
Air Conditioners

CHILLED WATER CASSETTE

**FCW15ARV16
FCW18ARV16
FCW24ARV16
FCW27ARV16
FCW30ARV16
FCW33ARV16
FCW36ARV16
FCW42ARV16
FCW46ARV16
FCW48ARV16**

English

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

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1. SAFETY PRECAUTIONS

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


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

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

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

Meaning of WARNING and CAUTION notices.

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

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

 **WARNING**

- Ask your dealer or a qualified personnel to carry out installation work.
- Do not attempt to install the Air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the Air conditioner in accordance with the instruction in this installation manual.
- Be sure to use only the specified accessories and parts for installation work.
- Failure to use specified part may result in water leakage, electric shocks or fire.
- Carry out the specified installation work after taking into account of strong winds, typhoons or earthquakes.
- Failure to do so during installation work may result in unit falling and causing accidents.
- Make sure that a separate power supply circuit is provided for this unit and all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
- An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
- Improper connections or securing of wires may result in abnormal heat build-up or fire.

- Be sure to switch off the unit before touching any electrical parts.
- Be sure to earth the air conditioner.
- Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks or fire.
- A high surge current from lightning or other sources may cause damage to the air conditioner. Be sure to install an earth leakage breaker.
- Failure to install an earth leakage breaker may result in electric shocks or fire.
- 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.
- Floor area required for installation of the equipment, read this installation manual thoroughly.

 **CAUTION**

- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate piping to prevent condensation.
- Improper drain piping may result in indoor water leakage and property damage.
- Install the indoor and chiller, power cord and connecting wires at least 1 meter away from televisions or radios to prevent picture interference and noise.
- (Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types). Install the indoor unit as far away from fluorescent lamps as possible.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the chiller unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire.
- Please instruct the customer to keep the area around the unit clean.
- Install in a machine room that is free of moisture. The unit is designed for indoor use.
- Dismantling of the unit, treatment of the oil and of other parts must be done in accordance with relevant local and national legislation.

Do not install the air conditioner in the following locations:

1. Where there is a high concentration of mineral oil spray or vapour (e.g. a kitchen). Plastic parts will deteriorate, parts may fall off and water leakage could result.
2. Where corrosive gas, such as sulphurous acid gas, is produced.
3. Corroding of copper pipes or soldered parts may result in water leakage.
4. Near machinery emitting electromagnetic radiation.
5. Electromagnetic radiation may disturb the operation of the control system and result in a malfunction of the unit.
6. Where flammable gas may leak, where there is carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as paint thinner or gasoline are handled. Operating the unit in such conditions may result in fire.

2. BEFORE INSTALLATION







Do not exert pressure on the resin parts when opening the unit or when moving it after opening.




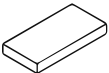





- When opening the unit or moving it after opening, be sure to lift it by holding on to the hanger bracket without exerting any pressure on other parts, especially, drain piping, and other resin parts.
- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching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

2-1. ACCESSORIES

Check the following accessories are included with your unit.

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

Name	(1) Drain hose	(2) Metal clamp	(3) Washer for hanger bracket	(4) Clamp	(5) Paper pattern for installation	(6) Screw (M4)
Quantity	1 pc.	1 pc.	8 pcs.	6 pcs.	1 pc.	4 pcs.
Shape					Upper part of packing 	For paper pattern for installation 

Name	(7) Washer fixing plate	Insulation for fitting	Sealing pad			O-Ring	(Other)
Quantity	4 pcs.	1 each	1 each	1 pc.	1 pc.	2 pcs.	
Shape		(8) For gas pipe  (9) For liquid pipe 	(10) Large  (11) Medium-1  (12) Medium-2 	(13) Small 	(14) 	(15) 	• Installation manual • Operation manual

2-2. OTHER ACCESSORIES

- Decoration panel and wireless remote controller is required for this indoor unit. Refer to **(Table 1)**
- Check that the decoration panel is prepared.

(For the installation of the decoration panel, refer to the installation manual attached to the decoration panel)

Table 1

Unit model	Decoration Panel	Wireless Remote Controller
FCW15, 18, 24, 27, 30, 33, 36, 42, 46, 48 ARV16	BYCQ48EAF6 Color : Fresh White	ARC91A156 Supplied with IDU

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

1. Items to be checked after completion of work

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

2. Items to be checked at time of delivery

* Also review the "1. SAFETY PRECAUTIONS"

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

Points for explanation about operations

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

2-3. NOTE TO THE INSTALLER

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

3. SELECTING INSTALLATION SITE

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

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

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

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

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

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

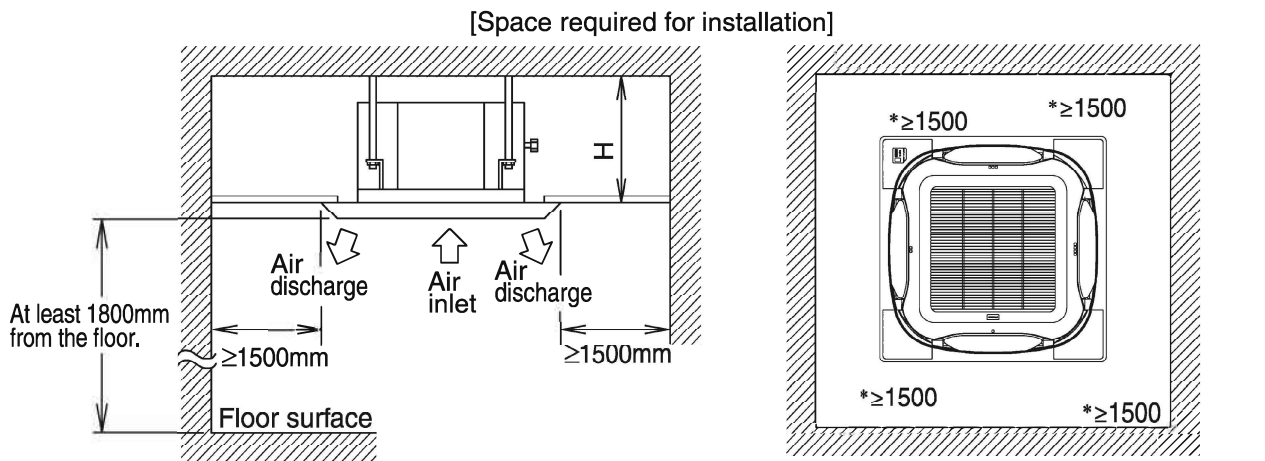


Fig. 1

(unit : mm)

Model	H (mm)
	FCW15, 18, 24, 27, 30 ARV16
FCW33, 36, 42, 46, 48 ARV16	303

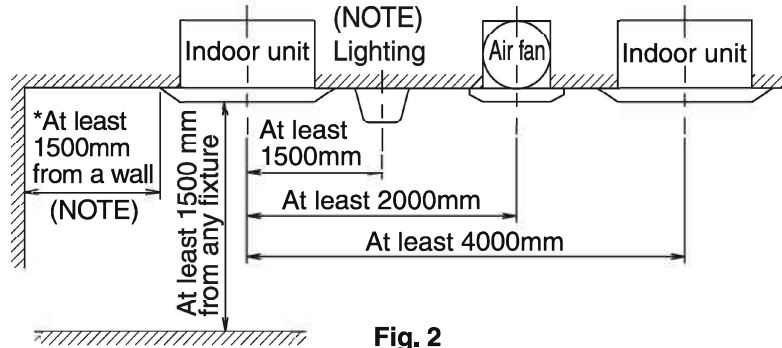


Fig. 2

NOTE

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

CAUTION

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

(2) Ceiling height

This product can be installed in ceilings up to 3.5 m high (4.2 m high for the 33, 36, 42, 46 and 48).

