Installation Manual
Universal Air Handler
For 18,000 - 60,000 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

BTUH	VOLTAGE/ PHASE	AIR HANDLER MODEL
18,000	208/230-1	MACHU-H18B-2A
24,000	208/230-1	MACHU-H24B-2A
30,000	208/230-1	MACHU-H30B-2A
33,000	208/230-1	MACHU-H36B-2A
36,000	208/230-1	MASHS-H36B-2A
48,000	208/230-1	MASHS-H48B-2A
60,000	208/230-1	MASHS-H60B-2A

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

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Safety Precautions

It is really important you read Safety Precautions Before Operation and Installation Incorrect installation due to ignoring instructions can cause serious damage or injury.
The seriousness of potential damage or injuries is classified 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.
- External disconnect shall be incorporated in installed wiring as per national and 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 which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10 mA, the residual current device (RCD) having a rated residual operating current not exceeding 30 mA, and disconnection must be incorporated in the fixed wiring in accordance with 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 according to the installation instructions. Improper installation can cause water damage, electrical hazards, or fire. Contact an authorized service technician for repair or maintenance.
- 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.
- For the units that have a wireless network function, USB device access, replacement, and maintenance operations must be carried out by professional staff.
- 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.

⚠ WARNING

TAKE NOTE OF FUSE SPECIFICATIONS

The air conditioner's circuit board (PCB) may be designed with a fuse to provide overcurrent protection. This fuse must be replaced with an identical component.

The specifications of the fuse are printed on the circuit board, for example: T3.15 AL/250 VAC, T5 AL/250 VAC, T3.15 A/250 VAC, T5 A/250 VAC, T20 A/250 VAC, T30 A/250 VAC, etc.

NOTE

Only the blast-proof ceramic fuse can be used.

⚠ WARNING

WARNINGS FOR CLEANING AND MAINTENANCE

- Turn off the device and disconnect the power before cleaning. Failure to do so can cause electrical shock.
- Do not clean the air conditioner with excessive amounts of water.
- Do not clean the air conditioner with combustible cleaning agents. Combustible cleaning agents can cause fire or deformation.

USING FLAMMABLE REFRIGERANT

1. Installation (Space)
   - 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.
   - In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
   - When disposing of the used product, it must be based on national regulations, and properly processed.
2. Service
   - Any person who is involved with working on or breaking into a refrigerant circuit should hold a currently valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely following an industry-recognized assessment specification.
3. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of a person competent in the use of flammable refrigerants.
4. Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
5. 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).
6. Be 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.
7. Do not pierce or burn.
8. Be aware that refrigerants may not contain an odor.
9. All working procedures that affect safety means shall only be carried out by competent technicians.
10. Appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
11. The appliance shall be stored to prevent mechanical damage from occurring.
12. Joints shall be tested with detection equipment with a capability of 0.2 oz./year of refrigerant or better, with the equipment in standstill and under operation or pressure of at least these standstill or operation conditions after installation. Detachable joints shall NOT be used in the indoor side of the unit (brazed, welded joints could be used).

NOTE

- The air conditioner's circuit board (PCB) may be designed with a fuse to provide overcurrent protection. This fuse must be replaced with an identical component.
- The specifications of the fuse, if equipped, are printed on the circuit board, examples of such are T5 A/250 VAC and T10 A/250 VAC.

NOTE

Fluorinated Gasses

- This air conditioning unit contains fluorinated greenhouse gases. For specific information on the type of gas and its amount, please refer to the relevant label on the unit itself or the "Owner's Manual—Product Fiche" in the outdoor unit's packaging.
- A certified technician must perform installation, service, maintenance, and repair to this unit.
- A certified technician must perform product uninstallation and recycling.
- Proper record-keeping of all checks is strongly recommended when the unit is checked for leaks.

The allowed static pressure range of the air conditioner on site is 0-0.80 in. wc. (0-200 Pa). The data in Table S-1 represents the static pressures at the full required air flow used for AHRI testing.

Table S-1: Allowed Static Pressure Ranges

Model	18-24K	30-36K	48-60K
Pressure	0-0.8 in. wc. (0-200 Pa)	0-0.8 in. wc. (0-200 Pa)	0-0.8 in. wc. (0-200 Pa)

Note: The maximum functional total external static pressure cannot exceed the above range values. The airflow will be reduced significantly if the external static is beyond the maximum value. System design should allow for the increased resistance of filters as they become dirty.

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, and the indoor unit is connected via an air duct system to one or more rooms. Please check the machine you purchased. The height of the room cannot be less than 7.3 ft./2.2 m, and the minimum room area for operating or storage should be as specified in the following table:

Table S-2: Approved Matchups

Model	Indoor unit	Outdoor unit
18K(208/230V)	MACHU-H18B-2A	MO1ES-H18B-2A MO1HS-H18B-2A
24K(208/230V)	MACHU-H24B-2A	MO1ES-H24B-2A MO1HS-H24B-2A
30K(208/230V)	MACHU-H30B-2A	MO1BS-H30B-2A
33K(208/230V)	MACHU-H36B-2A	MO1HS-H33B-2A
36K(208/230V)	MACHU-H36B-2A	MO1BS-H36B-2A
36K(208/230V)	MASHS-H36B-2A	MO1HU-H36B-2A MO1BU-H36B-2A
48K(208/230V)	MASHS-H48B-2A	MO1HU-H48B-2A MO1BU-H48B-2A
60K(208/230V)	MASHS-H60B-2A	MO1HU-H60B-2A MO1BU-H60B-2A

Table S-3: Minimum Room Area Requirements

Mc or MREL [oz./kg]	TAmin [ft.^{2}/m^2]	Mc or MREL [oz./kg]	TAmin [ft.^{2}/m^2]	Mc or MREL [oz./kg]	TAmin [ft.^{2}/m^2]	Mc or MREL [oz./kg]	TAmin [ft.^{2}/m^2]
<=62.7/1.776	12/1.1	119.9/3.4	112/10.44	183.4/5.2	179/16.58	246.9/7.0	231/21.5
63.5/1.8	60/5.53	127/3.6	119/11.06	190.5/5.4	185/17.2	254/7.2	238/22.11
70.5/2	66/6.14	134/3.8	126/11.67	197.5/5.6	192/17.81	261/7.4	245/22.73
77.6/2.2	73/6.76	141.1/4	132/12.29	204.6/5.8	198/18.43	268.1/7.6	251/23.34
84.6/2.4	79/7.37	148.1/4.2	145/13.51	211.6/6.0	205/19.04	275.1/7.8	258/23.96
91.72.6	86/7.99	155.2/4.6	152/14.13	218.7/6.2	212/19.66	282.2/8.0	264/24.57
98.8/2.8	93/8.6	162.2/4.8	159/14.74	225.8/6.4	218/20.27	289.2/8.2	271/25.18
105.8/3	99/9.21	169.3/4.8	165/15.36	232.8/6.6	99/9.21	296.3/8.4	278/25.8
112.9/3.2	106/9.83	176.4/5	172/15.97	239.9/6.8	225/20.88		
Area formula	**TAmin** is the required minimum area of the total conditioned space connected by air ducts in ft.^{2}/m^2 **Mc** is the actual refrigerant charge in the system in oz/kg **MREL** is the refrigerant releasable charge in oz./kg **hinst** is the height of the bottom of the appliance relative to the floor of the room after installation. **WARNING:** The minimum room area or minimum room area of conditioned space is based on releasable charge and total system refrigerant charge.						

NOTE

If the actual room size does not fit the abovementioned conditions, please refer to the upper-level condition. Ex. we provide suggestions for a room size of 400 sq. ft., if the room size is 450 sq. ft., please refer to the 500 sq. ft. requirement. When the unit detects a refrigerant leak, the minimum airflow of the indoor unit is as indicated in Table S-4:

Table S-4: Minimum Leak Airflow

Model	18K	24K	30K	36K	48K	60K
Nominal air volume	400 CFM (680 m^3/h)	400 CFM (680 m^3/h)	447 CFM (760 m^3/h)	541 CFM (920 m^3/h)	642 CFM (1,090 m^3/h)	795 CFM (1,350 m^3/h)

1. Installation

- 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 technicians.
- 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 0.2 oz./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.

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. During the pressure test, the system shall maintain the pressure 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. Checks to the area

Before beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be complied with before conducting work on the system.

5. Work procedure

Works shall be undertaken under a controlled procedure to minimize the risk of flammable gas or vapor being present while the work is being performed.

6. General work area

All maintenance staff and others working in the local area should be instructed on the nature of the work being carried out. Work in confined spaces shall be avoided.

7. Checking for the presence of refrigerant

The area should be checked with an appropriate refrigerant detector before and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. no sparking, adequately sealed or intrinsically safe.

8. Presence of fire extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

9. No ignition sources

No person carrying out work on a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of a fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repair, removal, and disposal, during which refrigerant can be released into the surrounding space. Before work takes place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

10. 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.

11. Check the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service

guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance. The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:

- the actual refrigerant charge is in accordance with the room size within which the refrigerant-containing parts are installed;
- the ventilation machinery and outlets are operating adequately and are not obstructed;
- if an indirect refrigerating circuit is being used, the secondary circuits shall be checked for the presence of refrigerant;
- marking to the equipment continues to be visible and legible, marking and illegible signs shall be corrected;
- refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance that may corrode refrigerant-containing components unless the components are constructed of materials that are inherently resistant to being corroded or are suitably protected against being so corroded.

12. Checks to electrical devices

Repair and maintenance of electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately it is necessary to continue operation, and adequate temporary solution shall be used.

This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

that capacitors are discharged: this shall be done safely to avoid the possibility of sparking;

that no live electrical components and wiring are exposed while charging, recovering, or purging the system;

that there is continuity of earth bonding;

Sealed electrical components shall be replaced if it's damaged; Intrinsically safe components must be replaced if it's damaged.

13. 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.

14. 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.

15. 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;
- evacuate;
- 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. This process shall be repeated until no refrigerant is within the system. 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.

16. 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 contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.

- Ensure that the refrigeration system is earthed before charging the system with refrigerant.
- Label the system when charging is complete(if not already). 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.

17. 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 contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete(if not already). 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.

18. Decommissioning

Before carrying out this procedure, the technician must be completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Before the task is carried out, an oil and refrigerant sample shall be taken in case analysis is required before the re-use of recovered refrigerant. Electrical power must be available before the task commences.

a. Become familiar with the equipment and its operation.
b. Isolate system electrically
c. Before attempting the procedure ensure that:
   - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
   - all personal protective equipment is available and being used correctly;
   - the recovery process is supervised at all times by a competent person;
   - recovery equipment and cylinders conform to the appropriate standards.
d. Pump down the refrigerant system, if possible.
e. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f. Make sure that the cylinder is situated on the scales before recovery takes place.
g. Start the recovery machine and operate following instructions.
h. Do not overfill cylinders (no more than 80 % volume liquid charge)
i. Do not exceed the maximum working pressure of the cylinder, even temporarily.
j. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from the site promptly and all isolation valves on the equipment are closed off.
k. Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

19. Labelling

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

20. 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 for the recovered refrigerant and labeled for that refrigerant (i. e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valves and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

21. Unventilated areas

- 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.

- If appliances are connected via an air duct system to one or more rooms with A2L REFRIGERANTS are installed in a room with an area less than Amin, 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.
- Auxiliary devices that 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 700 °C and electric switching devices.
- Only auxiliary devices (such as certificated heater kit) approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork.
- For duct-connected appliances, false ceilings or drop ceilings may be used as a return air plenum if a REFRIGERANT DETECTION SYSTEM is provided in the appliance and any external connections are also provided with a sensor immediately below the return air plenum duct joint.
- REFRIGERANT SENSORS for REFRIGERANT DETECTION SYSTEMS Shall Only be replaced with sensors specified by the appliance manufacturer.
- LEAK DETECTION SYSTEM installed. The unit must be powered except for service.

22. Transportation, marking, and storage for units that employ flammable refrigerants

a. **General** - The following information is provided for units that employ FLAMMABLE REFRIGERANTS.

b. **Transport of equipment containing flammable refrigerants** - Attention is drawn to the fact that additional transportation regulations may exist concerning equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment permitted to be transported together will be determined by the applicable transport regulations.
   • Cylinders shall be kept upright.

c. **Marking of equipment using signs** - Signs for similar appliances used in a work area are generally addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location.
   All required signs are to be maintained, and employers should ensure that employees receive suitable and sufficient instruction and training on the meaning of appropriate safety signs and the actions that need to be taken in connection with these signs.
   The effectiveness of signs should not be diminished by too many signs being placed together.
   Any pictograms used should be as simple as possible and contain only essential details.

d. **Disposal of equipment using flammable refrigerants See national regulations.**

e. **Storage of equipment/appliances -** The storage of the appliance should be following the applicable regulations or instructions, whichever is more stringent.

f. **Storage of packed (unsold) equipment** - Storage package protection should be constructed in such a way that mechanical damage to the equipment inside the package will not cause a leak of the REFRIGERANT CHARGE.
   The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

Table S-5: 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	**MACHU-H18B-2A MO1ES-H18B-2A**	**MACHU-H18B-2A MO1HS-H18B-2A**	**MACHU-H24B-2A MO1ES-H24B-2A**
Power source	208/230V~ 60Hz, 1Ph		
Cooling capacity	18000Btu/h	18000Btu/h	24000Btu/h
Heating capacity	18000Btu/h	19500Btu/h	25000Btu/h
Moisture resistance class	IPX4		
Product Model	**MACHU-H24B-2A MO1HS-H24B-2A**	**MACHU-H30B-2A MO1BS-H30B-2A**	**MACHU-H36B-2A MO1HS-H33B-2A**
Power source	208/230V~ 60Hz, 1Ph		
Cooling capacity	23000Btu/h	30000Btu/h	33000Btu/h
Heating capacity	26000Btu/h	30000Btu/h	35000Btu/h
Moisture resistance class	IPX4		
Product Model	**MACHU-H36B-2A MO1BS-H36B-2A**	**MASHS-H36B-2A MO1HU-H36B-2A**	**MASHS-H36B-2A MO1BU-H36B-2A**
Power source	208/230V~ 60Hz, 1Ph		
Cooling capacity	36000Btu/h	36000Btu/h	36000Btu/h
Heating capacity	37000Btu/h	38000Btu/h	38000Btu/h
Moisture resistance class	IPX4		

Product Model	**MASHS-H48B-2A MO1HU-H48B-2A**	**MASHS-H48B-2A MO1BU-H48B-2A**	**MASHS-H60B-2A MO1HU-H60B-2A**	**MASHS-H60B-2A MO1BU-H60B-2A**
Power source	208/230V~ 60Hz, 1Ph			
Cooling capacity	48000Btu/h	48000Btu/h	54000Btu/h	55000Btu/h
Heating capacity	50000Btu/h	50000Btu/h	59000Btu/h	59000Btu/h
Moisture resistance class	IPX4			

Installation Accessories

The system is shipped with the following accessories. Use all the installation parts and accessories to install the system. Improper installation may result in water leakage, electrical shock, and fire, or cause the equipment to fail. Keep the installation manual in a safe place and do not discard any other accessories until the installation work has been completed.

Table A-1: Indoor Accessories

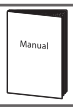
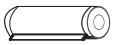
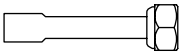
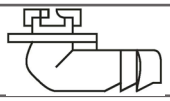
QTY.	Part Name	Part Image
2	Manual	
6	Cable ties (type A)	
2	Insulation sleeve	
2	Flare nut	
2	Braze to flare adapter	
1	Remote control	
2	Battery	

Table A-2: Outdoor Accessories

QTY.	Part Name	Part Image
1	Drain fitting	
1	Seal ring (Not available for the MO1HU-H36B-2A)	

NOTE

The wired system control functions as an IR receiver for the handheld remote, if the remote is not used it must be retained with the indoor unit to adjust parameters, and for troubleshooting.

