

VACUUM PROCESS

CAUTION

- 1 Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for purging!
- 2 Use a vacuum pump for R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.

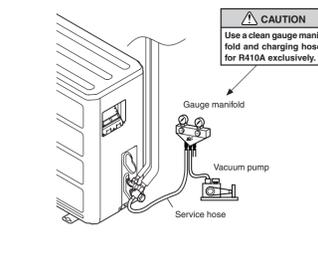
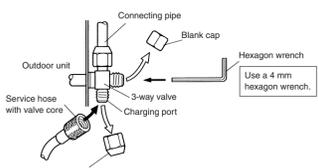
1. VACUUM

- Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
- Vacuum the indoor unit and the connecting pipes until the pressure gauge indicates -0.1 MPa (-76 cmHg).
- When -0.1 MPa (-76 cmHg) is reached, operate the vacuum pump for at least 15 minutes.
- Disconnect the service hoses and fit the cap to the charging valve to the specified torque.
- Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench (Torque : 6 to 7 N · m (60 to 70 kgf·cm)).
- Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque.

Table 6

	Tightening torque
Blank cap (2-way valve)	20 to 25 N·m (200 to 250 kgf·cm)
Blank cap (3-way valve)	30 to 35 N·m (300 to 350 kgf·cm)
Charging port cap	10 to 12 N·m (100 to 120 kgf·cm)

Fig. 29



2. 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 charge is necessary. For the additional amount, see the table below.

Table 7

Pipe length	7.5 m (25 ft)	10 m (33 ft)	15 m (49 ft)	20 m (66 ft)	25 m (82 ft)
Heat & Cool (Reverse cycle)	None	100 g (3.5 oz)	300 g (10.6 oz)	500 g (17.6 oz)	700 g (24.7 oz)
Cooling model	None	50 g (1.8 oz)	150 g (5.3 oz)	250 g (8.8 oz)	350 g (12.3 oz)

Between 7.5 m and 25 m, when using a connection pipe other than that in the table, charge additional refrigerant with 40 g (1.4 oz)/1 m (3.3 ft) (Reverse cycle model), 20 g (0.71 oz)/1 m (3.3 ft) (Cooling model) as the criteria.

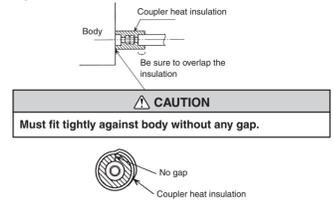
CAUTION

- When moving and installing the air conditioner, do not mix gas other than the specified refrigerant (R410A) inside the refrigerant cycle.
- When charging the refrigerant R410A, always use an electronic balance for refrigerant charging (to measure the refrigerant by weight).
- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable.
- Add refrigerant from the charging valve after the completion of the work.
- If the units are further apart than the maximum pipe length, correct operation can not be guaranteed.

INSTALLING THE COUPLER HEAT INSULATION

After checking for gas leaks, insulate by wrapping insulation around the two parts (large and small) of the indoor unit coupling, using the coupler heat insulation. After installing the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap.

Fig. 30



ELECTRICAL WIRING

HOW TO CONNECT WIRING TO THE TERMINALS

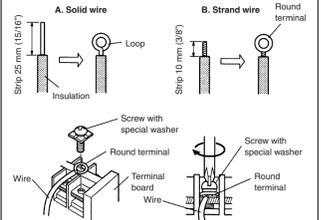
A. For solid core wiring (or F-cable)

- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm (15/16") of expose the solid wire.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

B. For strand wiring

- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 10 mm (3/8") of expose the strand wiring.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.

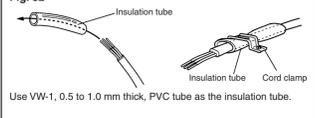
Fig. 31



HOW TO FIXED CONNECTION CORD AND POWER CORD AT THE CORD CLAMP

After passing the connection cord and power cord through the insulation tube, fasten it with the cord clamp.

