



**"M" and "W" Series**  
**12K - 18K**  
**Multi Zone System**  
**Compact Panel Cassette Type**  
**Indoor Units**

Owner's Manual  
Air Conditioning Units

Models:  
DHMW12NKB21S  
DHMW18NKB21S

Please read this Installation and Operation manual  
carefully before installation and operation and retain it for  
future reference.

## Important Notice

- Johnson Controls, Inc. pursues a policy of continuing improvement in design and performance in its products. As such, Johnson Controls, Inc. reserves the right to make changes at any time without prior notice.
- Johnson Controls, Inc. cannot anticipate every possible circumstance that might involve a potential hazard.
- This inverter air conditioning unit is designed for standard air conditioning applications only. Do not use this unit for anything other than the purposes for which it was intended for.
- The installer and system specialist shall safeguard against leakage in accordance with local pipefitter and electrical codes. The following standards may be applicable, if local regulations are not available. International Organization for Standardization: (ISO 5149 or European Standard, EN 378). No part of this manual may be reproduced in any way without the expressed written consent of Johnson Controls, Inc.
- This inverter-driven (cooling or heat pump) air conditioning unit will be operated and serviced in the United States of America and comes with all required Safety, Danger, and Caution, warnings.
- If you have questions, please contact your distributor or dealer.
- This manual provides common descriptions, basic and advanced information to maintain and service this inverter-driven (cooling or heat pump) air conditioning unit.
- This inverter-driven (cooling or heat pump) air conditioning unit has been designed for a specific temperature range. For optimum performance and long life, operate this unit within range limits.
- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

## Product Inspection upon Arrival

1. Upon receiving this product, inspect it for any damages incurred in transit. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
2. Check the model number, electrical characteristics (power supply, voltage, and frequency rating), and any accessories to determine if they agree with the purchase order.
3. The standard utilization for this unit is explained in these instructions. Use of this equipment for purposes other than what it designed for is not recommended.
4. Please contact your local agent or contractor as any issues involving installation, performance, or maintenance arise. Liability does not cover defects originating from unauthorized modifications performed by a customer without the written consent of Johnson Controls, Inc. Performing any mechanical alterations on this product without the consent of the manufacturer will render your warranty null and void.

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## 1. Introduction

This manual concentrates on inverter-driven cooling or heat pump air conditioning units. Read this manual carefully before installation.

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

## 2. Important Safety Instructions

### Safety Messages



Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



Indicates information considered important, but not hazard-related (for example, messages relating to property damage).

### General Precautions



To reduce the risk of serious injury or death, read these instructions thoroughly and follow all warnings or cautions included in all manuals that accompanied the product and are attached to the unit. *Refer back to these safety instructions as needed.*

- This system should be installed by personnel certified by Johnson Controls, Inc. Personnel must be qualified according to local, state and national building and safety codes and regulations. Incorrect installation could cause leaks, electric shock, fire or explosion. In areas where Seismic "Performance requirements are specified, the appropriate measures should be taken during installation to guard against possible damage or injury that might occur in an earthquake if the unit is not installed correctly, injuries may occur due to a falling unit.
- Use appropriate Personal Protective Equipment (PPE), such as gloves and protective goggles and, where appropriate, have a gas mask nearby. Also use electrical protection equipment and tools suited for electrical operation purposes. Keep a quenching cloth and a fire extinguisher nearby during brazing. Use care in handling, rigging, and setting of bulky equipment.
- When transporting, be careful when picking up, moving and mounting these units. Although the unit may be packed using plastic straps, do not use them for transporting the unit from one location to another. Do not stand on or put any material on the unit. Get a partner to help, and bend with your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut fingers, so wear protective gloves.
- Do not touch or adjust any safety devices inside the indoor or outdoor units. All safety features, disengagement, and interlocks must be in place and functioning correctly before the equipment is put into operation. If these devices are improperly adjusted or tampered with in any way, a serious accident can occur. Never bypass or jump-out any safety device or switch.
- Johnson Controls, Inc. will not assume any liability for injuries or damage caused by not following steps outlined or described in this manual. Unauthorized modifications to Johnson Controls products are prohibited as they...
  - May create hazards which could result in death, serious injury or equipment damage.
  - Will void product warranties.
  - May invalidate product regulatory certifications.
  - May violate OSHA standards.

## NOTICE

Take the following precautions to reduce the risk of property damage.

- Be careful that moisture, dust, or variant refrigerant compounds not enter the refrigerant cycle during installation work. Foreign matter could damage internal components or cause blockages.
- If air filters are required on this unit, do not operate the unit without the air filter set in place. If the air filter is not installed, dust may accumulate and breakdown may result.
- Do not install this unit in any place where silicon gases can coalesce. If the silicon gas molecules attach themselves to the surface of the heat exchanger, the finned surfaces will repel water. As a result, any amount of condensate can overflow from the condensate pan and could run inside of the electrical box, possibly causing electrical failures.
- When installing the unit in a hospital or other facility where electromagnetic waves are generated from nearby medical and/or electronic devices, be prepared for noise and electronic interference Electromagnetic Interference (EMI). Do not install where the waves can directly radiate into the electrical box, controller cable, or controller. Inverters, appliances, high-frequency medical equipment, and radio communications equipment may cause the unit to malfunction. The operation of the unit may also adversely affect these same devices. Install the unit at least 10 ft. (approximately 3m) away from such devices.
- When a wireless zone controller is used, locate at a distance of at least 3.3 ft. (approximately 1 meter) between the indoor unit and electric lighting. If not, the receiver part of the unit may have difficulty receiving operation commands.
- Do not install the unit in any location where animals and plants can come into direct contact with the outlet air stream. Exposure could adversely affect the animals and plants.
- Do not install the unit with any downward slope to the side of the drain boss. If you do, you may have water flowing back which may cause leaks.
- Be sure the condensate hose discharges water properly. If connected incorrectly, it may cause leaks.
- Do not install the unit in any place where oil can seep onto the units, such as table or seating areas in restaurants, and so forth. For these locations or social venues, use specialized units with oil-resistant features built into them. In addition, use a specialized ceiling fan designed for restaurant use. These specialized oil-resistant units can be ordered for such applications. However, in places where large quantities of oil can splash onto the unit, such as a factory, even the specialized units cannot be used. These products should not be installed in such locations.

