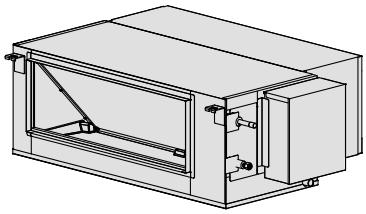
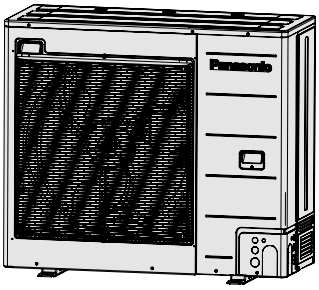
Order No: PAPAMY2404031CE

Service Manual

Air Conditioner





Indoor Unit **Outdoor Unit**
S-200PE4E **U-200PZH4E8**
S-250PE4E **U-250PZH4E8**

Destination
Europe
Turkey
CIS

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

⚠ 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.

Panasonic®

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 specifi ed 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 **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. Refer to **REFRIGERANT INSTALLATION** piping thickness table. • 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 specifi ed 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 **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.

⚠ WARNING	
❗	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.
❗	Power supply connection to the room air conditioner. Use power supply cord type designation 60245 IEC 57 or heavier cord. Connect the power supply cord of the air conditioner to a circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0mm contact gap. Power supply point should be in easily accessible place for power disconnection in case of emergency.
❗	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:

⚠ WARNING	
❗	The appliance shall be stored, installed and operated in a well ventilated room with indoor floor area larger than A_{min} (m^2) [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.
❗	The mixing of different refrigerants within a system is prohibited. Models that use refrigerant R32 and R410A have a different charging port thread diameter to prevent erroneous charging with refrigerant R22 and for safety. Therefore, check beforehand. [The charging port thread diameter for R32 and R410A is 12.7 mm (1/2 inch - 20 UNF)].
❗	Ensure that foreign matter (oil, water, etc.) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc. (Handling of R32 is similar to R410A.)
❗	Operation, maintenance, repairing and refrigerant recovery should be carried out by trained and certified personnel in the use of flammable refrigerants and as recommended by the manufacturer. Any personnel conducting an operation, servicing or maintenance on a system or associated parts of the equipment should be trained and certified.
❗	Any part of refrigerating circuit (evaporators, air coolers, AHU, condensers or liquid receivers) or piping should not be located in the proximity of heat sources, open flames, operating gas appliance or an operating electric heater.
❗	The user/owner or their authorized representative shall regularly check the alarms, mechanical ventilation and detectors, at least once a year, where as required by national regulations, to ensure their correct functioning.
❗	A logbook shall be maintained. The results of these checks shall be recorded in the logbook.
❗	In case of ventilations in occupied spaces shall be checked to confirm no obstruction.
❗	Before a new refrigerating system is put into service, the person responsible for placing the system in operation should ensure that trained and certified operating personnel are instructed on the basis of the instruction manual about the construction, supervision, operation and maintenance of the refrigerating system, as well as the safety measures to be observed, and the properties and handling of the refrigerant used.
❗	The general requirement of trained and certifi ed personnel are indicated as below: a) Knowledge of legislation, regulations and standards relating to flammable refrigerants; and, b) Detailed knowledge of and skills in handling flammable refrigerants, personal protective equipment, refrigerant leakage prevention, handling of cylinders, charging, leak detection, recovery and disposal; and, c) Able to understand and to apply in practice the requirements in the national legislation, regulations and standards; and, d) Continuously undergo regular and further training to maintain this expertise.
❗	Air-conditioner piping in the occupied space shall be installed in such a way to protect against accidental damage in operation and service.
❗	Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
❗	Ensure protection devices, refrigerating piping and fittings are well protected against adverse environmental effects (such as the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris).
❗	Expansion and contraction of long runs piping in refrigerating systems shall be designed and installed securely (mounted and guarded) to minimize the likelihood hydraulic shock damaging the system.
❗	Protect the refrigerating system from accidental rupture due to moving furniture or reconstruction activities.
❗	To ensure no leaking, field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure (>1.04 MPa, max 4.15 MPa). No leak shall be detected.

⚠ CAUTION	
❗	1. General • Must ensure the installation of pipe-work shall be kept to a minimum. Avoid use dented pipe and do not allow acute bending. • Must ensure that pipe-work shall be securely mounted and guarded from physical damage. • Must comply with national gas regulations, state municipal rules and legislation. Notify relevant authorities in accordance with all applicable regulations. • Must ensure mechanical connections be accessible for maintenance purposes. • In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction. • When disposal of the product, do follow to the precautions in #10 and comply with national regulations. • In case of field charge, the effect on refrigerant charge caused by the different pipe length has to be quantified, measured and labelled. Always contact to local municipal offices for proper handling. • Ensure the actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed. • Ensure refrigerant charge not to leak. • Wear appropriate protective equipment, including respiratory protection, as conditions warrant. • Keep all sources of ignition and hot metal surfaces away. • Explosion-proof electronic components shall only be replaced with parts specified by the appliance manufacturer. Replacement with other parts may result in the ignition of refrigerant in the event of a leak.
❗	2. Servicing 2-1. Qualification of workers • Any qualified person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification. • Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants. • Servicing shall be performed only as recommended by the manufacturer. • The system is inspected, regularly supervised and maintained by a trained and certified service personnel who is employed by the person user or party responsible.
❗	2-2. Checks to the area • Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the precautions in #2-3 to #2-7 must be followed before conducting work on the system.
❗	2-3. Work procedure • Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapour being present while the work is being performed.
❗	2-4. General work area • All maintenance staff and others working in the local area shall be instructed and supervised on the nature of work being carried out. • Avoid working in confined spaces. Always ensure away from source, at least 2 meter of safety distance, or zoning of free space area of at least 2 meter in radius.
❗	2-5. Checking for presence of refrigerant • The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. • Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non sparking, adequately sealed or intrinsically safe. • In case of leakage/spillage happened, immediately ventilate area and stay upwind and away from spill/release. • In case of leakage/spillage happened, do notify persons down wind of the leaking/spill, isolate immediate hazard area and keep unauthorized personnel out.
❗	2-6. Presence of fire extinguisher • If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fi re extinguishing equipment shall be available at hand. • Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.
❗	2-7. No ignition sources • No person carrying out work in relation to a refrigerating system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it can lead to the risk of fire or explosion. They must not be smoking when carrying out such work. • All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. • Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. • “No Smoking” signs shall be displayed.
❗	2-8. Ventilated area • Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. • A degree of ventilation shall continue during the period that the work is carried out. • The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
❗	2-9. Checks to the refrigerating equipment • Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. • At all times the manufacturer’s maintenance and service guidelines shall be followed. • If in doubt consult the manufacturer’s technical department for assistance. • The following checks shall be applied to installations using flammable refrigerants. - The refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed. - The ventilation machinery and outlets are operating adequately and are not obstructed. - If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant. - Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected. - Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which can corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are properly protected against being so corroded.

⚠ CAUTION

2-10. Checks to electrical devices

- Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.
- Initial safety checks shall include but not limit to:-
  - That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking.
  - That there is no live electrical components and wiring are exposed while charging, recovering or purging the system.
  - That there is continuity of earth bonding.
- At all times the manufacturer's maintenance and service guidelines shall be followed.
- If in doubt consult the manufacturer's technical department for assistance.
- If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with.
- If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used.
- The owner of the equipment must be informed or reported so all parties are advised thereinafter.

3. Sealed electrical components

- Sealed electrical components shall not be repaired.

4. Cabling

- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.
- The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

5. Detection of flammable refrigerants

- Under no circumstances shall potential sources of ignition be used in the searching or detection of refrigerant leaks.
- A halide torch (or any other detector using a naked flame) shall not be used.
- The following leak detection methods are deemed acceptable for all refrigerant systems.
  - No leaks shall be detected when using detection equipment with a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure (>1.04 MPa, max 4.15 MPa) for example, a universal sniffer.
  - Electronic leak detectors may be used to detect flammable refrigerants, but the sensitivity can be inadequate, or can need re-calibration.
    (Detection equipment shall be calibrated in a refrigerant-free area.)
  - Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
  - Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.
  - Leak detection fluids are also suitable for use with most refrigerants, for example, bubble method and fluorescent agent method. The use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
  - If a leak is suspected, all naked flames shall be removed/extinguished.
  - If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. The precautions in #6 must be followed to remove the refrigerant.

6. Refrigerant removal and circuit evacuation

- When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

  1. Safely remove refrigerant following local and national regulations
  2. Evacuate
  3. Purge the circuit with inert gas
  4. Evacuate
  5. Continuously flush with inert gas when using flame to open circuit
  6. Open the circuit

- The refrigerant charge shall be recovered into the correct recovery cylinders.
- Compressed air or oxygen shall not be used for purging refrigerant systems, only use OFN (oxygen free nitrogen) for this task.
- Purging of the refrigerant circuit shall be achieved by breaking the vacuum in the system with inert gas and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to vacuum.
- This process shall be repeated until no refrigerant is within the system.
- The system shall be vented down to atmospheric pressure to enable work to take place.
- Ensure that the outlet of the vacuum pump is not close to any potential ignition sources and there is ventilation available.

7. Charging procedures

- In addition to conventional charging procedures, the following requirements shall be followed.
  - Ensure that contamination of different refrigerants does not occur when using charging equipment.
  - Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
  - Cylinders shall be kept in an appropriate position according to the instructions.
  - Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
  - Label the system when charging is complete (if not already labelled).
  - Extreme care shall be taken not to over fill the refrigerating system.
- Prior to recharging the system it shall be pressure tested with OFN (refer to #6).
- The system shall be leak-tested on completion of charging but prior to commissioning.
- A follow up leak test shall be carried out prior to leaving the site.
- Electrostatic charge may accumulate and create a hazardous condition when charging and discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

⚠ CAUTION	
	8. Decommissioning • Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. • It is recommended good practice that all refrigerants are recovered safely. • Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. • It is essential that electrical power is available before the task is commenced. a) Become familiar with the equipment and its operation. b) Isolate system electrically. c) Before attempting the procedure ensure that: • mechanical handling equipment is available, if required, for handling refrigerant cylinders; • all personal protective equipment is available and being used correctly; • the recovery process is supervised at all times by a competent person; • recovery equipment and cylinders conform to the appropriate standards. d) Pump down refrigerant system, if possible. e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system. f) Make sure that cylinder is situated on the scales before recovery takes place. g) Start the recovery machine and operate in accordance with instructions. h) Do not over fill cylinders. (No more than 80 % volume liquid charge). i) Do not exceed the maximum working pressure of the cylinder, even temporarily. j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off. k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked. • Electrostatic charge may accumulate and create a hazardous condition when charging or discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.
	9. Labelling • Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. • The label shall be dated and signed. • Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.
	10. Recovery • When removing refrigerant from a system, either for servicing or decommissioning, it is required to follow good practice that all refrigerants are removed safely. • When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. • Ensure that the correct number of cylinders for holding the total system charge are available. • All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). • Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. • Recovery cylinders are evacuated and, if possible, cooled before recovery occurs. • The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. Consult manufacturer if in doubt. • In addition, a set of calibrated weighing scales shall be available and in good working order. • Hoses shall be complete with leak-free disconnect couplings and in good condition. • The recovered refrigerant shall be processed according to the local legislation in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. • Do not mix refrigerants in recovery units and especially not in cylinders. • If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. • The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. Draining of oil from a system shall be carried out safely.

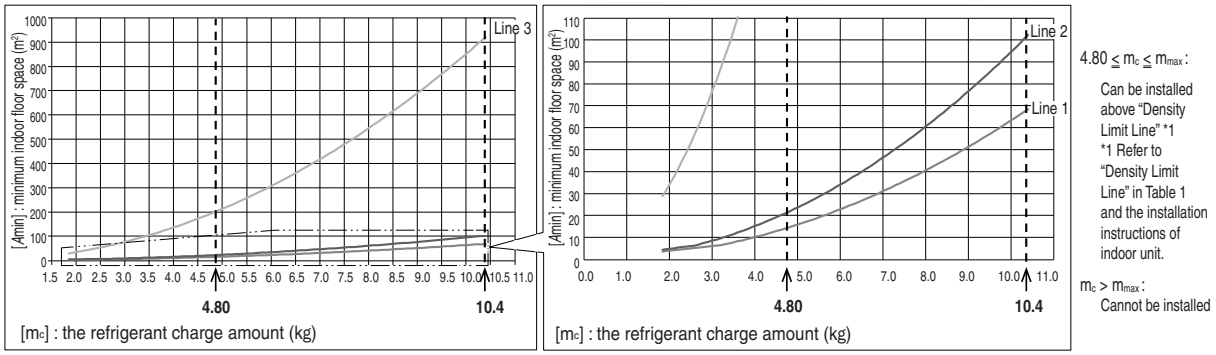
Check of Density Limit

1. Outdoor

U-200PZH4E8, U-250PZH4E8

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_c) used in the appliance.

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



	U-200PZH4E8 U-250PZH4E8
m_{max}	10.40 kg

m_c : The refrigerant charge amount (Total of refrigerant at shipment and refrigerant charge amount in the field).

- Please calculate m_c according to tubing length in the field as shown in the calculation example below.

< Calculating example > • Refer to table "Specification for tube connecting indoor unit to outdoor unit".

U-200PZH4E8 (Single)
(conditions : Total tube length = 40 m)

m_c = ① + ② = ① + (③ x (④ – ⑤)) = 4.8 kg + (0.08 kg x (40 m – 30 m) = 5.60 kg

< Calculating example > **• Please refer to "8. TWIN, TRIPLE AND DOUBLE TWIN TYPE CONNECTIONS-Refrigerant charging"**
(conditions : U-200PZH4E8 (TRIPLE) Total pipe length = 65 m)

m_c = ① + ② = ① + (③ ∗ (④ – ⑤ – ⑦ – ⑧ – ⑨)) + (⑥ ∗ (⑦ + ⑧ + ⑨)) = 4.80 kg + 0.08 kg ∗ (65 m - 30 m - 3 m - 4 m - 5 m) + 0.040 kg ∗ (3 m + 4 m + 5 m) = 7.12 kg

①: Refrigerant charged at shipment ②: Refrigerant charge amount in the field ③: Additional charge per 1 m (Main tube)
④: Total pipe length ⑤: Charge-less pipe length (30 m) ⑥: Additional charge per 1 m (Branch pipe)
⑦: 1st Branch pipe length (3 m) ⑧: 2nd Branch pipe length (4 m) ⑨: 3rd Branch pipe length (5 m)

- If the total tubing length is within the maximum value of the charge-less tubing length, refrigerant charge in the field is unnecessary.

m_{max} : The maximum refrigerant charge amount

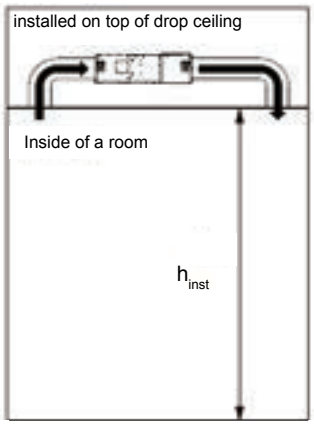
2. Indoor

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_c] used in the appliance. Regarding the refrigerant charge amount [m_c] used in the appliance, see “5. REFRIGERANT INSTALLATION” on page 1-11-2-1-14 to 1-11-2-1-17.
The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

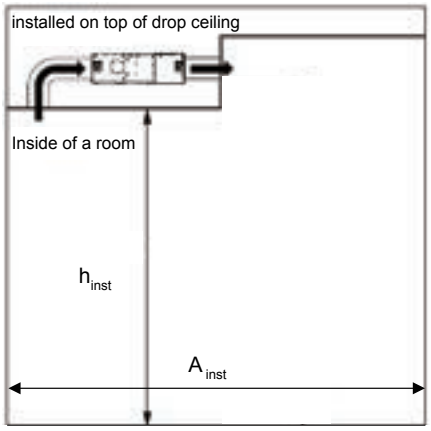
Table 2-1

Installation height of Indoor Unit: h_{inst}	Indoor Unit Type	Density Limit Line
h_{inst} > 2.5 m	Splittable duct (S-200PE4E, S-250PE4E)	Line 1

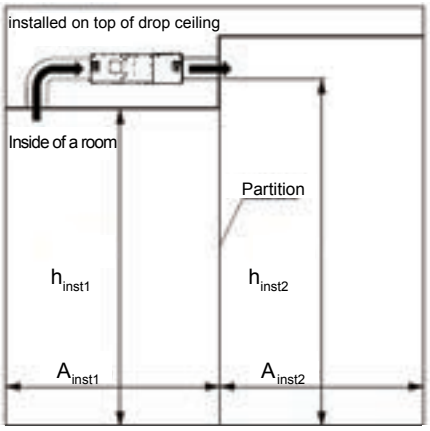
When connecting the duct to either inlet side or outlet side



A_{inst} :Floor area of the room (m^2)
Satisfy the diagram for A_{inst}

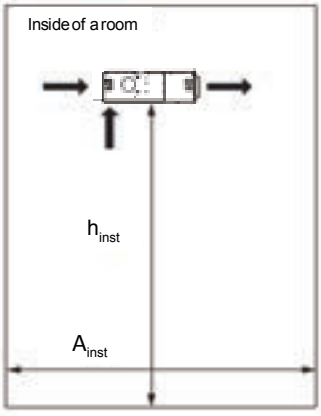


When not partitioning:
Satisfy the diagram for A_{inst}

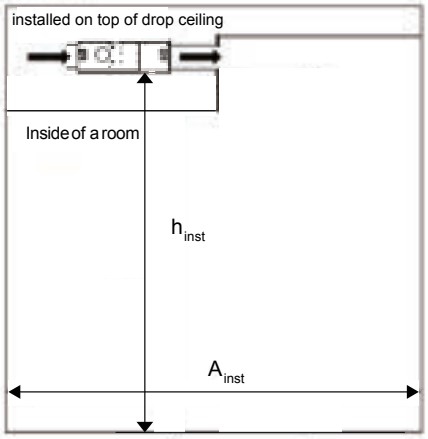


When there is a partition：
Satisfy the diagram for A_{inst1} and h_{inst1} and satisfy the diagram for A_{inst2} and h_{inst2}

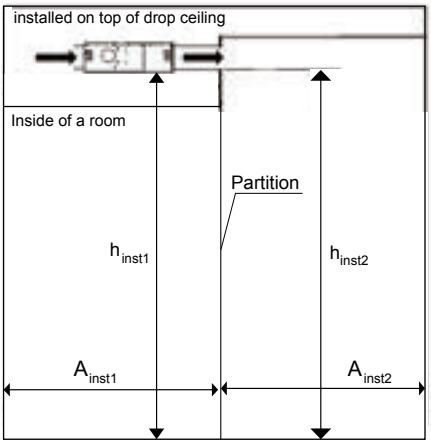
When not connecting the duct to even in both cases of inlet side/outlet side



A_{inst} : Floor area of the room (m^2)
Satisfy the diagram for A_{inst}

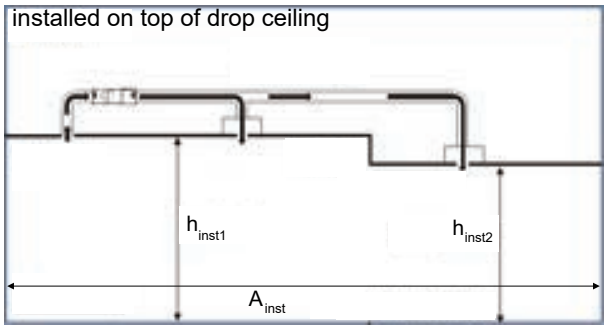


When not partitioning:
Satisfy the diagram for A_{inst}

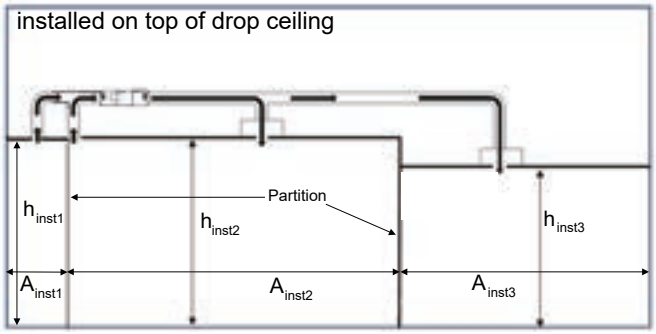


When partitioning:
Satisfy the diagram for A_{inst1} and h_{inst1} and satisfy the diagram for A_{inst2} and h_{inst2}

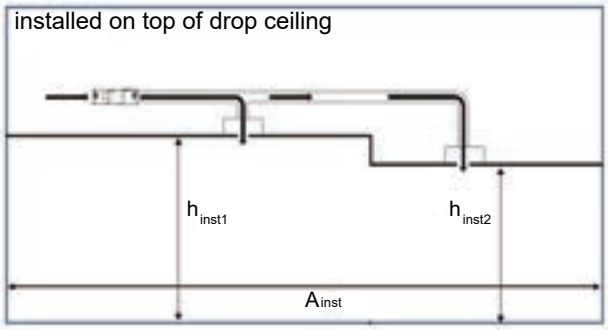
When providing outlets in multiple living rooms with outlet duct



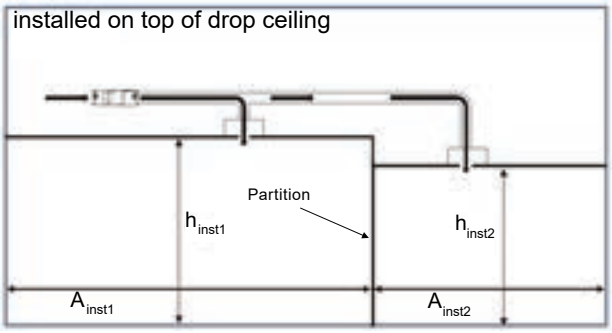
When not partitioning:
Satisfy the diagram for A_{inst}
$h_{inst} = Min(h_{inst1}, h_{inst2})$



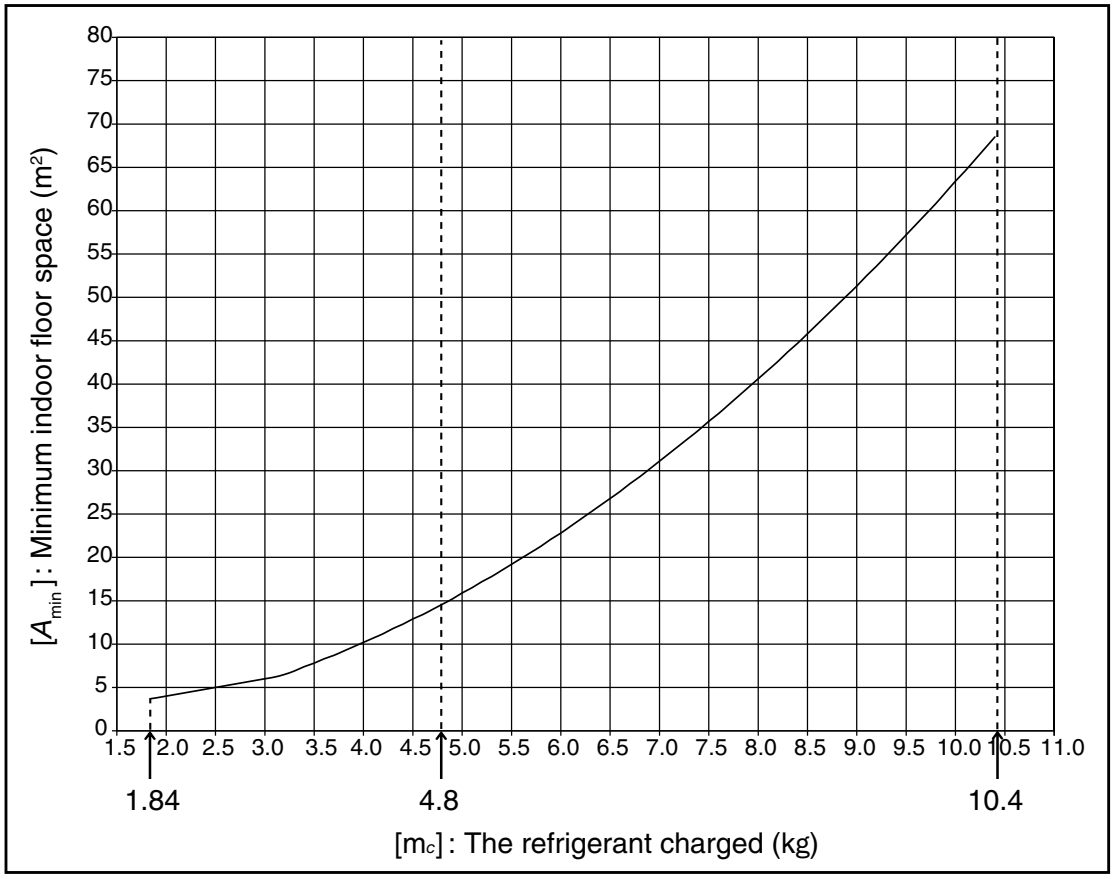
When partitioning:
Satisfy the diagram for A_{inst1} and h_{inst1}
and satisfy the diagram for A_{inst2} and h_{inst2}
and satisfy the diagram for A_{inst3} and h_{inst3}



When not partitioning:
Satisfy the diagram for A_{inst}
$h_{inst} = Min(h_{inst1}, h_{inst2})$



When partitioning:
Satisfy the diagram for A_{inst1} and h_{inst1}
and satisfy the diagram for A_{inst2} and h_{inst2}



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

A_{min} = Required minimum room area, in m^2
m_c = Refrigerant charge in appliance, in kg
LFL = Lower flammability limit (0.307 kg/m^3)
h_0 = Release height is 2.2m.
CF = Concentration 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 :

$A_{min} = m_c / (CF \times LFL \times h_0)$

The higher value shall be taken when determining the room area.
$m_c \leq 1.84$: Can be installed
$1.84 < m_c \leq m_{max}$: Can be installed above “Density Limit Line” *1
*1 Refer to table and the installation instructions of indoor unit when deciding “Density Limit Line”.

[m_c] kg	[A_{min}] (m^2)
4.8	14.6
4.9	15.2
5.0	15.9
5.1	16.5
5.2	17.2
5.3	17.8
5.4	18.5
5.5	19.2
5.6	19.9
5.7	20.6
5.8	21.3
5.9	22.1

[m_c] kg	[A_{min}] (m^2)
6.0	22.8
6.1	23.6
6.2	24.4
6.3	25.2
6.4	26.0
6.5	26.8
6.6	27.6
6.7	28.5
6.8	29.3
6.9	30.2
7.0	31.1
7.1	32.0

[m_c] kg	[A_{min}] (m^2)
7.2	32.9
7.3	33.8
7.4	34.7
7.5	35.7
7.6	36.6
7.7	37.6
7.8	38.6
7.9	39.6
8.0	40.6
8.1	41.6
8.2	42.6

[m_c] kg	[A_{min}] (m^2)
8.3	43.7
8.4	44.7
8.5	45.8
8.6	46.9
8.7	48.0
8.8	49.1
8.9	50.2
9.0	51.3
9.1	52.5
9.2	53.6
9.3	54.8

[m_c] kg	[A_{min}] (m^2)
9.4	56.0
9.5	57.2
9.6	58.4
9.7	59.6
9.8	60.8
9.9	62.1
10.0	63.4
10.1	64.6
10.2	65.9
10.3	67.2
10.4	68.5

Precautions for Installation Using New Refrigerant

1. Care regarding tubing

(1) Process tubing

- Material: Use seamless phosphorous deoxidized copper tube for refrigeration. Wall thickness shall comply with the applicable legislation. For tubes of ø22.22 or larger, use the material of temper 1/2H or H (Hard copper tube). Do not bend the hard copper tube.
- For the renewal tubing size, refer to the Technical Data.
- Use a tube cutter when cutting the tubing, and be sure to remove any flash. This also applies to distribution joints (optional).
- When bending tubing, use a bending radius that is 4 times the outer diameter of the tubing or larger.

⚠ **CAUTION**	**Use sufficient care in handling the tubing. Seal the tubing ends with caps or tape to prevent dirt, moisture, or other foreign substances from entering. These substances can result in system malfunction.**

(2) Prevent impurities including water, dust and oxide from entering the tubing. Impurities can cause R32 refrigerant deterioration and compressor defects. Due to the features of the refrigerant and refrigerating machine oil, the prevention of water and other impurities becomes more important than ever.

2. Be sure to recharge the refrigerant only in liquid form.

(1) Since refrigerant composition changes and performance decreases when gas leaks, collect the remaining refrigerant and recharge the required total amount of new refrigerant after fixing the leak.

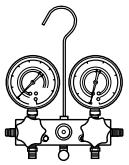
3. Different tools required

(1) Tool specifications have been changed due to the characteristics of R32.
Some tools for R22- and R407C-type refrigerant systems cannot be used.

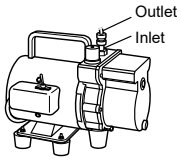
Item	Different tools? (From R22 and R407C)	R410A tools compatible with R32?	Remarks
Manifold gauge	Yes	Yes	Types of refrigerant, refrigerating machine oil, and pressure gauge are different.
Charge hose	Yes	Yes	To resist higher pressure, material must be changed.
Vacuum pump	Yes	Yes	Use a conventional vacuum pump if it is equipped with a check valve. If it has no check valve, purchase and attach a vacuum pump adapter.
Leak detector	Yes	Yes	Leak detectors for CFC and HCFC that react to chlorine do not function because R32 and R410A contains no chlorine. Leak detectors for HFC can be used for R32 and R410A.
Flaring oil	Yes	Yes	For systems that use R22, apply mineral oil (Suniso oil) to the flare nuts on the tubing to prevent refrigerant leakage. For machines that use R32 or R410A, apply synthetic oil (ether oil) to the flare nuts.

* Using tools for R22 and R407C can cause defects.

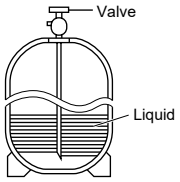
Manifold gauge



Vacuum pump



Single-outlet valve
(with siphon tube)
Liquid refrigerant should be recharged with the cylinder standing on end as shown.



Important Information Regarding The Refrigerant Used

This product contains fluorinated greenhouse gases. Do not vent gases into the atmosphere.

Refrigerant type: R32

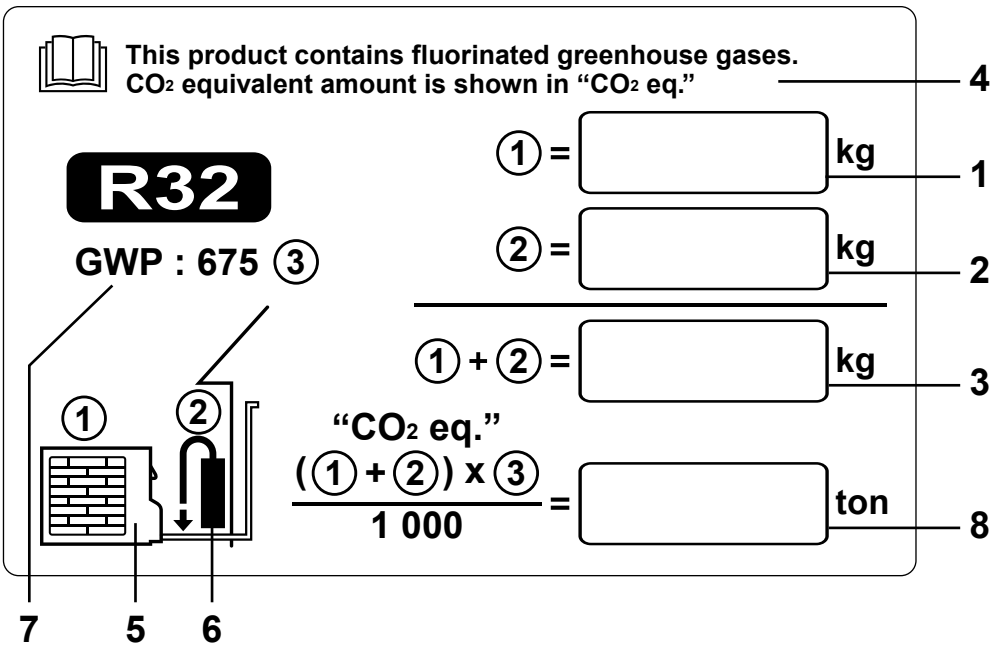
GWP(1) value: 675

(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.

Fill in the blanks below with the indelible ink pens.

- ①: the factory refrigerant charge of the product
- ②: the additional refrigerant amount charged in the field
- ① + ② : the total refrigerant charge
- (① + ②) x ③/1000: CO_2 equivalent in tons; multiply the total refrigerant charge by GWP value, then divided by 1000.



1. Factory refrigerant charge of the product: see unit name plate
2. Additional refrigerant amount charged in the field*
3. Total refrigerant charge
4. Contains fluorinated greenhouse gases
5. Outdoor unit
6. Refrigerant cylinder and manifold for charging
7. GWP(global warming potential) of the refrigerant used in this product
8. CO_2 equivalent of fluorinated greenhouse gases contained in this product

* See "5. REFRIGERANT INSTALLATION" on page 1-11-2-1-14 to 1-11-2-1-17.

Combination of Indoor and Outdoor Units

PZH4

	200	250
E3	S-200PE4E U-200PZH4E8	S-250PE4E U-250PZH4E8

—— CONTENTS ——

1. SPECIFICATIONS

1-1. Unit Specifications

PZH4

High Static Pressure Ducted Type S-200PE4E / U-200PZH4E8

INDOOR			MODEL		S-200PE4E			-			-
PANEL			MODEL		-			-			-
OUTDOOR			MODEL		-			U-200PZH4E8			-
Branch pipe			MODEL		-						
Performance test condition					ISO5151 / EN14511 / EN12102 / EN14825						
Power supply			ø, Hz		1ø 50Hz			3Ø 50Hz			-
			V		220V	230V	240V	380V	400V	415V	Min	Max
COOLING	Capacity		kW		19.0	19.0	19.0	-	-	-	5.7	20.0
			BTU/h		64800	64800	64800	-	-	-	19400	68200
			Sensible	kW	16.7	16.7	16.7	-	-	-	-	-
			Latent	kW	2.3	2.3	2.3	-	-	-	-	-
	Current		A		3.50	3.40	3.30	9.80	9.30	8.95	-	-
	Input power		W		620	620	620	-	-	-	-	-
			TOTAL W			-		5.930k	5.930k	5.930k	1.240k	7.200k
	Annual consumption		TOTAL kWh		-	-	-	-	2965	-	-	-
	EER/EER CLASS		TOTAL (W/W) *5/ ("A"~"G")		-	-	-	3.20	3.20 / B	3.20	4.60	2.78
	Erp *6	Pdesign	kW		-	-	-	-	19.0	-	-	-
		ηsc	%		-	-	-	-	237.8	-	-	-
		Annual Consumption	kWh		-	-	-	-	-	-	-	-
		Class			-	-	-	-	-	-	-	-
	Power factor		%		-	-	-	92	92	92	-	-
	Noise indoor		dB-A (H/M/L)			46/44/41			-		-	-
			Power Level dB			78/76/73			-		-	-
	Noise outdoor		dB-A (H/L)			-			57/-		-	-
			Power Level dB			-			76/-		-	-
HEATING	Capacity		kW		22.4	22.4	22.4	-	-	-	5.0	24.5
			BTU/h		76400	76400	76400	-	-	-	17100	83600
	Current		A		3.50	3.40	3.30	10.4	9.90	9.55	-	-
	Input power		W		620	620	620	-	-	-	-	-
			TOTAL W			-		6.310k	6.310k	6.310k	1.050k	7.500k
	COP/COP CLASS		TOTAL (W/W) *5/ ("A"~"G")		-	-	-	3.55	3.55 / B	3.55	4.76	3.27
	Erp *6	Pdesign at -10°C	kW		-	-	-	-	16.0	-	-	-
		Tbivalent	°C		-	-	-	-	-10	-	-	-
		ηsh	%		-	-	-	-	146.0	-	-	-
		Annual consumption	kWh		-	-	-	-	-	-	-	-
		elbu(-10°C)	kW		-	-	-	-	0.00	-	-	-
		Class			-	-	-	-	-	-	-	-
	Power factor		%		-	-	-	92	92	92	-	-
	Noise indoor		dB-A (H/M/L)			46/44/41			-		-	-
			Power Level dB			78/76/73			-		-	-
	Noise outdoor		dB-A (H/L)			-			61/-		-	-
			Power Level dB			-			80/-		-	-
LOW TEMP			Total capacity(kW)			-			-			-
EXTRA LOW TEMP			Total capacity(kW) *2			-			17.8			-
Max Current(A) / Max Input power(W)					5.90/1090	5.80/1090	5.70/1090	15.0/9.08k	15.0/9.56k	15.0/9.92k		-
Starting current(A) (Cooling/Heating)					-	-	-	9.80/10.4	9.30/9.90	8.95/9.55		-
Comp output(W)						-		4.20k	4.20k	4.20k		-
Time Delay fuse max size(A)						-			30			-
Network Impedance (Ω MAX.)						-			-			-
Fan motor output (Indoor/Outdoor) W						750			600			-
Moisture removal volume				L/h(Pt/h)		4.3 (4.3×1)			-			-
External static pressure				Pa		75 / (120/180)			-			-
Indoor Air flow	Cooling		(H/M/L) m³/min (m³/h)			72.0/63.0/53.0 (4320)/(3780)/(3180)			-		-	-
	Heating		(H/M/L) m³/min (m³/h)			72.0/63.0/53.0 (4320)/(3780)/(3180)			-		-	-
Outdoor Air flow	Cooling		m³/min (m³/h)			-			116 (6960)		-	-
	Heating		m³/min (m³/h)			-			136 (8160)		-	-
Refrigerant type / amount g(oz) / amount max kg						-			R32 / 4.80k / 10.4		-	-
F-GAS	GWP / CO_2eq (ton) (PRECHARGE AMOUNT) / CO_2eq (ton) (MAXIMUM CHARGE AMOUNT)					-			675 / 3.24 / 7.02			-
Product dimension			Height	mm (inch)		486 (19-1/8)			996 (39-7/32)			-
			Width	mm (inch)		1456 (57-5/16)			1140 (44-7/8)			-
			Depth	mm (inch)		916 (36-1/16)			460 (18-7/64)			-
Product dimension (Panel)			H×W×D mm, inch			-			-			-
Packing dimension			Height	mm (inch)		610 (24-1/32)			1135 (44-11/16)			-
			Width	mm (inch)		1646 (60-13/16)			1252 (49-19/64)			-
			Depth	mm (inch)		1132 (44-9/16)			616 (24-1/4)			-
Weight			(NET)	kg (lb)		83 (183)			109 (240)			-
			(GROSS)	kg (lb)		97 (214)			117 (258)			-
			Panel	kg (lb)		-			-			-
Layers limit (actually)						4 (5)			1 (2)			-
Operation condition			Cool (DBT)			18°C ~ 32°C			-15°C ~ 52°C			-
			Heat (DBT)			16°C ~ 30°C			-20°C ~ 35°C			-
Max Working Pressure HP/LP Mpa (bar)						4.15/2.55 (41.5/25.5)						-
PIPING	Pipe port diameter mm (inch)				(Liquid)Ø12.7(1/2) (Gas)Ø22.22(7/8)			(Liquid)Ø12.7(1/2) (Gas)Ø22.22(7/8)				-
	Pipe diameter mm (inch)				(Liquid)Ø12.7(1/2) (Gas)Ø22.2(7/8)							-
	Standard length m(ft)				7.5 (24.6)							-
	Connecting method				(Liquid)flared type (Gas)brazing connection			(Liquid)flared type (Gas)brazing connection				-
	Pipe length range m (ft)				5 ~ 100m (16.4 ~ 328)							-
	Indoor unit & Outdoor unit height difference m (ft)				30 (OD located lower) / 30 (OD located higher) (98.4/98.4)							-
	Add gas amount g/m (oz/ft)				80g/m (0.860)							-
	Pipe length for additional gas m (ft)				30m (98.4)							-

* In the case of nanoe X OFF
*1 In case it is necessary to indicate the air flow volume in (l/s), the value in (m³/min.) shall be multiplied by 16.7 and rounded down the decimal point.
*2 If the EUROVENT Certified models can be operated under the "extra-low" temperature condition, -7°C dry bulb and -8°C wet bulb temperatures with rated voltage 230V (400V) shall be used.
*3 Network Impedance shall be applicable for EUROPE and CHINA models.
*4 The annual comsumption is calculated by multiplying the input power at 230V(400V) by an average of 500 hours per year in cooling mode.
*5 EER and COP classification is at 230V(400V) only in accordance with EU directive 2002/31/EC.
*6 ηsc and ηsh classification is at 230V(400V) only in accordance with EN-14825. For heating, ηsh indicates the value of only Average heating season.
* Max Current(A)/ Max Input Power(W) value in the outdoor side is applicable for outdoor unit only.

1-1. Unit Specifications

PZH4

High Static Pressure Ducted Type S-250PE4E/ U-250PZH4E8

INDOOR			MODEL		S-250PE4E			-			-
PANEL			MODEL		-			-			-
OUTDOOR			MODEL		-			U-250PZH4E8			-
Branch pipe			MODEL		-						
Performance test condition					ISO5151 / EN14511 / EN12102 / EN14825						
Power supply			ø, Hz		1ø 50Hz			3Ø 50Hz			-
			V		220V	230V	240V	380V	400V	415V	Min	Max
COOLING	Capacity		kW		22.0	22.0	22.0	-	-	-	6.1	25.6
			BTU/h		75100	75100	75100	-	-	-	20800	87300
			Sensible	kW	18.2	18.2	18.2	-	-	-	-	-
			Latent	kW	3.8	3.8	3.8	-	-	-	-	-
	Current		A		4.30	4.20	4.10	13.10	12.50	8.95	-	-
	Input power		W		830	830	830	-	-	-	-	-
			TOTAL W		-			8.040k	8.040k	8.040k	1.250k	10.30k
	Annual consumption		TOTAL kWh		-	-	-	-	4020	-	-	-
	EER/EER CLASS		TOTAL (W/W) *5/ ("A"~"G")		-	-	-	2.74	2.74 / D	2.74	4.88	2.49
	Erp *6	Pdesign	kW		-	-	-	-	22.0	-	-	-
		ηsc	%		-	-	-	-	213.0	-	-	-
		Annual Consumption	kWh		-	-	-	-	-	-	-	-
		Class			-	-	-	-	-	-	-	-
	Power factor		%		-	-	-	93	93	93	-	-
	Noise indoor		dB-A (H/M/L)		47/45/42			-			-	-
			Power Level dB		79/77/74			-			-	-
	Noise outdoor		dB-A (H/L)		-			57/-			-	-
			Power Level dB		-			76/-			-	-
HEATING	Capacity		kW		24.0	24.0	24.0	-	-	-	5.5	27.6
			BTU/h		81900	81900	81900	-	-	-	18800	94200
	Current		A		4.30	4.20	4.10	11.00	10.50	10.10	-	-
	Input power		W		830	830	830	-	-	-	-	-
			TOTAL W		-			6.760k	6.760k	6.760k	1.050k	9.000k
	COP/COP CLASS		TOTAL (W/W) *5/ ("A"~"G")		-	-	-	3.55	3.55 / B	3.55	4.78	3.07
	Erp *6	Pdesign at -10°C	kW		-	-	-	-	17.2	-	-	-
		Tbivalent	°C		-	-	-	-	-10	-	-	-
		ηsh	%		-	-	-	-	145.0	-	-	-
		Annual consumption	kWh		-	-	-	-	-	-	-	-
		elbu(-10°C)	kW		-	-	-	-	0.00	-	-	-
		Class			-	-	-	-	-	-	-	-
	Power factor		%		-	-	-	93	93	93	-	-
	Noise indoor		dB-A (H/M/L)		47/45/42			-			-	-
			Power Level dB		79/77/74			-			-	-
	Noise outdoor		dB-A (H/L)		-			63/-			-	-
			Power Level dB		-			82/-			-	-
LOW TEMP			Total capacity(kW)		-			-			-	
EXTRA LOW TEMP			Total capacity(kW) *2		-			20.1			-	
Max Current(A) / Max Input power(W)					6.60/1440	6.60/1440	6.30/1440	18.5/11.3k	18.5/11.9k	18.5/12.4k	-	
Starting current(A) (Cooling/Heating)					-	-	-	13.10/11.0	12.50/10.5	12.00/10.1	-	
Comp output(W)					-			5.50k	5.50k	5.50k	-	
Time Delay fuse max size(A)					-			30			-	
Network Impedance (Ω MAX.)					-			-			-	
Fan motor output (Indoor/Outdoor) W					750 x 2			600			-	
Moisture removal volume				L/h(Pt/h)	5.5 (5.5×1)			-			-	
External static pressure				Pa	75 / (130/200)			-			-	
Indoor Air flow	Cooling		(H/M/L) m^3/min (m^3/h)		84.0/72.0/59.0 (5040)/(4320)/(3540)			-			-	-
	Heating		(H/M/L) m^3/min (m^3/h)		84.0/72.0/59.0 (5040)/(4320)/(3540)			-			-	-
Outdoor Air flow	Cooling		m^3/min (m^3/h)		-			116 (6960)			-	-
	Heating		m^3/min (m^3/h)		-			148 (8880)			-	-
Refrigerant type / amount g(oz) / amount max kg					-			R32 / 4.80k / 10.40			-	-
F-GAS	GWP / CO_2eq (ton) (PRECHARGE AMOUNT) / CO_2eq (ton) (MAXIMUM CHARGE AMOUNT)				-			675 / 3.24 / 7.02			-	
Product dimension			Height	mm (inch)	486 (19-1/8)			996 (39-7/32)			-	
			Width	mm (inch)	1456 (57-5/16)			1140 (44-7/8)			-	
			Depth	mm (inch)	916 (36-1/16)			460 (18-7/64)			-	
Product dimension (Panel)			H×W×D mm, inch		-			-			-	
Packing dimension			Height	mm (inch)	610 (24-1/32)			1135 (44-11/16)			-	
			Width	mm (inch)	1646 (60-13/16)			1252 (49-19/64)			-	
			Depth	mm (inch)	1132 (44-9/16)			616 (24-1/4)			-	
Weight			(NET)	kg (lb)	87 (192)			109 (240)			-	
			(GROSS)	kg (lb)	101 (223)			117 (258)			-	
			Panel	kg (lb)	-			-			-	
Layers limit (actually)					4 (5)			1 (2)			-	
Operation condition			Cool (DBT)		18°C ~ 32°C			-15°C ~ 52°C			-	
			Heat (DBT)		16°C ~ 30°C			-20°C ~ 35°C			-	
Max Working Pressure HP/LP Mpa (bar)					4.15/2.55 (41.5/25.5)						-	
PIPING	Pipe port diameter mm (inch)				(Liquid)Ø12.7(1/2) (Gas)Ø22.22(7/8)			(Liquid)Ø12.7(1/2) (Gas)Ø22.22(7/8)			-	
	Pipe diameter mm (inch)				(Liquid)Ø12.7(1/2) (Gas)Ø22.2(7/8)						-	
	Standard length m(ft)				7.5 (24.6)						-	
	Connecting method				(Liquid)flared type (Gas)brazing connection			(Liquid)flared type (Gas)brazing connection			-	
	Pipe length range m (ft)				5 ~ 100m (16.4 ~ 328)						-	
	Indoor unit & Outdoor unit height difference m (ft)				30 (OD located lower) / 30 (OD located higher) (98.4/98.4)						-	
	Add gas amount g/m (oz/ft)				80g/m (0.860)						-	
	Pipe length for additional gas m (ft)				30m (98.4)						-	

* In the case of nanoe X OFF

*1 In case it is necessary to indicate the air flow volume in (l/s), the value in (m^3/min.) shall be multiplied by 16.7 and rounded down the decimal point.

*2 If the EUROVENT Certified models can be operated under the "extra-low" temperature condition, -7°C dry bulb and -8°C wet bulb temperatures with rated voltage 230V (400V) shall be used.

*3 Network Impedance shall be applicable for EUROPE and CHINA models.

*4 The annual comsumption is calculated by multiplying the input power at 230V(400V) by an average of 500 hours per year in cooling mode.

*5 EER and COP classification is at 230V(400V) only in accordance with EU directive 2002/31/EC.

*6 ηsc and ηsh classification is at 230V(400V) only in accordance with EN-14825. For heating, ηsh indicates the value of only Average heating season.

* Max Current(A)/ Max Input Power(W) value in the outdoor side is applicable for outdoor unit only.

1-2. Major Component Specifications

(A) Indoor Units

High Static Pressure Ducted Type
S-200PE4E

MODEL No.		S-200PE4E
Source		220 - 230 - 240V, single-phase, 50Hz
Controller P.C.B. Ass'y		ACXA73C51510
Fan (Number...diameter)	mm	SIROCCO (2...ø255)
Fan motor		
Model...Nominal output	W	L6CBYYYL0463...750W
Power source		100 - 390 VDC
No. of pole...r.p.m. (230V, High)	rpm	8P...1080
Coil resistance (Ambient temperature 20°C)	Ω	–
Run capacitor	VAC, μF	–
Electronic expansion valve		
Coil		–
Coil resistance (at 20°C)	Ω	–
Valve body		–
Heat exchanger		
Coil		Aluminium plate fin / Copper tube
Row x Stage x FPI		3 x 28 x 18
W x H x L	mm	38.1 x 588 x 1092

(A) Indoor Units

High Static Pressure Ducted Type

S-250PE4E

MODEL No.		**S-250PE4E**
Source		220 - 230 - 240V, single-phase, 50Hz
Controller P.C.B. Ass'y		ACXA73C51510
Fan (Number...diameter)	mm	SIROCCO (2...ø255)
Fan motor		
Model...Nominal output	W	L6CBYYYL0238...750W L6CBYYYL0237...750W
Power source		100 - 391 VDC
No. of pole...r.p.m. (230V, High)	rpm	8P...1180
Coil resistance (Ambient temperature 20°C)	Ω	–
Run capacitor	VAC, μF	–
Electronic expansion valve		
Coil		–
Coil resistance (at 20°C)	Ω	–
Valve body		–
Heat exchanger		
Coil		Aluminium plate fin / Copper tube
Row x Stage x FPI		3 x 28 x 18
W x H x L	mm	38.1 x 588 x 1092

(B) Outdoor Units

U-200PZH4E8

MODEL No.				U-200PZH4E8
Source				380 - 400 - 415V 3-Phase 50Hz
	Control circuit fuse			30A
Compressor				
	Model....number			9VD550XAA21
	Source			520V DC MOTOR
	Nominal output		W	4,800
	Compressor oil		cc	1,900
	Coil resistance (Ambient temperature 25°C)		Ω	U-V 0.735 U-W 0.715 V-W 0.715
	Safety control			Discharge temperature control
		Overload relay models		–
		Operation temperature	Open °C	–
			Close °C	–
	Crank case heater		W	230V-32W+/-10%
Refrigerant amount at shipment			kg	R32-5.2
High pressure switch				
	Set pressure		OFF MPa	4.15±0.2
			ON MPa	3.05±0.2
Fan				
	Number...diameter		mm	2...ø540
	Air circulation		m^3/h	160
Fan speeds (Max.)				
Fan motor				
	Model No.			L6CBYYYL0486
	Source			DC310V
	No. of pole			10
	Nominal output		W	600 x 2
	Safety device			–
		Overheat protection temperature	Open °C	90 - 100
			Close °C	75 - 85
	Run capacitor		VAC, μF	–
Heat exchanger				
	Coil			Aluminium plate fin / Copper tube
	Row x Stage x FPI			3 x (22+24) x 18
	W x H x L		mm	54.6 x 966(462+504) x 1100

(B) Outdoor Units

U-250PZH4E8

MODEL No.				U-250PZH4E8
Source				400 - 415V 3-Phase 50Hz
	Control circuit fuse			30A
Compressor				
	Model....number			9VD550XAA21
	Source			520V DC MOTOR
	Nominal output		W	5,500
	Compressor oil		cc	1,900
	Coil resistance (Ambient temperature 25°C)		Ω	U-V 0.735 U-W 0.715 V-W 0.715
	Safety control			Discharge temperature control
		Overload relay models		–
		Operation temperature	Open °C	–
			Close °C	–
	Crank case heater		W	230V-32W+/-10%
Refrigerant amount at shipment			kg	R32-5.2
High pressure switch				
	Set pressure		OFF MPa	4.15±0.2
			ON MPa	3.05±0.2
Fan				
	Number...diameter		mm	2...ø540
	Air circulation		m^3/h	160
Fan speeds (Max.)				
Fan motor				
	Model No.			L6CBYYYL0486
	Source			DC310V
	No. of pole			10
	Nominal output		W	600 x 2
	Safety device			–
		Overheat protection temperature	Open °C	90 - 100
			Close °C	75 - 85
	Run capacitor		VAC, µF	–
Heat exchanger				
	Coil			Aluminium plate fin / Copper tube
	Row x Stage x FPI			3 x (22+24) x 18
	W x H x L		mm	54.6 x 966(462+504) x 1100

1-3. Other Component Specifications

Outdoor Units
U-200PZH4E8

MODEL No.	Outdoor Unit	U-200PZH4E8		
Power Transformer				
Rated		–		
Source	VAC, Hz	–		
Secondary		–		
		–		
Coil resistance	Ω	–		
Thermal cut off temperature		–		
Thermistor (Coil / Air sensor): TH1, TH2, TH3, TH4				
Resistance	kΩ	-20°C： 38.48±2%	20°C： 6.517±2%	
		-10°C： 23.67±2%	30°C： 4.448±2%	
		0°C： 15.00±2%	40°C： 3.100±2%	
		5°C： 12.06±2%	45°C： 2.607±2%	
		10°C： 9.765±2%	50°C： 2.203±2%	
Thermistor (Discharge gas sensor): TH5				
Resistance	kΩ	60°C： 13.85±2%	85°C： 5.946±2%	
		65°C： 11.59±2%	90°C： 5.086±2%	
		70°C： 9.743±2%	95°C： 4.367±2%	
		75°C： 8.228±2%	100°C： 3.764±2%	
		80°C： 6.981±2%	105°C： 3.256±2%	

Outdoor Units
U-250PZH4E8

MODEL No.	Outdoor Unit	U-250PZH4E8	
Power Transformer			
Rated		–	
Source	VAC, Hz	–	
Secondary		–	
		–	
Coil resistance	Ω	–	
Thermal cut off temperature		–	
Thermistor (Coil / Air sensor): TH1, TH2, TH3, TH4			
Resistance	kΩ	-20°C： 38.48±2%	20°C： 6.517±2%
		-10°C： 23.67±2%	30°C： 4.448±2%
		0°C： 15.00±2%	40°C： 3.100±2%
		5°C： 12.06±2%	45°C： 2.607±2%
		10°C： 9.765±2%	50°C： 2.203±2%
Thermistor (Discharge gas sensor): TH5			
Resistance	kΩ	60°C： 13.85±2%	85°C： 5.946±2%
		65°C： 11.59±2%	90°C： 5.086±2%
		70°C： 9.743±2%	95°C： 4.367±2%
		75°C： 8.228±2%	100°C： 3.764±2%
		80°C： 6.981±2%	105°C： 3.256±2%

1-4. Dimensional Data

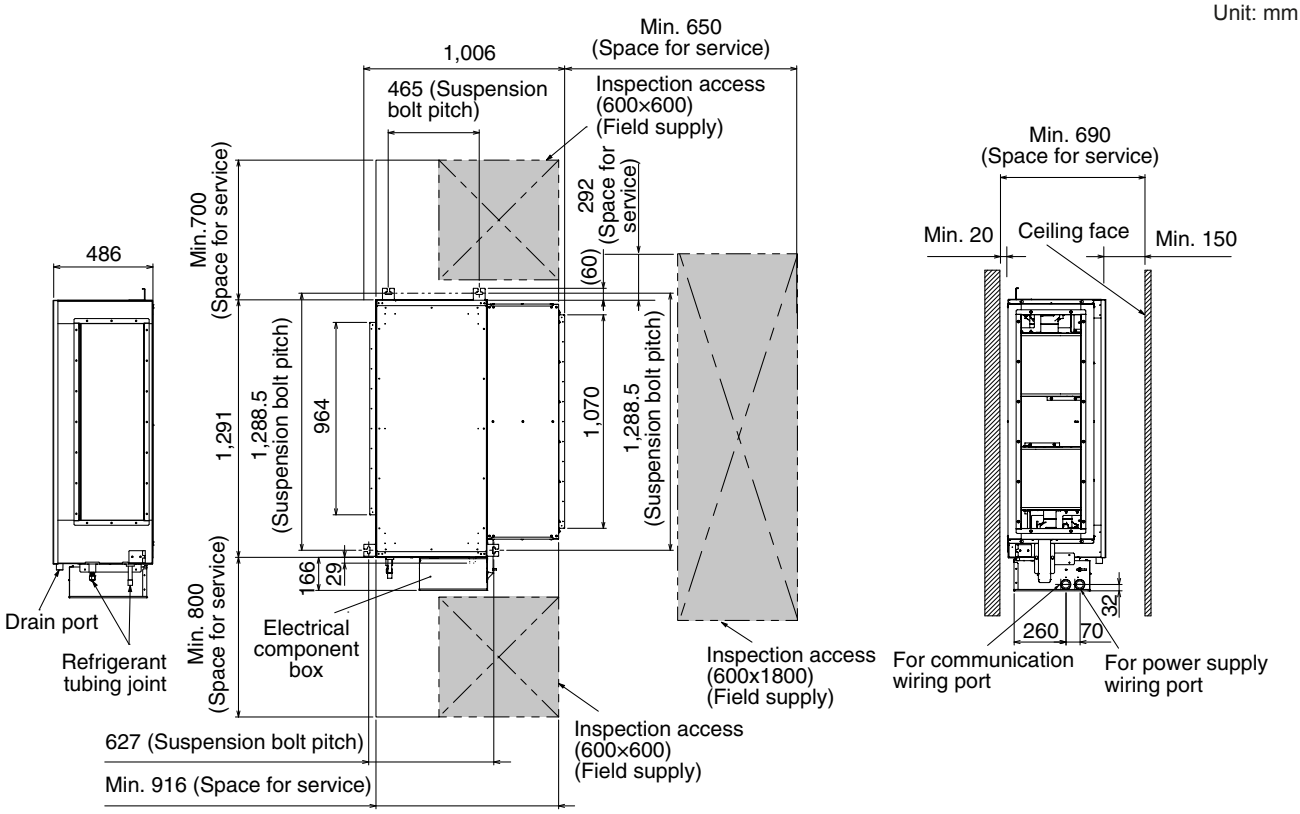
(A) Indoor Units

High Static Pressure Ducted Type
S-200PE4E, S-250PE4E

Required Minimum Space for Installation and Service

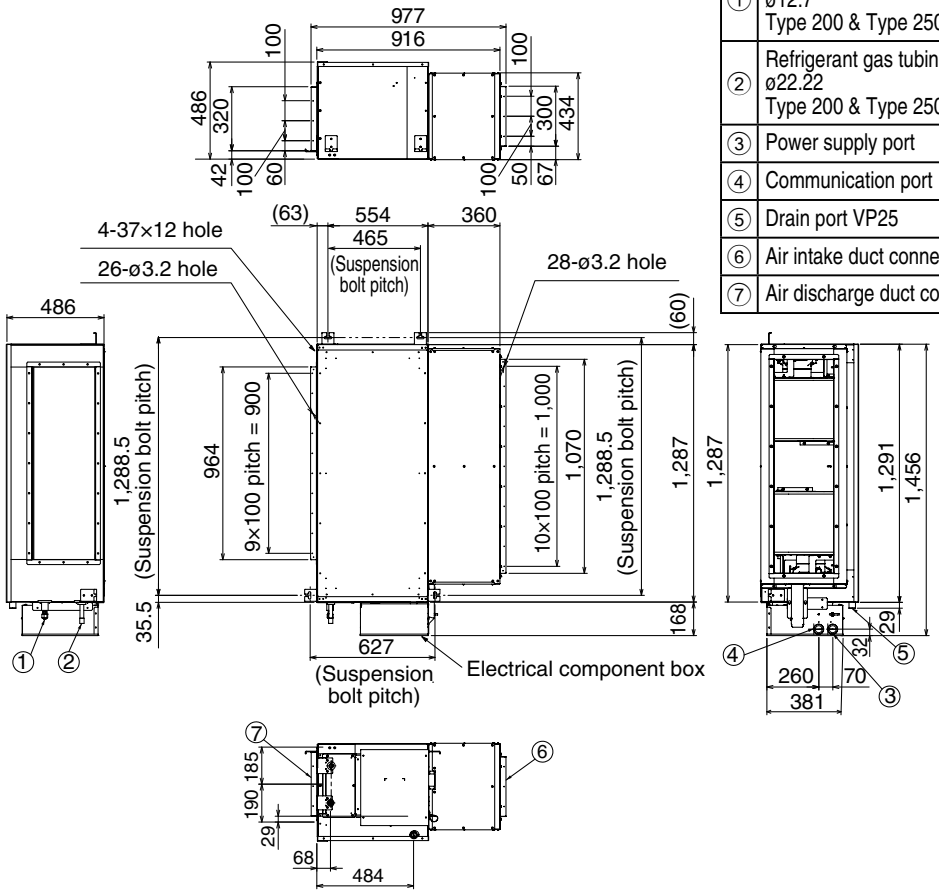
(1) Dimensions of suspension bolt pitch and unit

Unit: mm



(2) Dimensions of indoor unit

Unit: mm

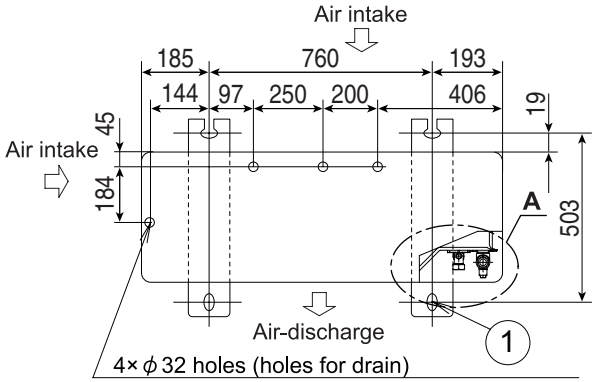


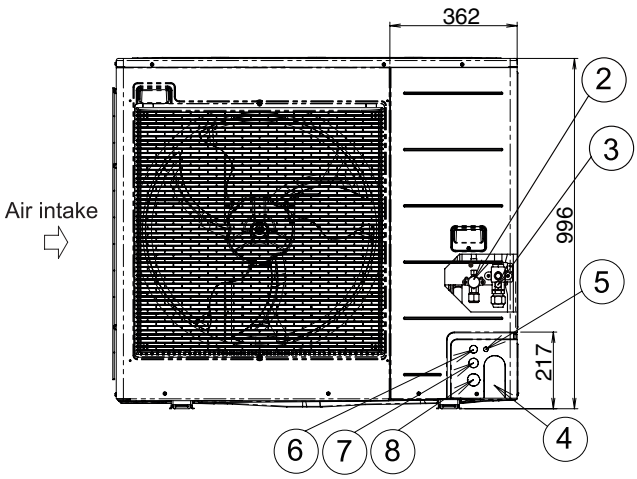
①	Refrigerant liquid tubing (Flare) ø12.7 Type 200 & Type 250
②	Refrigerant gas tubing (Brazing) ø22.22 Type 200 & Type 250
③	Power supply port
④	Communication port
⑤	Drain port VP25
⑥	Air intake duct connecting side flange
⑦	Air discharge duct connecting side flange

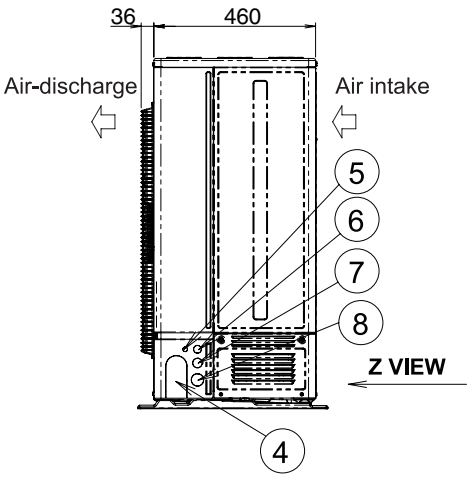
(B) Outdoor Units
U-200PZH4E8, U-250PZH4E8

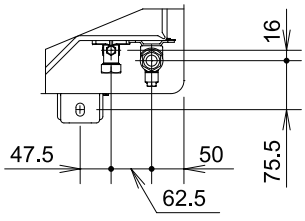
Unit: mm

①	Mounting hole (4-R6.5), anchor bolt : M10
②	Refrigerant tubing (liquid tube), flared connection (ø12.7)
③	Refrigerant tubing (gas tube), flared connection (ø22.22)
④	Refrigerant tubing port
⑤	Electrical wiring port (ø13)
⑥	Electrical wiring port (ø22)
⑦	Electrical wiring port (ø27)
⑧	Electrical wiring port (ø35)

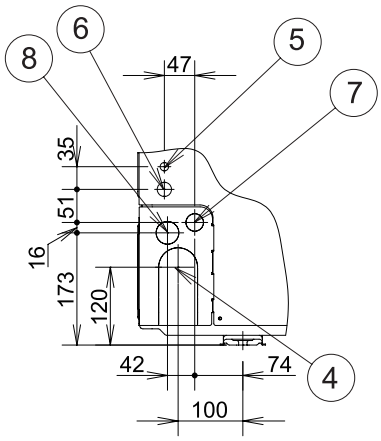






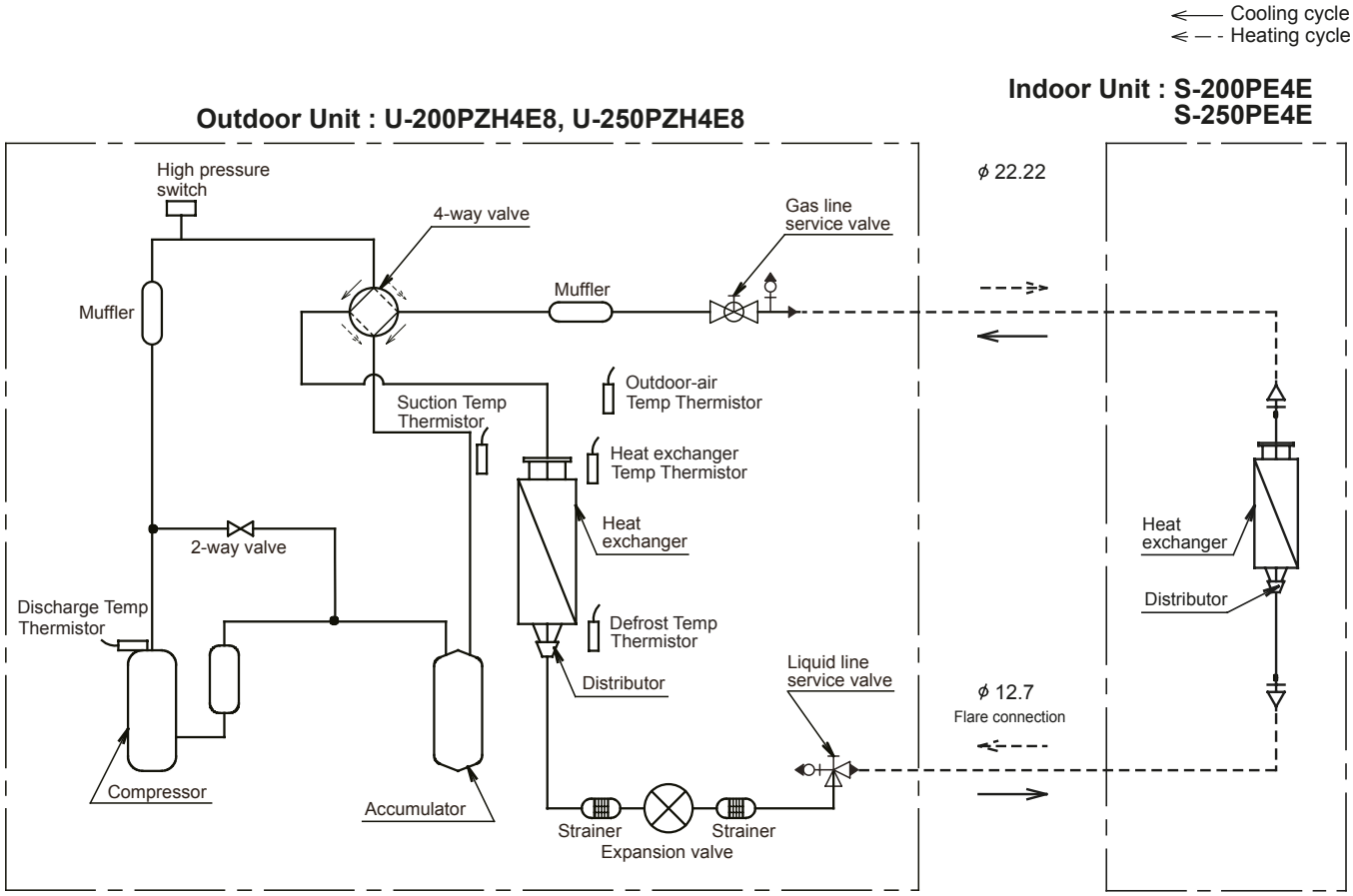


A VIEW



Z VIEW

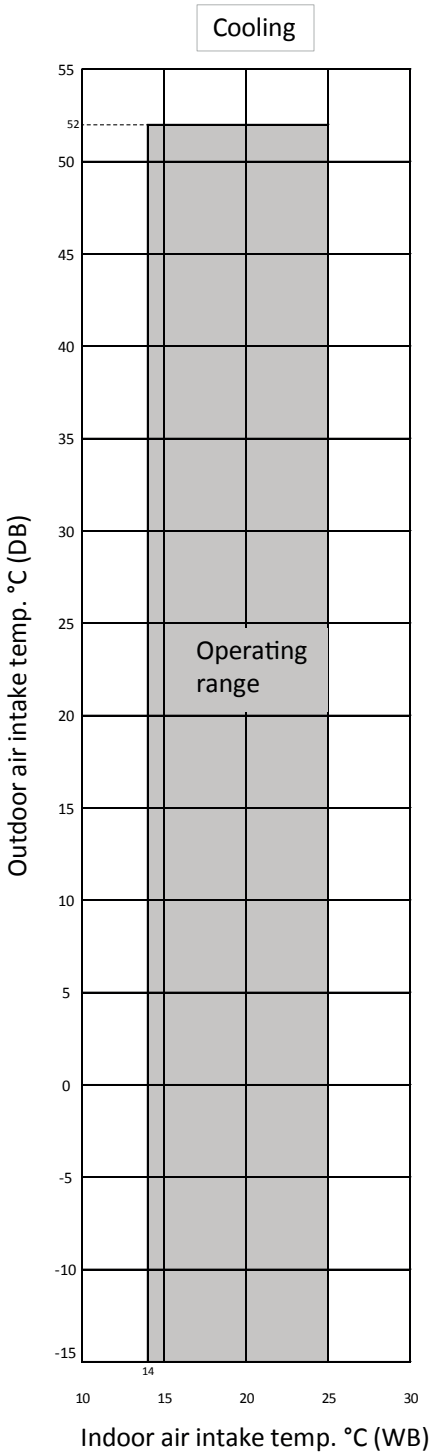
1-5. Refrigerant Flow Diagram

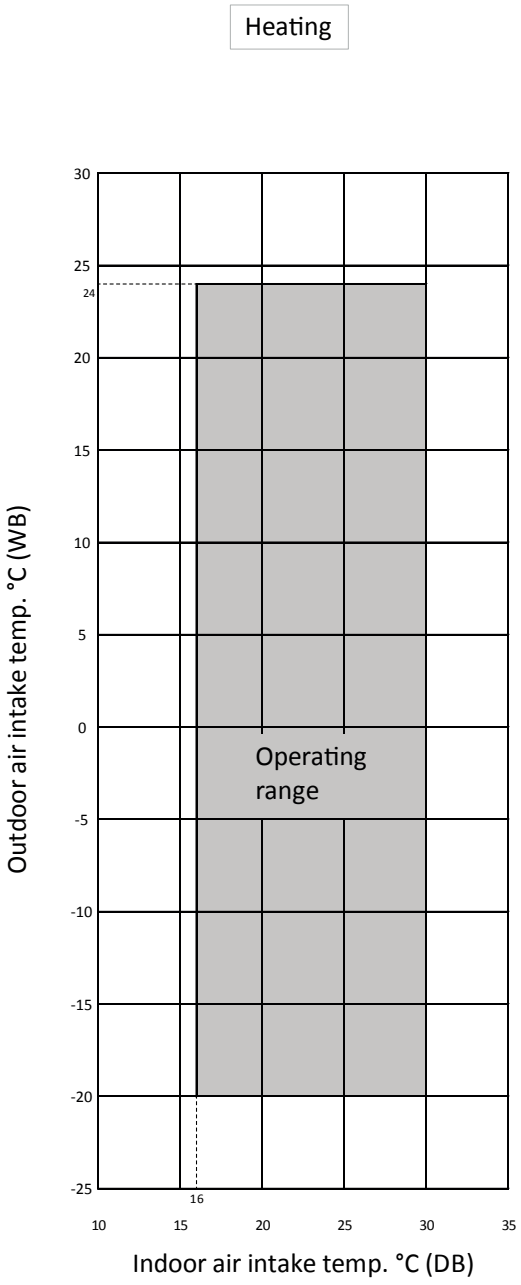


1-6. Operating Range

S-200PE4E - U-200PZH4E8
S-250PE4E - U-250PZH4E8

Temperature		Indoor air intake temperature	Outdoor air intake temperature
COOLING	Max.	32°C DB / 25°C WB	52°C DB
	Min.	18°C DB / 14°C WB	-15°C DB
HEATING	Max.	30°C DB / - WB	35°C DB / 24°C WB
	Min.	16°C DB / - WB	-20°C DB / -20°C WB

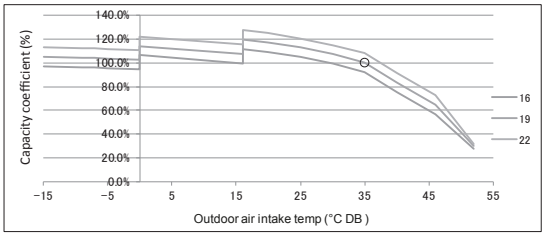


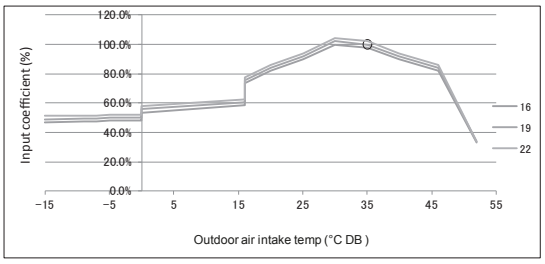


1-7. Capacity Correction Graph According to Temperature Condition

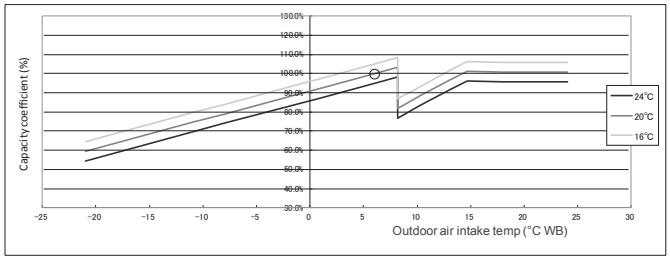
U-200PZH4E8, U-250PZH4E8

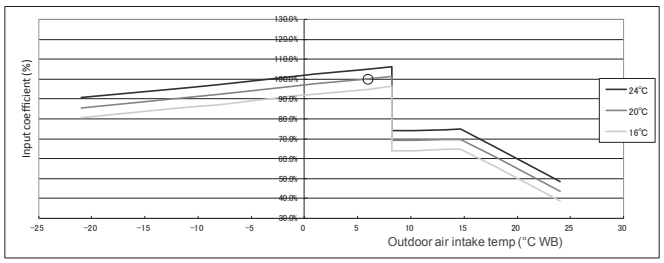
Cooling capacity ratio (maximum capacity)





Heating capacity ratio (maximum capacity)





NOTE 1

1. The graphs " ① " of the characteristics show the value under the following conditions.
   Equivalent tubing length : 7.5m
   Difference of elevation : 0m
   Wind speed : High
2. " ◯ " marking indicates the maximum capacity / maximum power consumption.
   Maximum capacity indicates the maximum value in the parentheses of the specifications (cooling and heating capacity).
3. The characteristic of heating capacity excludes the decline of capacity when frosting (including defrost drive).

Outdoor unit heating capacity correction coefficient during of frosting/defrosting

Outdoor intake air temperature °C WB	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3
Correction coefficient	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.860	0.830	0.830

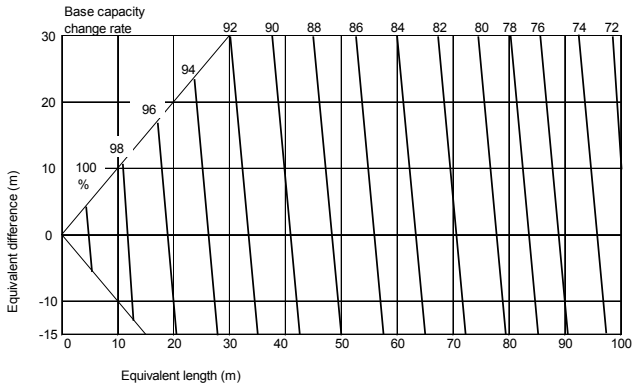
Outdoor intake air temperature °C WB	-2	-1	0	1	2	3	4	5	6
Correction coefficient	0.820	0.820	0.830	0.830	0.850	0.890	0.910	0.950	1.000

To calculate the heating capacity with consideration for frosting/defrosting operation, multiply the heating capacity found from the capacity graph by the correction coefficient from the table above.

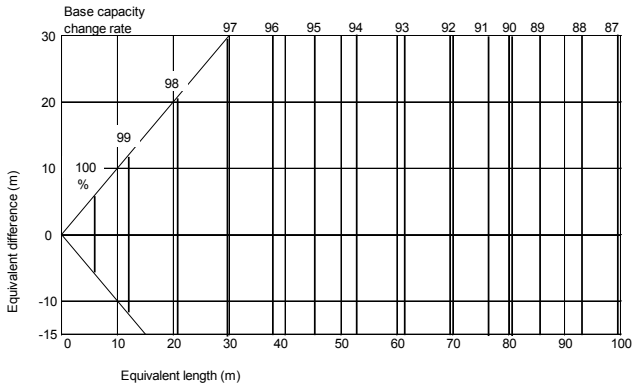
② Graph of capacity change characteristics resulting from tubing length and elevation difference
(Performance correction coefficients by elevation difference of refrigerant tube length [performance change rate ÷ 100] is calculated by the following line map.)

U-200PZH4E8
U-250PZH4E8

<Cooling>

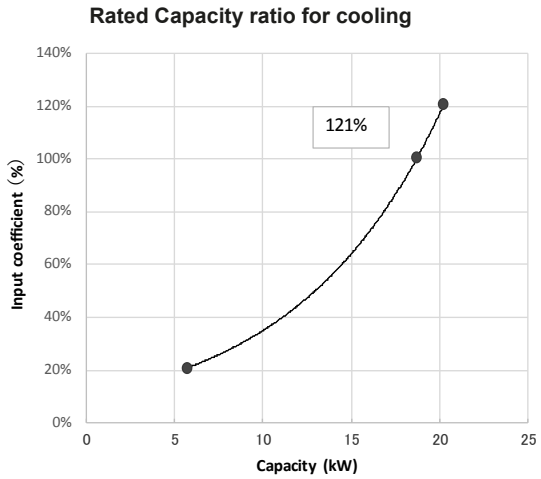


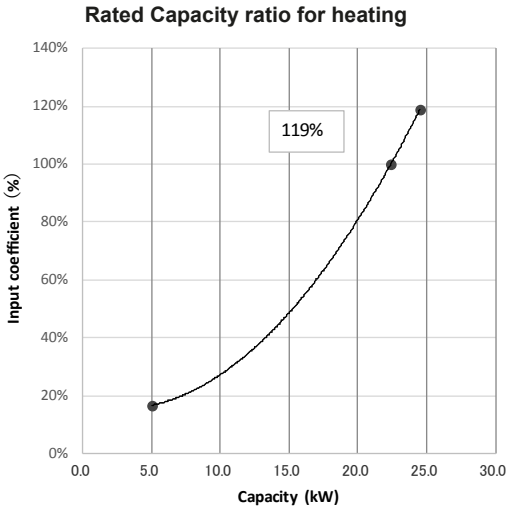
<Heating>



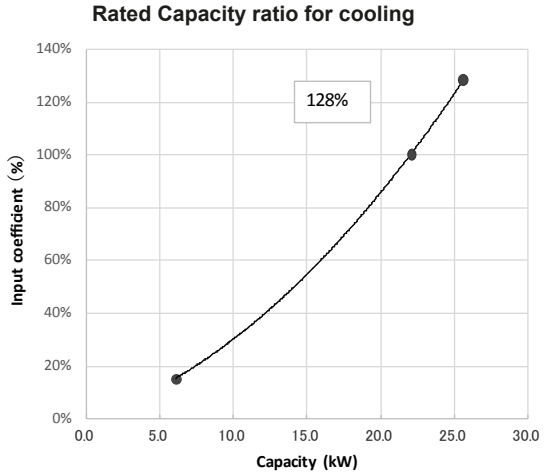
*The positive side for the elevation difference indicates that the outdoor unit is installed at a higher position than the indoor units. The negative side indicates the opposite.

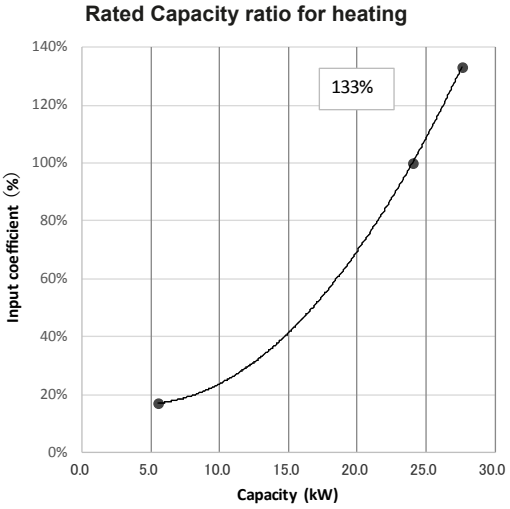
③ U-200PZH4E8





③ U-250PZH4E8





NOTE 2

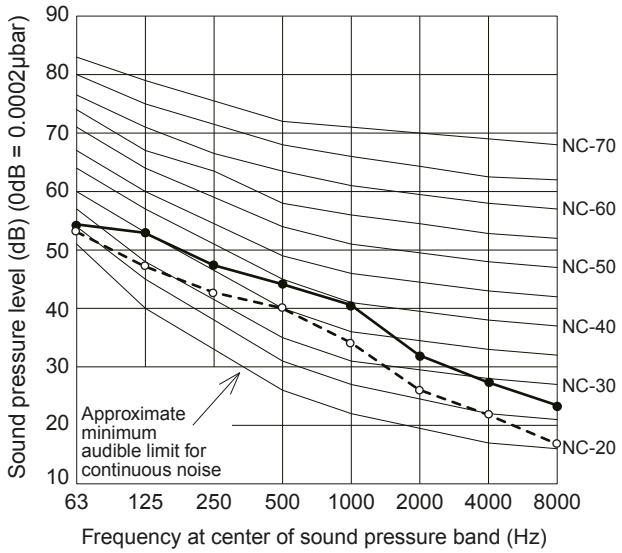
1. The graphs " ③ " of the characteristics show the value under the following conditions.
   Equivalent tubing length : 7.5m
   Difference of elevation : 0m
   Wind speed : High
2. " □ " marking indicates the rated capacity / rated power consumption under the JIS condition.
   " ◯ " marking indicates the maximum capacity / maximum power consumption under the JIS condition.
3. The characteristic of heating capacity excludes the decline of capacity when frosting (including defrost drive).

