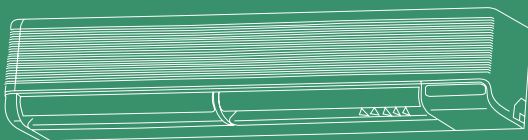




Большая библиотека технической документации
<https://splitsystema48.ru/instrukcii-po-ekspluatacii-kondicion>
каталоги, инструкции, сервисные мануалы, схемы.

Installation and Maintenance Manual

CSU-05HCAA	CSU-07HCAA
CSU-09HCAA	CSU-12HCAA
CSU-18HCAA	CSU-21HCAA
CSU-24HCAA	
CSU-09HHAA	CSU-12HHAA
CSU-18HHAA	CSU-21HHAA
CSU-24HHAA	

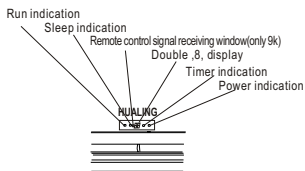
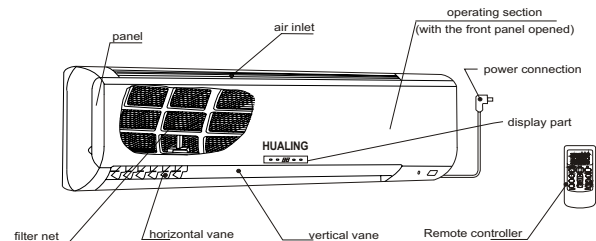


Content

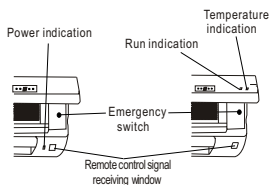
I.Designations and Functions of parts.....	1
II. Dimensions.....	3
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IV.Wiring diagram.....	8
V. Refrigeration circuit.....	12
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VIII.Parts list.....	36

I. Designations and functions of parts

● 5K/7K/9K/12K/18K/21K/24K Series Indoor Unit



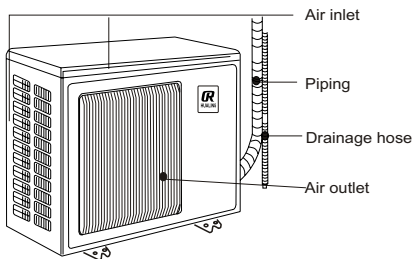
Operation section of 9K series units (standby configuration)



Operation section of 12K series units

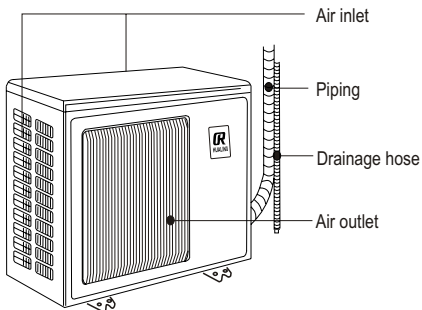
Operation section of 18K/21K/24K series units

● 5K/7K/9K Series Outdoor unit

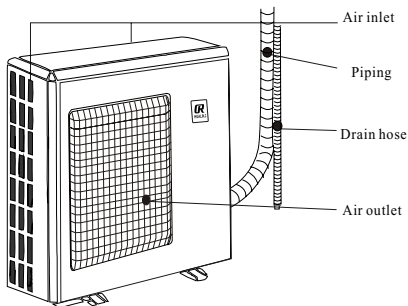


I. Designations and functions of parts

● 12K/18K Series Outdoor unit

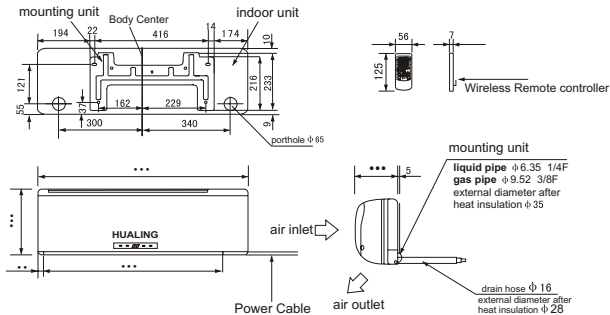


● 21K/24K Series Outdoor unit



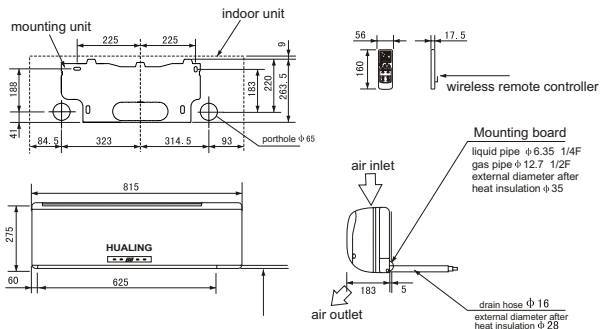
II .Dimensions

● CSU-05HCAA CSU-07HCAA CSU-09HCAA CSU-09HHAA indoor unit



Unit:mm

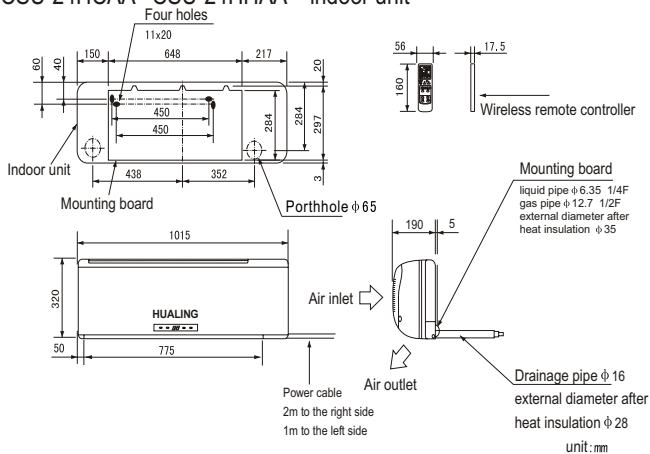
● CSU-12HCAA CSU-12HHAA indoor unit



Unit :mm

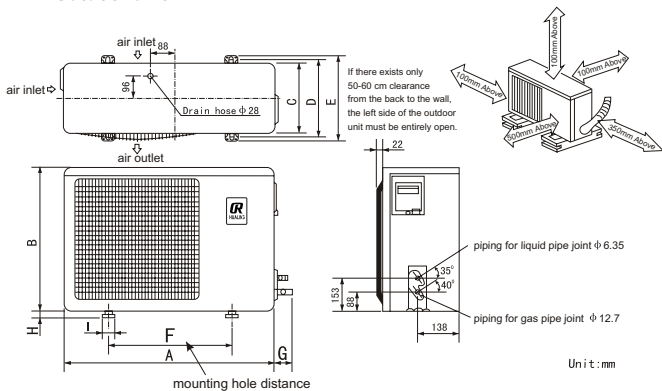
II. Dimensions

- CSU-18HCAA CSU-18HHAA CSU-21HCAA CSU-21HHAA
CSU-24HCAA CSU-24HHAA indoor unit



II. Dimensions

● Outdoor unit



● OUTDOOR UNITS DIMENSION

Model	A	B	C	D	E	F	G	H	I
CU-05CA	600	482	232	286	311	370	50	20	55
CU-07CA	600	482	232	286	311	370	50	20	55
CU-09C(H)A	600	482	232	286	311	370	50	20	55
CU-12C(H)A	772	520	256	285	320	500	60	20	50
CU-18C(H)A	772	520	256	285	320	500	74	20	50
CU-21C(H)A	850	605	290	310	345	500	74	20	50
CU-24C(H)A	850	605	290	310	345	500	74	20	50

III. Specification

Performance data		Model		CSU-05HCAA	CSU-07HCAA	CSU-09HCAA	CSU-09HHAA	
		Functions		Cooling-only			Cooling and heating	
Power supply		220 VAC ~ 50Hz						
Capacities	Capacity	kW	1.42	1.932	2.2	2.2/2.4		
	Dehumidifying capacity	l/h	0.6	0.65	0.91	0.91		
	Air supply capacity	m ³ /h	410	430	430	430		
Other electrical data	Power supply capacity	A	10	10	15	15		
	Running capacitor	μ F	20	25	25	20		
	Input power	kW	0.5	0.62	0.775	0.82/0.72		
	Power factor	%	97	97	97	97		
	Stockstill current	A	12	15	19.8	18		
	Compressor motor current	A	2.4	2.8	3.4	3.9		
	Fan motor current	A	In0.22/out0.25	In0.23/out0.48	In0.23/out0.48	In0.35/out0.86		
EER			3.1	3.12	2.85	2.7		
Compressor	Winding resistance(at 20℃)	Ω						
	Model		SD091CV-H3BU	PH108X1C	PH135X1C-8DZD2	KH145VHEA		
Indoor fan motor	Winding resistance(at20℃)	Ω						
Outdoor fan motor	Winding resistance(at20℃)	Ω						
Dimensions	Indoor unit	Length	mm	740	740	740	740	
		Width	mm	243	243	243	243	
		Height	mm	200	200	200	200	
	Outdoor unit	Length	mm	600	600	600	600	
		Width	mm	232	232	232	232	
		Height	mm	502	502	502	502	
Weight	Indoor unit	kg	7	7	7	7		
	Outdoor unit	kg	23	23	23	23		
Other data				5 and swing	5 and swing	5 and swing	5 and swing	
	Noise	Indoor unit	dB(A)	26-39	26-39	29-39	29-39	
		Outdoor unit	dB(A)	54	54	54	54	
	Fan speed	Indoor unit	r/min	1100/980/900	1100/980/900	1100/980/900	1100/980/900 (cooling) 950/870/800(heating)	
		Outdoor unit	r/min	870	870	870	870	
	Fan speed stage	Indoor unit		3	3	3	3	
		Outdoor unit		1	1	1	1	
	Refrigerant R22	g	400	470	645	680		
Thermister(at 25℃)	kΩ	10	10	10	10			

1、 Test conditions:

cooling indoor unit dry bulb 27℃ wet bulb19℃

outdoor unit dry bulb 35℃ wet bulb 24℃

2、 The data should subject to the nameplate they are different from those on the nameplate.

