



Domestic Air Conditioner

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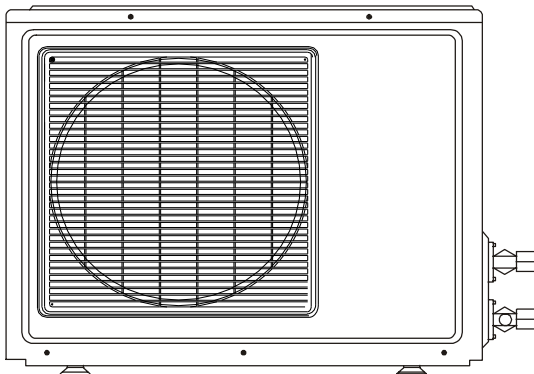
# SERVICE MANUAL

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Models :

HSU-24H03/Z  
HSU-24C03/Z



## I Features

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

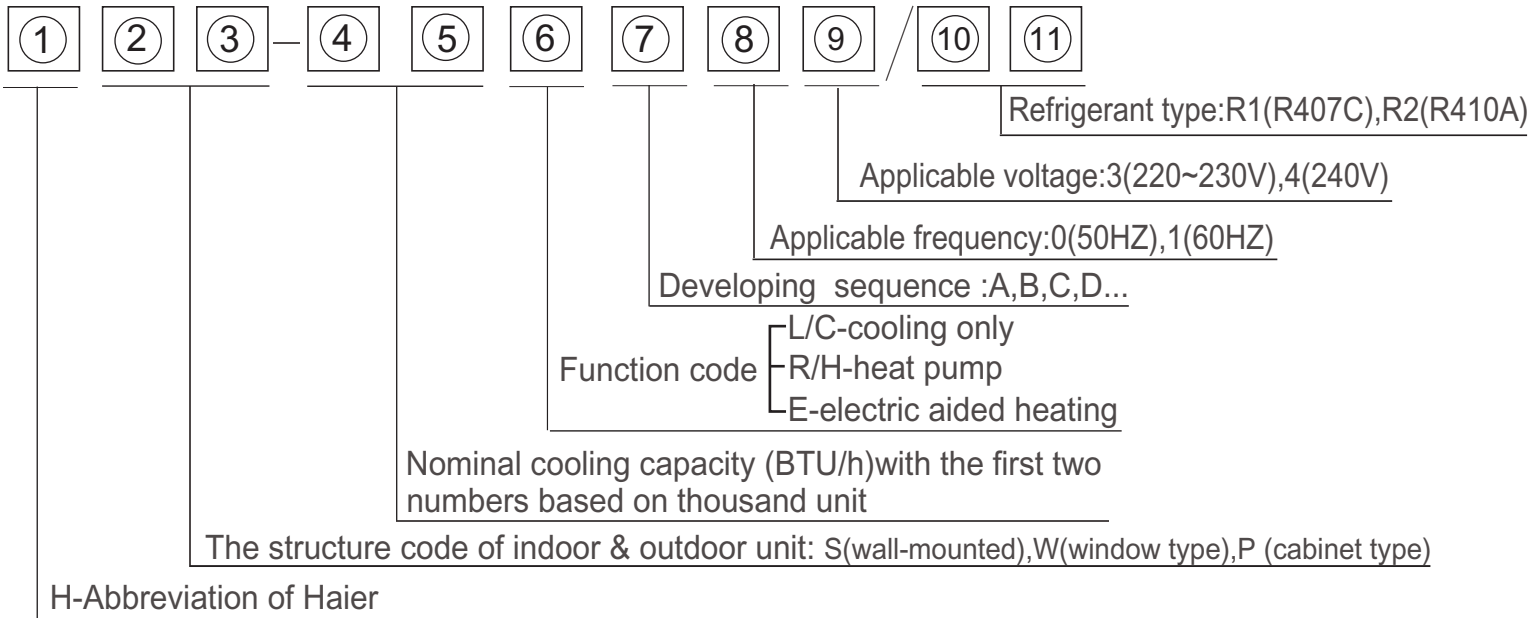
## Content

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. Installation manual

# DESCRIPTION OF PRODUCT MODEL CODING & SERIES INTRODUCTION

## A. Description of coding rules of unit model

Coding rules and descriptions are as follows:



Examples:

HSU-24H03/Z, It represents wall-mounted split type heat pump air conditioner. The cooling capacity is 24000BTU/h, and the power supply is 220-230V/50Hz, "Z" means the developing sequence.

## B. Standard Situation/Conditions

No.	Operating condition	indoor air status		outdoor air status	
		DB°C	WB°C	DB°C	WB°C
1	Normal cooling	27°C	19°C	35°C	24°C
2	Normal heating	20°C	15°C	7°C	6°C
3	Normal electrical heating	---	---	---	---

## C.Series brief introduction

### 1.High energy efficient

The design of inner-grooved copper tube greatly increases the refrigerant contact area and the efficiency of cooling/heating functions.Using the R410A refrigerant and the refrigerating system optimizing design make both the EER and COP reach the B class according to the european energy efficient standard.

### 2.Comfortable:wide-angle airflow

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

### 3.Health air purifying

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

### 4.Quiet operation

Fan with random-pitched blades.

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

### 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.

# SPECIFICATIONS

Model: HSU-24H03/Z

Cooling capacity(W)	6800	Heating capacity(W)	7600
Cooling coefficient(W/W)	2.52	Heating coefficient(W/W)	2.62
Cooling power input(W)	2700	Heating power input(W)	2900
Moiture removal(m <sup>3</sup> /h)	2.3X10 <sup>-3</sup>	Frequency range(Hz)	50
Operating voltage range(V)	220-230 ~	Refrigerant type	R22
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(dB(A)) (cooling)	47/45/43	Outdoor unit noise(dB(A)) (cooling)	58/52
Indoor unit noise(dB(A)) (heating)	48/46/44	Outdoor unit noise(dB(A)) (heating)	58/52
Net dimensions(mm) (indoor unit)	1155x308x224	Net dimensions(mm) (outdoor unit)	860x308x730
Packaging dimensions(mm) (indoor unit)	1231x372x300	Packaging dimensions (mm) (outdoor unit)	995x420x815
Net/gross weight (kg) (indoor unit)	17/20.5	Net/gross weight (kg) (outdoor unit)	69/77
Max. mounting height difference(m)	5	Piling layers	indoor unit outdoor unit
Refrigerant charge(g) (R22)	2300	Current entering side (indoor/outdoor)	outdoor
Frequency of filter cleaning	Once/2 weeks	Max. refrigerant charge (g)	2400
Compressor model	THU33	Compressor manufacturer	SHANGHAIRILI
Compressor oil charge(cc)	800	Compressor protector type	internal
Max . length of connecting pipe (m)	15	drain hose	length(mm) diametre(mm)
Tube type	TP <sub>2</sub> Y	Type of tube of evaporator and condenser	Internal treaded
Fan speed(H/M/L)(r/min) (indoor unit)	cool heat	Size of tube of evaporator and condenser(mm)	Ø7&Ø9.52
Fan speed(r/min) (outdoor unit)	1050	Appearance features of indoor unit	plastic
Cut-off vavle(inch)	two-way three-way	Appearance features of outdoor unit	metal
Max. operating pressure at warm side(Mpa)	2.8	Max. operating pressure at cool side(Mpa)	2.8