(3) Air direction

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

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

- (4) Use suspension bolts for installation. Check if the location for the installation is strong enough to support the weight of the unit, reinforce it if necessary, and install using suspension bolts. (The spacing of the installation is shown on the “paper pattern for installation (5)”.)

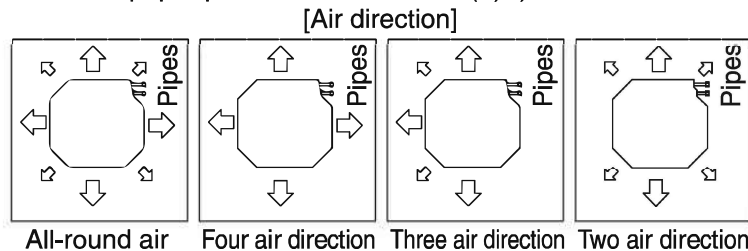
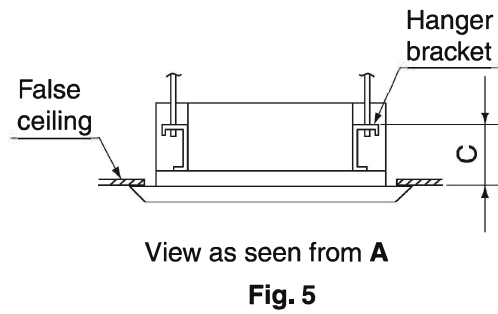
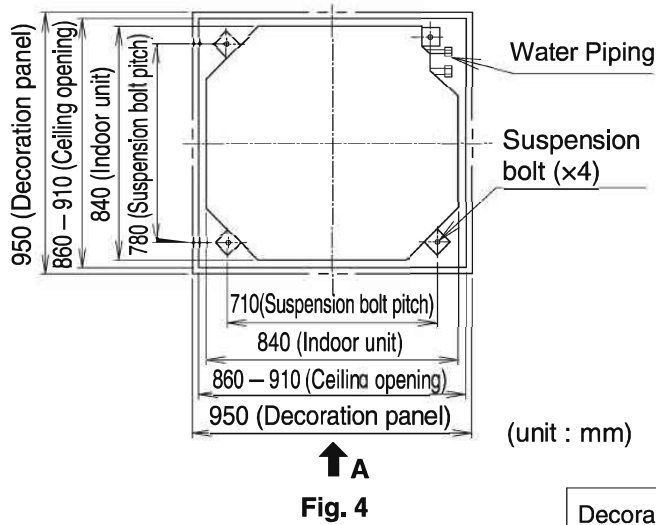


Fig. 3

4. PREPARATIONS BEFORE INSTALLATION

4-1. Relation of ceiling opening to unit and suspension bolt position.

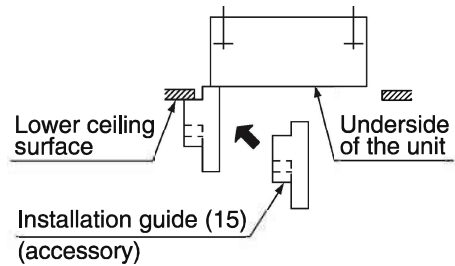


Decoration Panel	BYCQ48EAF6
C (mm)	125~130

■ Use the installation guide (15) (delivered with the unit) for exact vertical positioning of the unit.

Apply the short side of the cut-out section in case of standard grille.

BYCQ48EAF6



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

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

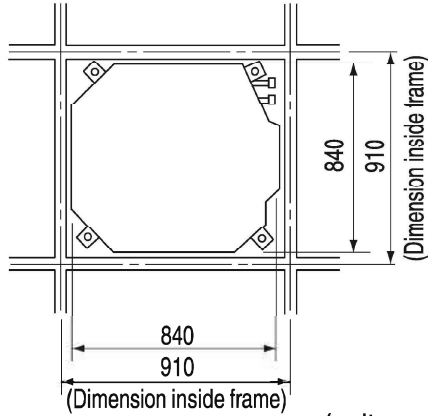


Fig. 6

(unit : mm)

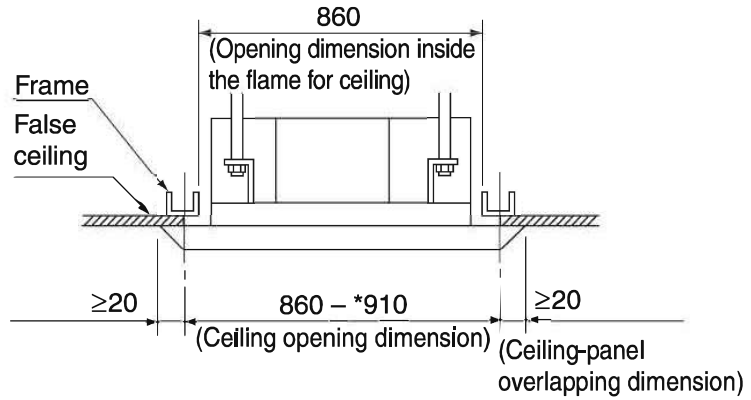


Fig. 7

(unit : mm)

NOTE

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

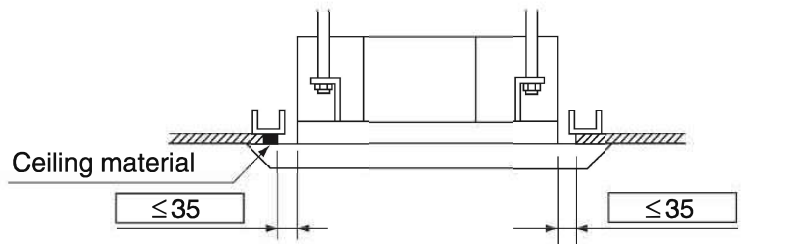


Fig. 8

(unit : mm)

4-2. Make the ceiling opening needed for installation where applicable. (For existing ceilings)

- Refer to the paper pattern for installation (5) for ceiling opening dimensions.
- Create the ceiling opening required for installation. From the side of the opening to the casing outlet, and drain piping and wiring for remote controller (unnecessary for wireless type) and indoor unit casing outlet. Refer to “6. WATER PIPING WORK”, “7. DRAIN PIPING WORK” and “8. ELECTRIC WIRING WORK”.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

4-3. Install the suspension bolts.

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

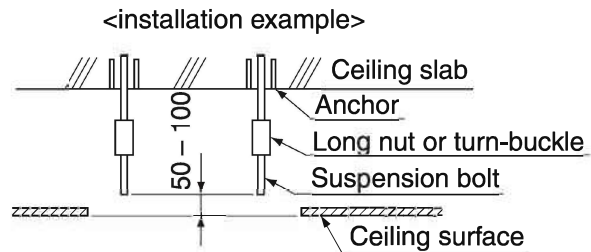


Fig. 9

(unit : mm)

NOTE

- All the above parts are field supplied.

5. INDOOR UNIT INSTALLATION

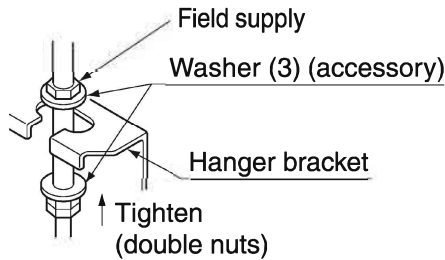
Installing optional accessories (except for the decoration panel) before installing the indoor unit is easier. However, for existing ceilings, install fresh air inlet component kit and branch duct before installing the unit.