1-8. Noise Criterion Curves

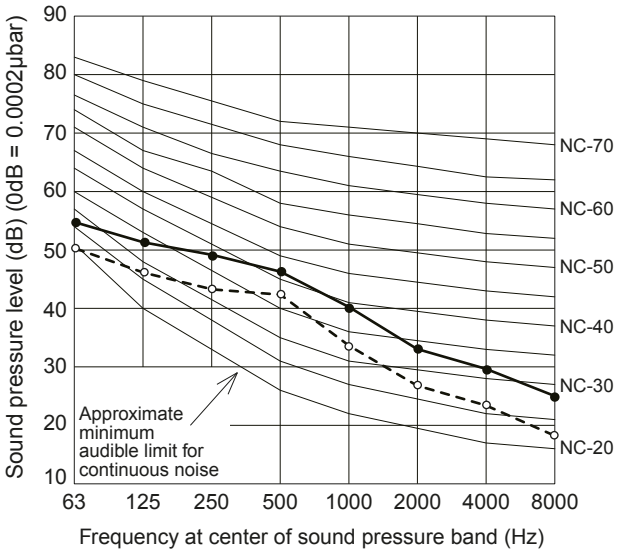
High Static Pressure Ducted Type S-200PE4E, S250PE4E

HIGH
LOW

MODEL	: S-200PE4E
SOUND LEVEL	: HIGH 46 dB(A)
	LOW 41 dB(A)
CONDITION	: Under the unit 1.5 m



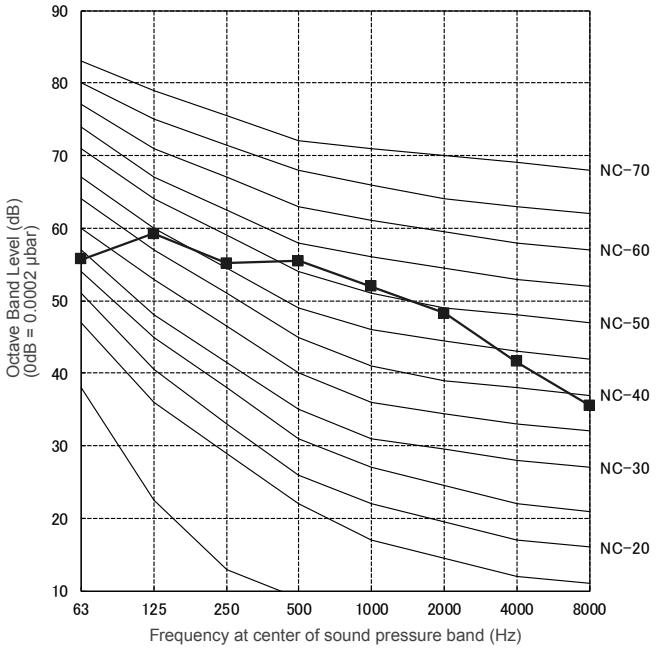
MODEL	: S-250PE4E
SOUND LEVEL	: HIGH 47 dB(A)
	LOW 42 dB(A)
CONDITION	: Under the unit 1.5 m



U-200PZH4E8, U-250PZH4E8

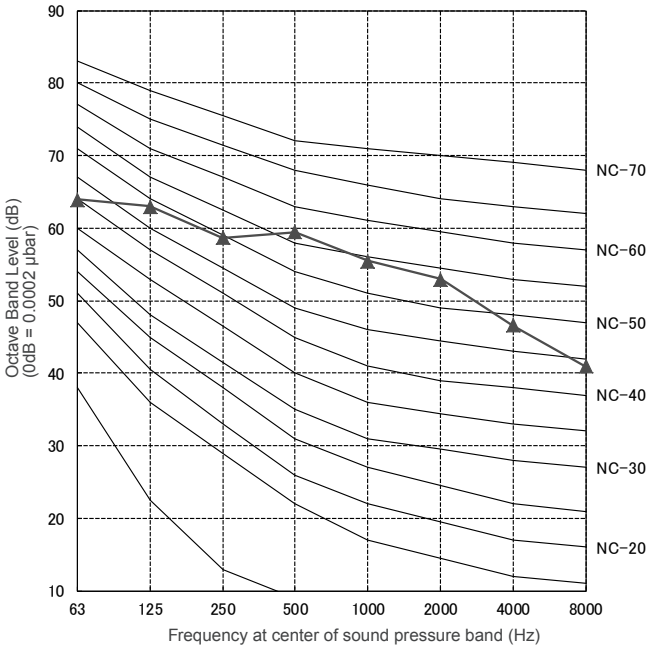
COOLING

MODEL	: U-200PZH4E8
SOUND LEVEL	: 57 dB(A)
CONDITION	: 1 m in front at height of 1.5 m



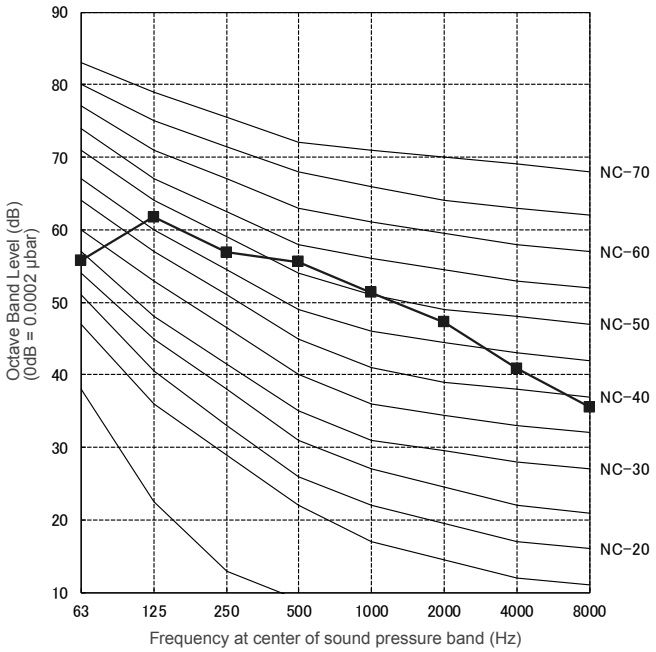
HEATING

MODEL	: U-200PZH4E8
SOUND LEVEL	: 61dB(A)
CONDITION	: 1 m in front at height of 1.5 m



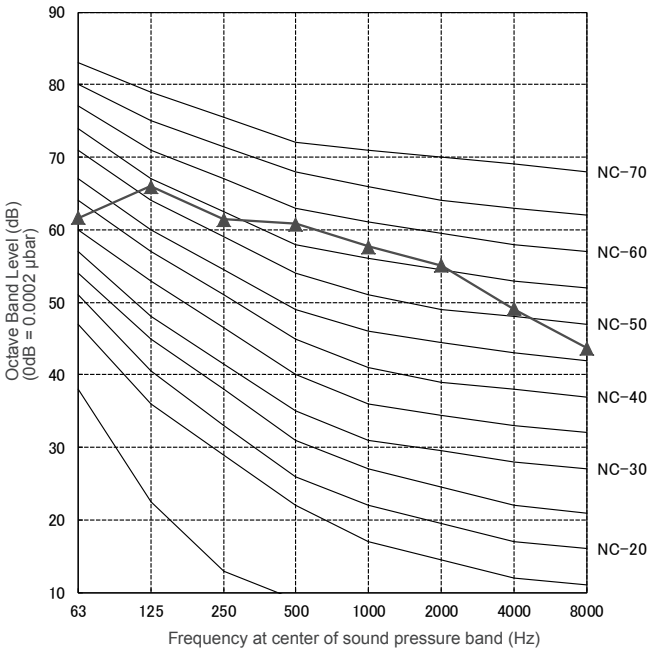
COOLING

MODEL	: U-250PZH4E8
SOUND LEVEL	: 57 dB(A)
CONDITION	: 1 m in front at height of 1.5 m



HEATING

MODEL	: U-250PZH4E8
SOUND LEVEL	: 63 dB(A)
CONDITION	: 1 m in front at height of 1.5 m



REMARKS:

1. Value obtained in the actual place where the unit is installed may be slightly higher than the values shown in this graph because of the conditions of operation, the structure of the building, the background noise and other factors.
2. The test results were obtained from an nechoic room.

NOTE

To evaluate “Noise level” the maximum number of the measured OCTAVE BAND SOUND PRESSURE LEVEL is used.
Read the number on each BAND CENTER FREQUENCIES (horizontal axis) ranging from 63 Hz to 8000 Hz and select the maximum value (vertical axis) among them.

1-9. Installation Instructions
High Static Pressure Ducted Type
S-200PE** S-250PE**
■ SELECT THE INDOOR UNIT INSTALLATION LOCATION

1-1. 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. 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.
8. If the power supply is subject to noise generation, add a suppressor.
9. Do not install the indoor unit in a laundry. Electric shocks may result.
10. Installation height is more than 2.5m.

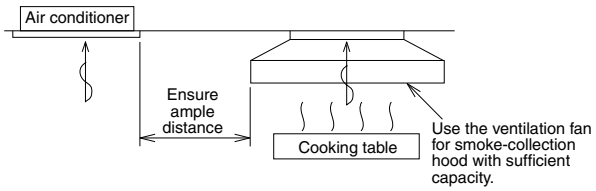
NOTE ● Thoroughly study the following installation locations

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the fan, the fin of the heat exchanger, resulting in heat exchange reduction, spraying, dispersing of water drops, 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.

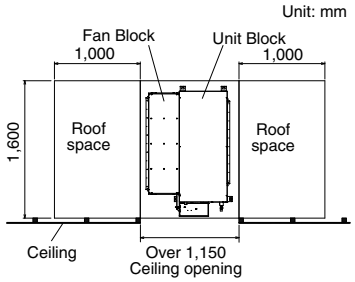
● Make sure there is enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.

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.



1-2. When transporting the indoor unit to the roof space through the ceiling opening

Transport is possible without separation with a ceiling opening dimension of over 500 × 1,150 mm and a roof space dimension as shown below. After transporting the unit, see section “2. HOW TO INSTALL THE INDOOR UNIT”



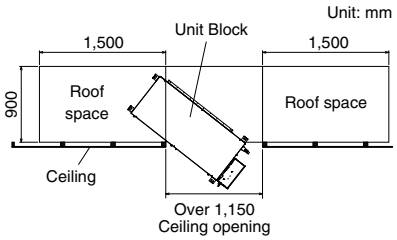
Criteria for ceiling opening dimension and height of roof space

Width of ceiling opening	Height of roof space	Necessity of separating indoor unit
1,150	1,600	Unnecessary
1,150	900	Necessary
700	1,600	Necessary

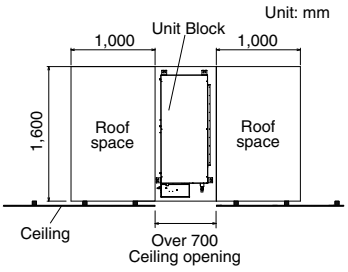
Unit: mm

It is possible to separate the indoor unit into Fan Block and Unit Block.
Separated transport if necessary

<Case 1>
If a ceiling opening dimension is over 500 × 1,150 mm and a roof space dimension is shown below, the indoor unit can be separated to fit through the space. For separating procedure, see section “1-3. How to separate the indoor unit”.



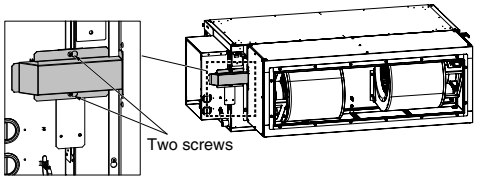
<Case 2>
If a ceiling opening dimension is over 500 × 700 mm and a roof space dimension is shown below, the indoor unit can be separated to fit through the space. For separating procedure, see section “1-3. How to separate the indoor unit”.



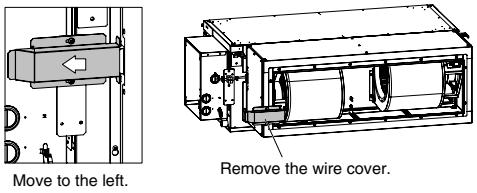
1-3. How to separate the indoor unit

(1) Remove the wire cover.

1. Loosen two screws.

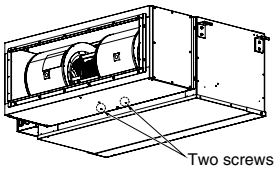


2. Move to the left and remove the wire cover through the round hole.

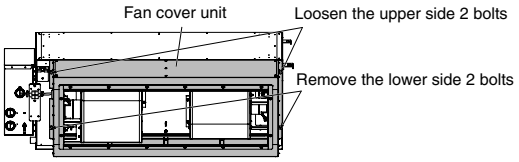


(2) Remove the fan cover unit.

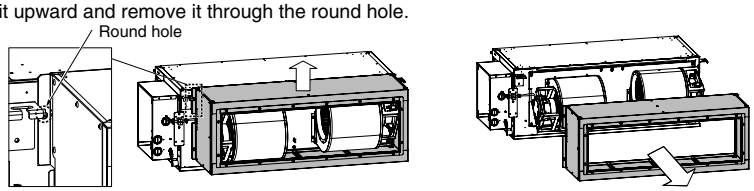
1. Remove two screws (Type 200 only)



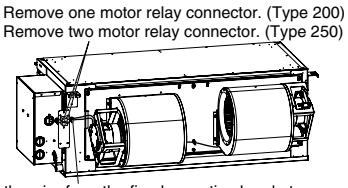
2. Move the fan cover unit upward and remove it through the round hole.



3. Move the fan cover unit upward and remove it through the round hole.



(3) Remove the motor relay connector.

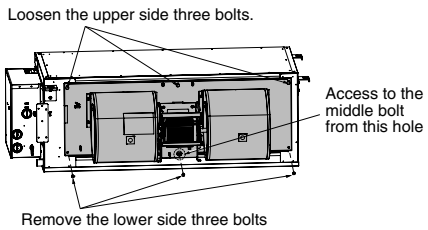


(4) Separate the fan motor unit and heat exchanger unit.

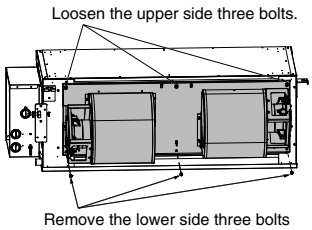
1. Loose the upper side three bolts and remove the lower side three bolts.

⚠ WARNING **Do not remove the upper side three bolts.**
The motor unit may drop during work of unit separation and can lead to personal injury or death.

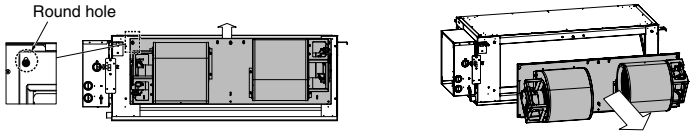
Type 200



Type 250

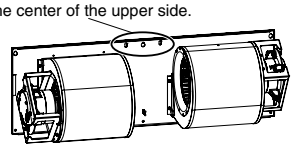
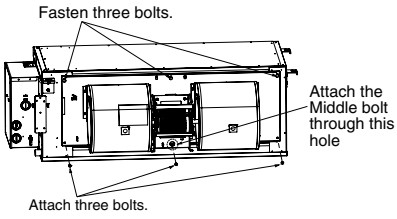
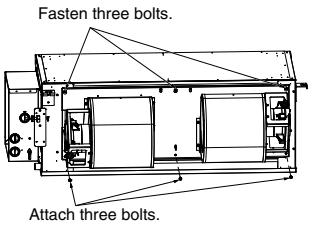
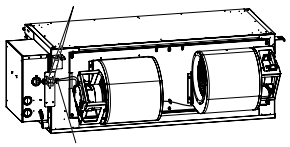


2. Move upward and remove the fan motor unit through the round hole.



1-4. How to assemble the indoor unit

(1) Attach the fan motor unit.

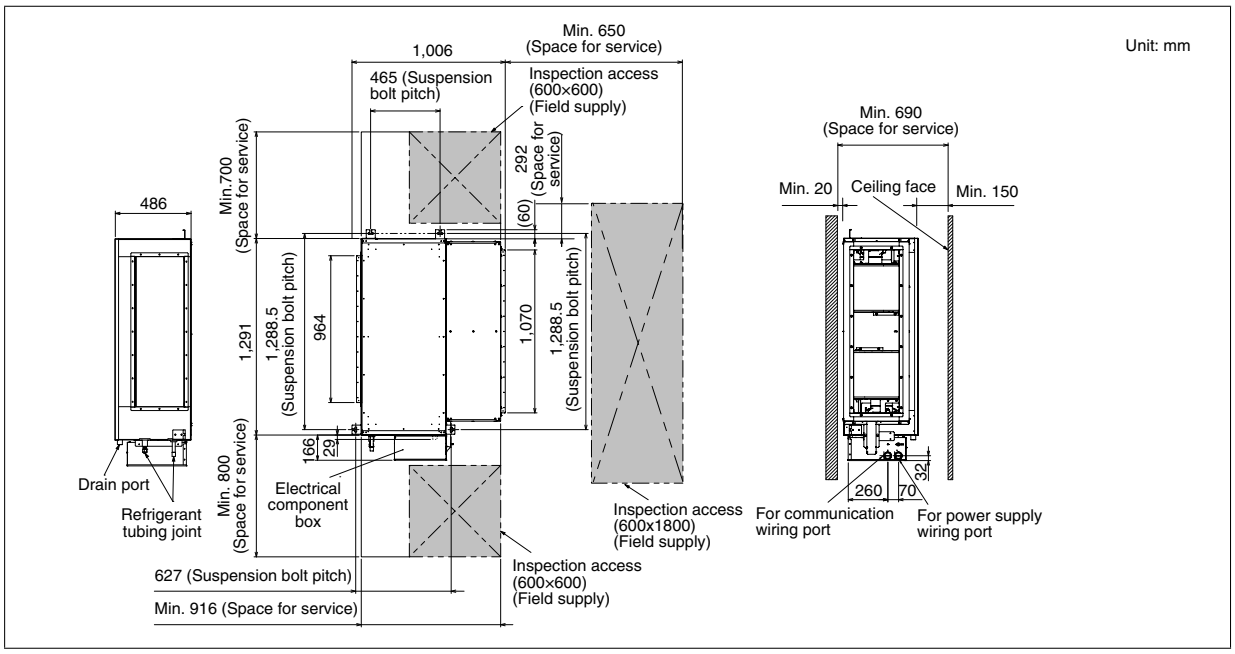
1. Pass the bolts for the heat exchanger unit through the round holes.	2. Attach three bolts in the lower side and then fasten three bolts in the upper side. (Tightening torque : 2.45 ~ 3.4 N · m)	3. Attach the motor wire.
Mount the unit with three holes located in the center of the upper side. 	Type 200  Type 250 	Attach one motor connector. (Type 200) Attach two motor connectors. (Type 250) (Connectors at each end should be matched with the same color.) 

(2) Attach the fan cover unit and wire cover.
Attach the fan cover unit and wire cover in reverse order of separating unit.

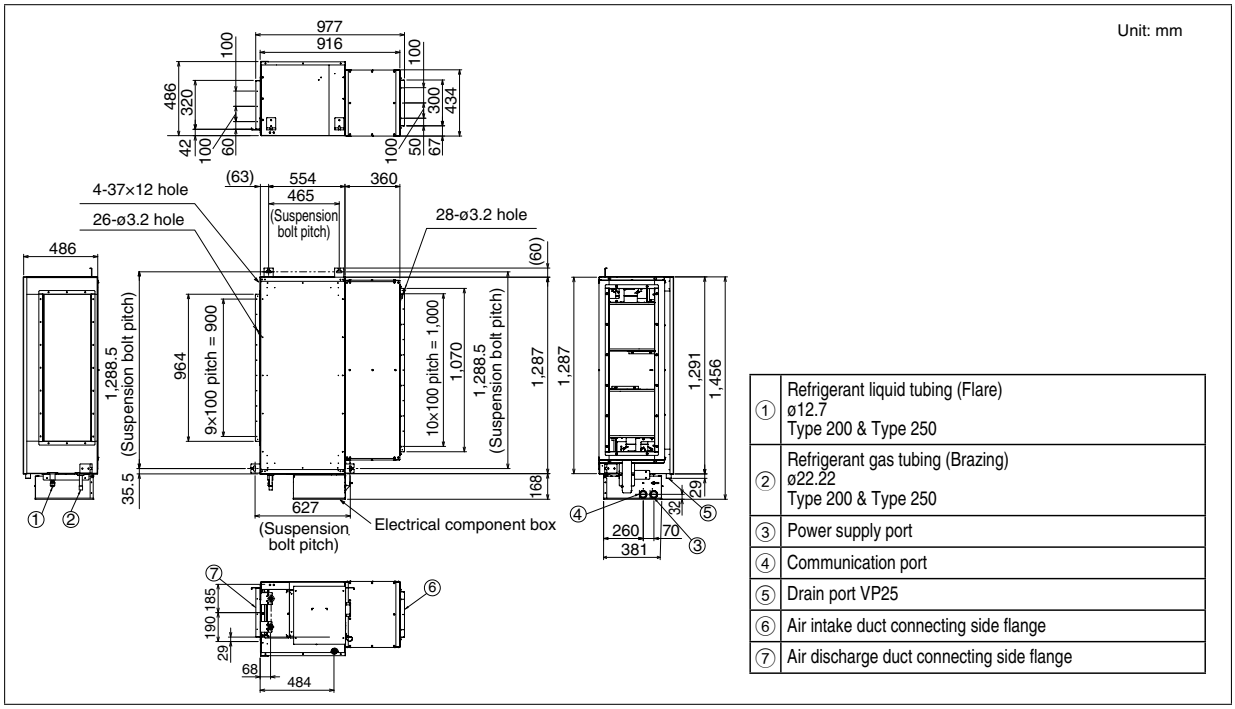
■ HOW TO INSTALL THE INDOOR UNIT

2-1. Required Minimum Space for Installation and Service

(1) Dimensions of suspension bolt pitch and unit



(2) Dimensions of indoor unit



①	Refrigerant liquid tubing (Flare) ø12.7 Type 200 & Type 250
②	Refrigerant gas tubing (Brazing) ø22.22 Type 200 & Type 250
③	Power supply port
④	Communication port
⑤	Drain port VP25
⑥	Air intake duct connecting side flange
⑦	Air discharge duct connecting side flange

2-2. Suspending the Indoor Unit

Depending on the ceiling type:
(1) Check the suspension bolt pitch.
(2) Ensure that the ceiling is strong enough to support the weight of the unit.
(3) To prevent the unit from dropping, firmly fasten the suspension bolts as shown in the figure below.

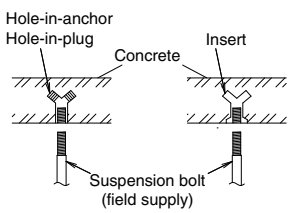
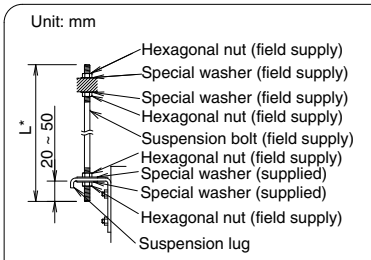


Fig. 3-1



* Choose "L" dimension according to the status of the ceiling.

Fig. 3-2

NOTE

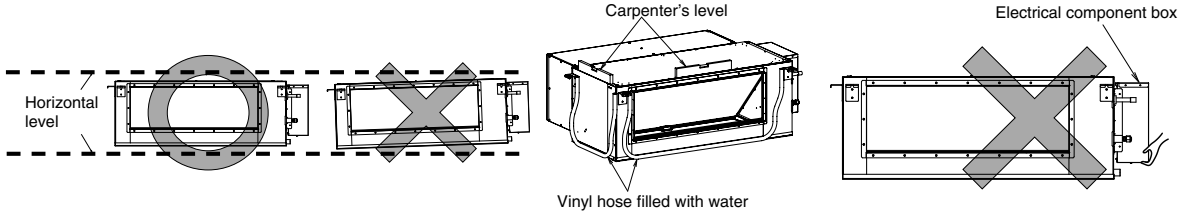
Suspension bolt (field supply)	M10 or 3/8"

⚠ WARNING

It is important that you use extreme care in supporting the indoor unit inside the ceiling.
Ensure that the ceiling is strong enough to support the weight of the unit.
Before suspending the unit, test the strength of each attached suspension bolt.

(1) When placing the unit inside the ceiling, determine the pitch of the suspension bolts referring to the dimensional data given previously.
Tubing must be laid and connected inside the ceiling when suspending the unit.
If the ceiling is already constructed, lay the tubing into position for connection to the unit before placing the unit inside the ceiling.
(2) Screw in the suspension bolts allowing them to protrude from the ceiling as shown in Fig. 3-1.
(Cut the ceiling material, if necessary.)
(3) Suspend and fix the indoor unit using the 2 hexagonal nuts (field supply) and special washers (supplied with the unit) as shown in Fig. 3-2.

⚠ CAUTION	**The top of the unit must be installed horizontally.**



- **Check the unit is placed horizontally.**
  Make sure the unit is installed level using a level or a vinyl hose filled with water.
  In using a vinyl hose instead of a level, adjust the top surface of the unit to the surface of the water at both ends of the vinyl hose and make horizontal adjustment on all 4 corners of the unit.
  If the air discharge side of the unit is installed downward, splashing water or water leak may occur.
  Also, the dust may accumulate inside the drain pan caused by draining residual water.
- **When lifting the unit, do not attempt to hold the electrical component box in hand.**

2-3. Installing the Refrigerant Tubing

The size of the refrigerant tubing is as shown in the table below.

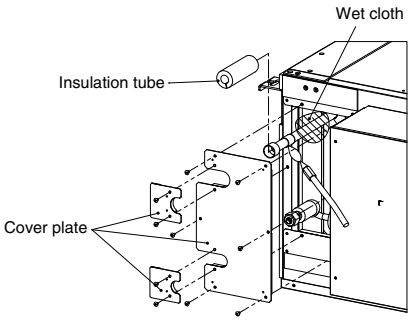
Table 2-1

Type	200 / 250
Gas tube	ø22.2 (100 m) (Brazing connection)
Liquid tube	ø12.7 (Flare connection) Tightening torque (approximate) : 49 ~ 55 N • m Thickness of connecting tube : 0.8 mm

NOTE

To fasten the flare nuts, apply specified torque.

- When brazing, must be cool the pipe by wet cloths after removing the insulation tube and the cover plate.
- When brazing the gas tubing, cool the tubing with dampened shopcloths as you work, as shown in the figure below, to protect the unit's thermistor from the heat generated by brazing.
- When brazing, be careful not to heat the electrical component box. Doing so may cause the unit to be damaged.
- Pipe insulation must be made after leak detection for tubing connection area was performed.
- Be sure to insulate both the gas tubing and liquid tubing.
- In addition, wrap the insulation material (field supply) around the tubing joints, and fasten in place with vinyl tape or other means.
  Failure to insulate the tubing may result in water leakage from condensation.
- Plug all gaps at tube through-holes in the unit with insulation or a similar substance to prevent air leakage.



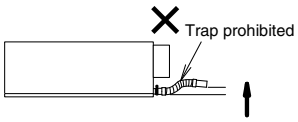
2-4. Installing the Drain Piping

2-4-1. Before Performing the Installation Drain Piping

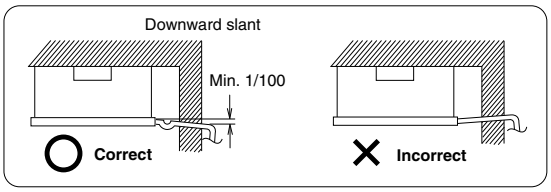
(1) (Prepare standard hard PVC pipe (O.D. 32 mm) for the drain and use the supplied drain socket to prevent water leaks.
The PVC pipe must be purchased separately.
When doing this, apply adhesive for the PVC pipe at the connection point.
See section "2-4-2. Installing the Drain Pipe".

(2) Limitations of Drain Hose Connection

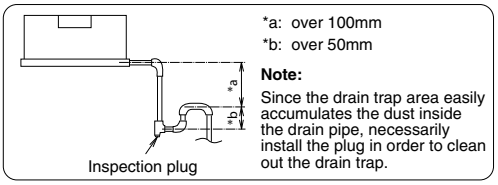
⚠ CAUTION	Do not make a trap in the middle of the supplied drain pipe. Doing so will cause abnormal sound.



(3) Ensure the drain pipe has a downward slant (1/100 or more).



(4) The drain pipe with a trap should be installed away from the indoor unit.
(5) Do not attach any air purge equipment.
If attached, drain water may result in splashing out of the drain pipe.
(6) When the drain piping is completed, perform the water leak test and check for a water leak.
If detected, it may result in water leakage or condensation.
(7) When the drain piping is completed, perform the drainage test if the water drains smoothly.
If not draining smoothly, it may result in water leakage or condensation.
(8) When the drain piping work is finished securely, wrap the insulation material around the indoor side drain pipe.
At this time, do not wrap together with the refrigerant tubing.
If wraped together, the drain pipe is lifted and water drainage will not be operated.
Consequently, the water comes out of the drain pan and it can lead to water leakage.



2-4-2. Installing the Drain Pipe

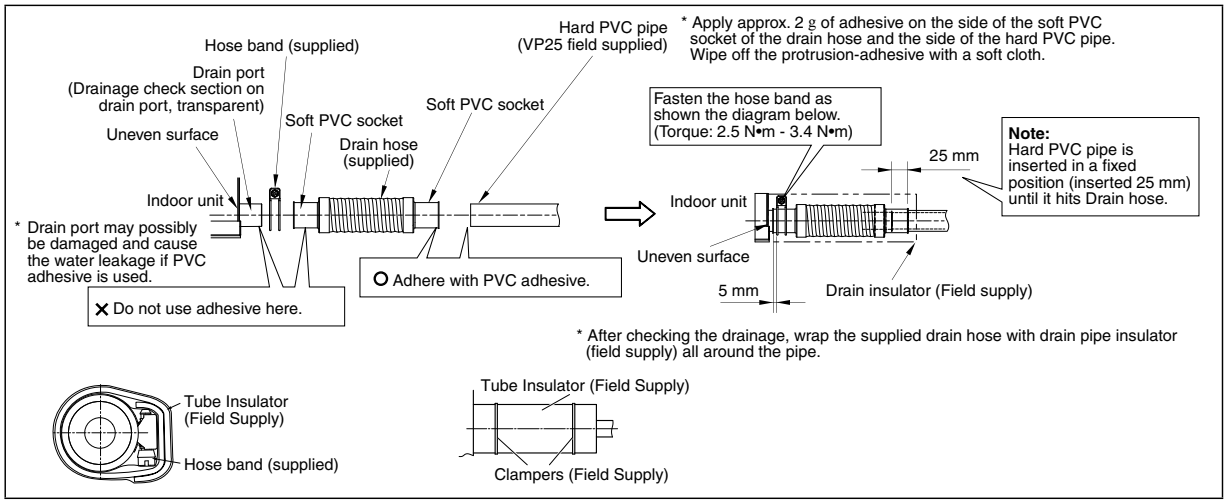
⚠ CAUTION

(1) How to Connect Drain Port and Drain Hose

- First insert the supplied hose band into the drain port pipe. Then make sure the head of the screw is facing toward a technical engineer when placing the screw of the hose band at an upward angle.
- Insert the soft PVC socket of the supplied drain hose to the drain port pipe.
  Never apply the adhesive to the both ends of the soft PVC socket and the drain port pipe.
- Insert the drain hose to the point where there is a difference in level as shown in the figure below and fasten it with the hose band 5 mm away from that position.
- Tightening torque must be 2.5 ~ 3.4 N•m.
- Tightening position of the hose band must be upward.

(2) How to Install the Drain Pipe

- Connect the hard PVC pipe (O.D. 32 mm) to the side of the soft PVC socket of the drain hose.
- Apply approx. 2 g of adhesive on the side of the soft PVC socket of the drain hose and the side of the hard PVC pipe.
- Do not apply force to the drain port when connecting the drain pipe. Install and fix it near the indoor unit as close as possible.



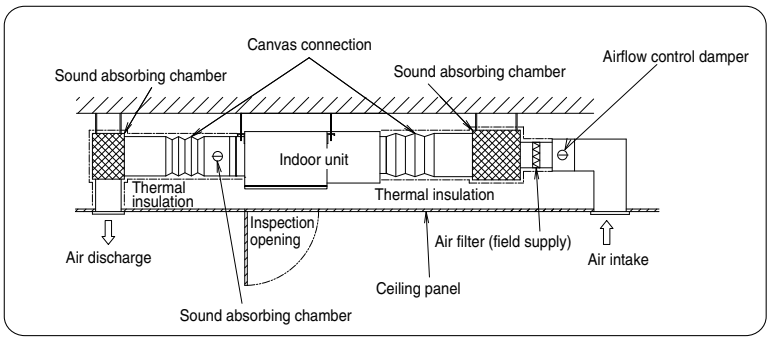
(3) Insulating the Drain Hose

- Selection of heat insulation materials for drain hose (Drain insulator). When using the heat insulation materials (field supply), kindly use the same size and performance as refrigerant tubes. Check for its size as below table.

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

2-5. Caution for Ducting Work

- This unit has high static pressure.
  In case of small pressure resistance (for instance, a short duct), install an airflow control damper (field supply) for adjusting airflow volume as airflow volume / airflow noise increases.
- If the air conditioner is to be installed in a room such as an office or meeting room which needs a low sound level, provide a supply and return sound absorption chamber with an acoustic liner.
- Use a flexible canvas connection or vibration isolation hanger (field supply) to break transmission of mechanical vibration of the unit.



⚠ CAUTION

- Use incombustible duct materials.
- Use thermal insulation to prevent duct condensation.
- An air filter (field supply) must be installed at the air intake side.
  If not installed, the heat exchanger will get dirty and the unit will reduce the quality.
- Obtain and install an air filter (field supply) which can easily wash away the dust by lukewarm, soapy water or suck up with a vacuum cleaner.
- Clean the air filter periodically to collect dust and other particles from the air.
- Use duct static pressure within a range of specification value.

■ ELECTRICAL WIRING

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

3-1. General Precautions on Wiring

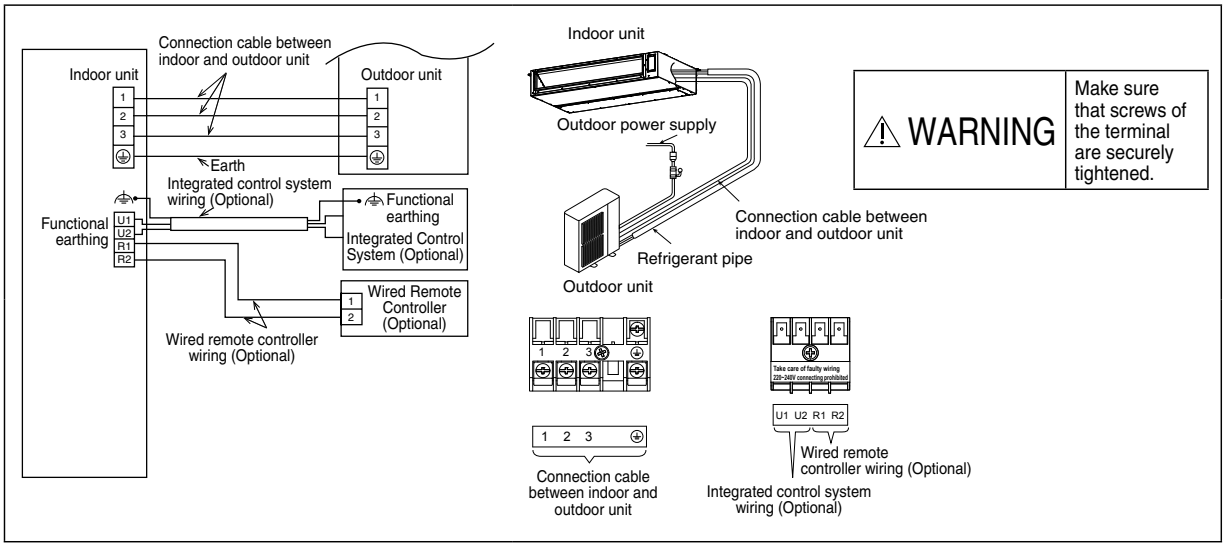
⚠ WARNING	● This air conditioner must be installed in accordance with national wiring regulations.
	● Cables connected to indoor unit must be approved polychloroprene sheathed type 60245 IEC 57 or heavier.
	● The units must be connected to the supply cables for fixed wiring by qualified technician. Circuit 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.
(6) Each wiring connection must be done in accordance with the wiring system diagram.
Wrong wiring may cause the wires overloaded and overheated.

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.

3-2. Wiring System Diagrams



⚠ WARNING

Make sure that screws of the terminal are securely tightened.

3-3. Recommended Wire Length and Wire Diameter for Power Supply System

Indoor unit

Model	Power Supply Cable										Time Delay Fuse or Circuit Capacity (A)
	Power Supply	Min. Wire Size (mm^2)	Recommended Wire Length and Wire Diameter for Power Supply Cable								
			Wire Size (mm^2)	Max. Length (m)	Wire Size (mm^2)	Max. Length (m)	Wire Size (mm^2)	Max. Length (m)	Wire Size (mm^2)	Max. Length (m)	
S-180PE4R	230-240V~	1.5	1.5	27	2.5	45	4.0	72	6.0	108	10
S-200PE4R	230-240V~	1.5	1.5	26	2.5	44	4.0	71	6.0	106	10
S-224PE4R	230-240V~	1.5	1.5	24	2.5	40	4.0	64	6.0	96	10

Connection cable between Indoor and Outdoor Unit

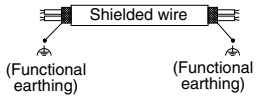
Wire Size	Length
2.5mm^2	Max.100m

Wired Remote Controller

Wire Size	Length
0.75mm^2 (AWG#18)	Max. 500m

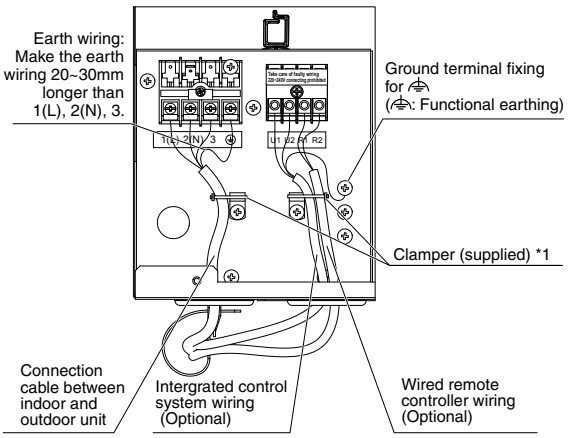
Wired Remote Controller (Optional)

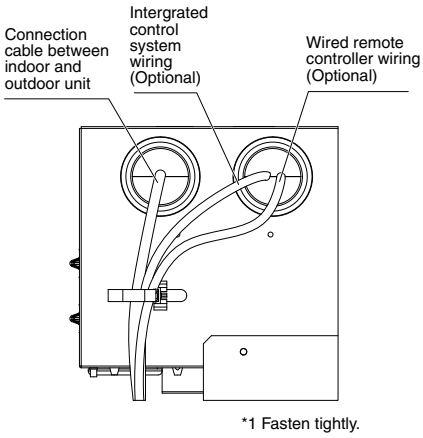
Use shielded wires for integrated control system wiring and ground the shield on both sides, otherwise misoperation from noise may occur. Connect wiring as shown in Section 3-2 Wiring System Diagrams.



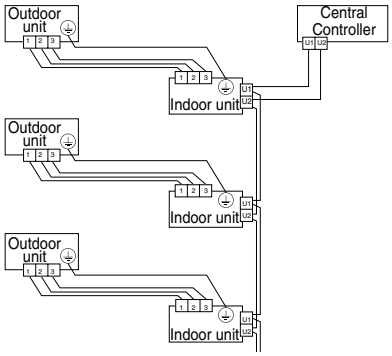
NOTE

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

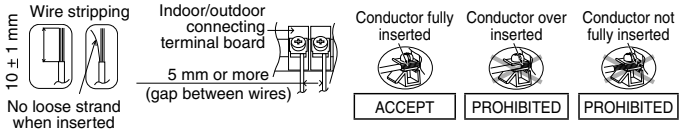




If branching in the inter-unit control wiring, the number of branch points should be 16 or fewer



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.

■ REFRIGERANT PIPING

Must ensure mechanical connections be accessible for maintenance purposes. The liquid tubing side is connected by a flare nut, and the gas tubing side is connected by brazing.

4-1. Connecting the Refrigerant Tubing

Cautions During Brazing

- **Replace air inside the tube with nitrogen gas to prevent copper oxide film from forming during the brazing process. (Oxygen, carbon dioxide and Freon are not acceptable.)**
- **Do not allow the tubing to get too hot during brazing. The nitrogen gas inside the tubing may overheat, causing refrigerant system valves to become damaged. Therefore allow the tubing to cool when brazing.**
- **Use a reducing valve for the nitrogen cylinder.**
- **Do not use agents intended to prevent the formation of oxide film. These agents adversely affect the refrigerant and refrigerant oil, and may cause damage or malfunctions.**

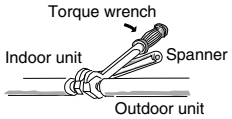
4-2. Connecting Tubing Between Indoor and Outdoor Units

(1) Tightly connect the indoor-side refrigerant tubing extended from the wall with the outdoor-side tubing.

Indoor Unit Tubing Connection

Indoor unit type	200 / 250
Gas tubing (mm)	ø22.2 (100 m)
Liquid tubing (mm)	ø12.7

(2) To fasten the flare nuts, apply specified torque.



- When removing the flare nuts from the tubing connections, or when tightening them after connecting the tubing, be sure to use a torque wrench and a spanner. If the flare nuts are over-tightened, the flare may be damaged, which could result in refrigerant leakage and cause injury or asphyxiation to room occupants.
- For the flare nuts at tubing connections, be sure to use the flare nuts that were supplied with the unit, or else flare nuts for R410A, R32 (type 2). The refrigerant tubing that is used must be of the correct wall thickness as shown in the table below.

Tube diameter	Flare nut tightening torque (approximate)	Min. tube thickness
ø12.7 (1/2")	52± 3 N•m {520 ±30 kgf•cm}	0.8 mm
ø22.2 (7/8")	–	1.0 mm

- Because the pressure is approximately 1.6 times higher than conventional refrigerant R22 pressure, the use of ordinary flare nuts (type 1) or thin-walled tubes may result in tube rupture, injury, or asphyxiation caused by refrigerant leakage.
- In order to prevent damage to the flare caused by over-tightening of the flare nuts, use the table above as a guide when tightening.
- When tightening the flare nut on the liquid tube, use an adjustable wrench with a nominal handle length of 200 mm.

4-3. Insulating the Refrigerant

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

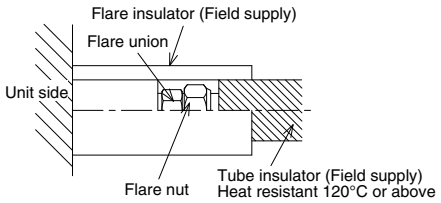
(1) Selection of heat insulation materials for refrigerant tube. When using heat insulation materials (field supply), kindly check for its sizes and performance.

- Material for insulation material: Polyethylene foam.
- Heat transfer rate: less than 0.051W/m·K.
- Material withstand temperature: 120°C or above (gas tubing).
  For other tubing 80°C or above
- 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
ø12.7 (1/2")	14 ~ 16 mm	Insulation thickness must be 10mm or greater
ø22.2 (7/8")	25 ~ 28 mm	

(2) Taping the flare nuts

- Wind the white insulating tape around the flare nuts at the gas tube connection.
- Then cover up the tubing connection with tube insulator (field supply) and fill in the gap with black insulation tape.
- Finally fasten with clampers (field supply)



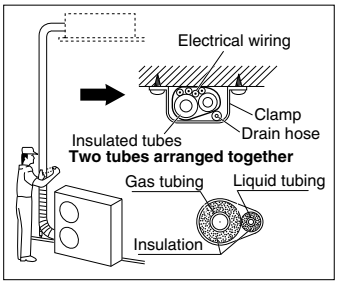
NOTE

If noise bothers you from the area between indoor and outdoor units' connection pipes, it is effective to wind the soundproofing materials (field supply) to reduce noise.

⚠ CAUTION	After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack. Never grasp the drain or refrigerant connecting outlets when moving the unit.

(3) Taping the tubes

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



NOTE

Do not wind the armouring tape too tightly since this will decrease the heat insulation effect. Also ensure that the condensation drain hose splits away from the bundle and drips clear of the unit and the tubing.

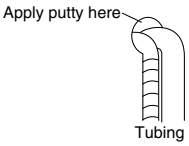
⚠ CAUTION	If the exterior of the outdoor unit valves has been finished with a square Duct covering, make sure you allow sufficient space to access the valves and to allow the panels to be attached and removed.

(4) Finishing the Installation

- After finishing insulating and taping over the tubing, use sealing putty to seal off the hole in the wall to prevent rain and draft from entering.

(5) 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:
  1. Heat insulation material to be prepared. Adiabatic glass wool with thickness 10~20mm
  2. Stick the wool on all air-conditioners that are located in the ceiling atmosphere
  3. In addition to the normal heat insulation (thickness: more than 10mm) refrigerant piping, add a further of 10~30 mm thickness material.



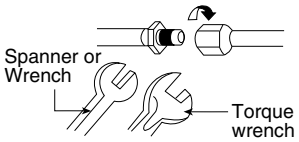
4-4. Additional Precautions for R32 models

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.

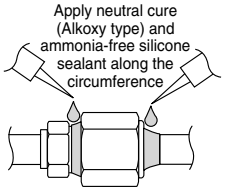


Additional Precautions For R32 Models when connecting by flaring at indoor side

❗ 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) 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.

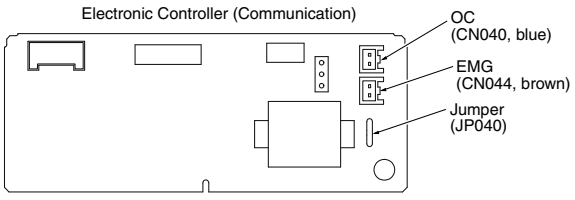
■ HOW TO INSTALL THE TIMER REMOTE CONTROLLER OR HIGH-SPEC WIRED REMOTE CONTROLLER (OPTIONAL PART)

NOTE

Refer to the Installation Instructions attached to the optional Timer Remote Controller or optional High-spec Wired Remote Controller.

■ PRECAUTIONS ON TEST RUN

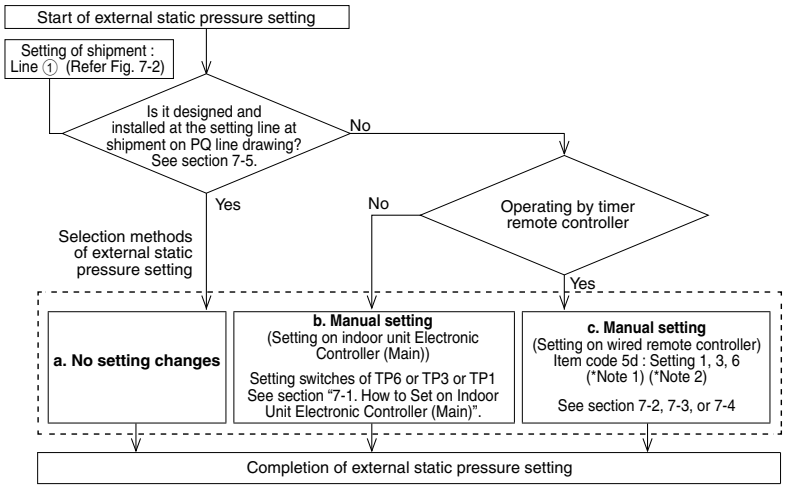
- Request that the customer be present when the test run is performed. At this time, explain the operation manual and have the customer perform the actual steps.
- Check that the 230 –240 VAC power is not connected to the U1 & U2 terminal board terminal.
  * If 230 –240 VAC is accidentally applied, the Fuse on indoor unit Electronic Controller (Communication) will blow in order to protect the PCB.
  In this case, recover the connection by disconnect 2P connector wires that originally connected to the indoor unit Electronic Controller (Communication) OC connector and shift the connector wires to EMG connector on same indoor unit Electronic Controller (Communication). If operation is still not possible after shift to EMG connector, cut the jumper JP040 on the same indoor unit Electronic Controller (Communication).



■ EXTERNAL STATIC PRESSURE SETTING

Choose one of the methods (selection of "a", "b", "c" within the range of dotted line as shown in the flowchart below) and make settings.
a. No setting changes: When using as it is factory preset at shipment.
(If resetting after external static pressure setting once, it might be different from factory preset.)
b. Manual setting (on indoor unit Electronic Controller (Main)): This is static pressure setting excepting factory preset at shipment. Dip switch select method.
c. Manual setting (by wired remote controller): Static pressure setting excepting factory preset at shipment.

Flow of External Static Pressure



NOTE

(1) Refer to Tables 7-2, 7-3, 7-4 and Fig. 7-2 for details on the relationship between the value of item code "5d" and the external static pressure.
(2) (When set in group control (connecting multiple indoor units with one timer remote controller), set each indoor unit to item code "5d".
When amending the setting after selecting [b. Manual setting] (due to airflow path changes, etc.), it is necessary to cancel [b. Manual setting] (switching OFF positions).
When [b. Manual setting] has not been cancelled, [c. Manual setting] will be activated if selected, but [b. Manual setting] takes precedence when the power is switched back on after power outages, etc.

⚠ CAUTION

- **Make sure the external static pressure is in a range of specifications.**
  Then proceed the external static pressure setting.
  Improper settings can cause noise, a shortage of airflow volume and water leakage.
  Refer to Fig. 7-2 for the external static pressure setting range.
- **Be sure to set the [External Static Pressure Setting] once again after amending the airflow path for the duct or air outlet after setting the external static pressure.**

7-1. How to Set on Indoor Unit Electronic Controller (Main)

(1) Turn off the power breaker to halt the supply of electricity to the indoor unit Electronic Controller (Main).
(2) Open the lid of the electrical component box and confirm the location where the Select switch on the indoor unit Electronic Controller (Main) is placed. (Fig. 7-1)
(3) Set the On/Off switches in the Off position which are now set in the On position.
Select the positions of the Select SW001 switches respectively to make the desired external static pressure settings referring to the Table 7-1.

Table 7-1 External static pressure SW setting

External static pressure at the time of rated airflow volume		SW001		
200	250	TP6	TP3	TP1
180Pa	200Pa	ON 1	2	3
120Pa	130Pa	1	ON 2	3
75Pa	75Pa	1	2	ON 3

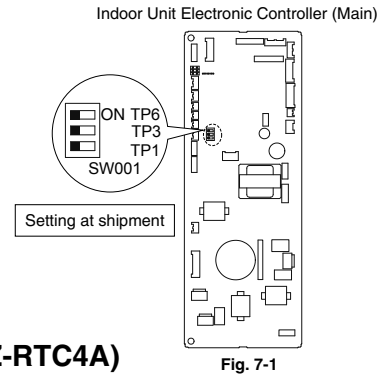


Fig. 7-1

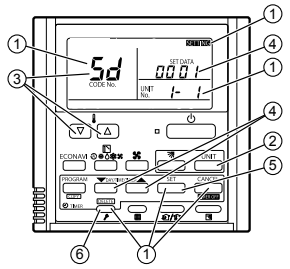
7-2. Operating the Timer Remote Controller (CZ-RTC4 / CZ-RTC4A)

How to set the external static pressure

(1) Press and hold down the ⏻, CANCEL and SET buttons simultaneously for 4 or more seconds. (SETTING, the Unit No., Item Code and Detailed Data will blink on the LCD display.)
(2) The indoor unit numbers in the group control will be sequentially displayed whenever the Unit Select button is pressed UNIT.
Only the fan motor for the selected indoor unit will operate during this time.
(3) Specify the "5d" item code by pressing the ▽ / △ buttons for the temperature setting buttons and confirm the values. ("0001" set at shipment)
(4) Press the TIMER SET / TIMER ▲ buttons for the time to amend the values for the set data.
Refer to Table 7-2 and Fig. 7-2 and select a value "0006", "0003" or "0001".
(5) Press the SET button.
The display will stop blinking and remain illuminated.
(6) Press the ⏻ button. The fan motor will stop operating and the LCD display will return to the normal stop mode.

Table 7-2 Setting the external static pressure

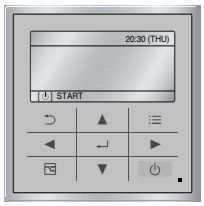
Indoor unit		Item code
200	250	5d
External static pressure of the rated air flow volume		
180 Pa	200 Pa	0006
120 Pa	130 Pa	0003
75 Pa	75 Pa	0001



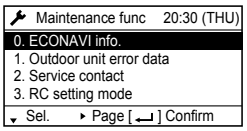
NOTE:
Failure to set this parameter may result in decreased airflow and condensation.

7-3. Operating the High-spec Wired Remote Controller (CZ-RTC5B)

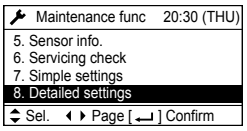
How to set the external static pressure

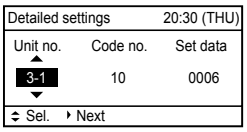


(1) Keep pressing the [↩], [↵] and [►] buttons simultaneously for 4 or more seconds.
The "Maintenance func" screen appears on the LCD display.

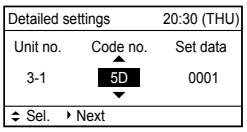


(2) Press the [▼] or [▲] button to see each menu. If you wish to see the next screen instantly, press the [◄] or [►] button.
Select "8. Detailed settings" on the LCD display and press the [↵] button.
The "Detailed settings" screen appears on the LCD display.
Select the "Unit no." by pressing the [▼] or [▲] button for changes.





(3) Select the "Code no." by pressing the [◄] or [►] button.
Change the "Code no." to "5D" by pressing the [▼] or [▲] button (or keeping it pressed).

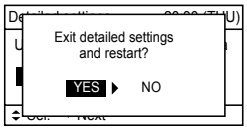


(4) Select the "Set data" by pressing the [◄] or [►] button.
Select one of the "Set data" among "0006", "0003" or "0001" according to the desired external static pressure setting by pressing the [▼] or [▲] button.
(See Table 7-3 and Fig. 7-2.)
Then press the [↵] button.

Table 7-3 Setting the external static pressure

Indoor unit		Item code
200	250	5d
External static pressure of the rated air flow volume		
180 Pa	200 Pa	0006
120 Pa	130 Pa	0003
75 Pa	75 Pa	0001

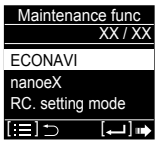
(5) Select the "Unit no." by pressing the [◄] or [►] button and press the [↩] button.
The "Exit detailed settings and restart?" (Detailed setting-end) screen appears on the LCD display.
Select "YES" and press the [↵] button.

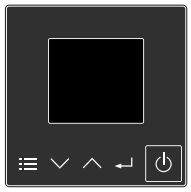


7-4. Operating the Wired Remote Controller (CZ-RTC6 series)

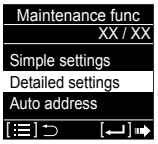
Stop the system before performing these steps.
How to set the external static pressure

(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 "Detailed settings" on the LCD display and press the [↵] button.



The "Detailed settings" screen appears on the LCD display.

(3) Select the "Unit no." by pressing the [∨] or [∧] button.
After selecting "Unit no.", press the [↵] button and proceed to Step 4.
If the [☰] button is pressed, proceed to Step 6.

(4) Keep pressing the [↵] button for 2 seconds or more during selecting "Code no.".

Change the "Code no." one digit at a time so that it becomes [00005D] along with the following procedures.

Change the value by pressing the [∨] or [∧] button.
After changing the value, press the [↵] button and set the next digit.

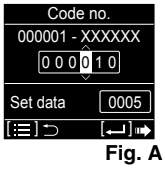


Fig. A

Change the value by pressing the [∨] or [∧] button.
After changing the value, press the [↵] button and set the next digit.

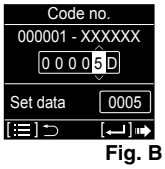


Fig. B

Change the value by pressing the [∨] or [∧] button.
After changing all digits, press the [↵] button and proceed to Step 5.

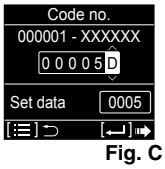


Fig. C

(5) Select one of the "Set data" among "0006", "0003" or "0001" according to the desired external static pressure setting by pressing the [∨] or [∧] button. (See Table 7-4.)
After selecting "Set data", press the [↵] button.
(If setting continuously, follow the procedures from **Fig. A**.)
If you wish to change the selected indoor unit or finish setting, press the [☰] button twice (the display returns to Step 3).

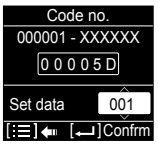


Fig. D

Table 7-4 Setting the external static pressure

Indoor unit		Item code
200	250	5d
External static pressure of the rated air flow volume		
180 Pa	200 Pa	0006
120 Pa	130 Pa	0003
75 Pa	75 Pa	0001

NOTE
Failure to set this parameter may result in decreased airflow and condensation.

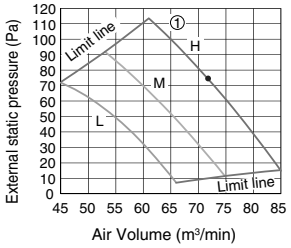
(6) If the [☰] button is pressed under the display Step 3, the following display (Detailed setting-end screen) appears.Then select "YES" by pressing the [∨] or [∧] button and press the [↵] button.

7-5. Indoor Fan Performance

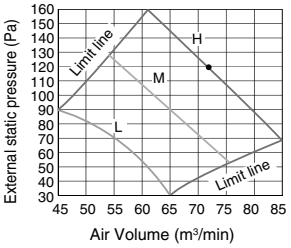
Type 200

(External static pressure 75 Pa)
Item code 5d = 0001

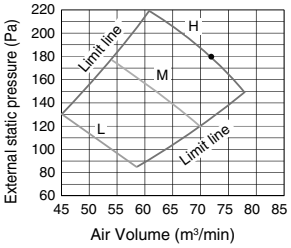
Setting at shipment



(External static pressure 120 Pa)
Item code 5d = 0003



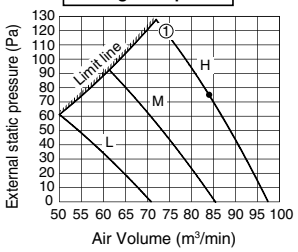
(External static pressure 180 Pa)
Item code 5d = 0006



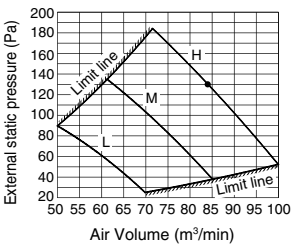
Type 250

(External static pressure 75 Pa)
Item code 5d = 0001

Setting at shipment



(External static pressure 130 Pa)
Item code 5d = 0003



(External static pressure 200 Pa)
Item code 5d = 0006

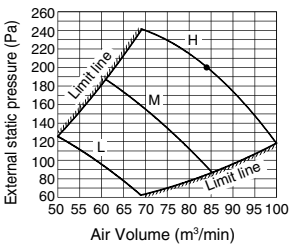
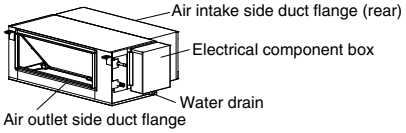


Fig. 7-2

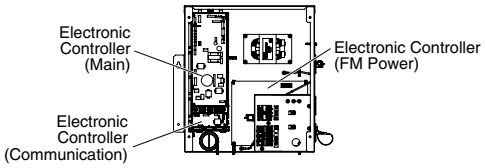
■ APPENDIX

■ **Name of Parts**

High Static Pressure Ducted



Electrical Component Box



■ **Care and Cleaning**

⚠ WARNING

- **Engage authorized dealer or specialist for cleaning.**
- **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

- **In case of Installing the Duct (field supply)**

Period	(Depends on filter's specifications)	When cleaning the air filter, consult your dealer or service center.

⚠ 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.** • **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.

NOTE

Should the power fail while the unit is running

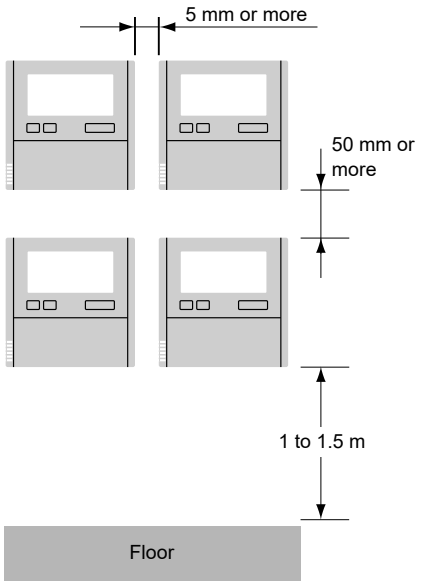
If the power supply for this unit is temporarily cut off, the unit will automatically resume operation once power is restored using the same settings before the power was interrupted.

Important Information Regarding The Refrigerant Used

NOTE

Refer to the Installation Instructions attached to the outdoor unit.

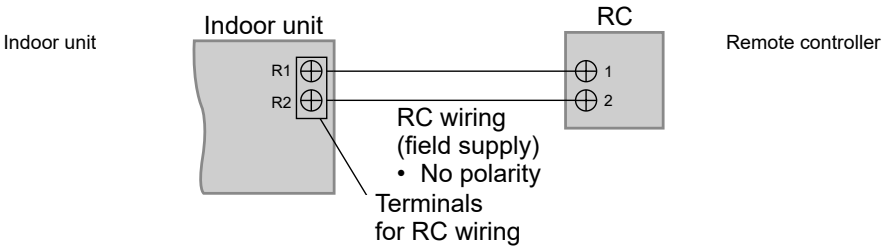
■ REMOTE CONTROLLER INSTALLATION INSTRUCTION
CZ-RTC4 / CZ-RTC4A
Installation Precautions
Installation Location



- Install at the height of 1 to 1.5 m from the floor (Location where average room temperature can be detected).
- Install vertically against the floor.
- When installing more than 1 remote controller next to each other, keep distance of 5 mm on the right and left and 50 mm on top and bottom.
- Avoid the following locations for installation.
  - By the window, etc. exposed to direct sunlight or direct air
  - In the shadow or backside of objects deviated from the room airflow.
  - Location where condensation occurs (The remote controller is not moisture proof or drip proof.)
  - Location near heat source
  - Uneven surface
- Keep distance of 1 m or more from the TV, radio and PC. (Cause of fuzzy images or noise)

Remote control wiring

■ **Wiring diagram**



■ **Type of wiring**
Use cables of 0.5 to 1.25 mm^2.

■ **Total wire length:** 500 m or less
(The wire length between indoor units should be 200 m or less.)

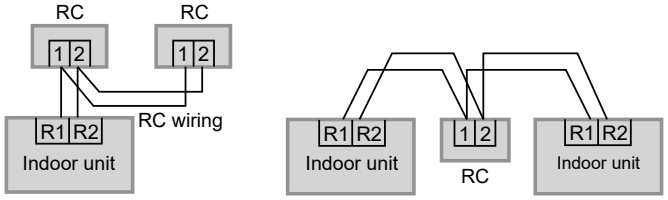
■ **Number of connectable units**
Remote controller: Max. 2 Indoor unit: Max. 8

Attention

- Use the field supplied RC wiring with at least 1 mm in thickness of insulation part including the sheath.
  Regulations on wire diameters differ from locally to locally. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning. You must ensure that installation complies with relevant rules and regulations.
- Be careful not to connect cables to other terminals of indoor units (e.g. power source wiring terminal). Malfunction may occur.
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.
- If noise is induced to the unit power supply, attach a noise filter.

***Wiring as shown below is prohibited.**

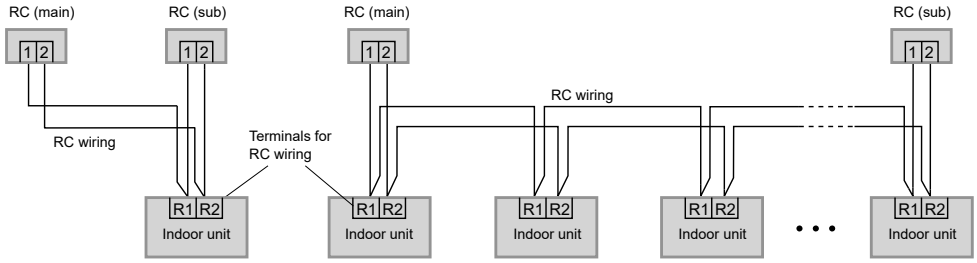
Installation example



When setting both the main and sub remote controllers
After installation, set one remote controller to [Main] and the other to [Sub] for [Main/sub] for “Setting” (P.1-11-1-2-18).

Installation example

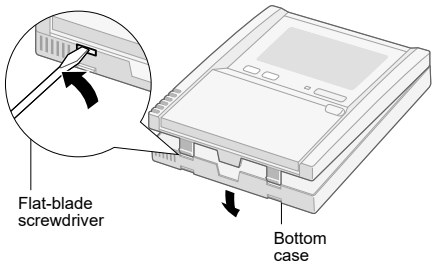
Using 1 indoor unit **Using more than 1 indoor unit**



*Remote controllers can be connected to any indoor unit for operation.

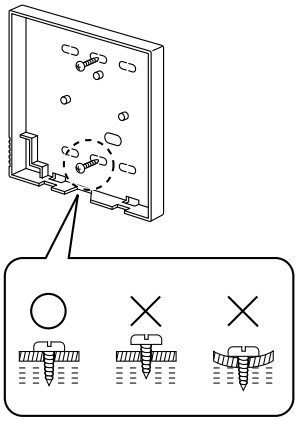
Mounting

1 **Remove the bottom case.**
Insert the driver and slightly turn.
*Do not insert the screw driver too deep. Doing so may cause the claw to be broken.



Attention

Mounting the bottom case
- Tighten the screws securely until the screw heads touch the bottom case.
  (Otherwise, loose screw heads may hit the PCB and cause malfunction when mounting the top case.)
- Do not over-tighten the screws.
  (The bottom case may be deformed, resulting in fall of the unit.)



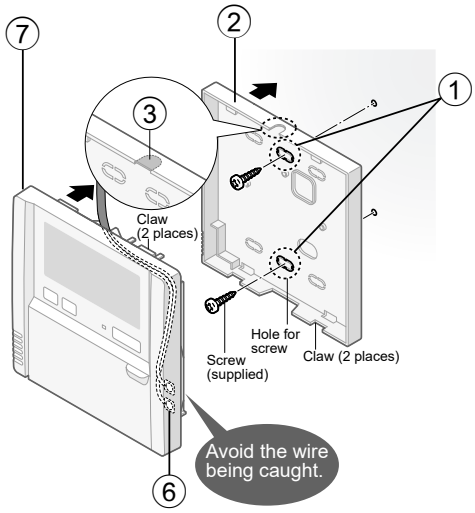
Connecting the remote control wiring
- Arrange the wires as shown in the illustration for ⑥ in step 2 (P.1-11-1-2-17) and ⑤ (P.1-11-1-2-17), avoiding unnecessary wires being stored in the case.
- Avoid the wires touching parts on the PCB.
- Avoid the wires coming in contact with the metallic object protruded from the PCB.

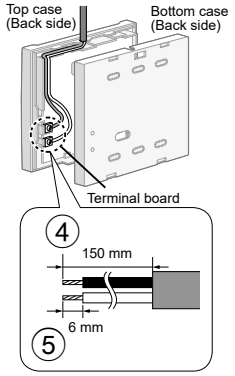
(Caught wires may destroy the PCB.)

Mounting the top case
- Do not push the top case with excessive force.
  (Doing so may cause the protrusions of the bottom case to hit and destroy the PCB.)

2 Mount to the wall.

Exposed type

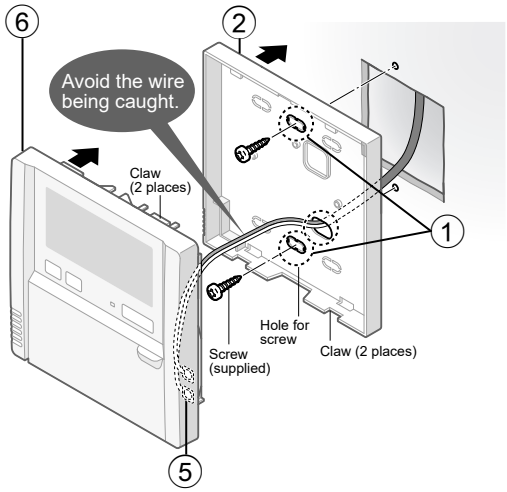


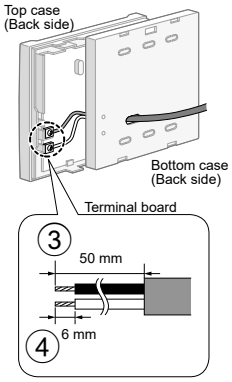


① Make 2 holes for screws using a driver.
② Mount the bottom case to the wall.
③ Cut here with a nipper and remove the burr with a file.
④ Remove the sheath. Approx. 150 mm
⑤ Remove the coating. Approx. 6 mm
⑥ Connect the remote control wiring.
- Make sure the wiring connection is in the correct direction.
- Arrange the wires along the groove of the case.
- Avoid the wire being caught.

⑦ Mount the top case.
- Align the claws of the top case and then align the claws of the bottom case.

Embedded type





① Make 2 holes for screws using a driver.
② Mount the bottom case to the wall.
- Pass the wire through the hole in the centre of the bottom case.

③ Remove the sheath. Approx. 50 mm
④ Remove the coating. Approx. 6 mm
⑤ Connect the remote control wiring.
- Make sure the wiring connection is in the correct direction.
- Avoid the wire being caught.

⑥ Mount the top case.
- Align the claws of the top case and then align the claws of the bottom case.

Setting / Test operation / Specifications

Setting

- Clock
- RC. setting mode (Main/sub, Clock type)
- Detailed setting mode (Ventilation fan output setting, Room temperature sensor, Temperature display setting)

Clock

1 **Press and hold SET for several seconds.**

2 **Set day of the week, hour and minute.**
DAY/TIME/TIMER → SET
"▼": Su ↔ Mo ↔ … ↔ Sa
(Repeat)

RC. setting mode

1 **Press and hold the 2 buttons for several seconds simultaneously.**
, SET

2 **Select the Code no.**
▽ △

3 **Select the Set data.**
DAY/TIME/TIMER → SET
The indicator illuminates after blinking.
Press .

Code no.	Item	Set data	
		0000	0001
01	Main/sub	Sub	Main
02	Clock type	24 hours	12 hours (AM/PM)

Detailed setting mode

1 **Press and hold the 3 buttons for several seconds simultaneously.**
, SET, CANCEL

2 **Select the Code no.**
▽ △

3 **Select the Unit no.**
UNIT

4 **Select the Set data.**
DAY/TIME/TIMER → SET
The indicator illuminates after blinking.
Press .

Code no.	Item	Set data	
		0000	0001
31	Ventilation fan output setting	Not connected	Connected
32	Room temperature sensor	Main unit	RC
33	Temperature display setting	°C	°F

Test operation

Turn on the circuit breaker beforehand, referring to the operating instructions for the unit. The remote controller starts.

1 **Press and hold for several seconds.**
[TEST] display appears. (The unit enters the test operation mode.)

2 **Press . Perform the test operation.**
[TEST] is displayed during the test operation.

3 **Press . Finish the test operation**
[TEST] display disappears.

4 **Delete the error history.**
Press and hold the 2 buttons for several seconds simultaneously.
, SET
Information of errors is displayed.
To delete the error history, press CANCEL.
Press to finish service mode.

Attention

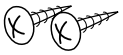
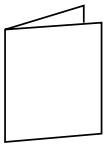
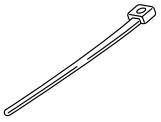
- Do not use this mode for purposes other than the test operation.
  (To prevent overload of the units)
- Read the installation instructions supplied with the units.
- Any of the Heat, Cool and Fan operations can only be performed.
- Temperature cannot be changed.
- The test operation mode is automatically turned o□ in 60 minutes. (To prevent continuous test operation)
- Outdoor units do not operate for approx. 3 minutes after the power is turned on or operation is stopped.

Specifications

Model No.		CZ-RTC4 / CZ-RTC4A
Dimensions		(H) 120 mm × (W) 120 mm × (D) 20 + 4.75 mm
Weight		160 g
Temperature/ Humidity range		0 °C to 40 °C / 20 % to 80 % (no condensation) *Indoor use only.
Power Source		DC16 V (supplied with indoor unit)
Clock	**Precision**	± 30 seconds/month (at normal temperature 25 °C) *Adjust periodically.
	Holding time	24 hours (when fully charged) *Approx. 8 hours are required for full charge.
Number of connected indoor units		Up to 8 units

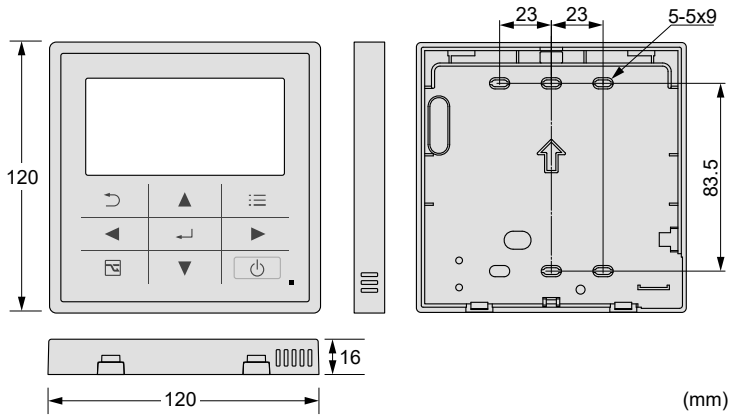
CZ-RTC5B
Specifications

Model No.	CZ-RTC5B
Dimensions	(H) 120 mm x (W) 120 mm x (D) 16 mm
Weight	180 g
Temperature/ Humidity range	0 ˚C to 40 ˚C / 20 % to 80 % (no condensation) *Indoor use only.
Power Source	DC16 V (supplied with indoor unit)
Clock precision	± 30 seconds/month (at normal temperature 25 ˚C) *Adjust periodically.
Number of connectable indoor units	Up to 8 units

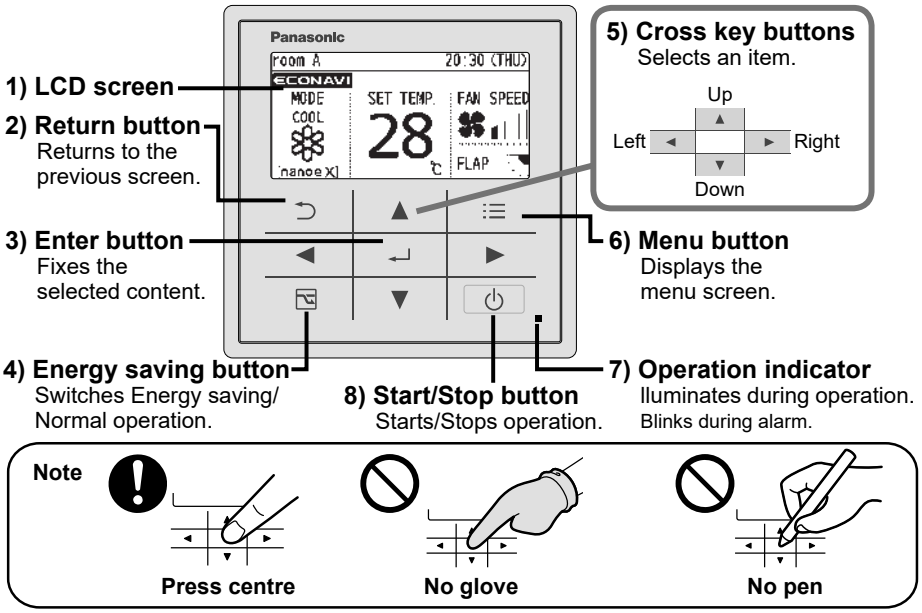
Supplied accessories		
Screw M3.8 x 16 (2)	**Quick Reference** (1)	**Clamper** (1)
		

*Remote control wiring is not supplied. (field supplied item)

Dimensions

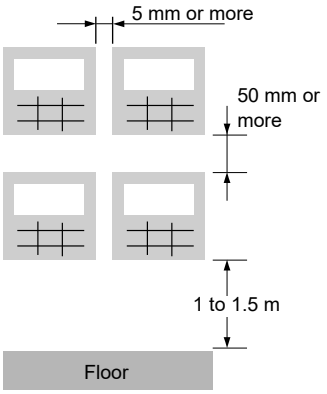


Part Names (Control panel)



Installation Precautions

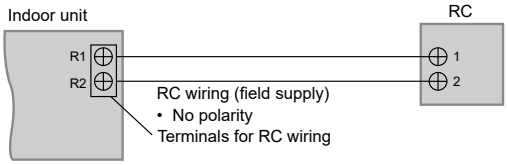
Installation location



- Install at the height of 1 to 1.5 m from the floor (Location where average room temperature can be detected).
- Install vertically against the floor.
- When installing more than 1 remote controller next to each other, keep distance of 5 mm on the right and left and 50 mm on top and bottom.
- Avoid the following locations for installation.
  - By the window, etc. exposed to direct sunlight or direct air
  - In the shadow or backside of objects deviated from the room airflow.
  - Location where condensation occurs (The remote controller is not moisture proof or drip proof.)
  - Location near heat source
  - Uneven surface
- Keep distance of 1 m or more from the TV, radio and PC. (Cause of fuzzy images or noise)

Remote control wiring

■ Wiring diagram



■ Type of wiring
- Use cables of 0.5 to 1.25 mm^2.

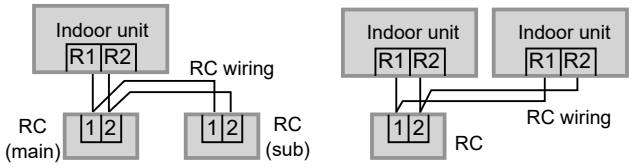
■ Total wire length: 500 m or less
(The wire length between indoor units should be 200 m or less.)

■ Number of connectable units
Remote controller: Max. 2
Indoor unit: Max. 8

Attention

- Use the field supplied RC wiring with at least 1 mm in thickness of insulation part including the sheath. Regulations on wire diameters differ from locally to locally. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning. You must ensure that installation complies with relevant rules and regulations.
- Be careful not to connect cables to other terminals of indoor units (e.g. power source wiring terminal). Malfunction may occur.
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.
- If noise is induced to the unit power supply, attach a noise filter.

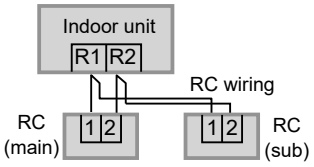
Wiring as shown below is prohibited.



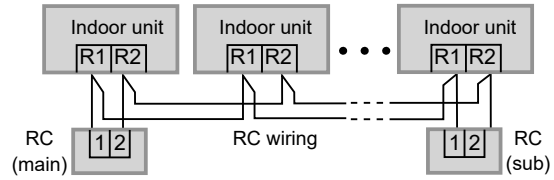
When setting both the main and sub remote controllers

After installation, set one remote controller to [Main] and the other to [Sub] for [Main/sub] for “Setting”. (See the other side)
When using the remote controllers* in combination, set this unit to [Main].
*CZ-RTC2, CZ-RTC4, CZ-RE2C2, CZ-RELC2

■ Using 1 indoor unit



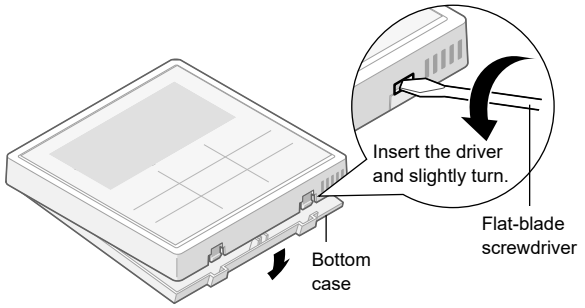
■ Using more than 1 indoor unit



Note Remote controllers can be connected to any indoor unit for operation.

Mounting

1 Remove the bottom case.



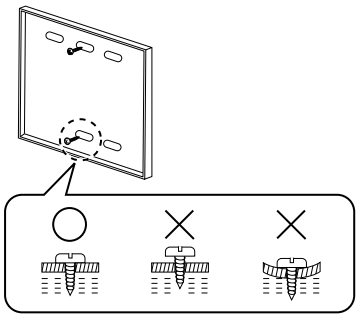
Attention

Mounting the bottom case

- Tighten the screws securely until the screw heads touch the bottom case. (Otherwise, loose screw heads may hit the PCB and cause malfunction when mounting the top case.)
- Do not over-tighten the screws. (The bottom case may be deformed, resulting in fall of the unit.)

Connecting the remote control wiring

- Arrange the wires as shown in the illustration for ❷ in step 2, avoiding unnecessary wires being stored in the remote controller case. (Caught wires may destroy the PCB.)
- Avoid wires touching parts on the PCB. (Caught wires may destroy the PCB.)



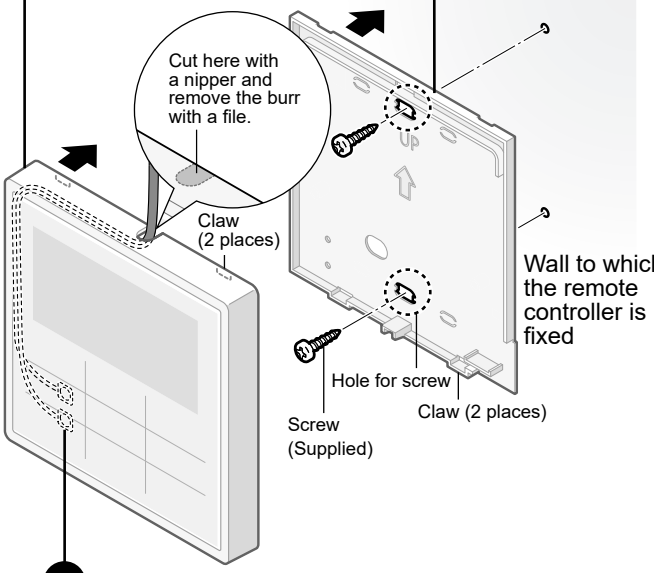
2 Mount to the wall.

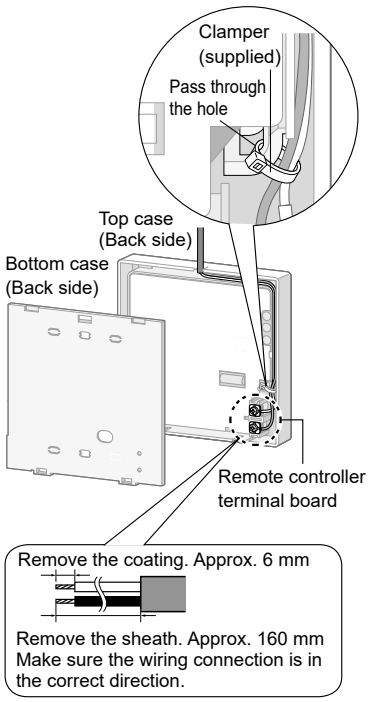
Exposed type

Preparation: Make 2 holes for screws using a driver.