Model: HSU-24C03/Z

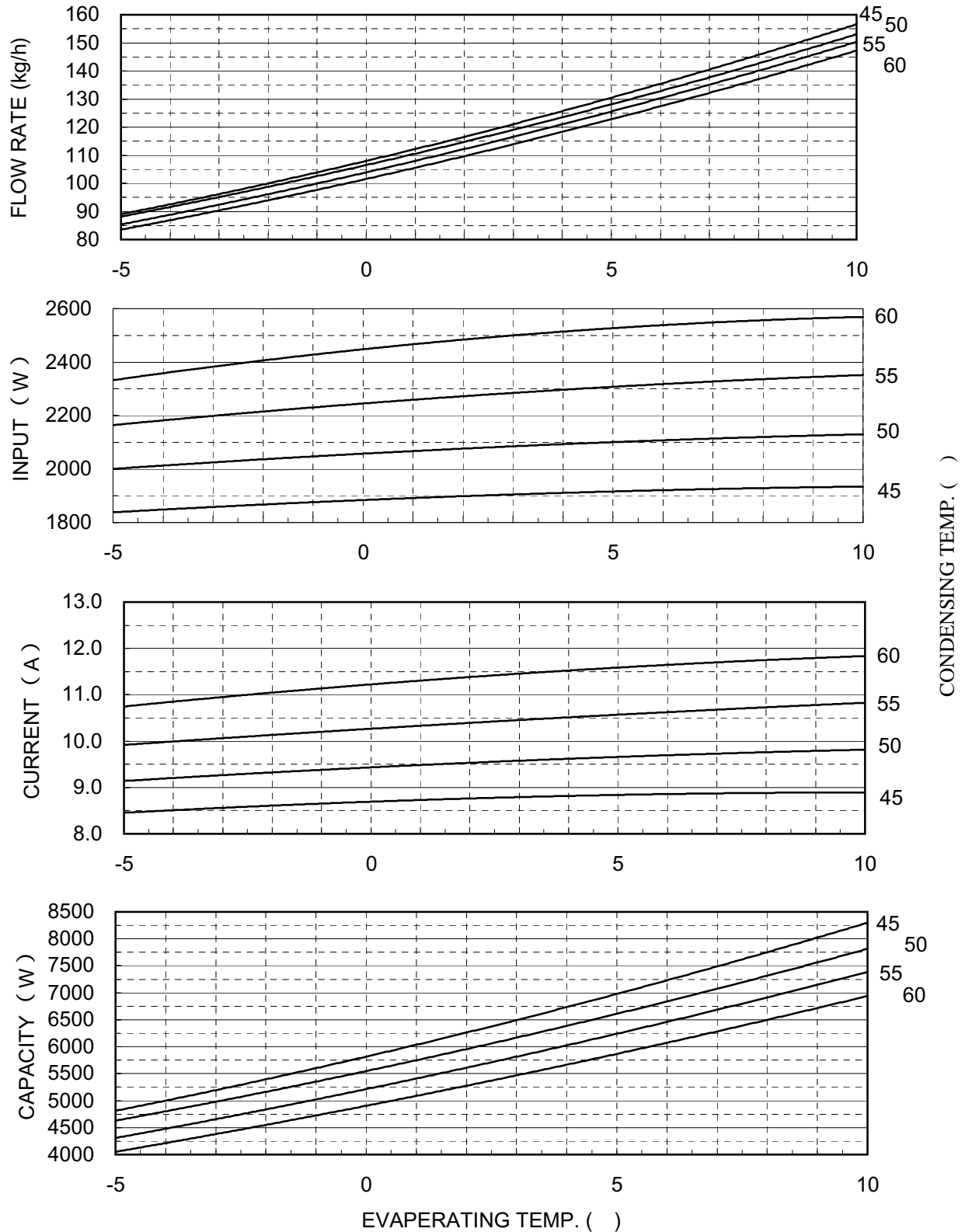
Cooling capacity(W)	6800	Heating capacity(W)	----
Cooling coefficient(W/W)	2.52	Heating coefficient(W/W)	----
Cooling power input(W)	2700	Heating power input(W)	
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Variation of temp. adjust(°C)	± 1	Fan type	indoor unit outdoor unit
Climate type:	T1	Class of electric shock	I
Indoor unit noise(dB(A)) (cooling)	48/44/38	Outdoor unit noise(dB(A)) (cooling)	58/52
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Refrigerant charge(g) (R22)	2200	Current entering side (indoor/outdoor)	outdoor
Frequency of filter cleaning	Once/2 weeks	Max. refrigerant charge (g)	2400
Compressor model	THU33	Compressor manufacturer	SHANGHAIRILI
Compressor oil charge(cc)	800	Compressor protector type	internal
Max . length of connecting pipe (m)	15	drain hose	length(mm) diametre(mm)
Tube type	TP <sub>2</sub> Y	Type of tube of evaporator and condenser	Internal treaded
Fan speed(H/M/L)(r/min) (indoor unit)	cool heat	Size of tube of evaporator and condenser(mm)	Ø7&Ø9.52
Fan speed(r/min) (outdoor unit)	1050	Appearance features of indoor unit	plastic
Cut-off vavle(inch)	two-way three-way	Appearance features of outdoor unit	metal
Max. operating pressure at warm side(Mpa)	0.65	Max. operating pressure at cool side(Mpa)	2.8



