D5FCFAH

Owner's Manual

Ceiling Floor Console Unit Ductless System - Sizes 18K to 60K

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Fig. 1 — Sizes 18K - 60K

NOTE TO EQUIPMENT OWNER:

Please read this Owner's Information Manual carefully before installing and using this appliance and keep this manual for future reference.

For your convenience, please record the model and serial numbers of your new equipment in the spaces provided. This information, along with the installation data and dealer contact information, will be helpful should your system require maintenance or service.

UNIT INFORMATION

Model # _____

Serial # _____

INSTALLATION INFORMATION

Date Installed _____

DEALERSHIP CONTACT INFORMATION

Company Name: _____

Address:_____

Phone Number:_____

Technician Name:_____

Specifications subject to change without notice.

A NOTE ABOUT SAFETY

SAFETY SYMBOL Any time you see this symbol ⚠ in manuals, instructions and on the unit, be aware of the potential for personal injury. There are 3 levels of precaution:

1. **DANGER** identifies the most serious hazards which will result in severe personal injury or death.
2. **WARNING** signifies hazards that could result in personal injury or death.
3. **CAUTION** is used to identify unsafe practices which could result in minor personal injury or product and property damage.

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

⚠ WARNING

PERSONAL INJURY AND PROPERTY DAMAGE HAZARD

For continued performance, reliability, and safety, the only approved accessories and replacement parts are those specified by the equipment manufacturer. The use of non-manufacturer approved parts and accessories could invalidate the equipment limited warranty and result in a fire risk, equipment malfunction, and failure. Review the manufacturer's instructions and replacement parts catalogs available from your equipment supplier.

R-454B  Refrigerant Safety Group **A2L** **R-454B**

WARNING - Risk of Fire due to Flammable Refrigerant Used. Follow Handling Instructions Carefully in Compliance with National Regulations

NOTE: Risk of Fire. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.

⚠ WARNING

PERSONAL INJURY, DEATH AND / OR PROPERTY DAMAGE HAZARD

Failure to follow this warning could result in personal injury, death or property damage.
Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or service agency must use factory-authorized kits or accessories when modifying this product.
Read and follow all instructions and warnings, including labels shipped with or attached to the unit before operating your new air conditioner.

GENERAL

The high wall fan coil unit provides quiet, maximum comfort. In addition to cooling and/or heating, the high wall fan coil unit matched with an outdoor condensing unit filters and dehumidifies the air in the room to provide maximum comfort.

IMPORTANT: **The high wall fan coil unit should be installed by authorized personnel only; using approved tubing and accessories. If technical assistance, service or repair is needed, contact the installer. The high wall fan coil unit can be set up and operated from the remote control (provided). If the remote is misplaced, the system can be operated from the "Auto" setting on the unit.**

Operating Modes:

The high wall fan coil unit has five operating modes:

- **FAN Only**
- **AUTO**
- **HEATING (heat pumps only)**
- **COOLING**
- **DEHUMIDIFICATION**

FAN Only

In the **FAN Only** mode, the system filters and circulates the room air without changing room air temperature.

AUTO

In the **AUTO** mode, the system automatically cools or heats the room according to the user-selected set point.

NOTE: AUTO mode is recommended for use on single zone applications only. Using AUTO changeover on multi-zone applications could set an indoor unit to STANDBY mode, indicated by two dashes (--) on the display, which turns the indoor unit off until all the indoor units are in the same mode; either COOLING or HEATING.

NOTE: HEATING is the system's priority mode. Simultaneous HEATING and COOLING is not allowed.

HEATING

In the **HEATING** mode, the system heats and filters the room air.

COOLING

In the **COOLING** mode, the system cools, dries and filters the room air.

DEHUMIDIFICATION (DRY)

In **DEHUMIDIFICATION** mode, the system dries, filters and slightly cools the room air temperature. This mode prioritizes air dehumidification but it ***does not*** take the place of a dehumidifier.

AUTO LEAK DETECTION

AUTO LEAK DETECTION SYSTEM installed. Unit must be powered except for service. For the unit with refrigerant sensor, when the refrigerant sensor detects refrigerant leakage, the indoor unit will display a error code and emit a buzzing sound, the compressor of 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. Refer to the error code table in the unit's service manual for details. The refrigerant sensor can not be repaired and can only be replaced by the manufacture. It shall only be replaced with the sensor specified by the manufacture.

⚠ WARNING

FOR FLAMMABLE REFRIGERANTS

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn. Be aware that refrigerants may not contain an odor.

⚠ 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.

Table 1 — 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 a service personnel should be handling this equipment with reference to the installation manual.
	**CAUTION**	
	**CAUTION**	This symbol shows that information is available such as the operating manual or installation manual.

1. **Installation (where refrigerant pipes are allowed)**
   - –Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
   - –Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
   - –That the installation of pipe-work shall be kept to a minimum.
   - –That pipe-work shall be protected from physical damage.
   - –Where refrigerant pipes shall be compliance 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.
   - –Appliance shall be stored in a well ventilated area where the room size corresponds to the room area as specific for operation.
   - –Joints shall be tested with detection equipment with a capability of 1/8 oz (5g)/year of refrigerant or better, with the equipment in standstill and under operation or under a pressure of at least these standstill or operation conditions after installation.
   - –In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.

   LEAK DETECTION SYSTEM installed. Unit must be powered except for service. For the unit with refrigerant sensor, when the refrigerant sensor detects refrigerant leakage, the indoor unit will display a error code and emit a buzzing sound, the compressor of 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 can not be repaired and can only be replaced by the manufacture. It shall only be replaced with the sensor specified by the manufacture.

2. **Because 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 of the appliance.
   - –-piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance 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 prior to 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 prior to 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 cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.

b. The test pressure after removal of pressure source shall be maintained for at least 1 hour 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 minutes. 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 1/8 oz (5g)/year of refrigerant or better under a pressure of at least 125% of the maximum allowable pressure. No leak shall be detected.

3. Qualification of workers

Any maintenance, service and repair operations must be required qualification of the working personnel. Every working procedure that effects safety means shall only be carried out by competent persons that 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. Examples for such working procedures are:

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

Information Servicing

1. Checks to the area

   Prior to 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 prior to conducting work on the system.

2. Work procedure

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

3. General work area

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

4. Checking for presence of refrigerant

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

5. 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 power or CO2 fire extinguisher adjacent to the charging area.

6. No ignition sources

   No person carrying out work in relation to 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 fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking 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.

