WARNING: If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

READ THESE OPERATING INSTRUCTIONS CAREFULLY BEFORE USING THE UNIT. Follow the safety considerations listed in this manual.

Keep this Operation Manual in a handy place for future reference. Upon change of ownership, transfer this manual to the equipment owner.

Read this manual along with the Maintenance Instruction of the indoor unit. This manual should be stored along with the Maintenance Instruction.

Applicable models
AXGP096E1NHS
AWGP180E1NHS

Aisin Gas Heat Pump Air Conditioner

Outdoor Unit
1. SAFETY CONSIDERATIONS

Read these SAFETY CONSIDERATIONS for Operations carefully before installing the unit and be sure to install it correctly. After completing the installation, make sure that the system operates properly during commissioning.

Meaning of DANGER, WARNING, CAUTION and NOTE Symbols.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="DANGER" /></td>
<td>Indicates an imminently hazardous situation which, if not avoided, may result in death or serious injury.</td>
</tr>
<tr>
<td><img src="image" alt="WARNING" /></td>
<td>Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.</td>
</tr>
<tr>
<td><img src="image" alt="CAUTION" /></td>
<td>Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.</td>
</tr>
<tr>
<td><img src="image" alt="NOTE" /></td>
<td>Indicates situations that may result in equipment or property-damage accidents only.</td>
</tr>
<tr>
<td><img src="image" alt="CROSSMARK" /></td>
<td>Indicates a prohibited action.</td>
</tr>
<tr>
<td><img src="image" alt="CHECKMARK" /></td>
<td>Indicates an action or requirement that must be observed.</td>
</tr>
</tbody>
</table>

---

**DANGER**

Do not install the unit yourself. Improper installation may result in water leakage, electric shock, a fire or other hazards. Ask your dealer to carry out the installation work.

Do not install any additional options yourself. Improper installation may result in water leakage, electric shock, a fire or other hazards. Be sure to use only the specified options and have them installed by your dealer.

Do not install the unit in the area where flammable materials are present. Installing a unit in such location could cause a fire, an explosion or other hazards.

Stop operation, turn off the power and contact your dealer immediately when any abnormalities are noticed during operation. (burning smells, smoke, etc.) Leaving the unit running under such circumstances may damage the unit, or result in electrical shock, a fire or other hazards.

If any refrigerant vapor leaks, discontinue use of the product, ventilate the area thoroughly and extinguish any open flame near the product right away and contact your dealer. Toxic gas may be produced if the refrigerant vapor comes into contact with other flammable or oxidising materials from devices such as fan, heater, stove, cooking device, etc.

For refrigerant vapor leakage, consult with your dealer. Refrigerant vapor is heavier than air and replaces oxygen. A massive leak could lead to oxygen deficiency, especially in basements, and a suffocation hazard could occur.

Safely dispose of all packing materials. Packaging materials, such as nails and other metal or wooden parts may cause cuts, pricks, or other injuries.

Should overheating or overcooling of the conditioned space occur, or the gas supply fail to shut off, shut off the manual gas valve to the appliance before shutting off the electrical supply.
<table>
<thead>
<tr>
<th><strong>When installing the unit in a small room,</strong> take measures to keep refrigerant concentration from exceeding allowable safety limits in case of refrigerant leakage. Refrigerant vapor is heavier than air and replaces oxygen. Excessive refrigerant in a closed space can lead to oxygen deficiency, especially in a small room and a suffocation hazard could occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>If equipment utilizing a burner, such as a cooking stove or a room heater, is used in the same room as the indoor unit,</strong> be sure to ventilate the room sufficiently to avoid the danger of oxygen deficiency. Failure to do so may cause a suffocation hazard.</td>
</tr>
<tr>
<td><strong>Tear apart and throw away plastic packing bags so that children will not play with them.</strong> Children playing with plastic bags face the danger by suffocation.</td>
</tr>
<tr>
<td><strong>Do not install the outdoor unit indoor or in a location into which exhaust gas could flow.</strong> Make sure that exhaust gas is not being discharged near an air intake port or windows where it could be drawn into the room and cause gas poisoning or suffocation.</td>
</tr>
<tr>
<td><strong>Be sure to ground the unit.</strong> Improper grounding may cause electrical shock or a fire.</td>
</tr>
<tr>
<td><strong>Do not connect the ground wire to utility pipes, arrester, or ground wires for electric devices.</strong> A high surge current from lighting or other sources may cause damage to the air conditioner.</td>
</tr>
<tr>
<td><strong>Do not block the air intake or exhaust vents of the outdoor unit.</strong> Carbon monoxide produced by the incomplete combustion may cause gas poisoning.</td>
</tr>
<tr>
<td><strong>Do not install the unit where volatile oil constituent such as cooking oil or machine oil suspends in the air.</strong> Doing so may cause the unit to crack, or may be a cause of electrical shock, a fire or other hazards.</td>
</tr>
<tr>
<td><strong>Do not dismantle, modify or repair the unit by yourself.</strong> Improper repair and maintenance may result in water leakage, electrical shock, a fire or other hazards. Contact your dealer to perform this work. Only use included accessories that are specifically designed for use with the equipment and have them installed by qualified technician.</td>
</tr>
<tr>
<td><strong>Do not install the unit where the smoke from oil fill, for example, in a kitchen or where volatile gas, corrosive gas or metallic dust may be produced.</strong> Doing so may cause a fire, malfunction or other hazards.</td>
</tr>
<tr>
<td><strong>When any fuel gas leaks from the outdoor unit, shut off the fuel supply at the main valve and contact your dealer immediately.</strong> May cause a fire or an explosion by the ignition sparks or open flame near by.</td>
</tr>
<tr>
<td><strong>When the unit is submerged in water affected by acts of nature such as floods or hurricanes, turn off the main power circuit breaker and contact your dealer.</strong> Operating the unit continuously may cause malfunction, electrical shock or a fire.</td>
</tr>
<tr>
<td><strong>Never use the same pipe for condensation of water vapor in the exhaust gas from the outdoor unit and drain water condensed from the indoor unit.</strong> If exhaust gas enters the building, it could cause gas poisoning or suffocation.</td>
</tr>
<tr>
<td><strong>Always discharge exhaust gas to the outside of building, so it will not cause adverse affects in the surrounding area.</strong> If the air intake draws exhaust gas from a vent or a drainage, it may cause lack of oxygen and/or carbon poisoning.</td>
</tr>
<tr>
<td><strong>Be sure to install the exhaust pipe to lead exhaust gas to the open air.</strong> In the situation where the exhaust pipe needs to run through closed drainage/gutter or into the same location as indoor unit condensation drainage goes, make sure that exhaust gas disperses in to the open air. Failure to do so may lead exhaust gas into the room, cause lack of oxygen and/or carbon poisoning.</td>
</tr>
</tbody>
</table>
WARNING

Do not expose your body directly to the cold or warm air flow for a long time. Do not cool or heat the room too much. Prolonged exposure may cause health problems or illness.

Make sure that all electrical work is carried out by qualified technician according to local, state, and national regulations. Improper electrical construction may lead to electrical shock or a fire.

Install the unit on a foundation strong enough to withstand its weight. Insufficient strength of foundation may cause the unit to tip over, resulting in injuries or other accidents.

Do not put fingers, sticks, or any foreign object into the air inlet, air outlet or horizontal flap of the unit. Since the fan rotates at high speed during operation, it may cause injury.

Do not put fingers, sticks, or any foreign object into the fan since it may start to work suddenly even though it has stopped. Doing so may cause injury.

When a fuse blows out, never replace it with one of incorrect ampere ratings or different wires. Using incorrect fuses or wires as a replacement may cause a fire or malfunction. Always replace any blown fuse with a fuse of the same specification.

Contact your dealer to move and reinstall the air conditioner. Incomplete installation may result in water leakage, electric shock, a fire or other hazards.

Never let the indoor unit or the remote controller get wet. Water can cause electric shock, a fire or other hazards.

Never use flammable spray such as hair spray, insecticide, lacquer, or paint near the unit. Doing so may cause the unit to crack, or may be a cause of electrical shock, a fire or other hazards.

Never remove the fan guard of the unit. Since the fan rotates at high speed during operation, it may cause injury.

Turn off all electrical power before doing any maintenance. Failure to do so could result in electrical shock or injury. Make sure that the fan has stopped before working on the unit.

Never spray or flush, with water or any other fluids on to the unit. May cause electrical shock including death.

Do not touch the switch with wet hands. Touching a switch with wet hands can cause electric shock.

Do not allow children to play on or around the unit. Playing on or around the unit could cause injury.

Heat exchanger fins are sharp enough to cut. Wear gloves or cover the fins while working around them. Failure to do so could result in injury.

