MITSUBISHI ELECTRIC

SPLIT-TYPE AIR CONDITIONERS

Revision A:
- some description has been modified.

TBH238 is void.

INDOOR UNIT

No. TBH238
REVISED EDITION-A

SERVICE MANUAL

Models

MSZ-EX09NLW - U1
MSZ-EX12NLW - U1
MSZ-EX15NLW - U1
MSZ-EX18NLW - U1
MSZ-EX09NLB - U1
MSZ-EX12NLB - U1
MSZ-EX15NLB - U1
MSZ-EX18NLB - U1
MSZ-EX09NLS - U1
MSZ-EX12NLS - U1
MSZ-EX15NLS - U1
MSZ-EX18NLS - U1

Outdoor unit service manual
MXZ- •D•NL Series (OBH949A)
MXZ- •D•NLHZ Series (OBH949A)

CONTENTS

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.

<Preparation before the repair service>

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

<Precautions during the repair service>

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

⚠ WARNING

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

Revision A:

- some description has been modified.

1 TECHNICAL CHANGES

MSZ-EX09NLW - U1 **MSZ-EX12NLW - U1** **MSZ-EX15NLW - U1** **MSZ-EX18NLW - U1**
MSZ-EX09NLB - U1 **MSZ-EX12NLB - U1** **MSZ-EX15NLB - U1** **MSZ-EX18NLB - U1**
MSZ-EX09NLS - U1 **MSZ-EX12NLS - U1** **MSZ-EX15NLS - U1** **MSZ-EX18NLS - U1**

1. New model

2 SERVICING PRECAUTIONS FOR UNITS USING REFRIGERANT R454B

Servicing precautions for units using refrigerant R454B

A2L **WARNING**

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

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.
- Pipe-work shall be protected from physical damage.
- The installation of pipe-work shall be kept to a minimum.
- Compliance with national gas regulations shall be observed.
- Mechanical connections shall be accessible for maintenance purposes.
- Keep any required ventilation openings clear of obstruction.
- Servicing shall be performed only as recommended by the manufacturer.
- Units should be installed stably so that the refrigerant piping does not vibrate or pulsate.
- Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
- Provision shall be made for expansion and contraction of long runs of piping.
- Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.
- Electrical components that can arc or spark, which are not considered ignition sources shall only be replaced with parts specified by the appliance manufacturer. Replacement with other parts may result in the ignition of refrigerant in the event of a leak;.
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- Maintenance, service and repair operations shall be performed by authorized technician with required qualification.

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 Checks on the Area
Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized.

② Work Procedure
Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

③ General Work Area
All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

④ Checking for Presence of Refrigerant
The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

⑤ Presence of Fire Extinguisher
If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

⑥ No Ignition Sources
No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installa tion, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

⑦ Ventilated Area
Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

⑧ Checks on the Refrigeration Equipment
Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants:
- The charge size is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being cor roded.

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 compro mise 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 nec essary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
Initial safety checks shall include that:
- capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- no live electrical components and wiring are exposed while charging, recovering or purging the system;
- there is continuity of earth bonding

2. Sealed Electrical Components
Sealed electrical components shall not be repaired.

3. Cabling
Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

4. Detection of Flammable Refrigerants
   Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

5. Leak Detection Methods
   Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need 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 suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
   If a leak is suspected, all naked flames shall be removed/extinguished.
   If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. For appliances containing flammable refrigerants, oxygen free nitrogen (OFN) shall then be purged through the sys tem both before and during the brazing process.

6. Refrigerant Removal and Circuit Evacuation
   When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refriger-ants it is important that best practice is 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 (optional for A2L);
   • evacuate (optional for A2L);
   • continuously flush with inert gas when using flame to open circuit;
   • open the circuit.
   The refrigerant charge shall be recovered into the correct recovery cylinders.
   The manufacturer shall specify the inert gases that can be used. Compressed air or oxygen shall not be used for purging refrigerant systems.
   Purging of the refrigerant circuit shall be achieved by breaking the vacuum in the system with inert gas 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. The system shall be vented down to atmospheric pressure to enable work to take place.
   Ensure that the outlet of the vacuum pump is not close to any potential ignition sources and that ventilation is available.

7. Charging Procedures
   In addition to conventional charging procedures, the following requirements shall be followed:
   - Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
   - Cylinders shall be kept upright.
   - Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
   - Label the system when charging is complete (if not already).
   - Extreme care shall be taken not to overfill the refrigeration system.

   Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

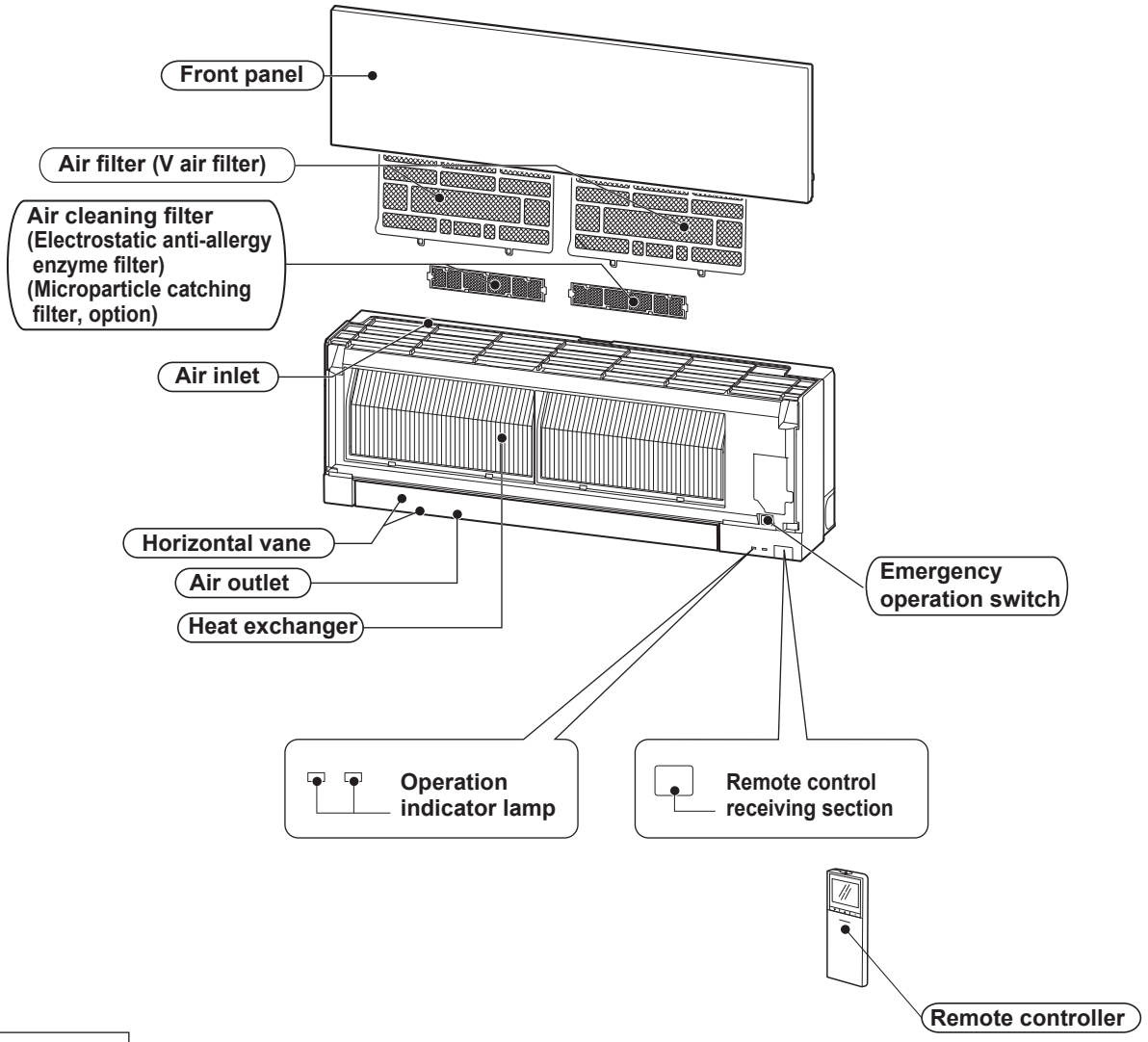
8. Decommissioning
   Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.
   a) Become familiar with the equipment and its operation.
   b) Isolate system electrically.
   c) 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.
   d) Pump down refrigerant system, if possible.
   e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
   f) Make sure that cylinder is situated on the scales before recovery takes place.
   g) Start the recovery machine and operate in accordance with manufacturer's instructions.
   h) Do not overfill cylinders. (no more than 80 % volume liquid charge).
   i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
   j) 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.
   k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

9. Labeling
   Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances contain ing 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 cyl-inders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
    The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recov-ery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refriger ant release. Consult manufacturer if in doubt.
    The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
    If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refriger-ant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

3 PART NAMES AND FUNCTIONS

MSZ-EX09NLW MSZ-EX12NLW MSZ-EX15NLW MSZ-EX18NLW
MSZ-EX09NLB MSZ-EX12NLB MSZ-EX15NLB MSZ-EX18NLB
MSZ-EX09NLS MSZ-EX12NLS MSZ-EX15NLS MSZ-EX18NLS



ACCESSORIES

Model		MSZ-EX09NLW MSZ-EX09NLB MSZ-EX09NLS	MSZ-EX12NLW MSZ-EX12NLB MSZ-EX12NLS	MSZ-EX15NLW MSZ-EX15NLB MSZ-EX15NLS	MSZ-EX18NLW MSZ-EX18NLB MSZ-EX18NLS
①	Installation plate	1			
②	Installation plate fixing screw 4 × 25 mm	5			
③	Remote controller holder	1			
④	Fixing screw for ③ 3.5 × 16 mm (Black)	2			
⑤	Battery (AAA) for remote controller	2			
⑥	Wireless remote controller	1			
⑦	Felt tape (For left or left-rear piping)	1			
⑧	Soft dry cloth (NAB type only)	1			
⑨	Air cleaning filter	2			

4 SPECIFICATION

Indoor unit model			MSZ-EX09NLW MSZ-EX09NLB MSZ-EX09NLS	MSZ-EX12NLW MSZ-EX12NLB MSZ-EX12NLS	MSZ-EX15NLW MSZ-EX15NLB MSZ-EX15NLS	MSZ-EX18NLW MSZ-EX18NLB MSZ-EX18NLS
Power supply	V, phase, Hz		208/230 , 1 , 60			
Disconnect switch		A	15			
Min. circuit ampacity		A	1.0			
Fan motor		F.L.A	0.67			
Airflow Super high - High - Med. - Low - Quiet	COOL Dry (Wet)	CFM	391 - 305 - 228 - 164 - 143 (352 - 274 - 205 - 147 - 128)	391 - 305 - 228 - 164 - 143 (352 - 274 - 205 - 147 - 128)	382 - 330 - 280 - 240 - 208 (344 - 297 - 252 - 216 - 188)	408 - 343 - 288 - 248 - 208 (367 - 309 - 259 - 223 - 188)
	HEAT Dry	CFM	448 - 244 - 205 - 164 - 143	479 - 244 - 205 - 164 - 143	479 - 347 - 284 - 228 - 197	497 - 347 - 313 - 264 - 232
Moisture removal		pt./h	0.6	2.1	3.6	4.4
Sound level Super high - High - Med. - Low - Quiet	Cooling	dB(A)	42 - 36 - 29 - 23 - 21	42 - 36 - 29 - 24 - 21	42 - 39 - 35 - 31 - 28	43 - 40 - 36 - 33 - 30
	Heating	dB(A)	45 - 37 - 29 - 24 - 21	46 - 38 - 30 - 24 - 21	48 - 41 - 35 - 30 - 28	49 - 43 - 37 - 33 - 30
Cond. drain connection O.D.		in.	5/8			
Dimensions	W	in.	34-13/16			
	D		7-11/16			
	H		11-3/4			
Weight		lb.	26			
External finish			W: Munsell 1.0Y 9.2/0.2 B: Munsell 3.7PB 2.0/0.1 S: Munsell 3.1PB 8.2/0.2			
Remote controller			Wireless type			
Control voltage (by built-in transformer)			12 - 24 V DC			

NOTE: Test conditions are based on AHRI 210/240.

