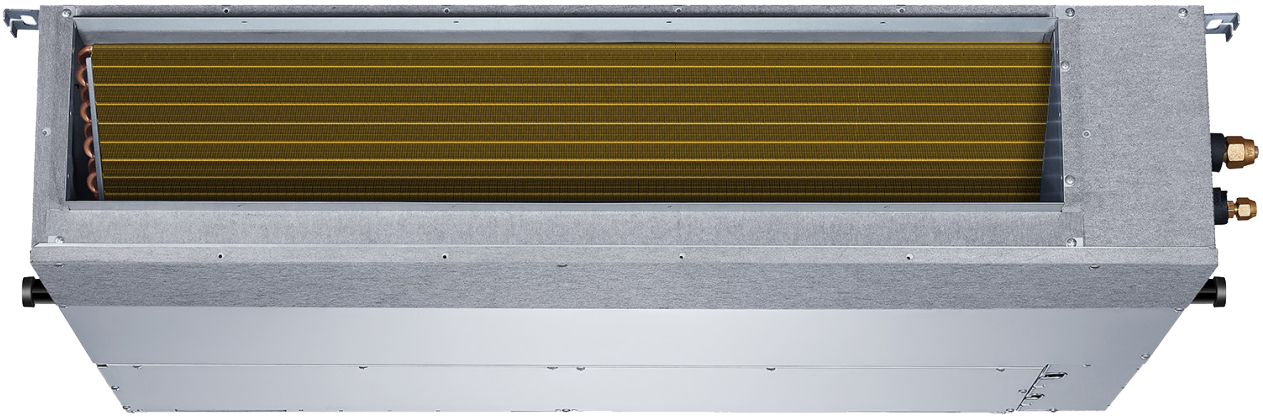
# Installation Manual
# Split-Type Air Conditioner
## For 6,000 - 18,000 BTU Systems



**NOTE**

Read the entire instruction manual before starting the installation. Images are for illustration purposes only. Actual models may differ slightly.

Units Covered In This Manual

| BTU/H | VOLTAGE/ PHASE | AIR HANDLER MODEL |
|---|---|---|
| 6,000 | 208/230-1 | MDLHU-H06B-2A |
| 9,000 | 208/230-1 | MDLHU-H09B-2A |
| 12,000 | 208/230-1 | MDLHU-H12B-2A |
| 18,000 | 208/230-1 | MDLHU-H18B-2A |

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Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

# Table of Contents


**Safety Considerations** ..... **3**
Table S-1: Approved Matchups ..... 4
Table S-2: Minimum Room Area Requirements ..... 4
Table S-3: Minimum Airflow ..... 4
Table S-3: Explanation of symbols displayed on the indoor unit or outdoor unit ..... 7
**Specifications** ..... **8**
**Installation Accessories** ..... **9**
Table A-1: Included Accessories ..... 9
Table A-2: Optional Accessories ..... 9
Table A-3: Pipe Specification ..... 9
Unpacking ..... 9
**Product Overview** ..... **10**
Required Tools ..... 10
Fig. PO-1: Display Panel Layout ..... 10
**Dimensions & Clearances** ..... **11**
Fig. D-1: Unit Dimensions ..... 11
Table D-1: Unit Dimensions ..... 11
Confirm Installation Clearances ..... 12
Fig. D-2: Ceiling-Mounted Unit ..... 12
Fig. D-3: Maintenance Space ..... 12
**Additional Installation Guide** ..... **13**
Fig. AI-1: Additional Dimensions ..... 13
Table AI-1: Outline Dimensions ..... 13
Fig. AI-2: Connect The Drain And Pump ..... 13
Fig. AI-3: Disable The Water Level Sensor ..... 13
Fig. AI-4: Remove The Pump Assembly ..... 13
Fig. AI-5: Connect The External Pump ..... 14
Fig. AI-6: Disable The Water Level Sensor ..... 14
Fig. AI-7: Remove The Pump Assembly ..... 14
Fig. AI-8: Remove & Install Caps ..... 14
Fig. AI-9: Connect The Drain ..... 14
**Installation Summary** ..... **15**
**Installation Requirements** ..... **16**
**Indoor Installation** ..... **17**
Step 1 - Mount The Indoor Unit ..... 17
Fig. 1-1: Wood Mount Arrangement ..... 17
Fig. 1-2: Use Screw Bolts For New Concrete ..... 17
Fig. 1-3: Embed Screw Bolts In Bricks ..... 17
Fig. 1-4: Use Angled Steel For Support ..... 17
Fig. 1-5: Hang Unit Using Suspension Bolts ..... 17
Fig. 1-6: Suspension Bolt Arrangement ..... 17
Step 2 - Duct & Pump Installation ..... 18
Fig. 2-1: Duct Connection Diagram ..... 18
Step 3- Install The Filter ..... 18
Fig. 3-1: Remove The Ventilation Panel ..... 18
Fig. 3-2: Bend The Panel 90 Degrees ..... 18
Fig. 3-3: Replace The Air Return Flange ..... 18
Fig. 3-4: Alternate Air Arrangement ..... 18
Step 4 - Drill The Wall ..... 18
Fig. 4-1: Drill The Wall Hole At An Angle ..... 19
Step 5 - Connect Drain Hose ..... 19
Fig. 5-1: Drainpipe Connection ..... 19
Fig. 5-2: Proper Downward Slope ..... 19
Fig. 5-3: Drainpipe Arrangement With Pump ..... 19
Fig. 5-6: Air Vents For Multiple Units ..... 20
Fig. 5-4: Remove The Test Cover ..... 20
**Outdoor Installation** ..... **20**
Step 6 - Installation Location ..... 20
Fig. 6-1: Clearance Dimensions ..... 20
Fig. 6-2: High Wind Installation ..... 21
Step 7 - Install Drain Joint ..... 21
Fig. 7-1: Drain Hole Location ..... 21
Fig. 7-2: Installation of the Drain Joint ..... 22
Step 8 - Anchor Outdoor Unit ..... 22
Fig. 8-1: Unit Dimensions ..... 22
Table 8-1: Outdoor Unit Dimensions ..... 22
Table 8-2: Multiple Unit Clearances ..... 23
Fig. 8-2: Clearances for Multiple Units ..... 23
Step 9 - Refrigerant Piping Connection ..... 23
Table 9-1: Pipe Length & Elevation ..... 23
Fig. 9-1: Oil Trap Arrangement ..... 23
Fig. 9-2: Correct Pipe Cutting ..... 24
Fig. 9-3: Reamer Tool ..... 24
Fig. 9-4: Copper pipe and flare nut ..... 24
Fig. 9-5: Flare Form ..... 24
Fig. 9-6: Flare Shape ..... 24
Table 9-2: Flare Dimensions/Tightening Torque ..... 25
Fig. 9-7: Align the center of the two pipes ..... 25
Fig. 9-8: Spanner and Torque Wrench ..... 25
Fig. 9-9: Bend the Tubing ..... 25
Step 10 - Unit Wiring ..... 26
Fig. 10-1: Wiring Overview ..... 26
Fig. 10-2: Remove Electrical Cover ..... 26
Fig. 10-3: Connection Diagram ..... 27
Fig. 10-4: Wiring Diagram Location ..... 27
Fig. 10-5: Magnetic Ring Installation ..... 27
Fig. 10-6: Install The Display Panel ..... 27
Step 11 - Air Evacuation ..... 28
Fig. 11-1: Manifold Gauge Arrangement ..... 28
Fig. 11-2: Service Valve ..... 28
Table 11-1: Additional Refrigerant Formula ..... 28
**Test Run** ..... **29**
**Commission** ..... **30**
When Using The 120L Wired Controller ..... 30
When Using The 120N Wired Controller ..... 30
**Troubleshooting** ..... **31**
**Maintenance** ..... **32**
Fig. M-1: Motor Disassembly ..... 32
Fig. M-2: Pump Location ..... 32
**Appendix** ..... **32**
Electric Auxiliary Heat Module Installation (Optional) ..... 32
Trademarks Copyrights & Legal Statement ..... 33
Disposal & Recycling ..... 33
Data Protection Notice ..... 33

# Safety Considerations

It is crucial to read the Safety Precautions Before Operation and Installation. Neglecting these instructions may lead to serious damage or injury. The severity of potential damage or injuries is categorized as either a WARNING or CAUTION.

**⚠ WARNING**

Hazards or unsafe practices that may result in severe personal injury or death.

**⚠ CAUTION**

Hazards or unsafe practices may result in minor personal injury or property damage. Carefully follow the precautions because they are essential to guarantee the safety of the equipment.

**NOTE**

A property-damage-only hazard, meaning no personal injury is possible.

**IMPORTANT**

Is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

**⚠ WARNING**

State of California Proposition 65 Warning (US Only)
This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

**⚠ WARNING**

Improper installation, adjustment, alteration, service, maintenance, or use can cause an explosion, fire, electrical shock, or other conditions that may cause death, personal injury, or property damage. Consult a qualified installer, service agency, distributor, or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with kits or accessories when installing.

**IMPORTANT**

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions in the literature and labels attached to the unit. Consult local building codes and the current editions of the National Electrical Code (NEC) NFPA 70.

**IMPORTANT**

In Canada, refer to the current editions of the Canadian Electrical Code CSA C22.1. Follow the safety information.

**⚠ WARNING**

This appliance is not intended for use by persons (including children) 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 to ensure that they do not play with the appliance.

**⚠ WARNING**

**ELECTRICAL WARNINGS**

- Only use the specified wire. If the wire is damaged, it must be replaced by the manufacturer, service agent, or similarly qualified persons to avoid a hazard.
- The product must be properly grounded at the time of installation, or electric shock may occur.
- For all electrical work, follow all local and national wiring standards, regulations, and the Installation Manual. Connect cables tightly and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat, cause fire, and may also cause shock. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
- All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
- Disconnection must be incorporated in the fixed wiring in accordance with the NEC, CEC, or local codes.
- **DO NOT** share the electrical outlet with other appliances. The unit must be installed on a dedicated electrical circuit.
- If connecting power to fixed wiring, an all-pole disconnection device must be incorporated into the fixed wiring following the wiring rules.

**⚠ WARNING**

**WARNINGS FOR PRODUCT INSTALLATION**

- Turn off the air conditioner and disconnect the power before performing any installation or repairs. Failure to do so can cause electric shock.
- Installation must be performed by an authorized dealer or specialist. Defective installation can cause water leakage, electrical shock, or fire.
- Installation must be performed according to the installation instructions. Improper installation can cause water leakage, electrical shock, or fire. Contact an authorized service technician for repair or maintenance of this unit.
- This appliance shall be installed in accordance with national wiring regulations. Only use the included accessories, parts, and specified parts for installation.
- Using non-standard parts can cause water leakage, electrical shock, and fire, and can cause the unit to fail.
- Install the unit in a firm location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and damage.
- Install drainage piping according to the instructions

in this manual. Improper drainage may cause water damage to your home and property.

- For units that have an auxiliary electric heater, do not install the unit within 1 m (3 ft.) of any combustible materials.
- **Do not** install the unit in a location that may be exposed to combustible gas leaks. **If combustible gas accumulates around the unit, it may cause fire.**
- **Do not** turn on the power until all work has been completed.
- When moving or relocating the air conditioner, consult experienced service technicians for disconnection and reinstallation of the unit.
- How to install the appliance to its support, please read the information for details in the "indoor unit installation" and "outdoor unit installation" sections.

**TAKE NOTE OF FUSE SPECIFICATIONS**

The air conditioner's circuit board (PCB) is designed with a fuse to provide overcurrent protection. The fuse specifications are printed on the circuit board, such as T3.15 AL/250 VAC, T5 AL/250 VAC, T3.15 A/250 VAC, T5 A/250 VAC, T2 0A/250 VAC, T30 A/250 VAC, etc.

**NOTE**

Only the blast-proof ceramic fuse can be used.

**⚠ WARNING**

**USING FLAMMABLE REFRIGERANT**

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance, or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.

**For R454B refrigerant charge amount and minimum room area:**

The machine you purchased may be one of the types in the table below. The indoor and outdoor units are designed to be used together. Please check the machine you purchased. The air duct outlet of Medium and High Static Pressure Duct Type Air Conditioner should be at least ≥7.3 ft./2.2 m above the floor, and the minimum room area of operating or storage should be as specified in the following table:

## Table S-1: Approved Matchups

| Model | Indoor unit | Outdoor unit |
|---|---|---|
| 06K | MDLHU-H06B-2A | MO1HS-H06B-2A |
| | MDLHU-H12B-2A | |
| 09K | MDLHU-H09B-2A | MO1HS-H09B-2A |
| | MDLHU-H12B-2A | |
| | MDLHU-H09B-2A | MO1ES-H09B-2A |
| | MDLHU-H12B-2A | |
| 12K | MDLHU-H12B-2A | MO1HS-H12B-2A |
| | | MO1ES-H12B-2A |
| 18K | MDLHU-H18B-2A | MO1HS-H18B-2A |
| | | MO1ES-H18B-2A |

## Table S-2: Minimum Room Area Requirements

| TAmin [ft.²/m²] | hinst[ft/m] | | | | | |
|---|---|---|---|---|---|---|
| **mc or mREL [oz/kg]** | **6.0~7.3/ 1.8~2.2** | **7.6/2.3** | **7.9/2.4** | **8.6/2.6** | **9.2/2.8** | **9.9/3.0** |
| <=62.6/1.776 | 12/1.10 | | | | | |
| 63.4/1.8 | 60/5.53 | 57/5.29 | 55/5.07 | 51/4.68 | 47/4.35 | 44/4.06 |
| 70.5/2.0 | 67/6.15 | 64/5.88 | 61/5.64 | 56/5.2 | 52/4.83 | 49/4.51 |
| 77.5/2.2 | 73/6.76 | 70/6.47 | 67/6.2 | 62/5.72 | 58/5.31 | 54/4.96 |
| 84.6/2.4 | 80/7.38 | 76/7.06 | 73/6.76 | 68/6.24 | 63/5.8 | 59/5.41 |
| 91.7/2.6 | 86/7.99 | 83/7.64 | 79/7.32 | 73/6.76 | 68/6.28 | 64/5.86 |
| 98.7/2.8 | 93/8.6 | 89/8.23 | 85/7.89 | 79/7.28 | 73/6.76 | 68/6.31 |
| 105.8/3.0 | 100/9.22 | 95/8.82 | 91/8.45 | 84/7.8 | 78/7.24 | 73/6.76 |
| 112.8/3.2 | 106/9.83 | 102/9.41 | 97/9.01 | 90/8.32 | 84/7.73 | 78/7.21 |
| 119.9/3.4 | 113/10.45 | 108/9.99 | 104/9.58 | 96/8.84 | 89/8.21 | 83/7.66 |
| 126.9/3.6 | 120/11.06 | 114/10.58 | 110/10.14 | 101/9.36 | 94/8.69 | 88/8.11 |
| 134/3.8 | 126/11.68 | 121/11.17 | 116/10.7 | 107/9.88 | 99/9.17 | 93/8.56 |
| 141.1/4.0 | 133/12.29 | 127/11.76 | 122/11.27 | 112/10.4 | 104/9.66 | 97/9.01 |
| 148.1/4.2 | 139/12.9 | 133/12.34 | 128/11.83 | 118/10.92 | 110/10.14 | 102/9.46 |
| 155.1/4.4 | 146/13.52 | 140/12.93 | 134/12.39 | 124/11.44 | 115/10.62 | 107/9.91 |
| 162.2/4.6 | 153/14.13 | 146/13.52 | 140/12.96 | 129/11.96 | 120/11.11 | 112/10.37 |
| 169.2/4.8 | 159/14.75 | 152/14.11 | 146/13.52 | 135/12.48 | 125/11.59 | 117/10.82 |
| 176.3/5.0 | 166/15.36 | 159/14.69 | 152/14.08 | 140/13 | 130/12.07 | 122/11.27 |
| Area formula | **TAmin** is the required minimum area of the total conditioned space connected by air ducts in ft.²/m²<br>**Mc** is the actual refrigerant charge in the system in oz/kg<br>**MREL** is the refrigerant releasable charge in oz./kg<br>**hinst** is the height of the bottom of the appliance relative to the floor of the room after installation.<br>**WARNING:** The minimum room area or minimum room area of conditioned space is based on releasable charge and total system refrigerant charge. | | | | | |

When the unit detects a refrigerant leak, the minimum airflow of the indoor unit is as follows:

## Table S-3: Minimum Airflow

| Model | 6K | 9K | 12K | 18K |
|---|---|---|---|---|
| Nominal air volume | 294 CFM<br>500 m³/h | 294 CFM<br>500 m³/h | 353 CFM<br>600 m³/h | 588 CFM<br>1,000 m³/h |

**1. Installation** (where refrigerant pipes are allowed)

- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry-recognized assessment specification.
- Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- That the installation of pipe work shall be kept to a minimum.
- That pipe work shall be protected from physical damage.
- Where refrigerant pipes shall comply with national gas regulations.
- That mechanical connections shall be accessible for maintenance purposes.
- Be more careful that foreign matter (oil, water, etc.) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
- All working procedures that affect safety means shall only be carried out by competent persons.
- Appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- Joints shall be tested with detection equipment with a capability of 5 g/year of refrigerant or better, with the equipment in a standstill and under operation or under pressure of at least these standstill or operation conditions after installation. Detachable joints should NOT be used on the indoor side of the unit (brazed, welded joints could be used).
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- LEAK DETECTION SYSTEM installed. The unit must be powered except for service. For the unit with a refrigerant sensor, when the refrigerant sensor detects refrigerant leakage, the indoor unit will display an error code and emit a buzzing sound, the compressor of the outdoor unit will immediately stop, and the indoor fan will start running. The service life of the refrigerant sensor is 15 years. When the refrigerant sensor malfunctions, the indoor unit will display the error code "FHCC". The refrigerant sensor cannot be repaired and can only be replaced by the manufacturer. It shall only be replaced with the sensor specified by the manufacturer.
- Non-duct connected appliances containing A2L refrigerants with the supply and return air openings in the conditioned space may have the body of the appliance installed in open areas such as false ceilings not being used as return air plenums, if the conditioned air does not directly communicate with the air of the false ceiling.

