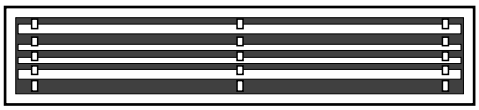
DAIKIN

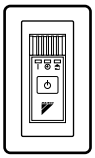
INVERTER

OZONE FRIENDLY R-410A

INSTALLATION MANUAL

R-410A Split series





MODELS

CDXS25BVMB CDKS25BVMB
CDXS35BVMB CDKS35BVMB
CDXS50BVMB CDKS50BVMB
CDXS60BVMB CDKS60BVMB

SAFETY PRECAUTIONS

- Read these SAFETY PRECAUTIONS carefully to ensure correct 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.

⚠ WARNINGS	Failure to follow any of WARNING is likely to result in such grave consequences as death or serious injury.
⚠ CAUTIONS	Failure to follow any of CAUTION may in some cases result in grave consequences.

- The following safety symbols are used throughout this manual:

❗	Be sure to observe this instruction.	⏚	Be sure to establish an earth connection.	⃠	Never attempt.

- After completing installation, test the unit to check for installation errors. Give the user adequate instructions concerning the use and cleaning of the unit according to the Operation Manual.

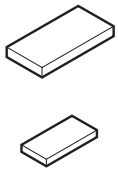
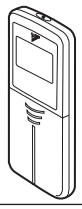
⚠ WARNINGS

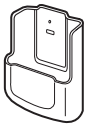
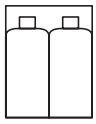
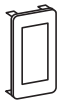
- Installation should be left to the dealer or another professional.
  Improper installation may cause water leakage, electrical shock, or fire.
- Install the air conditioner according to the instructions given in this manual.
  Incomplete installation may cause water leakage, electrical shock, or fire.
- Be sure to use the supplied or specified installation parts.
  Use of other parts may cause the unit to come to lose, water leakage, electrical shock, or fire.
- Install the air conditioner on a solid base that can support the units weight.
  An inadequate base or incomplete installation may cause injury in the event the unit falls off the base.
- Electrical work should be carried out in accordance with the installation manual and the national electrical wiring rules or code of practice.
  Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
- Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance.
- For wiring, use a cable long enough to cover the entire distance with no connection.
  Do not use an extension cord. Do not put other loads on the power supply, use a dedicated power circuit.
  (Failure to do so may cause abnormal heat, electric shock or fire.)
- Use the specified types of wires for electrical connections between the indoor and outdoor units.
  Firmly clamp the interconnecting wires so their terminals receive no external stresses. Incomplete connections or clamping may cause terminal overheating or fire.
- 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 shock, or fire.
- When installing or relocating the system, be sure to keep the refrigerant circuit free from substances other than the specified refrigerant (R-410A), such as air.
  (Any presence of air or other foreign substance in the refrigerant circuit causes an abnormal pressure rise or rupture, resulting in injury.)
- If any refrigerant has leaked out during the installation work, ventilate the room. ❗
  (The refrigerant produces a toxic gas if exposed to flames.)
- After all installation is complete, check to make sure that no refrigerant is leaking out. ❗
  (The refrigerant produces a toxic gas if exposed to flames.)
- When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.
- Be sure to establish an earth. Do not earth the unit to a utility pipe, arrester, or telephone earth. ⏚
  Incomplete earth may cause electrical shock. A high surge current from lightning or other sources may cause damage to the air conditioner.
- An earth leakage circuit breaker may be required depending on site condition to prevent electrical shock.
  Failure to do so may cause electrical shock.

⚠ CAUTIONS

- Do not install the air conditioner in a place where there is danger of exposure to inflammable gas leakage. ⃠
  If the gas leaks and builds up around the unit, it may catch fire.
- Establish drain piping according to the instructions of this manual.
  Inadequate piping may cause flooding.
- Note for installing the outdoor unit. (For heat pump model only.)
  In cold area where the outside air temperature keep below or around freezing-point for a few days, the outdoor unit's drain may freeze.
  If so, it is recommended to install an electric heater in order to protect drain from freezing.
- Tighten the flare nut according to the specified method such as with a torque wrench.
  If the flare nut is tightened too hard, the flare nut may crack after a long time and cause refrigerant leakage.

