

OUTDOOR UNIT



No. OBH959

SERVICE MANUAL

Models

MUZ-RZ25VU - E1

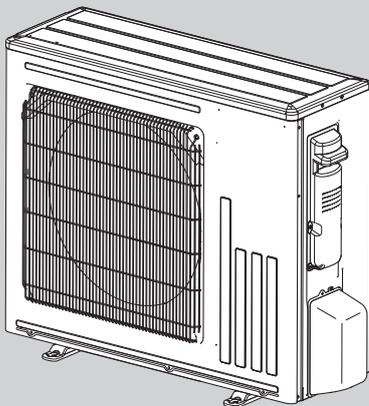
MUZ-RZ35VU - E1

MUZ-RZ25VUHZ - E1, SC1

MUZ-RZ35VUHZ - E1, SC1

MUZ-RZ50VUHZ - E1, SC1

Indoor unit service manual
MSZ-RZ•VU Series (OBH958)



MUZ-RZ25VU
MUZ-RZ35VU
MUZ-RZ35VUHZ
MUZ-RZ50VUHZ

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PARTS CATALOG (OBB959)

Use the specified refrigerant only

Never use any refrigerant other than that specified.

Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.

Correct refrigerant is specified in the manuals and on the spec labels provided with our products.

We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

- R290 refrigerant is classified as class A3 in the safety group of ISO817 because it has low toxicity (class A) and higher flammability (class 3).
- It is a chemically stable compound of hydrogen and carbon.
Thus, it is not F-gas, but a fairly eco-friendly refrigerant with GWP of 3 or less.
- However, it is highly flammable and MUST be handled safely to prevent fire and explosion.

<Preparation before the repair service>

- Prepare the proper tools.
- Prepare the proper protectors.
- Provide adequate ventilation.
- After stopping the operation of the air conditioner, turn off the power-supply breaker and pull the power plug.
- Discharge the capacitor before the work involving the electric parts.

<Precautions during the repair service>

- Do not perform the work involving the electric parts with wet hands.
- Do not pour water into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold areas in the refrigeration cycle.
- When the repair or the inspection of the circuit needs to be done without turning off the power, exercise great caution not to touch the live parts.

<End of life / disposal>

R290 RAC need to be treated according to WEEE. Be sure to observe the following.

- Do not dispose of R290 RAC with the household waste.
- According to the laws and ordinances of each country, hand in the product to a collection center for waste electrical or electronic equipment or directly Recycler authorized by manufacture.
- Check the following condition of the unit before transporting for disposal. If there is deemed to be a risk of leakage during transport, it needs to be empty the machine of refrigerant.
 - Strength
 - corrosion
 - refrigerant circuit status
 - securing the load
- Refrigerant must only be released, recovered and disposed properly by an authorized competent person.
 - Take the certification education of F-gas regulation if you want recover the R290 from unit before work for disposal.
- When you work for disposal, such as removing the unit and transporting to recycler, observe the safety requirement of R290 handling.
 - See the general education and transportation and installation part of professional education.

WARNING

- **When the refrigerant circuit has a leak, do not execute pump down with the compressor.**
- **When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.**
- **When opening or closing the valve below freezing temperatures, refrigerant may spurt out from the gap between the valve stem and the valve body, resulting in injuries.**

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1. New model

2 SERVICING PRECAUTIONS FOR UNITS USING REFRIGERANT R290

Servicing precautions for units using refrigerant R290



WARNING

This unit uses a flammable refrigerant.

If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
 - The appliance shall 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 contain an odor.
 - Pipe-work shall be securely mounted and guarded from physical damage.
 - The installation of pipe-work shall be kept to a minimum.
 - Compliance with national gas regulations shall be observed.
 - Mechanical connections shall be accessible for maintenance purposes.
 - Keep any required ventilation openings clear of obstruction.
 - Servicing shall be performed only as recommended by the manufacturer.
 - Units should be installed stably so that the refrigerant piping does not vibrate or pulsate.
 - Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
 - Provision shall be made for expansion and contraction of long runs of piping.
 - Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.
 - Electrical components that can arc or spark, which are not considered ignition sources shall only be replaced with parts specified by the appliance manufacturer. Replacement with other parts may result in the ignition of refrigerant in the event of a leak;.
 - The appliance shall be stored so as to prevent mechanical damage from occurring.
 - Maintenance, service and repair operations shall be performed by authorized technician with required qualification.
 - Follow EU and national regulations.
- With the revision of the F-Gas regulation, it is expected that operators will need to be certified for handling natural refrigerants as well as F-Gas.
- Always check the manual when performing work (Installation manual when installing, Service manual when servicing).
 - After installation, the installer should explain to the user that the refrigerant is an odorous flammable gas and that they should carefully read the installation booklet for instructions on how to use it.
 - Do not install in areas where smoke, gases, chemicals, etc. Do not install in a place filled with gas. The refrigerant sensor of the indoor unit may react and an error may be displayed.
 - When the breaker is on, pay attention to fan rotation. If the refrigerant sensor detects a refrigerant leak, the fan will start rotating automatically. There is a risk of injury from being caught in the fan.
 - When using the aerosol sprayer for interior work, finishing work or plugging wall holes, switch off the breaker and ventilate the room well. The refrigerant sensor may accidentally react to the spray gases, making the fan to start running and causing injury.

Safety Requirements and proper procedure of repair the R290 refrigerant circuit

If the proper work procedures and prohibitions are not followed, there is a possibility that the R290 may explode or cause a fire accident. In the worst case, there is a risk of loss of life.

[Safety Precautions]

- Make sure to provide sufficient space and ventilation.
- Make sure that there is no leakage of R290 refrigerant.
- Use a detector which is suitable for R290 (specifications that can detect properly and not become an ignition source).
- Do not place anything that could ignite in the protected area. (Sparks from tool friction and static electricity can also be ignition sources.)
- R290 dissolves well in refrigeration oil and is highly flammable, so be sure to follow the instructions for proper refrigerant recovery.
- Use appropriate tools and equipment approved for R290 refrigerant.

[Prohibitions]

- When repairing the refrigerant parts, remove parts to be replaced by cutting, NOT by flame.
- Do not brazing the pipe and unit which contain refrigerant.
- Do not smoke.
- Do not use the tool not to be approved with R290.

(1) Before starting the work, perform the following safety checks and preparations.

(a) Check and secure the work area.

- Make sure that the work area has sufficient space and is well ventilated or properly ventilated during working.
- There must be no ignition sources, spaces where refrigerant can stay, or openings that can flow into the building in the protected area of the outdoor unit.
- Only authorized personnel shall be allowed in the work area during operation. (Notes or impulse bar, etc. to prevent occupants from entering)

(b) Check for and eliminate ignition sources.

- Do not bring in ignition sources.
- Be careful of static electricity on work clothes, gloves, shoes and tools.
- Confirm that the outdoor unit is shut down and cut off the power supply to the outdoor unit.
- Discharge the condenser or capacitors in a way that will not cause sparks.
 - Make sure that LED on the outdoor controller circuit board goes out and wait for at least 1 minute.
 - If there is a refrigerant leak, never touch the electrical components while leak detection is being carried out because spark may occur even if LED1 goes out.

(c) Check the tools and equipment used.

- Make sure that the tools and equipment used are approved for R290 refrigerant.
- Confirm that R290 detectors, refrigerant recovery machines and vacuum pumps are construction and specification that will not be an ignition source for R290. (It must be sparkless, properly sealed, or intrinsically safe and R290 compliant).
- Appropriate protective equipment must be worn. Check for the presence of refrigerant.
- Verify that the R290 detector is working properly and carry it with you at all the times. The detector should be set to 25% of LFL and calibrated for R290 refrigerant.
- Make sure that there is ;
 - no refrigerant in the work area and around the outdoor unit.
 - no leakage from the outdoor unit.
 - no refrigerant leakage inside the water circuit.
 - no flammable material stored in the work area.

- (d) Ensure that appropriate fire extinguishing equipment (e.g., fire extinguishers) is in place and ready for use.
- (e) Confirmation of work procedures and methods.
- Check the appropriate service manual of the manufacturer.
- (2) Completely remove the refrigerant following the step below.
- R290 dissolves into refrigerant oil better than R32/410A and is highly flammable, so be sure to follow the following procedure to remove the refrigerant in the refrigerant oil.
 - For appliances containing R290 refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.
- (a) Remove the refrigerant.
- Although R290 refrigerant is not F-gas, it should be properly recovered and disposed of according to the WEEE Directive. Please be sure to collect it in a dedicated recovery cylinder.
 - Be sure to use a refrigerant recovery unit and other equipment and tools that are compatible with R290.
 - If local regulations permit the release of R290, into the open air, it must be done safely.
Also, ATA models are sealed with odorized refrigerant, so be sure to check the surroundings thoroughly.
 - When releasing odorized refrigerant into the atmosphere, release it slowly and gradually.
- (b) Purge the refrigerant circuit with oxygen-free nitrogen for 5 min.
- Compressed air or oxygen shall not be used for purging refrigerant systems
- (c) Evacuate down the refrigerant circuit to a pressure of 30kPa absolute or lower
- The above pressures apply in an ambient temperature of 20 °C.
 - For other temperatures the pressure will need to be changed accordingly.
 - Be sure to use a vacuum pump that is compatible with R290 refrigerant.
 - Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.
- (d) Purge the refrigerant circuit with nitrogen for 5 min.
- Compressed air or oxygen shall not be used for purging refrigerant systems.
- (3) Remove parts to be replaced by cutting, not by flame.
- Never attempt to remove parts by brazing.
 - Never use tools such as a hacksaw or mechanical cutting tools, they can cause sparking. Non-electric type is preferred.
* If the parts are brazed with refrigerant in them, an explosion or fire may occur, causing serious damage to people and buildings. In the worst case, there is a risk of loss of life.
 - Removed components that have been replaced, such as a compressor piping parts, keep ignition sources away from the refrigerator oil as a small amount of R290 is dissolved in it.
 - If the compressor is replaced, the entire outdoor unit will need to be replaced.
- (4) Brazing the new parts.
- Purge the braze point with nitrogen during the brazing procedure.
 - Do not brazing the pipe and unit which contain refrigerant.
 - Before and during operation, be sure to check the area for refrigerant leaks with a suitable refrigerant detector.
 - The method and procedure are the same as for the R32 refrigerant model.
- (5) Carry out an Airtightness Test before charging with refrigerant.
- The method and procedure are the same as for the R32 refrigerant model.
- (6) Carry out vacuum drying before charging with refrigerant.
- Use the vacuum pump that is compatible with R290 refrigerant.
 - It is necessary to remove a sufficient level of moisture using a vacuum pump (0.5Torr or less).
 - The method and procedure are the same as for the R32 refrigerant model.
- (7) Charging the Refrigerant.
- Do not turn on the unit when charging the R290 refrigerant (must not add refrigerant while running)
 - Use a siphon cylinder to charge the refrigerant.
 - In addition to conventional charging procedures, the following requirements shall be followed
 - Ensure that contamination of different refrigerants does not occur when using charging equipment.
Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
 - Cylinders shall be kept in an appropriate position according to the instructions.
 - Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
 - Label the system when charging is complete (if not already).
 - Extreme care shall be taken not to overfill the refrigerating system.
 - Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.
 - The method and procedure are the same as for the R32 refrigerant model.
 - When refilling refrigerant in service, it is acceptable to seal in refrigerant without odorant.
- (8) Gas Leak Inspection
- Use a leak tester that can detects R290 refrigerant.
- (9) Reassemble sealed enclosures accurately.
- In case the sealed enclosures are opened, reassemble them accurately. Ex.) around elect box If seals are worn, replace them.

Tool

- Charge port
Standard for product: No (EN378, EN60335-2-40)
Charge port for R290: 7/16 UNF-20, clockwise (right screw)
- Cylinder port
Standard for cylinder: Depending on law by each country.
Connect charge port to left screw cylinder port

✘ : Prepare a new tool (Use the new tool as the tool exclusive for R290)

△ : Usable if the specifications on the left are satisfied

○ : Tools for other refrigerants can be used

Tool name	Specifications	Can other refrigerant tools be used?								
		R22	R410A	R32						
Gauge manifold	<ul style="list-style-type: none"> • Refrigerant charging is liquid-phase, so it is convenient to use a gauge manifold equipped with a sight window. • Be sure to use a gauge manifold compliant with R290 since the saturated temperature is different depending on the refrigerant. • You should select it that can be used in the operating range of -0.1 to 3.2 MPaG. • Port size : <table border="1"> <tr> <td></td> <td>R290</td> <td>R32 / R410A</td> </tr> <tr> <td>Manifold port size</td> <td>7/16 UNF 20 thread</td> <td>1/2 UNF 20 thread</td> </tr> </table> 		R290	R32 / R410A	Manifold port size	7/16 UNF 20 thread	1/2 UNF 20 thread	✘	✘	✘
	R290	R32 / R410A								
Manifold port size	7/16 UNF 20 thread	1/2 UNF 20 thread								
Charge hose	<ul style="list-style-type: none"> • Be sure to use a charge hose compliant with R290. • You should select it that can be used in the operating range of -0.1 to 3.2 MPaG. • Cap size: <table border="1"> <tr> <td></td> <td>R290</td> <td>R32 / R410A</td> </tr> <tr> <td>Cap size</td> <td>7/16 UNF 20 thread</td> <td>1/2 UNF 20 thread</td> </tr> </table> 		R290	R32 / R410A	Cap size	7/16 UNF 20 thread	1/2 UNF 20 thread	✘	✘	✘
	R290	R32 / R410A								
Cap size	7/16 UNF 20 thread	1/2 UNF 20 thread								
Charge valve	<ul style="list-style-type: none"> • The charge valve prevents gas escaping from the hose and air conditioner when removing the charge hose. • Be sure to use a charge valve compliant with R290. <p>Connection diameter: UNF 7/16-20 (1/4 flare) × UNF 7/16-20 (1/4 flare)</p>	✘	✘	✘						
Electronic weight scales	—	○	○	○						
Electric leak tester (gas leak detector)	<p>Before trying to use, confirm that the electronic leak tester can be used with the relevant refrigerant.</p> <p>* Do not use a combustion – based leak tester with R32 and R290.</p>	△	△	△						
Vacuum pump	<ul style="list-style-type: none"> • Be sure to use a vacuum pump compliant with R290 that has been specially designed and tested not to be an ignition source of itself. It is deeply better to use the vacuum pump that comply with explosion-proof standards such as ATEX and IECEx. • Additionally, if vacuum pump oil (mineral oil) is mixed into the refrigerant circuit of R290 or R32 or R410A, sludge will be generated and damage the air conditioner. * Use a reverse-flow prevention adapter. 	△	△	△						
Vacuum pump adapter	When used for R290 or R32 or R410A, it is necessary to install an electromagnetic valve to prevent the flow of vacuum pump oil back into the charge hose. If the vacuum pump oil (mineral oil) is mixed into the refrigerant circuit of R290 or R32 or R410A, sludge will be generated and damage the air conditioner.	○	○	○						
Pipe bender	—	○	○	○						
Cutter / Reamer	Do not use the tool that generate sparks due to tool friction such as a saw.	○	○	○						
Refrigerant cylinder	The cylinders are labeled according to the type of refrigerant.	✘	✘	✘						
Adapter for refrigerant cylinder	<p>Use an adapter that is appropriate to a connection of refrigerant cylinder and a charge port.</p> <ul style="list-style-type: none"> • Connection of refrigerant cylinder: depend on the refrigerant or the country • Charge port: UNF 1/2-20 (5/16 flare) for R32 or R410A UNF 7/16-20 (1/4 flare) for R290 	✘	✘	✘						
Refrigerant recovery equipment	<ul style="list-style-type: none"> • Be sure to use a recovery machine compliant with R290 that has been specially designed and tested not to be an ignition source of itself. It is deeply better to use the recovery machine that comply with explosion-proof standards such as ATEX and IECEx. 	△	△	△						
Refrigerant recovery cylinder	The cylinders are labeled according to the type of refrigerant. Please separate the R290 with odor from the general R290.	✘	✘	✘						
Electrical tools	<ul style="list-style-type: none"> • Do not use the electrical tools that generate sparks due to tool friction such as an electrical cutter, an electrical saw and a grinder. • In case of use the electrical tools that drive with motor such as an electrical driver, be sure to use one with brush-less motor. 	△	△	△						
FAN	<ul style="list-style-type: none"> • Be sure to use a fan compliant with R290 that has been specially designed and tested not to be an ignition source of itself. It is deeply better to use the fan that comply with explosion-proof standards such as ATEX and IECEx. 	△	△	△						
Flaring tool	Do not use the electrical tools that generate sparks due to tool friction.	△	△	△						

Properties of refrigerant

(1) Pressure

As shown in the following table, at the same refrigerant temperature, the saturated vapor pressure of R290 is lower than that of R32 and about as same as that of R22. The design pressure of RAC is 2.24MPa(G) , it is same level as R22.

(2) Flammability

- As shown in the following table, R290 ignites with much less concentration and energy than R32.
- In addition, it burns explosively unlike R32.
- In other words, when handling the products and cylinders containing the R290, there is a higher probability of causing a larger explosion or fire than the R32. Therefore, stricter safety measures are required than R32 refrigerant.

(3) R290 concentration

When the R290 is leaking from the product, it tends to concentrate to lower area as well as R32 because it is heavier than air. It is necessary to take the safety measures for R290 leakage in consideration of this characteristic.

- the openings, such as a following, for letting out the refrigerant gas should be provided at the bottom.
 - ex. - a gap between the bottom of the door and the ground of the room.
 - A louver for ventilation in a room or balcony
- Do not install the R290 products or cylinders in or around underground or hollow.
- When checking for leaks with a detector, check not only the product but also the bottom of the surrounding area.
- Ignition source should be far enough away from the product and the ground.

(4) Smell

- The propane used as a refrigerant for the R290ATA has an odor.
- The odorant is THT, which gives it a smell similar to city gas. (THT: Tetrahydrothiophene).
- In other words, it is possible to notice by the odor whether or not the refrigerant is leaking, so you should ventilate if you notice.

WHAT TO DO in case of leak

Ventilation

- Open a window or balcony
- Open door/s between rooms

Electricity (as it may cause sparks)

- Do not turn on or off lamps
- Do not plug in or out sockets or other devices.
- Do not turn off air conditioner

* As same as the MFZ, the indoor unit is equipped with a refrigerant leak sensor.

When a leak is detected, the indoor fan rotates to agitate the air in the room and operation to reduce the concentration of R290.

(5) Condition to ignite to R290

- a) R290 leakage
- b) R290 concentration (1.8%-9.5%)
- c) Ignition source

Only when 3 issues are satisfied, ignition happens.

If even one issue is NOT satisfied, ignition does NOT happen.

The important point is to prevent these 3 issues when installing.

Safety countermeasure

Although R290 is categorised to higher flammability, ignition condition can be removed by following 3 rules which are same as R32 unit.

(1) Do not leak refrigerant

- Do not give strong impact, vibration or heat that would damage the R290 unit.
- Should not release refrigerant to air.
- Use a recovery machine certified for R290 refrigerant if it need to removing the refrigerant from the unit. *1
- If it is permissible to release the refrigerant into the open air, it must be done safely.
 - you do this by directing the refrigerant to a safe area in the open air that is well ventilated.
 - Between the machine and the discharge point, an oil separator should be mounted to take care of any oil droplets.
- Check with the detector whether the unit's refrigerant is leaking. *2
 - While the worker are handling R290 refrigerant and unit, it should be used a portable gas detector.(including when transport and storage)
 - Be sure to use the leak detector compatible to R290 refrigerant.
 - Detector can be clipped to clothing or placed on the floor within the working area.
 - It should be switched on for the duration of the work and set to alarm at 25% of the LFL, to alert staff members of imminent flammable concentration.
 - Technicians can be alerted whenever an inadvertent release of flammable refrigerant occurs.
 - Technicians are capable of immediately acting on the relevant emergency procedures.

(2) Ventilating when handling the R290 unit or cylinder.

<Common situation>

- Opening the door or window
- Using a fan compliant with R290 Refrigerant.

<Transportation>

- In case VAN type cars are unavoidable for delivery, forced ventilation need to be mandatory. *3
 - Use ventilated cars like below images
 - Normal VAN with fresh outside air intake mode + MAX fan volume operation are mandatory.
 - Better if fire extinguishers and leak detectors are available

<Installation, stored>

- Do not install the R290 units or cylinders in or around underground, hollow, and enclosed space.
- In case of installing it in the enclosed space, be sure to comply with the following.
 - Install the unit to enough space depending on refrigerant amount.
 - or
 - the openings for letting out the refrigerant gas are provided at the bottom.

NOTE:

*1 Qualifications are required for work on refrigerants and refrigerant circuits, such as repairing refrigerant circuits and recovering refrigerants. Only workers who have specialized knowledge and are certified by the MEU branch can do it.

*2 The detector itself may be the source of ignition. Be sure to use a detector that is compatible with the R290 refrigerant.

*3 Just opening the window is not enough to ventilate the refrigerant. Do not place the unit in such a way as to block the ventilation openings.

- (3) Keeping ignition source away from the unit.
- The following are the ignition sources in R290.
 - Keep them, away from around the R290 unit.
 - Examples of ignition source:
Open flames, electrical equipment, sockets, lamps, light switches, residential electrical wiring, sparking tools, objects with a surface temperature of 370°C or higher, etc.
 - Sparks due to tool friction also be a source of ignition.
Work that sparks should be done away from the unit.
 - Be sure to use a tool compliant with R290.
 - Do not install unit during turning on electricity.
Turning off electricity and checking by tester before installing R290 unit.
 - Static electricity is also an ignition source !!
Anti-static measures (anti-static and static electricity elimination) should be taken.

[Introduction of anti-static methods]

- Touch a grounded metal object once in a while to remove any charge from your body.
- Touching a water tap works extremely well.
- Use anti static wrist strap equipment to avoid potential differences between you and the appliances serviced.
 - * But attention: These wrist straps are not always grounded
- Wear work clothes, gloves and shoes with antistatic measures.
- Do not brazing the pipe and unit which contain refrigerant. Before brazing, refrigerant should be removed.
- Be sure to follow the additional steps below in accordance with EN60335-2-40 after recovering the R290 refrigerant.
 - Purge the refrigerant circuit with inert gas for 5 min.
 - Evacuate the refrigerant circuit.
 - Purge the refrigerant circuit again with inert gas for 5 min. (Inert gas is for example oxygen-free nitrogen)
- When repairing the refrigerant parts, remove parts to be replaced by cutting with pipe cutter, NOT by flame nor by electric saw, etc.

Safety Requirements

- (1) Before starting the work, perform the following safety checks and preparations.
- (a) Check the tools and equipment used.
- Appropriate protective equipment must be worn.
 - Verify that the R290 detector is working properly and carry it with you at all the times.
The detector should be set to 25% of LFL and calibrated for R290 refrigerant.
 - Make sure that there is
 - no refrigerant in the work area and around the outdoor unit.
 - no leakage from the outdoor unit.
 - no refrigerant leakage inside the water circuit.
 - no flammable material stored in the work area.
- (b) Check and secure the work area.
- Make sure that the work area has sufficient space and is well ventilated or properly ventilated during working.
 - There must be no ignition sources, spaces where refrigerant can stay, or openings that can flow into the building in the protected area of the outdoor unit.
 - Only authorized personnel shall be allowed in the work area during operation. (Notes or impulse bar, etc. to prevent occupants from entering)
- (c) Check for and eliminate ignition sources.
- Do not bring in ignition sources.
 - Be careful of static electricity on work clothes and tools.
 - Confirm that the outdoor unit is shut down and cut off the power supply to the outdoor unit.
 - Discharge the condenser or capacitors in a way that will not cause sparks.
 - Make sure that LED on the outdoor controller circuit board goes out and wait for at least 1 minute.
 - If there is a refrigerant leak, never touch the electrical components while leak detection is being carried out because spark may occur even if LED1 goes out.
- (d) Ensure that appropriate fire extinguishing equipment (e.g., fire extinguishers) is in place and ready for use.
- (e) Confirmation of work procedures and methods.
- (2) During the work for electrical components, perform the following safety precaution.
- Repair and maintenance to electrical components shall include initial safety checks.
 - Make sure, in a way that will not cause sparks, that the condenser or capacitors is discharged.
 - Make sure that electrical components are grounded.
 - In case of repairing the sealed components that include ignition source, you must disconnect All electrical supplies from the unit. If it is absolutely necessary to have an electrical supply to equipment during servicing, be sure to locate a permanently operating form of leak detection at the most critical point.
 - Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. In case it have degraded, Replace them new parts in accordance with the manufacturer's specifications.
 - Replace components only with parts specified by the manufacturer since other parts may result in the ignition of refrigerant in the atmosphere from a leak.

Basic work procedures are the same as those for conventional units using refrigerant R32 or R410A. However, pay careful attention to the following points.

1. Information on servicing
 - (1) Checks on the Area
Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized.
 - (2) Work Procedure
Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
 - (3) General Work Area
All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.
 - (4) Checking for Presence of Refrigerant
The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
 - (5) Presence of Fire Extinguisher
If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
 - (6) No Ignition Sources
No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
 - (7) Ventilated Area
Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
 - (8) Checks on the Refrigeration Equipment
Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants:
 - The charge size is in accordance with the room size within which the refrigerant containing parts are installed.
 - The ventilation machinery and outlets are operating adequately and are not obstructed.
 - If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
 - Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
 - Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being corroded.
 - (9) Checks on Electrical Devices
Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
Initial safety checks shall include that:
 - capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
 - no live electrical components and wiring are exposed while charging, recovering or purging the system;
 - there is continuity of earth bonding
2. Sealed electrical components
Sealed electrical components shall not be repaired.
3. Cabling
Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.
4. Detection of Flammable Refrigerants
Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.
5. Leak Detection Methods
Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
If a leak is suspected, all naked flames shall be removed/extinguished.
If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. For appliances containing flammable refrigerants, oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.
6. Removal and Evacuation
When breaking into the refrigerant circuit to make repairs - or for any other purpose conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:
 - remove refrigerant
 - purge the circuit with inert gas
 - evacuate
 - purge again with inert gas
 - open the circuit by cutting or brazing.The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants, the system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.
Ensure that the outlet for the vacuum pump is not close to any ignition sources and that ventilation is available.

7. Charging Procedures

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
 - Cylinders shall be kept upright.
 - Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
 - Label the system when charging is complete (if not already).
 - Extreme care shall be taken not to overfill the refrigeration system.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

8. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to reuse of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

(1) Become familiar with the equipment and its operation.

(2) Isolate system electrically.

(3) Before attempting the procedure, ensure that:

- mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- all personal protective equipment is available and being used correctly;
- the recovery process is supervised at all times by a competent person;
- recovery equipment and cylinders conform to the appropriate standards.

(4) Pump down refrigerant system, if possible.

(5) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

(6) Make sure that cylinder is situated on the scales before recovery takes place.

(7) Start the recovery machine and operate in accordance with manufacturer's instructions.

(8) Do not overfill cylinders. (no more than 80 % volume liquid charge).

(9) Do not exceed the maximum working pressure of the cylinder, even temporarily.

(10) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

(11) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

9. Labeling

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

10. Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

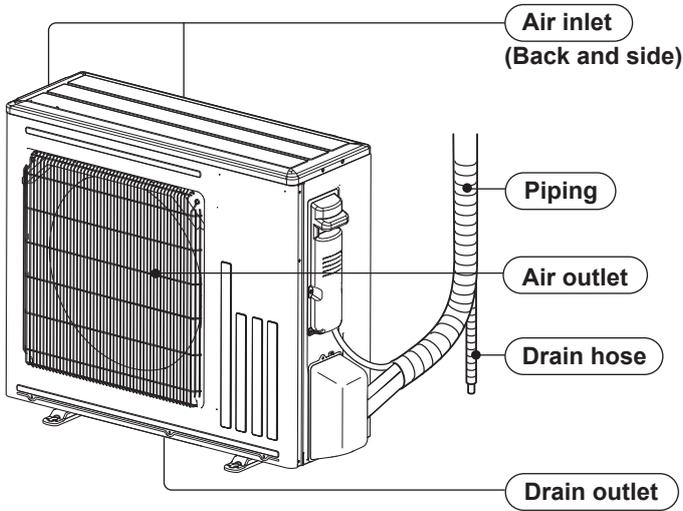
If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

3

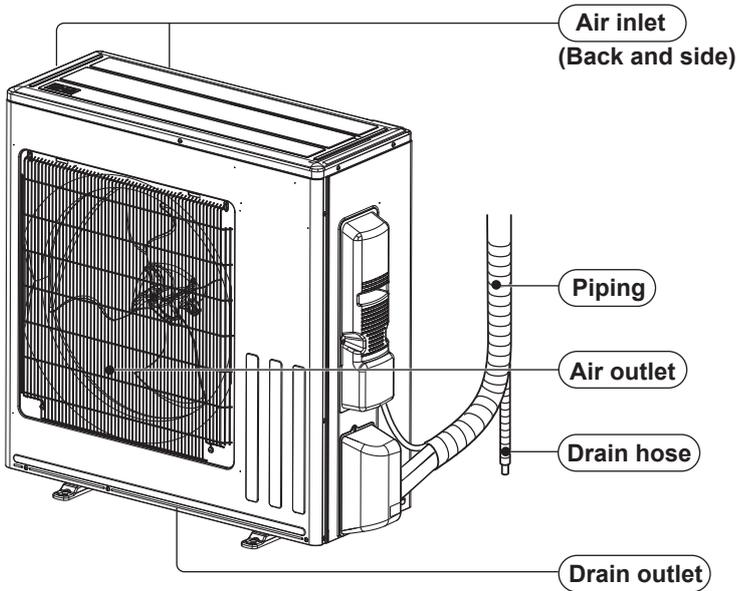
PART NAMES AND FUNCTIONS

MUZ-RZ25VU
MUZ-RZ35VU

MUZ-RZ25VUHZ
MUZ-RZ35VUHZ



MUZ-RZ50VUHZ



4

SPECIFICATION

Outdoor model				MUZ-RZ25VU	MUZ-RZ35VU		
Power supply				Single phase, 230 V, 50 Hz			
Capacity Rated (Min. – Max.)		Cooling	kW	2.5 (0.9 – 3.5)	3.5 (1.0 – 4.0)		
		Heating		3.2 (0.8 – 5.4)	4.0 (1.1 – 6.3)		
Breaker Capacity			A	10	10		
Electrical data	Power input *1 (Set)		Cooling	W	450	770	
			Heating		580	810	
	Running current *1 (Set)		Cooling	A	2.4	3.6	
			Heating		2.9	3.8	
	Power factor *1 (Set)		Cooling	%	81	92	
Heating			86		92		
Starting current *1 (Set)			A	2.9	3.8		
Coefficient of performance (COP) *1 (Set)		Cooling		5.60	4.50		
		Heating		5.50	4.90		
Compressor				SPB200FQHMT	SPB280FBYMT		
Model			W	3,640	5,080		
Current *1		Cooling	A	2.04	3.14		
		Heating		2.44	3.26		
Refrigeration oil (Model)			L	0.30 (PZ46M)	0.30 (PZ46M)		
Fan motor				RC0J55-FA	RC0J55-FA		
Current *1		Cooling	A	0.22	0.25		
		Heating		0.25	0.29		
Dimensions W × H × D			mm	800 × 714 × 285	800 × 714 × 285		
Weight			kg	37.5	39.5		
Special remarks	Dehumidification		Cooling	L/h	0.0	0.4	
	Airflow *1		Cooling	High	m ³ /h	3,198	3,198
				Low		924	1,092
	Heating		High	m ³ /h	2,322	2,520	
			Med.		2,322	2,520	
			Low		990	990	
	Sound level *1		Cooling		dB(A)	46	49
			Heating			49	50
	Fan speed		Cooling	High	rpm	1,060	1,060
				Low		370	420
			Heating	High		790	850
				Med.		790	850
			Low		390	390	
Fan speed regulator					3	3	
Refrigerant filling capacity (R290)			kg	0.39	0.39		

NOTE: Test conditions are based on ISO 5151.