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

5.1 FOR NEW CEILINGS

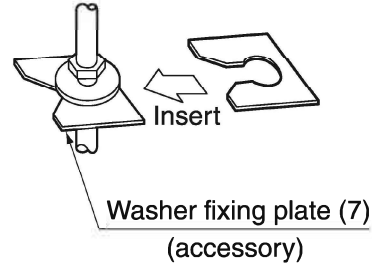
(1-1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer (3) from the upper and lower sides of the hanger bracket. (Refer to Fig.10)
The washer fixing plate (7) will prevent the washer from falling. (Refer to Fig.11)



[Securing the hanger bracket]

Fig. 10



[Securing the washer]

Fig. 11

(1-2) Refer to the paper pattern for installation (5) for ceiling opening dimension.

Consult the builder or carpenter for details.

- The center of the ceiling opening is indicated on the paper pattern for installation.
- The center of the unit is indicated on the triangular mark to the unit bottom and on the paper pattern for installation.
- Fix the paper pattern to the unit with screws (6) (×4).
- Ceiling height is shown on the side of the paper pattern for installation (5). Adjust the height of the unit according to this indication.

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

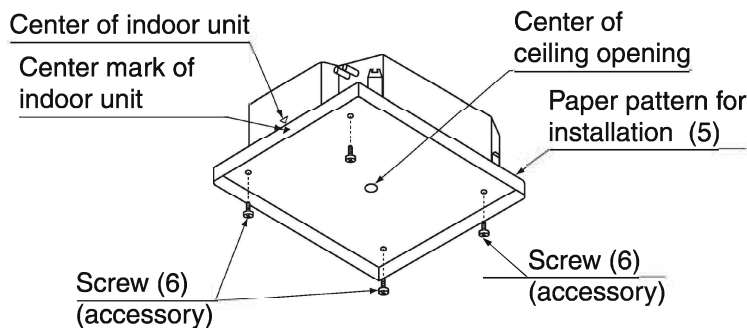


Fig. 12

[Installation of paper pattern for installation]

<Ceiling work>

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

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

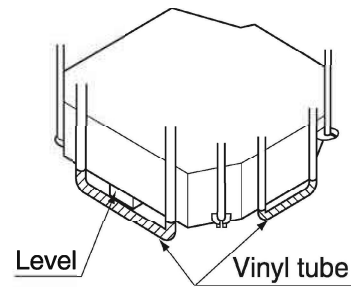
- Using the installation guide, check the positions from the underside of the unit to the lower ceiling surface.

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

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

CAUTION

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



[Maintaining horizontality]

Fig. 13

(1-5) Remove the washer fixing plate (7) used for preventing the washer for hanger (3) from dropping and tighten the upper side nut.

(1-6) Remove the paper pattern for installation (5).

5.2 FOR EXISTING CEILINGS

(2-1) Install the indoor unit temporarily.

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

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

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

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

CAUTION

Install the indoor unit leveled.

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

Attach nuts on the upper and lower side of hanger.

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

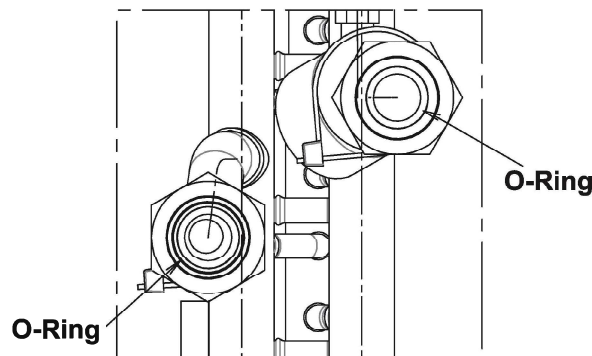
Do not insert material other than that specified into the clearance between the hanger and the washer for hanger (3).

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

WARNING

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

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



6. WATER PIPING WORK

- Carry out insulation of both inlet and outlet water piping securely along with the purge valve. If not insulated, it may cause water leakage. For water outlet piping, use insulation material of which heat resistant temperature is not less than 120°C. For use under high humidity, strengthen the insulation material for water piping. If not strengthened, the surface of insulation material may sweat.
- The indoor unit is equipped with water outlet and inlet connection. There is an air vent that is fitted along with the connection for air purging.
- 3 ways valve is required for cycling off or bypass the chilled water.
- Black steel pipe, polystyrene pipe and copper tube are recommended in the field installation. All types of piping and connection including the purge valve must be insulated with polyetyrene (ARMAFLEX type or equivalent) to avoid condensation.
- Do not use contaminated or damaged pipe and fitting for installation.
- Some main fitting components are needed in the system to enhance the capacity and ease the service, such as gate valve, balancing valve, 2 ways or 3 ways valve, filter, strainer etc.
- During system installation put the O-Ring, provided in the accessory bag, inside the union joint. Refer Fig. 14.

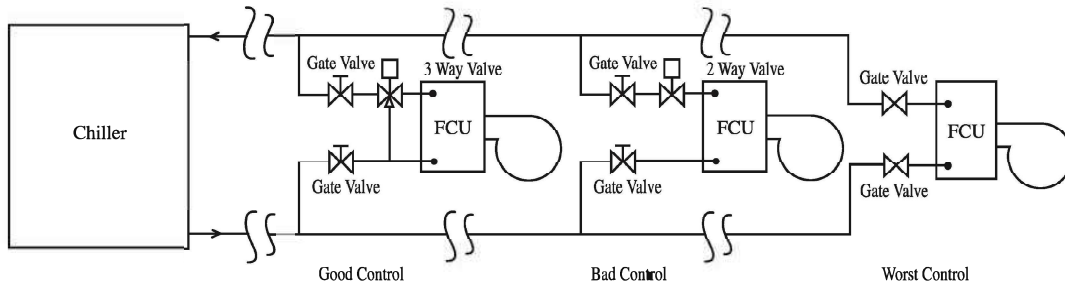


Table 3

Fig. 15

Piping Size (mm)	Tightening Torque (N-m)
15.9mm	26 ± 2.6

7. DRAIN PIPING WORK

(1) Rig drain piping

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

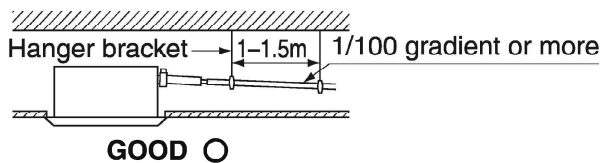


Fig. 16-1

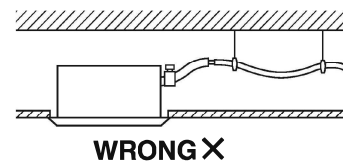


Fig. 16-2

⚠ CAUTION

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

- Use the attached drain hose (1) and Metal clamp (2).
- Insert the drain hose into the drain socket up to the base, and tighten the metal clamp securely within the portion of a white tape of the hose-inserted tip. Tighten the metal clamp until the screw head is less than 4 mm from the hose.
- Wrap the attached sealing pad (10) over the Metal clamp and drain hose to insulate.
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket

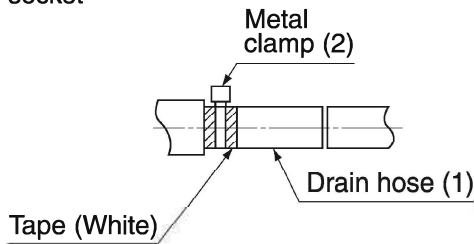


Fig. 17

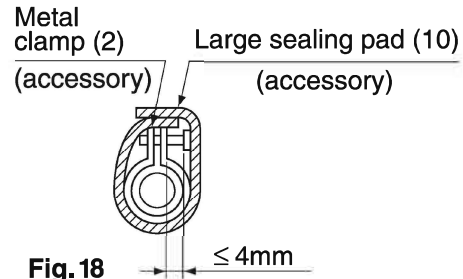


Fig. 18

<PRECAUTIONS FOR DRAIN RAISING PIPING>

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

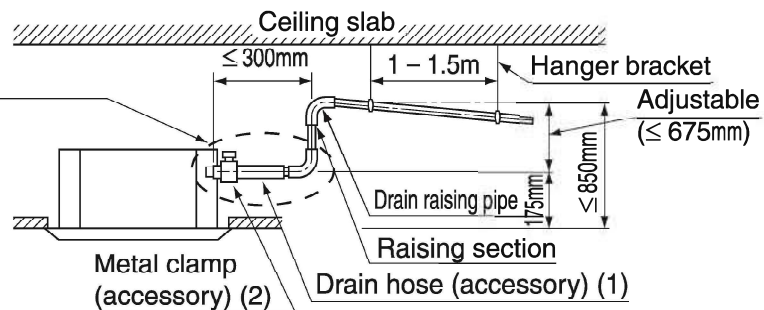
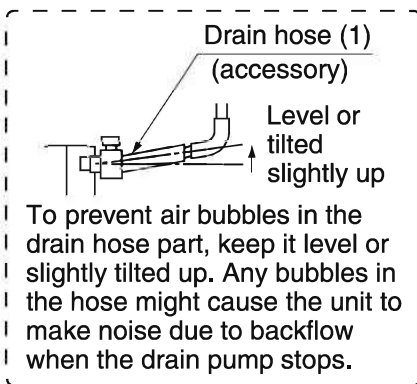


Fig. 19

NOTE

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

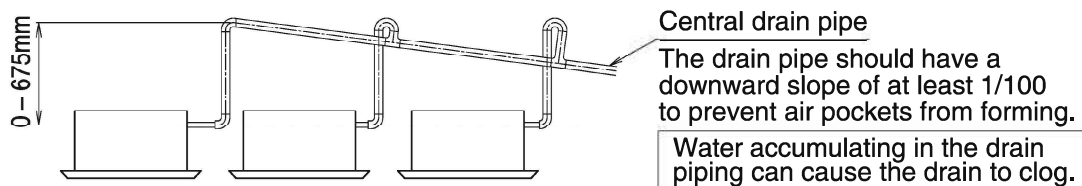


Fig. 20

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

CAUTION

Drain piping connections

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

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

WHEN ELECTRIC WIRING WORK IS FINISHED

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

⚠ CAUTION

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

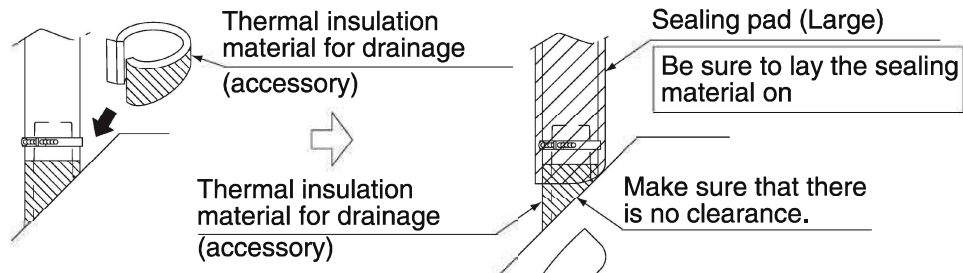


Fig. 21

WHEN ELECTRIC WIRING WORK IS NOT FINISHED

⚠ CAUTION

- Electrical wiring work should be done by a certified electrician.
- If someone who does not have the proper qualifications performs the work, perform the following after the test run is complete.

- Remove the control box lid. Connect the single phase power supply (SINGLE PHASE 230V) to connections No.1 and No.2 on the terminal block for wiring the units. Do not connect to No.3 of the terminal block for wiring the units. (The drain pump will not operate.) Connect the earth wire firmly. When carrying out wiring work around the control box, make sure none of the connectors come undone. Be sure to attach the control box lid before turning on the power.
- Put approximately 1L of water into the drain pan through the blow-off mouth on the left-hand side of the drain socket. Make sure not to pour water over the drain pump or any electric parts including those of the drain pump.
- When the power is turned on, the drain pump will operate and you can check the draining of water through the transparent part of the drain socket. (The drain pump will stop automatically in 10 minutes.) After checking the draining of water, mount the thermal insulation material for drainage and thermal insulate the drain socket.
- After confirming drainage (Fig. 22, Fig. 23), turn off the power and remove the power supply.
- Attach the control box lid as before.

⚠ CAUTION

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

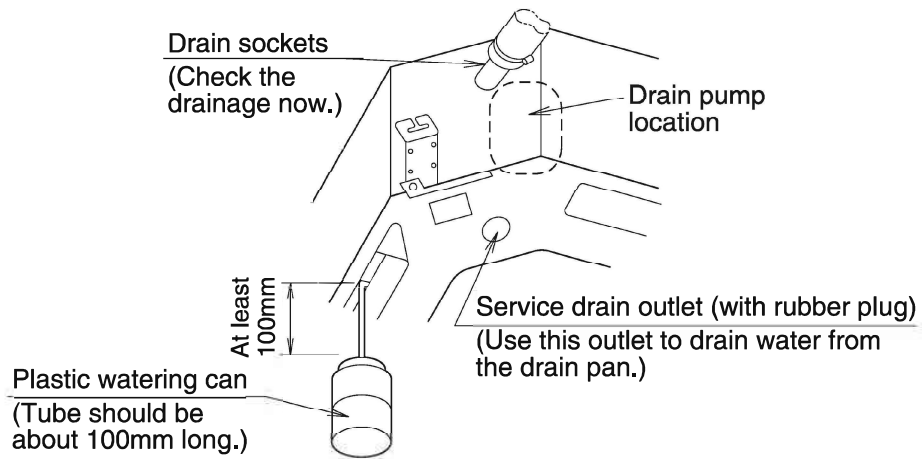


Fig. 22

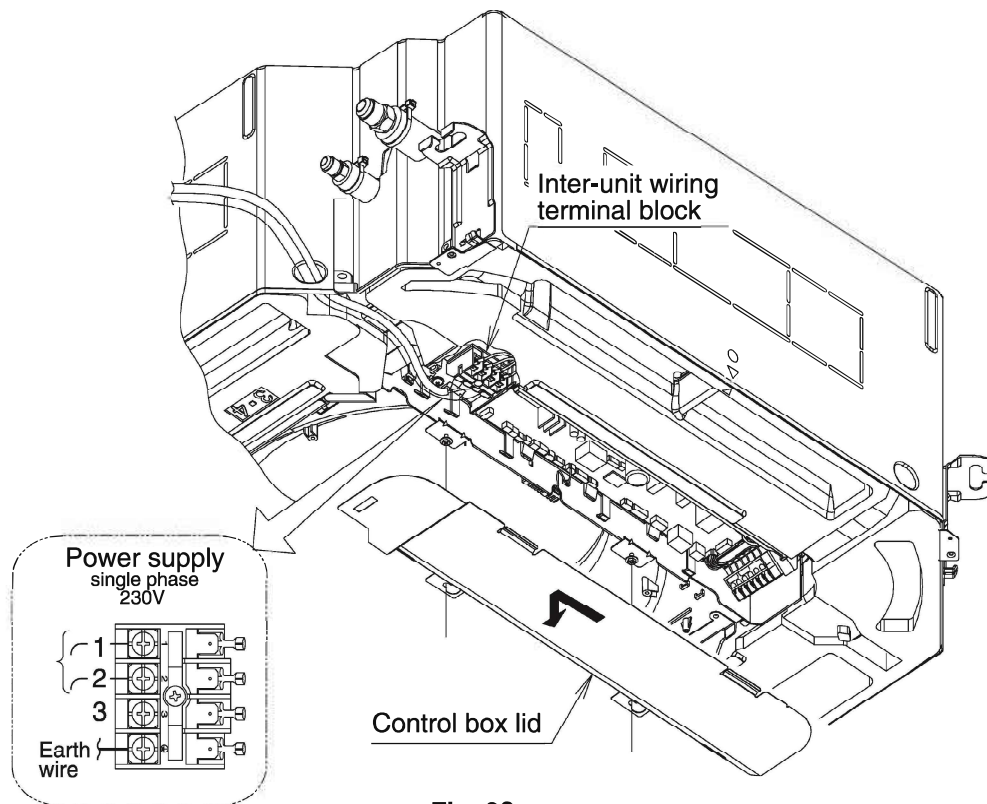


Fig. 23

8. ELECTRIC WIRING WORK

- Electric wiring work must be conducted by electrician authorized by power companies. (Only licensed electrician can conduct electric work and earth connections.)
- All wiring must be performed by an authorized electrician.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.

