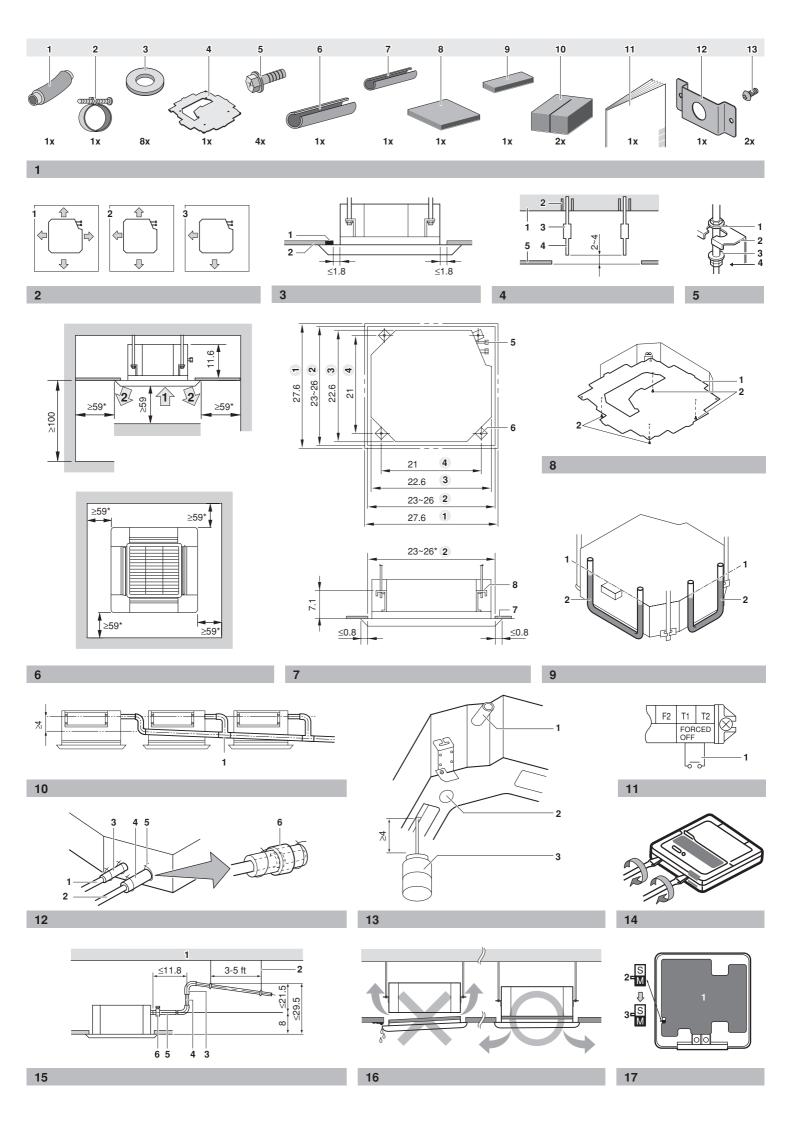
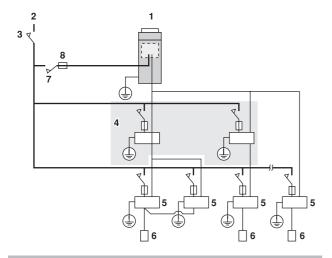
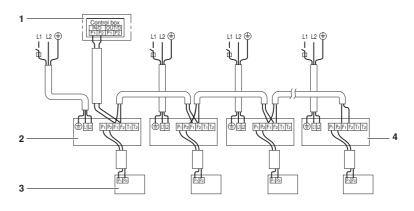


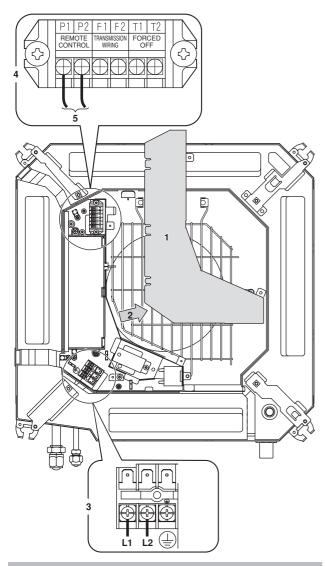
INSTALLATION AND OPERATION MANUAL

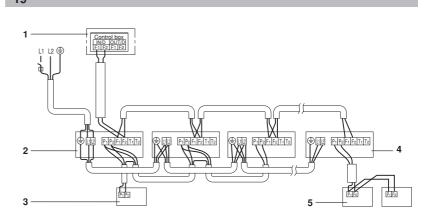
URV System air conditioners

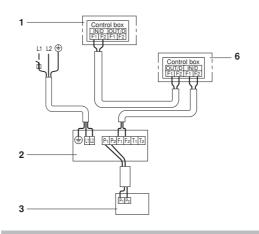


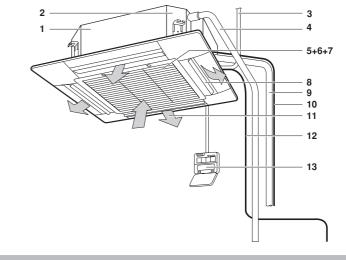


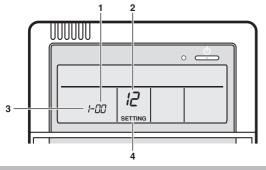














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READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION. KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

IMPROPER INSTALLATION OR ATTACHMENT OF EQUIPMENT OR ACCESSORIES COULD RESULT IN ELECTRIC SHOCK, SHORT-CIRCUIT, LEAKS, FIRE OR OTHER DAMAGE TO THE EQUIPMENT. BE SURE ONLY TO USE ACCESSORIES MADE BY DAIKIN WHICH ARE SPECIFICALLY DESIGNED FOR USE WITH THE EQUIPMENT AND HAVE THEM INSTALLED BY A PROFESSIONAL.

IF UNSURE OF INSTALLATION PROCEDURES OR USE, ALWAYS CONTACT YOUR DAIKIN DEALER FOR ADVICE AND INFORMATION.

SAFETY CONSIDERATIONS

Please read these safety precautions carefully before installing the air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained.

Inform customers that they should store this operation manual along with the installation manual for future reference. This air conditioner comes under the term "appliances not accessible to the general public".

The safety considerations listed here are divided into the following types and cover very important topics, so be sure to follow them carefully.



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

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

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

NOTE

Indicates situation that may result in equipment or property-damage-only accidents.

Keep these warning sheets handy so that you can refer to them when needed.

If this equipment is transferred to a new user, make sure to hand over this operation manual to the new user.



DANGER

- Do not install the unit in an area where flammable materials are present due to risk of explosion resulting in serious injury or death.
- Any abnormalities in the operation of the air conditioner such as smoke or fire could result in severe injury or death.
 - Turn off the power and contact your dealer immediately for instructions.
- If refrigerant gas comes in contact with fire such as from a fan, heater, stove or cooking device, it may produce toxic gases. Exposure to these gases could cause severe injury or death.
- If there is a refrigerant leakage, consult your dealer.