# CURVES OF PERFORMANCE OF COMPRESSOR

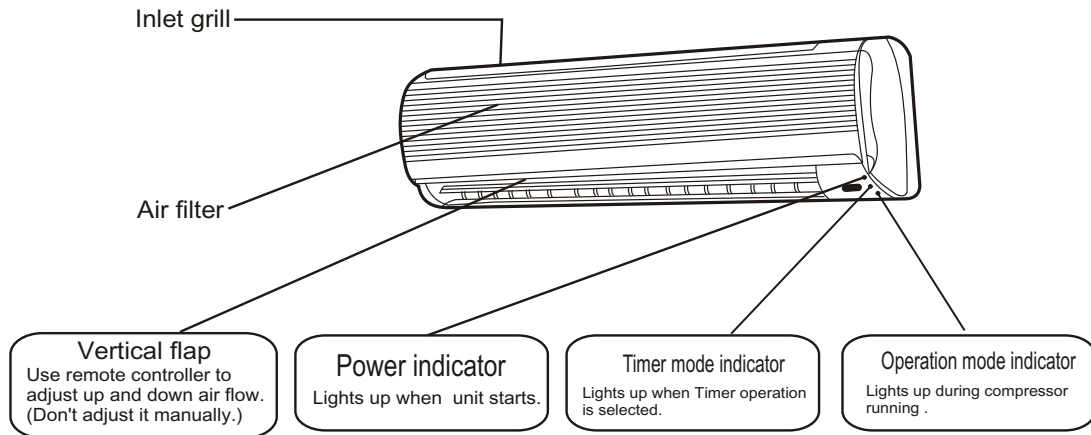
PERFORMANCE CURVE

220V-50Hz-1 PHASE  
SUCTION GAS TEMP.---35  
UNDER COOL-----8.3  
AMBIENT TEMP.-----35  
RUNNING CAPACITOR--55 $\mu$ F

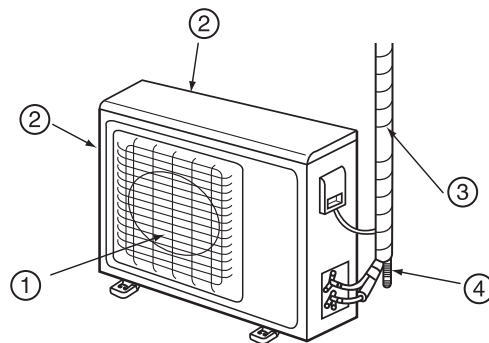


# DESCRIPTION, DIMENSION AND FUNCTION OF MAIN COMPONENTS AND ACCESSORIES

## Indoor Unit



## Outdoor unit



① OUTLET

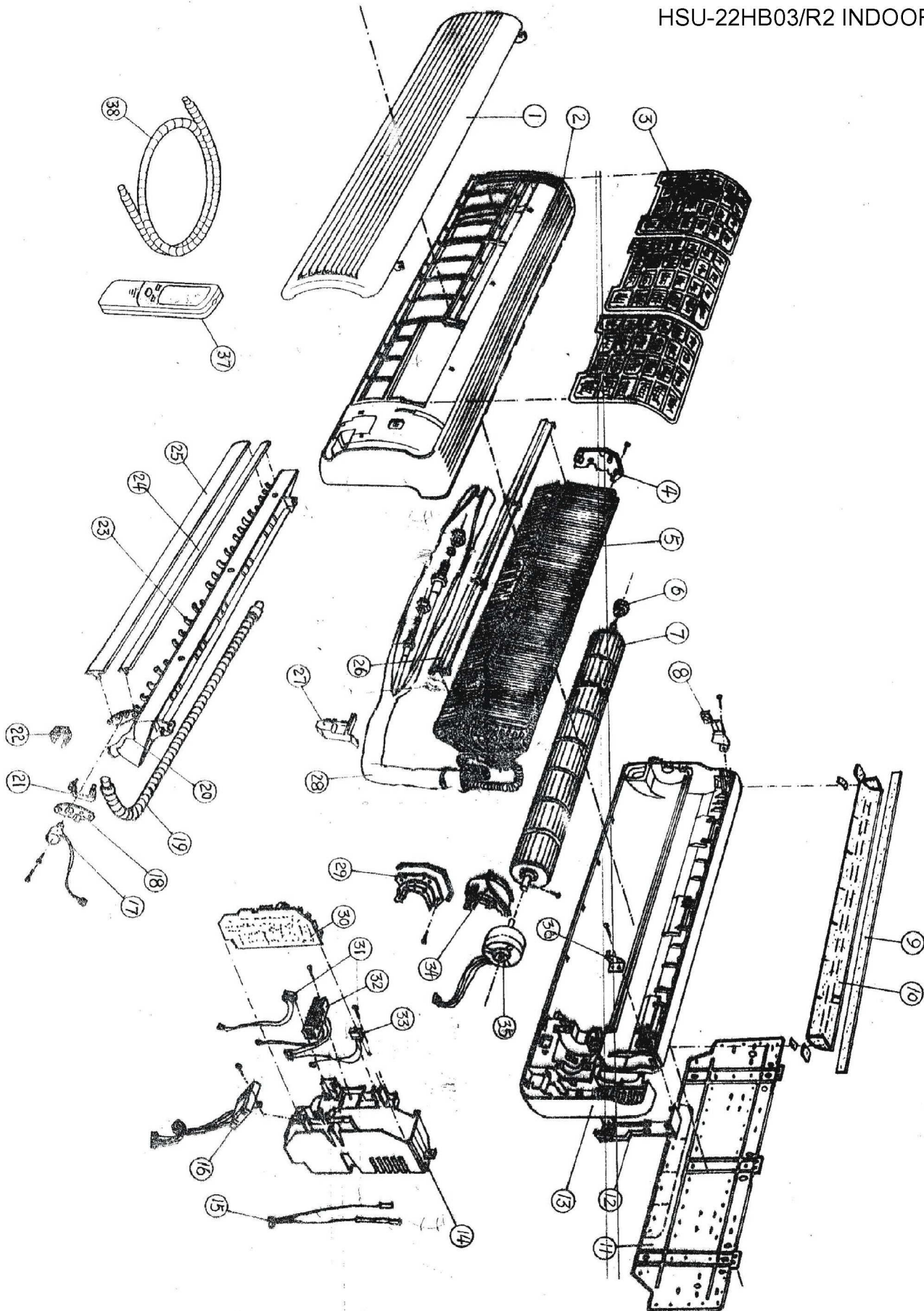
② INLET

③ CONNECTING PIPING AND ELECTRICAL WIRING

④ DRAIN HOSE

# KNOCK-DOWN DRAWINGS

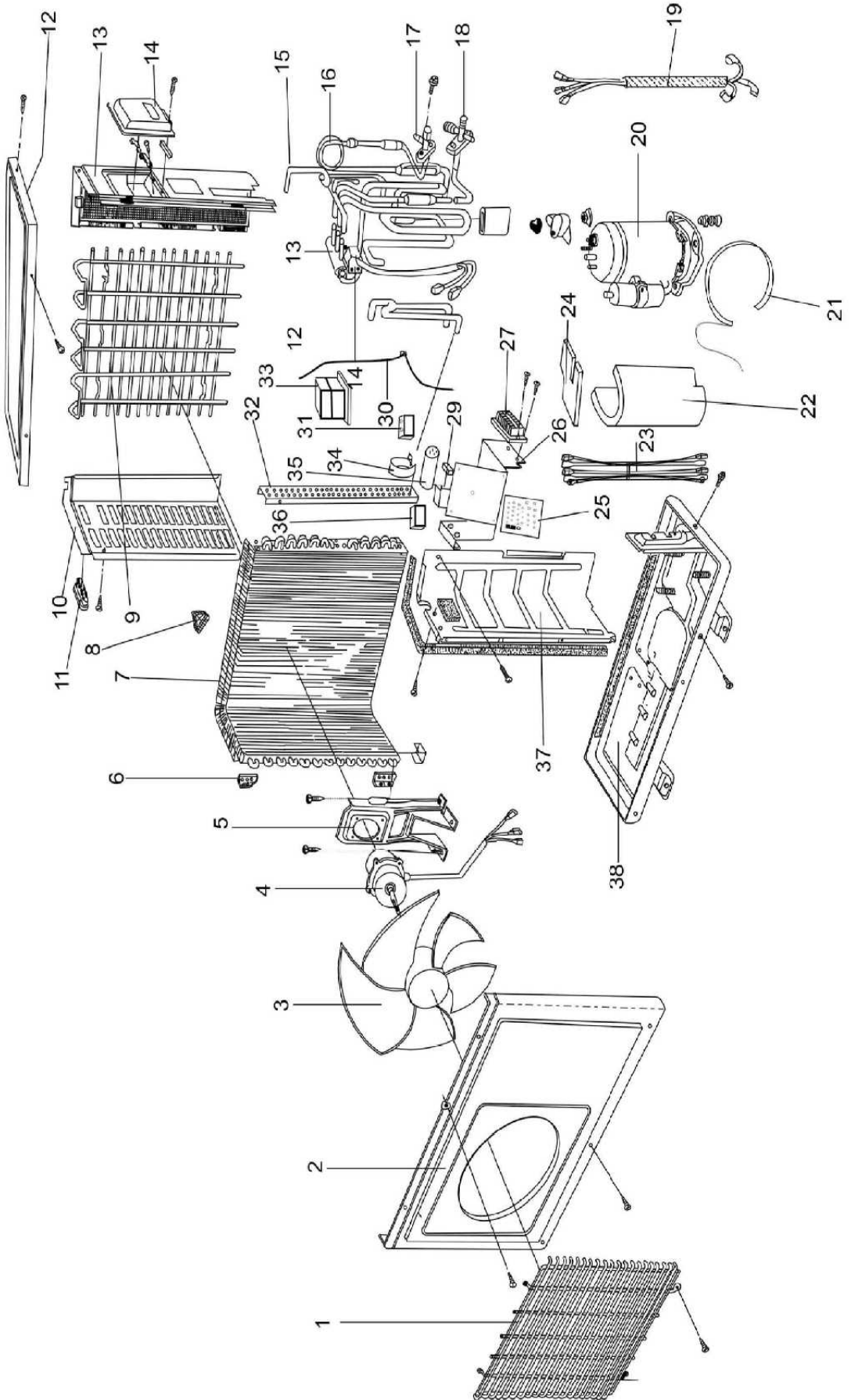
HSU-22HB03/R2 INDOOR UNIT



No. in exploded view	Spare parts number	Spare parts description in english	Model	Qty	Price list	Failure rate(%)	The proportion of the spare part stock	Remark
1	001A1231360	Front grille	HSU-24H03/Z HSU-24C03/Z	1				*
2	0010800070	Front panel assy.	HSU-24H03/Z HSU-24C03/Z	1				
3	001A2400136	Air filter	HSU-24H03/Z HSU-24C03/Z	3				*
4	0010802048	Seperating plate(L)	HSU-24H03/Z HSU-24C03/Z	1				
5	0010704157	Heat exchanger assy.	HSU-24H03/Z HSU-24C03/Z	1				
6	001A0300060	Bearing	HSU-24H03/Z HSU-24C03/Z	1				
7	001A2300098	Fan	HSU-24H03/Z HSU-24C03/Z	1				*
8	001A1301857	Left support	HSU-24H03/Z HSU-24C03/Z	1				
9	0010200074	Cushion	HSU-24H03/Z HSU-24C03/Z	1				
10	0010200075	Cushion	HSU-24H03/Z HSU-24C03/Z	1				
11	001A1301856	Mounting plate	HSU-24H03/Z HSU-24C03/Z	1				
12	001A14311029	Fix plate	HSU-24H03/Z HSU-24C03/Z	1				
13	001A1231361	Bottom plate	HSU-24H03/Z HSU-24C03/Z	1				
14	001A14311047	Control box	HSU-24H03/Z HSU-24C03/Z	1				
15	001A3900059	Temperature sensor	HSU-24H03/Z HSU-24C03/Z	1				*
16	0010401745	Displaying panel	HSU-24H03/Z HSU-24C03/Z	1				
17	001A3000273	Swing motor	HSU-24H03/Z HSU-24C03/Z	1				*
18	001A14361036	Support plate	HSU-24H03/Z HSU-24C03/Z	1				
19	001A0900011	Drain hose	HSU-24H03/Z HSU-24C03/Z	1				
20	0010800156	Drain pan assy.	HSU-24H03/Z HSU-24C03/Z	1				
21	001A14361035	Link	HSU-24H03/Z HSU-24C03/Z	1				
22	001A14431044	Bearing support	HSU-24H03/Z HSU-24C03/Z	10				
23	001A14361031	Vane	HSU-24H03/Z HSU-24C03/Z	15				
24	001A1231357	Flap	HSU-24H03/Z HSU-24C03/Z	1				
25	001A1231358	Flap	HSU-24H03/Z HSU-24C03/Z	1				
26	0010200036	Wnd shield	HSU-24H03/Z HSU-24C03/Z	1				
27	001A14361030	Dew-prevent	HSU-24H03/Z HSU-24C03/Z	1				
28	001A1741744	Heat-insulation tube	HSU-24H03/Z HSU-24C03/Z	1				
29	001A14311041	Seperating plate(R )	HSU-24H03/Z HSU-24C03/Z	1				
30	0010401531	PC board	HSU-24H03/Z	1				*
30	0010401590	PC board	HSU-24C03/Z	1				*
31	—————	Power switch	HSU-24H03/Z HSU-24C03/Z	—————				
32	0010401536	Terminal block	HSU-24H03/Z HSU-24C04/Z	1				
33	—————	Switch	HSU-24H03/Z HSU-24C05/Z	—————				
34	001A14311043	Motor cover	HSU-24H03/Z HSU-24C06/Z	1				
35	0010400576	Motor	HSU-24H03/Z HSU-24C07/Z	1				*
36	001A1301858	Right support	HSU-24H03/Z HSU-24C08/Z	1				
37	0010401599	Remote controller	HSU-24H03/Z HSU-24C09/Z	1				*
37	0010401603	Remote controller	HSU-24H03/Z HSU-24C10/Z	1				*
38	—————	Drain hose	HSU-24H03/Z HSU-24C11/Z	—————				