7. Ventilated area

   Ensure that the area is in the open or that it 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.

8. Checks to 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 signs that are illegible shall be corrected;
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

9. Checks to electrical devices

   Repair and maintenance to 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 but 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 in a safe manner to avoid possibility of sparking
- That there no live electrical components and wiring are exposed while charging, recovering or purging the system
- That there is continuity of earth bonding

10. Sealed electrical components shall be replaced.

11. Intrinsically safe components must be replaced.

12. Cabling

    Check that cabling is not subjected 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.

13. Detection of flammable refrigerants

    Under no circumstances shall potential sources of ignition be used in the searching 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 that have a sensitivity of 1/8 oz (5g) 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 in external leak detection.

NOTE: Examples of leak detection fluids are as follows:

- **Bubble method**
- **Fluorescent method agents**

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

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

14. 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 it is important that best practice be followed, since flammability is a consideration.

The following procedure shall be adhered to:

a. safely remove refrigerant following local and national regulations;
b. evacuate;
c. purge the circuit with nitrogen;
d. evacuate;
e. continuously flush or purge with nitrogen when using flame to open circuit; and open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders. Charging must be performed by liquid charging method. 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, refrigerants 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 atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

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

15. Charging procedures

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

- Works shall be undertaken with appropriate tools only. If uncertain, consult the manufacturer of the tools for use with flammable refrigerants.
- Cylinders shall be kept upright.
- 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.
- Charging must be performed by liquid charging method.
- Ensure that the refrigeration system is grounded prior to charging the system with refrigerant.
- Label the system when charging is complete.
- Extreme care shall be taken to avoid overfilling the refrigeration system.
- Prior to 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 prior to leaving the site.

16. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

a. Become familiar with the equipment and its operation
b. Isolate system electrically
c. Before attempting the procedure, ensure the following:
   - 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 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 cylinder is situated on the scales before recovery takes place.
g. Start the recovery machine and operate in accordance with instructions.
h. Do not overfill cylinders (no more than 80% volume liquid charge).
i. Never exceed the maximum working pressure of the cylinder.
j. When the cylinders have been filled correctly and the process complete, make sure that the cylinders and the equipment are removed from 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.

17. Labeling

Equipment shall be labeled stating that it has been decommissioned 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.

18. 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 valve 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 and 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.

19. Transportation, marking, and storage for units

    a. Transport of equipment containing flammable refrigerants.
       Compliance with the transport regulations.
    b. Marking of equipment using signs.
       Compliance with local regulations.
    c. Disposal of equipment using flammable refrigerants.
       Compliance with national regulations.
    d. Storage of equipment/appliances
       The storage of equipment should be in accordance with the manufacturer's instructions.
    e. Storage of packed (unsold) equipment
       Storage package protection should be constructed such 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.

OPERATION INSTRUCTIONS

NOTE: Different models have different front panel and display window. Not all the indicators described below are available for the air conditioner you purchased. Check the indoor display window of the unit you purchased. Illustrations in this manual are for explanatory purposes. The actual shape of your indoor unit may differ slightly.

INDOOR UNIT DISPLAY

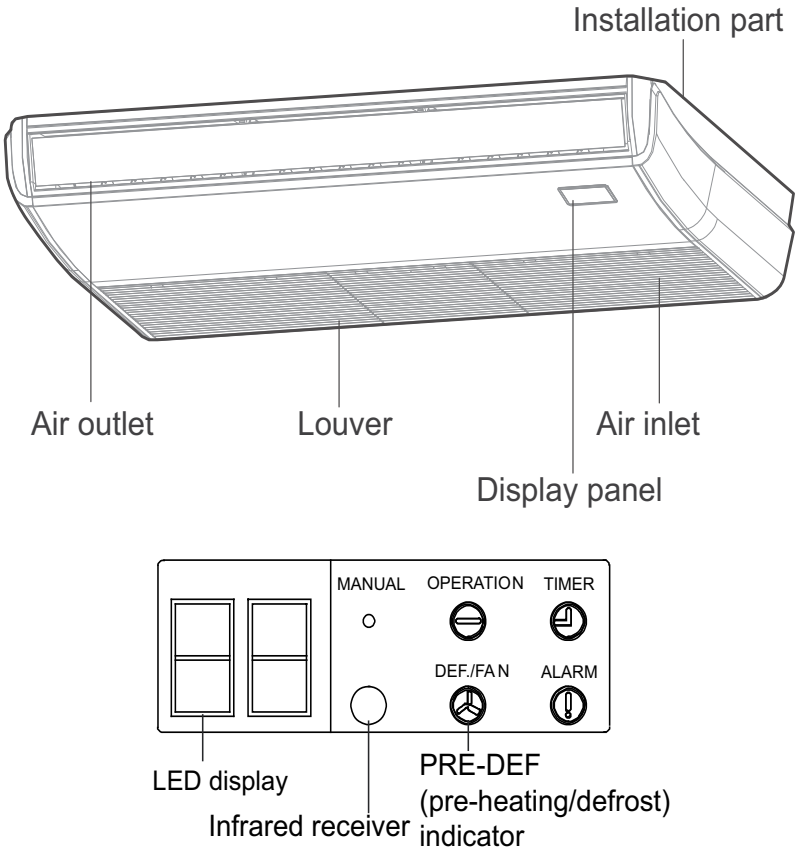


Fig. 2 — Indoor Unit Display

UNIT CONTROLS

- MANUAL :Selects the mode in the following order: AUTO, FORCED COOL, OFF.

  FORCED COOL mode : FORCED COOL mode, the Operation light flashes. The system turns to AUTO after it has cooled with a air flow speed for 30 minutes. The remote control is disabled during this operation.

  OFF mode The unit turns off.

ADDITIONAL FEATURES

NOTE: Every time the unit is powered on, a buzzing sound will be heard to indicate that the product has been powered on normally. If there is no sound, it is possible that the unit has malfunctioned. Power on again or check the circuit. The actual functions are subject to the product you purchased, please check the indoor display and remote control of your unit. See the <Remote Controller Manual> for more features.

Heat exchanger dust removal function:

This feature helps keep the outdoor coil cleaner and may extend the duration between regular maintenance intervals depending on local conditions. When the unit is turned off, a 10 seconds delay occurs then the outdoor fan runs in reverse rotation for 70 seconds to blow off loose accumulated dust and debris.

