T TYPE ROOM AIR CONDITIONER

STALLATION MANUAL

T NO. 9312176021-02)

thorized service personnel only.

⚠ WARNING
he room air conditioner to operate satisfactory, install it as outlined in this installation manual.
ect the indoor unit and outdoor unit with the air conditioner piping and cords available standards parts. This llation manual describes the correct connections using the standard accessories and the parts specified in installation manual.
e installation work done by authorized service personnel only.
er cut the power cord, lengthen or shorten the cord, or change the plug.
do not use an extension cord.
in the power cord plug firmly. If the receptacle is loose, repair it before using the room air conditioner.
ot turn on the power until all installation work is complete.

areful not to scratch the air conditioner when handling it.
installation, explain correct operation to the customer, using the operating manual.
he customer keep this installation manual because it is used when the air conditioner is serviced or ed.
maximum length of the piping is 10 m. The maximum height difference of the piping is 5 m, e units are further apart than these, correct operation can not be guaranteed.

DARD ACCESSORIES

g installation accessories are supplied.
required.

nd Shape	Q'ty	Name and Shape	Q'ty
bracket	1	Drain pipe (including drain packing) (Reverse cycle type only)	1
	1	Cloth tape	1
	2	Tapping screw	8

One set of following parts are necessary in istallation of this product.

Name
Connection pipe assembly
Connection cord (3-conductor)
Connection cord (2-conductor) (Reverse cycle type only)
Wall pipe
Decorative tape
Vinyl tape
Wall cap
Saddle
Drain hose
Tapping screws
Sealant

ELECTRICAL REQUIREMENT

Always make the air conditioner power supply a special branch circuit and provide a special switch and receptacle. Do not extend the power cord.

ECTING THE MOUNTING ITION

mounting position with the customer as follows:

OR UNIT

he indoor unit level on a strong wall which is not subject to n.
et and outlet ports should not be obstructed : the air should to blow all over the room.
he unit near an electric outlet or special branch circuit.
install the unit where it will be exposed to direct sunlight.
he unit where connection to the outdoor unit is easy.
he unit where the drain pipe can be easily installed.
rvicing, etc. into consideration and leave the spaces shown 2). Also install the unit where the filter can be removed.

OOR UNIT

ble, do not install the unit where it will be exposed to direct t. (If necessary, install a blind that does not interfere with flow.)
install the unit where a strong wind blows or where it is very
install the unit where people pass.
u neighbors into consideration so that they are not disturbed lowing into their windows or by noise.
the space shown in Fig. 2 so that the air flow is not blocked. r efficient operation, leave open three of the four directions ear, and both sides.

e cycle type only]

he drain water flows from the outdoor unit during heating on, when it is installed at a high place, install the drain pipe wn in (Fig. 4) and connect it to a 16 mm (inside diameter) vailable anywhere. (Fig. 4)

⚠ WARNING
t a place that can withstand the weight of the nd outdoor units and install positively so that s will not topple or fall.

⚠ CAUTION
not install where there is the danger of com- stible gas leakage.
not install near heat sources.
hildren under 10 years old may approach the t, take preventive measures so that they can- reach the unit.
tall the indoor unit on the wall where the height m the floors more than 230 cm.

unit piping direction]

can be connected in the five directions indicated by ①, nd ⑤ in (Fig. 1). When the piping is connected in or ⑤, cut along the piping groove in the side of the with a hacksaw.
ecting the piping in direction ③, cut a notch in the thin front bottom of the front cover.

INSTALLATION DIAGRAM OF INDOOR AND OUTDOOR UNITS

Fig. 2

[INDOOR UNIT]

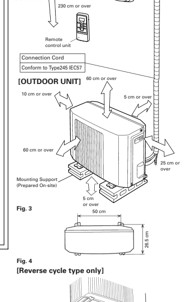


Fig. 3

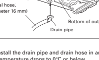
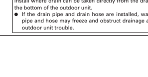


Fig. 4

[Reverse cycle type only]



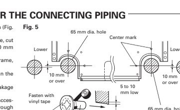
NOTE:
Do not install the drain pipe and drain hose in areas where the outside temperature drops to 0°C or below.
Install where drain can be taken directly from the drain hole at the bottom of the outdoor unit.
- If the drain pipe and drain hose are installed, water in the pipe and hose may freeze and obstruct drainage and cause outdoor unit trouble.