**2. When a FLAMMABLE REFRIGERANT is used,** the requirements for installation space of appliance and/or ventilation requirements are determined according to

- the mass charge amount (M) used in the appliance,
- the installation location,
- the type of ventilation of the location or the appliance.
- piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and comply with national and local codes and standards, such as ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection before being covered or enclosed.
- that protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris;
- that piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damaging the system;
- that steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation;
- that precautions shall be taken to avoid excessive vibration or pulsation;
- the minimum floor area of the room shall be mentioned in the form of a table or a single figure without reference to a formula;
- after completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested before refrigerant charging, according to the following requirements:
  a. The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system can not be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.
  b. The test pressure after removal of the pressure source shall be maintained for at least 1 h with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.
  c. During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 1500 microns within 10 min. The vacuum pressure level shall be specified in the manual and shall be the lessor of 500 microns or the value required for compliance with national and local codes and standards, which may vary between residential, commercial, and industrial buildings.
- field-made refrigerant joints indoors shall be tightness tested according to the following requirements: The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.

**3 . Qualification of workers**

Any maintenance, service, and repair operations must require the qualification of the working personnel. Every working procedure that affects safety means shall only be carried out by competent technicians who joined the training and achieved competence should be documented by a certificate. The training of these procedures is carried out by national training organizations or manufacturers that

are accredited to teach the relevant national competency standards that may be set in legislation. All training shall follow the ANNEX HH requirements of UL 60335-2-40 4th Edition.

Examples of such working procedures are:

- breaking into the refrigerating circuit;
- opening of sealed components;
- opening of ventilated enclosures.

**4. Ventilated area**

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

**5. Cabling**

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

**6. Detection of flammable refrigerants**

Under no circumstances shall potential sources of ignition be used in the search for or detection of refrigerant leaks. A halide torch(or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for refrigerant systems. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

**NOTE**

Examples of leak-detection fluids are

- bubble method,
- fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/ extinguished.

If leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (using shut-off valves) in a part of the system remote from the leak. See the following instructions for the removal of refrigerant.

**7. Removal and evacuation**

When breaking into the refrigerant circuit to make repairs - or for any other purpose conventional procedures shall be used. However, for flammable refrigerants best practice must be followed since flammability is a consideration.

The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations;
- evacuate;
- purge the circuit with inert gas (optional for A2L);
- evacuate (optional for A2L);
- continuously flush or purge with inert gas when using a flame to open the circuit; and
- open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to the atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

**8. Charging procedures**

In addition to conventional charging procedures, the following requirements shall be followed:

- Works shall be undertaken with appropriate tools only (In case of uncertainty, please consult the manufacturer of the tools for use with flammable refrigerants)
- Ensure that the refrigeration system is earthed before charging the system with refrigerant.
- Cylinders shall be kept upright.
- Label the system when charging is complete(if not already). Extreme care shall be taken not to overfill the refrigeration system.
- Extreme care shall be taken not to overfill the refrigeration system.
- Before recharging the system, it shall be pressure tested with oxygen-free nitrogen (OFN). The system shall be leak tested on completion of charging but before commissioning. A follow-up leak test shall be carried out before leaving the site.

**9. Recovery**

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated.

**10. Unventilated areas**

For appliances containing more than any refrigerating circuit, the manual shall include a statement advising that an unventilated area where the appliance using FLAMMABLE REFRIGERANTS is installed shall be so constructed that

should any refrigerant leak, it will not stagnate to create a fire or explosion hazard. This shall include:

- a warning that if appliances with A2L REFRIGERANTS connected via an air duct system to one or more rooms are installed in a room with an area less than >Amin as determined in Clause GG.2, that room shall be without continuously operating open flames (for example an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest;
- for appliances using A2L REFRIGERANTS connected via an air duct system to one or more rooms, a warning with the substance of the following: "Auxiliary devices which may be a POTENTIAL IGNITION SOURCE shall not be installed in the ductwork. Examples of such POTENTIAL IGNITION SOURCES are hot surfaces with a temperature exceeding X °C and electric switching devices".
- NOTE X is the maximum allowable surface temperature as defined in 22.117.
- The manufacturer should specify other potential continuously operating sources known to cause ignition of the refrigerant used.
- The appliance shall be stored to prevent mechanical damage from occurring.
- for appliances using A2L refrigerants connected via an air duct system to one or more rooms, a warning that only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork. The manufacturer shall list in the instructions all approved auxiliary devices by manufacturer and model number for use with the specific appliance if those devices have the potential to become an ignition source.
- a warning that if appliances connected via an air duct system to one or more rooms with A2L REFRIGERANTS are installed in a room with an area less than 4min as determined in Clause GG.2. or installed in a room with an EFFECTIVE DISPERSAL VOLUME VED less than the minimum as determined by Clause 101.DVN.8, that room shall be without continuously operating open flames (e.g. an operating gas appliance) or other POTENTIAL IGNITION SOURCES (e.g. an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.
- for REFRIGERANT DETECTION SYSTEMS, the function and operation and required servicing measures;
- for LIMITED LIFE REFRIGERANT SENSORS Used in REFRIGERANT DETECTION SYSTEMS, the specified end-of-life and replacement instructions;
- REFRIGERANT SENSORS for REFRIGERANT DETECTION SYSTEMS Shall Only be replaced with sensors specified by the appliance manufacturer, and instructions to verify the actuation of mitigation actions per Annex GG or Annex 101.DVN as applicable.

For appliances using FLAMMABLE REFRIGERANTS with safety features that depend upon the proper function of a leak detection system used for leak mitigation, the instructions and unit markings shall contain the substance of the following:

"LEAK DETECTION SYSTEM installed. The unit must be powered except for service." If any remote-located REFRIGERANT SENSOR is employed to detect leaked refrigerant, such a remote-located REFRIGERANT SENSOR shall also apply to this marking or be accompanied by such instructions.

## Table S-3: Explanation of symbols displayed on the indoor unit or outdoor unit

| | | |
|---|---|---|
|  | **WARNING** | This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire. |
|  | **CAUTION** | This symbol shows that the operation manual should be read carefully. |
|  | **CAUTION** | This symbol shows that service personnel should be handling this equipment referencing the installation manual. |
|  | **CAUTION** | This symbol shows that information is available such as the operating manual or installation manual. |




Caution: Risk of fire/flammable materials

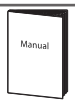
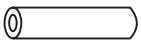
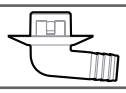
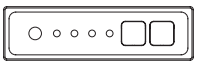
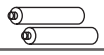
# Specifications

| **Product Model** | **MDLHU-H06B-2A<br>MO1HS-H06B-2A** | **MDLHU-H12B-2A<br>MO1HS-H06B-2A** | **MDLHU-H09B-2A<br>MO1HS-H09B-2A** |
|---|---|---|---|
| Power source | 208/230V~ 60Hz, 1Ph | | |
| Cooling capacity | 6500Btu/h | 6500Btu/h | 9000Btu/h |
| Heating capacity | 8000Btu/h | 8000Btu/h | 10000Btu/h |
| Moisture resistance class | IPX4 | | |
| | | | |
| **Product Model** | **MDLHU-H12B-2A<br>MO1HS-H09B-2A** | **MDLHU-H09B-2A<br>MO1ES-H09B-2A** | **MDLHU-H12B-2A<br>MO1ES-H09B-2A** |
| Power source | 208/230V~ 60Hz, 1Ph | | |
| Cooling capacity | 9000Btu/h | 9000Btu/h | 9000Btu/h |
| Heating capacity | 10000Btu/h | 10000Btu/h | 10000Btu/h |
| Moisture resistance class | IPX4 | | |
| | | | |
| **Product Model** | **MDLHU-H12B-2A<br>MO1HS-H12B-2A** | **MDLHU-H12B-2A<br>MO1ES-H12B-2A** | **MDLHU-H18B-2A<br>MO1HS-H18B-2A** |
| Power source | 208/230V~ 60Hz, 1Ph | | |
| Cooling capacity | 12000Btu/h | 11500Btu/h | 17000Btu/h |
| Heating capacity | 12500Btu/h | 12000Btu/h | 19000Btu/h |
| Moisture resistance class | IPX4 | | |
| | | | |
| **Product Model** | **MDLHU-H18B-2A<br>MO1ES-H18B-2A** | | |
| Power source | 208/230V~ 60Hz, 1Ph | | |
| Cooling capacity | 17000Btu/h | | |
| Heating capacity | 20000Btu/h | | |
| Moisture resistance class | IPX4 | | |

# Installation Accessories

The air conditioning system comes with the following accessories. Use all of the installation parts and accessories to install the air conditioner. Improper installation may result in water leakage, electrical shock, and fire, or cause the equipment to fail. The items that are not included in the air conditioner must be purchased separately.

### Table A-1: Included Accessories

| QTY. | Part Name | Part Image |
|---|---|---|
| 2-4 | Manual |  |
| 2 | Refringent in/out pipe protection cover |  |
| 2 | Copper nut |  |
| 1 | Outlet pipe sheath |  |
| 2 | Outlet pipe clasp |  |
| 1 | Seal ring |  |
| 1 | Drain joint |  |
| 1 | Magnetic ring (for wired control connection) |  |
| 1 | Magnetic ring (Use it on the connective cable between indoor unit and outdoor unit after installation.) |  |
| 1 | Display panel (See the description in Product Overview section) |  |
| 1 | RG10 Remote control |  |
| 2 | Battery |  |
| 1 | Remote control holder |  |

**Optional Accessories**

There are two types of remote controls: wired and wireless. Select a remote controller based on customer preferences and requirements and install it in an appropriate place.

Refer to catalogs and technical literature for guidance on selecting a suitable remote controller.

### Table A-2: Optional Accessories

| QTY. | Part Name | Part Image |
|---|---|---|
| 1 | Wired control |  |

### Table A-3: Pipe Specification

| Model | Liquid Side | Gas Side |
|---|---|---|
| 6K | Ø1/4 in. (Ø6.35 mm) | Ø3/8 in. (Ø9.52 mm) |
| 9K | Ø1/4 in. (Ø6.35 mm) | Ø3/8 in. (Ø9.52 mm) |
| 12K | Ø1/4 in. (Ø6.35 mm) | Ø3/8 in. (Ø9.52 mm) |
| 18K | Ø1/4 in. (Ø6.35 mm) | Ø1/2 in. (Ø12.7 mm) |

Pipes are not included in the accessories and you need to purchase them separately from the local dealer.

# Unpacking

Carefully unpack the unit and inspect the contents for damage. If any damage is found at the time of delivery, proper notification and claims should be made with the carrier. Check the rating plate to ensure the model number and voltage, plus any kits match with what you ordered. The manufacturer should be notified within 5 days of any discrepancy or parts shortage.

**Indoor unit:**

1. Cut the packing belt.
2. Unpack the package.
3. Take out the packing cushion and packing support.
4. Remove the packing film.
5. Take out the accessories.
6. Lift the machine out and lay it flat.

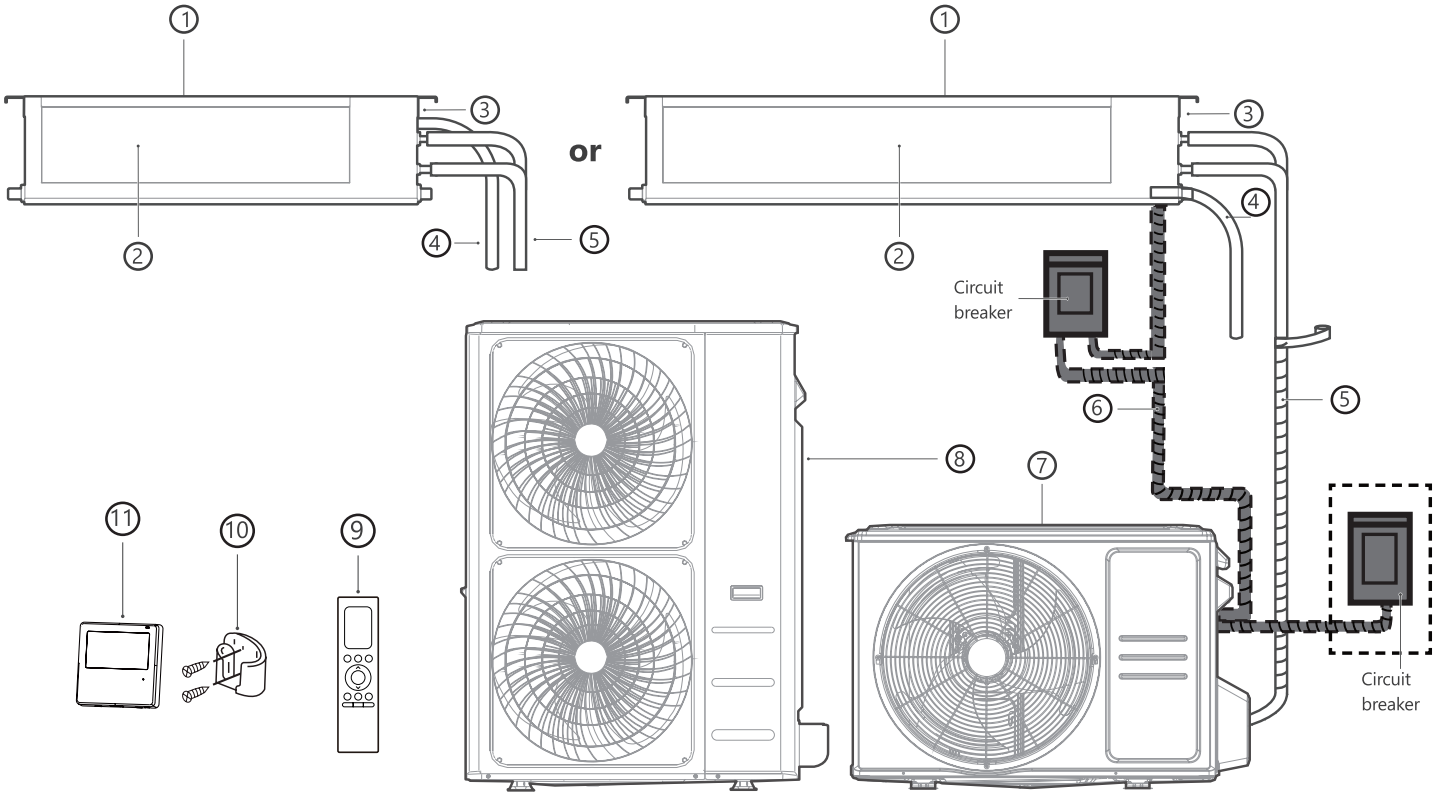
**Outdoor Unit:**

1. Cut the packing belt.
2. Take the unit out of the package.
3. Remove the foam from the unit.
4. Remove the packing film from the unit.

**NOTE**

Please keep all packaging items if you may need them in the future.