ACCESSORIES

Clamp metal	Insulation for fitting	Sealing pad	Wireless remote controller
1	1 each	Large and small 1 each	1
	 for gas pipe for liquid pipe	 Large Small	

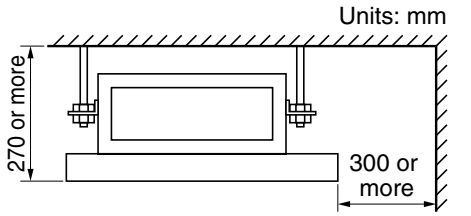
Remote control holder	AAA dry-cell batteries	Reciever kit				
1	2	1 set	1	1	2	[Other]
		Faceplate; faceplate frame 	Decorative cover 	Insulated mounting frame 	Screws M4 × 25 	• Operation manual • Installation manual

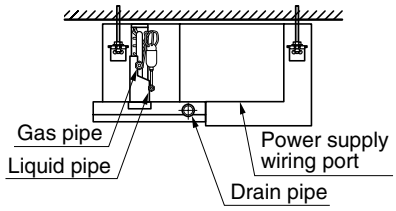
CHOOSING A SITE

- Before choosing the installation site, obtain user approval.

Indoor unit

- Optimum air distribution is ensured.
- The air passage is not blocked.
- Condensate can drain properly.
- The ceiling is strong enough to bear the weight of the indoor unit.
- A false ceiling does not seem to be at an incline.
- Sufficient clearance for maintenance and servicing is ensured.
- Piping between the indoor and outdoor units is within the allowable limits. (Refer to the installation manual for the outdoor unit.)
- The indoor unit, outdoor unit, power supply wiring and transmission wiring is at least 1 meter away from televisions and radios. This prevents image interference and noise in electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if a one-meter allowance is maintained.)

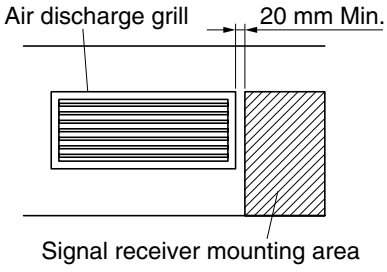




■**Use suspension bolts to install the unit. Check whether or not the ceiling is strong enough to support the weight of the unit. If there is a risk that the ceiling is not strong enough, reinforce the ceiling before installing the unit.**

■**Select the signal receiver mounting location within the signal receiver mounting area according to the following conditions:**

- Since the receiver has a built-in temperature sensor, do not mount it in an area where it will be subject to direct sunlight or to cold or hot air coming from the air discharge grill of the air conditioner.
- Since the receiver has a built-in light receptor to receive signals from the wireless remote control, do not mount it in a location where the signal may be blocked by a curtain, etc.



Wireless Remote Controller

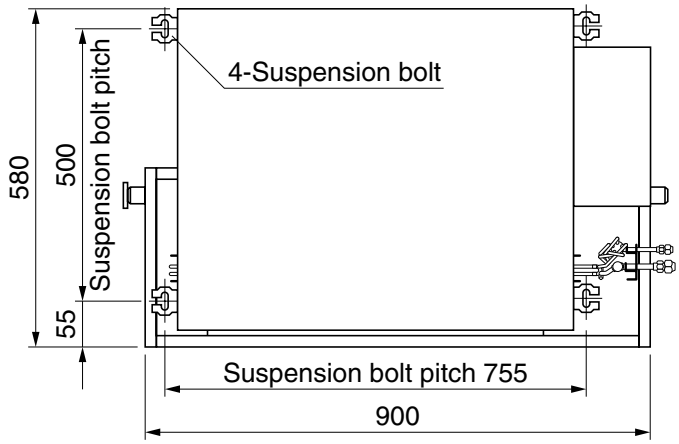
- Turn on all the fluorescent lamps in the room, if any, and find the site where remote control signals are properly received by the indoor unit (within 4 metres).

Outdoor unit

- For outdoor unit installation, see the installation manual supplied with the Multi outdoor unit.