3 Mount the top case.
- Align the claws of the top case and then align the claws of the bottom case.

1 Mount the bottom case to the wall.





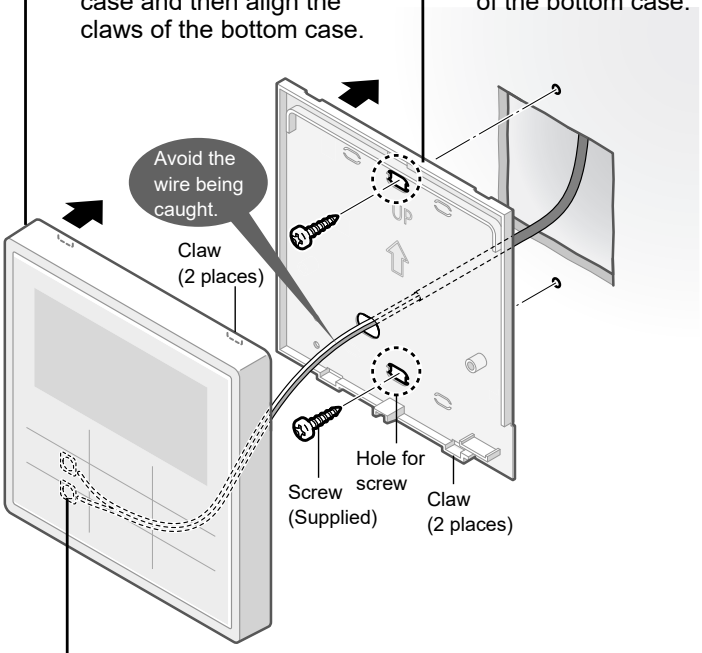
2 Connect the remote control wiring.
- Arrange the wires along the groove of the case.

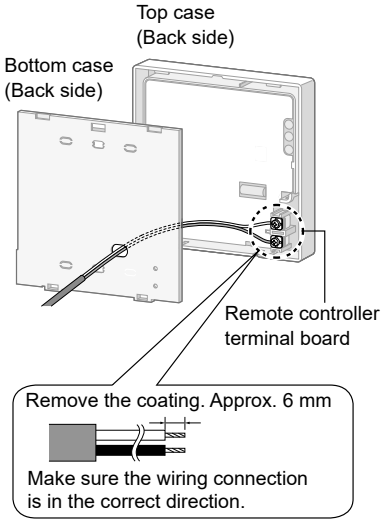
Embedded type

Preparation: Make 2 holes for screws using a driver.

3 Mount the top case.
- Align the claws of the top case and then align the claws of the bottom case.

1 Mount the bottom case to the wall.
- Pass the wire through the hole in the centre of the bottom case.





2 Connect the remote control wiring.

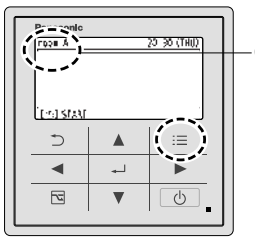
Setting

Preparation: Turn on the circuit breaker of units and then turn the power on. The remote controller starts, and wait until the [Assigning] display disappears.
(If [Assigning] continues to blink for 10 minutes or more, check the address setting of indoor units.)

Note **To return to the previous screen**
Press ⮌.

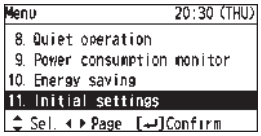
■ Language ■ Clock ■ Controller name

1 **Press ☰.**



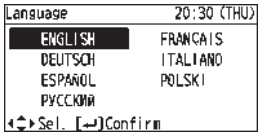
2 **Select [Initial settings].**
▲ ▼ → ↵

3 **Select the item to set.**
▲ ▼ → ↵



Language

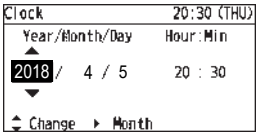
4 **Set.**
▲ ▼ ◄ ► → ↵



Default setting : English

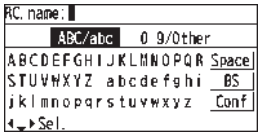
Clock

4 **Set.**
▲ ▼ → ► → ↵
(Repeat)



Controller name

4 **Set.**
▲ ▼ ◄ ► → ↵
(Repeat the same procedure for all characters.)



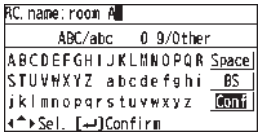
- Up to 16 characters
(Space is included in the number of characters.)

■ To change the character type
Select the character type with ▲ ▼ ◄ ► and press ↵.

■ To delete 1 character
Select [BS] with ▲ ▼ ◄ ► and press ↵.

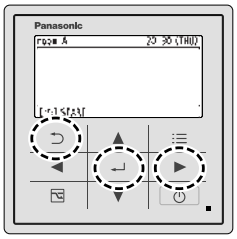
■ To enter space
Select [Space] with ▲ ▼ ◄ ► and press ↵.

5 **Select [Conf].**
▲ ▼ ◄ ► → ↵

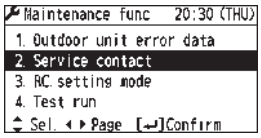


■ **Service contact**

1 **Press and hold the 3 buttons for 4 seconds or more simultaneously.**
↩, ↵, ►

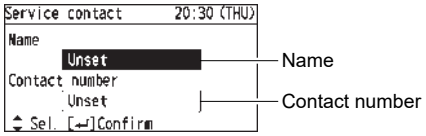


2 **Select the item to set.**
▲ ▼ → ↵

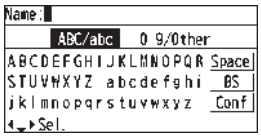


Service contact

3 **Select.** (**Name**)
▲ ▼ → ↵



4 ▲ ▼ ◄ ► → ↵
(Repeat the same procedure for all characters.)



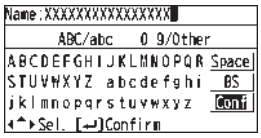
- Up to 16 characters
(Space is included in the number of characters.)

■ **To change the character type**
Select the character type with ▲ ▼ ◄ ► and press ↵.

■ **To delete 1 character**
Select [BS] with ▲ ▼ ◄ ► and press ↵.

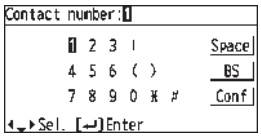
■ **To enter space**
Select [Space] with ▲ ▼ ◄ ► and press ↵.

5 **Select [Conf].**
▲ ▼ ◄ ► → ↵



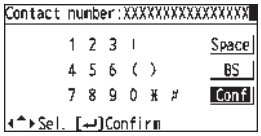
6 **Select on the screen for step 3.**
(Contact number)
▲ ▼ → ↵

7 ▲ ▼ ◄ ► → ↵
(Repeat the same procedure for all characters.)



- Up to 16 characters
(Space is included in the number of characters.)

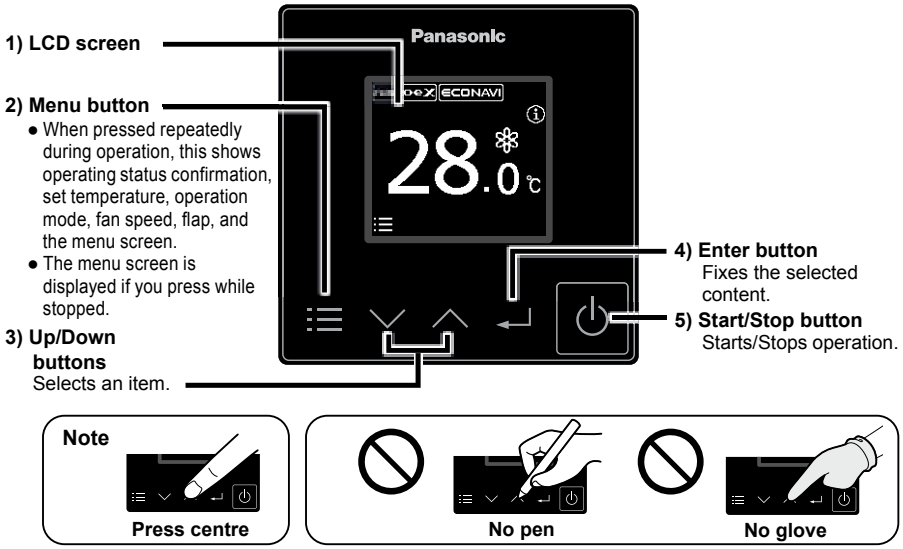
8 **Select [Conf].**
▲ ▼ ◄ ► → ↵



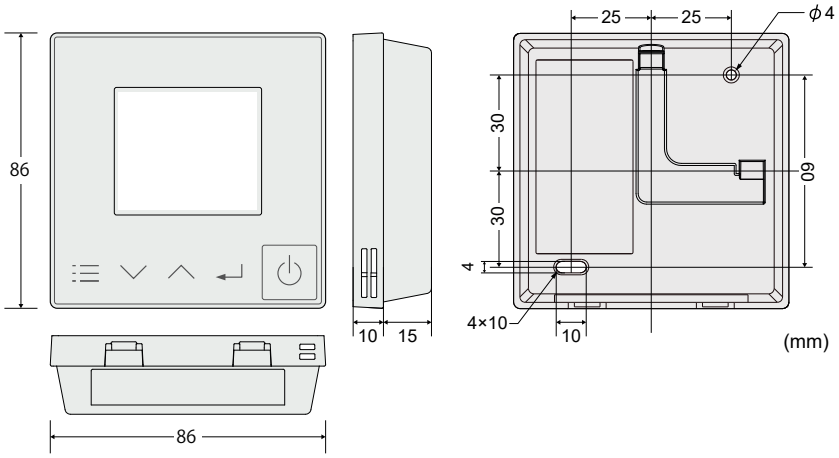
CZ-RTC6/CZ-RTC6BL/CZ-RTC6BLW

Part Names (Control panel)

The control panel colour of CZ-RTC6 series is white.



Dimensions

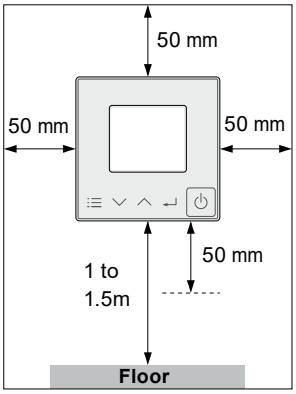


Supplied accessories			
Screw M3.8 x 16 (2)	**Operating Instructions** (1)	**Installation Instructions** (1)	**Clamper** (1)

*Remote control wiring is not supplied. (field supplied item)

Installation Precautions

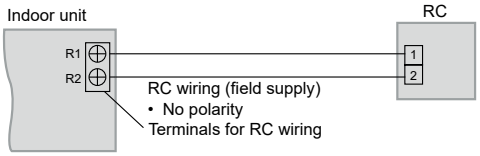
Installation location



- Install at the height of 1 to 1.5 m from the floor (Location where average room temperature can be detected).
- Install vertically against a wall or suitable supporting structure.
- Keep a space around the remote controller as detailed on the figure shown left.
- Avoid the following locations for installation.
  - By a window, etc. exposed to direct sunlight or external airflow
  - In the shadow or backside of objects deviated from the room airflow
  - Location where condensation occurs (The remote controller is not moisture proof or drip proof)
  - Location near heat source
  - Uneven surface
- Keep distance of 1 m or more from the TV, radio and PC. (Image blur or related noise may occur)

Remote control wiring

Wiring diagram



■ Type of wiring
- Use cables of 0.75 to 1.25 mm^2.

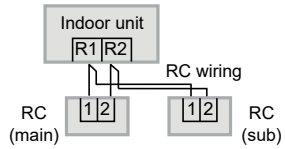
■ Total wire length: 500 m or less (The wire length between indoor units should be 200 m or less.)

■ Number of connectable units
- Remote controller: Max. 2
- Indoor unit:Max. 8

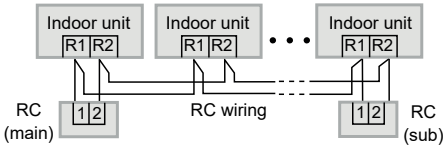
Attention

- Use the field supplied RC wiring with at least 1 mm in thickness of insulation part including the sheath. Wiring Regulations may differ depending on location. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES.
  You must ensure that installation complies with relevant rules and regulations.
- Be careful not to connect cables to other terminals of indoor units (e.g. power source wiring terminal). Malfunction may occur.
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.
- If noise is induced to the unit power supply, attach a noise filter.

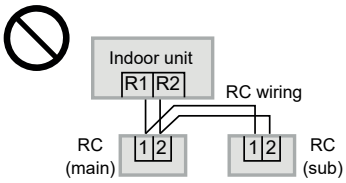
■ Using 1 indoor unit

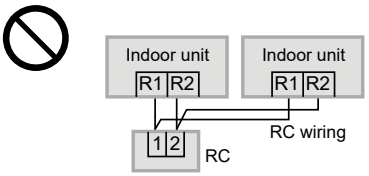


■ Using more than 1 indoor unit



Wiring as shown below is prohibited.





When setting both the main and sub remote controllers

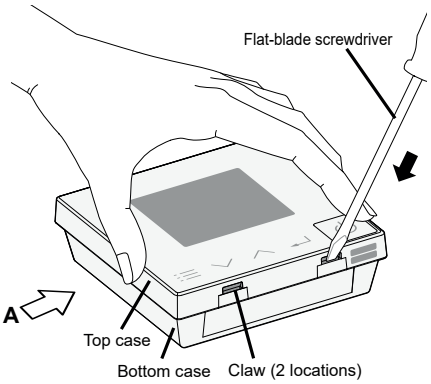
After installation, set one remote controller to [Main] and the other to [Sub] for [Main/sub] for “Setting”.
(See “Setting” section - “RC. setting mode”)
When using the remote controllers* in combination, set the CZ-RTC6(CZ-RTC6W) unit to [Sub].

*CZ-RTC5B, CZ-RTC6BL(CZ-RTC6WBL)

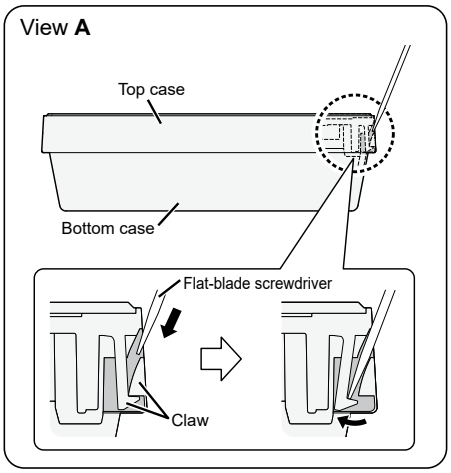
Note Remote controllers can be connected to any indoor unit for operation.

1 Remove the top case.

❶ Insert the screwdriver to the bottom case.
Insert the flat-blade screwdriver to the claws as show in the figure.



❷ Push the flat-blade screwdriver in.
Push down the flat-blade screwdriver along with the slope of the claws until the top case comes off.



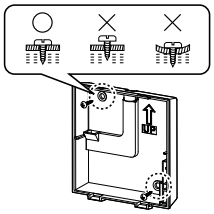
2 Mount to the wall.

There are 2 types of wall-mounting methods: Exposed type and Embedded type.

Attention

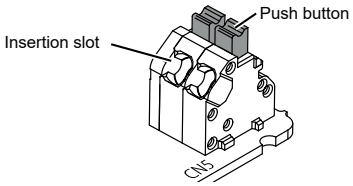
Mounting the bottom case

- Tighten the screws securely until the screw heads touch the bottom case.
  (Otherwise, loose screw heads may hit the PCB and cause malfunction when mounting the top case.)
- Do not over-tighten the screws.
  (The bottom case may be deformed, resulting in the unit becoming detached from the surface it is fixed to.)



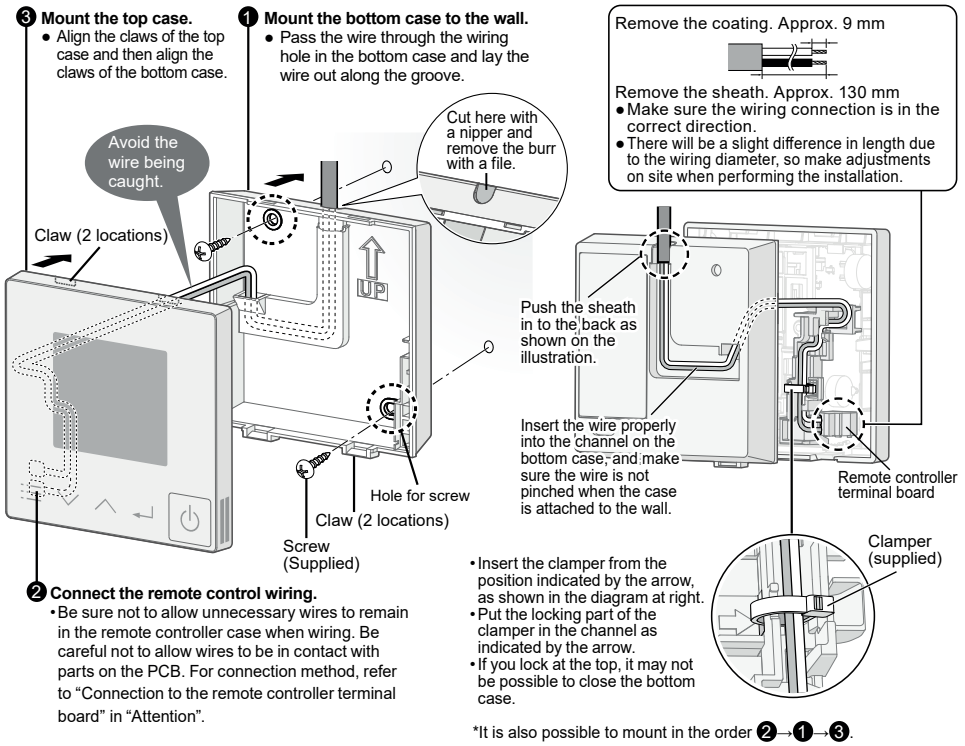
Connection to the remote controller terminal board

- Depress the push button using a round bar or finger, insert the remote control wiring securely from the wiring insertion slot and release the push button.
- Pull the remote control wiring lightly, and confirm it is secured.
- There is the danger of shorting if copper wire is exposed. Make sure the wire is properly inserted.



Exposed type

A protective film is attached on the Control panel.



❷ **Connect the remote control wiring.**

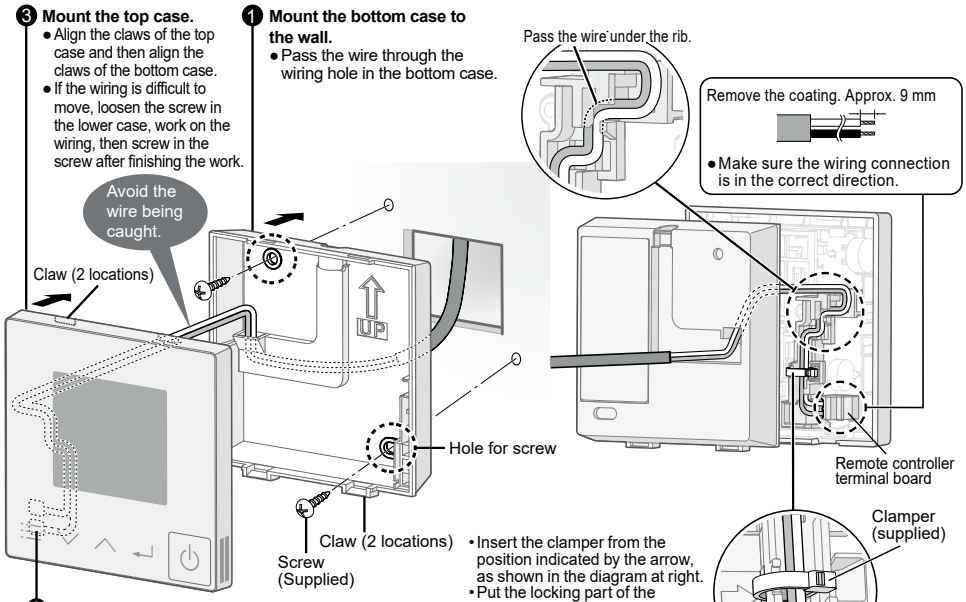
- Be sure not to allow unnecessary wires to remain in the remote controller case when wiring. Be careful not to allow wires to be in contact with parts on the PCB. For connection method, refer to “Connection to the remote controller terminal board” in “Attention”.

- Insert the clamper from the position indicated by the arrow, as shown in the diagram at right.
- Put the locking part of the clamper in the channel as indicated by the arrow.
- If you lock at the top, it may not be possible to close the bottom case.

*It is also possible to mount in the order ❷→❶→❸.

Embedded type

A protective film is attached on the Control panel.



❷ **Connect the remote control wiring.**

- Be sure not to allow unnecessary wires to remain in the remote controller case when wiring. Be careful not to allow wires to be in contact with parts on the PCB. For connection method, refer to “Connection to the remote controller terminal board” in “Attention”.

- Insert the clamper from the position indicated by the arrow, as shown in the diagram at right.
- Put the locking part of the clamper in the channel as indicated by the arrow.
- If you lock at the top, it may not be possible to close the bottom case.

*It is also possible to mount in the order ❷→❶→❸.

(B) Outdoor Unit
U-200PZH4E8, U-250PZH4E8

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:

⚠ WARNING	
❗	The appliance shall be stored, installed and operated in a well ventilated room with indoor floor area larger than A_{min} (m^2) [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.
❗	The mixing of different refrigerants within a system is prohibited. Models that use refrigerant R32 and R410A have a different charging port thread diameter to prevent erroneous charging with refrigerant R22 and for safety. Therefore, check beforehand. [The charging port thread diameter for R32 and R410A is 12.7 mm (1/2 inch - 20 UNF)].
❗	Ensure that foreign matter (oil, water, etc.) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc. (Handling of R32 is similar to R410A.)
❗	Operation, maintenance, repairing and refrigerant recovery should be carried out by trained and certified personnel in the use of flammable refrigerants and as recommended by the manufacturer. Any personnel conducting an operation, servicing or maintenance on a system or associated parts of the equipment should be trained and certified.
❗	Any part of refrigerating circuit (evaporators, air coolers, AHU, condensers or liquid receivers) or piping should not be located in the proximity of heat sources, open flames, operating gas appliance or an operating electric heater.
❗	The user/owner or their authorized representative shall regularly check the alarms, mechanical ventilation and detectors, at least once a year, where as required by national regulations, to ensure their correct functioning.
❗	A logbook shall be maintained. The results of these checks shall be recorded in the logbook.
❗	In case of ventilations in occupied spaces shall be checked to confirm no obstruction.
❗	Before a new refrigerating system is put into service, the person responsible for placing the system in operation should ensure that trained and certified operating personnel are instructed on the basis of the instruction manual about the construction, supervision, operation and maintenance of the refrigerating system, as well as the safety measures to be observed, and the properties and handling of the refrigerant used.
❗	The general requirement of trained and certified personnel are indicated as below: a) Knowledge of legislation, regulations and standards relating to flammable refrigerants; and, b) Detailed knowledge of and skills in handling flammable refrigerants, personal protective equipment, refrigerant leakage prevention, handling of cylinders, charging, leak detection, recovery and disposal; and, c) Able to understand and to apply in practice the requirements in the national legislation, regulations and standards; and, d) Continuously undergo regular and further training to maintain this expertise.
❗	Air-conditioner piping in the occupied space shall be installed in such a way to protect against accidental damage in operation and service.
❗	Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
❗	Ensure protection devices, refrigerating piping and fittings are well protected against adverse environmental effects (such as the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris).
❗	Expansion and contraction of long runs piping in refrigerating systems shall be designed and installed securely (mounted and guarded) to minimize the likelihood hydraulic shock damaging the system.
❗	Protect the refrigerating system from accidental rupture due to moving furniture or reconstruction activities.
❗	To ensure no leaking, field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure (>1.04 MPa, max 4.15 MPa). No leak shall be detected.

⚠ CAUTION

1. General

- Must ensure the installation of pipe-work shall be kept to a minimum. Avoid use dented pipe and do not allow acute bending.
- Must ensure that pipe-work shall be securely mounted and guarded from physical damage.
- Must comply with national gas regulations, state municipal rules and legislation. Notify relevant authorities in accordance with all applicable regulations.
- Must ensure mechanical connections be accessible for maintenance purposes.
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- When disposal of the product, do follow to the precautions in #10 and comply with national regulations.
- In case of field charge, the effect on refrigerant charge caused by the different pipe length has to be quantified, measured and labelled.
  Always contact to local municipal offices for proper handling.
- Ensure the actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
- Ensure refrigerant charge not to leak.
- Wear appropriate protective equipment, including respiratory protection, as conditions warrant.
- Keep all sources of ignition and hot metal surfaces away.
- Explosion-proof electronic components shall only be replaced with parts specified by the appliance manufacturer. Replacement with other parts may result in the ignition of refrigerant in the event of a leak.

2. Servicing

2-1. Qualification of workers

- Any qualified person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- Servicing shall be performed only as recommended by the manufacturer.
- The system is inspected, regularly supervised and maintained by a trained and certified service personnel who is employed by the person user or party responsible.

2-2. Checks to the area

- Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised.
  For repair to the refrigerating system, the precautions in #2-3 to #2-7 must be followed before conducting work on the system.

2-3. Work procedure

- Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapour being present while the work is being performed.

2-4. General work area

- All maintenance staff and others working in the local area shall be instructed and supervised on the nature of work being carried out.
- Avoid working in confined spaces. Always ensure away from source, at least 2 meter of safety distance, or zoning of free space area of at least 2 meter in radius.

2-5. Checking for presence of refrigerant

- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres.
- Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non sparking, adequately sealed or intrinsically safe.
- In case of leakage/spillage happened, immediately ventilate area and stay upwind and away from spill/release.
- In case of leakage/spillage happened, do notify persons down wind of the leaking/spill, isolate immediate hazard area and keep unauthorized personnel out.

2-6. Presence of fire extinguisher

- If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available at hand.
- Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

2-7. No ignition sources

- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it can lead to the risk of fire or explosion. They must not be smoking when carrying out such work.
- All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space.
- Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks.
- “No Smoking” signs shall be displayed.

2-8. Ventilated area

- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work.
- A degree of ventilation shall continue during the period that the work is carried out.
- The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

2-9. Checks to the refrigerating equipment

- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification.
- At all times the manufacturer’s maintenance and service guidelines shall be followed.
- If in doubt consult the manufacturer’s technical department for assistance.
- The following checks shall be applied to installations using flammable refrigerants.
  - The refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
  - The ventilation machinery and outlets are operating adequately and are not obstructed.
  - If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
  - Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
  - Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which can corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are properly protected against being so corroded.

2-10. Checks to electrical devices

- Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.
- Initial safety checks shall include but not limit to:-
  - That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking.
  - That there is no live electrical components and wiring are exposed while charging, recovering or purging the system.
  - That there is continuity of earth bonding.
- At all times the manufacturer's maintenance and service guidelines shall be followed.
- If in doubt consult the manufacturer's technical department for assistance.
- If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with.
- If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used.
- The owner of the equipment must be informed or reported so all parties are advised thereinafter.

3. Sealed electrical components
   - Sealed electrical components shall not be repaired.

4. Cabling
   - Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.
   - The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

5. Detection of flammable refrigerants
   - Under no circumstances shall potential sources of ignition be used in the searching or detection of refrigerant leaks.
   - A halide torch (or any other detector using a naked flame) shall not be used.
   - The following leak detection methods are deemed acceptable for all refrigerant systems.
     - No leaks shall be detected when using detection equipment with a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure (>1.04 MPa, max 4.15 MPa) for example, a universal sniffer.
     - Electronic leak detectors may be used to detect flammable refrigerants, but the sensitivity can be inadequate, or can need re-calibration.
       (Detection equipment shall be calibrated in a refrigerant-free area.)
     - Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
     - Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.
     - Leak detection fluids are also suitable for use with most refrigerants, for example, bubble method and fluorescent agent method. The use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
     - If a leak is suspected, all naked flames shall be removed/extinguished.
     - If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. The precautions in #6 must be followed to remove the refrigerant.

6. Refrigerant removal and circuit evacuation
   - When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used.
     However, it is important that best practice is followed since flammability is a consideration.
     The following procedure shall be adhered to:

     1. Safely remove refrigerant following local and national regulations
     2. Evacuate
     3. Purge the circuit with inert gas
     4. Evacuate
     5. Continuously flush with inert gas when using flame to open circuit
     6. Open the circuit

   - The refrigerant charge shall be recovered into the correct recovery cylinders.
   - Compressed air or oxygen shall not be used for purging refrigerant systems, only use OFN (oxygen free nitrogen) for this task.
   - Purging of the refrigerant circuit shall be achieved by breaking the vacuum in the system with inert gas and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to vacuum.
   - This process shall be repeated until no refrigerant is within the system.
   - The system shall be vented down to atmospheric pressure to enable work to take place.
   - Ensure that the outlet of the vacuum pump is not close to any potential ignition sources and there is ventilation available.

7. Charging procedures
   - In addition to conventional charging procedures, the following requirements shall be followed.
     - Ensure that contamination of different refrigerants does not occur when using charging equipment.
     - Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
     - Cylinders shall be kept in an appropriate position according to the instructions.
     - Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
     - Label the system when charging is complete (if not already labelled).
     - Extreme care shall be taken not to over fill the refrigerating system.
   - Prior to recharging the system it shall be pressure tested with OFN (refer to #6).
   - The system shall be leak-tested on completion of charging but prior to commissioning.
   - A follow up leak test shall be carried out prior to leaving the site.
   - Electrostatic charge may accumulate and create a hazardous condition when charging and discharging the refrigerant.
     To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

8. Decommissioning
   - Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details.
   - It is recommended good practice that all refrigerants are recovered safely.
   - Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant.
   - It is essential that electrical power is available before the task is commenced.
     a) Become familiar with the equipment and its operation.
     b) Isolate system electrically.
     c) Before attempting the procedure ensure that:
        - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
        - all personal protective equipment is available and being used correctly;
        - the recovery process is supervised at all times by a competent person;
        - recovery equipment and cylinders conform to the appropriate standards.

     d) Pump down refrigerant system, if possible.
     e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
     f) Make sure that cylinder is situated on the scales before recovery takes place.
     g) Start the recovery machine and operate in accordance with instructions.
     h) Do not over fill cylinders. (No more than 80 % volume liquid charge).
     i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
     j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
     k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.
   - Electrostatic charge may accumulate and create a hazardous condition when charging or discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

9. Labelling
   - Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant.
   - The label shall be dated and signed.
   - Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

10. Recovery
   - When removing refrigerant from a system, either for servicing or decommissioning, it is required to follow good practice that all refrigerants are removed safely.
   - When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.
   - Ensure that the correct number of cylinders for holding the total system charge are available.
   - All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).
   - Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order.
   - Recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
   - The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. Consult manufacturer if in doubt.
   - In addition, a set of calibrated weighing scales shall be available and in good working order.
   - Hoses shall be complete with leak-free disconnect couplings and in good condition.
   - The recovered refrigerant shall be processed according to the local legislation in the correct recovery cylinder, and the relevant Waste Transfer Note arranged.
   - Do not mix refrigerants in recovery units and especially not in cylinders.
   - If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant.
   - The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. Draining of oil from a system shall be carried out safely.

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_c) used in the appliance.

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

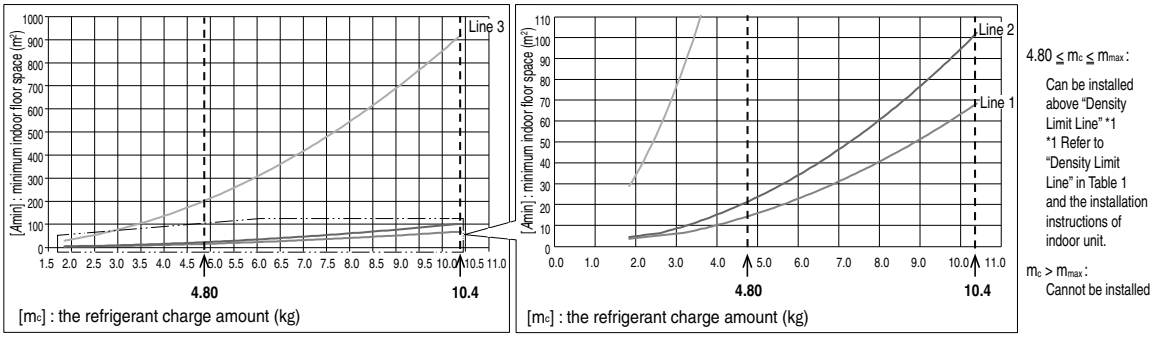


Table 1		
Installation height of Indoor Unit: h_{inst}	Indoor Unit Type	Density Limit Line
h_{inst} > 2.5 m	High Static Pressure Duct (S-200PE4E, S-250PE4E)	Line 1
h_{inst} ≥ 2.2 m	4-Way Cassette Duct Units (Horizontal Installation)	Line 1
1.8 m ≤ h_{inst} < 2.2 m	Duct Units (Horizontal Installation)	Line 2
h_{inst} < 1.8 m	Duct Units (Vertical Installation)	Line 3

	U-200PZH4E8	U-250PZH4E8
m_{max}	10.40 kg	10.40 kg

m_c : The refrigerant charge amount (Total of refrigerant at shipment and refrigerant charge amount in the field).

- Please calculate m_c according to piping length in the field as shown in the calculation example below.

< Calculating example > **• Refer to table "Specification for pipe connecting indoor unit to outdoor unit.".**
(conditions : U-200PZH4E8 (Single) Total pipe length = 40 m)

m_c = ① + ② = ① + (③ ∗ (④ – ⑤)) = 4.80 kg + (0.08 kg ∗ (40 m – 30 m) = 5.60 kg

< Calculating example > **• Please refer to "8. TWIN, TRIPLE AND DOUBLE TWIN TYPE CONNECTIONS-Refrigerant charging"**
(conditions : U-200PZH4E8 (TRIPLE) Total pipe length = 65 m)

m_c = ① + ② = ① + (③ ∗ (④ – ⑤ – ⑦ – ⑧ – ⑨)) + (⑥ ∗ (⑦ + ⑧ + ⑨)) = 4.80 kg + 0.08 kg ∗ (65 m - 30 m - 3 m - 4 m - 5 m) + 0.040 kg ∗ (3 m + 4 m + 5 m) = 7.12 kg

①: Refrigerant charged at shipment ②: Refrigerant charge amount in the field ③: Additional charge per 1 m (Main tube)
④: Total pipe length ⑤: Charge-less pipe length (30 m) ⑥: Additional charge per 1 m (Branch pipe)
⑦: 1st Branch pipe length (3 m) ⑧: 2nd Branch pipe length (4 m) ⑨: 3rd Branch pipe length (5 m)

- If the total piping length is within the maximum value of the charge-less piping length, refrigerant charge in the field is unnecessary.

m_{max} : The maximum refrigerant charge amount

■ ACCESSORIES SUPPLIED WITH OUTDOOR UNIT

The following parts are supplied as accessories with each outdoor unit. Check that all accessory parts are present before installing the outdoor unit.

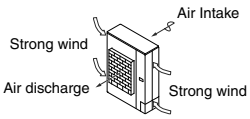
Part name	Diagram	Quantity
Protective bushing (For protecting electrical wires)		2

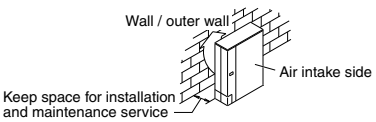
Part name	Diagram	Quantity
Banding strap (For tying electrical wires together)		4

■ SELECT THE OUTDOOR UNIT INSTALLATION LOCATION

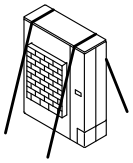
⚠ WARNING	Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

1. Install the unit once you have checked that the installation location matches the following conditions.
   - A location with sufficient ventilation.
   - Possibly a location that is sheltered from rain or direct sunlight and is well-ventilated so that hot and cool air does not build up.
   - A location where the area around the discharge is not exposed to animals or plants which could adversely affect the release of hot or cool air from the unit.
   - A location where the discharge and operation noise will not be a nuisance to the neighbours.
   - A location that can support the product's weight or vibrations and secured for horizontal installation wherever possible.
   - A location that does not obstruct the air discharge or intake.
   - A location where there is no danger of flammable or corrosive gas leaks.
   - A location that provides space for installation and service.
   - A location that allows the pipe and cable length fixture for internal and external connections.
   - It may need two or more people to carry out the installation work.
2. Refer to the diagram below for the installation location which is exposed to strong wind.
   - If a strong wind of more than 5 m/sec blows to the area directly in front of the discharge, the outdoor unit's air flow is reduced and the outflow may re-enter (short circuit) causing the following outcome:
     "Reduced capacity", "Increased frost formation during heating" or "Operation stopped due to increased pressure".
     Should an exceptionally strong wind blow to the area directly in front of the discharge of the outdoor unit; there is the risk of damage due to the fan's high-speed reverse rotation.
   - If the direction of the prevailing wind is known when operating the unit, place the unit at an appropriate angle to the wind's direction so that the discharge faces towards a building or a wall.





3. If installing at locations prone to snowfall, install the unit as high as possible with suitable roofing which shelters the unit from snow.
4. Avoid installing the unit in locations where there are petroleum products (such as machine oil), saline content (such as coastal areas), sulphurous gas and where high frequency noise is generated.
5. Place the indoor and outdoor unit, power cords and indoor/outdoor unit connection cables at a minimum distance of 1 meter or more away from televisions and radios. This is to avoid interference to picture and/or sound.
   (However, depending on the electromagnetic waves, noise interference may still occur even with the 1 meter separation.)
6. For restaurants and kitchens, avoid installing at locations which draws oil and steam.
   Plastic parts can deteriorate from droplets of oil and steam or it can cause falling parts or water leakage.
7. Avoid installing at the location where cutting oil mist or iron powder is present.
8. If there is an immense voltage fluctuation due to the location's problem, ensure to split the power supply.
9. When installing the product in a place where it will be affected by typhoon or strong wind such as wind blowing between buildings, including the rooftop of a building and a place where there is no building in surroundings, fix the product with an overturn prevention wire, etc.
10. Ensure to assign several people or use a mechanical lift, etc. to transport the unit.

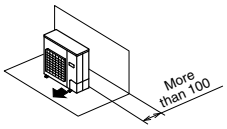


■ SELECTING THE LOCATION FOR INSTALLATION SERVICE

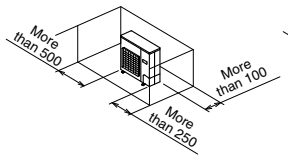
Please secure necessary space to guarantee performance and service & maintenance.
For multiple installations, please secure enough space to enable removal of side face screws between units. (unit:mm)

(A) If there are obstacles at the intake

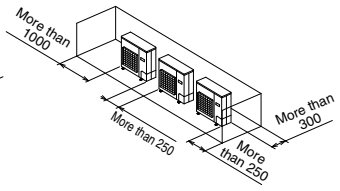
- If the upper part is open
  - ① For separate installation location
    - Only if there are obstacles at the intake



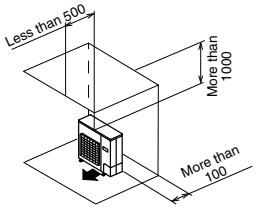
  - If there are obstacles on both sides



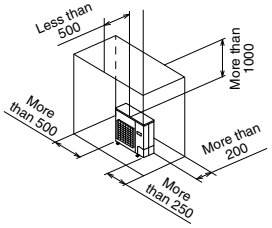
  - ② For multiple units (more than 2 units)
    - If there are obstacles on both sides



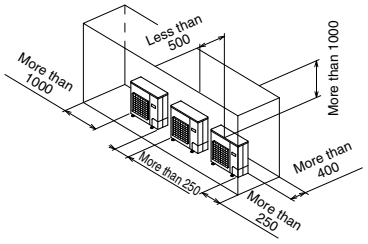
- If there are obstacles above the unit
  - ① For separate installation location
    - Only if there are obstacles at the intake



  - If there are obstacles on the intake and the other side



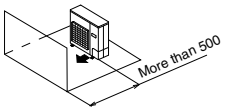
  - ② For multiple units (more than 2 units)
    - If there are obstacles on both sides



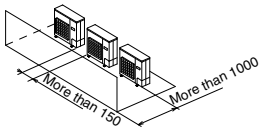
(B) If there are obstacles at the discharge

● If the upper part is open

① For separate installation location

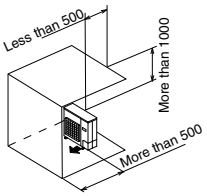


② For multiple units (more than 2 units)

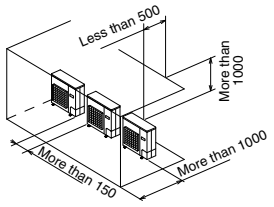


● If there are obstacles above the unit

① For separate installation location



② For multiple units (more than 2 units)

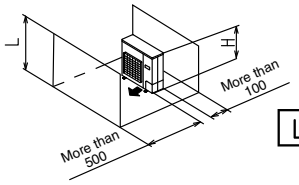


(C) If there are obstacles on both the intake and discharge

Pattern 1 If there is an obstacle that is higher than the unit on the intake side. (There is no limit to the height of the obstacle above the discharge.)

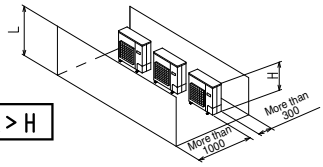
● If the upper part is open

① For separate installation location



L > H

② For multiple units (more than 2 units)



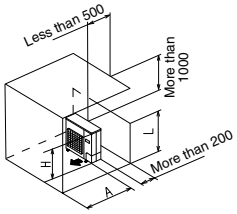
● If there are obstacles above the unit

① For separate installation location

• The dimensions for H, A and L are shown in the following table.

	L	A
L ≤ H	0 < L ≤ 1/2 H	500
	1/2H < L ≤ H	750
H < L	Install a pedestal or mount so that L ≤ H	

• Cover the bottom part of the pedestal or mount so that air does not go through it.

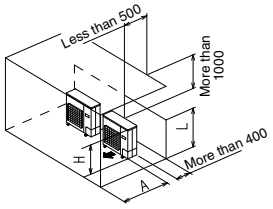


② For multiple units (up to 2 units)

• The dimensions for H, A and L are shown in the following table.

	L	A
L ≤ H	0 < L ≤ 1/2 H	1000
	1/2H < L ≤ H	1250
H < L	Install a pedestal or mount so that L ≤ H	

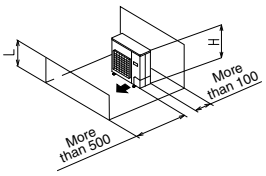
• Cover the bottom part of the pedestal or mount so that air does not bypass it.
• A limit of only 2 units can be installed.



Pattern 2 If there is an obstacle that is higher than the unit on the discharge side. (There is no limit to the height of the obstacle above the discharge.)

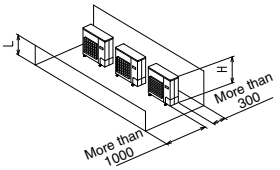
● If the upper part is open

① For separate installation location



L ≤ H

② For multiple units (more than 2 units)



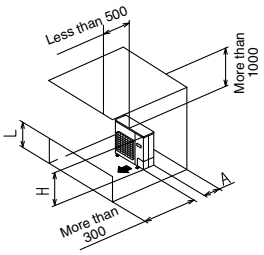
● If there are obstacles above the unit

For separate installation location

• The dimensions for H, A and L are shown in the following table.

	A
L ≤ H	100
H < L	Install a pedestal or mount so that L ≤ H

• Cover the bottom part of the pedestal or mount so that air does not go through it.



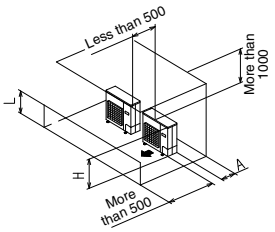
② For multiple units (up to 2 units)

• The dimensions for H, A and L are shown in the following table.

	A
L ≤ H	400
H < L	Install a pedestal or mount so that L ≤ H

• Cover the bottom part of the pedestal or mount so that air does not bypass it.

• A limit of only 2 units can be installed.



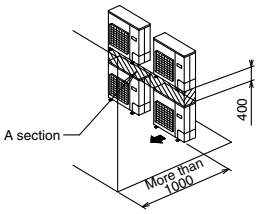
(D) Stacking installation setup

• Stack up to 2 tiers.

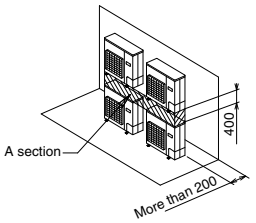
• A dimension of approximately 400 mm is required for the second tier outdoor unit's drain pipe and space for maintenance of the first tier outdoor unit.

• Close A section (the space between the upper and lower level outdoor units) so the outtake air does not bypass it.

① If there are obstacles at the discharge

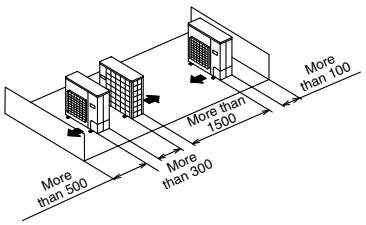


② If there are obstacles at the intake

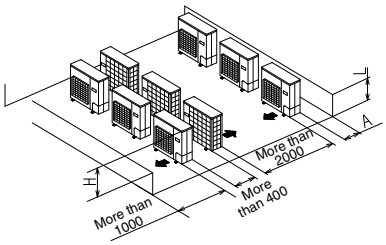


(E) For multiple row installation (on the roof, etc.)

① For one row installation setup



② For multiple units (more than 2 units)



• The dimensions for H, A and L are shown in the following table.

	A
L ≤ H	300
H < L	Installation not possible

• The above mentioned distance is required for optimal unit performance. Allow as much space as possible in order to obtain the best performance from the units.

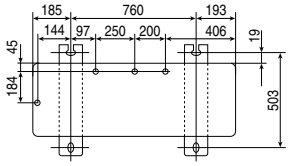
■ TRANSPORT AND INSTALL THE OUTDOOR UNIT

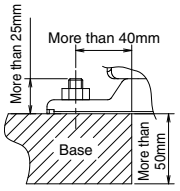
- Transporting
  1. Transport the outdoor unit in its original packaging as close as possible to the installation location.
  2. In the event that the unit needs to be lifted or suspended, use a rope or belt and use cloth or wood as padding to avoid damaging the unit.
  3. Use the side handles to carry the unit and be careful not to touch the fin with your hand or any objects.
- Installation

⚠ CAUTION	
	Route the tubing so that it does not contact the compressor, panel or other parts inside the unit. Increased noise will result if the tubing contacts these parts.
	When routing the tubing, use a tube bender to bend the tubes.
	In cold-weather regions, in order to prevent draingage water from freezing, do not install the drain socket cap. Also take steps to prevent water from accumulating around the unit.

1. Read the "Select the outdoor unit installation location" thoroughly before installing the outdoor unit.
2. When installing to a concrete or solid surface, use M10 or a W 3/8 bolts and nuts to secure the unit. Ensure that it installed upright on a horizontal plane. (Use an anchor bolt for the installation as shown in the diagram below.)
3. Avoid installing on a slanted roof.
4. In the event where the roof is at risk of receiving oscillations or vibrations, secure the unit with a seismic isolating mount or vibration absorbing rubber.
5. The drain water will be discharged from the unit during heating or defrosting operation mode.
   Select an appropriate location with good drainage system.
   (In winter, there is a risk of slipping caused by freezing depending on the installation location.)
   * Ensure a height of 15 cm or more at the feet on both sides of the unit.
   * Precautions for Installation in Heavy Snow Areas.
     The platform should be higher than the maximum snow depth + 50 cm.
     (In this case, leave clearance below the unit for the drain tube, and to prevent freezing of drainage water in cold-weather regions.)
   * Please consult us if installing the drain socket (Field supply).
   * When using a drain tube, install the drain socket (Field supply) onto the drain hole.
     Seal the other drain hole with the rubber cap (Field supply). For details, refer to the instruction manual of the drain socket (Field supply).
     After completing the installation work of the drain socket, make sure that the water does not leak from any part of connection.
   * In cold regions (where the outdoor temperature can drop to below 0° for 2 to 3 consecutive days), the drain water may freeze and may prevent the fan from operating. For this case, do not use the drain socket (Field supply).

(Unit: mm)



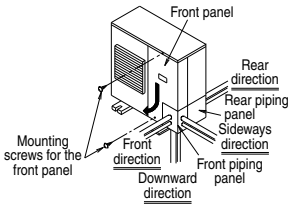


Anchor bolt length

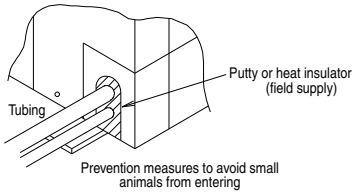
■ REFRIGERANT INSTALLATION

For indoor unit refrigerant tubing installation, refer to the installation instruction manual that comes with that indoor unit.

1. Precautions during refrigerant installation.
   - Use clean tubes with no dust inside.
     The tube may corrode with the presence of fluorine dust which will adversely affect the refrigerant tubing system due to deterioration of the refrigerant oil, etc.
   - This unit is specifically for R32. Ensure to adhere to the following items and install accordingly:
     - Use tube cutters and flaring tools which are specially designed for use with R32.
     - When connecting with flaring tools, coat the flare section with ether-based oil.
     - Ensure to use flare nuts supplied with the unit when connecting this unit.
     - Only for storing or for open tubes.
     - Set the lower limit of the allowable tube length to 5 m.
       If the tube is shorter than 5 m, the refrigerant may become overfilled and a problem such as abnormal high pressure could occur.
     - Carefully handle the liquid refrigerant, as it may cause a frostbite.
     - Do not release refrigerants during the tubing works for installing, re-installing and repairing refrigeration parts.



2. The local tubes can protrude from any four directions.
   - Make holes in the tube panel for the tubes to penetrate it and lay the tubes accordingly.
     - It is recommended to apply additional substance to the cut area for anti-rust protection.
   - Ensure to install tube panels to prevent rain water from getting into the unit.
   - Close the gap at the tube connected area with putty or heat insulator (field supply).
     - If an insect or small animal enters the outdoor unit, there is the risk of shorting in the product electronic casing.
       [Remove the front panel]
       (1) Remove the 2 mounting screws.
       (2) Slide the front panel using your hands downwards to release the pawls.
       Then remove by pulling the panel towards you.



Specification for tube connecting indoor unit to outdoor unit.

			U-200PZH4E8	U-250PZH4E8	U-200PZH4E8 U-250PZH4E8 (TWIN)	U-200PZH4E8 U-250PZH4E8 (TRIPLE, DOUBLE TWIN)
Pipe outer diameter	Liquid	mm (in.)	12.7 (1/2)			
			Flare Connection			
	Gas	mm (in.)	22.22 (7/8)			
			Brazing			
Maximum pipe length		(m)	100			
Maximum elevation	Outdoor unit is placed higher	(m)	30			
	Outdoor unit is placed lower	(m)	30			
Charge-less pipe length		(m)	5 ~ 30			
Additional charge per 1 m (Main tube)		(g)	80			
Refrigerant charged at shipment		(kg)	4.8			
Total refrigerant amount (Max. pipe length)		(kg)	10.4			

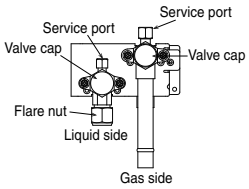
Remark: Do not overcharge.

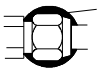
Tubing Thickness:

Size mm (in.)	ø6.35 (1/4)	ø9.52 (3/8)	ø12.7 (1/2)	ø15.88 (5/8)	ø19.05 (3/4)	ø22.22 (7/8)	ø25.4 (1)
Thickness. mm	≥ 0.8	≥ 0.8	≥ 0.8	≥ 1.0	≥ 1.0	≥ 1.0	≥ 1.0
Material	Temper-O (Soft copper tube)					Temper-1/2H, H (Hard copper tube)	

Precautions when operating the 3-way valve for tubing installation

- Do not open the 3-way valve until the piping installation is completed.
  - It is closed during shipment.
  - During installation the side panel may warp if only the flare nut is loosened and tightened with a torque wrench. As a result, always be sure to secure to the hexagonal part of the 3-way valve with a spanner, or other tool.
- Refer to the following table for the tightening torque of the 3-way valve flare nuts.
  - If the nuts are over tightened, they may cause the flares to break or leak.
- Do not add additional force to the valve's cover.
  - Using spanners on the cover or valve itself (other than the hexagonal parts) may cause gas leakage. Avoid using spanners on the cover or parts other than the hexagonal part of the valve.
- When cooling in the low outdoor air, the low-pressure side pressure may decrease. Seal sufficiently the flare nut in the service valve (both gas and liquid tubes) with silicone sealant to avoid the gas leak caused by freezing.





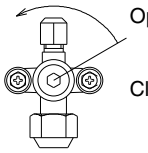
Silicone Sealant must be neutral cure and ammonia free. Use of silicon containing ammonia can lead to stress corrosion on the joint and cause leakage.

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

To prevent the ingress of moisture into the joint which could have the potential to freeze and then cause leakage, the joint must be sealed with suitable silicone and insulation material. The joint should be sealed on both liquid and gas side.

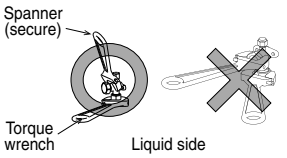
[3-way valve operation method]

- Use an Allen wrench. Direction to open



Opening : Open the cover and turn the Allen wrench counter-clockwise until it stops.

Closing : Open the cover and turn the Allen wrench clockwise until it stops.

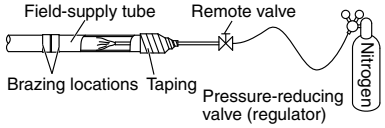


(Please use a single, open-end spanner to loosen and tighten the liquid side 3-way valve flare nut.)

Precautions for brazing

- Be sure to replace the air inside the tube with nitrogen to prevent oxide fi lm from forming during the brazing process. Be sure to use a damp cloth or other means to cool the valve unit during brazing.

Work method



⚠ CAUTION

1. Be sure to use nitrogen. Oxygen, CO_2, and CFC must not be used.
2. Use a pressure-reducing valve on the nitrogen tank.
3. Do not use agents intended to prevent the formation of oxide film. They will adversely affect the refrigeration oil, and may cause equipment failure.

⚠ CAUTION

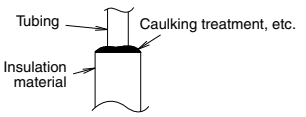
If the exterior of the outdoor unit valves has been finished with a square duct covering, make sure you allow sufficient space to access the valves and to allow the panels to be attached and removed.

After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack. Never grasp the drain or refrigerant connecting outlets when moving the unit.

		Tightening torque (approx.)
Valve cap (Valve size)	ø12.70 (Liquid tube)	49 N•m ~ 55 N•m {490 kgf•cm ~ 550 kgf•cm}
Service port		10.7 N•m ~ 14.7 N•m {107 kgf•cm ~ 147 kgf•cm}

Precautions for handling the valve cap

- Ensure not to scratch the inner surface of the valve or the end of the valve shaft.
  - Once adjustments to the valve are completed, ensure to tighten the valve cap according to the prescribed torque.



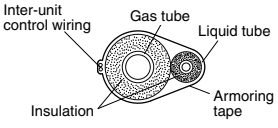
Precautions for handling the service ports

- Use a push-rod with a charge hose.
  - Once adjustments to the valve are completed, ensure to tighten the valve cap according to the prescribed torque.

Precautions for connecting the tubes

- For proper connection, align the union and flare straight with each other.
- Ensure that the tubes do not come into contact with the compressor's bolts or exterior panel.
- There is a risk of condensation from the 3-way valve coming out between the insulation material and the indoor unit's tubing when you install the outdoor unit above then the indoor unit. Ensure to caulk the connection parts.

Two tubes arranged together



Precautions for insulation installation **Maximum temperature limit of gas or liquid tubing exceeds 120 °C**

- In high humidity environment, reinforce the insulation material for the refrigerant tubing. Failure to do so may result in condensation on the surface of the insulation material.
- Use materials with good heat-resistant properties as the heat insulator for the tubes. Ensure to insulate both the gas and liquid tubes. If the tubes are not adequately insulated, condensation and water leakages may occur.
- Ensure that the current insulation covers the tubes up to the unit's connecting part. If the tubing is exposed, it may cause condensation or burn (when touch the tube).

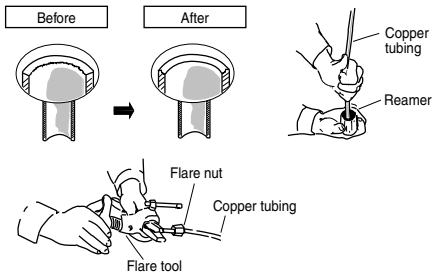
Precautions for flare nut installation

Use of the Flaring Method
Many of conventional split system air conditioners employ the flaring method to connect refrigerant tubes that run between indoor and outdoor units. In this method, the copper tubes are flared at each end and connected with flare nuts.

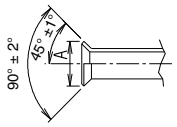
Flaring Procedure with a Flare Tool
(1) Cut the copper tube to the required length with a tube cutter. It is recommended to cut approx. 30 – 50 cm longer than the tubing length you estimate.
(2) Remove burrs at each end of the copper tubing with a tube reamer or a similar tool. This process is important and should be done carefully to make a good flare. Be sure to keep any contaminants (moisture, dirt, metal filings, etc.) from entering the tubing.

NOTE
When reaming, hold the tube end downward and be sure that no copper scraps fall into the tube.
(3) Remove the flare nut from the unit and be sure to mount it on the copper tube.
(4) Make a flare at the end of the copper tube with a flare tool.

Deburring



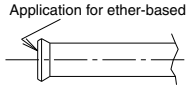
- Dimensions when adding flare nuts and the tightening torque
- For the flare nuts at tubing connections, be sure to use the flare nuts that were supplied with the unit. The refrigerant tubing that is used must be of the correct wall thickness as shown in the table below.

Tubing size	Tightening torque (approx.)	Flare section dimensions A	Tube thickness	Flare configuration
ø 6.35	14.0 N•m ~ 18.0 N•m {140 kgf•cm ~ 180 kgf•cm)	8.7 ~ 9.1 mm	0.8 mm	
ø 9.52	34.0 N•m ~ 42.0 N•m {340 kgf•cm ~ 420 kgf•cm)	12.8 ~ 13.2 mm	0.8 mm	
ø 12.7	49.0 N•m ~ 55.0 N•m {490 kgf•cm ~ 550 kgf•cm)	16.2 ~ 16.6 mm	0.8 mm	
ø 15.88	68.0 N•m ~ 82.0 N•m {680 kgf•cm ~ 820 kgf•cm)	19.3 ~ 19.7 mm	1.0 mm	
ø 19.05	100.0 N•m ~ 120 N•m {1020 kgf•cm ~ 1220 kgf•cm)	20.6 ~ 24.0 mm	1.0 mm	

After tubing connection has completed, ensure there is no gas leakage.

- Because the pressure is approximately 1.6 times higher than refrigerant R22 pressure, the use of flare nuts (type 1) or thin-walled tubes may result in tube rupture, injury, or asphyxiation caused by refrigerant leakage.
- When tightening the flare nut, coat the flares (inner surface only) with refrigerant oil on the flares. Firstly, screw in 3-4 turns by hand.
  * Ensure not to get oil on the screw part.
    Refrigerant oil used is ether-based.
- Once the tubing connections are completed, perform leakage inspection using nitrogen gas.
- When flared joints are reused, the flare part shall be re-fabricated.
- Selecting the location for installation service.

Application for ether-based oil



Incase of reusing existing refrigerant tubing

Observe the followings to decide reusing the existing refrigerant tubing.
Poor refrigerant tubing could result in product failure.

- In the circumstances listed below, do not reuse any refrigerant tubing. Instead, make sure to install a new tubing.
  - Heat insulation is not provided for either liquid or gas tube or both.
  - The existing refrigerant tube has been left in an open condition.
  - The diameter and thickness of the existing refrigerant tubing does not meet the requirement. (Refer to above tables)
  - The tubing length and elevation does not meet the requirement. (Refer to above tables)
  - Use only R32 or R410A genuine branch tube.
- Perform proper pump down for operated product before reuse tubing.
- In the circumstances listed below, clean it throughly before reuse.
  - Pump down operation cannot be performed for the existing air conditioner.
  - The compressor has a failure history.
  - Oil colour is darken. (ASTM 4.0 and above)
  - The existing air conditioner is gas/oil heat pump type.
- Do not reuse the flare to prevent gas leak. Make sure to install a new flare.
- If there is a welded part on the existing refrigerant tubing, conduct a gas leak check on the welded part.
- Replace deteriorated heat insulating material with a new one. Heat insulating material is required for both liquid and gas tubes.

Reusing existing tubing

		U-200PZH4E8 / U-250PZH4E8								
Liquid tube		ø9.52			ø12.7			ø15.88		
Gas tube		ø19.05	ø22.22	ø25.4	ø19.05	ø22.22	ø25.4	ø19.05	ø22.22	ø25.4
Maximum tube length	(m)	×	×	×	100	100	100	65	65	65
Charge-less tube length	(m)	×	×	×	30	30	30	20	20	20
Additional charge per 1m	(g/m)	×	×	×	80	80	80	120	120	120

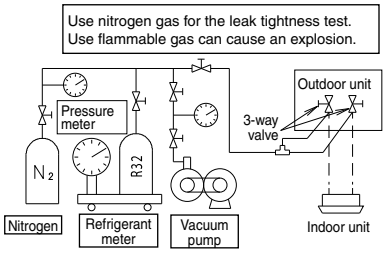
× Unallowable

NOTE
Interconnecting refrigerant pipework, i.e. pipework external to the unitary components, should be marked with a Class label (see right figure) every two metres where the pipework is visible. Label size is 50 mm x 50 mm. This includes pipework located in a ceiling space or any void which a person may access for maintenance or repair work within that space.

■ LEAK TEST AND EVACUATION

Leak Tightness Test Method

- Keep 3-way valve fully closed and pressurize through 3-way valve service port.
- Do not pressurize to the default value at once.Pressurize gradually.
  (1) Pressurize to 0.5MPa {5 kgf/cm^{2}G} and then leave it for 5 minutes to ensure that the pressure does not drop.
  (2) Pressurize to 1.5MPa {15 kgf/cm^{2}G} and leave it for 5 minutes to ensure that the pressure does not drop.
  (3) For the test, pressurize to 4.15MPa and leave it for about 1 day to ensure that the pressure does not drop.



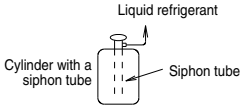
EVACUATION

- Use a vacuum pump (with back-flow prevention device) to vacuum through the 3-way valve service port to achieve below -101kPa {–755 mmHg, 5 Torr}.
- Air and moisture remaining in the refrigerant system due to poor vacuum drying can cause performance decrement and malfunction of the compressor.

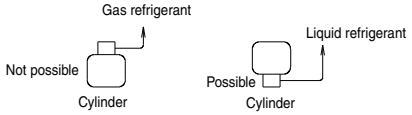
7. REGARDING REFRIGERANT FILLING

Precautions during refrigerant filling

- Ensure to fill only with liquid refrigerant when refilling.
  If gas refrigerant is filled, the refrigerant composition will not be balanced and will cause abnormal operation.



- If using cylinders as shown in the bottom left diagram; without a siphon tube inside, turn it upside down and use it.
  (It is recommended to use the manifold with the side glass.)



- Use tools that are designed specifically for R32, for pressure resistance and to prevent mixing impurities.
- Fill the refrigerant from the 3-way valve's service port on the liquid tube.

For filling and replacing all refrigerant (For refilling due to a leak)

- For refilling refrigerant, first collect all residual refrigerant and after vacuum dehydration using the vacuum pump. Refill the refrigerant according to the prescribed amount stated on the placard affixed to this unit.

Precautions after the tubes' connection have completed

- Ensure to open the 3-way valve after completing the tubing installation, leak test and vacuuming. If it is closed during operation, it can lead to compressor failure.

Charging with refrigerant * For single combination

- At the time of shipment from the factory, this unit is charged with enough refrigerant for an equivalent tube length of 30m. If the equivalent tube length used will be 30m or less, no additional charging will be necessary.
- If the equivalent tube length will be between 30 and 100m, charge with additional refrigerant according to the equivalent length given in the table below.

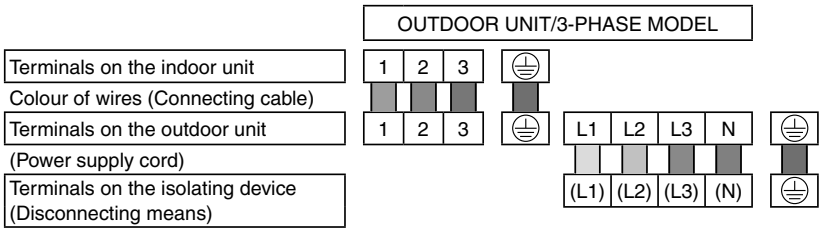
	Additional charging amount	Equivalent length	Minimum length
U-200PZH4E8 / U-250PZH4E8	80 g/m	100 m	5 m

- Pump down operation
  Please refer to "9. PRECAUTIONS REGARDING TEST RUN (Caution for Pump Down)" of this Installation instruction manual. It is also indicated on the label affixed to the outdoor unit.

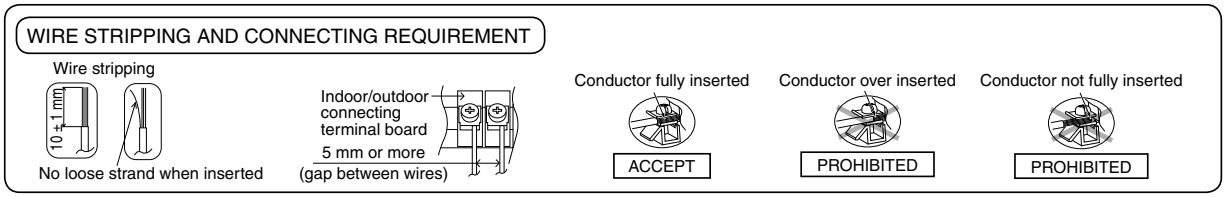
■ ELECTRICAL WIRING

⚠ WARNING	This air conditioner must be installed in accordance with national wiring regulations.
	Cables connected to outdoor 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 3 mm 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. Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason. 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. Remove the service panel from the unit by loosening the screw.
2. Ensure to connect the electrical cable connections and clamp the wires securely to the terminal connections using cord clamps so that no undue force is placed on the wires (power source cable, connection cable between indoor and outdoor unit, earth lead wire).
3. Connect the power supply cord and connecting cable between indoor unit and outdoor unit according to the diagram below.

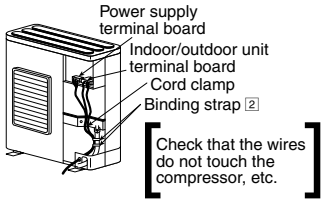


4. For wire stripping and connection requirement, refer diagram below.

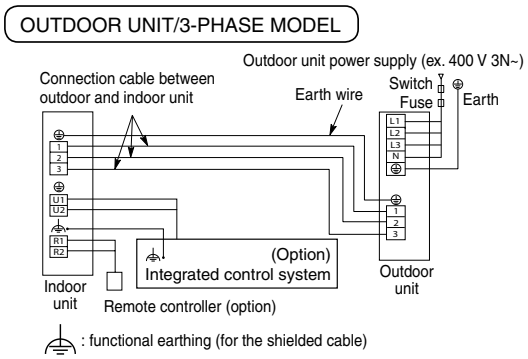


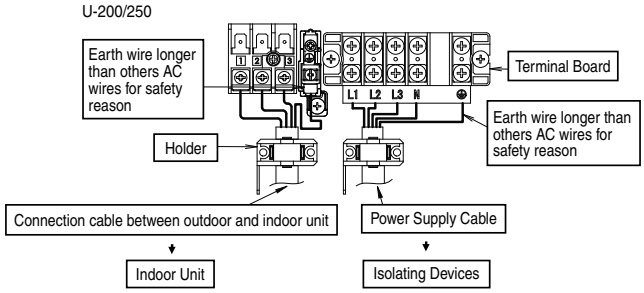
5. Do not install a phase advance capacitor for power factor improvement. (It does not improve the power factor and will cause abnormal overheating.)
6. Do not bind the excess cables together and place them inside this unit.
7. Once all wiring work has been completed, tie the cables with the provided binding strap so that they do not touch the compressor and the pipes.
8. Attach the service panel back to the original position with screw.
   - Protect the electrical cable with the protective bushing provided so that the cables do not get damaged on the knock hole or etched portions. If there is space between the electrical cables and the protective bushing occurs, seal it accordingly.
   - The equipment shall be connected to a suitable mains network with a main impedance less than the valve indicated in the table of power supply specifications.
   - Be sure to connect the wires correctly to terminal board with connecting the crimp type ring terminal to the wires.
   - When setting up the cables, inside of unit must be installed properly so that the front panel will not lift up. Make sure that front panel mount correctly.
9. The binding screws inside the power supply box may become loosened due to vibration during transportation, so check that they are tightened securely.

Screw diameter name	Tightening torque N•m (kgf•cm)
M4	1.57 ~ 1.96 (16 ~ 20)
M5	1.96 ~ 2.45 (20 ~ 25)



10. Tighten the binding screws to the specified torque while referring to the table above.
11. Use the appropriate screwdriver for tightening the terminal screws. Small sized screwdriver damages the head of the screw and cannot tighten it properly.
12. There is risk of damaging the screw if the terminal screw is over tightened.





This equipment complies with EN/IEC 61000-3-12 provided that the short-circuit power Ssc is greater than or equals to ※1 kVA at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure; by consultation with the distribution network operator if necessary that the equipment is connected only to supply with a short-circuit power Ssc greater than or equals to ※1 kVA.

Ssc : Short circuit power

Outdoor unit

Model	Power supply cable								Time delay fuse or circuit capacity (A)	※1 Ssc
	Power supply	Min. wire size (mm^2)	Recommended Wire Length and Wire Diameter for Power Supply Cable							
			Wire size (mm^2)	Max. length (m)	Wire size (mm^2)	Max. length (m)	Wire size (mm^2)	Max. length (m)		
U-200PZH4E8	380-400-415V 3N~	2.5	2.5	32	4.0	52	6.0	78	20	※2
U-250PZH4E8	380-400-415V 3N~	2.5	2.5	26	4.0	42	6.0	64	25	※2

※2 Intended for professional use. Permission from the power supplier is required when installing the U-200PZH4E8, U-250PZH4E8 outdoor units that are connected to a 16 A distribution network.

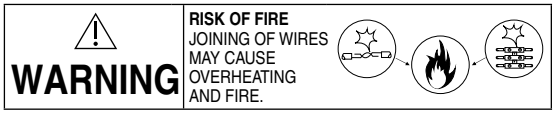
Control wiring

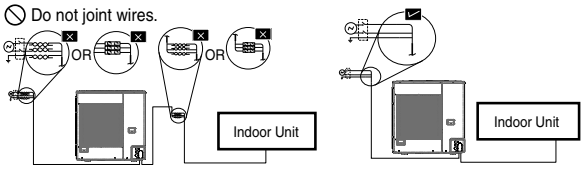
Type	Connection cable between outdoor and indoor unit	
	Outdoor unit	Max. length
min. 2.5 mm^2	U-200PZH4E8	100 m
	U-250PZH4E8	100 m

- Refer to the installation instruction manual provided with the indoor unit.
- Decide the length and size of the power supply cable based on the maximum ampere tabulated above in accordance with the national wiring regulations.
- Recommended maximum length indicates the value calculated with 2% voltage drop of the cable.
- Select the fuse(s) and/or circuit breaker(s) from the types and ratings suitable for the maximum ampere tabulated above in accordance with the national wiring regulations.
- An RCD suitable for use with inverters, resistant to high frequency noise, is most suitable. RCD's intended for protection to include high frequency currents are unnecessary and should be avoided, as potentially causing nuisance tripping, in this application.
- If capacity of power supply circuit and enforcement are not enough, it can causes the electric shock and a fire.

WARNING

RISK OF FIRE
JOINING OF WIRES MAY CAUSE OVERHEATING AND FIRE.





Use complete wire without joining.
Wire connection in this area must follow to national wiring rules.

Refer to the installation instruction manual provided with the indoor unit for the specifications on the indoor unit installation.

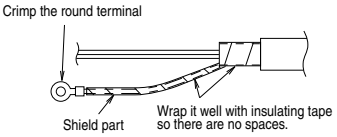
⚠ WARNING

Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also occur. Therefore, ensure that all wiring is tightly connected.
When connecting each power wire to the terminal, follow the instructions on "How to connect wiring to the terminal" and fasten the wire securely with the terminal screw.

For the shield part of the shielded cable, twist the end out, crimp it with a round terminal, and connect it to the functional earthing screw.
After crimping it with a round terminal, wrap it with insulating tape so there are no spaces and adjust it so the shield part does not touch any live parts.

⚠ CAUTION

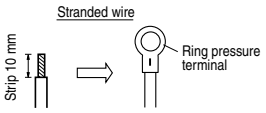
Be sure that the shield part of the shielded cable does not touch the terminal block or any live parts.
Failure to do so may lead to electric shock or fire.



How to connect wiring to the terminal

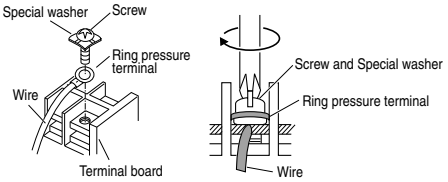
■ **For stranded wires**

(1) Cut the wire end with cutting pliers, then strip the insulation to expose the stranded wire about 10 mm and tightly twist the wire ends.



(2) Using a Phillips head screwdriver, remove the terminal screw(s) on the terminal board.
(3) Using a ring connector fastener or pliers, securely clamp each stripped wire end with a ring pressure terminal.

(4) Put the removed terminal screw through the ring pressure terminal and then replace and tighten the terminal screw using a screwdriver.



■ TWIN, TRIPLE AND DOUBLE TWIN TYPE CONNECTIONS

- Two, three or four indoor units can be operated simultaneously with a single remote control unit. Note that individual operation is not possible.
- Master unit and slave unit can be set automatically in twin and triple system. No address setting is necessary.
- Applicable "TWIN" and "TRIPLE" combination table.

	Outdoor unit	200 Type	250 Type
SINGLE	combination	U-200 / S-200	U-250 / S-250
TWIN	combination	U-200 / S-1014 S-1014	U-250 / S-1014 S-1014
TRIPLE	combination	U-200 / S-6071 S-6071 S-6071	———
DOUBLE TWIN	combination	U-200 / S-3650 S-3650 S-3650 S-3650	U-250 / S-6071 S-6071 S-6071 S-6071

- Type E4 (High Static Pressure Duct)
- Type U3 (4-way cassette 90x90)
- Type F3 (Middle Static Pressure Duct)

The number after "S" may differ from the above. Please check the catalogue, etc. for available models.

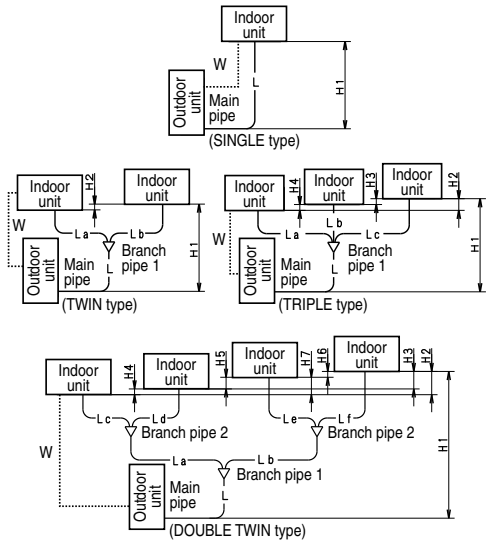
Piping Connections

- The following table shows the pipe diameter. (Branch pipe kit should be used)

Outdoor unit main pipe diameter (mm)	Branch pipe diameter	Indoor unit combination				
		S-3650	S-6071	S-1014	S-200	S-250
Liquid side : ø12.7 Gas side : ø22.22	Liquid side	ø6.35	ø9.52	ø9.52	ø12.7	ø12.7
	Gas side	ø12.7	ø15.88	ø15.88	ø22.22	ø22.22
Branch pipe kit (option)	TWIN	CZ-P680BK2BM				
	TRIPLE	CZ-P3HPC2BM				
	DOUBLE TWIN	Branch pipe 1: CZ-P680BK2BM + Branch pipe 2: CZ-P224BK2BM				

- The following table shows the equivalent pipe lengths and height differences.

		SYMBOLS				SPEC
		SINGLE	TWIN	TRIPLE	DOUBLE TWIN	
Total pipe length		L	L+La+Lb	L+La+Lb+Lc	L+La+Lb+Lc+Ld+Le+Lf	100m
Maximum branch pipe length	Length after branch pipe 1	———	La or Lb	La or Lb or Lc	La+Lc or La+Ld or Lb+Le or Lb+Lf	15m
	Length after branch pipe 2	———	———	———	Lc, Ld, Le, Lf	Less than 5m
Maximum branch pipe length difference		———	La > Lb La - Lb	La > Lb > Lc La - Lb Lb - Lc La - Lc	Lb+Lf →MAX La+Lc →MIN (Lb + Lf) - (La + Lc)	Less than 10m
Maximum pipe length difference of branch pipe 1 (DOUBLE TWIN)		———	———	———	Lb > La Lb - La	Less than 10m
Maximum pipe length difference of branch pipe 2 (DOUBLE TWIN)		———	———	———	Ld > Lc Lf > Le Ld - Lc Lf - Le	Less than 10m
Height difference	Outdoor located higher installation	H1				Less than 30m
	Outdoor located lower installation	H1				Less than 30m
Height difference between indoor units		———	H2	H2 or H3 or H4	H2 or H3 or H4 or H5 or H6 or H7	Less than 0.5m
Maximun connection cable between indoor and outdoor unit		W				Less than 100m



- Piping length may be limited depending on the wiring length. If the maximum wiring length is exceeded, normal communication may not be possible.

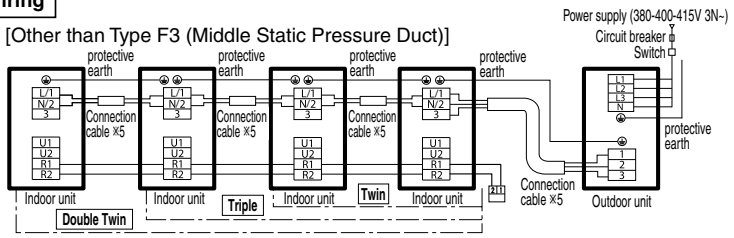
Refrigerant charging

- For the twin connection, the amount of refrigerant required for pipe length 30m has been included in this unit at the factory while that required for pipe length 20m has been included for the triple/double-twin connections.
  No additional charge is required for the first 30m pipe length in the case of the twin connection and for the first 20m in the case of the triple/double-twin connections. The amount of included refrigerant for each model is listed on NAME PLATE. Make additional charges by adding up pipe length in an order of main pipe (L) → branch pipe (La → Lb→ Lc wide diameter) and then selecting the amount of refrigerant corresponding to the remaining (after 30m for the twin connection and after 20m for the triple/double-twin connections) liquid side pipe diameter and pipe length from the right table.

Liquid pipe diameter	Addition amount of refrigerant [g/m] (Branch pipe)
ø6.35	20
ø9.52	40
ø12.7	80

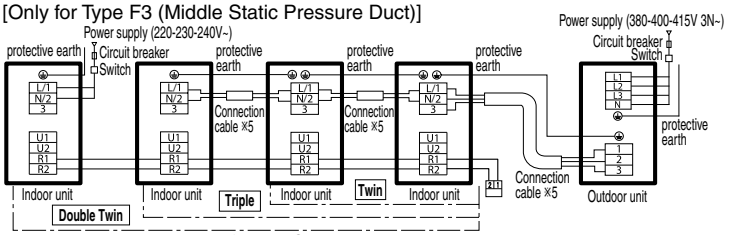
Wiring

[Other than Type F3 (Middle Static Pressure Duct)]



×5 Connection cable:
Connection cable between outdoor and indoor unit

[Only for Type F3 (Middle Static Pressure Duct)]



* For double twin connections of Middle Static Pressure Duct, additional power supply is required at indoor side.

■ PRECAUTIONS REGARDING TEST RUN

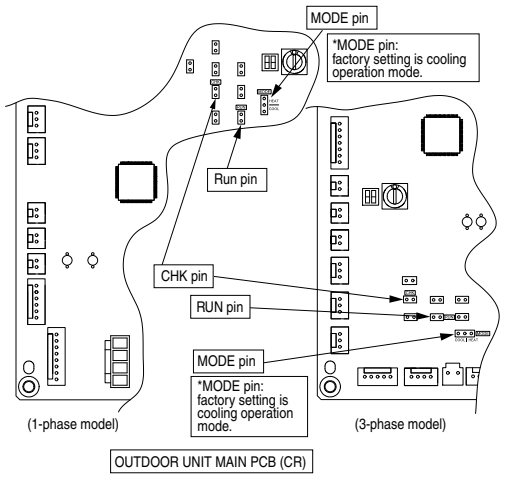
Check Before Test Run

	Content check
Outdoor unit	● Check that the insulation resistant value is more than 1MΩ. Use the 500 V mega-testers to measure the insulation. Check point : between power supply terminal block (L1, L2, L3, N or L, N) to earth. Do not use the mega-tester for any other circuit except for voltage of 230-240V~ or 400-415V 3N~.
Power supply cable Indoor/outdoor connection wire Earth wire	● Is the wire set up and connected as described in the instructions? Check for any phase sequence. ● Are the wire connection's screws loose? ● Is the open and close device / leakage breaker installed? ● Is the power supply cable's thickness and length appropriately measured as described in the instructions? ● Is it earthed (grounded)? ● Are the wire connections for the indoor/outdoor units connected as described in the instructions? Are there any looped wires? ● Was the "N-phase" surely connected when connecting the power supply wire on the three-phase model? If N-phase is not connected, only the fan may repeat turning ON/OFF without the compressor operating. In that case, check if there is any problem with N-phase connection.
Refrigerant tube	● Is the tubing installed as described in the instructions? ● Are the tubes sizes appropriate? ● Does the tube's length adhere to the specifications? ● Is the branch tube slant being appropriately done as described in the instructions? ● Was vacuum removal sufficiently carried out? ● Was the leak tightness test carried out with nitrogen gas? Use the testing pressure of 4.15 MPa. ● Is the tubing insulation material appropriately installed? (Insulation material is necessary for both gas and liquid tubing.) ● Is the 3-way valve for the liquid tube and gas tube open?

- Always be sure to use a properly insulated tool to operate the short-circuit pin on the circuit board. (Do not use your finger.)
- Never switch the power supply ON until the installation has completed.
- Supply electrical current through all indoor units and check the voltage.
- Supply electrical current through all the outdoor units and check each inter-phase voltage.
- Before the test run, ensure to check that the 3-way valve is open. Operating while the valve is closed causes the compressor to fail.

