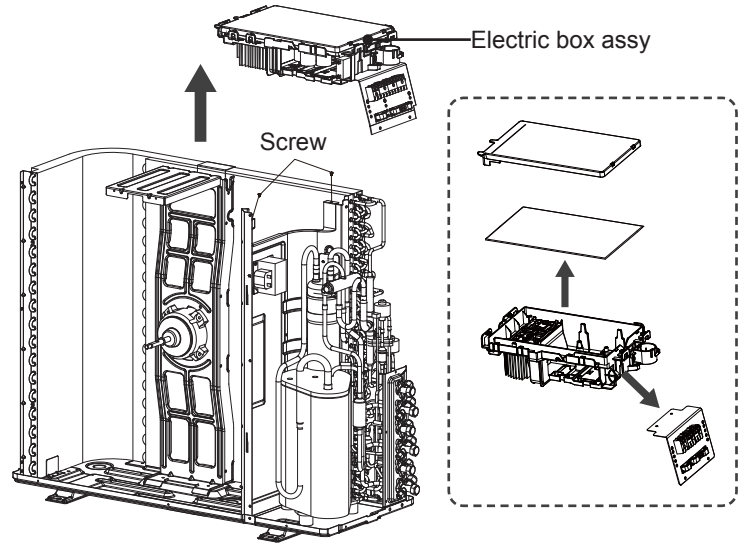
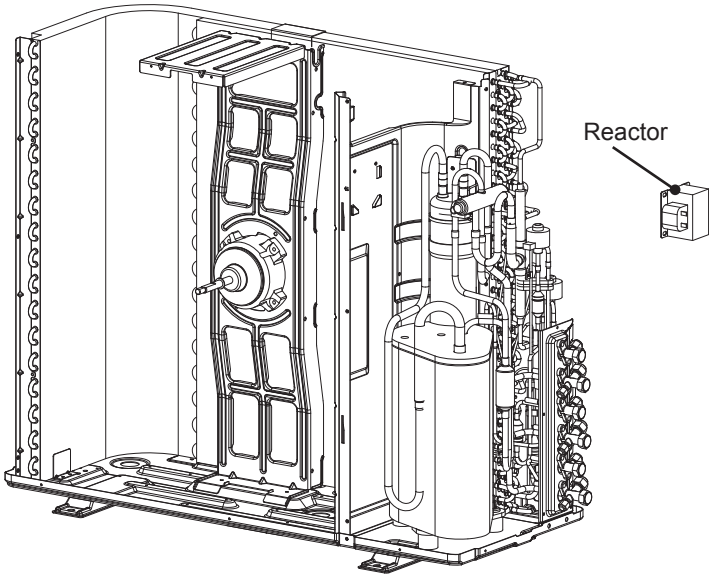
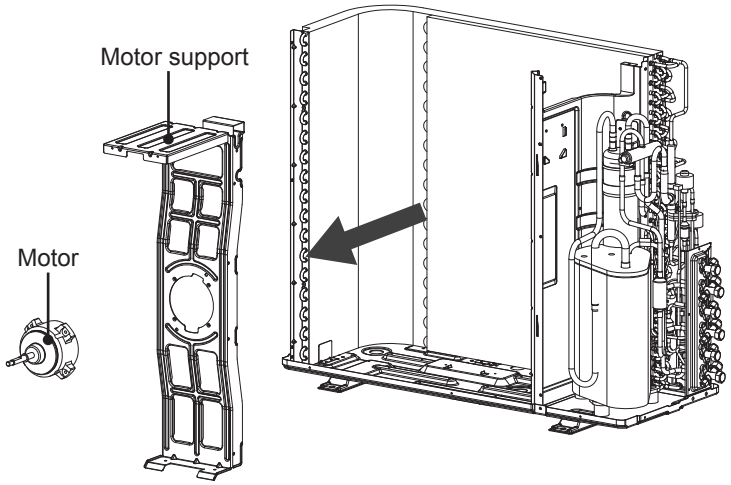
9.2 Removal Procedure of Outdoor Unit