PREPARATIONS BEFORE INSTALLATION

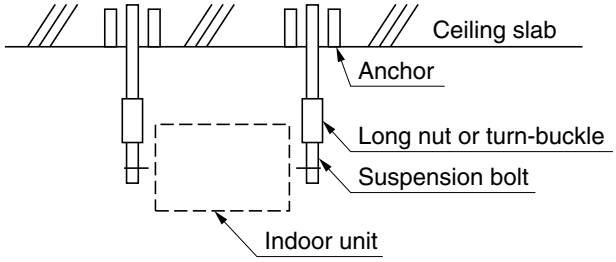
■**Relation of the unit to the suspension bolt positions**



■**Install the suspension bolts.**

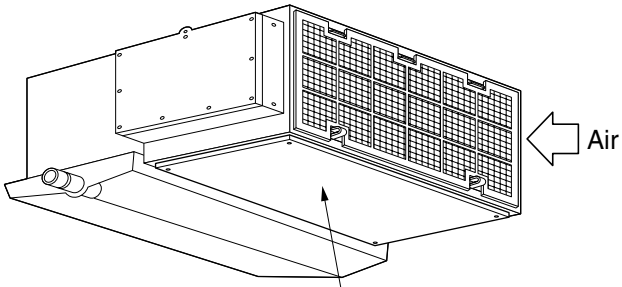
(Use M10-size bolts for the suspension bolts.)
In order to reinforce the ceiling bearing the weight of the unit, use anchors when installing onto an existing ceiling or use sunken inserts, sunken anchors or other commercially available parts when installing onto a new ceiling.

(Installation example)

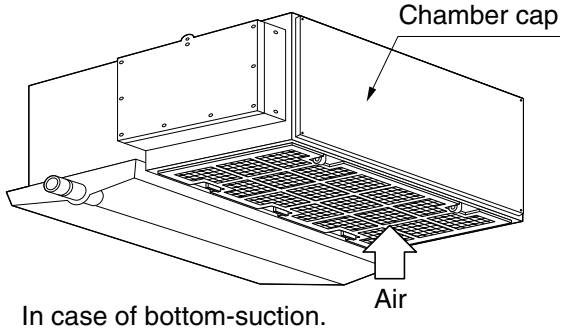


NOTE) All of the above parts are commercially available.

■**Mount chamber cap**



In case of rear-suction.
(When shipped)



In case of bottom-suction.

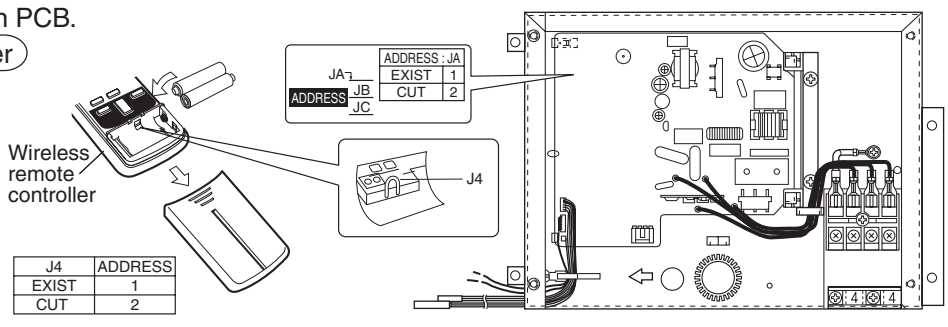
■When two indoor units are installed in one room, one of the two wireless remote controllers can be easily set for another addresses.

PCB in the indoor unit

- Cut the jumper JA on PCB.

Wireless remote controller

- Cut the jumper J4.

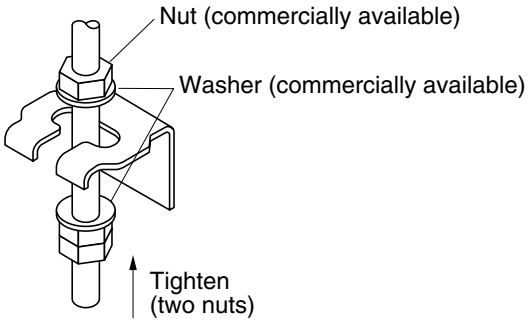


INDOOR UNIT INSTALLATION

■**Temporarily install the indoor unit.**

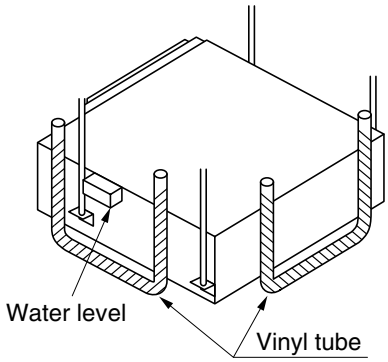
- Attach the hanger brackets to the suspension bolts. Be sure to use nuts and washers both above and below the hanger brackets to secure them.

NOTE) Use washers when mounting with M8 bolts.