III. Specification

Performance data		Model		CSU-12HCAA	CSU-12HHAA	CSU-18HCAA	CSU-18HHAA
		Functions		Cooling-only	Cooling AND HEATING	Cooling-only	Cooling AND HEATING
		Power supply		220 VAC ~ 50Hz			
Capacities	Cooling capacity	kW	3.1	3.2/3.42	4.5	4.48/4.98	
	Dehumidifying capacity	l/h	1.27	1.31	1.9	2.3	
	Air supply capacity	m ³ /h	490	490	680	680	
Other electrical data	Power supply capacity	A	5.4	5.4/5.2	8.35	8.35/7.6	
	Running capacitor	μ F	35	35	50	50	
	Input power	kW	1.15	1.16/1.13	1.8	1.8/1.65	
	Power factor	%	97	97	97	97	
	Stockstill current	A	29.9	29.9	39	39	
	Compressor motor current	A	5.55	5.55	8.1	8.1	
	Fan motor current	A	in0.28/out0.56	in0.23/out0.48	in0.28/out0.56	in0.23/out0.48	
EER			2.68	2.75/3.0	2.5	2.5/3.0	
Compressor	Winding resistance(at 20 °C)	Ω					
	Model		PH215X2C-8FTC	PH215X2C-8FTC	TH310VEEC	TH310VEEC	
Indoor fan motor	Winding resistance(at20°C)	Ω					
Outdoor fan motor	Winding resistance(at20°C)	Ω					
Dimensions	Indoor unit	Length	mm	740	740	1015	1015
		Width	mm	200	200	320	320
		Height	mm	243	243	200	200
	Outdoor unit	Length	mm	772	772	772	772
		Width	mm	254	254	254	254
		Height	mm	540	540	540	540
Weight	Indoor unit	kg	8	8	14	14	
	Outdoor unit	kg	35	35	35	35	
Other data			5 and swing	5 and swing	5 and swing	5 and swing	
	Noise	Indoor unit	dB(A)	35-41	35-41	35-46	35-46
		Outdoor unit	dB(A)	54	54	55	55
	Fan speed	Indoor unit	r/min	1100/980/900	1200/1120/1050 (cooling) 1260/1160/1100(heating)	1050/980/900	1050/980/900 (cooling) 1050/1000/960(heating)
		Outdoor unit	r/min	780	780	780	780
	Fan speed stage	Indoor unit		3	3	3	3
		Outdoor unit		1	1	1	1
	Refrigerant R22	g	780	1150	1020	1130	
Thermister(at 25 °C)	kΩ	10	10	10	10		

1、 Test conditions:
 cooling indoor unit dry bulb 27 °C wet bulb 19 °C
 outdoor unit dry bulb 35 °C wet bulb 24 °C

2、 The data should subject to the nameplate they are different from those on the nameplate.

III. Specification

Performance data		Model		CSU-21HCAA	CSU-21HHAA	CSU-24HCAA	CSU-24HHAA
		Functions		Cooling-only	Cooling and heating	Cooling-only	Cooling and heating
		Power supply		220 VAC ~ 50Hz			
Capacities	Capacity	kW	5.1	5.08/5.8	5.98	5.94/6.63	
	Dehumidifying capacity	l/h	2.0	2.1	2.45	2.43	
	Air supply capacity	m ³ /h	680	680	730	730	
Other electrical data	Power supply capacity	A	8.9	8.7/8.5	11.5	11.4/11.4	
	Running capacitor	μ F	50	50	35	50	
	Input power	kW	1.92	1.96/1.85	2.4	2.38/2.38	
	Power factor	%	97	97	97	97	
	Stockstill current	A	42	38/42	52	52	
	Compressor motor current	A	9.3	8.1	11.5	11.5	
	Fan motor current	A	in0.22/out0.25	in0.23/out0.48	in0.23/out0.48	in0.35/out0.86	
EER			2.65	2.58/3.1	2.48	2.48/2.8	
Compressor	Winding resistance(at 20 °C)	Ω					
	Model		SHW33TC4-U	TH310VEEC	SHV33YC6-G	SHV33YC6-G	
Indoor fan motor	Winding resistance(at20°C)	Ω					
Outdoor fan motor	Winding resistance(at20°C)	Ω					
Dimensions	Indoor unit	Length	mm	1015	1015	1015	1015
		Width	mm	320	320	320	320
		Height	mm	200	200	200	200
	Outdoor unit	Length	mm	850	850	850	850
		Width	mm	290	290	290	290
		Height	mm	610	610	610	610
Weight	Indoor unit	kg	14	14	14	14	
	Outdoor unit	kg	47	47	53	53	
Other data			5 and swing	5 and swing	5 and swing	5 and swing	
	Noise	Indoor unit	dB(A)	46	46	46	46
		Outdoor unit	dB(A)	59	59	59	59
	Fan speed	Indoor unit	r/min	1200/1120/1000	1200/1120/1050 1260/1160/1100(heating)	1280/1150/1050(cool)	1280/1150/1050
		Outdoor unit	r/min	820	820	910	910
	Fan speed stage	Indoor unit		3	3	3	3
		Outdoor unit		1	1	1	1
	Refrigerant R22	g	1300	1300	1600	1600	
Thermister(at 25 °C)	kΩ	10	10	10	10		

1、 Test conditions:

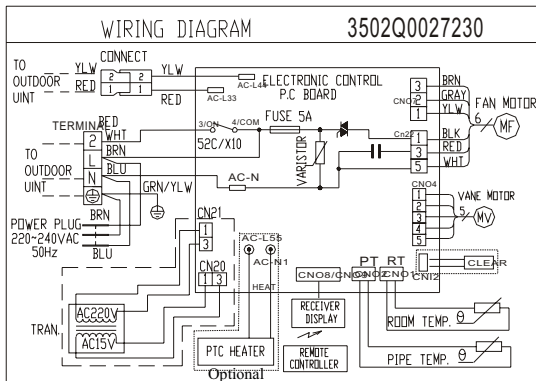
cooling indoor unit dry bulb 27°C wet bulb 19°C

outdoor unit dry bulb 35°C wet bulb 24°C

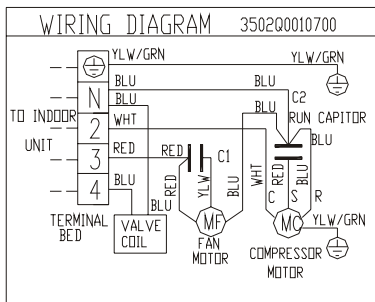
2、 The data should subject to the nameplate they are different from those on the nameplate.

IV. Wiring diagram

● Wiring diagram for heat pump indoor unit 5K/7K/9K/12K

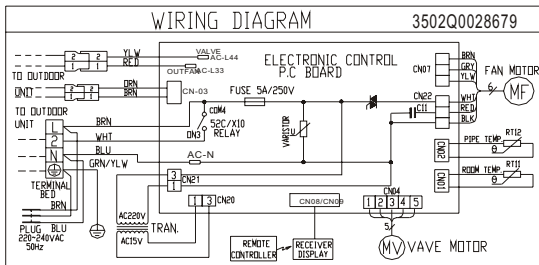


● Wiring diagram for heat pump outdoor unit 5K/7K/9K/12K

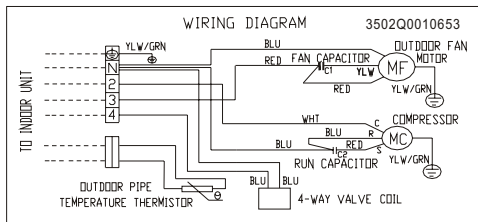


IV. Wiring diagram

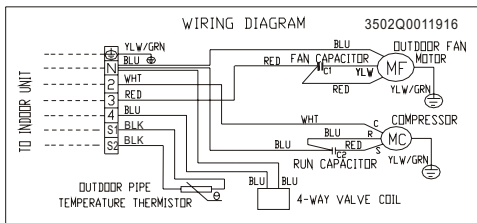
● Wiring diagram for heat pump indoor unit 18K/21K