Refrigerant Leakage Detection

When the system detects a malfunction of the refrigerant, the indoor unit automatically displays the following error codes:

- **EL0C** (System lacks refrigerant),
- **EHC1** (Refrigerant sensor detects leakage),
- **EHC2** (Working condition of the refrigerant sensor is out of range and leakage is detected),
- **EHC3** (Working condition of the refrigerant sensor is out of range), or
- **ECC1** (Other indoor unit refrigerant sensor detects leakage (Multi-zone).

When a **EHC1** or **EHC2** error occurs, the buzzer continues to beep for 5 to 6 minutes before stopping. Press any button on the remote controller to stop the buzzer.

WIRELESS REMOTE CONTROL

Before you begin using your new air conditioner, familiarize yourself with the remote control.

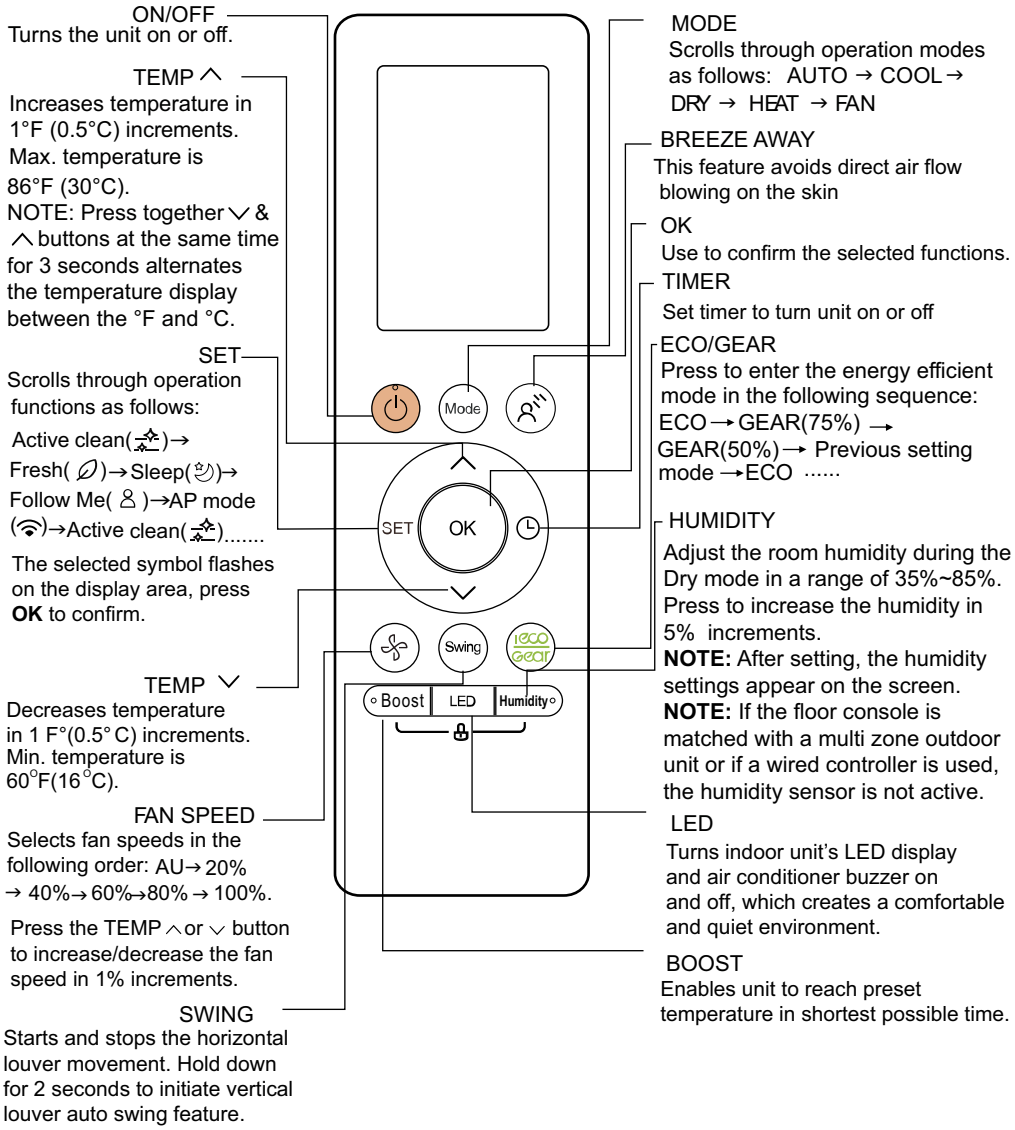


Fig. 3 — Remote Controller Functions

WIRELESS REMOTE CONTROL LCD SCREEN INDICATORS

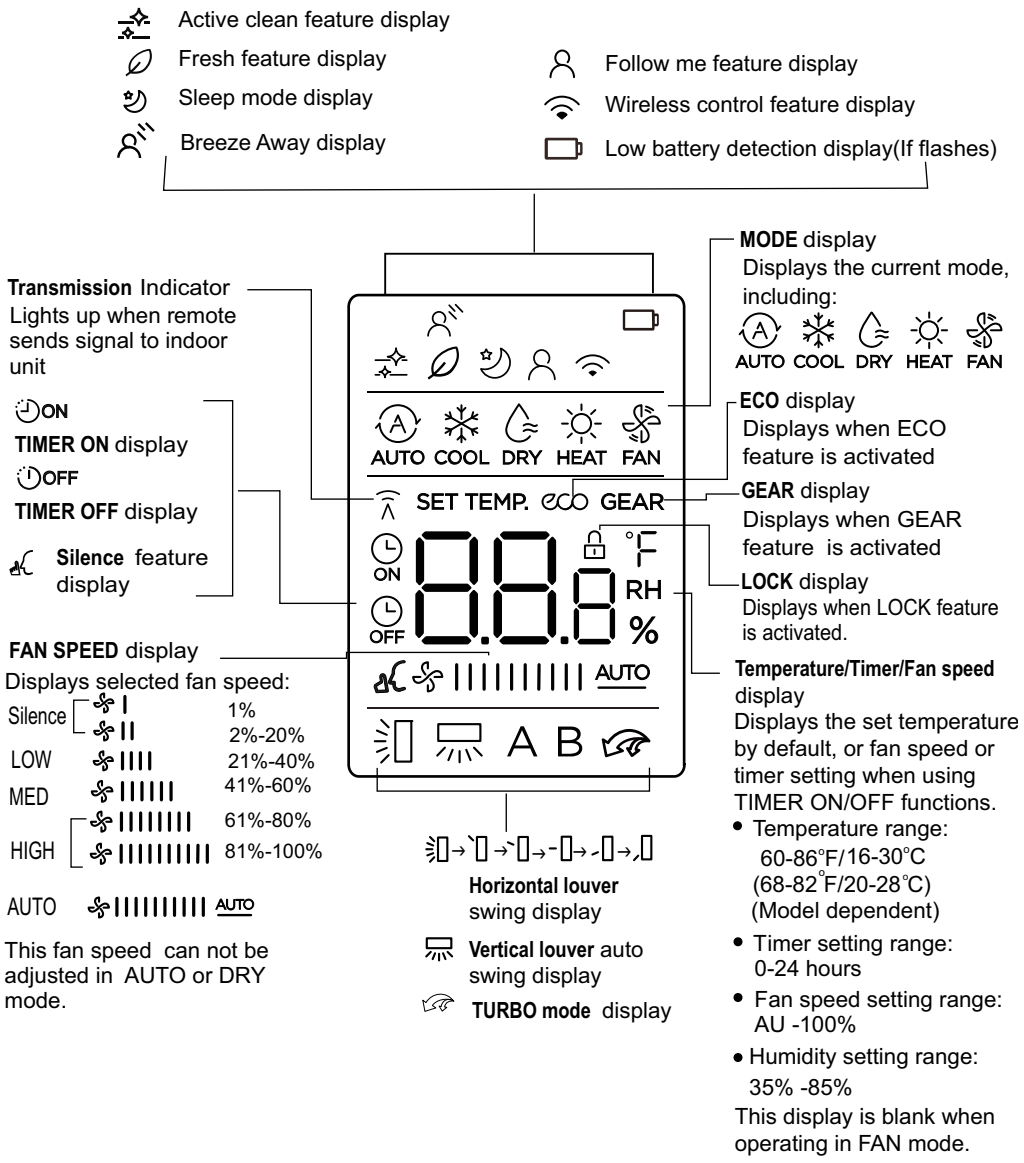


Fig. 4 — Wireless Remote Controller Indicators RG10L4(2S)/BGEFU1

FEATURES

FAN MODE

When fan mode is activated:

- **The outdoor fan and compressor are stopped.**
- **Temperature control is disabled and no temperature setting is displayed.**
- **The indoor fan speed can be set to 1%~100% and auto.**
- **The louver operations are identical to those in COOLING mode.**
- **Auto fan: In fan-only mode, AC operates the same as auto fan in cooling mode with the temperature set at 75°F(24°C).**

COOLING MODE

Indoor Fan Control

1. In the **COOLING** mode, the indoor fan operates continuously. The fan speed can be set to 1%-100%, or low, medium, high and auto.
2. Auto fan action in **COOLING** mode:

- **Descent curve**
  - When T1-Tsc is lower than to 6.3°F/3.5°C, fan speed reduces to 80%;
