



INSTALLATION MANUAL

SPLIT SYSTEM

Air Conditioners

MODEL

Ceiling mounted Cassette type ODU

RGVF18ASV16

RGVF24ASV16

RGVF30ASV16

RGVF36ASV16

RGVF42ASY16

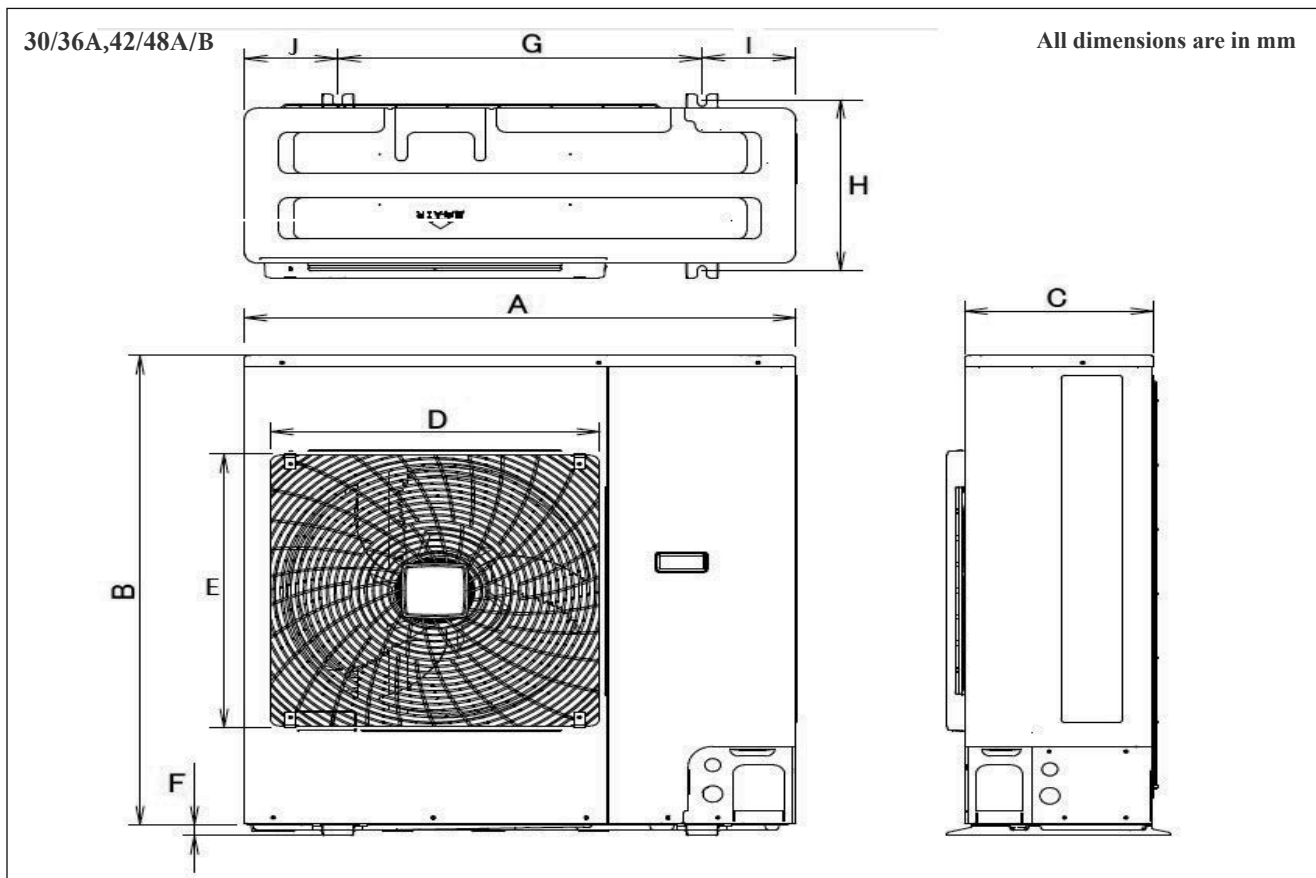
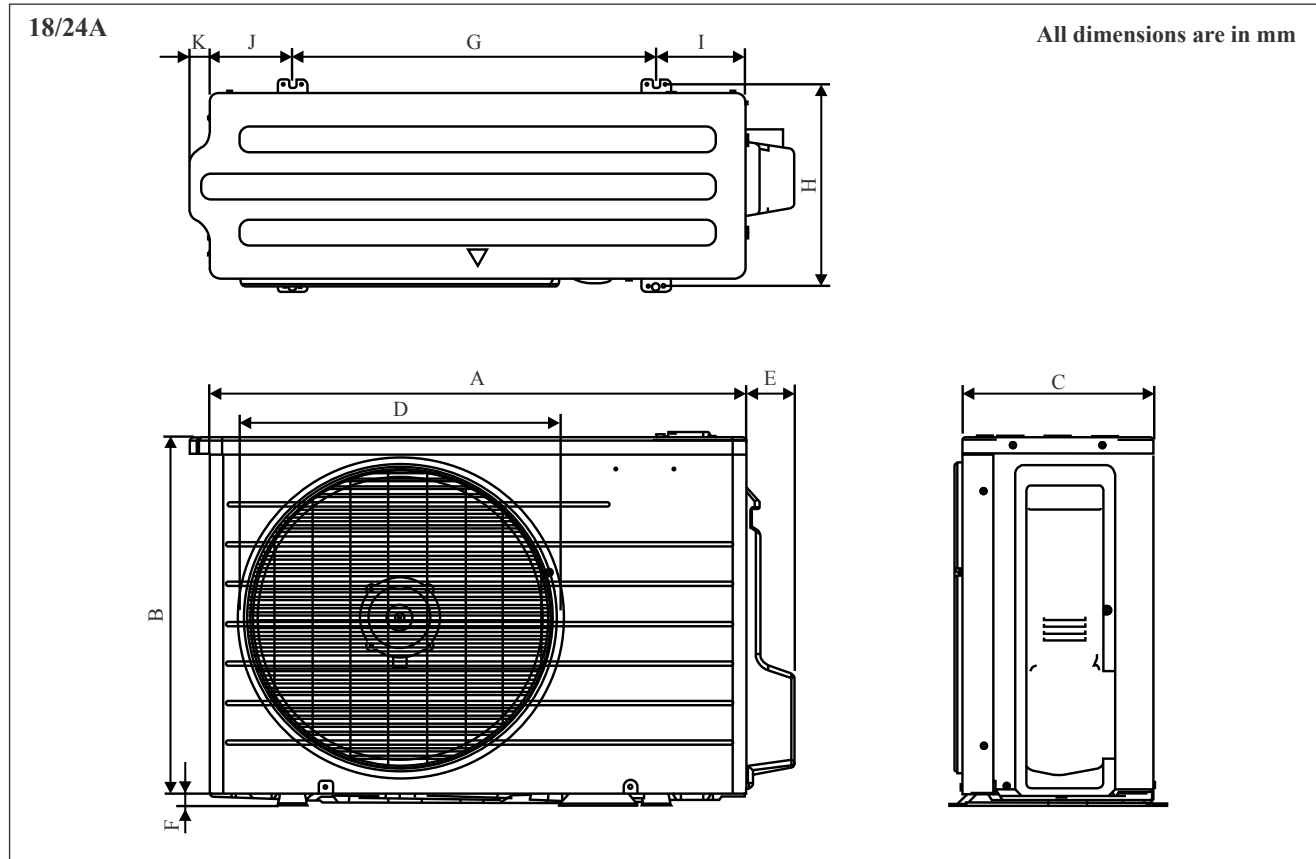
RGVF48ASY16

RGVF42BSY16

RGVF48BSY16

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.
KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

Outdoor Unit [RGVF]

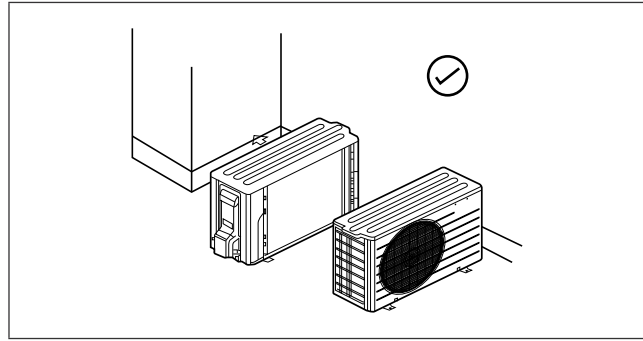
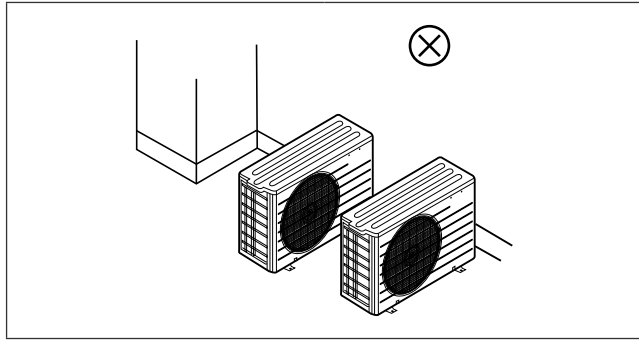


| Dimension | A | B | C | D | E | F | G | H | I | J | K |
|-----------------|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|
| Model | | | | | | | | | | | |
| 18/24A | 845 | 575 | 302 | 505 | 77 | 20 | 573 | 326 | 140 | 131 | 30 |
| 30/36A,42/48A/B | 940 | 970 | 320 | 560 | 580 | 20 | 620 | 338 | 160 | 160 | - |

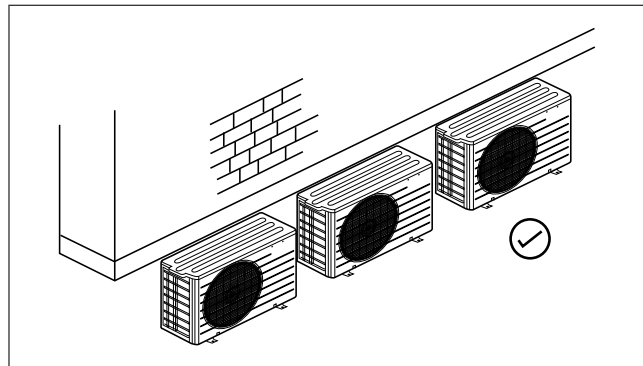
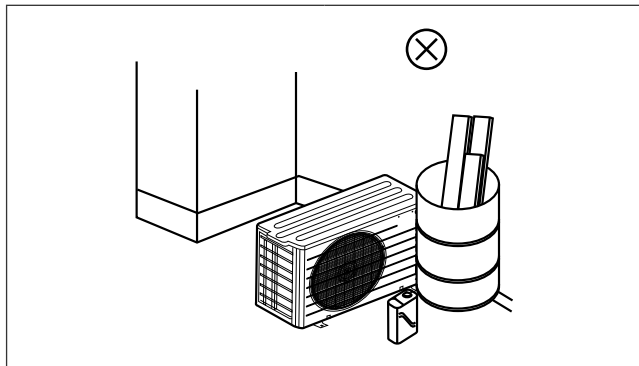
INSTALLATION OF THE OUTDOOR UNIT

As condensing temperature rises, evaporating temperature rises and cooling capacity drops. In order to achieve maximum cooling capacity, the location selected for outdoor unit should fulfill the following requirements:

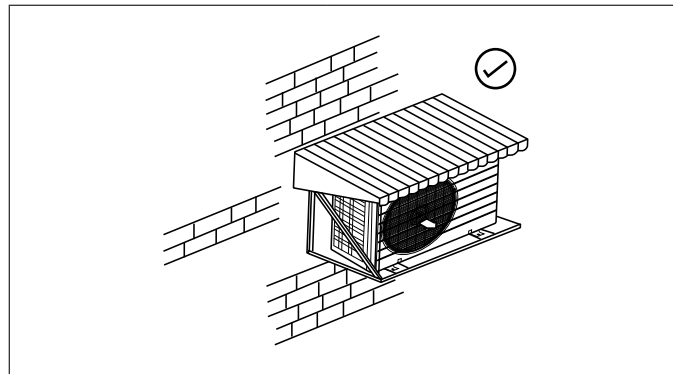
- Install the condensing (outdoor) unit in a way such that the hot air distributed by the outdoor condensing unit cannot be drawn in again (as in the case of short circuit of hot discharge air). Allow sufficient space for maintenance around the unit.



- Ensure that there is no obstruction of air flow into or out of the unit. Remove obstacles which block air intake or discharge.
- The location must be well ventilated, so that the unit can draw in and distribute plenty of air thus lowering the condensing temperature.



- A place capable of bearing the weight of the outdoor unit and isolating noise and vibration.
- A place protected from the direct sunlight. Otherwise use an awning for protection, if necessary.



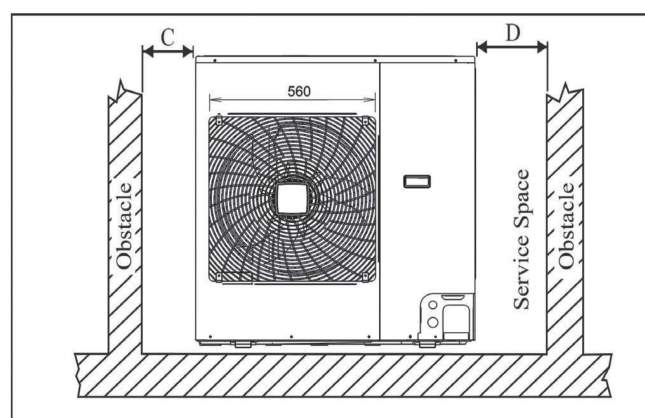
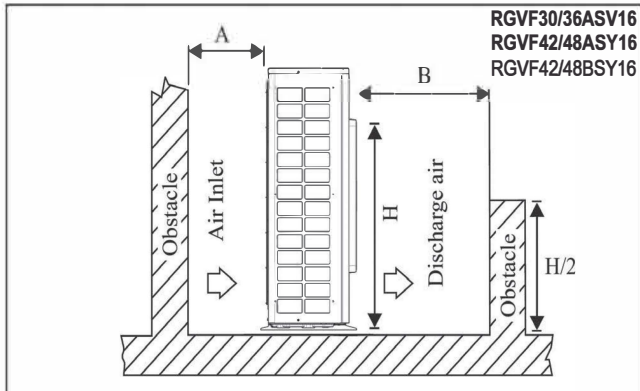
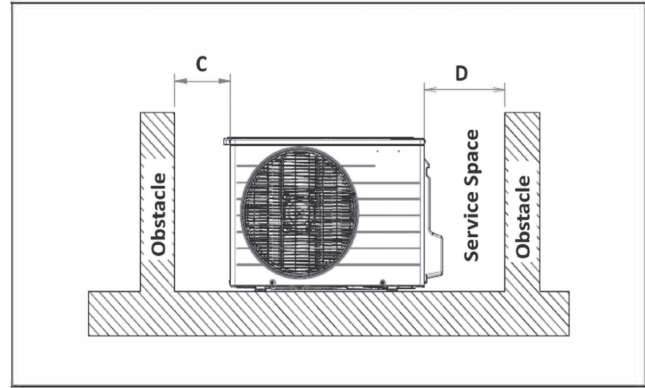
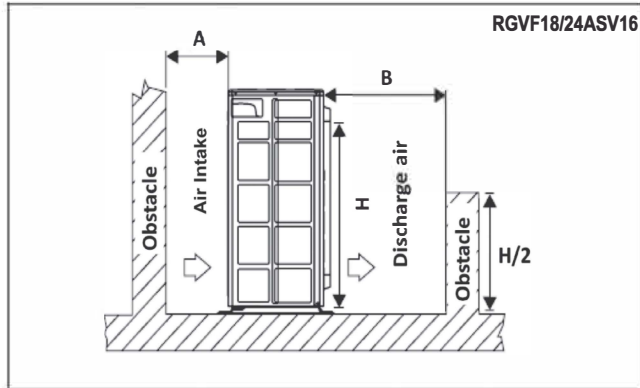
- The location must not be susceptible to dust or oil mist.

⚠ CAUTION

- Do not install the unit at altitude over 2000m for both indoor and outdoor.

INSTALLATION CLEARANCE

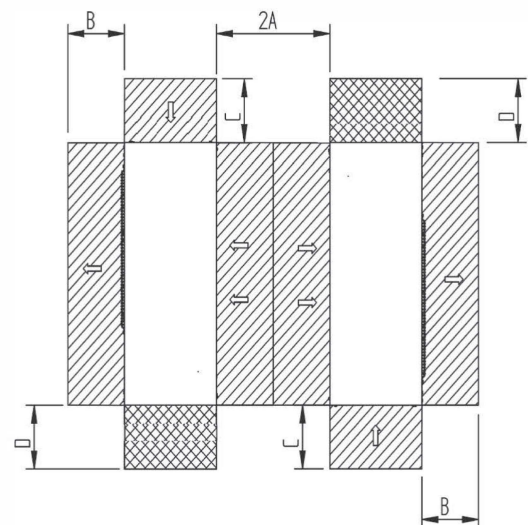
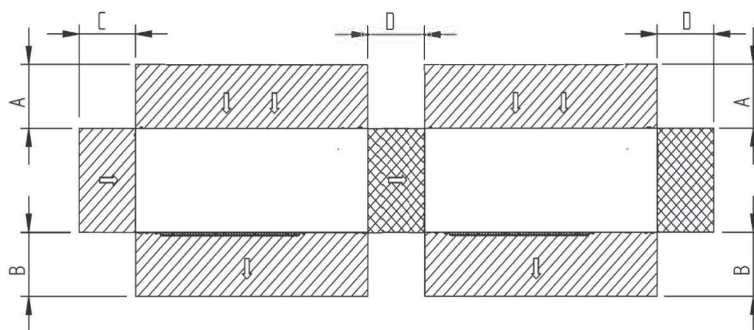
When two or more outdoor units are installed in a location, they must be positioned such that one unit will not be taking the hot discharge air from another to avoid hot air short circuiting. This also applies when two or more units are installed one above the other. Below are the installation clearance guidelines:



| Models | Minimum Distance (mm) | | | |
|---------------------------------|-----------------------|------|------|------|
| | A | B | C | D |
| RGVF18/24ASV16 | 300 | 1000 | 300 | 500 |
| RGVF30/36ASV16 & RGVF42/48ASY16 | 500 | 1000 | 1200 | 1000 |
| RGVF42/48BSY16 | 500 | 1000 | 1200 | 1000 |

NOTE: If there is any obstacle higher than half, of the unit's height (H), please allow more space than the figure indicated in the above table.

Horizontal air discharge



LEGEND

- SPACE FOR AIR FLOW
- SPACE FOR SERVICE

REFRIGERANT PIPING



Allowable Pipe Length and Elevation

If the piping is too long, both the capacity and reliability of unit will drop. As the number of bends increase, resistance to flow of refrigerant system increases, thus lowering cooling capacity and as a result the compressor may become defective.

Always choose the shortest path and follow the recommendation as tabulated below.

| Model | Indoor (FCQF) | 18A | 24A | 30A | 36A | 42A | 48A |
|-----------------------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Outdoor (RGVF) | 18A | 24A | 30A | 36A | 42A/B | 48A/B |
| Max. allowable length, m | | 20 | 20 | 20 | 20 | 25 | 25 |
| Max. Allowable elevation, m | | 10 | 10 | 10 | 10 | 15 | 15 |
| Liquid pipe size, mm/(in) | | 6.35 (1/4") | 6.35 (1/4") | 9.52 (3/8") | 9.52 (3/8") | 9.52 (3/8") | 9.52 (3/8") |
| Gas pipe size, mm/(in) | | 12.70 (1/2") | 15.88 (5/8") | 15.88 (5/8") | 15.88 (5/8") | 15.88 (5/8") | 15.88 (5/8") |

Equivalent length for various fitting (meter)

| Pipe Size | L joint  | Trap bend  |
|-------------------|--|--|
| 3/8" (OD9.52mm) | 0.18 | 1.3 |
| 1/2" (OD12.7mm) | 0.20 | 1.5 |
| 5/8" (OD15.9mm) | 0.25 | 2.0 |
| 3/4" (OD19.1mm) | 0.35 | 2.4 |
| 7/8" (OD22.2mm) | 0.40 | 3.0 |
| 1" (OD25.4mm) | 0.45 | 3.4 |
| 1 1/8" (OD28.6mm) | 0.50 | 3.7 |
| 1 3/8" (OD34.9mm) | 0.60 | 4.4 |

Notes:

1. Equivalent piping length is obtained with actual length of gas piping.
2. 90° bend of piping is equivalent to L joint.