4-1. OPERATING RANGE

(1) POWER SUPPLY

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

(2) OPERATION

Mode	Condition	Intake air temperature (°F)			
		Indoor		Outdoor	
		DB	WB	DB	WB
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	90	73	115	—
	Minimum temperature	67	57	14	—
	Maximum humidity	78%		—	
Heating	Standard temperature	70	60	47	43
	Maximum temperature	80	67	75	65
	Minimum temperature	70	60	-13	-14

4-2. OUTLET AIR SPEED AND COVERAGE

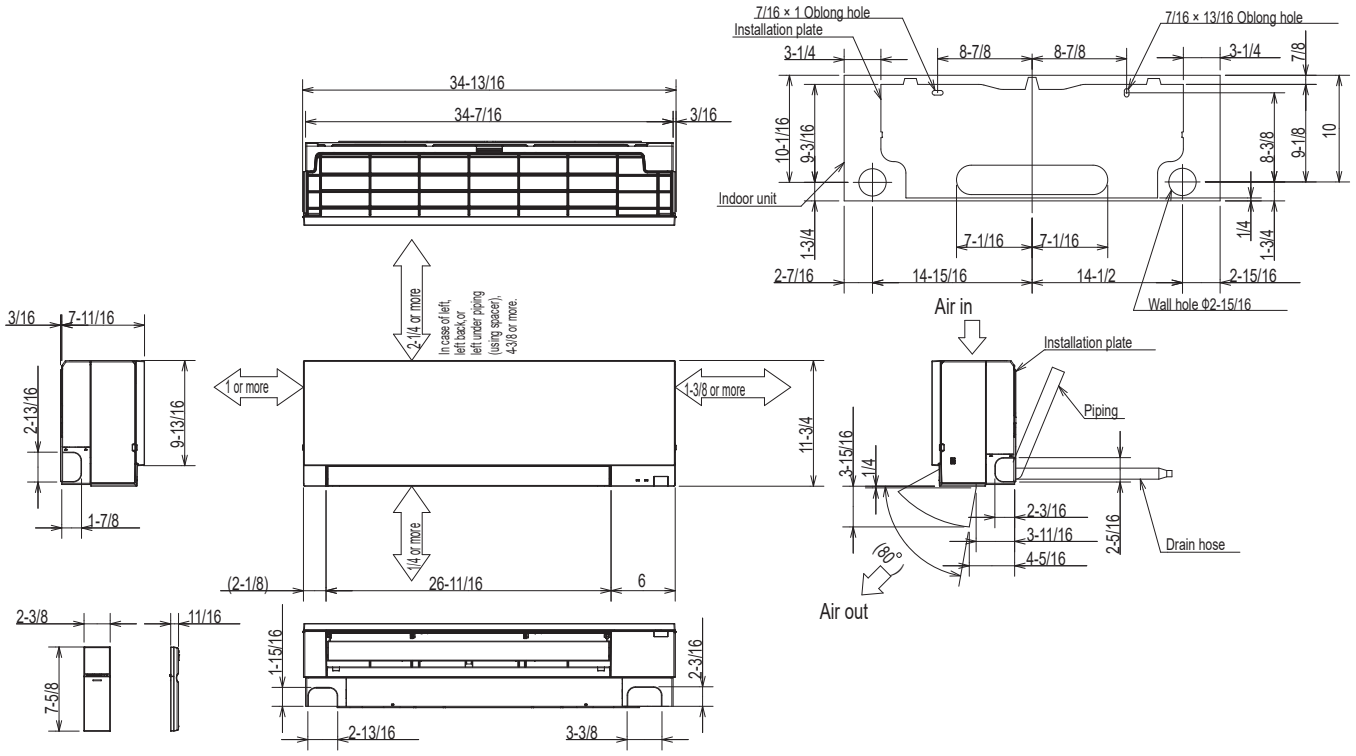
Model	Mode	Function	Airflow (CFM)	Air speed (ft./s)	Coverage (ft.)
MSZ-EX09NLW MSZ-EX09NLB MSZ-EX09NLS	HEAT	Dry	448	20.7	31.0
	COOL	Dry	391	18.1	27.2
		Wet	352	16.3	24.5
MSZ-EX12NLW MSZ-EX12NLB MSZ-EX12NLS	HEAT	Dry	479	22.2	33.1
	COOL	Dry	391	18.1	27.2
		Wet	352	16.3	24.5
MSZ-EX15NLW MSZ-EX15NLB MSZ-EX15NLS	HEAT	Dry	479	22.2	33.1
	COOL	Dry	382	17.7	26.6
		Wet	344	15.9	24.0
MSZ-EX18NLW MSZ-EX18NLB MSZ-EX18NLS	HEAT	Dry	497	23.0	34.3
	COOL	Dry	408	18.9	28.4
		Wet	367	17.0	25.6

- The air coverage is the figure up to the position where the air speed is 1 ft./s, when air is blown out horizontally from the unit properly at the High speed position.
  The coverage should be used only as a general guideline since it varies according to the size of the room and furniture arranged inside the room.

5 OUTLINES AND DIMENSIONS

MSZ-EX09NLW **MSZ-EX12NLW** **MSZ-EX15NLW** **MSZ-EX18NLW**
MSZ-EX09NLB **MSZ-EX12NLB** **MSZ-EX15NLB** **MSZ-EX18NLB**
MSZ-EX09NLS **MSZ-EX12NLS** **MSZ-EX15NLS** **MSZ-EX18NLS**

Unit: inch



MSZ-EX09/12NL

Piping	Insulation	φ1-7/16 O.D
	Liquid line	φ1/4 - 19-11/16 (Flared connection φ1/4)
	Gas line	φ3/8 - 16-15/16 (Flared connection φ3/8)
Drain hose		Insulation φ1-1/8 Connected part φ5/8 O.D active length 15-3/8

Note: Extension pipe size refer to the specifications table.

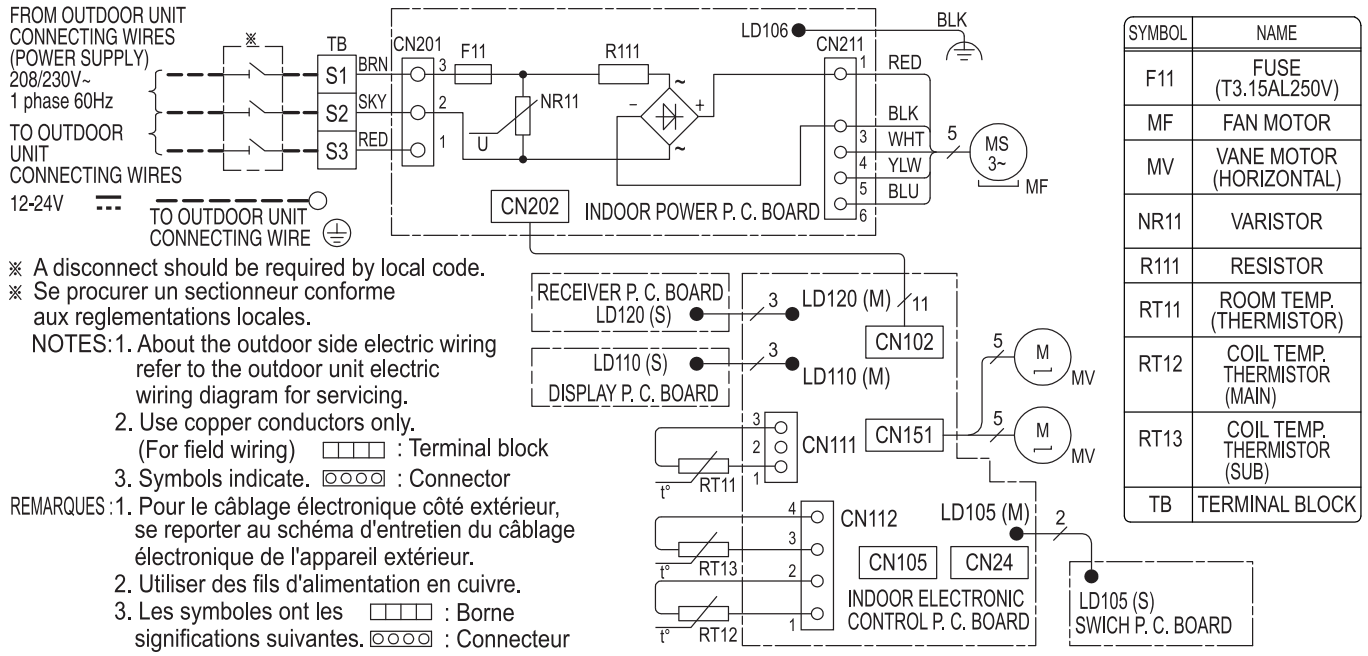
MSZ-EX15/18NL

Piping	Insulation	φ1-7/16 O.D
	Liquid line	φ1/4 - 19-11/16 (Flared connection φ1/4)
	Gas line	φ3/8 - 16-15/16 (Flared connection φ1/2)
Drain hose		Insulation φ1-1/8 Connected part φ5/8 O.D active length 15-3/8

Note: Extension pipe size refer to the specifications table.

6 WIRING DIAGRAM

MSZ-EX09NLW **MSZ-EX12NLW** **MSZ-EX15NLW** **MSZ-EX18NLW**
MSZ-EX09NLB **MSZ-EX12NLB** **MSZ-EX15NLB** **MSZ-EX18NLB**
MSZ-EX09NLS **MSZ-EX12NLS** **MSZ-EX15NLS** **MSZ-EX18NLS**



SYMBOL	NAME
F11	FUSE (T3.15AL250V)
MF	FAN MOTOR
MV	VANE MOTOR (HORIZONTAL)
NR11	VARISTOR
R111	RESISTOR
RT11	ROOM TEMP. (THERMISTOR)
RT12	COIL TEMP. THERMISTOR (MAIN)
RT13	COIL TEMP. THERMISTOR (SUB)
TB	TERMINAL BLOCK

※ A disconnect should be required by local code.
※ Se procurer un sectionneur conforme aux reglementations locales.

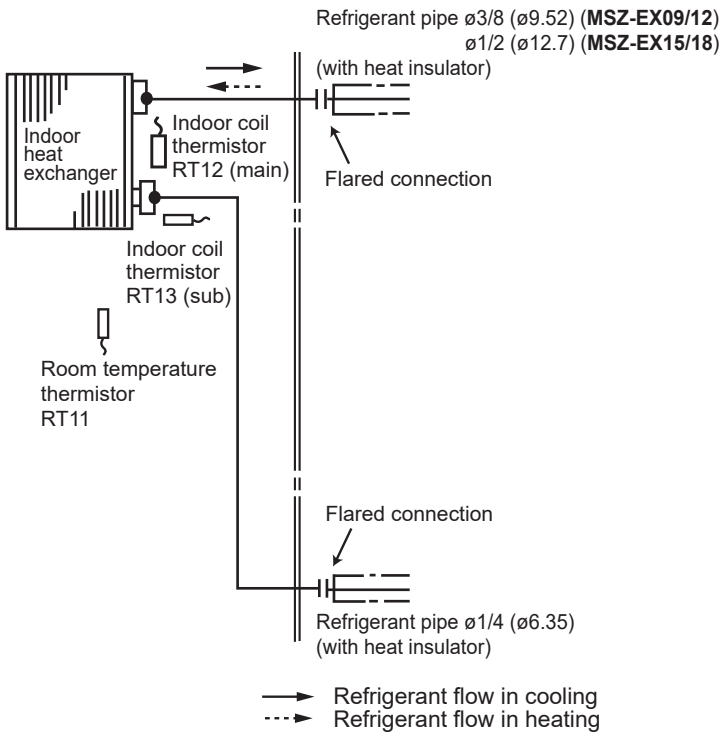
NOTES: 1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only.
(For field wiring) : Terminal block
3. Symbols indicate. : Connector

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

7 REFRIGERANT SYSTEM DIAGRAM

MSZ-EX09NLW	**MSZ-EX12NLW**	**MSZ-EX15NLW**	**MSZ-EX18NLW**
MSZ-EX09NLB	**MSZ-EX12NLB**	**MSZ-EX15NLB**	**MSZ-EX18NLB**
MSZ-EX09NLS	**MSZ-EX12NLS**	**MSZ-EX15NLS**	**MSZ-EX18NLS**

Unit: inch (mm)



8 SERVICE FUNCTIONS

MSZ-EX09NLW	**MSZ-EX12NLW**	**MSZ-EX15NLW**	**MSZ-EX18NLW**
MSZ-EX09NLB	**MSZ-EX12NLB**	**MSZ-EX15NLB**	**MSZ-EX18NLB**
MSZ-EX09NLS	**MSZ-EX12NLS**	**MSZ-EX15NLS**	**MSZ-EX18NLS**

8-1. TIMER SHORT MODE

For service, the following set time can be shortened by bridging JPG and JPS on the electronic control P.C. board. (Refer to 9-7.)

- The set time for the ON/OFF timer can be reduced to 1 second for each minutes.
- After the breaker is turned on, the time for starting the compressor, which normally takes 3 minuets, can be reduced to 3 seconds. Restarting the compressor, which takes 3 minuets, cannot be reduced.

8-2. HOW TO SET REMOTE CONTROLLER EXCLUSIVELY FOR A PARTICULAR INDOOR UNIT

A maximum of 4 indoor units with wireless remote controllers can be used in a room.
To operate the indoor units individually with each remote controller, assign a number to each remote controller according to the number of the indoor unit.

This setting can be set only when all the following conditions are met:

- The remote controller is powered OFF.
- Weekly timer is not set.
- Weekly timer is not being edited.

(1) Hold down [1~4] button on the remote controller for 2 seconds to enter the pairing mode.
(2) Press [1~4] button again and assign a number to each remote controller.
Each press of [1~4] button advances the number in the following order: 1 → 2 → 3 → 4.
(3) Press [EDIT/SEND SET] button to complete the pairing setting.

After you turn the breaker ON, the remote controller that first sends a signal to an indoor unit will be regarded as the remote controller for the indoor unit.
Once they are set, the indoor unit will only receive the signal from the assigned remote controller afterwards.