● Circuit principle diagram for outdoor unit 18K

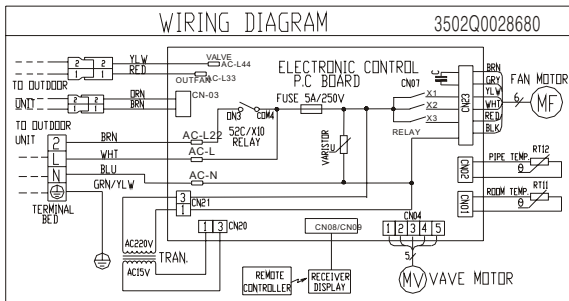


● Circuit principle diagram for outdoor unit 21K

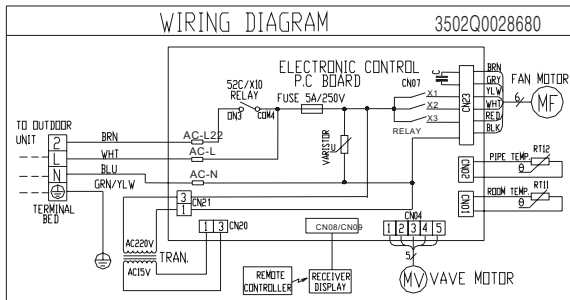


IV. Wiring diagram

● Wiring diagram for heat pump indoor unit 24K

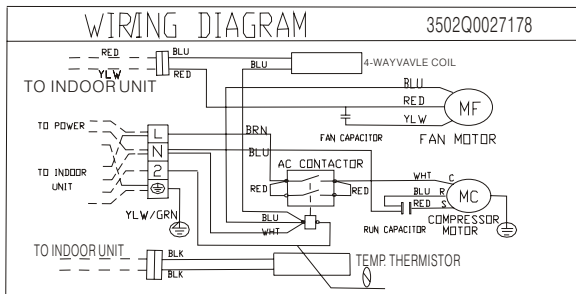


● Wiring diagram for only cooling indoor unit 24K

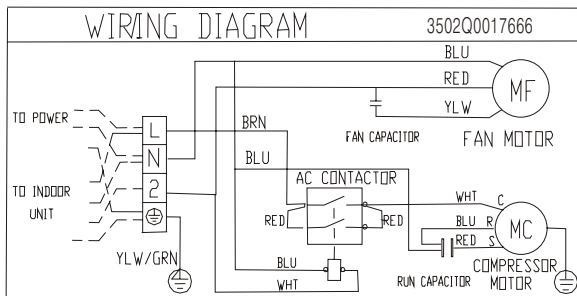


IV. Wiring diagram

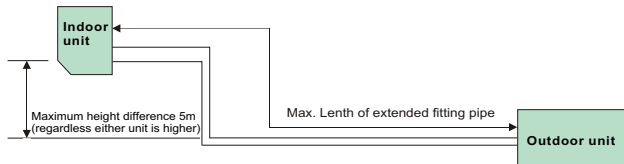
● Wiring diagram for heat pump outdoor unit 24K



● Wiring diagram for only cooling outdoor unit 24K



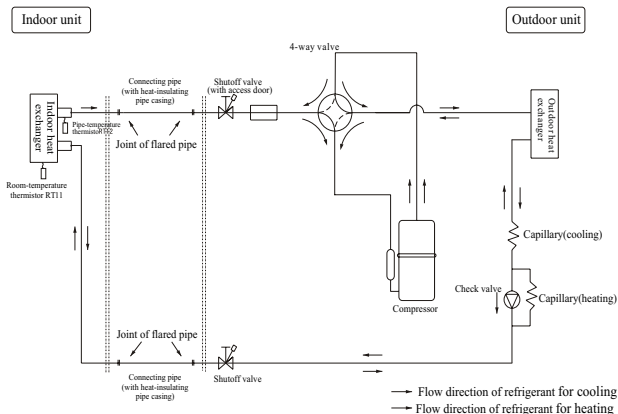
V. Refrigerating circuit



● Refrigerant replenishment (R22:g):

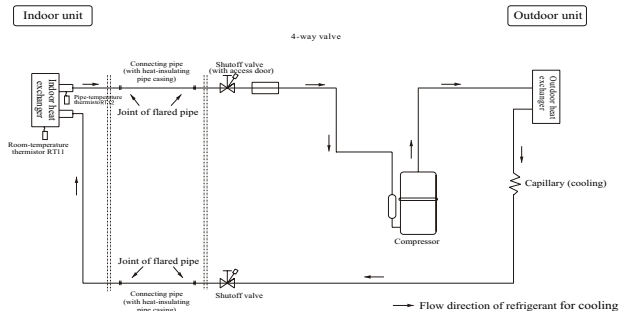
No refrigerant replenishment is required if extended length of fitting pipe is less than 7m.
If extended length of fitting pipe is over 7m, replenishing volume of refrigerant should be calculated as per the following formula: replenishing volume $Xg=15g/m \times (A-7)m$

● Refrigerating circuit for heat pump type



V. Refrigerating circuit

● Refrigerating circuit for only cooling type



● Maximum length of fitting capillary pipe for heat pump unit

Model	Max length of extended fitting pipe (m)	Max Height difference (m)	Max number of bent pipes	Outer diameter of fitting pipe:(mm)		Capillary (cooling)	Capillary (heating)
				Gas pipe	Liquid pipe		
9K	10	5	10 spots	φ 9.52	φ 6.35	φ 3 × 1.4 × 850	φ 3 × 1.6 × 450
12K	15	5	10 spots	φ 12.7	φ 6.35	φ 3 × 1.6 × 650	φ 3 × 1.6 × 350
18K	15	5	10 spots	φ 12.7	φ 6.35	φ 4 × 2 × 900	φ 4 × 2 × 650
21K	15	7	10 spots	φ 15.8	φ 9.52	φ 4 × 2 × 800	φ 4 × 2 × 600
24K	15	7	10 spots	φ 15.8	φ 9.52	φ 4 × 2 × 550	φ 4 × 2 × 250

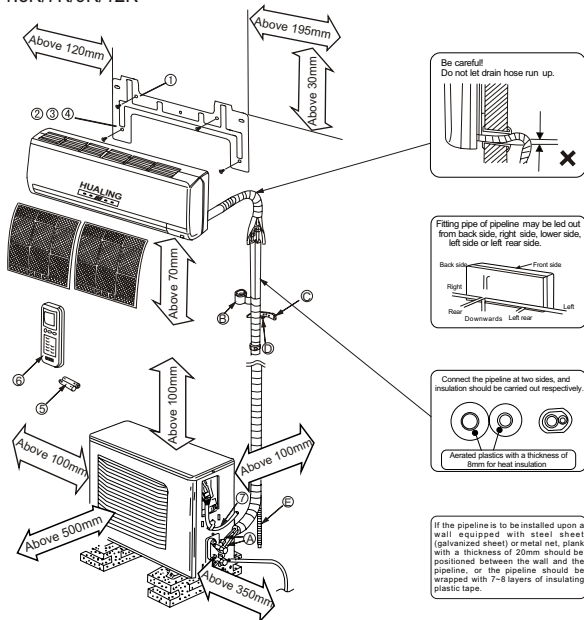
● Maximum length of fitting capillary pipe for only cooling unit

Model	Max length of extended fitting pipe (m)	Max Height difference (m)	Max number of bent pipes	Outer diameter of fitting pipe:(mm)		Capillary (cooling)	Capillary (heating)
				Gas pipe	Liquid pipe		
5K	10	5	10 spots	φ 9.52	φ 6.35	φ 3 × 1.4 × 1000	
7K	10	5	10 spots	φ 9.52	φ 6.35	φ 3 × 1.4 × 1000	
9K	10	5	10 spots	φ 9.52	φ 6.35	φ 3 × 1.4 × 1000	
12K	15	5	10 spots	φ 12.7	φ 6.35	φ 3 × 1.6 × 600	
18K	15	5	10 spots	φ 12.7	φ 6.35	φ 4 × 2 × 1000	
21K	15	7	10 spots	φ 15.8	φ 9.52	φ 4 × 2 × 700	
24K	15	7	10 spots	φ 15.8	φ 9.52	φ 4 × 2 × 500	

VI. Installation instructions

1. Installation diagram

1-1.5K/7K/9K/12K

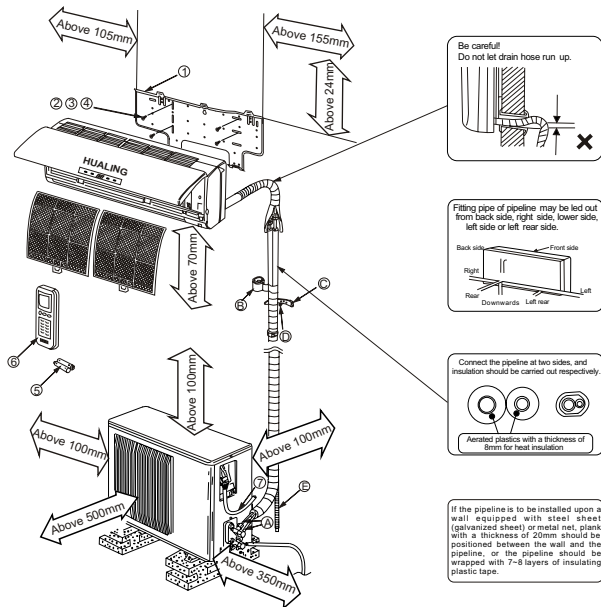


Enclosed attachments		Qty	Unit	Installation attachments		Qty	Unit
1	Mounting plate	1	Piece	A	Connecting pipe	2	Pieces
2	Tapping screw ST4*25	5	Pcs	B	Bandage	1	Piece
3	Expansion plug	5	Pieces	C	Tensioning rope	3	Pcs
4	Expansion bolt	2	Pieces	D	Masonry nail	5	Pcs
5	Battery for remote controller	2	Pcs	E	Drain hose	1	Piece
6	Remote controller	1	Piece	F	Putty	1	Box
7	Connecting cable	1	Piece	G	Sealing oil	1	Bottle