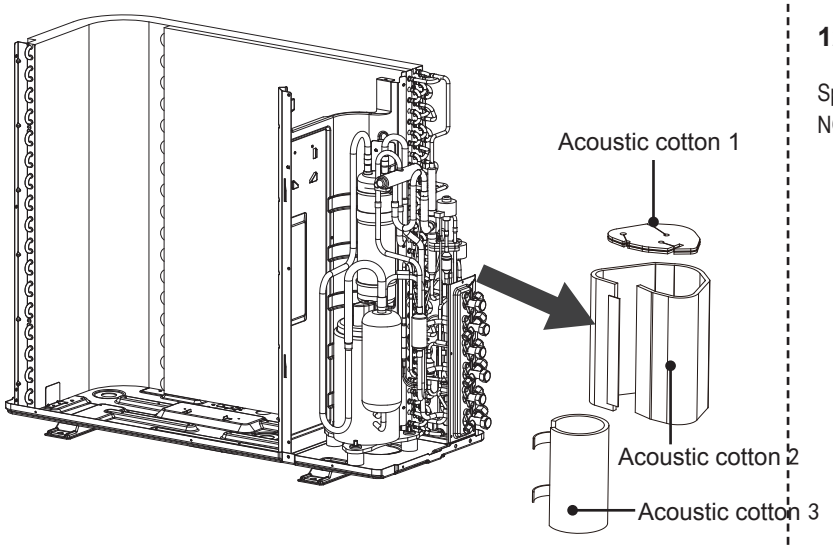
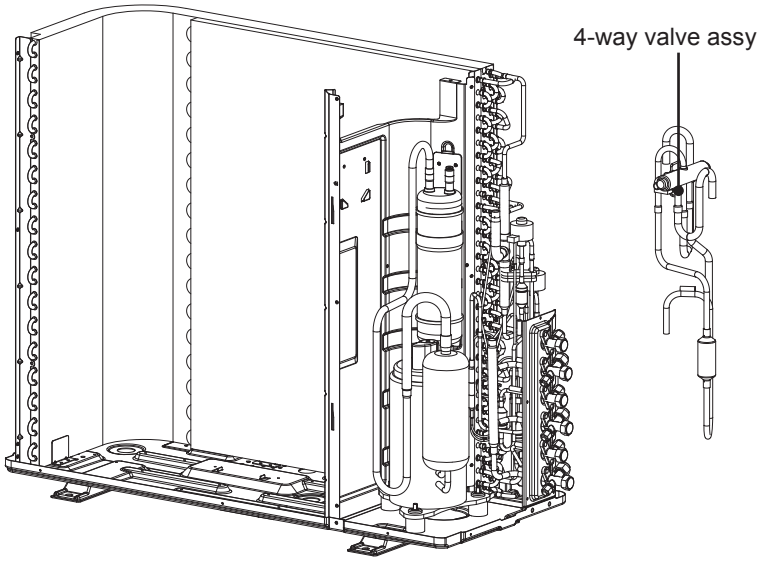
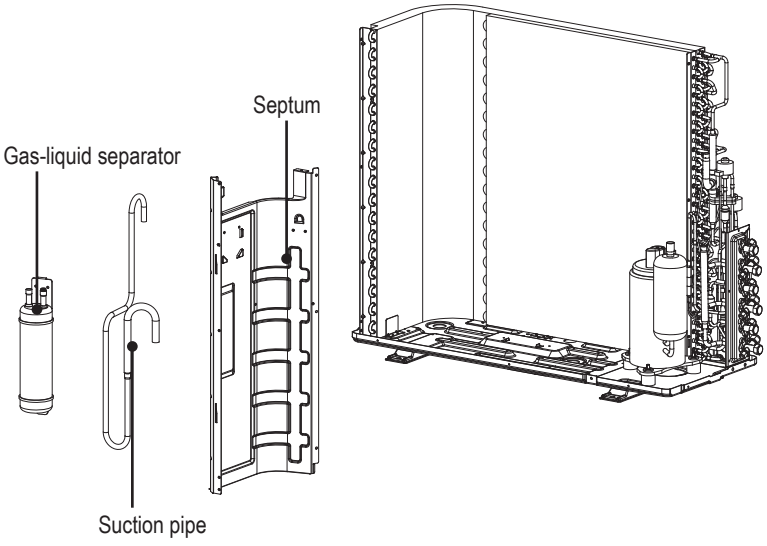
Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

