3P852030-1A

DAIKIN

INSTALLATION AND OPERATION MANUAL

FLOOR STANDING
R32 SPLIT TYPE AIR CONDITIONERS

MODELS

INDOOR	OUTDOOR
FVFS71AV16	RZFS71AV16
FVFS100AV16	RZFS100AV16
FVFS140AV16	RZFS140AV16

English

CAREFULLY READ THESE INSTRUCTIONS BEFORE INSTALLATION.

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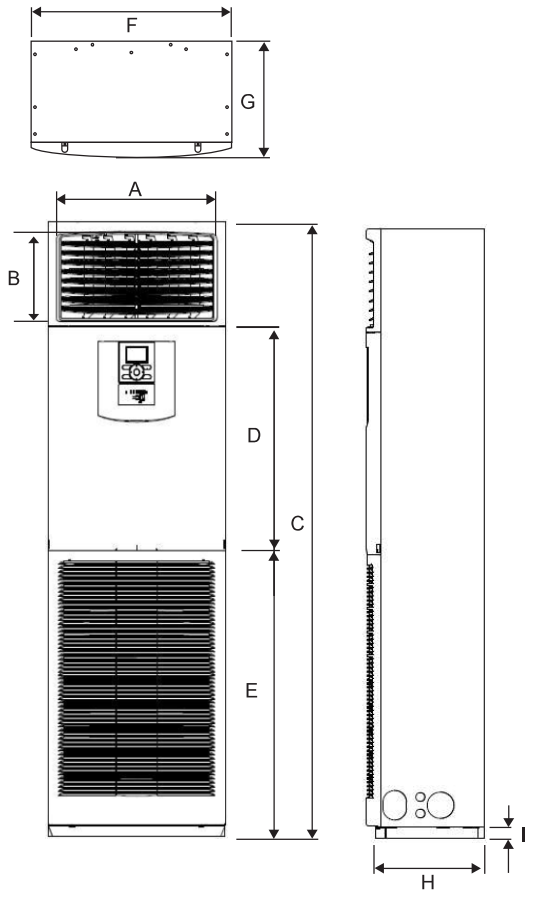
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OUTLINE DIMENSION

INDOOR UNIT [FVFS]

All dimensions are in mm



Dimension / IDU Model No.	A	B	C	D	E	F	G	H	I
FVFS71AV16	514	254	1850	677	859	600	350	322	34
FVFS100AV16	514	254	1850	677	859	600	350	322	34
FVFS140AV16	514	254	1850	677	859	600	350	322	34

DAIKIN

DAIKIN AIR CONDITIONER
INSTALLATION MANUAL

SAFETY PRECAUTIONS

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

- 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.
- 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.

- The safety marks shown in this manual have the following meanings:

	Be sure to follow the instructions.		Be sure to establish an earth connection.		Never attempt.

- 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 operation manual.

⚠ WARNING

- Ask your dealer or qualified person 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.
- This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.
- 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.
- Install the air conditioner according to the instructions given in this manual. Incomplete installation may cause water leakage, electrical shock, 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.
- Electrical work must be performed in accordance with relevant local and national regulations and with instructions in this installation manual. Be sure to use a dedicated power supply circuit only. Insufficiency of power circuit capacity and improper workmanship may result in electric shocks or fire.
- Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance.
- Use a cable of suitable length. Do not use tapped wires or an extension lead, as this may cause overheating, 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 positoning of the control box lid may result in electric shocks, fire or overheating terminals.
- After connecting interconnecting and supply wiring, be sure to shape the cables so that they do not put undue force on the electrical covers or panels. Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shocks, or fire.
- 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 cause abnormal pressure rise, which may result equipment damage and even injury.
- 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. 
- Be sure to switch off the unit before touching any electrical parts.

⚠ WARNING

- During pump down, stop the compressor before removing the refrigerant piping. If the compressor is still running and stop valve is open during pump-down, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in refrigeration cycle, which may result equipment damage and even injury.
- During installation, attach the refrigerant piping securely before running the compressor. If the refrigerant pipes are not attached and the stop valve is open when compressor is running, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in refrigeration cycle, which may result equipment damage and even injury.
- 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.
- Be sure to install an earth leakage breaker. Failure to install an earth leakage breaker may result in electrical shocks, or f re.
- All electrical wiring must not touch the water piping or any moving parts of the fan motors.
- Confirm that the unit has been switched OFF before installing or servicing the unit.
- Disconnect from the main power supply before servicing the air conditioner unit.
- DO NOT pull out the power cord when the power is ON.
  This may cause serious electrical shocks which may result in fire hazards.
- Keep the indoor and outdoor units, power cable and transmission wiring, at least 1m from TVs and radios, to prevent distorted pictures and static.
  Depending on the type and source of the electrical waves, static may be heard even when more than 1m away.
- Do not use means to accelerate the defrosting process (if applicable) or to clean, other than those recommended by the manufacturer.
- 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.
- The appliance must be installed, operated and stored in a room with a floor area larger than Xm^2 (refer to “Special Precaution when dealing with R32 Unit”). In case it is not satisfy minimum floor area, it requires to install at good ventilation room.
- NOTE: The manufacturer may provide other suitable examples or may provide additional information about the refrigerant odour.

⚠ CAUTION

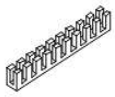
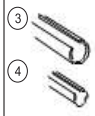
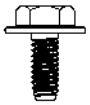
- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate piping to prevent condensation. Improper drain piping may result in indoor water leakage and property damage.
- Tighten the flare nut according to specified method such as with a torque wrench. If the flare nut is too tight, it may crack after prolonged use, causing refrigerant leakage.
- Do not overcharge the unit.
  Overcharge will cause over-current or damage to the compressor.
- Ensure that the unit’s panel is closed after service or installation.
  Unsecured panels will cause the unit to operate noisily.
- Sharp edges and coil surfaces are potential locations which may cause injury hazards.
  Avoid from being in contact with these places.
- Before turning off the power supply set the remote controller’s ON/OFF switch to the “OFF” position to prevent the nuisance tripping of the unit. If this is not done, the unit’s fans will start turning automatically when power resumes, posing a hazard to service personnel or the user.
- Make sure to provide for adequate measure in order to prevent the outdoor unit be used as a shelter by small animals. Small animal making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- The temperature of refrigerant circuit will be high, please keep the inter-unit wiring away from copper pipes that are not thermally insulated.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Do not install the air conditioner in places such as the following:
  a. Where there is mist of oil, oil spray or vapour for example a kitchen. Resin parts may deteriorate, and cause them to fall out or water to leak.
  b. Where corrosive gas, such as sulfurous acid gas, is produced. Corrosion of copper pipings or brazed parts may cause the refrigerant to leak.
  c. Where there is machinery which emits electromagnetic waves. Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
  d. Where flammable gases may leak, where carbon fibre or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled. If the gas should leak and remained around the air conditioner, it may cause ignition and a fire to break out.
- Do not install in places filled with smoke, gas, chemicals, etc. There is a possibility that the sensors inside the indoor unit could detect these and display a refrigerant leak abnormality (only for R32 refrigerant).

BEFORE INSTALLATION

- Make sure to use R32 refrigerant before the installation work. Otherwise, the unit cannot operate normally.
- Do not throw away the accessories required for installation until the installation is finished.
- Be sure to instruct the customer how to properly operate the system (particularly the cleaning of air filter, operation method, temperature adjusting method) showing the attached operation and installation manual to the person.
- Do not install the unit where the atmosphere is salty such as near the seaside, where the voltage frequently fluctuates or in a vehicle or a boat.

1 ACCESSORIES

- **Check the following accessories are included in the indoor unit.**

① U-PACKING	② BUSH	INSULATION FOR JOINTS	⑤ CLAMP	⑥ TAPPING SCREW	⑦ SCREW (M4X10)	⑧ SCREW (M5X10)	⑨ WIRELESS REMOTE CONTRLLER	⑩ MOUNTING PLATE REMOCON
								
(2 pcs.)	(2 pcs.)	(1 each)	(5 pcs.)	(2 pcs.)	(3 pcs)	(2 pcs.)	(1 pcs)	(1 pcs)

2 CHECKLIST

a. Item to be checked after completion of installation work.

Items to be checked	In case of defection	Check column
Is the indoor unit fixed firmly?	The unit may drop, vibrate or make noise.	
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 component burn out.	
Are wiring and piping correct?	The unit may malfunction or the component burn out.	
Is the unit safely grounded?	Dangerous at electric leakage.	
Is wiring size according to specifications?	The unit may malfunction or the component 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.	

b. Item to be checked at delivery.

Items to be checked	Check column
Have you explained how to operate the air conditioner showing the operation and installation manual to the customer?	
Have you explain about scan of QR code of the installation and operation manual to customer?	

c. 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.

CHOOSING AN INSTALLATION SITE

- Before choosing the installation site, obtain user approval.

Indoor Unit

The indoor unit should be sited in a place where:

- The restrictions on installation specified in the indoor unit installation drawing are met.
- The foundation is strong enough to support the weight of the unit and the floor is flat to prevent vibration and noise generation.
- The space around the unit is adequate for servicing and the minimum space for air inlet and air outlet is available.
- Drain water can be properly drained.
- Both air intake and exhaust have clear paths met.
- The unit is not in the path of direct sunlight.
- The unit is away from the sources of heat or steam.
- There is no source of machine oil vapour (this may shorten indoor unit life).
- Cool air is circulated through out the room.
- The unit is away from electronic ignition type flourescent lamps (inverter or rapid start type). As these may shorten the remote controller range.
- The unit is at least 1 metre away from any television or radio set (unit may cause interference with the picture or sound).
- Do not install the units at or near doorway.
- Do not operate any heating apparatus too close to the air conditioner unit or use in room where mineral oil, oil vapour or oil, steam exist, this may cause plastic part to melt or deform as a result of excessive heat or chemical reaction.
- When the unit is used in kitchen, keep flour away from going into suction of the unit.
- This unit is not suitable for factory used where cutting oil mist or iron powder exist or voltage fluctuates greatly.
- Do not install the units at area like hot spring or oil refinery plant where sulphide gas exists.
- Ensure the color of wires of the outdoor unit and the terminal markings are same to the indoors respectively.
- IMPORTANT : DO NOT INSTALL OR USE THE AIR CONDITIONER UNIT IN A LAUNDRY ROOM.
- Do not use joined and twisted wires for incoming power supply.
- The equipment is not intended for use in a potentially explosive atmosphere.
- The piping length between indoor unit and outdoor unit is within the allowable limit.

Wireless Remote Controller

- Do not expose the remote controller to direct sunlight (this will hinder receiving signals from the indoor unit).
- Turn on all the fluorescent lamps in the room, if any, and find the site where remote controller signals are properly received by the indoor unit (within 7 metres).

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

INDOOR UNIT INSTALLATION

1 INSTALLATION DIAGRAM

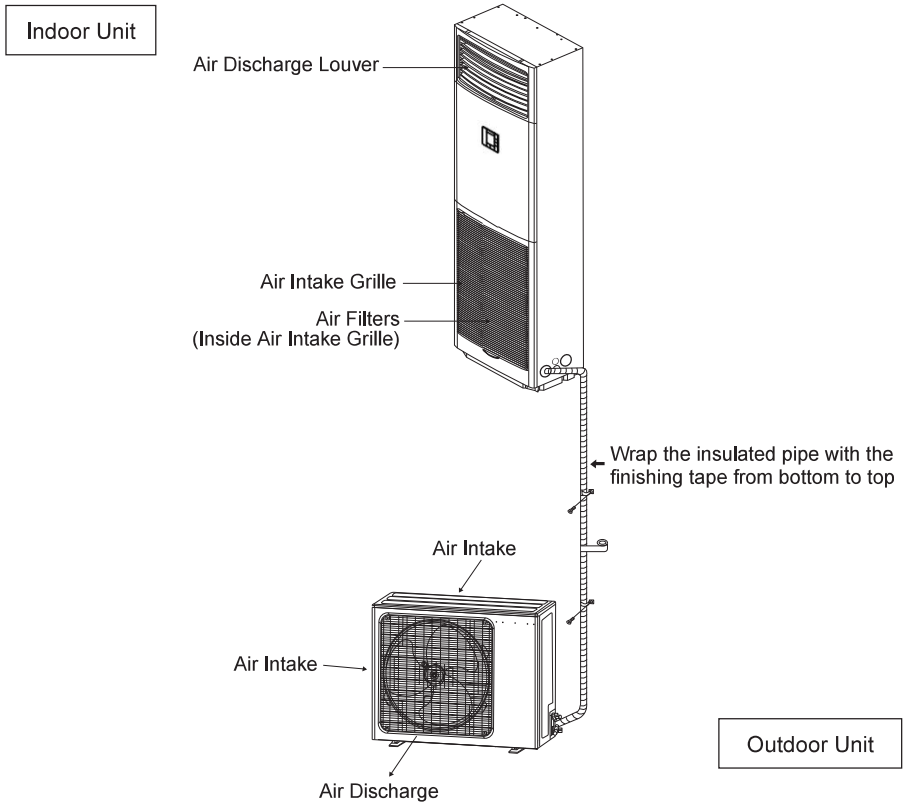


Figure A

2 INSTALLATION CLEARANCE

Standard Mounting

Ensure that the overhead supports are strong enough to hold the weight of the unit. Position the hanger rods (wall mounting bracket for floor standing), and check for its alignment.
Also, check that the hangers are secured and the base of the fan coil unit is leveled in both horizontal directions.

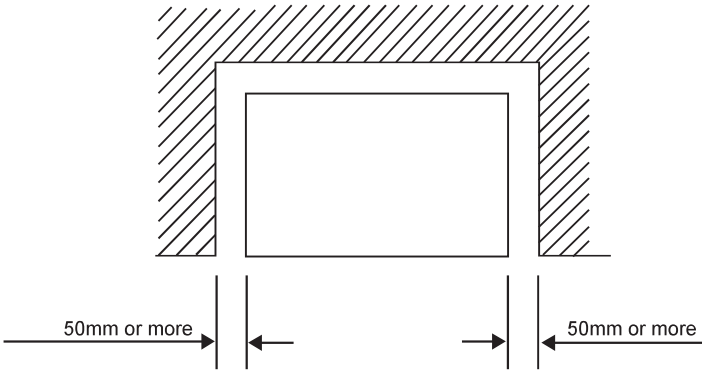


Figure B

Please ensure that the following steps are taken:

- The drain pipe slope shall be kept at least 1:100.
- Provide clearance for easy servicing and optimal air flow as shown in Figure B.
- The indoor unit must be installed such that there is no short circuit of the cool discharge air with the warm return air.
- Do not install the indoor unit where there is direct sunlight shining on the unit. The location should be suitable for piping and drainage installation. The unit must be a large distance away from the door.

3 INDOOR UNIT INSTALLATION

Fixing Procedure

- Fix the indoor unit by using embedded bolt, etc. to prevent falling down of the vertically-long shaped unit.

1. Detach the air intake grille.

Remove the screw (Right, Left, total 2) holding the grille. Then, (1) lean the grille forward you, and (2) lift upward and out. Refer Figure C.

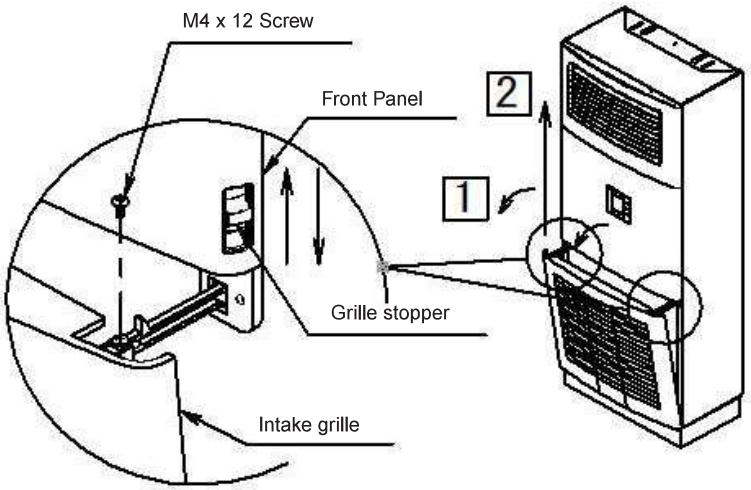


Figure C

2. Install the indoor units.

< Method 1 >

Fix the bracket with the attached screws to the top panel as shown in Figure D.
Then fix the indoor unit to the wall surface.

All dimensions are in mm

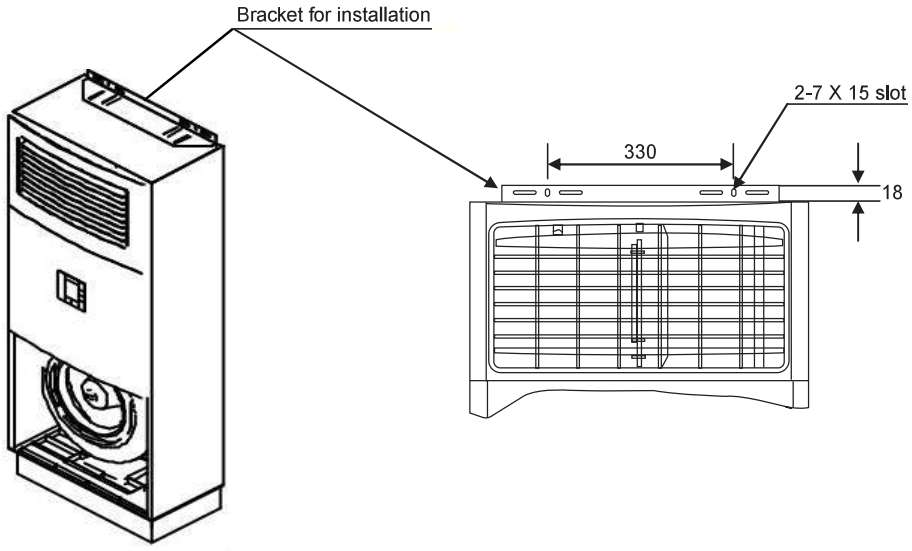
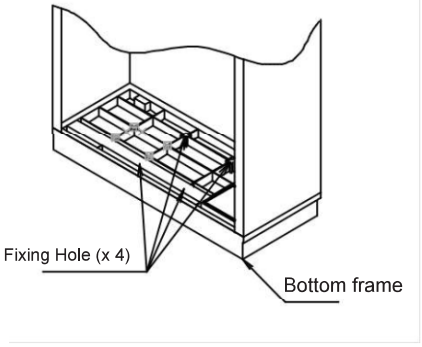


Figure D

< Method 2 >

Fix the indoor unit to the floor with Anchor bolts (to be locally procured) using fixing holes (x4) on the bottom frame.

All dimensions are in mm



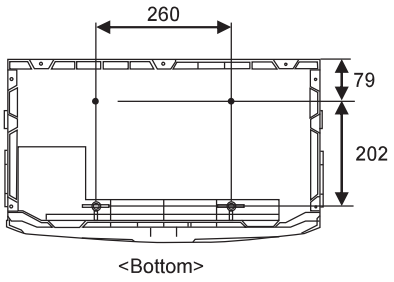


Figure E

For more safety precaution, fix the indoor unit with < Method 1 > and < Method 2 > during installation.

Piping and Drain Hose Installation.

- Detach the pipe retainer,

< In case of left or right piping >

1. Open the holes on the Right (Left) side panel. **(Refer to Figure F).**
2. Pass refrigerant pipes, drain pipes, and unit wiring through the hole on the side panel.

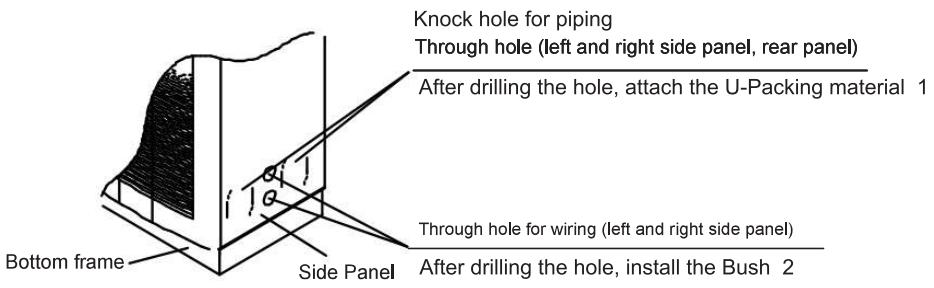
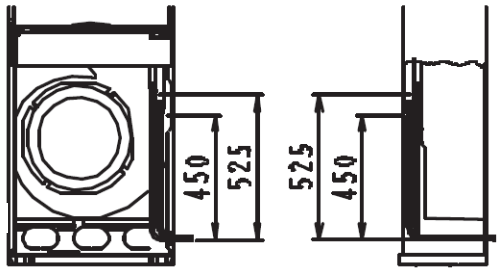


Figure F

For right or left piping

In case of rear facing piping



Note:
To Prevent small animals from entering through the hole for wiring and Piping . Seal it with putty or insulation material.
(If insects or other small animals get inside, It may cause short circuit inside the electrical box.)

< In case of rear piping >

1. Open the holes on the rear panel. **(Refer to Figure G).**
2. Pass refrigerant pipes, drain pipes, and unit wiring through the hole on the rear panel.

< In case of downward piping >

1. Cut holes in the indicated area of the bottom frame. **(Refer to Figure G).**
2. Pass refrigerant pipes, drain pipes, and unit wiring through the hole on the bottom frame.

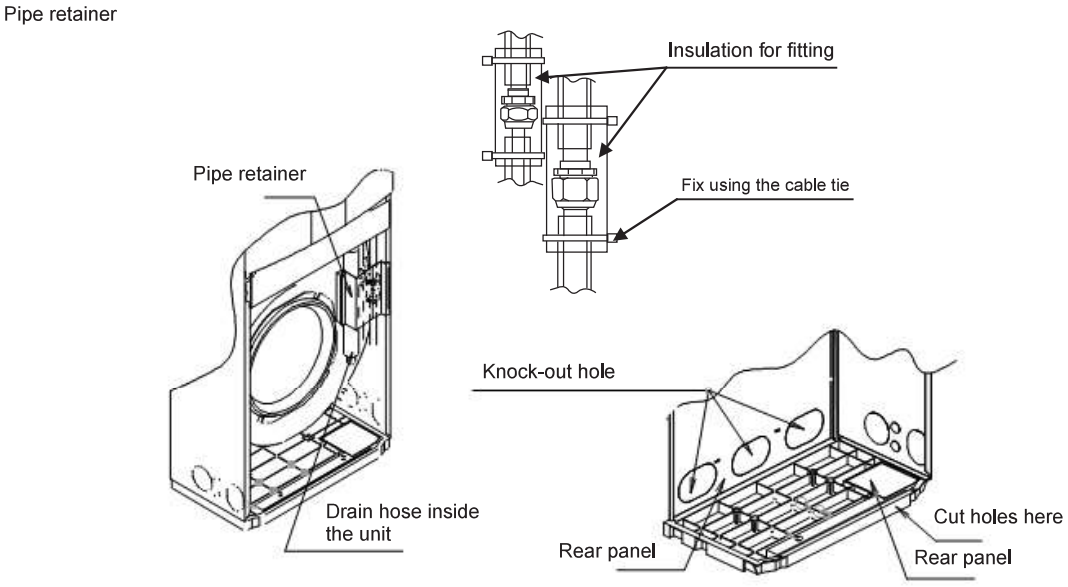


Figure G

After rigging pipes and wiring, lock down the refrigerant pipes, drain hose inside the unit, indoor-outdoor unit. Transmission wiring and grounding line, in the piping guide.

Drain Piping Work

1. Rig the drain piping.

Rig the drain line to ensure proper drainage. Also, observe the following to prevent leaks.

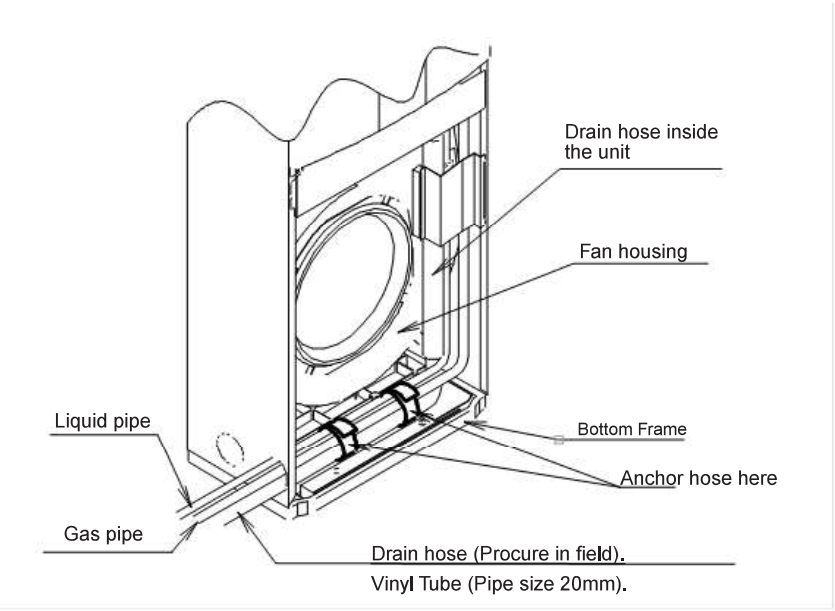


Figure H

- Bundle the drain hose to the refrigerant pipes as shown at right or take other means to anchor it down, so as not to apply pressure to the hose inside the unit. This is necessary to prevent the drain hose from disconnecting and to ensure proper insulation. Keep the drain hose sloping at a minimum 1/100 gradient, to prevent air pockets.
- Condensate can form on the hose and leak from the unit. Therefore, definitely insulate the hose in at least the below two places.
  - All hose in the room and inside the unit.
  - At connection between the unit's drain hose and building drain pipe.

2. After rigging the drain hose, check that drainage flows smoothly and that water does not leak from connections.

- Carefully pour approximately 1,000cc of water through the air discharge outlet so that it falls directly onto the heat exchanger at an angle without splashing. **(Refer to Figure I)**.

* If water is poured too fast or it water pressure is too high, the water will pass through the heat exchanger and drip on the fan motor below it.

* If water gets on the inner front wall, it will leak onto the floor.

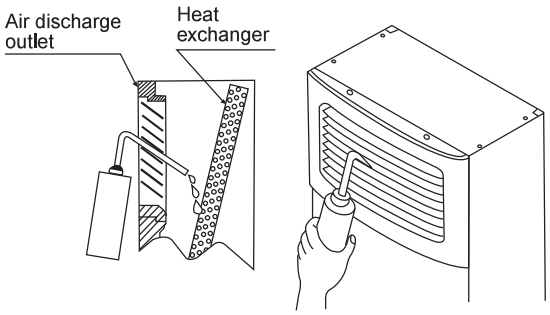


Figure I

Intake Grille

Intake grille must be installed as step below.

1. Hook the air intake grille on the groove on the unit's bottom frame in order of (1) -> (2). **(Refer to Figure J)**.

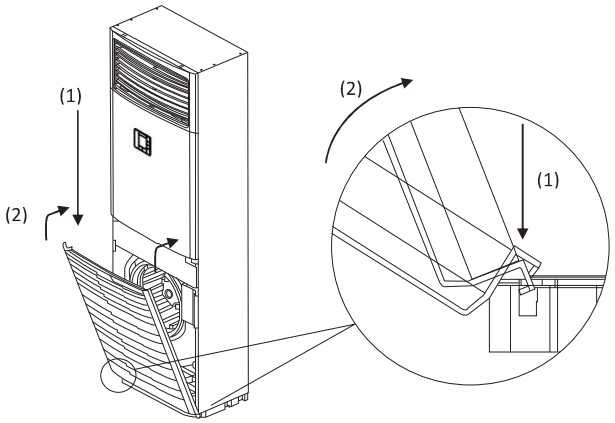


Figure J

2. Fit the grille stopper (front panel) into the groove on the air intake grille and lock the grille down in its original place by screw. **(Refer to Figure K)**.

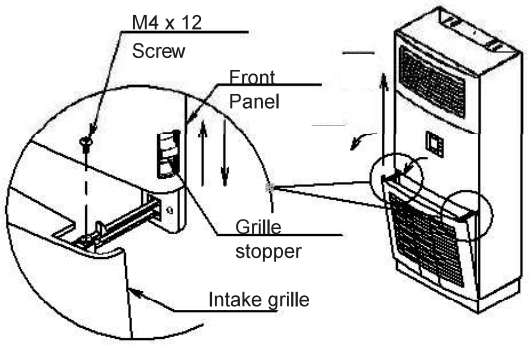


Figure K

If the unit needs to be service, steps below shall be followed:

1. Confirm that the unit had been switched off before servicing the unit.
2. Use screwdriver to unlock the screw on the intake grille.
3. Install the intake grille and screw the grille stopper after service and make sure the unit is proper install.

Filter Cleaning work

1. Take out the filter from the unit in order of (1) -> (2). **(Refer to Figure L)**.

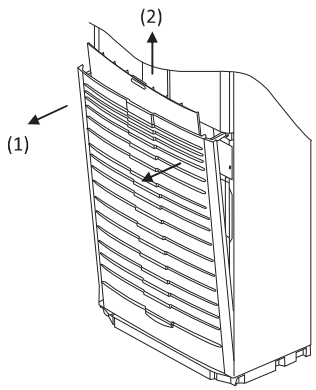
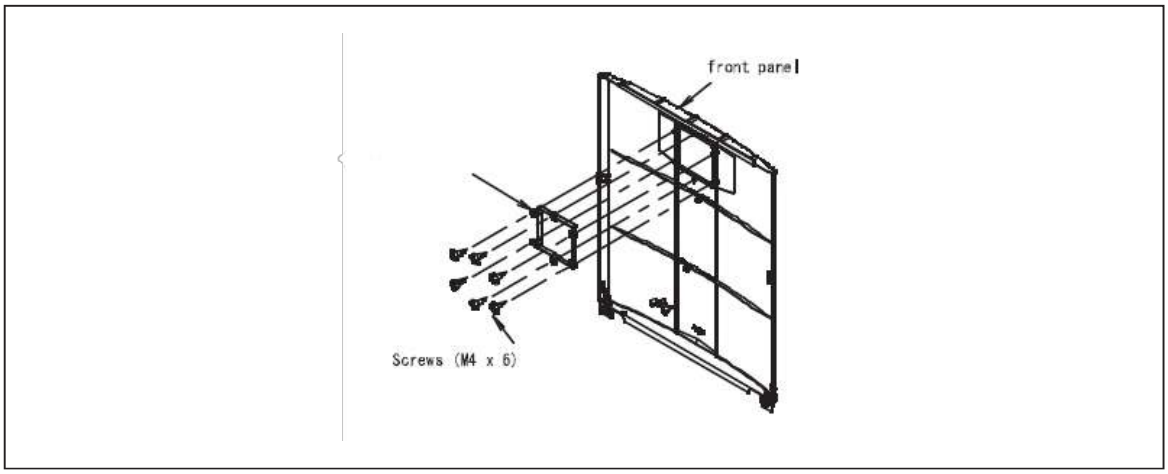


Figure L

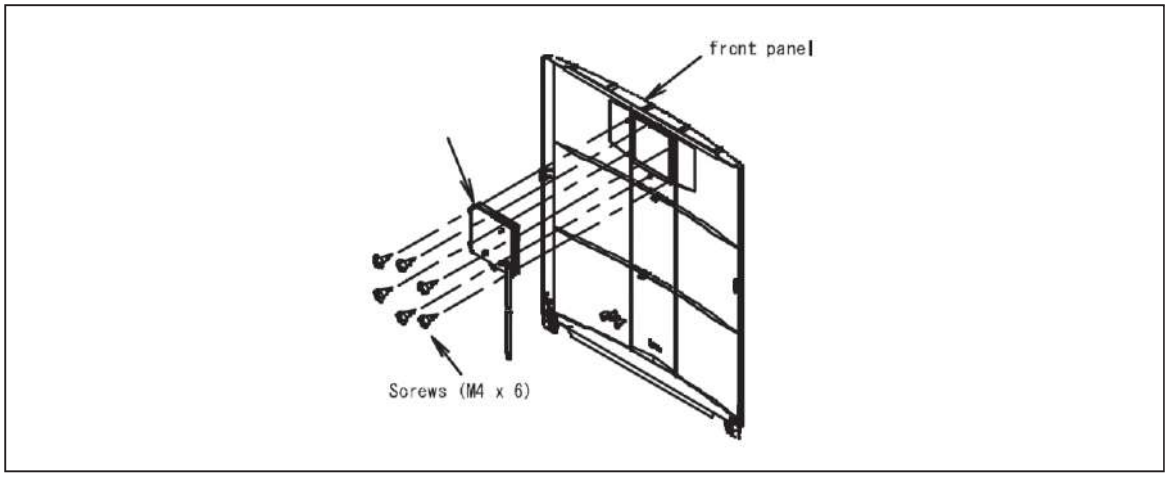
2. Clean the filter, either use a vacuum cleaner, or wash them in water and dry in the shade.
3. Re-insert the filter to the original position.

