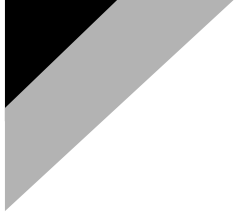
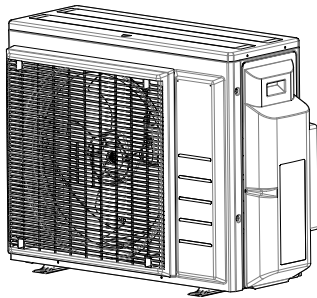


DAIKIN



INSTALLATION MANUAL

R32 Split Series



Models

3MXM40N2V1B

3MXM52N2V1B

3AMXM52M3V1B

3MXM68N2V1B

4MXM68N2V1B

4MXM80N2V1B

5MXM90N2V1B

Safety precautions



Read the precautions in this manual carefully before operating the unit.



This appliance is filled with R32.

- The precautions described herein are classified as WARNING and CAUTION. They both contain important information regarding safety. Be sure to observe all precautions without fail.
- Meaning of WARNING and CAUTION notices

- WARNING Failure to follow these instructions properly may result in personal injury or loss of life.**
- CAUTION Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.**

- The safety marks shown in this manual have the following meanings:

Be sure to follow the instructions.	Be sure to establish an earth connection.	Never attempt.
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- After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual.
- The original instructions are written in English. All other languages are translations of the original instructions.

WARNING

The unit is accompanied with the label below. Please read the following instructions carefully.



- When the refrigeration circuit has a leak, do not execute pump down with the compressor.
- Use recovery system into separate cylinder.
- Warning, explosive hazard exists when executing pump down.
- Pump down with compressor can lead to self-combustion due to air entering during pump down.

Used symbols:

- ¹⁾ Warning sign (ISO 7010 – W001)
- ²⁾ Warning, Explosive material (ISO 7010 – W002)
- ³⁾ Read Operator's manual (ISO 7000 – 0790)
- ⁴⁾ Operator's manual; operating instructions (ISO 7000 – 1641)
- ⁵⁾ Service indicator; read technical manual (ISO 7000 – 1659)

WARNING

- Ask your dealer or qualified personnel to carry out installation work.
Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the air conditioner in accordance with the instructions in this installation manual.
Improper installation may result in water leakage, electric shocks or fire.
- Only use accessories, optional equipment and spare parts made or approved by Daikin.
Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Install the air conditioner on a foundation strong enough to withstand the weight of the unit.
A foundation of insufficient strength may result in the equipment falling and causing injury.
- Electrical work must be performed in accordance with relevant local and national regulations and with instructions in this installation manual. Be sure to use a dedicated power supply circuit only.
Insufficiency of power circuit capacity and improper workmanship may result in electric shocks or fire.
- Use a cable of suitable length.
Do not use tapped wires or an extension lead, as this may cause overheating, electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
Improper connections or securing of wires may result in abnormal heat build-up or fire.
- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the service cover can be securely fastened.
Improper positioning of the service cover may result in electric shocks, fire or over heating terminals.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- If refrigerant gas leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant gas comes into contact with fire.



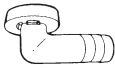
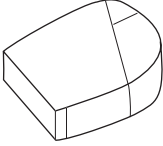
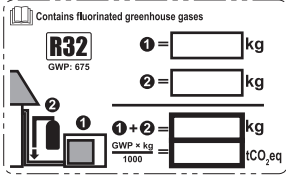
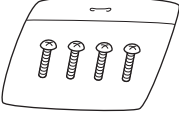
Safety precautions

After completing installation, check for refrigerant gas leakage. Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.	
When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure it is free of air, and use only the specified refrigerant (R32). The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.	
During installation, attach the refrigerant piping securely before running the compressor. If the refrigerant pipes are not attached and the stop valve is open when the compressor is run, air will be sucked in, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.	
During pump-down, stop the compressor before removing the refrigerant piping. If the compressor is still running and the stop valve is open during pump-down, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.	
Be sure to earth the air conditioner. Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks.	
Be sure to install an earth leakage breaker. Failure to install an earth leakage breaker may result in electric shocks or fire.	
Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.	
The appliance must be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).	
Do not pierce or burn.	
Be aware that refrigerants may not contain an odour.	
This appliance must be installed, operated and stored in a room larger than the minimum required floor area.	
Comply with national gas regulations.	

 CAUTION	
Do not install the air conditioner at any place where there is a danger of flammable gas leakage. In the event of a gas leakage, build-up of gas near the air conditioner may cause a fire to break out.	
While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate piping to prevent condensation. Improper drain piping may result in indoor water leakage and property damage.	
Tighten the flare nut according to the specified method such as with a torque wrench. If the flare nut is too tight, it may crack after prolonged use, causing refrigerant leakage.	
Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.	
The temperature of refrigerant circuit will be high, please keep the inter-unit wire away from copper pipes that are not thermally insulated.	
This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial and household use by lay persons.	
Sound pressure level is less than 70 dB(A).	
Provide a logbook and machine card. In accordance with the applicable legislation, it may be necessary to provide a logbook with the equipment containing at least: info on maintenance, repair work, results of tests, stand-by periods, ...	
- The following information shall be provided at an accessible place of the system: -instructions for shutting down the system in case of an emergency -name and address of fire department, police and hospital -name, address and day & night telephone numbers for obtaining service. In Europe, EN378 provides the necessary guidance for this logbook.	

Accessories

Accessories supplied with the outdoor unit:

Ⓐ Installation Manual + R32 Manual	1	Ⓑ Drain plug  It is on the bottom of the packing case.			1
Ⓒ Reducer assembly  It is on the bottom of the packing case.	1				
Ⓔ Refrigerant charge label 	1	Ⓓ Screw bag (For fixing electrical wire anchor bands)  It is on the bottom of the packing case.			1
Ⓕ Multilingual fluorinated greenhouse gases label  It is on the bottom of the packing case.	1	Ⓖ Drain cap (1) 	6	Ⓖ Drain cap (2) 	3

Precautions for selecting the location

- 1) Choose a place solid enough to bear the weight and vibration of the unit, where the operation noise will not be amplified.
- 2) Choose a location where the hot air discharged from the unit or the operation noise will not cause a nuisance to the neighbours of the user.
- 3) Avoid places near a bedroom and the like, so that the operation noise will cause no trouble.
- 4) There must be sufficient spaces for carrying the unit into and out of the site.
- 5) There must be sufficient space for air passage and no obstructions around the air inlet and the air outlet.
- 6) The site must be free from the possibility of flammable gas leakage in a nearby place.
- 7) Install units, power cords and inter-unit wire at least 3m away from television and radio sets. This is to prevent interference to images and sounds. (Noises may be heard even if they are more than 3m away depending on radio wave conditions.)
- 8) In coastal areas or other places with salty atmosphere of sulfate gas, corrosion may shorten the life of the air conditioner.
- 9) Since water will flow from the drain of the outdoor unit, do not place under the unit anything which must be kept away from moisture.

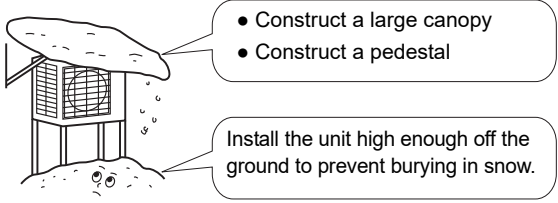
NOTE

Cannot be installed hanging from ceiling or stacked.


CAUTION

When operating the air conditioner in a low outdoor ambient temperature, be sure to follow the instructions described below.

- To prevent exposure to wind, install the outdoor unit with its suction side facing the wall.
- Never install the outdoor unit at a site where the suction side may be exposed directly to wind.
- To prevent exposure to wind, it is recommended to install a baffle plate on the air discharge side of the outdoor unit.
- In heavy snowfall areas, select an installation site where the snow will not affect the unit.



Indoor/outdoor unit installation drawings

For installation of the indoor units, refer to the installation manual which was provided with the units.
(The diagram shows a wall-mounted indoor unit.)

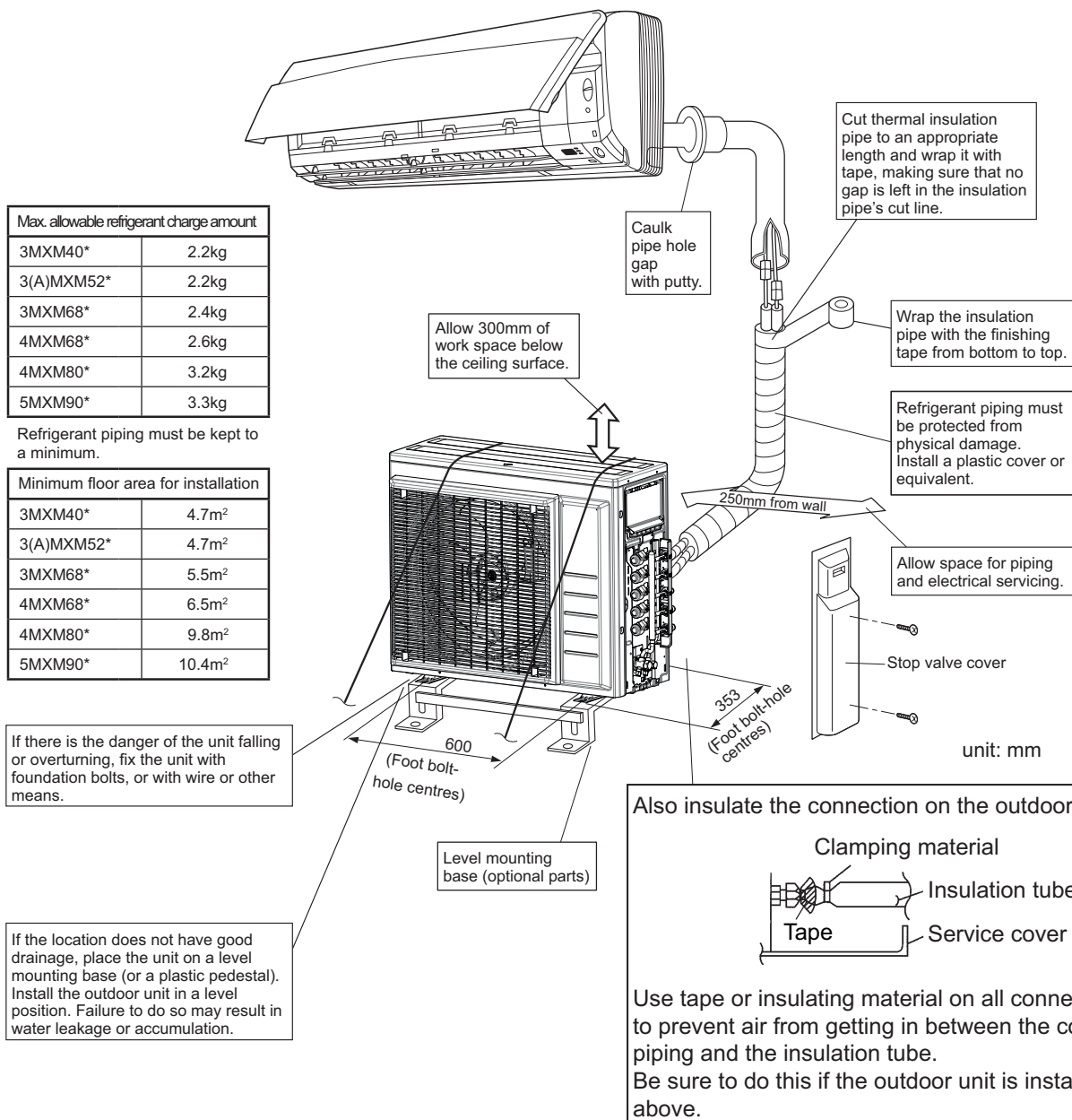
⚠ CAUTION

- Do not connect the embedded branch piping and the outdoor unit when only carrying out piping work without connecting the indoor unit in order to add another indoor unit later.
Make sure no dirt or moisture gets into either side of the embedded branch piping.
See **"6. Refrigerant piping work"** on page 11 for details.
- It is impossible to connect the indoor unit for one room only. **Be sure to connect at least 2 rooms.**

NOTE:

The DHW generator for Multi or the Hybrid for Multi are considered as one room connection.

For the correct combination see the combination table and the installation manual of the DHW generator for Multi or the Hybrid for Multi.



Installation

- Install the unit horizontally.
- The unit may be installed directly on a concrete verandah or a solid place if drainage is good.
- If the vibration may possibly be transmitted to the building, use a vibration-proof rubber (field supply).

1. Connections (connection port)

Install the indoor unit according to the table below, which shows the relationship between the class of indoor unit and the corresponding port.

