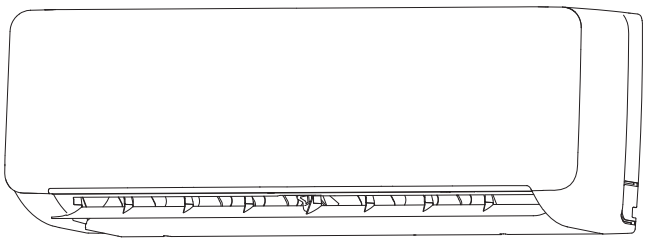
Operation Installation & Maintenance Manual

VRF INDOOR UNIT



Type	Model
Wall-Mounted Type	CHV-07WTU CHV-09WTU CHV-12WTU CHV-15WTU CHV-18WTU CHV-24WTU CHV-28WTU

IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS HEAT-PUMP AIR CONDITIONER. KEEP THIS MANUAL FOR FUTURE REFERENCE.

ORIGINAL INSTRUCTIONS

IMPORTANT NOTICE

- Our company pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- Our company cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purposes such as drying clothes, refrigerating foods or for any other cooling or heating process.
- The installer and system specialist shall secure safety against leakage according to local regulations or standards. The following standards may be applicable if local regulations are not available. British Standard, BS4434 or Japan Standard, KHKS0010.
- This product is a partial unit air conditioner, complying with partial unit requirements of this International Standard, and must only be connected to other units that have been confirmed as complying to corresponding partial unit requirements of this International Standard.
- No part of this manual may be reproduced without written permission.
- Signal words (DANGER, WARNING and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

⚠DANGER	:	Immediate hazards which will result in severe personal injury or death.
⚠WARNING	:	Hazards or unsafe practices which could result in severe personal injury or death.
⚠CAUTION	:	Hazards or unsafe practices which could result in minor personal injury or product or property damage.
NOTE	:	Useful information for operation and/or maintenance.

- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, safety, caution and operating signs should be added in the native language.
- If you have any questions, contact your distributor or dealer of our company.
- This manual gives a common description and information for this heat pump air conditioner which you operate as well as for other models.
- The lowest moving parts should be mounted at least 8ft.(2.4m) above floor or grade level.
- Refer to Installation & Maintenance Manual of outdoor unit for temperature operation range.
- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

The model pictures in this manual are only for illustration. Please refer to the actual appearance.

IMPORTANT NOTICE

Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage.
  Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.

The standard utilization of the unit shall be explained in these instructions.
Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.
Please contact your local agent, as the occasion arises.
Our company's liability shall not cover defects arising from the alteration performed by a customer without Our company's consent in a written form.

The Company is committed to continuous product improvement. We reserve the right, therefore, to alter the product information at any time and without prior announcement.

TABLE OF CONTENTS

Section1 Operation Manual

Section2 Installation & Maintenance Manual

Section1 Operation Manual

1. Safety Summary

⚠DANGER

- **Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.**
- **Do not touch or adjust safety devices inside the indoor or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.**
- **Do not open the service cover or access the indoor or outdoor units without turning OFF the main power supply.**

⚠WARNING

- **Refrigerant leakage can cause difficulty with breathing due to insufficient air. If leakage occurs, turn OFF the main switch, put out fire at once and contact your service contractor.**
- **Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately 3.3ft.(1m) from the system.**
- **If earth leakage breaker (ELB) or fuse is often activated, stop the system and contact your service contractor.**

⚠CAUTION

- **The appliance is not to be used by children or person with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**
- **Children should be supervised that they do not play with the appliance.**
- **The appliance should not be installed in the laundry.**
- **If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or qualified persons in order to avoid a hazard.**

NOTE

It is recommended that the room be ventilated every 3 to 4 hours.

2. System Description

A maximum total capacity of 130% and a minimum total capacity of 50% can be chosen by combination of the indoor units (Table 2.1).
The heat pump air conditioner is designed to offer cooling, heating, dry and fan operations.
These operation modes are controlled by the remote control switch (optional).

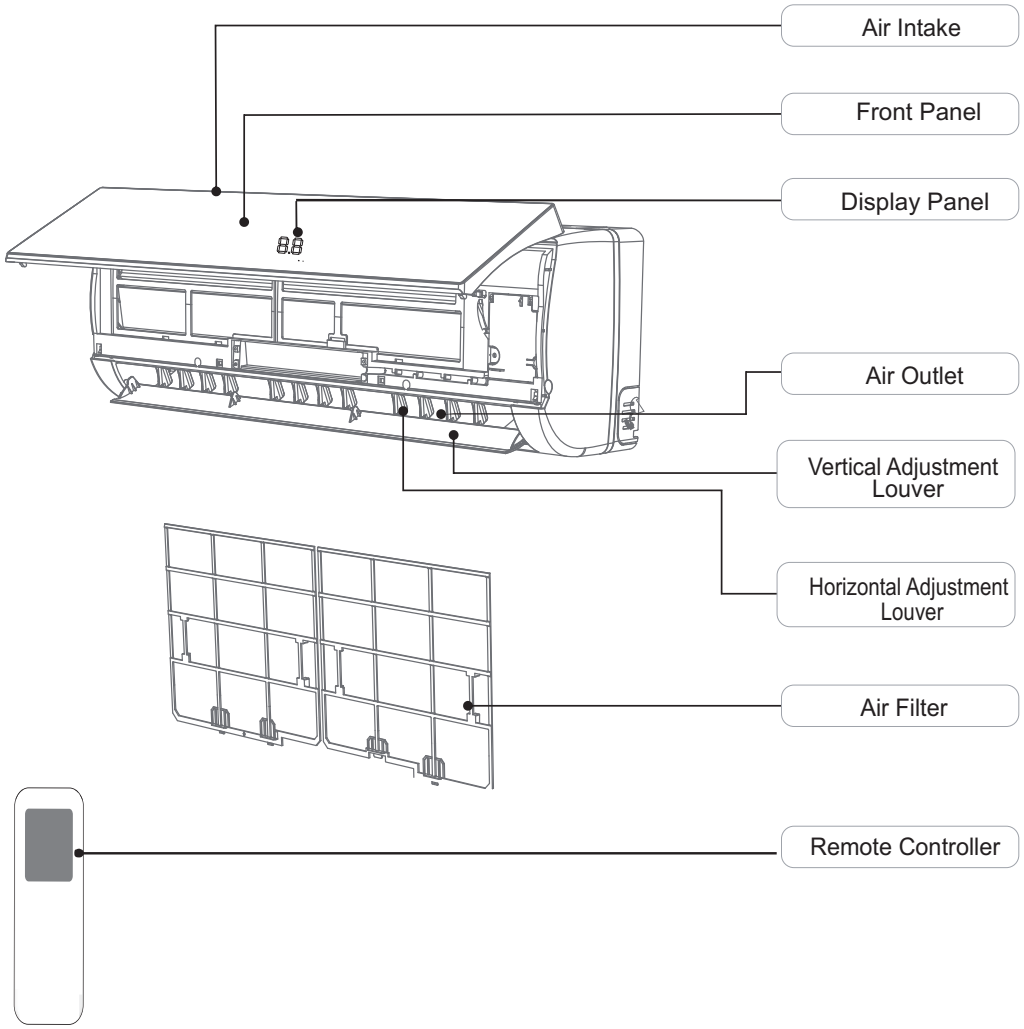
Table 2.1 Indoor Unit Type List

Indoor Unit Type	Nominal Capacity(kBtu/h)						
	07	09	12	15	18	24	28
Wall-Mounted Type	○	○	○	○	○	○	○

○ : Available

2.1 Identification of Parts

Fig.2.1 External Parts of the System



NOTE

Figures in the manual are only simple representation of the appliance.
It may not comply with the appearance of the air conditioner you purchased.

3. Remote control Switch

Refer to the control instruction manual for operation details.

4. Signal Receptor

Display introduction

88 Temperature indicator 1

Display set temperature.
It shows FC after 200 hours of usage as reminder to clean the filter.
After filter cleaning press the filter reset button located on the indoor unit behind the frontpanel in order to reset the display.

Running indicator 2

It lights up when the AC is running.

It flashes during defrosting.

Sleep indicator 3

It lights up in sleep mode.

Timer indicator 4

It lights up during set time.