Product Overview

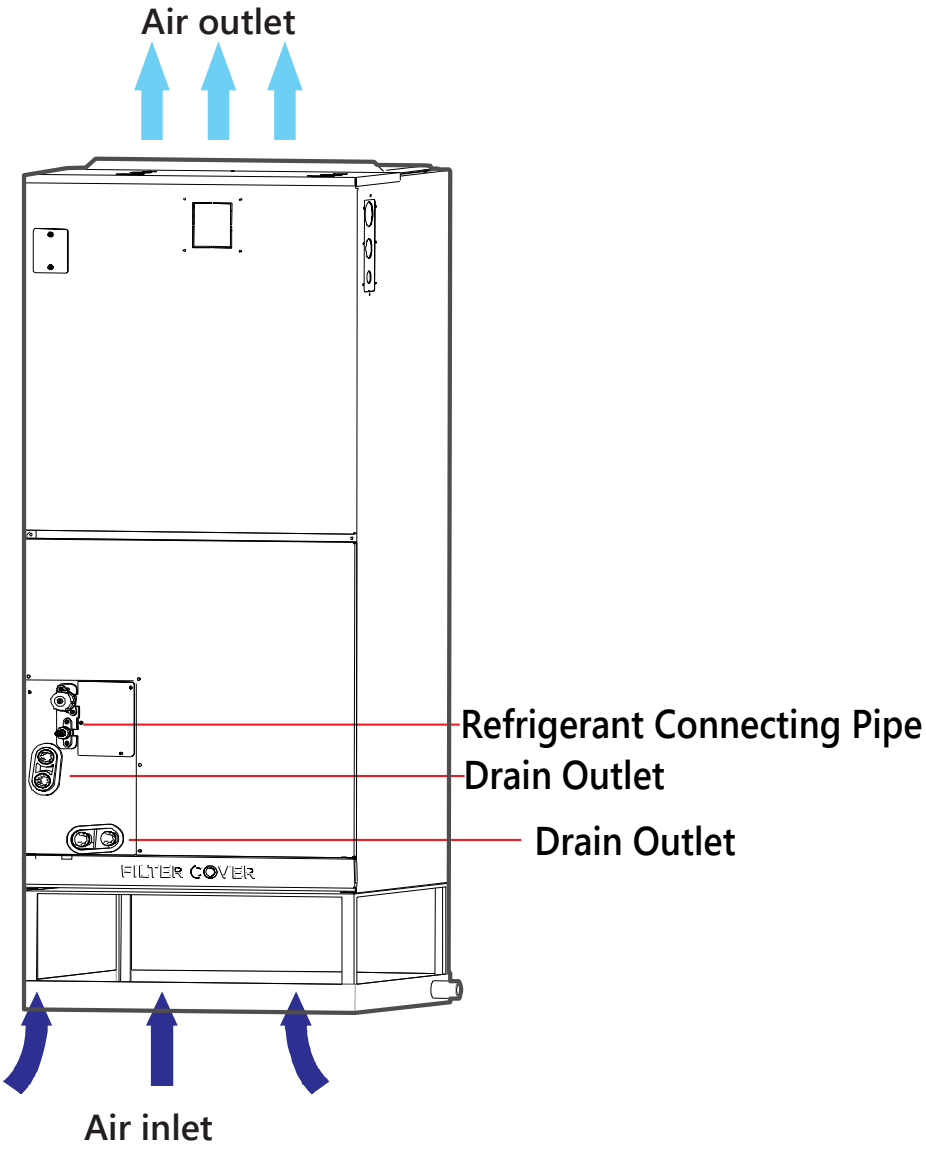


Fig. P-1: External Component Location

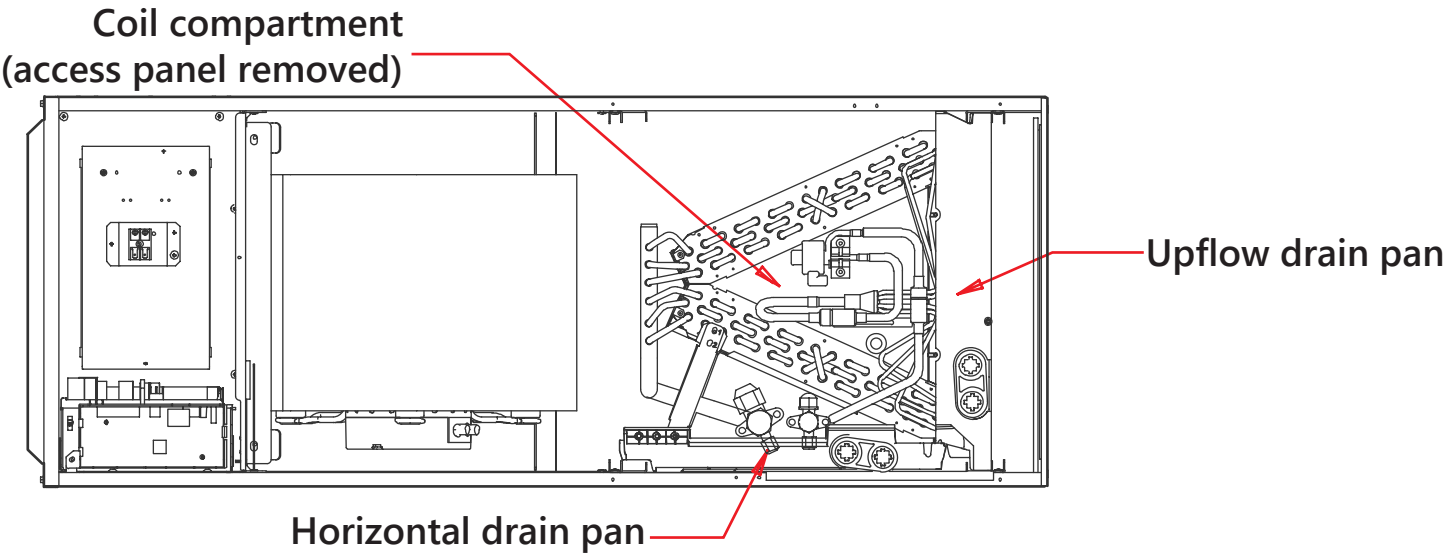


Fig. P-2: Internal Component Location

Dimensions

Table D-1: Dimensions

System Size	Unit Sizes			Duct Opening Area		
	(A) in. (mm)	(B) in. (mm)	(C) in. (mm)	(D) in. (mm)	(E) in. (mm)	(F) in. (mm)
18K	45 (1,143)	21 (533)	17-1/2 (445)	15-3/4 (400)	10-1/4 (260)	23 (585)
24K						
30K	49 (1,245)		21 (534)	19-1/4 (490)		
36K						
48K	53 (1,346)		24-1/2 (622)	22-7/8 (580)		
60K						

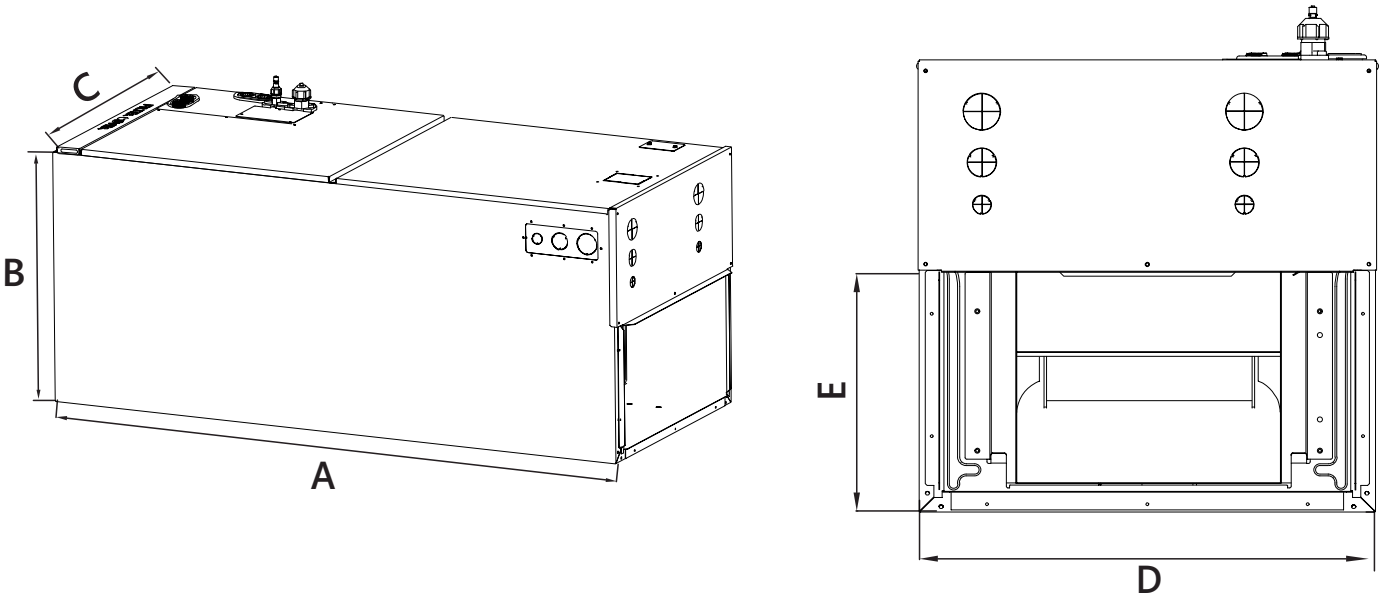


Fig. D-1: Unit Dimensions



Fig. D-2: Filter Dimensions

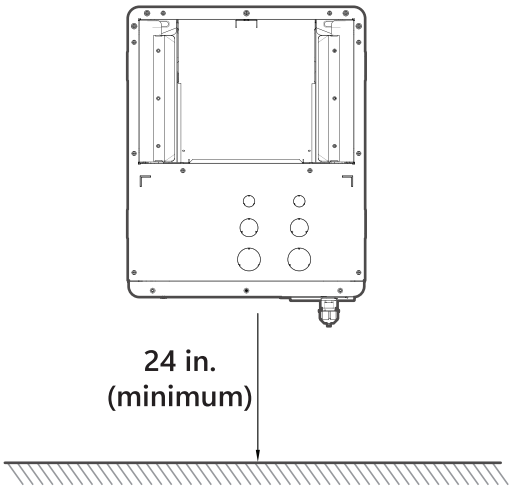
NOTE

The user needs to purchase a standard filter that meets the requirements of UL900. If you have questions about the selection of filters, consult the manufacturer.

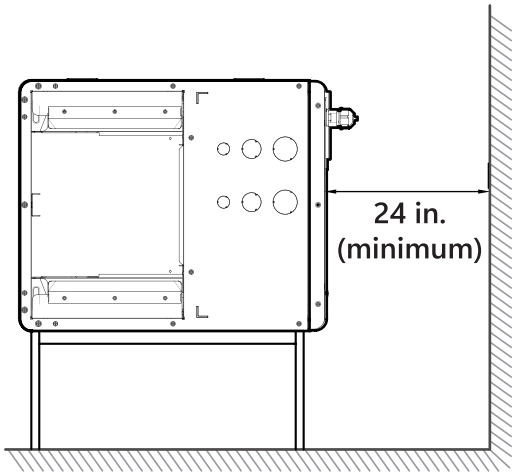
Table D-2: Recommended Filter Sizes

Model (Btu/h)	Width	Depth	Thickness
	in. (mm)	in. (mm)	in. (mm)
18-24K	16 (406.4)	20 (508)	1 (25.4)
30-48K	19-1/2 (495.3)		
60K	23 (584.2)		

Clearances

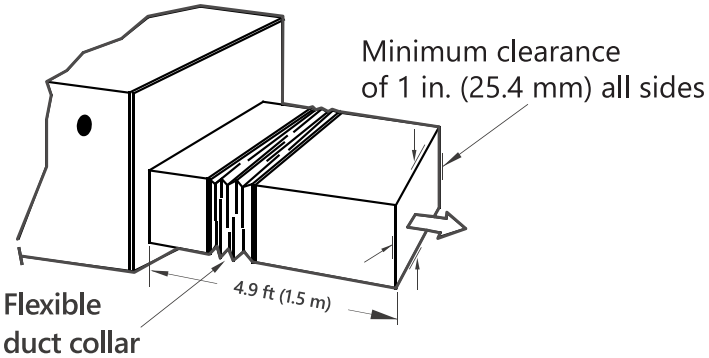


Vertical installations



Horizontal installations

Fig. C-1: Clearance Dimensions



The outlet side duct length 4.9 ft. (1.5 m)

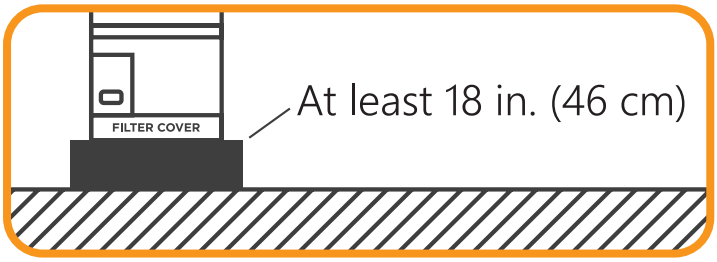
Fig. C-2: Duct Clearances

NOTE

- For horizontal installation a secondary drain pan that is not supplied must be installed.
- For horizontal installation IDU installation requires a 5° tilt (drainpipe side in low position).
- Vertical up and horizontal left installation does not need to change the direction of the evaporator.

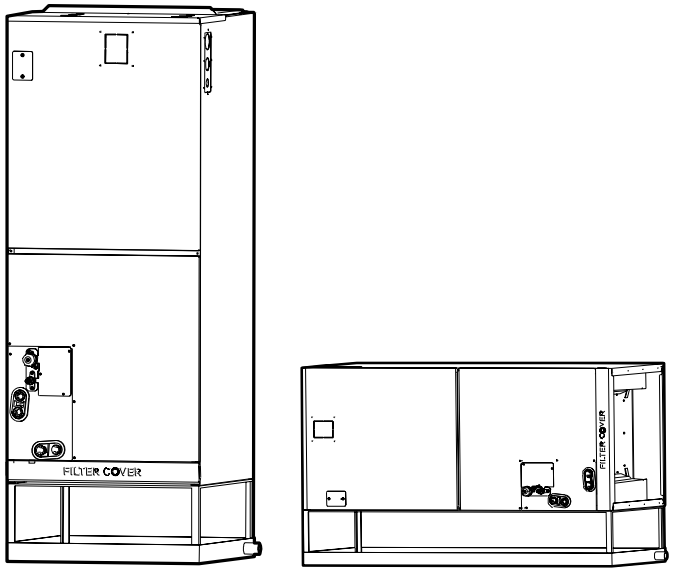
⚠ WARNING

- **If heating elements are added, the distance from the ground must be greater than 18 in. (46 cm)**. Failure to follow these instructions can result in death, explosion or fire.



- Securely install the indoor unit on a structure that can support its weight. If the structure is too weak, the unit may fall and cause personal injury, unit and property damage, or death.
- The structure that the equipment is suspended from must support the weight of the indoor unit.
- Leave enough room for installation and maintenance.
- Leave enough room for the connecting pipe and drainpipe.

The units can be installed in a vertical (down and up) and Horizontal (right and left) configuration.



Vertical up Horizontal

Fig. C-3: Installation Direction Options

NOTE

For horizontal installation, a secondary drain pan (not supplied) must be installed.

⚠ CAUTION

A field-fabricated secondary drain pan, with a drain pipe to the outside of the building, is required in all installations over a finished living space or in any area that may be damaged by overflow from the main drain pan. In some localities, local codes may require a secondary drain pan for any horizontal installation.

Installation Requirements

⚠ CAUTION

Install the indoor and outdoor units, cables and wires at least 3-1/5 ft. (1 m) from televisions or radios to prevent static or image distortion. Depending on the appliances, a 3-1/5 ft. (1 m) distance may not be sufficient.

⚠ WARNING

The Indoor unit must be electrically grounded per national and local electrical code.
DO NOT INSTALL IN THE FOLLOWING LOCATIONS:

- DO NOT install the indoor unit in a moist environment. Excessive moisture can corrode the equipment, and electrical components, and cause electrical shorts.



- Areas with strong electromagnetic waves.



- Coastal areas with high salt content in the air.



- Areas with oil drilling or fracking.



- Areas that store flammable materials or 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.



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

⚠ WARNING

There must be an airtight seal between the bottom of the air handler and the return air plenum. To ensure a tight seal, use fiberglass sealing strips, foil duct tape, caulking, or an equivalent sealing method between the plenum and the air handler cabinet. Return air must not be drawn from a room where this air handler or any gas-fueled appliance (e.g., water heater) or carbon monoxide-producing device (e.g., wood fireplace) is installed.

NOTE

Remove all accessories and packing in the air outlet before installation.

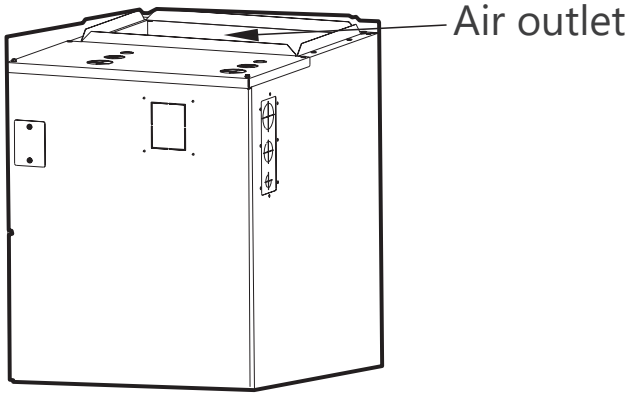


Fig. IR-1: Air Outlet Location

⚠ WARNING

- Please apply a sealant around the places where the wires, refrigerant pipes and condensate pipes enter the cabinet.
- Use duct tape or flexible sealant to seal closed any space around the holes where the drain lines exit the cabinet. Warm air must not be allowed to enter through any gaps or holes in the cabinet.

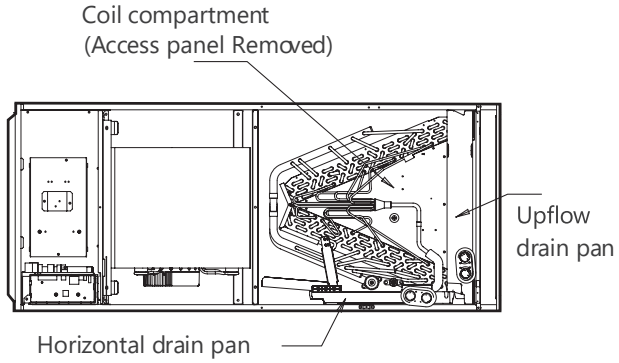


Fig. IR-2: Air Handler Layout

DUCTWORK ACOUSTICAL TREATMENT

Metal duct systems that do not have a 90-degree elbow and 10 ft. (3 m) of main duct to first branch take-off may require internal acoustic insulation lining. As an alternative, fibrous ductwork may be used if constructed and installed following the latest edition of the SMACNA construction standard on fibrous glass ducts. Both acoustic lining and fibrous ductwork shall comply with the National Fire Protection Association as tested by UL Standard 181 for Class 1 air ducts. The air supply and return may be handled in one of several ways, whichever situation is best suited for the installation (See Fig. IR-4). Many issues encountered with split-system installations can be linked to improperly designed or installed duct systems. It is therefore very

important that the duct system be properly designed and installed.

The use of flexible duct collars is recommended to minimize the transmission of vibration/noise into the conditioned space. Where the return air duct is short, or where sound is liable to be a problem, sound-absorbing glass fiber should be used inside the duct. Insulation of ductwork must be installed according to local codes and best practices. The supply air duct should be properly sized by using a transition to match the unit opening. This unit is not designed for non-ducted (free blow) applications.

NOTE

Ductwork should be fabricated and installed following local and/or national codes.

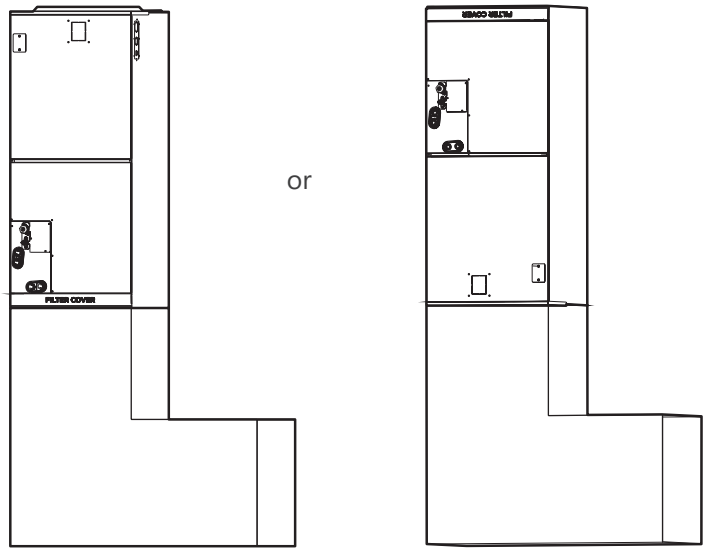


Fig. IR-3: Air Handler Vertical Installation

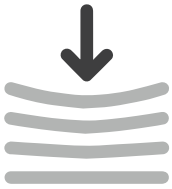
Mounting instructions: When installed vertically (upward or downward), the lower end of the air outlet needs to be connected to the L-shaped metal air duct and fastened by screws.

If the return air is to be ducted, install a duct flush with the floor. Set the unit on the floor over the opening. All return air must pass through the coil.

DUCT CONNECTION REQUIREMENTS

- Air supply and return may be handled in one of several ways best suited to the installation (See Table D1 for dimensions for duct inlet and outlet connections). Many problems encountered with combination cooling systems can be linked to improperly designed or installed duct systems.