Bending must be carefully made so as not to crush the pipe. Use a pipe bender to bend a pipe where possible.

SPECIAL PRECAUTIONS WHEN DEALING WITH R32 UNIT

R32 is a new HFC refrigerant which does not damage the ozone layer. The working pressure of this new refrigerant is 1.7 times higher than conventional refrigerant (R22), thus proper installation / servicing is essential.

- Never use refrigerant other than R32 in an air conditioner which is designed to operate with R32.
- POE-SP32/RM-LP56EG oil is used as lubricant for R32 compressor, which is different from the mineral oil used for R22 compressor. During installation or servicing, extra precaution must be taken not to expose the R32 system too long to moist air. Residual oil in the piping and components can absorb moisture from the air.
- To prevent mischarging, the diameter of the service port on the flare valve is different from that of R22.

- Use tools and materials exclusively for refrigerant R32. Tools exclusively for R32 are manifold valve, charging hose, pressure gauge, gas leak detector, flare tools, torque wrench, vacuum pump and refrigerant cylinder.
- As an R32 air conditioner incurs higher pressure than R22 units, it is essential to choose the copper pipes correctly.
- If the refrigerant gas leakage occurs during installation / servicing, be sure to ventilate fully. If the refrigerant gas comes into contact with fire, a poisonous gas may occur.
- When installing or removing an air conditioner, do not allow air or moisture to remain in the refrigerant cycle.

VACUUMING AND CHARGING

Vacuum The Piping And The Indoor Unit

Except for the outdoor unit which is pre-charged with refrigerant, the indoor unit and the refrigerant connection pipes must be vacuumed because the air containing moisture that remains in the refrigerant cycle may cause malfunction of the compressor.

- Remove the caps from the valve and the service port.
- Connect the center of the charging gauge to the vacuum pump.
- Connect the charging gauge to the service port of the 3-way valve.
- Start the vacuum pump. Evacuate for approximately 30 minutes. The evacuation time varies with different vacuum pump capacity. Confirm that the charging gauge needle has moved towards -760mmHg.

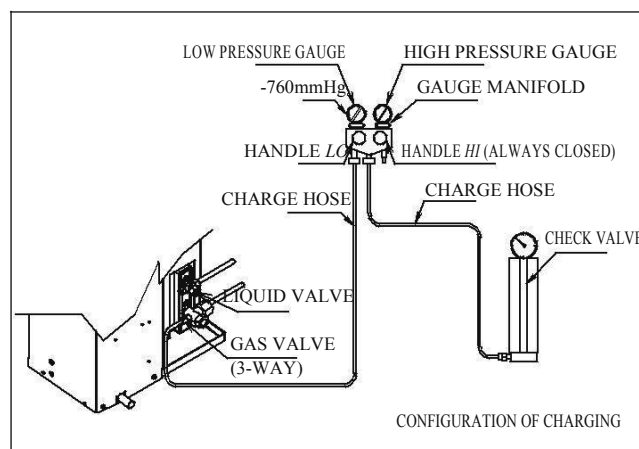
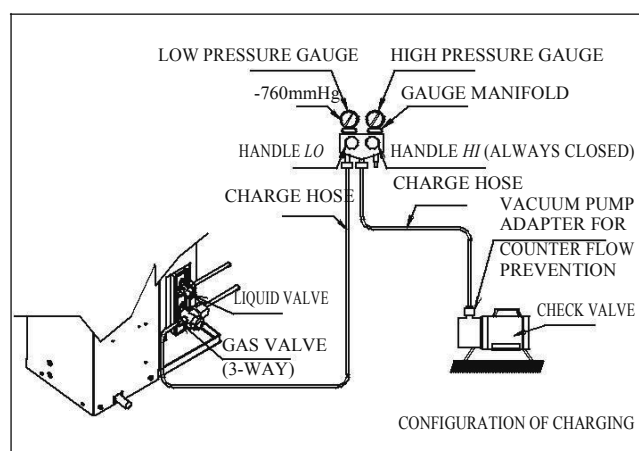
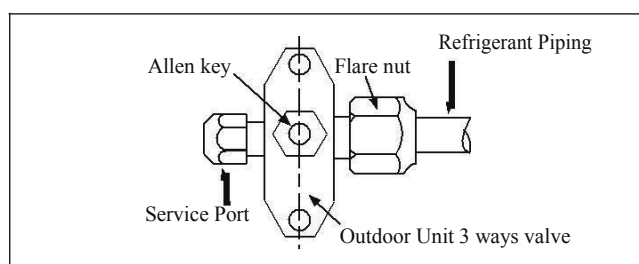
Caution

- If the gauge needle does not move to -760mmHg, be sure to check for leakage at flare type connection of the indoor and outdoor unit and repair the leak before proceeding to the next step.
- Close the valve of the charging gauge and stop the vacuum pump.
- In RGVF18A/24A, open the suction valve and liquid valve (in anti-clockwise direction) with 5mm key whereas in RGVF30A/36A/42A/B/48A/B open the suction valve and liquid valve (in anti-clockwise direction) with 6mm and 4mm key respectively for hexagon sacked screw.

Charge Operation

This operation must be done by using a gas cylinder and a precise weighing machine. The additional charge is topped-up into the outdoor unit using the suction valve via the service port.

- Remove the service port cap.
- Connect the low pressure side of the charging gauge to the suction service port center of the cylinder tank and close the high pressure side of the gauge. Purge the air from the charging hose.
- Start the air conditioner unit.
- Open the gas cylinder and low pressure charging valve.
- When the required refrigerant quantity is pumped into the unit, close the low pressure side and the gas cylinder valve.
- Disconnect the service hose from service port. Put back the service port cap.



ADDITIONAL CHARGE

The refrigerant is pre-charge in the outdoor unit. If the piping length is more than 7.5m then use the additional charge value as indicated in the table.

Additional refrigerant charge [g] per additional 1m length as tabulated (for R32 models)

| | | | | | | |
|--------------------------------|------------|------------|------------|------------|--------------|--------------|
| Indoor (FCVF) | 18A | 24A | 30A | 36A | 42A | 48A |
| Outdoor (RGVF) | 18A | 24A | 30A | 36A | 42A/B | 48A/B |
| Additional charge [g/m] | 20 | 20 | 25 | 25 | 25 | 25 |

Example:

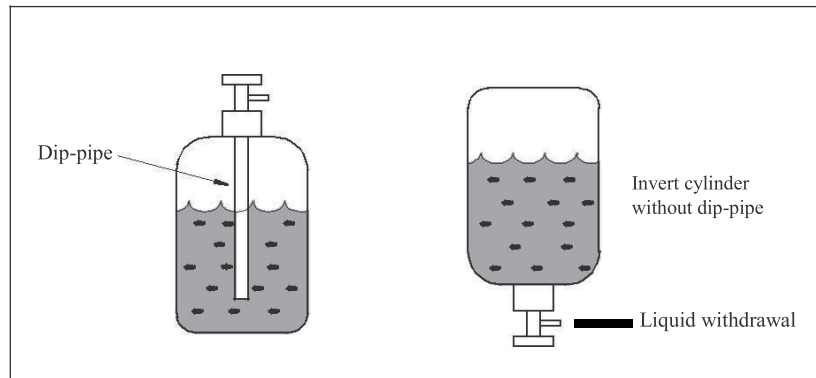
FCQF18 & RGVF18 with 13m piping length, additional piping length is 5.5m. Thus,
 Additional charge = 5.5[m] x 20[g/m]
 = 110[g]

***Keep minimum 7.5m pipe length during installation.**

1. Charging procedures – Single phase compressors

Evacuate the system to -760mmHg. To reduce evacuation time, use short, large diameter hoses and connect to unrestricted service ports on the system. Quality of vacuum cannot be determined by time – a reliable vacuum gauge must be used. (etc. electronic vacuum gauge)

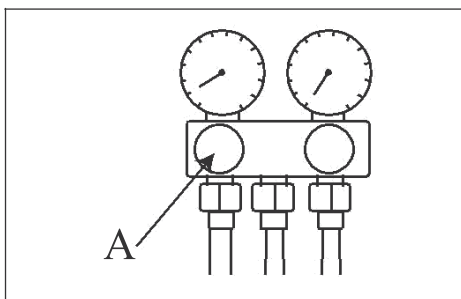
Ensure that the refrigerant cylinder is in the correct orientation (see Figure F), purge the charging hose and charge liquid through the liquid line charging port until refrigerant no longer flows or until the correct charge has been weighed in. If additional charge is required start the system and slowly bleed liquid into the suction side until the system is full.



It recommends charging liquid in a CONTROLLED manner into the suction side until the system is full.

This recommendation does not hold true for reciprocating compressors where liquid charging into the suction side could cause severe damage.

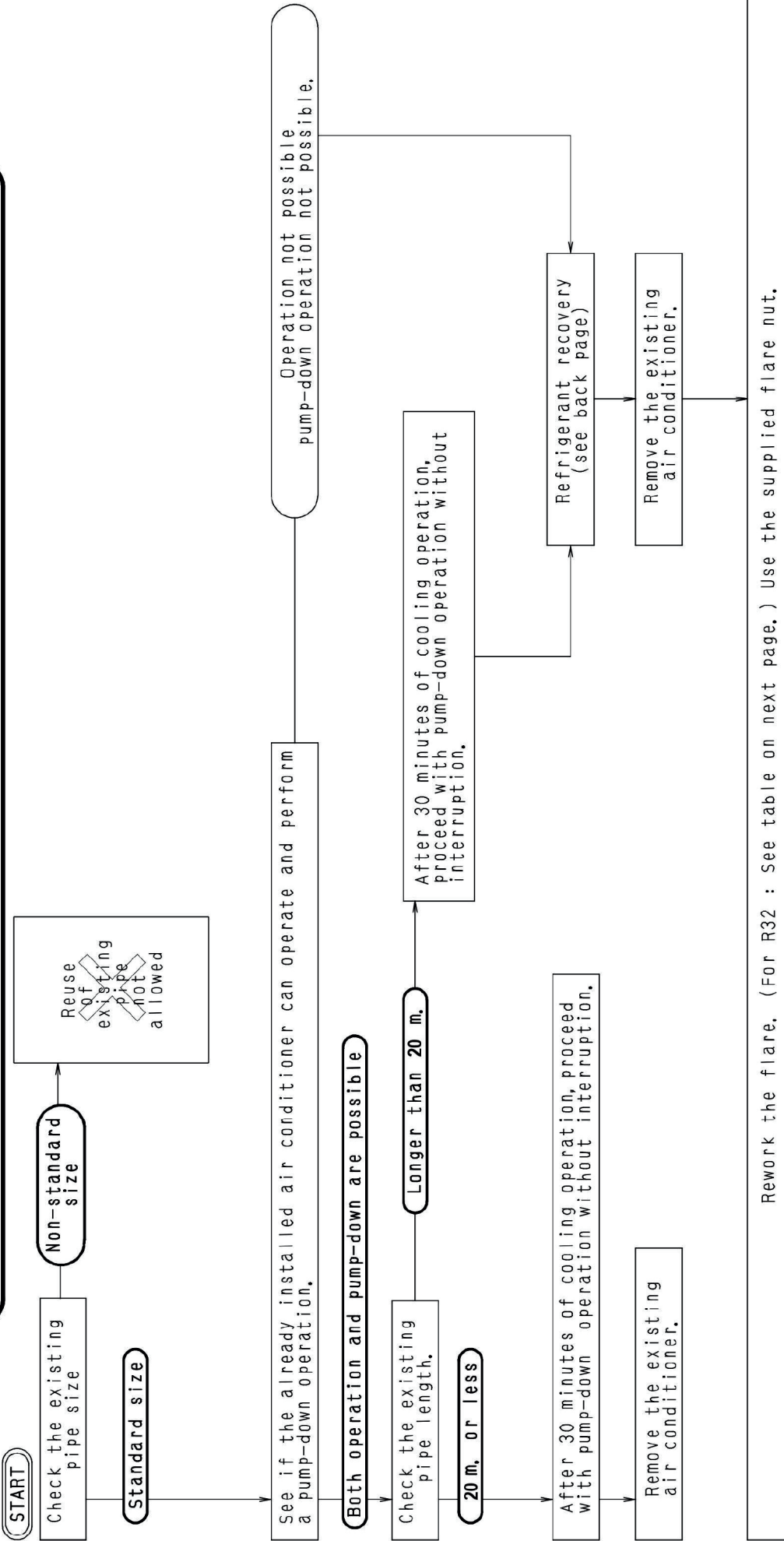
Carefully monitor the suction and discharge pressures – ensure that the suction pressure does not fall below 25 psig (1.7 bar) at any time during the charging process.



There are many ways of charging liquid in a “controlled manner” into the suction side:-

1. Use valve A on the manifold gauge set
2. Use the valve on the refrigerant cylinder
3. Charge through a Shredder valve
4. Use a hose with a Shredder valve depressor
5. Charge into the suction side at some distance from the compressor
6. All of the above

HOW TO RE-USE THE EXISTING PIPING



Existing piping work for new air conditioner

(Note)

- ① Clean the pipe if refrigerant leakage and unit has not service port on gas-liquid stop valve.
- ② If indoor unit equipped with EV valve, open that valve before recovery refrigerant.
- ③ Maximum pipe length as per specified on next page.

PRECAUTIONS ON REFRIGERANT PIPING

- Clean pipe if existing air conditioner is [gas, oil heat pump type].
- Clean pipe if used compressor oil in existing air conditioner is other than [SUNISO, MS, HAB, Barrel freeze, JOMO, Ethereal oil, Ester oil].
- Clean pipe if existing indoor and outdoor unit is disconnected.
- Change new pipe if refrigerant leakage or it should adding refrigerant.
- Change new heat insulation if existing part is peeling off.

REFRIGERANT RECOVERY METHOD

[Working procedure]

1.Recovery retaining oil in existing gas pipe Approx. 1 min

Close gas stop valve (liquid stop valve : open)
and recovery refrigerant from gas stop valve port.(Fig.1)

2.Recovery retaining oil in existing liquid pipe Approx.1 min

Recovery refrigerant from liquid stop valve port.(Fig.2)

3.Recovery refrigerant in outdoor unit Approx.2-3 min

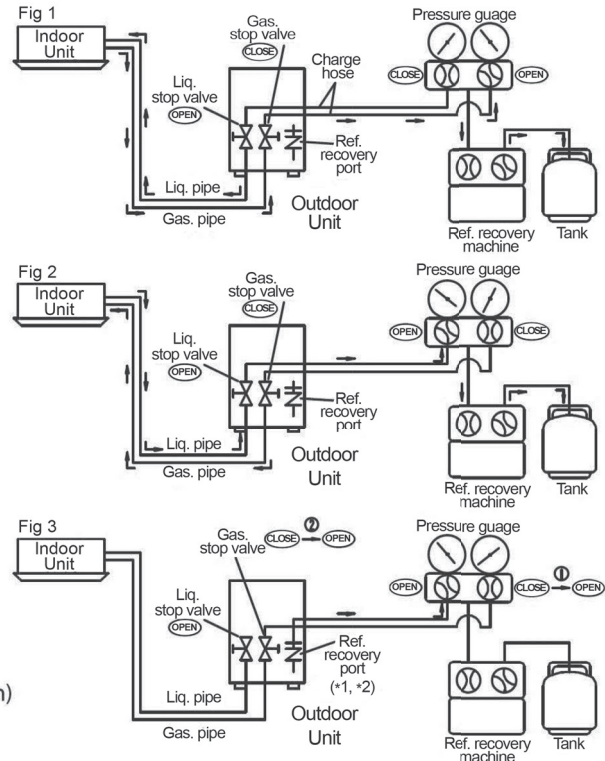
Recovery refrigerant from outdoor unit refrigerant recovery port *1. (Fig.3)

NOTE *1 Can be omit this procedure if there has no refrigerant recovery port.

4.Recovery refrigerant in accordance with Fluorocarbons Recovery and Destruction Law

If refrigerant recovery port *2 pressure became lower than gas stop valve port pressure, refrigerant will recover at the simultaneous from the gas stop valve port, open gas stop valve (Fig.3-①) gradually to avoid from pressure rising rapidly. (Fig.3-②)

NOTE *2 Recovery refrigerant from liquid valve port and stop valve port simultaneous if there has no refrigerant recovery port.



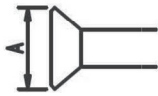
Retaining oil recovery amount improved
approx. 5 times from regular refrigerant
recovery method

(pipe length, height difference, pipe path etc. is difference by installation condition)

ABOUT FLARE PROCESSING

- Flare connection area of existed piping will cause processing deterioration, make sure to do newly re-processing.

- Flare processing
[Unit : mm]



| Piping outside diameter | A (+0, -0.4) For R32 |
|-------------------------|-------------------------|
| | φ 6.4 |
| φ 9.5 | 13.0 |
| φ 12.7 | 16.2 |
| φ 15.9 | 19.4 |

- Please use flare nut which attached with product
(Do not use existed flare nut)

- Flare nut
[Unit : mm]



| Piping outside diameter | B (+0, -0.6) For R32 |
|-------------------------|-------------------------|
| | φ 6.4 |
| φ 9.5 | 22 |
| φ 12.7 | 26 |
| φ 15.9 | 29 |

REFRIGERANT PIPE SIZE TABLE

| Outdoor Unit | Existing Pipe Size | 6.4/9.5/12.7/ 15.9 | Height Difference | Design Pressure (High Pressure) | Outdoor Unit | Existing Pipe Size | 6.4/9.5/12.7/ 15.9 | Height Difference | Design Pressure (High Pressure) |
|--------------|--------------------|-----------------------|----------------------|------------------------------------|--------------|--|-----------------------|----------------------|------------------------------------|
| RGVF18ASV16 | 6.4/ 12.7 | Standard Pipe Length | 7.5 m | Max 10 m | 4.17 Mpa | RGVF30/36AS V16 | 9.5/ 15.9 | Standard Pipe Length | 7.5 m |
| | | Max pipe length | 20 m | | | | | Max pipe length | 20 m |
| | | Chargeless length | 7.5 m | | | | | Chargeless length | 7.5 m |
| RGVF24ASV16 | 6.4/ 15.9 | Standard Pipe Length | 7.5 m | Max 10 m | 4.17 Mpa | RGVF42/48AS Y16 RGVF42/48BS Y16 | 9.5/ 15.9 | Standard Pipe Length | 7.5 m |
| | | Max pipe length | 20 m | | | | | Max pipe length | 30 m |
| | | Chargeless length | 7.5 m | | | | | Chargeless length | 7.5 m |

- Refer to the installation manual for details other than those mentioned above table such as additional refrigerant charge amount.
- Clean the existing pipe if it's length exceeds 20 m.
- Clean the existing pipe if chargeless length is exceed limit of existing pipe pump down refrigerant recovery.

- Standard pipe (R32)

| | | | | |
|----------------|-------|-------|-------|-------|
| Pipe Size (mm) | φ6.4 | φ9.5 | φ12.7 | φ15.9 |
| Thickness (mm) | t 0.8 | t 0.8 | t 0.9 | t 1.0 |

SPLIT SYSTEM**Air Conditioners**

MODEL Ceiling mounted cassette type IDU

**FCQF18ARV16
FCQF24ARV16
FCQF30ARV16
FCQF36ARV16
FCQF42ARV16
FCQF48ARV16**

English

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.
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FCQF18ARV16
 FCQF24ARV16
 FCQF30ARV16
 FCQF36ARV16
 FCQF42ARV16
 FCQF48ARV16

Installation manual

SPLIT SYSTEM
Air Conditioners

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1. SAFETY PRECAUTIONS

| | | | |
|--|---|--|---|
|  | Read the precautions in this manual carefully before operating the unit. |  | This appliance is filled with R32. |
|--|---|--|---|

Please read these “SAFETY PRECAUTIONS” carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual. Ask the customer to store the installation manual along with the operation manual for future reference.