WIRED REMOTE INSTALLATION

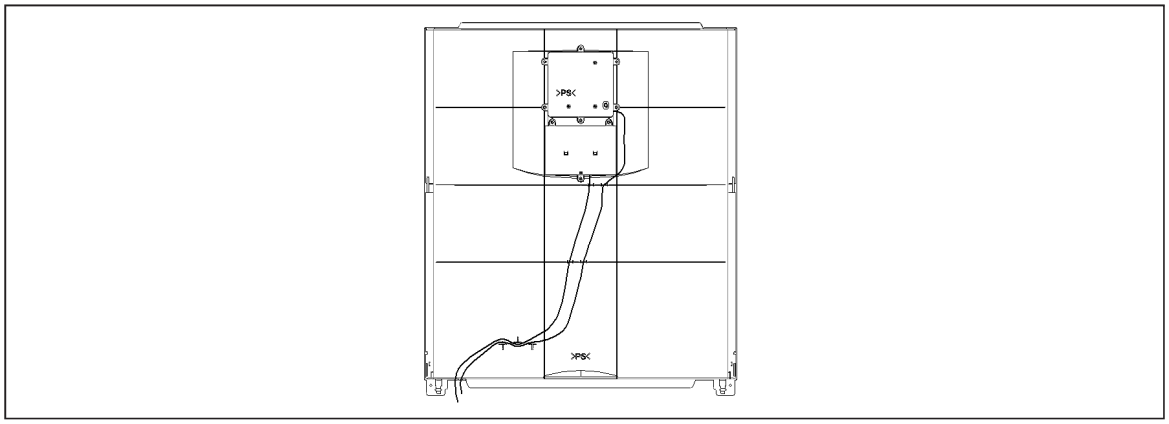
1. Remove the front Panel then remove the cover attached back side of the panel



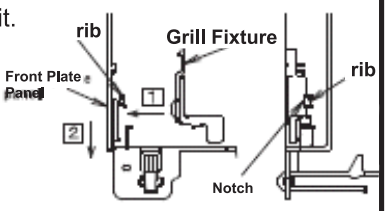
2. After completing the setup of wired remote with mounting plate, Attach the remote control to the area of the front panel where the cover was removed.



3. Connect the remote control wiring (procured locally) to the terminal (P1 and P2) of the terminal block (XIM) in El. Compo. Box Assy.



4. After completing the installation of wired remote, assemble the Indoor Unit.



NOTE

*If the grille fasteners come off when you remove the front panel, please reinstall them as follows:

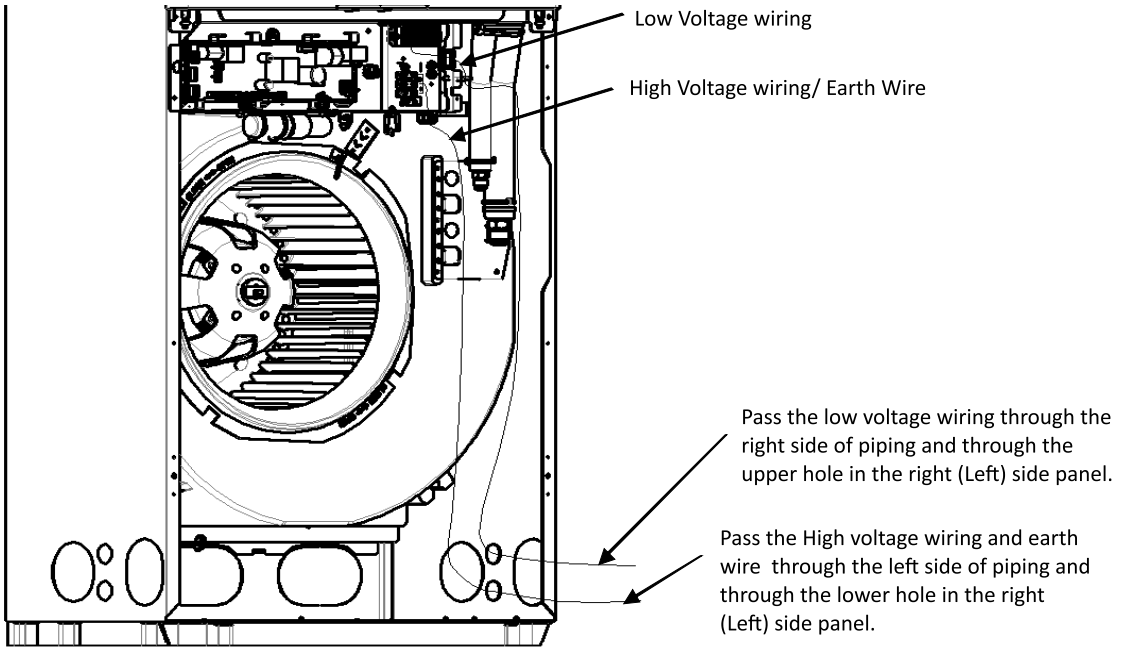
1. Align the notches on the grille fixture with the ribs on the front panel and install it.
2. Lower the grill fixture.

If installing the wired remote separately

Please refer to the "Separate Remote Control Installation Instructions“ section in the Control Panel (Wired Remote Control) Installation Manual.

1. Connect the remote control wiring (procured locally) to the terminals(P1 and P2) of the terminal block (XIM) and route it outside the unit as shown in the diagram below. (There is no polarity.) Pass the remote control wiring through the inside of the pipe retainer plate.

- Low-voltage wiring(remote control wiring) is different from high-voltage wiring(indoor and outdoor connection wiring).
- Keep the cable at least 50mm away from the earth cable so that it does not run in the same place. (See the diagram below)



⚠ WARNING

- Outside the unit, keep low voltage wiring (remote control wiring) at least 50mm away from high-voltage wiringconnection wiring, earth wire, and other electrical wiring) to avoid running them in the same place. Electrical noise may result in malfunction or breakdown.

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 230 V 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 lighting 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.
• For remote controller wiring details, refer to the installation manual attached to the remote controller.
• Do not touch the printed circuit board ASSY during the wiring work. Otherwise, it may cause damage.

• **Specifications for field wire**

Refer to the installation manual attached to the outdoor unit regarding the detail of standard accessories for the outdoor unit.
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

	Wire	Size (mm^2)	Length
Wiring the units	H05VV – U4G (NOTE 1, 2)	2.5	–
Remote controller cord	Vinyl cord with sheath or cable NOTE 3 (2 wire)	0.75 – 1.25	Max. 500m *

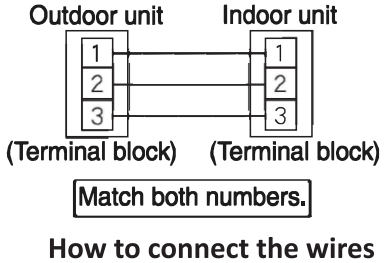
*This will be the total extended length in the system when doing group control.

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 and for the remote controller cord (Refer to Fig. 26)

• 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 (4).
• Remote controller cords
  Remove the control box lid and pull the wires inside through the hole and connect to the terminal block for remote controller (4 P) (no polarity). Securely fix the remote controller cord with the included clamp (4).



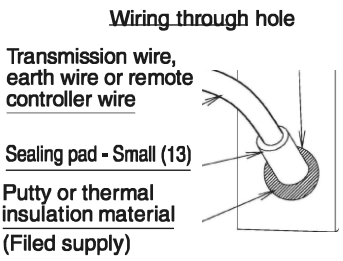
How to connect the wires

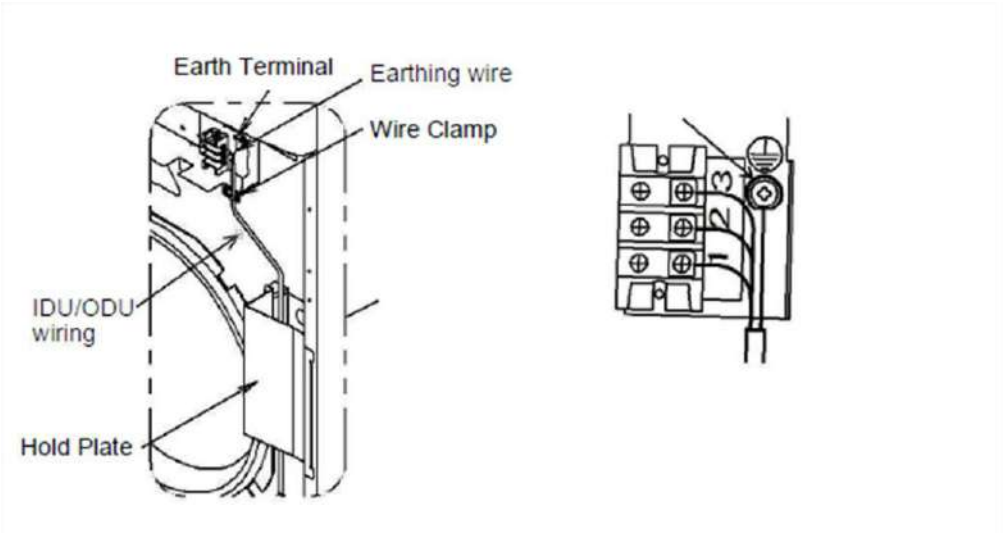
⚠ CAUTION

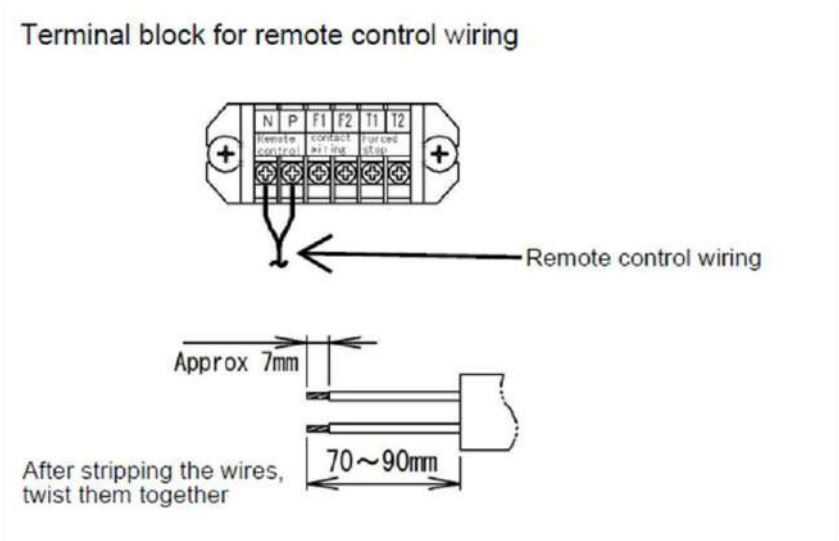
• Never connect the power supply wiring to the terminal block for wiring the units (4P). If may damage the total system.
• Do not connect the remote controller to the wrong terminal block.

- 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 (13) 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 (remote controller cord) 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]







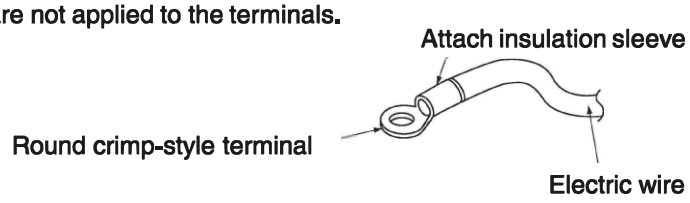
⚠ CAUTION

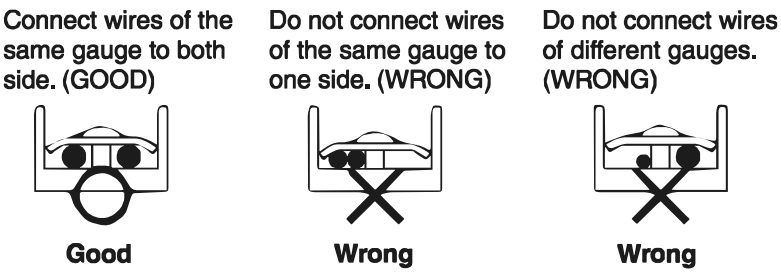
- Shape the wires and attach the control box lid securely so that wires will not be caught. (Caught wires and risen lid may cause an electric shock or fire.)

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.

- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
- When connecting wires of the same gauge, connect them according to below image.
- 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.





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 remote controller	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.)

WIRED EXAMPLE

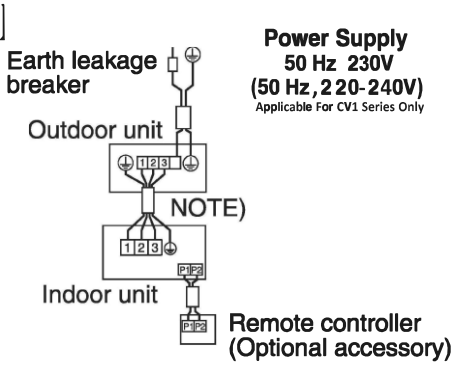
⚠ CAUTION

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.

For the wiring of outdoor units, refer to the installation manual attached to the outdoor units.
Confirm the system type.

- **Pair type**: 1 remote controller controls 1 indoor unit. (standard system)

Pair type



Standard wiring accessories

	Indoor unit		
Single-phase supply	Earth wire (copper)	Connection wire between indoor unit and outdoor unit	
		Minimum thickness	Length
	≥2.0 mm^2 ϕ1.6	2.0 mm^2 ϕ1.6	≤50 m

* For wiring length of indoor outdoor connection wiring will be changed depends on connect model, quantity, power size.

REFRIGERANT PIPING WORK

- **For the outdoor unit refrigerant piping, refer to the installation manual attached to the outdoor unit.**

1 FLARING THE PIPE END

1) Cut the pipe end with a pipe cutter.
2) Remove burrs with the cut surface facing downward so, that the chips do not enter the pipe.
3) Put the flare nut on the pipe.
4) Flare the pipe.
5) Check that the flaring is properly made.

⚠ WARNING

- Do not use mineral oil on flared part.
- Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- Never use piping which has been used for previous installations.
- Only use parts which are delivered with the unit.
- Do never install a drier to this R32 unit in order to guarantee its lifetime.
- The drying material may dissolve and damage the system.
- Incomplete flaring may cause refrigerant gas leakage.

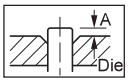
⚠ CAUTION

Do not reuse joints which have been used once already.



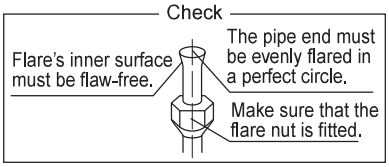
Flaring

Set exactly at the position shown below.



Pipe Size, mm (in)	A (mm)		
	Flare Tool for R32/R410A	Conventional flare tool	
	Clutch-type	Clutch-type (Ridgid-type)	Wing-nut type (Imperial-type)
6.4 (1/4")	0-0.5	1.0-1.5	1.5-2.0
9.5 (3/8")	0-0.5	1.0-1.5	1.5-2.0
12.7 (1/2")	0-0.5	1.0-1.5	2.0-2.5
15.9 (5/8")	0-0.5	1.0-1.5	2.0-2.5

Check



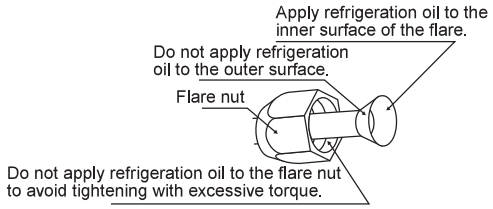
2 REFRIGERANT PIPING

⚠ CAUTION

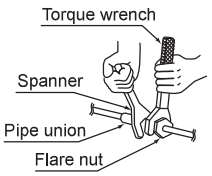
1) Use the flare nut fixed to the main unit. (To prevent cracking of the flare nut by aged deterioration.)
2) To prevent gas leakage, apply refrigeration oil only to the inner surface of the flare. (Use refrigeration oil for R32.)
3) Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and gas leakage.

Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.

[Apply oil]



[Tighten]



Pipe Size, mm (in)	Torque, Nm
6.4 (1/4")	15.7 ± 1..5
9.5 (3/8")	36.3 ± 3.6
12.7 (1/2")	54.9 ± 5.4
15.9 (5/8")	68.6 ± 6.8

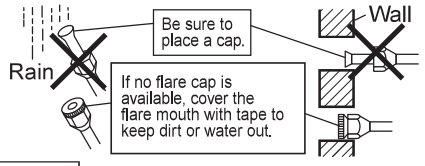
1. Cautions on pipe handling

1) Protect the open end of the pipe against dust and moisture.
2) All pipe bends should be as gentle as possible. Use a pipe bender for bending.

2. Selection of copper and heat insulation materials

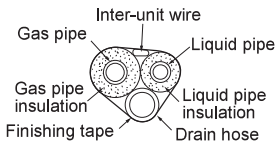
When using commercial copper pipes and fittings, observe the following:

1) Insulation material: Polyethylene foam
Heat transfer rate: 0.041 to 0.052W/mK (0.035 to 0.045kcal/(mh •°C))
Refrigerant gas pipe's surface temperature reaches 110°C max.
Choose heat insulation materials that will withstand this temperature.



2) Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

Piping size, mm (in)	Minimum bend radius	Piping thickness	Thermal insulation size	Thermal insulation thickness
6.4 (1/4")	30mm or more	0.8mm (C1220T-O)	I.D. 8-10mm	10mm Min.
9.5 (3/8")	30mm or more		I.D. 12-15mm	
12.7 (1/2")	40mm or more		I.D. 14-16mm	
15.9 (5/8")	50mm or more	1.0mm (C1220T-O)	I.D. 16-20mm	
19.1 (3/4")	50mm or more		I.D. 20-24mm	



3) Use separate thermal insulation pipes for gas and liquid refrigerant pipes.

⚠ WARNING

Prior to installation, ensure risk of ignition is minimised and avoid working in confined space. Ensure adequate ventilation is available by opening windows or doors.

- When flared joints are reused indoors, the flare part shall be re-fabricated.
- Avoid installation of the air conditioner in a place where there is danger of exposure to continuously operating open flames (for example an operating electric heaters).
- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.

- **Checking for presence of refrigerant**

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. nonsparking, adequately sealed or intrinsically safe.

- **Presence of fire extinguisher**

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO^2 fire extinguisher adjacent to the charging area.

- **No ignition sources**

All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. “No Smoking” signs shall be displayed.

- **The following checks shall be applied to installations:**
  - marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
  - refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

- **Initial safety checks shall include:**
  - that capacitors are discharged, this shall be done in a safe manner to avoid possibility of sparking
  - there shall be no live electrical components and wiring are exposed while charging, recovering or purging the system;

- **Repair to intrinsically safe components**

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
Replace components only with parts specified by the manufacturer.

⚠ WARNING

The appliance must be installed , operated and stored in a room with a floor area larger than X m2 (refer to the table – when dealing with R32 Unit). In case it is not satisfy minimum floor area , it requires to install at good ventilation room.

Tonnage	2.0 Tr	3.0 Tr	4.0 Tr
m_cT	1.65	3.175	3.475
A_min (m²)	4.67	13.09	15.68

Above table shows: for Example
For m_cT =1.65 a area should be greater or equal to 4.67 m2 is necessary.
Thus similar thinking for all.

NOTE

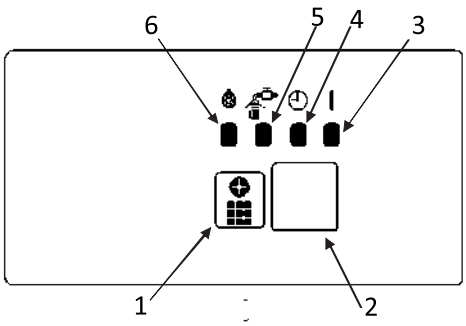
- above calculation is based on the IEC 60335-2-40 ED 6 , Clause GG.2 _maximum charge limit for an unventilated area.
- Total charge in the system (chargeless + additional charge) m_cT is based on max Piping and additional charge as per installation manual.
- However, when selecting and installing external equipment on site, the responsibility for preparing safety measures (requirements and required numbers) in according with IEC lies with the local installer.

Electric Characteristics

REPRESENTATIVE UNIT COMBINATION		POWER SUPPLY				COMPRESSOR		OFM		IFM	
INDOOR UNIT	OUTDOOR UNIT	HZ-Volts	Voltage Range	MCA	MFA	RHz	RLA	W	FLA	W	FLA
FVFS71AV16	RZFS71AV16	50-230	MAX 50Hz 253V MIN 50Hz 207V	13.27	20	97	6.53	128	1.33	150	1.27
FVFS100AV16	RZFS100AV16			19.37	32	97	11.85	200	1.45	150	1.27
FVFS140AV16	RZFS140AV16			26.87	32	99	19.74	200	1.45	150	1.27

SIGNAL RECEIVER UNIT

Signal receiver unit installed type
(Example)



1	**EMERGENCY OPERATION SWITCH**
	This switch is readily used if the remote controller does not work.
2	**RECEIVER**
	This receives the signals from the remote controller.
3	**OPERATING INDICATOR LAMP (RED)**
	This lamp stays lit while the air conditioner runs. It flashes when the air conditioner is in trouble.
4	**TIMER INDICATOR LAMP (GREEN)**
	This lamp stays lit while the timer is set.
5	**AIR FILTER CLEANING TIME INDICATOR LAMP (RED)**
	Lights up when it is time to clean the air filter.
6	**DEFROST OPERATION LAMP (ORANGE)**
	Lights up when the defrost control has started.

INDICATOR LIGHTS

FAULT DIAGNOSIS

When there is an abnormality happens, error code may show on display panel, refer to error code list below for fault diagnosis.

ERROR CODE	MEANING
00	NORMAL
A0	RISK OF REFRIGERANT LEAKAGE
A1	INDOOR PCB ERROR
A3	DRAIN PUMP ABNORMAL
A5	ANTIFREEZE (COOLING)/HEAT EXCHANGER OVERHEAT (HEATING)
A6	INDOOR FAN MOTOR ABNORMAL
AH	ELECTRICAL AIR CLEANER ABNORMAL
C4	INDOOR HEAT EXCHANGER (1) THERMISTOR SHORT/OPEN
C5	INDOOR HEAT EXCHANGER (2) THERMISTOR SHORT/OPEN
C7	LOUVER LIMIT SWITCH ERROR
C9	INDOOR ROOM THERMISTOR SHORT/OPEN
CH	DISCONNECTION/MALFUNCTION OF REFRIGERANT LEAKAGE SENSOR
E1	OUTDOOR PCB ERROR
E3	HIGH PRESSURE PROTECTION
E4	LOW PRESSURE PROTECTION
E5	COMPRESSOR MOTOR LOCK/COMPRESSOR OVERLOADED
E6	COMPRESSOR START-UP ERROR
E7	OUTDOOR DC FAN MOTOR LOCK
E8	AC INPUT OVER CURRENT
E9	EXV ERROR
EA	4 WAY VALVE ERROR
F3	DISCHARGE PIPE OVERHEAT
F6	HEAT EXCHANGER OVERHEAT
HO	COMPRESSOR SENSOR SYSTEM ERROR
H3	HIGH PRESSURE SWITCH ERROR
H6	COMPRESSOR FEEDBACK DETECTION ERROR
H7	FAN MOTOR OVERLOADED/OVERCURRENT/SENSOR ABNORMAL
H8	AC CURRENT SENSOR ERROR
H9	OUTDOOR AIR THERMISTOR SHORT/OPEN
J1	PRESSURE SENSOR ERROR
J3	COMPRESSOR DISCHARGE PIPE THERMISTOR SHORT/OPEN/MISPLACED
J5	SUCTION PIPE THERMISTOR SHORT/OPEN
J6	OUTDOOR HEAT EXCHANGER THERMISTOR SHORT/OPEN
J7	SUBCOOLING HEAT EXCHANGER THERMISTOR SHORT/OPEN
J8	LIQUID PIPE THERMISTOR SHORT/OPEN
J9	GAS PIPE THERMISTOR SHORT/OPEN
L1	INVERTER OUTDOOR PCB ERROR
L3	OUTDOOR CONTROL BOX OVERHEAT
L4	HEAT SINK OVERHEAT
L5	IPM ERROR/IGBT ERROR
L8	INVERTER COMPRESSOR OVERCURRENT
L9	COMPRESSOR OVERCURRENT PREVENTION
LC	COMMUNICATION ERROR (OUTDOOR CONTROL PCB AND INVERTER PCB)
P1	OPEN PHASE OR VOLTAGE UNBALANCE
P4	HEAT SINK THERMISTOR SHORT/OPEN
PJ	CAPACITY SETTING ERROR
U0	INSUFFICIENT GAS
U2	DC VOLTAGE OUT OF RANGE
U4	COMMUNICATION ERROR
U7	COMMUNICATION ERROR (OUTDOOR CONTROL PCB AND IPM PCB)
UA	INSTALLATION ERROR
UF	PIPING & WIRING INSTALLATION MISMATCH/WRONG WIRING/INSUFFICIENT GAS
UH	ANTIFREEZE (OTHER ROOMS)

TROUBLESHOOTING

For any enquiries on spare parts, please contact your authorized dealer. If any malfunction of the air conditioner unit is noted, immediately switch off the power supply to the unit. Check the following fault conditions and causes for some simple troubleshooting tips.

Fault	Causes / Action
1. The compressor does not operate 3 minutes after the air conditioner unit is started.	– Protection against frequent starting. Wait for 3 to 4 minutes for the compressor to start operating.
2. The air conditioner unit does not operate.	– Power failure, or the fuse need to be replaced. – The power plug is disconnected. – It is possible that your delay timer has been set incorrectly. – If the fault persist after all these verifications, please contact the air conditioner unit installer.
3. The air flow is too low.	– The air filter is dirty. – The doors or windows are open. – The air suction and discharge are clogged. – The regulated temperature is not high enough.
4. Discharge air flow has bad odor.	– Odors may be caused by cigarettes, smoke particles, perfume etc. which might have adhered onto the coil.
5. Condensation on the front air grille of the indoor unit.	– This is caused by air humidity after an extended long period of operation. – The set temperature is too low, increase the temperature setting and operate the unit at high fan speed.
6. Water flowing out from the air conditioner unit.	– Switch off unit and call dealer.

If the fault persists, please call your local dealer / serviceman.

OVERALL CHECKING

- **Ensure that**
  1) The unit has been mounted solidly and rigid in position.
  2) The piping and connections are leak-proof after the charging.
  3) Proper wiring has been installed.
- **Drainage check**
  – pour some water into the left side of the drain pan (the drainage is at the right side of the unit).
- **Test run:**
  1) Conduct a test run on the unit after having perform the water drainage test and the gas leakage test.
  2) Check the following items:
     a) Is the electrical plug inserted firmly into the socket?
     b) Is there any abnormal sounds from the unit?
     c) Is there any abnormal vibrations on the unit or the piping?
     d) Is the drainage of water smooth?
- **Confirm that**
  1) The condenser fan is running. Check the warm air blowing from the condensing unit.
  2) The evaporator blower is running and discharge coolair.
  3) The suction (low side) pressure is as recommended.
  4) The remote controller incorporates a 3-minute delay protection in the circuit, whereby the outdoor condensing unit requires about 3 minutes delay before it can start operating.

SERVICE AND MAINTENANCE

Service Parts	Maintenance Procedures	Period
Indoor Air Filter	1. Remove any dust adhering to the filter by using a vacuum cleaner or wash in lukewarm water (below 40°C) with a neutral cleaning detergent. 2. Rinse the filter well and dry before placing it back onto the unit. 3. Do not use gasoline, volatile substances or chemicals to clean the filter.	At least once every 2 weeks. More frequently if necessary.
Indoor Unit	1. Clean any dirt or dust on the grille or panel by wiping it with a soft cloth soaked in lukewarm water (below 40°C) and a neutral detergent solution. 2. Do not use gasoline, volatile substances or chemicals to clean the indoor unit.	At least once every 2 weeks. More frequently if necessary.
Indoor Fan	1. Check for any abnormal noise.	When necessary.

⚠ CAUTION

Avoid direct contact of any coil treatment cleaners on plastic part. This may cause plastic part to deform as a result of chemical reaction.

OPERATING 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

OUTDOOR UNIT	INDOOR			OUTDOOR TEMPERATURE	
	TEMPERATURE		HUMIDITY		
RZFS	D B	21 to 35	80% or below	D B	21 to 52
	W B	14 to 24			

DB: Dry bulb temperature (°C)

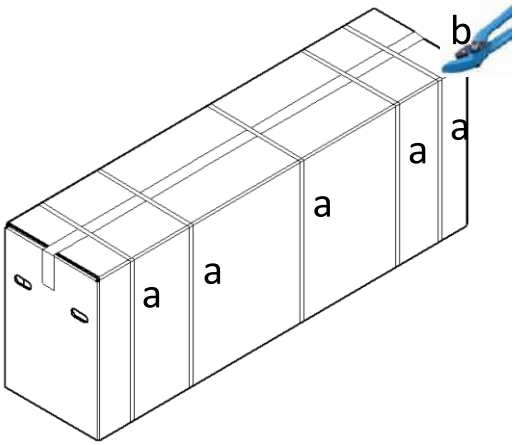
WB: Wet bulb temperature (°C)

The setting temperature range of the remote controller is 16°C to 32°C.

UNPACKING OF THE INDOOR UNIT

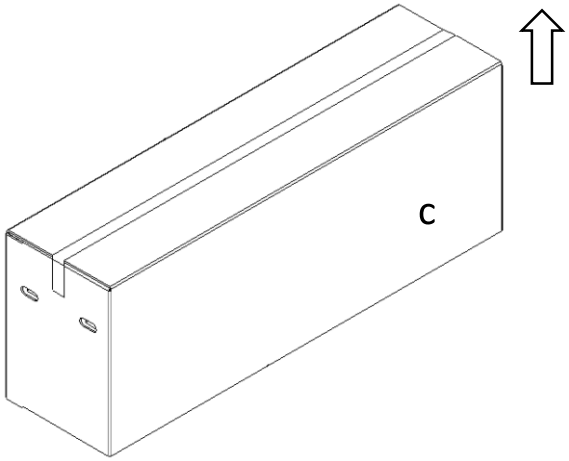
UNIT UNPACKING

①



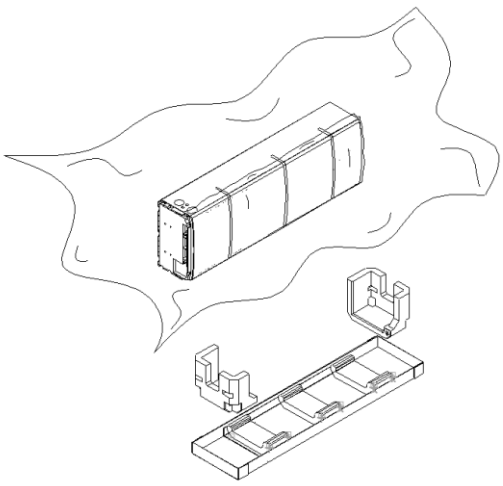
- Cut all the straps (a) from the unit using strap cutter (b) as shown in figure.

②



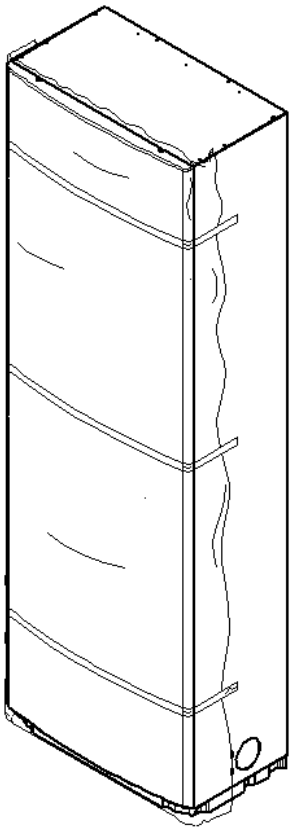
- Remove the corrugated cardboard sheet (c) and EPS from the unit by pulling it up as shown in figure.