INDOOR UNIT

CUTTING THE HOLE IN THE WALL FOR THE CONNECTING PIPING

(1) Cut a 65 mm diameter hole in the wall at the position shown in (Fig. 5).
(2) When cutting the wall hole at the inside of the installation frame, cut the hole within the range of the left and right center marks 40 mm below the installation frame.
When cutting the wall hole at the outside of the installation frame, cut the hole at least 10 mm below less.
(3) Cut the hole so that the outside end is lower (5 to 10 mm) than the inside end.
(4) Always align the center of the wall hole. If misaligned, water leakage will occur.
(5) Cut the wall pipe to match the wall thickness, stick it into the accessory wall cap, fasten the cap with vinyl tape, and stick the pipe through the hole. (The connection pipe is supplied in the installation set.) (Fig. 5)
(6) For left piping and right piping, cut the hole a little lower so that drain water will flow freely. (Fig. 5)

Fig. 5



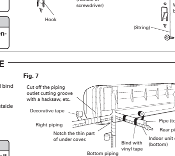
INSTALLING THE WALL HOOK BRACKET

(1) Install the wall hook bracket so that it is correctly positioned horizontally and vertically. If the wall hook bracket is tiled, water will drip to the floor.
(2) Install the wall hook bracket so that it is strong enough to withstand the weight of an adult.
Before fastening the wall hook bracket to the wall with the screws, level it by tapping the hook at the center of bracket to the wall with the handle of a screwdriver.
- Fasten the wall hook bracket to the wall with 6 or more screws through the holes near the outer edge of the bracket.
- Check that there is no rattle at the wall hook bracket.

⚠ WARNING
If the wall pipe is not used, the cord interconnecting the indoor and outdoor units may touch metal and cause electric leakage.

⚠ CAUTION
Install the wall hook bracket horizontally and perpendicularly.

Fig. 6



FORMING THE DRAIN HOSE AND PIPE

[Rear piping, Right piping, Bottom piping]
- Install the indoor unit piping in the direction of the wall hole and bind the drain hose and pipe together with vinyl tape. (Fig. 7)
- Install the piping so that the drain hose is at the bottom.
- Wrap the pipes of the indoor unit that are visible from the outside with decorative tape.

[For Left rear piping, Left piping]
Interchange the drain cap and the drain hose.

⚠ CAUTION
After removing the drain hose, do not forget to install the drain cap.

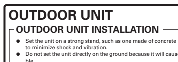
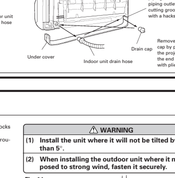


Fig. 7



- For left piping and left rear piping, align the marks on the wall hook bracket and shape the connection pipe.
- Bend the connection piping at a bend radius of 70 mm or more and install no more than 35 mm from the wall.
- After passing the indoor piping and drain hose through the wall hole, hang the indoor unit on the hooks at the top and bottom of the wall hook bracket.

[Installing the indoor unit]
- Hang the indoor unit from the hooks at the top of the wall hook bracket.
- Insert the spacer, etc. between the indoor unit and the wall hook bracket and separate the bottom of the indoor unit from the wall.

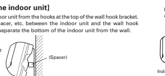
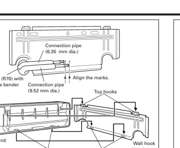


Fig. 8



After hooking the indoor unit to the top hook, hook the fittings of the indoor unit to the two bottom hooks while lowering the unit and pushing it against the wall.

CONNECTING THE PIPING

CONNECTION

(1) Install the outdoor unit wall cap (supplied with the optional installation set or procured at the site) to the wall pipe.
(2) Connect the outdoor unit and indoor unit piping.
(3) After matching the center of the flare surface and tightening the nut hand tight, tighten the nut to the specified tightening torque with a torque wrench. (Tighten the flare nut of the outdoor unit 3-way valve after air purging.)

FLARING

(1) Cut the connection pipe to the necessary length with a pipe cutter.
(2) Hold the pipe downward so that cuttings will not enter the pipe and remove the burrs.
(3) Insert the flare nut onto the pipe and flare the pipe with a flaring tool.

