Panasonic

Model No.: S-18PU**** S-2124PU**** S-3448PU****

Installation Instruction

ACXF60-46931

⚠ CAUTION

R32
REFRIGERANT

This Air Conditioner contains and operates with refrigerant R32.

THIS PRODUCT MUST ONLY BE INSTALLED OR SERVICED BY QUALIFIED PERSONNEL.

Refer to National, State, Territory and local legislation, regulations, codes, installation & operation manuals, before the installation, maintenance and/or service of this product.

Required tools for Installation Works

1 Phillips screw driver
2 Flathead screwdriver
3 Level gauge
4 Electric drill, hole core drill (ø70 mm)
5 Hexagonal wrench (4 mm)
6 Spanner
7 Pipe cutter
8 Reamer
9 Knife
10 Gas leak detector
11 Measuring tape
12 Thermometer
13 Megohmmeter
14 Multimeter
15 Torque wrench
18 N•m (1.8 kgf•m)
42 N•m (4.3 kgf•m)
55 N•m (5.6 kgf•m)
65 N•m (6.6 kgf•m)
16 Vacuum pump
17 Gauge manifold

Explanation of symbols displayed on the indoor unit or outdoor unit.

WARNING	This symbol shows that this equipment uses a flammable refrigerant. If the refrigerant is leaked, together with an external ignition source, there is a possibility of ignition.
CAUTION	This symbol shows that the Installation Manual should be read carefully.
CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the Installation Manual.
CAUTION	This symbol shows that there is information included in the Operation Manual and/or Installation Manual.

SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

⚠ WARNING	This indication shows the possibility of causing death or serious injury.
⚠ CAUTION	This indication shows the possibility of causing injury or damage to properties only.

The items to be followed are classified by the symbols:

⃠	Symbol with white background denotes item that is PROHIBITED.
❗ ⏚	Symbol with dark background denotes item that must be carried out.

- Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

⚠ WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. Any unfit method or using incompatible material may cause product damage, burst and serious injury.
- Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit on veranda of a high rise building, child may climb up to outdoor unit and cross over the handrail causing an accident.
- Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.
- Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.
- Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
- Do not sit or step on the unit, you may fall down accidentally.
- Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.
- When installing or relocating air conditioner, do not let any substance other than the specified refrigerant, eg. air etc mix into refrigeration cycle (piping). Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- Do not pierce or burn as the appliance is pressurized. Do not expose the appliance to heat, flame, sparks, or other sources of ignition. Else, it may explode and cause injury or death.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.
- ❗ For R32 model, use new piping, flare nut and tools which is specified for R32 refrigerant. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury. For R32 and R410A, the same flare nut on the outdoor unit side and pipe can be use.
  - ❗ Since the working pressure for R32/R410A is higher than that of refrigerant R22 models, replacing conventional piping and flare nuts on the outdoor unit side are recommended.
  - ❗ If reuse piping is unavoidable, refer to instruction ③ **REFRIGERANT INSTALLATION (IN CASE OF REUSING EXISTING REFRIGERANT PIPING)** in outdoor unit installation manual.
  - ❗ Thickness for copper pipes used with R32 must be more than 0.6 mm. Never use copper pipes thinner than 0.6 mm. For copper pipe ø15.88 or more use copper pipe thickness 0.8 mm and above.
  - ❗ It is desirable that the amount of residual oil less than 40 mg/10 m.
- ❗ Engage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.
- ❗ For refrigeration system work, install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
- ❗ Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.
- ❗ Install at a strong and firm location which is able to withstand weight of the set. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
- ❗ For electrical work, follow the national regulation, legislation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.
- ❗ Do not use joint cable for indoor / outdoor connection cable. Use the specified indoor/outdoor connection cable, refer to instruction ⑥ **ELECTRICAL WIRING** and connect tightly for indoor/outdoor connection. Clamp the cable so that no external force will have impact on the terminal. If connection or fixing is not perfect, it will cause heat up or fire at the connection.
- ❗ Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock.
- ❗ This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD), with sensitivity of 30mA at 0.1 sec or less. Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.
- ❗ During installation, install the refrigerant piping properly before running the compressor. Operation of compressor without fixing refrigeration piping and valves at opened position will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- ❗ During pump down operation, stop the compressor before removing the refrigeration piping. Removal of refrigeration piping while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- ❗ Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.
- ❗ After completion of installation, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.
- ❗ Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the refrigerant contacts with fire.
- ❗ Be aware that refrigerants may not contain an odour.
- ❗ This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electrical shock in case of equipment breakdown or insulation breakdown.

⚠ CAUTION

- ⃠ Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
- ⃠ Prevent liquid or vapor from entering sumps or sewers since vapor is heavier than air and may form suffocating atmospheres.
- ⃠ Do not overcharge the unit, refer to gas charge specification in Outdoor Installation manual. Overcharge will cause over current and damage to compressor.
- ⃠ Do not release refrigerant during piping work for installation, re-installation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
- ⃠ Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
- ⃠ Do not touch the sharp aluminium fin, sharp parts may cause injury.
- ❗ Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
- ❗ Select an installation location which is easy for maintenance. Incorrect installation, service or repair of this air conditioner may increase the risk of rupture and this may result in loss damage or injury and/or property.
- ❗ Indoor outdoor connection cable. Use power supply cord 4 x 2.5 mm² (2.0 ~ 6.0HP) type designation 60245 IEC 57 or heavier cord.
- ❗ Installation work. It may need two people to carry out the installation work.
- ❗ Keep any required ventilation openings clear of obstruction.