Refrigerant gas is heavier than air and replaces oxygen. A massive leak could lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur leading to serious injury or death.

If equipment utilizing a burner is used in the same room as the air conditioner, there is the danger of oxygen deficiency which could lead to an asphyxiation hazard resulting in serious injury or death.

Be sure to ventilate the room sufficiently to avoid this hazard.

Safely dispose of packing materials.

Packing materials, such as nails and other metal or wooden parts, may cause stabs or other injuries.

Tear apart and throw away plastic packaging bags so that children can not play with them. Children playing with plastic bags face the danger of death by suffocation.



WARNING

- It is not good for your health to expose your body to the air flow for a long time.
- Ask your dealer
 - for installation of the air conditioner.
 - for improvement, repair, and maintenance of the air conditioner.
 - to move and reinstall the air conditioner.

 Incomplete installation performed by yourself may result in a water leakage, electric shock or fire.
- Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leaks, fire or other damage to the equipment. Be sure only to use accessories made by Daikin which are specifically designed for use with the equipment and have them installed by a professional.
- Never let the indoor unit or the remote controller get wet.

It may cause an electric shock or a fire.

Never use a flammable spray such as hair spray, lacquer or paint near the unit.

These products may cause a fire.

Never replace a fuse with a fuse of wrong ampere rating or wires when a fuse is blown.

Not replacing a blown fuse by a fuse of correct ampere rating may cause the unit to break down or cause a fire.

Never remove the fan guard of the unit.

A fan rotating at high speed without the fan guard is very dangerous.

- Never inspect or service the unit by yourself. Ask an authorized service person to perform this work.
- Cut off all electric waves before maintenance.
- To avoid the risk of serious electrical shock, never sprinkle or spill water or liquids on the unit.

Placing a flower vase or other containers with water or other liquids on the unit could result in a shock hazard or fire if a spill occurs.

- Operating the air conditioner with wet hands could result in a shock hazard.
- Do not allow children to play on or around the unit as they could be injured.
- Check the unit stand for damage on a continuous basis.

If left in a damaged condition the unit may fall and cause injury.

- The heat exchanger fins are sharp enough to cut. To avoid injury wear gloves or cover the fins while working around them.
- Do not put a finger or other objects into the air inlet or air outlet.

The fan is rotating at high speed and will cause injury.

- Do not touch the air outlet or the horizontal flaps while the swing flap is in operation as fingers may get caught and injured.
- Be sure to install an earth leakage breaker.
 Failure to install an earth leakage breaker may

Failure to install an earth leakage breaker may result in electric shocks or fire.

Never touch the internal parts of the controller.

Do not remove the front panel because some parts inside the controller are dangerous to touch. In addition, some parts may be damaged. For checking and adjusting the internal parts, contact your dealer.



CAUTION

- Do not use the air conditioner for other purposes. In order to avoid any quality deterioration, do not use the unit for cooling precision instruments, food, plants, animals or works of art.
- Do not place items under the indoor unit which may be damaged by water.

Condensation may form if the humidity is above 80% or if the drain outlet gets blocked.

Avoid placing the controller in a spot splashed with water

Water coming inside the unit may cause an electric leak or may damage the internal electronic parts.

Do not operate the air conditioner when using a room fumigation - type insecticide.

Chemicals from the insecticide deposited into the unit, could endanger the health of those who are hypersensitive to chemicals.

Do not turn off the power immediately after stopping operation.

Always wait at least 5 minutes before turning off the power. Otherwise, water leakage and trouble may occur.

- The appliance is not intended for use by young children or infirm persons without supervision.
- The remote controller must be installed in such a way that children can not play with it.
- Consult with the installation contractor for cleaning the inside of the air conditioner.

Wrong cleaning may be the cause for plastic parts to break, water leakage or electric shock.

Do not touch the air inlet or aluminium fins of the air conditioner.

Otherwise, injury may be caused.

Do not place objects in direct proximity of the outdoor unit and do not let leaves and other debris accumulate around the unit.

Leaves are a hotbed for small animals which can enter the unit. Once in the unit, such animals can cause malfunctions, smoke or fire when contact with electrical parts.



NOTE

 Never press the button of the remote controller with a hard, pointed object.

The remote controller may be damaged.

 Never pull or twist the electric wire of the remote controller.

Pulling or twisting the electric wire may cause the unit to malfunction.

Do not place appliances which produce open fire in places exposed to the air flow from the unit or under the indoor unit.

Not following this advice may cause incomplete combustion or deformation of the unit due to the heat.

Arrange the drain hose to ensure smooth drainage.

Incomplete drainage may cause wetting of the building, furniture etc.

 Do not place the controller exposed to direct sunligth.

The LCD display may get discolored, failing to display the data.

Do not wipe the controller operation panel with benzine, thinner, chemical dustcloth, etc.

The panel may get discolored or the coating peeled off. If it is heavily dirty, soak a cloth in water-diluted neutral detergent, squeeze it well and wipe the panel clean. Wipe it a second time with another dry cloth.

- Dismantling of the unit, treatment of the refrigerant, oil, and eventual other parts, should be done in accordance with the relevant local and national regulations.
- Do not dry the filter by exposing it to direct sunlight or warming it using fire, etc. Doing so can result in the deformation of the filter.

BEFORE INSTALLATION

- When moving the unit while removing it from the carton box, be sure to lift it by holding on to the four lifting lugs without exerting any pressure on other parts, especially on the swing flap, the refrigerant piping, drain piping, and other resin parts.
- Leave the unit inside its packaging until you reach the installation site. Where unpacking is unavoidable, use a sling of soft material or protective plates together with a rope when lifting, this to avoid damage or scratches to the unit.
- Especially, do not unfasten the packing case (top) guarding the switch box until suspending the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.
- Caution concerning refrigerant series R410A: The connectable outdoor units must be designed exclusively for R410A.
- Do not place objects in direct proximity of the outdoor unit and do not let leaves and other debris accumulate around the unit. Leaves are a hotbed for small animals which can enter the unit. Once in the unit, such animals can cause malfunctions, smoke or fire when making contact with electrical parts.

Precautions

- Do not install or operate the unit in rooms mentioned below.
 - Places with mineral oil, or filled with oil vapor or spray like in kitchens. (Plastic parts may deteriorate.)
 - Where corrosive gas like sulphurous gas exists. (Copper tubing and brazed spots may corrode.)
 - · Where volatile flammable gas like thinner or gasoline is used.
 - Where machines generating electromagnetic waves exist. (Control system may malfunction.)
 - Where the air contains high levels of salt such as air near the ocean and where voltage fluctuates a lot (e.g. in factories). Also in vehicles or vessels.
- When selecting the installation site, use the supplied paper pattern for installation.
- Do not install accessories on the casing directly. Drilling holes in the casing may damage electrical wires and consequently cause fire.

Accessories

Check if the following accessories are included with your unit.

See figure 1

- 1 Drain hose
- 2 Metal clamp
- 3 Washer for hanger bracket
- 4 Paper pattern for installation
- 5 Screws (M5) for paper pattern for installation
- 6 Insulation for gas pipe fitting
- 7 Insulation for liquid pipe fitting
- 8 Large sealing pad
- 9 Small sealing pad
- 10 Sealing material
- 11 Installation and operation manual
- 12 Conduit mounting plate
- 13 Screws (M4) for conduit mounting plate

Optional accessories

- Wired remote controller.
- A decoration panel is required for this indoor unit.