HSU-22HB03/R2 OUTDOOR U







Domestic Air Conditioner

Model: HSU-24H03/Z  
HSU-24C03/Z

Edition:2005/03/31

No. in exploded view	Spare parts number	Spare parts description in english	Model	Qty	Price list	Failure rate(%)	The proportion of the	Remark
1	001A1236199	Front grille	HSU-24H03/Z HSU-24C03/Z	1				
2	001A1101106	Front panel	HSU-24H03/Z HSU-24C03/Z	1				
3	0010202161	Fan	HSU-24H03/Z HSU-24C03/Z	1				
4	0010402046	Motor	HSU-24H03/Z	1				
4	0010402157	Motor	HSU-24C03/Z	1				
5	001A1301427	Motor support assy.	HSU-24H03/Z	1				
5	0010801921	Motor support assy.	HSU-24C03/Z	1				
6	001A5701063	Heat exchanger fixing	HSU-24H03/Z HSU-24C03/Z	1				
7	0010704366	Heat exchanger assy.	HSU-24H03/Z HSU-24C03/Z	1				
8	—	Temperature sensor supply	HSU-24H03/Z HSU-24C03/Z	—				
9	001A1231361	Back grille	HSU-24H03/Z HSU-24C03/Z	1				
10	001A0100656	Side panel (L) assy.	HSU-24H03/Z HSU-24C03/Z	1				
11	001A1436182	Handle	HSU-24H03/Z HSU-24C03/Z	1				
12	001A0100651	Top panel assy.	HSU-24H03/Z HSU-24C03/Z	1				
13	001A0100652	Side panel (R) assy.	HSU-24H03/Z HSU-24C03/Z	1				
14	001A0100125	Wiring cover assy.	HSU-24H03/Z HSU-24C03/Z	1				
15	001A2500015	Four-way valve	HSU-24H03/Z	1				
16	0010703916	Capillary tube assy.	HSU-24H03/Z	1				
16	0010704436	Capillary tube assy.	HSU-24C03/Z	1				
17	0010702454	Two-way stop valve	HSU-24H03/Z HSU-24C03/Z	1				
18	0010702420	Three-way stop valve	HSU-24H03/Z HSU-24C03/Z	1				
19	0010402047	Wires	HSU-24H03/Z HSU-24C03/Z	1				
20	0010702609	Compressor	HSU-24H03/Z HSU-24C03/Z	1				
21	—	Compressor heating-set	HSU-24H03/Z HSU-24C03/Z	—				
22	001A1762341	Cushion	HSU-24H03/Z HSU-24C03/Z	1				
23	—	Wires	HSU-24H03/Z HSU-24C03/Z	—				
24	0010250255	Cushin	HSU-24H03/Z HSU-24C03/Z	1				
25	----	PC board	HSU-24H03/Z HSU-24C03/Z	1				
26	0010806226	Controller box	HSU-24H03/Z HSU-24C03/Z	1				
27	001A4000107	Terminal block	HSU-24H03/Z HSU-24C03/Z	1				
28	001A2500004	4-way valve coil	HSU-24H03/Z HSU-24C03/Z	1				
29	—	Transformer	HSU-24H03/Z HSU-24C03/Z	—				
30	—	Sensor	HSU-24H03/Z HSU-24C03/Z	—				
31	001A4000011	Terminal block	HSU-24H03/Z HSU-24C03/Z	1				
32	001A1301418	Tube plate(R )	HSU-24H03/Z HSU-24C03/Z	1				
33	0010400334	AC contactor	HSU-24H03/Z HSU-24C03/Z	1				
34	0010100001	Capacitor clip	HSU-24H03/Z HSU-24C03/Z	1				
35	0010401954	Capacitor for compressor	HSU-24H03/Z HSU-24C03/Z	1				
36	001A3600218	Capacitor for motor	HSU-24H03/Z HSU-24C03/Z	1				
37	001A0100753	Seperating plate assy.	HSU-24H03/Z HSU-24C03/Z	1				
38	001A1101110	Bottom plate assy.	HSU-24H03/Z HSU-24C03/Z	1				

# REMOTE CONTROLLER FUNCTIONS CONVERSION

Brief introduction to electrical control functions

# **BRIEF INTRODUCTION TO ELECTRICAL CONTROL FUNCTIONS**

## 1. Introduction of electric control function

### 1.1 Brief introduction of electric control function

(1) Auto running (available for cooling and heating type)

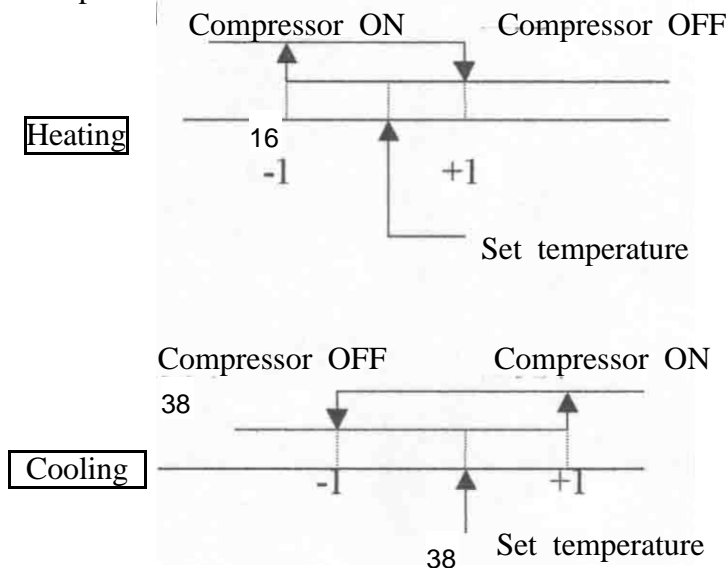
When Auto running starts for the first time, selection of running mode follows the conditions below:

$T_r > 23$  Select cooling mode Set temperature: 26

$T_r \leq 23$  Select heating mode (with temperature compensation) Set temperature: 23

In auto mode, running mode shifts between cooling and heating with the variation of room ambient temperature.

(2) Room temperature control



38

(3) Dry running

Compressor, outdoor fan and indoor fan run as follows ( $T_r$ , room temperature,  $T_s$ , set temperature). When dry mode starts for the first time, compressor, outdoor fan and indoor fan will run following the rules below:

$T_r > T_s + 2$ , compressor, outdoor fan run successively, indoor fan run at set speed, this working area is defined as area A.

$T_s - 1 < T_r \leq T_s + 2$ , compressor, outdoor fan will run for 10 minutes and stop for 6 minutes, indoor fan will run at low speed, this working area is defined as area B.

$T_r < T_s - 1$ , compressor, outdoor fan will stop running, indoor fan will run at low speed, this area is defined as area C.

four-way valve mode, system will shift between area A, B and C variation with room ambient temperature. When  $T_r < T_s + 1$ , system will shift from area A to B; when  $T_r > T_s$ , system will shift from area C to B; when  $T_r > T_s + 3$ , system will shift from B to A; when  $T_r < T_s - 1$ , system will shift from area A to C.

outdoor fan air proof in heating

In heating, every time starts compressor, indoor fan will stop running if room coil temperature is less than 28; indoor fan will run at low speed if room coil temperature is equal to or more than 28 and less than 38; indoor fan will run at set fan speed if room coil temperature is more than 38 or compressor has run more than 4 minutes.

(5) Residual heat air discharging in heating

In heating, compressor stops, indoor fan stops after a 30-second low running.

