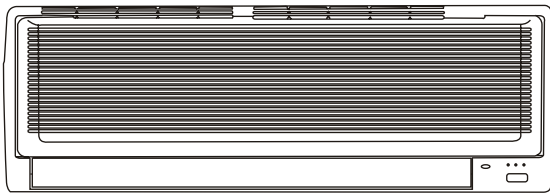




Domestic Air Conditioner

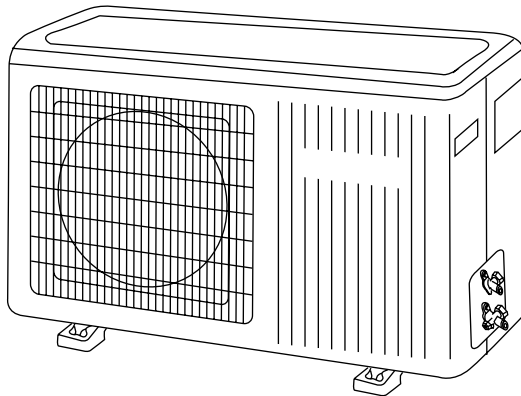
SERVICE MANUAL



Models:

HSU-09C03/Z1

HSU-12C03/Z1



● Features

- Comfortable:wide-angle airflow
- Health air purifying
- Quiet operation
- Energy efficient
- Wide variety of functions

1.comfortable:wide-angle airflow

The vertical dual-flap and horizontal wide-angle louvers ensure the cool(warm air reaches every

Content

1. Description of product model coding and series introduction
2. Specifications
3. Curves of performance
4. Description,net dimensions and functions of main components and accessories
5. Knock-down drawings and part lists
6. Brief introduction to electrical control functions
7. Abnormity diagnose
8. Wiring diagram
9. Circuit diagram
10. Trouble shooting
11. Refrigerating cycle diagram
12. Noise level test chart and air velocity distribution
13. Installationmanual

1. comfortable:wide-angle airflow

The vertical dual-flap and horizontal wide-angle louvers ensure the cool(warm air reaches every corner of the room.

2.Health air purifying

An air purifying filter with deodorizing and disinfecting functions keep the air clean and users healthy.

3.Quiet operation

Fan With Random-pitched Blades.

Random-pitched blades help reduce operating noise while maintaining a high airflow rate.

4.Energy efficient

The design of inner-grooved copper tube greatly increases the refrigerant contact area and the efficiency of cooling/heating functions.

5.Convenience

Auto restart and washable panel:

The grille can be removed easily and washed when necessary.Any series have the function then even if the power falls when the unit is operating unit will automatically return to the operating settings in use before the power failure when power is restored.

6.Wide variety of functions

24-Hour Timer:

24-hour timer allows users to select the exact time they would like the air conditioner to turn on and to turn off.Timers on previous models operation based on the number of hours of desired operation.

7.Night-set models

When the air conditioner is operating on the timer-off circuit.The preset room temperature gradually rises(going down in heating)before the unit stops as shown below.Users can sleep comfortably without sudden change in temperature.

8.Program "dry"

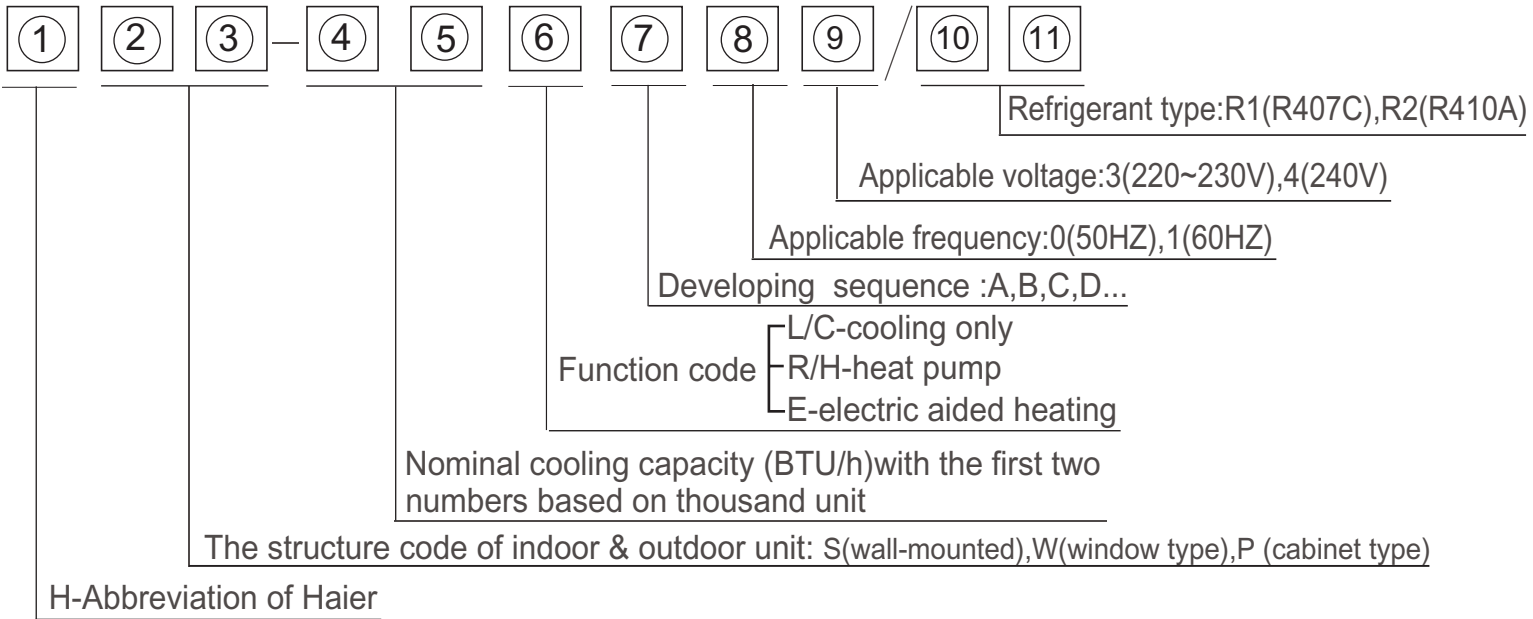
This function automatically reduces the level of humidity while maintaining the preset indoor temperature.

Description of product model coding and series introduction

Introductory Remarks

A. Description of coding rules of unit model

Coding rules and descriptions are as follows:



Examples:

HSU-09R04,It represents wall-mounted split type heat pump air conditioner .The cooling capacity is 9000BTU/h,and the power supply is 240V/50Hz

B.Standard Situation/Conditions

No.	Operating condition	indoor air status		outdoor air status	
		DB°C	WB°C	DB°C	WB°C
1	Norminal cooling	27°C	19°C	35°C	24°C
2	Norminal heating	20°C	no control	7°C	6°C
3	Norminal electrical heating	---	---	---	---

Specifications

Model: HSU-09C03/Z1

Cooling capacity(W)	2300	Heating capacity(W)	----
Cooling coefficient(W/W)	2.88	Heating coefficient(W/W)	----
Cooling power input(W)	800	Heating power input(W)	----
Moiture removal(m /h) ³	1.36X10 ⁻³	Refrigerant type	R22
Operating voltage range (V)	220-230V~	Frequency range(Hz)	50
Operating temp. range (°C)	-7-43	Air sending angle	60°
Variation of temp. adjust (°C)	± 1	Fan type	indoor unit
			outdoor unit
			Cross flow fan
			Axial flow fan
Climate type:	T1	Class of electric shock	I
Indoor unit noise	37/35/30	Outdoor unit noise	48
Net dimensions mm (indoor unit)	795*199*265	Net dimensions mm (outdoor unit)	745*315*428
Packaging dimensions mm (indoor unit)	863*277*339	Packaging dimensions mm (outdoor unit)	843*359*515
Net/gross weight (kg) (indoor unit)	7.2/10.2	Net/gross weight (kg) (outdoor unit)	31/36
Max. mounting height difference(m)	5	Piling layers	indoor unit
			outdoor unit
			8
			4
Refrigerant charge(g) R22	490	Current entering side (indoor/outdoor)	Indoor
Frequency of filter cleaning	Once/2 weeks	Compressor manufacturer	RECHI
Compressor model	44R233BF-5JS	Compressor oil type	
Compressor oil charge (cc)	270	Compressor protector type	MRA99254L-9054
Maxi. length of connecting pipe (m)	7	drain hose	length(mm)
Refrigerant recharged(Length of connecting pipe is more	20g per meter		diametre(mm)
			16
Cap. tube type muffle model:	TP ₂ Y	Type of tube of evaporator and condenser	Internal treaded
Fan speed(H/M/L)(r/min) (indoor unit)	1150/1100 / 920	Size of tube of evaporator and condenser(mm)	Dia. 7 / 9.52
Fan speed(r/min) (outdoor unit)	860	Appearance features of indoor unit	Large arc plastic
Cut-off vavle(inch)	two-way	Appearance features of outdoor unit	Mini type
	three-way		
Max. operating pressure at warm side(Mpa)	2.65	Max. operating pressure at cool side(Mpa)	2.65

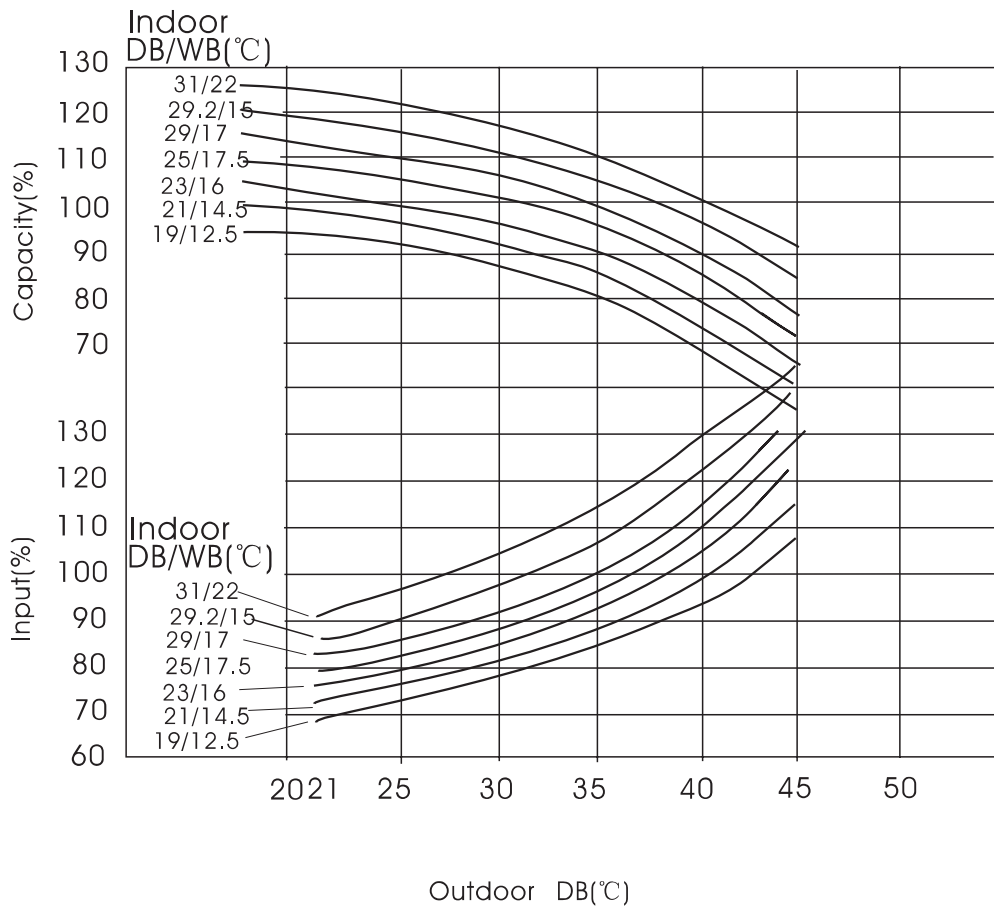
Model: HSU-12C03/Z1

Cooling capacity(W)	3200	Heating capacity(W)	----
Cooling coefficient(W/W)	2.71	Heating coefficient(W/W)	----
Cooling power input(W)	1180	Heating power input(W)	----
Moiture removal(m ³ /h)	1.5X10 ⁻³	Refrigerant type	R22
Operating voltage range (V)	220-230V ~	Frequency range(Hz)	50
Operating temp. range (°C)	-7-43	Air sending angle	60°
Variation of temp. adjust (°C)	± 1	Fan type	indoor unit
			outdoor unit
Climate type:	T1	Class of electric shock	I
Indoor unit noise	39/37/32	Outdoor unit noise	48
Net dimensions mm (indoor unit)	795*199*265	Net dimensions mm (outdoor unit)	745*315*428
Packaging dimensions mm (indoor unit)	863*277*339	Packaging dimensions mm (outdoor unit)	843*359*515
Net/gross weight (kg) (indoor unit)	7.6/10.6	Net/gross weight (kg) (outdoor unit)	33/38
Max. mounting height difference(m)	5	Piling layers	indoor unit
			outdoor unit
Refrigerant charge(g) (R22)	770	Current entering side (indoor/outdoor)	Indoor
Frequency of filter cleaning	Once/2 weeks	Compressor manufacturer	MITSUBISHI
Compressor model	RH220VHLC	Compressor oil type	
Compressor oil charge (cc)	520	Compressor protector type	Inside
Maxi. length of connecting pipe (m)	15	drain hose	length(mm)
Refrigerant recharged(Length of connecting pipe is more than 5 meter)	20g per meter		diametre(mm)
Cap. tube type muffle model:	TP2Y	Type of tube of evaporator and condenser	Internal treaded
Fan speed(H/M/L) (r/min)(indoor unit)	1290/1150/1000	Size of tube of evaporator and condenser(mm)	Dia. 7 / 9.52
Fan speed(r/min) (outdoor unit)			1060
Cut-off vavle(inch)	two-way	Appearance features of outdoor unit	Mini type
	three-way		
Max. operating pressure at warm side(Mpa)	2.65	Max. operating pressure at cool side(Mpa)	2.65