  - When T1-Tsc is lower than to 1.8°F/1°C, fan speed reduces to 60%;
  - When T1-Tsc is lower than to 0.9°F/0.5°C, fan speed reduces to 40%;
  - When T1-Tsc is lower than to 0°F/0°C, fan speed reduces to 20%;
  - When T1-Tsc is lower than to -0.9°F/-0.5°C, fan speed reduces to 1%;.
- **Rise curve**
  - When T1-Tsc is higher than or equal 0°F/0°C, fan speed increases to 20%;
  - When T1-Tsc is higher than or equal 0.9°F/0.5°C, fan speed increases to 40%;
  - When T1-Tsc is higher than or equal 1.8°F/1°C, fan speed increases to 60%;
  - When T1-Tsc is higher than or equal 2.7°F/1.5°C, fan speed increases to 80%;
- When T1-Tsc is higher than or equal 7.2°F/4°C, fan speed increases to 100%.

CONDENSER TEMPERATURE PROTECTION

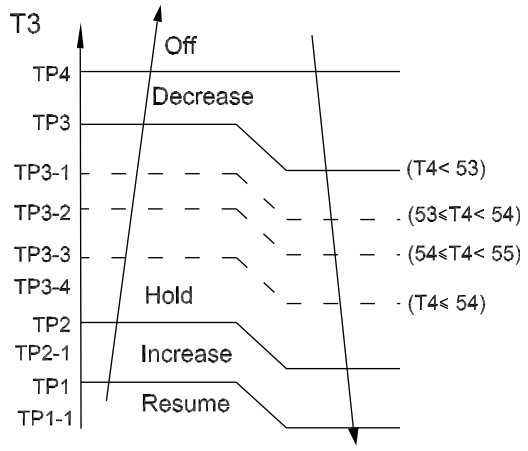


Fig. 5 — Condenser Temperature Protection

When the condenser temperature exceeds a configured value, the compressor ceases operation.

EVAPORATOR TEMPERATURE PROTECTION

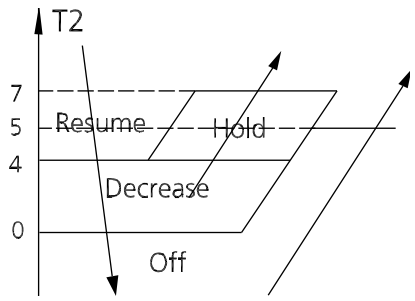


Fig. 6 — Evaporator Temperature Protection

- **Off:**
- **Decrease:** Decrease the running frequency to the lower level per 1 minute**.**
- **Hold:** Keep the current frequency.
- **Resume: No limitation for frequency.**

HEATING MODE (Heat Pump Units)

Indoor Fan Control:

1. In the **HEATING** mode, the indoor fan operates continuously. The fan speed can be set to 1%-100% and auto.

• Anti-cold air function

• If the temperature difference of T2 changes during auto fan and causes the fan speed to change, run the current fan speed for 30 seconds first, the default interval is the interval before the fan speed changes, and then judge T2 according to the current interval after 30 seconds to get the final anti-cold air interval.