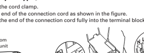


Fig. 9

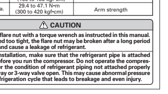


Table 1 Flare nut tightening torque

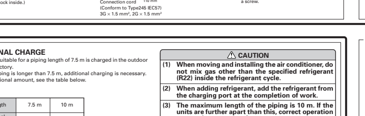
Flare nut	Tightening torque	Tightening torque standard (using a 20 cm wrench)
6.35 mm dia.	15.7 to 17.6 N•m (160 to 180 kgf•cm)	Wrist strength
9.52 mm dia.	29.4 to 47.1 N•m (300 to 420 kgf•cm)	Arm strength

⚠ CAUTION
(1) Fasten a flare nut with a torque wrench as instructed in this manual. If fastened too tight, the flare nut may be broken after a long period of time and cause a leakage of refrigerant.
(2) During installation, make sure that the refrigerant pipe is attached firmly before you run the compressor. Do not operate the compressor under the condition of refrigerant piping not attached properly with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.

INDOOR UNIT WIRING

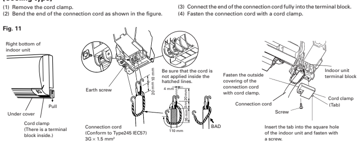
[Reverse cycle type]
(1) Remove the cord clamp.
(2) Bend the end of the connection cord as shown in the figure.
(3) Connect the end of the connection cord fully into the terminal block.
(4) Match the terminal block numbers and connection cord with those of the outdoor unit.
(5) Fasten the connection cord with a cord clamp.

Fig. 10



[Cooling type]
(1) Remove the cord clamp.
(2) Bend the end of the connection cord as shown in the figure.
(3) Connect the end of the connection cord fully into the terminal block.
(4) Fasten the connection cord with a cord clamp.

Fig. 11



⚠ CAUTION	
(1) Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.	**(3) Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)**
	(4) Securely earth the power cord plug.
(2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.	**(5) Do not use the earth screw for an external connector. Only use for interconnection between two units.**

FINISHING

(1) Insulate between pipes.
- For rear, right, and bottom piping, overlap the connection pipe heat insulation and indoor unit pipe heat insulation and bind them with vinyl tape so that there is no gap.
- For left and left rear piping, butt the connection pipe heat insulation and indoor unit pipe heat insulation together and bind them with and vinyl tape so that there is no gap.
- For left and left rear piping, wrap the area which accommodates the rear piping housing section with cloth tape.
- For left and left rear piping, bind the connection cord to the top of the pipe with vinyl tape.
- For left and left rear piping, bundle the piping and drain hose together by wrapping them with cloth tape over the range within which they fit into the rear piping housing section.

(2) Temporarily fasten the connection cord along the connection pipe with vinyl tape. (Wrap to about 1/3 the width of the tape from the bottom of the pipe so that water does not enter.)
(3) Fasten the connection pipe to the outside wall with a saddle, etc.
(4) Fill the gap between the outside wall pipe hole and the pipe with sealer so that rain water and wind cannot blow in.
(5) Fasten the drain hose to the outside wall, etc.

Fig. 12

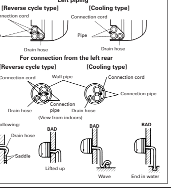
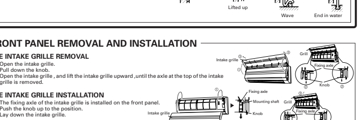


Fig. 13



OUTDOOR UNIT

OUTDOOR UNIT INSTALLATION

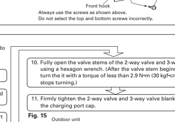
- Set the unit on a strong stand, such as one made of concrete blocks to minimize shock and vibration.
- Do not set the unit directly on the ground because it will cause trouble.

⚠ WARNING
(1) Install the unit where it will not be tilted by more than 5°.
(2) When installing the outdoor unit where it may exposed to strong wind, fasten it securely.

Connector cover removal
- Remove the two mounting screws.
- Put your hand on the back side (mark) and take out the connector cover forwards.

Installing the connector cover
(1) After inserting the three front hooks, then insert the rear hook.
(2) Tighten the two mounting screws.