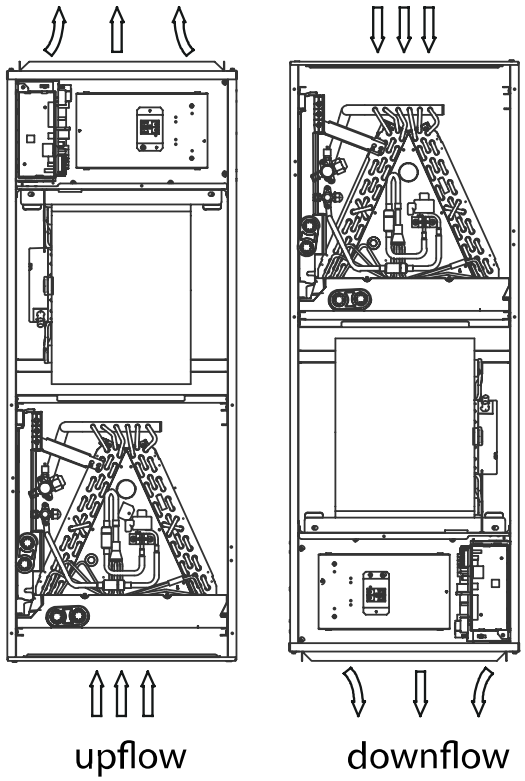
  It is therefore highly important for the success of the installation that the duct system be properly designed and installed. Use flexible duct collars to minimize the transmission of vibration/noise into the conditioned space. Where the return air duct is short, or where sound could potentially be a problem, a sound-absorbing liner should be used inside the duct.

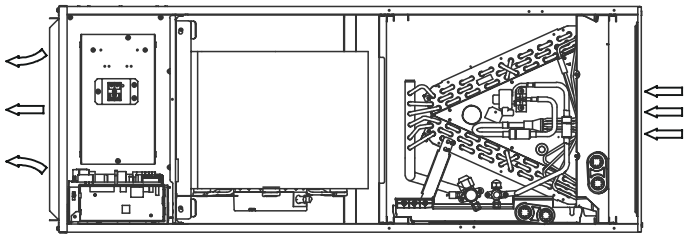


- The duct must be insulated where it runs through an unconditioned space during the cooling season. The use of a vapor barrier is recommended to prevent the absorption of moisture from the surrounding air into the insulation.



- The supply air duct connection should be properly sized by using a transition to match the unit opening.
- All ducts should be suspended using flexible hangers and never fastened directly to the structure. This unit is not designed for non-ducted (free blow) applications.
- Ductwork should be fabricated and installed following local and/or national codes.





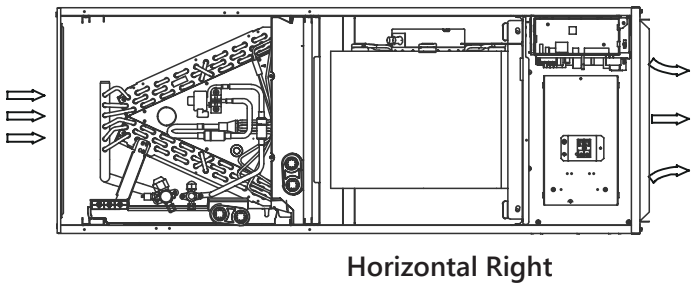


Fig. IR-4: Multi-Position Installation Options

NOTE

Vertical up and horizontal left installation does not need to change the direction of evaporator.

Installation

Step 1 - Mounting the Unit

Please follow these steps to perform **Vertical down** installation and **Horizontal right** installation:

1. Open the upper cover.

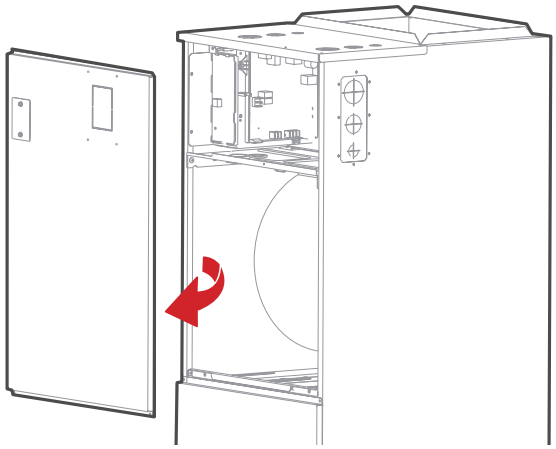


Fig. 1-1: Remove Upper Front Panel

2. Open the cover of the electronic control box.
3. Connect the pipes and install the drainage pipes.
4. Connect the wire according to the wiring diagram located inside on the upper front panel.

Downflow and horizontal left instructions

NOTE

The unit may be installed in one of the following orientations: up flow, downflow, horizontal left, or horizontal right.

1. Remove the filter door, then take the filter off.

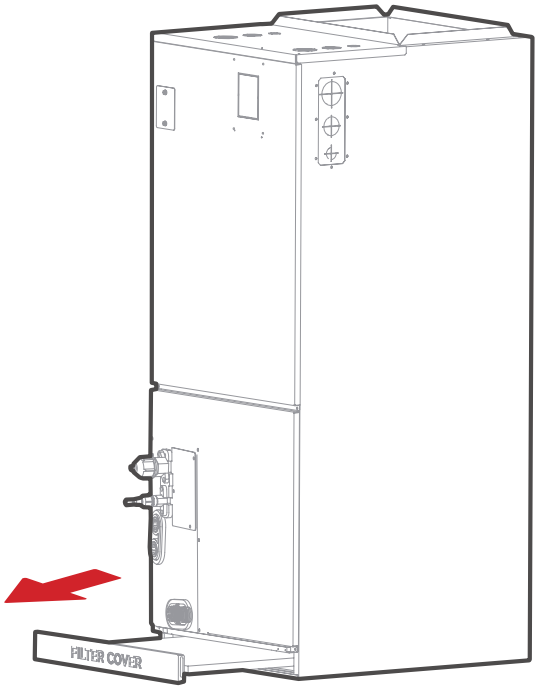


Fig. 1-2: Remove the Filter

2. Open the upper front panel. See Fig. 1-1.
3. Remove the evaporator cover plate.

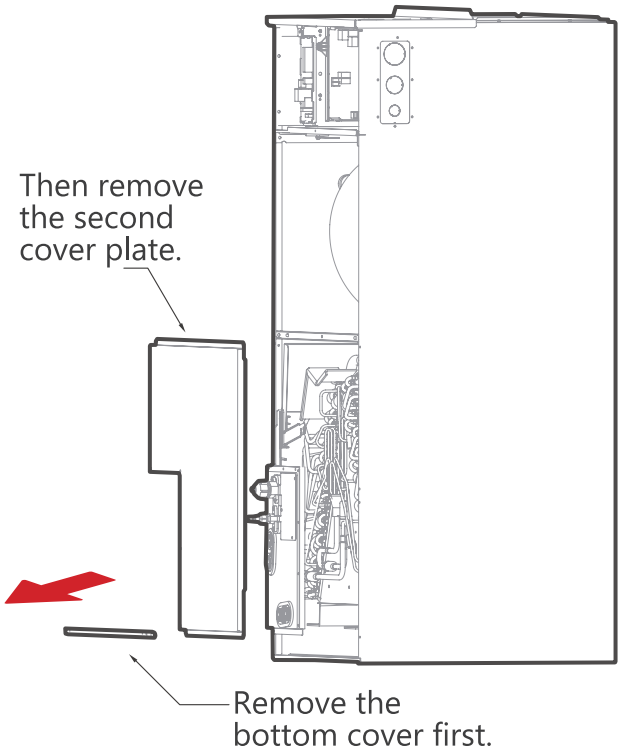


Fig. 1-3: Remove Evaporator Cover Plate

4. Unplug temperature sensors T1, T2, and refrigerant detection sensors from the control board.
   T1: Room temperature sensor
   T2: Evaporator central sensor plug

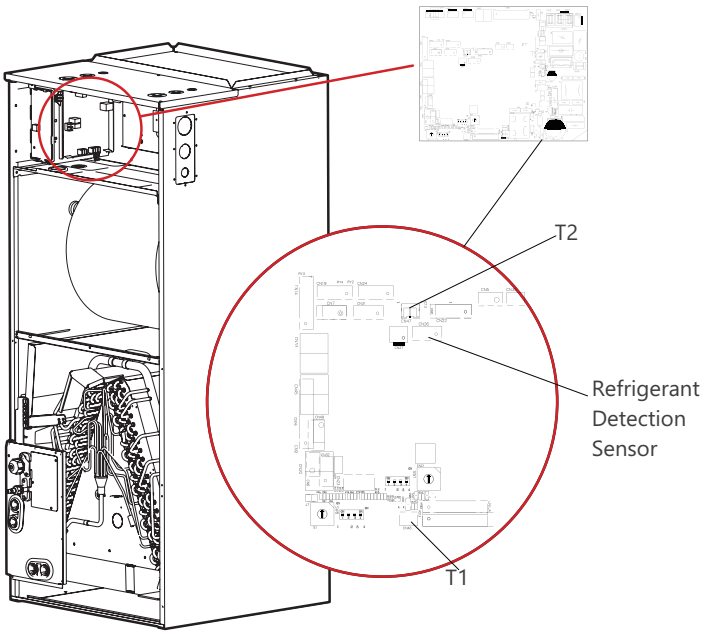
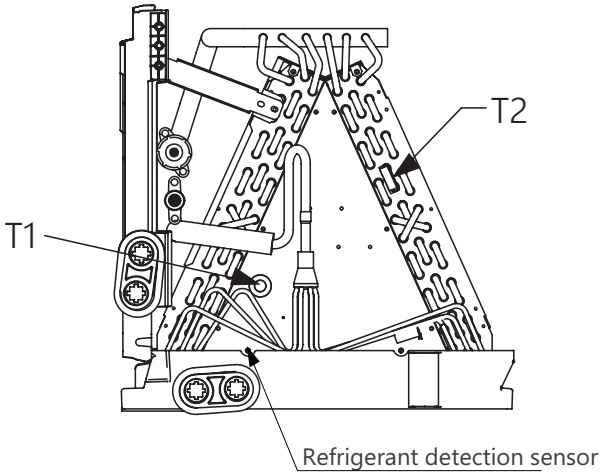


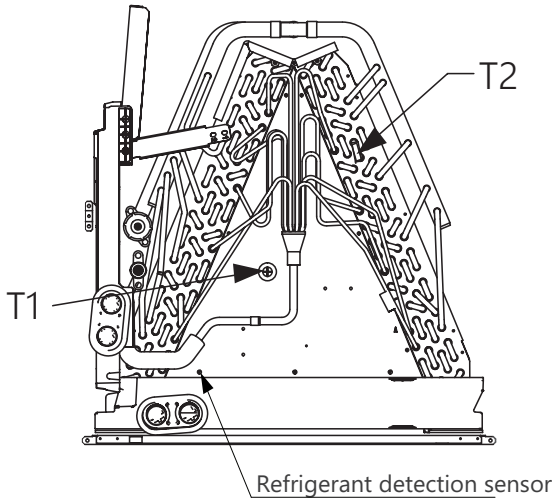
Fig. 1-4: Unplug the Sensors from the Board

5. Remove the sensor and detector wires from the coil section.
   T1: IDU room sensor (T1)
   T2: IDU coil sensor (T2)

18-24K model



30-36K model



48-60K model

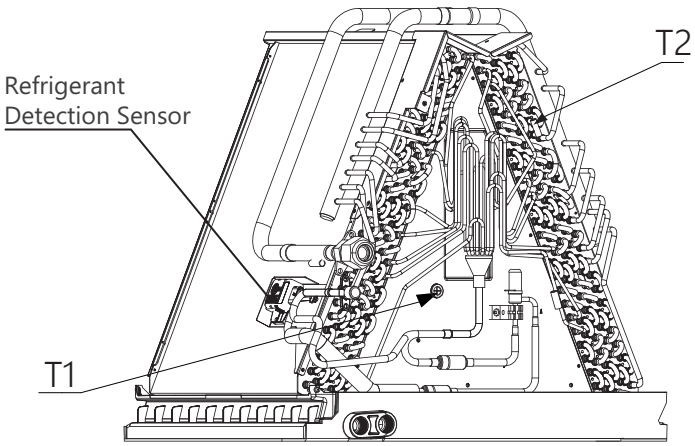


Fig. 1-5: T1 Sensor Location by Model

6. Remove T1, T2, refrigerant detection sensor wire ties.

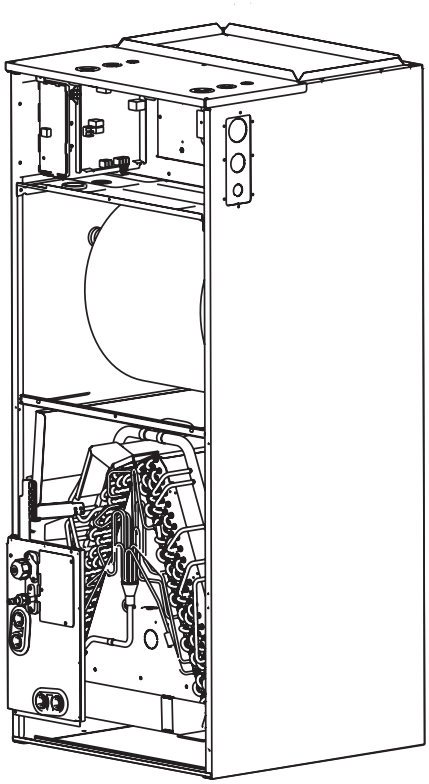


Fig. 1-6: Remove the Sensor Wire Ties

7. Take out the evaporator and drain pan and rotate 180°.

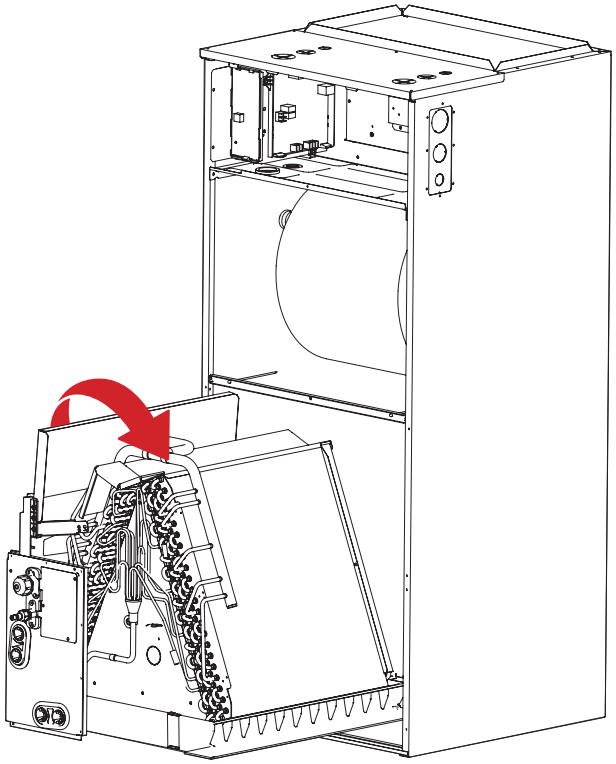


Fig. 1-7: Remove and Rotate Drain Pan

8. Adjust the position of the mounting parts.

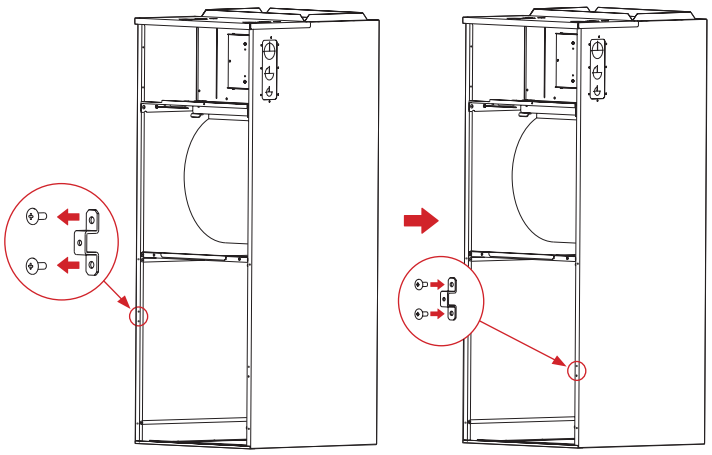


Fig. 1-8: Adjust Mounting Parts Position

9. Reinstall the evaporator and drain pan.

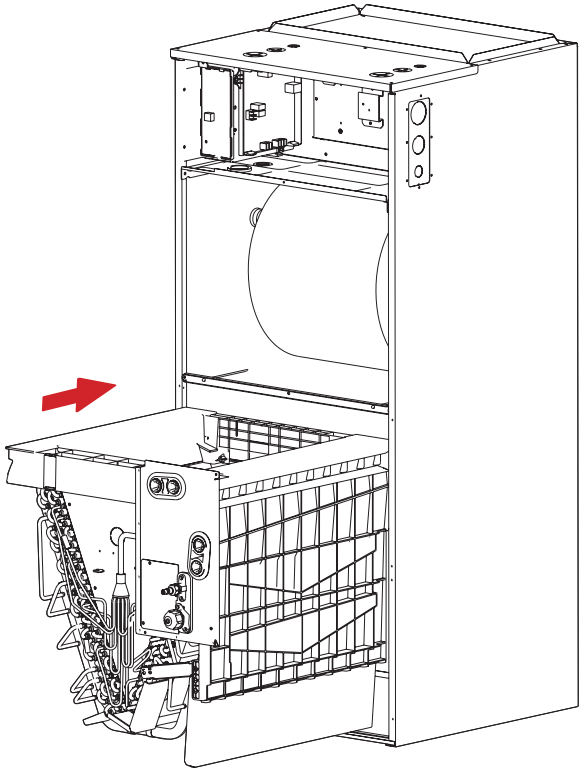


Fig. 1-9: Reinstall Evaporator and Drain Pan

10. Reinstall the T1, T2, and sensor plug, and tie together the sensor wires.

NOTE

The wire body needs to pass through the drain pan's wire groove and be stuck on the drain pan's hook.