This air conditioner comes under the term “appliances not accessible to the general public”.

Please instruct the customer on how to operate the unit and keep it maintained.

Also, inform customers that they should store this installation manual along with the operation manual for future reference.

Meaning of WARNING and CAUTION notices.

 **WARNING** Failure to follow these instructions properly may result in personal injury or loss of life.

 **CAUTION** Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

WARNING

- Ask your dealer or qualified personnel to carry out installation work.
Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the air conditioner in accordance with the instructions in this installation manual.
Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work.
Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Install the air conditioner on a foundation strong enough to withstand the weight of the unit.
A foundation of insufficient strength may result in the equipment falling and causing injury.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.
Failure to do so during installation work may result in the unit falling and causing accidents.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
Improper connections or securing of wires may result in abnormal heat build-up or fire.
- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the control box lid can be securely fastened.
Improper positioning of the control box lid may result in electric shocks, fire or overheating terminals.

- If refrigerant gas leaks during installation, ventilate the area immediately. Toxic gas may be produced if the refrigerant comes into contact with fire.
- After completing installation, check for refrigerant gas leakage. Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.
- When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure, it is free of air, and use only the specified refrigerant (R32).
The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- Be sure to switch off the unit before touching any electrical parts.
- Do not directly touch refrigerant that has leaked from refrigerant pipes or other areas, as there is a danger of frostbite.
- Be sure to earth the air conditioner.
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead.
Imperfect earthing may result in electric shocks or fire.
A high surge current from lightning or other sources may cause damage to the air conditioner.
- Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks or fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage. When the air conditioner is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen depletion.
- Do not allow children to climb on the outdoor unit and avoid placing objects on the unit.
Injury may result if the unit becomes loose and falls.
- The appliance must be stored in a room without continuously operating ignition sources (for example : open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerant may not contain an odour.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Comply with national gas regulations.
- When flared joints are reused indoors, the flare part shall be re-fabricated.

CAUTION

- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate piping to prevent condensation.
Improper drain piping may result in indoor water leakage and property damage.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radios to prevent picture interference and noise.
(Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types). Install the indoor unit as far away from fluorescent lamps as possible.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Install in a machine room that is free of moisture. The unit is designed for indoor use.
- Disposal requirements
Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.
- The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
 - A. Clean and dry
Strict measures must be taken to keep impurities (including SUNISO oil and other mineral oils as well as moisture) out of the system.
 - B. Tightly sealed
R32 contains no chlorine, does not destroy the ozone layer and so does not reduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere.
- Do not install the air conditioner in the following locations:
 1. Where there is a high concentration of mineral oil spray or vapour (e.g. a kitchen).
Plastic parts will deteriorate, parts may fall off and water leakage could result.
 2. Where corrosive gas, such as sulphurous acid gas, is produced.
Corroding of copper pipes or soldered parts may result in refrigerant leakage.
 3. Near machinery emitting electromagnetic radiation.
Electromagnetic radiation may disturb the operation of the control system and result in a malfunction of the unit.
 4. Where flammable gas may leak, where there is carbon fibre or ignitable dust suspensions in the air, or where volatile flammables such as paint thinner or gasoline are handled.
Operating the unit in such conditions may result in fire.
- The air conditioner is not intended for use in a potentially explosive atmosphere.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Important information regarding the refrigerant used.
This product contains fluorinated greenhouse gases covered by the Kyoto protocol. Do not vent gases into the atmosphere.
Refrigerant type: R32
GWP⁽¹⁾ value: 550*
⁽¹⁾GWP = global warming potential
- The refrigerant quantity is indicated on the unit name plate.
*This value is based on F gas regulation (842/2006).

2. BEFORE INSTALLATION

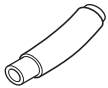
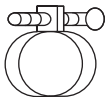


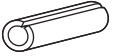

Do not exert pressure on the resin parts when opening the unit or when moving it after opening. Be sure to check the type of R32 refrigerant to be used before doing any work. (Using an incorrect refrigerant will prevent normal operation of the unit.)


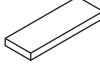



- When opening the unit or moving it after opening, be sure to lift it by holding on to the hanger bracket without exerting any pressure on other parts, especially, drain piping, and other resin parts.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.
- Do not dispose of any parts necessary for installation until the installation is complete.
- In order to protect the indoor unit from damage, use packing materials to protect the unit after carrying until the installation starts.
- When selecting installation site, refer to the paper pattern.
- Do not use the unit in locations with high salt content in the air such as beachfront property, locations where the voltage fluctuates such as factories, or in automobiles or marine vessels.
- Do not install accessories on the casing directly. Drilling holes in the casing may damage electrical wires and consequently cause fire.

2-1. ACCESSORIES

Check the following accessories are included with your unit.

(Do not dispose of any parts necessary for installation until the installation is completed.)

| Name | (1) Drain hose | (2) Metal clamp | (3) Paper pattern for installation | (4) Washer fixing plate | 5) Insulation for fitting |
|----------|---|---|--|---|---|
| Quantity | 1 pc. | 1 pc. | 1 pc. | 4 pcs. | 1 each |
| Shape |  |  | Upper part of packing  |  | (6) For gas pipe  (7) For liquid pipe  |

| Name | Sealing pad | | | (Other) |
|----------|---|---|---|---|
| Quantity | 1 each | 1 pc. | 1 pc. | |
| Shape | (8) Large  (9) Medium-1  (10) Medium-2  | (11) Small  | (12)  | <ul style="list-style-type: none"> • Installation manual • Operation manual |

2-2. OTHER ACCESSORIES

- Decoration panel and wireless remote controller is required for this indoor unit. Refer to **(Table 1)**
- Check that the decoration panel is prepared.
(For the installation of the decoration panel, refer to the installation manual attached to the decoration panel)

Table 1

| Unit model | Decoration Panel | Wireless Remote Controller |
|----------------------------------|---------------------|----------------------------|
| FCQF18, 24, 30, 36, 42, 48 ARV16 | BYCQ48EAF6 | ARC91A151 |
| | Color : Fresh White | Supplied with IDU |

FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.

1. Items to be checked after completion of work

| Items to be checked | If not properly done, what is likely to occur | Check |
|--|--|-------|
| Are the indoor unit and outdoor unit fixed firmly? | The unit may drop, vibrate or make noise. | |
| Is the outdoor unit fully installed? | The unit may malfunction or the components burn out. | |
| Is the gas leak test finished? | It may result in insufficient cooling. | |
| Is the unit fully insulated? | Condensate water may drip. | |
| Does drainage flow smoothly? | Condensate water may drip. | |
| Does the power supply voltage correspond to that shown on the name plate? | The unit may malfunction or the components burn out. | |
| Are wiring and piping correct? | The unit may malfunction or the components burn out. | |
| Is the unit safely grounded? | It may result in electric shock. | |
| Is wiring size according to specifications? | The unit may malfunction or the components burn out. | |
| Is something blocking the air outlet or inlet of either the indoor or outdoor units? | It may result in insufficient cooling. | |
| Are refrigerant piping length and additional refrigerant charge noted down? | The refrigerant charge in the system is not clear. | |

2. Items to be checked at time of delivery

* Also review the “1. SAFETY PRECAUTIONS”

| Items to be checked | Check |
|---|-------|
| Has the field setting done (as necessary)? | |
| Did you attach the control box lid, the air filter, and suction grille? | |
| Does the cold air blow properly during the cooling operation? | |
| Did you explain about operations while showing the instruction manual to your customer? | |
| Did you hand the instruction manual over to your customer? | |

Points for explanation about operations

The items with **⚠ WARNING** and **⚠ CAUTION** marks in the instruction manual are the items pertaining to possibilities for bodily injury and material damage in addition to the general usage of the product. Accordingly, it is necessary that you make a full explanation about the described contents and also ask your customers to read the instruction manual.

2-3. NOTE TO THE INSTALLER

Be sure to instruct customers how to properly operate the unit (especially cleaning filters, operating different functions, and adjusting the temperature) by having them carry out operations themselves while looking at the manual.

3. SELECTING INSTALLATION SITE

⟨Hold the unit by the 4 lifting lugs when opening the box and moving it, and do not exert pressure on to any other part piping (refrigerant, drain, etc.) or plastic parts.

If the temperature or humidity inside the ceiling might rise above 30°C or RH 80%, respectively, use the high-humidity kit (sold separately) or add extra insulation to the main unit body.

Use glass wool or polyethylene foam as insulation and make sure it is at least 10 mm thick and fits inside the ceiling opening.⟩

The direction this product blows can be selected. However, a separately sold shut-off material kit is needed in order to make the unit blow in two, three, or four (corner shut-off) directions.

(1) Select an installation location with the customer’s approval which matches the following conditions.

- Where optimum air distribution can be ensured.
 - Where nothing blocks air passage.
 - Where condensate can be properly drained.
 - Where the ceiling is strong enough to bear the indoor unit weight.
 - Where the false ceiling is not noticeably on an incline.
 - Where sufficient clearance for maintenance and service can be ensured.
 - Where there is no risk of flammable gas leakage.
 - Where piping between indoor and outdoor units is possible within the allowable limit.
- (Refer to the installation manual for the outdoor unit.)

[Space required for installation]

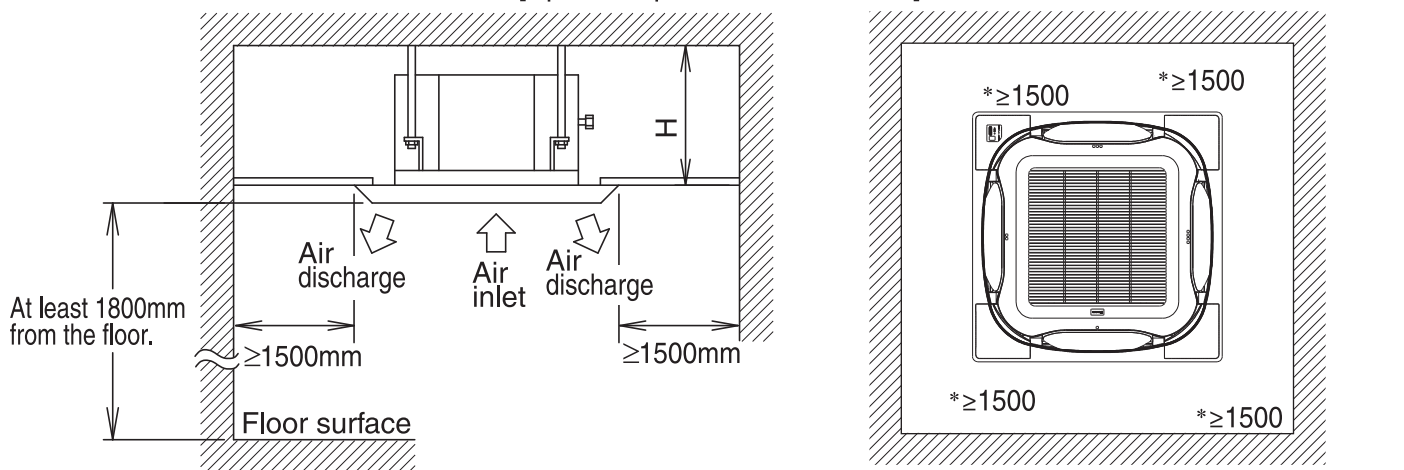


Fig. 1

(unit : mm)

| Model | H (mm) |
|-----------------------------|-------------------|
| | BYCQ48EAF6 |
| FCQF18.24ARV16 | 261 |
| FCQF30.36.42.48ARV16 | 303 |

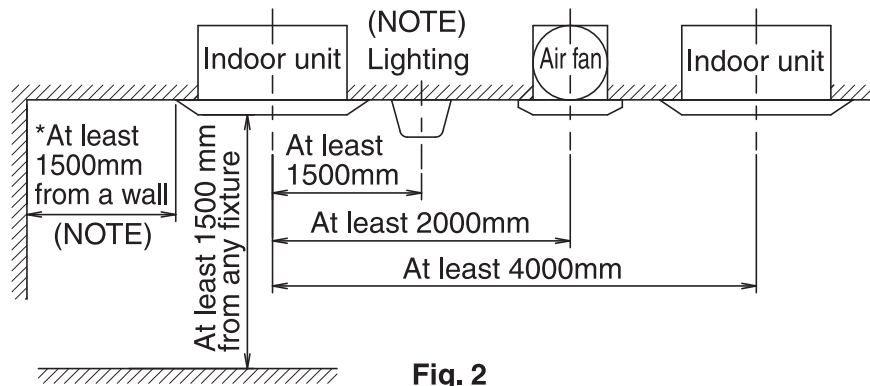


Fig. 2

NOTE

- The “*” marked space is at least 500 mm wide if the air outlet is closed. In case of also closed corner area (corner area of both left right direction for closing air outlet), it is 200 mm or more.

CAUTION

- Any vents, light fixtures, or other appliances which may disturb the airflow might cause the top side to become dirty if located too nearby, so follow **Fig. 2** when installing.
Note)
 1. This restriction applies to the exposed type lighting, but does not apply to the recessed type (which does not protrude below the ceiling line).
 2. For how to set the airflow direction (including airflow block) with the horizontal blade, refer to “Individual Airflow Direction” in the operation manual attached to the remote controller.
- Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)
- If installing the wireless kit, the distance of the signal sent from the remote controller might be shorter if there are fluorescent lights which are electrically started (such as with inverters, rapid starters, etc.) in the room. The indoor unit should be installed as far away from fluorescent lights as possible.

(2) Ceiling height

This product can be installed in ceilings up to 3.5 m high (4.2 m high for the 30, 36, 42 and 48).

(3) Air direction

The air direction shown in **Fig. 3** is an example.

Select the appropriate number of directions according to the shape of the room and the location of the unit.

- (4) Use suspension bolts for installation. Check if the location for the installation is strong enough to support the weight of the unit, reinforce it if necessary, and install using suspension bolts. (The spacing of the installation is shown on the “paper pattern for installation (3)”.)

[Air direction]

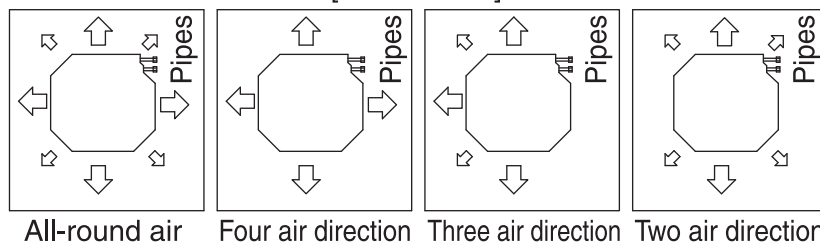
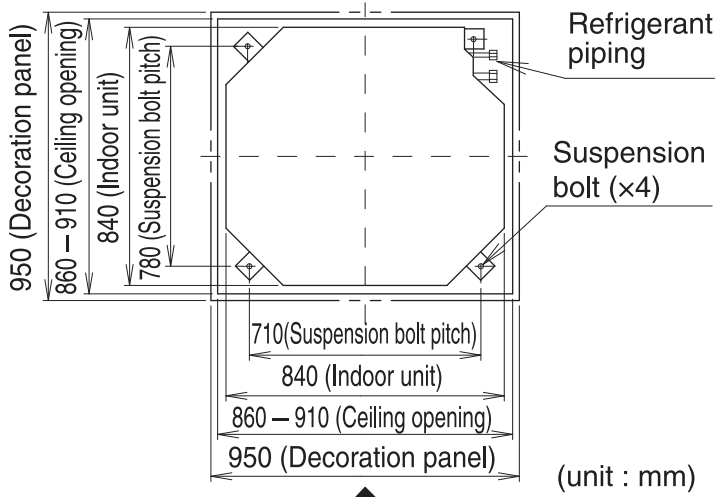


Fig. 3

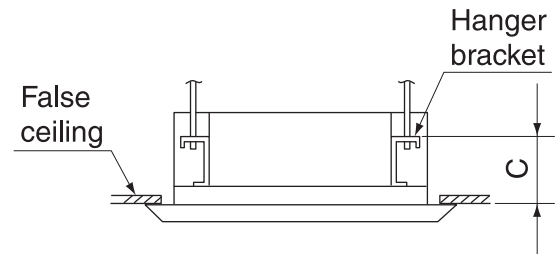


4. PREPARATIONS BEFORE INSTALLATION

(1) Relation of ceiling opening to unit and suspension bolt position.



↑ A
Fig. 4



View as seen from A

Fig. 5

| | |
|------------------|-------------------|
| Decoration Panel | BYCQ48EAF6 |
| C (mm) | 125~130 |

■ Installation is possible when ceiling opening dimensions is as follows.

- When installing the unit within the frame for fixing false ceiling.

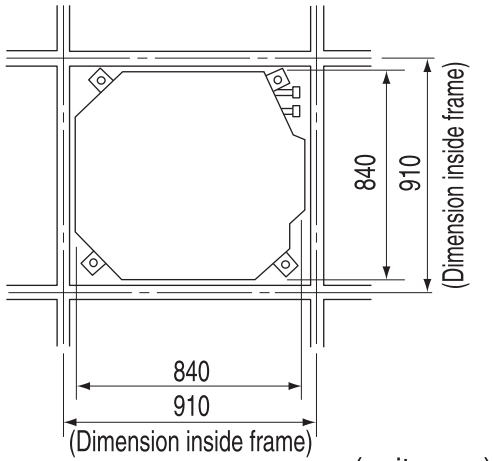


Fig. 6

(unit : mm)

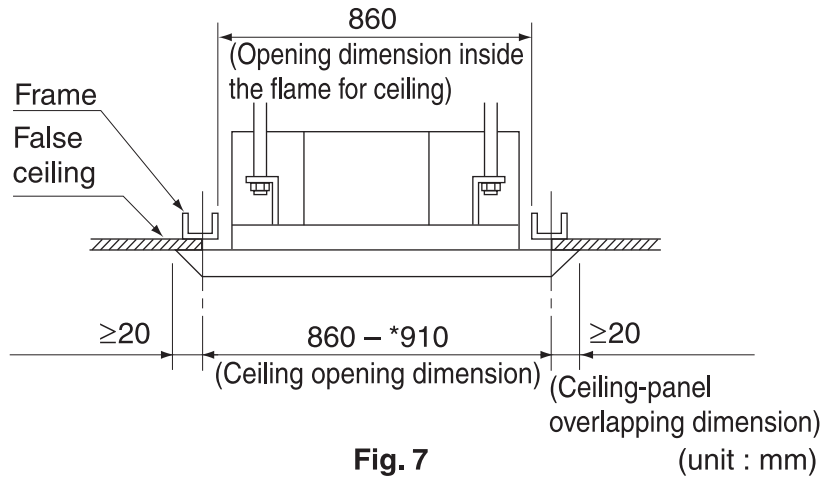


Fig. 7

(unit : mm)

NOTE

- Installation is possible with a ceiling dimension of 910 mm (marked with *). However, to achieve a ceiling-panel overlapping dimension of 20 mm, the spacing between the ceiling and the unit should be 35 mm or less. If the spacing between ceiling and the unit is over 35 mm, attach ceiling material to ■ part or recover the ceiling.

