Panasonic[®]

INSTALLATION INSTRUCTIONS INDOOR UNIT

Model No.: S-180PE** S-200PE** S-224PE**



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

Refer to Commonwealth, State, Territory and local legislation, regulations, codes, installation & operating instructions, before the installation, maintenance and/or service of this product.

Refer to the outdoor unit installation instruction manual for the outdoor unit installation

Note: Ensure to hand over this installation instruction manual to the

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.

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Required tools for Installation Works

65 Nem (6.6 kgfem)

16 Vacuum pump

an external ignition source, there is a

This symbol shows type of flammable

efrigerant contained in the system.

This symbol shows that the Operating

structions should be read carefully.

100 Nem (10.2 kgfem)

Reamer
 Knife

11 Measuring tape12 Thermometer

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

A2L WARNING

This symbol shows that this equipment uses a flammable refrigerant. If the refrigerant is leaked, together with no contends the refrigerant is leaked, together with the refrigerant is leaked.

CAUTION This symbol shows that a service personnel should be handling this equipment with reference.

Technical Manual.

14 Multimeter

Level gauge 9 Knife
Electric drill, hole core 10 Gas leak detector

Flathead screw driver

drill (ø70 mm)
Hexagonal wrench
(4 mm)
Spanner

⇔ CAUTION :

CAUTION

MARNING 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. 0 0 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 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

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. Poc contact, poor insulation or over current will rause electrical shock or fine contact, poor insulation or over current will cause electrical shock or fire.

Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.

Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.

Do not sit or step on the unit, you may fall down accidentally.

Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing. When installing or relocating air conditioner, do not let any substance other than the specified refrigerant, eg. air etc mix into refrigeration cycle (piping). Mixin

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 a

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

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 sid

are recommended.

If reuse piping is unavoidable, refer to instruction ④ 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 us copper pipe thickness 0.8 mm and above.

It is desirable that the amount of residual oil less than 40 mg/10 m.

For refrigeration system work, install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire

Engage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.

Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock

nstall 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 dro

0

For electrical work, follow the national regulation, legislation and this installation instruction. An independent circuit and single outlet must be used. If electricit 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 will cause heat up or fire at the connection.

Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock. This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD), with sensitivity of 30mA

0 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 pened 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 caus

efrigerant 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

0 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 caus electrical shock in case of equipment breakdown or insulation breakdow

⚠ 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 conditions Use power supply cord type designation 60245 IEC 57 or heavier cord.

One power supply could yee designation declarated on in heavier could 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 nstallation work

It may need two people to carry out the installation work.

Keep any required ventilation openings clear of obstruction.

PRECAUTION FOR USING R32 REFRIGERANT The basic installation work procedures are the same as conventional refrigerant (R410A, R22) models However, pay careful attention to the following points:

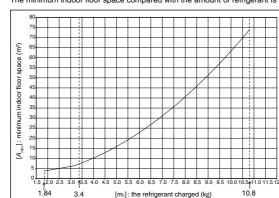
Do not perform flare connection inside a building or dwelling or room, when joining the heat exchanger of indoor unit with interconnecting piping. Refrigeran connection inside a building or dwelling or room must be made by brazing or welding. Joint connection of indoor unit by flaring method can only be made a outdoor or at outside of a building or dwelling or room. Flare connection may cause gas leak and flammable atmosfere.

The appliance shall be stored, installed and operated in a well ventilated room with indoor floor area larger than A_{min} (m²) [Refer to Check of Density Limit] and without any continuously operating ignition source. Keep away from open flames, any operating gas appliances or any operating electric heater. Else, it may explode and cause injury or death.

Refer to "PRECAUTION FOR USING R32 REFRIGERANT" in outdoor unit installation manual for other precautions that need to pay attention to.

Check of Density Limit

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space of appliance are determined according to the refrigerant charge amount [m_s] used in the appliance. Regarding the refrigerant charge amount [m_s] used in the appliance, refer to the installation instructions for the outdoor unit. The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:



Amin = Required minimum room area, in m² $m_c = \text{Refrigerant charge in applier}$ $FL = 1 \text{ mass } n^2$

LFL = Lower flammability limit (0.307 kg/m = Release height is 2.2m.