Fig. 32



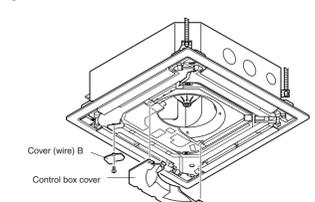
1. INDOOR UNIT SIDE

WARNING

- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
- Match the terminal board numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Connect the connection cord firmly to the terminal board. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)
- Always connect the ground wire.

- Remove the control box cover and cover (wire) B and install the connection cord.

Fig. 33



- After wiring is complete, clamp the remote controller cord and connection cord with the cord clamp.
- Install the control box cover and cover (wire) B.

Fig. 34

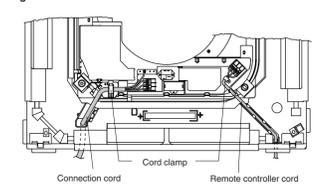
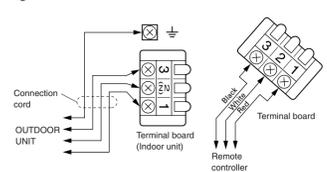


Fig. 35



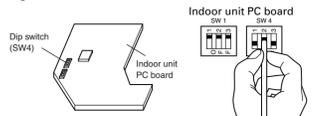
Ceiling height setting

Set the DIP switch for the ceiling height according to the table below.

Table 8

Ceiling height (m)		DIP-SW4		
		1	2	3
2.5 - 3.0	Normal	-	OFF	OFF
3.0 - 3.5	High ceiling 1	-	ON	OFF
More than 3.5	High ceiling 2	-	OFF	ON
Less than 2.5	Low ceiling	-	ON	ON

Fig. 36



CAUTION

- If the setting for a low ceiling is selected, the capacity of the air conditioner decreases slightly.
- Do not set any switches other than those specified in this sheet. The air conditioner may not operate correctly if any switches other than those specified are changed.

2. OUTDOOR UNIT SIDE

WARNING

- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
- Match the terminal board numbers and connection cord colors with those of the indoor unit side. Erroneous wiring may cause burning of the electric parts.
- Connect the connection cords and the power supply cord firmly to the terminal board. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord and the power supply cord with cord clamps. (If the insulator is chafed, electric leakage may occur.)
- Always connect the ground wire.

- Remove the terminal cover of the outdoor unit, and insert the end of the connection cord and the power supply cord into the terminal board.
- Fasten the connection cord and the power supply cord with the cord clamp, and install the terminal cover.

Fig. 37

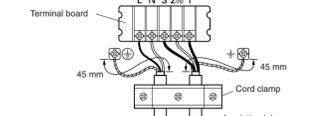
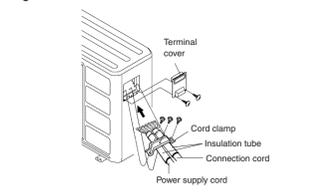
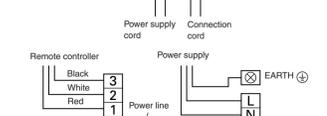


Fig. 36



CAUTION

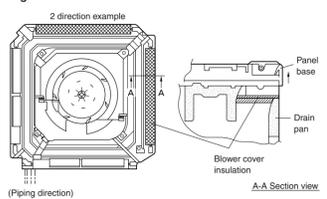
- When routing the ground wires, leave slack as shown in the illustrations.

GRILLE INSTALLATION

BLOWER COVER INSULATION

Install the blower cover insulation only when the outlet direction is not specified. Two blower cover insulations are packed with the indoor unit. Install the blower cover insulation at the diffuser position shown in Fig. 38. At this time, use the piping position as the criteria.

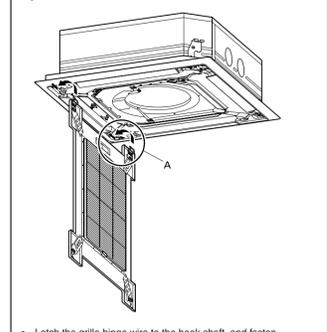
Fig. 38



INSTALLING THE INTAKE GRILLE

- Mount the grille hinge wire to the hook shaft as shown in Fig. 39.

Fig. 39



CAUTION

- Install the intake grille hook wire to the grille assembly. If it falls, it may cause injuries.