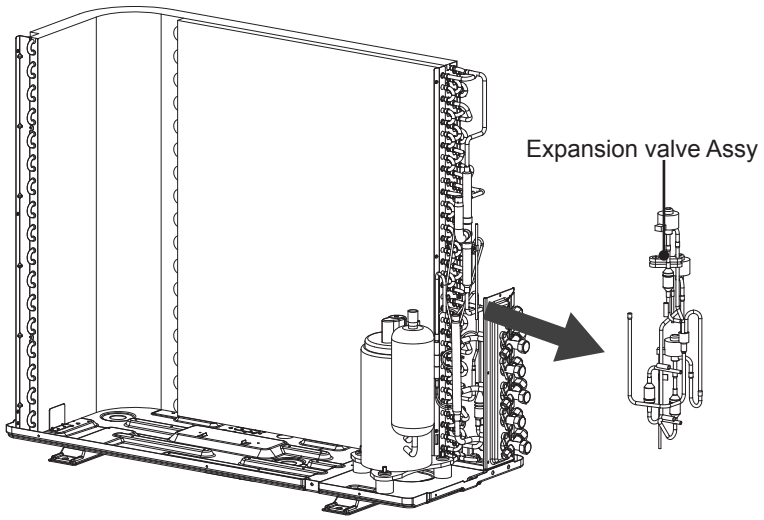
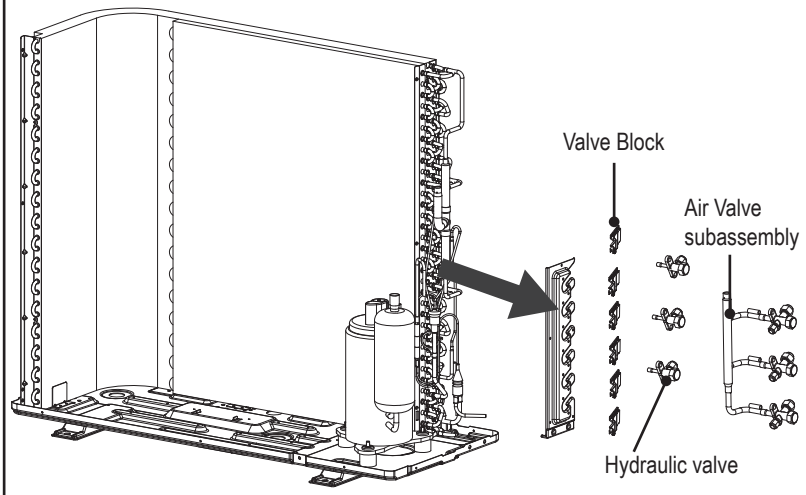
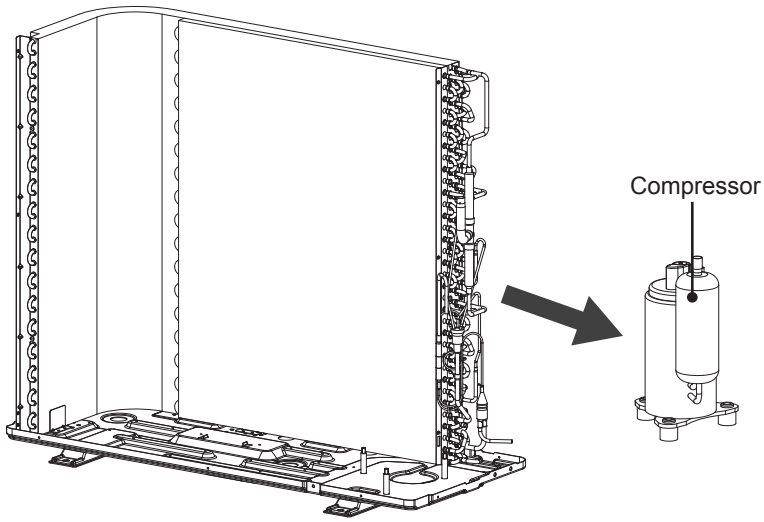
Procedure	Note
	**1.Before disassembly**
 	**2. Remove top cover** Remove connection screws connecting the top cover plate with the front panel and the right side plate, and then remove the toppanel.
	**3. Remove protective grille** Remove the screws fixing protective grille and then remove the protective grille.

Procedure	Note
	**4.**Open the side plate Use screwdriver unscrewed the fixed screw of the side plate and the chassis, and then descend into the handle of the side plate hole by hand press, make the side plate and on the right side of card board, panel button out, again ask outside, can remove the side plate.
	**5.Remove grille and panel** A: Remove connection screws between the front grille and the front panel. Then remove the front grille. B: Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel.
	**6.**Remove axial flow blad Remove the nut fixing the blade and then remove the axial flow blade.

Procedure	Note
	**7.**Remove big handle and 阀门盖 Remove the connection screw fixing the big handle and then remove the handle. Use a screwdriver to fixed valve cover screw drive, pull up to remove the valve cover.
	**8. Remove left side plate** Remove connection screws connecting the left side plate with the condenser assy. Then remove the left side plate.
	**9. Remove right side plate** Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.