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

when deciding "Density Limit Line".

= Concentration factor with a value of 0.75

: Can be installed

The required minimum room area, A_{\min} , shall also be

governed by the safety factor margin formula below

1.5 2.0 2.5 3.0 13.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.

[m_c] kg [A_{min}] (m²) 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 8.5 45.8 8.6 46.9 7.1 32.0 7.2 32.9 7.3 33.8 7.4 34.7 7.5 35.7 7.6 36.6 7.7 37.6 48.0 8.8 49.1 8.9 50.2 10.4 68.5

ACCESSORIES SUPPLIED WITH INDOOR UNIT

Part Name	Figure	Q'ty	Remarks	Part Name	Figure	Q'ty	Remarks
Special washer	0	8	For indoor unit suspension	Hose band	ð	1	For securing drain hose
Drain hose		1	For drain hose connection	Clamper	Q-monan	3	For power supply cord / control wiring

SELECT THE INDOOR UNIT INSTALLATION LOCATION

1-1. Indoor Unit

4.4 12.3

4.5 12.9 4.6 13.4

4.7 14.0

⚠ WARNING

The installation position must be able to support a load four times the indoor unit weight.

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

). Installation height is more than 2.5m.

■ Thoroughly study the following installation locations

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

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

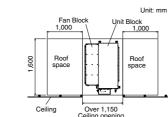
cutting oil mist or iron powder exist, especially in factories, etc. 3. Avoid places where inflammable gas is generated, flows-in,

4. Avoid places where sulphurous acid gas or corrosive gas can be Avoid places near high frequency generators.

Cooking table

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 x 1.150 mm and a roof space dimension as shown



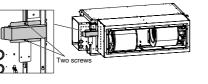
Height of roof space Width of ceiling 1,150 1,600 1,150 900 Necessary 1,600

It is possible to separate the indoor unit into Fan Block and Unit Block

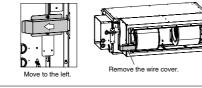
If a ceiling opening dimension is over 500 × 1,150 mm and a roof space dimension is shown below, the indoor unit can be separated to fit through the space. For separating procedure, see section "1-3. How to separate the indoor unit".

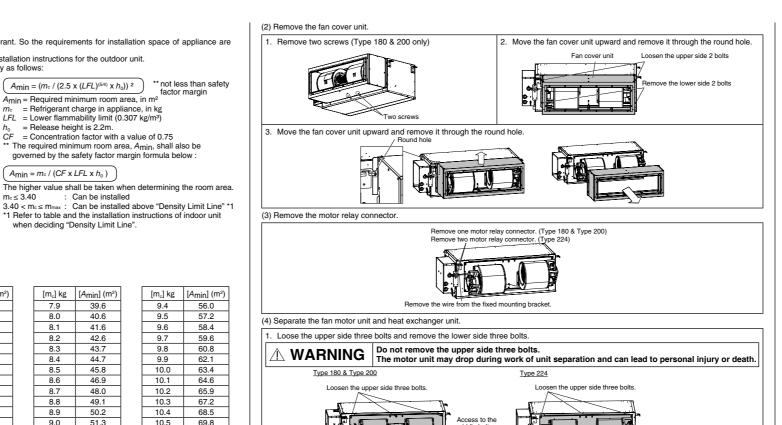
1,500

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".



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





Part Name	Figure	Q'ty	Remarks	Part Name	Figure	Q'ty	Remarks
Special washer	0	8	For indoor unit suspension	Hose band	8	1	For securing drain hose
Drain hose		1	For drain hose connection	Clamper	Q-manner.	3	For power supply cord / control wiring

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.

The indoor unit must be within a maintenance space.

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.

The indoor unit must be away from heat and sources of steam, but avoiding installation near an entrance. The indoor unit must allow easy draining.

The indoor unit must allow easy connection to the outdoor unit.