Signal Receptor 5

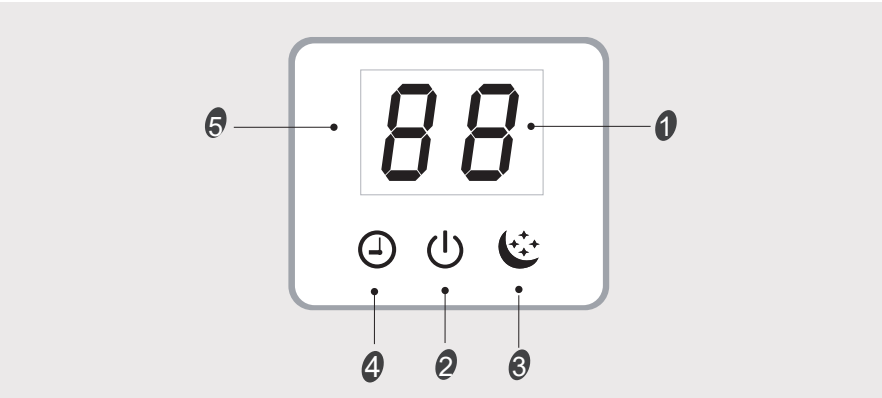


Fig.4.1 Signal Receptor

NOTE

To operate the room air conditioner, aim the remote controller to the signal receptor.
The remote controller will operate the air conditioner at a distance of up to 16.5ft.(5m) when pointing at signal receptor of indoor unit.
Signal display lights for 10 seconds, when operate the wireless remote control switch.

5. Before Operation

⚠CAUTION

- **Supply electrical power to the system for approximately 12 hours before start-up after long shutdown. Do not start the system immediately after power supply, it may cause compressor failure, because the compressor is not heated well.**
- **Make sure that the outdoor unit is not covered with snow or ice. If covered, remove it by using hot water (approximately 122°F(50°C)).**
- **If the water temperature is higher than 122°F(50°C), it will cause damage to plastic parts.**

When the system is started after a shutdown longer than approximately 3 months, it is recommended that the system be checked by your service contractor.

Turn OFF the main switch when the system is stopped for a long period of time. If the main switch is not turned OFF, electricity is consumed, because the oil heater is energized during compressor stopping.

6. Setting of Automatic Swing Louver

When the " louver " switch is pressed, the swing louver starts its operation. When " " is moving, it indicates the operation of the louver continuously. When the swinging operation of the louver is not required, press the " louver " switch again. The louver is stopped at an angle indicated by the direction of this mark " ".

NOTE

1. There exists a time lag between the actual angle of the louver and the liquid crystal indication.
2. When the " louver " switch is pressed, the louver will not stop immediately. The louver will move one extra swing at the next.
3. Discharge air angle is fixed at horizontal position during start-up of heating operation and defrosting operation. When the outlet air temperature reaches higher than approximately 30°C, swinging of louvers is started.
4. During the defrosting operation, fan stops running.

⚠CAUTION

Do not turn the air louver by hand. If moved, the louver mechanism will be damaged.

7. Automatic Control

The system is equipped with the following functions.

- **Three Minute Guard** (Enforced Stoppage)
  The compressor remains off for at least 3 minutes once it has stopped. If the system is started within approximately 3 minutes after it has stopped, the RUN indicator is activated. However, the cooling operation or the heating operation remains off and does not start until after 3 minutes has elapsed.
- **Three Minute Guard** (Enforced Operation)
  If all indoor units of the system are Thermo-OFF within approximately 3 minutes after compressor has started, compressor is operated during 3 minutes continuously. However, if all indoor units of the system are stopped by remote control switch, compressor is stopped.
- **Oil Return Operation**
  If an indoor unit is stopped more than 2 hours continuously, this function is operated during a few minutes.
  It has this function to prevent to accumulate in the heat exchanger of stoppage indoor unit at cooling operation.
- **Frost Prevention During Cooling Operation**
  When the indoor unit is operated at low discharge air temperature, the cooling operation may be changed to fan operation for a while to avoid frost formation on the indoor heat exchanger.
- **Hot Start During Heating Operation**
  To prevent cold air discharge in the room, the fan speed is controlled from the slow position and the low position and then to the set position according to the discharge air temperature. At this time the louver is fixed horizontally.
- **Slow Air Control During Defrosting Operation**
  When the outdoor unit is performing the automatic defrosting operation, the indoor fan is stopped and the louver is fixed horizontally.
- **Cooling of Indoor Unit**
  When the heating operation is stopped, the indoor fan operation is maintained at the slow position for the maximum of 2 minutes to lower temperature of the inside unit.
- **Automatic Defrosting Cycle**
  When the heating operation is stopped by pressing RUN/STOP switch, frosting on the outdoor unit is checked and the defrosting operation may be performed for the maximum of 10 minutes.
- **Prevention of Overload Operation**
  When the outdoor temperature is high during heating operation, heating operation is stopped due to activation of the outdoor thermistor until the temperature becomes low.

8. Filter Cleaning

⚠CAUTION

Do not operate the system without the air filter to protect the indoor unit heat exchanger against being clogged.

Turn OFF the main power switch before taking out the filter. (The previous operation mode may appear.)

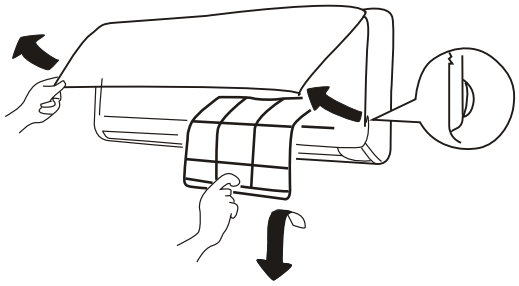
8.1 Taking Out the Filter

The indication, “FILTER” is shown on the display of the remote control switch after approximately 1,200 hours of operation.

Take out the air filter according to the following steps.

Step 1
Open the air inlet grille.

Step 2
Take out the air filter from the air inlet grille.



8.2 Clean the Filter

Clean the air filter according to the following steps.

Step 1
Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

⚠CAUTION

Do not use hot water higher than approximately104°F.

Step 2
Dry the air filter in the shade after shaking off water.

8.3 Reset of Filter Indication

After cleaning the air filter, press the" RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

9. Troubleshooting

⚠CAUTION

- **When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.**
- **When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.**

9.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.
(1) Unit Model Name
(2) Content of Trouble
(3) Alarm Code No. on Liquid Crystal Display

9.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

9.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

9.4 This is Not Abnormal

- **Smells from Indoor Unit**
  Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.
- **Sound from Deforming Parts**
  During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.
- **Steam from Outdoor Heat Exchanger**
  During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in steam.
- **Dew on Air Panel**
  Prolonged cooling operations at high humidity (above 80°F(27°C)/80% RH) will result in condensation on the air panel.
- **Refrigerant Flow Sound**
  While the system is being started or stopped, sound from the refrigerant flow may be heard.

Section2 Installation & Maintenance Manual

1. Safety Summary

⚠WARNING

- **Do not perform installation work, refrigerant piping work, drain piping and electrical wiring connection without referring to the installation manual.**
- **Check that the ground wire is securely connected.**
- **Connect a fuse of specified capacity.**
- **Users shall not change power lines by themselves, please be replaced by professional maintenance staffs.**

⚠CAUTION

Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 9.8ft.(3m) from strong electromagnetic wave radiators such as medical equipment.

2. Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool
1	Handsaw	11	Spanner
2	Screwdriver	12	Charging Cylinder
3	Vacuum Pump	13	Gauge Manifold
4	Refrigerant Gas Hose	14	Cutter for Wires
5	Megohmmeter	15	Gas Leak Detector
6	Copper Pipe Bender	16	Leveller
7	Manual Water Pump	17	Clamper for Solderless Terminals
8	Pipe Cutter	18	Hoist (for Indoor Unit)
9	Brazing Kit	19	Ammeter
10	Hexagon Wrench	20	Voltage Meter

NOTE

About vacuum pump, gas hose, charging cylinder, gauge manifold, please use suitable equipments for R410A respectively. Do not mix other refrigerant.

3. Transportation and Handling

3.1 Transportation

Transport the product as close to the installation location as possible before unpacking.

⚠CAUTION

Do not put any material on the product.

3.2 Handling of Indoor Unit

⚠WARNING

Do not put any irrelevant material into the indoor unit and check to ensure that none exists in the indoor unit before the installation and test run. Otherwise, a fire or failure, etc. may occur.

⚠CAUTION

Be careful not to damage on insulation materials of unit's surface when lifting.

4. Indoor Unit Installation

⚠DANGER

Do not install the indoor unit in a flammable environment to avoid fire or an explosion.

⚠WARNING

- **Check to ensure that the wall and hanging board is strong enough. If not strong enough, the indoor unit may fall down.**
- **Do not install the indoor unit in the outdoor. If installed outdoors, an electric hazard or electric leakage will occur.**

It is recommended that indoor units be installated higher than 8ft.(2.4m) from the floor level.