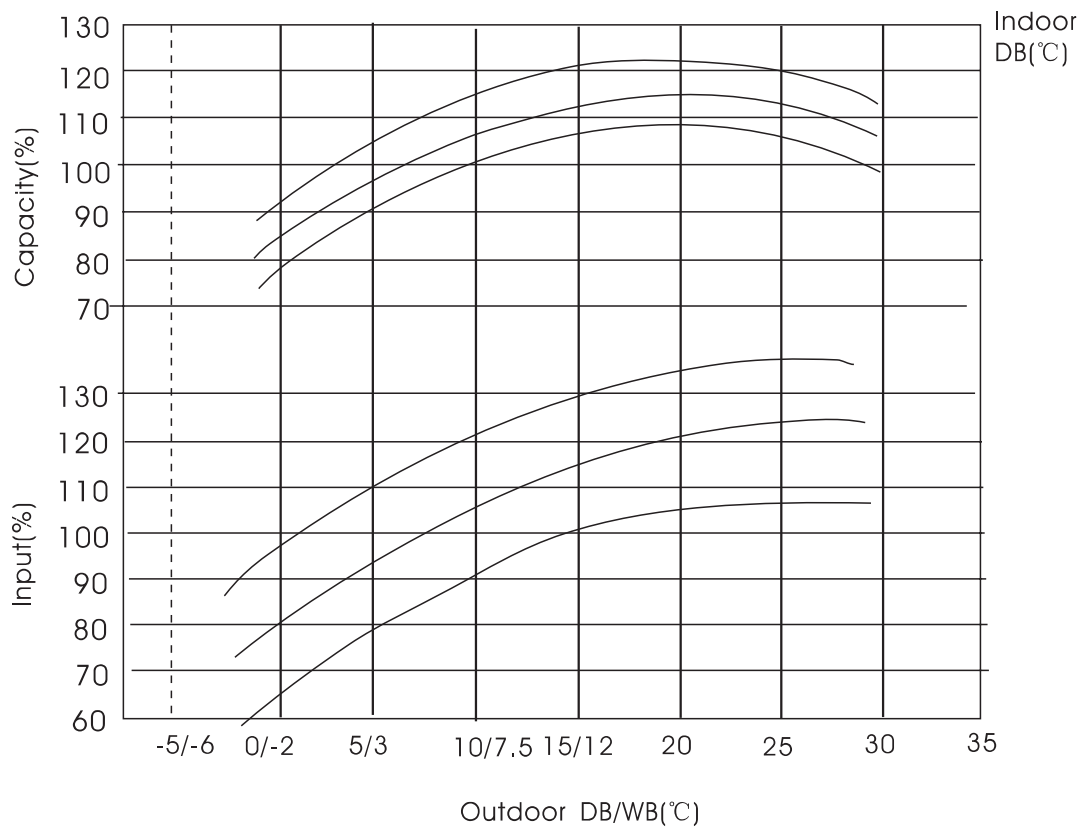
Curves of performance

Curves of cooling capacity and heating capacity as a function of outdoor temperature(-7°C~43°C)

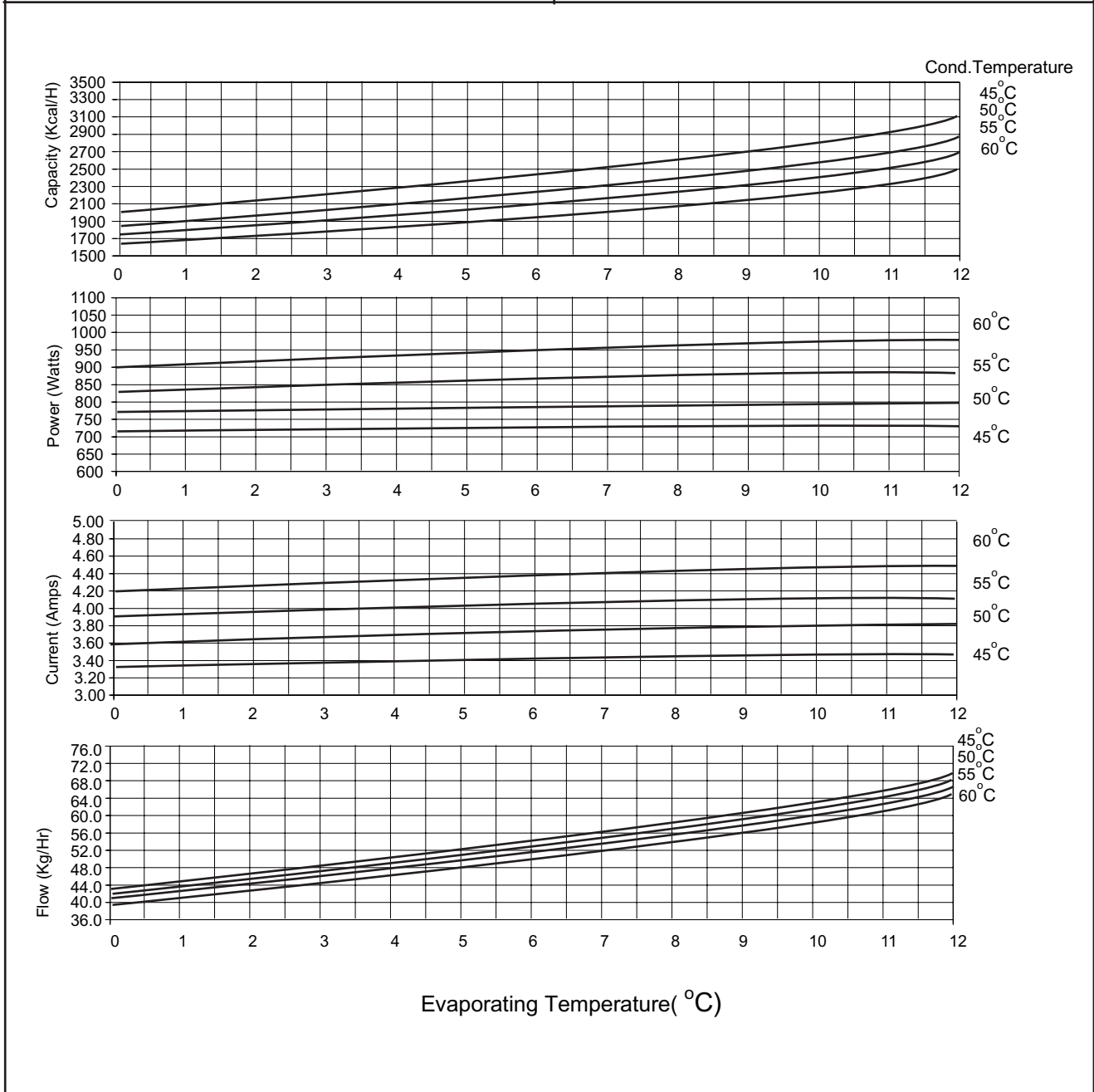
Cooling



Heating



Performance Curve		Return Gas Temperature	35°C
Model	44R233B	Subcooling	8.3°C
Power Supply	220V / 50Hz / 1PH	Ambient Temperature	35°C