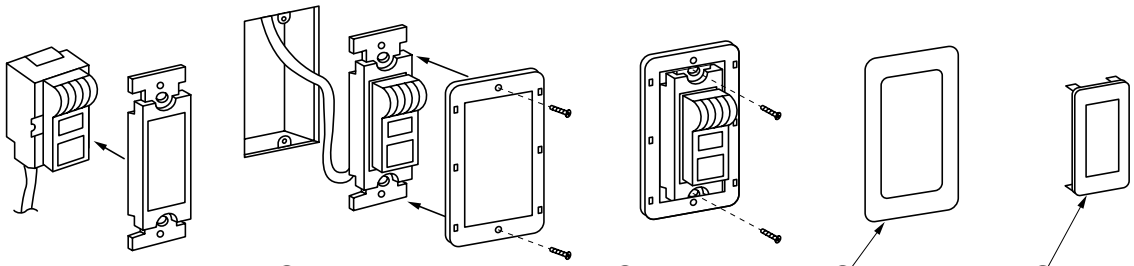
■**Use a water level or water-filled vinyl tubes to check that the unit is level at all four corners as shown in the drawing.**

■**Tighten the top nuts.**



■**Mounting the signal receiver**

Mount the signal receiver as shown below.



① Press the signal receiver into the insulated mounting frame.

② Press the signal receiver and mounting frame into the faceplate frame and secure with two screws.

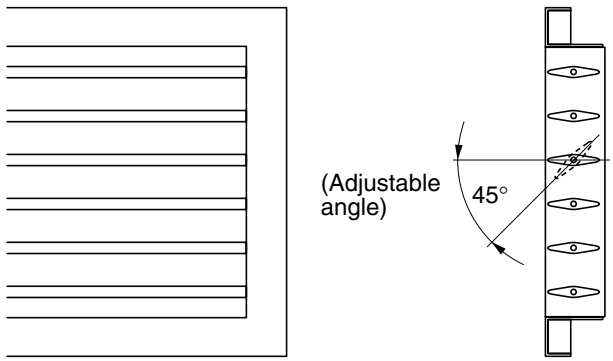
③ Mount the completed assembly using two screws.

④ Press the faceplate onto the faceplate frame.

⑤ Press the decorative cover into the faceplate.

Note) Mount the remote control cord far enough away from strong electrical wires (such as distribution wires for electrical lights, air conditioners, etc.) and from weak electrical wires (such as wires for telephones, intercoms, etc.).

For heat pump: If your feet feel cold when using the heating function, it is recommended that the air discharge grill shown at right be attached.



OUTDOOR UNIT INSTALLATION

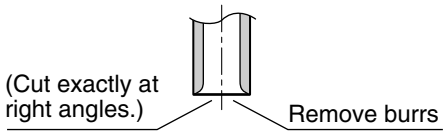
Install as described in the installation manual supplied with the Multi outdoor unit.

REFRIGERANT PIPING WORK

See the installation manual supplied with the Multi outdoor unit for outdoor unit.

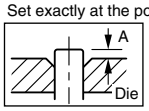
1 FLARING THE PIPE END

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.



Flaring

Set exactly at the position shown below.

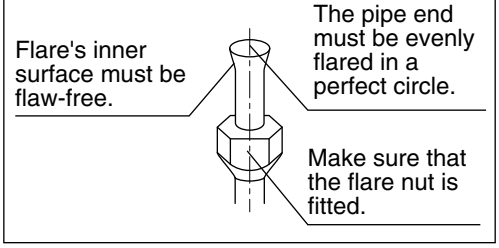


	Flare tool for R-410A	Conventional flare tool	
	Clutch-type	Clutch-type (Rigid-type)	Wing-nut type (Imperial-type)
A	0 ~ 0.5 mm	1.0 ~ 1.5 mm	1.5 ~ 2.0 mm

⚠ WARNING

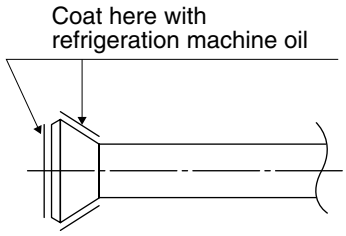
Do not use mineral oil on flared part.
Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
Do never install a drier to this R-410A unit in order to guarantee its lifetime. The drying material may dissolve and damage the system.
Incomplete flaring may cause refrigerant gas leakage.