(6) Defrosting control

(1)

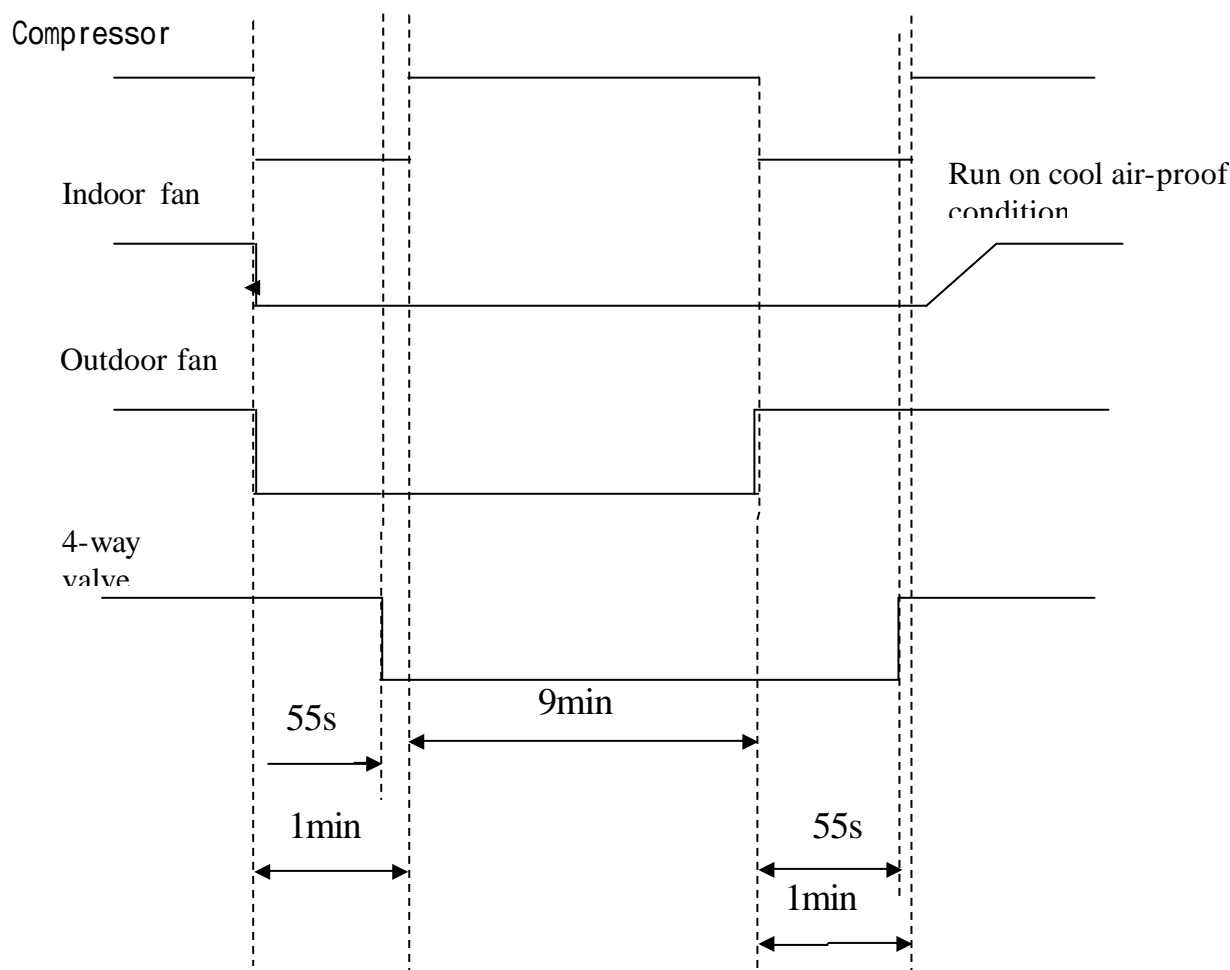
- a. After the state of  $T_p - T_r < 18$  is continued for 5 minutes, the accumulated running time of the compressor exceeds 45 minutes, the continuous running time of the compressor exceeds 20 minutes;
- b. The accumulated running time of the compressor exceeds 3 hours, the continuous running time of the compressor exceeds 20 minutes, indoor unit's  $T_p < 42$  ;
- 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's  $T_p < 42$  ;
- 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  $T_p < 42$  .

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

(2) Defrosting finishing condition:

If the defrosting time exceeds 9 minutes, the original heating state will be resumed;

Defrosting process is as follows:



## (7) Temperature compensation.

Auto temperature compensation condition: when reach temperature condition, cut-off time of compressor is less than 5 minutes. Temperature compensation rules are as follows:

When  $T_s + 4 - T_r \geq 2$  ,  $T = 2$  ; when  $T_s + 4 - T_r = 1$  ,  $T = 1$  ;

When  $T_s + 4 - T_r = 0$  ,  $T = 0$  .

When heating mode starts for the first time,  $T = 0$  .

With temperature compensation function, if push temperature increasing and decreasing button on remote controller,  $T = 0$ ; if push temperature increasing button on remote controller,  $T$  will maintain previous value.

## (8) Overcool protection in cooling.

In cooling, 9 minutes after the start of compressor, check room coil temperature. when indoor coil temperature is less than  $0^\circ\text{C}$  , compressor and outdoor fan will stop running. When the two following conditions are meet, compressor and outdoor fan will restart:

Cut-off time is more than 3 minutes;

Indoor coil temperature is more than  $7^\circ\text{C}$  .

## (9) 3-minutes delay

When compressor stop running arose from transmitter OFF, ON-OFF or breakdown, compressor will stop for 3-minutes.

## (10) Overcharging protection in heating

Overcharging protection: in HEAT mode, if room coil temperature  $> 56^\circ\text{C}$  , outdoor fan will stop running and resume when inner coil temperature  $\leq 53^\circ\text{C}$  ; if room coil temperature  $> 68^\circ\text{C}$  and last 10 seconds, compressor and outdoor fan will stop running; compressor and outdoor fan will resume normal operation when room coil temperature  $< 46^\circ\text{C}$  .

Over-current protection: in HEAT mode, outdoor fan will stop running if working current measured with current transformer is continuously more than 14A in 2 seconds; if current is less than 13A, outdoor fan will resume operation; if working current is more than 26A after a 5-minutes running and last 10 seconds, compressor will stop and resume normal operation 3 minutes after; indoor fan will run on cool-air proof condition. If over-current protection occurs twice in 30 minutes, compressor won't restart any more. System will turn into over-current fault alarm.

## (11) Power failure compensation function

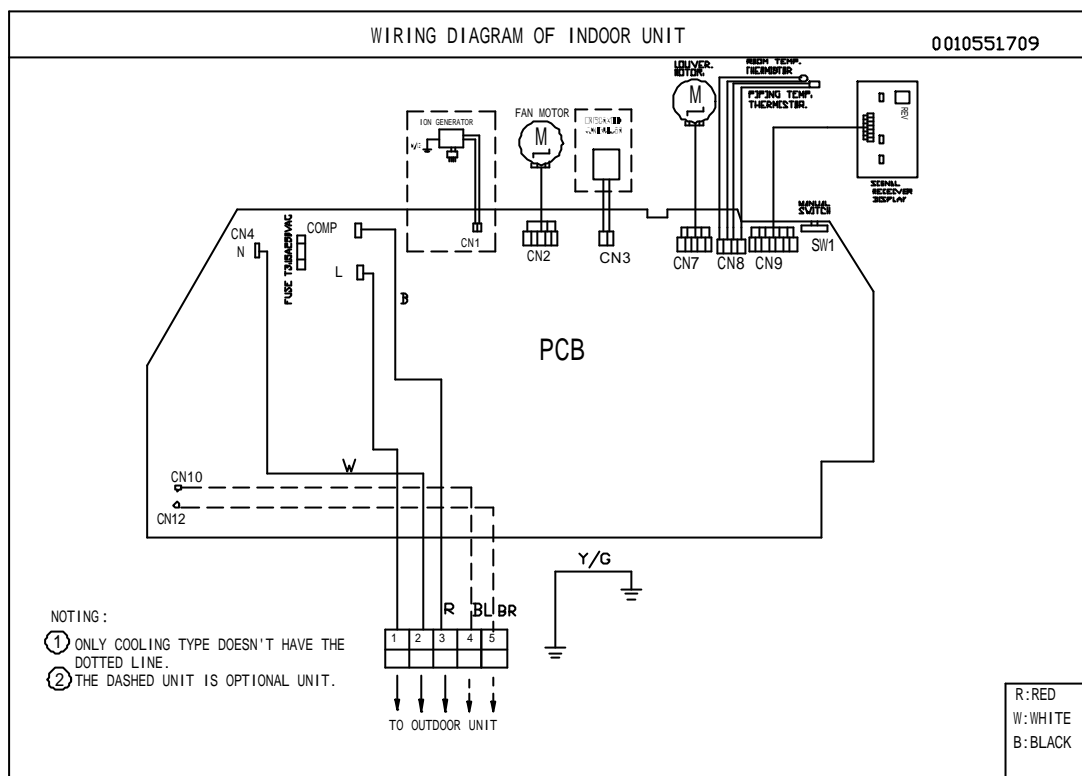
Power failure compensation function will be set by remote controller. To cancel power failure function, push SLEEP button 10 times in 5 seconds, buzzer will sound twice "BEEP"; To set power failure function, push SLEEP button 10 times in 5 seconds, buzzer will sound four times "BEEP".

