

TOSHIBA

OUTDOOR UNIT INSTALLATION MANUAL

MANUEL D'INSTALLATION DE L'UNITE
EXTERIEURE
EINBAUANLEITUNG FÜR DAS
AUSSENGERÄT
MANUALE DI INSTALLAZIONE
DELL'UNITÀ ESTERNA
MANUAL DE INSTALACIÓN DE LA
UNIDAD EXTERIOR
MANUAL DE INSTALAÇÃO DA
UNIDADE EXTERIOR
ΕΓΧΕΙΡΙΔΙΟ ΕΓΚΑΤΑΣΤΑΣΗΣ
ΕΞΩΤΕΡΙΚΗΣ ΜΟΝΑΔΑΣ

AIR CONDITIONER (MULTI-SPLIT TYPE)

CLIMATISEUR (TYPE BLOCS MULTIPLES)
KLIMAGERÄT (MULTISYSTEM-SPLITGERÄT)
CONDIZIONATORE D'ARIA (TIPO MULTI-SPLIT)
ACONDICIONADOR DE AIRE (TIPO MÚLTI-SEPARADO)
AR CONDICIONADO (TIPO MULTI-SPLIT)
ΚΛΙΜΑΤΙΣΤΙΚΗ ΜΟΝΑΔΑ (ΠΟΛΛΑΠΛΟΥ ΤΥΠΟΥ)

For general public use
Pour utilisation grand public
Für allgemeine Verwendung
Per l'uso in generale
Para el uso público general
Para utilização geral
Για γενική δημόσια χρήση

Outdoor Unit
Unité extérieure
Außengerät
Unità esterna
Unidad exterior
Unidade exterior
Εξωτερική μονάδα

RAS-3M26GAV-E
RAS-4M27GAV-E
RAS-4M27GACV-E

Please read this installation manual carefully before installing the air conditioner.

Veillez lire attentivement ce manuel avant d'installer le climatiseur.

Lesen Sie diese Einbauanleitung sorgfältig durch, bevor Sie das Klimagerät installieren.

Prima di installare il condizionatore d'aria, si consiglia di leggere con attenzione il presente manuale di installazione.

Lea este manual de instalación atentamente antes de instalar el acondicionador de aire.

Leia atentamente este manual de instalação antes de instalar o ar condicionado.

Παρακαλούμε διαβάστε αυτές τις οδηγίες εγκατάστασης προσεκτικά πριν εγκαταστήσετε την κλιματιστική μονάδα.

ENGLISH

FRANÇAIS

DEUTSCH

ITALIANO

ESPAÑOL

PORTUGUÊS

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IMPORTANT NOTICE

- For details on how to install the indoor units, refer to the installation manual accompanying the indoor units.

1 SAFETY PRECAUTIONS**For general public use**

Power supply cord of outdoor unit shall be 2.5 mm² (H07RN-F or 60245IEC66) polychloroprene sheathed flexible cord.

CAUTION**New Refrigerant Air Conditioner Installation**

- **THIS AIR CONDITIONER ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER.**

R410A refrigerant is apt to be affected by impurities such as water, oxidizing membrane, and oils because the working pressure of R410A refrigerant is approx. 1.6 times of refrigerant R22. Accompanied with the adoption of the new refrigerant, the refrigeration machine oil has also been changed. Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigeration machine oil does not enter into the new type refrigerant R410A air conditioner circuit.

To prevent mixing of refrigerant or refrigerating machine oil, the sizes of connecting sections of charging port on main unit and installation tools are different from those used for the conventional refrigerant units. Accordingly, special tools are required for the new refrigerant (R410A) units as shown on page 4. For connecting pipes, use new and clean piping materials with high pressure fittings made for R410A only, so that water and/or dust does not enter. Moreover, do not use the existing piping because there are some problems with pressure fittings and possible impurities in existing piping.

CAUTION**TO DISCONNECT THE APPLIANCE FROM THE MAIN POWER SUPPLY**

This appliance must be connected to the main power supply by a circuit breaker or a switch with a contact separation of at least 3 mm.