Check the unit foundation for damage on a continuous basis, especially if it has been in use for a long time. If left in a damaged condition, the unit may fall and cause injury.

Do not place anything containing water or other fluids on top of the unit. If spilled, may cause a fire or electrical shock including death.

Do not touch the air outlet or horizontal blades while the swing flap is in operation. Fingers may get caught and injured.

Do not open the controller cover or touch the internal parts. May cause electrical shock including death or system malfunction. When internal part adjustment or check out is required, please contact your dealer.

Be sure to install a ground fault circuit breaker. Failure to do so may result in electric shock or a fire.

Do not stand on, or place any object on the outdoor unit. It may be a cause of injury due to falling or over-turning.
Do not touch the outdoor unit exhaust pipe.
May cause severe burns.

Do not leave animals and plants in places where wind from the air conditioner flows directly.
This may cause adverse effects on the animals or the plants.

Do not install the outdoor unit in a location where exhaust gas or air from its blower fan comes in contact with plants or animals.
The exhaust gas or air from the blower fan could cause harm to the animals or the plants.

Keep spray canisters away at least 4 feet from the air outlet.
Heat from indoor/outdoor unit air outlet may cause the canisters to explode.

Do not use steam generating equipment such as the water heater near the remote controller or indoor unit.
Water droplets might fall during cooling operation and cause short circuit.

When you need to work on the unit at a high place, make sure to secure the footing.
May cause injuries due to falling or overturning.

Never install the unit in the area where flammable gas is generated, flows into, accumulates or leaks.
If the gas leaks and builds up around the unit, it may catch fire.

Do not assign the unit to the location where installer or service technician cannot secure his/her footing.
May cause injuries due to falling or overturning.

Never use the same pipe for the outdoor unit to drain both of exhaust gas condensate and condensed water.
Exhaust gas may backflow into the outdoor unit and cause malfunction.

Be sure to use a designated power circuit.
Sharing the power supply with other appliances may cause overheat, a fire or malfunction.

Never pull or twist the electric wire of the remote controller.
The wiring may be disconnected and cause electric leakage, or cause the unit to malfunction.

When installing the outdoor unit on the rooftop, route the exhaust drain piping so that exhaust gas condensate can be discharged into the rainwater drainage (roof drainage).
Routing the exhaust piping directly onto the rooftop may damage the concrete structure or waterproof sheet.

Do not place appliances that produce open flames in places that are exposed to the air flow of the unit or under the indoor unit.
It may cause oxygen deficiency due to incomplete combustion or deformation of the unit due to the heat.

--- CAUTION ---

Do not use the system for any purpose other than comfort cooling or heating.
Do not use the unit for cooling precision instruments, food, plants, animals or works of art.
This may cause adverse effects on the object's performance, quality and longevity.

Do not place any items you do not wish to get wet below the indoor unit.
When the humidity level exceeds 80% or due to a clogged condensation drain pipe, water may drip from the indoor unit.

Before cleaning exterior, stop the system operation by turning the designated breaker switch off and by shutting off the outdoor unit by disconnecting the power cord from the socket.
Failure to do so may cause electrical shock including death.

Do not wash the unit with excessive water.
Doing so may result in electric shock or a fire.
Do not place the controller near water splashes.
Water entering the controller may cause electric shock or damage the internal electronic parts.

Do not shut off the power immediately after turning the switch off.
The system requires at least 5 minutes to complete the draining process after being turned off.

Do not operate the system when using a room-fumigation type of insecticide.
Failure to observe this could cause the chemicals to be deposited in the unit and can endanger health or create additional hazards.

Never let children or anyone who requires supervision operate the system on their own.
Improper operation may cause health problems or other hazards.

Do not let children play with the controller.
Improper operation may cause health problems or other hazards. Keep the controller out of their reach.

Always consult with your dealer to clean inside of unit.
Improper cleaning or use of incorrect detergent may not only harm the unit, but also could cause injuries, electrical shock, water leakage, a fire, malfunction, or other hazardous situation.

Do not touch the air intake or aluminum fins.
Doing so may cause cuts or other injuries.

Do not place objects or let dead leaves pile up around the unit.
Dead leave piles may attract small animals as their nesting site. If those animals get inside of outdoor unit, it may cause not only system malfunction but also a fire or other hazardous situation.

Be sure to arrange the drain piping to ensure smooth drainage.
Improper drain piping may cause water leakage and malfunction.

Location for installation
Make sure that the unit is installed in a sufficiently ventilated area and not surrounded by obstacles.

Especially using the unit in the following places may create a risk of human injury or damage to property. Do not install the unit in such locations including without limitation the following:
-a. Places with a mist of mineral oil, such as cutting oil.
-b. Locations such as coastal areas where there is a lot of salt in the air.
-c. Locations such as hot springs where there is a lot of sulfur in the air.
-d. Locations such as factories where their power voltage requirement varies
-e. In cars, boats, and other vehicles.
-f. Locations such as kitchens where oil may splatter or where there is steam in the air.
-g. Locations where equipment produces electromagnetic waves.
-h. Places with an acid or an alkaline mist.
-i. Places where fallen leaves can accumulate or where weeds can grow.

Do not expose the controller to direct sunlight.
The LCD display can become discolored and may fail to display the data.

If there is any possibility of the exhaust gas flowing into the room or causing adverse effects on the surrounding area, consider the use of an exhaust vent extension kit (additional option).
Contact your dealer for more details.

If the unit is installed in a region with heavy snowfall, take snow protection measures.
Contact your dealer for the details of snow protection measures, such as the use of a snow protection hood (additional option).

During the unit operation
Do not block the air inlet, exhaust vent or exhaust drain outlet of the outdoor unit.
Doing so may cause malfunction.

Do not use any other room heater near the indoor unit.
Heat may deform the suction grille of the indoor unit.
Do not block the air inlet or air outlet of the unit. Doing so may lower the performance of the air conditioner or cause malfunction.

If any oil or coolant leaks from the outdoor unit, it may cause malfunction or secondary damage to household property. In such cases, contact your dealer.

Do not repeat turning ON and OFF the system within a short period of time. If the unit is turned off and turned back on in a few minutes, 4 or 5 times or more per hour, it may cause compressor malfunction, or otherwise damage the unit.

Never press the button of the remote controller with a hard, pointed object. The remote controller may be damaged.

Do not wipe the controller operation panel with benzene, thinner, chemical dust cloth, etc. The panel may get discolored or the coating can peel off. If it is dirty, soak a cloth in water-diluted neutral detergent, squeeze it well and wipe the panel clean. Then wipe it with another dry cloth.

Electric wiring work
Do not attempt to do electrical work or grounding work unless you are licensed to do so. Consult with your dealer for electrical work and grounding work.

Make sure that a designated power circuit is used.

Operation sound
Pay attention to operation sound. Be sure to operate the system in the following places;
- a. Places that can sufficiently withstand the weight of the unit yet can suppress the operating sound and vibration of the unit.
- b. Places where warm air from the air outlet of the outdoor unit or the operating sound of the outdoor unit does not annoy neighbors.

Make sure that there are no obstacles close to the outdoor unit. Obstacles close to the outdoor unit may drop the performance of the outdoor unit or increase the operation sound of the outdoor unit.

Consult your dealer if the system in operation generates unusual noise.

Drain piping work
Make sure that the drainpipe is installed properly to drain water. If no water is discharged from the drainpipe while the system is in the cooling mode, the drainpipe may be clogged with dust or dirt and water leakage from the indoor unit may occur. Stop operating the system and contact your dealer.

Important reminder
If the system is operated exceeding the specified allowable temperature range, especially when the ambient temperature is high, the unit may be damaged or the protection circuit may be activated to stop operation.

To ensure the longevity of the unit performance, or to protect the unit, the operation of indoor and outdoor units may be suspended, or the heating or cooling capacity may drop temporarily. However, it automatically returns to the original condition (defrost operation). In such condition, gas and electricity consumption may be increased.

Dismantling of the unit, disposal of the refrigerant, oil, and additional parts, should be done by the qualified technician in accordance with the relevant local, state, and national regulations.
2. WHAT TO DO BEFORE OPERATION

Installation site

This operation manual is for the following systems with standard control. Before initiating operation, contact your dealer for the operation that corresponds to your system type and mark.

If your installation has a customized control system, ask your dealer for the operation that corresponds to your system.