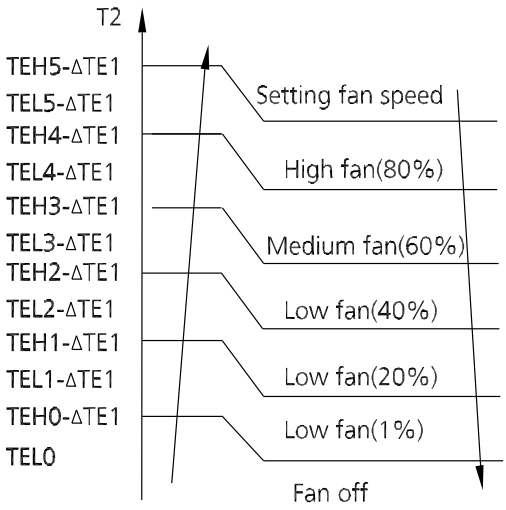


Fig. 7 — Indoor Fan Control

ΔTE1=0

2. Auto fan action in heating mode:

- **Rise curve**
  - When T1-Tsc is higher than -2.7°F/-1.5°C, fan speed reduces to 80%;
  - When T1-Tsc is higher than 0°F/0°C, fan speed reduces to 60%;
  - When T1-Tsc is higher than /0.9°F/0.5°C, fan speed reduces to 40%;
  - When T1-Tsc is higher than 1.8°F/1°C, fan speed reduces to 20%.

- **Descent curve**
  - When T1-Tsc is lower than or equal to 0.9°F/0.5°C, fan speed increases to 40%;
  - When T1-Tsc is lower than or equal to 0°F/0°C, fan speed increases to 60%;
  - When T1-Tsc is lower than or equal to -2.7°F/-1.5°C, fan speed increases to 80%;
  - When T1-Tsc is lower than or equal to -5.4°F/-3°C, fan speed increases to 100%.

EVAPORATOR COIL TEMPERATURE PROTECTION

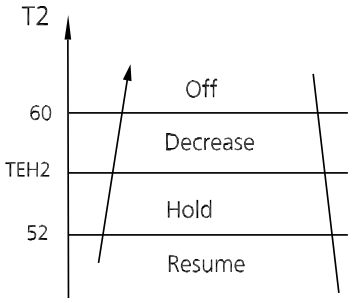


Fig. 8 — Evaporator Coil Temperature Protection

- **Off:** Compressor stops.
- **Decrease:** Decrease the running frequency to the lower level per 20 seconds.
- **Hold:** Keep the current frequency.
- **Resume:** No limitation for frequency.

AUTO-MODE

- This mode can be selected with the remote controller and the temperature setting can be adjusted between 60.8°F(16°C)~86°F(30°C).

Case 1:

In **AUTO** mode, the machine selects **COOLING**, **HEATING**, or **FAN-ONLY** mode on the basis of ΔT (ΔT =T1-TS).

Table 2 — Case

ΔT	Running Mode
ΔT>2°C(3.6°F)	**Cooling**
-3℃(-5.4°F)≤ΔT≤2°C(3.6°F)	**Fan-Only**
ΔT<-3°C(-5.4°F)	**Heating***

Heating*: In **AUTO-Mode**, cooling only models run the fan

- **Indoor fan will run at auto fan speed.**
- **The louver operates same as in relevant mode.**
- **If the machine switches mode between HEATING and COOLING, the compressor will keep stopping for certain time and then choose mode according to ΔT.**

Case 2:

In **AUTO-Mode**, the machine selects **COOLING**, **HEATING** or **FAN-ONLY** mode on the basis of T1,Ts and outdoor ambient temperature(T4).

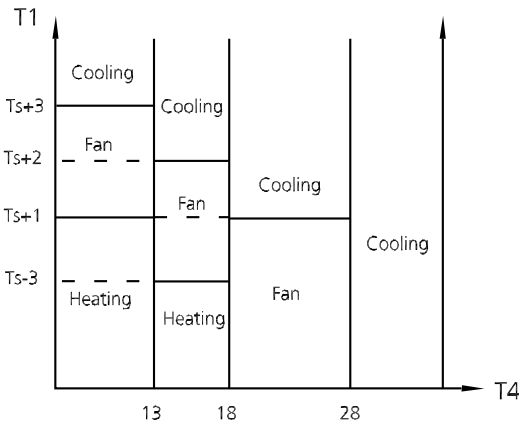


Fig. 9 — Auto Mode

Case 3:

In **AUTO-Mode**, the machine selects cooling, heating or fan-only mode on the basis of T1,Ts, Outdoor ambient temperature(T4) and relative humidity.

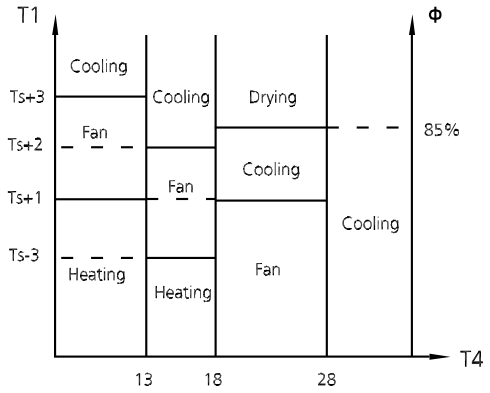


Fig. 10 — Auto Mode

DRYING MODE

- In the **DRYING** mode, the unit operates the same as auto fan in the **COOLING** mode.
- All protections are activated and operate the same as they do that in the **COOLING** mode.

Low Room Temperature Protection: If the room temperature is lower than 50°F/10°C, the compressor ceases operations and does not resume until room temperature exceeds 53.6°F/12°C.

FORCED OPERATION FUNCTION

Press **AUTO/COOL,** the unit will run in the following sequence:

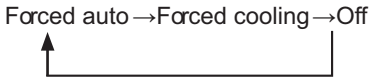


Fig. 11 — Forced Operation Sequence

- **Forced Cooling mode:**

The compressor and outdoor fan continue to run and the indoor fan runs at breeze speed. After running for 30 minutes, the unit switches to **AUTO-Mode** mode with a preset temperature of 76°F(24°C).

- **Forced AUTO-Mode:**

Forced **AUTO-Mode** operates the same as normal **AUTO-Mode** with a preset temperature of 76°F(24°C).

The unit exits forced operation when it receives the following signals:

- **Switch off**
- **Changes in:**
  - mode
  - fan speed
  - sleep mode
  - Follow Me

TIMER FUNCTION

The timing range is 24 hours.

- Timer On. The machine turns on automatically at the preset time.
- Timer Off. The machine turns off automatically at the preset time.
- Timer On/Off. The machine turns on automatically at the preset On Time, and then turns off automatically at the preset Off Time.
- Timer Off/On. The machine turns off automatically at the preset Off Time and then turns on automatically at the preset On Time.
- The timer does not change the unit operation mode. If the unit is off now, it does not start up immediately after the "timer off" function is set. When the setting time is reached, the timer LED switches off and the unit running mode remains unchanged.
  The timer uses relative time, not clock time.