4.1 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Table 4.1 Factory-Supplied Accessories

Accessory	Quantity	Purpose
Mounting Bracket	1	For Mounting Indoor Unit
Wireless Remote Control Switch	1	For Control the Indoor Unit
Screw	6	For Mounting Bracket
Screw Cover	1 (07-12) 3 (15-28)	Cover screw hole
Thermal Insulation Pipe	1	For Refrigerant Pipe
Plug	6	For Mounting Bracket
Refirgerant Pipe Connection	2	For Refrigerant Pipe
Change-over tube	1 (07-12)	For Piping Connection Kit (Gas) (1/2in.(φ12.7mm)→3/8in.(φ9.53mm))

4.2 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in Fig. 4.1.

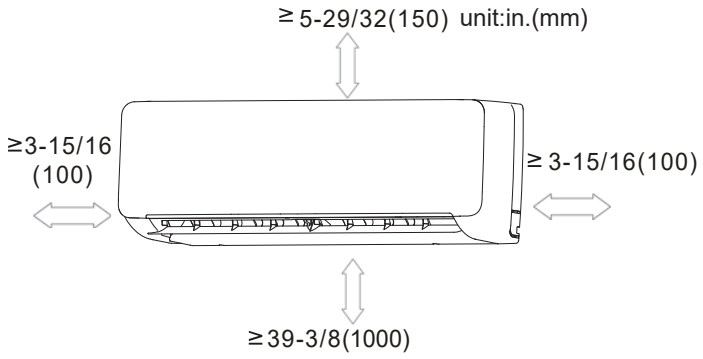


Fig. 4.1 Operation and Maintenance Space

unit:in.(mm)

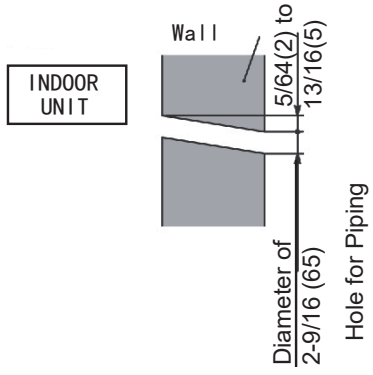


Fig. 4.2 Hole for Piping in the Wall

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.

  The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.

  (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.

  (B) Install the indoor unit and components as far as practical or at least 9.8ft.(3m) from the electromagnetic wave radiator.

  (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.

  (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

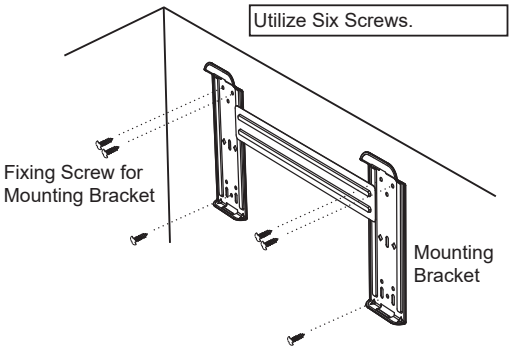
4.3 Installation

The dimensions of the mounting bracket and the unit installation are indicated in Fig. 4.3.

4.3.1 Mounting Bracket onto Wall

When the mounting bracket is directly attached to a wood wall or a concrete wall, check to ensure of 0.45kip(2000N).

Mounting on a Concrete Wall or a Concrete Block Wall: Attach the mounting bracket to the wall with anchor bolts as shown in Fig. 4.4.



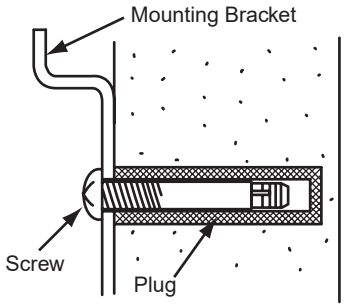
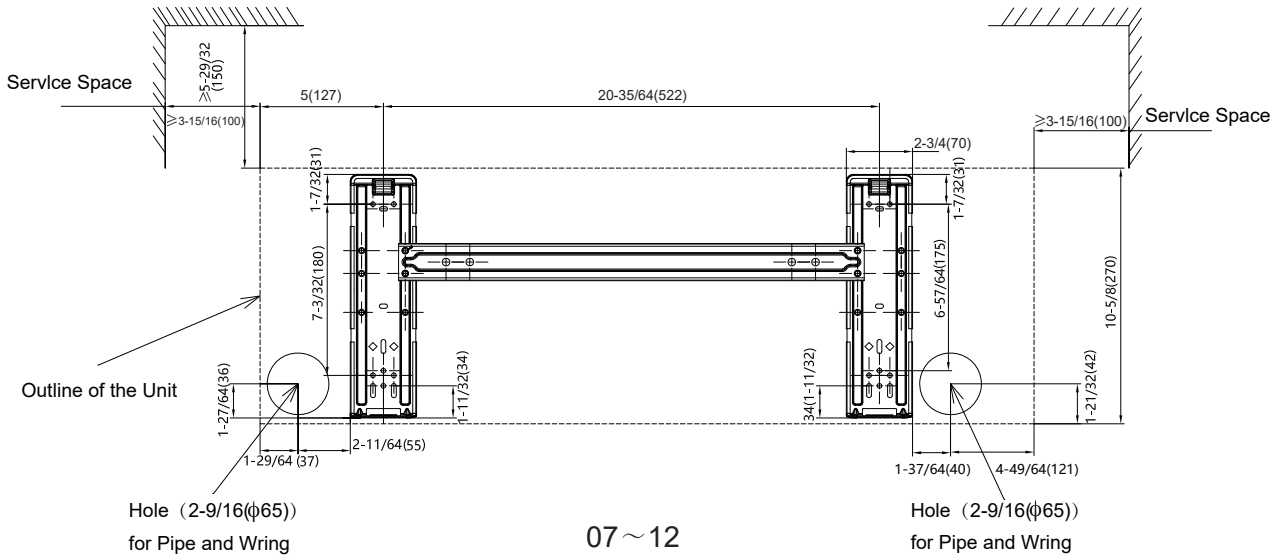


Fig. 4.4 Mounting on Concrete Wall or Concrete Block Wall

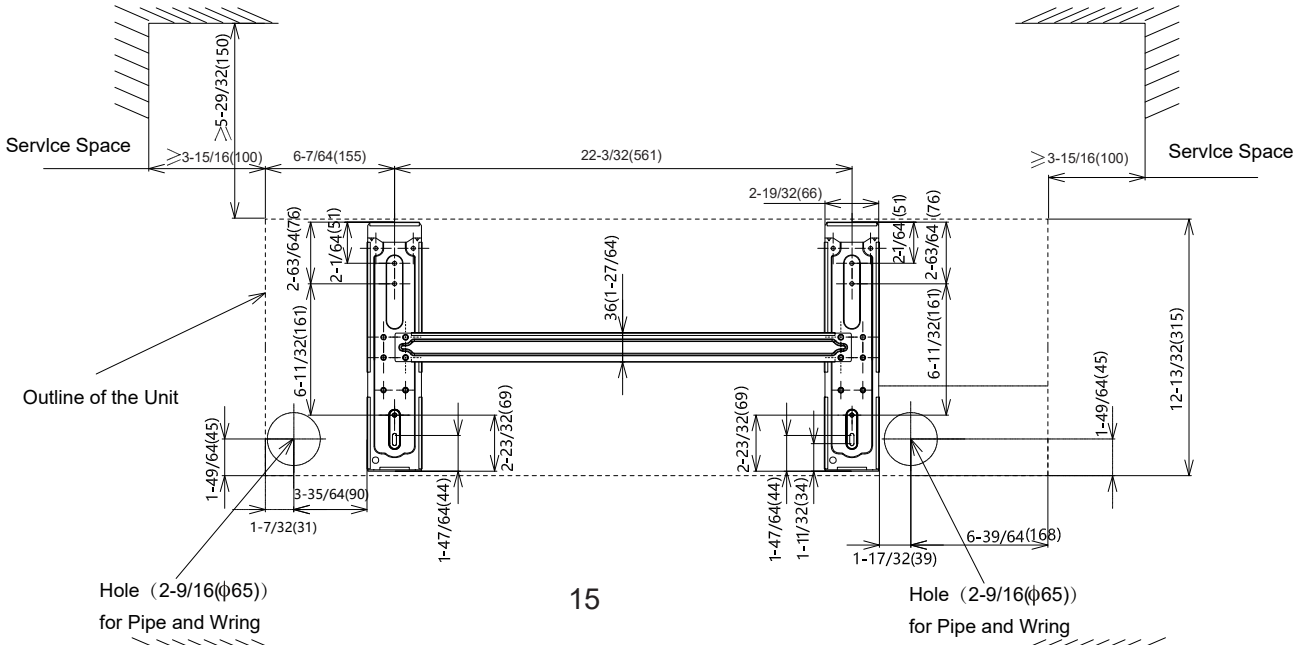
NOTE

The mounting bracket should be installed so that the side of drain piping connected is slightly (about 1/8in.(3mm)) lower than the other side, in order to avoid the incorrect position of the drain discharge. (Drain piping connection can be performed both right side and left side of the unit.)