PRECAUTION FOR USING R32 REFRIGERANT

- The basic installation work procedures are the same as conventional refrigerant (R410A, R22) models. However, pay careful attention to the following points:

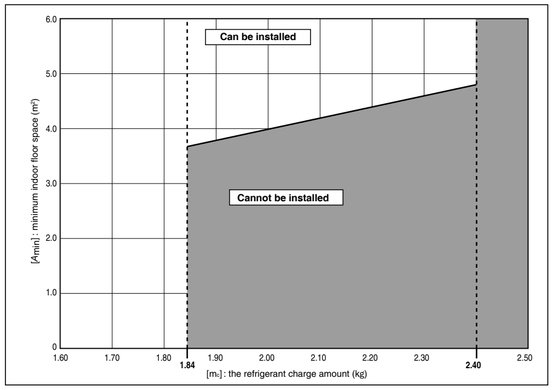
- ⃠ Do not perform flare connection inside a building or dwelling or room, when joining the heat exchanger of indoor unit with interconnecting piping. Refrigerant connection inside a building or dwelling or room must be made by brazing or welding. Joint connection of indoor unit by flaring method can only be made at outdoor or at outside of a buidling or dwelling or room. Flare connection may cause gas leak and flammable atmosfere.
- ❗ The appliance shall be stored, installed and operated in a well ventilated room with indoor floor area larger than A_{min} (m²) [Refer to Check of Density Limit] and without any continuously operating ignition source. Keep away from open flames, any operating gas appliances or any operating electric heater. Else, it may explode and cause injury or death.
- ❗ Refer to "PRECAUTION FOR USING R32 REFRIGERANT" in outdoor unit installation manual for other precautions that need to pay attention to.

Check of Density Limit

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space of appliance are determined according to the refrigerant charge amount [m_s] used in the appliance.

Regarding the refrigerant charge amount [m_s] used in the appliance, refer to the installation instructions for the outdoor unit.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:



[m_s] kg	[A_{min}]
1.84	3.7
1.9	3.8
2.0	4.0
2.1	4.2
2.2	4.4
2.3	4.6
2.4	4.8

$$A_{min} = (m_s / (2.5 \times (LFL)^{(5/4)} \times h_0))^2$$ ** not less than safety factor margin

A_{min} = Required minimum room area, in m²
m_s = Refrigerant charge in appliance, in kg
LFL = Lower flammability limit (0.307 kg/m³)
h_0 = Installation height of the appliance : (2.2 m for wall mounted)
SF = Safety factor with a value of 0.75

** The required minimum room area, A_{min}, shall also be governed by the safety factor margin formula below :

$$A_{min} = m_s / (SF \times LFL \times h_0)$$

The higher value shall be taken when determining the room area.

$m_s \leq 1.84$: Can be installed
$1.84 < m_s \leq m_{max}$: Can be installed above "Density Limit Line" *1

*1 Refer to table and the installation instructions of indoor unit when deciding "Density Limit Line".

INDOOR UNIT

ACCESSORIES PACKED IN THE INDOOR UNIT CONTAINER

Part Name	Figure	Q'ty	Remarks	Part Name	Figure	Q'ty	Remarks
Full-scale installation diagram		1	Printed on container box	Drain hose		1	
Washer		8	For suspension bolts	Hose band		1	For securing drain hose
Screw		4	For full-scale installation diagram	Clamper		4	For electrical wiring

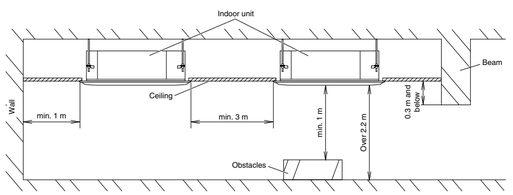
Following accessories are additionally provided for S-2124PU****

Part Name	Figure	Q'ty	Remarks
Different-diameter-tube joint		1	Gas socket tube A :ø15.88 → ø12.7
		1	Liquid socket tube B :ø9.52 → ø6.35

1 SELECTING THE LOCATION FOR THE INDOOR UNIT

Provide a check port on the piping side ceiling for repair and maintenance.

- Install the indoor unit once the following conditions are satisfied and after receiving the customer approval.
  1. The indoor unit must be within a maintenance space.
  2. The indoor unit must be free from any obstacles in path of the air inlet and outlet, and must allow spread of air throughout the room.



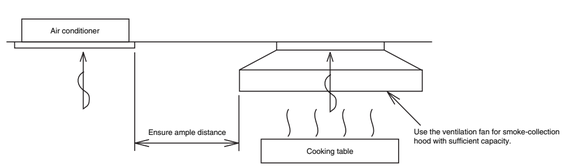
- If the height from the floor to ceiling exceeds three meters, air flow distribution deteriorates and the effect is decreased.

⚠ WARNING

3. The installation position must be able to support a load four times the indoor unit weight.
4. The indoor unit must be away from heat and sources of steam, but avoiding installation near an entrance.
5. The indoor unit must allow easy draining.
6. The indoor unit must allow easy connection to the outdoor unit.
7. Place the indoor unit according to the height from the ceiling shown in the illustration below.
8. The indoor unit must be at least 3 m away from any noise-generating equipment. The electrical wiring must be shielded with a steel conduit.
9. If the power supply is subject to noise generation, add a suppressor.
10. Do not install the indoor unit in a laundry. Electric shocks may result.
11. Installation height for indoor unit shall be at least 2.2 m.