SLEEP

The **SLEEP** function is available in **COOLING**, **HEATING**, or **AUTO-Mode**.The operational process for sleep mode is as follows:

- When **COOLING**, the temperature rises 1.8°F/1°C (to not higher than 86°F/30°C) every hour. After 2 hours, the temperature stops rising and the indoor fan is fixed at low speed.
- When **HEATING**, the temperature decreases 1.8°F/1°C (to not lower than 60.8°F/16°C) every hour. After 2 hours, the temperature stops decreasing and the indoor fan is fixed at low speed. Anti-cold wind function takes priority.
- The operating time for sleep mode is 8 hours, after which, the unit exits this mode.
- The timer setting is available in this mode.

AUTO-RESTART

The indoor unit has an auto-restart module that allows the unit to restart automatically. The module automatically stores the current settings and in the case of a sudden power failure, will restore those setting automatically within 3 minutes after power returns.

46°F(8°C) HEATING (Heat pump units)

In the **HEATING** mode, the temperature can be set to as low as 46°F(8°C), preventing the indoor area from freezing if unoccupied during severe cold weather.

FOLLOW ME

Once **FOLLOW ME** is active, the remote control will send a signal every 3 minutes, with no beeps. The unit automatically sets the temperature according to the measurements from the remote control. The unit will only change modes if the information from the remote control makes it necessary, not from the unit's temperature setting. If the unit does not receive a signal for 7 minutes or you press **"Follow Me,"** the function turns off. The unit regulates temperature based on its own sensor and settings.

OPTIONAL FUNCTIONS

SILENCE

NOTE: Multi-Zone systems do not have this function.
To activate press "Silence" or keep pressing **FAN** for more than 2 seconds on the remote control to enable the **SILENCE** function. While this **SILENCE** is active, the compressor frequency is maintained at a lower level than F3.

The indoor unit run at faint breeze (1%), which reduces noise to the lowest possible level. When matched with multi outdoor unit, this function is disabled.

ECO

NOTE: Multi-Zone systems do not have this function.
Used to enter the energy efficient mode.

Under the **COOLING** mode, press **ECO**, the remote controller will adjust the temperature automatically to 75°F/24°C, fan speed of **AUTO** to save energy (however only if the set temperature is less than 75°F/24°C).

If the set temperature is more than 75°F/24°C and 86°F/30°C, press **ECO**, the fan speed will change to **AUTO**, the set temperature will remain unchanged. When pressing **ECO**, or modifying the mode or adjusting the set temperature to less than 75°F/24°C, the unit will quit the **ECO** operation. Operation time in the **ECO** mode is 8 hours. After 8 hours the unit exits this mode.

REMOTE CONTROL

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD
Failure to follow this caution may result in equipment damage. Handle the control with care and avoid getting the control wet.

IMPORTANT: The wireless remote control can operate the unit from a distance of up to 26 ft. (8 m) as long as there are no obstructions.

When the timer function is used, the remote control should be kept in the vicinity of the unit (within 26 ft. (8 m).

The remote control can perform the following basic functions:

- Turn the system **ON** and **OFF**
- Select the operating mode
- Adjust room air temperature set point and fan speed

Refer to the "WIRELESS REMOTE CONTROL" on page 8 for a detailed description of all the capabilities of the remote control.

Battery Installation

Two AAA 1.5v alkaline batteries (included) are required to operate the remote control.

To install or replace batteries:

1. Slide the back cover off the control to open the battery compartment.
2. Insert the batteries. Follow the polarity markings inside the battery compartment.
3. Replace the battery compartment cover.

NOTES:

1. **When replacing batteries, do not use old batteries or a different type of battery. This may cause the remote control to malfunction.**
2. **If the remote is not going to be used for several weeks, remove the batteries. Otherwise, battery leakage may damage the remote control.**
3. **The average battery life under normal use is about 6 months.**
4. **Replace the batteries when there is no audible beep from the indoor unit or if the Transmission Indicator fails to light.**

When batteries are removed, the remote control erases all programmed settings. The control must be reprogrammed after the insertion of new batteries.

Remote Control Operation - Quick Start

NOTE: When transmitting a command from the remote control to the unit, be sure to point the control toward the right side of the unit. The unit confirms receipt of a command by sounding an audible beep.

1. Turn the unit on by pushing **ON/OFF**.

   NOTE: If there is a preference for °C rather than °F (default), press and hold TEMP ∧ or TEMP ∨ together for approximately 3 seconds.

Select the desired mode by pushing **MODE.**

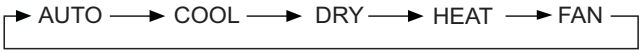


Fig. 12 — Modes

2. Select the temperature set point by pointing the control toward the unit and pressing the increase/decrease temperature set point buttons until the desired temperature appears on screen.
3. Press **FAN** to select the desired fan speed.

NOTE: If the unit is operating in DRY or AUTO mode, the fan speed will be automatically set.

4. Set the airflow direction. When the unit is turned on, the **Up-Down** airflow louvers default to the cooling or heating position. The user can adjust the horizontal **Up-Down** airflow louver position by pushing **SWING** or have continuous louver movement by pressing **SWING**.

CLEANING, MAINTENANCE AND TROUBLESHOOTING

⚠ CAUTION

ELECTRICAL SHOCK HAZARD

Failure to follow this caution may result in personal injury or death. Always turn off power to the system before performing any cleaning or maintenance to the system. Turn off the outdoor disconnect switch located near outdoor unit. Be sure to disconnect the indoor unit if on a separate switch.

⚠ CAUTION

EQUIPMENT DAMAGE/OPERATION HAZARD

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

Operating the system with dirty air filters may damage the indoor unit and could cause reduced cooling performance, intermittent system operation, frost build-up on indoor coil or blown fuses.

⚠ CAUTION

EQUIPMENT DAMAGE/OPERATION HAZARD

The cooling efficiency of your unit and your health would be damaged for the clogged unit. Be sure to clean the filter every two weeks.

Always **TURN OFF** your AC system and disconnect its power supply before cleaning or maintenance. Only use a soft, dry cloth to wipe the unit clean. You can use a cloth soaked in warm water to wipe it clean if the unit is especially dirty.

Do not use chemicals or chemically treated cloths to clean the unit.

Do not use benzene, paint thinner, polishing powder or other solvents to clean the unit. They can cause the plastic surface to crack or deform.

Do not use water hotter than 104°F (40°C) to clean the front panel. This can cause the panel to deform or become discolored.

