

Nortek Global HVAC, LLC

Flex Match Series Cassette Type Indoor Unit (For North America)

Owner's Manual

Heat Pump

Models:

GKH24(7.0)FMK4DH

- Please read this owner's manual carefully before operation and retain it for future reference
- Specifications & illustrations subject to change without notice or incurring obligations

User Notice

◆ The total capacity of the indoor units connected can not exceed 150% of that of the outdoor units.

◆ A breaker (or fuse) needs to be installed for each indoor unit, and the capacity should match indoor unit's electrical specifications. All the indoor units are required to have a dedicated power supply and disconnect switch so that electric power supply can be turned off to all units in case of an emergency. The breaker (or fuse) on each indoor unit prevents short circuit and overload. The main switch controls the power supply of all the indoor units. Before cleaning and maintaining the indoor units, it is very important to turn off the main power supply switch.

◆ Main power to compressor must be turned on 8 hours before air conditioner can be operated.

◆ After receiving the turn off signal, indoor units will continue to run for 20-70 seconds. This clears the unit of conditioned (heated or cooled) air.

◆ When the selected operating mode of the indoor unit conflicts with the operating mode of the outdoor unit, the malfunction light will blink after 5s on the wired controller. The air conditioner will turn off. To restart, the operating modes must be reconciled: The HEAT mode conflicts with of the COOL mode, DRY mode and FAN mode; while the COOL mode, DRY mode and FAN mode are compatible between each other. If there is a power outage when the unit is running, three minutes after power recovery, the indoor unit will send the "start" signal to the outdoor unit.

◆ The appliance shall not be installed in the laundry.

◆ An all-pole disconnection switch having a contact separation of at least 3mm (1/8 in) in all poles should be connected in fixed wiring.

◆ Main switch provided by end user: it can be locked in "OFF" position with padlock.

◆ The main disconnect device should be as detailed in disconnect user manual at a recommended of 0.6-1.7m (2-5 ft). over current protection is required(UL 1995,CSA C22.2).

◆ The cooling range of the unit is the outdoor environment temp.-5~48°C (23~118°F) DB, the heating range of the unit (only for the heat pump type unit) is the outdoor environment temp. -15~27°C (5~80°F) WB.

◆ This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Children should not play with the appliance.



This product must not be disposed with the domestic waste. Please dispose or recycle responsibly.

Please keep this manual for future reference.


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1 Safety Precautions

Please read this manual carefully before using and operating correctly as instructed in this manual.

Please note the following indicators.:

 **Warning!**: Failure to comply could result in property damage, serious personal injury or death.

 **Caution!** Failure to comply could result in property damage or personal injury.

 **Warning:**

- ◆ Select a circuit breaker or fuse with approved capacity, or malfunction or fire may occur.
- ◆ If you notice a burning smell or other foul odor, turn off the main power supply immediately.
- ◆ All room should be sufficiently ventilated for better indoor air quality.
- ◆ Don't insert finger or other objects into the air inlet/outlet grille.
- ◆ Check the support structure to verify that it has sufficient load-carrying capacity to support the weight of the unit, and it can be securely mounted.
- ◆ Don't apply or spray paint, insecticide or other flammable liquids on the surface of unit, otherwise, fire may occur.
- ◆ Once air conditioner is installed, it should not be removed and installed in a different location.

An all-pole disconnection switch having a contact separation of at least 3mm (1/8 in) in all poles should be connected in fixed wiring.

 **Note:**

- ◆ Before using the unit, please check if the piping and wiring are properly installed to avoid water leakage, refrigerant leakage, electric shock, or fire.
- ◆ The main power supply must be grounded to avoid electric shock. Do not connect the ground wire to the gas pipe, running water pipe, lightning rod or phone cable.
- ◆ Do not turn off the unit after it runs at least five minutes; otherwise its service life will be shortened.
- ◆ Don't allow children operate the air conditioner.
- ◆ Do not operate this unit with wet hands.
- ◆ Turn off the main power supply before cleaning of the unit or replacing the air filter.
- ◆ If the unit is not to be used for a long time, turn off the main power supply.