The total indoor unit class that can be connected to this unit:

Heat pump type: 3MXM40* - Up to 7.0 kW 4MXM68* - Up to 11.0 kW
 3MXM52* - Up to 9.0 kW 4MXM80* - Up to 14.5 kW
 3AMXM52* - Up to 9.0 kW 5MXM90* - Up to 15.6 kW
 3MXM68* - Up to 11.0 kW

Port	3MXM40*	3MXM52* 3AMXM52*
A	15 , 20 , 25 , 35	15 , 20 , 25 , 35
B	# 15, 20, 25, 35	# 15, 20, 25, 35, 42 , 50
C	# 15, 20, 25, 35	# 15, 20, 25, 35, 42 , 50
Port	3MXM68*	4MXM68*
A	15 , 20 , 25 , 35	15 , 20 , 25 , 35
B	# 15, 20, 25, 35, 42 , 50 , 60	15 , 20 , 25 , 35
C	# 15, 20, 25, 35, 42 , 50 , 60	# 15, 20, 25, 35, 42 , 50 , 60
D		# 15, 20, 25, 35, 42 , 50 , 60
Port	4MXM80*	5MXM90*
A	15 , 20 , 25 , 35	15 , 20 , 25 , 35
B	# 15, 20, 25, 35, 42 , 50 , 60	15 , 20 , 25 , 35
C	# 15, 20, 25, 35, 42, 50, 60, 71	# 15, 20, 25, 35, 42 , 50 , 60
D	# 15, 20, 25, 35, 42, 50, 60, 71	# 15, 20, 25, 35, 42, 50, 60, 71
E		# 15, 20, 25, 35, 42, 50, 60, 71

○ : Use a reducer to connect pipes.

: Use No. 2 and 4 reducers.

△ : Use No. 5 and 6 reducers.

□ : Use No. 1 and 3 reducers.

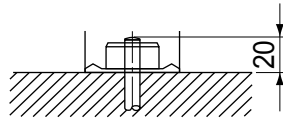
Refer to "How to Use Reducers" on page 12 for information on reducer numbers and their shapes.

NOTE:

- For the DHW generator for Multi use the same reducer as for the 20 class indoor unit.
- For the Hybrid for Multi see the indoor installation manual for a correct capacity class and the applicable reducer.

Precautions on installation

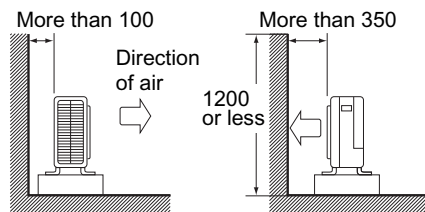
- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installed.
- In accordance with the foundation drawing in fix the unit securely by means of the foundation bolts. (Prepare 4 sets of M8 or M10 foundation bolts, nuts and washers each which are available on the market.)
- It is best to screw in the foundation bolts until their ends are 20mm from the foundation surface.



Outdoor unit installation guideline

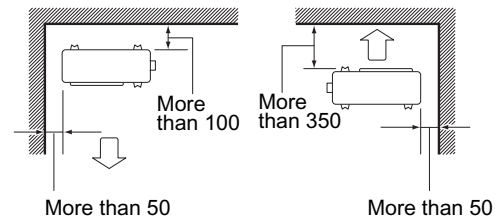
- Where a wall or other obstacle is in the path of outdoor unit's inlet or outlet airflow, follow the installation guidelines below.
- For any of the below installation patterns, the wall height on the exhaust side should be 1200mm or less.

Wall facing one side



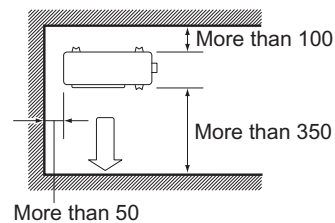
Side view

Walls facing two sides



Top view

Walls facing three sides



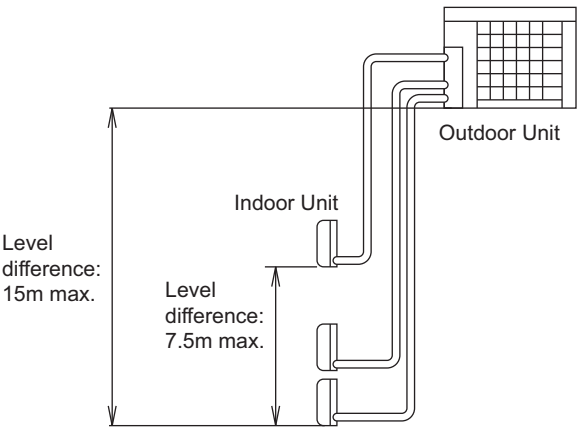
Top view

unit: mm

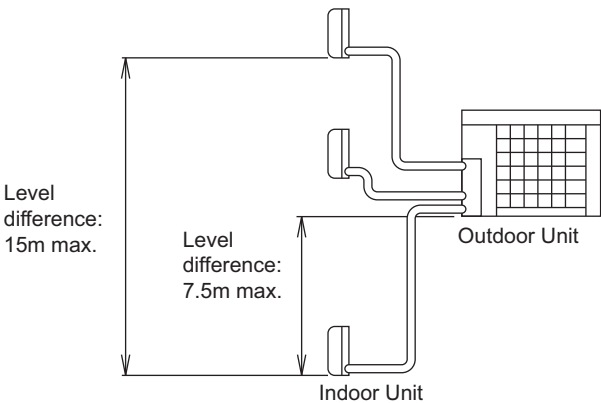
Selecting a location for installation of the Indoor units

- The maximum allowable length of refrigerant piping, and the maximum allowable height difference between the outdoor and indoor units, are listed below.
(The shorter the refrigerant piping, the better the performance. Connect so that the piping is as short as possible. **Shortest allowable length per room is 3m.**)

Outdoor unit capacity class	3MXM40*	3MXM52* 3AMXM52*	3MXM68*	4MXM68*	4MXM80*	5MXM90*
Piping to each indoor unit	25 m max.	25 m max.	25 m max.	25 m max.	25 m max.	25 m max.
Total length of piping between all units	50 m max.	50 m max.	50 m max.	60 m max.	70 m max.	75 m max.



If the outdoor unit is positioned higher than the indoor units.



If the outdoor unit is positioned otherwise.
(If lower than one or more indoor units)

NOTE:
For the DHW generator for Multi and the Hybrid for Multi see the indoor installation manual to confirm the specific installation requirements for the allowable length and the maximum allowable height difference.

Refrigerant piping work

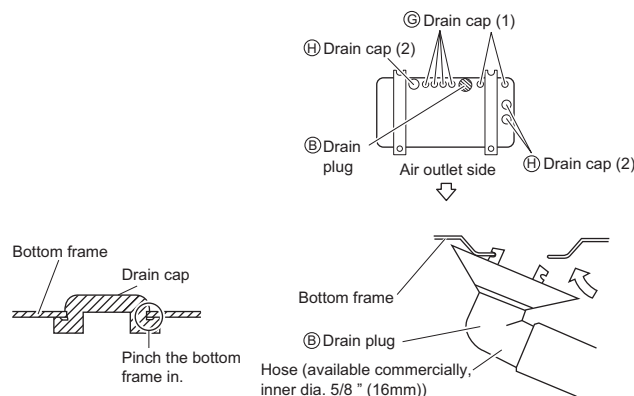
1. Installing outdoor unit

- 1) When installing the outdoor unit, refer to “**Precautions for Selecting the Location**” on page 3 and the “**Outdoor Unit Installation Drawings**” on page 4.
- 2) If drain work is necessary, follow the procedures below.

2. Drain work

- If the drain port is covered by a mounting base or floor surface, place additional foot bases of at least 1-1/4 inch (30mm) in height under the outdoor unit's feet.
- In cold areas, do not use a drain plug, drain caps (1,2) and a drain hose with the outdoor unit. (Otherwise, the drain water may freeze, impairing heating performance.)

- 1) Attach ⑥ drain cap (1) and ⑨ drain cap (2).
- 2) Attach ⑧ drain plug.

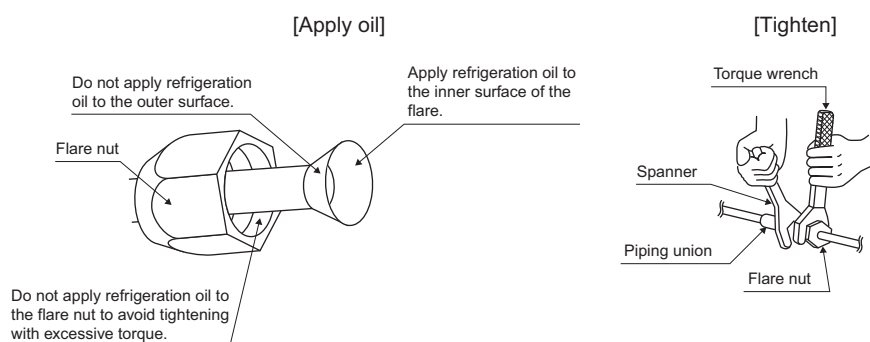


3. Refrigerant piping

⚠ CAUTION

- Use the flare nut fixed to the main unit. (To prevent cracking of the flare nut by aged deterioration.)
- To prevent gas leakage, apply refrigeration oil only to the inner surface of the flare. (Use refrigeration oil for R32.)
- Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and gas leakage.
- Do not reuse joints which have been used once already.
- Protect or enclose refrigerant tubing to avoid mechanical damage.
- Installation shall be done by an installer, the choice of materials and installation shall comply with the applicable legislation. In Europe the EN378 is the applicable standard that shall be used.
- Ensure that the field piping and connections are not subjected to stress.

Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.



Flare nut tightening torque	
ø 1/4 inch (6.4mm)	10-1/2 — 12-3/4ft • lbf (14.2-17.2N • m)
ø 3/8 inch (9.5mm)	24-1/8 — 29-1/2ft • lbf (32.7-39.9N • m)
ø 1/2 inch (12.7mm)	36-1/2 — 44-1/2ft • lbf (49.5-60.3N • m)
ø 5/8 inch (15.9mm)	45-5/8 — 55-5/8ft • lbf (61.8-75.4N • m)

Width across flats	11/16 inch (17mm)	3/4 inch (19mm)	7/8 inch (22mm)	1-1/16 inch (27mm)
Valve cap tightening torque	10-1/2 — 12-5/8ft • lbf (14.2-17.2N • m)	12-5/8 — 15-3/8ft • lbf (17.1-20.9N • m)	16 — 20-1/4ft • lbf (21.6-27.4N • m)	35-3/8 — 44-1/8ft • lbf (48-59.8N • m)

Service port cap tightening torque	8 — 10-7/8ft • lbf (10.8-14.7N • m)
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Refrigerant piping work

4. Evacuating the air with a vacuum pump and checking for gas leakage

WARNING

- Do not mix any substance other than the specified refrigerant (R32) into the refrigeration cycle.
 - When refrigerant gas leaks should occur, ventilate the room as soon and as much as possible.
 - R32, as well as other refrigerants, should always be recovered and never be released directly into the environment.
 - Use a vacuum pump for R32 or R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.
 - **Use tools for R32 or R410A (such as the gauge manifold, charging hose, or vacuum pump adapter).**
 - During tests never pressurize the appliances with a pressure higher than the maximum allowable pressure (as indicated on the nameplate of the unit).
 - Never directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.
-
- When piping work is completed, it is necessary to purge the air and check for gas leakage.
 - If using additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.
 - Use a hexagonal wrench (4mm) to operate the stop valve rod.
 - All refrigerant pipe joints should be tightened with a torque wrench to the specified tightening torque.
 - 1) Connect projection side of charging hose (which comes from gauge manifold) to gas stop valve's service port.
 - 2) Fully open gauge manifold's low-pressure valve (Lo) and completely close its high-pressure valve (Hi).
(High-pressure valve subsequently requires no operation.)
 - 3) Perform vacuum pumping and make sure that the compound pressure gauge reads -0.1MPa (-76cmHg).
Evacuation for **at least 1 hour** is recommended.
 - 4) Close gauge manifold's low-pressure valve (Lo) and stop vacuum pump.
(Keep this state for 4-5 minutes to make sure that the compound pressure gauge pointer does not swing back.
If it does go back, this may indicate the presence of moisture or leaking from connecting parts. After inspecting all the connection and loosening then retightening the nuts, repeat steps 2-4.)
 - 5) Remove covers from liquid stop valve and gas stop valve.
 - 6) Turn the liquid stop valve's rod 90 degrees counterclockwise with a hexagonal wrench to open valve.
Close it after 5 seconds, and check for gas leakage.
Using soapy water, check for gas leakage from indoor unit's flare and outdoor unit's flare and valve rods.
After the check is complete, wipe all soapy water off.
 - 7) Disconnect charging hose from gas stop valve's service port, then fully open liquid and gas stop valves.
(Do not attempt to turn valve rod beyond its stop.)
 - 8) Tighten valve caps and service port caps for the liquid and gas stop valves with a torque wrench at the specified torques.
See **"3. Refrigerant piping"** on page 8 for details.

Refrigerant piping work

5. Charging refrigerant

- 1) If the total length of piping for all rooms exceeds the figure listed below, additionally charge with **20g** of refrigerant (R32) for each additional meter of piping.