The system provides 3 operation modes;

<table>
<thead>
<tr>
<th>COOL/HEAT selector</th>
<th>Operation modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas heat pump air conditioner</td>
<td>ᵇ yes ᵇ no</td>
</tr>
</tbody>
</table>

- Names and functions of parts
  - System
    1. Outdoor unit
    2. Indoor unit
    3. Remote controller
    4. Inlet air
    5. Outlet air
    6. COOL/HEAT selector
    (Above figure shows systems with changeover remote control switches)
  - Outdoor unit
    • AXGP096E1NHS
    • AWGP180E1NHS

9. Air inlet (Heat exchanger)
10. Power supply, transmission wiring port
11. Refrigerant pipe connecting port
12. Condensed water drain
13. Fuel pipe connecting port
14. Exhaust water drain
15. Engine intake vent

CAUTION/WARNING label A

- WARNING
  Fan in movement
  Do not insert fingers, sticks, or etc.
- CAUTION
  Hot surface may result in burn injury.
  Do not touch the exhaust gas outlet.

CAUTION/WARNING label B

- WARNING
  Recovery and destructive law of Freon First class specialized specific products
  1) Indiscriminate hydrofluorocarbon (HFC) emission into the atmosphere is prohibited.
  2) HFC recovery is required before disposing this product (comply with current norm)
  3) The type and quantity of the HFC are indicated on the "Precautions for installation and inspection" label inside the control box panel.

- WARNING
  Risk of exhaust gas pollution accumulated indoors.
  - Drain hose of indoor and outdoor units should not be connected to the same drainage pipe.
  - Charge the exhaust drain in the open space outdoors.
  - Possibility of gas poisoning due to engine's exhaust gas.
  - Convey the engine's exhaust gas directly to open outdoor spaces.
  - Danger of gas leakage.
  - Use only specific and qualified pipes and flexible hoses for fuel gas.
  - Danger of oxygen deficiency indoors or unit malfunction due to possible refrigerant leakage.
  - After installation, perform pressure test to the piping network, to detect for any refrigerant gas leakage.
  - If you smell gas, Do the following precautions.
    - Like shut off gas valve, Remove power, Call appropriate service personnel.

- WARNING
  Risk of electric shock, can cause injury or death.
  Disconnect all remote electric power supplies before servicing.

- CAUTION
  Drainage could possibly taint the concrete surface or damage the water proof sheet of the roof or floor.
  Extend the drainage to the gutter or drain of the roof.

- CAUTION
  Use copper supply conductors only.
**User’s Selectable Languages**

**Operation**

1. Display the main menu screen by pressing the [Menu] button.
2. Press ▼▲ buttons to select Language on the main menu screen and press the Menu/OK button.

2. Press ▼▲ buttons to select the preferred language on the language screen. English/Français/Español are available.
3. Press Menu/OK button to confirm the settings and return to the basic screen.
Button Locations and Descriptions

1. Operation mode selector button
   - Press this button to select the operation mode of your preference. (See page 15.)
   * Available modes vary with the indoor unit model.

2. Fan speed control button
   - Press this button to select the fan speed of your choice. (See page 16.)
   * Available fan speeds vary with the indoor unit model.

3. Menu/OK button
   - Used to indicate the main menu.
   - Used to enter the selected item.

4. Up button ▲
   - Used to raise the setpoint.
   - The item above the current selection will be highlighted.
   (The highlighted items will be scrolled continuously when the button is continuously pressed.)
   - Used to change the selected item.

5. Down button ▼
   - Used to lower the setpoint.
   - The item below the current selection will be highlighted.
   (The highlighted items will be scrolled continuously when the button is continuously pressed.)
   - Used to change the selected item.

6. Right button ►
   - Used to highlight the next items on the right-hand side.
   - Each screen is scrolled in the right-hand direction.

7. Left button ◀
   - Used to highlight the next items on the left-hand side.
   - Each screen is scrolled in the left-hand direction.

8. On/Off button
   - Press this button and system will start.
   - Press this button again to stop the system.

9. Operation status lamp (Green)
   - This lamp illuminates solid during normal operation.
   - This lamp blinks if an error occurs.

10. Cancel button
    - Used to return to the previous screen.

11. LCD (with backlight)
    - The backlight will be illuminated for approximately 30 seconds by pressing any button.
    - If two remote controllers are used to control a single indoor unit, only the controller to be accessed first will have backlight functionality.
Liquid Crystal Display

- Two types of liquid crystal display (LCD) are available. The standard display is set by default.
- Detailed display can be selected in the main menu.
- The displayed contents of the screen vary with the operation mode of the indoor unit model. (The following display will appear when the indoor unit is in automatic operation.)

### Standard display

1. Operation mode
   - Auto

2. Fan Speed
   - (not shown in example)

6. Ventilation
   - (not shown in example)

9. Under centralized control

10. Changeover controlled by the master indoor unit

11. Setback

8. (●) display

7. (←) display

3. Setpoint display

4. Stand by for Defrost/Hot start

5. Message

### Detailed Display

- The air flow direction, clock, and detailed selection items appear on the detailed display screen in addition to the items appearing on the standard display.

12. Air Flow Direction
   - (Displayed only when the air conditioner is in operation.)

13. Current Day/time
   - (12/24 hour time display)

14. Detailed selection

15. (●) display
   - No Clock display
   - No Detailed item display
   - No Air Flow Direction display
   - No Fan speed display

<Standard display example>

<Standard display example 1>

<Detailed display example 1>

<Detailed display example 2>
Names and Functions

1. Operation mode
   • Used to display the current operation mode: Cool, Heat, Vent, Fan, Dry or Auto.

2. Fan Speed
   • Used to display the fan speed that is set for the indoor unit.
   • The fan speed will not be displayed if the connected model does not have fan speed control functionality.

3. Setpoint display
   • Used to display the setpoint for the indoor unit.
   • Use the Celsius/Fahrenheit item in the main menu to select the temperature unit (Celsius or Fahrenheit).

4. Stand by for Defrost/Hot start
   “STANDBY” (See page 17.)
   If ventilation icon is displayed in this field:
   • Indicates that an energy recovery ventilator is connected.
   For details, refer to the Operation Manual of the ERV.

5. Message
   The following messages may be displayed.
   “This function is not available”
   • Displayed for a few seconds when an operation button is pressed and the indoor unit does not provide the corresponding function.
   • In a remote control group, the message will not appear if at least one of the indoor units provides the corresponding function.

6. Ventilation
   • Displayed when a energy recovery ventilator is connected.
   • Ventilation Mode icon “AUTO ERV ERV BYPASS”
   These icons indicate the current ventilation mode (ERV only) (AUTO, ERV, BYPASS).
   • Air Purify ICON “AIR PURIFY”
   This icon indicates that the air purifying unit is (option) in operation.

7. ⏳display
   • Displayed when the key lock is set.

8. ⌚display (See page 26.)
   • Displayed if the Schedule or Off timer is enabled.

9. Under Centralized control “CENTRAL CONTROL”
   • Displayed if the system is under the management of a multi zone controller (option) and the operation of the system through the remote controller is limited.

10. Changeover controlled by the master indoor unit “MASTER CONTROL” (VRV only)
    • Displayed when another indoor unit on the system has the authority to change the operation mode between cool and heat.
11. Setback “SETBACK”

- The setback icon flashes when the unit is turned on under the setback control.

12. Air Flow Direction “eworthy”

- Displayed when the air flow direction and swing are set (see page 20).
- If the connected indoor unit model does not include oscillating louvers this item is not displayed.

13. Current Day/Time (12/24 hour time display)

- Displayed if the clock is set.
- If the clock is not set, “-- : --” is displayed.
- 12 hour time format is displayed by default.
- Select 12/24 hour time display option in the main menu under “Clock & Calendar”.

14. Detailed selection

- Displayed if the detailed display item is selected.
- Detailed items are not selected by default.

15. Display

- Displayed when the clock needs to be set.
- The schedule function will not work unless the clock is set.
3. OPERATION RANGE

Use the system in the following temperature and humidity ranges for safe and effective operations.

<table>
<thead>
<tr>
<th>COOLING</th>
<th>HEATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>outdoor temp</td>
<td>23°~130°FDB</td>
</tr>
<tr>
<td>indoor temp</td>
<td>57°~75°FWB</td>
</tr>
<tr>
<td>indoor humid</td>
<td>≤ 80%*</td>
</tr>
</tbody>
</table>

To avoid condensation and water dripping out the unit. If the temperature or the humidity is beyond these conditions, safety devices will work and the system will not operate.

4. OPERATION PROCEDURE

- Operation procedure varies according to the combination of the outdoor unit and the remote controller. Read the chapter "2. WHAT TO DO BEFORE OPERATION" on page 8.
- To protect the unit, turn on the main power switch 6 hours before operation. For smooth start of the operation, do not turn off the main power switch during the air conditioning season.
- If the main power supply is turned off during operation, operation will restart automatically after the power turns back on again.
### Basic Operation

#### Cool/Heat/Auto/Fan Operation (SkyAir and VRV)

**How to follow the operation manual**

- **Operation screen display**
  - Describes screens that will be displayed on the remote controller in operation.