2 Installation of the Cassette Type Indoor Unit

2.1 Clearances

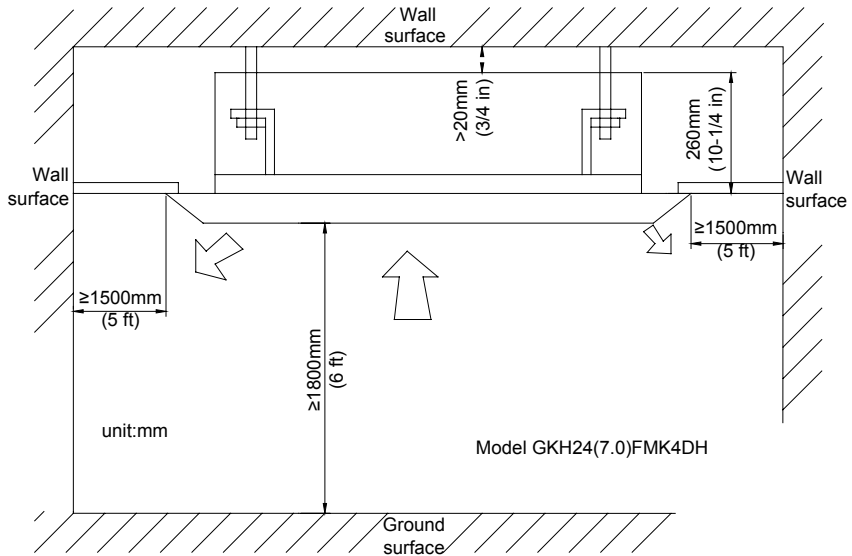


Fig. 1

2.2 Selecting a Location for the Indoor Unit

- (1). Unit should be placed so that air flow throughout the room is not obstructed.
- (2). Unit should be installed with sufficient clearances. See illustration above.
- (3). Select a location that can bear 4 times the weight of the indoor unit. Unit should be able to be mounted securely to avoid vibration noise.
- (4). The unit should be level when mounted.
- (5). Select location where connections to outdoor unit and condensate drain are convenient.
- (6). Be sure to leave sufficient space around unit for service and maintenance. Unit should be mounted 1.8M (6 ft) above the floor.
- (7). When installing the expansion bolt, check if the location can withstand the 4 times the weight of the unit. If not, reinforce before installation (Refer to the cardboard mounting template included with this unit).

⚠ Note!

Dust in the air and oils from cooking can clog the heat exchanger. This will reduce the operating capacity of the system and could lead to early equipment failure. **Please observe the following:**

1. Be sure to have an adequately sized vent hood when cooking to remove oils from the air.
2. Do not install air conditioner too close to kitchen or cooking area.

2.3 Important Notice:

- ◆ To guarantee the good performance, the unit must be installed by professional personnel according with this manual.
- ◆ To the installer: Contact the manufacturer's representatives if you have any question about installing this equipment.

2.4 Dimension of Ceiling Opening and Location of the Hoisting Screw (M10)

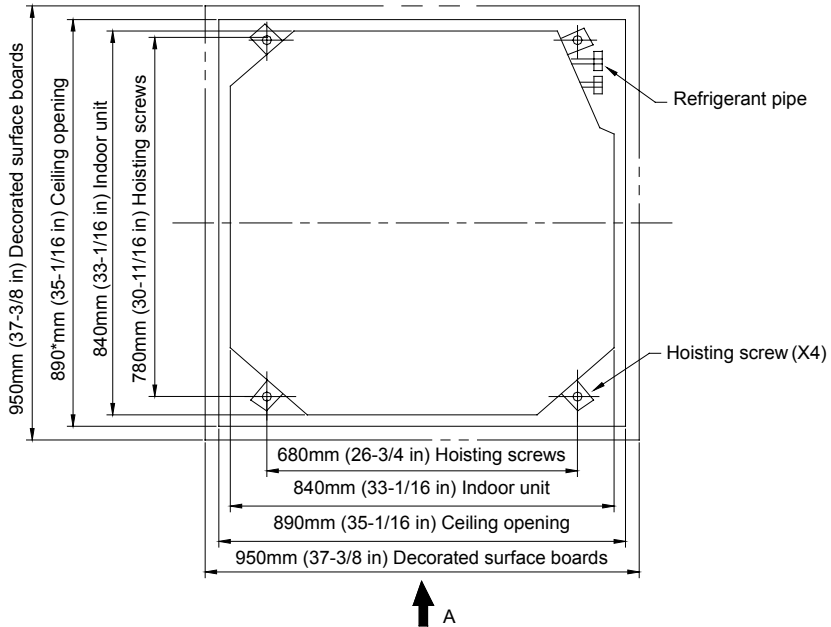


Fig. 2 Install Dimension of Model GKH24(7.0)FMK4DH

- ◆ The drilling of holes in the ceiling must be done by professional personnel.

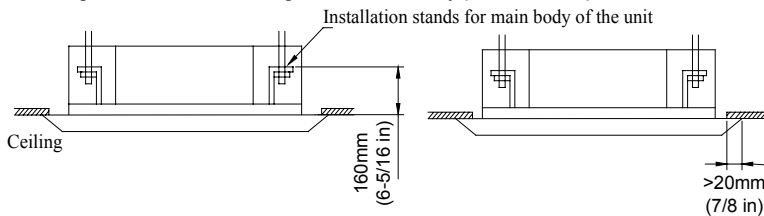


Fig.3

Notes: The dimension for the ceiling openings with * marks can be as large as 910mm (35-13/16 in). But the overlapping sections of the ceiling and the decorated surface boards should be maintained at no less than 20mm (7/8 in).

2.5 Hoisting Air Conditioner

(1). The primary step for installing the indoor unit.

◆ When attaching the hoisting stand on hoisting screw, do use nut and gasket individually at the upper and lower of the hoisting stand. The use of gasket anchor board can prevent gasket break.

(2). Use cardboard installation template

◆ Please refer to the installation cardboard about the dimension of ceiling opening.

◆ The central mark of the ceiling opening is indicated on the cardboard template.

◆ Install the cardboard template on the unit with bolt (3 piece), and fix the angle of the drainage pipe at the outlet vent with bolt.

(3). Place unit in installation location. (Refer to the Fig. 4)

(4). Check if the unit is level.

◆ Inner drainage pump and bobber switch are included in the indoor unit. Check if unit is level. (If the unit is slanted away from the condensate drain, there may be a malfunction of the bobber switch and water leakage.)

(5). Back-out the gasket anchor board used to prevent gasket from breaking off and tighten the nut on it.

(6). Back-out the cardboard template.