Measurements

Dimensions in inch (in).

For the following items, take special care during construction and check after installation is finished

Tick ✓ when checked	
	Is the indoor unit fixed firmly? The unit may drop, vibrate or make noise.
	Is the gas leak test finished? It may result in insufficient cooling.
	Is the unit fully insulated? Condensate water may drip.
	Does drainage flow smoothly? Condensate water may drip.
	Does the power supply voltage correspond to that shown on the name plate? The unit may malfunction or components may burn out.
	Are wiring and piping correct? The unit may malfunction or components may burn out.
	Is the unit safely grounded? Dangerous at electric leakage.
	Is the wiring size according to specifications? The unit may malfunction or components may burn out.
	Is nothing blocking the air outlet or inlet of either the indoor or outdoor units? It may result in insufficient cooling.
	Are refrigerant piping length and additional refrigerant charge noted down? The refrigerant charge in the system might not be clear.

Notes to the installer

- Read this manual carefully to ensure correct installation. Be sure to instruct the customer how to properly operate the system and show him/her the enclosed operation manual.
- Explain to the customer what system is installed on the site. Be sure to fill out the appropriate installation specifications in the chapter "What to do before operation" of the outdoor unit operation manual.

IMPORTANT INFORMATION REGARDING THE REFRIGERANT USED

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.

Refrigerant type: R410A GWP⁽¹⁾ value: 1975

(1) GWP = global warming potential

Periodical inspections for refrigerant leaks may be required depending on European or local legislation. Please contact your local dealer for more information.

SELECTING INSTALLATION SITE

When the conditions in the ceiling are exceeding 86°F and a relative humidity of 80%, or when fresh air is inducted into the ceiling, an additional insulation is required (minimum 0.8 in thickness, polyethylene foam).

For this unit you can select different air flow directions. It is necessary to purchase an optional blocking pad kit to discharge the air in 2 or 3 directions.

- Select an installation site where the following conditions are fulfilled and that meets your customer's approval.
 - · Where optimum air distribution can be ensured.
 - · Where nothing blocks air passage.
 - · Where condensate water can be properly drained.
 - · Where the false ceiling is not noticeably on an incline.
 - Where sufficient clearance for maintenance and service can be ensured.
 - Where piping between indoor and outdoor units is possible within the allowable limit. (Refer to the installation manual of the outdoor unit)
 - This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
 - Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 3.28 ft 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 3.28 ft is kept.)

2 Ceiling height

Install this unit where the height of bottom panel is more than 8.2 ft so that the user cannot easily touch.

3 Air flow directions

Select the air flow directions best suited to the room and point of installation. (For air discharge in 2 or 3 directions, it is necessary to make field settings by means of the remote controller and to close the air outlet(s). Refer to the installation manual of the optional blocking pad kit and to the chapter "Field setting" on page 10.) (See figure 2 (& = air flow direction))

- 1 Air discharge in 4 directions
- 2 Air discharge in 3 directions
 - Air discharge in 2 directions
- 4 Use suspension bolts for installation. Check whether the ceiling is strong enough to support the weight of the indoor unit. If there is a risk, reinforce the ceiling before installing the unit

(The installation pitch is marked on the paper pattern for installation. Refer to it to check for points requiring reinforcing.) Space required for installation see figure 6 ($\ \oplus \ = \$ air flow direction)

- 1 Air inlet
- 2 Air outlet

NOTE

Leave 8 in or more space where marked with * on sides where the air outlet is closed.



DANGER

Do not install the unit in an area where flammable materials are present due to risk of explosion resulting in serious injury or death.



WARNING

If the basis underneath the unit is not strong enough to support the weight of the unit, the unit could be fall out of place and cause serious injury.

PREPARATIONS BEFORE INSTALLATION

Relation of ceiling opening to unit and suspension bolt position. (See figure 7)

- Decoration panel dimensions
- 2 Ceiling opening dimensions
- 3 Indoor unit dimensions
- 4 Suspension bolt pitch dimensions
- 5 Refrigerant piping
- 6 Suspension bolt (x4)
- 7 False ceiling
- 8 Hanger bracket

NOTE

Installation is possible with a ceiling opening dimension of 26 in (marked with *). However, to achieve a ceiling-panel overlapping dimension of 0.8 in, the spacing between the ceiling and the unit should be 1.8 in; or less. If the spacing between ceiling and the unit is over 1.8 in, attach sealing material in the part marked or recover the ceiling.

(See figure 3)

- 1 Sealing material
- 2 False ceiling

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

- Refer to the paper pattern for installation for the ceiling opening dimensions.
- Create the ceiling opening required for installation. From the side
 of the opening to the casing outlet, implement the refrigerant and
 drain piping and wiring for remote controller and indoor-outdoor
 unit wiring. Refer to each piping or wiring section.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

3. Install the suspension bolts. (Use either a M8 or M10 size bolt.)

Use anchors for existing ceilings, and a sunken insert, sunken anchors or other field supplied parts for new ceilings to reinforce the ceiling in order to bear the weight of the unit. Adjust clearance from the ceiling before proceeding further.

Installation example see figure 4.

- 1 Ceiling slab
- 2 Anchor
- 3 Long nut or turn-buckle
- 4 Suspension bolt
- 5 False ceiling

NOTE

All the above parts are field supplied.



For other installation than standard installation, contact your Daikin dealer for details.

INDOOR UNIT INSTALLATION

When installing optional accessories, read also the installation manual of the optional accessories. Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed (except for the decoration panel). However, for existing ceilings, install fresh air inlet component kit and branch duct before installing the unit.

1. Install the indoor unit temporarily.

 Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer from the upper and lower sides of the hanger bracket.

Securing the hanger bracket see figure 5.

- 1 Nut (field supply)
- 2 Hanger bracket
- 3 Washer (supplied with the unit)
- 4 Tighten with double nuts (field supply)

Fix the paper pattern for installation. (For new ceilings only.)

- The paper pattern for installation corresponds with the measurements of the ceiling opening. Consult the builder for details.
- The centre of the ceiling opening is indicated on the paper pattern for installation. The centre of the unit is indicated on the paper pattern for installation.
- After removing the packaging material from the paper pattern for installation, attach the paper pattern for installation to the unit with the supplied screws as shown in figure 8.
 - 1 Paper pattern for installation (supplied with the unit)
 - 2 Screws (supplied with the unit)

3. Adjust the unit to the right position for installation.

(Refer to the chapter "Preparations before installation" on page 5.)

4. Check if the unit is horizontally levelled.

- Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch.
 (If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.)
- Check if the unit is levelled at all four corners with a water level or a water-filled vinyl tube as shown in figure 9.
 - 1 Water level
 - 2 Vinyl tube
- Remove the paper pattern for installation. (For new ceilings only.)

REFRIGERANT PIPING WORK



All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.