VI. Installation instructions

1. Installation diagram

1-2.18K

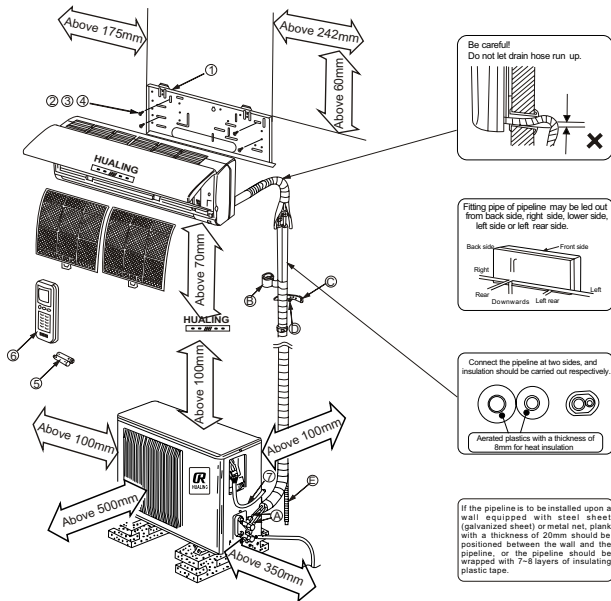


Enclosed attachments		Qty	Unit	Installation attachments		Qty	Unit
1	Mounting plate	1	Piece	A	Connecting pipe	2	Pieces
2	Tapping screw ST4*25	5	Pcs	B	Bandage	1	Piece
3	Expansion plug	5	Pieces	C	Tensioning rope	3	Pcs
4	Expansion bolt	2	Pieces	D	Masonry nail	5	Pcs
5	Battery for remote controller	2	Pcs	E	Drain hose	1	Piece
6	Remote controller	1	Piece	F	Putty	1	Box
7	Connecting cable	1	Piece	G	Sealing oil	1	Bottle

VI. Installation instructions

1. Installation diagram

1-3.21K/24K



Enclosed attachments		Qty	Unit	Installation attachments		Qty	Unit
1	Mounting plate	1	Piece	A	Connecting pipe	2	Pieces
2	Tapping screw ST4*25	5	Pcs	B	Bandage	1	Piece
3	Expansion plug	5	Pieces	C	Tensioning rope	3	Pcs
4	Expansion bolt	2	Pieces	D	Masonry nail	5	Pcs
5	Battery for remote controller	2	Pcs	E	Drain hose	1	Piece
6	Remote controller	1	Piece	F	Putty	1	Box
7	Connecting cable	1	Piece	G	Sealing oil	1	Bottle

VI. Installation instructions

2.Safety Regulations

Please read safety instructions carefully before installation

All items listed here are extremely important safety instructions, which must be followed.

Legends and their meanings are listed as follows:

Warning

Users don't try to install by themselves

- Improper installation may cause fire, electric shock, loose of parts or water leakage. Please contact a Hualing agent for installation and maintenance.

Cover of electrical components on indoor unit and maintenance board on outdoor unit must be installed properly.

- Improper installation of cover or panel may cause fire or electric shock due to dust or water.

Cables between indoor and outdoor units must be properly connected by specified cables and make sure that joints properly fixed

- If installed at a place without enough strength, the unit may fall and hurt people

Installation must be made according to installation instructions, the special cables should be used

- Inefficient capacity of the cable or improper installation may cause fire, electric shock, loose of parts fall and hurt people or water leakage.

The grounding is necessary in construction

- The ground wire must not be connected to gas pipe, water pipe, lightning rod, telephone ground wire. Improper connection of ground wire may cause electric shock

Must not be installed at a place where inflammable gas is leaking

- If inflammable gas accumulated around the unit, explosion may happen

Electrical components must be installed according to instructions, and must use specific electrical power supply

- Insufficient electrical power capacity or improper installation may cause fire or electric shock.

The units must be installed at a place where it can hold certain weight

- If installed at a place without enough strength, the unit may fall and hurt people

The attached or specified installation accessories should be used in installation.

- Improper accessory may cause fire, electric shock or Fall unit and hurt people as well as water leakage

Don't crass to power cables in the installation of electrical components, don't use extension wire or octopuses like wiring

- Improper grounding or insulation may cause fire or electric shock

After installation, make sure there is no leakage of refrigerant

If the until is installed in a humid environment, a switch for prevention of electricity leakage must be installed

- Without leakage prevention switch, electric shock may happen

Drain hose and pipe must be installed according to installation instructions

- Improper installation of drain hose or pipe may damage the unit or home furniture

VI. Installation instructions

3.Installation of Unit:

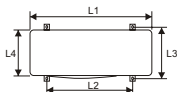
3-1.How to select installing location:

3-1-1. How to select installing location for indoor unit

- Air inlet/ air outlet should be far away from obstacles, ensuring that air flow must not be kept back;
- Do not install the unit at a spot with direct sunshine;
- Select a spot convenient for removal of condensed water and easy connection to outdoor unit;
- The distance between the spot and TV set or acoustic equipment should be 1m at least;
- Keep away from fluorescent lamps or incandescent lamps; (otherwise, it is possible that the wireless remote controller cannot be normally utilized to controlled)
- Select a solid wall which can bear weight of machine body, free of increase of operating noises or vibration;
- Maximum height difference between indoor unit and outdoor unit should be 5m.

3-1-2. How to select installing location for outdoor unit

- The installing location can bear weight of machine body, free of strong vibration.
- Select a spot with good ventilation, less dust, free of rainwater and direct sunshine
- Select a spot from which the operating noise and exhausted hot air can not affect the neighbors;
- There should be no obstacles around the outdoor unit, which keep back inlet air/outlet air for the unit;
- Select a spot free of leakage of inflammable gases or erosive gases;

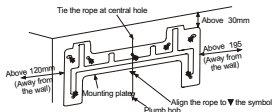


Model	Dimension			
	L1	L2	L3	L4
5K/7K	600	368	278	235
09K	600	368	278	235
12K	780	500	280	250
18K	780	500	280	250
21K	850	500	310	290
24K	850	500	310	290

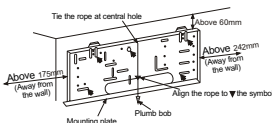
3-2.How to fix the mounting plate

Find a structural member of a wall (e.g. column etc.), and fix the mounting plate onto it horizontally.

5K/7K/9K/12K series



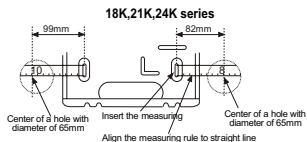
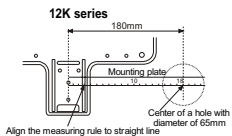
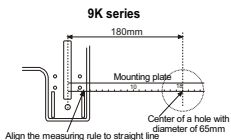
18K ,21K ,24K series



- Note:
1. To avoid microshock of mounting plate, the hole pointed at by solid arrow must be secured.
 2. If expansion bolt is adopted, it is required to adopt slotted holes 11*20or 11*26 with interval of over 450mm to fix the mounting plate

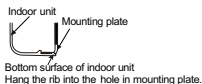
VI. Installation instructions

3-3. Drill holes on the wall



3-4. How to install indoor unit

Outlet the pipeline through the wall hole, and hoist the unit onto the mounting plate.

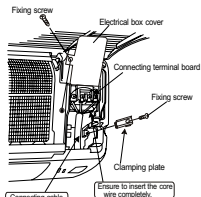


3-5. How to connect wires for indoor/ outdoor units

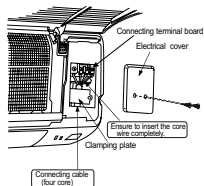
Indoor unit Section:

Wire connection

- 1 Open the return air grille;
- 2 Remove screw for fixing electrical box cover, open (or remove) the electrical box cover, remove fixing screws of clamping plate, and remove the clamping plate;
- 3 Properly connect the connecting cables, and tightly clamp the connecting cable by the removed clamping plate. See the Figure as below:



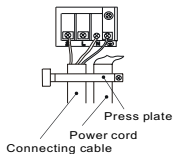
5K/7K/9K/12K series



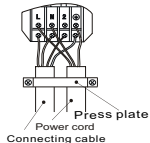
18K, 21K, 24K series

- 4 Reassemble the electrical box cover, and close the return air grille.

VI. Installation instructions



5K/7K/9K/12K BTU

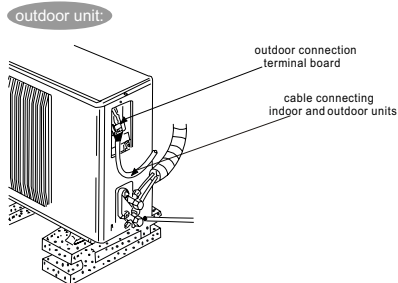


18K/21K/24K BTU

⚠ Warning

1. It is required to adopt specified cable for wiring between indoor/outdoor units, ensuring that the connecting terminals must be securely fixed, free of the direct influence of external forces. If it is improperly connected or fixed, it is possible to cause a fire.
2. Indoor unit's cover of electrical box must be properly fixed. Otherwise, dust or water might cause a fire or electrical shock.
3. The power cable for indoor unit of the air conditioner should be PVC-cased cord (cord 53# in IEC227) at least.
4. The power cable for outdoor unit of the air conditioner should be butadiene rubber cased cord (cord 57# in IEC245) at least.