Periodic Maintenance

Periodic maintenance is recommended to ensure proper operation of the unit. Recommended maintenance intervals may vary depending on the installation environment, e.g., dusty zones, etc. Refer to Table 3 on page 15.

CLEANING YOUR INDOOR UNIT (AIR FILTER)

1. Open the air intake with a screwdriver or similar tool. Detach the grille from the main unit by holding the grille at a 45° angle, lifting it up slightly, and then pulling the grille forward.

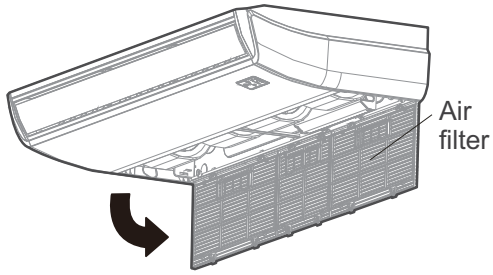


Fig. 13 — Open the air intake

2. Take out the air filter. Directly pull out the air filter from the air inlet as indicated.

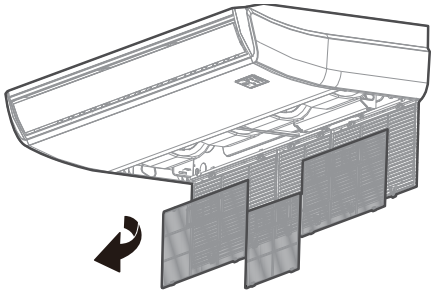


Fig. 14 — Remove the air filter

3. Remove the air filter. Clean the air filter by vacuuming the surface or washing it in warm water with mild detergent.

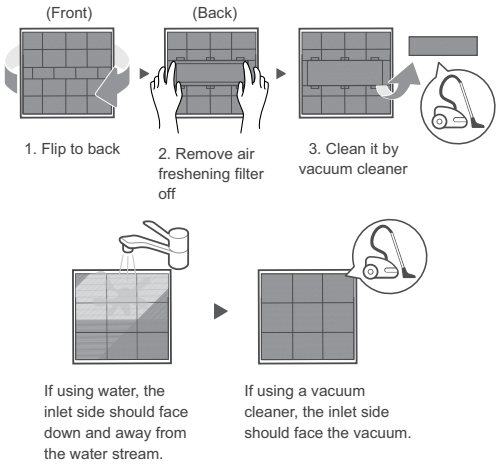


Fig. 15 — Remove the air filter

4. Rinse the filter with clean water and allow it to air-dry. **DO NOT** let the filter dry in direct sunlight.
5. Reinstall the filter.

⚠ CAUTION

Before changing the filter or cleaning, turn off the unit and disconnect its power supply. When removing filter, do not touch the metal parts in the unit. The sharp metal edges can cut you.

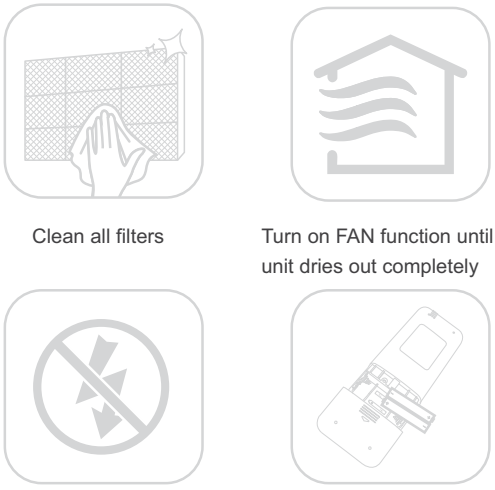
Do not use water to clean the inside of the indoor unit. This can destroy insulation and cause electrical shock. **Do not** expose the filter to direct sunlight when drying. This can shrink the filter.

Any maintenance and cleaning of the outdoor unit should be performed by an authorized dealer or a licensed service provider. Any unit repairs should be performed by an authorized dealer or a licensed service provider.

MAINTAINING THE AIR CONDITIONER

Maintenance – Long Periods of Non-Use

If you do not plan to use your air conditioner for an extended period of time, do the following:



Maintenance – Pre-Season Inspection

After long periods of non-use, or before periods of frequent use, do the following:

Fig. 16 — Maintaining the Air Conditioner

TROUBLESHOOTING

⚠ CAUTION

If any of the following conditions occurs, turn off your unit immediately:

- The Field wiring cable is damaged or abnormally warm
- You smell a burning odor
- The unit emits loud or abnormal sounds
- A power fuse blows or the circuit breaker frequently trips
- Water or other objects fall into or out of the unit

DO NOT attempt to fix these issues **YOURSELF**! CONTACT AN AUTHORIZED SERVICE PROVIDER **IMMEDIATELY**.

Table 3 — Periodic Maintenance

INDOOR UNIT	EVERY MONTH	EVERY 6 MONTHS	EVERY YEAR
Clean Air Filter*	●		●
Replace Carbon Filter			●
Change Remote Control Batteries			●
OUTDOOR UNIT	**EVERY MONTH**	**EVERY 6 MONTHS**	**EVERY YEAR**
Clean Outdoor Coil from Outside		●	
Clean Outdoor Coil from Inside†			●
Blow Air Over Electric Parts†			●
Check Electric Connection Tightening†			●
Clean Fan Wheel†			●
Check Fan Tightening†			●
Clean Drain Pans†			●