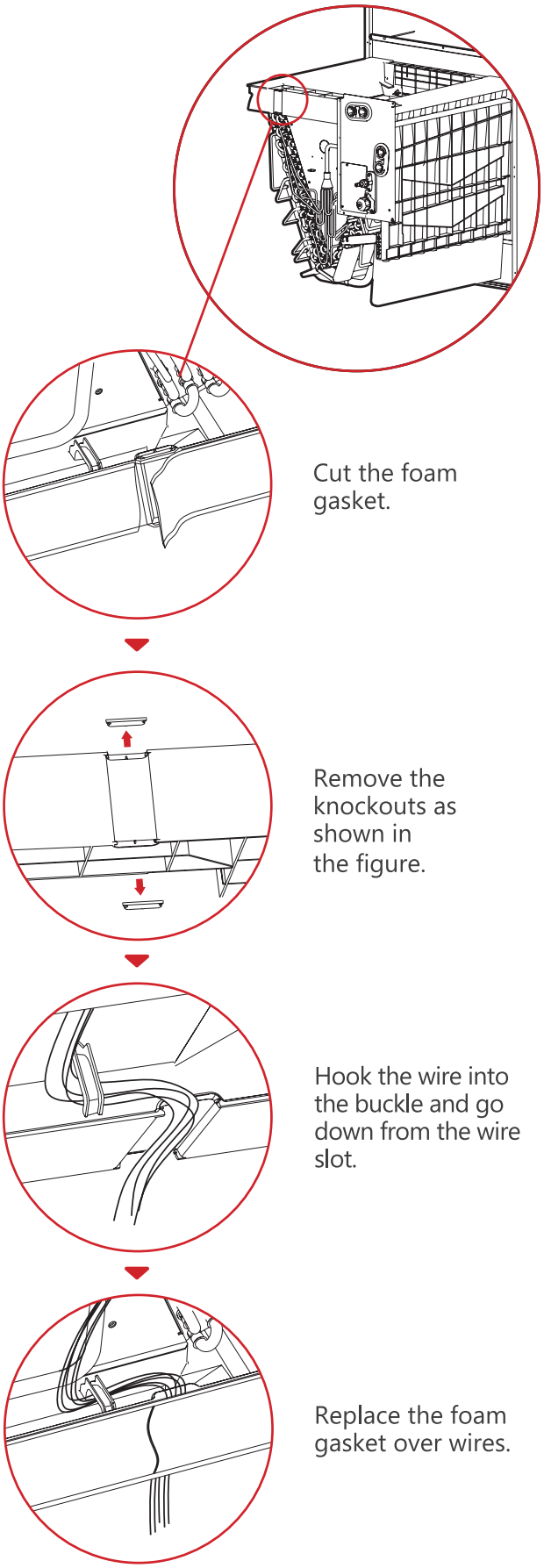


Fig. 1-10: Reinstall The Sensor Plugs

11. The evaporator is assembled in place.

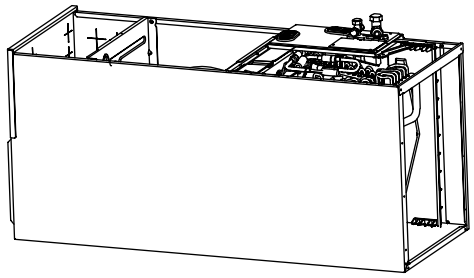


Fig. 1-11: Assembled Evaporator

12. Use cable ties to attach the room temperature sensor as shown in the figure.

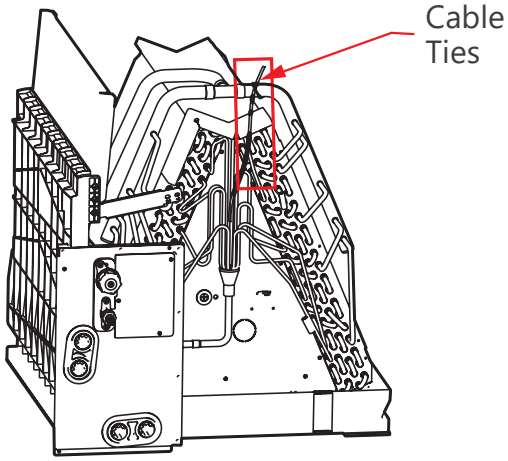


Fig. 1-12: Attach the Sensor

13. Reinstall the evaporator cover plate.

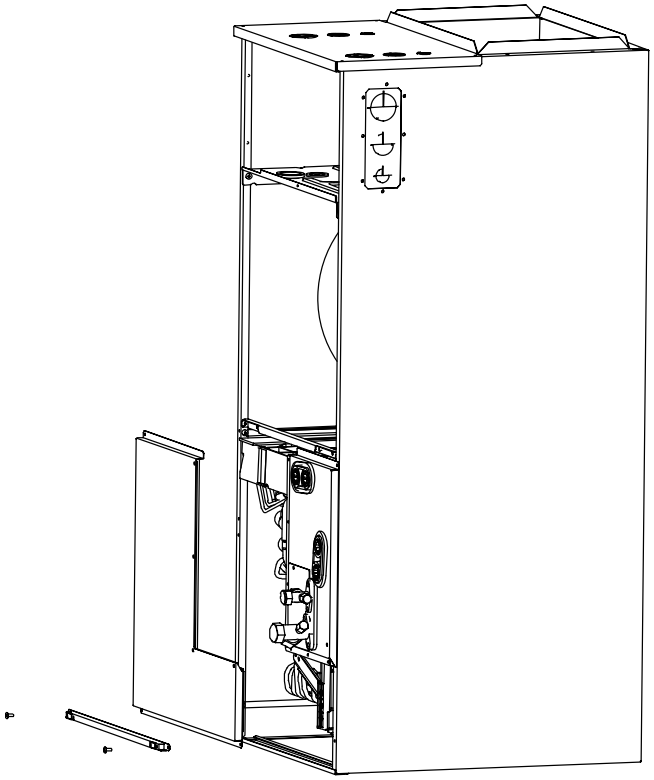


Fig. 1-13: Reinstall the Cover Plate

14. Connect the wire according to the wiring diagram.

15. Reassemble the upper front panels.

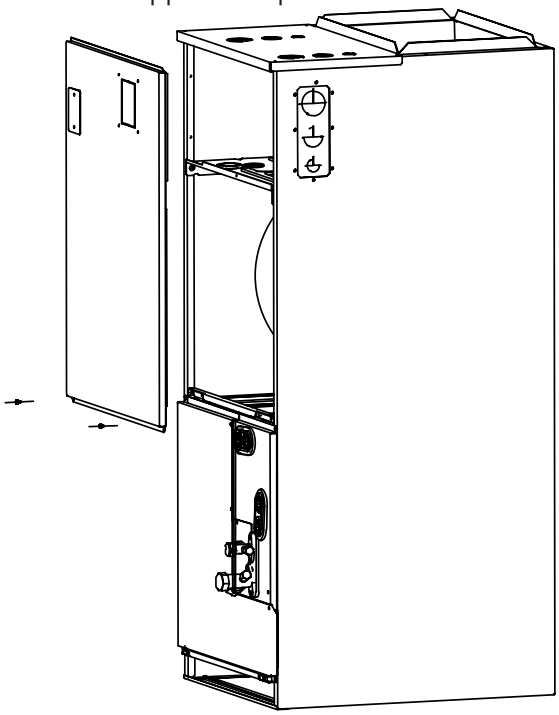


Fig. 1-14: Reassemble Upper Cover

16. Reassenble the upper cover and reinstall the filter and the filter cover plate.

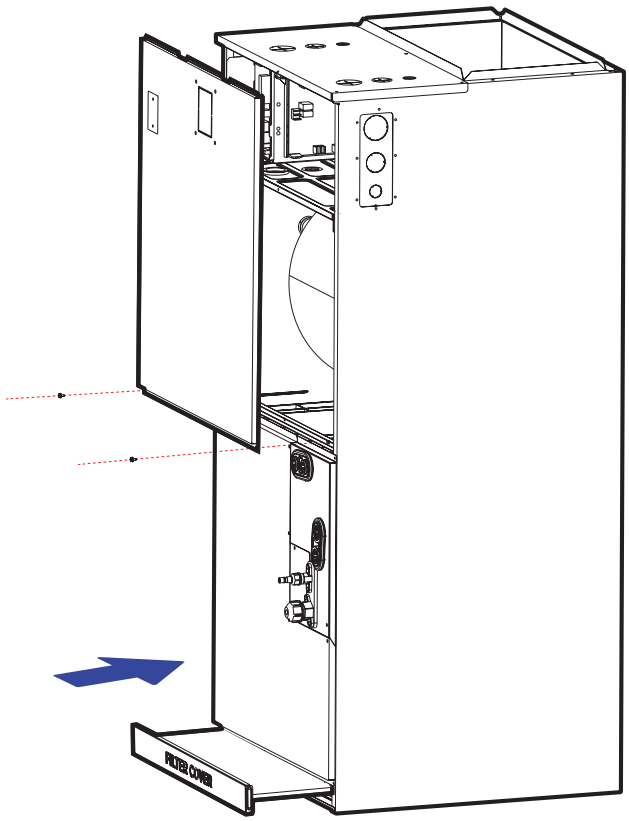


Fig. 1-15: Reinstall Filter and Cover Plate

NOTE

The wire body needs to pass through the wire groove from the drain pan and be stuck on the hook of the drain pan.

Step 2 - Drain Piping

⚠ CAUTION

FOR ALL PIPE INSTALLATION

- Insulate all piping to prevent condensation, which could lead to water damage.
- The drainpipe drains water away from the unit. If it is bent or installed incorrectly, water may leak, causing a water-level switch to 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 icy conditions on walkways.
- DO NOT pull the drainpipe forcefully. This could disconnect it.

NOTE

If installed above a finished living space, a secondary drain pan (as required by many building codes), must be installed under the entire unit and its condensate drain line must be routed to a location such that the user will see the condensate discharge.

NOTE

Installation requires PVC pipe or other suitable material per local and national codes, which can be obtained at your local hardware store or dealer.

- After removal of drain pan plug(s), check drain hole(s) to verify that the drain opening is fully open and free of any debris. Also, check to make sure that no debris has fallen into the drain pan during installation that may plug up the drain opening. Seal around the exiting drainpipe, liquid, and suction lines to prevent infiltration of humid air.
- On units of this type, where the blower "draws" rather than "blows" air through the coil, traps must be installed in the condensate drain lines (primary and auxiliary, if used). Traps prevent the blower from drawing air through the drain lines into the air supply.

VERTICAL INSTALLATIONS

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.

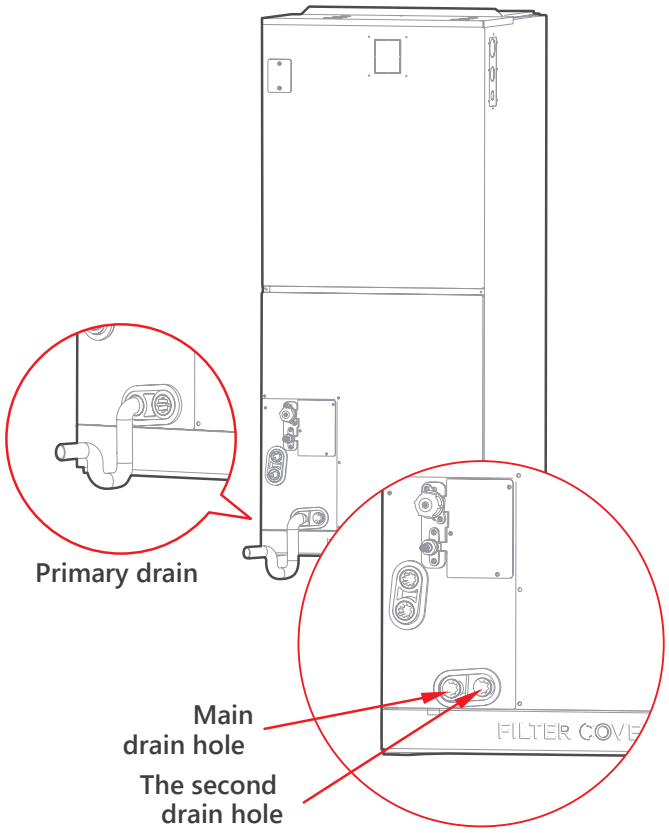


Fig. 2-1: Vertical discharge

NOTE

A secondary drain or external drain pan can be mandatory, please refer to the local code.

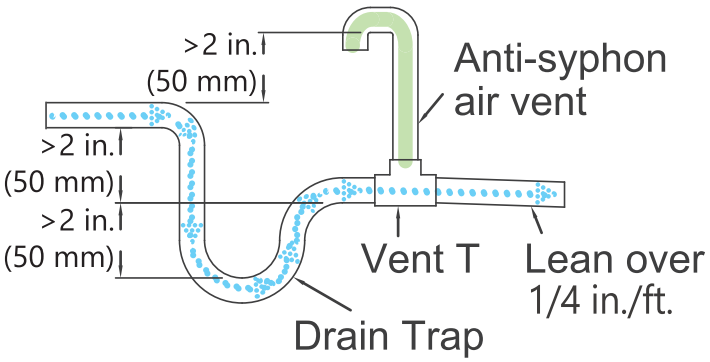


Fig. 2-2: Air Vent Arrangement

NOTE

Horizontal runs must also have an anti-siphon air vent (standpipe) installed ahead of the horizontal run to eliminate air trapping.

NOTE

DRAINPIPE INSTALLATION

- Fig. 2-1 shows how to trap or plug all drains during vertical discharge.
- Fig. 2-2 shows how to trap or plug all drains during right-hand discharge.
- The seal plug are field supplied as an accessory and should be screwed tightly only by hand.
- Incorrect installation could cause water to flow back into the unit and flood.

⚠ CAUTION

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.

Step 3 - Refrigerant Piping Connections

⚠ WARNING

All field piping must be completed by a licensed technician and must comply with local and national regulations.

- When the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. If the refrigerant leaks and its concentration exceeds its proper limit, hazards due to lack of oxygen may result.
- When installing the refrigeration system, ensure that air, dust, moisture, or foreign substances do not enter the refrigerant circuit. Contamination in the system may cause poor operating capacity, high pressure in the refrigeration cycle, explosion, or injury.
- Ventilate the area immediately if there is refrigerant leakage during the installation. Leaked refrigerant gas is both toxic and may be flammable. Ensure there is no refrigerant leakage after completing the installation work.

NOTE

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

⚠ CAUTION

Insulate both the gas and liquid piping to prevent condensation.

NOTE

Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meet the requirements shown in Table 3-1.

Table 3-1: Piping Sizes & Length

Capacity (Btu/h)	Maximum Length of Piping		Maximum Drop Height	
Unit	ft.	m	ft.	m
18K	98-7/16	30	65-5/8	20
24K/30K	164	50	82	25
36K/48K/60K	213	65	98-7/16	30

Name	Pipe Diameter	
Connecting pipe assembly	Liquid side	Ø1/4 (6.35)
		Ø3/8 (9.52)
	Gas side	Ø1/2 (Ø6.35)
		Ø5/8 (Ø16)
		Ø3/4 (Ø19

IMPORTANT

Use refrigeration grade tubing **ONLY**. No other type of tubing may be used. The use of other types of tubing will void the manufacturer's warranty.

- The minimum refrigerant line length between the indoor and outdoor unit is 10 ft. (3 m).
- Do not open the service valves or remove the protective caps from the tubing ends until all connections are made.
- Bend the tubing with bending tools to avoid kinks and flat spots.
- Keep the tubing free of dirt, sand, moisture, and other contaminants to avoid damaging the refrigerant system.
- Once the pipes are flared at both ends or before brazing them, purge them with nitrogen to remove dirt and moisture before connecting them to an indoor or outdoor unit.
- Insulate both suction and liquid lines separately with insulation size as per TABLE 5-1.

DO NOT install the connecting pipe until both the indoor and outdoor units have been installed.

⚠ 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).

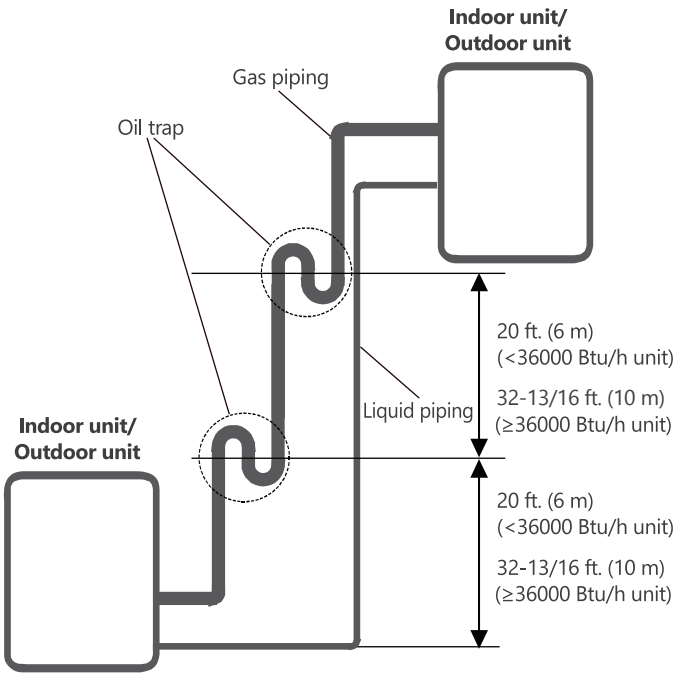


Fig. 3-1: Oil Trap Arrangement

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.

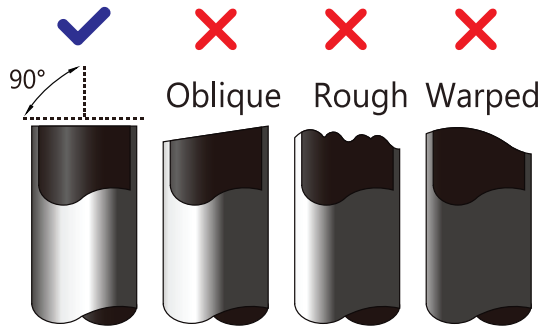


Fig. 3-2: Correct Pipe Cutting

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

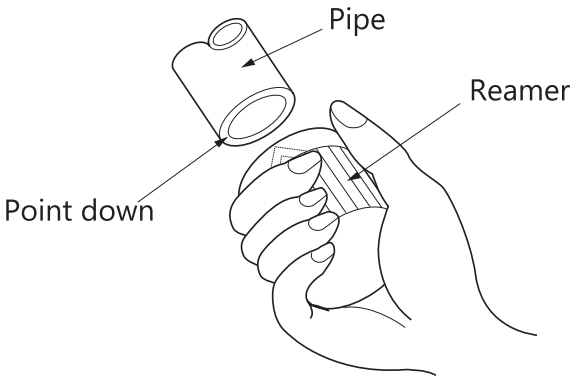


Fig. 3-3: Reamer Tool

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.

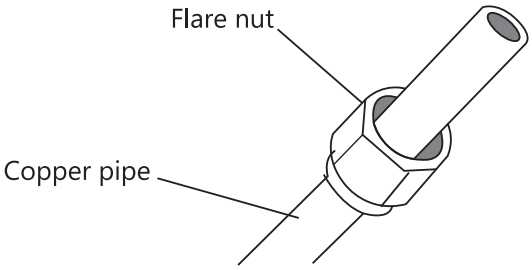


Fig. 3-4: Copper pipe and flare nut

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.