Outdoor capacity class	3MXM40*, 3MXM52*, 3AMXM52*, 3MXM68*, 4MXM68*, 4MXM80*, 5MXM90*
Total length of piping for all rooms	30 m

Important information regarding the refrigerant used

This product contains fluorinated greenhouse gases.
Do not vent gases into the atmosphere.

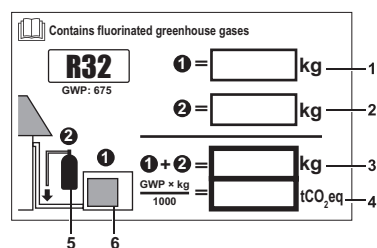
Refrigerant type: **R32**

GWP⁽¹⁾ value: **675** ⁽¹⁾ GWP = global warming potential

Please fill in with indelible ink,

- ① the factory refrigerant charge of the product,
 - ② the additional refrigerant amount charged in the field and
 - ① + ② the total refrigerant charge
 - tCO₂eq calculation according to the formula (rounded up to 2 decimal places)
- on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop valve cover).



- 1 factory refrigerant charge of the product: see unit name plate
- 2 additional refrigerant amount charged in the field
- 3 total refrigerant charge
- 4 **greenhouse gas emissions** of the total refrigerant charge expressed as tonnes CO₂-equivalent
- 5 refrigerant cylinder and manifold for charging
- 6 outdoor unit

NOTE

National implementation of EU regulation on certain fluorinated greenhouse gases may require to provide the appropriate official national language on the unit. Therefore an additional multilingual fluorinated greenhouse gases label is supplied with the unit. Sticking instructions are illustrated on the backside of that label.



NOTICE

In Europe, the **greenhouse gas emissions** of the total refrigerant charge in the system (expressed as tonnes CO₂-equivalent) is used to determine the maintenance intervals. Follow the applicable legislation.

Formula to calculate the greenhouse gas emissions:

GWP value of the refrigerant × Total refrigerant charge [in kg] / 1000

Use the GWP value mentioned on the refrigerant charge label. This GWP value is based on the 4th IPCC Assessment Report. The GWP value mentioned in the manual might be outdated (i.e., based on the 3rd IPCC Assessment Report).

CAUTION

Even though the stop valve is fully closed, the refrigerant may slowly leak out; do not leave the flare nut removed for a long period of time.

Precautions for compressor

WARNING

	Electric shock hazard - Use this compressor on a grounded system only. - Turn power OFF before servicing. - Replace terminal cover before applying power.
	Injury hazard Wear protective goggles.
	Explosion or fire hazard - Use tubing cutter to remove compressor. - Do NOT use torch. System contains refrigerant under pressure. - Do NOT drive under air or vacuum condition. - Use only approved refrigerants and lubricants.
	Burn hazard Do NOT touch with bare hands during or immediately following operation.

Refrigerant piping work

6. Refrigerant piping work

Cautions on pipe handling

- 1) Protect the open end of the pipe against dust and moisture.
- 2) All pipe bends should be as gentle as possible. Use a pipe bender for bending.

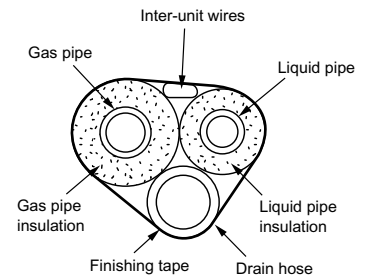
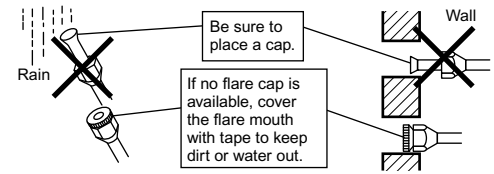
Selection of copper and heat insulation materials

When using commercial copper pipes and fittings, observe the following:

- 1) Insulation material: Polyethylene foam
Heat transfer rate: 0.041 to 0.052W/mK (0.035 to 0.045kcal/mh°C)
Refrigerant gas pipe's surface temperature reaches 110°C max.
Choose heat insulation materials that will withstand this temperature.
- 2) Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

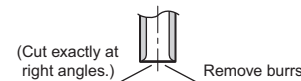
Gas pipe	O.D.: 9.5 mm, 12.7 mm / Thickness: 0.8 mm (C1220T-O) O.D.: 15.9 mm / Thickness: 1.0 mm (C1220T-O)
Liquid pipe	O.D.: 6.4 mm / Thickness: 0.8 mm (C1220T-O)
Gas pipe insulation	I.D.: 12-15 mm, I.D.: 16-20 mm / Thickness: 13 mm min.
Liquid pipe insulation	I.D.: 8-10 mm / Thickness: 10 mm min.
Minimum bend radius	O.D.: 6.4 mm, 9.5 mm / 30 mm or more O.D.: 12.7 mm / 40 mm or more O.D.: 15.9 mm / 50 mm or more

- 3) Use separate thermal insulation pipes for gas and liquid refrigerant pipes.
- 4) Piping and other pressure containing parts shall comply with the applicable legislation and shall be suitable for refrigerant.
Use phosphoric acid deoxidised seamless copper for refrigerant.

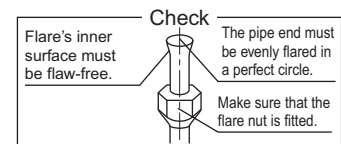


7. Flaring the pipe end

- 1) Cut the pipe end with a pipe cutter.
- 2) Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
- 3) Put the flare nut on the pipe.
- 4) Flare the pipe.
- 5) Check that the flaring is properly made.



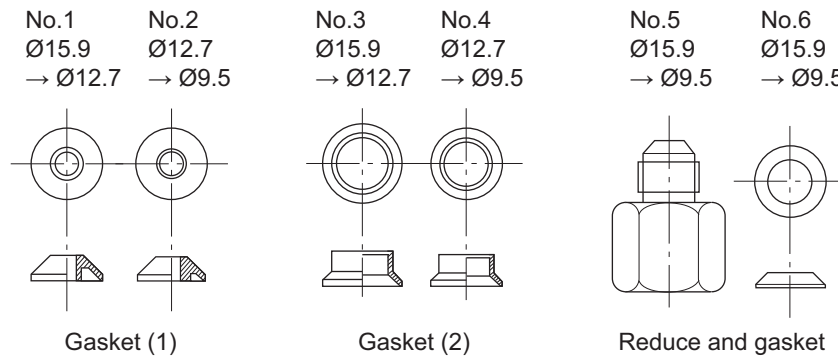
Flaring			
Set exactly at the position shown below.			
	Flare tool for R32		Conventional flare tool
	Clutch-type	Clutch-type (Rigid-type)	Wing-nut type (Imperial-type)
A	0-0.5mm	1.0-1.5mm	1.5-2.0mm



⚠ WARNING

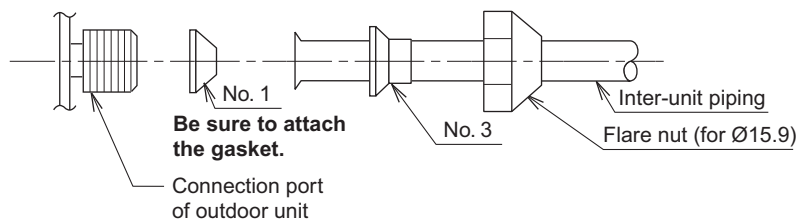
- Do not use mineral oil on flared part.
- Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- Never install a dryer to this R32 unit in order to guarantee its lifetime.
- The drying material may dissolve and damage the system.
- Incomplete flaring may cause refrigerant gas leakage.

How to use reducers

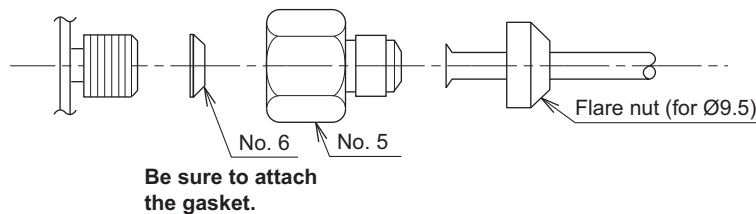


Use the reducers supplied with the unit as described below.

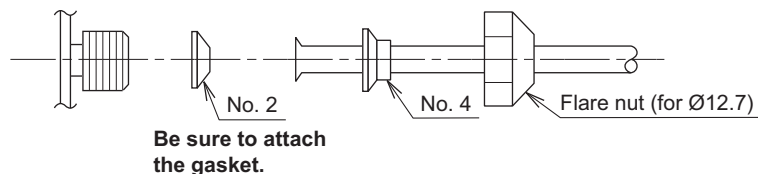
1) Connecting a pipe of Ø12.7 to a gas pipe connection port for Ø15.9:



2) Connecting a pipe of Ø9.5 to a gas pipe connection port for Ø15.9:



3) Connecting a pipe of Ø9.5 to a gas pipe connection port for Ø12.7:



- When using the reducer packing shown above, be careful not to over-tighten the nut, or the smaller pipe may be damaged. (about 2/3 - 1 the normal torque)
- Apply a coat of refrigeration oil to the threaded connection port of the outdoor unit where the flare nut comes in.
- Use an appropriate wrench to avoid damaging the connection thread by over-tightening the flare nut.

Flare nut tightening torque	
Flare nut for Ø9.5	32.7–39.9N·m (333–407kgf·cm)
Flare nut for Ø12.7	49.5–60.3N·m (505–615kgf·cm)
Flare nut for Ø15.9	61.8–75.4N·m (630–769kgf·cm)

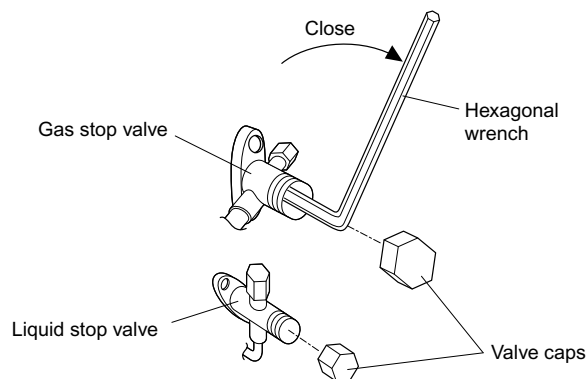
Pump down operation

In order to protect the environment, be sure to pump down when relocating or disposing of the unit.

- 1) Remove the valve cap from liquid stop valve and gas stop valve.
- 2) Carry out forced cooling operation.
- 3) After 5 to 10 minutes, close the liquid stop valve with a hexagonal wrench.
- 4) After 2 to 3 minutes, close the gas stop valve and stop forced cooling operation.

NOTE:

For the Hybrid for Multi it shall be guaranteed that all the required precautions are taken to avoid possible freezing damage at the water heat exchanger before this function is allowed to be used or activated.
For detailed information see the indoor installation manual.



1. Forced operation

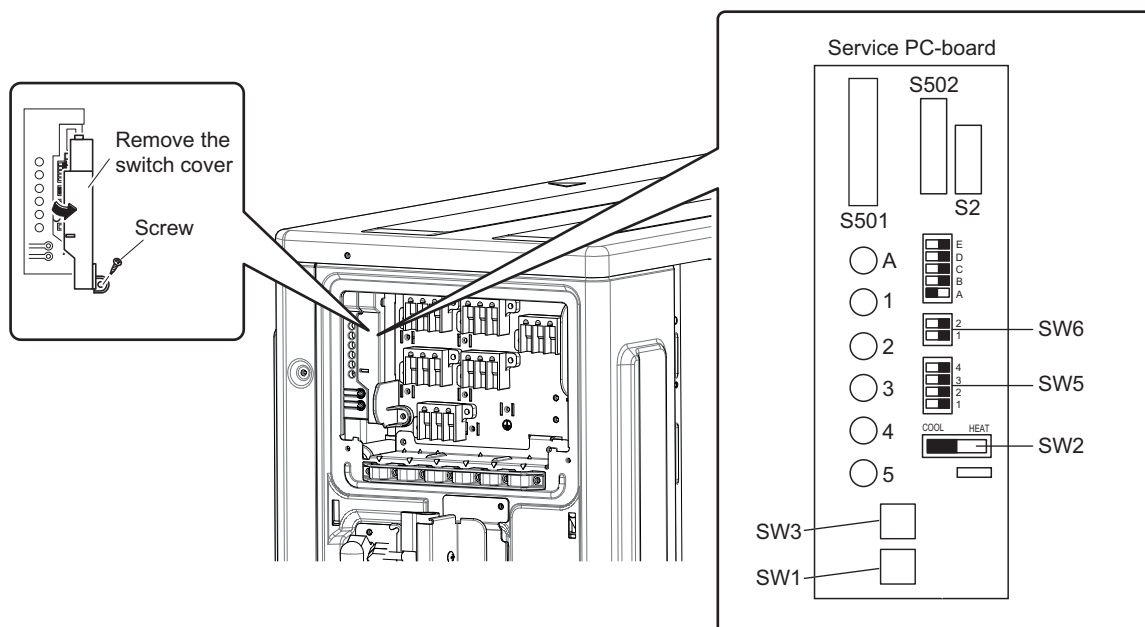
- 1) Switch off the power.
- 2) Remove the Service cover (2 screws).
- 3) Remove the service PC-board switch cover (1 screw).
- 4) Switch SW5 and SW6 to off.
- 5) Turn the operation mode switch (SW2) to COOL.
- 6) Screw the service PC-board switch cover back on (1 screw).
- 7) Switch the power on.
- 8) Push the forced operation switch (SW1) above the service PC-board cover.

