CAUTION

READ THIS MANUAL CAREFULLY TO DIAGNOSE TROUBLE CORRECTLY BEFORE OFFERING SERVICE .

SERVICE MANUAL

Air Conditioners

MODEL: HSU-12HD03/R2

THIS MANUAL IS USED BY QUALIFIED APPLIANCE TECHNICIANS ONLY. HAIER DOES NOT ASSUME ANY RESPONSIBILITY FOR PROPERTY DAMAGE OR PERSONAL INJURY FOR IMPROPER SERVICE PROCEDURES DONE BY ONE UNQUALIFIED PERSON.

REVISION 0

IMPORTANT INFORMATION

MODEL: HSU-12HD03/R2

●Features

- ●Comfortable: wide-angle airflow
- ●health air purifying
- ●quiet operation
- ●super energy efficient

●Main Specification

- ●Cooling Capacity： 3500W
- ●Rated Power/Current(cooling)： 1090W/5.2A
- ●EER: 3.21
- ●Heating Capacity： 3650W
- ●Rated Power/Current(heating): 1010W/5.0A
- ●COP: 3.61
- ●Air Volume(Indoor): 500m^3/h
- ●Power: 1PH 220-230V~ 50 Hz

Safety Information

General Information

This Service Manual describes the operation,disassembly,troubleshooting,and repair of Haier Room Air Conditioners,etc. It is intended for use by authorized servicers who troubleshoot and repair these units.

NOTE:It is assumed that users of this manual are familiar with the use of tools and equipment used to troubleshoot and repair electrical,mechanical,and refrigeration systems;and understand the terminology used to describe and discuss them.

Haier urges you read and follow all safety precautions and warnings contained in this manual. Failure to comply with safety information may result in severe personal injury or death.

Related Publications

This is a base service manual,covering a range of similar models.It is intended to be used in conjunction with the Parts Manual and Technical Sheet covering specific model being serviced.

General Precautions and Warnings

WARNING

To avoid risk of personal injury or death due to electrical shock,disconnect electrical power to unit before attempting to service the unit.

WARNING

To avoid risk of personal injury or death due to electrical shock,**DO NOT**,under any circumstances,alter the grounding plug .Air conditioner must be grounded at all times.Do not remove warning tag from power cord.If a two-prong (non-grounding) wall receptacle is encountered,contact a qualified electrician and have the receptacle replaced with a properly grounder wall receptacle in accordance with the National Electrical Code.

WARNING

To avoid risk of personal injury or death due to electrical shock,grounding wires and wires colored like grounding wires are **NOT** to be used as current carrying conductors.The standard accepted color coding for ground wires is **green** or **green with a yellow stripe**.Electrical components such as the compressor and fan motor are grounded through an individual wire attached to the electrical component and to another part of the air conditioner.Grounding wires should not to be removed from individual components while servicing,unless the component is to be removed and replaced.It is extremely important to replace all removed grounding wires before completing service.

WARNING

To avoid risk of heat exposure,which may cause death or severe illness,air conditioner must be monitored when malfunctions or shuts down.

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SPECIFICATION

Model:	HSU-12HD03/R2		Brand Mark:	-----	
Cooling	Cooling Capacity:	3500W	Frequency Range:	50Hz	
	Rated Power/Current:	1090W/5.2A	Power	1PH 220-230V~ 50 Hz	
	Max Power/Current:	1620W/8.3A	Power Cord	Model×Sectional Area:	--------
	EER	3.21			
Heating	Heating Capacity:	3650W		Refer. No.:	--------
	Rated Power/Current:	1010W/5.0A	Compressor manufacturer/Type	SANYO/CRV113	
	Max Power/Current:	1600W/8.0A	Compressor Oil charge	500(poe)	
	COP	3.61			
Power/Current of Electric Heating:		-----	Refrigerant	Type/Net Charge:	R410A 800g
Operating temp. range		-7°C-43°C		Additional Charge for exhausting air.	----- g
Indoor Velocity	H:	1350 r/min		Charge if over Standrad Pipe Lenth	---g/m
	M:	1100 r/min	Capilary	Lenth×Internal/External Diametre	-----
	L:	920 r/min		Refer No.:	-----
Outdoor Velocity	H:	1000 r/min	Height of rising radiator slice	Indoor:	1.30 mm
	H:	---- r/min		Outdoor:	1.37 mm
	H:	---- r/min	Indoor Weight	Net:	7.6kg
				Gross:	10.6kg
Air Volume (High)	Indoor:	500 m^3/h	Outdoor Weight	Net:	37kg
	Outdoor:	----- m^3/h		Gross:	42kg
Capacitor of Fan Motor:		……	Indoor Dimension(L×W×H):		795×265×182 mm
Class of electric Shock Protection		I	Indoor Packaging Dimension(L×W×H)		865x272x330 mm
Class of Water Proof:		IP 24	Outdoor Dimension (L×W×H):		855×331×596 mm
Moisture Removal:		$1.5×10^{-3}m^3/h$	Outdoor Packaging dimension(L×W×H)		876×364×638 mm
Remote Controller	Model:	H	Refrigerant Pipe	liquid /Gas pipe Diametre	φ6.35/9.52 mm
	Refer. No.:	0010413791		standard Lenth	5m
				Max Lenth	15 m
Remote Controller Bracket:		-----	Lenth/Diametre of Drain Hose		4.15 MPa
Appearance:		-----	Max. pressure at warm side:		4.15 MPa
Climate Type:		T1	Max.pressure at cool side:		---
Installation Bracket Type:		-----	Plug Type(spec.):		---
Area available for clooling/heating		15-23 m^2	Ammeter spec.:		---
Max.running temperature(cooling):		Dry/Wet ball(indoor): 32 / 23 ℃	Max.running temperature(heating):		Dry/Wet ball(indoor) ℃/--℃
		Dry/Wet ball(outdoor): 43 ℃/ 26 ℃			Dry/Wet ball(outdoor):24℃/18℃

ACCESSORIES

HSU-12HD03/R2

Number	Name	Refer No.	Description	Quality	Failure Rate(%)	Remark
1	remote controller	0010413791	None	1	0.2	*
2	battery	001A4600001	None	2	0.1	
3	mounting plate	0010101275	Fix mounting plate according to installation position and pipe direction		0	
4	drain pipe	001A0900011	Choose the place that can drain water and connect pipe easily	1	0.1	
5	connecting pipe	----	The maximal length of the connecting pipe is 15m,the maximal height between indoor unit and outdoor unit is 5m	1	0.2	*
6	connecting wire	----	The conecting methods include ring terminal and direct terminal .Ring terminal connecting method:Unscrew the screws ,and put it through the ring of connecting line ends,then connect it into the terminal block. Direct terminal connecting method:unscrew the screws,then fully insert the cable ends into.	. 1	0.2	*
7	manual	001A7265614	Operation	1	0	

OPERRATION

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Parts and functions 2-4
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Cautions

The machine is adaptive in following situation

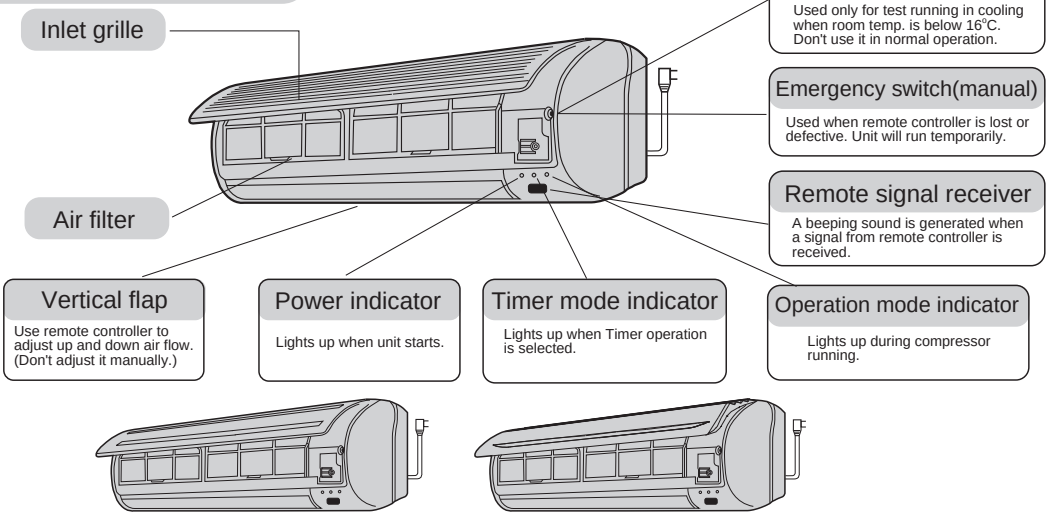
I. Applicable ambient temperature range:

Cooling	Indoor	Maximum: D.B / W.B Minimum: D.B / W.B	32°C/23°C 18°C/14°C
	Outdoor	Maximum: D.B Minimum: D.B	43°C/26°C 18°C
Heating	Indoor	Maximum: D.B Minimum: D.B	27°C 15°C
	Outdoor	Maximum: D.B / W.B Minimum: D.B / W.B	24°C/18°C -7°C/-8°C

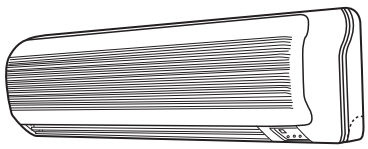
2. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F
3. If the fuse on PC board is broken please change it with the type of T. 3.15A/250V.
4. The distance between the indoor unit and the floor should be more than 2m.
5. The wiring method should be in line with the local wiring standard.
6. After installation, the power plug should be easily reached.
7. The waste battery should be disposed properly.
8. The appliance is not intended to use by young children or infirm persons without supervision.
9. Young children should be supervised ensure that they do not play with the appliance.
10. The appliance must be installed on strong enough supporter.
11. The wiring diagram is attached inside the machine.