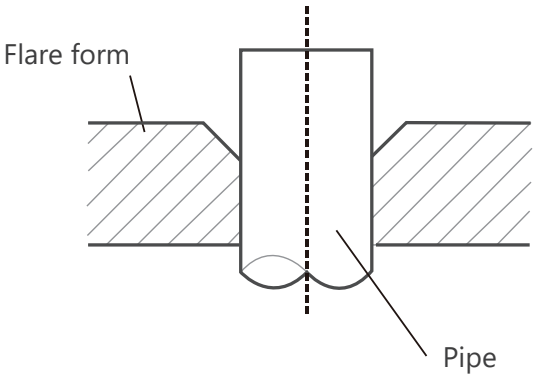


Fig. 3-5: Flare Form

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 3-2.

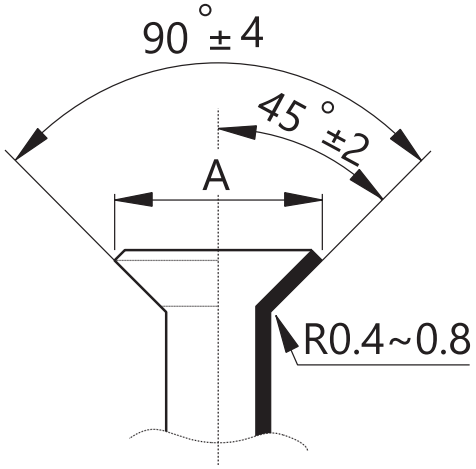


Fig. 3-6: Flare Shape

Table 3-2: 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)
Ø5/8 (15.88)	49/64 - 35/32 (~19.7)
Ø3/4 (19.05)	-

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)
Ø5/8 (15.88)	41.23-51.35 (57~71)
Ø3/4 (19.05)	48.46-73.05 (67~101)

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.

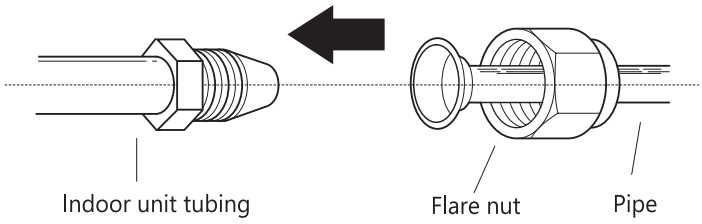


Fig. 3-7: Align the center of the two pipes

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 3-2.

NOTE

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

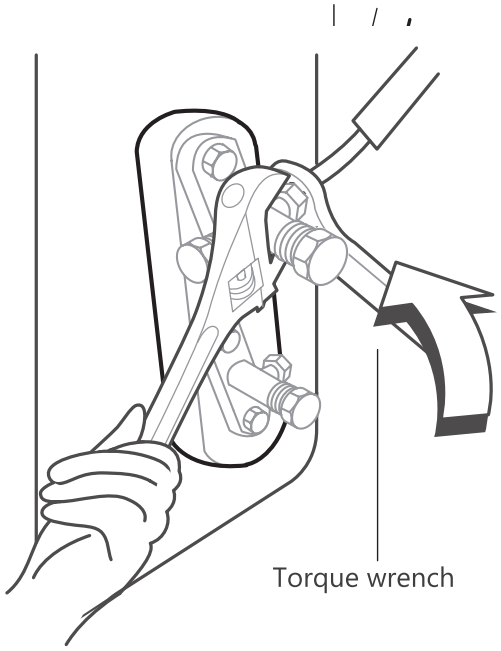


Fig. 3-8: Spanner and Backup Wrench

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 3-2.

⚠ 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.

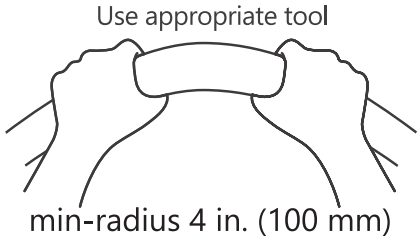


Fig. 3-9: Bend the Tubing

g. Thread this line set through the wall and connect it to the outdoor unit.

h. Insulate the suction line, including the outdoor unit valves.

⚠ CAUTION

Check to make sure there is no refrigerant leak after completing the installation work.

If there is a refrigerant leak, ventilate the area immediately and evacuate the system (refer to the Air Evacuation section of the outdoor unit manual).

Air-Handler Refrigerant Piping Connection

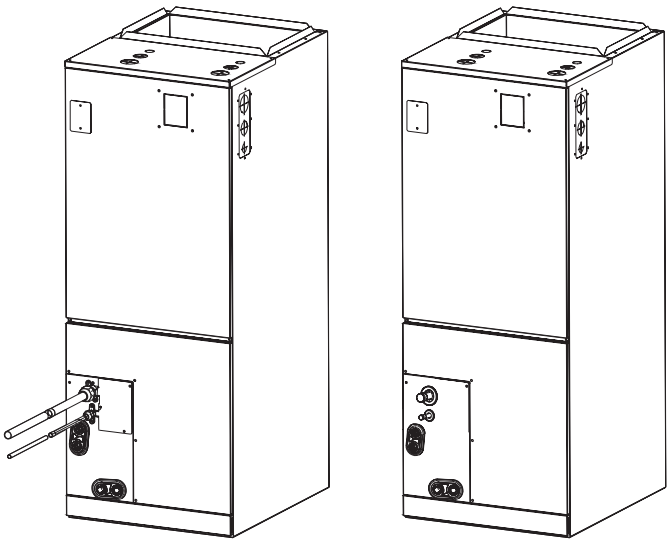


Fig. 3-10: Piping Connections

1. After the unit is installed, wrap the piping and brass fitting with foam tape.

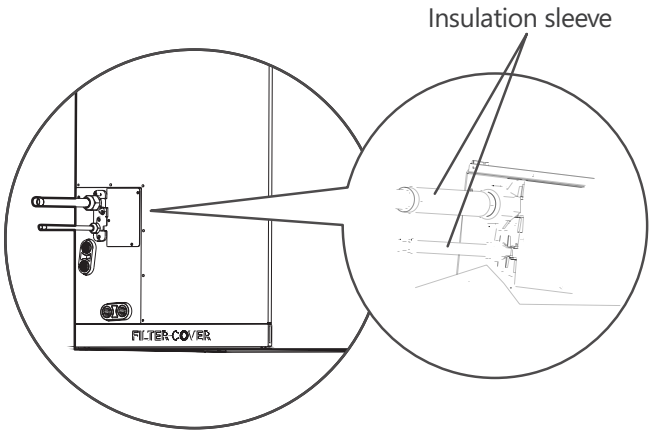


Fig. 3-11: Wrap Fittings With Foam Tape

2. You need to wrap all the connected copper pipes, nuts, and other metal parts into the sponge.

Outdoor Installation

Step 4 - 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:

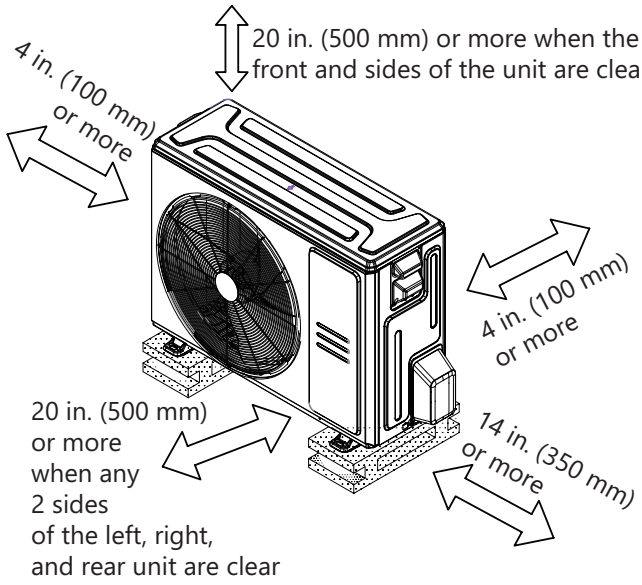
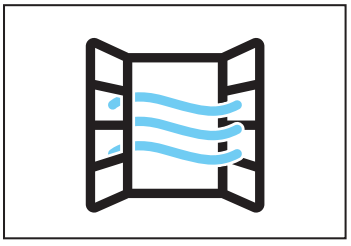
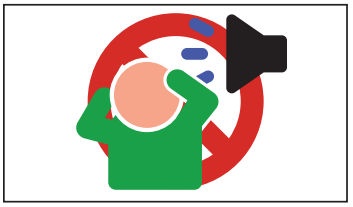


Fig. 4-1: Clearance Dimensions



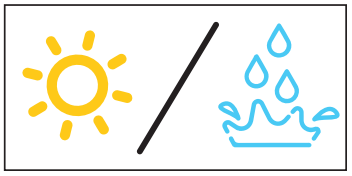
- Good air circulation and ventilation.

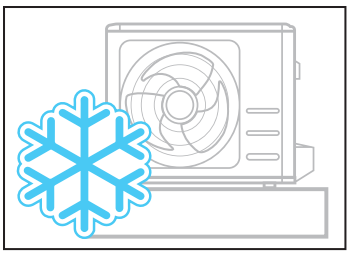
- Firm and solid - the location can support the unit and will not vibrate.



- 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.

⚠ CAUTION

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. 5-2.

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.

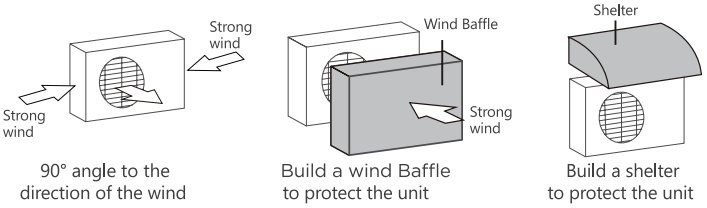


Fig. 4-2: High Wind Installation

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.

Step 5 - Install Drain Joint

NOTE

PRIOR TO INSTALLATION

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. For the units with base pan built-in with multiple holes for proper draining during defrost, the drain joint does not need to be installed.

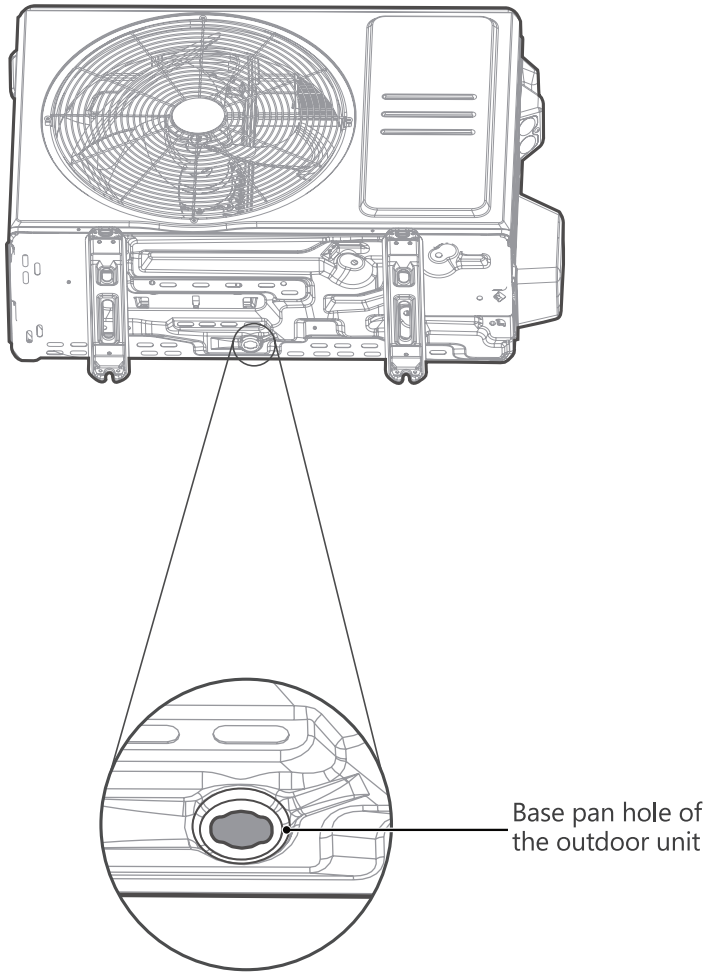


Fig. 5-1: Drain Hole Location

1. Find the base pan hole on the outdoor unit.

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

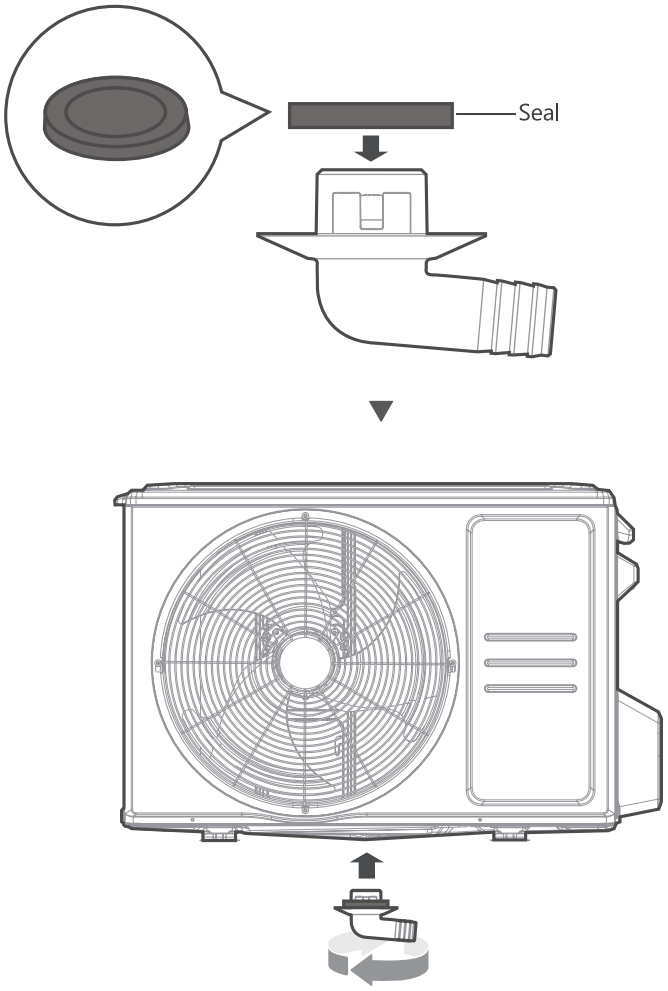


Fig. 5-2: Installation of the Drain Joint

3. Insert the drain joint into the hole in the base pan of the unit. The drain joint will click in place.
4. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

NOTE

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 6 - Anchor The 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 6-1.

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 6-1.

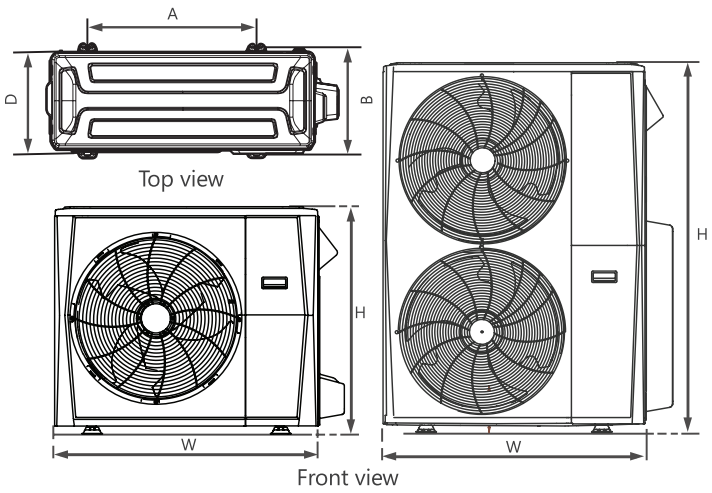


Fig. 6-1: Unit Dimensions

Table 6-1: Outdoor Unit Dimensions

Unit: inch (mm)

Outdoor Unit Dimensions W x H x D	Mounting Dimensions	
	Distance A	Distance B
31-3/4 x 21-7/8 x 12-7/8 (805 x554 x330)	20-1/8 (511)	12-1/2 (317)
35 x 26-1/4 x 13-1/2 (890 x 673 x 342)	26-1/8 (663)	13-7/8 (354)
37-1/4 x 31-29/32 x 16-5/32 (946 x 810 x 410)	26-1/2 (673)	15-7/8 (403)
38-19/32 x 38-3/8 x 16-11/32 (980 x 975 x 415)	24-1/4 (616)	15-5/8 (397)
37-1/2 x 52-1/2 x 16-11/32 (952 x 1,333 x 415)	24-35/36 (634)	15-29/32 (404)

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.

⚠ CAUTION

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 6-2: 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

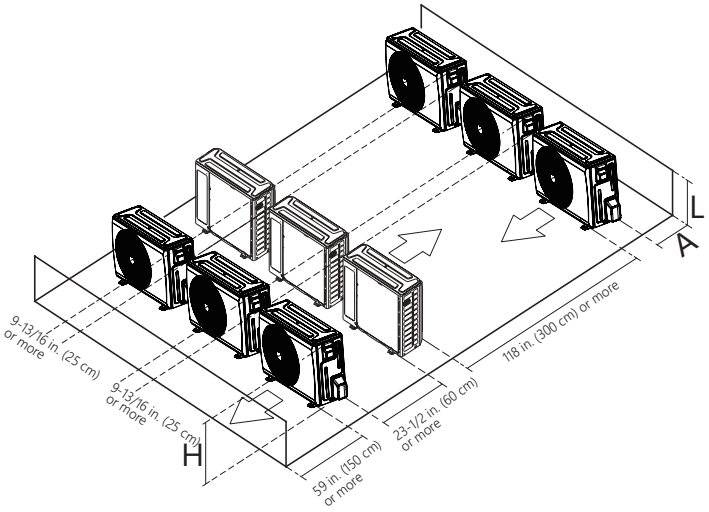


Fig. 6-2: Clearances for Multiple Units

Confirmation of Indoor Unit

Table CIU-1: Units Without Electric Heat

Unit Size	Volts-Phase	Rated Current (A)	MCA (Minimum Circuit Ampacity)	Branch Circuit	
				Min. Wire Size AWG	Fuse/CKT BKR Amps
18K	208/230 V-1*	2.0	2.5	14#	15.0
24K		3.0	4.0		
30K		4.5	6.0		
36K					
48K		7.8	9.75		
60K		8.5	11.0		

Use copper wire only to connect the unit. If other than uncoated (non-plated) 75°C copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used consult applicable tables of the National Electric Code (ANSI/NFPA 70).

NOTE

The specification may be dierent between dierent models ,please refer to indoor unit's nameplate. Please choose the right cable size according to the Minimum Circuit Ampacity indicated on the nameplate of the unit. Choose the cable type according to the local electrical codes and regulations.