Test Run Procedure

- If there are duplicated system addresses, or if the settings for the Nos. of the indoor units are not consistent, an alarm will occur and the system will not start.
- Switch the power supply ON both indoor and outdoor unit.
- Short-circuit CHK pin on the outdoor main PCB.
  Do not remove CHK pin until test run is completed.
  Removing CHK pin stops test run.
- Short-circuit RUN pin on the outdoor main PCB for one second or longer.
  Factory setting is cooling operation mode and cooling operation test run starts.
  If heating operation starts, short-circuit both right side and centre of the MODE pin (centre and COOL) continuously.
- Ensure to conduct a test run. In addition, be sure to run the cooling operation test run for at least 20 minutes before starting the heating operation test run.
- To conduct heating operation test run, short-circuit left side and centre of the MODE pin (centre and HEAT) continuously.
- Removing CHK pin's and MODE pin's short-circuit stops test run.
- For the test run using remote controller, please see installation instructions included with the remote controller.



Caution for Pump Down

Pump down means refrigerant gas in the system is returned to the outdoor unit.
Pump down is used when the unit is to be moved, or before servicing the refrigerant circuit.

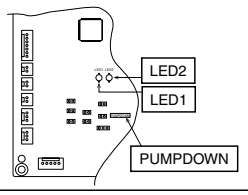
How to perform Pump-Down (Refrigerant recovery) properly
(1) Stop operation of the unit (cooling, heating etc.).
(2) Connect the pressure gauge to the service port of the gas tubing valve.
(3) Short-circuit the "PUMPDOWN" pin on an outdoor unit control PCB (CR) for more than 1 second to release.
- Pump-Down begins and the unit starts operating.
- During Pump-Down, LED1 blinks and LED2 is lit on an outdoor unit control PCB (CR).
- "CHK" blinks on the remote controller.

(4) Fully close the liquid tubing valve 2-3 minutes later. The Pump-Down will begin.
(5) When the pressure gauge drops to 0.1-0.2MPa, close the gas tubing valve tightly and short-circuit the "PUMPDOWN" pin for more than 1 second to release. That is the end of Pump-Down.
- When running for more than 10 minutes, it stops even if the Pump-Down is not completed. Check the blocked state of the liquid tubing valve.
- It also stops when the "PUMPDOWN" pin is short-circuited during the operation.

* For compressor protection, do not operate to the point where the unit wiring side reaches negative pressure.

Note : In the case that copper pipe length or longer, you cannot pump-down. (It may trigger the operation of the overload protection device.) In this case, perform pump-down with pump-down device.

OUTDOOR UNIT CONTROL PCB (CR)
3-PHASE MODEL



Note : In the case that copper pipe length is 30m or longer, you cannot pump-down. (It may trigger the operation of the overload protection device.) In this case, perform pump-down with pump-down device.

10. CHECKS AFTER INSTALLATION HAVE COMPLETED

- Check the following items after completing installation.
  - ☐ Is there a short circuit with the intake air flow?
  - ☐ Is the insulation secure? (Refrigerant tubing)
  - ☐ Are there any errors with the wiring?
  - ☐ Are the terminal screws loose? Tightening torque (Unit: N•m {kgf•cm})
    M4...1.57~1.96{16~20}, M5...1.96~2.45{20~25}
  - ☐ Is the drain water flowing smoothly?
  - ☐ Is the insulation material properly installed?
  - ☐ Is the earth wire securely connected?
  - ☐ Is the front panel and the indoor unit air conditioner firmly fixed and was the installation completed without any leakage from the refrigerant?
  - ☐ Are the indoor and outdoor units secured firmly installed with bolts at secured locations?

■ REGARDING DELIVERY TO THE CUSTOMER

- Request the customer to review the operating instructions and explain the operating method for the product.
- In addition, it is also recommended that regular inspection checks are agreed upon for maintenance.

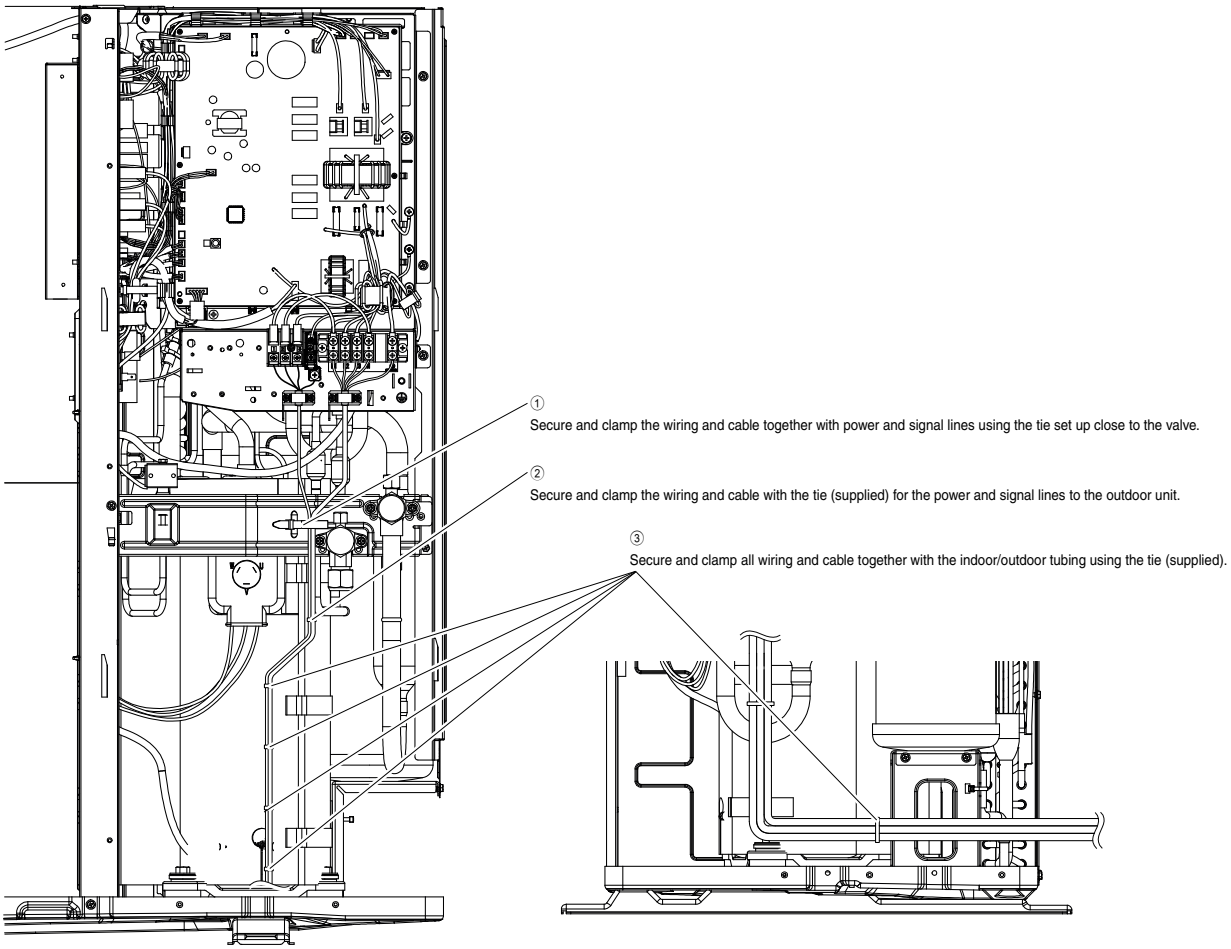
User inspection places
- • Grill cleaning
- • Exterior cleaning

Serviceman inspection places
- • Check the operating status
- • Clean the drain pan or things related to the water discharge
- • Heat exchanger cleaning

■ WIRING PROCEDURE

Follow the wiring procedure below for terminal connection.
(1) Secure and clamp the power and signal lines with the tie, set up close to the valve.
(2) Set the wiring and cables for the power and signal lines to the outdoor unit together, and secure each wire and cable with the tie.
(3) Set up the wiring and cable for the outdoor unit tubing and secure with a tie.

- Outdoor unit / 3-phase model



1-10. Capacity Table
High Static Pressure Ducted Type S-200PE4E, S-250PE4E
1. Cooling capacity performance data

TC :Cooling Capacity
SHC :Sensible Heat Capacity
IPT :Cooling Power Consumption
unit : kW

S-200PE4E
U-200PZH4E8

		Outdoor air intake temp (°C D.B.)																	
Ambient		25	25	25	30	30	30	35	35	35	40	40	40	46	46	46	52	52	52
DB	WB	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT
23	16	20.1	15.0	6.5	19.8	12.6	7.2	18.4	12.1	7.1	15.1	9.0	6.5	11.3	7.8	5.9	5.6	2.5	2.4
	19	21.7	11.1	6.6	21.4	8.6	7.3	20.0	8.1	7.2	16.7	5.9	6.6	12.9	5.2	6.0	6.0	1.7	2.4
	22	23.3	7.0	6.8	23.0	4.5	7.5	21.6	4.1	7.3	18.3	2.8	6.8	14.5	2.4	6.2	6.4	0.9	2.4
25	16	20.1	17.7	6.5	19.8	17.6	7.2	18.4	16.9	7.1	15.1	12.5	6.5	11.3	10.6	5.9	5.6	3.4	2.4
	19	21.7	13.5	6.6	21.4	13.4	7.3	20.0	12.9	7.2	16.7	9.7	6.6	12.9	8.9	6.0	6.0	2.6	2.4
	22	23.3	9.4	6.8	23.0	9.3	7.5	21.6	8.9	7.3	18.3	6.7	6.8	14.5	6.1	6.2	6.4	1.8	2.4
27	16	20.9	19.1	6.5	19.8	18.8	7.2	18.4	17.5	7.1	15.1	12.5	6.5	11.3	10.6	5.9	5.6	3.6	2.4
	19	22.5	16.0	6.6	21.4	15.9	7.3	20.0	15.3	7.2	16.7	11.4	6.6	12.9	10.7	6.0	6.0	3.1	2.4
	22	24.1	11.8	6.8	23.0	11.7	7.5	21.6	11.2	7.3	18.3	8.4	6.8	14.5	7.9	6.2	6.4	2.3	2.4
29	16	20.1	19.1	6.5	19.8	18.8	7.2	18.4	17.5	7.1	15.1	12.5	6.5	11.3	10.6	5.9	5.6	3.6	2.4
	19	21.7	18.4	6.6	21.4	18.3	7.3	20.0	17.8	7.2	16.7	13.5	6.6	12.9	12.2	6.0	6.0	3.6	2.4
	22	23.3	14.2	6.8	23.0	14.1	7.5	21.6	13.7	7.3	18.3	10.5	6.8	14.5	9.8	6.2	6.4	2.8	2.4
32	16	20.1	19.1	6.5	19.8	18.8	7.2	18.4	17.5	7.1	15.1	12.5	6.5	11.3	10.6	5.9	5.6	3.6	2.4
	19	21.7	20.6	6.6	21.4	20.3	7.3	20.0	19.0	7.2	16.7	13.7	6.6	12.9	12.2	6.0	6.0	3.9	2.4
	22	23.3	17.8	6.8	23.0	17.7	7.5	21.6	17.0	7.3	18.3	13.5	6.8	14.5	12.6	6.2	6.4	3.4	2.4

S-250PE4E
U-250PZH4E8

		Outdoor air intake temp(°C D.B.)																	
Ambient		25	25	25	30	30	30	35	35	35	40	40	40	46	46	46	52	52	52
DB	WB	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT	TC	SHC	IPT
23	16	25.8	20.2	9.3	25.3	17.0	10.3	23.6	16.3	10.1	19.3	12.1	9.3	14.5	10.6	8.4	7.2	3.3	3.4
	19	27.8	15.0	9.5	27.4	11.5	10.5	25.6	10.9	10.3	21.3	7.9	9.5	16.5	7.0	8.7	7.7	2.3	3.5
	22	29.8	9.5	9.7	29.4	6.1	10.7	27.6	5.5	10.5	23.4	3.8	9.7	18.6	3.3	8.9	8.2	1.2	3.5
25	16	25.8	23.8	9.3	25.3	23.6	10.3	23.6	22.8	10.1	19.3	16.9	9.3	14.5	14.3	8.4	7.2	4.6	3.4
	19	27.8	18.2	9.5	27.4	18.1	10.5	25.6	17.4	10.3	21.3	13.0	9.5	16.5	12.0	8.7	7.7	3.5	3.5
	22	29.8	12.7	9.7	29.4	12.5	10.7	27.6	11.9	10.5	23.4	9.0	9.7	18.6	8.2	8.9	8.2	2.4	3.5
27	16	26.8	25.8	9.3	25.3	25.3	10.3	23.6	23.6	10.1	19.3	16.9	9.3	14.5	14.3	8.4	7.2	4.9	3.4
	19	28.8	21.5	9.5	27.4	21.4	10.5	25.6	20.6	10.3	21.3	15.4	9.5	16.5	14.4	8.7	7.7	4.1	3.5
	22	30.9	15.9	9.7	29.4	15.8	10.7	27.6	15.1	10.5	23.4	11.4	9.7	18.6	10.7	8.9	8.2	3.1	3.5
29	16	25.8	25.8	9.3	25.3	25.3	10.3	23.6	23.6	10.1	19.3	16.9	9.3	14.5	14.3	8.4	7.2	4.9	3.4
	19	27.8	24.8	9.5	27.4	24.6	10.5	25.6	23.9	10.3	21.3	18.2	9.5	16.5	16.4	8.7	7.7	4.8	3.5
	22	29.8	19.1	9.7	29.4	19.0	10.7	27.6	18.4	10.5	23.4	14.2	9.7	18.6	13.2	8.9	8.2	3.7	3.5
32	16	25.8	25.8	9.3	25.3	25.3	10.3	23.6	23.6	10.1	19.3	16.9	9.3	14.5	14.3	8.4	7.2	4.9	3.4
	19	27.8	27.8	9.5	27.4	27.4	10.5	25.6	25.6	10.3	21.3	18.4	9.5	16.5	16.4	8.7	7.7	5.3	3.5
	22	29.8	24.0	9.7	29.4	23.8	10.7	27.6	22.9	10.5	23.4	18.1	9.7	18.6	16.9	8.9	8.2	4.6	3.5

2. Heating capacity performance data

TC :Heating Capacity
IPT :Heating Power Consumption
unit : kW

			Outdoor air intake temp(°C W.B.)											
Model	Power Source	Ambient Return Air	-21°C		-8°C		6°C		8°C		15°C		24°C	
		DB	TC	IPT	TC	IPT	TC	IPT	TC	IPT	TC	IPT	TC	IPT
S-200PE4E (U-200PZH4E8)	230V-240V 50Hz 1phase (400V-415V 50Hz 3phase)	16	15.7	6.05	20.7	6.54	25.7	7.13	21.3	4.80	26.0	4.86	25.9	2.90
		20	14.5	6.42	19.5	6.92	24.5	7.50	20.1	5.18	24.8	5.24	24.7	3.27
		24	13.3	6.80	18.2	7.29	23.3	7.88	18.8	5.55	23.6	5.61	23.4	3.65
S-250PE4E (U-250PZH4E8)	230V-240V 50Hz 1phase (400V-415V 50Hz 3phase)	16	17.7	7.25	23.3	7.85	29.0	8.55	24.0	5.76	29.3	5.84	29.2	3.47
		20	16.3	7.70	21.9	8.30	27.6	9.00	22.6	6.21	27.9	6.29	27.8	3.92
		24	14.9	8.15	20.5	8.75	26.2	9.45	21.2	6.66	26.5	6.74	26.4	4.38

2. TEST RUN

2-1. Preparing for Test Run

• Before attempting to start the air conditioner, check the following:

(1) All loose matter is removed from the cabinet especially steel filings, bits of wire, and clips.
(2) The control wiring is correctly connected and all electrical connections are tight.
(3) The protective spacers for the compressor used for transportation have been removed.
If not, remove them now.
(4) The transportation pads for the indoor fan have been removed. If not, remove them now.
(5) The power has been supplied to the unit for at least 12 hours before starting the compressor. The bottom of the compressor should be warm to the touch and the crankcase heater around the feet of the compressor should be hot to the touch. (Fig. 2-1)
(6) Both the gas and liquid tube service valves are open. If not, open them now. (Fig. 2-2)

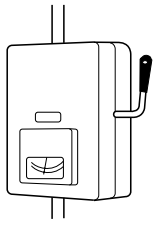


Fig. 2-1

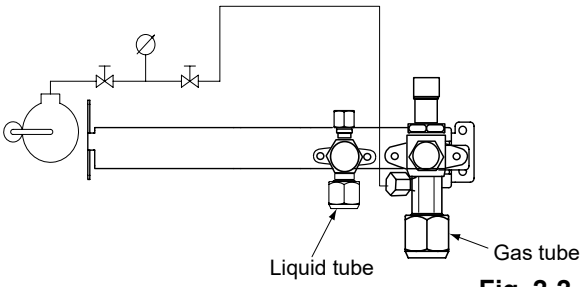


Fig. 2-2

(7) Request that the customer be present for the test run. Explain the contents of the instruction manual, and then have the customer actually operate the system.
(8) Be sure to give the instruction manual and warranty certificate to the customer.
(9) When replacing the control PCB, be sure to make all the same settings on the new PCB as were in use before replacement. The existing EEPROM is not changed, and is connected to the new control PCB.

Check Before Test Run

	Content check
Outdoor unit	• Check that the insulation resistant value is more than 1MΩ. Use the 500 V mega-testers to measure the insulation. Check point : between power supply terminal block (L1, L2, L3, or L, N) to earth. Do not use the mega-tester for any other circuit except for voltage of 230-240V~ or 400-415V 3N~.
Power supply cable Indoor / outdoor connection wire Earth wire	• Is the wire set up and connected as described in the instructions? Check for any phase sequence. • Are the wire connection's screws loose? • Is the open and close device / leakage breaker installed? • Is the power supply cable's thickness and length appropriately measured as described in the instructions? • Is it earthed (grounded)? • Are the wire connections for the indoor / outdoor units connected as described in the instructions? Are there any looped wires? • Was the "N-phase" surely connected when connecting the power supply wire on the three-phase model? If N-phase is not connected, only the fan may repeat turning ON/OFF without the compressor operating. In that case, check if there is any problem with N-phase connection.
Refrigerant tube	• Is the tubing installed as described in the instructions? • Are the tubes sizes appropriate? • Does the tube's length adhere to the specifications? • Is the branch tube slant being appropriately done as described in the instructions? • Was vacuum removal sufficiently carried out? • Was the leak tightness test carried out with nitrogen gas? Use the testing pressure of 4.15 MPa. • Is the tubing insulation material appropriately installed? (Insulation material is necessary for both gas and liquid tubing.) • Is the 3-way valve for the liquid tube and gas tube open?

- Always be sure to use a properly insulated tool to operate the short-circuit pin on the circuit board. (Do not use your finger.)
- Never switch the power supply ON until the installation has completed.
- Supply electrical current through all indoor units and check the voltage.
- Supply electrical current through all the outdoor units and check each inter-phase voltage.
- Before the test run, ensure to check that the 3-way valve is open. Operating while the valve is closed causes the compressor to fail.

2-2. Precautions

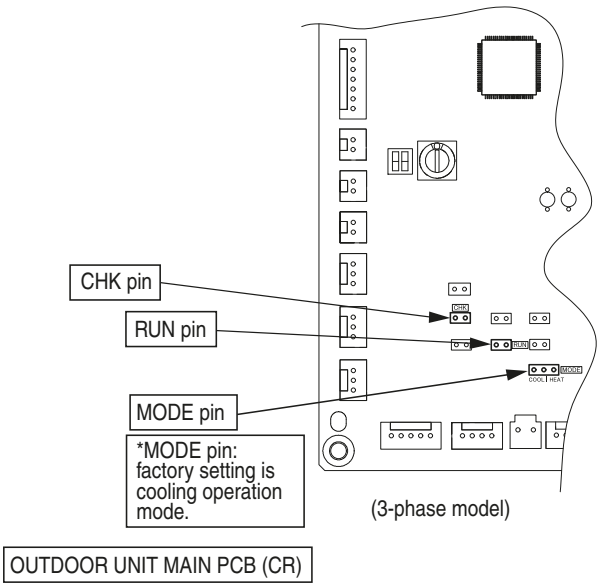
- Request that the customer be present when the test run is performed.
  At this time, explain the operation manual and have the customer perform the actual steps.

OUTDOOR UNIT MAIN PCB (CR)

- Be sure to pass the manuals and warranty certificate to the customer.
- Check that the 230 – 240 VAC power is not connected to the inter-unit control wiring connector terminal.

* If 230 – 240 VAC is accidentally applied, the indoor or outdoor unit control PCB fuse will blow in order to protect the PCB.
Correct the wiring connections, then disconnect the 2P connectors that are connected to the PCB, and replace them with 2P connectors.
If operation is still not possible after changing the brown connectors, try cutting the varistor.
(Be sure to turn the power OFF before performing this work.)

U-200PZH4E8, U-250PZH4E8



OUTDOOR UNIT MAIN PCB (CR)

Fig. 2-3

INDOOR UNIT MAIN PCB (CR)

- 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 230 –240 VAC power is not connected to the U1 & U2 terminal board terminal.

* If 230 –240 VAC is accidentally applied, the Fuse on indoor unit Electronic Controller (Communication) will blow in order to protect the PCB.
In this case, recover the connection by disconnect 2P connector wires that originally connected to the indoor unit Electronic Controller (Communication) OC connector and shift the connector wires to EMG connector on same indoor unit Electronic Controller (Communication). If operation is still not possible after shift to EMG connector, cut the jumper JP040 on the same indoor unit Electronic Controller (Communication).

High Static Pressure Ducted Type
S-200PE4E, S-250PE4E

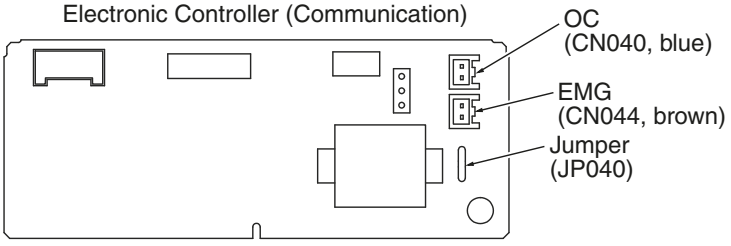


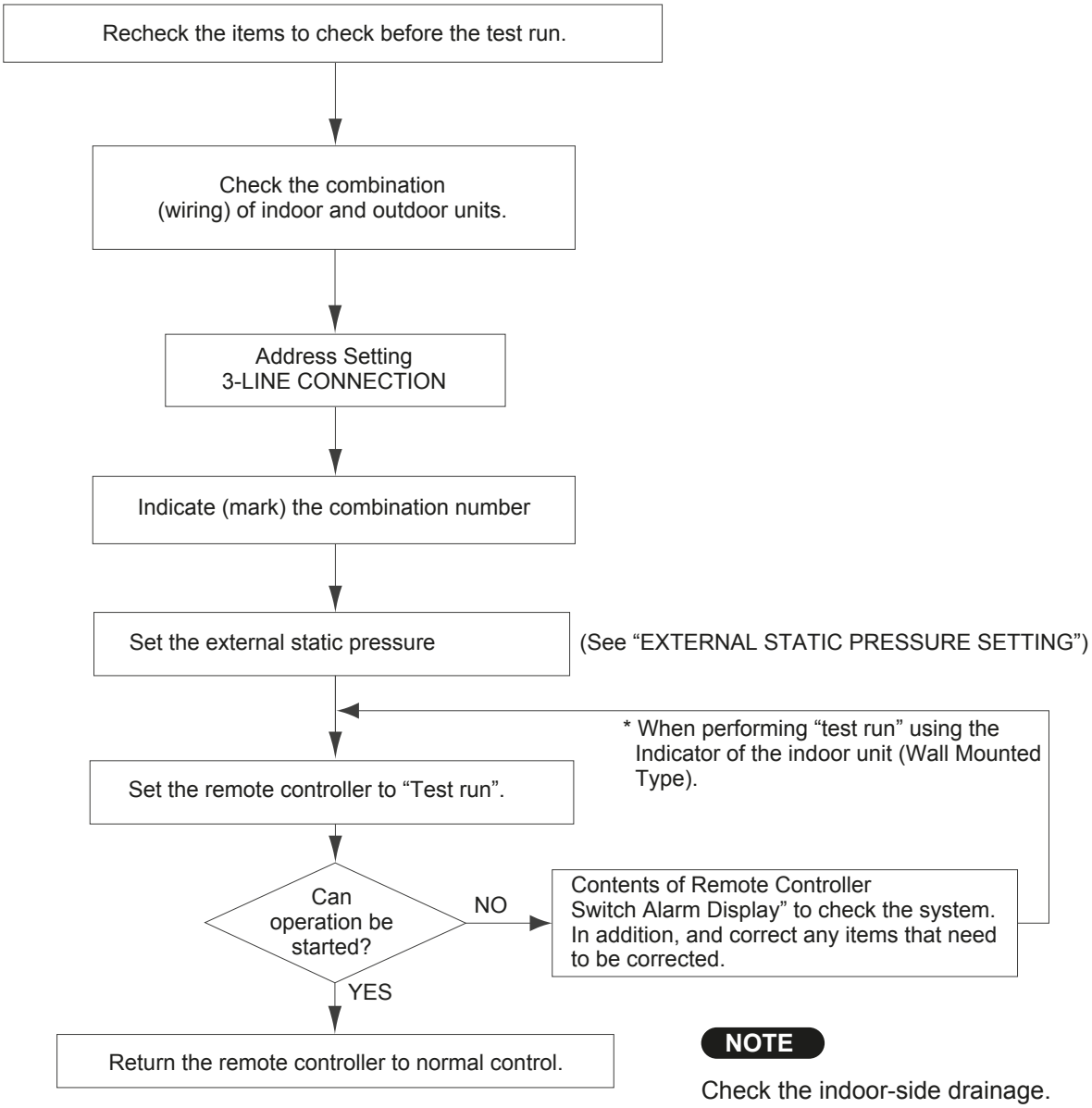
Fig. 2-4

■ **Indoor Units**

2-3. Caution

- **This unit may be used in a single-type refrigerant system where 1 outdoor unit is connected to 1 indoor unit.**
- **The indoor and outdoor unit control PCB utilizes a semiconductor memory element (EEPROM). The settings required for operation were made at the time of shipment. Only the correct combinations of indoor and outdoor units can be used.**
- **This test run section describes primarily the procedure when using the wired remote controller.**

2-4. Test Run Procedure



NOTE

Check the indoor-side drainage.

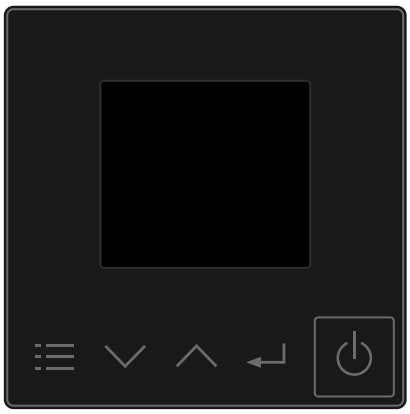
Fig. 2-5

2-5. Items to Check Before the Test Run

(1) Turn the remote power switch ON at least 12 hours in advance in order to energize the crankcase heater.
(2) Fully open the closed valves on the liquid-tube and gas-tube sides.

2-6. Test Run Using the Remote Controller

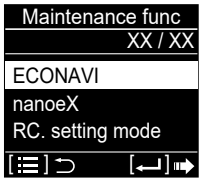
<Procedure of CZ-RTC6 series>



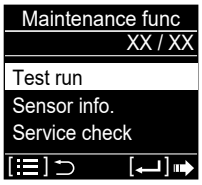
CZ-RTC6 series

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

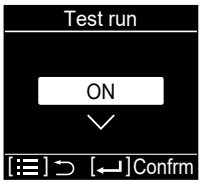
(1) Keep pressing the ☰, ∧ and ↵ buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.



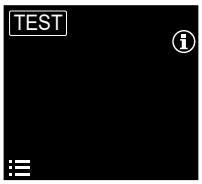
(2) Press the ∨ or ∧ button to see each menu.
Select “Test run” on the LCD display and press the ↵ button.



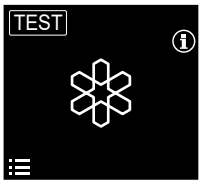
Change the display from “OFF” to “ON” by pressing the ∨ or ∧ button.
Then press the ↵ button.



(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, see “2-3-1-5. Contents of Remote Controller Switch Alarm Display”.)

(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.

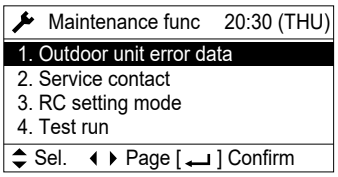
NOTE

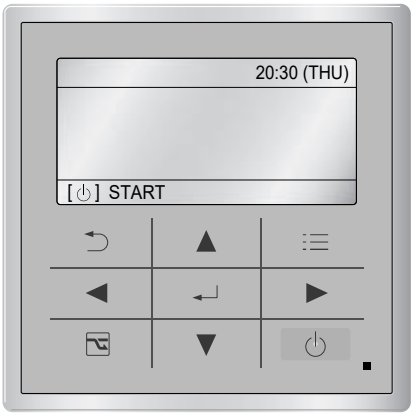
- The outdoor units will not operate for approximately 3 minutes after the power is turned ON and after operation is stopped.
- If the test run is performed using the wired remote controller, operation is possible even if the cassette-type ceiling panel has not been installed. (“P09” display does not occur.)

<Procedure of CZ-RTC5B>

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

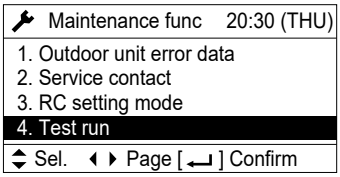
(1) Keep pressing the [↩], [↵] and [▶] buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.



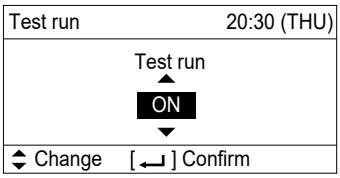


CZ-RTC5B

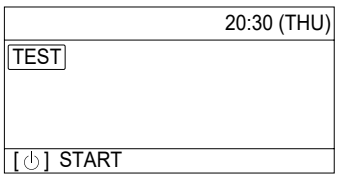
(2) Press the [▼] or [▲] button to see each menu.
If you wish to see the next screen instantly, press the [◀] or [▶] button.
Select “4. Test run” on the LCD display and press the [↵] button.



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

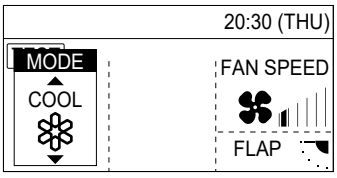


(3) Press the [↩] button. “TEST” will be displayed on the LCD display.

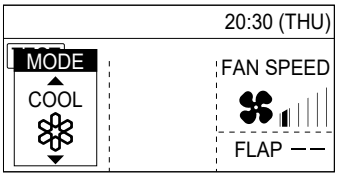


(4) Press the [⏻] button. Test run will be started.
Test run setting mode screen appears on the LCD display.
- The test run can be performed using the HEAT, COOL, or FAN operation mode.
- The temperature cannot be adjusted when in test run mode.
- If correct operation is not possible, a code is displayed on the remote controller LCD display. (Regarding the alarm contents, see “2-3-1-5. Contents of Remote Controller Switch Alarm Display”.)

- **4-Way Cassette Type**
- **Wall Mounted Type**
- **Ceiling Type**
- **4-Way Cassette 60 × 60 Type**



- **Middle Static Pressure Duct Type**



(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 ONand after operation is stopped.
- If the test run is performed using the wired remote controller, operation is possible even if the cassette-type ceiling panel has not been installed. (“P09” display does not occur.)

<Procedure of CZ-RTC4 / CZ-RTC4A>

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

(1) Press the remote controller button for 4 seconds or longer.

Then press the button.

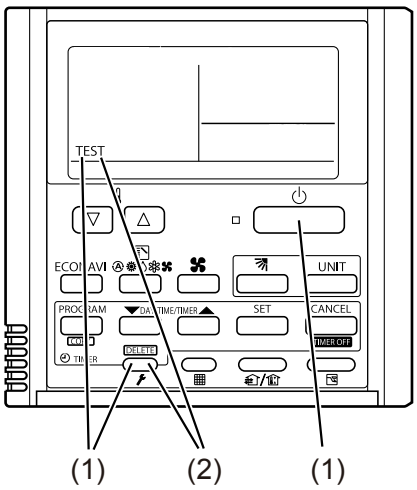
"TEST" appears on the LCD display while the test run is in progress.

- 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 remote controller LCD display. (Regarding the alarm contents, see "2-3-1-5. Contents of Remote Controller Switch Alarm Display")

(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 remote controller includes a timer function that cancels the test run after 60 minutes.



CZ-RTC4

NOTE

- The outdoor units will not operate for approximately 3 minutes after the power is turned ON and after operation is stopped.
- If the test run is performed using the wired remote controller, operation is possible even if the cassette-type ceiling panel has not been installed. ("P09" display does not occur.)

2.7. Contents of Remote Controller Switch Alarm Display

ON: ○ Blinking: ☼ OFF: ●

Abnormal display		Wireless remote controller receiver display: Operation	Timer	Standby	Alarm contents		Error location
Remote controller • Indoor Unit	E01	Operating lamp blinking	●	●	Faulty remote controller		• Replace the remote controller
					Disconnection / Contact failure of remote controller wiring		• Correct the remote controller wiring
					CHK (check) pins on the indoor unit control PCB are short circuited		• Remove the short
					In the case of non-group control: • Power supply OFF of outdoor unit • Disconnection / Contact failure of indoor / outdoor control line* In the case of group control: Auto address operation was not carried out		• Execute auto address setting
					Faulty setting of EEPROM (IC010) on indoor unit		• Replace the indoor unit EEPROM
	E02				Faulty remote controller		• Replace the remote controller
					Wrong wiring of remote controller		• Correct the remote controller wiring
	E03				Error in indoor unit receiving signal from remote controller (central)		• Check the indoor unit control PCB • Check the remote controller wiring • Check the indoor / outdoor control line*
	E04	Standby lamp blinking	●	☼	Disconnection / Contact failure of indoor / outdoor control line*		• Check the electrical connection of indoor / outdoor control line* • Replace the indoor unit control PCB • Replace the outdoor unit control PCB • Check the electrical connection of fuse (F302) on indoor unit control PCB In the case of the fuse opened on an indoor unit control PCB, after correcting wiring connection, it substitutes an EMG plug for OC plug
					• Faulty indoor unit control PCB • Faulty outdoor unit control PCB • Communication circuit fuse (F302) on indoor unit control PCB opened		
					• Fuse on outdoor unit control PCB opened Since failure of an outdoor fan motor is considered as a cause, both outdoor unit control PCB(CR/HIC) and outdoor unit fan motor are exchanged simultaneously		In the case of the fuse opened on an outdoor unit control PCB, replace both outdoor unit control PCB (CR / HIC) and outdoor unit fan motor simultaneously
					・Setting error of indoor unit address ・Capacity of indoor / outdoor units is mismatched.		• Capacity and address re-setting after correcting the combination of units
	E08	Operating lamp blinking	☼	●	Duplication of indoor unit address setting		• Indoor unit address re-setting
	E09				Error because of more than one remote controller setting to main		• Correct the setting
	E10				Communication error between fan motor & main PCB for indoor unit		• CN-AC connector disconnected/unplug • Indoor unit fan motor PCB fuse open • Indoor unit fan motor PCB malfunction • CN-LM connector disconnected/unplug
	E14				Duplication of main unit in group control		• Check the indoor / outdoor control line* • Check the indoor unit combination
	E18				• Disconnection of wiring between main unit and additional units • Contact failure of wiring • Faulty indoor unit control PCB (Main or Addition)		• Correct the wiring connection • Replace the wiring • Replace the indoor unit control PCB
	E15	Standby lamp blinking	●	☼	Auto address alarm	The total capacity of indoor units is too low.	• Check the indoor / outdoor control line* • Check the indoor and outdoor unit control PCB • Check the power supply • Capacity and address re-setting after correcting the combination of units
	E16					• The total capacity of indoor units is too high • The numbers of indoor units is too many	
	F01	Operating and timer lamp blinking alternately	☼	●	Indoor heat exchanger temperature sensor (E1) trouble		• Check the indoor unit heat exchanger temperature sensor (E1) • Check the indoor unit control PCB
	F02				Indoor heat exchanger temperature sensor (E2) trouble		• Check the indoor unit heat exchanger temperature sensor (E2) • Check the indoor unit control PCB
	F10				Indoor air temperature sensor (TA) trouble		• Check the indoor unit air temperature sensor (TA) • Check the indoor unit control PCB
	F29	Operating and timer lamp blinking simultaneously	☼	●	Indoor unit EEPROM trouble		• Check the indoor unit EEPROM • Check the indoor unit control PCB
	L02	Operating and standby lamps blinking simultaneously	●	☼	Setting error, indoor / outdoor unit type / model mismatched		• Address re-setting after correcting the combination of units
	L03				Duplication of main indoor unit address in group control		• Correct the group (main and addition)
	L07				Group control wiring is connected to individual control indoor unit		• Correct the indoor unit address
	L08				Indoor unit address is not set		• Correct the indoor unit address
	L09				Indoor unit capacity is not set		• Correct the capacity setting of indoor units

* indoor / outdoor control line* : Connection cable between outdoor and indoor unit

ON: ○ Blinking: ☼ OFF: ●

Abnormal display		Wireless remote controller receiver display			Alarm contents	Error location
		☼⏻ Operation	◴ Timer	✺ Standby		
Remote controller • Indoor Unit	P01	Timer and standby lamp blinking alternately ●	☼	☼	Indoor unit fan motor locked	• Remove the cause
					Indoor unit fan motor layer short	• Replace the fan motor
					Contact failure in thermostat protector circuit	• Correct the wiring
	P09				Faulty wiring connections of (ceiling) indoor unit panel	• Correct the wiring connection • Correct insertion direction of connector. (Hook is outside)
	P10				Faulty drain pump	• Repair / Replace
					Drainage failure	• Correct
					Contact failure of float switch wiring	• Correct the wiring
					High water alarm for the case of Middle static pressure duct (PF) model installed vertically	• Change the setting
	P11				Faulty drain pump	• Repair / Replace
					Drain pump locked	• Remove the cause
	P12				Indoor unit fan motor locked Faulty wiring connections of indoor unit fan motor	• Remove the cause • Correct the wiring
	P31	Operating and standby lamp blinking alternately ☼	●	☼	Indoor unit in group control trouble	• Repair indoor unit which blinking alarm

ON: ○ Blinking: ☼ OFF: ●

Abnormal display		Wireless remote controller receiver display: Operation	Timer	Standby	Alarm contents		Error location
Outdoor Unit	E06	Standby lamp blinking	●	●	☼	• Disconnection / Contact failure of indoor / outdoor control line*	Correct the indoor / outdoor control line* • Check the electrical connection of fuse(F302) on indoor unit control PCB In the case of the fuse opened on an indoor unit control PCB, After correcting wiring connection, it substitutes an EMG plug for OC plug.
						• Disconnection of indoor / outdoor control line* • Communication circuit fuse (F302) on indoor unit control PCB opened	
						Indoor unit control PCB address setting error	• Indoor unit address re-setting
	E15	Standby lamp blinking	●	●	☼	Auto address alarm: The total capacity of indoor units is too low.	• Check the power supply • Check the indoor and outdoor unit control PCB • Check the power supply • Capacity and address re-setting after correcting the combination of units
	E16					Auto address alarm: • The total capacity of indoor units is too high • The numbers of indoor units is too many	
	E20					Auto address alarm: No indoor unit connected	
	F04	Operating and timer lamp blinking alternately	☼	☼	○	Compressor discharge temperature sensor (TD) trouble	• Check the Compressor discharge temperature sensor (TD) • Check the outdoor unit control PCB
	F06					Outdoor heat exchanger temperature sensor (C1) trouble	• Check the outdoor unit heat exchanger temperature sensor (C1) • Check the outdoor unit control PCB
	F07					Outdoor heat exchanger temperature sensor (C2) trouble	• Check the outdoor unit heat exchanger temperature sensor (C2) • Check the outdoor unit control PCB
	F08					Outdoor air temperature sensor (TO) trouble	• Check the outdoor air temperature sensor (TO) • Check the outdoor unit control PCB
	F12					Compressor suction temperature sensor (TS) trouble	• Check the Compressor suction temperature sensor (TS) • Check the outdoor unit control PCB
	F31	Operating and timer lamp blinking alternately	☼	☼	○	Outdoor unit EEPROM trouble	• Check the outdoor unit EEPROM • Check the outdoor unit control PCB
	H01	Timer lamp blinking	●	☼	●	Primary (input) overcurrent detected	• Check the Refrigerant cycle (abnormal overload operation) • Check the outdoor unit control PCB • Check the power supply
	H02					PAM trouble	• Check the outdoor unit control PCB • Compressor locked • Check the power supply
	H03					Primary current CT sensor failure	• Check the outdoor unit control PCB • Check the power supply
	H31					HIC trouble DC voltage not detected	• Check the outdoor unit control PCB • Check the HIC • Compressor locked • Valve blockage
	L10	Operating and standby lamps blinking simultaneously	☼	○	☼	Outdoor unit capacity is not set or setting error	• Replace the outdoor unit EEPROM
	L13					Indoor unit type setting error Type of indoor / outdoor units is different	• Replace the indoor unit EEPROM • Check the outdoor unit control PCB • Check the type of IU and OU, and re-set address
	L18					4-way valve locked trouble / operation failure	• Check the 4-way valve • Check the 4-way valve wiring • Check the outdoor unit control PCB
	P03	Operating and standby lamp blinking alternately	☼	●	☼	Compressor discharge temperature trouble	• Check the refrigerant cycle (gas leak) • Trouble with the electronic expansion valve • Check the discharge temperature sensor (TD)
	P04					Compressor discharge pressure trouble	• Check the refrigerant cycle • Valve blockage • Heat exchanger obstruction
	P05					Open phase detected AC power supply trouble	• Check the power supply • Check the outdoor unit control PCB • Check the compressor wiring ,and reactor wiring

* indoor / outdoor control line* : Connection cable between outdoor and indoor unit

ON: ○ Blinking: ☼ OFF: ●

Abnormal display		Wireless remote controller receiver display Operation / Timer / Standby	Alarm contents	Error location
Outdoor Unit	P13	Timerand standby lamp blinking alternately ● ☼ ☼	Valve error Refrigerant circuit error. Wrong installation for refrigerant piping and wiring	• Valve blockage • Check the refrigerant circuit • Check the refrigerant piping and wiring installation
	P15	Operating and standby lamp blinking alternately ☼ ● ☼	Insufficient gas level detected	• Check the refrigerant cycle (gas leak) • Trouble with the electronic expansion valve • Valve (or refrigerant circuit) blockage
	P16		Compressor overcurrent trouble	• Layer short on the compressor • Check the outdoor unit control PCB • Compressor locked
	P22		Outdoor unit fan motor trouble Outdoor unit fan trouble	• Check the outdoor unit fan motor, connector • Check the outdoor unit control PCB
	P29		Inverter compressor trouble	• Layer short on the compressor • Check the outdoor unit control PCB • Check the inverter compressor wiring (Open phase / Reverse phase) • Compressor actuation failure (include lock) • Valve (or refrigerant circuit) blockage
	P31		Indoor unit in group control trouble	• Repair indoor unit which blinking alarm

2.8. System Control

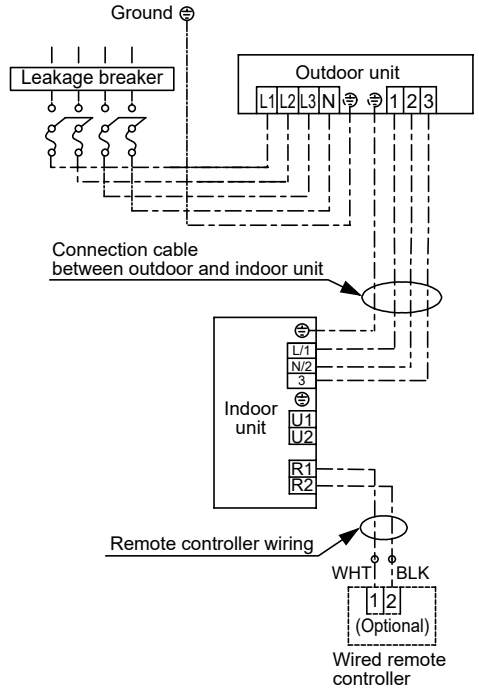
System control refers to the link wiring connection for control of simultaneous-operation multi systems, group control, and main-sub remote controller control.

2-3-1-6-1. Basic wiring diagram : 3-LINE CONNECTION

- Be careful to avoid miswiring when connecting the wires. (Miswiring will damage the units.)

(for 3-phase Outdoor unit)

(Example of SINGLE type)



(Wiring procedure)

(1) Connect the remote controller to the indoor unit remote controller wiring terminal plate (R1, R2).
(Remote controller wiring)

(2) Connect the indoor units (L / 1, N / 2, 3) and the outdoor units (1, 2, 3).
Connect the remote controller communication wiring to the indoor units (R1, R2) for each refrigerant system.
(Remote controller wiring)

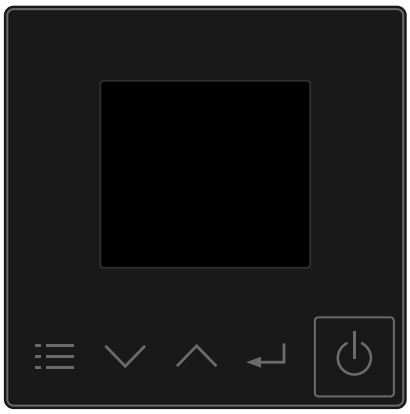
(3) Connect the remote controller communication wiring (2 wires) from the remote controller wiring terminal plate (R1, R2) on the indoor unit (unit where the remote controller is connected) to the remote controller terminal plates (R1, R2) on the other indoor units. (Remote controller communication wiring)

(4) Turn ON both the indoor and outdoor unit power and perform auto address setting from the remote controller.
(For the auto address setting procedure, see 2-3-1-6-3.)

NOTE

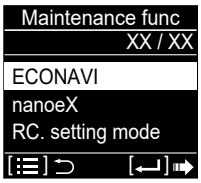
* Be sure to use the indoor unit temperature sensor (body sensor) when using this control. (Status at shipment.)

2-3-1-6-3. Auto Address Setting Using the Remote Controller
<Procedure of CZ-RTC6 series>

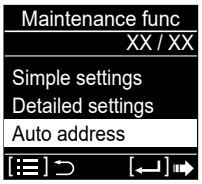


CZ-RTC6 series

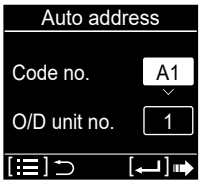
(1) Keep pressing the ☰, ∧ and ↵ buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.



(2) Press the ∨ or ∧ button to see each menu.
Select “Auto address” on the LCD display and press the ↵ button.

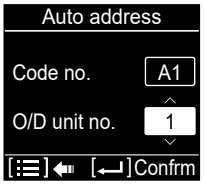


(3) The “Auto address” screen appears on the LCD display.
Select the “Code no.” to “A1” by pressing the ∨ or ∧ button.

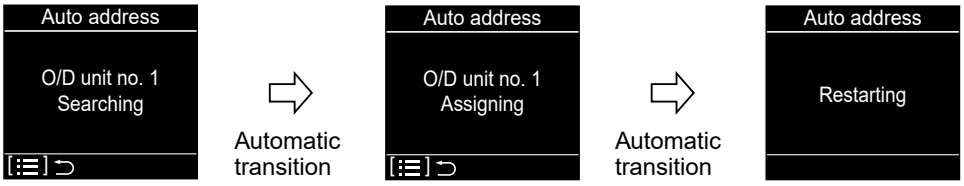


After selecting “Code no.”, press the ↵ button and proceed to Step (4).
If the ☰ button is pressed, proceed to Step (5).

(4) Select one of the “O/D unit no.” for auto address by pressing the ∨ or ∧ button.

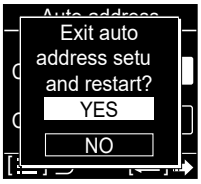


After selecting “O/D unit no.”, press the ↵ button.



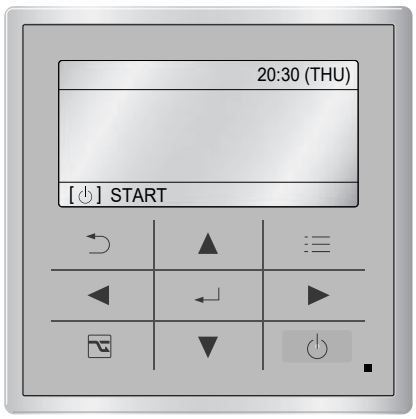
Approximately 10 minutes are required.
When auto address setting is completed, the units return to normal stopped status.

(5) If the ☰ button is pressed under the display Step (3), the following display (Auto address-end screen) appears.
Then select “YES” by pressing the ∨ or ∧ button and press the ↵ button.



<Procedure of CZ-RTC5B>

(1) Keep pressing the [↩], [↵] and [▶] buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.



CZ-RTC5B

Maintenance func 20:30 (THU)
1. Outdoor unit error data
2. Service contact
3. RC setting mode
4. Test run
↕ Sel. ◀ ▶ Page [↵] Confirm

(2) Press the [▼] or [▲] button to see each menu.
If you wish to see the next screen instantly, press the [◀] or [▶] button.
Select “9. Auto address” on the LCD display and press the [↵] button.

Maintenance func 20:30 (THU)
9. Auto address
10. Set elec. consumption
11. Set touch key
12. Check touch key
↕ Sel. ◀ ▶ Page [↵] Confirm

(3) The “Auto address” screen appears on the LCD display.
Change the “Code no.” to “A1” by pressing the [▼] or [▲] button.

Auto address	20:30 (THU)
Code no.	O/D unit no.
▲ A1 ▼	1
↕ Sel. ▶ Next	

(4) Select the “O/D unit no.” by pressing the [◀] or [▶] button.
Select one of the “O/D unit no.” by pressing the [▼] or [▲] button and press the [↵] button for auto address setting.
Approximately 10 minutes are required.
When auto address setting is completed, the units return to normal stopped status.

<Procedure of CZ-RTC4 / CZ-RTC4A>

NOTE

- Selecting each refrigerant system individually for auto address setting
- Auto address setting for each system : Item code “A1”

(1) Press the remote controller timer time /TIMER button and button at the same time.
(Press and hold for 4 seconds or longer.)

(2) Next, press either the temperature setting ▽ / △ button.
(Check that the item code is “A1”.)

(3) Use either the UNIT button to set the system No. to perform auto address setting.

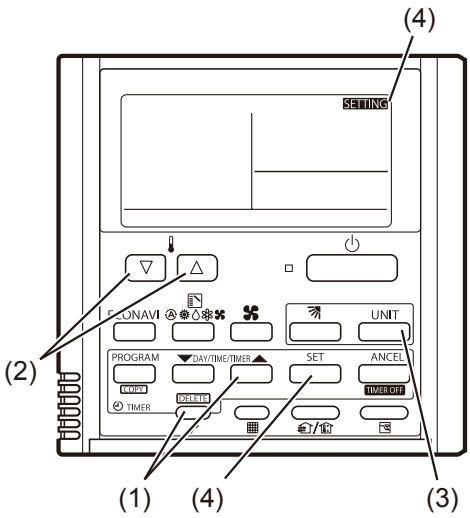
(4) Then press the SET button.

(Auto address setting for one refrigerant system begins.)
(When auto address setting for one system is completed, the system returns to normal stopped status.)

<Approximately 10 minutes are required.>

(During auto address setting, “SETTING” is displayed on the remote controller.

This message disappears when auto address setting is completed.)



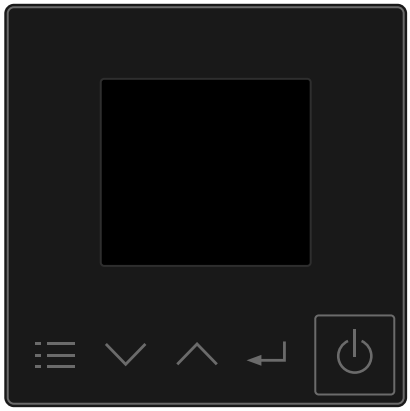
CZ-RTC4 / CZ-RTC4A

(5) Repeat the same steps to perform auto address setting for each successive system.

2-3-1-6-4. Checking the Indoor Unit Addresses

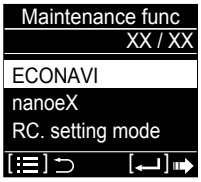
Use the remote controller to check the indoor unit address.

<Procedure of CZ-RTC6 series>

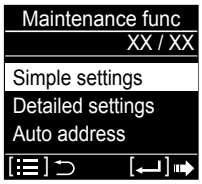


CZ-RTC6 series

(1) Keep pressing the ☰, ∧ and ↵ buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.



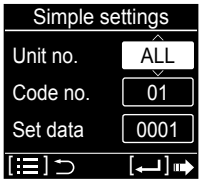
(2) Press the ∨ or ∧ button to see each menu.
Select “Simple settings” on the LCD display and press the ↵ button.



(3) The “Simple settings” screen appears on the LCD display.
Select the “Unit no.” by pressing the ∨ or ∧ button for changes.

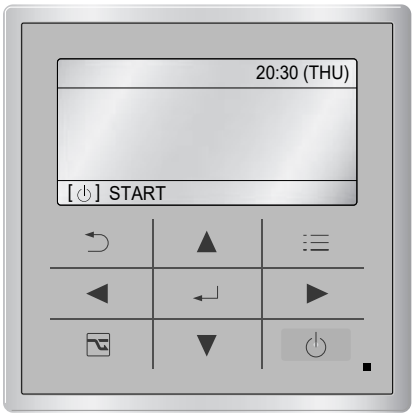
* The initial display is “ALL”.

The indoor unit fan operates only at the selected indoor unit.



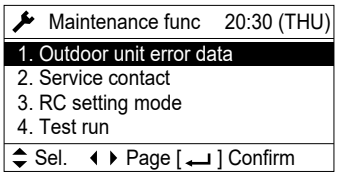
(4) Press the ☰ button and select “YES” to restart.

<Procedure of CZ-RTC5B>

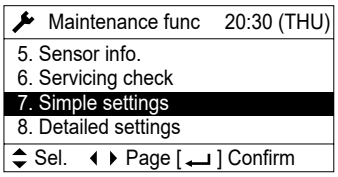


CZ-RTC5B

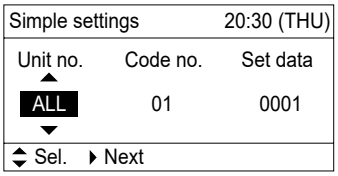
(1) Keep pressing the ⮌ , ↵ and ▶ buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.



(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.



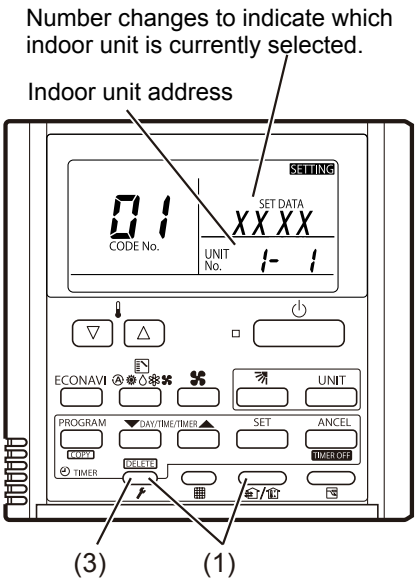
(3) The “Simple settings” screen appears on the LCD display.
Select the “Unit no.” by pressing the ▼ or ▲ button for changes.
* The initial display is “ALL”.
The indoor unit fan operates only at the selected indoor unit.



(4) Press the ⮌ button and select “YES” to restart.

<Procedure of CZ-RTC4 / CZ-RTC4A>
<If 1 indoor unit is connected to 1 remote controller>

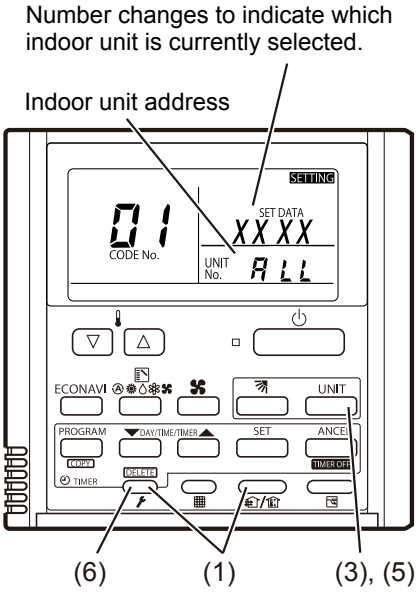
(1) Press and hold the button and button for 4 seconds or longer (simple settings mode).
(2) The address is displayed for the indoor unit that is connected to the remote controller.
(Only the address of the indoor unit that is connected to the remote controller can be checked.)
(3) Press the button again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



CZ-RTC4

<If multiple indoor units are connected to 1 remote controller (group control)>

(1) Press and hold the button and button for 4 seconds or longer (simple settings mode).
(2) "ALL" is displayed on the remote controller.
(3) Next, press the UNIT button.
(4) The address is displayed for 1 of the indoor units which is connected to the remote controller. Check that the fan of that indoor unit starts and that air is discharged.
(5) Press the UNIT button again and check the address of each indoor unit in sequence.
(6) Press the button again to return to normal remote controller mode.

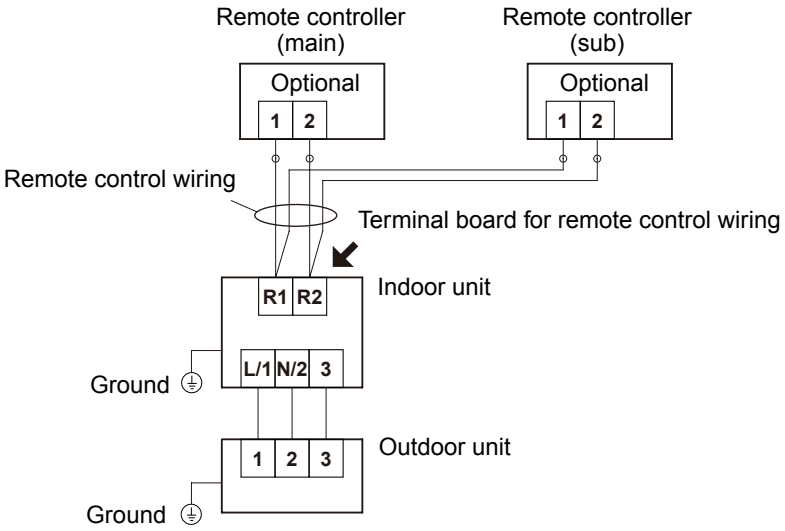


CZ-RTC4

2-3-1-6-5. Main-Sub Remote Controller Control

One (1) indoor unit can be controlled by two (2) wired remote controllers. In the case of using 2 remote controllers, one of them needs to be designated as the sub remote controller.

Connecting 2 remote controllers to control 1 Indoor unit



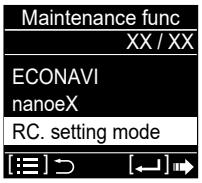
3-LINE CONNECTION

<Procedure of CZ-RTC6 series>

(1) Press and hold the ☰, ∧ and ↵ for 4 seconds or more simultaneously.

(2) Select “RC. setting mode”.

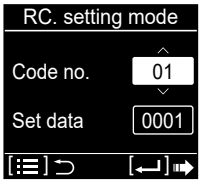
∨ ∧ → ↵

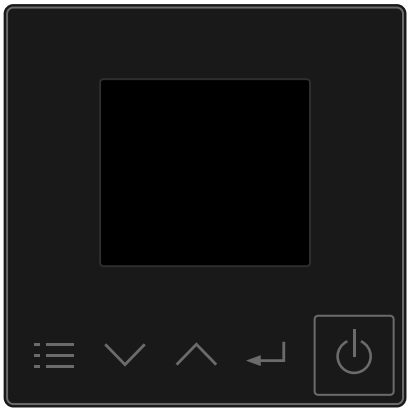


(3) Select the “Code no.” and “ Set data”.

∨ ∧ → ↵

(Repeat)





CZ-RTC6 series

Code no.	Item	Set data	
		0000	0001
01	Main/Sub	Sub	Main

(4) Press ☰

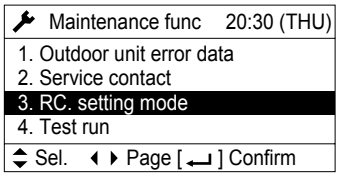
- After selecting “YES”, the unit restarts.

<Procedure of CZ-RTC5B>

(1) Press and hold the ⮌ , ↵ and ▶ for 4 seconds or more simultaneously.

(2) Select “3. RC. setting mode”.

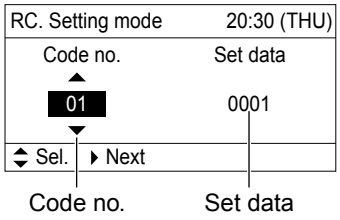
▲ ▼ → ↵



(3) Select the “Code no.” and “Set data”.

▲ ▼ → ▶ → ↵

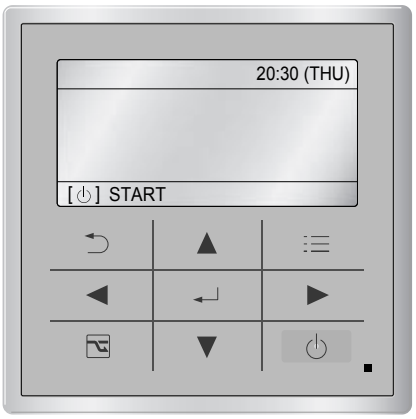
(Repeat)



Code no.	Item	Set data	
		0000	0001
01	Main / Sub	Sub	Main

(4) Press ⮌.

• After selecting “YES”, the unit restarts.



CZ-RTC5B

<Procedure of CZ-RTC4 / CZ-RTC4A>

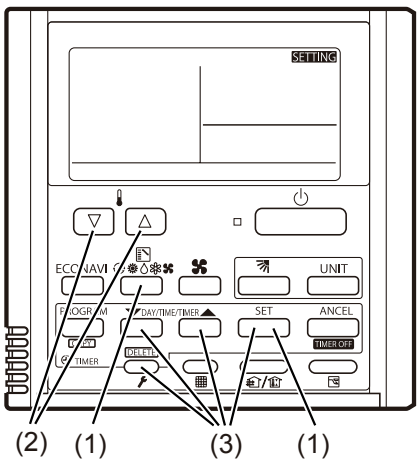
(1) Press and hold the ☼❄♨❄ and SET buttons for several seconds simultaneously.

(2) Select the Code no. ▽ / △

(3) Select the Set data. ▼DAY/TIME/TIMER▲ → SET

The indicator illuminates after blinking. Press ⚲.

Code no.	Item	Set data	
		0000	0001
01	Main / Sub	Sub	Main

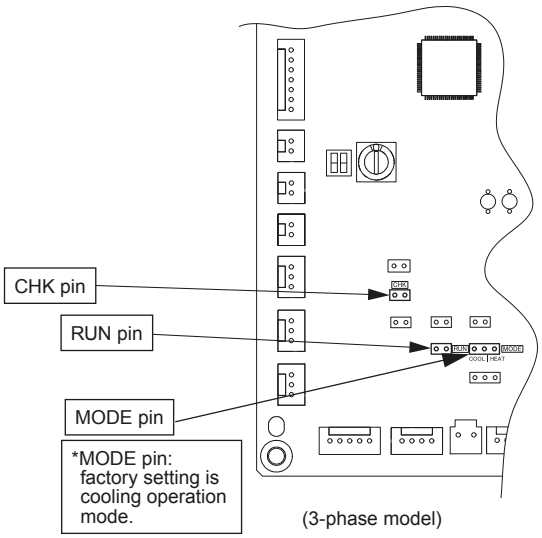


CZ-RTC4 / CZ-RTC4A

■ **Outdoor Units**

2-9. Test Run Procedure

- If there are duplicated system addresses, or if the settings for the Nos. of the indoor units are not consistent, an alarm will occur and the system will not start.
- Switch the power supply ON both indoor and outdoor unit.
- Short-circuit CHK pin on the outdoor main PCB. Do not remove CHK pin until test run is completed. Removing CHK pin stops test run.
- Short-circuit RUN pin on the outdoor main PCB for one second or longer.
  Factory setting is cooling operation mode and cooling operation test run starts.
  If heating operation starts, short-circuit both right side and centre of the MODE pin (centre and COOL) continuously.
- Ensure to conduct a test run. In addition, be sure to run the cooling operation test run for at least 20 minutes before starting the heating operation test run.
- To conduct heating operation test run, short-circuit left side and centre of the MODE pin (centre and HEAT) continuously.
- Removing CHK pin's and MODE pin's short-circuit stops test run.
- For the test run using remote controller, please see installation instructions included with the remote controller.



2-10. CHECKS AFTER INSTALLATION HAVE COMPLETED

- Check the following items after completing installation.
  - ☐ Is there a short circuit with the intake air flow?
  - ☐ Is the insulation secure? (Refrigerant tubing)
  - ☐ Are there any errors with the wiring?
  - ☐ Are the terminal screws loose? Tightening torque (Unit: N•m {kgf•cm})
    M4...1.57~1.96{16~20}, M5...1.96~2.45{20~25}
  - ☐ Is the drain water flowing smoothly?
  - ☐ Is the insulation material properly installed?
  - ☐ Is the earth wire securely connected?
  - ☐ Is the front panel and the indoor unit air conditioner firmly fixed and was the installation completed without any leakage from the refrigerant?
  - ☐ Are the indoor and outdoor units secured firmly installed with bolts at secured locations?

2-11. REGARDING DELIVERY TO THE CUSTOMER

- Request the customer to review the operating instructions and explain the operating method for the product.
- In addition, it is also recommended that regular inspection checks are agreed upon for maintenance.

User inspection places	• Grill cleaning
	• Exterior cleaning
Serviceman inspection places	• Check the operating status
	• Clean the drain pan or things related to the water discharge
	• Heat exchanger cleaning

2-12. Caution for Pump Down

Pump down means refrigerant gas in the system is returned to the outdoor unit. Pump down is used when the unit is to be moved, or before servicing the refrigerant circuit.

How to perform Pump-Down (Refrigerant recovery) properly

(1) Stop operation of the unit (cooling, heating etc.).

(2) Connect the pressure gauge to the service port of the gas tubing valve.

(3) Short-circuit the “PUMPDOWN” pin on an outdoor unit control PCB (CR) for more than 1 second to release.

- Pump-Down begins and the unit starts operating.
- During Pump-Down, LED1 blinks and LED2 is lit on an outdoor unit control PCB (CR).
- “CHK” blinks on the remote controller.

(4) Fully close the liquid tubing valve 2-3 minutes later.
The Pump-Down will begin.

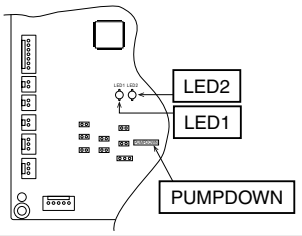
(5) When the pressure gauge drops to 0.1-0.2MPa, close the gas tubing valve tightly and short-circuit the “PUMPDOWN” pin for more than 1 second to release. That is the end of Pump-Down.

- When running for more than 10 minutes, it stops even if the Pump-Down is not completed. Check the blocked state of the liquid tubing valve.
- It also stops when the “PUMPDOWN” pin is short-circuited during the operation.

* For compressor protection, do not operate to the point where the unit wiring side reaches negative pressure.

Note : If maximum charge-less pipe length is exceeded, do not pump-down with running compressor only.
(It may trigger the overload protection control).
In this case, use pump-down device.

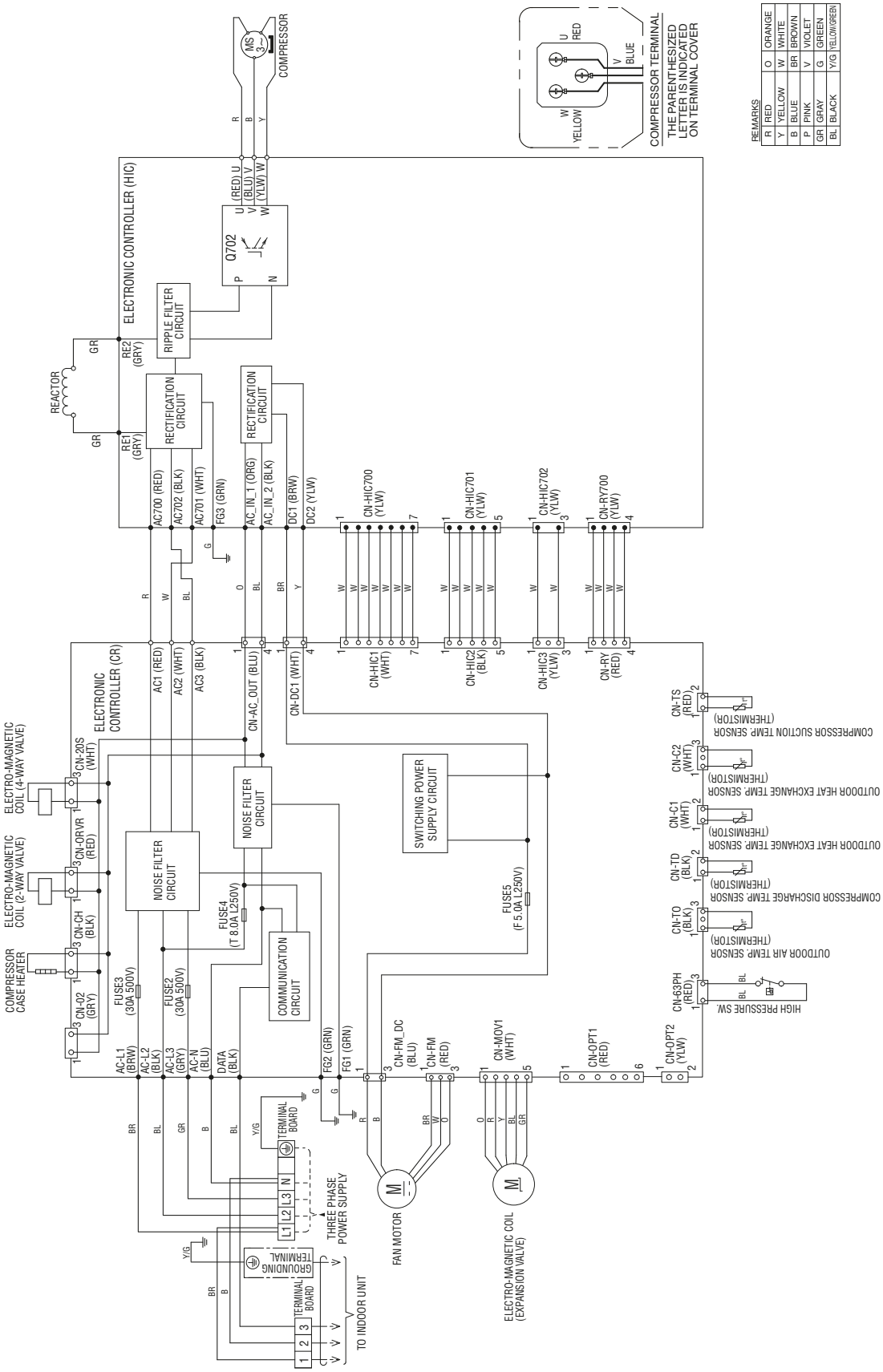
OUTDOOR UNIT CONTROL PCB (CR)
3-PHASE MODEL



3. ELECTRICAL DATA

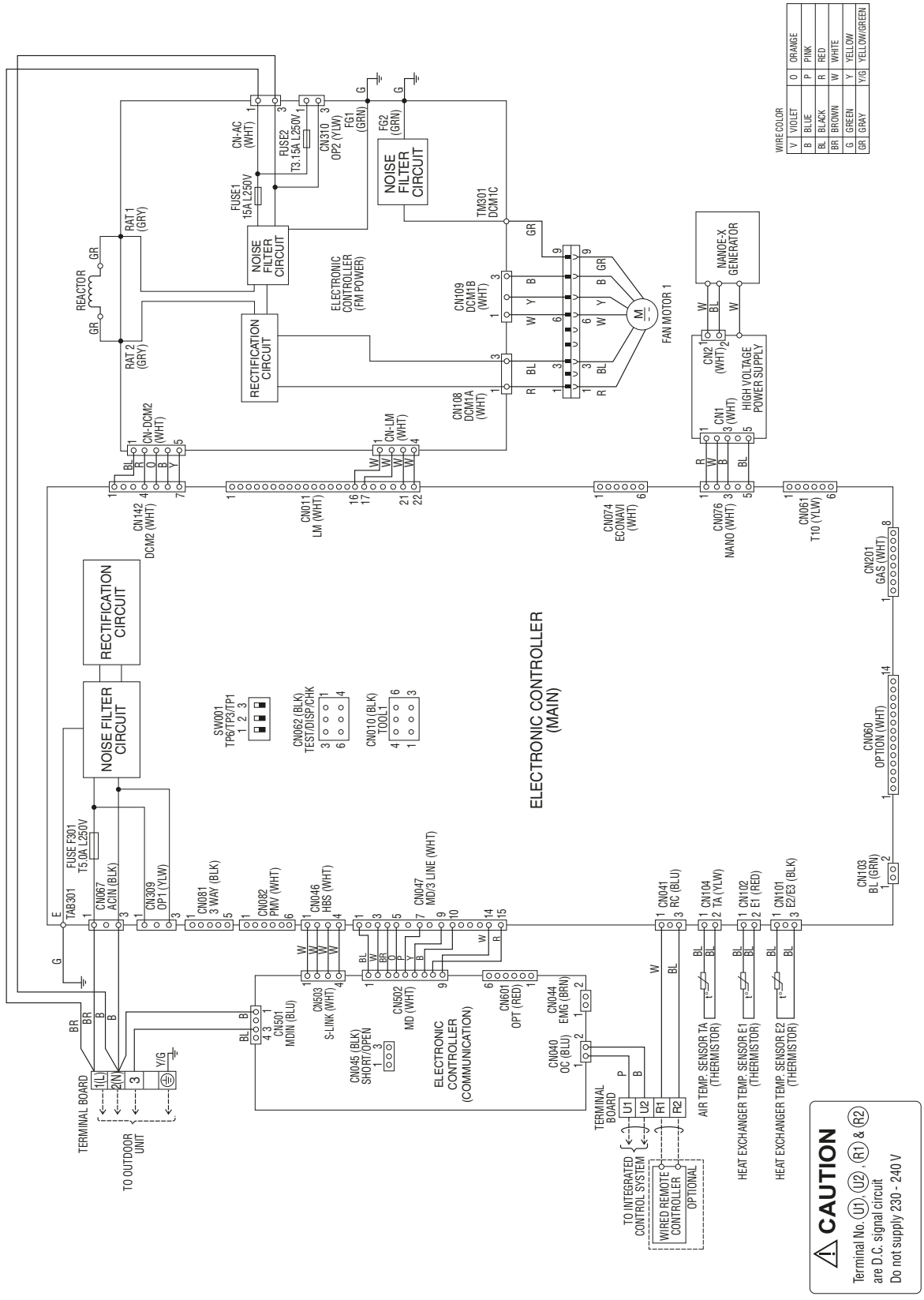
3-1. Outdoor Units (Electric Wiring Diagram)

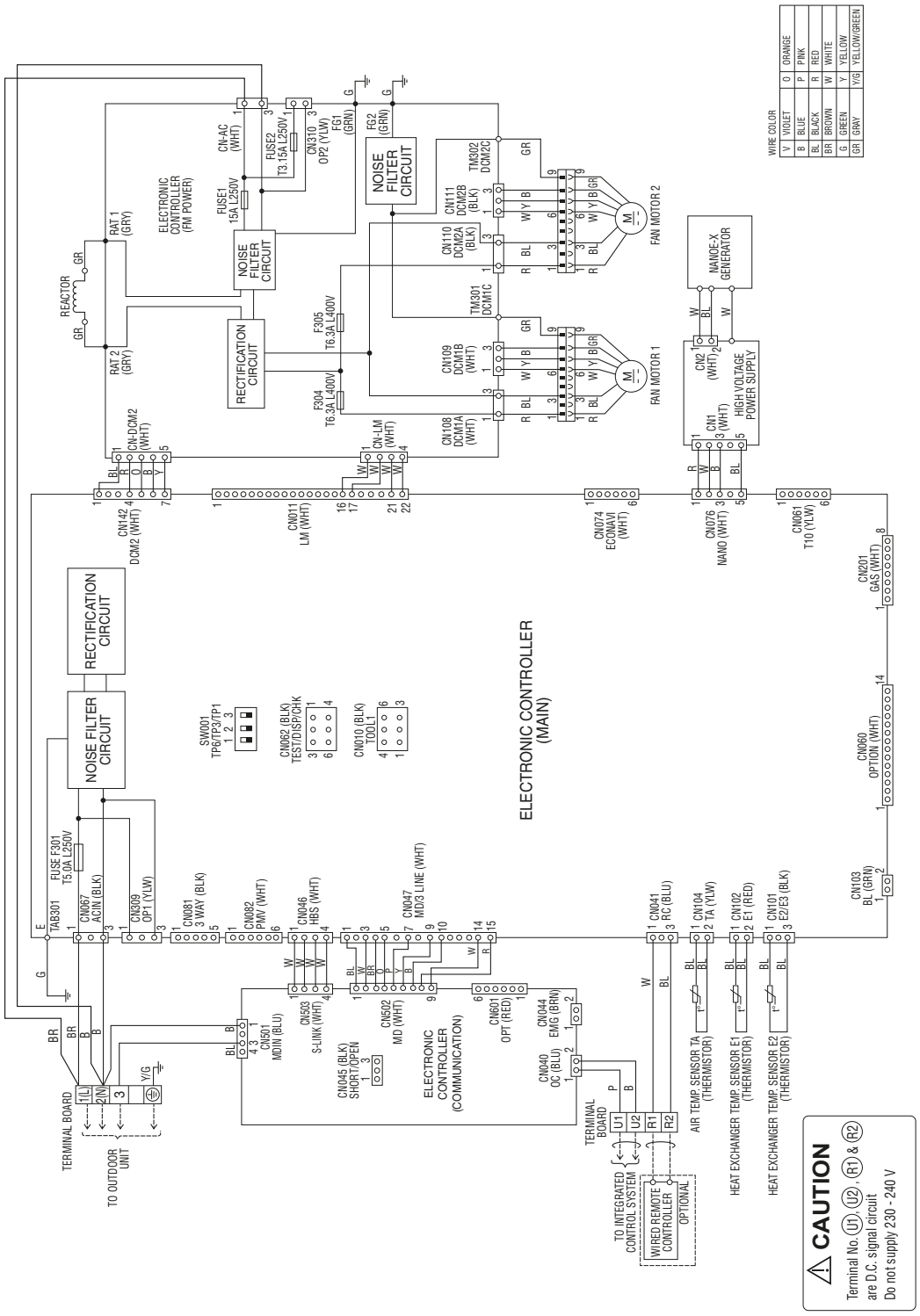
U-200PZH4E8, U-250PZH4E8



3-2. Indoor Units (Electric Wiring Diagram)

High Static Pressure Ducted Type S-200PE4E




ELECTRONIC CONTROLLER (MAIN)
NOISE FILTER CIRCUIT
RECTIFICATION CIRCUIT
ELECTRONIC CONTROLLER (FM POWER)
ELECTRONIC CONTROLLER (COMMUNICATION)
HIGH VOLTAGE POWER SUPPLY
NANOE-X GENERATOR
FAN MOTOR 1
FAN MOTOR 2
TERMINAL BOARD
TO OUTDOOR UNIT
TO INTEGRATED CONTROL SYSTEM
(WIRED REMOTE CONTROLLER) OPTIONAL
AIR TEMP. SENSOR TA (THERMISTOR)
HEAT EXCHANGER TEMP. SENSOR E1 (THERMISTOR)
HEAT EXCHANGER TEMP. SENSOR E2 (THERMISTOR)
REACTOR
RAT 1 (GRY)
RAT 2 (GRY)
FUSE1 15A L250V
FUSE2 T3.15A L250V
F304 T6.3A L400V
F305 T6.3A L400V
FUSE F301 T5.0A L250V
SW001 TP6/TP3/TP1
CN-AC (WHT)
CN310 OP2 (YLW)
FG1 (GRN)
FG2 (GRN)
CN142 DCM2 (WHT)
CN-DCM2 (WHT)
CN-LM (WHT)
CN011 LM (WHT)
CN108 DCM1A (WHT)
CN109 DCM1B (WHT)
CN110 DCM2A (BLK)
CN111 DCM2B (BLK)
TM301 DCM1C
TM302 DCM2C
CN074 ECONAVI (WHT)
CN076 NANO (WHT)
CN2 (WHT)
CN1 (WHT)
CN061 T10 (YLW)
CN201 GAS (WHT)
CN060 OPTION (WHT)
CN103 BL (GRN)
CN041 RC (BLU)
CN104 TA (YLW)
CN102 E1 (RED)
CN101 E2/E3 (BLK)
CN044 EMG (BRN)
CN040 CC (BLU)
CN601 OPT (RED)
CN502 MD (WHT)
CN503 S-LINK (WHT)
CN045 (BLK) SHORT/OPEN
CN501 MDIN (BLU)
CN047 MD/3 LINE (WHT)
CN046 HBS (WHT)
CN082 PMV (WHT)
CN081 3 WAY (BLK)
CN309 OP1 (YLW)
CN067 AC/N (BLK)
TAB301
CN062 (BLK) TEST/DISP/CHK
CN010 (BLK) TOOL
WIRE COLOR
V VIOLET
B BLUE
BL BLACK
BR BROWN
G GREEN
GR GRAY
O ORANGE
P PINK
R RED
W WHITE
Y YELLOW
Y/G YELLOW/GREEN
CAUTION
Terminal No. (U1), (U2), (R1) & (R2) are D.C. signal circuit
Do not supply 230 - 240 V

4. PROCESS AND FUNCTIONS

4-1. Control Functions

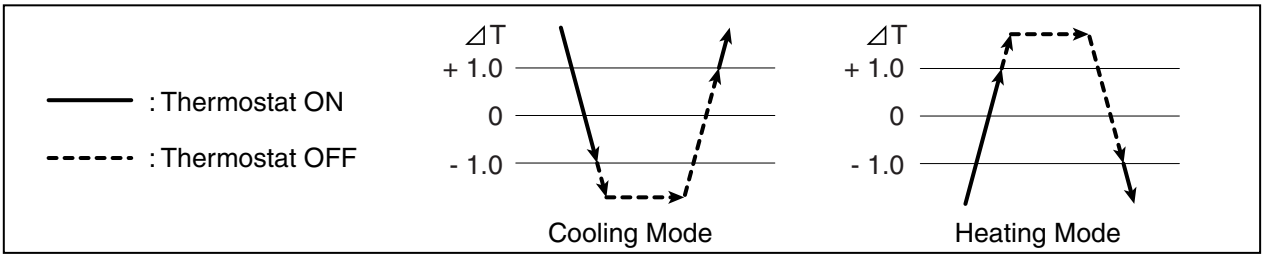
1. Indoor Air Temperature Control

The thermostat is switched on and off in accordance with ⊿ T shown below.

⊿ T= (Indoor air temperature) - (Temperature set with the remote controller)	
In the body thermostat mode (setting at factory shipment)	Indoor air temperature = (Body sensor) - (Shift temperature *)
In the remote controller thermostat mode	Indoor air temperature = (Remote controller sensor)

* Shift Temperature
Only valid during heating operation. Set at 0 °C during cooling operation.
The settings at factory shipment during heating operation are as follows:
Wall-Mounted type : 2°C
Floor Standing type : 0°C
All other types (4-Way types, Concealed types, etc.) : 4°C

This function acts as the coefficient for adjusting differences in temperature caused by the height of the living space from the floor to the ceiling (the temperature at ceiling height is higher) during heating operation.
The setting can be modified between 0°C and 6°C with mode [06] (Simple Settings Function) on the remote controller.