DANGER

- FOR USE BY QUALIFIED PERSONS ONLY.
- TURN OFF MAIN POWER SUPPLY BEFORE ATTEMPTING ANY ELECTRICAL WORK. MAKE SURE ALL POWER SWITCHES ARE OFF. FAILURE TO DO SO MAY CAUSE ELECTRIC SHOCK.
- CORRECTLY CONNECT THE CONNECTING CABLE. IF THE CONNECTING CABLE IS INCORRECTLY CONNECTED, ELECTRIC PARTS MAY BE DAMAGED.
- CHECK THAT THE EARTH WIRE IS NOT BROKEN OR DISCONNECTED BEFORE INSTALLATION. FAILURE TO DO SO MAY CAUSE ELECTRIC SHOCK.
- DO NOT INSTALL NEAR CONCENTRATIONS OF COMBUSTIBLE GAS OR GAS VAPORS. FAILURE TO FOLLOW THIS INSTRUCTION CAN RESULT IN FIRE OR EXPLOSION.
- TO PREVENT THE INDOOR UNIT FROM OVERHEATING AND CAUSING A FIRE HAZARD, PLACE THE UNIT WELL AWAY (MORE THAN 2 M) FROM HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTORS, FURNACE, STOVES, ETC.
- WHEN MOVING THE AIR-CONDITIONER FOR INSTALLATION IN ANOTHER PLACE, BE VERY CAREFUL NOT TO ALLOW THE SPECIFIED REFRIGERANT (R410A) TO BECOME MIXED WITH ANY OTHER GASEOUS BODY INTO THE REFRIGERATION CIRCUIT. IF AIR OR ANY OTHER GAS IS MIXED IN THE REFRIGERANT, THE GAS PRESSURE IN THE REFRIGERATION CIRCUIT WILL BECOME ABNORMALLY HIGH AND IT MAY RESULT IN THE PIPE BURSTING AND POSSIBLE PERSONNEL INJURIES.
- IN THE EVENT THAT THE REFRIGERANT GAS LEAKS OUT OF THE PIPE DURING THE INSTALLATION WORK, IMMEDIATELY LET FRESH AIR INTO THE ROOM. IF THE REFRIGERANT GAS IS HEATED, SUCH AS BY FIRE, GENERATION OF POISONOUS GAS MAY RESULT.
- WHEN CARRYING OUT THE INSTALLATION WORK, CONNECT THE REFRIGERANT PIPE SECURELY BEFORE OPERATING THE COMPRESSOR. OPERATING THE COMPRESSOR WITH THE SERVICE VALVE LEFT OPEN AND WITHOUT FIRST CONNECTING THE REFRIGERANT PIPE WILL CAUSE AIR, ETC. TO BE SUCKED IN, RAISING THE PRESSURE INSIDE THE REFRIGERATION CYCLE TO AN ABNORMALLY HIGH LEVEL, AND POSSIBLY RESULTING IN RUPTURING, INJURY, ETC.
- WHEN CARRYING OUT THE PUMP-DOWN WORK, SHUT DOWN THE COMPRESSOR BEFORE DISCONNECTING THE REFRIGERANT PIPE. DISCONNECTING THE REFRIGERANT PIPE WITH THE SERVICE VALVE LEFT OPEN AND WITH THE COMPRESSOR STILL OPERATING WILL CAUSE AIR, ETC. TO BE SUCKED IN, RAISING THE PRESSURE INSIDE THE REFRIGERATION CYCLE TO AN ABNORMALLY HIGH LEVEL, AND POSSIBLY RESULTING IN RUPTURING, INJURY, ETC.

WARNING

- Never modify this unit by removing any of the safety guards.
- Do not install in a place which cannot bear the weight of the unit. Personal injury and property damage can result if the unit falls.
- Appliance shall be installed in accordance with national wiring regulations.
- If you detect any damage, do not install the unit. Contact your Toshiba dealer immediately.

CAUTION

- Exposure of unit to water or other moisture before installation may result in an electrical short. Do not store in a wet basement or expose to rain or water.
- After unpacking the unit, examine it carefully for any damage.
- Do not install in a place that can increase the vibration of the unit. Do not install in a place that can amplify the noise level of the unit or where noise or discharged air might disturb neighbors.
- To avoid personal injury, be careful when handling parts with sharp edges.
- Please read this installation manual carefully before installing the unit. It contains further important instructions necessary for proper installation.
- Wear work gloves when carrying out the installation work or repairs. Contact with parts, etc. may cause injury if the work or repairs are conducted without wearing gloves.

2 OPTIONAL PARTS, ACCESORIES AND TOOLS

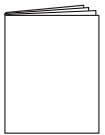

Optional Installation Parts

Part name	Specifications			Q'ty
Refrigerant piping *1	Indoor unit name (Abbreviation)	Liquid side (Outer diameter)	Gas side (Outer diameter)	1 ea.
	10, 13	6.35 mm	9.52 mm	
	16	6.35 mm	12.7 mm	
Putty, PVC tapes				1 ea.

*1 Refrigerant piping covered with insulating material (polyethylene form, 6 mm thick).

* In case the piping is installed above the ceiling, it shall be covered with thicker insulating material (polyethylene form, 10 mm thick).