- **Operation procedure**
  - Display the main menu screen by pressing **Menu** button.
  - Press **▼▲** buttons to select **Schedule** the main menu screen. Press **Menu/OK** button to display the timer screen.
  - Before setting the schedule, the clock must be set.
  - If the clock has not been set, a screen like the one on the left will appear. Press **◄►** buttons to select **Yes** and press **Menu/OK** button.
  - The date & time screen will appear.
  - Set the current year, month, day, and time.

**Operation**

1. **Press the Operation mode selector button several times until the desired mode, Cool, Heat, Fan, or Auto mode is selected.**

   *Unavailable operation modes are not displayed.*

   **Note**
   - Before changing the mode, confirm that the display does not indicate the master controlled status. Both heat and cool mode may not be selected if the unit is master controlled. See page 23 if MASTER CONTROLLED icon blinks.

---

**Preparation**

- For mechanical protection purposes, apply power to the outdoor units at least six hours before starting the operation of the system.

---

**Setup**

- Before setting the schedule, the clock must be set.
- If the clock has not been set, a screen will appear. Press **◄►** buttons to select **Yes** and press **Menu/OK** button.
- The date & time screen will appear.
- Set the current year, month, day, and time.
**Basic Operation**

2. Press On/Off button. The Operation status lamp (green) will illuminate and the system will start operating.

3. The setpoint will increase by 1°F (or 1°C) when ▲ button is pressed and decrease by 1°F (or 1°C) when ▼ button is pressed.

   *Setpoint is not available in fan or dry mode.*

4. To change the fan speed, press the Fan speed control button and select the desired fan speed from Low, Medium or High.

   *Only two fan speed adjustment levels, low and high may be available depending on the type of the indoor unit.*

   *The system may be in an automatic fan speed control for equipment protection purposes.*

   *The system may be in automatic fan speed control according to the room temperature. It is normal for the fan to intermittently stop operating.*

   *It is normal for a delay to occur when changing the fan speed.*

5. Adjust Air Flow Direction from the main menu (see page 20).

   *If the connected indoor unit does not include oscillating louvers, this function is not available.*
• When the On/Off button is pressed again, the system will stop operating and the operation status lamp will turn off.

* When the system is stopped while in the heating mode, the fan will continue to operate for approximately one minute to remove residual heat from the indoor unit.

**Note**
- To prevent water damage or system failure, do not immediately remove power from the indoor unit following system operation. Wait at least five minutes for the condensate pump to finish draining residual water from the indoor unit.

---

**Characteristics of Heat Mode**

The system automatically controls the following operating modes to prevent the reduction of heating capacity and space comfort.

**Defrost operation**
- The system will automatically go into defrost operation to prevent frost accumulation at the outdoor unit and loss of heating capacity.
- The indoor unit fan will stop, and “STANDBY” (Defrost/Hot start) will be displayed on the remote controller.
- The system will return to normal operation usually within six to eight minutes (but not more than 10 minutes).

**Hot start**
- When the system goes into heat mode, the indoor unit fan will stop in order to prevent a cold draft.
  (In that case, „STANDBY” (Defrost/Hot start) will be displayed on the remote controller.)
- The system will return to normal operation usually within 3 minutes.

---

4-2 PROGRAM DRY OPERATION

**Dry Mode**

**Preparation**
- For equipment protection purposes, apply power to the outdoor units at least six hours before starting the operation of the system.
- The dry mode may not be selected if the remote controller is master controlled and the system is not already in the cooling mode of operation. (see page 24 for details)
Basic Operation

**Operation**

1. Press the Mode button several times until the Dry mode is selected.
   
   * The dry mode may not be available depending on the type of indoor unit.

2. Press On/Off button. The Operation status lamp (green) will illuminate and the system will start operating.
   
   * In Dry mode, the system maintains automatic temperature and fan speed control. Therefore, temperature setpoint or fan speed settings are not available while the indoor unit is in the Dry mode.

3. Adjust Air Flow Direction from the main menu (see page 20).
   
   * If the connected indoor unit does not include oscillating louvers, this function is not available.

4. When the On/Off button is pressed again, the system will stop operating and the operation lamp will turn off.

**Note**

* To prevent water damage or system failure, do not immediately remove power from the indoor unit following system operation. Wait at least five minutes for the condensate pump to finish draining residual water from the indoor unit.
Characteristic of Dry mode

The Dry mode dehumidifies the space at reduced cooling capacity to prevent the room temperature from dropping to uncomfortable levels.
Menu Options

Air Flow Direction

Configuring Air Flow Direction

Operation

1. Display the main menu screen. by pressing [Menu] button.
Press [▲▼] buttons to select [AIR FLOW DIRECTION] on the main menu screen and press the Menu/OK button.
(For models with no airflow direction adjustment, [AIR FLOW DIRECTION] will not be displayed on the main menu screen.)

2. The air flow direction screen will appear.

Note
- Air flow direction appears on the screen as below.

<table>
<thead>
<tr>
<th>Up/down direction</th>
<th>Left/right direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 : Position 0</td>
<td>0 : Position 0</td>
</tr>
<tr>
<td>1 : Position 1</td>
<td>1 : Position 1</td>
</tr>
<tr>
<td>2 : Position 2</td>
<td>2 : Position 2</td>
</tr>
<tr>
<td>3 : Position 3</td>
<td>3 : Position 3</td>
</tr>
<tr>
<td>4 : Position 4</td>
<td>4 : Position 4</td>
</tr>
</tbody>
</table>
3

- Pressing ▼▲ buttons changes the setting to (in order) Swing, Position 0, Position 1, Position 2, Position 3, and Position 4.

- Selecting Swing will cause the air flow direction louver to oscillate back and forth.

For the swing setting only, all positions will be displayed.

4

- When you select positions 0 to 4, the louver will stay in a fixed position.

* The illustration is an example of the display when position 2 is selected.

- Press ▼▲ buttons to select the desired air flow direction.

Press Menu/OK button to return to the basic screen.
Menu Options

Operational Details and Functions

There are two types of air flow direction settings.

**Air flow direction swing**

The louvers automatically oscillate up and down.

**Air flow direction**

You can select from one of five fixed directions. (This has no relation to the angle of the louvers.)

![Diagram](image.png)

**Movement of the air flow direction louver**

Under the operating conditions shown below, the air flow direction is controlled automatically. Actual operation may be different than what is displayed on the remote controller.

<table>
<thead>
<tr>
<th>Operating condition</th>
<th>Room temperature is higher than the remote controller's setpoint (in heating operation).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When defrosting (in heating operation). (The air flow discharges horizontally to avoid creating a draft for the room occupants.)</td>
</tr>
<tr>
<td></td>
<td>Under continuous operation with the air flow discharging horizontally.</td>
</tr>
</tbody>
</table>

**Stopping the system**

Press the on/off button once again. The operation lamp goes off and the system stops operation.

**WARNING**

Do not place appliances that produce open flames in places that are exposed to the air flow of the unit or under the indoor unit. It may cause oxygen deficiency due to incomplete combustion or deformation of the unit due to the heat.

**CAUTION**

Do not shut off the power immediately after turning the switch off. The system requires at least 5 minutes to complete the draining process after turned off.

**NOTE**

- The heating capacity drops as the outside temperature falls. If this happens, use another heating device together with the unit. When using the appliances which produce open fire together, ventilate the room constantly.
- It takes some time for the room to warm up from the time the system operation is started since the unit uses a hot-air circulatory system to warm the entire room.
Basic Operation

**Setting Changes**
See page 25 for an explanation of the cool/heat master controller.

1. Press the Operation Mode Selector button on the remote controller of the cool/heat master for at least four seconds. (While the backlight is illuminated)
   - The “MASTER CONTROLLED” icon on each remote controller for the indoor units connected to the same outdoor unit will start flashing.

   * Vent mode setting changes are possible regardless of the cool/heat master controller.
   * If cool/heat mode is configured for control from the outdoor unit, all remote controllers serving the associated indoor units will display its “MASTER CONTROLLED” icon.

   - Set the cool/heat master controller as outlined below.

2. Press the Mode Selector button on the remote controller of the indoor unit which is to serve as the cool/heat master controller.
   - The remote controller for cool/heat master is established and the icon disappears.
   - Other remote controllers in the system (indoor units served by the same outdoor unit or indoor units served by the same branch selector (BS) unit) will now display the “MASTER CONTROLLED” icon.
Basic Operation

3

- Press the Mode button on the remote controller of the indoor unit designated as the cool/heat master controller (the remote controller not displaying the MASTER CONTROLLED icon) repeatedly until the desired mode is selected. The display will change to “Fan”, “Dry”, “Auto”, “Cool”, “Heat” each time the button is pressed.
- Simultaneously, the other indoor units on the system will follow suit and change modes to reflect the new mode selected at the cool/heat master controller.