(1) Once the thermostat has been switched on, it cannot be switched off again by indoor air temperature control for a period of 10 minutes.
(2) Once the thermostat has been switched off, it cannot be switched on again for a period of 3 minutes.
(3) When in the test run operation mode, the thermostat will not be switched off by indoor air temperature control and the operation will continue.

2. Compressor Frequency Control

The frequency of the compressor's inverter is limited by either of the following controls depending on whether the cooling or heating mode is in operation.

Cooling Mode :

· Indoor air temperature control
· Maximum and minimum frequency control
· Current control
· Cooling high-load prevention control
· Cooling freeze prevention control
· Discharge temperature control

Heating Mode :

· Indoor air temperature control
· Maximum and minimum frequency control
· Current control
· Heating high-load prevention control
· Discharge temperature control

1) Indoor Air Temperature Control

By the control method, not only the thermostat is switched on and off, as explained section “1. Indoor Air Temperature Control”, but also the frequency of the compressor’s inverter is controlled in accordance with ⊿ T and fluctuations in indoor air temperature. Inverter frequency is controlled as follows:

When ⊿T is high (not yet reached the temperature set with the remote controller).	Controlled so that the inverter frequency is increased.
When ⊿T is low (approximately +1.0 or less in the cooling mode or approximately -1.0 or more in the heating mode).	Controlled so that the inverter frequency is decreased or kept.

2) Maximum and Minimum Frequency Control

The compressor's inverter frequency is controlled in accordance with the model and operation mode.
The maximum and minimum frequencies for each model are shown in the table below.

* There are cases in which frequency is limited with other control functions depending on operational conditions, so operations are not always carried out in accordance with the maximum frequencies listed below.

· Maximum and Minimum Frequency

		U-200PZH4E8	U-250PZH4E8
Maximum Frequency (Hz)	Cooling	70	80
	Heating	95	100
Minimum Frequency (Hz)	Cooling	13	13
	Heating	15	15

* There is a case in which the frequency set at maximum and minimum may sometimes decrease in accordance with ambient temperature and indoor loads.

3) Current Control

The inverter frequency is controlled so that the current value for the inverter compressor is less than the figure listed in the table below in order to prevent abnormal increases in the inverter circuit located within the outdoor unit's electrical box.

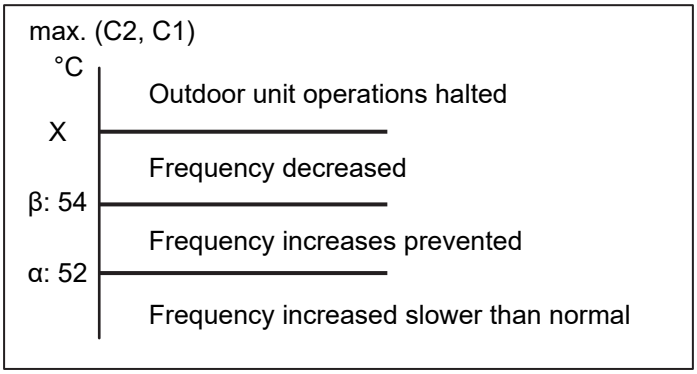
Current control with primary current : The limited values are modified in accordance with ambient temperature.

		U-200PZH4E8	U-250PZH4E8
Is (A)	Cooling	12.5	14.0
	Heating	15.0	16.5

4) Condensation Temperature Control (cooling)

This system control is performed to limit the inverter frequency in order to restrict high pressure's abnormal increase and high-load operating prevention in the cooling mode.
In accordance with the temperature of the outdoor heat exchanger temperature sensors (C1, C2), such controls are performed as to halting the operations of the indoor unit, decreasing the inverter frequency and restricting its increase, etc.

(a) The threshold value is decreased in accordance with the compressor frequency or indoor load (differences of temperature).
(b) When "X" values are lowered, the results basically become β=X-2, α=X-3.



Outdoor EEPROM : Amendment of X values can be made due to 4B.

EEPROM setting in outdoor unit
CODE: 4B

Setting No.	1	2	3	4 *
X (°C)	52	56.5	58.5	60

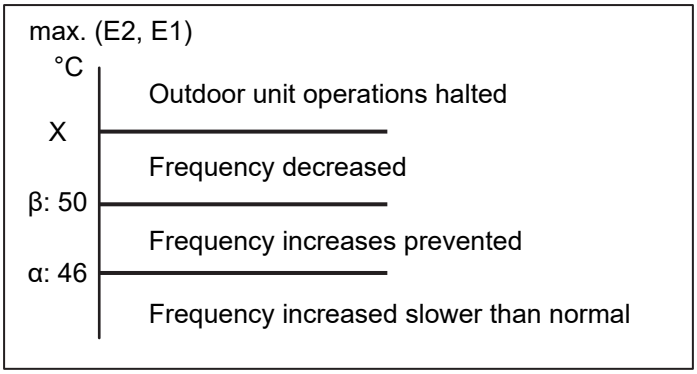
* Setting at factory shipment

4

5) Condensation Temperature Control (heating)

This system control is performed to limit the inverter frequency in order to restrict high pressure's abnormal increase and high-load operating prevention in the heating mode.
In accordance with the temperature of the indoor heat exchanger temperatures sensor (E1, E2), such controls are performed as to halting the operations of the indoor unit, decreasing the inverter frequency and restricting its increase, etc.

(a) The threshold value is decreased in accordance with the compressor frequency or indoor load (differences of temperature).
(b) When "X" values are lowered, the results basically become β=X-2, α=X-3.



Outdoor EEPROM : Amendment of X values can be made due to 4B.

EEPROM setting in outdoor unit
CODE: 4B

Setting No.	1	2	3	4 *
X (°C)	52	56.5	58.5	60

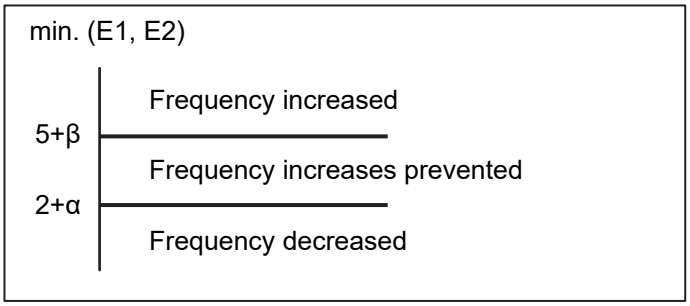
* Setting at factory shipment

6) Cooling Freeze Prevention Control

The following control is performed during cooling operations (including dry mode operation), in accordance with whichever of the indoor heat exchanger temperatures (E1 or E2) is lower. (See the chart below.)

(a) Frequency will not be decreased less than 6 minutes after thermostat ON.

(b) The threshold value is increased in accordance with the indoor load (differences of temperature).



Outdoor EEPROM : Amendment of α and β values can be made due to 30A or 30B.

EEPROM setting in outdoor unit

CODE: 30A (for α setting)

Setting No.	-15	.....	0 *	.....	9
α	-15		0		9

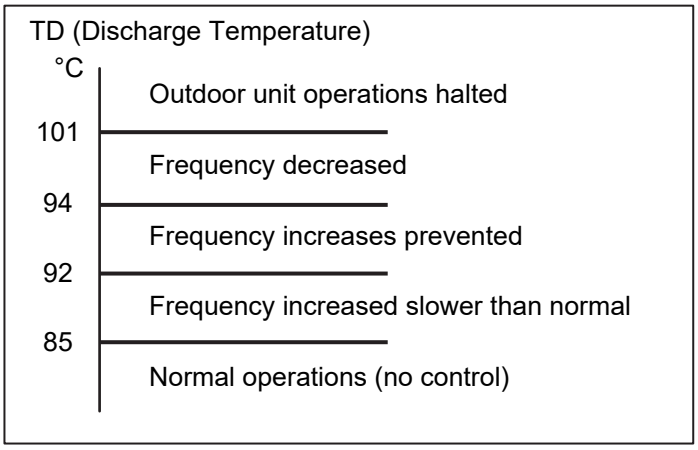
CODE: 30B (for β setting)

Setting No.	-15	.....	0 *	.....	9
β	-15		0		9

* Setting at factory shipment

7) Discharge Temperature Control

The following control is performed to prevent the discharge temperature from rising abnormally in order to protect the inverter compressor.
In accordance with the temperature of the discharge sensor TD, such controls are performed as to limiting the increase of inverter frequency, decreasing it or halting operation of the compressor.

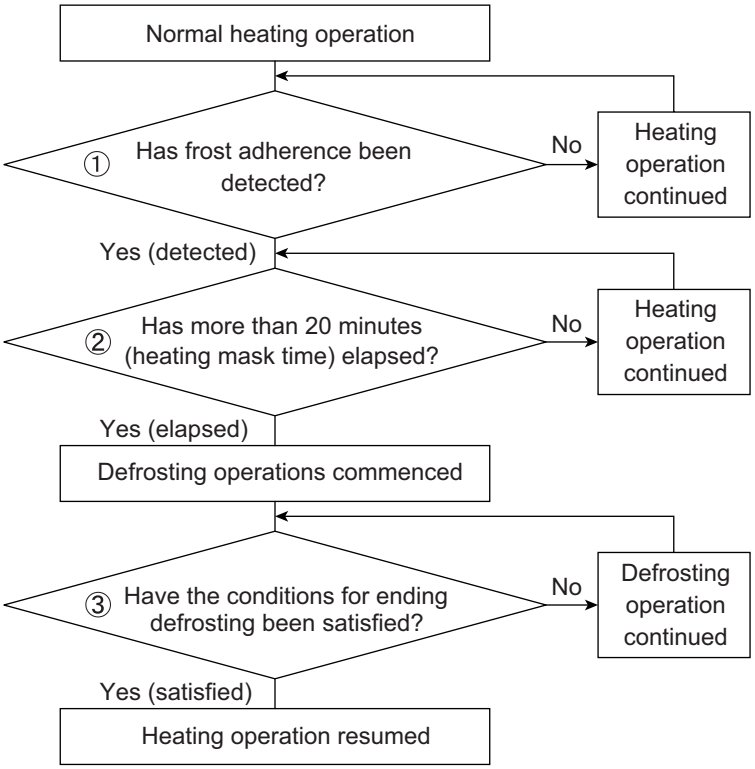


* If the discharge temperature exceeds 101°C, operations of the compressor are halted and restarted after 3 minutes.
If this start/stop activity is repeated 4 times, the alarm “P03” (abnormal discharge temperature) occurs.

8) Defrosting Control

This control function removes frost that has adhered to the outdoor heat exchanger during the heating operation. The control is performed to prevent the deterioration of the heating capabilities attributed to the adherence of frost, and to prevent the crack or crush of pipes attributed to the accretion of ice.
The following control is performed in accordance with the ambient temperature and the outdoor heat exchanger temperature sensor (C1).

Overall Flow Chart of Defrosting Control



① Frost adherence detection

- If the following conditions are satisfied during heating operations, it is regarded as “frost adherence is detected”.
- Frost adherence detection is performed in accordance with the ambient temperature (TO) and the outdoor heat exchanger temperature sensor min(C1, C2).
- Frost adherence detection conditions

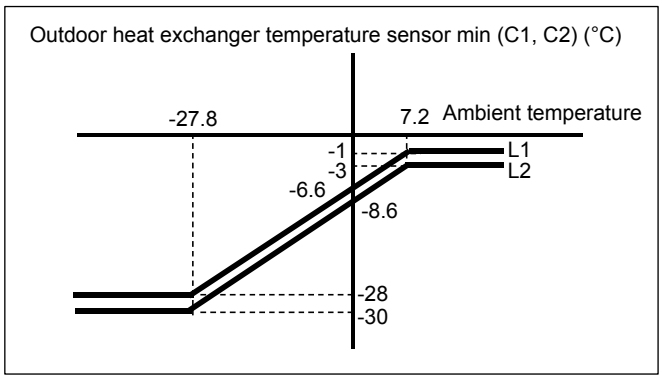
  (a) Following satisfied condition is detected for accumulation of 60 minutes.

  Outdoor heat exchanger temperature sensor min(C1, C2) ≤ L1

  (b) Following satisfied condition is detected for consecutive 1 minutes or more, 2 times.

  Outdoor heat exchanger temperature sensor min(C1, C2) ≤ L2

<U-200PZH4E8, U-250PZH4E8>



(c) Following satisfied condition is detected for accumulation of over 80 minutes.
Outdoor heat exchanger temperature sensor min(C1, C2) < -3 °C

② Heating Mask Time

This refers to the shortest time that heating operations must be performed without defrosting operations being executed. The mask time for this model is 20 minutes.

* Defrosting operations will not be commenced until the defrosting mask time has elapsed, even if frost adherence has been detected.

③ Ending Defrosting

Defrosting operations are ended when the following conditions are satisfied.

- Ending defrosting conditions

(a) When the temperature of the outdoor heat exchanger temperature sensor (C1) is 10°C or higher.

(b) When the temperature of the outdoor heat exchanger temperature sensor (C1) is 6°C or higher for consecutive 60 seconds.

(c) When a maximum of 15 minutes defrosting time has elaped.

9) Outdoor Unit Fan Control

The appropriate rotations per minute for the outdoor unit fan are determined in accordance with the ambient temperature and the frequency of the compressor inverter.
The outdoor unit fan step is controlled between a range of W0 (Step 1) and WF (Step 16).

10) Outdoor Unit's Electrical Expansion Valve Control

The electrical expansion valve controls the amount of refrigerant that is allowed to flow in accordance with the operation status.
The valve is adjusted in accordance with the discharge temperature (TD), the outdoor heat exchanger temperature sensor (C1), the suction temperature sensor (TS), and the indoor unit's heat exchanger temperature sensors (E1 and E2).

(1) Cooling Mode
Controlled so that the suction temperature (TS) - indoor heat exchanger temperature minimum (E1 and E2) is between 0 degree and 2 degrees under normal conditions.
There are cases where the aperture opens wider than normal operation if the discharge temperature increases.

(2) Heating Mode
Controlled so that the suction temperature (TS) - outdoor heat exchanger temperature (C1) is between 0 degree and 2 degrees under normal conditions.
There are cases where the aperture opens wider than normal operation if the discharge temperature increases.

11) Silent mode

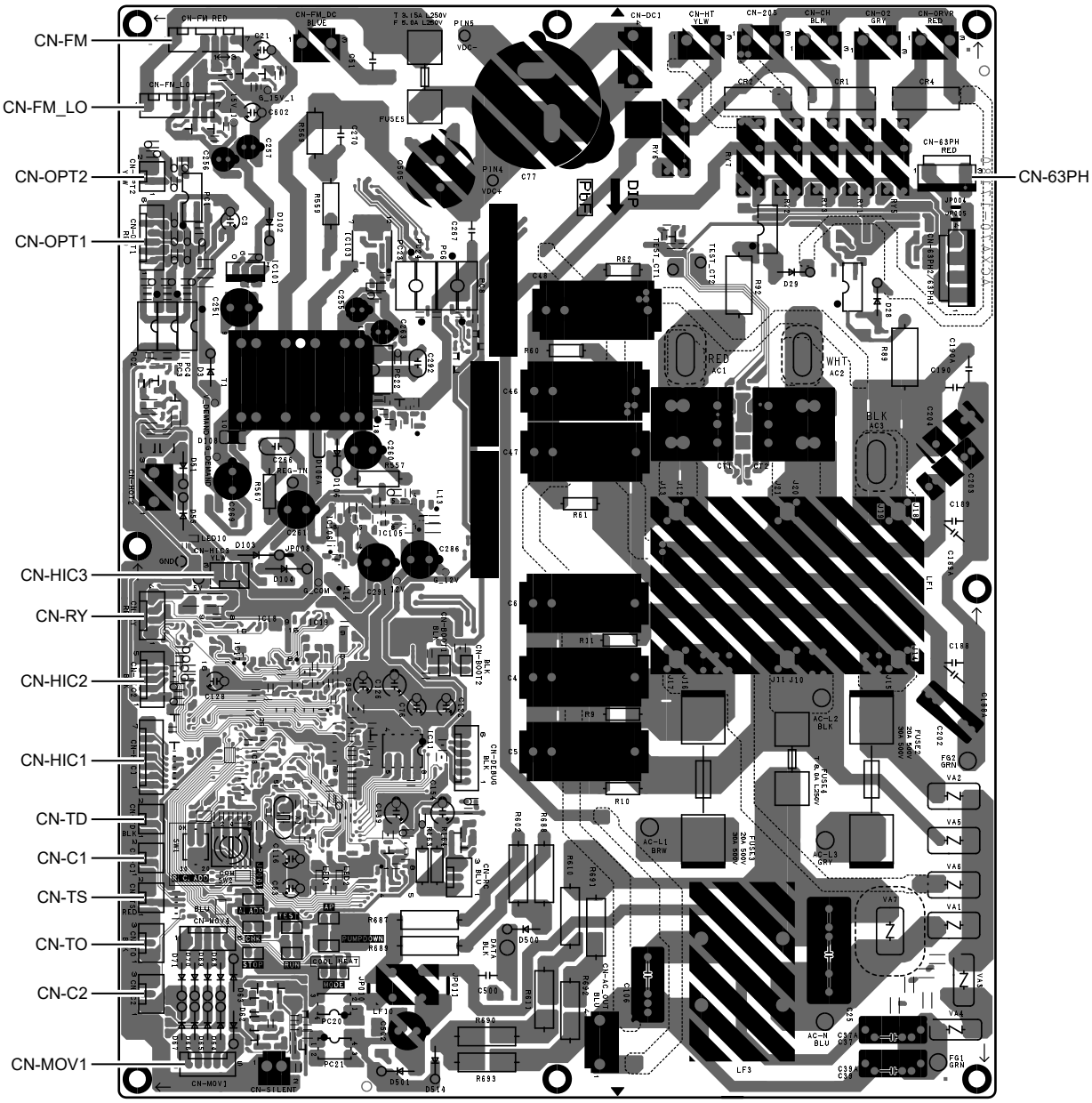
It is avilable to select one of 3 levels of silent mode as listed in the table below.
Outdoor maintenance remote controller: Item code “301” (1: Silent level 1, 2: Silent level 2, 3: Silent level 3)
Attention: Due to decrease of operating noise level, the air conditioner's capacity can be reduced.
Silent mode is ineffective during the test run operation.

Model		U-200PZH4E8	U-250PZH4E8
Operating mode		dB(A)	dB(A)
Cooling	Rated value	58	58
	Silent level 1	56	56
	Silent level 2	54	54
	Silent level 3	52	52
Heating	Rated value	62	62
	Silent level 1	60	60
	Silent level 2	58	58
	Silent level 3	56	56

There are two types of conditions when entering into a silent mode.
(1) From external input: When short-circuiting the silent pin of the outdoor unit control PCB
(2) From software input: The automatic silent-mode operation can be available in the following procedure. (However, use the Schedule Timer to set the present time and check for the Schedule Timer from the outdoor unit.)

4-2. Outdoor Unit Control PCB

U-200PZH4E8, U-250PZH4E8



Explanation of Functions

A. ADD pin	(2P, Black)	Auto address setting pin • Short-circuit this pin for 1 second or longer to automatically set the addresses at the indoor units that are connected to that outdoor unit and are within the same system. • The system address is “0” at the time of shipment. Auto address setting is necessary even for communications lines in a single system where the inter-unit control wiring does not cross to any other systems. • While auto address setting is in progress, the 2 LEDs (LED1, 2: Red) on the outdoor unit control PCB blink alternately. (Short-circuiting this pin while auto address setting is in progress will stop the auto address setting operation.)
SW2 Rotary switch	(10 positions, Yellow)	Outdoor system address setting switch • The setting is “0” at the time of shipment. It is not necessary to change the setting if wiring is connected only to an outdoor unit and indoor units in a single system and the inter-unit control wiring does not cross multiple systems. • If wiring links the inter-unit control wiring for multiple systems to the same communications lines, then a different address must be set for each refrigerant tubing system. • If wiring links multiple systems, a maximum of 30 systems (up to 64 indoor units) can be connected. This setting can be set up to “39,” however, control will be for 30 systems even if the setting is set to higher than 30. An alarm will be displayed if system addresses are duplicated. (For details, see Table 4-1.)
SW1 DIP switch	(2P, Black)	Switches for setting system address 10s digit and 20s digit • If 10 systems or more are set, the setting is made by a combination of this DIP switch and SW2. • If 10 - 19 systems are set, set switch 1 (10s digit) to ON. • If 20 - 29 systems are set, set switch 2 (20s digit) to ON, and set switch 1 (10s digit) to OFF. • If 30 systems are set, set both switch 1 (10s digit) and switch 2 (20s digit) to ON.(For details, see Table 4-1.)
PUMP DOWN	(2P, Black)	Refrigerant recovery Pin • Short circuit this pin to perform refrigerant recovery control using cooling operation. The indoor unit fan will operate at HIGH and 60Hz for a maximum of 10 minutes When refrigerant recovery is completed, close the valves and open circuit this pin to stop the operation.
LED 1 LED 2	(D302) (D303)	LED (red × 2) • LED 1 and 2 blink alternately while automatic address setting is in progress. • Display the alarm contents for alarms that are detected by the outdoor unit.
RUN	(2P, Black)	Start pin • Short-circuit this pin and apply a pulse signal to start all indoor units in that refrigerant system.
Stop	(2P, Black)	Stop pin • Short-circuit this pin and apply a pulse signal to stop all indoor units in that refrigerant system.
Mode change	(3P, Black)	Indoor unit Heating/Cooling mode change pin • Short-circuiting this pin during ordinary operation changes the mode from Cooling to Heating (if the current mode is Cooling) or from Heating to Cooling (if the current mode is Heating).
Test	(2P, Black)	• This pin is used to test the PCB at the factory. • When the power is turned ON after this pin has been short-circuited, all output signals will be output in sequence. (Sequential output does not occur if this pin is short-circuited when the power is already ON.) Releasing this pin returns the unit to normal control.
CHK	(2P, Black)	• Short-circuit during the test run operation. • Open the circuit after the test run.

Table 4-1. Method of System Address Setting

[SW2 (rotary, yellow), SW1 (2P DIP switch, black)]

	Outdoor system address No.	SW2 setting (system address switch)	SW1 setting	
			1P (10s-digit place)	2P (20s-digit place)
1 system only	1	0	OFF	OFF
Central control	1	1	OFF	OFF
	2	2	OFF	OFF
	3	3	OFF	OFF
	4	4	OFF	OFF
	5	5	OFF	OFF
	6	6	OFF	OFF
	7	7	OFF	OFF
	8	8	OFF	OFF
	9	9	OFF	OFF
	10	0	ON	OFF
	11	1	ON	OFF
	12	2	ON	OFF
	13	3	ON	OFF
	14	4	ON	OFF
	15	5	ON	OFF
	16	6	ON	OFF
	17	7	ON	OFF
	18	8	ON	OFF
	19	9	ON	OFF
	20	0	OFF	ON
	21	1	OFF	ON
	22	2	OFF	ON
	23	3	OFF	ON
	24	4	OFF	ON
	25	5	OFF	ON
	26	6	OFF	ON
	27	7	OFF	ON
	28	8	OFF	ON
	29	9	OFF	ON
	30	0	ON	ON

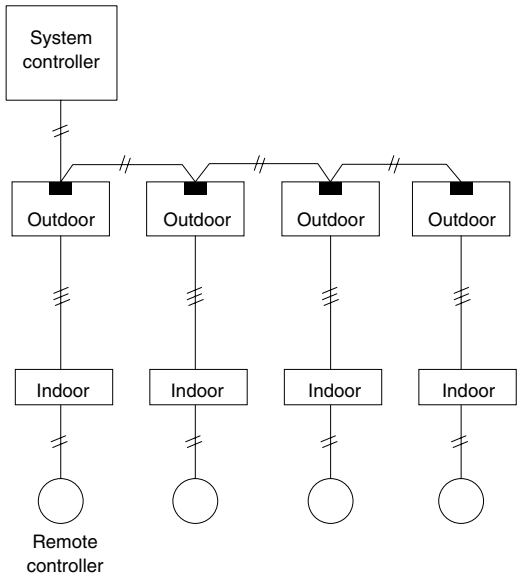
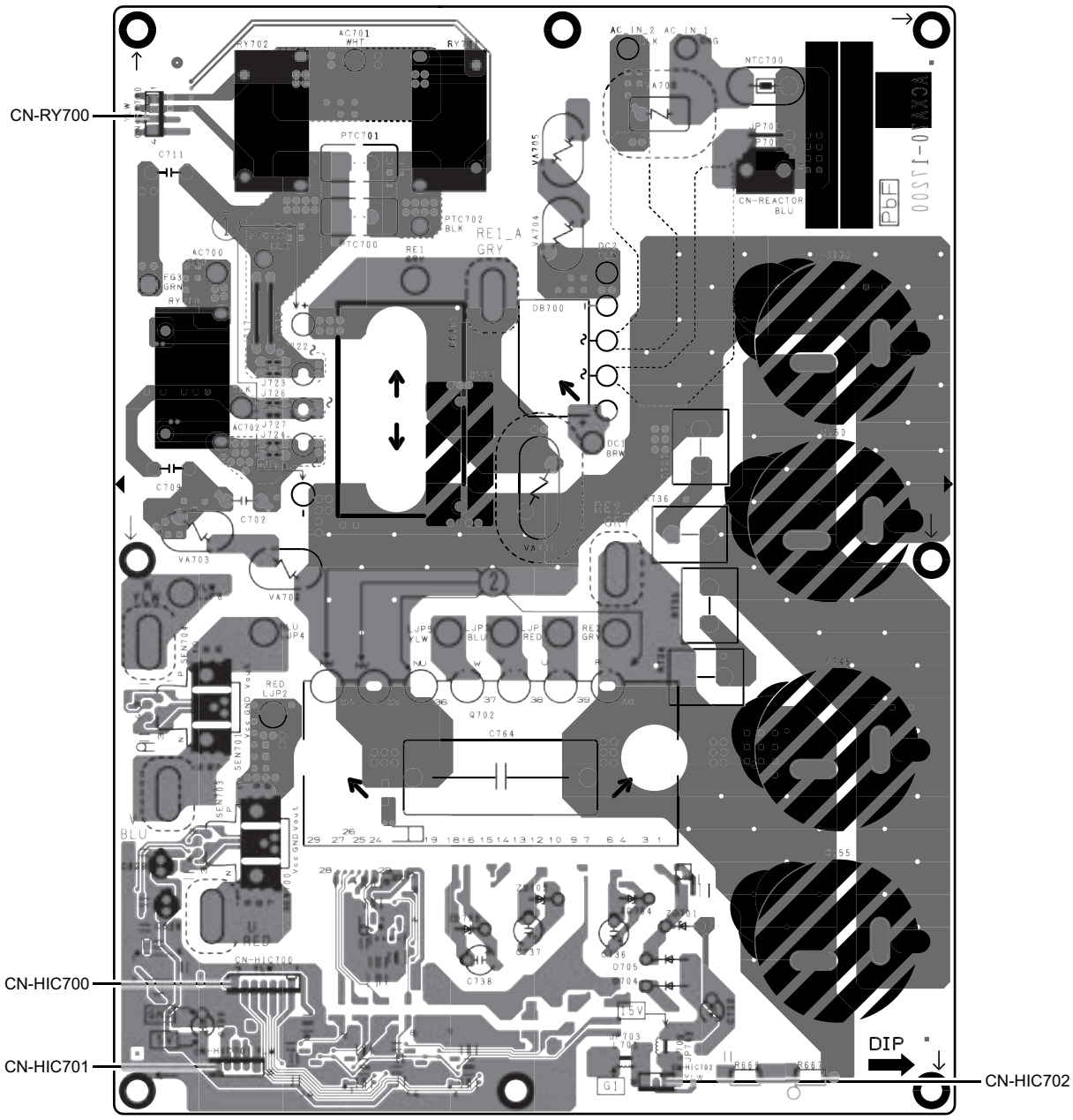


Fig. 1

4-3. Outdoor Unit HIC Board

U-200PZH4E8, U-250PZH4E8



4-4. Indoor Unit Control PCB Switches and Functions

[Indoor unit control PCB]

T10 (CN061): **6P plug (YEL)** / Used for remote control operation. (Refer to the Remote Control Section.)

Control items: (1) Start/stop input (2) Remote controller prohibit input
(3) Start signal output (4) Alarm signal output

EXCT (CN073): **2P plug (RED)** / Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.

DISP (CN063): **2P plug (WHT) Type E1:**
2P plug (BLK) Type E3/E4:

Short-circuiting this plug allows operation to be controlled by the remote controller even when an outdoor unit is not connected. (In this case, alarm "E04," which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.)

CHK (CN062): **2P plug (WHT) Type E1:**
2P plug (BLK) Type E3/E4:

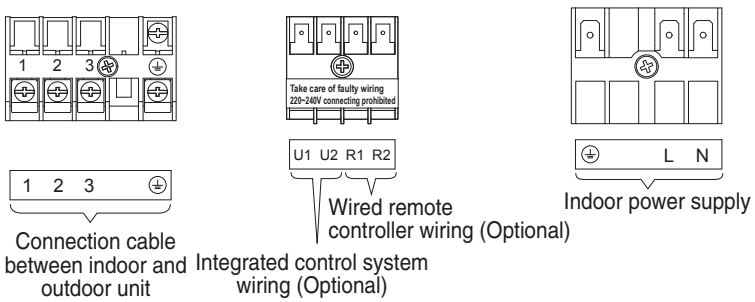
Test pin. Short-circuiting this pin allows the indoor FM (H fan speed), drain pump, flap motor (F1 position), and electronic expansion valve full-open position to be checked.
However this function turns OFF if the indoor unit protection mechanism is activated.
The components will operate even if the remote controller and outdoor unit are not connected, however the remote control cannot be used for control even if it is connected.
This plug can be used for short-term tests.

JP1 (JP001): **Jumper wire** / Allows selection of the T10 terminal start/stop signal. (Refer to the Remote Control Section.)
Setting at time of shipment: Pulse signal
Jumper wire cut: Static signal (continuous signal)

Fan drive (CN032): **2P plug (WHT)** / This terminal sends the signal to the ventilation fan when a commercially available ventilation fan is operated by the FAN button on the wired remote controller. (Refer to the Remote Control Section.)
Use a ventilation fan which can accept the no-voltage contact A signal as the external input signal.

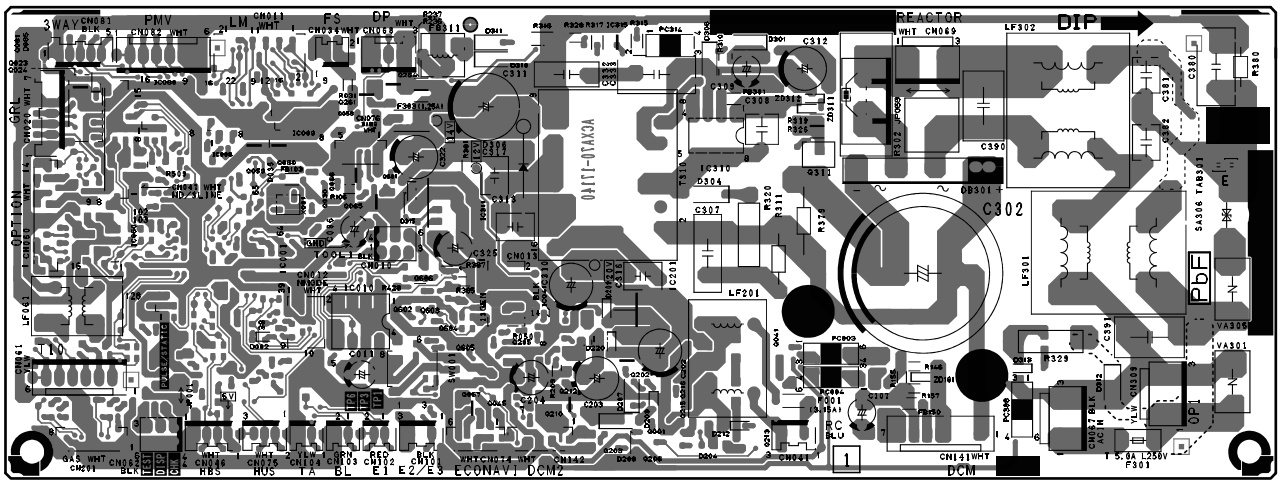
Power LED: **LED (RED)** / Illuminates when the power is ON. Flashes when there is trouble with the EEPROM (IC10, IC010: nonvolatile memory).

EEPROM (IC010): **Nonvolatile memory** / Used to store model information and other data. When replacing the PCB, remove the EEPROM from the old PCB and install it onto the new PCB. If there is IC trouble, replace with a new IC (provided with the servicing PCB), and set the necessary information using the wired remote controller. (For the setting procedure, refer to the servicing technical materials.)

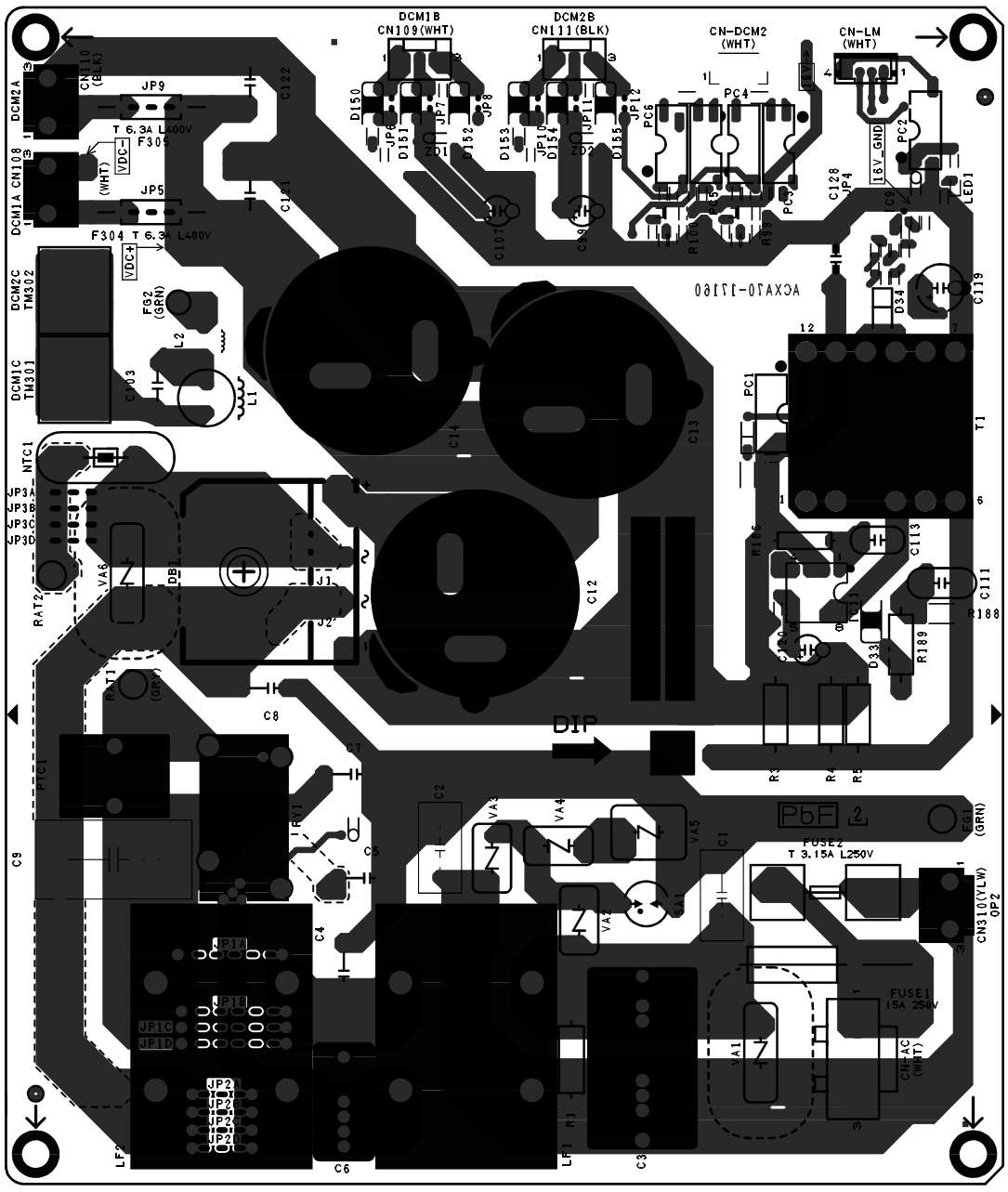


High Static Pressure Ducted Type
S-200PE4E, S-250PE4E

Indoor Unit Control Board



4


DCM1B
CN109(WHT)
DCM2B
CN111(BLK)
CN-DCM2
(WHT)
CN-LM
(WHT)
DCM2A
CN110
(BLK)
DCM1A CN108
JP9
T 6.3A L400V
F305
(WHT)
VDC-
JP5
F304 T 6.3A L400V
VDC+
DCM2C
TM302
DCM1C
TM301
F02
(GRN)
L2
L1
NTC1
JP3A
JP3B
JP3C
JP3D
RAT2
VA6
DB
J1
J2
RAT1
(GRN)
PTC1
C8
C7
C9
C2
VA3
VA4
VA5
C1
PbF
FUSE2
T 3.15A L250V
EG1
(GRN)
CN310(YLW)
QP2
FUSE1
15A 250V
CN-AC
(WHT)
VA1
VA2
RV1
C5
C4
C6
C3
R1
LF1
LF2
JP14
JP18
JP1C
JP1D
JP21
JP2B
JP2C
JP2D
DIP
R3
R4
R5
C12
C13
C14
T1
PC1
C113
C111
R188
R189
D33
D34
C119
C128
JP4
PC2
LED1
18V_GND
PC4
PC5
PC6
R104
R99
C107
C99
JP6
JP7
JP8
JP10
JP11
JP12
D150
D151
D152
D153
D154
D155
AC XA10-11160

5. TROUBLE DIAGNOSIS

5-1. Contents of Remote Controller Switch Alarm Display

ON: ○ Blinking: ☼ OFF: ●

Possible cause of malfunction			Wired remote control display	Wireless remote controller receiver display
				Operation / Timer / Standby
Serial communication errors Missetting	Failure in receiving serial signal from remote controller's indoor unit	Faulty remote controller	E01	Operating lamp blinking ☼ ● ●
		Disconnection/Contact failure of remote controller wiring		
		CHK(check) pins on the indoor unit control PCB are short circuited		
	Settings of system address, indoor unit address and group control are not made	In the case of non-group control: ・Power supply OFF of outdoor unit ・Disconnection / Contact failure of inter-unit wiring In the case of group control: Automatic address operation was not carried out.		
	Setting failure of nonvolatile memory IC	Faulty setting of EEPROM on indoor unit		
	Failure in indoor unit serial signal from remote controller	Faulty remote controller	E02	
		Wrong wiring of remote controller		
	Error in indoor unit receiving signal from remote controller (central)		E03	
	Failure in indoor unit receiving serial signal from outdoor unit	Disconnection / Contact failure of inter-unit wiring	E04	Standby lamp blinking ● ● ☼
		・Faulty indoor unit control PCB ・Faulty outdoor unit control PCB ・Communication circuit fuse on indoor unit control PCB opened		
		・Fuse on outdoor unit control PCB opened Since failure of an outdoor fan motor is considered as a cause, both outdoor unit control PCB and outdoor unit fan motor are exchanged simultaneously.		
	Failure in outdoor unit receiving serial signal from indoor unit	・Disconnection / Contact failure of inter-unit wiring	E06	
		・Disconnection of inter-unit wiring ・Communication circuit fuse on indoor unit control PCB opened		
		Indoor unit control PCB address setting error		
	Duplication of indoor unit address	Duplication of indoor unit address setting	E08	Operating lamp blinking ☼ ● ●
	Duplication of main remote controller setting	Error because of more than one remote controller setting to main	E09	
	Communication error between main and fan motor PCB	・Power supply to indoor fan motor power PCB is OFF / Switch on the power supply ・Indoor fan motor power PCB fuse open / Replace fuse ・Power supply wiring wrong connection or open / Correct the wiring ・Indoor fan motor power PCB malfunction / Replace PCB ・Indoor control board LM wire disconnect / Reconnect the connecting wire	E10	
	Improper setting	Automatic address setting start is prohibited	E12	
		Duplication of main unit in group control	E14	
	Communication error between main and sub indoor units	・Disconnection of wiring between main unit and additional units ・Contact failure of wiring ・Faulty indoor unit control PCB (Main or Addition)	E18	
	Automatic address settings failure	Automatic Address Alarm The total capacity of indoor units is too low	E15	Standby lamp blinking ● ● ☼
		Automatic Address Alarm The total capacity of indoor units is too high	E16	
		Automatic Address Alarm No indoor unit connected	E20	
	Outdoor unit Communication error		E24	
	Outdoor unit Communication error		E29	
	Indoor & outdoor unit type miss-matched	Setting error, indoor/outdoor unit type/model miss-matched	L02	Operating and standby lamps blinking simultaneously ☼ ● ☼
	Duplication of group control's main indoor unit	Duplication of main indoor unit address in group control	L03	
	Group control wiring is connected to individual control indoor unit	Group control wiring is connected to individual control indoor unit	L07	
	Indoor unit address is not set		L08	
	Indoor unit capacity is not set		L09	
	Duplication of outdoor unit address		L04	Operating and standby lamps blinking simultaneously ☼ ○ ☼
	Outdoor unit capacity is not set or setting error		L10	
	Indoor unit type setting error Type of indoor/outdoor units is different		L13	
	4-way valve locked trouble / operation failure		L18	

Continued

ON: ○ Blinking: ☼ OFF: ●

Possible cause of malfunction			Wired remote control display	Wireless remote controller receiver display
				Operation / Timer / Standby
Activation of protective device	Faulty wiring connections of (ceiling) indoor unit panel		P09	Timer and standby lamp blinking alternately
	Activation of float switch wiring	Faulty drain pump	P10	
		Drainage failure		
		Contact failure of float switch wiring		
	Faulty drain pump	Faulty drain pump	P11	
		Drain pump locked		
	Indoor unit fan motor trouble (DC fan)	Indoor unit fan motor locked Faulty wiring connections of indoor unit fan motor	P12	● ☼ ☼
	Valve error	Valve error Refrigerant circuit error Wrong installation for refrigerant piping and wiring	P13	
	O_2 sensor error	O_2 sensor detected	P14	
	Discharge temperature protective alarm	Compressor discharge temperature trouble	P03	Operating and standby lamp blinking alternately
	Activation of high pressure switch	Compressor discharge pressure trouble	P04	
	Power supply failure	Open phase detected AC power supply trouble	P05	
	Insufficient gas	Insufficient gas level detected	P15	
	Compressor overcurrent trouble		P16	☼ ● ☼
	Fan motor locked/reversed airflow detected	Outdoor unit fan motor trouble Outdoor unit fan trouble	P22	
	Inverter compressor trouble		P29	
	Group control trouble	Indoor unit in group control trouble	P31	
	Activation of current control compressor's protective device	Primary (input) overcurrent detected	H01	Timer lamp blinking
	PAM trouble (overcurrent/over-voltage), Activation of compressor's protective device	PAM trouble	H02	● ☼ ●
	Primary current control, Activation of compressor's protective device	Primary current CT sensor failure	H03	
	HIC trouble	HIC trouble DC voltage not detected	H31	
Thermistor fault	Indoor unit thermistor open/short	Indoor heat exchanger temperature sensor (E1) trouble	F01	Operating and timer lamp blinking alternately
		Indoor heat exchanger temperature sensor (E2) trouble	F02	
		Indoor air temperature sensor (TA) trouble	F10	☼ ☼ ●
	Outdoor unit thermistor open/short	Compressor discharge temperature sensor (TD) trouble	F04	Operating and timer lamp blinking alternately
		Outdoor heat exchanger temperature sensor (C1) trouble	F06	
		Outdoor heat exchanger temperature sensor (C2) trouble	F07	
		Outdoor air temperature sensor (TO) trouble	F08	☼ ☼ ○
		Compressor suction temperature sensor (TS) trouble	F12	
Nonvolatile memory failure		Indoor unit EEPROM trouble	F29	Operating and timer lamp blinking simultaneously ☼ ☼ ●
		Outdoor unit EEPROM trouble	F31	Operating and timer lamp blinking simultaneously ☼ ☼ ○

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5-2. Outdoor Unit Control Panel LED Display

(○ : ON ☼ : Blinking ● : OFF)

LED1	LED2	Display meaning
○	○	After the power is turned ON (and automatic address setting is not in progress), no communication with the indoor units in that system is possible.
(Both ON)		
●	○	After power is turned ON (and automatic address setting is not in progress), 1 or more indoor units are confirmed in that system; however, the number of indoor units does not match the number that was set.
(OFF)	(ON)	
●	●	Automatic address setting was completed successfully. (After the power is turned ON, the number of detected indoor units connected to that system matches the number that was set, and regular communications are occurring.)
(Both OFF)		
☼	☼	Automatic address setting is in progress.
(Blinking alternately)		
☼	☼	Alarm display LED 1 blinks M times, then LED 2 blinks N times. The cycle then repeats. M = 2: P alarm 3: H alarm 4: E alarm 5: F alarm 6: L alarm N = Alarm No. Example: LED 1 blinks 2 times, then LED 2 blinks 16 times. The cycle then repeats. Alarm is “P16”.
(Blinking alternately)		
☼	○	PUMP DOWN is in progress.
LED 1 : Blinking LED 2 : ON		
☼ (0.8 / 0.3) *	●	P04 (High pressure trouble) Pre-trip display
LED 1 : Blinking LED 2 : OFF		
☼ (0.5 / 0.5)	●	Other Pre-trip display
LED 1 : Blinking LED 2 : OFF		

* Blinking (0.8 / 0.3) indicates that the lamp illuminates for 0.8 seconds, and then is OFF 0.3 seconds.

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5-3. PAC System Alarm Codes

Alarms for outdoor units

Alarm Code	Alarm Meaning
E01	Remote Controller Reception Error
E02	Remote Controller Transmission Error
E03	Error in Indoor Unit Receiving Signal from Remote Controller (central)
E04	Error in Indoor Unit Receiving Signal from the Outdoor Unit
E05	Error in Indoor Unit Transmitting Signal to the Outdoor Unit
E06	Outdoor Unit Failed to Receive Serial Communication Signals from Indoor Unit
E08	Duplicate Indoor Unit Address Settings Error
E09	More Than One Remote Controller Set to Main Error
E10	Faulty Communication between Main & Fan Motor PCB
E12	Automatic Address Setting Start is Prohibited while Auto-address Setting in Progress.
E14	Main Unit duplication in Simultaneous-operation Multi Control (detected outdoor unit)
E15	Automatic Address Alarm (The total capacity of indoor units is too low.)
E16	Automatic Address Alarm (The total capacity of indoor units is too high or the total number of indoor units is too many.)
E18	Faulty Communication in Group Control Wiring
E20	Connection Problem of Indoor/Outdoor Units

F04	Compressor Discharge Temperature Sensor (TD) Trouble
F06	Inlet Temperature Sensor (C1) in Heat Exchanger Trouble
F07	Intermediate Temperature Sensor (C2) in Heat Exchanger Trouble
F08	Outdoor Air Temperature Sensor (TO) Trouble
F12	Compressor Inlet Suction Temperature Sensor (TS) Trouble
F31	Outdoor Unit Nonvolatile Memory (EEPROM) Trouble

H01	Primary (input) Overcurrent Detected
H02	PAM Trouble
H03	Primary Current CT Sensor (current sensor) Failure
H31	HIC Trouble

L04	Outdoor Unit Address Duplication
L10	Outdoor Unit Capacity not Set or Invalid
L13	Indoor Unit Type Setting Error
L18	4-way Valve Operation Failure

P03	Compressor Discharge Temperature Trouble
P04	High Pressure Trouble
P05	AC Power Supply Trouble
P13	Alarm Valve Open
P14	O_2 Sensor Detect
P15	Insufficient Gas Level Detected
P16	Compressor Overcurrent Trouble
P22	Outdoor Unit Fan Motor Trouble
P29	Lack of INV compressor wiring, INV compressor actuation failure (including locked), DCCT failure
P31	Group Control Error

Symptoms and Parts to Inspect

Remote controller alarm display	Alarm contents	Judgement conditions	Eliminating condition of alarm	Judgement and correction
P03	Abnormal discharge temperature error • Discharge temp. detected at or above the specified value	Stops when temp. exceeds 101 ℃. Alarm output on 5 pre-trips	Recovery at restart	1. Check refrigerant cycle (gas leak). 2.Trouble with electronic expansion valve 3.Check discharge temperature sensor (TD).
P05	CT disconnected or AC power supply error DC voltage charge failure	The current value transmitted from the microcomputer on the outdoor unit control substrate is low. When no AC power input for more than 30 seconds to 5 minutes : Single alarm	Recovery at restart	1. Check outdoor unit control PCB. 2. Lack of reactor wire 3. Check power frequency.
P15	Insufficient gas level detected.	• Discharge temperature is 95 ℃ or higher. • Electronic expansion valve is at Step 480. When the above has continued for 1 minute. Indoor air sucking due to body thermostat max (E1 or E2) - TA ≤ 4 ℃ • Secondary current ≤ Current value of gas shortage determination	Recovery at restart	1.Check refrigerant cycle (gas leak). 2.Trouble with electronic expansion valve 3.Check outdoor unit valve opening.
L18	4-way valve operation failure • Judged after heating operating for 5 minutes consecutively.	The indoor unit heat exchanger temperature drops even though the compressor is switched on during the heating mode: To +20 ℃ ≤ C1 Pre-trip 1 time	Recovery at restart	1. Check 4-way valve. 2. Check 4-way valve wiring. 3. Check outdoor unit control PCB.
P04	High-pressure protection error	High pressure switched ON → OFF (Alarm is output when switch opened.) Pre-trip 4 times	Recovery at restart	Overload operation of refrigerant cycle
P22	Outdoor unit fan motor trouble • Inverter protection circuit was activated, or lock was detected at outdoor unit fan motor.	Inverter stops after alarm is detected. Pre-trip 10 times	Recovery at restart	1.Position detection trouble. 2.Outdoor unit fan motor over-current Protection circuit is activated. • Check outdoor unit control PCB. • Refer to outdoor unit fan judgement methods.
P29	Lack of INV compressor wiring, INV compressor actuation failure, DCCT failure	Inverter stops after alarm is detected. Alarm is output when inverter stops (pre-trip) consecutively 10 times.	Recovery at restart	1.Stops immediately even when operations restarted. • Layer short on the compressor 2.Check HIC circuit. • Wiring trouble
H31	HIC trouble	Pre-trip consecutively 10 times	Temperature dropped	Heat sink and PCB (HIC) • Contact trouble

Check Prior to Auto Address Setting

* If an outdoor unit displays an alarm, conduct this process after diagnosing the problem.

1 Auto Address	1-1	Is the power of the indoor unit(s) and outdoor unit(s) on?	Yes	2-1
			No	Power on.
2 Indoor/ outdoor control line	2-1	Has the wiring of the indoor/outdoor control line been completed? Is it all connected?	Yes	2-2
			No	Connect the wiring.
	2-2	Has high voltage (over AC200V) been applied to the control line circuit? Has the fuse on the control PC board blown? (Check each board of the indoor unit(s) and outdoor unit(s).)	Yes	2-3
			No	3-1
	2-3	The power line and indoor/outdoor control line are miswired. Turn off the power, check & correct the miswiring and then make connections of the indoor/outdoor control lines to the emergency side of all the control PC boards and controllers.		
3 Installation or setting related	3-1	Be sure that the indoor and outdoor units are connected with correct combination written in catalog.	Yes	3-2
			No	Correct the connection.
	3-2	Is the indoor/outdoor control line connected to more than one outdoor unit? (Network wired?)	Yes	3-3
			No	3-6
	3-3	Is the Terminal resistor select switch (CN-TERMINAL) on the outdoor control PC board set to just one unit?	Yes	3-4
			No	Correct the setting.
	3-4	Are other outdoor units using a duplicate setting?	Yes	3-5
			No	3-6
	3-5	When units are networked, first set the system address for each outdoor unit in the order 1-2-3 and then run auto address setting.		
	3-6	Run the auto address setting.		

E04 Error in Indoor Unit Receiving Signal from the Outdoor unit

1. Error Detection Method

When there is no communication within a 3-minute period from the outdoor unit. Or, judged an error when no reply comes from the outdoor unit.

- The outdoor unit is not turned on.
- When the network of indoor/outdoor operation line was wired, the (SHORT) setting of the terminal resistor switch on the outdoor control PC board was set on multiple units (four or more).
- When the power was turned on after auto address setting was completed, the number of indoor units had been changed.
- Forgot to turn on the indoor unit.
- The CHK pin and/or TEST pin on the indoor unit's control PC board are shorted.
- Forgot to install the nonvolatile memory (EEPROM) when replacing the indoor unit control PC board.
- Mistakenly set the indoor unit address to Not Set in the remote control's detailed settings mode.
- When indoor unit addresses are duplicated.
- There is a short, open, wrong contact or grounding of the indoor/outdoor operation line.
- There is an error in the receiving circuit on the signal output PC board (optional control PC board).
- Malfunctions of the outdoor unit
- High voltage was applied (over AC200V) in the indoor/outdoor operations line circuit.
- The thermistor inside the indoor unit is grounded.

2. Error Diagnosis

1 Power Source	1-1	Is/was the power to the outdoor unit cut off?	Yes	After turning the power on, wait three minutes.	
			No	1-2	
	1-2	Is the indoor unit powered off?		Yes	Power on.
				No	2-1
2 Indoor/ outdoor control line	2-1	Is the indoor/outdoor operation line shorted, opened, grounded or has a wrong contact?		Yes	Correct the wiring.
				No	2-2
	2-2	When the network of indoor/outdoor operation line was wired, was the (SHORT) setting of the terminal resistor switch (CN-TERMINAL) on the outdoor control PC board set on multiple units (four or more)?	Yes	Normally the (SHORT) setting is just one unit.	
			No	2-3	
	2-3	Was a high voltage (over AC200V) applied in the indoor/outdoor operations line circuit?		Yes	3-2
				No	3-1
3 No. of Indoor Units	3-1	Was the number of indoor units increased or decreased after auto address setting was complete?		Yes	3-2
				No	3-3
	3-2	Conduct checks prior to auto address setting.			
	3-3	Check the indoor unit addresses from the remote control's detailed settings mode. Is it Not Set (99), or is the indoor unit's address duplicated?		Yes	3-2
				No	4-1
4 Indoor unit control PC board	4-1	Are the CHK pin and/or TEST pin on the indoor unit control PC board short-circuited?		Yes	Remove the short.
				No	4-2
	4-2	Is the wireless remote controller connected to on the indoor unit's control PC board?		Yes	4-3
				No	4-5
	4-3	Disconnect the connector mentioned above on the control PC board of the indoor unit control PC board, and see whether the E04 goes off after several minutes. (When doing so, if two remote controllers are being used and the wireless remote controller is the main remote controller, set the other remote controller as the main.)		Yes	4-4
				No	4-5
	4-4	Replace wireless remote control parts including wiring.			
	4-5	Is the LED on the indoor unit control PC board blinking?		Yes	4-6
				No	4-7
	4-6	The nonvolatile memory (EEPROM) on the indoor unit's control PC board is either not installed, improperly installed or the nonvolatile memory is faulty. Correct this or after replacing the nonvolatile memory, write model data to it in the remote control detailed settings mode.			
	4-7	Are all the remote controllers of the other indoor units connected to that outdoor unit displaying E04?	Yes	Replace the outdoor unit control board.	
			No	Replace the indoor unit control board.	

E06 Outdoor Unit Failed to Receive Serial Communication Signals from Indoor Unit

(When indoor unit(s) are connected)

1. Error Detection Method

It is judged an error when there is no transmission (reply) from the indoor unit to the outdoor unit for a period of three minutes.

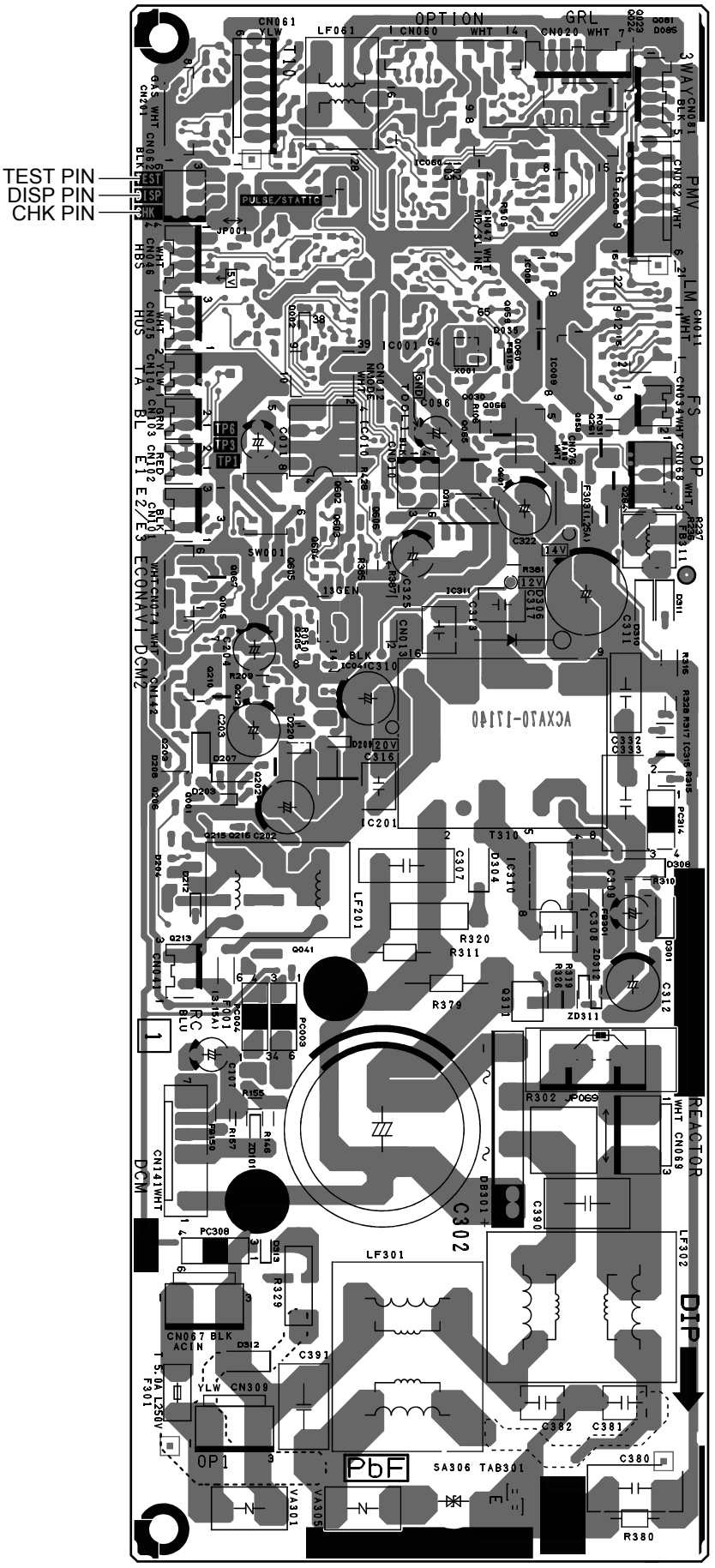
- The indoor unit is not turned on.
- The DISP pin of the indoor unit is shorted.
- There is a short, open, wrong contact or grounding of the indoor/outdoor operation line.
- The signal output control PC board (optional control PC board) inside the indoor unit has failed.
- The thermistor inside the indoor unit is grounded.

2. Error Diagnosis

1 Indoor unit power	1-1	Is the indoor unit powered off?	Yes	Power on.
			No	2-1
2 Indoor/ outdoor operation line	2-1	Is the indoor/outdoor operation line shorted, opened, grounded or has a wrong contact?	Yes	Correct the wiring.
			No	3-1
3 Indoor units control PC board	3-1	Are the DISP pin and CHK pin on the indoor unit control PC board short-circuited?	Yes	Remove the short.
			No	3-2
	3-2	Is the wireless remote controller connected to on the indoor unit's control PC board?	Yes	3-3
			No	3-5
	3-3	Disconnect the connector mentioned above on the control PC board of the indoor unit control PC board, and see whether the E06 goes off after several minutes. (When doing so, if two remote controllers are being used and the wireless remote controller is the main remote controller, set the other remote controller as the main.)	Yes	3-4
			No	3-5
	3-4	Replace wireless remote control parts including wiring.		
	3-5	Indoor unit control PC board failure → Replace board.		

- For information on the procedures for replacing the indoor unit's control board, refer to the manual that is packaged with the indoor unit control PCB.

Indoor Unit Control Board
High Static Pressure Ducted Type S-200PE4E, S-250PE4E



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E15 Automatic Address Alarm (The total capacity of indoor units is too low.)

1. Error Detection Method

Connecting indoor unit
It is judged an error the total capacity of indoor units replied by communication is lower than that of outdoor unit.

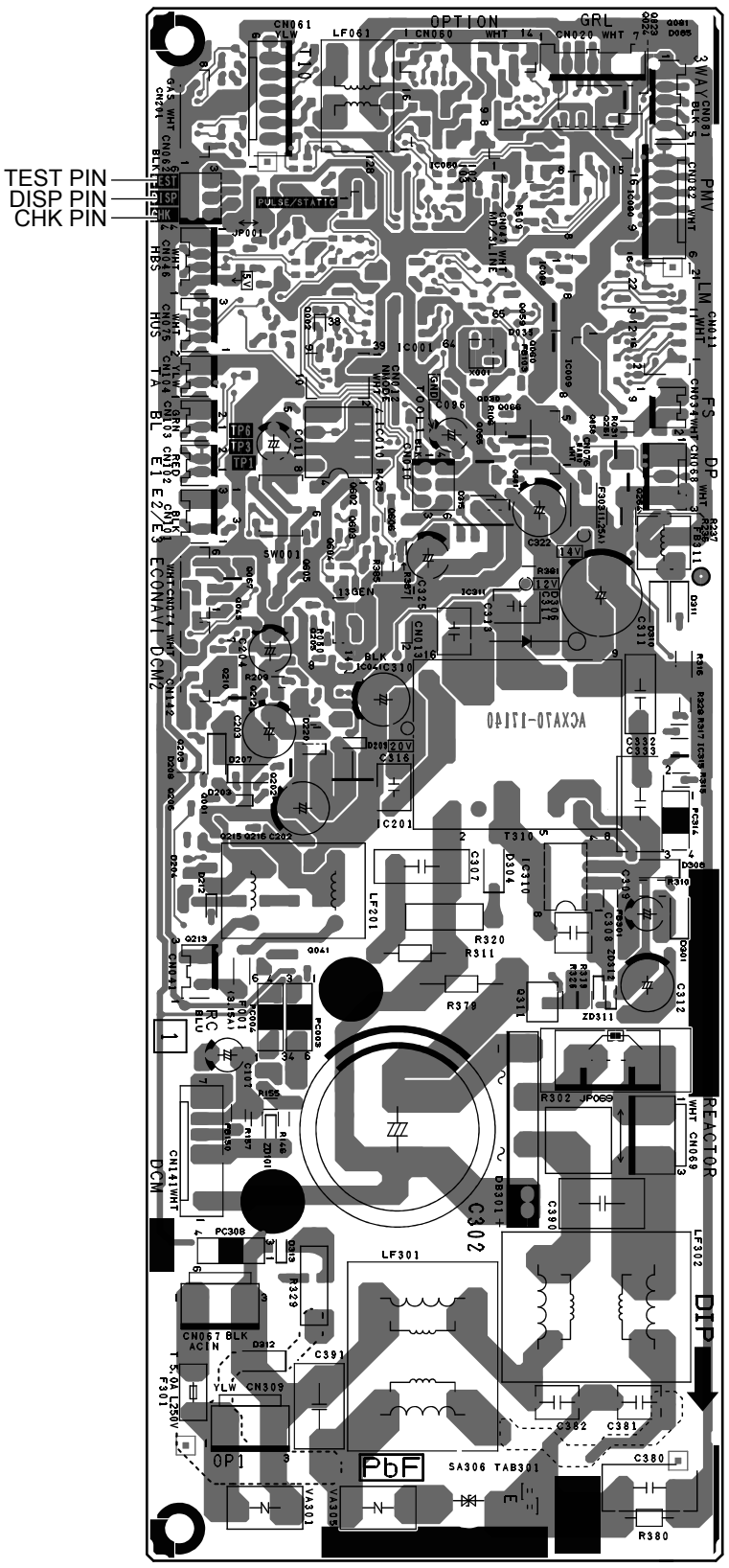
- The total capacity of indoor units is lower than that of outdoor unit.
- Some indoor unit(s) are connected but power is not turned on.
- The CHK pin (CN062/CN071) and/or TEST pin (CN064) of the indoor unit is shorted when its power is turned on.
- High voltage was applied (over AC200V) in the indoor/outdoor operations line circuit.

2. Error Diagnosis

1 Power Source	1-1	Is the indoor unit powered off?	Yes	Power on.
			No	2-1
2 Indoor/ outdoor control line	2-1	Is the indoor/outdoor control line opened or shorted?	Yes	Correct the wiring.
			No	2-2
	2-2	Was a high voltage (over AC200V) applied in the indoor/outdoor operations line circuit?	Yes	3-2
			No	3-1
3 No. of Indoor Units	3-1	Was the number of indoor units changed after auto address setting finished?	Yes	3-2
			No	4-1
	3-2	Conduct checks prior to auto address setting.		
4 Indoor unit control PC board	4-1	Are the CHK pin and TEST pin on the indoor unit control board short-circuited?	Yes	Remove the short.
			No	4-2
	4-2	Is the wireless remote controller connected to on the indoor unit's control PC board?	Yes	4-3
			No	4-5
	4-3	Disconnect the connector mentioned above on the control PC board of the indoor unit control PC board and see whether the E15 goes off after several minutes. (When doing so, if two remote controllers are being used and the wireless remote controller is the main remote controller, set the other remote controller as the main.)	Yes	4-4
			No	4-5
	4-4	Replace wireless remote control parts including wiring.		
	4-5	Is the LED blinking on the indoor unit's control PC board?	Yes	4-6
			No	5-1
	4-6	The nonvolatile memory (EEPROM) on the indoor unit's control board is either not installed, improperly installed or the nonvolatile memory is faulty. Correct this or after replacing the nonvolatile memory, write model data to it in the remote control detailed settings mode.		
5 Outdoor unit control PC board	5-1	Check all items under the section "Check Prior to Auto Address Setting".		

- For information on the procedures for replacing the nonvolatile memory (EEPROM) of the indoor unit, refer to the manual that is packaged with the indoor unit service board.
- For information on the remote control's detailed settings, refer to the Reference Materials.

Indoor Unit Control Board
High Static Pressure Ducted Type S-200PE4E, S-250PE4E



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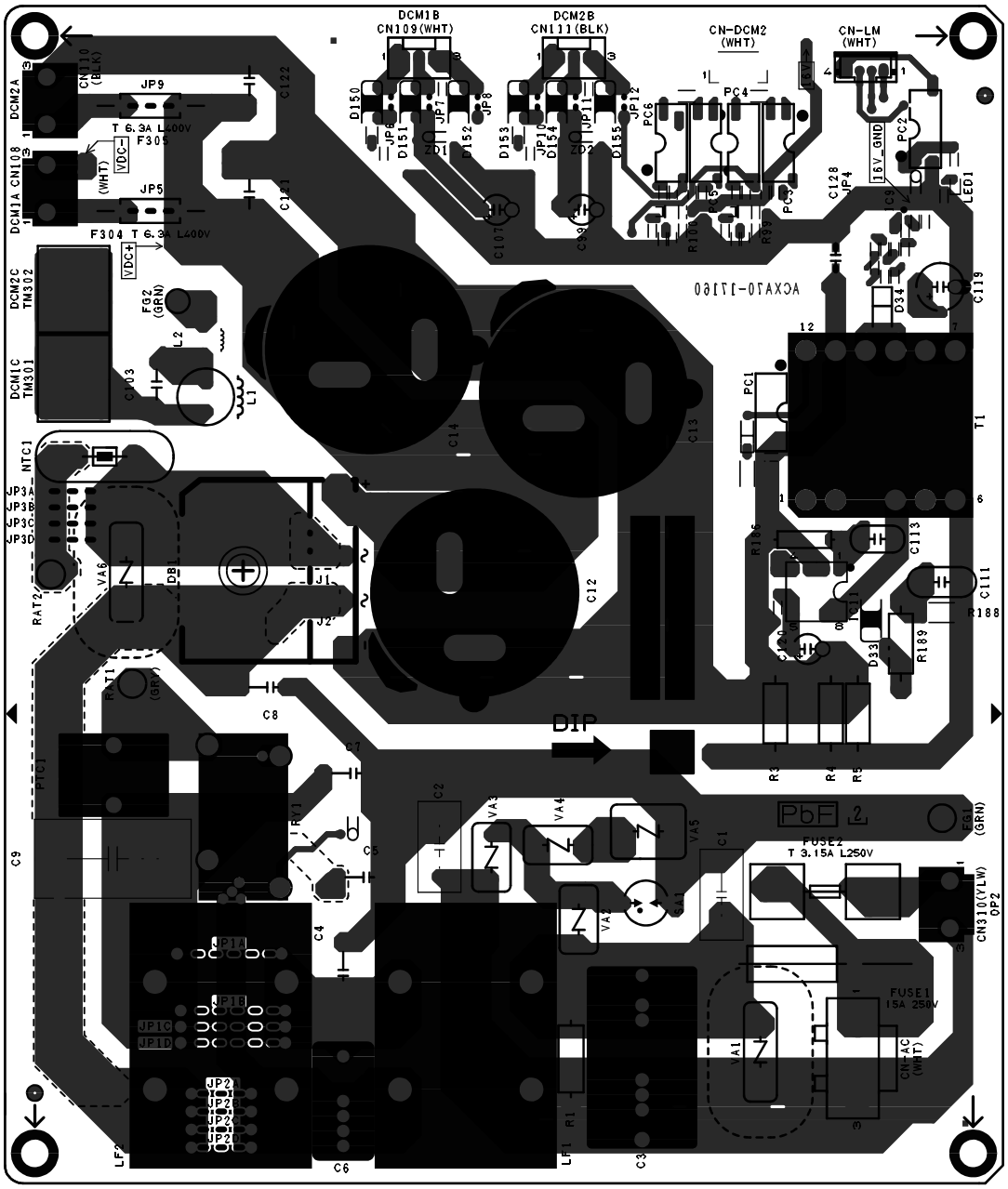
Indoor Unit Fan Motor Control Board



E16 Automatic Address Alarm (The total capacity of indoor units is too high.)

1. Error Detection Method

It is judged an error the total capacity of indoor units is too high or the total number of indoor units is too many.

- The total capacity of indoor units is too high.
- The total number of indoor units is too many.

2. Error Diagnosis

1 Auto Address	1-1	Check all items under the section “Check Prior to Auto Address Setting”.		

F04 Compressor Discharge Temperature Sensor (TD) Trouble

1. Error Detection Method

It is judged an error based on the criteria listed below.

- Open circuit or Short circuit

2. Error Diagnosis

1 Sensor	1-1	Sensor connector is connected to PC board properly.	Yes	1-2
			No	Reconnect and check.
	1-2	Sensor is correctly installed at holder side.	Yes	Replace sensor.
			No	Correct and see what happens. 1-3
	1-3	Abnormal temperature exists even after replacing sensor.	Yes	2-1
			No	See what happens.
2 PC board	2-1	Resistance between connector pins on PC board is less than 1 k ohm.	Yes	Replace PC board.
			No	2-2
	2-2	Abnormal temperature exists even after replacing PC board.	Yes	3-1
			No	See what happens.
3 Operating status	3-1	Peripheral temperature of outdoor unit is over 46°C.	Yes	Correct
			No	3-2
	3-2	Tends to have insufficient refrigerant charge in the system.	Yes	Adjust the amount of refrigerant.
			No	3-3
	3-3	Check noise.		

F06 Inlet Temperature Sensor (C1) in Heat Exchanger Trouble

1. Error Detection Method

- In case of open or short

2. Error Diagnosis

1 Sensor Trouble	1-1	Is the connector properly connected to PCB?	Yes	1-2
			No	Reconnect & check.
	1-2	Is the resistor between the sockets infinity or 0 ohm?	Yes	Replace sensor.
			No	2-1
2 Control PCB Failure	2-1	Outdoor unit control PCB failure Replace PCB with a new one.		

F07 Intermediate Temperature Sensor (C2) in Heat Exchanger Trouble

1. Error Detection Method

It is judged an error when open circuit or short circuit.

2. Error Diagnosis

1 Sensor	1-1	Sensor connector is connected to PC board properly.	Yes	1-2
			No	Reconnect and check.
	1-2	Resistance between sockets is infinity or 0 ohm.	Yes	Replace sensor.
			No	2-1
2 PC board	2-1	Replace PC board because of outdoor control PC board failure.		

F08 Outdoor Air Temperature Sensor (TO) Trouble

1. Error Detection Method

It is judged an error when open circuit or short circuit.

2. Error Diagnosis

1 Sensor	1-1	Sensor connector is connected to PC board properly.	Yes	1-2
			No	Reconnect and check.
	1-2	Resistance between sockets is infinity or 0 ohm.	Yes	Replace sensor.
			No	2-1
2 PC board	2-1	Replace PC board because of outdoor control PC board failure.		

F12 Compressor inlet Suction Temperature Sensor (TS) Trouble

1. Error Detection Method

It is judged an error when open circuit or short circuit.

2. Error Diagnosis

1 Sensor	1-1	Sensor connector is connected to PC board properly.	Yes	1-2
			No	Reconnect and check.
	1-2	Resistance between sockets is infinity or 0 ohm.	Yes	Replace sensor.
			No	2-1
2 Outdoor control PC board	2-1	Replace PC board because of outdoor control PC board failure.		

F31 Outdoor Unit Nonvolatile Memory (EEPROM) Trouble

1. Error Detection Method

It is judged an error based on the criteria listed below.

- When power initially turned ON for the first time, nonvolatile memory (EEPROM) is not installed.
- Read values after writing onto nonvolatile memory (EEPROM) is inconsistent.

2. Error Diagnosis

1 PC board	1-1	Does EEPROM exist on the control PC board?	Yes	1-2
			No	Install EEPROM.
	1-2	Is EEPROM installed properly? (Check: Bent IC pin or incorrect installation, etc.)	Yes	1-3
			No	Correct
	1-3	Incorrect EEPROM Replace with correct EEPROM.		

H01 Primary (input) Overcurrent Detected

1. Error Detection Method

• Primary current effective value detected overcurrent (trip current value).

Trip current value HP = horse power

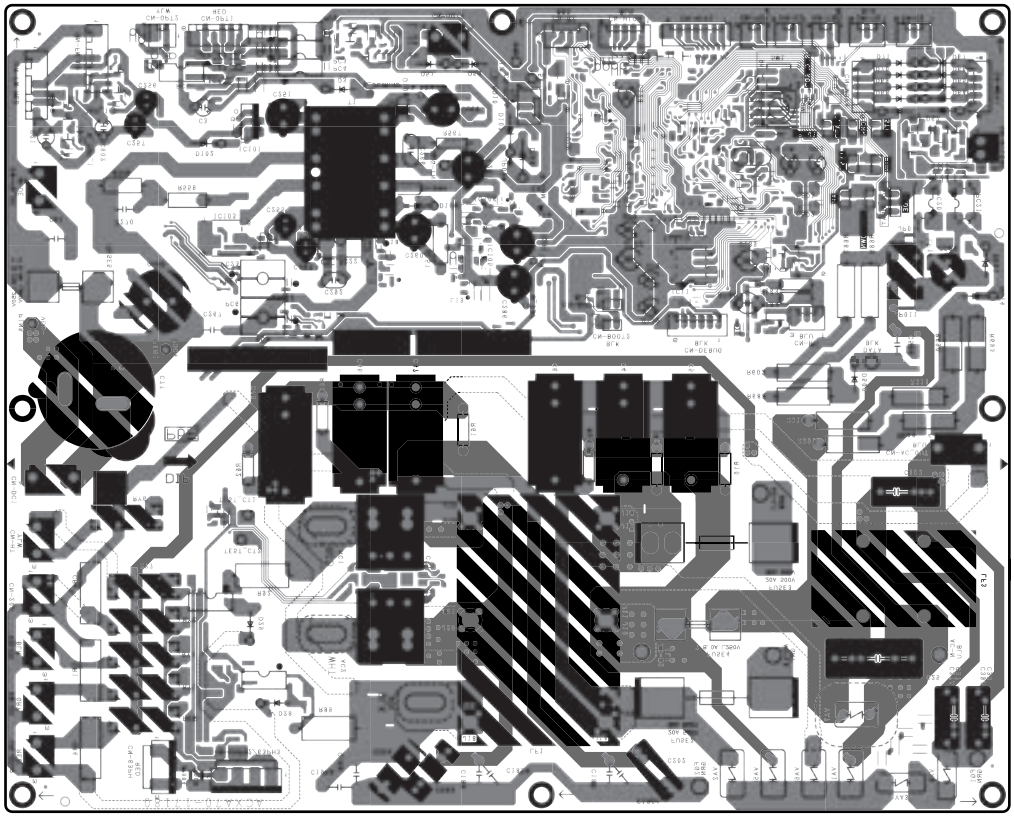
3-phase model	8 HP	10 HP
Heating	18.0A	19.5A
Cooling	15.5A	17.0A

2. Error Diagnosis

1 Power supply*	1-1	Not satisfied with ±10% rated supply voltage	Yes	Check power supply.
			No	1-2
	1-2	Extreme voltage fluctuations	Yes	Check power supply.
			No	1-3
	1-3	Extreme distortion of voltage waveform	Yes	Check power supply.
			No	1-4
	1-4	Instantaneous blackout may sometimes occur.	Yes	Check power supply.
			No	2-1
2 PC board wiring	2-1	Has FUSE1-A / FUSE2 / FUSE3 blown? Check the electrical conduction with tester.	Yes	2-3
			No	2-2
	2-2	Loose electrical wire connection	Yes	Correct wiring.
			No	2-3
	2-3	Replace CR board.		

* Check not only in the outdoor unit stop mode but in the drive mode.

U-200PZH4E8, U-250PZH4E8



H03 Primary Current CT Sensor (current sensor) Failure

1. Error Detection Method

It is judged an error based on the criteria listed below.

- If 18A or greater is detected when the compressor is stopped (alarm triggered even if the connector is unplugged).
- If no current is detected even though a compressor is running.

2. Error Diagnosis

1 Check the control PC board	1-1	Turn the power on again and run the outdoor unit. Is alarm occurred after operation?	Yes	Replace CR board.
			No	See what happens.

H05 Sensor Failure, Compressor Discharge Temperature Sensor (TD) Disconnected

1. Error Detection Method

- (In case of outdoor temperature over 5°C) For 10 minutes since started, variation of discharge temperature is always detected within 2°C comparing with the temperature just before starting.
- (In case of outdoor temperature less than 5°C) For 30 minutes since started, variation of discharge temperature is always detected within 2°C comparing with the temperature just before starting.

1 Sensor Trouble	1-1	Is the sensor properly installed at the holder side?	Yes	1-2
			No	Reinstall correctly.
	1-2	Replace the sensor with a new one.		

H31 HIC Trouble

1. Error Detection Method

It is judged an error if the computer detects an error signal from the HIC.
An error signal is issued by the HIC if abnormal heat occurs inside the HIC or if there is an overcurrent.
However, it is judged an error in the same way if the signal line from the HIC is not connected properly or opened.

- HIC overcurrent due to HIC fault
- HIC abnormal heat caused by defective HIC or HIC radiation error
- Signal line is not connected properly or opened between the HIC and the outdoor CR board.

2. Error Diagnosis

1 Wiring between HIC & outdoor control PC board	1-1	The wiring (power cord and signal line) between the HIC and the outdoor CR board is connected properly.	Yes	1-2
			No	Correct wiring (connector).
	1-2	Everything is normal in the wiring (power cord & signal line) between the HIC and the outdoor CR board. Check the wiring one by one with a tester if there is opened and grounding.	Yes	3-1 : Single-phase model 2-1 : 3-phase model
			No	Replace wiring.
2 Check the outdoor unit CR PC board.	2-1	The connector CN-RY on the CR PC board is connected properly (locked). (3-phase only)	Yes	3-1
			No	Correct wiring (connector).
3 HIC poor radiation	3-1	The heat dissipating surface on the back of the HIC is in good contact with the heat sink (heat dissipating fins) of the electrical box. Check for looseness in the fastening screws and the condition of the heat-conducting putty.	Yes	3-2
			No	Tighten screw(s), add putty.
	3-2	A good flow of cooling air passes through the heat sink (heat dissipating fins) of the electrical box. Check for debris blocking the fins.	Yes	4-1
			No	Remove foreign matter.
4 HIC overcurrent	4-1	The results of the pass/fail tests for the following HIC board IPM show it to be outside the range of the resistance of a conforming part.	Yes	Replace the HIC PC board.
			No	4-2
	4-2	The inverter compressor was stopped/started more than 10 times and it triggered H31 at a high rate. If alarm code P16 occurs at times, refer to the alarm code P16.	Yes	Replace the HIC PC board.
			No	Refer to alarm code P16.

• HIC board IPM Pass/Fail Tests

- Measure with an analog tester. (Set to the k ohm range)
- Measure the board by itself. (Remove wires connected from other parts.)
- Measure using IPM terminals.

★ Conforming part resistance value (measure with an analog tester)

Tester terminals								
+	P				NU			
-	U	V	W	NU	U	V	W	P
Resistance value (ohm)	1 k to 5 k	1 k to 5 k	1 k to 5 k	5 k to 10 k	100 k to ∞	100 k to ∞	100 k to ∞	100 k to ∞

Tester terminals								
-	P				NU			
+	U	V	W		U	V	W	
Resistance value (ohm)	100 k to ∞	100 k to ∞	100 k to ∞		1 k to 5 k	1 k to 5 k	1 k to 5 k	

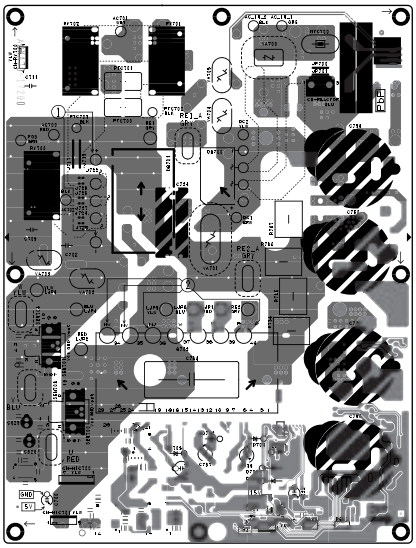
- Excepting the parts of " 100 k to ∞ ", it is acceptable if a small resistance value appears as a reference value unless the value is "0 = short-circuit".

Tester terminals								
+	HIC+				HIC-			
-	U	V	W	HIC-	U	V	W	HIC+
Resistance value (ohm)	1 k to 10 k	1 k to 10 k	1 k to 10 k	5 k to 20 k	20 k to ∞	20 k to ∞	20 k to ∞	20 k to ∞

Tester terminals								
-	HIC+				HIC-			
+	U	V	W		U	V	W	
Resistance value (ohm)	20 k to ∞	20 k to ∞	20 k to ∞		1 k to 10 k	1 k to 10 k	1 k to 10 k	

• Excepting the parts of " 20 k to ∞ ", it is acceptable if a small resistance value appears as a reference value unless the value is "0 = short-circuit".