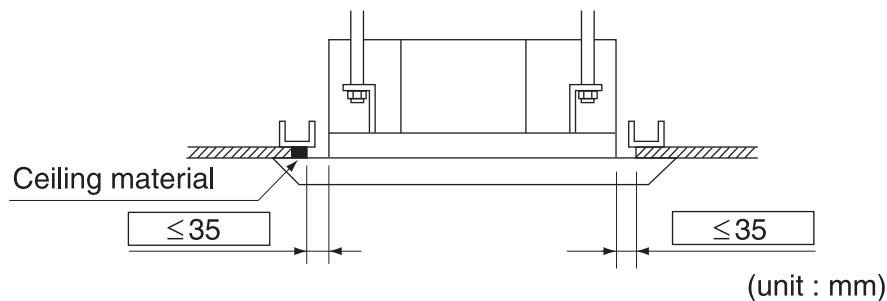


Fig. 8

(unit : mm)

(2) Make the ceiling opening needed for installation where applicable. (For existing ceilings)

- Refer to the paper pattern for installation (3) for ceiling opening dimensions.
- Create the ceiling opening required for installation. From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type) and indoor-outdoor unit casing outlet. Refer to “6. REFRIGERANT PIPING WORK”, “7. DRAIN PIPING WORK” and “8. ELECTRIC WIRING WORK”.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

(3) Install the suspension bolts.

- Use M8 or M10 bolts for hanging the indoor unit. Use a hole-in anchor for existing ceilings, and a sunken insert, sunken anchor or other field supplied parts for new ceilings to reinforce the ceiling to bear the weight of the unit. Adjust clearance (50 – 100 mm) from the ceiling before proceeding further.

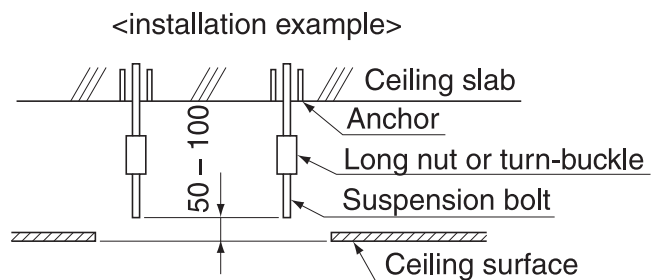


Fig. 9

(unit : mm)

NOTE

- All the above parts are field supplied.

5. INDOOR UNIT INSTALLATION

Installing optional accessories (except for the decoration panel) before installing the indoor unit is easier. However, for existing ceilings, install fresh air inlet component kit and branch duct before installing the unit.

As for the parts to be used for installation work, be sure to use the provided accessories and specified parts designated by our company.

5.1 FOR NEW CEILINGS

(1-1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer from the upper and lower sides of the hanger bracket. (Refer to Fig.10)
The washer fixing plate (4) will prevent the washer from falling. (Refer to Fig.11)

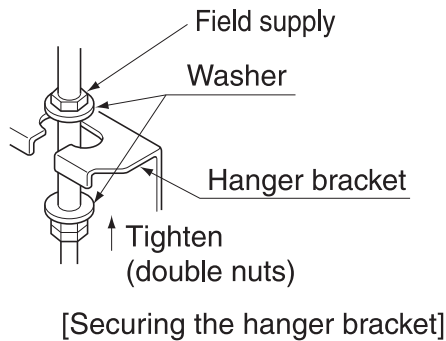


Fig. 10

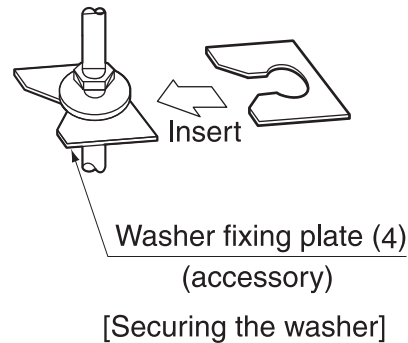


Fig. 11

(1-2) Refer to the paper pattern for installation (3) for ceiling opening dimension.

Consult the builder or carpenter for details.

- The center of the ceiling opening is indicated on the paper pattern for installation.
The center of the unit is indicated on the triangular mark to the unit bottom and on the paper pattern for installation.
- Fix the paper pattern to the unit with screws.
- Ceiling height is shown on the side of the paper pattern for installation (3). Adjust the height of the unit according to this indication.

Please perform one of the following, as the shape of the paper pattern for installation differs according to the model.

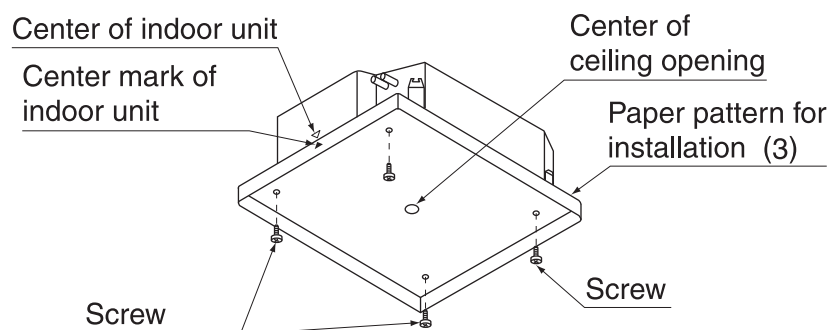


Fig. 12

[Installation of paper pattern for installation]

<Ceiling work>

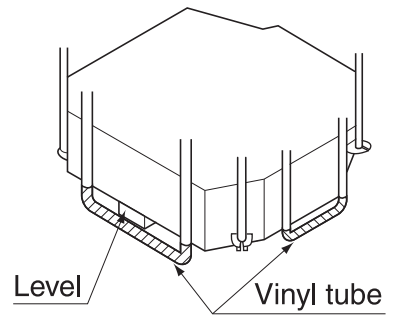
(1-3) Adjust the unit to the right position for installation.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)”.)

- Using the installation guide allows you to check the positions from the underside of the unit to the lower ceiling surface.

(1-4) Check the unit is horizontally level. (Refer to Fig.13)

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.



[Maintaining horizontality]

Fig. 13

⚠ CAUTION

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.
(If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.)

(1-5) Remove the washer fixing plate (4) used for preventing the washer for hanger from dropping and tighten the upper side nut.

(1-6) Remove the paper pattern for installation (3).

5.2 FOR EXISTING CEILINGS

(2-1) Install the indoor unit temporarily.

Perform step (1-1) in (1) For new ceilings.

(2-2) Adjust the height and position of the unit.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)” and (1-3) in (1) For new ceilings.)

(2-3) Perform steps (1-4), (1-5) in (1) For new ceilings.

⚠ CAUTION

• Install the indoor unit leveled.

If the indoor unit is inclined and the drain piping side gets high, it may cause malfunction of a float switch and results in water leakage.

• Attach nuts on the upper and lower side of hanger.

If there is no upper nut and the lower nut is over-tightened, the hanger and the top plate will deform and cause abnormal sound.

• Do not insert materials other than that specified into the clearance between the hanger and the washer for hanger.

Unless the washers are properly attached, the hanging bolts may come off from the hanger.

⚠ WARNING

The indoor unit must be securely installed on a place that can withstand the mass.

If the strength is insufficient, the indoor unit may fall down and cause injuries.

6. REFRIGERANT PIPING WORK

- For the outdoor unit refrigerant piping, refer to the installation manual of the outdoor unit.
- Carry out insulation of both gas and liquid refrigerant piping securely. If not insulated, it may cause water leakage. For gas piping, use insulation material of which heat resistant temperature is not less than 120°C. For use under high humidity, strengthen the insulation material for refrigerant piping. If not strengthened, the surface of insulation material may sweat.
- Before installation work, make sure that the refrigerant is R32. (Unless the refrigerant is R32, the normal operation cannot be expected.)

⚠ WARNING

When flared joints are reused indoors, the flare part shall be re-fabricated.

⚠ CAUTION

This air conditioner is a dedicated model for new refrigerant R32. Make sure to meet the requirements shown below and carry out installation work.

- Use dedicated piping cutters and flaring tools for R32 and R410A.
- When making a flare connection, coat the flared inner surface only with ether oil or ester oil.
- Use only the flare nuts attached to the air conditioner. If other flare nuts are used, it may cause refrigerant leakage.
- To prevent contamination or moisture from getting into the piping, take measures such as pinching or taping the pipings.
Do not mix substance other than the specified refrigerant such as air into the refrigeration circuit. If the refrigerant leaks during the work, ventilate the room.

- The refrigerant is pre-charged in the outdoor unit.
- When connecting the pipings to the air conditioner, make sure to use a spanner and a torque wrench as shown in Fig. 14.
- For the dimension of flared part and the tightening torque, refer to the Table 3.

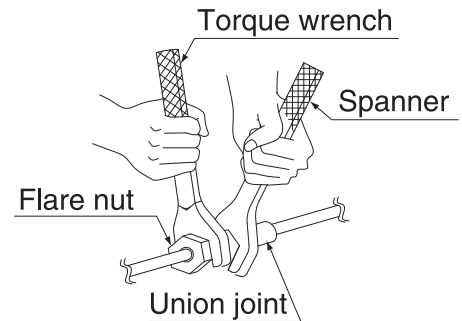


Fig. 14

- When making a flare connection, coat the flared inner surface only with ether oil or ester oil. (Refer to Fig. 15)
Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

Coat the flared inner surface only with ether oil or ester oil

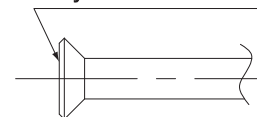


Fig. 15

Table 3

| Piping size (mm) | Tightening torque (N·m) | Dimension for processing flare A (mm) | Flare shape |
|------------------|-------------------------|---------------------------------------|-------------|
| φ 6.4 | 15.7 ± 1.5 | 8.9 ± 0.2 | |
| φ 9.5 | 36.3 ± 3.6 | 13.0 ± 0.2 | |
| φ 12.7 | 54.9 ± 5.4 | 16.4 ± 0.2 | |
| φ 15.9 | 68.6 ± 6.8 | 19.5 ± 0.2 | |

⚠ CAUTION

Do not have oil adhere to the screw fixing part of resin parts.

If oil adheres, it may weaken the strength of screwed part.

Do not tighten flare nuts too tight.

If a flare nut cracks, the refrigerant may leak.

- If there is no torque wrench, use **Table 4** as a rule of thumb.
When tightening a flare nut with a spanner harder and harder, there is a point where the tightening torque suddenly increases.
From that position, tighten the nut additionally the angle shown in **Table 4**.
After the work is finished, check securely that there is no gas leak.
If the nut is not tightened as instructed, it may cause slow refrigerant leak and result in malfunction (such as does not cool or heat).

Table 4

| Piping size (mm) | Tightening angle | Recommended arm length of tool used |
|------------------|------------------|-------------------------------------|
| φ 6.4 | 60° - 90° | approx. 150 mm |
| φ 9.5 | 60° - 90° | approx. 200 mm |
| φ 12.7 | 30° - 60° | approx. 250 mm |
| φ 15.9 | 30° - 60° | approx. 300 mm |

CAUTION

Insulation of field piping must be carried out up to the connection inside the casing.

If the piping is exposed to the atmosphere, it may cause sweating, burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

- After leak test, referring to **Fig. 16**, insulate both the gas and liquid piping connection with the attached joint insulating for fitting (6) and (7) to prevent the pipings from getting exposed.
Then, tighten the both ends of insulating material with the clamp.
- Wrap the sealing material (Medium-1, 2) (9) (10) around the joint insulating for fitting (6) and (7) (flare nut section), both the gas and liquid piping.
- Make sure to bring the seam of joint insulating for fitting (6) and (7) to the top.

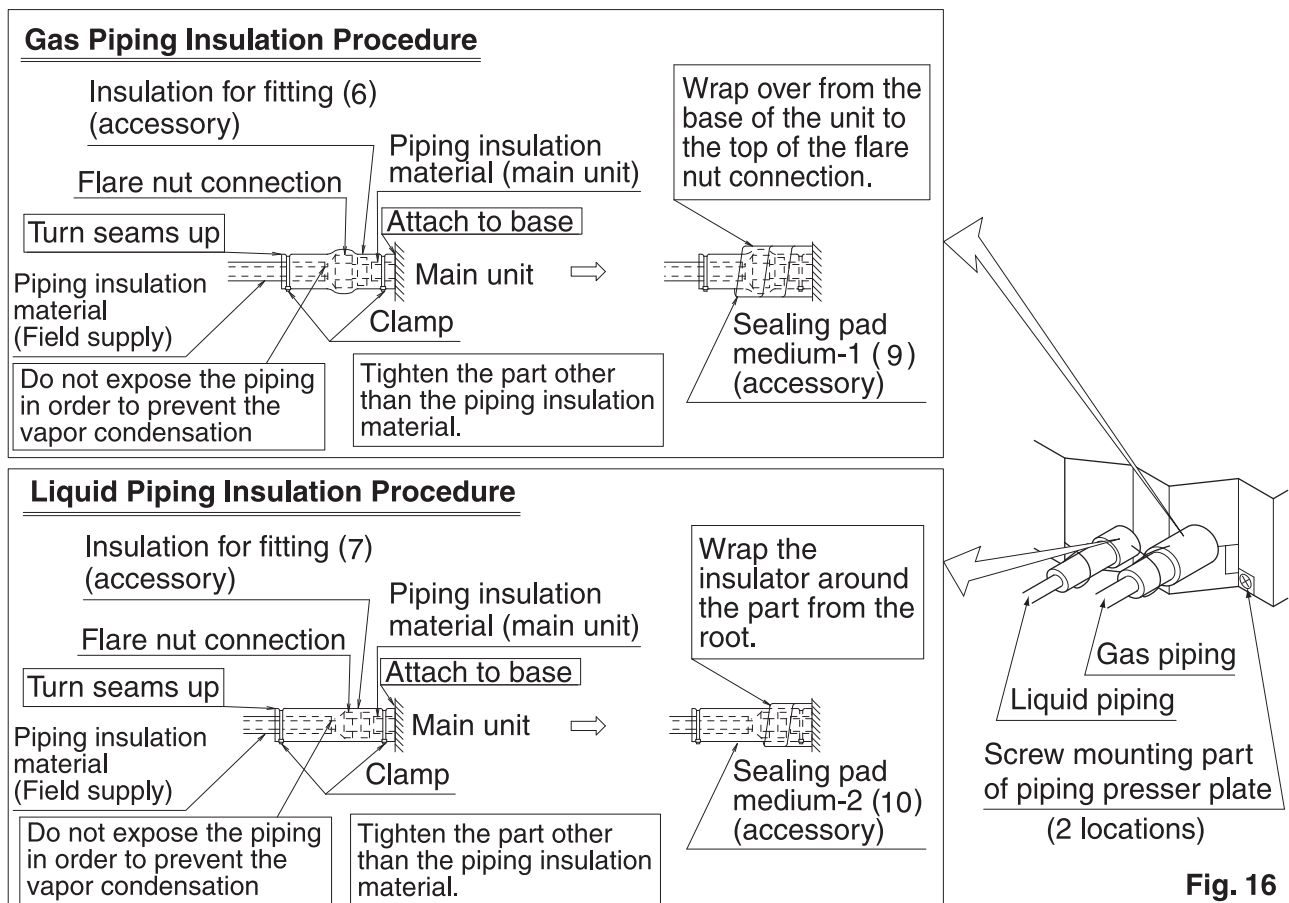


Fig. 16

- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 17). Then, carry out brazing (NOTE 2). After all the brazing works are finished, carry out flare connection with the indoor unit. (Refer to Fig. 16)

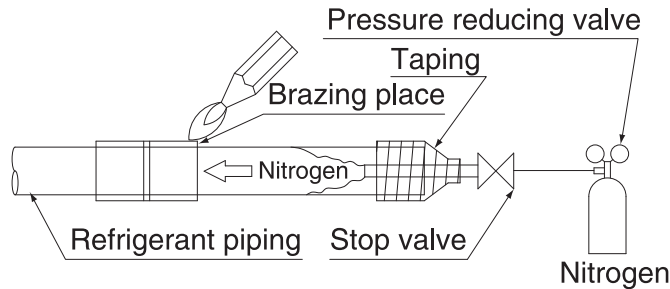


Fig. 17

NOTE

1. The proper pressure for having nitrogen flow through the piping is approximately 0.02 MPa, a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
2. Do not use flux when brazing refrigerant piping.
Use phosphor copper brazing filler metal (BCuP-2: JISZ3264/B-Cu93P-710/795: ISO 3677) that does not require flux.
(If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)
3. When carrying out leakage test of refrigerant piping and the indoor unit after the installation of indoor unit is finished, confirm the connecting outdoor unit installation manual for test pressure.
Refer to also the outdoor unit installation manual or technical document for refrigerant piping.
4. In case of refrigerant shortage due to forgetting additional refrigerant charge etc., it will result in malfunction such as does not cool or does not heat.
Refer to the outdoor unit installation manual or technical document for refrigerant piping.

CAUTION

Do not use antioxidant when brazing piping.

It may result in malfunction of components and clogging of piping due to residue.

7. DRAIN PIPING WORK

(1) Rig drain piping

- As for drain work, perform piping in such a manner that water can be drained properly.
- Employ a pipe with either the same diameter or with the diameter larger (excluding the raising section) than that of the connecting pipe (PVC pipe, nominal diameter 25 mm, outside diameter 32 mm).
- Keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air pockets from forming.
- If the drain pipe cannot be sufficiently set on a slope, execute the drain raising piping.
- To keep the drain pipe from sagging, space hanging wires every 1 to 1.5 m.

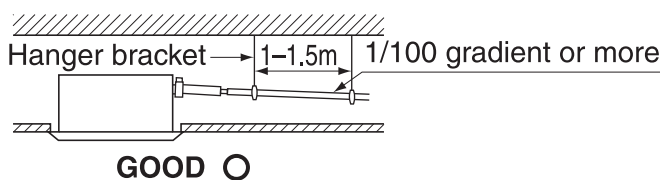


Fig. 18-1

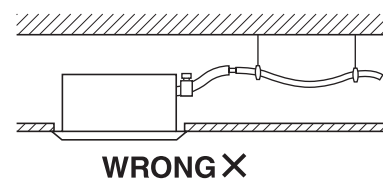


Fig. 18-2

CAUTION

Water accumulating in the drainage piping can cause the drain to clog.

- Use the attached drain hose (1) and Metal clamp (2).
- Insert the drain hose into the drain socket up to the base, and tighten the metal clamp securely within the portion of a white tape of the hose-inserted tip. Tighten the metal clamp until the screw head is less than 4 mm from the hose.
- Wrap the attached sealing pad (8) over the Metal clamp and drain hose to insulate.
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket

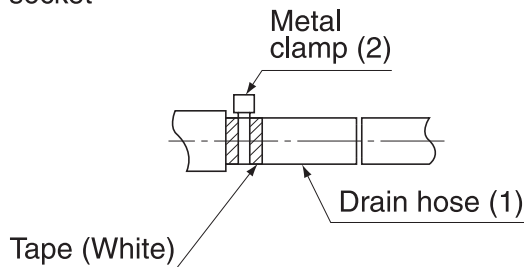


Fig. 19

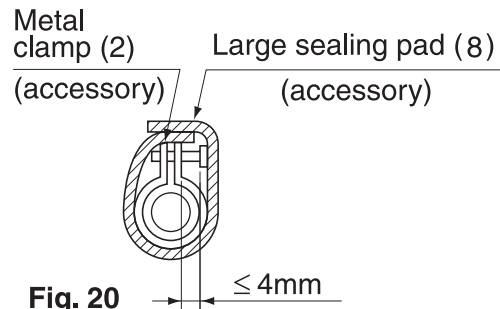


Fig. 20

<PRECAUTIONS FOR DRAIN RAISING PIPING>

- Install the drain raising pipes at a height of less than 675 mm. The drain pump of this unit has a high delivery flow rate. Therefore, the higher the drain raising height is, the lower the sound of draining will be. For this reason, a minimum drain raising height of 300 mm is recommended.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.