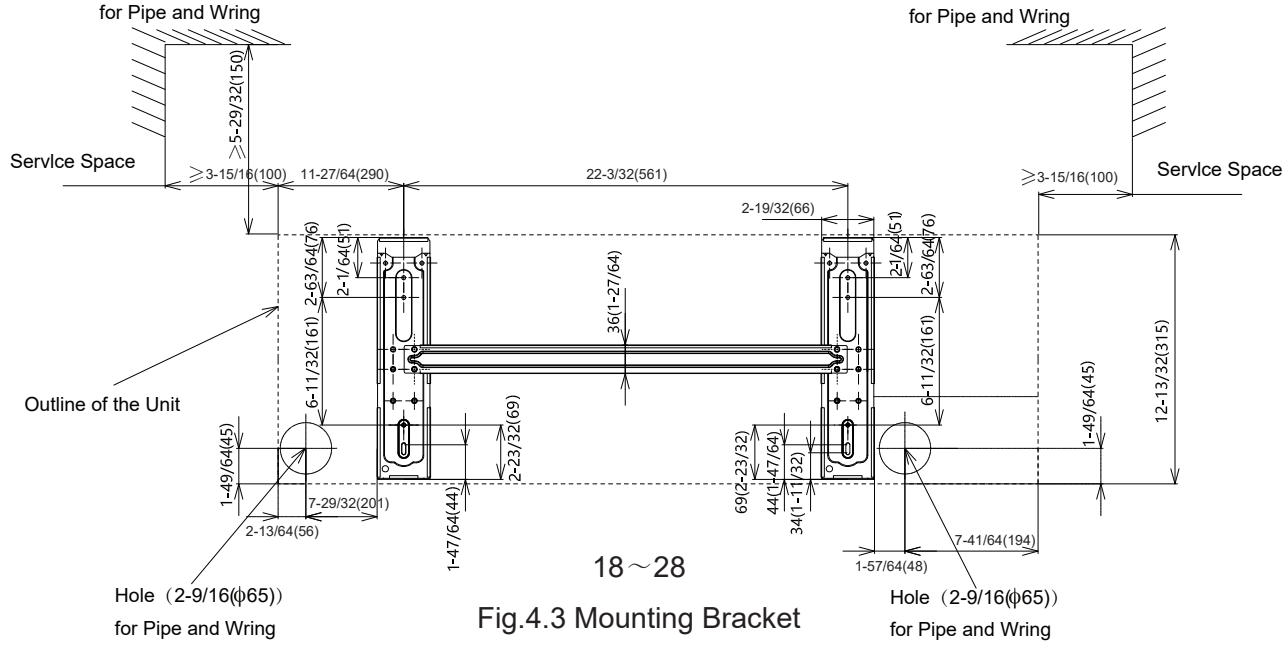
unit:in.(mm)



07～12



15



18～28

Fig.4.3 Mounting Bracket

4.3.2 Mounting the Indoor Units

Hook the indoor unit to the mounting bracket, maintaining the indoor unit upright.

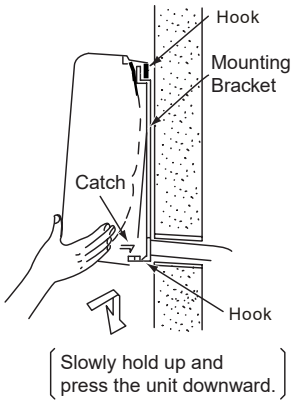


Fig 4.5 Mounting of the Indoor Units

⚠CAUTION

Check to ensure that the unit is completely hooked onto the mounting bracket. If not, it may drop from the bracket, resulting in a serious accident.

(1) The side of the drain pipe is downward-sloping 2 degrees or 3 degrees in the process of the unit installation.

(2) Check the drainage of the drain pan through water overflow test.

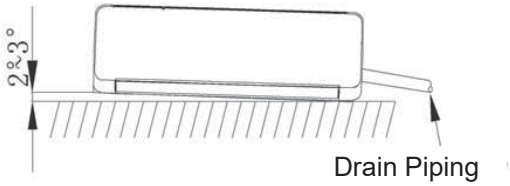
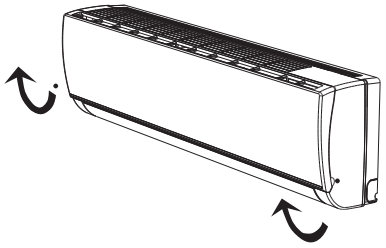


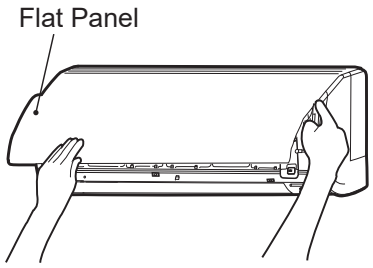
Fig 4.6 Slop angle of the Indoor Units

4.3.3 Removing Flat Panel

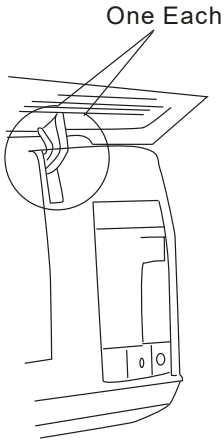
In order to connect the refrigerant piping, wiring and to check drain water flow, removing the flat panel is needed. Perform these work according to the following instructions. Pay attention to the resin components not to scratch.

(1) Hold both sides of the flat panel and open it, and pull the right arm toward the inner side. Slightly close the flat panel and pull it, then remove the flat panel.



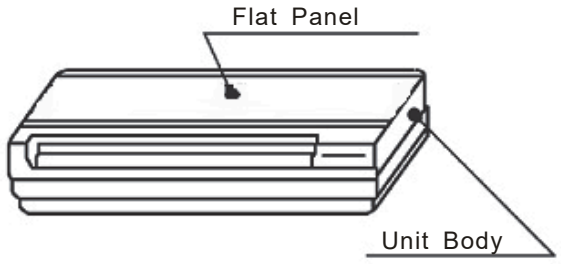


(2) Pay attention to the junction of grille from each side, to prevent breaking off.



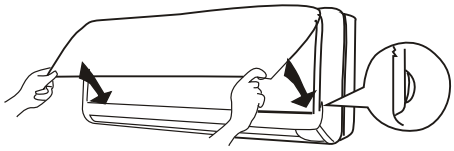
⚠CAUTION

When removing flat panel, do not apply strong forces by hitting, etc. It may break the unit body.

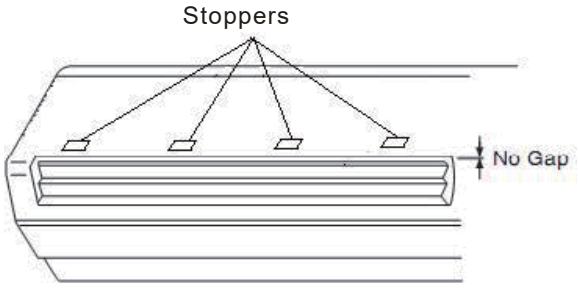


4.3.4 Install Flat Panel

(1) Press flat panel down, make the two joints of the flat panel tightly fasten.



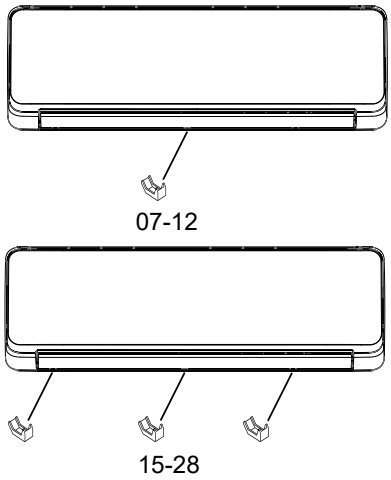
(2) There are four stoppers inside of the flat panel. Check to ensure that there is no gap between flat panel and unit body.



⚠CAUTION

Any gap will lead to leak or frost.

(3) Put screws cover into the screw hole in the air outlet.



5. Refrigerant Piping Work

⚠DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

5.1 Piping Materials

(1) Prepare locally-supplied copper pipes.

(2) Select the piping size from the following table.

unit:in.(mm)

Model (kBtu/h)	Gas pipe	Liquid pipe
07 ~ 12	3/8(ϕ9.53)	1/4(ϕ6.35)
15	1/2(ϕ12.7)	1/4(ϕ6.35)
18 ~ 28	5/8(ϕ15.88)	3/8(ϕ9.53)

(3) Select clean copper pipes making sure there is no dust and moisture inside the tubes. Before connecting pipes, blow the inside of the pipes with nitrogen or dry air to remove any dust or foreign materials.