■ Start forced cooling operation.

To stop forced operation, push the forced operation switch (SW1) again.

⚠ WARNING

Do not remove the switch cover unless the power has been turned off. (Risk of electric shock)



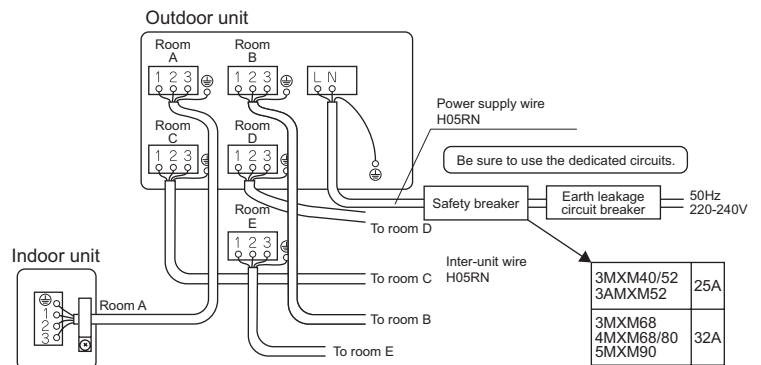
Wiring

⚠ WARNING

- Do not use tapped wires, stranded wires, extension cords, or starburst connections, as they may cause overheating, electrical shock, or fire.
- Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc., from the terminal block.) Doing so may cause electric shock or fire.
- Be sure to install an earth leakage breaker. (One that can handle higher harmonics.)
(This unit uses an inverter, which means that an earth leakage breaker capable of handling harmonics must be used, in order to prevent malfunctioning of the earth leakage breaker itself.)
- Use an all-pole disconnection type breaker with at least 3mm between the contact point gaps.
- Do not connect the power wire to the indoor unit. Doing so may cause electric shock or fire.

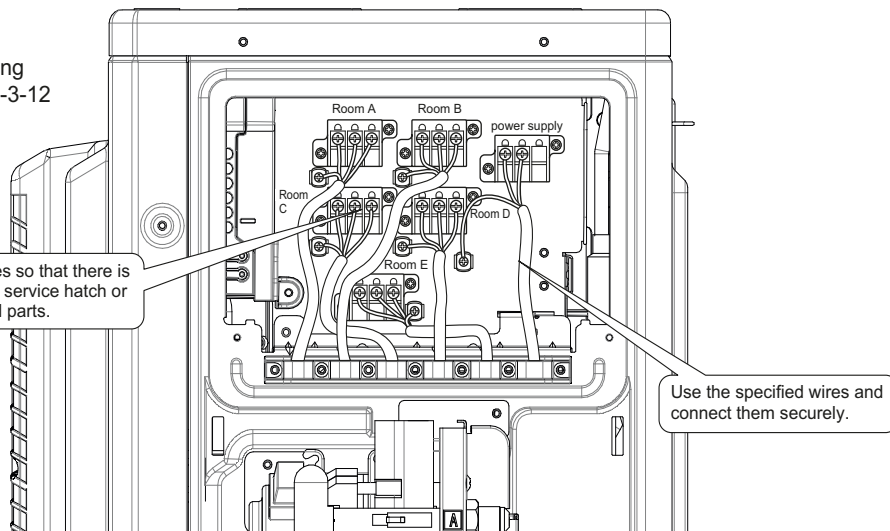
<Wiring procedure>

- Strip the insulation from the wire (3/4inch (20mm)).
- Connect the connection wires between the indoor and outdoor units **so that the terminal numbers match**. Tighten the terminal screws securely. We recommend a flathead screwdriver be used to tighten the screws.
- Be sure to match the symbols for wiring and piping.**
- Pull the wire lightly to make sure that it does not disconnect.
- Pass the wiring through the cutout on the bottom of the protection plate and attach the protection plate.
- After completing the work, reattach the service cover to its original position.



Equipment complying with EN/IEC 61000-3-12
3MXM68N2V1B
4MXM68N2V1B
4MXM80N2V1B
5MXM90N2V1B

Shape the wires so that there is no lifting of the service hatch or other structural parts.



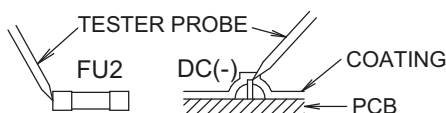
1. Safe handling of high voltage part

⚠ WARNING

Do NOT touch the charged part for 10 minutes after the safety breaker is turned OFF, because of the danger of high voltage.

1-1. To prevent electrical shock

- Use a tester to check that the voltage between 'FU2' and 'DC(-)' is 50V or less. (Refer to "Layout diagram of electrical components" on the next page)
- The surface of the test points (FU2, DC(-)) may be covered with coating.
- Be sure to make firm contact between tester probes and test points



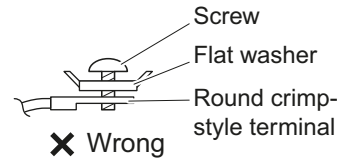
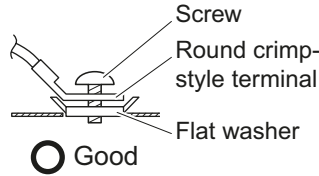
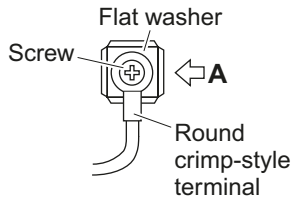
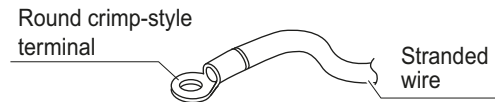
1-2. Reconnecting after check

- When reconnecting, be sure to reconnect everything in the same way as it was before.

Wiring

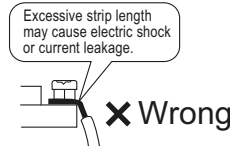
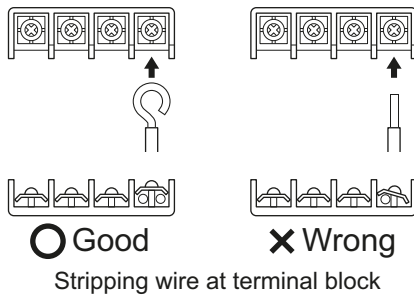
⚠ CAUTION

- Precautions to be taken for power supply wiring. When using stranded wires, make sure to use the round crimp-style terminal for connection to the power supply terminal

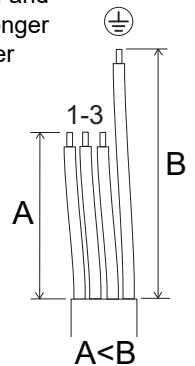


Arrow view A

- When connecting the inter-unit wires to the terminal block using a single core wire, be sure to curl the end of the lead. Improper work may cause heat and fires.



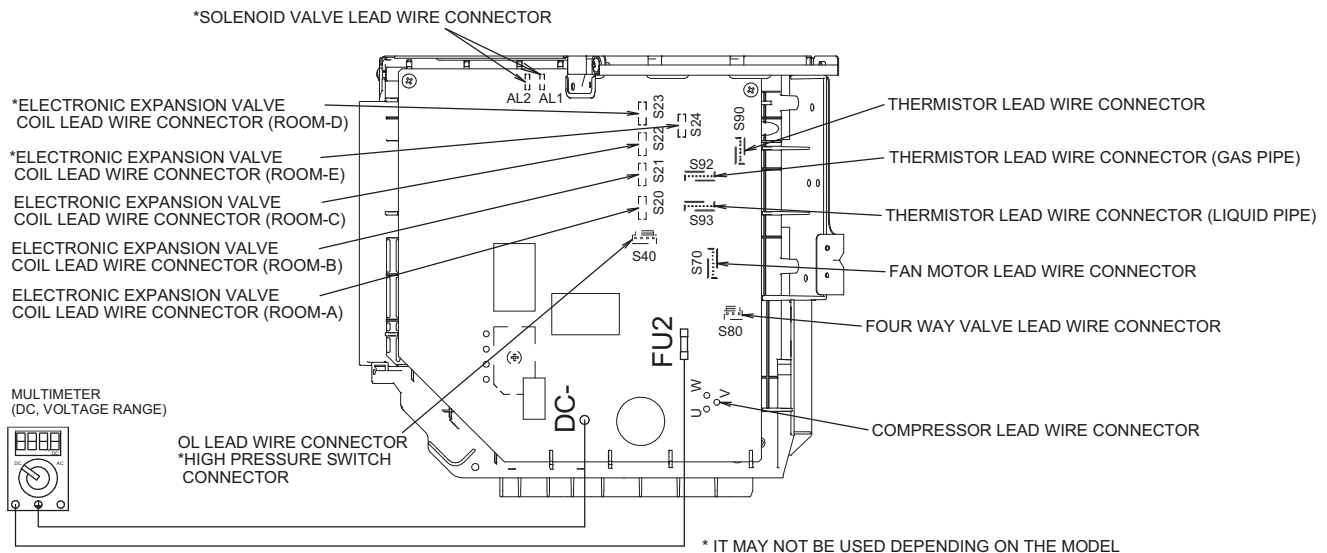
- Make sure that the earth wire between the pull relief and terminal is longer than the other wires.



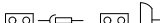
Ground

This air conditioner must be grounded. For grounding, follow all local, and state electrical codes.

LAYOUT DIAGRAM OF ELECTRICAL COMPONENTS



Wiring

Unified Wiring Diagram Legend					
For applied parts and numbering refer to the wiring diagram sticker supplied on the unit. Part numbering is realized by Arabic numbers in ascending order for each part and is represented in the overview below by symbol ^{***} in the part code.					
	:	CIRCUIT BREAKER		:	PROTECTIVE EARTH
	:	CONNECTION		:	PROTECTIVE EARTH (SCREW)
	:	CONNECTOR		:	RECTIFIER
	:	EARTH		:	RELAY CONNECTOR
	:	FIELD WIRING		:	SHORT CIRCUIT CONNECTOR
	:	FUSE		:	TERMINAL
	:	INDOOR UNIT		:	TERMINAL STRIP
	:	OUTDOOR UNIT		:	WIRE CLAMP
BLK : BLACK	GRN : GREEN	PNK : PINK	WHT : WHITE		
BLU : BLUE	GRY : GREY	PRP, PPL : PURPLE	YLW : YELLOW		
BRN : BROWN	ORG : ORANGE	RED : RED			
A*P	:	PRINTED CIRCUIT BOARD	PS	:	SWITCHING POWER SUPPLY
BS*	:	PUSH BUTTON ON / OFF, OPERATION SWITCH	PTC*	:	THERMISTOR PTC
BZ, H*O	:	BUZZER	Q*	:	INSULATED GATE BIPOLAR TRANSISTOR (IGBT)
C*	:	CAPACITOR	Q*DI	:	EARTH LEAK CIRCUIT BREAKER
AC*, CN*, E*, HA*, HE, HL*, HN*, HR*, MR*_A, MR*_B, S*, U, V, W, X*A, K*R_*	:	CONNECTION, CONNECTOR	Q*L	:	OVERLOAD PROTECTOR
D*, V*D	:	DIODE	Q*M	:	THERMO SWITCH
DB*	:	DIODE BRIDGE	R*	:	RESISTOR
DS*	:	DIP SWITCH	R*T	:	THERMISTOR
E*H	:	HEATER	RC	:	RECEIVER
F*U, FU* (FOR CHARACTERISTICS REFER TO PCB INSIDE YOUR UNIT)	:	FUSE	S*C	:	LIMIT SWITCH
FG*	:	CONNECTOR (FRAME GROUND)	S*L	:	FLOAT SWITCH
H*	:	HARNESS	S*NPH	:	PRESSURE SENSOR (HIGH)
H*P, LED*, V*L	:	PILOT LAMP, LIGHT EMITTING DIODE	S*NPL	:	PRESSURE SENSOR (LOW)
HAP	:	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)	S*PH, HPS*	:	PRESSURE SWITCH (HIGH)
HIGH VOLTAGE	:	HIGH VOLTAGE	S*PL	:	PRESSURE SWITCH (LOW)
IES	:	INTELLIGENT EYE SENSOR	S*T	:	THERMOSTAT
IPM*	:	INTELLIGENT POWER MODULE	S*W, SW*	:	OPERATION SWITCH
K*R, KCR, KFR, KHuR, K*M	:	MAGNETIC RELAY	SA*, F1S	:	SURGE ARRESTOR
L	:	LIVE	SR*, WLU	:	SIGNAL RECEIVER
L*	:	COIL	SS*	:	SELECTOR SWITCH
L*R	:	REACTOR	SHEET METAL	:	TERMINAL STRIP FIXED PLATE
M*	:	STEPPER MOTOR	T*R	:	TRANSFORMER
M*C	:	COMPRESSOR MOTOR	TC, TRC	:	TRANSMITTER
M*F	:	FAN MOTOR	V*, R*V	:	VARISTOR
M*P	:	DRAIN PUMP MOTOR	V*R	:	DIODE BRIDGE
M*S	:	SWING MOTOR	WRC	:	WIRELESS REMOTE CONTROLLER
MR*, MRCW*, MRM*, MRN*	:	MAGNETIC RELAY	X*	:	TERMINAL
N	:	NEUTRAL	X*M	:	TERMINAL STRIP (BLOCK)
n = *, N=*	:	NUMBER OF PASSES THROUGH FERRITE CORE	Y*E	:	ELECTRONIC EXPANSION VALVE COIL
PAM	:	PULSE-AMPLITUDE MODULATION	Y*R, Y*S	:	REVERSING SOLENOID VALVE COIL
PCB*	:	PRINTED CIRCUIT BOARD	Z*C	:	FERRITE CORE
PM*	:	POWER MODULE	ZF, Z*F	:	NOISE FILTER

Standby electricity saving

3MXM40*, 3MXM52*, 3AMXM52* only

The standby electricity saving function turns off power supply to the outdoor unit and sets the indoor unit into standby electricity saving mode, thus reducing the power consumption of the air conditioner.