### Installation Precautions

## ⚠ WARNING

To reduce the risk of serious injury or death, the following installation precautions must be followed.

- When installing the unit into...
  - A wall: Make sure the wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.
  - A room: Properly insulate any refrigerant tubing run inside a room to prevent "sweating" that can cause dripping and water damage to wall and floors.
  - Damp or uneven areas: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
  - An area with high winds: Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.
  - A snowy area (only for heat pump model): Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.
- Do not install the unit in the following places. Doing so can result in an explosion, fire, deformation, corrosion, or product failure.
  - Explosive or flammable atmosphere
  - Where fire, oil, steam, or powder can directly enter the unit, such as in close proximity or directly above a kitchen stove.
  - Where oil (including machinery oil) may be present.
  - Where corrosive gases such as chlorine, bromine, or sulfide can accumulate, such as near a hot tub or hot spring.
  - Where dense, salt-laden airflow is heavy, such as in coastal regions.
  - Where the air quality is of high acidity.
  - Where harmful gases can be generated from decomposition.

- Do not position the condensate pipe for the indoor unit near any sanitary sewers where corrosive gases may be present. If you do, toxic gases can seep into breathable air spaces and can cause respiratory injuries. If the condensate pipe is installed incorrectly, water leakage and damage to the ceiling, floor, furniture, or other possessions may result. If condensate piping becomes clogged, moisture can back up and can drip from the indoor unit. Do not install the indoor unit where such dripping can cause moisture damage or uneven locations: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
- Before performing any brazing work, be sure that there are no flammable materials or open flames nearby.
- Perform a run test to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the test run, keep fingers and clothing away from any moving parts.
- Clean up the site when finished, remembering to check that no metal scraps or bits of wiring have been left inside the unit being installed.
- During transportation, do not allow the backrest of the forklift to make contact with the unit, otherwise, it may cause damage to the heat exchanger and also may cause injury when stopped or started suddenly.
- Remove gas inside the closing pipe when the brazing work is performed. If the brazing filler metal is melted with remaining gas inside, the pipes will be blown off and it may cause injury.
- Be sure to use nitrogen gas for an airtight test. If other gases such as oxygen gas, acetylene gas or fluorocarbon gas are accidentally used, it may cause explosion or gas intoxication.

After installation work for the system has been completed, explain the “Safety Precautions,” the proper use and maintenance of the unit to the customer according to the information in all manuals that came with the system. All manuals and warranty information must be given to the user or left near the Indoor Unit.

### Refrigerant Precautions



To reduce the risk of serious injury or death, the following refrigerant precautions must be followed.

- As originally manufactured, this unit contains refrigerant installed by Johnson Controls. Johnson Controls uses only refrigerants that have been approved for use in the unit’s intended home country or market. Johnson Controls distributors similarly are only authorized to provide refrigerants that have been approved for use in the countries or markets they serve. The refrigerant used in this unit is identified on the unit’s faceplate and/or in the associated manuals. Any additions of refrigerant into this unit must comply with the country’s requirements with regard to refrigerant use and should be obtained from Johnson Controls distributors. Use of any non-approved refrigerant substitutes will void the warranty and will increase the potential risk of injury or death.
- If installed in a small room, take measures to prevent the refrigerant from exceeding the maximum allowable concentration in the event that refrigerant gases should escape. Refrigerant gases can cause asphyxiation (0.42 kg/m<sup>3</sup> based on ISO 5149 for R410A). Consult with your distributor for countermeasures (ventilation system and so on). If refrigerant gas has leaked during the installation work, ventilate the room immediately.
- The design pressure for this product is 601 psi (4.15MPa). The pressure of R410A refrigerant is 1.4 times higher than that of the refrigerant R22. Therefore, the refrigerant piping for R410A shall be thicker than that for R22. Make sure to use the specified refrigerant piping. If not, the refrigerant piping may rupture due to an excessive refrigerant pressure. Besides, pay attention to the piping thickness when using copper refrigerant piping. The thickness of copper refrigerant piping differs depending on its material.
- The refrigerant R410A is adopted. The refrigerant oil tends to be affected by foreign matters such as moisture, oxide film, (or fat). Perform the installation work with care to prevent moisture, dust, or different refrigerant from entering the refrigerant cycle. Foreign matter can be introduced into the cycle from such parts as expansion valve and the operation may be unavailable.
- To avoid the possibility of different refrigerant or refrigerant oil being introduced into the cycle, the sizes of the charging connections have been changed from R407C type and R22 type. It is necessary to prepare the appropriate tools before performing the installation work.
- Use refrigerant pipes and joints which are approved for use with R410A.
- A compressor/unit comprises a pressurized system. Never loosen threaded joints while the system is

under pressure and never open pressurized system parts.

- Before installation is complete, make sure that the refrigerant leak test has been performed. If refrigerant gases escape into the air, turn OFF the main switch, extinguish any open flames and contact your service contractor. Refrigerant (Fluorocarbon) for this unit is odorless. If the refrigerant should leak and come into contact with open flames, toxic gas could be generated. Also, because the fluorocarbons are heavier than air, they settle to the floor, which could cause asphyxiation.
- When installing the unit, and connecting refrigerant piping, keep all piping runs as short as possible, and make sure to securely connect the refrigerant piping before the compressor starts operating. If the refrigerant piping is not connected and the compressor activates with the stop valve opened, the refrigerant cycle will become subjected to extremely high pressure, which can cause an explosion or fire.
- Tighten the flare nut with a torque wrench in the specified manner. Do not apply excessive force to the flare nut when tightening. If you do, the flare nut can crack and refrigerant leakage may occur.
- When maintaining, relocating, and disposing of the unit, dismantle the refrigerant piping after the compressor stops.
- When pipes are removed out from under the piping cover, after the insulation work is completed, cover the gap between the piping cover and pipes by a packing (field-supplied). If the gap is not covered, the unit may be damaged if snow, rain water or small animals enter the unit.
- Do not apply an excessive force to the spindle valve at the end of opening. Otherwise, the spindle valve flies out due to refrigerant pressure. At the run test, fully open the gas and liquid valves, otherwise, these devices will be damaged. (It is closed before shipment.)
- If the arrangement for outdoor units is incorrect, it may cause flowback of the refrigerant and result in failure of the outdoor unit.
- The refrigerant system may be damaged if the slope of the piping connection kit exceeds  $\pm 15^\circ$ .