# Product Overview




1. Air inlet
2. Air outlet
3. Electric control box
4. Drain pipe
5. Refrigerant Piping (purchased separately)
6. Connection cable (purchased separately)
7. Outdoor Unit (A)
8. Outdoor Unit (B)
9. Remote Control
10. Remote control holder
11. Wired remote control (purchased separately)

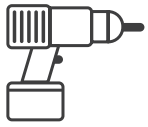
# Required Tools



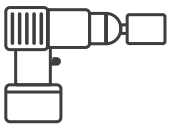
Gloves



Screwdrivers & wrench



Hammer drill



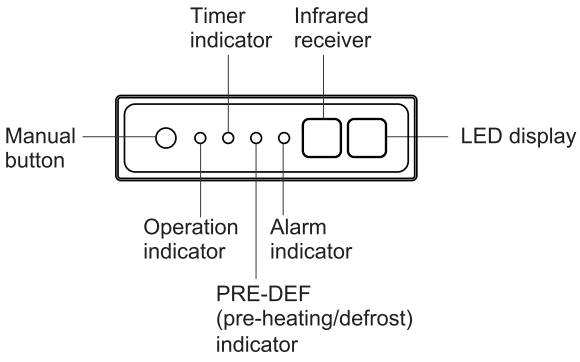
Core drill



Goggles & masks



Vinyl tape



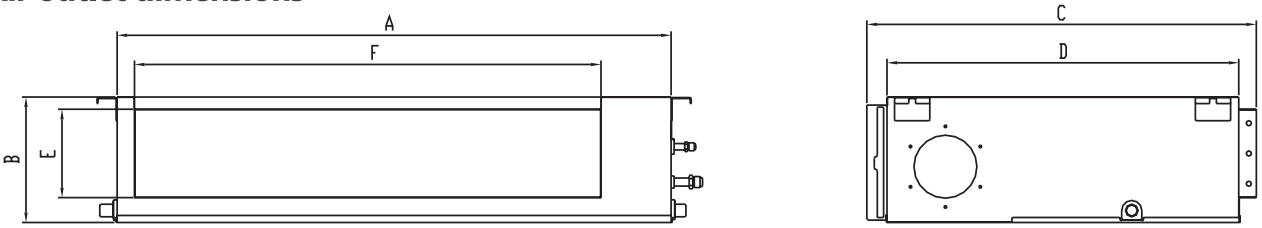

## Fig. PO-1: Display Panel Layout

**MANUAL button:** This button selects the mode in the following order: AUTO, FORCED COOL, OFF.
**FORCED COOL mode:** In FORCED COOL mode, the Operation light flashes. The system will then turn to AUTO after it has cooled with a high wind speed for 30 minutes. The remote control will be disabled during this operation.
**OFF mode:** When the display panel is turned OFF, the unit turns off and the remote control is re-enabled.

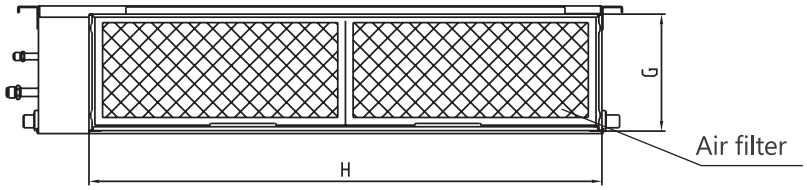
# Dimensions & Clearances

**Please refer to the following diagrams to locate the four positioning screw bolt holes on the ceiling. Be sure to mark the paces where you will drill ceiling hook holes.**

### Air outlet dimensions




### Air inlet dimensions




### Descending ventilation opening and mounted hook

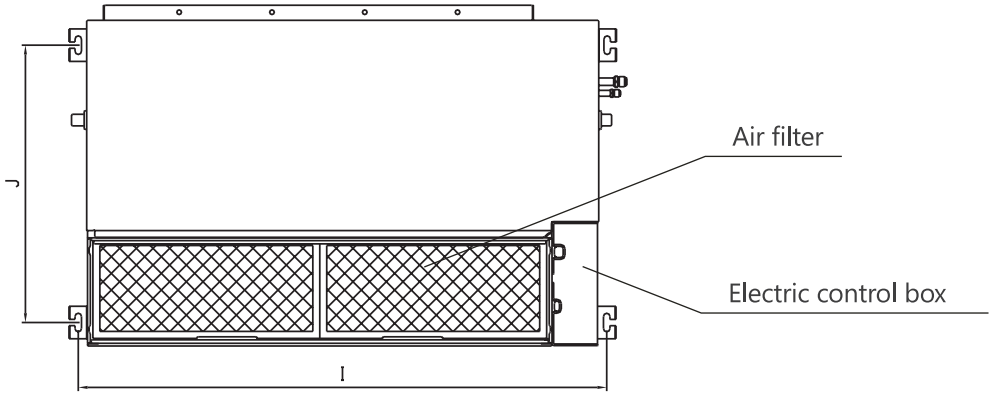



Fig. D-1: Unit Dimensions

Table D-1: Unit Dimensions

Unit: inch (mm)

| MODEL (Btu/h) | Outline Dimension | | | | Air Outlet Opening Size | | Air Return Opening Size | | Size Of Mounted Lug | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J |
| 6K/9K/12K | 27-5/8 (700) | 7-7/8 (200) | 19-7/8 (506) | 17-3/4 (450) | 6 (152) | 21-3/32 (537) | 7-5/16 (186) | 23-5/8 (599) | 29-1/4 (741) | 14-1/4 (360) |
| 18K | 34-5/8 (880) | 8-5/16 (210) | 26-1/2 (674) | 23-5/8 (600) | 5-7/16 (136) | 27-13/16 (706) | 7-1/2 (190) | 30-13/16 (782) | 36-1/4 (920) | 20 (508) |

# Confirm Installation Clearances

**Installation Area**

The distance between the mounted indoor units should meet the specifications illustrated in the following diagram.

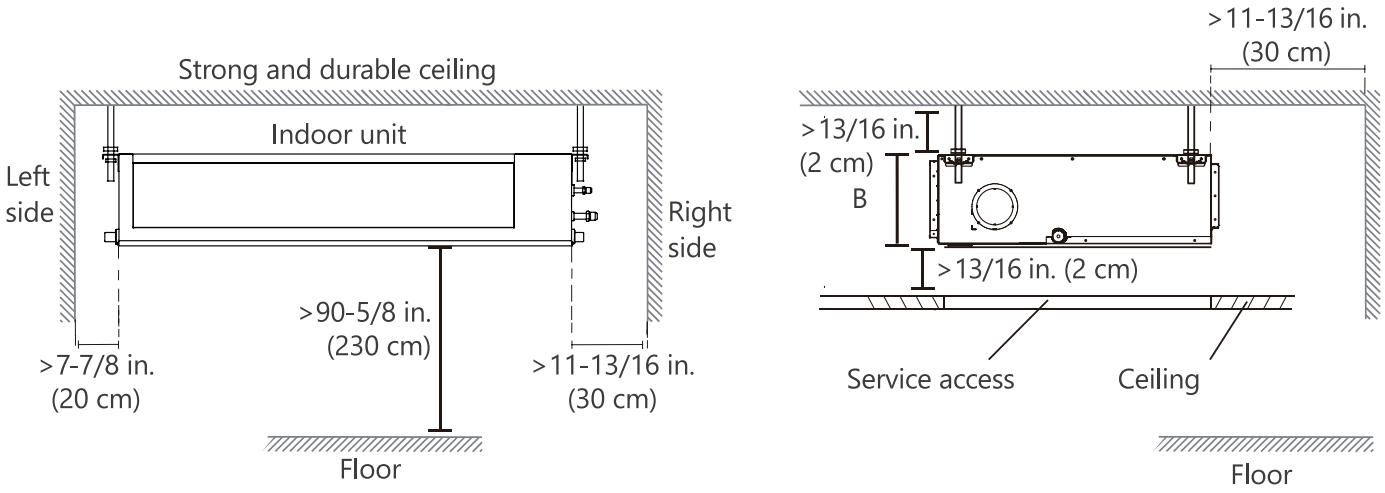



**Fig. D-2: Ceiling-Mounted Unit**

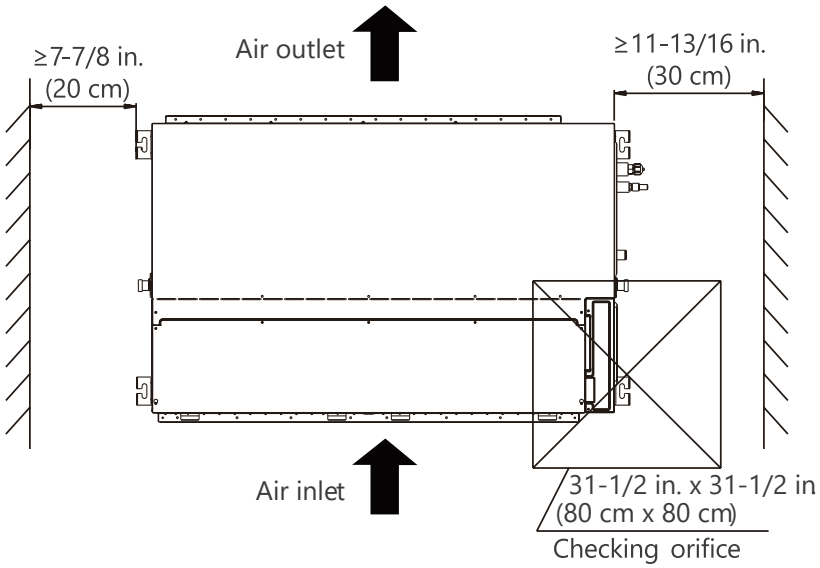
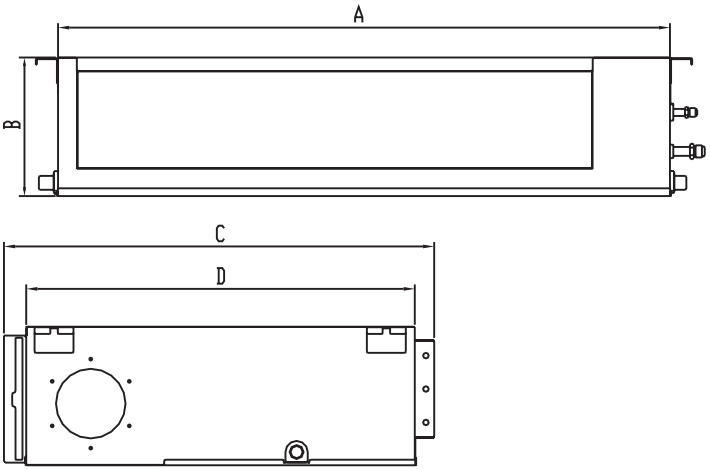



**Fig. D-3: Maintenance Space**

# Additional Installation Guide

**Indoor Unit Dimensions**

If the unit dimension (WxDxH) matches the contents in the diagram, please follow the instructions below.




## Fig. AI-1: Additional Dimensions

### Table AI-1: Outline Dimensions

Unit: in. / mm

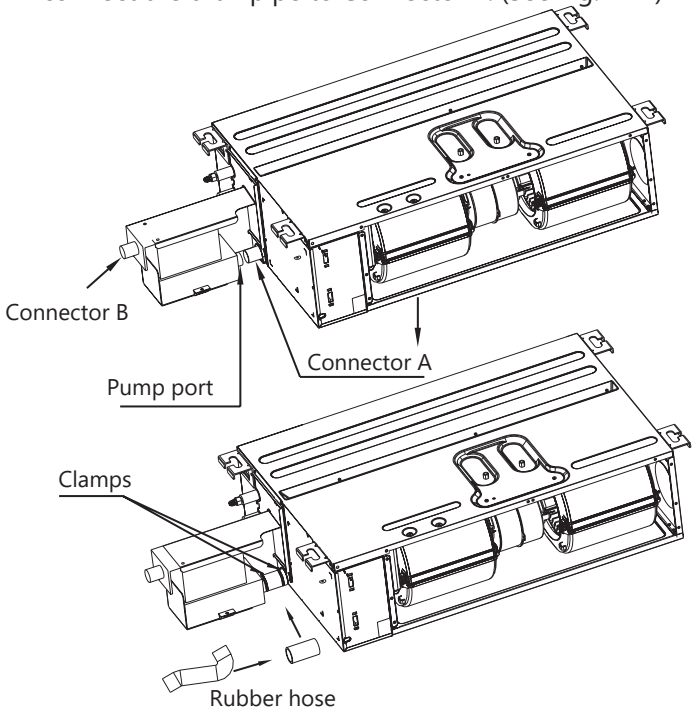
| Model | A | B | C | D |
|---|---|---|---|---|
| Model-A | 27-5/8 / 700 | 7-7/8 / 200 | 19-7/8 / 506 | 17-3/4 / 450 |
| Model-B | 34-5/8 / 880 | 8-5/16 / 210 | 26-1/2 / 674 | 23-5/8 / 600 |

**Model-A**

**Horizontal Installation**

With an external pump

1. Cut both ends of the rubber hose into a straight one, use it to connect the drain Connector A and the external pump, and secure it with clamps on both ends. Then connect the drainpipe to Connector B. (See Fig. AI-2)



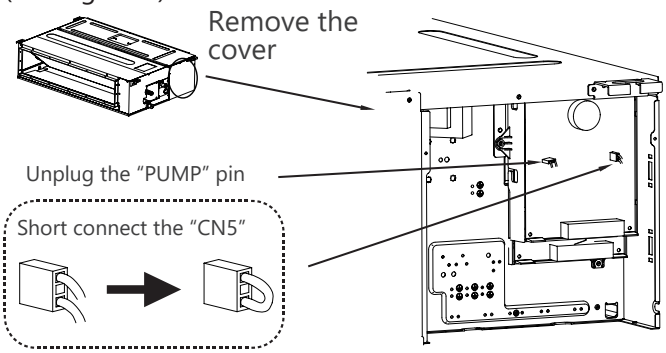

## Fig. AI-2: Connect The Drain And Pump

**Vertical installation**

**No need for pump (Disable pump)**

The pump must be disabled while the unit is installed vertically, or the pump assembly is removed from its original position.

1. Open the cover of the E-Parts Box assembly, unplug the "PUMP" pin to disable the pump function, and short-connect the "CN5" plug to disable the water level sensor. (See Fig. AI-3)

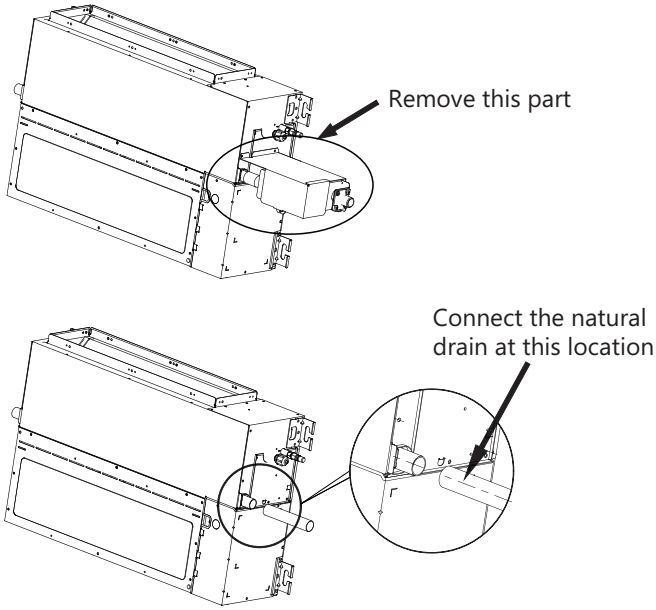



## Fig. AI-3: Disable The Water Level Sensor

**Drainpipe Connecting**

When installed vertically (up flow), the pump must be disabled first.

2. Follow Step 1 (Fig. AI-3) steps to disable the pump. For the unit with an external pump, the whole pump assembly can be removed. Then connect the drainpipe to the drain connector. (See Fig. AI-4)



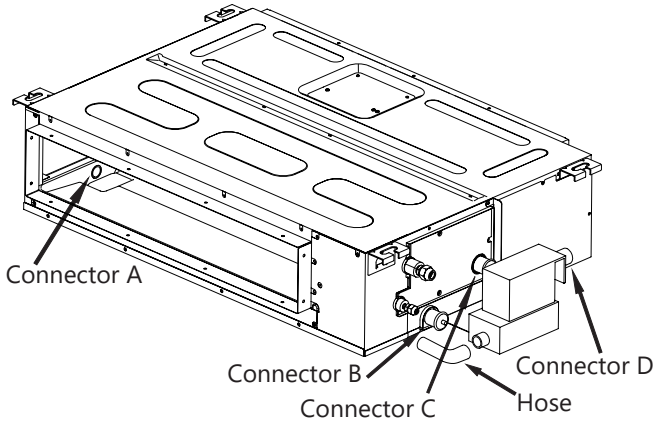

## Fig. AI-4: Remove The Pump Assembly

**Model-B**

**Horizontal installation**

Drain connectors A, B & C are covered with caps originally.