Parts and Functions

Indoor Unit



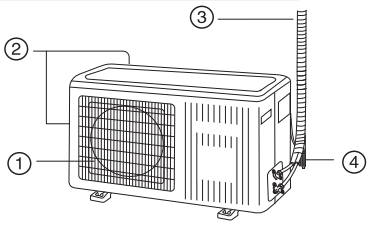
HSU-07HC03/R2 HSU-07HE03/R2 HSU-09HC03/R2 HSU-09HE03/R2 HSU-09HD03/R2 HSU-07HD03/R2
HSU-12HE03/R2 HSU-12HC03/R2 HSU-14HB03/R2 HSU-18HB03/R2 HSU-12HD03/R2



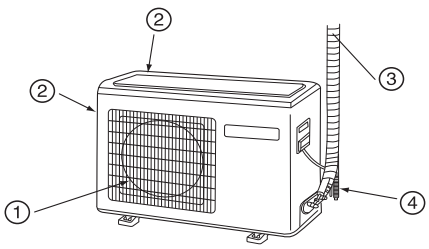
HSU-22HB03/R2 HSU-22HC03/R2 HSU-22HD03/R2

Actual inlet grille may vary from the one shown in the manual according to the product purchased

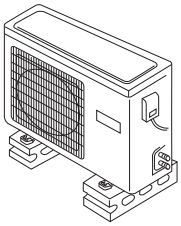
Outdoor Unit



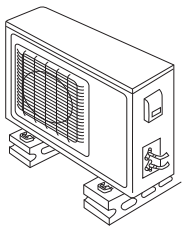
HSU-07HC03/R2 HSU-09HE03/R2
HSU-07HE03/R2 HSU-12HE03/R2
HSU-07HD03/R2 HSU-09HD03/R2
HSU-09HC03/R2 HSU-12HD03/R2



HSU-12HC03/R2
HSU-14HB03/R2



HSU-18HB03/R2



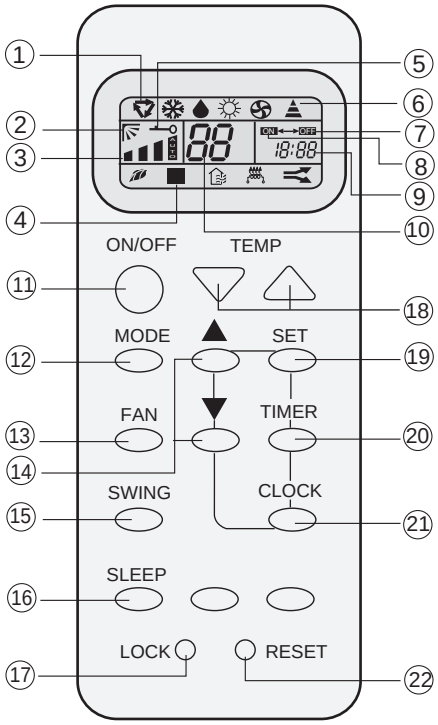
HSU-22HD03/R2
HSU-22HC03/R2
HSU-22HB03/R2

① OUTLET
② INLET
③ CONNECTING PIPING AND ELECTRICAL WIRING
④ DRAIN HOSE

Parts and Functions

Operation

Buttons and display of the remote controller.



1. Mode display
   AUTO
   COOL
   DRY
   HEAT
   FAN
2. SWING display
3. FAN SPEED display

4. SLEEP display
5. LOCK display
6. SIGNAL SENDING
7. TIMER OFF display
8. TIMER ON display
9. CLOCK display
10. TEMP display
11. POWER ON/OFF
    Used for unit start and stop.
12. MODE
    Used to select AUTO run, COOL, DRY, HEAT and FAN operation
13. FAN
    Used to select fan speed LO, MED, HI, AUTO
14. HOUR
    Used to set clock and timer setting.
15. SWING
    Used to set auto fan direction.
16. SLEEP
    Used to select sleep mode.
17. LOCK
    Used to lock buttons and LCD display.
18. TEMP.
    Used to select your desired temp.
19. SET
    Used to confirm timer and clock settings.
20. TIMER
    Used to select TIMER ON, TIMER OFF, TIMER ON-OFF
21. CLOCK
    Used to set correct time
22. RESET
    Used to reset the controller back to normal condition.

Clock set

When unit is started for the first time and after replacing batteries in remote controller, clock should be adjusted as follows:
Press CLOCK button, "AM" or "PM" flashes.
Press △ or ▽ to set correct time. Each press will increase or decrease 1min. If the button is kept depressed, time will change quickly.
After time setting is confirmed, press SET, "AM "and "PM" stop flashing, while clock starts working.

NOTE: Cooling only unit do not have displays and functions related with heating

Hints

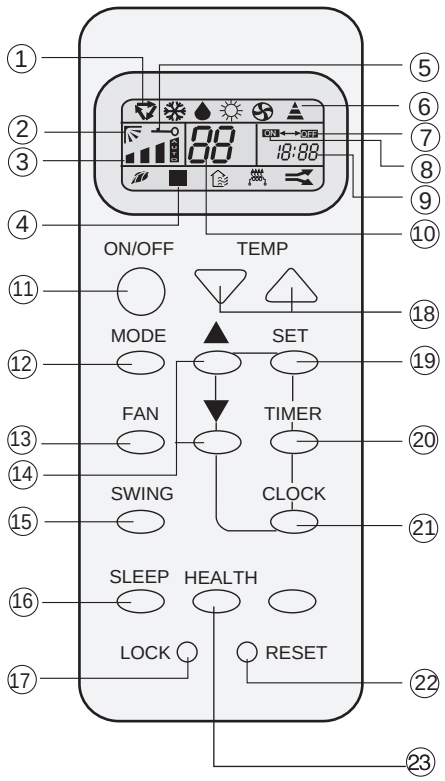
After replacing with new batteries, remote controller will conduct self-check, displaying all information on LCD. Then, it will become normal.

Parts and Functions

Operation

Buttons and display of the remote controller.

If the unit which you purchased has healthy function, Remote controller should like the following figure:



1. Mode display
   AUTO
   COOL
   DRY
   HEAT
   FAN
2. SWING display
3. FAN SPEED display 

4. SLEEP display
5. LOCK display
6. SIGNAL SENDING
7. TIMER OFF display
8. TIMER ON display
9. CLOCK display
10. TEMP display
11. POWER ON/OFF
    Used for unit start and stop.
12. MODE
    Used to select AUTO run, COOL, DRY, HEAT and FAN operation
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    Used to lock buttons and LCD display.
18. TEMP.
    Used to select your desired temp.
19. SET
    Used to confirm timer and clock settings.
20. TIMER
    Used to select TIMER ON, TIMER OFF, TIMER ON-OFF
21. CLOCK
    Used to set correct time
22. RESET
    Used to reset the controller back to normal condition.
23. HEALTH
    Used to set healthy operation

BRIEF INTRODUCTION TO HEALTH OPERATION

The anion generator in the air conditioner can generate a lot of anion to effectively balance the quantity of position and anion in the air and also to kill bacteria and speed up the dust sediment in the room and finally clean the air in the room.

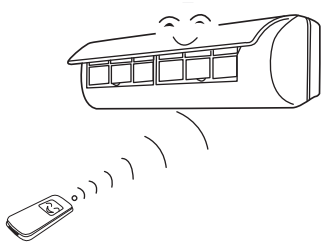
NOTE: Cooling only unit do not have displays and functions related with heating

Hints

After replacing with new batteries, remote controller will conduct self-check, displaying all information on LCD. Then, it will become normal.

Operation

Remote controller's operation



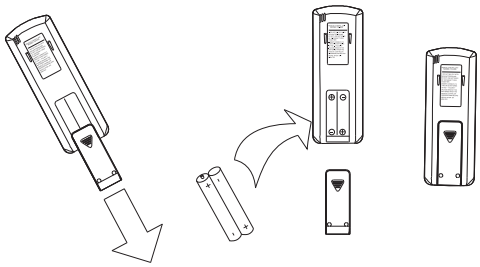
- When in use, put the signal transmission head directly to the receiver hole on the indoor unit.
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- Don't throw the controller, prevent it from being damaged.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receivering the signals so the distance to the indoor unit should be shorter.

Loading of the battery

Load the batteries as illustrated. 2 R-03 batteries, resetting key (cylinder)

Remove the battery cover:

Slightly press "▼" and push down the cover.



Load the battery:

Be sure that the loading is in line with the" + "/"-" pole request as illustrated.

Put on the cover again

Confirmation indicator:

In disorderation, reload the batteries or load the new batteries after 6mins.

Note:

Use two new same-typed batteries when loading.
If the remote controller can't run normally or doesn't work at all, use a sharp pointed item to press the reset key.

Hint:

Remove the batteries in case unit won't be in usage for a long period.
If there are any display after taking-out just need to press reset key.

Power failure resume(please set and apply as necessary)

If sudden power failure occurs, the unit will resume original operation when power is supplied again.

Note: When sudden power failure happens during unit operation in power failure resume mode, if the air conditioner is not desired for use in a long period, please shut off the power supply in case that the unit automatically resume operation when power is re-supplied, or press ON/OFF to turn off the unit when power resumes.

Operation

Auto run, Fan operation

Enjoy yourself by just a gentle press.

(1) Unit start

Press ON/OFF button, unit starts.
Previous operation status appears on display.
(Not Timer setting)
Power indicator on indoor unit lights up.

(2) Select operation mode

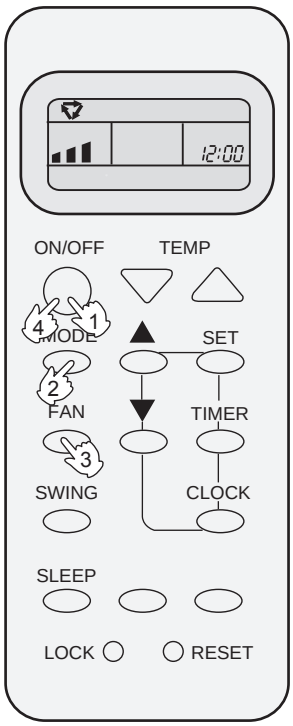
Press MODE button. For each press, operation mode changes as follows:

Unit will run in selected mode.
Stop display at " " AUTO or " " "FAN.

(3) FAN

Press FAN button. For each press, fan speed changes as follows:

Unit will run at selected fan speed.
Note:AUTO is not available in FAN mode.



(4) Unit stop

Press ON/OFF button.
Only time remains on LCD.
All indicators on indoor unit go out.
Vertical flap closed automatically.

Hints

Remote controller can memorize settings in each operation mode. To run it next time just select the operation mode and it will start with the previous setting.
No reelecting is needed.(TIMER ON/OFF needs reelecting)

Cautions:
On cooling only unit, heating mode is not available,
After replacing batteries, press ON/OFF, and display becomes as follows:
Operation mode: AUTO, Temp. No
Timer mode: No, Fan speed :AUTO

Note:
The above information is the explanation of the displayed information therefore varies with those displayed in actual operation.

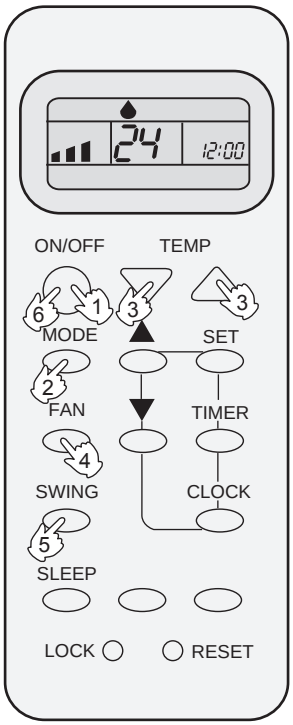
Operation

COOL,HEAT and DRY operation

Recommendations: • Use COOL in summer. • Use HEAT in winter
• Use DRY in spring, autumn and in damp climate.

(1) Unit start

Press ON/OFF button, unit starts.
Previous operation status appears on display.(Not Timer setting)
Power indicator on indoor unit lights up.