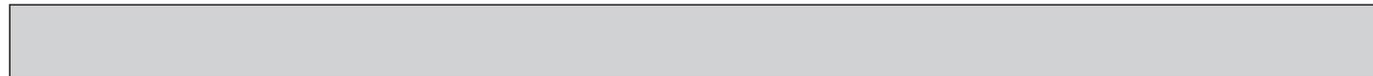
Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C

Outdoor Dry-bulb temperature 35°C

Heating: Indoor Dry-bulb temperature 20°C

Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C

*1 Measured under rated operating frequency.



Outdoor model				MUZ-RZ25VUHZ	MUZ-RZ35VUHZ	MUZ-RZ50VUHZ	
Power supply				Single phase, 230 V, 50 Hz			
Capacity Rated (Min. – Max.)	Cooling	kW		2.5 (0.9 – 3.5)	3.5 (1.0 – 4.0)	5.0 (1.4 – 5.8)	
	Heating			3.2 (0.8 – 6.3)	4.0 (1.1 – 7.0)	6.0 (1.8 – 8.7)	
Breaker Capacity			A	10	12	16	
Electrical data	Power input *1 (Set)	Cooling	W	450	770	1,380	
		Heating		580	810	1,450	
	Running current *1 (Set)	Cooling	A	2.4	3.6	6.1	
		Heating		2.9	3.8	6.4	
	Power factor *1 (Set)	Cooling	%	81	92	98	
Heating			86	92	98		
Starting current *1 (Set)			A	2.9	3.8	6.4	
Coefficient of performance (COP) *1 (Set)		Cooling		5.60	4.50	3.60	
		Heating		5.50	4.90	4.10	
Compressor	Model			SPB200FQHMT	SPB280FBYMT	TPB420FBWMT	
	Output		W	3,640	5,080	7,680	
	Current *1	Cooling	A	2.04	3.14	5.11	
		Heating		2.44	3.26	5.23	
Refrigeration oil (Model)			L	0.30 (PZ46M)	0.30 (PZ46M)	0.45 (PZ46M)	
Fan motor	Model			RC0J55-FA	RC0J55-FA	RC0J55-EB	
	Current *1	Cooling	A	0.22	0.25	0.71	
		Heating		0.25	0.29	0.80	
Dimensions W × H × D			mm	800 × 714 × 285	800 × 714 × 285	840 × 880 × 330	
Weight			kg	38.0	40	58	
Special remarks	Dehumidification		Cooling	L/h	0.0	0.4	1.4
	Airflow *1	Cooling	High	m³/h	3,198	3,198	3,744
			Low		924	1,092	1,518
		Heating	High		2,322	2,520	3,192
			Med.		2,322	2,520	3,192
	Sound level *1	Cooling	Low	dB(A)	990	990	1,614
			High		46	49	51
		Heating	49		50	54	
	Fan speed	Cooling	High	rpm	1,060	1,060	900
			Low		370	420	420
		Heating	High		790	850	780
			Med.		790	850	780
	Fan speed regulator				390	390	440
Refrigerant filling capacity (R290)			kg	3	3	3	
Refrigerant filling capacity (R290)			kg	0.39	0.39	0.70	

NOTE: Test conditions are based on ISO 5151.

Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C

Outdoor Dry-bulb temperature 35°C

Heating: Indoor Dry-bulb temperature 20°C

Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C

*1 Measured under rated operating frequency.

Specifications and rated conditions of main electric parts

Item	Model	MUZ-RZ25VU	MUZ-RZ35VU
		MUZ-RZ25VUHZ	MUZ-RZ35VUHZ
Smoothing capacitor	(C61, C62)	800 μ F 420 V	
Diode module	(DB61, DB65)	25 A 600 V	
Fuse	(F701, F801, F901)	T3.15AL250V	
	(F61)	25 A 250 V	
	(F62)	15 A 250 V	
Defrost heater	(H)	230 V 60 W	
Power module	(IC700)	15A 600V	20A 600V
	(IC932)	5 A 600 V	
Expansion valve coil	(LEV)	12 V DC	
Reactor	(L61)	23 mH	
Switching power transistor	(Q821)	30A/37A 600V	
Circuit protection	(PTC64, PTC65)	33 Ω	
Terminal block	(TB1)	5 P	
Relay	(X63)	3 A 250 V	
	(X64)	20 A 250 V	
	(X66)	3 A 250 V (VUHZ only)	
	(X69)	10 A 230 V	
R.V. coil	(21S4)	220-240 V AC	
Heater protector	(26H)	Open 45°C	

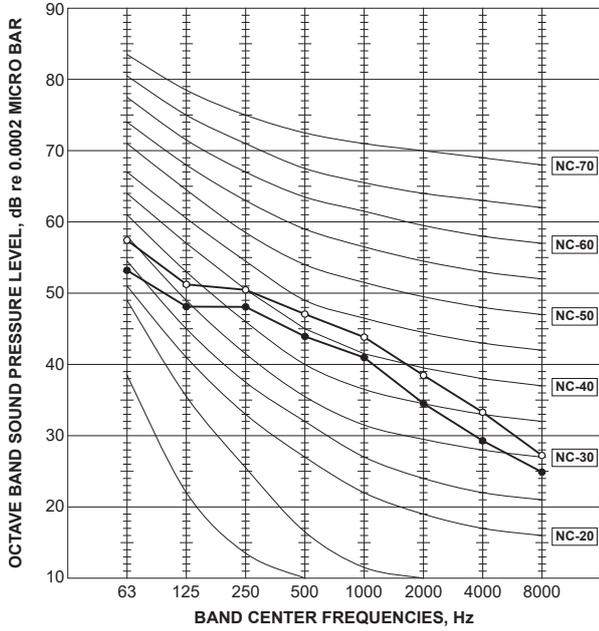
Item	Model	MUZ-RZ50VUHZ	
Smoothing capacitor	(CB1, CB2, CB3)	560 μ F 450 V	
Fuse	(F601, F880, F901)	T3.15AL250V	
	(F61)	25 A 250 V	
	(F62)	15A 250 V	
Switching power transistor	(Q3A, Q3B)	30 A 650 V	
Defrost heater	(H)	230V 120 W	
Power module	(IC932)	5 A 600 V	
	(IC700)	20 A 600 V	
Expansion valve coil	(LEV)	12 V DC	
Reactor	(L)	282 μ H	
Diode	(D3A, D3B)	20 A 600 V	
Diode module	(DB41)	25 A 600 V	
Circuit protection	(PTC64, PTC65)	33 Ω	
Terminal block	(TB1)	5 P	
Relay	(X64)	20 A 250 V	
	(X65)	20 A 250 V	
	(X69)	10 A 250 V	
	(X601)	3 A 250 V	
	(X602)	3 A 250 V	
R.V. coil	(21S4)	220-240 V AC	
Heater protector	(26H)	Open 45°C	

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NOISE CRITERIA CURVES

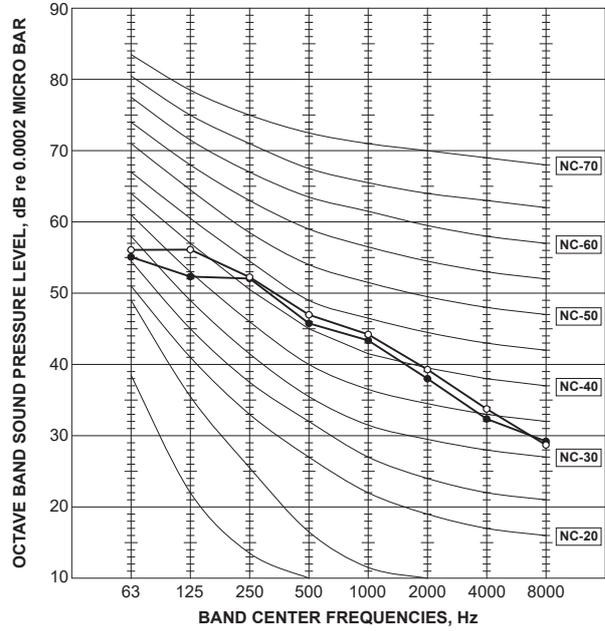
MUZ-RZ25VU MUZ-RZ25VUHZ

FUNCTION	SPL(dB(A))	LINE
COOLING	46	●—●
HEATING	49	○—○



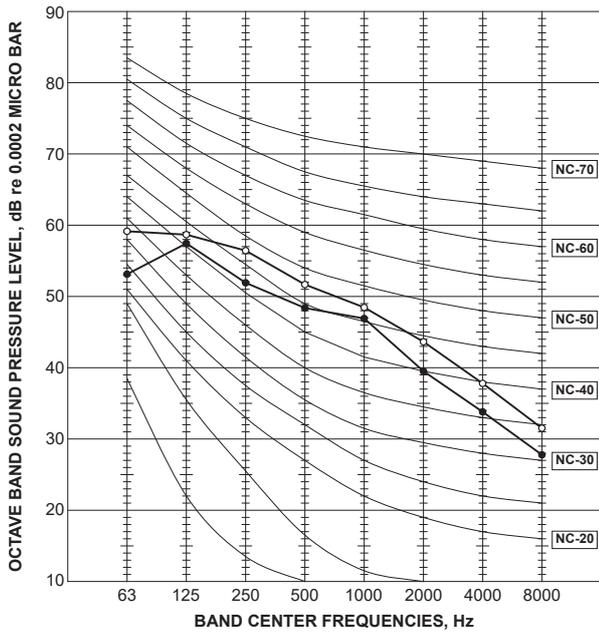
MUZ-RZ35VU MUZ-RZ35VUHZ

FUNCTION	SPL(dB(A))	LINE
COOLING	49	●—●
HEATING	50	○—○



MUZ-RZ50VUHZ

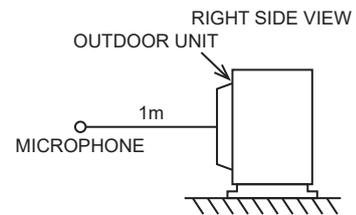
FUNCTION	SPL(dB(A))	LINE
COOLING	51	●—●
HEATING	54	○—○



Test conditions

Cooling: Dry-bulb temperature 35°C

Heating: Dry-bulb temperature 7°C Wet-bulb temperature 6°C

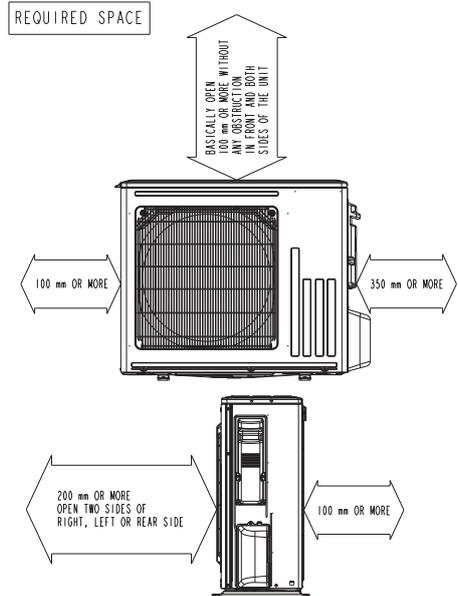


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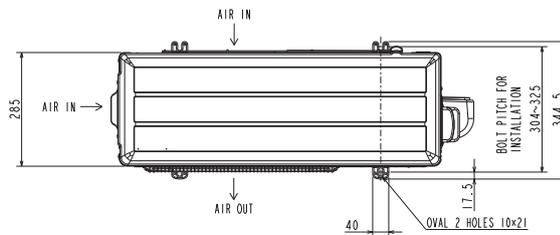
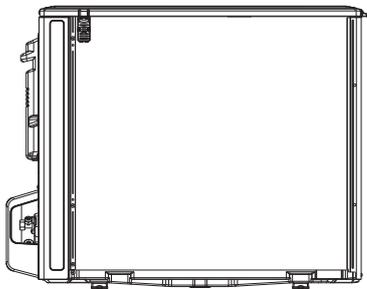
OUTLINES AND DIMENSIONS

MUZ-RZ25VU MUZ-RZ35VU
 MUZ-RZ25VUHZ MUZ-RZ35VUHZ

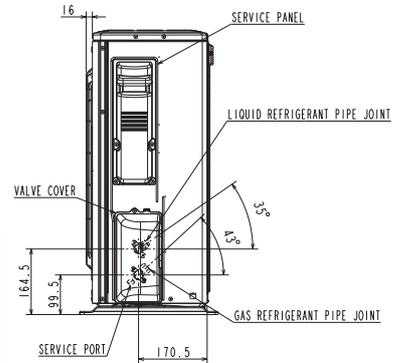
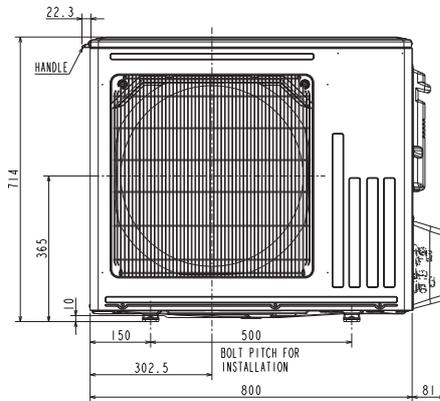
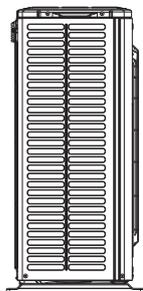
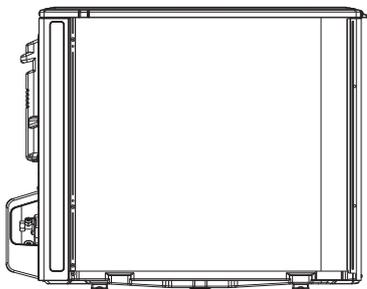
Unit: mm



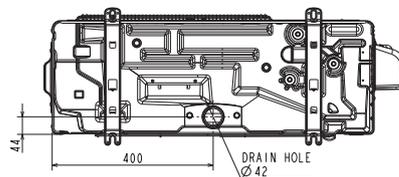
MUZ-RZ25/35VU



MUZ-RZ25/35VUHZ

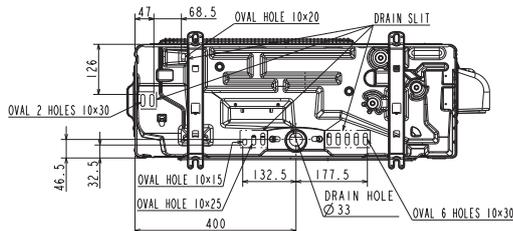


MUZ-RZ25/35VU



REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED 6.35(1/4")
	GAS REFRIGERANT PIPE	FLARED 9.52(3/8")

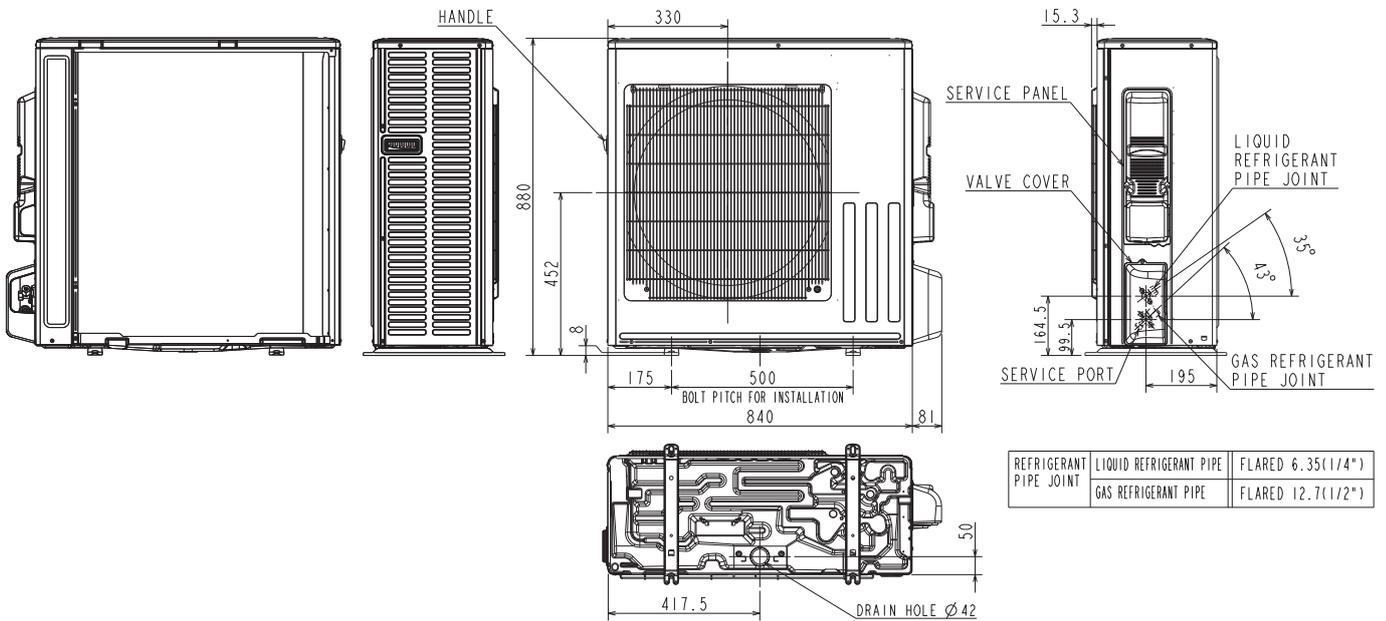
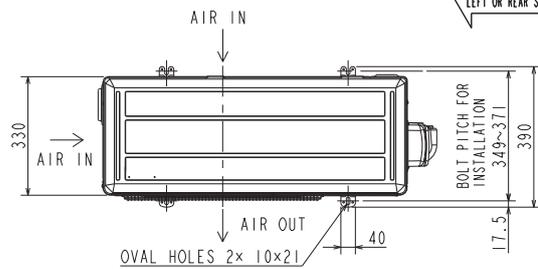
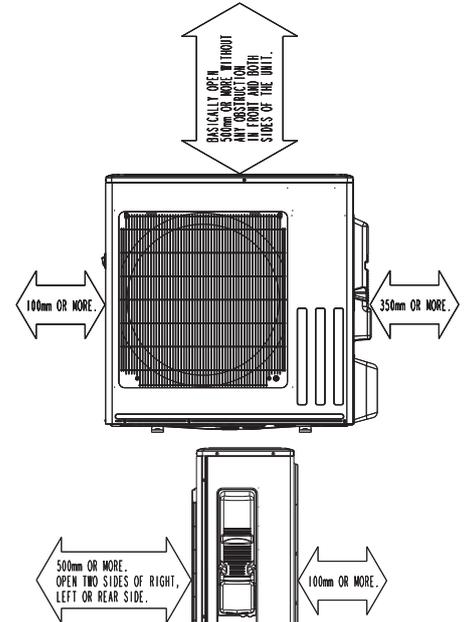
MUZ-RZ25/35VUHZ



MUZ-RZ50VUHZ

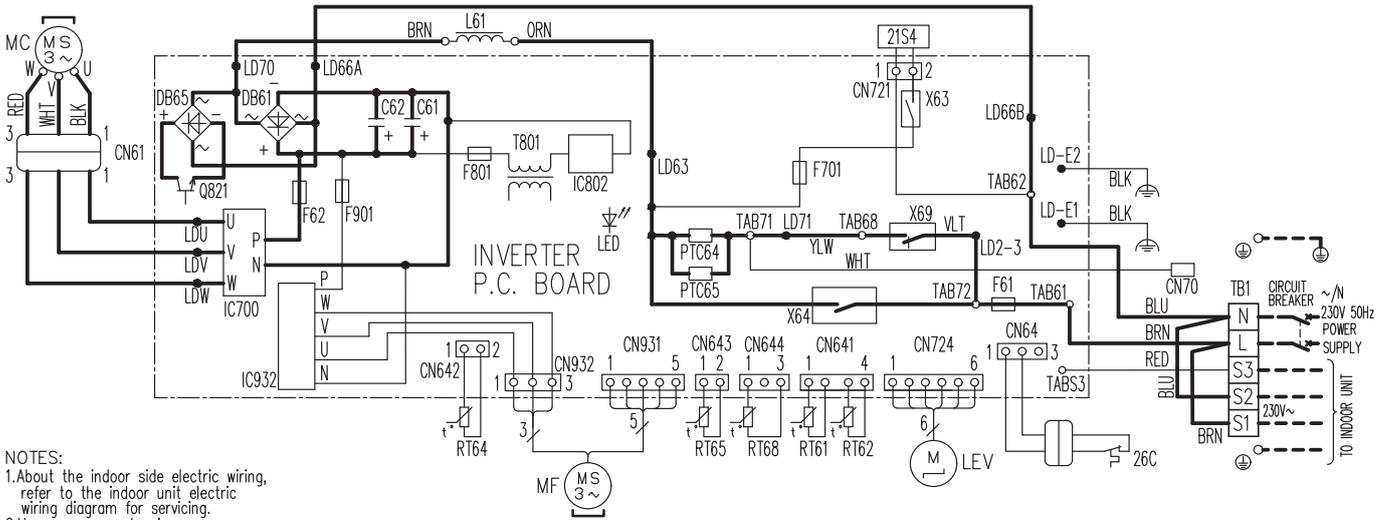
Unit: mm

REQUIRED SPACE



MUZ-RZ25VU

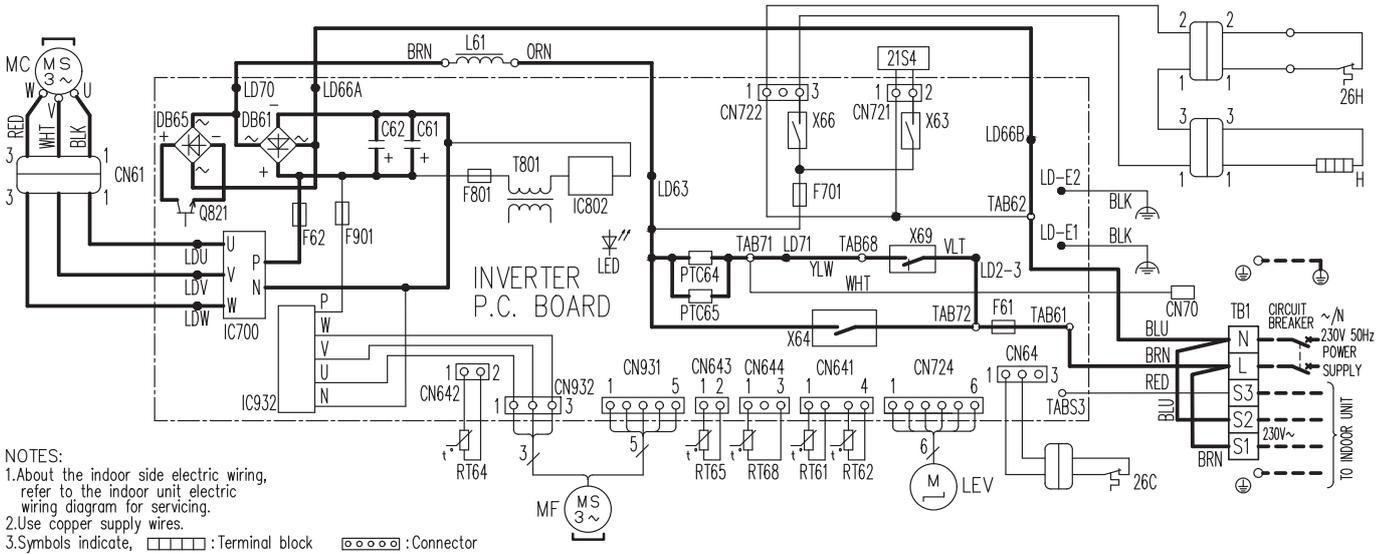
MUZ-RZ35VU



NOTES:
 1.About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
 2.Use copper supply wires.
 3.Symbols indicate, : Terminal block : Connector

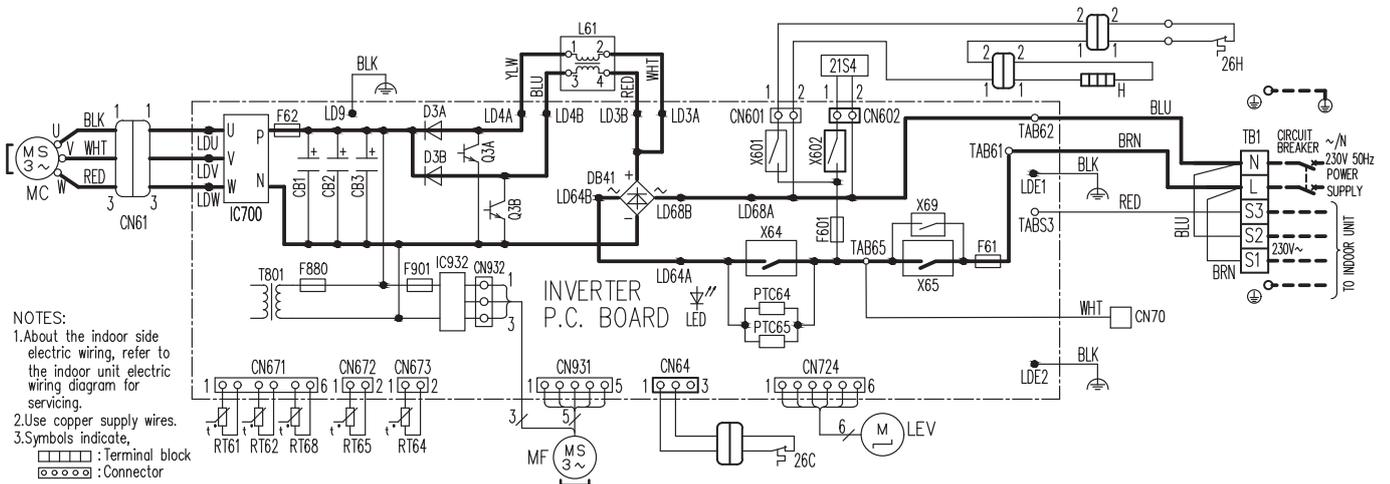
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
C61, C62	SMOOTHING CAPACITOR	MC	COMPRESSOR	TB1	TERMINAL BLOCK
DB61, DB65	DIODE MODULE	MF	FAN MOTOR	T801	TRANSFORMER
F61	FUSE (25A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	X63, X64, X69	RELAY
F62	FUSE (15A 250V)	Q821	SWITCHING POWER TRANSISTOR	21S4	REVERSING VALVE COIL
F701, F801, F901	FUSE (T3.15A/250V)	RT61	DEFROST THERMISTOR	26C	COMPRESSOR PROTECTOR
IC700, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR		
IC802	POWER DEVICE	RT64	FIN TEMP. THERMISTOR		
LED	LED	RT65	AMBIENT TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL				

MUZ-RZ25VUHZ MUZ-RZ35VUHZ



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
C61, C62	SMOOTHING CAPACITOR	L61	REACTOR	TB1	TERMINAL BLOCK
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	T801	TRANSFORMER
F61	FUSE (25A 250V)	MF	FAN MOTOR	PTC64, PTC65	CIRCUIT PROTECTION
F62	FUSE (15A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	X63, X64, X66, X69	RELAY
F701, F801, F901	FUSE (T3.15AL250V)	Q821	SWITCHING POWER TRANSISTOR	21S4	REVERSING VALVE COIL
H	DEFROST HEATER	RT61	DEFROST THERMISTOR	26C	COMPRESSOR PROTECTOR
IC700, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	26H	HEATER PROTECTOR
IC802	POWER DEVICE	RT64	FIN TEMP. THERMISTOR		
LED	LED	RT65	AMBIENT TEMP. THERMISTOR		

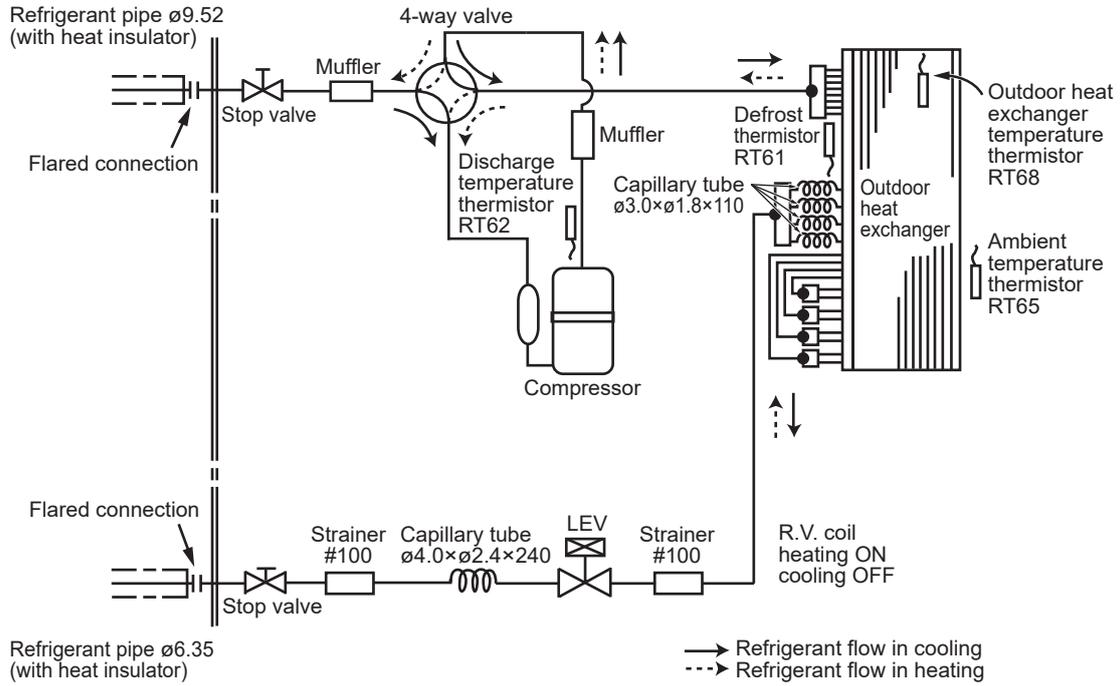
MUZ-RZ50VUHZ



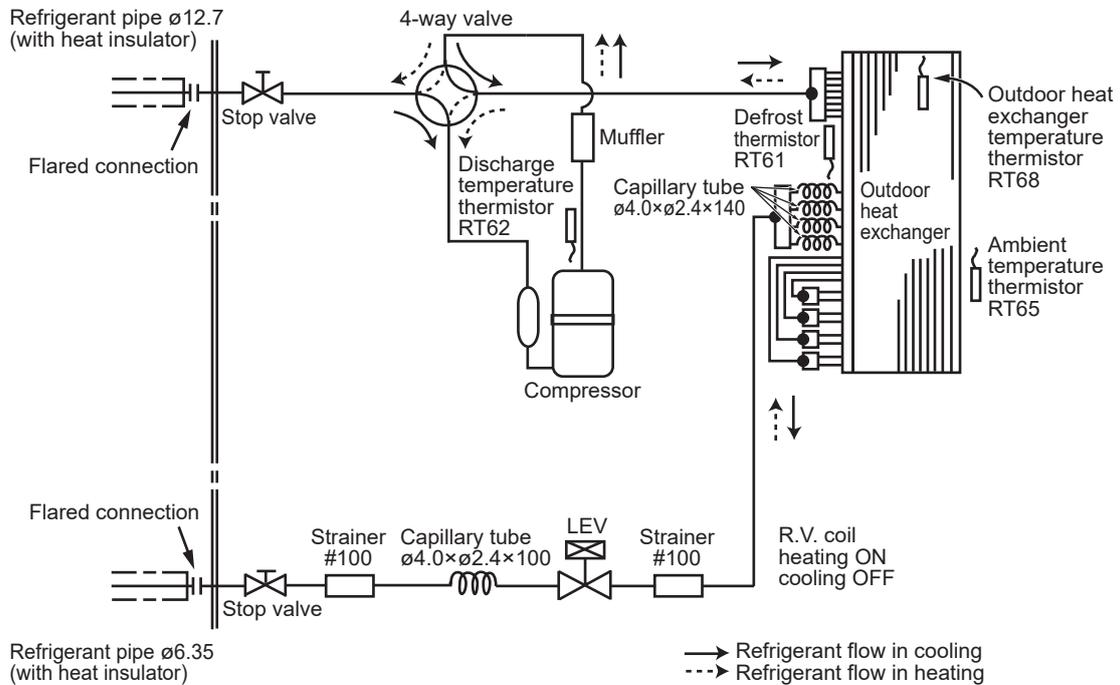
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1, CB2, CB3	SMOOTHING CAPACITOR	L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR
CN61	CONNECTOR	LED	LED	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB41	DIODE MODULE	LEV	EXPANSION VALVE COIL	TB1	TERMINAL BLOCK
D3A, D3B	DIODE	MC	COMPRESSOR	T801	TRANSFORMER
F601	FUSE (T3.15AL250V)	MF	FAN MOTOR	PTC64, PTC65	CIRCUIT PROTECTION
F61	FUSE (25A 250V)	Q3A, Q3B	SWITCHING POWER TRANSISTOR	X601, X602	RELAY
F62	FUSE (15A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	X64, X65, X69	RELAY
F880, F901	FUSE (T3.15AL250V)	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
H	DEFROST HEATER	RT62	DISCHARGE TEMP. THERMISTOR	26C	COMPRESSOR PROTECTOR
IC700, IC932	POWER MODULE	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR

MUZ-RZ25VU MUZ-RZ35VU
 MUZ-RZ25VUHZ MUZ-RZ35VUHZ

Unit: mm



MUZ-RZ50VUHZ

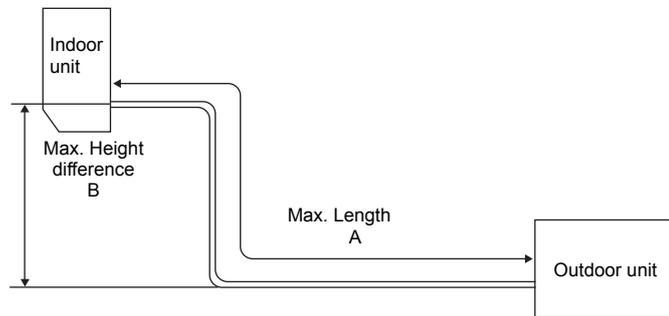


MAX. REFRIGERANT PIPING LENGTH and MAX. HEIGHT DIFFERENCE

- In case piping length is more than charge-less length, please add refrigerant.
- In any case, the amount must not exceed 0.988 kg.
- Check the installation manual as there may be an upper limit depending on the model.
- The amount of refrigerant that can be charged depends on the room in which the unit is installed, so please check the room area as well.