③



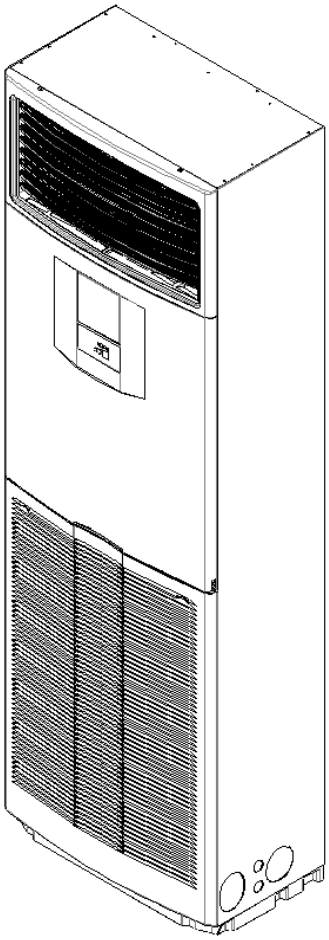
- Unfold the product cover and pull the unit up, then remove the product cover, Bottom corrugated cardboard and EPS.

④



- Remove the cover sheet (Mirror Mat) from front side of the unit by removing the tape (3 place).

⑤



- FG Indoor Unit

Split System Air Conditioner

INSTALLATION MANUAL <FOR OUTDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES
RZFS71AV16

Note : **Read the precautions in this manual carefully before operating the unit.**
This appliance is filled with R32.

CONTENTS

SAFETY PRECAUTIONS
1.BEFORE INSTALLATION ----------
2.SELECTING INSTALLATION SITE----------
3.INSTALLATION SERVICE SPACE----------
4.PRECAUTIONS ON INSTALLATION----------
5.REFRIGERANT PIPING WORK----------
6.AIRTIGHTNESS TEST AND AIR-PURGE----------
8.CHARGING REFRIGERANT----------
9.CHECK ITEMS BEFORE TEST OPERATION AND FIELD SETTINGS----------
10.TEST OPERATION11.CAUTION----------
12.HOW TO RE-USE THE EXISTING PIPING----------
13.REFRIGERANT RECOVERY----------
14.NPACKING & PACKING INSTRUCTION OF OUTDOOR UNIT----------

⚠WARNING THERE IS A RISK OF EXPLOSION OR FIRE

- Do not mix air in the refrigerating cycle during pump down operation.
- Do not use oxygen for air tight test.
- Do not use refrigerant other than the specified one or flammable material (e.g. propane) in the refrigerant cycle.
  They may cause over pressure in the refrigerating cycle and result in explosion, fire or injury.
  Our company assumes no responsibility for failure or malfunction caused by filling or mixing of anything other than the specified refrigerant.

⚠CAUTION ABOUT ISOLATING RESISTANCE OF COMPRESSOR

If refrigerant accumulates in the compressor after completing installation, the insulation resistance can drop, but if it is at least 1 MΩ, then the unit will not break down.

- Connect the power supply to the unit and after 6 hours check if the insulation resistance of the compressor rises.
  (Energize and heat the compressor to vaporize the refrigerant accumulated in the compressor.)
- If the earth leakage breaker actuates, check if the earth leakage breaker is equipped with a device to cope with high harmonics.To prevent wrong actuation of the earth leakage breaker due to the inverter, make sure to adopt an earth leakage breaker equipped with a device to cope with high harmonics.

1. Please make sure to confirm that R32 (new refrigerant) is used in installation work in advance.
   (It may not operate normally if refrigerant type is different.)
2. The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
   - 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.
   - Tightly sealed
     R32 cpntains no chlorine, does not destroy the ozone layer and so does not ewduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere. Therefore, sealing tightness is particularly import in installation.
     Carefully read the (chapter ❺ **REFRIGERANT PIPING WORK**) and strictly observe the correct procedures.
3. The design pressure of this unit: High/Low pressure area are shown in the right table.
   The refrigerant piping is a high pressure area.
   Use the refrigerant piping which supports the design pressure.
   The piping specifications, please refer to chapter
   ❺ **REFRIGERANT PIPING WORK**

Outdoor Unit	Design Pressure	
RZFS71AV16	High	4.17
	Low	2.76

(Units: MPa)

4. Be sure to connect the indoor unit, which is dedicated to R32. See the catalog for indoor unit models which can be connected. (Normal operation is not possible when connected to other units.)

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

- This manual classifies the precautions into WARNINGS and CAUTIONS.
  Be sure to follow all the precautions below. They are all important for ensuring safety.

⚠WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- After the installation is completed, test the air conditioner and check if the air conditioner operates properly.
  Given the user adequate instructions concerning the use and cleaning of the indoor unit according to the operation manual.
  In particular, make sure to explain with regard to "SAFETY PRECAUTIONS" and "Not malfunction of the air conditioner".
  Ask the user to keep this manual and the operation manual together in a handy place for future reference.
- This air conditioner comes under the term "appliances not accessible to the general public".

⚠WARNING

- Ask your local dealer or qualified personnel to carry out installation work.
  Improper installation may result in water leakage, electric shocks or a fire.
- Perform installation work in accordance with this installation manual.
  Improper installation may result in water leakage, electric shocks or a fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage.
  When the indoor unit is 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 deficiency.
- Be sure to use only the specified parts and accessories for installation work.
  Failure to use the specified parts may result in the air conditioner fall down, water leakage, electric shocks, a fire, etc.
- Install the air conditioner on a foundation that can withstand its mass.
  Insufficient strength may result in the air conditioner fall down and causing injury.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
  Improper installation may result in an accident such as the air conditioner falling.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
  Improper installation may result in an accident such as the air conditioner falling.
- Make certain that all electric work is carried out by qualified personnel according to the applicable legislation(note 1) and this installation manual, using a separate circuit. In addition, even if the wiring is short, make sure to use a wiringthat has sufficient length and never connect additional wiring to make the length sufficient. Insufficient capacity of the powersupply circuit or improper electric construction may lead to electric shocks or a fire.(note 1) Applicable legislation means "All international, national and local directives, laws, regulations and/or codes which arerelevant and applicable for a certain product or domain."
- Earth the air conditioner.
  Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.
  Incomplete earthing may cause electric shocks or a fire.
- Be sure to install an earth leakage circuit breaker.
  Failure to do so may cause electric shocks or a fire.
- The appliance must be stored in a room without continuosly 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 odor.
- Comply with national gas regulations.
- Be sure to switch off the unit before touching any electrical parts.
  Touching a live part may result in electric shocks.
- Make sure that all wiring is secure, using the specified wiring and ensuring that external forces do not act on the terminal connections or wiring. Incomplete connection or fixing may cause overheating terminals or fire.
- When wiring between the outdoor and indoor units, and wiring the power supply, from the wiring orderly so that the structural parts such as a cover can be securely fastened.
  If the cover is not in place, electric shocks or a fire may be caused.
- Do not add wiring. It may result in heat generation. Electric shocks or fire.
- 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 inequipment damage and even injury.
- If refrigerant gas leaks during installation work, ventilate the area immediately.
  Toxic gas may be produced if refrigerant gas comes into contact with a fire.
- After completing the installation work, check to make sure that there is no leakage of refrigerant gas.heater, stove or cooker.
  Toxic gas may be produced if refrigerant gas leaks into the room and comes into contact with a source of a fire, such as a fan heater, stove or cooker.

⚠ CAUTION

- Install drain piping according to this installation manual to ensure good drainage, and insulate the piping to prevent condensation.
  Improper drain piping may cause water leakage, make the furniture get wet.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radio to prevent picture interference and noise.(Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
  (Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Install the indoor unit as far as possible from fluorescent lamps.
- 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 adequate measures to prevent the outdoor unit from being 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.
- Disposal requirements:
  Dismantling of the unit, treatment of the refrigerant, oil, and other parts must be done in accordance with relevant local and national legislation.
- Only qualified personnel can handle, fill, purge, and dispose of the refrigerant.
- Do not install the air conditioner in the following places:
  1. Where there is oil mist, oil spray, or vapor (for example, a kitchen).
     Resin parts may deteriorate and cause them to fall out or water to leak.
  2. Where corrosive gas, such as sulfurous acid gas, is produced.
     Corrosion of copper piping or brazed parts may cause refrigerant leakage.
  3. Where there is machinery which emits electromagnetic waves.
     Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
  4. Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled. If the gas should leak and remain around the air conditioner, it may cause ignition.
  5. The plate that the vibration or the voltage fluctuation give influence. vehicles, vessels, etc.
     The vibration may cause a damage and the voltage fluctuation may cause an abnormal operation.
  6. Where small animals may build a nest, fallen leaves are accumulated, or weeds are overgrown. If small animals touch the electrical parts inside, this may cause malfunction, smoke or a fire.

■ 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 : 675

- [1]GWP value : global warming potential .
  The refrigerant quantity is indicated on the unit name plate.

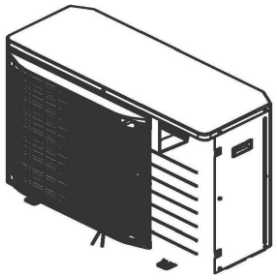
1 BEFORE INSTALLATION

<DO NOT THROW AWAY ACCESSORIES FOR INSTALLATION>

⚠ CAUTION

- Read these instructions carefully before installation.
  For installation of the indoor unit, refer to the indoor unit installation manual.

RZFS71AV16

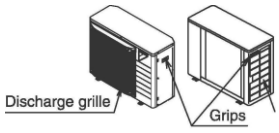


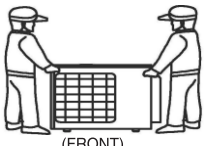
1 BEFORE INSTALLATION

<DO NOT THROW AWAY ACCESSORIES FOR INSTALLATION>

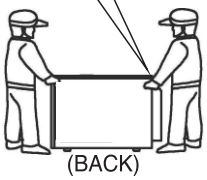
HANDLING

- As shown in the figure, bring the unit slowly by grabbing the left and right side grips.
  (Take care not to let hands or objects come in contact with rear fins.)




(FRONT)

Please your hands on the comer instead of holding the suction inlet in the side of the casing, otherwise the casing could be deformed.


(BACK)

INSTALLATION CONSTRUCTION ACCESSORIES

Be sure only to use accessories by DAIKIN
which are specifically designed for use with the qruipment.

CAUTION

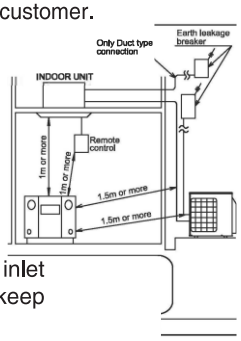
Work in a team of at least two people when carrying the outdoor unit.

⚠ CAUTION

1 SELECTING INSTALLATION SITE (1/2)

(1) Select the installation location that meets the following conditions and get approval of the customer.

- Places where there is no risk of flammable gas leakage.
- Places where the outdoor unit does not bother next-door neighbors.
- Safe places which can withstand the unit's mass and vibration and where the air conditioner can be installed level.
- Places that are well-ventilated and where servicing space can be well ensured. The minimum required space is shown in chapter ❸INSTALLATION SERVICE SPACE.
- Where the piping length the indoor and the outdoor units is ensured with in the allowable piping length. Please see chapter ❺REFRIGERANT PIPING WORK.
- Do not allow wind from the same direction to below frequency toward the outlet or inlet of the outdoor unit. If the wind is likely to blow as mentioned above, make sure to keep a sufficient service space and install a wind protective shield.



⚠ CAUTION

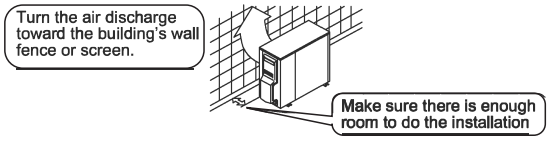
Inverter air conditioners may cause noise to occur in electrical appliances. As shown in the right drawing, select an installation site well away from radios, PCs and stereos.
Especially in the areas where the incoming signal strength is week, keep the indoor remote controller 3 meter or more from electrical appliances.
Put the power supply and transmission wiring in a metal piping and ground the metal piping.

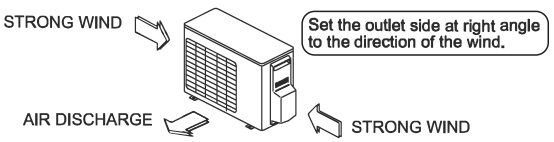
2 SELECTING INSTALLATION SITE (2/2)

⚠ CAUTION

1) In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
2) When installing the unit in a place exposed to strong wind, pay special attention to the following.
Strong winds of 5 m/sec or more blowing against the outdoor unit's air outlet causes short circuit (suction of discharge air) and this may have the following consequences:-
- Deterioration of the operational capacity
- Disruption of operation due to rise of high pressure.
- When a strong wind blows continuously on the face of the unit, the fan can start rotating very fast until it breaks.

Refer to the figures for installation of this unit in a place where the wind direction can be foreseen.
3) Following the installation place, it is expected that the influence of the strong wind is great..
- The flat area which receives the adverse wind such as typhoon directly sincethere is no obstacles such as buildings and mountains. (Including coast line, shoreline of lake and mountain region.).
- The installation place that no obstacles around the outdoor unit to prevent the adverse wind, for example, walls and buildings that are higher than the applicable outdoor unit, etc. Please take measures when installing especially on a rooftop..
- Since the outdoor unit may fall down, attach the fixture for preventing overturning(option).





4) Prepare a water drainage channel around the foundation, to drain waste water from around the unit.
5) If the water drainage of the unit is not easy, please build up the unit on a foundation of concrete blocks, etc.(the height of the foundation should be maximum 150 mm).
6) If you install the unit on a frame, please install a waterproof plate within 150 mm of the underside of the unit in order to prevent the invasion of water from the lower direction.

3 INSTALLATION SERVICE SPACE (1/3)

- The installation servicing spaces shown in these drawings are based on the outdoor unit inlet area temperature of 35℃for COOLING operation.
If the planned inlet area temperature exceeds 35℃(DB), or if the heat load of all outdoor units is increased significantly and exceeds the maximum operating capacity, secure a larger space than that indicated by the inlet dimensions in these drawings.

- For installation, consider both pedestrian and air flow paths and choose a suitable pattern from these drawings to match the space available field. (If the number of units to be installed exceeds the patterns in these drawings, consider there is no short-circuits.).
- Regarding the front space, position the units with consideration to the space required for the refrigerant piping work.(Consult your dealer if the work conditions do not match those in the drawings.).
- Secure apprpriate space when using a side piping outlet.

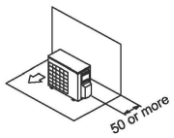
STAND-ALONE INSTALLATION

- To secure service space, more than 250mm of each products at right side in needed.

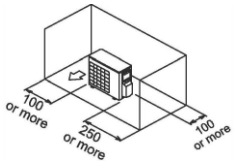
(Units: mm)

No Obstacle above

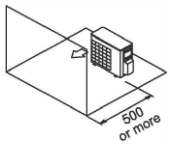
1) Obstacle on the suction side only



2) Obstacle on both sides and suction side, too

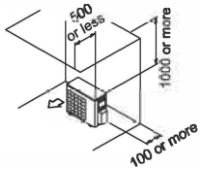


3) Obstacle on the discharge side only

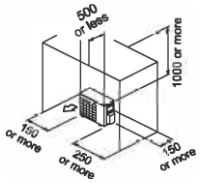


Obstacle above, too

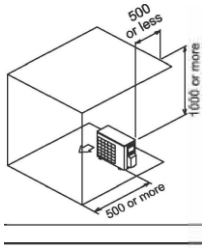
1) Obstacle on the suction side, too



2) Obstacle on both sides and suction side, too



3) Obstacle on the discharge side only. too



3 INSTALLATION SERVICE SPACE (2/3)

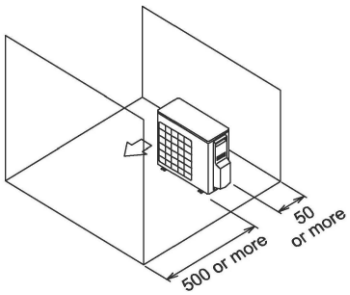
When there are obstacles on both suction and discharge sides

(Units: mm)

- To secure service space, more than 250 mm of each products at right side is needed.

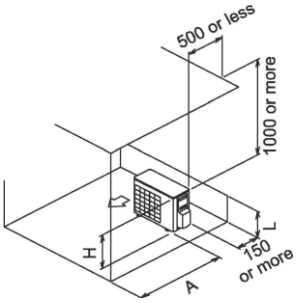
Pattern 1 When the obstacles on the discharge side is higher than the unit

1) No obstacle above (There is no limit for the height of obstructions on the suction side.)



2) Obstacle above, too
The relations between H, A and L are as follows.

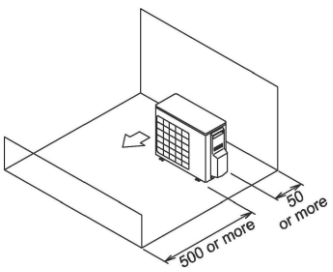
	L	A
L≦H	L≦0.5H	700 or more
	0.5H<L≦ H	1000 or more
L>H	Set the stand as: L≦H	



※- Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is untill 2 unit only.
- In case of more than dimension in ( ), It is no need to establish the stand although L > H

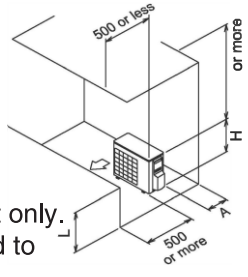
Pattern 2 When the obstacle on the discharge side is lower than the unit

1) No obstacle above (There is no limit for the height of obstructions on the suction side.)



2)Obstacle above, too
The relations between H, A and L are as follows.

	L	A
L≦H	L≦0.5H	50 or more
	0.5H<L≦ H	100 or more
L>H	Set the stand as: L≦H	



X- Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is untill 2 unit only.
- In case of more than dimension in ( ), It is no need to establish the stand although L > H

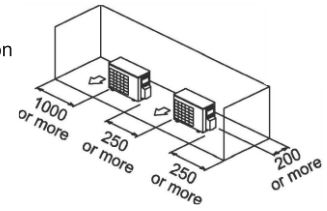
SERIES INSTALLATION (2 OR MORE

※ Inside extraction, please provide the space of piping.
- To secure service space, more than 250 mm of each products at right side is needed.

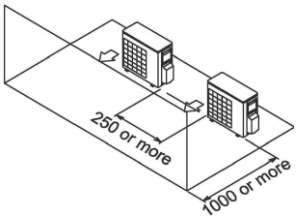
(Units: mm)

No Obstacle above

1) Obstacle on the suction side only

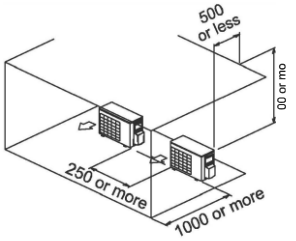


2) Obstacle on the discharge side only

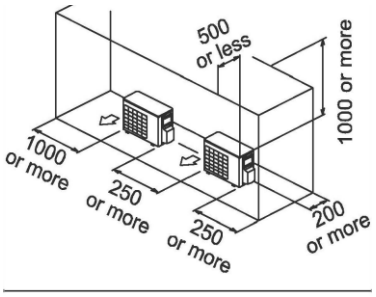


Obstacle above, too

1) Obstacle on the discharge side



2) Obstacle on the suction side and both sides



3 INSTALLATION SERVICE SPACE (3/3)

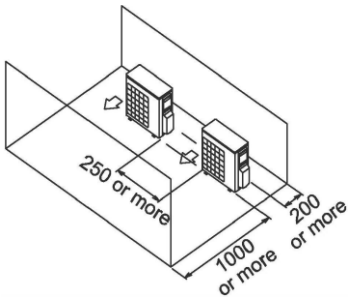
When there are obstacles on both suction and discharge sides

(Units: mm)

- To secure service space, more than 250 mm of each products at right side is needed.

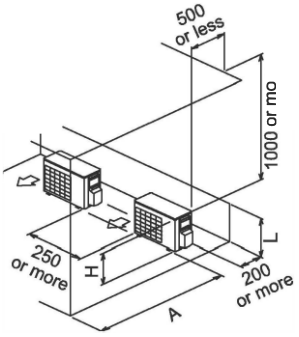
Pattern 1 When the obstacles on the discharge side is higher than the side unit

1) No obstacle above (There is no limit for the height of obstructions on the suction side.)



2) Obstacle above, too
The relations between H, A and L are as follows.

	L	A
L≦H	L≦0.5H	1000 or more
	0.5H<L≦ H	1250 or more
L>H	Set the stand as: L≦H	

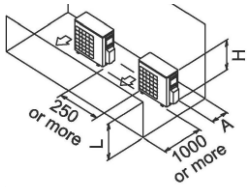


X- Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is untill 2 unit only.
- In case of more than dimension in ( ), It is no need to establish the stand although L > H

Pattern 2 When the obstacle on the discharge side is lower than the unit

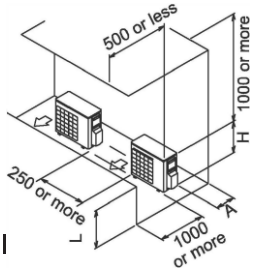
1) No obstacle above
(There is no limit for the height of obstructions on the suction side.)
The relations between H, A and L are as follows.

L	A
L≦0.5H	150 or more
0.5H<L≦ H	200 or more
Set the stand as: L≦H	



2)Obstacle above, too
The relations between H, A and L are as follows.

	L	A
L≦H	L≦0.5H	150 or more
	0.5H<L≦ H	200 or more
L>H	Set the stand as: L≦H	



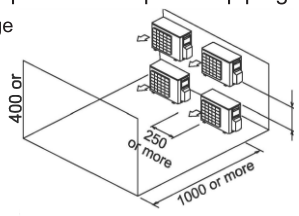
X- Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is untill 2 unit onl
- In case of more than dimension in ( ), It is no need to establish the stand although L > H

DOUBLE-DECKER INSTALLATION

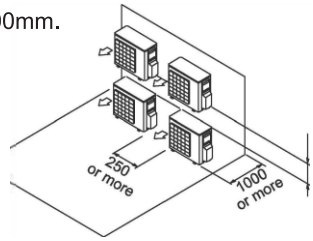
(Units: mm)

- Do not stack more than two unit.
- The drain piping construction size of upper side outdoor unit is needed about 100mm.
- In side extraction, please provide the space of piping.

1) Obstacle on the discharge side

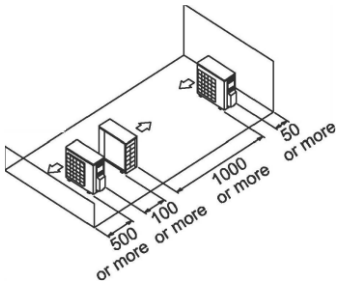


2) Obstacle on the discharge side only



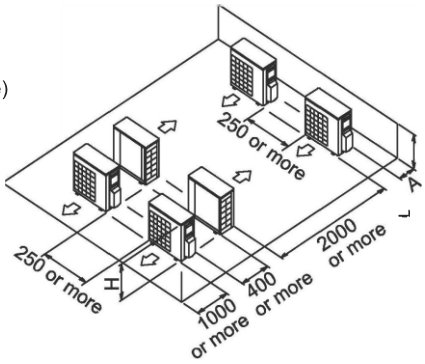
MULTIPLE ROWS OF SERIES INSTALLATION (ON THE ROOFTOP, ETC.)

1) One row of stand -alone installation



	L	A
L≦H	L≦0.5H	150 or more
	0.5H<L≦ H	200 or more
L>H	Can not be installed	

2) Rows of series installation (2 or more)



4 PRECAUTIONS ON INSTALLATION

- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installed.
- In accordance with the foundation drawing in Fig.1, fix the unit securely by means of the foundation bolts. (Prepare 4 sets ofM12 foundation bolts, nuts and washers each which are available on the market.)
- It is best to screw in the foundation bolts until their length are 20mm from the foundation surface.
- Fix the outdoor unit to the foundation bolts using nuts with resin washers. (See the left-hand of Fig. 1 drawing)
  If the coating on the fastening area is stripped off, the nuts rust easily.

<Drain pipe disposal>

- If drain pipe disposal from the outdoor unit causes trouble, (for example, if the drain water may splash on people) provide the drain piping by using of the drain plug (optional).
- Then, coat the area around the bored holes with rust preventive coating to cover the metal exposure.
- Make sure the drain works properly.

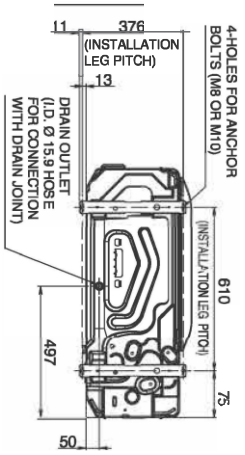
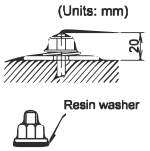


Fig : 1 BOTTOM VIEW



RZFS71AV16

5 REFRIGERANT PIPING WORK (1/4)

To plumbing person

- Important information regarding the refrigerant used. This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.
  GWP (global warming potential) of R32 refrigerant type = 675.
- Use R32 as additional for charging.
- Do not use flux when brazing refrigerant piping.
  Use phosphor copper brazing filler metal (BCuP-2:JIS Z 3264/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 therefrigerant circuit will be affected badly.)
- After chapter❼CHARGING REFRIGERANT .is completed, be sure to open the stop valves before performing❾LOCAL SETUP(Operating the unit with the valve shut will break the compressor.)

《Precaution when reuse existed refrigerant pipe》

- Please keep below points in order to reuse existed pipe, failure may caused if have a fault.
- Please keep below points in order to reuse existed pipe, failure may caused if have a fault.Below are pipes shall always make new construction, do not reuse piping.
  - When removed from indoor unit or outdoor unit for a long time.
  (Moisture entry to internal pipe, wastes entry can be occured.)
  - When copper tube is corroded.- When pipe thickness is insufficient (refer to (5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH))
  - Do not reuse flare for refrigerant leak protection, please make flare processing.
  - Do not reuse flare nut, please use flare nut in product accessories.
  - Make sure to do refrigerant leak check in case there is brazing area while perform field piping.
  - If insulation is deteriorate, make sure to exchange to new one.

(5-1 INSTALLATION TOOLS

Be sure to use the dedicated tools to ensure sufficient pressure resistance and prevent the entry of any impurities.

Manifold gauge Charging hose	To ensure sufficient pressure resistance and prevent the entry of any impurities (mineral oils such as Suniso oil and liquids),use the R410A or R32 dedicated item (the screw specifications for R410A or R32 differ).
Vacuum pump	Be extremely careful not to flow the pump oil backward to inside the piping when the pump is stopped. Use a pump which enables vacuuming to-0.1 MPa(-755mmHg) of the gauge pressure.

5-2 SELECTION OF PIPING MATERIAL

- Use the piping whose inside and outside are clean and with no harmful substances for use such as sulphur, oxide,dust, dust from cutting, grease, or liquid (contamination) is attached.
- For the refrigerant piping, use the following material.
  Material: Deoxidised phosphorous seamless copper piping Temper grade: Use piping with temper grade in function of piping diameter as listed in the table on section

(5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH)

Size: Decide based on section (5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH)Thickness:
Comply with applicable legislation. The minimal piping thickness for R32 piping must be in accordance with the table on section

- Be sure to perform piping work using measurements within the maximum allowable length and height difference described on section(5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH)

5 REFRIGERANT PIPING WORK (2/4)

<Please refer to installation manual of indoor unit about indoor unit's refrigerant piping>

5-3 CARE OF PIPE

- Prevent contamination or moisture from getting into the piping.
- Pay special attention when running the copper piping through the through-hole or when leading the edge of the piping.
  Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent outside the room.
- Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

PLACE	INSTALLATION PERIOD	PROTECTION PERIOD
OUTDOOR	More than a month	Pinch the pipe
	Less than a month	Pinch or tape pipe

PLACE	INSTALLATION PERIOD	PROTECTION PERIOD
INDOOR	Unquestioned	Pinch or tape pipe

5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH

- One way maximum allowable piping length means the maximum length of liquid side piping or gas side piping.
- Equivalent length is the pressure loss due to L joints, traps, and so on along the refrigerant piping converted toa straight piping length of the same size and added to the overall value.
  Please see the Engineering Data for calculation of equivalent length.
- Please give the vertical interval between the indoor and outdoor as 20m or less.

CAUTION

This unit is chargeless specification. Due to chargeless length and allowable piping length will be different depend on field pipe size.

Piping bend radius

(Units : mm)

Piping diameter	Pipe thickness (material)	Bend radius
Ø 6.4mm	0.6mm (C1220T-O, Type O)	30mm or more
Ø 15.9mm	1.0 mm (C1220T-O, Type O)	50mm or more

Refrigerant pipe size and chargeless length

(Units : mm)

Outdoor unit type	Liquid pipe size (type)	Chargeless length
RZFS71AV16	Ø 6.4mm x t 0.6mm(type O)	10m

⚠WARNING

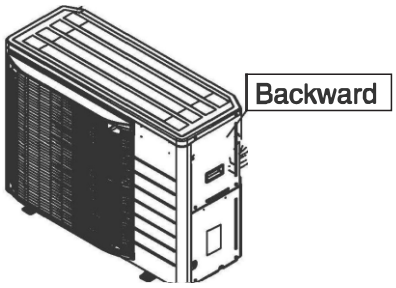
- When flared joints are reused in indoors, the flared part shall be re-fabricated.

⚠CAUTION

- Use dedicated piping cutters and flaring tools for R410A or R32.
- When making a flare connection, apply ether or ester oil only to the flare inner surface.
- Use only the flare nuts attached to the unit. If other flare nuts are used, it may cause refrigerant leakage.
- To prevent contamination, dust or moisture from getting into the piping, take measures such as pinching or taping the piping.

5-5 CONSTRUCTION OF REFRIGERANT PIPING

- Field pipes can be installed in Back - side connection. <Fig.2>
- Do not allow any substances other than the specified refrigerant such as air to mix into Backward the refrigerant circuit.



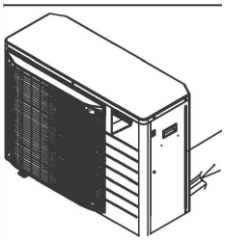
<Fig. 2>

5 REFRIGERANT PIPING WORK (3/4)

<Please refer to installation manual of indoor unit about indoor unit's refrigerant piping>

(PREVENTING FOREIGN OBJECTS FROM ENTERING)

- Plug the pipe through-holes with putty or insulating material (field supply) to cover all gaps, as shown in the figure.
- Insects or small animals entering the outdoor unit Refrigerant piping must be may cause a short circuit in the electrical box.



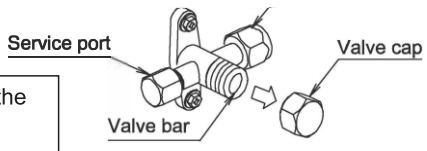
Putty or insulation material (Field supply)
Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

CAUTIONS FOR HANDLING STOP VALVE

DO NOT OPEN THE STOP VALVE UNTIL 7 CHARGING REFRIGERANT) FINISHED.

- The stop valves for indoor-outdoor connecting piping are closed at shipment from the factory. The names of parts are shown in figure on the right.
- Since the side boards may be deformed if only a torque wrench is used when loosening or tightening flare nuts, always lock the stop valve with a wrenches and then use a torque wrench.

Field piping connection



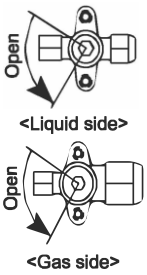
When tightening the flare of the stop valves, make sure to tighten by the rated torque. The rated torque is shown on (CAUTION FOR FLARE CONNECTION)(Following)

- DO NOT APPLY FORCE ON THE VALVE CAP, THIS MAY RESULT IN A REFRIGERANT LEAK.
- For cooling operation under low ambient temperature or any other operation under low pressure, apply silicon pad or similar to prevent freezing of the (Make sure there is no gap)gas stop valve flare nut (see figure). Freezing of the flare nut may cause refrigerant leak.



Silicon sealing pad
(Make sure there is no gap)

How to operate the stop valve



Use hexagonal wrenches 5mm.

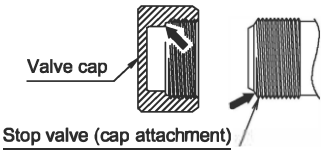
Opening the valve
1. Place the hex wrench on the valve bar and turn counter-clockwise.
2. Stop when the valve bar no longer turns. (It is now open.)

Closing the valve
1. Place the hex wrench on the valve bar and turn clockwise.
2. Stop when the valve bar no longer turns. (It is now close.)

(CAUTIONS FOR HANDING VALVE CAP

- A seal is attached to the point indicated by the arrow. Take care not to damage it.
- Be sure to tighten the valve cap securely after operating the valves.

