MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

January 2025
No. OCH879
REVISED EDITION-A

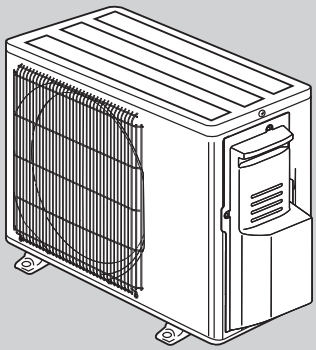
SERVICE MANUAL R454B

Outdoor unit [Model Name]	[Service Ref.]
SUZ-AA09NL	SUZ-AA09NL-U1
SUZ-AA12NL	SUZ-AA12NL-U1
SUZ-AA15NL	SUZ-AA15NL-U1

Note:
• This service manual describes service data of the outdoor units only.

Revision:
Some descriptions have been revised in REVISED EDITION-A.

OCH879 is void.



SUZ-AA09NL-U1
SUZ-AA12NL-U1
SUZ-AA15NL-U1

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PARTS CATALOG (OCB879)

1 COMBINATION OF INDOOR AND OUTDOOR UNITS

	Indoor unit		Outdoor unit Heat pump type		
			SUZ-		
	Service Ref.	Service Manual No.	AA09 NL-U1	AA12 NL-U1	AA15 NL-U1
Heat pump without electric heater	SLZ-AF09/12/15NL-U1	OCH857	○	○	○
	SEZ-AD09/12/15NL-U1	HWE24090	○	○	○
	PEAD-AA09/12/15NL-U1	HWE24030	○	○	○
	SVZ-AP12NL-U1		–	○	–
	MLZ-KX09/12NL-U1	OBH957	○	○	–
	MSZ-EX09/12/15NL(B/S/W)-U1	TBH238	○	○	○
	MFZ-KX09/12/15NL-U1	OBH944	○	○	○

2 SAFETY PRECAUTION

MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

Refrigerant Safety Group A2L	**WARNING** (Risk of fire)	This unit uses a flammable refrigerant. If the refrigerant leaks and comes in contact with fire or a heating part, it will create a harmful gas and there is a risk of fire.
	Read the OPERATING INSTRUCTIONS carefully before operation.	
	Service personnel are required to carefully read the OPERATING INSTRUCTIONS and INSTALLATION MANUAL before operation.	
	Further information is available in the OPERATING INSTRUCTIONS, INSTALLATION MANUAL, and the like.	

2-1. ALWAYS OBSERVE FOR SAFETY

Before obtaining access to terminal, all supply circuits must be disconnected.

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.
- Discharge the condenser 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 refrigerating 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.
- 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.

2-2. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R454B

Use new refrigerant pipes.

In the case of using the existing pipes for R22, R410A, be careful with the following:
· Be sure to clean the pipes and make sure that the insides of the pipes are clean.
· Change flare nut to the one provided with this product. Use a newly flared pipe.
· Avoid using thin pipes.

**Make sure that the inside and outside of refrigerant piping is clean and it has no contaminants such as sulfur, oxides, dirt, shaving particles, etc. which are hazard to refrigerant cycle.
In addition, use pipes with specified thickness.**

Contamination inside refrigerant piping can cause deterioration of refrigerant oil, etc.

Store the piping to be used indoors during installation and both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

The refrigerant oil applied to flare and flange connections must be ester oil, ether oil or alkylbenzene oil in a small amount.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil, etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R454B.

If other refrigerant (R22, R410A, etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil, etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil, etc.

Use the following tools specifically designed for use with R454B refrigerant.

The following tools are necessary to use R454B refrigerant.

Tools for R454B	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

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.

[1] Warning for service

(1) Do not alter the unit.
(2) For installation and relocation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with refrigerant specified in the outdoor unit installation manual.
(3) Ask a dealer or an authorized technician to install, relocate and repair the unit.
(4) Refrigerant pipes connection shall be accessible for maintenance purposes.
(5) If the air conditioner is installed in a small room or closed room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.
(6) Keep gas-burning appliances, electric heaters, and other fire sources (ignition sources) away from the location where installation, repair, and other air conditioner work will be performed.
If refrigerant comes into contact with a flame, poisonous gases will be released.
(7) When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R454B) to charge the refrigerant lines.
Do not mix it with any other refrigerant and do not allow air to remain in the lines.
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
(8) After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.
(9) Do not use low temperature solder alloy in the case of brazing the refrigerant pipes.
(10) When performing brazing work, be sure to ventilate the room sufficiently. Make sure that there are no hazardous or flammable materials nearby.
When performing the work in a closed room, small room, or similar location, make sure that there are no refrigerant leaks before performing the work.
If refrigerant leaks and accumulates, it may ignite or poisonous gases may be released.
(11) Do not install the unit in places where refrigerant may build-up or places with poor ventilation such as a semibasement or a sunken place in outdoor: Refrigerant is heavier than air, and inclined to fall away from the leak source.
(12) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
(13) 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).
(14) Do not pierce or burn.
(15) Be aware that refrigerants may not contain an odor.
(16) Pipe-work shall be protected from physical damage.
(17) The installation of pipe-work shall be kept to a minimum.
(18) Compliance with national gas regulations shall be observed.
(19) All field joints shall be accessible for inspection prior to being covered or enclosed.
(20) Keep any required ventilation openings clear of obstruction.
(21) Servicing shall be performed only as recommended by the manufacturer.
(22) The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
(23) Maintenance, service and repair operations shall be performed by authorized technician with required qualification.
(24) Be sure to have appropriate ventilation in order to prevent ignition. Furthermore, be sure to carry out fire prevention measures that there are no dangerous or flammable objects in the surrounding area.

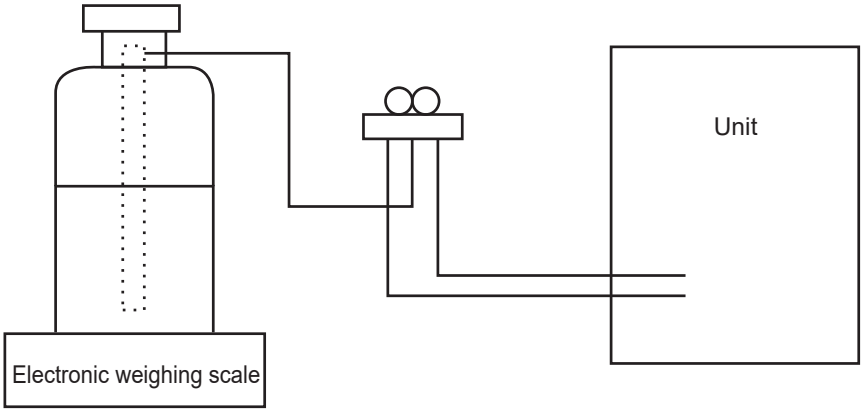
[2] Cautions for service

(1) Perform service after recovering the refrigerant left in unit completely.
(2) Do not release refrigerant in the air.
(3) After completing service, charge the cycle with specified amount of refrigerant.
(4) If moisture or foreign matter might have entered the refrigerant piping during service, ensure to remove them.

[3] Additional refrigerant charge

When charging directly from cylinder

(1) Check that cylinder for R454B on the market is a syphon type.
(2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



[4] Cautions for unit using R454B refrigerant

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

(1) Information on servicing

(1-1) 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. For repair to the refrigerating systems, (1-3) to (1-7) shall be completed prior to conducting work on the systems.

(1-2) 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.

(1-3) 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.

(1-4) 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.

(1-5) Presence of Fire Extinguisher

If any hot work is to be conducted on the refrigerating 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.

(1-6) No Ignition Sources

No person carrying out work in relation to a REFRIGERATING 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.

(1-7) 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.

(1-8) 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 actual REFRIGERANT CHARGE 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;
- marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- refrigerating 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 so corroded.

(1-9) 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;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding.

(2) Repairs to Sealed Components
Sealed electrical components shall be replaced.

(3) Repair to intrinsically Safe Components
Intrinsically safe components must be replaced.

(4) 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.

(5) 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.
The following leak detection methods are deemed acceptable for all refrigerant systems.
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 re-calibration. (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 also 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.

(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 be followed, since flammability is a consideration.
The following procedure shall be adhered to:
• safely remove refrigerant following local and national regulations;
• evacuate;
• purge the circuit with inert gas;
• evacuate;
• continuously flush or purge with inert gas when using flame to open circuit; and
• open the circuit.
The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes.
For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times.
Compressed air or oxygen shall not be used for purging refrigerant systems.
For appliances containing flammable 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.
The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be 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 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.

(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 re-use of recovered refrigerant.
It is essential that electrical power is available before the task is commenced.

- Become familiar with the equipment and its operation.
- Isolate system electrically.
- 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.
- Pump down refrigerant system, if possible.
- If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do not overfill cylinders (no more than 80 % volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- 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.
- Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

(9) Labelling

Equipment shall be labelled 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 is available.
All cylinders to be used are designated for the recovered refrigerant and labelled 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 the flammable refrigerant.
If in doubt, the manufacturer should be consulted. 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.
The recovered refrigerant shall be processed according to local legislation 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 compressor body shall not be heated by an open flame or other ignition sources to accelerate this process.
When oil is drained from a system, it shall be carried out safely.

[5] Service tools

Use the below service tools as exclusive tools for R454B refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	· Only for R454B
		· Use the existing fitting specifications.
		· Use high-tension side pressure of 768.7 PSIG [5.3 MPa.G] or over.
②	Charge hose	· Only for R454B
		· Use pressure performance of 738.2 PSIG [5.09 MPa.G] or over.
③	Electronic weighing scale	—
④	Gas leak detector	· Use the detector for R134a, R407C, R410A or R454B
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· Only for R454B ·Top of cylinder (Pink) · Cylinder with syphon
⑧	Refrigerant recovery equipment	—

2-3. CAUTIONS FOR REFRIGERANT PIPING WORK

New refrigerant R454B is adopted for replacement inverter series. Although the refrigerant piping work for R454B is same as for R22/R410A, exclusive tools are necessary so as not to mix with different kind of refrigerant. Furthermore as the working pressure of R454B is 1.6 times higher than that of R22, their sizes of flared sections and flare nuts are different.

① Thickness of pipes

Since the working pressure of R454B is higher compared to R22, be sure to use refrigerant piping with thickness shown below. (Never use pipes of 7/256 inch [0.7 mm] or below.)

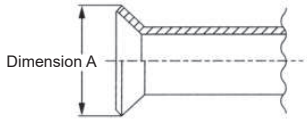
Diagram below: Piping diameter and thickness

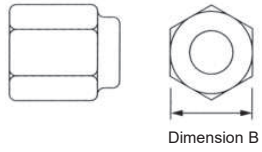
Nominal dimensions (inch)	Outside diameter (mm)	Thickness ; inch [mm]	
		R454B/R410A	R22
1/4	6.35	1/32 [0.8]	1/32 [0.8]
3/8	9.52	1/32 [0.8]	1/32 [0.8]
1/2	12.70	1/32 [0.8]	1/32 [0.8]

② Dimensions of flare cutting and flare nut

The component molecules in HFC refrigerant are smaller compared to conventional refrigerants. In addition to that, R454B is a refrigerant, which has higher risk of leakage because its working pressure is higher than that of other refrigerants. Therefore, to enhance air tightness and strength, flare cutting dimension of copper pipe for R454B has been specified separately from the dimensions for other refrigerants as shown below. The dimension B of flare nut for R454B also has partly been changed to increase strength as shown below. Set copper pipe correctly referring to copper pipe flaring dimensions for R454B below. For 1/2 and 5/8 inch pipes, the dimension B changes.

Use torque wrench corresponding to each dimension.





Flare cutting dimensions

Nominal dimensions (inch)	Outside diameter (mm)	Dimension A ($^{+0}_{-0.4}$)	
		R454B/R410A (inch [mm])	R22 (mm)
1/4	6.35	11/32-23/64 [9.1]	9.0
3/8	9.52	1/2-33/64 [13.2]	13.0
1/2	12.70	41/64-21/32 [16.6]	16.2

Flare nut dimensions

Nominal dimensions (inch)	Outside diameter (mm)	Dimension B	
		R454B/R410A (inch [mm])	R22 (mm)
1/4	6.35	43/64 [17.0]	17.0
3/8	9.52	7/8 [22.0]	22.0
1/2	12.70	1-3/64 [26.0]	24.0

③ Tools for R454B (The following table shows whether conventional tools can be used or not.)

Tools and materials	Use	R454B tools	Can R22 tools be used ?	Can R410A tools be used ?
Gauge manifold	Air purge, refrigerant charge and operation check	Tool exclusive for R454B	×	○
Charge hose		Tool exclusive for R454B	×	○
Gas leak detector	Gas leak check	Tool for HFC refrigerant	×	○
Refrigerant recovery equipment	Refrigerant recovery	Tool exclusive for R454B	×	○
Refrigerant cylinder	Refrigerant charge	Tool exclusive for R454B	×	×
Applied oil	Apply to flared section	Ester oil, ether oil and alkylbenzene oil (minimum amount)	×	Ester oil, ether oil: ○ Alkylbenzene oil: minimum amount
Safety charger	Prevent compressor malfunction when charging refrigerant by spraying liquid refrigerant	Tool exclusive for R454B	×	○
Charge valve	Prevent gas from blowing out when detaching charge hose	Tool exclusive for R454B	×	○
Vacuum pump	Vacuum drying and air purge	Tools for other refrigerants can be used if equipped with adapter for reverse flow check	△ (Usable if equipped with adapter for reverse flow)	△ (Usable if equipped with adapter for reverse flow)
Flare tool*	Flaring work of piping	Tools for other refrigerants can be used by adjusting flaring dimension	△ (Usable by adjusting flaring dimension)	△ (Usable by adjusting flaring dimension)
Bender	Bend the pipes	Tools for other refrigerants can be used	○	○
Pipe cutter*	Cut the pipes	Tools for other refrigerants can be used	○	○
Welder and nitrogen gas cylinder	Weld the pipes	Tools for other refrigerants can be used	○	○
Refrigerant charging scale	Refrigerant charge	Tools for other refrigerants can be used	○	○
Vacuum gauge or thermistor vacuum gauge and vacuum valve	Check the degree of vacuum. (Vacuum valve prevents back flow of oil and refrigerant to thermistor vacuum gauge)	Tools for other refrigerants can be used	○	○
Charging cylinder	Refrigerant charge	Tool exclusive for R454B	×	×

×: Prepare a new tool. (Use the new tool as the tool exclusive for R454B.)
△: Tools for other refrigerants can be used under certain conditions.
○: Tools for other refrigerants can be used.
* Follow the instructions below to prevent abrasive components contained in sandpaper and cutting tools from entering the refrigerant circuit because those components can cause failures of the compressor and valves.

- To deburr pipes, use a reamer or other deburring tools, not sandpaper.
- To cut pipes, use a pipe cutter, not a grinder or other tools that use abrasive materials.
- When cutting or deburring pipes, do not allow cutting chips or other foreign matters to enter the pipes.
- If cutting chips or other foreign matters enter pipes, wipe them off the inside of the pipes.

⚠ WARNING

■ Except for MFZ (Floor-standing) series

- The mounting height of indoor unit shall be 5.9 ft (1.8 m) or more from the floor. Up to 7.5 ft (2.3 m) is recommended.
- The unit shall be installed in rooms that meet or exceed the minimum room area (A_{min}) determined by total refrigerant amount (M).

M			A_{min}	
[kg]	[lbs, oz]		[m^2]	[ft^2]
0.5	1	1	1.9	21
0.6	1	5	2.3	25
0.7	1	8	2.6	28
0.8	1	12	3.0	33
0.9	1	15	3.4	37
1.0	2	3	3.8	41
1.1	2	6	4.1	45
1.2	2	10	4.5	49
1.3	2	13	4.9	53
1.4	3	1	5.2	56
1.5	3	4	5.6	61
1.6	3	8	6.0	65
1.7	3	11	6.3	68
1.8	3	15	6.8	74
1.9	4	3	7.2	78
2.0	4	6	7.6	82
2.1	4	10	7.9	86
2.2	4	13	8.3	90
2.3	5	1	8.7	94
2.4	5	4	9.1	98
2.5	5	8	9.4	102
2.6	5	11	9.8	106
2.7	5	15	10.2	110
2.8	6	2	10.6	115

* Refer to the installation manual of the indoor unit for details on how to install the indoor unit.

- For ducted systems to one or more rooms, first determine the system's refrigerant amount, then refer to the indoor unit installation manual for each room's restriction for minimum area.

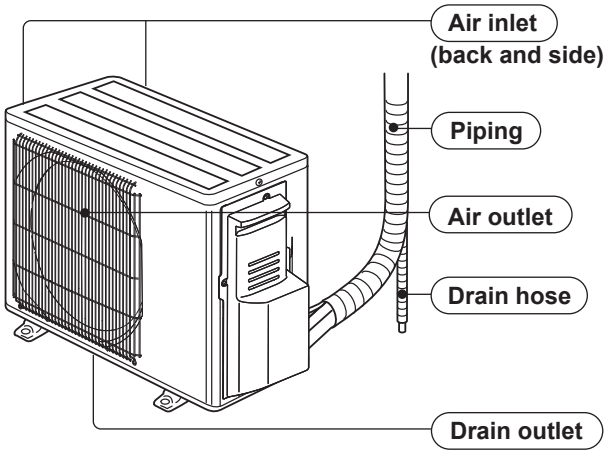
■ For MFZ (Floor-standing) series

- Do not install the indoor unit at a place higher than 5.9 in. (150 mm).
- The unit shall be installed in rooms that meet or exceed the minimum room area (A_{min}) determined by total refrigerant amount (M).

M			A_{min}	
[kg]	[lbs, oz]		[m^2]	[ft^2]
0.5	1	1	1.9	21
0.6	1	5	2.3	25
0.7	1	8	2.6	28
0.8	1	12	3.0	33
0.9	1	15	3.4	37
1.0	2	3	3.8	41
1.1	2	6	4.1	45
1.2	2	10	4.5	49
1.3	2	13	4.9	53
1.4	3	1	5.2	56
1.5	3	4	5.6	61
1.6	3	8	6.0	65
1.7	3	11	6.3	68
1.8	3	15	6.7	73
1.9	4	3	7.1	77
2.0	4	6	7.5	81
2.1	4	10	7.8	84
2.2	4	13	8.2	89
2.3	5	1	8.6	93
2.4	5	4	8.9	96
2.5	5	8	9.3	101
2.6	5	11	9.7	105
2.7	5	15	10.0	108
2.8	6	2	10.4	112

3 PART NAMES AND FUNCTIONS

SUZ-AA09NL-U1 SUZ-AA12NL-U1 SUZ-AA15NL-U1



4 SPECIFICATION

Outdoor unit model			SUZ-AA09NL	SUZ-AA12NL	SUZ-AA15NL
Power supply		V, phase, Hz	208/230, 1, 60		
MOP		A	22	23	29
MCA		A	13	14	17
Fan motor		F.L.A	0.50		
Compressor	Model		SRB092FQFMC		SRB140FQHMC
	Refrigeration oil oz(L)/(Model)		11.8 (0.35)/(RM68EH)		
Refrigerant control			Linear expansion valve		
Sound level*1	Cooling	dB(A)	48	49	
	Heating	dB(A)	50	51	
Defrost method			Reverse cycle		
Dimensions	W	in. (mm)	31-1/2 (800)		
	D	in. (mm)	11-1/4 (285)		
	H	in. (mm)	21-5/8 (550)		
Weight		lbs (kg)	81 (37)		
External finish			Munsell 3Y 7.8/1.1		
Control voltage (by built-in transformer)		VDC	12 - 24		
Refrigerant piping			Not supplied		
Refrigerant pipe size (Min. wall thickness)	Liquid	in. (mm)	1/4 (ø6.35) (0.0315)		
	Gas	in. (mm)	3/8 (ø9.52) (0.0315)		1/2 (ø12.7) (0.0315)
Connection method	Indoor		Flared		
	Outdoor		Flared		
Between the indoor & outdoor units	Height difference	ft (m)	40 (12)		
	Piping length	ft (m)	65 (20)		
Refrigerant charge (R454B)			2 lb (0.90 kg)		2 lb 4 oz (1.02 kg)

Note: Test conditions are based on AHRI 210/240.
Rating conditions (Cooling) — Indoor: 80˚F D.B., 67˚F W.B., Outdoor: 95˚F D.B., (75˚F W.B.)
(Heating) — Indoor: 70˚F D.B., 60˚F W.B., Outdoor: 47˚F D.B., 43˚F W.B.