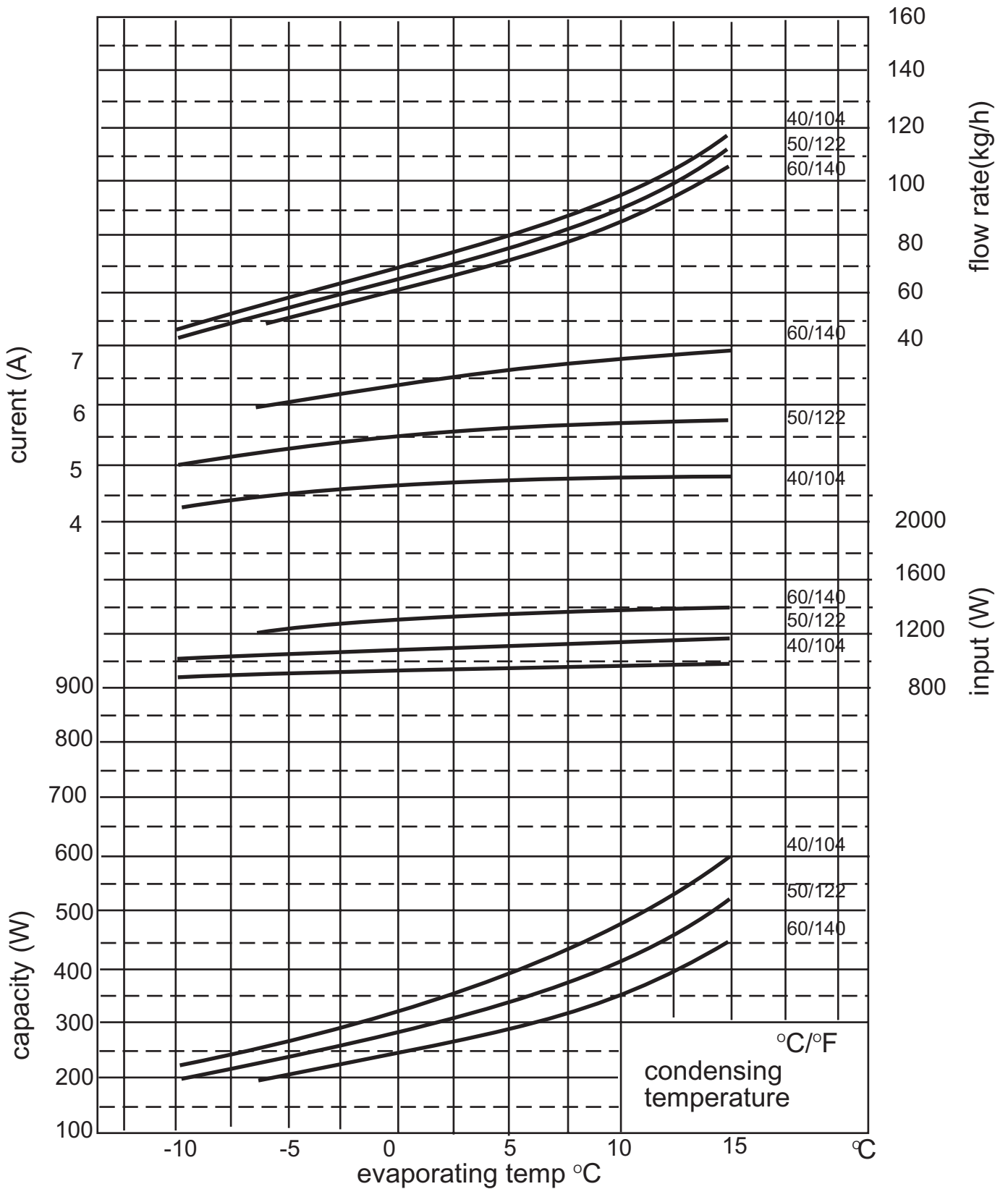


		RECHI PRECISION CO.,LTD	
		Dwg.Name	Dwg.No.
		Curves OF Compressor	44R233B

Curves of compressor performance

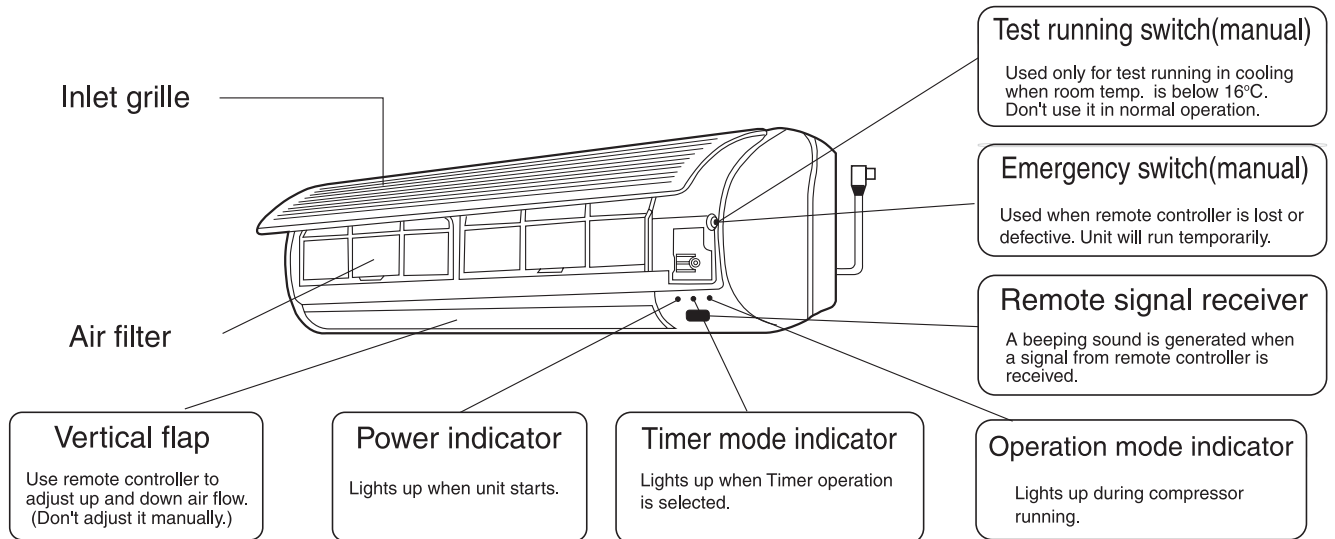
Compressor:RH220VHLC

return gas superheated °C	11
UNDER COOL °C	8.3
Ambient temp °C	35

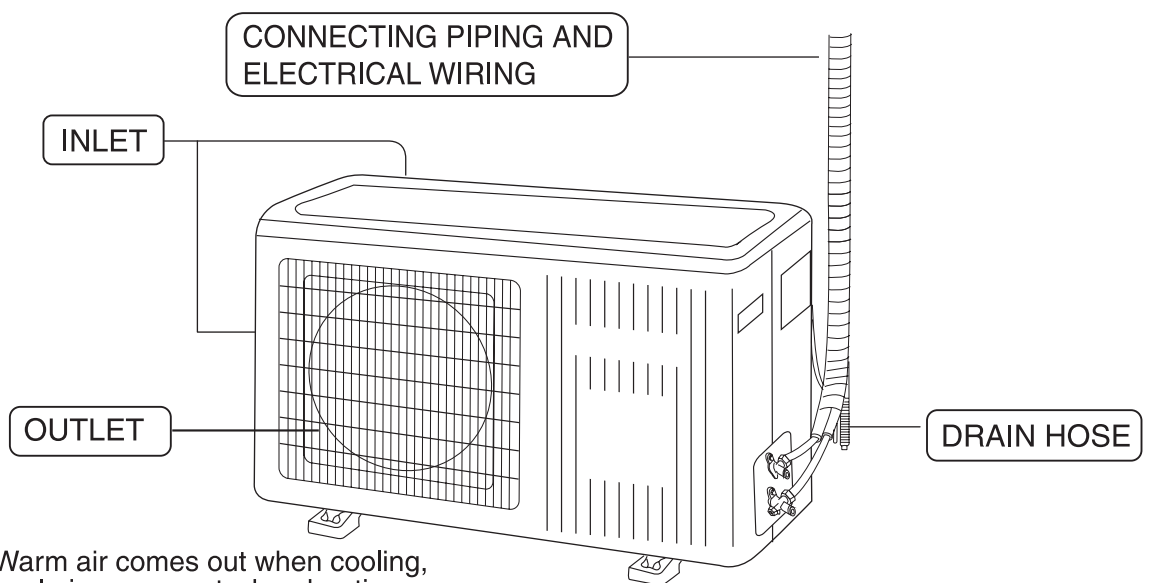


Description, dimension and function of main components and accessories

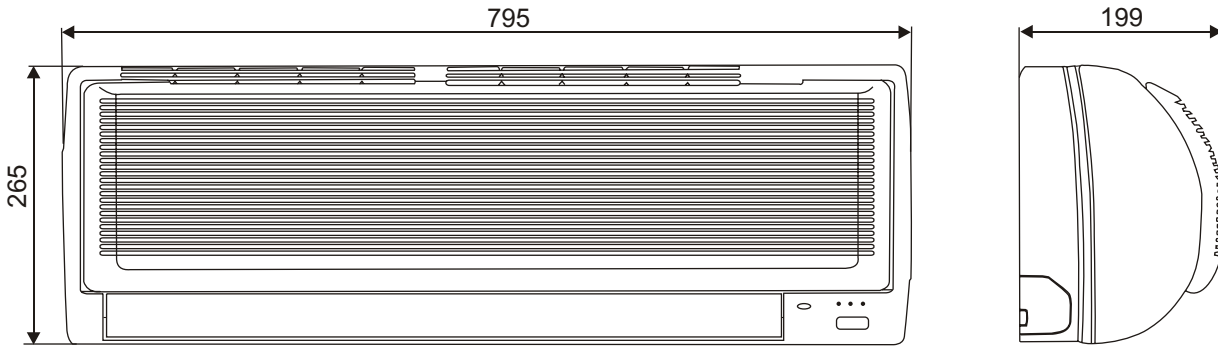
Indoor Unit



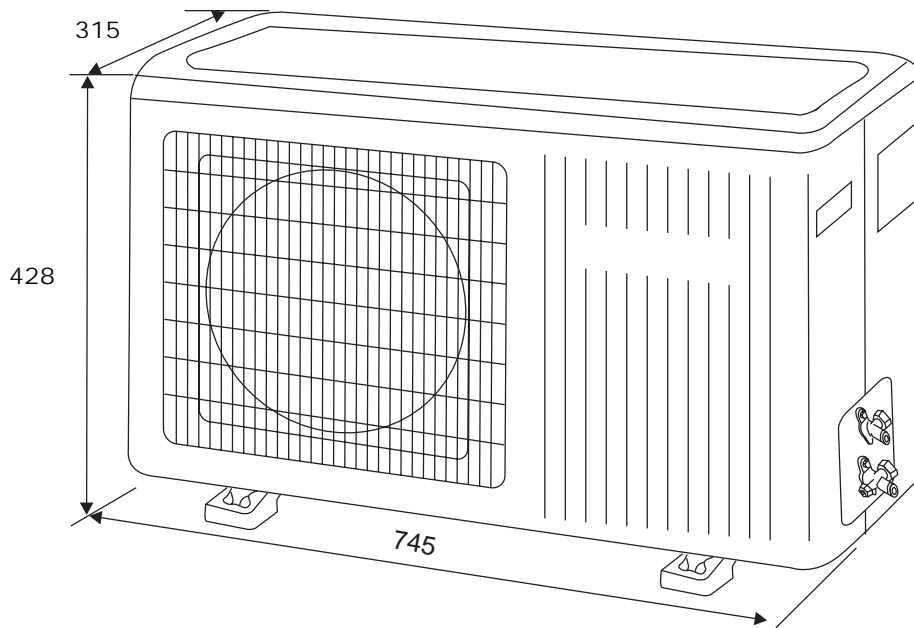
Outdoor Unit



NET DIMENSIONS: Indoor unit

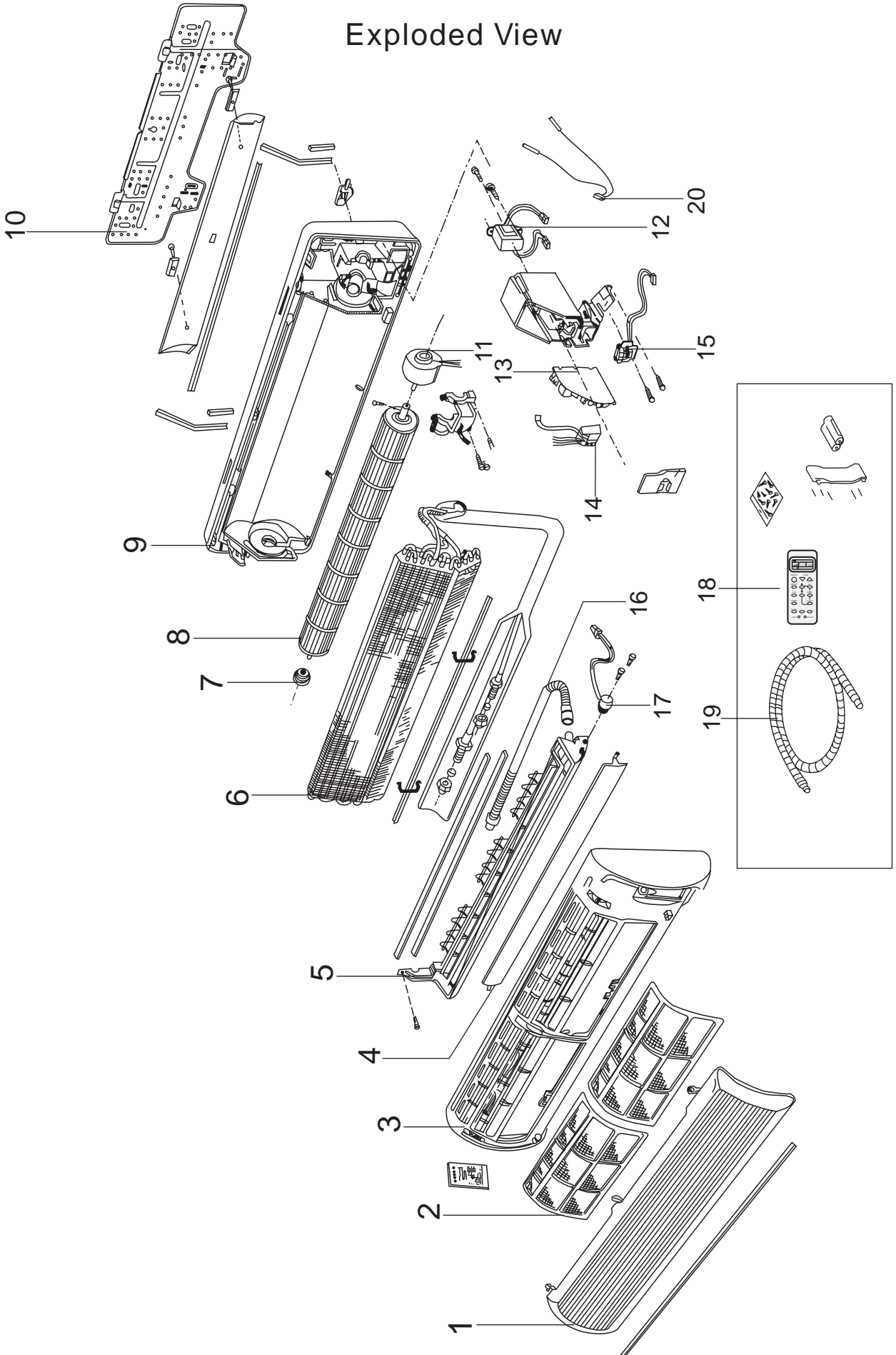


NET DIMENSIONS: Outdoor unit



Knock-down drawings

Exploded View



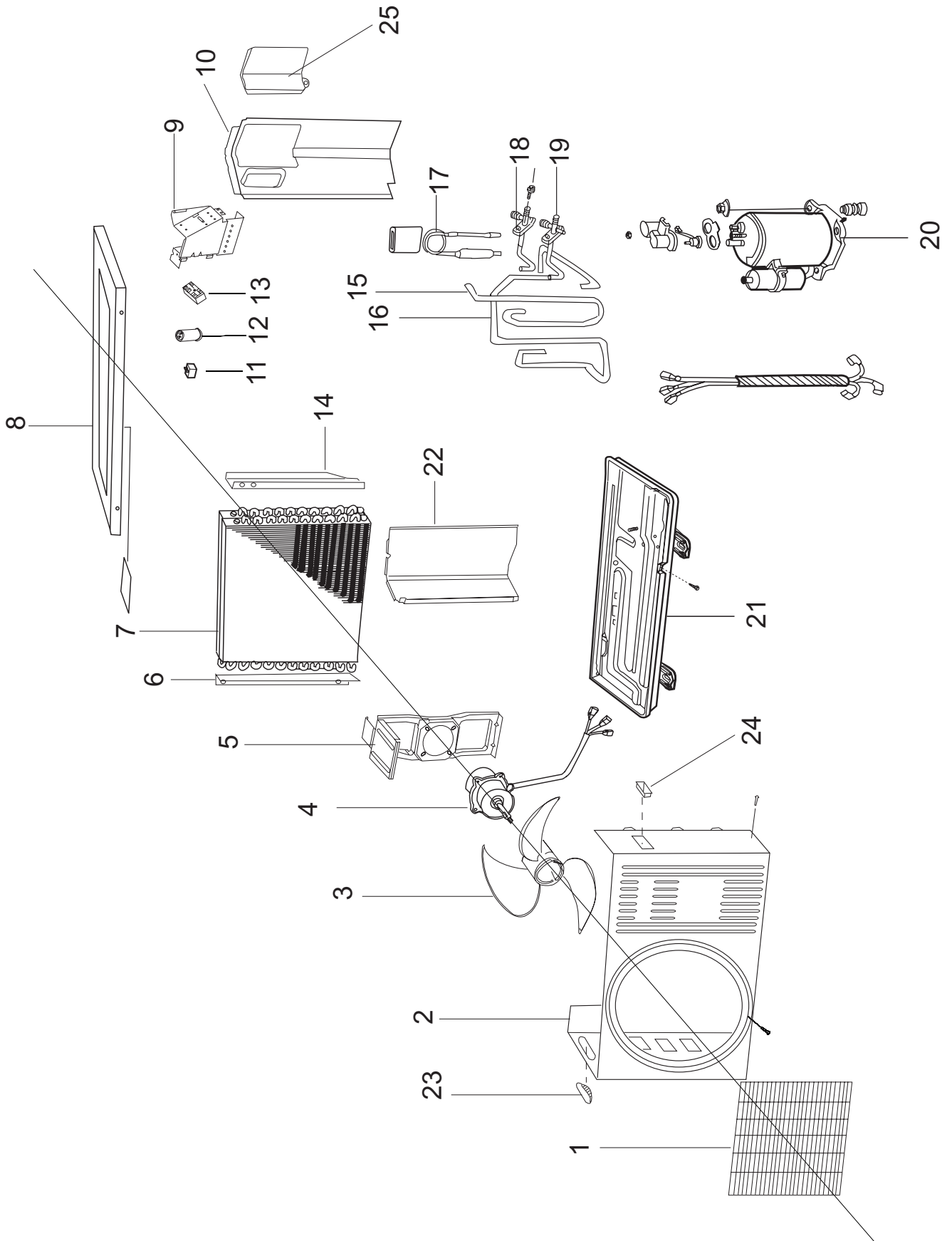
Parts list :HSU-09C03/Z1 Indoor unit

NO	Parts code	Name of part Part	QTY.	Easily damaged components (Y/N)
1	001A0100945	Inlet grille	1	
2	001A2400058	Air filter	2	
3	001A0100944	Front panel	1	
4	001A1232077	Flap	1	
5	001A0900048	Drain pan	1	
6	0010705494	Evaporator	1	
7	001A0300005	bearing	1	
8	0010202415	Cross flow fan	1	
9	001A0100199	Frame assy.	1	
10	0010101275	Mounting plate	1	
11	001A3000051	Fan motor	1	Y
12	0010400100	Transformer	1	Y
13	0010402953	PCB	1	Y
14	001A4000091	Terminal block	1	
15	0010402241	Receiver board	1	Y
16	001A0900011	Drain hose	1	
17	001A3000072	Swing motor	1	
18	0010402639	Remote controller	1	Y
19	001A1434039	Drain tube	1	
20	001A3900059	Sensor	1	Y

Parts list :HSU-12C03/Z1 indoor unit

NO	Parts code	Name of part Part	QTY.	Easily damaged components (Y/N)
1	001A0100945	Inlet grille assy.	1	
2	001A2400060/001A 2400061	Air filter	1	
3	001A0100944	Front panel assy.	1	
4	001A1232077	Flap	1	
5	001A0900048	Drain pan assy.	1	
6	0010702158	Evaporator assy.	1	
7	001A0300005	Bearing	1	
8	0010202415	Cross flow fan	1	
9	001A0100206	Frame assy.	1	
10	0010101275	Mounting plate	1	
11	001A3000052	Fan motor	1	y
12	0010402315	Transformer	1	y
13	0010402955	PCB	1	y
14	001A4000091	Terminal block	1	
15	0010402241	Receiver board	1	y
16	001A0900011	Drain hose	1	
17	001A3000072	Swing motor	1	y
18	0010402639	Remote controller	1	y
19	001A1434039	Drain tube	1	
20	001A3900059	Sensor		

KNOCK-DOWN DRAWINGS FOR OUTDOOR UNIT(HSU-09/12C03/Z1)



Parts list :HSU-09C03/Z1 outdoor unit

No	Parts Code	Name of part Part	Qty	Easily damaged components (Y/N)
1	0010100777	Front grille	1	
2	0010101394	Front panel	1	
3	0010200212	Fan	1	
4	0010400279	Motor	1	Y
5	0010803049	Frame for motor	1	
6	0010101391	Heat exchanger left plank	1	
7	0010705590	Heat exchanger	1	
8	0010100774	Top panel	1	
9	0010100779	Electric box	1	
10	0010100776	Right panel	1	
11	001A3600009B	Fan Motor Capacitor	1	Y
12	001A3600008	Compressor Capacitor	1	Y
13	0010402287	Terminal block	1	Y
14	0010100781	Heat exchanger right plank	1	
15	0010706180	Discharge Tube	1	
16	0010706181	Suction Tube	1	
17	0010705638	Capillary Tube	1	
18	0010703597	Stop valve	1	
19	0010703598	Stop valve	1	
20	0010705015	Compressor	1	Y
21	0010100778	Bottom plate	1	
22	0010100782	Separating plate	1	
23	0010200491	Left handle	1	
24	001A1436160	Right handle	1	
25	0010203305	Service cover	1	

Parts list :HSU-12C03/Z1 outdoor unit

No	Parts Code	Name of part Part	Qty	Easily damaged components (Y/N)
1	0010100777	Front grille	1	
2	0010101394	Front panel	1	
3	0010200212	Fan	1	
4	0010402289	Motor	1	Y
5	0010803050	Frame for motor	1	
6	0010101391	Heat exchanger left plank	1	
7	0010705589	Heat exchanger	1	
8	0010100774	Top panel	1	
9	0010100779	Electric box	1	
10	0010100776	Right panel	1	
11	001A3600007A	Fan Motor Capacitor	1	Y
12	001A3600032	Compressor Capacitor	1	Y
13	0010403146	Terminal block	1	Y
14	0010101027	Heat exchanger right plank	1	
15	0010749290	Discharge Tube	1	
16	0010749291	Suction Tube	1	
17	0010705595	Capillary Tube	1	