	Valve size (mm)	Tightening torque(N·m)		Valve size (mm)	Tightening torque(N·m)
Liquid side	Ø6.4	15.7 ± 1.5 N·m	Gas side	Ø15.9	33.0 ± 3



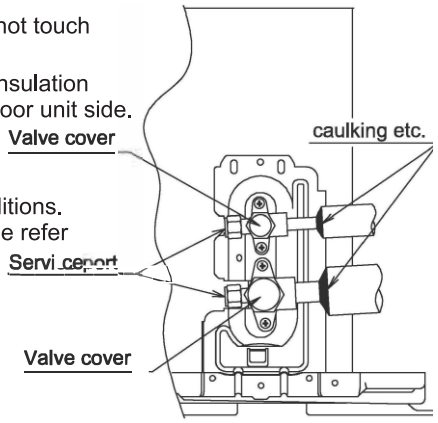
CAUTIONS FOR HANDLING SERVICE PORT

- Always use a flexible charge hose with a push-rod and valve to enable recovery of remaining refrigerant in the charge hose.
- After the work, tighten the valve cap in place.
- Tightening torque: 12.7 ± 1.2 N.m

Prohibited — Do not use a charging hose of which pressing stick is slipped, out from the center. (It may cause refrigerant leakage due to Prohibited deformation fo the valve stem of the service port)

PRECAUTIONS FOR CONNECTING PIPING

- Take caution so that the refrigerant piping between the outdoor and indoor may not touch and sound proof cover and the plate as shown figure.
- If installing the outdoor unit higher than the indoor unit, caulk the space around insulation and tubes because condensation on the stop valves can seep through to the indoor unit side.



(PRECAUTIONS REGARDING INSULATION

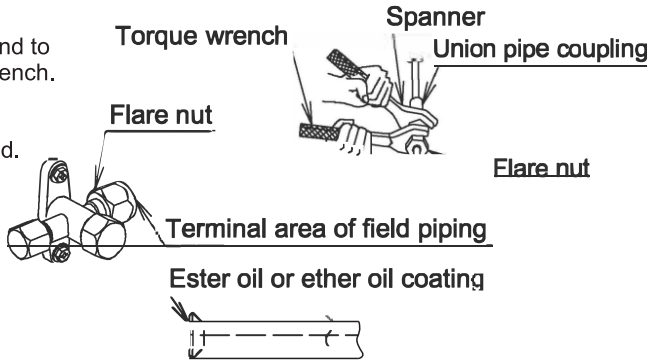
- Enhance the insulation of the refrigerant piping according to the installation conditions. If this is not done, condensation may form on the surface of the insulation. Please refer to the target values shown below.
  - When the temperature and humidity conditions are 30℃ and RH 75% or more:thickness of the insulation is 15 mm or more.
  - When the temperature and humidity conditions are 30℃ and RH 80% or more:thickness of the insulation is 20 mm or more.
- Be sure to insulate the liquid and gas sides inter unit piping. It may become the cause of refrigerant leakage if it is not insulated. . (Be sure to use insulating material which can resistant.)

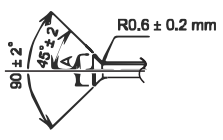
⚠ Caution — Insulation of inter unit piping must be carried out up to the connection inside the casing. Caution If the piping is exposed to the atmosphere, it may cause sweating or burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

5 REFRIGERANT PIPING WORK (4/4)

CAUTION FOR FLARE CONNECTION

- Please be sure to remove a flare nut with a two-dish spanner, and to bind after connection of piping using a spanner and a torque wrench.
- Refer to the following table for a flare part processing size.
- When connecting the flare nut, apply refrigerating machine oil to the flare (inside) and at first screw the nut 3 or 4 turns by hand. Coat here with ether or ester oil.
- Refer to the table for the dimensions for processing flares and for the tightening torques. (Too much tightening will end up in splitting of the flare.)
- After completing the installation, carry out a gas leak inspection of the piping connections with nitrogen and such.



PIPING SIZE(mm)	TIGHTENING TORQUE	A DIMENSIONS FOR PROCESSING FLARES (mm)	FLARE SHAPE
Ø6.4	15.7 ± 1.5 N.m	8.9±0.2	
Ø9.5	36.3 ± 3.6 N.m	13.0±0.2	
Ø12.7	54.9 ±5.4 N.m	16.4 ±0.2	
Ø15.9	68.6 ± 6.8 N.m	19.5± 0.2	
Ø19.1	108.0 ± 10.8 N.m	23.8±0.2	

- If a torque wrench is not available, be aware that the tightening torque may increase suddenly. Do not tighten nuts any further than to the angle as listed.
- When work is completed, be sure to check that there is no gas leakage.

① A flare nut is bound tight with a spanner to the position whose torque with a bundle increases suddenly.
② Only the angle of a right table is further bound tight from the position.

PIPING SIZE(mm)	FURTHER TIGHTENING ANGLE	RECOMMENDED ARM LENGTH OF TOOL
Ø6.4	60 to 90 degrees	About 150 mm
Ø9.5	60 to 90 degrees	About 200 mm
Ø12.7	30 to 60 degrees	About 250 mm
Ø15.9	30 to 60 degrees	About 300 mm
Ø19.1	20 to 35 degrees	About 450 mm

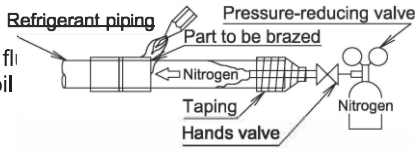
PRECAUTIONS WHEN BRAZING THE REFRIGERANT PIPINGS) <Do not reuse joint which have been used once already>

- When brazing the refrigerant piping, carry out brazing work (NOTE 2) after substituting nitrogen for air(flow nitrogen into the piping and substitute nitrogen for air (NOTE 1) (see the drawing below)).

NOTES

1.The proper pressure for having nitrogen flow through the piping is approximately 0.02MPa, 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:JIS Z 3264/B-Cu93P-710/795:ISO 3677)that does not require flux. (If chlorinated fl is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated1) and the refrigerant circuit will be affected badly.)

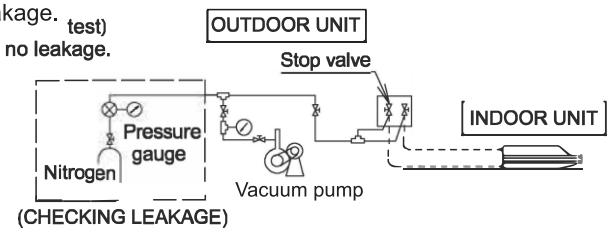


Prohibited — Do not use anti-oxidants when brazing the piping joints.(Residue can clog pipes and break equipment.)

6 AIRTIGHTNESS TEST AND AIR-PURGE

AIRTIGHTNESS TEST

- Perform a refrigerant leakage check using nitrogen gas (airtightness test) with the outdoor unit stop valve close, to make sure there are no leakage.
- For the airtightness test, raise the pressure to the design pressure in the high pressure section (4.17 MPa) For the airtightness test, the unit passes the test if the pressure in the high pressure section does not drop for 24 hours after increasing to the design pressure. A correction is required since the pressure decreases approx. 0.01Mpa when the ambient temperature of 1C decreases.



- If the pressure drop is confirmed, perform the airtightness test again after checking and modifying the leakage points.

(AIR-PURGE)

- Evacuate by the vacuum pump for more than 2 hours until the internal pressure decreases below -0.1MP. After that, leave it with -0.1MPa or less for more than one hour and confirm that the value of vacuum gauges does not increase.
- If the value of vacuum gauge increases, there is moisture inside the refrigerant piping or there are leakage points. Perform evacuation again after checking and improving the leakage points.

NOTE

After doing an air-purge with a vacuum pump, the refrigerant pressure may not rise even if the stop valves are opened. This is because the refrigerant piping path is closed off by the outdoor unit electronic expansion valve, etc. There are no problems if the outdoor unit is running.

7 CHARGING REFRIGERANT (1/2) ⟪Be sure to use R32 as refrigerant.⟫

ADDITIONAL REFRIGERANT CHARGING

This model is chargeless type, so it is not necessary to charge additionaly if pipe does not exceed the maximum allowable length without additional charge.
Please refer to the following table about the maximum allowable length without additional charge.

Liquid piping size	Length for which additional charging is not required
ø6.4mm x t 0.6mm	10m

ONE INDOOR UNIT TYPE(PAIR
Main pipe (L)

When piping length exceeds its of a top table,
or only when you perform recharging, Please be correctly charged according to the following.
For future servicing, please describe the amount of additional refrigerant charging, or the amount of recharging in the collective label in accessary set or back side of right side plate.

- **In case of additional refrigerant charging**

  Please select the amount of additional refrigerant which suited piping length from the following table, and add it from the service port of liquid stop valve.

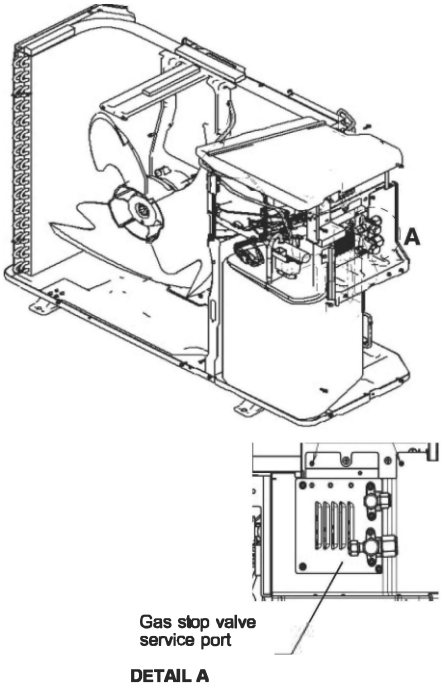
Outdoor units type	Liquid piping size	Length for which additional charging is not required	Length of piping exceeding the length for which additional charging is not required, R32 additional amount (kg)
			30m or less
RZFS71AV16	ø6.4mm x t 0.6mm	10m	20 g per meter (For Piping Length Exceeding 10 m)

- **Total refrigerant charging (When recharging due to exchange compressor, etc.)**

  Please charge refrigerant base on pipe length mentioned on the following table.

Outdoor units type	Liquid piping size	Piping length, R32 complete additional amount (kg)		
		5m~10m	20m or less	30m or less
RZFS71AV16	ø6.4mm	1.40	1.60	1.80

1. When recharging refrigerant, follow the procedure below.
   In case of recharge refrigerant (cause of refrigerant leak)
- please follow suggestion below (reference detail from service guide)
  In case of outdoor PCB (A1P) set refrigerant recovery mode at ON
  please press switch BS 1 for RZFS71AV16 for 5 second.
2. Shut down the power at least 1 minute after setting process (1) is performed.
- If the power is turned on before the process (3) - (6) are completed, the refrigerant recovery mode is turned off and the refrigerant can not be recovered or charged normally. If the power is turned on by necessary, tum on Refrigerant recovery mode again.
3. Recover the refrigerant from both the gas stop valve service port simultaneously until the pressure drops below 0.09MPagauge pressure: -0.011MPa) by using a refrigerant recovery machine.
4. Modify the leakage points.
5. Perform the airtightness test and air-purge accordance with (6)AIRTIGHTNESS TEST AND AIR-PURGE.
6. Charge the refrigerant from the service port of the gas side stop valve when recharging refrigerant.
   (Note) Do not tum on power during evacuation.
   The motor may be damaged due to vacuum discharge.



DETAIL A

7 CHARGING REFRIGERANT (2/2)

Precautions when adding R32

- Before charging, check whether the cylinder has a siphon attached or not.

Charging a cylinder with an attached siphon	Charging other cylinders
Stand the cylinder upright at charging. (There is a siphon piping inside, so that cylinder need not be upside-down to charge with liquid.)	Stand the cylinder upright at charging. (There is a siphon piping inside, so that cylinder need not be upside-down to charge with liquid.)

- To prevent entry of any impurities and ensure sufficient pressure resistance, always use the special tools dedicated for R410A or R32.
- The refrigerant should be charged from the service port of the liquid side stop valve.

⚠WARNING

(To persons incharge of piping work

- Please be sure to open a stop valve after a refrigerant charging end (if it operates shut, a compressor will break down).
- After complete charging of refrigerant carry out refrigerant leak check and heat insulation work.
- Please do not emit a refrigerant into the atmosphere indiscriminately.

8 ELECTRICAL WIRING WORK (1/3)

⚠WARNING

- Install the earth leakage circuit breaker. (A duty of installation of a earth leakage circuit breaker is imposed for an electric shock and fire accident prevention.
  The inverter is provided in the air conditioner. In order to prevent malfunction of the earth leakage breaker itself, use a breaker resistant to higher harmonics).
- Electrical wiring must be carried out by qualified personnel.
- Before obtaining access to terminal devices, all supply circuits must be interrupted.

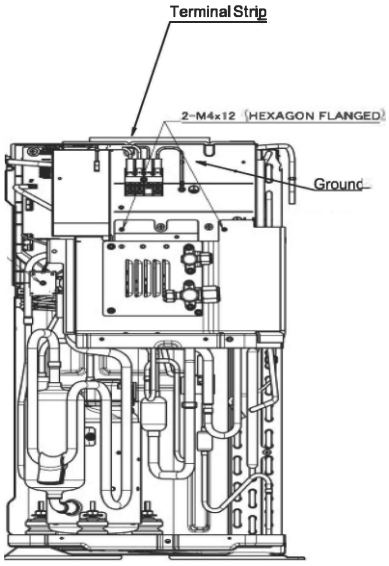
⚠ CAUTION

To the electrician

- Make sure to install a current balance type earth leakage breaker coping with high harmonics.(This unit is equipped with an inverter device. Use an earth leakage breaker coping with high harmonics to prevent wrong actuation.)
- Do not run the unit until the refrigerant charging is complete. (Operating the unit before the completion will break the compressor.)
- Do not remove the thermistors or sensors when the power supply and transmission wiring are connected. (Operating the unit with the thermistors and sensors removed will break the compressor.)
- Make certain that all electric wiring work is carried out by qualified personnel according to the applicable legislation and this installation manual, using a separate circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
- An insufficient power supply capacity or improper electric work may lead to electric shocks or a fire.
- The wiring between the indoor unit and outdoor unit must be for 230V.
- For electric wiring work, refer to also the " WIRING DIAGRAM ".
- When doing the electrical wiring, always shut off the power source before working, and do not turn on the branch switch until all work is complete.
- Make sure to earth the air conditioner. Earthing resistance should be according to applicable legislation.
- Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.
  - Gas piping ..... Ignition or explosion may occur if the gas leaks.
  - Water piping ..... Hard vinyl tubes are not effective earths.
  - Lightning conductor or telephone earth wiring ..... Electric potential may rise abnormally if struck by a lightning bolt.
- The earth is needed in order to reduce the noise generated by the unit's inverter and influence on other appliances and to release the charged electric charge on the outdoor unit surface by leaked current.
- Do not install a phase advance capacitor for improvement of power factor. Since this unit is mounted with an inverter device, the effect of power factor improvement not only cannot be expected, but also there is a risk of the capacitor getting abnormally over heated due to harmonics.
- Be sure to use earth leakage breaker dedicated for earth leakage protection in combination with the load break switch with fuse or breaker for wiring.
- In case of three-phase. Machine, electric wiring must be connected in normal phase connection.
- For wiring, use the designated power supply wiring and connect firmly, then secure to prevent external force being exerted on the terminal attachment (power supply wiring, transmission wiring, earth wiring).
- Left-over wiring should not be wrapped and stuffed into the outdoor unit.
- To prevent the power wiring from being damaged by the knock hole edges, put it in a wiring piping or use insulated bush, etc.to prevent it.
- To prevent the wiring from coming in contact with piping (particularly the high-pressure piping), secure it with the included clamping to protect it. material as shown page 32.
- When wiring, form the wiring so that the front plate does not float and make sure the front plate is securely fastened.
- Fix the power supply wiring, the earth wiring and the transmission wiring by clamps as shown in the figure.

8 ELECTRICAL WIRING WORK (2/3)

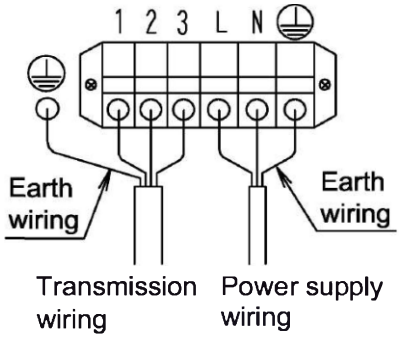
- As shown in the following figure, please fix power supply wiring, field wiring and ground wire by clamp material.



RZFS71AV16

- Carry out insulated processing of attaching an insulated sleeve.
  Power supply wiring, wiring between units and ground tying with clamp as shown below.

⚠ Do not connect power supply to terminal block of transmission wiring. All system may get damaged

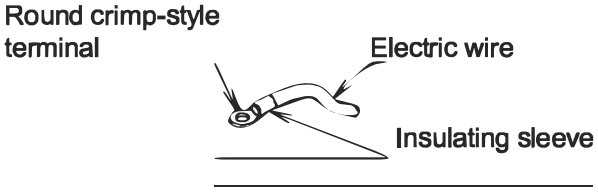


RZFS71AV16

Connection of wiring

Precautions on wiring

- Use a round crimp-style terminal for connection to the power supply terminal board. In case it cannot be used due to unavoidable reasons, be sure to observe the following instruction.
- Do not connect wires of different gauge to the same power supply terminal.
  (Looseness in the connection may cause overheating.)



8 ELECTRICAL WIRING WORK (3/3)

When connecting wires of the same gauge, connect them according to the below figure.

Connect wires of the same gauge to both sides  O

Do not connect wires of different gauges 

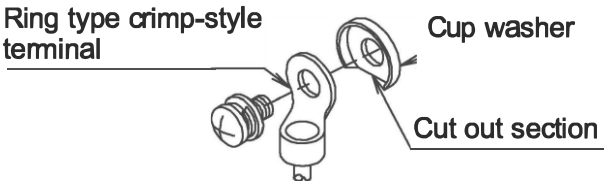
Do not connect wires of the same gauge to one side 

- Never use the stranded wiring which is soldered. (Slack in the electric wiring may cause abnormal heat.)
- Use the required wirings, connect them securely and fix these wirings so that external force may not apply to the terminals.
- Use a proper screw driver for tightening the terminal screws. If an improper screw driver is used, it may damage the screw head and a proper tightening cannot be carried out.
- If a terminal is over tightened, it may be damaged. Refer to the table shown below for tightening torque of terminals.

Tightening torque (N·m)	
M4 (Wire between units terminal board)	1.50±0.30
M4 (Power supply terminal board)	1.50±0.30
M4 (Ground wire between units)	1.69±0.25
M5 (Ground wire between units)	3.55±0.50

Precautions on connecting terminal of grounding

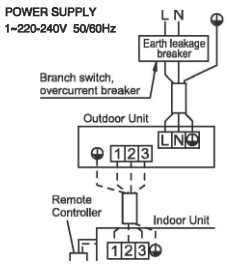
- Ground wiring should be taken out from the cut out section of a cup washer.(Otherwise, contact of ground and it is ineffective.)



WIRING OF POWER SUPPLY AND THE UNITS

- For details on the wiring of the indoor unit and wiring between units refer to the installation manual of the indoor unit.

RZFS71AV16



- SPECIFICATIONS OF STANDARD WIRING COMPONENTS

Outdoor Unit	Power supply			Wire type of wiring between the units
	Recommended Wire type of wiring field fuse	Wire type (*)	Size	
RZFS71AV16	20	H05VV-U3G	Wiring size and length must comply with local codes or [IEC 60335-1 (Table 11)]	H05VV-U4G2.5

(*) Only in protected piping, use H07RN-F when protected pipes are not used.
(Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57))

NOTES

1. Select and install the power supply wiring in accordance with [IEC 60335-1 (Table 11)] or local laws and regulations. The maximum current of the outdoor and indoor units are shown on each name plate.
2. When installing wiring in a location that can easily come in contact with people, be sure to install an earth leakage breaker coping with high harmonics to prevent electric shock.
3. Breaker type and capacity shall be selected in accordance with local laws and regulations.

⚠CAUTION

TO PERSONS INCHARGE OF ELECTRICAL WIRING WORK

- Do not operate the unit until the refrigerant charging is completed. (Running it before the piping is ready will break the compressor.)

9 CHECK ITEMS BEFORE TEST OPERATION AND FIELD SETTINGS

PRE-RUN CHECKS

ITEM TO CHECK		
Power supply Wiring	Is the wiring as mentioned on the wiring diagram? make sure no wiring has been forgotten and that there are no missing phases or reverse phases.	
	Does wiring between units put in and changed in continuation installation?	
	Is the unit properly grounded?	
	Are any of the wiring attachment screws loose?	
	Are any of the wiring attachment screws loose? Is the insulation resistance at least 1MQ? • Use a 500V mega-tester when measuring insulation· • ※ Do not use a mega-tester to low voltage circuit except 220-240V.	
	Is an earth leakage circuit breaker used as a current operated type which is compatible to thehigher harmonic wave?	
	Does the earth leakage circuit breaker have appropriate rated current?	
Refrigerant piping	Is the size of the piping appropriate?	
	Is the insulation material for the piping attached securely?Are both the liquid and gas pipes insulated?	
	Are the stop valves for both the liquid side and the gas side open?	
Extra refrigerant	Did you write down the extra refrigerant and the refrigerant piping length?	
Indoor unit	Is the indoor unit fully installed? When the test run is started, the fan automatically begins turning.	

⚠WARNING

- When a power supply is switched on, when you leave from the outdoor unit, be sure to close the cover plate. (It becomes the cause of an electric shock).

In field setting for an outdoor unit, make sure to shut down the power and check that there is no residual voltage before start installing. (It may cause an electric shock.)

10 TEST OPERATION

⚠WARNING

- Never perform a test operation with the discharge piping thermistor(R2T) and suction piping thermistor(R3T)removed, as this might break the compressor.
- If the technician must leave the outdoor unit for some reason, switch places with another installation technician or close the plates. (It may cause electric shocks.)

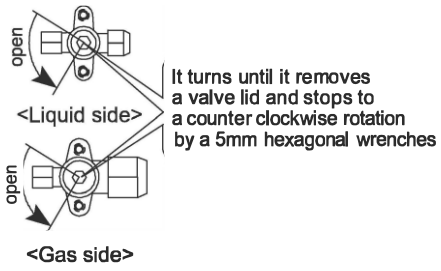
HOW TO TEST OPERATION

After the indoor and outdoor unit installation, be sure to perform the test operation in accordance with the following procedure.

1. Open the stop valve cover and check that the liquid and gas sides of the stop valves are open.
   <Be sure to close the front plate before the operation (there is a risk of electric shock)>
   Note: After doing an air-purge with a vacuum pump, the refrigerant pressure may not rise even if the stop valves are opened. This is because the refrigerant piping path is closed off by the outdoor unit electronic expansion valve, etc. There are no problems if the unit is run.1.
2. Attach the stop valve cover to the outdoor unit and turn the power on at least 6 hours before operating the outdoor unit to protect the compressor.
3. Set to COOLING operation with the remote controller.
4. Perform the test operation
   - When doing trial operation, it may take about 1 minute until the compressor begins to function, but this is not abnormal.
   - When using the system the first time after installation, even if heating operation is selected, cooling operation will take place for about 3 to 5 minutes.

- When doing trial operation, it may take about 1 minute until the compressor begins to function, but this is not abnormal.
- Thereafter, it will change to heating operation, but this is not abnormal.
  (In this case, the remote controller display will continue to display"heating operation.")
  This is in order to detect if someone has for gottento open the stop valve during trial operation.
  open.
- If the outside air temperature is about 24°C or more, even if HEATING It turns until it removes operation is set, the system may not operate, but this is not abnormal.

5. Operate normally.
6. Confirm function of the indoor and outdoor units according to the operation manual.



MALFUNCTION DIAGNOSIS

- At the time of a test run, when the following malfunction code is displayed on remote control, the fault of installation construction can be considered.

Malfunction code	Installation error	Remedial action
[E3] [E5] [U0] [L8]	A failure of a stop valve to open	"Open" operation of a stop valve
[E3] [E5] [L4] [L8]	Closing of an air passage	Removing closing thing from air passage
[U1]	Missing phase, negative phase	2 Phase of power supply 3 Phase (L1, L2, L3 Phase) are replaced
[U2]	Power supply unbalancing	Unbalanced dissolution
[U4] [UF]	Incorrect connection of field wiring	Correction of wiring
[UA]	Connection of incompatible indoor unit	Connect appropriate indoor (Refer to the catalogue)
NO INDICATION	Mistake wiring or not connect wiring of power supply, indoor, outdoor, field wiring between indoor unit	To correct wiring or connect correctly

- When malfunction codes other than the above are displayed on remote control, considering that the failure of between an indoor and an outdoor unit may have. For the malfunction codes, please refer to the indoor unit's installation manual or outdoor service manual.(A malfunction code has what has a display according to the form of the interior of a room and an outdoor unit,and the thing which is not.).
- The followings can be considered causes when the breaker for power supply trips.
  - The capacity of a breaker for power supply is smaller than the required capacity of the leakage circuit breaker.
  - The leakage circuit breaker is not compatible to the higher harmonic wave.
- In case of already checking all equipment that not have any problem, but found air conditioner not cooling. Please re-check Motor operate valve coil not tighten or remove for 1st checking. If normally please re-confirmproblem following service manual to solve problem.

⚠CAUTION

To persons incharge of piping work and electric work

- Please check having attached the front board and the piping cover after a test run end when giving production over to customer.

11 CAUTION RZFS71AV16

THIS IS NECESSARY FOR AFTER SERVICE, SO PLEASE REQUEST CUSTOMER TO KEEP THIS MANUAL.

CAUTION (NEW REFRIGERANT (R32 SERIES))

⚠ WARNING | ⚠ ELECTRIC SHOCK CAUTION

◎ Caution about electric shock when do service inspection

1. After intercept power supply, do not open outside panel for 10 minutes.
2. Follow manufacturing label on electric box cover, please take off outdoor fan motor(Fix by tape) connector to confirm voltage and body static electricity discharge.

◎ General caution items when do service inspection

Caution to confirm compressor and fan motor running

Do not directly connect power input (3 Phase 50Hz) to compressor and fan motor.(If not connect to print board (PCB), compressor and fan motor will be burned out.)

Caution when recharge refrigerant

1. To prevent the mixing of impurities, pressure resistance and contamination mix, please use manifold gauge especially for R32.
2. Make sure to do Nitrogen blow if brazing when flare connection.Apply ether oil or ester oil at inside flare only.
3. Do air tight test at 4.17Mpa.
4. Do dry vacuum, make sure to charge refrigerant in liquid condition from liquid side port. (Compressor will be broken if charge from gas side service port.)

Caution when use outdoor PCB

Make sure to touch earth terminal and earthed metal before touch pcb, to prevent electric shock

Caution when break down diagnosis from letter code in remote control

Please refer to service guide or outdoor unit installation manual.

Charging refrigerant

- Charging the system with refrigerant

(For more information such as calculation method of additional refrigerant charge, additional charge method, refrigerant charge caution, refer to the installation manual and technical Guide.

⚠
- For refrigerant charge, be sure to charge from the service port of the liquid side stop valve in liquid states. (If you charge from the service port of the gas side stop valve, it may break the compressor.)
- Never charge other than the specified refrigerant. (It may cause fire and bursting.

Table 1. Charge less piping length

Liquid piping size	Pipe length which is not required additional charging
Ø6.4 mm x t0.6mm	10m

1. **In case of additional refrigerant charging**
Please add refrigerant amount according to the following table.

Outdoor	Liquid piping size	Pipe length which is not required additional charging	Pipe length over chargeless R32 additionel amount (Kg)	
			+15m or less	+20m or less
RZFS71AV16	Ø6.4 x t0.6mm	0.300	0.300	0.400

2. Total refrigerant charging (Details please see service guide)

1. Please recover the refrigerant until becoming 0.09MPa (gauge pressure :- 0.01MPa)or less by the refrigerant recovery machine from stop valve service port(Ilquld-gas side) at the same time.
2. Exchange service parts. modify leak point.
3. Perform airtightness test. alr-purge.
Please refer Installation manual of outdoor unit or service guide.
4. Charge refrigerant amount selected by table 2 from liquid stop valve service port.
Caution Do not tum on power during evacuation. The motor may be damaged due to vacuum discharge

Table 2. Charge refrigerant amount (After a leak, etc ...)

Outdoor	Liquid piping size	Pipe length over chargeless R32 additionel amount (Kg)		
		5~10m	+15m or less	+30m or less
RZFS71AV16	Ø6.4 x t0.6mm	1.40	1.50	1.80

- **Making a record of the added refrigerant charge amount**

Be sure to record the piping length and added refrigerant charge amount or refrigerant recharge amount with an oil-based or other indelible marker so the figures will not fade over time.
This information is necessary for after service and maintenance.

Liquid piping size	Ø64mm x t0.6mm
Refrigerant piping length	m
Additional refrigerant charging	kg
Recharge of refrigerant	kg

How to execute a pumping-down

(for example, when moving or reinstalling an indoor or outdoor unit)

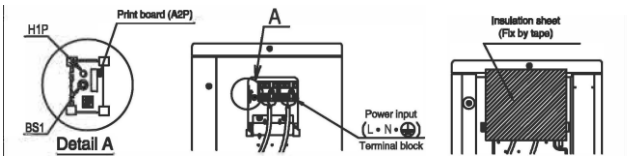
The outdoor unit is equipped with a high pressure switch to protect the compressor.

Caution Never short circuit the high pressure switch during pump-down operation.

- It is not allowed to let the refrigerant out into air.
The refrigerant should be recovered completely.
- Although pumping-down operation allows most of the refrigerant to be rgerant to be recovered in a shortperiod of time, some refrigerant will remain inside the indoor unit and the refrigerant piping.Using a refrigerant recovery machine, recover remaining refrigerant from the stop valveservice port until the prssure falls to 0.09MPa (gauge pressure :- 0.011MPa) or less.
- Be sure to execute the pumping-down before refrigerant piping and wiring is taking off

◎ For pumping-down operation

1. Please follow the [caution about electric shock when service inspection] which attached on Top panel (Caution: Do not take off the connector X106A)
2. To prevent electric shock, please protect power input terminal block by insulation sheet refer to below figure.
3. Tum on the power supply and carry out pumping-down operation according to the following procedure.