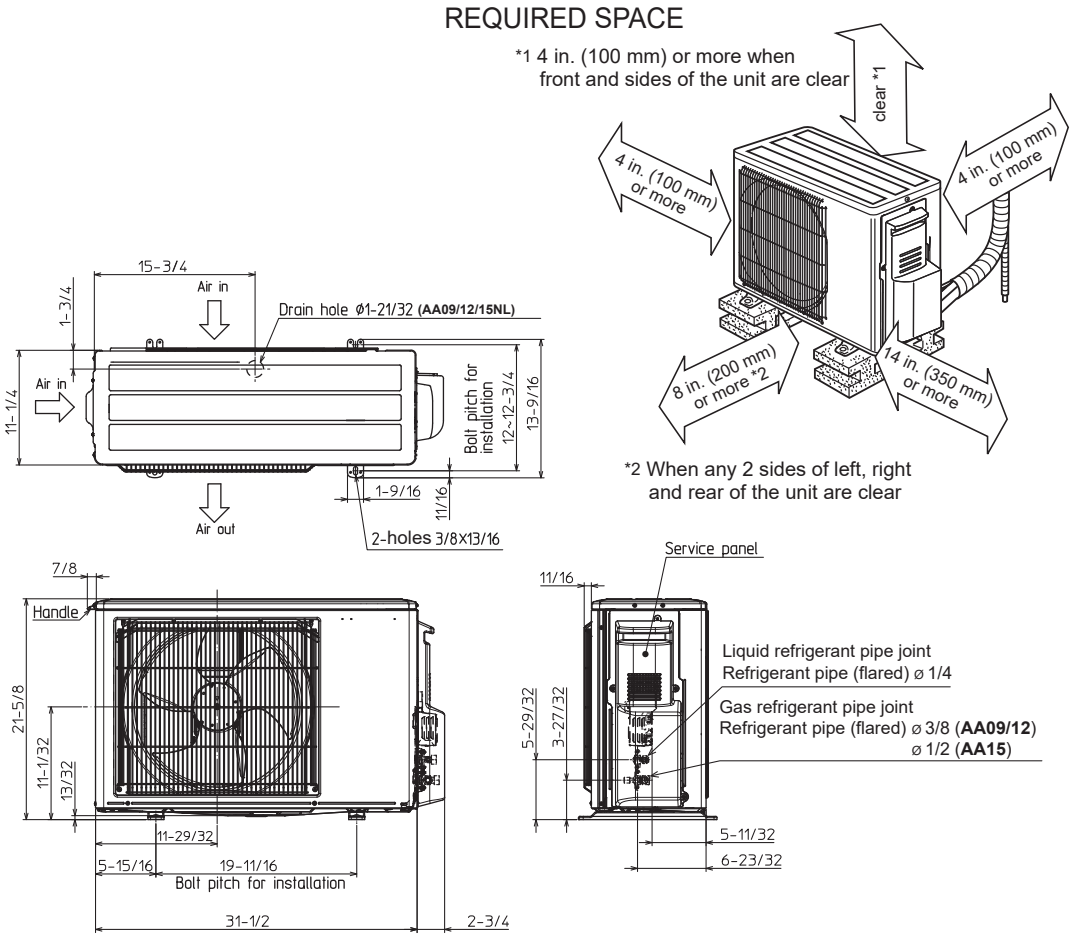
OPERATING RANGE

(1) POWER SUPPLY

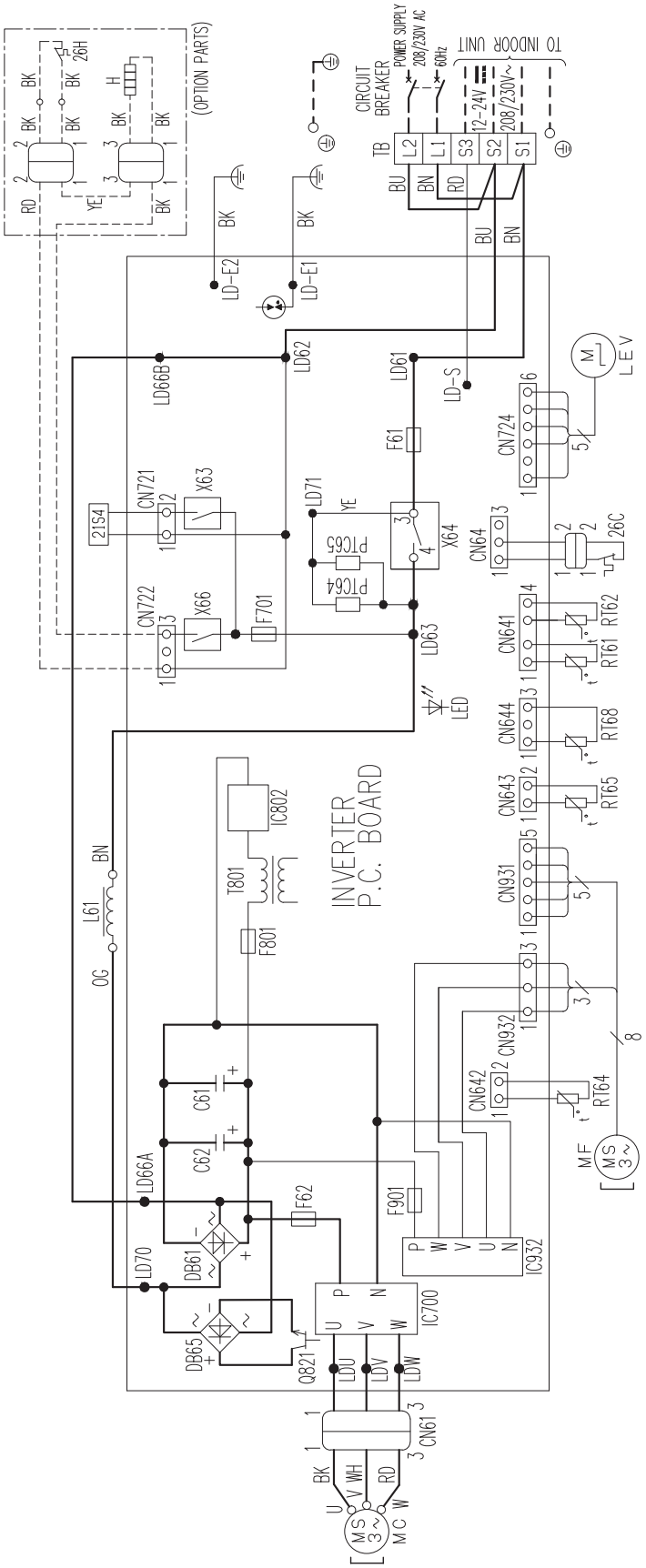
	Rated voltage	Guaranteed voltage (V)
Outdoor unit	208/230 V 1 phase 60 Hz	Min. 187 — 208 — 230 — Max. 253

5 OUTLINES AND DIMENSIONS

Unit: inch(mm)



6 WIRING DIAGRAM

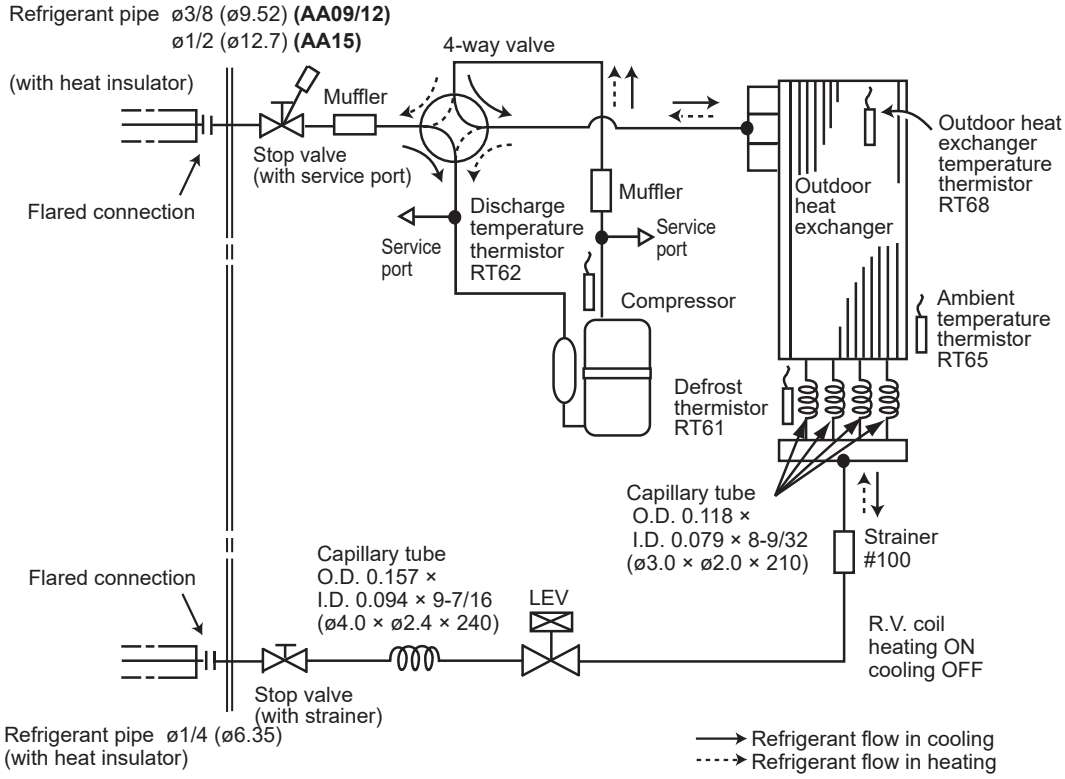


REMARQUES:
1.Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil interieur.
2.Utiliser des fils d'alimentation en cuivre.
3.Les symboles ont les significations suivantes, □□□ : Borne, ○○○ : Connecteur

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

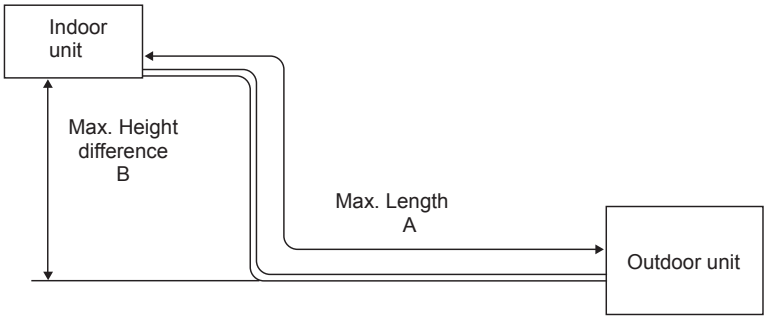
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
C61,C62	SMOOTHING CAPACITOR	LG1	REACTOR		
DB61,DB65	DIODE MODULE	MC	COMPRESSOR	TB	TERMINAL BLOCK
F61	FUSE (25A 250V)	MF	FAN MOTOR	T801	TRANSFORMER
F62	FUSE (15A 250V)	PTC64,PTC65	CIRCUIT PROTECTION	X63,X64,X66	RELAY
F701,F801,F901	FUSE(T3.15AL250V)	Q821	SWITCHING POWER TRANSISTOR	21S4	REVERSING VALVE COIL
H	DEFROST HEATER(OPTION PARTS)	RT61	DEFROST THERMISTOR	26C	COMPRESSOR PROTECTOR
IC700,IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)
IC802	POWER DEVICE	RT64	FIN TEMP. THERMISTOR		
LED	LED	RT65	AMBIENT TEMP. THERMISTOR		

7 REFRIGERANT SYSTEM DIAGRAM



MAX. REFRIGERANT PIPING LENGTH and MAX. HEIGHT DIFFERENCE

Model	Refrigerant piping: ft (m)		Piping size O.D: in (mm)	
	Max. Length A	Max. Height difference B	Gas	Liquid
SUZ-AA 09/12/15NL	65 (20)	40 (12)	3/8 (ø9.52) **(AA09/12)** 1/2 (ø12.7) **(AA15)**	1/4 (ø6.35)



ADDITIONAL REFRIGERANT CHARGE (R454B: oz (g))

Refrigerant piping exceeding 25 ft (7.6 m) requires additional refrigerant charge according to the calculation.

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft (m)					
		25 (7.6)	30 (9.1)	40 (12.2)	50 (15.2)	60 (18.2)	65 (20.0)
SUZ-AA09NL	2 lb (0.90 kg)	0	0	0	0	0	0
SUZ-AA12NL	2 lb (0.90 kg)						
SUZ-AA15NL	2 lb 4 oz (1.02 kg)	0	1.08 oz (30 g)	3.24 oz (90 g)	5.4 oz (150 g)	7.56 oz (210 g)	8.64 oz (240 g)

Calculation: X oz = 1.08/5 oz / ft × (Refrigerant piping length (ft) - 25)

8 DATA

STANDARD OPERATION DATA

Representative matching				SEZ-AD09NL-U1		SEZ-AD12NL-U1		SEZ-AD15NL-U1	
Item			Unit	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	9000	12000	12000	15000	15000	18000
	SHF		-	0.80	—	0.77	—	0.76	—
	Input		kW	0.76	1.10	0.99	1.30	1.13	1.40
Electrical circuit	Indoor unit			**SEZ-AD09NL-U1**		**SEZ-AD12NL-U1**		**SEZ-AD15NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.05		0.06	0.05	0.09	0.08
	Current		A	0.44	0.39	0.50	0.45	0.71	0.66
	Outdoor unit			**SUZ-AA09NL-U1**		**SUZ-AA12NL-U1**		**SUZ-AA15NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.68	0.99	0.91	1.22	1.04	1.30
	Current		A	2.74	4.14	3.72	5.07	4.20	5.34
Refrigerant circuit	Condensing pressure		psig	333	401	351	346	366	344
	Suction pressure		psig	124	100	134	93	129	90
	Discharge temperature		°F	155	180	157	173	160	166
	Condensing temperature		°F	107	119	105	104	109	104
	Suction temperature		°F	48	35	52	35	52	32
	Ref. pipe length		ft (m)	25 (7.6)					
	Refrigerant charge (R454B)		-	2 lb (0.9 kg)				2 lb 4 oz (1.02 kg)	
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80	70
		WB	°F	67	60	67	60	67	60
	Discharge air temperature	DB	°F	60	103	56	105	57	101
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95	47
		WB	°F	75	43	75	43	75	43

Representative matching				SLZ-AF09NL-U1		SLZ-AF12NL-U1		SLZ-AF15NL-U1	
Item			Unit	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	9000	12000	12000	15000	15000	18000
	SHF		-	0.91	—	0.84	—	0.72	—
	Input		kW	0.68	0.91	0.96	1.35	1.24	1.58
Electrical circuit	Indoor unit			**SLZ-AF09NL-U1**		**SLZ-AF12NL-U1**		**SLZ-AF15NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.02	0.02	0.02	0.02	0.03	0.03
	Current		A	0.2	0.15	0.24	0.19	0.32	0.27
	Outdoor unit			**SUZ-AA09NL-U1**		**SUZ-AA12NL-U1**		**SUZ-AA15NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.65	0.89	0.94	1.33	1.21	1.55
	Current		A	2.72	3.79	3.93	5.67	5.22	6.73
Refrigerant circuit	Condensing pressure		psig	331	356	353	372	375	420
	Suction pressure		psig	137	98	130	94	120	91
	Discharge temperature		°F	152	163	159	184	172	195
	Condensing temperature		°F	107		104	110	116	118
	Suction temperature		°F	59	36	51	35	48	32
	Ref. pipe length		ft (m)	25 (7.6)					
	Refrigerant charge (R454B)		-	2 lb (0.9 kg)				2 lb 4 oz (1.02 kg)	
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80	70
		WB	°F	67	60	67	60	67	60
	Discharge air temperature	DB	°F	58	101	57	105	56	109
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95	47
		WB	°F	75	43	75	43	75	43

Representative matching				PEAD-AA09NL-U1		PEAD-AA12NL-U1		PEAD-AA15NL-U1	
Item			Unit	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	9000	12000	12000	15000	15000	18000
	SHF		-	0.95	—	0.91	—	0.87	—
	Input		kW	0.68	0.93	0.96	1.28	1.22	1.28
Electrical circuit	Indoor unit			**PEAD-AA09NL-U1**		**PEAD-AA12NL-U1**		**PEAD-AA15NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.04		0.06		0.09	
	Current		A	0.39		0.50		0.72	
	Outdoor unit			**SUZ-AA09NL-U1**		**SUZ-AA12NL-U1**		**SUZ-AA15NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.67	0.89	0.89	1.21	1.13	1.19
	Current		A	2.70	3.65	3.67	5.05	4.76	5.02
Refrigerant circuit	Condensing pressure		psig	331	344	352	344	374	302
	Suction pressure		psig	139	97	135	93	135	90
	Discharge temperature		°F	148	162	159	173	165	160
	Condensing temperature		°F	107	104	104	105	116	99
	Suction temperature		°F	56	39	55	35	53	35
	Ref. pipe length		ft (m)	25 (7.6)					
	Refrigerant charge (R454B)		-	2 lb (0.9 kg)				2 lb 4 oz (1.02 kg)	
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80	70
		WB	°F	67	60	67	60	67	60
	Discharge air temperature	DB	°F	58	101	57	100	59	99
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95	47
		WB	°F	75	43	75	43	75	43

Representative matching				SVZ-AP12NL-U1		MLZ-KX09NL-U1		MLZ-KX12NL-U1	
Item			Unit	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	11400	15000	9000	12000	11300	14600
	SHF		-	0.85	—	0.80	—	0.74	—
	Input		kW	0.94	1.28	0.76	0.91	0.95	1.33
Electrical circuit	Indoor unit			**SVZ-AP12NL-U1**		**MLZ-KX09NL-U1**		**MLZ-KX12NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60		230, 1, 60			
	Input		kW	0.13		0.04			
	Current		A	1.17		0.3			
	Outdoor unit			**SUZ-AA12NL-U1**		**SUZ-AA09NL-U1**		**SUZ-AA12NL-U1**	
	Power supply (V, phase, Hz)			230, 1, 60		230, 1, 60			
	Input		kW	0.81	1.15	0.71	0.87	0.91	1.29
	Current		A	2.92	4.40	2.98	3.64	3.82	5.48
Refrigerant circuit	Condensing pressure		psig	344	325	331	357	348	378
	Suction pressure		psig	140	93	124	98	121	94
	Discharge temperature		°F	154	165	158	165	160	186
	Condensing temperature		°F	107	100	107		104	111
	Suction temperature		°F	57	34	55	37	47	35
	Ref. pipe length		ft (m)	25 (7.6)		25 (7.6)			
	Refrigerant charge (R454B)		-	2 lb (0.9 kg)		2 lb (0.9 kg)			
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80	70
		WB	°F	67	60	67	60	67	60
	Discharge air temperature	DB	°F	58	101	55	110	52	116
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95	47
		WB	°F	75	43	75	43	75	43

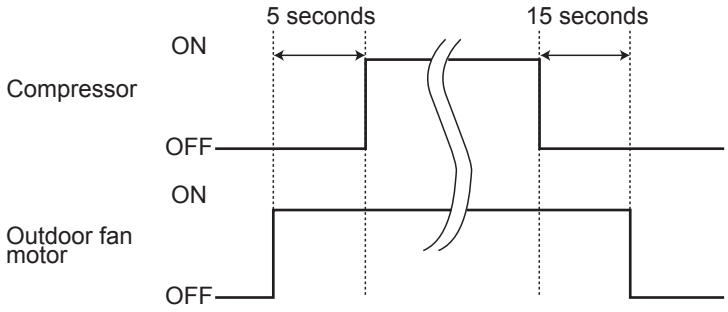
Representative matching				MSZ-EX09NL(B/S/W)-U1		MSZ-EX12NL(B/S/W)-U1		MSZ-EX15NL(B/S/W)-U1	
Item			Unit	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	9000	12000	12000	15000	15000	18000
	SHF		-	0.97	—	0.82	—	0.71	—
	Input		kW	0.70	0.80	0.98	1.20	1.23	1.45
Electrical circuit	Indoor unit			MSZ-EX09NL(B/S/W)-U1		MSZ-EX12NL(B/S/W)-U1		MSZ-EX15NL(B/S/W)-U1	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.02	0.03	0.02	0.03	0.02	0.03
	Current		A	0.21	0.26	0.21	0.26	0.21	0.26
	Outdoor unit			SUZ-AA09NL-U1		SUZ-AA12NL-U1		SUZ-AA15NL-U1	
	Power supply (V, phase, Hz)			230, 1, 60					
	Input		kW	0.67	0.77	0.95	1.17	1.20	1.42
	Current		A	2.80	3.20	4.01	4.95	5.11	6.03
Refrigerant circuit	Condensing pressure		psig	331	315	353	333	369	371
	Suction pressure		psig	135	97	128	93	110	91
	Discharge temperature		°F	153	148	161	169	168	178
	Condensing temperature		°F	107	98	104	102	106	110
	Suction temperature		°F	58	35	51	35	44	32
	Ref. pipe length		ft (m)	25 (7.6)					
	Refrigerant charge (R454B)		-	2 lb (0.9 kg)				2 lb 4 oz (1.02 kg)	
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80	70
		WB	°F	67	60	67	60	67	60
	Discharge air temperature	DB	°F	58	97	56	101	53	108
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95	47
		WB	°F	75	43	75	43	75	43