(This installation of an earth leakage circuit breaker is mandatory for the prevention of electric shocks and fire disasters.)

- Make sure that power supply is 230V
- 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 chiller unit for the size of power supply electric wire connected to the chiller unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Do not connect the earth wire to gas pipes, plumbing pipes, lightning rods, or telephone earth wires.
 - Gas pipes: might cause explosions or fire if gas leaks.
 - Plumbing pipes: no earth effect if hard vinyl piping is used.
 - Telephone earth wires or lightning rods: might cause abnormally high electric potential in the earth during lightning storms.
- For electric wiring work, refer to also "WIRING DIAGRAM" attached to the control box lid.
- Never connect the power supply wire to the terminal block for remote controller wire, or otherwise the entire system may be damaged.
- Do not touch the printed circuit board ASSY during the wiring work. Otherwise, it may cause damage.

NOTE

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

Connection of wiring between units, earth wire

- Wiring the units and earth wire

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



CAUTION

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

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

[Processing method of wiring through hole]

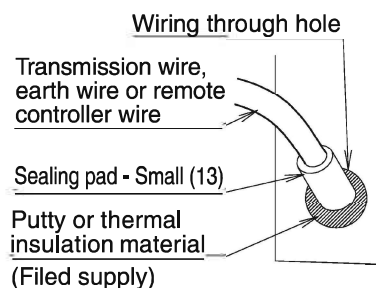


Fig. 24

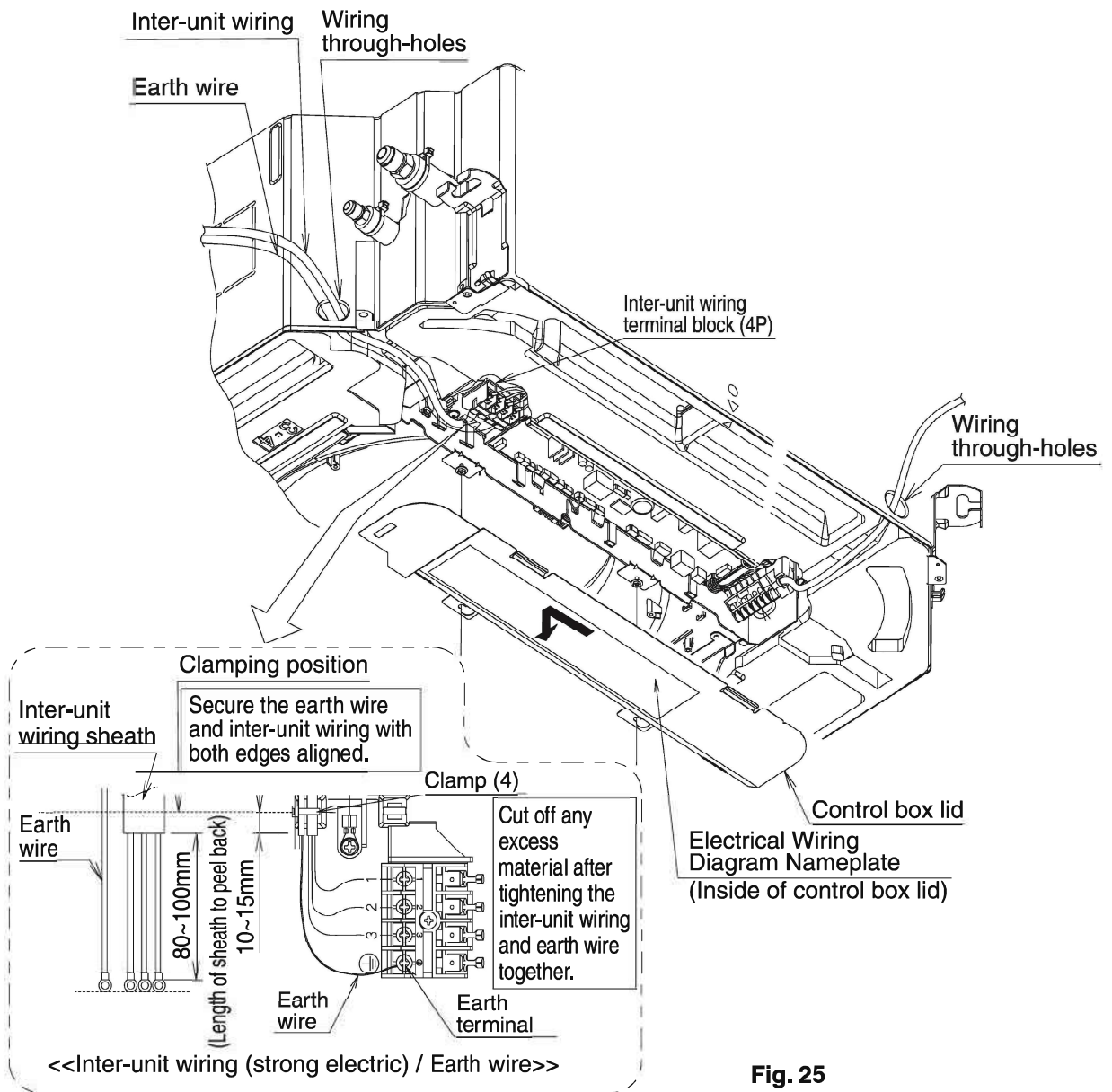


Fig. 25

CAUTION

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

Precautions to be taken for power supply wiring

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

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

(Refer to Fig. 27)

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

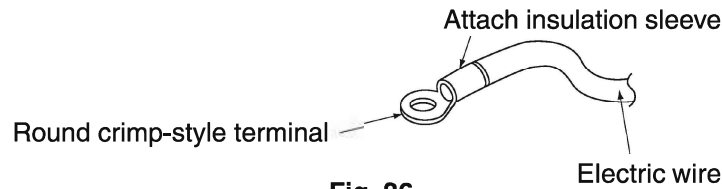
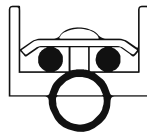


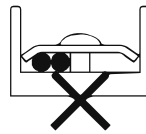
Fig. 26

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



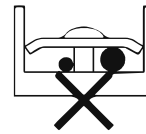
Good

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



Wrong

Do not connect wires of different gauges. (WRONG)



Wrong

Fig. 27

Tightening torque for the terminal screws.

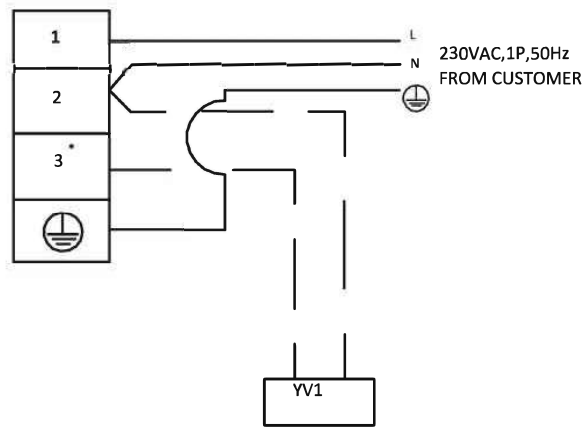
- Use the correct screw driver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged.