Accessory and Installation Parts

Part No.	Part name (Q'ty)	Part No.	Part name (Q'ty)
①	 Outdoor unit installation manual x 1	②	 Specifications x 1

Others

Name
Important information and warning
B/W strips (Energy efficiency labels)








Installation/Service Tools

Changes in the product and components

In air conditioners using R410A, in order to prevent any other refrigerant from being accidentally charged, the service port diameter size of the outdoor unit control valve (3 way valve) has been changed. (1/2 UNF 20 threads per inch)

- In order to increase the pressure resisting strength of the refrigerant piping, flare processing diameter and opposing flare nuts sizes have been changed. (for copper pipes with nominal dimensions 1/2 and 5/8)

New tools for R410A

New tools for R410A	Applicable to R22 model		Changes
Gauge manifold	×		As the working pressure is high, it is impossible to measure the working pressure using conventional gauges. In order to prevent any other refrigerant from being charged, the port diameters have been changed.
Charge hose	×		In order to increase pressure resisting strength, hose materials and port sizes have been changed (to 1/2 UNF 20 threads per inch). When purchasing a charge hose, be sure to confirm the port size.
Electronic balance for refrigerant charging	○		As working pressure is high and gasification speed is fast, it is difficult to read the indicated value by means of charging cylinder, as air bubbles occur.
Torque wrench (nominal dia. 1/2, 5/8)	×		The size of opposing flare nuts have been increased. Incidentally, a common wrench is used for nominal diameters 1/4 and 3/8.
Flare tool (clutch type)	○		By increasing the clamp bar's receiving hole size, strength of spring in the tool has been improved.
Gauge for projection adjustment	—		Used when flare is made by using conventional flare tool.
Vacuum pump adapter	○		Connected to conventional vacuum pump. It is necessary to use an adapter to prevent vacuum pump oil from flowing back into the charge hose. The charge hose connecting part has two ports — one for conventional refrigerant (7/16 UNF 20 threads per inch) and one for R410A. If the vacuum pump oil (mineral) mixes with R410A a sludge may occur and damage the equipment.
Gas leakage detector	×		Exclusive for HFC refrigerant.

- Incidentally, the "refrigerant cylinder" comes with the refrigerant designation (R410A) and protector coating in the U.S's ARI specified rose color (ARI color code: PMS 507).
- Also, the "charge port and packing for refrigerant cylinder" requires 1/2 UNF 20 threads per inch corresponding to the charge hose's port size.

3 WHICH MODELS CAN BE COMBINED

Table of models that can be connected

Type	Outdoor unit	Indoor unit		
Heat pump	RAS-3M26GAV-E RAS-4M27GAV-E	RAS-B10GKVP-E	RAS-B13GKVP-E	RAS-B16GKVP-E
		RAS-M10GKV-E	RAS-M13GKV-E	RAS-M16GKV-E
		RAS-M10GDV-E	RAS-M13GDV-E	RAS-M16GDV-E
Cooling-only	RAS-4M27GACV-E	RAS-M10GKCV-E	RAS-M13GKCV-E	RAS-M16GKCV-E
		RAS-M10GDCV-E	RAS-M13GDCV-E	RAS-M16GDCV-E
		RAS-M10GKCV-E	RAS-M13GKCV-E	RAS-M16GKCV-E

NOTES

A 1-room connection is not an option for the indoor units (you cannot connect only one indoor unit). A 2-room or more connection must always be used for the indoor units (you must connect at least two indoor units).