■ Outdoor Unit Control HIC PCB
(U-200PZH4E8, U-250PZH4E8)
(3-phase outdoor unit HIC PC board)



L04 Outdoor Unit Address Duplication

1. Error Detection Method

It is judged an error when the identical self-address communication on the indoor and outdoor wirings is received over 5 times within 3 minutes.

2. Error Diagnosis

1 System address	1-1	Are other outdoor units using a duplicate setting?	Yes	2-1
			No	2-2
2 Installation or setting related	2-1	When units are networked, first set the system address for each outdoor unit in the order 1-2-3 and then run auto address setting.		
	2-2	Run the auto address setting.		

L10 Outdoor Unit Capacity not Set or Invalid

1. Error Detection Method

It is judged an error when outdoor unit capacity not yet setup or systematically unauthorized setting.

2. Error Diagnosis

1 Check the control PC board	1-1	Was EEPROM replaced when PC board was replaced?	Yes	2-1
			No	Replace EEPROM.
2 Installation or setting related	2-1	Set an applicable capacity value on the item code 81 display of maintenance remote controller.		

- Check : Connect the outdoor maintenance remote controller and check whether item code 81 outdoor capacity value shows “0” or unauthorized capacity is set on the detailed settings mode display of the outdoor EEPROM.
  If the capacity value of the item code 81 with the outdoor maintenance remote controller is incorrect, recorrect and set it again.
  * After setting the capacity value, be sure to reset the power supply switches of both indoor and outdoor units.

L13 Indoor Unit Type Setting Error

1. Error Detection method

- Discordance model(s) between outdoor and indoor units are detected.

1 Discordance Unit	1-1	Are models for outdoor and indoor units matched respectively? (Ex: Are multiple indoor units connected to commercial outdoor units?)	Yes	2-1
			No	Replace indoor units.
2 Installation Failure	2-1	Check the indoor unit’s motor valve with the remote control detailed settings mode (2C code) and commercial indoor unit is set to “2” and multiple indoor unit is “0”.	Yes	3-1
			No	Change installation.
3 Operating Wires for Indoor & Outdoor Units	3-1	Check whether or not indoor and outdoor unit operating wires are short circuit, disconnection, loose connection or earth fault.		

L18 4-way Valve Operation Failure

1. Error Detection Method

It is judged an error when during heating operation (Comp. ON), the highest detected temperature at an outdoor unit heat exchanger (C1) was 20°C or more above the outdoor air temperature (Air Temp.) continuously for 5 minutes or longer.

2. Error Diagnosis

1 PC board wiring	1-1	Is the connector wired from the 4-way valve plugged in the CN-HOT1 or CN-HOT2 connector on the HIC PC board properly?	Yes	1-2
			No	Correct connector.
	1-2	Has the 4-way valve wiring become opened?	Yes	Correct wiring.
			No	1-3
	1-3	Is the wire from the coil for controlling the 4-way valve firmly connected to the 4-way valve?	Yes	2-1
			No	Correct connector.
2 4-way valve	2-1	During heating mode (Comp. ON), insert and remove the connector wired from the 4-way valve into or from CN-HOT1 or CN-HOT2 connector on the HIC PC board. At the same time, does the ON & OFF sounds occur from the 4-way valve?	Yes	2-2
			No	Replace HIC PC board.
	2-2	During heating mode (Comp. ON), does the alarm code L18 reproduce for 5 minutes or longer after insertion and removal of CN-HOT1 or CN-HOT2 connector wired from the 4-way valve connector on the HIC PC board?	Yes	2-3
			No	See what happens.
	2-3	The parts inside the 4-way valve might have fixed at the cooling side. Replace the 4-way valve.		

5

P03 Compressor Discharge Temperature Trouble

1. Error Detection Method

- When the discharge temperature is over 106°C.

2. Error Diagnosis

1 Adjustment to refrigerant charge	1-1	Not additional refrigerant charged	Yes	Additional refrigerant charge
			No	2-2
	1-2	Tends to have insufficient refrigerant charge in the system.	Yes	Adjust the refrigerant amount.
			No	Replace CR board.
2 Blockage in refrigerant circuit	2-1	Service valve inside the outdoor unit closed	Yes	Open service valve.
			No	2-2
	2-2	Are the tubes clogged?	Yes	Avoid clogging.
			No	2-3
	2-3	Is the outdoor unit's electronic control valve operating correctly? (Check for debris clogging the electronic control valve, a problem with the electronical coil and/or the control PC board.)	Yes	2-4
			No	Replace the electronic control valve.
	2-4	Is it observable difference in status of the dew or frost between the strainer's primary and secondary sides?	Yes	Replace the strainer.
			No	Replace CR board.

P04 High Pressure Trouble

1. Error Detection Method

It is judged an error if the internal circuit of the high pressure switch is dead.
The electronic circuitry of the high pressure switch is cut off if the pressure at the pressure sensor port of the high pressure switch reaches 3.80 MPa. Once it is cut off, it remains cut off until the pressure drops to 3.15 MPa.

- The high pressure switch is malfunctioning.
- Service valve inside the outdoor unit closed
- There is a short air circuit through the outdoor unit's heat exchanger. (when cooling)
- The outdoor unit's fan is broken. (when cooling)
- The outdoor unit's heat exchanger is clogged. (when cooling)
- There is a short air circuit at the indoor unit. (when heating)
- The filter of the indoor unit is clogged. (when heating)
- The fan of the indoor unit is broken or the fan motor is malfunctioning. (when heating)
- The refrigerant circuit is closed and the high pressure is increasing abnormally high. (Solenoid valve or expansion valve not activated, a stuck check valve, etc.)
- Refrigerant overcharged
- Nitrogen or air contaminated in the refrigerant system

2. Error Diagnosis

1 High pressure switch	1-1	The socket of the high pressure switch is securely inserted in the PC board. The wiring is not opened.	Yes	1-2
			No	Correct connection and/or wiring.
	1-2	Even if parts near the high pressure switch are shaken quite a lot, the high pressure cut off will be activated. Even if the covering is in good condition, in several cases vibration has caused wiring inside to open.	Yes	Replace the high pressure switch (wiring).
			No	2-1
2 Service valve	2-1	Service valve inside the outdoor unit closed	Yes	Open the service valve.
			No	2-2
	2-2	There is an extreme difference in temperature in/out of the service valve.	Yes	2-3
			No	3-1
	2-3	Check the flare connection, someone may have forgotten to remove the bonnet. If there is a problem within the service valve, replace the valve.		
3 Problem around the heat exchanger	3-1	While cooling is operating an alarm is occurred.	Yes	3-2
			No	3-5
	3-2	The intake temperature (ambient temperature) of the outdoor unit's heat exchanger is above 46°C.	Yes	Prevent air short circuit.
			No	3-3
	3-3	The outdoor unit's heat exchanger is clogged.	Yes	Clean the heat exchanger.
			No	3-4
	3-4	Check whether the outdoor unit fan is normal or if the sockets are firmly pressed onto the plugs on the outdoor PC board, as well as if any wiring is opened. Are these checking finished without fail?	Yes	4-1
			No	Replace the outdoor unit fan. Correct connection and/or wiring.
	3-5	While heating is operating an alarm is occurred.	Yes	3-6
			No	4-1

3 Problem around the heat exchanger	3-6	The intake temperature (ambient temperature) of the indoor unit is above 36°C.	Yes	Prevent air short circuit.
			No	3-7
	3-7	The filter of the indoor unit is clogged.	Yes	Clean the filter.
			No	3-8
	3-8	The fan of the indoor unit is broken or the fan motor is faulty.	Yes	Replace the indoor fan (motor).
			No	4-1
4 Blockage in the refrigerant circuit	4-1	Is the outdoor unit's electronic control valve operating correctly? (Check for debris clogging the electronic control valve, a problem with the electronical coil and/or the control PC board.)	Yes	4-3
			No	Repair the electronic control valve of the outdoor unit.
	4-2	The indoor unit's expansion valve is operating correctly. (Check for debris clogging the valve, a problem with the electronical coil and/or the control PC board.)	Yes	4-3
			No	Repair the expansion valve of the indoor unit.
	4-3	If an alarm is occurred with the high pressure below 3.80 MPa, with the pressure measured as displayed by the manifold gauge, check the check valve in the compressor discharge line. Are these checking finished without fail?	Yes	4-4
			No	Replace the check valve in the compressor discharge line.
	4-4	The electronic control valve is faulty. In systems where the solenoid valve kits and the ice thermal storage tank are connected, check these solenoid valves.	Yes	Replace the electronic control valve and/or solenoid valve.
			No	5-1
5 Overcharging	5-1	Error occurs when the system is operating in cooling mode.	Yes	5-3
			No	5-2
	5-2	Error occurs when the system is operating in heating mode.	Yes	5-4
			No	5-5
	5-3	An alarm is occurred with the high pressure at 3.80 MPa, with the pressure measured either as displayed by the monitoring software or with a manifold gauge, at which time the temperature of liquid in the outdoor unit's heat exchanger is detected to be at the temperature of the outside air.	Yes	5-5
			No	Contact the service representative.
	5-4	An alarm is occurred with the high pressure at 3.80 MPa, with the pressure measured either as displayed by the monitoring software or with a manifold gauge, at which time the temperature of liquid in the indoor heat exchanger is detected to be at room temperature (intake temperature).	Yes	5-5
			No	Contact the service representative.
	5-5	The system may be overcharged. Check how much refrigerant was added during installation. When a system is inspected for airtightness, it is seldom that enough nitrogen has been expelled, so some remains in the circuit. In this case, it is necessary to collect the refrigerant and then recharge the system.		

P05 AC Power Supply Trouble

1. Error Detection Method

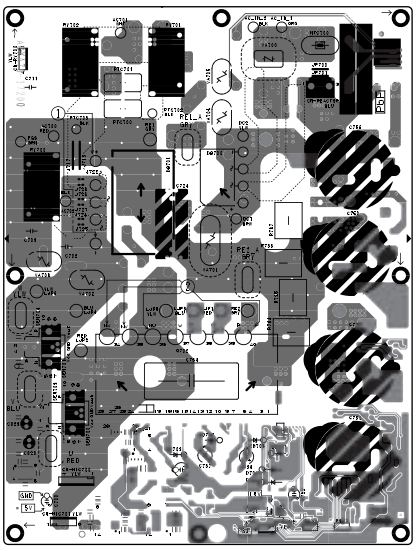
- Instantaneous blackout
- Zero-cross (waveform input of power supply) error
- DC voltage charge failure

2. Error Diagnosis

Note : The work involved in diagnosing each of the items is extremely dangerous, so turn the power off at the breaker before performing the tests.

1 Check the power supply & the wiring	1-1	Is the voltage on each of the terminal boards within ±10% of the rated voltage?	Yes	1-4 : Single-phase model 1-2 : 3-phase model	
			No	Check for open circuit and the voltage at the breaker. If a problem is found, fix it and check again.	
	1-2	Power wiring N-phase is connected.		Yes	Correct wiring.
				No	1-3
	1-3	Power wiring L2 and N are reverse connected. (3-phase only)		Yes	Correct wiring.
				No	1-4
	1-4	Turn the power back on and check again. Is the alarm triggered again?		Yes	3-1 : Single-phase model 2-1 : 3-phase model
				No	4-1
2 Check the outdoor unit CR PC board	2-1	The connector CN-RY on the outdoor CR PC board is connected properly (locked). (3-phase only)		Yes	3-1
				No	Correct wiring. (connector)
3 Check the outdoor unit HIC PC board	3-1	Are the wires (RE1, RE2) from the reactor firmly installed?		Yes	3-2
				No	Correct wiring.
	3-2	Turn the power back on and check again. Is the alarm triggered again?		Yes	Replace the outdoor unit HIC PC board.
				No	4-1
4 Final check	4-1	There may be a instantaneous blackout failure. If there is nothing abnormal, see what happens.			

■ **Outdoor Unit Control HIC PCB**
U-200PZH4E8, U-250PZH4E8
(3-phase outdoor unit HIC PC board)



P13 Alarm Valve Open

1. Error Detection Method

Detection is performed only in the test run. When once detected or the test run finished without any error, the second detection will not be done.
In case of forgetting to open a valve, P04 (high-pressure switch operational alarm) is occasionally preceded due to the following conditions.

- The status of small temperature change of the operating indoor unit continues for the first 7 minutes since the cooling test run has started.

2. Error Diagnosis

1 Service valve	1-1	Service valve inside the outdoor unit closed	Yes	Open the service valve.
			No	2-1
2 Adjustment to refrigerant change	2-1	Not additional refrigerant charged	Yes	Additional refrigerant charge
			No	3-1
3 Blockage in refrigerant circuit	3-1	Are the tubes clogged?	Yes	Avoid clogging.
			No	3-2
	3-2	Is the outdoor unit's electronic control valve operating correctly? (Check for debris clogging the electronic control valve, a problem with the electronical coil and/or the control PC board.)	Yes	3-3
			No	Replace the electronic control valve.
	3-3	As the second detection is not done, restart and see what happens if there is no error.		

5

P14 O_2 Sensor Detect

1. Error Detection Method

- It is judged an error whenever the outdoor unit receives the signal "O_2 Alarm Occurred" from the indoor unit.
- With the indoor unit's EEPROM setting (item code 0B) set to 0001, the EXCT input was shorted.

2. Error Diagnosis

1 System configuration	1-1	Is an O_2 sensor being used?	Yes	3-1
			No	2-1
2 Indoor unit's EEPROM setting	2-1	Is the indoor EEPROM setting, item code 0B, on the indoor unit's control PC board set to 0001?	Yes	After correcting the setting, 3-1
			No	4-1
3 Indoor EXCT wiring	3-1	Is the indoor EXCT socket (wire) shorted?	Yes	Correct wiring.
			No	4-1
4 Indoor unit's control PC board	4-1	Is the alarm triggered if the indoor EXCT socket (wire) is disconnected, and the power is reset?	Yes	4-3
			No	4-2
	4-2	Since there is no error, see what happens.		
	4-3	Indoor unit control PC board error → Replace PC board.		

P15 Insufficient Gas Level Detected

1. Abnormal Detection Method

Alarm occurs in the following cases:

- Compressor's current value shows lower than a certain value.
- Compressor's discharge temperature exceeds 95°C.
- Electronic expansion valve is fully opened.
- The difference between indoor unit heat exchanger temperature and intake temperature is less than 4K.

2. Error Diagnosis

1 Adjustment of refrigerant amount	1-1	Insufficient gas level (Check whether or not pressure level is normal.)	Yes	Recharge with additional refrigerant.
			No	1-2
	1-2	Check leakage of refrigeration (leak test).	Yes	Replace leaking part with a new one.
			No	See what happens.

P16 Compressor Overcurrent Trouble

1. Meaning of Alarm

- Secondary current effective value detected the overcurrent (trip current value).
  3-phase model (8HP & 10HP) : Trip current = 25.0 A
- Secondary current instantly detected overcurrent (trip current value).
  3-phase model (8HP & 10HP) : Trip current = 38.0 Apeak

2. Check of content

0 Multiple factors	0-1	Replaced the compressor (added oil, if it was necessary) but it occurred again immediately.	Yes	7-1
			No	-
	0-2	Replaced the board, but it occurred again immediately.	Yes	Replace compressor along with adding oil, then recheck from 1-1.
			No	-
1 Power Source	1-1	Power cord connections are loose.	Yes	Correct the wiring.
			No	1-2
	1-2	Rated power voltage is not within ±10%.	Yes	Test the power supply.
			No	1-3
	1-3	Extreme fluctuations in voltage.	Yes	Test the power supply.
			No	1-4
	1-4	An open phase state is observed.	Yes	Test the power supply.
			No	2-1
2 Board wiring	2-1	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections on the CR board and/or in the connections of components that are connected by wiring from the CR board.	Yes	Correct
			No	2-2
	2-2	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections of outdoor board(s) that are connected by wiring from the CR board.	Yes	Correct
			No	2-3
	2-3	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections of outdoor board(s) that are connected by wiring from the HIC board.	Yes	Correct
			No	2-4
	2-4	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections of HIC boards connected by wiring from the CR board.	Yes	Correct
			No	2-5
	2-5	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections of HIC board(s) that are connected by wiring from the outdoor board.	Yes	Correct
			No	2-6
	2-6	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections of HIC board(s) that are connected by wiring to a compressor.	Yes	Correct
			No	3-1
3 Compressor wiring	3-1	Disconnections and/or miswiring are observed in the connecting location of the compressor terminals.	Yes	Correct
			No	3-2
	3-2	Conditions such as burned terminal covers and/or discolored terminals are observed in the connecting location of the compressor terminals.	Yes	Eliminate looseness by changing the terminals, or crimping the terminals again.
			No	4-1

4 Check the situation	4-1	Outdoor air intake temperature is high.	Yes	Take measures.
			No	4-2
	4-2	May be caused by poor outdoor unit air flow (dirty or clogged heat exchanger, blocked discharge port, etc.)	Yes	Correct
			No	4-3
	4-3	Air short circuit has occurred. This is a phenomenon when discharged air (exhaust heat) from the outdoor unit is drawn back into the suction vent.	Yes	Prevent air short circuit.
			No	4-4
	4-4	Indoor air intake temperature is high.	Yes	Take measures.
			No	4-5
	4-5	The filter of the indoor unit is clogged.	Yes	Clean the filter.
			No	4-6
	4-6	Air short circuit has occurred. This is a phenomenon when discharged air (exhaust heat) from the indoor unit is drawn back into the suction vent.	Yes	Prevent air short circuit.
			No	5-1
5 Check operation	5-1	Possible to operate.	Yes	5-2
			No	6-1
	5-2	Operating pressure is affected by pressure overload.	Yes	5-3
			No	5-4
	5-3	Tends to have an overcharge of refrigerant in the system.	Yes	Adjust the amount of refrigerant.
			No	5-4
	5-4	Tends to operate for a long time turning gas back into liquid.	Yes	Check the operation of functional parts.
			No	5-5
	5-5	Tends to have insufficient refrigerant charge in the system.	Yes	Adjust the amount of refrigerant.
			No	5-6
	5-6	Even though the high pressure saturation temperature is 43°C or less, the secondary current of the inverter is high. (The frequency (Hz) ends up dropping due to the current.)	Yes	Replace the compressor.
			No	See what happens.
6 Check history	6-1	Dividing the outdoor EEPROM INV operation time by the number of times oil was supplied to the system yields 3 hours or less.	Yes	6-2
			No	6-2
	6-2	There is a history of H31 in the pre-trip counter of the outdoor EEPROM alarm history.	Yes	Replace the compressor and add oil. However, if 6-1 was “no”, it is not necessary to add oil.
			No	7-1
7 Check the HIC boards	7-1	The results of HIC board IPM Pass/Fail Tests show the outside the range of the resistance of a conforming part listed in the next page.	Yes	Replace HIC board.
			No	8-1
8 Check the compressor	8-1	The compressor is causing a failure in the insulation.	Yes	Replace the compressor.
			No	8-2
	8-2	The winding resistance of the compressor is abnormal. Standard winding resistance HP: horse power (8HP & 10HP) U-V : 0.735 ohm U-W : 0.715 ohm V-W : 0.715 ohm	Yes	Replace the compressor.
			No	9-1

9 Check the HIC PC boards	9-1	Replace the HIC PC board and operate the unit. (Apply putty and screws must not be loose) Does it operate normally?	Yes	See what happens.
			No	10-1
10 Check the outdoor unit main PC board	10-1	Replace the control PC board and operate the unit.	See what happens.	

- (Check content of 7) The test check of the HIC board is only a check on the output level, so the input stage may not be working.
- With the filter board broken, alarm P16 may not be triggered.

• HIC board IPM Pass/Fail Tests

- Measure with an analog tester. (Set to the k ohm range.)
- Measure the board by itself. (Remove wires connected from other parts.)
- Measure using IPM terminals.

★ Conforming part resistance value (measure with an analog tester)

Tester terminals								
+	P				NU			
-	U	V	W	NU	U	V	W	P
Resistance value (ohm)	1 k to 5 k	1 k to 5 k	1 k to 5 k	5 k to 10 k	100 k to ∞	100 k to ∞	100 k to ∞	100 k to ∞

Tester terminals								
-	P				NU			
+	U	V	W		U	V	W	
Resistance value (ohm)	100 k to ∞	100 k to ∞	100 k to ∞		1 k to 5 k	1 k to 5 k	1 k to 5 k	

- Excepting the parts of " 100 k to ∞ ", it is acceptable if a small resistance value appears as a reference value unless the value is "0 = short-circuit".

Tester terminals								
+	HIC+				HIC-			
-	U	V	W	HIC-	U	V	W	HIC+
Resistance value (ohm)	1 k to 10 k	1 k to 10 k	1 k to 10 k	5 k to 20 k	20 k to ∞	20 k to ∞	20 k to ∞	20 k to ∞

Tester terminals								
-	HIC+				HIC-			
+	U	V	W		U	V	W	
Resistance value (ohm)	20 k to ∞	20 k to ∞	20 k to ∞		1 k to 10 k	1 k to 10 k	1 k to 10 k	

- Excepting the parts of "20 k to ∞ ", it is acceptable if a small resistance value appears as a reference value unless the value is "0 = short-circuit".

P22 Outdoor Unit Fan Motor Trouble

1. Error Detection Method

- It is judged an error when the outdoor fan motor's rotating signal cannot be detected normally.

2. Error Diagnosis

1 Wiring	1-1	Are the connectors "CN-FM_UP" and "CN-FM_LO" firmly connected to the outdoor control PC board (lock engaged)?	Yes	2-1
			No	Correct the connector connections.
2 Outdoor fan motor	2-1	Disconnect the connectors "CN-FM_UP" and "CN-FM_LO" from the outdoor control PC board and rotate the outdoor fan by hand; does it rotate freely? (Check the outdoor fan motor lock.)	Yes	3-1
			No	Replace the outdoor fan motor.
3 Outdoor control PC board	3-1	Turn the power on and run the unit again; Is P22 triggered again? Can you see or hear anything wrong in its rotation?	Yes	3-2
			No	3-3
	3-2	Replace the outdoor control PC board. (If it fails to operate normally even after replacing the outdoor control PC board, replace the outdoor fan motor.)		
	3-3	If there is nothing particularly out of the ordinary, see what happens.		

P29 Lack of INV compressor wiring, INV compressor actuation failure (including locked), DCCT failure

1. Error Detection Method

- Abnormal current is detected at DCCT before start-up.
- Start-up failed during overcurrent and/or step-out detected.
- Open-wire of compressor and/or backspin detected.
- Secondary current is not detected during INV compressor is running.

2. Error Diagnosis

1 Wiring	1-1	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections of HIC PC board(s) that are connected by wiring to a compressor. *1	Yes	Correct wiring connections.
			No	1-2
	1-2	Disconnected parts, miswiring and/or poor connections (loose) are observed in the connections of outdoor board(s) that are connected by wiring from the HIC PC board. *1	Yes	Correct wiring connections.
			No	2-1
2 Compressor wiring	2-1	Disconnections and/or miswiring is observed in the connections of the compressor terminals. *1	Yes	Correct
			No	2-2
	2-2	Conditions such as burned terminal covers and/or discolored terminals are observed at the connectors of the compressor terminals. *1	Yes	Eliminate looseness by changing the terminals, or crimping the terminals again.
			No	3-1
3 Check the HIC PC boards	3-1	The results of the pass/fail tests for the following HIC PC board IPM show it to be outside the range of the resistance of a conforming part.	Yes	Replace the HIC board.
			No	3-2
	3-2	Replace the HIC PC board and operate the unit. (Apply putty and screws must not be loose) Does it operate normally?	Yes	See what happens.
			No	4-1
4 Check the outdoor control PC board	4-1	Replace the control PC board and operate the unit.	See what happens.	

*1 Checking for looseness of compressor terminals by wiggling them has the adverse effect of loosening them, so do not do it. Evaluate them by discoloration of wire insulation near the terminal.

• HIC board IPM Pass/Fail Tests

- Measure with an analog tester. (Set to the k ohm range)
- Measure the board by itself. (Remove wires connected from other parts.)
- Measure using IPM terminals.

★ Conforming part resistance value (measure with an analog tester)

Tester terminals								
+	P				NU			
-	U	V	W	NU	U	V	W	P
Resistance value (ohm)	1 k to 5 k	1 k to 5 k	1 k to 5 k	5 k to 10 k	100 k to ∞	100 k to ∞	100 k to ∞	100 k to ∞

Tester terminals								
-	P				NU			
+	U	V	W		U	V	W	
Resistance value (ohm)	100 k to ∞	100 k to ∞	100 k to ∞		1 k to 5 k	1 k to 5 k	1 k to 5 k	

- Excepting the parts of " 100 k to ∞ ", it is acceptable if a small resistance value appears as a reference value unless the value is "0 = short-circuit".

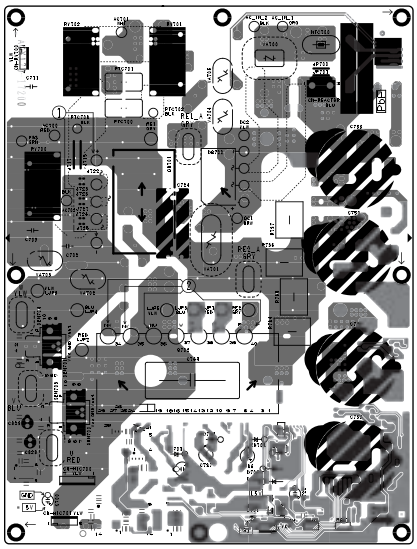
Tester terminals								
+	HIC+				HIC-			
-	U	V	W	HIC-	U	V	W	HIC+
Resistance value (ohm)	1 k to 10 k	1 k to 10 k	1 k to 10 k	5 k to 20 k	20 k to ∞	20 k to ∞	20 k to ∞	20 k to ∞

Tester terminals								
-	HIC+				HIC-			
+	U	V	W		U	V	W	
Resistance value (ohm)	20 k to ∞	20 k to ∞	20 k to ∞		1 k to 10 k	1 k to 10 k	1 k to 10 k	

- Excepting the parts of " 20 k to ∞ ", it is acceptable if a small resistance value appears as a reference value unless the value is "0 = short-circuit".

■ **Outdoor Unit Control HIC PCB**

U-200PZH4E8, U-250PZH4E8
(3-phase outdoor unit HIC PC board)



P31 Group Control Error

1. Error Detection Method

- Other indoor unit alarms within the group.

1 Other indoor unit	1-1	Survey the indoor unit that alarms other than “P31” in the indoor unit group and specify the causes of failure.

5-4. Inspection of Parts (Outdoor Unit)

(1) Electronic control valve (MOV1)

- MOV1: Measure the voltage between plug pin 5 and pins 1 through 4 at the CN-MOV1 connector (5P, white) on the outdoor unit control PCB. (Because of the pulse output, a simplified measurement method is used. Set the tester to the 12 V range; if the value displayed is approximately 4 V, then the voltage is normal.)

  If the voltage is normal, measure the resistance between connector pin 5 and pins 1 through 4.

  Resistance between pin 5 and pins 1 through 4 should be approximately 46 ohm for all. (If the result is 0 ohm or, ∞ then replace the coil.)

(2) Outdoor Unit Fan Motor

Model No.	Part No.
U-200PZH4E8, U-250PZH4E8	L6CBYYYL0486

(3) Coil Resistance of Compressor

Model No.	Part No.	Inverter compressor (at 20°C)		
		U - V	V - W	U - W
U-200PZH4E8	9VD550XAA21	0.735	0.715	0.715
U-250PZH4E8	9VD550XAA21	0.735	0.715	0.715

5-5. Symptom: Thermostat in OFF continues or cycles OFF & ON too frequently

1. How to detect abnormality

- Abnormality does not occur. Protective function can be checked when the outdoor maintenance remote controller is connected.

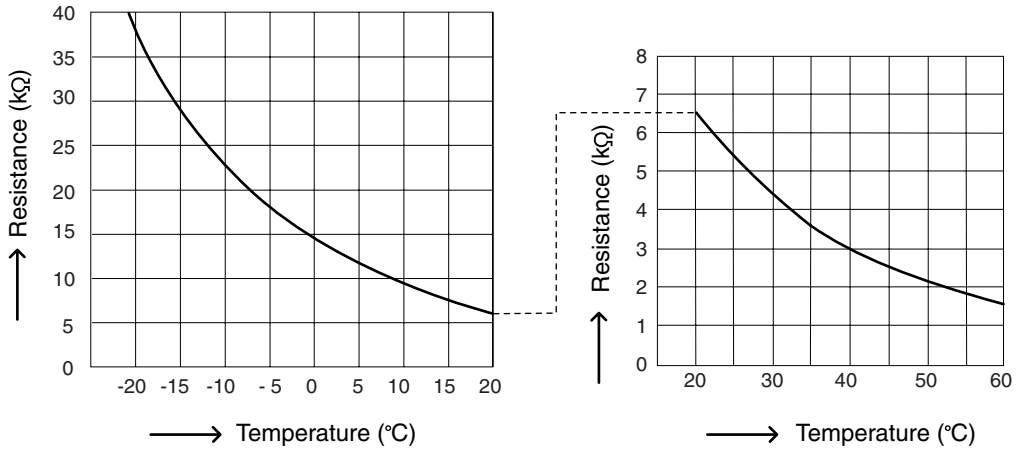
2. Error Diagnosis

1 Indoor control PC board	1-1	Setting temperature reaches the level set ON thermostat. Setting temperature is too low in heating mode and too high in cooling and dry mode.	Yes	Adjust setting temperature.
			No	1-2
	1-2	Check if the sensors are connected correctly. Are all connection made properly? Room temp. (TA) in yellow, heat exchanger (E1) in red, heat exchanger (E2) in black.	Yes	Connect correctly.
			No	1-3
	1-3	DISP (display mode) is applied.	Yes	Turn OFF(OPEN).
			No	1-4
	1-4	With a thermostat OFF in heating mode, wind speed (item code 05) is out of range 0 - 6. (Use Simple Setting Function on standard timer remote controller.)	Yes	Choose one of 0 to 6.
			No	1-5
	1-5	DEMAND is applied.	Yes	Turn OFF(OPEN).
			No	2-1
2 Outdoor control PC board	2-1	Outdoor unit and protective function of a system are operating. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	See operational status.
			No	2-2
	2-2	Discharge temperature is over 80°C in stop mode and does not decrease. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Replace discharge temperature sensor.
			No	2-3
	2-3	Demand value always stays low. (The value is lower than 70. Excluding -1 (unlimited))(Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Increase values (over 70).
			No	2-4
	2-4	DEMAND is applied.	Yes	Turn OFF(OPEN).
			No	3-1
3 Control equipment	3-1	Demand setting is made by control units (P-AIMS, Seri-Para I/O unit for outdoor unit, Seri-Para I/O each indoor unit.)	Yes	Turn OFF.
			No	4-1
4 System	4-1	When operating in cooling (including auto cooling & heating) and dry mode, lowest temp. of indoor E1 and E2 sensor is less than 2°C (under anti-freeze control).	Yes	Wait until more than 2°C reaches.
			No	4-2
	4-2	During defrosting operation	Yes	Wait for a few minutes to 10 minutes or so.
			No	4-3
	4-3	Outdoor unit PC board failure → Replacement		

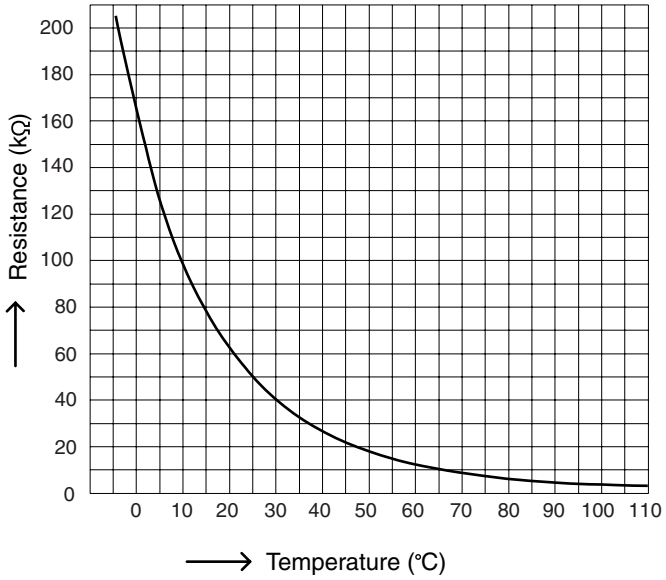
- According to a type of model, the indoor sensors will not be supplied in some cases.
- According to a type of model, the outdoor DEMAND will not be supplied in some cases.
- When LINE Checker is used, the temperature sensors can be observed (display, record) simultaneously.
- According to some areas, some of the models are unreleased.

5-6. Table of Thermistor Characteristics

(1) Outdoor Air Temp. (TO) Sensor,
Intake Temp. (TS) Sensor,
Heat Exchanger Temp. (C1) Sensor,
Heat Exchanger Temp. (C2) Sensor

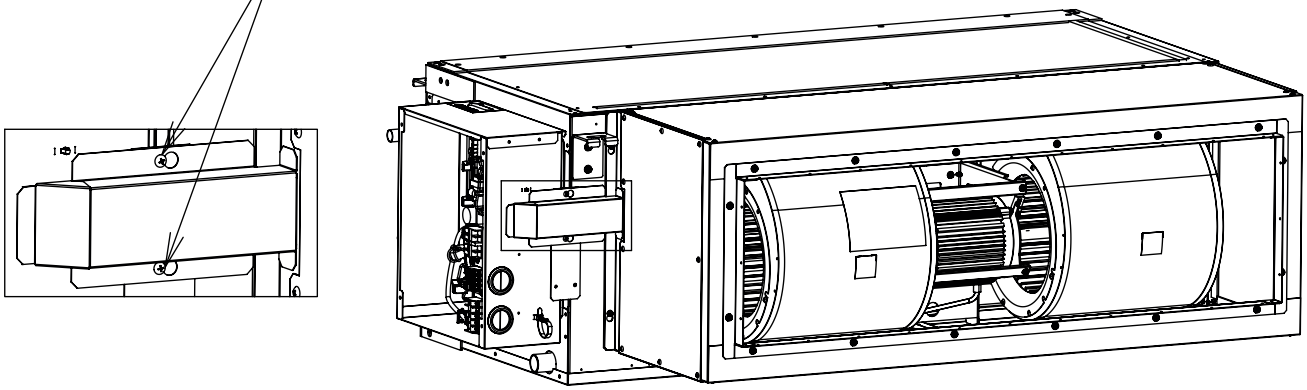


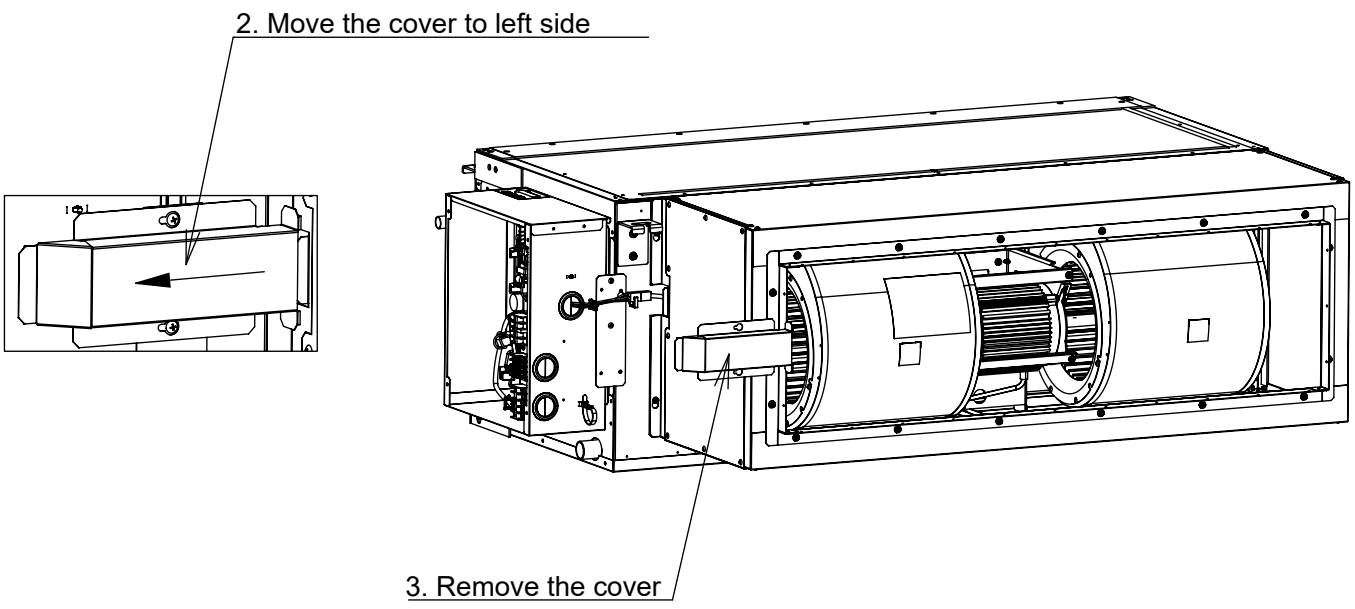
(2) Discharge Temp. (TD) Sensor

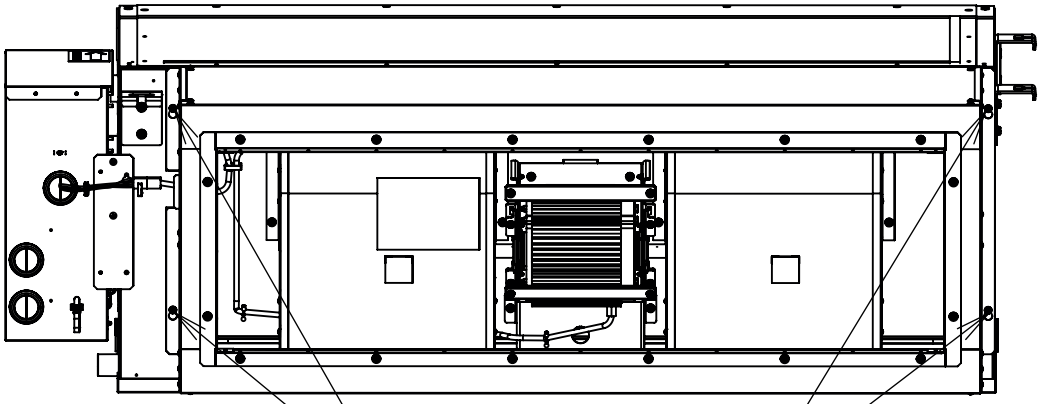


5

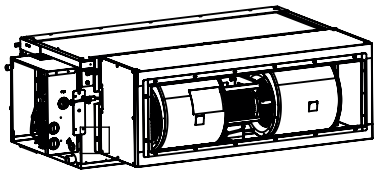
5-7. How to Remove Fan Motor (S-200PE4E)



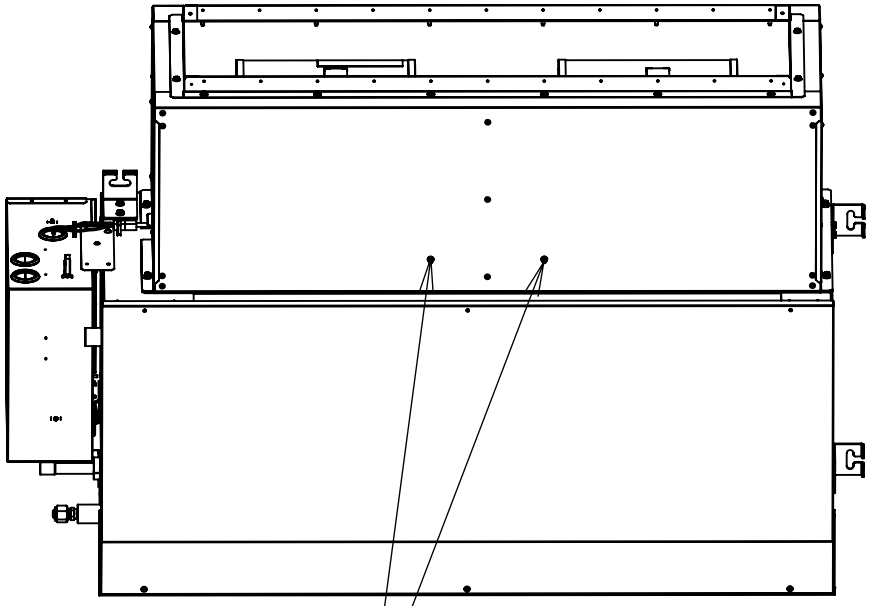




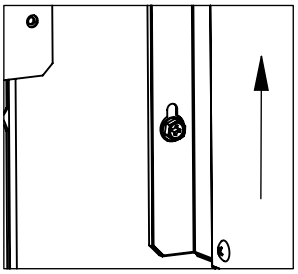
4. Loosen these 4 screws
(Do not fully remove them)

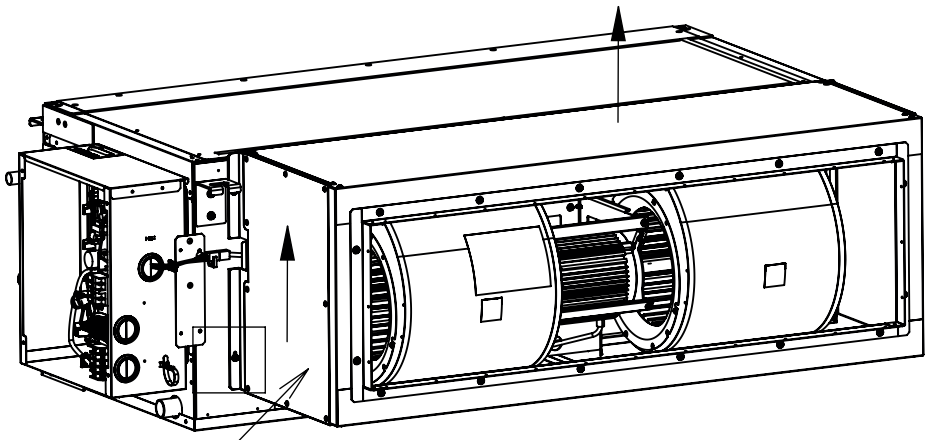


Look from bottom
of the unit

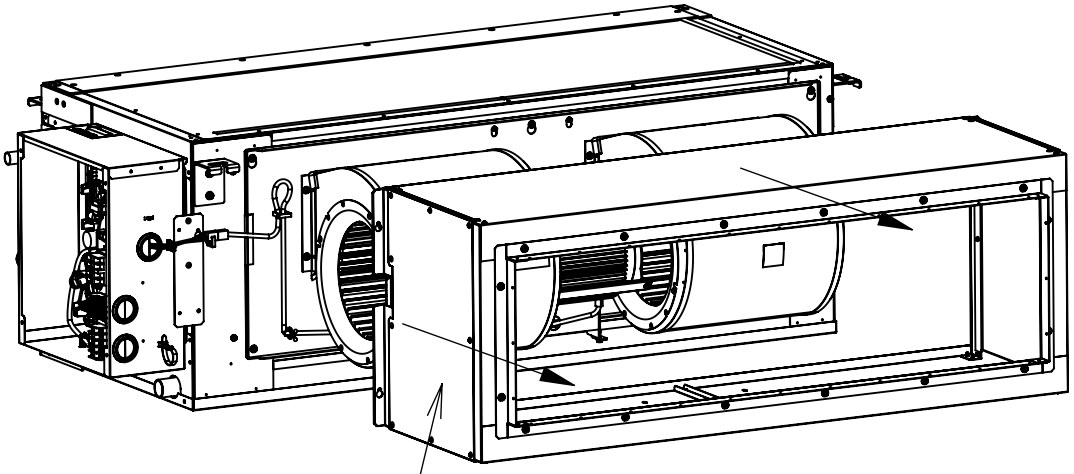


5. Fully unscrew these 2
screws from these locations.

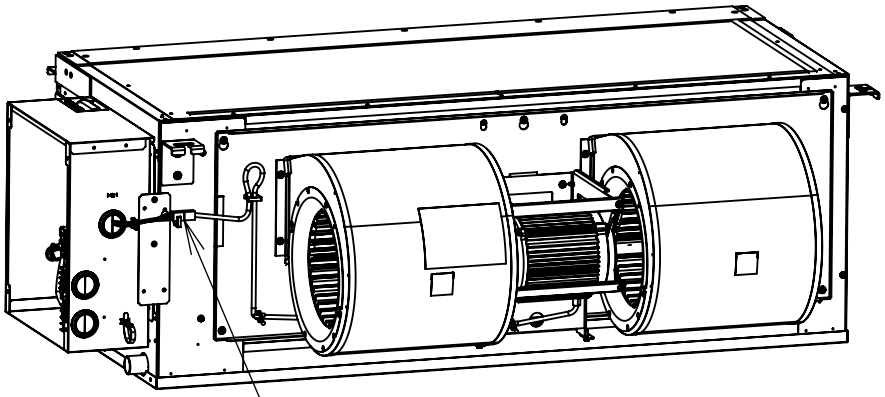




6. Lift the fan
cover unit upwards

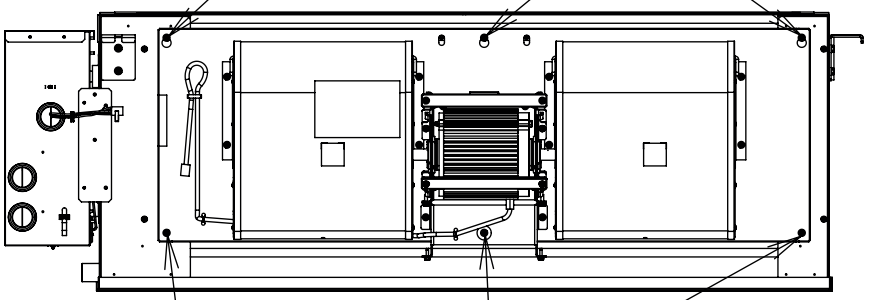


7. Remove the fan cover unit through the round hole

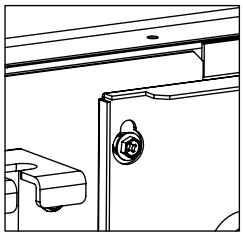


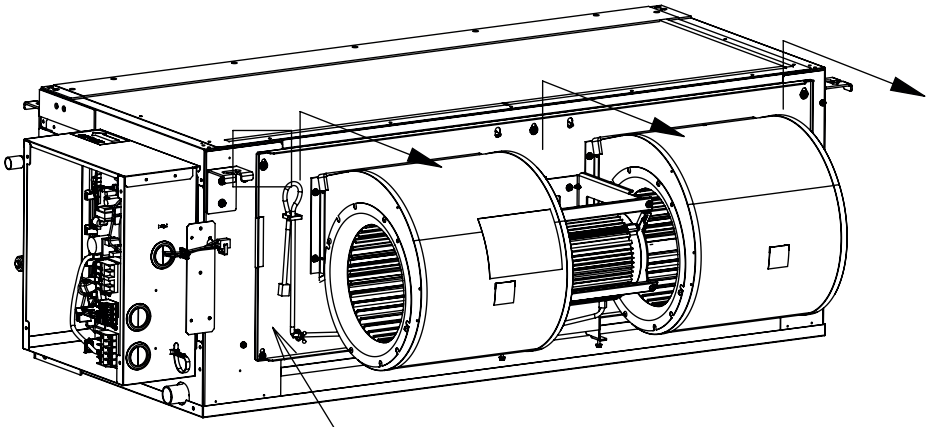
8. Disconnect the fan motor wire.

9. Loosen these 3 screws
(Warning: Do not fully
unscrew and remove them)

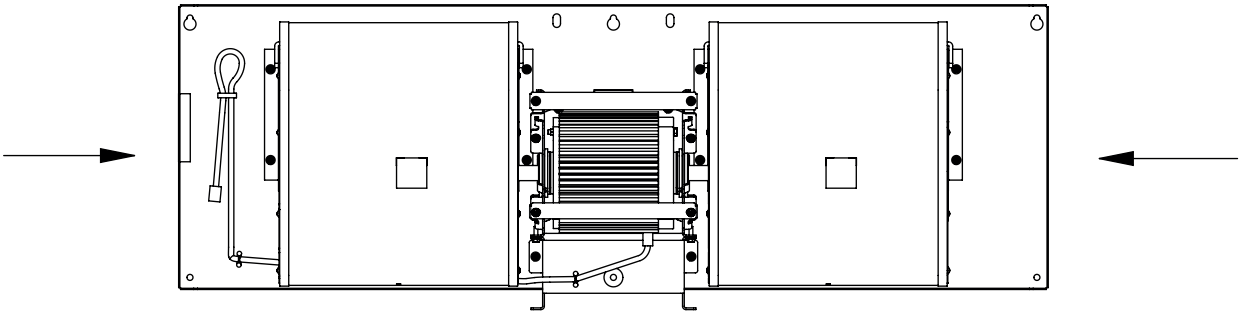


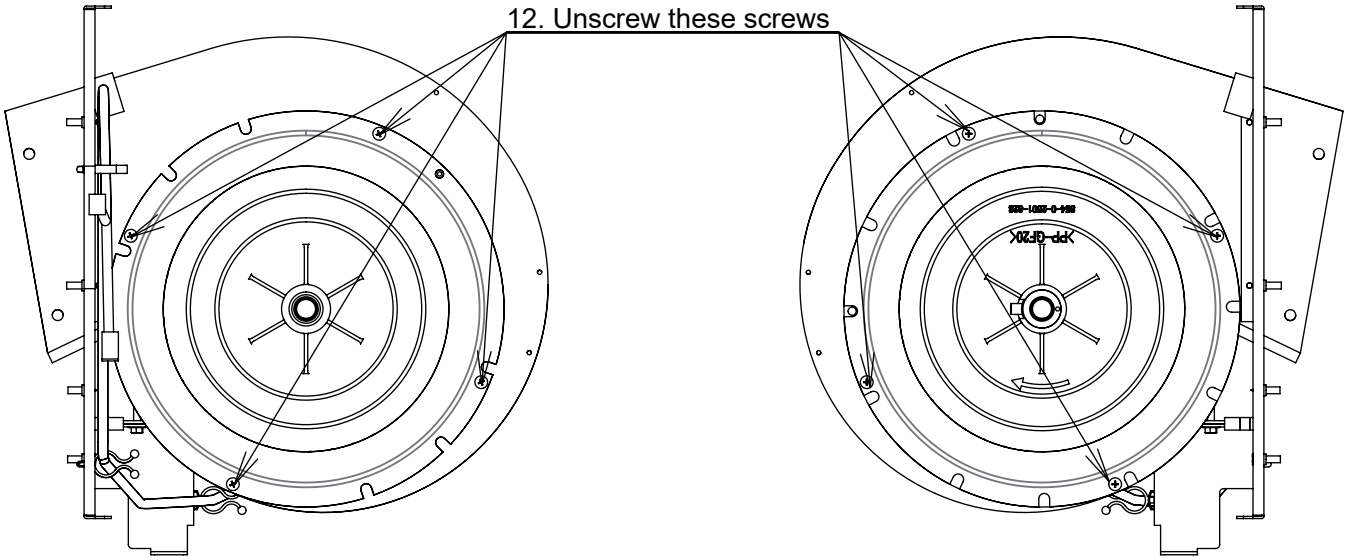
10. Fully unscrew and
remove these 3 screws.

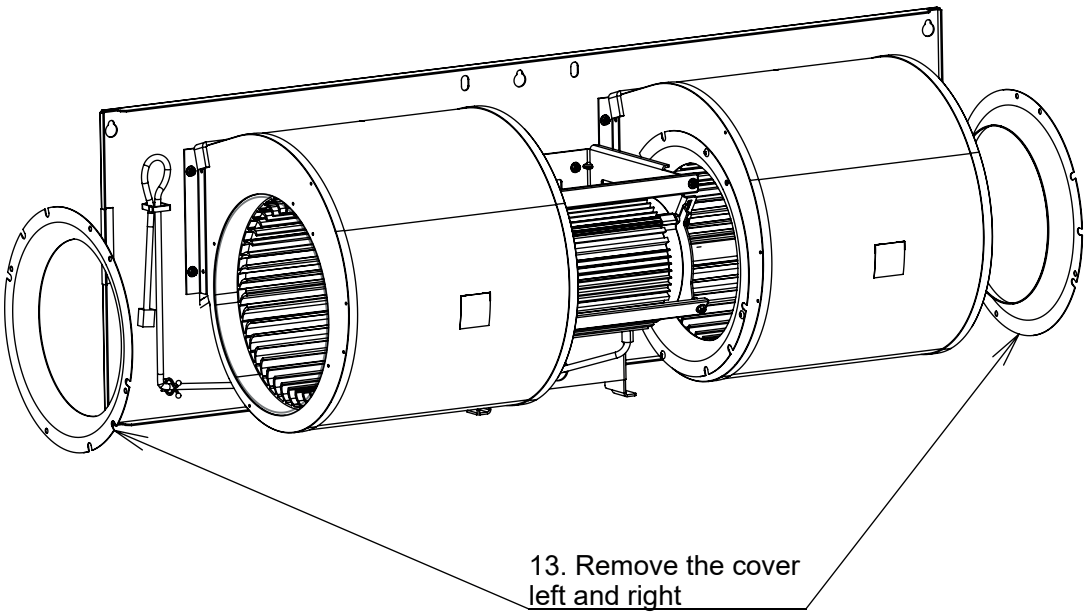


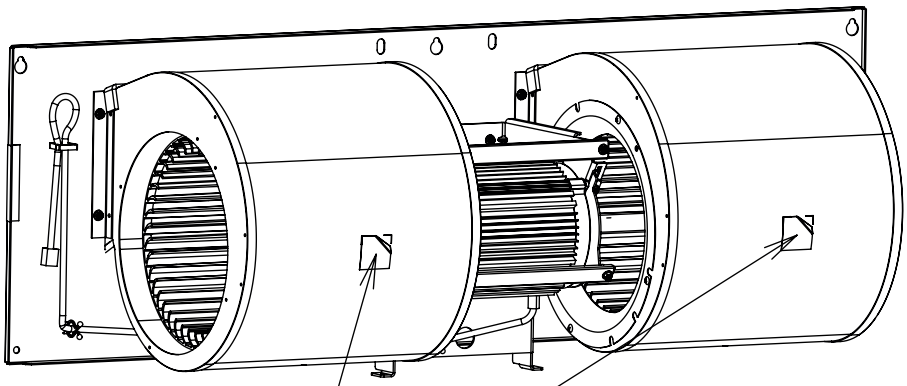


11. Lift the motor unit upwards and
remove it through the round hole.

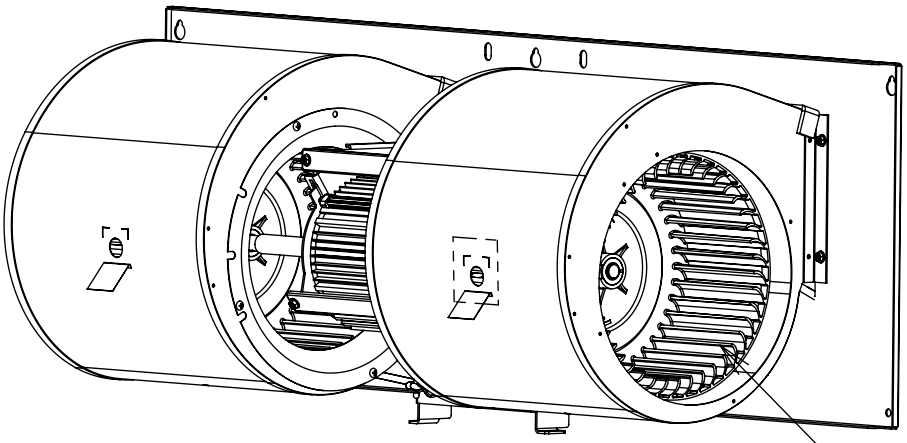


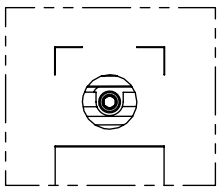

12. Unscrew these screws


13. Remove the cover
left and right

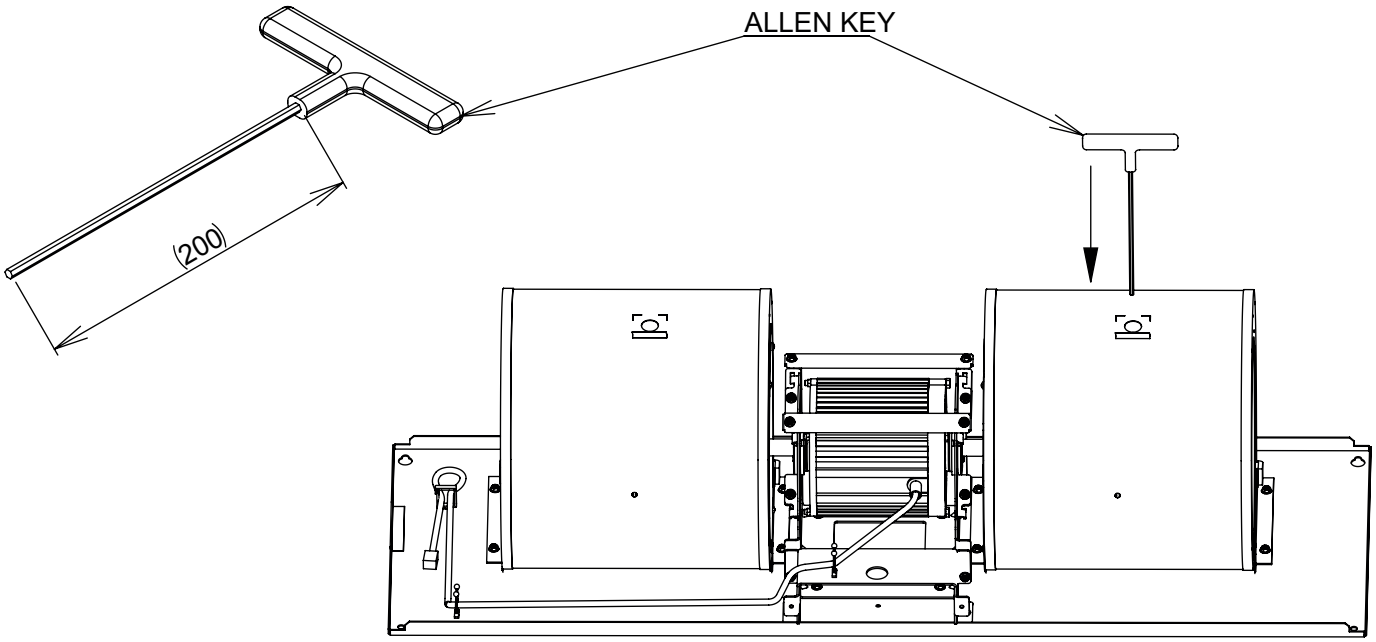


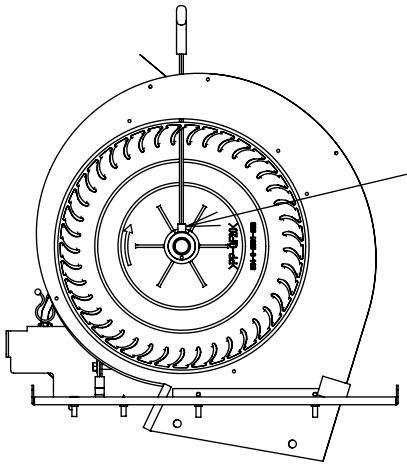
14. Partially peel off
the alumnium sheets.





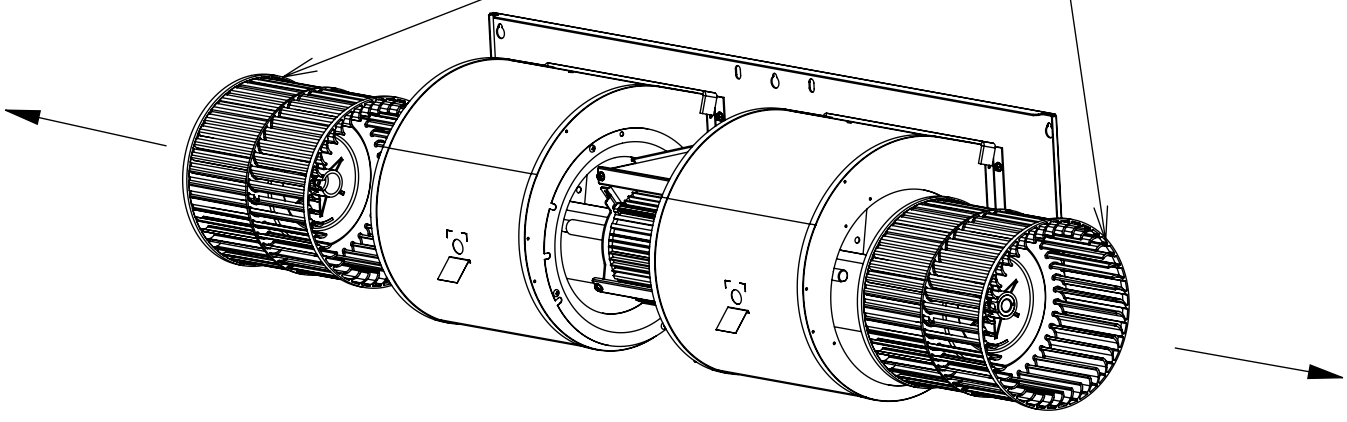
15. Rotate the wheel manually
until can see the nut.

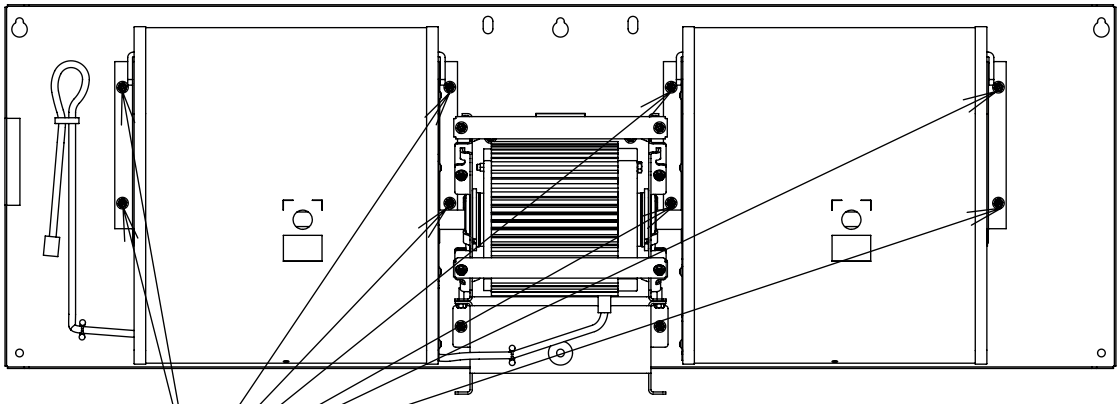




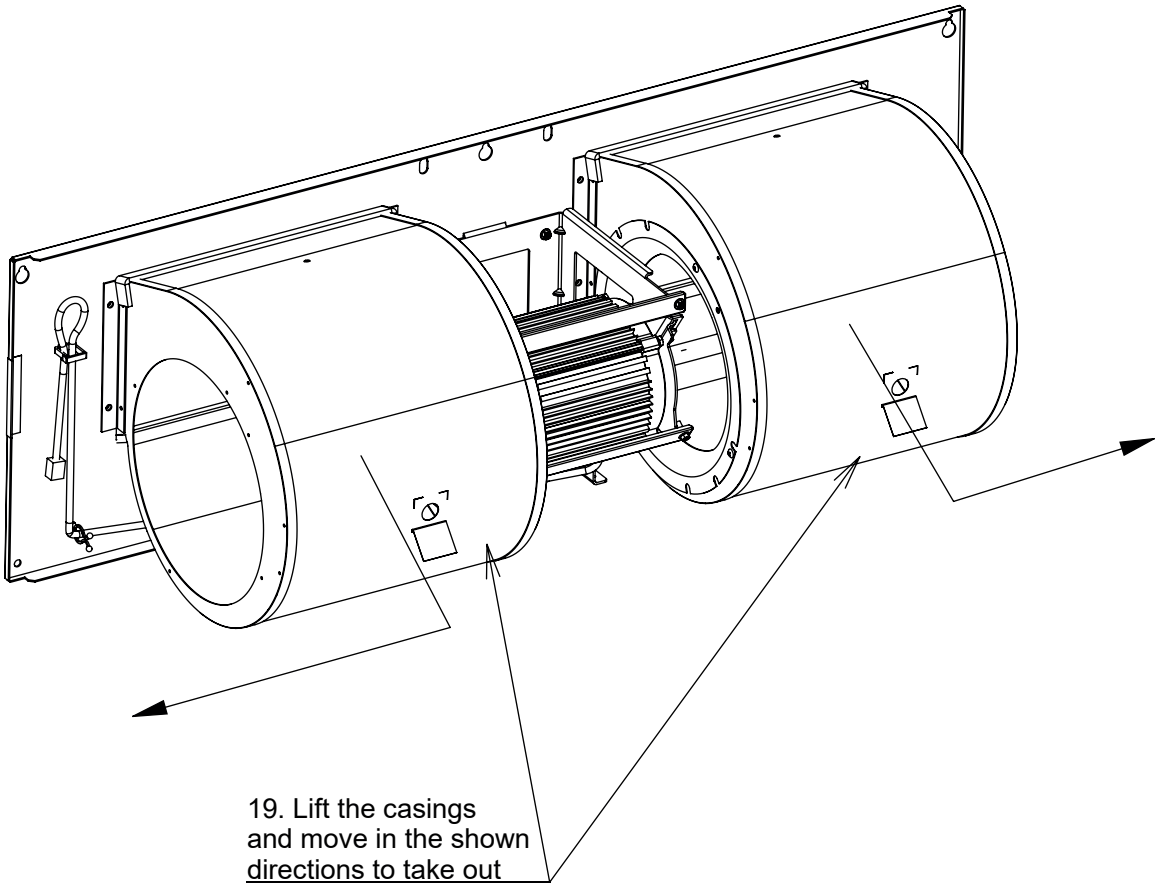
16. LOOSEN THE NUT OF THE FAN BY ROTATING ALLEN KEY ANTI-CLOCKWISE

17. Take out the fans

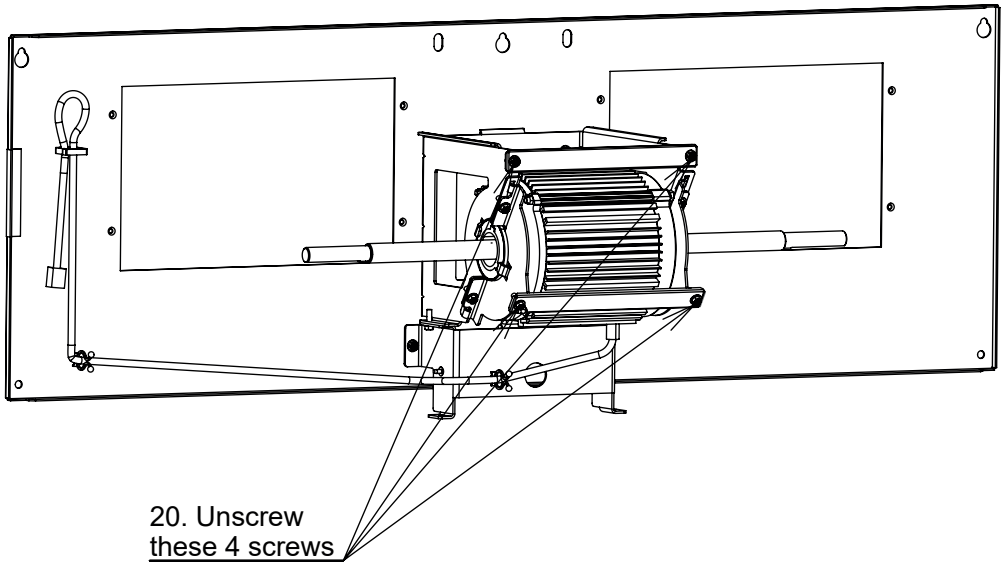




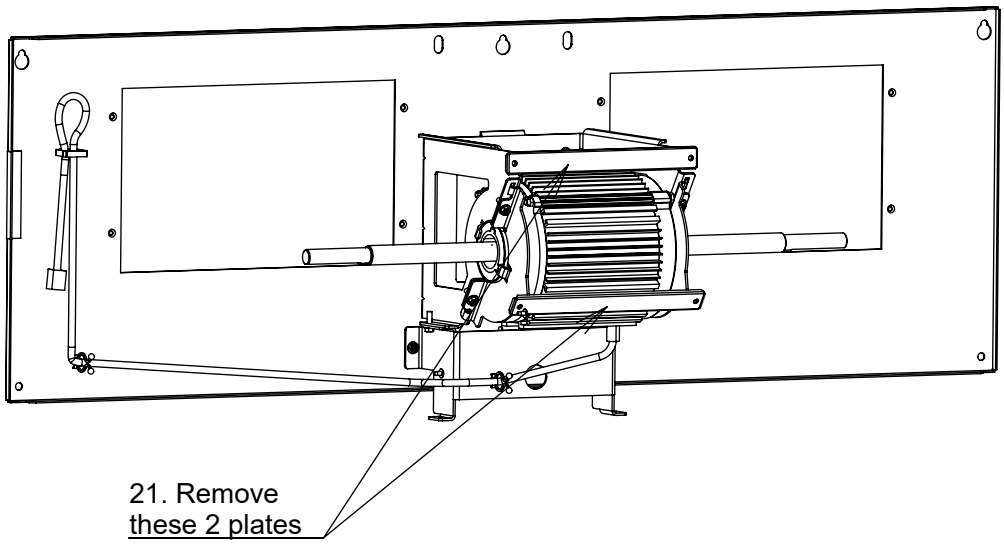
18. Unscrew and
remove these screws



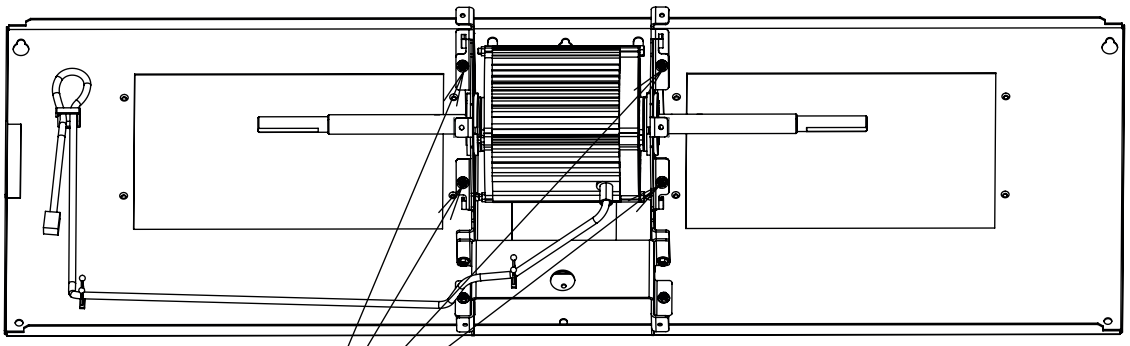
19. Lift the casings
and move in the shown
directions to take out



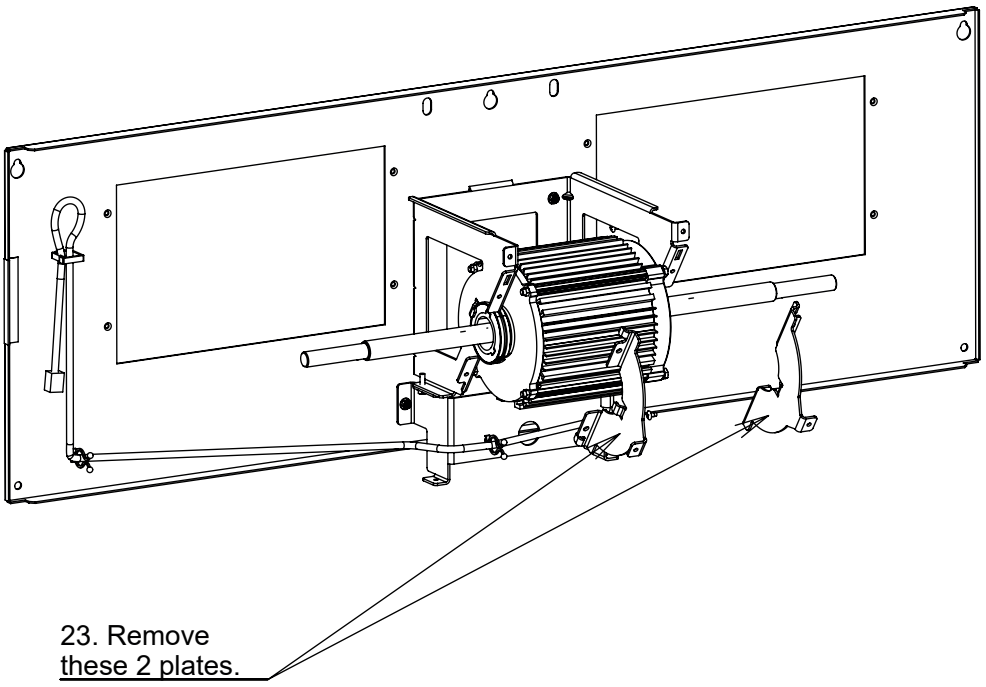
20. Unscrew
these 4 screws

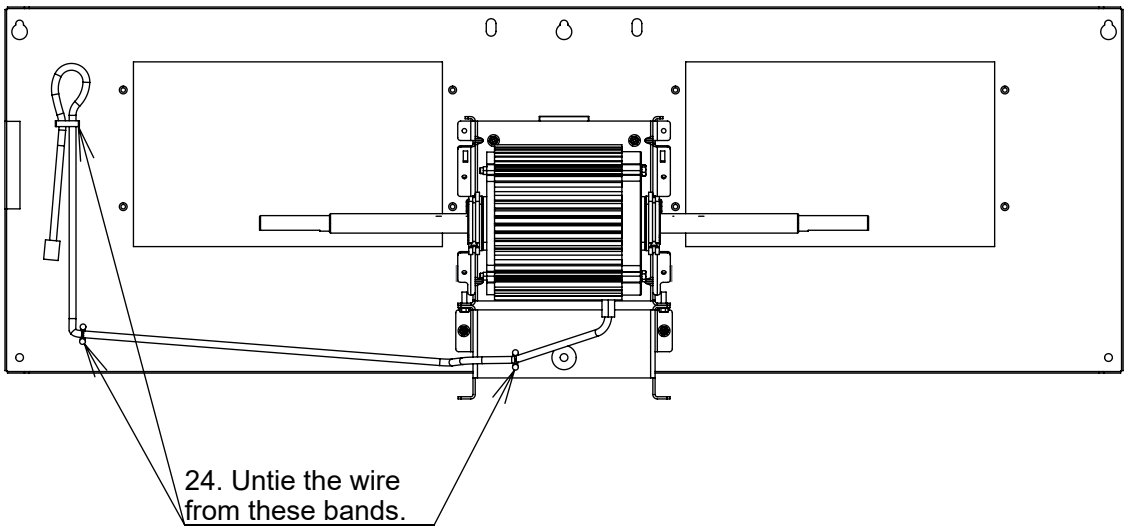


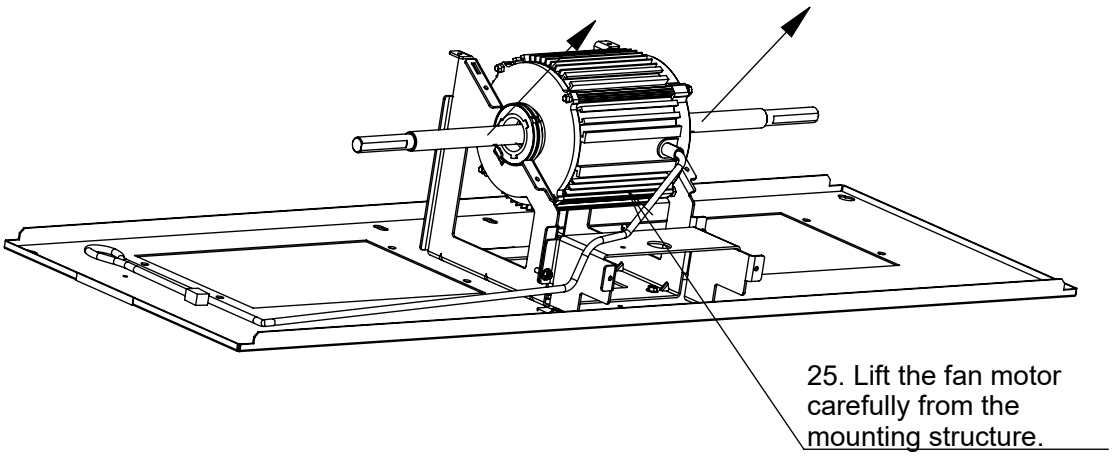
21. Remove
these 2 plates



22. Unscrew and
remove these 4 screws.


23. Remove
these 2 plates.


24. Untie the wire
from these bands.


25. Lift the fan motor
carefully from the
mounting structure.

5-8. How to Remove the Compressor

Pay careful attention to prevent water or foreign objects from entering into the refrigerant tubing when removing or installing the compressor.

Removing

1.After collecting the refrigerant in the system, replace nitrogen gas from the service port of the gas tubing valve.

2.Remove the sound absorbing material protecting the compressor.

3.Remove the cap of the compressor's terminal and then remove the power source terminal and TD sensor.

4.Remove the crank case heater.

5.Remove the bolts (×3) and then remove the washer and rubber spacer.

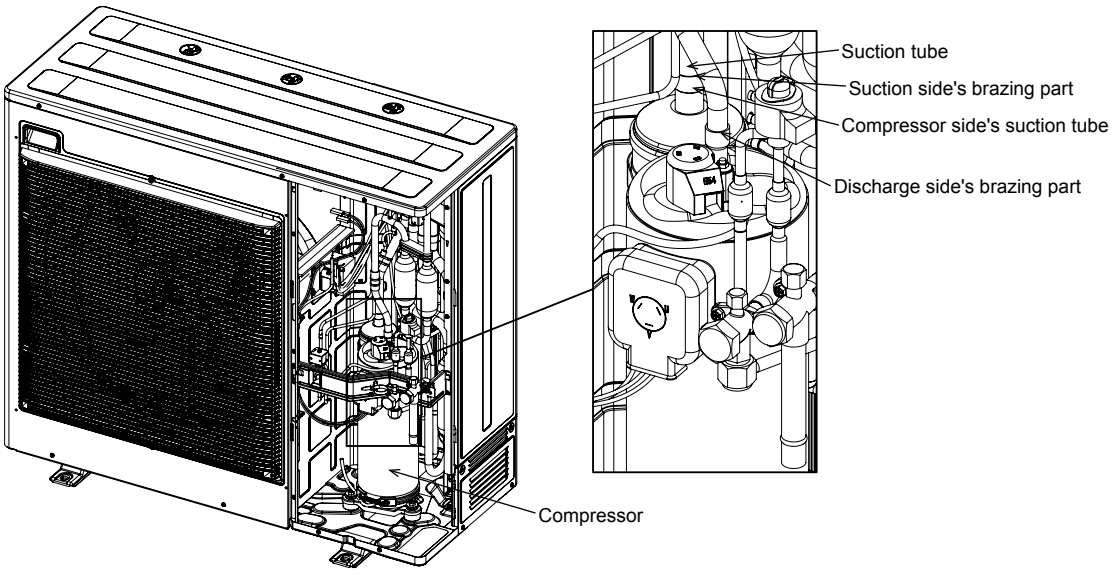
6.Cut off the compressor side's suction tube because the suction tube is solid and unmovable. See the diagram below.

7.Remove the discharge side's brazing part (×1). See the diagram below.

NOTE: Protect the sensor part, sheet metal, rubber, lead wire and clamper.

8.Pull the compressor toward you.

9.Remove the suction side's brazing part (×1) of the cut-off compressor side's suction tube connected to the suction tube.



5

5-9. How to Remove the Electrical Component Box

Removing

1.Remove the front panel and inspection panel from the outdoor unit.

2.Remove all local wires connected to the electrical component box.

3.Remove the wires (temperature sensor, coils of every sort of valve, pressure switch, fan motor and wires for connecting compressor) connected to the electrical component box in the unit.

⚠ Caution! When handling electronic controller, be careful of electrostatic discharge.

1 Remove the 2 screws and slide down the Cabinet Front Panel.

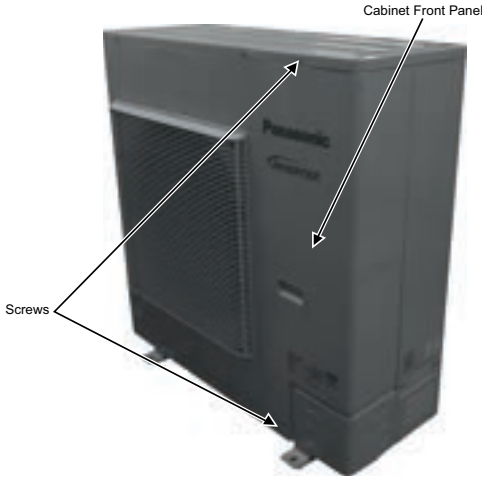


Fig. 1

2 Remove the Electronic Controller (CR).

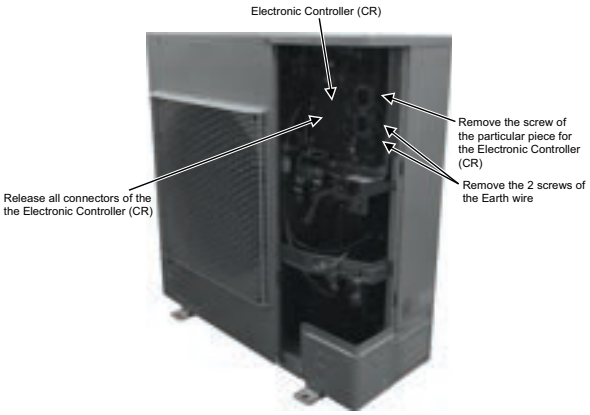


Fig. 2

3 Remove the 6 screws of the Electronic Controller (CR).

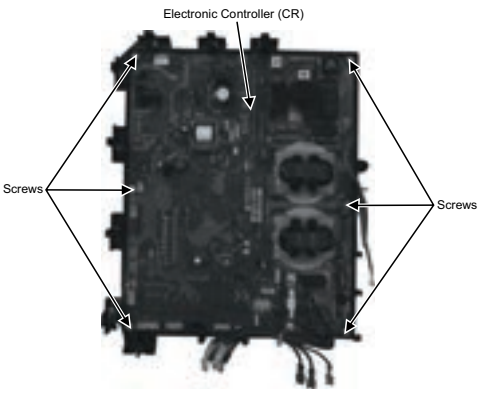


Fig. 3

4 Remove the 6 screws of the Control Board casing.

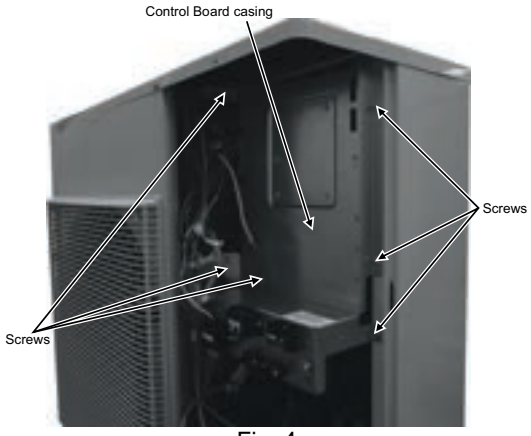


Fig. 4

5 Remove the Electronic Controller (HIC).

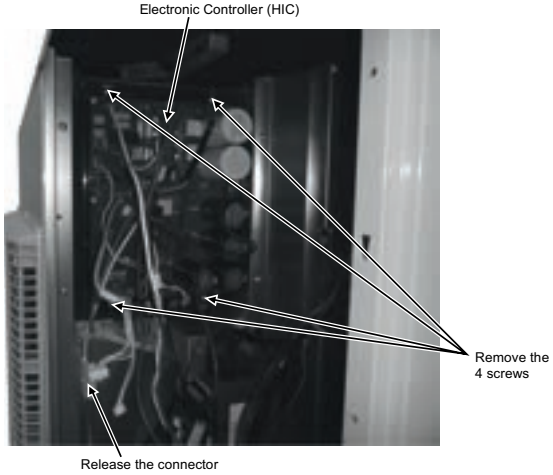


Fig. 5

6 Remove the 6 screws of the Electronic Controller (HIC).

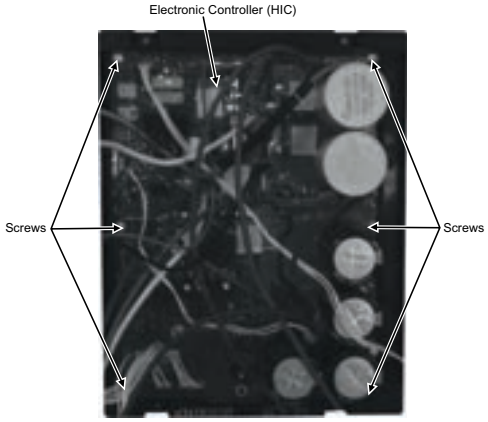


Fig. 6

5.10. Symptom: Thermostat in OFF continues or cycles OFF & ON too frequently

1. How to detect abnormality

- Abnormality does not occur. Protective function can be checked when the outdoor maintenance remote controller is connected.