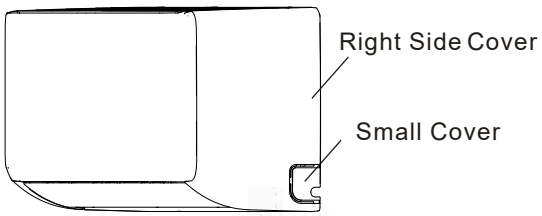
5.2 Piping Connection

(1) Position of piping connection is shown in Figure 5.1 and 5.2.

(2) Piping Direction for the Indoor Unit: Three directions of piping connection to the indoor unit can be performed; to the rear side, the right side and the left side of the unit respectively. Therefore, most appropriate piping for a room can be selected.

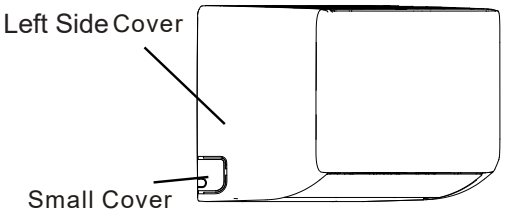
● Right Side Piping

Take off the small cover from right side.



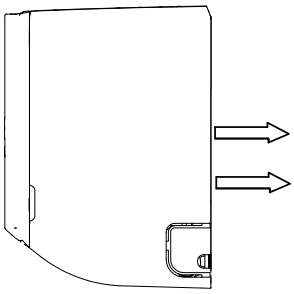
● Left Side Piping

Take off the small cover from left side.



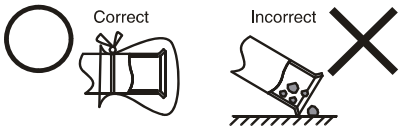
● Rear Side Piping

Bend pipe backwards directly.



⚠CAUTION

- **Cap the end of the pipe when the pipe is to be inserted through a hole.**
- **Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.**



- **When bending the pipes, firmly fix the pipe at the heat exchanger side.**

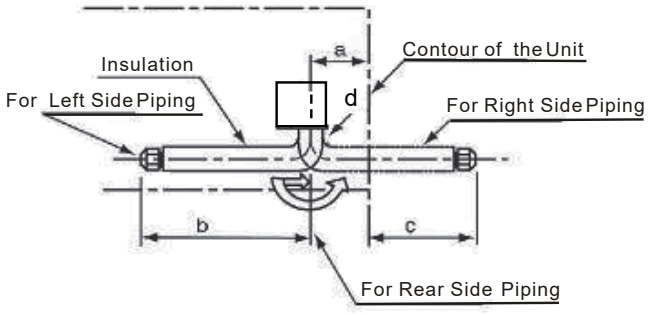


Fig. 5.1 Liquid pipe

unit:in.(mm)

Model(kBtu/h)	a	b	c	d
07~12	3-25/64 (86)	17-61/64 (456)	14-9/16 (370)	25/64R (10R)
15	2-33/64 (64)	17-13/64 (437)	14-11/16 (373)	25/64R (10R)
18 ~ 28	2-23/64 (60)	18-17/64 (464)	15-29/32 (404)	25/32R (20R)

- Bend the gas pipe at the flexible pipe part.

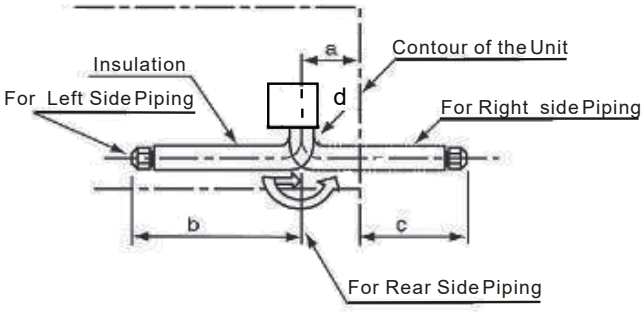
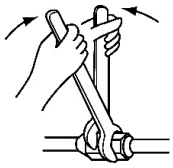


Fig.5.2 Gas pipe

unit:in.(mm)

Model(kBtu/h)	a	b	c	d
07~12	3-31/32 (101)	15-23/64 (390)	11-3/8 (289)	19/32R (15R)
15	3-5/64 (78)	15-19/32 (396)	12-33/64 (318)	25/32R (20R)
18 ~28	3 (76)	16-31/32 (431)	1331/32 (355)	63/64R (25R)

(3) When tightening the flare nut, use two spanners as shown in Fig. 5.3



Pipe Diameter	Torque((ft·lbs)N·m)
1/4(ϕ6.35)	14.8(20)
3/8(ϕ9.35)	29.5(40)
1/2(ϕ12.7)	44.3(60)
5/8(ϕ15.88)	59(80)

Fig.5.3 Tightening Work of Flare Nut

(4) Insulate the refrigerant pipes as shown in Fig. 5.4.

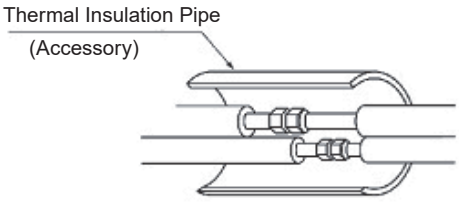


Fig. 5.4 Insulation on pipes

(5) Evacuation and refrigerant charging procedures should be performed according to “Installation & Maintenance Manual ” of the outdoor unit.

⚠CAUTION

An excess or a shortage of refrigerant is the main cause of trouble to the units. Charge the correct refrigerant quantity.

(6) Fix the plate of pipes (factory-supplied) as shown in Fig. 5.5.

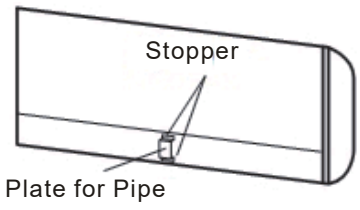
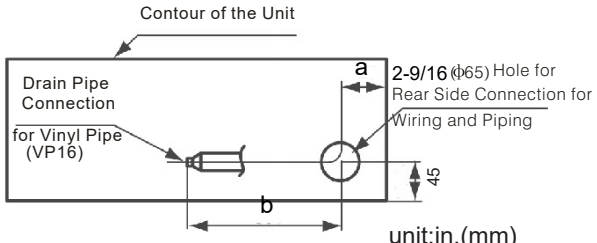


Fig. 5.5

6. Drain Piping

(1) The standard direction of drain piping connection is right side as viewed from the discharge grilles. However, it can be performed from the left side or rear side.



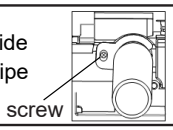
Model(kBtu/h)	a	b
07~12	5-33/64 (140)	23-15/64 (590)
15	6-39/64 (168)	23-5/8 (600)
18~28	7-43/64 (195)	23-5/8 (600)

Fig. 6.1 Direction of Drain Piping

(2) when the left-side drain pipe connection is performed, remove the drain plug of left-side, and then attach this plug to the right-side in order to change drain piping connection from right-side to left-side.

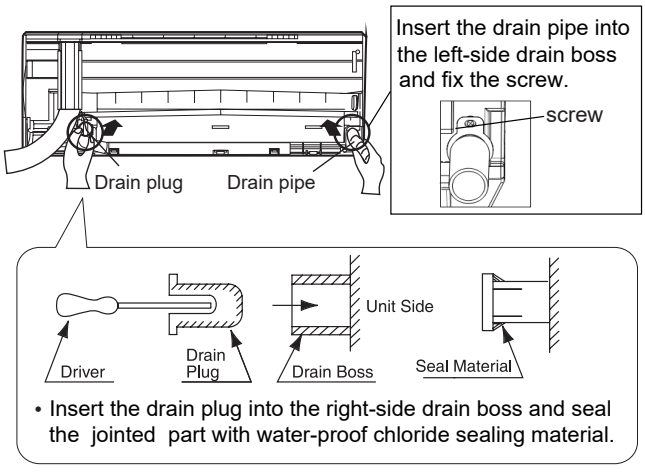
(A) Draw out the drain plug and drain pipe

- Remove the fixing screw for right-side drain pipe and draw out the drain pipe from drain boss.



- Please use pliers to pull out the drain plug for left-side. (This is an easier way to remove the drain cap).

(B) Insert the drain plug and drain pipe



- Insert the drain plug into the right-side drain boss and seal the jointed part with water-proof chloride sealing material.

⚠ CAUTION Insufficient insert may result in water leakage.

(3) Provide a vinyl chloride pipe, VP20.

(4) Connect a drain piping as shown in Fig. 6.2. Use adhesive tape for connecting the drain pipe.