1. Take the cap off the drain connector B, connect the external pump to drain connector B using a hose and two hose clamps. Then connect the drainpipe to the connector D. (See Fig. AI-5) Plug the external pump to the "PUMP" pin and the water level sensor to the "CN5" to enable the pump. (See Fig. AI-6)



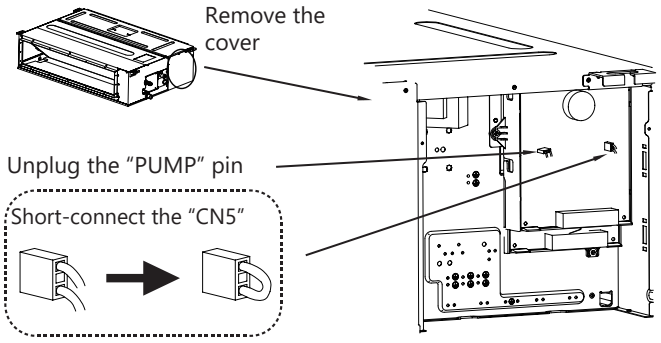

## Fig. AI-5: Connect The External Pump

**Vertical installation**

**No need for pump (Disable pump)**

The pump must be disabled while the unit is installed vertically, or the pump assembly is removed from its original position.

1. Open the cover of the E-Parts Box assembly, unplug the "PUMP" pin to disable the pump function, and short-connect the "CN5" plug to disable the water level sensor. (See Fig. AI-6)

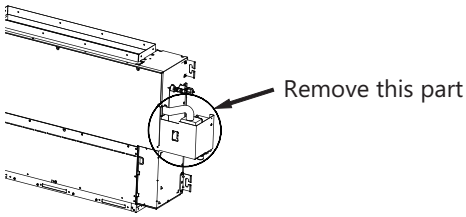



## Fig. AI-6: Disable The Water Level Sensor

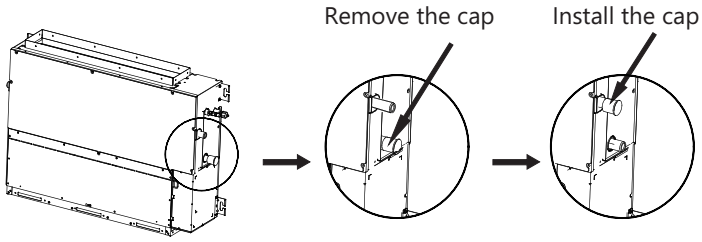
**Drainpipe connecting**

When installed vertically (up flow), the pump must be disabled first.

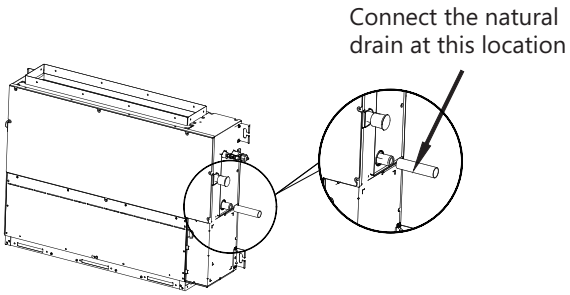
2. Follow Step 1 (Fig. AI-6) steps to disable the pump. For the unit with an external pump, the whole pump assembly can be removed. Then, take the cap off the drain connector and connect the drainpipe to the drain connector. (See Fig. AI-7, Fig. AI-8, and Fig. AI-9)




## Fig. AI-7: Remove The Pump Assembly




## Fig. AI-8: Remove & Install Caps



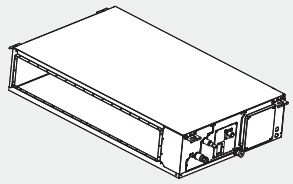

## Fig. AI-9: Connect The Drain

**NOTE**

Please contact a professional technical after-sales service if the pump needs to be replaced.

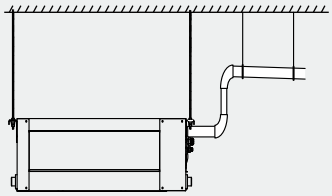
# Installation Summary

1



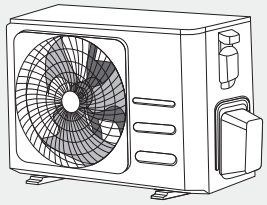
Install the indoor unit

2



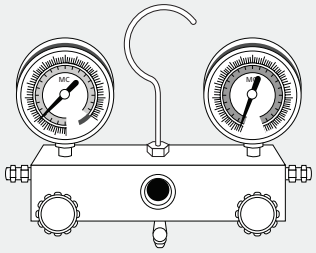
Install the drainpipe

3



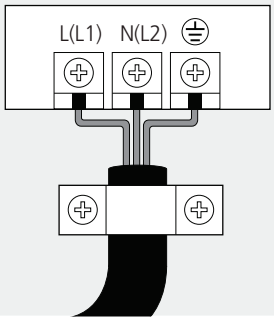
Install the outdoor unit

6



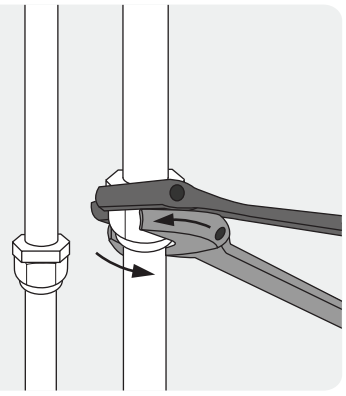
Evacuate the refrigeration system

5



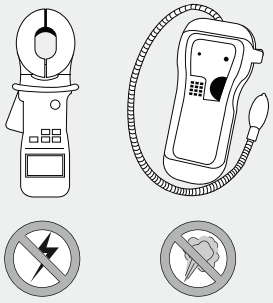

Connect the wires

4



Connect the refrigerant pipes

7



Perform a test run

# Installation Requirements

**NOTE**

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

**⚠ WARNING**

**DO NOT INSTALL IN THE FOLLOWING LOCATIONS:**



- Rooms with high humidity, such as bathrooms or laundry rooms
- Areas with caustic gases in the air, such as hot springs.



- Areas with strong electromagnetic waves.
- Areas that experience power fluctuations, such as factories



- Coastal areas with high salt content in the air.



- Areas with oil drilling or fracking.



- Areas that store flammable materials or gas.
- Kitchens that use natural gas



- Areas where there may be detergent or other corrosive gases in the air, such as bathrooms, or laundry rooms.



- Areas where the air inlet and outlet may be obstructed.
- Enclosed spaces, such as cabinets



- The danger of explosion. Keep flammable materials and vapors, such as gasoline, away from the air handler.

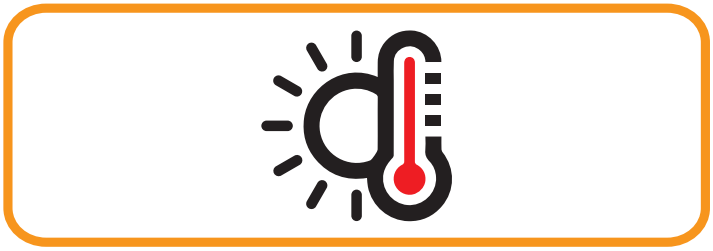
**⚠ WARNING**

**THE UNIT MUST BE INSTALLED IN A LOCATION THAT MEETS THE FOLLOWING REQUIREMENTS:**



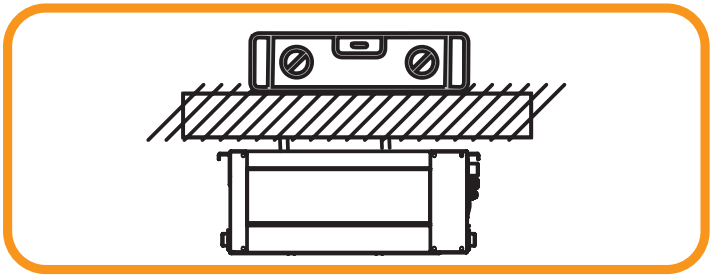
**Ample Room**

- Enough room for installation and maintenance.
- Enough room for the connecting pipe and drainpipe.



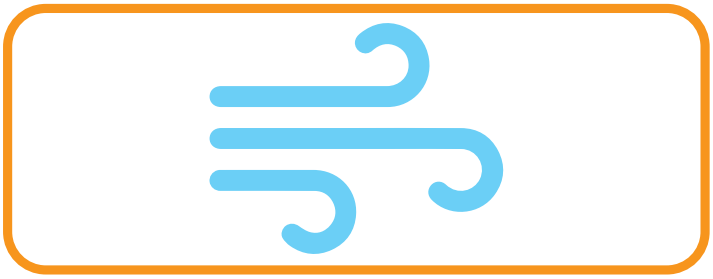
**Away From Heat**

There is no direct radiation from heaters.



**Must Support the Weight of the Indoor Unit**

The ceiling is horizontal, and its structure can sustain the weight of the indoor unit.



**Unristricted Airflow**

The air inlet and outlet are not blocked.

# Indoor Installation

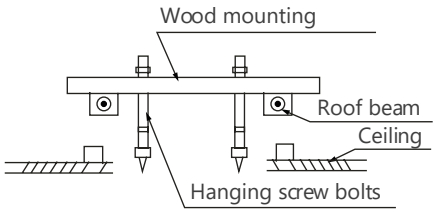
## Step 1 - Mount The Indoor Unit

**Ceiling Bolt Installation Guidelines**

**Wood**

The mounting holes for upper foam are used for auxiliary positioning bolts (if the foam is damaged, the spacing between the actual lifting lugs shall be the standard).

1. Place the wood mounting across the roof beam, then install the hanging screw bolts.




### Fig. 1-1: Wood Mount Arrangement

**New Concrete Bricks**

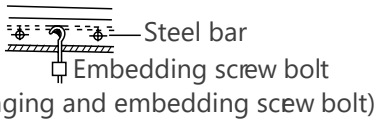
1. Inlay or embed the screw bolts.




### Fig. 1-2: Use Screw Bolts For New Concrete

**Existing Concrete Bricks**

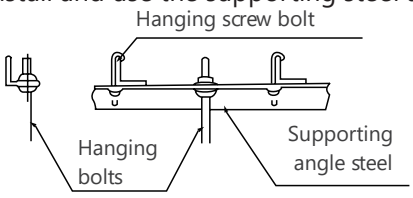
1. Use an embedding screw bolt, crock, and stick harness.




### Fig. 1-3: Embed Screw Bolts In Bricks

**Steel Roof Beam Structure**

1. Install and use the supporting steel angle.

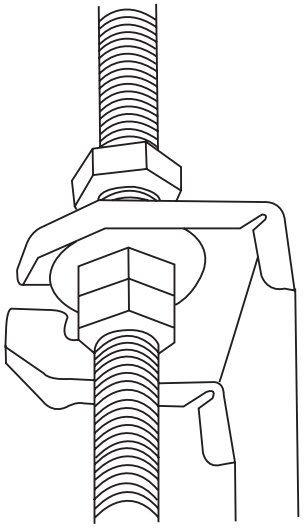



### Fig. 1-4: Use Angled Steel For Support

**⚠ CAUTION**

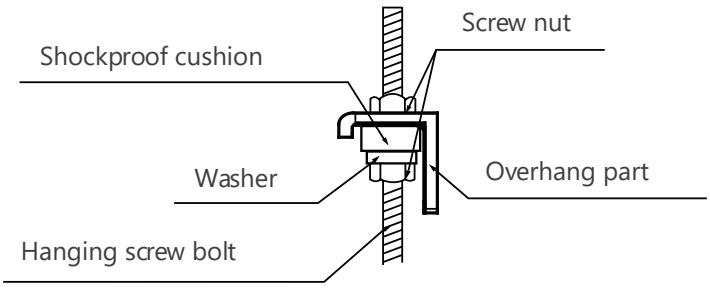
The unit body must be completely aligned with the hole. Ensure that the unit and the hole are the same size before moving on.

2. Install and fit pipes and wires after completing the installation of the main body. When choosing where to start, determine the direction of the pipes to be drawn out. Especially in cases where a ceiling is involved, align the refrigerant pipes, drainpipes, and indoor and outdoor lines with their connection points before mounting the unit.
3. Install hanging screw bolts.
   - Cut off the roof beam.
   - Strengthen the point at which the cut was made. Consolidate the roof beam.
4. After you select an installation location, align the refrigerant pipes, drainpipes, as well as indoor and outdoor wires with their connection points before mounting the unit.
5. Drill 4 holes 4 in. (10 cm) deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.
6. Secure the bolt using the washers and nuts provided.
7. Install the four suspension bolts.
8. Mount the indoor unit with at least two people to lift and secure it. Insert suspension bolts into the unit's hanging holes. Fasten them using the washers and nuts provided.



### Fig. 1-5: Hang Unit Using Suspension Bolts

9. Position the indoor unit flat using a level indicator to prevent leaks.




### Fig. 1-6: Suspension Bolt Arrangement

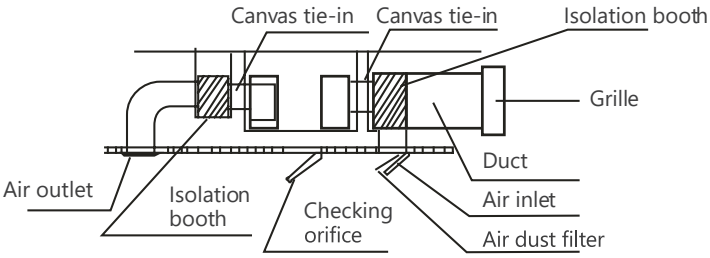
**NOTE**

Confirm the minimum drain tilt is 1/4 in. or more.

# Step 2 - Duct & Pump Installation

**Duct Installation**

1. Install the filter according to the size of the air inlet.
2. Install the canvas tie-in between the body and duct.
3. The air inlet and air outlet ducts should be far enough apart to avoid short-circuiting air passage.
4. Connect the duct according to the following diagrams:




## Fig. 2-1: Duct Connection Diagram

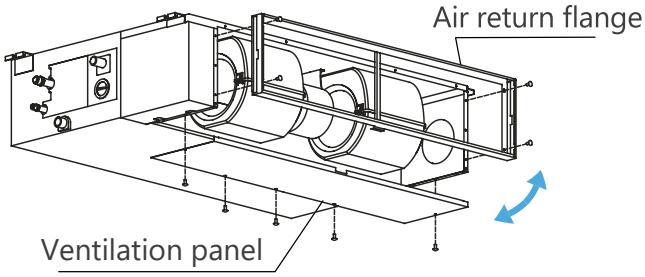
**NOTE**

- The min. The length of the duct should be more than 3-1/4 ft./1 m and attached to the air inlet by screws (applicable to the unit where the air inlet filter is not fastened by screws).
- The inlet of the air duct needs to be installed with a grille, which needs to be attached to the air duct with screws.
- Do not place the connecting duct weight on the indoor unit.
- When connecting the duct, use a nonflammable canvas tie-in to prevent vibrating.
- Insulation foam must be wrapped outside the duct to avoid condensation. An internal duct under the layer can be added to reduce noise if the end-user requires it.

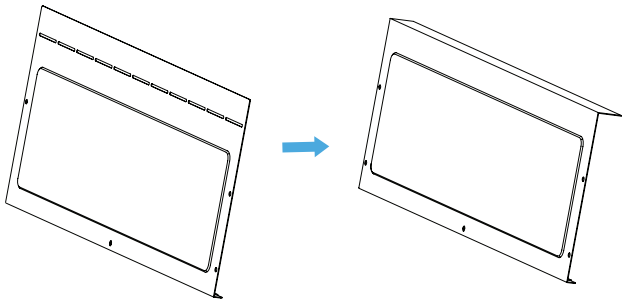
# Step 3- Install The Filter

1. Take off the ventilation panel and flange.

## Fig. 3-1: Remove The Ventilation Panel

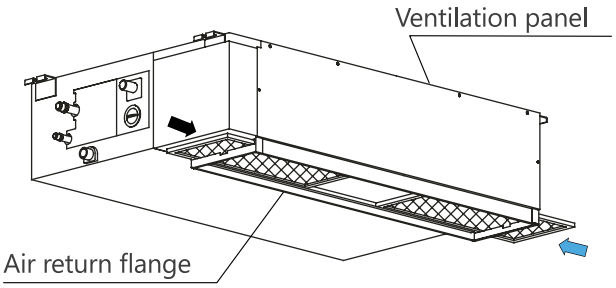



2. Bend the rear ventilation panel 90 degrees along the dotted line into a descending ventilation panel.



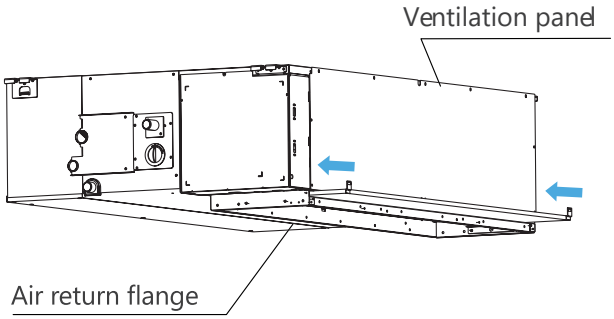
## Fig. 3-2: Bend The Panel 90 Degrees

3. Change the mounting positions of the ventilation panel and air return flange.
4. When installing the filter mesh, fit it into the flange as illustrated in Fig. 3-3.