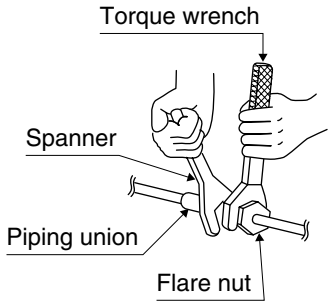
Check



2 REFRIGERANT PIPING

1. 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.
   - Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.



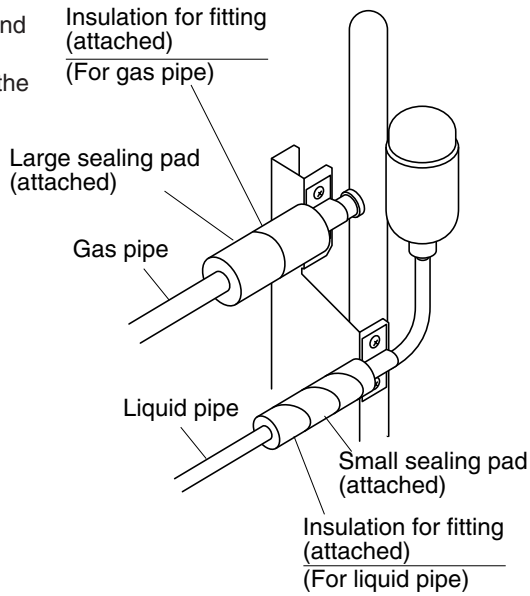


Flare nut tightening torque		
Gas side		Liquid side
3/8 inch	1/2 inch	1/4 inch
32.7~39.9 N•m (333~407 kgf•cm)	49.5~60.3 N•m (505~615 kgf•cm)	14.2~17.2 N•m (144~175 kgf•cm)

Valve cap tightening torque		
Gas side		Liquid side
3/8 inch	1/2 inch	1/4 inch
21.6~27.4 N•m (220~280 kgf•cm)	26.5~32.3 N•m (270~330 kgf•cm)	21.6~27.4 N•m (220~280 kgf•cm)

Service port cap tightening torque	10.8~14.7 N•m (110~150 kgf•cm)

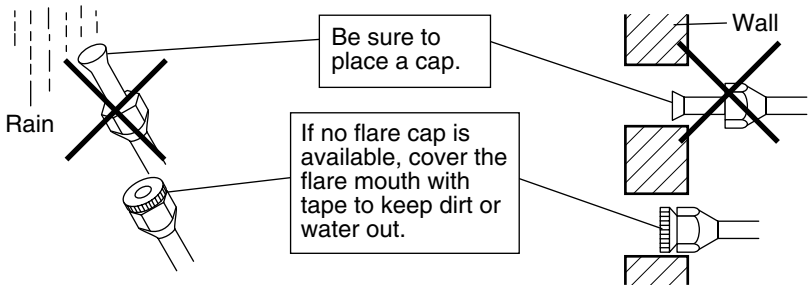
2. To prevent gas leakage, apply refrigeration machine oil on both inner and outer surfaces of the flare. (Use refrigeration oil for R-410A)
   - Wrap only the gas line side with the sealing pad. Bend the pad over the insulation for fitting (union) from above.



REFRIGERANT PIPING WORK

Cautions on Pipe Handling

- Protect the open end of the pipe against dust and moisture.
- All pipe bends should be as gentle as possible. Use a pipe bender for bending. (Bending radius should be 30 to 40 mm or larger.)



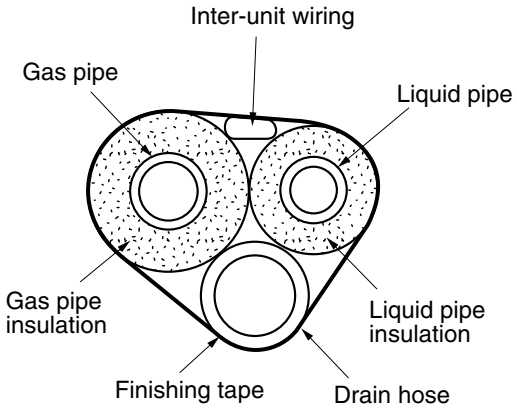
Selection of Copper Pipes and Heat Insulation materials

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

- Insulation material: Polyethylene foam
  Heat transfer rate: 0.041 to 0.052kW/mK (0.035 to 0.045 kcal/mh°C)
  Refrigerant gas pipe's surface temperature reaches 110°C max.
  Choose heat insulation materials that will withstand this temperature.
- Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

Gas side		Liquid side	Gas pipe thermal insulation		Liquid pipe thermal insulation
25/35 class	50/60 class	25/35/50/60 class	25/35 class	50/60 class	25/35/50/60 class
O.D. 9.5 mm	O.D. 12.7 mm	O.D. 6.4 mm	I.D. 12-15 mm	I.D. 14-16 mm	I.D. 8-10 mm
Thickness 0.8 mm			Thickness 10 mm Min.		