8-3. AUTO RESTART FUNCTION

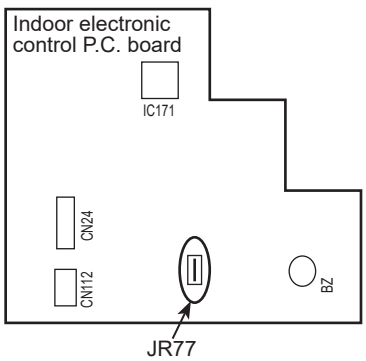
When the indoor unit is controlled with the remote controller, the operation mode, the set temperature, and the fan speed are memorized by the indoor electronic control P.C. board. “AUTO RESTART FUNCTION” automatically starts operation in the same mode just before the shutoff of the main power.

Operation

① If the main power has been cut, the operation settings remain.
② After the power is restored, the unit restarts automatically according to the memory.
(However, it takes at least 3 minutes for the compressor to start running.)

How to disable “AUTO RESTART FUNCTION”

① Turn off the main power for the unit.
② Cut the jumper wire to JR77 on the indoor electronic control P.C. board. (Refer to 9-7.)



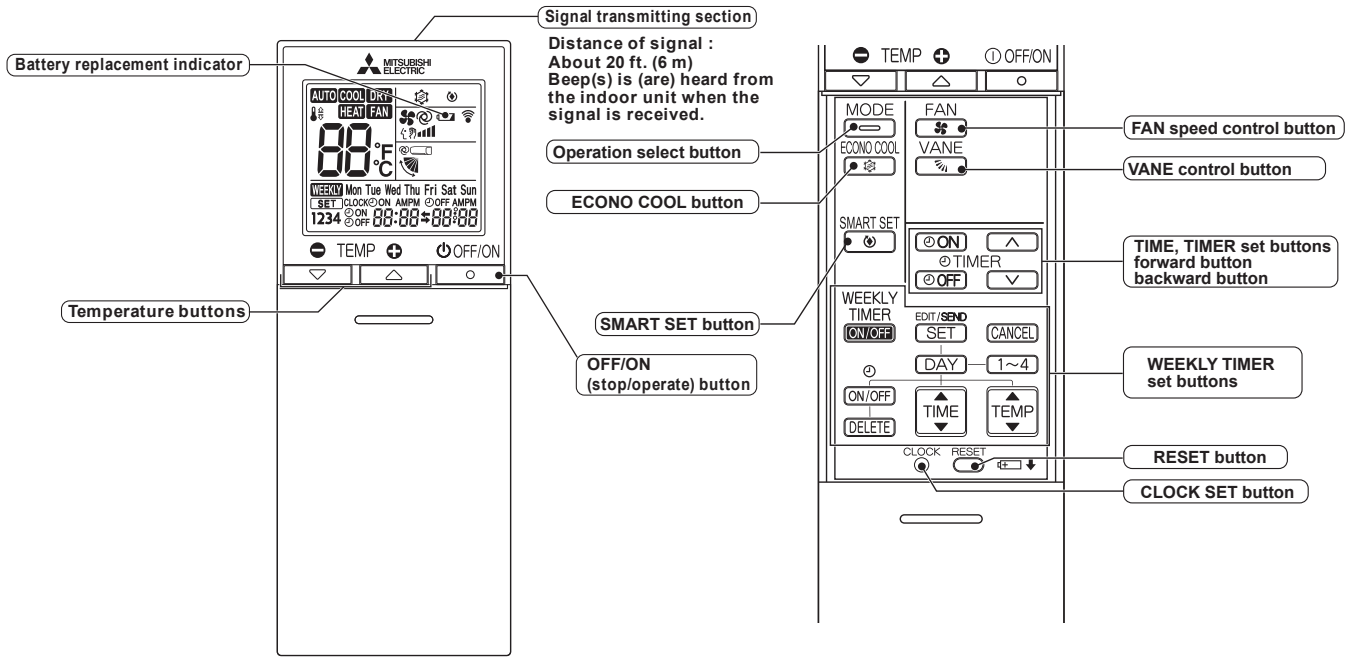
NOTE:

- The operation settings are memorized when 10 seconds have passed after the indoor unit was operated with the remote controller.
- If main power is turned OFF or a power failure occurs while AUTO START/STOP timer is active, the timer setting is cancelled.
- If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is OFF.
- To prevent breaker OFF due to the rush of starting current, systematize other home appliance not to turn ON at the same time.
- When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart.
  Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding to the system that allows the units to start one by one.

9 MICROPROCESSOR CONTROL

MSZ-EX09NLW **MSZ-EX12NLW** **MSZ-EX15NLW** **MSZ-EX18NLW**
MSZ-EX09NLB **MSZ-EX12NLB** **MSZ-EX15NLB** **MSZ-EX18NLB**
MSZ-EX09NLS **MSZ-EX12NLS** **MSZ-EX15NLS** **MSZ-EX18NLS**

WIRELESS REMOTE CONTROLLER



NOTE: Last setting will be stored after the unit is turned OFF with the remote controller. Indoor unit receives the signal of the remote controller with beeps.

INDOOR UNIT DISPLAY SECTION

Operation Indicator lamp

The operation indicator at the right side of the indoor unit indicates the operation state.

• The following indication applies regardless of shape of the indication.

Indication	Operation state	Room temperature
☀ ☀	The unit is operating to reach the set temperature	About 4°F (2°C) or more away from set temperature
☀ ○	The room temperature is approaching the set temperature	About 2 to 4°F (1 to 2°C) from set temperature
☀ ☼	Standby mode (Only during multi system operation)	—

☀ Lit
☼ Blinking
○ Not lit

9-1. COOL (☼) OPERATION

(1) Press OFF/ON (stop/operate) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select COOL mode with Operation select button.
(3) Press Temperature buttons TEMP ⊖ or ⊕ button to select the desired temperature.
The setting range is 61 - 88°F (16 - 31°C).

1. Coil frost prevention

The compressor operational frequency is controlled by the temperature of the indoor heat exchanger to prevent the coil from frosting.
When the temperature of indoor heat exchanger becomes too low, the coil frost prevention mode works.
The indoor fan operates at the set speed and the compressor stops. This mode continues until the temperature of indoor heat exchanger rises.

2. Low outside temperature operation

When the outside temperature is lower, low outside temperature operation starts, and the outdoor fan slows or stops.

3. Indoor fan speed control

When the thermostat turns OFF, the indoor fan operates very Low to reduce power consumption.
When the room temperature rises and the thermostat is ON, the indoor fan operates according to the settings on the remote controller.

9-2. DRY (△) OPERATION

(1) Press OFF/ON (stop/operate) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select DRY mode with Operation select button.
(3) The set temperature is determined from the initial room temperature.

1. Coil frost prevention

Coil frost prevention works the same way as that in COOL mode. (8-1.1.)

2. Low outside temperature operation

Low outside temperature operation works the same way as that in COOL mode. (8-1.2.)

3. Indoor fan speed control

Indoor fan speed control works the same way as that in COOL mode. (8-1.3.)

9-3. FAN (✾) OPERATION

(1) OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select FAN mode with Operation select button.
(3) Select the desired fan speed. When AUTO, it becomes Low.
Only indoor fan operates.
Outdoor unit does not operate.

9-4. HEAT (☼) OPERATION

(1) Press OFF/ON (stop/operate) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select HEAT mode with Operation select button.
(3) Press Temperature buttons TEMP ⊖ or ⊕ button to select the desired temperature.
The setting range is 50 - 88°F (10 - 31°C).

1. Cold air prevention control

When the compressor is not operating or is starting, and the temperature of indoor heat exchanger and/or the room temperature is low or when defrosting is being done, the indoor fan will stop or rotate in Very Low speed.

2. High pressure protection

The compressor operational frequency is controlled by the temperature of the indoor heat exchanger to prevent the condensing pressure from increasing excessively.
When the temperature of indoor heat exchanger becomes too high, the high pressure protection works.
The indoor fan operates following the cold air prevention control. This mode continues until the temperature of indoor heat exchanger falls.

3. Defrosting

Defrosting starts when the temperature of outdoor heat exchanger becomes too low.
The compressor stops once, the indoor/outdoor fans stop, the 4-way valve reverses, and the compressor re-starts.
This mode continues until the temperature of outdoor heat exchanger rises or the fixed time passes.

9-5. AUTO CHANGE OVER ··· AUTO MODE OPERATION

Once desired temperature is set, unit operation is switched automatically between COOL and HEAT operation.

Mode selection

(1) Initial mode

When unit starts the operation with AUTO operation from OFF:

- If the room temperature is higher than the set temperature, operation starts in COOL mode.
- If the room temperature is equal to or lower than the set temperature, operation starts in HEAT mode.

(2) Mode change

COOL mode changes to HEAT mode when about 15 minutes have passed with the room temperature 2°F (1°C) below the set temperature.

HEAT mode changes to COOL mode when about 15 minutes have passed with the room temperature 2°F (1°C) above the set temperature.

NOTE 1

If two or more indoor units are operating in multi system, there might be a case that the indoor unit, which is operating in ⮔ (AUTO), cannot change over to the other operating mode (COOL ↔ HEAT) and becomes a state of standby.

Refer to **NOTE 2 "FOR MULTI SYSTEM AIR CONDITIONER"**.

NOTE 2

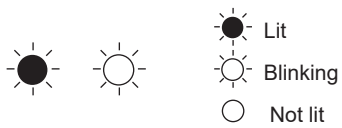
FOR MULTI SYSTEM AIR CONDITIONER

OUTDOOR UNIT: MXZ series

Multi system air conditioner can connect two or more indoor units with one outdoor unit.

- When you try to operate 2 or more indoor units with one outdoor unit simultaneously, one for the cooling and the others for heating, the operation mode of the indoor unit that operates first is selected. Other indoor units cannot operate, and operation indicator lamp blinks as shown in the figure below. In this case, please set all the indoor units to the same operation mode.

OPERATION INDICATOR



- When indoor unit starts the operation while the defrosting of outdoor unit is being done, it takes a few minutes (max. 10 minutes) to blow out the warm air.
- In the heating operation, though indoor unit that does not operate may get warm or the sound of refrigerant flowing may be heard, they are not malfunction. The reason is that the refrigerant continuously flows into it.

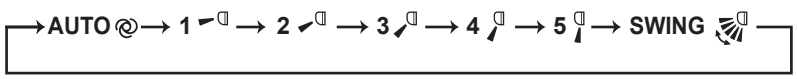
9-6. AUTO VANE OPERATION

1. Horizontal vane

(1) Vane motor drive

These models are equipped with a stepping motors for the horizontal vanes. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approximately 12 V) transmitted from indoor microprocessor.

(2) The horizontal vane angle and mode change as follows by pressing VANE control button.



(3) Positioning

To confirm the standard position, the vane move until it touches the vane stopper. Then the vane is set to the selected angle.

Confirming of standard position is performed in the following cases:

(a) When the operation starts or finishes (including timer operation).

(b) When the test run starts.

(c) When standby mode (only during multi system operation) starts or finishes.

(4) VANE AUTO (@) mode

In VANE AUTO mode, the microprocessor automatically determines the vane angle to make the optimum room temperature distribution.

In COOL and DRY operation
Vane angle is fixed to Horizontal position.

In HEAT operation
Vane angle is fixed to Angle 4.

(5) STOP (operation OFF) and ON TIMER standby

In the following cases, the horizontal vane returns to the closed position.

(a) When OFF/ON (stop/operate) button is pressed (POWER OFF).
(b) When the operation is stopped by the emergency operation.
(c) When ON TIMER is ON standby.

(6) Dew prevention

During COOL or DRY operation with the vane angle at Angle 4 or 5 when the compressor cumulative operation time exceeds 1 hour, the vane angle automatically changes to Angle 3 for dew prevention.

(7) SWING ( ) mode

By selecting SWING mode with VANE control button, the horizontal vanes swing vertically.
When COOL, DRY or FAN mode is selected, only the upper vane swings.

(8) Cold air prevention in HEAT operation

The horizontal vane position is set to upward.

NOTE: When 2 or more indoor units are operated with multi outdoor unit, even if any indoor unit turns thermostat off, this control does not work in the indoor unit.

(9) ECONO COOL ( ) operation (ECONOmical operation)

When ECONO COOL button is pressed in COOL mode, set temperature is automatically set 4°F (2°C) higher by the microprocessor. However, the temperature on the LCD screen on the remote controller is not changed. Also the horizontal vane swings in various cycle.

SWING operation makes you feel cooler than set temperature. So, even though the set temperature is higher, the air conditioner can keep comfort. As a result, energy can be saved.

To cancel this operation, select a different mode or press one of the following buttons in ECONO COOL operation: ECONO COOL or VANE control button.

9-7. TIMER OPERATION

1. How to set the time

(1) Check that the current time is set correctly.

NOTE: Timer operation will not work without setting the current time. Initially “12:00 AM” blinks at the current time display of TIME MONITOR, so set the current time correctly with CLOCK button.

How to set the current time

(a) Press the CLOCK button.

(b) Press the TIME SET buttons (∧ and ∨) to set the current time.