Outdoor unit figure | Protection method

⚠ To prevent electric shock when inspection, protect by use2. insulation sheet on power input terminal block and print board (A2P)

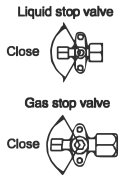
◎ For pumping-down operation

⚠ Do not remove the indoor unit untill pump down operation finish.
(It is dangerous when indoor fan automatically starts the operation

Perform pumping-down operation using the following procedure

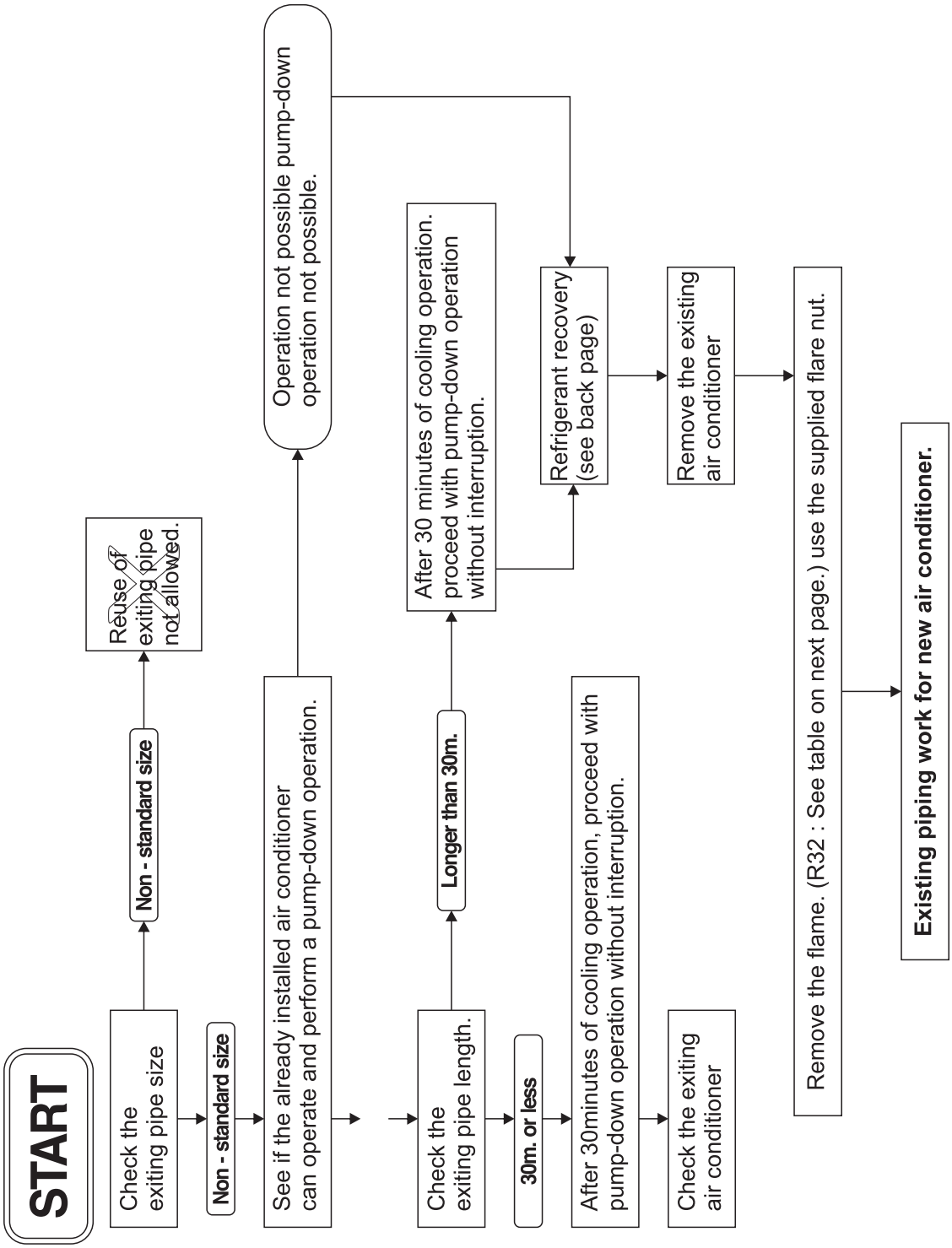
	Procedure	Precaution
1	Confirm that stop valves both on to prevent electric shock the liquid and gas sides are open	
2	Push the pumping-down (BS1) on the PC board of the outdoor unit for 5 seconds.	Compressor and outdoor unit fan will start operation automatically. Indoor fan may automatically start running. Pay attention to this.
3	Close the stop valve on the liquid side Charging refrigerant securely about 2 minutes after the compressor started operation.	• Do never leave the outdoor unit unattended with opened front plate when power supplyis on.
	Once the compressor operation stops after 2 to 5 minutes, close the stop valve on the gas side securely.	• In case the stop valve on the liquid side is 2 to 5 minutes, close the stop valve on the not securely closed during compressor operation, pumping-down operation can not be executed
4	Turn off the power supply.	When you work alone, carry out after closing the front plate, After turning the power supplyoff, remove the insulation sheet.

- If after finishing pumping-down operation the outdoor unit does not operate, even when the remote controller switched on, the remote controller may or may not indicate "U4".
  But it is not a malfunction.
- To force of operation, turn off the main power supply and turn it on again. Make sure that stop valves both on liquid and gas sides are open and be sure to operate the unit in cooling operation during test run.



When installing and relocating, be sure to install the earth leakage breaker to protect from the electric shock disaster and fire due to leakage of eletricity. For installing the earth leakage breaker, request to the qualified electrician

12 HOW TO RE-USE THE EXISTING PIPING



(Note)

1. Clean the pipe if refrigerant leakage and unit has not service port on gas-liquid stop valve.
2. Of 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 on[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.

13 REFRIGERANT RECOVERY

[Working procedure]

1. Recovery retaining oil in existing 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 is no refrigerant recovery port
4. Recovery refrigerant in accordance with Fluorocarbons Recovery and Destructive Law If refrigerant recovery port *2 pressure become 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 pressurerising rapidly. (Fig.3-2)
   NOTE 1 Can be omit this procedure if there has no refrigerant recovery port simultaneously if there has no refrigerant recovery port.

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

Fig. 1

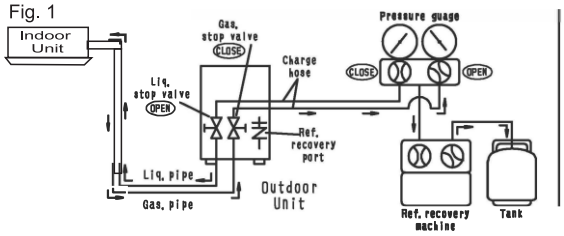


Fig. 2

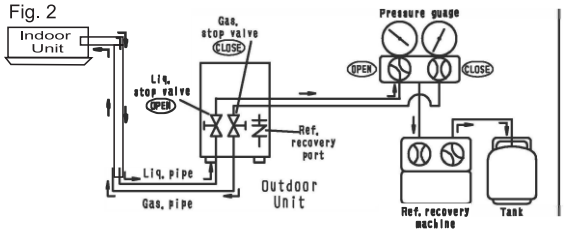
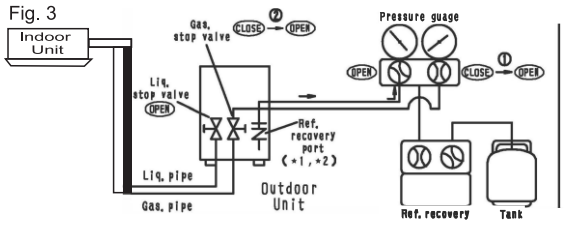


Fig. 3

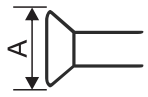


(pipe length, height difference, pipe path etc. is difference by installation condition)

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 out side diameter	A (+0,-0.4)
	For R32
Ø 6.4	8.9
Ø15.9	19.7

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

■ Flare nut (unit: mm)



Piping out side diameter	B (+0,-0.6)
	For R32
Ø 6.4	17
Ø15.9	29

REFRIGERANT PIPE SIZE TABLE

Outdoor Unit		Existing pipe size	6.4/15.9	Height difference	Design pressure (High pressure)
RZFS71AV16	6.4/15.9	Standard pipe length	7.5 m	Max 20m	4.17 MPa
		Max. pipe length	30m		
		Chargeless pipe length	10m		

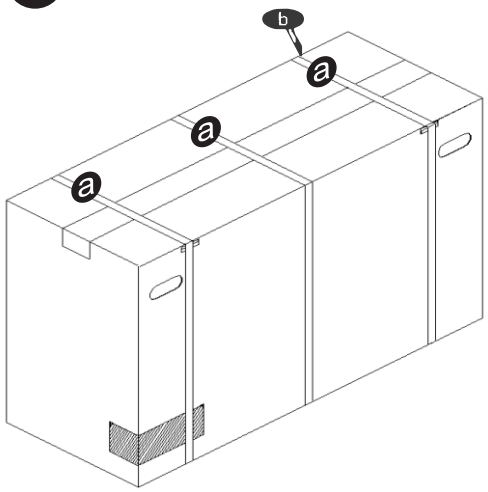
- Refer to the installation manual for details other than those mentioned above table such as additional refrigerant charge amount.
- Clean the existing piping if it length is exceed 30m.
- Clean the existing pipe if chargeless length is exceed limit of existing pipe pump down refrigerant recovery.
- Standard pipe (R32)

Pipe size (mm)	Ø 6.4	Ø 15.9
Thickness (mm)	t 0.6	t 1.0

14 Unpacking & Packing of the Outdoor Unit

14-1 Unpacking

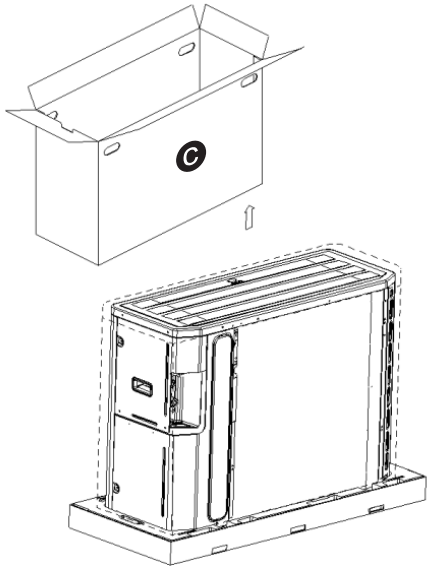
1



a) Strap
b)Starp Cutter
C)Cardboard box
d)Bottom Skid

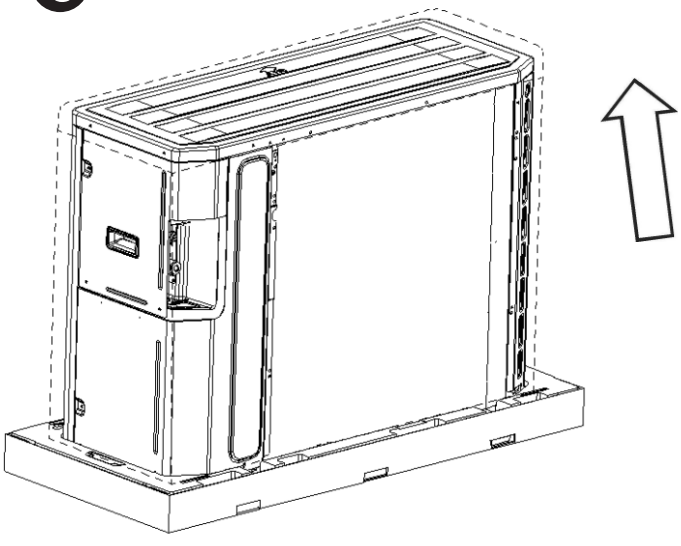
- Cut all the straps (a) from the unit using strap cutter(b) as shown in figure.

2



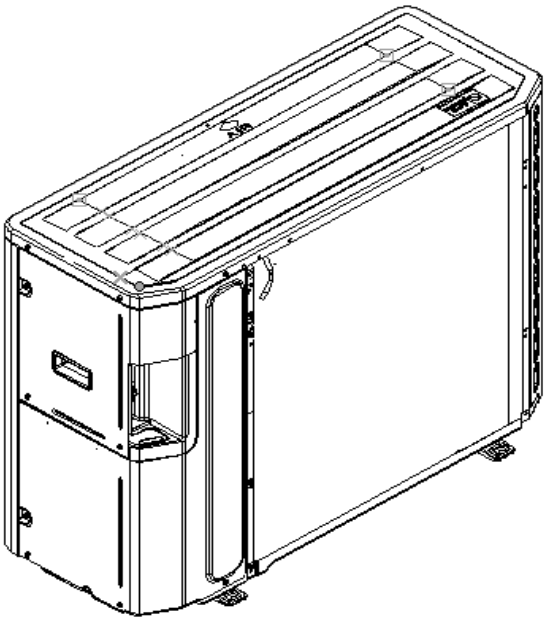
- Remove the cardboard box(c) from the unit after opening it and pulling it up as shown in figure.

3



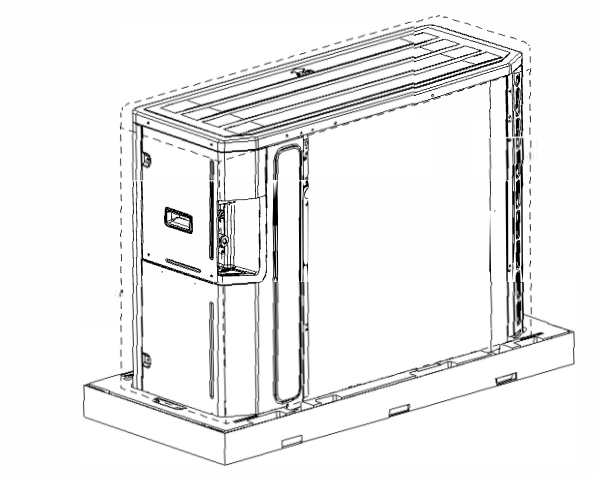
- Remove the bottom skid(d) with EPS by pulling the unit up, then remove the poly thene product cover by pulling it up

4



14-2 Packing

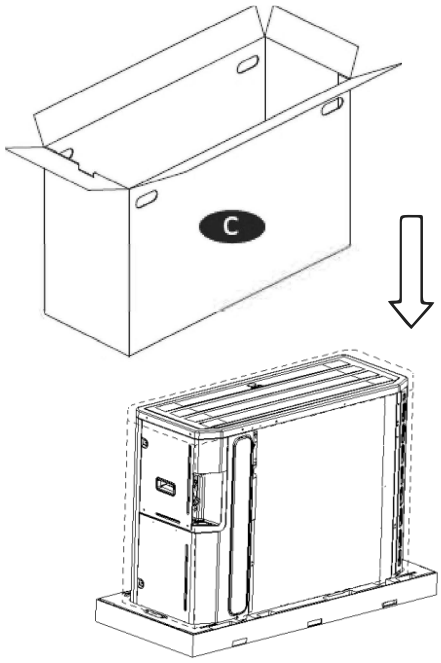
1



a) Strap
b)Starp Cutter
C)Cardboard box
d)Bottom Skid
e) Portable strap
fixing machine

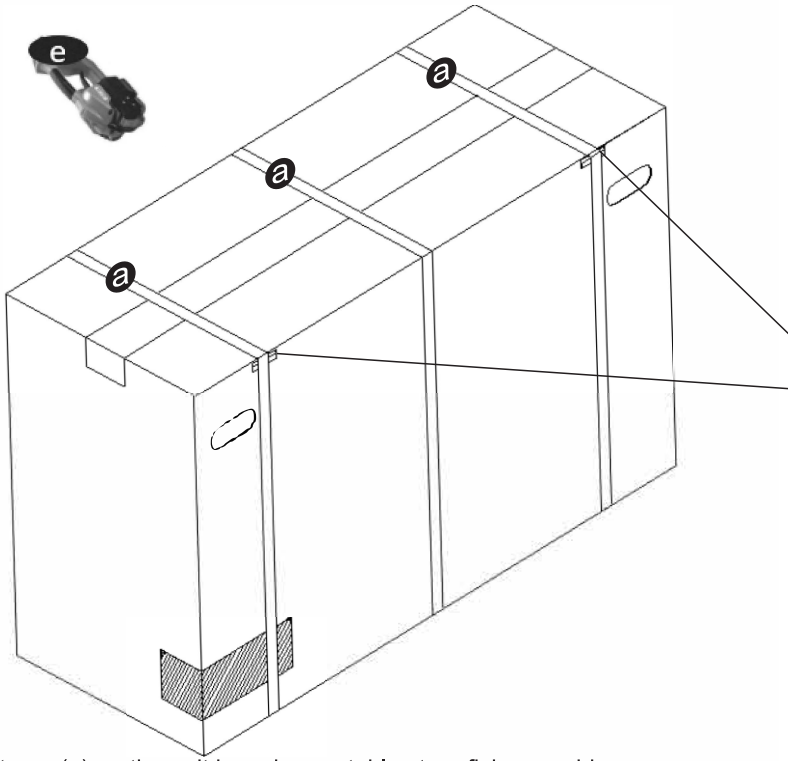
- Cover the unit with poly there product cover, than pick the unit up and settle it down on the bottom skid (d) as shown in figure.

2



- Put the cardboard box © upon the unit as shown in figure.

3



- Fix the straps (a) on the unit by using portable starp fixing machine as shown in figure. (Use marked reference for placing straps)

4

Recreance for placing strap

Split System air conditioners

INSTALLATION MANUAL <FOR OUTDOOR UNIT>

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

NEW REFRIGERANT (R32) SERIES

RZFS100AV16, RZFS140AV16

Note : LT Read the precautions in this manval carefully before operating the unit.
This appliacnce is filled with R32.

CONTENTS

*SAFETY PRECAUTIONS.....
1. BEFORE INSTALLATION.....
2. SELECTION OF INSTALLATION LOCATION.....
3. INSTALLATION SERVICING SPACES.....
4. PRECAUTIONS ON INSTALLATION.....
5. REFRIGERANT PIPING WORK .....
6. AIRTIGHTNESS TEST AND AIR-PURGE.....
7. CHARGING THE REFRIGERANT.....
8. ELECTRIC WIRING WORK .....
9. CHECK ITEMS BEFORE TEST OPERATION.....
1O. FIELD SETTINGS.....
11. TEST OPERATION.....

IMPORTANT PR **WARNING** **THERE IS A RISK OF EXPLOSION OR FIRE**

- Do not mix air in the refrigerating cycle during pump down operation.
- Do not use oxygen for air tight test.
- Do not use refrigerant other than the specified one or flammable material (e. g. propane) in the refrigerating cycle.
  They may cause over pressure in the refrigerating cycle and result in explosion, fire or injury.
  Our company assumes no responsibility for failure or malfunction caused by filling or mixing of anything other than the specified refrigerant.

IMPORTANT **CAUTION** **INSULATION RESISTANCE OF THE COMPRESSOR**

- If refrigerant accumulates in the compressor after completing installation, the insulation resistance can drop, but if it is at least 1 MQ, then the unit will not break down.
- Connect the power supply to the unit and after 6 hours check if the insulation resistance of the compressor rises. (Energize and heat the compressor to vaporize the refrigerant accumulated in the compressor.)
- If the earth leakage breaker actuates, check if the earth leakage breaker is equipped with a device to cope with high harmonics. To prevent wrong actuation of the earth leakage breaker due to the inverter, make sure to adopt an earth leakage breaker equipped with a device to cope with high harmonics.

1. Please make sure to confirm that R32 (new refrigerant) is used in installation work in advance.
   (It may not operate normally, if refrigerant type is different.)
2. The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
- 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.
- 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. Therefore, sealing tightness is particularly important in installation.
  Carefully read the chapter **5. REFRIGERANT PIPING WORK** and strictly observe the correct procedures.

3. The design pressure of this unit : High/Low pressure area are shown in the right table.
   The refrigerant piping is a high pressure area,
   Use the refrigerant piping which supports the design pressure.
   The piping specifications, please refer to chapter **5. REFRIGERANT PIPING WORK.**
4. Be sure to connect the indoor unit, which is dedicated to R32. See the catalog for indoor unit models which can be connected.
   (Normal operation is not possible when connected to other units.)
   indoor unit models which can be connected.
   (Normal operation is not possible when connected to other units.)

Outdoor unit	Design pressure	Cooling
RZFS100AV16, RZFS140AV16	High	4.17
	Low	2.21

(Uait:MPa)

Please read these 'SAFETY PRECAUTIONS ' carefully before installing this unit and be sure to install it correctly.

- This manual classifies the precautions into WARNINGS and CAUTIONS.
  Be sure to follow all the precautions below. They are all important for ensuring safety.

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- After the installation is completed, test the air conditioner and check if the air conditioner operates properly.
  Give the user adequate instructions concerning the use and cleaning of the indoor unit according to the operation manual. In particular, make sure to explain with regard to "SAFETY PRECAUTIONS" and Not malfunction of the air conditioner" . Ask the user to keep this manual and the operation manual together in a handy place for future reference.
- This air conditioner comes under the term 'applicationes not accessible to the general public'.

⚠ WARNING

Ask your local dealer or qualified personnel to carry out installation work.
Improper installation may result in water leakage, electric shocks or a fire.

Perform installation work in accordance with this installation manual.
mproper installation may result in water leakage, electric shocks or a fire.

Consult your local dealer regarding what to do in case of refrigerant leakage.
When the indoor unit is 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 deficiency.

Be sure to use only the specified parts and accessories for installation work.
Failure to use the specified parts may result in the air conditioner fall down, water leakage, electric shocks, a fire, etc.

Install the air conditioner on a foundation that can withstand its mass.
Insufficient strength may result in the air conditioner fall down and causing injury.

Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
Improper installation may result in an accident such as the air conditioner fall down.

Make certain that all electric work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit. In addition, even if the wiring is short, make sure to use a wiring that has sufficient length and never connect additional wiring to make the length sufficient. Insufficient capacity of the power supply circuit or improper electric construction may lead to electric shocks or a fire,
(note 1) Applicable legislation means "All international, national and local directives, laws, regulations and/or codes which are relevant and applicable for a certain product or domain.

Earth the air conditioner.
Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.
Incomplete earthing may cause electric shocks or a fire.



Be sure to install an earth leakage circuit breaker.
Failure to do so may cause electric shocks or a fire.

The appliance must be stored in a room without contiguously 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.

Comply with national gas regulations.

Be sure to switch off the unit before touching any electrical parts.
Touching a live part may result in electric shocks.

Make sure that all wiring is secure, using the specified wiring and ensuring that external forces do not act on the terminal connections or wiring. Incomplete connection or fixing may cause overheating terminal or fire.

When wiring between the outdoor and indoor units, and wiring the power supply, from the wiring orderly so that the structual parts such as a cover can be securely fastened.
If the cover is not in place, electric shocks or a fire may be caused.

Do not add wiring . It may result in heat generation. Electric shock or fire.

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.

If refrigerant gas leaks during installation work, ventilate the area immediately.
Toxic gas may be produced if refrigerant gas comes into contact with a fire.

After completing the installation work, check to make sure that there is no leakage of refrigerant gas.
Toxic gas may be produced if refrigerant gas leaks into the room and comes into contact with a source of a fire, such as a fan heater, stove or cooker.

Never directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.

Do not stand on the outdoor unit or put things on it.
The unit may fall down or drop, and cause accidents.

Do not charge any refrigerant into the refrigeration cycle other than the designated refrigerant.
It may cause overpressure in the refrigerant cycle and result in explosion, fire, and injury.

Do not extend wiring on the way.
It may cause heat generation, electric shocks or fire.

At the installation work, install the refrigerant piping firmly before operating the compressor.
If the compressor is operated without installing firmly and the service valve is in open condition, it sucks the air, etc., and the pressure inside the refrigerant circuit becomes abnormally high. It may cause personal injury and property damaged.

At pupmp down work, stop the compressor before removing the refrigerant piping.
If removing the refrigerant piping when the compressor is operated with its service valve in open condition, it sucks the air, etc., and the pressure inside the refrigerant circle become abnormally high, which may cause personal injury and property damaged.

The appliance shall be installed operated and stored in a room with a floor area larger than 3. 68 m2.

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

⚠CAUTION

Install drain piping according to this installation manual to ensure good drainage, and insulate the pipingto prevent condensation, Improper drain piping may cause water leakage, make the furniture get wet.

Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radioto prevent picture interference and noise. (Depending on the incoming signal strength, a distance of 1 metermay not be sufficient to eliminate noise.)

Install the indoor unit as far as possible from fluorescent lamps. If a wireless remote controller kit is installed, the transmission distance of the remote controller may be shorter in a room where an electronic lighting type (inverter or rapid start type) fluorescent lamp is installed.

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.

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.

Only qualified personnel can handel, fill. purge and dispose of the refrigerant.

Do not install the air conditioner in places such as following:
1. Where there is mist of oil, oil spray or vapor for example a kitchen. Resin parts may deteriorate, and cause them to fall out or water to leak.
2. Where corrosive gas, such as sulfurous acid gas, is produced. Corrosion of copper pipings or brazed parts may cause the refrigerant to leak.
3. Where there is machinery which emits electromagnetic waves. Electromagnetic waves may disturb the control system, and cause malfunction the equipment.
4. Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled. If the gas should leak and remain around the air conditioner, it may cause ignition.
5. The place that the vibration or the voltage fluctuation give influence. Vehicles, vessels, etc. The vibration may cause a damage and the voltage fluctuation may cause an abnormal operation.
6. Where small animals may build a nest, fallen leaves are accumulated, or weeds are overgrown. If small animals touch the electrical parts inside, this may cause malfunction, smokes or a fire.

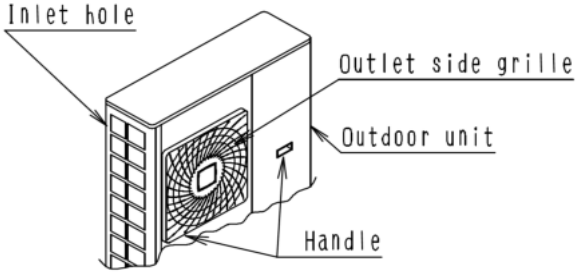
- Important information regarding the refrigerant used
  This product contains fluorinated greenhouse gases covered by the kyoto Protocol, Do not vent gases into the atmosphere.
  Refrigerant type: R32 GWPW value: 675
  "(GWP = global warming potential
- The refrigerant quantity is indicated on the unit name plate.

1 BEFORE INSTALLATION

<Do not throw away accessories that are required for installation. >

1 CAREFULLY READ THESE INSTRUCTIONS BEFORE INSTALLATION.
• For installation of the indoor unit, see the installation manual attached to the indoor unit.

<Transporting the Unit>
As shown in Fig. 2, bring the unit slowly. (Take care not to let hands or things come in contact with rear fins.)



<Installation Parts>
Always use accessory parts or those of designated specification as parts required for installation.

When lifting up the unit, do not put fingers into the inlet hole on the side of the casing , otherwise the casing may be deformed.

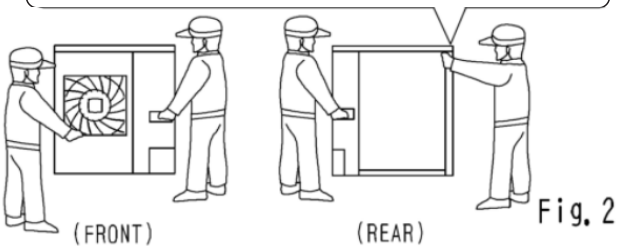


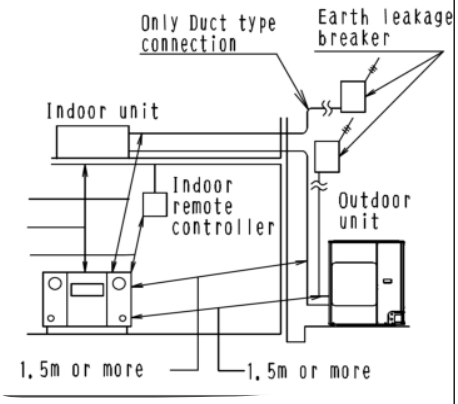
Fig. 2

<CAUTION>
- Work in a team of at least two people when carrying the outdoor unit.

2 SELECTION OF INSTALLATION LOCATION (2/2)

(1) Select the installation location that meets the following conditions and get approval of the customer.

- Places where is no risk of flammable gas leakage.
- Places where the outdoor unit does not bother next-door neighbors.
- Safe places where can withstand the unit's mass and vibration and where the air conditioner can be installed level.
- Places where are well-ventilated and where servicing space can be well ensured.The minimum required space is shown in chapter **3. INSTALLATION SERVICING SPACES**,
- Where the piping length between the indoor and the outdoor units is ensured within theallowable piping length.(Please see chapter **5. REFRIGERANT PIPING WORK**,)
- Do not allow wind from the same direction to blow frequently toward the outletor inlet of the outdoor unit. If the wind is likely to blow as mentioned above, make sure to keep a sufficient service space and install a wind protective shield.



CAUTION

Inverter air conditioners may cause noise to occur in electrical appliances. As shown in the right drawing, Indoor select an installation site well away from radios, PCs, and stereos. Especially in the areas where the incoming signal1m or more strength is weak, keep the indoor remote controller 03 meter or more from electrical appliances. Put thepower supply and d above, make sure to keep a sufficient service space and install a wind protective shield.

2 SELECTION OF INSTALLATION LOCATION (2/2)

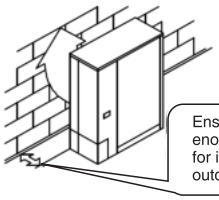
(2) When installing the outdoor unit's in a place exposed to strong wind, pay special attention to the following.5m/sec or more strong wind blown against the outdoor unit' s outlet side causes the outdoor unit to deteriorate volume and suck in the air blown out of its outlet side (short circuit), and the following effects may result.

- Performance is degraded. . Operation stop due to increase in pressure.If a very high fan strength is used continuously from the front of the outdoor unit outlet side, the fan might turn inreverse at high speed, and become damaged.

(3) Following the installation place, it is expected that the influence of the strong wind is great.

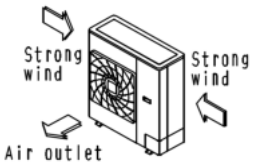
- The flat area which receives the adverse wind such as typhoon directly since there is no obstacles such as buildings and mountains. (Including coast line, shoreline of lake and mountain region.)
- The installation place that no obstacies around the outdoor unit to prevent the adverse wind, for example, walls and buildings that are higher than the applicable outdoor unit, etc.
  Please take measures when installing especially on a rooftop.
- Since the outdoor unit may fall down, attach the fixture for preventing overturning(option).

Turn the outlet side toward the building's wall. fence or windbreak screen.



Ensuring there is enough space for installing the outdoor unit.

Set the outlet side at a right angle to the direction of the wind.



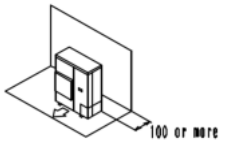
3 INSTALLATION SERVICING SPACES (1/3)

- The installation servicing spaces shown in these drawings are based on the outdoor unit inlet area temperature of 35°C (DB) for COOLING operation.
  If the planned inlet area temperature exceeds 35°C (DB), or if the heat load of all outdoor units is increased significantly and exceeds the maximum operating capacity, secure a larger space than that indicated by the inlet dimensions in these drawings.
- For installation, consider both pedestrian and air flow paths and choose a suitable pattern from these drawings to match the space available field. (If the number of units to be installed exceeds the patterns in these drawings, consider there is nothing short-circuits.)
- Regarding the front space, position the units with consideration to the space required for the refrigerant piping work.
  (Consult your dealer if the work conditions do not match those in the drawings.)
- Secure appropriate space when using a side piping outlet.

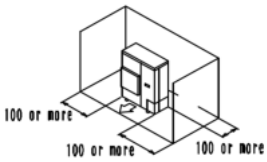
3-1 INSTALLATION SERVICING SPACES (1/3)

When nothing is obstructing the top

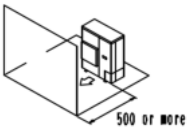
1) In case obstacles exist only in front of the inlet side.



2) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit.

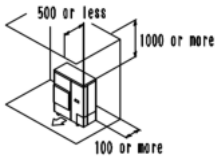


3) In case obstacles exist only in front of the outlet side.

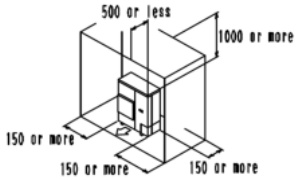


When something is obstructing the top

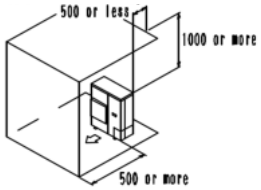
1) In case obstacles exist in front of the inlet side.



2) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit.



3) In case obstacles exist in front of the outlet side.

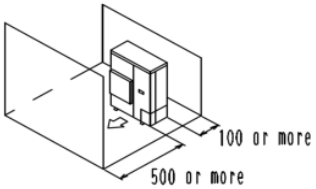


3 INSTALLATION SERVICING SPACES (2/3)

In case obstacles exist in front of both the inlet and outlet sides

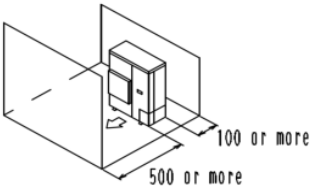
(Pattern 1) Where obstacle in front of the outlet side is higher than the outdoor unit.

(1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



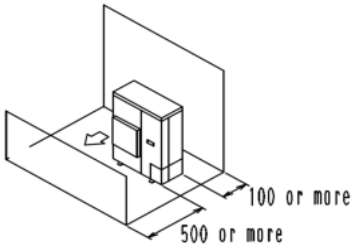
(2) When something is obstructing the top. Relation of dimensions of H, A, and L are shown in the table b

	L	A
L ≤ H	L ≤ 0.5 H	750 or more
	0.5 < L ≤ H	1000 or more
L > H	Set the frame to be L≤H refer to the column of L≤ H for A.	



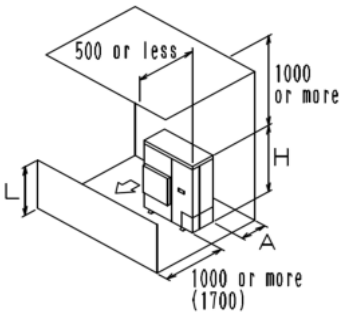
Pattern 2 Where obstacles in front of the outlet side is lower than the outdoor unit.

(1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



(2) When something is obstructing the top.
Relation of dimensions of H, A, and L are shown in the table below.

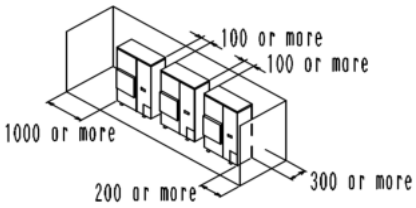
	L	A
L ≤ H	L ≤ 0.5 H	100 or more
	0.5H < L ≤ H	200 or more
L > H	Set the frame to be L≤H refer to the column of L≤ H for A.	