Step 7 - Power Wiring Connections

⚠ 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.
- Power must be connected, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8 in. (3 mm) 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 circuit.
- 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.
- 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.
- 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.

NOTE

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

⚠ WARNING

OUTDOOR UNIT WIRING

Before performing any electrical or wiring work, turn off the main power to the system.

Prepare the cable for connection.

1. Mount the outdoor power disconnect.
2. Run the power wiring from the main box to disconnect per NEC or CEC and local codes.
3. Remove the field wiring cover from the unit by loosening the screws.
4. Remove the caps on the conduit panel.

NOTE

- When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.
- Choose the cable type according to the local electrical switches and regulations.
- Please choose the right cable size according to the Minimum Circuit Ampacity indicated on the nameplate of the unit.

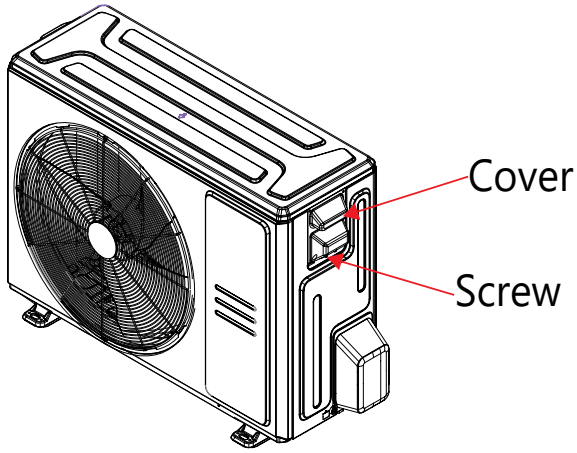
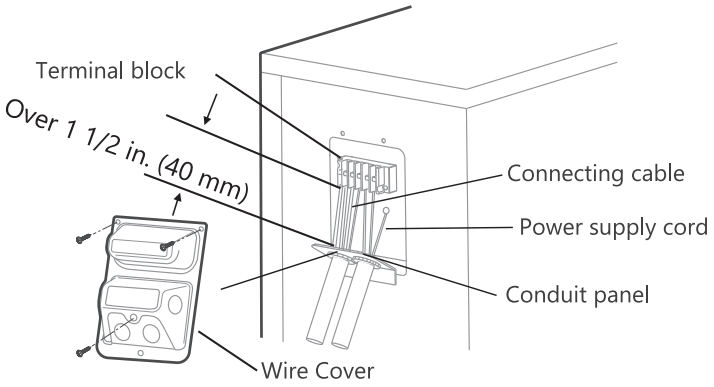


Fig. 7-1: Remove Electrical Cover

5. Connect the conduit-to-conduit panel (see Fig. 7-3).



Please select the appropriate through-hole according to the diameter of the wire.

Fig. 7-2: Field Wiring Conduit Location

6. Properly connect both the power supply and control lines to the terminal block per the connection diagram for the appropriate unit capacity and voltage.
7. Ground the unit in accordance with NEC or CEC and local electrical codes.

8. Use the lock nuts to secure the conduit.
9. Reinstall the field wiring cover.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD



Failure to follow this caution may result in equipment damage or improper operation.

Be sure to comply with local codes while running wire from the indoor unit to the outdoor unit.

Every wire must be connected firmly. Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, ensure all wiring is tightly connected. No wire should be allowed to touch the refrigerant tubing, compressor, or any moving parts.

Disconnecting means must be provided and shall be located within sight and readily accessible from the air conditioner. The connecting cable with the conduit shall be routed through a hole in the conduit panel.

An approved and listed fitting must be used to securely affix conduit in accordance with NEC and local codes.

Wiring

All wires must be sized per NEC (National Electrical Code) or CEC (Canadian Electrical Code) and local codes. Use Electrical Data Table 7-3 MCA (minimum circuit amps) and MOP (maximum overcurrent protection) to correctly size the wires and the disconnect fuse or breakers respectively.

⚠ CAUTION

INDOOR UNIT WIRING

- While connecting the wires, please strictly follow the wiring diagram.
- The refrigerant circuit can become very hot. Keep the interconnection cable away from the copper tube.

Prepare the cable for connection.

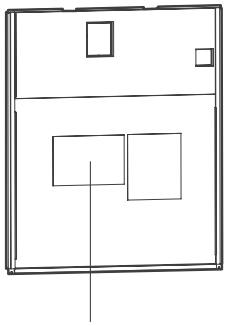
1. Using wire strippers, strip the insulating jacket from both ends of the signal cable to reveal about 5.9 in. (150 mm) of the wire.
2. Strip the insulation from the ends of the wires.

Open the front panel of the indoor unit.

Using a screwdriver, remove the cover of the electric control box from your indoor unit.

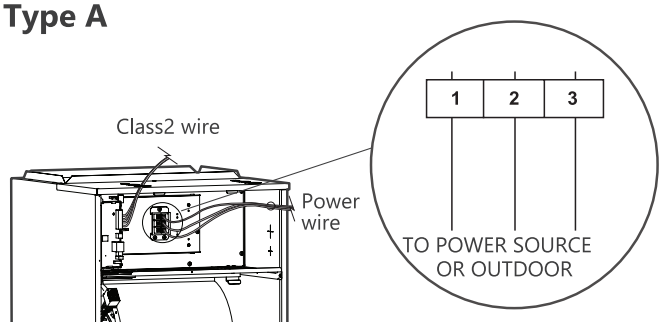
Connect the wires to the terminals.

1. Thread the power cable and the signal cable through the wire outlet
2. Match the wire colors/labels with the labels on the terminal block. Firmly screw the wires of each wire to its corresponding terminal. Refer to the Serial Number and Wiring Diagram located on the cover of the electric control box.



Wiring diagram

Type A



Type B

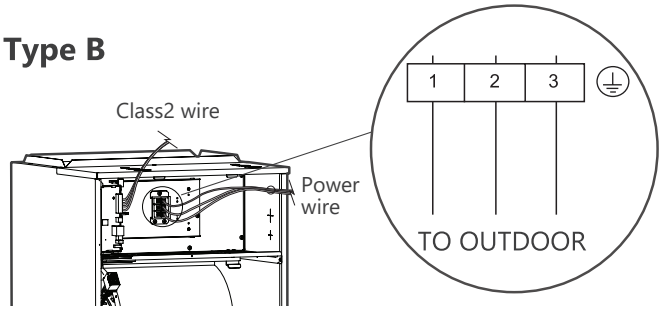


Fig. 7-3: Power Wiring Location

⚠ WARNING

ISOLATE THE POWER SUPPLY LEADS AND COMMUNICATION LEADS BY THE STRAIN RELIEF AND KEEP POWER SUPPLY LEADS AWAY FROM COMMUNICATION LEADS.

3. Clamp down the cable with the cable clamp. The cable must not be loose or pull on the U-lugs.
4. Reattach the electric box cover.
5. Clamp down the cable with the cable clamp. The cable must not be loose or pull on the U-lugs.
6. Reattach the electric box cover.

⚠ CAUTION

- While connecting the wires, please strictly follow the wiring diagram.
- The refrigerant circuit can become very hot. Keep the interconnection cable away from the copper tube.
- The holes on the cover of the electronic control box must be threaded through with armored wires.

NOTE

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

Step 8 - Specific Wiring Methods

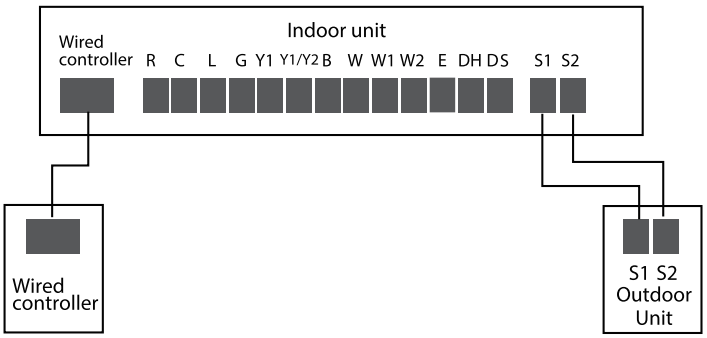
⚠ WARNING

Please refer to the wiring nameplate for the wiring method. Do not connect the power cord to the communication line, as this may damage the system.

Connection Method A:

Refer to the wiring method of internal and external machine communication and wired controller as follows:

(A)



(B)

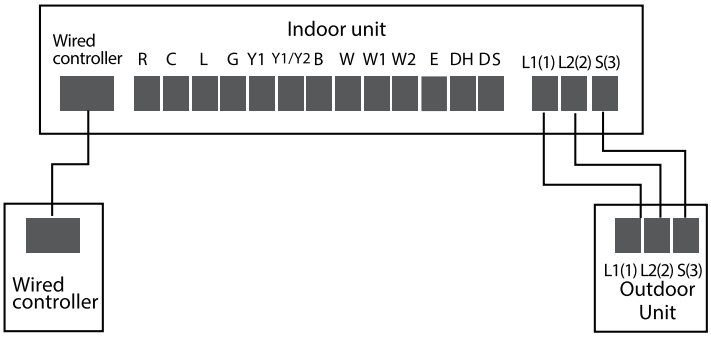
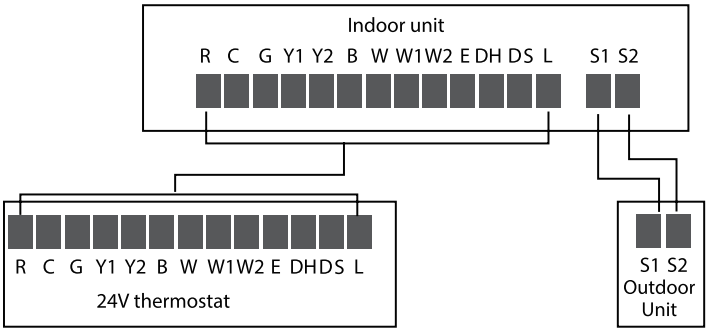


Fig. 8-1: Connection Method A Wiring

Connection Method B:

To use a 24V thermostat, you need to refer to the following wiring:

(A)



(B)

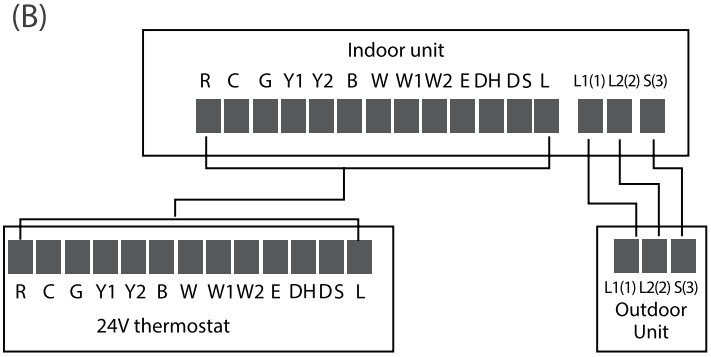


Fig. 8-2: Connection Method B Wiring

NOTE

The wiring method of the thermostat and the internal machine refers to the wiring of the non-communication scheme.

Connection Method C:

Cooling and Fixed-speed Type Only System Wiring Diagram:

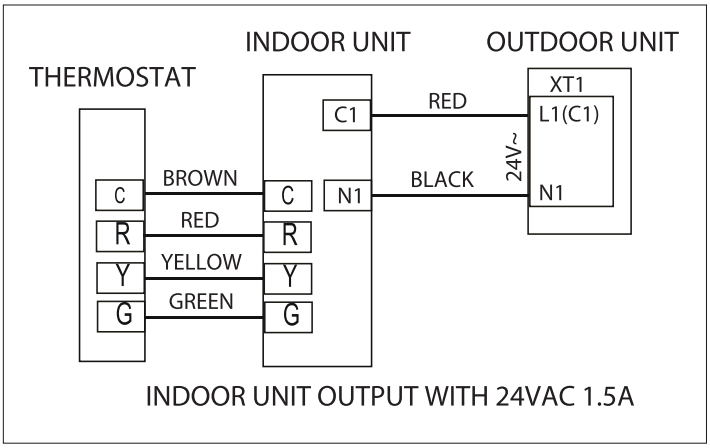


Fig. 8-3: Connection Method C Wiring

NOTE

Suggestion: It is suggested that you use a thermostat from Honeywell, a series of non-programmable thermostats, including the TH5220D.

Optional function wiring

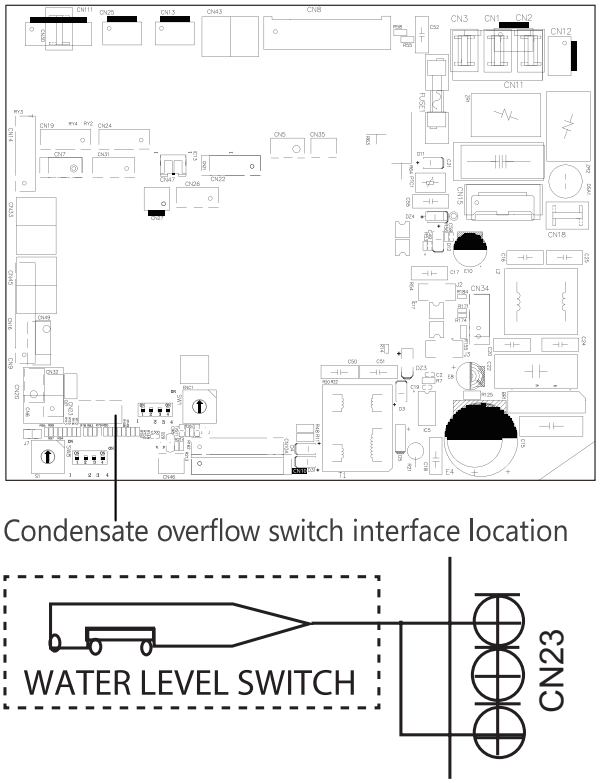


Fig. 8-4: Condensate Overflow Location

Condensate overflow switch:

The unit will accommodate a remote condensate overflow switch. To enable, remove jumper J7, and connect the installer-provided condensate overflow device to CN23 per below. When an overflow condition is present, the device should open the connection signaling the unit to turn off the system.

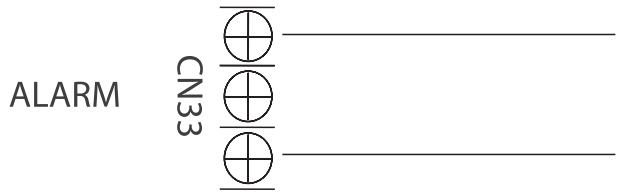


Fig. 8-5: Alarm Wiring

Alarm output:

An alarm output (CN33) can be utilized if actions are required when a fault is present. This is a passive outlet port, so you will need to input a voltage signal. The relay is normally open for normal operation and closed when the fault condition is active.

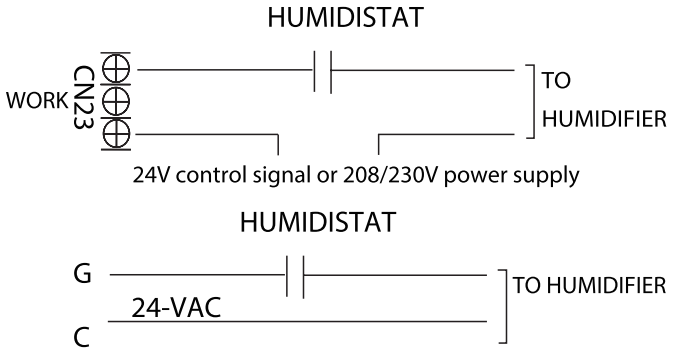


Fig. 8-6: Humidifier Wiring

Humidifier control:

To connect a humidifier, utilize the passive signal "WORK" output (CN23) port as well as the R and C wires on the controller, and wire the humidistat and humidifier per the above wiring diagram. When the fan is running, the CN23 relay will be closed, which will allow power to the humidifier when the humidistat is below the humidity setpoint. If the thermostat or zone controller has a HUM interface, connect the humidifier directly to the HUM and C ports.

Dehumidification control:

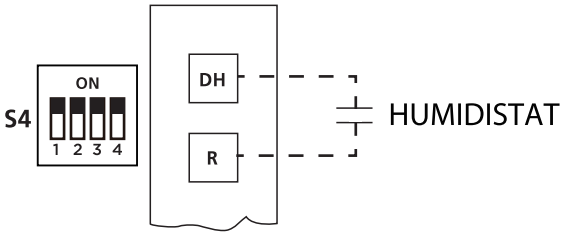


Fig. 8-7: Dehumidification Wiring

Dehumidification control requires external Humidistat at DH and R. Set S4-2 as OFF. When the humidity rises and exceeds the set value of the Humidistat, the 24V signal of DH changes to 0V, the cooling system starts the dehumidification operation, and the air volume drops to 80% of the nominal cooling air volume.

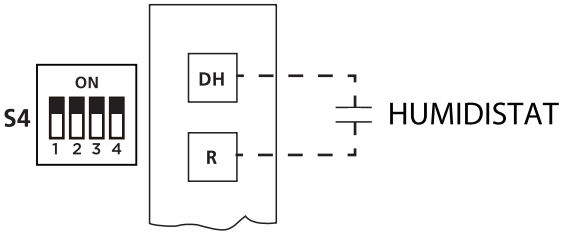


Fig. 8-8: Clean Air Wiring

UV, fresh air, or ion generator:

The WORK port is linked to the fan. When the fan is running, the relay is closed.

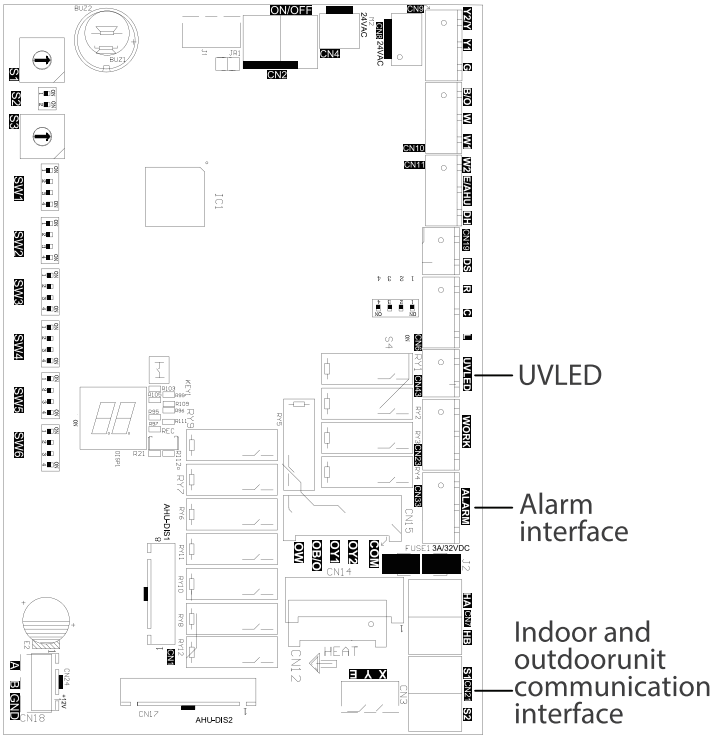


Fig. 8-9: Interface Wiring Locations

LED Display

The control displays unit status as well as any active fault codes on the LED display. If the unit is functioning normally, the LED will display the current temperature setpoint. When a fault code is active, the display will flash quickly the active fault code. Please refer to the fault code table located in the troubleshooting section of the manual for detailed fault code information.