Cool / Heat Mode Selection Availability

- “Cool”, “Heat” and “Auto” are all only available for selection on the cool/heat master controller. The following table indicates the available operating modes of the other indoor units on the system based upon the selected mode of the master indoor unit.

<table>
<thead>
<tr>
<th>When the master indoor unit is set to</th>
<th>The other indoor units in the system can be set to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cool</td>
</tr>
<tr>
<td>Cool mode</td>
<td>✓</td>
</tr>
<tr>
<td>Dry mode</td>
<td>✓</td>
</tr>
<tr>
<td>Heat mode</td>
<td></td>
</tr>
<tr>
<td>Fan mode</td>
<td></td>
</tr>
<tr>
<td>Auto mode (Cooling operation)</td>
<td>✓</td>
</tr>
<tr>
<td>Auto mode (Heating operation)</td>
<td></td>
</tr>
</tbody>
</table>
Precautions for Selecting the Cool / Heat Master Controller

- The cool/heat master controller must be set for a single indoor unit in the following applications

(2-Pipe Heat Pump System)

A number of indoor units are connected to a single outdoor unit.
Set any one of the indoor units as the cool/heat master controller.
4-5 MENU OPTIONS

Auto mode
Using information from the air conditioner (cool, heat, fan, and setpoint) and the energy recovery ventilator unit (indoor and outdoor temperatures), the ventilation mode is automatically changed between ERV and Bypass.

ERV mode
Outside air is passed through the ERV core and is supplied to the conditioned space.

Bypass mode
Outside air is supplied to the conditioned space without passing through the ERV core.

4-5-1 SETTING THE SCHEDULE

Operation
The schedule can not be enabled when a multizone controller is connected.

1
- Display the main menu screen. by pressing [Menu] button.
- Press ▼▲ buttons to select [Schedule].
- Press Menu/OK button to display the schedule screen.

2
- Before setting the schedule, the clock must be set.
- If the clock has not been set, a screen like the one on the left will appear. Press ◀▶ buttons to select [Yes] and press Menu/OK button.
- The date & time screen will appear.
- Set the current year, month, day, and time.

- Press ▼▲ buttons to select the desired function on the schedule screen and press Menu/OK button.
# Daily Patterns

## Operation

### 1

- The schedule screen will appear.
- Press ▼ buttons to select **Daily Patterns** on the schedule screen.
- The daily patterns screen will appear when the Menu/OK button is pressed.

### 2

- Press ▼ buttons to select **7 Days**, **Weekday/Weekend**, or **Weekday/Sat/Sun** on the daily patterns screen.
- The confirmation screen will appear when the Menu/OK button is pressed.

### 3

- Press ◀ buttons to select **Yes** on the confirmation screen.
- Pressing the Menu/OK button finalizes the daily patterns in the schedule and resumes to the main menu screen.
Menu Options

Settings

Operation

1

- The schedule screen will appear.
- Press ▼▲ buttons to select Settings on the schedule screen.

The settings screen will appear when the Menu/OK button is pressed.

2

- Press ▼▲ buttons to select the day to be set.

3

- Input the time for the selected day.
- Press ◼◼ buttons to move the highlighted item and press ▼▲ buttons to input the desired operation start time.

Each press of ▼▲ buttons moves the numbers by 1 hour or 1 minute.
● Press the ◀▶ buttons to move the highlighted item and press ▼▲ buttons to configure ON/OFF/-- settings.

● --, ON, or OFF changes in sequence when ▼▲ buttons are pressed.

ON: The temperature setpoints can be configured.
OFF: The setback temperature setpoints can be configured.
--: The temperature setpoints and setback temperature setpoints become disabled.

The cooling and heating temperature setpoints for both ON and OFF (Setback) are configured.

“_”: Indicates that the temperature setpoint and setback temperature setpoint for this time period is not specified. The last active setpoint will be utilized.

“--”: Indicates that the setback function is disabled for this time period.

A maximum of five actions per day can be set.

● Press the Menu/OK button when settings for each day are completed.

The confirmation screen will appear.

To copy the settings for the previous day, press the operation mode selector button so that the existing settings will be copied.

Example: The contents for Monday are copied by pressing the operation mode selector button after selecting Tuesday.
Menu Options

6

• Press ◀▶ buttons to select “Yes” on the confirmation screen. Pressing the Menu/OK button confirms the settings for each day and takes you back to the main menu screen.

Enabling or disabling the schedule

Operation

1

• Display the schedule screen. (See page 26.)
• Press ▼▲ buttons to select **Enable / Disable** on the schedule screen.
  Press Menu/OK button to display the enable/disable screen.

2

• Press ▼▲ buttons to select **Enable** or **Disable** on the enable/disable screen.
  Press Menu/OK button after selecting the item. The confirmation screen will appear.

3

• Press ◀▶ buttons to select **Yes** on the confirmation screen.
  Pressing Menu/OK button confirms the enable/disable setting for the schedule and resumes to the basic screen.
Off Timer

Configuring and Confirming the Off Timer settings

Operation

1. Display the main menu screen. by pressing [Menu] button.
   Press ▼▲ buttons to select the Off Timer on the main menu screen.
   Press Menu/OK button to display the off timer screen.

2. Press ▼▲ buttons to select Settings on the off timer screen.
   Press Menu/OK button to display the configuration screen.

3. Use ▼▲ buttons to set the time from operation start until the unit automatically stops.
   Selections can be made in increments of 10 minutes from 30 to 180 minutes.
   Holding down the button changes the number to change continuously.
   Select the desired time and press Menu/OK button.
   The confirmation screen will appear.

4. Press ◀▶ button to select Yes on the confirmation screen.
   Pressing Menu/OK button confirms the off timer and resumes to the basic screen.
Menu Options

Enabling or disabling the off timer

Operation

1. Navigate to the off timer screen. (See page 31.)
   - Press ▼▲ buttons to select Enable/Disable on the off timer screen.
   - Press Menu/OK button to display the enable/disable screen.

2. Press ▼▲ buttons to select Enable or Disable on the enable/disable screen.
   - Press Menu/OK button after selecting the item. Then the confirmation screen will appear.

3. Press ◀▶ button to select Yes on the confirmation screen.
   - Pressing Menu/OK button confirms the enable/disable for the off timer and resumes to the basic screen.
**4-6 PRECAUTIONS FOR GROUP CONTROL SYSTEM OR 2 REMOTE CONTROLLER CONTROL SYSTEM**

This system provides 2 other control systems besides individual control (1 remote controller controls 1 indoor unit) system. Confirm which of the following system applies to your unit.

- **Group control system**
  One remote controller controls up to 16 indoor units. All indoor units are equally set.

- **Two remote controller control system**
  Two remote controllers control 1 indoor unit (in case of group control system, 1 group of indoor units). The unit is individually operated.

---

**NOTE**

- Contact your dealer in case of changing the combination or setting of group control and two remote controller control systems.

---

**5. OPTIMUM OPERATION**

Observe the following precautions to ensure that the system operates properly.

- Adjust the air outlet properly and avoid direct air flow to room inhabitants.
- Adjust the room temperature properly for a comfortable environment. Avoid excessive heating or cooling.
- Prevent direct sunlight from entering a room during cooling operation by using curtains or blinds.
- Ventilate often. Extended use requires special attention to ventilation.
- Do not leave doors and windows open. If the doors and windows remain open, air will flow out of your room causing a decrease in the cooling or heating effect.
- Never place objects near the air inlet or the air outlet of the unit. It may cause deterioration in the effect or stop the operation.
- Turn off the main power supply switch to the unit when the unit is not used for longer periods of time. If the switch is on, it uses electricity. Before restarting the unit, turn on the main power supply switch 6 hours before operation to ensure smooth running.
- When the display shows (time to clean filter), ask a qualified service person to clean the filters. (Refer to the chapter “Maintenance” in the Maintenance Instruction attached to the indoor unit.)
- Keep the indoor unit and remote controller at least 3.5ft. away from televisions, radios, stereos, and other similar equipment. Failure to do so may cause static or distorted pictures.
- Do not use other heating devices directly under the indoor unit. Indoor units might get deformed by the heat.

---

**6. RECOMMENDATION OF MAINTENANCE**

To prevent unnecessary energy consumption while securing the safety and the comfortable use of air conditioner, the following actions are recommended if the unit (system) will not be used for an extended time.

**6-1 BEFORE A SHUTDOWN IN EXCESS OF 1 MONTH**

- **Check**
  - Are the indoor and outdoor unit intake and outlet vents blocked?
    Remove anything that blocks them.
  - Make sure that the exhaust vent or exhaust drain outlet of the outdoor unit are not blocked.