Fig. 14



Always use the screws as shown above.
Do not select the top and bottom screws incorrectly.

AIR PURGE

Close the high pressure side valve of the gauge manifold fully and do not operate it during the following work.

1. Check if the piping connections are secure.
2. Check that the stems of 2-way valve and 3-way valve are closed fully.
3. Connect the gauge manifold service hose to the charging port of the 3-way valve (side with the projection for pushing in the valve core).
4. Open the low pressure side valve of the gauge manifold fully.
5. Operate the vacuum pump and start pump down.
6. Slowly loosen the flare nut of the 3-way valve and check if air enters, then retighten the flare nut.
(When the flare nut is loosened the operating sound of the vacuum pump changes and the reading of the compound pressure gauge goes from minus to zero.)
7. Pump down the system for at least 15 minutes, then check if the compound pressure gauge reads -100 kPa (-76 cmHg, -1 bar).
8. At the end of pump down, close the low pressure side gauge of the gauge manifold fully and stop the vacuum pump.
9. Slowly loosen the valve stem of the 3-way valve. When the compound pressure gauge reading reaches 1-2 kg/cm², retighten the valve stem and disconnect the service hose from the 3-way valve charging port.
(If the stem of the 3-way valve is opened fully before the service hose is disconnected, it may be difficult to disconnect the service hose.)
10. Fully open the valve stems of the 2-way valve and 3-way valve using a hexagon wrench. (After the valve stem begins to turn, turn the it with a torque of less than 2.9 N•m (30 kgf•cm) until it stops turning.)
11. Firmly tighten the 2-way valve and 3-way valve blank cap and the charging port cap.

Fig. 15

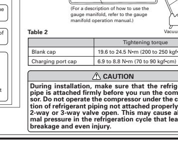


Table 2

	Tightening torque
Blank cap	19.6 to 24.5 N•m (200 to 250 kgf•cm)
Charging port cap	6.9 to 8.8 N•m (70 to 90 kgf•cm)

⚠ CAUTION
During installation, make sure that the refrigerant pipe is attached firmly before you run the compressor. Do not operate the compressor under the condition of refrigerant piping not attached properly with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.

ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 7.5 m is charged in the outdoor unit at the factory.
When the piping is longer than 7.5 m, additional charging is necessary.
For the additional amount, see the table below.

Table 3

Pipe length	7.5 m	10 m
Additional refrigerant	None	40 g

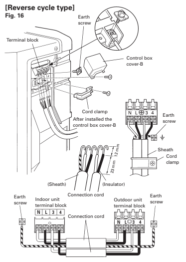
Between 7.5 m and 10 m, when using a connection pipe other than that in the table, charge additional refrigerant with 16g/1 m as the criteria.

⚠ CAUTION
(1) When moving and installing the air conditioner, do not mix gas other than the specified refrigerant (R22) inside the refrigerant cycle.
(2) When adding refrigerant, add the refrigerant from the charging port at the completion of work.
(3) The maximum length of the piping is 10 m. If the units are further apart than this, correct operation can not be guaranteed.
(4) After connecting the piping, check the joints for gas leakage with gas leak detector.

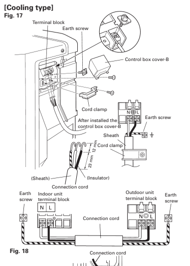
OUTDOOR UNIT WIRING

(1) Remove the outdoor unit connector cover.
(2) Remove the control box cover-B.
(3) Bend the end of the cord as shown in the figure.
(4) Connect the end of the connection cord fully into the terminal block.
(5) Fasten the sheath with a cord clamp.
(6) Install the control box cover-B.
(7) Install the connector cover.

[Reverse cycle type]
Fig. 16

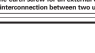


[Cooling type]
Fig. 17



Connection cord wiring
Run the connection cord to the rear of the outdoor unit within the range of the arrows shown in the figure.
(The connector cover becomes difficult to install.)

Fig. 18



⚠ CAUTION	
(1) Match the terminal block numbers and connection cord colors with those of the indoor unit. Erroneous wiring may cause burning of the electric parts.	**(3) Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)**
	(4) Securely earth the power cord plug.
(2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.	**(5) Do not use the earth screw for an external connector. Only use for interconnection between two units.**

FRONT PANEL REMOVAL AND INSTALLATION

THE INTAKE GRILLE REMOVAL

(1) Open the intake grille.
(2) Pull down the knob.
(3) Open the intake grille , and lift the intake grille upward ,until the axle at the top of the intake grille is removed.