- Each time forward button (∧) is pressed, the set time increases by 1 minute, and each time backward button (∨) is pressed, the set time decreases by 1 minute.
- Pressing those buttons longer, the set time increases/decreases by 10 minutes.

(c) Press the CLOCK set button.

(2) Press OFF/ON (stop/operate) button to start the air conditioner.

(3) Set the time of timer.

ON timer setting

(a) Press ON TIMER button(ON) during operation.

(b) Set the time of the timer using TIME SET buttons (∧ and ∨). *

OFF timer setting

(a) Press OFF TIMER button (OFF) during operation.

(b) Set the time of the timer using TIME SET buttons (∧ and ∨). *

* Each time forward button (∧) is pressed, the set time increases by 10 minutes: each time backward button (∨) is pressed, the set time decreases by 10 minutes.

2. To release the timer

To release ON timer, press ON TIMER button (ON).

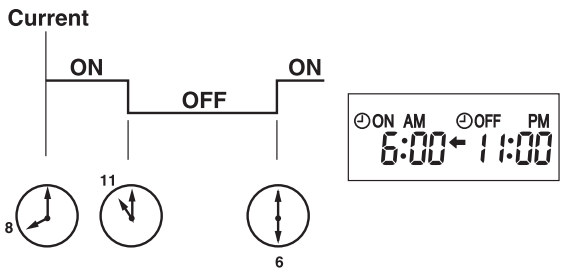
To release OFF timer, press OFF TIMER button(OFF).

TIMER is cancelled and the display of set time disappears.

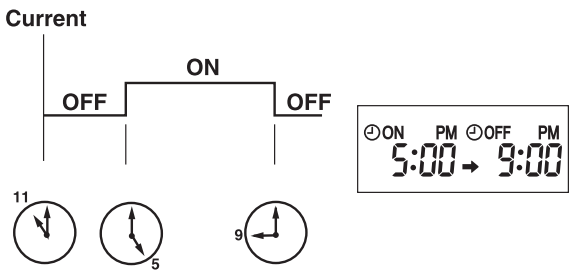
PROGRAM TIMER

- OFF timer and ON timer can be used in combination. The set time that is reached first will operate first.
- “➡” and “⬅” display shows the order of OFF timer and ON timer operation.

(Example 1) The current time is 8:00 PM.
The unit turns off at 11:00 PM, and on at 6:00 AM.



(Example 2) The current time is 11:00 AM.
The unit turns on at 5:00 PM, and off at 9:00 PM.

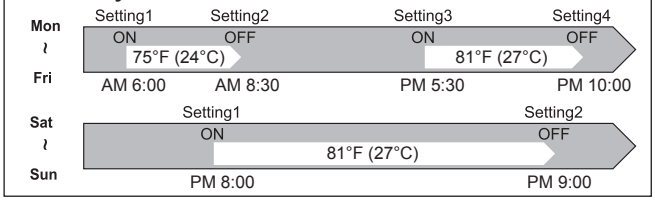


NOTE: If the main power is turned OFF or a power failure occurs while ON/OFF timer is active, the timer setting is cancelled. As these models are equipped with an auto restart function, the air conditioner starts operating with timer cancelled when power is restored.

9-8. WEEKLY TIMER OPERATION

• A maximum of 4 ON or OFF timers can be set for individual days of the week.
• A maximum of 28 ON or OFF timers can be set for a week.

E.g. : Runs at 75°F (24°C) from waking up to leaving home, and runs at 81°F (27°C) from getting home to going to bed on weekdays.
Runs at 81°F (27°C) from waking up late to going bed early on weekends.



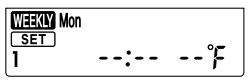
NOTE:

• The simple ON/OFF timer setting is available while the weekly timer is on. In this case, the ON/OFF timer has priority over the weekly timer; the weekly timer operation will start again after the simple ON/OFF timer is complete.
• When the weekly timer is set, temperature can not be set to 50°F (10°C).
• The weekly timer operation and SMART SET operation cannot be used together.

1. How to set the weekly timer

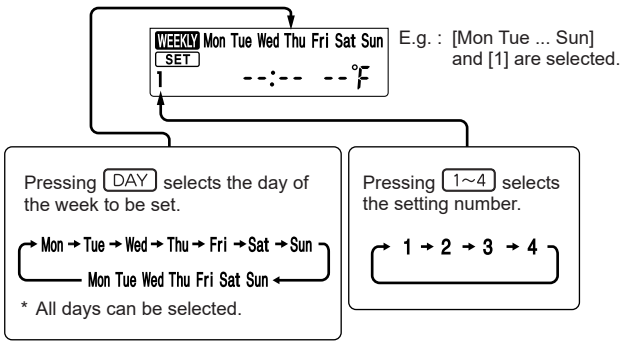
* Make sure that the current time and day are set correctly.

(1) Press [EDIT/SEND SET] button to enter the weekly timer setting mode.

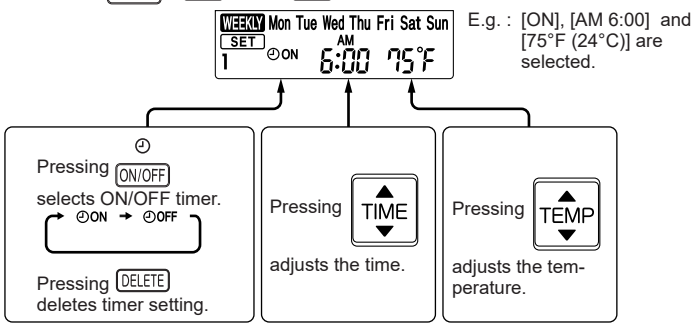


* [SET] blinks.

(2) Press [DAY] and [1~4] buttons to select setting day and number.



(3) Press [ON/OFF], [TIME], and [TEMP] buttons to set ON/OFF, time, and temperature.



* Hold down the button to change the time quickly.
* The temperature can be set between 61°F and 88°F (16°C and 31°C) at weekly timer.

Press [DAY] and [1~4] buttons to continue setting the timer for other days and/or numbers.

(4) Press EDIT/SEND SET button to complete and transmit the weekly timer setting.

* SET which was blinking goes out, and the current time will be displayed.

NOTE:

- Press EDIT/SEND SET button to transmit the setting information of weekly timer to the indoor unit. Point the remote controller toward the indoor unit for 3 seconds.
- When setting the timer for more than one day of the week or one number, EDIT/SEND SET button does not have to be pressed per each setting. Press EDIT/SEND SET button once after all the settings are complete. All the weekly timer settings will be saved.
- Press EDIT/SEND SET button to enter the weekly timer setting mode, and press and hold DELETE button for 5 seconds to erase all weekly timer settings. Point the remote controller toward the indoor unit.

(5) Press WEEKLY TIMER ON/OFF button to turn the weekly timer ON. (WEEKLY lights.)

•When the weekly timer is ON, the day of the week whose timer setting is complete, will light.

Press WEEKLY TIMER ON/OFF button again to turn the weekly timer OFF. (WEEKLY goes out.)

NOTE:
The saved settings will not be cleared when the weekly timer is turned OFF.

2. Checking weekly timer setting

(1) Press EDIT/SEND SET button to enter the weekly timer setting mode.

*SET blinks.

(2) Press DAY or 1~4 buttons to view the setting of the particular day or number.

(3) Press CANCEL button to exit the weekly timer setting.

NOTE:
When all days of the week are selected to view the settings and a different setting is included among them, --:-- --°F will be displayed.

9-9. SMART SET (♨) OPERATION

1. How to set SMART SET operation

(1) Press OFF/ON (stop/operate) button.
(2) Select COOL, HEAT or ECONO COOL mode.
(3) Press SMART SET button.
(4) Set the temperature, fan speed, and airflow direction for SMART SET operation.

NOTE:

- Select the appropriate temperature, fan speed, and airflow direction according to your room.
- SMART SET operation cannot be selected during DRY or AUTO mode operation.
- The setting range of HEAT mode SMART SET operation is 50°F (10°C) and 61 - 88°F (16 - 31°C).
- 2 groups of setting can be saved. (One for COOL/ECONO COOL, one for HEAT)
- SMART SET operation and the weekly timer operation cannot be used together.

2. How to cancel operation

- Press SMART SET button again.
- SMART SET operation can also be cancelled by pressing Operation select button to change the operation mode. The preferred setting can be saved for the next time with a single press of SMART SET button.
- SMART SET operation cannot be set on the weekly timer.

9-10. EMERGENCY/TEST OPERATION

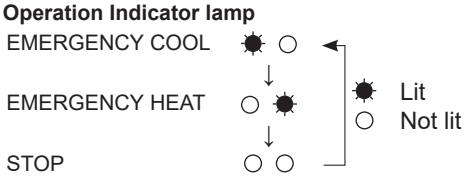
In the case of test run operation or emergency operation, use the emergency operation switch on the right side of the indoor unit. Emergency operation is available when the remote controller is missing or has failed, or when the batteries in the remote controller are running down. The unit will start and OPERATION INDICATOR lamp will light up.
The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan runs at High speed and the temperature control does not work.
After 30 minutes of test run operation, the system shifts to EMERGENCY COOL/HEAT MODE with a set temperature of 75°F (24°C). The fan speed shifts to Med..
The coil frost prevention works even in the test run or the emergency operation.
In the test run or emergency operation, the horizontal vane operates in VANE AUTO (@) mode.
Emergency operation continues until the emergency operation switch is pressed once or twice or the unit receives any signal from the remote controller. In the latter case, normal operation will start.

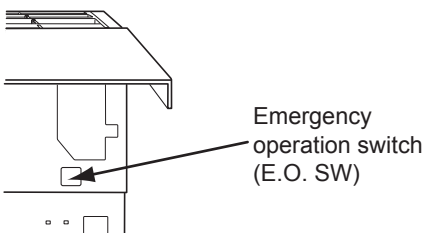
NOTE: Do not press the emergency operation switch during normal operation.

Operation mode	COOL/HEAT
Set temperature	75°F (24°C)
Fan speed	Med.
Horizontal vane	Auto

The operation mode is indicated by the Operation Indicator lamp as follows.

Operation Indicator lamp



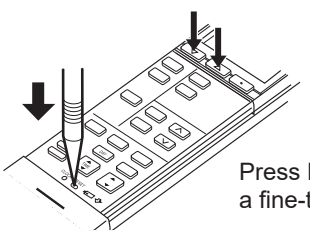


9-11. 3-MINUTE TIME DELAY OPERATION

When the system turns OFF, compressor will not restart for 3 minutes as 3-minute time delay function operates to protect compressor from overload.

9-12. Changing temperature indication (°F/°C)

- The preset unit is °F.
- °F → °C: Press RESET button while the temperature buttons are pressed.
- °C → °F: Press RESET button or remove the batteries .



Press RESET button gently using a fine-tipped object.

10 TROUBLESHOOTING

MSZ-EX09NLW	**MSZ-EX12NLW**	**MSZ-EX15NLW**	**MSZ-EX18NLW**
MSZ-EX09NLB	**MSZ-EX12NLB**	**MSZ-EX15NLB**	**MSZ-EX18NLB**
MSZ-EX09NLS	**MSZ-EX12NLS**	**MSZ-EX15NLS**	**MSZ-EX18NLS**

10-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following

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

2. Take care of the following during servicing

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

<Incorrect> <Correct>

Lead wiring **Connector housing**

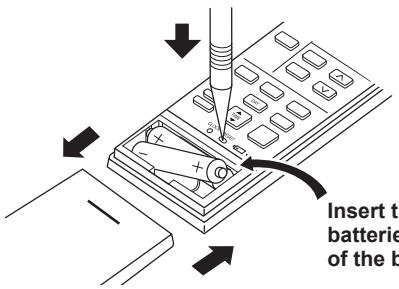
3. Troubleshooting procedure

1) Check if the OPERATION INDICATOR lamp on the indoor unit is blinking ON and OFF to indicate an abnormality. To make sure, check how many times the OPERATION INDICATOR lamp is blinking ON and OFF before starting service work.
2) Before servicing, verify that all connectors and terminals are connected properly.
3) When the electronic control P.C. board seems to be defective, check for disconnection of the copper foil pattern and burnt or discolored components.
4) When troubleshooting, Refer to 9-2, 9-3 and 9-4.

4. How to replace batteries

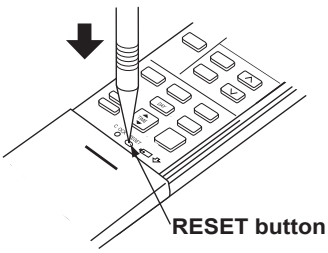
Weak batteries may cause the remote controller malfunction.
In this case, replace the batteries to operate the remote controller normally.

① Remove the front lid and insert batteries. Then reattach the front lid.



Insert the negative pole of the batteries first. Check if the polarity of the batteries is correct.

② Press RESET button with a fine-tipped object, and then use the remote controller.