Representative matching				MFZ-KX09NL-U1		MFZ-KX12NL-U1		MFZ-KX15NL-U1	
Item			Unit	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	9000	12000	12000	15000	15000	18000
	SHF		-	0.93	—	0.82	—	0.76	—
	Input		kW	0.71	0.81	0.95	1.24	1.15	1.36
Electrical circuit	Indoor unit			MFZ-KX09NL-U1		MFZ-KX12NL-U1		MFZ-KX15NL-U1	
	Power supply (V, phase, Hz)			230, 1, 60		230, 1, 60			
	Input		kW	0.03		0.03		0.03	0.04
	Current		A	0.3		0.3		0.3	0.4
	Outdoor unit			SUZ-AA09NL-U1		SUZ-AA12NL-U1		SUZ-AA15NL-U1	
	Power supply (V, phase, Hz)			230, 1, 60		230, 1, 60			
	Input		kW	0.67	0.77	0.92	1.21	1.12	1.31
	Current		A	2.75	3.18	3.98	5.20	4.69	5.48
Refrigerant circuit	Condensing pressure		psig	330	317	349	340	364	351
	Suction pressure		psig	138	97	130	91	121	91
	Discharge temperature		°F	154	148	162	174	162	168
	Condensing temperature		°F	107	98	111	110	112	105
	Suction temperature		°F	61	35	55	34	49	32
	Ref. pipe length		ft (m)	25 (7.6)		25 (7.6)			
	Refrigerant charge (R454B)		-	2 lb 5 oz (1.05 kg)		2 lb 5 oz (1.05 kg)		2 lb 8 oz (1.15 kg)	
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80	70
		WB	°F	67	60	67	60	67	60
	Discharge air temperature	DB	°F	58	99	58	107	54	105
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95	47
		WB	°F	75	43	75	43	75	43

9 ACTUATOR CONTROL

9-1. OUTDOOR FAN MOTOR CONTROL

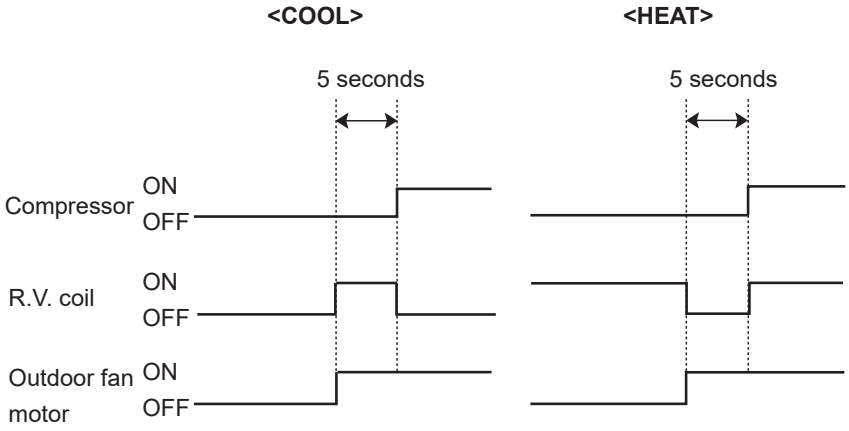
The fan motor turns ON/OFF, interlocking with the compressor.
[ON] The fan motor turns ON 5 seconds before the compressor starts up.
[OFF] The fan motor turns OFF 15 seconds after the compressor has stopped running.



9-2. 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.



9-3. 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	○	○	○			

*. **SUZ-KA•NAH2** only.

10 SERVICE FUNCTION

10-1. 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 "11-6. TEST POINT DIAGRAM AND VOLTAGE".)

Jumper		Defrost finish temperature
		SUZ-AA09/12/15
JS	Soldered (Initial setting)	41°F (5°C)
	None (Cut)	50°F (10°C)

10-2. PRE-HEAT CONTROL SETTING

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 is 68°F (20°C) or below. When the pre-heat control turns ON, the compressor is energized. (About 50 W)

Pre-heat control setting

<JK>
ON: To activate the pre-heat control, cut JK wire of the inverter P.C. board.
OFF: To deactivate the pre-heat control, solder JK wire of the inverter P.C. board.
(Refer to "11-6. TEST POINT DIAGRAM AND VOLTAGE".)

Jumper		Pre-heat control setting
JK	Soldered	Deactivated (Factory setting)
	Cut	Activated

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

11 TROUBLESHOOTING

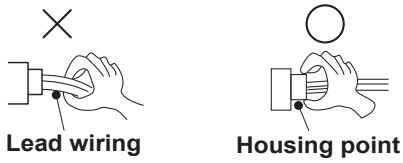
11-1. CAUTIONS ON TROUBLESHOOTING

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 turn off the breaker.
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 housing of the connector. DO NOT pull the lead wires.



3. Troubleshooting procedure

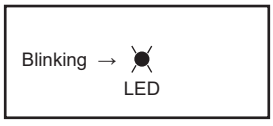
1) First, check if the OPERATION INDICATOR lamp is blinking ON and OFF to indicate an abnormality.
2) Before servicing check that the connector and terminal are connected properly.
3) When the electronic control P.C. board seems to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
4) Refer to "11-2. TROUBLESHOOTING CHECK TABLE" and "11-3. HOW TO PROCEED "SELF-DIAGNOSIS"".

11-2. TROUBLE SHOOTING CHECK TABLE

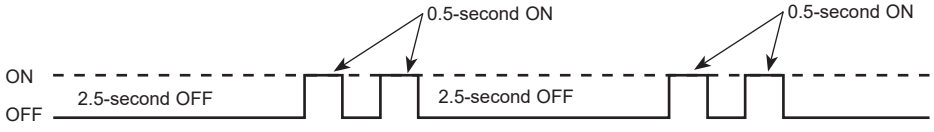
No.	Symptoms	LED indication	error code	Abnormal point/ Condition	Condition	Remedy
1	Outdoor unit does not operate.	1-time blink every 2.5 seconds	UP	Outdoor power system	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	▪Reconnect connector of compressor. ▪Refer to “11-5.Ⓐ How to check inverter/ compressor”. ▪Check stop valve.
2			U3	Outdoor thermistors	Discharge temperature thermistor shorts, or opens during compressor running.	▪Refer to “11-5.Ⓖ Check of outdoor thermistors”.
			U4		Fin temperature thermistor, defrost thermistor, P.C. board temperature thermistor, outdoor heat exchanger temperature thermistor or ambient temperature thermistor shorts, or opens during compressor running.	
3			FC	Outdoor control system	Nonvolatile memory data cannot be read properly.	▪Replace inverter P.C. board.
4		6-time blink 2.5 seconds OFF	E8 E9	Serial signal	The communication fails between the indoor and outdoor unit for 3 minutes.	▪Check indoor/outdoor connecting wire. ▪Replace indoor or outdoor P.C. board if abnormality is displayed again.
5		11-time blink 2.5 seconds OFF	UE	Stop valve/Closed valve	Closed valve is detected by compressor current.	▪Check stop valve.
6		16-time blink 2.5 seconds OFF	PL	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.	▪Check for a gas leak in a connecting piping, etc. ▪Check stop valve. ▪Refer to “11-5.Ⓞ Check of outdoor refrigerant circuit”.
7	'Outdoor unit stops and restarts 3 minutes later' is repeated.	2-time blink 2.5 seconds OFF		Overcurrent protection	Large current flows into intelligent power module.	▪Reconnect connector of compressor. ▪Refer to “11-5.Ⓐ How to check inverter/ compressor”. ▪Check stop valve.
8		3-time blink 2.5 seconds OFF		Discharge temperature overheat protection	Temperature of discharge temperature thermistor exceeds 116°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 “11-5.Ⓚ Check of LEV”.
9		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 72 to 86°C or temperature of P.C. board temperature thermistor on the inverter P.C.board exceeds 72 to 85°C.	▪Check around outdoor unit. ▪Check outdoor unit air passage. ▪Refer to “11-5.Ⓘ Check of outdoor fan motor”.
10		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.	▪Check refrigerant circuit and refrigerant amount. ▪Check stop valve.
11		8-time blink 2.5 seconds OFF		Compressor synchronous abnormality	The waveform of compressor current is distorted.	▪Reconnect connector of compressor. ▪Refer to “11-5.Ⓐ How to check inverter/ compressor”.
12		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.	▪Refer to “11-5.Ⓘ Check of outdoor fan motor”. ▪Refer to “11-5.Ⓛ Check of inverter P.C. board”.
13		12-time blink 2.5 seconds OFF		Each phase current of compressor	Each phase current of compressor cannot be detected normally.	▪Refer to “11-5.Ⓛ Check of inverter P.C. board”.
14		13-time blink 2.5 seconds OFF		DC voltage	DC voltage of inverter cannot be detected normally.	▪Refer to “11-5.Ⓐ How to check inverter/ compressor”.
15	Outdoor unit operates.	1-time blink 2.5 seconds OFF		Frequency drop by current protection	When the input current exceeds approximately 7A (AA09) / 8A (AA12) / 9A (AA15), compressor	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.
16		3-time blink 2.5 seconds OFF		Frequency drop by high pressure protection	Temperature of indoor coil thermistor exceeds 131 °F [55 °C] in HEAT mode, compressor frequency lowers.	
				Frequency drop by defrosting in COOL mode	Indoor coil thermistor reads 46 °F [8 °C] or less in COOL mode, compressor frequency lowers.	
17		4-time blink 2.5 seconds OFF		Frequency drop by discharge temperature protection	Temperature of discharge temperature thermistor exceeds 232 °F [111 °C], compressor frequency lowers.	▪Check refrigerant circuit and refrigerant amount. ▪Refer to “11-5.Ⓚ Check of LEV”. ▪Refer to “11-5.Ⓖ Check of outdoor thermistors”.
18		7-time blink 2.5 seconds OFF		Low discharge temperature protection	Temperature of discharge temperature thermistor has been 122 °F [50 °C] or less for 20 minutes.	▪Refer to “11-5.Ⓚ Check of LEV”. ▪Check refrigerant circuit and refrigerant amount.
19		8-time blink 2.5 seconds OFF		PAM protection PAM: Pulse Amplitude Modulation	The overcurrent flows into IGBT (Insulated Gate Bipolar transistor:TR821) or the bus-bar voltage reaches 320 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.
				Zero cross detecting circuit	Zero cross signal for PAM control cannot be detected.	
20		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 “11-5.Ⓐ How to check inverter/compressor".
21		18-time blink 2.5 seconds OFF		Refrigerant leakage		▪Check indoor unit.
22		19-time blink 2.5 seconds OFF		Refrigerant sensor error		▪Check indoor unit.
23		20-time blink 2.5 seconds OFF		Abnormality of combination with indoor unit		▪Check indoor unit.

NOTE: 1. The location of LED is illustrated at the right figure. Refer to "11-6. TEST POINT DIAGRAM".
2. LED is lighted during normal operation.

Inverter P.C. board



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

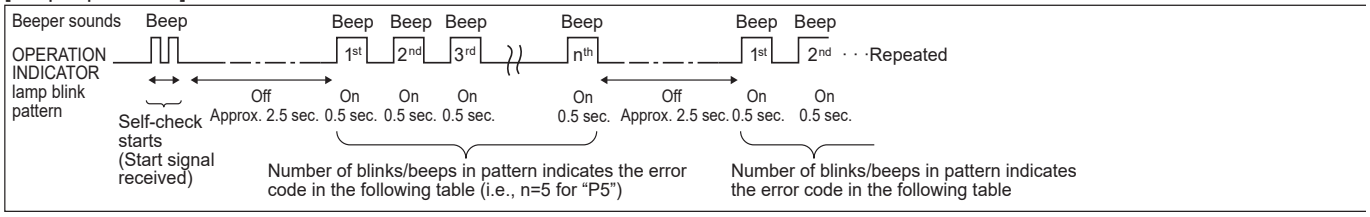


11-3. HOW TO PROCEED "SELF-DIAGNOSIS"

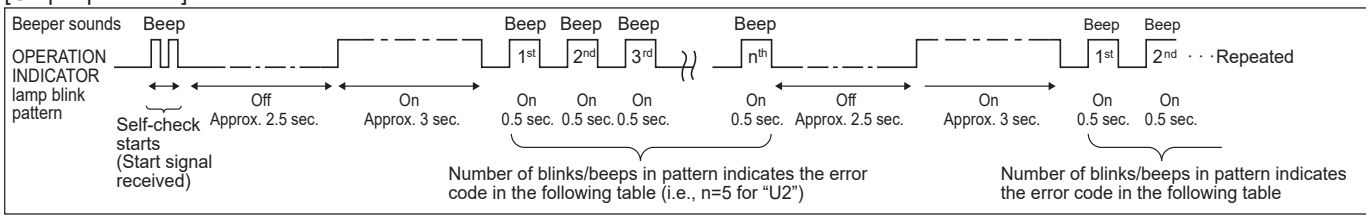
Refer to "14-7. SELF-DIAGNOSIS".

• Refer to the following tables for details on the error codes.

[Output pattern A]



[Output pattern B]



[Output pattern A] Errors detected by indoor unit

Wireless remote controller Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Wired remote controller Error code	Symptom	Remark
1	P1	Intake sensor error	As for indoor unit, refer to indoor unit's service manual.
2	P2	Pipe (TH2) sensor error	
	P9	Pipe (TH5) sensor error	
3	E6,E7	Indoor/outdoor unit communication error	
4	P4	Drain sensor error/Float switch connector (CN4F) open	
5	P5	Drain pump error	
	PA	Forced compressor stop (due to water leakage abnormality)	
6	P6	Freezing/Overheating protection operation	
7	EE	Communication error between indoor and outdoor units	
9	E4,E5	Remote controller signal receiving error	
12	Fb (FB)*	Indoor unit control system error (memory error, etc.)	
14	PL	Abnormality of refrigerant circuit	
-	E0,E3	Remote controller transmission error	
-	E1,E2	Remote controller control board error	

*The error code in the parenthesis indicates PAR-4xMAA model ("x" represents 0 or later).

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

Wireless remote controller Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Wired remote controller Error code	Symptom
1	E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)
2	UP	Compressor overcurrent interruption
3	U3,U4	Open/short of outdoor unit thermistors
14	Others	Other errors (Refer to the technical manual for the outdoor unit.)

Notes:1. If the beeper does not sound again after the initial 2 beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.

2. If the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)" after the initial 2 beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.

11-4. TROUBLE CRITERION OF MAIN PARTS

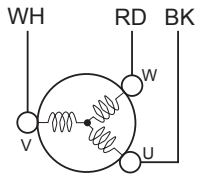
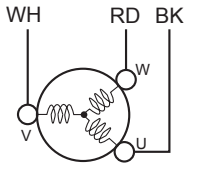
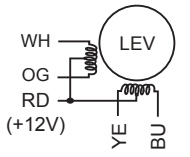
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Defrost thermistor (RT61)

Fin temperature thermistor (RT64)

Ambient temperature thermistor (RT65)

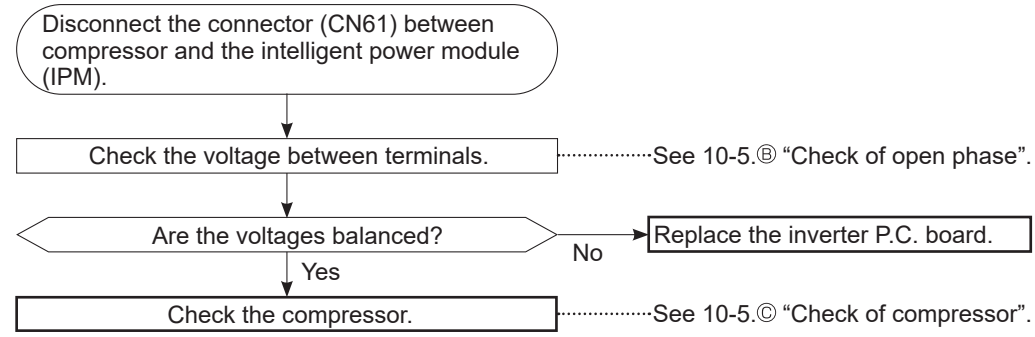
Outdoor heat exchanger temperature thermistor (RT68)</td><td>Measure the resistance with a multimeter.

Refer to “Inverter P.C. board” in "11-6. TEST POINT DIAGRAM AND VOLTAGE”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Discharge temperature thermistor (RT62)</td><td>Measure the resistance with a multimeter. Before measurement, hold the thermistor with your hands to warm it up.

Refer to “Inverter P.C. board” in "11-6. TEST POINT DIAGRAM AND VOLTAGE”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Compressor</td><td>Measure the resistance between terminals with a multimeter.
(Temperature: 14 - 104 °F (-10 - 40 °C))
<table>
<tr><th></th><th colspan="3">Normal (Ω)</th></tr>
<tr><th></th><th>AA09</th><th>AA12</th><th>AA15</th></tr>
<tr><td>U-V
U-W
V-W</td><td>1.26 - 1.72</td><td>1.60 - 2.17</td><td>0.82 - 1.11</td></tr>
</table></td><td> 
</td></tr>
<tr><td>Outdoor fan motor</td><td>Measure the resistance between lead wires with a multimeter.
(Temperature: 14 ~ 104 °F (-10 ~ 40 °C))
<table>
<tr><th rowspan="2">Color of lead wire</th><th>Normal (Ω)</th></tr>
<tr><th>AA09/12/15</th></tr>
<tr><td>RD – BK
BK – WH
WH – RD</td><td>29 - 40</td></tr>
</table></td><td> 
</td></tr>
<tr><td>R. V. coil (21S4)</td><td>Measure the resistance using a multimeter.
[Temperature: 14 - 104°F (-10 - 40°C)]
<table>
<tr><th>Normal (kΩ)</th></tr>
<tr><td>0.97 - 1.38</td></tr>
</table></td><td></td></tr>
<tr><td>Expansion valve coil (LEV)</td><td>Measure the resistance using a multimeter.
[Temperature: 14 - 104°F (-10 - 40°C)]
<table>
<tr><th>Color of lead wire</th><th>Normal (Ω)</th></tr>
<tr><td>RD – OG</td><td rowspan="4">37 - 54</td></tr>
<tr><td>RD – WH</td></tr>
<tr><td>RD – BU</td></tr>
<tr><td>RD – YE</td></tr>
</table></td><td> 
</td></tr>
</table>

11-5. TROUBLESHOOTING FLOW

Ⓐ How to check inverter/compressor



Ⓑ Check of open phase

- With the connector between the compressor and the intelligent power module 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.)

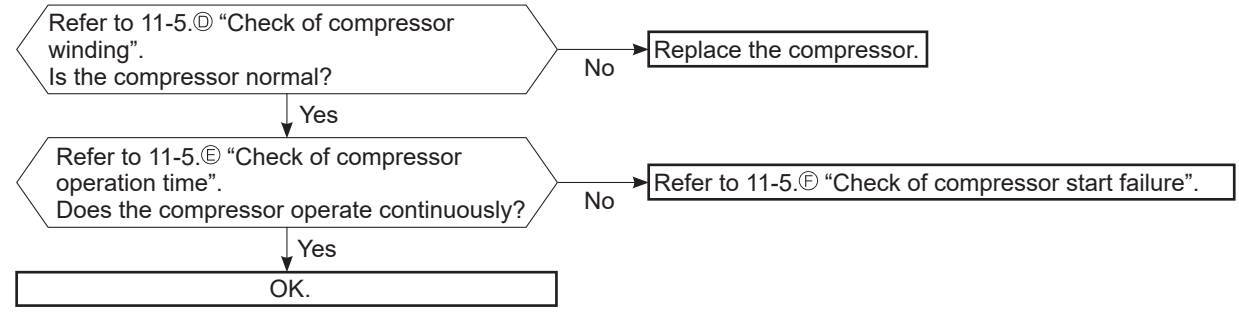
< Operation method (Test run operation)>
1. Press the TEST (RUN) button twice.
2. Press the MODE button and switch to the COOL (or HEAT) mode.
3. Compressor starts at rated frequency in COOL mode or 58 Hz in HEAT mode.
4. Indoor fan operates at High speed.
5. To cancel test run operation, press the ON/OFF button on remote controller.

<Measurement point>
at 3 points
BK (U) - WH (V)
BK (U) - RD (W)
WH(V) - RD (W)

Measure AC voltage between the lead wires at 3 points.

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 "11-6. TEST POINT DIAGRAM AND VOLTAGE".)

Ⓒ Check of compressor



Ⓓ Check of compressor winding

● Disconnect the connector between the compressor and intelligent power module, and measure the resistance between the compressor terminals.