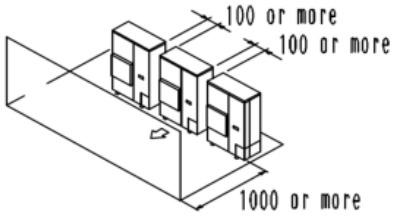
3-2 IN CASE OF INSTALLING MULTIPLE UNITS (2 UNITS OR MORE) IN LATERAL CONNECTION PER ROW

When nothing is obstructing the top

1) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit.

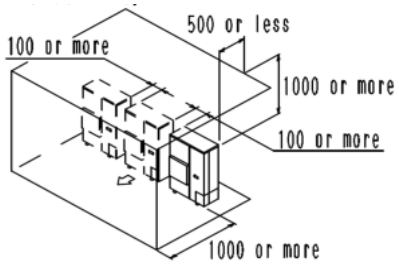


(2) In case obstacles exist only in front of the outlet side.

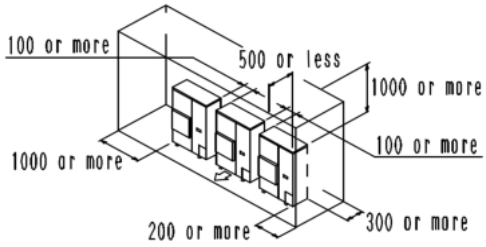


When something is obstructing the top

1) In case obstacles exist in front of the outlet side



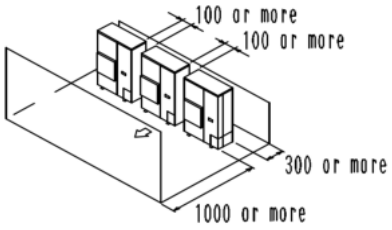
(2) In case obstacles exist only in front of the outlet side.



In case obstacles exist in front of both the inlet and outlet sides

Pattern 1 Where obstacle in front of the outlet side is higher than the outdoor unit.

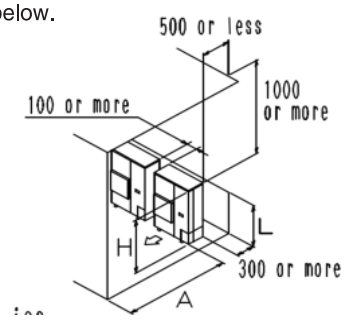
(1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



(2) When something is obstructing the top.
Relation of dimensions of H, A, and L are shown in the table below.

	L	A
L ≤ H	L ≤ 0.5 H	1000 or more
	0.5H < L ≤ H	1250 or more
L > H	Set the frame to be L≤H refer to the column of L≤ H for A.	

Get the lower part of the frame sealed so that air from the outlet does not by pass.
Only two units at most can be installed in series.

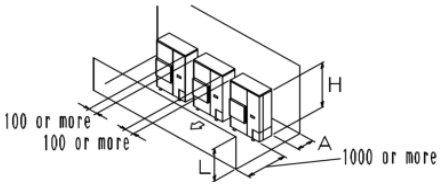


3 INSTALLATION SERVICING SPACES (3/3)

Pattern 1 Where obstacles in front of the outlet side is lower than the outdoor unit. (units : mm)

1) When nothing is obstructing the top.
(There is no height limit for
Relation of dimensions of H, A, and
L are shown in the table below.

L	A
L ≤ 0.5 H	250 or more
0.5 < L ≤ H	300 or more

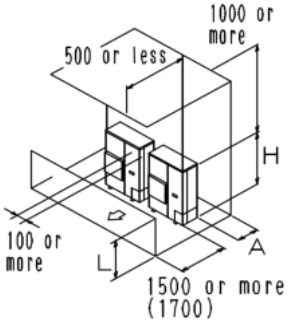


2) When something is obstructing the top.

Relation of dimensions of H, A, and
L are shown in the table below.

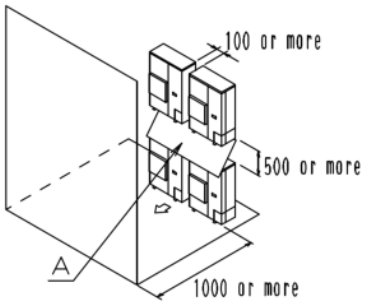
	L	A
L ≤ H	L ≤ 0.5 H	250 or more
	0.5 < L ≤ H	300 or more
L > H	Set the frame to be L≤H refer to the column of L≤ H for A.	

Get the lower part of the frame sealed so that air from the outlet does not by pass,Only two units at most can be installed in series.
If the dimension is ( ) or more, you do not need to place the frame including the case of L>H.

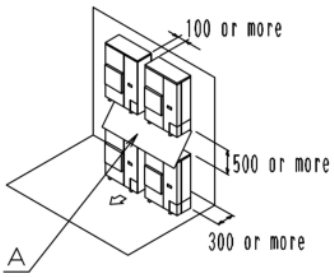


3-3 IN CASE OF STACKED INSTALLATION

(1) In case obstacles exist in front of the outlet side.



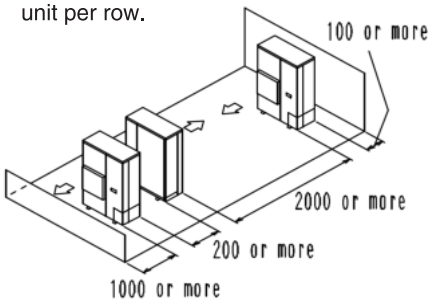
(1) In case obstacles exist in front of the inlet side.



- Do not exceed two levels for stacked installation.
- Install a roof cover similar to A (field supply),as the outdoor units with downward drainage are proneto dripping.
- Install the upper-level outdoor unit so that its bottom frame is a sufficient height above the roofcover. This is to prevent the buildup of ice onthe underside of the bottom frame.(A space of at least 500 mm is recommended.).
- It is not necessary to install a roof cover if there is no danger of drainage dripping. In this case, the space between the upper and lower outdoor units should beat least 100 mm. (Close off the gap between the upper and lower units so there discharged air.)

3-4 IN CASE OF MULTIPLE-ROW INSTALLATION (FOR ROOF TOP USE, ETC.)

(1) In case of installing one unit per row.

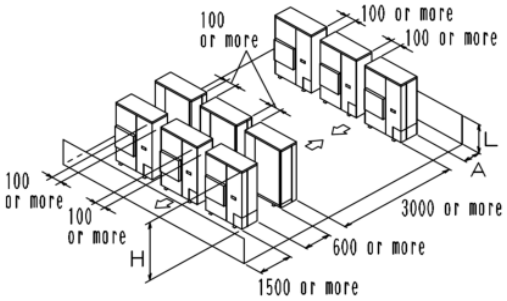


(2) In case of installing multiple units (2 units or more) in lateral connection per row.

Relation of dimensions of H, A, and
L are shown in the table below.

	L	A
L ≤ H	L ≤ 0.5 H	250 or more
	0.5 < L ≤ H	300 or more
L > H	Installation impossible	

- In case of side piping outlet, ensure a space sufficient for piping.



4 PRECAUTIONS ON INSTALLATION (1/2)

⟨⟨Drain work⟩⟩

- Potentially problematic locations for the outdoor unit drainage.
  In locations where, for example, drainage may fall on passersby may cause passersby to slip over, install an enclosure(field supply) to prevent people approaching the outdoor unit.
- Then, coat the area around the bored holes with rust preventive coating to cover the metal exposure.
- Make sure the drain work properly.

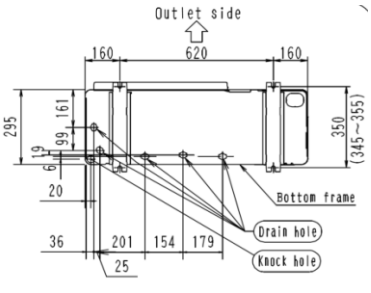


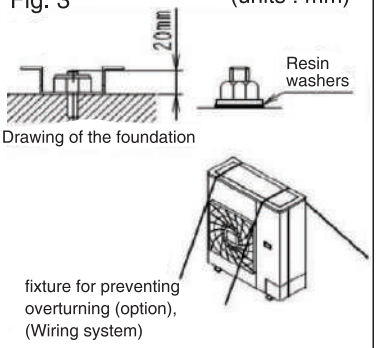
Diagram of lower surface (Units : mm)

4 PRECAUTIONS ON INSTALLATION (2/2)

<Installation method of the outdoor unit>

- Check the strength and level of the installation ground so that the outdoor unit not cause any operating vibration or noise after installation.
- In accordance with the foundation drawing in Fig, 3, fix the unit securely by means of the foundation bolts. (Prepare four sets of M12 foundation bolts, nuts and washer seach which are available on the market,)
- It is best to screw in the foundation bolts until their length are 20mm from the foundation surface.
- Fix the outdoor unit to the foundation bolts using nuts with resin washers. (See the right-hand drawing)If the coating on the fastening area is stripped off, the nuts rust easily.

Fig. 3 (units : mm)



<Installation method of fixture for preventing overturning>

- If steps need to be taken to prevent the unit from tipping over. use the fixture for preventing overturning (option),

5 REFRIGERANT PIPING WORK (1/4)

If steps need to be taken to prevent the unit from tipping over. use the fixture for preventing overturning (option),

⚠CAUTION

To plumbing persons

- Important information regarding the refrigerant used. This product contains fluorinated greenhouse gases covered by the Kyoto Protocol, Do not vent gases into the atmosphere,
  GWP (global warming potential) of R32 refrigerant type = 675O
- Use R32 as additional for charging.
- Do not use flux when brazing refrigerant piping.
  Use phosphor copper brazing filler metal(BCuP-2:JIS Z 3264/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 florine is contained, the refrigerant oilwill be deteriorated and the refrigerant circuit will be affected coolant piping system.)
- After chapter **7. CHARGING THE REFRIGERANT** is completed, be sure to open the stop valves before performing 10. FIELD SETTINGS. (Operating the unit with the valve shut will break the compressor.)

<Precaution when reuse existed refrigerant pipe>

Please keep below points in order to reuse existed pipe, failure may caused if have a fault.

- Below are pipes shall always make new construction, do not reuse piping.
  - When removed from indoor unit or outdoor unit for a long time.
  (Moisture entry to internal pipe, wastes entry can be occured.
  - When copper tube is corroded.
  - When pipe thickness is insufficient (refer to **5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH** table.
  - Do not reuse flare for **Refrigerant** leak protection, please make flare processing.
  - Do not reuse flare nut, please use flare nut in product accessories.
  - Make sure to do refrigerant leak check in case there is brazing area while perform field piping.
  - If insulation is deteriorate, make sure to exchange to new one,

5-1 INSTALLATION TOOLS

Be sure to use the dedicated tools to ensure sufficient pressure resistance and prevent the entry of any impurities.

Manifold gauge Charging hose	To ensure sufficient pressure resistance and prevent the entry of any impurities (mineral oils such as Suniso oil and liquids), use the R410A or R32 dedicated item (the screw specifications for R410A or R32 differ).
Vacuum pump	Be extremely careful not to flow the pump oil backward to inside the piping when the pump is stopped. Use a pump which enables vacuuming to -0. 1 MPa(-755mmHg) of the gauge pressure,

5-2 SELECTION OF PIPING MATERIAL

- Use the piping whose inside and outside are clean and with no harmful substances for use such as sulphur, oxide, dust, dust from cutting, grease, or liquid (contamination) is attached.
- For the refrigerant piping, use the following material.
  Material: Deoxidised phosphorous seamless copper piping
  Temper grade: Use piping with temper grade in function of piping diameter as listed in the table on section 5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH.
  Size: Decide based on section 5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH.

- Thickness: Comply with applicable legislation, The minimal piping thickness for R32 piping must be in accordance with the table on
- section **5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH.**
- For the handling of the stop valves. see "Precautions when the handling piping stop valves' on section 5-5 REFRIGERANT PIPING WORK.
- Be sure to perform piping work using measurements within the maximum allowable length and height difference described on **section 5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH.**

5-3 PIPING PROTECTION

- Prevent contamination or moisture from getting into the piping.
- Pay special attention when running the copper piping through the through-hole or when leading the edge of the piping outside the room.
- Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

Location	Work period	Protection method
Outdoor	One month or more	Pinching
	Less than one month	Pinching or taping

Location	Work period	Protection method
Indoor	N/A	Pinching or taping

5 REFRIGERANT PIPING WORK (2/4)

Please refer to installation manual of indoor unit about indoor unit's refrigerant piping

5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH

《Caution》

- This unit is chargeless specification. Due to chargeless length and allowable piping length will be differentdepend on field pipe size.

■ Piping bend radius

Piping diameter	Pipe thickness(material)	Bend radius
ø 9.5 mm	0.8 mm (C1220T-O, Type 0)	30mm or more
ø 15.9 mm	1.0 mm (C1220T-O, Type 0)	50mm or more

■ Refrigerant pipe size and chargeless length

Outdoor unit type	Pipe thickness(material)	Bend radius
RZFS100AV16, RZFS140AV16	ø 9.5mm x t 0.8 mm(type 0)	30mm or more

- One way maximum allowable piping length means the maximum length of liquid side piping or gas side piping.
- Equivalent length is the pressure loss due to L joints, traps, and so on along the refrigerant piping convertedto a straight piping length of the same size and added to the overall value.Please see the Engineering Data for calculation of equivalent length.
- Please give the vertical interval between the indoor and outdoor as 30m or less,

Pair connection Refrigerant piping size and one way maximum allowable piping length.

Outdoor unit type	Liquid pipesize (type)	Maximum allowable piping length (It is equivalent length in the inside)	Gas pipe size (type)	Maximum allowable piping length(It is equivalent length in the inside) length in the inside)
RZFS100AV16, RZFS140AV16	Ø9.5mmxt0.8mm (type 0)	50m	Ø 15.9mm x t1.0mm (Type 0)	50m

⚠WARNING

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

⚠CAUTION

- Use dedicated piping cutters and flaring tools for R410A or R32.
- When making a flare connection, apply ether or ester oil only to the flare inner surface.
- Use only the flare nuts attached to the unit. If other flare nuts are used, it may cause refrigerant leakage.
- To prevent contamination, dust or moisture from getting into the piping, take measures such as pinching taping the pipings.

5-5 REFRIGERANT PIPING WORK

- The refrigerant piping is connectable in four directions, (See Fig. 4)
- Do not let anything other than the designated refrigerant (such as air or water) enter the refrigerant system.
- When connecting in a downward direction, open the knock out hole by making 4 round holes around the knock out holeby using a $6mm drill. (See Fig. 5)
- Cutting out the two slits makes it possible to install as shown in Fig. 6. (Use a metal saw to cut out the slits.)

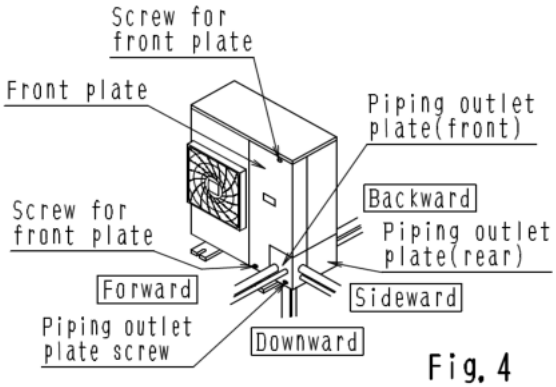


Fig. 4

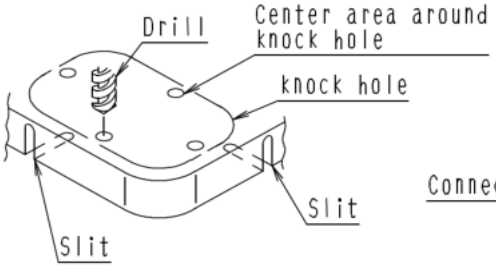


Fig. 5

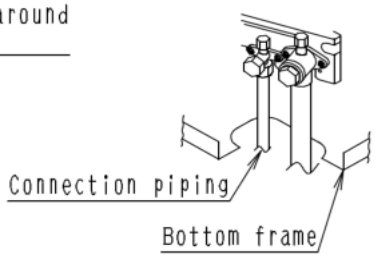
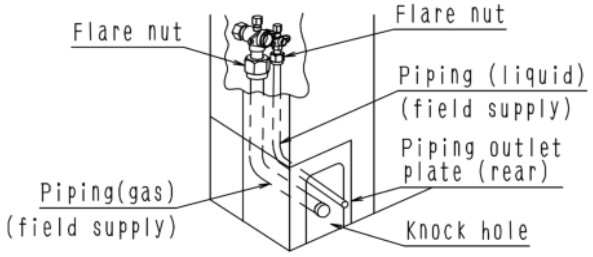


Fig. 6

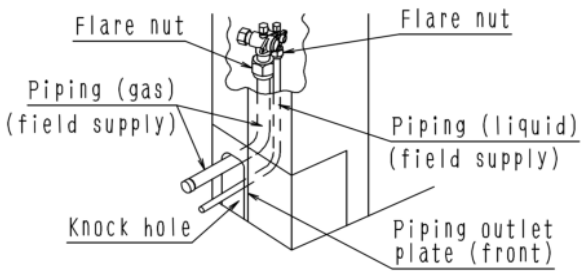
- After knocking out the knock hole, it is recommended to apply repair paint to the edge and the surrounding end surfaces to prevent rusting.

5 REFRIGERANT PIPING WORK (3/4)

Back side (rear) connection — Remove the piping outlet plate (rear) for connection.



Side (lateral) connection — Remove the piping outlet plate (front) for connection.



CAUTION

Preventive against small animals entering into the casing
Fill up the space with putty or thermal insulation(field supply) where the piping through as shown Fig. 7.(field supply) (If small animals touch the electrical parts inside, this may cause malfunction, smokes or a fire.)

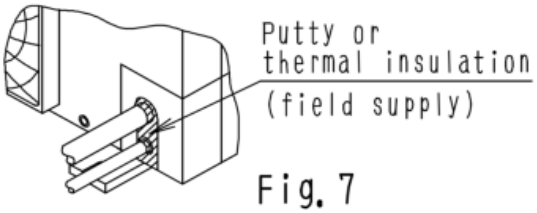


Fig. 7

Precautions when the handling piping stop valves

Do not open the stop valves until the 7. CHARGING THE REFRIGERANT is finished.

- The names of the parts necessary for handling the piping stop valves for the indoor and outdoor units are described in Fig. 8. The valves are closed before shipment.

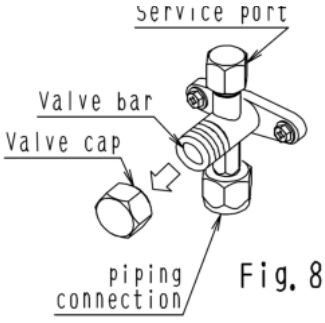
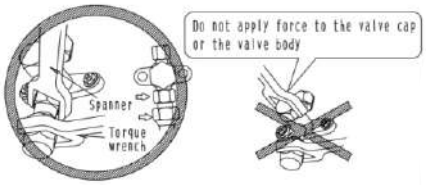


Fig. 8

When tightening the flare of the stop valves, make sure to tighten by the rated torque. The rated torque is shown on Precautions when tightening flare nuts(Following)

Applying force by exceeding the rated tightening torque may cause the sheet surface inside the stop valve to twist, the refrigerant to leak inside the valve, and the flare nut to break.

Prohibited — Do not apply force to the valve cap or the valve body when tightening the flare nut.(It may cause refrigerant leakage due deformation of the valve body)



- When using the low outdoor temperature cooling mode etc.,the pressure on the low pressure side might drop, so the flare nut on the stop valves should be sealed completely with silicon sealant or the like in order to prevent frost from forming on it (both gas and liquid sides). (Refer to Fig. 9)



Fig. 9

How to operate the stop valve) (Refer to Fig. 10)

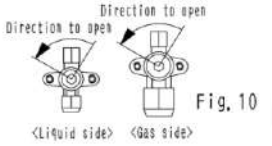


Fig. 10

Use hex-wrenches 5mm.
To open:Fig. 9
1. Insert one hex-wrench onto the valve rod and turn counter-clockwise.
2. Stop when the valve rod no longer turns. It is now open.
close:
1. Insert one hex-wrench onto the valve rod and turn clockwise.
2. Stop when the valve rod no longer turns. It is now closed.

Precautions for handling valve cap)

- A seal is attached to the point indicated by the arrow. Take care not to damage it. (Refer to Fig. 11)
- Be sure to tighten the valve cap securely after operating the valves.

	Valve size	Tightening torque
Liquid side	ø9.5mm	22.0 ±2 N.m

	Valve size	Tightening torque
Gas side	ø15.9mm	32.0±2 N·m

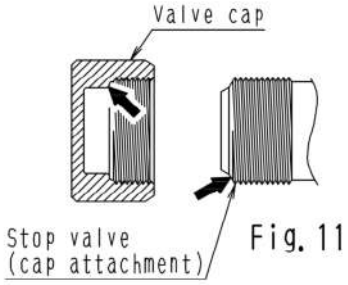


Fig. 11

Precautions for handling servicing port

- Use a push-rod-provided charging hose for operation.
- Be sure to tighten the valve cap securely after operation.
-

Tightening torque
12.7±1.2N·m

Prohibited Do not use a charging hose of which pressing stick is slipped out from the center. (It may cause refrigerant leakage due to deformation of the valve stem of the service port)

5 REFRIGERANT PIPING WORK (4/4)

Precautions for connecting piping

- Take caution so that the refrigerant piping between the outdoor and indoor may not touch the compressor bolt and sound proof cover and the plate as shown Fig 12.
- If installing the outdoor unit higher than the indoor unit, caulk the space around insulation and tubes becausecondensation on the stop valves can seep through to the indoor unit side.

Precautions regarding insulation

Enhance the insulation of the refrigerant piping according to the installation conditions. If this is not done, condensation may form on thesurface of the insulation. Please refer to the target values shown below..

- When the temperature and humidity conditions are 30℃ and RH 75% or more: thickness of the insulation is 15 mm or more.
- When the temperature and humidity conditions are 30℃ and RH 80% or more: thickness of the insulation is 20 mm or more.
- Be sure to insulate the liquid and gas sides inter unit piping.
  It may become the cause of refrigerant leakage if it dose not insulate.
  (Be sure to use insulating material which can resistant.

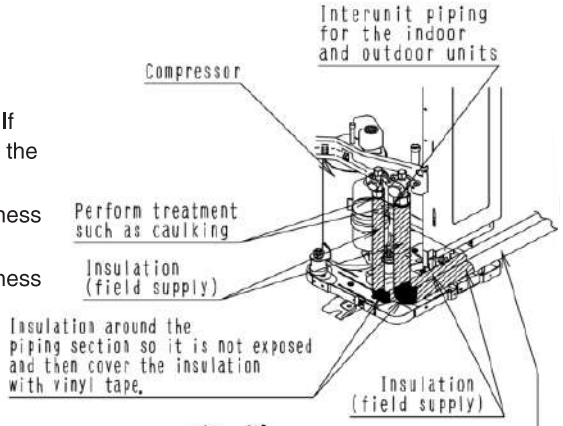


Fig. 12

CAUTION Insulation of interunit piping must be carried out up to the connection inside the casing.
If the piping is exposed to the atmosphere, it may cause sweating or burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

Precautions when tightening flare nuts

- Be sure to remove the flare nuts using two spanners.

  Then after the piping connection, tighten them using a spanner and torque wrench.
- For the dimension of flared part, see the Table 1.
- When making a flare connection, coat ether or ester oil only to the flare inner surface.

  Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.
- For the tightening torque, see the Table 1.
- After all the piping has been connected, use nitrogen to perform a refrigerant leakage check.

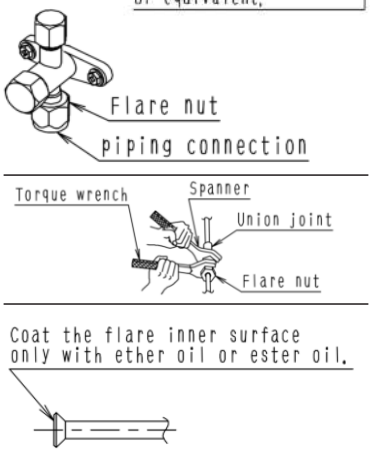


Table 1

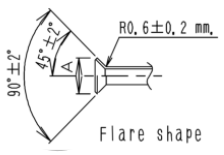
Piping size	Tightening torque	A dimension for processing flares	Flare shape
Ø 6.4 mm	16 ±2 N.m	8.9±0.2 mm	
Ø 9.5 mm	22 ± 2 N.m	13.0±0.2 mm	
Ø 12.7 mm	32 ± 2 N.m	16.4±0.2 mm	
Ø 15.9 mm	50 ± 2 N.m	19.5±0.2mm	
Ø 19.1 mm	70±2 N.m	23.8±0.2mm	

Table 2

Piping size	Further Tightening angle	Recommended arm length of tool
Ø 6.4 mm	60 to 90 degrees	Approx. 150 mm
Ø 9.5 mm	60 to 90 degrees	Approx. 200 mm
Ø 12.7 mm	30 to 60 degrees	Approx. 250 mm
Ø 15.9 mm	30 to 60 degrees	Approx. 300 mm
Ø 19.1 mm	20 to 35 degrees	Approx. 450 mm

If there is no torque wrench, use Table 2 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 2. After the work is finished, check securely that there is no gas leakage. If the nut is not tightened as instructed, it may cause slow refrigerant leakage and result in malfunction(such as does not cool).

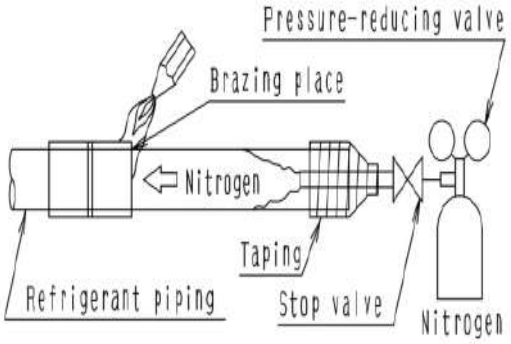
Precautions when brazing the refrigerant pipings

Do not reuse joint which have been used once alredy

- When brazing the refrigerant piping, carry out brazing work (NOTE 2) after substituting nitrogen for air (flow nitrogen into the piping and substitute nitrogen for air (NOTE 1) (see the drawing below)).

NOTES

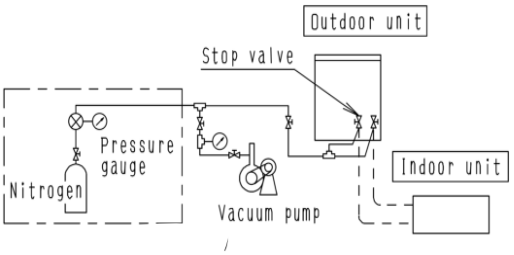
1. The proper pressure for having nitrogen flow through the piping is approximately 0. 02MPa, a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
2. Do not use flux when brazing refrigerant piping. Use phosphor copper brazing filler metal (BCuP-2:JIS Z 3264/B-Cu93P-710/795:ISO 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.)



Prohibited — Do not use anti-oxidants when brazing the piping joints. (Residue can clog pipes and reak equipment.

6 AIRTIGHTNESS TEST AND AIR-PURGE

- Perform a refrigerant leakage check using nitrogen gas (airtightness test) with the outdoor unit stop valve close, to make sure there are no leakage.
  For the airtightness test, raise the pressure to the design pressure in the high pressure section (4.17MPa)
- For the airtightness test, the unit passes the test ifthe pressure in the high pressure section does not dropfor 24 hours after increasing to the design pressure.
  Pressure.
  A correction is required since the pressure decreases approx. 0. 01Mpa when the ambient temperature of 1℃ decreases.
- If the pressure drop is confirmed, perform the airtightness(Refrigerant leakage check)test again after checking and modifying the leakage points.



AIR-PURGE

- Evacuate by the vacuum pump for more than 2 hours until the internal pressure decreases below -0. 1MP.
  After that, leave it with -0. 1MPa or less for more than one hour and confirm that the value of vacuum gauges does not increase.
- If the value of vacuum gauge increases, there is moisture inside the refrigerant piping or there are leakage points.Perform evacuation again after checking and improving the leakage points.

NOTE

- After doing an air-purge with a vacuum pump, the refrigerant pressure may not rise even if the stop valves are opened.This is because the refrigerant piping path is closed off by the outdoor unit electronic expansion valve, etc.There are no problems if the outdoor unit is run.

7 CHARGING THE REFRIGERANT (1/2)

<Be sure to use R32 as refrigerant. >

7-1 PRECAUTIONS FOR ADDING REFRIGERANT

This unit does not require charging. So if the piping length is within the lengths shown in the table below, no additional refrigerant needs to be charged.

Liquid piping size	Length for which additional charging is not required
ø9.5mm x t 0.8mm	30m

In cases where the piping length exceeds that shown in the left table or recharging needs to be performed, charge as described below.
Be sure to write down the additional amount of refrigerant charged or the entire amount recharged on the indications label to the back side of the front plate, after the unit installed.

7-2 ADDING REFRIGERANT

From the table below, select a refrigerant amount that is suitable for a piping length exceeding the length for which charging is actually needed. Then add the refrigerant from the service port of the liquid side stop valve.

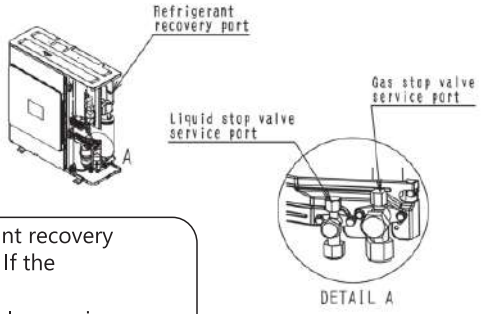
Outdoor unit type	Liquid piping size	Length for which additional charging is not required	Length of piping exceeding the length for which additional charging is not required, R32 additional amount (kg)		
			30m or less	40m or less	50m or less
RZFS100AV16, RZFS140AV16	ø 9.5mm	30m		0.25	0.50

When recharging refrigerant, follow the procedure below.

1. In case of recharge refrigerant (cause of refrigerant leak) please follow suggestion below (reference detail from service guide)
   - In case of outdoor PCB (A1P) set refrigerant recovery mode at ON please press switch (BS2) during 5 second.
   - In case of remote was set refrigerant recovery mode ON please follow caution label that sticked at back side of front plate.
2. Shut down the power at least 1 minute after setting process (1) is performed,

※ If the power is turned on before the process (3) - (6) are completed, the refrigerant recovery mode is turned off and the refrigerant cannot be recovered or charged normally. If the power is turned on by necessary, turn on Refrigerant recovery mode again.

3. Recovery the refrigerant from both the refrigerant recovery port and liquid stop valve service port or gas stop valve service port) simultaneously until the pressure drops below 0. 09 MPa(gauge pressure: -0. 011MPa)by using a refrigerant recovery machine.
4. Modify the leakage points.
5. Perform the airtightness test and air-purge accordance with (6) AIRTIGHTNESS TEST AND AIR-PURGE
6. Charge the refrigerant from the service port of the liquid side stop valve when recharging refrigerant.(Note) Do not turn on power during evacuation. The motor may be damaged due to vacuum discharge.



Be sure to write down the additional amount of refrigerant charged or the entire amount re-charged on the precaution plate on the rear of the front panel, as this information is needed in case of after-sales service.

7 CHARGING THE REFRIGERANT (2/2)

<Be sure to use R32 as refrigerant. >

PRECAUTIONS WHEN ADDING R32

- Before charging, check whether the cylinder has a siphon attached or not,

charging a cylinder with an attached siphon



Stand the cylinder upright when charging.
(there is a siphon piping inside, so the cylinder need not be upside-down to charge with liquid.)

charging other cylinders



Stand the cylinder upside-down and charge.
(Turn the cylinder upside-down when charging.)

- To prevent entry of any impurities and insure sufficient pressure resistance, always use the special tools dedicated for R410A or R32.
- The refrigerant should be charged from the service port of the liquid side stop valve.

⚠CAUTION

To plumbing persons

- After completing installation, be sure to open the valves. (Operating the unit with the valve shut will break the compressor.)
- After complete charging of refrigerant carry out refrigerant leak check and heat insulation work.(Failure to carry out heat insulation work may result in leakage of water)
- Do not allow refrigerant to escape into the atmosphere recklessly for earth environment protection.

8 ELECTRIC WIRING WORK (1/3)

⚠WARNING

Make sure to install the earth leakage breaker.
(The earth leakage breaker is required in order to prevent electric shocks or a fire.)