- **Clean the air filter and exterior.**
  - After cleaning the air filter, be sure to put it back in the same position. See the Maintenance Instruction attached to the indoor unit for details on how to clean it.

- **Turn the power on.**
  - When the power comes on, the characters in the remote controller display appear. (To protect the unit, turn the power on at least 6 hours before operating it. This makes operation smoother.)

- **Open the valve of the fuel gas.**

**6-2 WHEN RESTARTING THE UNIT FROM A SHUTDOWN**

- **On a clear day, use fan operation for around half a day to thoroughly dry out the interior of the unit.**
  - Refer to the chapter "4-1 COOLING, HEATING AND FAN ONLY OPERATION" on page 15 for details on fan operation.

- **Clean the air filter and exterior.**
  - Check the air filter, if it is dirty clean it, and put it back in the same position.
See the Maintenance Instruction attached to the indoor unit for details on how to clean it.

- Close the valve of the fuel gas.
- Turn off the power
  - When the power is shut off, the characters in the remote controller display disappear.
  - Leaving the indoor unit on consumes electricity. Be sure to turn the power off to conserve energy.

--- NOTE ---
- Contact your dealer if the error code “HF” (PERIODIC MAINTENANCE) is displayed on the remote controller.

7. ADDITIONAL ITEMS OF INFORMATION TO REVIEW

7-1 THE SYSTEM DOES NOT OPERATE
- The system operation does not start immediately when restarting or changing the operation mode.
  If the operation lamp lights, the system is in normal condition.
  To prevent overloading of the compressor, the system operation starts 5 minutes after it is turned ON again in case it was turned OFF just before.
- If “UNDER CENTRALIZED CONTROL” is displayed on the remote controller and pressing the operation button causes the display to blink for a few seconds.
  This indicates that the central device is controlling the unit.
  The blinking display indicates that the remote controller cannot be used.
- The system does not start immediately after the power supply is turned on.
  Wait 5 minutes until the micro computer is prepared for operation.

7-2 IT STOPS SOMETIMES
- The remote controller display shows “U4” or “U5” and stops but then restarts after a few minutes.
  This is because the remote control is intercepting noise from other electrical appliances, and this prevents communication between the units, causing them to stop.
  Operation automatically restarts when the noise goes away.

7-3 COOL/HEAT CANNOT BE CHANGED OVER
- When the display shows “MASTER”.
  It shows that this is a sub remote controller. Refer to the chapter "4-4 SETTING THE COOL/HEAT MASTER CONTROLLER" on page 23.
- When the COOL/HEAT selector is installed and the display shows “MASTER”.
  This is because cool/heat changeover is controlled by the COOL/HEAT selector. Ask your dealer where the remote control switch is installed.

7-4 FAN OPERATION IS POSSIBLE, BUT COOLING AND HEATING DO NOT WORK
- Immediately after the power is turned on.
  The micro computer is getting ready to operate. Wait 5 minutes.

7-5 THE FAN STRENGTH DOES NOT CORRESPOND TO THE SETTING
- The fan speed does not change even if the fan speed control button is pressed.
  During heating operation, when the room temperature reaches the set temperature, the outdoor unit stops running and the indoor unit changes to whisper speed.
  This is to prevent cold air blowing directly on occupants of the room.
  The fan speed will not change even if the button is pressed, when another indoor unit is in heating operation.

7-6 THE FAN DIRECTION DOES NOT CORRESPOND TO THE SETTING
- The fan direction does not correspond to the remote controller display.
  The fan direction does not swing.
  This is because the unit is being controlled by the micro computer. Refer to the chapter "4-3 ADJUSTING THE AIR FLOW DIRECTION" on page 20.

7-7 WHITE MIST COMES OUT OF THE UNIT

--- Indoor unit ---
- When humidity is high during cooling operation.
  If the interior of indoor unit is extremely contaminated, the temperature distribution inside a room becomes uneven. It is necessary to clean the interior of indoor unit. Ask your dealer for details.
on cleaning the unit. This operation requires a qualified service person.

- Immediately after the cooling operation stops when the room temperature and humidity are low.
  This is because warm refrigerant vapor flows back into the indoor unit and generates steam.

**Indoor unit, outdoor unit**

- When the system is changed over to heating operation after defrost operation.
  Moisture generated by defrost becomes steam and is exhausted.

**7-8 NOISE OF THE UNITS**

**Indoor unit**

- A “whirring” sound is heard immediately after the power supply is turned on.
  The electronic expansion valve inside the indoor unit starts working and makes the noise. Its volume will reduce in about 1 minute.

- A continuous low “hissing” sound is heard when the system is in cooling operation or at a stop.
  When the drain pump (an optional accessory) is in operation, this noise is heard.

- A “creaking” squeaking sound is heard when the system stops after heating operation.
  Expansion and contraction of plastic parts caused by temperature change make this noise.

- A low “trickling”, “choro-choro” sound is heard while the indoor unit is stopped.
  When the other indoor unit is in operation, this noise is heard. In order to prevent oil and refrigerant from remaining in the unit, a small amount of refrigerant is kept flowing.

**Outdoor unit**

- When the tone of operating noise changes.
  This noise is caused by the change of engine speed.

**Indoor unit, outdoor unit**

- A continuous low hissing sound is heard when the system is in cooling or defrost operation.
  This is the sound of refrigerant gas flowing through both indoor and outdoor units.

- A hissing sound which is heard at the start or immediately after stopping operation or defrost operation.

This is the noise of refrigerant caused by flow stop or flow change.

**7-9 DUST COMES OUT OF THE UNIT**

- When the unit is used after stopping for a long time.
  This is because dust has gotten into the unit.

**7-10 THE UNITS GIVE OFF ODORS**

- The unit can absorb the smell of rooms, furniture, cigarettes, etc., and then emit it again.

**7-11 THE OUTDOOR UNIT FAN DOES NOT ROTATE**

- During operation.
  The speed of the fan is controlled in order to optimize product operation.

**7-12 THE COMPRESSOR OR FAN IN THE OUTDOOR UNIT DOES NOT STOP**

- This is to prevent oil and refrigerant from remaining in the compressor. The unit will stop after 5 to 10 minutes.

**7-13 THE INSIDE OF OUTDOOR UNIT IS WARM EVEN WHEN THE UNIT HAS STOPPED**

- This is because the crankcase heater is warming the compressor so that the compressor can start smoothly.

**7-14 HOT AIR IS EMITTED EVEN THOUGH THE UNIT IS STOPPED**

- Hot air can be felt when the unit is stopped.
  Several different indoor units are being run on the same system, so if another unit is running, some refrigerant will still flow through the unit.

**7-15 DOES NOT COOL VERY WELL**

- Program dry operation.
  Program dry operation is designed to lower the room temperature as little as possible.
  Refer to the chapter "4-2 PROGRAM DRY OPERATION" on page 17.
8. TROUBLE SHOOTING

If one of the following malfunctions occurs, take the measures shown below and contact your dealer.

--- DANGER ---

Stop operation, turn off the power and contact your dealer immediately when any abnormalities are noticed during operation. (burning smells, smoke, etc.)

Leaving the unit running under such circumstances may damage the unit, or result in electrical shock or a fire.

- If a safety device such as a fuse, a breaker or a ground fault circuit breaker frequently actuates;
  Action: Do not turn on the main power switch.

- If the ON/OFF switch does not properly work;
  Action: Immediately turn off the main power switch.

- If water leaks from unit;
  Action: Immediately stop the operation.

- The operation mode selector button does not work well.
  Action: Immediately turn off the power.

Notify your dealer and report the malfunction code.

If the system does not properly operate except for the above mentioned cases and none of the above mentioned malfunctions is evident, investigate the system according to the following procedures.

If it is not possible to fix the problem yourself after checking all the above items, contact your dealer.

Let the dealer know of the symptoms, system name, and model name.

1. If the system does not operate at all;
   • Check if there is a power failure.
     Wait until power is restored. If power failure occurs during operation, the system automatically restarts immediately after the power supply is recovered.
   • Check if a fuse has blown or a breaker has tripped.
     Turn off the power supply.
   • Is the breaker down?
     Turn the power on with the breaker switch in the off position.
     Do not turn the power on with the breaker switch in the trip position.

2. If the system goes into fan only operation, but as soon as it goes into heating or cooling operation, the system stops;
   • Check if air inlet or outlet of outdoor or indoor unit is blocked by obstacles.
     Remove any obstacle and make it well-ventilated.
   • Check if the remote controller display shows (time to clean filter) (Refer to the chapter “Maintenance” in the Maintenance Instruction attached to the indoor unit.)