#### Electrical Precautions



Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death.

- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause serious injury or death.
- Perform all electrical work in strict accordance with this installation and maintenance manual and all the relevant regulatory standards.
- Before servicing, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with meter and equipment.
- Only use electrical protection equipment and tools suited for this installation.
- Use specified cables between units.
- The new air conditioner may not function normally in the following instances:
  - If electrical power for the new air conditioner is supplied from the same transformer as the device\* referred to below.
  - If the power source cables for this device\* and the new air conditioner unit are located in close proximity to each other.

Device\*: (Example): A lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

Regarding the cases mentioned above, surge voltage may be inducted into the power supply cables for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of a switch.

Check field regulations and standards before performing electrical work in order to protect the power supply for the new air conditioner unit.



- Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
- Use an exclusive power supply for the air conditioner at the unit's rated voltage.
- Be sure to install circuit breakers (ground fault interrupter, isolating switch, molded case circuit breaker and so on), with the specified capacity. Ensure that the wiring terminals are tightened securely to recommended torque specifications.
- Clamp electrical wires securely with a cable clamp after all wiring is connected to the terminal block. In addition, run wires securely through the wiring access channel.
- When installing the power lines, do not apply tension to the cables. Secure the suspended cables at regular intervals, but not too tightly.
- Make sure that the terminals do not come into contact with the surface of the electrical box. If the terminals are too close to the surface, it may lead to failures at the terminal connection.
- Turn OFF and disconnect the unit from the power source when handling the service connector. Do not open the service cover or access panel to the indoor or outdoor units without turning OFF the main power supply.
- After ceasing operation, be sure to wait at least five minutes before turning off the main power switch. Otherwise, water leakage or electrical breakdown may result. Disconnect the power source completely before attempting any maintenance for electrical parts. Check to ensure that no residual voltage is present after disconnecting the power source.
- Do not clean with, or pour water into, the controller as it could cause electric shock and/or damage the unit. Do not use strong detergent such as a solvent. Clean with a soft cloth.
- Check that the ground wire is securely connected. Do not connect ground wiring to gas piping, water piping, lighting conductor, or telephone ground wiring.
- If a circuit breaker or fuse is frequently activated, shut down the system and contact your service contractor.
- Perform all electrical work in accordance with this manual and in compliance with all regulations and safety standards.
- Do not open a service access cover or panel of an indoor or outdoor unit without first turning OFF the power at the main power supply.
- Residual voltage can cause electric shock. At all times, check for residual voltage after disconnecting from the power source before starting work on the unit.
- This equipment can be installed with a Ground Fault Circuit Breaker (GFCI), which is a recognized measure for added protection to a properly grounded unit. Install appropriate sized breakers/fuses/overcurrent protection switches, and wiring in accordance with local, state and NEC codes and requirements. The equipment installer is responsible for understanding and abiding by applicable codes and requirements.



## Additional Usage Information

◆ When purchasing or installing multi-zone DFS systems the combination ratio must not exceed 150% of outdoor unit capacity. If the connecting indoor units exceed the recommended combination ratio then capacity will be greatly reduced and may damage the system. than 150% of the outdoor unit. Otherwise, it will cause decreased cooling (heating) capacity.

◆ When all indoor units are not set to the same operating mode, the malfunction light will blink after 5 seconds on the indoor unit or remote controller showing mode conflict. The indoor units that are set to the same mode will operate normally but the different mode unit will display a different mode error and will not operate until mode is changed. The cooling mode will not conflict with the dry mode, and the fan mode will not conflict with any mode.

◆ The transport and/or storage of this equipment should be within the range of -13F to 131F.

◆ The outdoor unit disconnect should be installed within reach of the outdoor unit and at such a height for easy access. Overcurrent protection is required (UL 1995,CSAC22.2).

◆ The cooling range of the unit is the outdoor environment temp.-5~48°C DB, the heating range of the unit (only for the heat pump type unit) is the outdoor environment temperature -15~27°C WB.



This product must not be disposed of along with domestic waste. This product has to be disposed of at an authorized place for recycling of electrical and electronic appliances.

## 2 Installion of Compact Panel Cassette Indoor Unit

### 2.1 Schematic Diagram of Installation Spaces

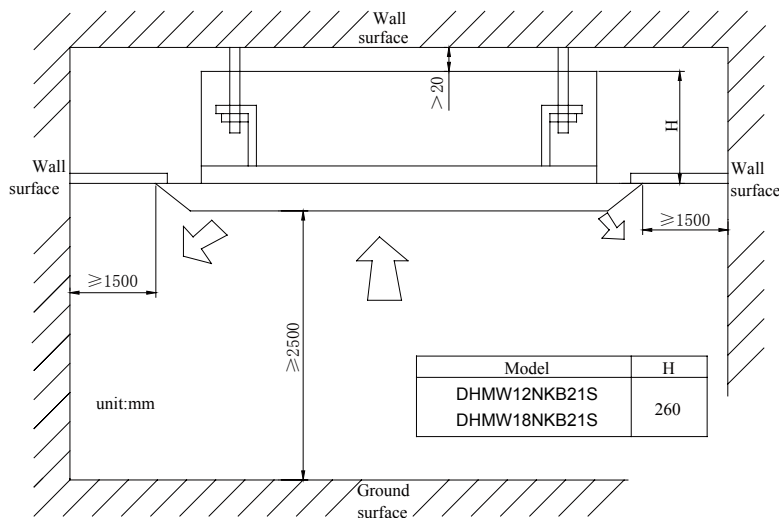


Fig. 1

### 2.2 Select installation location of the indoor unit

- (1). There should be no obstructions near the intake or outlet vent of the indoor unit as this may restrict airflow.
- (2). Make sure that the installation is in accordance with the requirements of the schematic diagram of installation spaces.
- (3). Select a location that can withstand four times the weight of the indoor unit while taking into account operating noise and vibration.
- (4). Ensure unit is level.
- (5). Select a location for the indoor unit taking into account routing of the condensate line and proximity to the outdoor unit.
- (6). Make sure there is enough space for care and maintenance. Make sure that the weight between the indoor unit and ground is above 8 ft. (2500mm).
- (7). When installing the threaded mounting rod check if the installation location can withstand a weight four times that of the unit's. If not, reinforce before installation. (Refer to the installation cardboard to find where reinforcements should be made.)
- (8). Ensure that the exhaust ventilator hood above a stove has enough capacity to remove cooking smoke and oils as this will impact the operation of the unit over time.
- (9). Installation of the indoor unit in a kitchen is not recommended as this may impact overall performance due to environmental factors.