18	0010703597	Stop valve	1	
19	0010703596	Stop valve	1	
20	0010701713	Compressor	1	Y
21	0010100778	Bottom plate	1	
22	0010100782	Separating plate	1	
23	0010200491	Left handle	1	
24	001A1436160	Right handle	1	
25	0010203305	Service cover	1	

Brief introduction to electrical control function

Function Schedule

No.	Function	Description of function
1	Cooling	Set temperature 16 -30
2	Drying	Set temperature 16 -30
3	Heating (heat pump type)	Set temperature 16 -30
4	Emergency run	Over 23 cooling and set 26 less 23 heating and set 23
5	Test run	Set force cooling
6	Anti-cold wind (heat pump type)	When temperature of the heating pipe coil is low, low fan speed or without airflow
7	Fan speed adjustment	Auto, high, middle, low four level fan speeds
8	Timer switch	24hours timer on, timer off, on-off, off-on
9	High load protection (heat pump type)	When heating in high ambient temperature to protect compressor
10	Anti-freezing of the indoor unit	When heating in low ambient temperature to protect system
11	Defrosting run (heat pump type)	When heating in low ambient temperature to defrost for the outdoor unit in order to make the system have a better efficiency
12	Self trouble shooting	Check the system trouble and give an alarm
13	Over current protection(heat pump type)	When working in high power to protect system
14	Super function	Keep 15 min, higher power operation (in cooling, heating mode)
15	Soft function	Run with lower power

Brief introduction to electrical control function

For cooling only unit, the introduction of heating function is unavailable.

1. Introduction to electrical control function

Including brief introduction to air conditioners of series models and electric control function.

Brief introduction to electric control function

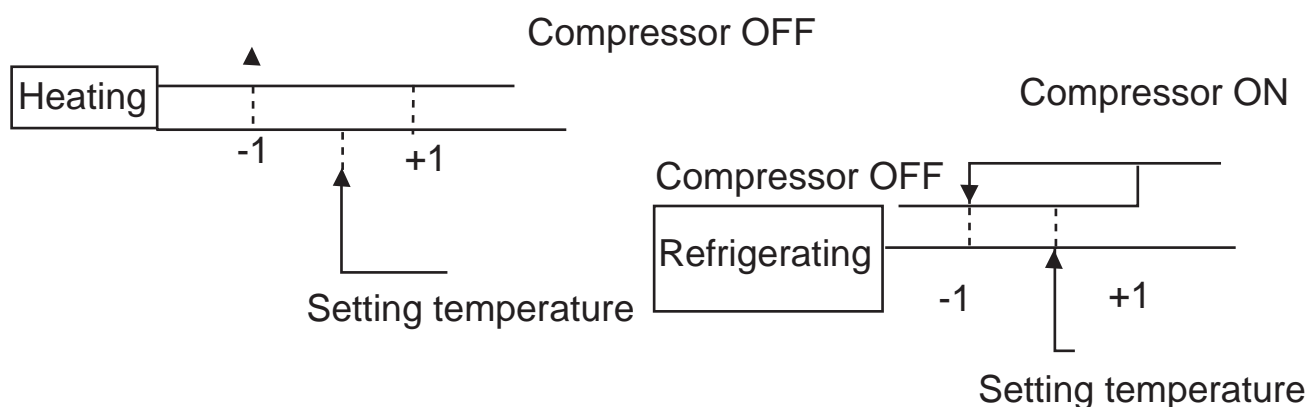
(1) Automatic running (applicable to fan-coil model)

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. T_r in the following selection conditions means room temperature, T_s means setting temperature, T_p means temperature of indoor coil pipe

- a. $T_r > 23^\circ\text{C}$ running refrigerating mode $T_s = 26^\circ\text{C}$
- b. $T_r < 23^\circ\text{C}$ running heating mode $T_s = 26^\circ\text{C}$

After turning to the automation mode, the running mode can be switched between refrigerating mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between refrigerating mode and heating mode must be conducted after 15 minutes.

(2) Indoor temperature control

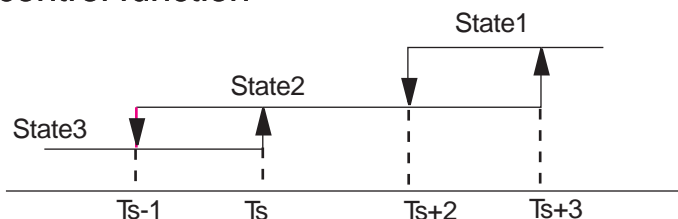


(3) Dehumidification running

The compressor, outdoor fan and indoor fan will run as per the following working pattern so as to realize the refrigerating running of dehumidification:

- a. $T_r > T_s + 2^\circ\text{C}$, compressor, outdoor fan run continuously, indoor fan runs as per setting wind speed (State 1);
- b. $T_s + 2^\circ\text{C} > T_r > T_s$, compressor, outdoor fan run intermittently with 10 minutes ON, 6 minutes OFF. (Compressor and outdoor fan are synchronous) indoor fan runs in fixed lower wind speed, and will cease at the stand-by time of 3 minutes (State 2)
- c. $T_r < T_s$, compressor, outdoor fan ceases, indoor fan runs in lower wind speed. (State 3)

Brief introduction to electrical control function



(4) Warm start (preventing cold wind when heating running begins, applicable to fan-coil model))

When heating running begins, indoor fan will conduct the following fan control:

- a. If the temperature of indoor coil pipe is $>23^{\circ}\text{C}$, start lower wind speed;
- b. If the temperature of indoor coil pipe is $>38^{\circ}\text{C}$ or the running time of compressor > 4 minutes, turn to setting wind speed.