RESET button

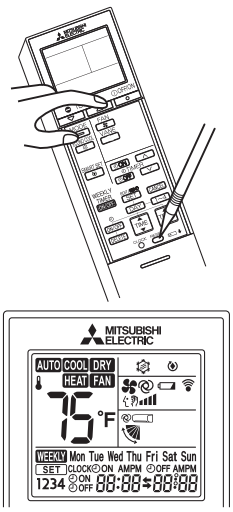
NOTE: 1. If RESET button is not pressed, the remote controller may not operate correctly.
2. This remote controller has a circuit to automatically reset the microprocessor when batteries are replaced. This function is equipped to prevent the microprocessor from malfunctioning due to the voltage drop caused by the battery replacement.
3. Do not use the leaking batteries.

10-2. FAILURE MODE RECALL FUNCTION

Outline of the function

This air conditioner can memorize the abnormal condition which has occurred once.
Even though LED indication listed on the troubleshooting check table (9-4.) disappears, the memorized failure details can be recalled.

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



Operational procedure

The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing both Operation select button and TEMP ⊕ button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other two buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

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

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

Judgment of indoor/outdoor abnormality

Does the left lamp of the OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the left lamp of OPERATION INDICATOR lamp. *2

No (OFF) → Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that cannot be recalled with this way.
Check if outdoor unit is abnormal according to the detailed outdoor unit failure mode recall function.

NOTE: It takes up to 1 minute to indicate the outdoor unit abnormality. Even if the OPERATION INDICATOR lamp is not lighting, keep checking at least 1 minute or longer.

Yes (Blinks)

Before blinking, does the left lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?
When it stays ON for 3 seconds (without beep): The outdoor unit is abnormal.

Yes → The outdoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the table of outdoor unit failure mode recall function. (Refer to outdoor unit service manual.)
Make sure to check at least 2 consecutive blinking cycles. *3

No → The indoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the table of indoor unit failure mode recall function. (Refer to 9-2.2)
Make sure to check at least 2 consecutive blinking cycles. *2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

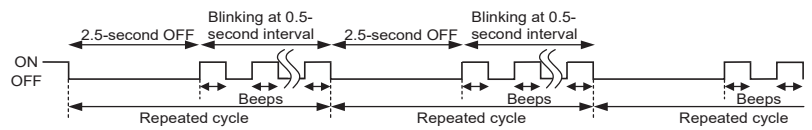
Repair the failure parts.

Deleting the memorized abnormal condition

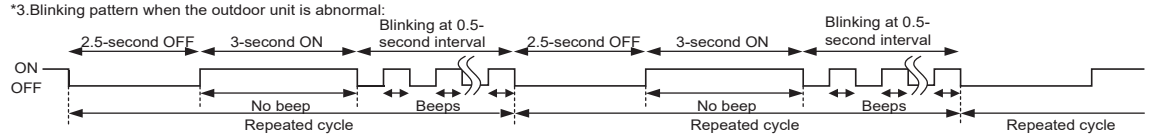
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
② Press OFF/ON (stop/operate) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press the emergency operation switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

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

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



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



2. Table of indoor unit failure mode recall function

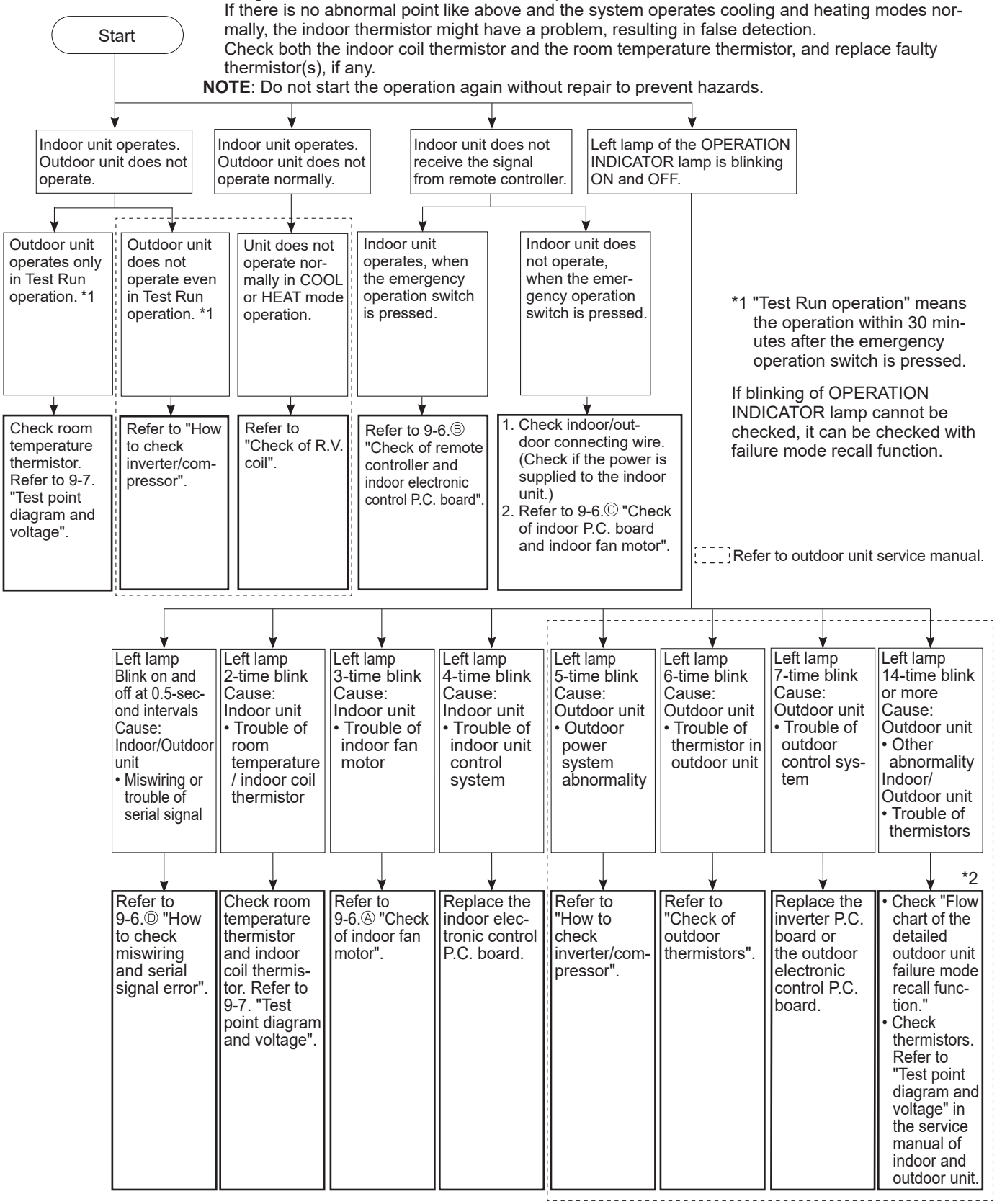
The left lamp of the OPERATION INDICATOR lamp	Abnormal point (Failure mode)	Condition	Remedy
Not lit	Normal	—	—
1-time blink every 0.5-second	Room temperature thermistor	The room temperature thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the room temperature thermistor (9-7.).
2-time blink 2.5-second OFF	Indoor coil thermistor	The indoor coil thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the main indoor coil thermistor, the sub indoor coil thermistor (9-7.).
3-time blink 2.5-second OFF	Serial signal	The serial signal from outdoor unit is not received for a maximum of 6 minutes.	Refer to 9-6.Ⓓ "How to check miswiring and serial signal error".
11-time blink 2.5-second OFF	Indoor fan motor	The rotational frequency feedback signal is not emitted for 12 seconds after the indoor fan motor is operated.	Refer to 9-6.Ⓐ "Check of indoor fan motor".
12-time blink 2.5-second OFF	Indoor control system	It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	Replace the indoor electronic control P.C. board.

NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (9-4.).

10-3. INSTRUCTION OF TROUBLESHOOTING

*2 There is possibility that diesel explosion may occur due to the air mixed in the refrigerant circuit. First, ensure that there are no leakage points on the valves, flare connections, etc. that allow the air to flow into the refrigerant circuit, or no blockage points (e.g. clogged or closed valves) in the refrigerant circuit that cause an increase in pressure.
If there is no abnormal point like above and the system operates cooling and heating modes normally, the indoor thermistor might have a problem, resulting in false detection.
Check both the indoor coil thermistor and the room temperature thermistor, and replace faulty thermistor(s), if any.

NOTE: Do not start the operation again without repair to prevent hazards.



10-4. TROUBLESHOOTING CHECK TABLE

Before taking measures, make sure that the symptom reappears for accurate troubleshooting.
When the indoor unit has started operation and detected an abnormality of the following condition (the first detection after the power ON), the indoor fan motor turns OFF and OPERATION INDICATOR lamp blinks.

• The following indicator applies regardless of shape of the indication.

OPERATION INDICATOR

☼ ○ ● Lit ☼ Blinking ○ Not lit

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Miswiring or serial signal	Left lamp blinks. 0.5-second ON ●○●○●○○ 0.5-second OFF	Indoor unit and outdoor unit do not operate.	The serial signal from the outdoor unit is not received for 6 minutes.	• Refer to 9-6. Ⓓ "How to check miswiring and serial signal error".
2	Indoor coil thermistor Room temperature thermistor	Left lamp blinks. 2-time blink ●○●○○○○○●○●○○ 2.5-second OFF		The indoor coil or the room temperature thermistor is short or open circuit.	• Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor (9-7.).
3	Indoor fan motor	Left lamp blinks. 3-time blink ●○●○●○○○○○●○●○●○○○ 2.5-second OFF		The rotational frequency feedback signal is not emitted during the indoor fan operation.	• Refer to 9-6. Ⓐ "Check of indoor fan motor".
4	Indoor control system	Left lamp blinks. 4-time blink ●○●○●○●○○○○○●○●○●○● 2.5-second OFF		It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	• Replace the indoor electronic control P.C. board.
5	Outdoor power system	Left lamp blinks. 5-time blink ●○●○●○●○●○○○○○●○●○ 2.5-second OFF		It consecutively occurs 3 times that the compressor stops for overcurrent protection or start-up failure protection within 1 minute after start-up.	• Refer to "How to check of inverter/compressor". Refer to outdoor unit service manual • Check the stop valve.
6	Outdoor thermistors	Left lamp blinks. 6-time blink ●○●○●○●○●○●○○○○○●○ 2.5-second OFF		The outdoor thermistors short or open circuit during the compressor operation.	• Refer to "Check of outdoor thermistor". Refer to outdoor unit service manual.
7	Outdoor control system	Left lamp blinks. 7-time blink ●○●○●○●○●○●○●○○○○○● 2.5-second OFF		It cannot properly read data in the nonvolatile memory of the inverter P.C. board or the outdoor electronic control P.C. board.	• Replace the inverter P.C. board or the outdoor electronic control P.C. board. Refer to outdoor unit service manual.
8	Other abnormality *2 on 9-3	Left lamp blinks. 14-time blink or more ●○●○●○●○●○●○●○●○●○●○●○● ○●○●○●○○○○○● 2.5-second OFF		An abnormality other than the above is detected. An abnormality of the indoor thermistors, the defrost thermistor or ambient temperature thermistor is detected.	• Check the stop valve. • Check the 4-way valve. • Confirm the abnormality in detail using the failure mode recall function for outdoor unit. • Refer to "TEST POINT DIAGRAM AND VOLTAGE" on the service manual of indoor and outdoor unit for the characteristics of the thermistors. (Do not start the operation again without repair to prevent hazards.)
9	Outdoor control system	Left lamp lights up. ●	Outdoor unit does not operate.	It cannot properly read data in the nonvolatile memory of the inverter P.C. board or the outdoor electronic control P.C. board.	• Check the blinking pattern of the LED on the inverter P.C. board or the outdoor electronic control P.C. board.

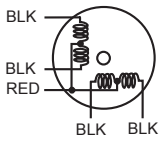
OPERATION INDICATOR

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	**MXZ type** Operation mode setting	Left lamp lights and lower lamp blinks.  2.5-second OFF	Outdoor unit operates but indoor unit does not operate.	The operation mode of the each indoor unit is differently set to COOL (includes DRY) and HEAT at the same time, the operation mode of the indoor unit that has operated at first has the priority.	• Unify the operation mode. Refer to outdoor unit service manual.