NOTE: Additional refrigerant is not required odorant because pre-charge refrigerant includes enough amount.

Model	Refrigerant piping: m		Piping size O.D: mm	
	Max. Length A	Max. Height difference B	Gas	Liquid
MUZ-RZ25VU MUZ-RZ25VUHZ MUZ-RZ35VU MUZ-RZ35VUHZ	20	12	9.52	6.35
MUZ-RZ50VUHZ	30	15	12.7	6.35



ADDITIONAL REFRIGERANT CHARGE (R290: g)

Model	Outdoor unit precharged	Refrigerant piping length (one way)													
		7 m	8 m	9 m	10 m	11 m	12 m	13 m	14 m	15 m	16 m	17 m	18 m	19 m	20 m
MUZ-RZ25VU MUZ-RZ25VUHZ	390	0	0	0	0	10	20	30	40	50	60	70	80	90	100
MUZ-RZ35VU MUZ-RZ35VUHZ	390														

Calculation: $X \text{ g} = 10 \text{ g/m} \times (\text{Refrigerant piping length(m)} - 10)$

Model	Outdoor unit precharged	Refrigerant piping length (one way)					
		15 m	16 m	17 m	20 m	25 m	30 m
MUZ-RZ50VUHZ	700	0	10	20	50	100	150

Calculation: $X \text{ g} = 10 \text{ g/m} \times (\text{Refrigerant piping length (m)} - 15)$

REFRIGERANT AMOUNT FOR MUZ-RZ IN EACH PIPING LENGTH

- In case piping length is more than charge-less length, please add refrigerant.
- In any case, the amount must not exceed 0.988 kg.
- Check the installation manual as there may be an upper limit depending on the model.
- The amount of refrigerant that can be charged depends on the room in which the unit is installed, so please check the room area as well.

NOTE: Additional refrigerant is not required odorant because pre-charge refrigerant includes enough amount.

Pipe length (m)	Refrigerant amount (g)		Minimum room area (m ²)	
	MUZ-RZ25/35VU MUZ-RZ25/35VUHZ	MUZ-RZ50VUHZ	MUZ-RZ25/35VU MUZ-RZ25/35VUHZ	MUZ-RZ50VUHZ
5	390	700	10	17
6	390	700	10	17
7	390	700	10	17
8	390	700	10	17
9	390	700	10	17
10	390	700	10	17
11	400	700	10	17
12	410	700	10	17
13	420	700	11	17
14	430	700	11	17
15	440	700	11	17
16	450	710	11	17
17	460	720	12	18
18	470	730	12	18
19	480	740	12	18
20	490	750	12	18
21	—	760	—	19
22	—	770	—	19
23	—	780	—	19
24	—	790	—	19
25	—	800	—	20
26	—	810	—	20
27	—	820	—	20
28	—	830	—	20
29	—	840	—	21
30	—	850	—	21

MUZ-RZ25VU MUZ-RZ35VU
MUZ-RZ25VUHZ MUZ-RZ35VUHZ MUZ-RZ50VUHZ

The standard specifications apply only to the operation of the air conditioner under normal conditions. Since operating conditions vary according to the areas where these units are installed, the following information has been provided to clarify the operating characteristics of the air conditioner under the conditions indicated by the performance curve.

(1) GUARANTEED VOLTAGE

198 ~ 264V, 50 Hz

(2) AIRFLOW

Airflow should be set at MAX.

(3) MAIN READINGS

(1) Indoor intake air wet-bulb temperature:	°C [WB]	} Cooling
(2) Indoor outlet air wet-bulb temperature:	°C [WB]	
(3) Outdoor intake air dry-bulb temperature:	°C [DB]	
(4) Total input:	W	
(5) Indoor intake air dry-bulb temperature:	°C [DB]	} Heating
(6) Outdoor intake air wet-bulb temperature:	°C [WB]	
(7) Total input:	W	

Indoor air wet and dry bulb temperature difference on the left side of the following chart shows the difference between the indoor intake air wet and dry bulb temperature and the indoor outlet air wet and dry bulb temperature for your reference at service.

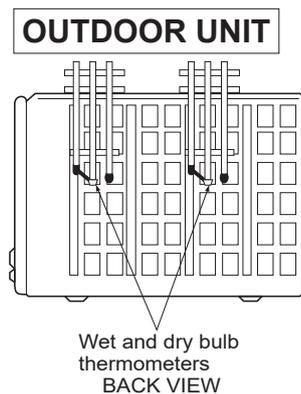
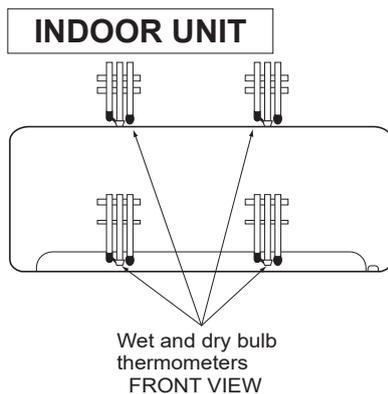
(4) GUARANTEED OUTDOOR TEMPERATURE

COOLING (DB/WB): -10/ ~ ~ 50/ -

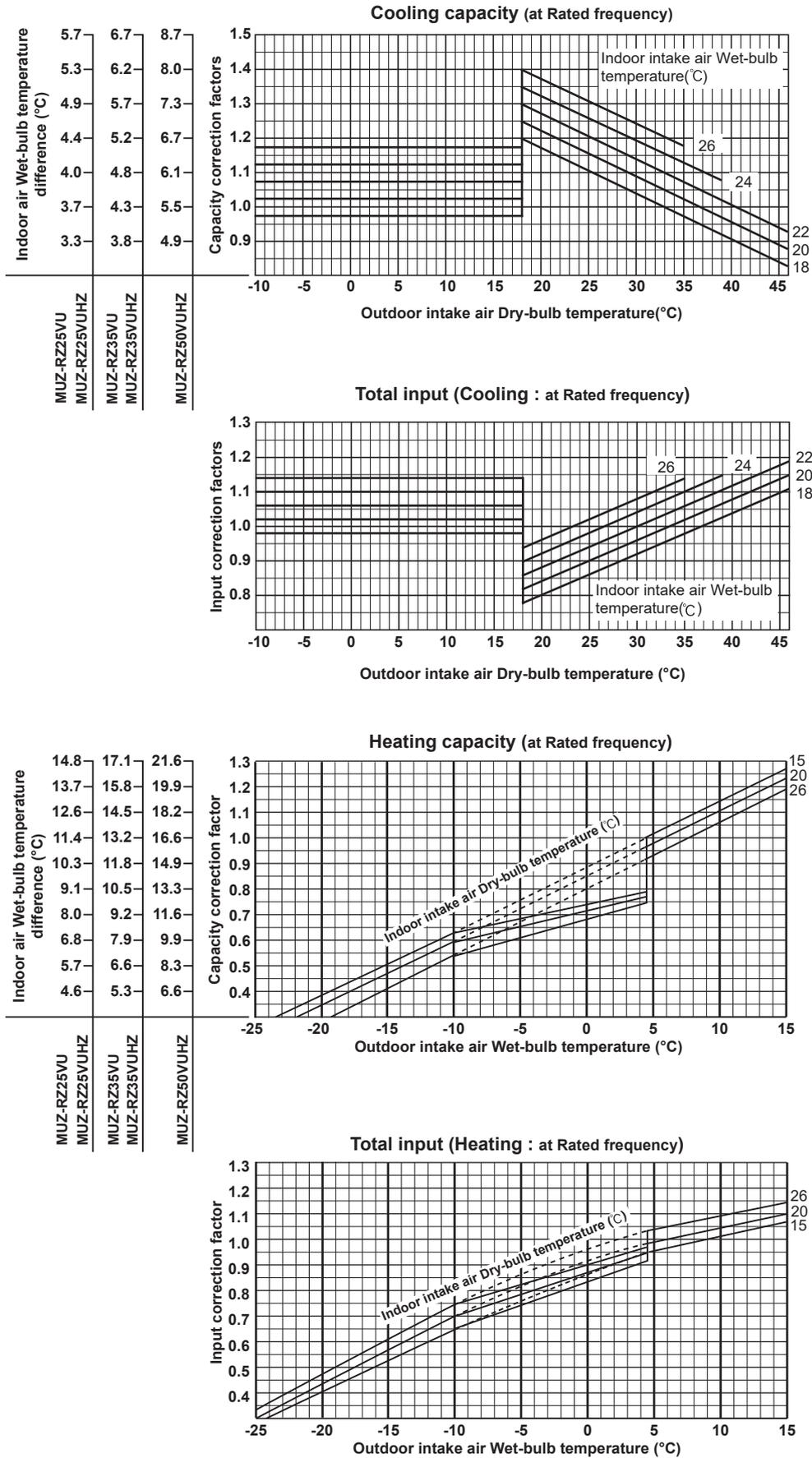
HEATING (DB/WB): -30/ - ~ 24/18

How to measure the indoor air wet and dry bulb temperature difference

1. Attach at least 2 sets of wet and dry bulb thermometers to the indoor air intake as shown in the figure, and at least 2 sets of wet and dry bulb thermometers to the indoor air outlet. The thermometers must be attached to the position where air speed is high.
2. Attach at least 2 sets of wet and dry bulb thermometers to the outdoor air intake.
Cover the thermometers to prevent direct rays of the sun.
3. Check that the air filter is cleaned.
4. Open windows and doors of room.
5. Press the emergency operation switch once (twice) to start the EMERGENCY COOL (HEAT) MODE.
6. When system stabilizes after more than 15 minutes, measure temperature and take an average temperature.
7. 10 minutes later, measure temperature again and check that the temperature does not change.



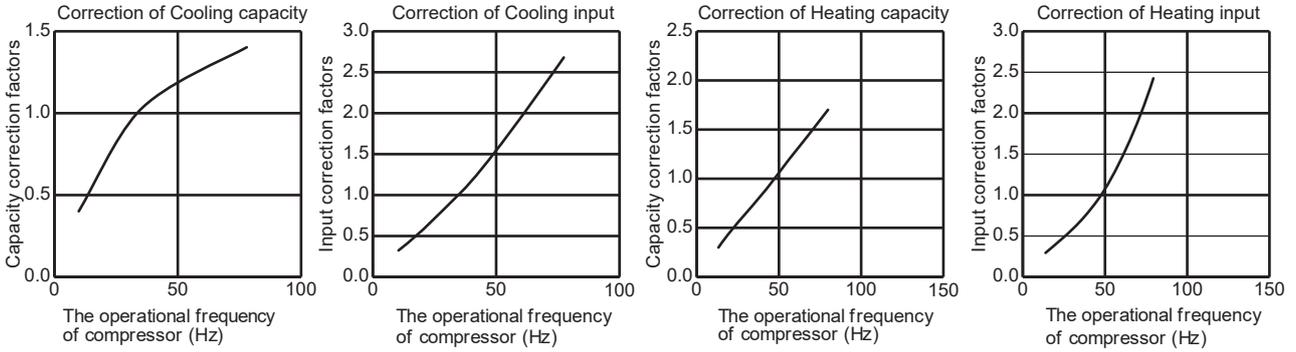
9-1. CAPACITY AND INPUT CURVES



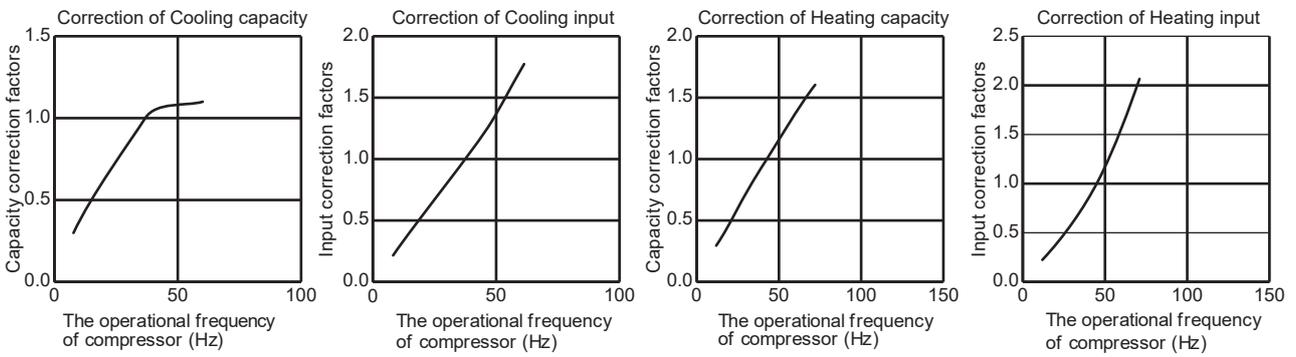
NOTE: The above broken lines are for the heating operation without any frost and defrost operation.

9-2. CAPACITY AND INPUT CORRECTION BY OPERATIONAL FREQUENCY OF COMPRESSOR

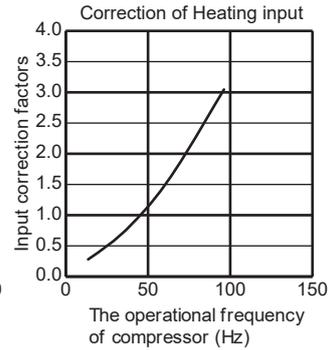
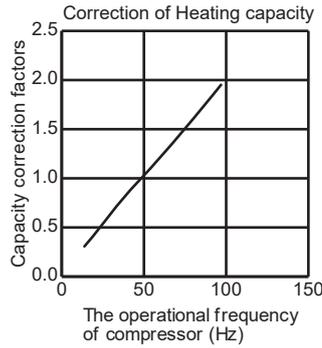
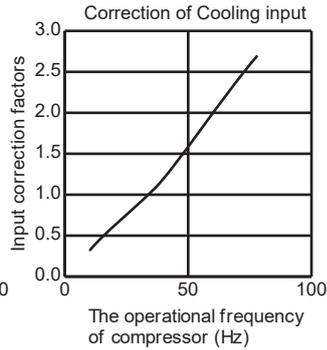
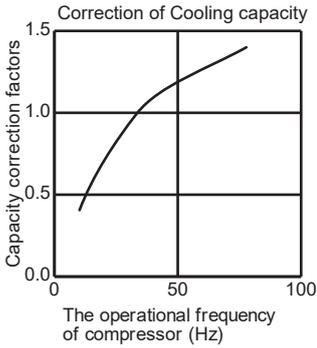
MUZ-RZ25VU



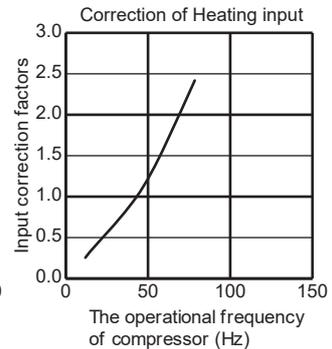
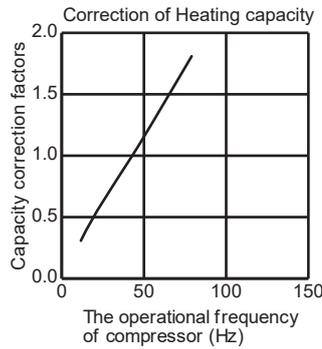
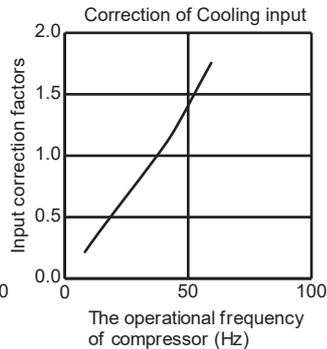
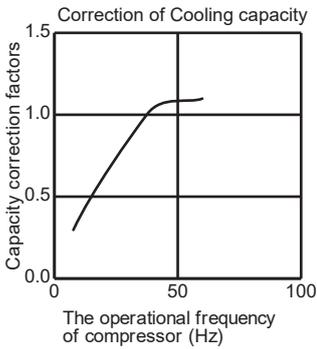
MUZ-RZ35VU



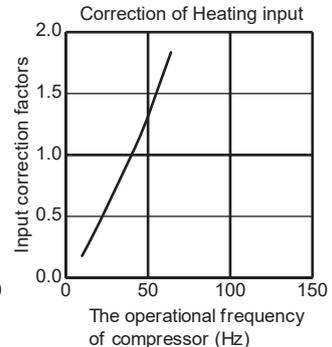
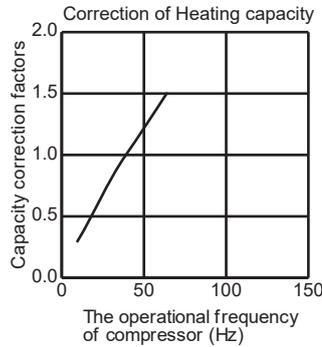
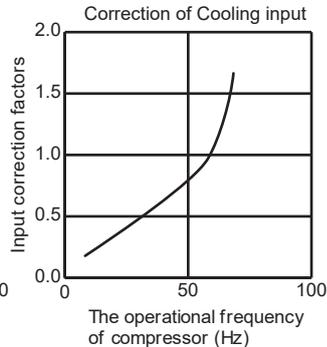
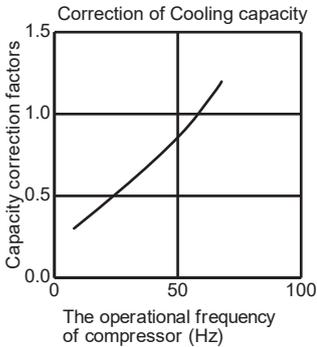
MUZ-RZ25VUHZ



MUZ-RZ35VUHZ



MUZ-RZ50VUHZ



9-3. HOW TO OPERATE FIXED-FREQUENCY OPERATION

<Test run operation>

1. Press the emergency operation switch to start COOL or HEAT mode (COOL: Press once, HEAT: Press twice).
2. Test run operation starts and continues to operate for 30 minutes.
3. Compressor operates at rated frequency in COOL mode or 58 Hz in HEAT mode.
4. Indoor fan operates at High speed.
5. After 30 minutes, test run operation finishes and EMERGENCY OPERATION starts (operation frequency of compressor varies).
6. To cancel test run operation (EMERGENCY OPERATION), press the emergency operation switch or any button on remote controller.

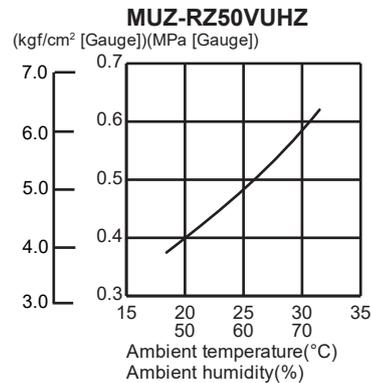
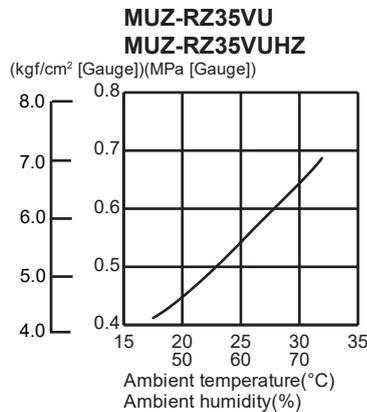
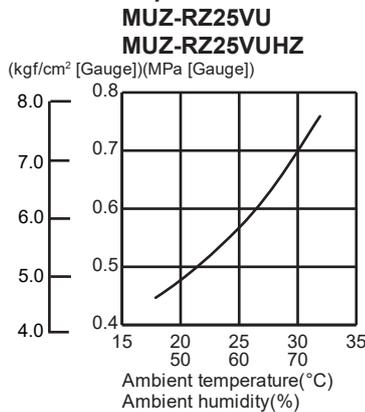
9-4. OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT

COOL operation

- ① Both indoor and outdoor unit are under the same temperature/humidity condition.
- ② Operation: Test run operation (Refer to 9-3.)

Dry-bulb temperature (°C)	Relative humidity (%)
20	50
25	60
30	70

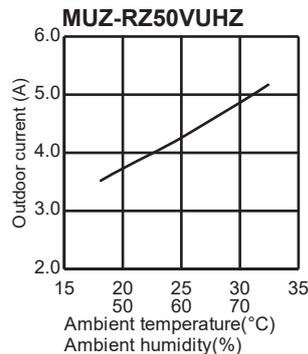
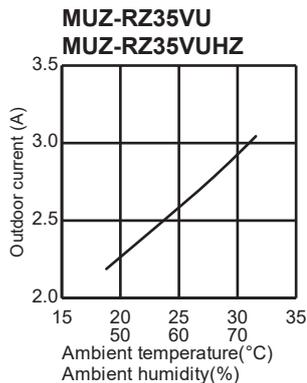
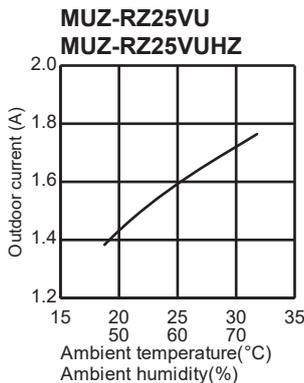
Outdoor low pressure



NOTE:

The unit of pressure has been changed to MPa on the international system of units (SI unit system)
The conversion factor is: **1 (MPa [Gauge]) = 10.2 (kgf/cm² [Gauge])**

Outdoor unit current



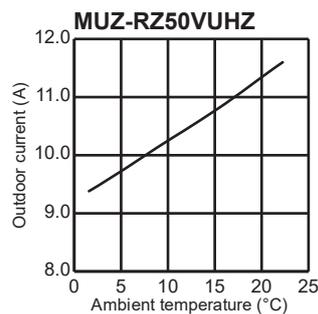
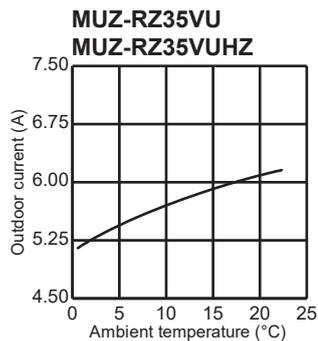
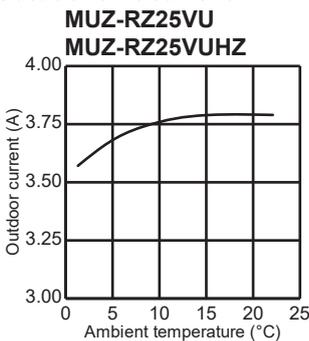
HEAT operation

- ① Condition:

	Indoor	Outdoor			
Dry bulb temperature (°C)	20.0	2	7	15	20.0
Wet bulb temperature (°C)	14.5	1	6	12	14.5

- ② Operation: Test run operation (Refer to 9-3.)

Outdoor unit current



PERFORMANCE DATA COOL operation at Rated frequency

MUZ-RZ25VU MUZ-RZ25VUHZ

CAPACITY: 2.5 kW SHF: 1.0 INPUT: 450 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.94	2.41	0.82	360	2.81	2.31	0.82	378	2.70	2.21	0.82	396	2.60	2.13	0.82	414
21	20	3.06	2.14	0.70	378	2.94	2.06	0.70	401	2.85	2.00	0.70	410	2.75	1.93	0.70	428
22	18	2.94	2.53	0.86	360	2.81	2.42	0.86	378	2.70	2.32	0.86	396	2.60	2.24	0.86	414
22	20	3.06	2.27	0.74	378	2.94	2.17	0.74	401	2.85	2.11	0.74	410	2.75	2.04	0.74	428
22	22	3.19	1.98	0.62	392	3.08	1.91	0.62	416	3.00	1.86	0.62	428	2.88	1.78	0.62	446
23	18	2.94	2.64	0.90	360	2.81	2.53	0.90	378	2.70	2.43	0.90	396	2.60	2.34	0.90	414
23	20	3.06	2.39	0.78	378	2.94	2.29	0.78	401	2.85	2.22	0.78	410	2.75	2.15	0.78	428
23	22	3.19	2.10	0.66	392	3.08	2.03	0.66	416	3.00	1.98	0.66	428	2.88	1.90	0.66	446
24	18	2.94	2.76	0.94	360	2.81	2.64	0.94	378	2.70	2.54	0.94	396	2.60	2.44	0.94	414
24	20	3.06	2.51	0.82	378	2.94	2.41	0.82	401	2.85	2.34	0.82	410	2.75	2.26	0.82	428
24	22	3.19	2.23	0.70	392	3.08	2.15	0.70	416	3.00	2.10	0.70	428	2.88	2.01	0.70	446
24	24	3.35	1.94	0.58	410	3.23	1.87	0.58	432	3.15	1.83	0.58	446	3.05	1.77	0.58	468
25	18	2.94	2.88	0.98	360	2.81	2.76	0.98	378	2.70	2.65	0.98	396	2.60	2.55	0.98	414
25	20	3.06	2.63	0.86	378	2.94	2.53	0.86	401	2.85	2.45	0.86	410	2.75	2.37	0.86	428
25	22	3.19	2.36	0.74	392	3.08	2.28	0.74	416	3.00	2.22	0.74	428	2.88	2.13	0.74	446
25	24	3.35	2.08	0.62	410	3.23	2.00	0.62	432	3.15	1.95	0.62	446	3.05	1.89	0.62	468
26	18	2.94	2.94	1.00	360	2.81	2.81	1.00	378	2.70	2.70	1.00	396	2.60	2.60	1.00	414
26	20	3.06	2.76	0.90	378	2.94	2.64	0.90	401	2.85	2.57	0.90	410	2.75	2.48	0.90	428
26	22	3.19	2.49	0.78	392	3.08	2.40	0.78	416	3.00	2.34	0.78	428	2.88	2.24	0.78	446
26	24	3.35	2.21	0.66	410	3.23	2.13	0.66	432	3.15	2.08	0.66	446	3.05	2.01	0.66	468
26	26	3.45	1.86	0.54	432	3.35	1.81	0.54	455	3.30	1.78	0.54	468	3.20	1.73	0.54	482
27	18	2.94	2.94	1.00	360	2.81	2.81	1.00	378	2.70	2.70	1.00	396	2.60	2.60	1.00	414
27	20	3.06	2.88	0.94	378	2.94	2.76	0.94	401	2.85	2.68	0.94	410	2.75	2.59	0.94	428
27	22	3.19	2.61	0.82	392	3.08	2.52	0.82	416	3.00	2.46	0.82	428	2.88	2.36	0.82	446
27	24	3.35	2.35	0.70	410	3.23	2.26	0.70	432	3.15	2.21	0.70	446	3.05	2.14	0.70	468
27	26	3.45	2.00	0.58	432	3.35	1.94	0.58	455	3.30	1.91	0.58	468	3.20	1.86	0.58	482
28	18	2.94	2.94	1.00	360	2.81	2.81	1.00	378	2.70	2.70	1.00	396	2.60	2.60	1.00	414
28	20	3.06	3.00	0.98	378	2.94	2.88	0.98	401	2.85	2.79	0.98	410	2.75	2.70	0.98	428
28	22	3.19	2.74	0.86	392	3.08	2.64	0.86	416	3.00	2.58	0.86	428	2.88	2.47	0.86	446
28	24	3.35	2.48	0.74	410	3.23	2.39	0.74	432	3.15	2.33	0.74	446	3.05	2.26	0.74	468
28	26	3.45	2.14	0.62	432	3.35	2.08	0.62	455	3.30	2.05	0.62	468	3.20	1.98	0.62	482
29	18	2.94	2.94	1.00	360	2.81	2.81	1.00	378	2.70	2.70	1.00	396	2.60	2.60	1.00	414
29	20	3.06	3.06	1.00	378	2.94	2.94	1.00	401	2.85	2.85	1.00	410	2.75	2.75	1.00	428
29	22	3.19	2.87	0.90	392	3.08	2.77	0.90	416	3.00	2.70	0.90	428	2.88	2.59	0.90	446
29	24	3.35	2.61	0.78	410	3.23	2.52	0.78	432	3.15	2.46	0.78	446	3.05	2.38	0.78	468
29	26	3.45	2.28	0.66	432	3.35	2.21	0.66	455	3.30	2.18	0.66	468	3.20	2.11	0.66	482
30	18	2.94	2.94	1.00	360	2.81	2.81	1.00	378	2.70	2.70	1.00	396	2.60	2.60	1.00	414
30	20	3.06	3.06	1.00	378	2.94	2.94	1.00	401	2.85	2.85	1.00	410	2.75	2.75	1.00	428
30	22	3.19	3.00	0.94	392	3.08	2.89	0.94	416	3.00	2.82	0.94	428	2.88	2.70	0.94	446
30	24	3.35	2.75	0.82	410	3.23	2.64	0.82	432	3.15	2.58	0.82	446	3.05	2.50	0.82	468
30	26	3.45	2.42	0.70	432	3.35	2.35	0.70	455	3.30	2.31	0.70	468	3.20	2.24	0.70	482
31	18	2.94	2.94	1.00	360	2.81	2.81	1.00	378	2.70	2.70	1.00	396	2.60	2.60	1.00	414
31	20	3.06	3.06	1.00	378	2.94	2.94	1.00	401	2.85	2.85	1.00	410	2.75	2.75	1.00	428
31	22	3.19	3.12	0.98	392	3.08	3.01	0.98	416	3.00	2.94	0.98	428	2.88	2.82	0.98	446
31	24	3.35	2.88	0.86	410	3.23	2.77	0.86	432	3.15	2.71	0.86	446	3.05	2.62	0.86	468
31	26	3.45	2.55	0.74	432	3.35	2.48	0.74	455	3.30	2.44	0.74	468	3.20	2.37	0.74	482
32	18	2.94	2.94	1.00	360	2.81	2.81	1.00	378	2.70	2.70	1.00	396	2.60	2.60	1.00	414
32	20	3.06	3.06	1.00	378	2.94	2.94	1.00	401	2.85	2.85	1.00	410	2.75	2.75	1.00	428
32	22	3.19	3.19	1.00	392	3.08	3.08	1.00	416	3.00	3.00	1.00	428	2.88	2.88	1.00	446
32	24	3.35	3.02	0.90	410	3.23	2.90	0.90	432	3.15	2.84	0.90	446	3.05	2.75	0.90	468
32	26	3.45	2.69	0.78	432	3.35	2.61	0.78	455	3.30	2.57	0.78	468	3.20	2.50	0.78	482