<Measurement point>
Measure the resistance between the lead wires at 3 points.
BK - WH
BK - RD
WH - RD

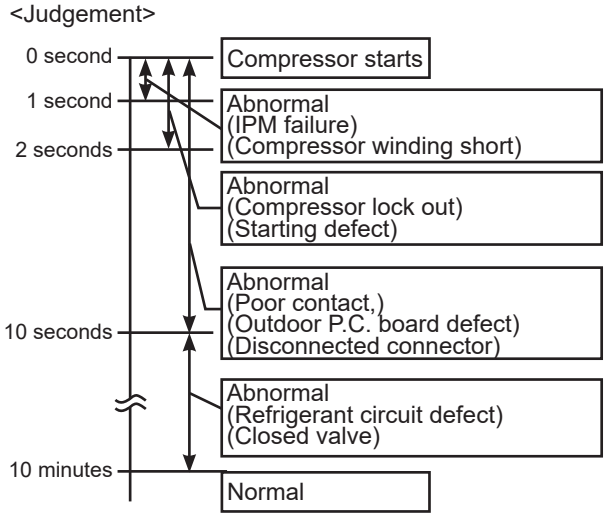
<Judgement>
Refer to "11-4. TROUBLE CRITERION OF MAIN PARTS".
0[Ω]····· Abnormal [short]
Infinite [Ω]····· Abnormal [open]
NOTE: Be sure to zero the ohmmeter before measurement.

Ⓔ 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 TEST button twice on the remote controller. (Test run mode)
(TEST RUN OPERATION: Refer to 11-5 Ⓑ "Check of open phase".)

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



Ⓕ 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 11-5.Ⓑ "Check of open phase")
3. Direct current voltage between DB61(+) and (-) on the inverter P.C. board
4. Voltage between outdoor terminal block S1-S2

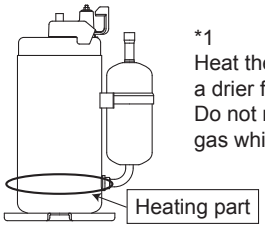
↓

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 compressor.
- Yes ↓

Compressor start failure. Activate pre-heat control. (Refer to "10-2. PRE-HEAT CONTROL SETTING")

WARNING:
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.



*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 outdoor P.C. board (see below table), and measure the resistance of thermistor.

↓

Is the resistance of thermistor normal?
(Refer to "11-6.TEST POINT DIAGRAM AND VOLTAGE".)

No → Replace the thermistor except RT64. When RT64 is abnormal, replace the inverter P.C. board.

↓ Yes

Reconnect the connector of thermistor.
Turn ON the power supply and press EMERGENCY OPERATION switch.

↓

Does the unit operate for 10 minutes or more without showing thermistor abnormality?

No → Replace the inverter P.C. board.

↓ Yes

OK.
(Cause is poor contact.)

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	

Ⓗ Check of R.V. coil

First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to "11-4. TROUBLE CRITERION OF MAIN PARTS".
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.

Disconnect connector between the compressor and the intelligent power module.
Turn ON the power supply and press the TEST button twice (HEAT mode).

→ Is there 208/230 VAC between CN721① and ② on the inverter P.C. board 3 minutes after the power supply is turned ON?

No → Replace the inverter P.C. board.

↓ Yes

Replace the 4-way valve.

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

Disconnect connector between the compressor and the intelligent power module.
Turn ON the power supply and press the TEST button once (COOL mode).

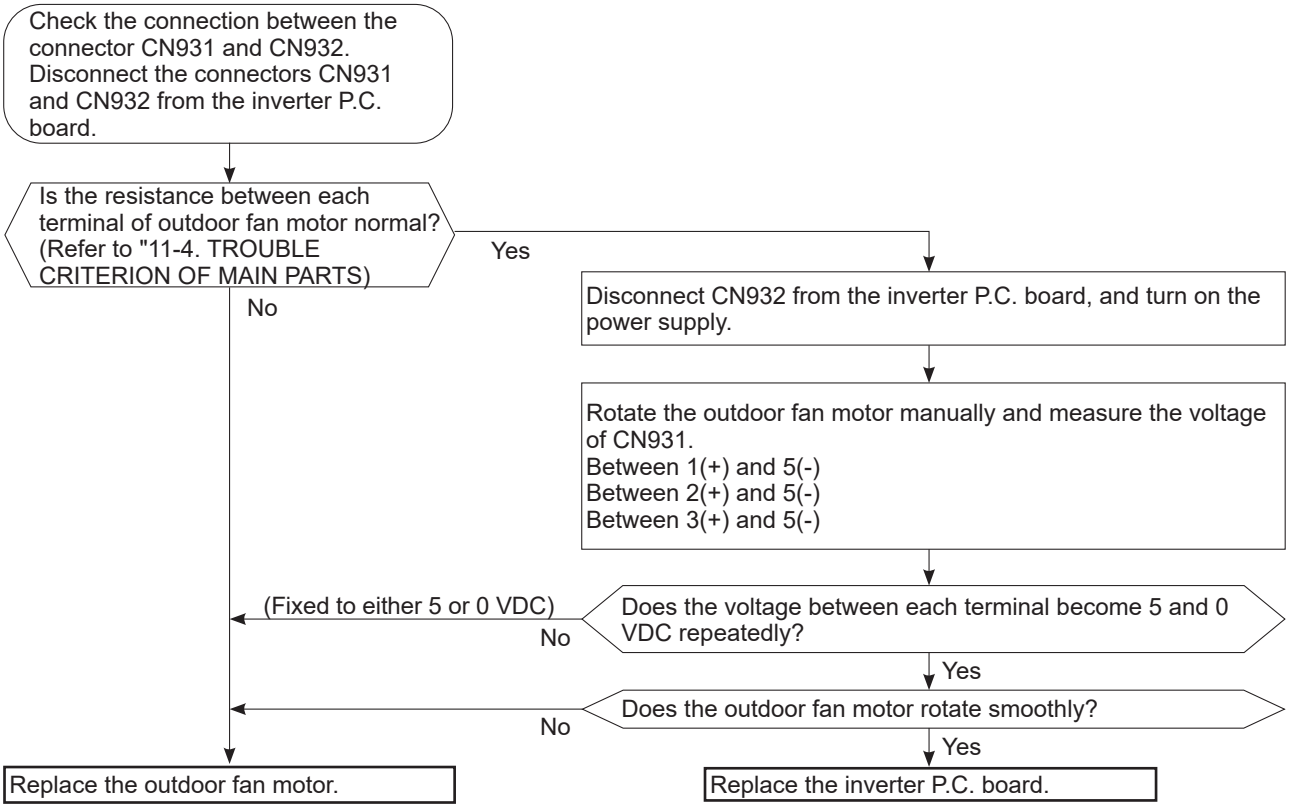
→ Is there 208/230 VAC between CN721① and ② on the inverter P.C. board 3 minutes after the power supply is turned ON?

Yes → Replace the inverter P.C. board.

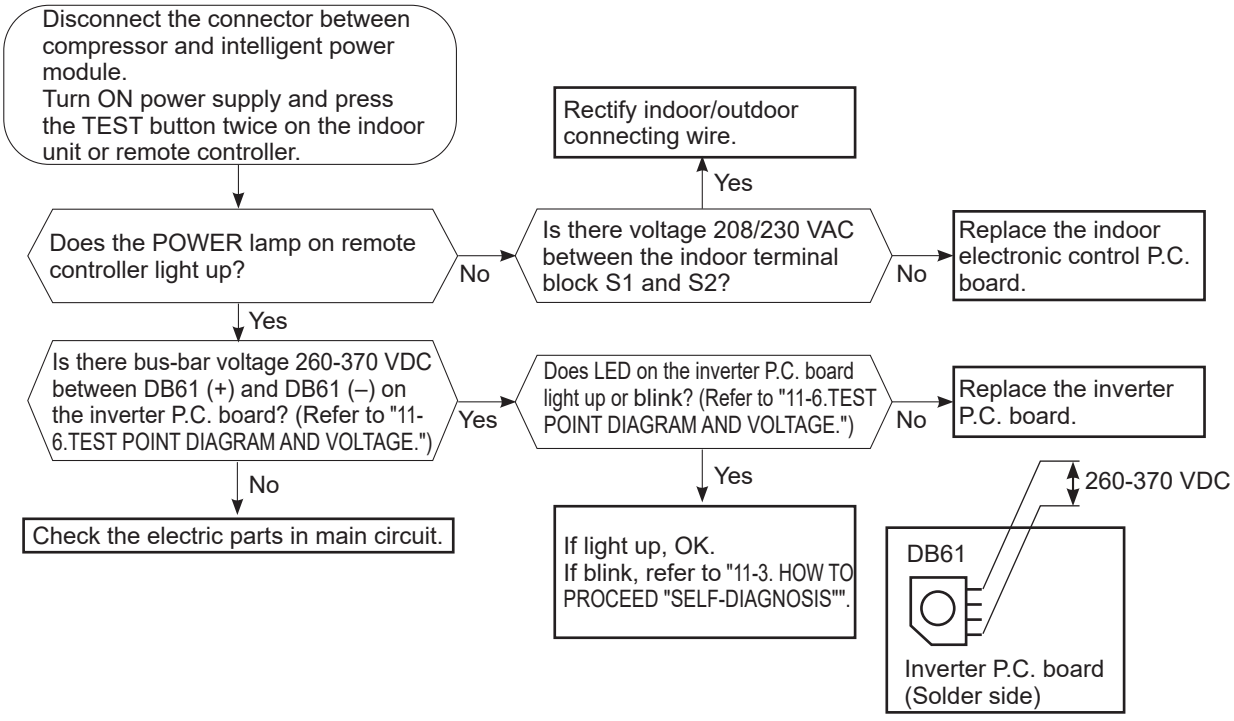
↓ No

Replace the 4-way valve.

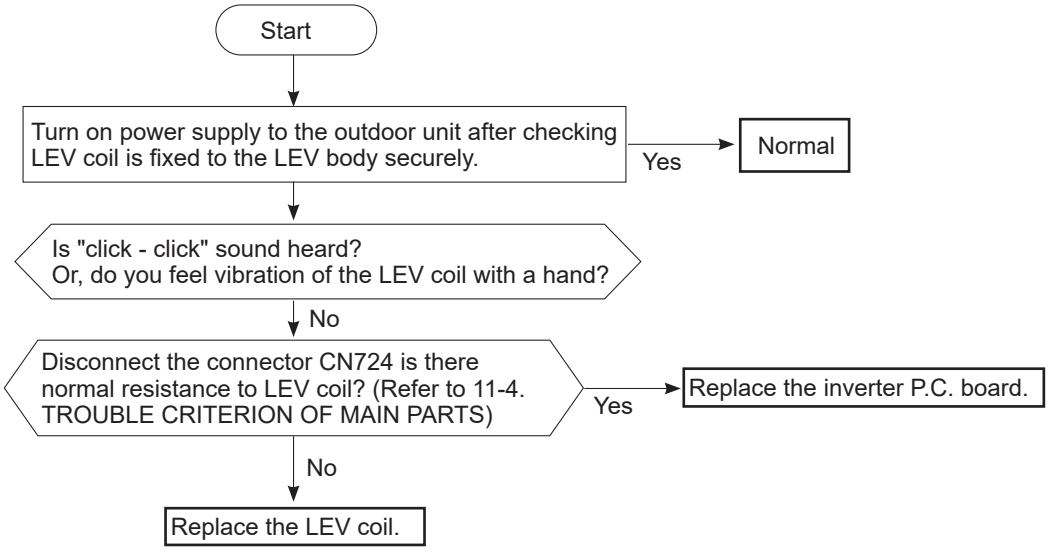
Ⓘ Check of outdoor fan motor



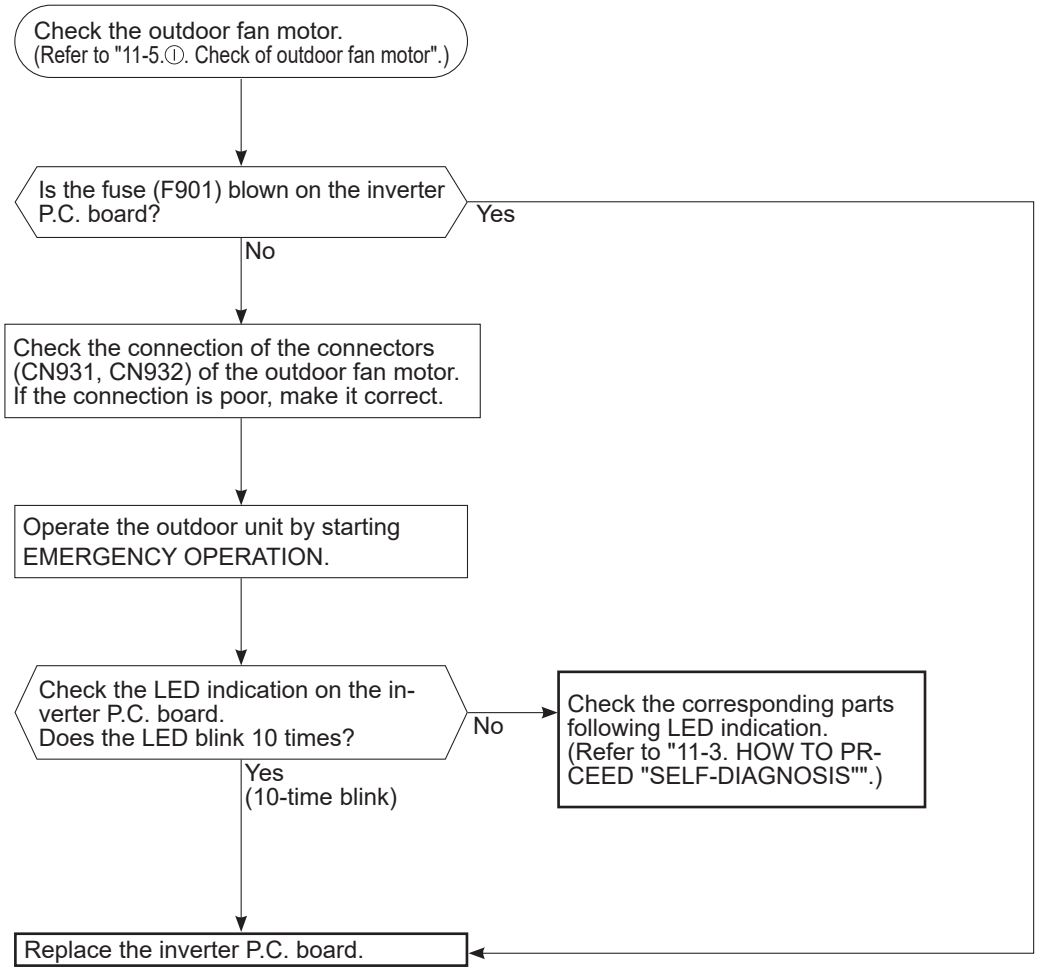
Ⓙ Check of power supply



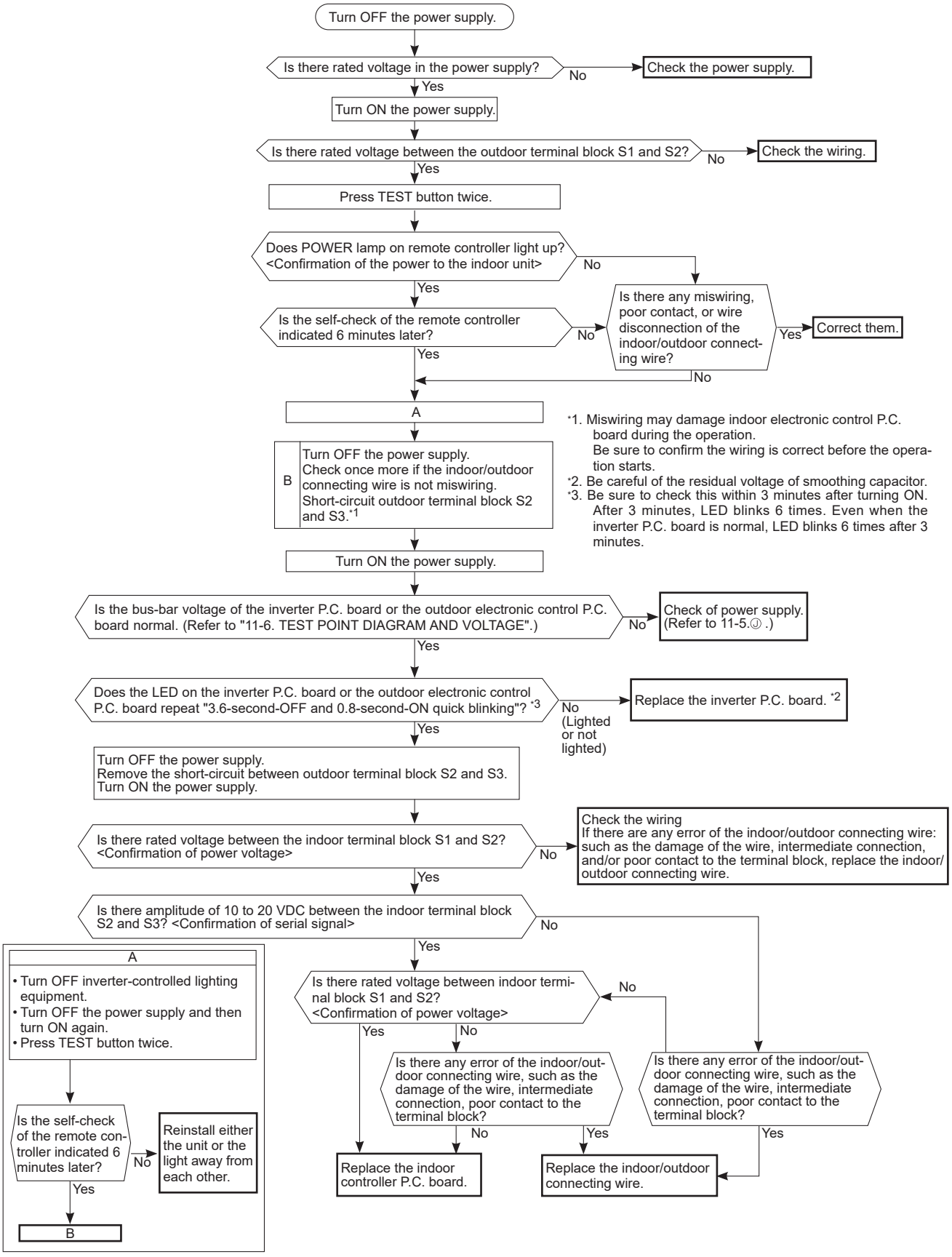
Ⓚ Check of LEV (Expansion valve)



Ⓛ Check of inverter P.C. board



Ⓜ How to check miswiring and serial signal error



*1. Miswiring may damage indoor electronic control P.C. board during the operation.
Be sure to confirm the wiring is correct before the operation starts.

*2. Be careful of the residual voltage of smoothing capacitor.

*3. Be sure to check this within 3 minutes after turning ON. After 3 minutes, LED blinks 6 times. Even when the inverter P.C. board is normal, LED blinks 6 times after 3 minutes.

Ⓝ Check the defrost heater

SUZ-AA09/12/15NL

Check the following points before checking electric continuity.

1. Does the resistance of ambient temperature thermistor have the characteristics? Refer to "11-6. TEST POINT DIAGRAM AND VOLTAGE".
2. Is the resistance of defrost heater normal? Refer to "11-4. TROUBLE CRITERION OF MAIN PARTS".
3. Is the heater protector closed?
4. Are both ambient temperature thermistor and circuit of defrost heater securely connected to connectors?

In HEAT mode, for more than 5 minutes, let the ambient temperature thermistor continue to read 32°F (0°C) or below, and let the defrost thermistor continue to read 30°F (-1°C) or below.

NOTE: In case both thermistors are more than the above temperature, cool them with cold water etc...

Is there 208/230 VAC between CN722 ① and ② on the inverter P.C. board? Refer to "11-6. TEST POINT DIAGRAM AND VOLTAGE".

Yes → Not the problem of the inverter P.C. board.

No → Replace the inverter P.C. board.

Ⓞ Check of outdoor refrigerant circuit

Has the operation stopped during pump down?

Yes → The operation has stopped to prevent the diesel explosion caused by air trapped in the refrigerant circuit. Close the stop valve, and disconnect the power plug or turn the breaker OFF. *

WARNING:
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.