## Fig. 3-3: Replace The Air Return Flange

5. Or for alternate air arrangement.




## Fig. 3-4: Alternate Air Arrangement

**NOTE**

All the figures in this manual are for demonstration purposes only. The air conditioner you have purchased may be slightly different in design, though similar in shape.

# Step 4 - Drill The Wall

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 2-1/2 in. (65 mm) or 3-1/2 in. (90 mm) core drill, drill a hole in the wall. Make sure that the holes are drilled at a slight downward angle so that the outdoor end of the hole is lower than the indoor end by about 1/2 in. (12 mm). This will ensure proper water drainage.
3. Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when yo finish the installation process

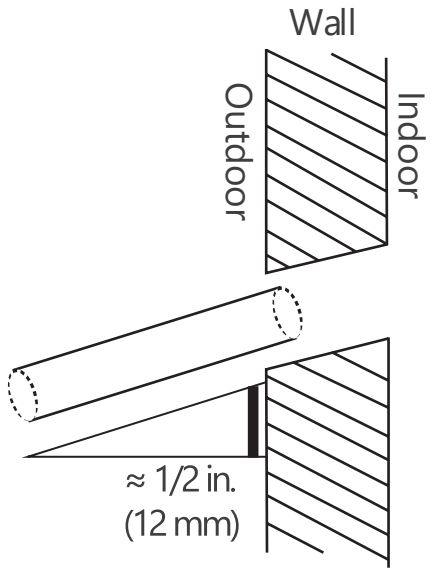



Fig. 4-1: Drill The Wall Hole At An Angle

**⚠ CAUTION**

When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

# Step 5 - Connect Drain Hose

The drainpipe is used to drain water away from the unit. Improper installation may cause unit and property damage.

**⚠ CAUTION**

- Insulate all piping to prevent condensation, which could lead to water damage.
- If the drainpipe is bent or installed incorrectly, water may leak and cause a water-level switch malfunction.
- In **HEAT** mode, the outdoor unit will discharge water. Ensure that the drain hose is placed in an appropriate area to avoid water damage and slippage.
- DO NOT pull the drainpipe forcefully. This could disconnect it.

**NOTE**

**On Purchasing Pipes**

Installation requires a polyethylene tube (exterior diameter = 1-1/2--9/16 in./3.7-3.9 cm, interior diameter = 1-1/4 in./3.2 cm), which can be obtained at your local hardware store or dealer.

**Indoor Drainpipe Installation**

Install the drainpipe as illustrated in Fig. 5-1.

1. Cover the drainpipe with heat insulation to prevent condensation and leakage.
2. Attach the mouth of the drain hose to the unit's outlet pipe. Sheath the mouth of the hose and clip it firmly with a pipe clasp.

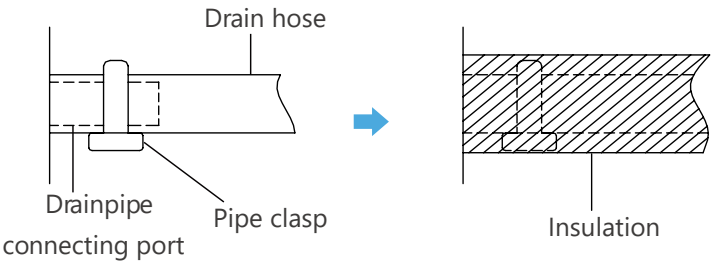



Fig. 5-1: Drainpipe Connection

3. These units operate with negative pressure at the drain connections and a drain trap is required. The trap needs to be installed as close to the unit as possible. Make sure the top of the trap is below the connection to the drain pan to allow complete drainage of the pan.

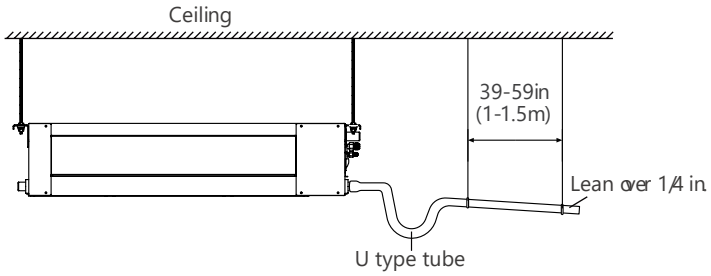



Fig. 5-2: Proper Downward Slope

**NOTE**

**On Drainpipe Installation**

- When using an extended drainpipe, tighten the indoor connection with an additional protection tube to prevent it from pulling loose.
- The drainpipe should slope downward at a gradient of at least 1/4 in. to prevent water from flowing back into the air conditioner.
- To prevent the pipe from sagging, space hanging wires every 39-59 in. (1-1.5 m).
- If the outlet of the drainpipe is higher than the body's pump joint, provide a lift pipe for the exhaust outlet of the indoor unit. The lift pipe must be installed no higher than 21-3/4 in. (55 cm) from the ceiling board and the distance between the unit and the lift pipe must be less than 7-7/8 in. (20 cm).
- Incorrect installation could cause water to flow back into the unit and flood.
- To prevent air bubbles, keep the drain hose level or slightly tiled up (3 in. /<75 mm).

**Drainpipe Installation For Units With A Pump**

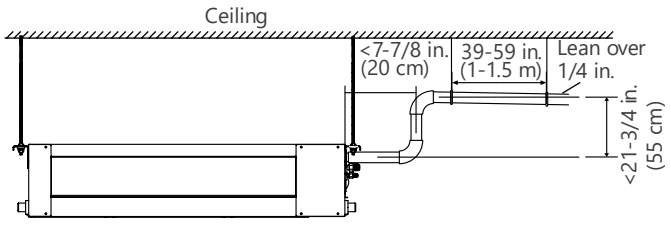
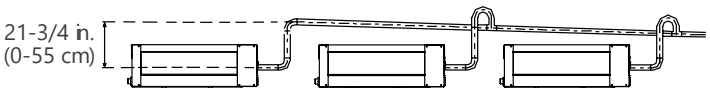



Fig. 5-3: Drainpipe Arrangement With Pump

**NOTE**

When connecting multiple drainpipes, install the pipes as illustrated in Figure 5-5.

**Units With A Pump**




## Fig. 5-6: Air Vents For Multiple Units

4. Pass the drain hose through the wall hole. Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

**NOTE**

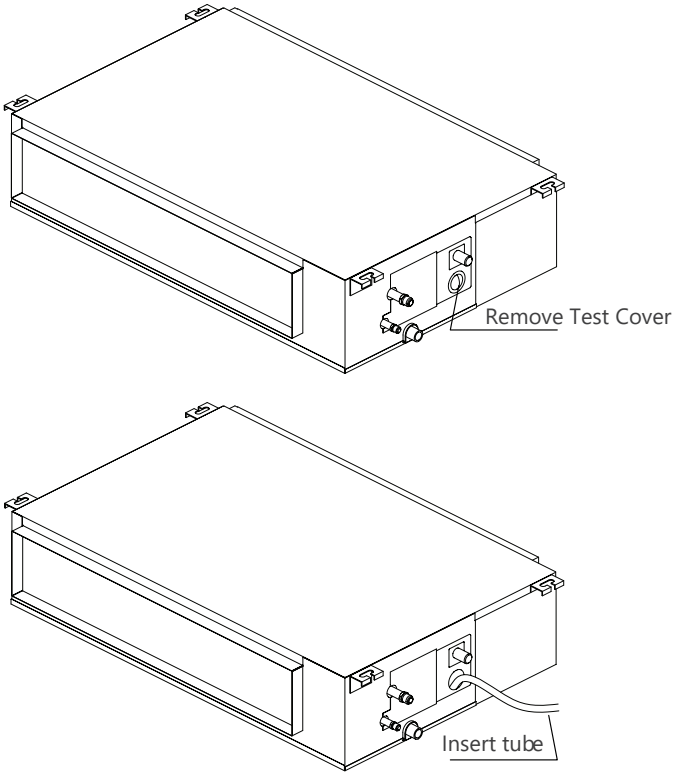
The drainpipe outlet should be at least 2 in. (5 cm) above the ground. If it touches the ground, the unit may become blocked and malfunction. If you discharge the water directly into a sewer, make sure that the drain has a U or S pipe to catch odors that might otherwise come back into the house.

**To Check For Water Leaks**

Check whether the drainpipe is unhindered. This test should be conducted on newly built houses before the ceiling is finished.

**Units With A Pump**

1. Remove the test cover.
2. Fill the water pan with 2 quarts (2 liters) of water.




## Fig. 5-4: Remove The Test Cover

3. Turn on the unit in COOLING mode. You will hear the drain pump. Check whether the water is discharged properly (a 1-minute lag is possible, depending on the length of the drain pipe), Check whether water leaks from the joints.
4. Turn off the air conditioner and put the cap back on.

# Outdoor Installation

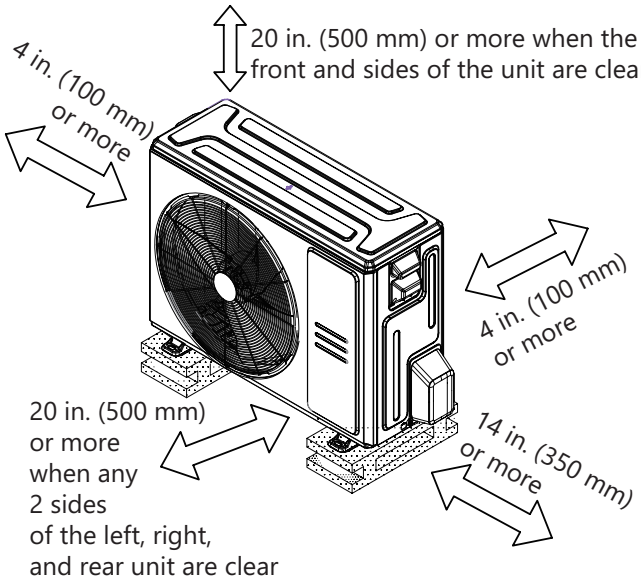
## Step 6 - Installation Location

**NOTE**

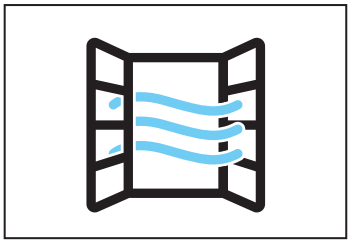
**BEFORE INSTALLATION**

Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

**Proper installation locations must meet the following standards:**

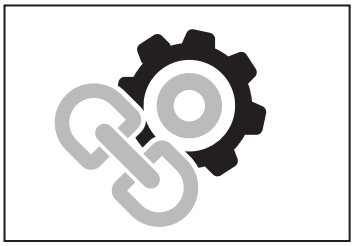


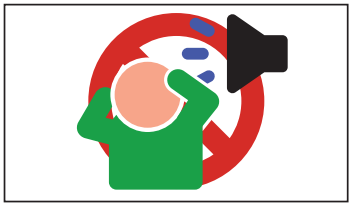

## Fig. 6-1: Clearance Dimensions



- Good air circulation and ventilation.

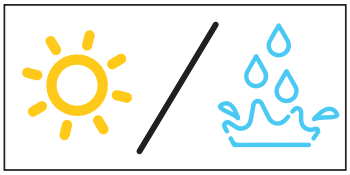
- Firm and solid - the location can support the unit and will not vibrate.

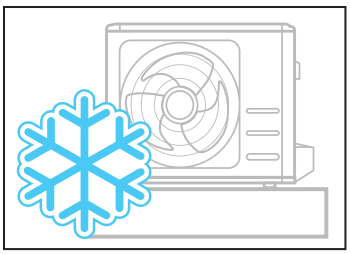




- Noise from the unit will not disturb other people.

- Protected from prolonged periods of direct sunlight or rain.





- Where snowfall is anticipated, take appropriate measures to prevent ice buildup and coil damage.

**SPECIAL CONSIDERATIONS FOR EXTREME WEATHER**

**If the unit is exposed to heavy wind:**

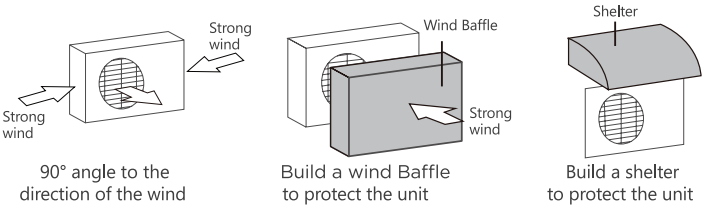
Install the unit so that the air outlet fan is at a 90° angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely heavy winds. See Fig. 6-2.

**If the unit is frequently exposed to heavy rain or snow:**

Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct airflow around the unit.

**If the unit is frequently exposed to salty air (seaside):**

Use an outdoor unit that is specially designed to resist corrosion.




## Fig. 6-2: High Wind Installation

**DO NOT install the unit in the following locations:**



- Near an obstacle that will block air inlets and outlets.
- Near animals or plants that will be harmed by hot air discharge.



- Near a public street, crowded areas, or where noise from the unit will disturb others.
- Near any source of combustible gas.
- In a location that is exposed to large amounts of dust.



- In a location exposed to excessive amounts of salty air.

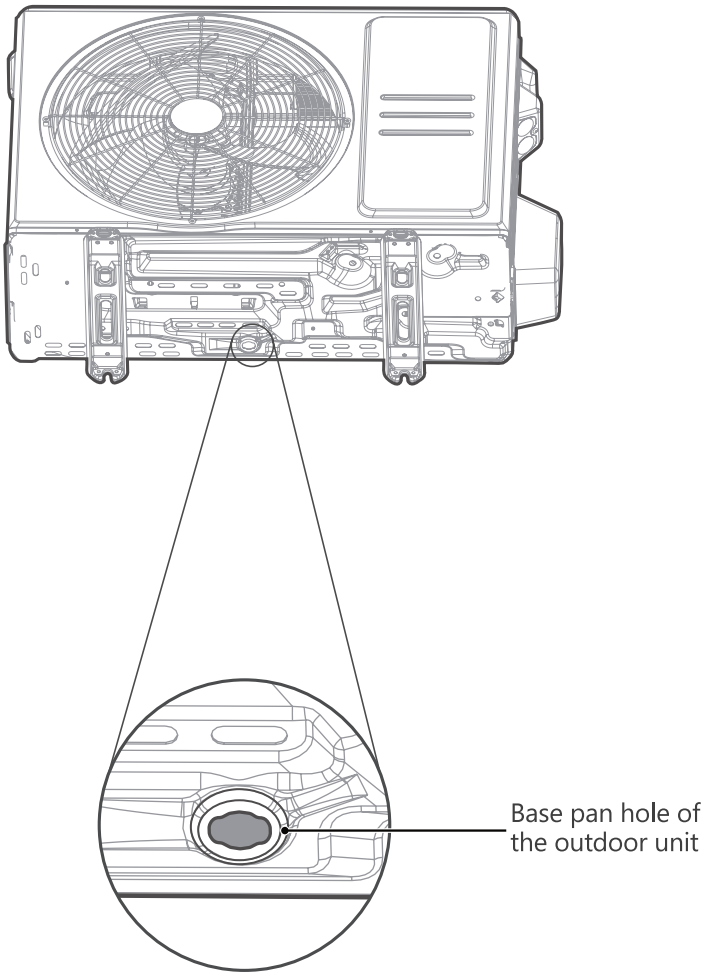
**NOTE**

Install the unit by following local codes and regulations, there may be differences between different regions.

# Step 7 - Install Drain Joint

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit.