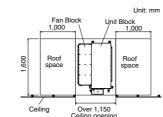
. If the power supply is subject to noise generation, add a suppressor. . Do not install the indoor unit in a laundry. Electric shocks may result.

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, ulting in heat exchange reduction, spraying, dispersing of water drops, etc.

should not flow into the suction of the air conditioner.

2. Avoid installing the air conditioner in such circumstances where contaminated, or leaked.

below. After transporting the unit, see section "2. HOW TO INSTALL THE INDOOR UNIT"



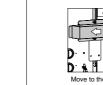
Criteria for ceiling opening dimension and height of roof space

parated transport if necessary

Over 700 Ceiling opening

1-3. How to separate the indoor unit

Remove the wire cover.



1-4. How to assemble the indoor unit (1) Attach the fan motor unit. Pass the bolts for the heat exchange Attach three bolts in the lower side and then 3. Attach the motor wire Mount the unit with three holes locate Type 180 & Type 200 in the center of the upper side (Type 180 & Type 200) Attach two motor connec Connectors at each end should be matched with Wire with the fixed mounting bracket Type 224

(2) Attach the fan cover unit and wire cover.

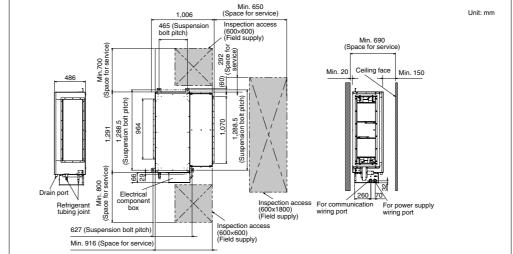
Attach the fan cover unit and wire cover in reverse order of separating unit

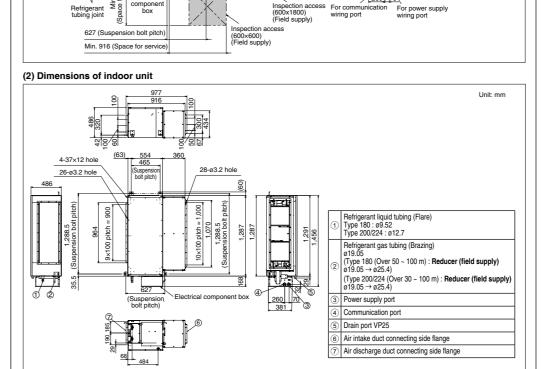
2. Move upward and remove the fan motor unit through the round hole

HOW TO INSTALL THE INDOOR UNIT

2-1. Required Minimum Space for Installation and Service

(1) Dimensions of suspension bolt pitch and unit





2-2. Suspending the Indoor Unit

Depending on the ceiling type

lole-in-plug

-Special washer (field supply Special washer (field supply)
Hexagonal nut (field supply)
Suspension bolt (field supply) Hexagonal nut (field supply)

(2) Ensure that the ceiling is strong enough to support the weight of the unit.

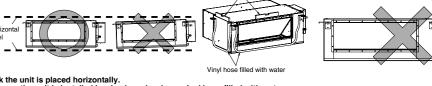
(3) To prevent the unit from dropping, firmly fasten the suspension bolts as shown in the figure below Fig. 3-2

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 hold.

(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.

(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.



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 ø19.05 (~ 50 m) ø25.4 (Over 50 ~ 100 m) ø19.05 (~ 30 m) ø25.4 (Over 30 ~ 100 m) Gas tube ø9.52 (Flare connection)
Tightening torque (approximate) : 34 ~ 42 N • m
Thickness of connecting tube : 0.8 mm ø12.7 (Flare connection)
Tightening torque (approximate): 49 ∼ 55 N • m
Thickness of connecting tube: 0.8 mm Liquid tube

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 I 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.

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

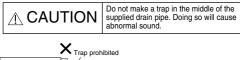
2-4-1. Before Performing the Installation Drain Piping

(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



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 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

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

Insulation Material

b: over 50mm Since the drain trap area easil operated. Consequently, the water comes out of the drain pan and it can lead to water

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

2-4-2. Installing the Drain Pipe

(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.

