SPLIT-TYPE AIR CONDITIONERS

MS-GA50/60VB

MSH-GA50VB Series MSH-CA50VB

[FLARE CONNECTION TYPE]

R410A outdoor unit, refer to the MS and MSH

When installing an MXZ series type manual for indoor unit set up.

### 1. THE FOLLOWING SHOULD ALWAYS BE **OBSERVED FOR SAFETY**

- Please provide an exclusive circuit for the air conditioner and do not connect other electrical appliances to it. Please report to your supply authority or obtain their consent before connecting this equipment to the power supply system
- Be sure to read "THE FOLLOWING SHOULD ALWAYS BE OBSERVED FOR SAFETY" before installing the air conditioned
- Be sure to observe the cautions specified here as they include important items related to safety.
- The indications and meanings are as follows
- WARNING
- Could lead to death, serious injury, etc.

• After reading this manual, be sure to keep it together with the OPERATING INSTRUCTIONS in a handy place on the customer's site.

- Do not install the unit by yourself (customer). Incomplete installation could cause injury due to fire, electric shock, the unit
- falling or leakage of water. Consult the dealer from whom you purchased the unit or special installe
- Install the unit securely in a place which can bear the weight of the unit. When installed in an insufficient strong place, the unit could fall causing injury.
- Use the specified wires to connect the indoor and outdoor units securely and attach the wires firmly to the terminal block connecting sections so the stress of the wires is not applied to the sections. Incomplete connecting and fixing could cause fire.
- Do not use intermediate connection of the power cord or the extension cord and do not connect many devices to one AC outlet. It could cause a fire or an electric shock due to defective contact, defective
- insulation, exceeding the permissible current, etc. ■ Check that the refrigerant gas do not leak after installation has com-
- If refrigerant gas leaks indoors, and comes into contact with the fire of a fan heater, space heater, stove, etc., harmful substances will be generated. ■ Perform the installation securely referring to the installation manual. Incomplete installation could cause a personal injury due to fire, electric
- shock, the unit falling or leakage of water ■ Perform electrical work according to the installation manual and be sure to use an exclusive circuit. If the capacity of the power circuit is insufficient or there is incomplete electrical work, it could result in a fire or an electric shock.
- Attach the electrical cover to the indoor unit and the service panel to the outdoor unit securely. If the electrical cover in the indoor unit and/or the service panel in the outdoor unit are not attached securely, it could result in a fire or an electric shock due
- to dust, water, etc. ■ Be sure to use the part provided or specified parts for the installation
- The use of defective parts could cause an injury or leakage of water due to a fire, an electric shock, the unit falling, etc. ■ Be sure to cut off the main power in case of setting up the indoor
- It could cause an electric shock. ■ The appliance shall be installed in accordance with national wiring

electronic control P.C. board or wiring works.

■ When installing or relocating the unit, make sure that no substance

**↑** CAUTION Could lead to serious injury in particular environments when operated incorrectly.

- Where cool air spreads over the entire room.
  - and the difference of height of both units is 10 m. Rigid wall without vibration
  - Where it is not exposed to direct sunshine
  - In a place as far away as possible from fluorescent and incandescent lights (so the infrared remote control can operate the air conditioner normally).
  - Where the air filter can be removed and replaced easily.

- Where airflow is good and dustless
- Where rigid wall or support is available to prevent the increase of operation sound
- Where there is no risk of combustible gas leakage.
- When installing the unit at a high level, be sure to fix the unit legs.
  Where it is at least 3 m away from the antenna of TV set or radio. Operation of the
- weak. An amplifier may be required for the affected device. Install the unit horizontally.
- heavy snow, please install a canopy, a pedestal and/or some baffle boards.
- transmitted from there. **⚠** CAUTION
- Salty places such as the seaside

# 2-3 WIRELESS REMOTE CONTROLLER MOUNTING

- Where it is easy to operate and easily visible. Where children can not touch.
- Select a position about 1.2 m above the floor, check that signals from the remote controller are surely received by the indoor unit from that position ('beep' or 'beep

wireless remote controller may not be received.

other than the specified refrigerant (R410A) enters the refrigerant circuit. Any presence of foreign substance such as air can cause abnormal pressure rise or an explosion.

### **FLARED CONNECTIONS**

Remove the outdoor units valve cover, then connect the pipe.