VI. Installation instructions



3-6. Arrangement of refrigerant pipe and drain hose of indoor unit

3-6-1. Precautions:

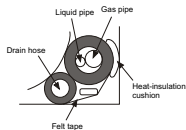
Drain hose must be located below the coolant pipeline;

Do not hunch up or bend the drain hoses;

Do not pull at the drain hose to carry out wrapping operation;

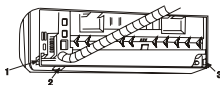
If drain hose must pass through indoors, it must be wrapped with heat-insulating material available in the market;

Use felt tape to wrap up fitting pipe and drain hose, and place heat-insulation cushion upon the wall that contacts the aforesaid two.



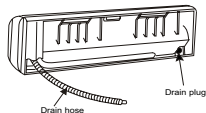
3-6-2. Direction of fitting pipe :

As shown in the Figure, part 1 of the case should be cut off if fitting pipe is led out from right side; part 2 of the case should be cut off if fitting pipe is led out from right lower side, part 3 of the case should be cut off if fitting pipe is led out from left side.



3-6-3. Recondition of drain hose:

If fitting pipe is led out from right or right lower side, it is required to condition the drain hose, for fear of water leakage.

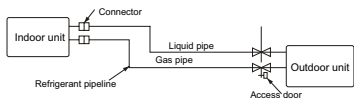


VI. Installation instructions

4. Completed connection of indoor and outdoor units and test run

4-1 flared joint

- The flared joint is located on the indoor and outdoor sides.
- Remove the valve cap of outdoor unit, and then connect the pipelines.
- As shown in Figure below, coolant pipeline is used to connect indoor unit and outdoor unit.



Model	Max length of extended fitting pipe (m)	Max Height difference (m)	Max number of bent pipes	Outer diameter of fitting pipe:(mm)	
				Gas pipe	Liquid pipe
5K/7K/9k	10	5	10 spots	φ 9.52	φ 6.35
12k	15	5	10 spots	φ 12.7	φ 6.35
18k	15	5	10 spots	φ 12.7	φ 6.35
21k	15	5	10 spots	φ 15.8	φ 9.52
24k	15	5	10 spots	φ 15.8	φ 9.52

- Refrigerant adjustment... If pipeline length is over 7m, auxiliary refrigerant (R22) is required. (7m pipeline for outdoor unit is filled with refrigerant)

Pipeline length	Maximum length 7m	Requiring no refrigerant replenishment	
	Longer than 7m	Requiring refrigerant replenishment	50g/m

Pipeline preparation

Fitting pipes of 3m or 4m are available.

- ① Pipeline specifications listed in table below:

Pipeline	Outer diameter		Insulation thickness	Insulating material
	Mm	Inch		
For liquid	6.35	1/4	6mm	Specific gravity of insulating plastic foam is 0.045
	9.52	3/8	6mm	
For gas	9.52	3/8	6mm	
	12.7	1/2	6mm	
	15.88	5/8	6mm	

- ② It is required to properly insulate the 2 pcs of refrigerant pipeline so as to avoid condensation.
 ③ Bending radius of refrigerant pipeline must be greater than 100mm.

Precautions:

Cautiously select the specified insulation thickness. Excessive thickness may disturb the cumulation at back side of indoor unit while insufficient thickness may lead to condensed water dripping.

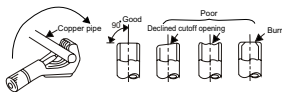
VI. Installation instructions

4-2 Flared pipe processing

- Defect in flared pipe processing will be a major cause of gas leak. Please carry out flared pipe processing properly according to the following method:

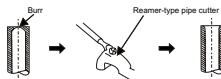
1) Cut off tube

- Use pipe cutting machine to cut off copper tubes correctly.



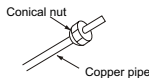
2) Deburring

- Completely remove the burr on cut-off section of the pipe.
- To prevent burr from dropping into the pipe, the cut off opening of pipe line should be positioned downwards during deburring operation



3) Assemble the nut

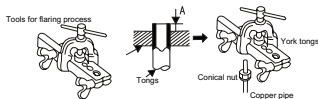
- Remove the conical nut attached to indoor and outdoor unit, and then fix them inside the pipes free of burr. (After flared processing of pipe, it is impossible to fix them inside it.)



4) Flared pipe processing

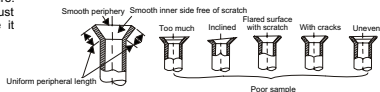
- Carry flaring process by the tools listed below.

Outer diameter	A(mm)
6.35mm	2.0-2.5
9.52mm	3.0-3.5
12.7mm	3.5-4.0
15.88mm	4.0-4.5



5) Check

- Compare the flared shape to the right Figure.
- If visible defect exists in flaring process, just cut off the processed section, and flare it again.



VI. Installation instructions

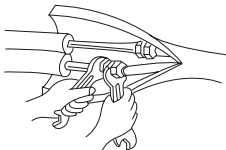
4-3 Pipeline connection

① Pipeline connection for indoor unit

Connect liquid/gas fitting pipes to indoor unit.

- Apply a layer of sealing oil on surface of pipe saddle (put it inside installation attachments).
- Firstly align it to the center and connect it, and then manually screw down the conical nut for 3-4 turns.
- Refer to the following moment table; use 2 pcs of spanners to fasten the pipe joints at side of indoor unit.

Pipeline diameter	Torque (N•M)
6.35mm(1/4")	13.7--17.6
9.52mm(3/8")	34.3--41.2
12.7mm(1/2")	49.0--56.4
15.88mm(5/8")	73.0--78.0

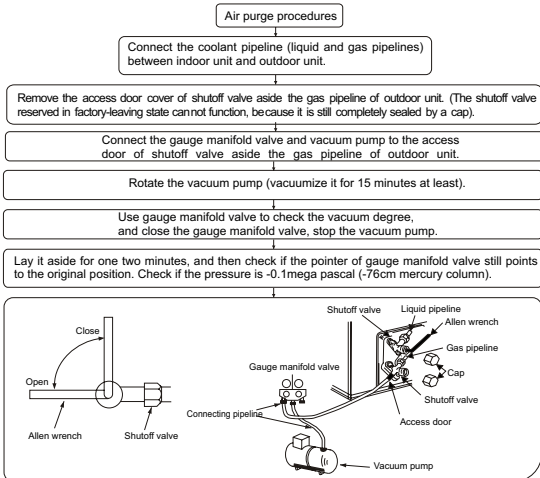


② Pipe connection of outdoor unit

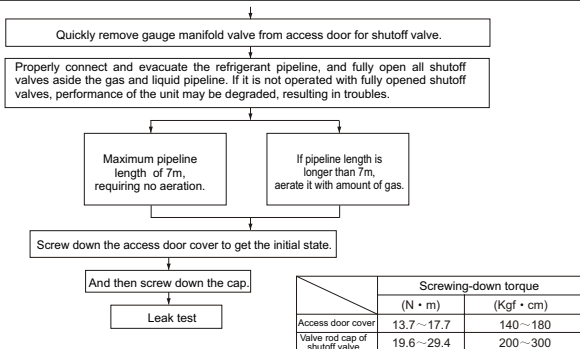
As per the same method for indoor unit, connect the fitting pipe to pipe joint. of shutoff valve (2-way and 3-way valves) on outdoor unit.

- Use torque -adjustable spanner or wrench to fasten it at same moment as that for indoor unit.

4-4 air purge • Leak test



VI. Installation instructions

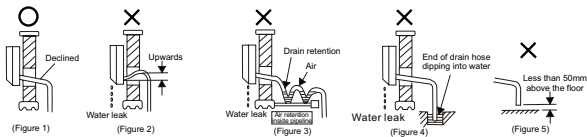


4-5 Insulation and bandage wrapping

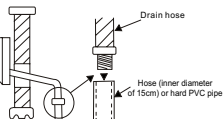
- ① Cover the fitting pipe sleeve by pipe cap;
- ② All fitting pipes and valves of outdoor unit should be heat-insulated;
- ③ All fitting pipes from the fitting pipe entry of outdoor unit must be wrapped with pipeline bandage;
 - Fix the ends of pipeline bandage by tapes applied with adhesive;
 - if fitting pipe passes ceiling board, lavatory or other place with high temperature and humidity, the thickness of heat-insulating material should be increased for fear of condensation.

4-6 Arrangement of drain pipeline

- For easier drainage through drain pipeline, ensure that the drain pipeline should be positioned in a declined mode (as shown in Figure 1).
- Do not connect the drain pipeline in the same way as shown in Figure 2 - Figure 5.



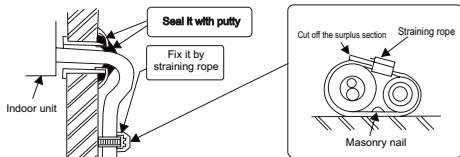
- If the length of drain hose assembled on the indoor unit is too short for operation, just connect the drain hose in the attachment box to it for operation.
- If the drain hose has to pass the indoor spaces, it must be wrapped with heat-insulating material available in the market.