KEY1 Instructions (For Wired Controller only)

- Press KEY1 to enter the forced automatic mode, press KEY1 again to enter the forced cooling mode (LED display FC), and press KEY1 again to shut down.
- Long press KEY1 under forced cooling mode (LED display FC) 5s to enter forced defrost mode.

Table 8-1: Control Logic

Terminal	Function
R	24 V Power Connection
C	Common
G	Fan Control
Y1	Low Demand
Y/Y2	High Demand
B	Heating Reversing Valve
W	Heating Control
W1	Stage 1 Electric Heating
W2	Stage 2 Electric Heating
E/AUX	Emergency Heating
L	System Fault - (24 V output signal)
DH/BK	Dehumidification/Zoning Control

Table 8-2: Cooling & Heating Power

Model (Btu/h)			18K	24K	30K	36K	48K	60K
Power (outdoor)		Phase	1 Phase					
		Frequency and Volt	208/230 V, 60 Hz					
Input Circuit Fuse		Indoor Unit (A) Outdoor Unit (A)	3.6 A 30 A			16 A 35 A	16 A 60 A	
Lines Guage	Outdoor Unit Power Line	Line Quantity	2+Ground					
		Line Diameter (AWG)	14	12	12	STD 12 HH 8	STD 10 HH 8	STD 10 HH NA
	Outdoor-Indoor Signal Line	Line Quantity	---			2		
		Line Diameter (AWG)	---			20		
	Thermostat Signal Line	Line Quantity	---					
		Line Diameter (AWG)	18					
	Indoor-Outdoor Connection Line	Line Quantity	4			3		
		Line Diameter (AWG)	16					

DIP switch definitions

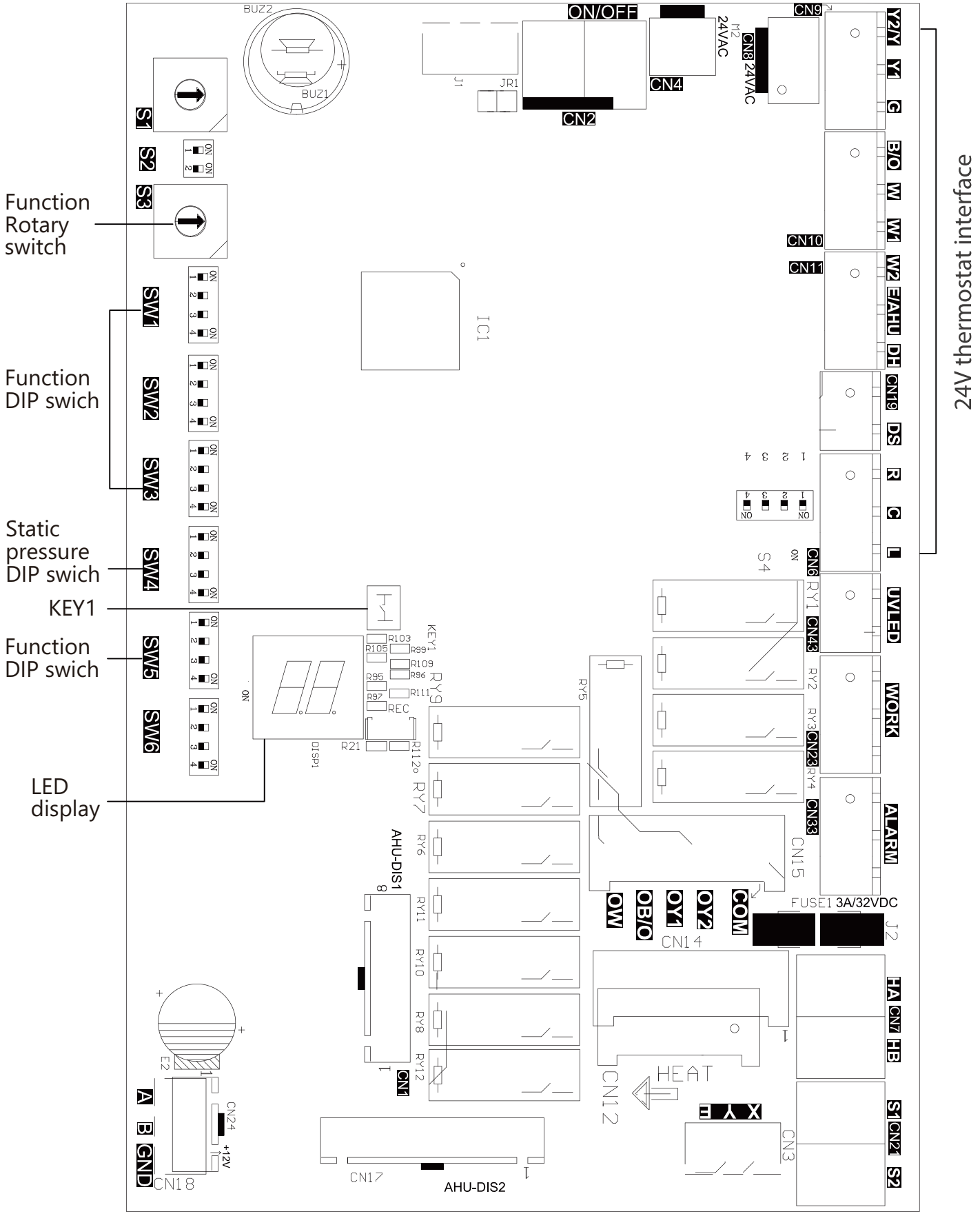


Fig 8-10: Dip Switch Layout

Function DIP switch settings:

The 24 V thermostat mode needs to refer to the following settings:

SW4-1	000 is the default 000/001/010/011/100/101/ 110/111, internal machines with different abilities, electric heating, and PSC classification for use.
SW4-2	
SW4-3	

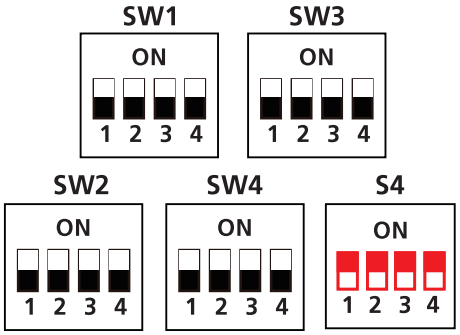


Fig. 8-11: 24 V Thermostat Settings

Table 8-3: Function combination table of SW1-1 and SW1-4

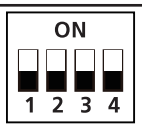
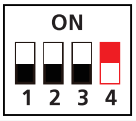
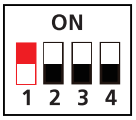
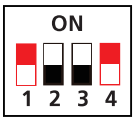
SW1	Control Type	Stand Alone Or Full System
	Free Match	Free Match
	Wired controller	Full System
	24 V Thermostat	Full System
	24 V Thermostat	Stand Alone

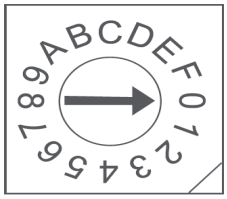
Table 8-4: Indoor Unit Dial Code

No.	Dial Code	Control Scenario	Function	ON	OFF	Note
1	SW1-2	1,2,3	Anti-cold blow protection option	NO	[Default] YES	
2	SW1-3	1,2,3	Single cooling / heating and cooling options	Cooling	[Default] Cooling & Heating	
3	SW2-1	1	Compressor Running (demand working with heat pump+ Electric heat)	Compressor slower speed	[Default] Faster Compressor	Only afects compressor and W1
4	SW2-1	2	Temperature diferential to activate first stage auxiliary heat (the GAP of T1 and Ts), Wire controller demand with heat pump+Electric heat working together	2°F (1°C)	[Default] 4°F (2°C)	
5	SW2-2	2	Electric heat on delay	YES	[Default]NO	
6	SW2-3	2	Electric auxiliary heating delay to start time	30 minutes	[Default] 15 minutes	Based on SW2-2 is ON
7	SW2-4	1	Compressor	The operation of heat pump is limited by the outdoor temperature, and the operation of auxiliary heat is not limited.The system makes judgments according to the following rules: 1) The compressor can be operated when the outdoor temperature is ≥S3 DIP switch temperature +2 °C. 2) The compressor cannot be operated when the outdoor temperature is lower than the S3 DIP switch temperature.	[Default]The operation of heat pump is limited by the outdoor temperature, and the operation of auxiliary heat is not limited. The system makes judgments based on the following rules: 1) The compressor cannot be operated when the outdoor temperature is lower than the S3 DIP switch. 2) The compressor can be operated when the outdoor temperature is ≥S3 DIP switch temperature +2 °C.	SW2-4 and S3 need to working together
8	SW2-4	2	Compressor/Auxiliary heat outdoor ambient lockout	The operation of heat pump is limited by the outdoor temperature, and the operation of auxiliary heat is not limited. The system makes judgments according to the following rules: 1) The compressor can be operated when the outdoor temperature is ≥S3 DIP switch temperature +2 °C. 2) The compressor cannot be operated when the outdoor temperature is lower than the S3 DIP switch temperature.	[Default]Only one heat pump or auxiliary heat can be operated .The system makes judgments according to the following rules: 1) When the outdoor temperature is lower than the S3 DIP switch temperature,the compressor is not allowed to operated, but auxiliary heat is allowed to operated ; 2) When the outdoor temperature is ≥S3 DIP switch temperature +2 (°C), the compressor can be operated, but auxiliary heat cannot be operated.	
9	Rotary Switch S3	1,2	Set outdoor temperature Limitation (for auxiliary heating or compressor)	See Table 5-8: Table A		

Table 8-4: Indoor Unit Dial Code (continued)

No.	Dial Code	Control Scenario	Function	ON	OFF	Note
10	SW3-1	1	Maximum continuous runtime allowed before system automatically stages up capacity to satisfy set point. This adds 1 to 5°F to the user set point in the calculated control point to increase capacity and satisfy user set point	30 minutes	[Default] 90 minutes	
11	SW3-2	1	Cooling and heating Y/Y2 temperature diferential adjustment.	Compressor slower speed	[Default] Faster Compressor	Only afects compressor
12	SW3-3	1	Compressor Running (demand working with heat pump+ Electric heat)	Compressor slower speed	[Default] Faster Compressor	Only afects compressor and W2
13	SW3-3	2	Temperature diferential to activate second stage auxiliary heating (the GAP of T1 and Ts)Wire controller demand with heat pump+Electric heat working together	4°F (2°C)	[Default] 6°F (3°C)	
14	SW3-4	1,3	Fan speed of cooling mode when 24 V Thermostat is applied for.	Turbo	High	
15	SW4	1,2,3	Electric heat nominal CFM adjustment	Available settings are 000/001/010/011. Each digit corresponds to an indiviual swith position. For example [SW4-1 OFF, SW4-2 ON, SW4 -3 OFF] = 010		
16	SW4-4	1.3	Default ON	[Default] For single stage supplemental heat,W1 and W2 are connected	For dual stage supplemental heat, W1 and W2 are controlled independently.	
17	S4-2	1,3	DH function selection	[Default] Dehumidification control not available	Dehumidification feature is enabled through thermostat	

Control Scenario	24 V Tstat, S1+S2	1
	Wired Controller S1+S2	2
	Full 24 V	3



Address DIP switch:

Address dialing S1+SW8: When the user uses the centralized controller, address dialing is required.

Network address: The address silkscreen is the NET address, which is composed of a 16-bit address rotary code S1 plus a two-digit DIP switch SW8 [Set during engineering installation, no network function does not need to be set]

When SW8 is 00 (the dialing code is not connected), the network address value is the value of S1.

When SW8 is 10 (corresponding to the switch of the hardware connected to the 10K resistor), the network address value is S1 plus 16.

Determined by dial code SW8 1-10K 2-5.1K

When SW8 is 01 (corresponding to the dialing code of the 5.1K resistor connected to the hardware is turned on), the network address value is the value of S1 plus 32.

When SW8 is 11 (all dialing codes are on), the network address value is the value of S1 plus 48.

Table 8-5: Determined by dial code SW8 1-10K 2-5.1K

Dial Code Selection	Website Address
	SW8 + 48
	SW8 + 32
	SW8 + 16
	S8

Table 8-6: Table A

S3	S3 (°F)	S3 (°C)
O	OFF	OFF
1	-22	-30
2	-18	-28
3	-15	-26
4	-11	-24
5	-8	-22
6	-4	-20
7	3	-16
8	10	-12
9	18	-8
A	25	-4
B	32	0
C	36	2
D	39	4
E	43	6
F	46	8

Step 9 - 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.

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.

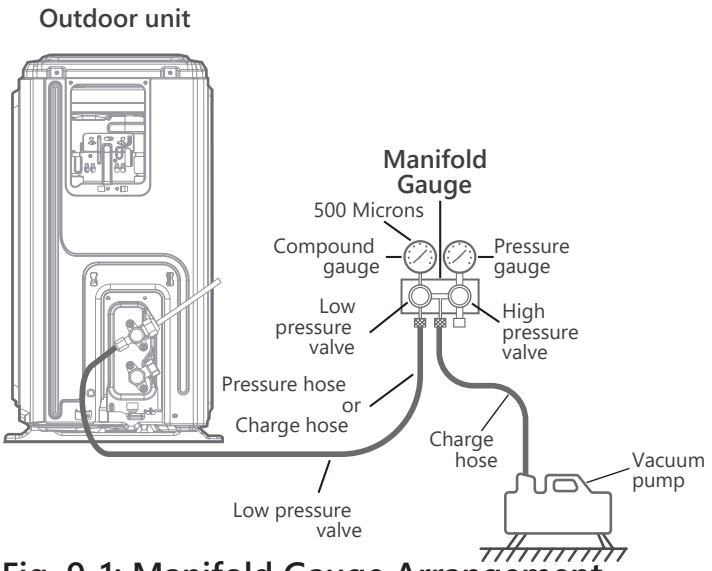


Fig. 9-1: Manifold Gauge Arrangement

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.

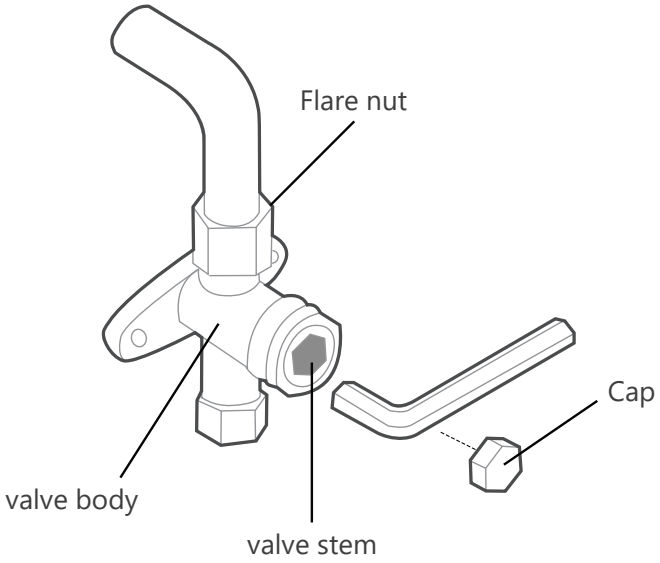


Fig. 9-2: Service Valve

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. The standard pipe length varies according to local regulations. For example, in North America, the standard pipe length is 300 in. (7500 mm).

In other areas, the standard pipe length is 192 in. (500 0mm). 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 9-1: Additional Refrigerant Formula

Refrigerant	Liquid Side Pipe Diameter		
	Ø1/4 in. (Ø6.35 mm)	Ø3/8 in. (Ø9.52mm)	Ø1/2 in. (Ø12.7 mm)
R454B: (Metering device in the indoor unit)	(Total pipe length-standard pipe length) x30 g (0.32 oz.)/m (ft.)	(Total pipe length-standard pipe length) x65 g (0.69 oz.)/m (ft.)	(Total pipe length-standard pipe length) x115 g (1.32 oz.)/m (ft.)
R454B: (Metering device in the outdoor unit)	(Total pipe length-standard pipe length) x15 g (0.16 oz.)/m (ft.)	(Total pipe length-standard pipe length) x30 g (0.32 oz.)/m (ft.)	(Total pipe length-standard pipe length) x65 g (0.69 oz.)/m (ft.)

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. Double-check to see if the room temperature is being registered correctly.
   b. Check to see that the drainage system is unimpeded and draining smoothly.
   c. 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. Turn on the main power switch and run the air conditioner in COOL mode.
   c. 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.
   d. Make sure that there are no leaks in any of the piping.
   e. 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 Service Manual before calling customer service.

Appendix

Table AP-1: Air Volume Table

Capacity	External Static Pressure Range	Fan speed	Electric auxiliary heat module	24 V thermostat		Wired controller		Airflow volume (CFM)
				DIP Switch	24 V terminal engaged	DIP Switch	Mode	
18K (1.5 Ton)	0 - 0.8 in. wg.	Cooling Turbo	—	SW3-4=ON	Y2/Y	—	Cool	618
		Cooling High	—	SW3-4=OFF	Y2/Y	—	Cool	576
		Cooling Medium	—	—	Y1	—	Cool	529
		Cooling Low	—	—	—	—	Cool	488
		Heat Pump Turbo	—	—	—	—	Heat	565
		Heat Pump High	—	—	B+Y2/Y, W	—	Heat	541
		Heat Pump Medium	—	—	Y1	—	Heat	435
		Heat Pump Low	—	—	—	—	Heat	400
		Electric auxiliary heat module 0 (Default)	10 kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat + AUX, AUX	882
		Electric heater kit 1	10 kW, 8 kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat + AUX, AUX	624
		Electric heater kit 2	8k W	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat + AUX, AUX	594
		Electric heater kit 3	5 kW, 3 kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat + AUX, AUX	565
24K (2 Ton)	0 - 0.8 in. wg.	Cooling Turbo	—	SW3-4=ON	Y2/Y	—	Cool	824
		Cooling High	—	SW3-4=OFF	Y2/Y	—	Cool	759
		Cooling Medium	—	—	Y1	—	Cool	694
		Cooling Low	—	—	—	—	Cool	629
		Heat Pump Turbo	—	—	—	—	Heat	788
		Heat Pump High	—	—	B+Y2/Y, W	—	Heat	753
		Heat Pump Medium	—	—	Y1	—	Heat	641
		Heat Pump Low	—	—	—	—	Heat	524
		Electric heater kit 0 (Default)	15 kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat + AUX, AUX	988
		Electric heater kit 1	15 kW, 10 kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat + AUX, AUX	841
		Electric heater kit 2	10 kW, 8 kW	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat + AUX, AUX	818
		Electric heater kit 3	5 kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat + AUX, AUX	788
30K (2.5 Ton)	0 - 0.8 in. wg.	Cooling Turbo	—	SW3-4=ON	Y2/Y	—	Cool	988
		Cooling High	—	SW3-4=OFF	Y2/Y	—	Cool	894
		Cooling Medium	—	—	Y1	—	Cool	806
		Cooling Low	—	—	—	—	Cool	712
		Heat Pump Turbo	—	—	—	—	Heat	988
		Heat Pump High	—	—	B+Y2/Y, W	—	Heat	894
		Heat Pump Medium	—	—	Y1	—	Heat	806
		Heat Pump Low	—	—	—	—	Heat	712
		Electric heater kit 0 (Default)	15 kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat + AUX, AUX	1088
		Electric heater kit 1	15 kW, 10 kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat + AUX, AUX	1029
		Electric heater kit 2	10 kW, 8 kW	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat + AUX, AUX	976
		Electric heater kit 3	5 kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat + AUX, AUX	918

The static pressures at the full required air flow used for AHRI testing is 0.8 in. wg. (200 Pa).