(2) Select operation mode

Press MODE button. For each press, operation mode changes as follows:

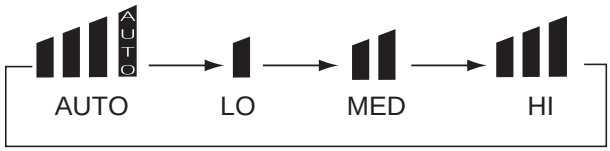
Unit will run in operation mode displayed on LCD.
Stop display at your desired mode.

(3) Select temp. setting

Press TEMR button.
△ Every time the button is pressed, temp. setting increases 1°C
▽ Every time the button is pressed, temp. setting decreases 1°C
Unit will start running to reach the temp. setting on LCD.

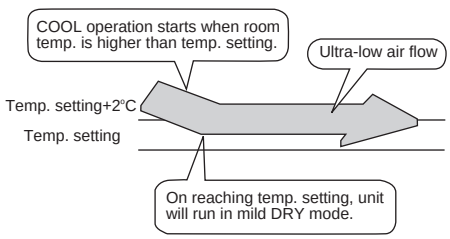
(4) Fan speed selection

Press FAN button. For each press, fan speed changes as follows:



Unit runs at the speed displayed on LCD.

In DRY mode, when room temperature becomes lower than temp.setting+2°C,unit will run intermittently at LOW speed regardless of FAN setting.



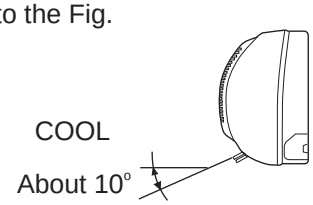
Hints

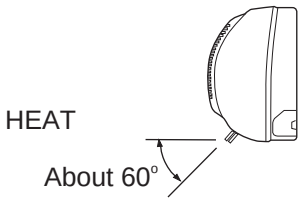
On cooling only unit, heating mode is not available.
Remote controller can memorize each operation status. When starting it next time, just press ON/OFF button and unit will run in previous status.

Operation

(5) Air flow direction adjustment

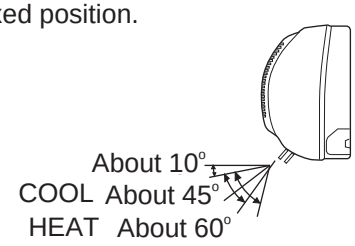
After operation mode is selected, vertical flap will open automatically according to the mode. Referring to the Fig.





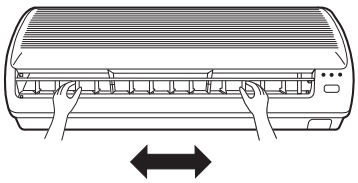
Up and down (Use remote controller)

Press SWING button, vertical flap will move within the range shown in the Fig. Press SWING button stop it at a fixed position.



Left and right air flow adjustment (manual)

Move the horizontal blade by a knob on air conditioner to adjust left and right direction referring to Fig.



Cautions:

It is advisable not to keep vertical flap at downward position for a long time in COOL or DRY mode, otherwise, condensate water might occur.

Cautions:

When humidity is high, condensate water might occur at air outlet if all horizontal louvers are adjusted to left or right.

(6) Unit stop

Press ON/OFF button.
Only time remains on LCD.
All indicators on indoor unit go out.
Vertical flap closes automatically.

Cautions:

Unit won't restart until 3 minutes have elapsed, due to system protection.
HEAT mode is not available on cooling only unit.

Hints

As cold air flows downward in COOL mode, adjusting air flow horizontally will be much more helpful for a better air circulation.
As warm air flows upward in HEAT mode, adjusting air flow downward will be much more helpful for a better air circulation.
Be careful not to catch a cold when cold air blows downward.
It is harmful to your health in summer to go frequently in and out of places where temp. difference is above 7°C. Temp. difference of 3-5°C will remove your fatigue.
More than this, unit's load can be reduced and power consumption cut down as well. So, you'd better set a temp. difference of 3-5°C between indoor and outdoor temp. in COOL mode.

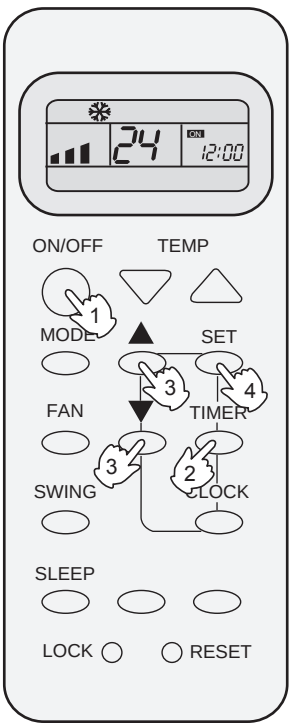
Operation

TIMER Operation

Set Clock correctly before starting Timer operation
You can let unit start or stop automatically at following times: Before you wake up in the morning, or get back from outside or after you fall asleep at night.

TIMER ON/OFF

(1)After unit start, select your desired operation mode.
Operation mode will be displayed on LCD.
Power indicator on indoor unit lights up.



(2)TIMER mode selection

Press TIMER button to change TIMER mode.
Every time the button is pressed, display changes as follows:

ON → OFF → ON ⏲ OFF → blank

TIMER ON TIMER OFF TIMER ON-OFF

Select your desired TIMER mode (TIMER ON or TIMER OFF) ON or OFF will flash.

(3)Timer setting

Press HOUR△ / ▽ button.
△ Every time the button is pressed, time increases 10 min.
If button is kept depressed, time will change quickly.
▽ Every time the button is pressed, time decreases 10 min.
If button is kept depressed, time will change quickly. Time will be shown on LCD. It can be adjusted within 24 hours.

(4)Confirming your setting

After setting correct time, press SET button to confirm, "ON" or "OFF" stops flashing
Time displayed: Unit starts or stops at x hour x min. (TIMER ON or TIMER OFF).
Timer mode indicator on indoor unit lights up.

To cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

Hints

After replacing batteries or a power failure happens, Time setting should be reset.
Remote controller possesses memory function, when use TIMER mode next time, just press SET button after mode selecting if timer setting is the same as previous one.

Operation

TIMER ON-OFF

(1)After unit start, select your desired operation mode
Operation mode will be displayed on LCD.
Power indicator on indoor unit lights up.

(2) Press TIMER button to change TIMER mode.

Every time the button is pressed, display changes as follows:

Select TIMER ON-OFF. "ON" will flash.

(3)Time setting for TIMER ON

Press HOUR button.

△Every time the button is pressed, time increases 10 min.
If button is kept depressed, time will change quickly.
▽Every time the button is pressed, time decreases 10 min.
If button is kept depressed, time will change quickly.

Time will be shown on LCD.
It can be adjusted within 24 hours.
AM refers to morning and PM to afternoon

(4) Time confirming for TIMER ON

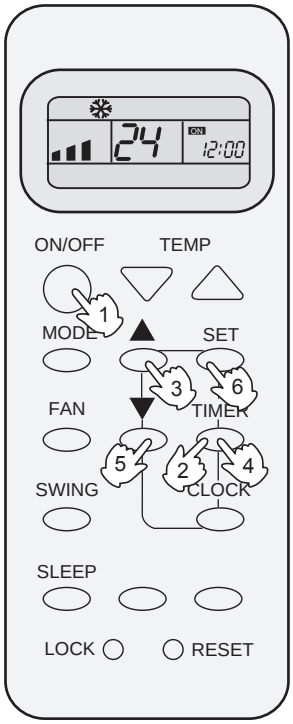
After time setting, press TIMER button to confirm.
"ON" stops blinking, While "OFF" starts blinking.
Time displayed: Unit starts at x hour x min.

(5)Time setting for TIMER OFF

Follow the same procedures in "Time setting for TIMER ON".

(6) Time confirming for TIMER OFF

After time setting, press SET button to confirm, "OFF" stops flashing
Time displayed: Unit stops at X hour X min.



To cancel TIMER mode

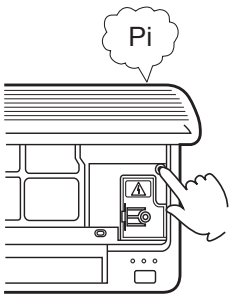
■ Just press TIMER button several times until TIMER mode disappears.

Operation

Emergency operation and test operation

Emergency Operation:

- Carry out this operation only when the remote controller is defective or lost.
- When the emergency operation switch is pressed, a" Pi "sound starts once, which means the start of this operation.
- In this operation, it is not possible to change the settings of temperature and air flow speed, it is also impossible to do an operation by the timer.
- Follow the requirements below.

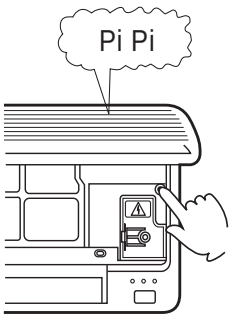


Room temperature	Designated temperature	Timer mode	Air flow speed	Operation mode
More than 23°C	26°C	CONTINUOUS	AUTO	COOL
Less than 23°C	23°C	CONTINUOUS	AUTO	HEAT

If an air conditioner is a model for both cooling and heating.
Cooling when the room temperature at the start of operation is above 23°C.
Heating when the room temperature at the start of operation is below 23°C

Test operation:

- Use this switch in the test operation when the room temperature is less 16°C, do not use it in the normal operation.
  Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch, the cooling operation starts with the air flow speed setting "Hi".



Removal of the restriction of emergency or test operation:

- Press once more the emergency operation switch, or manipulate through the remote controller, a "Pi" sound causes the restriction of emergency or test operation to be removed.
- When the remote controller is manipulated for the removal, then the selected operation by the remote controller.

Operation

Comfortable SLEEP

Before going to bed at night, you can simply press the SLEEP button and unit will bring you a sound sleep in selected mode.

In COOL mode

One hour after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After running for another 1 hour, temp. rises by 1°C further. Unit will run for 6 hours then stops automatically. Temp. is higher than temp. setting so that room temp. won't be too low for your sleep.(As shown in Fig.I)

In HEAT mode

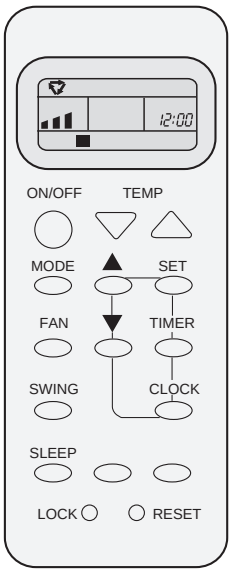
One hour after SLEEP mode starts, temp. will become 2°C lower than temp. setting. After running for another 1 hour, temp. decreases by 2°C further. Unit will run for 3 hours at this temp. then increases another 1°C and stops automatically 3 hours later. Temp. is lower than temp. setting so that room temp. won't be too high for your sleep.
(As shown in Fig .2)

Power Failure Resume Function

If the unit is started for the first time, the compressor will not start running unless 3 minutes have elapsed. When the power resumes after power failure, the unit will run automatically, the power indicator lights up, and 3 minutes later the compressor starts running with the indicator lighting up.