COMMON ISSUES

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

Table 4 — Common Issues

Issue	Possible Cause
Unit does not turn on when pressing **ON/OFF** button	The Unit has a 3-minutes protection feature that prevents the unit from overloading. The unit cannot be restarted within three minutes of being turned off.
	Cooling and Heating Models: If the Operation light and **PRE-DEF** (Pre-heating/Defrost) indicators are illuminated, the outdoor temperature is too cold and the unit's anti-cold wind is activated in order to defrost the unit.
	In Cooling-only Models: If the **"Fan Only"** indicator is illuminated, the outdoor temperature is too cold and the unit's anti-freeze protection is activated in order to defrost the unit.
The unit changes from **COOL**/**HEAT** mode to **FAN** mode	The unit may change its setting to prevent frost from forming on the unit. Once the temperature increases, the unit will start operating in the previously selected mode again.
	The set temperature has been reached, at which point the unit turns off the compressor. The unit will continue operating when the temperature fluctuates again.
The indoor unit emits white mist	In humid regions, a large temperature difference between the room's air and the conditioned air can cause white mist.
Both the indoor and outdoor units emit white mist	When the unit restarts in **HEAT** mode after defrosting, white mist may be emitted due to moisture generated from the defrosting process.
The indoor unit makes noises	A rushing air sound may occur when the louver resets its position.
	A squeaking sound is heard when the system is **OFF** or in **COOL** mode. The noise is also heard when the drain pump (optional) is in operation.
	A squeaking sound may occur after running the unit in **HEAT** mode due to expansion and contraction of the unit's plastic parts.
Both the indoor unit and outdoor unit make noises	Low hissing sound during operation: This is normal and is caused by refrigerant gas flowing through both indoor and outdoor units.
	Low hissing sound when the system starts, has just stopped running, or is defrosting: This noise is normal and is caused by the refrigerant gas stopping or changing direction.
	Squeaking sound: Normal expansion and contraction of plastic and metal parts caused by temperature changes during operation can cause squeaking noises.
The outdoor unit makes noises	The unit will make different sounds based on its current operating mode.
Dust is emitted from either the indoor or outdoor unit	The unit may accumulate dust during extended periods of non-use, which will be emitted when the unit is turned on. This can be mitigated by covering the unit during long periods of inactivity.
The unit emits a bad odor	The unit may absorb odors from the environment (such as furniture, cooking, cigarettes, etc.) which will be emitted during operations.
	The unit's filters have become moldy and should be cleaned.
The fan of the outdoor unit does not operate	During operation, the fan speed is controlled to optimize product operation.

NOTE: If problem persists, contact a local dealer or your nearest customer service center. Provide them with a detailed description of the unit malfunction as well as your model number.

Table 5 — Common Issues

Problem	Possible Causes	Solution
Poor Cooling Performance	Temperature setting may be higher than ambient room temperature	Lower the temperature setting
	The heat exchanger on the indoor or outdoor unit is dirty	Clean the affected heat exchanger
	The air filter is dirty	Remove the filter and clean it according to instructions
	The air inlet or outlet of either unit is blocked	Turn the unit off remove the obstruction and turn it back on
	Doors and windows are open	Make sure that all doors and windows are closed while operating the unit
	Excessive heat is generated by sunlight	Close windows and curtains during periods of high heat or bright sunshine
	Too many sources of heat in the room (people, computers, electronics, etc.)	Reduce amount of heat sources
	Low refrigerant due to leak or long-term use	Check for leaks, re-seal if necessary and top off refrigerant
The unit is not working	Power failure	Wait for the power to be restored
	The power is turned off	Turn on the power
	The fuse is burned out	Replace the fuse
	Remote control batteries are dead	Replace batteries
	The Unit's 3-minutes protection has been activated	Wait three minutes after restarting the unit
	Timer is activated	Turn timer off
The unit starts and stops frequently	There's too much or too little refrigerant in the system	Check for leaks and recharge the system with refrigerant.
	Incompressible gas or moisture has entered the system.	Evacuate and recharge the system with refrigerant
	System circuit is blocked	Determine which circuit is blocked and replace the malfunctioning piece of equipment
	The compressor is broken	Replace the compressor
	The voltage is too high or too low	Install a manostat to regulate the voltage
Poor heating performance	The outdoor temperature is extremely low	Use auxiliary heating device
	Cold air is entering through doors and windows	Ensure all doors and windows are closed during use
	Low refrigerant due to leak or long-term use	Check for leaks, re-seal if necessary and top off refrigerant
Indicator lamps continue flashing	The unit may stop operation or continue to run safely. If the indicator lamps continue to flash or error codes appear, wait for about 10 minutes. The problem may resolve itself. If not, disconnect the power, then connect it again. Turn the unit on. If the problem persists, disconnect the power and contact your nearest customer service center.	
Error code appears and begins with the letters as the following in the window display of indoor unit: • E(x), P(x), F(x) • EH(xx), EL(xx), EC(xx) • PH(xx), PL(xx), PC(xx)		

NOTE: If your problem persists after performing the checks and diagnostics above, turn off your unit immediately and contact an authorized service center.

INDOOR UNIT DIAGNOSTIC GUIDES

Table 6 — Error Codes

Display	Malfunction and Protection Indication
EC07	ODU Fan Speed Out of Control
EC51	ODU EEPROM Parameter Error
EC52	ODU Coil Temperature Sensor(T3) error
EC53	ODU Ambient Temperature Sensor (T4) Error
EC54	COMP. Discharge Temperature Sensor (TP) Error
EC56	IDU Coil Temperature Sensor (T2B) Error
ECC1	Other IDU Refrigerant Sensor Detects Leakage (Multi-zone)*
EH00	IDU EEPROM Malfunction
EH03	IDU Fan Speed Out of Control
EH0A	IDU EEPROM Parameter Error
EH0E	Water Level Alarm Malfunction
EH12	Main Unit or Secondary Units Malfunction
EH3A	External Fan DC bus voltage is too low protection
EH3b	External Fan DC bus voltage is too high fault
EH60	IDU Room Temperature (T1) Error
EH61	IDU Coil Temperature Sensor (T2) Error
EHba	Communication Error between the indoor unit and the external fan module
EHC1	Refrigerant Sensor Detects Leakage
EHC2	Refrigerant Sensor is out of range and a leak is detected
EHC3	Refrigerant Sensor is out of range*
EL01	IDU and ODU Communication Error
EL0C	System lacks refrigerant
EL11	Communication Malfunction between the main and secondary units
FH07	IDU lift panel communication failure/IDU opening and closing failure
FHCC	Refrigerant Sensor Error*
PC00	ODU IPM Module Protection
PC01	ODU Voltage Protection
PC02	Compressor To (or IPM Module Protection
PC03	Pressure Protection (Low or High Pressure)
PC04	Inverter Compressor Drive Error
PC0L	Low Ambient Temperate Protection
NOTE: The digital tube will display **FC** in the **FORCED COOLING** mode. **FC is NOT an error code.** *Applicable to the units with refrigerant sensors only.	

Table 7 — Refrigerant Leak Detection Error Codes

EHC1	Refrigerant Sensor detects a leak
EHC2	Working condition of the refrigerant sensor is out of range and a leak is detected

If you receive one of the codes in Table 7, call a technician as soon as possible. No need to panic, the unit goes into TURBO mode until the error code is cleared. There is a "beep" noise coming from the indoor unit, which is normal in this case.

For additional diagnostic information, refer to the Service Manual.

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For Class B Digital Device

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try t o correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the distance between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assista**nce.**

MODIFICATION: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate this device.

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