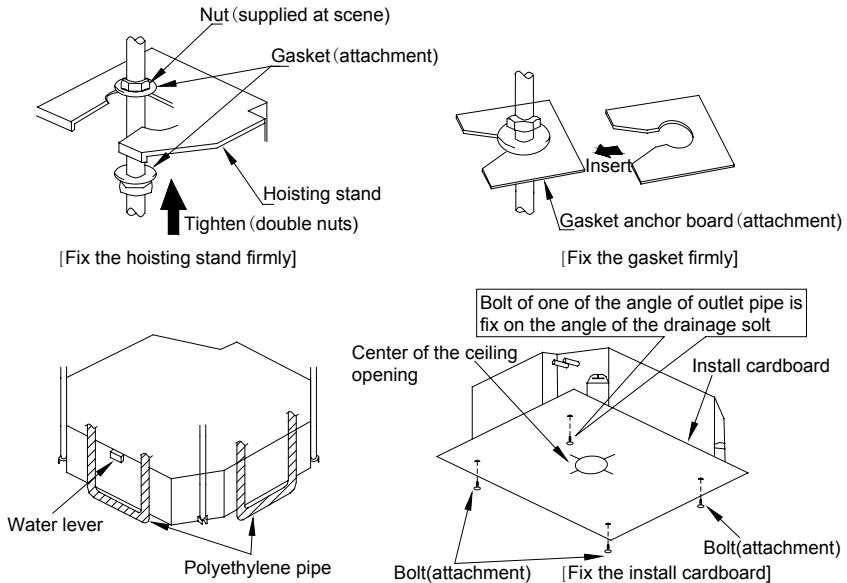


Fig. 4

⚠ Note!

- Please tighten the nuts and bolts.

2.6 Connection of the Refrigerant Pipe

- ◆ When connecting the pipe to the unit use a wrench and torque wrench as shown in Fig. 5.
- ◆ Spread refrigerant oil lubricant to inside and outside of flare nut. Begin turning flare nut by hand, then tighten with a wrench.
- ◆ Refer to Table 1 to check for required torque (Note: over-tightening can cause damage to the nut or pipe and cause refrigerant leakage).
- ◆ Examine the connection pipe for leaks. Apply heat insulation, as shown in the Fig. 5.
- ◆ Wrap tubes and heat preservation sheath with PTFE tape as shown

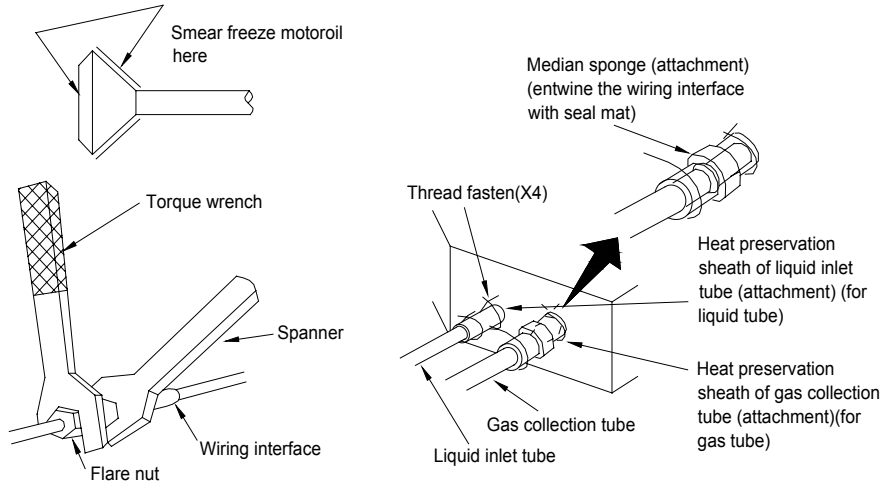


Fig. 5

Table 1: The moment of torque for tightening nut

Diameter (Inch)	Surface thickness (mm)	Moment of torque (N · m)
φ1/4"	≥ 0.5	15-30 (N · m)
φ3/8"	≥ 0.71	30-40 (N · m)
φ1/2"	≥ 1	45-50 (N · m)
φ5/8"	≥ 1	60-65 (N · m)
φ3/4"	≥ 1	70-75 (N · m)

If the diameter of the outdoor unit pipe joint does not match the indoor unit, the joint specification of the outlet pipe of the indoor unit takes precedence. A reducing nipple should be installed at the joint of the outdoor unit to make the joint of the outdoor unit compatible with the indoor unit.

2.7 Drain Hose

(1). Install the drain hose

- ◆ The diameter of the drain hose should be larger than or equal to the connection pipe diameter. (The diameter of polythene pipe: Outer diameter 25mm (1 in) Surface thickness ≥ 1.5mm)

- ◆ Drain hose should be as short as possible with sloping gradient should at least 1/100 to prevent the formation of air bubble.
- ◆ If drain hose cannot have sufficient slope, a drain raising pipe should be added.
- ◆ To prevent drooping of the drain hose, the distance between hoisting stand should be 1 to 1.5m (3 to 5 ft).

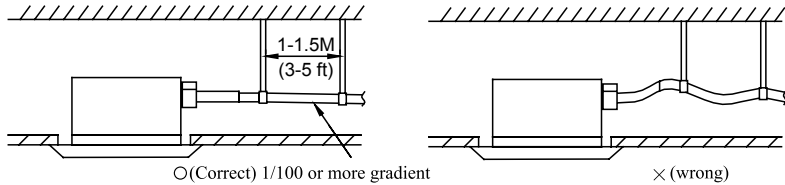


Fig. 6

- ◆ Use the drain hose and clamp included. Insert the drain hose to the drain vent, and then tighten the clamp.
- ◆ Wrap the big sponge on the clamp of drain hose to insulate heat.
- ◆ Heat insulation should be applied to indoor drain hose.