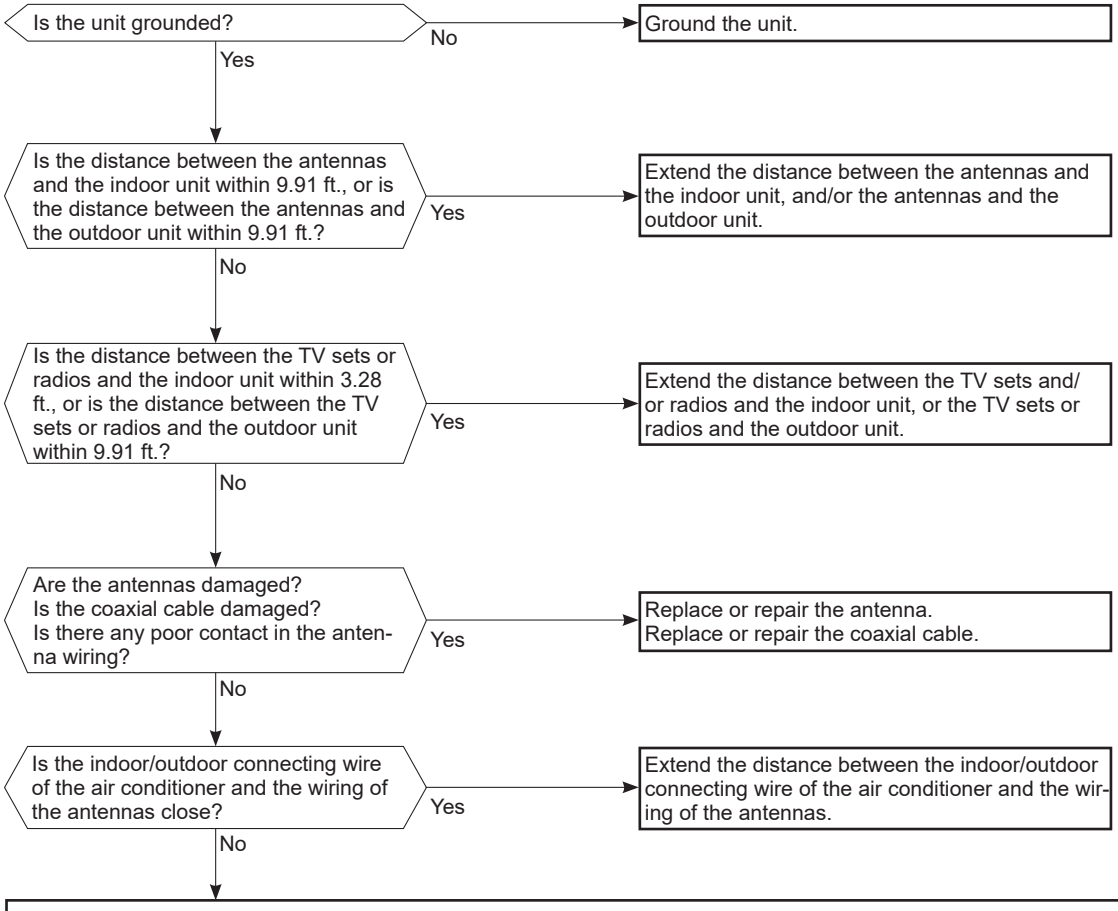
No → Was the operation started with the stop valve closed, and was it opened during operation?

Yes → The unit occasionally stops when the stop valve is opened or closed during operation. Open the stop valve and start the cooling operation again.

No → The refrigerant gas amount may be 60% or less than the normal amount. Identify where the gas is leaking from, and fix the leak.

* **CAUTION : Do not start the operation again to prevent hazards.**

Ⓟ Electromagnetic noise enters into TV sets or radios

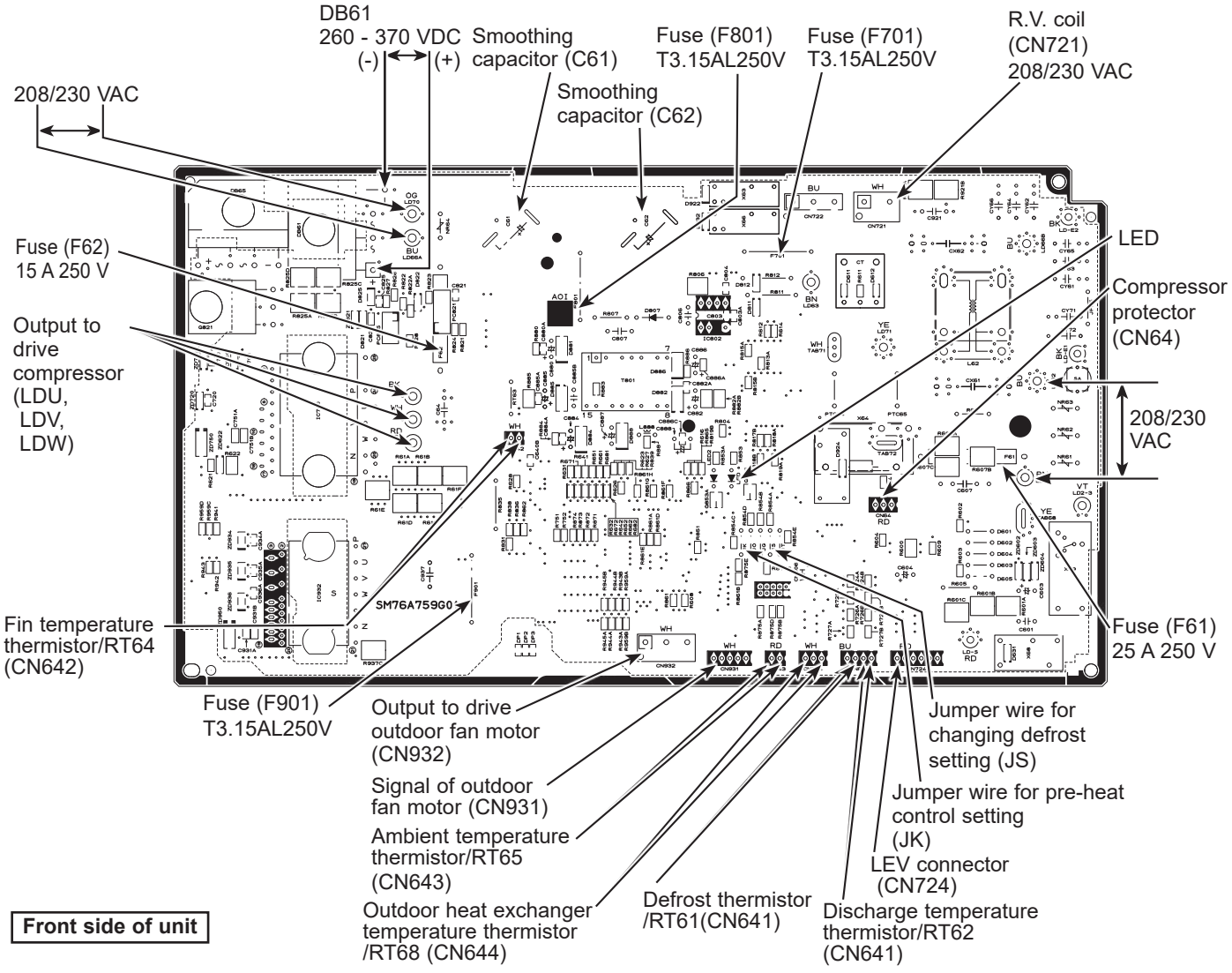


Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the following before asking for service.

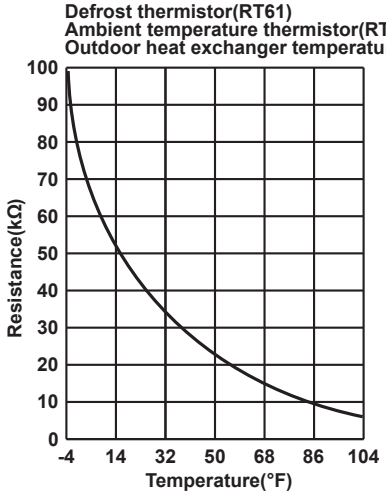
1. Devices affected by the electromagnetic noise
   TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
   indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, grounding 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 OPERATE/STOP (ON/OFF) 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 OPERATE/STOP (ON/OFF) 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.

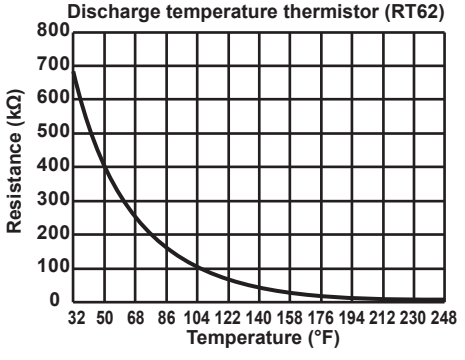
11-6. TEST POINT DIAGRAM AND VOLTAGE
Inverter P.C. board

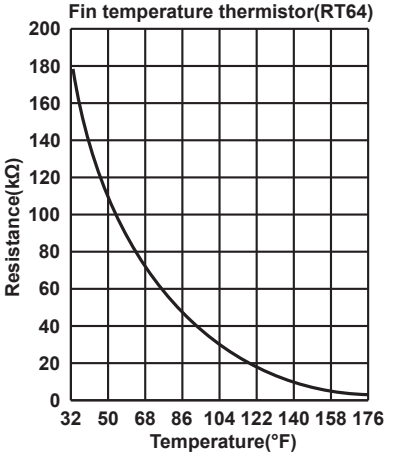
Back side of unit



Front side of unit







12 FUNCTION SETTING

12-1. UNIT FUNCTION SETTING BY THE REMOTE CONTROLLER

Each function can be set as necessary using the remote controller. The setting of function for each unit can only be done by the remote controller. Select function available from the table 1.

<Table 1> Function selections

(1) Functions available when setting the unit number to 00.

Function	Settings	Mode No. Wired remote controller (RF thermostat)	Setting No.	● : Initial setting (when sent from the factory)	Check	Remarks
Power failure automatic recovery	Not available	01 (101)	1			The setting is applied to all the units in the same refrigerant system.
	Available (Approx. 4-minute wait-period after power is restored.)		2	●		
Indoor temperature detecting	Indoor unit's internal sensor	02 (—)	1	●		
			2			
	Data from main remote controller *1		3			
LOSSNAY connectivity	Not supported	03 (103)	1	●		
	Supported (indoor unit dose not intake outdoor air through LOSSNAY)		2			
	Supported (indoor unit intakes outdoor air through LOSSNAY)		3			
Power supply voltage	230V	04 (104)	1	●		
	208V		2			
Frost prevention temperature	2℃ [36°F] (Normal)	15 (115)	1	●		
	3℃ [37°F]		2			

*1 Can be set only when a wired remote controller is used.
When using 2 remote controllers (2-remote controller operation), the remote controller with built-in sensor must be set as a main remote controller.

(2) Functions are available when setting the unit number to 01.

Function	Settings	Mode No. Wired remote controller (RF thermostat)	Setting No.	● : Initial setting (Factory setting) Ceiling concealed SEZ-AD·NL	Ceiling cassette SLZ-AF·NL	Ceiling concealed PEAD-AA·NL	Multi position SVZ-AP·NL	Check
Filter sign	100h	07 (107)	1					
	2500h		2		●			
	No filter sign indicator		3	●		●	●	
External static pressure	5/15/35/50Pa (0.02/0.06/0.14/0.20in.WG)	08 (108)	Refer to the table below		—	Refer to the table below	Refer to the table below	
		10 (110)	Refer to the table below		—	Refer to the table below	Refer to the table below	
Heater control *2	No heater present	11 (111)	1	—	—	●	●	
	Heater present		2	—	—			
	SEZ, SLZ :Set temp -4.5°F ON PEAD, SVZ :Heater not operation in Defrost/Error	23 (123)	1	●	●	●	●	
	SEZ, SLZ :Set temp -1.8°F ON PEAD, SVZ :Heater not operation in Defrost/Error*4		2					
Set temperature in heating mode *3	Available	24 (124)	1	●	●	●	●	
	Not available		2					
Fan speed during the heating thermo OFF	Extra low	25 (125)	1	●	●	●	●	
	Stop		2					
	Set fan speed		3					
Fan speed during the cooling thermo OFF	Set fan speed	27 (127)	1	●	●	●	●	
	Stop		2					
Detection of abnormality of the pipe temperature (P8)	Available	28 (128)	1	●	●			
	Not available		2			●	●	

*2 For the detail of Heater control, refer to the service manual.
*3 4 °C (7.2 °F) up
*4 Depend on the error, heater may not operate please refer to SVZ service manual.

External static pressure setting for SEZ

External static pressure	Setting No. Mode No. 08	Mode No. 10	● : Initial setting (Factory setting)	Check
5Pa (0.02in.WG)	1	2		
15Pa (0.06in.WG)	1	1	●	
35Pa (0.14in.WG)	2	1		
50Pa (0.20in.WG)	3	1		

External static pressure setting for PEAD

External static pressure	Setting No. Mode No. 08	Mode No. 10	● : Initial setting (Factory setting)	Check
35Pa (0.14in.WG)	2	1		
50Pa (0.20in.WG)	3	1	●	
70Pa (0.28in.WG)	1	2		
100Pa (0.40in.WG)	2	2		
150Pa (0.60in.WG)	3	2		

External static pressure setting for SVZ (Vertical, Horizontal left, Horizontal right position*)

External static pressure	Setting No. Mode No. 08	Mode No. 10	● : Initial setting (Factory setting)	Check
75Pa (0.3in.WG)	1	1		
125Pa (0.5in.WG)	2	1	●	
200Pa (0.8in.WG)	3	1		

* Regarding to downflow setting, please refer to downflow kit installation manual.

12-1-1. Selecting functions using the wired remote controller

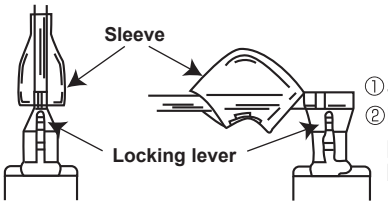
Refer to "14-3. SERVICE MENU" and "14-5. FUNCTION SETTING"

13 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

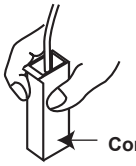
The terminal which has the locking mechanism can be detached as shown below.
There are two types (refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

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



①Slide the sleeve.
②Pull the terminal while pushing the locking lever.

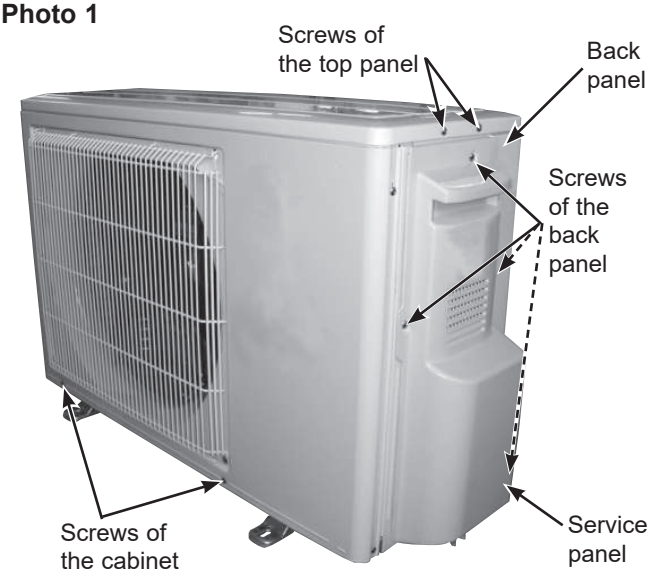
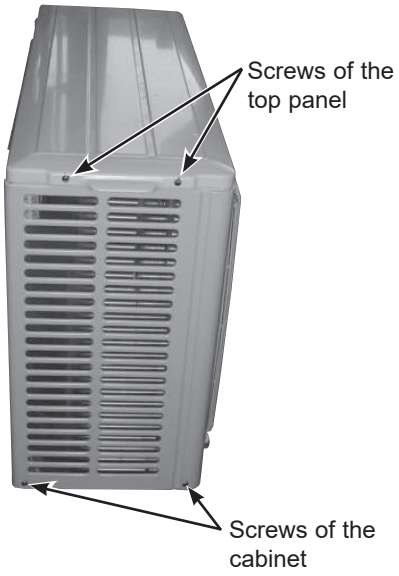
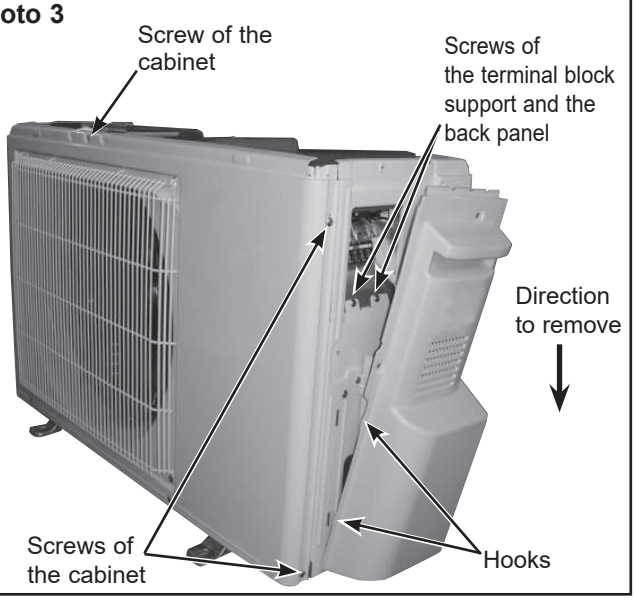
(2) The terminal with this connector has the locking mechanism.

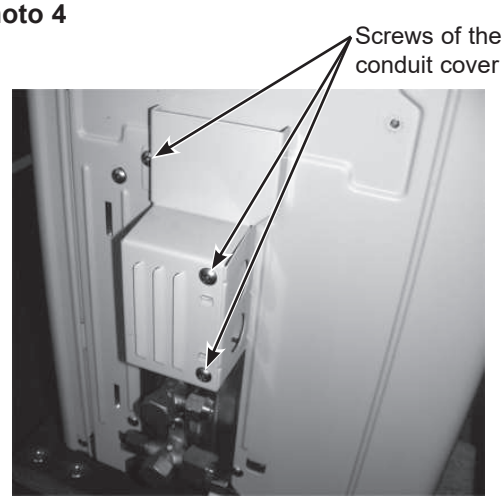
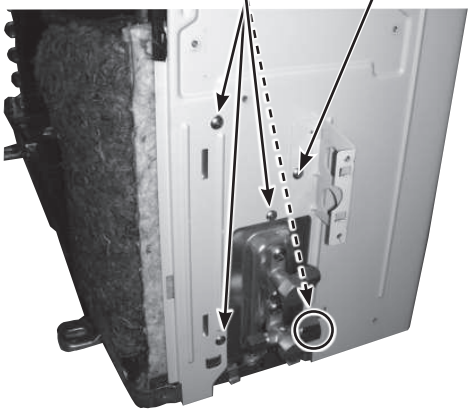
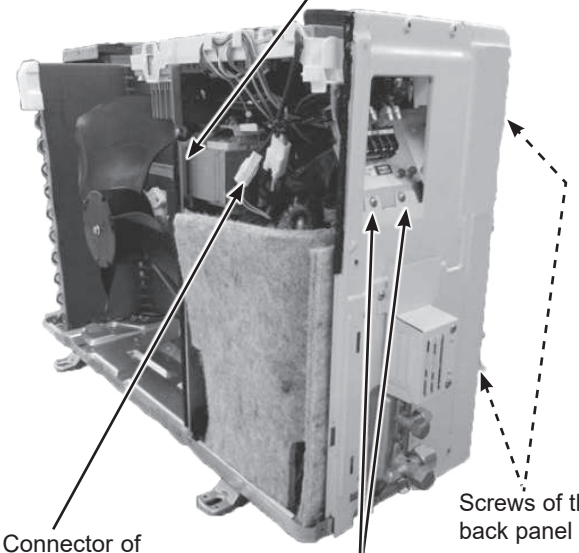
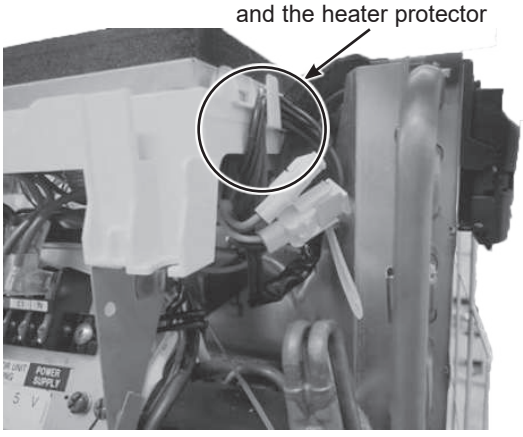


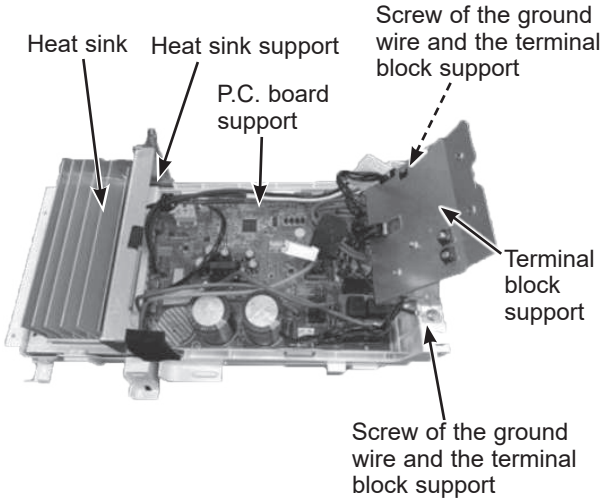
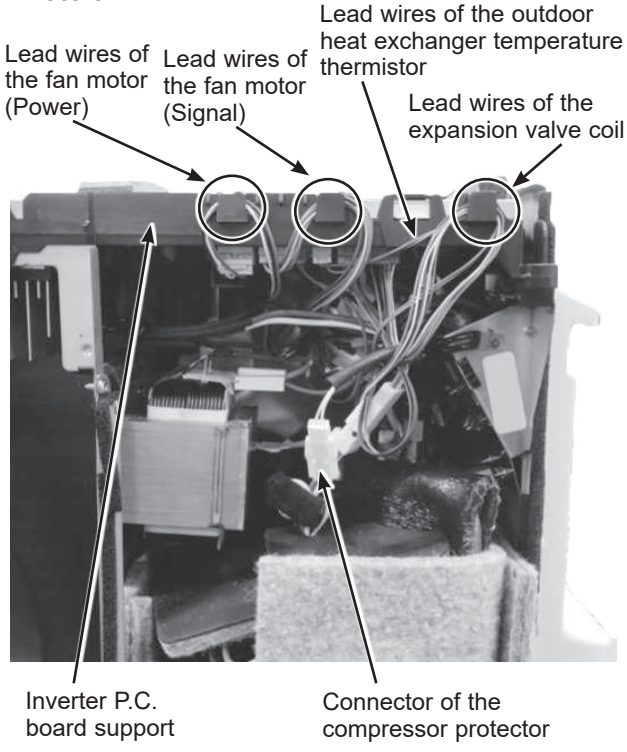
①Hold the sleeve, and pull out the terminal slowly.