### 2.3 Important Notice

- ◆ To ensure correct performance and longevity, the unit must be installed by certified technicians according to these instructions.
- ◆ Do not dispose of, or damage, cassette packaging as this is the mounting template.

### 2.4 Dimensions of Ceiling Opening and Location of Threaded Mounting Rod

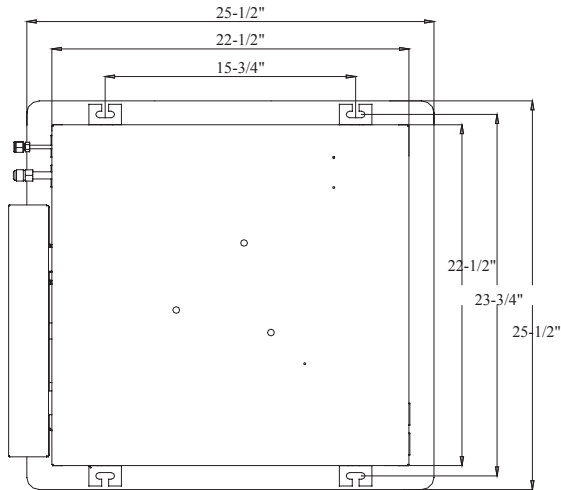


Fig. 2 Installation Dimension of Models  
DHMW12NKB21S DHMW18NKB21S

- ◆ The drilling of holes in the ceiling must be done by a certified technician.

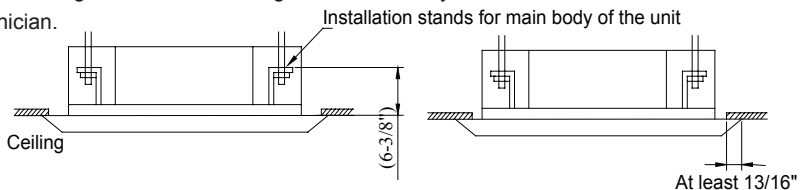


Fig. 3

Note: The dimensions for the ceiling openings with \* marks can be as large as 24". The cassette grille assembly should overlap the finished ceiling by at least 13/16".

### 2.5 Installation of Cassette Chassis

- (1). The primary steps for installing the indoor unit.

- ◆ When attaching the mounting bracket onto the threaded rod, use the appropriate bolts and washers capable of supporting the weight of the chassis. The use of field supplied mounting cleats to supplement the chassis mounting brackets will provide additional support and prevent possible damage or breakage of the washers.

- (2). Use the cardboard template.

- ◆ Please refer to the installation cardboard template for the dimensions of the ceiling opening.
- ◆ The central mark of the ceiling opening is marked on the cardboard template.

## Installation of Compact Panel Cassette Indoor Unit

- ◆ Install the cardboard template on the unit with bolts (three) and check the angle of the condensate outlet.
- (3). Mount the unit to the previously installed threaded mounting rod. (Refer to Fig.3 above)
- (4). The unit must be level to operate correctly and to prevent water damage to ceiling and surroundings.
  - ◆ Condensate pump and float switch are included in the indoor unit.
- (5). Remove the template.

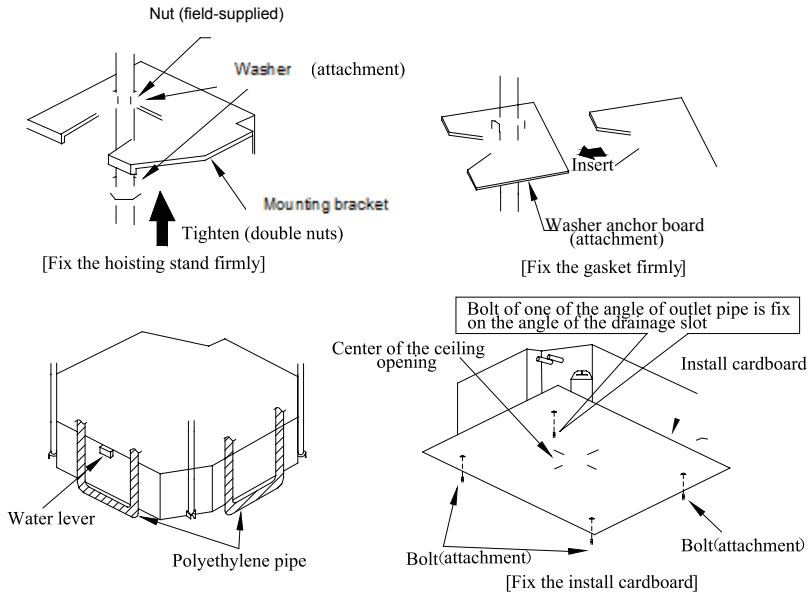


Fig. 4

**⚠ Note!:** Please tighten the nuts and bolts to prevent the unit from falling.

## 2.6 Refrigerant Piping Connections

- ◆ When connecting piping to the unit or removing from the unit, please use both a back-up wrench and torque wrench (as shown in Fig.5 below).
- ◆ When completing the flare connections, start the flare nuts by hand; then use the two wrenches as described above to properly tighten.
- ◆ Refer to Table 1 below if the torque setting is too high then the flare nut may be damaged or the flare may crack causing leaks.
- ◆ Check all flare connections with soapy water or other leak detection method and if no leaks are found, then insulate all connections with the proper insulating materials, as shown in Figure 5 below.