Note ● Thoroughly study the following installation locations

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the turbo fan, the fin of the heat exchanger and the drain pump, resulting in heat exchange reduction, spraying, dispersing of water drops, drain pump malfunction, etc. In these cases, take the following actions:
   - Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
   - Make sure there is enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.



2. Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist, especially in factories, etc.
3. Avoid places where inflammable gas is generated, flows-in, contaminated, or leaked.
4. Avoid places where sulphurous acid gas or corrosive gas can be generated.
5. Avoid places near high frequency generators.

2 INSTALLATION OF INDOOR UNIT

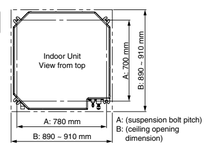
This air conditioner uses a drain up motor. Horizontally install the unit using a level gauge.

CEILING OPENING DIMENSIONS AND HANGING BOLT LOCATION

The paper model for installation expand or shrink according to temperature and humidity. Check on dimensions before use it.

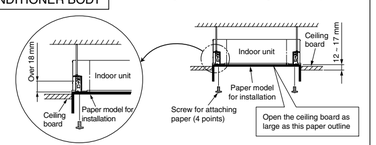
⚠ CAUTION | During the installation, care must be taken not to damage electric wires.

- The dimensions of the paper model for installation are the same as those of the ceiling opening dimensions.
- Be sure to discuss the ceiling drilling work with the workers concerned.

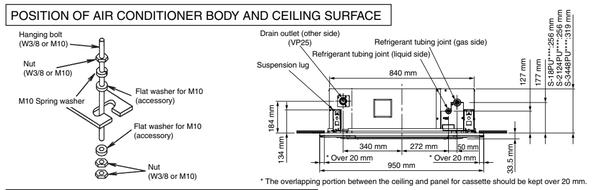


HANGING POSITION OF THE AIR CONDITIONER BODY

Air conditioner body gap setting between ceiling surface should be 12mm ~ 17mm as below figure.
(Adjustment of height direction should be done after fixing decorative panel.)



POSITION OF AIR CONDITIONER BODY AND CEILING SURFACE



* The overlapping portion between the ceiling and panel for cassette should be kept over 20 mm.

⚠ WARNING | Tighten the nut and bolt to prevent unit from falling.

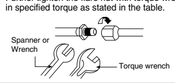
3 REFRIGERANT PIPING

CONNECTING THE PIPING TO INDOOR

For connection joint of all models

Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)

Connect the piping
- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.



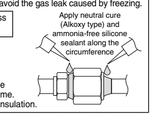
Additional Precautions For R32 Models when connecting by flaring at indoor side

❗ Ensure to do re-flaring of pipes before connecting to units to avoid leaking

Seal sufficiently the flare nut (both gas and liquid sides) with neutral cure (Alkoxy type) & ammonia-free silicone sealant and insulation material to avoid the gas leak caused by freezing.

× Use of silicon containing ammonia can lead to stress corrosion on the joint & can cause leakage.

Neutral cure (Alkoxy type) & ammonia-free silicone sealant is only to be applied after pressure testing and cleaning up by following instructions of sealant, only to the outside of the connection. The aim is to prevent moisture from entering the connection joint and possible occurrence of freezing. Curing sealant will take some time. Make sure sealant will not peel off when wrapping the insulation.



1. Brazing for piping.
   a. Execute brazing before tightening the flare nut.
   b. Brazing must be executed while blowing nitrogen gas. (This prevents generation of oxidized scale in copper pipe.)
2. When there is a lot of brazings for long piping, install a strainer midway of the piping. (The strainer is field supplied.)
3. Use clean copper pipe with inner wall surface free from mist and dust. Blow nitrogen gas or air to blow off dust in the pipe before connection.
4. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening of the pipe).
5. After deforming the pipe, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
6. Connect pipe to the service valve or ball valve which is located below the outdoor unit.
7. After completing the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.

Refrigerant is charged to the outdoor unit. For details, see the manual for installation work of outdoor unit. (Additional charging, etc.)

- Confirm the union (thin side) is always at lower direction after connecting piping.

⚠ CAUTION | Use two wrenches and tighten with regular torque.

VACUUM DRYING

After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit.
The vacuum drying must be carried out by using the service ports of both the liquid and gas side valves.

Flare nut fastening torque N•m (kgf•cm)			
ø6.35 mm	18 (180)	ø12.7 mm	55 (560)
ø9.52 mm	42 (430)	ø15.88 mm	65 (660)

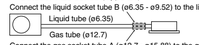
		S-18PU****	S-2124PU****	S-3448PU****
Liquid	mm (in)	ø6.35 (1/4)	(ø9.52 (3/8)) ø6.35(1/4)	ø9.52 (3/8)
Gas	mm (in)	ø12.70 (1/2)	(ø15.88 (5/8)) ø12.70 (1/2)	ø15.88 (5/8)

Different-diameter-tube joint for the indoor unit tubing connection part is supplied with S-2124PU****.
The size of "{ }" indicates the connection tube diameter when using the different-diameter-tube joint.

How to use different-diameter-tube joint (supplied)

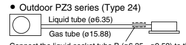
1) When using with single connection
   - Outdoor PZ3 series (Type 21)

Connect the liquid socket tube B (ø6.35 - ø9.52) to the liquid tubing side indoor unit



Connect the gas socket tube A (ø12.7 - ø15.88) to the gas tubing side indoor unit

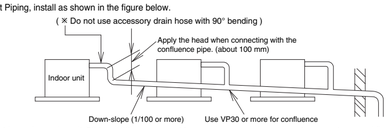
   - Outdoor PZ3 series (Type 24)



Connect the liquid socket tube B (ø6.35 - ø9.52) to the liquid tubing side indoor unit

4 INDOOR UNIT DRAIN PIPING

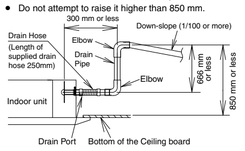
- During Drain Set Piping, install as shown in the figure below.