Fig. 44

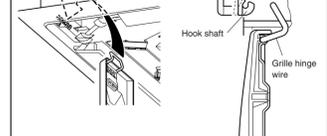


Fig. 45

POWER

WARNING

- The rated voltage of this product is 230 V A.C. 50 Hz.
- Before turning on verify that the voltage is within the 198 V to 264 V range.
- Always use a special branch circuit and install a special receptacle to supply power to the air conditioner.
- Use a special branch circuit breaker and receptacle matched to the capacity of the air conditioner. (Install in accordance with standard.)
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Install a leakage special branch circuit breaker in accordance with the related laws and regulations and electric company standards.

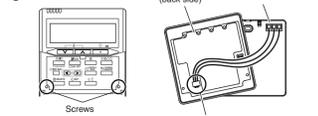
CAUTION

- 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.
- When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.
- This air conditioner must be connected to a power source that has an electrical impedance of 0.159 Ω or less or has a supply current of 100 A or greater. If the power supply does not meet the specifications, contact the power company.

1. INSTALLING THE REMOTE CONTROLLER

- Open the operation panel on the front of the remote controller, remove the two screws indicated in the following figure, and then remove the front case of the remote controller.

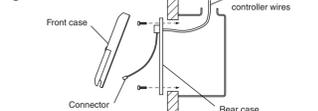
Fig. 46



When installing the remote controller, remove the connector from the front case. The wires may break if the connector is not removed and the front case hangs down. When installing the front case, connect the connector to the front case.

- Install the rear case to the wall, etc. with two tapping screws. Refer to the following information to install the remote controller wires.

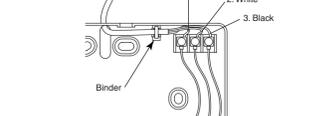
Fig. 47



2. ROUTING THE REMOTE CONTROLLER WIRES

- Install the remote controller wires to the terminals on the top of the rear case as shown in the following figure.
- Fasten the wires with the binder.
- If the remote controller wires run through the room, use a tool to cut away the thin area on the upper center of the front case.

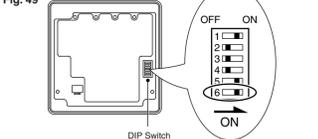
Fig. 48 (Example)



3. SETTING THE DIP SWITCHES

When using a battery (memory backup)

Fig. 49



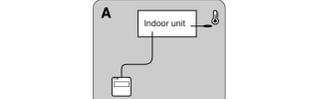
Change the DIP switch setting to use batteries. (The DIP switch is not set to use batteries at the factory.) Change DIP switch No. 6 from OFF to ON. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

4. SETTING THE ROOM TEMPERATURE DETECTION LOCATION

The detection location of the room temperature can be selected from the following three examples. Choose the detection location that is best for the installation location.

A. Indoor unit setting (factory setting)

The room temperature is detected by the indoor unit temperature sensor.



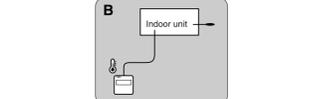
- When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.

Fig. 50



B. Remote controller setting

The room temperature is detected by the remote controller temperature sensor.



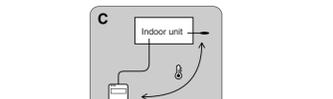
- Press the THERMO SENSOR button for 5 seconds or more to unlock the function. The thermo sensor display flashes and then disappears when the function is unlocked.
- Press the THERMO SENSOR button. The thermo sensor display appears.
- Press the THERMO SENSOR button again for 5 seconds or more to lock the function. The thermo sensor display flashes and then remains on when the function is locked.
- Make sure that the function is locked.

Fig. 51



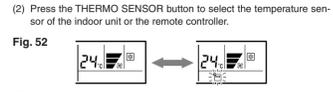
C. Indoor unit/remote controller setting (room temperature sensor selection)

The temperature sensor of the indoor unit or the remote controller can be used to detect the room temperature.



- Press the THERMO SENSOR button for 5 seconds or more to unlock the function. The thermo sensor display flashes and then disappears when the function is unlocked.
- Press the THERMO SENSOR button to select the temperature sensor of the indoor unit or the remote controller.