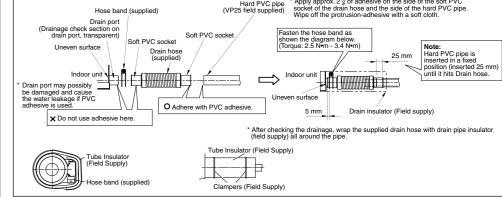
Insert the drain hose to the point where there is a difference in level as shown in the figure below and fasten it with the hose band 5 mm away from that position.

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 o 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. Hard PVC pipe * 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. Wipe off the protrusion-adhesive with a soft cloth.



(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

CONTINUE TO THE NEXT PAGE

ENGLISH

Thermal insulation thickness

Insulation thickness must 10mm or greate

ACXF60-50721 (1/2)

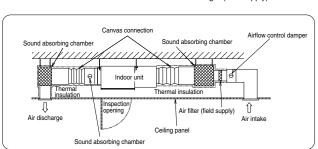
2-5. Caution for Ducting Work

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.



ELECTRICAL WIRING

⚠ CAUTION

- 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
- Clean the air filter periodically to collect dust and other particles from the air.
 Use duct static pressure within a range of

As to main nower source and cable size of outdoor unit read the installation manual attached to the outdoor unit

3-1. General Precautions on Wiring

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.

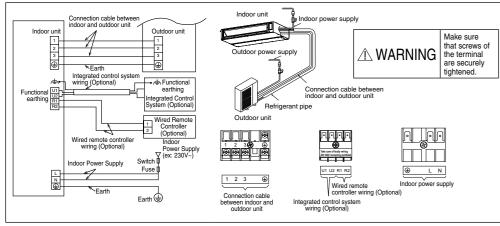
(2) Feed the power source to the unit via a distribution switch board designed for this purpose, the switch should disconnect all poles with a

- 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

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



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

Indoor unit

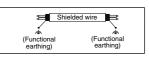
	Power Supply Cable										
Model	Power Supply	sonly Size		Recommended Wire Length and Wire Diameter for Power Supply Cable							Fuse or Circuit
			Wire Size (mm²)	Max. Length (m)	Wire Size (mm²)	Max. Length (m)	Wire Size (mm²)	Max. Length (m)	Wire Size (mm²)	Max. Length (m)	Capacity (A)
S-180PE4R	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

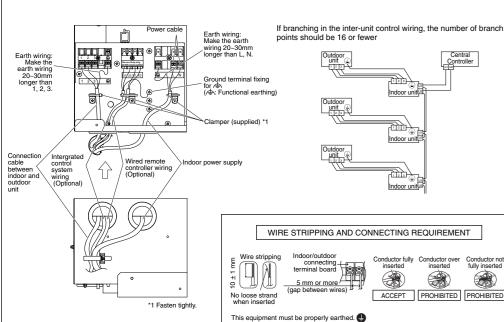
ı	indoor and Outd	oor Unit	wired Remote Controller			
	Wire Size	Length	Wire Size	Length		į
	2.5mm ²	Max.100m	0.75mm ² (AWG#18)	Max. 500m		0

Wired Remote Controller (Optional)

Use shielded wires for integrated control system wiring and ground the shield on both sides Connect wiring as shown in Section 3-2 Wiring System Diagrams.



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



INDIE: 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 as tubing side is connected by brazing

4-1. Connecting the Refrigerant Tubing

4-1. Coffilecting the herrigerant 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.

ndoor Unit Tubing Connection Indoor unit type 200 / 224 ø9.52 ø12.7 Liquid tubing (mm)

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

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 w

W.							
Tube diameter	Flare nut tightening torque (approximate)	Min. tube thickness					
ø9.52 (3/8")	38±4 N•m {380±40 kgf•m}	0.8 mm					
ø12.7 (1/2")	52± 3 N•m {520 ±30 kgf•cm}	0.8 mm					
ø19.05 (6/8")	110± 10 N•m {1100 ±100 kgf•cm}	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 nut, 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

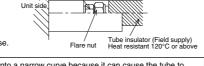
 Must be easy to use, age resistance and not easily absorb moisture

Be sure to match the below insulation material size with tube sizes.						
Pining size mm (In)	Thermal insulation size (LD.)					