10-5. TROUBLESHOOTING CRITERION OF MAIN PARTS

MSZ-EX09NLW MSZ-EX12NLW MSZ-EX15NLW MSZ-EX18NLW
MSZ-EX09NLB MSZ-EX12NLB MSZ-EX15NLB MSZ-EX18NLB
MSZ-EX09NLS MSZ-EX12NLS MSZ-EX15NLS MSZ-EX18NLS

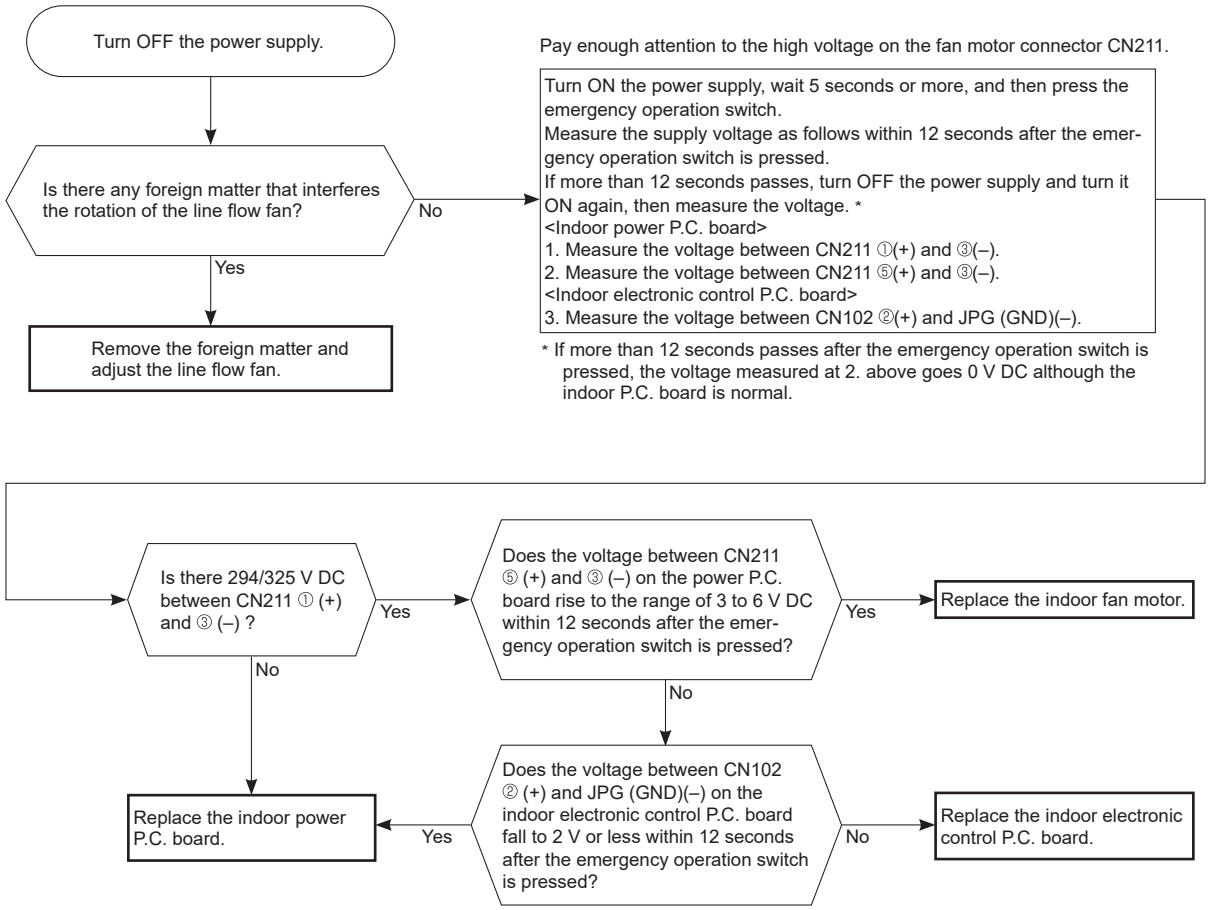
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Room temperature thermistor (RT11)
Indoor coil thermistor (RT12, RT13)</td><td>Measure the resistance with a multimeter.

Refer to 9-7. "Test point diagram and voltage", "Indoor electronic control P.C. board", for the chart of thermistor.</td><td></td></tr>
<tr><td>Indoor fan motor (MF)</td><td>Check 9-6.Ⓐ "Check of indoor fan motor".</td><td></td></tr>
<tr><td>Vane motor (MV)</td><td>Measure the resistance between the terminals with a multimeter.
(Temperature: 50 - 86°F (10 - 30°C))
<table><tr><th>Color of the lead wire</th><th>Normal</th></tr><tr><td>RED - BLK</td><td>232 - 268 Ω</td></tr></table></td><td>  </td></tr>
</table>

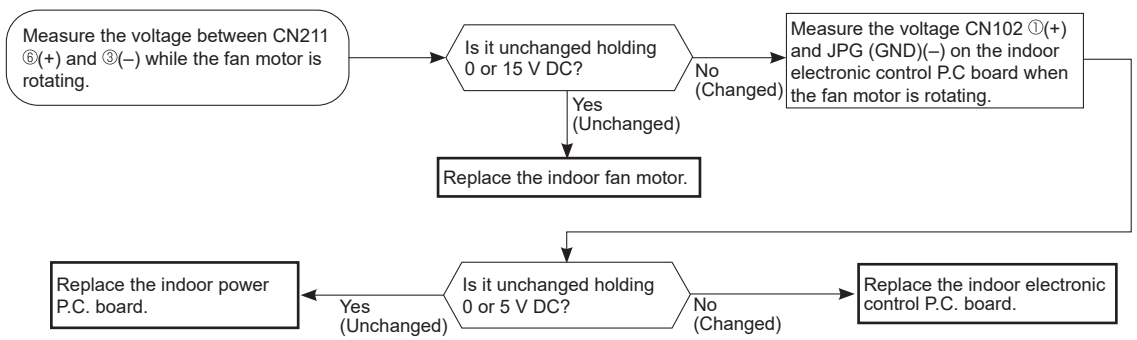
10-6. TROUBLESHOOTING FLOW

Ⓐ Check of indoor fan motor

The indoor fan motor error has occurred, and the indoor fan does not operate.

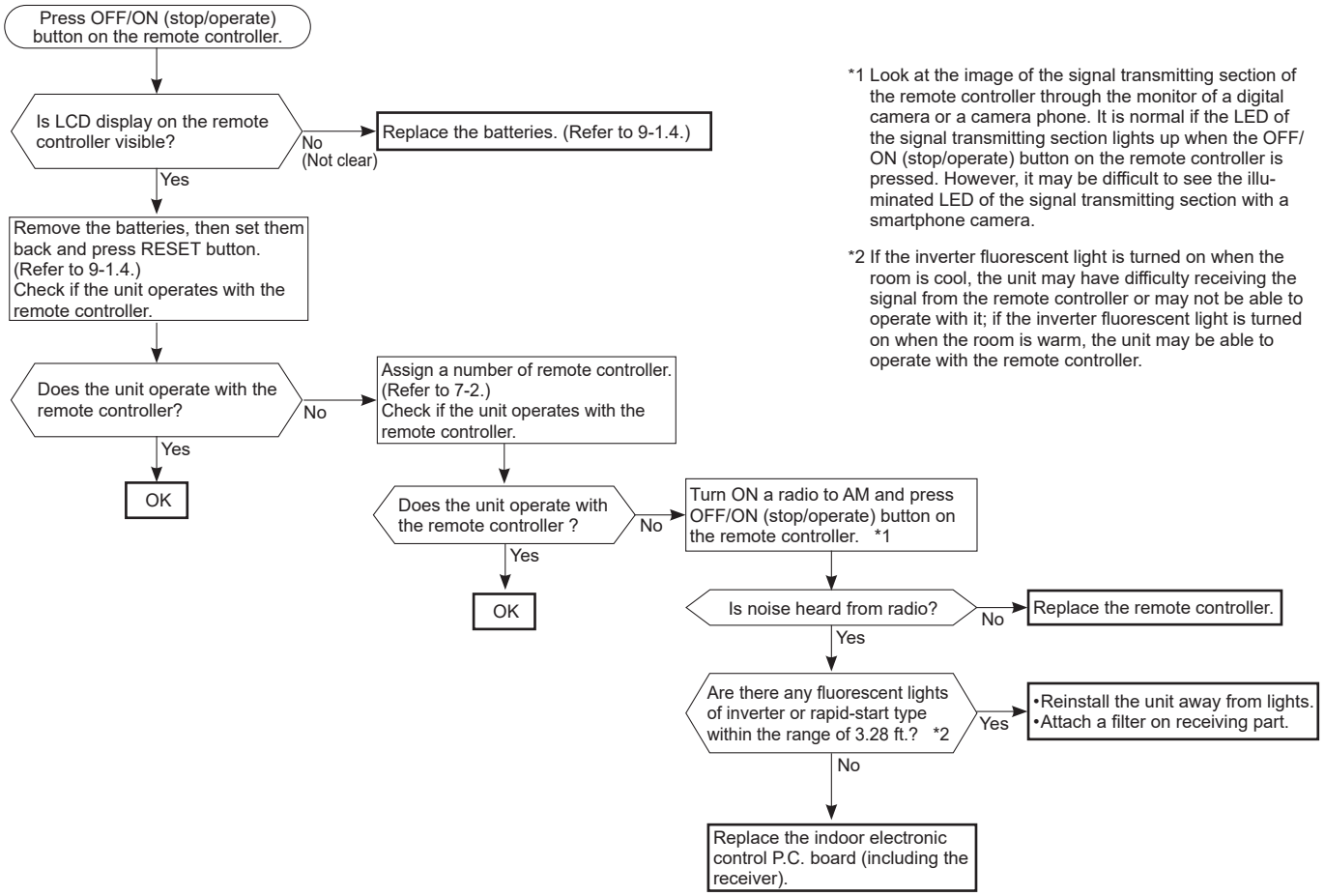


The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.



Ⓑ Check of remote controller and indoor electronic control P.C. board

*Check if the remote controller is exclusive for this air conditioner.



*1 Look at the image of the signal transmitting section of the remote controller through the monitor of a digital camera or a camera phone. It is normal if the LED of the signal transmitting section lights up when the OFF/ON (stop/operate) button on the remote controller is pressed. However, it may be difficult to see the illuminated LED of the signal transmitting section with a smartphone camera.

*2 If the inverter fluorescent light is turned on when the room is cool, the unit may have difficulty receiving the signal from the remote controller or may not be able to operate with it; if the inverter fluorescent light is turned on when the room is warm, the unit may be able to operate with the remote controller.

Ⓒ Check of indoor P.C. board and indoor fan motor

Turn OFF the power supply.
Remove indoor fan motor connector CN211 from indoor power P.C. board and vane motor connector CN151 from the indoor electronic control P.C. board and turn ON the power supply.

Does the unit operate with the remote controller?
Does OPERATION INDICATOR lamp light up by pressing the emergency operation switch?

Yes → Measure the resistance between CN211 ③ and ④ of the indoor fan motor connector. → Short circuit: Replace the indoor fan motor.

Yes → Measure the resistance of the vane motor coil. Refer to 9-5. → Short circuit: Replace the vane motor and the indoor electronic control P.C. board.

No

Turn OFF the power supply.
Check both “parts side” and “pattern side” of the indoor power P.C. board visually.

Are the varistor (NR11) burnt and the fuse (F11) blown?
Yes → Replace the varistor (NR11) and fuse (F11). *3
No

Be sure to check both the fuse and the varistor in any case.

Is the fuse (F11) blown only?
Yes
No

Measure the resistance between CN211 ①(+) and ③(-) of indoor fan motor connector. *1, *2

Is the resistance 1MΩ or more?
No → Replace the fuse (F11) and the indoor fan motor. *3
Yes → Replace the fuse (F11). *3

*1. The fan motor connector's ① lead wire is red, whereas ③ is black.
*2. Connect "+" of the multimeter to fan motor connector's ① lead wire, and “-” to ③ lead wire, otherwise the resistance cannot be measured properly.
*3. Please replace the fuse after removing the indoor power P.C. board from the electrical box.

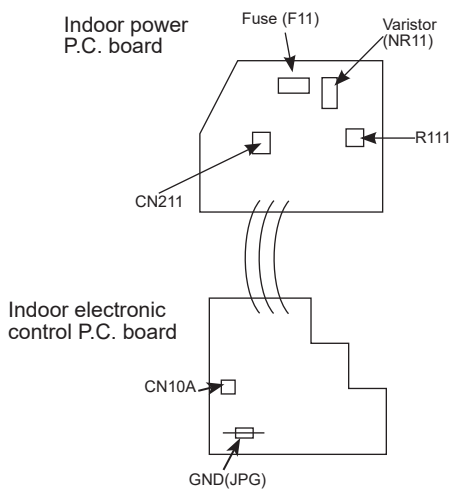
Measure the resistance of resistor (R111) on the indoor power P.C. board.