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
 SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-RZ25VU MUZ-RZ25VUHZ

CAPACITY: 2.5 kW SHF: 1.0 INPUT: 450 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.45	2.01	0.82	441	2.25	1.85	0.82	468	2.08	1.70	0.82	486
21	20	2.58	1.80	0.70	459	2.40	1.68	0.70	482	2.23	1.56	0.70	509
22	18	2.45	2.11	0.86	441	2.25	1.94	0.86	468	2.08	1.78	0.86	486
22	20	2.58	1.91	0.74	459	2.40	1.78	0.74	482	2.23	1.65	0.74	509
22	22	2.73	1.69	0.62	477	2.55	1.58	0.62	504	2.38	1.47	0.62	522
23	18	2.45	2.21	0.90	441	2.25	2.03	0.90	468	2.08	1.87	0.90	486
23	20	2.58	2.01	0.78	459	2.40	1.87	0.78	482	2.23	1.74	0.78	509
23	22	2.73	1.80	0.66	477	2.55	1.68	0.66	504	2.38	1.57	0.66	522
24	18	2.45	2.30	0.94	441	2.25	2.12	0.94	468	2.08	1.95	0.94	486
24	20	2.58	2.11	0.82	459	2.40	1.97	0.82	482	2.23	1.82	0.82	509
24	22	2.73	1.91	0.70	477	2.55	1.79	0.70	504	2.38	1.66	0.70	522
24	24	2.88	1.67	0.58	495	2.70	1.57	0.58	518	2.55	1.48	0.58	540
25	18	2.45	2.40	0.98	441	2.25	2.21	0.98	468	2.08	2.03	0.98	486
25	20	2.58	2.21	0.86	459	2.40	2.06	0.86	482	2.23	1.91	0.86	509
25	22	2.73	2.02	0.74	477	2.55	1.89	0.74	504	2.38	1.76	0.74	522
25	24	2.88	1.78	0.62	495	2.70	1.67	0.62	518	2.55	1.58	0.62	540
26	18	2.45	2.45	1.00	441	2.25	2.25	1.00	468	2.08	2.08	1.00	486
26	20	2.58	2.32	0.90	459	2.40	2.16	0.90	482	2.23	2.00	0.90	509
26	22	2.73	2.13	0.78	477	2.55	1.99	0.78	504	2.38	1.85	0.78	522
26	24	2.88	1.90	0.66	495	2.70	1.78	0.66	518	2.55	1.68	0.66	540
26	26	3.03	1.63	0.54	513	2.85	1.54	0.54	536	2.68	1.44	0.54	558
27	18	2.45	2.45	1.00	441	2.25	2.25	1.00	468	2.08	2.08	1.00	486
27	20	2.58	2.42	0.94	459	2.40	2.26	0.94	482	2.23	2.09	0.94	509
27	22	2.73	2.23	0.82	477	2.55	2.09	0.82	504	2.38	1.95	0.82	522
27	24	2.88	2.01	0.70	495	2.70	1.89	0.70	518	2.55	1.79	0.70	540
27	26	3.03	1.75	0.58	513	2.85	1.65	0.58	536	2.68	1.55	0.58	558
28	18	2.45	2.45	1.00	441	2.25	2.25	1.00	468	2.08	2.08	1.00	486
28	20	2.58	2.52	0.98	459	2.40	2.35	0.98	482	2.23	2.18	0.98	509
28	22	2.73	2.34	0.86	477	2.55	2.19	0.86	504	2.38	2.04	0.86	522
28	24	2.88	2.13	0.74	495	2.70	2.00	0.74	518	2.55	1.89	0.74	540
28	26	3.03	1.88	0.62	513	2.85	1.77	0.62	536	2.68	1.66	0.62	558
29	18	2.45	2.45	1.00	441	2.25	2.25	1.00	468	2.08	2.08	1.00	486
29	20	2.58	2.58	1.00	459	2.40	2.40	1.00	482	2.23	2.23	1.00	509
29	22	2.73	2.45	0.90	477	2.55	2.30	0.90	504	2.38	2.14	0.90	522
29	24	2.88	2.24	0.78	495	2.70	2.11	0.78	518	2.55	1.99	0.78	540
29	26	3.03	2.00	0.66	513	2.85	1.88	0.66	536	2.68	1.77	0.66	558
30	18	2.45	2.45	1.00	441	2.25	2.25	1.00	468	2.08	2.08	1.00	486
30	20	2.58	2.58	1.00	459	2.40	2.40	1.00	482	2.23	2.23	1.00	509
30	22	2.73	2.56	0.94	477	2.55	2.40	0.94	504	2.38	2.23	0.94	522
30	24	2.88	2.36	0.82	495	2.70	2.21	0.82	518	2.55	2.09	0.82	540
30	26	3.03	2.12	0.70	513	2.85	2.00	0.70	536	2.68	1.87	0.70	558
31	18	2.45	2.45	1.00	441	2.25	2.25	1.00	468	2.08	2.08	1.00	486
31	20	2.58	2.58	1.00	459	2.40	2.40	1.00	482	2.23	2.23	1.00	509
31	22	2.73	2.67	0.98	477	2.55	2.50	0.98	504	2.38	2.33	0.98	522
31	24	2.88	2.47	0.86	495	2.70	2.32	0.86	518	2.55	2.19	0.86	540
31	26	3.03	2.24	0.74	513	2.85	2.11	0.74	536	2.68	1.98	0.74	558
32	18	2.45	2.45	1.00	441	2.25	2.25	1.00	468	2.08	2.08	1.00	486
32	20	2.58	2.58	1.00	459	2.40	2.40	1.00	482	2.23	2.23	1.00	509
32	22	2.73	2.73	1.00	477	2.55	2.55	1.00	504	2.38	2.38	1.00	522
32	24	2.88	2.59	0.90	495	2.70	2.43	0.90	518	2.55	2.30	0.90	540
32	26	3.03	2.36	0.78	513	2.85	2.22	0.78	536	2.68	2.09	0.78	558

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
 SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-RZ35VU MUZ-RZ35VUHZ

CAPACITY: 3.5 kW SHF: 0.92 INPUT: 770 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.11	3.04	0.74	616	3.94	2.91	0.74	647	3.78	2.80	0.74	678	3.64	2.69	0.74	708
21	20	4.29	2.66	0.62	647	4.11	2.55	0.62	685	3.99	2.47	0.62	701	3.85	2.39	0.62	732
22	18	4.11	3.21	0.78	616	3.94	3.07	0.78	647	3.78	2.95	0.78	678	3.64	2.84	0.78	708
22	20	4.29	2.83	0.66	647	4.11	2.71	0.66	685	3.99	2.63	0.66	701	3.85	2.54	0.66	732
22	22	4.46	2.41	0.54	670	4.31	2.32	0.54	712	4.20	2.27	0.54	732	4.03	2.17	0.54	762
23	18	4.11	3.37	0.82	616	3.94	3.23	0.82	647	3.78	3.10	0.82	678	3.64	2.98	0.82	708
23	20	4.29	3.00	0.70	647	4.11	2.88	0.70	685	3.99	2.79	0.70	701	3.85	2.70	0.70	732
23	22	4.46	2.59	0.58	670	4.31	2.50	0.58	712	4.20	2.44	0.58	732	4.03	2.33	0.58	762
24	18	4.11	3.54	0.86	616	3.94	3.39	0.86	647	3.78	3.25	0.86	678	3.64	3.13	0.86	708
24	20	4.29	3.17	0.74	647	4.11	3.04	0.74	685	3.99	2.95	0.74	701	3.85	2.85	0.74	732
24	22	4.46	2.77	0.62	670	4.31	2.67	0.62	712	4.20	2.60	0.62	732	4.03	2.50	0.62	762
24	24	4.69	2.35	0.50	701	4.52	2.26	0.50	739	4.41	2.21	0.50	762	4.27	2.14	0.50	801
25	18	4.11	3.70	0.90	616	3.94	3.54	0.90	647	3.78	3.40	0.90	678	3.64	3.28	0.90	708
25	20	4.29	3.34	0.78	647	4.11	3.21	0.78	685	3.99	3.11	0.78	701	3.85	3.00	0.78	732
25	22	4.46	2.95	0.66	670	4.31	2.84	0.66	712	4.20	2.77	0.66	732	4.03	2.66	0.66	762
25	24	4.69	2.53	0.54	701	4.52	2.44	0.54	739	4.41	2.38	0.54	762	4.27	2.31	0.54	801
26	18	4.11	3.87	0.94	616	3.94	3.70	0.94	647	3.78	3.55	0.94	678	3.64	3.42	0.94	708
26	20	4.29	3.52	0.82	647	4.11	3.37	0.82	685	3.99	3.27	0.82	701	3.85	3.16	0.82	732
26	22	4.46	3.12	0.70	670	4.31	3.01	0.70	712	4.20	2.94	0.70	732	4.03	2.82	0.70	762
26	24	4.69	2.72	0.58	701	4.52	2.62	0.58	739	4.41	2.56	0.58	762	4.27	2.48	0.58	801
26	26	4.83	2.22	0.46	739	4.69	2.16	0.46	778	4.62	2.13	0.46	801	4.48	2.06	0.46	824
27	18	4.11	4.03	0.98	616	3.94	3.86	0.98	647	3.78	3.70	0.98	678	3.64	3.57	0.98	708
27	20	4.29	3.69	0.86	647	4.11	3.54	0.86	685	3.99	3.43	0.86	701	3.85	3.31	0.86	732
27	22	4.46	3.30	0.74	670	4.31	3.19	0.74	712	4.20	3.11	0.74	732	4.03	2.98	0.74	762
27	24	4.69	2.91	0.62	701	4.52	2.80	0.62	739	4.41	2.73	0.62	762	4.27	2.65	0.62	801
27	26	4.83	2.42	0.50	739	4.69	2.35	0.50	778	4.62	2.31	0.50	801	4.48	2.24	0.50	824
28	18	4.11	4.11	1.00	616	3.94	3.94	1.00	647	3.78	3.78	1.00	678	3.64	3.64	1.00	708
28	20	4.29	3.86	0.90	647	4.11	3.70	0.90	685	3.99	3.59	0.90	701	3.85	3.47	0.90	732
28	22	4.46	3.48	0.78	670	4.31	3.36	0.78	712	4.20	3.28	0.78	732	4.03	3.14	0.78	762
28	24	4.69	3.10	0.66	701	4.52	2.98	0.66	739	4.41	2.91	0.66	762	4.27	2.82	0.66	801
28	26	4.83	2.61	0.54	739	4.69	2.53	0.54	778	4.62	2.49	0.54	801	4.48	2.42	0.54	824
29	18	4.11	4.11	1.00	616	3.94	3.94	1.00	647	3.78	3.78	1.00	678	3.64	3.64	1.00	708
29	20	4.29	4.03	0.94	647	4.11	3.87	0.94	685	3.99	3.75	0.94	701	3.85	3.62	0.94	732
29	22	4.46	3.66	0.82	670	4.31	3.53	0.82	712	4.20	3.44	0.82	732	4.03	3.30	0.82	762
29	24	4.69	3.28	0.70	701	4.52	3.16	0.70	739	4.41	3.09	0.70	762	4.27	2.99	0.70	801
29	26	4.83	2.80	0.58	739	4.69	2.72	0.58	778	4.62	2.68	0.58	801	4.48	2.60	0.58	824
30	18	4.11	4.11	1.00	616	3.94	3.94	1.00	647	3.78	3.78	1.00	678	3.64	3.64	1.00	708
30	20	4.29	4.20	0.98	647	4.11	4.03	0.98	685	3.99	3.91	0.98	701	3.85	3.77	0.98	732
30	22	4.46	3.84	0.86	670	4.31	3.70	0.86	712	4.20	3.61	0.86	732	4.03	3.46	0.86	762
30	24	4.69	3.47	0.74	701	4.52	3.34	0.74	739	4.41	3.26	0.74	762	4.27	3.16	0.74	801
30	26	4.83	2.99	0.62	739	4.69	2.91	0.62	778	4.62	2.86	0.62	801	4.48	2.78	0.62	824
31	18	4.11	4.11	1.00	616	3.94	3.94	1.00	647	3.78	3.78	1.00	678	3.64	3.64	1.00	708
31	20	4.29	4.29	1.00	647	4.11	4.11	1.00	685	3.99	3.99	1.00	701	3.85	3.85	1.00	732
31	22	4.46	4.02	0.90	670	4.31	3.87	0.90	712	4.20	3.78	0.90	732	4.03	3.62	0.90	762
31	24	4.69	3.66	0.78	701	4.52	3.52	0.78	739	4.41	3.44	0.78	762	4.27	3.33	0.78	801
31	26	4.83	3.19	0.66	739	4.69	3.10	0.66	778	4.62	3.05	0.66	801	4.48	2.96	0.66	824
32	18	4.11	4.11	1.00	616	3.94	3.94	1.00	647	3.78	3.78	1.00	678	3.64	3.64	1.00	708
32	20	4.29	4.29	1.00	647	4.11	4.11	1.00	685	3.99	3.99	1.00	701	3.85	3.85	1.00	732
32	22	4.46	4.19	0.94	670	4.31	4.05	0.94	712	4.20	3.95	0.94	732	4.03	3.78	0.94	762
32	24	4.69	3.85	0.82	701	4.52	3.70	0.82	739	4.41	3.62	0.82	762	4.27	3.50	0.82	801
32	26	4.83	3.38	0.70	739	4.69	3.28	0.70	778	4.62	3.23	0.70	801	4.48	3.14	0.70	824

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
 SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-RZ35VU MUZ-RZ35VUHZ

CAPACITY: 3.5 kW SHF: 0.92 INPUT: 770 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.43	2.54	0.74	755	3.15	2.33	0.74	801	2.91	2.15	0.74	832
21	20	3.61	2.24	0.62	785	3.36	2.08	0.62	824	3.12	1.93	0.62	870
22	18	3.43	2.68	0.78	755	3.15	2.46	0.78	801	2.91	2.27	0.78	832
22	20	3.61	2.38	0.66	785	3.36	2.22	0.66	824	3.12	2.06	0.66	870
22	22	3.82	2.06	0.54	816	3.57	1.93	0.54	862	3.33	1.80	0.54	893
23	18	3.43	2.81	0.82	755	3.15	2.58	0.82	801	2.91	2.38	0.82	832
23	20	3.61	2.52	0.70	785	3.36	2.35	0.70	824	3.12	2.18	0.70	870
23	22	3.82	2.21	0.58	816	3.57	2.07	0.58	862	3.33	1.93	0.58	893
24	18	3.43	2.95	0.86	755	3.15	2.71	0.86	801	2.91	2.50	0.86	832
24	20	3.61	2.67	0.74	785	3.36	2.49	0.74	824	3.12	2.31	0.74	870
24	22	3.82	2.37	0.62	816	3.57	2.21	0.62	862	3.33	2.06	0.62	893
24	24	4.03	2.01	0.50	847	3.78	1.89	0.50	886	3.57	1.79	0.50	924
25	18	3.43	3.09	0.90	755	3.15	2.84	0.90	801	2.91	2.61	0.9	832
25	20	3.61	2.81	0.78	785	3.36	2.62	0.78	824	3.12	2.43	0.78	870
25	22	3.82	2.52	0.66	816	3.57	2.36	0.66	862	3.33	2.19	0.66	893
25	24	4.03	2.17	0.54	847	3.78	2.04	0.54	886	3.57	1.93	0.54	924
26	18	3.43	3.22	0.94	755	3.15	2.96	0.94	801	2.91	2.73	0.94	832
26	20	3.61	2.96	0.82	785	3.36	2.76	0.82	824	3.12	2.55	0.82	870
26	22	3.82	2.67	0.70	816	3.57	2.50	0.70	862	3.33	2.33	0.70	893
26	24	4.03	2.33	0.58	847	3.78	2.19	0.58	886	3.57	2.07	0.58	924
26	26	4.24	1.95	0.46	878	3.99	1.84	0.46	916	3.75	1.72	0.46	955
27	18	3.43	3.36	0.98	755	3.15	3.09	0.98	801	2.91	2.85	0.98	832
27	20	3.61	3.10	0.86	785	3.36	2.89	0.86	824	3.12	2.68	0.86	870
27	22	3.82	2.82	0.74	816	3.57	2.64	0.74	862	3.33	2.46	0.74	893
27	24	4.03	2.50	0.62	847	3.78	2.34	0.62	886	3.57	2.21	0.62	924
27	26	4.24	2.12	0.50	878	3.99	2.00	0.50	916	3.75	1.87	0.50	955
28	18	3.43	3.43	1.00	755	3.15	3.15	1.00	801	2.91	2.91	1.00	832
28	20	3.61	3.24	0.90	785	3.36	3.02	0.90	824	3.12	2.80	0.90	870
28	22	3.82	2.98	0.78	816	3.57	2.78	0.78	862	3.33	2.59	0.78	893
28	24	4.03	2.66	0.66	847	3.78	2.49	0.66	886	3.57	2.36	0.66	924
28	26	4.24	2.29	0.54	878	3.99	2.15	0.54	916	3.75	2.02	0.54	955
29	18	3.43	3.43	1.00	755	3.15	3.15	1.00	801	2.91	2.91	1.00	832
29	20	3.61	3.39	0.94	785	3.36	3.16	0.94	824	3.12	2.93	0.94	870
29	22	3.82	3.13	0.82	816	3.57	2.93	0.82	862	3.33	2.73	0.82	893
29	24	4.03	2.82	0.70	847	3.78	2.65	0.70	886	3.57	2.50	0.70	924
29	26	4.24	2.46	0.58	878	3.99	2.31	0.58	916	3.75	2.17	0.58	955
30	18	3.43	3.43	1.00	755	3.15	3.15	1.00	801	2.91	2.91	1.00	832
30	20	3.61	3.53	0.98	785	3.36	3.29	0.98	824	3.12	3.05	0.98	870
30	22	3.82	3.28	0.86	816	3.57	3.07	0.86	862	3.33	2.86	0.86	893
30	24	4.03	2.98	0.74	847	3.78	2.80	0.74	886	3.57	2.64	0.74	924
30	26	4.24	2.63	0.62	878	3.99	2.47	0.62	916	3.75	2.32	0.62	955
31	18	3.43	3.43	1.00	755	3.15	3.15	1.00	801	2.91	2.91	1.00	832
31	20	3.61	3.61	1.00	785	3.36	3.36	1.00	824	3.12	3.12	1.00	870
31	22	3.82	3.43	0.90	816	3.57	3.21	0.90	862	3.33	2.99	0.90	893
31	24	4.03	3.14	0.78	847	3.78	2.95	0.78	886	3.57	2.78	0.78	924
31	26	4.24	2.80	0.66	878	3.99	2.63	0.66	916	3.75	2.47	0.66	955
32	18	3.43	3.43	1.00	755	3.15	3.15	1.00	801	2.91	2.91	1.00	832
32	20	3.61	3.61	1.00	785	3.36	3.36	1.00	824	3.12	3.12	1.00	870
32	22	3.82	3.59	0.94	816	3.57	3.36	0.94	862	3.33	3.13	0.94	893
32	24	4.03	3.30	0.82	847	3.78	3.10	0.82	886	3.57	2.93	0.82	924
32	26	4.24	2.96	0.70	878	3.99	2.79	0.70	916	3.75	2.62	0.70	955

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
 SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-RZ50VUHZ

CAPACITY: 5.0 kW

SHF: 0.81

INPUT: 1380 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)															
		21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	5.88	3.70	0.63	1104	5.63	3.54	0.63	1159	5.40	3.40	0.63	1214	5.20	3.28	0.63	1270
21	20	6.13	3.12	0.51	1159	5.88	3.00	0.51	1228	5.70	2.91	0.51	1256	5.50	2.81	0.51	1311
22	18	5.88	3.94	0.67	1104	5.63	3.77	0.67	1159	5.40	3.62	0.67	1214	5.20	3.48	0.67	1270
22	20	6.13	3.37	0.55	1159	5.88	3.23	0.55	1228	5.70	3.14	0.55	1256	5.50	3.03	0.55	1311
22	22	6.38	2.74	0.43	1201	6.15	2.64	0.43	1277	6.00	2.58	0.43	1311	5.75	2.47	0.43	1366
23	18	5.88	4.17	0.71	1104	5.63	3.99	0.71	1159	5.40	3.83	0.71	1214	5.20	3.69	0.71	1270
23	20	6.13	3.61	0.59	1159	5.88	3.47	0.59	1228	5.70	3.36	0.59	1256	5.50	3.25	0.59	1311
23	22	6.38	3.00	0.47	1201	6.15	2.89	0.47	1277	6.00	2.82	0.47	1311	5.75	2.70	0.47	1366
24	18	5.88	4.41	0.75	1104	5.63	4.22	0.75	1159	5.40	4.05	0.75	1214	5.20	3.90	0.75	1270
24	20	6.13	3.86	0.63	1159	5.88	3.70	0.63	1228	5.70	3.59	0.63	1256	5.50	3.47	0.63	1311
24	22	6.38	3.25	0.51	1201	6.15	3.14	0.51	1277	6.00	3.06	0.51	1311	5.75	2.93	0.51	1366
24	24	6.70	2.61	0.39	1256	6.45	2.52	0.39	1325	6.30	2.46	0.39	1366	6.10	2.38	0.39	1435
25	18	5.88	4.64	0.79	1104	5.63	4.44	0.79	1159	5.40	4.27	0.79	1214	5.20	4.11	0.79	1270
25	20	6.13	4.10	0.67	1159	5.88	3.94	0.67	1228	5.70	3.82	0.67	1256	5.50	3.69	0.67	1311
25	22	6.38	3.51	0.55	1201	6.15	3.38	0.55	1277	6.00	3.30	0.55	1311	5.75	3.16	0.55	1366
25	24	6.70	2.88	0.43	1256	6.45	2.77	0.43	1325	6.30	2.71	0.43	1366	6.10	2.62	0.43	1435
26	18	5.88	4.88	0.83	1104	5.63	4.67	0.83	1159	5.40	4.48	0.83	1214	5.20	4.32	0.83	1270
26	20	6.13	4.35	0.71	1159	5.88	4.17	0.71	1228	5.70	4.05	0.71	1256	5.50	3.91	0.71	1311
26	22	6.38	3.76	0.59	1201	6.15	3.63	0.59	1277	6.00	3.54	0.59	1311	5.75	3.39	0.59	1366
26	24	6.70	3.15	0.47	1256	6.45	3.03	0.47	1325	6.30	2.96	0.47	1366	6.10	2.87	0.47	1435
26	26	6.90	2.42	0.35	1325	6.70	2.35	0.35	1394	6.60	2.31	0.35	1435	6.40	2.24	0.35	1477
27	18	5.88	5.11	0.87	1104	5.63	4.89	0.87	1159	5.40	4.70	0.87	1214	5.20	4.52	0.87	1270
27	20	6.13	4.59	0.75	1159	5.88	4.41	0.75	1228	5.70	4.28	0.75	1256	5.50	4.13	0.75	1311
27	22	6.38	4.02	0.63	1201	6.15	3.87	0.63	1277	6.00	3.78	0.63	1311	5.75	3.62	0.63	1366
27	24	6.70	3.42	0.51	1256	6.45	3.29	0.51	1325	6.30	3.21	0.51	1366	6.10	3.11	0.51	1435
27	26	6.90	2.69	0.39	1325	6.70	2.61	0.39	1394	6.60	2.57	0.39	1435	6.40	2.50	0.39	1477
28	18	5.88	5.35	0.91	1104	5.63	5.12	0.91	1159	5.40	4.91	0.91	1214	5.20	4.73	0.91	1270
28	20	6.13	4.84	0.79	1159	5.88	4.64	0.79	1228	5.70	4.50	0.79	1256	5.50	4.35	0.79	1311
28	22	6.38	4.27	0.67	1201	6.15	4.12	0.67	1277	6.00	4.02	0.67	1311	5.75	3.85	0.67	1366
28	24	6.70	3.69	0.55	1256	6.45	3.55	0.55	1325	6.30	3.47	0.55	1366	6.10	3.36	0.55	1435
28	26	6.90	2.97	0.43	1325	6.70	2.88	0.43	1394	6.60	2.84	0.43	1435	6.40	2.75	0.43	1477
29	18	5.88	5.58	0.95	1104	5.63	5.34	0.95	1159	5.40	5.13	0.95	1214	5.20	4.94	0.95	1270
29	20	6.13	5.08	0.83	1159	5.88	4.88	0.83	1228	5.70	4.73	0.83	1256	5.50	4.57	0.83	1311
29	22	6.38	4.53	0.71	1201	6.15	4.37	0.71	1277	6.00	4.26	0.71	1311	5.75	4.08	0.71	1366
29	24	6.70	3.95	0.59	1256	6.45	3.81	0.59	1325	6.30	3.72	0.59	1366	6.10	3.60	0.59	1435
29	26	6.90	3.24	0.47	1325	6.70	3.15	0.47	1394	6.60	3.10	0.47	1435	6.40	3.01	0.47	1477
30	18	5.88	5.82	0.99	1104	5.63	5.57	0.99	1159	5.40	5.35	0.99	1214	5.20	5.15	0.99	1270
30	20	6.13	5.33	0.87	1159	5.88	5.11	0.87	1228	5.70	4.96	0.87	1256	5.50	4.79	0.87	1311
30	22	6.38	4.78	0.75	1201	6.15	4.61	0.75	1277	6.00	4.50	0.75	1311	5.75	4.31	0.75	1366
30	24	6.70	4.22	0.63	1256	6.45	4.06	0.63	1325	6.30	3.97	0.63	1366	6.10	3.84	0.63	1435
30	26	6.90	3.52	0.51	1325	6.70	3.42	0.51	1394	6.60	3.37	0.51	1435	6.40	3.26	0.51	1477
31	18	5.88	5.88	1.00	1104	5.63	5.63	1.00	1159	5.40	5.40	1.00	1214	5.20	5.20	1.00	1270
31	20	6.13	5.57	0.91	1159	5.88	5.35	0.91	1228	5.70	5.19	0.91	1256	5.50	5.01	0.91	1311
31	22	6.38	5.04	0.79	1201	6.15	4.86	0.79	1277	6.00	4.74	0.79	1311	5.75	4.54	0.79	1366
31	24	6.70	4.49	0.67	1256	6.45	4.32	0.67	1325	6.30	4.22	0.67	1366	6.10	4.09	0.67	1435
31	26	6.90	3.80	0.55	1325	6.70	3.69	0.55	1394	6.60	3.63	0.55	1435	6.40	3.52	0.55	1477
32	18	5.88	5.88	1.00	1104	5.63	5.63	1.00	1159	5.40	5.40	1.00	1214	5.20	5.20	1.00	1270
32	20	6.13	5.82	0.95	1159	5.88	5.58	0.95	1228	5.70	5.42	0.95	1256	5.50	5.23	0.95	1311
32	22	6.38	5.29	0.83	1201	6.15	5.10	0.83	1277	6.00	4.98	0.83	1311	5.75	4.77	0.83	1366
32	24	6.70	4.76	0.71	1256	6.45	4.58	0.71	1325	6.30	4.47	0.71	1366	6.10	4.33	0.71	1435
32	26	6.90	4.07	0.59	1325	6.70	3.95	0.59	1394	6.60	3.89	0.59	1435	6.40	3.78	0.59	1477

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
 SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA COOL operation at Rated frequency