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

Tightening torque (N·m)	
Terminal block for 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.)

9. WIRING EXAMPLE



* 230 VAC SUPPLY TO WATER VALVE,
MAXIMUM CURRENT LOAD - 10 AMP.

⚠ CAUTION

- Refer to “**1. Items to be checked at time of delivery**” on page 4 upon completion of the test run and make sure that all the items are checked.
- If the customer’s interior work has not been finished on completion of the test run, explain the customer not to operate the air conditioner. This is essential until the interior work is finished so as to protect the product. Substances generated from paints and adhesives used for the interior work may contaminate the product if the unit is operated.

⚠ To test run Contractors

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

Air Conditioners

MODEL**Chilled Water Cassette Models**

**FCW15ARV16
FCW18ARV16
FCW24ARV16
FCW27ARV16
FCW30ARV16
FCW33ARV16
FCW36ARV16
FCW42ARV16
FCW46ARV16
FCW48ARV16**

English

**READ THESE INSTRUCTION CAREFULLY BEFORE USE.
KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE**

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

■ DISPOSAL REQUIREMENTS



Disposal requirements

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

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

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

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

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1. SAFETY PRECAUTIONS



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

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

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

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

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

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

⚠ WARNING

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

- **Consult your local dealer about installation work.**
Doing the work yourself may result in water leakage, electric shocks or fire hazards.
- **Consult your local dealer regarding modification, repair and maintenance of the air conditioner.**
Improper workmanship may result in water leakage, electric shocks or fire hazards.
- **Do not place objects, including rods, your fingers, etc., in the air inlet or outlet.**
Injury may result due to contact with the air conditioner's high speed fan blades.
- **Beware of fire in case of water leakage.**
If the air conditioner is not operating correctly, i.e. not generating cool air, water leakage could be the cause.

Consult your dealer for assistance.

Do not longer use the air conditioner until a qualified service person confirms that the leakage has been repaired.

- **Contact professional personnel about attachment of accessories and be sure to use only accessories specified by the manufacturer.**
If a defect results from your own workmanship, it may result in water leaks, electric shock or fire.
- **Consult your local dealer regarding relocation and reinstallation of the air conditioner.**
Improper installation work may result in leakage, electric shocks or fire hazards.
- **Be sure to use fuses with the correct ampere reading.**
Do not use improper fuses, copper or other wires as a substitute, as this may result in electric shock, fire, injury or damage to the unit.
- **Be sure to earth the unit.**
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks or fire. A high surge current from lightning or other sources may cause damage to the air conditioner.
- **Be sure to install an earth leakage breaker.**
Failure to install an earth leakage breaker may result in electric shocks or fire.
- **Consult the dealer if the air conditioner submerges owing to a natural disaster, such as a flood or typhoon.**
Do not operate the air conditioner in that case, or otherwise a malfunction, electric shock, or fire may result.
- **Do not start or stop operating the air conditioner with the power supply breaker turned ON or OFF.**
Otherwise, fire or water leakage may result.
Furthermore, the fan will rotate abruptly if power failure compensation is enabled, which may result in injury.
- **Do not use the product in the atmosphere contaminated with oil vapor, such as cooking oil or machine oil vapor.**
Oil vapor may cause crack damage, electric shocks, or fire.
- **Do not use the product in places with excessive oily smoke, such as cooking rooms, or in places with flammable gas, corrosive gas, or metal dust.**
Using the product in such places may cause fire or product failure.

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

—  **CAUTION** —

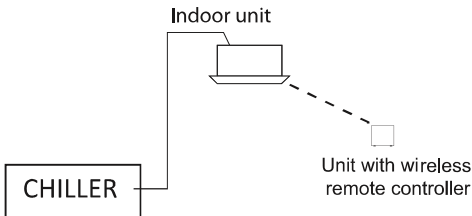
- **Do not use the air conditioner for purposes other than those for which it is intended.**
Do not use the air conditioner for cooling precision instruments, food, plants, animals or works of art as this may adversely affect the performance, quality and/or longevity of the object concerned.
- **Do not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

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

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

2. WHAT TO DO BEFORE OPERATION

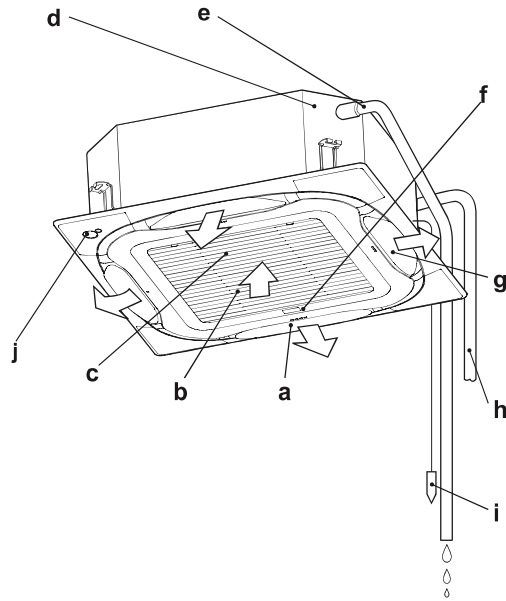
This operation manual is for the following system with standard control. Before initiating operation, contact your dealer for the operation that corresponds to your system.



NOTE

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

Names and functions of parts



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

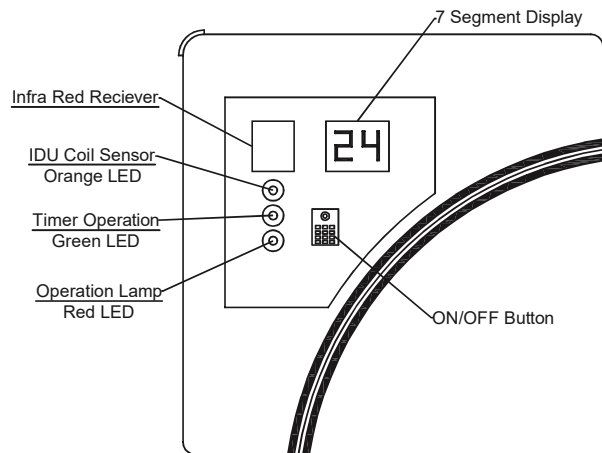


Fig. k

3. OPERATION RANGE

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

COOLING

FOR FCW 15, 18, 24, 27, 30, 33, 36, 42, 46, 48 ARV16

OUTDOOR UNIT	INDOOR	
	TEMPERATURE	HUMIDITY
CHILLER	DB	17 to 35
	WB	14 to 24
		80% or below

DB: Dry bulb temperature (°C)

WB: Wet bulb temperature (°C)

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

4. INSTALLATION SITE

Regarding places for installation

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

Regarding wiring

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

Pay attention to running noises, too

- **If abnormal noises occur in use, stop the operation of the air conditioner, consult your dealer.**

System relocation

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

Regarding drainage of drain pipe

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

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

5. OPERATION PROCEDURE

- To protect the unit, turn on the main power supply switch 6 hours before operation.
- Do not shut off the power supply during seasonal use of the air conditioner.
This is required in order to activate the air conditioner smoothly.
- If the main power supply switch is turned off during operation, operation will restart automatically after the power turns back on again.

6. OPERATION CHARACTERISTICS

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

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

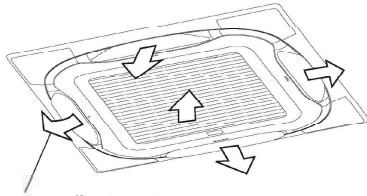
■ CHARACTERISTICS OF THE PROGRAM DRY OPERATION

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



AIRFLOW DIRECTION ADJUST

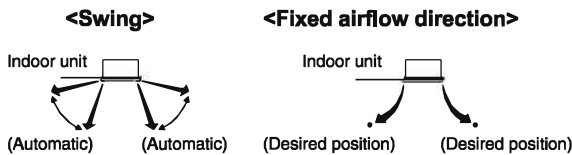
Airflow direction adjustment can be done by remote controller.
For details about airflow direction adjustment, refer to operation manual attached to remote controller.