- For refrigerant piping of outdoor unit, refer to the installation manual supplied with the outdoor unit.
- Execute heat insulation work completely on both sides of the gas piping and the liquid piping. Otherwise, this can sometimes result in water leakage.
 - (When using a heat pump, the temperature of the gas piping can reach up to approximately 250°F. Use insulation which is sufficiently resistant.)
- Also, in cases where the temperature and humidity of the refrigerant piping sections might exceed 86°F or RH 80%, reinforce the refrigerant insulation (0.8 in or thicker). Condensation may form on the surface of the insulating material.
- Before rigging tubes, check which type of refrigerant is used.
- Use a pipe cutter and flare suitable for the used refrigerant.
- Apply ether oil or ester oil around the flare portions before connecting.
- To prevent dust, moisture or other foreign matter from infiltrating the tube, either pinch the end, or cover it with tape.
- Use copper alloy seamless pipes (ISO 1337).
- The outdoor unit is charged with refrigerant.
- Be sure to use both a spanner and torque wrench together when connecting or disconnecting pipes to/from the unit.
 - 1 Torque wrench
 - 2 Spanner
 - 3 Piping union
 - 4 Flare nut



- Do not mix anything other than the specified refrigerant, such as air, etc., inside the refrigerant circuit.
- Refer to the table below for the dimensions of flare nuts and the appropriate tightening torque. (Overtightening may damage the flare and cause leaks.)

Pipe gauge (in)	Tightening torque (ft-lbf)	Flare dimension A (in)	Flare shape
Ø1/4	10.5~12.7	0.343~0.358	90°±2
Ø3/8	24.1~29.4	0.504~0.520	A 450-22
Ø1/2	36.5~44.5	0.638~0.654	R0.016~0.031
Ø5/8	45.6~55.6	0.760~0776	11.0010-0.031

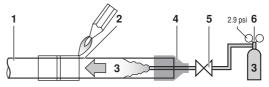


CAUTION to be taken when brazing refrigerant piping

Do nut use flux when brazing refrigerant piping. Therefore, use the phosphor copper brazing filter metal (BCuP) which does not require flux.

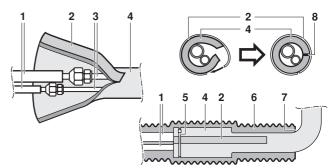
Flux has an extremely negative effect on refrigerant piping systems. For instance, if chlorine based flux is used, it will cause pipe corrosion. If the flux contains fluorine, it will damage the refrigerant oil.

When brazing the refrigerant piping, only begin brazing after having carried out nitrogen substitution (refer to the manual for multi installation for buildings for directions on how to carry out nitrogen substition) or while inserting nitrogen into the refrigerant piping (refer to the figure below). Once this is done, connect the indoor unit with a flared or a flanged connection.



- 1 Refrigerant piping
- 2 Part to be brazed
- 3 Nitrogen
- 4 Taping
- 5 Hands valve
- 6 Pressure reducing valve
 The nitrogen must be set to 2.9 psi when brazing while inserting nitrogen into the piping
- After checking for gas leaks, be sure to insulate the pipe connections using supplementary piping insulation and insulating tape as shown in the figure below.

The insulating tape must be wrapped starting from the L-shaped bend in the piping all the way to the end of the pipe inside the unit.



- Local piping
- 2 Insulation tape
- 3 Indoor unit piping
- 4 Indoor unit piping insulation
- 5 Clamp (field supply)
- 6 Insulating tape
- 7 Starting point for taping the insulation
- Attach the insulation tape so that there are no gaps in the insulation seam



CAUTION

Be sure to insulate all field piping all the way to the piping inside the unit. Exposed piping may produce condensation or cause burns if touched.

NOTE

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Not recommended but in case of emergency.

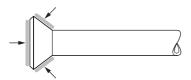
You must use a torque wrench but if you are obliged to install the unit without a torque wrench, you may follow the installation method mentioned below.

After the work is finished, make sure to check that there is no gas leak.

When you keep on tightening the flare nut with a spanner, there is a point where the tightening torque suddenly increases. From that position, further tighten the flare nut within the angle shown below:

Pipe size (in)	Further tightening angle	Recommended arm length of tool (in)
Ø1/4	60~90°	±5 7/8
Ø3/8	60~90°	±7 7/8
Ø1/2	30~60°	±9 13/16
Ø5/8	30~60°	±11 13/16

When connecting the flare nut, coat the flare both inside and outside with refrigerating ether or ester oil and initially tighten by hand 3 or 4 turns before tightening firmly. Coat here with ether oil or ester oil



- Check the pipe connector for gas leaks, then insulate it as shown in figure 12.
 - 1 Liquid pipe
 - 2 Gas pipe
 - 3 Insulation for fitting of liquid line (supplied with the unit)
 - 4 Insulation for fitting of gas line (supplied with the unit)
 - 5 Clamps (use 2 clamps per insulation)
 - 6 Small sealing pad (supplied with the unit)
- Wrap the sealing pad only around the insulation for the joints on the gas piping side.



Be sure to insulate any field piping all the way to the piping connection inside the unit. Any exposed piping may cause condensation or burns if touched.

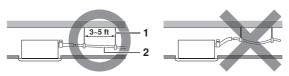


DANGER

- If refrigerant gas leaks during the work, ventilate the area. A toxic gas is emitted by the refrigerant gas being exposed to a fire and could result in severe injury or death.
- Finally make sure there is no refrigerant gas leak. A toxic gas may be released by the refrigerant gas leaking indoor and being exposed to flames from an area heater, cooking stove, etc. and could result in severe injury or death.

DRAIN PIPING WORK

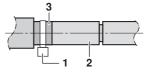
Rig the drain piping as shown in figure and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.



- Hanging bar
- 2 ≥1/100 gradient

1. Install the drain pipes.

- Keep piping as short as possible and slope it downwards so that air may not remain trapped inside the pipe.
- Keep pipe size equal to or greater than that of the connecting pipe (PVC pipe, nominal diameter 0.8 in, outside diameter 1 in).
- Insert the drain hose into the drain socket up to the base, and tighten the clamp securely within the portion of a grey tape.
- Tighten the clamp until the screw head is less than 0.16 in from the hose.
 - Metal clamp (supplied with the unit)
 - 2 Drain hose (supplied with the unit)
 - Grey tape (field supply)



- · Insulate the drain hose inside the building.
- If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping (field supply).
- 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
- Wrap the supplied sealing pad over the clamp and drain hose to insulate.
 - Metal clamp (supplied with the unit)
 - 2 Large sealing pad (supplied with the unit)



How to perform piping (See figure 15)

- Ceiling slab
- 2 Hanger bracket
- 3 Drain raising pipe
- 4 Raising section
- 5 Drain hose (supplied with the unit)
- 6 Metal clamp (supplied with the unit)

Precautions

- Install the drain raising pipes at a height of less than 21 in.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 11.5 in from the unit.