MUZ-RZ50VUHZ

CAPACITY: 5.0 kW

SHF: 0.81

INPUT: 1380 W

INDOOR DB (°C)	INDOOR WB (°C)	OUTDOOR DB (°C)											
		35				40				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.90	3.09	0.63	1352	4.50	2.84	0.63	1435	4.15	2.61	0.63	1490
21	20	5.15	2.63	0.51	1408	4.80	2.45	0.51	1477	4.45	2.27	0.51	1559
22	18	4.90	3.28	0.67	1352	4.50	3.02	0.67	1435	4.15	2.78	0.67	1490
22	20	5.15	2.83	0.55	1408	4.80	2.64	0.55	1477	4.45	2.45	0.55	1559
22	22	5.45	2.34	0.43	1463	5.10	2.19	0.43	1546	4.75	2.04	0.43	1601
23	18	4.90	3.48	0.71	1352	4.50	3.20	0.71	1435	4.15	2.95	0.71	1490
23	20	5.15	3.04	0.59	1408	4.80	2.83	0.59	1477	4.45	2.63	0.59	1559
23	22	5.45	2.56	0.47	1463	5.10	2.40	0.47	1546	4.75	2.23	0.47	1601
24	18	4.90	3.68	0.75	1352	4.50	3.38	0.75	1435	4.15	3.11	0.75	1490
24	20	5.15	3.24	0.63	1408	4.80	3.02	0.63	1477	4.45	2.80	0.63	1559
24	22	5.45	2.78	0.51	1463	5.10	2.60	0.51	1546	4.75	2.42	0.51	1601
24	24	5.75	2.24	0.39	1518	5.40	2.11	0.39	1587	5.10	1.99	0.39	1656
25	18	4.90	3.87	0.79	1352	4.50	3.56	0.79	1435	4.15	3.28	0.79	1490
25	20	5.15	3.45	0.67	1408	4.80	3.22	0.67	1477	4.45	2.98	0.67	1559
25	22	5.45	3.00	0.55	1463	5.10	2.81	0.55	1546	4.75	2.61	0.55	1601
25	24	5.75	2.47	0.43	1518	5.40	2.32	0.43	1587	5.10	2.19	0.43	1656
26	18	4.90	4.07	0.83	1352	4.50	3.74	0.83	1435	4.15	3.44	0.83	1490
26	20	5.15	3.66	0.71	1408	4.80	3.41	0.71	1477	4.45	3.16	0.71	1559
26	22	5.45	3.22	0.59	1463	5.10	3.01	0.59	1546	4.75	2.80	0.59	1601
26	24	5.75	2.70	0.47	1518	5.40	2.54	0.47	1587	5.10	2.40	0.47	1656
26	26	6.05	2.12	0.35	1573	5.70	2.00	0.35	1642	5.35	1.87	0.35	1711
27	18	4.90	4.26	0.87	1352	4.50	3.92	0.87	1435	4.15	3.61	0.87	1490
27	20	5.15	3.86	0.75	1408	4.80	3.60	0.75	1477	4.45	3.34	0.75	1559
27	22	5.45	3.43	0.63	1463	5.10	3.21	0.63	1546	4.75	2.99	0.63	1601
27	24	5.75	2.93	0.51	1518	5.40	2.75	0.51	1587	5.10	2.60	0.51	1656
27	26	6.05	2.36	0.39	1573	5.70	2.22	0.39	1642	5.35	2.09	0.39	1711
28	18	4.90	4.46	0.91	1352	4.50	4.10	0.91	1435	4.15	3.78	0.91	1490
28	20	5.15	4.07	0.79	1408	4.80	3.79	0.79	1477	4.45	3.52	0.79	1559
28	22	5.45	3.65	0.67	1463	5.10	3.42	0.67	1546	4.75	3.18	0.67	1601
28	24	5.75	3.16	0.55	1518	5.40	2.97	0.55	1587	5.10	2.81	0.55	1656
28	26	6.05	2.60	0.43	1573	5.70	2.45	0.43	1642	5.35	2.30	0.43	1711
29	18	4.90	4.66	0.95	1352	4.50	4.28	0.95	1435	4.15	3.94	0.95	1490
29	20	5.15	4.27	0.83	1408	4.80	3.98	0.83	1477	4.45	3.69	0.83	1559
29	22	5.45	3.87	0.71	1463	5.10	3.62	0.71	1546	4.75	3.37	0.71	1601
29	24	5.75	3.39	0.59	1518	5.40	3.19	0.59	1587	5.10	3.01	0.59	1656
29	26	6.05	2.84	0.47	1573	5.70	2.68	0.47	1642	5.35	2.51	0.47	1711
30	18	4.90	4.85	0.99	1352	4.50	4.46	0.99	1435	4.15	4.11	0.99	1490
30	20	5.15	4.48	0.87	1408	4.80	4.18	0.87	1477	4.45	3.87	0.87	1559
30	22	5.45	4.09	0.75	1463	5.10	3.83	0.75	1546	4.75	3.56	0.75	1601
30	24	5.75	3.62	0.63	1518	5.40	3.40	0.63	1587	5.10	3.21	0.63	1656
30	26	6.05	3.09	0.51	1573	5.70	2.91	0.51	1642	5.35	2.73	0.51	1711
31	18	4.90	4.90	1.00	1352	4.50	4.50	1.00	1435	4.15	4.15	1.00	1490
31	20	5.15	4.69	0.91	1408	4.80	4.37	0.91	1477	4.45	4.05	0.91	1559
31	22	5.45	4.31	0.79	1463	5.10	4.03	0.79	1546	4.75	3.75	0.79	1601
31	24	5.75	3.85	0.67	1518	5.40	3.62	0.67	1587	5.10	3.42	0.67	1656
31	26	6.05	3.33	0.55	1573	5.70	3.14	0.55	1642	5.35	2.94	0.55	1711
32	18	4.90	4.90	1.00	1352	4.50	4.50	1.00	1435	4.15	4.15	1.00	1490
32	20	5.15	4.89	0.95	1408	4.80	4.56	0.95	1477	4.45	4.23	0.95	1559
32	22	5.45	4.52	0.83	1463	5.10	4.23	0.83	1546	4.75	3.94	0.83	1601
32	24	5.75	4.08	0.71	1518	5.40	3.83	0.71	1587	5.10	3.62	0.71	1656
32	26	6.05	3.57	0.59	1573	5.70	3.36	0.59	1642	5.35	3.16	0.59	1711

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB : Dry-bulb temperature
 SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB : Wet-bulb temperature

PERFORMANCE DATA HEAT operation at Rated frequency

MUZ-RZ25VU

CAPACITY: 3.2 kW INPUT: 580 W

INDOOR DB (°C)	OUTDOOR WB (°C)																	
	-20		-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	1.22	232	1.60	302	2.02	377	2.43	452	2.85	510	3.26	551	3.68	586	4.06	603	4.48	615
21	1.12	244	1.50	319	1.92	406	2.30	481	2.72	534	3.10	574	3.52	603	3.90	621	4.30	644
26	0.90	261	1.31	348	1.73	435	2.14	510	2.53	563	2.94	603	3.36	632	3.74	650	4.16	667

MUZ-RZ25VUHZ

CAPACITY: 3.2 kW INPUT: 580 W

INDOOR DB (°C)	OUTDOOR WB (°C)																			
	-25		-20		-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	0.80	157	1.22	232	1.60	302	2.02	377	2.43	452	2.85	510	3.26	551	3.68	586	4.06	603	4.48	615
21	0.74	168	1.12	244	1.50	319	1.92	406	2.30	481	2.72	534	3.10	574	3.52	603	3.90	621	4.30	644
26	0.51	186	0.90	261	1.31	348	1.73	435	2.14	510	2.53	563	2.94	603	3.36	632	3.74	650	4.16	667

MUZ-RZ35VU

CAPACITY: 4.0 kW INPUT: 810 W

INDOOR DB (°C)	OUTDOOR WB (°C)																	
	-20		-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	1.52	324	2.00	421	2.52	527	3.04	632	3.56	713	4.08	770	4.60	818	5.08	842	5.60	859
21	1.40	340	1.88	446	2.40	567	2.88	672	3.40	745	3.88	802	4.40	842	4.88	867	5.38	899
26	1.12	365	1.64	486	2.16	608	2.68	713	3.16	786	3.68	842	4.20	883	4.68	907	5.20	932

MUZ-RZ35VUHZ

CAPACITY: 4.0 kW INPUT: 810 W

INDOOR DB (°C)	OUTDOOR WB (°C)																			
	-25		-20		-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	1.00	219	1.52	324	2.00	421	2.52	527	3.04	632	3.56	713	4.08	770	4.60	818	5.08	842	5.60	859
21	0.92	235	1.40	340	1.88	446	2.40	567	2.88	672	3.40	745	3.88	802	4.40	842	4.88	867	5.38	899
26	0.64	259	1.12	365	1.64	486	2.16	608	2.68	713	3.16	786	3.68	842	4.20	883	4.68	907	5.20	932

MUZ-RZ50VUHZ

CAPACITY: 6.0 kW INPUT: 1450 W

INDOOR DB (°C)	OUTDOOR WB (°C)																			
	-25		-20		-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	1.50	392	2.28	580	3.00	754	3.78	943	4.56	1131	5.34	1276	6.12	1378	6.90	1465	7.62	1508	8.40	1537
21	1.38	421	2.10	609	2.82	798	3.60	1015	4.32	1204	5.10	1334	5.82	1436	6.60	1508	7.32	1552	8.07	1610
26	0.96	464	1.68	653	2.46	870	3.24	1088	4.02	1276	4.74	1407	5.52	1508	6.30	1581	7.02	1624	7.80	1668

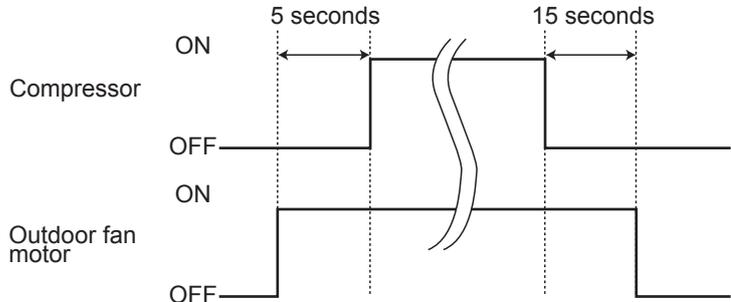
NOTE: Q: Total capacity (kW) INPUT : Total power input (W) DB: Dry-bulb temperature WB: Wet-bulb temperature

10 ACTUATOR CONTROL

MUZ-RZ25VU MUZ-RZ35VU
 MUZ-RZ25VUHZ MUZ-RZ35VUHZ MUZ-RZ50VUHZ

10-1. OUTDOOR FAN MOTOR CONTROL

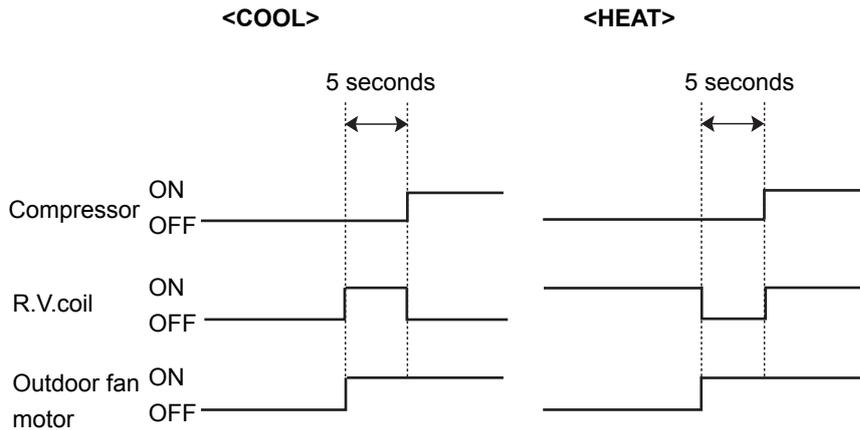
The fan motor turns ON/OFF, interlocking with the compressor.
 [ON] The fan motor turns ON 5 seconds before the compressor starts up.
 [OFF] The fan motor turns OFF 15 seconds after the compressor has stopped running.



10-2. R.V. COIL CONTROL

Heating ON
 Cooling OFF
 Dry OFF

NOTE: The 4-way valve reverses for 5 seconds right before startup of the compressor.



10-3. RELATION BETWEEN MAIN SENSOR AND ACTUATOR

Sensor	Purpose	Actuator					
		Compressor	LEV	Outdoor fan motor	R.V. coil	Indoor fan motor	Defrost heater *
Discharge temperature thermistor	Protection	○	○				
Indoor coil temperature thermistor	Cooling: Coil frost prevention	○					
	Heating: High pressure protection	○	○				
Defrost thermistor	Heating: Defrosting	○	○	○	○	○	
Fin temperature thermistor	Protection	○		○			
Ambient temperature thermistor	Cooling: Low ambient temperature operation	○	○	○			
	Heating: Defrosting (Heater)						○
Outdoor heat exchanger temperature thermistor	Cooling: Low ambient temperature operation	○	○	○			
	Cooling: High pressure protection	○	○	○			

* MUZ-RZ-VUHZ only.

MUZ-RZ25VU MUZ-RZ35VU
MUZ-RZ25VUHZ MUZ-RZ35VUHZ MUZ-RZ50VUHZ

11-1. CHANGE IN DEFROST SETTING

Changing defrost finish temperature

<JS> To change the defrost finish temperature, cut/solder the JS wire of the outdoor inverter P.C. board.
 (Refer to 12-6.1)

Jumper wire		Defrost finish temperature (°C)		
		MUZ-RZ25/35VU MUZ-RZ25VUHZ	MUZ-RZ35VUHZ	MUZ-RZ50VUHZ
JS	Soldered (Initial setting)	8	11	13
	None (Cut)	13	13	15

11-2. PRE-HEAT CONTROL SETTING

PRE-HEAT CONTROL

MUZ-RZ25/35/50VUHZ

When moisture gets into the refrigerant cycle, it may interfere the startup of the compressor at low outside temperature. The pre-heat control prevents this interference. The pre-heat control turns ON when the discharge temperature thermistor is at a low temperature (below approximately 12°C). When the pre-heat control turns ON, the compressor is energized.

Pre-heat control setting

<JK>

ON: To activate the pre-heat control, cut the JK wire of the inverter P.C. board.

OFF: To deactivate the pre-heat control, solder the JK wire of the inverter P.C. board.

(Refer to 12-6.1)

NOTE: When the inverter P.C. board is replaced, check the jumper wires, and cut/solder them if necessary.

MUZ-RZ25VU MUZ-RZ35VU
MUZ-RZ25VUHZ MUZ-RZ35VUHZ MUZ-RZ50VUHZ

12-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following

- 1) Check the power supply voltage.
- 2) Check the indoor/outdoor connecting wire for miswiring.

2. Take care of the following during servicing

- 1) Before servicing the air conditioner, be sure to turn OFF the main unit first with the remote controller, and then after confirming the horizontal vane is closed, turn OFF the breaker and/or disconnect the power plug.
- 2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the electronic control P.C. board.
- 3) When removing the electrical parts, be careful of the residual voltage of smoothing capacitor.
- 4) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
- 5) When connecting or disconnecting the connectors, hold the connector housing. DO NOT pull the lead wires.

<Incorrect>



Lead wiring

<Correct>



Connector housing

3. Troubleshooting procedure

- 1) Check if the operation indicator lamp on the indoor unit is blinking on and off to indicate an abnormality.
To make sure, check how many times the operation indicator lamp is blinking on and off before starting service work.
- 2) Before servicing, verify that all connectors and terminals are connected properly.
- 3) When the electronic control P.C. board seems to be defective, check for disconnection of the copper foil pattern and burnt or discolored components.
- 4) Refer to 12-2 and 12-3.

12-2. FAILURE MODE RECALL FUNCTION

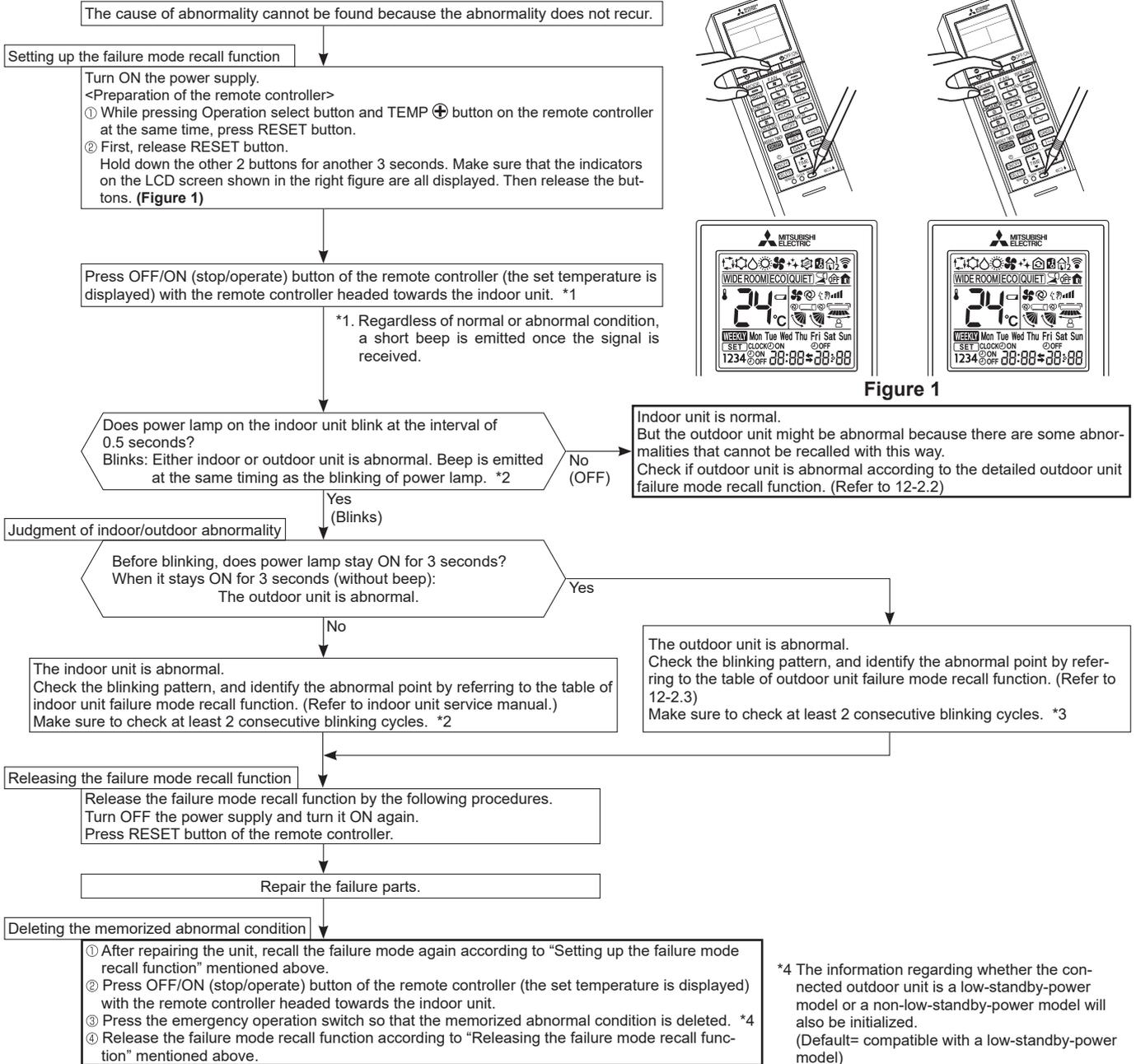
Outline of the function

This air conditioner can memorize the abnormal condition which has occurred once.

Even though LED indication listed on the troubleshooting check table (12-3.) disappears, the memorized failure details can be recalled.

1. Flow chart of failure mode recall function for the indoor/outdoor unit

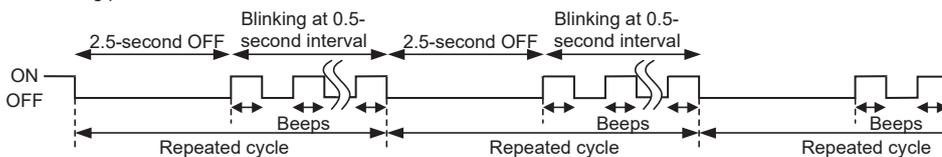
Operational procedure



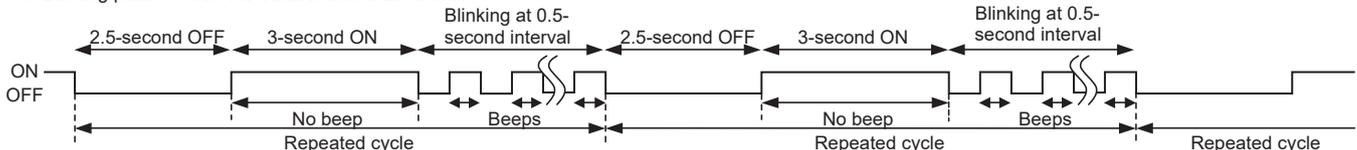
NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.

2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

*2. Blinking pattern when the indoor unit is abnormal:

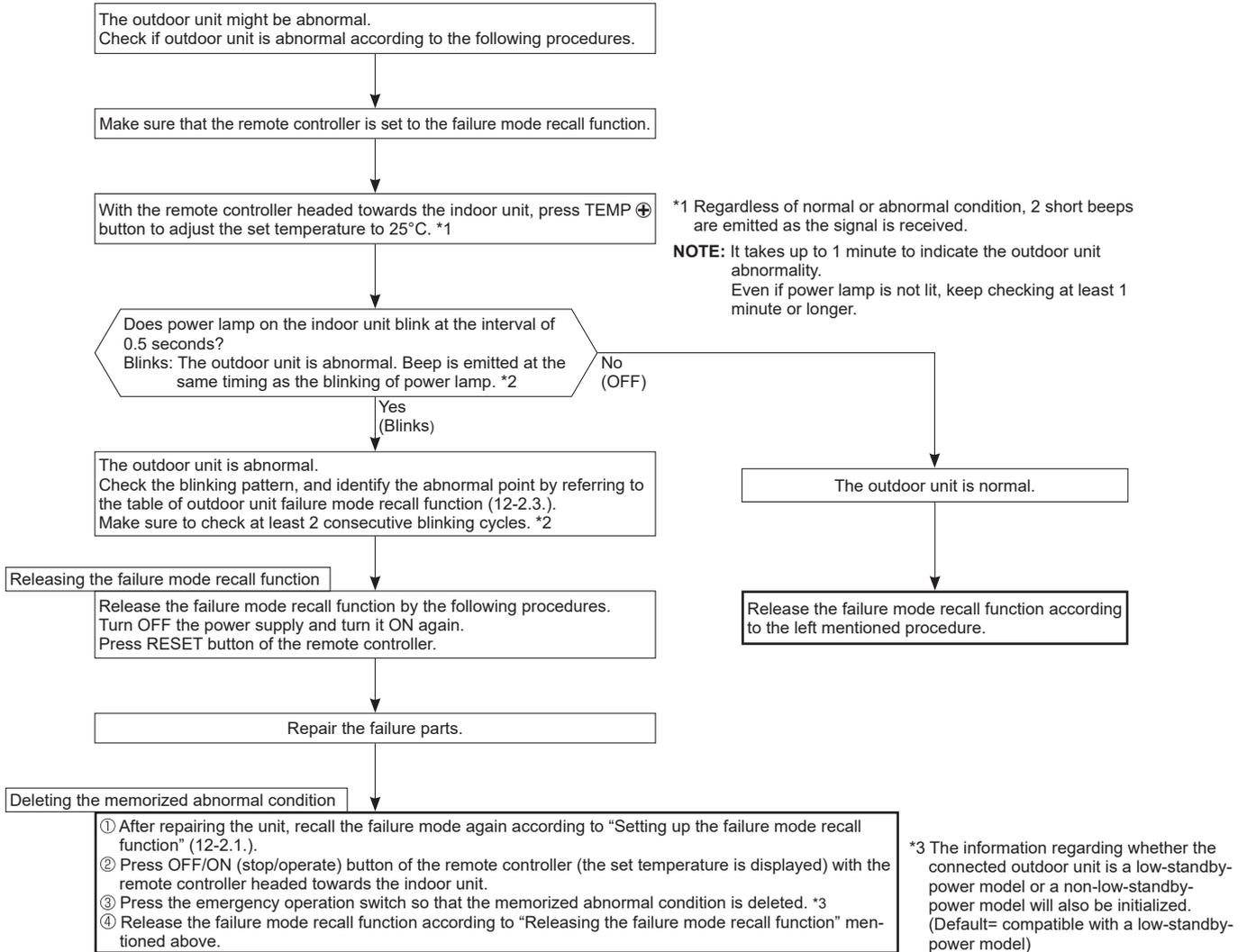


*3. Blinking pattern when the outdoor unit is abnormal:



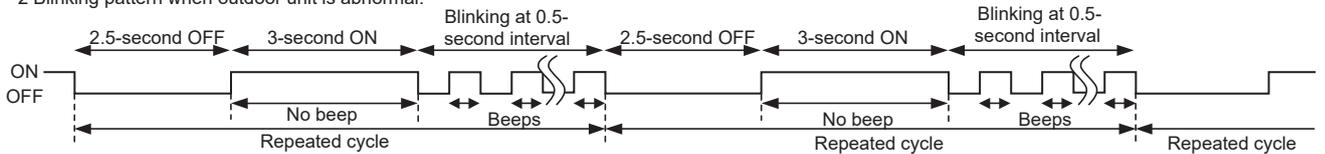
2. Flow chart of the detailed outdoor unit failure mode recall function

Operational procedure



NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
 2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

*2 Blinking pattern when outdoor unit is abnormal:



NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (12-3.).

3. Table of outdoor unit failure mode recall function

Power lamp (Indoor unit)	Abnormal point (Failure mode/protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/outdoor unit failure mode recall function	Outdoor unit failure mode recall function
OFF	None (Normal)	—	—	—	—	—
1-time blink 2.5 seconds OFF	Indoor/outdoor communication, receiving error	—	Any signals from the inverter P.C. board cannot be received normally for 3 minutes.	• Refer to 12-5. ㉞ How to check miswiring and serial signal error.	○	○
	Indoor/outdoor communication, receiving error	—	Although the inverter P.C. board sends signal "0", signal "1" has been received 30 consecutive times.	• Refer to 12-5. ㉞ How to check miswiring and serial signal error.		
2-time blink 2.5 seconds OFF	Outdoor power system	—	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	• Reconnect connectors. • Refer to 12-5. ㉞ "How to check inverter/compressor". • Check stop valve.	○	○
3-time blink 2.5 seconds OFF	Discharge temperature thermistor	1-time blink every 2.5 seconds	Thermistor shorts or opens during compressor running.	• Refer to 12-5. ㉞ "Check of outdoor thermistors". Defective outdoor thermistors can be identified by checking the blinking pattern of LED. • Replace the inverter P.C. board.	○	○
	Defrost thermistor					
	Fin temperature thermistor	3-time blink 2.5 seconds OFF				
	Ambient temperature thermistor	2-time blink 2.5 seconds OFF				
	Outdoor heat exchanger temperature thermistor	—				
P.C. board temperature thermistor	4-time blink 2.5 seconds OFF					
4-time blink 2.5 seconds OFF	Overcurrent	11-time blink 2.5 seconds OFF	Large current flows into power module (IC700).	• Reconnect compressor connector. • Refer to 12-5. ㉞ "How to check inverter/compressor". • Check stop valve.	—	○
	Compressor synchronous abnormality (Compressor startup failure protection)	12-time blink 2.5 seconds OFF	Waveform of compressor current is distorted.	• Reconnect compressor connector. • Refer to 12-5. ㉞ "How to check inverter/compressor".	—	○
5-time blink 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor exceeds 108°C, compressor stops. Compressor can restart if discharge temperature thermistor reads 100°C or less 3 minutes later.	• Check refrigerant circuit and refrigerant amount. • Refer to 12-5. ㉞ "Check of LEV".	—	○
6-time blink 2.5 seconds OFF	High pressure	—	Temperature of indoor coil thermistor exceeds 70°C in HEAT mode. Temperature of defrost thermistor exceeds 70°C in COOL mode.	• Check refrigerant circuit and refrigerant amount. • Check stop valve.	—	○
7-time blink 2.5 seconds OFF	Fin temperature/P.C. board temperature	7-time blink 2.5 seconds OFF	Temperature of fin temperature thermistor on the inverter P.C. board exceeds 75 ~ 86°C (RZ25/35) / 75 ~ 80°C (RZ50), or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 72 ~ 85°C (RZ25/35) / 70 ~ 75°C (RZ50).	• Check around outdoor unit. • Check outdoor unit air passage. • Refer to 12-5. ㉞ "Check of outdoor fan motor".	—	○
8-time blink 2.5 seconds OFF	Outdoor fan motor	—	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan startup.	• Refer to 12-5. ㉞ "Check of outdoor fan motor". Refer to 12-5. ㉞ "Check of inverter P.C. board".	—	○
9-time blink 2.5 seconds OFF	Nonvolatile memory data	5-time blink 2.5 seconds OFF	Nonvolatile memory data cannot be read properly.	• Replace the inverter P.C. board.	○	○
	Power module (IC700)	6-time blink 2.5 seconds OFF	The interface short circuit occurs in the output of the power module (IC700). The compressor winding shorts circuit.	• Refer to 12-5. ㉞ "How to check inverter/compressor".	—	

NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (12-3.).

Power lamp (Indoor unit)	Abnormal point (Failure mode/protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/outdoor unit failure mode recall function	Outdoor unit failure mode recall function
10-time blink 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor has been 50°C or less for 20 minutes.	<ul style="list-style-type: none"> Refer to 12-5. ⑧ "Check of LEV". Check refrigerant circuit and refrigerant amount. 	—	○
11-time blink 2.5 seconds OFF	Bus-bar voltage (DC)	8-time blink 2.5 seconds OFF	Bus-bar voltage of inverter cannot be detected normally.	<ul style="list-style-type: none"> Refer to 12-5. ⑨ "How to check inverter/compressor". 	—	○
	Each phase current of compressor	9-time blink 2.5 seconds OFF	Each phase current of compressor cannot be detected normally.			
14-time blink 2.5 seconds OFF *1	Refrigerant sensor *2	—	<ul style="list-style-type: none"> The refrigerant sensor mounted on the indoor unit does not work. The refrigerant sensor is not connected properly or the wire is broken. 	<ul style="list-style-type: none"> Connect the connector of the refrigerant sensor properly. Replace the refrigerant sensor. 	—	○
	Refrigerant leakage (Sensor detection) *2	—	<ol style="list-style-type: none"> Refrigerant leaks from the piping or the heat exchanger in the indoor unit. The following items are used around the indoor unit. <ul style="list-style-type: none"> Spray (LP gas including Freon, and whose main ingredient is propane and butane) Aerosol insecticide (including ethanol) Air spray painting (including dichloromethane) Charcoal (charcoal fire) Chemicals (such as ethanol) 	<ul style="list-style-type: none"> Press and hold the emergency operation button to turn off the buzzer. Open the window to ventilate the room. After FAN operation is finished, turn off the breaker. (FAN operation will continue for about 7 hours.) Check the indoor unit to detect the part where refrigerant leaks. Repair the part where refrigerant leaks. Turn on the power again. Replace the refrigerant sensor if the problem is not fixed. 	—	○
	Stop valve (Closed valve)	14-time blink 2.5 seconds OFF	<ul style="list-style-type: none"> Closed valve is detected by compressor current. An abnormality of the indoor thermistors, the defrost thermistor or ambient temperature thermistor is detected. 	<ul style="list-style-type: none"> Check stop valve. Refer to "TEST POINT DIAGRAM AND VOLTAGE" on the service manual of indoor and outdoor unit for the characteristics of the thermistors. (Do not start the operation again without repair to prevent hazards.) 	—	—
	4-way valve/ Pipe temperature	16-time blink 2.5 seconds OFF	<ul style="list-style-type: none"> The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature. An abnormality of the indoor thermistor is detected. 	<ul style="list-style-type: none"> Check the 4-way valve. Replace the inverter P.C. board. Refer to "TEST POINT DIAGRAM AND VOLTAGE" on the service manual of indoor and outdoor unit for the characteristics of the thermistors. (Do not start the operation again without repair to prevent hazards.) 	○	○
	Indoor/outdoor refrigerant mismatch *2	20-time blink 2.5 seconds OFF	<ul style="list-style-type: none"> Mismatch of refrigerant information between indoor and outdoor units 	<ul style="list-style-type: none"> Connect the correct combination of indoor unit and outdoor unit. 	—	—
16-time blink 2.5 seconds OFF *1	Outdoor refrigerant system abnormality	1-time blink 2.5 seconds OFF	<ul style="list-style-type: none"> A closed valve and air trapped in the refrigerant circuit are detected based on the temperature sensed by the indoor and outdoor thermistors and the current of the compressor. An abnormality of the indoor thermistors, the defrost thermistor or ambient temperature thermistor is detected. 	<ul style="list-style-type: none"> Check for a gas leak in a connecting piping etc. Check the stop valve. Refer to 12-5. ⑩ "Check of the outdoor refrigerant circuit". Refer to "TEST POINT DIAGRAM AND VOLTAGE" on the service manual of indoor and outdoor unit for the characteristics of the thermistors. (Do not start the operation again without repair to prevent hazards.) 	○	○

*1 There is possibility that diesel explosion may occur due to the air mixed in the refrigerant circuit.
First, ensure that there are no leakage points on the valves, flare connections, etc. that allow the air to flow into the refrigerant circuit, or no blockage points (e.g. clogged or closed valves) in the refrigerant circuit that cause an increase in pressure.
If there is no abnormal point like above and the system operates cooling and heating modes normally, the indoor thermistor might have a problem, resulting in false detection.
Check both the indoor coil thermistor and the room temperature thermistor, and replace faulty thermistor(s), if any.
(Do not start the operation again without repair to prevent hazards.)