- Electric wiring must be carried out by qualified personnel.
- Before obtaining access to terminal devices, all supply circuits must be interrupted.

8 ELECTRIC WIRING WORK (1/3)

⚠WARNING

Make sure to install the earth leakage breaker.
(The earth leakage breaker is required in order to prevent electric shocks or a fire.)

- Electric wiring must be carried out by qualified personnel.
- Before obtaining access to terminal devices, all supply circuits must be interrupted.

⚠CAUTION

To the electrician

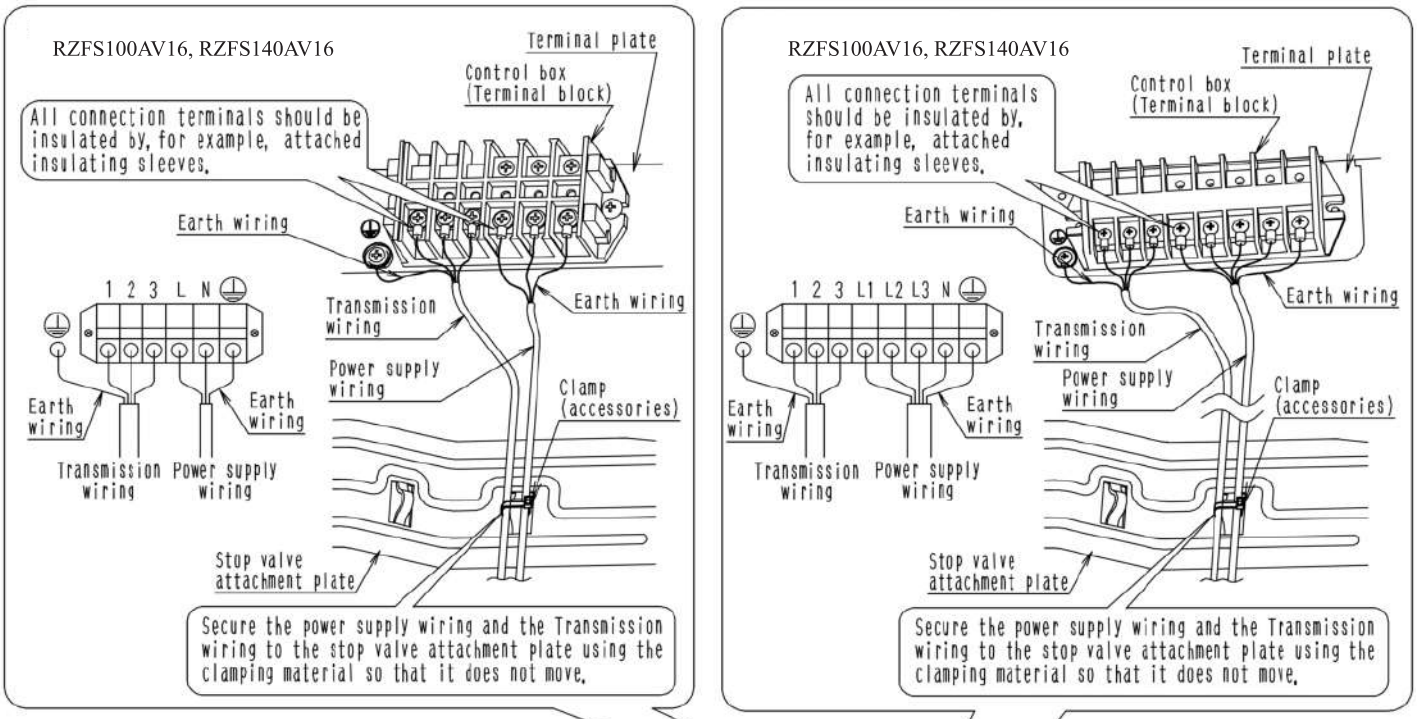
- Make sure to install a current balance type earth leakage breaker coping with high harmonics.(This unit is equipped with an inverter device. Use an earth leakage breaker coping with high harmonics toprevent wrong actuation,)
  prevent wrong actuation,)
- Do not run the unit until the refrigerant charging is complete, (Operating the unit before the completion will break the compressor.)
- Do not remove the thermistors or sensors when the power supply and transmission wiring are connected.
  (Operating the unit with the thermistors and sensors removed will break the compressor.)
- Make certain that all electric wiring work is carried out by qualified personnel according to the applicable legislation and this installation manual, using a separate circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
- An insufficient power supply capacity or improper electric work may lead to electric shocks or a fire.
- The wiring between the indoor unit and outdoor unit must be for 230V
- For electric wiring work, refer to also the "WIRING DIAGRAM".
- When doing the electrical wiring, always shut off the power source before working, and do not turn on thebranch switch until all work is complete.
- Make sure to earth the air conditioner. Earthing resistance should be according to applicable legislation.
- Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.

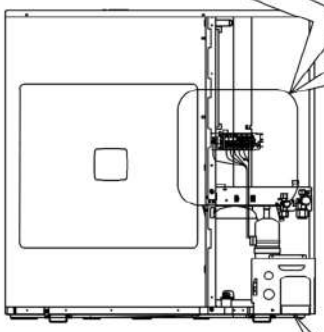
  · Gas piping ....Ignition or explosion may occur if the gas leaks.
  · Water piping ..... Hard vinyl tubes are not effective earths.
  · Lightning conductor or telephone earth Wiring ... Electric potential may rise abnormally if struck by a lightning bolt,

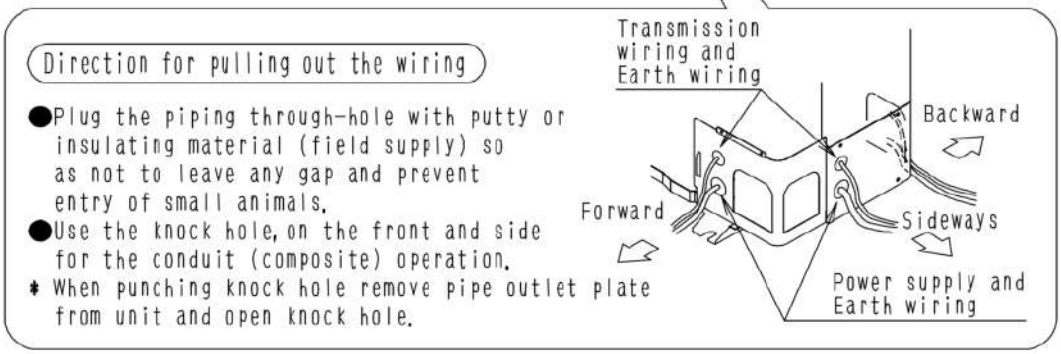
- The earth is needed in order to reduce the noise generated by the unit's inverter and influence on other a lightning bolt, appliances and to release the charged electric charge on the outdoor unit surface by leaked current.
- Do not install a phase advance capacitor for improvement of power factor. Since this unit is mounted with an inverter device, the effect of power factor improvement not only cannot be expected, but also there is a risk of the capacitor getting abnormally overheated due to harmonics.
- Be sure to use earth leakage breaker dedicated for earth leakage protection in combination with the load break switch with fuse or breaker for wiring.
- In case of three-phase. Machine, electric wiring must be connected in normal phase connection.
- For wiring, use the designated power supply wiring and connect firmly, then secure to prevent external forcebeing exerted on the terminal attachment (power supply wiring, transmission wiring, earth wiring).
- Left-over wiring should not be wrapped and stuffed into the outdoor unit.
- To prevent the power wiring from being damaged by the knock hole edges, put it in a wiring piping or use insulated bush, etc. to protect it.
- To prevent the wiring from coming in contact with piping (particularly the high-pressure piping), secure it with the included clamping material as shown page 13.
- When wiring, form the wiring so that the front plate does not float and make sure the front plate is securely fastened.
- Fix the power supply wiring, the earth wiring and the transmission wiring by clamps as shown in the figure.

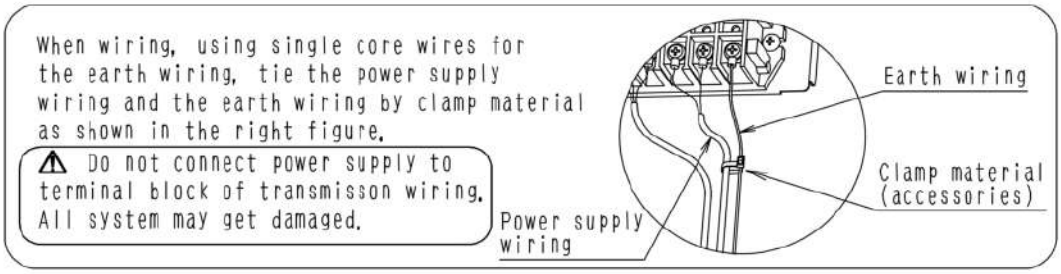
8 ELECTRIC WIRING WORK (2/3)

- Please fix Power supply wiring, Transmission wiring, and Earth wiring by clamp material as below figure.









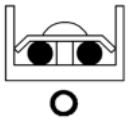
8 ELECTRIC WIRING WORK (3/3)

Wiring connection method

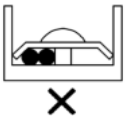
Precautions when laying power supply wiring..

- For connection to the terminal block, use ring type crimp styleterminals with insulation sleeve or treat the wiring with insulation. (Refer to fig. 13)
- If it is inevitable to use ring type crimp style terminals, make sure to observe the following items. (Abnormal heating may occur if the wiring are not tightened securely.)

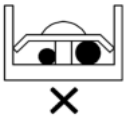
Connection of 2 wirings of same size must be carried out on both sides.



Connection of 2 wirings on one side is prohibited.



Connection of wirings of different sizes is prohibited.



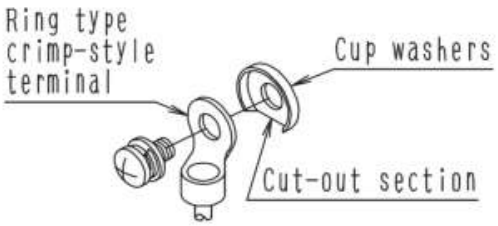
- Never use the stranded wiring which is soldered.(Slack in the electric wiring may cause abnormal heat.)
- Use the required wirings, connect them securely and fix these wirings so that external force may not apply to the terminals.
- Use a proper screw driver for tightening the terminal screws.
  If an improper screw driver is used, it may damage the screw head and a proper tightening cannot be carried out.
- if a terminal is over tightened, it may be damaged. Refer to the table shown below for tightening torque of terminals.

Tightening torque(N . m)	
M4(Wire between units terminal board)	1.50±0.30
M4(Power supply terminal board)	1.50±0.30
M4(Ground wire between units)	1.69±0.25
M5(Ground wire between units)	3.55±0.50

Precautions when connecting the earth terminal

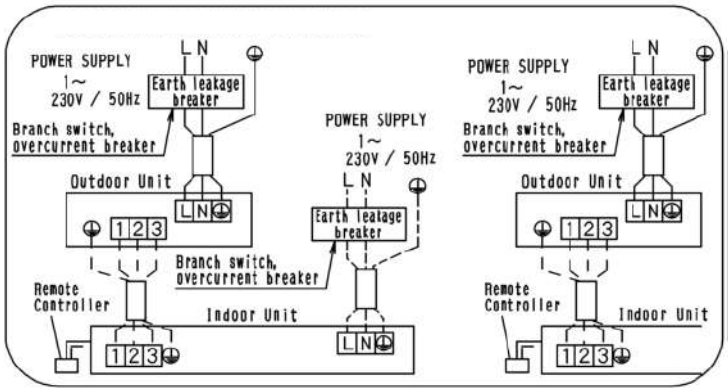
CAUTION

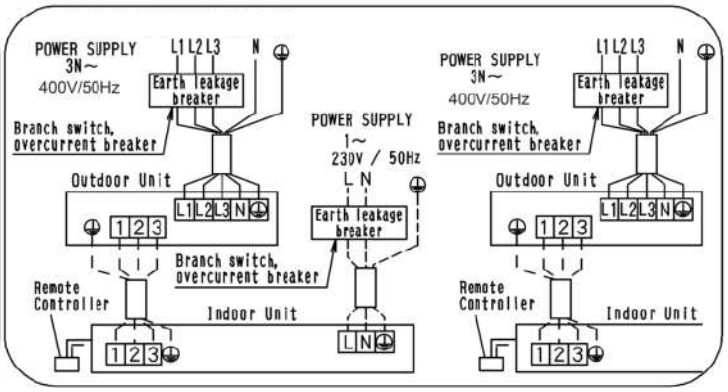
Conduct wiring so that the earth wiring comes out from the notched part of the cup washer.
Otherwise, earth wiring contact will be insufficient and earth effect may be lost.



Specification for field supplied wiring

For the indoor unit wiring and transmission wiring (broken lines in the drawing), follow the instructions in the indoor unit's installation manual.





NOTES

1. Select and install the power supply wiring in accordance with [IEC60335-1 (Table 11)] or local laws and regulations.
   The maximum current of the outdoor and indoor units are shown on each name plate.
2. When installing wiring in a location that can easily come in contact with people, be sure to install an earth leakage breaker coping withhigh harmonics to prevent electric shock.
3. Breaker type and capacity shall be selected in accordance with local laws and regulations.

M4(Wire between units terminal board)

■ Specification of standard wiring components

Outdoor unit type	Power supply, Earth		Wiring type of transmission
	Wiring type(*)	Size	
RZFS100AV16, RZFS140AV16	H05VV-U3G	Wiring size Gand length must comply with local codes or [IEC60335-1 (Table 11)]	H05VV-U4G2. 5
RZFS100AV16, RZFS140AV16	H05VV-U5G		

(*) Only in protected piping, use HO7RN-F when protected pipes are not used.
Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57))

⚠CAUTION

To the electrician

- Do not operation the unit until refrigerant is charged completely.(If it is operation before that, the compressor will be broken.

9 CHECK ITEMS BEFORE TEST OPERATION

		Check column
Power supply wiring Transmission wiring Earth wiring	Is all wiring laid as instructed? Is all the wiring connected? Are there no missing or reversed phase?	
	Is the transmission wiring transmission all in the correct order between the units?	
	Is the unit safely grounded?+	
	Are the screw at the attachment part of wiring not be loosened?	
	Has the insulation resistance tested to at least 1MQ? • Use a 500V mega-tester for measuring insulation. • Note: Do not use the mega-tester to low voltage circuit except 200-240V	
	Is an earth leakage circuit breaker used a current operated type which is compatibleto the higher harmonic wave?	
	Does the earth leakage circuit breaker have appropriate rated current?	
Refrigerant piping	Is the piping size correct?	
	Is the piping insulation applied correctly? Is the liquid and gas sides piping all insulated?	
	Are the stop valves for both the liquid and gas sides open completely? Operating the unit with the valves shut will break the compressor,	
Amount of refrigerant	Did you fill in the additional charging and recharging rate, and piping length on the caution label attached to the back side of the front plate?	
Indoor unit	Is the indoor unit fully installed? When the test run is started, the fan automatically begins turning.	

10 FIELD SETTINGS

⚠ WRNING

- Always close the all plates when leaving the outdoor unit with the power on. (It may cause electric shock.)

In field setting for an outdoor unit, make sure to shut down the power and check that there is no residual voltage before start installing. (It may cause an electric shock.)

How to make the field settings

Setup of functions for an outdoor unit is performed by the remote controller. Make the field settings according to

- How to make the field setting' which came with the remote controller.
- The settings are set by switching "Mode No.", "FIRST CODE NO.", and " SECOND CODE NO.".

Incorrect setting may cause the wrong operations.

■ Content of settings and setting number

Mode No.	First Code No.	Description	SECOND CODE NO.				
			01	02	03	04	05
16 (26)	0	Night time low noise operation	–	Automatic Low noise activation			
	1	Automatic low noise start and stop time			22h00 ~ 06h00	–	22h00 ~ 06h00
	2	Server room setting	–		Server room setting	Anti-Frozen+ Server room setting (combine)	

See the service manual for details on the content of the settings.

NOTES
1. Settings are done in a batch for the group. For this reason, when performing group control# using the remote controller from one unit to set individual outdoor units, set each unit separately (for each connected indoor unit no.) using the mode number in parentheses. Checking after changing settings can also only be done using the mode numbers in parentheses. (For group batch control, the display will always read '01' even though the settings have been changed.) Furthermore, when performing control with two remote controllers$, field settings using a remote controller can only be done using the main remote controller.
For details on controlling the units using the remote controllers, see applicable service manual.
2. Do not set any values not shown in the table above.

⚠CAUTION

- For settings other than the above, refer to the caution label (attached to the back side of the front plate) or the service manual.
- Low night noise operation and demand operation using an external command requires a demand adapter PC board (option). For moredetails, refer to the manual supplied with the adapter.

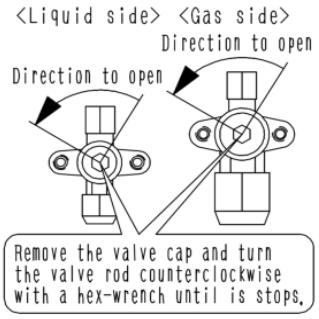
11 TEST OPERATION

⚠WARNING

- Never perform a test operation with the discharge piping thermistor(R2T) and suction piping thermistor(R3T) removed, as this might break the compressor.
- If the technician must leave the outdoor unit for some reason, switch places with another installation technician or close the plates. (It may cause electric shocks.

1 11-1 HOW TO TEST OPERATION

After the indoor and outdoor unit installation, be sure to perform the test operation in accordance with the following procedure.



11-2 MALFUNCTION DIAGNOSIS

During the test operation, if the malfunction code shown below is displayed on the remote controller, an installation work error may be the cause.

Malfunction code	Installation work error	Remedial action
[E3J[E5J[UOJTL8]	Failure to open the stop valves	Open the stop valves.
[E3JTE5JTL4JTL8]	Closed air flow path	Remove any obstacle to the air flow path.
[U1]	Missing phase, negative phase	2 Phase of power supply 3 Phase (L1, L2, L3 Phase) are replaced
[U2]	Unbalanced power	Balance the power/Correct the wiring.
[U4 J[UF]	Improper connection of the transmission wiring	Correct the wiring.
TUA]	Connection of incompatible indoor unit	Connect appropriate indoor unit (refer to the catalogue)
NO INDICATION	Mistake wiring or not connect wiring of power supply, indoor, outdoor, field wiring between indoor unit	To correct wiring or connect correctly

- If the remote controller displays malfunction codes other than those above, the indoor and outdoor units may be damaged. For the malfunction codes, please refer to the indoor unit's installation manual or outdoor service manual.
- The followings can be considered causes when the breaker for power supply trips.
  - The capacity of a breaker for power supply is smaller than the required capacity of the leakage circuit breaker.
  - The leakage circuit breaker is not compatible to the higher harmonic wave.

⚠CAUTION

To plumbing persons
To the electrician

- After the test operation, when handing the unit over to the customer, make surethe piping covers and the all plates are attached.

DAIKIN

OPERATION MANUAL

SPLIT SYSTEM Air Conditioners

MODELS

FVFS71AV16
FVFS100AV16
FVFS140AV16

Thank you for purchasing this product unit.
Carefully read this operation manual to ensure proper operation.
After reading the manual, file it away for future reference.
Furthermore, make certain that this operation manual is handed to a new user when he takes over the operation.
As this operation manual is dedicated for the indoor unit, refer to also the operation manuals attached to the outdoor unit and the remote controller.

■ 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 re-use, 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 of separately in accordance with relevant local and national legislation.

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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: 675

(1)GWP = global warming potential

The refrigerant quantity is indicated on the outdoor unit model name plate.

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, please read this operation manual carefully before use.
This product comes under the term "appliances not accessible to the general public".
(Installation height of the air conditioner should be 2.7 to 3m.)

This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall only be done by service Person.

The appliance is not intended for use by unattended young children or persons who are incompetent to operate air conditioners.
It may result in injury or electric shocks.

- **This manual classifies the precautions into WARNINGS and CAUTIONS. Be sure to follow all the precautions below: They are all important for ensuring safety.**

⚠ **WARNING**..... Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION**..... Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- **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

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

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.

When the air conditioner is malfunctioning (giving off a burning odour, etc.), stop the operation, turn off the 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.

Consult your local dealer regarding modification, repair and maintenance of the air conditioner.
Improper workmanship may result in water leakage, electric shocks or a fire.

Be sure to use fuses with the correct ampere reading.
Do not use improper fuses, copper or other wiring as a substitute, as this may result in electric shocks, a fire, injury or damage to the air conditioner.

Consult your local 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 shocks, or a fire may result.

Start or stop the air conditioner with the remote controller. Never use the power circuit breaker for this purpose.
Otherwise, it may cause a fire or water leakage. Furthermore, if an automatic restart control is provided against power failure and the power is recovered, the fan will rotate suddenly and may cause injury.

Do not use the air conditioner in the atmosphere contaminated with oil vapour, such as cooking oil or machine oil vapour.

Oil vapour may cause crack damage to the air conditioner, electric shocks, or a fire.

Do not use flammable materials (e.g., hairspray or insecticide) near the air conditioner.
Do not clean the air conditioner with organic solvents such as paint thinner.
The use of organic solvents may cause crack damage to the air conditioner, electric shocks, or a fire.

Do not use the air conditioner in places with excessive oily smoke, such as cooking rooms, or in places with flammable gas, corrosive gas, or metal dust.
Using the air conditioner in such places may cause a fire or air conditioner failures.

Beware of a fire in case of refrigerant leakage.
If the air conditioner is not operating correctly, i.e. not generating cool or warm air, refrigerant leakage could be the cause. Consult your local dealer for assistance. The refrigerant used for the air conditioner is safe and normally does not leak. However, if the refrigerant leaks and gets in contact with a naked burner, heater or cooker, it may generate hazardous compounds. Turn off the air conditioner and call your local dealer. Turn on the air conditioner after the qualified service person makes sure to confirm that the leakage is repaired.

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 highspeed fan blades.

Consult your local 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.

Be aware that prolonged, direct exposure to cool or warm air from the air conditioner, or to air that is too cool or too warm can be harmful to your physical condition and health.

Consult your local dealer about installation work.
Doing the work yourself may result in water leakage, electric shocks or a fire.

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 leakage, electric shocks or a fire.

Consult your local dealer regarding relocation and reinstallation of the air conditioner.
Improper installation work may result in leakage, electric shocks or a fire.

Be sure to earth the air conditioner.
Do not earth the air conditioner to a utility piping, lightning conductor or telephone earth lead.
Imperfect earthing may result in electric shocks or a 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 a fire.

Be sure to use a dedicated power supply for the air conditioner.
The use of any other power supply may cause heat generation, a fire, or air conditioner failures.

Consult your local dealer regarding what to do in case of refrigerant leakage.
When the air conditioner is 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.

⚠ CAUTION

Children should be watched so that they do not play with the indoor unit or its remote controller.
Accidental operation by a child may result in injury or electric shocks.

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 let children play on or around the outdoor unit.
If they touch the outdoor unit carelessly, injury may be caused.

Be sure that children, plants or animals are not exposed directly to airflow from the indoor unit, as adverse effects may ensue.

Do not place flammable sprays or operate spray containers near the air conditioner as this may result in a fire.

Do not wash the air conditioner or the remote controller with water, as this may result in electric shocks or fire.

Do not place water containers (flower vases, etc.) on the indoor unit, as this may result in electric shocks or a fire.

Do not put flammable containers, such as spray cans, within 1 m from the air outlet.
The containers may explode because the warm air from the indoor or outdoor unit will affect them.

Turn off the power when the air conditioner is not used for long periods of time.
Otherwise, the air conditioner may get hot or catch on a fire due to dust accumulation.

Do not place objects in direct proximity of the outdoor unit and do not let leaves and other debris accumulate around the outdoor unit.
Leaves are a hotbed for small animals which can enter the outdoor unit. Once in the outdoor unit, such animals can cause malfunctions, smoke or a fire when making contact with electrical parts.

Before cleaning, be sure to stop the air conditioner operation, turn the power circuit breaker off.
Otherwise, an electric shocks and injury may result.

To avoid electric shocks, do not operate with wet hands.

Never touch the internal parts of the remote controller.
Touching certain internal parts will cause electric shocks and damage to the remote controller. Consult your local dealer about checking and adjustment of internal parts.

To avoid oxygen deficiency, ensure that the room is adequately ventilated if equipment such as a burner is used together with the air conditioner.

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.

Do not remove the outdoor unit's outlet side grille. The grille protects against the outdoor unit's high speed fan, which may cause injury.

To avoid injury, do not touch the air inlet or aluminum fins of the air conditioner.

Do not place objects that are susceptible to moisture directly beneath the indoor or outdoor units.
Under certain conditions, condensation on the outdoor unit or refrigerant piping, air filter dirt or drain blockage may cause dripping, resulting in fouling or failure of the object concerned.

Do not place heaters directly below the indoor unit, as resulting heat can cause deformation.

Do not place appliances that produce naked flames in places exposed to the airflow from the air conditioner as this may impair combustion of the burner.

Do not block air inlets nor outlets.
Impaired airflow may result in insufficient performance or trouble.

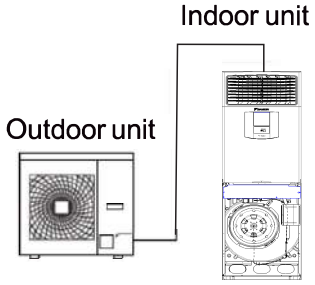
Do not use the air conditioner for purposes other than those for which it is intended.
Do not use the air conditioner for cooling precision instruments, food, plants, animals or works of art as this may adversely affect the performance, quality and/or longevity of the object concerned.

Do not 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 a fire.

Carry out drain piping properly to ensure complete drainage.
If drain piping is not carried out properly, drain will not flow out. Then, dirt and debris may be accumulated in the drain piping and may cause water leakage. If it occurs, stop the air conditioner and call your local dealer for assistance.

2. WHAT TO DO BEFORE OPERATION

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



(*1) With an installed sensor kit (optional accessory)

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 [°C]

OUTDOOR UNIT	INDOOR			OUTDOOR	
	TEMPERATURE		HUMIDITY	TEMPERATURE	
FVFS71AV16 FVFS100AV16 FVFS140AV16	DB	19 to 35	80%* or below	DB	21 to 52
	WB	14 to 24			

* To avoid condensation and water dripping out the indoor unit. DB: Dry bulb temperature
WB: Wet bulb temperature
The setting temperature range of the remote controller is as follows.
Cooling operation: 16 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 outdoor 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

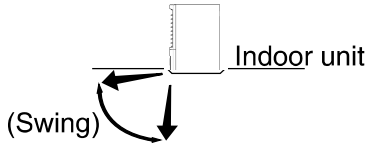
- **CHARACTERISTICS OF THE COOLING OPERATION (COOLING OPERATION AND AUTOMATIC COOLING OPERATION)**
- When operating continuously at downward airflow direction, air blows in the automatically set direction for a period of time to prevent condensation on the horizontal blade. (The remote controller displays the airflow direction that is set.)
- 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

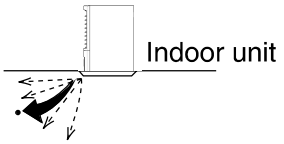
- This operation lowers the humidity without lowering the indoor temperature. The indoor temperature when the operation button is pressed will be the set temperature. At this time, the fan speed and temperature are set automatically, so the remote controller does not display the fan speed and set temperature.
  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.
- If the PROGRAM DRY OPERATION is used when the indoor temperature is low, frost forms the heat exchanger of the indoor unit. In this case, the air conditioner automatically switches to the DEFROST OPERATION for a while.
  The low fan speed or a gentle wind is used to prevent the discharge of melt water.

■ AIRFLOW DIRECTION ADJUST

Swing (Up- Down)
Airflow direction swing up and down.



Swing (Left-right)
Airflow direction can be controlled at 5 different setting.



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 8). (*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 8). (*2)
- 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.

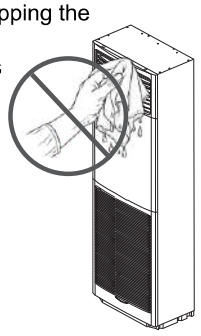
8.MAINTENANCE (FOR SERVICE PERSONNEL)

! Warning

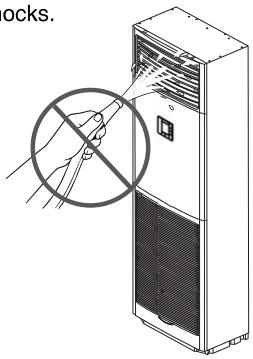
- Only the professional service person can perform maintenance work.
- Turn off all power supply before contacting with the wiring devices.
- Do not use flammable materials (e.g., hairspray or insecticide) near the product.
- Do not clean the product with organic solvents such as paint thinner. Using the organic solvents may result in cracks, electric shocks or fire hazards.
- Ask the technical expertise to install the optional accessories.
- Be use to use the specified accessories by Daikin. Improper installation by yourself may result in water leakage, electric shocks and fire hazards.

⚠ CAUTION

- Only proceed with the unit cleaning after stopping the operation and turning the power supply off.
  Failure to do so may result in electric shocks or personal injury.



- Don't wash the air conditioner with water.
  Failure to do so may result in electric shocks.



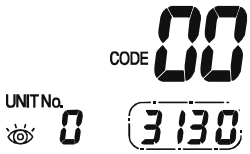
- Use stable stand.
  Pay special caution when cleaning the air conditioner.

9. HOW TO CHECK THE INITIAL SET VALUE

Further question regarding to the available functions, contact your local dealer with your initial setting value confirmed by using the remote controller with the following steps.



Press the INSPECTION button to select the inspection mode "👁".



The initial set value

Press the (👁) button 2 times to return to normal operation mode.

For installation

1. SAFETY PRECAUTIONS

Please read these "SAFETY PRECAUTIONS" carefully before installing air conditioning equipment and be sure to install it correctly.

This manual classifies the precautions into WARNINGS and CAUTIONS.
Be sure to follow all the precautions below.
They are all important for ensuring safety.

⚠ **WARNING** ..... Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION** ..... Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
It may also be used to alert against unsafe practices.

After the installation is completed, test the air conditioner and check if the air conditioner operates properly. Give the user adequate instructions concerning the use and cleaning of the indoor unit according to the operation manual. Ask the user to keep this manual in a handy place for future reference.

⚠ WARNING

- **Make sure to turn off the power supply before starting the installation.**
- **Due to high voltage, do not open control box lid for ten minutes after the safety breaker is switched off.**
- **Do not touch live parts when carrying out this work.**

⚠ CAUTION

- **Refer also to the installation manual attached**
- **Confirm that following conditions are satisfied prior to installation.**
  - **Ensure that nothing interrupts the operation of the wireless remote controller. (Ensure that there is neither a source of light nor fluorescent lamp near the receiver. Also, ensure that the receiver is not exposed of direct sunlight.)**
  - **Ensure that the operation indicator lamp and other indicators are easy to see.**
- **The wireless remote controller kit is not intended for use in a potentially explosive atmosphere.**

2-2 NOTE TO THE INSTALLER

- Have the customer actually operate the system while looking at the operation manual.
  Instruct the customer how to operate the system.

3. REMOTE CONTROLLER INSTALLATION

<Installing wireless remote controller>

- Do not throw the remote controller or impose large shocks. Also, do not store where it may be exposed to moisture or direct sunlight.
- When operating, point the transmitting part of the remote controller in the direction of the receiver.
- The maximum transmitting distance is around 7m. This depends on the installation condition of the indoor unit.
- The signal cannot be transmitted if something such as curtains blocks the receiver and the remote controller.
- **Loading the batteries**
  1. Slide the back cover and remove it.
  2. Insert the dry cell battery AAA. LR03 (alkaline) (2). Properly insert, set the batteries by matching the (+) and (–) polarity marks as indicated.
  3. Insert the back cover again.

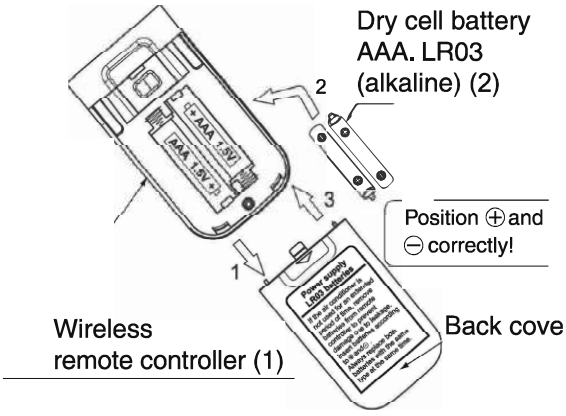


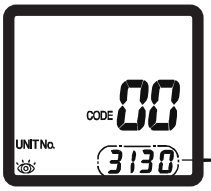
Fig. 1

4. INITIAL SETTING

Available functions on this remote controllers are differ according to the indoor unit type applied. Refer to the installation manual attached to the Wireless Receiver Kit and conduct initial setting according to the combination of the indoor unit.