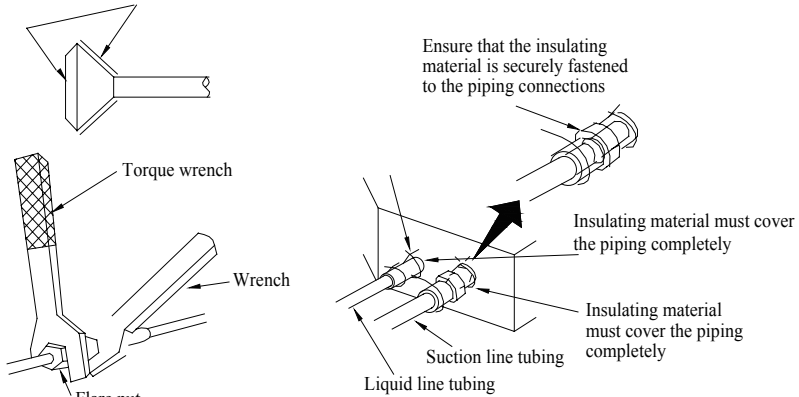


Fig. 5

Table 1: Torque settings for various sizes of flare connections

nut	Diameter (Inch)	Surface thickness (mm)	Torque (ft. lbs.)
	$\phi 1/4''$	$\geq 0.5$	10-15
	$\phi 3/8''$	$\geq 0.71$	25-32
	$\phi 1/2''$	$\geq 1$	36-48
	$\phi 5/8''$	$\geq 1$	51-62
	$\phi 3/4''$	$\geq 1$	70-86

## 2.7 Condensate Hose

### (1). Condensate hose installation

- ◆ The diameter of the condensate hose should be equal to, or larger than, the unit's pipe connection which is 1". (This will depend on the type of connection being used to join the two pipes.)
- ◆ Condensate hose should be installed with gravity fall and supported to prevent drainage issues.
- ◆ If gravity fall cannot be achieved due to obstructions or install limits, then a riser will need to be installed to allow proper sloping of the drain line.
- ◆ To prevent bending or warping of the drain line, the supporting brackets should be installed in 3'-5' spans as needed.

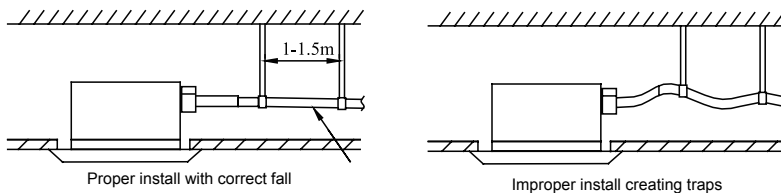


Fig. 6

- ◆ If unit has a connection kit included, use this to connect field drain to the indoor unit outlet. Do not overtighten clamps as drain outlet may crack.
- ◆ The drain line must be insulated with no air gaps and then properly clamped as described above.

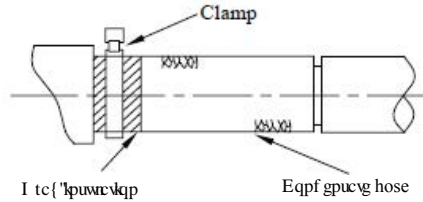


Fig. 7

## Drain step-up pipe note:

- ◆ The installation height of the condensate pipe riser should be less than 11 in. (280mm).
- ◆ The condensate pipe riser should form a right angle with the unit, and distance to unit should not be beyond 11.8 in. (300mm).

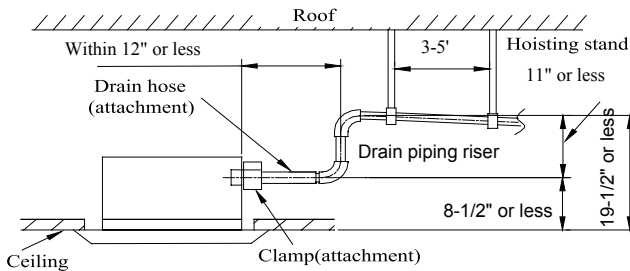


Fig. 8

## Instructions:

- ◆ Keep the initial rise/slant of the piping connector gradual and within 3 inches to prevent kinking or restriction of flow.

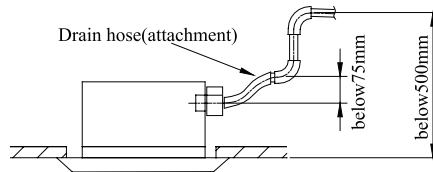
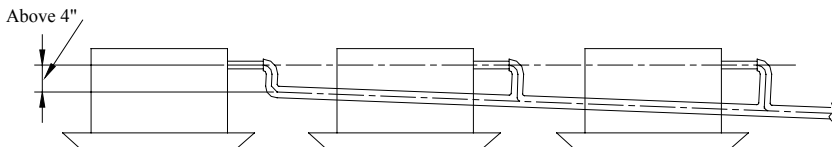


Fig. 9

- ◆ Please install the condensate hose according to the following process if several condensate hoses join together.



When interconnecting condensate drains from several cassettes, it is important to use the appropriate size piping to handle the total volume.

Fig.10

## (2). Check the flow of drain after installation.

- ◆ Check drain operation by pouring water into unit and observing flow.
- ◆ Further verify drain setup and correct flow by running all indoor units when system install is complete.

# Installation of Compact Panel Cassette Indoor Unit

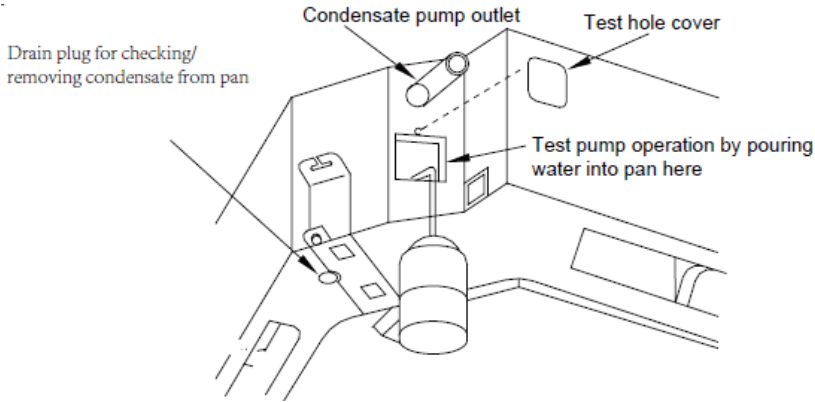


Fig. 11

## 2.8 Electrical Wiring

**⚠ Note:** The operating voltage of the indoor unit comes from the outdoor unit terminal block.

- ◆ For information about the electrical wiring, please see the wiring diagram included with the unit.
- ◆ All electrical wiring must be done by a certified technician.
- ◆ Ensure all ground wiring is securely connected.