When main panel has power failure compensation function, it will memorize running parameter in the case of sudden power failure (not cut by remote controller), if unit didn't receive remote signal 3 minutes after power resume, it will call automatically memory information and continue to run in previous state. Memory includes operation mode, fan speed, set temperature, air door state, health; timing and sleep mode not included.

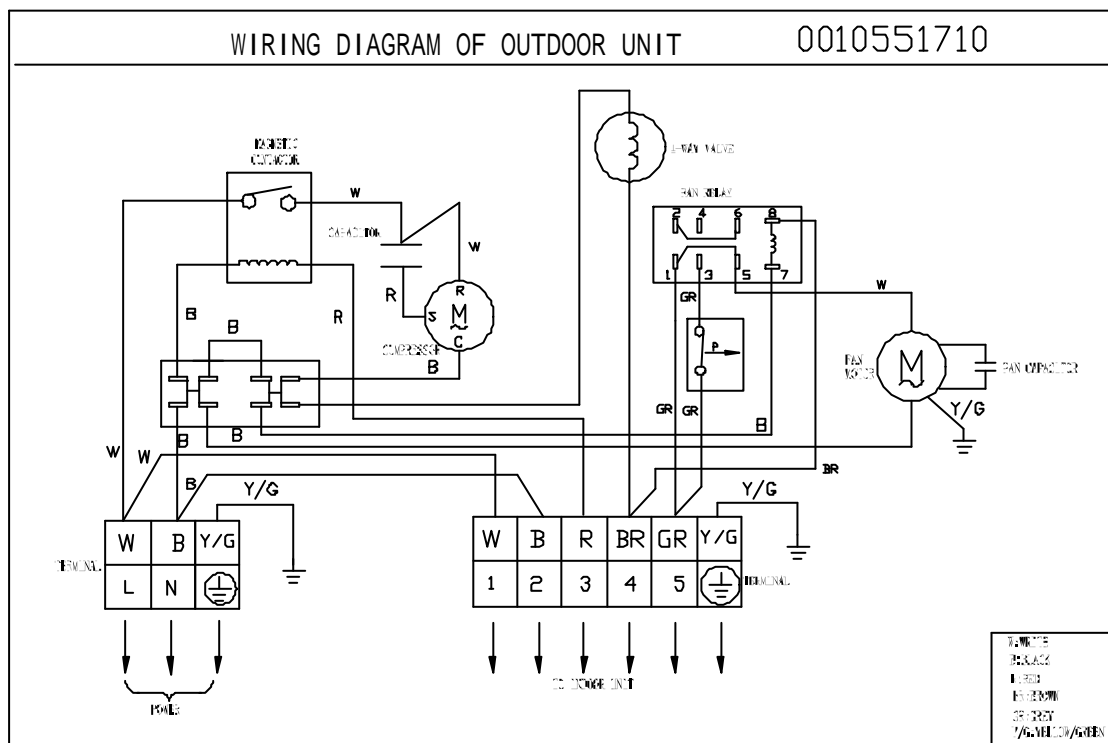
## (12) Emergency switch and forced cooling.

Push down emergency ON/OFF button, buzzer will sound once "beep", release it 5 seconds after, unit will perform starting function; if ON/OFF button is pressed continuously for more than 5 seconds, buzzer will sound twice "beep", and unit will perform forced cooling function. Here operational mode is set as cooling, fan speed is set as high; forced cooling will finish 30 minutes after. After having pushed down mode button, fan speed button, temperature increasing and decreasing button, sleep button,

# WIRING DIAGRAM



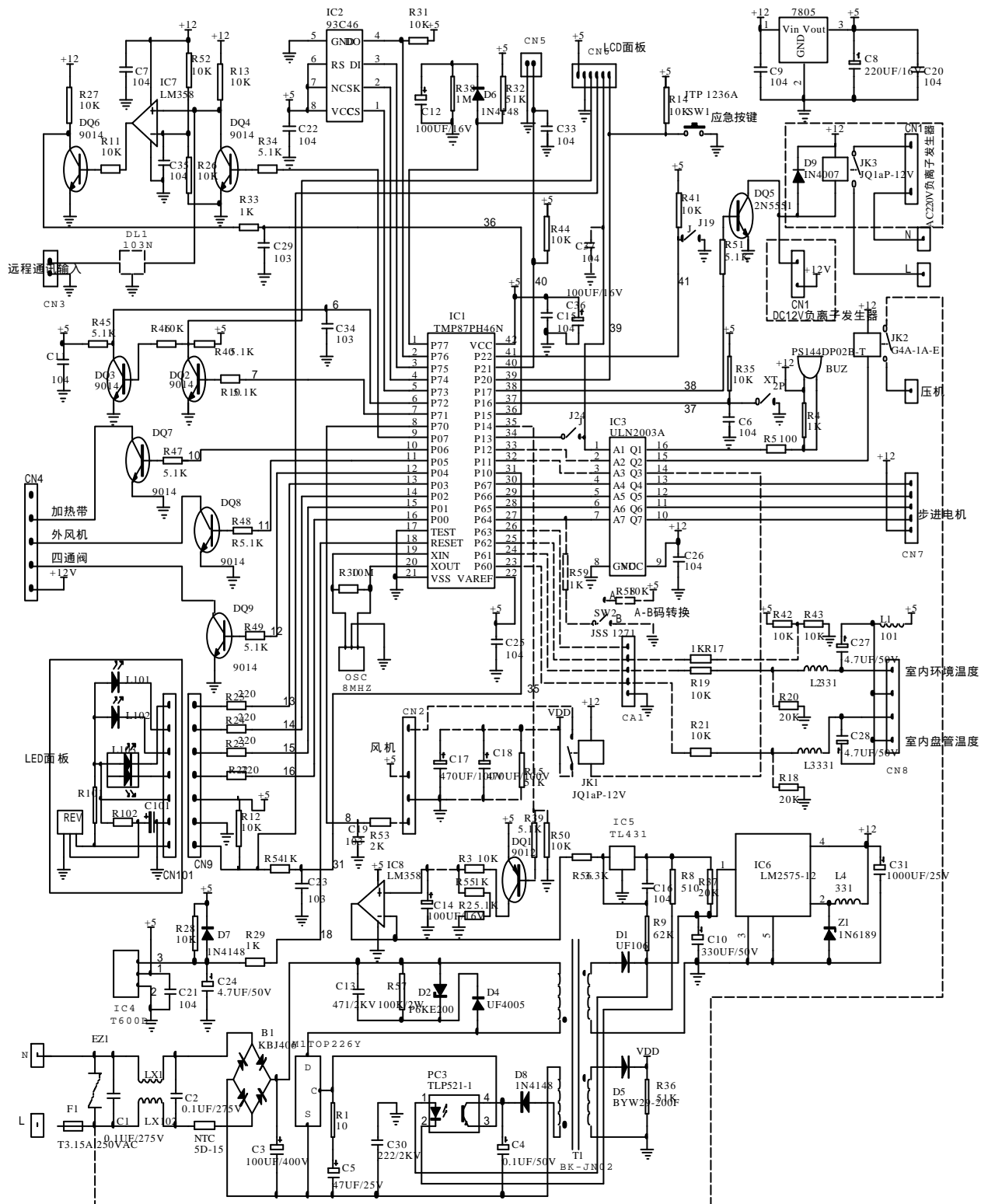
THE WIRING DIAGRAM FOR OUTDOOR UNIT IS ONLY FOR HSU-24H03/Z



THE WIRING DIAGRAM FOR OUTDOOR UNIT IS ONLY FOR HSU-24C03/Z



# CIRCUIT DIAGRAM








# ABNORMALITY DIAGNOSING

For the abnormal phenomenon occurred, please conduct trouble analysis and troubleshooting according to the following table:

No	Reason of trouble	Phenomena	Remarks
1	The sensor of indoor ambient temperature is in short circuit or broken circuit	The compressor indicator and timing indicator extinguish, and the running indicator flickers	
2	The temperature sensor of indoor coil pipe is in short circuit or broken circuit	The compressor indicator and timing indicator are on, and the running indicator flickers	
3	The indoor motor is damaged or the computer board is damaged	The power indicator and running indicator of indoor unit flicker twice, the power indicator, running indicator and timing indicator flicker together for 1 second, then repeating the cycle.	The motor has no signal feedback of Hall unit