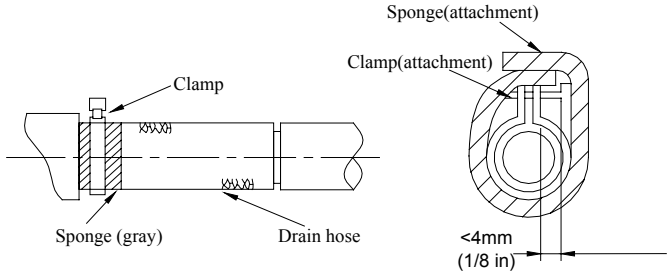


Fig. 7

Drain Setup Pipe Note

- ◆ The installation height of the drain raising pipe should less than 280mm (11 in).
- ◆ The drain raising pipe should form a right angle with the unit, and distance to unit should not beyond 300mm (12 in).

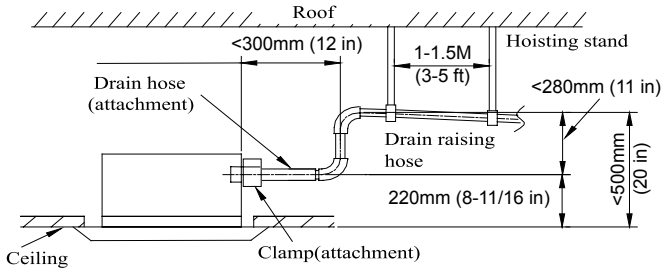


Fig. 8

Instruction

- ◆ The slope gradient of the attached drain hose should be within 75mm (3 in) so that the drain hole doesn't isn't exposed unnecessary stress.

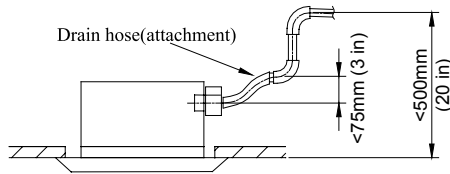
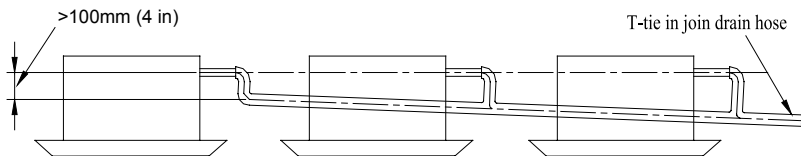


Fig. 9

- ◆ If drain hoses from several units are being installed together, please install according to the following diagram.



The specs of the selected join drain hose should fits the running capacity of the unit.

Fig. 10

- (2). Check the smoothness of drain after installation.

- ◆ Check the drain by adding 600ml (20 oz) water slowly into the outlet vent or test hole.
- ◆ Check the drain in cooling mode after providing power to the unit.

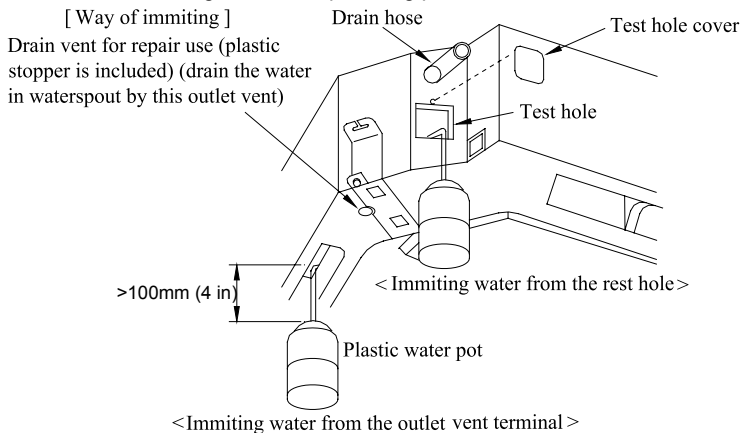


Fig. 11

2.8 Electrical wiring

⚠ Note: The supply power for all indoor unit must be connected to outdoor unit.

- ◆ Please see the wiring diagram included with the unit.
- ◆ All the installation of electrical wiring must be done by professional personnel.
- ◆ Make sure unit is properly grounded.

Unit and controller wiring connection

◆ Connection wiring (communication):

① Open electric box cover(1), drag the wiring (communication) from the rubber plug A, and attach them well individually with fastener.

② Wire according to the circuit diagram inside the panel door.

- ◆ Attach with fastener after connection.
- ◆ Wrap the small sponge on the electric wire (to prevent condensation).
- ◆ Attach tightly with fastener after connection and then secure the electric box.
- ◆ Lead the 4-core cable through the hole in the chassis and the bottom of the air conditioner upward, and then connect the power line and the communication line from the outdoor unit to the corresponding terminals N(1), 2, 3, and grounding terminal of the indoor unit. Wiring must be connected as per the wiring diagram. (Note: Be sure the wiring terminals A/B/C/D and piping joints A/B/C/D of the indoor unit match with that of the outdoor unit).