(5) Control of indoor fan under heating OFF state (applicable to fan-coil model)

Under heating state, the compressor will cease; if the indoor coil pipe is temperature $T_p > 23^{\circ}\text{C}$, indoor fan will run in lower wind speed.

(6) Defrosting control (applicable to fan-coil model)

(1). Defrosting beginning condition:

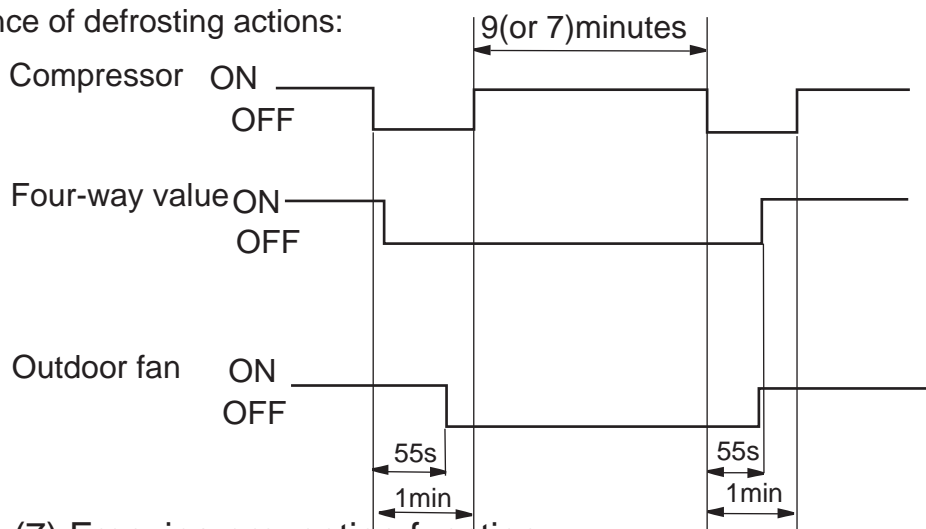
- a. After the state of $T_p - T_r < 16^{\circ}\text{C}$ is continued for 5 minutes, the accumulated running time of the compressor exceeds 45 minutes, the continuous running time of the compressor exceeds 20 minutes;
- b. The accumulated running time of the compressor exceeds 3 hours, the continuous running time of the compressor exceeds 20 minutes, indoor unit is $T_p < 38^{\circ}\text{C}$;
- c. The continuous running time of the compressor exceeds 20 minutes, the temperature of indoor coil pipe decreases 1 every 6 minutes, which lasts for more than 3 times, indoor unit is $T_p < 38^{\circ}\text{C}$;
- d. When the indoor unit is in the state of overload protection and the outdoor unit ceases, when the rerunning time of outdoor unit exceeds 10 minutes, the accumulated running time of the compressor exceeds 45 minutes, the continuous running time of the compressor is over 20 minutes, and $T_p < 38^{\circ}\text{C}$;

Defrosting will begin if one of the above conditions is met.

(2). Defrosting finishing condition:

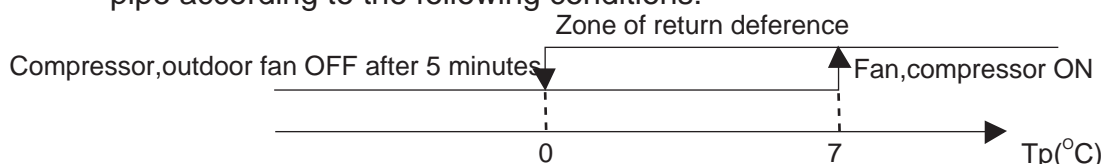
- a. If the defrosting time exceeds 9 (for 12 models) or 7 (for 07, 09 models) minutes, the original heating state will be resumed;
- b. If the current of outdoor unit is compressor exceeds 6.0A (different models have different currents); defrosting will be finished if either a or b is met.

Note: Sequence of defrosting actions:



(7) Freezing prevention function

Under refrigerating and dehumidifying state, the air conditioner will control the outdoor fan as per the temperature T_p of the indoor coil pipe according to the following conditions:



(8) 3 minutes stand-by time

When the compressor ceases due to the sensor OFF, unit On or OFF or fault, it will maintain pause for 3 minutes.

(9) Overload protection during heating running

1. Temperature protection of indoor coil pipe: Under heating state, the air conditioner will control the running of the fan as per the temperature T_p of the indoor coil pipe and according to the following conditions:

- a. $65^{\circ}\text{C} < T_p$, outdoor fan ceases; $T_p < 60^{\circ}\text{C}$, outdoor fan resumes; the time from ceasing to resuming is about 45 seconds;
- b. $72^{\circ}\text{C} < T_p$, outdoor fan of compressor ceases after 5 seconds; $T_p < 64^{\circ}\text{C}$, compressor resumes after 3 minutes.

2. Current protection (different models have different protection currents):

- a. When $6.0\text{A}(1) < \text{current of compressor}$, outdoor fan ceases; current of compressor $< 5.4\text{A}(2)$, outdoor fan resumes;
- b. When $10\text{A}(3) < \text{current of compressor}$, compressor ceases.

<p>(1)for 07 models the value is 3.6A,for 09 models the value is 4.2A (2)for 07 models the value is 3.3A,for 09 models the value is 3.8A (3)for 07 models the value is 6.0A,for 09 models the value is 7.0A</p>

(10) Compensatory function of power failure

If the unit is suddenly off during running due to power failure, or closed for maintenance or troubleshooting, it will restart to run after the power resumes with the original condition before the unit is off

Brief introduction to electrical control function

- Note: 1. Function setting: Pressing the SLEEP button on the remote control unit for 10 times until hearing 4 sounds from the buzzer on the panel.
 2. Memory content: Running mode, setting wind speed, setting temperature, sleep state, flap state.
 3. Cancellation of function: Pressing the SLEEP button on the remote control unit for 10 times until hearing 2 sounds from the buzzer on the panel.

(11) Trial run function

When the air conditioner is in OFF state, press the emergency switch for 5 seconds till hearing 2 sounds of click from the buzzer, then the air conditioner will turn to the trial run state. The unit will run in the refrigerating mode and the indoor fan will run in high wind speed mode.

(12) Emergency running mode

When the air conditioner is in stand-by state, press the emergency switch till hearing a sound from the buzzer, then the air conditioner will turn to the emergency run state. The rules of emergency run are as follows:

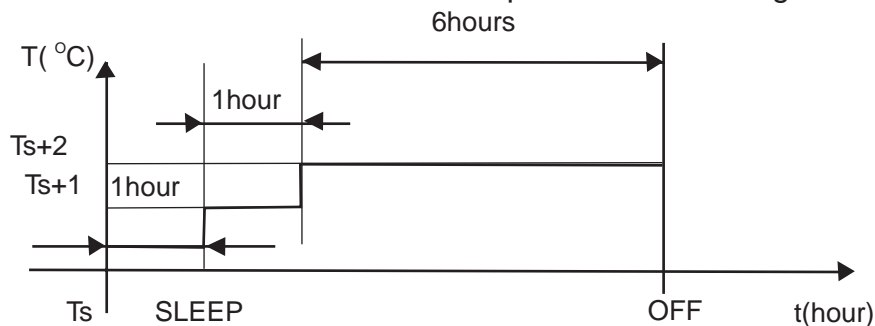
- a. $T_r > 23^\circ\text{C}$, running refrigerating mode, $T_s = 26^\circ\text{C}$;
- b. $T_r < 23^\circ\text{C}$, running heating mode, $T_s = 26^\circ\text{C}$.

(13) Temperature compensation

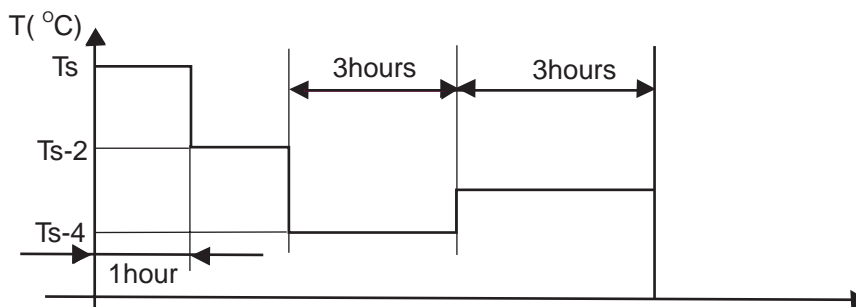
There is the function of automatic temperature compensation when heating, with heating temperature setting = $T_s(\text{remote setting}) + 4^\circ\text{C}$

(14) Sleeping function

a. After setting the sleeping function, the refrigerating mode and dehumidification mode will run as per the following rules:



b. After setting the sleeping function, the heating mode will run as per the following rules:



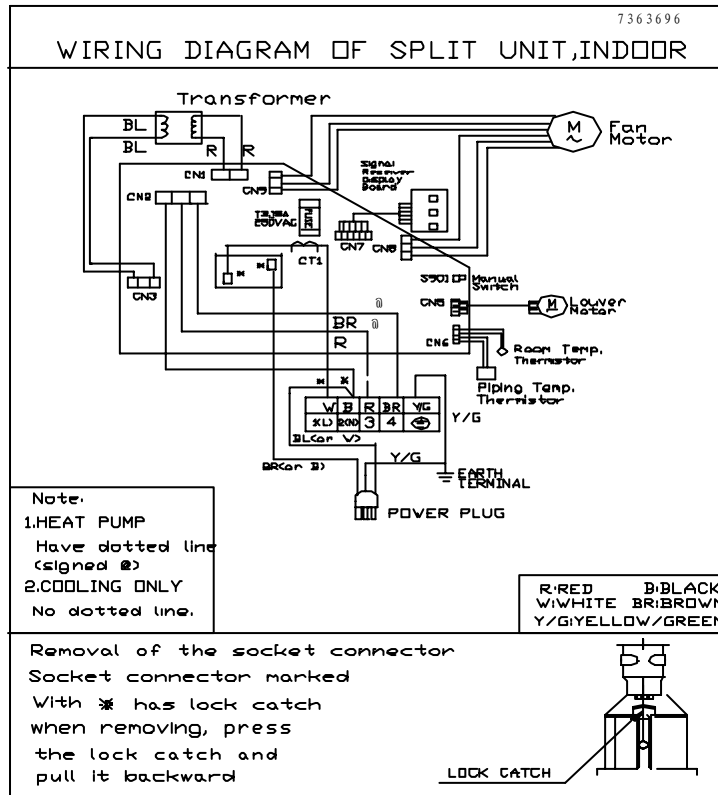
As shown in the above diagram, after running for 1 hour under refrigerating mode and dehumidification mode, the setting temperature will increase 1 °C; after another 1 hour, it will increase 1 °C again, and after 6 hours, it will cease; after running for 1 hour under heating mode, the setting temperature will decrease 2 °C, after another 1 hour, it will decrease the 2 °C again, and after 3 hours, it will increase 1 °C, and after other 3 hours, it will cease.

(15) Manual defrosting function

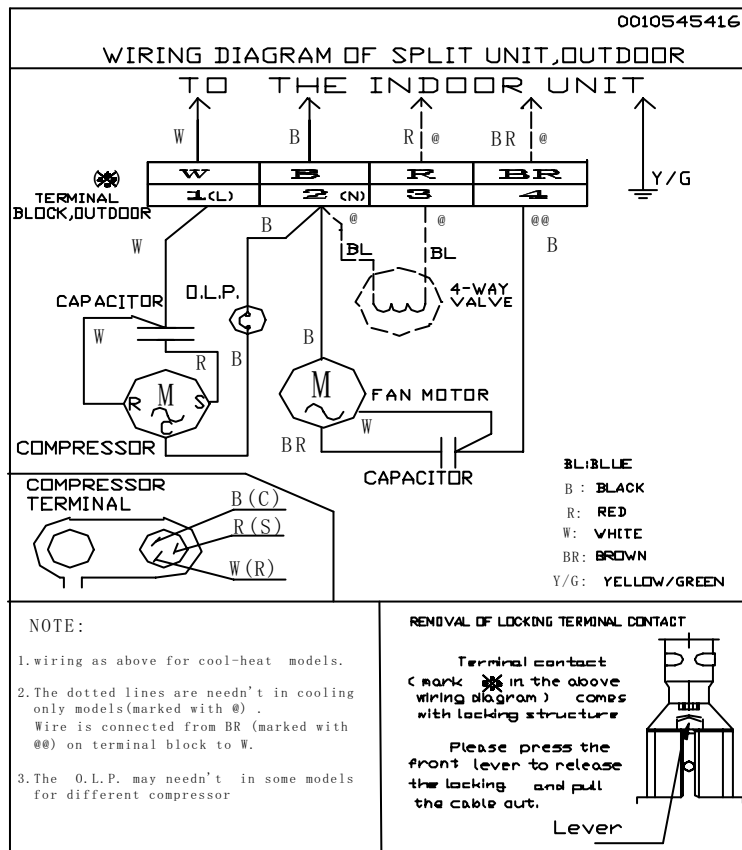
Under heating (automatic heating) state, press continuously the SLEEP button on the control unit for and times till hearing 3 sounds from the buzzer, then the whole unit will turn to the defrosting state.