Note:

In AUTO mode, unit will run in SLEEP function according to operation mode.
In FAN mode, comfortable sleep is not available.



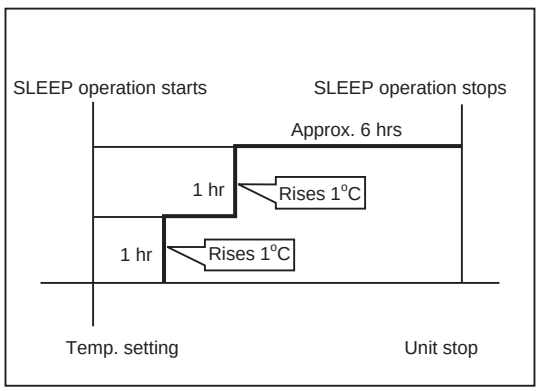


Fig.1

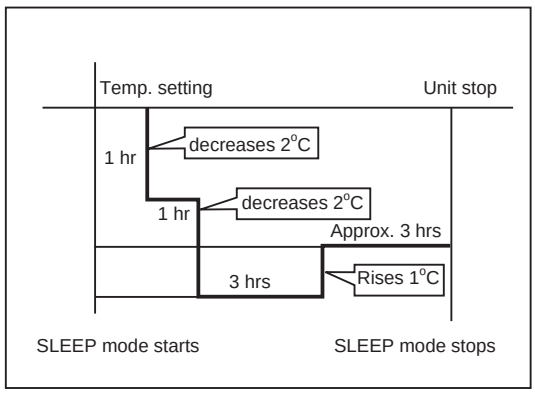
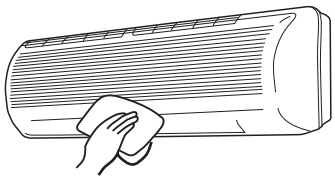


Fig.2

Maintenance

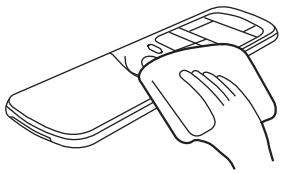
Different models have different appearance

Cleaning of unit casing



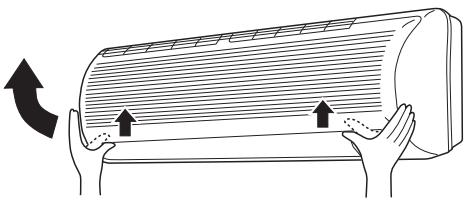
Cut off power supply
before cleaning unit casing with soft cloth.
In case of heavy stain, clean it with neutral detergent.
squeeze water in the cloth, wipe off the detergent on unit casing completely.

Cleaning of remote controller

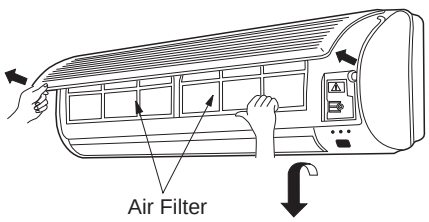


Don't use water to wash unit casing, please use dry cloth.
Don't use glass cleaner or cloth soaked with chemicals.

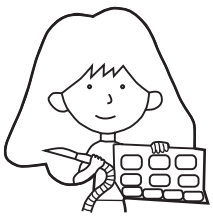
Cleaning of air filter



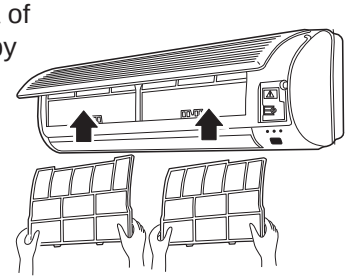
1.Open inlet grille by pulling it upward.



2.Remove air filter
Push up the filter's center tab slightly until it is caesura of the stopper. Remove it by pulling down.



3.Clean the filter
Use a vacuum cleaner to remove dust,or wash the filter with water.
After washing, dry the filter completely in the shade.



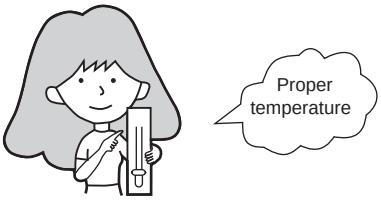
4.Attach the filter
Attach filter behind the stopper so that the "Front" indication is facing to the front. Make sure that it is completely behind the stopper, otherwise problems might occur.

5.Close the inlet grille.

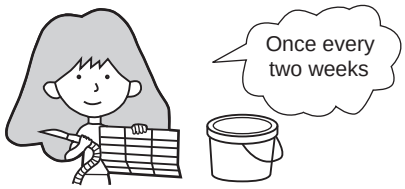
Maintenance

Better use of air conditioner

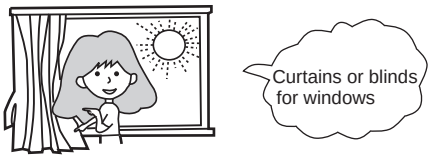
Proper room temperature.



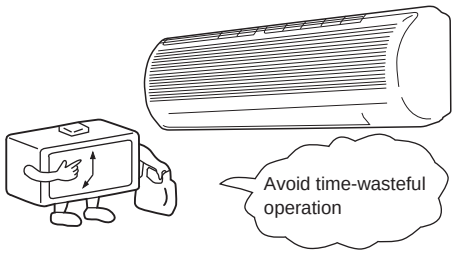
Cleaning of the air filter.



Closing of doors and windows during operation

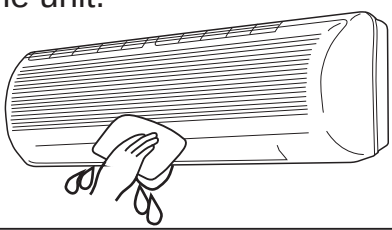


Effective use of the timer.

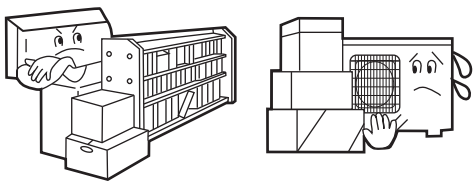


Never fail to observe the followings

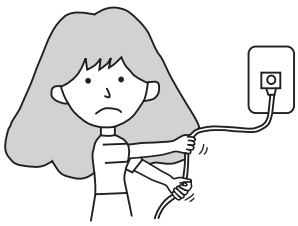
Do not sprinkle water over the unit.



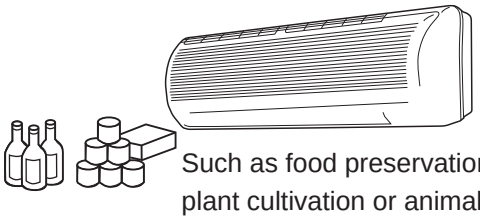
Do not block the inlet or outlet.



Do not pull power plug.



Do not use for other purposes.



Such as food preservation plant cultivation or animal breeding.

ELECTRICAL CONTROLL

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

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

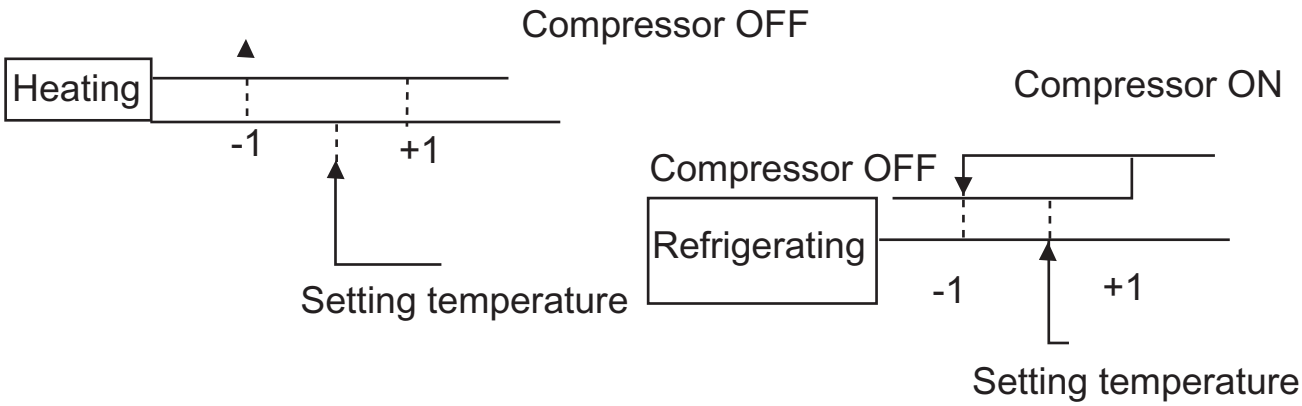
(1) Automatic running (applicable to fan-coil model)

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. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

a. Tr>23°C running refrigerating mode Ts=26 °C
b. Tr<23°C running heating mode Ts=23°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



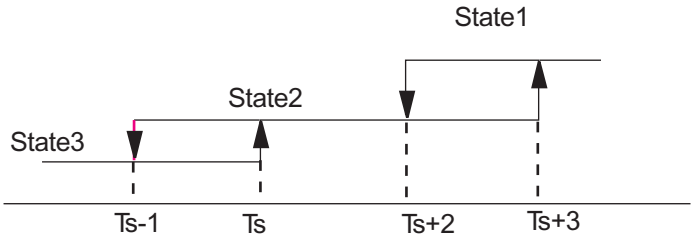
(3) Dehumidification running

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.Tr> Ts+2°C, compressor, outdoor fan run continuously, indoor fan runs as per setting wind speed (State 1);

b.Ts+2°C>Tr>Ts, 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.Tr <Ts, compressor, outdoor fan ceases, indoor fan runs in lower wind speed after 3 minutes ceases. (State 3)



(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°C, start lower wind speed;

b.If the temperature of indoor coil pipe is >38°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, and the compressor cease; if the indoor coil pipeís temperature Tp>23 °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 Tp-Tr<18°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, indoorunitís Tp <38°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 unitís Tp <38°C;