*2 In case of combinations that affect refrigerant leak detection of flammable refrigerants. (R290, R32)

12-3. TROUBLESHOOTING CHECK TABLE

No.	Symptom	LED indication	Abnormal point/ Condition	Condition	Remedy
1	Outdoor unit does not operate.	1-time blink every 2.5 seconds	Outdoor power system	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	<ul style="list-style-type: none"> Reconnect connector of compressor. Refer to 12-5. ㉔ "How to check inverter/compressor". Check stop valve.
2			Outdoor thermistors	Discharge temperature thermistor, fin temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor or ambient temperature thermistor shorts or opens during compressor running.	Refer to 12-5. ㉓ "Check of outdoor thermistors".
3				P.C. board temperature thermistor shorts or opens during compressor running.	Replace inverter P.C. board.
4		6-time blink 2.5 seconds OFF	Serial signal	The communication fails between the indoor and outdoor unit for 3 minutes.	Refer to 12-5. ㉕ "How to check miswiring and serial signal error".
5		11-time blink 2.5 seconds OFF	Stop valve/ Closed valve	Closed valve is detected by compressor current.	Check stop valve.
6		14-time blink 2.5 seconds OFF	Outdoor unit (Other abnormality)	Outdoor unit is defective.	Refer to 12-2.2. "Flow chart of the detailed outdoor unit failure mode recall function".
7		16-time blink 2.5 seconds OFF	4-way valve/ Pipe temperature	The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature.	<ul style="list-style-type: none"> Refer to 12-5. ㉖ "Check of R.V. coil". Replace the inverter P.C. board.
8		17-time blink 2.5 seconds OFF	Outdoor refrigerant system abnormality	A closed valve and air trapped in the refrigerant circuit are detected based on the temperature sensed by the indoor and outdoor thermistors and the current of the compressor.	<ul style="list-style-type: none"> Check for a gas leak in a connecting piping etc. Check the stop valve. Refer to 12-5. ㉗ "Check of outdoor refrigerant circuit".
9		20-time blink 2.5 seconds OFF	Indoor/outdoor refrigerant mismatch *1	Mismatch of refrigerant information between indoor and outdoor units	Connect the correct combination of indoor unit and outdoor unit.
10	'Outdoor unit stops and restarts 3 minutes later' is repeated.	2-time blink 2.5 seconds OFF	Overcurrent protection	Large current flows into power module (IC700).	<ul style="list-style-type: none"> Reconnect connector of compressor. Refer to 12-5. ㉔ "How to check inverter/compressor". Check stop valve.
11		3-time blink 2.5 seconds OFF	Discharge temperature overheat protection	Temperature of discharge temperature thermistor exceeds 108°C, compressor stops. Compressor can restart if discharge temperature thermistor reads 100°C or less 3 minutes later.	<ul style="list-style-type: none"> Check refrigerant circuit and refrigerant amount. Refer to 12-5. ㉘ "Check of LEV".
12		4-time blink 2.5 seconds OFF	Fin temperature /P.C. board temperature thermistor overheat protection	Temperature of fin temperature thermistor on the heat sink exceeds 75 ~ 86°C (RZ25/35)/75 ~ 80°C (RZ50) or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 72 ~ 85°C (RZ25/35)/70 ~ 75°C (RZ50).	<ul style="list-style-type: none"> Check around outdoor unit. Check outdoor unit air passage. Refer to 12-5. ㉙ "Check of outdoor fan motor".
13		5-time blink 2.5 seconds OFF	High pressure protection	Indoor coil thermistor exceeds 70°C in HEAT mode. Defrost thermistor exceeds 70°C in COOL mode.	<ul style="list-style-type: none"> Check refrigerant circuit and refrigerant amount. Check stop valve.
14		8-time blink 2.5 seconds OFF	Compressor synchronous abnormality	The waveform of compressor current is distorted.	<ul style="list-style-type: none"> Reconnect connector of compressor. Refer to 12-5. ㉔ "How to check inverter/compressor".
15		10-time blink 2.5 seconds OFF	Outdoor fan motor	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan startup.	<ul style="list-style-type: none"> Refer to 12-5. ㉚ "Check of outdoor fan motor". Refer to 12-5. ㉛ "Check of inverter P.C. board".
16		12-time blink 2.5 seconds OFF	Each phase current of compressor	Each phase current of compressor cannot be detected normally.	Refer to 12-5. ㉔ "How to check inverter/compressor".
17	13-time blink 2.5 seconds OFF	Bus-bar voltage (DC)	Bus-bar voltage of inverter cannot be detected normally.	<ul style="list-style-type: none"> It occurs with following case. Instantaneous power voltage drop. (Short time power failure) (RZ50) Refer to 12-5. ㉜ "Check of power supply". (RZ50) Refer to 12-5. ㉔ "How to check inverter/compressor". 	

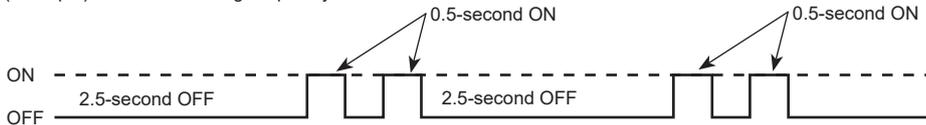


No.	Symptom	LED indication	Abnormal point/ Condition	Condition	Remedy
18	Outdoor unit operates.	1-time blink 2.5 seconds OFF	Deceleration of the operational frequency of the compressor by the current protection control	RZ25/35 When the input current exceeds approximately 10A, compressor frequency lowers.	The unit is normal, but check the following. • Check if indoor filters are clogged. • Check if refrigerant is short. • Check if indoor/outdoor unit air circulation is short cycled.
				RZ50 Current from power outlet is nearing breaker capacity.	
19		3-time blink 2.5 seconds OFF	Deceleration of the operational frequency of the compressor by the high pressure protection	Temperature of indoor coil thermistor exceeds 55°C in HEAT mode, compressor frequency lowers.	
				Deceleration of the operational frequency of the compressor by the overcooling prevention of the indoor heat exchanger	
20		4-time blink 2.5 seconds OFF	Deceleration of the operational frequency of the compressor by the discharge temperature protection	Temperature of discharge temperature thermistor exceeds 111°C, compressor frequency lowers.	• Check refrigerant circuit and refrigerant amount. • Refer to 12-5. Ⓜ "Check of LEV". • Refer to 12-5. Ⓜ "Check of outdoor thermistors".
21	Outdoor unit operates.	MUZ-RZ25/35 5-time blink 2.5 seconds OFF	Outside temperature thermistor protection	When the outside temperature thermistor shorts or opens, protective operation without that thermistor is performed.	• Refer to 12-5. Ⓜ "Check of outdoor thermistors".
22		7-time blink 2.5 seconds OFF	Low discharge temperature protection	Temperature of discharge temperature thermistor has been 50°C or less for 20 minutes.	• Refer to 12-5. Ⓜ "Check of LEV". • Check refrigerant circuit and refrigerant amount.
23		8-time blink 2.5 seconds OFF	MUZ-RZ25/35 PAM protection PAM: Pulse Amplitude Modulation	The overcurrent flows into IGBT(Q821) or the bus-bar voltage reaches 394 V or more, PAM stops and restarts.	This is not malfunction. PAM protection will be activated in the following cases: 1 Instantaneous power voltage drop. (Short time power failure) 2 When the power supply voltage is high.
			MUZ-RZ50 Zero cross detecting circuit	Zero cross signal cannot be detected.	• It occurs with following cases. 1 Instantaneous power voltage drop. (Short time power failure) 2 Distortion of primary voltage • Refer to 12-5. Ⓜ "Check of power supply".
24		9-time blink 2.5 seconds OFF	Inverter check mode	The connector of compressor is disconnected, inverter check mode starts.	• Check if the connector of the compressor is correctly connected. Refer to 12-5. Ⓜ "How to check inverter/compressor".

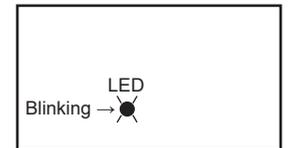
*1 In case of combinations that affect refrigerant leak detection of flammable refrigerants. (R290, R32)

NOTE: 1. The location of LED is illustrated at the right figure. Refer to 12-6.1.
2. LED is lit during normal operation.

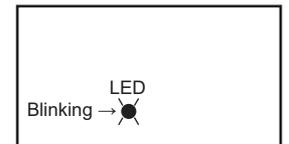
The blinking frequency shows the number of times the LED blinks after every 2.5-second OFF.
(Example) When the blinking frequency is "2".



Inverter P.C. board
MUZ-RZ25/35VU
MUZ-RZ25/35VUHZ

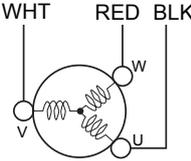
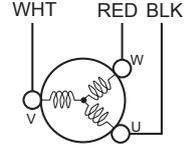
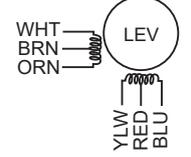


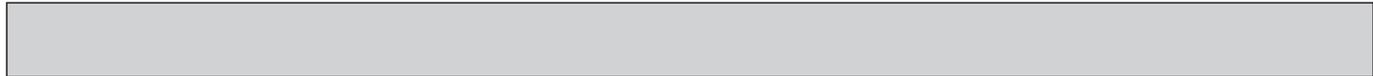
MUZ-RZ50VUHZ



12-4. TROUBLESHOOTING CRITERION OF MAIN PARTS

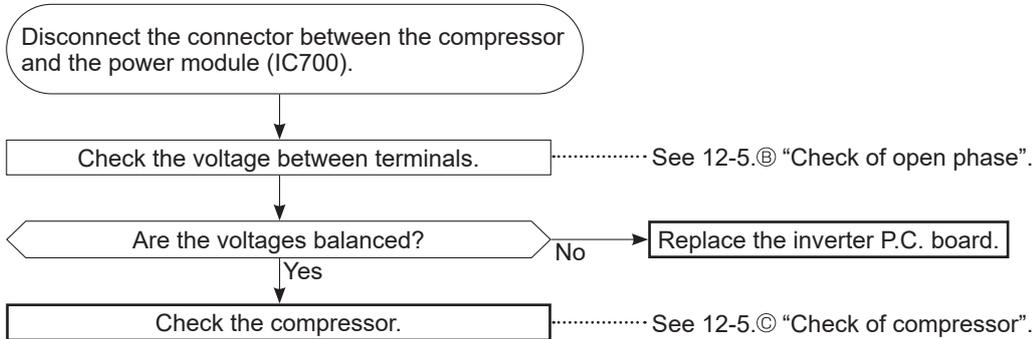
**MUZ-RZ25VU MUZ-RZ35VU
MUZ-RZ25VUHZ MUZ-RZ35VUHZ MUZ-RZ50VUHZ**

Part name	Check method and criterion	Figure																			
Defrost thermistor (RT61) Fin temperature thermistor (RT64) Ambient temperature thermistor (RT65) Outdoor heat exchanger temperature thermistor (RT68)	Measure the resistance with a multimeter. Refer to 12-6. "Test point diagram and voltage", 1. "Inverter P.C. board", for the chart of thermistor.																				
Discharge temperature thermistor (RT62)	Measure the resistance with a multimeter. Before measurement, hold the thermistor with your hands to warm it up. Refer to 12-6. "Test point diagram and voltage", 1. "Inverter P.C. board", for the chart of thermistor.																				
Compressor	Measure the resistance between terminals using a multimeter. (Temperature: -10 to 40°C)																				
	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Normal (Ω)</th> </tr> <tr> <th>MUZ-RZ25VU MUZ-RZ25VUHZ</th> <th>MUZ-RZ35VU MUZ-RZ35VUHZ</th> <th>MUZ-RZ50VUHZ</th> </tr> </thead> <tbody> <tr> <td>U-V</td> <td></td> <td></td> <td></td> </tr> <tr> <td>U-W</td> <td>1.30 – 1.77</td> <td>0.60 – 0.82</td> <td>0.57 – 0.77</td> </tr> <tr> <td>V-W</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Normal (Ω)			MUZ-RZ25VU MUZ-RZ25VUHZ	MUZ-RZ35VU MUZ-RZ35VUHZ	MUZ-RZ50VUHZ	U-V				U-W	1.30 – 1.77	0.60 – 0.82	0.57 – 0.77	V-W				
	Normal (Ω)																				
	MUZ-RZ25VU MUZ-RZ25VUHZ	MUZ-RZ35VU MUZ-RZ35VUHZ	MUZ-RZ50VUHZ																		
U-V																					
U-W	1.30 – 1.77	0.60 – 0.82	0.57 – 0.77																		
V-W																					
Outdoor fan motor	Measure the resistance between lead wires using a multimeter. (Temperature: -10 to 40°C)																				
	<table border="1"> <thead> <tr> <th rowspan="2">Color of lead wire</th> <th colspan="2">Normal (Ω)</th> </tr> <tr> <th>MUZ-RZ25/35VU MUZ-RZ25/35VUHZ</th> <th>MUZ-RZ50VUHZ</th> </tr> </thead> <tbody> <tr> <td>RED – BLK</td> <td rowspan="3">15 – 21</td> <td rowspan="3">15 – 21</td> </tr> <tr> <td>BLK – WHT</td> </tr> <tr> <td>WHT – RED</td> </tr> </tbody> </table>	Color of lead wire	Normal (Ω)		MUZ-RZ25/35VU MUZ-RZ25/35VUHZ	MUZ-RZ50VUHZ	RED – BLK	15 – 21	15 – 21	BLK – WHT	WHT – RED										
Color of lead wire	Normal (Ω)																				
	MUZ-RZ25/35VU MUZ-RZ25/35VUHZ	MUZ-RZ50VUHZ																			
RED – BLK	15 – 21	15 – 21																			
BLK – WHT																					
WHT – RED																					
R.V. coil (21S4)	Measure the resistance using a multimeter. (Temperature: -10 to 40°C)																				
	<table border="1"> <thead> <tr> <th>Normal (kΩ)</th> </tr> </thead> <tbody> <tr> <td>1.88 - 2.29</td> </tr> </tbody> </table>	Normal (kΩ)	1.88 - 2.29																		
Normal (kΩ)																					
1.88 - 2.29																					
Expansion valve coil (LEV)	Measure the resistance using a multimeter. (Temperature: -10 to 40°C)																				
	<table border="1"> <thead> <tr> <th>Color of lead wire</th> <th>Normal (Ω)</th> </tr> </thead> <tbody> <tr> <td>BRN – ORN</td> <td rowspan="4">37 – 54</td> </tr> <tr> <td>BRN – WHT</td> </tr> <tr> <td>RED – BLU</td> </tr> <tr> <td>RED – YLW</td> </tr> </tbody> </table>	Color of lead wire	Normal (Ω)	BRN – ORN	37 – 54	BRN – WHT	RED – BLU	RED – YLW													
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BRN – ORN	37 – 54																				
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RED – BLU																					
RED – YLW																					
Defrost heater	Measure the resistance using a multimeter. (Temperature: -10 to 40°C)																				
	<table border="1"> <thead> <tr> <th colspan="2">Normal (Ω)</th> </tr> </thead> <tbody> <tr> <td>MUZ-RZ25/35VU MUZ-RZ25/35VUHZ</td> <td>MUZ-RZ50VUHZ</td> </tr> <tr> <td>802 – 990</td> <td>396 – 461</td> </tr> </tbody> </table>	Normal (Ω)		MUZ-RZ25/35VU MUZ-RZ25/35VUHZ	MUZ-RZ50VUHZ	802 – 990	396 – 461														
Normal (Ω)																					
MUZ-RZ25/35VU MUZ-RZ25/35VUHZ	MUZ-RZ50VUHZ																				
802 – 990	396 – 461																				



12-5. TROUBLESHOOTING FLOW

A How to check inverter/compressor



B Check of open phase

- With the connector between the compressor and the power module (IC700) disconnected, activate the inverter and check if the inverter is normal by measuring the **voltage balance** between the terminals.

Output voltage is 50 - 130 V. (The voltage may differ according to the multimeter.)

<< Operation method >>

Start cooling or heating operation by pressing the emergency operation switch on the indoor unit. (TEST RUN OPERATION: Refer to 9-3.)

<< Measurement point >>

At 3 points

BLK (U)-WHT (V)

* Measure AC voltage between the lead wires at 3 points.

BLK (U)-RED (W)

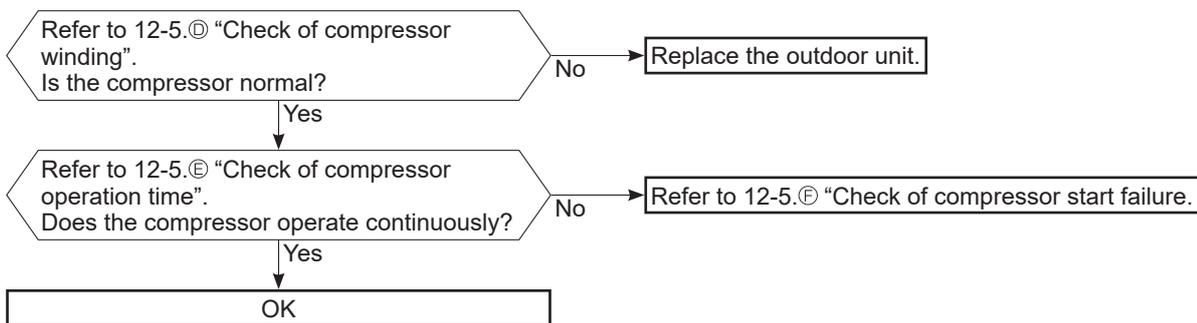
WHT(V)-RED (W)

NOTE: 1. Output voltage varies according to power supply voltage.

2. Measure the voltage by analog type multimeter.

3. During this check, LED of the inverter P.C. board blinks 9 times. (Refer to 12-6.1.)

C Check of compressor



D Check of compressor winding

- Disconnect the connector between the compressor and the power module (IC700), and measure the resistance between the compressor terminals.

<<Measurement point>>

At 3 points

BLK-WHT

BLK-RED

WHT-RED

* Measure the resistance between the lead wires at 3 points.

<<Judgement>>

Refer to 12-4.

0 [Ω]Abnormal [short]

Infinite [Ω]Abnormal [open]

NOTE: Be sure to zero the ohmmeter before measurement.

E Check of compressor operation time

- Connect the compressor and activate the inverter. Then measure the time until the inverter stops due to overcurrent.

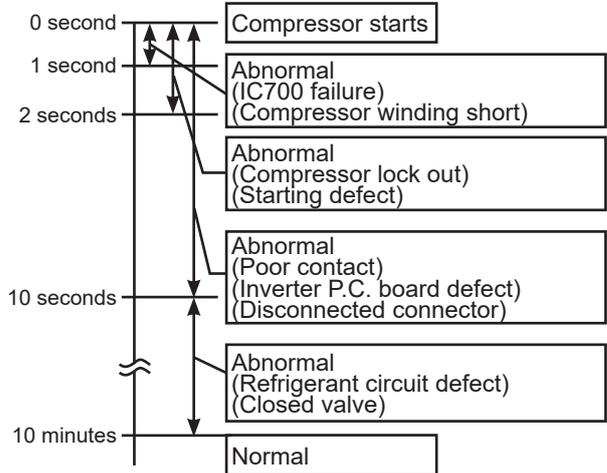
<<Operation method>>

Start heating or cooling operation by pressing the emergency operation switch on the indoor unit. (Test run operation: Refer to 9-3.)

<<Measurement>>

Measure the time from the start of compressor to the stop of compressor due to overcurrent.

<<Judgement>>



F Check of compressor start failure

Confirm that ①~④ is normal.

•Electrical circuit check

- ①. Contact of the compressor connector
- ②. Output voltage of inverter P.C. board and balance of them (See 12-5.③)
- ③. Direct current voltage between DB61(+) and (-) (**MUZ-RZ25/35**)/ IC700 (P) and (N) (**MUZ-RZ50**) on the inverter P.C. board
- ④. Voltage between outdoor terminal block S1-S2

Does the compressor run for 10 seconds or more after it starts?

Yes

Check the refrigerant circuit.
Check the stop valve.

No

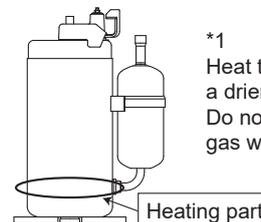
After the compressor is heated with a drier, does the compressor start? *1

No

Replace the outdoor unit.

Yes

Compressor start failure. Activate pre-heat control.
(Refer to 11-2. "PRE-HEAT CONTROL SETTING")

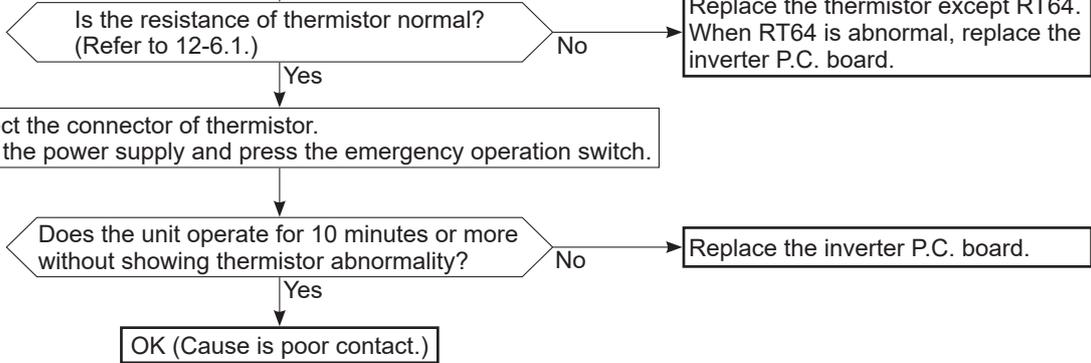


*1

Heat the compressor with a drier for about 20 minutes. Do not recover refrigerant gas while heating.

Ⓒ Check of outdoor thermistors

Disconnect the connector of thermistor in the inverter P.C. board (see below table), and measure the resistance of thermistor.



MUZ-RZ25/35

Thermistor	Symbol	Connector, Pin No.	Board
Defrost	RT61	Between CN641 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN641 pin3 and pin4	
Fin temperature	RT64	Between CN642 pin1 and pin2	
Ambient temperature	RT65	Between CN643 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN644 pin1 and pin3	

MUZ-RZ50

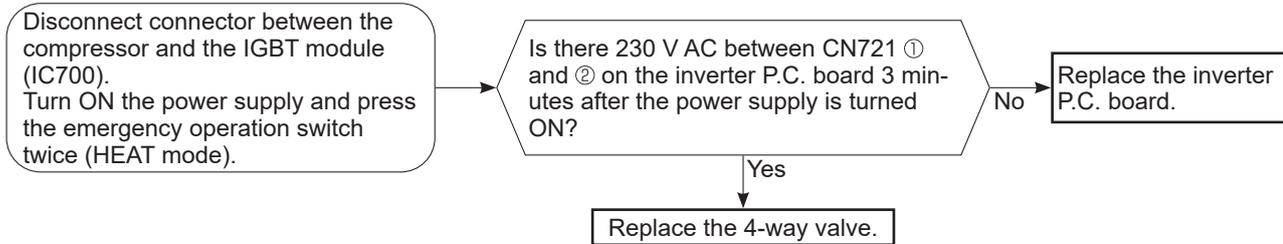
Thermistor	Symbol	Connector, Pin No.	Board
Defrost	RT61	Between CN671 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN671 pin3 and pin4	
Fin temperature	RT64	Between CN673 pin1 and pin2	
Ambient temperature	RT65	Between CN672 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN671 pin5 and pin6	

H Check of R.V. coil

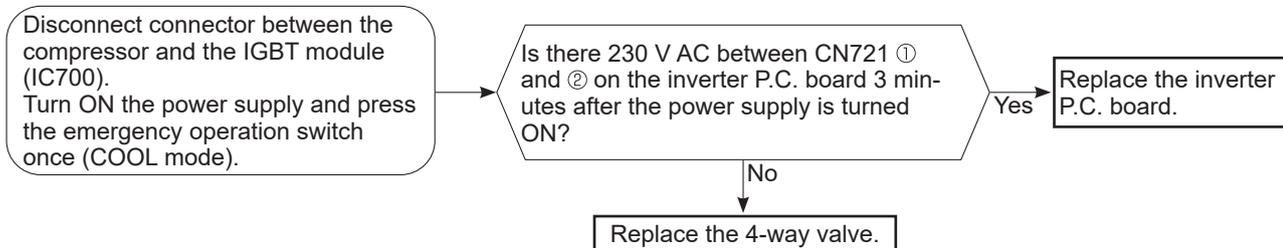
MUZ-RZ25/35

- * First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to 12-4.
- * In case CN721 is disconnected or R.V. coil is open, voltage is generated between the terminal pins of the connector although no signal is being transmitted to R.V. coil.
Check if CN721 is connected.

Unit operates in COOL mode even if it is set to HEAT mode.



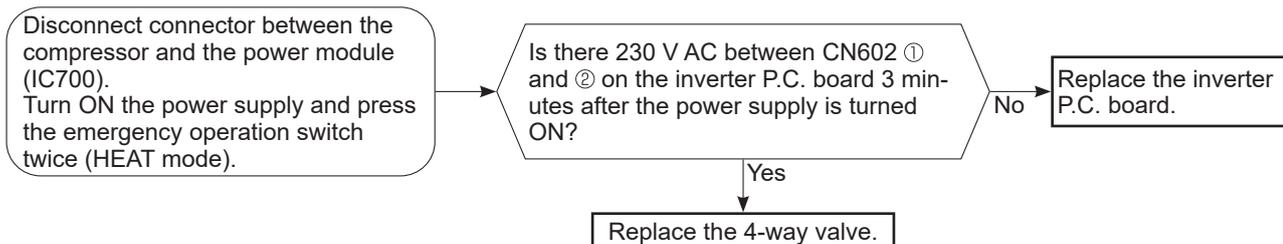
Unit operates in HEAT mode even if it is set to COOL mode.



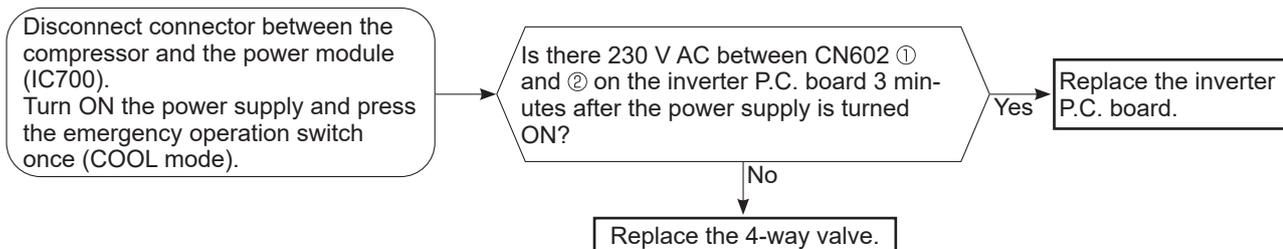
MUZ-RZ50

- * First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to 12-4.
- * In case CN602 is disconnected or R.V. coil is open, voltage is generated between the terminal pins of the connector although no signal is being transmitted to R.V. coil.
Check if CN602 is connected.

Unit operates in COOL mode even if it is set to HEAT mode.

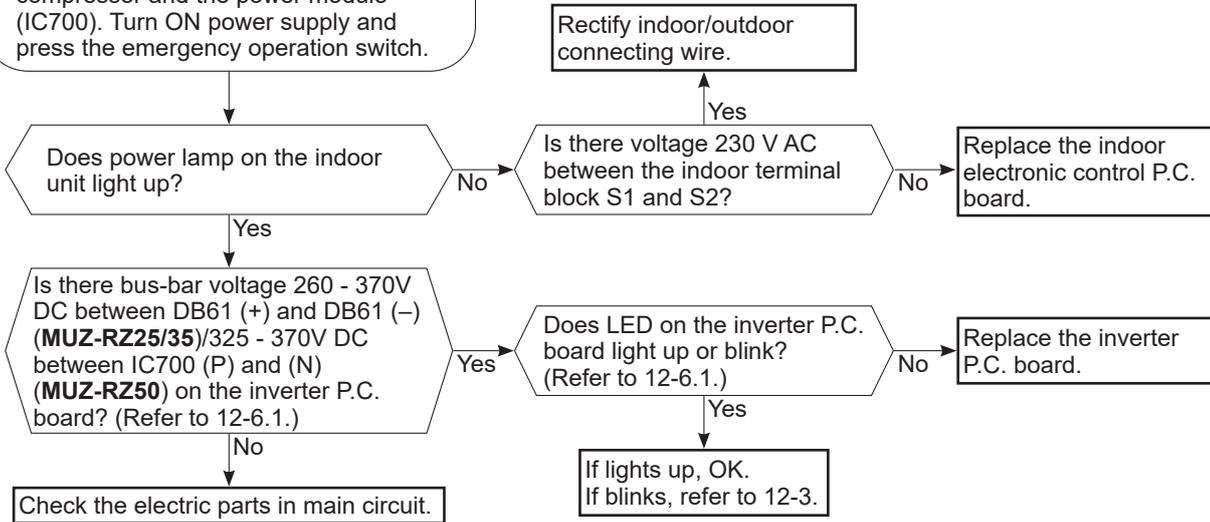


Unit operates in HEAT mode even if it is set to COOL mode.

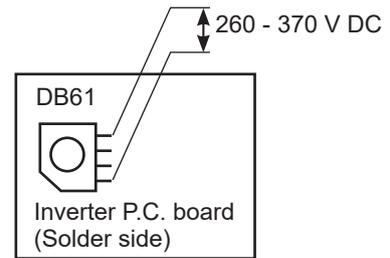


Ⓜ Check of power supply

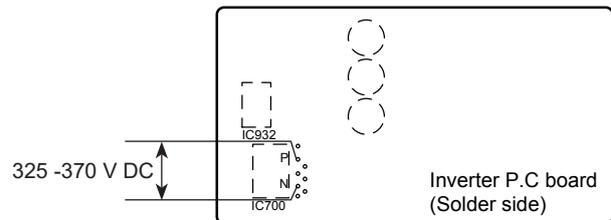
Disconnect the connector between the compressor and the power module (IC700). Turn ON power supply and press the emergency operation switch.