NOTE



- The incline of attached drain hose should be 3 in or less so that the drain socket does not have to stand additional force.
- To ensure a downward slope of 1:100, install hanging bars every 3 to 5 ft.
- If unifying multiple drain pipes, install the pipes as shown in figure 10. Select converging drain pipes whose gauge is suitable for the operating capacity of the unit.
 - T-joint converging drain pipes

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

- Open the water inlet lid, add approximately 0.53 U.S. gallons of water gradually and check the drainage flow. Method of adding water. See figure 13.
 - 1 Drain pipe
 - Service drain outlet with rubber plug. Use this outlet to drain water from the drain pan.
 - 3 Plastic container for pouring



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.

Keep in mind that it will become the cause of getting drain pipe blocked if water collects on drain pipe.

When electric wiring work is finished

Check drainage flow during COOL running, explained in the chapter "Test operation" on page 12.

When electric wiring work is not finished

Remove the switch box lid and connect the power supply and remote controller to the terminals.

See figure 22.

- 1 Switch box lid
- 2 Remove the switch box lid (take off 2 screws)
- 3 Power supply terminal block
- 4 Remote controller terminal block
- 5 Remote controller wiring
- Next, press the inspection/test operation button on the remote controller. The unit will engage the test operation mode. Press the operation mode selector button electing fan operation on the control of the contro
- Note that the fan also starts rotating.
- Attach the switch box lid as before.

ELECTRIC WIRING WORK

General instructions

- All field supplied parts and materials and electric works must conform to local codes.
- Use copper wire only.
- Follow the "Wiring diagram" attached to the unit body to wire the outdoor unit, indoor units and the remote controller. For details on hooking up the remote controller, refer to the "Installation manual of the remote controller".
- 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.
 - Note that the operation will restart automatically if the main power supply is turned off and then turned back on again.
- This system consists of multiple indoor units. Mark each indoor unit as unit A, unit B..., and be sure the terminal board wiring to the outdoor unit and BS unit are properly matched. If wiring and piping between the outdoor unit and an indoor unit are mismatched, the system may cause a malfunction.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Be sure to ground the air conditioner.



DANGER

Do not connect the ground wire to water pipes, telephone wires or lightning rods because incomplete grounding could cause a severe electrical shock and hazard resulting in severe injury or death.

Do not connect the ground wire to gas pipes because a gas leak could result in an explosion and lead to severe injury or death.

Electrical characteristics

		Units		wer oply	Fan n	notor	
Model	Hz	Volts	Voltage range	MCA	MFA	kW	FLA
FXZQ07				0.8	15	0.055	0.6
FXZQ09	60	208-230	≤253	0.8	15	0.055	0.6
FXZQ12	00 206-230	≥188	0.8	15	0.055	0.6	
FXZQ18				0.9	15	0.055	0.7

MCA: Min. circuit Amps (A) MFA: Max. Fuse Amps (A) kW: Fan Motor Rated Output (kW) FLA: Full Load Amps (A)

NOTE For details, refer to "Electrical data".



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Specifications for field supplied fuses and wire

	Power su	upply wiring		ontroller wiring smission wiring
Model	Field fuses	Size, length	Wire	Size
FXZQ07		Wire size and length must comply with local codes.		
FXZQ09	15 A		Sheathed wire (2 wire)	AWG18-16
FXZQ12	15 A			AVVG16-16
FXZQ18		local codes.		

NOTE

- For details, refer to the chapter "Wiring example" on page 7.
- Allowable length of transmission wiring between indoor and outdoor units, and between the indoor unit and the remote controller is as follows:
 - Outdoor unit indoor unit: ≤3280 ft (total wiring length: 6560 ft)
 - . Indoor unit remote controller: ≤1640 ft
 - Insulated thickness: ≥1/16 in

WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

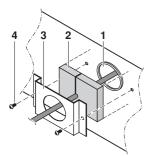
How to connect wiring (See figure 25)

Power supply wiring and ground wire

Remove the switch box lid and connect wires of matching number to the power supply terminal block (3P) inside. (See E). And connect the ground wire to the terminal block. In doing this, pull the wires inside through the hole in conduit mounting plate and the hole in the side plate of the unit. Fix the wires securely with a field supplied clamp. (See B).

Give enough slack to the wires between the clamp and power supply terminal block.

After connection, attach the sealing material. (See F). Be sure to attach it to prevent infiltration of water from the outside. Make sure that the slit in the sealing material is positioned vertically. After attaching the sealing, screw the conduit mounting plate using the 2 delivered screws (M4) to the side of the unit where the power supply cables enter the unit. (See F and figure below).



- Hole in the side plate of the unit
- 2 Sealing material
- 3 Conduit mounting plate
- 4 Screw (M4)

- Transmission wiring and remote controller wiring.
 - Remove the switch box lid and pull the wires inside through the hole and connect to the terminal block for remote controller (6P). (See C and A). (No polarity) Securely fix the remote controller cord with a field supplied clamp.

Give enough slack to the wires between the clamp and the terminal block for the remote controller.

After connection, attach sealing material. (See D). Be sure to attach it to prevent the infiltration of water from the outside.

- A Remote controller and transmission wiring
- **B** Power supply wiring
- C How to connect power supply terminal block (6P) for remote controller and transmission wiring
- D Be sure to attach delivered sealing material to prevent the infiltration of water as well as any insects and other small creatures from the outside. Otherwise a short-circuit may occur inside the switch box.
- E How to connect terminal block with ground wire (3P)
- Switch box lid
- Wiring diagram label (on the backside of the switch box lid)
- 3 Remote controller wiring
- 4 Transmission wiring
- 5 Terminal block for remote controller (6P)
- 6 Power supply wiring
- 7 Power supply terminal block
- 8 Clamp (field supply)
- 9 Clamp (field supply)
- 10 Clamp material
- 11 Sealing material (supplied with the unit)
- 12 Wiring to outside
- 13 Outside
- 14 Inside
- 15 Be sure to clamp the wire sheath. After securing the clamp to the clamp material, cut off any extra material.
- 16 Conduit mounting plate
- 17 Screw for conduit mounting plate (M4)

Precautions



Warning

- Never connect power supply wiring to the terminal block for remote controller wiring. This mistake could damage the entire system.
- Use only specified wire and connect wires to the terminal tightly. (Tightening torque 0.97 ft-lbf ±10%) Be careful not to place external stress on terminals.
- Keep wires in neat order so that they do not obstruct other equipment such as popping open of the service cover.
- Make sure that the lid of the electric component box fits tightly.
- Incomplete connections could result in overheating and result in electric shock or fire.
- To avoid a short circuit in the electric component box, be sure to apply sealing material or putty (field supply) to the wiring hole. By doing so you prevent infiltration of water and insects or other small creatures that could cause short circuit inside the electric component box.

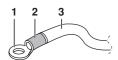


Caution

- When clamping the wiring, be sure no tension is applied to the wire connections by using the included clamp.
- Make sure the lid of the electric component box fits snugly by arranging wires neatly and attaching the service lid firmly. When attaching the service lid, make sure no wirings get caught in the edges. To prevent damage to the wiring, pass them through the foreseen wiring through holes.
- Make sure the remote controller wiring and transmission wiring between units and other electrical wiring do not pass through the same locations outside the unit. Separate these wirings by at least 5 in, otherwise electrical noise (external static) could cause incorrect operation or damage.

Wiring connection method

 Use ring-type crimp style terminals for connections to the power terminal block.