Be careful not to crush or bend the pipe in pipe bending	g.		
Limits			

Pipe length	25 m max.	ĺ
Height difference	10 m max.	ĺ
No. of bends	10 max.	
Refrigerant adjustment  (R4104) shares is required.	If pipe length exceeds 7 m,	addi

(The outdoor unit is charged with refrigerant for pipe length up to 7 m.)

	Up to 7 m	No additional charge is required.		
Pipe length	Eveneding 7 m	Additional charge is required.		
	Exceeding 7 m	(Refer to the table below.)		
Refrigerant to	00//	00 / 1 / 1   1   1   1   1   1   1   1   1		
be added	20 g/m × (r	20 g/m × (refrigerant piping length (m) -7)		

Check the following parts before installation <Indoor unit> Installation plate

Installation plate fixing screw  $4 \times 25$  mm Fixing screw for 3 3.5 × 16 mm (Black **6** Battery (AAA) for remote controller

<Outdoor unit: MUH type B Drain socket

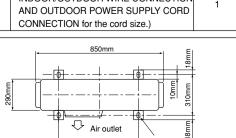
Refrigeration oil

# Optional extension pipe

B Extension pipe Wall hole sleeve 1 Wall hole cover Pipe fixing band (The quantity depends 2 to 5 on the pipe length.

Fixing screw for **(B)** 4 × 20 mm (The 2 to 5 quantity depends on the pipe length.) Piping tape Putty Drain hose (or soft PVC. hose, 15 mm inner dia. or hard PVC pipe VP16)

Power supply cord (See the table in 5



When operating the air conditioner in low outside temperature, be sure to follow the instructions described below. Never install the outdoor unit in a place where its air inlet/

**⚠** CAUTION ■ Earth the unit. Do not connect the earth to a gas pipe, water pipe, lightning rod or telephone earth. Defective earthing could cause an electric shoc ■ Do not install the unit in a place where an inflammable gas leaks.

If gas leak and accumulate in the area surrounding the unit, it could cause an ■ Install an earth leakage breaker depending on the installation place (Where it is humid).

If an earth leakage breaker is not installed, it could cause an electric shock. ■ Perform the drainage/piping work securely according to the installation If there is a defect in the drainage/piping work, water could drop from the unit

and household goods could be wet and damaged Fasten a flare nut with a torque wrench as specified in this manual. When fastened too tight, a flare nut may broken after a long period and cause

## 2. SELECTING THE INSTALLATION LOCATION

### 2-1 INDOOR UNIT Where airflow is not blocked.

- Maximum refrigerant piping length between indoor unit and outdoor unit is 25 m

- At a distance 1 m or more away from your TV and radio. Operation of the air conditioner interferes with radio or TV reception in areas where reception is weak. An amplifier may be required for the affected device.
- 2-2 OUTDOOR UNIT

### • Where it is not exposed to strong wind.

- Where it is not exposed to rain and direct sunshine.
- Where neighbours are not annoyed by operation sound or hot air.
- air conditioner interferes with radio or TV reception in areas where reception is
- Please install it in an area not affected by snowfall or blowing snow. In areas with
- It is advisable to make a piping loop near outdoor unit so as to reduce vibration

Avoid the following places for installation where air conditioner trouble is liable to

- Where flammable gas could leak.
- Where sulfide gas is generated such as a hot spring. Where there is high-frequency or wireless equipmen

# Place of mounting

beep' receiving tone sounds). After that, attach remote controller holder 1 to a pillar or wall and set the wireless remote controller 6. In rooms where inverter type fluorescent lamps are used, the signal from the

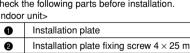
## 3. INSTALLATION DIAGRAM & ACCESSORIES

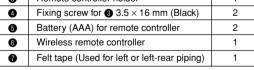
This unit has flared connections on both indoor and outdoor sides

Refrigerant pipes are used to connect the indoor and outdoor units.

Limits		
Pipe length	25 m max.	
Height difference	10 m max.	
No. of bends	10 max.	

	Up to 7 m	No additional charge is required.
Pipe length	Exceeding 7 m	Additional charge is required.
		(Refer to the table below.)
Refrigerant to be added	20 g/m × (refrigerant piping length (m) -7)	

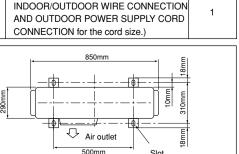




# Opening the property of the

# PART TO BE PROVIDED AT YOUR SITE

(2-core 1.0 mm<sup>2</sup>-2.0 mm<sup>2</sup>)