VI. Installation instructions

4-7 Wall hole sealing and pipeline fixing

- ①. Seal the wall hole with putty;
- ②. Use straining rope to fix the pipeline at appointed position.





4-8 Test run

Note:

1. Before test run, it is required to check once again if there is any incorrect wire connection, and check if any leak occurs in the pipe joint (by soap water).
2. It is possible to start up the unit by pressing emergency operation switch. Once the emergency operation switch is pressed, the unit will begin continuous test run in cooling mode for 30 minutes. Within the 30 minutes, the preset temperature does not work; after the 30 minutes, the unit will begin emergency operation in cooling mode at a certain preset temperature (24 °C).

Test run procedures:

1. Press the emergency operation switch for the first time, the air conditioner begins emergency cooling operation; press the switch for the second time, the air conditioner stops all operations.
2. Press the ON/OFF button on the remote controller, and check if the indoor unit gives out a sound "toot"; if yes, it indicates that the remote controller can function, and the emergency operation is released. After that, press every button on the remote controller, and check if operation modes of the unit vary respectively. (Emergency operating mode of air conditioner can be displayed in the operation indicator.)

	Mode	Power indicator
①	Cooling	 (On)
②	Shutdown	

4-9 Explanations to the customers

- In accordance with the operation instructions, show the customers relevant methods for temperature adjustment, disassembling method for air filter, cleaning methods, installing and disassembling method for remote controller, and precautions during operation.
- Urge and demand the customers to read the operation instructions.

5. Displacing installation and maintenance after initial installation

5-1 How to fix the face plate

- ① Before installation of front panel, please set vertical vane at the position as shown on Figure 1.
- ② Close the front panel and match the panel with the unit.
- ③ Gently press emergency switch on the front panel and see if the emergency button is properly matched with inside emergency switch
- ④ Fix screw and fix the front panel on the air-conditioner and replace the screw cover.

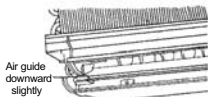


Figure 1

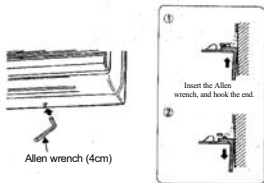
VI. Installation instructions

5-2 Disassembly of indoor unit

Release the bottom edge of indoor unit from the mounting plate.

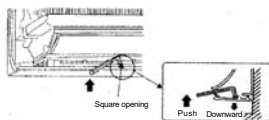
Use Allen wrench

As shown in Figure below, use Allen wrench to pull downward the bottom edge of indoor unit, and then pull out the unit slight so as to release the bottom buckles.



In case the method in left column cannot be taken

If the method cannot be taken, just remove the face plate. As shown in Figure below, insert the allen wrench into the left and right square openings; and then push the allen wrench upward so as to descend the indoor unit,



5-3 Refrigerant replenishment

If connecting pipe length is over 7m, refrigerant replenishment is required.

Refrigerant replenishing volume for cooling/heating unit are listed as follow: $A = 15\text{g/m} \cdot (L-7)$.

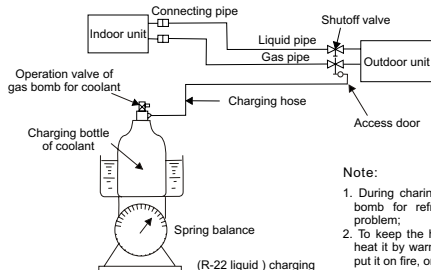
(A in the formula indicates the refrigerant replenishing volume in g; L indicates connecting pipe length in m)

Pipe length (m)	7	8	9	10	15
Refrigerant replenishing volume for unit(g)	0	15	30	45	60

Note: maximum length of connecting pipe for models 25 Series must not be longer than 10m, and the maximum length of connecting pipe for models 35/50/70 Series must not be longer than 15m.

Detailed operation steps are listed as follow:

- Align and connect the gas bomb onto access door of gas valve;
- Carry out the air purge for pipeline (or hose) from gas bomb of refrigerant;
- Replenish refrigerant of specified volume for normal operation of the air conditioner.



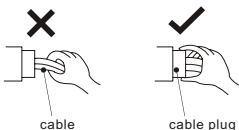
Note:

- During charging operation, do not turn over the gas bomb for refrigerant replenishing for fear of any problem;
- To keep the high pressure in the gas bomb, please heat it by warm water (40°C) in cold seasons. Do not put it on fire, or heat it by hot steam.

VII. Troubleshooting

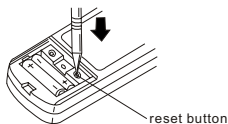
1. Precautions for malfunction repair:

- (1) Before repairing, check the power supply to see if it is normal, also check the connection of indoor and outdoor units to see if there is any error in connection.
- (2) Pay attention to the following items during repair:
 - ① Before disassembling the front panel, unit box, top plate and control panel, disconnect the power supply.
 - ② When moving the control panel, please hold its edges, don't press any components.
 - ③ When disassembling and installing connecting cable, please hold the plug instead of pulling the cable.



- (3) Pay attention to the following items during fault handling

- ① Check the operation pilot lamp on the indoor unit to see if it's flashing, and confirm the fault indication by 2 or 3 times.
 - ② If the fault is in the control panel, check its components to see if components burnout or turned colors, and check the connection terminal to see if the connection is correct.
 - ③ When a fault occurs, make check and repair according to "Troubleshooting Flow Chart" and "Table for Fault Handling and Repairing".
- (4) Replace batteries for remote controller
Old batteries will affect normal operation, old batteries must be replaced.
After replacing, press the "reset" button on the back of the remote controller.

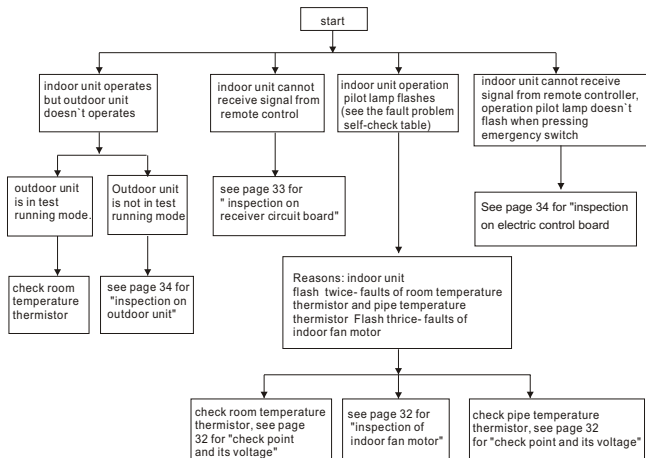


- (5) Special attention:

Indoor unit may not receive signals from remote controller in room with florescent light because periodically-connected high-voltage manostat or blocking oscillator (electric rectifier) are used.

VII. Troubleshooting

2.Troubleshooting Flow Chart



VII. Troubleshooting

3. Trouble selfchecking table

Before troubleshooting, ensure that the symptom recurs for precise judgement.

9K/12K/18K

NO.	Trouble source	Trouble display	Double 8 of LED display	Symptom	Verifying method	Maintenance
1	Room temperature thermistor	●●●●●●●● Flickers twice and ON for 5 seconds repeatedly	E2	Outdoor unit fails to run	During operation, shortcircuit and open circuit the indoor room temperature thermistor for 2 seconds respectively.	<ul style="list-style-type: none"> Check if the thermistor is out of work Reconnect the plug Check the indoor circuit board
2	Indoor fan motor	●●●●●●●●●● Flickers thrice and ON for 5 seconds repeatedly.	E6	Indoor fan motor runs for 12 seconds and stops for 3 minutes. Motor is damaged, and fan fails to run.	When the indoor fan motor runs for the 12 seconds, it is impossible to emit feedback signal of rotation speed.	<ul style="list-style-type: none"> unplug the plug CN21, measure the system voltage (U₁)^① and verify if signal is over 1.5V Check the indoor electrical control board Check the indoor fan motor Replug the plug
3	Pipe-temperature thermistor	●●●●●●●●●● Flickers for four times and ON for 5 seconds repeatedly.	E1	Outdoor unit fails to run	During operation, shortcircuit and open circuit the indoor pipe-temperature thermistor for 2 seconds	<ul style="list-style-type: none"> Check if the thermistor is out of work Reconnect the plug Check the indoor circuit board
4	Outdoor defrosting thermistor		E5	Outdoor unit doesn't operate	After compressor is started, defrost thermistor is connected or disconnected.	<p>Check to see whether thermistor is ineffective. Reconnect socket. Check indoor circuit board.</p>