1 iping 0i20; iiiii (iii)	1110111141 111041411011 0120 (112.)	THOMAS INCUITATION THOMASOC
9.52 (3/8")	12 ~ 15 mm	
12.7 (1/2")	14 ~ 16 mm	Institution this lease much be 10mm or greater
19.05 (3/4")	20 ~ 24 mm	Insulation thickness must be 10mm or greater
ø25.4 (1")	25 ~ 28 mm	
(2) Taping the flare nuts		Flare insulator (Field supply)

- 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)

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.



Clamp

Two tubes arranged together

Liquid tubing

Gas tubing

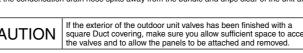
Flare union

⚠ 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

- Stapping 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 on drain hose splits away from the bundle and drips clear of the unit and



CAUTION square Duct covering, make sure you allow sufficient space to access

(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

(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

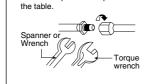
In addition to the normal heat insulation (thickness: more than 10mm) refrigerant piping, add a further of 10-30 mm thickness material. 4-4. Additional Precautions for R32 models

For connection joint of all models Please make flare after inserting flare nut (locat at joint portion of tube assembly) onto the coppe 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

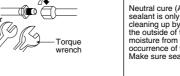


1) Vacuum Drying

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 the gas leak caused by freezing. * Use of silicon containing ammonia can lead to stress corrosion on the joint & can cause leakage.

cleaning up by following instructions of 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.



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

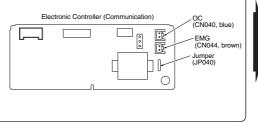
PRECAUTIONS ON TEST RUN

Request that the customer be present when the test run is performed At this time, explain the operation manual and have the custome Check that the 230 -240 VAC power is not connected to the U1 & U2

erminal board terminal.

If 230 –240 VAC is accidentally applied, the Fuse on indoor unit
Electronic Controller (Communication) will blow in order to protect

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 "c", "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.

a. No setting changes, when using as it is factory preset at shipment.

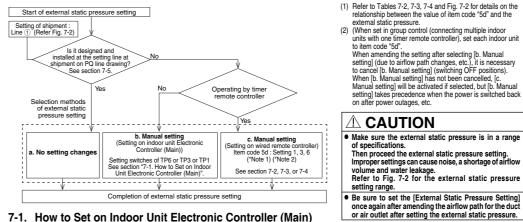
(If resetting after external static pressure setting once, it might be different from factory preset.)

b. Manual setting (on indoor unit Electronic Controller (Main)): This is static pressure setting excepting factory preset at shipment. Dip switch select method. Manual setting (by wired remote controller): Static pressure setting excepting factory preset at shipment

NOTE

CAUTION

Flow of External Static Pressure



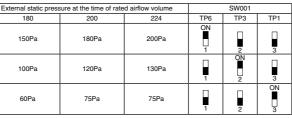
7-1. How to Set on Indoor Unit Electronic Controller (Main)

(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

(3) Set the Dn/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.

Indoor Unit Electronic Controller (Main



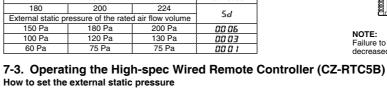
7-2. Operating the Timer Remote Controller (CZ-RTC4) How to set the external static pressure

1) Press and hold down the 🚅, 🚟 and 💳 buttons simultaneously for 4 or more seconds. (SETTING) the Unit No., Item Code and Detailed Data will blink on the LCD display.)

on the control of th

Table 7-2 Setting the external static pressure Indoor unit 200 Sd External static pressure of the rated air flow volume

for 4 or more seconds.