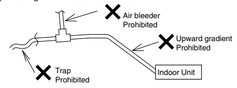
- Drain piping must have down-slope (1/50 to 1/100); be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port at the indoor unit.
- The outside diameter of the drain connection at the indoor unit is 32 mm.
- **Piping material:** Polyvinyl chloride pipe VP-25 and pipe fitting.
- Be sure to perform heat insulation on the drain piping. (Refer to ⑤ **HEAT INSULATION** section heat insulators for drain piping & drain pipe installation).

BEFORE PERFORMING THE INSTALLATION OF DRAIN PIPING

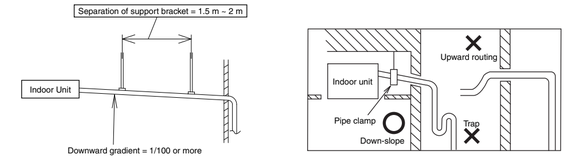
1) Limitations of Raising the Drain Pipe Connection
- The drain pipe can be raised to a maximum height of 850 mm from the bottom of the ceiling.
- Do not attempt to raise it higher than 850 mm.



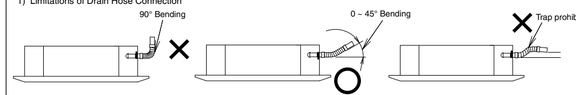
2) Limitations of Drain Pipe Connection
- Do not install the drain pipe with an upward gradient from the drain port connection. This will cause the drain water to flow backward and leak when the unit is not operating.
- Do not install an air bleeder as this may cause water to spray from the drain pipe outlet.
- Do not provide U-trap or bell shaped trap in the middle of the drain pipe. Doing so will cause abnormal sound.



- Make sure the drain pipe has downward gradient (1/100 or more; downward from drain port connection).

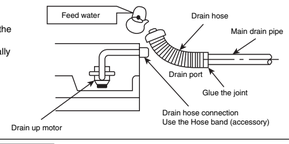


1) Limitations of Drain Hose Connection



DRAIN TEST

The air conditioner uses a drain up motor to drain water. Use the following procedure to test the drain up motor operation.
- Connect the main drain pipe to exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain up motor for normal operating and noise when electric wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port.

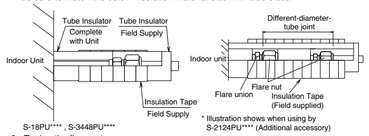


5 HEAT INSULATION

⚠ CAUTION | Be sure to perform heat insulation on the drain, liquid and gas piping. Imperfection in heat insulation work leads to water leakage.

HEAT INSULATORS FOR REFRIGERANT TUBES

1. Selection of heat insulation materials for refrigerant tube.
When using the heat insulation materials (field supply), kindly
Check for its sizes and performance.
- **Material for insulation material:** Polyethylene foam.
- **Heat transfer rate:** less than 0.051 W/m.K.
- **Material withstand temperature:** up to 110˚C Max.
- Must be easy to use, age resistance and not easily absorb moisture.
- Be sure to match the below insulation material size with tube sizes.



Piping size, mm (in)	Thermal insulation size (I.D.)	Thermal insulation Thickness
6.35 (1/4")	8 ~ 10 mm	Insulation thickness must 10 mm or greater
9.52 (3/8")	12 ~ 15 mm	
12.70 (1/2")	14 ~ 16 mm	
15.88 (5/8")	16 ~ 20 mm	

2. Taping the flare nuts
- Wind the white insulating tape around the flare nuts at the gas tube connections.
- Cover up the tube connection with tube insulator (field supply).

3. Taping the tubes
- Refrigerant tubes (and electrical wiring if local permit) should be taped together with armouring tape in 1 bundle. Keep drain hose separate from refrigerant tube to prevent condensation.
- Wrap the armouring tape from the bottom of the outdoor unit to the tubing where it enters the wall. Overlap half of each previous turn.
- Clamp the tubing to the wall, using 1 clamp approx. per each meter apart.

4. Finishing the installation
- Use sealing putty to seal off the hole in the wall to prevent rain and dust from entering.

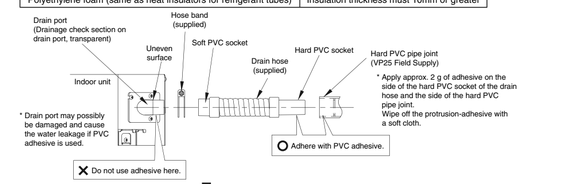
PRECAUTIONS IN HIGH HUMIDITY CIRCUMSTANCES

This air-conditioner has been tested according to the "JIS Standard Conditions with Mist" and have been confirmed that there are no faults. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23˚C), water drops are liable to fall. In this case, add heat insulation material according to the following procedures:
- Heat insulation material to be prepared. Adiabatic glass wool with thickness 10 to 20 mm.
- Stick the wool on all air-conditioners that are located in ceiling atmosphere.
- In addition to the normal heat insulation (thickness: more than 10 mm) refrigerant piping (gas piping: thick piping) and drain piping, add a further of 10 mm to 30 mm thickness material.