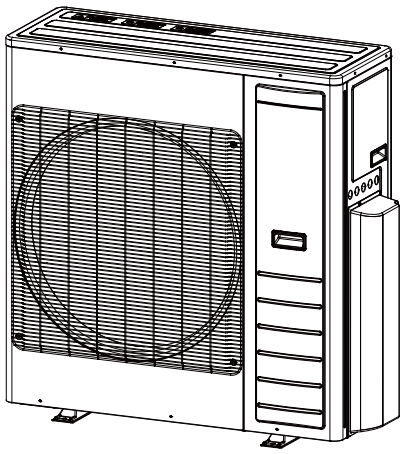
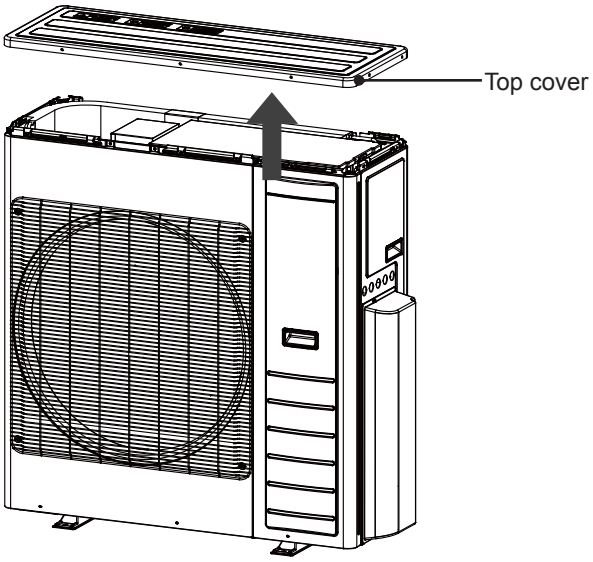
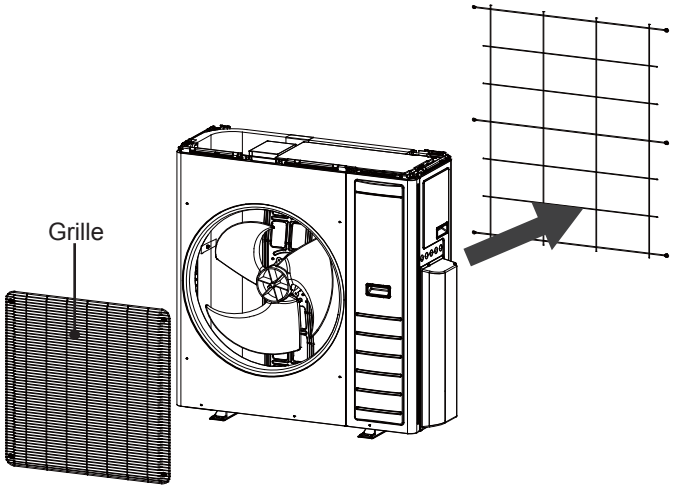
Procedure	Note
	**10. Remove electric box assy** Remove screws fixing the electric box assy; loosen the wire bundle and unplug the wiring terminals. Then lift the electric box to remove it.
	**11.** Remove Reactor Take off the fixed scre,and you could take off the reactor.
	**12. Remove motor and motor support** Remove tapping screws fixing the motor anddisconnect the leading wire insert of the motor. Then remove the motor. Remove tapping screws fixing the motor andlift the motor support to remove it.