The standby electricity saving function works on the following indoor unit.

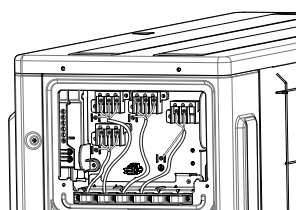
For FTXM, FTXP, FTXJ, FVXM type

CAUTION

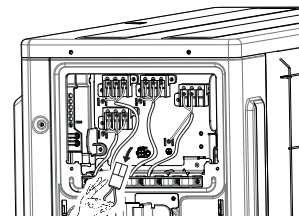
- The standby electricity saving function cannot be used for models other than the specified ones.

- **Procedure for turning on standby electricity saving function**

- 1) Check that the main power supply is turned off. Turn it off if it has not been turned off.
- 2) Remove the stop valve cover.
- 3) Disconnect the selective connector for standby electricity saving.
- 4) Turn on the main power supply.



Standby electricity saving function off.



Standby electricity saving function on.

The standby electricity saving function is turned off before shipping.

CAUTION

- Before connecting or disconnecting the selective connector for standby electricity saving, make sure that the main power supply is turned off.
- The selective connector for standby electricity saving is required if an indoor unit other than the above applicable one is connected.

Priority room setting

- To use priority room setting, initial settings must be made when the unit is installed. Explain the priority room setting, as described below, to the customer, and confirm whether or not the customer wants to use priority room setting. Setting it in the guest and living rooms is convenient.

1. About the priority room setting function

The indoor unit for which priority room setting is applied takes priority in the following cases.

1-1. Operation mode priority

The operation mode of the indoor unit which is set for priority room setting takes priority. If the set indoor unit is operating, all other indoor units do not operate and enter standby mode, according to the operation mode of the set indoor unit.

1-2. Priority during high-power operation

If the indoor unit which is set for priority room setting is operating at high power, the capabilities of other indoor units will be somewhat reduced. Power supply gives priority to the indoor unit which is set for priority room setting.

1-3. Quiet operation priority

Setting the indoor unit to quiet operation will make the outdoor unit run quietly.

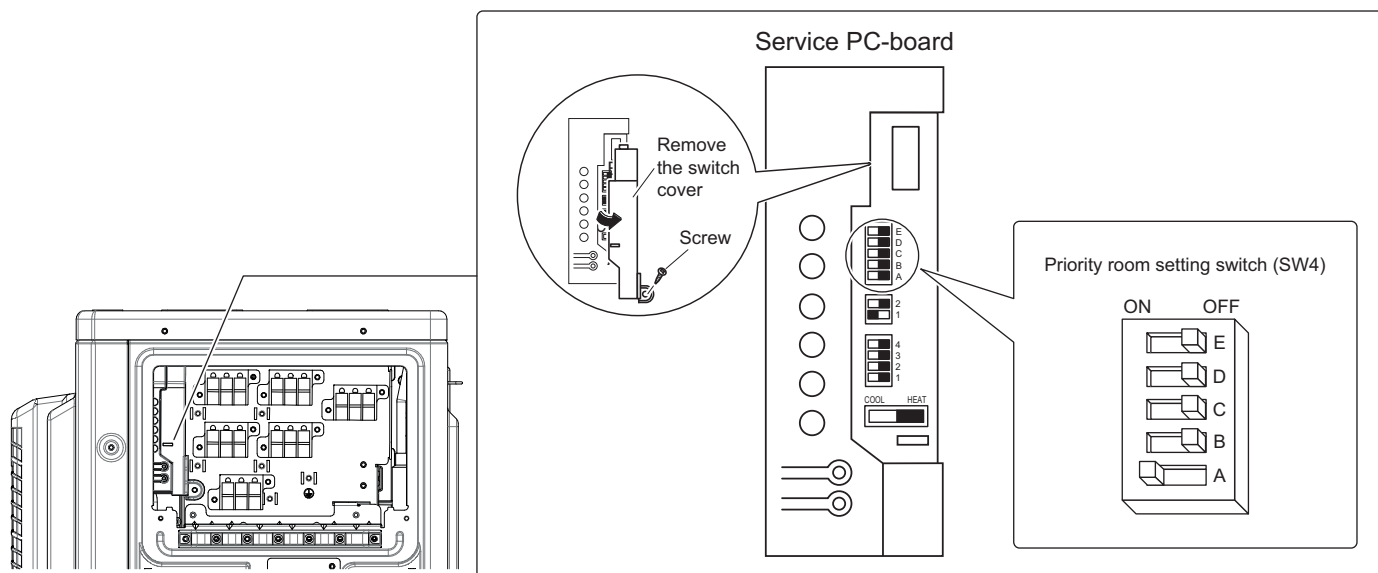
Setting procedure

Slide the switch to the ON side for the switch that corresponds to the piping connected to the indoor unit to be set. (In the figure below, it is room A.) Once the settings are complete, reset the power.

NOTE:

Priority room setting is only applicable for an air conditioner indoor unit.

Be sure to only set one room



Night quiet mode setting

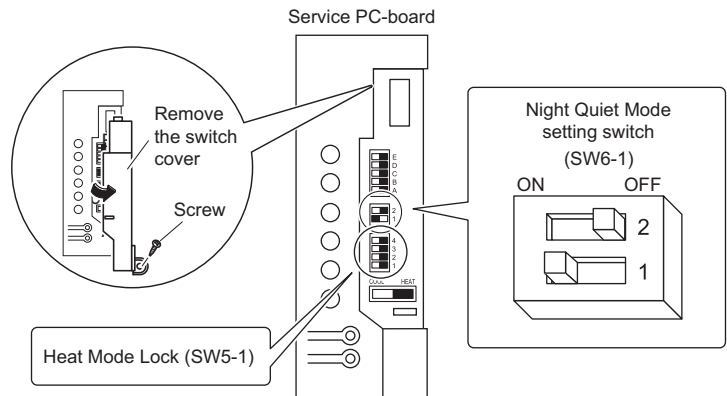
- If Night Quiet Mode is to be used, initial settings must be made when the unit is installed. Explain Night Quiet Mode, as described below, to the customer, and confirm whether or not the customer wants to use Night Quiet Mode.

About Night Quiet Mode

The Night Quiet Mode function reduces operating noise of the outdoor unit at nighttime. This function is useful if the customer is worried about the effects of the operating noise on the neighbors.
However, if Night Quiet Mode is running, cooling capacity will be saved.

Setting procedure

Turn the Night Quiet Mode switch (SW6-1) to on.



HEAT Mode Lock <SW5-1>

- Use the HEAT Mode Lock switch (SW5-1) in the "ON" position.

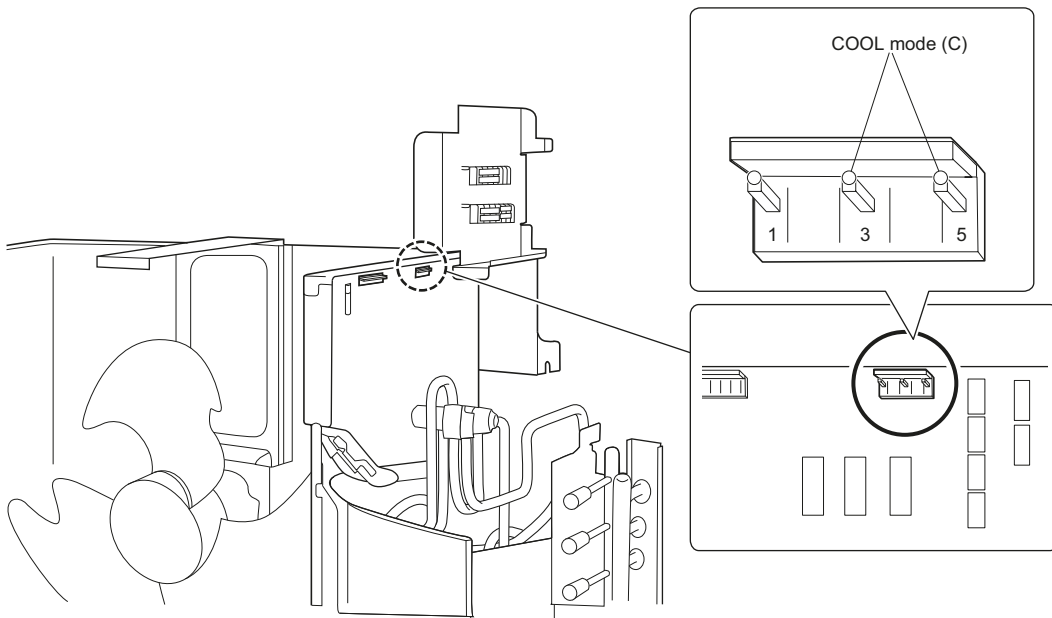
COOL Mode Lock <S15>

- Use the S15 connector to set the unit to cool only.
Setting to only cool (C) : short-circuit pins 3 and 5 of the connector <S15>
The following specifications apply to the connector housing and pins.
ST products Housing: VHR-5N
Pin: SVH-21T-1,1

Note that forced operation is also possible in COOL mode.

NOTE

When the COOL Mode Lock is used in combination with the DHW generator for Multi or the Hybrid for Multi. These units will not operate by the heat pump.



Trial operation and testing

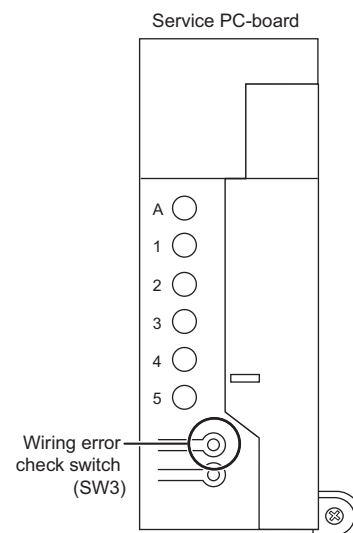
- For the DHW generator for Multi or the Hybrid for Multi certain precautions shall be taken before this function is allowed to be used or activated. For detailed information see the indoor installation manual.
- Before starting the test run, measure the voltage at the primary side of the safety breaker.
- Check that all liquid and gas stop valves are fully open.
- Check that piping and wiring all match. The wiring error check can be conveniently used for underground wiring and other wiring that cannot be directly checked.
- Initialization of the Multi system can take several minutes depending on the number of indoor units and options used.

1. Wiring error check

- This product is capable of automatic correction of wiring error.
- Press the "wiring error check switch" on the outdoor unit service PC-board. However, the wiring error check switch will not function for 3 minutes after the safety breaker is turned on, or depending on the outside air conditions (See Note 2.). About 15–20 minutes after the switch is pressed, the errors in the connection wiring will be corrected.

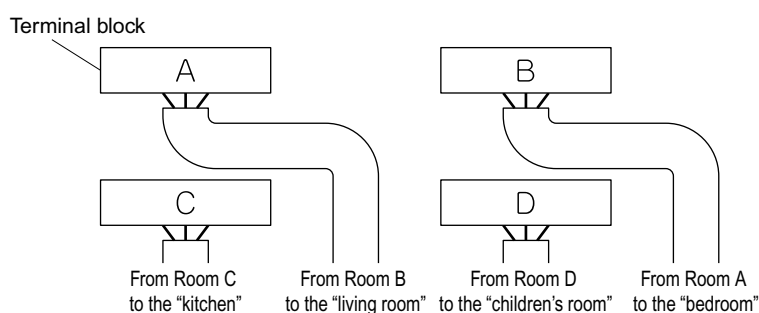
The service monitor LEDs indicate whether or not correction is possible, as shown in the table below. For details about how to read the LED display, refer to the service manual.