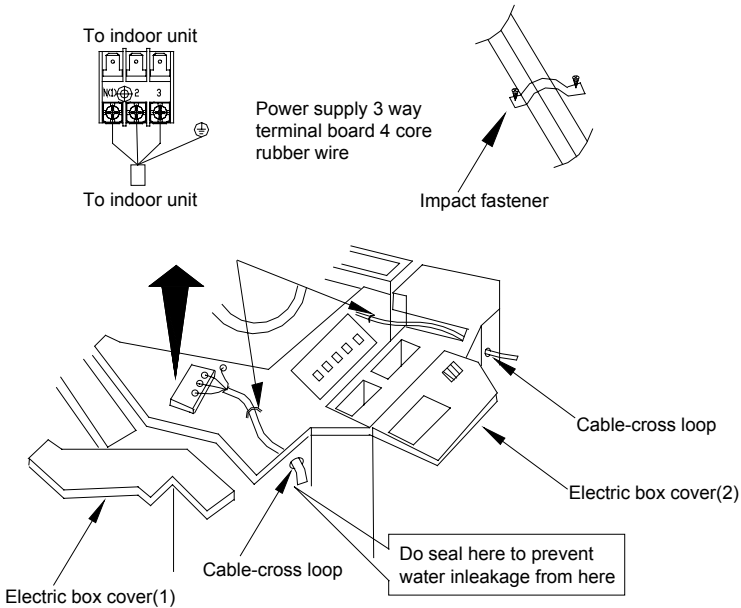
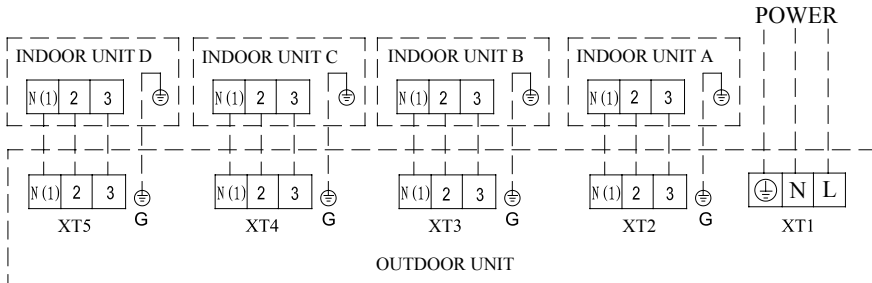
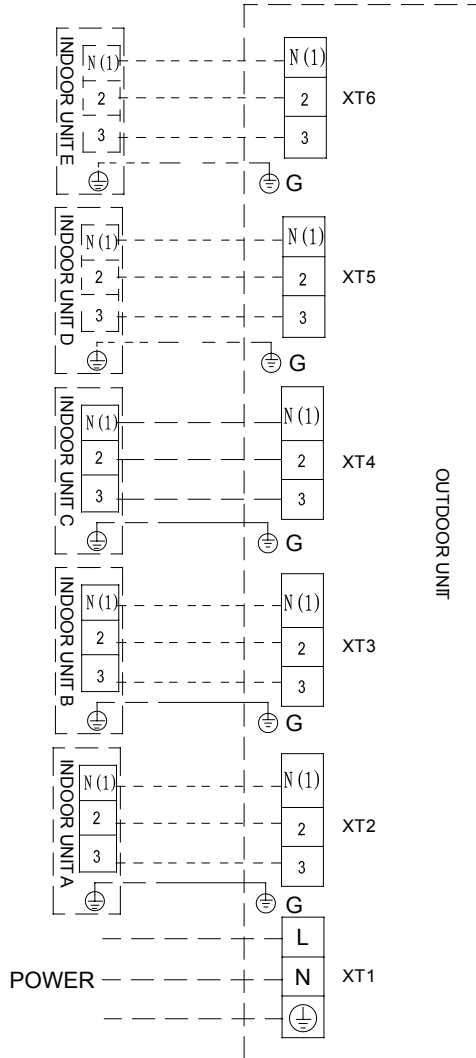


Fig. 12

RXH36(10.6)FMV4DH



RXH42(12.3)FMV4DH



2.9 Install the Panel

1. Set the panel to the indoor unit body by matching the position of the swing flap motor of the panel to the piping position of the panel to the piping position of the indoor unit as shown by Fig. 13.
2. Install the panel
 - (1). Install the panel on the indoor unit temporarily. Hang the latch on the hook that is located on the opposite side of the swing flap on the panel of the indoor unit. (2 positions)

- (2). Hang the remaining 2 latches to the hooks on the sides of the indoor unit. (Be careful not to let the swing motor lead wire get caught in the sealing material.)
- (3). Screw the 4 hexagon head screws under the latches in about 15mm (1/2 in). (The panel will rise)
- (4). Adjust the panel by turning it toward the direction pointed by the arrow as shown in Fig. 13, so that the adjust board connect the ceiling well.
- (5). Tighten the screws until the thickness of the sealing material between panel and indoor unit reduced to 5-8mm (1/4-1/8 in).