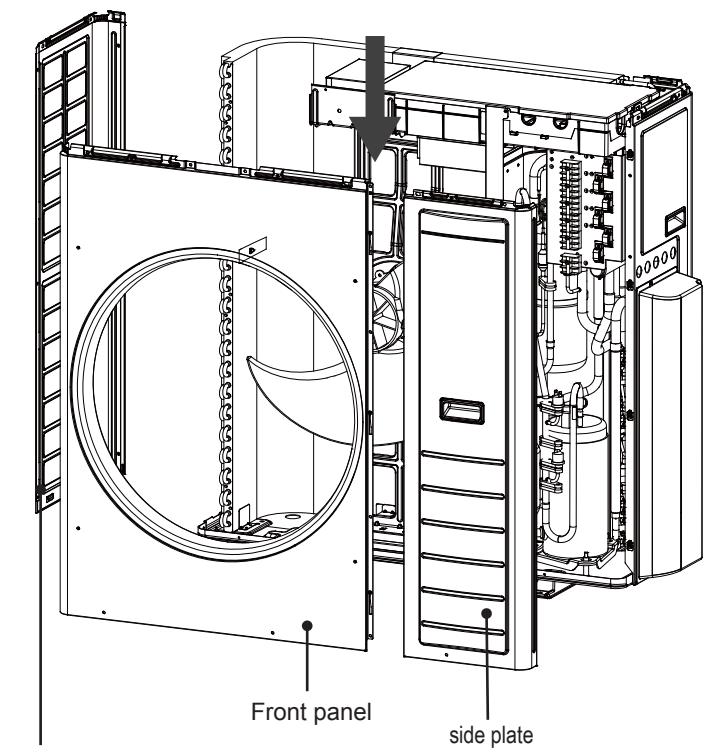
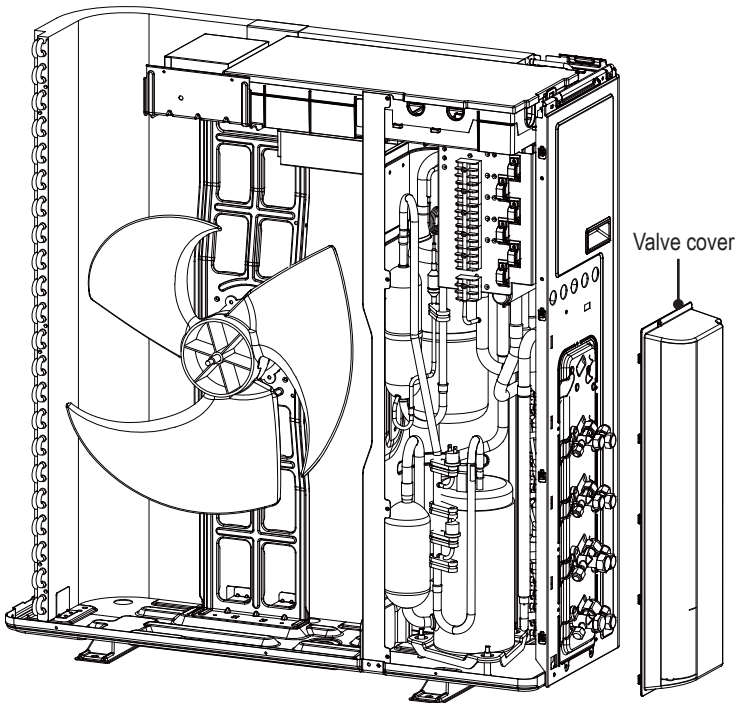
Procedure	Note
	**12.** Remove acoustic cotton Split the acoustic cotton lock,and take out 3 pcs slowly. NOTE: Do not damage the pipe.
	**14. Remove 4-way valve assy** Unsolder the spot weld of 4-way valve assy, compressor and condenser, and then remove the 4-way valve assy . **Warning** Discharge the refrigerant completely before unsoldering,when unsoldering, wrap the gas valve with awet cloth completely to avoid damage to thevalve caused by high temperature. When unsoldering the spot weld, wrap the 4-way valve with wet cloth completely to avoid damaging the valve due to high temperature.
	**15. Gas liquid separator and diaphragm** Open the suction of spot welding, remove the suction pipe. Use screwdriver unscrewed the fixed screw of gas-liquid separator, the upward gas-liquid separator, gas-liquid separator is desirable. Use a screw knife clapboard and chassis have fixed screw drive, partition is desirable.