Is the resistance of resistor (R111) approximately 3.9 Ω ?
No → Replace the indoor power P.C. board and the indoor fan motor.
Yes

Is there approximately 5 V DC between 5 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?
Is there approximately 12 V DC between 12 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?
Yes → Replace the indoor fan motor.
No

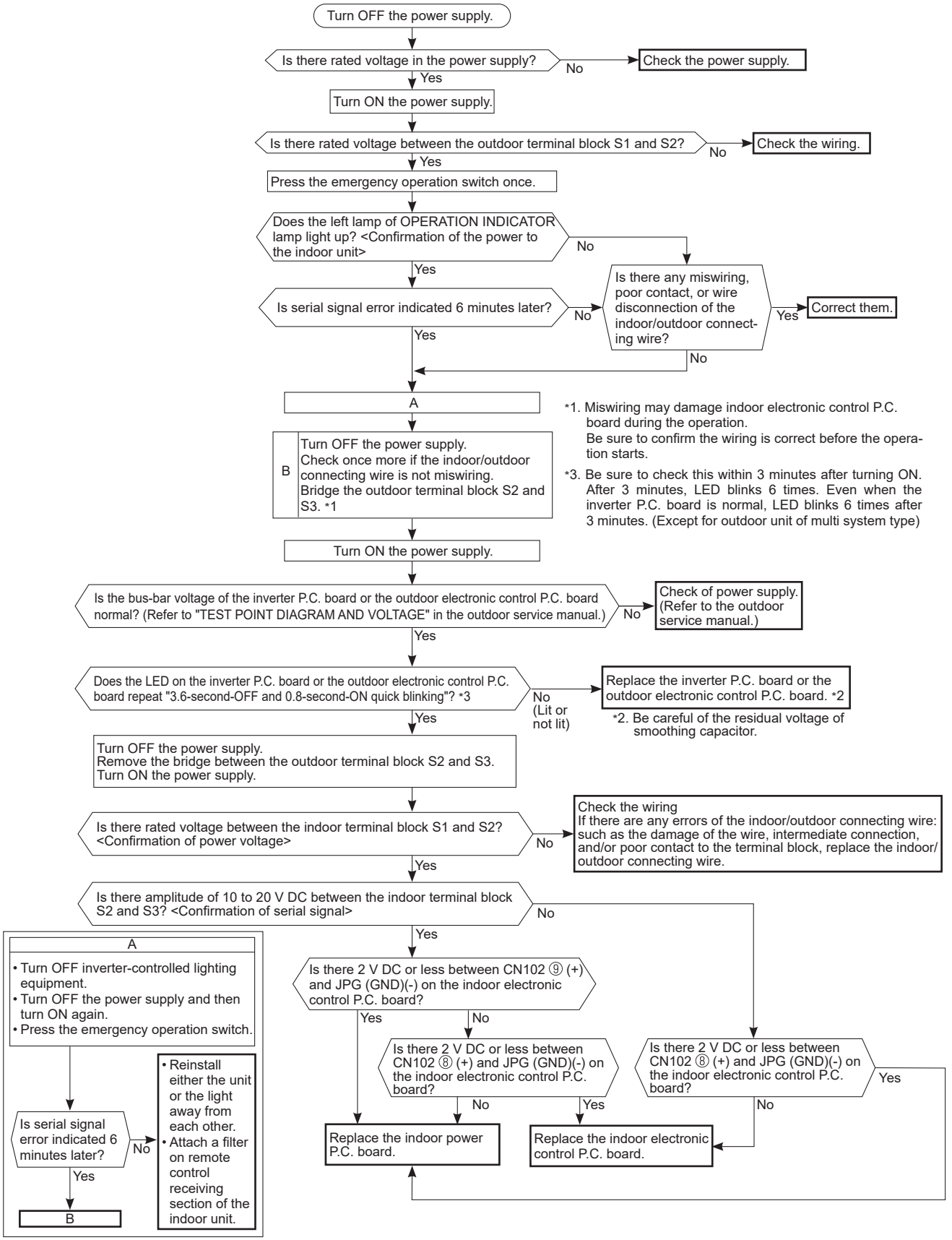
Is connector CN102 on the indoor electronic control P.C. board or lead wires disconnected?
Yes → Connect the connector or repair disconnection.
No

Replace the indoor electronic control P.C. board.



Ⓓ How to check miswiring and serial signal error

NOTE: Refer to the outdoor unit service manual.

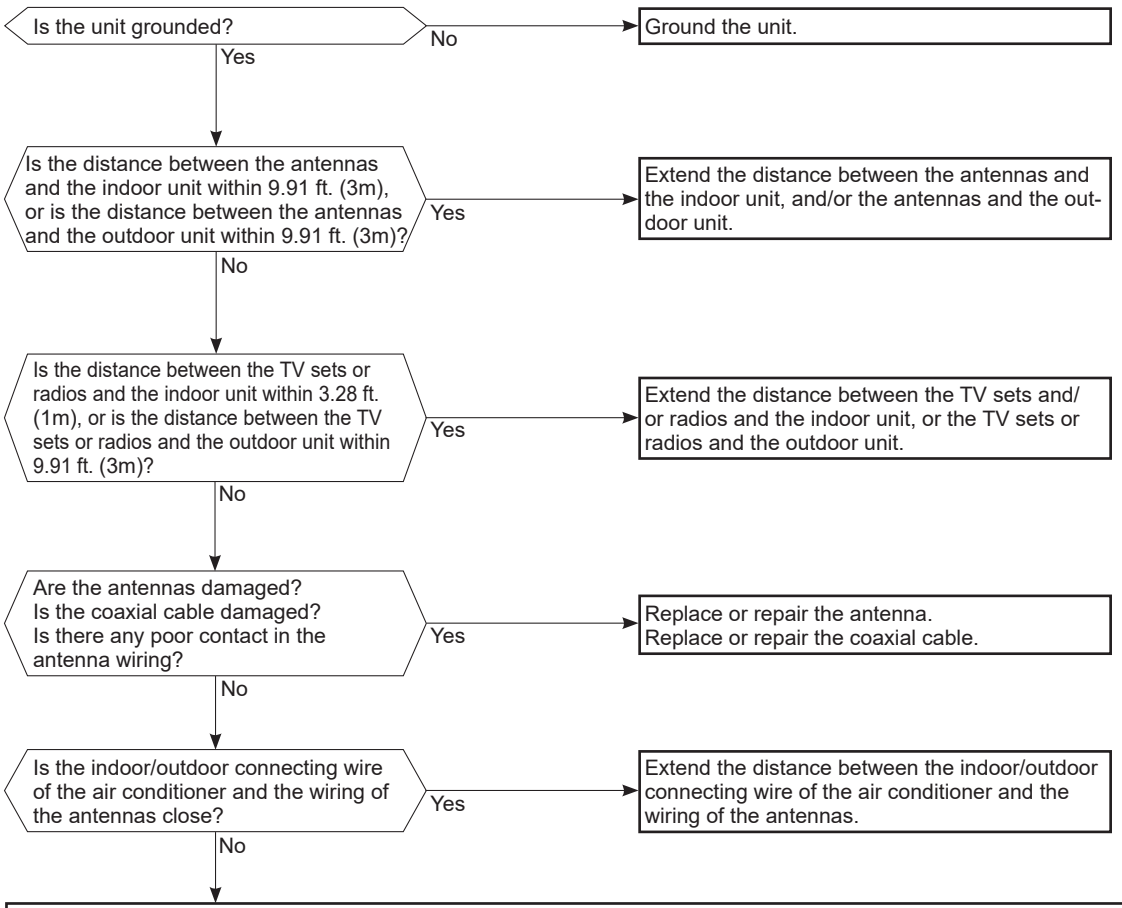


*1. Miswiring may damage indoor electronic control P.C. board during the operation.
Be sure to confirm the wiring is correct before the operation starts.

*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. (Except for outdoor unit of multi system type)

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

Ⓔ Electromagnetic noise enters into TV sets or radios

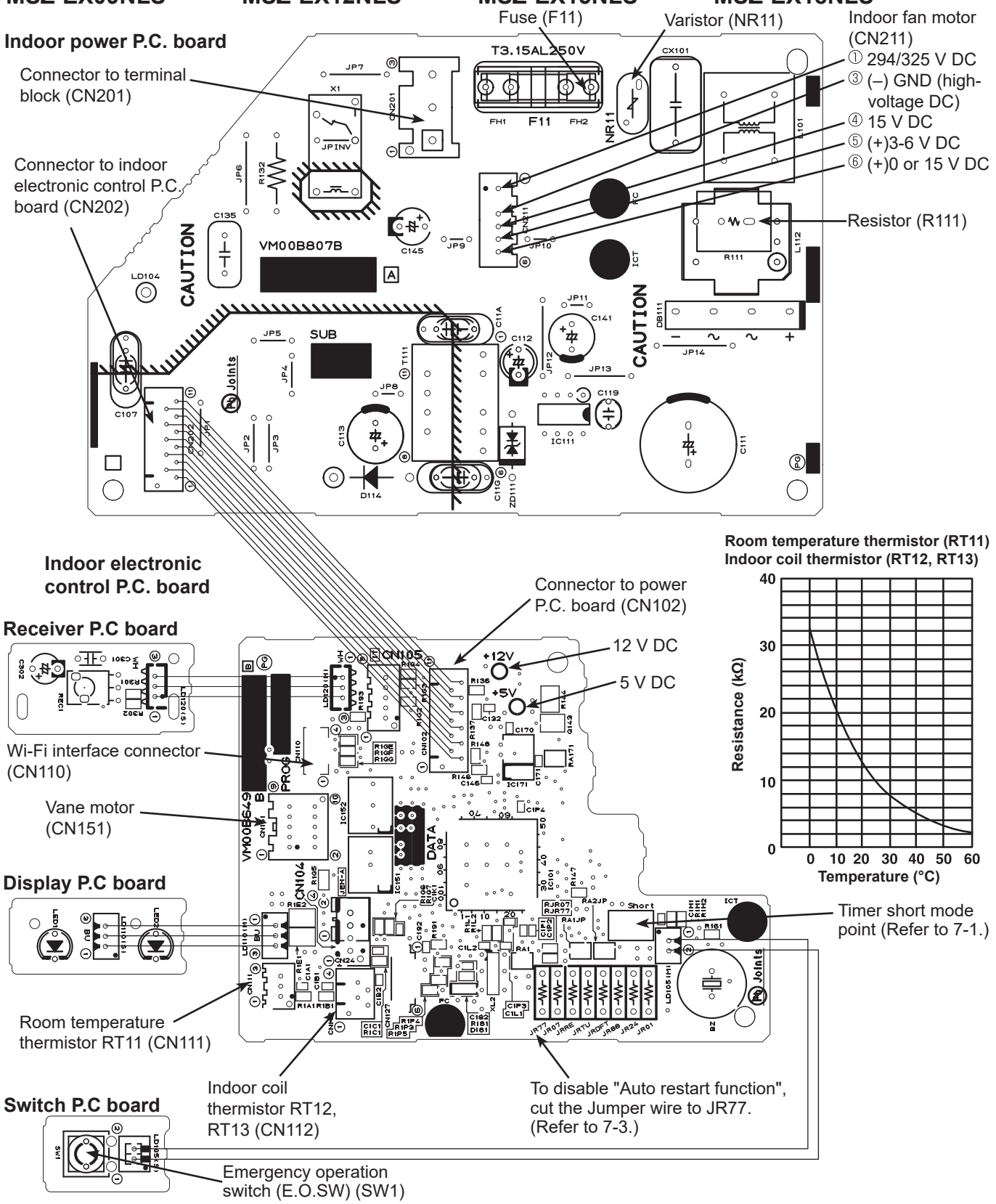


Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the following before asking for service.

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

10-7. TEST POINT DIAGRAM AND VOLTAGE

MSZ-EX09NLW	**MSZ-EX12NLW**	**MSZ-EX15NLW**	**MSZ-EX18NLW**
MSZ-EX09NLB	**MSZ-EX12NLB**	**MSZ-EX15NLB**	**MSZ-EX18NLB**
MSZ-EX09NLS	**MSZ-EX12NLS**	**MSZ-EX15NLS**	**MSZ-EX18NLS**

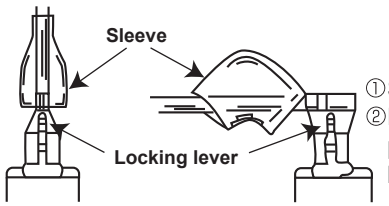


11 DISASSEMBLY INSTRUCTIONS

<Datatching method of the terminal with locking mechanism>

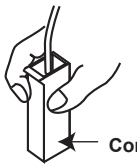
The terminal which has the locking mechanism can be detached as shown below.
There are 2 types of terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

(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 shown below has the locking mechanism.

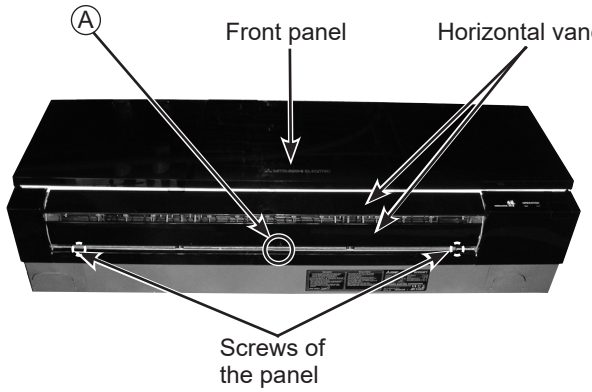


①Hold the sleeve, and pull out the terminal slowly.

11-1. MSZ-EX09NLW MSZ-EX12NLW MSZ-EX15NLW MSZ-EX18NLW
MSZ-EX09NLB MSZ-EX12NLB MSZ-EX15NLB MSZ-EX18NLB
MSZ-EX09NLS MSZ-EX12NLS MSZ-EX15NLS MSZ-EX18NLS

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

NOTE: Turn OFF power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the panel (1) Remove the horizontal vanes. (2) Remove the screw caps of the panel. Remove the screws of the panel. (3) Unhook the lower part (Ⓐ) of the panel. (4) First, hold the lower part of the right end of the panel, and hold the lower part of the left end of the panel. (5) Pull the panel slightly toward you, and then remove the panel by pushing it upward.	**Photo 1** Photo: **MSZ-EX•NLB** 

OPERATING PROCEDURE

2. Remove the indoor electrical box

(1) Remove the panel (Refer to section 1.) and the corner box right.
(2) Remove the screw of the V.A. clamp.
Remove the V.A. clamp and the indoor/outdoor connecting wire.
(3) Remove the ground wire connected to the indoor heat exchanger from the electrical box.
(4) Remove the screw of the electrical cover and remove the electrical cover.
(5) Disconnect following connectors:
<Indoor electronic control P.C. board>
CN151 (Vane motor)
<Indoor power P.C. board>
CN211 (Indoor fan motor)
(6) Remove the screw fixing the electrical box, then the upper catch of the electrical box, and pull out the electrical box.