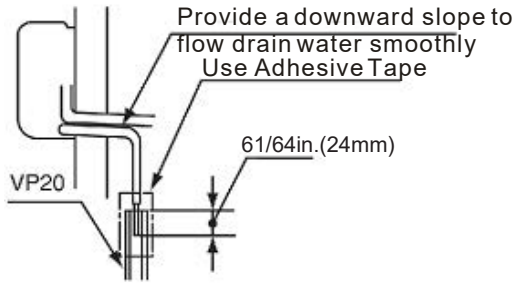


Fig. 6.2 Connection of Drain Piping

(5) Pour water into the drain pan and check to ensure that water can flow smoothly.

⚠CAUTION

- **Do not connect the drain pipes with sanitary or sewage or any other drainage pipe.**
- **When installing the pipe, do not tie the drain pipe and refrigerant pipe together.**
- **Pay attention to the thickness of the insulation when the left side piping is performed. If it is too thick, piping can not be installed in the unit.**

⚠CAUTION

(1) Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the unit and leakage to the room will occur when the unit operation is stopped.

(2) Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.

(3) When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.

7. Electrical Wiring

⚠WARNING

- **Turn OFF the main power switches to the indoor unit and outdoor unit before electrical wiring or periodical check, and wait for at least 10 minutes.**
- **Check to ensure the indoor and outdoor fans have stopped before electrical wiring or periodical check.**
- **Protect the wires, drain pipes, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts, which may lead to a fire.**
- **Avoid the contact of wires with the refrigerant piping, sheet metal edges and electrical components in unit. Otherwise, the wires may get damaged or even cause a fire.**
- **Use ELB(earth leakage breaker) with medium sensing rate (ELB with action time being equal to 0.1 seconds or less). Failing to do so may result in electric shock or a fire.**
- **The wires must be firmly secured. External force applied to terminals may cause a fire.**
- **It is forbidden to connect a plurality of power lines into one power terminal block. At the indoor unit side of air conditioner, power wiring can be extended through a power distribution box. Be sure to calculate the wiring capacity carefully, since excessively low wiring capacity may frequently cause fire.**
- **Do not start the system before all check points are thoroughly checked.**

⚠CAUTION

- **Tighten screws according to the following torque.**

	ft·lbs(N·m)
M3.5:	0.89(1.2)
M4:	0.7~1.0(1.0~1.3)
M5:	1.5~1.8(2.0~2.4)
M6:	3.0~3.7(4.0~5.0)
M8:	6.6~8.1(9.0~11.0)
M10:	13.3~17.0(18.0~23.0)

- **Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.**
- **Tightly secure the wires with the cord clamp inside the indoor unit.**
- **Secure the cable of the remote control switch using the cord clamp inside the electrical box.**

7.1 General Check

(1) Make sure that the field-supplied electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in “Technical Catalog Ⅰ”. Make sure that the components comply with National Electrical Code (NEC).

(2) Use shielded twist pair cable for transmission wiring between outdoor unit and indoor unit, remote controller wiring between indoor units and remote control switch.

(3) Check to ensure that the power supply voltage is within ±10% of the rated voltage.

(4) Check the capacity of the electrical wires.

If the power source capacity is too low, the system cannot be started due to the voltage drop.

(5) Check to ensure that the earth wire is connected.

(6) Power Source Main Switch.

Install a multi-pole main switch with a space of 9/64in. (3.5mm) or more between each phase.

7.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in Fig. 7.1.

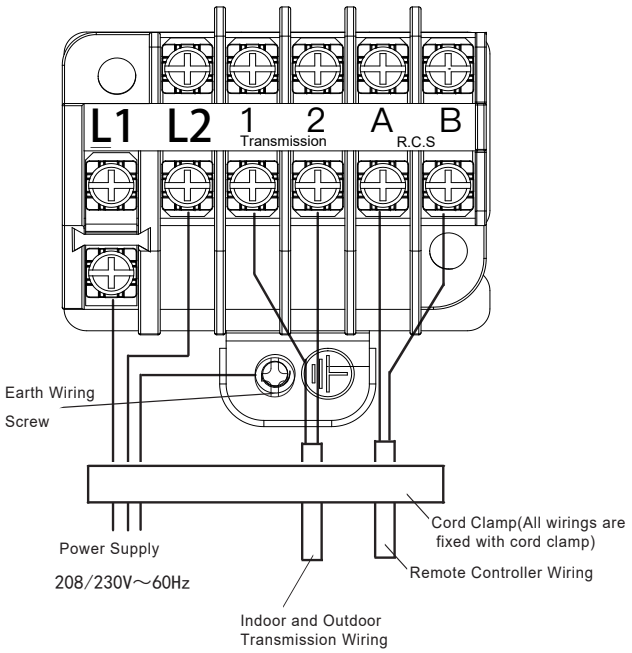


Fig.7.1 Wiring Connection

(1) Unscrew and remove the conduit mount plate from the machine base. Fix a conduit for power supply wiring to the plate with a lock nut and reattach them at original position.

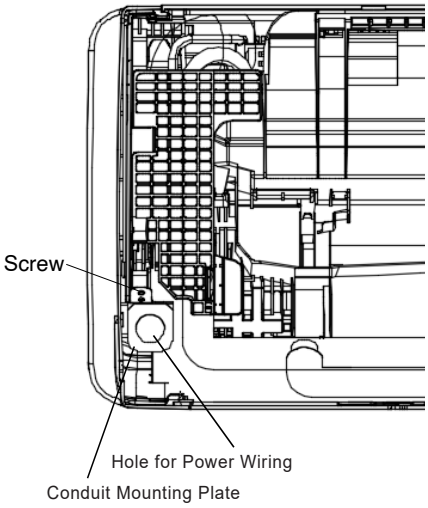
(2) Connect the wires of an optional remote control switch to A, B terminals of the terminal board inside the electrical box through the connecting hole in the cabinet.

(3) Connect the wires between the indoor unit and the outdoor unit to 1, 2 terminals of the terminal board inside the electrical box through the connecting hole in the cabinet.

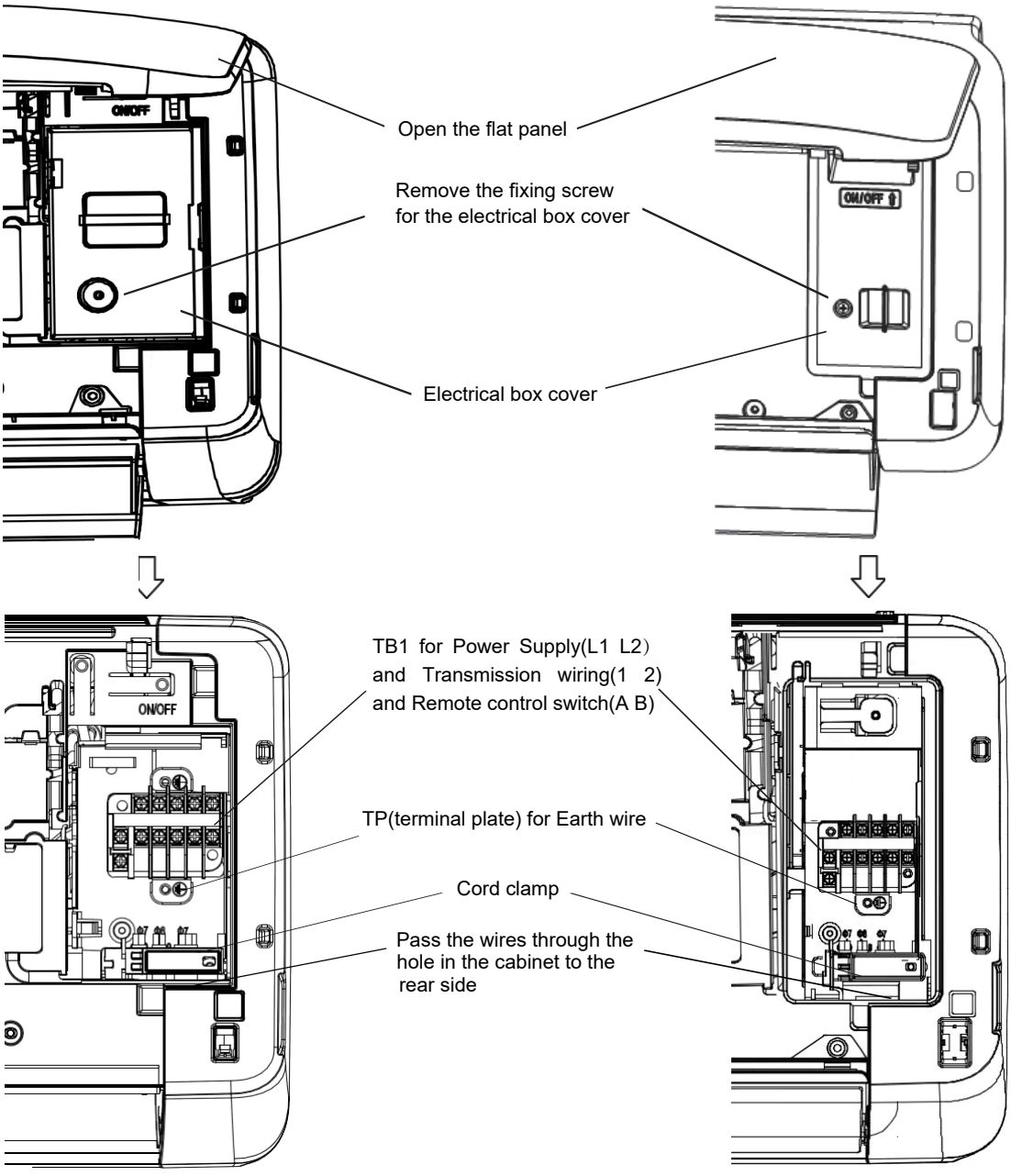
(4) Connect power supply wires to L1, L2 and connect earth wire to the earth. Please connect to the power circuit with a ELB.