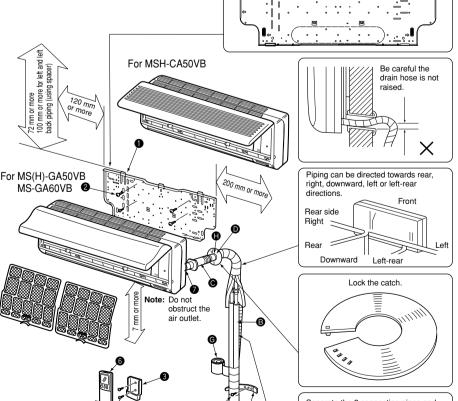
Specifications

Jse the refrigerant pipes that meet the following specifications.					
e		Outside diameter	Insulation thickness	Inculation motorial	
		mm	mm	Insulation material	
For liquid		6.35	8		
	MS(H)-GA50	12.7	8	Heat resisting foam plastic 0.045	
gas	MSH-CA50	12.7		specific gravity	
	MS-GA60	15.88	8		
			ss pipe with a thicknes		

than 0.8 mm (for ø6.35, 9.52, 12.7) or 1.0 mm (for ø15.88), as the pressure resistance is insufficient.

② Ensure that the 2 refrigerant pipes are insulated to prevent condensation 3 Refrigerant pipe bending radius must be 100 mm or more.

**⚠** CAUTION Be sure to use the insulation of specified thickness. Excessive thickness may cause incorrect installation of the indoor unit and lack of thickness may cause Decide the installation position using mark on the installation



# eparate the 2 connecting pipes and wall containing metals (tin plated) or metal netting, use a chemically treate between the wall and the piping or wrap 7 to 8 turns of insulation vinyl

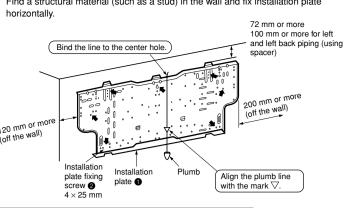
Units should be installed by licensed contractor

### outlet side may be exposed directly to wind. To prevent exposure to wind, install the outdoor unit with its

air inlet side facing the wall. To prevent exposure to wind, it is recommended to install a baffle board on the air outlet side of the outdoor unit.

# 4-1 FIXING OF INSTALLATION PLATE • Find a structural material (such as a stud) in the wall and fix installation plate

4. INDOOR UNIT INSTALLATION



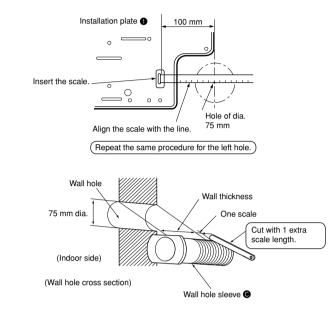
To prevent the installation plate from vibrating, be sure to fix the holes as indicated by the arrows 1.

When bolts recessed in the concrete wall are to be utilized, secure the installation plate  $\bullet$  using  $11 \times 20 \cdot 11 \times 26$  oval hole (450 mm pitch). If the recessed bolt is too long, change it for a shorter one available in the market.

### 4-2 WALL HOLE DRILLING

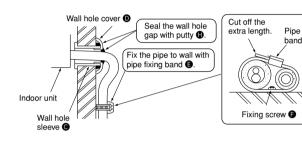
 Determine the wall hole position 2) Drill a 75 mm hole so that outside can be lower than inside. Insert the wall hole sleeve **©**.

## Positioning of the holes on the wall



Be sure to use wall hole sleeve **©** to prevent the outdoor connecting wires from contacting with metal part in the wall and to prevent damage by rat in case the wall

### Wall hole sealing and fixing pipe to wall



Be sure to fix the indoor/outdoor unit

Be sure to attach the service panel of the outdoor unit securely. If it is not attached

6. INDOOR/OUTDOOR UNIT CONNECTION

INSTALLATION INFORMATION FOR THE AIR CONDI-

Pay particular attention to the following points, though the basic installation

This room air conditioner adopts an HFC refrigerant (R410A) which will never destroy

As R410A has a working pressure approx. 1.6 times as high as that of R22, some

Take sufficient care not to allow water and other contaminations to enter the

For refrigerant piping, use clean, pressure-proof parts / materials specifically

Composition change may occur in R410A since it is a mixed refrigerant. When

6-1 Tools dedicated for the air conditioner with R410A

The diameter of the service port on the stop valve in outdoor unit has been changed to

prevent any other refrigerant being charged into the unit. (Cap size has been changed

Description

rement range of existing gauges.

to improve the pressure resistance.