- 1 Ring type crimp style terminal
- 2 Insulation sleeve
- Electric wire

Insulate the crimped area by attaching an insulation sleeve, etc.

- If ring-type crimp style terminals are not available, connect the terminals to the terminal block as follows:
 - Wiring of different thicknesses can not be connected to the power terminal block. A loose connection could cause abnormal heating.
 - When connecting wires of the same diameter, make the connection to both sides of the same gauge.







- Use an appropriate screwdriver for tightening the terminal screw. Using a screwdriver that is too small could damage the screw head and prevent proper tightening.
- Over tightening the terminal screw could damage the screw. Refer to the table below for the terminal screw tightening torque.

Terminal screw size	Location	Tightening torque (ft-lbf)
M3.5	Remote controller, transmission wiring and forced off terminal block (6P)	0.58~0.72
M4	Power supply and ground terminal block (3P)	0.87~1.06

- Do not connect wires of different gauge to the same ground terminal. Looseness in the connection may decrease the protection.
- Keep the transmission wiring and power supply wiring separated by at least 2.0 in.
 - Not doing so could cause the transmission wiring to pick up electric noise (external noise) and result in a malfunction or breakdown.
- For remote controller wiring, refer to the installation manual delivered with the remote controller.

WIRING EXAMPLE

- Fit the power supply wiring of each unit with a switch and fuse as shown in figure 18.
 - 1 Outdoor unit
 - 2 Power supply
 - 3 Main switch
 - 4 BS unit (only for heat recovery system)
 - 5 Indoor unit
 - 6 Remote controller
 - 7 Switch
 - 8 Fuse

Power supply wiring

Transmission and remote controller wiring

Complete system example (3 systems)

- See figures 19, 20 and 21.
 - Outdoor unit
 - 2 Indoor unit
 - 3 Remote controller (Optional accessories)
 - 4 Most downstream indoor unit
 - For use with 2 remote controllers
 - 6 BS unit

When using 1 remote controller for 1 indoor unit. (Normal operation.) (See figure 19).

For group control or use with 2 remote controllers (See figure 20). When including BS unit (See figure 21).



It is not necessary to designate indoor unit address when using group control. The address is automatically set when power is activated.

Precautions

- A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- For a group control remote controller, choose the remote controller that suits the indoor unit which has the most functions.
- Do not ground the equipment on gas pipes, water pipes, lightning rods or crossground with telephones. Improper grounding could result in electric shock.

FIELD SETTING

Field setting must be made on the remote controller in function of the installation condition.

- Setting can be made by changing the "Mode number", "First code No." and "Second code No.".
- For setting and operation, refer to the "Field settings" in the installation manual of the remote controller.

Summary of field settings

Mode	Mode First				Second code No. (Note 2)					
No.	code	code		01						
(Note 1)	No.	Pilter contamination - Heavy/Light = Setting to define time between 2 filter	Ultra-long- life filter		±10,000 hrs.		±5,000 hrs.	03	04	
	0	cleaning display indications. (When contamination is high, setting can be changed to half the	Long-life filter	Light	±2,500 hrs.	Heavy	±1,250 hrs.	_	_	
		time inbetween 2 filter cleaning display indications.)	Standard filter		±200 hrs.		±100 hrs.			
	1	Long-life filter type Change the setting v long-life filter is insta This setting is import between 2 filter clear indications (refer to 1	lled. ant for time ning display	Loi	ng-life filter	Ult	ra-long-life er	_	_	
10 (20)	2	Thermostat sensor s	election	uni rer ins the cor ser	e both the t sensor (or note sensor if talled) AND e remote ntroller nsor. ee note 5+6)	onl ser ins	e unit sensor y (or remote nsor if talled). ee note 5+6)	Use remote controller sensor only. (See note 5+6)	_	
	3	Setting for display of between 2 filter clear indications		Dis	splay	Do	not display	_	_	
	5	Information to I-man	ager,	val ser	ly unit sensor ue (or remote nsor value if talled).	ote Serisor value as		_	_	
	6	Thermostat sensor in group control			e unit sensor y (or remote nsor if talled). ee note 6)	Use both the unit senor (or remote sensor if installed) AND the remote controller sensor. (See note 4+5+6)		_	_	
	0	Output signal X1-X2 of the optional KRP1B PCB kit		Thermostat-on+		Operation	Mal- function			
	1	ON/OFF input from outside (T1/T2 input) = Setting when forced ON/OFF is to be operated from outside.			rced OFF	ON/OFF operation		_	_	
12 (22)	2	Thermostat differential changeover = Setting when remote sensor is used.			:	1°F		_	_	
(22)	3	Fan setting during th OFF at heating open		LL		Se	t speed	OFF (See note 3)	_	
	4	Differential automatic changeover		0°F		1.8°F		3.6°F	5.4°F (See note 7)	
	5	Auto-restart after por	wer failure	Dis	abled	Enabled		_	_	
	9	Fixed cool/heat mast	ter	Dis	abled	En	abled	_	_	
	0	Setting for air outlet velocity This setting is to be changed in function of ceiling height.		≤9	ft	>9 ≤10 ft		>10 ≤11.5 ft	_	
13	1	Selection for air flow This setting is to be ownen blocking pad of is used.	changed	4-way flow		3-way flow		2-way flow	_	
(23)	4	Airflow direction rang This setting is to be a when range of swing movement needs to changed.	changed Iflap be	Upper		No	rmal	Lower	_	
	5	Setting for adjustment speed (phase control		Sta	andard	Option 1		Option 2	_	
15 (25)	3	Drain pump operatio humidifier interlock	n +	Eq	uipped	No	t equipped	_	_	

Note 1: Setting is carried out in the group mode, however, if the mode number inside parentheses is selected, indoor units can also be set individually.

Factory settings of the Second code No. are marked in grey backgrounds

Note 3: Only use in combination with optional remote sensor or when setting 10-2-03 is used.

Note 4: If group control is selected and remote control sensor is to be used, then set 10-6-02 & 10-2-03. Note 5: If setting 10-6-02 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting 10-2-01,

10-2-02 or 10-2-03 have priority.

Note 6: If setting 10-6-01 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting for group connection, 10-6-01 has priority and for individual connection, 10-2-01, 10-2-02 or 10-2-03 have

priority.

More settings for Differential automatic change over temperatures are Second code No.

Control by 2 Remote Controllers (Controlling 1 indoor unit by 2 remote controllers)

When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

Main/Sub changeover

- Insert a wedge-head screwdriver into the recess between the upper and lower part of the remote controller and, working from the 2 positions, pry off the upper part. (See figure 14) (The remote controller PC board is attached to the upper part of the remote controller.)
- Turn the main/sub changeover switch on one of the two remote controller PC boards to "S". (See figure 17) (Leave the switch of the other remote controller set to "M".)
 - Remote controller PC board
 - 2 Factory setting
 - 3 Only one remote controller needs to be changed

Computerised control (forced off and on/off operation)

- Wire specifications and how to perform wiring.
 - Connect input from outside to terminals T1 and T2 of the terminal board (remote controller to transmission wiring).