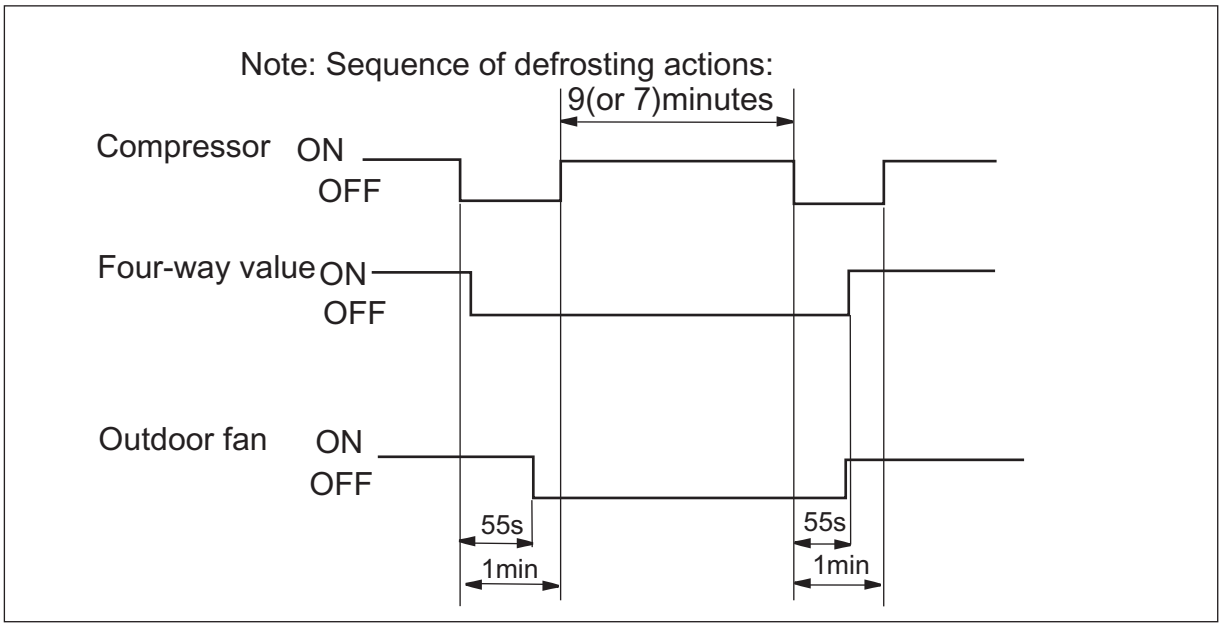
d.When the indoor unit is in the state of overload protection and the outdoor unit ceases, when the rerunning time of outdoor unit exceeds10 minutes, the accumulated running time of the compressor exceeds 45 minutes, the continuous running time of the compressor is over 20 minutes, andTp <38°C ;

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

(2).Defrosting finishing condition:

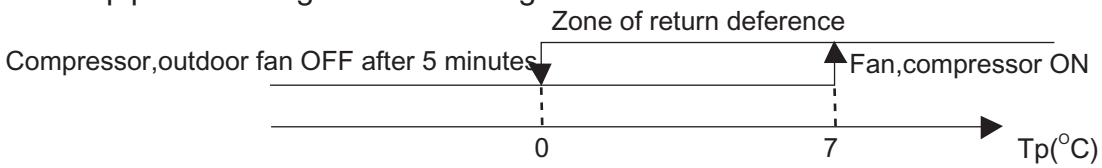
a . If the defrosting time exceeds 9 (for 12 models)or 7 (for 07,09 models) minutes, the original heating state will be resumed;

b. If the current of outdoor unitís compressor exceeds x.xA (different models have different currents); defrosting will be finished if either a or b is met.



(7) Freezing prevention function

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

a.65°C<Tp, outdoor fan ceases; Tp<60°C, outdoor fan resumes; the time from ceasing to resuming is about 45 seconds;

b.72°C<Tp, outdoor fan of compressor ceases after 5 seconds; Tp<64°C, compressor resumes after 3 minutes.

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

a. When <current of compressor>(1), outdoor fan ceases; current of compressor <(2), outdoor fan resumes;

b. When current of compressor>(3), compressor ceases.

(1)for 07 models the value is 3.6A,for 09 models the value is 4.6A,for 12 models the value is 6.5A
(2)for 07 models the value is 3.3A,for 09 models the value is 4.1A,for 09 models the value is 5.8A
(3)for 07 models the value is 5.8A,for 09 models the value is 7.5A,for 12 models the value is 10.5A

(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

Note: 1. Function setting: Pressing the SLEEP button on the remote control unit for 10 times within 5 seconds 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 with in 5 seconds 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.Tr>23°C, running refrigerating mode, Ts = 26°C;

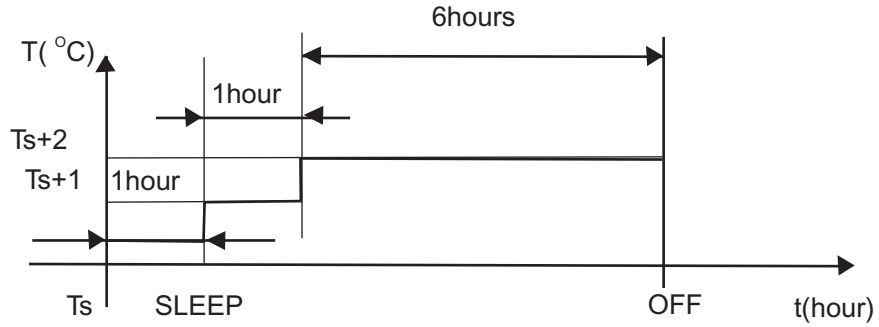
b.Tr<23°C, running heating mode, Ts = 23°C.

(13) Temperature compensation

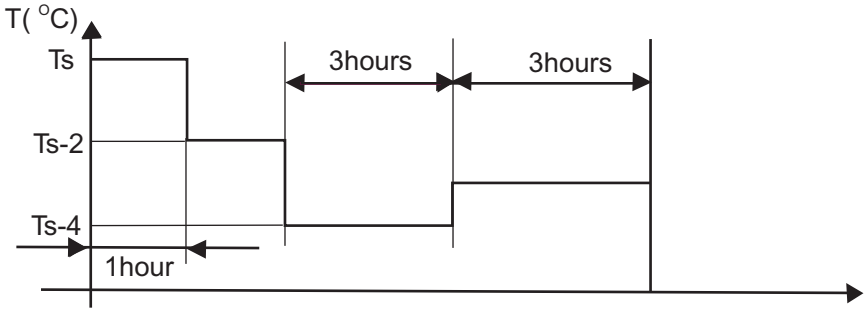
There is the function of automatic temperature compensation when heating, with heating temperature setting = Ts(remote setting) + 4°C

(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 ^{o}C;after another 1 hour,it will increase 1 ^{o}C again,and after 6hours,it will cease;after running for 1 hour under heating mode, the setting temperature will decrease 2 ^{o}C, after another 1 hour,it will decrease the 2^{o}C again,and after 3 hours,it will increase 1 ^{o}C,and after other 3 hours,it will cease.

TROUBLE SHOOTING

Trouble Shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	• When unit is stopped, it won't restart immediately until 3 minutes have elasped 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.
	Noise is heard. 	• 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.
	Smells are generated.	• This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.
	Mist or steam are blown out. 	• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
Multiple check	Does not work at all. 	• Is power plug inserted? • Is there a power failure? • Is fuse blown out?
	Poor cooling 	• Is the air filter dirty? Normally it should be cleaned every 15 days. • Are there any obstacles before intel 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℃~43℃.

Abnormality Diagnosing

Number	Trouble phenomenon	Description	Parts that may appear problems and the Cause	Prepared parts and tools	Applicable machine
1	Not work with remote controller	Use the remote controller to boot machine and it doesn't work	7805,transformer, piezo resistance, fuse,remote controller, receiver. If it can be booted by using manual emergency switch, that indicate the power cable and wiring board are electriferous，remote controller or receiver isn't well；else check whether piezo resistance ,fuse and 7805 are well。	7805,transformer, fuse, piezo resistance, remote controller, receive,avometer	invariable frequency split unit
2	Outdoor fan motor doesn't work	Outdoor fan motor doesn't run when cooling or heating	Optical SCR, indoor P.C. board. Check the 2# and 4# terminal block of indoor unit, if it has 220V voltage, wiring board is normal, then check whether the optical SCR is good, replace it if it has flaw；else check whether there are something wrong with connecting line，outdoor fan motor capacitor and coil assembly。	Optical SCR, indoor P.C. board , outdoor fan motor capacitor, outdoor fan motor,avometer	invariable frequency split unit
3	Indoor fan motor doesn't work	Indoor fan motor doesn't run when cooling or heating	Optical SCR，indoor P.C. board 。Check whether indoor fan motor has 80-170V voltage，if it has，wiring board is normal, then check whether the optical SCR is good, replace it if it has flaw；else check whether there are something wrong with connecting line，indoor fan motor capacitor and coil assembly。	Optical SCR，indoor P.C. board , indoor fan motor capacitor, indoor fan motor,avometer	invariable frequency split unit
4	Not heating	Cooling but not heating	Indoor P.C. board , four-way valve coil, body of four-way valve，Check the 2# and 3# terminal block of indoor unit, if it has 220V voltage when heating but no when cooling, then P.C. board is abnormal; else check whether four-way valve coil and the body of four-way valve are damaged。	Indoor P.C. board , four-way valve coil, body of four-way valve, avometer	invariable frequency split unit

5	Indoor unit make water	Oriented wind panel or drain pan makes water when used	Drain pan, drain hose. Check whether the indoor unit is installed horizontal, drain hose of indoor unit is leveled off ,the hole is over high ， filter and drain hose is dirty and walled up、drain pipe is underwater。	drain pan, drain hose	invariable frequency split unit
6	Compressor doesn't work	running indicator lights up，but compressor doesn't work	Indoor P.C. board , startup capacity for compressor, overheat protector, compressor. Check the 1# and 2# terminal block of indoor unit whether it has single AV，if not then examine the power relay of P.C. board ， else check overheat protector, startup capacity for compressor and compressor itself	Indoor P.C. board , startup capacity for compressor, overheat protector, compressor,avometer	invariable frequency split unit
7	The outdoor fan motor and compressor don't work	The running lamp of air conditioner lights but the outdoor fan motor and compressor don't run	Remote controller 、electrolytic capacitor of 2500UF、7805、outdoor heat exchanger sensor and ambient temperature sensor. Use temperature key of remote controller to watch how much times the timing lamp glitters and judge what's the trouble .If there is no glitter we should check the terminal block to see if there is AC voltage about 220V.Check the electrolytic capacitor of 2500UF and see if there is current about 310V.Examine the output of the 7805 and switch transformer together with the resistance of the sensor.	Remote controller ,electrolytic capacitor of 2500UF、7805、outdoor heat exchanger sensor and ambient temperature sensor、avometer	Little split unit of frequency conversion
8	The outdoor fan motor runs but the compressor doesn't run	The running lamp of air conditioner lights ,the outdoor fan motor works, but the compressor doesn't work	Power model、switch transformer、compressor. Check the temperature key of remote controller to watch how many times the timing lamp glitters and judge what's the trouble. Examine the two ends of PN to see if there is DC voltage about 310V.Four group DC power resource of 15V.Check the triphase coil assembly of the compressor and see if they are the same.	Power model、switch transformer、compressor、avometer	Little split unit of frequency conversion