Dedicated for HFC refrigerant

the spring strength in the tool.

1/2 and 5/8

No: Not substitutable for R410A Yes: Substitutable for R410A

R410A has high pressures beyond the meas-

any other refrigerant from being charged into the

Hose material and cap size have been changed

Clamp bar hole has been enlarged to reinforce

Provided for flaring work (to be used with R22

Provided to prevent the back flow of oil. This

adapter enables you to use existing vacuum

It is difficult to measure R410A with a charging

cylinder because the refrigerant bubbles due to

high pressure and high-speed vaporization.

Port diameters have been changed to prever

The following tools are required for R410A refrigerant. Some R22 tools can be

charging, charge liquid refrigerant to prevent composition change.

special tools and piping parts / materials are required. (Refer to the table below.)

R410A refrigerant during storage and installation, since it is more susceptible to

correctly, it could result in a fire or an electric shock due to dust, water, etc.

FINISHING AND TEST RUN

**TIONER WITH R410A REFRIGERANT** 

procedure is same as that for R22 air conditioned

designed for R410A. (Refer to 2. Refrigerant piping.)

rom 7/16 UNF with 20 threads to 1/2 UNF with 20 threads.)

R410A tools Can R22 tools be used?

the ozone laver.

contaminations than R22.

substituted for R410A tools.

Gauge manifole

Charge hose

Gas leak detector

Torque wrench

Flare tool

Flare gauge

Electronic scale

for refrigerant

charging

## 4-3 CONNECTING WIRE SPECIFICATIONS

Power supply cord length (Lead to left/Lead to right)	1 m/2 m
Indoor/outdoor unit connecting wire Specification	Cable 2-core 1.0 mm², in conformity with Design 245 IEC 57.

 Take out power supply cord from the left or right bottom corner of the indoor unit. Connect to the power switch which has a gap of 3 mm or more when open to (When the power switch is shut off, it must interrupt all phases.) <Connection details> **↑** CAUTION This plug has to be the one meets the Standards.) Power supply cord Green/Yellow : Ground Blue : N

MS type

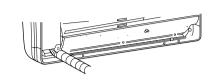
Do not bundle the spare wire, but put it as shown below

Use special room air conditioning circuit.

errupt the source power phase

Rated Voltage/Frequency: 230 V/50 Hz)

(Input capacity Main switch/Fuse : 10 A)

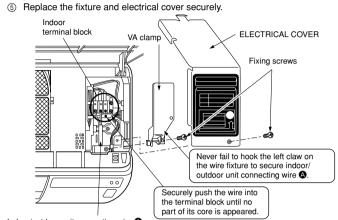


# 4-4 INDOOR AND OUTDOOR CONNECTING WIRE CON-

NARNING

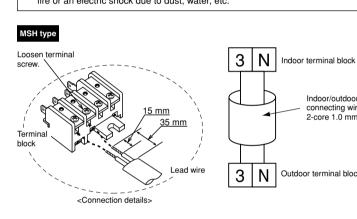
Never cut the indoor and outdoor unit connecting wire and connect it to other wires.

- You can connect indoor/outdoor lead wire without removing the front panel. Open the front panel. Remove one screw holding the electrical cover, then remove the cover.
- Remove the VA clamp and the cord clamp. Pass the indoor/outdoor unit connecting wire from the back of the indoor unit and process the end of the wire, then connect it to the terminal block.



**↑** WARNING Use the indoor/outdoor unit connecting wire that meets the Standards to connect

the indoor and outdoor units and fix the wire to the terminal block securely so that no external force is conveyed to the connecting section of the terminal block. Incomplete connection or fixing of the wire could result in a fire. Attach the electrical cover securely. If it is attached incorrectly, it could result in a fire or an electric shock due to dust, water, etc.



6-2 FLARING WORK

Pipe cutting

2) Burrs removal

burr removal.

ø12.7

ø15.88

4 Flaring work

Outside diameter

ø6.35 mm

ø12.7 mm

ø15.88 mm

avoid to let burrs drop in the piping.

into the square hole of the

screws to open the

service panel.

Main cause of gas leakage is defect in flaring work.

Cut the copper pipe correctly with pipe cutter.

Carry out correct flaring work in the following procedure.

Completely remove all burrs from the cut cross section of pipe

Remove flare nuts attached to indoor and outdoor Flare nut

units, then put them on pipe having completed

(not possible to put them on after flaring work)

Flare nut for R410A pipe differs from R22 pipe.