WIRING DIAGRAM

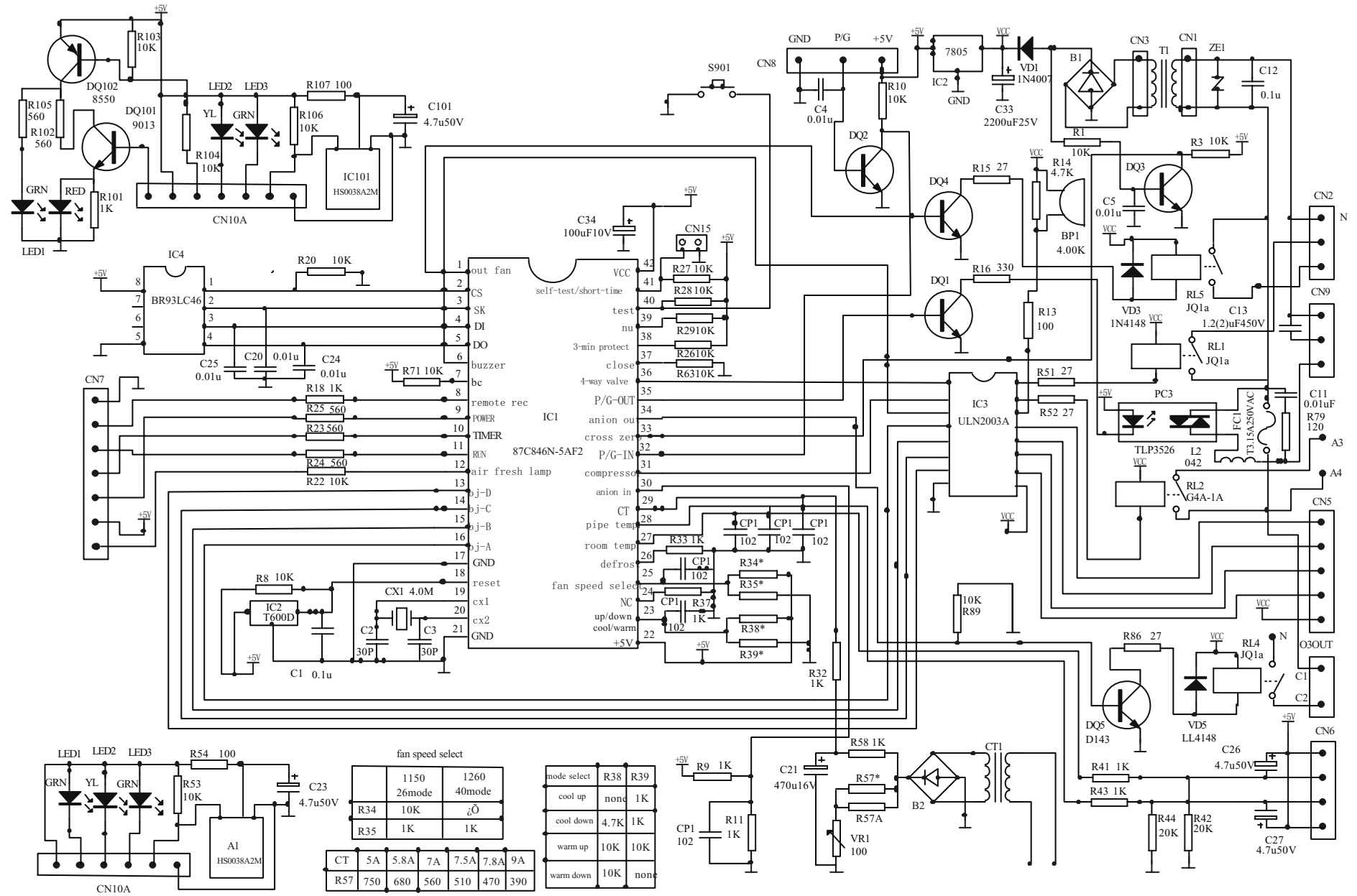
WIRING DIAGRAM FOR INDOOR UNITS;



WIRING DIAGRAM FOR OUTDOOR UNITS;



CIRCUIT DIAGRAM



ABNORMITY DIAGNOSE






Abnormality diagnosing

- a. The temperature sensor of coil pipe of indoor unit is in short circuit or broken circuit, the timing indicator of indoor unit is on, the power indicator is flickered in 1Hz;
- b. The room temperature sensor of indoor unit is in short circuit or broken circuit: the timing indicator of indoor unit is off, the power indicator is flickered in 1Hz;
- c. The motor of indoor unit has no backfeed of signal, the power indicator of indoor unit and running indicator are flickered twice, then the power indicator, running indicator and timing indicator are all flickered for 1 second, then repeating the cycle.

TROUBLE SHOOTING

Trouble Shooting

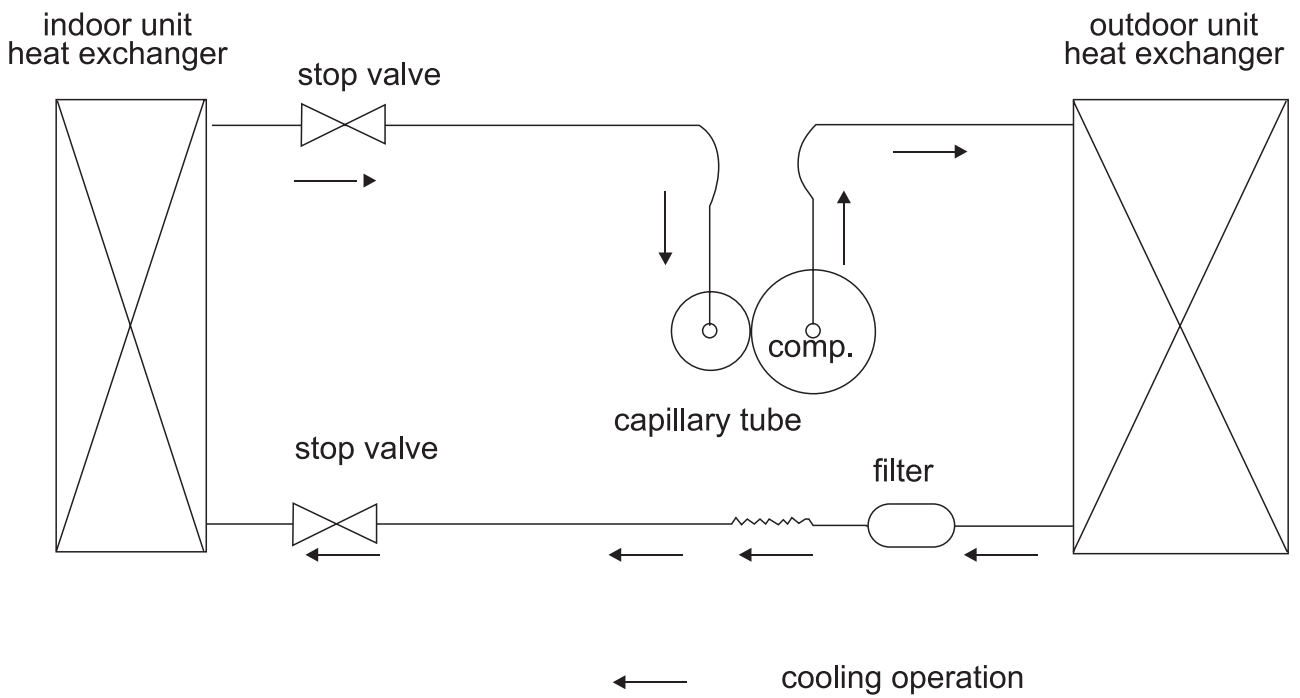
Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	<p>The system does not restart immediately.</p> 	<ul style="list-style-type: none"> • When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. • When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	<p>Noise is heard.</p> 	<ul style="list-style-type: none"> • During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) • During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. • Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	<p>Smells are generated.</p>	<ul style="list-style-type: none"> • This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.
	<p>Mist or steam are blown out.</p> 	<ul style="list-style-type: none"> • During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
Multiple check	<p>Does not work at all.</p> 	<ul style="list-style-type: none"> • Is power plug inserted? • Is there a power failure? • Is fuse blown out?
	<p>Poor cooling</p> 	<ul style="list-style-type: none"> • Is the air filter dirty? Normally it should be cleaned every 15 days. • Are there any obstacles before inlet and outlet? • Is temperature set correctly? • Are there some doors or windows left open? • Is there any direct sunlight through the window during the cooling operation?(Use curtain) • Are there too much heat sources or too many people in the room during cooling operation?

Application temp. range of air conditioner -7°C~43°C.