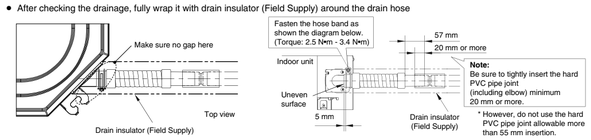
HEAT INSULATORS FOR DRAIN PIPING & DRAIN PIPE INSTALLATION

1. Selection of heat insulation materials for drain piping and drain pipe. When using the heat insulation materials (Field Supply). Kindly use the same size and performance as refrigerant tubes. Check for its sizes as below table:

Insulation Material	Thermal insulation thickness
Polyethylene foam (same as heat insulators for refrigerant tubes)	Insulation thickness must 10mm or greater



- After checking the drainage, fully wrap it with drain insulator (Field Supply) around the drain hose



WALL SEAL

- When the outdoor unit is installed in a higher position than the indoor unit, install the trap so as not to instill rain water into the wall by transmitting in piping.
- Stuff the space among piping, the electric wire, and the drain hose with "Putty" and seal the penetration wall hole. Make sure that rain water does not instill into the wall.

* Put the incision at the trap part of the heat insulator (for water drainage)

CONTINUE TO THE NEXT PAGE

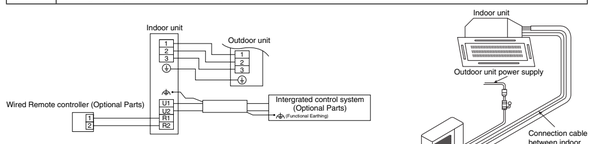
6 ELECTRICAL WIRING

As to main power source and cable size of outdoor unit, read the installation manual attached to the outdoor unit.

⚠ Warning	• This air conditioner must be installed in accordance with national wiring regulations. • Cables connected to indoor unit must be approved polychloroprene sheathed type 60245 IEC 57 or H05RN-F/H07RN-F or heavier. • The units must be connected to the supply cables for fixed wiring by qualified technician. Circuit breaker must be incorporated in the fixed wiring in accordance with the national wiring regulations. The circuit breaker must be approved, suitable for the voltage and current ratings of equipment and have a contact separation by 3mm in all poles. When the supply cable is damaged, it must be replaced by qualified technician. • Be sure to install a current leakage breaker, main switch and fuse to the main power supply, otherwise electric shocks may result. • Be sure to connect the unit to secure earth connection. If the earthing work is not carried out properly, electric shocks may result. ⏚ • Wiring shall be connected securely by using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.

1. Select a power source that is capable of supplying the current required by the air conditioner.
2. Feed the power source to the unit via a distribution switch board designed for this purpose, the switch should disconnect all poles with a contact separation of at least 3 mm.
3. Always ground the air conditioner with a grounding wire and screw to meet the LOCAL REGULATIONS.
4. Be sure to connect the indoor/outdoor unit connection wires correctly to terminal board.
5. Be sure to turn off the main power before installing and connecting the remote controller.

Note	If momentarily turning on the power supply for both the indoor and outdoor units, do not turn the power off after at least 1 minute has passed. (For the system's automatic setting.) Turning off the power supply on the way may cause an abnormal operation.

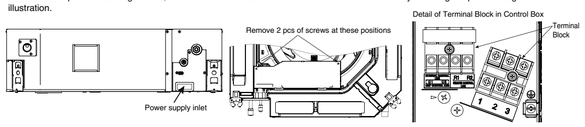


Note

For Optional Parts connecting wiring size, refer to Installation Manual of the Optional Parts.

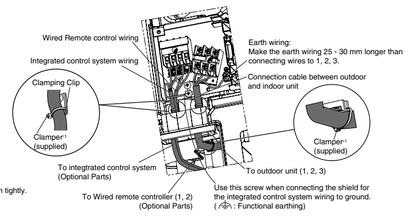
CONNECTING THE WIRES TO THE CONTROL BOX

- Remove the 2 pcs of mounting screws, remove the control box cover and then connect the wires by following the procedure given in the illustration.



⚠ CAUTION	Make sure that screws of the terminal are securely tightened.

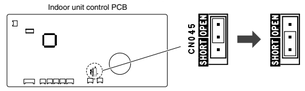
Indoor Unit Wiring



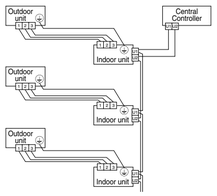
Use shielded wires for intergrated control system wiring and ground the shield on both sides, otherwise misoperation from noise may occur.
Connect wiring as shown in Section "Indoor Unit Wiring".

⚠ CAUTION	When linking the outdoor units in a network, it is necessary to install the terminating resistance. The installation method of the terminating resistance is different according to the connecting procedure of the inter-unit control wiring in the link.

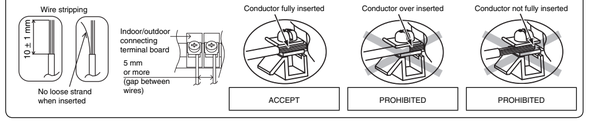
Set the terminating resistance on the indoor unit control PCB.
The setting of the terminating resistance at shipment is OPEN side (inoperative).
If the shorting socket is replaced as shown below, the terminating resistance is SHORT side (operative).
Change the setting of the terminating resistance at the nearest indoor unit and farthest indoor unit from the integrated control system to SHORT side (operative).
The setting of 3 or more terminating resistances to SHORT side (operative) is prohibited.