3. The system operates but cooling or heating is insufficient;
   • Check if air inlet or outlet of outdoor or indoor unit is blocked by obstacles.
     Remove any obstacle and make it well-ventilated.
   • Check if the air filter is not clogged. (Refer to the chapter “Maintenance” in the Maintenance Instruction attached to the indoor unit.)
   • Check the temperature setting.
   • Check the fan speed setting on your remote controller.
   • Check for open doors or windows. Shut doors and windows to prevent outdoor air from coming in.
   • Check if there are too many occupants in the room during cooling operation.
   • Check if the heat source of the room is excessive.
   • Check if direct sunlight enters the room.
     Use curtains or blinds.
   • Check if the air flow angle is proper.
9. REFERENCE INFORMATION

9-1. ERROR CODE DISPLAY

Contact your dealer in the following cases

Operation

1. If an error occurs, either one of the following items will flash in the basic screen.

   “Error: Push Menu button”
   * The operation lamp will flash.

   “Warning: Push Menu button”
   * The operation lamp will not flash.

   Press Menu/OK button.

2. The error code will flash and the service contact and model name or code may appear.

   Notify your dealer of the Error code and model name or code.
# 9-2. ERROR CODE LIST

<table>
<thead>
<tr>
<th>Error code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
<td>I.U., External protection activation</td>
</tr>
<tr>
<td>A1</td>
<td>I.U., Control board assy EEPROM setting error</td>
</tr>
<tr>
<td>A3</td>
<td>I.U., Abnormal drain water level</td>
</tr>
<tr>
<td>A6</td>
<td>I.U., Fan lock</td>
</tr>
<tr>
<td>A7</td>
<td>I.U., Wind direction control motor failure</td>
</tr>
<tr>
<td>A9</td>
<td>I.U., Electronic expansion valve driving part failure</td>
</tr>
<tr>
<td>AF</td>
<td>I.U., Drain failure</td>
</tr>
<tr>
<td>AH</td>
<td>I.U., Indoor dust extractor failure</td>
</tr>
<tr>
<td>AJ</td>
<td>I.U., Indoor unit capacity setting error</td>
</tr>
<tr>
<td>C4</td>
<td>I.U., Heat exchanger liquid pipe sensor failure</td>
</tr>
<tr>
<td>C5</td>
<td>I.U., Heat exchanger vapor pipe sensor failure</td>
</tr>
<tr>
<td>C9</td>
<td>I.U., Indoor intake air temperature sensor failure</td>
</tr>
<tr>
<td>CA</td>
<td>I.U., Indoor discharge air temperature sensor failure</td>
</tr>
<tr>
<td>CJ</td>
<td>I.U., Remote controller sensor failure</td>
</tr>
<tr>
<td>U0</td>
<td>O.U., Refrigerant empty</td>
</tr>
<tr>
<td>U0</td>
<td>O.U., Refrigerant insufficient</td>
</tr>
<tr>
<td>U1</td>
<td>Open phase in a three phase power supply</td>
</tr>
<tr>
<td>U1</td>
<td>O.U., Incorrect connection in single phase power supply</td>
</tr>
<tr>
<td>U3</td>
<td>O.U., Test run is not done</td>
</tr>
<tr>
<td>U4</td>
<td>I.U. - O.U.(\rangle), Transmission failure</td>
</tr>
<tr>
<td>U5</td>
<td>RC - I.U.(\rangle), Transmission failure</td>
</tr>
<tr>
<td>U5</td>
<td>RC circuit board failure</td>
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<td>U6</td>
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<tr>
<td>U7</td>
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<td>U7</td>
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<td>U7</td>
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<td>U7</td>
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<td>U7</td>
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<td>U7</td>
<td>Transmission error between outdoor units 7</td>
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<tr>
<td>U8</td>
<td>Main-sub RCs transmission error (Sub-RC failure)</td>
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<tr>
<td>U9</td>
<td>I.U. - O.U.(\rangle), Transmission failure</td>
</tr>
<tr>
<td>UA</td>
<td>Excess indoor units connected</td>
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<tr>
<td>UA</td>
<td>Incorrect I.U./O.U. combination (model/number etc.)</td>
</tr>
<tr>
<td>UC</td>
<td>Centralized address No. duplication</td>
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<tr>
<td>UE</td>
<td>I.U. - centralized RC transmission failure</td>
</tr>
<tr>
<td>UF</td>
<td>System unset/incorrect wiring</td>
</tr>
<tr>
<td>UH</td>
<td>System failure</td>
</tr>
<tr>
<td>E1</td>
<td>O.U., EEPROM failure</td>
</tr>
<tr>
<td>E1</td>
<td>O.U., EEPROM model code failure</td>
</tr>
<tr>
<td>E1</td>
<td>O.U., Programming unmatched</td>
</tr>
<tr>
<td>E1</td>
<td>O.U., Main-engine microcomputer transmission failure</td>
</tr>
<tr>
<td>E1</td>
<td>O.U., I/F main microcomputer transmission failure</td>
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<tr>
<td>E3</td>
<td>O.U., Refrigerant high pressure failure 2</td>
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<tr>
<td>E3</td>
<td>O.U., Refrigerant high pressure failure 1</td>
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<tr>
<td>E4</td>
<td>O.U., Refrigerant low pressure failure</td>
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<tr>
<td>E7</td>
<td>O.U., All fan motor failure</td>
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<tr>
<td>E7</td>
<td>O.U., Fan motor 1 starting failure</td>
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<tr>
<td>E7</td>
<td>O.U., Fan motor 2 starting failure</td>
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<tr>
<td>E7</td>
<td>O.U., Fan motor 3 starting failure</td>
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<tr>
<td>E7</td>
<td>O.U., Fan motor 1 revolution failure</td>
</tr>
<tr>
<td>E7</td>
<td>O.U., Fan motor 2 revolution failure</td>
</tr>
<tr>
<td>E7</td>
<td>O.U., Fan motor 3 revolution failure</td>
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<tr>
<td>EA</td>
<td>O.U., Four-way changeover valve switching failure</td>
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<tr>
<td>EC</td>
<td>O.U., Over-heated engine coolant temperature</td>
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<tr>
<td>EH</td>
<td>O.U., Coolant pump starting failure</td>
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<tr>
<td>EH</td>
<td>O.U., Coolant pump revolution failure</td>
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<tr>
<td>EH</td>
<td>O.U., IPM error</td>
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<td>O.U., Over-heated compressor discharge temperature</td>
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<td>F4</td>
<td>O.U., Over-heated compressor intake temperature</td>
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<tr>
<td>F4</td>
<td>O.U., Insufficient compressor intake superheating degree</td>
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<tr>
<td>FE</td>
<td>O.U., Engine oil pressure error</td>
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<tr>
<td>FF</td>
<td>O.U., Refrigerant oil empty</td>
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<tr>
<td>FJ</td>
<td>O.U., Exhaust air temperature abnormality</td>
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<tr>
<td>H3</td>
<td>O.U., High pressure switch open circuit</td>
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<tr>
<td>H4</td>
<td>O.U., Low pressure switch open circuit</td>
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<td>H9</td>
<td>O.U., Outside temperature sensor open circuit</td>
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<tr>
<td>H9</td>
<td>O.U., Outside temperature sensor short circuit</td>
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<tr>
<td>HC</td>
<td>O.U., Coolant temperature sensor open circuit</td>
</tr>
<tr>
<td>HC</td>
<td>O.U., Coolant temperature sensor short circuit</td>
</tr>
<tr>
<td>HJ</td>
<td>O.U., Coolant empty</td>
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<tr>
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<td>O.U., Periodic maintenance</td>
</tr>
<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 1 open circuit</td>
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<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 2 open circuit</td>
</tr>
<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 3 open circuit</td>
</tr>
<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 4 open circuit</td>
</tr>
</tbody>
</table>
10. WARRANTIES AND LIABILITIES

10-1 Your warranty

This system is warranted by your dealer or distributor, and not by Aisin Seiki CO., LTD or any of its affiliated companies, including but not limited to Aisin World Corp. of America (“AISIN”) except for emission control-related warranty claim defined on "EPA EMISSION CONTROL WARRANTY STATEMENT ".

AISIN MAKES NO EXPRESS OR IMPLIED WARRANTIES ON THIS SYSTEM, AND SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

10-2 AISIN’s liabilities

AISIN WILL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THIS SYSTEM, WHETHER FOR BREACH OF WARRANTY ANY OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR ON ANY STRICT LIABILITY THEORY.

11. AFTER SALE SERVICE

11-1 Things to check before requesting the repair service

Please have the following information ready before you call:
- Model name of the outdoor unit
- Serial number of the outdoor unit
- Detailed description of your problem along with the “error code” on the remote controller
- Address, Name of customer, Phone number
You can get the service contact and the model information with the following “11-2.Maintenance Information”.