### System wiring and connections

- ◆ Communication wiring:

- ① The communication wire should be connected to the #2 terminal at both the indoor and outdoor units.
  - ② Wiring to terminals #1 and #3 should be identical at the indoor and outdoor units.
- ◆ Make sure the cabling at the indoor and outdoor units are secured by a stress relief device.
  - ◆ Connect the 3-conductor and ground cable at the outdoor terminal block and chassis ground. Reference the outdoor to indoor cabling recommendations below.



Fig.12

### Outdoor to indoor recommended cabling

Model	Power Supply (V, Ph, Hz)	Min. Size for Ground Wire(AWG)	Min. Size for High Volt. Comm Wiring (AWG)
DHMW12NKB21S	208~230V-1Ph-60Hz	UL1015 AWG 14*1	UL1015 AWG 18*3
DHMW18NKB21S	208~230V-1Ph-60Hz	UL1015 AWG 14*1	UL1015 AWG 18*3



## 2.9 Grille Installation

(1). Install the grille onto the indoor unit body by matching the position of the swing flap motor of the panel to the piping position of the grille as shown in Fig. 13.

- ① . Install the cassette grille temporarily using the two hooks and latches provided at opposing corners.
- ② . Hang the remaining two latches to the hooks on the sides of the indoor unit. Ensure there are no wires caught between the cassette chassis and the grille assembly.
- ③ . Partially tighten the four screws in the corners to secure panel to chassis.
- ④ . Tighten the screws incrementally so that the grille rises in a level manner until the grille meets the finished ceiling.
- ⑤ . Once the grille is in place and tightened, the sealing gasket of the grille should be compressed to approximately 1/4 to 1/8 in. Try to keep the gasket thickness as uniform as possible for best performance.

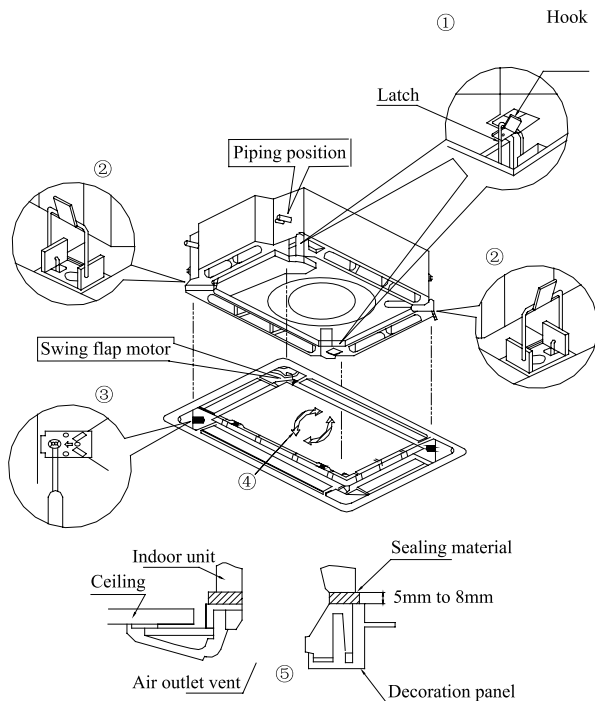


Fig.13

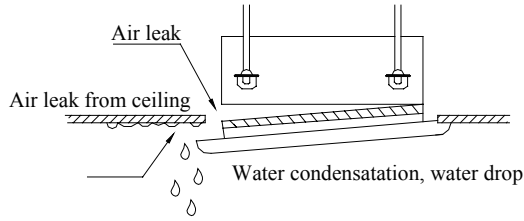


Fig.14

- ② . If gaps exist between the ceiling and the cassette grille, and these cannot be eliminated with the corner screw adjustments, then the cassette chassis needs to be adjusted lower for proper sealing of grille to chassis.

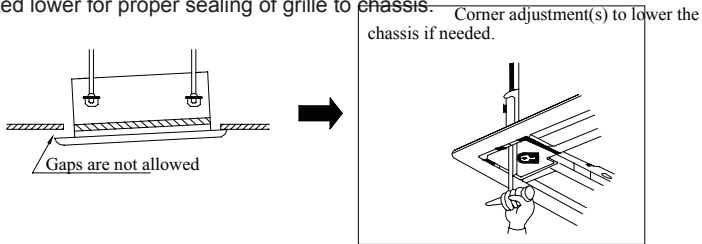


Fig.15

- ③ . Wiring of the cassette grille (Fig.16)

Once the grille is in place, connect the plugs from the grille to the chassis. These are for the discharge air louvers. Again, be sure no wiring or harnesses are pinched between the chassis and the grille assembly.