Wire specification	Sheathed vinyl cord or cable (2 wire)
Gauge	AWG18-16
Length	≤328 ft
External terminal	Contact that can ensure the minimum applicable load of 15 V DC, 10 mA

See figure 11

1 Input A

Actuation

The following table explains "forced off" and "on/off operations" in response to input A.

Forced off	on/off operation
Input "on" stops operation	input off → on: turns on the unit (impossible by remote controllers)
Input "off" enables control	input on → off: turns off the unit (by remote controller)

- How to select forced off and on/off operation
 - Turn the power on and then use the remote controller to select operation.
 - Set the remote controller to the field set mode. For details, refer to the chapter "How to set in the field", in the manual of the remote
 - When in the field set mode, select mode No. 12, then set the first code (switch) No. to "1". Then set second code (position) No. to "01" for forced off and to "02" for on/off operation. (forced off at factory set.) (See figure 23)

Second code No. 3 First code No. 2 Mode No Field set mode

Centralized control

For centralized control, it is necessary to designate the group No. For details, refer to the manual of each optional controller for centralized control.

INSTALLATION OF THE DECORATION PANEL

Read the chapter "Test operation" on page 12 before making a test run without attaching the decoration panel.

Refer to the installation manual delivered with the decoration panel.

After installing the decoration panel, ensure that there is no space between the unit body and decoration panel. Otherwise air may leak through the gap and cause dewdrop. (See figure 16)

TEST OPERATION

Refer to the installation manual of the outdoor unit.

The operation lamp of the remote controller will blink when an error occurs. Check the error code on the liquid crystal display to identify the trouble. An explanation of error codes and the corresponding trouble are provided on "Caution for servicing" of the outdoor unit.

If any of the items in the table below are displayed, there may be a problem with the wiring or power, so check the wiring again.

Remote control display	Content
"Concentrated Management" is lit up	■ There is a short circuit at the FORCED OFF terminals (T1, T2)
"U4" is lit up "UH" is lit up	 The power on the outdoor unit is OFF. The outdoor unit has not been wired for power supply. Incorrect wiring for the transmission wiring and/or FORCED OFF wiring.
No display	 The power on the indoor unit is OFF. The indoor unit has not been wired for power supply. Incorrect wiring for the remote controller wiring, the transmission wiring and/or the FORCED OFF wiring.

MAINTENANCE

IMPORTANT

- ONLY A QUALIFIED SERVICE PERSON IS ALLOWED TO PERFORM MAINTENANCE.
- BEFORE OBTAINING ACCESS TO TERMINAL DEVICES, ALL POWER SUPPLY CIRCUITS MUST BE INTERRUPTED.
- DO NOT USE WATER OR AIR OF 120°F OR HIGHER FOR CLEANING AIR FILTERS AND OUTSIDE PANELS.
- WHEN CLEANING THE HEAT EXCHANGER, BE SURE TO REMOVE THE SWITCHBOX, FAN MOTOR AND DRAIN PUMP. WATER OR DETERGENT MAY DETERIORATE THE INSULATION OF ELECTRIC COMPONENTS AND RESULT IN BURN-OUT OF THESE COMPONENTS.

See figure 24

- 1 Indoor unit
- 2 Drain pumping out device (built-in) Drain water removed from the room during cooling.
- Power supply wiring 3
- 4 Drain pipe
- 5 Suction grille
- 6 Air filter (inside suction grille)
- 7 Model name label (inside suction grille)
- 8 Air flow flap (at air outlet)
- 9 Refrigerant pipe
- Transmission wiring 10
- 11 Air outlet
- 12 Grounding wire Conducts electricity from the unit into the ground to prevent electric shock.
- 13 Remote controller

How to clean the air filter

Clean the air filter when the display shows " (TIME TO CLEAN AIR FILTER).

Increase the frequency of cleaning if the unit is installed in a room where the air is extremely contaminated.

(As a yardstick for yourself, consider cleaning the filter once a half

If dirt becomes impossible to clean, change the air filter. (Air filter for exchange is optional.)

- 1. Open the suction grill. Push both knobs simultaneously and carefully lower the grille.
 - (Identical procedure for closing.) (See figure 26)
- Remove the air filters.
 - Pull the hook of the air filter out diagonally downward and remove the filter. (See figure 27)
- Clean the air filter.

Use a vacuum cleaner or wash the air filter with water. When the air filter is very dirty, use a soft brush and neutral





Remove water and dry in the shade.

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4. Fix the air filter.

Attach the air filter to the suction grill by hanging it to the projected portion above the suction grill.

Press the bottom of the air filter against the projections on the bottom of the grille to snap the air filter into its place. (See figure 28)

5. Shut the air inlet grill. Refer to item No. 1.

6. After turning power on, press the FILTER SIGN RESET button. The "TIME TO CLEAN AIR FILTER" display disappears. (For details, refer to the operation manual of the outdoor unit.)

NOTE

Do not remove the air filter except when cleaning. Unnecessary handling may damage the filter.

How to clean the air outlet and outside panels

- Clean with a soft cloth.
- When it is difficult to remove stains, use water or neutral detergent.
- When the blade is extremely contaminated, remove it as below and clean it.

NOTE

- Do not use gasoline, benzene, thinner, polishing powder nor liquid insecticide. It may cause discoloring or warping.
- Do not let the indoor unit get wet. It may cause electric shock or fire.

How to clean the suction grill

1. Open the suction grill.

Push both knobs simultaneously and carefully lower the grille. (Identical procedure for closing.) (See figure 26)

2. Detach the suction grill.

Open the suction grill 45 degrees and lift it upward. (See figure 29)

3. Detach the air filter.

See the figure in item No. 2 in chapter "How to clean the air filter" on page 12.

4. Clean the suction grill.

Wash it with a soft brush and neutral detergent, and dry thoroughly.



NOTE

When the suction grill is very dirty, use a typical kitchen cleaner and let it sit for about 10 minutes. Then, wash it with water.

5. Fix the air filter.

See the figure in item No. 4 in chapter "How to clean the air filter" on page 12.

6. Re-attach the suction grill.

See item No. 2.

7. Close the suction grill.

See item No. 1.

DISPOSAL REQUIREMENTS

Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.