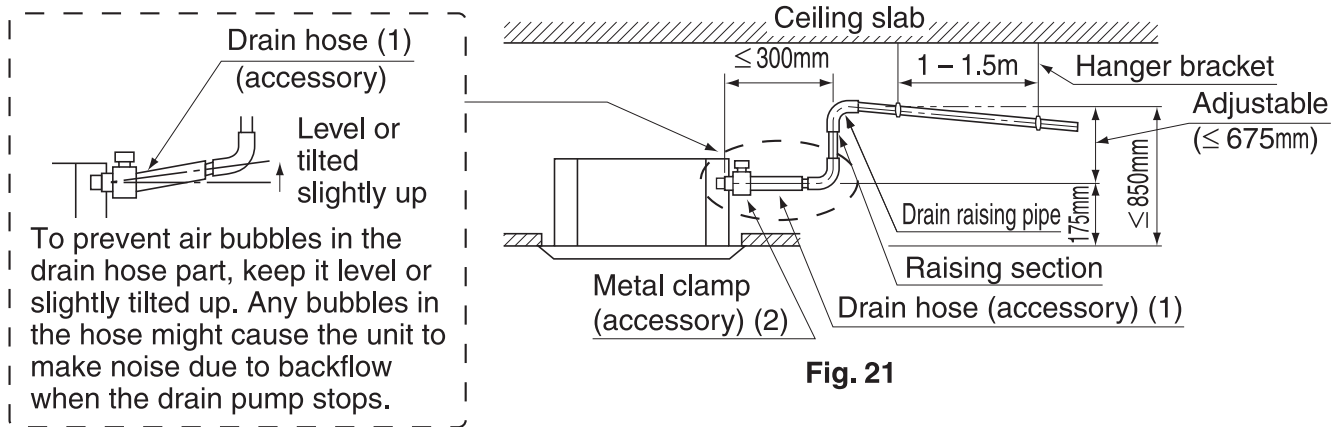


Fig. 21

NOTE

- To ensure no excessive pressure is applied to the included drain hose (1), do not bend or twist when installing. (This may cause leakage.)
- If converging multiple drain pipes, install according to the procedure shown below.

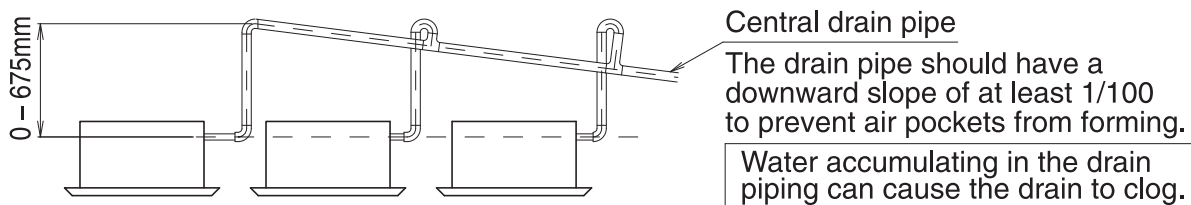


Fig. 22

- As for the size of central drain pipe, select the size that meet the capacity of indoor units to be connected. (Refer to the technical document)
- At replacement with new indoor unit, use the attached new drain hose (1) and the metal clamp (2). If an old drain hose or a metal clamp is used, it may cause water leakage.

CAUTION

Drain piping connections

- Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.

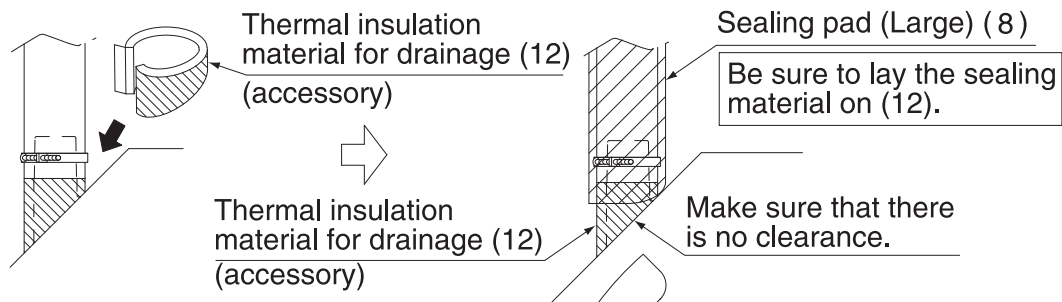
(2) After piping work is finished, check if drainage flows smoothly.

WHEN ELECTRIC WIRING WORK IS FINISHED

- Add approximately 1L of water slowly from the air outlet and check drainage flow. (Refer to Fig.23)
- Check drainage flow during COOL running.
- Refer to the figure on the following after checking the draining of water, and mount the thermal insulation material for drainage (12) and thermal insulate the drain socket.

⚠ CAUTION

- Do not apply external force to the float switch.
This may result in a malfunction.



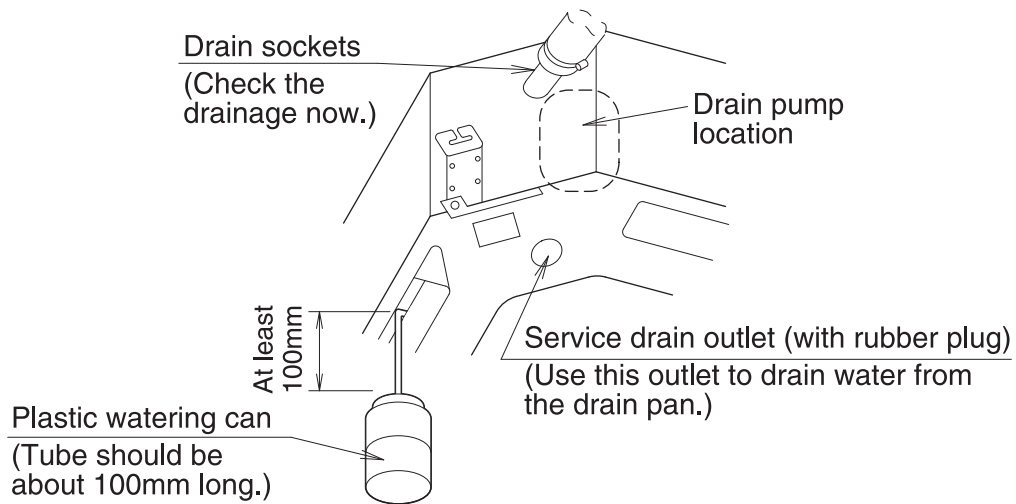
WHEN ELECTRIC WIRING WORK IS NOT FINISHED

⚠ CAUTION

- Electrical wiring work should be done by a certified electrician.
- If someone who does not have the proper qualifications performs the work, perform the following after the test run is complete.
- Remove the control box lid. Connect the single phase power supply (SINGLE PHASE 230V) to connections No.1 and No.2 on the terminal block for wiring the units. Do not connect to No.3 of the terminal block for wiring the units. (The drain pump will not operate.) Connect the earth wire firmly. When carrying out wiring work around the control box, make sure none of the connectors come undone. Be sure to attach the control box lid before turning on the power.
- Put approximately 1L of water into the drain pan through the blow-off mouth on the left-hand side of the drain socket. Make sure not to pour water over the drain pump or any electric parts including those of the drain pump.
- When the power is turned on, the drain pump will operate and you can check the draining of water through the transparent part of the drain socket. (The drain pump will stop automatically in 10 minutes.) After checking the draining of water, mount the thermal insulation material for drainage (12) and thermal insulate the drain socket.
- After confirming drainage (Fig. 23, Fig. 24), turn off the power and remove the power supply.
- Attach the control box lid as before.

⚠ CAUTION

- Do not apply external force to the float switch.
This may result in a malfunction.
- Do not touch the electronic ports other than the terminal block.



<Adding water through air discharge outlet>
[Method of adding water]

Fig. 23

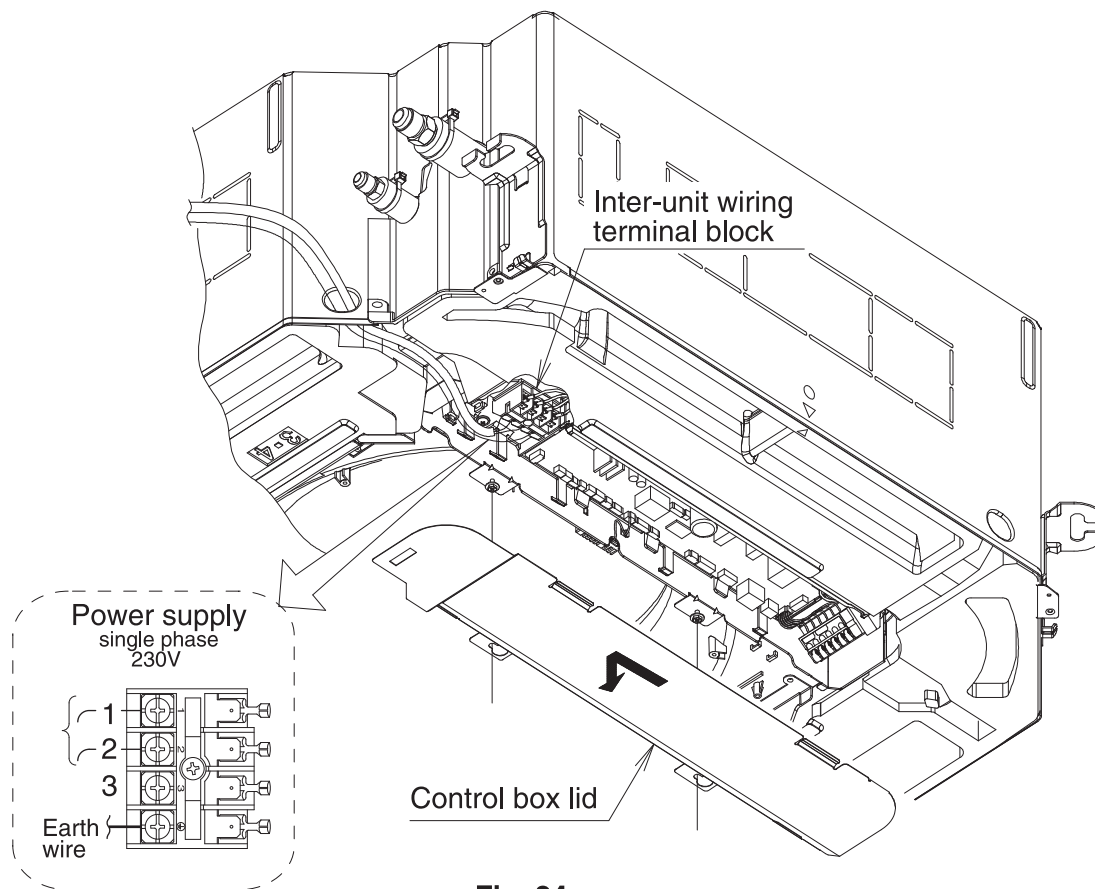


Fig. 24

8. ELECTRIC WIRING WORK

- Electric wiring work must be conducted by electrician authorized by power companies. (Only licensed electrician can conduct electric work and earth connections.)
- All wiring must be performed by an authorized electrician.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Be sure to install an earth leakage circuit breaker to the outdoor unit.
(This installation of an earth leakage circuit breaker is mandatory for the prevention of electric shocks and fire disasters.)
- Make sure that 230V is specified wiring between the indoor and outdoor units and between indoor units.
- Do not turn on the power supply (of the indoor unit) until all the installation work is completed.
- Be sure to ground the air conditioner.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Do not connect the earth wire to gas pipes, plumbing pipes, lightning rods, or telephone earth wires.
 - Gas pipes: might cause explosions or fire if gas leaks.
 - Plumbing pipes: no earth effect if hard vinyl piping is used.
 - Telephone earth wires or lightning rods: might cause abnormally high electric potential in the earth during lightning storms.
- For electric wiring work, refer to also "WIRING DIAGRAM" attached to the control box lid.
- Never connect the power supply wire to the terminal block for remote controller wire, or otherwise the entire system may be damaged.
- Do not touch the printed circuit board ASSY during the wiring work. Otherwise, it may cause damage.
- **Specifications for field wire**

The remote control cord should be procured locally. Refer to the **Table 5** when preparing one.

Wiring specifications are shown on the condition that the wiring has a voltage drop of 2%.

Table 5

| | | FCQF-RGVF (Indoor-Outdoor) | | | | | | |
|----------------------------------|---------|-------------------------------|-----|-----|-----|-------------------|-----|----|
| Model | Indoor | 18 | 24 | 30 | 36 | 42 | 48 | |
| | Outdoor | 18 | 24 | 30 | 36 | 42 | 48 | |
| Voltage Range | Indoor | 230V/1 Ph/50 Hz/⊕ | | | | | | |
| | Outdoor | 230V/1 Ph/50 Hz/⊕ | | | | 400V/3 Ph/50 Hz/⊕ | | |
| Power supply cable size | | 2.5 | 2.5 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Number of conductors | | sq. mm | 3 | 3 | 3 | 3 | 5 | 5 |
| Interconnection cable size | | 2.5 | 2.5 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Number of conductors | | sq. mm | 4 | 4 | 4 | 4 | 7 | 7 |
| Recommended fuse/circuit breaker | | A | 15 | 20 | 32 | 32 | 32 | 32 |

NOTE

1. Shows only in case of protected pipes. Use H07RN-F in case of no protection.
2. Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57)
3. Vinyl cord with sheath or cable (Insulated thickness : 1 mm or more)

Connection of wiring between units, earth wire

- Wiring the units and earth wire
Remove the control box lid and connect wires of matching number to the terminal block for wiring the units (4 P) inside. And connect the earth wire to the earth terminal. In doing this, pull the wires inside through the hole and fix the wires securely with the included clamp.

CAUTION

- Never connect the power supply wiring to the terminal block for wiring the units. If may damage the total system.

- Protect the wire and the wiring through hole area for wirings of the transmission, earth and the remote controller in order to prevent the intrusion of water and small animals into the air conditioner after the system is wired.
- Cut the sealing pad - small (11) into two pieces and wrap each wiring with each piece.
- Seal the clearance around the wirings with putty or thermal insulation material (field supply). (If insects and small animals get into the indoor unit, short circuiting may occur inside the control box.)
- After all the wiring connections are done, fill in any gaps in the through holes with putty or insulation (procured locally) to prevent small animals and insects from entering the unit from outside. (If any do get in, they could cause short circuits in the control box.)
- Outside the machine, separate the weak wiring and strong wiring (interunit, earth, and other power wiring) at least 50 mm so that they do not pass through the same place together. Proximity may cause electrical interference, malfunctions, and breakage.

[Processing method of wiring through hole]

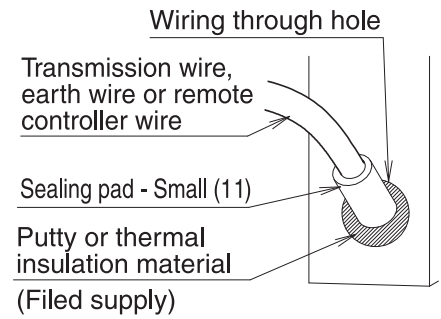


Fig. 25

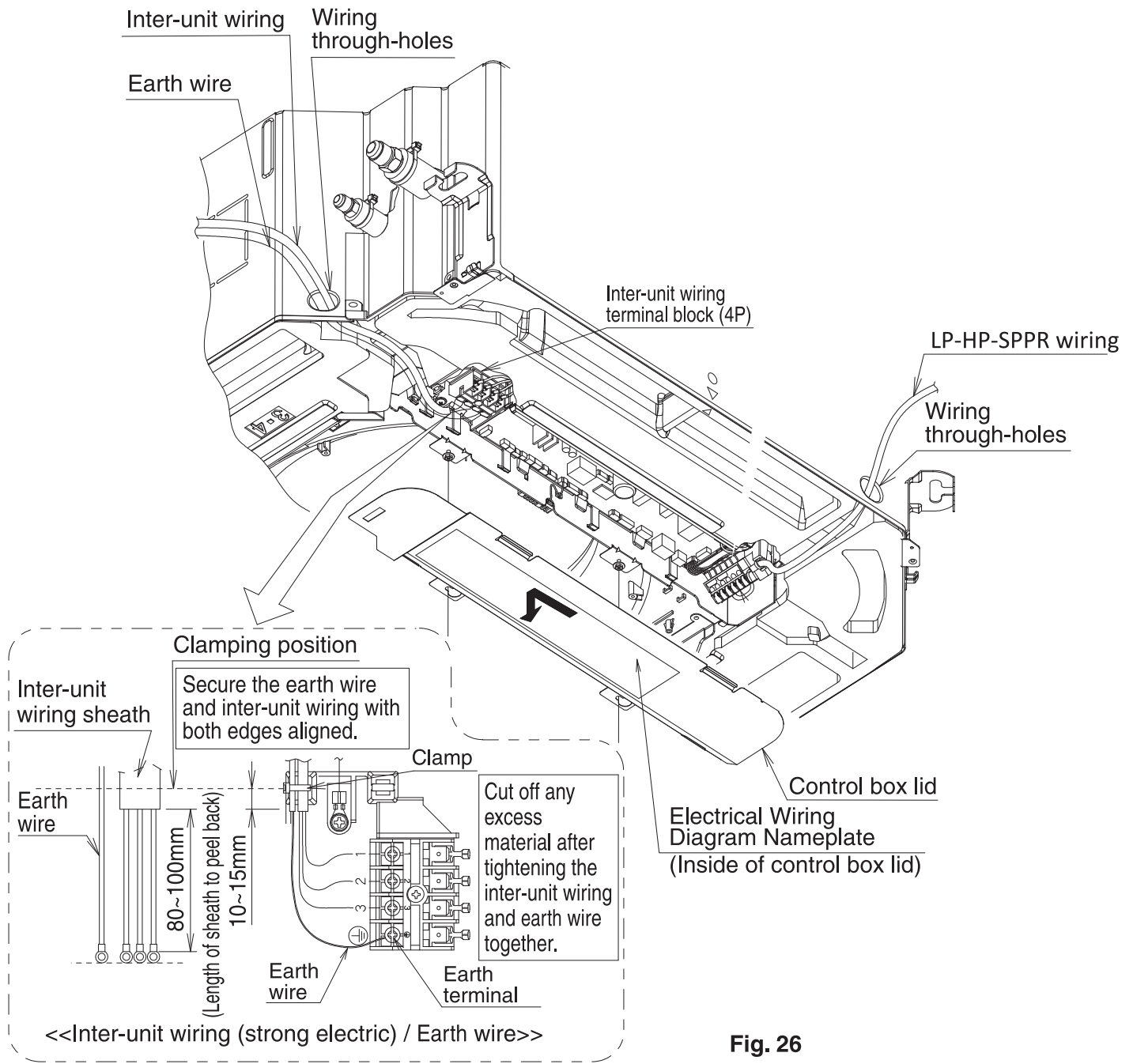


Fig. 26

⚠ CAUTION

- Shape the wires and attach the control box lid securely so that wires will not be caught. (Caught wires and risen lid may cause an electric shock or fire.)

Precautions to be taken for power supply wiring

Use a round crimp-style terminal for connection to the power supply terminal block.

In case it cannot be used due to unavoidable reasons, be sure to observe the following instructions.

(Refer to Fig. 27)

- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.) **(Refer to Fig. 28)**
- When connecting wires of the same gauge, connect them according to. **(Refer to Fig. 28)**
- In wiring, make certain that prescribed wires are used, carry out complete connections, and fix the wires so that external forces are not applied to the terminals.

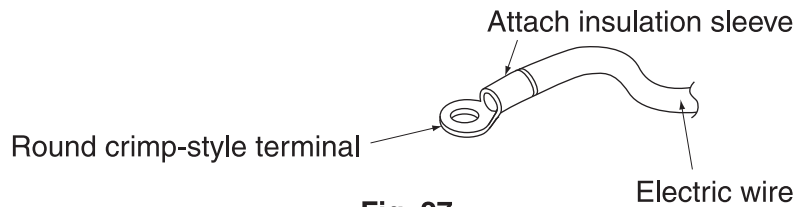
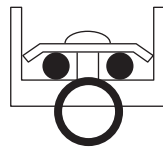


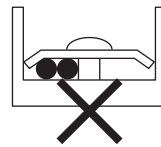
Fig. 27

Connect wires of the same gauge to both side. (GOOD)



Good

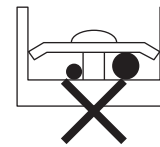
Do not connect wires of the same gauge to one side. (WRONG)



Wrong

Fig. 28

Do not connect wires of different gauges. (WRONG)



Wrong

Tightening torque for the terminal screws.