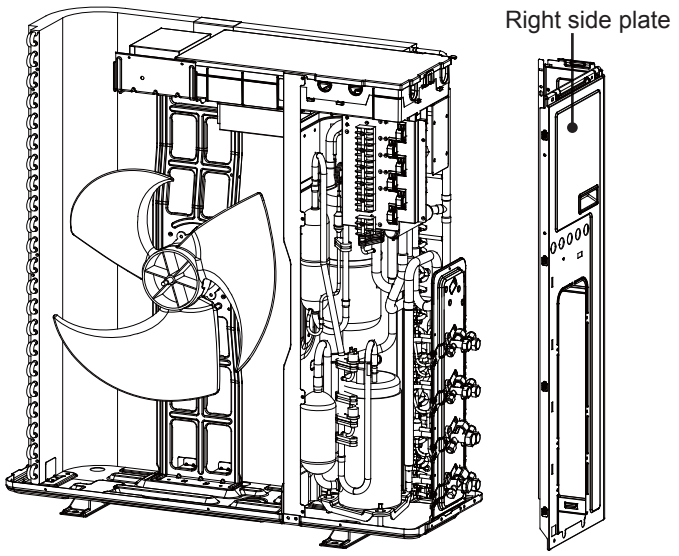
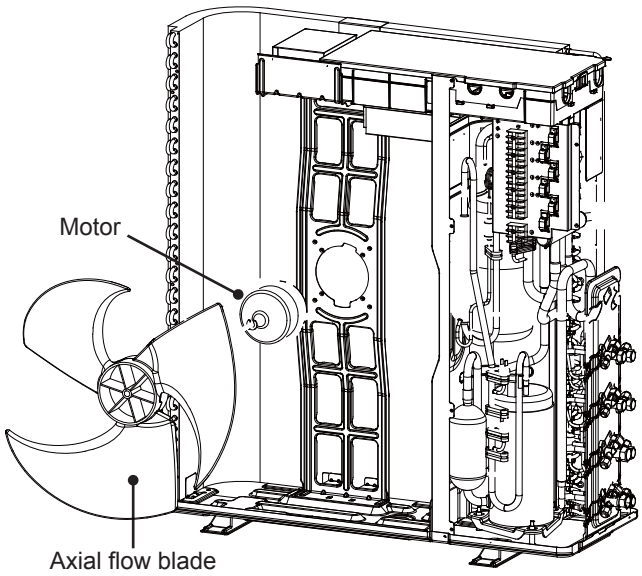
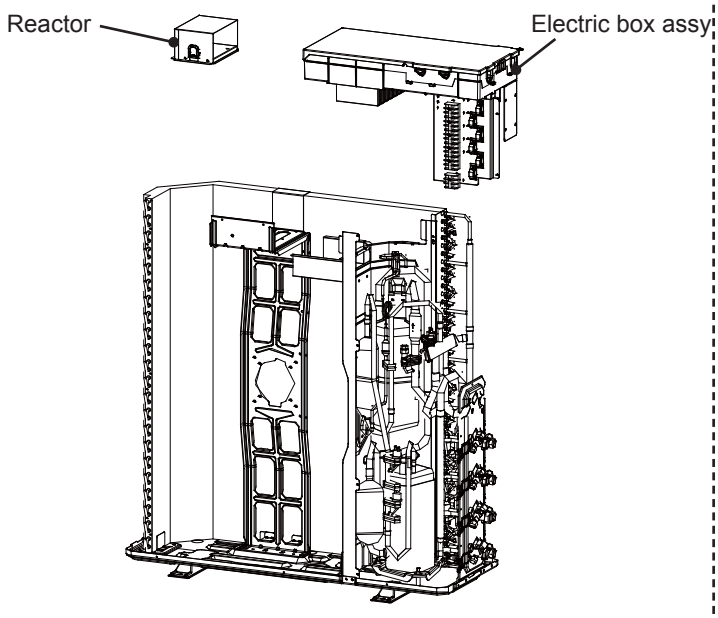
Procedure	Note
	**16. Remove Expansion valve Assy** Unsolder the spot weld of expansion valve assy, liquid valve and condenser, and then remove the expansion valve assy .
	**17.** Split the valve and valve support Pull out the valve block with the hands or tools. Screwdriver unscrew the valve and valve bracket set screw, remove the air valve subassembly and hydraulic valve. (open air valve subassembly of spot welding, take down the various valve) Screwdriver unscrew the valve bracket and the chassis of the fixed screw, take down the valve support.
	**18. Remove** Compressor Remove the foot nuts on the compressor and then remove the compressor.