) Keep pressing the , , , Maintenance func 20:30 (THU) (4) Select the "Set data" by pressing Table 7-3 Setting the external the buttons simultaneously (DECONAVI Info. the or button. the or button.
Select one of the "Set data" The "Maintenance func" screen among "0006", "0003" or "0001" according to the desired external 180 200 224 appears on the LCD display. Sel. → Page [→] Confirm static pressure setting by (2) Press the or button Maintenance func 20:30 (THU)

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 (3) Select the "Code no." by pressing Detailed settings 20:30 (THU)

the or button.
Change the "Code no." to "5D" by pressing the v or ...

10 0006

pressing the 🔻 or 🛕 (See Table 7-3 and Fig. 7-2.) (5) Select the "Unit no." by pressing

the or button and press the button.

The "Exit detailed settings and restart?" (Patrilled settings and YES NO screen appears on the LCD display.
Select "YES" and press the
button.

CODE No. UNIT 1- 1

Failure to set this parameter may result in

100 Pa 120 Pa 130 Pa 00 03 60 Pa 75 Pa 75 Pa 00 01

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



(2) Press the or button to see each menu. tings" on the LCD display and press the button



) Keep pressing the Jutton for 2 seconds or more during selecting "Code no." Change the "Code no." one digit at a time so that

Change the value by pressing the or n After changing the value, press the — button and set the next digit.

it becomes [00005D] along with the following

After changing the value, press the button and set the next digit.

Change the value by pressing the vor < After changing all digits, press the button and proceed to Step 5.



After selecting "Set data", press the _ button. (If setting continuously, follow the procedure from Fig. A.) If you wish to change the selected indoor uni or finish setting, press the button twice (the display returns to Step 3).

Table 7-4 Setting the external static pressure Indoor unit

			code
180	200	224	5d
External static pr	ressure of the rate	d air flow volume	20
150 Pa	180 Pa	200 Pa	00 06
100 Pa	120 Pa	130 Pa	00 03
60 Pa	75 Pa	75 Pa	00 0 1

Failure to set this parameter may result in

000010

0 0 0 0 5 D

decreased airflow and condensation.

(6) If the button is pressed under the display Step 3, the following display (Detailed settingend screen) appears. Then select "YES" by pressing the V or button and press the -



7-5. Indoor Fan Performance

Setting at shipment

rnal static pressure 75 Paj Item code 5d = 0001

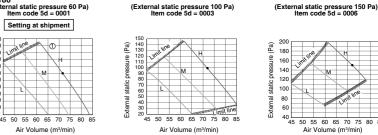
15 50 55 60 65 70 75 80 85

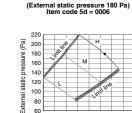
Air Volume (m3/min)

Setting at shipment

Type 224

Setting at shipment





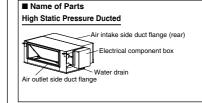
50 55 60 65 70 75 80 85 90 95 100

Air Volume (m³/min)

5 50 55 60 65 70 75 80 Air Volume (m3/min)

Fig. 7-2

8 APPENDIX



■ Care and Cleaning

↑ WARNING

A CAUTION

Electrical Component Box

power before cleaning. Do not pour water on the indoor unit to clean it. This will damage the internal Air intake and outlet side (Indoor unit)

Engage authorized dealer or specialist for cleaning. For safety, be sure to turn the air conditioner off and also to disconnect the

sharp and may cause injury if handled improperly; be especially careful when 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.

improperly; be especially careful when you clean these parts.

The internal coil and other components outdoor unit must be cleaned regularly. Consult your dealer or service center. 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.

Never use solvents or harsh chemical

when cleaning the indoor unit. Do not wipe plastic parts using very hot water. Some metal edges and the fins are

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

• 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 o 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.

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.

CHECK THE FOLLOWING ITEMS WHEN INSTALLATION IS COMPLETE

After completing work, be sure to measure and record trial run properties, and store measuring data, etc.

Measuring items are room temperature, outside temperature, suction temperature, blow out temperature, wind velocity wind volume, voltage, current, presence of abnormal vibration and noise, operating pressure, piping temperature, compressive pressure, airtight pressure.

As to the structure and appearance, check the following items.

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

(Optional Parts)

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

HAND OVER

00005D

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

ACXF60-50721 (2/2)

(5) Press the find button.