1. Find the base pan hole in the outdoor unit




## Fig. 7-1: Drain Hole Location

2. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.

3. Insert the drain joint into the hole in the base pan of the unit.

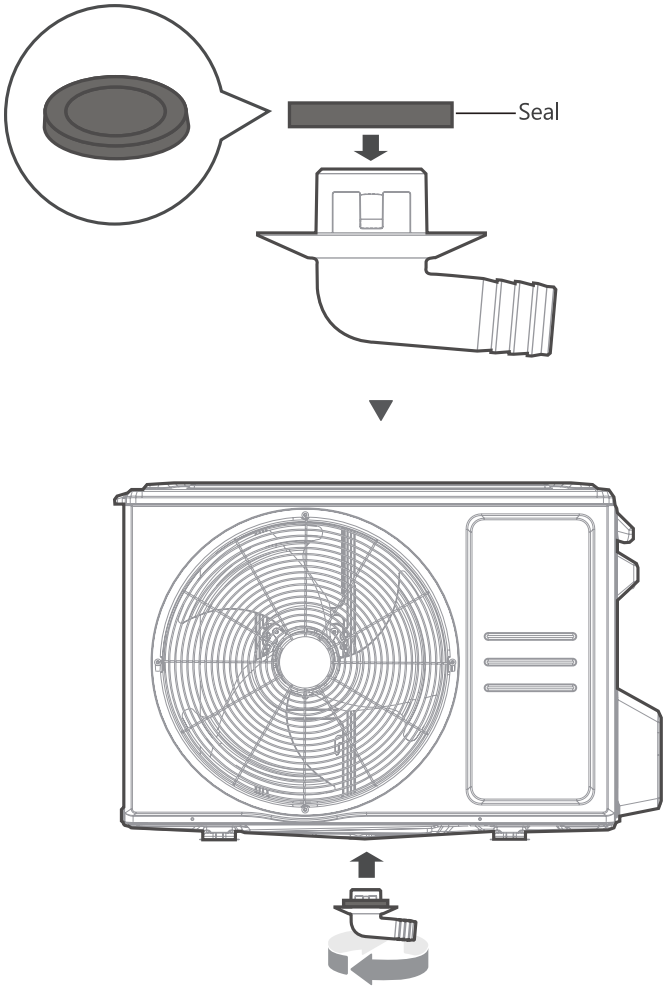



Fig. 7-2: Installation of the Drain Joint

4. Rotate the drain joint 90° until it clicks in place facing the front of the unit.
5. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

**⚠ CAUTION**

**IN COLD CLIMATES**

In cold climates, make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood the unit.

# Step 8 - Anchor Outdoor Unit

**⚠ WARNING**

**WHEN DRILLING INTO CONCRETE, EYE PROTECTION IS RECOMMENDED AT ALL TIME.**

- The outdoor unit can be anchored to the ground or to a wall-mounted bracket with bolt(M10). Prepare the installation base of the unit according to the dimensions in Table 8-1.

The following is a list of different outdoor unit sizes and the distance between their mounting feet. Prepare the installtion base of the unit according to the dimensions in Table 8-1.

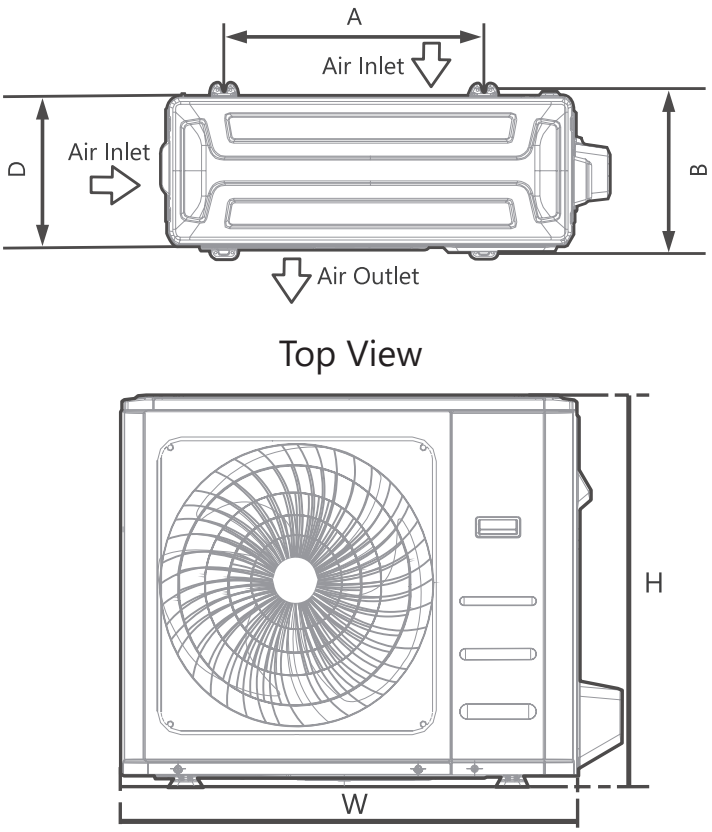



Fig. 8-1: Unit Dimensions

Table 8-1: Outdoor Unit Dimensions

| Outdoor Unit Dimensions W x H x D | Mounting Dimensions | |
|---|---|---|
| | Distance A | Distance B |
| 30-1/8 in. x 21-7/8 in. x 11-7/8 in. (765 mm x 555 mm x 303 mm ) | 17- 7/8 in. (452 mm ) | 11-1/4 in. (286 mm) |
| 31-3/4 in. x 21-7/8 in. x 12-7/8 in. (805 mm x554 mm x330 mm) | 20-1/8 in. (511 mm) | 12-1/2 in. (317 mm) |
| 35 in. x 26-1/4 in. x 13-1/2 in. (890 mm x 673 mm x 342 mm) | 26-1/8 in. (663 mm ) | 13-7/8 in. (354 mm) |

**If you install the unit on the ground or a concrete mounting platform, do the following:**

1. Mark the positions for four expansion bolts based on the dimensions chart.

2. Pre-drill holes for expansion bolts.
3. Place a nut on the end of each expansion bolt.
4. Hammer expansion bolts into the pre-drilled holes.
5. Remove the nuts from the expansion bolts and place the outdoor unit on the bolts.
6. Put the washer on each expansion bolt, then replace the nuts.
7. Using a wrench, tighten each nut until it is snug.

**If you install the unit on a wall-mounted bracket, do the following:**

1. Mark the position of bracket holes based on the dimensions chart.
2. Pre-drill the holes for the expansion bolts.
3. Place a washer and nut on the end of each expansion bolt.
4. Thread expansion bolts through holes in mounting brackets, put mounting brackets in position, and hammer expansion bolts into the wall.
5. Check that the mounting brackets are level.
6. Carefully lift the unit and place its mounting feet on brackets.
7. Bolt the unit firmly onto the brackets.
8. If allowed, install the unit with rubber gaskets to reduce vibrations and noise.

**Make sure that the wall is made of solid brick, concrete, or similarly strong material. The wall must be able to support at least four times the weight of the unit.**

**Multiple Unit Installation**

The relations between H, A, and L are as follows

### Table 8-2: Multiple Unit Clearances

| | L | A |
|---|---|---|
| L ≤ H | L ≤ 1/2 H | 9-13/16 in. (25 cm) or more |
| | 1/2 H < L ≤ H | 11-13/16 in. (30 cm) or more |
| L > H | Cannot be installed. | |

**NOTE**

H=Unit height
L=Height of the wall behind the unit
A=Distance between the unit and the wall

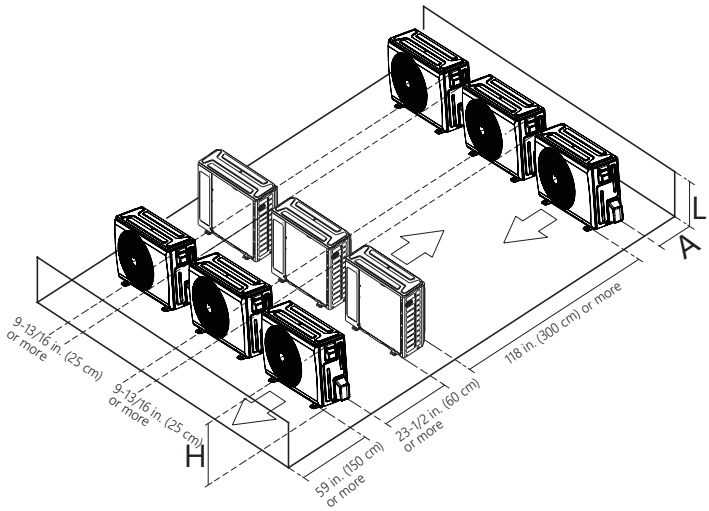



Fig. 8-2: Clearances for Multiple Units

# Step 9 - Refrigerant Piping Connection

When connecting refrigerant piping, **DO NOT** let substances or gases other than the specified refrigerant enter the unit. The presence of other gases or substances will lower the unit's capacity, and can cause abnormally high pressure in the refrigeration cycle. This can cause explosion and injury.

### Table 9-1: Pipe Length & Elevation

**The maximum length and drop height based on models**

| Model | Length of Piping | Maximum Drop Height |
|---|---|---|
| 6K/9K/12K | 82 ft./25 m | 49-3/16 ft./15 m |
| 18K | 98-7/16 ft./30 m | 65-5/8 ft./20 m |

Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements shown in the table.

**⚠ CAUTION**

**Oil traps**

If oil flows back into the outdoor unit's compressor, this might cause liquid compression or deterioration of oil return. Oil traps in the rising gas piping can prevent this from happening.

An oil trap should be installed every 20 ft. (6 m) of the vertical suction line riser (for units with a capacity of less than 36,000 Btu/h). An oil trap should be installed every 32-13/16 ft. (10 m) of vertical suction line riser (≥36000 Btu/h unit).

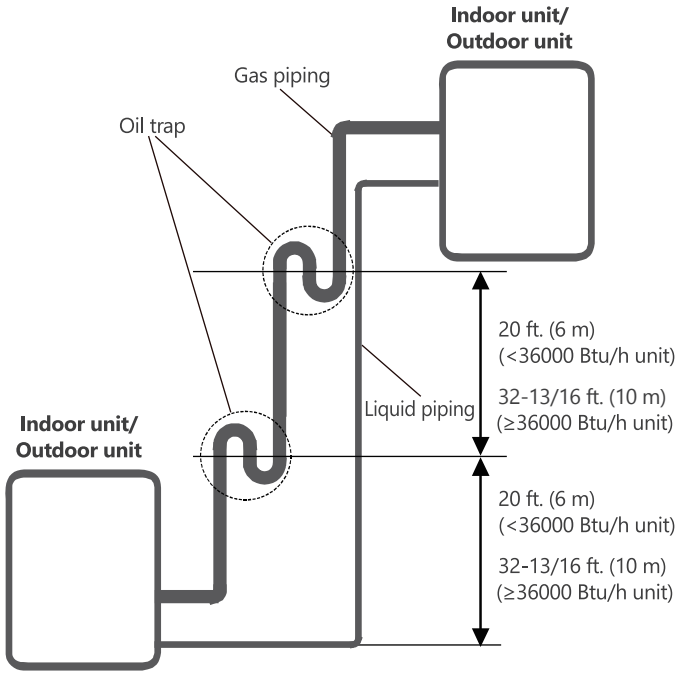



Fig. 9-1: Oil Trap Arrangement

## ⚠ CAUTION

- The branching pipe must be installed horizontally. An angle of more than 10° may cause malfunction.
- **DO NOT** install the connecting pipe until both indoor and outdoor units have been installed.
- Insulate both the gas and liquid piping to prevent condensation.

**Cut pipes**

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1. Measure the distance between the indoor and outdoor units.
2. Using a pipe cutter, cut the pipe a little longer than the measured distance.
3. Make sure the pipe is cut at a perfect 90° angle.

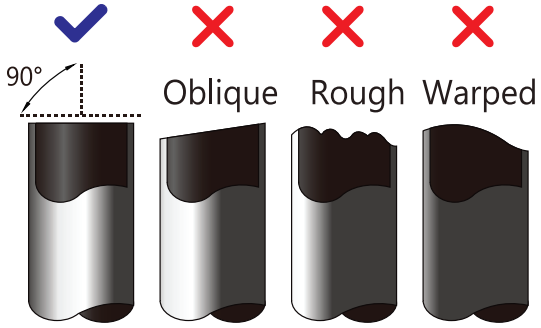



Fig. 9-2: Correct Pipe Cutting

**NOTE**

**DO NOT DEFORM PIPE WHILE CUTTING**

Be extra careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

4. Remove the Burrs

Burrs can affect the air-tight seal of the refrigerant piping connection. Therefore, they must be completely removed. To remove:

a. Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
b. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe

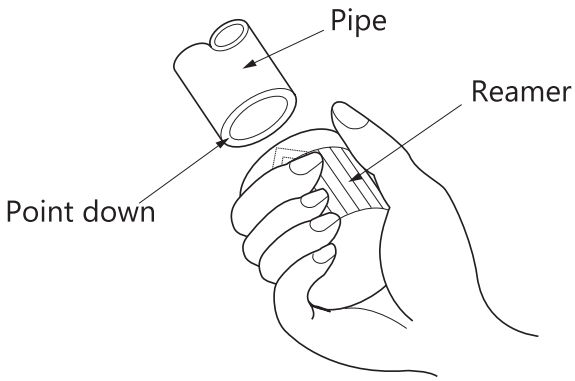



Fig. 9-3: Reamer Tool

5. Flare the Pipe Ends.

Proper flaring is essential to achieving an airtight seal.

a. After removing the burrs from the cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.
b. Sheath the pipe with insulating material.
c. Place the factory flare nut on the pipe facing the proper direction. Make sure they are facing the right direction. Once the ends are flared, it is impossible to put them on or change their direction.

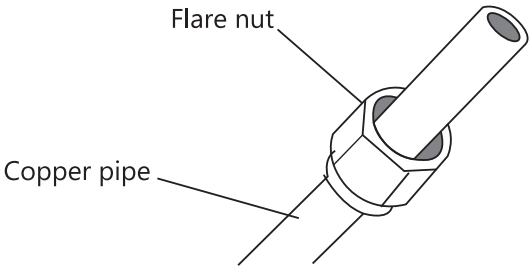



Fig. 9-4: Copper pipe and flare nut

d. Remove the PVC tape from the ends of the pipe when ready to perform the flaring work.
e. Clamp the flare block on the end of the pipe. The end of the pipe must extend beyond the flare form.

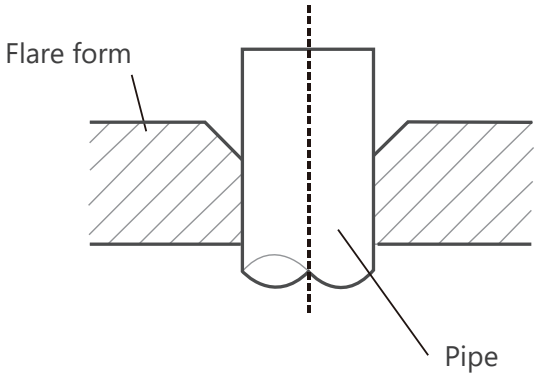



Fig. 9-5: Flare Form

f. Place the flaring tool onto the form.
g. Turn the handle of the flaring tool clockwise until the pipe is fully flared. Flare the pipe following the dimensions in Table 9-2.

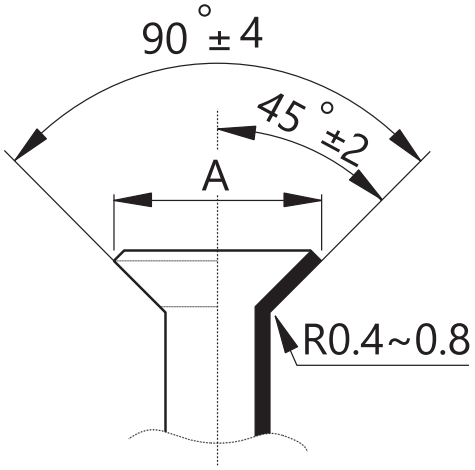



Fig. 9-6: Flare Shape

Table 9-2: Flare Dimensions/Tightening Torque

| Pipe Size Outside Diameter | Flare Dimensions (A) |
|---|---|
| in. (mm) | in. (mm) |
| Ø1/4 (6.35) | 11/23 - 23/64 (~9.1) |
| Ø3/8 (9.52) | 1/2 - 33/64 (~13.2) |
| Ø1/2 (12.7) | 41/64 -31/32 (~16.6) |

Tightening Torque for Flare Nuts

| Pipe Size Outside Diameter | Tightening Torque |
|---|---|
| in. (mm) | ft. - lbs. (N.m) |
| Ø1/4 (6.35) | 13.02 - 14.47 (18~20) |
| Ø3/8 (9.52) | 23.15 - 28.21 (32~39) |
| Ø1/2 (12.7) | 35.44 - 42.67 (49~59) |

h. Remove the flaring tool and flare block, then inspect the end of the pipe for cracks and even flaring.