Capacity	External Static Pressure Range	Fan speed	Electric auxiliary heat module	24 V thermostat		Wired controller		Airflow volume (CFM)
				DIP Switch	24 V terminal engaged	DIP Switch	Mode	
36K (3 Ton)	0 - 0.8 in. wg.	Cooling Turbo	—	SW3-4=ON	Y2/Y	—	Cool	1235
		Cooling High	—	SW3-4=OFF	Y2/Y	—	Cool	1147
		Cooling Medium	—	—	Y1	—	Cool	1059
		Cooling Low	—	—	—	—	Cool	971
		Heat Pump Turbo	—	—	—	—	Heat	1235
		Heat Pump High	—	—	B+Y2/Y, W	—	Heat	1147
		Heat Pump Medium	—	—	Y1	—	Heat	1059
		Heat Pump Low	—	—	—	—	Heat	971
		Electric heater kit 0 (Default)	20 kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat + AUX, AUX	1306
		Electric heater kit 1	15 kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat + AUX, AUX	1241
		Electric heater kit 2	10 kW, 8 kW	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat + AUX, AUX	1176
		Electric heater kit 3	5 kW, 8 kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat + AUX, AUX	1112
		Cooling Turbo	—	SW3-4=ON	Y2/Y	—	Cool	1600
		Cooling High	—	SW3-4=OFF	Y2/Y	—	Cool	1441
		Cooling Medium	—	—	Y1	—	Cool	1265
		Cooling Low	—	—	—	—	Cool	1088
		Heat Pump Turbo	—	—	—	—	Heat	1471
		Heat Pump High	—	—	B+Y2/Y, W	—	Heat	1324
		Heat Pump Medium	—	—	Y1	—	Heat	1147
		Heat Pump Low	—	—	—	—	Heat	971
48K (4 Ton)	0 - 0.8 in. wg.	Electric heater kit 0 (Default)	20 kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat + AUX, AUX	1741
		Electric heater kit 1	1 5 kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat + AUX, AUX	1653
		Electric heater kit 2	1 0 kW, 8 kW	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat + AUX, AUX	1559
		Electric heater kit 3	8 kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat + AUX, AUX	1471
		Cooling Turbo	—	SW3-4=ON	Y2/Y	—	Cool	1800
		Cooling High	—	SW3-4=OFF	Y2/Y	—	Cool	1647
		Cooling Medium	—	—	Y1	—	Cool	1500
		Cooling Low	—	—	—	—	Cool	1235
		Heat Pump Turbo	—	—	—	—	Heat	1682
		Heat Pump High	—	—	B+Y2/Y, W	—	Heat	1582
		Heat Pump Medium	—	—	Y1	—	Heat	1359
		Heat Pump Low	—	—	—	—	Heat	1047
60K (5 Ton)	0 - 0.8 in. wg.	Electric heater kit 0 (Default)	25 kW	SW4-1=OFF SW4-2=OFF SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=OFF	Heat + AUX, AUX	2171
		Electric heater kit 1	15 kW, 20 kW	SW4-1=OFF SW4-2=OFF SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=OFF SW4-3=ON	Heat + AUX, AUX	2029
		Electric heater kit 2	10 kW, 15 kW	SW4-1=OFF SW4-2=ON SW4-3=OFF	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=OFF	Heat + AUX, AUX	1894
		Electric heater kit 3	10 kW	SW4-1=OFF SW4-2=ON SW4-3=ON	W1, W2, AUX	SW4-1=OFF SW4-2=ON SW4-3=ON	Heat + AUX, AUX	1753

NOTE

The constant airflow volume motor is applied. So, the airflow volume is constant at all ESP within the stated range.

Table AP-2: 24 V Signal Chart

		24 V input terminal										
Mode	Priority	G	Y1	Y/Y2	B	W	W1	W2	E/AUX	DH	Fan speed	Display
OFF	/	0	0	0	0	0	0	0	0	*	OFF	00
FAN	7	1	0	0	*	0	0	0	0	*	Low	01
Cooling stage 1	6	*	1	0	0	0	0	0	0	1	Mid	02
Cooling stage 2		*	*	1	0	0	0	0	0	1	High	03
Dehumidification 1		*	1	0	0	0	0	0	0	0	Low	04
Dehumidification 2		*	*	1	0	0	0	0	0	0	Low	05
Heat pump stage 1	5	*	1	0	1	0	0	0	0	1	Mid	06
Heat pump stage 2		*	*	1	1	0	0	0	0	1	High	07
Heat pump stage 2		*	*	*	*	1	0	0	0	1	High	
Electric heater kit 1	3	*	0	0	*	0	1	0	0	*	Turbo	08
Electric heater kit 2		*	0	0	*	0	0	1	0	*	Turbo	
Electric heater kit 1 and kit 2		*	0	0	*	0	1	1	0	*	Turbo	09
Heat pump stage 1 + Electric heater kit 1	4	*	1	0	1	0	1	0	0	1	Turbo	10
Heat pump stage 1 + Electric heater kit 2		*	1	0	1	0	0	1	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 1		*	*	1	1	0	1	0	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 1		*	*	*	*	1	1	0	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 2		*	*	1	1	0	0	1	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 2		*	*	*	*	1	0	1	0	1	Turbo	
Heat pump stage 1 + Electric heater kit 1 and kit 2		*	1	0	1	0	1	1	0	1	Turbo	11
Heat pump stage 2 + Electric heater kit 1 and kit 2		*	*	1	1	0	1	1	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 1 and kit 2		*	*	*	*	1	1	1	0	1	Turbo	
Emergency heat	1	*	*	*	*	*	*	*	1	*	Turbo	12
Heating zone control	2	*	1	0	1	0	*	*	0	0	Low	13
Heating zone control		*	*	1	1	0	*	*	0	0	Low	
Heating zone control		*	*	*	*	1	*	*	0	0	Low	

Note:
1: 24 V signal
0: No 24 V signal
*: 1 or 0.
The AHU will turn off if the 24 V input cannot meet the table.

Table AP-3: Matching With Multi Zone Outdoor Unit

When matching with a multi-zone outdoor unit, the indoor unit cannot be started due to the mode conflict in the following cases.

Mode of AHU	Mode of Other IDU Zones	Mode Conflict Unt
Fan	Heating/ Electric heat/ Emergency heat	AHU
Cooling		
Dehumidification		
Heating	Fan/Cooling/Dehumidification	Other IDU Zones
Electric Heat		
Emergency Heat		

NOTE:

- When the Heating reaches the temperature and shuts down with other IDU zones heating normally, the AHU fan will stop running, and the Fan-ON mode is invalid.
- The heat pump will start synchronously when Emergency heat or Electric heat is started.
- When two AHU units are connected by a multi-zone outdoor unit, the above rules are applicable while one of the AHU units is regarded as another IDU zone.

Installation of Electric Auxiliary Heat Module

(Only For Heat Function Models)

NOTE

A licensed contractor must perform the installation. Please take necessary precautions when performing the installation operation.

Table AP-4: Heat Kit Accessories

Quantity	Name
1	Silicone breaker cover
1	Electric auxiliary heating wiring diagram
1	Circuit breaker label
2	Manual
1	Foam Gasket
7	Screws

Table AP-5: Model Size Selection

For installations requiring supplemental heating, the optional Electric Auxiliary Heat Module is available in sizes ranging from 3 kW to 25 kW, accommodating the specific heat load and electrical requirements of each installation. Please refer to the table below for the selection of available sizes for each model, being sure to avoid improper matching. Open the upper cover.

Model (Btu/h)	3 kW	5 kW	8 kW	10 kW	15 kW	20 kW	25 kW
18K	Y	Y	Y	Y	-	-	-
24K	-	Y	Y	Y	Y	-	-
30K	-	Y	Y	Y	Y	-	-
36K	-	Y	Y	Y	Y	Y	-
48K	-	-	Y	Y	Y	Y	-
60K	-	-	-	Y	Y	Y	Y

NOTE

Only use matched modules certified for use with the model. Please refer to the Electric Auxiliary Heat Model specification for additional details to ensure proper selection and installation.

Preparations For Installation

Before installation, please confirm the electric auxiliary heat module and supplied accessories are complete and free of any damage. Do not attempt to install if damage is present.

Electric Auxiliary Heat Module Installation And Wiring Operation

1. Open the upper cover.

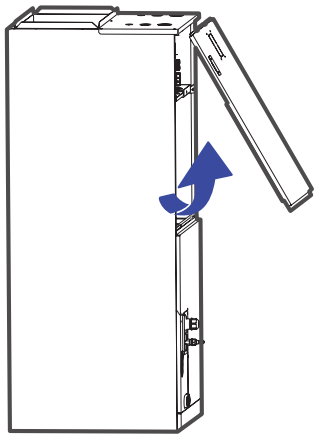


Fig. AP-1: Remove Upper Cover

2. Use tools to remove the knock-out holes of upper cover.

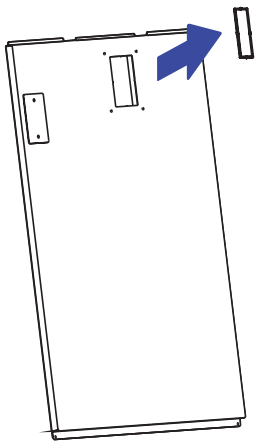


Fig. AP-2: Remove Knock-Out

3. Remove the terminal block and power wires, loosen the screws, and remove the electric auxiliary heating cover.

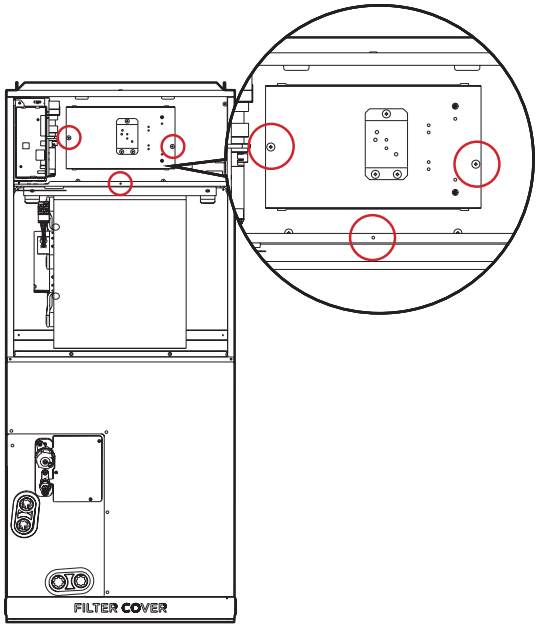


Fig. AP-3: Remove Heat Kit Cover

4. Install the electric auxiliary heating assembly in the front and note that the support assembly must lock into the support holes in the back of the cabinet.

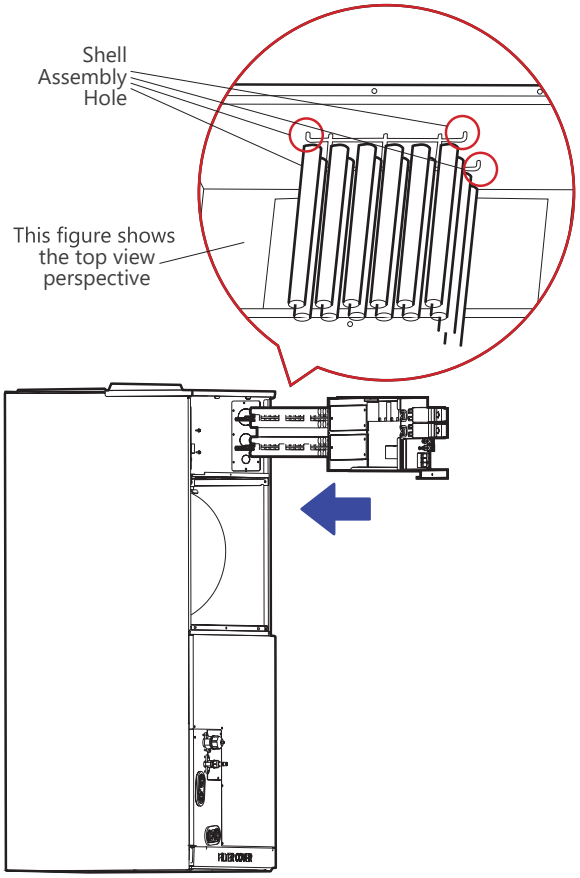


Fig. AP-4: Install The Heat Kit

5. Tighten the mounting screws.

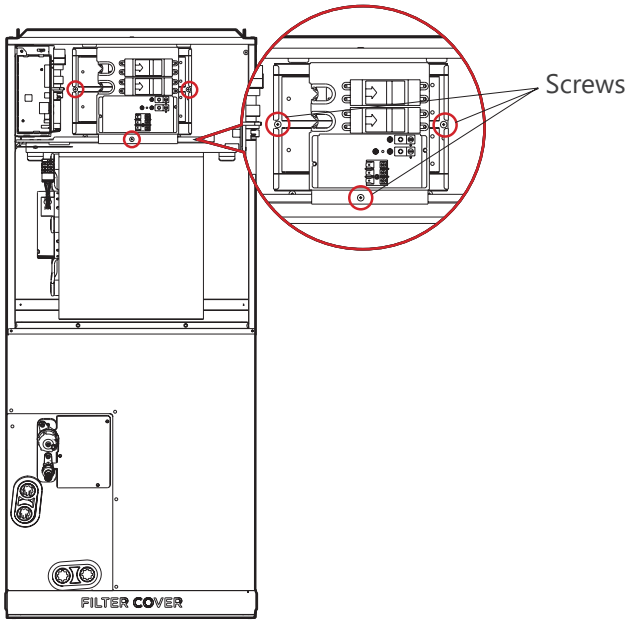


Fig. AP-5: Install Mounting Screws

6. Wire according to the wiring nameplate. Applying the wiring diagram to the inside cover wiring is completed for future reference and maintenance. Plug the electric heating plugs CN11 and CN12 into the main board.
7. Install the upper cover and the silicone breaker cover.

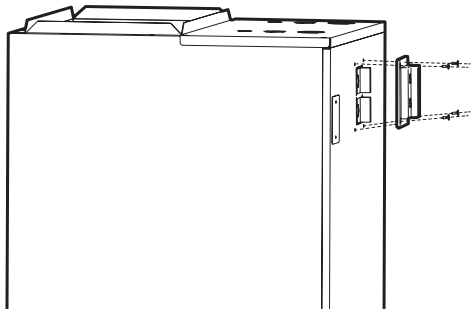


Fig. AP-6: Install The Breaker Cover

8. After installing the electric auxiliary heat module, apply the circuit breaker label near the silicone breaker cover that was just applied.

NOTE

The circuit breaker cannot be operated by the user.

Confirmation Of Indoor Unit With Electric Heat

NOTE

Electric auxiliary heating wiring diagram packed with the accessories.

If the branch circuit wire length exceeds 100 ft, consult NEC 210-19a to determine the maximum wire length. Use a 2% voltage drop.

After the electric heating wiring is connected, please confirm before power on:

- Check all wiring and ensure secure connection of all wiring.
- Ensure that wire size is properly selected per NEC or local codes.

Table AP-6: Electric Heat Kit Specifications

Specifications	Number Of Circuit Breakers	Number Of Relays	Number Of Power Cord Groups	Number Of Power Cord Grounding Screws
3 kW	1	1	2	2
5 kW	1	1	2	2
8 kW	1	2	2	2
10 kW	1	2	2	2
15 kW	2	3	3	3
20 kW	2	4	3	3
25 kW	3	5	4	4

Table AP-7: Electric Heat Kit Data

Heater Part No.	Heater KW	Internal Circuit Protection	Circuit 1 208/230 V			Circuit 2			Circuit 2		
			Heater Amps	MCA (1)	MOCP (2)	Heater Amps	MCA (1)	MOCP (2)	Heater Amps	MCA (1)	MOCP (2)
EAH-03E(UL)	3	Ckt Bkr	10.8/12	14/16	15/20	/	/	/	/	/	/
EAH-05E(UL)	5	Ckt Bkr	18/20	23/27	25/30	/	/	/	/	/	/
EAH-08E(UL)	8	Ckt Bkr	28.8/32	37/42	40/45	/	/	/	/	/	/
EAH-10E(UL)	10	Ckt Bkr	36/40	46/53	50/60	/	/	/	/	/	/
EAH-15E(UL)	15	Ckt Bkr	18/20	23/27	25/30	36/40	46/53	50/60	/	/	/
EAH-20E(UL)	20	Ckt Bkr	36/40	46/53	50/60	36/40	46/53	50/60	/	/	/
EAH-25E(UL)	25	Ckt Bkr	18/20	23/27	25/30	36/40	46/53	50/60	36/40	46/53	50/60

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All the functions and instructions described were up to date at the time of printing this manual. However, the actual product may vary due to improved functions and designs.

Disposal and 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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Changes In This Revision 4

Page Number	Change
11	Removed the Wired remote control from Table A-1: Indoor Accessories,

Important!
Product Warranty Information

The Warranty Registration below is a requirement to print a warranty certificate. You're not mandated to register your products to enjoy the Midea Standard Warranty; however, registration is highly recommended. Registering your warranty within 60 days ensures easy access to support and service when needed.

The design and specifications may change without prior notice in order to enhance the product. For detailed information, please consult your sales agency or the manufacturer. Any updates to the manual will be posted on the service website, so be sure to check for the latest version.

United States

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

Canada

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

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