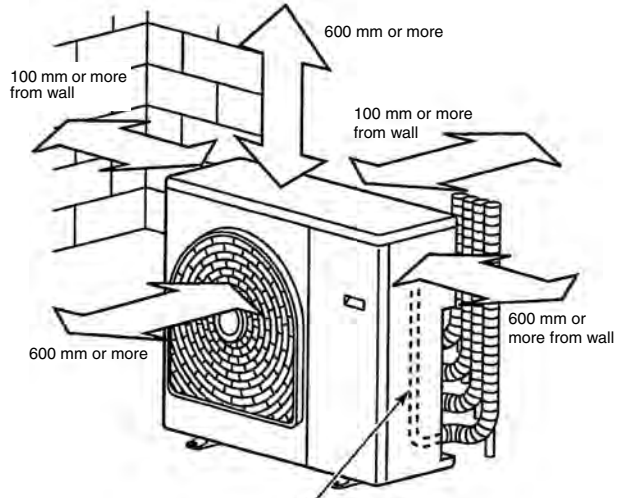
ENGLISH

4 INSTALLATION OF OUTDOOR UNIT

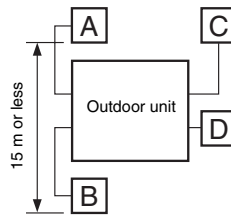
Installation Location

- A place which provides enough space around the outdoor unit as shown in the diagram.
- A place which can bear the weight of the outdoor unit and does not allow an increase in noise level and vibration.
- A place where the operation noise and discharged air do not disturb neighbors.
- A place which is not exposed to a strong wind.
- A place free of combustible gases.
- A place which does not block a passageway.
- When the outdoor unit is to be installed in an elevated position, be sure to secure its feet.
- Piping connections to the outdoor unit should be arranged in the sequence A, then B, C, D, starting from the bottom. (For each piping connection, the gas pipe is on the bottom and the liquid pipe on top.)
- When multiple indoor units are to be connected to the outdoor unit, make sure the ends of the pipes and wires from each indoor unit are connected to the outdoor unit correctly. (Problems caused by indoor units being connected to the outdoor unit incorrectly are very common in multiple-unit installations.)
- The length and height differences of the connecting pipes between the indoor and outdoor units must be within the ranges indicated below.
 - Total piping length:
 - 4 unit (A + B + C + D) Multi 70 m (without additional refrigerant)
 - 3 unit (A + B + C) Multi 50 m (without additional refrigerant)
 - Minimum piping length:
 - A or B or C or D = 2 m or more
 - Maximum indoor piping length:
 - A or B or C or D = 25 m or less
 - Maximum piping height difference:
 - A or B or C or D = 15 m or less
 - Maximum piping height difference between 2 units = 15 m or less
- If the outdoor unit is to be mounted on a wall, make sure the platform supporting it is sturdy enough. The platform should be designed and manufactured to maintain its strength over a long period of time, and sufficient consideration should be given to ensuring that the outdoor unit will not fall.
- When the outdoor unit is to be mounted high on a wall, take particular care to ensure that parts do not fall, and that the installer is protected.
- When doing installation work at ground level, it is usual to make wiring and pipe connections to the indoor units, first, and then to make connections to the outdoor unit. However, if outdoor work is difficult it is possible, instead, to make changes to the procedure. For example, by making adjustments to the wiring and piping lengths on the inside (rather than the outside).
- A place where the drain water does not cause any problems.
- The outdoor unit should not be installed with one indoor unit only. Be sure the (outdoor) unit is installed with at least two indoor units.

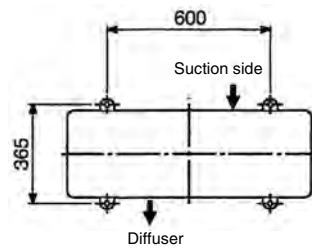
NOTE: For installation, at least 3 sides should be kept away from obstacles (walls).



As shown in the figure, hang power cord and connecting cable downward.



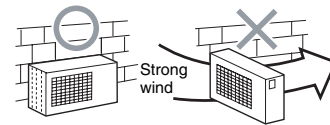
Fixing bolt arrangement of outdoor unit



- Secure the outdoor unit with fixing bolts and nuts if the unit is likely to be exposed to strong winds.
- Use $\phi 8$ mm or $\phi 10$ mm anchor bolts and nuts.

CAUTION

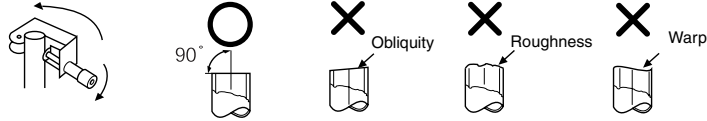
1. Install the outdoor unit without anything blocking the discharging air.
2. When the outdoor unit is installed in a place always exposed to strong winds like on the coast or on a high story of a building, secure the normal fan operation using a duct or a wind shield.
3. Especially in windy areas, install the unit to prevent the admission of wind.
4. Installation in the following places may result in trouble. Do not install the unit in such places.
 - A place full of machine oil.
 - A saline-place such as the coast.
 - A place full of sulfide gas.
 - A place where high-frequency waves are likely to be generated, such as from audio equipment, welders, and medical equipment.



Refrigerant Piping Connection

Flaring

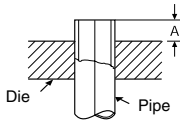
- Cut the pipe with a pipe cutter.



- Insert a flare nut into the pipe, and flare the pipe.
 - Projection margin in flaring: A (Unit: mm)

Rigid (Clutch type)

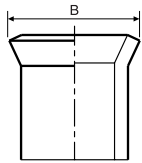
Outer diameter of copper pipe	R410A tool used	Conventional tool used
6.35	0 to 0.5	1.0 to 1.5
9.52	0 to 0.5	1.0 to 1.5
12.7	0 to 0.5	1.0 to 1.5



Imperial (Wing nut type)

Outer diameter of copper pipe	R410A
6.35	1.5 to 2.0
9.52	1.5 to 2.0
12.7	2.0 to 2.5

- Flaring size: B (Unit: mm)

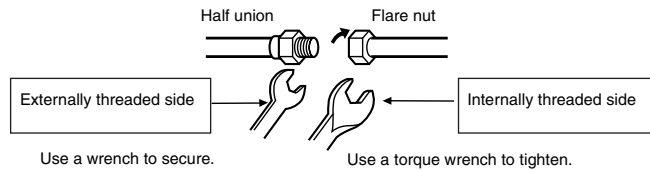


Outer diameter of copper pipe	B ⁺⁰ / _{-0.4}	
	R410A	R22
6.35	9.1	9.0
9.52	13.2	13.0
12.7	16.6	16.2

- In case of flaring for R410A with the conventional flare tool, pull it out approx. 0.5 mm more than that of R22 to adjust to the specified flare size. The copper pipe gauge is useful for adjusting projection margin size.