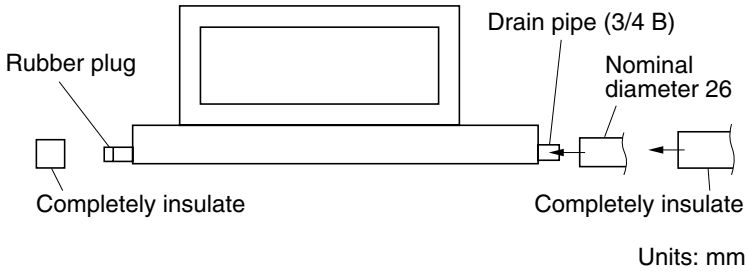
- Use separate thermal insulation pipes for gas and liquid refrigerant pipes.

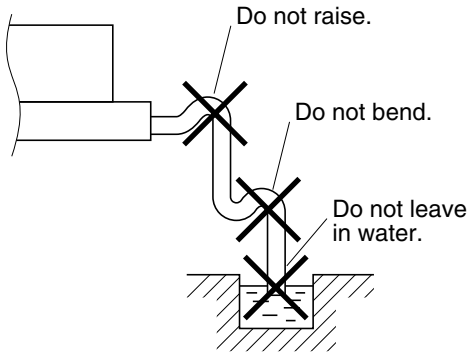


DRAIN WORK

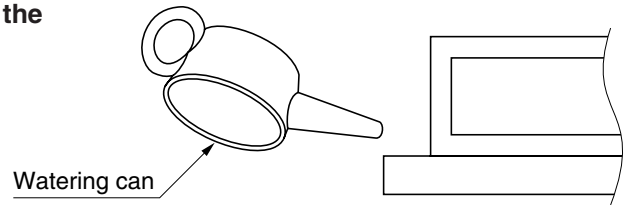
■Connect the drain pipe as described below.

- The drain pipe outlet can be either on the right or left side.
- After making the connection, wrap the drain pipes completely with insulation.
- When connecting the drain pipe to the outlet on the left side, remove the rubber plug and attach it to the outlet on the right side.





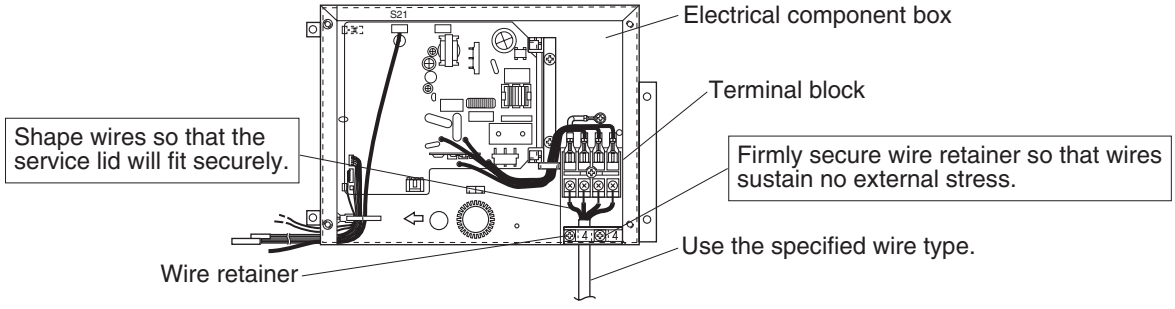
■Pour some water into the drain pan to check that the water drains smoothly.