MUZ-RZ25/35VU
MUZ-RZ25/35VUHZ



MUZ-RZ50VUHZ



K Check of LEV (Expansion valve)

Turn ON the power supply.

<Preparation of the remote controller>

- ① While pressing both Operation select button and TEMP \oplus button on the remote controller at the same time, press RESET button.
- ② First, release RESET button. Hold down the other 2 buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons. (Figure 1)

Press OFF/ON (stop/operate) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. *1

Expansion valve operates in full-opening direction.

Do you hear the expansion valve "click, click....." ?
Do you feel the expansion valve vibrate when touching it ?

Yes → OK

No

Is LEV coil properly fixed to the expansion valve?

No → Properly fix the LEV coil to the expansion valve.

Yes

Does the resistance of LEV coil have the characteristics? (Refer to 12-4.)

Yes → Measure each voltage between connector pins of CN724 on the inverter P.C. board.

No → Replace the inverter P.C. board.

Measure each voltage between connector pins of CN724 on the inverter P.C. board.

1. Pin ③ (-) — Pin ① (+)
2. Pin ④ (-) — Pin ① (+)
3. Pin ⑤ (-) — Pin ① (+)
4. Pin ⑥ (-) — Pin ① (+)

Is there about 3 - 5 V AC between each?

NOTE: Measure the voltage by an analog multimeter.

Replace the LEV coil.

Replace the expansion valve.

MSZ-RZ25/35/50VU - [E1] MSZ-RZ25/35/50VU - [SC1]

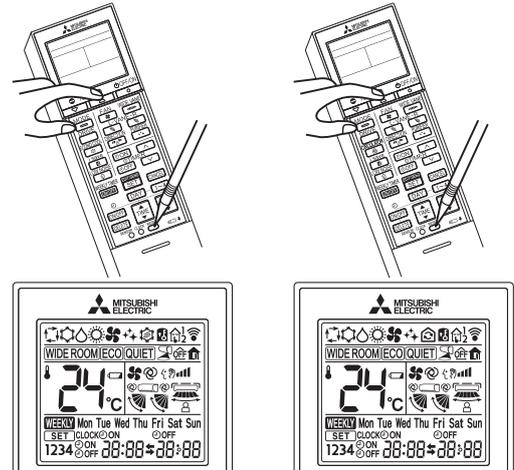


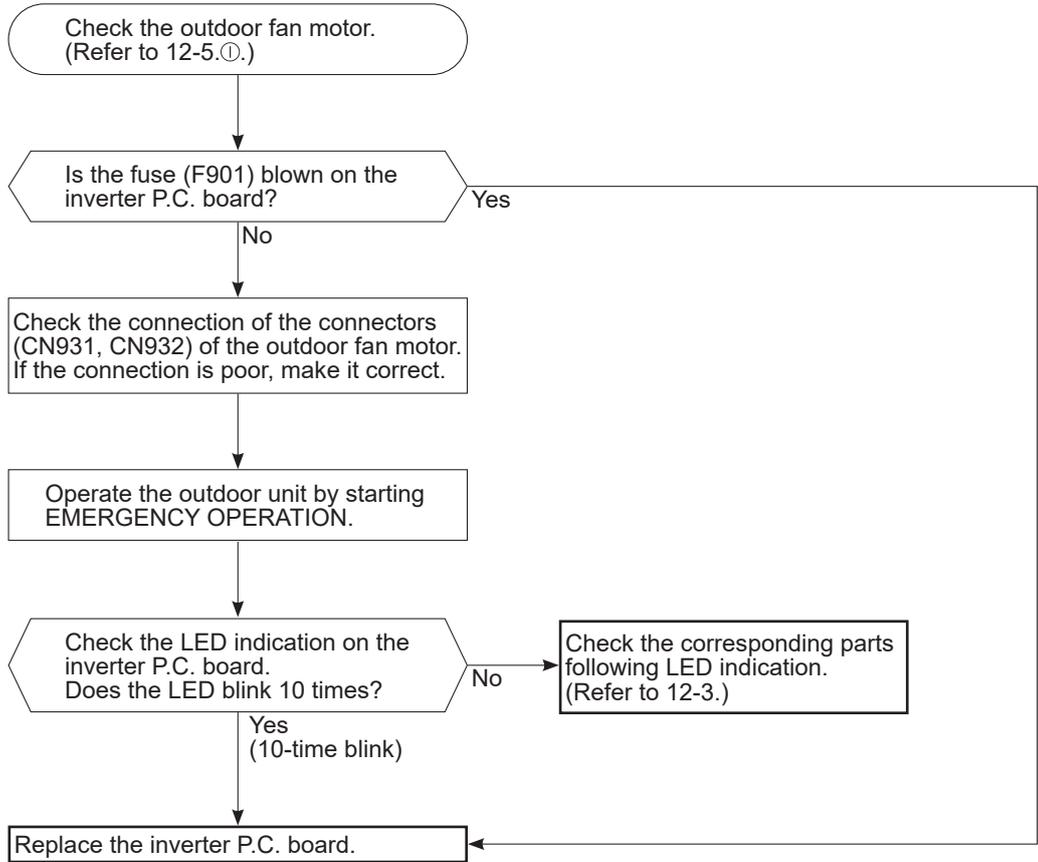
Figure 1

*1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

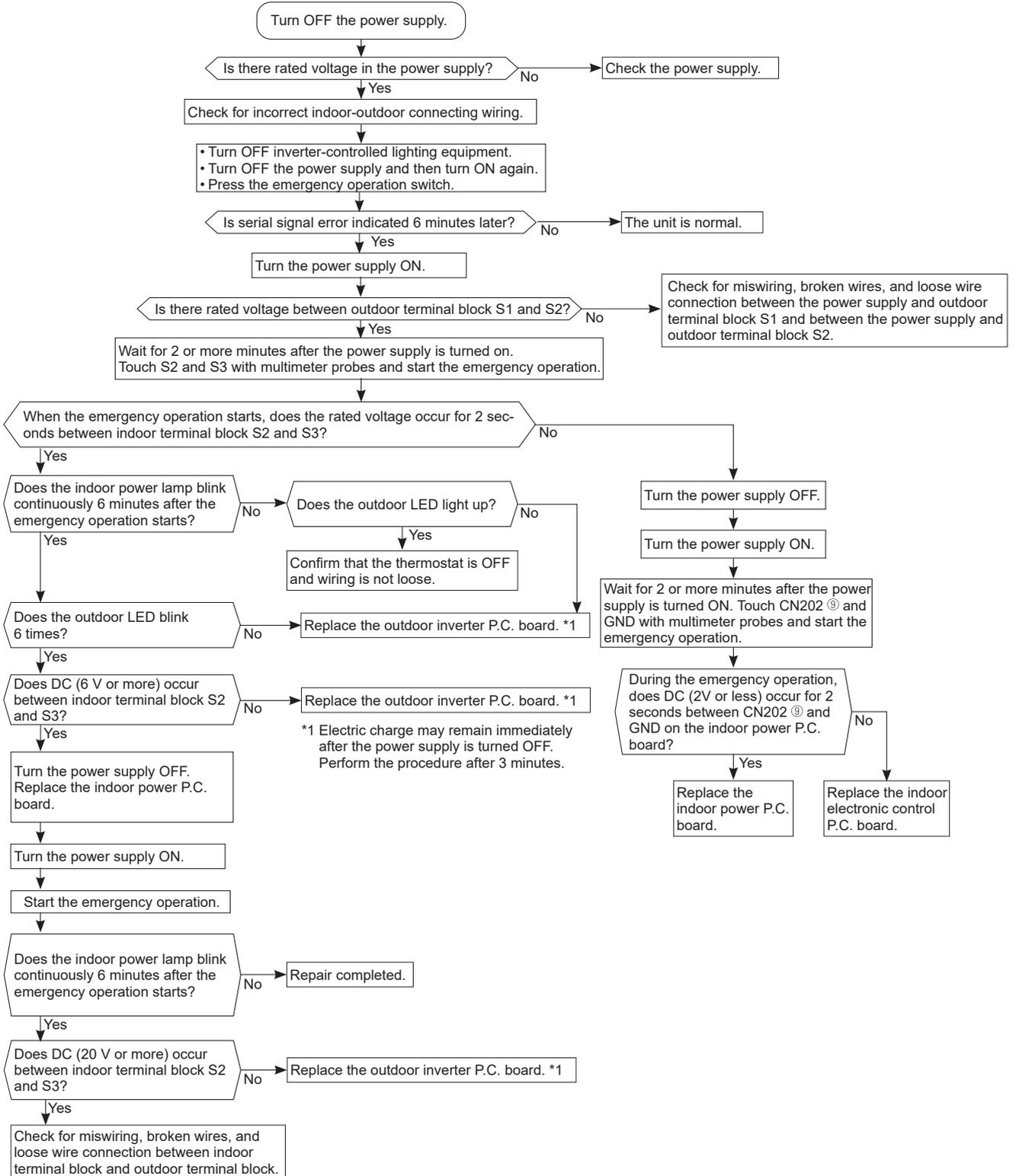
NOTE: After check of LEV, take the following steps.

1. Turn OFF the power supply and turn it ON again.
2. Press RESET button on the remote controller.

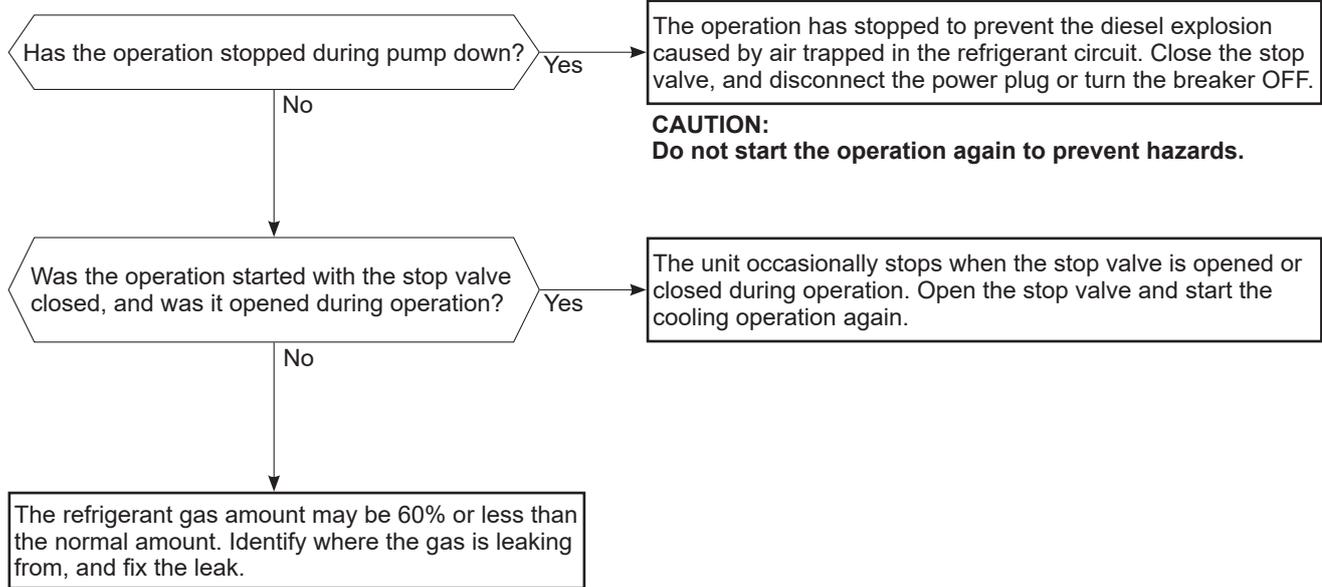
L Check of inverter P.C. board



M How to check miswiring and serial signal error

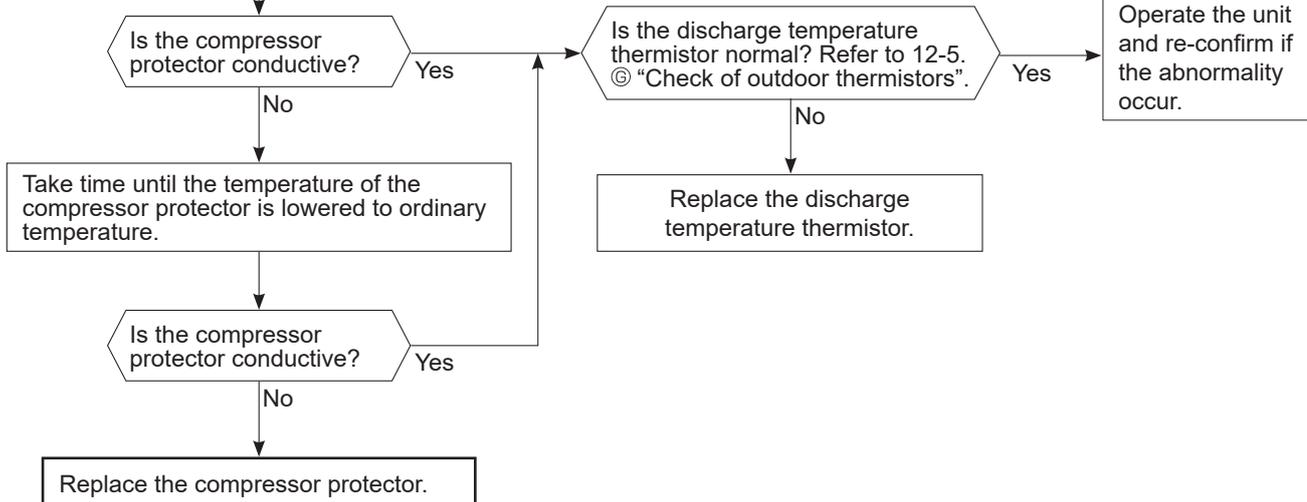


N Check of the outdoor refrigerant circuit

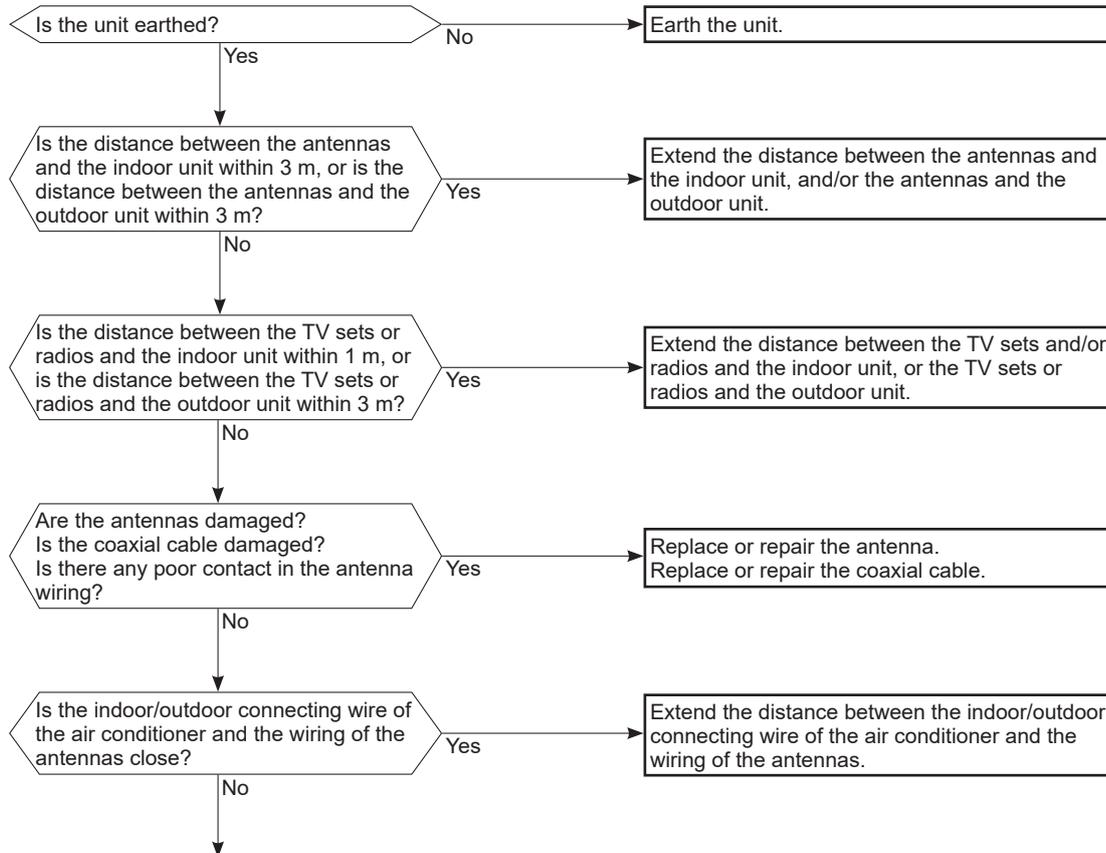


⊙ Check of compressor protector

Disconnect the connector of compressor protector in the inverter P.C. board, and check the conduction of compressor protector.



P Electromagnetic noise enters into TV sets or radios



Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the following before asking for service.

1. Devices affected by the electromagnetic noise
TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, earth wire, antennas, wiring from antennas, receiver
5. Electric field intensity of the broadcast station affected by the electromagnetic noise
6. Presence or absence of amplifier such as booster
7. Operation condition of air conditioner when the electromagnetic noise enters in
 - 1) Turn OFF the power supply once, and then turn ON the power supply. In this situation, check for the electromagnetic noise.
 - 2) Within 3 minutes after turning ON the power supply, press OFF/ON (stop/operate) button on the remote controller for power ON, and check for the electromagnetic noise.
 - 3) After a short time (3 minutes later after turning ON), the outdoor unit starts running. During operation, check for the electromagnetic noise.
 - 4) Press OFF/ON (stop/operate) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation, check for the electromagnetic noise.

12-6. TEST POINT DIAGRAM AND VOLTAGE

1. Inverter P.C. board

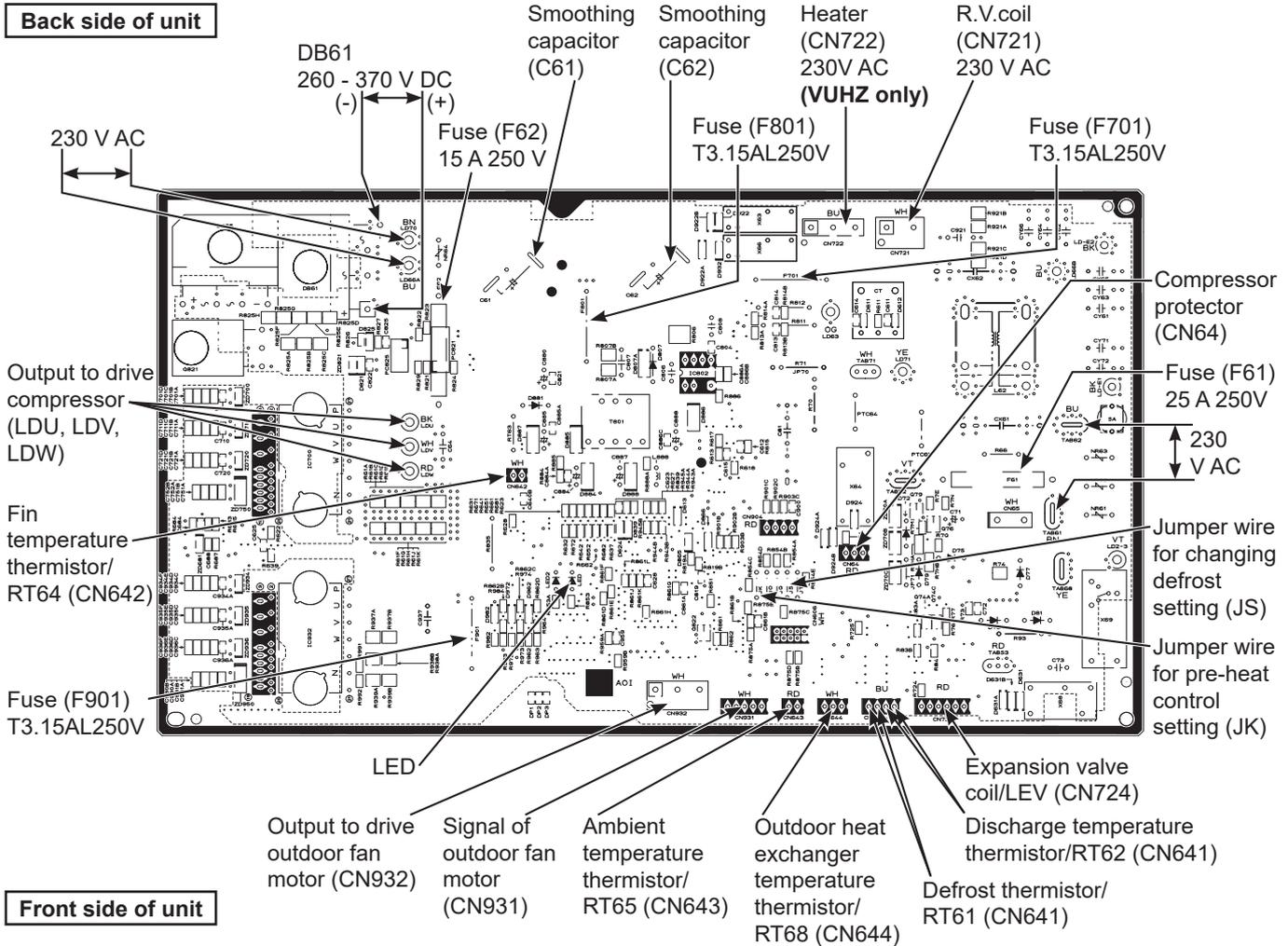
MUZ-RZ25VU

MUZ-RZ35VU

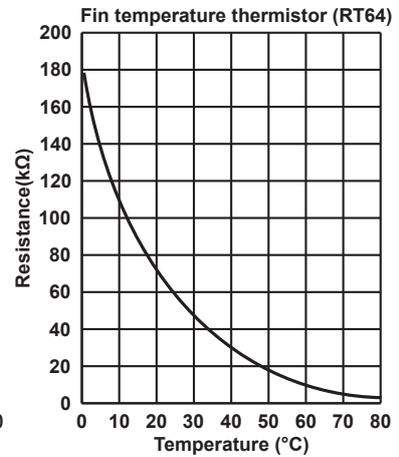
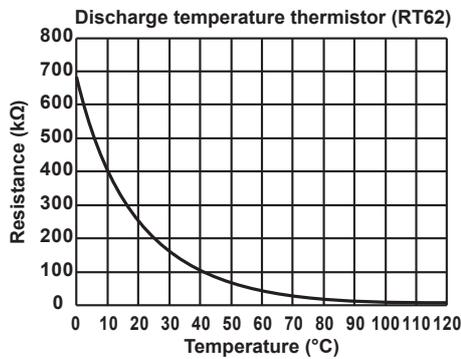
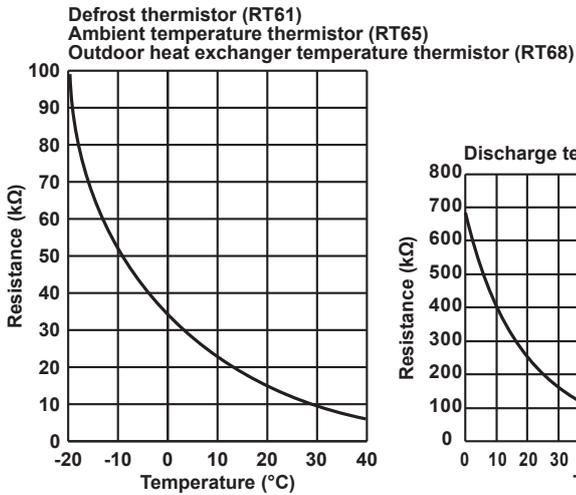
MUZ-RZ25VUHZ

MUZ-RZ35VUHZ

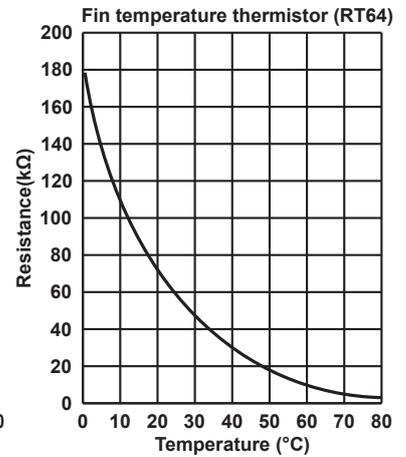
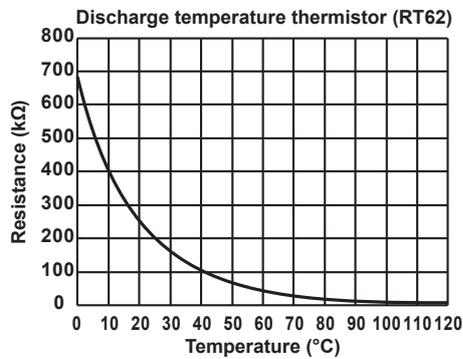
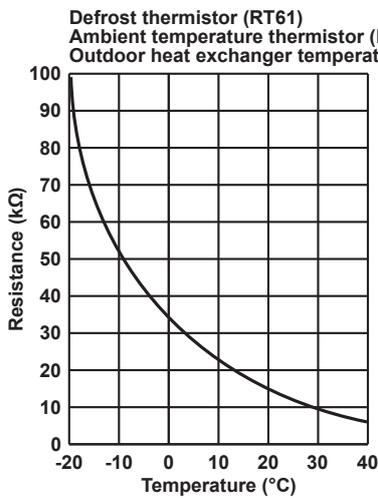
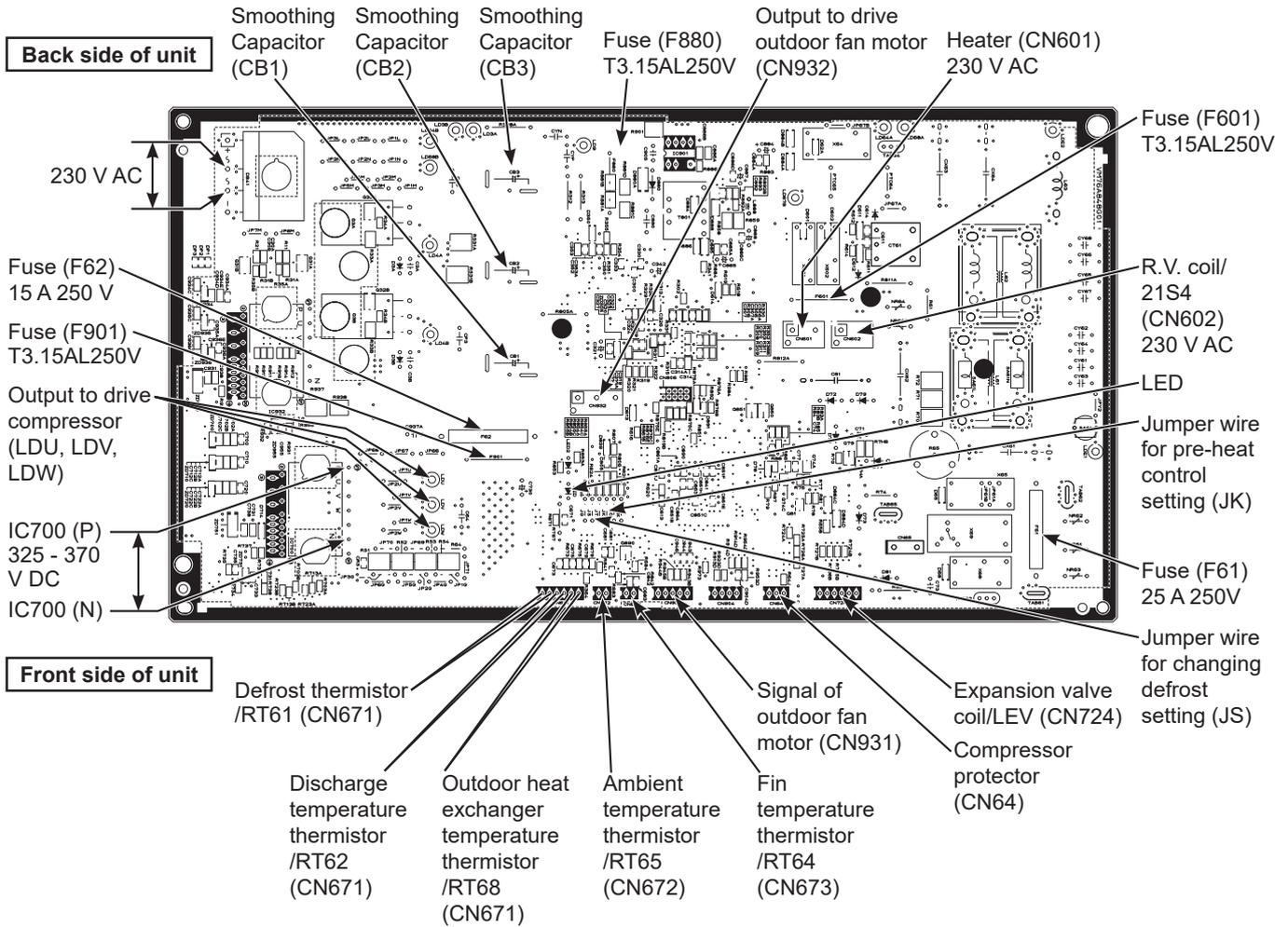
Back side of unit



Front side of unit



MUZ-RZ50VUHZ



<Detaching method of the terminal with locking mechanism>

The terminal which has the locking mechanism can be detached as shown below.

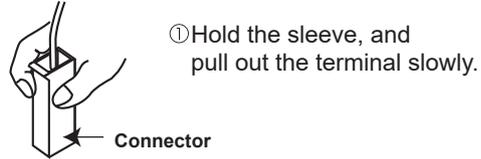
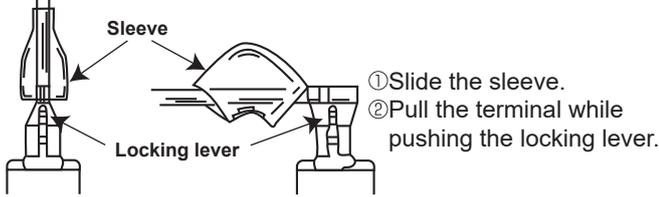
There are 2 types of the terminal with locking mechanism.

The terminal without locking mechanism can be detached by pulling it out.

Check the shape of the terminal before detaching.

(1) Slide the sleeve and check if there is a locking lever or not.

(2) The terminal with this connector shown below has the locking mechanism.



**13-1. MUZ-RZ25VU MUZ-RZ35VU
MUZ-RZ25VUHZ MUZ-RZ35VUHZ**

NOTE: Turn OFF the power supply before disassembly.

→ : Indicates the visible parts in the photos/figures.
 ---> : Indicates the invisible parts in the photos/figures.