2. Error Diagnosis

1 Indoor control PC board	1-1	Setting temperature reaches the level set ON thermostat. Setting temperature is too low in heating mode and too high in cooling and dry mode.	Yes	Adjust setting temperature.
			No	1-2
	1-2	Check if the sensors are connected correctly. Are all connection made properly? Room temp. (TA) in yellow, heat exchanger (E1) in red, heat exchanger (E2) in black.	Yes	Connect correctly.
			No	1-3
	1-3	DISP (display mode) is applied.	Yes	Turn OFF(OPEN).
			No	1-4
	1-4	With a thermostat OFF in heating mode, wind speed (item code 05) is out of range 0 - 6. (Use Simple Setting Function on standard timer remote controller.)	Yes	Choose one of 0 to 6.
			No	1-5
	1-5	EXCT(demand control) is applied.	Yes	Turn OFF(OPEN).
			No	2-1
2 Outdoor control PC board	2-1	Outdoor unit and protective function of a system are operating. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	See operational status.
			No	2-2
	2-2	Discharge temperature is over 80°C in stop mode and does not decrease. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Replace discharge temperature sensor.
			No	2-3
	2-3	Demand value always stays low. (The value is lower than 70. Excluding -1 (unlimited)) (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Increase values (over 70).
			No	2-4
	2-4	DEMAND or EXCT(demand control) is applied.	Yes	Turn OFF(OPEN).
			No	3-1
3 Control equipment	3-1	Demand setting is made by control units (P-AIMS, Seri-Para I/O unit for outdoor unit, Seri-Para I/O each indoor unit.)	Yes	Turn OFF.
			No	4-1
4 System	4-1	When operating in cooling (including auto cooling & heating) and dry mode, lowest temp. of indoor E1 and E2 sensor is less than 2°C (under anti-freeze control).	Yes	Wait until more than 2°C reaches.
			No	4-2
	4-2	During defrosting operation	Yes	Wait for a few minutes to 10 minutes or so.
			No	4-3
	4-3	Outdoor unit PC board failure → Replacement		

- According to the type of models, the indoor sensors will not be supplied in some cases.
- According to the type of models, the outdoor DEMAND or EXCT will not be supplied in some cases.
- When LINE Checker is used, the temperature sensors can be observed (display, record) simultaneously.
- According to some areas, some of the models are unreleased.

6. REMOTE CONTROLLER FUNCTIONS SECTION

6-1. Simple Settings Function

- This allows the filter lifetime, operating mode priority change, central control address, and other settings to be made for an individual or group-control indoor unit to which the remote controller used for simple settings is connected.

  When simple settings mode is engaged, operation stops at the individual or group-control indoor unit to which the remote controller for simple settings is connected.

<Procedure of CZ-RTC4 / CZ-RTC4A>

① Press and hold the [ ] and [ ] buttons simultaneously for 4 seconds or longer.

② "SETTING", unit No. "1- 1" (or "ALL" in the case of group control), item code "01," and settings data "00XX" are displayed blinking on the remote controller LCD display (Fig. 7-1). At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

③ If group control is in effect, press the [UNIT] button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

* If unit No. "ALL" is displayed, the same setting will be made for all indoor units.

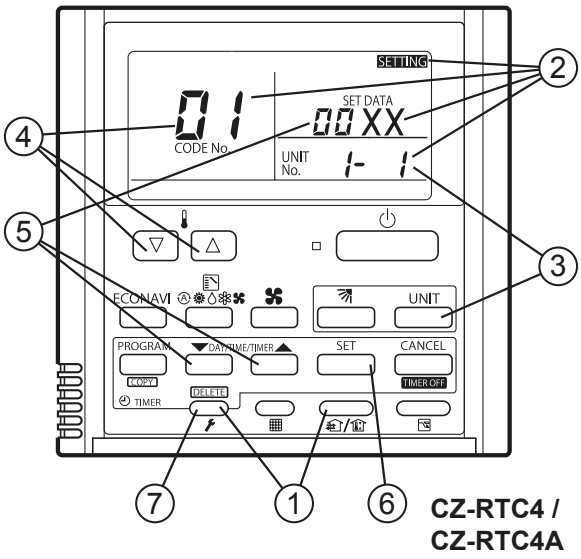
④ Press the temperature setting [▽] / [△] buttons to select the item code to change.

⑤ Press the timer time [DAY/] / [TIMER▲] buttons to select the desired setting data.

* For item codes and setting data, refer to the following page.

⑥ Press the [SET] button. (The display stops blinking and remains lit, and setting is completed.)

⑦ Press the [ ] button to return to normal remote controller display.



CZ-RTC4 / CZ-RTC4A

Fig. 6-1

6

<Procedure of CZ-RTC5B>

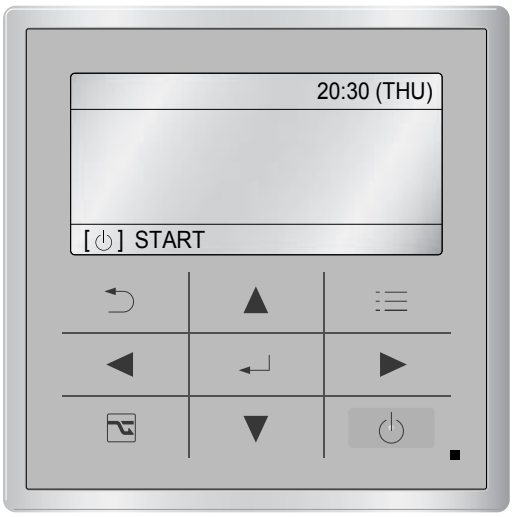


Fig. 6-2

① Keep pressing the ⮌, ↵ and ▶ buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.

Maintenance func 20:30 (THU)
1. Outdoor unit error data
2. Service contact
3. RC setting mode
4. Test run
▲▼ Sel. ◀ ▶ Page [↵] Confirm

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.

Maintenance func 20:30 (THU)
5. Sensor info.
6. Servicing check
7. Simple settings
8. Detailed settings
▲▼ Sel. ◀ ▶ Page [↵] Confirm

The “Simple settings” screen appears on the LCD display.
Select the “Unit no.” by pressing the ▼ or ▲ button for changes.

Simple settings	20:30 (THU)	
Unit no.	Code no.	Set data
1-1	01	0001
▲▼ Sel. ▶ Next		

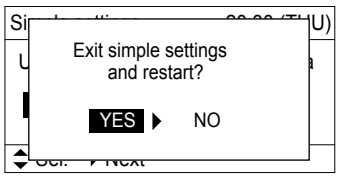
③ Select the “Code no.” by pressing the ◀ or ▶ button.
Change the “Code no.” by pressing the ▼ or ▲ button.

Simple settings	20:30 (THU)	
Unit no.	Code no.	Set data
1-1	01	0001
▲▼ Sel. ▶ Next		

④ Select the “Set data” by pressing the ◀ or ▶ button.
Select one of the “Set data” by pressing the ▼ or ▲ button.
Then press the ↵ button.

Simple settings	20:30 (THU)	
Unit no.	Code no.	Set data
1-1	01	0002
▲▼ Sel. [↵] Confirm		

⑤ Select the “Unit no.” by pressing the ◀ or ▶ button and press the ⮌ button.
The “Exit simple settings and restart?” (Simple setting-end) screen appears on the LCD display.
Select “YES” and press the ↵ button.



6

6-2. List of Simple Setting Items

Item code	Item	Setting data		
		No.	Description	
01	Filter sign ON time (filter life time)	0000	Not displayed	
		0001	150 hours	
		0002	2,500 hours	
		0003	5,000 hours	
		0004	10,000 hours	
		0005	Use the filter clogging sensor.	
02	Degree of filter fouling	0000	Standard (setting at time of shipping)	
		0001	Highly fouled (Filter sign ON time is reduced to one-half the set time.)	
03	Central control address	0001	Central control address 1	
		0002	Central control address 2	
		0003	Central control address 3	
		≀	≀	
		0064	Central control address 64	
		0099	No central control address set (setting at time of shipping)	
04	Operating mode priority change	0000	Normal (setting at time of shipping)	
		0001	Priority	
05	Fan speed when heating thermostat is OFF		Compressor ON	Compressor OFF
		0000	Lo 1 min., LL 3 min.	LL
		0001	Lo	LL
		0002	LL	LL
		0004	Lo 1 min., LL 3 min.	Lo
		0005	Lo	Lo
		0006	LL	Lo
06	Heating intake temperature shift	0000	No shift	
		0001	Shifts intake temperature 1 °C down.	
		0002	Shifts intake temperature 2 °C down.	
		0003	Shifts intake temperature 3 °C down.	
		0004	Shifts intake temperature 4 °C down.	
		0005	Shifts intake temperature 5 °C down.	
		0006	Shifts intake temperature 6 °C down.	
07	Electric heater installation	0000	No heater	
		0001	Heater installed	
08	Humidifying when heater thermostat is OFF	0000	No (setting at time of shipping)	
		0001	Yes	
0d	Permit/prohibit automatic heating/cooling	0000	Permit	
		0001	Prohibit	
0F	Cool-only	0000	Normal	
		0001	Cool only (Set “1” for item code 0D.)	

NOTE

- In order to avoid water leakage and damage to the fan, do not set for humidifying when the thermostat is OFF unless a vaporizing humidifier is used.
- Consider the device purpose and type when changing the settings. Incorrect settings may result in malfunction.
- Do not change any setting data that does not appear in this list.

6-3. Detailed Settings Function

- This allows the system address, indoor unit address, and other settings to be made for the individual or group-control indoor unit to which the remote controller used for detailed settings is connected.

  When detailed settings mode is engaged, operation stops at the individual or group-control indoor unit where the remote controller used for detailed settings is connected. Simple settings items can also be set at this time.

<Procedure of CZ-RTC4 / CZ-RTC4A>

① Press and hold the , SET and CANCEL buttons simultaneously for 4 seconds or longer.

② "SETTING", unit No. "1- 1" (or "ALL" in the case of group control), item code "10," and settings data "00 XX" are displayed blinking on the remote controller LCD display (Fig. 7-3). At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

③ If group control is in effect, press the UNIT button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

④ Press the temperature setting ▽ / △ buttons to select the item code to change.

⑤ Press the timer time DAY/ / /TIMER buttons to select the desired setting data.

*For item codes and setting data, refer to the following page.

⑥ Press the SET button. (The display stops blinking and remains lit, and setting is completed.)

⑦ Press the button to return to normal remote controller display.

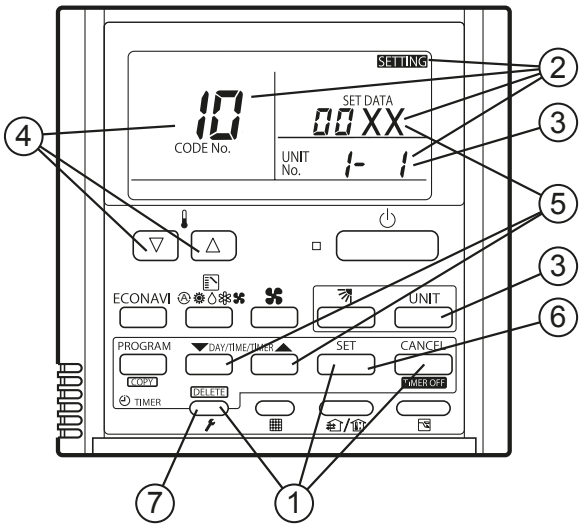


Fig. 6-3

6

<Procedure of CZ-RTC5B>

Fig. 6-4

① Keep pressing the ⮌, ↵ and ▶ buttons simultaneously for 4 or more seconds.
The "Maintenance func" screen appears on the LCD display.

Maintenance func 20:30 (THU)
1. Outdoor unit error data
2. Service contact
3. RC setting mode
4. Test run
▲▼ Sel. ◀ ▶ Page [↵] Confirm

② Press the ▼ or ▲ button to see each menu.
If you wish to see the next screen instantly, press the ◀ or ▶ button.
Select "8. Detailed settings" on the LCD display and press the ↵ button.

Maintenance func 20:30 (THU)
5. Sensor info.
6. Servicing check
7. Simple settings
8. Detailed settings
▲▼ Sel. ◀ ▶ Page [↵] Confirm

The "Detailed settings" screen appears on the LCD display.
Select the "Unit no." by pressing the ▼ or ▲ button for changes.

Detailed settings		20:30 (THU)
Unit no.	Code no.	Set data
1-1	10	0001
▲▼ Sel. ▶ Next		

③ Select the "Code no." by pressing the ◀ or ▶ button.
Change the "Code no." by pressing the ▼ or ▲ button (or keeping it pressed).

Detailed settings		20:30 (THU)
Unit no.	Code no.	Set data
1-1	10	0006
▲▼ Sel. ▶ Next		

④ Select the "Set data" by pressing the ◀ or ▶ button.
Select one of the "Set data" by pressing the ▼ or ▲ button.
Then press the ↵ button.

Detailed settings		20:30 (THU)
Unit no.	Code no.	Set data
1-1	10	0006
▲▼ Sel. [↵] Confirm		

⑤ Select the "Unit no." by pressing the ◀ or ▶ button and press the ⮌ button.
The "Exit detailed settings and restart?" (Detailed setting-end) screen appears on the LCD display.
Select "YES" and press the ↵ button.

Exit detailed settings and restart?
YES ▶ NO

6-4. List of Detailed Setting Items

Item code	Item	Setting data					
		No.	Description	No.	Description	No.	Description
10	Type	0000	———	0001	———	0002	———
		0003	———	0005	———	0006	High Static Pressure Duct S-160PE3R High Static Pressure Ducted S-180, 200, 224PE4R
		0007	———	0008	———	0010	———
		0011	———		———		———
11	Indoor unit capacity	0001	———	0003	———	0005	———
		0007	———	0009	———	0011	———
		0012	———	0015	———	0017	———
		0019	180 (Type 160)	0020	200 (Type 180)	0021	224 (Type 200)
		0022	250 (Type 224)		———		———
12	System address	0001	Unit No. 1				
		0002	Unit No. 2				
		0003	Unit No. 3				
		)	)				
		0030	Unit No. 30				
		0099	Not set				
13	Indoor unit address	0001	Unit No. 1				
		0002	Unit No. 2				
		0003	Unit No. 3				
		)	)				
		0064	Unit No. 64				
		0099	Not set				
14	Group control address	0000	Individual (1:1 = Indoor unit with no group wiring)				
		0001	Main unit (One of the group-control indoor units)				
		0002	Sub unit (All group-control indoor units except for main unit)				
		0099	Not set				
17	Cooling intake temperature shift	–010	Shifts intake temperature 10°C down.				
		–009	Shifts intake temperature 9°C down.				
		)	)				
		–001	Shifts intake temperature 1°C down.				
		0000	No intake temperature shift				
		0001	Shifts intake temperature 1°C up.				
		)	)				
		0009	Shifts intake temperature 9°C up.				
		0010	Shifts intake temperature 10°C up.				
18	Automatic stop time after operation start * Can be set in 5-minute units.	0000	Function disabled				
		0001	Stops automatically 5 minutes after operation starts.				
		0002	Stops automatically 10 minutes after operation starts.				
		)	)				
		0123	Stops automatically 615 minutes after operation starts.				
		0124	Stops automatically 620 minutes after operation starts.				
		0125	Stops automatically 625 minutes after operation starts.				

Item code	Item		Setting data	
			No.	Description
1b (1B)	Forced thermostat ON		0000	5 minutes
			0001	4 minutes
1C	Cooling discharge temperature shift		–010	–10°C
			–009	–9°C
			–008	–8°C
			)	)
			0010	10°C
1d	Heating discharge temperature shift		–010	–10°C
			–009	–9°C
			–008	–8°C
			)	)
			0010	10°C
1E	Temperature shift for cooling/heating change in auto heat/cool mode		0001	± 1°C
			0002	± 2°C
			0003	± 3°C
			)	)
			0007	± 7°C
1F (Upper limit) 20 (Lower limit)	Change to remote control temperature setting range	Cooling	0018	18°C (Lower limit at shipment)
			0019	19°C
			)	)
			0029	29°C
			0030	30°C (Upper limit at shipment)
21 (Upper limit) 22 (Lower limit)		Heating	0016	16°C (Lower limit at shipment)
			0017	17°C
			)	)
			0029	29°C
			0030	30°C (Upper limit at shipment)
23 (Upper limit) 24 (Lower limit)		Drying	0018	18°C (Lower limit at shipment)
			0019	19°C
			)	)
			0029	29°C
			0030	30°C (Upper limit at shipment)
25 (Upper limit) 26 (Lower limit)		Auto heat/cool	0017	17°C (Lower limit at shipment)
			0018	18°C
			)	)
			0026	26°C
			0027	27°C (Upper limit at shipment)
29	Humidifier operation		0000	Normal
			0001	Ignore heat exchanger temperature conditions.
2A	Filter (CN70) input switching		0000	Filter input (differential pressure switch input)
			0001	Alarm input (for trouble input about air cleaner or similar device)
			0002	Humidifier input (Operates linked with drain pump when humidifier is ON.)
2C	Indoor unit electronic control valve		0000	None
			0002	Present (Setting at shipment)
2E	T10 terminal switching		0000	Normal (Used as optional relay PCB or JEMA standard HA terminal.)
			0001	Used for OFF reminder
			0002	Fire prevention input

Item code	Item	Setting data			
		No.	Description		
31	Ventilation fan operation	0000	None		
		0001	Ventilation fan operated by remote controller.		
32	Wired remote controller sensor	0000	Not used. (Body sensor is used.)		
		0001	Remote controller sensor is used.		
34	“Operation change control in progress” display	0000	Normal (displayed)		
		0001	Not displayed		
35	OFF reminder function for when weekly timer is used	0000	None		
		0001	Only stop time setting is enabled.		
3C	Heat exchanger temperature for cold air discharge (Heat exchanger control point for control to prevent cold air)	0013	Control temperature 13°C		
		0014	Control temperature 14°C		
		)	)		
		0025	Control temperature 25°C		
		0026	Control temperature 26°C		
3d	Fan output switching	0000	Output linked with fan. (ON when indoor unit fan is operating.)		
		0001	Fan mode operation output		
5d	Fan tap setting (External static pressure of the rated air flow volume)	0001	Type 180: 60Pa	Type 200: 75Pa	Type 224: 75Pa
			(Setting at shipment)		
		0002	Type 180: 100Pa	Type 200: 120Pa	Type 224: 130Pa
		0003	Type 180: 150Pa	Type 200: 180Pa	Type 224: 200Pa
5F	Repeat timer switching	0000	Function disabled		
		0001	Function enabled		
60	Timer function change prohibit	0000	Function disabled		
		0001	Function enabled		

NOTE

- Consider the device purpose and type when changing the settings. Incorrect settings may result in malfunction.
- Do not change any setting data that does not appear in this list.

6-5. Simple Setting Items

Item code	Item	Description
01	Filter sign ON time setting (filter lifetime)	Changes the indoor unit filter lifetime when a high-performance filter or other optional product is installed.
02	Degree of filter fouling	Reduces the filter sign ON time to 1/2 of the standard time (setting at the time of shipping) for cases when filter fouling is more severe than normal.

Filter sign ON times for each model

Model data	Model	Filter sign ON time			
		Standard		Long-life	
		Standard	High fouling	Standard	High fouling
0006	High Static Pressure Duct S-160PE3R High Static Pressure Ducted S-180, 200, 224PE4R	×	×	×	×

NOTE

- × indicates that there is no corresponding filter.

Item code	Item	Description
03	Central control address	Set when using a central control device. Used when setting the central control address manually from the remote controller.

When the operating mode at the priority remote controller is changed, the operating modes of other remote controllers change as shown below.

Mode change at priority remote controller		Operating modes at other remote controllers	
Current mode	**New mode**	**Current mode**	**New mode**
Cooling or dry	Heating	Cooling or dry	Heating
		Fan	Fan (not changed)
Heating	Cooling	Heating	Cooling
		Fan	Fan (not changed)
Cooling	Dry	Cooling	Cooling (not changed)
		Dry	Dry (not changed)
Heating	Dry	Heating	Cooling
		Fan	Fan (not changed)
Cooling or dry	Fan	Cooling	Cooling (not changed)
		Dry	Dry (not changed)
		Fan	Fan (not changed)
Heating	Fan	Heating	Heating (not changed)
		Fan	Fan (not changed)

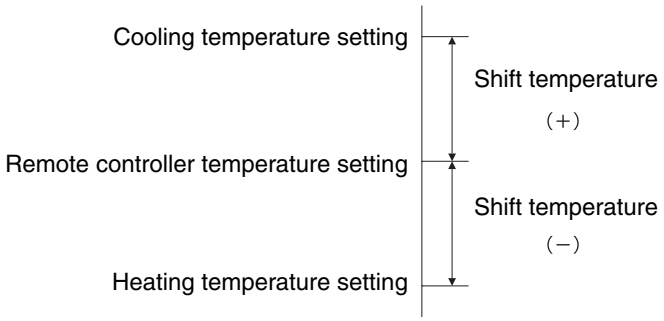
Item code	Item	Description
05	Fan speed setting when heating thermostat is OFF	Changes the fan speed setting when the heating thermostat is OFF.
06	Heating intake temperature shift	Shifts the intake temperature during heating. Can be set when the body thermostat is used.
07	Electric heater installation	Set when cost distribution is performed using an AMY central control system or similar system, and when an optional electric heater is installed. (This is unrelated to control of the electric heater.)
08	Humidifying when heater thermostat is OFF	Normally humidifying does not occur when the thermostat is OFF during heating operation. However, this setting can be changed in order to increase the amount of humidifying. Caution: In order to avoid water leakage and damage to the fan, do not use this setting unless a vaporizing humidifier is used.
0D	Permit/prohibit automatic heating/cooling	This setting can be used to prevent the automatic heating/cooling display on the remote controller if the unit configuration permits automatic heating/cooling operation.
0F	Cooling-only	This setting allows a heat pump indoor unit to be operated as a cooling-only unit.

NOTE

- In order to avoid water leakage and damage to the fan, do not set for humidifying when the thermostat is OFF unless a vaporizing humidifier is used.
- Consider the device purpose and type when changing the settings. Incorrect settings may result in malfunction.
- Do not change any setting data that does not appear in this list.

6-6. Detailed Setting Items

Item code	Item	Description
10	Unit type	Set when the indoor unit EEPROM memory is replaced during servicing.
11	Indoor unit capacity	
12	System (outdoor unit) address	These are not set at the time of shipping from the factory. These must be set after installation if automatic address setting is not performed.
13	Indoor unit address	
14	Group address	
17	Cooling intake temperature shift	Shifts the intake temperature during cooling and dry operation. (Enabled only when the body thermostat is used.) Increase this value when it is difficult to turn the thermostat ON.
18	Automatic stop time after operation start	The time at which an indoor unit is automatically stopped after operation starts can be set in increments of 5 minutes.
1b	Forced thermostat ON time	Use this setting to change the time for forced operation at installation or servicing from 5 minutes to 4 minutes.
1E	Temperature shift for cooling / heating change in “auto heat / cool” mode	“Auto heat / cool” selects the operating mode automatically based on the difference between the room temperature and the temperature set on the remote controller. This setting establishes a shift temperature for the heating / cooling temperature setting relative to the remote controller temperature setting.



6

Item code	Item		Description
1F (Upper limit) **20** (Lower limit)	Change to the remote control temperature setting range	Cooling	This setting changes the temperature range (upper limit and lower limit) which is set from the remote controller or central control device. The set upper limit must be greater than or equal to the lower limit. If the temperature setting is to be a single point, set the upper limit and lower limit to the same temperature.
21 (Upper limit) **22** (Lower limit)		Heating	
23 (Upper limit) **24** (Lower limit)		Drying	
25 (Upper limit) **26** (Lower limit)		Auto heat/cool	
2A	Filter input switching		This setting switches the filter input according to the purpose of use.
2C	Indoor unit electronic control valve		This setting indicates whether or not an indoor unit electronic control valve is present. At the time of shipping, this setting is set according to the conditions of the indoor unit.
2E	T10 terminal input switching		Ordinarily, the T10 terminal is used as the HA terminal at the time of shipping. However, this setting is used when the T10 terminal is used for OFF reminder or for fire prevention input.
31	Ventilation fan operation from remote controller		It is possible to install a ventilation fan in the system, which can be started and stopped by the wired remote controller. The ventilation fan can operate linked with the start and stop of the indoor unit, or can be operated even when the indoor unit is stopped. Use a ventilation fan that can accept the no-voltage A contact as the external input signal. In the case of group control, the fans are operated together. They cannot be operated individually.
32	Switching to remote controller sensor		This setting is used to switch from the body sensor to the remote controller sensor. Check that “remote controller sensor” is displayed. Do not use this setting with models that do not include a remote controller sensor. Do not use this setting if both the body sensor and remote sensor are used.
34	ON/OFF of “Operation change control in progress” display		In a MULTI system with multiple remote controllers, switching between heating and cooling is restricted, and “Operation change control in progress” is displayed. This setting is used to prevent this display from appearing. Refer to the item concerned with operating mode priorities.
35	OFF reminder function for weekly timer		This setting switches the operation when the weekly timer is connected to the remote controller. This can be used to prevent cases in which the unit is accidentally left ON. There is no change when this setting is ON, however, it is necessary to set the weekly timer ON time.

(Continued)

(Continued from previous page)

Item code	Item	Description
3C	Heat exchanger temperature for cold air discharge	The heat exchanger temperature control point for prevention of cold air discharge during heating operation can be changed.
3d	Fan output switching	The indoor unit PCB optional output for the fan can be switched according to the purpose of use.
5d	DC fan tap setting	Sets the DC fan tap according to the purpose of use. Change the settings data at the same time.
5F	Stop at time set for OFF timer after operation starts	This setting enables a function that stops operation when the amount of time set for the OFF timer has passed after remote controller operation was started.
60	Timer function change prohibit	This function prohibits changes from being made to the remote controller time setting.

NOTE

- Consider the device purpose and type when changing the settings. Incorrect settings may result in malfunction.
- Do not change any setting data that does not appear in this list.

6-7. Remote Controller Servicing Functions

- The remote controller includes a number of servicing functions. Use these as needed for test runs and inspections.

<Procedure of CZ-RTC4 / CZ-RTC4A>

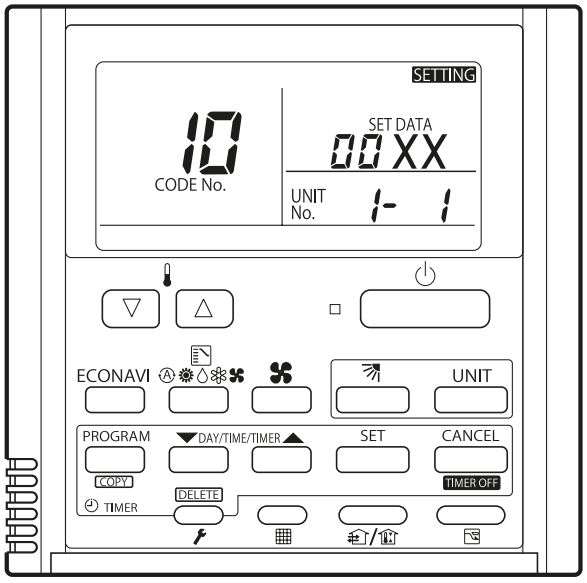


Fig. 6-5

List of Servicing Functions

Functions	Description	Button operation	Reset operation	Unit status
Test run	Operation with forced thermostat ON	Press and hold the button for 4 seconds or longer.	Press the button.	Current operation is maintained.
Sensor temperature display	Temperature display from each sensor	Press and hold the and CANCEL buttons for 4 seconds or longer.		
Servicing check display	Alarm history display	Press and hold the and SET buttons for 4 seconds or longer.		
Simple settings	Filter lifetime, operating mode priority, central control address, and other settings	Press and hold the and buttons for 4 seconds or longer.		When settings are made from a remote controller, the indoor unit where that remote controller is connected stops.
Detailed settings	System address, indoor unit address, central control address, and other settings	Press and hold the , CANCEL and SET buttons for 4 seconds or longer.		
Automatic address	Automatic address setting based on command from the wired remote controller	Press and hold the and the timer operation buttons for 4 seconds or longer.	Automatic reset	Entire system stops.
Address change	Change of indoor unit address	Press and hold the and the timer operation buttons for 4 seconds or longer.	Press the button.	

6

<Procedure of CZ-RTC5B>

Display of "maintenance function" screen

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.

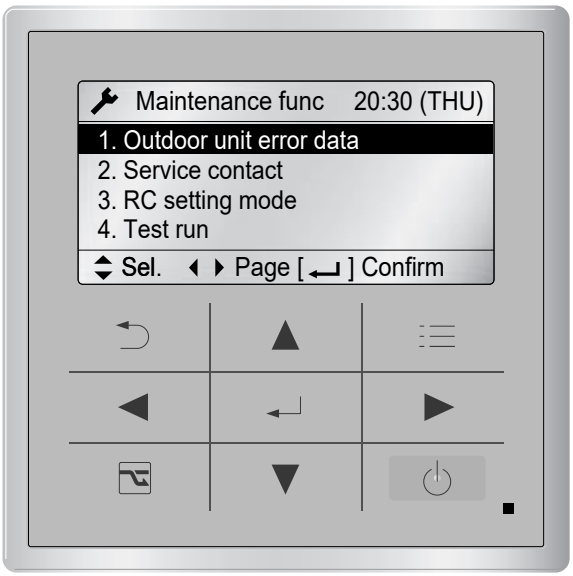
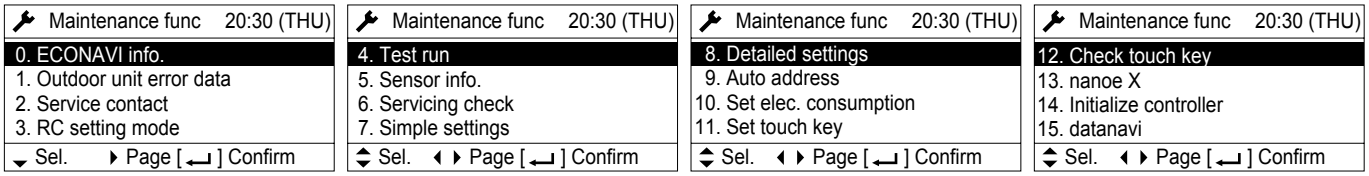


Fig. 6-6



Maintenance function screen

List of Servicing Functions

Functions	Description	Menu selection	Reset operation	Unit status
ECONAVI • CZ-CENSC1	Display from each sensor	0. ECONAVI info.	Press the [↩] button.	
Test run	Operation with forced thermostat ON	4. Test run		
Sensor temperature display	Temperature display from each sensor	5. Sensor info.		
Servicing check display	Alarm history display	6. Servicing check		
Simple settings	Filter lifetime, operating mode priority, central control address, and other settings	7. Simple settings	Press the [↩] button. (Restart)	When settings are made from a remote controller, the indoor unit where that remote controller is connected stops.
Detailed settings	System address, indoor unit address, central control address, and other settings	8. Detailed settings		
Automatic address	Automatic address setting based on command from the wired remote controller	9. Auto address	Automatic reset	Entire system stops.

6

6-8. Test Run Function

Operates the unit with the thermostat forced ON.

<Procedure of CZ-RTC4 / CZ-RTC4A>

(1) Press and hold the button for 4 seconds or longer.

(2) " TEST " appears on the remote controller LCD display (Fig. 7-7).

(3) Press the button to start the test run.

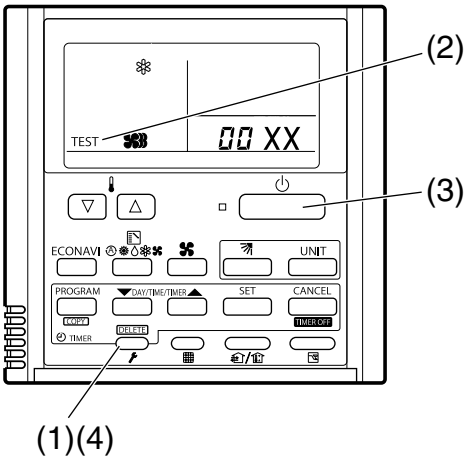


Fig. 6-7

- The temperature cannot be adjusted in Test Run mode. (This mode places a heavy load on the machines. Therefore use it only when performing the test run.)
- The test run can be performed using the HEAT, COOL, or FAN operation modes.

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

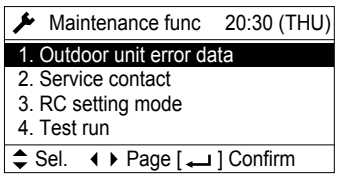
- If correct operation is not possible, an error code is displayed on the remote controller LCD display.

(4) Press the button to return to normal remote controller display.

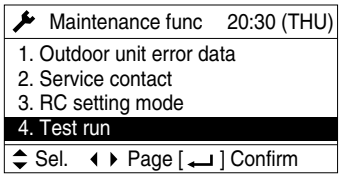
- To prevent continuous test runs, this remote controller includes a timer function that cancels the test run after 60 minutes.
- The operation is possible even if the cassette-type ceiling panel has not been installed. ("P09" display does not occur.)

<Procedure of CZ-RTC5B>

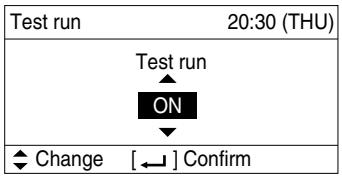
① Keep pressing the [↩], [↵] and [▶] buttons simultaneously for 4 or more seconds. The “Maintenance func” screen appears on the LCD display.



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.



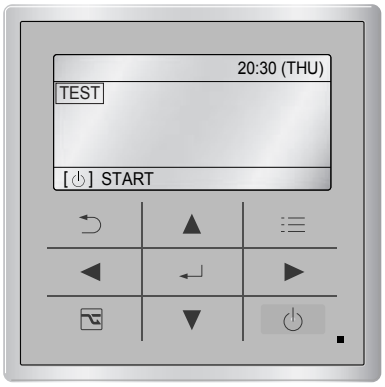
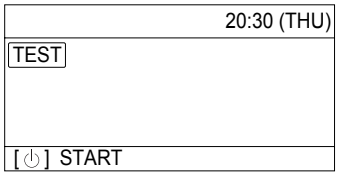
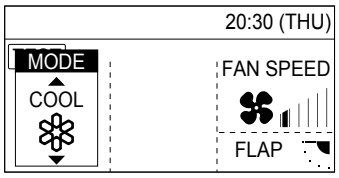


Fig. 6-8

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.



⑤ Finish the test operation.
Perform step 1 and 2, and then select [OFF] in step 3. ([TEST] display disappears.)

- The test operation can be performed in Heat or Cool mode.
- Temperature cannot be changed.
- The test operation mode is automatically turned o□ in 60 minutes. (To prevent continuous test operation)
- Outdoor units do not operate for approx. 3 minutes after the power is turned on or operation is stopped.

Attention

- Do not use this mode for purposes other than the test operation. (To prevent overload of the units)
- Read the installation instructions supplied with the units.

6

■ Sensor Temperature Display Function (displayed regardless of whether unit is operating or stopped)

The procedure below displays the sensor temperatures from the remote controller, indoor unit, and outdoor unit on the remote controller.

<Procedure of CZ-RTC4 / CZ-RTC4A>

① Press and hold the and CANCEL buttons simultaneously for 4 seconds or longer.

② The unit No. "X-X" (main unit No.), item code "XX" (sensor address), and servicing monitor "00 YY" (sensor temperature) are displayed on the remote controller LCD display. (See Fig. 7-9 at right.)

③ Press the temperature setting ▽ / △ buttons and select the item code to the address of the sensor to monitor.

④ If group control is in effect, press the UNIT button to select the unit to monitor.
Press the temperature setting buttons to select the item code to change.

⑤ Press the button to return to normal remote controller display.

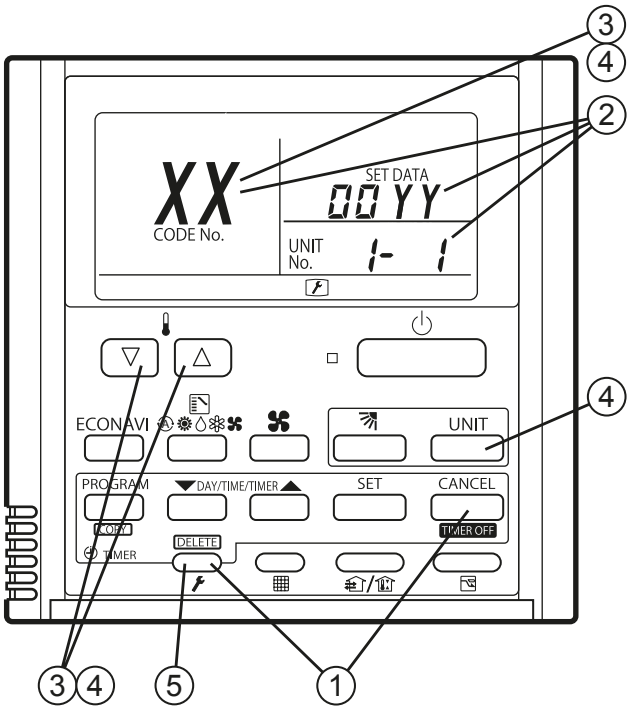


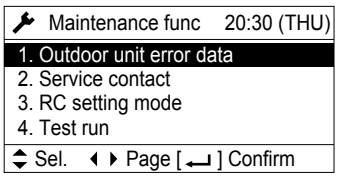
Fig. 6-9

	Item code	Meaning of Code
Indoor unit data	02	Indoor unit intake temp.
	03	Indoor unit heat exchanger temp. (E1)
	04	Indoor unit heat exchanger temp. (E2)
	05	–
	06	–
	07	–
	08	–
	09	
Outdoor unit data	0A	Discharge temp. (TD)
	0b	–
	0C	–
	0d	Intake temp. (TS)
	0E	Outdoor unit heat exchanger temp. (C1)
	0F	Outdoor unit heat exchanger temp. (C2)
	10	–
	11	Outdoor air temp. (TO)
	12	–
	13	Current value (CTL2)
	14	Current value (CTL1)
	15	Outdoor MV value (MOV1)
	16	–
	19	Frequency

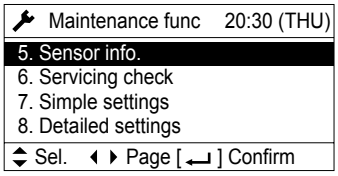
* Depending on the model, some items may not be displayed.

<Procedure of CZ-RTC5B>

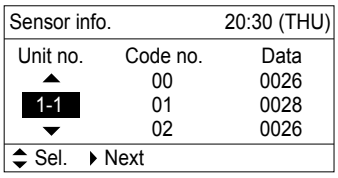
① Keep pressing the [↩], [↵] and [▶] buttons simultaneously for 4 or more seconds.
The "Maintenance func" screen appears on the LCD display.



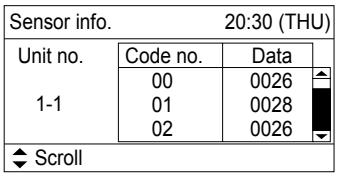
② Press the [▼] or [▲] button to see each menu.
If you wish to see the next screen instantly, press the [◀] or [▶] button.
Select "5. Sensor info." on the LCD display and press the [↵] button.



Select the "Unit no." by pressing the [▼] or [▲] button for changes.



Then press the [▶] button.
Display sensor information of the unit.



Refer the information by pressing the [▼] or [▲] button.

Fig. 6-10

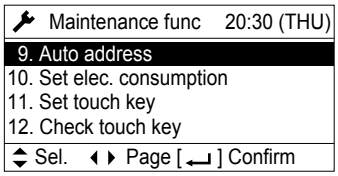
6

■ Automatic address setting

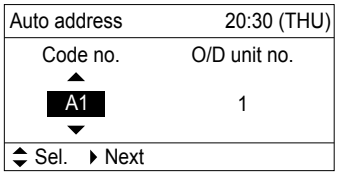
<Procedure of CZ-RTC5B>

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 “9. Auto address” on the LCD display and press the [↵] button.



③ The “Auto address” screen appears on the LCD display.
Change the “Code no.” to “A1” by pressing the [▼] or [▲] button.



④ Select the “O/D unit no.” by pressing the [◀] or [▶] button.
Select one of the “O/D unit no.” for automatic address by pressing the [▼] or [▲] button.
Then press the [↵] button.
Approximately about 10 minutes are required.
When automatic address setting is completed, the units return to normal stopped status.

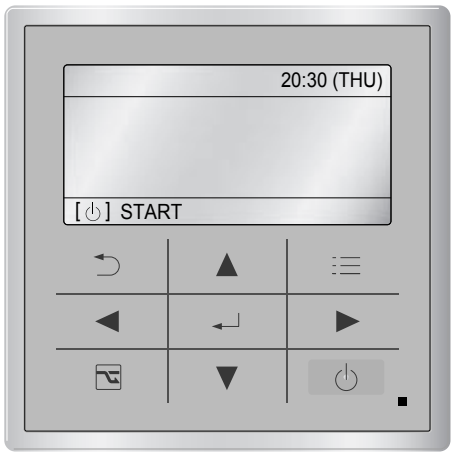
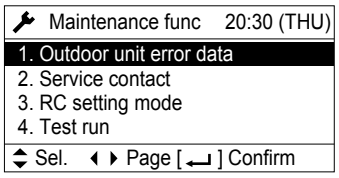


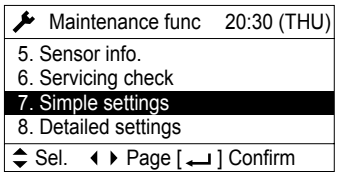
Fig. 6-11

■ Checking indoor unit addresses

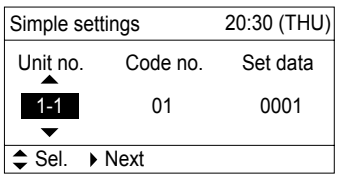
① Keep pressing the [↩], [↵] and [▶] buttons simultaneously for 4 or more seconds.
The “Maintenance func” screen appears on the LCD display.



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.



The “Simple settings” screen appears on the LCD display.
Select the “Unit no.” by pressing the [▼] or [▲] button for changes.



The indoor unit fan operates only at the selected indoor unit.

6

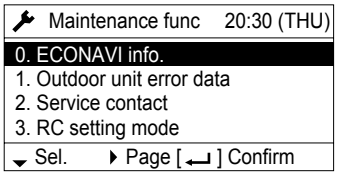
■ Check of ECONAVI Operational Status

The status of ECONAVI operation can be checked instantly.
It is available to check the operation when installing the indoor unit.

<Procedure of CZ-RTC5B>

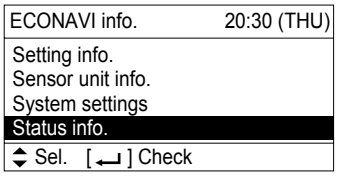
① Keep pressing the [⮌], [↵] and [▶] buttons simultaneously for 4 or more seconds. The "Maintenance func" screen appears on the LCD display.

② Select "0. ECONAVI info." on the LCD display and press the [↵] button.



③ Press the [▼] or [▲] button to see each menu.

Select "Status info." on the LCD display and press the [↵] button.



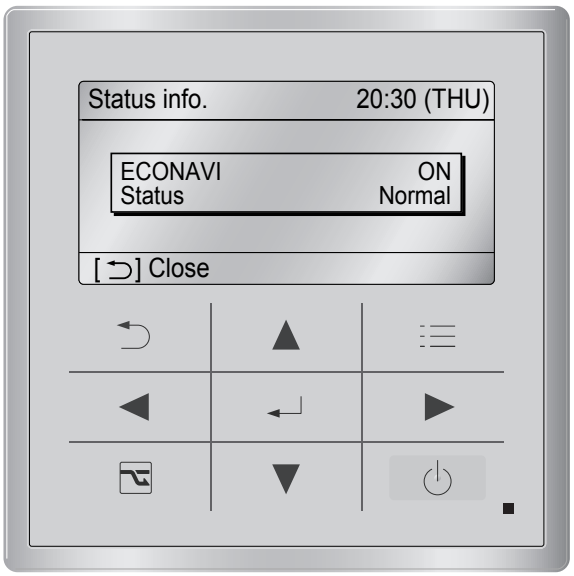
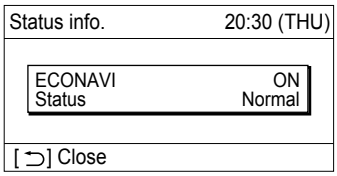


Fig. 6-12

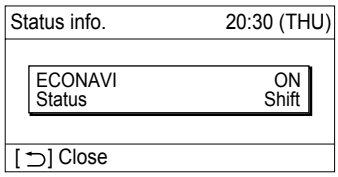
④ There are four patterns of operational status display as shown below.

(1) Under normal operation



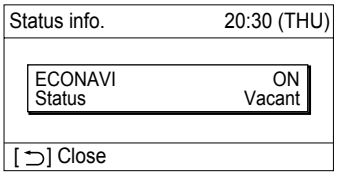
State of no energy-saving operation

(2) Under temperature shift



State of energy-saving (temperature shift) operation

(3) Under suspension with absentee

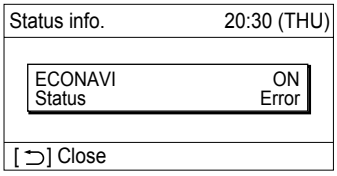


State of energy-saving (suspended) operation

*Shows that air conditioner operation was suspended because no person was detected for a certain period.

This state remains until operation is restarted.

(4) Under sensor communication error



Shows that the connected ECONAVI sensor is in error state.

6

<Procedure of CZ-RTC6 series>

Setting

Preparation: Turn on the circuit breaker of units and then turn the power on. The remote controller starts, and wait until the [Assigning] display disappears.
(If [Assigning] continues to blink for 10 minutes or more, check the address setting of indoor units. Refer to indoor/outdoor unit installation details.)

Menu

Language

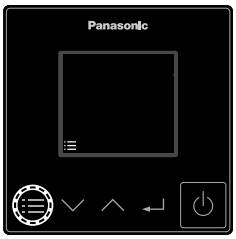
1 ■ **When stopped**

Press .

■ **When operating**

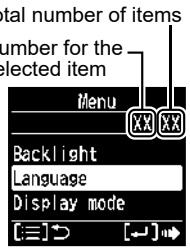
Press repeatedly until the menu screen is displayed.

• To return to the top screen, press .



2 **Select [Language].**

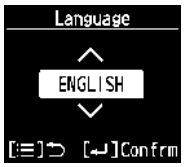
Press → .

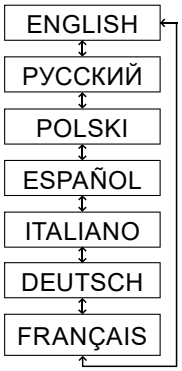


3 **Select the language to display from among 7 languages shown on the right.**

Press → → .
(Press to finish.)

• Default setting : ENGLISH





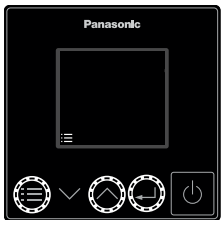
Maintenance func

■ **RC. setting mode** ■ **Auto address** ■ **Detailed settings** ■ **Sensor info.** ■ **Service check**

Check this item as necessary.
Steps 1 and 2 are common operations for each item.

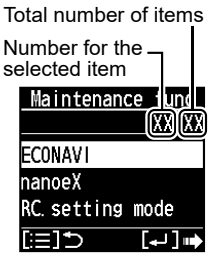
1 **Press and hold the 3 buttons simultaneously, for at least 4 seconds.**

Press , , .



2 Select the **item to set.**

Press → .



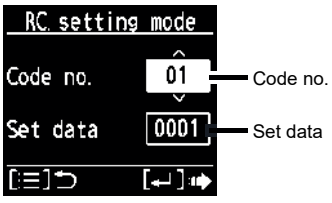
RC. setting mode

3 **Set.**
(Select the Code no. and Set data.)

Press → . (Repeat)

4 **Press** .

● After Selecting [YES], the unit restarts.



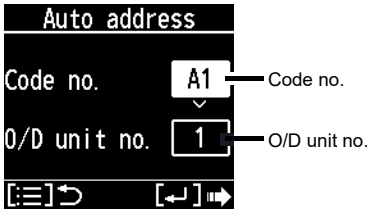
Code no.			Set data
01	Main/sub	Set this when using 2 remote controllers.	• 0000: Sub • 0001: Main (factory setting)
2F	Password change	Set the administrator password.	• 0000 to 9999 • 0000 (factory setting)

Auto address

3 **Set.**
(Select the Code no. [A1] and O/D unit no.)

Press ▲ ▼ → ↵. (Repeat)

4 **Press** ☰.
- After Selecting [YES], the unit restarts.



Code no.		O/D unit no.
A1	Set the Auto address for each O/D unit no. Select the O/D unit no. (outdoor unit) for Auto address.	• Outdoor unit number

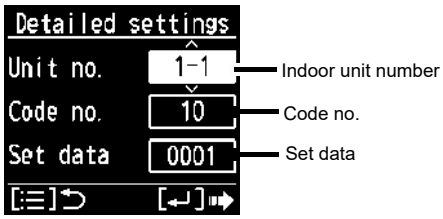
Attention
- Set Auto address after all units are turned on and 90 seconds or more have passed.
- Operate the units after Auto address is set and 90 seconds or more have passed.

Detailed settings

3 **Set.**
(Select the indoor unit number, Code no. and Set data.)
(When selecting Code no., refer to the following table.)

Press ▲ ▼ → ↵. (Repeat)

4 **Press** ☰.
- After Selecting [YES], the unit restarts.



Code no.			Set data
31	Vent output setting	Set this when connecting a commercially sold fan, etc. to the ventilation fan output "FAN DRIVE:2P (White)" on the indoor control board. *Dedicated cables (optional) are required.	• 0000: Not connected • 0001: Connected
32	Temp sensor setting	Set this when measuring the room temperature with the room temperature sensor of the remote controller. • When using the main and sub remote controllers, the main one is enabled. • When using with the remote sensor in combination, set the indoor unit setting data. * This setting is not available during group-controlling.	• 0000: Indoor unit • 0001: Remote controller
33	Temp display setting	Set the type of temperature display.	• 0000: °C • 0001: °F

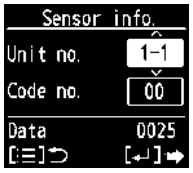
* Depending on the type of indoor unit, Code no. may be displayed with 6 digits. In this case, read as follows.
e.g. 10 → 000010

Sensor info.

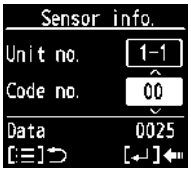
This displays each sensor temperature of the remote controller, indoor units and outdoor units.

3 **Select.**
(Select the unit number and Code no.)

Press ▲ ▼ → ↵. (Repeat)



4 **Confirm the content.**
press ▲ ▼.
- Pressing ☰ will return to the Maintenance func screen.

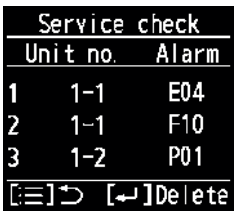


Service check

This displays the alarm history.

3 **Confirm the content.**
Press ▲ ▼ .

Information of the last 4 errors is displayed.
[--] shows that no error has occurred.
- Pressing ☰ will return to the Maintenance func screen.
- To delete the error history, press ↵ and select [YES].

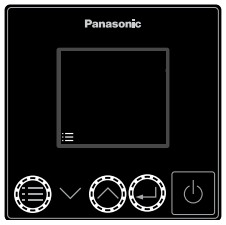


6

Test run

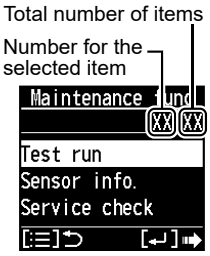
1 **Press and hold the 3 buttons simultaneously, for at least 4 seconds.**

Press , , .



2 **Select [Test run].**

Press → .

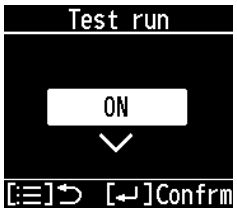


3 **Select [ON].**

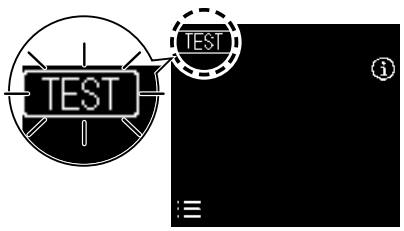
(The unit enters the test operation mode. Then, [TEST] turns on.)

Press

→ .

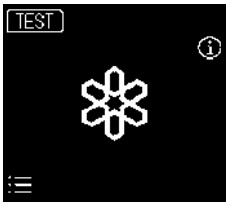


Press .



4 **Perform the test operation.**

Press .



5 **Finish the test operation.**

Perform step 1 and 2, and then select [OFF] in step 3. ([TEST] display disappears.)

- The test operation can be performed in Heat or Cool mode.
- Temperature cannot be changed.
- The test operation mode is automatically turned off in 60 minutes. (To prevent continuous test operation)
- Outdoor units do not operate for approx. 3 minutes after the power is turned on or operation is stopped.

Attention

- Do not use this mode for purposes other than the test operation. (To prevent overload of the units)
- Read the Installation Instructions supplied with the units.

Specifications

Model No.	CZ-RTC6 Series
Dimensions	(H) 86 mm × (W) 86 mm × (D) 25 mm
Weight	0.09 kg
Temperature/Humidity range	0 °C to 40 °C / 20 % to 80 % (no condensation)*Indoor use only.
Power Source	DC16 V (supplied from indoor unit)
Number of connected indoor units	Indoor unit: Up to 8 units (Within group-controlling)

7. HOW TO INSTALL THE WIRELESS (INFRARED) REMOTE CONTROLLER RECEIVER

7-1. Important Safety Instructions

⚠ WARNING

Installation Precautions

- Do not install yourself
  Installation should always be performed by your dealer or a professional service provider.
  Electric shock or fire may result if an inexperienced person performs any installation or wiring procedures incorrectly.
- Use only specified air conditioners
  Always use only air conditions specified by the dealer.

Precautions for Use

- Do not touch switches with wet hands
  Electric shock and damage to the system can result.
- Protect the remote controller from water Damage to the system can result.
- Stop the system and turn the power off if you sense unusual smells or other irregularities
  Continuing operation when the system is out of order can result in electric shock, fire, and damage to the system.
  Contact your dealer.
- Do not swallow the battery.

Moving and Repair Precautions

- Do not repair
  Never repair the system by yourself.
- Contact your dealer before moving the system
  Contact your dealer or a professional service provider about moving and reinstalling the system.
  Electric shock or fire may result if an inexperienced person performs any installation procedures incorrectly.

7-2. Wireless (Infrared) Remote Controller CZ-RWS3

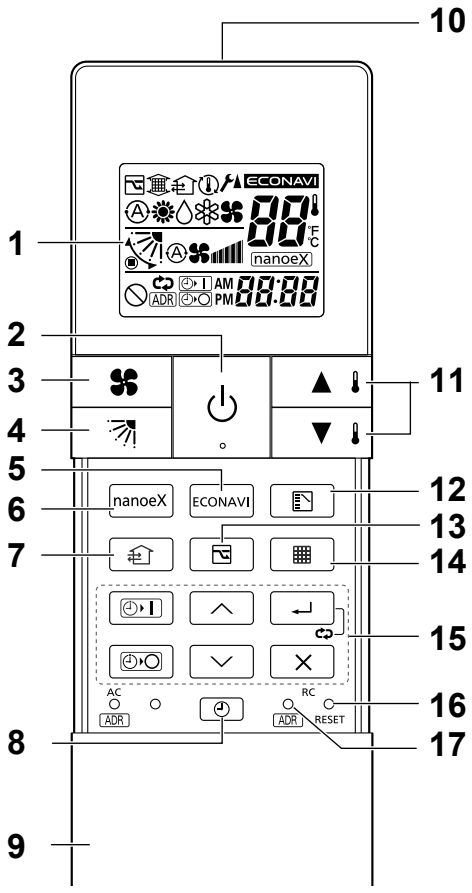
7-2-1. Operating Instructions

1 remote controller can control a group of up to 8 indoor units.
(See “7-2-1-7. Operating Multiple In / Outdoor Units simultaneously (Group Control)”)

7-2-1-1. Names and Operations

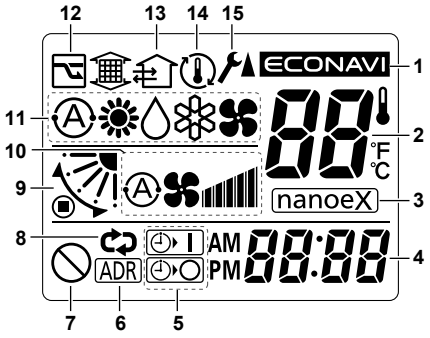
REMOTE CONTROLLER

1. Operation Display	Displays the operation status. (The figure shows all the statuses.)
2. Start/Stop button	Pressing this button once starts and pressing again stops the operation.
3. Fan speed button	Press to change the fan speed.
4. Flap button	Press to change the flap direction.
5. ECONAVI button	Press to set ECONAVI.
6. nanoe™ X button	Press to set nanoe™ X.
7. Ventilation button	Use this when connected to an aftermarket fan.
8. Clock button	Use this to set the clock.
9. Cover	Press at the top centre and then slide down.
10. Transmitter	
11. Temperature setting buttons	▲ raises the temperature setting 1 °C at a time. ▼ lowers the temperature setting 1 °C at a time.
12. Mode Select button	Press to switch the operation mode.
13. Energy saving button	Press to enable or disable energy saving.
14. Filter button	Press to turn off the filter lamp on the receiver.
15. Timer setting buttons	/ / / / / Use for operating with a timer.
16. RC reset button	Use this button after changing the batteries.
17.RC address button	Press to set addresses.



From this page, the names of remote controller’s buttons will be indicated with the above illustrations.
E.g.: Start/Stop button → ⏻

Screen display

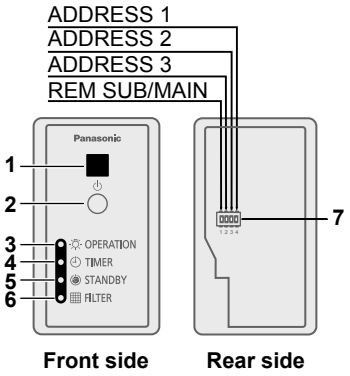


1 Appears when ECONAVI is being set to ON.
2 Indicates the set temperature.
3 Appears when nanoe™ X is being set to ON.
4 Displays the present time.
5 Timer program indication
: The indoor unit starts operation at the programmed time.
: The indoor unit stops operation at the programmed time.
6 Indicates the remote controller addresses are set.
7 Appears when the function is not available.
8 The ON timer or the OFF timer will operate repeatedly every day.
9 Indicates the flap position.
10 Indicates the fan speed.
11 Displays the selected operation mode. (AUTO Ⓐ /HEAT ☼ / DRY ◊ /COOL ❄ /FAN ✣)
12 Energy saving operation is in process.
13 Appears when a fan available in the market is installed and is operating.
14 “Temperature Automatic Return” is set.
15 Appears when the setting screen is displayed.

RECEIVER

1. Receiver	Receives the signal sent from the remote controller.
2. Emergency operation button	See “8-2-1-10. Emergency Operation”. **Indicator lamps** When an error occurs, one of the lamps flashes. When an indicator lamp is flashing, see “8-2-1-18. Troubleshooting”.
3. OPERATION lamp	Lights up when the unit is operating.
4. TIMER lamp	Lights up when the timer is set.
5. STANDBY lamp	The lamp in the HEAT mode lights up at the following times: during the startup, during the thermostat operation, and during the defrosting.
6. FILTER lamp	This lamp is for notifying you when the filter needs to be cleaned.
7. Address switch	See “8-2-1-9. Pairing Addresses”.

CZ-RWRC3



7

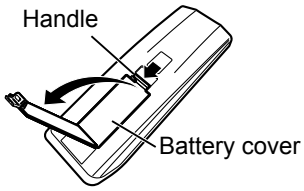
NOTE

- If a heat pump type is being used, it will beep twice and the operating lamp will light up on the display; if the timer and standby lamps blink alternately, a conflict between the heating and cooling exists, so the unit cannot operate in the desired mode. (On models that do not have an Auto function, even if Auto is selected, it works in the same way.)
- When the local operation is disabled by centralized control or similar cause, and if the Start/Stop [⏻], Mode [▤] or Temperature setting button [▲] [▼] is pressed, the unit will beep five times and the change will not be made.

7-2-1-2. Installing Batteries

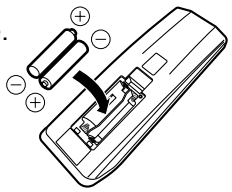
1. Remove the battery cover.

• Pinch the handle and open while pressing it towards the ▼ mark.



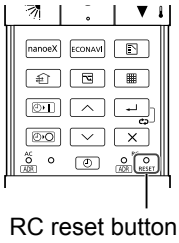
2. Insert two LR03 size batteries.

Put the batteries in with the polarity [+/–] as shown in the figure.

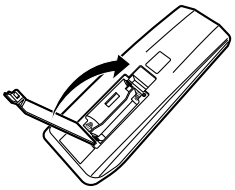


3. Gently insert one end of an unfolded paper clip (or a similar object that can fit) into the RC reset hole and press the RC reset button inside the hole.

• Take the batteries out and insert again if the time display is not "0:00" or "AM 12:00".



4. Put the battery cover back on.



■ Notes on batteries

- The battery life is approximately 1 year.
- Reception may become poor or display on the remote controller fades when batteries are low.
- If the remote controller will not be used for a long period of time, remove the batteries. (In order to avoid a battery leak.)
- Emergency operations can be performed on the unit when the batteries run out. (See "8-2-1-10. Emergency Operation")

■ Replacing batteries

- Replace both batteries at the same time with 2 LR03 size batteries.
- Do not use rechargeable batteries (NiCd, NiMH, etc.) because their size, shape, and some performance are different.
- Dispose of the old batteries at the designated sites in your community.
- The unit is restored with the factory setting when batteries are removed.
- After changing the batteries, reset the current time. (See "8-2-1-3. Setting the Current Time")

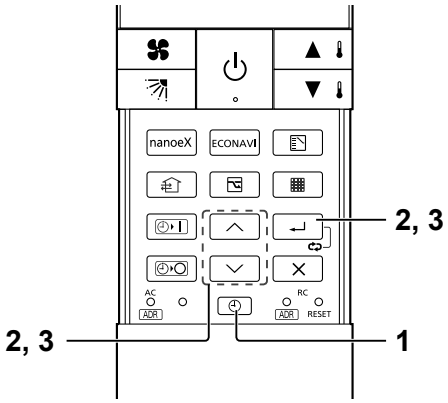
7-2-1-3. Setting the Current Time

1. Press [🕘] for 2 seconds or longer.

• The time display flashes. (The colon lights up.)

2. Press [∧] / [∨] to set the hour, then press [↵].

3. Press [∧] / [∨] to set the minutes, then press [↵].



Note

- If the buttons are not pressed for a certain duration while setting the time, the displayed time is set.
- Adjust the time periodically.

7-2-1-4. Operation

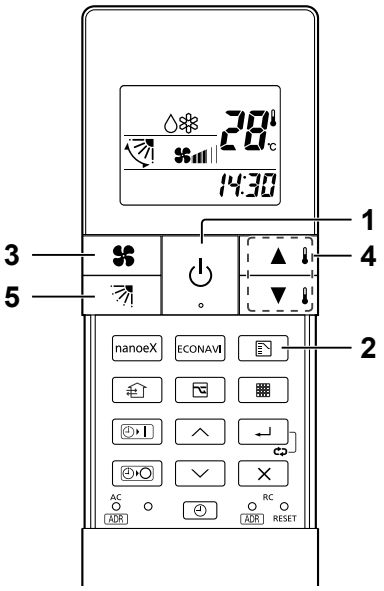
Hold the remote controller with your hand and point its transmitter at the receiver.

Power: Turn on the circuit breaker beforehand, see Section "2. TEST RUN".

1. Press [⏻].

2. Press [ ] to select the operation mode.
- Every time you press [ ], it cycles from "Auto Ⓐ → Heat ☀ → Dry 💧 → Cool ❄ → Fan 🌀 ".
- Models that only provide the cooling function cannot operate in the Auto or Heat mode.
- The available functions differ depending on the indoor unit being used. See "8-2-1-11. Miscellaneous Settings" for how to change the operation mode display.

3. Press [ ] to select the fan speed.
- Every time you press [ ], it cycles from " → → → → → Ⓐ(Auto)".
- Auto does not work in Fan mode.
- If the unit is not heating very effectively with a fan speed " ", switch the fan speed to " " or " ".
- The available functions differ depending on the indoor unit being used.
- " ⃠ " is displayed if the function is not available.



4. Press [▲] / [▼] to set the temperature.

	MAX (°C)	MIN (°C)
Auto Ⓐ	27	17
Heat ☀	30	16
Dry 💧 / Cool ❄	30	18

- Temperature settings cannot be made in Fan mode.
- The temperature range that can be set varies depending on the model.
- The maximum temperature varies depending on the system and operating condition. See "8-2-1-11. Miscellaneous Settings" for how to change the maximum temperature.

5. Press [ ] to select the flap direction. (This section is not used.)
- Every time you press [ ], it cycles from " → → → → → → (Swing) → (Stop)".
- If you press [ ] again while the flap is swinging, you can stop the flap from swinging and set it in place as desired.
- When the unit is in heating standby, the flap (up-down wind direction plate) faces upwards.
- The available functions differ depending on the indoor unit being used.
- " ⃠ " is displayed if the function is not available.
- **Never try to manually move the flap (up-down wind direction plate) that is operated by the remote controller.**

Stop: Press [⏻].
- If you cannot turn the air conditioner off in the normal way, disconnect the power to the indoor unit and contact the dealer where the product was purchased.
- When the unit is stopped with the remote controller, the fan on the outdoor unit may continue to run for a while.

< Auto operation >

It heats or cools automatically via the differences between the set temperature and the room temperature.
Auto operation is available only when identical refrigerant system inside all the indoor units or cooling/heating free-type are under control as 1 group.

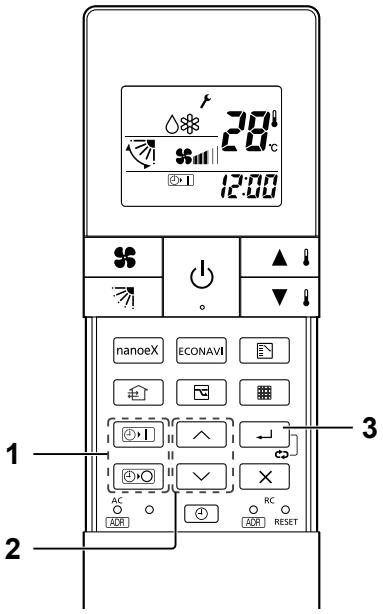
7-2-1-5. Timer Operation

• When setting the timer, make sure the current time on the remote controller is accurate.
• The timer's clock can only be set when the display of the remote controller is ON.
• After setting the timer, put the remote controller for in a place where its signal will reach the receiver of the indoor unit.

1. Press [ON] or [OFF] twice.
- The time last set on the timer starts blinking. ("- -:- -" blinks when the timer is not set or after replacing batteries.)

2. Press [∧] / [∨] to set the timer to the desired time.
- Every time you press [∧] / [∨], the time changes in 10 minute increments.
- If you press and hold the button, the time changes quickly.

3. Press [↵].
- The timer display stops blinking and the display reverts to the current time after 3 seconds.
- " [ON] / [OFF] " is displayed when set.



Combining ON and OFF Timers

1. The ON and OFF timers can be set respectively.

Checking the timer setting

1. Press [ON] or [OFF].
- The scheduled time is displayed for 4 seconds.
- When the timer is not set or after replacing batteries, it displays "- -:- -". (Initial setting)

Changing a timer setting

1. Perform Step 1 to 3 noted above as you did when setting.

Canceling a timer setting

1. Press [×].
- If you wish to cancel the setting for either the [ON] or the [OFF] timer, press [×] while the scheduled time is displayed.

Using the same timer setting every day

1. Press [↵] for 2 seconds or longer.
- " ↻ " is displayed when set.
- If you press [↵] again for 2 seconds or longer, " ↻ " goes off and the timer operates only once.

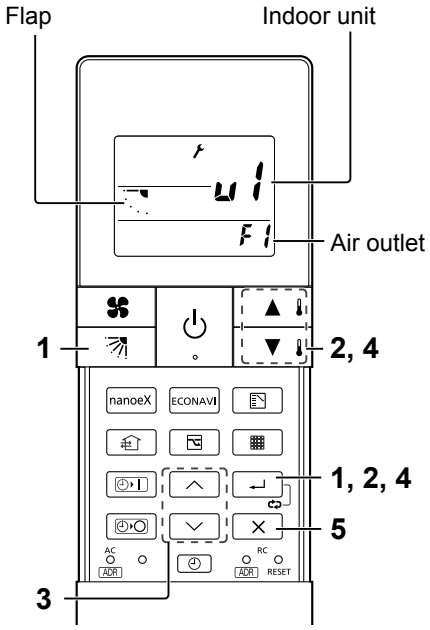
7-2-1-6. Lock Individual Flap (This section is not used.)

(Supported models: 4-way ceiling cassette type)
You can set the flap for each air outlet individually according to the room condition.

- Even if the flap setting is changed with [ ] (See Step 5. of "8-2-1-4. Operation"), the flap directions set here are not changed.

1. Press [ ] and [ ] at the same time for 4 seconds or longer.

- " " starts blinking and the setting screen is displayed.



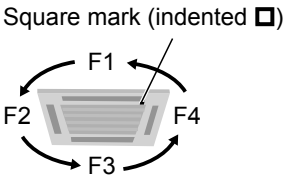
2. Press [▲] / [▼] to select the indoor unit to set, then press [ ].

- Every time you press / to switch between "U1 ↔ U2 ↔ … ↔ U8 ↔ AL (All indoor units that are connected to the remote controller)", the buzzer sounds from the corresponding receiver.
- When settable: 1 short beep
- When not settable*: 1 short beep followed by 1 long beep

* When the indoor unit is not connected or does not support this function.

3. Press [ ] / [ ] to select the air outlet.

- Every time you press [ ] / [ ], it cycles from "F1 ↔ F2 ↔ F3 ↔ F4 ↔ AL (All the air outlets)".
- The square mark (indented ◘) on the panel of the indoor unit indicates air outlet No. 1.
  There are some models that do not have a square mark (indented ◘).
- The air outlet No. changes according to the installation direction. Check by actual operation.



4. Press [▲] / [▼] to select the flap direction, then press [ ].

- Every time you press [▲] / [▼], it cycles from " (Unlock) ↔ (Swing) ↔ ↔ ↔ ↔ ↔ ↔ ".

5. Press [×].

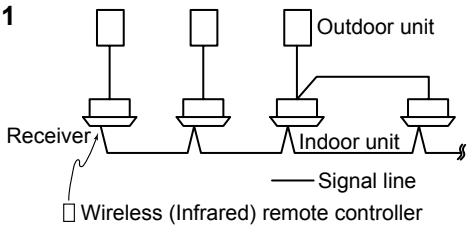
- You can return to Step 2 to continue setting if you press [ ] instead of [×].

Note

- Press [×] to stop operation in the middle.

7-2-1-7. Operating Multiple In / Outdoor Units Simultaneously (Group Control)

Group control works well for providing air conditioning to 1 large room with more than 1 air conditioning units.



- 1 remote controller can operate up to 8 indoor units.
- All the indoor units have identical settings.
- Set temperature sensing to the indoor unit (Main sensor). (See "7-2-1-1. Names and Operations")

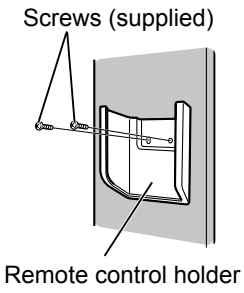
7-2-1-8. Using the Remote Controller

- Hold the remote controller with your hand and point its transmitter at the receiver. When the signal is received properly, it will beep.
- Signals can travel a direct distance of 6 metres. This distance should be used only as a guide. It depends on battery strength.
- Make sure nothing is between the remote controller and the receiver that could block the signal.
- Do not leave the remote controller in direct sunlight, where the wind from the air conditioner can blow directly on it, or near any other heat source.
- Take care not to drop, throw, or wash the remote controller with water.
- The signal from the remote controller may not be received in rooms with rapid start fluorescent lighting or inverter lights.
  For more information, please contact the dealer where the product was purchased.

Wall Mount Use

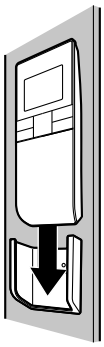
■ Mounting the holder

1. Fasten the remote control holder with screws.



2. Slide the remote controller down into the holder.

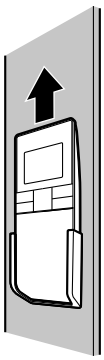
- Press [⏻] from the location you wish to mount the remote controller and make sure the signal is received properly.



Note
- You cannot operate if the distance between the remote controller and the receiver is greater than that signals can travel.

■ Detaching the controller

1. Pull the remote controller up.



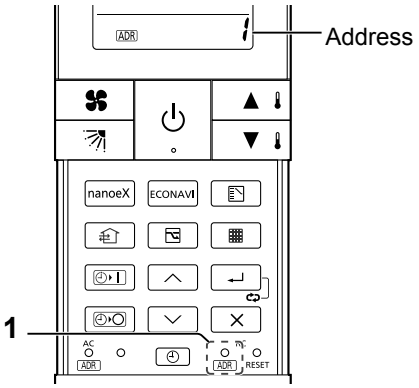
7-2-1-9. Pairing Addresses

When more than 1 indoor units are installed in the same room with a compatible remote controller, addresses can be set up to avoid crosstalk.
You can control up to 6 indoor units individually by the supported remote controller by pairing the address on the remote controller and the number on the address switch on the receiver.
There are separate address settings: receiver addresses for the receivers, and transmitter addresses for the remote controller.
Units will not be controlled if the setting do not match.

Checking Addresses

1. Press RC ADR with one end of an unfolded paper clip (or a similar object that can fit).

- Its current address appears on the display for 5 seconds.
- If this address corresponds to the address of a receiver, the buzzer sounds. (If it is on ALL, the buzzer will always sound.)
- If it is on ALL, it can be operated regardless of receiver addresses. Point the remote controller at the receiver you wish to operate and transmit.



Matching Up Addresses

■ If not wall mounted type indoor unit

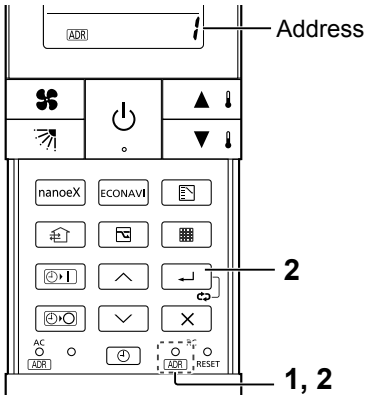
< Setting Remote Controller Addresses >

1. Press RC ADR with one end of an unfolded paper clip (or a similar object that can fit) for 4 seconds or longer.

- The current address number starts blinking.

2. Press RC ADR to select the address of the receiver you want to control, and press ↵.

- Every time you press RC ADR, it cycles from “ALL (All the addresses)→ 1→2→3→4→5→6”.
- If it corresponds to the receiver’s address setting, the buzzer sounds.



Note

- Set the address of the receiver as instructed in the operating instructions of your receiver. Do not set by yourself. Contact the dealer where the product was purchased.

7

7-2-1-10. Emergency Operation

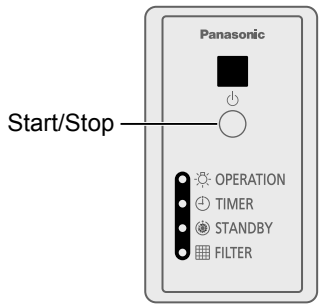
Use [Emergency Operation] ⏻ in the following situations when there is an urgent need.
- When the remote controller's batteries have failed.
- When the remote controller is broken.
- When the remote controller is lost.

*See the following figures regarding Emergency button.

1. Press [Emergency Operation] ⏻ of the receiver.
- The OPERATION lamp is lit.
- Auto operation starts. If Auto operation is not possible, the unit starts cooling if the room temperature at the time is 24 °C or higher; otherwise, the unit starts heating.
- The operation stops if you press [Emergency Operation] ⏻ again.

Note
- If non-cooling/heating free type is being used, it will beep twice and the operating lamp will light up on the display; if the timer and standby lamps blink alternately, a conflict between the heating and cooling exists, so the unit cannot operate in the desired mode. (On models that do not have an Auto function, even if Auto is selected, it works in the same way.)
- When the local operation is disabled by a central control device or similar cause, and if the Start/Stop ⏻, Fan speed, Flap, Temperature setting ▲/▼, Mode select or Energy saving button is pressed, the unit will beep 5 times and the change will not be made.

CZ-RWRC3



7-2-1-11. Miscellaneous Settings

A variety of changes can be made to settings, depending on the indoor unit being used.

Operation mode indicator, time display (24 hour, AM/PM), heating maximum temperature

- These settings are saved in nonvolatile memory in the remote controller, so even when its batteries are changed, the settings do not have to be made again.
- First check the display of the remote controller when the unit is stopped and then make any desired settings

How to Operate

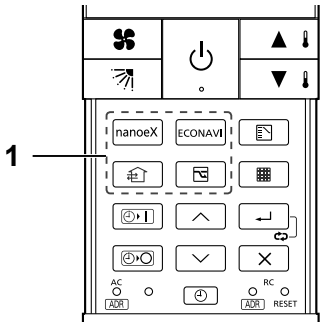
- While holding down the buttons below, the remote controller's display changes every time [∧] is pressed.
- Whatever is being displayed when you release [∧] is set.

Setting Item	Operation Button	Setting Content	Remote Controller Display
Remote controller operation mode display setting when [⊡] is pressed	Press [∧] while pressing [⊡]	Heat Pump (with Auto)	Ⓐ☼♢❄✣
		Heat Pump (without Auto)	☼♢❄✣
		Dedicated air conditioner	♢❄✣
Clock display setting	Press [∧] while pressing [🕘]	24-hour	23:59
		AM/PM	PM 11:59
Max possible temperature setting in the Heat mode	Press [∧] while pressing [▲🌡]	Maximum heating temperature range is 26 °C – 30 °C	26→27→28 ↵ 30←29 ↵

7-2-1-12. Button Control

You can enable or disable the following buttons for some indoor units.
nanoe™ X, ECONAVI, Ventilation, Energy saving

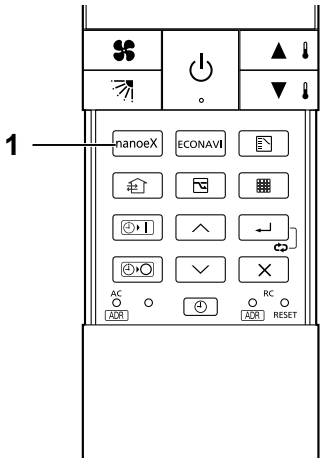
1. Press the button for desired setting for 4 seconds or longer.
- You can toggle between enable and disable each time you press the button for 4 seconds or longer.
- "⃠" is displayed when you press a disabled button, and the function cannot be used.



Buttons	Setting content
[nanoeX]	Enabling or disabling the button for nanoe™ X.
[ECONAVI]	Enabling or disabling the button for ECONAVI.
[⌂]	Enabling or disabling the button for ventilation.
[⊡]	Enabling or disabling the button for energy saving.

7

7-2-1-13. nanoe™ X Setting

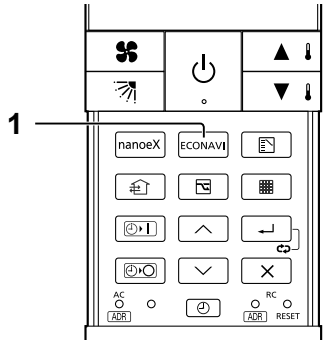


1. Press [nanoeX] during operation.

- You can toggle between ON and OFF each time you press [nanoeX].
- "[nanoeX]" is displayed when this setting is ON.
- When the nanoe™ X setting is ON, "nanoe" (atomised water particle) is released from the indoor unit while in operation (Cool, Dry, Heat, Fan, Auto).
- If the receiver emits 1 short beep followed by 1 long beep after pressing [nanoeX], the indoor unit does not support this function. See "8-2-1-12. Button Control" for how to enable or disable the button.
- "⃠" is displayed if the function is not available.

7-2-1-14. ECONAVI Setting

(ECONAVI can be set using the separately sold ECONAVI panel or by connecting the holder on the wall.)



1. Press [ECONAVI] during operation.

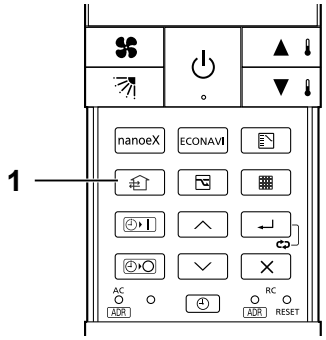
- You can toggle between ON and OFF each time you press [ECONAVI].
- " ECONAVI " is displayed when this setting is ON. *
- The ECONAVI sensor detects human activity and conserves energy based on the activity level.
- Even when target temperature is changed through the ECONAVI function, the set temperature shown in the remote controller does not change.
- When operating more than 1 indoor unit, the energy-saving effect may be reduced depending on the room condition.
- If the receiver emits 1 short beep followed by 1 long beep after pressing [ECONAVI], the indoor unit does not support this function. See "8-2-1-12. Button Control" for how to enable or disable the button.
- "⃠" is displayed if the function is not available.

* " ECONAVI " is not displayed in Fan mode.