THE INTAKE GRILLE INSTALLATION

(1) The fixing axle of the intake grille is installed on the front panel.
(2) Push the knob up to the position.
(3) Lay down the intake grille.

THE FRONT PANEL REMOVAL

(1) Turn the wind guide and remove two screws at two sides of air outlet.
(2) Take out the air outlet part of the front panel, then lift the whole front panel up to remove it.

THE FRONT PANEL INSTALLATION

(1) Firstly fit the lower part of the front panel to the air outlet part and insert its lower edge into the slot of the lower cover.
(2) Insert three hooks on the upper side of the front panel into the slot of bracket.
(3) Turn the wind guide, tighten the screws, and then turn the wind guide back to its origial position.

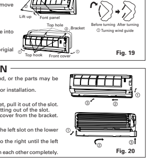


Fig. 19

THE LOWER COVER REMOVAL AND INSTALATION

The lower cover removal should be done after the panel has been removed beforehand, or the parts may be damaged.
The lower cover should be installed before the fixing of the panel, or it may result in poor installation.

THE LOWER COVER REMOVAL

(1) While pressing the joint part between the right part of the lower cover and the bracket, pull it out of the slot.
(2) Hold two sides of the lower cover and slide it to the left. Make sure its lower part getting out of the slot.
(3) Turn the right part of the lower cover lower-left to separate the left slot of the lower cover from the bracket.

THE LOWER COVER INSTALLATION

(1) Hold two sides of the lower cover and align it to the side of the bracket.Firstly match the left slot on the lower cover to the bracket.
(2) Make five slots on the lower cover fit into the fixing plate of the body, then slide it to the right until the left side of the lower cover align to the bracket.
(3) Push the right part of the lower cover inward to make the slot and bracket engaged with each other completely.

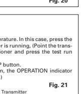


Fig. 20

⚠ CAUTION
Install the front panel and intake grille securely. If installation is imperfect, the front panel or intake grille may fall off and cause injury.

Be sure that the top hole of the front panel is hooked securely to the hook of the base.

TEST RUNNING

- Perform test operation and check items 1 and 2 below.
- For the test operation method, refer to the operating manual.
- The outdoor unit, may not operate, depending on the room temperature. In this case, press the test run button on the remote control unit while the air conditioner is running, (Point the transmitter section of the remote control unit toward the air conditioner and press the test run button with the tip of a ball-point pen, etc.)
- To end test operation, press the remote control unit START/STOP button.
(When the air conditioner is run by pressing the test run button, the OPERATION indicator lamp and TIMER indicator lamp will simultaneously flash slowly.)

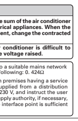
1. INDOOR UNIT

(1) Is operation of each button on the remote control unit normal?
(2) Does each lamp light normally?
(3) Do the air flow-direction louver operate normally?
(4) Is the drain normal?

2. OUTDOOR UNIT

(1) Is there any abnormal noise and vibration during operation?
(2) Will noise, wind, or drain water from the unit disturb the neighbors?
(3) Is there any gas leakage?

Fig. 21



CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:
(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
(2) Air filter removal and cleaning, and how to use the air louvers.
(3) Give the operating and installation manuals to the customer.

POWER

⚠ WARNING
(1) The rated voltage of this product is 230 V AC 50 Hz.
(2) Before turning on the power, check if the voltage is within the 220 V -10 % to 240 V +10 % range.
(3) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
(4) Use a circuit breaker and receptacle matched to the capacity of the air conditioner.
(5) Do not extend the power cord.
(6) Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
(7) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

⚠ CAUTION
(1) The power source capacity must be the sum of the air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
(2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

NOTE: These equipment shall be connected to a suitable mains network with a main impedance less than the following: 0. 424Ω
The product is intended for use only in premises having a service current capacity ⩾ 100A per phase,supplied from a distribution network having a nominal voltage of 230 V, and instruct the user to determine in consulation with the supply authority, if necessary, that the service current capacity at the interface point is sufficient for the equipment.