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

Note: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the cabinet (1) Remove the screw fixing the service panel. (2) Pull down the service panel and remove it. (3) Remove the screws fixing the conduit cover. (4) Remove the conduit cover. (Photo 4) (5) Remove the screw fixing the conduit plate. (Photo 5) (6) Remove the conduit plate. (7) Disconnect the power supply wire and indoor/outdoor connecting wire. (8) Remove the screws fixing the top panel. (9) Remove the top panel. (10) Remove the screws fixing the cabinet. (11) Remove the cabinet. (12) Remove the screws fixing the back panel. (13) Remove the back panel.	**Photo 1** 
Photo 2  	**Photo 3** 

OPERATING PROCEDURE	PHOTOS/FIGURES
Photo 4 	**Photo 5** 
2. Removing the inverter assembly, inverter P.C. board (1) Remove the cabinet and panels. (Refer to procedure 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 (LEV) (3) Remove the compressor connector (CN61). (4) Remove the screws fixing the heat sink support and the separator. (5) Remove the fixing screws of the terminal block support and the back panel. (6) Remove the inverter assembly. (7) Remove the screw of the ground wire and screw of the terminal block support. (Photo 8) (8) Remove the heat sink support from the P.C. board support. (9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.	**Photo 6** 
	Photo 7 

OPERATING PROCEDURE	PHOTOS/FIGURES
*** Connection procedure when attaching the inverter P.C. board (Photo 9)** 1. Connect the lead wires of the fan motor (Power) 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. 2. Connect the lead wires of the fan motor (Signal) to the connector on the inverter P.C. board. Pull the lead wires toward you and put them on the middle of the hook on the P.C. board support. 3. Connect the lead wires of the outdoor heat exchanger temperature thermistor 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. 4. 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 [so that the compressor protector lead wires are bundled up as shown in Photo 9.	**Photo 8** 
3. Removing R.V. coil (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN721 (R.V. coil) (3) Remove the R.V. coil.	**Photo 9** 

OPERATING PROCEDURE	PHOTOS/FIGURES

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

(1) Remove the top panel, cabinet and service panel. (Refer to procedure 1)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN641 (Defrost thermistor (**SUZ**) and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
(3) Pull out the discharge temperature thermistor from its holder.
(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.

Photo 10

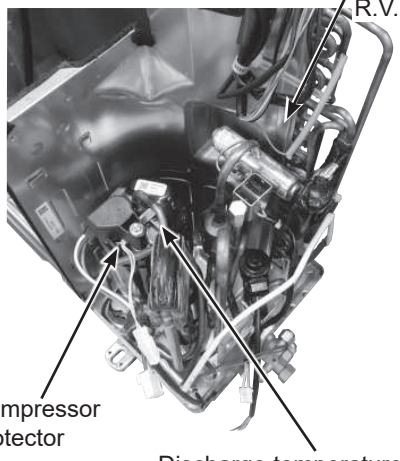


Figure 1

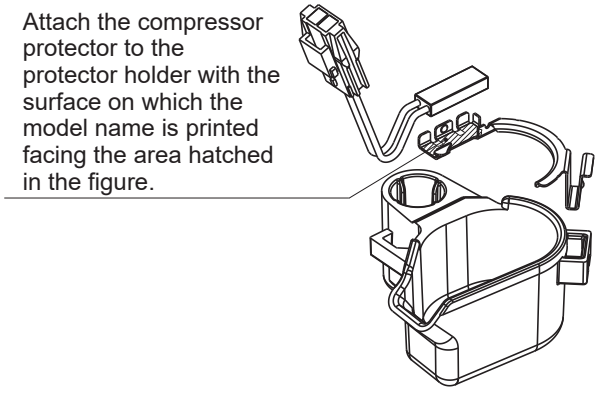
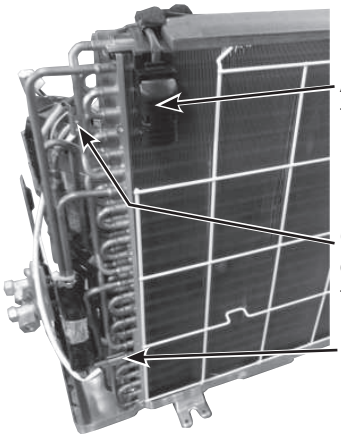


Photo 11

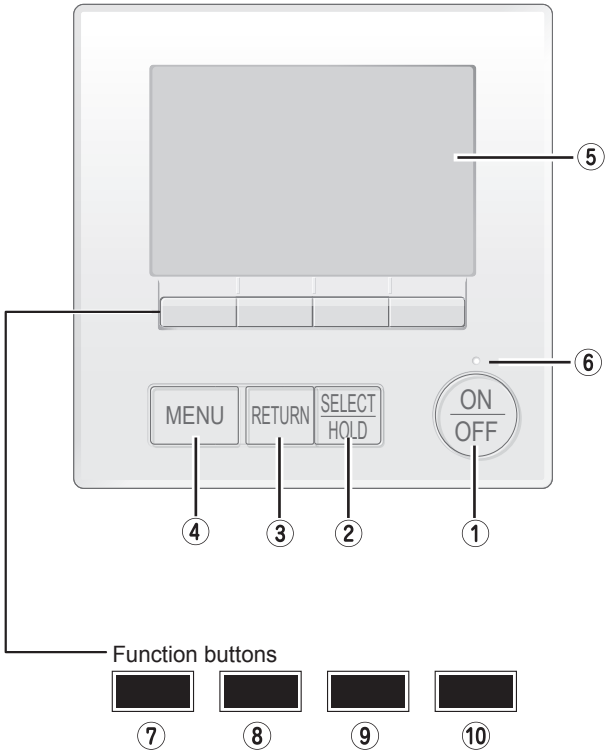


14 REMOTE CONTROLLER

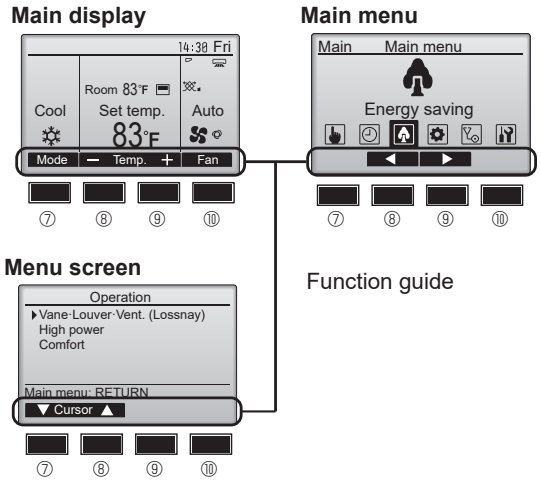
14-1. REMOTE CONTROLLER FUNCTIONS

<PAR-41MAA>

Controller interface



The functions of the function buttons change depending on the screen.
Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.
When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① [ON/OFF] button

Press to turn ON/OFF the indoor unit.

② [SELECT/HOLD] button

Press to save the setting.
When the Main menu is displayed, pressing this button will enable/disable the HOLD function.

③ [RETURN] button

Press to return to the previous screen.

④ [MENU] button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

⑥ ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button [F1]

Main display: Press to change the operation mode.
Menu screen: The button function varies with the screen.

⑧ Function button [F2]

Main display: Press to decrease temperature.
Main menu: Press to move the cursor left.
Menu screen: The button function varies with the screen.

⑨ Function button [F3]

Main display: Press to increase temperature.
Main menu: Press to move the cursor right.
Menu screen: The button function varies with the screen.

⑩ Function button [F4]

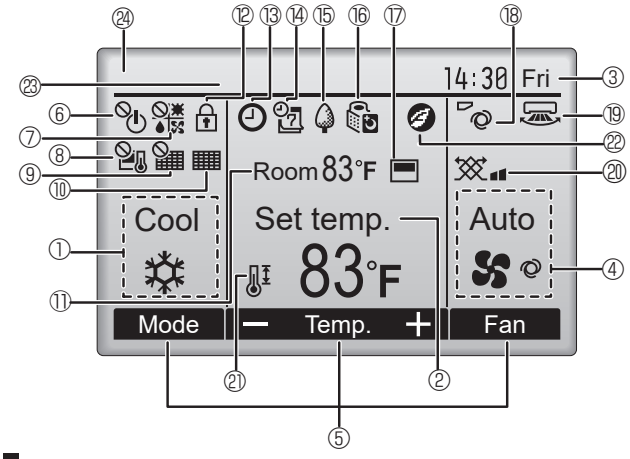
Main display: Press to change the fan speed.
Menu screen: The button function varies with the screen.

Display

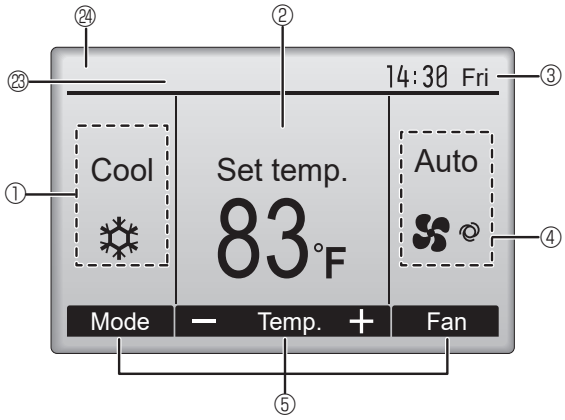
The main display can be displayed in two different modes: “Full” and “Basic”. The initial setting is “Full”. To switch to the “Basic” mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

<Full mode>

All icons are displayed for explanation.



<Basic mode>



① Operation mode

② Preset temperature

③ Clock

④ Fan speed

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the preset temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

⑪ Room temperature

⑫

Appears when the buttons are locked.

⑬

Appears when the On/Off timer or Auto-off timer function is enabled.

appears when the timer is disabled by the centralized control system.

appears when the HOLD function is enable.

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy saving mode. (Will not appear on some models of indoor units)

⑯

Appears while the outdoor units are operated in the silent mode.

⑰

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (⑪).

appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑱

Indicates the vane setting.

⑲ *1

Indicates the louver setting.

⑳

Indicates the ventilation setting.

㉑

Appears when the preset temperature range is restricted.

㉒ *1

Appears when an energy saving operation is performed using a “3D i-see Sensor” function.

㉓ Centrally controlled

Appears for a certain period of time when a centrally-controlled item is operated.

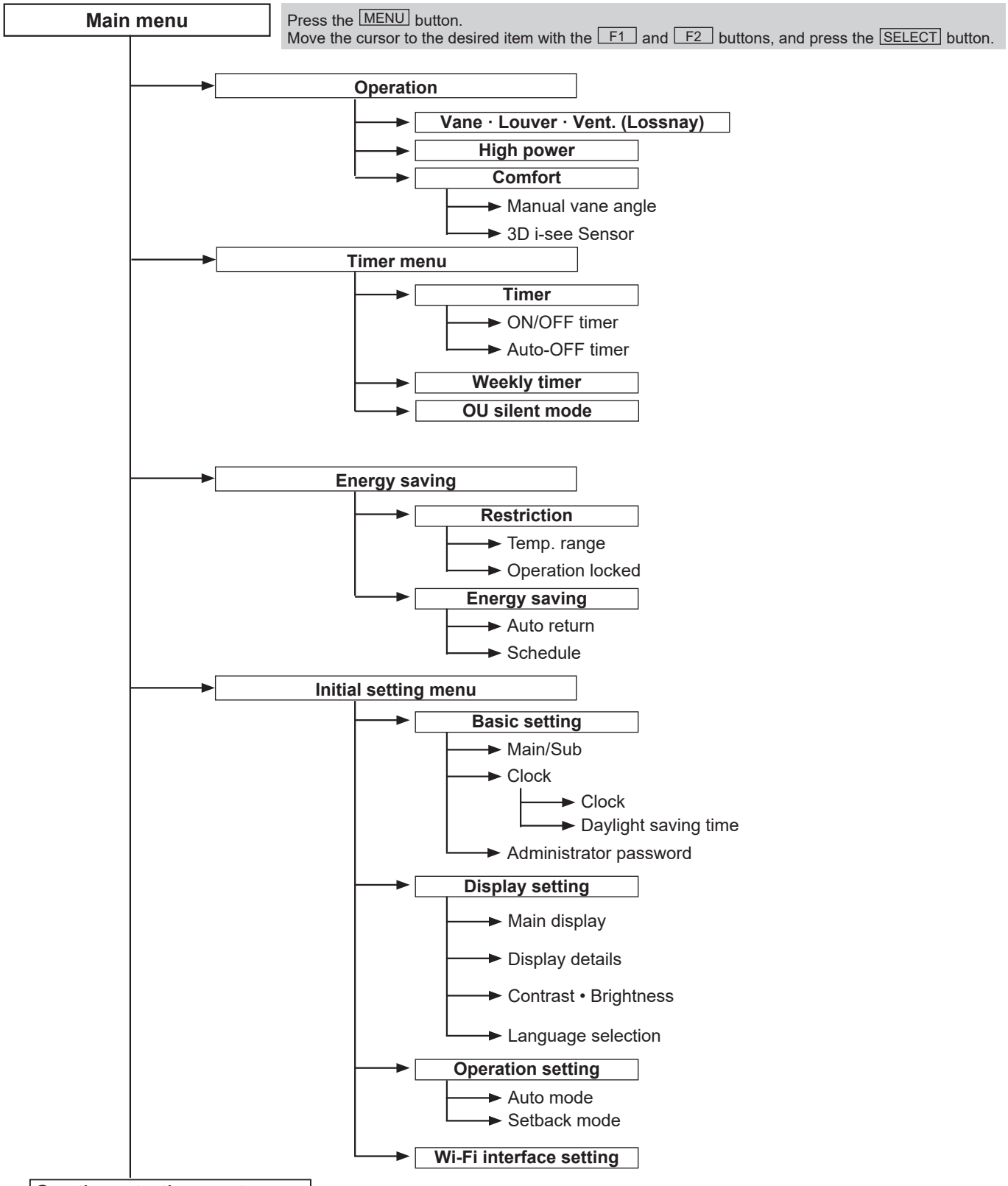
㉔ Preliminary error display

An error code appears during the preliminary error.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Main menu.

*1 These functions are not applied to the floor standing models.

Menu structure



Continue to the next page.

Not all functions are available on all models of indoor units.

Continue from the previous page.

- **Maintenance menu**
  - **Error information**
  - **Filter information**
  - **Cleaning**
    - Auto descending panel
      - Descending operation
      - Descending adjustment
- **Service menu**
  - **Test run menu**
    - Test run
    - Drain pump test run
  - **Maintenance information**
    - Model name input
    - Serial No. input
    - Dealer information input
    - Initialize maintenance info.
  - **Settings menu**
    - Function setting
  - **Check menu**
    - Error history menu
      - Error history
    - Diagnosis
      - Self check
      - Remote controller check
    - Smooth maintenance
    - Request code
  - **Other menu**
    - Maintenance password
    - Initialize remote controller
    - Remote controller information

Not all functions are available on all models of indoor units.

Main menu list

Main menu	Setting and display items		Setting details
Operation	Vane · Louver · Vent. (Lossnay)		**Use to set the vane angle.** • Select a desired vane setting. **Use to turn ON/OFF the louver.** • Select a desired setting from "ON" and "OFF." **Use to set the amount of ventilation.** • Select a desired setting from "Off," "Low," and "High."
	High power *3		**Use to reach the comfortable room temperature quickly.** • Units can be operated in the High-power mode for up to 30 minutes.
	Comfort	Manual vane angle	**Use to fix each vane angle.**
		3D i-see Sensor	**Use to set the following functions for 3D i-see Sensor.** • Air distribution • Energy saving option • Seasonal airflow
Timer	Timer	ON/OFF timer *1	**Use to set the operation ON/OFF time.** • Time can be set in 5-minute increments.
		Auto-Off timer	**Use to set the Auto-Off time.** • Time can be set to a value from 30 to 240 in 10-minute increments.
	Weekly timer *1, *2		**Use to set the weekly operation ON/OFF time.** • Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)
	OU silent mode *1, *3		**Use to set the time periods in which priority is given to quiet operation of outdoor units over temperature control. Set the Start/Stop time for each day of the week.** •Select the desired silent level from "Normal," "Middle," and "Quiet."
Energy saving	Restriction	Temp. range *2	**Use to restrict the preset temperature range.** • Different temperature ranges can be set for different operation modes.
		Operation locked	**Use to lock selected functions.** • The locked functions cannot be operated.
	Energy saving	Auto return *2	**Use to get the units to operate at the preset temperature after performing energy saving operation for a specified time period.** • Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.)
		Schedule *1, *3	**Set the start/stop time to operate the units in the energy saving mode for each day of the week, and set the energy saving rate.** • Up to 4 energy saving operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy saving rate can be set to a value from 0% or 50 to 90% in 10% increments.
Initial setting	Basic setting	Main/Sub	**When connecting 2 remote controllers, one of them needs to be designated as a sub controller.**
		Clock	**Use to set the current time.**
		Daylight saving time	**Set the daylight saving time.**
		Administrator password	**The administrator password is required to make the settings for the following items.** • Timer setting • Energy saving setting • Weekly timer setting • Restriction setting • Outdoor unit silent mode setting

*1 Clock setting is required.

*2 2°F (1°C) increments

*3 This function is available only when certain outdoor units are connected.