If self-correction is not possible, check the indoor unit wiring and piping in the usual manner.



LED	1	2	3	4	5	Message
Status	All Flashing					Automatic correction impossible
	Flashing One after another					Automatic correction completed
	☀ (One or more of LEDs 1 to 4 are ON)					Abnormal stop [NOTE. 4]

Wiring correct example



* The figure at left shows branch wiring.



Wiring error check

LED lighting sequence after a wiring correction.

Order of LED flashing: 2 → 1 → 3 → 4

NOTE:

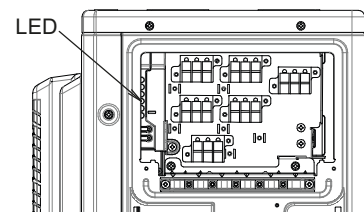
- 1) For two rooms, LED 3, 4 and 5 are not displayed, and for three rooms, LED 4 and 5 is not displayed, and for four rooms, LED 5 is not displayed.
- 2) If the outside air temperature is **5°C or less**, the wiring error check function will not operate.
- 3) After wiring error check operation is completed, LED indication will continue until ordinary operation starts. This is normal.
- 4) Follow the product diagnosis procedures. (Details of product error diagnosis are listed on the back of the **right side plate**.)

Trial operation and testing

2. Product diagnosis procedure

NOTE:

- 1) Turn the power OFF and then ON again if the LED display recurs, the outdoor PCB is faulty.
- 2) Diagnosis marked * may not apply to some cases. For details refer to the service guide.
- 3) Do NOT touch terminal strip and PCB assy.



1-1. Diagnosis using LEDs

GREEN	RED					Diagnosis
Micro-computer normal LED-A	Malfunction detected					
	LED1	LED2	LED3	LED4	LED5	
						Normal -> check indoor unit.
						High pressure protector worked or freeze-up in operating unit, or stand-by unit.
						* Overload relay worked or high discharge pipe temperature.
						Faulty compressor start.
						Input over-current.
						* Thermistor or CT abnormality.
						High temperature switch-box.
						High temperature at inverter circuit heat-sink.
						* Output over-current.
						* Refrigerant shortage.
						Low voltage to main circuit or over voltage to main circuit.
						Reversing solenoid valve switching failure. * Or high pressure switching failure.
						Faulty outdoor unit PCB.
						Fan motor fault.
						Wiring error -> check unfinished.
	—	—	—	—	—	Note 1
	—	—	—	—	—	* Power supply fault.

			—
ON	OFF	Flashing	Any status

GREEN	RED
Flashing: normal	OFF: normal

Trial operation and testing

3. Trial operation and testing

- 1) To test cooling, set for the lowest temperature. To test heating, set for the highest temperature. (Depending on the room temperature, only heating or cooling (but not both) may be possible.)
- 2) After the unit is stopped, it will not start again (heating or cooling) for approximately 3 minutes.
- 3) When trial operation is conducted in the HEAT operation directly after the circuit breaker is turned on, in some cases no air will be output for about 15 minutes in order to protect the air conditioner.
- 4) During the test run, first check the operation of each unit individually. Then also check the simultaneous operation of all indoor units.
Check both heating and cooling operation.
- 5) After running the unit for approximately 20 minutes, measure the temperatures at the indoor unit inlet and outlet. If the measurements are above the values shown in the table below, then they are normal.
 - During the test run operation only air conditioner indoor units shall be operate (The DHW generator for Multi or the Hybrid for multi shall be OFF during the test run operation).

	Cooling	Heating
Temperature difference between inlet and outlet	Approx. 8°C	Approx. 20°C

(When running in one room)

- 6) During cooling operation, frost may form on the gas stop valve or other parts. This is normal.
- 7) Operate the indoor units in accordance with the included operation manual. Check that they operate normally.

4. Items to check

Check item	Consequences of trouble	Check
Are the indoor units installed securely?	Falling, vibration, noise	
Has an inspection been made to check for gas leakage?	Incomplete cooling/heating function	
Has complete thermal insulation been done (gas pipes, liquid pipes, indoor portions of the drain hose extension)?	Water leakage	
Is the drainage secure?	Water leakage	
Are the ground wire connections secure?	Electrical leakage	
Are the electric wires connected correctly?	Incomplete cooling/heating function	
Is the wiring in accordance with the specifications?	No operation or burn damage	
Are the inlets/outlets of the indoor and outdoor units free of any obstructions?	Incomplete cooling/heating function	
Are the stop valves open?	Incomplete cooling/heating function	
Do the marks match (room A, room B, room C, room D, room E) on the wiring and piping for each indoor unit?	Incomplete cooling/heating function	
Is the priority room setting set for 2 or more rooms? (The DHW generator for Multi or the Hybrid for Multi shall not be selected as the priority room.)	The priority room setting will not function.	

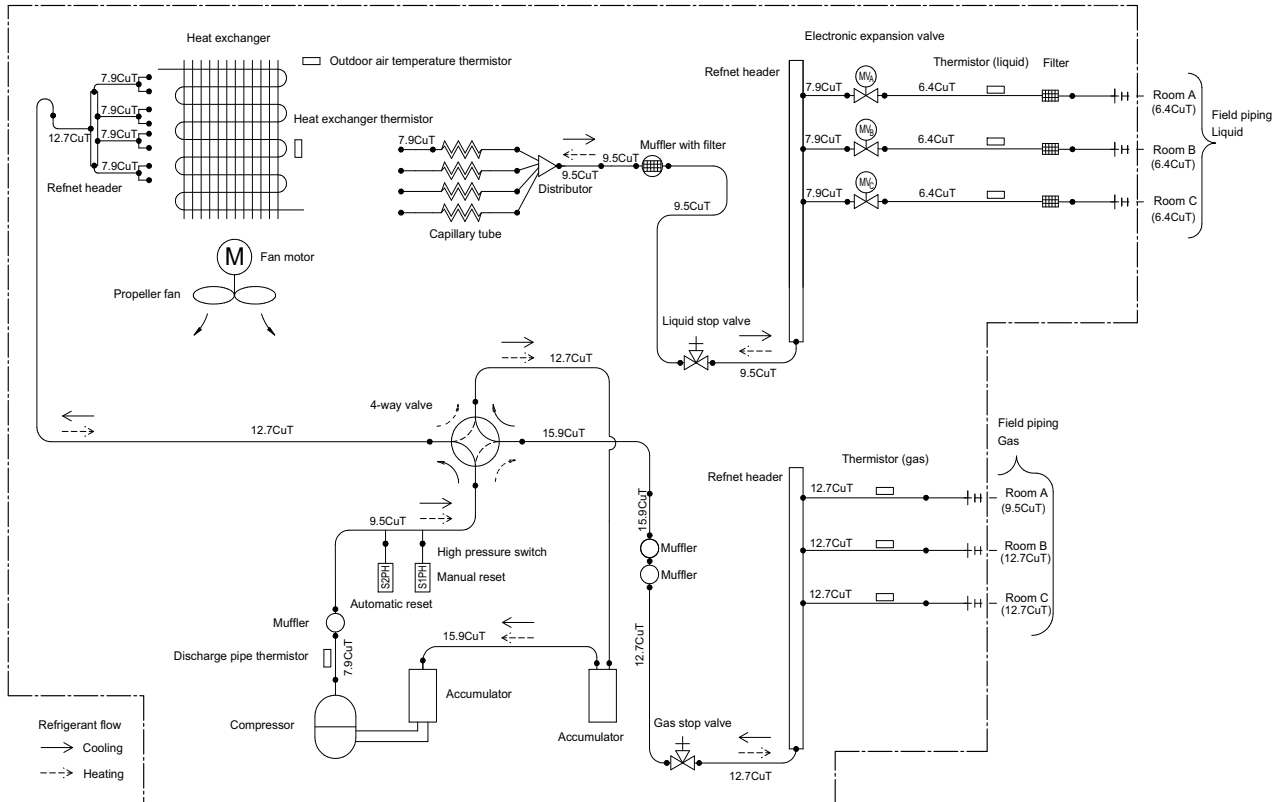
ATTENTION

- Have the customer actually operate the unit while looking at the manual included with the indoor unit. Instruct the customer how to operate the unit correctly (particularly cleaning of the air filters, operation procedures, and temperature adjustment).
- Even when the air conditioner is not operating, it consumes some electric power. If the customer is not going to use the unit soon after it is installed, turn off the breaker to avoid wasting electricity.
- If additional refrigerant has been charged because of long piping, list the amount added on the nameplate on the reverse side of the stop valve cover.

Piping diagram

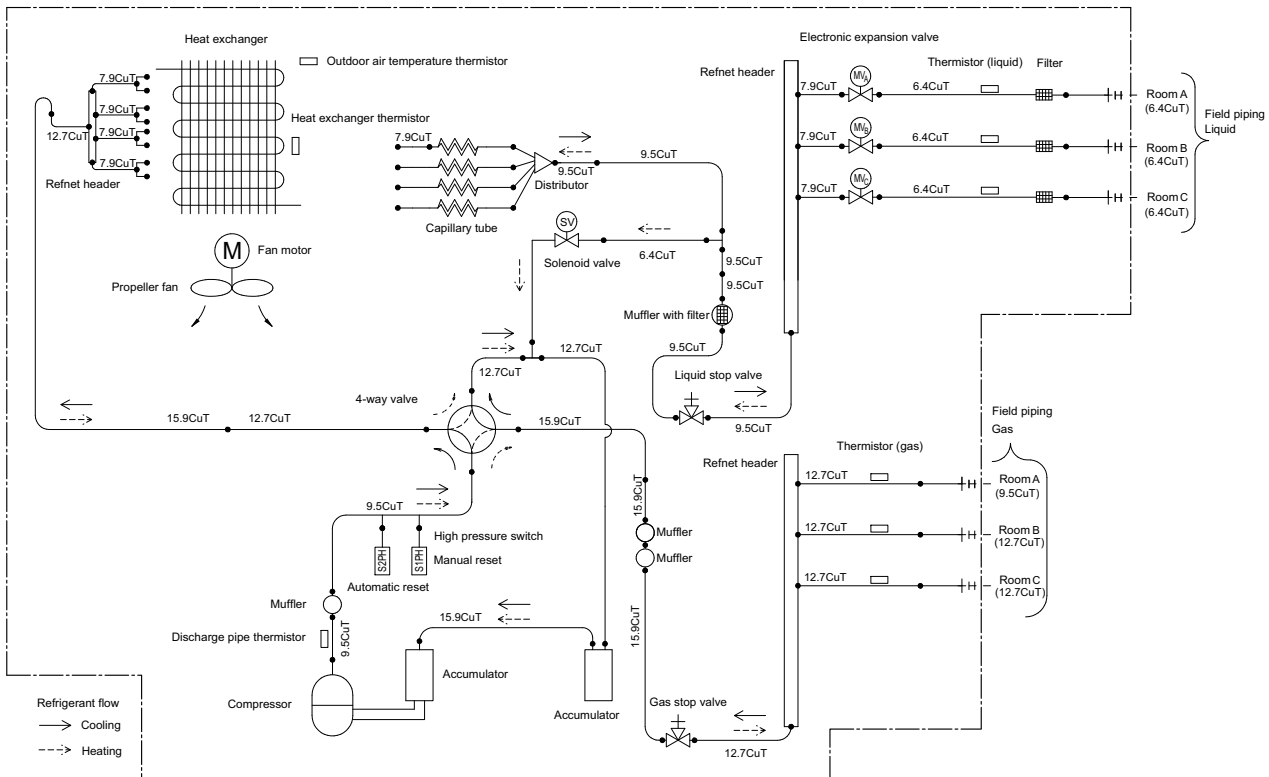
Piping diagram for 3MXM40+52N2V1B, 3AMXM52M3V1B

Outdoor Unit



Piping diagram for 3MXM68N2V1B

Outdoor Unit



PED categories of equipment - High pressure switches : category IV; Compressor : category II; Accumulator: category: I; Other art 4§3 equipment.