- Use the correct screw driver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged.

Refer to the table below for the tightening torque of the terminal screws.

| Tightening torque (N·m) | |
|-------------------------------------|-----------|
| Terminal block for LP/HP/SPPR | 0.88±0.08 |
| Terminal block for wiring the units | 1.47±0.14 |
| Earth terminal | 1.47±0.14 |

- If the strand wire is used, do not solder it. (Abnormal heating may occur if the wirings are not tightened securely.)

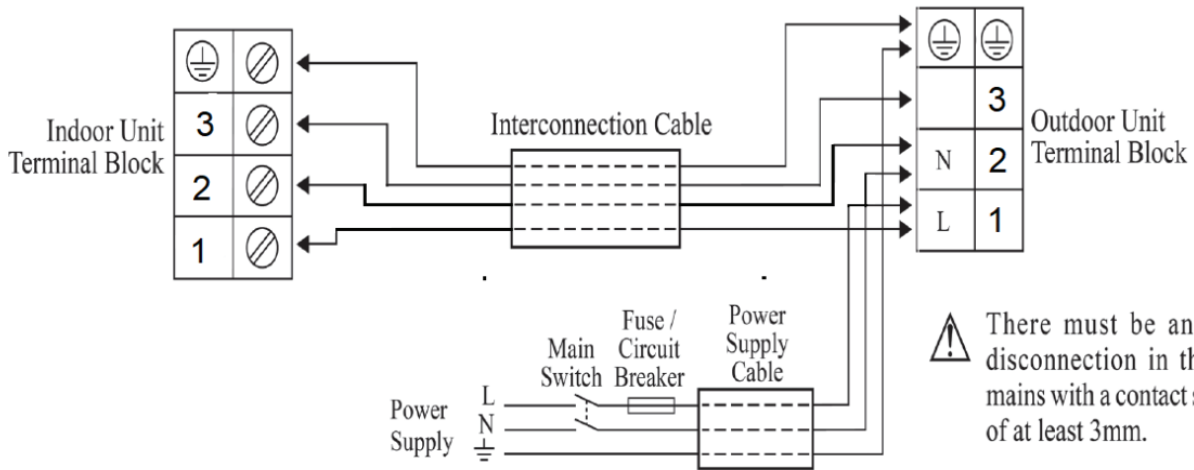
⚠ CAUTION

Be sure to install an earth leakage breaker to the outdoor unit.

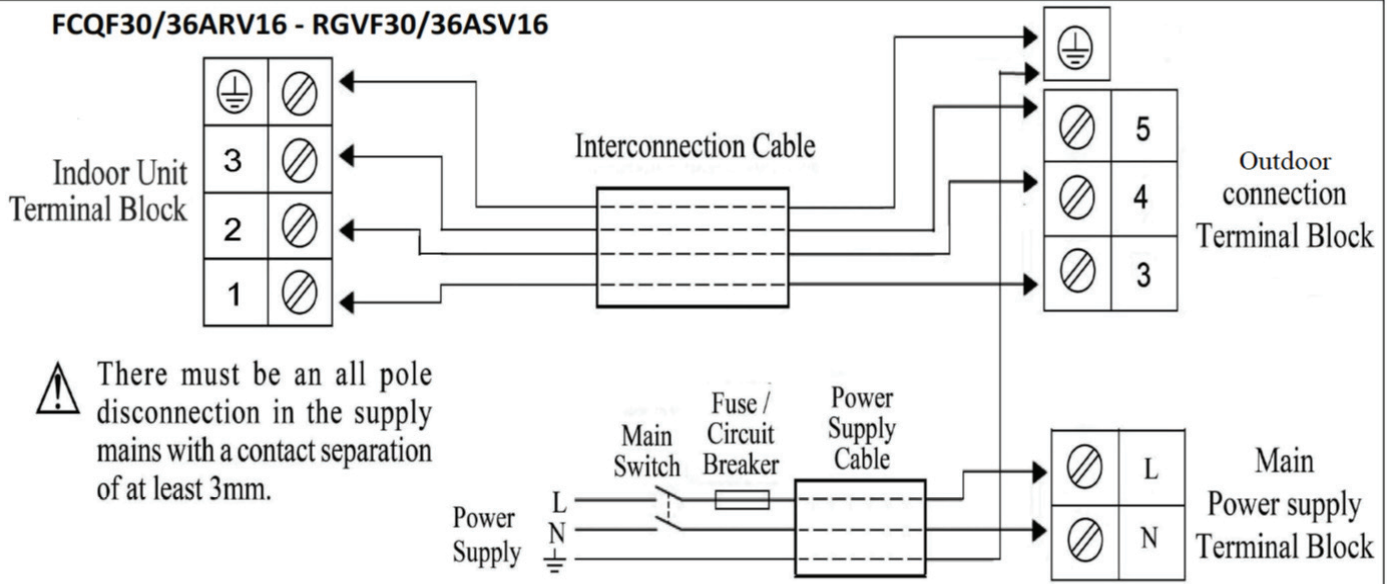
Installation of an earth leakage breaker is mandated to avoid electric shocks or fire.

9. WIRING EXAMPLE

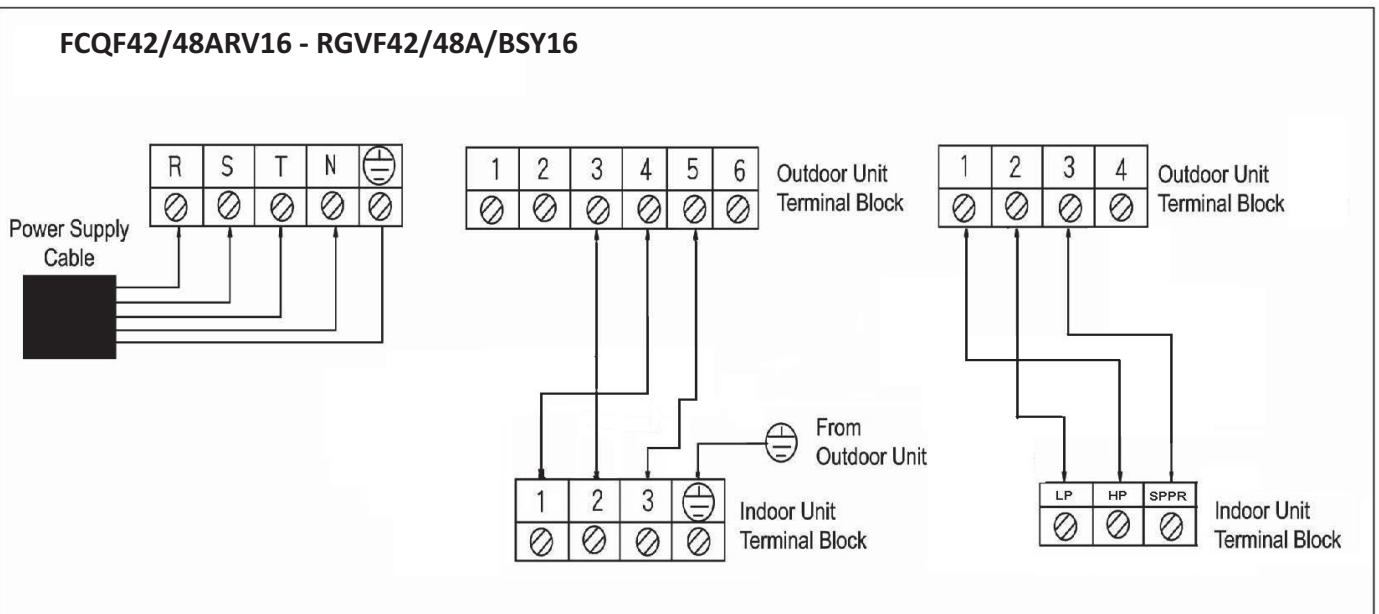
FCQF18/24ARV16 - RGVF18/24ASV16



FCQF30/36ARV16 - RGVF30/36ASV16



FCQF42/48ARV16 - RGVF42/48A/BSY16



— **⚠ CAUTION** —

- Refer to “1. Items to be checked at time of delivery” on page 15 upon completion of the test run and make sure that all the items are checked.
- If the customer’s interior work has not been finished on completion of the test run, explain the customer not to operate the air conditioner. This is essential until the interior work is finished so as to protect the product. Substances generated from paints and adhesives used for the interior work may contaminate the product if the unit is operated.

— **⚠ To test run Contractors** —

When delivering the product to the customer after the test run is completed, check that the control box lid, the air filter and the suction grille are mounted. In addition, explain to the customer regarding the state (ON/OFF) of the power supply breaker.

If a malfunction occurs, either one of the following messages will be displayed in the display of panel.

See in line with the Arrow direction as shown in Fig. A for the Set Temperature and Error Code.

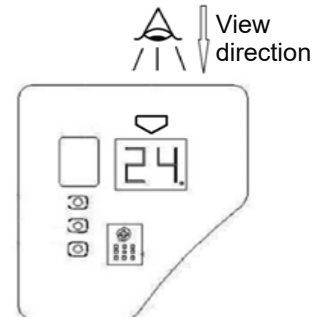


Fig. A

| CODE | MALFUNCTION/REMARKS | TROUBLESHOOTING |
|---------|--|---|
| A0 | Error of external protection device | Protection device connected to the unit is activated. Check for the external protection device. Need to reset unit for reset the error. |
| A6 - 01 | Fan motor locked | A locked fan motor current has been detected. Need to reset unit for reset the error. |
| A6 - 10 | Fan overcurrent error | A fan motor overcurrent has been detected. Check for the connection of the connector between the fan motor and the fan PCB. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the fan PCB. Need to reset unit for reset the error. |
| A8 - 01 | Fan PCB abnormality | Power supply voltage error of the fan PCB has been detected. Check if there is any loose connection or disconnection of connectors, or any source of noise generation in the proximity. Need to reset unit for reset the error. |
| dF | Antifreeze error | Coil temperature abnormality. It is auto resettable when temperature becomes normal. |
| C1 - 01 | Transmission error | A transmission error has been detected between the indoor unit PCB and the fan PCB. Check if there is any loose connection or disconnection of transmission connectors. On reconnection error will be removed. |
| C4 | Coil temperature sensor error | Error due to coil temperature sensor. Check if there is shorting or open the connection. On reconnection error will be removed. |
| C9 | Room temperature sensor error | Error due to room temperature sensor. Check if there is shorting or open the connection. On reconnection error will be removed. |
| E3 | High pressure switch malfunction | The individual high pressure switch may have failed. Check the high pressure switch. |
| E4 | low pressure switch malfunction | The individual low pressure switch may have failed. Check the high pressure switch. |
| A1 | Memory corruption | There is some issue with memory reading or writing. Need to reset unit for reset the error. |
| A3 | Float switch error | The error is generated when the water level reaches its upper limit and when the float switch turns OFF. Need to reset unit for reset the error. |
| C6 - 01 | Defective combination of indoor unit PCB and fan PCB | A combination of indoor unit PCB and fan PCB is defective. Check whether the capacity setting adaptor is correct and the type of the fan PCB is correct. |
| C6 - 05 | Indoor unit PCB abnormality | An error of the main PCB is detected. Check whether the lead wire of the fan motor does not slip off or is not disconnected. Need to reset unit for reset the error. |

Measure: Notify your local dealer and inform malfunction code display on the panel display.

Note : The Error Code will be shown only in 7 segment display and in Wireless Remote no error code will display.

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Tel: 0124-4555444
Fax: 0124-4555333*

SPLIT SYSTEM**Air Conditioners**

MODEL

Ceiling mounted cassette type IDU

FCQF18ARV16

FCQF24ARV16

FCQF30ARV16

FCQF36ARV16

FCQF42ARV16

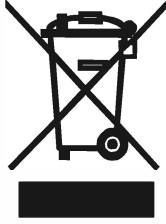
FCQF48ARV16

English

Thank you for purchasing this Daikin air conditioner.

Carefully read this operation manual before using the air conditioner. It will tell you how to use the unit properly and help you if any trouble occurs. This manual explains about the indoor unit only. Use it along with the operation manual for the outdoor unit. After reading the manual, file it away for future reference.

■ DISPOSAL REQUIREMENTS



Disposal requirements

Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste.

Do not try to dismantle the system yourself: the dismantling of the air conditioning system, treatment of the refrigerant, of oil and of other parts must be done by a qualified installer in accordance with relevant local and national legislation.

Air conditioners must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information.

Batteries must be removed from the remote controller and disposed off separately in accordance with relevant local and national legislation.

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1. SAFETY PRECAUTIONS



Read the precautions in this manual carefully before operating the unit.



This appliance is filled with R32.

To gain full advantage of the air conditioner's functions and to avoid malfunction due to mishandling, we recommend that you read this instruction manual carefully before use. This air conditioner is classified under "appliances not accessible to the general public".

- Read the precautions thoroughly to avoid misuse of the equipment.
- The precautions described herein are classified as **WARNING** and **CAUTION**. They both contain important information regarding safety. Be sure to observe all precautions without fail.
- There are two kinds of safety precaution and tips listed in the following.

⚠ WARNING Failure to follow these instructions properly may result in personal injury or loss of life.

⚠ CAUTION Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

- After reading, keep this manual in a convenient place so that you can refer to it whenever necessary. If the equipment is transferred to a new user, be sure also to hand over the manual.

⚠ WARNING

- The appliance must be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odour.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Be aware that prolonged, direct exposure to cool air from the air conditioner, or to air that is too cool can be harmful to your physical condition and health.
- When the air conditioner is malfunctioning (giving off a burning odour, etc.) turn off power to the unit and contact your local dealer.

Continued operation under such circumstances may result in a failure, electric shocks or fire hazards.

- **Consult your local dealer about installation work.**
Doing the work yourself may result in water leakage, electric shocks or fire hazards.
- **Consult your local dealer regarding modification, repair and maintenance of the air conditioner.**
Improper workmanship may result in water leakage, electric shocks or fire hazards.
- **Do not place objects, including rods, your fingers, etc., in the air inlet or outlet.**
Injury may result due to contact with the air conditioner's high speed fan blades.
- **Beware of fire in case of refrigerant leakage.**
If the air conditioner is not operating correctly, i.e. not generating cool air, refrigerant leakage could be the cause.
Consult your dealer for assistance.
The refrigerant within the air conditioner is safe and normally does not leak.
However, in the event of a leakage, contact with a naked burner, heater or cooker may result in generation of noxious gas.
Do not longer use the air conditioner until a qualified service person confirms that the leakage has been repaired.
- **Consult your local dealer regarding what to do in case of refrigerant leakage.**
When the air conditioner is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen depletion.
- **Contact professional personnel about attachment of accessories and be sure to use only accessories specified by the manufacturer.**
If a defect results from your own workmanship, it may result in water leaks, electric shock or fire.
- **Consult your local dealer regarding relocation and reinstallation of the air conditioner.**
Improper installation work may result in leakage, electric shocks or fire hazards.
- **Be sure to use fuses with the correct ampere reading.**
Do not use improper fuses, copper or other wires as a substitute, as this may result in electric shock, fire, injury or damage to the unit.
- **Be sure to earth the unit.**
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks or fire. A high surge current from lightning or other sources may cause damage to the air conditioner.
- **Be sure to install an earth leakage breaker.**
Failure to install an earth leakage breaker may result in electric shocks or fire.
- **Consult the dealer if the air conditioner submerges owing to a natural disaster, such as a flood or typhoon.**
Do not operate the air conditioner in that case, or otherwise a malfunction, electric shock, or fire may result.
- **Do not start or stop operating the air conditioner with the power supply breaker turned ON or OFF.**
Otherwise, fire or water leakage may result.
Furthermore, the fan will rotate abruptly if power failure compensation is enabled, which may result in injury.
- **Do not use the product in the atmosphere contaminated with oil vapor, such as cooking oil or machine oil vapor.**
Oil vapor may cause crack damage, electric shocks, or fire.
- **Do not use the product in places with excessive oily smoke, such as cooking rooms, or in places with flammable gas, corrosive gas, or metal dust.**
Using the product in such places may cause fire or product failure.

- **Do not place water containers (flower vases, etc.) on the unit, as this may result in electric shocks or fire.**
- **Do not operate with the control panel lid open.**
If water gets inside the panel, it may result in equipment failure or electric shock.
- **Do not use flammable materials (e.g., hairspray or insecticide) near the product.**
- **Do not place burners or heaters in places exposed to the air flow from the unit as this may impair combustion of the burner or heater.**
- **Do not wipe the controller panel with benzene or other organic solvent.**
This will cause discoloration and/or peeling. If the panel needs cleaning, use a damp cloth with some water-diluted neutral detergent. Wipe with a dry cloth afterwards.
- **Be sure to use a dedicated power supply for the air conditioner.**
The use of any other power supply may cause heat generation, fire, or product failures.
- **Consult your dealer regarding cleaning the inside of the air conditioner.**
Improper cleaning may cause breakage of plastic parts, water leakage and other damage as well as electric shocks.

CAUTION

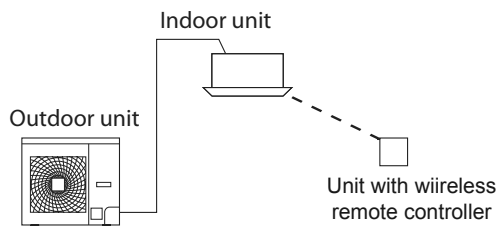
- **Do not use the air conditioner for purposes other than those for which it is intended.**
Do not use the air conditioner for cooling precision instruments, food, plants, animals or works of art as this may adversely affect the performance, quality and/or longevity of the object concerned.
- **Do not remove the outdoor unit's fan guard.**
The guard protects against the unit's high speed fan, which may cause injury.
- **Do not place objects that are susceptible to moisture directly beneath the indoor or outdoor units.**
Under certain conditions, condensation on the main unit or refrigerant pipes, air filter dirt or drain blockage may cause dripping, resulting in fouling or failure of the object concerned.
- **To avoid oxygen depletion, ensure that the room is adequately ventilated if equipment such as a burner is used together with the air conditioner.**
- **After prolonged use, check the unit stand and its mounts for damage.**
If left in a damaged condition, the unit may fall and cause injury.
- **Do not place flammable sprays or operate spray containers near the unit as this may result in fire.**
- **Before cleaning, be sure to stop unit operation, turn the breaker off or remove the power cord.**
Otherwise, an electric shock and injury may result.
- **To avoid electric shocks, do not operate with wet hands.**
- **Do not place appliances that produce naked flames in places exposed to the air flow from the unit as this may impair combustion of the burner.**
- **Do not place heaters directly below the unit, as resulting heat can cause deformation.**
- **Do not allow a child to mount on the outdoor unit or avoid placing any object on it.**
Falling or tumbling may result in injury.
- **Do not sit or place objects on the outdoor unit.**
Falling yourself or falling objects could cause injury.