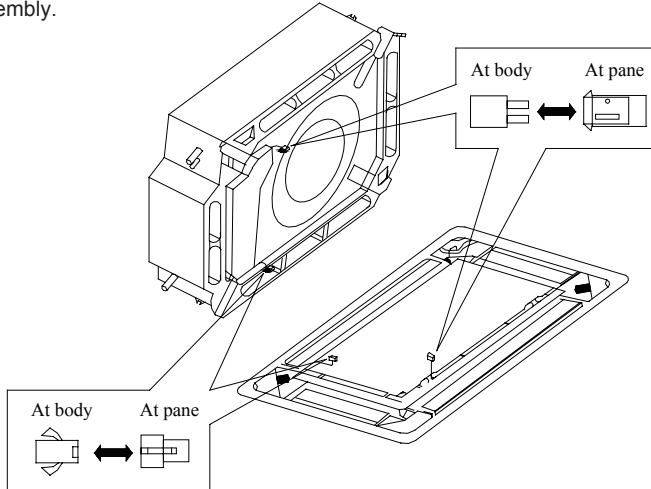
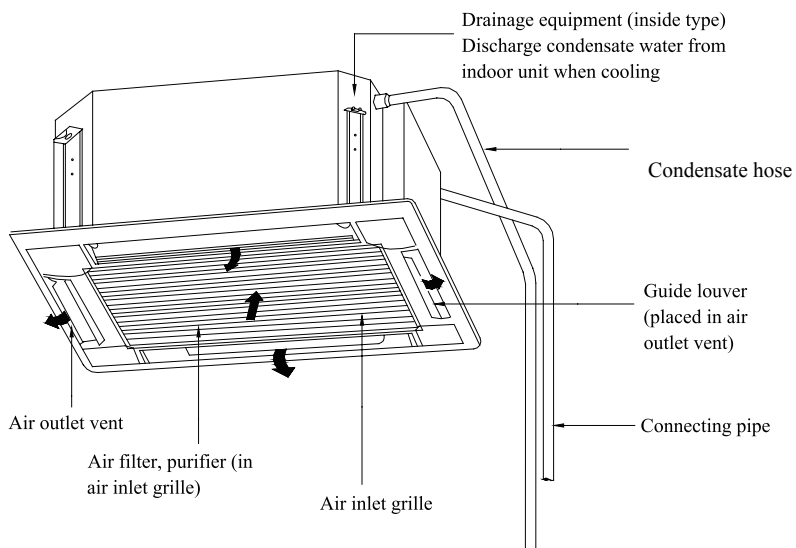


Fig.16

### 3 Nomenclature of Compact Panel Cassette Indoor Unit



DHMW12NKB21S

DHMW18NKB21S

4 Working Temperature Range

Working Temperature Range

	Indoor side state		Outdoor side stae	
	Dry bulb temp. °C	Wet bulb temp. °C	Dry bulb temp. °C	Wet bulb temp. °C
Rated Cooling	27	19	35	24
Max. cooling	32	23	48	26
Min. cooling	21	15	18	—
Rated Heating	20	15	7	6
Max. heating	27	—	24	18
Min. heating	20	15	— 15	— 16

## 5 Troubleshooting Malfunctions



### Warning!

◆ Disconnect power immediately if there is a strong burning smell or if abnormal noises are coming from the indoor or outdoor units. Contact the installing contractor or service provider to have the system evaluated.

### 5.1 Items to Check before Calling Service Provider

Event	Possible Causes	Possible Solutions
Air conditioning unit doesn't run at all	Blown fuse or tripped breaker	Replace fuse or reset breaker
	No power to outdoor unit	Restart when voltage to outdoor unit is confirmed
	Partial or insufficient voltage	Check connections and operating voltage
	Low batteries of wireless remote controller	Change batteries
	Wireless remote controller is too far away from indoor unit	Wireless remote must be within 26 ft. (8m)
Air conditioning unit runs but stops suddenly	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
Abnormal cooling or heating	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
	Setpoint error	Adjust settings in wireless remote controller
	Low fan speed	Adjust settings in wireless remote controller
	Incorrect airflow or airflow direction	Adjust settings in wireless remote controller
	Door or window open	Close doors and windows
	Direct sunlight making space too warm	Install window treatments or blinds
	Too many people in room	Not enough capacity for heat load in the space. Reevaluate system sizing.
	Too much heat in room	Not enough capacity for heat load in the space. Reevaluate system sizing.
	Filter blocked by dirt	Clean filter.

### 5.2 Instructions

If all possible solutions have been explored and system is still not operating correctly, then the installing contractor or a local service provider will need to evaluate the system.

### 5.3 Operation Issues Considered Normal (based on mechanical and environmental factors)

“Operation”		Reason
Air conditioning unit doesn't run	Unit is turned off, then immediately back on	Built in delay in system prevents restarting until pressures equalize -about 3 minutes.
	When first turned on	Delay at the outdoor unit when indoor is first turned on.
Mist is blown from air conditioning unit	When cooling	If humidity is high enough on initial start up, mist may occur briefly.
Noise is heard from air conditioning unit	Clicking sound(s) from outdoor unit at power up	Electronic expansion valve resetting to home position.
	Hissing sound heard when cooling	Refrigerant is flowing through the piping and coils.
	Hissing sound heard when starting or stopping	Normal equalization of pressures.
	Slight hissing sound heard when running or after running	Drain pump or condensate drain operation (cooling).
	Creaking sound heard when running or after running	Can be caused by expansion and contraction during a heating cycle especially if the space is very cold.
Dust blown from air conditioning unit	Occurs if operated with long periods of no operation-dust will collect in the unit	Unit may need to be cleaned. Dust will dissipate under normal conditions.
Odor from air conditioning unit	When running	Usually due to environmental factors such as chemicals, tar, nicotine or cooking odors. If buildup becomes severe, it will need to be cleaned.

### 5.4 After-sales Service

If service is necessary, please contact your installer or local service provider for support.

## 6 System Maintenance

**When the air conditioning unit won't be used for a long time, please turn off the main power supply of the air conditioning unit.**

### **Warning!**

- ◆ Turn off the unit and turn off the main power supply when cleaning the air conditioning unit, otherwise electric shock or injury may happen.
- ◆ When using water to clean the indoor or outdoor coils, main power must be turned off to prevent electric shock or damage to the system.

### 6.1 Cleaning Air Filter

Air filters should be checked/cleaned frequently to prevent buildup and system performance issues.

#### (1). Open air inlet grille

Loosen two screws on the air inlet grille with a screwdriver. Pull the two handles on the air inlet grille at the same time in the direction of the arrow in Fig. 17. Pull down slowly.

(Use reverse procedures when closing.)

#### (2). Disassembly of air filter

As shown in Fig.18, pull the handle behind the air inlet grille, raise it and disassemble.

Then remove the three purifiers attached on the filter.