9	Don't make heat	The air conditioner can refrigerate but can't make heat	Outdoor P.C. Board、4 way valve coil、 4 way valve body. Examine the CN204 at Outdoor P.C. Board and watch if there is 220V voltage .If there doesn't have we can judge that the P.C. Board is bad. If there has, we need to connect and check the whether the 4 way valve coil and the 4way valve body have been damaged .	Outdoor P.C. Board、4way valve coil、 4 way valve body、 avometer.	Little split unit of frequency conversion
10	Show error code E8	The machine doesn't work and shows error code E8	Multimeter negative generator、indoor P.C. board 、connecting and inserting lines .Check if the Multimeter negative generator is plane and the grounding (CF) is touching well, then examine not only whether the indoor P.C. Board and control board have been damaged or not but also the connecting lines are good.	Multimeter negative generator、indoor P.C. Board、control board 、grounding (CF)、avometer.	The series of frequency fixed cabinet type
11	Can't start	The air conditioner can't start	Transformer、indoor microcomputer plate、fuse. Check if the transformer has been burned. power wave filter、LX102.Check whether the fuse and indoor microcomputer plate have been damaged.	Transformer、power wave filter、indoor microcomputer plate、fuse、avometer.	The series of frequency fixed cabinet type
12	Show error code F11	When the air conditioner has run about 5minutes the indoor unit shows the error code F11.	The system pressure、outdoor P.C. Board、Power source voltage、power model、the connecting lines of compressor. The cause is that protective action has been taken when it runs with large burden, there is more refrigerant than it should be .Examine the outdoor P.C. Board、Power source voltage、power model and see whether they have been damaged and the connecting lines touch well, if not, adjust it to be normal.	outdoor P.C. Board、Power source voltage、power model .	The machine of frequency conversion split unit

INSTALLATION

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

Drawing for the installation of indoor and outdoor units

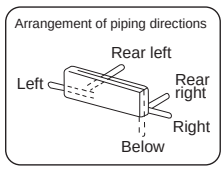
The models adopt HFC free refrigerant R410A

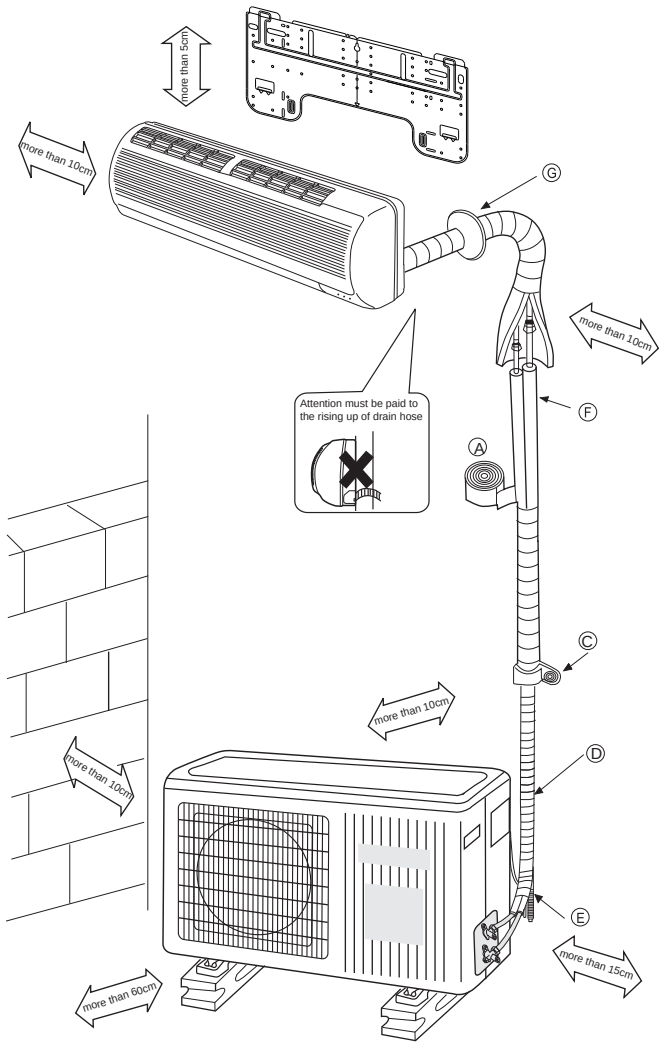
Accessory parts

No.	Accessory parts	Number of articles
①	Remote controller	1
②	R-03 dry battery	2
③	Mounting plate	1
④	Φ4X25 Screw, Plastic cap	4
⑤	Drain-elbow	1
⑥	Pipe supporting plate	1

Optional parts for piping

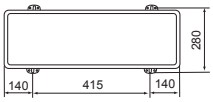
Mark	Parts name
Ⓐ	Non-adhesive tape
Ⓑ	Adhesive tape
Ⓒ	Saddle(L.S) with screws
Ⓓ	Connecting electric cable for indoor and outdoor
Ⓔ	Drain hose
Ⓕ	Heating insulating material
Ⓖ	Piping hole cover



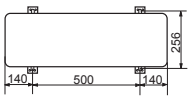


※ The marks from Ⓐ to Ⓖ in the figure are the parts numbers.

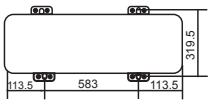
※ The distance between the indoor unit and the floor should be more than 2m.



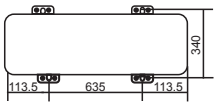
Floor fixing dimensions of the outdoor unit (Unit:mm)



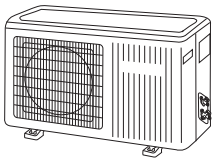
Floor fixing dimensions of the outdoor unit (Unit:mm)



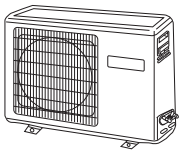
Floor fixing dimensions of the outdoor unit (Unit:mm)



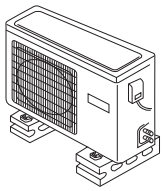
Floor fixing dimensions of the outdoor unit (Unit:mm)



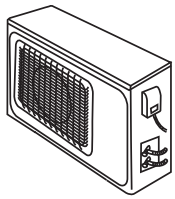
HSU-07HC03/R2 HSU-07HE03/R2
HSU-09HC03/R2 HSU-12HE03/R2
HSU-09HE03/R2 HSU-07HD03/R2
HSU-09HD03/R2 HSU-12HD03/R2



HSU-12HC03/R2
HSU-14HB03/R2



HSU-18HB03/R2



HSU-22HD03/R2
HSU-22HC03/R2
HSU-22HB03/R2

Fixing of outdoor unit

- Fix the unit to concrete or block with bolts(ϕ10mm) 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.

Selection of Installation Place

Indoor 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 lm 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.

Outdoor Unit

- 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 ⇦⇨ 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.

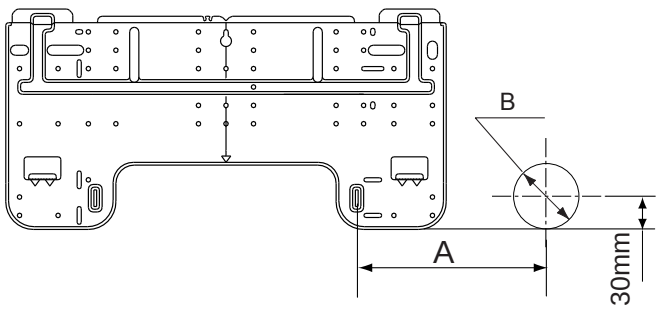
	For 07,09,12	For 14,18,22
Liquid pipe (ϕ)	6.35mm(1/4")	6.35mm(1/4")
Gas pipe (ϕ)	9.52mm(3/8")	12.7mm(1/2")

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



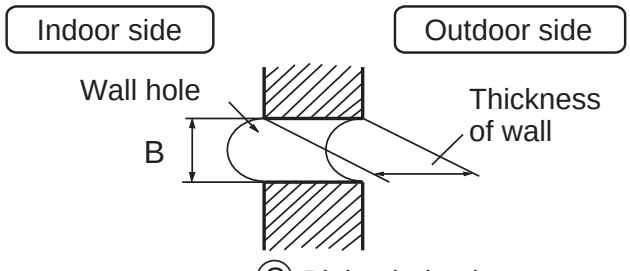
	Amm	Bmm
HSU-07HE03/R2 HSU-09HE03/R2 HSU-12HE03/R2 HSU-07HC03/R2 HSU-09HC03/R2 HSU-12HC03/R2 HSU-14HB03/R2 HSU-18HB03/R2 HSU-07HD03/R2 HSU-09HD03/R2 HSU-12HD03/R2	145	Ø60
HSU-22HD03/R2 HSU-22HB03/R2 HSU-22HC03/R2	150	Ø70

When the mounting plate is fixed 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 B 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

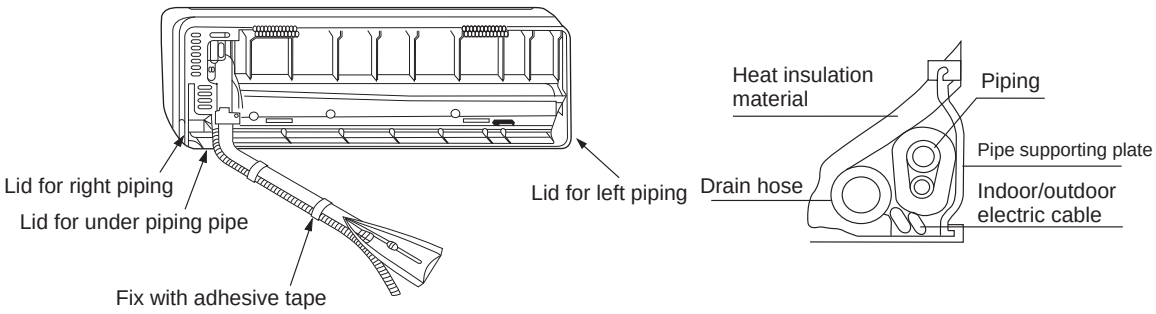
Drawing of pipe

[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



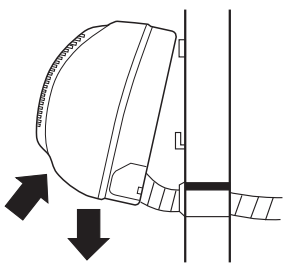
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[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

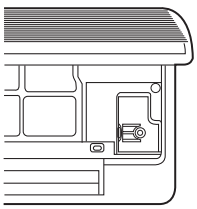
- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to side to verify its secure fixing.
- In order to fix the body onto the mounting plate,hold up the body aslant from the underside and then put it down perpendicularly.



4.Connecting the indoor/outdoor Electric Cable

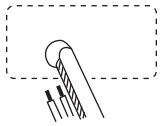
Removing the wiring cover

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



Indoor unit

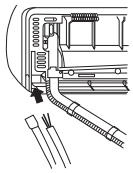
When connecting the cable after installing the indoor unit



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.