Fig. 52



NOTES

If the function to change the temperature sensor is used as shown in examples A and B (other than example C), be sure to lock the detection location. If the function is locked, the lock display will flash when the THERMO SENSOR button is pressed.

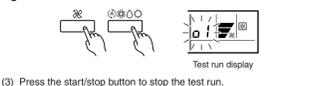
TEST RUN

CAUTION

Supply power to the crankcase heater for at least 12 hours before the start of operation in winter.

- Stop the air conditioner operation.
- Press the master control button and the fan control button simultaneously for 2 seconds or more to start the test run.

Fig. 53



[SELF-DIAGNOSIS]

When the error indication "E.EE" is displayed, follow the following items to perform the self-diagnosis. "E.EE" indicates an error has occurred.

1. REMOTE CONTROLLER DISPLAY

- Stop the air conditioner operation.
- Press the set temperature buttons Δ / ∇ simultaneously for 5 seconds or more to start the self-diagnosis. Refer to the following tables for the description of each error code.

Fig. 54

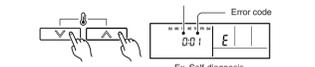


Table 9

Error code	Error contents
00	Communication error (indoor unit → remote controller)
01	Communication error (indoor unit → outdoor unit)
02	Room temperature sensor open
03	Room temperature sensor short-circuited
04	Indoor heat exchanger temperature sensor open
05	Indoor heat exchanger temperature sensor short-circuited
06	Outdoor heat exchanger temperature sensor open
07	Outdoor heat exchanger temperature sensor short-circuited
08	Power source connection error
09	Float switch operated
0A	Outdoor temperature sensor open
0b	Outdoor temperature sensor short-circuited
0c	Discharge pipe temperature sensor open
0d	Discharge pipe temperature sensor short-circuited

Error code	Error contents
0E	Outdoor high pressure abnormal
0F	Discharge pipe temperature abnormal
11	Model abnormal
12	Indoor fan abnormal
13	Outdoor signal abnormal
14	Outdoor EEPROM abnormal

2. OUTDOOR UNIT LEADS

Heat & Cool model (reverse cycle) only

When a malfunction occurs in the outdoor unit, the LEDs on the circuit board light to indicate the error. Refer to the following table for the description of each error according to the LEDs.

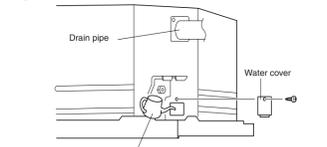
Table 10

LED1	LED2	Error contents
ON 0.1 sec. / OFF 0.1 sec.	ON 0.1 sec. / OFF 0.1 sec.	Model abnormal or EEPROM abnormal
Quick flash continued	Quick flash continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	Power source connection error
1 quick flash repeated	Lighting continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	Discharge temperature sensor error
2 quick flash repeated	Lighting continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	Outdoor heat exchanger temperature sensor error
3 quick flash repeated	Lighting continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	Outdoor temperature sensor error
4 quick flash repeated	Lighting continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	Communication signal error
5 quick flash repeated	Lighting continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	Indoor unit error
6 quick flash repeated	Lighting continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	Discharge temperature abnormal
7 quick flash repeated	Lighting continued	
ON 0.5 sec. / OFF 2.2 sec.	ON 0.5 sec. / OFF 2.2 sec.	High pressure abnormal
8 quick flash repeated	Lighting continued	

3. CHECKING DRAINAGE

To check the drain, remove the water cover and fill with 2 to 3 l of water as shown in Fig. 55. The drain pump operates when operating in the cooling mode.

Fig. 55



SPECIAL INSTALLATION METHODS

CAUTION

- When setting the rotary switch and DIP switches, do not touch any other parts on the circuit board directly with your bare hands.
- Be sure to turn off the main power.

1. GROUP CONTROL SYSTEM

A number of indoor units can be operated at the same time using a single remote controller.

- Wiring method (indoor unit to remote controller)

Fig. 56

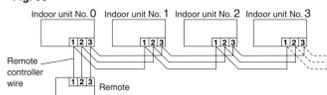


Fig. 57