Up and down adjustment

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

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

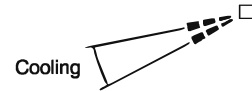


MOVEMENT OF THE HORIZONTAL BLADE

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

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

Recommended airflow direction position



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

7. OPTIMUM OPERATION

Observe the following precautions to ensure the system operates.

- Adjust the room temperature properly for a comfortable environment. Avoid excessive cooling.
- Prevent direct sunlight from entering a room during cooling operation by using curtains or blinds.
- Keep doors and windows closed. If the doors and windows remain open, room air will flow out and cause to decrease the effect of cooling.
- Never place objects near the air inlet and the air outlet of the unit. It may cause deterioration in the effect or stop in the operation.
- Install TV, radios, and stereos 1 m or more away from the indoor unit and remote controller. Images may become fuzzy and noise may be generated.
- Turn off the main power supply switch when it is not used for long period of time.
- 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 6).
- Fully use the function of air flow direction adjust. Cold air gathers on the floor. Set the air direction to horizontal during the COOLING. Do not let the air blow directly to a person.
- It takes time for the room temperature to reach the set temperature. We recommend starting the operation in advance using timer operation.

8. MAINTENANCE (FOR SERVICE PERSONNEL)

ONLY A QUALIFIED SERVICE PERSON IS ALLOWED TO PERFORM MAINTENANCE

⚠ WARNING

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

⚠ CAUTION

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

NOTE

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

HOW TO CLEAN THE AIR FILTER

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

- It indicates after running for a certain time.

NOTE

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

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

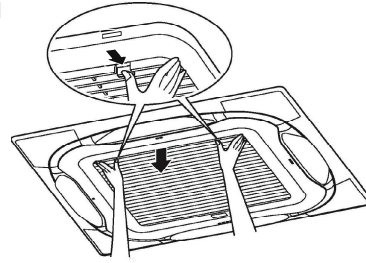
Contamination	Time until indication is displayed
Normal	2500 hours (equivalent to 1 year)
More contaminated	1250 hours (equivalent to 6 months)

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

1. Open the suction grille.

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

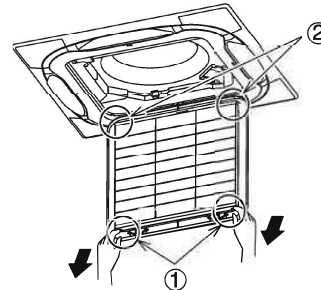
Fig. 1



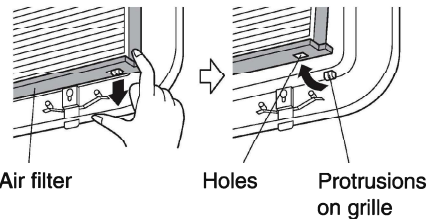
2. Remove the air filter.

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

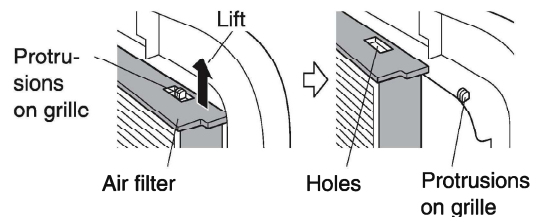
Fig. 2



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



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



3. Clean the air filter.

Use vacuum cleaner or wash the air filter with water

- A) Using a vacuum cleaner



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



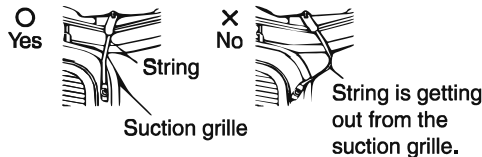
Remove water and dry in the shade.

NOTE

- Do not wash the air filter with water of 50°C or higher. It may cause discoloration and deformation.
 - When drying the filter, do not heat it with fire. It may cause burning.
 - Do not use such as gasoline, benzene, thinner, polishing powder and liquid insecticide sold in the market. It may cause discoloration and deformation.
4. Fix the air filter.
Refer to fig No. 2.
 5. Shut the suction grille.
Slowly push up the suction grille, and then securely hook it onto the decoration panel while pushing the two knobs.

NOTE

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



6. Turn off the indication "Time to clean filter" displayed on the remote controller after turning on the power.
 - For details, refer to the operation manual attached to the remote controller. (The indication can be turned off whether in operation or at stop.)

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

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

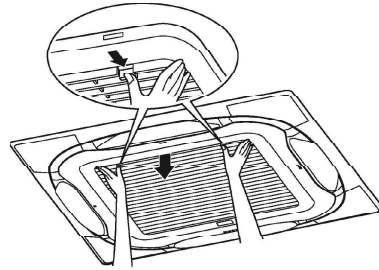
NOTE

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

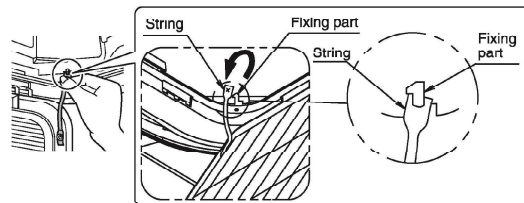
HOW TO CLEAN THE SUCTION GRILLE

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

Fig. 3

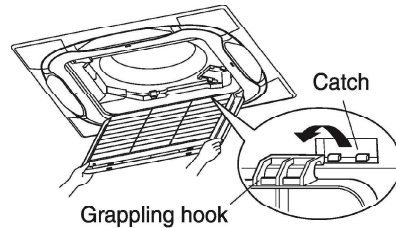


2. Remove the strings of the suction grille.
Remove the two strings from the holding parts on the panel main body to which the strings are attached.



3. Detach the suction grille.
Open the suction grille 45 degrees and lift it upward.

Fig. 4



4. Detach the air filter.
Refer to "HOW TO CLEAN THE AIR FILTER". (Refer to Fig. 2)

5. Clean the suction grille.
Wash with a soft bristle brush and neutral detergent or water, and dry thoroughly.

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



NOTE

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

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

■ CLEANING BEFORE AND AFTER SEASONAL USE

WHAT TO DO WHEN START UP AFTER A LONG STOP

Confirm the following.

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

Clean the air filter and outside panel

- After cleaning the air filter, make sure to attach it. (Refer to "8. MAINTENANCE" on page 6.)
- For information on how to install, remove, or clean an optional sold air filter, refer to the user's manual attached to the air filter.
- After cleaning, perform FILTER SIGN RESET after turning on the power.

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

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

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

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

- This can prevent the causes of mould.

Turn off the power circuit breaker.

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

Clean the air filter and outside panel

- Be sure to replace the air filter to its original place after cleaning. (Refer to "8. MAINTENANCE" on page 6.)
For information on how to install, remove, or clean an optional sold air filter, refer to the user's manual attached to the air filter.

NOTE

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

9. NOT MALFUNCTION OF THE AIR CONDITIONER

1. THE AIR CONDITIONER DOES NOT OPERATE

- **The flow into the indoor unit stops.**
This is because the indoor temperature has reached the set temperature.
The indoor unit is in the FAN OPERATION.
COOLING OPERATION
Lower the set temperature.
The operation starts after a while when the air conditioner is in normal condition.

2. THE FAN SPEED IS DIFFERENT FROM THE SETTING

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

3. HORIZONTAL BLADES DO NOT CLOSE

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

4. WHITE MIST COMES OUT OF THE AIR CONDITIONER

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

5. NOISE OF AIR CONDITIONERS

- **A ringing sound after the indoor unit starts.**
This sound is generated when the motors for driving the horizontal blades are working. It will quiet down after about a minute.
- **A "Pishi-pishi" squeaking sound is heard when the air conditioner is in operation or after the stop of operation.**
Expansion and contraction of resin parts caused by temperature change makes this noise.