If branching in the inter-unit control wiring, the number of branch points should be 16 or fewer



WIRE STRIPPING AND CONNECTING REQUIREMENT



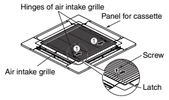
This equipment must be properly earthed. ⏚
Note:
Isolating Devices (Disconnecting means) should have minimum 3.0 mm contact gap.
Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reasons.
- Earth lead wire shall be longer than other lead wires as shown in the figure for the electrical safety in case of the cord slipping out of anchorage.

7 INSTALLATION OF DECORATIVE PANEL

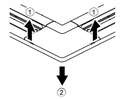
- Before installing the decorative panel, always remove the paper template.

The decorative panel has its installation direction. Confirm the direction by displaying the piping side.

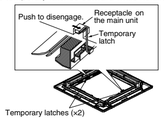
1. Removing the air intake grille.
   1) Remove the 2 screws on the latch of the air intake grille. (Reattach the air intake grille after installation of the panel for cassette.)
   2) Slide the air intake grille catches in the direction shown by the arrows ① to open the grille.



2. Remove the corner cover in 4 corner places.
   Pull hook of corner cover as direction ①, then remove it by sliding out in direction ②.

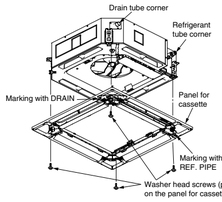


3. Hang the temporary latches on the inside of the panel for cassette to the receptacle on the unit to temporarily attach the panel for cassette in place.
   - When removing the panel for cassette, push the temporary latches outward while holding the panel for cassette.

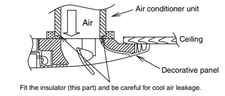


4. Adjust between decorative panel fixing hole and indoor unit screw hole.
5. Fix decorative panel with 4 screws with already fix at paper model for installation.

⚠ CAUTION	Install the decorative panel securely. Cool air cause dew to happen. ➡ Water drops fall.

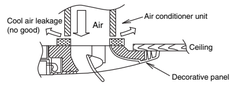


Good example

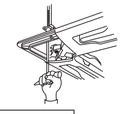


Fit the insulator (this part) and be careful for cool air leakage.

Bad example

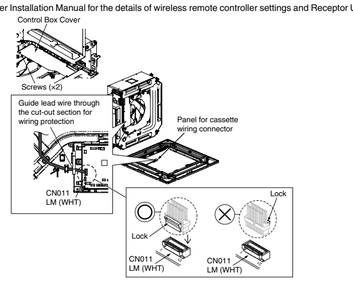


6. Adhere the cosmetic panel and ceiling wall together and confirm no gap in between.
   Readjust indoor unit height, if there is a gap between ceiling wall and decorative panel although it has been fixed by screw.
   If there is no effect to the indoor unit level and drain piping etc., the adjustment of indoor unit height can be adjusted through the corner cover hole. Tighten the fixing nut of the indoor unit back firmly after adjustment has been made.
7. Open the indoor control box cover by removing 2 pcs of mounting screws.
8. Insert the wiring panel connector firmly to indoor PCB CN011 LM.
   Be cautious not to clamp the cord in between control board and control board cover.
9. After completion, install the parts removed by following reverse procedure.

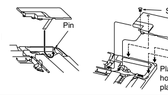


⚠ WARNING	Be sure to hook the air inlet grill string, to prevent grill from falling and causing injury from it.

* Refer to the Wireless Remote Controller Installation Manual for the details of wireless remote controller settings and Receptor Unit Installation.



HOW TO ATTACH THE CORNER COVER

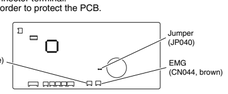


1) Check that the safety cord from the corner cover is fastened to the panel for cassette pin, as shown in the figure below.
2) Use the supplied screws to attach the corner cover to the panel for cassette.

8 TEST RUN

Precautions

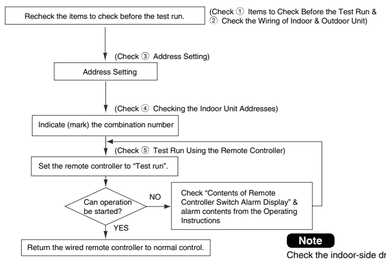
- Request that the customer be present when the test run is performed.
  At this time, explain the operation manual and have the customer perform the actual steps.
- Check that the 220 – 240 VAC power is not connected to the inter-unit control wiring connector terminal.
  * If 220 – 240 VAC is accidentally applied, the indoor unit control PCB fuse will blow in order to protect the PCB.
  In this case, make the wiring correctly.
  Then disconnect the 2P connectors (OC) that are connected to the indoor unit control PCB, and replace them with 2P connectors (EMG).
  If operation is still not possible after changing the brown connectors, cut the jumper on the indoor unit control PCB.
  (Be sure to turn the power OFF before performing this work.)



Note

For new product first time power on after installation, the system requires approximately 5 minutes for "System Auto Configuration Process".
The system is not turn on or respond to remote controller immediately after power on.

Test Run Procedure

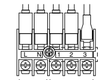


Note

Check the indoor-side drainage.

① Items to Check Before the Test Run

(1) Turn the wired remote power switch ON at least 5 hours in advance in order to energize.
(2) Fully open the closed valves on the liquid tubing and gas tubing sides.
(3) Check the wiring of indoor and outdoor unit.



(Example of Single-Phase Connection)

② Check the Wiring of Indoor & Outdoor Unit

- Separate the power supply and connection cable between outdoor and indoor unit

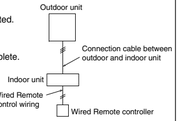
③ Address Setting

Note

The displays of the earth, outdoor unit power supply wiring and earth leakage circuit breaker are omitted.