Tighten the connection

Align the centers of the connecting pipes and tighten the flare nut as much as possible with your fingers. Then tighten the nut with a wrench and torque wrench as shown in the figure.

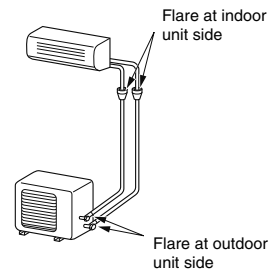


CAUTION

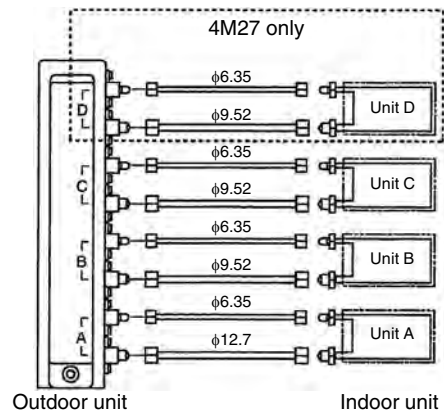
- Do not apply excessive force. Otherwise, the nut may break.

(Unit: N·m)

Outer diameter of copper pipe	Tightening torque
φ6.35 mm	14 to 18 (1.4 to 1.8 kgf·m)
φ9.52 mm	33 to 42 (3.3 to 4.2 kgf·m)
φ12.7 mm	50 to 62 (5.0 to 6.2 kgf·m)



- Tightening torque for connection of flare pipe
The pressure of R410A is higher than R22. (Approx. 1.6 times.) Therefore securely tighten the flare pipes which connect the outdoor unit and the indoor unit with the specified tightening torque using a torque wrench.
If any flare pipe is incorrectly connected, it may cause not only a gas leakage but also trouble in the refrigeration cycle.



	Connectable capacity class				
	A	B	C	D	Total
3M26GAV-E	10 (with reducer) 13 (with reducer) 16	10 13 16 (with expander)	10 13 16 (with expander)		45
4M27GAV-E 4M27GACV-E	10 (with reducer) 13 (with reducer) 16	10 13 16 (with expander)	10 13 16 (with expander)	10 13 16 (with expander)	52

A 1-room connection is not an option for the indoor units (you cannot connect only one indoor unit).
A 2-room or more connection must always be used for the indoor units (you must connect at least two indoor units).
All combinations that do not exceed the "Total" number can be installed. Note that expanders and reducers may be required depending on the combination method.

Evacuating

After the piping has been connected to the indoor unit, perform the air purge.

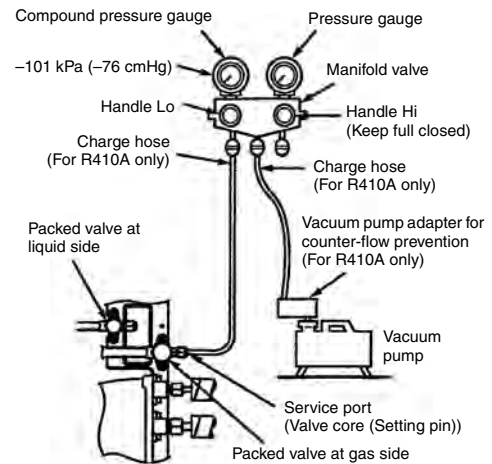
AIR PURGE

Evacuate the air in the connecting pipes and in the indoor unit using a vacuum pump. Do not use the refrigerant in the outdoor unit.
For details, see the vacuum pump manual.

Use a vacuum pump

Be sure to use a vacuum pump with counter-flow prevention function so that oil inside the pump does not flow back into the air conditioner pipes when the pump stops. (If oil inside the vacuum pump enters into the air conditioner circuit which uses R410A, trouble with the refrigeration system may develop.)