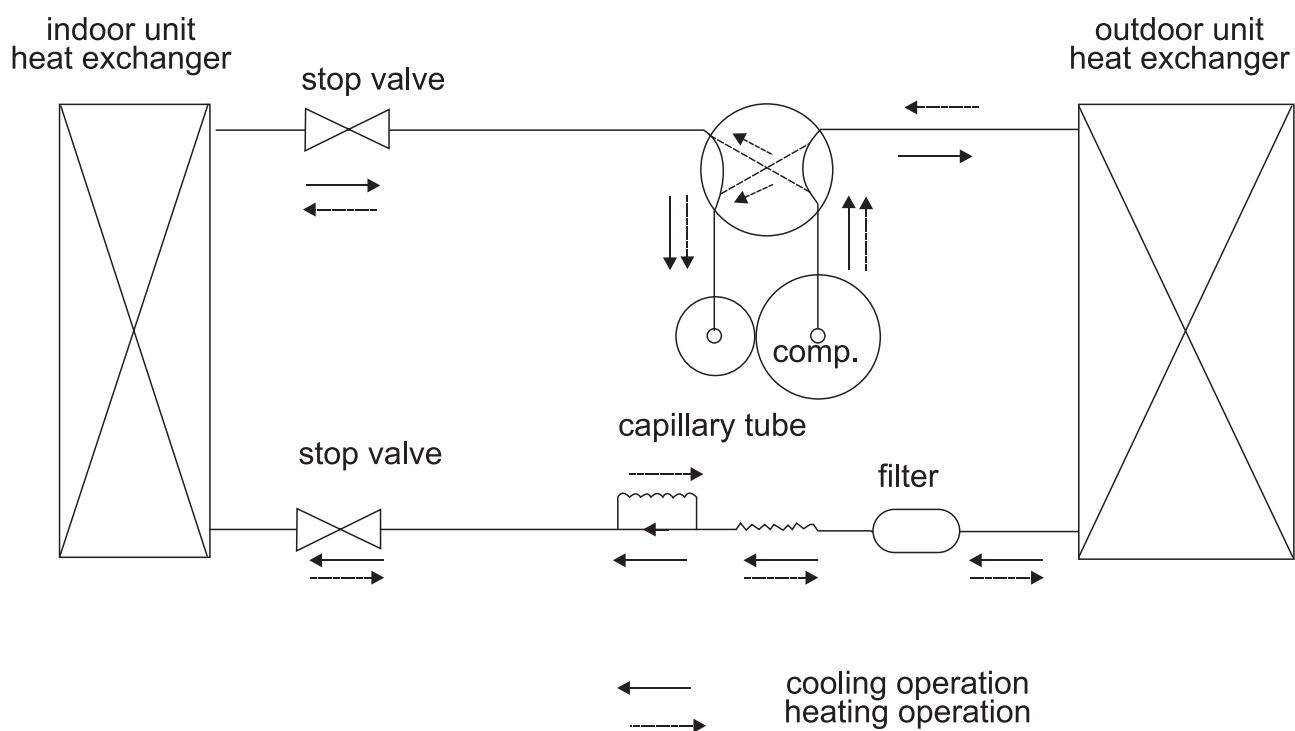
# Trouble Shooting

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

Application temp. range of air conditioner -7℃~43℃.

# REFRIGERATING CYCLE DIAGRAM



# INSTALLATION MANUAL



# Installation Manual of Room Air Conditioner

- Read this manual before installation.
- Explain sufficiently the operating means to the user according to this manual.

## Necessary Tools for Installation

- |                              |                                   |   |            |
|------------------------------|-----------------------------------|---|------------|
| 1. Driver                    | 5. Torque wrench (17mm,22mm,26mm) | 9. Nipper   | 12. Reamer |
| 2. Hacksaw                   | 6. Pipe cutter                    | 10. Gas leakage detector or soap-and-water solution |            |
| 3. Hole core drill           | 7. Flaring tool                   | 11. Measuring tape                                  |            |
| 4. Spanner (17,19 and 26 mm) | 8. Knife                          |   |            |

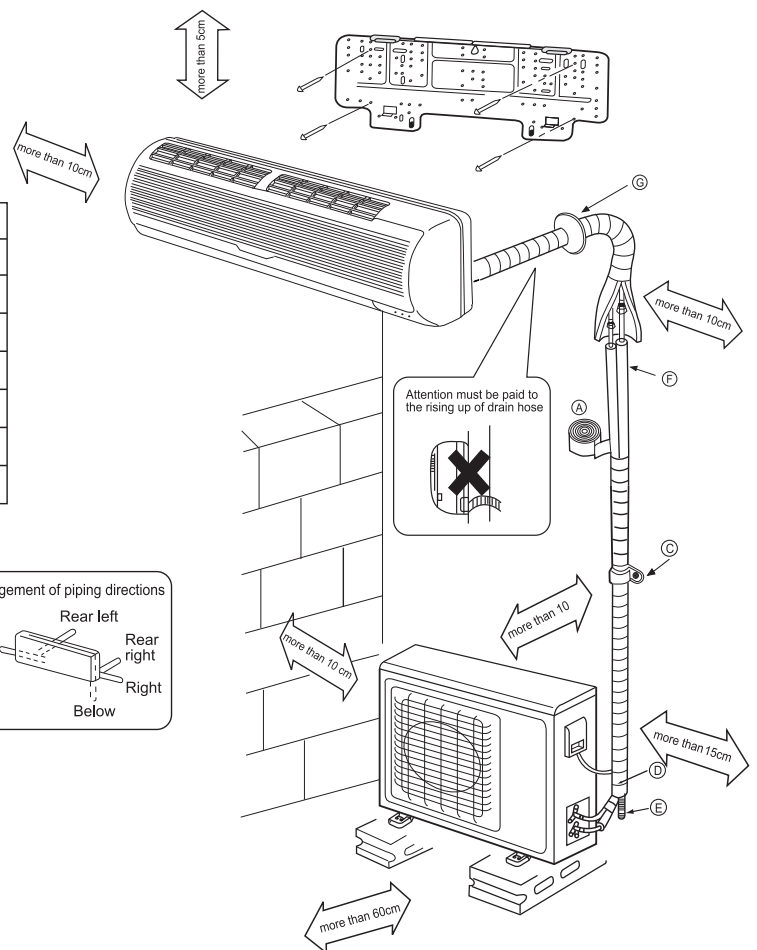
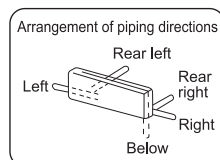
## Drawing for the installation of indoor and outdoor units

### 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	Pipe supporting plate	1
⑥	Φ 4X25 Screw Plastic cap	4
⑦	Drain-elbow	1
⑧	Cover	1
⑨	Cushion	4

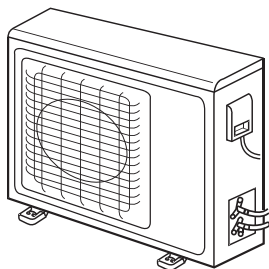
### Optional parts for piping

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



※ 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 corresponded 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.

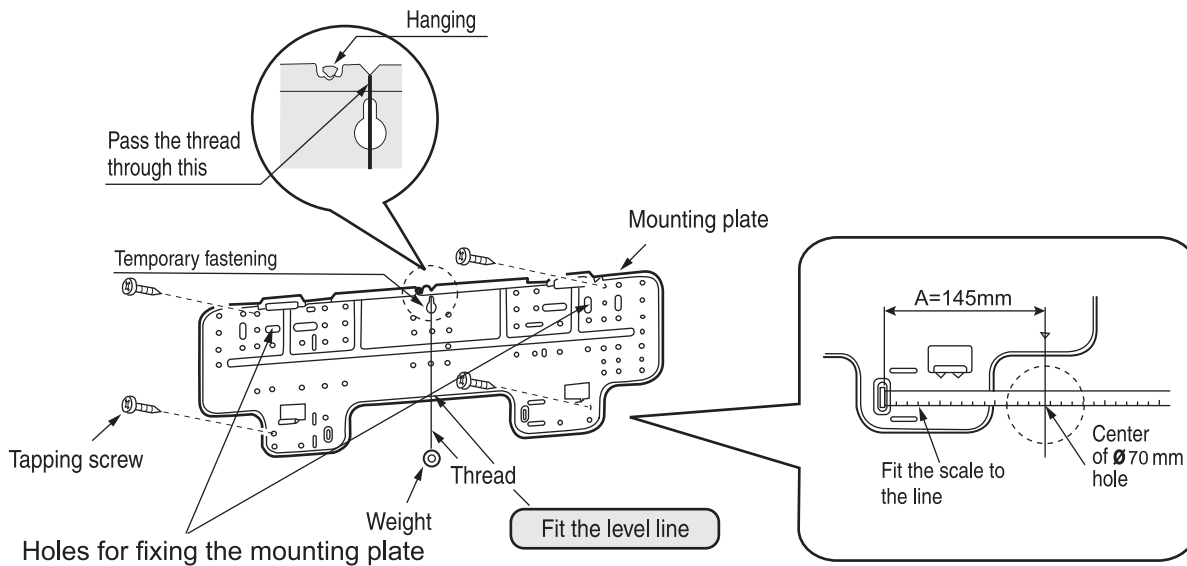
Liquid pipe ( $\phi$ )	6.35mm (1/4")
Gas pipe ( $\phi$ )	12.7mm (1/2")