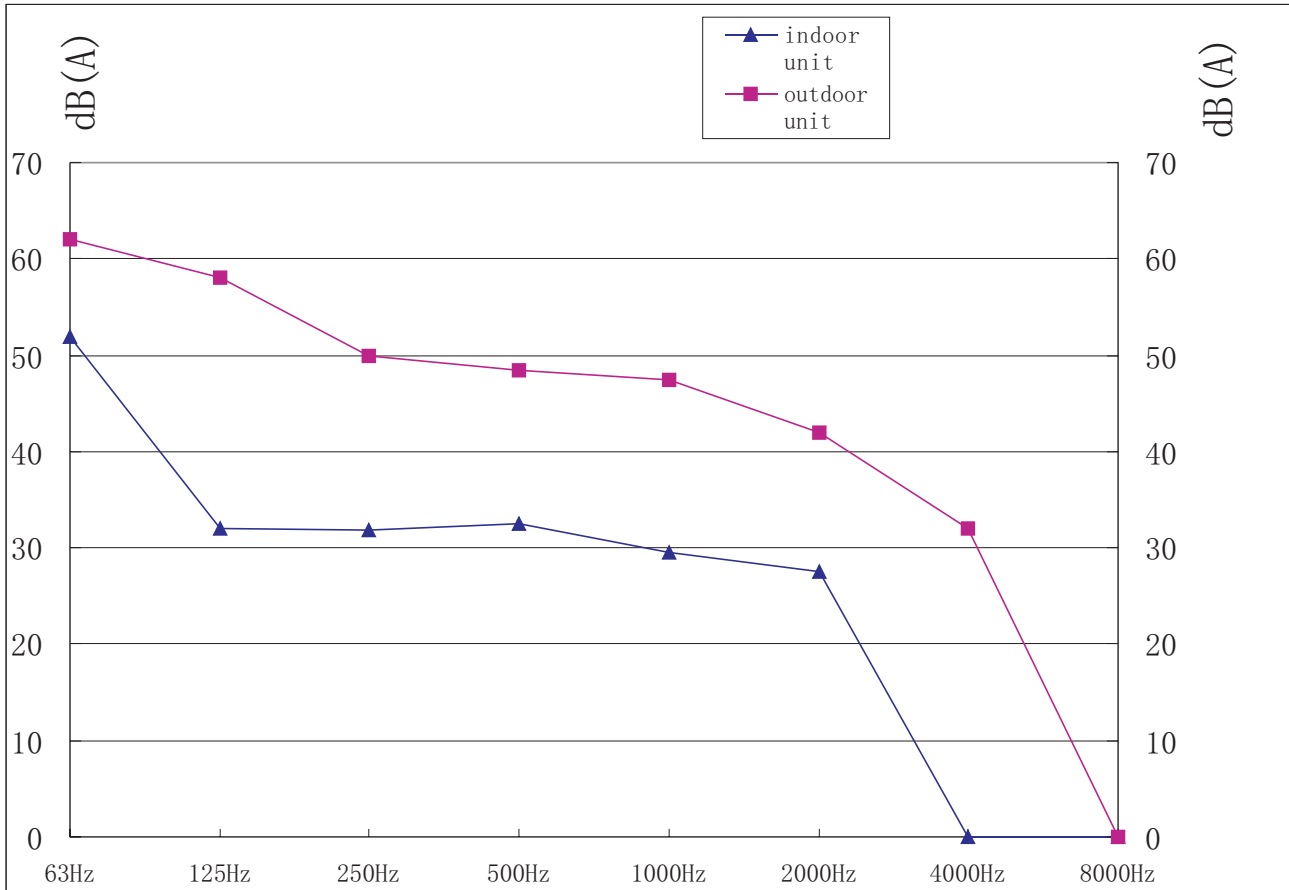
REFRIGERATING-CYCLE DIAGRAM

Refrigerating cycle diagram



NOISE LEVEL TEST CHART & AIR VELOCITY DISTRIBUTION

A、 Noise level test chart



B. Air velocity distribution

Fig 1
Top View
Flow Control Panel: Horiz.
Louver: Center

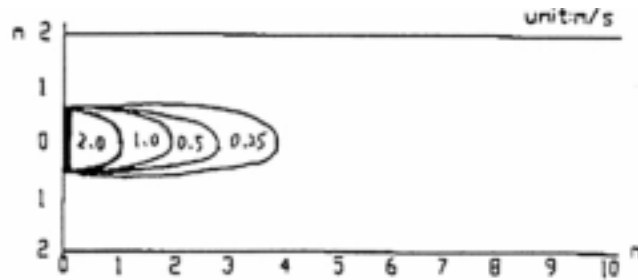


Fig 2
Top View
Flow Control Panel: Horiz.
Louver: right & left

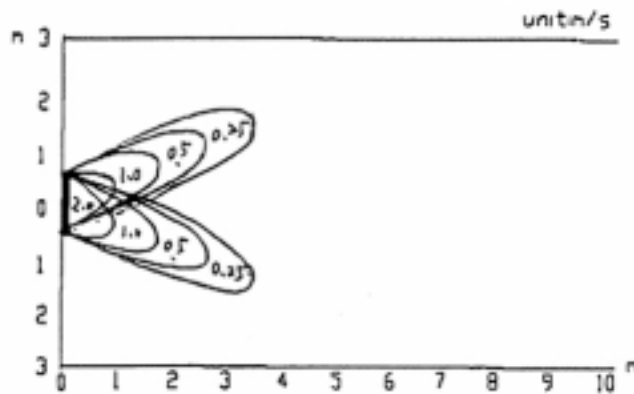


Fig 3
Side View
Flow Control Panel: Horiz.
Louver: Center

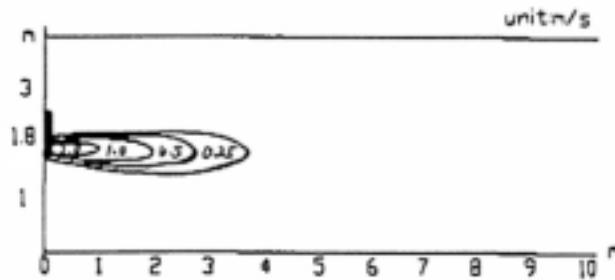
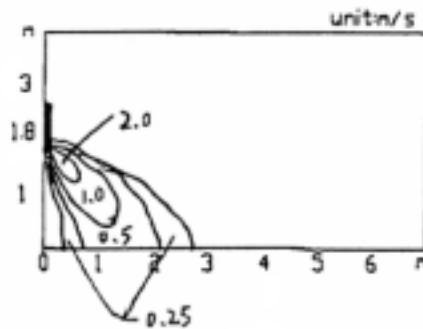


Fig 4
Side View
Flow Control Panel: Vert.
Louver: Center



Condition
Fan speed: high
Operation mode: Fan
Voltage : 230V
50Hz mode

Installation manual

Installation manual

Necessary Tools for Installation

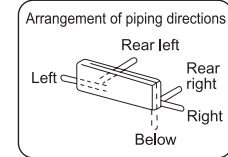
- | | | | |
|-------------------------|-----------------------------------|---|---------------------|
| 1. Driver | 5. Spanner (14,17,19 and 24mm) | 9. Knife | 12. Measuring tape |
| 2. Hacksaw | 6. Torque wrench (17mm,22mm,24mm) | 10. Nipper | 13. Reamer |
| 3. Hole core drill | 7. Pipe cutter | 11. Gas leakage detector or soap-and-water solution | 14. Refrigerant oil |
| 4. Hexagon wrench (5mm) | 8. Flaring tool | | |

Accessory parts

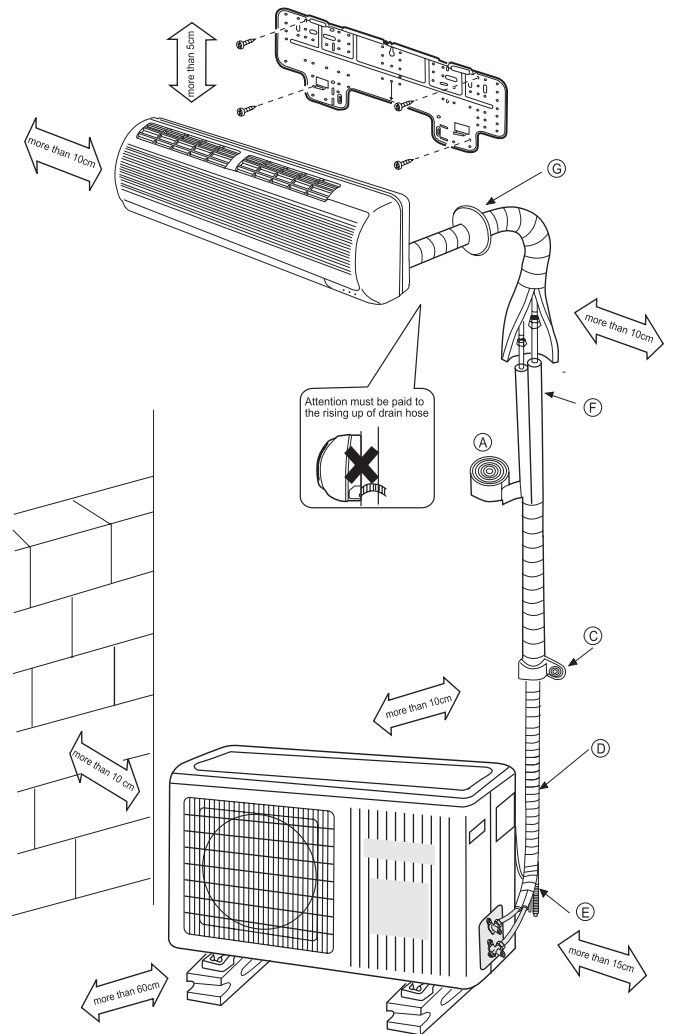
No.	Accessory parts	Number of articles
①	Remote controller	1
②	R-03 dry battery	2
③	Mounting plate	1
④	Drain hose	1
⑤	$\phi 4 \times 50$ Steel nail, cement	6
⑥	Main pipes	1
⑦	$\phi 4 \times 25$ Screw Plastic cap	4
⑧	Drain-elbow	1
⑨	Cover	1
⑩	Cushion	4
⑪	Pipe supporting plate	1

Optional parts for piping

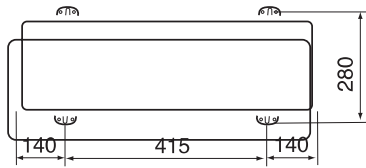
Mark	Parts name
Ⓐ	Non-adhesive tape
Ⓑ	Adhesive tape
Ⓒ	Saddle(L.S) with screws
Ⓓ	Connecting electric cable for indoor and outdoor
Ⓔ	Drain hose
Ⓕ	Heat insulating material
Ⓖ	Piping hole cover



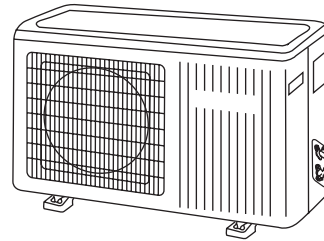
Drawing for the installation of indoor and outdoor units



- ※ The marks from Ⓐ to Ⓖ in the figure are the parts' numbers
- ※ The distance between the indoor unit and the floor should be more than 2m.



Floor fixing dimensions
of the outdoor unit
(Unit: mm)



Fixing of outdoor unit

- Fix the unit to concrete or block with bolts ($\phi 10\text{mm}$) and nuts firmly and horizontally.
- When fitting the unit to wall surface, roof or rooftop, fix a supporter surely with nails or wires in consideration of earthquake and strong wind.
- If vibration may affect the house, fix the unit by attaching a vibration-proof mat.

Indoor Unit

Selection of Installation Place

Outdoor Unit

- Place, robust not causing vibration, where the body can be supported sufficiently.
- Place, not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Place, possible to drain easily, where piping can be connected with the outdoor unit.
- Place, where cold air can be spread in a room entirely.
- Place, nearby a power receptacle, with enough space around. (Refer to drawings).
- Place where the distance of more than 1m from televisions, radios, wireless apparatuses and fluorescent lamps can be left.
- In the case of fixing the remote controller on a wall, place where the indoor unit can receive signals when the fluorescent lamps in the room are lightened.
- Place, which is less affected by rain or direct sunlight and is sufficiently ventilated.
- Place, possible to bear the unit, where vibration and noise are not increased.
- Place, where discharged wind and noise do not cause a nuisance to the neighbors.
- Place, where a distance marked \leftrightarrow is available as illustrated in the above figure.

Power Source

- Before inserting power plug into receptacle, check the voltage without fail. The power source is the same as the corresponding name plate.
- Install an exclusive branch circuit of the power.
- A receptacle shall be set up in a distance where the power cable can be reached. Do not extend the cable by cutting it.

Selection of Pipe

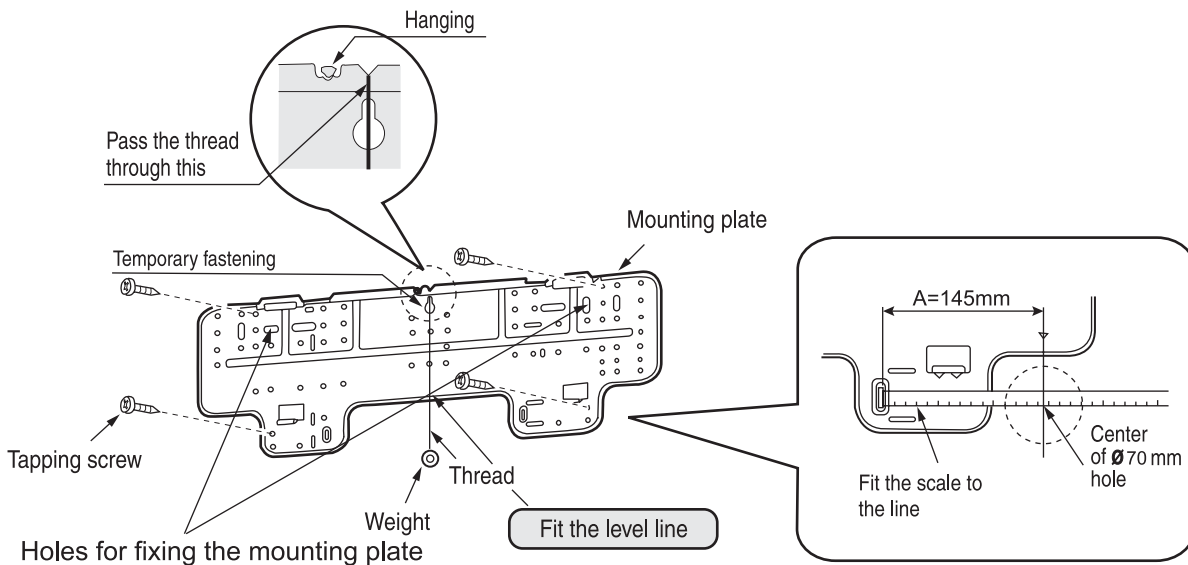
- To this unit, both liquid and gas pipes shall be insulated as they become low temperature in operation.
- Use optional parts for piping set or pipes covered with equivalent insulation material.
- the thickness of the pipe must be 0.8mm at least.

	For 07,09	For 12
Liquid pipe (ϕ)	6.35mm (1/4")	6.35mm (1/4")
Gas pipe (ϕ)	9.52mm (3/8")	12.7mm (1/2")

1 Fitting of the Mounting Plate and Positioning of the Wall Hole

When the mounting plate is first fixed

- 1 Carry out, based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall, then temporarily fasten the plate with one steel nail.
- 2 Make sure once more the proper level of the plate, by hanging a thread with a weight from the central top of the plate, then fasten securely the plate with the attachment steel nail.
- 3 Find the wall hole location A using a measuring tape.