1. Connect the charge hose from the manifold valve to the service port of the gas side packed valve.
2. Connect the charge hose to the port of the vacuum pump.
3. Open fully the low pressure side handle of the gauge manifold valve.
4. Operate the vacuum pump to begin evacuating. Perform evacuating for about 35 minutes if the piping length is 70 meters (25 minutes for 50 total meters) (assuming a pump capacity of 27 liters per minute). Confirm that the compound pressure gauge reading is -101 kPa (-76 cmHg).
5. Close the low pressure valve handle of gauge manifold.
6. Open fully the valve stem of the packed valves (both sides of Gas and Liquid).
7. Remove the charging hose from the service port.
8. Securely tighten the caps on the packed valves.
9. Perform steps 1 through 8 above on each connected indoor unit.



CAUTION

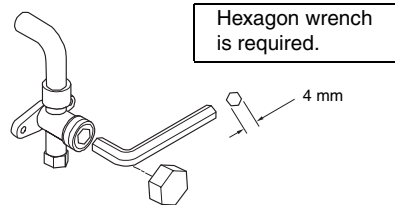
• IMPORTANT POINTS FOR PIPING WORK

- (1) Keep dust and moisture from entering the pipes.
- (2) Tighten connections carefully (between pipes and unit).
- (3) Evacuate the air in the connecting pipes using a VACUUM PUMP.
- (4) Check for gas leaks at all connections.

Packed valve handling precautions

- Open the valve stem all the way; but do not try to open it beyond the stopper.
- Securely tighten the valve stem cap with torque in the following table:

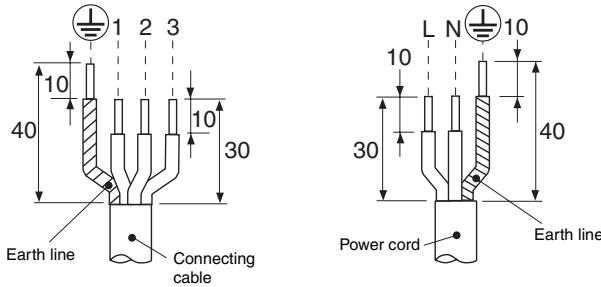
Gas side (ϕ 12.7 mm)	50 to 62 N·m (5.0 to 6.2 kgf·m)
Gas side (ϕ 9.52 mm)	33 to 42 N·m (3.3 to 4.2 kgf·m)
Liquid side (ϕ 6.35 mm)	14 to 18 N·m (1.4 to 1.8 kgf·m)
Service port	14 to 18 N·m (1.4 to 1.8 kgf·m)



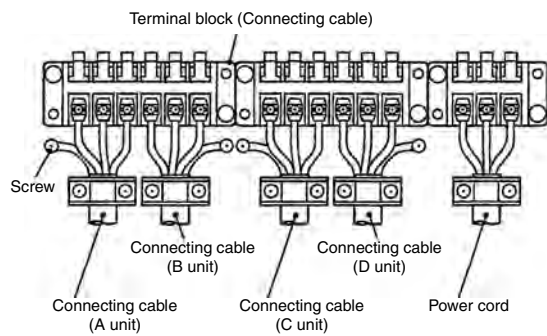
Wiring Connection

1. Remove the side panel and cord clamp from the outdoor unit.
2. Connect the connecting cable to the terminal as identified by the matching numbers on the terminal block of indoor and outdoor unit.
3. Insert the power cord and the connecting cable fully into the terminal block and secure it tightly with screws.
4. Insulate the unused cords (conductors) from water entering in the outdoor unit. Locate them so that they do not touch any electrical or metal parts.
5. Secure the power cord and the connecting cable with the cord clamp.
6. Attach the side panel on the outdoor unit.

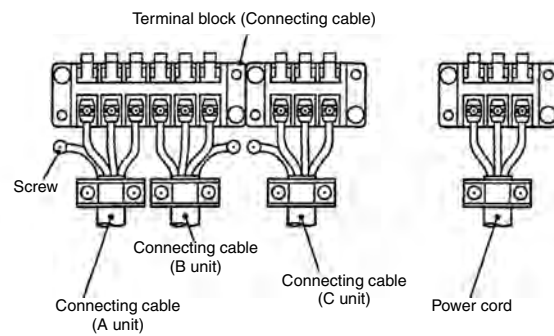
Stripping length of connecting cable



4 unit (A + B + C + D) Multi



3 unit (A + B + C) Multi



Model	3 unit Multi	4 unit Multi	
	RAS-3M26GAV-E	RAS-4M27GAV-E	RAS-4M27GACV-E
Power source	220-240V ~50Hz 220V ~60Hz		
Maximum running current	16.4 A	17.0 A	16.6 A
Installation fuse rating	20 A breaker or fuse (all types can be used)		
Power cord	H07RN-F or 60245IEC66 (2.5 mm ²)		
Connecting cable	H07RN-F or 60245IEC66 (1.0 mm ²)		

CAUTION

- Incorrect wiring connection may cause electrical parts to burn out.
 - Be sure to comply with local regulations/codes when running the wire from outdoor unit to indoor unit. (Size of wire and wiring method etc.)
 - Every wire must be securely connected.
 - If incorrect or incomplete wiring is carried out, fire or smoke may result.
 - Prepare the power supply for the exclusive use of the air conditioner.
 - This product can be connected to the main breaker.
- Connection to fixed wiring: A switch which disconnects all poles and has a contact separation of at least 3 mm must be incorporated in the fixed wiring when connecting to a main breaker circuit.