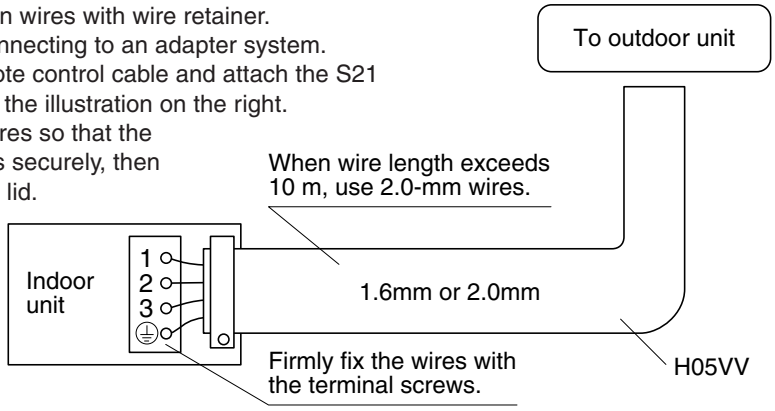
WIRING

See the installation manual supplied with the Multi outdoor unit for outdoor unit.

(1) Strip wire ends (15 mm).
(2) Match wire colours with terminal numbers on indoor and outdoor units' terminal blocks and firmly screw wires to the corresponding terminals.
(3) Connect the earth wires to the corresponding terminals.



(4) Pull wires to make sure that they are securely latched up, then retain wires with wire retainer.
(5) In case of connecting to an adapter system.
Run the remote control cable and attach the S21 connector as the illustration on the right.
(6) Shape the wires so that the service lid fits securely, then close service lid.



⚠ Warning
Do not use tapped wires,stand wires, extensioncords, or starbust connections, as they may cause overheating, electrical shock,or fire.

CARE AND CLEANING

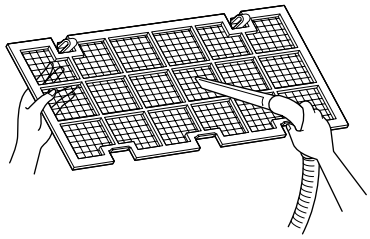
⚠ CAUTION

- **Only a qualified service person is allowed to perform maintenance.**
- **Before cleaning, be sure to stop the operation and turn the breaker OFF.**
- **Remove the air filter when connecting the duct.**

■Cleaning the air filter.

1. Removing the air filter.

- Rear suction
  Pull the bottom side of the air filter backwards, over the 2 bends.
- Bottom suction
  Pull the filter over the two bends situated at the backside of the unit.

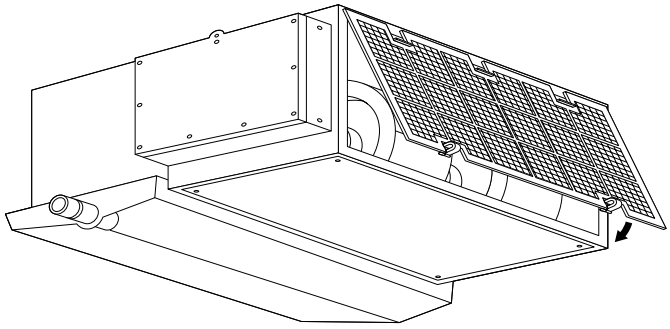


2. Cleaning the air filter.

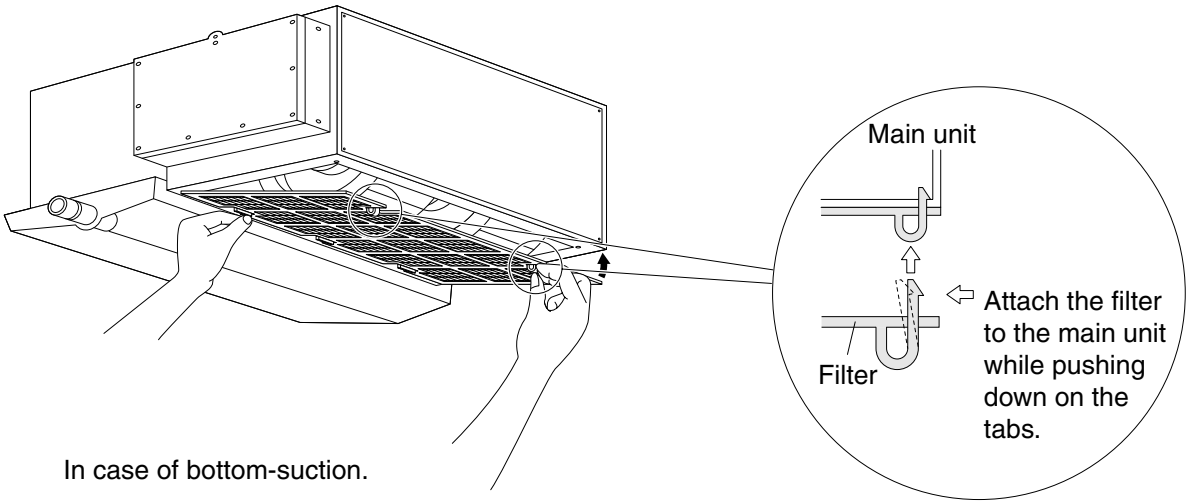
Remove dust from the air filter using a vacuum cleaner and gently rinse them in cool water. Do not use detergent or hot water to avoid filter shrinking or deformation. After cleaning dry them in the shade.