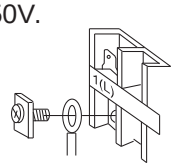
When connecting the cable before installing the indoor unit

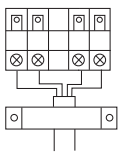
- Insert the cable from the back side of the unit, then pull it out on the front side.
- Loosen the screws and insert the cable ends fully into terminal block, then tighten the screws.
- Pull the cable slightly to make sure the cables have been properly inserted and tightened.
- After the cable connection,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

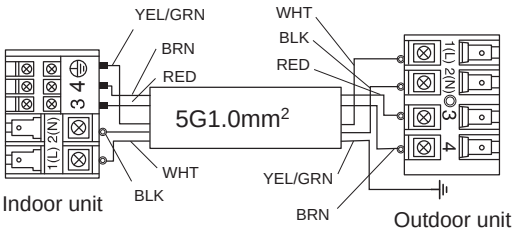


Note: When connecting the cable, confirm the terminal number of indoor and outdoor units carefully.
If wiring is not correct, proper operation can not be carried out and will cause defect.

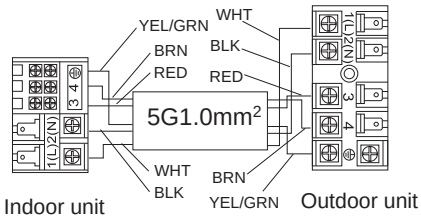
1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F.
2. If the fuse on PC board is broken please change it with the type of T. 3.15A/250V.
3. The wiring method should be in line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



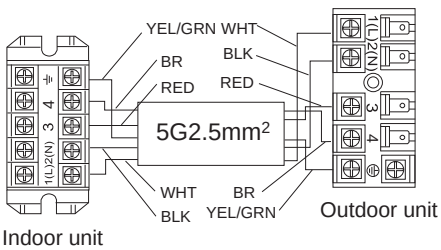




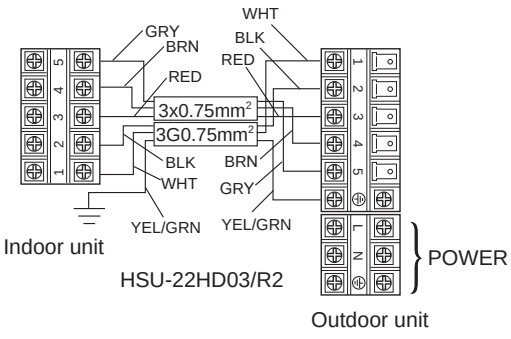
HSU-07HC03/R2 HSU-09HE03/R2
HSU-09HC03/R2 HSU-12HE03/R2
HSU-07HE03/R2 HSU-09HD03/R2
HSU-07HD03/R2 HSU-12HD03/R2



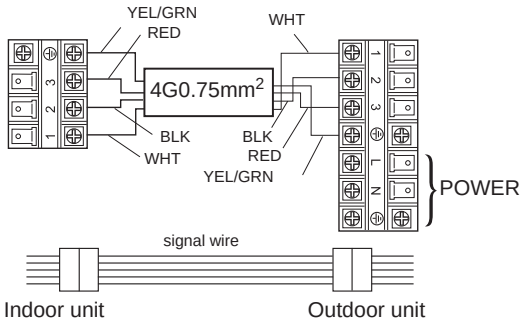
HSU-12HC03/R2



HSU-14HB03/R2
HSU-18HB03/R2



HSU-22HD03/R2



HSU-22HB03/R2
HSU-22HC03/R2

Power cable:
-mod 07-09-12: 3G1.5mm²
-mod 14-18-22: 3G2.5mm²
Signal wire: AVVR 5x0.33mm²

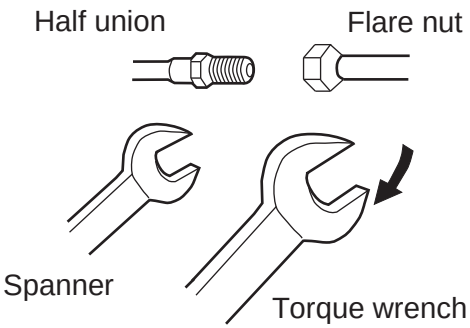
Outdoor unit

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 for R410A.
- 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
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 and indoor unit using a vacuum pump,then charge additional refrigerant.

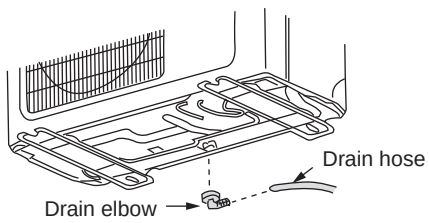
3.Connection

- 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.

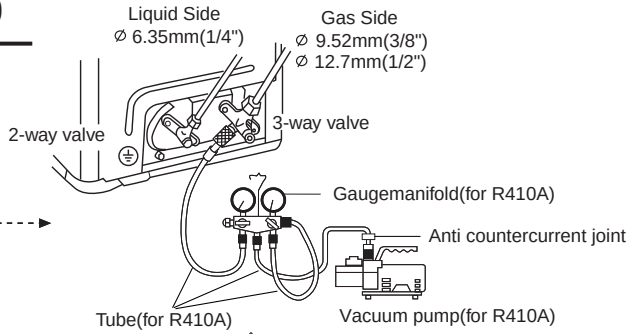
Note: Only for heat pump unit.



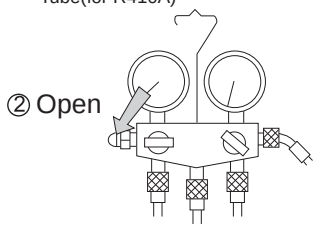
Outdoor unit

5.Purging Method:To use vacuum pump

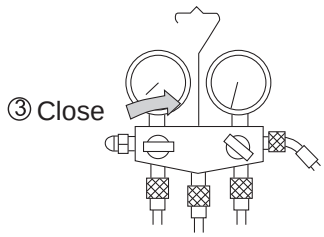
① Detach the service port's cap of 3-way valve, the valve rod's cap for 2-way valve and 3-way's, connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.



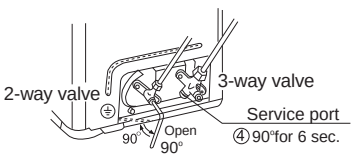
② Open the handle at low in gaugemanifold, operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check ① again.

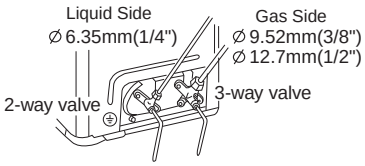


③ Vacuumize for over 15min. And check the level gauge which should read -0.1 MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump.
Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, the return to the beginning of ③..



④ Open the valve rod for the 2-way valve to an angle of anticlockwise 90 degrees.
After 6 seconds, close the 2-way valve and make the inspection of gas leakage.





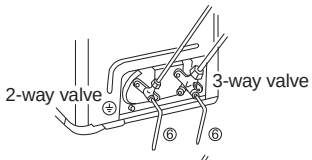
HSU-12HC03/R2
HSU-14HB03/R2

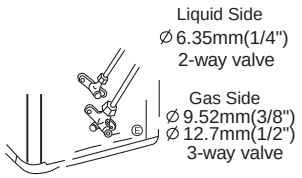
⑤ No gas leakage?

In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed ⑥ steps.

If it does not stop gas leakage, discharge whole refrigerants from the service port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder

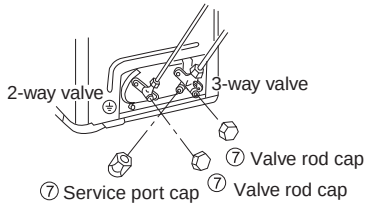
⑥ Detach the charge hose from the service port, open 2-way valve and 3-way. Turn the valve rod anticlockwise until hitting lightly.





HSU-07HC03/R2 HSU-09HD03/R2
HSU-09HC03/R2 HSU-12HD03/R2
HSU-07HE03/R2 HSU-18HB03/R2
HSU-09HE03/R2 HSU-22HB03/R2
HSU-12HE03/R2 HSU-22HC03/R2
HSU-07HD03/R2 HSU-22HD03/R2

⑦ To prevent the gas leakage, turn the service port's cap, the valve rod's cap for 2-way valve and 3-way's a little more than the point where the torque increases suddenly.



⑧ After attaching the each caps, check the gas leakage around the caps.

CAUTION:

1.If the refrigerant of the air conditioner leaks, it is necessary to discharge all the refrigerant. Vacuumize first, then charge the liquid refrigerant into air conditioner according to the amount marked on the name plate.

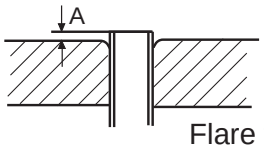
2.Please do not let other cooling medium, except specified one (R410A), or air enter into the cooling circulation system. Otherwise, there will be abnormal high pressure in the system to make it crack and lead to personal injuries.

1.Power Source Installation

- The power source must be exclusively used for air conditioner. (Over I0A)
- 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

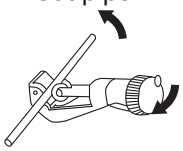
- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.



Flare tooling die

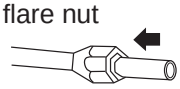
	Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type)	Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm	1.5~2.0mm

1.Cut pipe

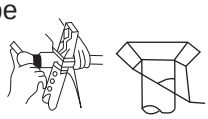


2.Remove burs

3.Insert the flare nut



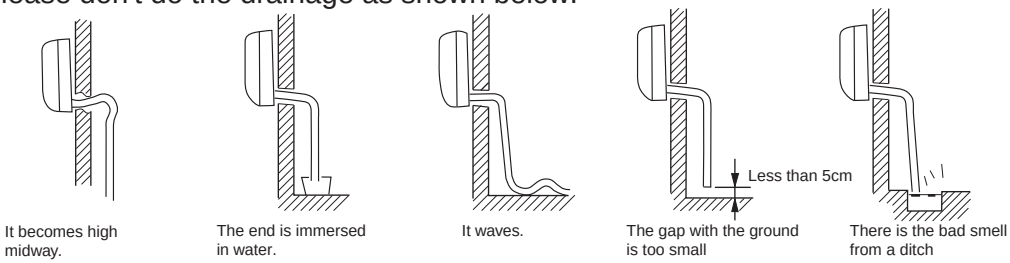
4.Flare pipe



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.



It becomes high midway. | The end is immersed in water. | It waves. | The gap with the ground is too small | There is the bad smell from a ditch

- 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.