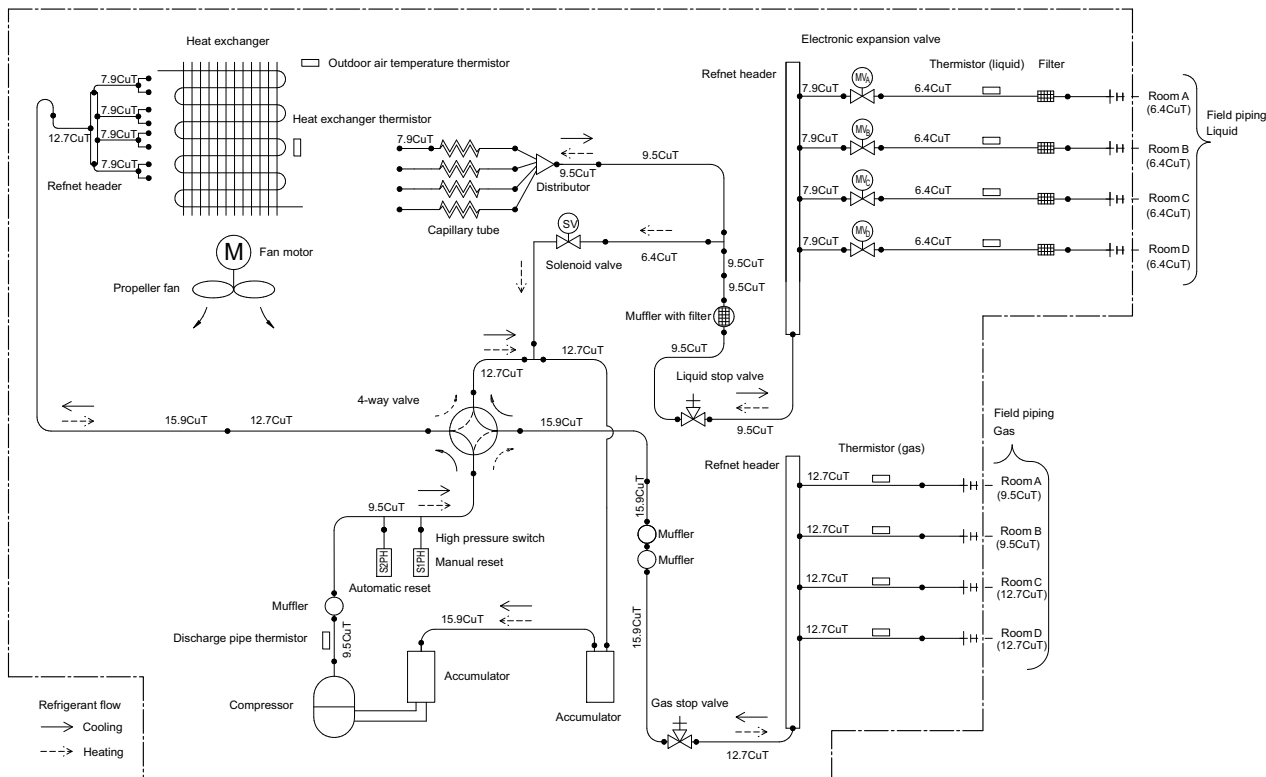
NOTE:

When the high pressure switch is activated it must be reset manually by a qualified person.

Piping diagram

Piping diagram for 4MXM68N2V1B

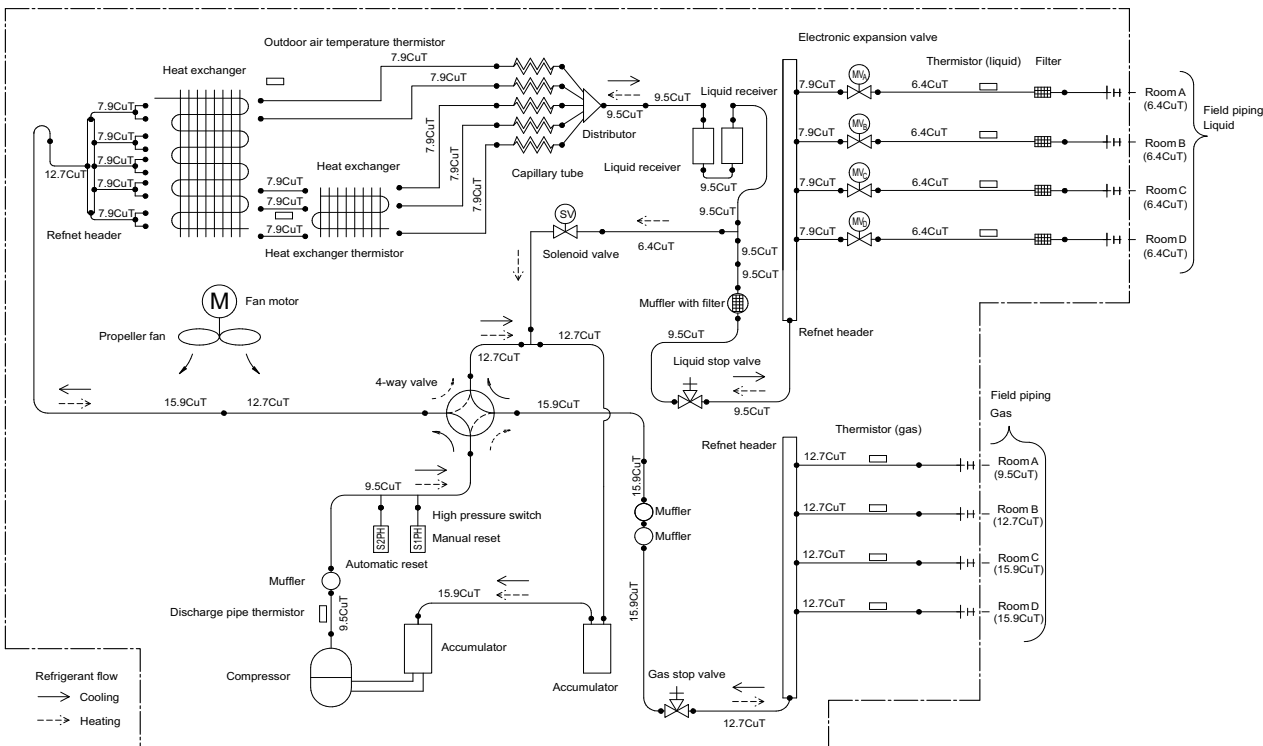
Outdoor Unit



PED categories of equipment - High pressure switches: category IV; Compressor : category II; Accumulator: category: I; Other art 4§3 equipment.

Piping diagram for 4MXM80N2V1B

Outdoor Unit



PED categories of equipment - High pressure switches : category IV; Compressor : category II; Accumulator: category: II; Other art 4§3 equipment.

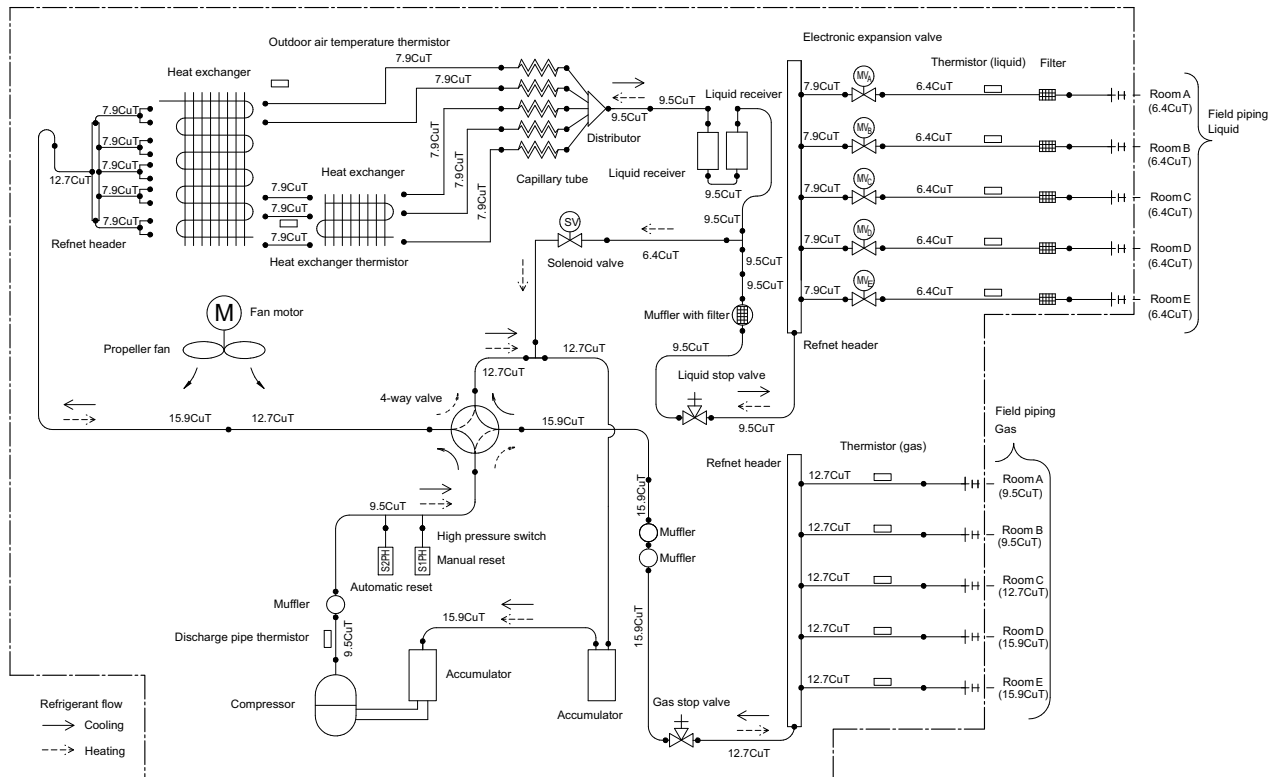
NOTE:

When the high pressure switch is activated it must be reset manually by a qualified person.

Piping diagram

Piping diagram for 5MXM90N2V1B

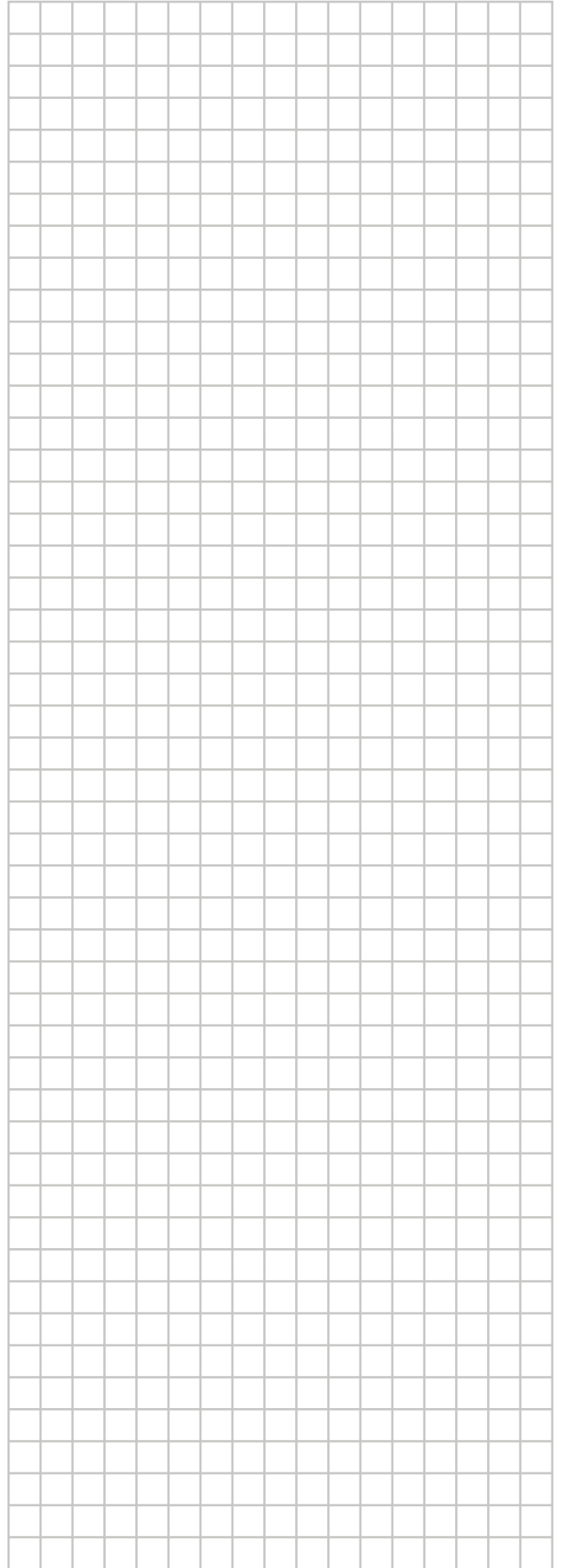
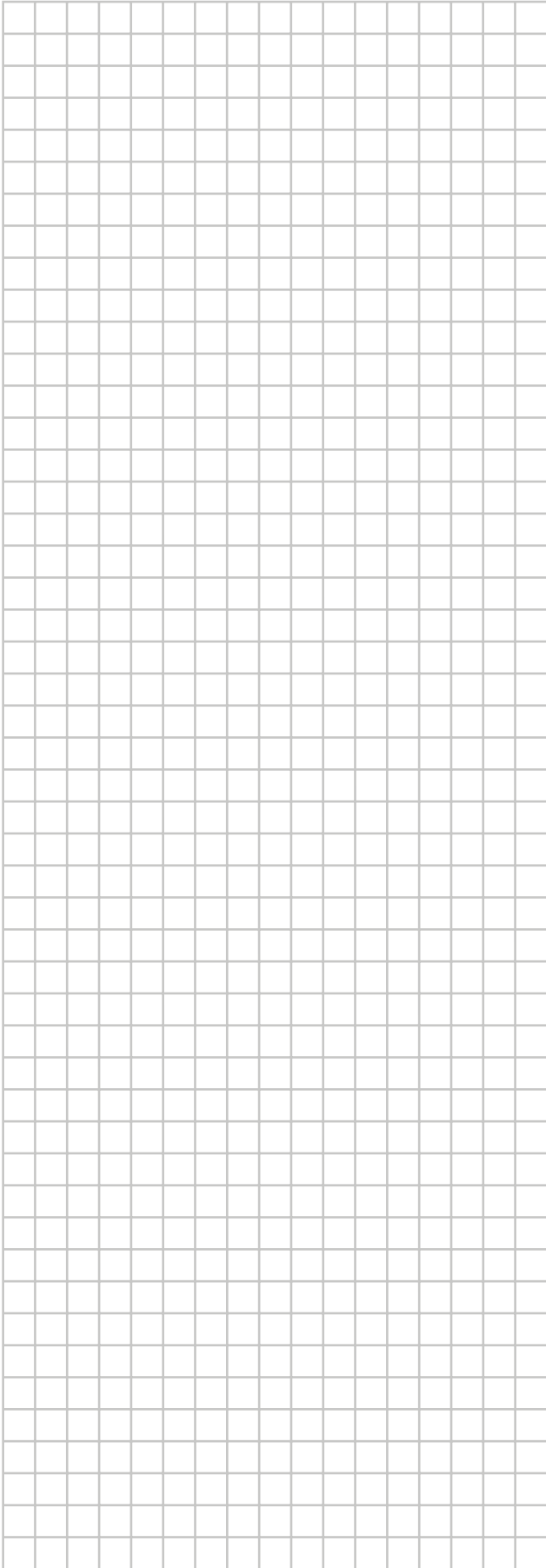
Outdoor Unit