System connection

- When turning on all indoor and outdoor units, the auto address will start.
  It takes approximately 5 minutes. Indicator LED will blink continuously until auto address setting complete.
- When the auto address setting is completed, wait at least 1 minute and 30 seconds. Then start the operation.



④ Checking the Indoor Unit Addresses

Use the wired remote controller to check the indoor unit address.

CZ-RTC5B (High-spec wired remote controller)

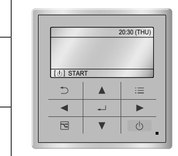
Optional Parts

(1) Keep pressing the [≡], [↵] and [►] buttons simultaneously for 4 or more seconds.
The "Maintenance func" screen appears on the LCD display.

(2) Press the [▼] or [▲] button to see each menu.
If you wish to see the next screen instantly, press the [◄] or [►] button.
Select "7. Simple settings" on the LCD display and press the [↵] button.

(3) The "Simple settings" screen appears on the LCD display.
Select the "Unit no." by pressing the [▼] or [▲] button for changes.
* The initial display is "ALL".
The indoor unit fan operates only at the selected indoor unit.

(4) Press the [≡] button and select "YES" to restart.

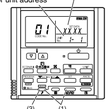


CZ-RTC4 (Timer remote controller)

Optional Parts

(1) Press and hold the [⏻] button and [SET] button for 4 seconds or longer (simple settings mode).
(2) The address is displayed for the indoor unit that is connected to the wired remote controller.
(Only the address of the indoor unit that is connected to the wired remote controller can be checked.)
(3) Press the [⏻] button again to return to normal wired remote controller mode.

Number changes to indicate which indoor unit is currently selected.
Indoor unit address



CZ-RTC6 (Wired remote controller)

Optional Parts

(1) Keep pressing the [≡], [▲] and [↵] buttons simultaneously for 4 or more seconds.
The "Maintenance func" screen appears on the LCD display.

(2) Press the [▼] or [▲] button to see each menu.
Select "Simple settings" on the LCD display and press the [↵] button.

(3) The "Simple settings" screen appears on the LCD display.
Select the "Unit no." by pressing the [▼] or [▲] button for changes.
* The initial display is "ALL".
The indoor unit fan operates only at the selected indoor unit.

(4) Press the [≡] button and select "YES" to restart.

⑤ Test Run Using the Remote Controller

CZ-RTC5B (High-spec wired remote controller)

Optional Parts

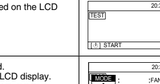
This mode places a heavy load on the machines. Therefore use it only when performing the test run.

1) Keep pressing the [≡], [↵] and [►] buttons simultaneously for 4 or more seconds.
The "Maintenance func" screen appears on the LCD display.

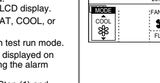
2) Press the [▼] or [▲] button to see each menu.
If you wish to see the next screen instantly, press the [◄] or [►] button.
Select "4. Test run" on the LCD display and press the [↵] button.

Change the display from "OFF" to "ON" by pressing the [▼] or [▲] button. Then press the [↵] button.

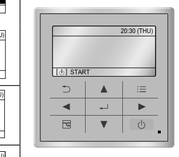
3) Press the [≡] button. "TEST" will be displayed on the LCD display.



4) Press the [⏻] button. Test run will be started.
Test run setting mode screen appears on the LCD display.
- The test run can be performed using the HEAT, COOL, or FAN operation mode.
- The temperature cannot be adjusted when in test run mode.
- If correct operation is not possible, a code is displayed on the remote controller LCD display. (Regarding the alarm contents, check the Operating Instructions.)



(5) After the test run is completed, proceed from Step (1) and change to "OFF" at Step (2).
- To prevent continuous test run, this remote controller includes a timer function that cancels the test run after 60 minutes.



Note

- The outdoor units will not operate for approximately 3 minutes after the power is turned ON and after operation is stopped.

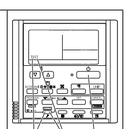
CZ-RTC4 (Timer remote controller)

Optional Parts

This mode places a heavy load on the machines. Therefore use it only when performing the test run.

(1) Press the wired remote controller [⏻] button for 4 seconds or longer.
Then press the [0] button.
"TEST" appears on the LCD display while the test run is in progress.
- The test run can be performed using the HEAT, COOL, or FAN operation mode.
- The temperature cannot be adjusted when in test run mode.
- If correct operation is not possible, a code is displayed on the wired remote controller LCD display. (Regarding the alarm contents, check the Operating Instructions.)

(2) After the test run is completed, press the [⏻] button again.
Check that "TEST" disappears from the LCD display.
- To prevent continuous test run, this wired remote controller includes a timer function that cancels the test run after 60 minutes.



Note

- The outdoor units will not operate for approximately 3 minutes after the power is turned ON and after operation is stopped.

CZ-RTC6 series (Wired Remote Controller)

Optional Parts

This mode places a heavy load on the machines. Therefore use it only when performing the test run.

(1) Keep pressing the [≡], [▲] and [↵] buttons simultaneously for 4 or more seconds. The "Maintenance func" screen appears on the LCD display.	
(2) Press the [▼] or [▲] button to see each menu. Select "Test run" on the LCD display and press the [↵] button.	
Change the display from "OFF" to "ON" by pressing the [▼] or [▲] button. Then press the [↵] button.	
(3) Press the [≡] button. "TEST" will be displayed on the LCD display.	
(4) Press the [⏻] button. Test run will be started. Test run setting mode screen appears on the LCD display. • The test run can be performed using the HEAT, COOL, or FAN operation mode. • The temperature cannot be adjusted when in test run mode. • If correct operation is not possible, a code is displayed on the remote controller LCD display. (Regarding the alarm contents, check the Operating Instructions.) (5) After the test run is completed, proceed from Step (1) and change to "OFF" at Step (2). • To prevent continuous test run, this remote controller includes a timer function that cancels the test run after 60 minutes.	