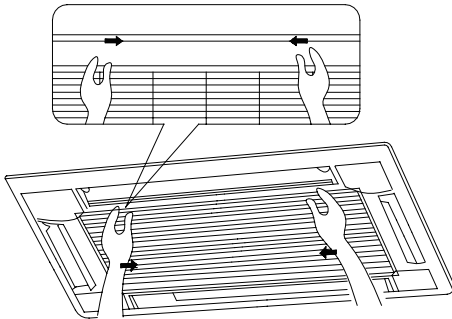


Fig.17

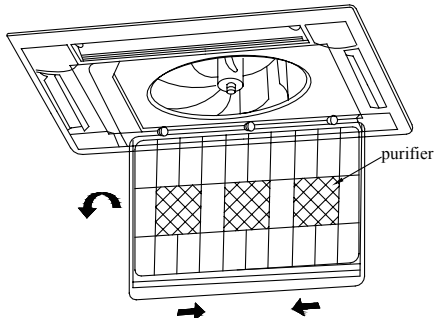


Fig.18

#### (3). Clean

Use a mild cleaner or water to wash the filter. If the filter is very dirty (oil or grease), use warm water cooler than 113°F (45°C) with a degreaser to clean it. Then dry it in the shade.

### **Note !**

Do not clean the filter with hot water with a temperature higher than 113°F (45°C) to prevent fading or deformation.

#### (4). After filter has been cleaned and dried, reinstall in reverse order of removal.

Secure the three purifiers on the filter, install the filter onto the tabs of the air inlet grille, then close the air inlet grille ensuring the filter remains in proper position. (As shown in Fig. 19)



- (5). Close the air inlet grille (Use reverse procedures from step 1 above.)

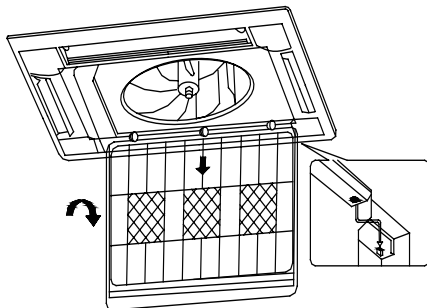


Fig.19

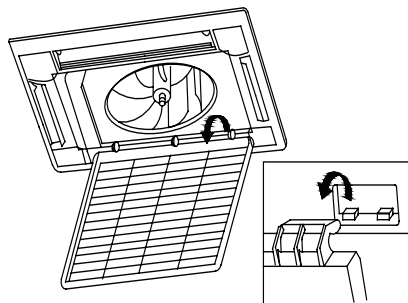


Fig.20

### 6.2 Cleaning Air Inlet Grille

- (1). Open the air inlet grille. (Refer to the first step of "Clean Air Filter" above.)
- (2). Take out the air filter. (Refer to the second step of "Clean Air Filter" above.)
- (3). Take out the air inlet grille. Open the air inlet grille at an angle of 45°, as shown in Fig.20 and lift it.
- (4). Clean it with a soft, short-haired brush, water and neutral cleanser. Then dry it.

#### **Note !**

Do not use water hotter than 113°F ( 45°C) to wash the panel to prevent fading or deformation.

- (5). Install the air inlet grille. (Refer to the third step on the previous page.)
- (6). Install air filter. (Refer to the fourth step on the previous page "Clean Air Filter".)
- (7). Close the air inlet grille. (Refer to the first step on the previous page and use reverse procedures.)

### 6.3 Installing and Changing Air Purifier

- (1). Open the air inlet grille. (Refer to the first step of "Clean Air Filter".)
- (2). Disassemble purifier.

As shown in Fig.21, disassemble the air filter, remove screws holding purifier filter, then remove filter media.

- (3). When replacing purifier filter, be sure it is of the same material as the original or has been ordered for your specific unit as a replacement item.

- (4). Install the air filter. (Refer to the fourth step of "Cleaning Air Filter".)

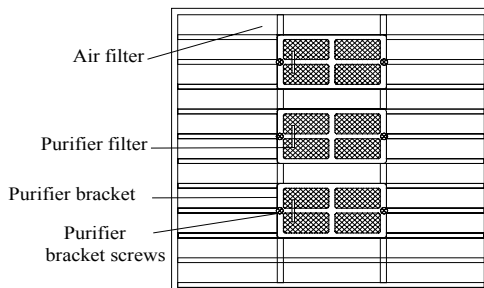


Fig.21

### Function and usage period for air purifying

- ◆ Could absorb CO, CO<sub>2</sub>, benzene, aldehydes or odor of gasoline, etc.
- ◆ Could absorb unhealthy material such as dust, pollen, bacteria, or virus.
- ◆ Usage period is six months to one year. Replacement purifier should be ordered through your installer or service provider.

## 6.4 Cleaning of Surfaces and Louvers

- ◆ Clean the surface panel using a soft dry cloth or wet cloth with neutral cleaner.
- ◆ Do not clean surface panel using gasoline, benzene, diluents, cleansing powder, etc.
- ◆ If the guide louver is too dirty, it may be removed to be cleaned (as described below).

### Disassembly and installation of guide louver

(1). Disassemble the guide louver

Loosen both guide louver screws.



#### Note !

Gently clean guide louver to prevent dispersing dust and irritants.

(2). Install guide louver

Rotate the guide louver slightly to install the protruding edge of both ends into grooves on both ends of the guide louver, and then tighten bolts.

## 6.5 Seasonal Maintenance

### Check before usage season

- ◆ Check if there is blockage in the inlet or outlet vent of the air conditioning unit.
- ◆ Check the condition of the air filter.

### Maintenance after usage season

- ◆ Clean the filter and body of the air conditioning unit.
- ◆ Cut off the main power supply of the air conditioning unit.

# Support Contact Information

	Email
<b>Technical Support</b> Support during installation, commissioning, service, and troubleshooting	BE-VRFTechSupport@jci.com
<b>Customer</b> Assistance ordering equipment, parts, and accessories	BE-VRFCustomerService@jci.com
<b>Warranty</b> Assistance with warranty registration, claims, etc.	BE-VRFWarranty@jci.com
<b>Application and Design</b> Pre-sale assistance with equipment applications and design support, as well as use of Selection Tool	BE-VRFApplicationDesign@jci.com

For all functions mentioned above, please call: 1(844) 873-4445

Product improvement, specifications and appearance in this manual are subject to change without prior notice.