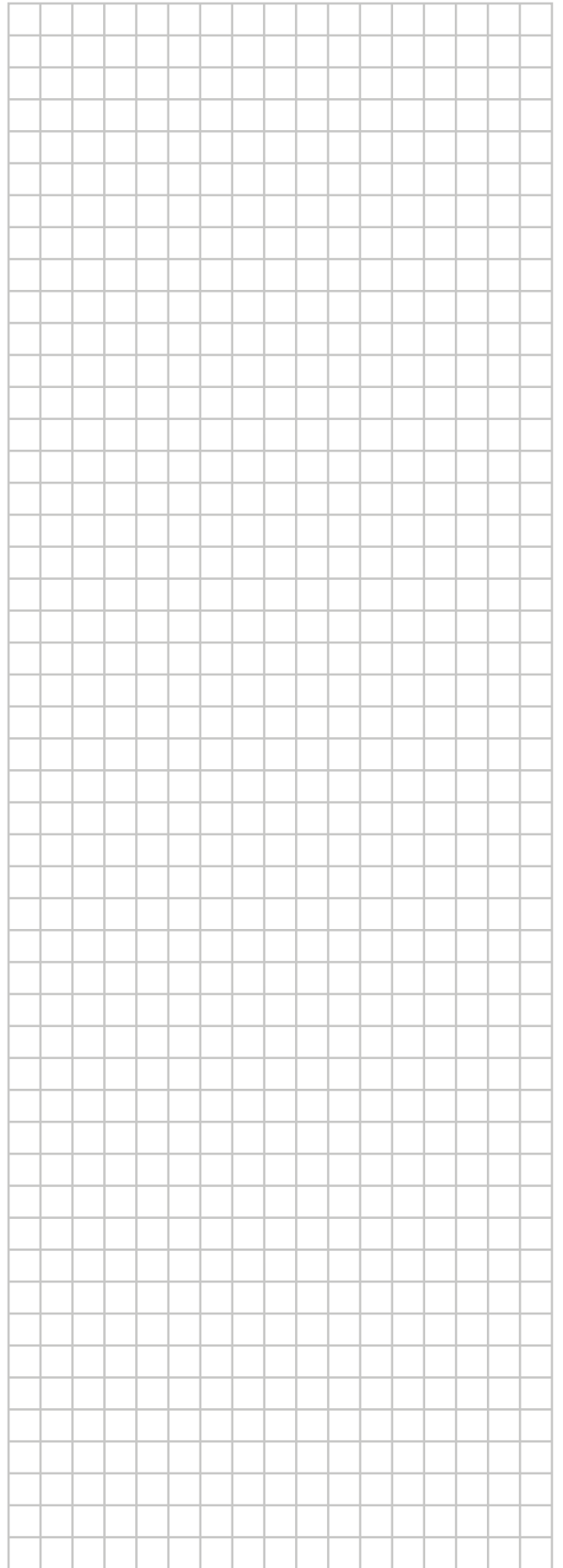
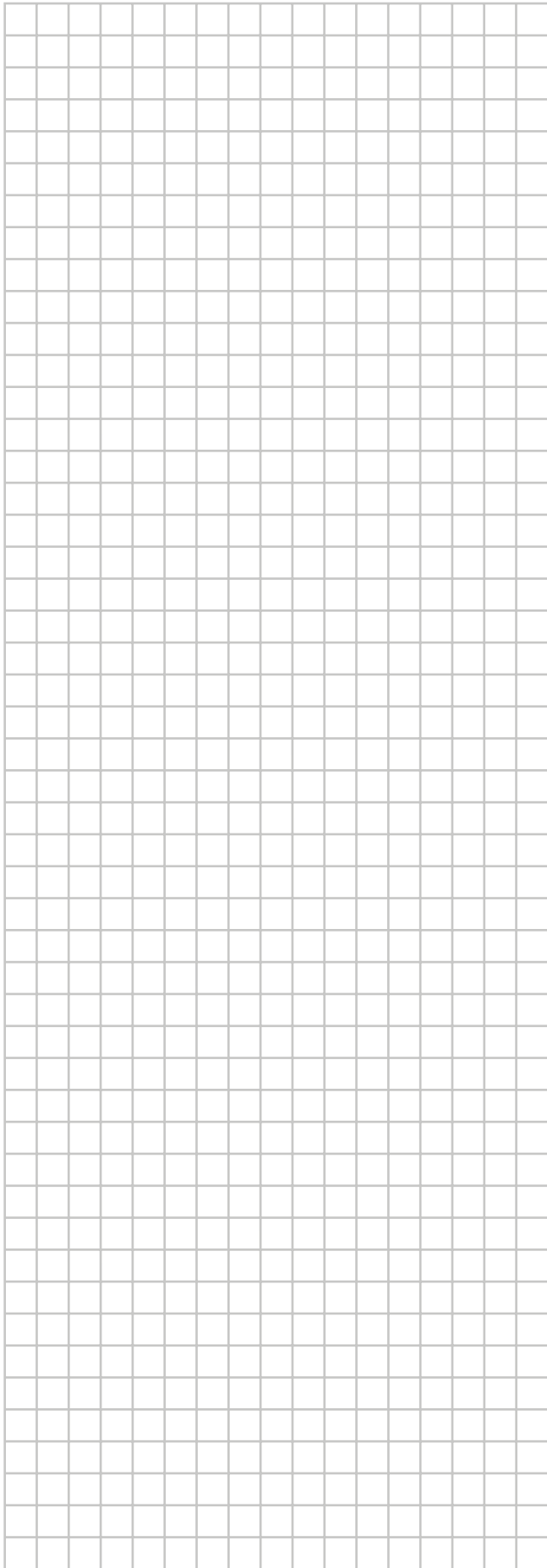


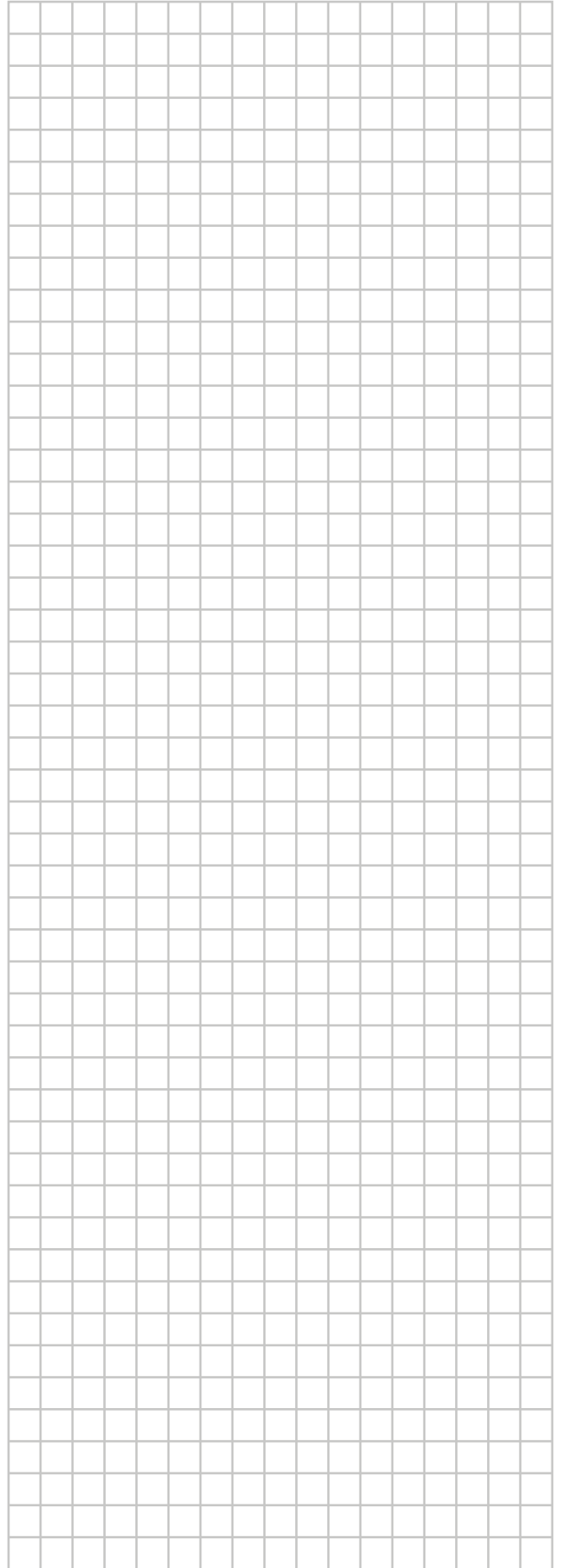
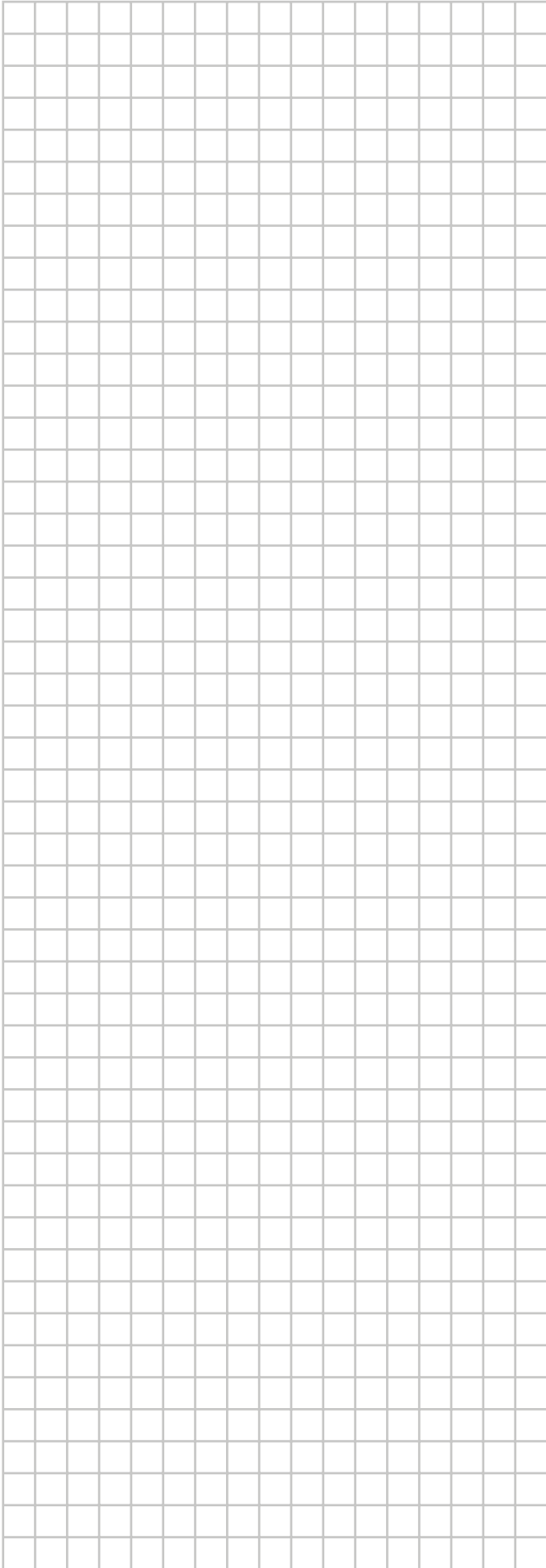
PED categories of equipment - High pressure switches : category IV; Compressor : category II; Accumulator: category: II;
 Other art 4§3 equipment.

NOTE:

When the high pressure switch is activated it must be reset manually by a qualified person.







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