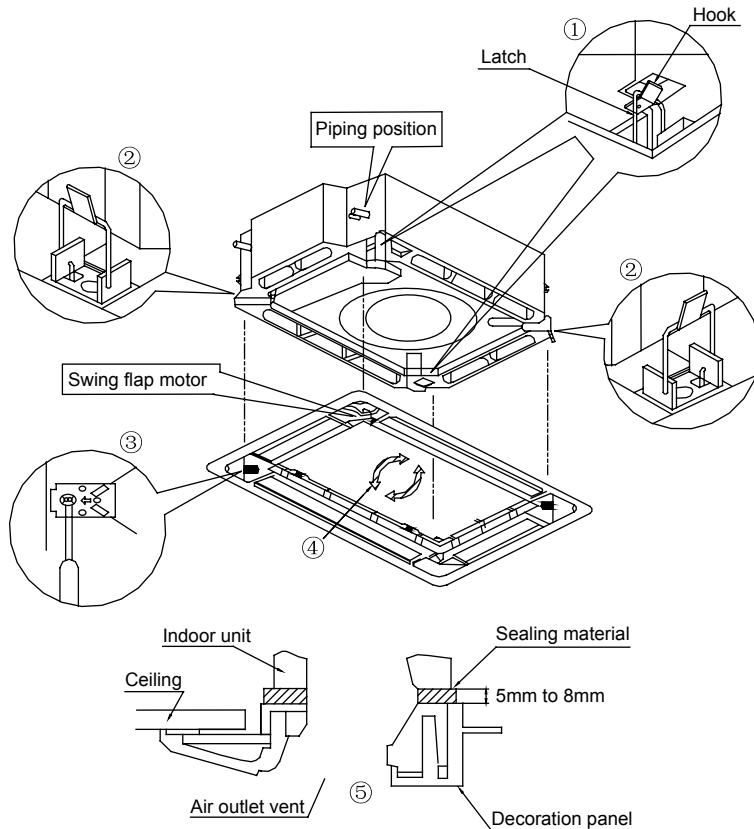


Fig. 13

Notes:

- ① . Improper installation of the screws may cause condensate dripping as shown in Fig. 14.

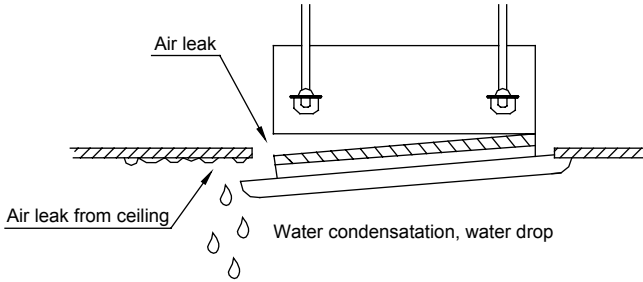


Fig. 14

- ① . If gap still exist between ceiling and decoration panel after tightening the screws, readjust the height of the indoor unit. (As shown in Fig.15)

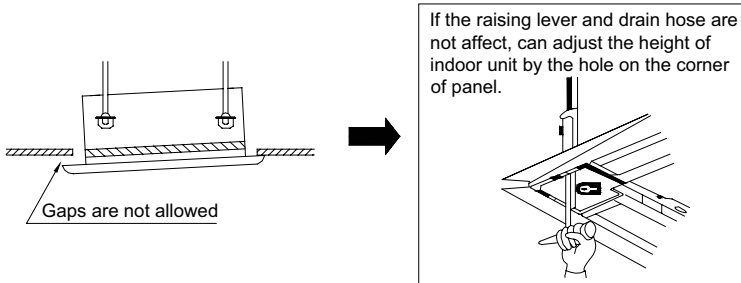


Fig. 15

※ Be sure no gap left between the ceiling and the panel.

- ② . Wiring of the decoration panel (Fig. 16)

Connect the joints for swing flap motor lead wire (at 2 places) installed on the panel.