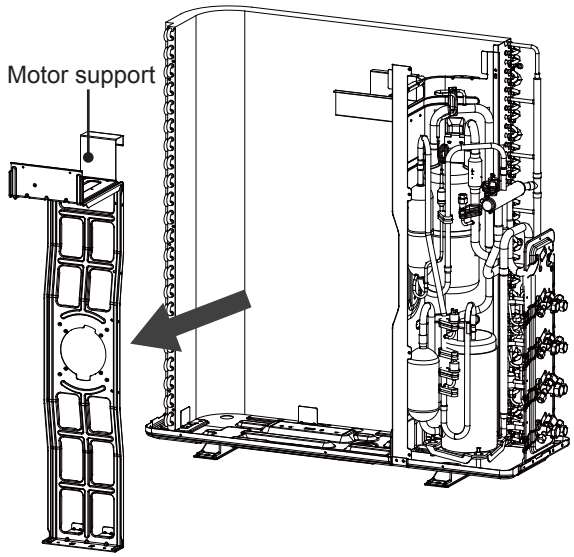
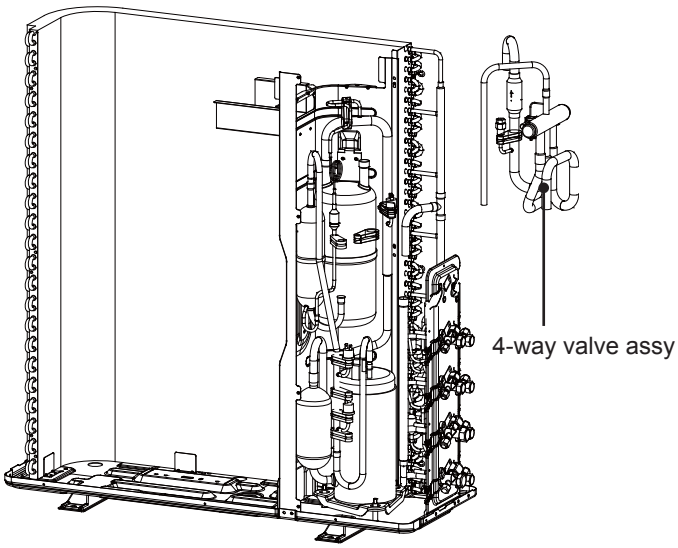
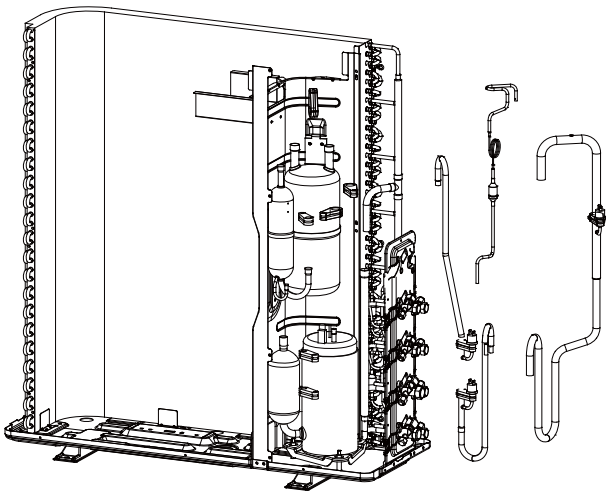
9.3 Removal Procedure of Outdoor Unit

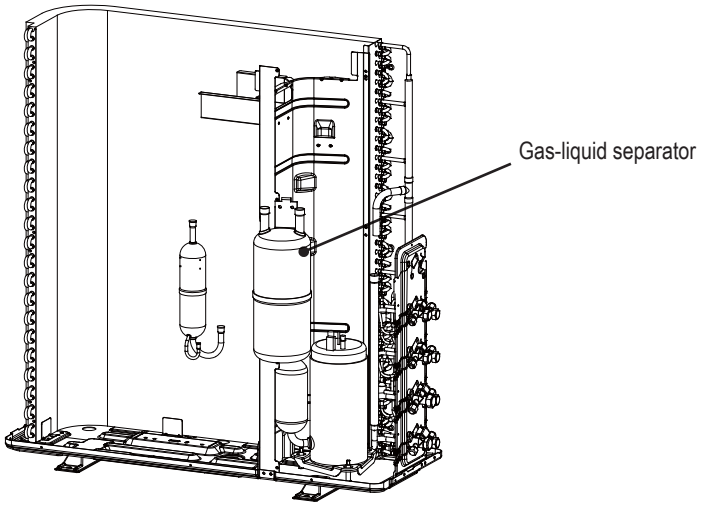
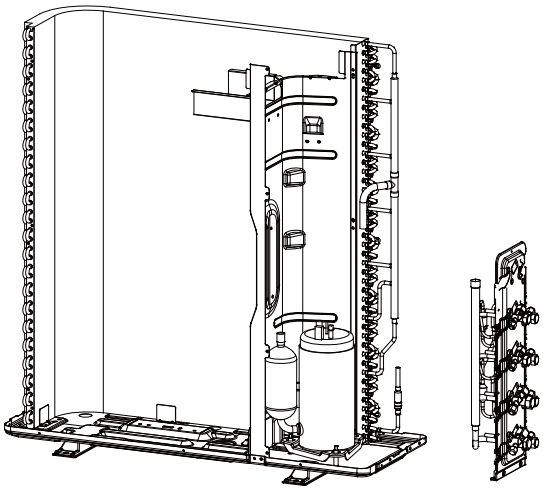
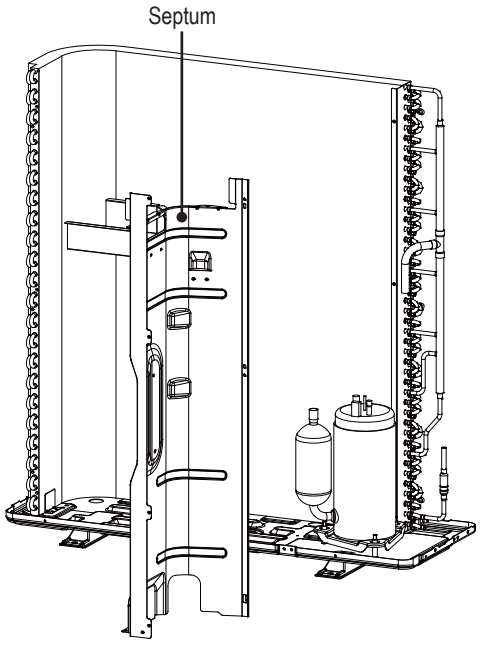
Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