# Indoor Unit

## 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.

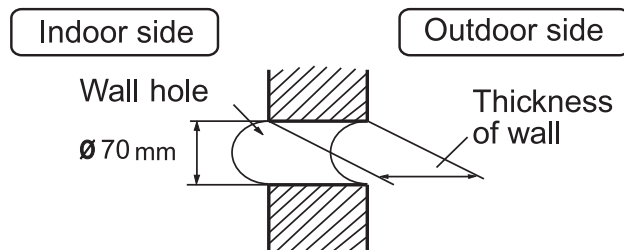


### When the mounting plate is fixed to side bar and lintel

- 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 70 mm 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

# Indoor Unit

## 3 Installation of the Indoor Unit

### Drawing of pipe

#### [ Rear piping ]

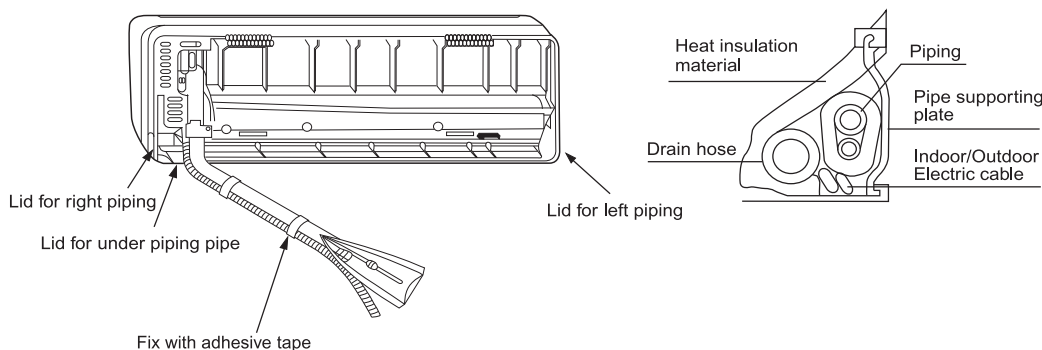
- Draw pipes and the drain hose, then fasten them with the adhesive tape.

#### [ 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.



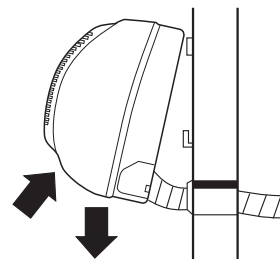
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

#### [ 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

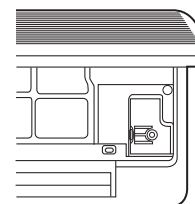
- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to side to verify its secure fixing.
- In order to fix the body onto the mounting plate, hold up the body aslant from the underside and then put it down perpendicularly.



## 4 Connecting the indoor/outdoor Electric Cable

### Removing the wiring cover

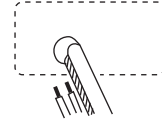
- Remove terminal cover at right bottom corner of indoor unit, then take off wiring cover by removing its screws.



# Indoor Unit

## 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.

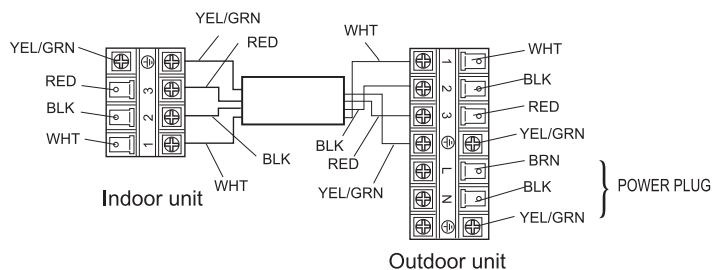
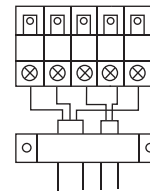
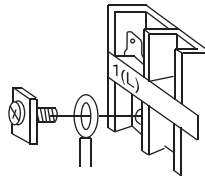
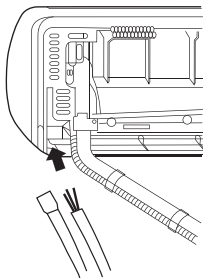


## When connecting the cable before installing the indoor unit

- 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.
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.



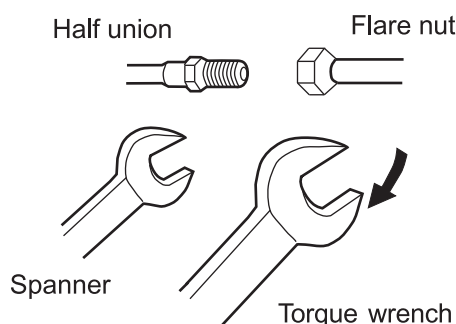
# Outdoor Unit

## 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 connection pipe is specialized
- The max length of connection pipe of 12 series is 15m and the max length of 07,09 series is 7m.
- 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 ( $\phi$ )	Fastening Torque
Liquid Side 6.35mm(1/4")	18N.m
Gas Side 9.52mm(3/8")	42N.m
Gas Side 12.7mm(1/2")	55N.m

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

**The standard pipe length is 5m. If it is over 5m, the function of the unit will be affected. If the pipe has to be lengthened, the refrigerant should be charged, according to 20 g/m. But the charge of refrigerant must be conducted by professional air conditioner engineer. Before adding additional refrigerant, perform air purging from the refrigerant pipes**

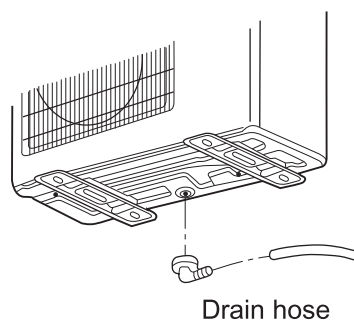
## 3 Connection

- 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.

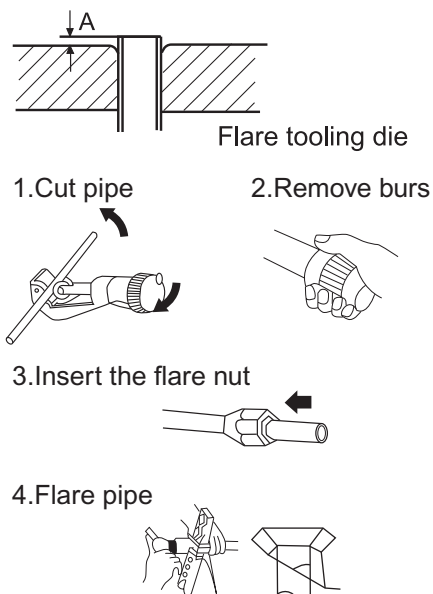


## 1 Power Source Installation

- 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.

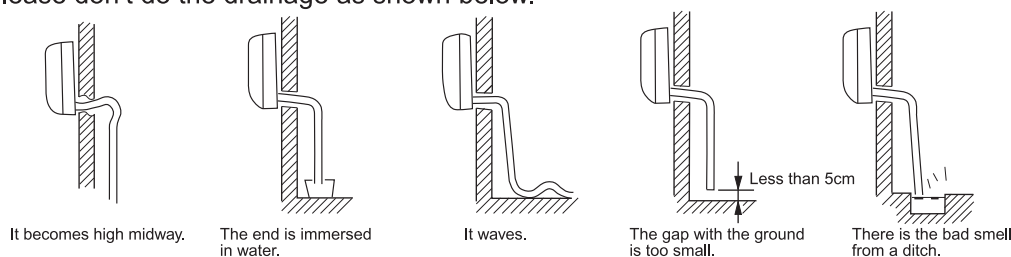


	Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type)	Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm	1.5~2.0mm

Correct	Incorrect				
	Lean	Damage of flare	Crack	Partial	Too outside

## 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 ✓ 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**

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