- **Do not block air inlets or outlets.**
Impaired air flow may result in insufficient performance or trouble.
- **Be sure that children, plants or animals are not exposed directly to airflow from the unit, as adverse effects may ensue.**
- **Do not wash the air conditioner with water, as this may result in electric shocks or fire.**
- **Arrange the drain hose to ensure smooth drainage.**
Imperfect drainage may cause wetting of the building, furniture etc.
- **Ensure that the remote controller is not exposed to direct sunlight.**
This will cause discoloration of the LCD display with resulting loss of readability.
- **Never operate remote controller buttons with hard, pointed objects.**
This may result in remote controller damage.
- **Do not operate the air conditioner when using a room fumigation type insecticide.**
Fumigation chemicals deposited in the unit could endanger the health of those who are hypersensitive to touch chemicals.
- **Do not place flammable sprays near the unit as this can cause explosions.**
- **Do not install the air conditioner at any place where there is a danger of flammable gas leakage.**
In the event of a gas leakage, build-up of gas near the air conditioner may result in fire hazards.
- **Do not put flammable containers, such as spray cans, within 1 m from the blow-off mouth.**
The containers may explode because the warm air output of the indoor or outdoor unit will affect them.
- **Arrange the drain to ensure complete drainage.**
If proper drainage from the indoor drain pipe does not occur during air conditioner operation, there could be a blockage due to dirt and debris build-up in the pipe. This may result in a water leakage from the indoor unit. Under these circumstances, stop air conditioner operation and consult your dealer for assistance.
- **The appliance is not intended for use by unattended young children or infirm persons.**
Impairment of bodily functions and harm to health may result.
- **Children should be supervised to ensure that they do not play with the unit or its remote controller.**
Accidental operation by a child may result in impairment of bodily functions and harm health.
- **Do not let children play on or around the outdoor unit.**
If they touch the unit carelessly, injury may be caused.
- **To avoid injury, do not touch the air inlet or aluminium fins of the unit.**
- **Do not place objects in direct proximity of the outdoor unit and do not let leaves and other debris accumulate around the unit.**
Leaves are a hotbed for small animals which can enter the unit. Once in the unit, such animals can cause malfunctions, smoke or fire when making contact with electrical parts.
- **Turn off the main power switch when the air conditioner is not to be used for prolonged periods.**
When the main power switch is left on, some electrical power (watts) is still consumed even if the air conditioner is not operating. Therefore, switch off the main power switch to save energy. When resuming operation, to ensure smooth running, turn on the main power switch 6 hours before operating the air conditioner again.

- **Never touch the internal parts of the controller.**
Do not remove the front panel. Touching certain internal parts will cause electric shocks and damage to the unit. Please consult your dealer about checking and adjustment of internal parts.
- **Do not leave the remote controller wherever there is a risk of wetting.**
If water gets into the remote controller there is a risk of electrical leakage and damage to electronic components.
- **Watch your steps at the time of air filter cleaning or inspection.**
High-place work is required, to which utmost attention must be paid.
If the scaffold is unstable, you may fall or topple down, thus causing injury.
- **This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**
- **Children should be supervised to ensure that they do not play with the appliance.**
- **Take care of scaffolding and exercise caution when working high above ground level.**

2. WHAT TO DO BEFORE OPERATION

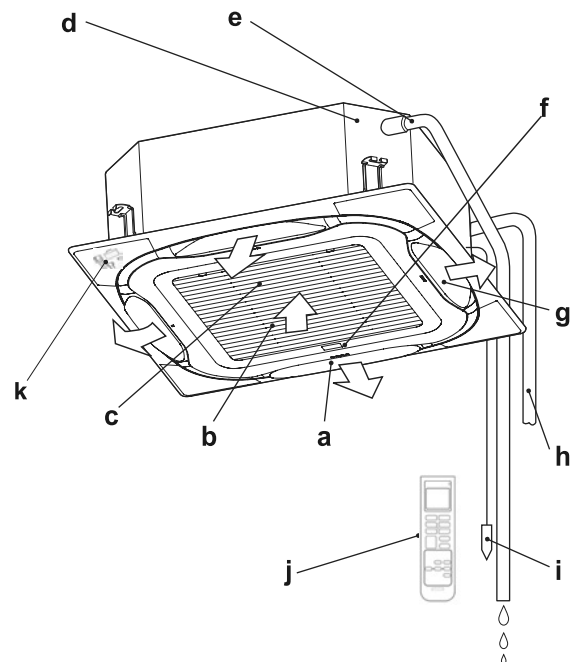
This operation manual is for the following system with standard control. Before initiating operation, contact your dealer for the operation that corresponds to your system.



NOTE

- If the unit you purchased is controlled by a wireless remote controller, also refer to the wireless remote controller's operation manual.
- If your installation has a customized control system, ask your dealer for the operation that corresponds to your system.
- **Cooling only type**
This system provides COOLING, PROGRAM DRY, and FAN OPERATION modes.

Names and functions of parts



| | |
|---|--|
| a | Air outlet |
| b | Suction grille |
| c | Air filter (Inside suction grille) |
| d | Drain discharge device (built-in) Discharges indoor moisture removed during the cooling operation. |
| e | Drain pipe |
| f | Brand name logo |
| g | Horizontal blade (At air outlet) |
| h | Refrigerant piping Transmission wiring |
| i | Earth wiring (Note) (Note) It is a wiring to let electricity flow from the indoor unit to the earth for prevention of electric shocks or a fire in case of emergency. |
| j | Remote control (Operation part) |
| k | Corner cover with IR & 7 segment display (Ref. below Fig. k for description). |

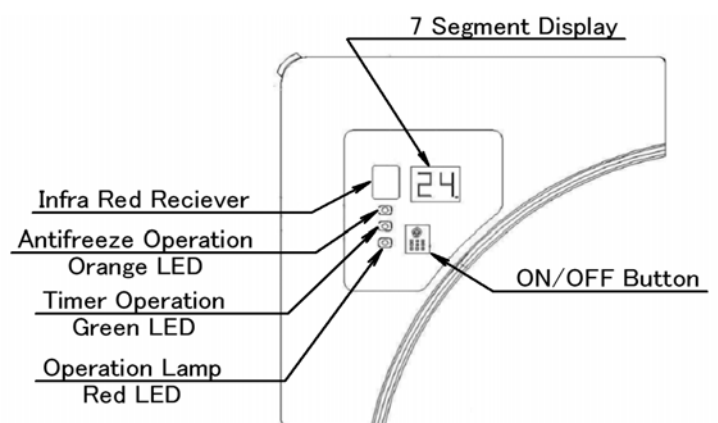


Fig. k

3. OPERATION RANGE

If the temperature or the humidity is beyond the following conditions, safety devices may work and the air conditioner may not operate, or sometimes, water may drop from the indoor unit.

COOLING

FOR FCQF 18 . 24 . 30 . 36 . 42 . 48 ARV16

| OUTDOOR UNIT | INDOOR | | OUTDOOR TEMPERATURE |
|--------------|-------------|----------|---------------------|
| | TEMPERATURE | HUMIDITY | |
| RGVF | DB | 19 to 35 | 80% or below |
| | WB | 14 to 24 | |
| | | | DB 19 to 48 |

DB: Dry bulb temperature (°C)

WB: Wet bulb temperature (°C)

The setting temperature range of the remote controller is 18°C to 32°C.

4. INSTALLATION SITE

Regarding places for installation

- **Is the air conditioner installed at a well-ventilated place where there are no obstacles around?**
- **Do not use the air conditioner in the following places.**
 - a. Filled with much mineral oil such as cutting oil.
 - b. Where there is much salt such as a beach area.
 - c. Where sulfured gas exists such as a hot-spring resort.
 - d. Where there are considerable voltage fluctuations such as a factory or plant.
 - e. Vehicles and vessels.
 - f. Where there is much spray of oil and vapor such as a cookery, etc.
 - g. Where there are machines generating electromagnetic waves.
 - h. Filled with acid and/or alkaline steam or vapor.
- **Is a snow protection measure taken?**
For details, consult your dealer about snow protection hoods, etc.

Regarding wiring

- **All wiring must be performed by an authorized electrician.**
To do wiring, ask your dealer. Never do it by yourself.
- **Make sure that a separate power supply circuit is provided for this air conditioner and that all electrical work is carried out by qualified personnel according to local laws and regulations.**

Pay attention to running noises, too

- **Are the following places selected?**
 - a. A place that can sufficiently withstand the weight of the air conditioner with less running noises and vibrations.
 - b. A place where the hot wind discharged from the air outlet of the outdoor unit and the running noises do not cause a nuisance to neighbours.
- **Are you sure that there are no obstacles near the air outlet of the outdoor unit?**
Such obstacles may result in declined performance and increased running noises.
- **If abnormal noises occur in use, stop the operation of the air conditioner, consult your dealer.**

System relocation

- **Consult your Daikin dealer about remodelling and relocation.**

Regarding drainage of drain pipe

- **Is the drain pipe executed to perform complete drainage?**

If proper drainage is not carried out from the indoor drain pipes during air-conditioning operation, chances are that dust and dirt are clogged in the pipe. This may result in a water leakage from the indoor unit. Under such circumstances, stop the operation of the air conditioner, and then consult your dealer or our service station.

5. OPERATION PROCEDURE

- **Operation procedure**
Read the operation manual attached to the remote controller.
- **Operation procedure varies with heat pump type and cooling only type.** Contact your local dealer to confirm your system type.
- **To protect the unit, turn on the main power supply switch 6 hours before operation.**
- **Do not shut off the power supply during seasonal use of the air conditioner.**
This is required in order to activate the air conditioner smoothly.
- **If the main power supply switch is turned off during operation, operation will restart automatically after the power turns back on again.**

6. OPERATION CHARACTERISTICS

■ CHARACTERISTICS OF THE COOLING OPERATION (COOLING OPERATION AND AUTOMATIC COOLING OPERATION)

- When operating continuously at downward airflow direction, air blows in the automatically set direction for a period of time to prevent condensation on the horizontal blade.
- If the COOLING OPERATION is used when the indoor temperature is low, frost forms on the heat exchanger of the indoor unit. This can decrease the cooling capacity.
- When the outdoor temperature is high, it takes some time until the indoor temperature reaches the set temperature.

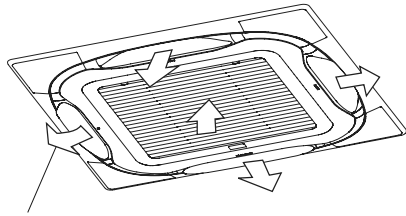
■ CHARACTERISTICS OF THE PROGRAM DRY OPERATION

- This dry operation lowers the humidity without lowering the indoor temperature. The indoor temperature, when the dry operation button is pressed, will be the set temperature. At this time, the fan speed and temperature are set automatically, so the remote controller does not display the fan speed and set temperature.
To efficiently lower the indoor temperature and humidity, first use the COOLING OPERATION to lower the indoor temperature, and then use the PROGRAM DRY OPERATION. When the indoor temperature is lowered, airflow from the air conditioner may stop.



AIRFLOW DIRECTION ADJUST

Airflow direction adjustment can be done by remote controller.
For details about airflow direction adjustment, refer to operation manual attached to remote controller.



Up and down adjustment

The airflow direction can be adjusted in either of the following.

- **Swing**
The horizontal blade continuously varies.
- **Fixed airflow direction**
The horizontal blade can be fixed by the user.

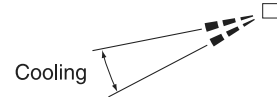


MOVEMENT OF THE HORIZONTAL BLADE

For the following conditions, micro computer controls the airflow direction so it may be different from the display.

| | |
|-----------------------|---|
| Operation mode | <ul style="list-style-type: none"> • COOLING • FAN • PROGRAM DRY |
| Up and down direction | <ul style="list-style-type: none"> • When operating continuously at horizontal airflow direction (Air blows in the automatically set direction for a period of time to prevent condensation on the horizontal blades.) |

Recommended airflow direction position



We recommend using the fan in the position shown above when fixing the fan direction.

7. OPTIMUM OPERATION

Observe the following precautions to ensure the system operates.

- Adjust the room temperature properly for a comfortable environment. Avoid excessive cooling.
- Prevent direct sunlight from entering a room during cooling operation by using curtains or blinds.
- Keep doors and windows closed. If the doors and windows remain open, room air will flow out and cause to decrease the effect of cooling.
- Never place objects near the air inlet and the air outlet of the unit. It may cause deterioration in the effect or stop in the operation.
- Install TV, radios, and stereos 1 m or more away from the indoor unit and remote controller. Images may become fuzzy and noise may be generated.
- Turn off the main power supply switch when it is not used for long period of time. When the main power supply switch is turned on, some watts of electricity is being used even if the system is not operating. (*1) Turn off the main power supply switch for saving energy. When reoperating, turn on the main power supply switch 6 hours before operation for smooth running. (Refer to "8. MAINTENANCE" on page 41). (*2)
- *1 The consumed power while the outdoor unit is not in operation depends on the model.
- *2 The setting before the power circuit breaker is cut off is stored. (The timer setting is cleared.)
- When the display shows "TIME TO CLEAN AIR FILTER" ask a qualified service person to clean the filter (Refer to "8. MAINTENANCE" on page 41).
- Fully use the function of air flow direction adjust. Cold air gathers on the floor. Set the air direction to horizontal during the COOLING. Do not let the air blow directly to a person.
- It takes time for the room temperature to reach the set temperature. We recommend starting the operation in advance using timer operation.

8. MAINTENANCE (FOR SERVICE PERSONNEL)

ONLY A QUALIFIED SERVICE PERSON IS ALLOWED TO PERFORM MAINTENANCE

⚠ WARNING

- Do not use flammable gas (such as hair sprays and insecticides) near the air conditioner.
- Do not wipe the air conditioner with benzine or thinner.
It may cause cracks, electric shocks or a fire.
- Never put your fingers or rods in the air inlet, air outlet or air blade.
The fan is rotating at high speed, so you would get injured.

⚠ CAUTION

- Do not wash the air conditioner with water. It may cause electric shocks or a fire due to leakage.
- Make sure to turn off the air conditioner when taking care of the air conditioner and disconnect the power supply breaker.
Unless the power supply is disconnected, it may cause electric shocks and injuries.
- When working at a high place, give caution to your footing.
If the scaffold is unstable, it may cause injuries due to fall and stumbling.

NOTE

- Do not remove the air filter unless for cleaning. It may cause failure.
- Do not attach substance (such as paper towels) other than the specified air filter to the air inlet. The performance may drop and cause freeze-up/water leakage.

HOW TO CLEAN THE AIR FILTER

When the remote controller indicates "Time to clean filter", clean the air filter.

- It indicates after running for a certain time.

NOTE

- You may change the time of indication "Time to clean filter".

If the indoor unit is used in a space where the air is more contaminated, ask your local dealer for solution.

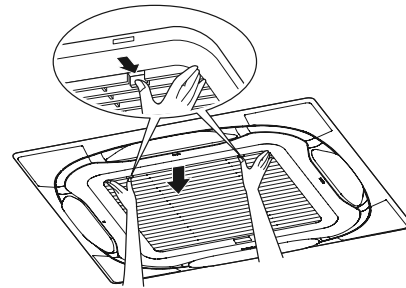
| Contamination | Time until indication is displayed |
|-------------------|--|
| Normal | 2500 hours (equivalent to 1 year) |
| More contaminated | 1250 hours (equivalent to 6 months) |

- If it becomes difficult to remove contamination from the air filter, replace the air filter.
(Air filter for replacement is an optional accessory)

1. Open the suction grille.

Pull it downward slowly while pressing the buttons provided on two spots.
(Do the same procedure for closing.)

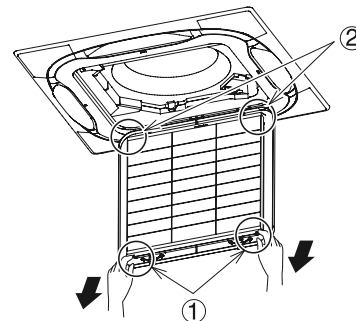
Fig. 1



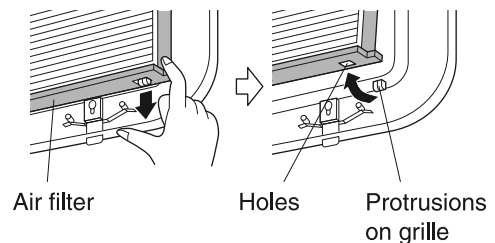
2. Remove the air filter.

Perform the operation in the order (1) and (2).

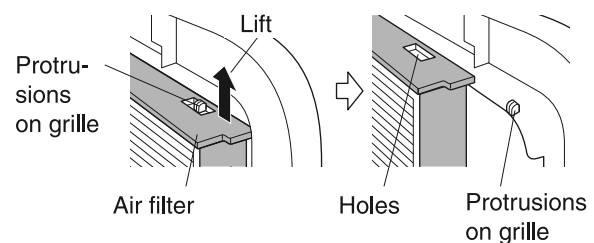
Fig. 2



- (1) Pull the ends of the air filter down and remove the holes of the air filter from the grille protrusions. (Both left and right sides.)



- (2) Lift the air filter and remove the holes of the air filter from the protrusions on the upper side of the grille. (Both left and right sides.)



3. Clean the air filter.

Use vacuum cleaner **A**) or wash the air filter with water **B**).

- A)** Using a vacuum cleaner



- B) Washing with water
When the air filter is very dirty, use soft brush and neutral detergent.



Remove water and dry in the shade.

NOTE

- Do not wash the air filter with water of 50°C or higher. It may cause discoloration and deformation.
- When drying the filter, do not heat it with fire. It may cause burning.
- Do not use such as gasoline, benzene, thinner, polishing powder and liquid insecticide sold in the market. It may cause discoloration and deformation.

4. Fix the air filter.

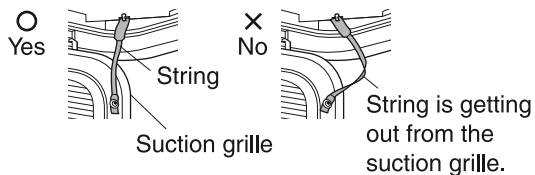
Refer to item No. 2.

5. Shut the suction grille.

Slowly push up the suction grille, and then securely hook it onto the decoration panel while pushing the two knobs.

NOTE

- The strings may be caught when the suction grille is closed. Before closing the suction grille, ensure that the strings are not getting out from the side of the suction grille.



6. Turn off the indication "Time to clean filter" displayed on the remote controller after turning on the power.

- For details, refer to the operation manual attached to the remote controller. (The indication can be turned off whether in operation or at stop.)

HOW TO CLEAN AIR OUTLET, OUTSIDE PANEL, AND REMOTE CONTROLLER

- Wipe them with a dry soft cloth.
- When the stain cannot be wiped off, dip the cloth in the neutral detergent diluted with water and twist the cloth. After wiping off stain with this cloth, wipe them with dry cloth.

NOTE

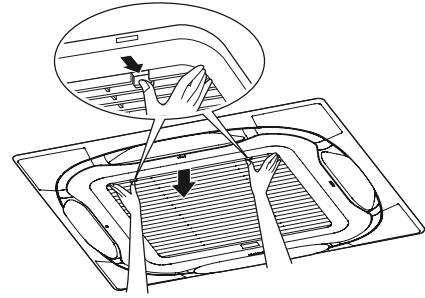
- Do not use such as gasoline, benzene, thinner, polishing powder and liquid insecticide sold in the market. It may cause discoloration and deformation.
- Do not wash the filter with warm water of 50°C or higher. It may cause discoloration and deformation.

HOW TO CLEAN THE SUCTION GRILLE

1. Open the suction grille.

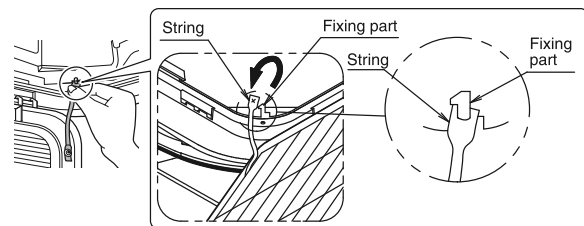
Push it downward slowly while pressing the buttons provided on two spots. (Follow the same procedure for closing.)

Fig. 3



2. Remove the strings of the suction grille.

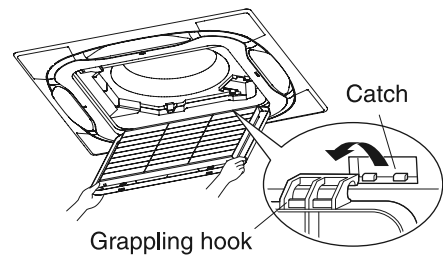
Remove the two strings from the holding parts on the panel main body to which the strings are attached.



3. Detach the suction grille.

Open the suction grille 45 degrees and lift it upward.

Fig. 4



4. Detach the air filter.

Refer to "HOW TO CLEAN THE AIR FILTER". (Refer to Fig. 2)

5. Clean the suction grille.

Wash with a soft bristle brush and neutral detergent or water, and dry thoroughly.