ENGLISH

5 GROUNDING

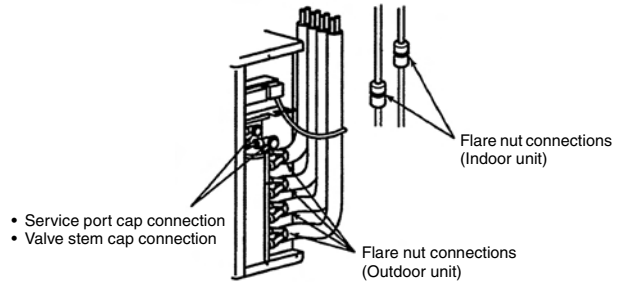
This air conditioner must be grounded without fail.

Grounding is necessary not only to safeguard against the possibility of receiving an electric shock but also to absorb both the static, which is generated by high frequencies and held in the surface of the outdoor unit, and noise since the air conditioner incorporates a frequency conversion device (called an inverter) in the outdoor unit. If the air conditioner is not grounded, users may receive an electric shock if they touch the surface of the outdoor unit and that unit is charged with static.

6 CHECK AND TEST OPERATION

For R410A, use the leak detector exclusively manufactured for HFC refrigerant (R410A, R134a, etc.)

- * The conventional leak detector for HCFC refrigerant (R22, etc.) cannot be used because its sensitivity for HFC refrigerant lowers to approx. 1/40 of that manufactured exclusively for HFC refrigerant.
- Pressure of R410A becomes approx. 1.6 times that of R22. If installation work has not completely finished, gas leaks may occur in cases such as when pressure rises during operation.
- Check the flare nut connections, valve stem cap connections and service port cap connections for gas leaks with a leak detector or soap water.



CAUTION

- Use a circuit breaker of a type that is not tripped by shock waves.
- Incorrect/incomplete wiring will cause electrical fires or smoke.
- Prepare the power source for exclusive use with the air conditioner.
- Proceed as follows when connecting the product to the mains power.
 - Connection to fixed wiring:
 - A switch or circuit breaker which disconnects all poles and has a contact separation of at least 3 mm must be incorporated into the fixed wiring.
 - Utilize only approved short circuit breakers and switches.
 - * (A breaker having sensitivity of approximately 0.1 second or less and capacity of approximately 30 mA is usually used.)

Miswiring (Mis-piping) Check

Make sure that the wiring and piping for each room have the same alphabetical code (A, B, C, D).

Connect and secure the power cord.

Use the power cord/cables with thickness, type, and protective devices specified in this manual.

Insulate the unused cords (conductors) with PVC tape.

1. Turn on the power breaker.
2. Open the side panel of the outdoor unit.
3. Set the indoor unit to COOL mode.
 - It is unnecessary to set the temperature.
 - Miswiring checks cannot be executed when the outdoor air temperature is 5°C or less.
4. Start the check.
 - Disconnect the miswiring check connector (color: Red) from the inverter P.C. board.

5. During checks (Check time 3 to 20 minutes).
 - When an error described in the table below occurs, check that operation stops and an error code is displayed on LED.
6. After checks, the check results are displayed on LED.
 - The compressor stops when a miswiring (mis-piping) error occurs.
 - Confirm the contents of the table below.
 - Turn off the power breaker.
 - Correct miswiring/mis-piping.
 - Connect the miswiring check connector.
 - Execute the check operation again.
 - Automatically return to normal operation when conditions are normal.
7. Return to normal operation.
 - To return to normal operation during check operation or after a miswiring (mis-piping) error has been determined, connect the miswiring check connector.

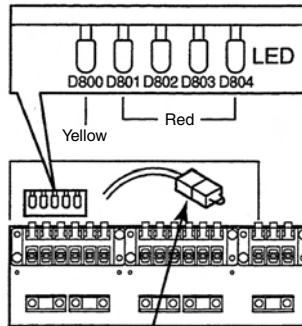
Miswiring (mis-piping) check by LED Indication

- For this outdoor unit, self-miswiring (mis-piping) checks are possible using the five LEDs (1 Yellow + 4 Red).
- * LEDs (D800 to D804) are provided on the inverter P.C. board.