(5) Check to ensure that the terminal specification is applied to the screw (M3.5 for power supply and operating line) of the terminal box.

(6) Fix all the wires securely with cord clamp.



For the minimum size of field-supplied power cord, please refer to Section 10.1.


ON/OFF
Open the flat panel
Remove the fixing screw
for the electrical box cover
Electrical box cover
ON/OFF
ON/OFF
TB1 for Power Supply(L1 L2）
and Transmission wiring(1 2)
and Remote control switch(A B)
TP(terminal plate) for Earth wire
Cord clamp
Pass the wires through the
hole in the cabinet to the
rear side

07～12

15～28

⚠CAUTION

- ELB must be connected to the power circuit.If not, it may pose a danger.
- Apply the specified screw for terminal board and fasten the screw firmly.

NOTE

Wired Remote Control Switch and Wireless Remote Control Switch can not be used simultaneously. If Wired Remote Control Switch is connected, disconnect the wire of signal receptor in the electrical box. As shown in the Fig.7.2.

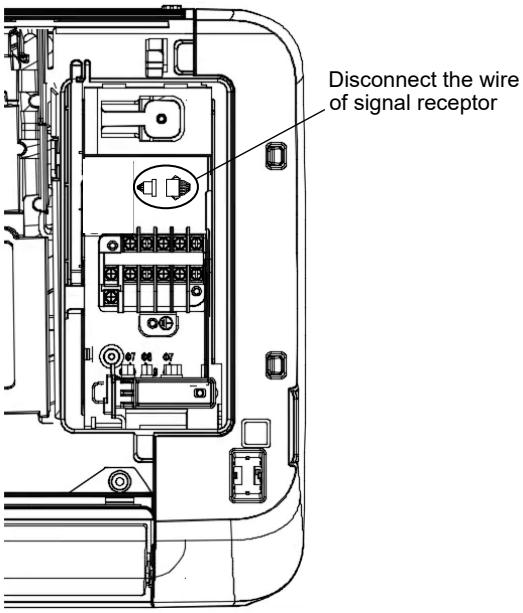


Fig.7.2 Connection description for signal receptor

8. Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

⚠WARNING

- **Do not operate the system until all the check points have been cleared.**
  - **(A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.**
  - **(B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.**
  - **(C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.**
- **Pay attention to the following items while the system is running.**
  - **(A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 194°F(90°C).**
  - **(B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.**

9. Safety and Control Device Setting

Indoor Unit

Model			07~28
For Control/Circuit Fuse Capacity		A	5
Freeze Protection Thermostat	Cut-Out	°F(°C)	32(0)
	Cut-In	°F(°C)	58(14)

10. Common

10.1 Field Minimum Wire Sizes for Power Souce

Units				Power supply		Power supply wiring size	Communication Cable Size	Fan motor	
Model	Hz	Volts	Voltage range	MCA	MOP			kW	FLA
CHV-07WTU	60	208/230V	Max.253V Min.187V	0.45	15	Wiring size and length must comply with local codes.	AWG18*1 (0.82mm^2)	0.025	0.11
CHV-09WTU				0.45				0.025	0.11
CHV-12WTU				0.53				0.025	0.11
CHV-15WTU				0.56				0.035	0.16
CHV-18WTU				0.56				0.035	0.15
CHV-24WTU				0.94				0.035	0.15
CHV-28WTU				1.02				0.035	0.15

NOTES:

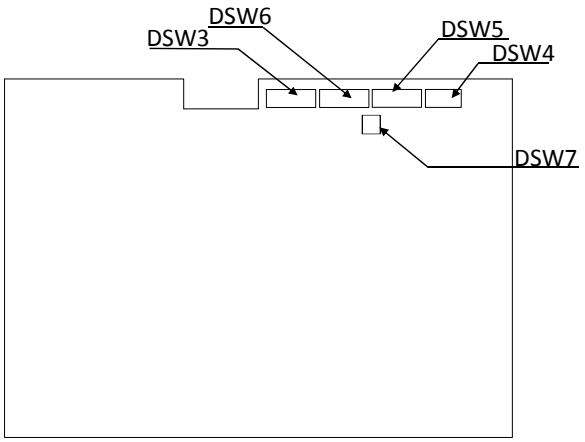
MCA: Min. Circuit Amps (A); MOP: Max. Overcurrent Protective Device (A)

kW: Fan Motor Rated Output (kW); FLA: Full Load Amps (A)

(1) Use a shielded cable for the transmitting circuit and connect it to ground.
(2) Field wiring shall be in conformity to local laws and regulations, and all wiring operations must be performed qualified professionals.
(3) Once the power cord is damaged, the dealer or the professionals from designated maintenance departmen must be contacted in a timely manner for repair and replacement.

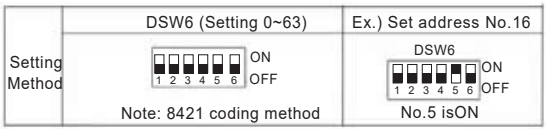
10.2 Setting of Dip Switches

(1) DIP switch must be set with power sources of indoor and outdoor units in OFF state. Otherwise, the settings are invalid.
(2) The DIP switches are located as shown in figure below.

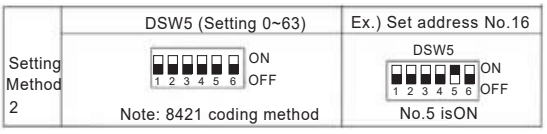


(3) 5 dip switches are arranged on the PCB of indoor unit, and must be set based on the following instructions before test run. The system shall not be started before the completion of dip switch setup.

(a) Address of indoor units (DSW6): All indoor units must be numbered in sequence based on the diagram below. Outdoor units must be numbered from "0".



(b) Refrigeration system cycle No. (DSW5) is required to be set. All are set to OFF before shipment.

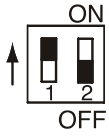


(4) Fuse Recover(DSW7)

No setting is required.

Setting position before shipment is at OFF.

Once strong current is accidentally connected to Terminals 1 and 2 of TB, the PCB fuse will be blown. In such a case, it's essential to correct the wiring and then to set switch No. 1 to ON position.



NOTE

- The "■" mark indicates position of dip switches. Figures show setting before shipment.

⚠CAUTION

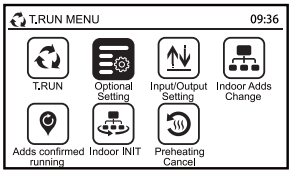
Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.

Decimal No.	8421 code					
	1	2	3	4	5	6
0	○	○	○	○	○	○
1	●	○	○	○	○	○
2	○	●	○	○	○	○
3	●	●	○	○	○	○
4	○	○	●	○	○	○
5	●	○	●	○	○	○
6	○	●	●	○	○	○
7	●	●	●	○	○	○
8	○	○	○	●	○	○
9	●	○	○	●	○	○
10	○	●	○	●	○	○
11	●	●	○	●	○	○
12	○	○	●	●	○	○
13	●	○	●	●	○	○
14	○	●	●	●	○	○
15	●	●	●	●	○	○
16	○	○	○	○	●	○
17	●	○	○	○	●	○
18	○	●	○	○	●	○
19	●	●	○	○	●	○
20	○	○	●	○	●	○
21	●	○	●	○	●	○
22	○	●	●	○	●	○
23	●	●	●	○	●	○
24	○	○	○	●	●	○
25	●	○	○	●	●	○
26	○	●	○	●	●	○
27	●	●	○	●	●	○
28	○	○	●	●	●	○
29	●	○	●	●	●	○
30	○	●	●	●	●	○
31	●	●	●	●	●	○
32	○	○	○	○	○	●
33	●	○	○	○	○	●
34	○	●	○	○	○	●
35	●	●	○	○	○	●
36	○	○	●	○	○	●
37	●	○	●	○	○	●
38	○	●	●	○	○	●
39	●	●	●	○	○	●
40	○	○	○	●	○	●
41	●	○	○	●	○	●
42	○	●	○	●	○	●
43	●	●	○	●	○	●
44	○	○	●	●	○	●
45	●	○	●	●	○	●
46	○	●	●	●	○	●
47	●	●	●	●	○	●
48	○	○	○	○	●	●
49	●	○	○	○	●	●
50	○	●	○	○	●	●
51	●	●	○	○	●	●
52	○	○	●	○	●	●
53	●	○	●	○	●	●
54	○	●	●	○	●	●
55	●	●	●	○	●	●
56	○	○	○	●	●	●
57	●	○	○	●	●	●
58	○	●	○	●	●	●
59	●	●	○	●	●	●
60	○	○	●	●	●	●
61	●	○	●	●	●	●
62	○	●	●	●	●	●
63	●	●	●	●	●	●

10.3 Setting the Filter Indication Interval

The FILTER indication interval on the remote control switch can be set at every 100, 1,200 or 2,500 hours (factory setting: 1200 hours). If 100, 1,200 or 2,500 hours' interval is required, follow the instructions below.