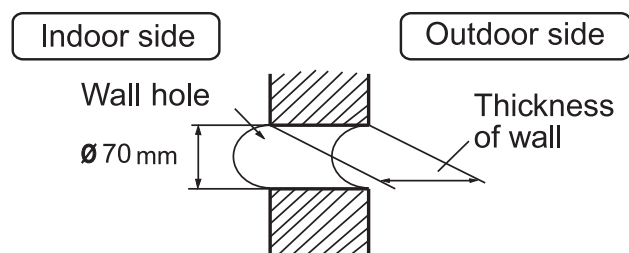


When the mounting plate is fixed to side bar and lintel

- Fix to side bar and lintel a mounting bar, Which is separately sold, and then fasten the plate to the fixed mounting bar.
- Refer to the previous article, " **When the mounting plate is first fixed** ", for the position of wall hole.

2 Making a Hole on the Wall and Fitting the Piping Hole Cover

- Make a hole of Bmm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation.



(Section of wall hole) © Piping hole pipe

3 Installation of the Indoor Unit

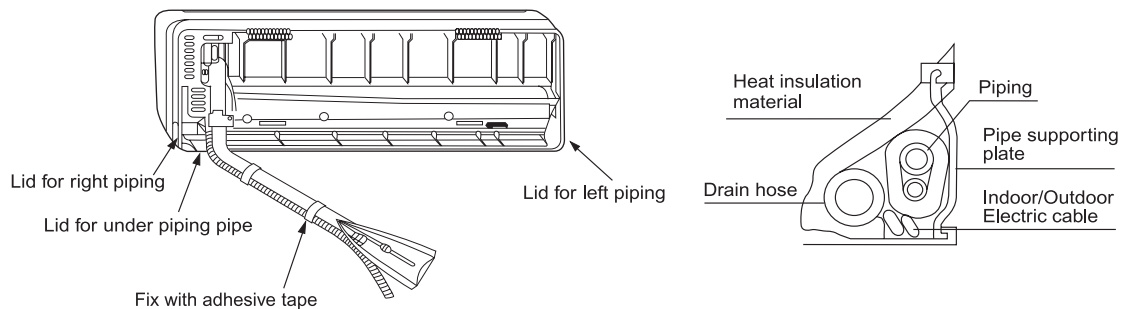
Drawing of pipe

[Rear piping]

- Draw pipes and the drain hose, then fasten them with the adhesive tape.

[Left• Left-rear piping]

- In case of left side piping, cut away, with a nipper, the lid for left piping.
- In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.
 1. Insert the drain hose into the dent of heat insulation materials of indoor unit.
 2. Insert the indoor/outdoor electric cable from backside of indoor unit, and pull it out on the front side, then connect them.
 3. Coat the flaring seal face with refrigerant oil and connect pipes.
Cover the connection part with heat insulation materials closely, and make sure fixing with adhesive tape.



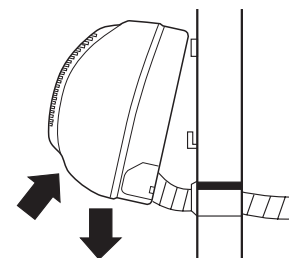
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

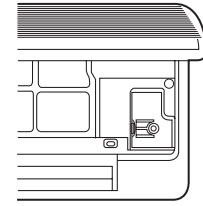
- Cut away, with a nipper, the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole. When bending, be careful not to crash pipes.
- Connect beforehand the indoor/outdoor electric cable, and then pull out the connected to the heat insulation of connecting part specially.

Fixing the indoor unit body

- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to side to verify its secure fixing.
- In order to fix the body onto the mounting plate, hold up the body aslant from the underside and then put it down perpendicularly.



4. Connecting the indoor/outdoor Electric Cable

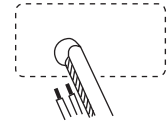


Removing the wiring cover

- Remove terminal cover at right bottom corner of indoor unit, then take off wiring cover by removing its screws.

When connecting the cable after installing the indoor unit

1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.

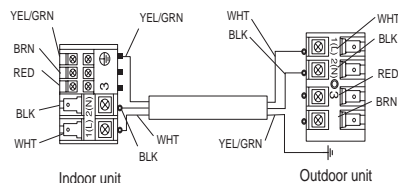
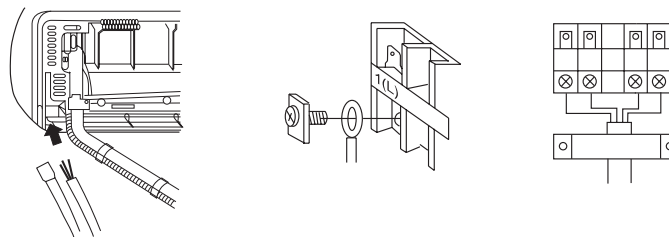


When connecting the cable before installing the indoor unit

- Insert the cable from the back side of the unit, then pull it out on the front side.
- Loosen the screws and insert the cable ends fully into terminal block, then tighten the screws.
- Pull the cable slightly to make sure the cables have been properly inserted and tightened.
- After the cable connection, never fail to fasten the connected cable with the wiring cover.

Note: When connecting the cable, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.

1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F.
2. If the fuse on PC board is broken please change it with the type of T. 3.15A/250V.
3. The wiring method should be in line with the local wiring standard.
4. After installation, the power plug should be easily reached.



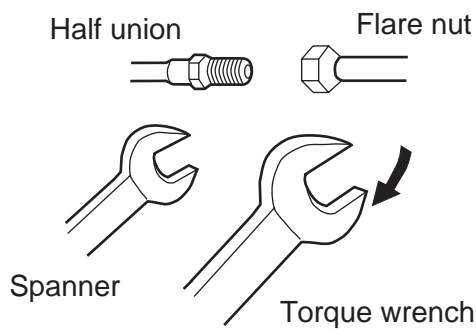
HSU-09C03/Z1
HSU-12C03/Z1

1. Installation of Outdoor Unit

Install according to Drawing for the installation of indoor and outdoor units

2. Connection of pipes

- To bend a pipe, give the roundness as large as possible not to crush the pipe, and the bending radius should be 30 to 40 mm or longer.
- Connecting the pipe of gas side first makes working easier.
- The max vertical distance between the indoor unit and the outdoor unit is 5 m.



Forced fastening without careful centering may damage the threads and cause a leakage of gas.

Pipe Diameter (ϕ)	Fastening torque
Liquid side 6.35mm(1/4")	18N.m
Liquid side 9.52mm(3/8")	42N.m
Gas side 9.52mm(3/8")	42N.m
Gas side 12.7mm(1/2")	55N.m
Gas side 15.88mm(5/8")	60N.m

Be careful that matters, such as wastes of sands, etc. shall not enter the pipe.

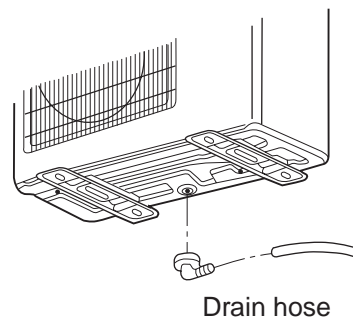
3. Connection

- Use the same method on indoor unit. Loosen the screws on terminal block and insert the plugs fully into terminal block, then tighten the screws.
- Insert the cable according to terminal number in the same manner as the indoor unit.
- If wiring is not correct, proper operation can not be carried out and controller may be damaged.
- Fix the cable with a clamp.

4. Attaching Drain-Elbow

- If the drain-elbow is used, please attach it as figure.

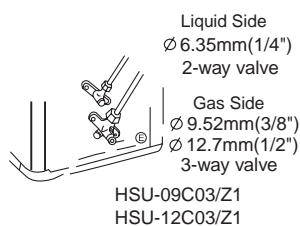
Note: Only for heat pump unit.



5. Purging Method

Push the air out of the indoor unit and piping as follows:

- (1) Remove the valve cap on 2-way valve in outdoor unit.
- (2) Loosen by 1/2 turn the flare nut of gas pipe, which is connected to 3-way valve.
- (3) Loosen 2-way valve by 90° using hexagon wrench, and after approx. 6 sec tighten it up. Gas comes out through flare nut on wide pipe. If no gas is discharged, tighten flare nut with specified torque.
- (4) Open 2-way and 3-way valves using specified torque.
- (5) Tighten the caps on the valves with specified torque.



	Tighten torque N.m
Valve rod	7-9
Valve cap	20-25

- When connecting pipe exceeds 5 meters, 16g refrigerant shall be added per exceeding meter. Charge according to the following list.

Piping length	5m	7m	10m
Additional amount	No need	32g	80g

- Note: When extending piping, air inside piping shall be removed by using external refrigerant gas, charge according to the following list.

Brand new outdoor unit is charged 50g more refrigerant than regulated weight. .
Only for first installation, this extra 50g can be used to purge air in pipes.

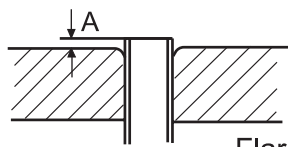
- ★ 1 During this procedure, 50g refrigerant will be discharged in piping.
(This must be strictly controlled within 90° and 6sec.)

1 Power Source Installation

- The power source must be exclusively used for air conditioner. (Over 10A)
- In the case of installing an air conditioner in a moist place, please install an earth leakage breaker.
- For installation in other places, use a circuit breaker as far as possible.

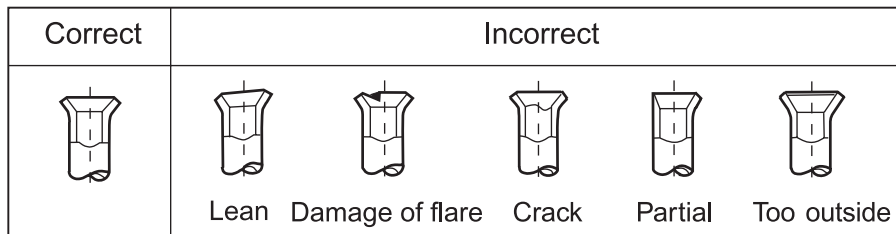
2 Cutting and Flaring Work of Piping

- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.



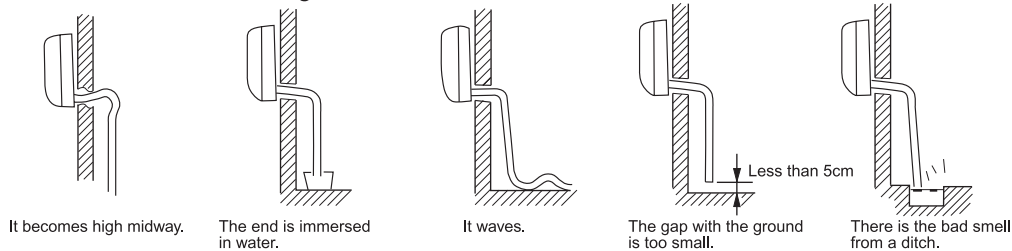
Flare tooling die

	Pipe diameter ϕ	Size A (mm)
Liquid side	6.35mm(1/4")	0.8 ~1.5
Gas side	9.52mm(3/8")	1.0~1.8
Gas side	12.7mm(1/2")	1.2 ~2.0



3 On Drainage

- Please install the drain hose so as to be downward slope without fail.
- Please don't do the drainage as shown below.



- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

Check for Installation and Test Run

- Please kindly explain to our customers how to operate through the instruction manual.

Check Items for Test Run

Put check mark \checkmark in boxes

- | | | |
|--|--|--|
| <input type="checkbox"/> Gas leak from pipe connecting? | <input type="checkbox"/> Is drainage securely carried out? | <input type="checkbox"/> Is the lamp normally lighting? |
| <input type="checkbox"/> Heat insulation of pipe connecting? | <input type="checkbox"/> Is the earth line securely connected? | <input type="checkbox"/> Are cooling and heating (when in heat pump) performed normally? |
| <input type="checkbox"/> Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block? | <input type="checkbox"/> Is the indoor unit securely fixed? | <input type="checkbox"/> Is the operation of room temperature regulator normal? |
| <input type="checkbox"/> Is the connecting wiring of indoor and outdoor firmly fixed? | <input type="checkbox"/> Is power source voltage abided by the code? | |
| | <input type="checkbox"/> Is there any noise? | |

Sincere Forever

Haier Group

Haier Industrial Park, No.1, Haier Road

266101, Qingdao, China

<http://www.haier.com>