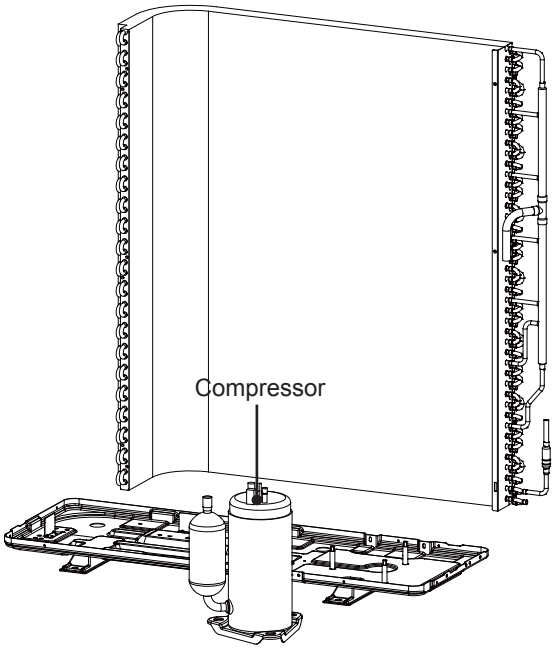
Procedure	Note
	**1.Before disassembly**
	**2. Remove top cover** Remove connection screws connecting the top cover plate with the front panel and the right side plate, and then remove the toppanel.
	**3. Remove protective grille** Remove the screws fixing protective grille and then remove the protective grille.

Procedure	Note
	**4.Open the side plate** Use screwdriver unscrewed the fixed screw of the side plate and the chassis, and then descend into the handle of the side plate hole by hand press, make the side plate and on the right side of card board, panel button out, again ask outside, can remove the side plate. **Remove panel** Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel. **Remove left side plate** Remove connection screws connecting the left side plate with the condenser assy. Then remove the left side plate.
	**5.Remove Valve cover** Use a screwdriver to fixed valve cover screw drive, pull up to remove the valve cover.

Procedure	Note
	**6. Remove right side plate** Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.
	**7.Remove axial flow blad** Remove the nut fixing the blade and then remove the axial flow blade. **Remove motor** Remove tapping screws fixing the motor anddisconnect the leading wire insert of the motor. Then remove the motor.
	**8. Remove electric box assy** Remove screws fixing the electric box assy; loosen the wire bundle and unplug the wiring terminals. Then lift the electric box to remove it. **Remove Reactor** Take off the fixed scre,and you could take off the reactor.

Procedure	Note
	**9. Remove motor support** Remove tapping screws fixing the motor andlift the motor support to remove it.
	**10. Remove 4-way valve assy** Unsolder the spot weld of 4-way valve assy, compressor and condenser, and then remove the 4-way valve assy . **Warning** Discharge the refrigerant completely before unsoldering,when unsoldering, wrap the gas valve with awet cloth completely to avoid damage to thevalve caused by high temperature. When unsoldering the spot weld, wrap the 4-way valve with wet cloth completely to avoid damaging the valve due to high temperature.
	**11. Remove Expansion valve Assy** Unsolder the spot weld of expansion valve assy, liquid valve and condenser, and then remove the expansion valve assy . Open the suction of spot welding, remove the suction pipe.

Procedure	Note
	**12. Gas liquid separator and diaphragm** Use screwdriver unscrewed the fixed screw of gas-liquid separator, the upward gas-liquid separator, gas-liquid separator is desirable. Use a screw knife clapboard and chassis have fixed screw drive, partition is desirable.
	**13.** Split the valve and valve support Pull out the valve block with the hands or tools. Screwdriver unscrew the valve and valve bracket set screw, remove the air valve subassembly and hydraulic valve. (open air valve subassembly of spot welding, take down the various valve) Screwdriver unscrew the valve bracket and the chassis of the fixed screw, take down the valve support.
	

Procedure	Note
	**18. Remove** Compressor Remove the foot nuts on the compressor and then remove the compressor.