Carry out flaring work using flaring tool as shown below

Wing nut type

clutch type

Compare the flared work with figure below

Flare tool for R410A

0 to 0.5

0 to 0.5

0 to 0.5

Firmly hold copper pipe in a die in the dimension shown in the table above.

If flare is noted to be defective, cut off the flared section and do flaring work again

Clutch type

1.0 to 1.5

1.0 to 1.5

1.0 to 1.5

Inside is shining without any scratches

Wing nut type

1.5 to 2.0

2.0 to 2.5

2.0 to 2.5

Refer to the following table for detail.

Put the end of the copper pipe to downward direction as you remove burrs in order to

## Be careful not to make mis-wiring.

- Firmly tighten the terminal screws to prevent them from loosening. After tightening, pull the wires lightly to confirm that they do not move.
- If the connecting wire is incorrectly connected to the terminal block, the unit does • If an earth is incorrect, it may cause an electric shock.

### 4-5 AUTO RESTART FUNCTION

• These models are equipped with an auto restart function. If you do not want to use this function, please consult the service representative because the setting of the unit needs to be changed.

Make earth wire a little longer than the others. (more than 35 mm)

• When the indoor unit is controlled with the remote controller, the operation mode, the set temperature, and the fan speed are memorized by the indoor electronic control P.C. board. The auto restart function sets to work the moment the power has restored after power failure, then, the unit will restart automatically. If the unit is operated in "I FEEL..." or "AUTO" mode before power failure, the operation mode (COOL, DRY or HEAT) is not stored in the memory. When the main power is turned on, the unit decides the operation mode by the initial room temperature at restart and starts operation again.

① If the main power has been cut, the operation settings remain. ② When three minutes have passed after power was restored, the unit will restart automatically according to the memory.

# • The operation settings are memorized when 10 seconds have passed after the

- If the main power is turned off or a power failure occurs while AUTO START/STOP timer is active, the timer setting is cancelled. As these models are equipped with an auto restart function, the air conditioner starts operating with timer cancelled at the same time that power is restored
- If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is off. • To prevent breaker off due to the rush of starting current, systematize other home appliances not to turn on at the same time.

### 4-6 PIPE FORMING

6-3 PIPE CONNECTION

Connect both liquid and gas pipings to indoor unit.

Indoor unit connection

Pipe diameter

Outdoor unit connection

applied for indoor unit.

**INSULATION AND TAPING** 

Cover piping joints with pipe cover

Fasten a flare nut with a torque wrench as specified in the table below.

Apply a thin coat of refrigeration oil on the seat surface of pipe.

Tightening torque

For outdoor unit side, surely insulate every piping including valves. Using piping tape **6**, apply taping starting from the entry of outdoor unit. Stop the end of piping tape with tape (with adhesive agent attached).

6-4 PURGING PROCEDURES-LEAK TEST

stop valve on the gas pipe side of the outdoor unit.

valve, and stop the vacuum pump.

both sides of gas pipe and liquid pipe.

[Gauge] (-760 mmHg).

Run the vacuum pump. (Vacuumize for more than 15 minutes.)

When piping have to be arranged through above ceiling, closet or where the

temperature and humidity are high, wind additional commercially sold insulation for

**PURGING PROCEDURES** 

Connect the refrigerant pipes (both liquid pipe and the gas pipe) between the indoor

Remove the service port cap of the stop valve on the side of the outdoor unit gas

pipe. (The stop valve will not work in it initial state fresh out of the factory (totally

Connect the gauge manifold valve and the vacuum pump to the service port of the

Check the vacuum with the gauge manifold valve, then close the gauge manifold

Leave as it is for one or two minutes. Make sure the pointer gauge manifold valve

Remove the gauge manifold valve quickly from the service port of the stop valve

After refrigerant pipes are connected and evacuated, fully open all stop valves on

Operating without fully opening lowers the performance and this causes trouble

Leak test

remains in the same position. Confirm that the pressure gauge shows-0.101 Mpa

N·m kgf·cm 13.7 to 17.7 140 to 180

49.0 to 56.4 500 to 575

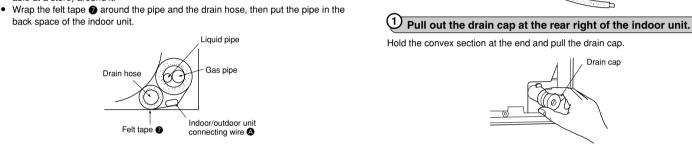
When fastened too tight, a flare nut may broken after a long period and cause a leakage

 For connection first align the center, then tighten the first 3 to 4 turns of flare nut. Use tightening torque table below as a guideline for indoor unit side union joint

section, and tighten using two wrenches. Excessive tightening damages the flare

remote controller was operated

- Place the drain hose below the refrigerant piping. • Make sure that the drain hose is not heaved or snaked. • Do not pull the hose to apply the tape.
- When the drain hose passes the room, be sure to wrap insulation material (obtainable at a store) around it



### FOR REAR, RIGHT OR DOWNWARD PIPING

part of the indoor unit on the installation plate 1.