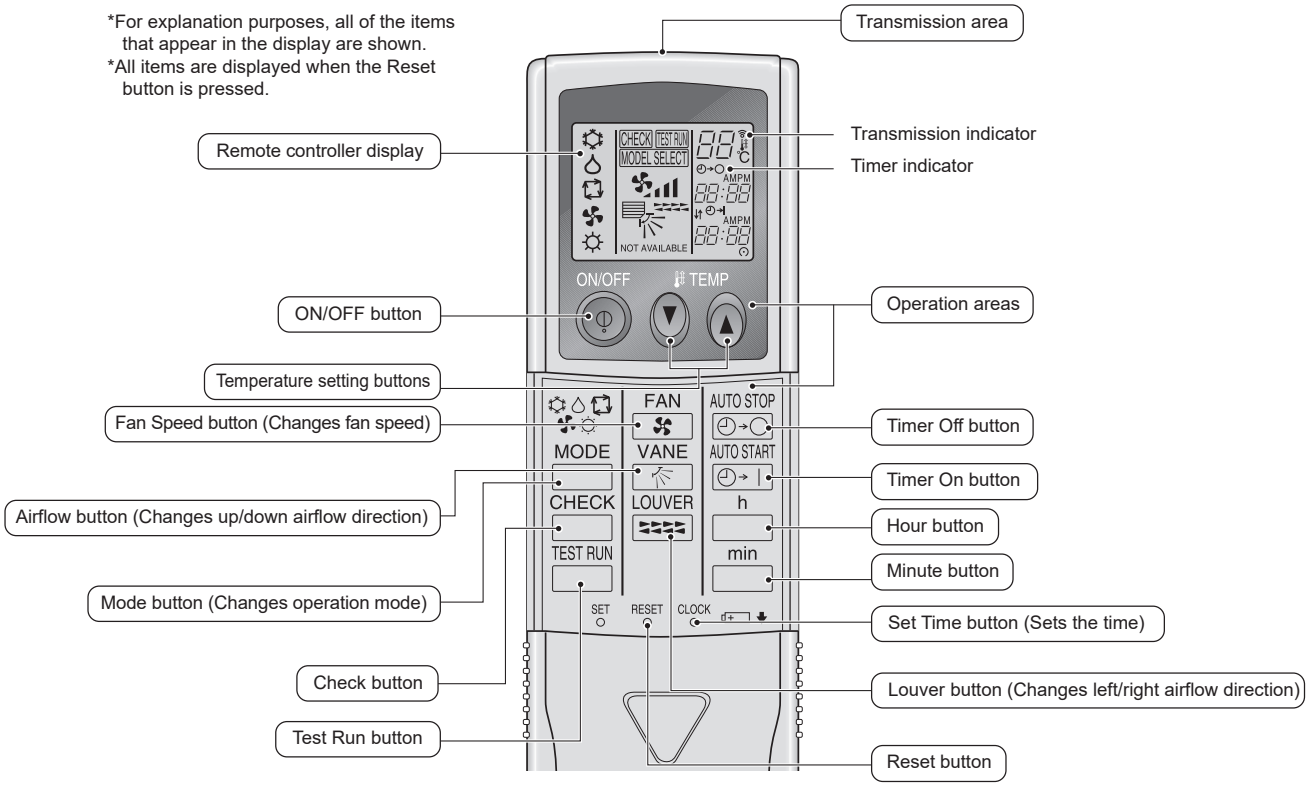
Main menu	Setting and display items		Setting details
Initial setting	Display setting	Main display	**Use to switch between "Full" and "Basic" modes for the Main display, and use to change the background colors of the display to black.**
		Display details	**Make the settings for the remote controller related items as necessary.** **Clock:** The initial settings are "Yes" and "24h" format. **Temperature:** Set either Celsius (°C) or Fahrenheit (°F). **Room temp.:** Set Show or Hide. **Auto mode:** Set Auto mode display or Only Auto display.
		Contrast • Brightness	**Use to adjust screen contrast and brightness.**
		Language selection	**Use to select the desired language.**
	Operation setting	Auto mode	**Whether or not to use Auto mode can be selected by using the button.** **This setting is valid only when indoor units with Auto mode function are connected.**
		Setback mode	**Whether or not to use the Setback mode can be selected by using the button.** **This setting is valid only when indoor units with the Setback mode function are connected.**
Mainte-nance	Error information		**Use to check error information when an error occurs.** • Error code, error source, refrigerant address, model name, manufacturing number, contact information (dealer's phone number) can be displayed. (The model name, manufacturing number, and contact information need to be registered in advance to be displayed.)
	Filter information		**Use to check the filter status.** • The filter sign can be reset.
	Cleaning	Auto descending panel	**Use to lift and lower the auto descending panel (Optional parts).**
Service	Test run		**Select "Test run" from the Service menu to bring up the Test run menu.** • Test run • Drain pump test run
	Input maintenance		**Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen.** **The following settings can be made from the Maintenance Information screen.** • Model name input • Serial No. input • Dealer information input • Initialize maintenance info.
	Settings	Function setting	**Make the settings for the indoor unit functions via the remote controller as necessary.**
	Check	Error history	Display the error history and execute "delete error history".
		Diagnosis	**Self check:** Error history of each unit can be checked via the remote controller. **Remote controller check:** When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.
		Smooth maintenance *1	**Use to display the maintenance data of indoor/outdoor units.**
		Request code *1	**Use to check operation data such as thermistor temperature and error information.**
	Others	Maintenance password	**Use to change the maintenance password.**
		Initialize remote con-troller	**Use to initialize the remote controller to the factory shipment status.**
		Remote controller information	**Use to display the remote controller model name, software version, and serial number.**

*1 This function is available only when certain outdoor units are connected.

<PAR-FL32MA>

Controller interface

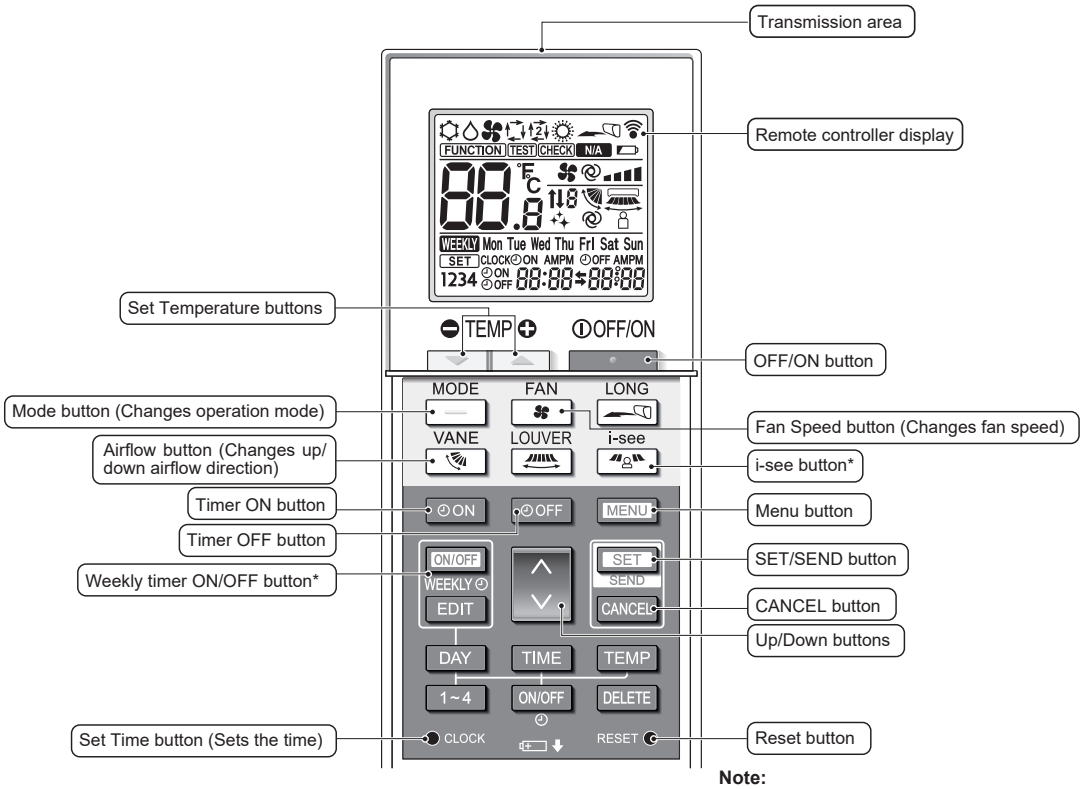
*For explanation purposes, all of the items that appear in the display are shown.
*All items are displayed when the Reset button is pressed.



- When using the wireless remote controller, point it towards the receiver on the indoor unit.
- If the remote controller is operated within approximately three minutes after power is supplied to the indoor unit, the indoor unit may beep three times as the unit is performing the initial automatic check.
- The indoor unit beeps to confirm that the signal transmitted from the remote controller has been received. Signals can be received up to approximately 7 meters in a direct line from the indoor unit in an area 45 degrees to the left and right of the unit. However, illumination such as fluorescent lights and strong light can affect the ability of the indoor unit to receive signals.
- If the operation lamp near the receiver on the indoor unit is blinking, the unit needs to be inspected. Consult your dealer for service.
- Handle the remote controller carefully. Do not drop the remote controller or subject it to strong shocks. In addition, do not get the remote controller wet or leave it in a location with high humidity.
- To avoid misplacing the remote controller, install the holder included with the remote controller on a wall and be sure to always place the remote controller in the holder after use.

<PAR-SL101A-E>

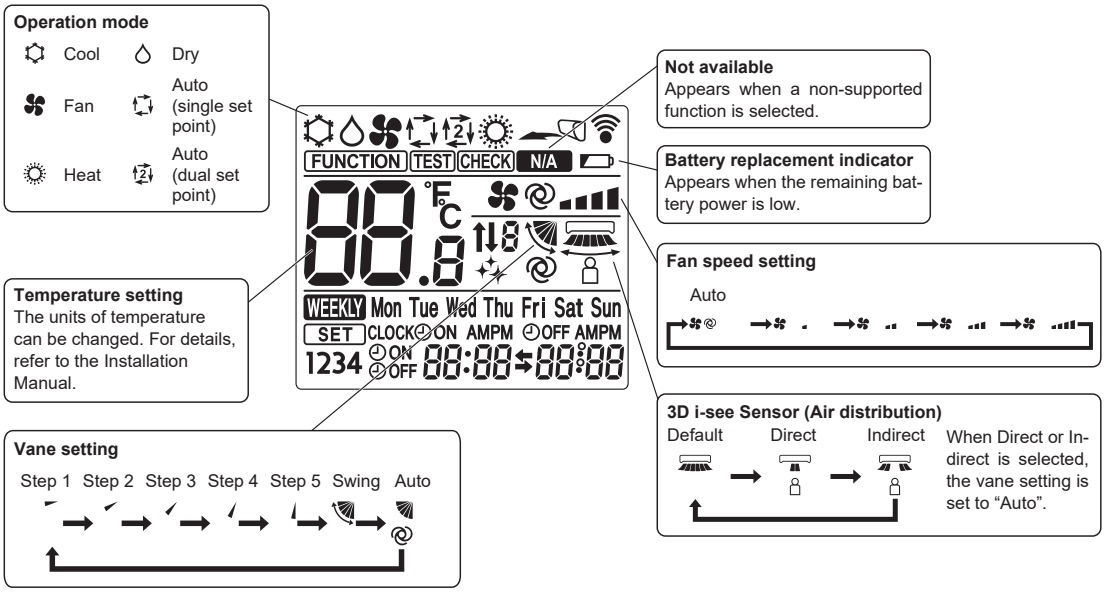
Controller interface



Note:

* **This button is enabled or disabled depending on the model of the indoor unit.**

Display

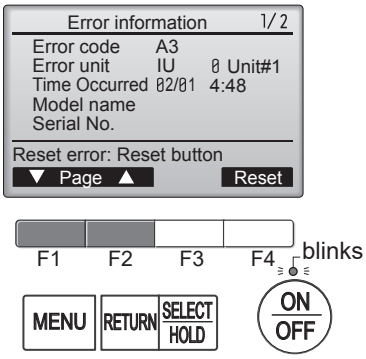


14-2. ERROR INFORMATION

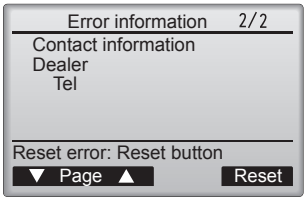
When an error occurs, the following screen will appear.
Check the error status, stop the operation, and consult your dealer.

1. Error code, error unit, refrigerant address, model name, and serial number will appear.
   The model name and serial number will appear only if the information has been registered.

   Press the F1 or F2 button to go to the next page.

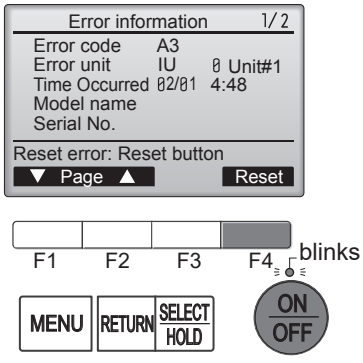


Contact information (dealer's phone number) will appear if the information has been registered.

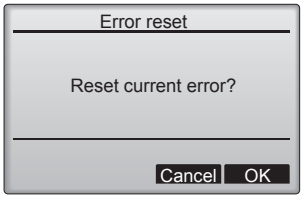


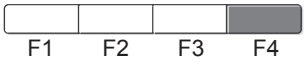
2. Press the F4 button or the [ON/OFF] button to reset the error that is occurring.

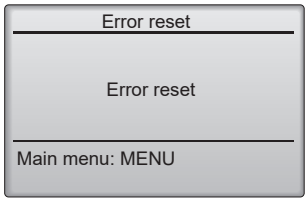
Errors cannot be reset while the ON/OFF operation is prohibited.



Select "OK" with the F4 button.





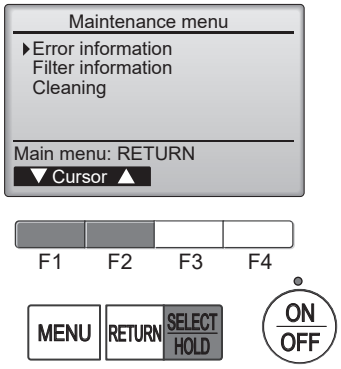


Navigating through the screens

- To go back to the Service menu ..... [MENU] button

· Checking the error information

While no errors are occurring, page 2/2 of the error information can be viewed by selecting "Error information" from the Maintenance menu.
Errors cannot be reset from this screen.

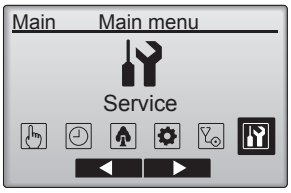


14-3. SERVICE MENU

Maintenance password is required

1. Select "Service" from the Main menu, and press the [SELECT] button.

   *At the main display, the menu button and select "Service" to make the maintenance setting.



2. When the Service menu is selected, a window will appear asking for the password.

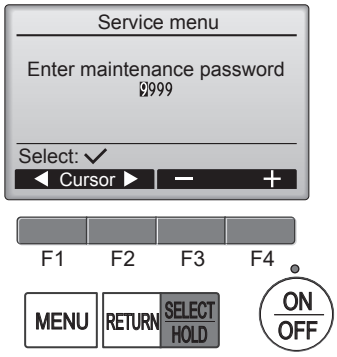
   To enter the current maintenance password (4 numerical digits), move the cursor to the digit you want to change with the F1 or F2 button.

   ▼

   Set each number (0 through 9) with the F3 or F4 button.

   ▼

   Then, press the [SELECT] button.



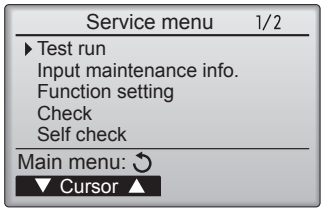
Note: The initial maintenance password is "9999". Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it.
If you forget your maintenance password, you can initialize the password to the default password "9999" by pressing and holding the F1 button for 10 seconds on the maintenance password setting screen.

3. If the password matches, the Service menu will appear.

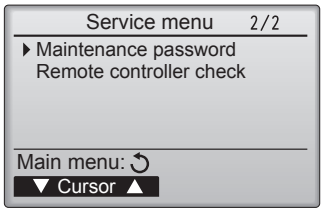
Note: Air conditioning units may need to be stopped to make only at "Settings". There may be some settings that cannot be made when the system is centrally controlled.

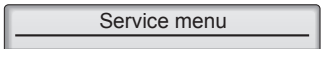
▼

A screen will appear that indicates the setting has been saved.



▼





Navigating through the screens

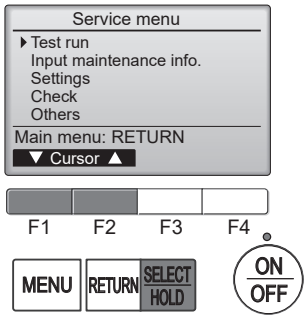
- To go back to the Service menu ..... [MENU] button
- To return to the previous screen..... [RETURN] button

14-4. TEST RUN

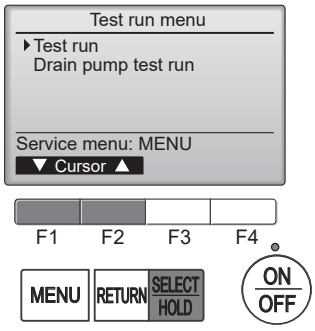
14-4-1. PAR-41MAA

1. Select "Service" from the Main menu, and press the [SELECT] button.

Select "Test run" with the F1 or F2 button, and press the [SELECT] button.



2. Select "Test run" with the F1 or F2 button, and press the [SELECT] button.



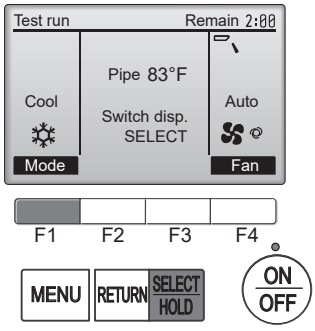
Test run operation

Press the F1 button to go through the operation modes in the order of "Cool and Heat".

Cool mode: Check if the cold air blows out.
Heat mode: Check if the heat blows out.

Check the operation of the outdoor unit's fan.

Press the [SELECT] button and open the Vane setting screen.



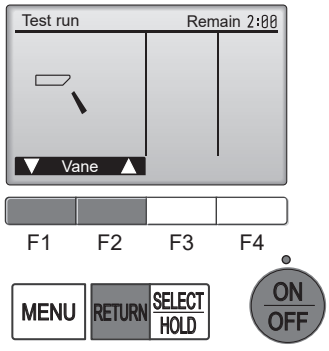
Auto vane check

Check the auto vane with the F1 F2 buttons.

Press the [RETURN] button to return to "Test run operation".

Press the [ON/OFF] button.

When the test run is completed, the "Test run menu" screen will appear.
The test run will automatically stop after 2 hours.
*The function is available only for the model with vanes.



14-4-2. PAR-FL32MA

Measure an impedance between the power supply terminal block on the outdoor unit and ground with a 500 V Megger and check that it is equal to or greater than 1.0 MΩ.

① Turn on the main power to the unit.

② Press the TEST RUN button twice continuously.
(Start this operation from the status of remote controller display turned off.)
A TEST RUN and current operation mode are displayed.

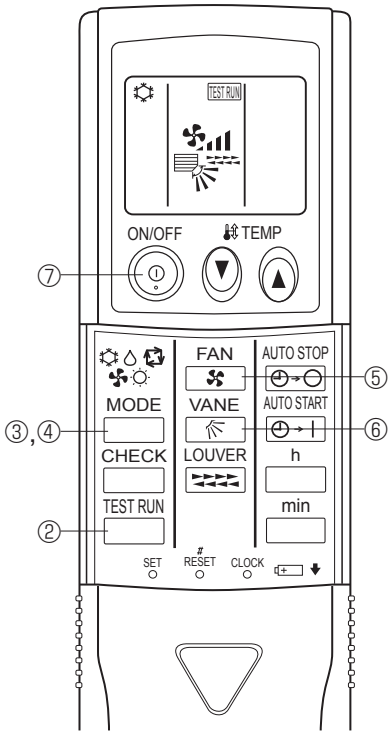
③ Press the MODE ( ) button to activate COOL mode, then check whether cool air blows out from the unit.

④ Press the MODE ( ) button to activate HEAT mode, then check whether warm air blows out from the unit.

⑤ Press the FAN button and check whether strong air blows out from the unit.

⑥ Press the VANE button and check whether the auto vane operates properly.

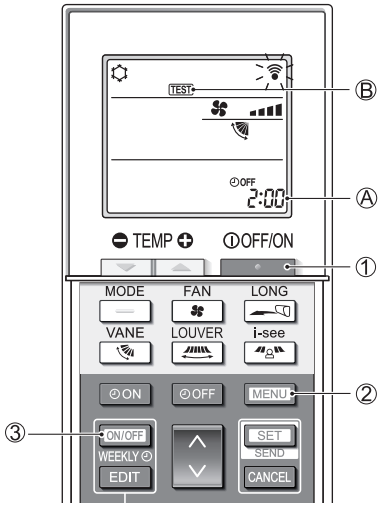
⑦ Press the ON/OFF button to stop the test run.



Note:
- **Point the remote controller towards the indoor unit receiver while following steps ② to ⑦.**
- **It is not possible to run in FAN, DRY or AUTO mode.**

13-4-3. PAR-SL101A-E

1. Press the button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the ON/OFF WEEKLY button ③ to disable it (WEEKLY is off).
2. Press the MENU button ② for 5 seconds.
   - CHECK comes on and the unit enters the service mode.
3. Press the MENU button ②.
   - TEST Ⓑ comes on and the unit enters the test run mode.
4. Press the following buttons to start the test run.
   : Switch the operation mode between cooling and heating and start the test run.
   : Switch the fan speed and start the test run.
   : Switch the airflow direction and start the test run.
   : Switch the louver and start the test run.
   SET: Start the test run.
5. Stop the test run.
   - Press the button ① to stop the test run.
   - After 2 hours, the stop signal is transmitted.