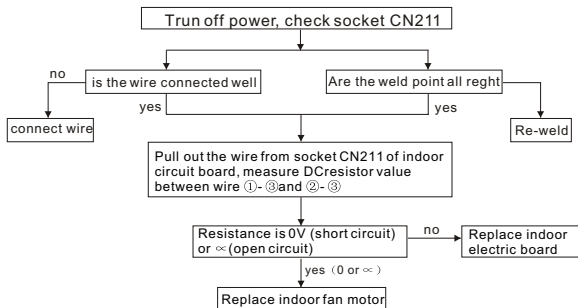
VII. Troubleshooting

4. Fault standards of main components

Name of component	Test methods and standards	Schematic diagram																													
Room temperature thermistor and pipe temperature thermistor	<p>use instruments to measure the resistor (at 10-30°C)</p> <table border="1"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>8K Ω~20K Ω</td> <td>short circuit or open circuit</td> </tr> </tbody> </table>	Normal	Abnormal	8K Ω~20K Ω	short circuit or open circuit																										
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8K Ω~20K Ω	short circuit or open circuit																														
compressor	<p>use instruments to measure the resistor (winding temperature at 20°C)</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Normal</th> <th rowspan="2">Abnormal</th> </tr> <tr> <th>CSU-09HHA</th> <th>CSU-12HHA</th> <th>CSU-21HHA</th> <th>CSU-24HHA</th> </tr> </thead> <tbody> <tr> <td>C-R</td> <td>3.528 Ω</td> <td>2.0 Ω</td> <td>1.04 Ω</td> <td>0.885 Ω</td> <td rowspan="2">short circuit or open circuit</td> </tr> <tr> <td>C-S</td> <td>2.510 Ω</td> <td>4.61 Ω</td> <td>2.860 Ω</td> <td>1.773 Ω</td> </tr> </tbody> </table>		Normal				Abnormal	CSU-09HHA	CSU-12HHA	CSU-21HHA	CSU-24HHA	C-R	3.528 Ω	2.0 Ω	1.04 Ω	0.885 Ω	short circuit or open circuit	C-S	2.510 Ω	4.61 Ω	2.860 Ω	1.773 Ω									
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	Normal				Abnormal																										
	5K-9K	12K	18K-21K	24K																											
white-black	267 Ω~327 Ω	267 Ω~327 Ω	218 Ω~266 Ω	113 Ω~138 Ω	short circuit or open circuit																										
black-red	295 Ω~360 Ω	295 Ω~360 Ω	217 Ω~265 Ω	87 Ω~107 Ω																											
	Normal	Abnormal																													
brown-yellow	4.5V~5.5V	keep 0V or 5V																													
yellow-gray	fan turns once. 0V~5V~0V																														
outdoor fan motor	<p>Use instruments to measure the resistor between connecting terminals (winding resistance at 10-40°C)</p> <table border="1"> <thead> <tr> <th colspan="4">Normal</th> <th rowspan="2">Abnormal</th> </tr> <tr> <th>5K-9K</th> <th>12K</th> <th>18K-21K</th> <th>24K</th> </tr> </thead> <tbody> <tr> <td>315 Ω~385 Ω (red-blue)</td> <td>103 Ω~126 Ω (red-blue)</td> <td>76 Ω~93 Ω (red-blue)</td> <td>33 Ω~40 Ω (red-blue)</td> <td rowspan="2">short circuit or open circuit</td> </tr> <tr> <td>252 Ω~308 Ω (yellow-blue)</td> <td>192 Ω~235 Ω (yellow-blue)</td> <td>81 Ω~100 Ω (yellow-blue)</td> <td>58 Ω~70 Ω (yellow-blue)</td> </tr> </tbody> </table>	Normal				Abnormal	5K-9K	12K	18K-21K	24K	315 Ω~385 Ω (red-blue)	103 Ω~126 Ω (red-blue)	76 Ω~93 Ω (red-blue)	33 Ω~40 Ω (red-blue)	short circuit or open circuit	252 Ω~308 Ω (yellow-blue)	192 Ω~235 Ω (yellow-blue)	81 Ω~100 Ω (yellow-blue)	58 Ω~70 Ω (yellow-blue)												
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stepper motor	<p>use instruments to measure the resistor (when at 10-30°C)</p> <table border="1"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>280 Ω~320 Ω</td> <td>short circuit or open circuit</td> <td>350 Ω~400 Ω</td> <td>short circuit or open circuit</td> </tr> </tbody> </table>	Normal	Abnormal	Normal	Abnormal	280 Ω~320 Ω	short circuit or open circuit	350 Ω~400 Ω	short circuit or open circuit																						
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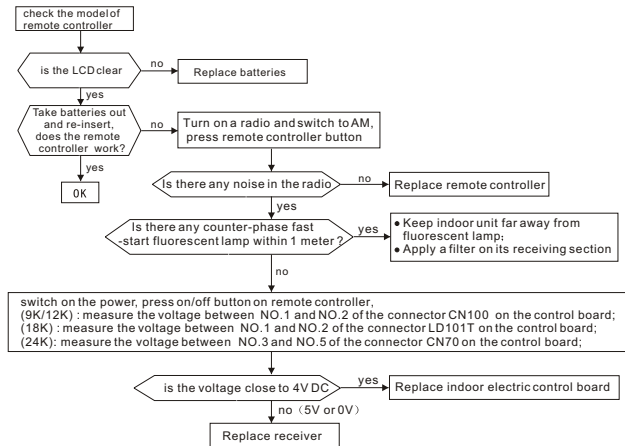
VII. Troubleshooting

A. Inspection of indoor fan motor (apply only to 9K/12K)



B. Inspection on the receiver circuit board

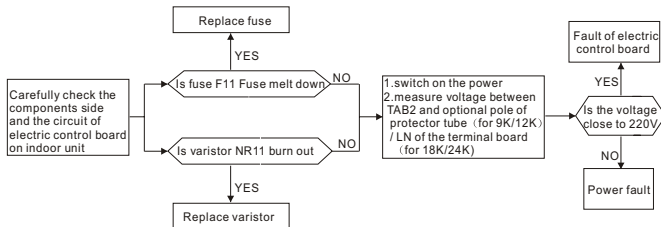
Indoor unit is able to operate when the emergency switch is pressed, but unable to operate with remote controller.



VII. Troubleshooting

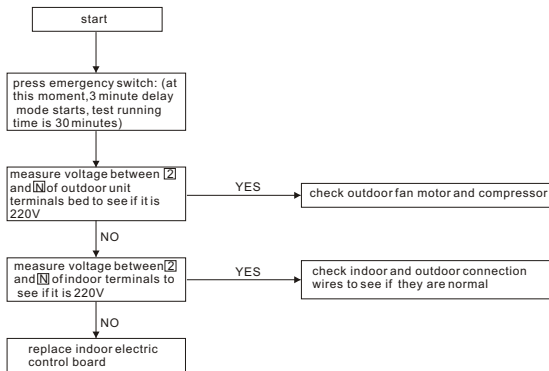
C. inspection on indoor electric control board

indoor remoter controller doesn't work, at the same time, the operation pilot lamp is not lit when the emergency switch is pressed button



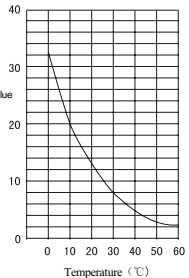
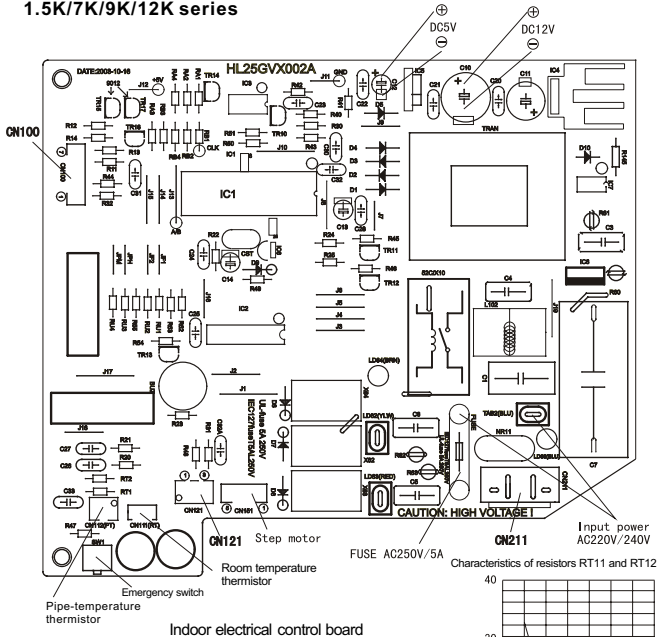
D. Inspection of outdoor unit

Compressor and outdoor fan don't operate (only indoor fan operates)