FOR LEFT OR LEFT-REAR PIPING

hose is not heaved

Firmly apply felt tape 7 from the end

REATTACHING DRAIN HOSE

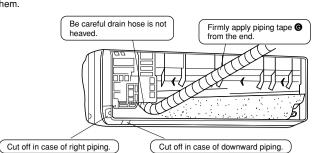
(Felt tape f) overlap width should be 1/3 the tape width.)

• Thrust the lower part of the indoor unit into the installation plate ①

unit to left and right.

Pipe arrangement

 Pipe arrangement Put the refrigerant piping and the drain hose together, then apply piping tape 6 to



Check if the indoor unit is hooked securely on the installation plate 

 by moving the

Put the refrigerant piping and the drain hose together, then apply felt tape 10 to them.

Be sure to reattach the drain hose and the drain cap in case of left or left-rear piping.

Otherwise, it could cause drops of water to drip down from the drain hose.

2 Pull out the drain hose at the rear left of the indoor unit.

13.7 to 17.7

Wrong wiring prevents normal operation or results in blown fuse disabling operation

the EMERGENCY OPERATION switch is once pressed, the unit will start the test run

A thermostat does not work during this time. After 30 minutes the unit will start the

The test run can be started by pressing EMERGENCY OPERATION switch. When

Tightening torque

140 to 180

200 to 300

Hold the claw marked by the arrow and pull out the drain hose forward

( Cut off in case of downward piping.

Cut off in case of left piping.

Use a bandage stopper at the end of felt tape **7**.

 $\overset{4}{ ext{ o}}$  Insert the drain hose into the section to which the drain hose is to be attached at the rear right of the indoor unit. Insert the piping and the drain hose into the wall hole sleeve (a), and hook the upper

insert the cap fully into the drain pan.

Insert the drain hose fully into the drain pan. Check if the hose is hooked securely to the projection of its inserting part at the drain par

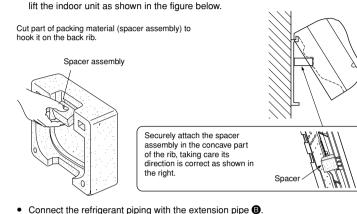


3 Put the drain cap into the section to which the drain hose is to be

Insert the screwdriver, etc. (not sharp-edged tool) into the hole at the end of the cap and

attached at the rear of the indoor unit

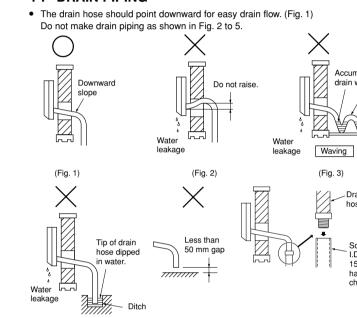
INDOOR UNIT INSTALLATION • Insert the drain hose into the wall hole sleeve ②, and hook the upper part of indoor unit on the installation plate 1. Then, move the unit to the very edge of the left side for putting the piping easily in the back space of the indoor unit. After that



Thrust the lower part of the indoor unit into the installation plate

### 4-7 DRAIN PIPING

(Fig. 4)



• If the drain hose provided with the indoor unit is too short, connect it with drain hose **1** that should be provided at your site. • If the extension drain hose has to pass through a room, be sure to wrap it with commercially sold insulation.

(Fig. 5)

### NECTION AND OUTDOOR POWER SUPPLY CORD CONNECTION • Connect the indoor/outdoor unit connecting wire (A) from the indoor unit correctly

INDOOR/OUTDOOR UNIT CONNECTING WIRE CON-

5. OUTDOOR UNIT INSTALLATION

on the terminal block. • For future servicing, give extra length to connecting wire. Voltage capacity

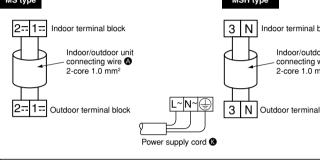
Connect to the supply terminals and leave a contact separation of at least 3 mm at each pole to discon-15 A nect the source power pole. (When the power switch

is shut off, it must disconnect all poles.) Peel off both ends of connecting wire (extension wire). When too long, or connected by cutting off the middle. peel off power supply wire to the size as shown in the Be careful not to contact connecting wire with piping.