14-5. FUNCTION SETTING

14-5-1. PAR-41MAA

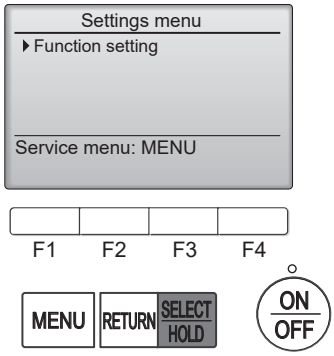
1. Select "Service" from the Main menu, and press the [SELECT] button.

   ▼

   Select "Setting" from the Service menu, and press the [SELECT] button.

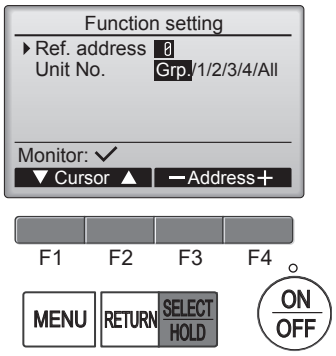
   ▼

   Select "Function setting", and press the [SELECT] button.

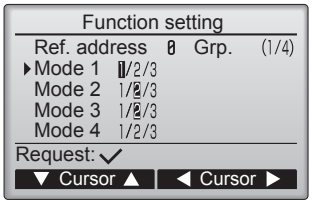


2. Set the indoor unit refrigerant addresses and unit numbers with the F1 through F4 buttons, and then press the [SELECT] button to confirm the current setting.

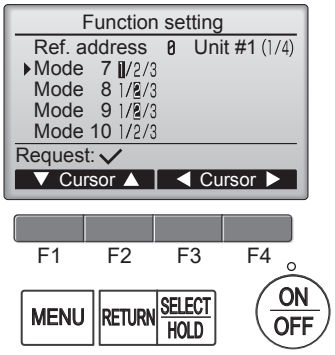
Note: Checking the indoor unit No.
When the [SELECT] button is pressed, the target indoor unit will start fan operation. If the unit is common or when running all units, all indoor units for the selected refrigerant address will start fan operation.



3. When data collection from the indoor units is completed, the current settings appears highlighted.
   Non-highlighted items indicate that no function settings are made.
   Screen appearance varies depending on the "Unit No." setting.

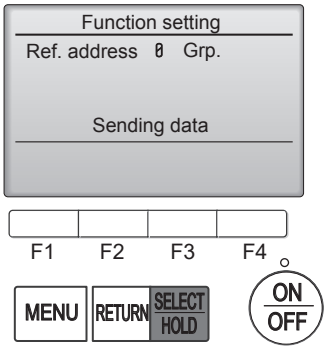


4. Use the F1 or F2 button to move the cursor to select the mode number, and change the setting number with the F3 or F4 button.



5. When the settings are completed, press the [SELECT] button to send the setting data from the remote controller to the indoor units.
   When the transmission is successfully completed, the screen will return to the Function setting screen.

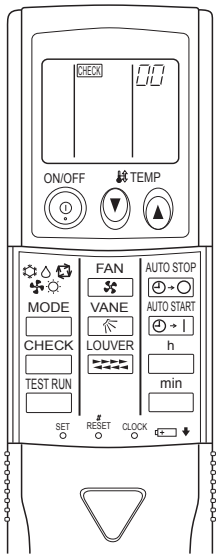
Note:
- **Make the above settings only on Mr. Slim units as necessary.**
- **The above function settings are not available for the CITY MULTI units.**
- **Refer to the indoor unit Installation Manual for the detailed information about initial settings, mode numbers, and setting numbers for the indoor units.**
- **Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.**



14-5-2. PAR-FL32MA

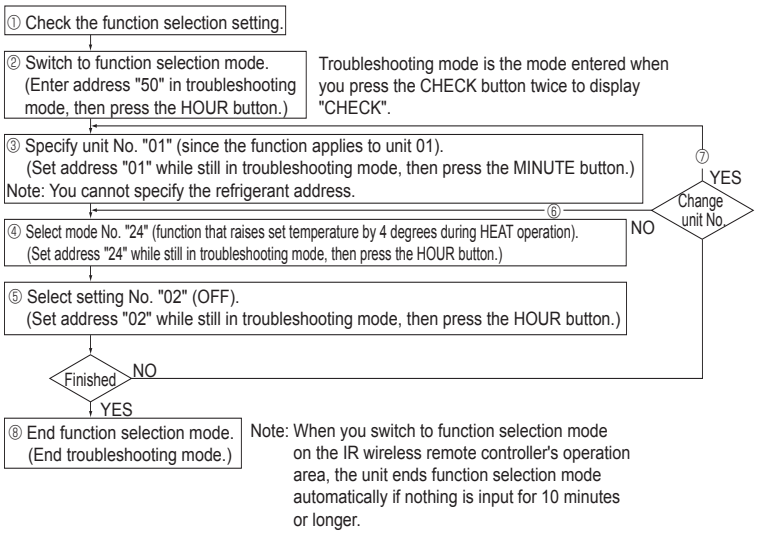
Functions can be selected with the wireless remote controller. Function selection using wireless remote controller is available only for refrigerant system with wireless function. Refrigerant address cannot be specified by the wireless remote controller.

[Flow of function selection procedure]



Flow of function selection procedure

The flow of the function selection procedure is shown below. This example shows how to turn off the function that raises the set temperature by 4 degrees during HEAT operation.
The procedure is given after the flow chart.



[Operating instructions]

① Check the function settings.

② Press the CHECK button twice continuously. → CHECK is lit and “00” blinks.
Press the TEMP button once to set “50”. Direct the IR wireless remote controller toward the receiver of the indoor unit and press the h button.

③ Set the unit number.
Press the TEMP button to set the unit number. (Press “01” to specify the indoor unit whose unit number is 01.)
Direct the IR wireless remote controller toward the receiver of the indoor unit and press the min button.
(By setting unit number with the min button, specified indoor unit starts performing fan operation.
Detect which unit is assigned to which number using this function. If unit number is set to AL, all the indoor units in same refrigerant system start performing fan operation simultaneously.)

Notes:
1. If a unit number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the unit number setting.
2. If the signal was not received by the sensor, you will not hear a beep or a “double ping sound” may be heard. Reenter the unit number setting.

④ Select a mode.
Press the TEMP button to set a mode. Press “24” to turn on the function that raises the set temperature by 4 degrees during heat operation. Direct the IR wireless remote controller toward the sensor of the indoor unit and press the h button.
→ The sensor-operation indicator will blink and beeps will be heard to indicate the current setting number.

Current setting number:	1 = 1 beep (one second)
	2 = 2 beeps (one second each)
	3 = 3 beeps (one second each)

Notes:
1. If a mode number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the mode number.
2. If the signal was not received by the sensor, you will not hear a beep or a “double ping sound” may be heard. Reenter the mode number.

⑤ Select the setting number.
Press the TEMP button to select the setting number. (02: Not available)
Direct the IR wireless remote controller toward the receiver of the indoor unit and press the h button.
→ The sensor-operation indicator will blink and beeps will be heard to indicate the setting number.

Setting number:	1 = 2 beeps (0.4 seconds each)
	2 = 2 beeps (0.4 seconds each, repeated twice)
	3 = 2 beeps (0.4 seconds each, repeated 3 times)

Notes:
1. If a setting number that cannot be recognized by the unit is entered, the setting will turn back to the original setting.
2. If the signal was not received by the sensor, you will not hear a beep or a “double ping sound” may be heard. Reenter the setting number.

⑥ Repeat steps ④ and ⑤ to make an additional setting without changing unit number.

⑦ Repeat steps ③ to ⑤ to change unit number and make function settings on it.

⑧ Complete the function settings
Press button.

Do not use the wireless remote controller for 30 seconds after completing the function setting.

14-5-3. PAR-SL101A-E

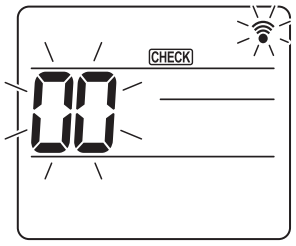


Fig. 1

1. Going to the function select mode
   Press the MENU button for 5 seconds.
   (Start this operation from the status of remote controller display turned off.)
   [CHECK] is lit and "00" blinks. (Fig. 1)
   Press the button to set the "50".
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

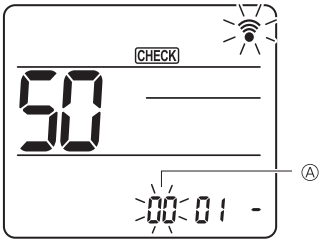


Fig. 2

2. Setting the unit number
   Press the button to set unit number Ⓐ. (Fig. 2)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

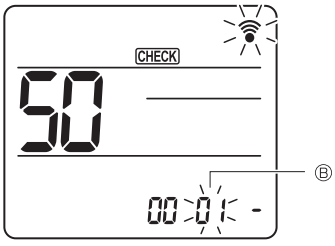


Fig. 3

3. Selecting a mode
   Press the button to set Mode number Ⓑ. (Fig. 3)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.
   Current setting number: 1=1 beep (1 second)
   2=2 beeps (1 second each)
   3=3 beeps (1 second each)

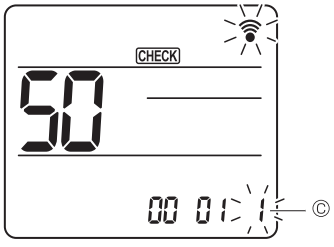


Fig. 4

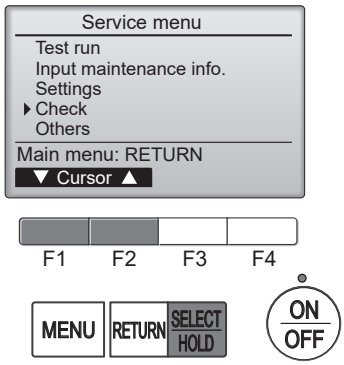
4. Selecting the setting number
   Use the button to change the Setting number Ⓒ. (Fig. 4)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.
5. To select multiple functions continuously
   Repeat select ③ and ④ to change multiple function settings continuously.
6. Complete function selection
   Direct the wireless remote controller toward the sensor of the indoor unit and press the ⏻OFF/ON button.

Note: Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

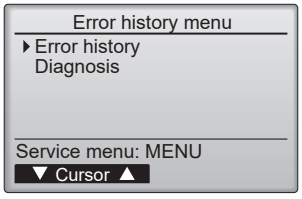
14-6. ERROR HISTORY

1. Select "Service" from the Main menu, and press the [SELECT] button.

Select "Check" with the F1 or F2 button, and press the [SELECT] button.

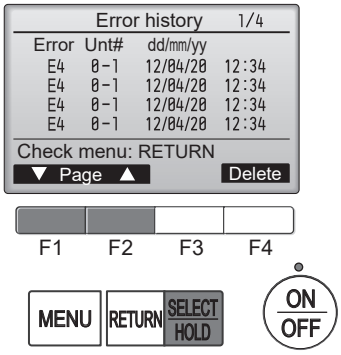


2. Select ˝Error history˝ with the F1 or F2 button, and press the [SELECT] button.



3. 16 error history records will appear.

4 records are shown per page, and the top record on the first page indicates the latest error record.



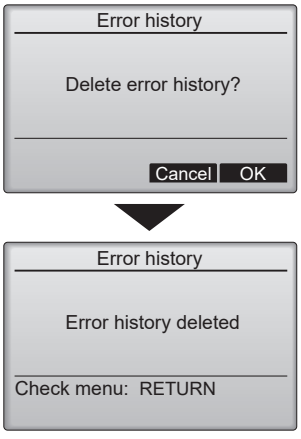
4. Deleting the error history

To delete the error history, press the F4 button (Delete) on the screen that shows error history.
A confirmation screen will appear asking if you want to delete the error history.

Press the F4 button (OK) to delete the history.

"Error history deleted" will appear on the screen.

Press the [RETURN] button to go back to the Check menu screen.



14-7. SELF-DIAGNOSIS

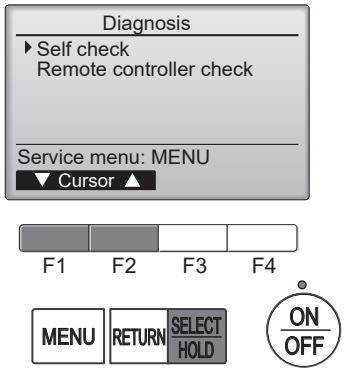
14-7-1. PAR-41MAA

1. Select "Service" from the Main menu, and press the [SELECT] button.

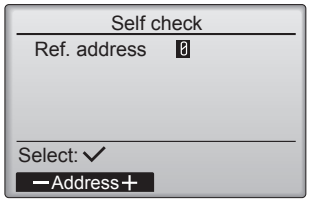
   Select "Check" from the Service menu, and press the [SELECT] button.

   Select "Diagnosis" from the Check menu, and press the [SELECT] button.

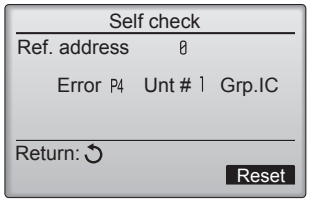
   Select "Self check" with the F1 or F2 button, and press the [SELECT] button.



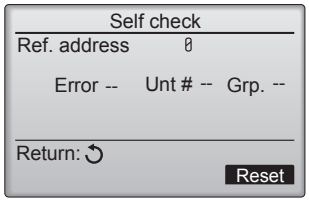
2. With the F1 or F2 button, enter the refrigerant address, and press the [SELECT] button.



3. Error code, unit number, attribute will appear.
   "-" will appear if no error history is available.



When there is no error history



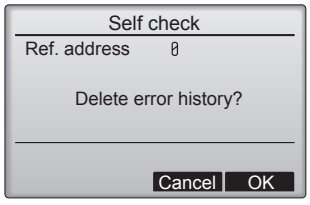
4. Resetting the error history

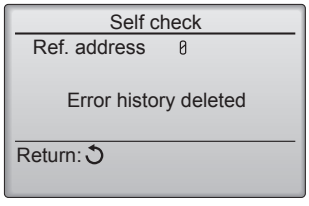
   Press the F4 button (Reset) on the screen that shows the error history.

   A confirmation screen will appear asking if you want to delete the error history.

   Press the F4 button (OK) to delete the error history.

   If deletion fails, "Request rejected" will appear.
   "Unit not exist" will appear if no indoor units that are correspond to the entered address are found.





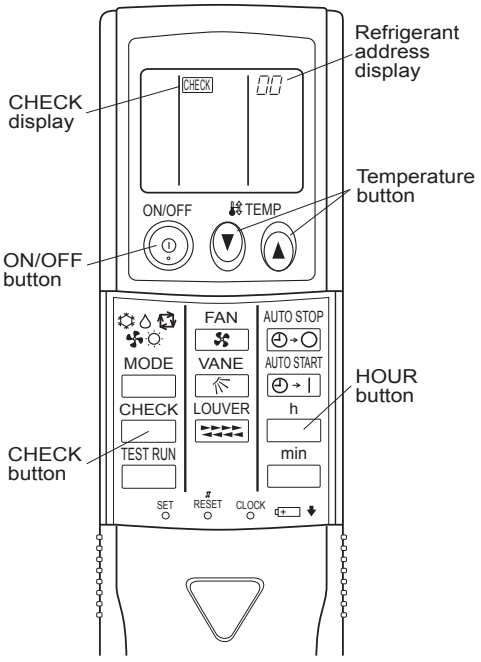
Navigating through the screens

- To go back to the Service menu ..... [MENU] button
- To return to the previous screen..... [RETURN] button

14-7-2. PAR-FL32MA

When a malfunction occurs to air conditioner, both indoor unit and outdoor unit will stop and operation lamp blinks to inform unusual stop.

<Malfunction-diagnosis method at maintenance service>



[Procedure]

1. Press the CHECK button twice.
   - "CHECK" lights, and refrigerant address "00" blinks.
   - Check that the remote controller's display has stopped before continuing.

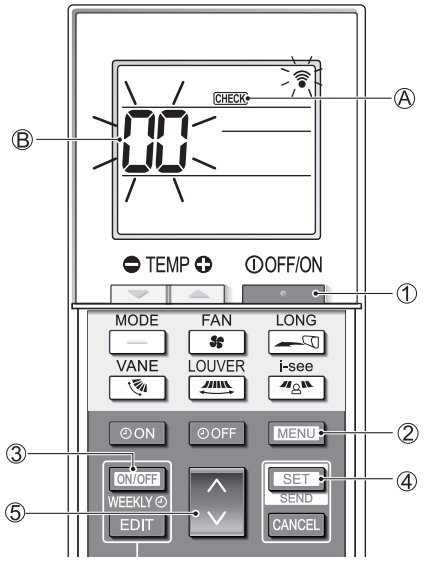
2. Press the TEMP ▼ ▲ buttons.
   - Select the refrigerant address of the indoor unit for the self-diagnosis.

   Note: Set refrigerant address using the outdoor unit's DIP switch (SW1). (For more information, see the outdoor unit installation manual.)

3. Point the remote controller at the sensor on the indoor unit and press the HOUR button.
   - If an air conditioner error occurs, the indoor unit's sensor emits an intermittent buzzer sound, the operation light blinks, and the error code is output.

4. Point the remote controller at the sensor on the indoor unit and press the ON/OFF button.
   - The check mode is cancelled.

13-7-3. PAR-SL101A-E



[Procedure]

1. Press the button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the ON/OFF WEEKLY button ③ to disable it (WEEKLY is off).

2. Press the MENU button ② for 5 seconds.
   - CHECK Ⓐ comes on and the unit enters the self-check mode.

3. Press the button ⑤ to select the refrigerant address (M-NET address) Ⓑ of the indoor unit for which you want to perform the self-check.

4. Press the SET button ④.
   - If an error is detected, the check code is indicated by the number of beeps from the indoor unit and the number of blinks of the OPERATION INDICATOR lamp.

5. Press the button ①.
   - CHECK Ⓐ and the refrigerant address (M-NET address) Ⓑ go off and the self-check is completed.

14-8. REMOTE CONTROLLER CHECK

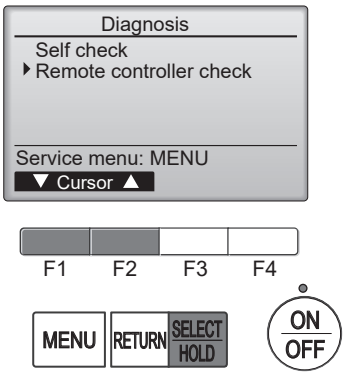
If operations cannot be completed with the remote controller, diagnose the remote controller with this function.

1. Select "Service" from the Main menu, and press the [SELECT] button.

   Select "Check" from the Service menu, and press the [SELECT] button.

   Select "Diagnosis" from the Check menu, and press the [SELECT] button.

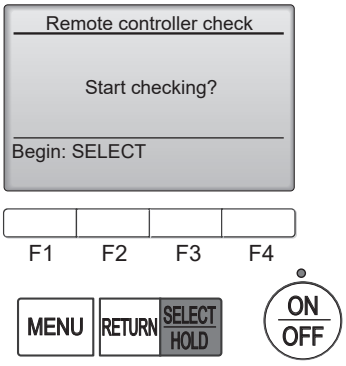
   Select "Remote controller check" with the F1 or F2 button, and press the [SELECT] button.



2. Select "Remote controller check" from the Diagnosis menu, and press the [SELECT] button to start the remote controller check and see the check results.

   To cancel the remote controller check and exit the "Remote controller check" menu screen, press the [MENU] or the [RETURN] button.

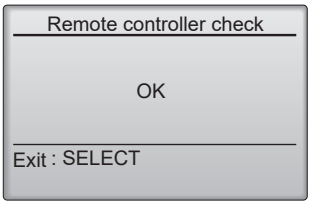
   The remote controller will not reboot itself.



3.

OK:	No problems are found with the remote controller. Check other parts for problems.
E3, 6832:	There is noise on the transmission line, or the indoor unit or another remote controller is faulty. Check the transmission line and the other remote controllers.
NG (ALL0, ALL1):	Send-receive circuit fault. The remote controller needs replacing.
ERC:	The number of data errors is the discrepancy between the number of bits in the data transmitted from the remote controller and that of the data that was actually transmitted over the transmission line. If data errors are found, check the transmission line for external noise interference.

Remote controller check results screen



If the [SELECT] button is pressed after the remote controller check results are displayed, remote controller check will end, and the remote controller will automatically reboot itself.

Check the remote controller display and see if anything is displayed (including lines). Nothing will appear on the remote controller display if the correct voltage (8.5–12 VDC) is not supplied to the remote controller. If this is the case, check the remote controller wiring and indoor units.

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Issued: Jan. 2025 No.OCH879A
Published : Nov. 2024 No.OCH879
Made in Japan

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