6. DUST FROM THE INDOOR UNITS

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

7. THE INDOOR UNITS GIVE OFF ODORS

- **During operation**
The unit absorbs the smell of rooms, furniture, cigarettes, etc., and then emits them.
If odor is a concern, you can set to zero fan speed when the indoor temperature reaches the set temperature.
For details, contact your local dealer.

8. THE AIR CONDITIONER DOES NOT COOL EFFECTIVELY

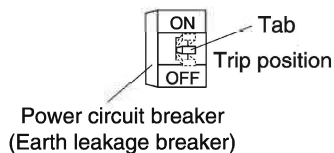
- **The air conditioner is operating in the PROGRAM DRY OPERATION.**
This is because program dry mode operates so that the indoor temperature decreases as little as possible. Lower the indoor temperature using the COOLING OPERATION, and then use the PROGRAM DRY OPERATION.
(Refer to "CHARACTERISTICS OF THE PROGRAM DRY OPERATION" on page 4.)
- **Read through characteristics of the COOLING OPERATION and characteristics of the PROGRAM DRY OPERATION on page 4.**

10. TROUBLE SHOOTING

Please check before requesting a service.

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

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



- Check if there is a power failure.
Wait until power is restored. If power failure occurs during operation, the air conditioner automatically restarts immediately after the power supply recovers.
- **2. If the air conditioner stops after operating the air conditioner.**
 - Check if the air inlet or outlet of indoor unit is blocked by obstacles.
Remove the obstacle and make it well-ventilated.
The horizontal blades at the air outlet are closed while the indoor stops.
 - Check if the air filter is clogged. Ask a qualified service person to clean the air filters.
A decrease in the airflow volume of the air conditioner will result and the performance of the air conditioner will be degraded and power consumption will increase if the air filter is clogged with dust or dirt.
In addition, this may cause dew condensation at the air outlet.
(Refer to "8. MAINTENANCE" on page 6.)

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

- Check if the air inlet or outlet of indoor unit is blocked by obstacles. Remove the obstacle and make it well-ventilated.
The horizontal blades at the air outlet are closed while the unit stops.
Obstacles decrease the fan speed, and cause performance decrease and breakage when discharged air is suctioned.
They cause a waste of electricity, increase operating noise, or that may stop the devices.
 - Check if the air filter is clogged. Ask a qualified service person to clean the air filters.
A decrease in the airflow volume of the air conditioner will result and the performance of the air conditioner will be degraded and power consumption will increase if the air filter is clogged with dust or dirt.
In addition, this may cause dew condensation at the air outlet.
(Refer to "8. MAINTENANCE" on page 6.)
 - Check if the set temperature is not proper.
Set to an appropriate temperature, fan speed, and discharge direction.
 - Check if the FAN SPEED button is set to LOW SPEED.
Set to an appropriate temperature, fan speed, and discharge direction.
 - Check if the airflow direction is not proper.
Set to an appropriate temperature, fan speed, and discharge direction.
 - Check if the doors or the windows are open.
Shut doors or windows to prevent wind from coming in.
 - Check if the ventilation fan is in operation.
 - Check if direct sunlight enters the room use curtains or blinds.
 - When there are too many inhabitants in the room.
 - Check if the heat source of the room is excessive.
 - **4. Operation was performed or stopped although the ON/OFF button was not pressed.**
 - Are you sure that the ON/OFF timer operation is not used?
Turn off the ON/OFF timer.
Please refer to operation manual attached to the remote controller.
 - Are you sure that any remote control device is not connected?
Contact the central control room that directed the stop.
 - Are you sure that the display for centralized control is not lit?
Contact the central control room that directed the stop.
If the problem is not solved after checking the above points, please do not try to repair it yourself.
In such cases, always ask your local dealer. At this time, please tell the symptom and model name (written on the model name plate).
- If one of the following malfunction occurs, take the measures shown below and contact your local dealer.**
The air conditioner must be repaired by a qualified service person.

⚠ WARNING

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

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

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

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

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

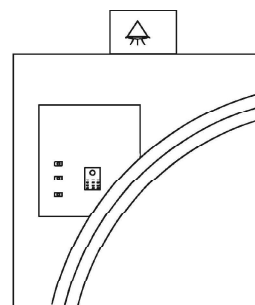


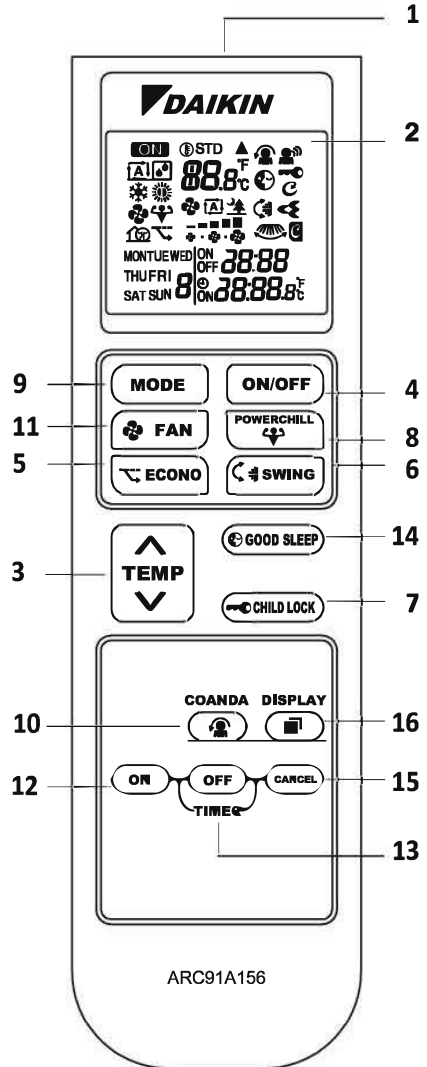
Fig. A

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

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

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

1 Operation Manual of Remote Controller (ARC91A156)



1. Signal transmitter
Sends signals to the indoor unit.

2. Display (LCD):
Displays the current settings.
(In this illustration, each section is shown with its displays on for the purpose of explanation).

3. TEMPERATURE Adjustment button:
To change the temperature setting by pressing **TEMP UP** and **TEMP DOWN** buttons. Press **TEMP UP** to raise the temperature and press **TEMP DOWN** to lower the temperature.

COOL Operation : 16-32°C

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

NOTE:

a) Whenever air conditioner will be switched on from remote, the default set temperature will be set as mentioned in below table :

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

4. ON/OFF button:
Press this button once to start the operation.
Press once again to stop the operation.

5. ECONO button:

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

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

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

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

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

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

6. SWING button:

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

7. CHILD LOCK button:

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

8. POWER CHILL button:

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

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

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

9. MODE button:

DRY, COOL, FAN Operation:

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



10. COANDA button:

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

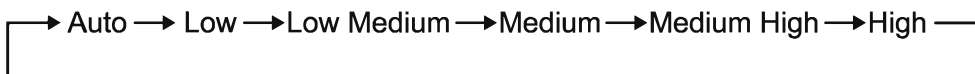
11. FAN setting button:

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

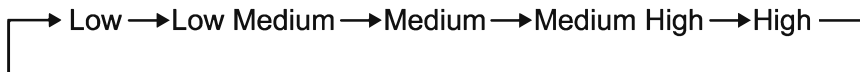
DRY Operation

Low (Fixed)

COOL Operation



FAN Operation



12. ON TIMER button:

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

13. OFF TIMER button:

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

14. GOOD SLEEP Function with OFF TIMER button:

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

15. CANCEL button:

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

16. DISPLAY button:

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

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