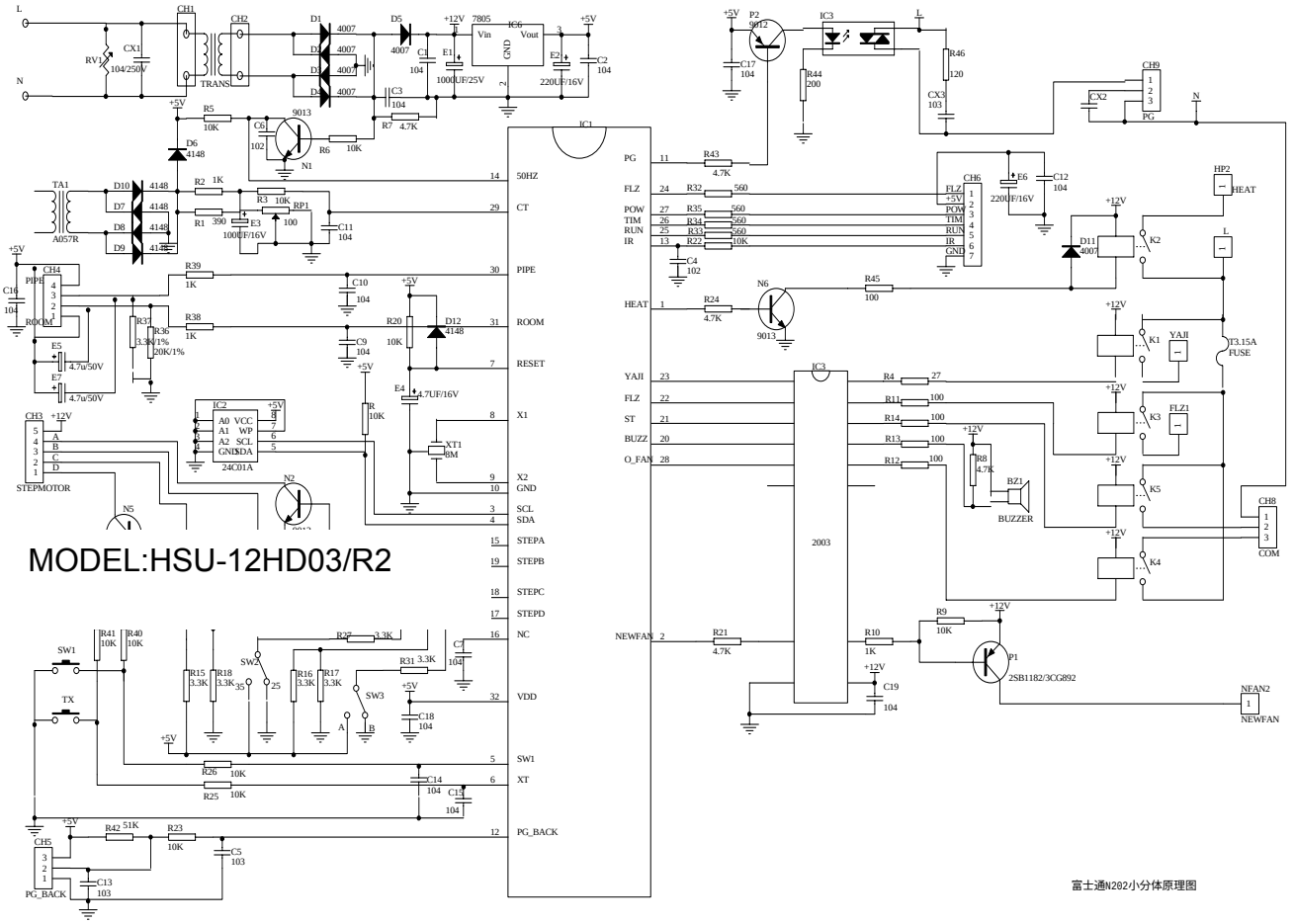
Check Items for Test Run

☐ Put check mark ✓ in boxes

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

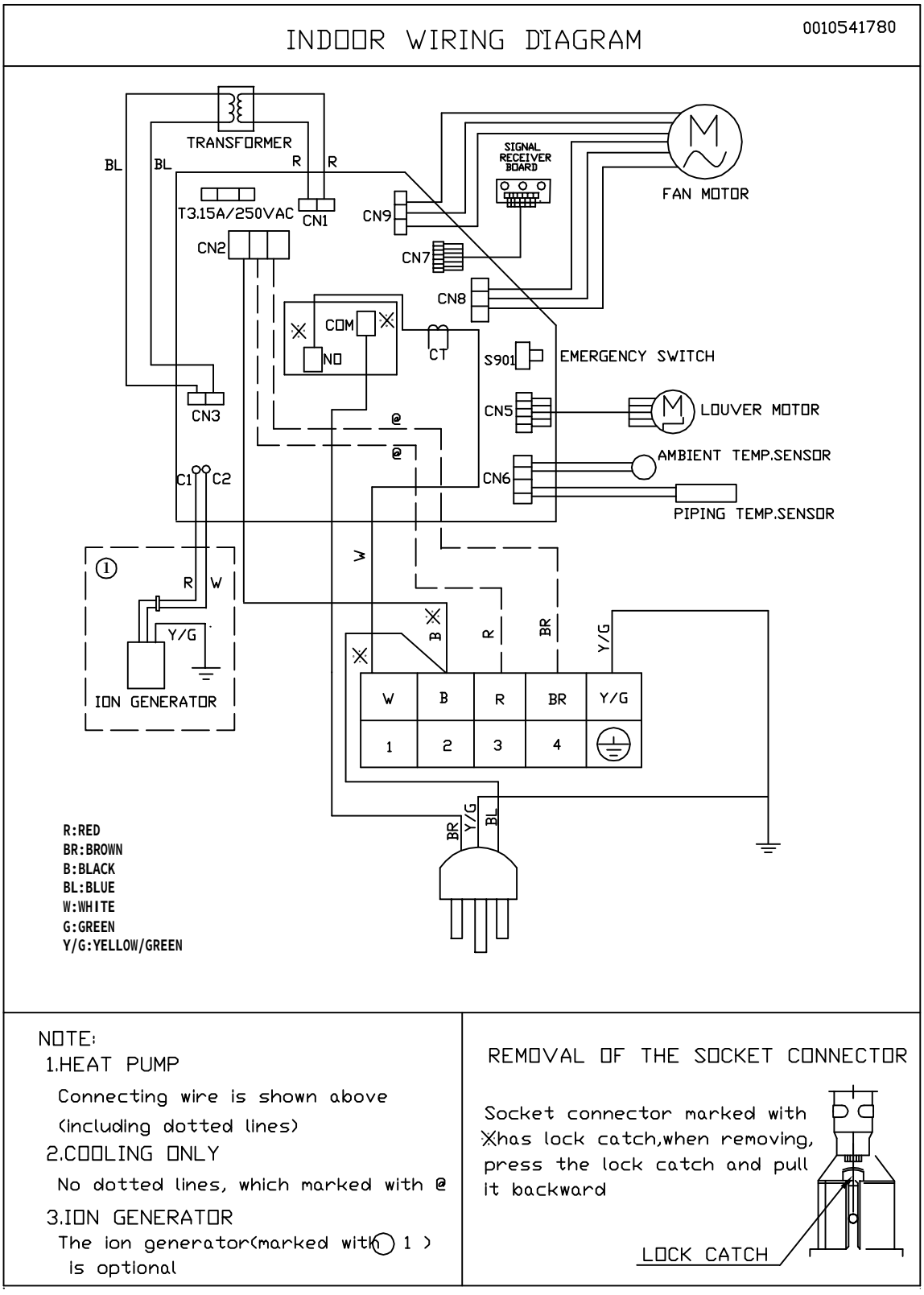
CIRCUIT DIAGRAM

HSU-12HD03/R2

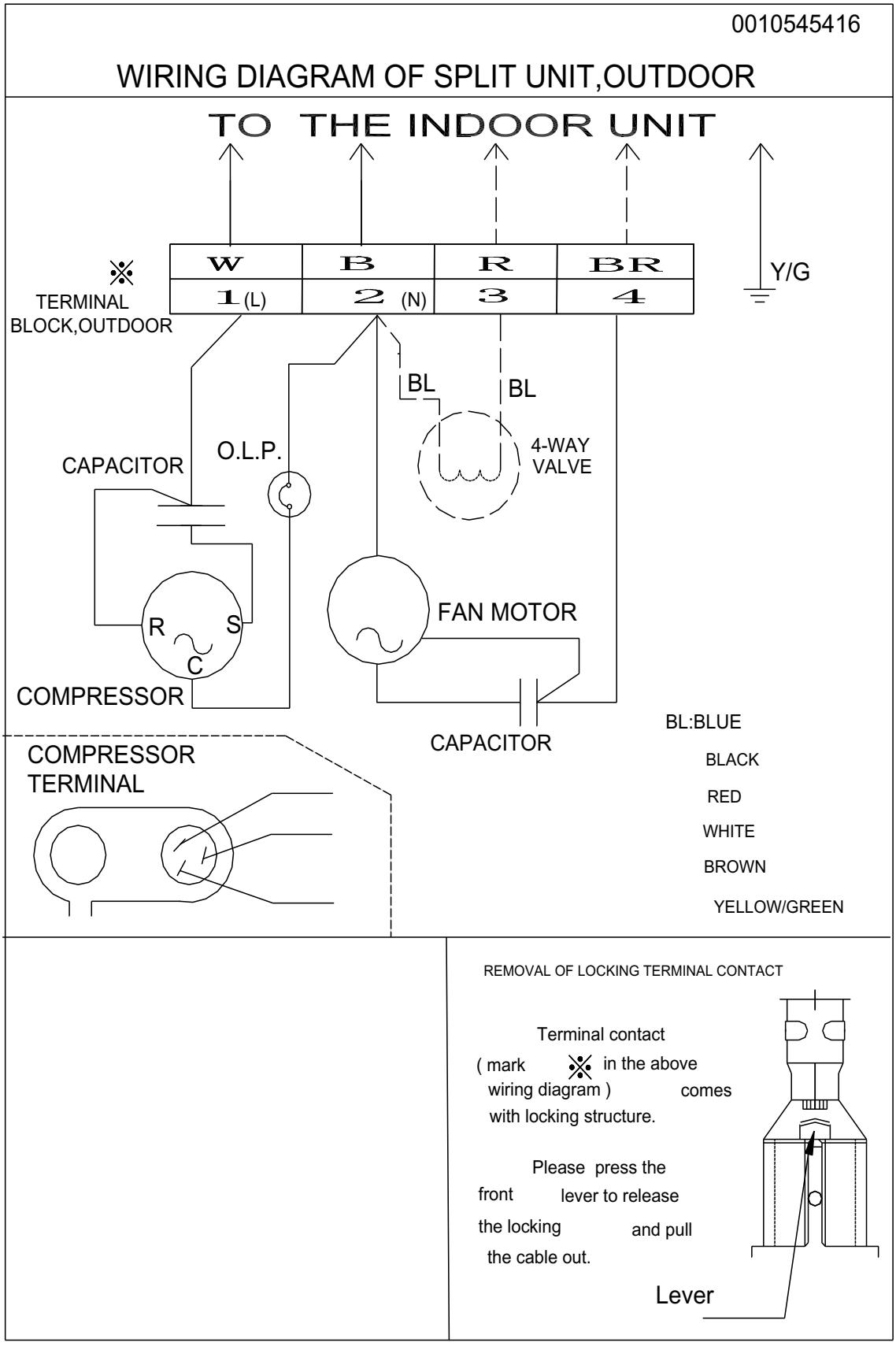


Wiring diagram

WIRING DIAGRAM FOR INDOOR UNIT:(HSU-12HD03/R2)



WIRING DIAGRAM FOR OUTDOOR UNIT:(HSU-12HD03/R2)



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