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>1. Removing the cabinet</p> <p>(1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Disconnect the power supply cord and indoor/outdoor connecting wire. (8) Remove the screws of the cabinet. (9) Remove the cabinet. (10) Remove the screws of the back panel. (11) Remove the back panel.</p>	<p>Photo 1</p> <p>Photo 2</p>
<p>Photo 4</p>	<p>Photo 3</p>

OPERATING PROCEDURE

2. Removing the inverter assembly and inverter P.C. board

- (1) Remove the cabinet and panels (refer to section 1).
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
CN931, CN932 (Fan motor)
CN641 (Defrost thermistor and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
CN724 (Expansion valve coil)
CN722 (Defrost heater and heater protector)
CN64 (Compressor protector)
- (3) Remove the compressor connector (CN61).
- (4) Remove the screws fixing the heat sink support and the separator.
- (5) Remove the inverter assembly.
- (6) Remove the screws of the earth wires. (Photo 7)
- (7) Remove the PB cover.
- (8) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support. (Photo 8)

PHOTOS/FIGURES

Photo 5

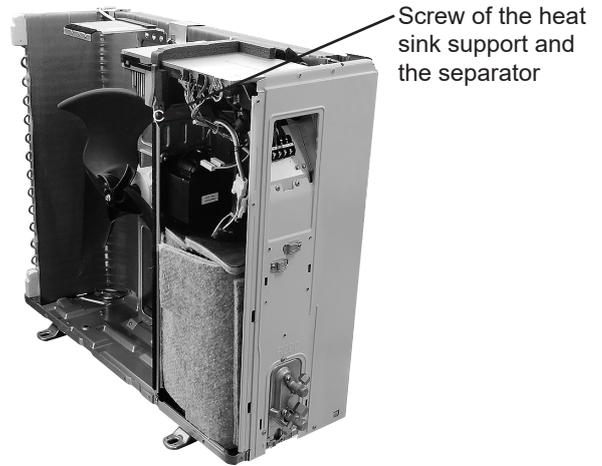
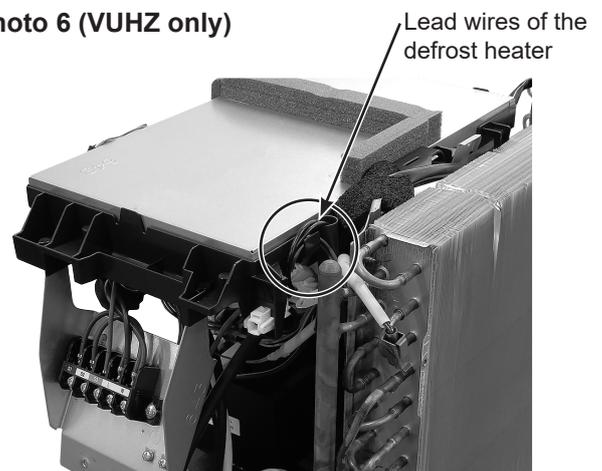


Photo 6 (VUHZ only)



OPERATING PROCEDURE

* Connection procedure when attaching the inverter P.C. board (Photo 9)

1. Connect the lead wires of the heat exchanger temperature thermistor, the defrost thermistor and discharge temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the center hook on the P.C. board support.
2. Connect the lead wires of the expansion valve coil to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the right hook on the P.C. board support.
3. Connect the lead wires of the ambient temperature thermistor to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the left hook on the P.C. board support so that the fan motor lead wires are bundled up as shown in Photo 11.
4. Hook the lead wires of the defrost heater and the heater protector. (Photo 6)

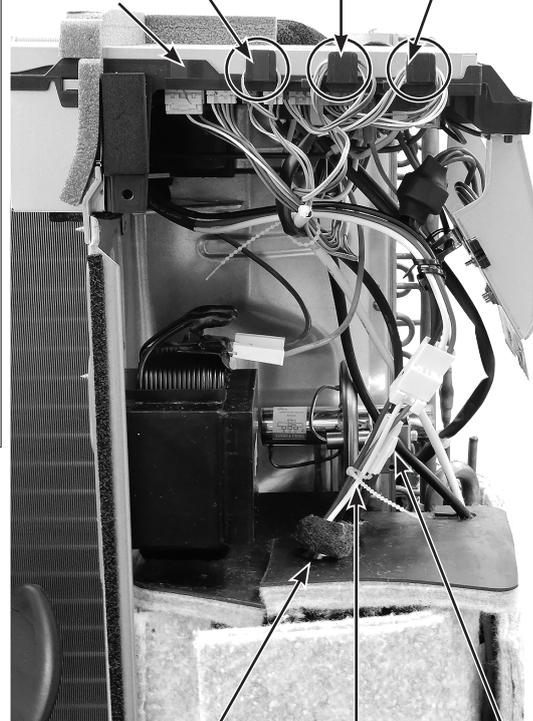
PHOTOS/FIGURES

Photo 9

Lead wires of the ambient temperature thermistor
Inverter P.C. board support

Lead wires of the heat exchanger temperature, the discharge temperature and the defrost thermistor

Lead wires of the expansion valve coil



Pass the lead wire of compressor protector through the top felt hole.

Connector of the compressor protector
Fix the lead wires of the compressor protector and the compressor.

Photo 7 (Inverter assembly)

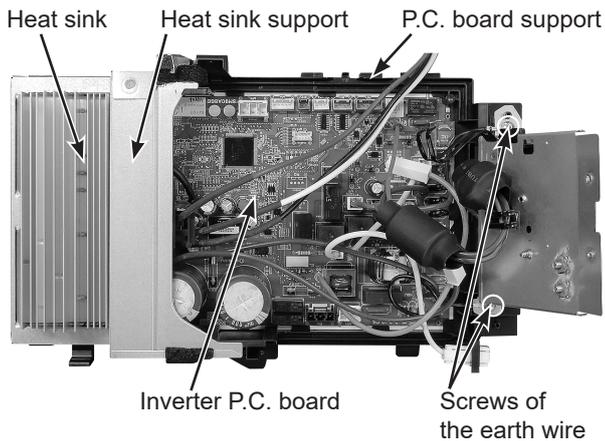
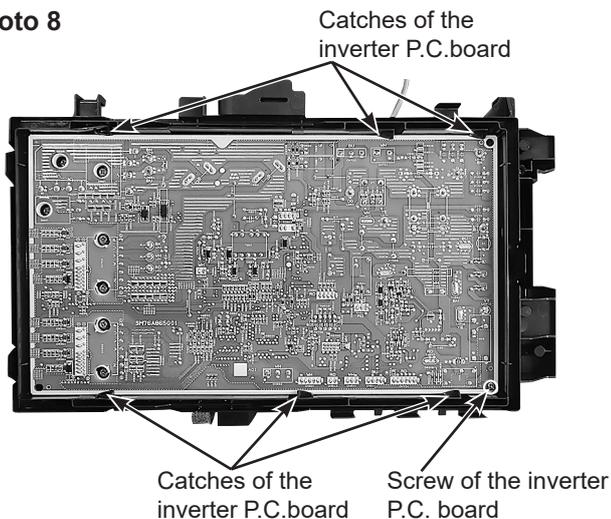


Photo 8



OPERATING PROCEDURE

3. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor

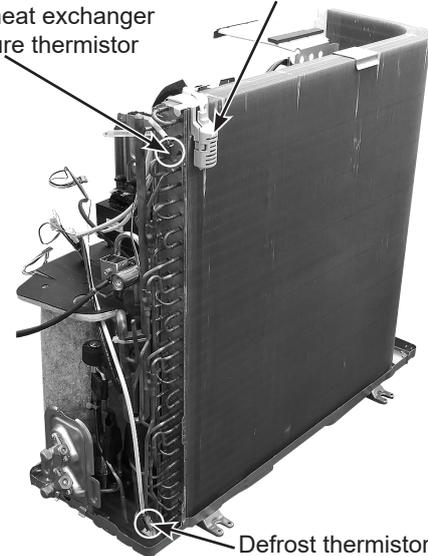
- (1) Remove the cabinet and panels (refer to section 1).
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN641 (Defrost thermistor and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
- (3) Pull out the discharge temperature thermistor from its holder. (Photo 12)
- (4) Pull out the defrost thermistor from its holder.
- (5) Pull out the outdoor heat exchanger temperature thermistor from its holder.
- (6) Pull out the ambient temperature thermistor from its holder.

PHOTOS/FIGURES

Photo 10
MUZ-RZ25/35VU

Outdoor heat exchanger temperature thermistor

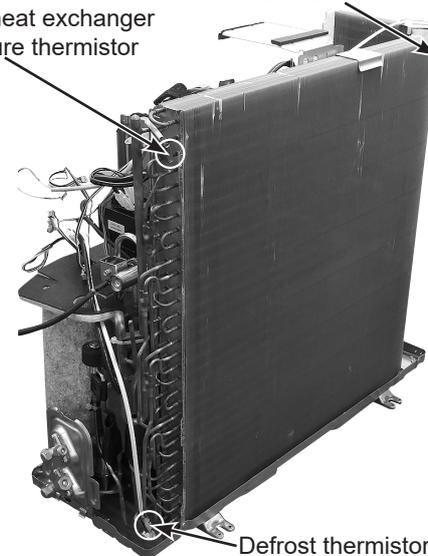
Ambient temperature thermistor



MUZ-RZ25/35VUHZ

Outdoor heat exchanger temperature thermistor

Ambient temperature thermistor



4. Removing outdoor fan motor

- (1) Remove the cabinet and panels (refer to section 1).
- (2) Disconnect the following connectors:
<Inverter P.C. board>
CN931, CN932 (Fan motor)
- (3) Remove the propeller fan nut.
- (4) Remove the propeller fan.
- (5) Remove the screws fixing the fan motor.
- (6) Remove the fan motor.

Photo 11

Screws of the outdoor fan motor



Propeller fan

Propeller fan nut

OPERATING PROCEDURE

PHOTOS/FIGURES

5. Removing R. V. coil

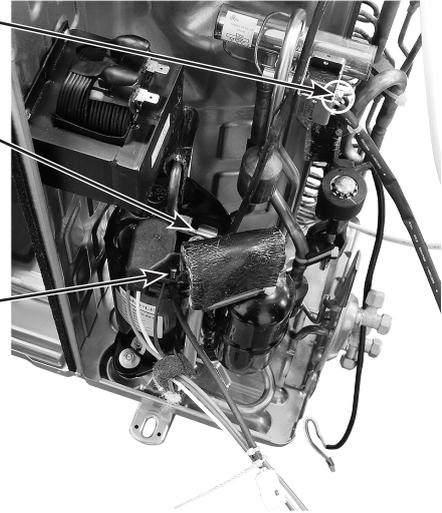
- (1) Remove the cabinet and panels (refer to section 1).
- (2) Disconnect the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil)
- (3) Remove the R.V. coil.

Photo 12

Screw of
the R.V. coil

Discharge
temperature
thermistor

Compressor
protector



6. Removing the compressor and 4-way valve

- (1) Remove the cabinet and panels (refer to section 1).
- (2) Remove the inverter assembly (refer to section 2).
- (3) Remove the screws fixing the reactor.
- (4) Remove the reactor.
- (5) Remove the soundproof felt.
- (6) Recover gas from the refrigerant circuit.
NOTE: Recover gas from the pipes until the pressure gauge shows 0 kg/cm². (0 MPa).
- (7) Detach the brazed part of the suction and the discharge pipe connected with compressor.
- (8) Remove the compressor nuts.
- (9) Remove the compressor.
- (10) Detach the brazed part of pipes connected with 4-way valve.

Photo 13

Discharge pipe
brazed part

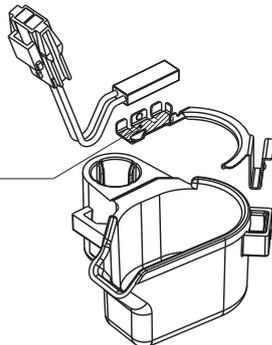


Suction pipe
brazed part

Brazed parts of 4-way valve

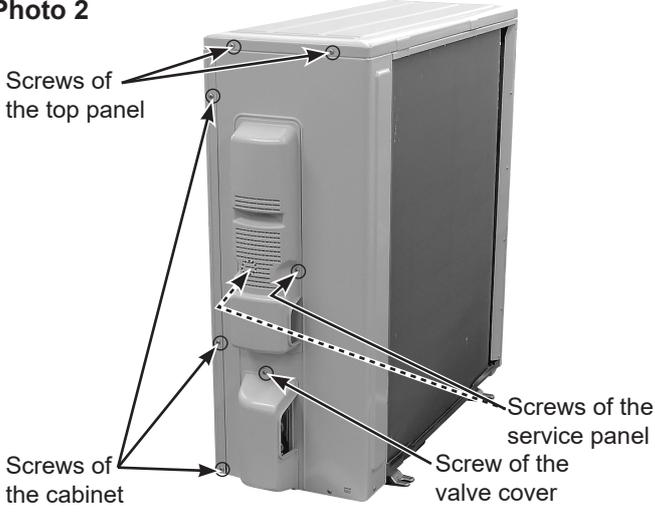
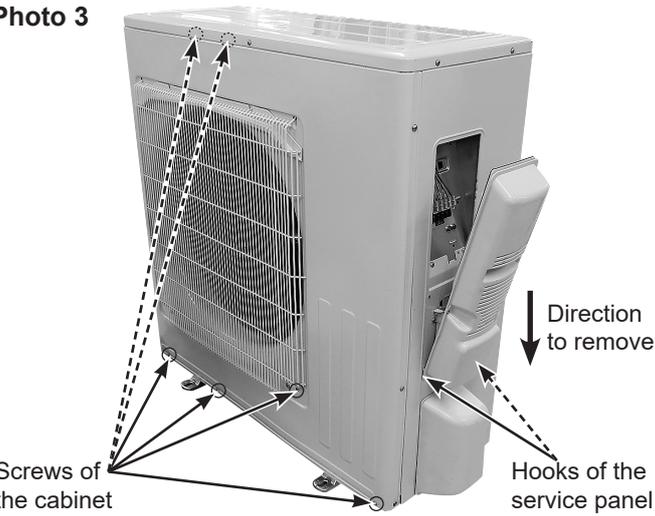
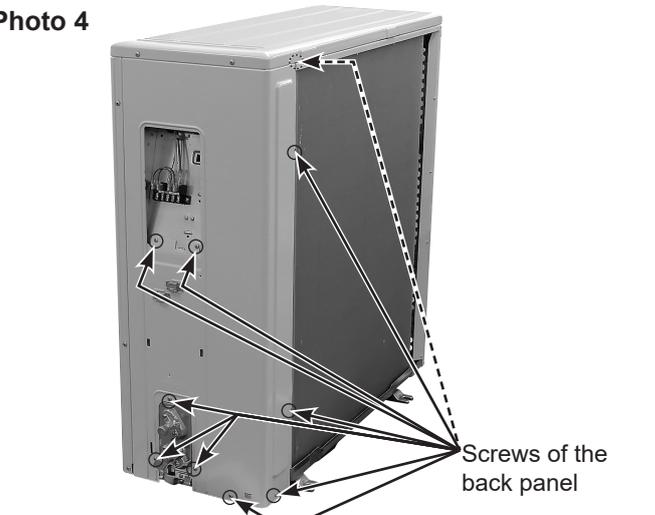
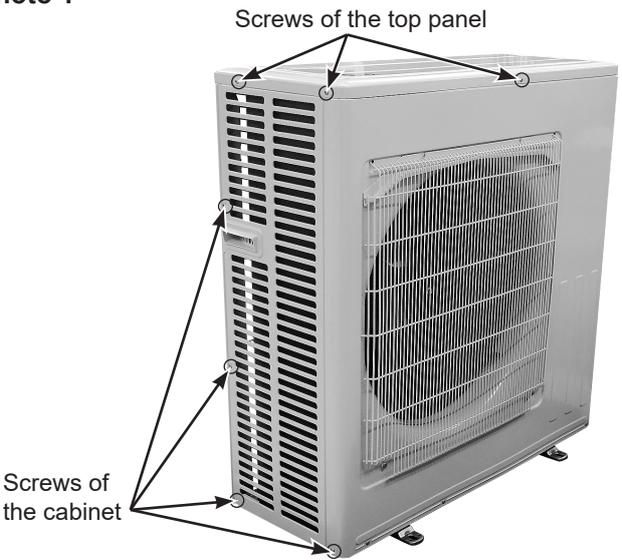
Figure 1

Attach the compressor protector to the protector holder with the surface on which the model name is printed facing the area hatched in the figure.



13-2. MUZ-RZ50VUHZ

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>1. Removing the cabinet</p> <ol style="list-style-type: none"> (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Disconnect the power supply and indoor/outdoor connecting wire. (8) Remove the screws of the cabinet. (9) Remove the cabinet. (10) Remove the screws of the back panel. (11) Remove the back panel. 	<p>Photo 2</p>  <p>Screws of the top panel</p> <p>Screws of the cabinet</p> <p>Screws of the service panel</p> <p>Screw of the valve cover</p> <p>Photo 3</p>  <p>Screws of the cabinet</p> <p>Hooks of the service panel</p> <p>Direction to remove</p> <p>Photo 4</p>  <p>Screws of the back panel</p>
<p>Photo 1</p>  <p>Screws of the top panel</p> <p>Screws of the cabinet</p>	

OPERATING PROCEDURE

2. Removing the inverter assembly, inverter P.C. board

- (1) Remove the top panel, cabinet and service panel.
(Refer to section 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN602 (R.V. coil)
CN931, CN932 (Fan motor)
CN671 (Defrost thermistor, discharge temperature thermistor and outdoor heat exchanger temperature thermistor)
CN672 (Ambient temperature thermistor)
CN724 (Expansion valve coil)
CN601 (Defrost heater and heater protector)
CN64 (Compressor protector)
- (3) Remove the compressor connector (CN61).
- (4) Remove the screws fixing the heat sink support and the separator.
- (5) Remove the screws fixing the P.C. board support and the motor support.
- (6) Remove the inverter assembly.
- (7) Remove the screws of the earth wires and the terminal block support.
- (8) Remove the screw of the heat sink support, and the heat sink support from the P.C. board support.

PHOTOS/FIGURES

Photo 5

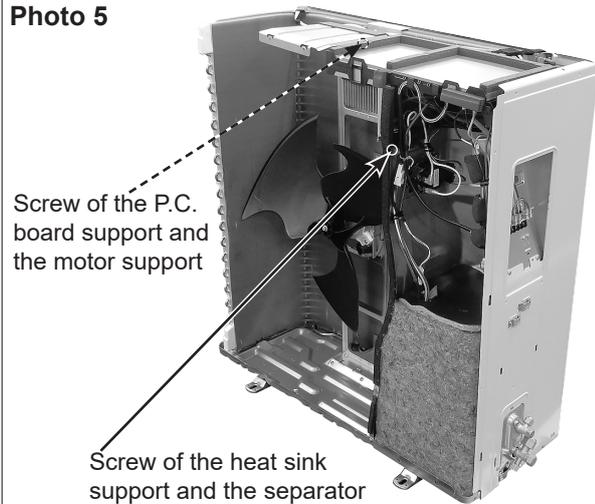
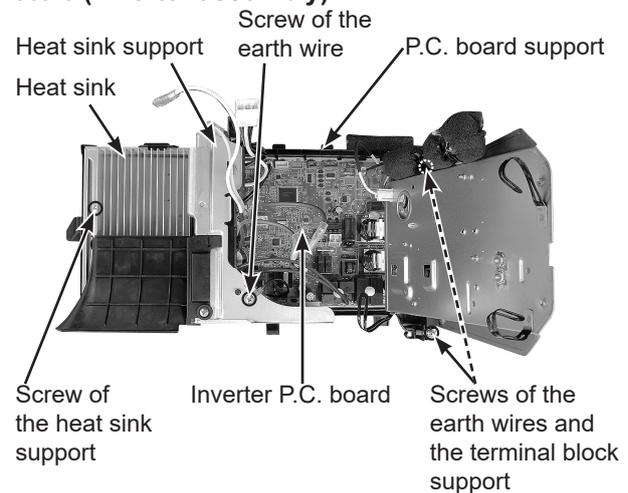


Photo 6 (Inverter assembly)



OPERATING PROCEDURE

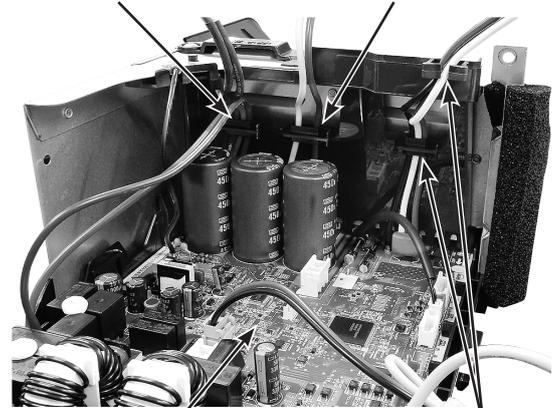
* Connection procedure when attaching the inverter P.C. board (Photo 6, 7, 8, 9, 10)

1. Attach the heat sink support to the P.C. board support.
2. Hook the lead wires of the compressor, the reactor and the P.C. board to each hooks on the heat sink support as shown in Photo 9.
3. Connect the lead wires of the expansion valve coil to the connector on the inverter P.C. board. Pull the lead wires of the expansion valve coil toward you and put them on the left hook on the P.C. board support as shown in Photo 10.
4. Hook the lead wires of the compressor, discharge temperature thermistor, defrost thermistor and expansion valve coil to each hook and tighten the wires with the fastener as shown in Photo 10.
5. Hook the lead wires of the defrost heater and the heater protector. (Photo 7)

PHOTOS/FIGURES

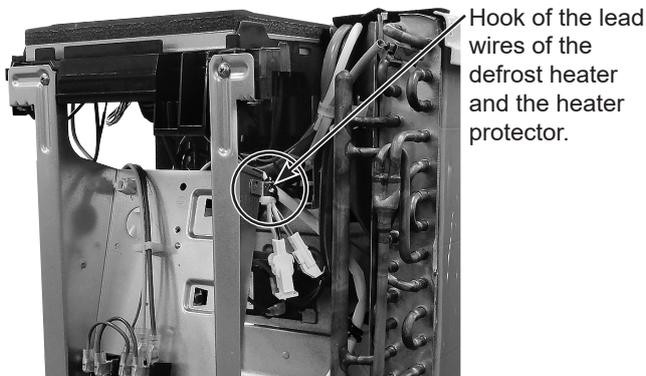
Photo 9

Hook of the lead wires of the P.C. board (red and blue) and reactor (white and red) Hook of the lead wires of the reactor (yellow and blue)



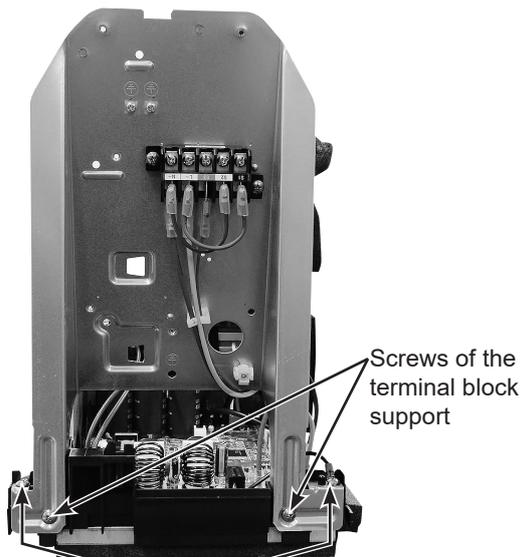
Inverter P.C. board Hooks of the lead wires of the compressor

Photo 7



Hook of the lead wires of the defrost heater and the heater protector.

Photo 8

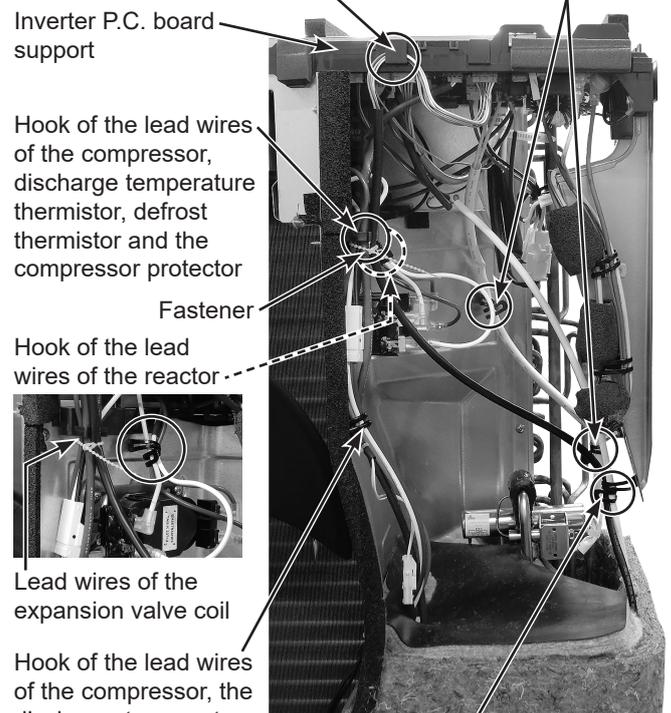


Screws of the terminal block support

Screws of the earth wires and the terminal block support

Photo 10

Lead wires of the expansion valve coil Hooks of the lead wire of the R.V. coil



Inverter P.C. board support

Hook of the lead wires of the compressor, discharge temperature thermistor, defrost thermistor and the compressor protector

Fastener

Hook of the lead wires of the reactor

Lead wires of the expansion valve coil

Hook of the lead wires of the compressor, the discharge temperature thermistor and the compressor protector

Hook of the lead wire of expansion valve coil and defrost thermistor

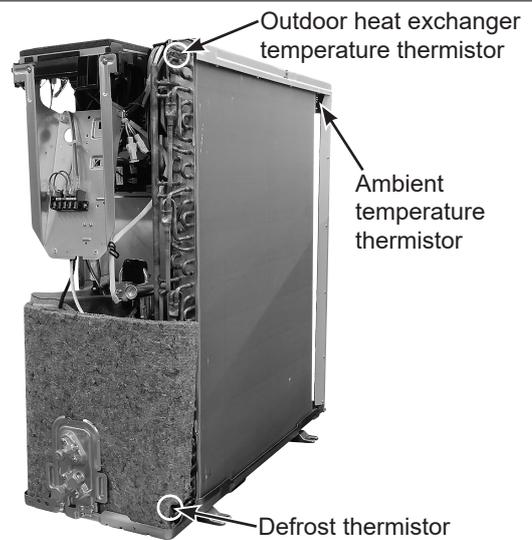
OPERATING PROCEDURE

PHOTOS/FIGURES

3. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor

Photo 11

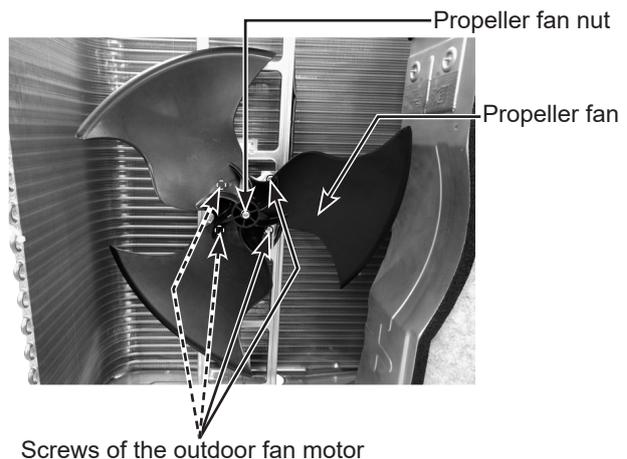
- (1) Remove the cabinet and panels. (Refer to section 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN671 (Defrost thermistor, discharge temperature thermistor and outdoor heat exchanger temperature thermistor)
CN672 (Ambient temperature thermistor)
- (3) Pull out the discharge temperature thermistor from its holder. (Photo 13)
- (4) Pull out the defrost thermistor from its holder.
- (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (Photo 11)
- (6) Pull out the ambient temperature thermistor from its holder.

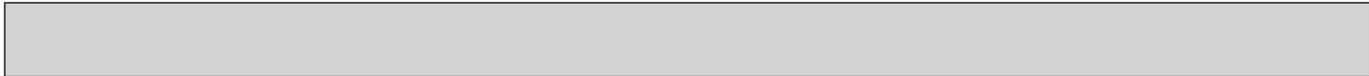


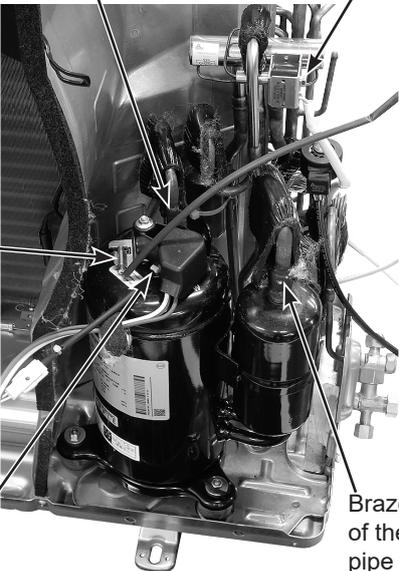
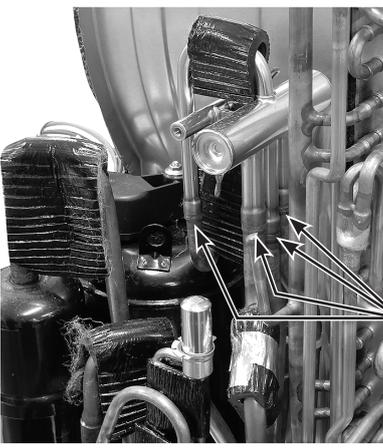
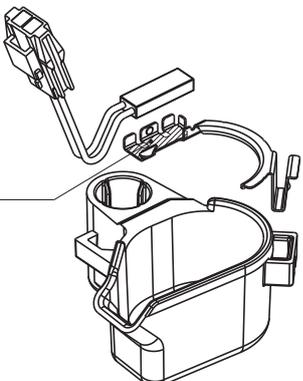
4. Removing outdoor fan motor

Photo 12

- (1) Remove the top panel, cabinet and service panel. (Refer to section 1.)
- (2) Disconnect the following connectors:
<Inverter P.C. board>
CN931, CN932 (Fan motor)
- (3) Remove the propeller fan nut.
- (4) Remove the propeller fan.
- (5) Remove the screws fixing the fan motor.
- (6) Remove the fan motor.





OPERATING PROCEDURE	PHOTOS/FIGURES
<p>5. Removing R. V. coil</p> <ol style="list-style-type: none">(1) Remove the cabinet and panels. (Refer to section 1.)(2) Disconnect the following connectors: <Inverter P.C. board> CN602 (R.V. coil)(3) Remove the R.V. coil.	<p>Photo 13</p> <p>Brazed part of the discharge pipe</p> <p>Screw of the R.V. coil</p> <p>Discharge temperature thermistor</p> <p>Compressor protector</p> <p>Brazed part of the suction pipe</p> 
<p>6. Removing the compressor and 4-way valve</p> <ol style="list-style-type: none">(1) Remove the cabinet and panels. (Refer to section 1.)(2) Remove the inverter assembly. (Refer to section 2.)(3) Remove the screws fixing the reactor.(4) Remove the reactor.(5) Remove the soundproof felt.(6) Recover gas from the refrigerant circuit. <p>NOTE: Recover gas from the pipes until the pressure gauge shows 0 kg/cm² (0 MPa).</p> <ol style="list-style-type: none">(7) Detach the brazed part of the suction and the discharge pipe connected with compressor. (Photo 13)(8) Remove the compressor nuts.(9) Remove the compressor.(10) Detach the brazed parts of 4-way valve and pipe. (Photo 14)	<p>Photo 14</p> <p>Brazed parts of 4-way valve</p>  <p>Figure 1</p> <p>Attach the compressor protector to the protector holder with the surface on which the model name is printed facing the area hatched in the figure.</p> 

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