<HOW TO CHECK THE INITIAL SET VALUE>

(1) Press the ( ) button to select the the inspection mode "".

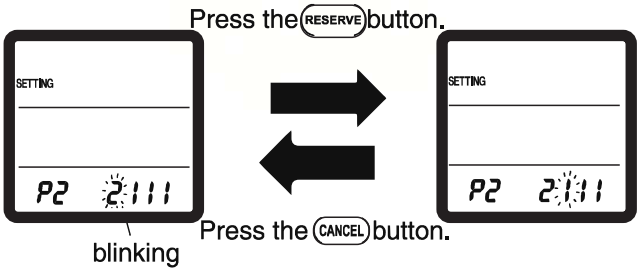


The initial set value

(2) Press the ( ) button 2 times to return to normal operation mode.

<HOW TO SET THE INITIAL SET VALUE>

1. Change the set value: Press the (TEMP) button change the blinking digit.
2. Determine the set value: Press the (RESERVE) button to determine the blinking digit and move to the right digit.
   Press the (CANCEL) button to move to the left digit.



3) The initial set value is determined when the digit at the far right is determined. Then become to normal mode display.

If the current initial setting needs to be re-set, insert the battery while pressing the



lower button and the (MODE) button.

After a few seconds of pressing, the initial setting indication is displayed.

10.AFTER-SALES SERVICE AND GUARANTEE REPAIR

Warning

- Ask the professional service person to make repairs. Improper repairs may result in water leakage, electric shocks and fire hazards.
  Always ask the professional service person for removing and reinstalling.
- Improper installation may result in water leakage, electric shocks and fire hazards.
- The refrigerant within the air conditioner is safe.
- Generally, it is unlikely to leak. However, in case of a refrigerant leakage in the rooms, it may generate harmful gas if in contact with the fire of a warmer, stove and furnace.
- After completing refrigerant leakage repair work, don't operate the air conditioner until a service person confirms that the leakage has been repaired.
- When calling for repair, inform your dealer of the details as follows:
  - Model name
  - Serial number and installation date
  - Malfunction - details (Malfunction code displayed on the remote controller.)
  - Your name, address and telephone number
- When the warranty term is expired
  Contact the dealer and if able to repair, pay service will be available.
- Minimum storage period of key components and parts Daikin will have the key components and parts in stock for 9 years at least after discontinuing the production of this type of air conditioner.
  The key components and parts mean parts essential for the operation of air conditioner.
- Maintenance and inspection
  After years of operation, accumulated dust will more or less impairs the unit's performance.
  We advise you to enter a maintenance and inspection contract (pay service) in addition to a normal maintenance performed by yourself. For details about the professional service, contact your dealer.
- Where to call
  For after-sales service, etc., consult with your dealer.
- Recover the refrigerant first before unit's discard, transport, reset and maintenance. The unit to be discarded should be handled by the recycle with qualification of dealing with the wasted electrical appliance and electronic products.
- For each homogeneous material of the air conditioner, contents of the lead, mercury, hexavalent chromium, PBB and PBDE are lower than 0.1 % (mass fraction), and content of the cadmium is lower than 0.01 % (mass fraction).

11. 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 air conditioner does not start when the display shows " ⛔ " and it flashes for few seconds after pressing an operation button.**
  This is because the air conditioner is under centralized control.
  Flashes on the display indicates that the air conditioner cannot be controlled by the remote controller.

- **HEATING OPERATION within 6 hours after the power is supplied to the air conditioner.**
  Some models perform the following operation to protect the devices.
  If the HEATING OPERATION is performed within 6 hours after the power is supplied to the air conditioner, the indoor fan stops for about 10 minutes during the outdoor unit operation to protect the devices.

  The above operation is performed not only at the time of installation, but every time the power circuit breaker is turned off/on.
  For comfortable use, do not turn off the power circuit breaker during seasonal use of the HEATING OPERATION.
- **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
  (AUTOMATIC COOLING OPERATION):
  Lower the set temperature.
  HEATING OPERATION
  (AUTOMATIC HEATING OPERATION):
  Raise the set temperature.
  The operation starts after a while when the air conditioner is in normal condition.
- **The remote controller displays " ", and airflow stops.**
  This is because the air conditioner automatically switches to the DEFROST OPERATION to prevent a decrease in heating capacity when frost on the outdoor unit increases.
  After maximum 10 minutes, the air conditioner returns to its original operation.

2. THE OPERATION SOMETIMES STOPS

- **The remote controller displays "U4" and "U5", and the operation stops. However, it will restart in a few minutes.**
  This is because communication between the indoor and outdoor units or indoor units and remote controllers is shut off and stops the operation due to noise caused by devices other than the air conditioner.
  When the electrical noise decreases, the air conditioner automatically restarts.

3. 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.
  During the DEFROST OPERATION (HEATING OPERATION), the wind from the air conditioner stops to prevent air discharge directly toward your body.
  After a while, the fan speed can be changed.
  (The fan speed cannot be set for the PROGRAM DRY OPERATION.)
  When the room temperature reaches the set temperature during the HEATING OPERATION, the outdoor unit stops and the indoor unit goes into gentle wind
  t takes some time until the fan speed changes. Raise the set temperature. After a while, the fan speed changes.

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.

- **When the air conditioner is changed over to the HEATING OPERATION after the DEFROST OPERATION and in the DEFROST OPERATION.**
  Moisture generated by defrost becomes steam and will float around.
  When the remote controller display shows " ", DEFROST OPERATION is being used.

5. **NOISE OF AIR CONDITIONERS**
   - **A low continuous flow "Shuh" sound which is heard when the air conditioner is in the COOLING or DEFROST OPERATION or a trickling sound which is heard when the air conditioner is in the DEFROST OPERATION.**
     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 or which is heard at the start or immediately after the stop of the DEFROST OPERATION.**
     This is the noise of refrigerant caused by flow stop and flow change.
     During the HEATING OPERATION, the air conditioner switches to the DEFROST OPERATION automatically.
     The remote controller shows " ".
     After maximum 10 minutes, the air conditioner returns to its original operation.
   - **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.

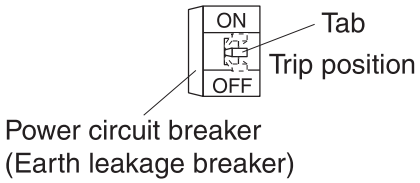
7. **THE INDOOR UNITS GIVE OFF ODOURS**
   - **During operation**
     The unit absorbs the smell of rooms, furniture, cigarettes, etc., and then emits them.
     If odour is a concern, you can set to zero fan speed when the indoor temperature reaches the set temperature.
     For details, contact your 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 7.)
   - **Read through characteristics of the COOLING OPERATION, characteristics of the HEATING OPERATION, and characteristics of the PROGRAM DRY OPERATION on page 7.**

12. 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.
   - 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.
   - 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 8.)

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

- Check if the air inlet or outlet of outdoor or indoor unit is blocked by obstacles.
  Remove the obstacle and make it well-ventilated.
  Obstacles decrease the fan speed, and cause performance decrease and breakage when discharged air is suctioned.
  They cause a waste of electricity, and 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 8.)
- Check if the set temperature is not proper.
  Set to an appropriate temperature and fan speed.
- Check if the FAN SPEED button is set to LOW SPEED.
  Set to an appropriate temperature and fan speed.
- Check if the doors or the windows are open.
  Shut doors or windows to prevent wind from coming in.
- Check if direct sunlight enters the room (when cooling).
  Use curtains or blinds.
- When there are too many inhabitants in the room (when cooling).
- Check if the heat source of the room is excessive (when cooling).

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 malfunctions 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 odour, 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 appear on the Basic screen on the wired remote controller during operation.

  “Error: Push Menu button.”
  (* The Operation lamp will blink.)
  “Warning: Push Menu button.”
  (* The Operation lamp will not blink.)
- Press Menu/Enter button.
  The Malfunction (Error) code blinks.
  For more information, refer to the operation manual attached to the remote controller.

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

DAIKIN AIRCONDITIONING INDIA PVT. LTD.

210, 1st FLOOR, OKHLA INDUSTRIAL AREA, PHASE 3, DELHI-110020

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 or 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	✘

Customer Contact Center : 011-4031 9300/1860-180-3900
For further Information visit us at www.daikinindia.com

⚠ CAUTION

1. DO NOT BAZE INSIDE THE UNIT.

SINCE THE BOTTOM PLATE AND THE FAN HOUSING ARE MADE OF RESIN AND EPS, THEY MAY MELT OR CAUSE FIRE BY SPATTER.

*WHEN INTERNAL BRAZING IS REQUIRED, MAKE SURE TO PROTECT THE BOTTOM PLATE AND THE FAN HOUSING WITH PROTECTION SHEET.

2. BE CAREFUL NOT TO DAMAGE FAN HOUSING WHEN PIPING.

FAN HOUSING IS MADE OF EPS FOR LIGHT WEIGHT.

<FOR DOWNWARD PIPING>

IN CASE OF DOWNWARD PIPING, BE CAREFULL NOT YTO DAMAGE THE FAN HOUSING WITH PIPE EDGE WHEN INSTALLING INDOOR UNIT.

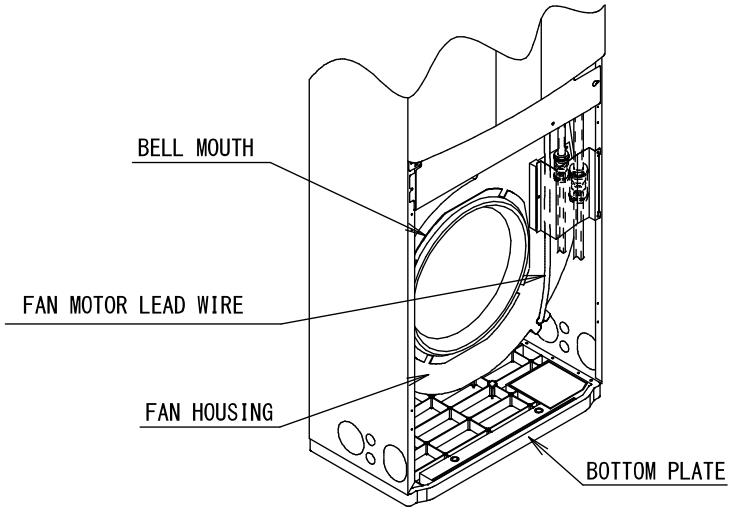
IF NECESSARY, USE A PART OF THE PACKING MATERIAL AND PROTECT FAN HOUSING.

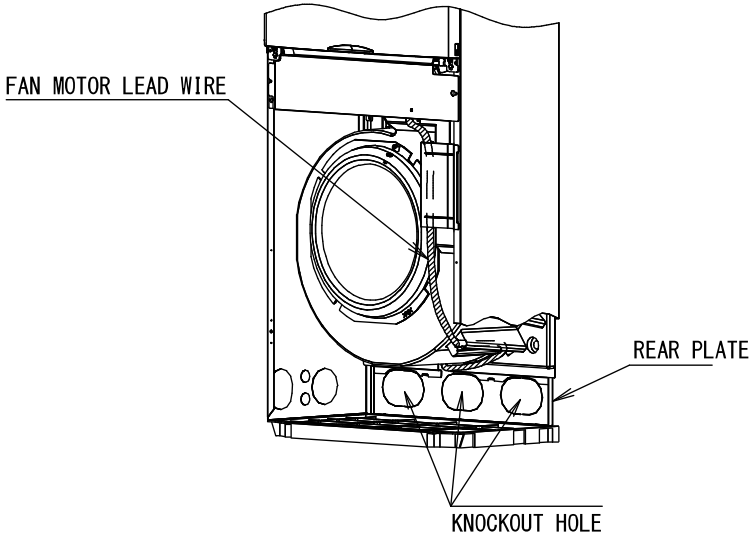
3. MAKE SURE THE PIPING DO NOT TOUCH THE SUCTION GRILL.

IF THE DRAIN AND REFERIGERANT PIPING TOUCH THE SUCTION GRILL, IT OBSTRUCTS TO OPEN AND SHUT THE SUCTION GRILL.

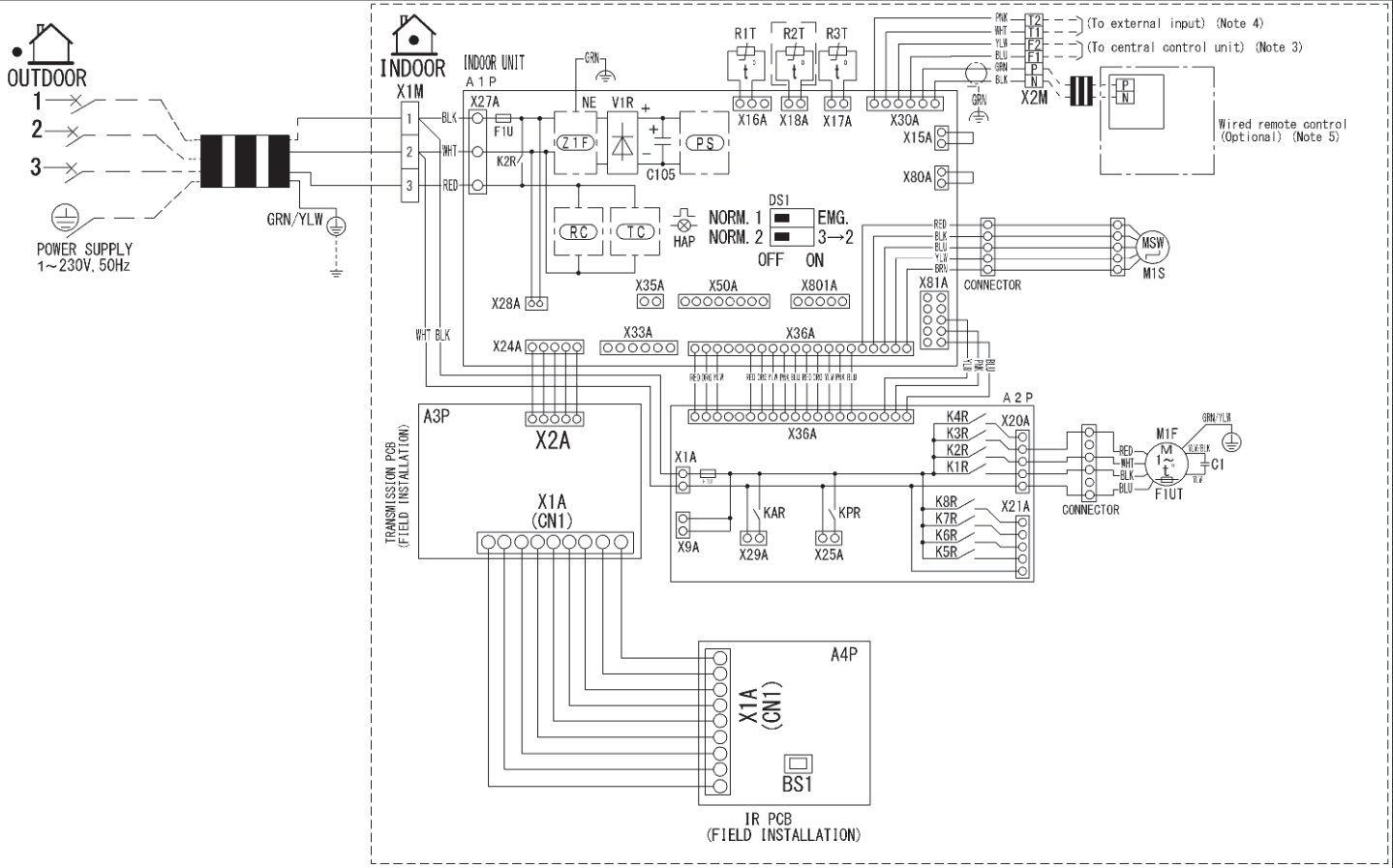
4. IN CASE OF REAR SIDE PIPING, BE CAREFUL NOT TO DAMAGE FAN MOTOR LEAD WIRE.

WHEN OPENING THE KNOCKOUT HOLE, BE CAREFUL NOT TO DAMAGE FAN MOTOR LEAD WIRE WITH THE STEEL PLATE CUT OFF.





WIRING DIAGRAM



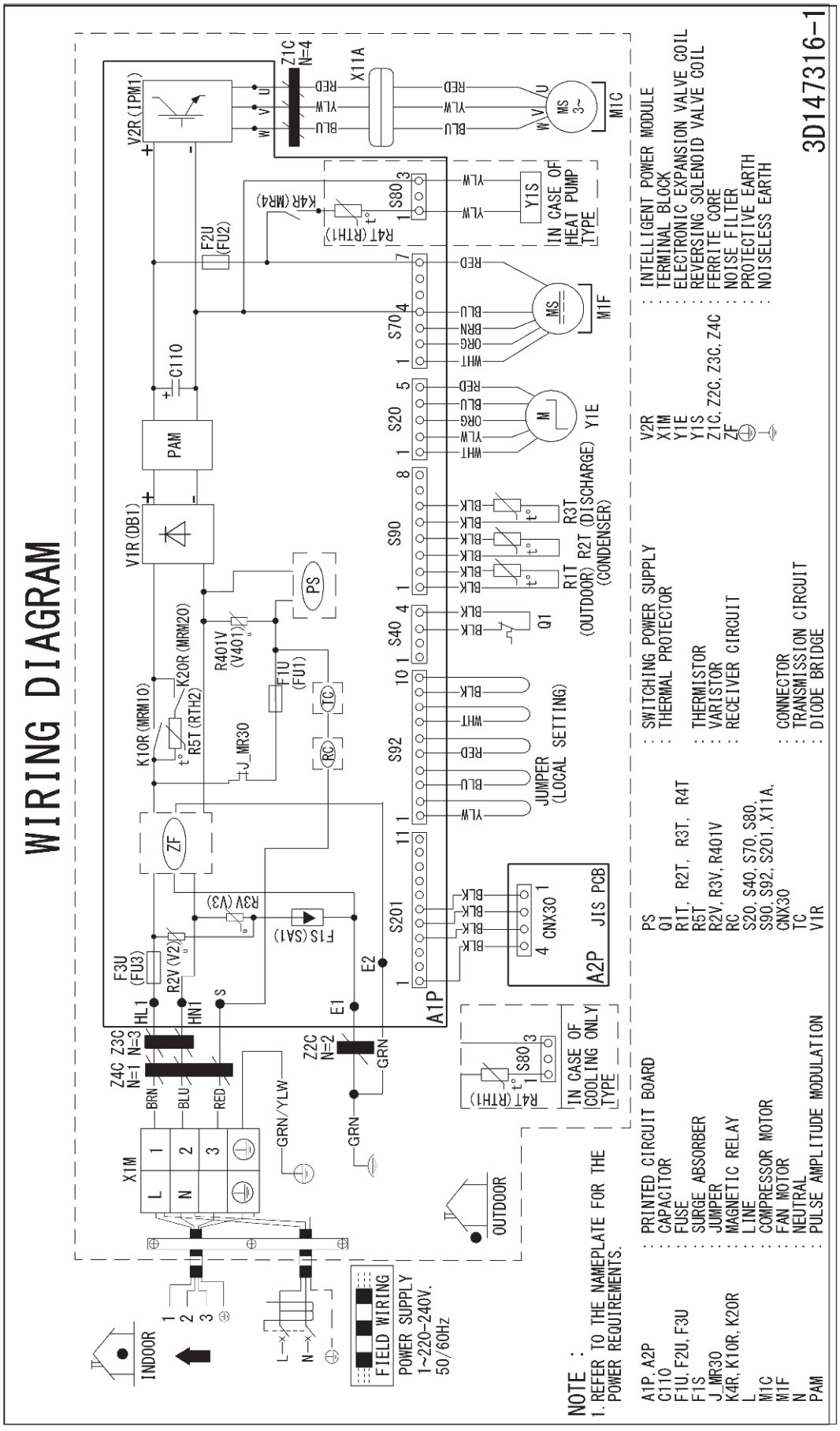
3D161858-1

CAUTIONS 〈 CONCERNING HANDLING OF HIGH VOLTAGE PARTS 〉

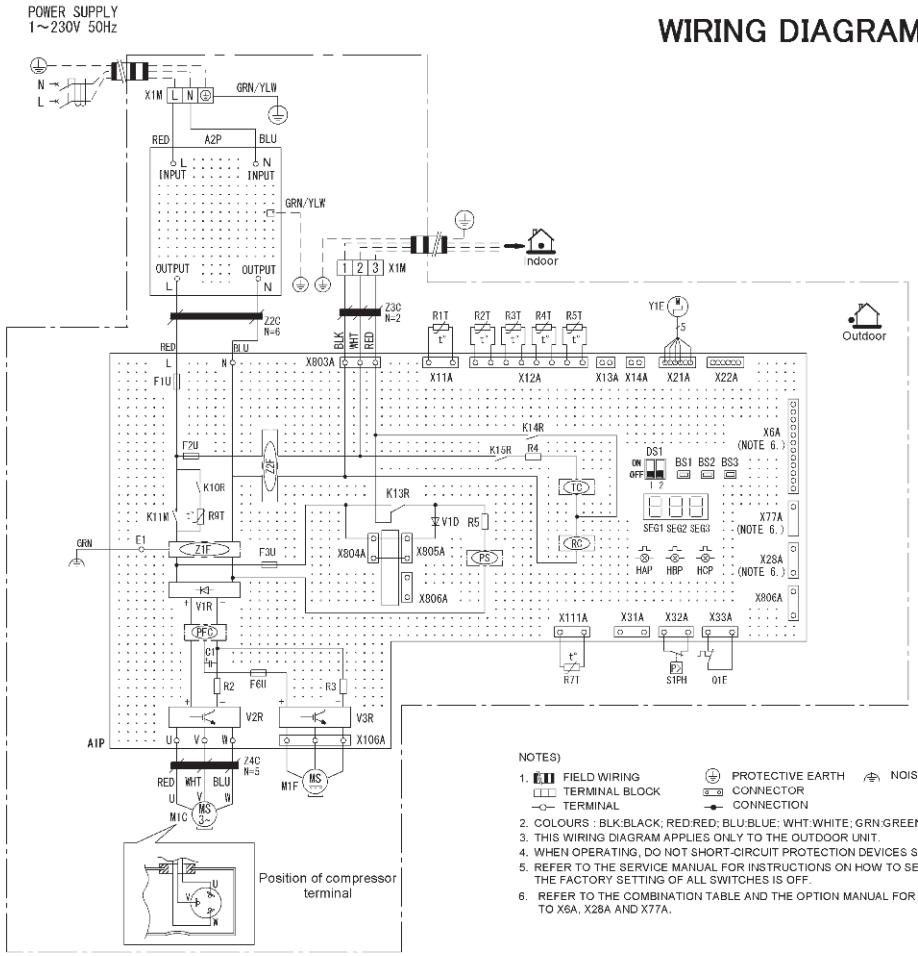
DO NOT TOUCH THE CHARGED PARTS FOR 10 MINUTES AFTER THE SAFETY BREAKER IS TURNED OFF, BECAUSE OF THE DANGER OF HIGH VOLTAGE

3P366378-21X

RZFS71AV16


WIRING DIAGRAM
3D147316-1
NOTE :
1.REFER TO THE NAMEPLATE FOR THE POWER REQUIREMENTS.
A1P,A2P : PRINTED CIRCUIT BOARD
C110 : CAPACITOR
F1U,F2U,F3U : FUSE
F1S : SURGE ABSORBER
J_MR30 : JUMPER
K4R,K1OR,K2OR : MAGNETIC RELAY
L : LINE
M1C : COMPRESSOR MOTOR
M1F : FAN MOTOR
N : NEUTRAL
PAM : PULSE AMPLITUDE MODULATION
PS : SWITCHING POWER SUPPLY
Q1 : THERMAL PROTECTOR
R1T, R2T, R3T, R4T : THERMISTOR
R5T : THERMISTOR
R2V, R3V, R401V : VARISTOR
RC : RECEIVER CIRCUIT
S20, S40, S70, S80, S90, S92, S201, X11A, CNX30 : CONNECTOR
TC : TRANSMISSION CIRCUIT
V1R : DIODE BRIDGE
V2R : INTELLIGENT POWER MODULE
X1M : TERMINAL BLOCK
Y1E : ELECTRONIC EXPANSION VALVE COIL
Y1S : REVERSING SOLENOID VALVE COIL
Z1C, Z2C, Z3C, Z4C : FERRITE CORE
ZF : NOISE FILTER
PROTECTIVE EARTH
NOISELESS EARTH
INDOOR
FIELD WIRING
POWER SUPPLY 1~220-240V, 50/60Hz
OUTDOOR
IN CASE OF COOLING ONLY TYPE
IN CASE OF HEAT PUMP TYPE
JUMPER (LOCAL SETTING)
A2P JIS PCB
R1T (OUTDOOR) R2T (CONDENSER) R3T (DISCHARGE)
CAUTIONS
CONCERNING HANDLING OF HIGH VOLTAGE PARTS
DO NOT TOUCH THE CHARGED PARTS FOR 10 MINUTES
AFTER THE SAFETY BREAKER IS TURNED OFF,
BECAUSE OF THE DANGER OF HIGH VOLTAGE
3P699384-3D

WIRING DIAGRAM



NOTES)

1. FIELD WIRING / TERMINAL BLOCK / TERMINAL — PROTECTIVE EARTH / CONNECTOR / CONNECTION — NOISELESS EARTH
2. COLOURS : BLK:BLACK; RED:RED; BLU:BLUE; WHT:WHITE; GRN:GREEN; YLW:YELLOW.
3. THIS WIRING DIAGRAM APPLIES ONLY TO THE OUTDOOR UNIT.
4. WHEN OPERATING, DO NOT SHORT-CIRCUIT PROTECTION DEVICES S1PH, Q1E.
5. REFER TO THE SERVICE MANUAL FOR INSTRUCTIONS ON HOW TO SET THE SELECTOR SWITCHES (DS1). THE FACTORY SETTING OF ALL SWITCHES IS OFF.
6. REFER TO THE COMBINATION TABLE AND THE OPTION MANUAL FOR HOW TO CONNECT THE WIRING TO X6A, X28A AND X77A.

A1P	PRINTED CIRCUIT BOARD (MAIN)
A2P	PRINTED CIRCUIT BOARD (OVER VOLTAGE PCB)
BS1 ~ BS3	PUSH-BUTTON SWITCH ON PCB
C1	CAPACITOR
DS1	SLIDE SWITCH ON PCB
F1U	FUSE (T, 31.5A, 250V)
F2U	FUSE (T, 6.3A, 250V)
F3U	FUSE (T, 6.3A, 250V)
F6U	FUSE (T, 5A, 250V)
HAP, HBP, HCP	FLASHING LAMP
K11M	MAGNETIC CONTACTOR
K10R, K13R ~ K15R	MAGNETIC RELAY
M1C	COMPRESSOR MOTOR
M1F	FAN MOTOR
PS	SWITCHING POWER SUPPLY
R2~R5	RESISTOR
R1T	THERMISTOR (AIR)
R2T	THERMISTOR (DISCHARGE)
R3T	THERMISTOR (SUCTION)
R4T	THERMISTOR (LIQUID)
R5T	THERMISTOR (HEAT EXCHANGER MIDDLE)
R7T	THERMISTOR (POWER MODULE)
R9T	THERMISTOR (PTC)
RC	RECEIVER
TC	TRANSMITTER
S1PH	HIGH PRESSURE SWITCH (4.15 MPa.)
Q1E	SELF-OPERATING THERMAL PROTECTOR
V1D	DIODE
V1R	DIODE BRIDGE
V2R~V3R	IGBT POWER MODULE
X1M	TERMINAL BLOCK
Y1E	ELECTRONIC EXPANSION VALVE
Z1C ~ Z4C	FERRITE CORE
Z1F ~ Z2F	NOISE FILTER
PFC	POWER FACTOR CORRECTION

ELECTRONIC COMPONENT ASSEMBLY POSITION OF ELEMENTS

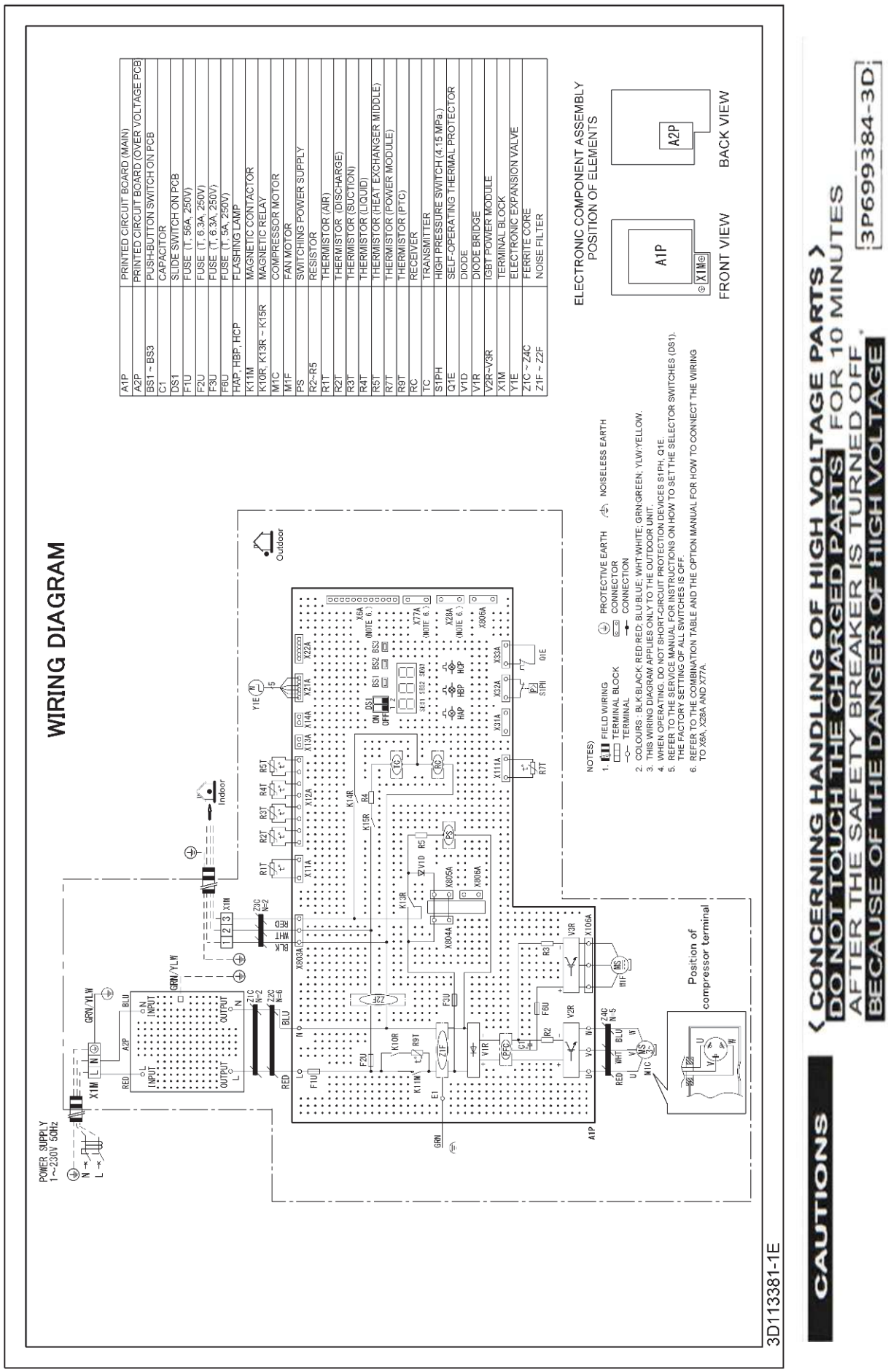


FRONT VIEW BACK VIEW

3D113398-1E

CAUTIONS 〈 CONCERNING HANDLING OF HIGH VOLTAGE PARTS 〉
DO NOT TOUCH THE CHARGED PARTS FOR 10 MINUTES
AFTER THE SAFETY BREAKER IS TURNED OFF,
BECAUSE OF THE DANGER OF HIGH VOLTAGE

3P699384-3D



CAUTIONS

〈 CONCERNING HANDLING OF HIGH VOLTAGE PARTS 〉
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AFTER THE SAFETY BREAKER IS TURNED OFF,
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3P699384-3D

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3P852030-1A