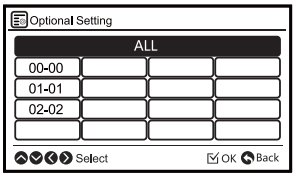
(1) Press and hold "⧉" (menu) and "↩"(return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated).The test run menu will be displayed.



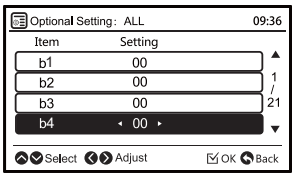
(2) Select " Optional Setting " from the test run menu pressing "☑".

(3) Select the indoor unit by pressing "∧∨< >" and press "☑".

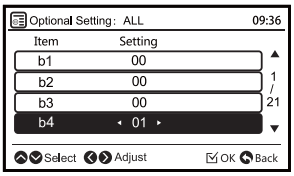
(This screen is NOT displayed when the number of indoor unit connected with the remote control switch is 1(one). In this case, (4) will be displayed.)



(4) Press "∧∨" and select the item.



(5) Press "< >" and change the setting.

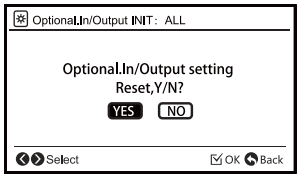


FILTER Indication Interval				
Approx. 100 hr.	Approx. 1,200 hr.	Approx. 1,200 hr.	Approx. 2,500 hr.	No. Indication
b4 01	b4 00(*)	b4 02	b4 03	b4 04

(*): Standard

(6) Press "☑" so that the confirmation screen will be displayed.

(7) Select " Yes " and press "☑". The test run menu will be displayed after the setting is confirmed. If " NO" is pressed, the screen will return to (4).



(8) Press "↩" (return) on the test run menu to return to the normal mode.

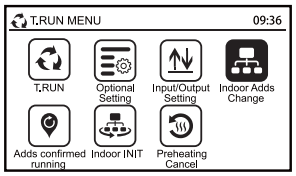
To set other units, press "↩" (return) at (4) (5) so that the screen will return to (3). (If the number of indoor unit connected with the remote control switch is 1 (one), the screen will return to (1).)

10.4 Indoor Unit Address

● Indoor Unit Address Change

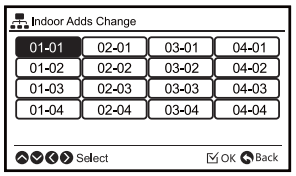
This function changes the address (refrigerant cycle number and indoor unit number) of indoor units.

(1) Press and hold"[menu]"(menu) and"[return]" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated).The test run menu will be displayed.



(2) Select "Indoor Adds Change" from the test run menu pressing "∧ ∨ < >" and "☑".

(3) Select the indoor unit by pressing " ∧ ∨ < >" and press " ☑".

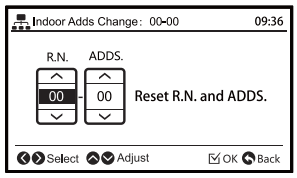


*Indoor units which are not supporting " Indoor Adds Change " function can not be selected.

(4) Determine the new indoor unit address.

Press "∧ ∨ < >" to switch the refrigerant cycle number and address in range of 00-63.

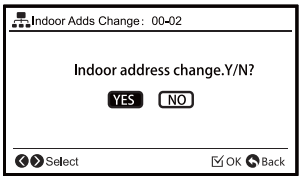
To display confirmation screen press "☑".



* " R.N No.99 " is used temporarily address only when all the cycle numbers and unit numbers are in use (occupied).

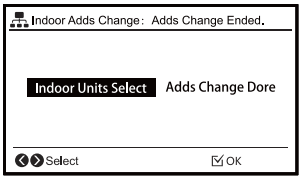
If " R.N No.99" is used temporarily, the address must be changed within the standard range of 00-63.

(5) The confirmation screen will be displayed. Select " Yes" and press "☑" to stard address change process. Result will be displayed in seconds. If " No" is pressed, the screen will go to (6).



*When the process successfully completes, " Adds Change Ended " will be displayed.

Otherwise the process has been failed. Check the setting and contents again.



(6) To change the address for another indoor unit, select " Indoor Units Select " and press "☑" ,the screen will return to (3). To finish this function select " Adds Change Done " and press "☑".

*If " Indoor Adds Change" is successfully completed, connection check will be started automatically.

(7) Turn OFF the power supply of the indoor units for 3-5 minutes. Wait until the remote control switches display turn off, and turn ON the power supply of indoor units again.

NOTE

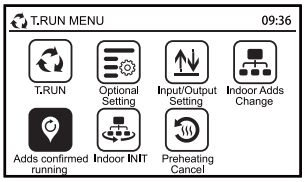
" Indoor Adds Change " is not available when the control of 2 remote control switches (main and sub) are used.

Do not operate from the central controlling devices while " Indoor Adds Change" is performed by the remote control switch.

This function should not be used if there is a Central Control in the H-NET.

● Address Check Operation

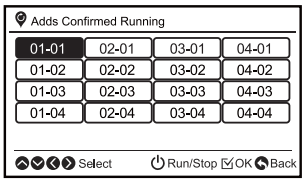
This function is used to check the relation between the indoor unit and I.U. address. This operation is effective when multiple indoor units are connected to the remote control switch and address of the certain unit is unknown.



(1) Press and hold "☐" (menu) and "↩" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operating).The test run menu will be displayed.

(2) Select " Adds confirmed running" from the test run menu pressing "∧∨<>" and "☑".

(3) Select the indoor unit by pressing " ∧∨< >".



(4) To start operation of the indoor unit selected in (3) press "⏻" (run/stop). To return to (3) screen press "⏻" (run/stop) while indoor units is operated.

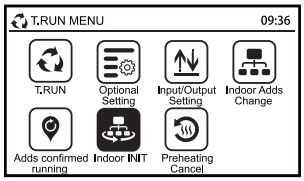
* Repeat (3)-(4) until desired indoor unit address is confirmed.

(5) To return to the test run menu press "↩" (return) while indoor unit is not operated.

● Indoor Unit Address Initialization

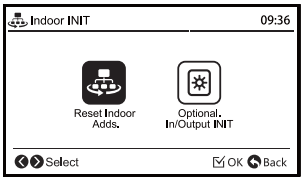
This function initializes the indoor unit address that has been changed by " Indoor Adds Change " function or set by the automatic address a llocation. Initializing the address will be changed to the dip switch setting.

(1) Press and hold "☐" (menu) and "↩"(return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated) .The test run menu will be displayed.



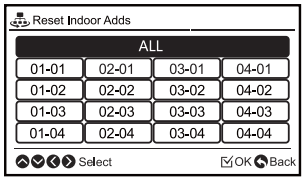
(2) Select "Indoor INIT" from the test run menu pressing "< > ∧ ∨" and "☑".

(3) Select the" Reset Indoor Adds "by pressing " ∧∨" and press " ☑ ".



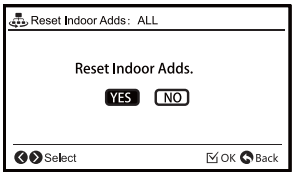
(4) Select the indoor unit by pressing " ∧∨< >" and press " ☑" . The confirmation screen will be displayed.

*Indoor units which are not supporting " Reset Indoor Adds" function can not be selected.



The address of indoor unit that does not support " Reset Indoor Adds" function will not be initialized even when "All" is specificated.

(5) Select "Yes" and press "☑" to start the address initialization process.



*If the address initialization is successfully completed, connection check will be started automatically.