Note

- The outdoor units will not operate for approximately 3 minutes after the power is turned ON and after operation is stopped.

CARE AND CLEANING

⚠ WARNING	• For safety, be sure to turn the air conditioner off and also to disconnect the power before cleaning. • Do not pour water on the indoor unit to clean it. This will damage the internal components and cause an electric shock hazard.

Air intake and outlet side (Indoor unit)
Clean the air intake and outlet side of the indoor unit with a vacuum cleaner brush, or wipe them with a clean, soft cloth.
If these parts are stained, use a clean cloth moistened with water. When cleaning the air outlet side, be careful not to force the vanes out of place.

⚠ CAUTION	• Never use solvents or harsh chemicals when cleaning the indoor unit. Do not wipe plastic parts using very hot water. • Some metal edges and the fins are sharp and may cause injury if handled improperly; be especially careful when you clean these parts. • The internal coil and other components of outdoor unit must be cleaned regularly. Consult your dealer or service center.

Air filter
The air filter collects dust and other particles from the air and should be cleaned at regular intervals or when the filter indication (▦) on the display of the remote controller (wired type) shows that the filter needs cleaning. If the filter gets blocked, the efficiency of the air conditioner drops greatly.

Period	6 months

After Cleaning
1. After the air filter is cleaned, reinstall it in its original position. Be sure to reinstall in reverse order.
2. [In the case of Timer Remote Controller]
   Press the Filter reset button. The ▦ (Filter) indicator on the display goes out.

Timer Remote Controller	High-spec Wired Remote Controller	Wired Remote Controller
Filter indicator Filter reset button	Filter indicator	Filter indicator

[In the case of High-spec Wired Remote Controller and Wired Remote Controller]
Refer to the Operating Instructions attached to the optional High-spec Wired Remote Controller or optional Wired Remote Controller.

Note

The frequency with which the filter should be cleaned depends on the environment in which the unit is used.
Clean the filter frequently for best performance in the area of dusty or oil spots regardless of filter status.

<How to clean the filter>
1. Remove the air filter from the air intake grille.
2. Use a vacuum cleaner to remove light dust. If there is sticky dust on the filter, wash the filter in lukewarm, soapy water, rinse it in clean water, and dry it.

<How to remove the filter>
1. Use a screwdriver to remove the bolt screw on each side for the two latches. (Be sure to reattach the two bolt screws after cleaning.)
2. Slide the latches of the air intake grille in the direction of the inside to open the grille.
3. The air intake grille opens downward.

⚠ CAUTION	• When cleaning the air filter, never remove the safety strap. If it is necessary to remove it for servicing and maintenance inside, be sure to reinstall the safety strap securely (hook on the grille side) after the work. • When the filter has been removed, rotating parts (such as the fan), electrically charged areas, etc. will be exposed in the unit's opening. Bear in mind the dangers that these parts and areas pose, and proceed with the work carefully

4. Push the side of the air filter marked with the indication arrow ▽ and pull it toward you. The air filter will be disengaged.

⚠ CAUTION	• Certain metal edges and the condenser fins are sharp and may cause injury if handled improperly; special care should be taken when you clean these parts. • Periodically check the outdoor unit to see if the air outlet or air intake is clogged with dirt or soot. • The internal coil and other components must also be cleaned periodically. Consult your dealer or service center.

Care: After a prolonged idle period
Check the indoor and outdoor unit air intakes and outlets for blockage; if there is a blockage, remove it.

Care: Before a prolonged idle period
- Operate the fan for half a day to dry out the inside.
- Disconnect the power supply and also turn off the circuit breaker.
- Clean the air filter and replace it in its original position.
- Outdoor unit internal components must be checked and cleaned periodically. Contact your local dealer for this service.

CHECK THE FOLLOWING ITEMS WHEN INSTALLATION IS COMPLETE

- After completing work, be sure to measure and record trial run properties, and store measuring data, etc.
- Measuring items are room temperature, outside temperature, suction temperature, blow out temperature, wind velocity wind volume, voltage, current, presence of abnormal vibration and noise, operating pressure, piping temperature, compressive pressure, airtight pressure.
- As to the structure and appearance, check the following items.

☐ Is circulation of air adequate?
☐ Is draining smooth?
☐ Is heat insulation complete (refrigerant and drain piping)?
☐ Is there any leakage of refrigerant?
☐ Is remote controller switch operated?
☐ Is there any faulty wiring?
☐ Are the terminal screws loosened?
M3...69-98N•cm {7-10kgf•cm}
M4...157-196N•cm {16-20kgf•cm}
M5...196-245N•cm {20-25kgf•cm}

HAND OVER
- Teach the customer the operation and maintenance procedures, using the operation manual (air filter cleaning, temperature control, etc.)

Optional Parts
- Refer to Installation manual of optional parts (sold separately).

As for work specifications of the outdoor unit, read the OUTDOOR UNIT INSTALLATION MANUAL attached to the outdoor unit.

ENGLISH
The English text is the original instructions.
Other languages are translation of original instructions.

ENGLISH
ACXF60-46931 (2/2)
PRINTED IN MALAYSIA