6. Connect the Pipes

Connect the copper pipes to the indoor unit first, then connect the pipes to the outdoor unit. Connect the low-pressure pipe first, then connect the high-pressure pipe.

a. When connecting the flare nuts, apply a thin coat of refrigeration oil to the flared ends of the pipes.

b. Align the center of the two pipes that you will connect.

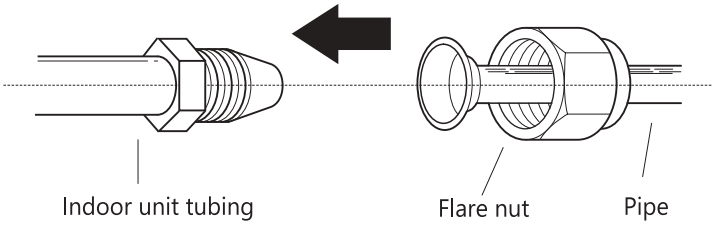



Fig. 9-7: Align the center of the two pipes

c. Tighten the flare nut as much as possible by hand.

d. Using a wrench, grip the nut on the unit tubing.

e. While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values listed in Table 9-2.

**NOTE**

Use both a spanner and a torque wrench when connecting or disconnecting pipes to/from the unit.

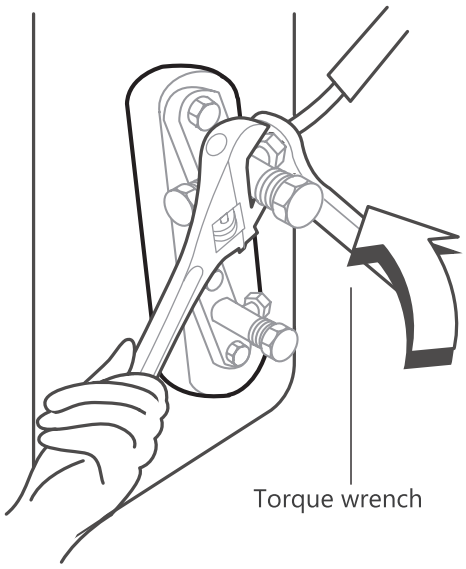



Fig. 9-8: Spanner and Torque Wrench

All tubing bends should be performed with a properly sized tubing bender to prevent kinking or damaging the tubing.

f. While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values listed in Table 9-2.

**⚠ CAUTION**

Ensure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.

- Make sure the pipe is properly connected.
- Over-tightening may damage the bell mouth and under-tightening may lead to leakage.

**NOTE**

**MINIMUM BEND RADIUS**

Carefully bend the tubing in the middle according to the diagram below. DO NOT bend the tubing over 90° or more than 3 times. Use care when bending pipe, do not kink pipe.

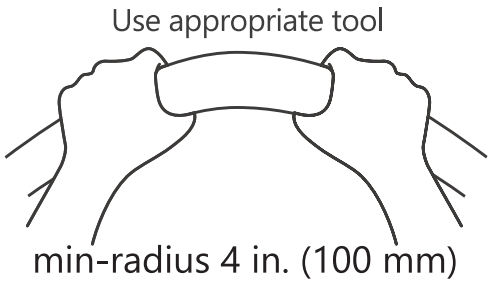



Fig. 9-9: Bend the Tubing

g. After connecting the copper pipes to the indoor unit, wrap the power cable, signal cable, and piping together with binding tape.

**NOTE**

**DO NOT** intertwine the signal cable with other wires. While bundling these items together. **DO NOT** intertwine or cross the signal cable with any other wiring.

# Step 10 - Unit Wiring

**⚠ WARNING**

**BEFORE PERFORMING ANY ELECTRICAL WORK, READ THESE WARNINGS.**

- All wiring must comply with local and national electrical codes and regulations and must be installed by a licensed electrician.
- All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
- If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client and refuse to install the unit until the safety issue is properly resolved.
- Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
- Installation of an external surge suppressor at the outdoor disconnect is recommended.
- If connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated into the fixed wiring. The qualified technician must use an approved circuit breaker or switch.
- Only connect the unit to an individual branch circuit. Do not connect another appliance to that outlet.
- Make sure to properly ground the air conditioner.
- Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
- Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.
- If the unit has an auxiliary electric heater, it must be installed at least 40 in. (1 m) away from any combustible materials.
- To avoid getting an electric shock, never touch the electrical components soon after the power supply has been turned off. After turning off the power, always wait 10 minutes or more before you touch the electrical components.
- Make sure that you do not cross your electrical wiring with your signal wiring.
- This may cause distortion, interference, or possibly damage to circuit boards.
- No other equipment should be connected to the same power circuit.
- Connect the outdoor wires before connecting the indoor wires.

**⚠ WARNING**

**BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.**

**Outdoor Unit Wiring**

**NOTE**

**On Circuit Breaker**

When the maximum current of the air conditioner is more than 16 A, a circuit breaker or leakage protection switch with a protective device shall be used (purchased separately). When the maximum current of the air conditioner is less than 16 A, the power cord of the air conditioner shall be equipped with a plug (purchased separately). In North America, the application should be wired according to NEC and CEC requirements.

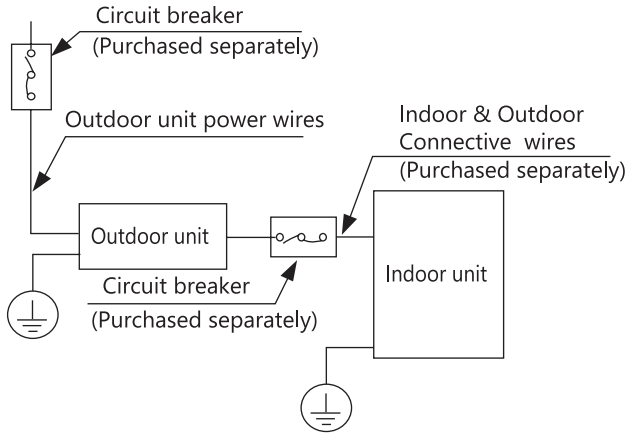



Fig. 10-1: Wiring Overview

**NOTE**

The diagrams are for explanation purposes only. Your machine may be slightly different. The actual diagram shall prevail.

**Prepare the cable for connection.**

1. You must first choose the right cable size. Choose the cable type according to the local electrical codes and regulations.
2. The size of the power supply cable, signal cable, fuse, and switch needed is determined by the Minimum Circuit Ampacity of the unit. The Minimum Circuit Ampacity is indicated on the nameplate located on the side panel of the unit. Refer to this nameplate to choose the right cable, fuse, or switch.
3. Using wire strippers, strip the insulating jacket from both ends of the signal cable to reveal about 6 in. (150 mm) of the wire.
4. Strip the insulation from the ends of the wires.
5. Using a wire crimper, crimp u-lugs on the ends.

**NOTE**

When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.

6. Remove the 2 screws fixed on the front panel and side panel, then take them down to perform wire connection (see the figure of outdoor unit A). Unscrew the electrical wiring cover and remove it. (See the figure of outdoor unit B).

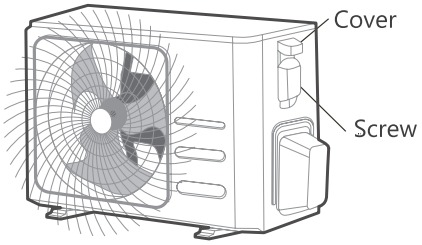
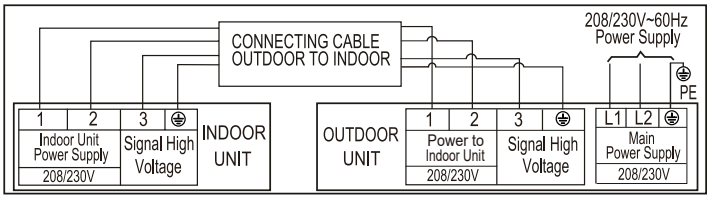



Fig. 10-2: Remove Electrical Cover

**Connect the wires to the terminals.**

7. Match the wire colors/labels with the labels on the terminal block. Firmly screw the U-lug of each wire to its corresponding terminal..
8. Clamp down the cable with the cable clamp.
9. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
10. Reinstall the cover of the electric control box.



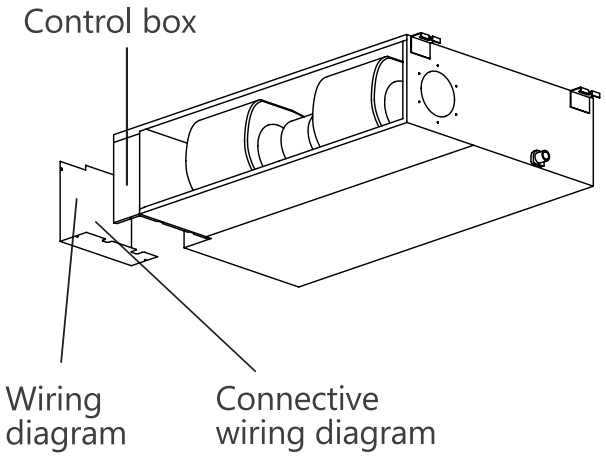

**Connection Diagram (6K/9K/12K/18K)**

## Fig. 10-3: Connection Diagram

**Indoor Unit Wiring**

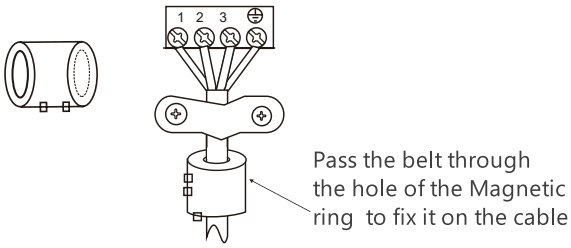
**Prepare the cable for connection.**

1. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal approximately 6 in. (15 mm) of wire.
2. Strip the insulation from the ends.
3. Using a wire crimper, crimp the u-lugs to the ends of the wires.
4. Remove the cover of the electric control box on your indoor unit.
5. Connect the U-lugs to the terminals. Match the wire colors/labels with the labels on the terminal block. Firmly screw the u-lug of each wire to its corresponding terminal. Refer to the Serial Number and Wiring Diagram located on the cover of the electric control box.




## Fig. 10-4: Wiring Diagram Location

Magnetic ring (if supplied and packed with accessories).

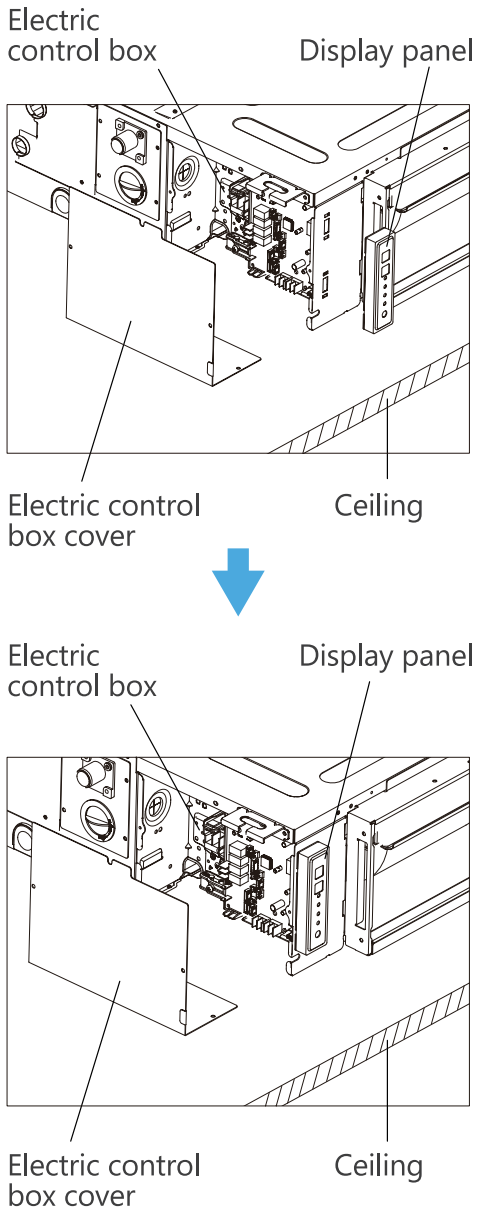



## Fig. 10-5: Magnetic Ring Installation

**⚠ CAUTION**

- When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.
- The refrigerant circuit can become very hot. Keep the interconnection cable away from the copper tube.

6. Clamp down the cable with the cable clamp.The cable must not be loose or pull on the U-lugs.
7. The display box needs to be installed in the electric control box, and the display box needs to be installed inside the electric control, stuck on the electric control box sheet metal clips.




## Fig. 10-6: Install The Display Panel

**NOTE**

a. The display box needs to be installed on the outside of the indoor unit.
b. The wiring of the wired controller needs to be completed inside the electric control box.
c. The indoor unit needs to be ceiling mounted.

8. Reattach the electric box cover.

# Step 11 - Air Evacuation

**NOTE**

When opening valve stems, turn the hexagonal wrench until it hits the stopper. Do not try to force the valve to open further.

**PREPARATIONS AND PRECAUTIONS**

Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the air conditioner, reduce its efficiency, and cause injury. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit, removing any non-condensable gas and moisture from the system. Evacuation should be performed upon initial installation and when the unit is relocated.

**⚠ CAUTION**

**BEFORE PERFORMING EVACUATION**

- Check to make sure the connective pipes between the indoor and outdoor units are connected properly.
- Check to make sure all wiring is connected properly.

**Evacuation Instructions**

1. Connect the charge hose of the manifold gauge to the service port on the outdoor unit's low pressure valve.
2. Connect another charge hose from the manifold gauge to the vacuum pump.
3. Open the Low-Pressure side of the manifold gauge. Keep the High-Pressure side closed.
4. Tighten refrigerant valve caps hand-tight plus flat to ensure there are no vacuum leaks.
5. Turn on the vacuum pump to evacuate the system.

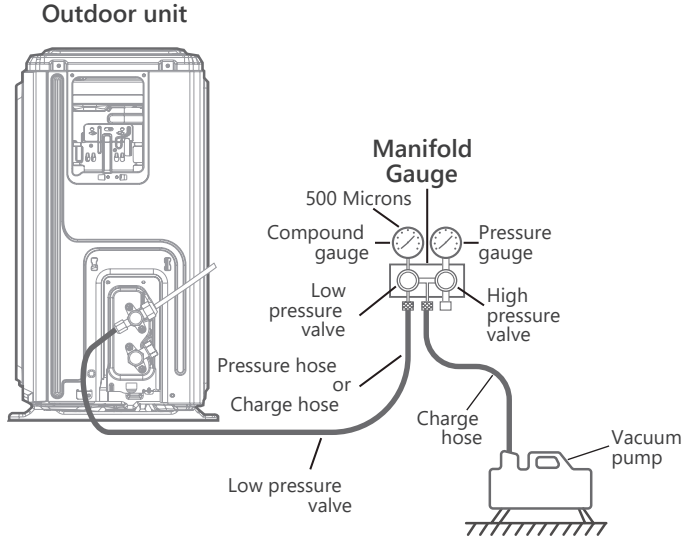



Fig. 11-1: Manifold Gauge Arrangement

6. Run the vacuum for at least 15 minutes, or until the Compound Meter reads 500 microns.
7. Close the Low-Pressure side of the manifold gauge and turn off the vacuum pump.
8. Wait for 5 minutes, then check that there has been no change in system pressure.
9. If there is a change in system pressure, refer to the Gas Leak Check section for information on how to check for leaks. If there is no change in system pressure, unscrew the cap from the packed valve (high-pressure valve).
10. Insert a hexagonal wrench into the packed valve (high-pressure valve) and open the valve by turning the wrench in a 1/4 counterclockwise turn. Listen for gas to exit the system, then close the valve after 5 seconds.
11. Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. The Pressure Gauge should read slightly higher than atmospheric pressure.
12. Remove the charge hose from the service port.