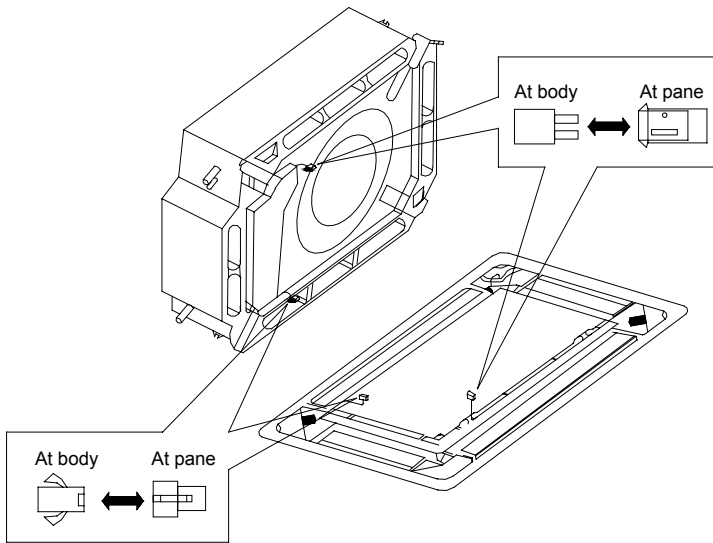


Fig. 16

3 Identification of Parts of Cassette Type Indoor Unit

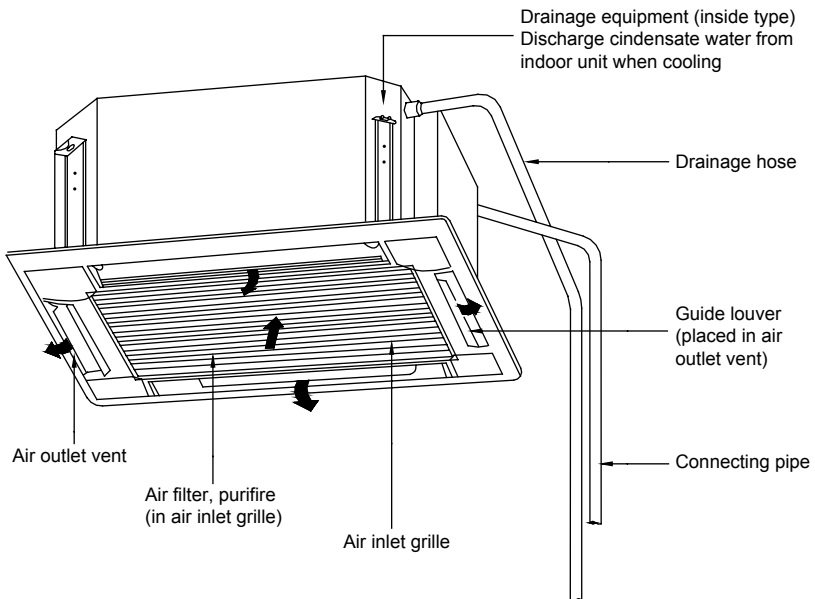


Fig. 17 GKH24(7.0)FMK4DH

4 Working Temperature Range

Working Temperature Range

	Indoor side state °F (°C)		Outdoor side state °F (°C)	
	Dry bulb temp. °F (°C)	Wet bulb temp. °F (°C)	Dry bulb temp. °F (°C)	Wet bulb temp. °F (°C)
Rated. Cooling	80.0(26.7)	67.0(19.4)	95.0(35.0)	75.0(23.9)
Max. cooling	80.0(26.7)	67.0(19.4)	115.0(46.1)	75.0(23.9)
Min. cooling	67.0(19.4)	57.0(13.9)	67.0(19.4)	57.0(13.9)
Rated. Heating	70.0(21.1)	60.0(15.6)	47.0(8.3)	43.0(6.1)
Max. heating	80.0(26.7)	—	75.0(23.9)	65.0(18.3)
Low Ambient heating	70.0(21.1)	60.0(15.6)	5.0(-15.0)	3.2(-16.0)

5 Troubleshooting

Warning!

◆ Turn off main power immediately if malfunction is detected, or if you smell a burning odor coming from the air conditioner. Failure to shut down unit could result in further equipment damage, electrical shock or fire.

◆ Do not move the unit once installed. Contact professional technician for service.

★ **Check the following items before contacting maintenance center**

Issue	Reason	Remedy
Air conditioner doesn't run at all	Blown fuse or circuit breaker	Change fuse or close breaker
	Power outage	Restart when power is back on
	Power supply not properly connected	Connect power correctly
	Low batteries in wireless remote controller	Change batteries
	Wireless controller out of control range	Move remote to within 8m (25 ft) of air conditioner
Air conditioner runs but stops immediately	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
Poor cooling or heating	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
	Improper of temp. setting	Adjust settings with wireless remote controller
	Low fan speed setting	Adjust settings with wireless remote controller
	Incorrect air flow direction	Adjust settings with wireless remote controller
	Door or window opened	Close
	Ambient temp. rise from direct sunlight	Hang curtain over windows
	Too many people in room	
	Too many heat sources in room	
Filter blocked by dirt	Clean filter	

★ **Instruction**

If problem still cannot be solved after above checking, please contact service center.

★ **The following circumstances are not malfunctions**

“Malfunction”		Reason
Air conditioner doesn't run	Doesn't start up unit immediately after turned off	The overload protects switch requires a 3 minutes delay.
	Doesn't start immediately when power supplied	1 minute delay after startup
Mist is blown from air conditioner	When cooling	The high humidity air in room is cooled rapidly
Noise is heard from air conditioner	Slight click sound heard once begin running	Sound of initialization for electric expansion valve
	Hissing sound heard continuously when cooling	The sound of refrigerant flowing through coil
	Hissing sound heard when starting or stopping	The sound of refrigerant flow stopping
	Slight hissing sound heard when running or after running	Sound of drainage system
	Creaking sound heard when running or after running	It is the sound of the skin plate expanding/contracting due to temperature change
Dust is blown from air conditioner	After a long period of inactivity	Dust has collected inside air conditioner
Odor emitted from air conditioner	When running	Any odors in the room (cigarette smoke, etc.) will be recirculated back into the room.

★ **After-sales Service**

If there is any quality or other issues after purchasing air conditioner, please contact a qualified personnel for service.

6 Maintenance

When air conditioner won't be used for a long time, please cut off the main power supply.

 **Warning!**

- ◆ Turn off the unit at the main power supply when cleaning the air conditioner, otherwise electric shock may occur.
- ◆ Do not wash/rinse air conditioner with water or electric shock may occur.

6.1 Cleaning Air Filter

If the air conditioner is used in very dusty conditions, the air filter should be cleaned more frequently (about once every 6 months).

(1). Open air inlet grille

Pull the 2 handles on air inlet grille at the same time with the direction showed by arrow in Fig. 18, pull it down slowly. (Reverse when closing)

(2). Disassemble air filter

As shown in Fig. 19, pull the handle behind air inlet grille, raise it and disassemble. Then remove the 3 purifiers on the filter.