3. Replacing the air filter.

- Rear suction
  Hook the filter behind the flap situated at the top of the unit and push the other side gently over the 2 bends.
- Bottom suction
  Hook the filter behind the flap situated at the middle of the unit and push the other side gently over the 2 bends.



In case of rear-suction.



In case of bottom-suction.

■Cleaning the drain pan

- Clean the drain pan periodically, or drain piping may be clogged with dust and may result in water leakage.
  Ask your DAIKIN dealer to clean them.
- If the ambient air of indoor unit is so dusty, install the optional Dust Cover which prevent dust from falling into drain pan.

⚠ CAUTION

- Do not operate the air conditioner without filters, this to avoid dust accummulation inside the unit.
- Do not remove the air filter except when cleaning.
  Unnecessary handling may damage the filter.
- Do not use gasoline, benzene, thinner, polishing powder, liquid insecticide, It may cause discoloring or warping.
- Do not let the indoor unit get wet. It may cause an electric shock or a fire.
- Operation with dusty air filters lowers the cooling and heating capacity and wastes energy.
- The suction grille is option.
- Do not use water or air of 50°C or higher for cleaning air filters and outside panels.

TRIAL OPERATION AND TESTING

Trial Operation and Testing

(1) Measure the supply voltage and make sure that it falls in the specified range.
(2) Trial operation should be carried out in either cooling or heating mode.

Trial operation from Remote Controller
(1) Press ON/OFF button to turn on the system. (2) Simultaneously press center of TEMP button and MODE button. (3) Press MODE button twice. (" 7 " will appear on the display to indicate that Trial Operation mode is selected.) (4) Trial run mode terminates in approx. 30 minutes and switches into normal mode. To quit a trial operation, press ON/OFF button.

For Heat pump

In cooling mode, select the lowest programmable temperature; in heating mode, select the highest programmable temperature.

- Trial operation may be disabled in either mode depending on the room temperature.
- After trial operation is complete, set the temperature to a normal level (26°C to 28°C in cooling mode, 20°C to 24°C in heating mode).
- For protection, the system disables restart operation for 3 minutes after it is turned off.

For Cooling Only

Select the lowest programmable temperature.

- Trial operation in cooling mode may be disabled depending on the room temperature. Use the remote control for trial operation as described below.
- After trial operation is complete, set the temperature to a normal level (26°C to 28°C).
- For protection, the unit disables restart operation for 3 minutes after it is turned off.

(3) Carry out the test operation in accordance with the Operation Manual to ensure that all functions and parts are working properly.
* The air conditioner requires a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
* If the circuit breaker trips to shut off the power to the air conditioner, the system will restore the original operation mode when the circuit breaker is turned on again.

Test Items

Test Items	Symptom (diagnostic display on RC)	Check
Indoor and outdoor units are installed properly on solid bases.	Fall, vibration, noise	
No refrigerant gas leaks.	Incomplete cooling/heating function	
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage	
Draining line is properly installed.	Water leakage	
System is properly earthed.	Electrical leakage	
The specified wires are used for interconnecting wire connections.	Inoperative or burn damage	
Indoor or outdoor unit's air intake or exhaust has clear path of air. Shut-off valves are opened.	Incomplete cooling/heating function	
Indoor unit properly receives remote control commands.	Inoperative	

DAIKIN INDUSTRIES, LTD.
Head office:
Umeda Center Bldg., 4-12, Nakazaki-Nishi 2 chome,
Kita-ku, Osaka, 530-8323 Japan

Tokyo office:
Shinjuku Sumitomo Bldg., 6-1 Nishi-Shinjuku
2-chome, Shinjuku-ku, Tokyo, 163-0235 Japan
http://www.daikin.com/global/

DAIKIN EUROPE NV
Zandvoordestraat 300, B-8400 Oostende, Belgium

2P098794-3 M02B075 (0210) HT