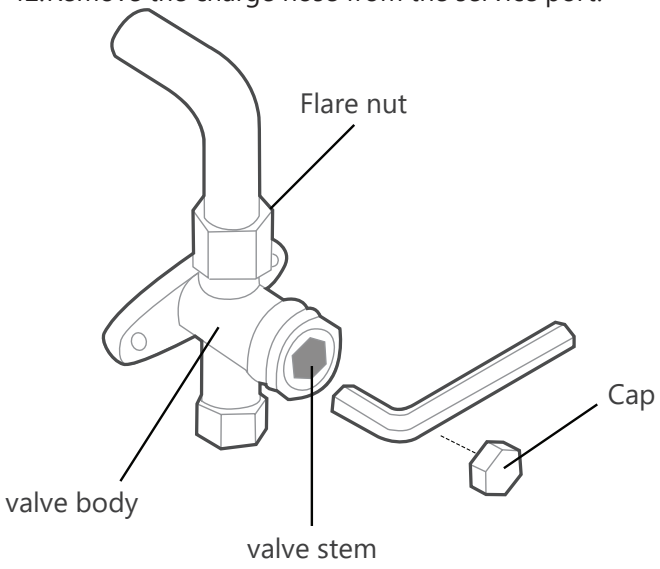



Fig. 11-2: Service Valve

13. Using a hexagonal wrench, fully open both the high-pressure and low-pressure valves.
14. Tighten all valve caps hand-tight plus one flat to ensure no leaks. You may tighten it further using a torque wrench if needed.

**NOTE ON ADDING REFRIGERANT**

**⚠ CAUTION**

**DO NOT** mix refrigerant types.

Some systems require additional charging depending on pipe lengths. In North America, the standard pipe length is 25 ft. (7.5 m). The refrigerant should be charged from the service port on the outdoor unit's low-pressure valve. The additional refrigerant to be charged can be calculated using the following formula:

Table 11-1: Additional Refrigerant Formula

| Refrigerant | Liquid Side Pipe Diameter | |
|---|---|---|
| R454B | Ø1/4 in. (Ø6.35 mm) | Ø3/8 in. (Ø9.52mm) |
| | (Pipe length – standard length) x 0.16 oz/ft<br>(Pipe length – standard length) x 15 g/m | (Pipe length – standard length) x 0.32 oz/ft<br>(Pipe length – standard length) x 30 g/m |

# Test Run

**⚠ CAUTION**

Failure to perform the test run may result in unit damage, property damage, or personal injury.

## Before the Test Run

A test run must be performed after the entire system has been completely installed. Confirm the following points before performing the test:

a. Indoor and outdoor units are properly installed.
b. Piping and wiring are properly connected.
c. No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.
d. The refrigeration system does not leak.
e. The drainage system is unimpeded and draining to a safe location.
f. Heating insulation is properly installed.
g. Grounding wires are properly connected.
h. Length of the piping and additional refrigerant capacity have been recorded.
i. Power voltage is the correct voltage for the air conditioner

## Test run Instructions

1. Open both the liquid and gas service valves.
2. Turn on the main power switch and allow the unit to warm up.
3. Set the air conditioner to COOL mode.
4. For the Indoor Unit
   a. Ensure the remote control and its buttons work properly.
   b. Ensure the louvers move properly and can be changed using the remote control.
   c. Double check to see if the room temperature is being registered correctly.
   d. Ensure the indicators on the remote control and the display panel on the indoor unit work properly.
   e. Ensure the manual buttons on the indoor unit work properly.
   f. Check to see that the drainage system is unimpeded and draining smoothly.
   g. Ensure there is no vibration or abnormal noise during operation.
5. For the Outdoor Unit
   a. Check to see if the refrigeration system is leaking.
   b. Make sure there is no vibration or abnormal noise during operation.
   c. Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.
6. Drainage Test
   a. Ensure the drainpipe flows smoothly. New buildings should perform this test before finishing the ceiling.
   b. Remove the test cover. Add 2,000ml of water to the tank through the attached tube.
   c. Turn on the main power switch and run the air conditioner in COOL mode.
   d. Listen to the sound of the drain pump to see if it makes any unusual noises.
   e. Check to see that the water is discharged. It may take up to one minute before the unit begins to drain depending on the drainpipe.
   f. Make sure that there are no leaks in any of the piping.
   g. Stop the air conditioner. Turn off the main power switch and reinstall the test cover.

**NOTE**

If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service.

# Commission

The indoor ducted units can be programmed for different static pressures or Real-time constant airflows, Use the following steps to set the static pressure or Real-time constant airflow.

## When Using The 120L Wired Controller

**To set Static Pressure airflow**

The factory default setting is SP1, the external static pressure can be manually changed to the fan curves 1, 2, 3, 4, 5, 6, 7, or 8.

a. Press and hold ON/OFF and FAN for approximately 7 seconds.
b. Press "∧" or "∨" to scroll through the menu and select " 8 ".
c. Press and hold ON/OFF for approximately 2 seconds , Press "∧" or "∨" to scroll through and select " 1~8 ".
d. Press " " or " OK " and the display board displays " CS ".
e. Press and hold ON/OFF and FAN for approximately 7 seconds, then exit test mode.

**To set Real-time constant airflow**

Use the Automatic Airflow " AF " Adjustment function to realize Real-time constant airflows.

a. Press and hold ON/OFF and FAN for approximately 7 seconds.
b. Press "∧" or "∨" to scroll through the menu and select " 8 ".
c. Press and hold ON/OFF for approximately 2 seconds , Press "∧" or "∨" to scroll through and select " AF ".
d. Press " " or " OK " and the display board displays " CS ".
e. Press and hold ON/OFF and FAN for approximately 7 seconds, then exit test mode.

**NOTE**

Before commissioning, check the power connection of the machine, turn on the power, and keep the machine from working.

**NOTE**

If there is no change after airflow adjustment, perform the setting again.

**NOTE**

Low static pressure series 9K,12K,18K models, SP options can only be " 1~4 ".

## When Using The 120N Wired Controller

**To Set Static Pressure Airflow**

The factory default setting is SP1; the external static pressure can be manually changed to fan curves 1, 2, 3, 4, 5, 6, 7, or 8.

a. Press and hold Copy for approximately 3 seconds, The lower right corner shows P:00, Press " OK ".
b. Press "∧" to scroll through the menu , The lower right corner shows SP, Press " OK ".
c. Press "∧" "∨" to scroll through the menu and select "1~8", Press " OK ".
d. Press "Back" to exit test mode.

**To Set Real-Time Constant Airflow**

Use the Automatic Airflow " AF " Adjustment function to realize Real-time constant airflows.

a. Press and hold Copy for approximately 3 seconds , The lower right corner shows P:00, Press " OK ".
b. Press "∧" to scroll through the menu , The lower right corner shows AF, Press " OK ".
c. Press "Back" to exit test mode.

**NOTE**

T1, T2, T2b, T3, T4 are sub-menus for thermistors. DO NOT select to set the external static pressure.

**NOTE**

Before commissioning, check the power connection of the machine, turn on the power, and keep the machine not working.

**NOTE**

If there is no change after airflow adjustment, perform the setting again.

**NOTE**

Setting Static Pressure or Automatic Airflow needs to use the Wired Remote Controller.

**NOTE**

Low static pressure series 6K, 9K, 12K, 18K models, SP options can only be " 1~4 ".

# Troubleshooting

**Common Issues**

The following problems are not malfunctions and in most situations will not require repairs.

| Problem | Possible Causes | Solution |
|---|---|---|
| The unit does not turn on when pressing ON/ OFF button | P1 Protection Code | The Water Collection Tray is full. Turn of the unit, drain the water from the Water Collection Tray, and restart the unit. |
| | In COOL mode: the room temperature is lower than the set temperature. | Reset the temperature. |
| The unit does not cool well | The air filter is blocked with dust or animal hair. | Turn of the unit and clean the filter according to instructions. |
| | The exhaust hose is not connected or is blocked. | Turn of the unit, disconnect the hose, check for blockage, and reconnect the hose. |
| | The unit is low on refrigerant. | Call a service technician to inspect the unit and top off the refrigerant. |
| | The temperature setting is too high. | Decrease the set temperature. |
| | The windows and doors in the room are open. | Make sure all windows and doors are closed. |
| | The room area is too large. | Double-check the cooling area. |
| | There are heat sources inside the room. | Remove the heat sources if possible. |
| The unit is noisy and vibrates too much | The ground is not level. | Place the unit on a flat, level surface. |
| | The air filter is blocked with dust or animal hair. | Turn of the unit and clean the filter according to instructions. |
| The unit makes a gurgling sound | This sound is caused by the flow of refrigerant inside the unit. | This is normal. |

# Maintenance

(The rear ventilated panel is used as an example)

**Motor Maintenance:**

1. Take off the ventilated panel.
2. Take off the blower housing.
3. Take off the motor.

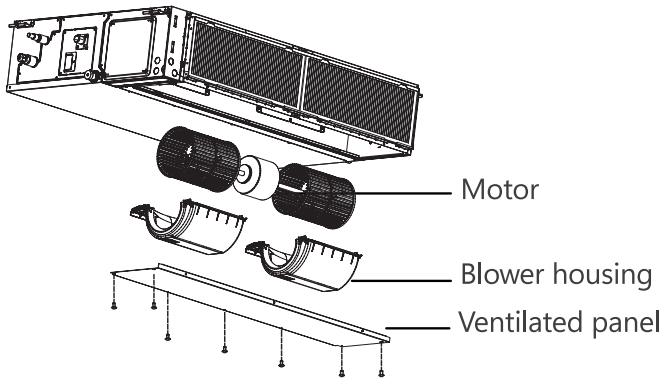



Fig. M-1: Motor Disassembly

**Pump Maintenance:**

1. Remove four screws from the drain pump.
2. Unplug the pump power supply and water level switch cable.
3. Detach the pump.

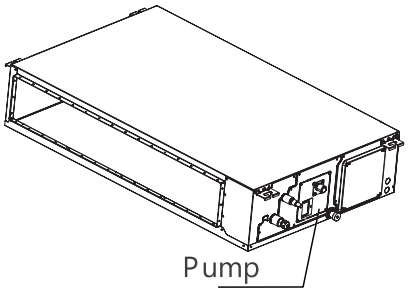



Fig. M-2: Pump Location

# Appendix

## Electric Auxiliary Heat Module Installation (Optional)

**Control Logic**

Then the heater would act automatically according to the following control logic unless the "Aux heater" is again activated to activate the heater.

Aux Heater function will be activated with the following 3 conditions, all of which must be met at the same time:

(Must be in heat mode and not in the defrost period):

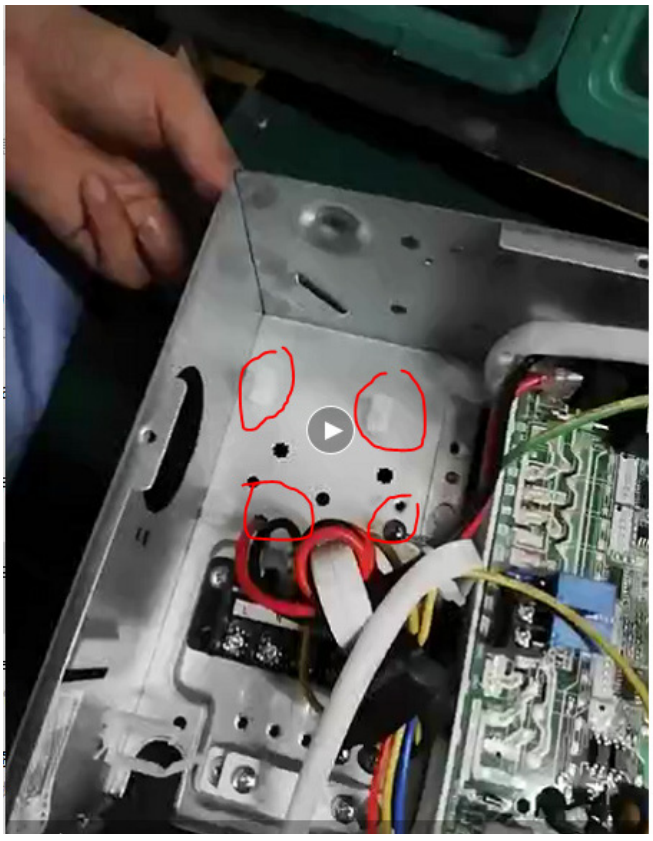
1. T1-Td ≤ - 4°F (-2°C) (T1----room temperature; Td---Target temperature)
2. T2 ≤ 45°C (T2---indoor coil temperature).
3. The fan continues running

When one of the following conditions is met, the Aux Heater function is turned off:

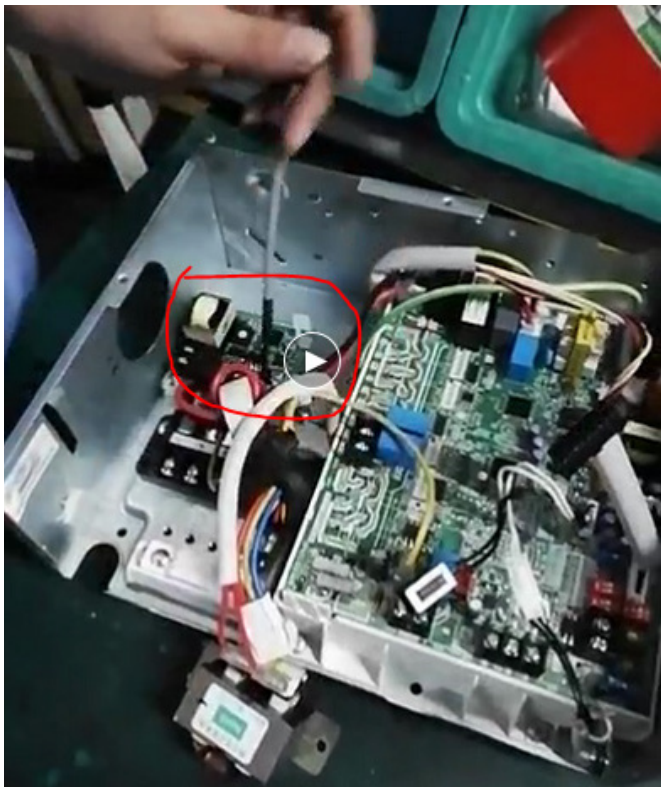
1. T1≥Td °C (T1----room temperature; Td---Target temperature)
2. T2≥54 °C (T2---indoor coil temperature)
3. Indoor fan off.
4. During defrosting.
5. The system is shut down.
6. There is a malfunction in operation.
7. If the auxiliary heater function is turned on when the remote control is turned off, the indoor fan will be forced to run for 30 seconds at a low fan speed.
8. After turning on the Aux heater function, there is no anti-cold air function.

**Installation**

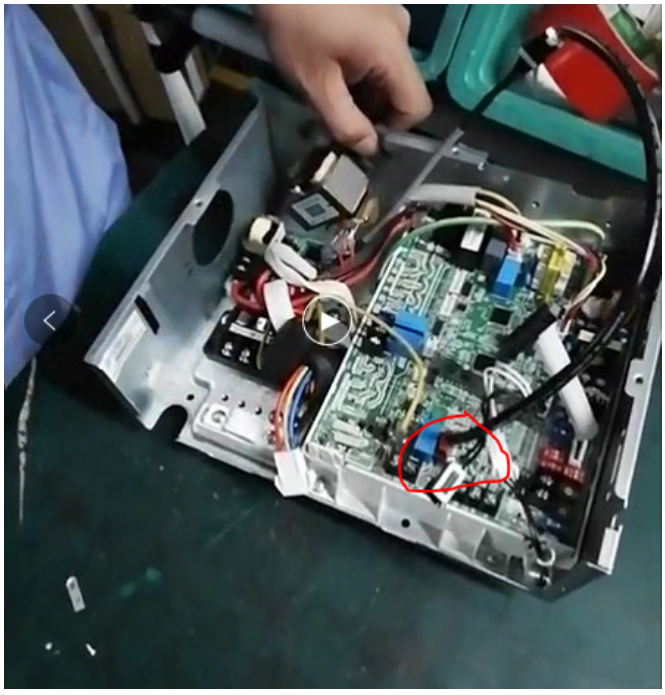
1. Install the supporter into the electric control box.



2. Install the converter control board on the supporter.



3. Connect the wire from the converter board to the main board CN40.



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# Disposal & Recycling



This symbol indicates that this product shall not be disposed of with other household waste at the end of its service life. Used devices must be returned to an official collection point for recycling of electrical electronic devices. To find these collection systems please contact your local authorities or retailer where the product was purchased. Each household performs an important role in recovering and recycling old appliances. Appropriate disposal of used appliances helps prevent potential negative consequences for the environment and human health.

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## United States

https://www.mideacomfort.us/registration.html

## Canada

https://www.mideacomfortna.ca/registration.html

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