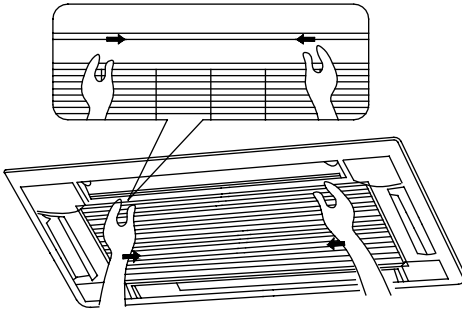


Fig. 18

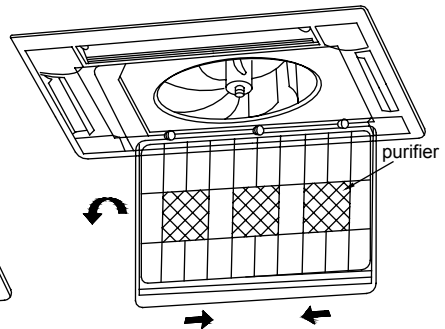


Fig. 19

(3). Clean

Use cleaner or water to wash filter; if the filter is too dirty (for example, oil stain), use some warm water (but not over 45°C [113°F]) with mild detergent, then dry in the shade.

⚠ Note!

Do not clean the filter with hot water (more than 45°C [113°F]) as this may fade or warp the filter.

Do not dry it with a hair dryer or over open flame as this may warp the filter.

(4). Reinstall air filter

Replace the 3 purifiers on filter. Install filter on the several tabs on top of air inlet grille. Pull the handle behind air inlet grille toward inside to reattach filter as shown in Fig. 20.

(5). Close air inlet grille (Refer to the 1st step)

Maintenance

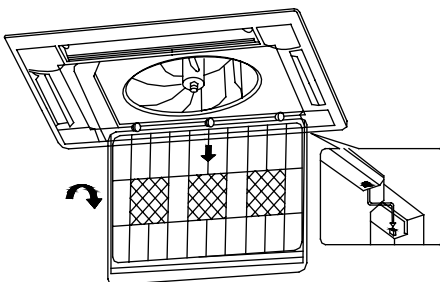


Fig. 20

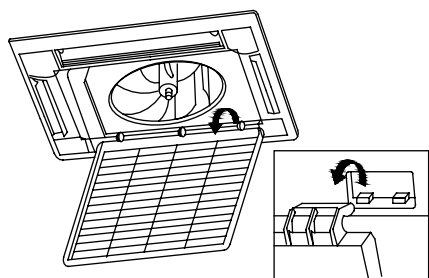


Fig. 21

6.2 Clean Air Inlet Grille

- (1). Open air inlet grille (the same with the 1st step of Clean Air Filter)
- (2). Take out air filter (the same with the 2nd step of Clean Air Filter)
- (3). Take out air inlet grille

Open air inlet grille for an angle of 45°, as shown in Fig. 21, lift it.

- (4). Clean

Clean it with soft brush, water with mild detergent.

⚠ Note!

Do not use water above 45°C (113°F) to wash the panel to prevent fading or warping.

- (5). Install air inlet grille (refer to 3rd step)
- (6). Install air filter (refer to the 4th step of Clean Air Filter)
- (7). Close air inlet grille (refer to the 1st step)

6.3 Install and Change of Air Purifier

- (1). Open air inlet grille (the same the 1st step of Clean Air Filter)
- (2). Disassemble purifier

As shown in Fig. 22, disassemble air filter. Remove bolts holding purifier on filter. Then air purifier can be removed.

- (3). Take replacement static fibre net filter and install on air filter.
- (4). Install air filter (the same with the 4th step of Clean Air Filter)

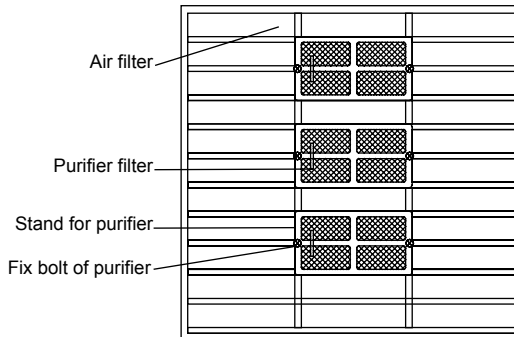


Fig. 22

Function and usage period for air purifying

- ◆ Could adsorb CO, CO₂, benzene, aldehydes and odors.
- ◆ Adsorbs dust, pollen, bacteria, and material up to 1µm (1 micrometer) in air.
- ◆ Usage period is 6 months to 1 year. Purchase new purifier as necessary.

6.4 Clean Outlet Vent and Surface Panel

- ◆ Clean the surface panel with soft dry cloth or damp cloth with mild detergent.
- ◆ Do not clean surface panel with gasoline, benzene, 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 guide louver

Loosen bolts in both ends of guide louver.

⚠ Note!

Gently wipe guide louver with mild cleaning detergent or plain water.

(2). Install guide louver

Rotate guide louver slightly. Install the protruding edge of both end into grooves on both end of guide louvre, and then tighten bolts.

6.5 Maintenance before or after Seasonal Use

Preseason checklist

- ◆ Check if there is blockage in inlet or outlet vent of air conditioner.
- ◆ Check if the grounding wire is secure.
- ◆ Check if the air filter has been correctly installed.
- ◆ If air conditioner has been turned off for an extended period, turn on main power at least 8 hours before turning on air conditioner..

Post-season checklist

- ◆ Clean filter and body of air conditioner.
- ◆ Cut off the main power supply of air conditioner.
- ◆ The cooling or heating operation and sound level should be checked.
- ◆ If operation or sound level have changed, refer to information on the rating plate.

**Specifications & illustrations subject to change without
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