> (more than 35 mm) • For the power supply cord and the indoor/outdoor unit connecting wires, be sure to use the ones in compliance with the standards.

		Power supply cord Specification	3-core 1.5 mm <sup>2</sup> or more, in conformity with Design 245 IEC 57.	10 m or les
			3-core 2.5 mm <sup>2</sup> or more, in conformity with Design 245 IEC 57.	15 m or les
	MSH -CA50		3-core 4.0 mm <sup>2</sup> or more, in conformity with Design 245 IEC 57.	25 m or les
		Indoor and Outdoor connecting wire Specification	Cable 2-core 1.0 mm², in conformity with Design 245 IEC 57.	
MS-GA60			3-core 2.5 mm <sup>2</sup> or more, in conformity with Design 245 IEC 57.	10 m or les
		Power supply cord Specification	3-core 4.0 mm <sup>2</sup> or more, in conformity with Design 245 IEC 57.	15 m or les
			3-core 6.0 mm <sup>2</sup> or more, in conformity with Design 245 IEC 57.	25 m or les
		Indoor and Outdoor connecting wire	Cable 2-core 1.0 mm²,	

A means for disconnection of the supply with an isolation switch, or similar device, in all active conductors shall be incorporated in the fixed wiring. Never cut the power cord and connect it to other wires. It may cause a fire.



After tightening, pull the wires lightly to confirm that they do not move.

If the connecting wire is incorrectly connected to the terminal block, the unit

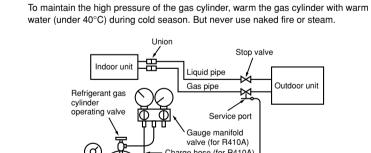
 Use care not to make mis-wiring. Firmly tighten the terminal screws to prevent them from loosening.

does not operate normally.

Replenish specified amount of the refrigerant, while operating the air conditioner

## Do not discharge the refrigerant into the atmosphere Take care not to discharge refrigerant into the atmosphere during installation

ability of the refrigerating cycle decreases or normal operation can be impossible. However, charging the liquid refrigerant all at once may cause the compressor to be locked. Thus, charge the refrigerant slowly.



### EMERGENCY OPERATION at a fixed temperature setting of 24°C in COOL MODE Perform test run in the following procedure.

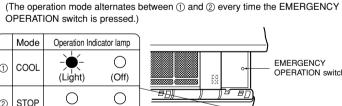
(continuous operation) for 30 minutes

Cap for service port

6-5 TEST RUN

MS type

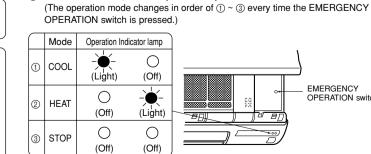
Press it once, and after test run for 30 minutes the EMERGENCY COOL MODE starts. Press it once more, and the operation stops



**PROCEDURE** 

• The test run can be started by pressing EMERGENCY OPERATION switch. When the EMERGENCY OPERATION switch is once pressed, the unit will start the test run (con tinuous operation) for 30 minutes. A thermostat does not work during this time. After 30 minutes the unit will start the

Wrong wiring prevents normal operation or results in blown fuse disabling operation



 In starting the heating operation, indoor unit fan may not operate to prevent blowing cool air. Please wait for a few minutes until the temperature of heat exchanger rises and warm air blows out

### Pipe length up to 7 m Pipe length exceeding 7 m Charge the prescribed amount No gas charge is needed of gas. (refer to 3) Once the compressor stops, the restart preventive device operates so the compresso will not operate for three minutes to protect the air conditioner. Tighten the cap to the service port to obtain the initial status

Gauge manifold

Charge hose

Adapter for prevent the

➤ Handle High

(or the vacuu

back flow)

### PROCEDURE Connect pipes to stop valve pipe joint of the outdoor unit in the same manner applied Press the EMERGENCY OPERATION switch. • For tightening, use a torque wrench or spanner and use the same tightening torque

Cap for stop valve 19.6 to 29.4

Before performing the test run, recheck for any wrong wiring.