WIRING DIAGRAM

:: :: ::	FIELD WIRING	BLK	: BLACK	PNK	: PINK
:1	TERMINAL	BLU	: BLUE	RED	: RED
∞, –(■– :0	CONNECTOR	GRN	: GREEN	WHT	:WHITE
		ORG	: ORANGE	YLW	:YELLOW

A1P.....PRINTED CIRCUIT BOARD

C1 CAPACITOR (M1F)

F1U.....FUSE (B, 5 A, 250 V)

HAPLIGHT EMITTING DIODE (SERVICE MONITOR - GREEN)

KPR MAGNETIC RELAY (M1P)

M1F MOTOR (INDOOR FAN)

M1P MOTOR (DRAIN PUMP)

M1S MOTOR (SWING FLAP)

Q1M.....THERMAL PROTECTOR (M1F EMBEDDED)

R1T.....THERMISTOR (AIR)

R2T.....THERMISTOR (COIL LIQUID)

R3T.....THERMISTOR (COIL GAS)

S1L FLOAT SWITCH

T1R.....TRANSFORMER (208~230 V/22 V)

V1TR PHASE CONTROL CIRCUIT (TRIAC)

X1M,X2M.....TERMINAL BLOCK

Y1E..... ELECTRONIC EXPANSION VALVE

WIRED REMOTE CONTROLLER

R1T.....THERMISTOR (AIR)

SS1.....SELECTOR SWITCH (MAIN/SUB)

RECEIVER/DISPLAY UNIT (ATTACHED TO WIRELESS REMOTE CONTROLLER)

A3P,A4P.....PRINTED CIRCUIT BOARD

BS1.....ON/OFF BUTTON

H1P.....LIGHT EMITTING DIODE (RED)
H2P.....LIGHT EMITTING DIODE (GREEN)
H3P.....LIGHT EMITTING DIODE (RED)

H4P.....LIGHT EMITTING DIODE (ORANGE)

SS1.....SELECTOR SWITCH (MAIN/SUB)

SS2.....SELECTOR SWITCH (WIRELESS ADDRESS SET)

CONNECTOR FOR OPTIONAL PARTS

X16A.....CONNECTOR (ADAPTOR FOR WIRING)

X18A......CONNECTOR (ADAPTOR FOR ELECTRICAL APPENDICES)

POWER SUPPLY :

RECEIVER/DISPLAY UNIT

WIRED REMOTE CONTROLLER

CONTROL BOX

INPUT FROM OUTSIDE

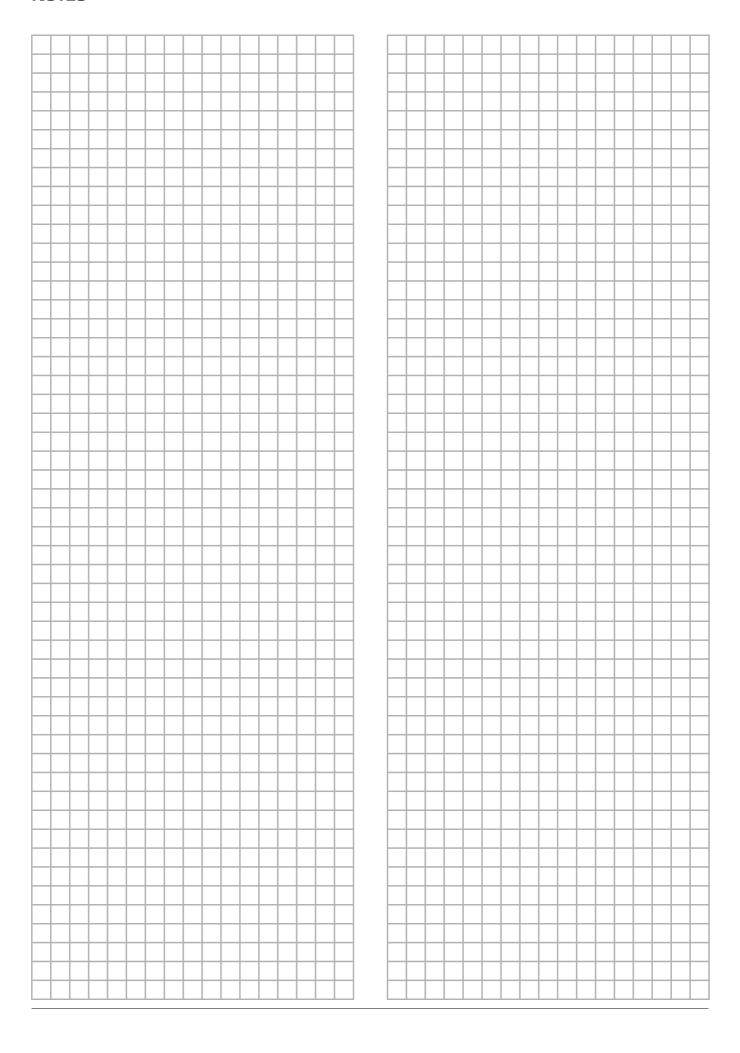
TRANSMISSION WIRING

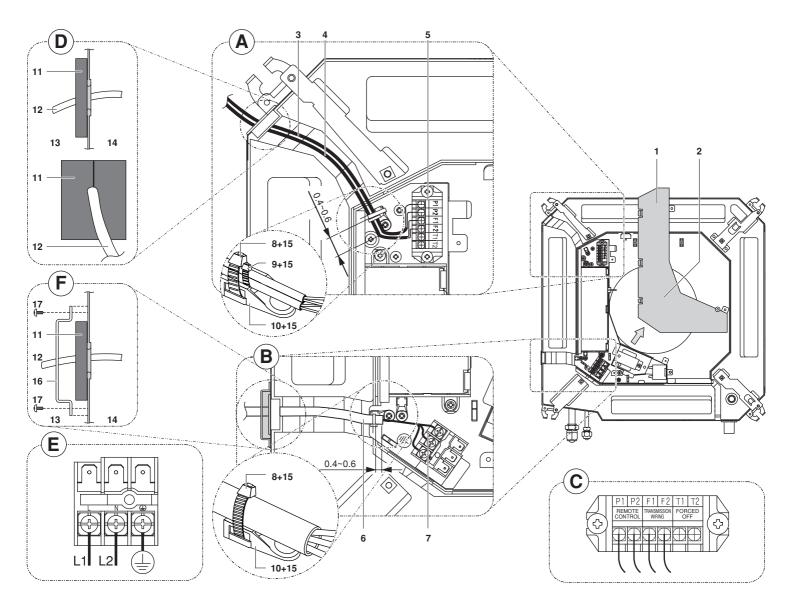
CENTRAL REMOTE CONTROLLER

NOTE

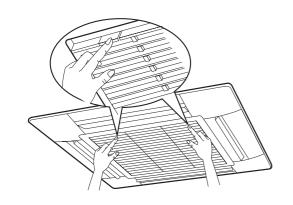
- 1. WHEN USING THE CENTRAL REMOTE CONTROLLER, SEE INSTALLATION MANUAL FOR CONNECTION TO THE UINIT.
- 2. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER IS USED.
- 3. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. SEE INSTALLATION MANUAL FOR MORE DETAILS.
- 4. REMOTE CONTROLLER VARIES ACCORDING TO THE COMBINATION SYSTEM. SEE TECHNICAL DATA AND CATALOGS. ETC., BEFORE CONNECTING.

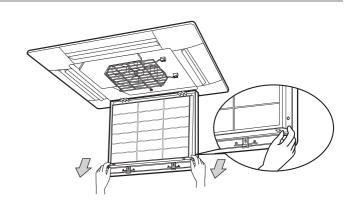
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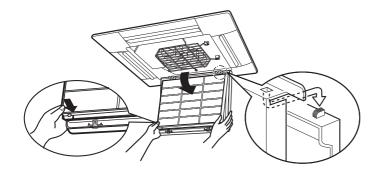


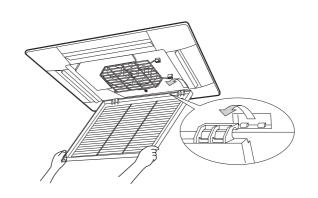
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