7-2-1-15. Ventilation Setting

(When connected to an aftermarket fan)

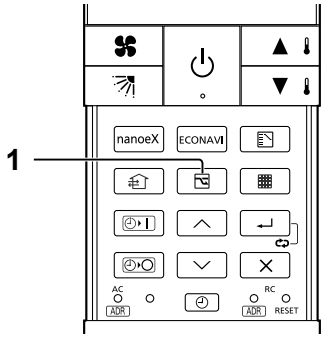
[⌂] button is disabled as the factory setting. Enable the [⌂] button if you have connected the ventilation fan.
(See "8-2-1-12. Button Control")



1. Press [⌂].

- You can toggle between ON and OFF each time you press [⌂].
- " ⌂ " appears on the display of the remote controller when the fan is operating.
- When the air conditioner is started or stopped, the fan starts or stops at the same time.
- "⃠" is displayed if the function is not available.

7-2-1-16. Energy Saving Setting



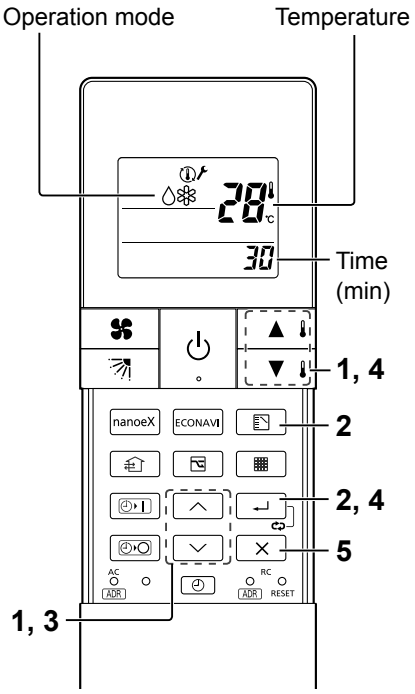
1. Press [▣] during operation.

- You can toggle between ON and OFF each time you press [▣].
- " ▣ " is displayed when this setting is ON.
- The energy saving operation restricts the maximum current value, resulting in decreased cooling/heating performance. (If the current of outdoor units does not reach the peak due to low load operation, the current value is not restricted.)
- If the receiver emits 1 short beep followed by 1 long beep after pressing [▣], the indoor unit does not support this function. See "8-2-1-12. Button Control" for how to enable or disable the button.
- "⃠" is displayed if the function is not available.

7-2-1-17. Temperature Automatic Return

You can restore the changed temperature to the originally set temperature automatically after a specified time elapses.
• Set the time and temperature for each operation mode.

1. Press [▲] and [▽] at the same time for 4 seconds or longer.
• " " starts blinking and the setting screen is displayed.



2. Press [MODE] to select the operation mode, then press [SET].
• Every time you press [MODE] to switch between "Dry / Cool → Heat → Auto ", the buzzer sounds from the corresponding receiver.
• When not set: 1 short beep
• When already set: 2 short beeps

3. Press [△] / [▽] to set the time to return to the set temperature.
• Setting range: 10 to 240 min (by the 10 min)

4. Press [▲] / [▼] to set the temperature, then press [SET].

	MAX (°C)	MIN (°C)
Auto	27	17
Heat	30	16
Dry / Cool	30	18

• The temperature range that can be set varies depending on the model.

5. Press [CANCEL].
• You can return to Step 2 to continue setting if you press [SET] instead of [CANCEL].

Changing the setting

Perform Step 1 to 5 noted above as you did when setting.

Cancelling the setting

1. Press [▲] and [▽] at the same time for 4 seconds or longer.
2. Press [MODE] to select the operation mode, then press [CANCEL] for 4 seconds or longer.
• The receiver emits 1 short beep.
• Press [CANCEL] for 10 seconds or longer to cancel settings for all operation modes.

Note
• Press [CANCEL] to stop operation in the middle.

7

7-2-1-18. Troubleshooting

Before requesting service, please check the followings.

Problem	Cause	Solution
The unit doesn't work even when ⏻ is pressed on the remote controller.	The power to the indoor unit is not ON.	Make sure the power to the indoor unit is ON.
	Are the remote controller's batteries dead?	Change the batteries.
	Is there a mismatch between the display lamp and cooling/heating or is it set to something other than Auto? (The operating lamp stays lit, while the timer lamp and the standby lamp blink alternately.)	Change the operating mode.
	Do the addresses match one another?	Check the addresses of the receiver and the remote controller. (See "Checking Addresses" on page 8-2-1-8)
The air conditioner starts and stops on its own.	Has the timer been set to repeat?	Check the timer settings. (See "Checking the timer setting" on page 8-2-1-5)
Although the unit is for air conditioning only, either Auto or Heat is indicated in the display.		Make settings to the remote controller's operation mode display. (See "8-2-1-11. Miscellaneous Settings")
After the batteries are put in the remote controller, even when it is operated, the display does not change.		Press the RC reset button on the remote controller. (See Step 3. of "8-2-1-2. Installing Batteries")
The timer cannot be set.		Make the settings when the remote controller is in Operation Display. (See "8-2-1-5. Timer Operation")

If the problem persists even after you check the foregoing items, stop the unit, disconnect the power to the indoor unit and contact the dealer where the product was purchased with the model number and problem you are having. As it is dangerous, under no circumstances should you undertake repairs yourself.
Further, when the receiver's lamps are blinking; please contact your retailer with that information.

Specifications

CZ-RWS3

Model No.	CZ-RWS3
Dimensions	(H) 165 mm × (W) 59 mm × (D) 22 mm
Weight	100 g (Batteries and remote control holder are not included)
Temperature / Humidity range	0 °C to 40 °C / 20 % to 80 % (No condensation) *Indoor use only
Power Source	Two LR03 size batteries

CZ-RWRC3

Model No.	CZ-RWRC3
Dimensions	(H) 120 mm × (W) 70 mm × (D) 20 mm
Weight	75 g
Temperature / Humidity range	0 °C to 40 °C / 20 % to 80 % (No condensation) *Indoor use only.
Power Source	DC16 V (supplied from indoor unit)

7-2-2. Installation Instructions

Read before installation

This controller must be installed by the sales dealer or installer. These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales / service outlet or your certified dealer for additional instructions.

Safety Precautions

We assume no responsibility for accidents or damages resulting from methods other than those described in the installation instructions or methods without using specified parts. Malfunctions that occurred due to the unauthorised installation methods are not covered by the product warranty.

- Read the installation instructions supplied with indoor units as well.
- After the installation is complete, perform test operation to confirm that no abnormality is present.
- When relocating or repairing this controller, provide the Installation Instructions to the servicing personnel.
- Do not clean inside the controller by users. Engage authorised dealer or specialist for cleaning.

⚠ WARNING This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ CAUTION This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

⚠ WARNING

- Turn off the circuit breaker of the units before installation.
- Select an installation location which is rigid and strong enough to support or hold the controller, and select a location for easy maintenance.
- This controller must not be modified or disassembled under any circumstances. Modified or disassembled controller may cause fire, electric shock or injury.

⚠ CAUTION

- Do not allow infants and small children to prevent them from accidentally swallowing the batteries.
- Do not use the controller at the following locations.
  - Location where condensation occurs
  - Location where flammable gases, etc. may leak
  - Location where corrosive gases, etc. may leak
  - Location with lots of water or oil droplets (including machine oil)
  - Location where there is a machine producing electromagnetic radiation
  - Location where droplets of organic solvents spread
  - Location where acidic or alkaline solutions or special sprays are frequently used
- Do not wash with water.
- Do not operate with wet hands.
- Do not drop or throw. (It may cause malfunction.)
- Do not insert the battery the wrong terminals (+ and -). (It may cause electrolyte leakage and may cause a fire.)

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

Supplied accessories

< >: Number of pieces

- Remote Control Holder <1>
- Screw M4×15.5 <2>
- LR03 Size Battery (for test) <2>
- Operating Instructions <1>
- Installation Instructions <1>
- Instructions Disc <1>

Installation Precautions

- The controller uses a very weak infrared light for its signal, which can result in the signal not being received because of the following influences, so take care in where the indoor unit is installed.
  - Inverter or rapid-start type fluorescent lights (Models without glow lamps)
  - Plasma display or LCD televisions
  - Direct sunlight or other sources of bright light
- Install in a location that does not interfere the operation
  - You cannot operate if the distance between the remote controller and the receiver is greater than that signals can travel.
  - Make sure nothing is between the remote controller and the receiver that could block the signal.
  - Confirm that the normal operation is possible at the location to install.
- Avoid the following locations for installation.
  - Under direct sunlight
  - Location near heat source
  - Location where the controller will be splashed with water or affected by dampness or humidity
  - Uneven surface
  - Location that is subject to excessive vibration or physical impacts. (Fixing screws may come off, and the controller may drop.)
  - Location with large amount of oil smoke or steam (such as kitchen or machine factory)
- Install the controller vertically to the floor.
- Install the controller at a location with suitable temperature and humidity for using.
- Do not install controller at the locations with the equipment (medical equipment, etc.) which generates the high-frequency emissions. (It may interfere with the equipment and may cause accidents due to malfunction.)
- Install at least 1 m away from TV, radio, PC, etc. (To prevent fuzzy images or noise)
- If a remote controller is to be operated from a remote control holder that is hung on a wall, turn on the lights in the room as well as any electrical appliances and then check to make sure the air conditioner works with the remote controller in the location where it will be installed. If it works, continue with installation.

Before Starting

Install this controller see “8-2-1. Operating Instructions”.

(1) Insert the batteries. (Installing Batteries)
(2) Set the current time. (Setting the Current Time)
(3) Install the remote control holder. (Using the Remote Controller)
(4) Perform the pairing address setting, if required. (Paring Addresses)

Miscellaneous Settings

The functions of the wireless (infrared) remote controller can be set on site.

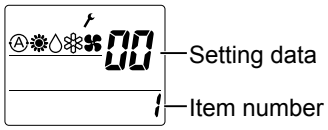
Note

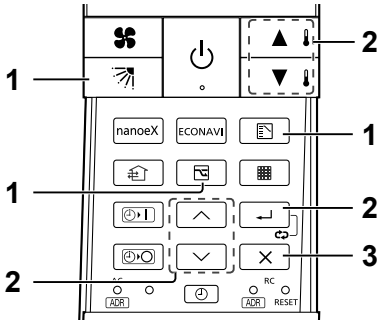
Only service personnel should make the settings because the operation of the air conditioner may be affected, depending on the settings made.

- These settings are saved in nonvolatile memory in the remote controller, so even when its batteries are changed, the settings do not have to be made again.
- Furthermore, making changes to these settings may cause actual operation to deviate from what is printed in the Operating Instructions, so be sure to fully explain this to the customer.
- Do not change any settings other than those items in table below.

1. Press [ ] , [ ] and [ ] at the same time for 4 seconds or longer when the unit is stopped (displaying the current time only).

- "🔧" starts blinking and the setting screen is displayed.





2. Press [▲] / [▼] to select item number, press [^] / [v] to select setting data, and press [↵].

3. Press [×].

Item Number	Setting item	Setting data		Factory setting	Check
1	Operation Mode*1	00: Ⓐ / ☀ / ♢ / ❄ / ✿ 01: ☀ / ♢ / ❄ / ✿ 02: ♢ / ❄ / ✿	03: ❄ / ✿ 04: Ⓐ / ☀ / ❄ / ✿ 05: ☀ / ❄ / ✿	00: Ⓐ/☀/♢/❄/✿	
2	Flap Display	00: 5 levels (Cool in 5 levels) + Swing + Stop 01: 5 levels (Cool in 3 levels) + Swing + Stop 02: 5 levels (Cool in 3 levels) + Swing	03: Swing 04: No switchable function	00: 5 levels (Cool in 5 levels) + Swing + Stop	
3	Select Fan Speed	00: 5 levels (1 to 5, Auto) 01: 3 levels (Low (1), Medium (3), High (5), Auto) 02: 3 levels (Low (1), Medium (3), High (5))	03: Low (1), Medium (3) 04: No switchable function	00: Speed 5 (1 to 5, Auto)	
4	Temperature Display	00: °C	01: °F	00: °C	
5	Clock Display	00: 24-hour	01: AM/PM	00: 24-hour	
6	Ventilation Fan Setting*2	00: Off	01: On	00: Off	
7	Cool Temp Max	5 – 35°C		30	
8	Cool Temp Min	5 – 35°C		18	
9	Heat Temp Max	5 – 35°C		30	
10	Heat Temp Min	5 – 35°C		16	
11	Dry Temp Max	5 – 35°C		30	
12	Dry Temp Min	5 – 35°C		18	
13	Auto Temp Max	5 – 35°C		27	
14	Auto Temp Min	5 – 35°C		17	
18	Energy Saving Setting*2	00: Off	01: On	01: On	
19	ECONAVI Setting*2	00: Off	01: On	01: On	
20	nanoe™ X Setting*2	00: Off	01: On	01: On	

*1 Set to [02: ♢ / ❄ / ✿] or [03: ❄ / ✿] if you are using the unit only for cooling.

*2 Press the function setting button for 4 seconds or longer while current time is displayed to switch the function On/Off.

Note

Make sure to fill the setting status in the check column after making changes to these settings.

Auto Address

Set the Auto Address for each O/D unit no. (outdoor unit number) Select the O/D unit no. for Auto Address.

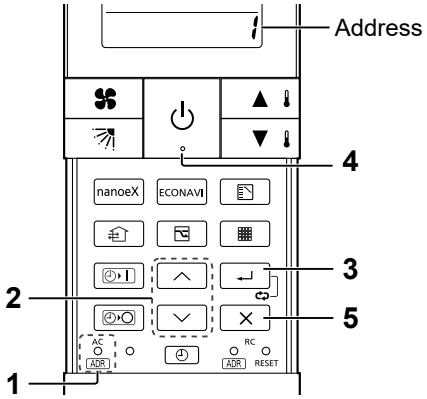
1. Press [AC ADR] for 4 seconds or longer.
- " 🔧 " starts blinking and the setting screen is displayed.

2. Press [∧] [∨] to select the unit number (O/D unit no.) from 1 to 30.

3. Press [↵] to set the Auto Address.

4. Press [⏻] to check the Auto Address status.

(See the following table for the Auto Address status.)
- Proceed to step 5 when the status is "Completion" or "Error" .
- If "Running" keeps for 10 minutes or longer, check the unit number.



Auto Address Status	Buzzer of the receiver	Indication lamp on the receiver		
		OPERATION	TIMER	STANDBY
Running	2 times	◎ → ◎ → ◎		
Completion	1 time	-	-	-
Error	5 times	●	●	◎

●: OFF, ○: ON (Illuminated), ◎ Blinking (0.5 seconds interval)

5. Press [×] for 4 seconds or longer to exit the Auto Address setting.
- Auto Address setting is canceled while running or error occurring. Set the Auto Address again after resolve the error cause if an error occurs.

Attention
- Set Auto address after all units are turned on and 90 seconds or more have passed.
- Operate the units after Auto address is set and 90 seconds or more have passed.

7-3. Setting for the Receiver

7-3-1. Infrared Receiver

7-3-1-1. Common to Infrared Receiver

CZ-RWRC3

Read before installation

This receiver must be installed by the sales dealer or installer. These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

Safety Precautions

We assume no responsibility for accidents or damages resulting from methods other than those described in the installation instructions or methods without using specified parts. Malfunctions that occurred due to the unauthorised installation methods are not covered by the product warranty.

- Read the installation instructions supplied with indoor units as well.
- After the installation is complete, perform test operation to confirm that no abnormality is present.
- When relocating or repairing this receiver, provide the Installation Instructions to the servicing personnel.
- Do not clean inside the receiver by users. Engage authorised dealer or specialist for cleaning.

⚠ WARNING This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ CAUTION This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

⚠ WARNING

- Turn off the circuit breaker of the units before installation.
- This receiver shall be installed in accordance with National Wiring Regulations.
- Connect and fix the specified cables for wiring securely.
- Do not allow the connection to be exposed to the external force of the cables.
- Select an installation location which is rigid and strong enough to support or hold the receiver, and select a location for easy maintenance.
- This receiver must not be modified or disassembled under any circumstances. Modified or disassembled receiver may cause fire, electric shock or injury.

⚠ CAUTION

- Do not use the receiver at the following locations.
  - Location where flammable gases, etc. may leak
  - Location where corrosive gases, etc. may leak
  - Location with lots of water or oil droplets (including machine oil)
  - Location where droplets of organic solvents spread
  - Location where acidic or alkaline solutions or special sprays are frequently used
- Do not wash with water.
- Do not operate with wet hands.

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

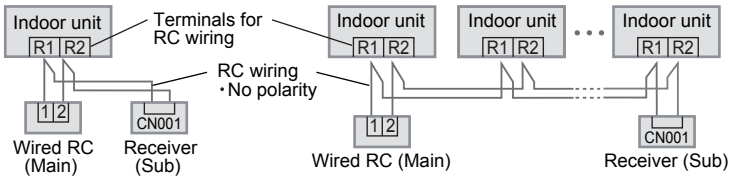
Installation Precautions

- The receiver uses a very weak infrared light for its signal, which can result in the signal not being received because of the following influences, so take care in where the indoor unit is installed.
  - Inverter or rapid-start type fluorescent lights (Models without glow lamps)
  - Plasma display or LCD televisions
  - Direct sunlight or other sources of bright light
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.
- Be careful not to connect cables to other terminals of indoor units (e.g.power source wiring terminal). Malfunction may occur.
- Avoid the following locations for installation.
  - Location where condensation occurs
  - Location where voltage fluctuation frequently occurs
  - Location where there is a machine producing electromagnetic radiation

Installation when setting Main/Sub for the remote controller and the receiver
It is possible to operate one or more indoor units using two remote controllers.
After installation, set one to [Main] and the other to [Sub].
When using the infrared remote controller and the wired remote controller in combination, set the wired remote controller to [Main].

<Installation example>

■ **Using 1 indoor unit** ■ **Using more than 1 indoor unit**



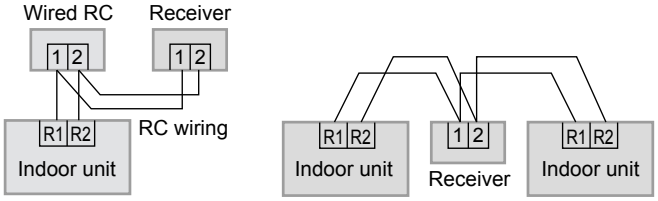
Note

- The receiver can be connected to any indoor unit for operation.
- Wiring connected via remote controllers is prohibited.
- Also see "1-11-1. Installation Instructions of Indoor Unit" or refer to the “Installation Instructions” supplied with the wired remote controller when performing remote control with the main and sub remote controllers or group-controlling.

Attention

- Multiple wireless (infrared) remote controllers cannot be used simultaneously for a single indoor unit.
- Be careful not to connect cables to other terminals of indoor units (e.g. power source wiring terminal). Malfunction may occur.
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.
- If noise is induced to the unit power supply, attach a noise filter.

*Wiring shown below is prohibited.

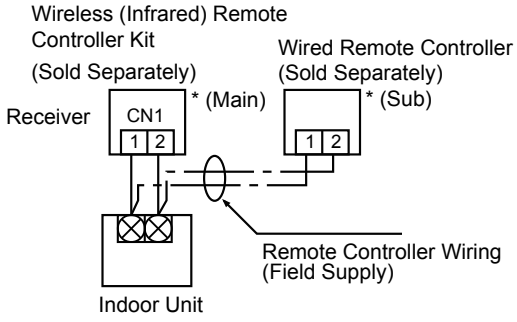


Note

The remote controller and the receiver can be connected to any indoor unit for operation.

When 1 indoor unit is operated by 2 remote controllers:

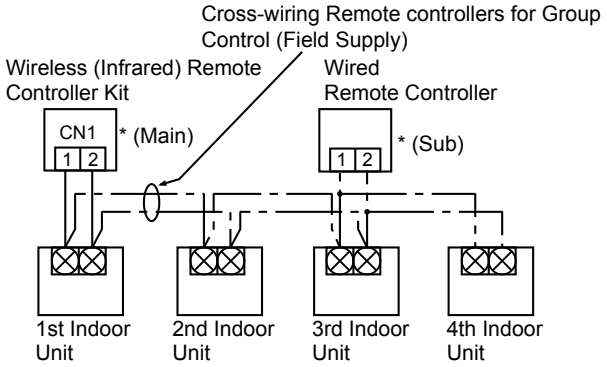
* Either of the remote controllers can be set to main/sub.



- Use wiring of 0.5 mm^2 to 2 mm^2 for field supply.
- Use a total wire length of no more than 400 m.

If a group of units are to be controlled by 2 remote controllers:

* Main/sub remote controllers will work regardless of which indoor unit they are installed.



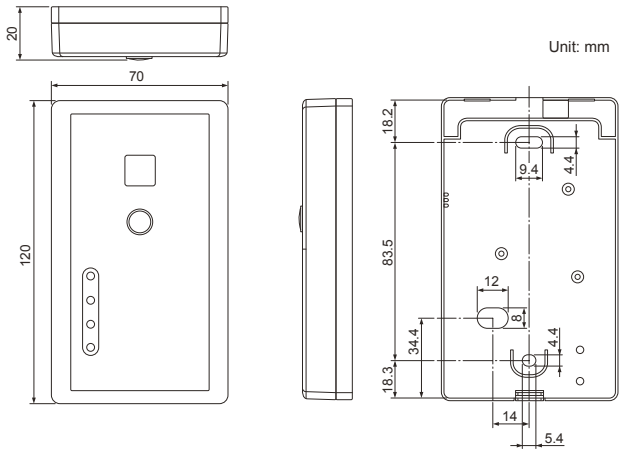
- Use wiring of 0.5 mm^2 to 2 mm^2 for field supply.
- Make the total wire length when cross-wiring a group no more than 200 m.

7-3-1-2. CZ-RWRC3

Part Names

(1) **Light receiving section**
Receives signals.
(2) **Emergency operation button**
Starts / Stops emergency operation.
(3) **Indication lamp**
Indicates operation status.

Dimensions



Installation Precautions

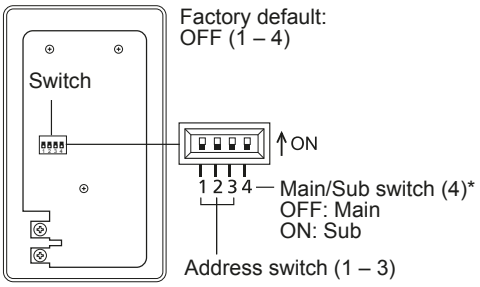
- Install at the height of 1 to 1.5 m from the floor.
- Install vertically against the floor.
- When installing more than 1 remote controller next to each other, keep distance of 5 mm on the right and left and 50 mm on top and bottom.
- Install the receiver at a location with suitable temperature and humidity for using.

1. Accessories

Supplied accessories		
screw M4 × 15.5 (2)	Clamper (1)	Installation Instructions (1)

2. Setting

Remove the cover from the receiver when performing the settings.



* When using the infrared remote controller and the wired remote controller in combination, set the wired remote controller to [Main].

Address Setting

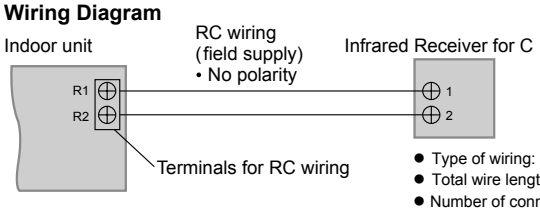
- When more than 1 receiver is installed in the same room, setting addresses prevents interference.
- For how to change addresses of infrared remote controller, see “8-2-1. Operating Instructions”.

Infrared remote controller address display	Address **ALL**	Address **1**	Address **2**	Address **3**	Address **4**	Address **5**	Address **6**	ON/OFF States
Infrared receiver address switch positions	Receiving is possible at all address positions.	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	OFF ON

3. Wiring

Connect the wires from the receiver to the terminals for RC wiring on the indoor unit.

Wiring Diagram



- Type of wiring: Use cables of 0.5 to 1.25 mm².
- Total wire length: 400 m or less (The wire length between indoor units should be 200 m or less.)
- Number of connectable units Remote controller and receiver: Max. 2, Indoor unit: Max. 8

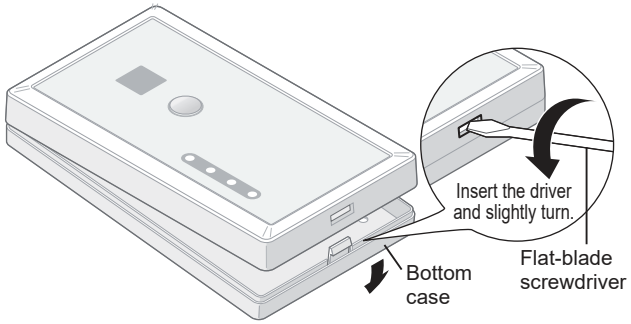
Note

- The receiver can be connected to any indoor unit for operation.
- Wiring connected via remote controllers is prohibited.
- Also see "1-11-1. Installation Instructions of Indoor Unit" or refer to the “Installation Instructions” supplied with the wired remote controller when performing remote control with the main and sub remote controllers or group-controlling.
- Use the field supplied RC wiring with at least 1 mm in thickness of insulation part including the sheath.
  Regulations on wire diameters differ from locally to locally.
  For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning.
  You must ensure that installation complies with relevant rules and regulations.

4. Mounting

See “2. Setting” before mounting.

1 Remove the bottom case.

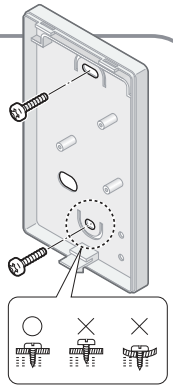


2 Mount to the wall.

Attention

Mounting the bottom case

- Tighten the screws securely until the screw heads touch the bottom case. (Otherwise, loose screw heads may hit the PCB and cause malfunction when mounting the top case.)
- Do not over-tighten the screws. (The bottom case may be deformed, resulting in fall of the unit.)



Connecting the remote controller wiring

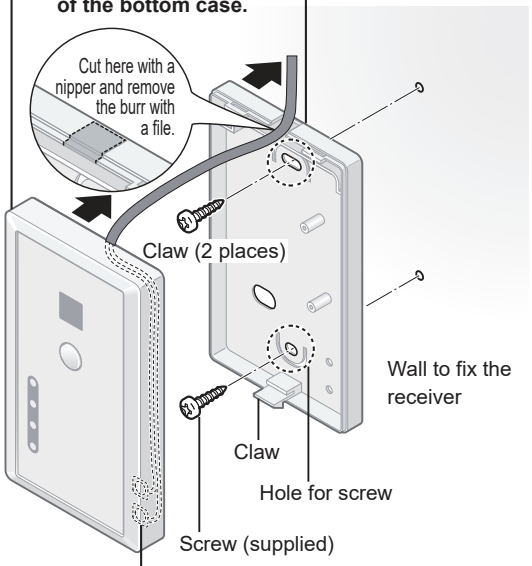
- Arrange the wires as shown in the illustration for ❷ in step 2, avoiding unnecessary wires being stored in the case. (Caught wires may destroy the PCB.)
- Avoid wires touching parts on the PCB. (Caught wires may destroy the PCB.)

Exposed type

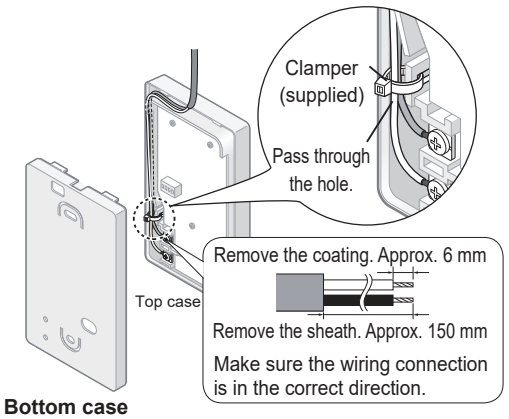
Preparation: Make 2 holes for screws using a driver.

3 Mount the top case.
- **Align the claws of the top case and then align the claws of the bottom case.**

1 Mount the bottom case to the wall.



2 Connect the remote controller wiring.
- Arrange the wires along the groove of the case.

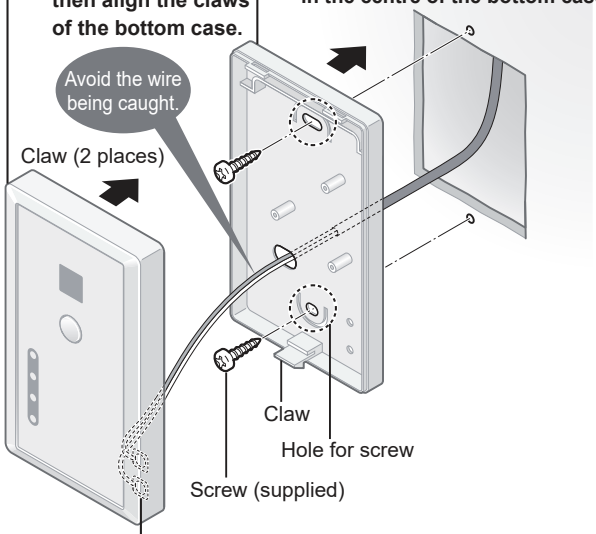


Embedded type

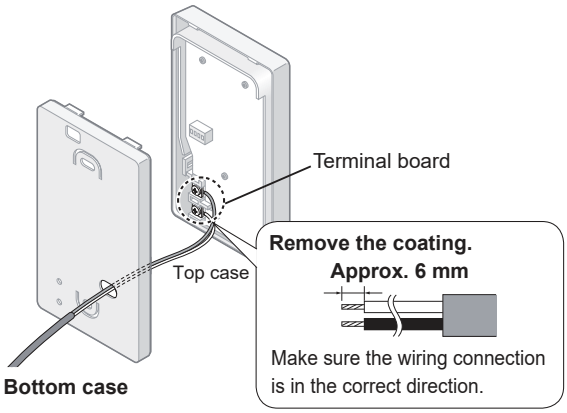
Preparation: Make 2 holes for screws using a driver.

3 Mount the top case.
- **Align the claws of the top case and then align the claws of the bottom case.**

1 Mount the bottom case to the wall.
- **Pass the wire through the hole in the centre of the bottom case.**



2 Connect the remote controller wiring.



7

7-3-2. Test Operation

Preparation: Turn on the circuit breaker of units and then turn the power on. After the power is turned on, infrared remote controller operation is ignored for approx. 1 minute because setting is being made. This is not malfunction.
(Contents received while setting are disabled.)

1 Press and hold the emergency operation button for 10 seconds.
2 The indication lamps (OPERATION, TIMER, STANDBY) blink during test operation.
3 To finish test operation, press and hold the emergency operation button for 10 seconds.

ATTENTION

- Do not use this mode for purposes other than the test operation. (To prevent overload of the units)
- Read the installation instructions supplied with the units.
  The test operation can be performed in Heat or Cool mode.
- Temperature cannot be changed.
- The test operation mode is automatically turned off in 60 minutes. (To prevent continuous test operation)
- Outdoor units do not operate for approx. 3 minutes after the power is turned on or operation is stopped.

Self-diagnostics table and detected contents

The “Alarm Display” shown in the table below expresses the alarm contents displayed when the wired remote controller is connected. For how to handle the alarms, see Section 2 “Contents of Remote Controller Switch Alarm Display” and Section 5 “Contents of Remote Controller Switch Alarm Display”.

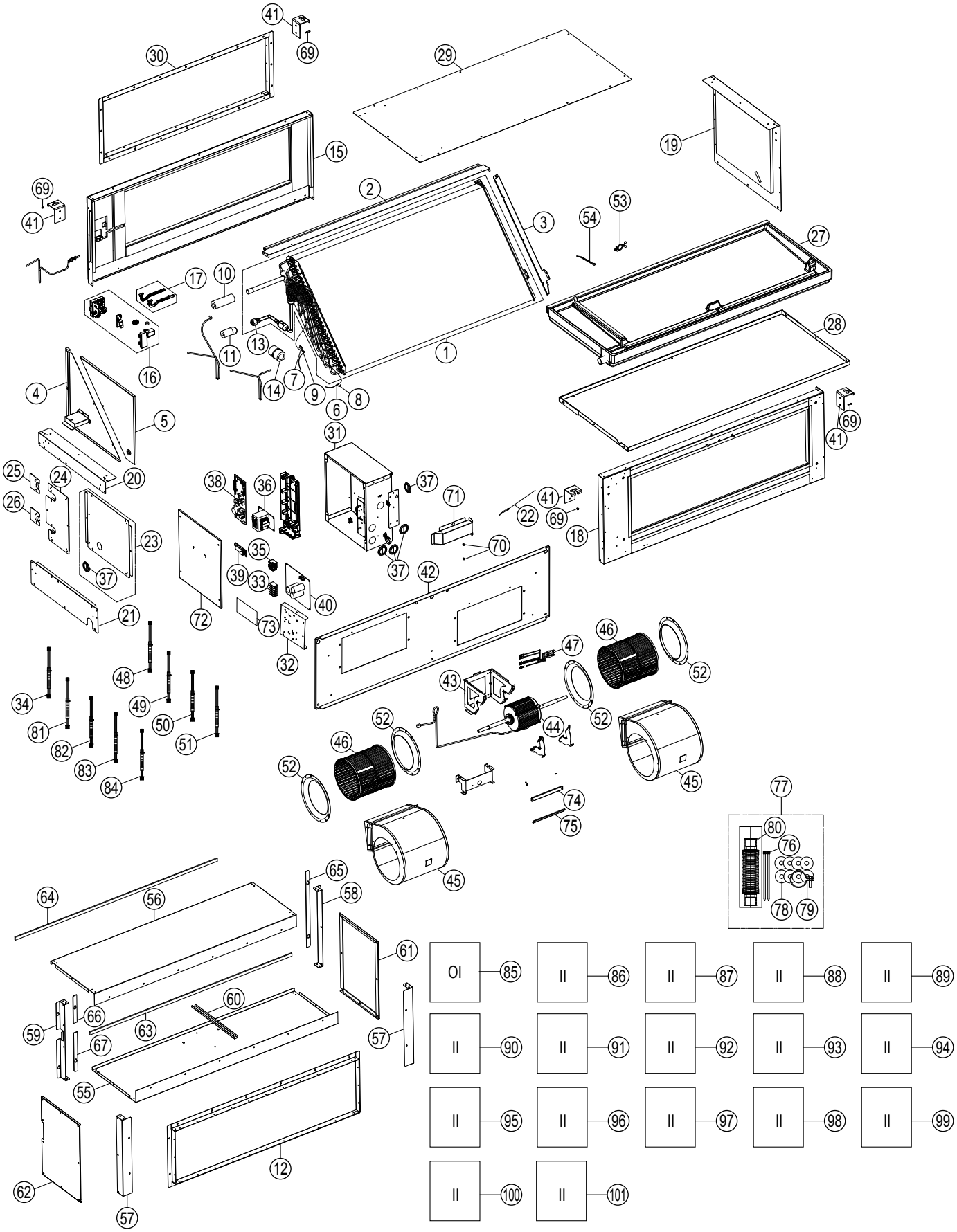
Detected contents		Indication lamp on the receiver			
	Alarm Display	OPERATION	TIMER	STANDBY	Blinking
Communication error in the remote controller circuit	E01–E03, E08–E14, E17, E18	◎	●	●	
Communication error either in the in / outdoor operation line or the sub-bus of the outdoor unit	E04–E07, E15, E16, E19–E31	●	●	◎	
Operation of indoor protection device	P01, P09–P14	●	◎	◎	Alternately
Operation of outdoor protection device	P02–P08, P15–P31	◎	●	◎	Alternately
Error in the indoor thermistor	F01–F03, F10–F11	◎	◎	●	Alternately
Error in the outdoor thermistor	F04–F09, F12–F28	◎	◎	○	Alternately
Error in the indoor EEPROM	F29	◎	◎	●	Simultaneously
Error in the outdoor EEPROM	F30, F31	◎	◎	○	Simultaneously
Error related to the compressor	H01–H31	●	◎	●	
Error in indoor settings	L01–L03, L05–L09	◎	●	◎	Simultaneously
Error in outdoor settings	L04, L10–L31	◎	○	◎	Simultaneously
Error in the gas heat pump air conditioner	A01–A31	●	◎	◎	Simultaneously
Inconsistency in Cooling/Heating (Including an auto-temp setting for a model without auto-temp settings)		○	◎	◎	Alternately
Oil alarm (Same as operation of outdoor protection device)		◎	●	◎	Alternately
Auto addressing in progress (when it is performed with an infrared remote controller)		◎ →	◎ →	◎	Sequentially
Test operation		◎	◎	◎	Simultaneously

●: OFF ○: ON (Illuminated) ◎: Blinking (0.5 seconds interval)

8. EXPLODED VIEW AND REPLACEMENT PARTS LIST

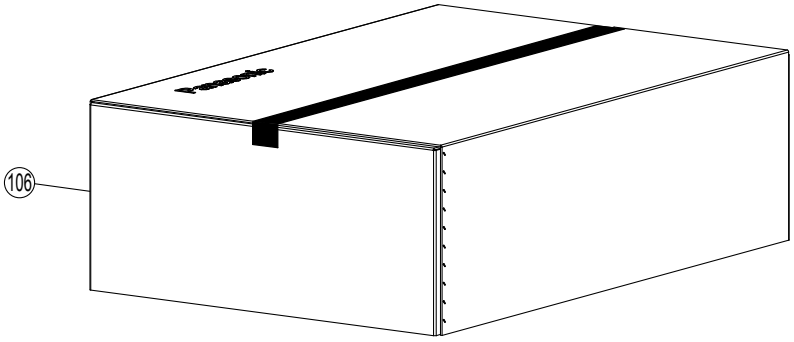
8-1. Indoor Unit

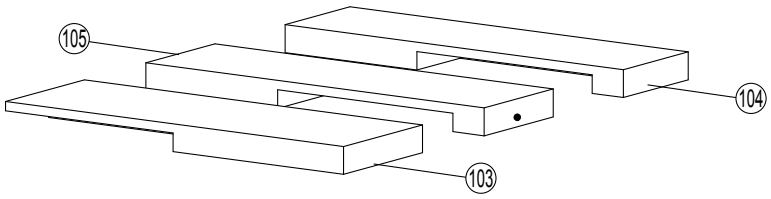
S-200PE4E

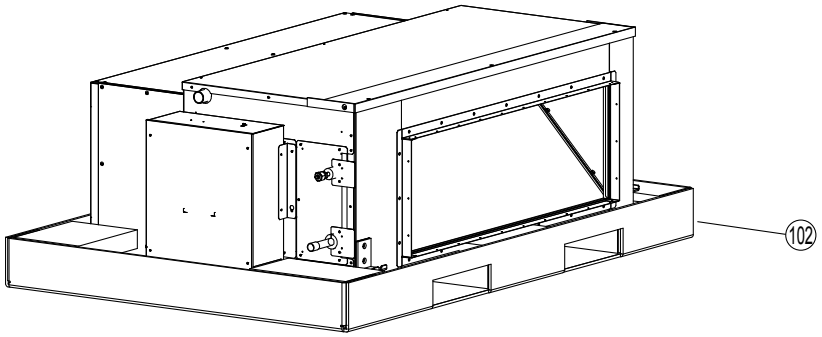


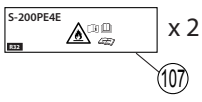
Note

The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.









Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

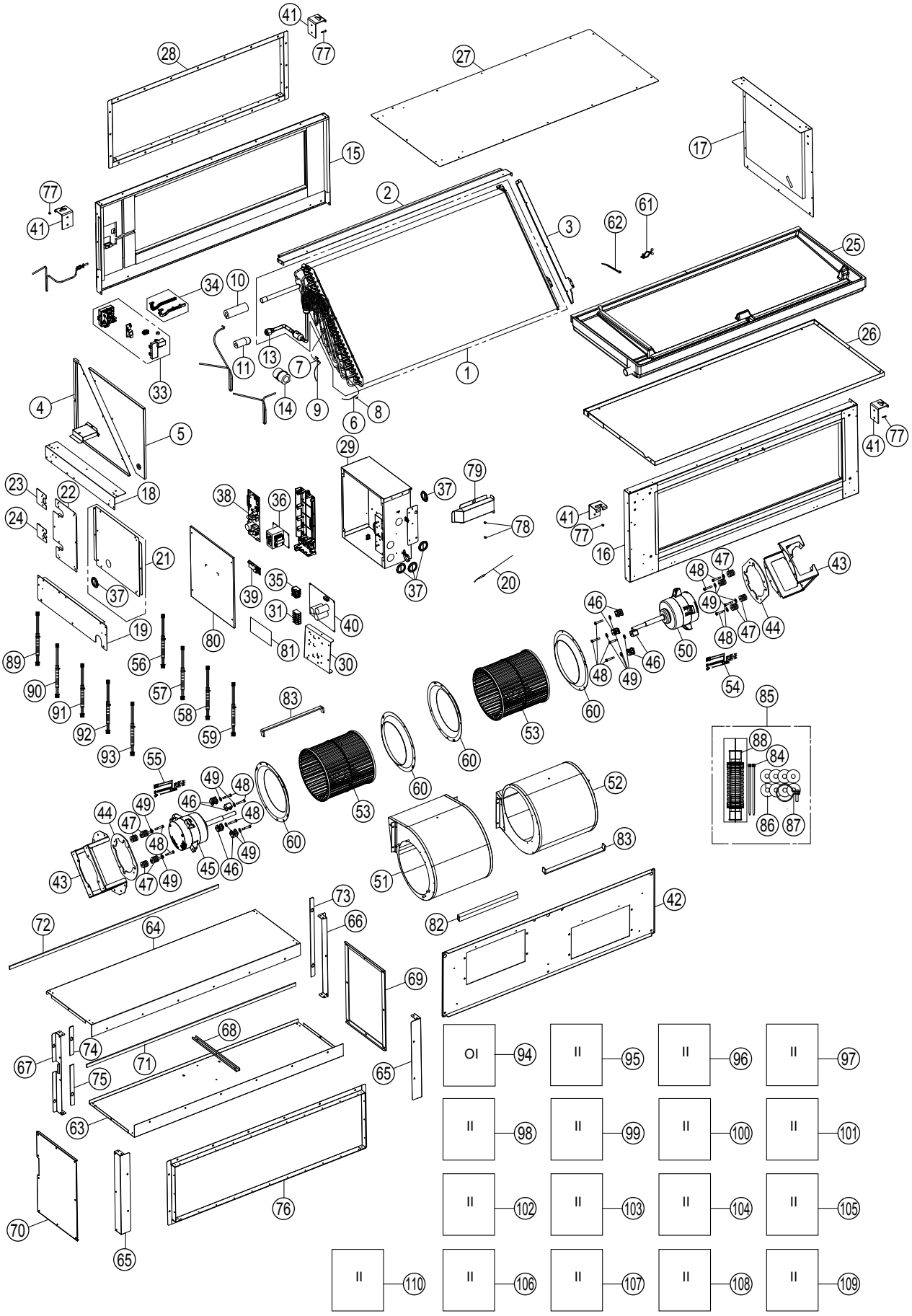
SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	S-200PE4E	REMARK
	1	FIN & TUBE EVAPORATOR ASSY	1	ACXB30K02250	O
	2	EVAPORATOR COVER-COMPLETE	1	ACXD11C00040	
	3	AIR REGULATING PLATE COMPLETE	1	ACXD21C00020	
	4	AIR REGULATING PLATE COMPLETE	1	ACXD21C00070	
	5	AIR REGULATING PLATE COMPLETE	1	ACXD21C00040	
⚠	6	SENSOR COMPLETE (E1)	1	ACXA50C19180	O
⚠	7	SENSOR COMPLETE (E2)	1	ACXA50C19190	O
	8	PLATE SPRING (E1)	1	CWH711010	
	9	PLATE SPRING (E2)	1	CWH711013	
	10	ADH. POLY-E. FOAM	1	ACXG12-06940	
	11	ADH. POLY-E. FOAM	1	CWG123168	
	12	DUCT ASSY	1	ACXD22K00070	
	13	UNION NUT	1	CWT251032	
	14	ADH. POLY-E. FOAM	1	CWG123573	
	15	CABINET FRONT PLATE-COMPLETE	1	ACXE06C04820	
⚠	16	GENERATOR COMPLETE	1	ACXH94C01810	O
	17	DUCT-COMPLETE	1	ACXD22C00450	
	18	CABINET REAR PLATE-COMPLETE	1	ACXE02C00840	
	19	CABINET SIDE PLATE-COMPLETE	1	ACXE04C08800	
	20	CABINET SIDE PLATE-COMPLETE	1	ACXE04C04780	
	21	CABINET SIDE PLATE-COMPLETE	1	ACXE04C04790	
⚠	22	SENSOR-COMPLETE (TA)	1	ACXA50C19200	O
	23	CABINET SIDE PLATE-COMPLETE	1	ACXE04C04800	
	24	EVAPORATOR COVER-COMPLETE	1	ACXD11C00010	
	25	EVAPORATOR COVER-COMPLETE	1	ACXD11C00021	
	26	EVAPORATOR COVER-COMPLETE	1	ACXD11C00032	
	27	DRAIN PAN-COMPLETE	1	ACXH40C01170	
	28	CABINET BOTTOM PLATE-COMPLETE	1	ACXE05C00200	
	29	CABINET TOP PLATE-COMPLETE	1	ACXE03C01370	
	30	DUCT ASS.Y	1	ACXD22K00060	
	31	CONTROL BOARD ASSY	1	ACXH10K03221	
	32	CONTROL BOARD	1	ACXH10-10650	
⚠	33	TERMINAL BOARD ASSY (POWER SUPPLY)	1	CWA28K1188	O
⚠	34	LEAD WIRE CO - CN-AC	1	ACXA61C01720	O
⚠	35	TERMINAL BOARD	1	ACXA28-00140	O
⚠	36	REACTOR	1	G0C193J00023	O
	37	PACKING	5	ACXB81-00030	
⚠	38	ELECTRONIC CONTROLLER - MAIN	1	ACXA74C06390	O
⚠	39	ELECTRONIC CONTROLLER - COMMUNICATION	1	ACXA73-47790	O
⚠	40	ELECTRONIC CONTROLLER - FM POWER	1	ACXA73-47570	O
	41	INSTALLING HOLDER	4	ACXH36-00580	
	42	BULKHEAD-COMPLETE	1	ACXD53-01931	
	43	FAN MOTOR BRACKET	1	ACXD54-04970	
⚠	44	FAN MOTOR 1 DC 750W 3PH	1	L6CBYYYL0463	O
	45	AIR GUIDER B.W.ASSY	2	ACXD32K00400	
	46	BLOWER WHEEL ASSY	2	ACXH01K00370	
⚠	47	LEAD WIRE CO DC MTR 1	1	ACXA60C98551	O
⚠	48	LEAD WIRE CO - CN-LM	1	ACXA60C96270	O
⚠	49	LEAD WIRE CO - DCM2	1	ACXA60C96260	O

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	S-200PE4E	REMARK
⚠	50	LEAD WIRE CO - S-LINK	1	ACXA60C96240	O
⚠	51	LEAD WIRE CO - CN-MD	1	ACXA60C96250	O
	52	NOZZLE	4	ACXH43-00230	
	53	BAND	2	CWH881123	
	54	BAND	1	CWH881202	
	55	CABINET	1	ACXE00-00720	
	56	CABINET	1	ACXE00-00270	
	57	CABINET	2	ACXE00-00280	
	58	CABINET	1	ACXE00-00291	
	59	CABINET	1	ACXE00-00301	
	60	STABILIZER	1	ACXD20-00030	
	61	CABINET-COMPLETE	1	ACXE00C00430	
	62	CABINET-COMPLETE	1	ACXE00C00440	
	63	POLY-E.FOAM	1	ACXE3A16-1174	
	64	POLY-E.FOAM	1	ACXE5A16-1174	
	65	ADH. POLY-E. FOAM	1	ACXG12-24410	
	66	ADH. POLY-E. FOAM	1	ACXG12-24420	
	67	ADH. POLY-E. FOAM	1	ACXG12-24430	
	69	SCREW	4	CWH551159	
	70	SCREW	2	CWH55440J	
	71	TERMINAL COVER COMPLETE	1	ACXH17C00010	
	72	CONTROL BOARD COVER	1	ACXH13-06310	
	73	WIRING DIAGRAM (CS)	1	ACXF20-16270	
	74	POLY-E.FOAM	2	ACXE8A50-316	
	75	POLY-E.FOAM	2	ACXE5A20-375	
	76	BAND	2	ACXH88-00090	
	77	ACCESSORY-COMPLETE	1	ACXH82C25450	
	78	PLAIN WASHER	8	XWH10J34FJ	
	79	WIRE SPRING	1	CWH722003	
	80	FLEXIBLE PIPE	1	CWH851032	
	81	LEAD WIRE CO CN-RC	1	ACXA60C96190	O
	82	LEAD WIRE CO - CN-AC IN	1	ACXA60C96280	O
	83	LEAD WIRE CO - CN-OC	1	ACXA60C96290	O
	84	LEAD WIRE CO - MD IN	1	ACXA60C96300	O
	85	OPERATING INSTRUCTION	1	ACXF55-39240	
	86	INSTALLATION INSTRUCTION	1	ACXF60-54690	
	87	INSTALLATION INSTRUCTION	1	ACXF60-54700	
	88	INSTALLATION INSTRUCTION	1	ACXF60-54710	
	89	INSTALLATION INSTRUCTION	1	ACXF60-54720	
	90	INSTALLATION INSTRUCTION	1	ACXF60-54730	
	91	INSTALLATION INSTRUCTION	1	ACXF60-54740	
	92	INSTALLATION INSTRUCTION	1	ACXF60-54750	
	93	INSTALLATION INSTRUCTION	1	ACXF60-54760	
	94	INSTALLATION INSTRUCTION	1	ACXF60-54770	
	95	INSTALLATION INSTRUCTION	1	ACXF60-54780	
	96	INSTALLATION INSTRUCTION	1	ACXF60-54790	
	97	INSTALLATION INSTRUCTION	1	ACXF60-54800	
	98	INSTALLATION INSTRUCTION	1	ACXF60-54810	
	99	INSTALLATION INSTRUCTION	1	ACXF60-54820	

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	S-200PE4E	REMARK
	100	INSTALLATION INSTRUCTION	1	ACXF60-54830	
	101	INSTALLATION INSTRUCTION	1	ACXF60-54840	
	102	BASE BOARD-COMPLETE	1	ACXG62C02911	
	103	SHOCK ABSORBER	1	ACXG70-09732	
	104	SHOCK ABSORBER	1	ACXG70-09742	
	105	SHOCK ABSORBER	1	ACXG70-10172	
	106	C.C.CASE	1	ACXG50-64820	
	107	MODEL LABEL	2	ACXF87-27300	

(Note)
- All parts are supplied from PAPAMY, Malaysia (Vendor Code: 00029488).
- “O” marked parts are recommended to be kept in stock.

S-250PE4E



Note
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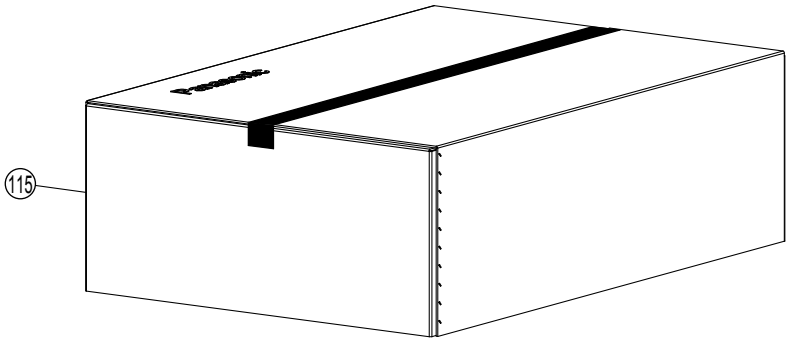

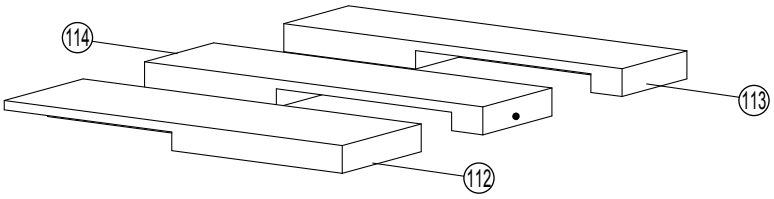

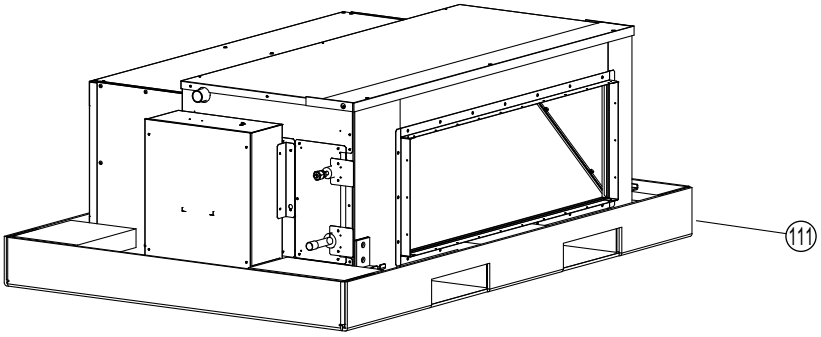

8

Note
The above exploded view is for the purpose of parts disassembly and replacement.
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SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	S-250PE4E	REMARK
	1	FIN & TUBE EVAPORATOR ASSY	1	ACXB30K02250	O
	2	EVAPORATOR COVER-COMPLETE	1	ACXD11C00040	
	3	AIR REGULATING PLATE COMPLETE	1	ACXD21C00020	
	4	AIR REGULATING PLATE COMPLETE	1	ACXD21C00070	
	5	AIR REGULATING PLATE COMPLETE	1	ACXD21C00040	
⚠	6	SENSOR COMPLETE (E1)	1	ACXA50C19180	O
⚠	7	SENSOR COMPLETE (E2)	1	ACXA50C19190	O
	8	PLATE SPRING (E1)	1	CWH711010	
	9	PLATE SPRING (E2)	1	CWH711013	
	10	ADH. POLY-E. FOAM	1	ACXG12-06940	
	11	ADH. POLY-E. FOAM	1	CWG123168	
	13	UNION NUT	1	CWT251032	
	14	ADH. POLY-E. FOAM	1	CWG123573	
	15	CABINET FRONT PLATE-COMPLETE	1	ACXE06C04820	
	16	CABINET REAR PLATE-COMPLETE	1	ACXE02C00840	
	17	CABINET SIDE PLATE-COMPLETE	1	ACXE04C08800	
	18	CABINET SIDE PLATE-COMPLETE	1	ACXE04C04780	
	19	CABINET SIDE PLATE-COMPLETE	1	ACXE04C04790	
⚠	20	SENSOR-COMPLETE (TA)	1	ACXA50C19200	O
	21	CABINET SIDE PLATE-COMPLETE	1	ACXE04C04800	
	22	EVAPORATOR COVER-COMPLETE	1	ACXD11C00010	
	23	EVAPORATOR COVER-COMPLETE	1	ACXD11C00021	
	24	EVAPORATOR COVER-COMPLETE	1	ACXD11C00032	
	25	DRAIN PAN-COMPLETE	1	ACXH40C01170	
	26	CABINET BOTTOM PLATE-COMPLETE	1	ACXE05C00200	
	27	CABINET TOP PLATE-COMPLETE	1	ACXE03C01370	
	28	DUCT ASS.Y	1	ACXD22K00060	
	29	CONTROL BOARD ASSY	1	ACXH10K03221	
	30	CONTROL BOARD	1	ACXH10-10650	
⚠	31	TERMINAL BOARD ASSY (POWER SUPPLY)	1	CWA28K1188	O
⚠	33	GENERATOR COMPLETE	1	ACXH94C01810	O
	34	DUCT-COMPLETE	1	ACXD22C00450	
⚠	35	TERMINAL BOARD	1	ACXA28-00140	O
⚠	36	REACTOR	1	G0C193J00023	O
	37	PACKING	5	ACXB81-00030	
⚠	38	ELECTRONIC CONTROLLER - MAIN	1	ACXA74C06400	O
⚠	39	ELECTRONIC CONTROLLER - COMMUNICATION	1	ACXA73-47790	O
⚠	40	ELECTRONIC CONTROLLER - FM POWER	1	ACXA73-47580	O
	41	INSTALLING HOLDER	4	ACXH36-00580	
	42	BULKHEAD-COMPLETE	1	ACXD53C01420	
	43	FAN MOTOR BRACKET ASSY	2	ACXD54K01810	
	44	FAN MOTOR BRACKET	2	ACXD54-03060	
⚠	45	FAN MOTOR 2 DC 750W 3PH	1	L6CBYYYL0238	O
	46	ANTI-VIBRATION BUSHING	8	ACXH50-00890	
	47	ANTI-VIBRATION BUSHING	8	ACXH50-00900	
	48	SCREW	16	ACXH55-05160	
	49	PLAIN WASHER	16	XWH8	
⚠	50	FAN MOTOR 1 DC 750W 3PH	1	L6CBYYYL0237	O

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	S-250PE4E	REMARK
	51	AIR GUIDER B.W.ASSY	1	ACXD32K00370	
	52	AIR GUIDER B.W.ASSY	1	ACXD32K00380	
	53	BLOWER WHEEL ASSY	2	ACXH01K00370	
	54	LEAD WIRE CO DC MTR 1	1	ACXA60C96221	
	55	LEAD WIRE CO DC MTR 2	1	ACXA60C96231	
	56	LEAD WIRE CO - CN-LM	1	ACXA60C96270	
	57	LEAD WIRE CO - DCM2	1	ACXA60C96260	
	58	LEAD WIRE CO - S-LINK	1	ACXA60C96240	
	59	LEAD WIRE CO - CN-MD	1	ACXA60C96250	
	60	NOZZLE	4	ACXH43-00230	
	61	BAND	1	CWH881123	
	62	BAND	1	CWH881202	
	63	CABINET	1	ACXE00-00260	
	64	CABINET	1	ACXE00-00270	
	65	CABINET	2	ACXE00-00280	
	66	CABINET	1	ACXE00-00290	
	67	CABINET	1	ACXE00-00300	
	68	STABILIZER	1	ACXD20-00030	
	69	CABINET-COMPLETE	1	ACXE00C00430	
	70	CABINET-COMPLETE	1	ACXE00C00440	
	71	POLY-E.FOAM	1	ACXE3A16-1174	
	72	POLY-E.FOAM	1	ACXE5A16-1174	
	73	ADH. POLY-E. FOAM	1	ACXG12-24410	
	74	ADH. POLY-E. FOAM	1	ACXG12-24420	
	75	ADH. POLY-E. FOAM	1	ACXG12-24430	
	76	DUCT ASS.Y	1	ACXD22K00070	
	77	SCREW	4	CWH551159	
	78	SCREW	2	CWH55440J	
	79	TERMINAL COVER COMPLETE	1	ACXH17C00010	
	80	CONTROL BOARD COVER	1	ACXH13-06310	
	81	WIRING DIAGRAM (CS)	1	ACXF20-16280	
	82	POLY-E.FOAM	1	ACXE8A50-316	
	83	POLY-E.FOAM	2	ACXE5A20-375	
	84	BAND	2	ACXH88-00090	
	85	ACCESSORY-COMPLETE	1	ACXH82C25450	
	86	PLAIN WASHER	8	XWH10J34FJ	
	87	WIRE SPRING	1	CWH722003	
	88	FLEXIBLE PIPE	1	CWH851032	
	89	LEAD WIRE CO - CN-AC	1	ACXA61C01720	O
	90	LEAD WIRE CO CN-RC	1	ACXA60C96190	O
	91	LEAD WIRE CO - CN-AC IN	1	ACXA60C96280	O
	92	LEAD WIRE CO - CN-OC	1	ACXA60C96290	O
	93	LEAD WIRE CO - MD IN	1	ACXA60C96300	O
	94	OPERATING INSTRUCTION	1	ACXF55-39240	
	95	INSTALLATION INSTRUCTION	1	ACXF60-54690	
	96	INSTALLATION INSTRUCTION	1	ACXF60-54700	
	97	INSTALLATION INSTRUCTION	1	ACXF60-54710	
	98	INSTALLATION INSTRUCTION	1	ACXF60-54720	
	99	INSTALLATION INSTRUCTION	1	ACXF60-54730	

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	S-250PE4E	REMARK
	100	INSTALLATION INSTRUCTION	1	ACXF60-54740	
	101	INSTALLATION INSTRUCTION	1	ACXF60-54750	
	102	INSTALLATION INSTRUCTION	1	ACXF60-54760	
	103	INSTALLATION INSTRUCTION	1	ACXF60-54770	
	104	INSTALLATION INSTRUCTION	1	ACXF60-54780	
	105	INSTALLATION INSTRUCTION	1	ACXF60-54790	
	106	INSTALLATION INSTRUCTION	1	ACXF60-54800	
	107	INSTALLATION INSTRUCTION	1	ACXF60-54810	
	108	INSTALLATION INSTRUCTION	1	ACXF60-54820	
	109	INSTALLATION INSTRUCTION	1	ACXF60-54830	
	110	INSTALLATION INSTRUCTION	1	ACXF60-54840	
	111	BASE BOARD-COMPLETE	1	ACXG62C02911	
	112	SHOCK ABSORBER	1	ACXG70-09732	
	113	SHOCK ABSORBER	1	ACXG70-09742	
	114	SHOCK ABSORBER	1	ACXG70-10172	
	115	C.C.CASE	1	ACXG50-64820	
	116	MODEL LABEL	2	ACXF87-27310	

(Note)
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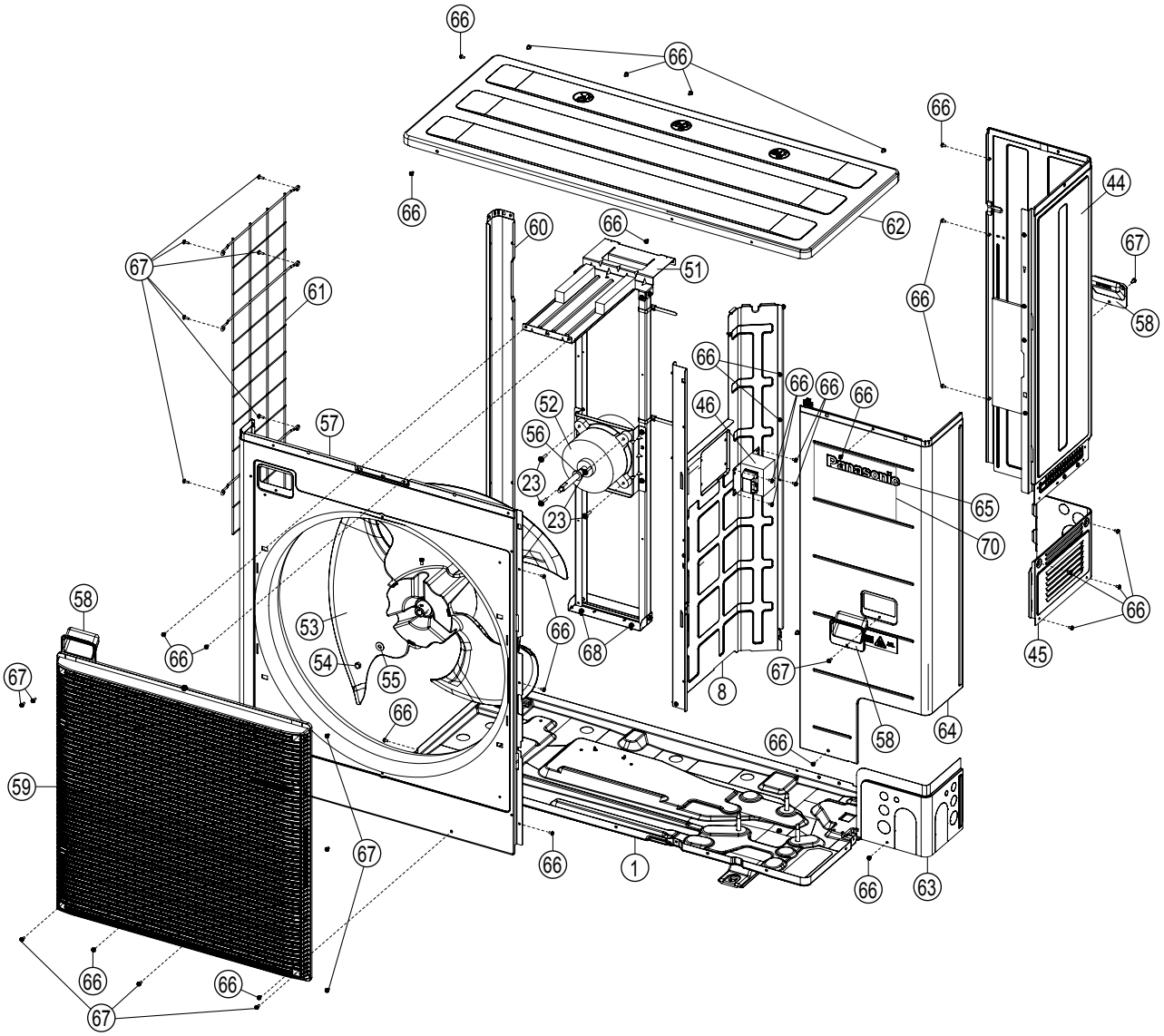
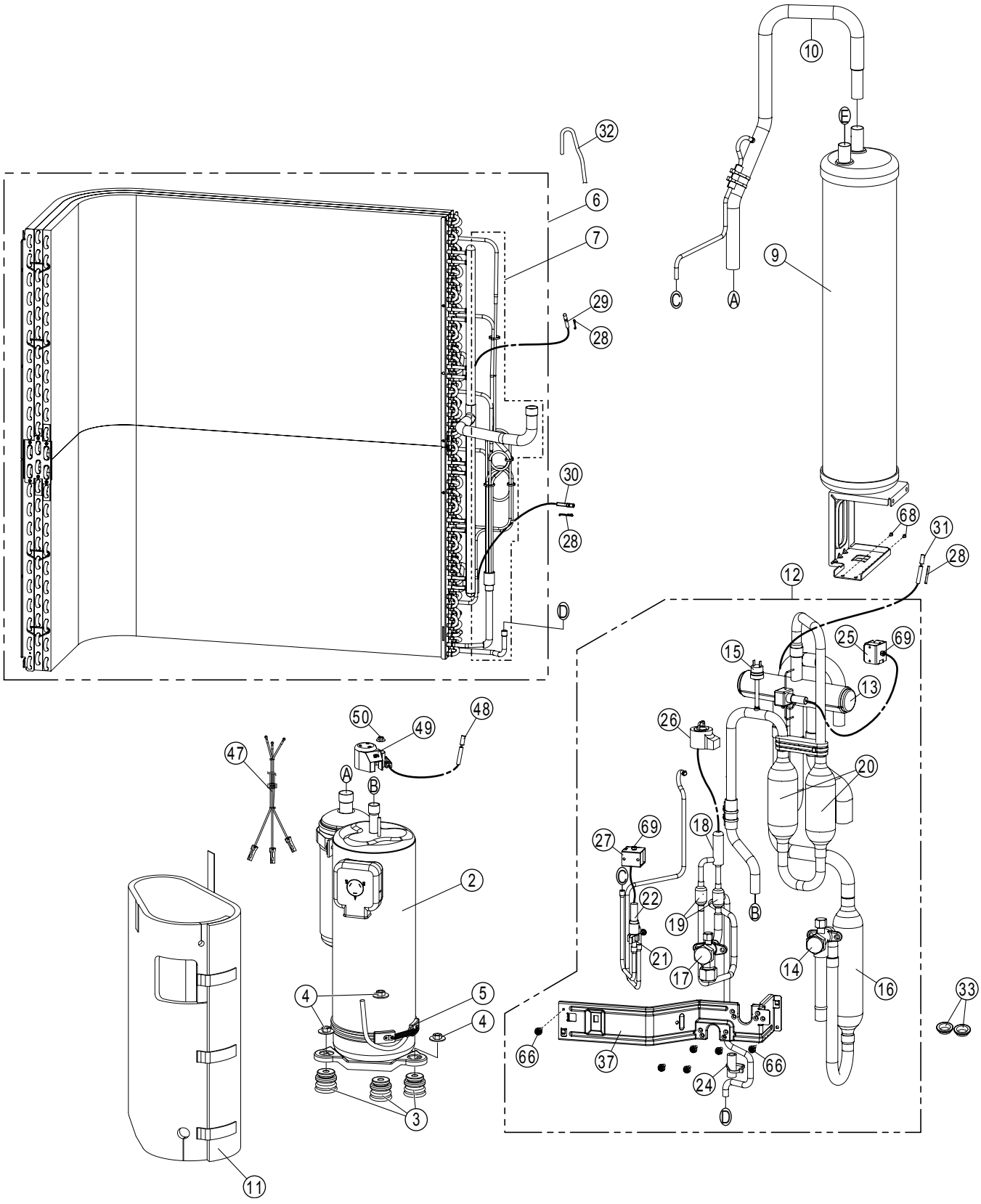
- “O” marked parts are recommended to be kept in stock.

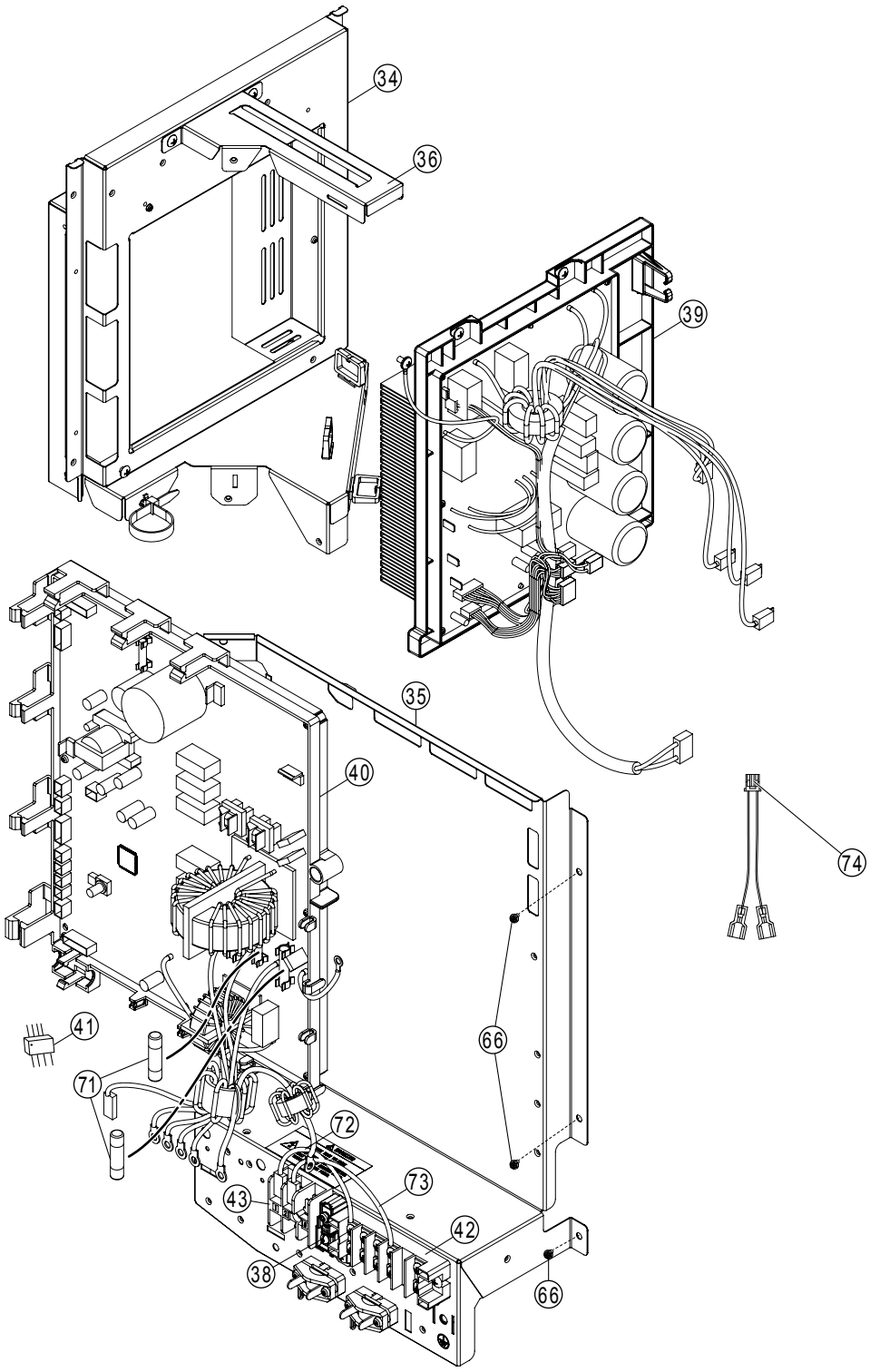
8-2. Outdoor Unit
U-200PZH4E8 U-250PZH4E8



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

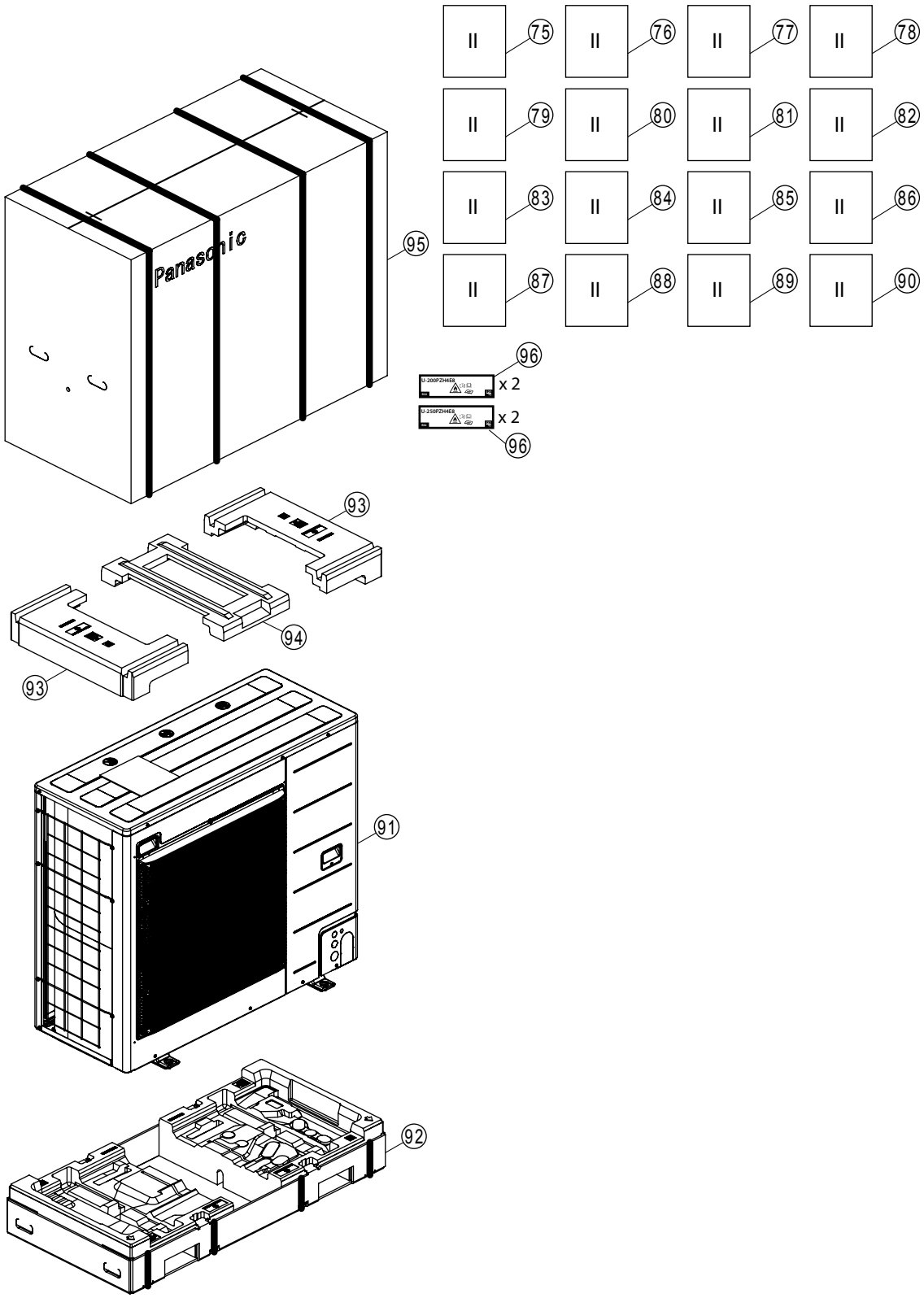


Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.



8

Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	U-200PZH4E8	U-250PZH4E8	REMARK
	1	BASE PAN ASSY	1	ACXD52K05550A	←	
⚠	2	COMPRESSOR	1	9VD550XAA21	←	
	3	ANTI-VIBRATION BUSHING	3	ACXH50-00480	←	
	4	NUT	3	CWH561049	←	
⚠	5	HEATER	1	ACXA34-02200	←	
	6	FIN & TUBE CONDENSER COMPLETE	1	ACXB32C28400	←	
	7	MANIFOLD TUBE ASSY	1	ACXT07C01801	←	
	8	SOUND-PROOF BOARD	1	ACXH15-04190	←	
	9	ACCUMULATOR	1	ACXB13-01130	←	
	10	TUBE ASSY	1	ACXT00C47820	←	
	11	SOUND PROOF MATERIAL (COMP. BODY)	1	ACXG30-08950	←	
	12	TUBE ASSY-COMPLETE	1	ACXT00C47831	←	
	13	4-WAYS VALVE	1	ACXB00-01620	←	
	14	3-WAYS VALVE (GAS)	1	ACXB01-06560	←	
⚠	15	PRESSURE SWITCH	1	ACXA10-00640	←	
	16	DISCHARGE MUFFLER	1	CWB121082	←	
	17	3-WAYS VALVE (LIQUID)	1	ACXB01-06550	←	
	18	EXPANSION VALVE	1	CWB051095	←	
	19	STRAINER	2	CWB111062	←	
	20	DISCHARGE MUFFLER	2	CWB121083	←	
	21	BUSHING	1	CWH511119	←	
	22	2-WAYS VALVE	1	CWB021637	←	
	23	SCREW	4	CWH551455	←	
	24	RUBBER	1	CWG251015	←	
⚠	25	V-COIL COMPLETE(HOT2)	1	ACXA43C08060	←	
⚠	26	V-COIL COMPLETE (MOV)	1	ACXA43C00140	←	
⚠	27	V-COIL COMPLETE (BPV)	1	ACXA43C08070	←	
	28	PLATE SPRING	3	CWH711010	←	
⚠	29	THERMISTOR (C1)	1	ACXA50C13280	←	
⚠	30	THERMISTOR (C2)	1	ACXA50C00170	←	
⚠	31	THERMISTOR (TS)	1	ACXA50C13320	←	
⚠	32	THERMISTOR (T0)	1	ACXA50C17000	←	
	33	BUSHING	2	CWH511089	←	
	34	CONTROL BOARD ASSY	1	ACXH11K00250	←	
	35	CONTROL BOARD ASSY	1	ACXH10K02490	←	
	36	PARTICULAR PLATE	1	ACXD90-30510	←	
	37	PARTICULAR PLATE	1	ACXD90-30500	←	
	38	PARTICULAR PIECE	1	CWD932521	←	
⚠	39	ELEC.CONTROLLER-COMPLETE (HIC)	1	ACXA73C96100	←	
	40	ELEC.CONTROLLER-COMPLETE (CR)	1	ACXA74C06200	←	
	41	EEPROM IC	1	ACXA52C04900	←	
⚠	42	TERMINAL BOARD ASSY(POWER SUPPLY)	1	ACXA28K02650	←	
⚠	43	TERMINAL BOARD ASSY(INDOOR/OUTDOOR CONNECTION)	1	CWA28K1076J	←	
	44	CABINET REAR PLATE-COMPLETE	1	ACXE02C01980	←	
	45	L-SHAPED PLATE	1	ACXD60-04970A	←	
⚠	46	FIXED INDUCTORS	1	G0C392J00021	←	
⚠	47	LEAD WIRE-COMPLETE (COMPRESSOR)	1	ACXA61C00580	←	
⚠	48	THERMISTOR (TD)	1	ACXA50C13290	←	

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	U-200PZH4E8	U-250PZH4E8	REMARK
	49	TERMINAL COVER	1	CWH171054	←	
	50	NUT	1	CWH7080300J	←	
	51	FAN MOTOR BRACKET ASSY	1	ACXD54K02670	←	
⚠	52	DC MOTORS (BRUSHLESS GENERAL USE)	1	L6CBYYYL0486	←	
	53	FAN ASSY	1	ACXH00K00120	←	
	54	NUT	1	CWH561092	←	
	55	WASHER	1	CWH571067	←	
	56	WASHER	1	CWH571068	←	
	57	CABINET FRONT PLATE	1	ACXE06-05560A	←	
	58	HANDLE	3	CWE161024	←	
	59	DISCHARGE GRILLE	1	ACXE20-03110	←	
	60	CABINET SIDE PLATE	1	ACXE04-04940A	←	
	61	WIRE NET.RESIN NET	1	ACXD04-03370A	←	
	62	CABINET TOP PLATE-COMPLETE	1	ACXE03C02480	←	
	63	L-SHAPED PLATE	1	CWD601316A	←	
	64	CABINET FRONT PLATE-COMPLETE	1	ACXE06C05190	←	
	65	BADGE	1	CWE373439	←	
	66	SCREW	47	ACXH55-07200	←	
	67	SCREW	15	ACXH55-07290	←	
	68	SCREW	4	CWH551040J	←	
	69	SCREW	2	CWH551068J	←	
	70	WIRING DIAGRAM (CU)	1	ACXF22-11351	←	
⚠	71	FUSE 30A 500V	2	K5D303YYA059	←	
⚠	72	LEAD WIRE-COMPLETE - L1	1	ACXA60C81990	←	
⚠	73	LEAD WIRE-COMPLETE - N	1	ACXA60C82000	←	
⚠	74	LEAD WIRE-COMPLETE(63PH)	1	ACXA60C64520	←	
	75	INSTALLATION INSTRUCTION	1	ACXF60-53551	←	
	76	INSTALLATION INSTRUCTION	1	ACXF60-53560	←	
	77	INSTALLATION INSTRUCTION	1	ACXF60-53570	←	
	78	INSTALLATION INSTRUCTION	1	ACXF60-53580	←	
	79	INSTALLATION INSTRUCTION	1	ACXF60-53590	←	
	80	INSTALLATION INSTRUCTION	1	ACXF60-53600	←	
	81	INSTALLATION INSTRUCTION	1	ACXF60-53610	←	
	82	INSTALLATION INSTRUCTION	1	ACXF60-53620	←	
	83	INSTALLATION INSTRUCTION	1	ACXF60-53630	←	
	84	INSTALLATION INSTRUCTION	1	ACXF60-53640	←	
	85	INSTALLATION INSTRUCTION	1	ACXF60-53650	←	
	86	INSTALLATION INSTRUCTION	1	ACXF60-53660	←	
	87	INSTALLATION INSTRUCTION	1	ACXF60-53670	←	
	88	INSTALLATION INSTRUCTION	1	ACXF60-53680	←	
	89	INSTALLATION INSTRUCTION	1	ACXF60-53690	←	
	90	INSTALLATION INSTRUCTION	1	ACXF60-53700	←	
	91	BAG	1	ACXG86-06630	←	
	92	BASE BOARD-COMPLETE	1	ACXG62C03010	←	
	93	SHOCK ABSORBER	2	ACXG70-16080	←	
	94	SHOCK ABSORBER	1	ACXG70-16090	←	

SAFETY	REF. NO.	PART NAME & DESCRIPTION	QTY.	U-200PZH4E8	U-250PZH4E8	REMARK
	95	C.C.CASE	1	ACXG50-64340	←	
	96	MODEL LABEL	2	ACXF87-21800	ACXF87-20260	

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FK0424-0