3. Removing the indoor power P.C. board, the switch board, the display board, the receiver board and the indoor electronic control P.C. board

(1) Remove the panel (Refer to section 1.) and the corner box right.
(2) Remove the screw of the V.A. clamp. Remove the V.A. clamp and the indoor/outdoor connecting wire.
(3) Remove the screw of the conduit cover and the conduit cover. (Photo 3)
(4) Remove the screw of the conduit plate and the conduit plate. (Photo 4)
(5) Remove the screw fixing the electrical box.
(6) Remove the indoor electrical box (Refer to section 2.).
(7) Remove the ground wire connected to the electrical box from the indoor power P.C. board.
(8) Disconnect the following connectors:
<Indoor electronic power P.C. board>
CN201 (Terminal block)
CN202 (To the indoor electronic control P.C. board)
(9) Remove the indoor power P.C. board.
(10) Disconnect the following connectors:
<Indoor electronic control P.C. board>
CN111 (Room temperature thermistor)
CN112 (Indoor coil thermistor)
(11) Unhook the catches of the display P.C. board holder from the nozzle and the electrical box (right side).
(12) Open the rear cover of the display P.C. board holder and remove the switch board, the display board and the receiver board.
Remove the indoor electronic control P.C. board.

PHOTOS/FIGURES

Photo 2

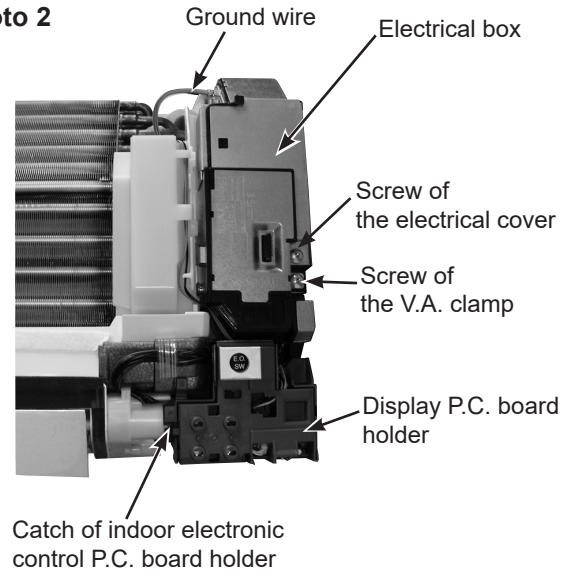


Photo 3

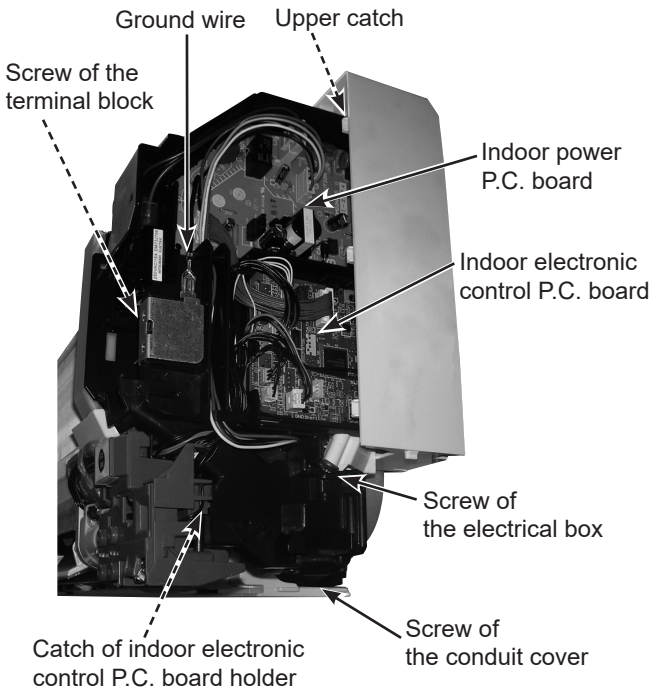
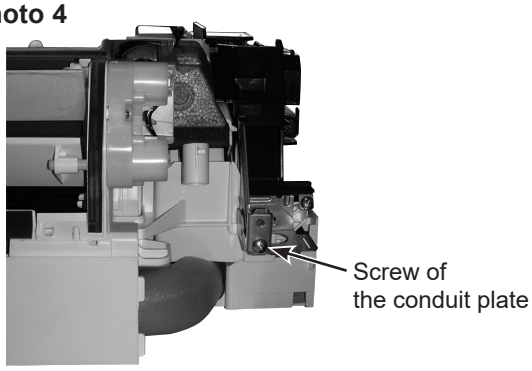
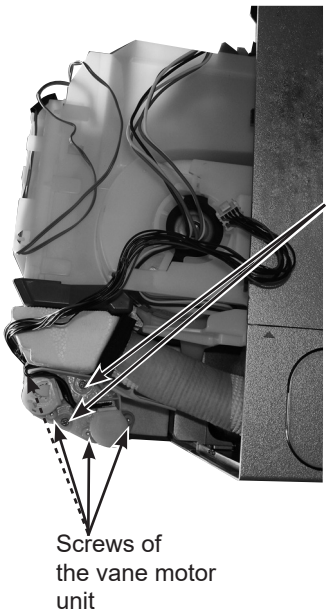


Photo 4



OPERATING PROCEDURE	PHOTOS/FIGURES
4. Removing the nozzle assembly (1) Remove the panel (Refer to section 1.) and the corner box right. (2) Remove the indoor/outdoor connecting wire (Refer to section 2.). (3) Remove the electrical cover (Refer to section 2.). (4) Disconnect the following connector: <Indoor electronic control P.C. board> CN151 (Vane motor) (5) Remove the display P.C. board holder. (6) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly. (7) Remove the vane motors (Refer to section 5.).	**Photo 5** 
5. Removing the horizontal vane motor (1) Remove the nozzle assembly (Refer to section 4.). (2) Remove the screws of the vane motor unit cover, and pull out the vane motor unit (3) Remove the screws of the vane motor unit. (4) Disconnect the connector from the vane motor. (5) Remove the vane motor from the vane motor unit.	

OPERATING PROCEDURE

6. Removing the indoor fan motor, the indoor coil thermistor and the line flow fan

(1) Remove the panel (Refer to section 1.) and the corner box right.
(2) Remove the indoor electronic control P.C. board holder, the electrical box and the nozzle assembly.
(3) Remove the screws fixing the motor bed.
(4) Release the hooks of the water cut and remove the water cut.
(5) Loosen the screw fixing the line flow fan.
(6) Remove the motor bed together with the indoor fan motor and the motor band.
(7) Release the hooks of the motor band and remove the motor band. Pull out the indoor fan motor.
(8) Remove the indoor coil thermistor from the heat exchanger.
* Install the indoor coil thermistor in its former position when assembling it (Photo 6.).
(9) Remove the screws fixing the left side and the upper right side of the heat exchanger (Photo 8, Photo 9).
(10) Lift the heat exchanger, and pull out the line flow fan to the lower-left.

* When attaching the line flow fan, screw the line flow fan so 4 mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

Figure 1

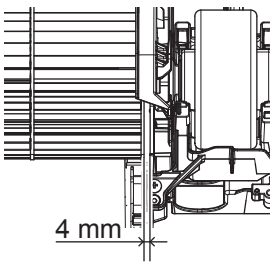
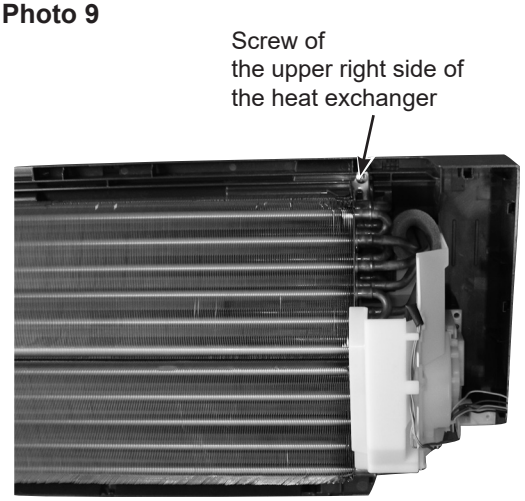


Photo 9



PHOTOS/FIGURES

Photo 6

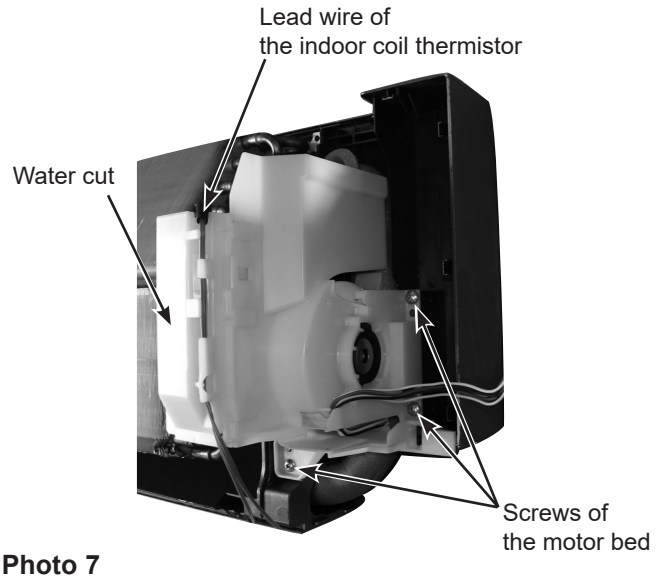


Photo 7

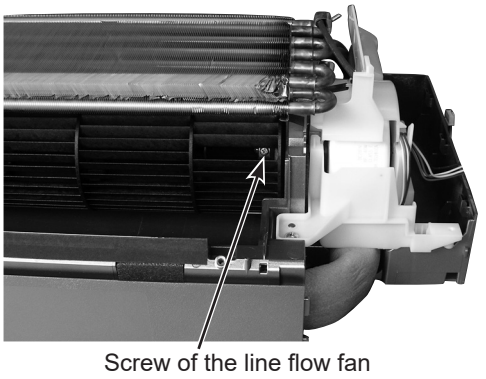
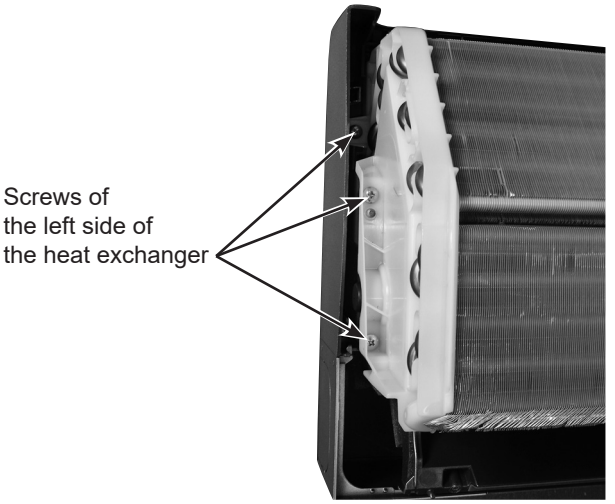


Photo 8



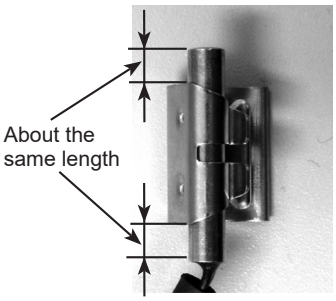
Fixing the indoor coil thermistor

*There are 2 forms of parts for fixing the indoor coil thermistor.

Clip shape

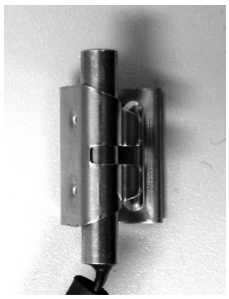
Holder shape

When fixing the indoor coil thermistor to the clip-shape/holder-shape part, the lead wire should point down.



Position and procedure for mounting the clip-shape part

1. Set the indoor coil thermistor in the center of the clip-shape part.



2. Check the (marked) mounting position.

3. Mount the clip-shape part.

NOTE:

- Take care to avoid loss and accidental falling of the clip-shape part inside the unit.
- Mount the clip-shape part on the marked position.
- Do not pull the lead wire when removing the indoor coil thermistor.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

MITSUBISHI ELECTRIC CONSUMER PRODUCTS (THAILAND) CO., LTD.
700/406 MOO 7, TAMBON DON HUA ROH,
AMPHUR MUANG, CHONBURI 20000 THAILAND
Issued: Feb. 2025. No. TBH238 REVISED EDITION-A
Published: Sep. 2024. No. TBH238
Made in Thailand