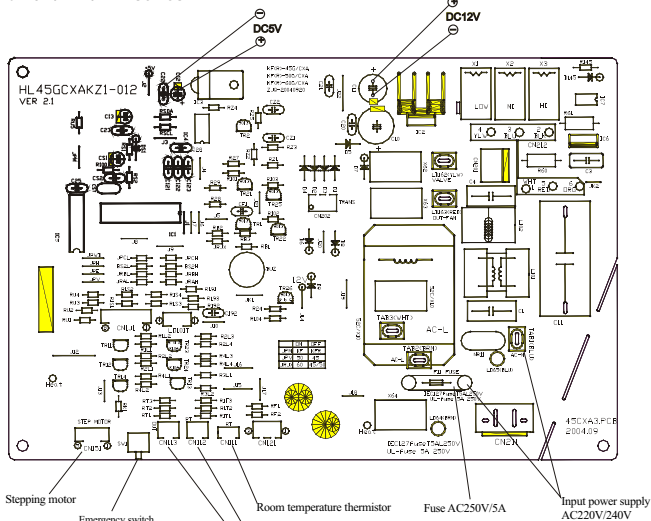
VII. Troubleshooting

E. Location of detecting points and their voltage 1.5K/7K/9K/12K series



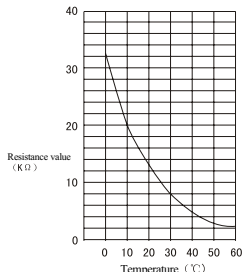
VII. Troubleshooting

E. Location of detecting points and their voltage 3.18K/21K/24K series



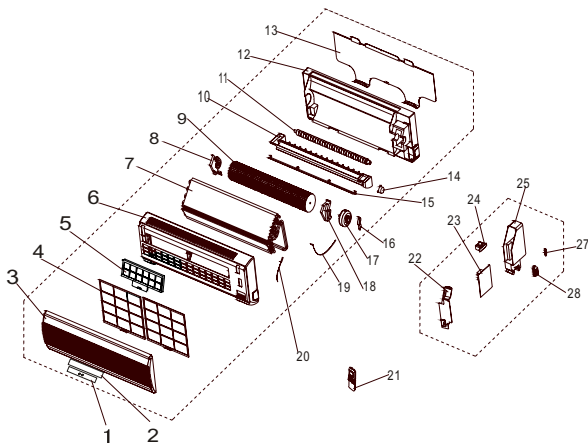
Indoor electrical control board

Characteristics of resistors RT11 and RT12



VIII.Parts list

H indoor unit



5K/7K/9K/12K indoor unit

No.	Name	Quantity	Code	Remark
1	Display board	1		
2	Box for display board	1		
3	Front panel	1		
4	Air filter	2		
5	Air filter	Optional		
6	Panel frame	1		

VIII.Parts list

Number	Designation	Qty	Code	Remark
7	Evaporator	1		
8	Bearing holderl	1		
9	Cross flow fan ,assy	1		
10	Air out frame	1		
11	Drain hose	1		
12	Chassis	1		
13	Installation plate	1		
14	Louver motor	1		
15	Horizontal louverr	1		
16				
17	Fan motor	1		
18	Fixing part for motor	1		
19	Indoor temp. Sensor	1		
20	Evaporator temp. Sensor	1		
21	Wired controller	1		
22	E- part box cover	1		
23	Main control board	1		
24	Tranformer			
25	E-parts box	1		
26	Wire clamp for power cord	1		
27	Wire joint	1		

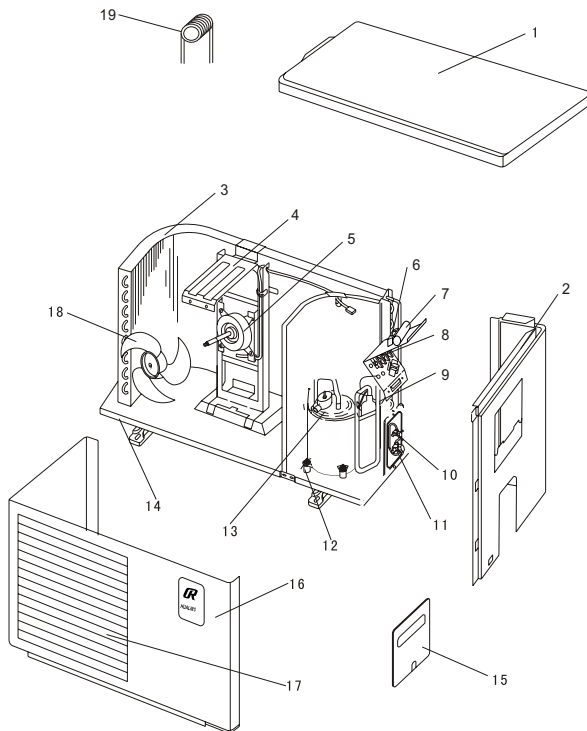
VIII.Parts list

18K/21K/24K indoor unit

No.	Name	Quantity	Code	Remark
1	Display board	1		
2	Box for display board	1		
3	Front panel	1		
4	Air filter	2		
5	Air filtert	Optional		
6	Panel frame	1		
7	Evaporator	1		
8	Bearing holderl	1		
9	Cross flow fan ,assy	1		
10	Air out frame	1		
11	Drain hose	1		
12	Chassis	1		
13	Installation plate	1		
14	Louver motor	1		
15	Horizontal louverr	1		
16				
17	Fan motor	1		
18	Fixing part for motor	1		
19	Indoor temp. Sensor	1		
20	Evaporator temp. Sensor	1		
21	Wired controller	1		
22	E- part box cover	1		
23	Main control board	1		
24	Tranformer			
25	E-parts box	1		
26	Wire clamp for power cord	1		
27	Wire joint	1		

VIII. Parts list

5K,7K,9K, series outdoor unit



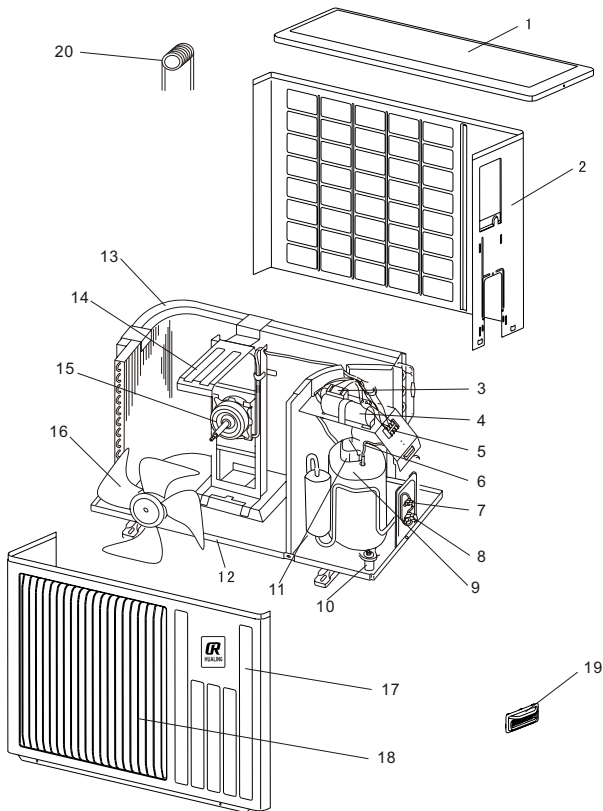
VIII. Parts list

5K/7K/9K series outdoor unit

Number	Designation	Qty	Code	Note
1	Top plate	1		
2	Right side plate	1		
3	Heat exchanger	1		
4	Motor mounting	1		
5	Fan motor	1	MF	YDK-20AF-6
6	Capacity of fan	1		1.5 μ F/450V
7	Capacity of compressor	1	C1	30 μ F/450V
8	Terminal block	1	TB	3
9	Return air pipe	1		
10	Shutoff valve (liquid)	1		1/4F
11	Shutoff valve (gas)	1		3/8F
12	Rubber shock absorber of compressor	3		
13	Compressor	1	MC	44R212AE-FJS
14	Base	1		
15	Maintenance panel	1		
16	Foreplate	1		
17	Outdoor grille	1		
18	Axial flow fan	1		
19	Capillary	1		

VIII. Parts list

12K,18K series outdoor unit



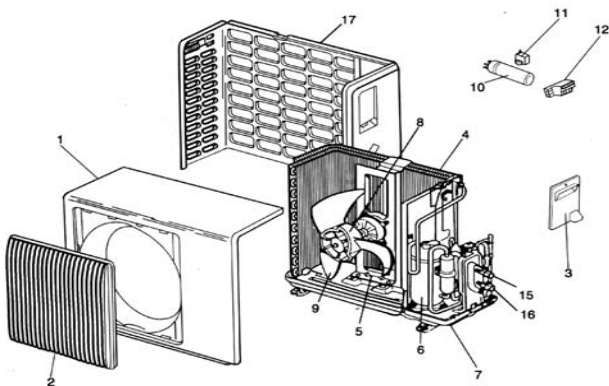
VIII. Parts list

12K;18K series outdoor unit

No.	Name	Quantity	Code	Remark
1	Top panel	1		
2	Roar plate	1		
3	Fan capacitor	1		2. 0 μ F
4	Compressor capacitor	1	C1	40 μ F
5	Terminal board	1	TB	3
6	Process pipe	1		
7	Stop valve (liquid)	1		1 / 4F
8	Stop valve (gas)	1		1/2F
9	Upper cover of sound-proof pad	1		
10	Compressor anti-vibration pad	3		
11	Compressor	1	MC	44R332AK-5ES
12	Base support	1		
13	Heat exchanger	1		
14	Motor support	1		
15	Fan motor	1	MF	YDK-45M-6
16	Axial flow fan	1		
17	Front panel	1		
18	Outdoor grid	1		
19	Handle	1		
20	Capillary	1		See (page 9) cooling loop for detailed specification

VIII. Parts list

21K,24K series outdoor unit



No.	Name	Quantity	Code	Remark
1	Front panel	1		
2	Outdoor grid	1		
3	Maintenance board	1		
4	Outdoor heat exchanger	1		
5	Motor support	1		
6	Compressor	1	MC	48R502AQ+51S
7	Base support	1		
8	Outdoor fan motor	1	MF	YDK-50AB-6
9	Axial flow fan	1		
10	Compressor capacitor	1	C1	40 μ F
11	Outdoor fan capacitor	1		4.0 μ F
12	Terminal board	1	TB	4
13	Capillary	1		
14	Compressor rubber pad	3		
15	Stop valve (liquid)	1		1/4F
16	Stop valve (gas)	1		1/2F
17	Rear plate	1		

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