LED	D800	D801	D802	D803	D804	Description
	●	●	●	●	●	Normal operation (no error)
During check	◎	◎	●	●	●	Checking A unit
	◎	●	◎	●	●	Checking B unit
	◎	●	●	◎	●	Checking C unit
	◎	●	●	●	◎	Checking D unit
Check results	◎	○	●	●	●	Crush/Clog of Pipe A
	◎	●	○	●	●	Crush/Clog of Pipe B
	◎	●	●	○	●	Crush/Clog of Pipe C
	◎	●	●	●	○	Crush/Clog of Pipe D
	◎	○	○	●	●	Miswiring/Mis-piping or Crush/Clog of Pipe A, B
	◎	○	●	○	●	Miswiring/Mis-piping or Crush/Clog of Pipe A, C
	◎	○	●	●	○	Miswiring/Mis-piping or Crush/Clog of Pipe A, D
	◎	●	○	○	●	Miswiring/Mis-piping or Crush/Clog of Pipe B, C
	◎	●	○	●	○	Miswiring/Mis-piping or Crush/Clog of Pipe B, D
	◎	●	●	○	○	Miswiring/Mis-piping or Crush/Clog of Pipe C, D
	◎	○	○	○	●	A, B, C Miswiring/Mis-piping
	◎	○	○	●	○	A, B, D Miswiring/Mis-piping
	◎	○	●	○	○	A, C, D Miswiring/Mis-piping
	◎	●	○	○	○	B, C, D Miswiring/Mis-piping
◎	○	○	○	○	A, B, C, D Miswiring/Mis-piping Packed valve stays closed	

LED : Light Emitting Diode, ○ : LED ON, ● : LED OFF, ◎ : LED Flash

*1 4 unit Multi model only



Miswiring (mis-piping) check connector (color: Red)

Check mode	Short → Open
Normal operation	Short

7 USEFUL FUNCTIONS

Self-Diagnosis by LED Indication

- For this outdoor unit, by referring to the 5 LED (1 Yellow + 4 Red) indicator lights, self-diagnosis is possible.
- LEDES (D800 to D804) are located on the sub-control board underneath the inverter.

Contents	Indoor alarm code	LED indication				
		D800	D801	D802	D803	D804
Normal running	None	●	●	●	●	●
IGBT short circuit, Compressor motor rear short	14	●	○	●	●	●
Trouble on position detecting circuit	16	○	○	●	●	●
Trouble on current detecting circuit	17	●	●	○	●	●
OUTDOOR CONDENSOR PIPE TEMPERATURE SENSOR (TE) fault *2	18	○	●	○	○	●
SUCTION PIPE TEMPERATURE SENSOR (TS) fault *2	18	●	●	○	○	●
DISCHARGE PIPE TEMPERATURE SENSOR (TD) fault	19	●	○	○	●	●
Trouble on outdoor fan	1A	○	○	○	●	●
OUTDOOR TEMPERATURE SENSOR (TO) fault	1B	●	●	●	○	●
Trouble on compressor system	1C	○	●	○	●	●
GAS SIDE PIPE TEMPERATURE SENSOR a (TGa) fault	1C	○	○	○	○	●
GAS SIDE PIPE TEMPERATURE SENSOR b (TGb) fault	1C	○	●	●	●	○
GAS SIDE PIPE TEMPERATURE SENSOR c (TGc) fault	1C	○	○	●	●	○
GAS SIDE PIPE TEMPERATURE SENSOR d (TGd) fault *1	1C	●	●	●	●	○
Gas leakage, TS sensor out of place, PMV fault, Sensor fault	1C	●	○	○	●	○
TE sensor out of place, INDOOR EVAPORATOR PIPE SENSOR (TC) out of place, PMV fault, Sensor fault	1C	○	○	○	●	○
Indoor or outdoor miswiring, Gas leakage, TS/TC sensor out of place, PMV fault, Sensor fault	1C	●	●	●	○	○
Communication trouble between MCU	1C	○	○	●	○	○
Compressor lock	1D	○	●	●	○	●
Trouble on discharge temperature, Gas leakage	1E	●	○	●	○	●
Compressor break down	1F	○	○	●	○	●

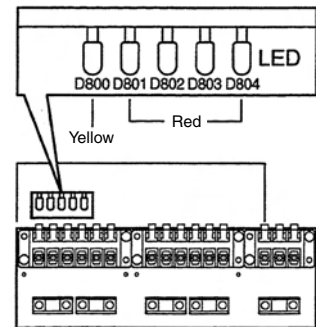
○ : LED ON, ● : LED OFF

*1 4 unit Multi model only

*2 Heat pump model only

- These LEDs do not normally light.

1. If trouble occurs, LED goes on according to the contents of trouble as shown in the table above.
2. When two or more troubles occur, LEDs go on cyclically (alternately).
3. When the trouble is eliminated, LEDs go off.



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