<table>
<thead>
<tr>
<th>O.U.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 1 short circuit</td>
</tr>
<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 2 short circuit</td>
</tr>
<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 3 short circuit</td>
</tr>
<tr>
<td>J3</td>
<td>O.U., Compressor discharge temperature sensor 4 short circuit</td>
</tr>
<tr>
<td>J4</td>
<td>O.U., Supercool heat exchanger inlet temperature sensor short circuit</td>
</tr>
<tr>
<td>J4</td>
<td>O.U., Supercool heat exchanger inlet temperature sensor open circuit</td>
</tr>
<tr>
<td>J4</td>
<td>O.U., Accumulator outlet temperature sensor 1 open circuit</td>
</tr>
<tr>
<td>J4</td>
<td>O.U., Accumulator outlet temperature sensor 2 open circuit</td>
</tr>
<tr>
<td>J4</td>
<td>O.U., Accumulator outlet temperature sensor 1 short circuit</td>
</tr>
<tr>
<td>J4</td>
<td>O.U., Accumulator outlet temperature sensor 2 short circuit</td>
</tr>
<tr>
<td>J5</td>
<td>O.U., Compressor intake temperature sensor 1 open circuit</td>
</tr>
<tr>
<td>J5</td>
<td>O.U., Compressor intake temperature sensor 2 open circuit</td>
</tr>
<tr>
<td>J5</td>
<td>O.U., Compressor intake temperature sensor 1 short circuit</td>
</tr>
<tr>
<td>J5</td>
<td>O.U., Compressor intake temperature sensor 2 short circuit</td>
</tr>
<tr>
<td>J6</td>
<td>O.U., Heat exchanger liquid temperature sensor open circuit</td>
</tr>
<tr>
<td>J6</td>
<td>O.U., Heat exchanger liquid temperature sensor short circuit</td>
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<tr>
<td>J7</td>
<td>O.U., Sub heat exchanger outlet temperature sensor open circuit</td>
</tr>
<tr>
<td>J7</td>
<td>O.U., Sub heat exchanger outlet temperature sensor short circuit</td>
</tr>
<tr>
<td>J8</td>
<td>O.U., Liquid pipe temperature sensor open circuit</td>
</tr>
<tr>
<td>J8</td>
<td>O.U., Liquid pipe temperature sensor short circuit</td>
</tr>
<tr>
<td>JA</td>
<td>O.U., High pressure sensor failure 1</td>
</tr>
<tr>
<td>JA</td>
<td>O.U., High pressure sensor failure 2</td>
</tr>
<tr>
<td>JC</td>
<td>O.U., Refrigerant low pressure sensor failure</td>
</tr>
<tr>
<td>JE</td>
<td>O.U., Engine oil pressure switch open circuit</td>
</tr>
<tr>
<td>JJ</td>
<td>O.U., Engine room temperature sensor open circuit</td>
</tr>
<tr>
<td>JJ</td>
<td>O.U., Engine room temperature sensor short circuit</td>
</tr>
<tr>
<td>JJ</td>
<td>O.U., Exhaust temperature sensor open circuit</td>
</tr>
<tr>
<td>LE</td>
<td>O.U., Igniter voltage too low</td>
</tr>
<tr>
<td>LE</td>
<td>O.U., Igniter open circuit</td>
</tr>
<tr>
<td>LE</td>
<td>O.U., Igniter voltage too high</td>
</tr>
<tr>
<td>LF</td>
<td>O.U., Engine starting failure</td>
</tr>
<tr>
<td>LJ</td>
<td>O.U., Engine stop</td>
</tr>
<tr>
<td>P8</td>
<td>O.U., Engine revolution control failure</td>
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<td>P8</td>
<td>O.U., Lower engine revolution when starting</td>
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<tr>
<td>P8</td>
<td>O.U., Engine revolution hunting error</td>
</tr>
<tr>
<td>P8</td>
<td>O.U., Excessive engine revolution 1</td>
</tr>
<tr>
<td>P8</td>
<td>O.U., Excessive engine revolution 2</td>
</tr>
<tr>
<td>PE</td>
<td>O.U., Output failure of gas electromagnetic valve</td>
</tr>
<tr>
<td>PF</td>
<td>O.U., Unintended starter operation</td>
</tr>
</tbody>
</table>
11-2. Maintenance Information

■ Displaying the service contact and model information

**Operation**

1. Display the main menu screen.
   - Press menu button.
   - Press ▼▲ buttons to select Maintenance Information on the main menu screen and press Menu/OK button.

2. The phone number for the contact will appear at the top of the screen.
   - (If it has not yet been entered, it will not appear.)
   - The model information of the indoor and outdoor units for your product will appear on the bottom of the screen.
     (For some models the product code may appear.)

   * The model name will not appear if the indoor unit PCB has been replaced.

   * The error code history may also appear.
     If the operation lamp is not blinking, the unit is working properly.
     The error code history will disappear if you press On/Off button for more than 4 seconds.

11-3 Periodic maintenance

To ensure the unit continues to operate in a reliable manner for a long period of time, periodic maintenance must be done by an authorized service provider (at a charge). Contact the dealer for more details about the installation and maintenance.

11-4 Moving or discarding the unit

The removal, reinstallation or discarding of the unit must be completed by an authorized service provider. Contact the dealer for more details.
The Environmental Protection Agency (EPA) are pleased to explain the emission control system warranty on your non-road Spark-Ignition (SI) engine. New non-road SI engines must be designed, built and equipped to meet stringent anti-smog standards in all 50 states. AISIN must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

**WARRANTY COVERAGE:**
Your non-road SI engines are warranted for 2 years or 5,000 hours, whichever occurs first, to be free of defects in material or workmanship of any emission related part, unless indicated otherwise. If any emission-related part on your engine is defective, the part will be repaired or replaced. Your emission control system may include parts such as the Natural Gas mixer and regulator, ignition system, engine control system. Also included may be sensors, hoses, connectors, and other emission-related assemblies. The following list of parts defines the "emission-related" parts:

1) Air-Induction System  
   a) Intake Manifold
2) Exhaust Manifold
3) Fuel System  
   a) Gas Mixer (Include Throttle Valve and Fuel Control Valve)  
      b) Gas Regulator
4) Electronic Control System  
   a) ECU  
   b) Engine Speed / Timing Sensor  
   c) Coolant Temperature Sensor  
   d) Oil Pressure Sensor
5) Ignition Control System  
   a) Spark Plug  
   b) Ignition Coil  
   c) Ignition Module
6) Positive Crankcase Ventilation System  
   a) Hoses, Clamps, Fittings, Tubing  
   b) Gaskets, Seals  
   c) AISIN supplied engine Wiring Harnesses  
   d) AISIN supplied engine Elec. Connectors  
   e) Air Cleaner Element, Oil Filter Element

Where a warrantable condition exists, AISIN will repair your engine at no cost to you including diagnosis, parts and labor.

**OWNER’S WARRANTY RESPONSIBILITIES:**
• As the non-road SI engine owner, you are responsible for the performance of the required maintenance designated by AISIN. AISIN recommends that you retain all receipts covering maintenance on your engine, but AISIN cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.
• As the non-road SI engine owner, you should, however, be aware that AISIN may deny your warranty coverage if your engine or a part has failed due to tampering, abuse, neglect, improper maintenance or unapproved modifications to the engine or fuel control system.
• Your engine is designed to operate on natural gas as applicable. To confirm the fuel(s) this engine is capable of operating on, see the Emission Control Information label located on the rear cover of the outdoor unit.
• Natural gas engines and fuel systems are designed to operate on natural gas fuel. Fuel other than natural gas fuel may cause harm to the engine’s emission control system and a warranty claim may be denied. Use of any other fuel may result in your engine no longer operating in compliance with EPA emissions requirements.  
• The high heating value of natural gas should be in the range between 1,000BTU and 1,200BTU. In case natural gas has the specification lower than the above-mentioned value, the non-road SI engine may stall or have some defect.
• You are responsible for initiating the warranty process. EPA suggests that you present your engine to an AISIN authorized dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

**ITEMS NOT COVERED UNDER THIS WARRANTY**
The following items are not covered under the AISIN warranty:
• Repairs as a result of improper maintenance or use
• Repairs made by unauthorized technicians, service stations, or dealers

Repair parts are available from INTELLICHOICE ENERGY, AISIN’s authorized dealer. If you have any questions regarding your warranty rights and responsibilities, you should contact INTELLICHOICE ENERGY at 702-815-0600, 6280 S. Valley View Blvd. Suite 240, Las Vegas, NV 89118. E-mail: info@iceghp.com –, 01/01/2013