• **When very grimy**

Directly apply the type of detergent used for cleaning ventilation fans or ovens, wait 10 minutes, and then rinse with water.



NOTE

- Do not wash the suction grille with water of 50°C or higher. It may cause discoloration and deformation.
- When drying the suction grille, do not heat it with fire. It may cause burning.
- Do not use such as gasoline, benzene, thinner, polishing powder and liquid insecticide sold in the market. It may cause discoloration and deformation.

6. **Reattach the air filter.**
Refer to "HOW TO CLEAN THE AIR FILTER".
(Refer to Fig. 2)
7. **Reattach the suction grille.**
Refer to item No. 3.
8. **Fit the string of the suction grille.**
Fit in the reverse order of the procedure 2.
9. **Close the suction grille.**
Refer to item No. 1.

■ CLEANING BEFORE AND AFTER SEASONAL USE

WHAT TO DO WHEN START UP AFTER A LONG STOP

Confirm the following.

- Check that the air inlet and outlet of indoor and outdoor unit are not blocked.
Remove any obstacle.
Obstacles may cause a reduction in the fan speed, which may decrease functionality, cause an increase in operation noise, or a malfunction of the equipment.

Clean the air filter and outside panel

- After cleaning the air filter, make sure to attach it. (Refer to "8. MAINTENANCE" on page 41.)
- For information on how to install, remove, or clean a optional sold air filter, refer to the user's manual attached to the air filter.
- After cleaning, perform FILTER SIGN RESET after turning on the power.

Turn on the power circuit breaker at least 6 hours before operation.

- This is required in order to activate the air conditioner smoothly, and to protect air conditioner.
- The display on the remote controller will be shown when the power circuit breaker is turned on.

WHAT TO DO TO STOP THE AIR CONDITIONER FOR A LONG PERIOD

Turn on FAN OPERATION for a half day on the fine day and dry the indoor unit.

- This can prevent the causes of mould.

Turn off the power circuit breaker.

- During the power circuit breaker is turned on, some watts of electricity is being used even if the air conditioner is not operating.
Turn off the power circuit breaker for saving energy.
- The display on the remote controller will vanish when the power circuit breaker is turned off.

Clean the air filter and outside panel

- Be sure to replace the air filter to its original place after cleaning. (Refer to "8. MAINTENANCE" on page 41.)
For information on how to install, remove, or clean an optional sold air filter, refer to the user's manual attached to the air filter.

NOTE

The inside of the air conditioner may become contaminated after several seasons of use, potentially causing performance degradation and water leakage. Ask your local dealer for details on cleaning the inside of the indoor unit. This operation requires a qualified service person.

9. NOT MALFUNCTION OF THE AIR CONDITIONER

1. THE AIR CONDITIONER DOES NOT OPERATE

- **The air conditioner does not restart immediately after the ON/OFF button is pressed.**
- **The air conditioner does not restart immediately when TEMPERATURE SETTING button is returned to the former position after pushing the button.**
If the OPERATION lamp lights, the air conditioner is in normal condition.
It does not restart immediately because a safety device operates to prevent overload of the air conditioner. After approx. 3 minutes, the air conditioner will turn on again automatically.
- **The outdoor unit stops.**
This is because the indoor temperature has reached the set temperature.
The indoor unit is in the FAN OPERATION.
COOLING OPERATION
Lower the set temperature.
The operation starts after a while when the air conditioner is in normal condition.

2. THE FAN SPEED IS DIFFERENT FROM THE SETTING

- **Pressing the fan speed control button does not change the fan speed.**
During the COOLING OPERATION, the low fan speed or a gentle wind is used to prevent the discharge of melt water.

3. HORIZONTAL BLADES DO NOT CLOSE

- **The horizontal blades do not close even when operation stops.**
This is because the horizontal blades close once airflow from the air conditioner stops. After a while, the horizontal blades close.

4. WHITE MIST COMES OUT OF THE AIR CONDITIONER

- **When humidity is high during the COOLING OPERATION (In oily or dusty places)**
If the inside of an indoor unit is extremely contaminated, the temperature distribution inside a room becomes uneven. It is necessary to clean the inside of the indoor unit. Ask your local dealer for details on cleaning the indoor unit.
This cleaning requires a qualified service person. Check the usage environment.

5. NOISE OF AIR CONDITIONERS

- **A ringing sound after the indoor unit starts.**
This sound is generated when the motors for driving the horizontal blades are working. It will quiet down after about a minute.
- **A low continuous flow "Shuh" sound which is heard when the air conditioner is in the COOLING**
This is the sound of refrigerant gas flowing through both indoor and outdoor units.
- **A "Shuh" sound which is heard at the start or immediately after the stop of operation**
This is the noise of refrigerant caused by flow stop and flow change.
- **A "Pishi-pishi" squeaking sound is heard when the air conditioner is in operation or after the stop of operation.**
Expansion and contraction of resin parts caused by temperature change makes this noise.

6. DUST FROM THE INDOOR UNITS

- **Dust may blow out from the unit after starting operation from long resting time.**

Dust absorbed by the unit blows out.

7. THE INDOOR UNITS GIVE OFF ODORS

- **During operation**

The unit absorbs the smell of rooms, furniture, cigarettes, etc., and then emits them.

If odor is a concern, you can set to zero fan speed when the indoor temperature reaches the set temperature.

For details, contact your local dealer.

8. THE AIR CONDITIONER DOES NOT COOL EFFECTIVELY

- **The air conditioner is operating in the PROGRAM DRY OPERATION.**

This is because program dry mode operates so that the indoor temperature decreases as little as possible. Lower the indoor temperature using the COOLING OPERATION, and then use the PROGRAM DRY OPERATION.

(Refer to "CHARACTERISTICS OF THE PROGRAM DRY OPERATION" on page 39.)

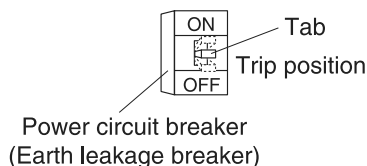
- **Read through characteristics of the COOLING OPERATION and characteristics of the PROGRAM DRY OPERATION on page 39.**

10. TROUBLE SHOOTING

Please check before requesting a service.

1. If the air conditioner does not operate at all.

- Check if fuse has blown.
Turn off the power supply.
Contact your local dealer.
- Check if the power circuit breaker is blown.
If the tab of power circuit breaker is in the OFF position, turn the power on with the power circuit breaker switch. If the tab of power circuit breaker is in the trip position do not turn the power on with the power circuit breaker switch.
Contact your local dealer.



- Check if there is a power failure.
Wait until power is restored. If power failure occurs during operation, the air conditioner automatically restarts immediately after the power supply recovers.
- **2. If the air conditioner stops after operating the air conditioner.**
 - Check if the air inlet or outlet of outdoor or indoor unit is blocked by obstacles.
Remove the obstacle and make it well-ventilated.
The horizontal blades at the air outlet are closed while the indoor stops.
 - Check if the air filter is clogged. Ask a qualified service person to clean the air filters.
A decrease in the airflow volume of the air conditioner will result and the performance of the air conditioner will be degraded and power consumption will increase if the air filter is clogged with dust or dirt.
In addition, this may cause dew condensation at the air outlet.
(Refer to "8. MAINTENANCE" on page 41.)

3. The air conditioner operates but it does not sufficiently cool.

- Check if the air inlet or outlet of outdoor or indoor unit is blocked by obstacles. Remove the obstacle and make it well-ventilated.
The horizontal blades at the air outlet are closed while the unit stops.
Obstacles decrease the fan speed, and cause performance decrease and breakage when discharged air is suctioned.
They cause a waste of electricity, increase operating noise, or that may stop the devices.
- Check if the air filter is clogged. Ask a qualified service person to clean the air filters.
A decrease in the airflow volume of the air conditioner will result and the performance of the air conditioner will be degraded and power consumption will increase if the air filter is clogged with dust or dirt.
In addition, this may cause dew condensation at the air outlet.
(Refer to "8. MAINTENANCE" on page 41.)
- Check if the set temperature is not proper.
Set to an appropriate temperature, fan speed, and discharge direction.
- Check if the FAN SPEED button is set to LOW SPEED.
Set to an appropriate temperature, fan speed, and discharge direction.
- Check if the airflow direction is not proper.
Set to an appropriate temperature, fan speed, and discharge direction.
- Check if the doors or the windows are open.
Shut doors or windows to prevent wind from coming in.
- Check if the ventilation fan is in operation.
- Check if direct sunlight enters the room use curtains or blinds.
- When there are too many inhabitants in the room.
- Check if the heat source of the room is excessive.

4. Operation was performed or stopped although the ON/OFF button was not pressed.

- Are you sure that the ON/OFF timer operation is not used?
Turn off the ON/OFF timer.
Please refer to operation manual attached to the remote controller.
- Are you sure that any remote control device is not connected?
Contact the central control room that directed the stop.
- Are you sure that the display for centralized control is not lit?
Contact the central control room that directed the stop.
If the problem is not solved after checking the above points, please do not try to repair it yourself.
In such cases, always ask your local dealer. At this time, please tell the symptom and model name (written on the model name plate).

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

The air conditioner must be repaired by a qualified service person.

⚠ WARNING

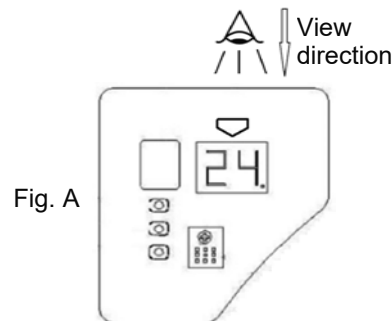
When the air conditioner is malfunctioning (giving off a burning odor, etc.) turn off power to the air conditioner and contact your local dealer.

Continued operation under such circumstances may result in a failure, electric shocks or a fire. Contact your local dealer .

- If a safety device such as a fuse, a power circuit breaker or an earth leakage breaker frequently actuates;
Measure: Do not turn on the main power switch.
- If the ON/OFF switch does not properly work;
Measure: Turn off the main power switch.
- If water leaks from the indoor unit.
Measure: Stop the operation.

If a malfunction occurs, either one of the following messages will be displayed in the display of panel.

See in line with the Arrow direction as shown in Fig. A for the Set Temperature and Error Code.

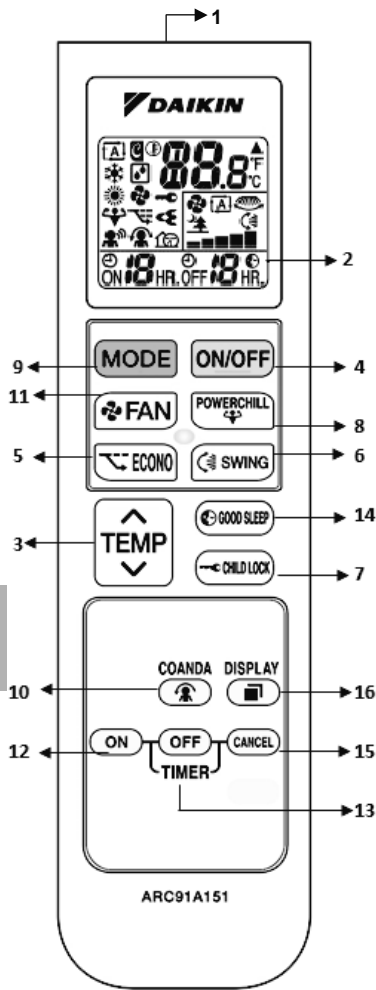


| CODE | MALFUNCTION/REMARKS | TROUBLESHOOTING |
|---------|--|---|
| A0 | Error of external protection device | Protection device connected to the unit is activated. Check for the external protection device. Need to reset unit for reset the error. |
| A6 - 01 | Fan motor locked | A locked fan motor current has been detected. Need to reset unit for reset the error. |
| A6 - 10 | Fan overcurrent error | A fan motor overcurrent has been detected. Check for the connection of the connector between the fan motor and the fan PCB. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the fan PCB. Need to reset unit for reset the error. |
| A8 - 01 | Fan PCB abnormality | Power supply voltage error of the fan PCB has been detected. Check if there is any loose connection or disconnection of connectors, or any source of noise generation in the proximity. Need to reset unit for reset the error. |
| dF | Antifreeze error | Coil temperature abnormality. It is auto resettable when temperature becomes normal. |
| C1 - 01 | Transmission error | A transmission error has been detected between the indoor unit PCB and the fan PCB. Check if there is any loose connection or disconnection of transmission connectors. On reconnection error will be removed. |
| C4 | Coil temperature sensor error | Error due to coil temperature sensor. Check if there is shorting or open the connection. On reconnection error will be removed. |
| C9 | Room temperature sensor error | Error due to room temperature sensor. Check if there is shorting or open the connection. On reconnection error will be removed. |
| E3 | High pressure switch malfunction | The individual high pressure switch may have failed. Check the high pressure switch. |
| E4 | low pressure switch malfunction | The individual low pressure switch may have failed. Check the high pressure switch. |
| A1 | Memory corruption | There is some issue with memory reading or writing. Need to reset unit for reset the error. |
| A3 | Float switch error | The error is generated when the water level reaches its upper limit and when the float switch turns OFF. Need to reset unit for reset the error. |
| C6 - 01 | Defective combination of indoor unit PCB and fan PCB | A combination of indoor unit PCB and fan PCB is defective. Check whether the capacity setting adaptor is correct and the type of the fan PCB is correct. |
| C6 - 05 | Indoor unit PCB abnormality | An error of the main PCB is detected. Check whether the lead wire of the fan motor does not slip off or is not disconnected. Need to reset unit for reset the error. |

Measure: Notify your local dealer and inform malfunction code display on the panel display.

Note : The Error Code will be shown only in 7 segment display and in Wireless Remote no error code will display.

Operation Manual of Remote Controller (ARC91A151)



1. Signal transmitter

Sends signals to the indoor unit.

2. Display (LCD):

Displays the current settings.

(In this illustration, each section is shown with its displays on for the purpose of explanation).

3. TEMPERATURE Adjustment button:

To change the temperature setting by pressing **TEMP UP** and **TEMP DOWN** buttons. Press **TEMP UP** to raise the temperature and press **TEMP DOWN** to lower the temperature.

COOL Operation : 18-32°C

DRY or FAN Operation : The temperature setting cannot be changed and is not shown on remote LCD

NOTE:

a) As per BEE guidelines, whenever air conditioner will be switched on from remote, the default set temperature will be set as mentioned in below table :

| Mode | Set temperature before remote switched OFF | Set temperature after remote switched ON |
|------|--|--|
| Cool | If Set temperature < 24° C | Default set temperature will be 24° C |
| | If Set temperature >= 24° C | Default set temperature will besame as set |

4. ON/OFF button:

Press this button once to start the operation.
Press once again to stop the operation.

5. ECONO button:

ECONO operation enables efficient operation by limiting the maximum power consumption.

Press this button once to start the **ECONO** operation, Set temperature is 26°C(Fixed) and fan speed is set to medium (Not changeable).

Press once again to disable the **ECONO** operation, last set parameters memorised will be recalled which were set before **ECONO** operation.

ECONO operation can only be set when unit is running. Pressing **ON/OFF** button causes the **ECONO** to be cancelled.

ECONO operation functions in **COOL** mode only.

ECONO and **POWER CHILL** operation cannot be used at the same time.

Priority is given to the function of whichever button is pressed last.

6. SWING button:

User can adjust the airflow direction to increase your comfort. The flaps will begin to swing.

7. CHILD LOCK button:

Setting the **CHILD LOCK** disables all the buttons except the **CHILD LOCK** button. This function prevents children from operating the remote controller by mistake. Press this button for about 5 seconds, **CHILD LOCK** will be enabled and following the same manner, **CHILD LOCK** can be disabled.

8. POWER CHILL button:

POWER CHILL operation quickly Maximizes the cooling effect in **COOL** and **DRY** operation only. In this mode, the air conditioner operates at maximum capacity. When **POWER CHILL** is activated , the flaps will be adjust at maximum air flow position.

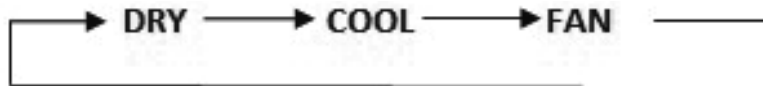
POWER CHILL operation ends in 20 minutes. Then the system automatically operates again with the previous settings which were used before **POWER CHILL** operation.

POWER CHILL operation cannot be used with **ECONO** and **COANDA** operation. Priority is given to the function of whichever button is pressed last. **POWER CHILL** operation can only be set when unit is running. Pressing **ON/OFF** button causes the settings to be cancelled. The temperature and airflow rate(fan) settings cannot be changed during **POWER CHILL** operation.

9. MODE button:

DRY, COOL, FAN Operation:

The air conditioner operates with the operation mode of your choice. Making the machine ON, using the remote, the air conditioner will operate with the same operation mode. Each pressing of the button changes the mode setting in sequence.



10. COANDA button:

In this function the air flow direction will be upwards. Press this button, The flaps position will change, preventing air from blowing directly on the occupants of the room. **COANDA** operation cannot be used with **POWER CHILL** operation

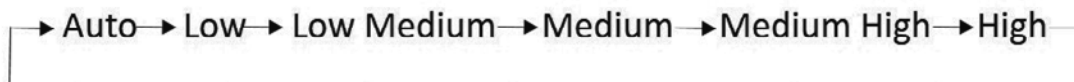
11. FAN setting button:

User can adjust the airflow rate to increase their comfort. Each pressing of the button changes the airflow rate setting in sequence.

DRY Operation

Low (Fixed)

COOL Operation



FAN Operation



12. ON TIMER button:

"**ON Timer**" function is useful for automatically switching the air conditioner ON. User can set the "**ON Timer**" function between 1 hour and 12 hours. Set "**ON Timer**" can be cancelled by pressing **CANCEL** button.

13. OFF TIMER button:

"**OFF Timer**" function is useful for automatically switching the air conditioner OFF. User can set the "**OFF Timer**" function between 1 hour and 9 hours. Set "**OFF Timer**" can be cancelled by pressing **CANCEL** button.

14. GOOD SLEEP Function with OFF TIMER button:

User can prevent excessive cooling of the room during sleep by setting a temperature shift value. The air conditioner automatically stops after the preset time has elapsed. User can set the **GOOD SLEEP OFF TIMER** between 1 hour and 9 hours. and temperature shift value between +1°C and +5°C. Set **OFF TIMER** with respect to Good Sleep function can be cancelled by pressing **CANCEL** button.

15. CANCEL button:

By pressing **CANCEL** button, user can cancel the set timers.

16. DISPLAY button:

The current indoor unit display can be turned to **OFF** by pressing this button once. On pressing display button again, unit display will get turned to **ON**.

PROTECT THE ENVIRONMENT FROM E-WASTE (GUIDELINES)

Meaning of E-waste under E-Waste (Management) Rules,2022 (E-waste Rules)
 -Waste electrical and electronic equipment, whole or in part of reject from their manufacturing and repair process, which are intended to be discarded.

Our product is RoHS compliant.



Don't dump Electrical and Electronic Products in Garbage Bins

DO'S & DONT'S

| DO'S | |
|--|---|
| Run and maintain the air conditioner as per the instructions given in the operation / instruction manual | ✓ |
| Ensure that an authorised person repairs your air conditioner | ✓ |
| Call our local authorised dealer or our toll free number to dispose your air conditioner | ✓ |
| Contact an authorised dealer in case of installation or de-installation | ✓ |
| Consult our local authorised dealer or our toll free number on the life span of the air conditioner | ✓ |
| DONT'S | |
| Do not try to repair your air conditioner on your own | ✗ |
| Do not sell or dispose your air conditioner or parts to an unauthorised Kabbadi wala / Scrap Dealer / Ragpickers | ✗ |
| Do not dismantle your air conditioner on your own | ✗ |
| Do not get your air conditioner or any parts repaired by an unauthorised person | ✗ |
| Do not dispose off the E-waste in landfills | ✗ |
| Do not use the air conditioner as furniture after its use | ✗ |

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