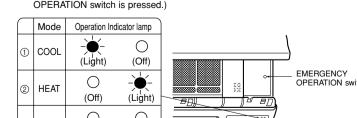
(Off) MSH type Before performing the test run, recheck any wrong wiring

EMERGENCY OPERATION at a fixed temperature setting of 24°C in COOL MODE or HEAT MODE. Perform test run in the following procedure.

Press the EMERGENCY OPERATION switch.

Press it once more, and the operation stops

### Depress it once, and after test run for 30 minutes the EMERGENCY COOL MODE starts. If the left side lamp of the operation indicator blinks every 0.5 seconds, inspect the idoor/outdoor unit connecting wire 🔕 for mis-wiring. Press it once more, and the EMERGENCY HEAT MODE starts.



MS type and MSH type

### Checking the remote (infrared) signal reception Press the ON/OFF button on the remote controller and check that an electronic sound is

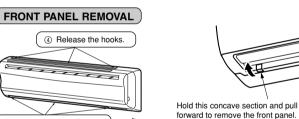
heard from the indoor unit. Press the ON/OFF button again to turn the air conditioner off. If the indoor unit is operated with the remote controller, both the test run and the emergency operation are released by commands from

6-6 EXPLANATION TO THE CUSTOMER Using the OPERATING INSTRUCTIONS, explain the following to the customer, how to control temperature, how to remove the air filters, how to remove or put the remote

controller in the remote controller holder, how to clean, precautions for operation, etc.

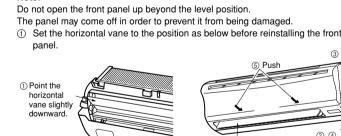
Recommend the customer to read the OPERATING INSTRUCTIONS carefully.

### 7. FOR MOVEMENT AND MAINTENANCE 7-1 REMOVING AND REINSTALLING THE FRONT PANEL



② Remove three screws. (3) Pull the bottom. FRONT PANEL REINSTALLATION

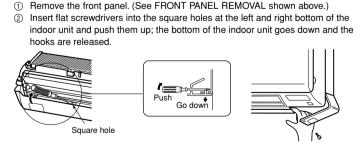
Remove the screw caps.



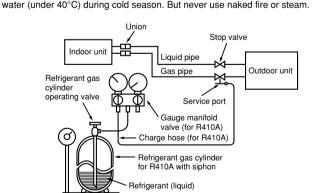
Attach the bottom of the front panel under the horizontal vane. Fit in the top of the front panel Fit in the bottom of the front panel and tighten it using screws. ⑤ Push the section of the front panel marked by the arrow and fit the panel into the

Remove the bottom of the indoor unit from the installation plate.

7-2 REMOVING THE INDOOR UNIT



### reinstallation, or repairs to the refrigerant circuit. For additional charging, charge the refrigerant from liquid phase of the

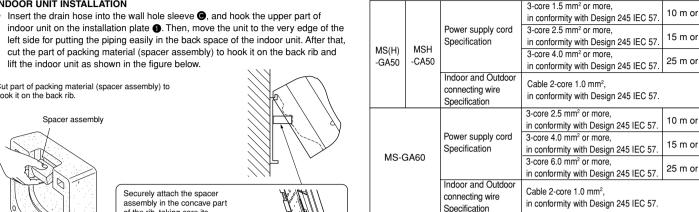


# the following EU regulations: • Electromagnetic Compatibility Directive 89/336/

KU. TOKYO 100-8310. JAPAN

# EEC

 Make earth wire a little longer than the others. Be sure to push the core until it is hidden and pull each cable to make sure that it is not pulled up incomplete insertion may cause a risk of burning the terminal



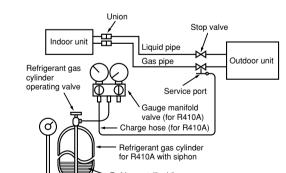
MSH type

# **⚠** CAUTION

### 7-3 GAS CHARGE Connect gas cylinder to the service port of stop valve (3-way). Execute air purge of the pipe (or hose) coming from refrigerant gas cylinder.

In case of adding refrigerant, comply with the quantity specified for the refrigerating :\ CAUTION

If the refrigerant is charged from the gas phase, composition change may occur in the refrigerant inside the cylinder and the outdoor unit. In this case,



# Electronic scale for refrigerant charging

This product is designed and intended for use in the residential, commercial and The product at hand is based on • Low Voltage Directive 73/23/ EEC

MITSUBISHI ELECTRIC CORPORATION HEAD OFFICE: MITSUBISHI DENKI BLDG., 2-2-3, MARUNOUCHI, CHIYODA-

3 N Indoor terminal block